

# M95 AT Commands Manual

**GSM/GPRS Module Series**

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# About the Document

## Revision History

| Revision | Date       | Author      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------|------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0      | 2011-12-30 | Jean HU     | Initial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1.1      | 2012-03-20 | Vivian WANG | <ol style="list-style-type: none"> <li>Modified flow control</li> <li>Added new parameters for AT+QNITZ/AT+QBAND</li> <li>Added AT commands:<br/>AT+QLTS/AT+QLDTMF/AT+QLTONE/AT+QSFR/AT+QSPCH/AT+QMUXC</li> <li>Deleted fax related commands</li> <li>Deleted AT commands:<br/>AT+QECHO/AT+QSIMDET/AT+QECHOEX/AT+QEAUART/AT+QSEDCB/AT+QSIMSTAT/AT+QTEMP/AT+AUDLOOP/AT+QLOCKF/AT+EGPAU/AT+QTUNBUF/AT+CRSM/AT+QDISP/AT+QCGTIND</li> </ol>                                                                                                    |
| 1.2      | 2013-07-16 | Jelly WANG  | <ol style="list-style-type: none"> <li>Added AT commands:<br/>AT+QSPN/AT+QTRPIN/AT+QISTATE/AT+QISSTAT/AT+QLTONE/AT+QTONEP/AT+QTDMOD/AT+QTONEDET/AT+QWDTMF/AT+QLEDMODE/AT+QALARM/AT+CRSM/AT+CSIM/AT+QCSPWD/AT+QENG/AT+QSCANF/AT+QLOCKF/AT+QTEMP/A/</li> <li>Added new parameters for AT+VTD</li> <li>Added the value range of parameters for AT+CTZU/AT+QIPROMPT/AT+QSCLK/AT+QSMSCODE/AT+QRIMODE/AT+QMIC</li> <li>Modified the description of the AT command:<br/>AT+CSCS/AT+QPOWD/AT+CFUN/AT&amp;D/AT+CPMS/AT+QISSTAT/AT+QISEND</li> </ol> |
| 1.3      | 2013-11-25 | Karen REN   | Added maximum response time to all AT commands.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|     |            |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----|------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.0 | 2014-08-05 | Jessica GENG | Added AT commands: AT+QGSN/AT+CCID                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3.1 | 2014-09-16 | Jessica GENG | <ol style="list-style-type: none"> <li>1. Modified AT command: AT+QSCLK</li> <li>2. Deleted AT commands:<br/>AT+CACM/AT+CAMM/AT+CAOC/AT+CCWE/AT+CPUC/AT+CSIM/AT+CCID</li> <li>3. Added AT commands:<br/>AT+QDSIM/AT+QCOLP/AT+QCLIP</li> </ol>                                                                                                                                                                                                             |
| 3.2 | 2015-11-02 | Anny ZHANG   | <ol style="list-style-type: none"> <li>1. Added AT Commands:<br/>AT+QREFUSECS/AT+QCGTIND/AT+QSIMDET/<br/>AT+QSIMSTAT/AT+CSIM/AT+CCID/</li> <li>2. Updated AT Command: <ul style="list-style-type: none"> <li>● Updated notes for AT+CPBW/AT+COPS/AT+CMUT/AT+CBC</li> <li>● Added new parameter for AT+QTDMOD/AT+QSCLK/AT+QINDI</li> <li>● Updated parameter description for AT+IFC</li> </ul> </li> <li>3. Deleted AT Command:<br/>AT+DR/AT+DS</li> </ol> |
| 3.3 | 2025-01-09 | Allan LIANG  | <ol style="list-style-type: none"> <li>1. Added AT command definitions, responses and the declaration of AT command examples. (Chapters 1.1 &amp; 1.6 &amp; 1.7).</li> <li>2. Updated the types of AT Commands (Table 1).</li> <li>3. Updated the factory Time Server address. (Chapter 11.34).</li> </ol>                                                                                                                                                |

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# 1 Introduction

This document presents the AT Commands Set for Quectel cellular engine M95.

## 1.1. Definitions

- **<CR>** Carriage return character.
- **<LF>** Line feed character.
- **<...>** Parameter name. Angle brackets do not appear on the command line.
- **[...]** Optional parameter of a command or an optional part of TA information response. Square brackets do not appear on the command line. When an optional parameter is not given in a command, the new value equals its previous value or the default settings, unless otherwise specified.
- **Underline** Default setting of a parameter.

## 1.2. AT Command Syntax

The “AT” or “at” prefix must be set at the beginning of each command line. To terminate a command line enter **<CR>**. Commands are usually followed by a response that includes “**<CR><LF><response><CR><LF>**”. Throughout this document, only the responses are presented, “**<CR><LF>**” are omitted intentionally.

The AT Commands Set implemented by M95 is a combination of GSM07.05, GSM07.07 and ITU-T recommendation V.25ter and the AT Commands developed by Quectel.

All these AT Commands can be split into three categories syntactically: “**basic**”, “**S parameter**”, and “**extended**”. They are listed as follows:

- **Basic syntax**

These AT Commands have the format of “**AT<x><n>**”, or “**AT&<x><n>**”, where “**<x>**” is the command, and “**<n>**” is/are the argument(s) for that command. An example of this is “**ATE<n>**”, which tells the DCE whether received characters should be echoed back to the DTE according to the value of “**<n>**”. “**<n>**” is optional and a default will be used if it is missing.

- **S parameter syntax**

These AT Commands have the format of “**ATS**<*n*>=<*m*>”, where “<*n*>” is the index of the **S** register to set, and “<*m*>” is the value to assign to it. “<*m*>” is optional; if it is missing, then a default value is assigned.

- **Extended syntax**

These commands can be operated in several modes, as following table:

**Table 1: Types of AT Commands**

| Command Type      | Syntax                                   | Description                                                                                                              |
|-------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Test Command      | <b>AT</b> +<cmd>=?                       | Test the existence of the corresponding command and return information about the type, value, or range of its parameter. |
| Read Command      | <b>AT</b> +<cmd>?                        | Check the current parameter value of the corresponding command.                                                          |
| Write Command     | <b>AT</b> +<cmd>=<p1>[,<p2>[,<p3>[...]]] | Set user-definable parameter value.                                                                                      |
| Execution Command | <b>AT</b> +<cmd>                         | Return a specific information parameter or perform a specific action.                                                    |

### 1.2.1. Combining AT Commands on the Same Command Line

You can enter several AT Commands on the same line. In this case, you do not need to type the “**AT**” or “**at**” prefix before every command. Instead, you only need to type “**AT**” or “**at**” at the beginning of the command line. Please note that use a semicolon as command delimiter.

The command line buffer can accept a maximum of 256 characters. If the input characters exceeded the maximum, then no command will be executed and TA will return “**ERROR**”.

### 1.2.2. Entering Successive AT Commands on Separate Lines

When you need to enter a series of AT Commands on separate lines, please note that you need to wait the final response (for example OK, CME error, CMS error) of the last AT command you entered before you enter the next AT command.

## 1.3. Supported Character Sets

M95 AT Command interface defaults to the **GSM** character set. M95 supports the following character sets:

- GSM
- UCS2
- HEX
- IRA
- PCCP437
- 8859-1

The character set can be configured and interrogated using the “**AT+CSCS**” command (GSM 07.07). The character set is defined in GSM specification 07.05. The character set affects transmission and reception of SMS and SMS Cell Broadcast Messages, the entry and display of phone book entries text field and SIM Application Toolkit alpha strings.

## **1.4. Flow Control**

Flow control is very important for correct communication between the GSM engine and DTE. For example, in the case such as a data or FAX call, the sending device is transferring data faster than the receiving side is ready to accept. When the receiving buffer reaches its capacity, the receiving device should be capable to cause the sending device to pause until it catches up.

There are basically two approaches to achieve data flow control: software flow control and hardware flow control. M95 supports both two kinds of flow control.

In Multiplex mode, it is recommended to use the hardware flow control.

The default flow control approach of M95 is closed.

### **1.4.1. Software Flow Control (XON/XOFF Flow Control)**

Software flow control sends different characters to stop (XOFF, decimal 19) and resume (XON, decimal 17) data flow. It is quite useful in some applications that only use three wires on the serial interface.

The default flow control approach of M95 is closed, to enable software flow control in the DTE interface and within GSM engine, type the following AT command:

**AT+IFC=1, 1<CR>**

This setting is stored volatile, for use after restart, **AT+IFC=1, 1<CR>** should be stored to the user profile with **AT&W<CR>**.

Ensure that any communication software package (e.g. ProComm Plus, Hyper Terminal or WinFax Pro) uses software flow control.

**NOTE**

Software Flow Control should not be used for data calls where binary data will be transmitted or received (e.g. TCP/IP), because the DTE interface may interpret binary data as flow control characters.

---

### **1.4.2. Hardware Flow Control (RTS/CTS Flow Control)**

The default flow control approach of M95 is closed, to enable hardware flow control (RTS/CTS flow control) in the DTE interface and within GSM engine, type the following AT command:

**AT+IFC=2, 2<CR>.**

This setting is stored volatile, for use after restart, **AT+IFC=2, 2<CR>** should be stored to the user profile with **AT&W<CR>**.

Hardware flow control achieves the data flow control by controlling the RTS/CTS line. When the data transfer should be suspended, the CTS line is set inactive until the transfer from the receiving buffer has completed. When the receiving buffer is ok to receive more data, CTS goes active once again.

To achieve hardware flow control, ensure that the RTS/CTS lines are present on your application platform.

## **1.5. Unsolicited Result Code**

A URC is a report message sent from the ME to the TE. An unsolicited result code can either be delivered automatically when an event occurs, to reflect change in system state or as a result of a query the ME received before, often due to occurrences of errors in executing the queries. However, a URC is not issued as a direct response to an executed AT command. AT commands have their own implementations to validate inputs such as “**OK**” or “**ERROR**”.

Typical URCs may be information about incoming calls, received SMS, changing temperature, status of the battery etc. A summary of URCs is listed in **Appendix**.

When sending a URC, the ME activates its Ring Interrupt (Logic “I”), i.e. the line goes active low for a few milliseconds. If an event which delivers a URC coincides with the execution of an AT command, the URC will be output after command execution has completed.

## 1.6. AT Command Responses

When the AT command processor has finished processing a line, it will output OK, ERROR or **+CME ERROR: <err>** to indicate that it is ready to accept a new command. Solicited information responses are sent before the final **OK**, **ERROR** or **+CME ERROR: <err>**.

Responses will be in the format of:

```
<CR><LF>+CMD1:<parameters><CR><LF>  
<CR><LF>OK<CR><LF>
```

Or

```
<CR><LF><parameters><CR><LF>  
<CR><LF>OK<CR><LF>
```

## 1.7. Declaration of AT Command Examples

The AT command examples in this document are provided to help you learn about the use of the AT commands introduced herein. The examples, however, should not be taken as Quectel's recommendations or suggestions about how to design a program flow or what status to set the module into. Sometimes multiple examples may be provided for one AT command. However, this does not mean that there is a correlation among these examples, or that they should be executed in a given sequence. The URLs, domain names, IP addresses, usernames/accounts, and passwords (if any) in the AT command examples are provided for illustrative and explanatory purposes only, and they should be modified to reflect your actual usage and specific needs.

## 2 General Commands

### 2.1. ATI Display Product Identification Information

#### ATI Display Product Identification Information

|                                 |                                                                                                                                                  |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATI</b> | Response<br>TA issues product information text.<br><br><b>Quectel_Ltd</b><br><b>Quectel_M95</b><br><b>Revision: M95FARxxAxx</b><br><br><b>OK</b> |
| Maximum Response Time           | 300 ms                                                                                                                                           |
| Reference<br>V.25ter            |                                                                                                                                                  |

#### Example

```

ATI
Quectel_Ltd
Quectel_M95
Revision: M95FAR01A01

OK

```

### 2.2. AT+GMI Request Manufacturer Identification

#### AT+GMI Request Manufacturer Identification

|                                    |                                                                                                                  |
|------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+GMI=?</b>    | Response<br><b>OK</b>                                                                                            |
| Execution Command<br><b>AT+GMI</b> | Response<br>TA reports one or more lines of information text which permit the user to identify the manufacturer. |

|                       |                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------|
|                       | <b>Quectel_Ltd</b><br><b>Quectel_M95</b><br><b>Revision: MTK 0828</b><br><br><b>OK</b> |
| Maximum Response Time | 300 ms                                                                                 |
| Reference<br>V.25ter  |                                                                                        |

## 2.3. AT+GMM Request TA Model Identification

| AT+GMM Request TA Model Identification |                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+GMM=?</b>        | Response<br><b>OK</b>                                                                              |
| Execution Command<br><b>AT+GMM</b>     | Response<br>TA returns a product model identification text.<br><b>Quectel_M95</b><br><br><b>OK</b> |
| Maximum Response Time                  | 300 ms                                                                                             |
| Reference<br>V.25ter                   |                                                                                                    |

## 2.4. AT+GMR Request TA Revision Identification of Software Release

| AT+GMR Request TA Revision Identification of Software Release |                                                                                                                                                                                        |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+GMR=?</b>                               | Response<br><b>OK</b>                                                                                                                                                                  |
| Execution Command<br><b>AT+GMR</b>                            | Response<br>TA reports one or more lines of information text which permit the user to identify the revision of software release.<br><b>Revision: &lt;revision&gt;</b><br><br><b>OK</b> |
| Maximum Response Time                                         | 300 ms                                                                                                                                                                                 |
| Reference<br>V.25ter                                          |                                                                                                                                                                                        |

## Parameter

<revision>      Revision of software release

## Example

**AT+GMR**

Revision: M95FAR01A01

OK

## 2.5. AT+GOI    Request Global ObjectIDentification

### AT+GOI    Request Global ObjectIDentification

|                                    |                                                                                                                                                                                                                          |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+GOI=?</b>    | Response<br><b>OK</b>                                                                                                                                                                                                    |
| Execution Command<br><b>AT+GOI</b> | Response<br>TA reports one or more lines of information text which permit the user to identify the device, based on the ISO system for registering unique ObjectIDentifiers.<br><b>&lt;ObjectID&gt;</b><br><br><b>OK</b> |
| Maximum Response Time              | 300 ms                                                                                                                                                                                                                   |
| Reference<br>V.25ter               |                                                                                                                                                                                                                          |

## Parameter

<ObjectID>      Identifier of device type

### NOTE

See **X.208, 209** for the format of **<ObjectID>**. For example, in M95 wireless module, string “M95” is displayed.

## 2.6. AT+CGMI Request Manufacturer Identification

| AT+CGMI Request Manufacturer Identification |                                                                                                                                                    |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGMI=?</b>            | Response<br><b>OK</b>                                                                                                                              |
| Execution Command<br><b>AT+CGMI</b>         | Response<br>TA returns manufacturer identification text.<br><b>Quectel_Ltd</b><br><b>Quectel_M95</b><br><b>Revision: MTK 0828</b><br><br><b>OK</b> |
| Maximum Response Time                       | 300 ms                                                                                                                                             |
| Reference<br>GSM 07.07                      |                                                                                                                                                    |

## 2.7. AT+CGMM Request Model Identification

| AT+CGMM Request Model Identification |                                                                                                    |
|--------------------------------------|----------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGMM=?</b>     | Response<br><b>OK</b>                                                                              |
| Execution Command<br><b>AT+CGMM</b>  | Response<br>TA returns product model identification text.<br><b>&lt;model&gt;</b><br><br><b>OK</b> |
| Maximum Response Time                | 300 ms                                                                                             |
| Reference<br>GSM 07.07               |                                                                                                    |

### Parameter

|                      |                                   |
|----------------------|-----------------------------------|
| <b>&lt;model&gt;</b> | Product model identification text |
|----------------------|-----------------------------------|

## 2.8. AT+CGMR Request TA Revision Identification of Software Release

### AT+CGMR Request TA Revision Identification of Software Release

|                                     |                                                                                                                            |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGMR=?</b>    | Response<br><b>OK</b>                                                                                                      |
| Execution Command<br><b>AT+CGMR</b> | Response<br>TA returns product software version identification text.<br><b>Revision: &lt;revision&gt;</b><br><br><b>OK</b> |
| Maximum Response Time               | 300 ms                                                                                                                     |
| Reference<br>GSM 07.07              |                                                                                                                            |

#### Parameter

**<revision>** Product software version identification text

## 2.9. AT+GSN Request International Mobile Equipment Identity (IMEI)

### AT+GSN Request International Mobile Equipment Identity (IMEI)

|                                    |                                                                                                                                                                                                        |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+GSN=?</b>    | Response<br><b>OK</b>                                                                                                                                                                                  |
| Execution Command<br><b>AT+GSN</b> | Response<br>TA reports the IMEI (International Mobile Equipment Identity) number in information text which permit the user to identify the individual ME device.<br><b>&lt;sn&gt;</b><br><br><b>OK</b> |
| Maximum Response Time              | 300 ms                                                                                                                                                                                                 |
| Reference<br>V.25ter               |                                                                                                                                                                                                        |

#### Parameter

**<sn>** IMEI of the telephone

**NOTE**

The serial number (IMEI) is varied with the individual ME device.

## 2.10. AT+CGSN Request Product Serial Number Identification (Identical with +GSN)

### AT+CGSN Request Product Serial Number Identification (Identical with +GSN)

|                                     |                                                |
|-------------------------------------|------------------------------------------------|
| Test Command<br><b>AT+CGSN=?</b>    | Response<br><b>OK</b>                          |
| Execution Command<br><b>AT+CGSN</b> | Response<br><b>&lt;sn&gt;</b><br><br><b>OK</b> |
| Maximum Response Time               | 300 ms                                         |
| Reference<br>GSM 07.07              |                                                |

**NOTE**

See **AT+GSN**.

## 2.11. AT+QGSN Request Product Serial Number Identification (IMEI)

### AT+QGSN Request Product Serial Number Identification (IMEI)

|                                     |                                                       |
|-------------------------------------|-------------------------------------------------------|
| Test Command<br><b>AT+QGSN=?</b>    | Response<br><b>OK</b>                                 |
| Execution Command<br><b>AT+QGSN</b> | Response<br><b>+QGSN: &lt;sn&gt;</b><br><br><b>OK</b> |
| Maximum Response Time               | 300 ms                                                |
| Reference<br>GSM 07.07              |                                                       |

## Parameter

**<sn>** A string parameter which indicates the IMEI of the telephone

### NOTE

1. The serial number (IMEI) is varied with the individual ME device.
2. See **AT+GSN**.

## Example

```
AT+QGSN           //Query the IMEI
+QGSN: "359231033484583"
```

OK

## 2.12. AT&F Set all Current Parameters to Manufacturer Defaults

### AT&F Set all Current Parameters to Manufacturer Defaults

|                                                     |                                                                                              |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------|
| Execution Command<br><b>AT&amp;F[&lt;value&gt;]</b> | Response<br>TA sets all current parameters to the manufacturer defined profile.<br><b>OK</b> |
| Maximum Response Time                               | 300 ms                                                                                       |
| Reference<br>V.25ter                                |                                                                                              |

## Parameter

**<value>** 0 Set all TA parameters to manufacturer defaults

## 2.13. AT&V Display Current Configuration

### AT&V Display Current Configuration

|                                                 |                                                                                |
|-------------------------------------------------|--------------------------------------------------------------------------------|
| Execution Command<br><b>AT&amp;V[&lt;n&gt;]</b> | Response<br>TA returns the current parameter setting.<br><b>ACTIVE PROFILE</b> |
|-------------------------------------------------|--------------------------------------------------------------------------------|

|                       |                                            |
|-----------------------|--------------------------------------------|
|                       | <current configurations text><br><b>OK</b> |
| Maximum Response Time | 300 ms                                     |
| Reference<br>V.25ter  |                                            |

## Parameter

|     |          |                |
|-----|----------|----------------|
| <n> | <u>0</u> | Profile number |
|-----|----------|----------------|

**Table 2: AT&V Display Current Configuration List**

| AT&V or AT&V0    |
|------------------|
| AT&V             |
| ACTIVE PROFILE   |
| E: 1             |
| Q: 0             |
| V: 1             |
| X: 4             |
| S0: 0            |
| S2: 43           |
| S3: 13           |
| S4: 10           |
| S5: 8            |
| S6: 2            |
| S7: 60           |
| S8: 2            |
| S10: 15          |
| +CR: 0           |
| +FCLASS: 0       |
| +CMGF: 0         |
| +CSDH: 0         |
| +ILRR: 0         |
| +CMEE: 1         |
| +CBST: 7,0,1     |
| +IFC: 0,0        |
| +ICF: 3,3        |
| +CNMI: 2,1,0,0,0 |
| +CSCS: "GSM"     |
| +IPR: 0          |
| &C: 1            |

```

&D: 0
+CSTA: 129
+CRLP: 61,61,128,6,0,3
+CCWE: 0
+QSIMSTAT: 0
+CMUX: -1
+CCUG: 0,10,0
+CLIP: 0
+COLP: 0
+CCWA: 0
+CAOC: 1
+CLIR: 0
+CUSD: 0
+CREG: 0
+QSIMDET: 0,0,0
+QMIC: 4,9,8
+QECHO(NORMAL_AUDIO): 253,96,16388,57351,0
+QECHO(Earphone_AUDIO): 253,0,10756,57351,1
+QECHO(LoudSpk_AUDIO): 224,96,5256,57351,2
+QSIDET(NORMAL_AUDIO): 80
+QSIDET(HEADSET_AUDIO): 144
+QCLIP: 0
+QCOLP: 0
+CSNS: 0
OK

```

## 2.14. AT&W Store Current Parameter to User Defined Profile

### AT&W Store Current Parameter to User Defined Profile

|                                                 |                                                                                               |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Execution Command<br><b>AT&amp;W[&lt;n&gt;]</b> | Response<br>TA stores the current parameter setting in the user defined profile.<br><b>OK</b> |
| Maximum Response Time                           | 300 ms                                                                                        |
| Reference<br>V.25ter                            |                                                                                               |

#### Parameter

**<n>**      0      Profile number to store to

**NOTE**

The profile defined by user is stored in non-volatile memory.

## 2.15. ATQ Set Result Code Presentation Mode

### ATQ Set Result Code Presentation Mode

|                                          |                                                                                                                                                                                                                                     |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATQ&lt;n&gt;</b> | Response<br>This parameter setting determines whether or not the TA transmits any result code to the TE. Information text transmitted in response is not affected by this setting.<br>If <n>=0:<br><b>OK</b><br>If <n>=1:<br>(none) |
| Maximum Response Time                    | 300 ms                                                                                                                                                                                                                              |
| Reference<br>V.25ter                     |                                                                                                                                                                                                                                     |

#### Parameter

|     |   |                                                 |
|-----|---|-------------------------------------------------|
| <n> | 0 | TA transmits result code                        |
|     | 1 | Result codes are suppressed and not transmitted |

## 2.16. ATV TA Response Format

### ATV TA Response Format

|                                                |                                                                                                                                                                                                            |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATV[&lt;value&gt;]</b> | Response<br>This parameter setting determines the contents of the header and trailer transmitted with result codes and information responses.<br>When <value>=0<br><b>0</b><br>When <value>=1<br><b>OK</b> |
| Maximum Response Time                          | 300 ms                                                                                                                                                                                                     |

Reference  
V.25ter

## Parameter

|         |          |                                                                                                         |
|---------|----------|---------------------------------------------------------------------------------------------------------|
| <value> | 0        | Information response: <text><CR><LF><br>Short result code format: <numeric code><CR>                    |
|         | <u>1</u> | Information response: <CR><LF><text><CR><LF><br>Long result code format: <CR><LF><verbose code><CR><LF> |

## NOTE

The result codes, their numeric equivalents and brief descriptions of the use of each are listed in the following table.

## Example

```

ATV1                                     //Set <value>=1
OK
AT+CSQ
+CSQ: 30,0

OK                                     //When <value>=1 result code is OK
ATV0                                     //Set <value>=0
0
AT+CSQ
+CSQ: 30,0
0                                     //When <value>=0 result code is 0

```

**Table 3: ATV0&ATV1 Result Codes Numeric Equivalents and Brief Descriptions**

| ATV1       | ATV0 | Description                                                                                  |
|------------|------|----------------------------------------------------------------------------------------------|
| OK         | 0    | Acknowledges execution of a command                                                          |
| CONNECT    | 1    | A connection has been established; the DCE is moving from command state to online data state |
| RING       | 2    | The DCE has detected an incoming call signal from network                                    |
| NO CARRIER | 3    | The connection has been terminated or the attempt to establish a connection failed           |
| ERROR      | 4    | Command not recognized, command line maximum                                                 |

|                |                       |                                                                                                                                                                            |
|----------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                |                       | length exceeded, parameter value invalid, or other problem with processing the command line                                                                                |
| NO DIALTONE    | 6                     | No dial tone detected                                                                                                                                                      |
| BUSY           | 7                     | Engaged (busy) signal detected                                                                                                                                             |
| NO ANSWER      | 8                     | "@" (Wait for Quiet Answer) dial modifier was used, but remote ringing followed by five seconds of silence was not detected before expiration of the connection timer (S7) |
| PROCEEDING     | 9                     | An AT command is being processed                                                                                                                                           |
| CONNECT <text> | Manufacturer-specific | Same as <b>CONNECT</b> , but includes manufacturer-specific text that may specify DTE speed, line speed, error control, data compression, or other status                  |

## 2.17. ATX Set CONNECT Result Code Format and Monitor Call Progress

### ATX Set CONNECT Result Code Format and Monitor Call Progress

|                                                |                                                                                                                                                                                              |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATX[&lt;value&gt;]</b> | Response<br>This parameter setting determines whether or not the TA detected the presence of dial tone and busy signal and whether or not TA transmits particular result codes.<br><b>OK</b> |
| Maximum Response Time                          | 300 ms                                                                                                                                                                                       |
| Reference<br>V.25ter                           |                                                                                                                                                                                              |

#### Parameter

|                      |   |                                                                                                             |
|----------------------|---|-------------------------------------------------------------------------------------------------------------|
| <b>&lt;value&gt;</b> | 0 | <b>CONNECT</b> result code only returned, dial tone and busy detection are both disabled                    |
|                      | 1 | <b>CONNECT&lt;text&gt;</b> result code only returned, dial tone and busy detection are both disabled        |
|                      | 2 | <b>CONNECT&lt;text&gt;</b> result code returned, dial tone detection is enabled, busy detection is disabled |
|                      | 3 | <b>CONNECT&lt;text&gt;</b> result code returned, dial tone detection is disabled, busy detection is enabled |
|                      | 4 | <b>CONNECT&lt;text&gt;</b> result code returned, dial tone and busy detection are both enabled              |

**NOTE**

1. If parameter is omitted, the command has the same behavior of **ATX0**.
2. The factory default is **<value>=4**.

## 2.18. ATZ Set all Current Parameters to User Defined Profile

### ATZ Set all Current Parameters to User Defined Profile

|                                                |                                                                                      |
|------------------------------------------------|--------------------------------------------------------------------------------------|
| Execution Command<br><b>ATZ[&lt;value&gt;]</b> | Response<br>TA sets all current parameters to the user defined profile.<br><b>OK</b> |
| Maximum Response Time                          | 300 ms                                                                               |
| Reference<br>V.25ter                           |                                                                                      |

#### Parameter

|                      |          |                           |
|----------------------|----------|---------------------------|
| <b>&lt;value&gt;</b> | <u>0</u> | Reset to profile number 0 |
|----------------------|----------|---------------------------|

**NOTE**

1. Profile defined by user is stored in non-volatile memory.
2. If the user profile is invalid, it will default to the factory default profile.
3. Any additional commands on the same command line are ignored.

## 2.19. AT+CFUN Set Phone Functionality

### AT+CFUN Set Phone Functionality

|                                  |                                                                                                                               |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CFUN=?</b> | Response<br><b>+CFUN:</b> (list of supported <b>&lt;fun&gt;s</b> ), (list of supported <b>&lt;rst&gt;s</b> )<br><br><b>OK</b> |
| Read Command<br><b>AT+CFUN?</b>  | Response<br><b>+CFUN:</b> <b>&lt;fun&gt;</b><br><br><b>OK</b>                                                                 |

|                                                           |                                                                                                         |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Write Command<br><b>AT+CFUN=&lt;fun&gt;[,&lt;rst&gt;]</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                     | 15 s, determined by network.                                                                            |
| Reference<br>GSM 07.07                                    |                                                                                                         |

## Parameter

|       |          |                                                                                                       |
|-------|----------|-------------------------------------------------------------------------------------------------------|
| <fun> | 0        | Minimum functionality                                                                                 |
|       | <u>1</u> | Full functionality (Default)                                                                          |
|       | 4        | Disable phone both transmit and receive RF circuits                                                   |
| <rst> | <u>0</u> | Do not reset the ME before setting it to <fun> power level<br>This is default when <rst> is not given |
|       | 1        | Reset the ME before setting it to <fun> power level                                                   |

## Example

```

AT+CFUN=0                                //Switch phone to minimum functionality
+CPIN: NOT READY

OK
AT+COPS?
+COPS: 0                                //No operator is registered

OK
AT+CPIN?
+CME ERROR: 13                          //SIM failure
AT+CFUN=1                                //Switch phone to full functionality
OK

+CPIN: SIM PIN
AT+CPIN=1234
+CPIN: READY

OK

Call Ready
AT+CPIN?
+CPIN: READY

```

```
OK
AT+COPS?
+COPS: 0,0,"CHINA MOBILE"           //Operator is registered
OK
```

## 2.20. AT+QPOWD Power off

### AT+QPOWD Power off

|                                            |                                                                               |
|--------------------------------------------|-------------------------------------------------------------------------------|
| Write Command<br><b>AT+QPOWD=&lt;n&gt;</b> | Response<br>When <n>=0<br><b>OK</b><br>When <n>=1<br><b>NORMAL POWER DOWN</b> |
| Maximum Response Time                      | 300 ms                                                                        |
| Reference                                  |                                                                               |

#### Parameter

|     |   |                                                            |
|-----|---|------------------------------------------------------------|
| <n> | 0 | Urgent power off (Do not send out URC "NORMAL POWER DOWN") |
|     | 1 | Normal power off (Send out URC "NORMAL POWER DOWN")        |

#### Example

```
AT+QPOWD=0
OK           //Urgent power off, returned OK
AT+QPOWD=1
NORMAL POWER DOWN           //Normal power off, send out URC "NORMAL POWER DOWN"
```

## 2.21. AT+CMEE Report Mobile Equipment Error

### AT+CMEE Report Mobile Equipment Error

|                                  |                                                                     |
|----------------------------------|---------------------------------------------------------------------|
| Test Command<br><b>AT+CMEE=?</b> | Response<br><b>+CMEE:</b> (list of supported <n>s)<br><br><b>OK</b> |
|----------------------------------|---------------------------------------------------------------------|

|                                             |                                                                                                                                                                            |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Read Command<br><b>AT+CMEE?</b>             | Response<br><b>+CMEE: &lt;n&gt;</b><br><br><b>OK</b>                                                                                                                       |
| Write Command<br><b>AT+CMEE=[&lt;n&gt;]</b> | Response<br>TA disables or enables the use of result code <b>+CME ERROR: &lt;err&gt;</b> as an indication of an error related to the functionality of the ME.<br><b>OK</b> |
| Maximum Response Time                       | 300 ms                                                                                                                                                                     |
| Reference<br>GSM 07.07                      |                                                                                                                                                                            |

### Parameter

|                  |          |                                           |
|------------------|----------|-------------------------------------------|
| <b>&lt;n&gt;</b> | 0        | Disable result code                       |
|                  | <u>1</u> | Enable result code and use numeric values |
|                  | 2        | Enable result code and use verbose values |

### Example

```

AT+CMEE=0                                //Disable result code
OK
AT+CPIN=1234
ERROR                                    //Only "ERROR" will be displayed
AT+CMEE=1                                //Enable error result code with numeric values
OK
AT+CPIN=1234
+CME ERROR: 10
AT+CMEE=2                                //Enable error result code with verbose (string)
                                         values
OK
AT+CPIN=1234
+CME ERROR: SIM not inserted

```

## 2.22. AT+CSCS Select TE Character Set

### AT+CSCS Select TE Character Set

|                                  |                                                                      |
|----------------------------------|----------------------------------------------------------------------|
| Test Command<br><b>AT+CSCS=?</b> | Response<br><b>+CSCS:</b> (list of supported <b>&lt;chset&gt;</b> s) |
|----------------------------------|----------------------------------------------------------------------|

|                                               |                                                                                                                                                                             |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               | OK                                                                                                                                                                          |
| Read Command<br><b>AT+CSCS?</b>               | Response<br><b>+CSCS: &lt;chset&gt;</b>                                                                                                                                     |
|                                               | OK                                                                                                                                                                          |
| Write Command<br><b>AT+CSCS=&lt;chset&gt;</b> | Response<br>Set character set <b>&lt;chset&gt;</b> which is used by the TE. The TA can then convert character strings correctly between the TE and ME character sets.<br>OK |
| Maximum Response Time                         | 300 ms                                                                                                                                                                      |
| Reference<br>GSM 07.07                        |                                                                                                                                                                             |

## Parameter

|                      |           |                                                                     |
|----------------------|-----------|---------------------------------------------------------------------|
| <b>&lt;chset&gt;</b> | "GSM"     | GSM default alphabet                                                |
|                      | "HEX"     | Character strings consist only of hexadecimal numbers from 00 to FF |
|                      | "IRA"     | International reference alphabet                                    |
|                      | "PCCP437" | PC character set Code                                               |
|                      | "UCS2"    | UCS2 alphabet                                                       |
|                      | "8859-1"  | ISO 8859 Latin 1 character set                                      |

## Example

```

AT+CSCS?                                //Query the current character set
+CSCS: "GSM"

OK
AT+CSCS="UCS2"                          //Set the character set to "UCS2"
OK
AT+CSCS?
+CSCS: "UCS2"

OK

```

## 2.23. AT+GCAP Request Complete TA Capabilities List

| AT+GCAP Request Complete TA Capabilities List |                                                                                                          |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+GCAP=?</b>              | Response<br><b>OK</b>                                                                                    |
| Execution Command<br><b>AT+GCAP</b>           | Response<br>TA reports a list of additional capabilities.<br><b>+GCAP: &lt;name&gt;</b><br><br><b>OK</b> |
| Maximum Response Time                         | 300 ms                                                                                                   |
| Reference<br>V.25ter                          |                                                                                                          |

### Parameter

|        |         |                           |
|--------|---------|---------------------------|
| <name> | +CGSM   | GSM function is supported |
|        | +FCLASS | FAX function is supported |

# 3 Serial Interface Control Commands

## 3.1. AT&C Set DCD Function Mode

| AT&C Set DCD Function Mode                          |                                                                                                                                                              |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>AT&amp;C[&lt;value&gt;]</b> | Response<br>This parameter determines how the state of circuit 109 (DCD) relates to the detection of received line signal from the distant end.<br><b>OK</b> |
| Maximum Response Time                               | 300 ms                                                                                                                                                       |
| Reference<br>V.25ter                                |                                                                                                                                                              |

### Parameter

|                      |          |                                                     |
|----------------------|----------|-----------------------------------------------------|
| <b>&lt;value&gt;</b> | 0        | DCD line is always ON                               |
|                      | <u>1</u> | DCD line is ON only in the presence of data carrier |

## 3.2. AT&D Set DTR Function Mode

| AT&D Set DTR Function Mode                          |                                                                                                                                                              |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>AT&amp;D[&lt;value&gt;]</b> | Response<br>This parameter determines how the TA responds when circuit 108/2(DTR) is changed from the ON to the OFF condition during data mode.<br><b>OK</b> |
| Maximum Response Time                               | 300 ms                                                                                                                                                       |
| Reference<br>V.25ter                                |                                                                                                                                                              |

## Parameter

|         |          |                                                                                                       |
|---------|----------|-------------------------------------------------------------------------------------------------------|
| <value> | <u>0</u> | TA ignores status on DTR                                                                              |
|         | 1        | ON->OFF on DTR: Change to command mode with remaining the connected call                              |
|         | 2        | ON->OFF on DTR: Disconnect data call, change to command mode. During state DTR=OFF auto-answer is off |
|         |          |                                                                                                       |

## 3.3. AT+ICF Set TE-TA Control Character Framing

| AT+ICF Set TE-TA Control Character Framing                     |                                                                                                                                             |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+ICF=?</b>                                | Response<br><b>+ICF:</b> (list of supported <b>&lt;format&gt;s</b> ), (list of supported <b>&lt;parity&gt;s</b> )<br><br><b>OK</b>          |
| Read Command<br><b>AT+ICF?</b>                                 | Response<br><b>+ICF:</b> <b>&lt;format&gt;</b> , <b>&lt;parity&gt;</b><br><br><b>OK</b>                                                     |
| Write Command<br><b>AT+ICF=[&lt;format&gt;,&lt;parity&gt;]</b> | Response<br>This parameter setting determines the serial interface character framing format and parity received by TA from TE.<br><b>OK</b> |
| Maximum Response Time                                          | 300 ms                                                                                                                                      |
| Reference<br>V.25ter                                           |                                                                                                                                             |

## Parameter

|          |          |                        |
|----------|----------|------------------------|
| <format> | 1        | 8 data 0 parity 2 stop |
|          | 2        | 8 data 1 parity 1 stop |
|          | <u>3</u> | 8 data 0 parity 1 stop |
|          | 4        | 7 data 0 parity 2 stop |
|          | 5        | 7 data 1 parity 1 stop |
|          | 6        | 7 data 0 parity 1 stop |
| <parity> | 0        | Odd                    |
|          | 1        | Even                   |
|          | 2        | Mark                   |
|          | <u>3</u> | Space                  |

### NOTE

1. The command is applied for command state.
2. The **<parity>** field is ignored if the **<format>** field specifies no parity.

## 3.4. AT+IFC Set TE-TA Local Data Flow Control

### AT+IFC Set TE-TA Local Data Flow Control

|                                                                      |                                                                                                                                            |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+IFC=?5 seconds</b>                             | Response<br><b>+IFC:</b> (list of supported <b>&lt;dce_by_dte&gt;</b> s), (list of supported <b>&lt;dte_by_dce&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+IFC?</b>                                       | Response<br><b>+IFC:</b> <b>&lt;dce_by_dte&gt;</b> , <b>&lt;dte_by_dce&gt;</b><br><br><b>OK</b>                                            |
| Write Command<br><b>AT+IFC=&lt;dce_by_dte&gt;,&lt;dte_by_dce&gt;</b> | Response<br>This parameter setting determines the data flow control on the serial interface for data mode.<br><b>OK</b>                    |
| Maximum Response Time                                                | 300 ms                                                                                                                                     |
| Reference<br>V.25ter                                                 |                                                                                                                                            |

### Parameter

|                           |                                                                     |
|---------------------------|---------------------------------------------------------------------|
| <b>&lt;dce_by_dte&gt;</b> | Specifies the method will be used by TE when receiving data from TA |
| 0                         | None                                                                |
| 1                         | XON/XOFF, do not pass characters on to data stack                   |
| 2                         | RTS flow control                                                    |
| <b>&lt;dte_by_dce&gt;</b> | Specifies the method will be used by TA when receiving data from TE |
| 0                         | None                                                                |
| 1                         | XON/XOFF                                                            |
| 2                         | CTS flow control                                                    |

### NOTE

This flow control is applied for data mode.

## Example

```
AT+IFC=2,2 //Open the hardware flow control
OK
AT+IFC?
+IFC: 2,2
OK
```

## 3.5. AT+ILRR Set TE-TA Local Data Rate Reporting Mode

### AT+ILRR Set TE-TA Local Data Rate Reporting Mode

|                                                 |                                                                                                                                                                                                                                                             |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+ILRR=?</b>                | Response<br><b>+ILRR:</b> (list of supported <b>&lt;value&gt;</b> s)<br><br><b>OK</b>                                                                                                                                                                       |
| Read Command<br><b>AT+ILRR?</b>                 | Response<br><b>+ILRR:</b> <b>&lt;value&gt;</b><br><br><b>OK</b>                                                                                                                                                                                             |
| Write Command<br><b>AT+ILRR=[&lt;value&gt;]</b> | Response<br>This parameter setting determines whether or not an intermediate result code of local rate is reported when the connection is established. The rate is applied after the final result code of the connection is transmitted to TE.<br><b>OK</b> |
| Maximum Response Time                           | 300 ms                                                                                                                                                                                                                                                      |
| Reference<br>V.25ter                            |                                                                                                                                                                                                                                                             |

## Parameter

|                      |          |                                       |
|----------------------|----------|---------------------------------------|
| <b>&lt;value&gt;</b> | <u>0</u> | Disables reporting of local port rate |
|                      | 1        | Enables reporting of local port rate  |

### NOTE

If the **<value>** is set to 1, the following intermediate result will come out on connection to indicate the port rate settings.

**+ILRR:<rate>**

**<rate>** Port rate setting on call connection in Baud per second

300  
1200  
2400  
4800  
9600  
14400  
19200  
28800  
38400  
57600  
115200

### 3.6. AT+IPR Set TE-TA Fixed Local Rate

#### AT+IPR Set TE-TA Fixed Local Rate

|                                              |                                                                                                                                                                                                                               |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+IPR=?</b>              | Response<br><b>+IPR:</b> (list of supported auto detectable <b>&lt;rate&gt;s</b> ),(list of supported fixed-only <b>&lt;rate&gt;s</b> )<br><br><b>OK</b>                                                                      |
| Read Command<br><b>AT+IPR?</b>               | Response<br><b>+IPR: &lt;rate&gt;</b><br><br><b>OK</b>                                                                                                                                                                        |
| Write Command<br><b>AT+ IPR=&lt;rate&gt;</b> | Response<br>This parameter setting determines the data rate of the TA on the serial interface. After the delivery of any result code associated with the current command line, the rate of command takes effect.<br><b>OK</b> |
| Maximum Response Time                        | 300 ms                                                                                                                                                                                                                        |
| Reference<br>V.25ter                         |                                                                                                                                                                                                                               |

#### Parameter

|                     |                                                             |
|---------------------|-------------------------------------------------------------|
| <b>&lt;rate&gt;</b> | Baud rate per second<br><u>0</u> (Autobauding)<br>75<br>150 |
|---------------------|-------------------------------------------------------------|

---

300  
 600  
 1200  
 2400  
 4800  
 9600  
 14400  
 19200  
 28800  
 38400  
 57600  
 115200

---

#### NOTE

1. The default configuration of **AT+IPR** is adaptive baud enabled (**AT+IPR=0**).
2. If a fixed baud rate is set, make sure that both TE (DTE, usually external processor) and TA (DCE, Quectel GSM module) are configured to the same rate. If adaptive baud is enabled, the TA could automatically recognize the baud rate currently used by the TE after receiving “**AT**” or “**at**” string.
3. The value of **AT+IPR** cannot be restored with **AT&F** and **ATZ**, but it is still storable with **AT&W** and visible in **AT&V**.
4. In multiplex mode, the baud rate cannot be changed by the write command **AT+IPR=<rate>**, and the setting is invalid and not stored even if **AT&W** is executed after the write command.
5. A selected baud rate takes effect after the write commands are executed and acknowledged by “**OK**”.

#### Example

```

AT+IPR=115200                //Set fixed baud rate to 115200

OK

AT&W                          //Store current setting, that is, the serial
                              communication speed is 115200 after restart
                              module

OK

AT+IPR?
+IPR: 115200

OK
  
```

### 3.6.1. Adaptive Baud

To take advantage of adaptive baud mode, specific attention must be paid to the following requirements:

1. Adaptive baud synchronization between TE and TA.
  - Ensure that TE and TA are correctly synchronized and the baud rate used by the TE is detected by the TA. To allow the baud rate to be synchronized simply use an “**AT**” or “**at**” string. This is necessary after customer activates adaptive baud or when customer starts up the module with adaptive baud enabled.
  - It is recommended to wait for 2 to 3 seconds before sending the first “**AT**” or “**at**” string after the module is started up with adaptive baud enabled. Otherwise undefined characters might be returned.
2. Restriction on adaptive baud operation.
  - The serial interface shall be used with 8 data bits, no parity and 1 stop bit (factory setting).
  - The command “**A**” can’t be used.
  - Only the string “**AT**” or “**at**” can be detected (either “**AT**” or “**at**”).
  - URCs that may be issued before the TA detects a new baud rate by receiving the first AT character, and they will be sent at the previously detected baud rate.
  - If TE’s baud rate is changed after TA has recognized the earlier baud rate, loss of synchronization between TE and TA would be encountered and an “**AT**” or “**at**” string must be re-sent by TE to regain synchronization on baud rate. To avoid undefined characters during baud rate resynchronization and the possible malfunction of resynchronization, it is not recommended to switch TE’s baud rate when adaptive baud is enabled. Especially, this operation is forbidden in data mode.
3. Adaptive baud and baud rate after restarting.
  - In the adaptive baud mode, the detected baud rate is not saved. Therefore, resynchronization is required after restarting the module.
  - Unless the baud rate is determined, an incoming CSD call can’t be accepted. This must be taken into account when adaptive baud and auto-answer mode (**ATS0≠0**) are enabled at the same time, especially if SIM PIN 1 authentication is done automatically and the setting **ATS0≠0** is stored to the user profile with **AT&W**.
  - Until the baud rate is synchronized, URCs after restarting will not be output when adaptive baud is enabled.

4. Adaptive baud and multiplex mode.

If adaptive baud is active, it is not recommended to switch to multiplex mode.

5. Adaptive baud and Windows modem.
  - The baud rate used by Windows modem can be detected while setting up a dial-up GPRS/CSD connection. However, some Windows modem drivers switch TE’s baud rate to default value automatically after the GPRS call is terminated. In order to prevent no response to the Windows

modem when it happens, it is not recommended to establish the dial-up GPRS/CSD connection in adaptive baud mode.

- Based on the same considerations, it is also not recommended to establish the FAX connection in adaptive baud mode for PC FAX application, such as WinFax.

**NOTE**

To assure reliable communication and avoid any problem caused by undetermined baud rate between DCE and DTE, it is strongly recommended to configure a fixed baud rate and save it instead of using adaptive baud after start-up.

### 3.7. AT+CMUX Multiplexer Control

| AT+CMUX Multiplexer Control                                                                                                                               |                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CMUX=?</b>                                                                                                                          | Response<br><b>+CMUX:</b> (list of supported <b>&lt;mode&gt;s</b> ), ( <b>&lt;subset&gt;s</b> ), ( <b>&lt;port_speed&gt;s</b> ), ( <b>&lt;N1&gt;s</b> ), ( <b>&lt;T1&gt;s</b> ), ( <b>&lt;N2&gt;s</b> ), ( <b>&lt;T2&gt;s</b> ), ( <b>&lt;T3&gt;s</b> ), ( <b>&lt;k&gt;s</b> )<br><br><b>OK</b> |
| Read Command<br><b>AT+CMUX?</b>                                                                                                                           | Response<br><b>+CMUX:</b> <b>&lt;mode&gt;</b> , <b>0,5,127,10,3,30,10,2</b><br><br><b>OK</b><br><b>ERROR</b>                                                                                                                                                                                    |
| Write Command<br><b>AT+CMUX=[&lt;mode&gt;,&lt;subset&gt;,&lt;port_speed&gt;,&lt;N1&gt;,&lt;T1&gt;,&lt;N2&gt;,&lt;T2&gt;,&lt;T3&gt;,&lt;k&gt;]]]]]]]]]</b> | Response<br><b>+CME ERROR: &lt;err&gt;</b>                                                                                                                                                                                                                                                      |
| Maximum Response Time                                                                                                                                     | 300 ms                                                                                                                                                                                                                                                                                          |
| Reference<br>GSM 07.07                                                                                                                                    |                                                                                                                                                                                                                                                                                                 |

#### Parameter

|                           |                                                                                             |
|---------------------------|---------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b>       | Multiplexer transparency mechanism<br><u>0</u> Basic option                                 |
| <b>&lt;subset&gt;</b>     | The way by which the multiplexer control channel is set up<br><u>0</u> UIH frames used only |
| <b>&lt;port_speed&gt;</b> | Transmission rate                                                                           |

---

|      |            |                                                                                  |
|------|------------|----------------------------------------------------------------------------------|
|      | <u>5</u>   | 115200 bit/s                                                                     |
| <N1> |            | Maximum frame size                                                               |
|      | <u>127</u> |                                                                                  |
| <T1> |            | Acknowledgement timer in a unit of ten milliseconds                              |
|      | <u>10</u>  |                                                                                  |
| <N2> |            | Maximum number of re-transmissions                                               |
|      | <u>3</u>   |                                                                                  |
| <T2> |            | Response timer for the multiplexer control channel in a unit of ten milliseconds |
|      | <u>30</u>  |                                                                                  |
| <T3> |            | Wake up response timers in seconds                                               |
|      | <u>10</u>  |                                                                                  |
| <k>  |            | Window size, for Advanced operation with Error Recovery options                  |
|      | <u>2</u>   |                                                                                  |

---

**NOTE**

1. Advanced option with Error Recovery options is not supported.
2. The multiplexing transmission rate is fixed according to the current serial baud rate. It is recommended to enable multiplexing protocol under 115200 bit/s baudrate.
3. Multiplexer control channels are listed as follows:

| Channel Number | Type                | DLCI |
|----------------|---------------------|------|
| None           | Multiplexer Control | 0    |
| 1              | 07.07 and 07.05     | 1    |
| 2              | 07.07 and 07.05     | 2    |
| 3              | 07.07 and 07.05     | 3    |
| 4              | 07.07 and 07.05     | 4    |

---

# 4 Status Control Commands

## 4.1. AT+CEER Extended Error Report

| AT+CEER Extended Error Report       |                                                                                                                                                       |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CEER=?</b>    | Response<br><b>OK</b>                                                                                                                                 |
| Execution Command<br><b>AT+CEER</b> | Response<br>TA returns an extended report of the reason for the last call release.<br><b>+CEER: &lt;locationID&gt;,&lt;cause&gt;</b><br><br><b>OK</b> |
| Maximum Response Time               | 300 ms                                                                                                                                                |
| Reference<br>GSM 07.07              |                                                                                                                                                       |

### Parameter

|                           |                                                                                                                                                                                                            |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;locationID&gt;</b> | Location ID as number code. Location IDs are listed in Section 8.3.1. Each ID is related with another table that contains a list of <b>&lt;cause&gt;</b> s.                                                |
| <b>&lt;cause&gt;</b>      | Reason for last call release as number code. The number codes are listed in several tables, sorted by different categories. The tables can be found proceeding from the Location ID given in Section 8.3.1 |

### Example

```

AT+CEER                                     //Query error reporting in normal state, return "No error"
+CEER: 0,0

OK
ATD10086;
OK
AT+CLCC
+CLCC: 1,0,0,0,0,"10086",129,""

```

OK

NO CARRIER

AT+CEER

//Established a call and the remote party hangs up the call  
 //Query error reporting, the <locationID>=1 means "Cause for protocol stack (PS) layer", <cause>=16 means "Normal call clearing"

+CEER: 1,16

OK

## 4.2. AT+CPAS Mobile Equipment Activity Status

### AT+CPAS Mobile Equipment Activity Status

Test Command

AT+CPAS=?

Response

+CPAS: (list of supported <pas>s)

OK

Execution Command

AT+CPAS

Response

TA returns the activity status of ME.

+CPAS: <pas>

OK

If error is related to ME functionality:

+CME ERROR: <err>

Maximum Response Time

300 ms

Reference

GSM 07.07

### Parameter

|       |   |                                                           |
|-------|---|-----------------------------------------------------------|
| <pas> | 0 | Ready                                                     |
|       | 2 | Unknown (ME is not guaranteed to respond to instructions) |
|       | 3 | Ringing                                                   |
|       | 4 | Call in progress or call hold                             |

### Example

AT+CPAS

+CPAS: 0

//Module is idle

```

OK
ATD10086;
OK
AT+CLCC
+CLCC: 1,0,3,0,0,"10086",129,""

OK
AT+CPAS
+CPAS: 3                                //Module is incoming call (ringing)

OK
AT+CLCC
+CLCC: 1,0,0,0,0,"10086",129,""

OK
AT+CPAS
+CPAS: 4                                //Call in progress

OK

```

### 4.3. AT+QINDRI Indicate RI When Using URC

| AT+QINDRI Indicate RI When Using URC             |                                                                            |
|--------------------------------------------------|----------------------------------------------------------------------------|
| Test Command<br><b>AT+QINDRI=?</b>               | Response<br><b>+QINDRI:</b> (list of supported <status>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QINDRI?</b>                | Response<br><b>+QINDRI:</b> <status><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QINDRI=&lt;status&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                      |
| Maximum Response Time                            | 300 ms                                                                     |
| Reference                                        |                                                                            |

## Parameter

|          |   |     |
|----------|---|-----|
| <status> | 0 | Off |
|          | 1 | On  |

## 4.4. AT+QMOSTAT Show State of Mobile Originated Call

### AT+QMOSTAT Show State of Mobile Originated Call

|                                                 |                                                                           |
|-------------------------------------------------|---------------------------------------------------------------------------|
| Test Command<br><b>AT+QMOSTAT=?</b>             | Response<br><b>+QMOSTAT:</b> (list of supported <mode>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QMOSTAT?</b>              | Response<br><b>+QMOSTAT:</b> <mode><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QMOSTAT=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                     |
| Maximum Response Time                           | 300 ms                                                                    |
| Reference                                       |                                                                           |

## Parameter

|        |   |                                                                                                                                                                                                                                            |
|--------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <mode> | 0 | Do not show call state of mobile originated call                                                                                                                                                                                           |
|        | 1 | Show call state of mobile originated call. After dialing call numbers, the URC strings of <b>MO RING</b> will be sent if the other call side is alerted and the URC strings of <b>MO CONNECTED</b> will be sent if the call is established |

## Example

```

AT+QMOSTAT=1           //Show call state of mobile originated call
OK
ATD10086;
OK

MO RING                //The other call side is alerted

MO CONNECTED           //The call is established

```

## 4.5. AT+QREFUSECS Configure Refuse Received SMS or Incoming CALL

| AT+QREFUSECS Configure Refuse Received SMS or Incoming CALL                   |                                                                                                                        |
|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QREFUSECS=?</b>                                         | Response<br><b>+QREFUSECS:</b> (list of supported <refuse_sms>s)[,(list of supported <refuse_call>s)]<br><br><b>OK</b> |
| Read Command<br><b>AT+QREFUSECS?</b>                                          | Response<br><b>+QREFUSECS:</b> <refuse_sms>,<refuse_call><br><br><b>OK</b>                                             |
| Write Command<br><b>AT+QREFUSECS=&lt;refuse_sms&gt;[,&lt;refuse_call&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                                                  |
| Maximum Response Time                                                         | 300 ms                                                                                                                 |
| Reference<br>Quectel                                                          |                                                                                                                        |

### Parameter

|               |   |                                   |
|---------------|---|-----------------------------------|
| <refuse_sms>  | 0 | Received the new SMS              |
|               | 1 | Refuse received the new SMS       |
| <refuse_call> | 0 | Received the incoming call        |
|               | 1 | Refuse received the incoming call |

## 4.6. AT+QIURC Enable or Disable Initial URC Presentation

| AT+QIURC Enable or Disable Initial URC Presentation |                                                                         |
|-----------------------------------------------------|-------------------------------------------------------------------------|
| Test Command<br><b>AT+QIURC=?</b>                   | Response<br><b>+QIURC:</b> (list of supported <mode>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QIURC?</b>                    | Response<br><b>+QIURC:</b> <mode><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QIURC=&lt;mode&gt;</b>       | Response<br><b>OK</b>                                                   |

|                       |        |
|-----------------------|--------|
|                       | ERROR  |
| Maximum Response Time | 300 ms |
| Reference             |        |

#### Parameter

|                     |          |                          |
|---------------------|----------|--------------------------|
| <b>&lt;mode&gt;</b> | 0        | Disable URC presentation |
|                     | <u>1</u> | Enable URC presentation  |

#### NOTE

When the module powers on and initialization procedure is over. URC "Call Ready" will be presented if **<mode>** is 1.

## 4.7. AT+QEXTUNSOL Enable/Disable Proprietary Unsolicited

### Indications

#### AT+QEXTUNSOL Enable/Disable Proprietary Unsolicited Indications

|                                                                   |                                                                                               |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QEXTUNSOL=?</b>                             | Response<br><b>+QEXTUNSOL:</b> (list of supported <b>&lt;extunsol&gt;</b> s)<br><br><b>OK</b> |
| Write Command<br><b>AT+QEXTUNSOL=&lt;exunsol&gt;,&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                         |
| Maximum Response Time                                             | 300 ms                                                                                        |
| Reference                                                         |                                                                                               |

#### Parameter

|                         |                                                                                                                                                                            |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;extunsol&gt;</b> | String type. Values currently reserved by the present document                                                                                                             |
| "SQ"                    | Signal Quality Report. Displays signal strength and channel bit error rate (similar to <b>AT+CSQ</b> ) in form <b>+CSQN: &lt;rssi&gt;, &lt;ber&gt;</b> when values change. |
| "FN"                    | Forbidden network available only. When returning to a non-registered state, this indicates whether all the available PLMNs are forbidden.                                  |
| "MW"                    | SMS Message waiting. On receiving an SMS (as indicated by the <b>+CMTI</b>                                                                                                 |

indication) the SMS is decoded and checked to see if it contains one or more of the message waiting indications (i.e. voicemail, email, fax etc). If so, an unsolicited indication is shown in the form for each message type:

**+QMWT:** **<store>,<index>,<voice>,<fax>,<email>,<other>.** Where **<store>** is the message store containing the SM, index is the message index and **<voice>**, **<email>**, **<fax>**, **<other>** contain the number of waiting messages (with '0' defined as clear indication, non-zero for one or more waiting messages) or blank for not specified in this message.

"UR" Unsolicited result code. Produces an unsolicited indication in the following call state transition. Multiple notifications may occur for the same transition **+QGURC:** **<event>.** Where **<event>** describes the current call state:

**<event>:**

- 0 Terminated active call, at least one held call remaining
- 1 Attempt to make a Mobile Originated call
- 2 Mobile Originated Call has failed for some reason
- 3 Mobile Originated call is ringing
- 4 Mobile Terminated call is queued (Call waiting)
- 5 Mobile Originated Call now has been connected
- 6 Mobile Originated or Mobile Terminated call has been disconnected
- 7 Mobile Originated or Mobile Terminated call hung up.
- 8 Mobile Originated call dialed a non-emergency number in emergency mode
- 9 No answer for Mobile Originated Call
- 10 Remote number busy for Mobile Originated Call

"BC" Battery Charge. Displays battery connection status and battery charge level (similar to **AT+CBC**) in form **+CBCN:<bcs>,<bcl>** when values change.

"BM" Band mode. Displays band mode (similar to **AT+QBAND**) in form **+QBAND:<band>** when value changes.

"SM" Additional SMS Information. Displays additional information about SMS events in the form of Unsolicited messages of the following format **+TSMSINFO: <CMS error info>** where **<CMS error info>** is a standard CMS error in the format defined by the **AT+CMEE** command i.e. either a number or a string.

"CC" Call information. Displays the disconnected call ID and the remaining call numbers after one of the call is disconnected. **+CCINFO: <Call id disconnected>,<Remain calls>**

|                     |          |         |
|---------------------|----------|---------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Disable |
|                     | 1        | Enable  |
|                     | 2        | Query   |

## 4.8. AT+QINISTAT Query State of Initialization

| AT+QINISTAT Query State of Initialization |                                                              |
|-------------------------------------------|--------------------------------------------------------------|
| Test Command<br><b>AT+QINISTAT=?</b>      | Response<br><b>OK</b>                                        |
| Execution Command<br><b>AT+QINISTAT</b>   | Response<br><b>+QINISTAT: &lt;state&gt;</b><br><br><b>OK</b> |
| Maximum Response Time                     | 300 ms                                                       |
| Reference                                 |                                                              |

### Parameter

|                      |   |                                       |
|----------------------|---|---------------------------------------|
| <b>&lt;state&gt;</b> | 0 | No initialization                     |
|                      | 1 | Ready to execute AT command           |
|                      | 2 | Phonebook has finished initialization |
|                      | 3 | SMS has finished initialization       |

### NOTE

When **<state>** is 3, it also means initialization of SIM card related functions has finished.

## 4.9. AT+QNSTATUS Query GSM Network Status

| AT+QNSTATUS Query GSM Network Status    |                                                                                                                                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QNSTATUS=?</b>    | Response<br><b>OK</b>                                                                                                                           |
| Execution Command<br><b>AT+QNSTATUS</b> | Response<br><b>+QNSTATUS: &lt;status&gt;</b><br><br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                   | 300 ms                                                                                                                                          |

Reference

## Parameter

|          |     |                                      |
|----------|-----|--------------------------------------|
| <status> | 255 | Not ready to retrieve network status |
|          | 0   | Work in normal state                 |
|          | 1   | No available cell                    |
|          | 2   | Only limited service is available    |

## 4.10. AT+QNITZ Network Time Synchronization

### AT+QNITZ Network Time Synchronization

|                                                 |                                                                                                         |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QNITZ=?</b>               | Response<br><b>+QNITZ:</b> (list of supported <enable>s)<br><br><b>OK</b>                               |
| Read Command<br><b>AT+QNITZ?</b>                | Response<br><b>+QNITZ:</b> <enable><br><br><b>OK</b>                                                    |
| Write Command<br><b>AT+QNITZ=&lt;enable&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                           | 300 ms                                                                                                  |
| Reference                                       |                                                                                                         |

## Parameter

|                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <enable>                                                                                                                                                  | 0                                                                                                                                                                                                                                                                                                                     | Disable to synchronize time from GSM network |
|                                                                                                                                                           | 1                                                                                                                                                                                                                                                                                                                     | Enable to synchronize time from GSM network  |
| If the function is enabled, on receiving network time message, an unsolicited indication is shown in the form: " <b>+QNITZ: &lt;time&gt;,&lt;ds&gt;</b> " |                                                                                                                                                                                                                                                                                                                       |                                              |
| <time>                                                                                                                                                    | String type value. Format is "yy/MM/dd,hh:mm:ss±zz,ds", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range: -47...+48). E.g. 6th of May 2004, 22:10:00 GMT+2 hours |                                              |
| <ds>                                                                                                                                                      | Daylight Saving Time. It is zero equal to "04/05/06,22:10:00+08,0"                                                                                                                                                                                                                                                    |                                              |

**NOTE**

This function needs support of local GSM network. And the unsolicited also can be read by **AT+QLTS** command later.

## 4.11. AT+QLTS Obtain Latest Network Time Synchronized

### AT+QLTS Obtain Latest Network Time Synchronized

|                                     |                                                                                                                                                                                                                            |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QLTS=?</b>    | Response<br><b>OK</b>                                                                                                                                                                                                      |
| Execution Command<br><b>AT+QLTS</b> | Response<br><b>+QLTS: &lt;time&gt;,&lt;ds&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b><br><br>Execution Command returns latest time for Network synchronization. |
| Maximum Response Time               | 300 ms                                                                                                                                                                                                                     |
| Reference                           |                                                                                                                                                                                                                            |

#### Parameter

|                     |                                                                                                                                                                                                                                                                                                                     |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;time&gt;</b> | String type value. Format is "yy/MM/dd,hh:mm:ss±zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range: -47...+48). E.g. 6th of May 2004, 22:10:00 GMT+2 hours. |
| <b>&lt;ds&gt;</b>   | Daylight Saving Time. It is zero equals to "04/05/06,22:10:00+08,0"                                                                                                                                                                                                                                                 |

## 4.12. AT+CTZU Network Time Synchronization and Update the RTC

### Time

### AT+CTZU Network Time Synchronization and Update the RTC Time

|                                  |                                                             |
|----------------------------------|-------------------------------------------------------------|
| Test Command<br><b>AT+CTZU=?</b> | Response<br><b>+CTZU: (list of supported &lt;mode&gt;s)</b> |
|----------------------------------|-------------------------------------------------------------|

|                                              |                                                                            |
|----------------------------------------------|----------------------------------------------------------------------------|
|                                              | OK                                                                         |
| Read Command<br><b>AT+CTZU?</b>              | Response<br><b>+CTZU: &lt;mode&gt;</b>                                     |
|                                              | OK                                                                         |
| Write Command<br><b>AT+CTZU=&lt;mode&gt;</b> | Response<br><b>OK</b>                                                      |
|                                              | If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                        | 300 ms                                                                     |
| Reference                                    |                                                                            |

### Parameter

|                     |          |                                                                                                |
|---------------------|----------|------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Disable automatic update RTC time via NITZ.                                                    |
|                     | 1        | Update network synchronized time to RTC and save time zone into NVRAM.                         |
|                     | 2        | Update GMT time with time zone to RTC, save time zone into NVRAM, ignore daylight saving time. |
|                     | 3        | Update localized time and time zone to RTC, and save time zone into NVRAM.                     |
|                     | 4        | Same with <b>&lt;mode&gt;=2</b>                                                                |

### NOTE

This function needs support of local GSM network. After setting the **AT+CTZU**, the value will be automatically saved into flash. After the module is restarted, it can also take effect.

## 4.13. AT+CTZR Network Time Synchronization Report

### AT+CTZR Network Time Synchronization Report

|                                  |                                                             |
|----------------------------------|-------------------------------------------------------------|
| Test Command<br><b>AT+CTZR=?</b> | Response<br><b>+CTZR: (list of supported &lt;mode&gt;s)</b> |
|                                  | OK                                                          |
| Read Command<br><b>AT+CTZR?</b>  | Response<br><b>+CTZR: &lt;mode&gt;</b>                      |
|                                  | OK                                                          |

|                                              |                                                                                                         |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Write Command<br><b>AT+CTZR=&lt;mode&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                        | 300 ms                                                                                                  |
| Reference                                    |                                                                                                         |

### Parameter

|                     |          |                                                                                                                    |
|---------------------|----------|--------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Disable time zone change event reporting                                                                           |
|                     | 1        | Enable time zone change event reporting by unsolicited result code <b>+CTZV: &lt;tz&gt;</b>                        |
|                     | 2        | Enable extended time zone reporting by unsolicited result code <b>+CTZE: &lt;tz&gt;,&lt;dst&gt;,[&lt;time&gt;]</b> |

### NOTE

This function needs support of local GSM network. After setting the **AT+CTZU**, the value will be automatically saved into flash. After the module is restarted, it can take effect.

## 4.14. AT+QSIMDET Switch on or off Detecting SIM Card

### AT+QSIMDET Switch on or off Detecting SIM Card

|                                                                                           |                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QSIMDET=?</b>                                                       | Response<br><b>+QSIMDET:</b> (list of supported <b>&lt;enable&gt;</b> s), (list of supported <b>&lt;insert_level&gt;</b> s), (list of supported <b>&lt;pin_choice&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QSIMDET?</b>                                                        | Response<br><b>+QSIMDET:</b> <b>&lt;enable&gt;</b> , <b>&lt;insert_level&gt;</b> , <b>&lt;pin_choice&gt;</b><br><br><b>OK</b>                                                                 |
| Write Command<br><b>AT+QSIMDET=&lt;enable&gt;,&lt;insert_level&gt;,&lt;pin_choice&gt;</b> | Response<br><b>OK</b><br><b>+CME ERROR: &lt;err&gt;</b>                                                                                                                                       |
| Maximum Response Time                                                                     | 300 ms                                                                                                                                                                                        |
| Reference                                                                                 |                                                                                                                                                                                               |

## Parameter

|                             |                                                      |
|-----------------------------|------------------------------------------------------|
| <b>&lt;enable&gt;</b>       | Configure whether to open the SIM detection function |
| 0                           | Switch off                                           |
| 1                           | Switch on                                            |
| <b>&lt;insert_level&gt;</b> | Configure Pin level when SIM card inserted           |
| 0                           | Low level                                            |
| 1                           | High level                                           |
| <b>&lt;pin_choice&gt;</b>   | Configuration SIM card detection pin                 |
| 0                           | Configure SIM_PRESENCE as SIM card detection pin     |
| 1                           | Configure DTR as SIM card detection pin              |

### NOTE

1. This command can be saved by **AT&W**.
2. The pin of SIM\_PRESENCE and DTR are multiplexed in M95, and M95 only supports DTR pin as SIMCARD detection pin. If turn on the SIM detection function, **<pin\_choice>** must be 1 in M95.

## 4.15. AT+QSIMSTAT SIM Inserted Status Reporting

### AT+QSIMSTAT SIM Inserted Status Reporting

|                                                    |                                                                                                     |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QSIMSTAT=?</b>               | Response<br><b>+QSIMSTAT:</b> (list of supported <b>&lt;enable&gt;</b> s)<br><br><b>OK</b>          |
| Read Command<br><b>AT+QSIMSTAT?</b>                | Response<br><b>+QSIMSTAT:</b> <b>&lt;enable&gt;</b> , <b>&lt;insert_status&gt;</b><br><br><b>OK</b> |
| Write Command<br><b>AT+QSIMSTAT=&lt;enable&gt;</b> | Response<br><b>OK</b><br><b>+CME ERROR: &lt;err&gt;</b>                                             |
| Maximum Response Time                              | 300 ms                                                                                              |
| Reference                                          |                                                                                                     |

## Parameter

|                       |                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>&lt;enable&gt;</b> | Indicates whether to show an unsolicited event code that indicates whether the SIM has just been inserted or removed |
|-----------------------|----------------------------------------------------------------------------------------------------------------------|

|                              |                                              |                                                 |
|------------------------------|----------------------------------------------|-------------------------------------------------|
|                              | <u>0</u>                                     | Switch off detecting SIM card                   |
|                              | <u>1</u>                                     | Switch on detecting SIM card                    |
| <b>&lt;insert_status&gt;</b> | Indicates whether SIM card has been inserted |                                                 |
|                              | <u>0</u>                                     | Low level of pin indicates SIM card is present  |
|                              | <u>1</u>                                     | High level of pin indicates SIM card is present |

**NOTE**

This command can be saved by **AT&W**.

## 4.16. AT+QCGTIND Circuit Switched Call or GPRS PDP Context Termination Indication

| AT+QCGTIND Circuit Switched Call or GPRS PDP Context Termination Indication |                                                                                                         |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QCGTIND=?</b>                                         | Response<br><b>+QCGTIND:</b> (list of supported <n>s)<br><br><b>OK</b>                                  |
| Read Command<br><b>AT+QCGTIND?</b>                                          | Response<br><b>+QCGTIND:</b> <n><br><br><b>OK</b>                                                       |
| Write Command<br><b>AT+QCGTIND=&lt;n&gt;</b>                                | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                       | 300 ms                                                                                                  |
| Reference<br>Quectel                                                        |                                                                                                         |

### Parameter

|                  |                                                                                                                                                                                                  |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;n&gt;</b> | A numeric parameter which indicates whether to enable an unsolicited event code indicating whether a circuit switched voice call, circuit switched data call or GPRS session has been terminated |
| <u>0</u>         | Disable                                                                                                                                                                                          |
| <u>1</u>         | Enable                                                                                                                                                                                           |

| <type> | Connection type             |
|--------|-----------------------------|
| 0      | Circuit switched voice call |
| 1      | Circuit switched data call  |
| 2      | PPP connection              |

#### NOTE

When enabled, an unsolicited result code is returned after the connection has been terminated  
+QCGTIND: <type>.

#### Example

```

ATD10086;
OK

+QCGTIND: 0           //A circuit switched voice call has been terminated

NO CARRIER
  
```

# 5 SIM Related Commands

## 5.1. AT+CIMI Request International Mobile Subscriber Identity (IMSI)

| AT+CIMI Request International Mobile Subscriber Identity (IMSI) |                                                                                                                                                                                                                    |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CIMI=?</b>                                | Response<br><b>OK</b>                                                                                                                                                                                              |
| Execution Command<br><b>AT+CIMI</b>                             | Response<br>TA returns <IMSI>for identifying the individual SIM which is attached to ME.<br><b>&lt;IMSI&gt;</b><br><br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                           | 300 ms                                                                                                                                                                                                             |
| Reference<br>GSM 07.07                                          |                                                                                                                                                                                                                    |

### Parameter

|                     |                                                                         |
|---------------------|-------------------------------------------------------------------------|
| <b>&lt;IMSI&gt;</b> | International Mobile Subscriber Identity (string without double quotes) |
|---------------------|-------------------------------------------------------------------------|

### Example

```

AT+CIMI
460023210226023           //Query IMSI number of SIM which is attached to ME

OK
  
```

## 5.2. AT+CLK Facility Lock

| AT+CLK Facility Lock                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CLK=?</b>                                                          | Response<br><b>+CLK:</b> (list of supported <b>&lt;fac&gt;</b> s)<br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Write Command<br><b>AT+CLK=&lt;fac&gt;,&lt;mode&gt;[,&lt;passwd&gt;[,&lt;class&gt;]]</b> | Response<br>This command is used to lock, unlock or interrogate a ME or a network facility <b>&lt;fac&gt;</b> . Password is normally needed to do such actions. When querying the status of a network service ( <b>&lt;mode&gt;=2</b> ) the response line for 'not active' case ( <b>&lt;status&gt;=0</b> ) should be returned only if service is not active for any <b>&lt;class&gt;</b> .<br><br>If <b>&lt;mode&gt;&lt;&gt;2</b> and command is successful:<br><b>OK</b><br>If <b>&lt;mode&gt;=2</b> and command is successful:<br><b>+CLK: &lt;status&gt;[,&lt;class1&gt;[&lt;CR&gt;&lt;LF&gt;</b><br><b>+CLK: &lt;status&gt;, class2....]]</b><br><br><b>OK</b> |
| Maximum Response Time                                                                    | 5 s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Reference<br>GSM 07.07                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### Parameter

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;fac&gt;</b> | <p>"PS" PH-SIM (lock Phone to SIM card) (ME asks password when other than current SIM card inserted; ME may remember certain amount of previously used cards thus not requiring password when they are inserted)</p> <p>"SC" SIM (lock SIM card) (SIM asks password in ME power-up and when this lock command is issued)</p> <p>"AO" BAO (Barr All Outgoing Calls) (refer to GSM02.88[6] clause 1)</p> <p>"OI" BOIC (Barr Outgoing International Calls) (refer to GSM02.88[6] clause 1)</p> <p>"OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country) (refer to GSM02.88[6] clause 1)</p> <p>"AI" BAIC (Barr All Incoming Calls) (refer to GSM02.88[6] clause 2)</p> <p>"IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country) (refer to GSM02.88 [6] clause 2)</p> <p>"AB" All Barring services (refer to GSM02.30[19]) (applicable only for <b>&lt;mode&gt;=0</b>)</p> <p>"AG" All out Going barring services (refer to GSM02.30[19])(applicable only for</p> |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|          |                                                                                                                           |                                    |
|----------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------|
|          |                                                                                                                           | <mode>=0)                          |
| "AC"     | All in Coming barring services (refer to GSM02.30[19])(applicable only for <mode>=0)                                      |                                    |
| "FD"     | SIM fixed dialing memory: If the mobile is locked to "FD", only the phone numbers stored to the "FD" memory can be dialed |                                    |
| "PF"     | Lock Phone to the very first SIM card                                                                                     |                                    |
| "PN"     | Network Personalization (refer to GSM 02.22)                                                                              |                                    |
| "PU"     | Network subset Personalization (refer to GSM 02.22)                                                                       |                                    |
| "PP"     | Service Provider Personalization (refer to GSM 02.22)                                                                     |                                    |
| "PC"     | Corporate Personalization (refer to GSM 02.22)                                                                            |                                    |
| <mode>   | 0                                                                                                                         | Unlock                             |
|          | 1                                                                                                                         | Lock                               |
|          | 2                                                                                                                         | Query status                       |
| <passwd> | Password                                                                                                                  |                                    |
| <class>  | 1                                                                                                                         | Voice                              |
|          | 2                                                                                                                         | Data                               |
|          | 4                                                                                                                         | FAX                                |
|          | 7                                                                                                                         | All telephony except SMS (Default) |
|          | 8                                                                                                                         | Short message service              |
|          | 16                                                                                                                        | Data circuit sync                  |
|          | 32                                                                                                                        | Data circuit async                 |
| <status> | 0                                                                                                                         | Off                                |
|          | 1                                                                                                                         | On                                 |

## Example

```

AT+CLCK="SC",2
+CLCK: 0                                //Query the status of SIM card lock, 0-unlock

OK
AT+CLCK="SC",1,"1234"                    //Lock SIM card, the password is 1234
OK
AT+CLCK="SC",2
+CLCK: 1                                //Query the status of SIM card lock, 1-lock

OK
AT+CLCK="SC",0,"1234"                    //Unlock SIM card
OK

```

### 5.3. AT+CPIN Enter PIN

| AT+CPIN Enter PIN                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CPIN=?</b>                               | Response<br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Read Command<br><b>AT+CPIN?</b>                                | Response<br>TA returns an alphanumeric string indicating whether or not some password is required.<br><b>+CPIN: &lt;code&gt;</b><br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                   |
| Write Command<br><b>AT+CPIN=&lt;pin&gt;[, &lt;new pin&gt;]</b> | Response<br>TA stores a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN is to be entered twice, the TA shall automatically repeat the PIN. If no PIN request is pending, no action is taken and an error message, <b>+CME ERROR</b> , is returned to TE.<br><br>If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <b>&lt;new pin&gt;</b> , is used to replace the old pin in the SIM<br><br><b>OK</b> |
| Maximum Response Time                                          | 5 s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Reference<br>GSM 07.07                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

#### Parameter

|                        |                                                                      |                                                                                                                     |
|------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>&lt;code&gt;</b>    | READY                                                                | No further entry needed                                                                                             |
|                        | SIM PIN                                                              | ME is waiting for SIM PIN                                                                                           |
|                        | SIM PUK                                                              | ME is waiting for SIM PUK                                                                                           |
|                        | PH_SIM PIN                                                           | ME is waiting for phone to SIM card (antitheft)                                                                     |
|                        | PH_SIM PUK                                                           | ME is waiting for SIM PUK (antitheft)                                                                               |
|                        | SIM PIN2                                                             | PIN2, e.g. it is possible to edit the FDN book only if preceding command was acknowledged with <b>+CME ERROR:17</b> |
|                        | SIM PUK2                                                             | Possible only if preceding command was acknowledged with error <b>+CME ERROR: 18</b>                                |
| <b>&lt;pin&gt;</b>     | String type; password                                                |                                                                                                                     |
| <b>&lt;new pin&gt;</b> | String type; If the PIN required is SIM PUK or SIMPUK2: new password |                                                                                                                     |

## Example

```

AT+CPIN?
+CPIN: SIM PIN //Query PIN code is locked

OK
AT+CPIN=1234 //PIN
+CPIN: READY

OK
AT+CPIN? //PIN has already been entered
+CPIN: READY

OK
AT+CPIN? //Query PUK code is locked
+CPIN: SIM PUK

OK
AT+CPIN="26601934","1234" //Enter PUK and new PIN password
+CPIN: READY

OK
AT+CPIN? //PUK has already been entered
+CPIN: READY

OK

```

## 5.4. AT+CPWD Change Password

### AT+CPWD Change Password

|                                                                                          |                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CPWD=?</b>                                                         | Response<br>TA returns a list of pairs which present the available facilities and the maximum length of their password.<br><b>+CPWD:</b> (list of supported <fac>s), (<pwdlength>s)<br><br><b>OK</b> |
| Write Command<br><b>AT+CPWD=&lt;fac&gt;,&lt;oldpwd&gt;,&lt;newpwd&gt;</b><br><b>&gt;</b> | Response<br>TA sets a new password for the facility lock function.<br><br><b>OK</b>                                                                                                                  |
| Maximum Response Time                                                                    | 5 s                                                                                                                                                                                                  |

Reference  
GSM 07.07

## Parameter

|                          |                                                                             |                                                                                                                                                                                                    |
|--------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;fac&gt;</b>       | "PS"                                                                        | Phone locked to SIM (device code). The "PS" password may either be individually specified by the client or, depending on the subscription, supplied from the provider (e.g. with a prepaid mobile) |
|                          | "SC"                                                                        | SIM (lock SIM card) (SIM asks password in ME power-up and when this lock Command issued)                                                                                                           |
|                          | "AO"                                                                        | BAOC (Barr All Outgoing Calls) (refer to GSM02.88[6] clause 1)                                                                                                                                     |
|                          | "OI"                                                                        | BOIC (Barr Outgoing International Calls) (refer to GSM02.88[6] clause 1)                                                                                                                           |
|                          | "OX"                                                                        | BOIC-exHC (Barr Outgoing International Calls except to Home Country) (refer to GSM02.88[6] clause 1)                                                                                               |
|                          | "AI"                                                                        | BAIC (Barr All Incoming Calls) (refer to GSM02.88[6] clause 2)                                                                                                                                     |
|                          | "IR"                                                                        | BIC-Roam (Barr Incoming Calls when Roaming outside the home country) (refer to GSM02.88 [6] clause 2)                                                                                              |
|                          | "AB"                                                                        | All Barring services (refer to GSM02.30[19]) (applicable only for <b>&lt;mode&gt;=0</b> )                                                                                                          |
|                          | "AG"                                                                        | All outgoing barring services (refer to GSM02.30[19]) (applicable only for <b>&lt;mode&gt;=0</b> )                                                                                                 |
|                          | "AC"                                                                        | All incoming barring services (refer to GSM02.30[19]) (applicable only for <b>&lt;mode&gt;=0</b> )                                                                                                 |
|                          | "FD"                                                                        | SIM fixed dialing memory feature                                                                                                                                                                   |
|                          | "P2"                                                                        | SIM PIN2                                                                                                                                                                                           |
| <b>&lt;pwdlength&gt;</b> | Integer. Max. length of password                                            |                                                                                                                                                                                                    |
| <b>&lt;oldpwd&gt;</b>    | Password specified for the facility from the user interface or with command |                                                                                                                                                                                                    |
| <b>&lt;newpwd&gt;</b>    | New password                                                                |                                                                                                                                                                                                    |

## Example

```

AT+CPIN?
+CPIN: READY

OK
AT+CPWD="SC","1234","4321"           //Change SIM card password to "4321"
OK
AT+CPIN?                             //Restart module or re-activate the SIM card, query PIN
                                     code is locked
+CPIN: SIM PIN

OK
AT+CPIN="4321"                       //PIN must be entered to define a new password "4321"
+CPIN: READY

```

OK

## 5.5. AT+CRSM Restricted SIM Access

| AT+CRSM Restricted SIM Access                                                                                      |                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CRSM=?</b>                                                                                   | Response<br><b>OK</b>                                                                                                                     |
| Write Command<br><b>AT+CRSM=&lt;Command&gt;[,&lt;fileId&gt;[,&lt;P1&gt;,&lt;P2&gt;,&lt;P3&gt;[,&lt;data&gt;]]]</b> | Response<br><b>+CRSM: &lt;sw1&gt;, &lt;sw2&gt; [,&lt;response&gt;]</b><br><br><b>OK</b><br><b>ERROR</b><br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                                                              | 300 ms                                                                                                                                    |
| Reference<br>GSM 07.07                                                                                             |                                                                                                                                           |

### Parameter

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;Command&gt;</b>                  | 176 READ BINARY<br>178 READ RECORD<br>192 GET RESPONSE<br>214 UPDATE BINARY<br>220 UPDATE RECORD<br>242 STATUS<br>All other values are reserved; refer to GSM 11.11                                                                                                                                                                                                                                                                                            |
| <b>&lt;fileId&gt;</b>                   | Integer type; this is the identifier for an elementary data file on SIM. Mandatory for every Command except STATUS                                                                                                                                                                                                                                                                                                                                             |
| <b>&lt;P1&gt;,&lt;P2&gt;,&lt;P3&gt;</b> | Integer type; parameters passed on by the ME to the SIM. These parameters are mandatory for every command, except GET RESPONSE and STATUS. The values are described in GSM 11.11                                                                                                                                                                                                                                                                               |
| <b>&lt;data&gt;</b>                     | Information which shall be written to the SIM (hexadecimal character format)                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>&lt;sw1&gt;,&lt;sw2&gt;</b>          | Integer type; information from the SIM about the execution of the actual command. These parameters are delivered to the TE in both cases, on successful or failed execution of the command                                                                                                                                                                                                                                                                     |
| <b>&lt;response&gt;</b>                 | Response of a successful completion of the command previously issued (hexadecimal character format). STATUS and GET RESPONSE return data, which gives information about the current elementary data field. This information includes the type of file and its size (refer to GSM 11.11). After READ BINARY or READ RECORD command the requested data will be returned. The parameter is not returned after a successful UPDATE BINARY or UPDATE RECORD command |

## Example

**AT+CRSM=242**

**+CRSM: 145, 211, "000000007F100200000000000A13000C0400838A808A"**

**OK**

//<sw1>=145,<sw2>=211,"000000007F100200000000000A13000C0400838A808A" which is the command previously return data, refer to GSM 11.11

## 5.6. AT+CSIM Generic SIM Access

### AT+CSIM Generic AIM Access

|                                                                |                                                                                                                              |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CSIM=?</b>                               | Response<br><b>OK</b>                                                                                                        |
| Write Command<br><b>AT+CSIM=&lt;length&gt;,&lt;command&gt;</b> | Response<br><b>+CSIM: &lt;length&gt;,&lt;response&gt;</b><br><br><b>OK</b><br><b>ERROR</b><br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                          | 300 ms                                                                                                                       |
| Reference<br>GSM 07.07                                         |                                                                                                                              |

### Parameter

|                         |                                                                                                                               |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;length&gt;</b>   | Integer type; length of characters sent to the TE in <command> or <response>(i.e. twice the number of octets in the raw data) |
| <b>&lt;command&gt;</b>  | String type(string should be included in quotation marks);<br>hex format:GSM11.11 SIM Command sent from the ME to the SIM     |
| <b>&lt;response&gt;</b> | String type(string should be included in quotation marks);<br>hex format: GSM11.11 SIM Command sent from the SIM to <command> |

## 5.7. AT+QCSPWD Change PS Super Password

### AT+QCSPWD Change PS Super Password

|                                    |                       |
|------------------------------------|-----------------------|
| Test Command<br><b>AT+QCSPWD=?</b> | Response<br><b>OK</b> |
|------------------------------------|-----------------------|

|                                                                 |                                       |
|-----------------------------------------------------------------|---------------------------------------|
| Write Command<br><b>AT+QCSPWD=&lt;oldpwd&gt;,&lt;newpwd&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b> |
| Maximum Response Time                                           | 300 ms                                |
| Reference                                                       |                                       |

## Parameter

|                       |                                                  |
|-----------------------|--------------------------------------------------|
| <b>&lt;oldpwd&gt;</b> | String type. Old password and length should be 8 |
| <b>&lt;newpwd&gt;</b> | String type. New password and length should be 8 |

### NOTE

1. Default value of **<oldpwd>** is "12345678".
2. If the module is locked to a specific SIM card through +CLCK and password lost or SIM state is PH-SIM PUK, you can use the super password to unlock it.

## 5.8. AT+QCCID Show ICCID

| AT+QCCID Show ICCID                  |                                               |
|--------------------------------------|-----------------------------------------------|
| Test Command<br><b>AT+QCCID=?</b>    | Response<br><b>OK</b>                         |
| Execution Command<br><b>AT+QCCID</b> | Response<br><b>ccid data</b><br><br><b>OK</b> |
| Maximum Response Time                | 300 ms                                        |
| Reference                            |                                               |

### Example

```

AT+QCCID                                     //Query ICCID of the SIM card
898600220909A0206023

OK

```

## 5.9. AT+CCID Show CCID

| AT+CCID Show CCID                   |                                                              |
|-------------------------------------|--------------------------------------------------------------|
| Test Command<br><b>AT+CCID=?</b>    | Response<br><b>OK</b>                                        |
| Execution Command<br><b>AT+CCID</b> | Response<br><b>+CCID: &lt;ccid data&gt;</b><br><br><b>OK</b> |
| Maximum Response Time               | 300 ms                                                       |
| Reference<br>Quectel                |                                                              |

### Parameter

**<ccid data>** CCID number for the current SIM card.

### Example

```

AT+CCID //Query CCID of the SIM card
+CCID: "898600220909A0206023"

OK

```

## 5.10. AT+QGID Get SIM Card Group Identifier

| AT+QGID Get SIM Card Group Identifier |                                                                                      |
|---------------------------------------|--------------------------------------------------------------------------------------|
| Execution Command<br><b>AT+QGID</b>   | Response<br><b>+QGID: &lt;gid1&gt; &lt;gid2&gt;</b><br><br><b>OK</b><br><b>ERROR</b> |
| Maximum Response Time                 | 300 ms                                                                               |
| Reference                             |                                                                                      |

## Parameter

|        |                                             |
|--------|---------------------------------------------|
| <gid1> | Integer type of SIM card group identifier 1 |
| <gid2> | Integer type of SIM card group identifier 2 |

### NOTE

If the SIM supports GID files, the GID values are returned. Otherwise 0xff is returned.

## 5.11. AT+QSIMVOL Select SIM Card Operating Voltage

### AT+QSIMVOL Select SIM Card Operating Voltage

|                                                 |                                                                           |
|-------------------------------------------------|---------------------------------------------------------------------------|
| Test Command<br><b>AT+QSIMVOL=?</b>             | Response<br><b>+QSIMVOL:</b> (list of supported <mode>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QSIMVOL?</b>              | Response<br><b>+QSIMVOL:</b> <mode><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QSIMVOL=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b><br><b>+CME ERROR: &lt;err&gt;</b>   |
| Maximum Response Time                           | 300 ms                                                                    |
| Reference                                       |                                                                           |

## Parameter

|        |   |                                            |
|--------|---|--------------------------------------------|
| <mode> | 0 | Recognize 1.8V and 3.0V SIM card (Default) |
|        | 1 | Recognize 1.8V SIM card only               |
|        | 2 | Recognize 3.0V SIM card only               |

### NOTE

**AT+QSIMVOL** can take effect only when the command is set successfully and the module is restarted.

## 5.12. AT+QSPN Get Service Provider Name from SIM

### AT+QSPN Get Service Provider Name from SIM

|                                 |                                                                                                                      |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Read Command<br><b>AT+QSPN?</b> | Response<br><b>+QSPN:</b> (<spn>s), (list of supported <display mode>s)<br><br><b>OK</b><br><b>+CME ERROR:</b> <err> |
| Maximum Response Time           | 300 ms                                                                                                               |
| Reference                       |                                                                                                                      |

#### Parameter

|                |                                           |                                                 |
|----------------|-------------------------------------------|-------------------------------------------------|
| <spn>          | String type; service provider name on SIM |                                                 |
| <display mode> | 0                                         | Do not display PLMN. Already registered on PLMN |
|                | 1                                         | Display PLMN                                    |

#### NOTE

CME errors are possible if SIM is not inserted.

## 5.13. AT+QTRPIN Times Remain to Input SIM PIN/PUK

### AT+QTRPIN Times Remain to Input SIM PIN/PUK

|                                       |                                                                                                            |
|---------------------------------------|------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>AT+QTRPIN</b> | Response<br>Times remain to input SIM PIN.<br><b>+QTRPIN:</b> <chv1>,<chv2>,<puk1>,<puk2><br><br><b>OK</b> |
| Maximum Response Time                 | 300 ms                                                                                                     |
| Reference                             |                                                                                                            |

#### Parameter

|        |                            |
|--------|----------------------------|
| <chv1> | Times remain to input chv1 |
| <chv2> | Times remain to input chv2 |

|        |                            |
|--------|----------------------------|
| <puk1> | Times remain to input puk1 |
| <puk2> | Times remain to input puk2 |

## 5.14. AT+QDSIM Dual SIM Switch

Select the working SIM slot and DCD function disable.

| AT+QDSIM Dual SIM Switch                       |                                                                                            |
|------------------------------------------------|--------------------------------------------------------------------------------------------|
| Test Command<br>AT+QDSIM=?                     | Response<br>+QDSIM: (list of supported <simslot>s),(list of supported <dcddis>s)<br><br>OK |
| Read Command<br>AT+QDSIM?                      | Response<br>+QDSIM: <simslot>,<dcddis><br><br>OK                                           |
| Write Command<br>AT+QDSIM=<simslot>[,<dcddis>] | Response<br>OK<br>+CME ERROR: <err>                                                        |
| Reference                                      |                                                                                            |

### Parameter

|           |                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------|
| <simslot> | SIM card slot<br>0 Select SIM card in slot 1, which is default value<br>1 Select SIM card in slot 2 |
| <dcddis>  | DCD function disable<br>0 DCD function enable, which is default value<br>1 DCD function disable     |

### NOTE

1. M95 supports Dual SIM Single Standby function, and this command is used for switching between the two SIM cards.
2. Automatically saved into NVRAM after setting successfully.

### Example 1

```
//The module factory default of SIM2_RST pin is the DCD function, the default is GPIO high level, VSIM2
```

output is 2.8V.

```
AT+QDSIM?           //Query current SIM card slot.
+QDSIM: 0,0         //The default SIM card is SIM1, the DCD function is valid.
```

OK

```
AT+QDSIM=0,1        //Configuration SIM1, and Disable the DCD function, VSIM2 output voltage Close.
OK
```

## Example 2

```
AT+QDSIM?           //Query current SIM card slot.
+QDSIM: 0,1         //The current SIM card is SIM1 and DCD function was disabled.
```

//Prepare to switch to another SIM card.

```
AT+CFUN=0           //Set phone to Minimum functionality.
+CPIN: NOT READY
```

OK

```
AT+QDSIM=1,1        //Switch to SIM card in SIM slot 2 and disable DCD function.
```

OK

```
AT+CFUN=1           //Set phone to Full functionality.
```

OK

+CPIN: READY

Call Ready //SIM card switch successfully.

## Example 3

//The module factory default of SIM2\_RSTpin is the DCD function, the default is GPIO high level, VSIM2 output is 2.8V.

```
AT+QDSIM?           //Query current SIM card slot.
+QDSIM: 0,1         //The current SIM card is SIM1 and the DCD function was disabled.
```

OK

```
AT+QDSIM=1,1        //Switch to SIM card in SIM slot 2 and disable DCD function.
```

OK

//Restart the module and switch to SIM2 in slot 2.

# 6 Network Service Commands

## 6.1. AT+COPS Operator Selection

### AT+COPS Operator Selection

|                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+COPS=?</b>                                             | Response<br>TA returns a list of quadruplets, each representing an operator present in the network. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in order: home network, networks referenced in SIM and other networks.<br><br><b>+COPS:</b> (list of supported<stat>, long alphanumeric <oper>, short alphanumeric <oper>, numeric <oper>s)[, (list of supported <mode>s), (list of supported <format>s)]<br><br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Read Command<br><b>AT+COPS?</b>                                              | Response<br>TA returns the current mode and the currently selected operator. If no operator is selected, <format> and <oper> are omitted.<br><b>+COPS: &lt;mode&gt;[,&lt;format&gt;[,&lt;oper&gt;]]</b><br><br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>                                                                                                                                                                                                                                                               |
| Write Command<br><b>AT+COPS=&lt;mode&gt;[,&lt;format&gt;[,&lt;oper&gt;]]</b> | Response<br>TA forces an attempt to select and register the GSM network operator. If the selected operator is not available, no other operator shall be selected (except <mode>=4). The format of selected operator name shall apply to further read commands (+COPS?).                                                                                                                                                                                                                                                                                                  |

|                        |                                                                                      |
|------------------------|--------------------------------------------------------------------------------------|
|                        | OK<br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time  | 75 s, determined by network.                                                         |
| Reference<br>GSM 07.07 |                                                                                      |

## Parameter

|                       |                                               |                                                                                                           |
|-----------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>&lt;stat&gt;</b>   | 0                                             | Unknown                                                                                                   |
|                       | 1                                             | Operator available                                                                                        |
|                       | 2                                             | Operator current                                                                                          |
|                       | 3                                             | Operator forbidden                                                                                        |
| <b>&lt;oper&gt;</b>   | Operator in format as per <b>&lt;mode&gt;</b> |                                                                                                           |
| <b>&lt;mode&gt;</b>   | 0                                             | Automatic mode; <b>&lt;oper&gt;</b> field is ignored                                                      |
|                       | 1                                             | Manual operator selection; <b>&lt;oper&gt;</b> field shall be present                                     |
|                       | 2                                             | Manual deregister from network                                                                            |
|                       | 3                                             | Set only <b>&lt;format&gt;</b> (for read Command <b>+COPS?</b> ) – not shown in Read Command response     |
|                       | 4                                             | Manual/automatic selected; if manual selection fails, automatic mode ( <b>&lt;mode&gt;</b> =0) is entered |
| <b>&lt;format&gt;</b> | 0                                             | Long format alphanumeric <b>&lt;oper&gt;</b> ; can be up to 16 characters long                            |
|                       | 1                                             | Short format alphanumeric <b>&lt;oper&gt;</b>                                                             |
|                       | 2                                             | Numeric <b>&lt;oper&gt;</b> ; GSM Location Area Identification number                                     |

### NOTE

- This command to choose and register the GSM network operator. The setting of **<mode>** allows to ME determine whether auto-matic or manual network selection shall be used.
  - When **<mode>**=0, the ME searches for the operator which shall be used automatically.
  - When **<mode>**=1, the ME force to register selection **<oper>**. If the **<oper>** is invalid, the ME remains unregistered, until **<mode>**=0, the ME can register. If restart module, ME is still under **<mode>**=1 and there is no RPLMN, ME will also be un-registration network condition, until changed using the command to automatic registration mode.
  - When **<mode>**=4, if the ME fails to register to this operator, then it starts to select another operator automatically.
- This command setting is saved to NVRAM automatically.

## Example

```

AT+COPS=?                                //List all current network operators
+COPS: (2,"CHINA MOBILE","CMCC","46000"),(3,"CHINA UNICOM GSM","UNICOM","46001")
,,(0-4),(0-2)

OK
AT+COPS?                                //Query the currently selected network operator
+COPS: 0,0,"CHINA MOBILE"

OK

```

## 6.2. AT+CREG Network Registration

| AT+CREG Network Registration              |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CREG=?</b>          | Response<br><b>+CREG:</b> (list of supported <n>s)<br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                |
| Read Command<br><b>AT+CREG?</b>           | Response<br>TA returns the status of result code presentation and an integer <stat> which shows whether the network has currently indicated the registration of the ME. Location information elements <lac> and <ci> are returned only when <n>=2 and ME is registered in the network.<br><b>+CREG:</b> <n>,<stat>[,<lac>,<ci>]<br><br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Write Command<br><b>AT+CREG=&lt;n&gt;</b> | Response<br>TA controls the presentation of an unsolicited result code <b>+CREG: &lt;stat&gt;</b> when <n>=1 and there is a change in the ME network registration status.<br><b>OK</b>                                                                                                                                                                                                                                             |
| Maximum Response Time                     | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Reference<br>GSM 07.07                    |                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Parameter

|        |                                                                |                                                                                |
|--------|----------------------------------------------------------------|--------------------------------------------------------------------------------|
| <n>    | 0                                                              | Disable network registration unsolicited result code                           |
|        | 1                                                              | Enable network registration unsolicited result code <b>+CREG: &lt;stat&gt;</b> |
|        | 2                                                              | Enable network registration unsolicited result code with location information  |
| <stat> | 0                                                              | Not registered, ME is not currently searching a new operator to register to    |
|        | 1                                                              | Registered, home network                                                       |
|        | 2                                                              | Not registered, but ME is currently searching a new operator to register to    |
|        | 3                                                              | Registration denied                                                            |
|        | 4                                                              | Unknown                                                                        |
|        | 5                                                              | Registered, roaming                                                            |
| <lac>  | String type; two byte location area code in hexadecimal format |                                                                                |
| <ci>   | String type; two byte cell ID in hexadecimal format            |                                                                                |

### NOTE

Unsolicited result code

If <n>=1 and there is a change in the ME network registration status **+CREG: <stat>**

If <n>=2 and there is a change in the ME network registration status or a change of the network cell:  
**+CREG: <stat>[,<lac>,<ci>]**

## Example

```
AT+CREG=1
```

```
OK
```

```
+CREG: 1
```

```
//URC reports that operator has been found
```

```
AT+CREG=2
```

```
//Activates extended URC mode
```

```
OK
```

```
+CREG: 1,"1878","0873"
```

```
//URC reports that operator has been found with location  
area code and cell ID
```

## 6.3. AT+CSQ Signal Quality Report

### AT+CSQ Signal Quality Report

|                   |                                                                     |
|-------------------|---------------------------------------------------------------------|
| Test Command      | Response                                                            |
| AT+CSQ=?          | <b>+CSQ:</b> (list of supported <rssi>s),(list of supported <ber>s) |
|                   | <b>OK</b>                                                           |
| Execution Command | Response                                                            |

|                       |                                                                                                                                                                                                                                                                                         |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AT+CSQ                | <b>+CSQ: &lt;rss&gt;,&lt;ber&gt;</b><br><br><b>OK</b><br><b>+CME ERROR: &lt;err&gt;</b><br>Execution Command returns received signal strength indication <b>&lt;rss&gt;</b> and channel bit error rate <b>&lt;ber&gt;</b> from the ME. Test Command returns values supported by the TA. |
| Maximum Response Time | 300 ms                                                                                                                                                                                                                                                                                  |
| Reference             | GSM 07.07                                                                                                                                                                                                                                                                               |

## Parameter

|                    |               |                                                            |
|--------------------|---------------|------------------------------------------------------------|
| <b>&lt;rss&gt;</b> | 0             | -113dBm or less                                            |
|                    | 1             | -111dBm                                                    |
|                    | 2...30        | -109... -53dBm                                             |
|                    | 31            | -51dBm or greater                                          |
|                    | 99            | Not known or not detectable                                |
| <b>&lt;ber&gt;</b> | (in percent): |                                                            |
|                    | 0...7         | As RXQUAL values in the table in GSM 05.08 subclause 8.2.4 |
|                    | 99            | Not known or not detectable                                |

## Example

```

AT+CSQ=?
+CSQ: (0-31,99),(0-7,99)

OK
AT+CSQ
+CSQ: 28,0           //Query the current signal strength indication is 28 and
                       the bit error rate is 0

OK

```

## 6.4. AT+CPOL Preferred Operator List

| AT+CPOL Preferred Operator List |                                                                                                      |
|---------------------------------|------------------------------------------------------------------------------------------------------|
| Test Command                    | Response                                                                                             |
| AT+CPOL=?                       | <b>+CPOL:</b> (list of supported <b>&lt;index&gt;s</b> ),(list of supported <b>&lt;format&gt;s</b> ) |

|                                                                               |                                                                                                                                                                          |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                               | OK                                                                                                                                                                       |
| Read Command<br><b>AT+CPOL?</b>                                               | Response<br><b>+CPOL: &lt;index1&gt;,&lt;format&gt;,&lt;oper1&gt;</b><br><b>[&lt;CR&gt;&lt;LF&gt;+CPOL: &lt;index2&gt;,&lt;format&gt;,&lt;oper2&gt;</b><br><b>[...]]</b> |
|                                                                               | OK<br><b>+CME ERROR: &lt;err&gt;</b>                                                                                                                                     |
| Write Command<br><b>AT+CPOL=&lt;index&gt;[,&lt;format&gt;[,&lt;oper&gt;]]</b> | Response<br>OK<br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>                                                                         |
| Maximum Response Time                                                         | 300 ms                                                                                                                                                                   |
| Reference<br>GSM 07.07                                                        |                                                                                                                                                                          |

## Parameter

|                       |                                                                                                          |                                                                       |
|-----------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>&lt;index&gt;</b>  | 1                                                                                                        | Integer type: order number of operator in SIM preferred operator list |
| <b>&lt;format&gt;</b> | 0                                                                                                        | Long format alphanumeric <b>&lt;oper&gt;</b>                          |
|                       | 1                                                                                                        | Short format alphanumeric <b>&lt;oper&gt;</b>                         |
|                       | 2                                                                                                        | Numeric <b>&lt;oper&gt;</b>                                           |
| <b>&lt;oper&gt;</b>   | String type: <format> indicates either alphanumeric or numeric format is used (see <b>+COPS</b> command) |                                                                       |

### NOTE

There is SIM card not allowed to edit the list of the preferred operators.

## 6.5. AT+COPN Read Operator Names

| <b>AT+COPN Read Operator Names</b>  |                                                                                                                                  |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+COPN=?</b>    | Response<br>OK                                                                                                                   |
| Execution Command<br><b>AT+COPN</b> | Response<br><b>+COPN: &lt;numeric1&gt;,&lt;alpha1 &gt;</b><br><b>[&lt;CR&gt;&lt;LF&gt;+COPN: &lt;numeric2&gt;,&lt;alpha2&gt;</b> |

|                       |                         |
|-----------------------|-------------------------|
|                       | [...]]                  |
|                       | OK<br>+CME ERROR: <err> |
| Maximum Response Time | 300 ms                  |
| Reference             | GSM 07.07               |

## Parameter

|           |                                                               |
|-----------|---------------------------------------------------------------|
| <numeric> | String type: operator in numeric format (see +COPS)           |
| <alphan>  | String type: operator in long alphanumeric format (see +COPS) |

## 6.6. AT+QBAND Get and Set Mobile Operation Band

| AT+QBAND Get and Set Mobile Operation Band |                                                                                     |
|--------------------------------------------|-------------------------------------------------------------------------------------|
| Test Command<br>AT+QBAND=?                 | Response<br>+QBAND: (list of supported <op_band>s)<br><br>OK                        |
| Read Command<br>AT+QBAND?                  | Response<br>+QBAND: <op_band><br><br>OK                                             |
| Write Command<br>AT+QBAND=<op_band>        | Response<br>OK<br><br>If error is related to ME functionality:<br>+CME ERROR: <err> |
| Maximum Response Time                      | 30 s, determined by network.                                                        |
| Reference                                  |                                                                                     |

## Parameter

|           |                                                                             |
|-----------|-----------------------------------------------------------------------------|
| <op_band> | "EGSM_MODE"<br>"DCS_MODE"<br>"PCS_MODE"<br>"GSM850_MODE"<br>"EGSM_DCS_MODE" |
|-----------|-----------------------------------------------------------------------------|

"GSM850\_PCS\_MODE"

"GSM850\_EGSM\_DCS\_PCS\_MODE"

**NOTE**

The following radio setting to be updated is stored in non-volatile memory.

## 6.7. AT+QENG Switch on or off Engineering Mode

### AT+QENG Switch on or off Engineering Mode

Test Command

AT+QENG=?

Response

**+QENG:** (list of supported **<mode>s**),(list of supported **<dump>s**)

OK

Read Command

AT+QENG?

Response

The corresponding information is reported selectively according to **<dump>**.

**+QENG:** **<mode>**,**<dump>**

URCs of the serving cell information:

**+QENG:**

**0,<mcc>,<mnc>,<lac>,<cellid>,<bcch>,<bsic>,<dbm>,<c1>,<c2>,<txp>,<rla>,<tch>,<ts>,<maio>,<hsn>,<ta>,<rxq\_sub>,<rxq\_full>**

URCs of 1-6 the neighboring cell information:

**[+QENG: 1,list of**

**(<ncell>,<bcch>,<dbm>,<bsic>,<c1>,<c2>,<mcc>,<mnc>,<lac>,<cellid>)...]**

URCs of cell frequency list (CA) of the serving cell:

**[+QENG: 2,list of (<arfcn>)...]**

BA measured result list:

**[+QENG: 4,record number of the list, list of (<bcch>,<dbm>,<bsic>)]**

OK

Write Command

AT+QENG=<mode>[,<dump>]

Response

OK

|                       |                                                |
|-----------------------|------------------------------------------------|
|                       | <b>ERROR</b><br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time | 300 ms                                         |
| Reference             |                                                |

## Parameter

|                         |                                                                           |                                                                                                                                       |
|-------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b>     | <u>0</u>                                                                  | Switch off engineering mode                                                                                                           |
|                         | 1                                                                         | Switch on engineering mode                                                                                                            |
|                         | 2                                                                         | Switch on engineering mode, and activate the URC report of network information                                                        |
| <b>&lt;dump&gt;</b>     | <u>0</u>                                                                  | Only display the serving cell information                                                                                             |
|                         | 1                                                                         | Display the serving cell information, 1-6 neighboring cells information                                                               |
|                         | 2                                                                         | Display the serving cell information and list of serving cell carrier list                                                            |
|                         | 3                                                                         | Display the serving cell information,1-6 neighboring cell information and list of serving cell carrier list                           |
|                         | 4                                                                         | Display the serving cell information,1-6 neighboring cell information, list of serving cell carrier list and BA measured result list. |
| <b>&lt;mcc&gt;</b>      | Mobile country code                                                       |                                                                                                                                       |
| <b>&lt;mnc&gt;</b>      | Mobile network code                                                       |                                                                                                                                       |
| <b>&lt;lac&gt;</b>      | Location area code in hex format                                          |                                                                                                                                       |
| <b>&lt;cellid&gt;</b>   | Cell ID in hex format                                                     |                                                                                                                                       |
| <b>&lt;bcch&gt;</b>     | Absolute Radio Frequency Channel Number of Broadcast Control Channel BCCH |                                                                                                                                       |
| <b>&lt;bsic&gt;</b>     | Base station identity code                                                |                                                                                                                                       |
| <b>&lt;dbm&gt;</b>      | Receive signal level in dBm unit                                          |                                                                                                                                       |
| <b>&lt;c1&gt;</b>       | C1 value                                                                  |                                                                                                                                       |
| <b>&lt;c2&gt;</b>       | C2 value                                                                  |                                                                                                                                       |
| <b>&lt;txp&gt;</b>      | Maximum TX power level when accessing on a CCH                            |                                                                                                                                       |
| <b>&lt;rla&gt;</b>      | Minimum receiving level permitted to access the system                    |                                                                                                                                       |
| <b>&lt;ts&gt;</b>       | TimeSlots                                                                 |                                                                                                                                       |
| <b>&lt;maio&gt;</b>     | MAIO value                                                                |                                                                                                                                       |
| <b>&lt;hsn&gt;</b>      | HSN value                                                                 |                                                                                                                                       |
| <b>&lt;tch&gt;</b>      | ARFCN of TCH, 'h' figure hopping                                          |                                                                                                                                       |
| <b>&lt;ta&gt;</b>       | Timing Advance, range 0-63                                                |                                                                                                                                       |
| <b>&lt;rxq_sub&gt;</b>  | RX quality(sub), range 0-7                                                |                                                                                                                                       |
| <b>&lt;rxq_full&gt;</b> | RX quality(full), range 0-7                                               |                                                                                                                                       |
| <b>&lt;ncell&gt;</b>    | Number of neighboring six cell ID 1-6                                     |                                                                                                                                       |
| <b>&lt;arfcn&gt;</b>    | Absolute radio frequency channel number                                   |                                                                                                                                       |

**NOTE**

The following radio setting to be updated is stored in non-volatile memory.

1. When mode is 2, auto URCs are reported per 5 seconds.
2. The **<lac>** and **<cellid>** parameters in hex format, the parameter is in decimal.
3. If the cell information is not detected, the parameter is replaced by 'x' char.
4. If the detecting is not expert mode, the **<tch>**, **<ts>**, **<maio>**, **<hsn>**, **<ta>**, **<rxq\_sub>** and **<rxq\_full>** parameter do not display the value of the parameter and replaced by 'x' char.
5. During the network connecting, if the hopping frequency is supported by the network, so the channel of TCH is instable. Using the 'h' figure **<tch>** under this mode.
6. Under expert mode, when the **<c1>** and **<c2>** of the serving cell cannot be updated. Using the '-1' figure to display the illegal value. At the same time, the **<txp>** and **<rla>** parameter cannot be updated in a certain condition, all the same holding the value of idle mode. This is because ME cannot be updated in this mode, ME cannot update the selection of cell and reselection of the parameter. When the connecting is over, mobile device goes back idle mode and gives out the correct value.
7. If TA can report the information of the neighboring cell, the URCs of six neighboring cell should be reported. If some cells cannot be measured, the 'x' char will be filled in the parameter of these cells.
8. Under the special mode, the **<c1>** and **<c2>** parameters of the neighboring cell may be measured, then will report an unmeaning value. When the **<mcc>**, **<mnc>**, **<lac>** and **<cellid>** parameter of the neighboring cell cannot be measured, the 'x' char will be filled in these parameters of all the six cells.
9. The command does not report the RX level and the RX quality. The **"AT+CSQ"** command can be used to query the values of RX level and RX quality.
10. The **"AT+QSPCH"** command can be used to re-query the type of the voice channel duration calling (FR, HR, EFR, AMR\_FR, AMR\_HR).
11. The BA measured list max record numbers are 32. If any of the BCCH cannot get the BSIC value, the BSIC will show 'x' instead. The measured list is only including the measured BCCH in the BA list, not the whole BA list.

**Example**

Idle mode:

**AT+QENG=2**

OK

**+QENG: 0,460,00,1806,2602,64,46,-72,119,119,5,8,x,x,x,x,x,x**

Dedicated mode:

**AT+QENG=2,3**

OK

**+QENG: 0,460,00,1806,2031,17,41,-73,-1,-1,5,8,h,7,0,24,1,0,1**

**+QENG:**

```
1,1,17,-74,41,111,95,460,00,1806,2031,2,2,-74,45,110,94,460,00,1878,151,3,22,-77,40,100,84,460,00,1
806,2012,4,24,-77,45,97,81,460,00,1806,2013,5,25,-81,40,83,67,460,00,1806,2032,6,532,-92,48,-1,-1,x
,x,x,x
```

## 6.8. AT+QSCANF Scan Power of GSM Frequency

| AT+QSCANF Scan Power of GSM Frequency                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QSCANF=?</b>                          | Response<br><b>+QSCANF:</b> (list of supported <b>&lt;band&gt;</b> s),(list of supported <b>&lt;freq&gt;</b> s)<br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                 |
| Write Command<br><b>AT+QSCANF=&lt;band&gt;,&lt;freq&gt;</b> | Response<br>If <b>&lt;freq&gt;=9999</b> and command is successful:<br><b>+QSCANF:</b><br><b>1, CH113, -63.5</b><br><b>2, CH80, -64.2</b><br><b>4, CH22, -64.5</b><br><b>.....</b><br><b>20, CH116, -74.2</b><br><b>OK</b><br><br>If <b>&lt;freq&gt;</b> is fixed frequency and command is successful:<br><b>+QSCANF:</b><br><b>CH&lt;freq&gt;, &lt;dbm&gt;</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                       | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Reference                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### Parameter

|                     |                                                                       |                                          |
|---------------------|-----------------------------------------------------------------------|------------------------------------------|
| <b>&lt;band&gt;</b> | 0                                                                     | BAND 900                                 |
|                     | 1                                                                     | BAND 1800                                |
|                     | 2                                                                     | BAND 1900                                |
|                     | 3                                                                     | BAND 850                                 |
| <b>&lt;freq&gt;</b> | 9999                                                                  | Scan all frequency in specified band     |
|                     | 0-1023                                                                | Scan a fixed frequency in specified band |
| <b>&lt;dbm&gt;</b>  | The signal strength indication in dbm value for a specified frequency |                                          |

**NOTE**

Before using this AT command, RF function of system MUST be disabled. Please make sure CFUN state is 0 or 4. About how to change CFUN state, please refer to AT command **AT+CFUN**.

## 6.9. AT+QLOCKF Lock GSM Frequency

### AT+QLOCKF Lock GSM Frequency

|                                                                                                                  |                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QLOCKF=?</b>                                                                               | Response<br><b>+QLOCKF:</b> (list of supported <b>&lt;mode&gt;s</b> ),(list of supported <b>&lt;band1900&gt;s</b> ), (list of supported <b>&lt;arfcn&gt;s</b> )<br><br><b>OK</b> |
| Read Command<br><b>AT+QLOCKF?</b>                                                                                | Response<br><b>+QLOCKF: &lt;status&gt;</b><br><br><b>OK</b>                                                                                                                      |
| Write Command<br><b>AT+QLOCKF=&lt;mode&gt;,&lt;band1900&gt;,&lt;arfcn1&gt;[,&lt;arfcn2&gt;[,&lt;arfcn3&gt;]]</b> | Response<br><b>OK</b><br><b>ERROR</b><br><b>+CME ERROR: &lt;err&gt;</b>                                                                                                          |
| Maximum Response Time                                                                                            | 300 ms                                                                                                                                                                           |
| Reference                                                                                                        |                                                                                                                                                                                  |

#### Parameter

|                         |        |                                                                           |
|-------------------------|--------|---------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b>     | 0      | Disable lock frequency                                                    |
|                         | 1      | Enable lock frequency                                                     |
|                         | 2      | Enable lock frequency and auto switch to saved frequency after powered on |
| <b>&lt;band1900&gt;</b> | 0      | Not a cell ID of 1900 band                                                |
|                         | 1      | Cell ID of 1900 band                                                      |
|                         | 2      | Auto distinguish whether is a cell ID of 1900 band                        |
| <b>&lt;arfcn&gt;</b>    | 0-1024 | ARFCN information                                                         |
| <b>&lt;status&gt;</b>   | 0      | ME has not locked a certain ARFCN                                         |
|                         | 1      | ME has locked a certain ARFCN                                             |

# 7 Call Related Commands

## 7.1. ATA Answer an Incoming Call

| ATA Answer an Incoming Call     |                                                                                                                                                                                                                                                             |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATA</b> | Response<br>TA sends off-hook to the remote station. When TA returns to command mode after call release:<br><b>OK</b><br><br>Response in case of voice call, if successfully connected:<br><b>OK</b><br><br>Response if no connection:<br><b>NO CARRIER</b> |
| Maximum Response Time           | 1s, determined by network.                                                                                                                                                                                                                                  |
| Reference<br>V.25ter            |                                                                                                                                                                                                                                                             |

### NOTE

- Any additional commands on the same command line are ignored.
- This command may be aborted generally by receiving a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.
- See also **ATX**.

### Example

```

RING                                     //A voice call is ringing
AT+CLCC
+CLCC: 1,1,4,0,0,"02154450290",129,""

OK
ATA                                     //Accept the voice call with ATA
OK
  
```

## 7.2. ATD Mobile Originated Call to Dial a Number

### ATD Mobile Originated Call to Dial a Number

|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATD&lt;n&gt;[&lt;mgs&gt;][;]</b> | <p>Response</p> <p>This command can be used to set up outgoing voice, data or FAX calls. It also serves to control supplementary services.</p> <p>If no dial tone and (parameter setting <b>ATX2</b> or <b>ATX4</b>):<br/><b>NO DIALTONE</b></p> <p>If busy and (parameter setting <b>ATX3</b> or <b>ATX4</b>):<br/><b>BUSY</b></p> <p>If a connection cannot be established:<br/><b>NO CARRIER</b></p> <p>When TA returns to command mode after call release:<br/><b>OK</b></p> <p>If connection is successful and voice call:<br/><b>OK</b></p> |
| Maximum Response Time                                    | 1s, determined by network.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Reference<br>V.25ter                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### Parameter

|                  |                                                                                                                                                                                                      |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;n&gt;</b> | <p>String of dialing digits and optionally V.25ter modifiers</p> <p>Dialing digits: <b>0-9, *, #, +, A, B, C</b></p> <p>Following V.25ter modifiers are ignored: <b>, (comma), T, P, !, W, @</b></p> |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Emergency call:

|                    |                                                                             |
|--------------------|-----------------------------------------------------------------------------|
| <b>&lt;n&gt;</b>   | Standardized emergency number 112(no SIM needed)                            |
| <b>&lt;mgs&gt;</b> | String of <b>GSM</b> modifiers:                                             |
| <b>I</b>           | Activates <b>CLIR</b> (Disables presentation of own number to called party) |
| <b>i</b>           | Deactivates <b>CLIR</b> (Enable presentation of own number to called party) |
| <b>G</b>           | Activates closed user group invocation for this call only                   |
| <b>g</b>           | Deactivates closed user group invocation for this call only                 |
| <b>&lt;;&gt;</b>   | Only required to set up voice call, return to command state                 |

**NOTE**

1. This command may be aborted generally by receiving an **ATH** command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.
2. Parameter "l" and "i" only if no \*# code is within the dial string.
3. <n> is default value for last number that can be dialed by **ATDL**.
4. \*# codes sent with **ATD** are treated as voice calls. Therefore, the command must be terminated with a semicolon ";".
5. See **ATX** command for setting result code and call monitoring parameters.
6. Responses returned after dialing with **ATD**
  - For voice call two different responses mode can be determined. TA returns "OK" immediately either after dialing was completed or after the call was established. The setting is controlled by **AT+COLP**. Factory default is **AT+COLP=0**, which causes the TA returns "OK" immediately after dialing was completed, otherwise TA will return "OK", "BUSY", "NO DIAL TONE", "NO CARRIER".
7. Using **ATD** during an active voice call:
  - When a user originates a second voice call while there is already an active voice call, the first call will be automatically put on hold.
  - The current states of all calls can be easily checked at any time by using the **AT+CLCC** command.

**Example**

```
ATD10086;           //Dialing out the party's number
OK
```

## 7.3. ATH Disconnect Existing Connection

### ATH Disconnect Existing Connection

|                                    |                                                                                                     |
|------------------------------------|-----------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATH[n]</b> | Response<br>Disconnect existing call by local TE from command line and terminate call.<br><b>OK</b> |
| Maximum Response Time              | 90 s, determined by network.                                                                        |
| Reference<br>V.25ter               |                                                                                                     |

## Parameter

|     |   |                                         |
|-----|---|-----------------------------------------|
| <n> | 0 | Disconnect from line and terminate call |
|-----|---|-----------------------------------------|

### NOTE

**OK** is issued after circuit 109 (DCD) is turned off, if it was previously on.

## 7.4. +++ Switch from Data Mode to Command Mode

### +++ Switch from Data Mode to Command Mode

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br>+++ | <p>Response</p> <p>This command is only available during TA is in data mode, such as, a GPRS connection and a transparent TCPIP connection. The “+++” character sequence causes the TA to cancel the data flow over the AT interface and switch to command mode. This allows you to enter AT command while maintaining the data connection with the remote server or, accordingly, the GPRS connection.</p> <p><b>OK</b></p> |
| Maximum Response Time    | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Reference<br>V.25ter     |                                                                                                                                                                                                                                                                                                                                                                                                                              |

### NOTE

- To prevent the “+++” escape sequence from being misinterpreted as data, it should comply to following sequence:
  - No characters entered for T1 time (0.5 seconds).
  - “+++” characters entered with no characters in between. For PPP online mode, the interval between two “+” MUST should be less than 1 second and for a transparent TCPIP connection, the interval MUST be less than 20 ms.
  - No characters entered for T1 time (0.5 seconds).
  - Switch to command mode, otherwise go to step 1.
- To return from command mode back to data or PPP online mode: Enter **ATO**
  - Another way to change to command mode is through DTR, see **AT&D** command for the details.

## 7.5. ATO Switch from Command Mode to Data Mode

### ATO Switch from Command Mode to Data Mode

|                                    |                                                                                                                                                                                                                                                       |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATO[n]</b> | Response<br>TA resumes the connection and switches back from command mode to data mode.<br>If connection is not successfully resumed:<br><b>NO CARRIER</b><br>else<br>TA returns to data mode from command mode <b>CONNECT</b><br><b>&lt;text&gt;</b> |
| Maximum Response Time              | 300 ms                                                                                                                                                                                                                                                |
| Reference<br>V.25ter               |                                                                                                                                                                                                                                                       |

#### Parameter

|     |   |                                       |
|-----|---|---------------------------------------|
| <n> | 0 | Switch from command mode to data mode |
|-----|---|---------------------------------------|

#### NOTE

TA returns to data mode from command mode **CONNECT <text>,<text>** only if parameter setting is X>0.

## 7.6. ATP Select Pulse Dialing

### ATP Select Pulse Dialing

|                                 |                       |
|---------------------------------|-----------------------|
| Execution Command<br><b>ATP</b> | Response<br><b>OK</b> |
| Maximum Response Time           | 300 ms                |
| Reference<br>V.25ter            |                       |

#### NOTE

No effect in GSM.

## 7.7. ATSO Set Number of Rings before Automatically Answering Call

### ATSO Set Number of Rings before Automatically Answering Call

|                                        |                                                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------|
| Read Command<br><b>ATSO?</b>           | Response<br><n><br><br>OK                                                                   |
| Write Command<br><b>ATSO=&lt;n&gt;</b> | Response<br>This parameter setting determines the number of rings before auto-answer.<br>OK |
| Maximum Response Time                  | 300 ms                                                                                      |
| Reference<br>V.25ter                   |                                                                                             |

#### Parameter

|     |       |                                                         |
|-----|-------|---------------------------------------------------------|
| <n> | 0     | Automatic answering is disabled                         |
|     | 1-255 | Enable automatic answering on the ring number specified |

#### NOTE

If <n> is set too high, the calling party may hang up before the call can be answered automatically.

#### Example

```

ATSO=3           //Set three rings before automatically answering a call
OK

RING            //Call coming
RING
RING
RING            //Automatically answering the call after three rings
    
```

## 7.8. ATS6 Set Pause before Blind Dialing

### ATS6 Set Pause before Blind Dialing

|                              |                 |
|------------------------------|-----------------|
| Read Command<br><b>ATS6?</b> | Response<br><n> |
|------------------------------|-----------------|

|                                        |                       |
|----------------------------------------|-----------------------|
|                                        | OK                    |
| Write Command<br><b>ATS6=&lt;n&gt;</b> | Response<br><b>OK</b> |
| Maximum Response Time                  | 300 ms                |
| Reference<br>V.25ter                   |                       |

### Parameter

**<n>**    0-2-10    Number of seconds to wait before blind dialing

#### NOTE

No effect in GSM.

## 7.9. ATS7 Set Number of Seconds to Wait for Connection Completion

### ATS7 Set Number of Seconds to Wait for Connection Completion

|                                        |                                                                                                                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Read Command<br><b>ATS7?</b>           | Response<br><b>&lt;n&gt;</b><br><br><b>OK</b>                                                                                                                   |
| Write Command<br><b>ATS7=&lt;n&gt;</b> | Response<br>This parameter setting determines the amount of time to wait for the connection completion in case of answering or originating a call.<br><b>OK</b> |
| Maximum Response Time                  | 300 ms                                                                                                                                                          |
| Reference<br>V.25ter                   |                                                                                                                                                                 |

### Parameter

**<n>**    1-60-255    Number of seconds to wait for connection completion

**NOTE**

1. If called party has specified a high value for **ATS0=<n>**, call setup may fail.
2. The correlation between **ATS7** and **ATS0** is important, for example: Call may fail if **ATS7=30** and **ATS0=20**.
3. **ATS7** is only applicable to data call.

## 7.10. ATS8 Set the Number of Seconds to Wait for Comma Dial Modifier

### ATS8 Set the Number of Seconds to Wait for Comma Dial Modifier

|                                        |                                               |
|----------------------------------------|-----------------------------------------------|
| Read Command<br><b>ATS8?</b>           | Response<br><b>&lt;n&gt;</b><br><br><b>OK</b> |
| Write Command<br><b>ATS8=&lt;n&gt;</b> | Response<br><b>OK</b>                         |
| Maximum Response Time                  | 300 ms                                        |
| Reference<br>V.25ter                   |                                               |

#### Parameter

|                  |       |                                                |
|------------------|-------|------------------------------------------------|
| <b>&lt;n&gt;</b> | 0     | No pause when comma encountered in dial string |
|                  | 1-255 | Number of seconds to wait                      |

**NOTE**

No effect in GSM.

## 7.11. ATS10 Set Disconnect Delay after Indicating the Absence of Data Carrier

### ATS10 Set Disconnect Delay after Indicating the Absence of Data Carrier

|                               |                              |
|-------------------------------|------------------------------|
| Read Command<br><b>ATS10?</b> | Response<br><b>&lt;n&gt;</b> |
|-------------------------------|------------------------------|

|                                         |                                                                                                                                                                                                                                       |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         | OK                                                                                                                                                                                                                                    |
| Write Command<br><b>ATS10=&lt;n&gt;</b> | Response<br>This parameter setting determines the amount of time that the TA will remain connected in absence of data carrier. If the data carrier is once more detected before disconnection, the TA remains connected.<br><b>OK</b> |
| Maximum Response Time                   | 300 ms                                                                                                                                                                                                                                |
| Reference<br>V.25ter                    |                                                                                                                                                                                                                                       |

### Parameter

<n>     1-15-254     Number of delay in 100 ms

## 7.12. ATT Select Tone Dialing

### ATT Select Tone Dialing

|                                 |                       |
|---------------------------------|-----------------------|
| Execution Command<br><b>ATT</b> | Response<br><b>OK</b> |
| Maximum Response Time           | 300 ms                |
| Reference<br>V.25ter            |                       |

#### NOTE

No effect in GSM.

## 7.13. AT+CSTA Select Type of Address

### AT+CSTA Select Type of Address

|                                  |                                                                        |
|----------------------------------|------------------------------------------------------------------------|
| Test Command<br><b>AT+CSTA=?</b> | Response<br><b>+CSTA:</b> (list of supported <type>s)<br><br><b>OK</b> |
|----------------------------------|------------------------------------------------------------------------|

|                                 |                                                         |
|---------------------------------|---------------------------------------------------------|
| Read Command<br><b>AT+CSTA?</b> | Response<br><b>+CSTA: &lt;type&gt;</b><br><br><b>OK</b> |
| Maximum Response Time           | 300 ms                                                  |
| Reference<br>GSM 07.07          |                                                         |

## Parameter

|                     |                                         |
|---------------------|-----------------------------------------|
| <b>&lt;type&gt;</b> | Current address type setting.           |
| <u>129</u>          | Unknown type (ISDN format number)       |
| 145                 | International number type (ISDN format) |
| 161                 | National number type (ISDN format)      |

## 7.14. AT+CLCC List Current Calls of ME

### AT+CLCC List Current Calls of ME

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CLCC=?</b>    | Response<br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Execution Command<br><b>AT+CLCC</b> | Response<br>TA returns a list of current calls of ME. If command succeeds but no calls are available, no information response is sent to TE.<br><b>[+CLCC: &lt;id1&gt;,&lt;dir&gt;,&lt;stat&gt;,&lt;mode&gt;,&lt;mpty&gt;[,&lt;number&gt;,&lt;type&gt;[, ""]]</b><br><b>[&lt;CR&gt;&lt;LF&gt;+CLCC: &lt;id2&gt;,&lt;dir&gt;,&lt;stat&gt;,&lt;mode&gt;,&lt;mpty&gt;[,&lt;number&gt;,&lt;type&gt;[, ""]]</b><br><b>[...]]</b><br><br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time               | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Reference<br>GSM 07.07              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Parameter

|                       |                                                                                                                                                   |                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| <b>&lt;idx&gt;</b>    | Integer type; call identification number as described in GSM 02.30 sub clause 4.5.5.1; this number can be used in <b>+CHLD</b> Command operations |                                                         |
| <b>&lt;dir&gt;</b>    | 0                                                                                                                                                 | Mobile originated (MO) call                             |
|                       | 1                                                                                                                                                 | Mobile terminated (MT) call                             |
| <b>&lt;stat&gt;</b>   | State of the call                                                                                                                                 |                                                         |
|                       | 0                                                                                                                                                 | Active                                                  |
|                       | 1                                                                                                                                                 | Held                                                    |
|                       | 2                                                                                                                                                 | Dialing (MO call)                                       |
|                       | 3                                                                                                                                                 | Alerting (MO call)                                      |
|                       | 4                                                                                                                                                 | Incoming (MT call)                                      |
|                       | 5                                                                                                                                                 | Waiting (MT call)                                       |
| <b>&lt;mode&gt;</b>   | Bearer/tele service                                                                                                                               |                                                         |
|                       | 0                                                                                                                                                 | Voice                                                   |
|                       | 1                                                                                                                                                 | Data                                                    |
|                       | 2                                                                                                                                                 | FAX                                                     |
|                       | 9                                                                                                                                                 | Unknown                                                 |
| <b>&lt;mpty&gt;</b>   | 0                                                                                                                                                 | Call is not one of multiparty (conference) call parties |
|                       | 1                                                                                                                                                 | Call is one of multiparty (conference) call parties     |
| <b>&lt;number&gt;</b> | Phone number in string type in format specified by <b>&lt;type&gt;</b>                                                                            |                                                         |
| <b>&lt;type&gt;</b>   | Type of address of octet in integer format                                                                                                        |                                                         |
|                       | 129                                                                                                                                               | Unknown type (ISDN format number)                       |
|                       | 145                                                                                                                                               | International number type (ISDN format)                 |

## Example

**AT+CLCC**

**+CLCC: 1,0,0,0,0,"10086",129,""** //List the current call of ME

OK

## 7.15. AT+CR Service Reporting Control

### AT+CR Service Reporting Control

|                                |                                                                                    |
|--------------------------------|------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CR=?</b> | Response<br><b>+CR:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+CR?</b>  | Response<br><b>+CR:</b> <b>&lt;mode&gt;</b>                                        |

|                                              |                                                                                                                                                                |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                              | OK                                                                                                                                                             |
| Write Command<br><b>AT+CR=[&lt;mode&gt;]</b> | Response<br>TA controls whether or not intermediate result code <b>+CR:</b><br><b>&lt;serv&gt;</b> is returned from the TA to the TE when a call set up.<br>OK |
| Maximum Response Time                        | 300 ms                                                                                                                                                         |
| Reference<br>GSM 07.07                       |                                                                                                                                                                |

### Parameter

|        |          |                              |
|--------|----------|------------------------------|
| <mode> | 0        | Disable                      |
|        | 1        | Enable                       |
| <serv> | ASYN     | Asynchronous transparent     |
|        | SYN      | Synchronous transparent      |
|        | REL ASYN | Asynchronous non-transparent |
|        | REL SYN  | Synchronous non-transparent  |

### NOTE

Intermediate result code:

If it is enabled, an intermediate result code is transmitted at the point during connect negotiation at which the TA has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before any final result code (e.g. **CONNECT**) is transmitted.

## 7.16. AT+CRC Set Cellular Result Codes for Incoming Call Indication

### AT+CRC Set Cellular Result Codes for Incoming Call Indication

|                                               |                                                                                                 |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CRC=?</b>               | Response<br><b>+CRC:</b> (list of supported <mode>s)<br><br>OK                                  |
| Read Command<br><b>AT+CRC?</b>                | Response<br><b>+CRC:</b> <mode><br><br>OK                                                       |
| Write Command<br><b>AT+CRC=[&lt;mode&gt;]</b> | Response<br>TA controls whether or not the extended format of incoming call indication is used. |

|                        |        |
|------------------------|--------|
|                        | OK     |
| Maximum Response Time  | 300 ms |
| Reference<br>GSM 07.07 |        |

## Parameter

|                     |          |                         |
|---------------------|----------|-------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Disable extended format |
|                     | 1        | Enable extended format  |

## NOTE

Unsolicited result code:

When it is enabled, an incoming call is indicated to the TE with unsolicited result code **+CRING: <type>** instead of the normal **RING**.

Parameter

|                     |              |                              |
|---------------------|--------------|------------------------------|
| <b>&lt;type&gt;</b> | ASYNCRING    | Asynchronous transparent     |
|                     | SYNCRING     | Synchronous transparent      |
|                     | RELASYNCRING | Asynchronous non-transparent |
|                     | RELSYNCRING  | Synchronous non-transparent  |
|                     | FAXRING      | Facsimile                    |
|                     | VOICERING    | Voice                        |

## Example

```

AT+CRING=1 //Enable extended format
OK

+CRING: VOICE //Indicate incoming call to the TE
ATH
OK
AT+CRING=0 //Disable extended format
OK

RING //Indicate incoming call to the TE
ATH
OK

```

## 7.17. AT+CSNS Single Numbering Scheme

| AT+CSNS Single Numbering Scheme                |                                                                                      |
|------------------------------------------------|--------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CSNS=?</b>               | Response<br><b>+CSNS:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+CSNS?</b>                | Response<br><b>+CSNS:</b> <b>&lt;mode&gt;</b><br><br><b>OK</b>                       |
| Write Command<br><b>AT+CSNS=[&lt;mode&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                |
| Maximum Response Time                          | 300 ms                                                                               |
| Reference<br>GSM 07.07                         |                                                                                      |

### Parameter

|                     |          |                                     |
|---------------------|----------|-------------------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Voice                               |
|                     | 1        | Alternating voice/FAX, voice first  |
|                     | 2        | FAX                                 |
|                     | 3        | Alternating voice/data, voice first |
|                     | 4        | Data                                |
|                     | 5        | Alternating voice/FAX, FAX first    |
|                     | 6        | Alternating voice/data, data first  |
|                     | 7        | Voice followed by data              |

## 7.18. AT+QSFR Preference Speech Coding

| AT+QSFR Preference Speech Coding |                                                                                      |
|----------------------------------|--------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QSFR=?</b> | Response<br><b>+QSFR:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QSFR?</b>  | Response<br><b>+QSFR:</b> <b>&lt;mode&gt;</b>                                        |

|                                              |                                       |
|----------------------------------------------|---------------------------------------|
|                                              | OK                                    |
| Write Command<br><b>AT+QSFR=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b> |
| Maximum Response Time                        | 300 ms                                |
| Reference                                    |                                       |

## Parameter

|                     |          |                                 |
|---------------------|----------|---------------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Automatic mode                  |
|                     | 1        | FR                              |
|                     | 2        | HR                              |
|                     | 3        | EFR                             |
|                     | 4        | AMR_FR                          |
|                     | 5        | AMR_HR                          |
|                     | 6        | FR and EFR, FR priority         |
|                     | 7        | EFR and FR, EFR priority        |
|                     | 8        | EFR and HR, EFR priority        |
|                     | 9        | EFR and AMR_FR, EFR priority    |
|                     | 10       | AMR_FR and FR, AMR_FR priority  |
|                     | 11       | AMR_FR and HR, AMR_FR priority  |
|                     | 12       | AMR_FR and EFR, AMR_FR priority |
|                     | 13       | AMR_HR and FR, AMR_HR priority  |
|                     | 14       | AMR_HR and HR, AMR_HR priority  |
|                     | 15       | AMR_HR and EFR, AMR_HR priority |

### NOTE

This setting is stored in the non-volatile memory and will be used whenever the module is powered up again.

## 7.19. AT+QSPCH Speech Channel Type Report

### AT+QSPCH Speech Channel Type Report

|                                   |                                                                                       |
|-----------------------------------|---------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QSPCH=?</b> | Response<br><b>+QSPCH:</b> (list of supported <b>&lt;mode&gt;s</b> )<br><br><b>OK</b> |
|-----------------------------------|---------------------------------------------------------------------------------------|

|                                               |                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|
| Read Command<br><b>AT+QSPCH?</b>              | Response<br><b>+QSPCH: &lt;mode&gt;,&lt;speech channel&gt;</b><br><br><b>OK</b> |
| Write Command<br><b>AT+QSPCH=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                           |
| Maximum Response Time                         | 300 ms                                                                          |
| Reference                                     |                                                                                 |

## Parameter

|                               |                     |                                    |
|-------------------------------|---------------------|------------------------------------|
| <b>&lt;mode&gt;</b>           | <u>0</u>            | Disable report speech channel type |
|                               | 1                   | Enable report speech channel type  |
| <b>&lt;speech channel&gt;</b> | Speech channel type |                                    |
|                               | <u>0</u>            | NO SPEECH TCH                      |
|                               | 1                   | FR                                 |
|                               | 2                   | HR                                 |
|                               | 3                   | EFR                                |
|                               | 4                   | AMR_FR                             |
|                               | 5                   | AMR_HR                             |

### NOTE

URC **+QSPCH: <mode>,<speech channel>** will be indicated when speech channel type changes.

## 7.20. AT+QDISH Disable ATH

### AT+QDISH Disable ATH

|                                                     |                                                                                     |
|-----------------------------------------------------|-------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QDISH=?</b>                   | Response<br><b>+QDISH: (list of supported &lt;disableath&gt;s)</b><br><br><b>OK</b> |
| Read Command<br><b>AT+QDISH?</b>                    | Response<br><b>+QDISH: &lt;disableath&gt;</b><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QDISH=&lt;disableath&gt;</b> | Response<br><b>OK</b>                                                               |

|                       |                                                                            |
|-----------------------|----------------------------------------------------------------------------|
|                       | If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time | 300 ms                                                                     |
| Reference             |                                                                            |

## Parameter

|              |                             |
|--------------|-----------------------------|
| <disableath> | Disable ATH                 |
|              | <u>0</u> Enable ATH command |
|              | 1 Disable ATH command       |

# 8 SMS Commands

## 8.1. AT+CSMS Select Message Service

| AT+CSMS Select Message Service     |                                                                                                                  |
|------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Test Command<br>AT+CSMS=?          | Response<br>+CSMS: (list of supported <service>s)<br><br>OK                                                      |
| Read Command<br>AT+CSMS?           | Response<br>+CSMS: <service>,<mt>,<mo>,<bm><br><br>OK                                                            |
| Write Command<br>AT+CSMS=<service> | Response<br>+CSMS: <mt>,<mo>,<bm><br><br>OK<br><br>If error is related to ME functionality:<br>+CMS ERROR: <err> |
| Maximum Response Time              | 300 ms                                                                                                           |
| Reference<br>GSM 07.05             |                                                                                                                  |

### Parameter

|           |     |                                                                                                                                                                                                                                                             |
|-----------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <service> | 0   | GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with GSM 07.05 Phase 2 version 4.7.0; Phase 2+ features which do not require new command syntax may be supported (e.g. correct routing of messages with new Phase 2+ data coding schemes)) |
|           | 128 | SMS PDU mode - TPDU only used for ending/receiving SMSs                                                                                                                                                                                                     |
| <mt>      |     | Mobile Terminated Messages                                                                                                                                                                                                                                  |
|           | 0   | Type not supported                                                                                                                                                                                                                                          |
|           | 1   | Type supported                                                                                                                                                                                                                                              |
| <mo>      |     | Mobile Originated Messages                                                                                                                                                                                                                                  |

|      |                         |                    |
|------|-------------------------|--------------------|
| <bm> | 0                       | Type not supported |
|      | 1                       | Type supported     |
|      | Broadcast Type Messages |                    |
|      | 0                       | Type not supported |
|      | 1                       | Type supported     |

## 8.2. AT+CMGF Select SMS Message Format

| AT+CMGF Select SMS Message Format |                                                                                             |
|-----------------------------------|---------------------------------------------------------------------------------------------|
| Test Command<br>AT+CMGF=?         | Response<br>+CMGF: (list of supported <mode>s)<br><br>OK                                    |
| Read Command<br>AT+CMGF?          | Response<br>+CMGF: <mode><br><br>OK                                                         |
| Write Command<br>AT+CMGF=[<mode>] | Response<br>TA sets parameter to denote which kind of I/O format of messages is used.<br>OK |
| Maximum Response Time             | 300 ms                                                                                      |
| Reference<br>GSM 07.05            |                                                                                             |

### Parameter

|        |   |           |
|--------|---|-----------|
| <mode> | 0 | PDU mode  |
|        | 1 | Text mode |

## 8.3. AT+CSCA SMS Service Center Address

| AT+CSCA SMS Service Center Address |                                  |
|------------------------------------|----------------------------------|
| Test Command<br>AT+CSCA=?          | Response<br>OK                   |
| Read Command<br>AT+CSCA?           | Response<br>+CSCA: <sca>,<tosca> |

|                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                             | OK                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Write Command<br><b>AT+CSCA=&lt;sca&gt;[,&lt;tosca&gt;]</b> | <p>Response</p> <p>TA updates the SMSC address, through which mobile originated SMS are transmitted. In text mode, setting is used by sending and writing commands. In PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into <b>&lt;pdu&gt;</b> parameter equals zero.</p> <p>OK</p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> |
| Maximum Response Time                                       | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Reference<br>GSM 07.05                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |

## Parameter

|                       |                                                                                                                                                                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;sca&gt;</b>    | GSM 04.11 RP SC address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by <b>+CSCS</b> in TS 07.07); type of address given by <b>&lt;tosca&gt;</b> |
| <b>&lt; tosca&gt;</b> | Service center address format GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer to <b>&lt;toda&gt;</b> )                                                                                                                                        |

## NOTE

The Command writes the parameters in NON-VOLATILE memory.

## Example

```

AT+CSCA="+8613800210500",145 //SMS service center address
OK
AT+CSCA? //Query SMS service center address
+CSCA: "+8613800210500",145
OK

```

## 8.4. AT+CPMS Preferred SMS Message Storage

| AT+CPMS Preferred SMS Message Storage                                      |                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CPMS=?</b>                                           | Response<br><b>+CPMS:</b> (list of supported <b>&lt;mem1&gt;s</b> ),(list of supported <b>&lt;mem2&gt;s</b> ),(list of supported <b>&lt;mem3&gt;s</b> )<br><br><b>OK</b>                                                                                                                                                                                            |
| Read Command<br><b>AT+CPMS?</b>                                            | Response<br><b>+CPMS:</b><br><b>&lt;mem1&gt;,&lt;used1&gt;,&lt;total1&gt;,&lt;mem2&gt;,&lt;used2&gt;,&lt;total2&gt;,&lt;mem3&gt;,&lt;used3&gt;,&lt;total3&gt;</b><br><br><b>OK</b>                                                                                                                                                                                  |
| Write Command<br><b>AT+CPMS=&lt;mem1&gt;[,&lt;mem2&gt;[,&lt;mem3&gt;]]</b> | Response<br>TA selects memory storages <b>&lt;mem1&gt;</b> , <b>&lt;mem2&gt;</b> and <b>&lt;mem3&gt;</b> to be used for reading, writing, etc.<br><b>+CPMS:</b><br><b>&lt;used1&gt;,&lt;total1&gt;,&lt;used2&gt;,&lt;total2&gt;,&lt;used3&gt;,&lt;total3&gt;</b><br><br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CMS ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                      | 300 ms                                                                                                                                                                                                                                                                                                                                                              |
| Reference<br>GSM 07.05                                                     |                                                                                                                                                                                                                                                                                                                                                                     |

### Parameter

|                     |                                                                                                                                                                                    |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mem1&gt;</b> | Messages to be read and deleted from this memory storage<br><u>"SM"</u> SIM message storage<br>"ME" Mobile Equipment message storage<br>"MT" Sum of "SM" and "ME" storages         |
| <b>&lt;mem2&gt;</b> | Messages will be written and sent to this memory storage<br><u>"SM"</u> SIM message storage<br>"ME" Mobile Equipment message storage<br>"MT" Sum of "SM" and "ME" storages         |
| <b>&lt;mem3&gt;</b> | Received messages will be placed in this memory storage if routing to PC is not set (" <b>+CNMI</b> ")<br><u>"SM"</u> SIM message storage<br>"ME" Mobile Equipment message storage |

|          |                                                      |
|----------|------------------------------------------------------|
|          | "MT" Sum of "SM" and "ME" storages                   |
| <usedx>  | Integer type; Number of messages currently in <memx> |
| <totalx> | Integer type; Number of messages storable in <memx>  |

#### NOTE

The message storages of SIM and ME offer maximum space for 60, the SIM message storage will be priority stored. The SIM storage offer maximum space for 50, the ME storage offer maximum space for 10.

#### Example

```
AT+CPMS="SM","SM","SM" //Set SMS message storage as "SM"
+CPMS: 0,50,0,50,0,50

OK
AT+CPMS? //Query the current SMS message storage
+CPMS: "SM",0,50,"SM",0,50,"SM",0,50

OK
```

## 8.5. AT+CMGD Delete SMS Message

### AT+CMGD Delete SMS Message

|                                                                 |                                                                                                                                                                                                      |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CMGD=?</b>                                | Response<br><b>+CMGD:</b> (list of supported <index>s),(list of supported <delflag>s)<br><br><b>OK</b>                                                                                               |
| Write Command<br><b>AT+CMGD=&lt;index&gt;[,&lt;delflag&gt;]</b> | Response<br>TA deletes message from preferred message storage <mem1> location <index>.<br><b>OK</b><br><b>ERROR</b><br><br>If error is related to ME functionality:<br><b>+CMS ERROR:&lt;err&gt;</b> |
| Maximum Response Time                                           | 300 ms<br>Note: Operation of <delflag> depends on the storage of deleted messages.                                                                                                                   |
| Reference                                                       |                                                                                                                                                                                                      |

GSM 07.05

## Parameter

|                        |                                                                                                                                                                          |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;index&gt;</b>   | Integer type; value in the range of location numbers supported by the associated memory                                                                                  |
| <b>&lt;delflag&gt;</b> | <u>0</u> Delete message specified in <b>&lt;index&gt;</b>                                                                                                                |
|                        | 1 Delete all read messages from <b>&lt;mem1&gt;</b> storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched               |
|                        | 2 Delete all read messages from <b>&lt;mem1&gt;</b> storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched |
|                        | 3 Delete all read messages from <b>&lt;mem1&gt;</b> storage, sent and unsent mobile originated messages, leaving unread messages untouched                               |
|                        | 4 Delete all messages from <b>&lt;mem1&gt;</b> storage                                                                                                                   |

## Example

```

AT+CMGD=1 //Delete message specified in <index>=1
OK
AT+CMGD=1,4 //Delete all messages from <mem1> storage
OK

```

## 8.6. AT+CMGL List SMS Messages from Preferred Store

### AT+CMGL List SMS Messages from Preferred Store

|                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CMGL=?</b>                            | Response<br><b>+CMGL:</b> (list of supported <b>&lt;stat&gt;</b> s)<br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Write Command<br><b>AT+CMGL=&lt;stat&gt;[,&lt;mode&gt;]</b> | Response<br>TA returns messages with status value <b>&lt;stat&gt;</b> from message storage <b>&lt;mem1&gt;</b> to the TE. If status of the message is 'received unread', status in the storage changes to 'received read'.<br><br>1) If text mode ( <b>+CMGF=1</b> ) and command successful:<br>for SMS-SUBMITs and/or SMS-DELIVERs:<br><b>+CMGL:</b><br><b>&lt;index&gt;,&lt;stat&gt;,&lt;oa/da&gt;,[&lt;alpha&gt;],[&lt;scts&gt;][,&lt;tooa/toda&gt;,&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;[&lt;CR&gt;&lt;LF&gt;</b><br><b>+CMGL:</b> |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <p>&lt;index&gt;,&lt;stat&gt;,&lt;da/oa&gt;,&lt;[alpha]&gt;,&lt;[scts]&gt;,&lt;[tooa/toda&gt;,&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;[...]]</p> <p>for SMS-STATUS-REPORTs:</p> <p><b>+CMGL:</b></p> <p>&lt;index&gt;,&lt;stat&gt;,&lt;fo&gt;,&lt;mr&gt;,&lt;[ra]&gt;,&lt;[tora]&gt;,&lt;scts&gt;,&lt;dt&gt;,&lt;st&gt;]&lt;CR&gt;&lt;LF&gt;</p> <p><b>+CMGL:</b></p> <p>&lt;index&gt;,&lt;stat&gt;,&lt;fo&gt;,&lt;mr&gt;,&lt;[ra]&gt;,&lt;[tora]&gt;,&lt;scts&gt;,&lt;dt&gt;,&lt;st&gt;]&lt;[...]]</p> <p>for SMS-COMMANDs:</p> <p><b>+CMGL:</b> &lt;index&gt;,&lt;stat&gt;,&lt;fo&gt;,&lt;ct&gt;]&lt;CR&gt;&lt;LF&gt;</p> <p><b>+CMGL:</b> &lt;index&gt;,&lt;stat&gt;,&lt;fo&gt;,&lt;ct&gt;]&lt;[...]]</p> <p>for CBM storage:</p> <p><b>+CMGL:</b>&lt;index&gt;,&lt;stat&gt;,&lt;sn&gt;,&lt;mid&gt;,&lt;page&gt;,&lt;pages&gt;&lt;CR&gt;&lt;LF&gt;&lt;data&gt;]&lt;CR&gt;&lt;LF&gt;</p> <p><b>+CMGL:</b></p> <p>&lt;index&gt;,&lt;stat&gt;,&lt;sn&gt;,&lt;mid&gt;,&lt;page&gt;,&lt;pages&gt;&lt;CR&gt;&lt;LF&gt;&lt;data&gt;]&lt;[...]]</p> <p>OK</p> <p>2) If PDU mode (<b>+CMGF=0</b>) and Command successful:</p> <p><b>+CMGL:</b>&lt;index&gt;,&lt;stat&gt;,&lt;[alpha]&gt;,&lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt; pdu&gt;&lt;CR&gt;&lt;LF&gt;</p> <p><b>+CMGL:</b></p> <p>&lt;index&gt;,&lt;stat&gt;,&lt;[alpha]&gt;,&lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt;]&lt;[...]]</p> <p>OK</p> <p>3) If error is related to ME functionality:</p> <p><b>+CMS ERROR:</b> &lt;err&gt;</p> |
| Maximum Response Time  | <p>300 ms</p> <p>Note: Operation of &lt;stat&gt; depends on the storage of listed messages.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Reference<br>GSM 07.05 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## Parameter

|        |                                                                                                              |
|--------|--------------------------------------------------------------------------------------------------------------|
| <stat> | <p>1) If text mode</p> <p>"REC UNREAD" Received unread messages</p> <p>"REC READ" Received read messages</p> |
|--------|--------------------------------------------------------------------------------------------------------------|

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                               |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
|          | "STO UNSENT"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Stored unsent messages                        |
|          | "STO SENT"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Stored sent messages                          |
|          | "ALL"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | All messages                                  |
|          | 2) If PDU mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |
|          | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Received unread messages                      |
|          | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Received read messages                        |
|          | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Stored unsent messages                        |
|          | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Stored sent messages                          |
|          | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | All messages                                  |
| <mode>   | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Normal (default)                              |
|          | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Not change status of the specified SMS record |
| <alpha>  | String type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific; used character set should be the one selected with command select TE character set <b>+CSCS</b> (see definition of this command in TS 07.07)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                               |
| <da>     | GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer to command <b>+CSCS</b> in TS 07.07); type of address given by <tda>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |
| <data>   | <p>In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format</p> <ul style="list-style-type: none"> <li>– if &lt;dcs&gt; indicates that GSM 03.38 default alphabet is used and &lt;fo&gt; indicates that GSM 03.40 TP-User-Data-Header-Indication is not set</li> <li>– if TE character set other than "HEX" (refer to Command Select TE character set <b>+CSCS</b> in TS 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A</li> <li>– if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55))</li> <li>– if &lt;dcs&gt; indicates that 8-bit or UCS2 data coding scheme is used, or &lt;fo&gt; indicates that GSM 03.40 TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))</li> </ul> <p>In the case of CBS: GSM 03.41 CBM Content of Message in text mode responses; format:</p> <ul style="list-style-type: none"> <li>– if &lt;dcs&gt; indicates that GSM 03.38 default alphabet is used</li> <li>– if TE character set other than "HEX" (refer to Command <b>+CSCS</b> in GSM 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A</li> <li>– if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number</li> <li>– if &lt;dcs&gt; indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number</li> </ul> |                                               |
| <length> | Integer type value indicating in the text mode ( <b>+CMGF=1</b> ) the length of the message body <data> (or <cdata>) in characters; or in PDU mode ( <b>+CMGF=0</b> ), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                               |
| <index>  | Integer type; value in the range of location numbers supported by the associated memory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                               |
| <oa>     | GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                               |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;pdu&gt;</b>  | GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer to command <b>+CSCS</b> in TS 07.07); type of address given by <b>&lt;tooa&gt;</b><br>In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format |
| <b>&lt;scts&gt;</b> | GSM 03.40 TP-Service-Center-Time-Stamp in time-string format (refer to <b>&lt;dt&gt;</b> )                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>&lt;toda&gt;</b> | GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <b>&lt;da&gt;</b> is + (IRA 43) default value is 145, otherwise default value is 129)                                                                                                                                                                                                                                                                                                                                                       |
| <b>&lt;tooa&gt;</b> | GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (refer to <b>&lt;toda&gt;</b> )                                                                                                                                                                                                                                                                                                                                                                                                                                      |

#### NOTE

If parameter is omitted the command returns the list of SMS with "REC UNREAD" status.

#### Example

```

AT+CMGF=1 //Set SMS message format as text mode
OK
AT+CMGL="ALL" //List all messages from message storage
+CMGL: 1,"STO UNSENT","", "",
This is a test from Quectel

+CMGL: 2,"STO UNSENT","", "",
This is a test from Quectel,once again.

OK

```

## 8.7. AT+CMGR Read SMS Message

| AT+CMGR Read SMS Message                                     |                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CMGR=?</b>                             | Response<br><b>OK</b>                                                                                                                                                                                                                                                                              |
| Write Command<br><b>AT+CMGR=&lt;index&gt;[,&lt;mode&gt;]</b> | Response<br>TA returns SMS message with location value <b>&lt;index&gt;</b> from message storage <b>&lt;mem1&gt;</b> to the TE. If status of the message is 'received unread', status in the storage changes to 'received read'.<br><br>1) If text mode ( <b>+CMGF=1</b> ) and command is executed |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <p>successfully:</p> <p>for SMS-DELIVER:</p> <p><b>+CMGR:</b></p> <p>&lt;stat&gt;,&lt;oa&gt;,[&lt;alpha&gt;],&lt;scts&gt;[,&lt;tooa&gt;,&lt;fo&gt;,&lt;pid&gt;,&lt;dcsc&gt;,&lt;sca&gt;,&lt;tosca&gt;,&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</p> <p>for SMS-SUBMIT:</p> <p><b>+CMGR:</b></p> <p>&lt;stat&gt;,&lt;da&gt;,[&lt;alpha&gt;][,&lt;toda&gt;,&lt;fo&gt;,&lt;pid&gt;,&lt;dcsc&gt;,&lt;vp&gt;],&lt;sca&gt;,&lt;tosca&gt;,&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</p> <p>for SMS-STATUS-REPORTS:</p> <p><b>+CMGR:</b></p> <p>&lt;stat&gt;,&lt;fo&gt;,&lt;mr&gt;,[&lt;ra&gt;],[&lt;tora&gt;],&lt;scts&gt;,&lt;dt&gt;,&lt;st&gt;</p> <p>for SMS-COMMANDS:</p> <p><b>+CMGR:</b></p> <p>&lt;stat&gt;,&lt;fo&gt;,&lt;ct&gt;[,&lt;pid&gt;,[&lt;mn&gt;],[&lt;da&gt;],[&lt;toda&gt;],&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;cdata&gt;]</p> <p>for CBM storage:</p> <p><b>+CMGR:</b></p> <p>&lt;stat&gt;,&lt;sn&gt;,&lt;mid&gt;,&lt;dcsc&gt;,&lt;page&gt;,&lt;pages&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</p> <p>2) If PDU mode (+CMGF=0) and command successful:</p> <p><b>+CMGR:</b> &lt;stat&gt;,[&lt;alpha&gt;],&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt;</p> <p><b>OK</b></p> <p>3) If error is related to ME functionality:</p> <p><b>+CMS ERROR: &lt;err&gt;</b></p> |
| Maximum Response Time  | Depends on the length of message content.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Reference<br>GSM 07.05 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Parameter

|         |                                                                                                                                                                   |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <index> | Integer type; value in the range of location numbers supported by the associated memory                                                                           |
| <mode>  | 0 Normal                                                                                                                                                          |
|         | 1 Not change the status of the specified SMS record                                                                                                               |
| <alpha> | String type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific |

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;da&gt;</b>     | GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by <b>+CSCS</b> in TS 07.07); type of address given by <b>&lt;toa&gt;</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>&lt;data&gt;</b>   | <p>In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format</p> <ul style="list-style-type: none"> <li>– if <b>&lt;dc&gt;</b> indicates that GSM 03.38 default alphabet is used and <b>&lt;fo&gt;</b> indicates that GSM 03.40 TP-User-Data-Header-Indication is not set</li> <li>– if TE character set other than "HEX" (refer to command select TE character set <b>+CSCS</b> in TS 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A</li> <li>– if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55))</li> <li>– if <b>&lt;dc&gt;</b> indicates that 8-bit or UCS2 data coding scheme is used, or <b>&lt;fo&gt;</b> indicates that GSM 03.40 TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))</li> </ul> <p>In the case of CBS: GSM 03.41 CBM Content of Message in text mode responses; format</p> <ul style="list-style-type: none"> <li>– if <b>&lt;dc&gt;</b> indicates that GSM 03.38 default alphabet is used</li> <li>– if TE character set other than "HEX" (refer to command <b>+CSCS</b> in GSM 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A</li> <li>– if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number</li> <li>– if <b>&lt;dc&gt;</b> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number</li> </ul> |
| <b>&lt;dc&gt;</b>     | Depending on the command or result code: GSM 03.38 SMS Data Coding Scheme (default value is 0), or Cell Broadcast Data Coding Scheme in integer format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>&lt;fo&gt;</b>     | Depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default value is 17), SMS-STATUS-REPORT, or SMS-COMMAND (default value is 2) in integer format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>&lt;length&gt;</b> | Integer type value indicating in the text mode ( <b>+CMGF=1</b> ) the length of the message body <b>&lt;data&gt;</b> (or <b>&lt;cdata&gt;</b> ) in characters; or in PDU mode ( <b>+CMGF=0</b> ), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>&lt;mid&gt;</b>    | GSM 03.41 CBM Message Identifier in integer format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>&lt;oa&gt;</b>     | GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted characters of the currently selected TE character set (specified by <b>+CSCS</b> in TS 07.07); type of address given by <b>&lt;toa&gt;</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>&lt;pdu&gt;</b>    | <p>In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))</p> <p>In the case of CBS: GSM 03.41 TPDU in hexadecimal format</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>&lt;pid&gt;</b>    | GSM 03.40 TP-Protocol-Identifier in integer format (default value is 0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>&lt;sca&gt;</b>    | GSM 04.11 RP SC address Address-Value field in string format; BCD numbers (or GSM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                      |                                                                                                                                                                                            |              |                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------------|
|                      | default alphabet characters) are converted to characters of the currently selected TE character set (specified by <b>+CSCS</b> in TS 07.07); type of address given by <b>&lt;tosca&gt;</b> |              |                          |
| <b>&lt;scts&gt;</b>  | GSM 03.40 TP-Service-Centre-Time-Stamp in time-string format (refer to <b>&lt;dt&gt;</b> )                                                                                                 |              |                          |
| <b>&lt;stat&gt;</b>  | PDU mode                                                                                                                                                                                   | text mode    | Explanation              |
|                      | 0                                                                                                                                                                                          | "REC UNREAD" | Received unread messages |
|                      | 1                                                                                                                                                                                          | "REC READ"   | Received read messages   |
|                      | 2                                                                                                                                                                                          | "STO UNSENT" | Stored unsent messages   |
|                      | 3                                                                                                                                                                                          | "STO SENT"   | Stored sent messages     |
|                      | 4                                                                                                                                                                                          | "ALL"        | All messages             |
| <b>&lt;toda&gt;</b>  | GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <b>&lt;da&gt;</b> is +(IRA 43) default value is 145, otherwise default is 129)           |              |                          |
| <b>&lt;toa&gt;</b>   | GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer to <b>&lt;toda&gt;</b> )                                                                           |              |                          |
| <b>&lt;tosca&gt;</b> | GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer to <b>&lt;toda&gt;</b> )                                                                                    |              |                          |
| <b>&lt;vp&gt;</b>    | Depending on SMS-SUBMIT <b>&lt;fo&gt;</b> setting: GSM 03.40 TP-Validity-Period either in integer format (default value is 167) or in time-string format (refer to <b>&lt;dt&gt;</b> )     |              |                          |

### Example

```
+CMTI: "SM",3 //Indicates that new message has been received and saved
                  to <index>=3 of "SM"
AT+CMGR=3 //Read message
+CMGR: "REC UNREAD","+8615021012496","", "2010/09/25 15:06:37+32",145,4,0,241,"+8
613800210500",145,27
This is a test from Quectel
OK
```

## 8.8. AT+CMGS Send SMS Message

### AT+CMGS Send SMS Message

|                                                    |                                                                                |
|----------------------------------------------------|--------------------------------------------------------------------------------|
| Test Command                                       | Response                                                                       |
| <b>AT+CMGS=?</b>                                   | <b>OK</b>                                                                      |
| Write Command                                      | Response                                                                       |
| 1) If text mode ( <b>+CMGF=1</b> ):                | TA sends message from a TE to the network (SMS-SUBMIT).                        |
| <b>AT+CMGS=&lt;da&gt;[,&lt;toda&gt;]&lt;CR&gt;</b> | Message reference value <b>&lt;mr&gt;</b> is returned to the TE on             |
| <b>text is entered</b>                             | successful message delivery. Optionally (when <b>+CSMS</b>                     |
| <b>&lt;ctrl-Z/ESC&gt;</b>                          | <b>&lt;service&gt;</b> value is 1 and network supports) <b>&lt;scts&gt;</b> is |
| ESC quits without sending                          | returned. Values can be used to identify message upon                          |
|                                                    | unsolicited delivery status report result code.                                |
| 2) If PDU mode ( <b>+CMGF=0</b> ):                 |                                                                                |

|                                                                                   |                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AT+CMGS=&lt;length&gt;&lt;CR&gt;</b><br><b>PDU is given &lt;ctrl-Z/ESC&gt;</b> | 1) If text mode ( <b>+CMGF=1</b> ) and sent successfully:<br><b>+CMGS: &lt;mr&gt;</b><br><br><b>OK</b><br><br>2) If PDU mode ( <b>+CMGF=0</b> ) and sent successfully:<br><b>+CMGS: &lt;mr&gt;</b><br><br><b>OK</b><br><br>3) If error is related to ME functionality:<br><b>+CMS ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                             | 120 s, determined by network.                                                                                                                                                                                                                                                                            |
| Reference<br>GSM 07.05                                                            |                                                                                                                                                                                                                                                                                                          |

## Parameter

|                       |                                                                                                                                                                                                                                                                                                                         |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;da&gt;</b>     | GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by <b>+CSCS</b> in TS 07.07); type of address given by <b>&lt;toda&gt;</b>                                    |
| <b>&lt;toda&gt;</b>   | GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <b>&lt;da&gt;</b> is + (IRA 43) default value is 145, otherwise default value is 129)                                                                                                                                 |
| <b>&lt;length&gt;</b> | Integer type value indicating in the text mode ( <b>+CMGF=1</b> ) the length of the message body <b>&lt;data&gt;</b> (or <b>&lt;cdata&gt;</b> ) in characters; or in PDU mode ( <b>+CMGF=0</b> ), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length) |
| <b>&lt;mr&gt;</b>     | GSM 03.40 TP-Message-Reference in integer format                                                                                                                                                                                                                                                                        |

## Example

```

AT+CMGF=1                                //Set SMS message format as text mode
OK
AT+CSCS="GSM"                            //Set character set as GSM which is used by the TE
OK
AT+CMGS="15021012496"
> This is a test from Quectel             //Enter in text, <CTRL+Z> send message, <ESC> quits
                                          without sending
+CMGS: 247
OK

```

## 8.9. AT+CMGW Write SMS Message to Memory

| AT+CMGW Write SMS Message to Memory                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CMGW=?</b>                                                                                                                                                                                                                                                                                              | Response<br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Write Command<br>1) If text mode (+CMGF=1):<br><b>AT+CMGW[=&lt;oa/da&gt;[,&lt;tooa/toda&gt;[,&lt;stat&gt;]]]</b><br><CR> <b>text is entered</b><br><ctrl-Z/ESC><br><ESC> quits without sending<br><br>2) If PDU mode (+CMGF=0):<br><b>AT+CMGW=&lt;length&gt;[,&lt;stat&gt;]&lt;CR&gt;</b><br><b>PDU is given</b> <ctrl-Z/ESC> | Response<br>TA transmits SMS message (either SMS-DELIVER or SMS-SUBMIT) from TE to memory storage <mem2>. Memory location <index> of the stored message is returned. By default message status will be set to 'stored unsent', but parameter <stat> also allows other status values to be given.<br><br>If writing is successful:<br><b>+CMGW: &lt;index&gt;</b><br><br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CMS ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                                                                                                                                                                                                                                                                         | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Reference<br>GSM 07.05                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### Parameter

|        |                                                                                                                                                                                                                                                                         |                                         |                          |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------|
| <oa>   | GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by <b>+CSCS</b> in TS 07.07); type of address given by <tooa> |                                         |                          |
| <da>   | GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by <b>+CSCS</b> in TS 07.07); type of address given by <toda> |                                         |                          |
| <tooa> | GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer to <toda>)                                                                                                                                                                      |                                         |                          |
| <toda> | GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is +(IRA 43) default value is 145, otherwise default value is 129)                                                                                               |                                         |                          |
|        | 129                                                                                                                                                                                                                                                                     | Unknown type (ISDN format number)       |                          |
|        | 145                                                                                                                                                                                                                                                                     | International number type (ISDN format) |                          |
| <stat> | PDU mode                                                                                                                                                                                                                                                                | Text mode                               | Explanation              |
|        | 0                                                                                                                                                                                                                                                                       | "REC UNREAD"                            | Received unread messages |
|        | 1                                                                                                                                                                                                                                                                       | "REC READ"                              | Received read messages   |
|        | 2                                                                                                                                                                                                                                                                       | "STO UNSENT"                            | Stored unsent messages   |
|        | 3                                                                                                                                                                                                                                                                       | "STO SENT"                              | Stored sent messages     |

|                       |                                                                                                                                                                                                                                                                                                                         |       |              |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|
|                       | 4                                                                                                                                                                                                                                                                                                                       | "ALL" | All messages |
| <b>&lt;length&gt;</b> | Integer type value indicating in the text mode ( <b>+CMGF=1</b> ) the length of the message body <b>&lt;data&gt;</b> (or <b>&lt;cdata&gt;</b> ) in characters; or in PDU mode ( <b>+CMGF=0</b> ), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length) |       |              |
| <b>&lt;pdu&gt;</b>    | In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))                                          |       |              |
|                       | In the case of CBS: GSM 03.41 TPDU in hexadecimal format                                                                                                                                                                                                                                                                |       |              |
| <b>&lt;index&gt;</b>  | Index of message in selected storage <b>&lt;mem2&gt;</b>                                                                                                                                                                                                                                                                |       |              |

### Example

```

AT+CMGF=1                                //Set SMS message format as text mode
OK
AT+CSCS="GSM"                            //Set character set as GSM which is used by the TE
OK
AT+CMGW="15021012496"
> This is a test from Quectel            //Enter in text, <CTRL+Z> write message, <ESC> quits
                                         without sending

+CMGW: 4

OK

```

## 8.10. AT+CMSS Send SMS Message from Storage

### AT+CMSS Send SMS Message from Storage

|                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CMSS=?</b>                                          | Response<br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Write Command<br><b>AT+CMSS=&lt;index&gt;[,&lt;da&gt;[,&lt;toda&gt;]]</b> | <p>Response</p> <p>TA sends message with location value <b>&lt;index&gt;</b> from message storage <b>&lt;mem2&gt;</b> to the network (SMS-SUBMIT). If new recipient address <b>&lt;da&gt;</b> is given, it shall be used instead of the one stored with the message. Reference value <b>&lt;mr&gt;</b> is returned to the TE on successful message delivery. Values can be used to identify message upon unsolicited delivery status report result code.</p> <p>1) If text mode (<b>+CMGF=1</b>) and sent successfully:<br/><b>+CMSS: &lt;mr&gt; [,&lt;scts&gt;]</b></p> <p><b>OK</b></p> |

|                       |                                                                                                                                                                                                                    |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <p>2) If PDU mode(<b>+CMGF=0</b>) and sent successfully;<br/><b>+CMSS: &lt;mr&gt; [,&lt;ackpdu&gt;]</b></p> <p><b>OK</b></p> <p>3) If error is related to ME functionality:<br/><b>+CMS ERROR: &lt;err&gt;</b></p> |
| Maximum Response Time | 120 s, determined by network.                                                                                                                                                                                      |
| Reference             |                                                                                                                                                                                                                    |
| GSM 07.05             |                                                                                                                                                                                                                    |

## Parameter

|                       |                                                                                                                                                                                                                                                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;index&gt;</b>  | Integer type; value in the range of location numbers supported by the associated memory                                                                                                                                                                                                                                                  |
| <b>&lt;da&gt;</b>     | GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by <b>+CSCS</b> in TS 07.07); type of address given by <b>&lt;toda&gt;</b>                                                     |
| <b>&lt;toda&gt;</b>   | GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <b>&lt;da&gt;</b> is + (IRA 43) default value is 145, otherwise default value is 129)                                                                                                                                                  |
| <b>&lt;mr&gt;</b>     | GSM 03.40 TP-Message-Reference in integer format                                                                                                                                                                                                                                                                                         |
| <b>&lt;scts&gt;</b>   | GSM 03.40 TP-Service-Centre-Time-Stamp in time-string format (refer to <b>&lt;dt&gt;</b> )                                                                                                                                                                                                                                               |
| <b>&lt;ackpdu&gt;</b> | In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format |

## 8.11. AT+CMGC Send SMS Command

### AT+CMGC Send SMS Command

|                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command                                                                                                                                                                                                  | Response                                                                                                                                                                                                                                                            |
| <b>AT+CMGC=?</b>                                                                                                                                                                                              | <b>OK</b>                                                                                                                                                                                                                                                           |
| Write Command                                                                                                                                                                                                 | Response                                                                                                                                                                                                                                                            |
| 1) If text mode ( <b>+CMGF=1</b> ):<br><b>AT+CMGC=&lt;fo&gt;[,&lt;ct&gt;,&lt;pid&gt;,&lt;mn&gt;,&lt;da&gt;,&lt;toda&gt;]&lt;CR&gt;</b><br><b>text is entered</b><br><ctrl-Z/ESC><br>ESC quits without sending | TA transmits SMS command message from a TE to the network (SMS-COMMAND). Message reference value <b>&lt;mr&gt;</b> is returned to the TE on successful message delivery. Value can be used to identify message upon unsolicited delivery status report result code. |
| 2) If PDU mode ( <b>+CMGF=0</b> ):                                                                                                                                                                            | <p>1) If text mode(<b>+CMGF=1</b>) and sent successfully:<br/><b>+CMGC: &lt;mr&gt; [,&lt;scts&gt;]</b></p>                                                                                                                                                          |

|                                                   |                                                                                                                                                                                                                |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AT+CMGC=<length><CR><br>PDU is given <ctrl-Z/ESC> | <p>OK</p> <p>2) If PDU mode(+CMGF=0) and sent successfully:<br/><b>+CMGC: &lt;mr&gt; [,&lt;ackpdu&gt;]</b></p> <p>OK</p> <p>3) If error is related to ME functionality:<br/><b>+CMS ERROR: &lt;err&gt;</b></p> |
| Maximum Response Time                             | 300 ms                                                                                                                                                                                                         |
| Reference<br>GSM 07.05                            |                                                                                                                                                                                                                |

## Parameter

|          |                                                                                                                                                                                                                                                                                                                                          |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <fo>     | First octet of GSM 03.40 SMS-COMMAND (default value is 2) in integer format                                                                                                                                                                                                                                                              |
| <ct>     | GSM 03.40 TP-Command-Type in integer format (default value is 0)                                                                                                                                                                                                                                                                         |
| <pid>    | GSM 03.40 TP-Protocol-Identifier in integer format (default value is 0)                                                                                                                                                                                                                                                                  |
| <mn>     | GSM 03.40 TP-Message-Number in integer format                                                                                                                                                                                                                                                                                            |
| <da>     | GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <toda>                                                                         |
| <toda>   | <p>GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of &lt;da&gt; is + (IRA 43) default value is 145, otherwise default value is 129)</p> <p>129 Unknown type (ISDN format number)</p> <p>145 International number type (ISDN format)</p>                                                  |
| <length> | Integer type value indicating in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)                                                                                                                                                               |
| <mr>     | GSM 03.40 TP-Message-Reference in integer format                                                                                                                                                                                                                                                                                         |
| <scts>   | GSM 03.40 TP-Service-Centre-Time-Stamp in time-string format (refer to <dt>)                                                                                                                                                                                                                                                             |
| <ackpdu> | In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format |

## 8.12. AT+CNMI New SMS Message Indications

### AT+CNMI New SMS Message Indications

|                           |                                                                          |
|---------------------------|--------------------------------------------------------------------------|
| Test Command<br>AT+CNMI=? | Response<br><b>+CNMI:</b> (list of supported <mode>s),(list of supported |
|---------------------------|--------------------------------------------------------------------------|

|                                                                |                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                | <p>&lt;mt&gt;s),(list of supported &lt;bm&gt;s),(list of supported &lt;ds&gt;s),(list of supported &lt;bfr&gt;s)</p> <p>OK</p>                                                                                                                                                                                                                         |
| Read Command<br>AT+CNMI?                                       | <p>Response</p> <p>+CNMI: &lt;mode&gt;,&lt;mt&gt;,&lt;bm&gt;,&lt;ds&gt;,&lt;bfr&gt;</p> <p>OK</p>                                                                                                                                                                                                                                                      |
| Write Command<br>AT+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]] | <p>Response</p> <p>TA selects the procedure on how the received new messages from the network are indicated to the TE when TE is active, e.g. DTR signal is ON. If TE is inactive (e.g. DTR signal is OFF), receiving message should be done as specified in GSM 03.38.</p> <p>OK</p> <p>If error is related to ME functionality:<br/><b>ERROR</b></p> |
| Maximum Response Time                                          | 300 ms                                                                                                                                                                                                                                                                                                                                                 |
| Reference<br>GSM 07.05                                         |                                                                                                                                                                                                                                                                                                                                                        |

## Parameter

|        |                                                                                                                                                          |                                                                                                                                                                                                                        |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <mode> | 0                                                                                                                                                        | Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications |
|        | 1                                                                                                                                                        | Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE                                         |
|        | 2                                                                                                                                                        | Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE                                |
|        | 3                                                                                                                                                        | Forward unsolicited result codes directly to the TE. TA-TE link specific inband technique used to embed result codes and data when TA is in on-line data mode                                                          |
| <mt>   | (The rules for storing received SMS depend on its data coding scheme (refer to GSM 03.38 [2]), preferred memory storage (+CPMS) setting and this value): |                                                                                                                                                                                                                        |
|        | 0                                                                                                                                                        | No SMS-DELIVER indications are routed to the TE                                                                                                                                                                        |
|        | 1                                                                                                                                                        | If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE by using unsolicited result code: +CMTI: <mem>,<index>                                                                      |
|        | 2                                                                                                                                                        | SMS-DELIVERs (except class 2) are routed directly to the TE using unsolicited result code: +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled)                                                                    |

|                    |    |                                                                                                                                                                                                                                                                                           |
|--------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | or | +CMT: <oa>, [ <i>&lt;alpha&gt;</i> ],<scts>[,<tooa>,<fo>,<pid>,<dcsc>,<sca>,<tosca>,<length>]<CR><LF><data>                                                                                                                                                                               |
|                    |    | (Text mode enabled; about parameters in italics, refer to Command Show Text Mode Parameters <b>+CSDH</b> ). Class 2 messages result in indication as defined in <b>&lt;mt&gt;=1</b>                                                                                                       |
|                    | 3  | Class 3 SMS-DELIVERs are routed directly to TE by using unsolicited result codes defined in <b>&lt;mt&gt;=2</b> . Messages of other classes result in indication as defined in <b>&lt;mt&gt;=1</b>                                                                                        |
| <b>&lt;bm&gt;</b>  |    | (The rules for storing received CBMs depend on its data coding scheme (refer to GSM 03.38 [2]), the setting of Select CBM Types ( <b>+CSCB</b> ) and this value):                                                                                                                         |
|                    | 0  | No CBM indications are routed to the TE                                                                                                                                                                                                                                                   |
|                    | 2  | New CBMs are routed directly to the TE by using unsolicited result code: <b>+CBM: &lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt;</b> (PDU mode enabled) or <b>+CBM: &lt;sn&gt;,&lt;mid&gt;,&lt;dcsc&gt;,&lt;page&gt;,&lt;pages&gt;&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</b> (Text mode enabled) |
|                    | 3  | Class 3 CBMs are routed directly to TE by using unsolicited result codes defined in <b>&lt;bm&gt;=2</b> . If CBM storage is supported, messages of other classes result in indication as defined in <b>&lt;bm&gt;=1</b>                                                                   |
| <b>&lt;ds&gt;</b>  | 0  | No SMS-STATUS-REPORTs are routed to the TE                                                                                                                                                                                                                                                |
|                    | 1  | SMS-STATUS-REPORTs are routed to the TE by using unsolicited result code: <b>+CDS: &lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt;</b> (PDU mode enabled) or <b>+CDS: &lt;fo&gt;,&lt;mr&gt;,&lt;ra&gt;,&lt;tora&gt;,&lt;scts&gt;,&lt;dt&gt;,&lt;st&gt;</b> (Text mode enabled)              |
| <b>&lt;bfr&gt;</b> | 0  | TA buffer of unsolicited result codes defined in this command is flushed to the TE when <b>&lt;mode&gt;</b> 1...3 is entered ( <b>OK</b> response shall be given before flushing the codes)                                                                                               |
|                    | 1  | TA buffer of unsolicited result codes defined within this command is cleared when <b>&lt;mode&gt;</b> 1...3 is entered                                                                                                                                                                    |

#### NOTE

Unsolicited result code

**+CMTI: <mem>,<index>** Indicates that new message has been received

**+CMT: [*<alpha>*],<length><CR><LF><pdu>** Short message is output directly

**+CBM: <length><CR><LF><pdu>** Cell broadcast message is output directly

#### Example

```

AT+CMGF=1           //Set SMS message format as text mode
OK
AT+CSCS="GSM"       //Set character set as GSM which is used by the TE
OK
AT+CNMI=2,1         //SMS-DELIVER is stored into ME/TA, indication of the
                     //memory location is routed to the TE
OK

```

```
+CMTI: "SM",5 //Indicate that new message has been received
AT+CNMI=2,2 //Set SMS-DELIVERs are routed directly to the TE
OK

+CMT: "+8615021012496"," ","2010/09/25 17:25:01+32",145,4,0,241,"+8613800210500",145,27
This is a test from Quectel //Short message is output directly
```

### 8.13. AT+CRES Restore SMS Settings

| AT+CRES Restore SMS Settings                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CRES=?</b>                  | Response<br><b>+CRES:</b> (list of supported <profile>s)<br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Write Command<br><b>AT+CRES[=&lt;profile&gt;]</b> | Response<br>TA restores SMS settings from non-volatile memory to active memory. A TA can contain several profiles of settings. Settings specified in commands service centre address <b>+CSCA</b> , set message parameters <b>+CSMP</b> and select cell broadcast message types <b>+CSCB</b> (if implemented) are restored. Certain settings may not be supported by the storage (e.g. SIM SMS parameters) and therefore cannot be restored.<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>ERROR</b> |
| Maximum Response Time                             | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Reference<br>GSM 07.05                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

#### Parameter

|           |     |                                                                      |
|-----------|-----|----------------------------------------------------------------------|
| <profile> | 0-3 | Manufacturer specific profile number where settings are to be stored |
|-----------|-----|----------------------------------------------------------------------|

## 8.14. AT+CSAS Save SMS Settings

| AT+CSAS Save SMS Settings                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CSAS=?</b>                  | Response<br><b>+CSAS:</b> (list of supported <b>&lt;profile&gt;</b> s)<br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Write Command<br><b>AT+CSAS[=&lt;profile&gt;]</b> | Response<br>TA saves active message service settings to non-volatile memory. A TA can contain several profiles of settings. Settings specified in commands service centre address +CSCA, Set Message Parameters <b>+CSMP</b> and Select cell broadcast message Types <b>+CSCB</b> (if implemented) are saved. Certain settings may not be supported by the storage (e.g. SIM SMS parameters) and therefore cannot be saved.<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>ERROR</b> |
| Maximum Response Time                             | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Reference<br>GSM 07.05                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

### Parameter

**<profile>**    0-3    Manufacturer specific profile number where settings are to be stored

## 8.15. AT+CSCB Select Cell Broadcast SMS Messages

| AT+CSCB Select Cell Broadcast SMS Messages |                                                                                                            |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CSCB=?</b>           | Response<br><b>+CSCB:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b>                       |
| Read Command<br><b>AT+CSCB?</b>            | Response<br><b>+CSCB:</b> <b>&lt;mode&gt;</b> , <b>&lt;mids&gt;</b> , <b>&lt;dcss&gt;</b><br><br><b>OK</b> |

|                                                                            |                                                                                                                                                                         |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Write Command<br><b>AT+CSCB=&lt;mode&gt;[,&lt;mids&gt;[,&lt;dcss&gt;]]</b> | Response<br>TA selects which types of CBMs are to be received by the ME.<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CMS ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                      | 300 ms                                                                                                                                                                  |
| Reference<br>GSM 07.05                                                     |                                                                                                                                                                         |

### Parameter

|                     |                                                                                                                                                                  |                                                                                         |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | 0                                                                                                                                                                | Message types specified in <b>&lt;mids&gt;</b> and <b>&lt;dcss&gt;</b> are accepted     |
|                     | 1                                                                                                                                                                | Message types specified in <b>&lt;mids&gt;</b> and <b>&lt;dcss&gt;</b> are not accepted |
| <b>&lt;mids&gt;</b> | String type; all different possible combinations of CBM message identifiers (refer to <b>&lt;mid&gt;</b> ) (default is empty string)<br>e.g. "0,1,5,320-478,922" |                                                                                         |
| <b>&lt;dcss&gt;</b> | String type; all different possible combinations of CBM data coding schemes (refer to <b>&lt;dcs&gt;</b> ) (default is empty string), e.g. "0-3,5"               |                                                                                         |

### NOTE

The Command writes the parameters in NON-VOLATILE memory.

## 8.16. AT+CSDH Show SMS Text Mode Parameters

### AT+CSDH Show SMS Text Mode Parameters

|                                                |                                                                                                                |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CSDH=?</b>               | Response<br><b>+CSDH:</b> (list of supported <b>&lt;show&gt;s</b> )<br><br><b>OK</b>                           |
| Read Command<br><b>AT+CSDH?</b>                | Response<br><b>+CSDH: &lt;show&gt;</b><br><br><b>OK</b>                                                        |
| Write Command<br><b>AT+CSDH=[&lt;show&gt;]</b> | Response<br>TA determines whether detailed header information is shown in text mode result codes.<br><b>OK</b> |

|                        |        |
|------------------------|--------|
| Maximum Response Time  | 300 ms |
| Reference<br>GSM 07.05 |        |

## Parameter

|                     |          |                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;show&gt;</b> | <u>0</u> | Do not show header values defined in commands <b>+CSCA</b> and <b>+CSMP</b> ( <b>&lt;sca&gt;</b> , <b>&lt;tosca&gt;</b> , <b>&lt;fo&gt;</b> , <b>&lt;vp&gt;</b> , <b>&lt;pid&gt;</b> and <b>&lt;dc&gt;</b> ) nor <b>&lt;length&gt;</b> , <b>&lt;toda&gt;</b> or <b>&lt;toa&gt;</b> in <b>+CMT</b> , <b>+CMGL</b> , <b>+CMGR</b> result codes for SMS-DELIVERs and SMS-SUBMITs in text mode |
|                     | 1        | Show the values in result codes                                                                                                                                                                                                                                                                                                                                                            |

## Example

```

AT+CSDH=0
OK
AT+CMGR=3
+CMGR: "REC READ","+8615021012496","", "2010/09/25 15:06:37+32"
This is a test from Quectel

OK
AT+CSDH=1
OK
AT+CMGR=3
+CMGR: "REC READ","+8615021012496", , "2010/09/25 15:06:37+32",145,4,0,241,"+861
3800210500",145,27
This is a test from Quectel

OK

```

## 8.17. AT+CSMP Set SMS Text Mode Parameters

### AT+CSMP Set SMS Text Mode Parameters

|                                  |                                                                                                                                                                                                                   |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CSMP=?</b> | Response<br><b>+CSMP:</b> (list of supported <b>&lt;fo&gt;</b> s), (list of supported <b>&lt;vp&gt;</b> s),<br>(list of supported <b>&lt;pid&gt;</b> s), (list of supported <b>&lt;dc&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+CSMP?</b>  | Response<br><b>+CSMP:</b> <b>&lt;fo&gt;</b> , <b>&lt;vp&gt;</b> , <b>&lt;pid&gt;</b> , <b>&lt;dc&gt;</b>                                                                                                          |

|                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                      | OK                                                                                                                                                                                                                                                                                                                                                                                                               |
| Write Command<br><b>AT+CSMP=[&lt;fo&gt;[,&lt;vp&gt;[,&lt;pid&gt;[,&lt;dc&gt;]]]]</b> | Response<br>TA selects values for additional parameters needed when SM is sent to the network or placed in a storage when text mode is selected ( <b>+CMGF=1</b> ). It is possible to set the validity period starting from when the SM is received by the SMSC ( <b>&lt;vp&gt;</b> is in range 0... 255) or define the absolute time of the validity period termination ( <b>&lt;vp&gt;</b> is a string).<br>OK |
| Maximum Response Time                                                                | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                           |
| Reference<br>GSM 07.05                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                  |

### Parameter

|                    |                                                                                                                                                                                                                                                                             |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;fo&gt;</b>  | Depending on the Command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default value is 17), SMS-STATUS-REPORT, or SMS-COMMAND (default value is 2) in integer format. SMS status report is supported under text mode if <b>&lt;fo&gt;</b> is set to 49 |
| <b>&lt;vp&gt;</b>  | Depending on SMS-SUBMIT <b>&lt;fo&gt;</b> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer to <b>&lt;dt&gt;</b> )                                                                                               |
| <b>&lt;pid&gt;</b> | GSM 03.40 TP-Protocol-Identifier in integer format (default value is 0)                                                                                                                                                                                                     |
| <b>&lt;dc&gt;</b>  | GSM 03.38 SMS Data Coding Scheme in Integer format                                                                                                                                                                                                                          |

### NOTE

The Command writes the parameters in NON-VOLATILE memory.

## 8.18. AT+QCLASS0 Store Class 0 SMS to SIM when Receiving Class 0 SMS

| <b>AT+QCLASS0 Store Class 0 SMS to SIM when Receiving Class 0 SMS</b> |                                                                                  |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Test Command<br><b>AT+QCLASS0=?</b>                                   | Response<br><b>+QCLASS0:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br>OK |
| Read Command<br><b>AT+QCLASS0?</b>                                    | Response<br><b>+QCLASS0:</b> <b>&lt;mode&gt;</b>                                 |

|                                                 |                                       |
|-------------------------------------------------|---------------------------------------|
|                                                 | OK                                    |
| Write Command<br><b>AT+QCLASS0=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b> |
| Maximum Response Time                           | 300 ms                                |
| Reference                                       |                                       |

## Parameter

|                     |          |                                                         |
|---------------------|----------|---------------------------------------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Disable to store Class 0 SMS when receiving Class 0 SMS |
|                     | 1        | Enable to store Class 0 SMS when receiving Class 0 SMS  |

## Example

For example message in text mode:

**AT+CPMS?**

**+CPMS: "SM",6,50,"SM",6,50,"SM",6,50**

**OK**

**AT+QCLASS0=0**

//Disable to store SMS when receiving Class 0 SMS

**OK**

**+CMT: "+8615021012496",,"2010/09/26 09:55:37+32"**

**TEST1 from Quectel**

//Short message is output directly

**AT+QCLASS0=1**

//Enable to store SMS when receiving Class 0 SMS

**OK**

**+CMTI: "SM",7**

//Indicate that new message has been received

**AT+CMGR=7**

**+CMGR: "REC UNREAD","+8615021012496","", "2010/09/26 09:56:17+32"**

**TEST2 from Quectel**

**OK**

## 8.19. AT+QMGDA Delete all SMS

### AT+QMGDA Delete all SMS

|                                   |                                                                        |
|-----------------------------------|------------------------------------------------------------------------|
| Test Command<br><b>AT+QMGDA=?</b> | Response<br><b>+QMGDA:</b> (listed of supported <b>&lt;type&gt;</b> s) |
|-----------------------------------|------------------------------------------------------------------------|

|                                               |                                              |
|-----------------------------------------------|----------------------------------------------|
|                                               | OK                                           |
| Write Command<br><b>AT+QMGDA=&lt;type&gt;</b> | Response<br>OK<br>ERROR<br>+CME ERROR: <err> |
| Maximum Response Time                         | Depends on the storage of deleted messages.  |
| Reference                                     |                                              |

## Parameter

|              |                            |
|--------------|----------------------------|
| <type>       | 1) If text mode:           |
| "DEL READ"   | Delete all read messages   |
| "DEL UNREAD" | Delete all unread messages |
| "DEL SENT"   | Delete all sent SMS        |
| "DEL UNSENT" | Delete all unsent SMS      |
| "DEL INBOX"  | Delete all received SMS    |
| "DEL ALL"    | Delete all SMS             |
|              | 2) If PDU mode:            |
| 1            | Delete all read messages   |
| 2            | Delete all unread messages |
| 3            | Delete all sent SMS        |
| 4            | Delete all unsent SMS      |
| 5            | Delete all received SMS    |
| 6            | Delete all SMS             |

## 8.20. AT+QSMSCODE Configure SMS Code Mode

| AT+QSMSCODE Configure SMS Code Mode              |                                                              |
|--------------------------------------------------|--------------------------------------------------------------|
| Test Command<br><b>AT+QSMSCODE=?</b>             | Response<br>+QSMSCODE: (list of supported <mode>s)<br><br>OK |
| Read Command<br><b>AT+QSMSCODE?</b>              | Response<br>+QSMSCODE: <mode><br><br>OK                      |
| Write Command<br><b>AT+QSMSCODE=&lt;mode&gt;</b> | Response<br>OK<br>ERROR                                      |

|                       |        |
|-----------------------|--------|
| Maximum Response Time | 300 ms |
| Reference             |        |

### Parameter

|        |          |                                                                                                         |
|--------|----------|---------------------------------------------------------------------------------------------------------|
| <mode> | 0        | Code mode according with NOKIA                                                                          |
|        | <u>1</u> | Code mode according with SIEMENS                                                                        |
|        | 2        | Code mode according with NOKIA, and hexadecimal 0x11 treated as “_”<br>hexadecimal 0x02 treated as "\$" |

# 9 Phonebook Commands

## 9.1. AT+CPBS Select Phonebook Memory Storage

| AT+CPBS Select Phonebook Memory Storage         |                                                                                                                    |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CPBS=?</b>                | Response<br><b>+CPBS:</b> (list of supported <b>&lt;storage&gt;s</b> )<br><br><b>OK</b>                            |
| Read Command<br><b>AT+CPBS?</b>                 | Response<br><b>+CPBS:</b> <b>&lt;storage&gt;[,&lt;used&gt;,&lt;total&gt;]</b><br><br><b>OK</b>                     |
| Write Command<br><b>AT+CPBS=&lt;storage&gt;</b> | Response<br>TA selects current phone book memory storage, which is used by other phone book commands.<br><b>OK</b> |
| Maximum Response Time                           | 300 ms                                                                                                             |
| Reference<br>GSM 07.07                          |                                                                                                                    |

### Parameter

|                        |      |                                                                                        |
|------------------------|------|----------------------------------------------------------------------------------------|
| <b>&lt;storage&gt;</b> | "MC" | ME missed (unanswered) calls list                                                      |
|                        | "RC" | ME received calls list                                                                 |
|                        | "DC" | ME dialed calls list ( <b>+CPBW</b> may not be applicable or this storage)(same as LD) |
|                        | "LA" | Last Number All list (LND/LNM/LNR)                                                     |
|                        | "ME" | ME phonebook                                                                           |
|                        | "BN" | SIM barred dialed number                                                               |
|                        | "SD" | SIM service dial number                                                                |
|                        | "VM" | SIM voice mailbox                                                                      |
|                        | "FD" | SIM fix dialing-phone book                                                             |
|                        | "LD" | SIM last-dialing-phone book                                                            |
|                        | "ON" | SIM (or ME) own numbers (MSISDNs) list                                                 |
|                        | "SM" | SIM phonebook                                                                          |

|                      |                                                                                     |
|----------------------|-------------------------------------------------------------------------------------|
| <b>&lt;used&gt;</b>  | Integer type value indicating the total number of used locations in selected memory |
| <b>&lt;total&gt;</b> | Integer type value indicating the total number of locations in selected memory      |

#### NOTE

SIM phonebook record can store up to 250pcs and ME phonebook record can store up to 200 pcs.

## 9.2. AT+CPBW Write Phonebook Entry

### AT+CPBW Write Phonebook Entry

|                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CPBW=?</b>                                                               | Response<br>TA returns location range supported by the current storage, the maximum length of <b>&lt;number&gt;</b> field, supported number formats of the storage, and the maximum length of <b>&lt;text&gt;</b> field.<br><b>+CPBW:</b> (The range of supported <b>&lt;index&gt;</b> s), <b>&lt;nlength&gt;</b> , (list of supported <b>&lt;type&gt;</b> s), <b>&lt;tlength&gt;</b><br><br><b>OK</b>                                                                                                                        |
| Write Command<br><b>AT+CPBW=[&lt;index&gt;][,&lt;number&gt;[,&lt;type&gt;[,&lt;text&gt;]]]</b> | Response<br>TA writes phone book entry in location number <b>&lt;index&gt;</b> in the current phone book memory storage selected with <b>+CPBS</b> . Entry fields written are phone number <b>&lt;number&gt;</b> (in the format <b>&lt;type&gt;</b> ) and text <b>&lt;text&gt;</b> associated with the number. If those fields are omitted, phone book entry is deleted. If <b>&lt;index&gt;</b> is left out, but <b>&lt;number&gt;</b> is given, entry is written to the first free location in the phone book.<br><b>OK</b> |
| Maximum Response Time                                                                          | 300 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Reference<br>GSM 07.07                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

#### Parameter

|                        |                                   |
|------------------------|-----------------------------------|
| <b>&lt;nlength&gt;</b> | Maximum length of phone number    |
| <b>&lt;tlength&gt;</b> | Maximum length of text for number |
| <b>&lt;index&gt;</b>   | Location number                   |
| <b>&lt;number&gt;</b>  | Phone number                      |
| <b>&lt;type&gt;</b>    | Type of number                    |

|        |     |                                                                             |
|--------|-----|-----------------------------------------------------------------------------|
|        | 129 | Unknown type (ISDN format number)                                           |
|        | 145 | International number type (ISDN format)                                     |
| <text> |     | Text for phone number in current TE character set specified by <b>+CSCS</b> |

#### NOTE

1. If the current memory storage is "MC", "RC", "DC", "LA" or "LD", <number>, <type> and <text> parameter must be default, **AT+CPBW** command only supports settings <index> delete the number of current phone book.
2. <number> can't be empty.
3. The following characters in <text> must be entered via the escape sequence:

| GSM char | Seq.Seq.(hex) | Note               |
|----------|---------------|--------------------|
| \        | \5C 5C 35 43  | (backslash)        |
| "        | \22 5C 32 32  | (string delimiter) |
| BSP      | \08 5C 30 38  | (backspace)        |
| NULL     | \00 5C 30 30  | (GSM null)         |

'0' (GSM null) may cause problems for application layer software when reading string lengths.

#### Example

**AT+CSCS="GSM"**

OK

**AT+CPBW=10,"15021012496",129,"QUECTEL"**

OK

//Make a new phonebook entry at location 10

**AT+CPBW=10**

//Delete entry at location 10

OK

### 9.3. AT+CPBR Read Current Phonebook Entries

#### AT+CPBR Read Current Phonebook Entries

Test Command

**AT+CPBR=?**

Response

TA returns location range supported by the current storage as a compound value and the maximum lengths of <number> and <text> fields.

**+CPBR:** (list of supported <index>s),<nlength>,<tlength>

OK

Write Command

**AT+CPBR=<index1>[,<index2>]**

Response

TA returns phone book entries in location number range <index1>... <index2> from the current phone book memory storage selected with **+CPBS**. If <index2> is left out, only

|                        |                                                                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|                        | location <index1> is returned.<br>+CPBR:<index1>,<number>,<type>,<text>[<CR><LF>+CPBR: .....+CPBR: <index2>,<number>,<type>,<text>]<br><br>OK |
| Maximum Response Time  | 300 ms.<br>Note: Operation of <index2> depends on the storage of read phonebook entries.                                                      |
| Reference<br>GSM 07.07 |                                                                                                                                               |

## Parameter

|           |                                                                           |
|-----------|---------------------------------------------------------------------------|
| <index>   | Location number                                                           |
| <nlength> | Maximum length of phone number                                            |
| <tlength> | Maximum length of name for number                                         |
| <index1>  | The first phone book record to read                                       |
| <index2>  | The last phonebook record to read                                         |
| <number>  | Phone number                                                              |
| <type>    | Type of number                                                            |
| <text>    | Text name for phone number in current TE character set specified by +CSCS |

## Example

```
AT+CSCS="GSM"
```

```
OK
```

```
AT+CPBR=10
```

```
//Query phone book entries in location 10
```

```
+CPBR: 10,"15021012496",129,"QUECTEL"
```

```
OK
```

## 9.4. AT+CPBF Find Phonebook Entries

### AT+CPBF Find Phonebook Entries

|                                       |                                                                                                                          |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Test Command<br>AT+CPBF=?             | Response<br>+CPBF: <nlength>,<tlength><br><br>OK                                                                         |
| Write Command<br>AT+CPBF=[<findtext>] | Response<br>TA returns phone book entries (from the current phone book memory storage selected with +CPBS) which contain |

|                        |                                                                                                                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <p>alphanumeric string <b>&lt;findtext&gt;</b>.</p> <p>[+CPBF: &lt;index1&gt;, &lt;number&gt;,&lt;type&gt;, &lt;text&gt;[[...]<br/> &lt;CR&gt;&lt;LF&gt;+CBPF: &lt;index2&gt;,&lt;number&gt;,&lt;type&gt;,&lt;text&gt;]</p> <p>OK</p> |
| Maximum Response Time  | Depends on the storage of phonebook entries.                                                                                                                                                                                          |
| Reference<br>GSM 07.07 |                                                                                                                                                                                                                                       |

## Parameter

|                         |                                                                                                                                            |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;findtext&gt;</b> | String type field of maximum length <b>&lt;tlength&gt;</b> in current TE character set specified by +CSCS.                                 |
| <b>&lt;index1&gt;</b>   | Integer type values in the range of location numbers of phone book memory                                                                  |
| <b>&lt;index2&gt;</b>   | Integer type values in the range of location numbers of phone book memory                                                                  |
| <b>&lt;number&gt;</b>   | Phone number in string type of format <b>&lt;type&gt;</b>                                                                                  |
| <b>&lt;type&gt;</b>     | Type of address octet in integer format:<br>129      Unknown type (ISDN format number)<br>145      International number type (ISDN format) |
| <b>&lt;text&gt;</b>     | String type field of maximum length <b>&lt;tlength&gt;</b> in current TE character set specified by +CSCS                                  |
| <b>&lt;nlength&gt;</b>  | Integer type value indicating the maximum length of field <b>&lt;number&gt;</b>                                                            |
| <b>&lt;tlength&gt;</b>  | Integer type value indicating the maximum length of field <b>&lt;text&gt;</b>                                                              |

## 9.5. AT+CNUM Subscriber Number

| AT+CNUM Subscriber Number           |                                                                                                                                                                                                                   |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CNUM=?</b>    | Response<br>OK                                                                                                                                                                                                    |
| Execution Command<br><b>AT+CNUM</b> | <p>Response</p> <p>+CNUM: [&lt;alpha1&gt;],&lt;number1&gt;,&lt;type1&gt;<br/> [&lt;CR&gt;&lt;LF&gt;+CNUM: [&lt;alpha2&gt;],&lt;number2&gt;,&lt;type2&gt;<br/> [...]]</p> <p>OK</p> <p>+CME ERROR: &lt;err&gt;</p> |
| Maximum Response Time               | 300 ms                                                                                                                                                                                                            |
| Reference<br>GSM 07.07              |                                                                                                                                                                                                                   |

**Parameter**

---

|                        |                                                                                                                                                                        |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;alphax&gt;</b>  | Optional alphanumeric string associated with <b>&lt;numberx&gt;</b> ; used character set should be the one selected with command. Select TE character set <b>+CSCS</b> |
| <b>&lt;numberx&gt;</b> | Phone number in string type of format specified by <b>&lt;typex&gt;</b>                                                                                                |
| <b>&lt;typex&gt;</b>   | Type of address octet in integer format (refer to GSM 04.08subclause 10.5.4.7)                                                                                         |

---

# 10 GPRS Commands

## 10.1. AT+CGATT Attach to/Detach from GPRS Service

| AT+CGATT Attach to/Detach from GPRS Service    |                                                                                                         |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGATT=?</b>              | Response<br><b>+CGATT:</b> (list of supported <state>s)<br><br><b>OK</b>                                |
| Read Command<br><b>AT+CGATT?</b>               | Response<br><b>+CGATT:</b> <state><br><br><b>OK</b>                                                     |
| Write Command<br><b>AT+CGATT=&lt;state&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                          | 75 s, determined by network.                                                                            |
| Reference<br>GSM 07.07                         |                                                                                                         |

### Parameter

|                                                                                            |                                        |
|--------------------------------------------------------------------------------------------|----------------------------------------|
| <b>&lt;state&gt;</b>                                                                       | Indicates the state of GPRS attachment |
| 0                                                                                          | Detached                               |
| <u>1</u>                                                                                   | Attached                               |
| Other values are reserved and will result in an <b>ERROR</b> response to the Write Command |                                        |

### Example

```

AT+CGATT=1           //Attach to GPRS service
OK
AT+CGATT=0           //Detach from GPRS service
OK

```

```
AT+CGATT? //Query the current GPRS service state
+CGATT: 0
OK
```

## 10.2. AT+CGDCONT Define PDP Context

### AT+CGDCONT Define PDP Context

|                                                                                                                                      |                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGDCONT=?</b>                                                                                                  | Response<br><b>+CGDCONT:</b> (range of supported <cid>s), <PDP_type>, <APN>, <PDP_addr>, (list of supported <data_comp>s), (list of supported <head_comp>s)<br><br><b>OK</b>                                           |
| Read Command<br><b>AT+CGDCONT?</b>                                                                                                   | Response<br><b>+CGDCONT:</b><br><cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp><br><b>&lt;CR&gt;&lt;LF&gt;+CGDCONT:</b><br><cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp><br>...<br><br><b>OK</b> |
| Write Command<br><b>AT+CGDCONT=&lt;cid&gt;[,&lt;PDP_type&gt;[,&lt;APN&gt;[,&lt;PDP_addr&gt;[,&lt;d_comp&gt;[,&lt;h_comp&gt;]]]]]</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                                                                                                                                                  |
| Maximum Response Time                                                                                                                | 300 ms                                                                                                                                                                                                                 |
| Reference<br>GSM 07.07                                                                                                               |                                                                                                                                                                                                                        |

### Parameter

|                         |                                                                                                                                                                                                                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;cid&gt;</b>      | (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value=1) is returned by the test form of the command |
| <b>&lt;PDP_type&gt;</b> | (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol X25 ITU-T/CCITT X.25 layer 3 IP Internet Protocol (IETF STD 5) OSPFH Internet Hosted Octet Stream Protocol PPP Point to Point Protocol (IETF STD 51)                                           |

|                         |                                                                                                                                                                                                                                                                                                                      |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;APN&gt;</b>      | (Access Point Name) a string parameter that is a logical name that is used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested                                                                                                    |
| <b>&lt;PDP_addr&gt;</b> | A string parameter identifies the MT in the address space applicable to the PDP. If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The allocated address may be read using the <b>+CGPADDR</b> command |
| <b>&lt;d_comp&gt;</b>   | A numeric parameter that controls PDP data compression<br>0 Off (default if value is omitted)<br>Other values are reserved                                                                                                                                                                                           |
| <b>&lt;h_comp&gt;</b>   | A numeric parameter that controls PDP header compression<br>0 Off (default if value is omitted)<br>Other values are reserved                                                                                                                                                                                         |

### Example

```
AT+CGDCONT=1,"IP","CMNET" //Define PDP context, <cid>=1, <PDP_type>=IP,<APN>=CMNET
OK
```

## 10.3. AT+CGQREQ Quality of Service Profile (Requested)

### AT+CGQREQ Quality of Service Profile (Requested)

|                                                                                                                   |                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGQREQ=?</b>                                                                                | Response<br><b>+CGQREQ: &lt;PDP_type&gt;,(list of supported &lt;precedence&gt;s),</b><br>(list of supported <delay>s),(list of supported <reliability>s),<br>(list of supported <peak>s),(list of supported <mean>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+CGQREQ?</b>                                                                                 | Response<br><b>+CGQREQ:</b><br><cid>,<precedence>,<delay>,>reliability>,<peak>,<mean<br>><br><CR><LF>+CGQREQ:<br><cid>,<precedence>,<delay>,<reliability>,<peak >,<mean<br>><br>...<br><br><b>OK</b>                                  |
| Write Command<br><b>AT+CGQREQ=&lt;cid&gt;,&lt;precedence&gt;[,</b><br><delay>,<reliability>,<peak>,<mean<br>>]]]] | Response<br><b>OK</b><br><br>If error is related to ME functionality:                                                                                                                                                                 |

|                        |                                |
|------------------------|--------------------------------|
|                        | <b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time  | 300 ms                         |
| Reference<br>GSM 07.07 |                                |

## Parameter

**<cid>** A numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command)

The following parameter are defined in GSM 03.60

**<precedence>** A numeric parameter which specifies the precedence class

**<delay>** A numeric parameter which specifies the delay class

**<reliability>** A numeric parameter which specifies the reliability class

**<peak>** A numeric parameter which specifies the peak throughput class

**<mean>** A numeric parameter which specifies the mean throughput class

## 10.4. AT+CGQMIN Quality of Service Profile (Minimum Acceptable)

| AT+CGQMIN Quality of Service Profile (Minimum Acceptable)                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGQMIN=?</b>                                                                                                     | <p>Response</p> <p><b>+CGQMIN: &lt;PDP_type&gt;</b>, (list of supported <b>&lt;precedence&gt;</b>s), (list of supported <b>&lt;delay&gt;</b>s), (list of supported <b>&lt;reliability&gt;</b>s), (list of supported <b>&lt;peak&gt;</b>s), (list of supported <b>&lt;mean&gt;</b>s)</p> <p><b>OK</b></p>                                                                                                                                    |
| Read Command<br><b>AT+CGQMIN?</b>                                                                                                      | <p>Response</p> <p><b>+CGQMIN:</b></p> <p><b>&lt;cid&gt;</b>,<b>&lt;precedence&gt;</b>,<b>&lt;delay&gt;</b>,<b>&lt;reliability&gt;</b>,<b>&lt;peak&gt;</b>,<b>&lt;mean&gt;</b></p> <p><b>&gt;</b></p> <p><b>&lt;CR&gt;&lt;LF&gt;+CGQMIN:</b></p> <p><b>&lt;cid&gt;</b>,<b>&lt;precedence&gt;</b>,<b>&lt;delay&gt;</b>,<b>&lt;reliability&gt;</b>,<b>&lt;peak&gt;</b>,<b>&lt;mean&gt;</b></p> <p><b>&gt;</b></p> <p>...</p> <p><b>OK</b></p> |
| Write Command<br><b>AT+CGQMIN=&lt;cid&gt;[,&lt;precedence&gt;[,&lt;delay&gt;[,&lt;reliability&gt;[,&lt;peak&gt;[,&lt;mean&gt;]]]]]</b> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p>                                                                                                                                                                                                                                                                                                                      |

|                        |        |
|------------------------|--------|
| Maximum Response Time  | 300 ms |
| Reference<br>GSM 07.07 |        |

## Parameter

**<cid>** A numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command)

The following parameters are defined in GSM 03.60.

**<precedence>** A numeric parameter which specifies the precedence class

**<delay>** A numeric parameter which specifies the delay class

**<reliability>** A numeric parameter which specifies the reliability class

**<peak>** A numeric parameter which specifies the peak throughput class

**<mean>** A numeric parameter which specifies the mean throughput class

## 10.5. AT+CGACT PDP Context Activate or Deactivate

### AT+CGACT PDP Context Activate or Deactivate

|                                                            |                                                                                                                                         |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGACT=?</b>                          | Response<br><b>+CGACT:</b> (list of supported <b>&lt;state&gt;</b> s)<br><br><b>OK</b>                                                  |
| Read Command<br><b>AT+CGACT?</b>                           | Response<br><b>+CGACT:</b><br><b>&lt;cid&gt;,&lt;state&gt;[&lt;CR&gt;&lt;LF&gt;+CGACT:&lt;cid&gt;&lt;state&gt;...]</b><br><br><b>OK</b> |
| Write Command<br><b>AT+CGACT=&lt;state&gt;,&lt;cid&gt;</b> | Response<br><b>OK</b><br><b>NO CARRIER</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>            |
| Maximum Response Time                                      | 150 s, determined by network.                                                                                                           |
| Reference<br>GSM 07.07                                     |                                                                                                                                         |

## Parameter

|                      |                                                                                                         |
|----------------------|---------------------------------------------------------------------------------------------------------|
| <b>&lt;state&gt;</b> | Indicates the state of PDP context activation                                                           |
| 0                    | Deactivated                                                                                             |
| 1                    | Activated                                                                                               |
|                      | Other values are reserved and will result in an <b>ERROR</b> response to the Write Command              |
| <b>&lt;cid&gt;</b>   | A numeric parameter which specifies a particular PDP context definition (see <b>AT+CGDCONT</b> command) |

### NOTE

If context is deactivated successfully, **NO CARRIER** is returned.

## Example

```

AT+CGDCONT=1,"IP","CMNET"           //Define PDP context
OK
AT+CGACT=1,1                          //Activated PDP
OK
AT+CGACT=0,1                          //Deactivated PDP
NO CARRIER

```

## 10.6. AT+CGDATA Enter Data State

### AT+CGDATA Enter Data State

|                                                                                 |                                                                                                                              |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGDATA=?</b>                                              | Response<br><b>+CGDATA:</b> (list of supported <L2P>s)<br><br><b>OK</b>                                                      |
| Write Command<br><b>AT+CGDATA=&lt;L2P&gt;[,&lt;cid&gt;[,&lt;cid&gt;[,...]]]</b> | Response<br><b>OK</b><br><b>NO CARRIER</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                           | 300 ms                                                                                                                       |
| Reference<br>GSM 07.07                                                          |                                                                                                                              |

## Parameter

|                    |                                                                                                                                                                                                                                                       |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;L2P&gt;</b> | A string parameter that indicates the layer 2 protocol to be used between the TE and MT:<br>PPP – Point to Point protocol for a PDP such as IP<br>Other values are not supported and will result in an <b>ERROR</b> response to the execution command |
| <b>&lt;cid&gt;</b> | A numeric parameter which specifies a particular PDP context definition (see <b>AT+CGDCONT</b> command)                                                                                                                                               |

## 10.7. AT+CGPADDR Show PDP Address

### AT+CGPADDR Show PDP Address

|                                                |                                                                                                               |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGPADDR=?</b>            | Response<br><b>+CGPADDR:</b> (list of defined <b>&lt;cid&gt;</b> s)<br><br><b>OK</b>                          |
| Write Command<br><b>AT+CGPADDR=&lt;cid&gt;</b> | Response<br><b>+CGPADDR:</b> <b>&lt;cid&gt;</b> [, <b>&lt;PDP_addr&gt;</b> ]<br><br><b>OK</b><br><b>ERROR</b> |
| Maximum Response Time                          | 300 ms                                                                                                        |
| Reference<br>GSM 07.07                         |                                                                                                               |

## Parameter

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;cid&gt;</b>      | A numeric parameter which specifies a particular PDP context definition (see <b>+CGDCONT</b> command)                                                                                                                                                                                                                                                                                                                                                |
| <b>&lt;PDP_addr&gt;</b> | A string that identifies the MT in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the <b>+CGDCONT</b> command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to <b>&lt;cid&gt;</b> .<br><b>&lt;PDP_address&gt;</b> is omitted if none is available |

### NOTE

This command dictates the behaviour of PPP in the ME but not that of any other GPRS-enabled foreground layer, e.g. browser.

## Example

```

AT+CGDCONT=1,"IP","CMNET"           //Define PDP context
OK
AT+CGACT=1,1                         //Activated PDP
OK
AT+CGPADDR=1                         //Show PDP address
+CGPADDR: 1,"10.76.51.180"
OK

```

## 10.8. AT+CGCLASS GPRS Mobile Station Class

| AT+CGCLASS GPRS Mobile Station Class             |                                                                                                                         |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGCLASS=?</b>              | Response<br><b>+CGCLASS:</b> (list of supported <class>s)<br><br><b>OK</b>                                              |
| Read Command<br><b>AT+CGCLASS?</b>               | Response<br><b>+CGCLASS:</b> <class><br><br><b>OK</b>                                                                   |
| Write Command<br><b>AT+CGCLASS=&lt;class&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                            | 30 s, determined by network.                                                                                            |
| Reference<br>GSM 07.07                           |                                                                                                                         |

## Parameter

|                      |                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------|
| <b>&lt;class&gt;</b> | A string parameter which indicates the GPRS mobile class (Functionality in descending order) |
| <b>"B"</b>           | Class B                                                                                      |
| <b>"CG"</b>          | Class C in GPRS only mode                                                                    |
| <b>"CC"</b>          | Class C in circuit switched only mode                                                        |

## 10.9. AT+CGEREP Control Unsolicited GPRS Event Reporting

| AT+CGEREP Control Unsolicited GPRS Event Reporting |                                                                                        |
|----------------------------------------------------|----------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGEREP=?</b>                 | Response<br><b>+CGEREP:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+CGEREP?</b>                  | Response<br><b>+CGEREP:</b> <b>&lt;mode&gt;</b><br><br><b>OK</b>                       |
| Maximum Response Time                              | 300 ms                                                                                 |
| Write Command<br><b>AT+CGEREP=&lt;mode&gt;</b>     | Response<br><b>OK</b><br><b>ERROR</b>                                                  |
| Reference<br>GSM 07.07                             |                                                                                        |

### Parameter

|                     |          |                                                                                                                                                |
|---------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest one can be discarded. No codes are forwarded to the TE |
|                     | 1        | Discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE            |

### NOTE

Unsolicited Result Codes supported:

**+CGEV:** NW DEACT **<PDP\_type>**, **<PDP\_addr>**[**<cid>**]

**+CGEV:** ME DEACT **<PDP\_type>**, **<PDP\_addr>**[**<cid>**]

**+CGEV:** NW DETACH

**+CGEV:** ME CLASS **<class>**

Parameters

**<PDP\_type>** Packet Data Protocol type (see **+CGDCONT** command)

**<PDP\_addr>** Packet Data Protocol address (see **+CGDCONT** command)

**<cid>** Context ID (see **+CGDCONT** command)

**<class>** GPRS mobile class (see **+CGCLASS** command)

## 10.10. AT+CGREG Network Registration Status

| AT+CGREG Network Registration Status         |                                                                      |
|----------------------------------------------|----------------------------------------------------------------------|
| Test Command<br><b>AT+CGREG=?</b>            | Response<br><b>+CGREG:</b> (list of supported <n>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+CGREG?</b>             | Response<br><b>+CGREG:</b> <n>,<stat>[,<lac>,<ci>]<br><br><b>OK</b>  |
| Write Command<br><b>AT+CGREG=[&lt;n&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>                                |
| Maximum Response Time                        | 300 ms                                                               |
| Reference<br>GSM 07.07                       |                                                                      |

### Parameter

|        |   |                                                                                                                    |
|--------|---|--------------------------------------------------------------------------------------------------------------------|
| <n>    | 0 | Disable network registration unsolicited result code                                                               |
|        | 1 | Enable network registration unsolicited result code +CGREG:<stat>                                                  |
|        | 2 | Enable network registration and location information unsolicited result code<br><b>+CGREG:</b> <stat>[,<lac>,<ci>] |
| <stat> | 0 | Not registered, ME is not currently searching a new operator to register to                                        |
|        | 1 | Registered, home network                                                                                           |
|        | 2 | Not registered, but ME is currently searching a new operator to register to                                        |
|        | 3 | Registration denied                                                                                                |
|        | 4 | Unknown                                                                                                            |
| <lac>  | 5 | Registered, roaming                                                                                                |
|        |   | String type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)                 |
| <ci>   |   | String type; two bytes cell ID in hexadecimal format                                                               |

### NOTE

For parameter state, options of 0 and 1 are supported only.

## Example

```

AT+CGATT=0
NO CARRIER

+CGREG: 0,"1878","0873"
AT+CGATT=1
OK

+CGREG: 2,"1878","0873"

+CGREG: 1,"1878","0873"

```

## 10.11. AT+CGSMS Select Service for MO SMS Messages

| AT+CGSMS Select Service for MO SMS Messages        |                                                                                                         |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CGSMS=?</b>                  | Response<br><b>+CGSMS:</b> (list of currently available <service>s)<br><br><b>OK</b>                    |
| Read Command<br><b>AT+CGSMS?</b>                   | Response<br><b>+CGSMS:</b> <service><br><br><b>OK</b>                                                   |
| Write Command<br><b>AT+CGSMS=[&lt;service&gt;]</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                              | 300 ms                                                                                                  |
| Reference<br>GSM 07.07                             |                                                                                                         |

## Parameter

|                        |                                                                                  |
|------------------------|----------------------------------------------------------------------------------|
| <b>&lt;service&gt;</b> | A numeric parameter which indicates the service or service preference to be used |
| 0                      | GPRS                                                                             |
| <u>1</u>               | Circuit switch                                                                   |
| 2                      | GPRS preferred (use circuit switched if GPRS not available)                      |
| 3                      | Circuit switch preferred (use GPRS if circuit switched not available)            |

**NOTE**

The circuit switched service route is the default method.

## 10.12. AT+QGPCLASS Change GPRS Multi-slot Class

### AT+QGPCLASS Change GPRS Multi-slot Class

|                                                   |                                                                                             |
|---------------------------------------------------|---------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QGPCLASS=?</b>              | Response<br><b>MULTISLOT CLASS:</b> (list of currently available <class>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QGPCLASS?</b>               | Response<br><b>MULTISLOT CLASS:</b> <class><br><br><b>OK</b>                                |
| Write Command<br><b>AT+QGPCLASS=&lt;class&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                       |
| Maximum Response Time                             | 300 ms                                                                                      |
| Reference                                         |                                                                                             |

#### Parameter

|         |                                                   |
|---------|---------------------------------------------------|
| <class> | GPRS multi-slot class<br>1-12 default value is 12 |
|---------|---------------------------------------------------|

**NOTE**

Need to reboot for the change of GPRS multi-slot class to take effect.

# 11 TCPIP Commands

## 11.1. AT+QIOPEN Start up TCP or UDP Connection

| AT+QIOPEN Start up TCP or UDP Connection                                                                          |                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QIOPEN=?</b>                                                                                | Response<br><b>+QIOPEN:</b> (list of supported <b>&lt;mode&gt;</b> s),( <b>IP address range</b> ),( <b>port</b> )<br><CR><LF> <b>+QIOPEN:</b> (list of supported <b>&lt;mode&gt;</b> s),( <b>domain name</b> ),( <b>port</b> )<br><br><b>OK</b>                                                                                                                        |
| Write Command<br><b>AT+QIOPEN=[&lt;index&gt;,&lt;mode&gt;,&lt;IP address&gt;/&lt;domain name&gt;,&lt;port&gt;</b> | Response<br>If format is right, respond:<br><b>OK</b><br><br>Otherwise respond:<br><b>ERROR</b><br><br>If the connection has already existed, respond:<br><b>ALREADY CONNECT</b><br><br>And then if connection is successful, respond:<br><b>[&lt;index&gt;,&lt;mode&gt;] CONNECT OK</b><br><br>Otherwise respond:<br><b>[&lt;index&gt;,&lt;mode&gt;] CONNECT FAIL</b> |
| Maximum Response Time                                                                                             | 75 s, determined by network.                                                                                                                                                                                                                                                                                                                                           |
| Reference                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                        |

### Parameter

|                      |                                                                                                                                                                                                                                                                |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;index&gt;</b> | A numeric indicates which socket opens the connection. M95 supports at most 6 sockets at the same time. This parameter is necessary only if <b>AT+QIMUX</b> was set as 1 (refer to <b>AT+QIMUX</b> ). When <b>AT+QIMUX</b> was set as 0, the parameter MUST be |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                            |                                                                                         |
|----------------------------|-----------------------------------------------------------------------------------------|
|                            | omitted                                                                                 |
| <b>&lt;mode&gt;</b>        | A string parameter which indicates the connection type                                  |
|                            | "TCP" Establish a TCP connection                                                        |
|                            | "UDP" Establish a UDP connection                                                        |
| <b>&lt;IP address&gt;</b>  | A string parameter that gives the address of the remote server in dotted decimal style. |
| <b>&lt;port&gt;</b>        | The port of the remote server                                                           |
|                            | 0-65535                                                                                 |
| <b>&lt;domain name&gt;</b> | A string parameter which represents the domain name address of the remote server        |

#### NOTE

1. This command is allowed to establish a TCP/UDP connection only when the state is IP INITIAL or IP STATUS or IP CLOSE. So it is necessary to process "AT+QIDEACT" or "AT+QICLOSE" before establishing a TCP/UDP connection with this command when the state is not IP INITIAL or IP STATUS or IP CLOSE.
2. If **AT+QIMUX** was set as 0 and the current state is CONNECT OK, which means the connection channel is used, it will reply "ALREADY CONNECT" after issuing the Write command.

## 11.2. AT+QISEND Send Data through TCP or UDP Connection

### AT+QISEND Send Data through TCP or UDP Connection

|                                                                                                                                               |                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QISEND=?</b>                                                                                                            | Response<br><b>+QISEND: &lt;length&gt;</b><br><br><b>OK</b>                                                                                                                                                                      |
| Execution Command<br><b>AT+QISEND</b><br>response"> ", then type data to send, tap CTRL+Z to send, tap ESC to cancel the operation            | Response<br>This command is used to send changeable length data.<br>If connection is not established or disconnected:<br><b>ERROR</b><br><br>If sending succeeds:<br><b>SEND OK</b><br><br>If sending fails:<br><b>SEND FAIL</b> |
| Write Command<br>1)When AT+QIMUX=0<br><b>AT+QISEND=&lt;length&gt;</b><br>2)When AT+QIMUX=1<br><b>AT+QISEND=&lt;index&gt;[,&lt;length&gt;]</b> | Response<br>This command is used to send fixed-length data or send data on the given socket (defined by <b>&lt;index&gt;</b> ).<br>If connection is not established or disconnected:<br><b>ERROR</b>                             |

|                       |                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------|
|                       | If sending succeeds:<br><b>SEND OK</b><br><br>If sending fails:<br><b>SEND FAIL</b> |
| Maximum Response Time | 300 ms                                                                              |
| Reference             |                                                                                     |

## Parameter

|                       |                                                                                                                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;index&gt;</b>  | The index of the socket for sending data. This parameter is necessary only if <b>AT+QIMUX</b> was set as 1 (refer to <b>AT+QIMUX</b> ). When <b>AT+QIMUX</b> was set as 0, the parameter MUST be omitted |
| <b>&lt;length&gt;</b> | A numeric parameter which indicates the length of data to be sent, it MUST be less than 1460                                                                                                             |

### NOTE

1. This command is used to send data on the TCP or UDP connection that has been established already. 'Ctrl+Z' is used as a termination symbol. ESC is used to cancel sending data.
2. The maximum length of the data to input at a time is 1460.
3. There are at most 1460 bytes that can be sent each time.
4. Only send data at the status of connection, otherwise respond with **ERROR**.
5. **SEND OK** means the data have been put into the send window to send rather than it has received the ACK message for the data from the remote node. To check whether the data has been sent to the remote node, it is necessary to execute the command **AT+QISACK** to query it.

## 11.3. AT+QICLOSE Close TCP or UDP Connection

### AT+QICLOSE Close TCP or UDP Connection

|                                                  |                                                                                          |
|--------------------------------------------------|------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QICLOSE=?</b>              | Response<br><b>OK</b>                                                                    |
| Execution Command<br><b>AT+QICLOSE</b>           | Response<br>If close succeeds:<br><b>CLOSE OK</b><br><br>If close fails:<br><b>ERROR</b> |
| Write Command<br><b>AT+QICLOSE=&lt;index&gt;</b> | Response<br>If close succeeds:                                                           |

|                       |                                 |
|-----------------------|---------------------------------|
|                       | <index>, CLOSE OK               |
|                       | If close fails:<br><b>ERROR</b> |
| Maximum Response Time | 300 ms                          |
| Reference             |                                 |

## Parameter

|         |                                                                                                                                                                                                          |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <index> | The index of the socket for sending data. This parameter is necessary only if <b>AT+QIMUX</b> was set as 1 (refer to <b>AT+QIMUX</b> ). When <b>AT+QIMUX</b> was set as 0, the parameter MUST be omitted |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### NOTE

- Execution Command **AT+QICLOSE**:
  - If QISRVC is 1 (please refer to **AT+QISRVC**) and QIMUX is 0 (please refer to **AT+QIMUX**), this command will close the connection in which the module is used as a client.
  - If QISRVC is 1 and QIMUX is 1, it will return **ERROR**.
  - If QISRVC is 2 and QIMUX equals 0 and the module is used as a server and some clients have been connected to it, this command will close the connection between the module and the remote client.
  - If QISRVC is 2 and QIMUX is 0 and the module is in listening state without any client, this command will cause the module to quit the listening state.
  - If QISRVC is 2 and QIMUX is 1 and the module is used as a server, this command will close all the income connection and cause the module to quit the listening state.
- Write Command **AT+QICLOSE=<index>**:
  - This command is valid only if QIMUX is 1.
  - If QISRVC is 1 and QIMUX is 1, this command will close the corresponding connection according to <index> and the module used as a client in the connection.
  - If QISRVC is 2 and QIMUX is 1, this command will close the incoming connection according to <index>.
- If QISRVC is 1 and QIMUX is 0, **AT+QICLOSE** only closes the connection when the statue is CONNECTING or CONNECT OK, otherwise respond with **ERROR**. After closing the connection, the status is IP CLOSE.

## 11.4. AT+QIDEACT Deactivate GPRS/CSD PDP Context

| AT+QIDEACT Deactivate GPRS/CSD PDP Context |                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QIDEACT=?</b>        | Response<br><b>OK</b>                                                                    |
| Execution Command<br><b>AT+QIDEACT</b>     | Response<br>If close succeeds:<br><b>DEACT OK</b><br><br>If close fails:<br><b>ERROR</b> |
| Maximum Response Time                      | 40 s, determined by network.                                                             |
| Reference                                  |                                                                                          |

### NOTE

1. Except at the status of IP INITIAL, you can deactivate GPRS/CSD PDP context by **AT+QIDEACT**. After closing the connection, the status becomes to IP INITIAL.
2. CSD context is not supported at present.

## 11.5. AT+QILPORT Set Local Port

| AT+QILPORT Set Local Port                                    |                                                                                                                         |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QILPORT=?</b>                          | Response<br><b>+QILPORT:</b> (list of supported <port>s)<br><br><b>OK</b>                                               |
| Read Command<br><b>AT+QILPORT?</b>                           | Response<br><b>&lt;mode&gt;: &lt;port&gt;</b><br><b>&lt;CR&gt;&lt;LF&gt;&lt;mode&gt;: &lt;port&gt;</b><br><br><b>OK</b> |
| Write Command<br><b>AT+QILPORT=&lt;mode&gt;,&lt;port&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                                                   |
| Maximum Response Time                                        | 300 ms                                                                                                                  |
| Reference                                                    |                                                                                                                         |

## Parameter

|                     |                                                                                                        |
|---------------------|--------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | A string parameter which indicates the connection type<br>"TCP" TCP local port<br>"UDP" UDP local port |
| <b>&lt;port&gt;</b> | 0-65535 A numeric parameter which indicates the local port                                             |

### NOTE

This command is used to set the port for listening.

## 11.6. AT+QIREGAPP Start TCPIP Task and Set APN, User Name and Password

### AT+QIREGAPP Start TCPIP Task and Set APN, User Name and Password

|                                                                                                   |                                                                                               |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QIREGAPP=?</b>                                                              | Response<br><b>+QIREGAPP: "APN","USER","PWD"</b><br><br><b>OK</b>                             |
| Read Command<br><b>AT+QIREGAPP?</b>                                                               | Response<br><b>+QIREGAPP: &lt;apn&gt;,&lt;user name&gt;,&lt;password&gt;</b><br><br><b>OK</b> |
| Write Command<br><b>AT+QIREGAPP=&lt;apn&gt;,&lt;user name&gt;,&lt;password&gt;[,&lt;rate&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                         |
| Execution Command<br><b>AT+QIREGAPP</b>                                                           | Response<br><b>OK</b><br><b>ERROR</b>                                                         |
| Maximum Response Time                                                                             | 300 ms                                                                                        |
| Reference                                                                                         |                                                                                               |

## Parameter

|                          |                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------|
| <b>&lt;apn&gt;</b>       | A string parameter which indicates the GPRS access point name or the call number of CSD |
| <b>&lt;user name&gt;</b> | A string parameter which indicates the GPRS/CSD user name                               |
| <b>&lt;password&gt;</b>  | A string parameter which indicates the GPRS/CSD password                                |
| <b>&lt;rate&gt;</b>      | The speed of data transmit for CSD                                                      |

**NOTE**

1. The write command and execution command of this command is valid only at the status of IP INITIAL. After operating this command, the status will become to IP START.
2. The value of QICSGP (please refer to **AT+QICSGP**) defines what kind of bearer (GPRS or CSD) the parameters are used for.
3. CSD function and related configuration are not supported at present.

## 11.7. AT+QIACT Activate GPRS/CSD Context

### AT+QIACT Activate GPRS/CSD Context

|                                      |                                       |
|--------------------------------------|---------------------------------------|
| Test Command<br><b>AT+QIACT=?</b>    | Response<br><b>OK</b>                 |
| Execution Command<br><b>AT+QIACT</b> | Response<br><b>OK</b><br><b>ERROR</b> |
| Maximum Response Time                | 150 s, determined by network.         |
| Reference                            |                                       |

**NOTE**

1. **AT+QIACT** only activates GPRS/CSD context at the status of IP START. After operating this command, the status will become to IP CONFIG. If TA accepts the activated operation, the status will become to IP IND; after GPRS/CSD context is activated successfully, the status will become to IP GPRSACT, respond with OK, and otherwise respond with ERROR.
2. CSD context is not supported at present.

## 11.8. AT+QILOCIP Get Local IP Address

### AT+QILOCIP Get Local IP Address

|                                        |                                                                                                                      |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QILOCIP=?</b>    | Response<br><b>OK</b>                                                                                                |
| Execution Command<br><b>AT+QILOCIP</b> | Response<br>If execution successful, respond:<br><b>&lt;IP address&gt;</b><br><br>Otherwise respond:<br><b>ERROR</b> |

|                       |        |
|-----------------------|--------|
| Maximum Response Time | 300 ms |
| Reference             |        |

## Parameter

|                           |                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------|
| <b>&lt;IP address&gt;</b> | A string parameter which indicates the IP address assigned from GPRS or CSD network |
|---------------------------|-------------------------------------------------------------------------------------|

### NOTE

1. Only at the following status: IP GPRSACT, IP STATUS, TCP/UDP CONNECTING, CONNECT OK, IP CLOSE can get local IP address by **AT+QILOCIP**, otherwise respond ERROR. And if the status before executing the command is IP GPRSACT, the status will become to IP STATUS after the command.
2. CSD function is not supported at present.

## 11.9. AT+QISTAT Query Current Connection Status

| AT+QISTAT Query Current Connection Status |                                                                                                                                                                                                                                                                         |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QISTAT=?</b>        | Response<br><b>OK</b>                                                                                                                                                                                                                                                   |
| Execution Command<br><b>AT+QISTAT</b>     | Response<br>When <b>AT+QIMUX=0</b> , respond:<br><b>OK</b><br><br><b>STATE: &lt;state&gt;</b><br><br>When <b>AT+QIMUX=1</b> , respond:<br><b>List of</b><br><b>(+QISTAT: &lt;index&gt;,&lt;mode&gt;,&lt;addr&gt;,&lt;port&gt;&lt;CR&gt;&lt;LF&gt;)</b><br><br><b>OK</b> |
| Maximum Response Time                     | 300 ms                                                                                                                                                                                                                                                                  |
| Reference                                 |                                                                                                                                                                                                                                                                         |

## Parameter

|                      |                                                             |                                                                       |
|----------------------|-------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>&lt;state&gt;</b> | A string parameter to indicate the status of the connection |                                                                       |
|                      | "IP INITIAL"                                                | The TCPIP stack is in idle state                                      |
|                      | "IP START"                                                  | The TCPIP stack has been registered                                   |
|                      | "IP CONFIG"                                                 | It has been start-up to activate GPRS/CSD context                     |
|                      | "IP IND"                                                    | It is activating GPRS/CSD context                                     |
|                      | "IP GPRSACT"                                                | GPRS/CSD context has been activated successfully                      |
|                      | "IP STATUS"                                                 | The local IP address has been gotten by the command <b>AT+QILOCIP</b> |
|                      | "TCP CONNECTING"                                            | It is trying to establish a TCP connection                            |
|                      | "UDP CONNECTING"                                            | It is trying to establish a UDP connection                            |
|                      | "IP CLOSE"                                                  | The TCP/UDP connection has been closed                                |
|                      | "CONNECT OK"                                                | The TCP/UDP connection has been established successfully              |
|                      | "PDP DEACT"                                                 | GPRS/CSD context was deactivated because of unknown reason            |

If **ATV** was set to 0 by the command **ATV0**, the TCPIP stack gives the following numeric to indicate the former status

|   |                                      |
|---|--------------------------------------|
| 0 | "IP INITIAL"                         |
| 1 | "IP START"                           |
| 2 | "IP CONFIG"                          |
| 3 | "IP IND"                             |
| 4 | "IP GPRSACT"                         |
| 5 | "IP STATUS"                          |
| 6 | "TCP CONNECTING" or "UDP CONNECTING" |
| 7 | "IP CLOSE"                           |
| 8 | "CONNECT OK"                         |
| 9 | "PDP DEACT"                          |

**<index>** The index of the connection, the range is (0-5)

**<mode>** The type of the connection

"TCP" TCP connection

"UDP" UDP connection

**<addr>** The IP address of the remote

**<port>** The port of the remote

### NOTE

1. Display former style of response when **QIMUX=0** and the later style of response when **QIMUX=1**.
2. CSD context is not supported at present.

## 11.10. AT+QISTATE Query Connection Status of the Current Access

| AT+QISTATE Query Connection Status of the Current Access |                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QISTATE=?</b>                      | Response<br><b>OK</b>                                                                                                                                                                                                                                                                                                                               |
| Execution Command<br><b>AT+QISTATE</b>                   | Response<br>When <b>AT+QIMUX=0</b> , respond:<br><b>OK</b><br><br><b>STATE: &lt;state&gt;</b><br>When <b>AT+QIMUX=1</b> , respond:<br><b>OK</b><br><br><b>STATE: &lt;state&gt;</b><br><br><b>+QISTATE:</b><br><b>&lt;index&gt;,&lt;mode&gt;,&lt;addr&gt;,&lt;port&gt;,&lt;socketstate&gt;</b><br><br><b>OK</b><br>Otherwise respond<br><b>ERROR</b> |
| Maximum Response Time                                    | 300 ms                                                                                                                                                                                                                                                                                                                                              |
| Reference                                                |                                                                                                                                                                                                                                                                                                                                                     |

### Parameter

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;state&gt;</b> | A string parameter to indicate the status of the connection<br><br>When <b>AT+QIMUX=0</b> :<br>"IP INITIAL" The TCPIP stack is in idle state.<br>"IP START" The TCPIP stack has been registered.<br>"IP CONFIG" It has been start-up to activate GPRS/CSD context.<br>"IP IND" It is activating GPRS/CSD context.<br>"IP GPRSACT" GPRS/CSD context has been activated successfully.<br>"IP STATUS" The local IP address has been gotten by the command <b>AT+QILOCIP</b> .<br>"TCP CONNECTING" It is trying to establish a TCP connection.<br>"UDP CONNECTING" It is trying to establish a UDP connection.<br>"IP CLOSE" The TCP/UDP connection has been closed.<br>"CONNECT OK" The TCP/UDP connection has been established successfully.<br>"PDP DEACT" GPRS/CSD context was deactivated because of unknown |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                            |                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------|
|                            | reason.                                                                                          |
| When <b>AT+QIMUX=1</b> :   |                                                                                                  |
| "IP INITIAL"               | The TCPIP stack is in idle state.                                                                |
| "IP START"                 | The TCPIP stack has been registered.                                                             |
| "IP CONFIG"                | It has been start-up to activate GPRS/CSD context.                                               |
| "IP IND"                   | It is activating GPRS/CSD context.                                                               |
| "IP GPRSACT"               | GPRS/CSD context has been activated successfully.                                                |
| "IP STATUS"                | The local IP address has been gotten by the command <b>AT+QILOCIP</b> .                          |
| "IP PROCESSING"            | Data phase. Processing the existing connection now.                                              |
| "PDP DEACT"                | GPRS/CSD context was deactivated because of unknown reason.                                      |
| <b>&lt;index&gt;</b>       | The index of the connection, the range is (0-5)                                                  |
| <b>&lt;mode&gt;</b>        | The type of the connection                                                                       |
|                            | "TCP" TCP connection                                                                             |
|                            | "UDP" UDP connection                                                                             |
| <b>&lt;addr&gt;</b>        | The IP address of the remote                                                                     |
| <b>&lt;port&gt;</b>        | The port of the remote                                                                           |
| <b>&lt;socketstate&gt;</b> | A string parameter to indicate the status of the access connection, including INITIAL,CONNECTED. |

## 11.11. AT+QISSTAT Query the Current Server Status

| AT+QISSTAT Query the Current Server Status |                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QISSTAT=?</b>        | Response<br><b>OK</b>                                                                                                                                                                                                                                                                              |
| Execution Command<br><b>AT+QISSTAT</b>     | Response<br>When <b>AT+QIMUX=0</b> , respond:<br><b>OK</b><br><br><b>S: &lt;ServerState&gt;</b><br><br>When <b>AT+QIMUX=1</b> , respond:<br><b>OK</b><br><b>S: &lt;ServerState&gt;</b><br><b>C: &lt;index&gt;,&lt;mode&gt;,&lt;addr&gt;,&lt;port&gt;</b><br><br>Otherwise respond:<br><b>ERROR</b> |
| Maximum Response Time                      | 300 ms                                                                                                                                                                                                                                                                                             |
| Reference                                  |                                                                                                                                                                                                                                                                                                    |

## Parameter

|                            |                                                             |
|----------------------------|-------------------------------------------------------------|
| <b>&lt;ServerState&gt;</b> | A string parameter to indicate the status of the connection |
| "INITIAL"                  | The TCPIP stack is in idle state                            |
| "OPENNING"                 | The TCPIP stack has been registered                         |
| "LISTENING"                | Listening to server port                                    |
| "CLOSING"                  | Closing connection now                                      |
| <b>&lt;index&gt;</b>       | The index of the connection, the range is (0-4)             |
| <b>&lt;mode&gt;</b>        | The type of the connection                                  |
| "TCP"                      | TCP connection                                              |
| "UDP"                      | UDP connection                                              |
| <b>&lt;addr&gt;</b>        | The IP address of the remote                                |
| <b>&lt;port&gt;</b>        | The port of the remote                                      |

## 11.12. AT+QIDNSCFG Configure Domain Name Server

| AT+QIDNSCFG Configure Domain Name Server                              |                                                                                                         |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QIDNSCFG=?</b>                                  | Response<br><b>OK</b>                                                                                   |
| Read Command<br><b>AT+QIDNSCFG?</b>                                   | Response<br><b>PrimaryDns: &lt;pri_dns&gt;</b><br><b>SecondaryDns: &lt;sec_dns&gt;</b><br><br><b>OK</b> |
| Write Command<br><b>AT+QIDNSCFG=&lt;pri_dns&gt;[,&lt;sec_dns&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                                   |
| Maximum Response Time                                                 | 300 ms                                                                                                  |
| Reference                                                             |                                                                                                         |

## Parameter

|                        |                                                                                       |
|------------------------|---------------------------------------------------------------------------------------|
| <b>&lt;pri_dns&gt;</b> | A string parameter which indicates the IP address of the primary domain name server   |
| <b>&lt;sec_dns&gt;</b> | A string parameter which indicates the IP address of the secondary domain name server |

### NOTE

1. Because TA will negotiate to get the DNS server from GPRS/CSD network automatically when activating GPRS/CSD context, it is STRONGLY suggested to configure the DNS server at the status of IP GPRSACT, IP STATUS, CONNECT OK and IP CLOSE if it is necessary.

2. CSD function and configuration are not supported currently.

### 11.13. AT+QIDNSGIP Query the IP Address of Given Domain Name

| AT+QIDNSGIP Query the IP Address of Given Domain Name   |                                                                                                                                                                                     |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QIDNSGIP=?</b>                    | Response<br><b>OK</b>                                                                                                                                                               |
| Write Command<br><b>AT+QIDNSGIP=&lt;domain name&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b><br><br>If succeeds, return:<br><b>&lt;IP address&gt;</b><br><br>If fails, return:<br><b>ERROR: &lt;err&gt;</b><br><b>STATE: &lt;state&gt;</b> |
| Maximum Response Time                                   | 14s, determined by network.                                                                                                                                                         |
| Reference                                               |                                                                                                                                                                                     |

#### Parameter

|                            |                                                                                    |
|----------------------------|------------------------------------------------------------------------------------|
| <b>&lt;domain name&gt;</b> | A string parameter which indicates the domain name                                 |
| <b>&lt;IP address&gt;</b>  | A string parameter which indicates the IP address corresponding to the domain name |
| <b>&lt;err&gt;</b>         | A numeric parameter which indicates the error code                                 |
| 1                          | DNS not Authorized                                                                 |
| 2                          | Invalid parameter                                                                  |
| 3                          | Network error                                                                      |
| 4                          | No server                                                                          |
| 5                          | Time out                                                                           |
| 6                          | No configuration                                                                   |
| 7                          | No memory                                                                          |
| 8                          | Unknown error                                                                      |
| <b>&lt;state&gt;</b>       | Refer to <b>AT+QISTAT</b>                                                          |

## 11.14. AT+QIDNSIP Connect with IP Address or Domain Name Server

### AT+QIDNSIP Connect with IP Address or Domain Name Server

|                                                 |                                                                           |
|-------------------------------------------------|---------------------------------------------------------------------------|
| Test Command<br><b>AT+QIDNSIP=?</b>             | Response<br><b>+QIDNSIP:</b> (list of supported <mode>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QIDNSIP?</b>              | Response<br><b>+QIDNSIP:</b> <mode><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QIDNSIP=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                     |
| Maximum Response Time                           | 300 ms                                                                    |
| Reference                                       |                                                                           |

#### Parameter

|                     |                                                                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | A numeric parameter indicates which kind of server format is used when establishing the connection: IP address server or domain name server |
| <u>0</u>            | The address of the remote server is a dotted decimal IP address                                                                             |
| 1                   | The address of the remote server is a domain name                                                                                           |

## 11.15. AT+QIHEAD Add an IP Header when Receiving Data

### AT+QIHEAD Add an IP Header when Receiving Data

|                                                |                                                                          |
|------------------------------------------------|--------------------------------------------------------------------------|
| Test Command<br><b>AT+QIHEAD=?</b>             | Response<br><b>+QIHEAD:</b> (list of supported <mode>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QIHEAD?</b>              | Response<br><b>+QIHEAD:</b> <mode><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QIHEAD=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                    |

|                       |        |
|-----------------------|--------|
| Maximum Response Time | 300 ms |
| Reference             |        |

## Parameter

|                     |                                                                                                 |
|---------------------|-------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | A numeric parameter which indicates whether or not to add an IP header before the received data |
| <u>0</u>            | DO Not add IP header                                                                            |
| 1                   | Add a header before the received data, and the format is "IPD(data length):"                    |

## 11.16. AT+QIAUTOS Set Auto Sending Timer

| AT+QIAUTOS Set Auto Sending Timer                              |                                                                                                                                    |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QIAUTOS=?</b>                            | Response<br><b>+QIAUTOS:</b> (list of supported <b>&lt;mode&gt;</b> s), (list of supported <b>&lt;time&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QIAUTOS?</b>                             | Response<br><b>+QIAUTOS:</b> <b>&lt;mode&gt;</b> , <b>&lt;time&gt;</b><br><br><b>OK</b>                                            |
| Write Command<br><b>AT+QIAUTOS=&lt;mode&gt;[,&lt;time&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                                                              |
| Maximum Response Time                                          | 300 ms                                                                                                                             |
| Reference                                                      |                                                                                                                                    |

## Parameter

|                     |                                                                                                                                                    |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | A numeric parameter which indicates whether or not to set timer when sending data                                                                  |
| <u>0</u>            | DO Not set timer for data sending                                                                                                                  |
| 1                   | Set timer for data sending                                                                                                                         |
| <b>&lt;time&gt;</b> | A numeric parameter which indicates a time in seconds<br>After the time expires since <b>AT+QISEND</b> , the input data will be sent automatically |

## 11.17. AT+QIPROMPT Set Prompt of '>' when Sending Data

| AT+QIPROMPT Set Prompt of '>' when Sending Data         |                                                                                   |
|---------------------------------------------------------|-----------------------------------------------------------------------------------|
| Test Command<br><b>AT+QIPROMPT=?</b>                    | Response<br><b>+QIPROMPT:</b> (list of supported <send prompt>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QIPROMPT?</b>                     | Response<br><b>+QIPROMPT:</b> <send prompt><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QIPROMPT=&lt;send prompt&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                             |
| Maximum Response Time                                   | 300 ms                                                                            |
| Reference                                               |                                                                                   |

### Parameter

|                            |                                                                                                              |
|----------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>&lt;send prompt&gt;</b> | A numeric parameter which indicates whether or not to echo prompt ">" after issuing <b>AT+QISEND</b> Command |
| 0                          | No prompt ">" and show "SEND OK" when sending successes                                                      |
| <u>1</u>                   | Echo prompt ">" and show "SEND OK" when sending successes                                                    |
| 2                          | No prompt and not show "SEND OK" when sending successes                                                      |
| 3                          | Echo prompt ">" and show "socket ID" "SEND OK" when sending successes                                        |

## 11.18. AT+QISERVER Configured as Server

| AT+QISERVER Configured as Server        |                                                              |
|-----------------------------------------|--------------------------------------------------------------|
| Test Command<br><b>AT+QISERVER=?</b>    | Response<br><b>OK</b>                                        |
| Read Command<br><b>AT+QISERVER?</b>     | Response<br><b>+QISERVER:</b> <mode>, <num><br><br><b>OK</b> |
| Execution Command<br><b>AT+QISERVER</b> | Response<br><b>OK</b><br><b>ERROR</b>                        |

|                                                                           |                                                                                                                                                                                                               |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                           | <p>If configured as server successfully, return:<br/><b>SERVER OK</b></p> <p>If configured as server unsuccessfully, return:<br/><b>CONNECT FAIL</b></p>                                                      |
| <p>Write Command</p> <p><b>AT+QISERVER=&lt;type&gt;[,&lt;max&gt;]</b></p> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>If configured as server successfully, return:<br/><b>SERVER OK</b></p> <p>If configured as server unsuccessfully, return:<br/><b>CONNECT FAIL</b></p> |
| Maximum Response Time                                                     | 150 s, determined by network.                                                                                                                                                                                 |
| Reference                                                                 |                                                                                                                                                                                                               |

### Parameter

|                     |                                                                                               |
|---------------------|-----------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | <p>0 NOT configured as server</p> <p>1 Configured as server</p>                               |
| <b>&lt;num&gt;</b>  | The number of clients that have been connected in. The range is 0–5                           |
| <b>&lt;type&gt;</b> | <p>A numeric indicates the type of the server</p> <p>0 TCP server</p> <p>1 UDP server</p>     |
| <b>&lt;max&gt;</b>  | The maximum number of clients allowed to connect in. The default value is 1. The range is 1-5 |

### NOTE

1. This command configures the module as a TCP server and the maximum allowed client is 1.
2. The parameter **<max>** is excluded when QIMUX is 0.

## 11.19. AT+QICSGP Select CSD or GPRS as the Bearer

### AT+QICSGP Select CSD or GPRS as the Bearer

|                                               |                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------------|
| <p>Test Command</p> <p><b>AT+QICSGP=?</b></p> | <p>Response</p> <p><b>+QICSGP: 0-CSD,DIAL NUMBER,USER NAME,PASSWORD,RATE(0-3)</b></p> |
|-----------------------------------------------|---------------------------------------------------------------------------------------|

|                                                                                                                                                                         |                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
|                                                                                                                                                                         | <b>+QICSGP: 1-GPRS,APN,USER NAME,PASSWORD</b> |
|                                                                                                                                                                         | <b>OK</b>                                     |
| Read Command<br><b>AT+QICSGP?</b>                                                                                                                                       | Response<br><b>+QICSGP: &lt;mode&gt;</b>      |
|                                                                                                                                                                         | <b>OK</b>                                     |
| Write Command<br><b>AT+QICSGP=&lt;mode&gt;[(,&lt;apn&gt;,&lt;user name&gt;,&lt;password&gt;)](&lt;dial number&gt;,&lt;user name&gt;,&lt;password&gt;,&lt;rate&gt;)]</b> | Response<br><b>OK</b><br><b>ERROR</b>         |
| Maximum Response Time                                                                                                                                                   | 300 ms                                        |
| Reference                                                                                                                                                               |                                               |

## Parameter

|                     |                                                     |
|---------------------|-----------------------------------------------------|
| <b>&lt;mode&gt;</b> | A numeric parameter which indicates the bearer type |
| 0                   | Set CSD as the bearer for TCPIP connection          |
| <u>1</u>            | Set GPRS as the bearer for TCPIP connection         |

GPRS parameters:

|                          |                                                          |
|--------------------------|----------------------------------------------------------|
| <b>&lt;apn&gt;</b>       | A string parameter which indicates the access point name |
| <b>&lt;user name&gt;</b> | A string parameter which indicates the user name         |
| <b>&lt;password&gt;</b>  | A string parameter which indicates the password          |

CSD parameters:

|                            |                                                             |
|----------------------------|-------------------------------------------------------------|
| <b>&lt;dial number&gt;</b> | A string parameter which indicates the CSD dial numbers     |
| <b>&lt;user name&gt;</b>   | A string parameter which indicates the CSD user name        |
| <b>&lt;password&gt;</b>    | A string parameter which indicates the CSD password         |
| <b>&lt;rate&gt;</b>        | A numeric parameter which indicates the CSD connection rate |
| 0                          | 2400                                                        |
| 1                          | 4800                                                        |
| <u>2</u>                   | 9600                                                        |
| 3                          | 14400                                                       |

### NOTE

CSD configuration is not supported at present.

## 11.20. AT+QISRVC Choose Connection

| AT+QISRVC Choose Connection                          |                                                                                |
|------------------------------------------------------|--------------------------------------------------------------------------------|
| Test Command<br><b>AT+QISRVC=?</b>                   | Response<br><b>+QISRVC:</b> (list of supported <connection>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QISRVC?</b>                    | Response<br><b>+QISRVC:</b> <connection><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QISRVC=&lt;connection&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                          |
| Maximum Response Time                                | 300 ms                                                                         |
| Reference                                            |                                                                                |

### Parameter

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| <b>&lt;connection&gt;</b> | A numeric parameter which indicates the chosen connection |
| <u>1</u>                  | Choose the connection in which MS used as a client        |
| 2                         | Choose the connection in which MS used as a server        |

### NOTE

There could be two connections at one time: one connection is that MS connects with a remote server as a client; the other connection is that MS accepts a remote client as a server. Using this Command to specify which connection data will be sent through.

## 11.21. AT+QISHOWRA Set Whether or Not to Display the Address of Sender

| AT+QISHOWRA Set Whether or Not to Display the Address of Sender |                                                                            |
|-----------------------------------------------------------------|----------------------------------------------------------------------------|
| Test Command<br><b>AT+QISHOWRA=?</b>                            | Response<br><b>+QISHOWRA:</b> (list of supported <mode>s)<br><br><b>OK</b> |

|                                                  |                                                             |
|--------------------------------------------------|-------------------------------------------------------------|
| Read Command<br><b>AT+QISHOWRA?</b>              | Response<br><b>+QISHOWRA: &lt;mode&gt;</b><br><br><b>OK</b> |
| Write Command<br><b>AT+QISHOWRA=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                       |
| Maximum Response Time                            | 300 ms                                                      |
| Reference                                        |                                                             |

## Parameter

|                     |                                                                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | A numeric parameter which indicates whether or not to show the address (including IP address in dotted decimal style of the remote end) when receiving data. |
| <u>0</u>            | DO NOT show the address. Default                                                                                                                             |
| 1                   | Show the address; the format to show the address is like: <b>RCV FROM: &lt;IP ADDRESS&gt;:&lt;PORT&gt;</b>                                                   |

## 11.22. AT+QISCON Save TCPIP Application Context Configuration

| <b>AT+QISCON Save TCPIP Application Context Configuration</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QISCON=?</b>                            | Response<br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Read Command<br><b>AT+QISCON?</b>                             | Response<br>TA returns TCPIP application context, which consists of the following AT command parameters.<br><b>SHOW APPTCPIP CONTEXT</b><br><b>+QIDNSIP:&lt;mode&gt;</b><br><b>+QIPROMPT:&lt;sendprompt&gt;</b><br><b>+QIHEAD:&lt;iphead&gt;</b><br><b>+QISHOWRA:&lt;srip&gt;</b><br><b>+QICSGP:&lt;csgp&gt;</b><br><b>Gprs Config APN:&lt;apn&gt;</b><br><b>Gprs Config UserId:&lt;gusr&gt;</b><br><b>Gprs Config Password:&lt;gpwd&gt;</b><br><b>Gprs Config inactivityTimeout:&lt;timeout&gt;</b><br><b>CSD Dial Number:&lt;cnun&gt;</b><br><b>CSD Config UserId:&lt;cusr&gt;</b><br><b>CSD Config Password:&lt;cpwd&gt;</b><br><b>CSD Config rate:&lt;crate&gt;</b> |

|                                       |                                                                                                                                                       |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       | App Tcpip Mode:<mode><br>In Transparent Transfer Mode<br>Number of Retry:<nmRetry><br>Wait Time:<waitTm><br>Send Size:<sendSz><br>esc:<esc><br><br>OK |
| Execution Command<br><b>AT+QISCON</b> | Response<br><b>OK</b>                                                                                                                                 |
| Maximum Response Time                 | 300 ms                                                                                                                                                |
| Reference                             |                                                                                                                                                       |

## Parameter

|              |                        |
|--------------|------------------------|
| <mode>       | See <b>AT+QIDNSIP</b>  |
| <sendprompt> | See <b>AT+QIPROMPT</b> |
| <iphead>     | See <b>AT+QIHEAD</b>   |
| <srip>       | See <b>AT+QISHOWRA</b> |
| <csdp>       | See <b>AT+QICSGP</b>   |
| <apn>        | See <b>AT+QICSGP</b>   |
| <gusr>       | See <b>AT+QICSGP</b>   |
| <gpwd>       | See <b>AT+QICSGP</b>   |
| <timeout>    | See <b>AT+QICSGP</b>   |
| <cnum>       | See <b>AT+QICSGP</b>   |
| <csr>        | See <b>AT+QICSGP</b>   |
| <cpwd>       | See <b>AT+QICSGP</b>   |
| <crate>      | See <b>AT+QICSGP</b>   |

The following four parameters are only for transparent transfer mode.

|           |                      |
|-----------|----------------------|
| <nmRetry> | See <b>AT+QITCFG</b> |
| <waitTm>  | See <b>AT+QITCFG</b> |
| <sendSz>  | See <b>AT+QITCFG</b> |
| <esc>     | See <b>AT+QITCFG</b> |

### NOTE

1. The execution command TA saves TCPIP Application Context which consists of the following AT Command parameters, and when system is rebooted, the parameters will be loaded automatically: **AT+QIDNSIP**, **AT+QIPROMPT**, **AT+QIHEAD**, **AT+QISHOWRA**, **AT+QICSGP**, **AT+QITCFG**.
2. The execution command only saves the corresponding parameters of the foreground context (refer to **AT+QIFGCNT**).

3. CSD configuration is not supported at present.

## 11.23. AT+QIMODE Select TCPIP Transfer Mode

### AT+QIMODE Select TCPIP Transfer Mode

|                                                |                                                                          |
|------------------------------------------------|--------------------------------------------------------------------------|
| Test Command<br><b>AT+QIMODE=?</b>             | Response<br><b>+QIMODE:</b> (list of supported <mode>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QIMODE?</b>              | Response<br><b>+QIMODE:</b> <mode><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QIMODE=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                    |
| Maximum Response Time                          | 300 ms                                                                   |
| Reference                                      |                                                                          |

#### Parameter

|        |   |                                                                                                                                                                                                                                                                                                     |
|--------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <mode> | 0 | Normal mode. In this mode, the data should be sent by the command <b>AT+QISEND</b>                                                                                                                                                                                                                  |
|        | 1 | Transparent mode. In this mode, UART will enter data mode after TCP/UDP connection has been established. In data mode, all input data from UART will be sent to the remote end. +++ can help to switch data mode to command mode. And then <b>ATO</b> can help to switch command mode to data mode. |

## 11.24. AT+QITCFG Configure Transparent Transfer Mode

### AT+QITCFG Configure Transparent Transfer Mode

|                                    |                                                                                                                                                                    |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QITCFG=?</b> | Response<br><b>+QITCFG:</b> (list of supported <NmRetry>s),(list of supported <WaitTm>s),(list of supported <SendSz>s),(list of supported <esc>s)<br><br><b>OK</b> |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                             |                                                                                                        |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Read Command<br><b>AT+QITCFG?</b>                                                           | Response<br><b>+QITCFG: &lt;NmRetry&gt;,&lt;WaitTm&gt;,&lt;SendSz&gt;,&lt;esc&gt;</b><br><br><b>OK</b> |
| Write Command<br><b>AT+QITCFG=&lt;NmRetry&gt;,&lt;WaitTm&gt;,&lt;SendSz&gt;,&lt;esc&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                                  |
| Maximum Response Time                                                                       | 300 ms                                                                                                 |
| Reference                                                                                   |                                                                                                        |

## Parameter

|                        |                                                                               |
|------------------------|-------------------------------------------------------------------------------|
| <b>&lt;NmRetry&gt;</b> | Number of times to retry to send an IP packet                                 |
| <b>&lt;WaitTm&gt;</b>  | Number of 100 ms intervals to wait for serial input before sending the packet |
| <b>&lt;SendSz&gt;</b>  | Size in bytes of data block to be received from serial port before sending    |
| <b>&lt;esc&gt;</b>     | Whether to turn on the escape sequence or not, default is TRUE                |

### NOTE

1. **<WaitTm>** and **<SendSz>** are two conditions to send data packet.
2. Firstly, if the length of the input data from UART is greater than or equal to **<SendSz>**, the TCPIP stack will send the data by length **<SendSz>** to the remote.
3. Secondly, if the length of the input data from UART is less than **<SendSz>**, and the idle time keeps beyond the time defined by **<WaitTm>**, the TCPIP stack will send all the data in the buffer to the remote.
4. This command is invalid when QIMUX is 1.

## 11.25. AT+QISHOWPT Control Whether or Not to Show the Protocol

### Type

| <b>AT+QISHOWPT Control Whether or Not to Show the Protocol Type</b> |                                                                                  |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Test Command<br><b>AT+QISHOWPT=?</b>                                | Response<br><b>+QISHOWPT: (list of supported &lt;mode&gt;s)</b><br><br><b>OK</b> |
| Read Command<br><b>AT+QISHOWPT?</b>                                 | Response<br><b>+QISHOWPT: &lt;mode&gt;</b><br><br><b>OK</b>                      |

|                                                  |                                       |
|--------------------------------------------------|---------------------------------------|
| Write Command<br><b>AT+QISHOWPT=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b> |
| Maximum Response Time                            | 300 ms                                |
| Reference                                        |                                       |

### Parameter

|                     |          |                                                                                                                                               |
|---------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | DO NOT show the transport protocol type at the end of header of the received TCP/UDP data                                                     |
|                     | 1        | Show the transport protocol type at the end of header of the received TCP/UDP data as the following format. <b>IPD(data length)(TCP/UDP):</b> |

### NOTE

This command is invalid if QIHEAD was set as 0 by the command **AT+QIHEAD=0**.

## 11.26. AT+QIMUX Control Whether or Not to Enable Multiple TCPIP

### Session

#### AT+QIMUX Control Whether or Not to Enable Multiple TCPIP Session

|                                               |                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QIMUX=?</b>             | Response<br><b>+QIMUX:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QIMUX?</b>              | Response<br><b>+QIMUX:</b> <b>&lt;mode&gt;</b><br><br><b>OK</b>                       |
| Write Command<br><b>AT+QIMUX=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                                 |
| Maximum Response Time                         | 300 ms                                                                                |
| Reference                                     |                                                                                       |

## Parameter

|        |   |                                                       |
|--------|---|-------------------------------------------------------|
| <mode> | 0 | DO NOT enable multiple TCPIP session at the same time |
|        | 1 | Enable multiple TCPIP session at the same time        |

## 11.27. AT+QISHOWLA Control Whether or Not to Display Local IP

### Address

| AT+QISHOWLA Control Whether or Not to Display Local IP Address |                                                              |
|----------------------------------------------------------------|--------------------------------------------------------------|
| Test Command<br>AT+QISHOWLA=?                                  | Response<br>+QISHOWLA: (list of supported <mode>s)<br><br>OK |
| Read Command<br>AT+QISHOWLA?                                   | Response<br>+QISHOWLA: <mode><br><br>OK                      |
| Write Command<br>AT+QISHOWLA=<mode>                            | Response<br>OK<br>ERROR                                      |
| Maximum Response Time                                          | 300 ms                                                       |
| Reference                                                      |                                                              |

## Parameter

|        |                                                                                                     |                                                            |
|--------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| <mode> | A numeric parameter indicates whether or not to show the destination address before receiving data. |                                                            |
|        | 0                                                                                                   | DO NOT show the destination address                        |
|        | 1                                                                                                   | Show the destination address: <b>TO:&lt;IP ADDRESS&gt;</b> |

### NOTE

Because M95 can activate two GPRS contexts at the same time, i.e. M95 can get two local IP addresses. It is necessary to point out the destination of the received data when two GPRS contexts have been activated at the same time.

## 11.28. AT+QIFGCNT Select a Context as Foreground Context

| AT+QIFGCNT Select a Context as Foreground Context |                                                                         |
|---------------------------------------------------|-------------------------------------------------------------------------|
| Test Command<br><b>AT+QIFGCNT=?</b>               | Response<br><b>+QIFGCNT:</b> (list of supported <id>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QIFGCNT?</b>                | Response<br><b>+QIFGCNT:</b> <id>,<channel><br><br><b>OK</b>            |
| Write Command<br><b>AT+QIFGCNT=&lt;id&gt;</b>     | Response<br><b>OK</b><br><b>ERROR</b>                                   |
| Maximum Response Time                             | 300 ms                                                                  |
| Reference                                         |                                                                         |

### Parameter

|           |                                                                                       |
|-----------|---------------------------------------------------------------------------------------|
| <id>      | A numeric indicates which context will be set as foreground context. The range is 0-1 |
| <channel> | A numeric indicates which channel is controlling the context <id>                     |
| 0         | VIRTUAL_UART_1                                                                        |
| 1         | VIRTUAL_UART_2                                                                        |
| 2         | VIRTUAL_UART_3                                                                        |
| 3         | VIRTUAL_UART_4                                                                        |
| 255       | The context is not controlled by any channel                                          |

### NOTE

When CMUX is opened, if the status of the context defined by <id> is not IP\_INITIAL and the context is controlled by the other channel, it will return **ERROR**.

## 11.29. AT+QISACK Query the Data Information for Sending

| AT+QISACK Query the Data Information for Sending |                       |
|--------------------------------------------------|-----------------------|
| Test Command<br><b>AT+QISACK=?</b>               | Response<br><b>OK</b> |
| Execution Command                                | Response              |

|                                |                                              |
|--------------------------------|----------------------------------------------|
| AT+QISACK                      | +QISACK: <sent>,<acked>,<nAcked>             |
|                                | OK                                           |
| Write Command<br>AT+QISACK=<n> | Response<br>+QISACK: <sent>,<acked>,<nAcked> |
|                                | OK                                           |
| Maximum Response Time          | 300 ms                                       |
| Reference                      |                                              |

### Parameter

|          |                                                                                                        |
|----------|--------------------------------------------------------------------------------------------------------|
| <n>      | The index for querying the connection                                                                  |
| <sent>   | A numeric indicates the total length of the data that has been sent through the session                |
| <acked>  | A numeric indicates the total length of the data that has been acknowledged by the remote              |
| <nAcked> | A numeric indicates the total length of the data that has been sent but not acknowledged by the remote |

#### NOTE

1. Write command is invalid when QIMUX was set as 0 by the command **AT+QIMUX=0**.
2. This command could be affected by the command **AT+QISRVC**. If the QISRVC was set as 1, this command is used to query the information of sending data during the session in which M95 serves as a client. If the QISRVC was set as 2, this command is used to query the data information for sending during the session in which M95 serves as a server.

## 11.30. AT+QINDI Set the Method to Handle Received TCP/IP Data

### AT+QINDI Set the Method to Handle Received TCP/IP Data

|                               |                                              |
|-------------------------------|----------------------------------------------|
| Test Command<br>AT+QINDI=?    | Response<br>+QINDI: (list of supported <m>s) |
|                               | OK                                           |
| Read Command<br>AT+QINDI?     | Response<br>+QINDI: <m>                      |
|                               | OK                                           |
| Write Command<br>AT+QINDI=<m> | Response<br>OK                               |

|                       |        |
|-----------------------|--------|
|                       | ERROR  |
| Maximum Response Time | 300 ms |
| Reference             |        |

## Parameter

|                    |                                                                                                                                                                                                                                                                                                                                                               |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;m&gt;</b>   | A numeric indicates how the mode handles the received data                                                                                                                                                                                                                                                                                                    |
| 0                  | Output the received data through UART directly. In the case, it probably includes header at the beginning of a received data packet. Please refer to the commands. <b>AT+QIHEAD, AT+QISHOWRA, AT+QISHOWPT, AT+QISHOWLA</b>                                                                                                                                    |
| 1                  | Output a notification statement “ <b>+QIRDI: &lt;id&gt;,&lt;sc&gt;,&lt;sid&gt;</b> ” through UART. This statement will be displayed only one time until all the received data from the connection (defined by <b>&lt;id&gt;,&lt;sc&gt;,&lt;sid&gt;</b> ) have been retrieved by the command <b>AT+QIRD.&lt;id&gt;</b>                                         |
| 2                  | Output a notification statement “ <b>+QIRDI: &lt;id&gt;,&lt;sc&gt;,&lt;sid&gt;,&lt;num&gt;,&lt;len&gt;,&lt;tlen&gt;</b> ” through UART. This statement will establish a buffer for each socket, the data received will be saved in the buffer until it has been retrieved by the command <b>AT+QIRD</b> , sum lengths of all the buffer is no more than 400K. |
| <b>&lt;id&gt;</b>  | A numeric points out which context the connection for the received data is based on. Please refer to the parameter <b>&lt;id&gt;</b> in the command <b>AT+QIFGCNT</b> . The range is 0-1.                                                                                                                                                                     |
| <b>&lt;sc&gt;</b>  | A numeric points out the role of M95 in the connection for the received data.                                                                                                                                                                                                                                                                                 |
| 1                  | The module serves as the client of the connection                                                                                                                                                                                                                                                                                                             |
| 2                  | The module serves as the server of the connection                                                                                                                                                                                                                                                                                                             |
| <b>&lt;sid&gt;</b> | A numeric indicates the index of the connection for the received data. The range is 0-5<br>When QIMUX was set as 0 by the command <b>AT+QIMUX=0</b> , this parameter will be always 0.                                                                                                                                                                        |

### NOTE

1. The length of a package can't exceed 1460 bytes. If it exceeds 1460 bytes, it may be split to two or more packages.
2. The sum of length of the lengths of all packages received can't exceed 400K bytes.

## 11.31. AT+QIRD Retrieve the Received TCP/IP Data

### AT+QIRD Retrieve the Received TCP/IP Data

|                  |                                                                                                                                                                                 |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command     | Response                                                                                                                                                                        |
| <b>AT+QIRD=?</b> | <b>+QIRD:</b> (list of supported <b>&lt;id&gt;</b> s),(list of supported <b>&lt;sc&gt;</b> s),(list of supported <b>&lt;sid&gt;</b> s),(list of supported <b>&lt;len&gt;</b> s) |

|                                                                               |                                                                                                                                                               |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                               | OK                                                                                                                                                            |
| Write Command<br><b>AT+QIRD=&lt;id&gt;,&lt;sc&gt;,&lt;sid&gt;,&lt;len&gt;</b> | Response<br><b>[+QIRD:</b><br><b>&lt;ipAddr&gt;:&lt;port&gt;,&lt;type&gt;,&lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</b><br><b>OK</b><br><br><b>ERROR</b> |
| Maximum Response Time                                                         | 300 ms                                                                                                                                                        |
| Reference                                                                     |                                                                                                                                                               |

## Parameter

|                       |                                                                                                                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;id&gt;</b>     | A numeric points out which context the connection for the received data is based on. Please refer to the parameter <b>&lt;id&gt;</b> in the command <b>AT+QIFGCNT</b> . The range is 0-1                 |
| <b>&lt;sc&gt;</b>     | A numeric points out the role of M95 in the connection for the received data<br>1        The module serves as the client of the connection<br>2        The module serves as the server of the connection |
| <b>&lt;sid&gt;</b>    | A numeric indicates the index of the connection for the received data. The range is 0-5. When QIMUX was set as 0 by the command <b>AT+QIMUX=0</b> , this parameter will be always 0                      |
| <b>&lt;len&gt;</b>    | The maximum length of data to be retrieved. The range is 1-1500                                                                                                                                          |
| <b>&lt;ipAddr&gt;</b> | The address of the remote end. It is a dotted-decimal IP                                                                                                                                                 |
| <b>&lt;port&gt;</b>   | The port of the remote end                                                                                                                                                                               |
| <b>&lt;type&gt;</b>   | An alpha string without quotation marks indicates the transport protocol type<br>TCP     The transport protocol is TCP<br>UDP     The transport protocol is UDP                                          |
| <b>&lt;length&gt;</b> | The real length of the retrieved data                                                                                                                                                                    |
| <b>&lt;data&gt;</b>   | The retrieved data                                                                                                                                                                                       |

### NOTE

1. **<id>**, **<sc>** and **<sid>** are the same as the parameters in the statement **" +QIRDI: <id>,<sc>,<sid> "**.
2. If it replies only OK for the write command, it means there is no received data in the buffer of the connection.

## 11.32. AT+QISDE Control Whether or Not to Echo the Data for QISEND

### AT+QISDE Control Whether or Not to Echo the Data for QISEND

|                                            |                                                                      |
|--------------------------------------------|----------------------------------------------------------------------|
| Test Command<br><b>AT+QISDE=?</b>          | Response<br><b>+QISDE:</b> (list of supported <m>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QISDE?</b>           | Response<br><b>+QISDE:</b> <m><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QISDE=&lt;m&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>                                |
| Maximum Response Time                      | 300 ms                                                               |
| Reference                                  |                                                                      |

#### Parameter

|          |                                                                          |
|----------|--------------------------------------------------------------------------|
| <m>      | A numeric indicates whether or not to echo the data for <b>AT+QISEND</b> |
| 0        | Do not echo the data                                                     |
| <u>1</u> | Echo the data                                                            |

## 11.33. AT+QPING Ping a Remote Server

### AT+QPING Ping a Remote Server

|                                                                                      |                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QPING=?</b>                                                    | Response<br><b>+QPING:</b> "HOST",(list of supported <timeout>s),(list of supported <pingnum>s)<br><br><b>OK</b>                                                                 |
| Write Command<br><b>AT+QPING="&lt;host&gt;"[,&lt;timeout&gt;][,&lt;pingnum&gt;]]</b> | Response<br><b>OK</b><br><br><b>[+QPING:</b><br><result>[,<ipAddr>,<bytes>,<time>,<ttl>]<CR><LF><br>...<CR><LF><br><b>+QPING:</b> <finresult>[,<sent>,<rcvd>,<lost>,<min>,<max>, |

|                       |                       |
|-----------------------|-----------------------|
|                       | <avg>]                |
|                       | ERROR                 |
| Maximum Response Time | Depends on <timeout>. |
| Reference             |                       |

## Parameter

|             |                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <host>      | The host address in string style. It could be a domain name or a dotted decimal IP address                                                               |
| <timeout>   | A numeric gives the maximum time to wait for the response of each ping request. Unit: second. Range: 1-255. Default: 1                                   |
| <pingnum>   | A numeric indicates the maximum time of ping request. Range: 1-10. Default: 4                                                                            |
| <result>    | The result of each ping request                                                                                                                          |
|             | 0 Received the ping response from the server. In the case, it is followed by “,<ipAddr>,<bytes>,<time>,<ttl>”                                            |
|             | 1 Timeout for the ping request. In the case, no other information follows it                                                                             |
| <ipAddr>    | The IP address of the remote server. It is a dotted decimal IP                                                                                           |
| <bytes>     | The length of sending each ping request                                                                                                                  |
| <time>      | The time expended to wait for the response for the ping request. Unit: ms                                                                                |
| <ttl>       | The value of time to live of the response packet for the ping request                                                                                    |
| <finresult> | The final result of the command                                                                                                                          |
|             | 2 It is finished normally. It is successful to activate GPRS and find the host. In the case, it is followed by “,<sent>,<rcvd>,<lost>,<min>,<max>,<avg>” |
|             | 3 The TCP/IP stack is busy now. In the case, no other information follows it                                                                             |
|             | 4 Do NOT find the host. In the case, no other information follows it                                                                                     |
|             | 5 Failed to activate PDP context. In the case, no other information follows it                                                                           |
| <sent>      | Total number of sending the ping requests                                                                                                                |
| <rcvd>      | Total number of the ping requests that received the response                                                                                             |
| <lost>      | Total number of the ping requests that were timeout                                                                                                      |
| <min>       | The minimum response time. Unit: ms                                                                                                                      |
| <max>       | The maximum response time. Unit: ms                                                                                                                      |
| <avg>       | The average response time. Unit: ms                                                                                                                      |

## 11.34. AT+QNTTP Synchronize the Local Time Via NTP

### AT+QNTTP Synchronize the Local Time Via NTP

|              |                                              |
|--------------|----------------------------------------------|
| Test Command | Response                                     |
| AT+QNTTP=?   | +QNTTP: “SERVER”,(list of supported <port>s) |
|              | OK                                           |

|                                                                  |                                                                                |
|------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Read Command<br><b>AT+QNTTP?</b>                                 | Response<br><b>+QNTTP: "&lt;server&gt;",&lt;port&gt;</b><br><br><b>OK</b>      |
| Execution Command<br><b>AT+QNTTP</b>                             | Response<br><b>OK</b><br><br><b>+QNTTP: &lt;result&gt;</b>                     |
| Write Command<br><b>AT+QNTTP="&lt;server&gt;"[,&lt;port&gt;]</b> | Response<br><b>OK</b><br><br><b>+QNTTP: &lt;result&gt;</b><br><br><b>ERROR</b> |
| Maximum Response Time                                            | 120 s, determined by network.                                                  |
| Reference                                                        |                                                                                |

## Parameter

|                       |                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------|
| <b>&lt;server&gt;</b> | The address of the Time Server in string style. It could be a domain name or a dotted decimal IP address |
| <b>&lt;port&gt;</b>   | The port of the Time Server                                                                              |
| <b>&lt;result&gt;</b> | The result of time synchronization                                                                       |
| 0                     | Successfully synchronize the local time                                                                  |
| 1                     | Failed to synchronize the local time because of unknown reason                                           |
| 2                     | Failed to receive the response from the Time Server                                                      |
| 3                     | The TCP/IP stack is busy now                                                                             |
| 4                     | Do Not find the Time Server                                                                              |
| 5                     | Failed to activate PDP context                                                                           |

### NOTE

The factory Time Server is provided by Google, whose address is "216.239.35.0" and port is 123.

# 12 Supplementary Service Commands

## 12.1. AT+CCFC Call Forwarding Number and Conditions Control

### AT+CCFC Call Forwarding Number and Conditions Control

Test Command

**AT+CCFC=?**

Response

**+CCFC:** (list of supported <reads>s)

**OK**

Write Command

**AT+CCFC=<reads>,<mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,<time>]]]]]]]**

Response

TA controls the call forwarding supplementary service.

Registration, erasure, activation, deactivation, and status query are supported.

Only ,<reads> and <mode> should be entered with mode (0-2,4)

If <mode><>2 and command successful:

**OK**

If <mode>=2 and command successful (only in connection with <reads> 0 –3)

For registered call forwarding numbers:

**+CCFC: <status>, <class1>[, <number>, <type>[, <subaddr>,<satype>[,<time>]]] [<CR><LF>+CCFC: ....]**

**OK**

If no call forwarding numbers are registered (and therefore all classes are inactive):

**+CCFC: <status>, <class>**

**OK**

where <status>=0 and <class>=15

If error is related to ME functionality:

**+CME ERROR: <err>**

Maximum Response Time

300 ms

Reference  
GSM 07.07

## Parameter

|           |                                                                                                                                             |                                                                                                                                                |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <reads>   | 0                                                                                                                                           | Unconditional                                                                                                                                  |
|           | 1                                                                                                                                           | Mobile busy                                                                                                                                    |
|           | 2                                                                                                                                           | No reply                                                                                                                                       |
|           | 3                                                                                                                                           | Not reachable                                                                                                                                  |
|           | 4                                                                                                                                           | All call forwarding (0-3)                                                                                                                      |
|           | 5                                                                                                                                           | All conditional call forwarding (1-3)                                                                                                          |
| <mode>    | 0                                                                                                                                           | Disable                                                                                                                                        |
|           | 1                                                                                                                                           | Enable                                                                                                                                         |
|           | 2                                                                                                                                           | Query status                                                                                                                                   |
|           | 3                                                                                                                                           | Registration                                                                                                                                   |
|           | 4                                                                                                                                           | Erasure                                                                                                                                        |
| <number>  | Phone number in string type of forwarding address in format specified by <type>                                                             |                                                                                                                                                |
| <type>    | Type of address in integer format; default value is 145 when dialing string includes international access code character "+", otherwise 129 |                                                                                                                                                |
| <subaddr> | String type sub-address of format specified by <satype>                                                                                     |                                                                                                                                                |
| <satype>  | Type of sub-address in integer                                                                                                              |                                                                                                                                                |
| <class>   | 1                                                                                                                                           | Voice                                                                                                                                          |
|           | 2                                                                                                                                           | Data                                                                                                                                           |
|           | 4                                                                                                                                           | FAX                                                                                                                                            |
|           | 7                                                                                                                                           | All telephony except SMS                                                                                                                       |
|           | 8                                                                                                                                           | Short message service                                                                                                                          |
|           | 16                                                                                                                                          | Data circuit sync                                                                                                                              |
|           | 32                                                                                                                                          | Data circuit async                                                                                                                             |
| <time>    | 1...30                                                                                                                                      | When "no reply" (<reads>=no reply) is enabled or queried, this gives the time in seconds to wait before call is forwarded, default value is 20 |
| <status>  | 0                                                                                                                                           | Not active                                                                                                                                     |
|           | 1                                                                                                                                           | Active                                                                                                                                         |

## Example

```

AT+CCFC=0,3,"15021012496" //Register the destination number for unconditional call
                           forwarding (CFU)
OK
AT+CCFC=0,2                //Query the status of CFU without specifying <class>
+CCFC: 1,1,"+8615021012496",145

+CCFC: 1,4,"+8615021012496",145

+CCFC: 1,32,"+8615021012496",145

```

```
+CCFC: 1,16,"+8615021012496",145
```

```
OK
```

```
AT+CCFC=0,4
```

```
//Erase the registered CFU destination number
```

```
OK
```

```
AT+CCFC=0,2
```

```
//Query the status, no destination number
```

```
+CCFC: 0,7
```

```
OK
```

## 12.2. AT+CCUG Closed User Group Control

### AT+CCUG Closed User Group Control

|                                                                             |                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CCUG=?</b>                                            | Response<br><b>OK</b>                                                                                                                                                                                                      |
| Read Command<br><b>AT+CCUG?</b>                                             | Response<br><b>+CCUG: &lt;n&gt;,&lt;index&gt;,&lt;info&gt;</b><br><br><b>OK</b>                                                                                                                                            |
| Write Command<br><b>AT+CCUG=[&lt;n&gt;][,&lt;index&gt;][,&lt;info&gt;]]</b> | Response<br>TA sets the closed user group supplementary service parameters as a default adjustment for all following calls.<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                       | 300 ms                                                                                                                                                                                                                     |
| Reference<br>GSM 07.07                                                      |                                                                                                                                                                                                                            |

### Parameter

|         |           |                                                     |
|---------|-----------|-----------------------------------------------------|
| <n>     | <u>0</u>  | Disable CUG                                         |
|         | 1         | Enable CUG                                          |
| <index> | 0...9     | CUG index                                           |
|         | <u>10</u> | No index (preferred CUG taken from subscriber data) |
| <info>  | <u>0</u>  | Bo information                                      |
|         | 1         | Suppress OA (Outgoing Access)                       |
|         | 2         | Suppress preferential CUG                           |
|         | 3         | Suppress OA and preferential CUG                    |

## 12.3. AT+CCWA Call Waiting Control

| AT+CCWA Call Waiting Control                                               |                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CCWA=?</b>                                           | Response<br><b>+CCWA:</b> (list of supported <n>s)<br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                             |
| Read Command<br><b>AT+CCWA?</b>                                            | Response<br><b>+CCWA:</b> <n><br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                  |
| Write Command<br><b>AT+CCWA=[&lt;n&gt;][,&lt;mode&gt;][,&lt;class&gt;]</b> | Response<br>TA controls the call waiting supplementary service. Activation, deactivation and status query are supported.<br>If <mode><2 and command successful:<br><b>OK</b><br><br>If <mode>=2 and command successful:<br><b>+CCWA:</b><br><status>,<class1>[<CR><LF>+CCWA:<status>,<class2>[..<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                      | 300 ms                                                                                                                                                                                                                                                                                                                                                                                          |
| Reference<br>GSM 07.07                                                     |                                                                                                                                                                                                                                                                                                                                                                                                 |

### Parameter

|         |                                                                   |                                                    |
|---------|-------------------------------------------------------------------|----------------------------------------------------|
| <n>     | 0                                                                 | Disable presentation of an unsolicited result code |
|         | 1                                                                 | Enable presentation of an unsolicited result code  |
| <mode>  | When <mode> parameter is not given, network is not interrogated   |                                                    |
|         | 0                                                                 | Disable                                            |
|         | 1                                                                 | Enable                                             |
|         | 2                                                                 | Query status                                       |
| <class> | A sum of integers, each integer represents a class of information |                                                    |
|         | 1                                                                 | Voice (telephony)                                  |
|         | 2                                                                 | Data (bearer service)                              |

|                       |    |                    |
|-----------------------|----|--------------------|
|                       | 4  | FAX (facsimile)    |
|                       | 16 | Data circuit sync  |
|                       | 32 | Data circuit async |
| <b>&lt;status&gt;</b> | 0  | Disable            |
|                       | 1  | Enable             |

#### NOTE

1. **<status>**=0 should be returned only if service is not active for any **<class>** i.e. +CCWA: 0, 7 will be returned in this case.
2. When **<mode>**=2, all active call waiting classes will be reported. In this mode the command is aborted by pressing any key.
3. Unsolicited result code  
When the presentation call waiting at the TA is enabled (and call waiting is enabled) and a terminating call set up during an established call, an unsolicited result code is returned:  
**+CCWA: <number>,<type>,<class>[,<alpha>]**  
Parameters  

|                       |                                                                                                                          |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;number&gt;</b> | Phone number in string type of calling address in format specified by <b>&lt;type&gt;</b>                                |
| <b>&lt;type&gt;</b>   | Type of address octet in integer format                                                                                  |
|                       | 129      Unknown type (ISDN format number)                                                                               |
|                       | 145      International number type (ISDN format)                                                                         |
| <b>&lt;alpha&gt;</b>  | Optional string type alphanumeric representation of <b>&lt;number&gt;</b> corresponding to the entry found in phone book |

#### Example

```

AT+CCWA=1,1           //Enable presentation of an unsolicited result code
OK
ATD10086;              //Establish a call
OK

+CCWA: "02154450293",129,1  //Indication of a call that has been waiting

```

## 12.4. AT+CHLD Call Hold and Multiparty

### AT+CHLD Call Hold and Multiparty

|              |                                 |
|--------------|---------------------------------|
| Test Command | Response                        |
| AT+CHLD=?    | +CHLD: (list of supported <n>s) |
|              | OK                              |

|                                             |                                                                                                                                                                                                                                                                                           |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Write Command<br><b>AT+CHLD=[&lt;n&gt;]</b> | Response<br>TA controls the supplementary services call hold, multiparty and explicit call transfer. Calls can be put on hold, recovered, released, added to conversation and transferred.<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                       | 300 ms                                                                                                                                                                                                                                                                                    |
| Reference<br>GSM 07.07                      |                                                                                                                                                                                                                                                                                           |

### Parameter

|     |    |                                                                                                                                                                                 |
|-----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <n> | 0  | Terminate all held calls or UDUB (User Determined User Busy) for a waiting call. If a call is waiting, terminate the waiting call. Otherwise, terminate all held calls (if any) |
|     | 1  | Terminate all active calls (if any) and accept the other call (waiting call or held call). It cannot terminate active call if there is only one call                            |
|     | 1X | Terminate the specific call number X (X=1-7)(active, waiting or held)                                                                                                           |
|     | 2  | Place all active calls on hold (if any) and accept the other call (waiting call or held call) as the active call                                                                |
|     | 2X | Place all active calls except call X (X=1-7) on hold                                                                                                                            |
|     | 3  | Add the held call to the active calls                                                                                                                                           |

### NOTE

These supplementary services are only available to the teleservice 11 (Speech: Telephony).

### Example

```

ATD10086;           //Establish a call
OK

+CCWA: "02154450293",129,1  //Indication of a call that has been waiting
AT+CHLD=2           //Place the active call on hold and accept the waiting call
                        as the active call
OK
AT+CLCC
+CLCC: 1,0,1,0,0,"10086",129,"" //The first call on hold

+CLCC: 2,1,0,0,0,"02154450293",129,"" //The second call becomes active

```

```

OK
AT+CHLD=21                                     //Place the active call except call X=1 on hold
OK
AT+CLCC
+CLCC: 1,0,0,0,0,"10086",129,""               //The first call becomes active

+CLCC: 2,1,1,0,1,"02154450293",129,""         //The second call on hold

OK
AT+CHLD=3                                     //Add a held call to the active calls in order to set up a
                                              conference (multiparty) call

OK
AT+CLCC
+CLCC: 1,0,0,0,1,"10086",129,""

+CLCC: 2,1,0,0,1,"02154450293",129,""

OK

```

## 12.5. AT+CLIP Calling Line Identification Presentation

### AT+CLIP Calling Line Identification Presentation

|                                             |                                                                                                                                                                                                                                                                                      |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CLIP=?</b>            | Response<br><b>+CLIP:</b> (list of supported <n>s)<br><br><b>OK</b>                                                                                                                                                                                                                  |
| Read Command<br><b>AT+CLIP?</b>             | Response<br><b>+CLIP:</b> <n>,<m><br><br><b>OK</b>                                                                                                                                                                                                                                   |
| Write Command<br><b>AT+CLIP=[&lt;n&gt;]</b> | Response<br>TA enables or disables the presentation of the calling line identity (CLI) at the TE. It has no effect on the execution of the supplementary service CLIP in the network.<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                       | 15 s, determined by network.                                                                                                                                                                                                                                                         |
| Reference                                   |                                                                                                                                                                                                                                                                                      |

GSM 07.07

## Parameter

|     |   |                                   |
|-----|---|-----------------------------------|
| <n> | 0 | Suppress unsolicited result codes |
|     | 1 | Display unsolicited result codes  |
| <m> | 0 | CLIP not provisioned              |
|     | 1 | CLIP provisioned                  |
|     | 2 | Unknown                           |

## NOTE

Unsolicited result code

When the presentation of the CLI at the TE is enabled (and calling subscriber allows), an unsolicited result code is returned after every RING (or **+CRING: <type>**) at a mobile terminating call.

**+CLIP: <number>, <type>,"",,<alphan>,<CLI validity>**

Parameters

|                |                                                                                                    |                                                                                         |
|----------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <number>       | Phone number in string type of calling address in format specified by <type>                       |                                                                                         |
| <type>         | Type of address octet in integer format;                                                           |                                                                                         |
|                | 129                                                                                                | Unknown type (ISDN format number)                                                       |
|                | 145                                                                                                | International number type (ISDN format)                                                 |
| <alphan>       | String type alphanumeric representation of <number> corresponding to the entry found in phone book |                                                                                         |
| <CLI validity> | 0                                                                                                  | CLI valid                                                                               |
|                | 1                                                                                                  | CLI has been withheld by the originator                                                 |
|                | 2                                                                                                  | CLI is not available due to interworking problems or limitations of originating network |

## Example

```
AT+CPBW=1,"02151082965",129,"QUECTEL"
```

```
OK
```

```
AT+CLIP=1
```

```
OK
```

```
RING
```

```
+CLIP: "02151082965",129,"",,"",0
```

## 12.6. AT+QCLIP Display the +CLIP Number Name

### AT+QCLIP Display the +CLIP Number Name

|                                            |                                                                     |
|--------------------------------------------|---------------------------------------------------------------------|
| Test Command<br><b>AT+QCLIP=?</b>          | Response<br><b>+CLIP:</b> (list of supported <n>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QCLIP?</b>           | Response<br><b>+CLIP:</b> <n><br><br><b>OK</b>                      |
| Write Command<br><b>AT+QCLIP=&lt;n&gt;</b> | Response<br><b>OK</b>                                               |
| Maximum Response Time                      | 15 s, determined by network.                                        |
| Reference<br>GSM 07.07                     |                                                                     |

### Parameter

|     |          |                             |
|-----|----------|-----------------------------|
| <n> | <u>0</u> | Not display the number name |
|     | 1        | Display the number name     |

### NOTE

This command takes effective after setting AT+CLIP=1

### Example

```

AT+CPBW=1,"02151082965",129,"QUECTEL"
OK
AT+QCLIP=1
OK
AT+CLIP=1
OK

RING

+CLIP: "02151082965",129,"","QUECTEL",0
    
```

## 12.7. AT+CLIR Calling Line Identification Restriction

| AT+CLIR Calling Line Identification Restriction |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CLIR=?</b>                | Response<br><b>+CLIR:</b> (list of supported <n>s)<br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Read Command<br><b>AT+CLIR?</b>                 | Response<br><b>+CLIR:</b> <n>,<m><br><br><b>OK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Write Command<br><b>AT+CLIR=[&lt;n&gt;]</b>     | Response<br>TA restricts or enables the presentation of the calling line identity (CLI) to the called party when originating a call.<br><br>The command overrides the CLIR subscription (default is restricted or allowed) when temporary mode is provisioned as a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite Command.<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                           | 15 s, determined by network                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Reference<br>GSM 07.07                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

### Parameter

|     |                                                                                    |
|-----|------------------------------------------------------------------------------------|
| <n> | (Parameter sets the adjustment for outgoing calls)                                 |
|     | 0 Presentation indicator is used according to the subscription of the CLIR service |
|     | 1 CLIR invocation                                                                  |
| <m> | 2 CLIR suppression                                                                 |
|     | (Parameter shows the subscriber CLIR service status in the network)                |
|     | 0 CLIR not provisioned                                                             |
|     | 1 CLIR provisioned in permanent mode                                               |
|     | 2 Unknown (e.g. no network, etc.)                                                  |
|     | 3 CLIR temporary mode presentation restricted                                      |
|     | 4 CLIR temporary mode presentation allowed                                         |

## 12.8. AT+COLP Connected Line Identification Presentation

| AT+COLP Connected Line Identification Presentation |                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+COLP=?</b>                   | Response<br><b>+COLP:</b> (list of supported <n>s)<br><br><b>OK</b>                                                                                                                                                                                                                                                        |
| Read Command<br><b>AT+COLP?</b>                    | Response<br><b>+COLP:</b> <n>,<m><br><br><b>OK</b>                                                                                                                                                                                                                                                                         |
| Write Command<br><b>AT+COLP=[&lt;n&gt;]</b>        | Response<br>TA enables or disables the presentation of the COL (Connected Line) at the TE for a mobile originating a call. It has no effect on the execution of the supplementary service COLR in the network.<br><br>Intermediate result code is returned from TA to TE before any +CR or V.25ter responses.<br><b>OK</b> |
| Maximum Response Time                              | 15 s, determined by network.                                                                                                                                                                                                                                                                                               |
| Reference<br>GSM 07.07                             |                                                                                                                                                                                                                                                                                                                            |

### Parameter

|                  |                                                                                                                                                                         |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;n&gt;</b> | (Parameter sets/shows the result code presentation status in the TA)<br>0      Disable<br>1      Enable                                                                 |
| <b>&lt;m&gt;</b> | (Parameter shows the subscriber COLP service status in the network)<br>0      COLP not provisioned<br>1      COLP provisioned<br>2      Unknown (e.g. no network, etc.) |

#### NOTE

Intermediate result code

When enabled (and called subscriber allows), an intermediate result code is returned before any +CR or V.25ter responses:

**+COLP:** <number>,<type>[,<subaddr>,<satype> [,<alpha>]]

Parameters

|                        |                                                                                                                          |
|------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;number&gt;</b>  | Phone number in string type, format specified by <b>&lt;type&gt;</b>                                                     |
| <b>&lt;type&gt;</b>    | Type of address octet in integer format                                                                                  |
| 129                    | Unknown type (ISDN format number)                                                                                        |
| 145                    | International number type (ISDN format)                                                                                  |
| <b>&lt;subaddr&gt;</b> | String type sub-address of format specified by <b>&lt;satype&gt;</b>                                                     |
| <b>&lt;satype&gt;</b>  | Type of sub-address octet in integer format (refer to GSM 04.08 sub clause 10.5.4.8)                                     |
| <b>&lt;alpha&gt;</b>   | Optional string type alphanumeric representation of <b>&lt;number&gt;</b> corresponding to the entry found in phone book |

## Example

```

AT+CPBW=1,"02151082965",129,"QUECTEL"
OK
AT+COLP=1
OK
ATD02151082965;
+COLP: "02151082965",129,"",0,""
OK

```

## 12.9. AT+QCOLP Display the +COLP Number Name

### AT+QCOLP Display the +COLP Number Name

|                                            |                                                                                   |
|--------------------------------------------|-----------------------------------------------------------------------------------|
| Test Command<br><b>AT+QCOLP=?</b>          | Response<br><b>+COLP:</b> (list of supported <b>&lt;n&gt;s</b> )<br><br><b>OK</b> |
| Read Command<br><b>AT+QCOLP?</b>           | Response<br><b>+COLP:</b> <b>&lt;n&gt;</b><br><br><b>OK</b>                       |
| Write Command<br><b>AT+QCOLP=&lt;n&gt;</b> | Response<br><b>OK</b>                                                             |
| Maximum Response Time                      | 15 s, determined by network.                                                      |
| Reference<br>GSM 07.07                     |                                                                                   |

## Parameter

|                  |          |                                |
|------------------|----------|--------------------------------|
| <b>&lt;n&gt;</b> | <u>0</u> | Do not display the number name |
|------------------|----------|--------------------------------|

---

1      Display the number name

---

#### NOTE

This command takes effective after setting AT+COLP=1

#### Example

```
AT+CPBW=1,"02151082965",129,"QUECTEL"
OK
AT+QCOLP=1
OK
AT+COLP=1
OK
ATD02151082965;
+COLP: "02151082965",129,"",0,"QUECTEL"
OK
```

## 12.10. AT+CUSD    Unstructured Supplementary Service Data

### AT+CUSD    Unstructured Supplementary Service Data

|                                                                        |                                                                                                         |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CUSD=?</b>                                       | Response<br><b>+CUSD:</b> (list of supported <n>s)<br><br><b>OK</b>                                     |
| Read Command<br><b>AT+CUSD?</b>                                        | Response<br><b>+CUSD:</b> <n><br><br><b>OK</b>                                                          |
| Write Command<br><b>AT+CUSD=[&lt;n&gt;[,&lt;str&gt;[,&lt;dcs&gt;]]</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                  | 120 s, determined by network.                                                                           |
| Reference<br>GSM 07.07                                                 |                                                                                                         |

## Parameter

|                    |                                                                                            |
|--------------------|--------------------------------------------------------------------------------------------|
| <b>&lt;n&gt;</b>   | A numeric parameter which indicates control of the unstructured supplementary service data |
| <u>0</u>           | Disable the result code presentation in the TA                                             |
| 1                  | Enable the result code presentation in the TA                                              |
| 2                  | Cancel session (not applicable to read command response)                                   |
| <b>&lt;str&gt;</b> | String type USSD-string                                                                    |
| <b>&lt;dc&gt;</b>  | Cell Broadcast Data Coding Scheme in integer format (default 0)                            |

## Example

```

AT+CSCS="UCS2"
OK
AT+CUUSD=1,"002A0031003000300023"
+CUUSD:
1,"0031002E59296C14000A0032002E65B095FB000A0033002E8BC15238000A0034002E5F6979680
00A0035002E751F6D3B000A0036002E5A314E50000A0037002E5E385DDE98CE91C7000A002A002
E900051FA000A", 72
OK

```

## 12.11. AT+CSSN Supplementary Services Notification

### AT+CSSN Supplementary Services Notification

|                                                         |                                                                                                         |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CSSN=?</b>                        | Response<br><b>+CSSN:</b> (list of supported <n>s), (list of supported <m>s)<br><br><b>OK</b>           |
| Read Command<br><b>AT+CSSN?</b>                         | Response<br><b>+CSSN:</b> <n>,<m><br><br><b>OK</b>                                                      |
| Write Command<br><b>AT+CSSN=[&lt;n&gt;[,&lt;m&gt;]]</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                   | 300 ms                                                                                                  |
| Reference<br>GSM 07.07                                  |                                                                                                         |

## Parameter

|                      |                                                                                                                                                                                                                                                   |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;n&gt;</b>     | A numeric parameter which indicates whether to show the <b>+CSSI:&lt;code1&gt;[,&lt;index&gt;]</b> result code presentation status after a mobile originated call setup                                                                           |
| 0                    | Disable                                                                                                                                                                                                                                           |
| 1                    | Enable                                                                                                                                                                                                                                            |
| <b>&lt;m&gt;</b>     | A numeric parameter which indicates whether to show the <b>+CSSU:&lt;code2&gt;</b> result code presentation status during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received |
| 0                    | Disable                                                                                                                                                                                                                                           |
| 1                    | Enable                                                                                                                                                                                                                                            |
| <b>&lt;code1&gt;</b> | 0 Unconditional call forwarding is active                                                                                                                                                                                                         |
|                      | 1 Some of the conditional call forwarding are active                                                                                                                                                                                              |
|                      | 2 Call has been forwarded                                                                                                                                                                                                                         |
|                      | 3 Call is waiting                                                                                                                                                                                                                                 |
|                      | 4 This is a CUG call (also <b>&lt;index&gt;</b> present)                                                                                                                                                                                          |
|                      | 5 Outgoing calls are barred                                                                                                                                                                                                                       |
|                      | 6 Incoming calls are barred                                                                                                                                                                                                                       |
|                      | 7 CLIR suppression rejected                                                                                                                                                                                                                       |
| <b>&lt;index&gt;</b> | Closed user group index                                                                                                                                                                                                                           |
| <b>&lt;code2&gt;</b> | 0 This is a forwarded call                                                                                                                                                                                                                        |

# 13 Audio Commands

## 13.1. ATL Set Monitor Speaker Loudness

### ATL Set Monitor Speaker Loudness

|                                              |                       |
|----------------------------------------------|-----------------------|
| Execution Command<br><b>ATL&lt;value&gt;</b> | Response<br><b>OK</b> |
|----------------------------------------------|-----------------------|

|                       |        |
|-----------------------|--------|
| Maximum Response Time | 300 ms |
|-----------------------|--------|

|                      |  |
|----------------------|--|
| Reference<br>V.25ter |  |
|----------------------|--|

#### Parameter

|                      |   |                       |
|----------------------|---|-----------------------|
| <b>&lt;value&gt;</b> | 0 | Low speaker volume    |
|                      | 1 | Low speaker volume    |
|                      | 2 | Medium speaker volume |
|                      | 3 | High speaker volume   |

#### NOTE

The two commands **ATL** and **ATM** are implemented only for V.25 compatibility reasons and have no effect.

## 13.2. ATM Set Monitor Speaker Mode

### ATM Set Monitor Speaker Mode

|                                              |                       |
|----------------------------------------------|-----------------------|
| Execution Command<br><b>ATM&lt;value&gt;</b> | Response<br><b>OK</b> |
|----------------------------------------------|-----------------------|

|                       |        |
|-----------------------|--------|
| Maximum Response Time | 300 ms |
|-----------------------|--------|

|                      |  |
|----------------------|--|
| Reference<br>V.25ter |  |
|----------------------|--|

## Parameter

|                      |   |                                                                 |
|----------------------|---|-----------------------------------------------------------------|
| <b>&lt;value&gt;</b> | 0 | Speaker is always off                                           |
|                      | 1 | Speaker is on until TA inform TE that carrier has been detected |
|                      | 2 | Speaker is always on when TA is off-hook                        |

### NOTE

The two commands **ATL** and **ATM** are implemented only for V.25 compatibility reasons and have no effect.

## 13.3. AT+VTD Tone Duration

### AT+VTD Tone Duration

|                                                                            |                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+VTD=?</b>                                            | Response<br><b>+VTD:</b> ( list of supported <b>&lt;internalduration&gt;s</b> ),( list of supported <b>&lt;duration&gt;s</b> )]<br><br><b>OK</b>                                                                |
| Read Command<br><b>AT+VTD?</b>                                             | Response<br><b>+VTD:</b> <b>&lt;internalduration&gt;</b> , <b>&lt;duration&gt;</b><br><br><b>OK</b>                                                                                                             |
| Write Command<br><b>AT+VTD=&lt;internalduration&gt;[,&lt;duration&gt;]</b> | Response<br>This command refers to an integer <b>&lt;internalduration&gt;</b> that defines the length of tones emitted as a result of the <b>+VTS</b> command. This does not affect the D command.<br><b>OK</b> |
| Maximum Response Time                                                      | 300 ms                                                                                                                                                                                                          |
| Reference<br>GSM 07.07                                                     |                                                                                                                                                                                                                 |

## Parameter

|                                 |               |                                            |
|---------------------------------|---------------|--------------------------------------------|
| <b>&lt;internalduration&gt;</b> | <u>1</u> -255 | Duration between two tones, unit is100 ms  |
| <b>&lt;duration&gt;</b>         | <u>0</u>      | Do not set duration of every single tone.  |
|                                 | 1-100000      | Duration of every single tone, unit is 1ms |

## 13.4. AT+VTS DTMF and Tone Generation

| AT+VTS DTMF and Tone Generation                    |                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+VTS=?</b>                    | Response<br><b>+VTS:</b> (list of supported <b>&lt;dtmf&gt;s</b> ), ,(list of supported <b>&lt;duration&gt;s</b> )<br><br><b>OK</b>                                                                                                                                                     |
| Write Command<br><b>AT+VTS=&lt;dtmf-string&gt;</b> | Response<br>This command allows the transmission of DTMF tones and arbitrary tones in voice mode. These tones may be used (for example) when announcing the start of a recording period.<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                              | Depends on the length of <b>&lt;dtmf-string&gt;</b> .                                                                                                                                                                                                                                   |
| Reference<br>GSM 07.07                             |                                                                                                                                                                                                                                                                                         |

### Parameter

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;dtmf-string&gt;</b> | It has a max length of 20 characters, must be entered between double quotes (" ") and consists of combinations of the following separated by commas. But a single character does not require quotes.<br>1) <b>&lt;dtmf&gt;</b> A single ASCII characters in the set 0-9, #, *, A-D. This is interpreted as a sequence of DTMF tones whose duration is set by the <b>+VTD</b> command<br>2) <b>{&lt;dtmf&gt;, &lt;duration&gt;}</b> This is interpreted as a DTMF tone whose duration is determined by <b>&lt;duration&gt;</b> |
| <b>&lt;duration&gt;</b>    | Duration of the tone, unit is 100 ms, range: 1-255                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Example

```

ATD10086;           //Establish a call
OK
AT+VTS=1            //Send a single DTMF tone according to the prompts of voice
OK

```

## 13.5. AT+CALM Alert Sound Mode

| AT+CALM Alert Sound Mode                     |                                                                                                         |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CALM=?</b>             | Response<br><b>+CALM:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b>                    |
| Read Command<br><b>AT+CALM?</b>              | Response<br><b>+CALM:</b> <b>&lt;mode&gt;</b><br><br><b>OK</b>                                          |
| Write Command<br><b>AT+CALM=&lt;mode&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                        | 300 ms                                                                                                  |
| Reference<br>GSM 07.07                       |                                                                                                         |

### Parameter

|                     |          |                                                |
|---------------------|----------|------------------------------------------------|
| <b>&lt;mode&gt;</b> | <u>0</u> | Normal mode                                    |
|                     | 1        | Silent mode (all sounds from ME are prevented) |

## 13.6. AT+CRSL Ringer Sound Level

| AT+CRSL Ringer Sound Level                    |                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CRSL=?</b>              | Response<br><b>+CRSL:</b> (list of supported <b>&lt;level&gt;</b> s)<br><br><b>OK</b> |
| Read Command<br><b>AT+CRSL?</b>               | Response<br><b>+CRSL:</b> <b>&lt;level&gt;</b><br><br><b>OK</b>                       |
| Write Command<br><b>AT+CRSL=&lt;level&gt;</b> | Response<br><b>OK</b>                                                                 |

|                        |                                                                            |
|------------------------|----------------------------------------------------------------------------|
|                        | If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time  | 300 ms                                                                     |
| Reference<br>GSM 07.07 |                                                                            |

## Parameter

|                      |                                                                                                                |
|----------------------|----------------------------------------------------------------------------------------------------------------|
| <b>&lt;level&gt;</b> | Integer type value (0-100) with manufacturer specific range (Smallest value represents the lowest sound level) |
|----------------------|----------------------------------------------------------------------------------------------------------------|

## 13.7. AT+CLVL Loud Speaker Volume Level

| AT+CLVL Loud Speaker Volume Level             |                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CLVL=?</b>              | Response<br><b>+CLVL:</b> (list of supported <b>&lt;level&gt;</b> s)<br><br><b>OK</b>                   |
| Read Command<br><b>AT+CLVL?</b>               | Response<br><b>+CLVL: &lt;level&gt;</b><br><br><b>OK</b>                                                |
| Write Command<br><b>AT+CLVL=&lt;level&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                         | 300 ms                                                                                                  |
| Reference<br>GSM 07.07                        |                                                                                                         |

## Parameter

|                      |                                                                                                                |
|----------------------|----------------------------------------------------------------------------------------------------------------|
| <b>&lt;level&gt;</b> | Integer type value (0-100) with manufacturer specific range (Smallest value represents the lowest sound level) |
|----------------------|----------------------------------------------------------------------------------------------------------------|

## 13.8. AT+CMUT Mute Control

| AT+CMUT Mute Control                      |                                                                                                         |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CMUT=?</b>          | Response<br><b>+CMUT:</b> (list of supported <n>s)<br><br><b>OK</b>                                     |
| Read Command<br><b>AT+CMUT?</b>           | Response<br><b>+CMUT:</b> <n><br><br><b>OK</b>                                                          |
| Write Command<br><b>AT+CMUT=&lt;n&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                     | 300 ms                                                                                                  |
| Reference<br>GSM 07.07                    |                                                                                                         |

### Parameter

|     |          |          |
|-----|----------|----------|
| <n> | <u>0</u> | Mute off |
|     | 1        | Mute on  |

### NOTE

This command is to mute the uplink.

## 13.9. AT+QSIDET Change the Side Tone Gain Level

| AT+QSIDET Change the Side Tone Gain Level |                                                                               |
|-------------------------------------------|-------------------------------------------------------------------------------|
| Test Command<br><b>AT+QSIDET=?</b>        | Response<br><b>+QSIDET:</b> (list of supported <gainlevel>s)<br><br><b>OK</b> |
| Read Command<br><b>AT+QSIDET?</b>         | Response<br><b>+QSIDET(NORMAL_AUDIO):</b> <gainlevel>                         |

|                                                     |                                                                                                  |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------|
|                                                     | OK<br>+QSIDET(HEADSET_AUDIO): <gainlevel>                                                        |
|                                                     | OK                                                                                               |
| Write Command<br><b>AT+QSIDET=&lt;gainlevel&gt;</b> | Response<br>OK<br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                               | 300 ms                                                                                           |
| Reference<br>GSM 07.07                              |                                                                                                  |

## Parameter

<gainlevel>      Range is 0-255

### NOTE

<gainlevel> value is related to specific channel.

## 13.10. AT+QMIC    Change the Microphone Gain Level

### AT+QMIC    Change the Microphone Gain Level

|                                                                   |                                                                                                                      |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QMIC=?</b>                                  | Response<br><b>+QMIC:</b> (list of supported <channel>s) , (list of supported <gainlevel>s)<br><br>OK                |
| Read Command<br><b>AT+QMIC?</b>                                   | Response<br><b>+QMIC:</b><br><gainlevel(Normal_Mic)>,<gainlevel(Headset_Mic)>,<gainlevel(Loudspeaker_Mic)><br><br>OK |
| Write Command<br><b>AT+QMIC=&lt;channel&gt;,&lt;gainlevel&gt;</b> | Response<br>OK                                                                                                       |

|                       |                                                                            |
|-----------------------|----------------------------------------------------------------------------|
|                       | If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time | 300 ms                                                                     |
| Reference             |                                                                            |

### Parameter

|                          |               |                        |
|--------------------------|---------------|------------------------|
| <b>&lt;channel&gt;</b>   | 0             | Normal microphone      |
|                          | 1             | Headset microphone     |
|                          | 2             | Loudspeaker microphone |
| <b>&lt;gainlevel&gt;</b> | Range is 0-15 |                        |

## 13.11. AT+QLDTMF Generate Local DTMF Tones

| AT+QLDTMF Generate Local DTMF Tones                               |                                                                                                                                                |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QLDTMF=?</b>                                | Response<br><b>+QLDTMF:</b> (list of supported <b>&lt;durations&gt;s</b> ) , (list of supported <b>&lt;DTMF string&gt;s</b> )<br><br><b>OK</b> |
| Write Command<br><b>AT+QLDTMF=&lt;n&gt;[,&lt;DTMF string&gt;]</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>                                        |
| Execution Command<br><b>AT+QLDTMF</b>                             | Response<br><b>OK</b>                                                                                                                          |
| Maximum Response Time                                             | Depends on the length of <DTMF string>.                                                                                                        |
| Reference                                                         |                                                                                                                                                |

### Parameter

|                            |                                                                                                                                  |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;durations&gt;</b>   | A numeric parameter(1-1000) which indicates the duration of all DTMF tones in <b>&lt;DTMF string&gt;</b> in 1/10 seconds         |
| <b>&lt;DTMF string&gt;</b> | A string parameter which has a max length of 20 DTMF characters (single ASCII chars in the set 0-9,#,*,A-D), separated by commas |

**NOTE**

Aborts any DTMF tones that are generated currently and any DTMF tones sequence.

## 13.12. AT+QAUDCH Swap the Audio Channels

### AT+QAUDCH Swap the Audio Channels

|                                               |                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QAUDCH=?</b>            | Response<br><b>+QAUDCH:</b> (list of supported <n>s)<br><br><b>OK</b>                                   |
| Read Command<br><b>AT+QAUDCH?</b>             | Response<br><b>+QAUDCH:</b> <n><br><br><b>OK</b>                                                        |
| Write Command<br><b>AT+QAUDCH=[&lt;n&gt;]</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                         | 300 ms                                                                                                  |
| Reference                                     |                                                                                                         |

#### Parameter

|     |   |                                |
|-----|---|--------------------------------|
| <n> | 0 | Normal audio channel (default) |
|     | 1 | Headset audio channel          |
|     | 2 | Loudspeaker audio              |

## 13.13. AT+QLTONE Generate Local Specific Tone

### AT+QLTONE Generate Local Specific Tone

|                                    |                                                                                                                                                                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QLTONE=?</b> | Response<br><b>+QLTONE:</b> (list of supported <mode>s), (list of supported <frequency>s), (list of supported <periodOn>s), (list of supported <periodOff>s), (list of supported <duration>s) |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                      |                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|                                                                                                                      | OK                                                                                                      |
| Write Command<br><b>AT+QLTONE=&lt;mode&gt;,&lt;frequency&gt;,&lt;periodOn&gt;,&lt;periodOff&gt;,&lt;duration&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                                                                                                | Depends on the content of the play.                                                                     |
| Reference                                                                                                            |                                                                                                         |

### Parameter

|                          |                                       |                    |
|--------------------------|---------------------------------------|--------------------|
| <b>&lt;mode&gt;</b>      | 0                                     | Stop playing tone  |
|                          | 1                                     | Start playing tone |
| <b>&lt;frequency&gt;</b> | The frequency of tone to be generated |                    |
| <b>&lt;periodOn&gt;</b>  | The period of generating tone         |                    |
| <b>&lt;periodOff&gt;</b> | The period of stopping tone           |                    |
| <b>&lt;duration&gt;</b>  | Duration of tones in milliseconds     |                    |

### NOTE

When playing tone, module will continuously play for **<periodOn>**, then stop playing for **<periodOff>** in a cycle. The total time of cycles is **<duration>**.

## 13.14. AT+QTONEP Set DTMF Output Path

| AT+QTONEP Set DTMF Output Path                       |                                                                                                         |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QTONEP=?</b>                   | Response<br><b>+QTONEP:</b> (list of supported <b>&lt;outputpath&gt;</b> s)<br><br><b>OK</b>            |
| Read Command<br><b>AT+QTONEP?</b>                    | Response<br><b>+QTONEP: &lt;n&gt;</b><br><br><b>OK</b>                                                  |
| Write Command<br><b>AT+QTONEP=&lt;outputpath&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |

|                       |        |
|-----------------------|--------|
| Maximum Response Time | 300 ms |
| Reference             |        |

## Parameter

|                           |                                          |
|---------------------------|------------------------------------------|
| <b>&lt;outputpath&gt;</b> | Output path                              |
| 0                         | Output DTMF or tone from Normal speaker  |
| 1                         | Output DTMF or tone from Headset speaker |
| 2                         | Output DTMF or tone from Loud speaker    |
| <u>3</u>                  | Auto                                     |

### NOTE

Set **AT+QTONEP=3**, output DTMF or tone from default speak path. For more details, consult **AT+QAUDCH**.

## 13.15. AT+QTDMOD Set Tone Detection Mode

| AT+QTDMOD Set Tone Detection Mode                                                |                                                                                                                                                       |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QTDMOD=?</b>                                               | Response<br><b>+QTDMOD:</b> (list of supported <b>&lt;operatefunction&gt;s</b> ),(list of supported <b>&lt;functionstatus&gt;s</b> )<br><br><b>OK</b> |
| Read Command<br><b>AT+QTDMOD?</b>                                                | Response<br><b>+QTDMOD:</b> <b>&lt;operatefunction&gt;</b> , <b>&lt;functionstatus&gt;</b><br><br><b>OK</b>                                           |
| Write Command<br><b>AT+QTDMOD=&lt;operatefunction&gt;,&lt;functionstatus&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>                                               |
| Maximum Response Time                                                            | 300 ms                                                                                                                                                |
| Reference                                                                        |                                                                                                                                                       |

## Parameter

|                               |                                                                                                                                                                                                                            |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;operatefuntion&gt;</b> | Operate function                                                                                                                                                                                                           |
| 1                             | Set detection range                                                                                                                                                                                                        |
| 2                             | Set detection mode                                                                                                                                                                                                         |
| <b>&lt;funtionstatus&gt;</b>  | Function status                                                                                                                                                                                                            |
| 0                             | When set <b>&lt;operatefuntion&gt;=1</b> , detect all DTMF, including 1400 and 2300 handshake signal. When set <b>&lt;operatefuntion&gt;=2</b> , detect DTMF tone by normal arithmetic                                     |
| 1                             | When set <b>&lt;operatefuntion&gt;=1</b> , only detect 1400 and 2300 handshake signal by using optimal arithmetic. When set <b>&lt;operatefuntion&gt;=2</b> , detect long continuous DTMF tone by using optimal arithmetic |
| 2                             | When set <b>&lt;operatefuntion&gt;=1</b> , not detected 1400Hz and 2300Hz handshake signal.                                                                                                                                |

### NOTE

1. Set **AT+QTDMOD=1,0**, detect all DTMF, including 1400 Hz and 2300 Hz handshake signal.
2. Set **AT+QTDMOD=1,1**, only detect 1400 Hz and 2300 Hz handshake signal by using optimal arithmetic.
3. Set **AT+QTDMOD=1,2**, detect all DTMF, not including 1400 Hz and 2300 Hz handshake signal.
4. Set **AT+QTDMOD=2,0**, detect DTMF tone by using normal arithmetic.
5. Set **AT+QTDMOD=2,1**, detect long continuous DTMF tone by using optimal arithmetic.
6. Consult **AT+QTONEDET**.

## 13.16. AT+QTONEDET Detect DTMF

### AT+QTONEDET Detect DTMF

|                                                                                                                                         |                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QTONEDET=?</b>                                                                                                    | Response<br><b>+QTONEDET:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b>                |
| Read Command<br><b>AT+QTONEDET?</b>                                                                                                     | Response<br><b>+QTONEDET:</b> <b>&lt;mode&gt;</b><br><br><b>OK</b>                                      |
| Write Command<br><b>AT+QTONEDET=&lt;mode&gt;[,&lt;operate&gt;][,&lt;prefixpause&gt;][,&lt;lowthreshold&gt;][,&lt;highthreshold&gt;]</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |

|                       |                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|
|                       | Open after successful DTMF tone is detected, will be reported:<br><b>+QTONEDT: &lt;dtmfcode&gt;[,&lt;persistencetime&gt;]</b> |
| Maximum Response Time | 300 ms                                                                                                                        |
| Reference             |                                                                                                                               |

## Parameter

|                              |                                                                                                                                                        |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;mode&gt;</b>          | Mode function                                                                                                                                          |
| 0                            | Close tone detection                                                                                                                                   |
| 1                            | Open tone detection                                                                                                                                    |
| 2                            | Configure 1400Hz or 2300Hz detection threshold, duration of which is 100 ms                                                                            |
| 3                            | Configure 1400Hz and 2300Hz 400 ms detection threshold                                                                                                 |
| 4                            | Configure DTMF detection threshold                                                                                                                     |
| 5                            | Open debug                                                                                                                                             |
| <b>&lt;operate&gt;</b>       | Operate value                                                                                                                                          |
|                              | When <b>&lt;mode&gt;=2</b> , <b>&lt;operate&gt;</b> set as follows                                                                                     |
| 0                            | Query threshold values, these values are 1400Hz and 2300Hz detection threshold, each duration of which is 100 ms.                                      |
| 1                            | Set threshold values, these values are 1400Hz and 2300Hz 100 ms detection threshold.                                                                   |
|                              | When <b>&lt;mode&gt;=3</b> , <b>&lt;operate&gt;</b> set as follows                                                                                     |
| 0                            | Query threshold values, these values are 1400Hz and 2300Hz 400 ms detect threshold.                                                                    |
| 1                            | Set threshold values, these values are 1400Hz and 2300Hz 400 ms detect threshold.                                                                      |
|                              | When <b>&lt;mode&gt;=4</b> , <b>&lt;operate&gt;</b> set as follows                                                                                     |
| 0                            | Query threshold values, these values are detection threshold                                                                                           |
| 1                            | Set threshold values, these values are DTMF detection threshold                                                                                        |
|                              | When <b>&lt;mode&gt;=5</b> , <b>&lt;param1&gt;</b> set as follows                                                                                      |
| 0                            | Working status, default value, report <b>+QTONEDT: x,x</b> , please refer to Note3                                                                     |
| 1                            | Debug status, only report <b>+QTONEDTD:x,x,...</b> debug information (refer to Note2).                                                                 |
| 2                            | Debug status and working status, report <b>+QTONEDTD: x,x,...</b> debug information (refer to Note2) and <b>+QTONEDT:x,x</b> , please refer to Note 3. |
| <b>&lt;prefixpause&gt;</b>   | Prefix pause number                                                                                                                                    |
| <b>&lt;lowthreshold&gt;</b>  | Low threshold value                                                                                                                                    |
| <b>&lt;highthreshold&gt;</b> | High threshold value                                                                                                                                   |
| <b>&lt;dtmfcode&gt;</b>      | DTMF tone code corresponding ASCII                                                                                                                     |
| 48                           | DTMF 0                                                                                                                                                 |
| 49                           | DTMF 1                                                                                                                                                 |

|    |                  |
|----|------------------|
| 50 | DTMF 2           |
| 51 | DTMF 3           |
| 52 | DTMF 4           |
| 53 | DTMF 5           |
| 54 | DTMF 6           |
| 55 | DTMF 7           |
| 56 | DTMF 8           |
| 57 | DTMF 9           |
| 65 | DTMF A           |
| 66 | DTMF B           |
| 67 | DTMF C           |
| 68 | DTMF D           |
| 42 | DTMF *           |
| 35 | DTMF #           |
| 69 | 1400Hz frequency |
| 70 | 2300Hz frequency |

**<persistence time>**

|     |                                                         |
|-----|---------------------------------------------------------|
| 100 | 100 ms of the tone is detected, only 1400Hz and 2300 Hz |
| 400 | 400 ms of the tone is detected, only 1400Hz and 2300 Hz |

**NOTE**

1. Available during voice call.
2. If the duration of DTMF tone is within the value range of low and high threshold value, its effective unit is 20 ms.
3. When in debug mode, report **+QTONEDTD: <dtmfcode>,<weak>,<strong>,<pause\_f7>,<pause\_dtmf>,<pause\_unkown>,<framecnt>**.
4. When report as follow:  
**+QTO NEDET: 50**          Detected DTMF 2  
**+QTO NEDET: 69,100**      Detected 100 ms of 1400Hz  
**+QTO NEDET: 70,100**      Detected 100 ms of 2300Hz  
**+QTO NEDET: 69,400**      Detected 400 ms of 1400Hz  
**+QTO NEDET: 70,400**      Detected 400 ms of 2300Hz
5. Consult **AT+QTDMOD**.

## 13.17. AT+QWDTMF Play DTMF Tone During the Call

### AT+QWDTMF Play DTMF Tone During the Call

| Test Command       | Response                                                                                                         |
|--------------------|------------------------------------------------------------------------------------------------------------------|
| <b>AT+QWDTMF=?</b> | <b>+QWDTMF:</b> (list of supported <ul_volume>s),(list of supported<dl_volume>s),("&<dtmfcode>,<continuancetime> |

|                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                 | <p>&gt;,&lt;mutetime&gt;”),(list of supported &lt;channel&gt;s),(list of supported &lt;mode&gt;s)</p> <p><b>OK</b></p>                                                                                                                                                                                    |
| <p>Write Command</p> <p><b>AT+QWDTMF=&lt;ul_volume&gt;,&lt;dl_volume&gt;,(“&lt;dtmfcode&gt;,&lt;continuancetime&gt;,&lt;mutetime&gt;”)[,&lt;channel&gt;][,&lt;mode&gt;]</b></p> | <p>Response</p> <p>If success is related to ME functionality:</p> <p><b>+QWDTMF: 5</b></p> <p><b>OK</b></p> <p>If fail is related to ME functionality:</p> <p><b>+QWDTMF: &lt;playcode&gt;</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> |
| Maximum Response Time                                                                                                                                                           | Depends on the content of the play.                                                                                                                                                                                                                                                                       |
| Reference                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                           |

## Parameter

|                          |                                                           |
|--------------------------|-----------------------------------------------------------|
| <b>&lt;ul_volume&gt;</b> | 0~7, uplink channel of the volume                         |
| <b>&lt;dl_volume&gt;</b> | 0~7, downlink channel of the volume, recommended to set 0 |
| <b>&lt;dtmfcode&gt;</b>  | The DTMF tone strings                                     |
| '0'                      | DTMF 0                                                    |
| '1'                      | DTMF 1                                                    |
| '2'                      | DTMF 2                                                    |
| '3'                      | DTMF 3                                                    |
| '4'                      | DTMF 4                                                    |
| '5'                      | DTMF 5                                                    |
| '6'                      | DTMF 6                                                    |
| '7'                      | DTMF 7                                                    |
| '8'                      | DTMF 8                                                    |
| '9'                      | DTMF 9                                                    |
| 'A'                      | DTMF A                                                    |
| 'B'                      | DTMF B                                                    |
| 'C'                      | DTMF C                                                    |
| 'D'                      | DTMF D                                                    |
| '*'                      | DTMF *                                                    |
| '#'                      | DTMF #                                                    |
| 'E'                      | Frequency of 1400Hz                                       |

---

|                   |                                                              |                       |
|-------------------|--------------------------------------------------------------|-----------------------|
|                   | 'F'                                                          | Frequency of 2300Hz   |
|                   | 'G'                                                          | Frequency of 1KHz     |
| <continuancetime> | Duration of each DTMF tone, unit is ms                       |                       |
| <mutetime>        | Mute time, unit is ms                                        |                       |
| <channel>         | 0                                                            | Normal audio channel  |
|                   | 1                                                            | Headset audio channel |
|                   | 2                                                            | Loudspeaker audio     |
| <mode>            | 0                                                            | Algorithm 1 (Default) |
|                   | 1                                                            | Algorithm 2           |
| <playcode>        | Indicate status of sending DTMF                              |                       |
|                   | If <playcode> is 5, it means sending DTMF successfully       |                       |
|                   | If <playcode> is not 5, it means sending DTMF unsuccessfully |                       |

---

#### NOTE

1. **AT+QWDTMF=7,0,"0A5,50,50,1,55,50,23,100,50"**  
Send DTMF '0' for 50 ms, mute 50 ms; send DTMF 'A' for 50 ms, mute 50 ms; send DTMF '5' for 50 ms, mute 50 ms; send DTMF '1' for 55ms, mute 50 ms; send DTMF '2' for 100 ms, mute 50 ms; send DTMF '3' for 100 ms, mute 50 ms.
2. **<channel>** is available for non-call.

# 14 Hardware Related Commands

## 14.1. AT+CCLK Clock

| AT+CCLK Clock                                |                                                                                                         |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+CCLK=?</b>             | Response<br><b>OK</b>                                                                                   |
| Read Command<br><b>AT+CCLK?</b>              | Response<br><b>+CCLK: &lt;time&gt;</b><br><br><b>OK</b>                                                 |
| Write Command<br><b>AT+CCLK=&lt;time&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                        | 300 ms                                                                                                  |
| Reference<br>GSM 07.07                       |                                                                                                         |

### Parameter

|                     |                                                                                                                                                                                                                                                                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;time&gt;</b> | String type value; format is "yy/MM/dd,hh:mm:ss±zz", where characters indicate year (two last digits),month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -48...+48). E.g. May 6 <sup>th</sup> , 1994, 22:10:00 GMT+2 hours equals to "94/05/06,22:10:00+08" |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Example

```

AT+CCLK?                                //Query the local time
+CCLK: "08/01/04, 00:19:43+00"

OK

```

## 14.2. AT+QALARM Set Alarm

| AT+QALARM Set Alarm                                                                       |                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QALARM=?</b>                                                        | Response<br><b>+QALARM:</b> (list of supported <b>&lt;state&gt;</b> s), " <b>DATE,TIME</b> ",(list of supported <b>&lt;repeat&gt;</b> s),(list of supported <b>&lt;power&gt;</b> s)<br><br><b>OK</b> |
| Write Command<br><b>AT+QALARM=&lt;state&gt;,&lt;time&gt;,&lt;repeat&gt;,&lt;power&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>                                                                              |
| Maximum Response Time                                                                     | 300 ms                                                                                                                                                                                               |
| Reference                                                                                 |                                                                                                                                                                                                      |

### Parameter

|                       |                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;state&gt;</b>  | An integer parameter which indicates whether or not to enable alarm<br>0 CLEAR ALARM<br>1 SET ALARM                                                                                                                                                                                                                                  |
| <b>&lt;time&gt;</b>   | A string parameter which indicates the time when an alarm arises. The format is "yy/MM/dd,hh:mm:ss+-zz" where characters indicate the last two digits of year, month, day, hour, minute, second and time zone. The time zone is expressed in quarters of an hour between the local time and GMT, ranging from -48 to +48             |
| <b>&lt;repeat&gt;</b> | An integer parameter which indicates the repeat mode<br>0 None<br>1 Daily<br>2 Weekly<br>3 Monthly                                                                                                                                                                                                                                   |
| <b>&lt;power&gt;</b>  | An integer parameter which indicates the method of controlling power when alarm arises<br>0 None. Only send " <b>ALARM RING</b> " to serial port<br>1 Alarm power off. Send " <b>ALARM RING</b> " to serial port and power off in 5 seconds<br>2 Alarm power on. Send " <b>ALARM MODE</b> " to serial port and enter into alarm mode |

#### NOTE

In alarm mode, protocol stack and SIM protocol are closed, only a few AT command can be executed, and system will be powered down after 90 seconds, if neither power key is pressed nor functionality is changed to full functionality. If power key is pressed, system will be powered down right now.

### 14.3. AT+CBC Battery Charge

| AT+CBC Battery Charge       |                                                                                                                     |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------|
| Test Command<br>AT+CBC=?    | Response<br>+CBC: (list of supported <bcs>s),(list of supported <bcl>s),(voltage)<br><br>OK                         |
| Execution Command<br>AT+CBC | Response<br>+CBC: <bcs>, <bcl>,<voltage><br><br>OK<br>If error is related to ME functionality:<br>+CME ERROR: <err> |
| Maximum Response Time       | 300 ms                                                                                                              |
| Reference<br>GSM 07.07      |                                                                                                                     |

#### Parameter

|           |                          |                                                      |
|-----------|--------------------------|------------------------------------------------------|
| <bcs>     | Charge status            |                                                      |
|           | 0                        | ME is not charging                                   |
|           | 1                        | ME is charging                                       |
|           | 2                        | Charging has finished                                |
| <bcl>     | Battery connection level |                                                      |
|           | 0...100                  | Battery has 0-100 percent of capacity remaining vent |
| <voltage> | Battery voltage (mV)     |                                                      |

#### NOTE

As M95 doesn't support battery charge, the <bcs> and <bcl> is invalid while the <voltage> still represents the correct voltage of VBATT.

### 14.4. AT+QSCLK Configure Slow Clock

| AT+QSCLK Configure Slow Clock |                                              |
|-------------------------------|----------------------------------------------|
| Test Command<br>AT+QSCLK=?    | Response<br>+QSCLK: (list of supported <n>s) |

|                                            |                                                |
|--------------------------------------------|------------------------------------------------|
|                                            | OK                                             |
| Read Command<br><b>AT+QSCLK?</b>           | Response<br><b>+QSCLK: &lt;n&gt;</b><br><br>OK |
| Write Command<br><b>AT+QSCLK=&lt;n&gt;</b> | Response<br><b>OK</b>                          |
| Maximum Response Time                      | 300 ms                                         |
| Reference                                  |                                                |

### Parameter

|                  |          |                                                                                                                                |
|------------------|----------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>&lt;n&gt;</b> | <u>0</u> | Disable slow clock                                                                                                             |
|                  | 1        | Enable slow clock, it is controlled by DTR                                                                                     |
|                  | 2        | When there is no data on serial port in 5 seconds, module will enter into sleep mode. Otherwise, it will exit from sleep mode. |

### NOTE

In mode 2, the first UART data module received in sleep mode will be discarded as it is used to wake up module. It's suggested to send an extra AT command to wake up the module first, and then continue to send other commands.

## 14.5. AT+QTEMP Query the Current Voltage and Temperature

### AT+QTEMP Query the Current Voltage and Temperature

|                                               |                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QTEMP=?</b>             | Response<br><b>+QTEMP: (list of supported &lt;mode&gt;s)</b><br><br>OK                |
| Read Command<br><b>AT+QTEMP?</b>              | Response<br><b>+QTEMP: &lt;mode&gt;,&lt;voltage&gt;,&lt;temperature&gt;</b><br><br>OK |
| Write Command<br><b>AT+QTEMP=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b><br><b>+CME ERROR: &lt;err&gt;</b>               |

|                       |        |
|-----------------------|--------|
| Maximum Response Time | 300 ms |
| Reference             |        |

### Parameter

|               |                                                                |         |
|---------------|----------------------------------------------------------------|---------|
| <mode>        | 0                                                              | Disable |
|               | 1                                                              | Enable  |
| <voltage>     | The current voltage of the temperature sensitive resistor (mV) |         |
| <temperature> | The current temperature of the temperature sensitive resistor  |         |

## 14.6. AT+QLEDMODE Configure the Network LED Patterns

| AT+QLEDMODE Configure the Network LED Patterns      |                                                                                                     |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Test Command<br><b>AT+QLEDMODE=?</b>                | Response<br><b>+QLEDMODE:</b> (list of supported <ledmode>s)<br><br><b>OK</b>                       |
| Read Command<br><b>AT+QLEDMODE?</b>                 | Response<br><b>+QLEDMODE:</b> <ledmode><br><br><b>OK</b>                                            |
| Write Command<br><b>AT+QLEDMODE=&lt;ledmode&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                               | 300 ms                                                                                              |
| Reference                                           |                                                                                                     |

### Parameter

|           |          |                                                                                                                      |
|-----------|----------|----------------------------------------------------------------------------------------------------------------------|
| <ledmode> | 0        | Network LED flashes rapidly when a call is ringing                                                                   |
|           | <u>1</u> | No effect on the Network LED when a call is ringing                                                                  |
|           | 2        | No effect on the Network LED when a call is ringing, and RI will not change when URC reported until the ringing ends |

### NOTE

Please restart the module after the command is set.

# 15 Others Commands

## 15.1. A/ Re-issues the Last Command Given

### A/ Re-issues the Last Command Given

|                                |                                            |
|--------------------------------|--------------------------------------------|
| Execution Command<br><b>A/</b> | Response<br>Re-issues the previous command |
| Maximum Response Time          | 300 ms                                     |
| Reference<br>V.25ter           |                                            |

#### NOTE

This command does not work when the serial multiplexer is active. It does not have to end with terminating character.

### Example

```

AT
OK
A/                               //Re-issues the previous command
OK

```

## 15.2. ATE Set Command Echo Mode

### ATE Set Command Echo Mode

|                                                |                                                                                                                                 |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Execution Command<br><b>ATE[&lt;value&gt;]</b> | Response<br>This setting determines whether or not the TA echoes characters received from TE during command state.<br><b>OK</b> |
| Maximum Response Time                          | 300 ms                                                                                                                          |
| Reference                                      |                                                                                                                                 |

V.25ter

### Parameter

|         |          |               |
|---------|----------|---------------|
| <value> | 0        | Echo mode off |
|         | <u>1</u> | Echo mode on  |

## 15.3. ATS3 Set Command Line Termination Character

### ATS3 Set Command Line Termination Character

|                           |                                                                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Read Command<br>ATS3?     | Response<br><n><br><br>OK                                                                                                                                               |
| Write Command<br>ATS3=<n> | Response<br>This parameter setting determines the character recognized by TA to terminate an incoming command line. The TA also returns this character in output.<br>OK |
| Maximum Response Time     | 300 ms                                                                                                                                                                  |
| Reference<br>V.25ter      |                                                                                                                                                                         |

### Parameter

|     |                   |                                                      |
|-----|-------------------|------------------------------------------------------|
| <n> | 0- <u>13</u> -127 | Command line termination character (Default 13=<CR>) |
|-----|-------------------|------------------------------------------------------|

## 15.4. ATS4 Set Response Formatting Character

### ATS4 Set Response Formatting Character

|                           |                                                                       |
|---------------------------|-----------------------------------------------------------------------|
| Read Command<br>ATS4?     | Response<br><n><br><br>OK                                             |
| Write Command<br>ATS4=<n> | Response<br>This parameter setting determines the character generated |

|                       |                                                              |
|-----------------------|--------------------------------------------------------------|
|                       | by the TA for result code and information text.<br><b>OK</b> |
| Maximum Response Time | 300 ms                                                       |
| Reference<br>V.25ter  |                                                              |

## Parameter

|     |                   |                                                 |
|-----|-------------------|-------------------------------------------------|
| <n> | 0- <u>10</u> -127 | Response formatting character (Default 10=<LF>) |
|-----|-------------------|-------------------------------------------------|

## 15.5. AT55 Set Command Line Editing Character

### AT55 Set Command Line Editing Character

|                                        |                                                                                                                                                                             |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Read Command<br><b>AT55?</b>           | Response<br><n><br><br><b>OK</b>                                                                                                                                            |
| Write Command<br><b>AT55=&lt;n&gt;</b> | Response<br>This parameter setting determines the character recognized by TA as a request to delete the immediately preceding character from the command line.<br><b>OK</b> |
| Maximum Response Time                  | 300 ms                                                                                                                                                                      |
| Reference<br>V.25ter                   |                                                                                                                                                                             |

## Parameter

|     |                  |                                                    |
|-----|------------------|----------------------------------------------------|
| <n> | 0- <u>8</u> -127 | Response editing character (Default 8=<Backspace>) |
|-----|------------------|----------------------------------------------------|

## 15.6. AT+QRIMODE Set RI Time

### AT+QRIMODE Set RI Time

|                                     |                                                              |
|-------------------------------------|--------------------------------------------------------------|
| Test Command<br><b>AT+QRIMODE=?</b> | Response<br><b>+QRIMODE:</b> (list of supported <timemode>s) |
|-------------------------------------|--------------------------------------------------------------|

|                                                     |                                                                                                         |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|                                                     | OK                                                                                                      |
| Read Command<br><b>AT+QRIMODE?</b>                  | Response<br><b>+QRIMODE: &lt;timemode&gt;</b>                                                           |
|                                                     | OK                                                                                                      |
| Write Command<br><b>AT+QRIMODE=&lt;timemode&gt;</b> | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Maximum Response Time                               | 300 ms                                                                                                  |
| Reference                                           |                                                                                                         |

## Parameter

|                         |                                                                                                       |
|-------------------------|-------------------------------------------------------------------------------------------------------|
| <b>&lt;timemode&gt;</b> | Time mode                                                                                             |
| <u>0</u>                | Receive SMS, RI 120 ms low pulse, other URC RI 120 ms low pulse                                       |
| 1                       | Receive SMS, RI 120 ms low pulse, other URC RI 50 ms low pulse                                        |
| 2                       | When a SMS is received, RI changes to LOW and holds low level for 120 ms, other URC RI take no effect |

# 16 Appendix References

## 16.1. Related Documents

Table 4: Related Documents

| Document Name                          |
|----------------------------------------|
| [1] V.25ter                            |
| [2] GSM 07.07                          |
| [3] GSM 07.05                          |
| [4] GSM 07.10                          |
| [5] Quectel_GSM_TCPIP_Application_Note |
| [6] Quectel_GPRS_Startup_User_Guide    |
| [7] Quectel_GSM_MUX_Application_Note   |
| [8] Quectel_SMS_Application_Note       |

## 16.2. Terms and Abbreviations

Table 5: Terms and Abbreviations

| Abbreviation | Description         |
|--------------|---------------------|
| AMR          | Adaptive Multi-Rate |
| ME           | Mobile Equipment    |
| TA           | Terminal Adapter    |
| MS           | Mobile Station      |

|         |                               |
|---------|-------------------------------|
| DCE     | Data Communication Equipment  |
| TE      | Terminal Equipment            |
| DTE     | Data Terminal Equipment       |
| RTS/CTS | Request To Send/Clear To Send |
| GPRS    | General Packet Radio Service  |
| DCD     | Dynamic Content Delivery      |
| DTR     | Data Terminal Ready           |
| CSD     | Circuit Switch Data           |
| PSC     | Primary Synchronization Code  |
| PDP     | Packet Data Protocol          |
| TCP     | Transmission Control Protocol |
| UDP     | User Datagram Protocol        |

## 16.3. Factory Default Settings Restorable with AT&F

Table 6: Factory Default Settings Restorable with AT&F

| AT Command | Parameters | Factory Defaults |
|------------|------------|------------------|
| ATE        | <value>    | 1                |
| ATQ        | <n>        | 0                |
| ATS0       | <n>        | 0                |
| ATS3       | <n>        | 13               |
| ATS4       | <n>        | 10               |
| ATS5       | <n>        | 8                |
| ATS6       | <n>        | 2                |
| ATS7       | <n>        | 60               |

|           |                                     |                                                                                                                                     |
|-----------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| ATS8      | <n>                                 | 2                                                                                                                                   |
| ATS10     | <n>                                 | 15                                                                                                                                  |
| ATV       | <value>                             | 1                                                                                                                                   |
| ATX       | <value>                             | 4                                                                                                                                   |
| AT&C      | <value>                             | 1                                                                                                                                   |
| AT&D      | <value>                             | 0                                                                                                                                   |
| AT+ILRR   | <value>                             | 0                                                                                                                                   |
| AT+CREG   | <n>                                 | 0                                                                                                                                   |
| AT+CCUG   | <n>,<index>,<info>                  | 0,0,0                                                                                                                               |
| AT+CSCS   | <chset>                             | "GSM"                                                                                                                               |
| AT+CSTA   | <type>                              | 129                                                                                                                                 |
| AT+CMEE   | <n>                                 | 1                                                                                                                                   |
| AT+CR     | <mode>                              | 0                                                                                                                                   |
| AT+CRLP   | <iws>,<mws>,<T1>,<N2>,<Ver1>,<T4>   | 61,61,128,6,0,3                                                                                                                     |
| AT+CLVL   | <level>                             | When AT+QAUDCH=0, the default value is 60<br>When AT+QAUDCH=1, the default value is 40<br>When AT+QAUDCH=2, the default value is 35 |
| AT+CRSL   | <level>                             | 55                                                                                                                                  |
| AT+QSIDET | <gainlevel>                         | When AT+QAUDCH=0, the default value is 80<br>When AT+QAUDCH=1, the default value is 144                                             |
| AT+QMIC   | <gainlevel>,<gainlevel>,<gainlevel> | 4,9,8                                                                                                                               |
| AT+QDISH  | <disableath>                        | 0                                                                                                                                   |
| AT+CUSD   | <n>                                 | 0                                                                                                                                   |
| AT+CSSN   | <n>,<m>                             | 0,0                                                                                                                                 |

|              |                                  |           |
|--------------|----------------------------------|-----------|
| AT+CSNS      | <mode>                           | 0         |
| AT+CMGF      | <mode>                           | 0         |
| AT+CCWA      | <n>                              | 0         |
| AT+CMOD      | <mode>                           | 0         |
| AT+CNMI      | <mode>,<mt>,<bm>,<ds>,<bfr><br>> | 2,1,0,0,0 |
| AT+CSDH      | <show>                           | 0         |
| AT+CSMS      | <service>                        | 0         |
| AT+QSCLK     | <n>                              | 0         |
| AT+QIURC     | <mode>                           | 1         |
| AT+QEXTUNSOL | <mode>                           | 0         |
| AT+QRIMODE   | <timemode>                       | 0         |
| AT+QTEMP     | <mode>                           | 1         |
| AT+CLIP      | <n>,<m>                          | 0,1       |
| AT+COLP      | <n>,<m>                          | 0,1       |
| AT+QCLIP     | <n>                              | 0         |
| AT+QCOLP     | <n>                              | 0         |

## 16.4. AT Command Settings Storable with AT&W

Table 7: AT Command Settings Storable with AT&W

| AT Command | Parameters | Display with AT&V |
|------------|------------|-------------------|
| ATE        | <value>    | Yes               |
| ATQ        | <n>        | Yes               |
| ATS0       | <n>        | Yes               |
| ATS3       | <n>        | Yes               |

|           |                                    |     |
|-----------|------------------------------------|-----|
| ATS4      | <n>                                | Yes |
| ATS5      | <n>                                | Yes |
| ATS6      | <n>                                | Yes |
| ATS7      | <n>                                | Yes |
| ATS8      | <n>                                | Yes |
| ATS10     | <n>                                | Yes |
| ATV       | <value>                            | Yes |
| ATX       | <value>                            | No  |
| AT&C      | <value>                            | Yes |
| AT&D      | <value>                            | Yes |
| AT+ICF    | <format>,<parity>                  | Yes |
| AT+IFC    | <dce_by_dte>,<dte_by_dce>          | Yes |
| AT+ILRR   | <value>                            | Yes |
| AT+IPR    | <rate>                             | Yes |
| AT+CREG   | <n>                                | Yes |
| AT+CCUG   | <n>,<index>,<info>                 | Yes |
| AT+CSCS   | <chset>                            | Yes |
| AT+CSTA   | <type>                             | Yes |
| AT+CMEE   | <n>                                | Yes |
| AT+CR     | <mode>                             | Yes |
| AT+QDISH  | <disableath>                       | No  |
| AT+CRLP   | <iws>,<mws>,<T1>,<N2>,<Ver 1>,<T4> | Yes |
| AT+CLVL   | <level>                            | Yes |
| AT+CRSL   | <level>                            | Yes |
| AT+QSIDET | <gainlevel>                        | Yes |

|              |                                          |     |
|--------------|------------------------------------------|-----|
| AT+QMIC      | <gainlevel>                              | Yes |
| AT+QTEMP     | <mode>                                   | Yes |
| AT+CUSD      | <n>                                      | Yes |
| AT+CSNS      | <mode>                                   | Yes |
| AT+CMGF      | <mode>                                   | Yes |
| AT+CCWA      | <n>.                                     | Yes |
| AT+CNMI      | <mode>,<mt>,<bm>,<ds>,<bfr>              | Yes |
| AT+CSDH      | <show>                                   | Yes |
| AT+QSCCLK    | <n>                                      | No  |
| AT+QIURC     | <mode>                                   | No  |
| AT+QEXTUNSOL | <mode>                                   | No  |
| AT+QTEMP     | <mode>                                   | Yes |
| AT+QRIMODE   | <timemode>                               | No  |
| AT+CLIP      | <n>,<m>                                  | Yes |
| AT+COLP      | <n>,<m>                                  | Yes |
| AT+QCOLP     | <n>                                      | Yes |
| AT+QCLIP     | <n>                                      | Yes |
| AT+QSIMDET   | <enable>,<insert_level>,<pin_c<br>hoice> | Yes |
| AT+QSIMSTAT  | <enable>                                 | Yes |

## 16.5. AT Command Settings Storable with ATZ

Table 8: AT Command Settings Storable with ATZ

| AT Command | Parameters         | Factory Defaults |
|------------|--------------------|------------------|
| ATE        | <value>            | 1                |
| ATQ        | <n>                | 0                |
| ATS0       | <n>                | 0                |
| ATS3       | <n>                | 13               |
| ATS4       | <n>                | 10               |
| ATS5       | <n>                | 8                |
| ATS6       | <n>                | 2                |
| ATS7       | <n>                | 60               |
| ATS8       | <n>                | 2                |
| ATS10      | <n>                | 15               |
| ATV        | <value>            | 1                |
| ATX        | <value>            | 4                |
| AT&C       | <value>            | 1                |
| AT&D       | <value>            | 0                |
| AT+ILRR    | <value>            | 0                |
| AT+CREG    | <n>                | 0                |
| AT+CCUG    | <n>,<index>,<info> | 0,0,0            |
| AT+CSCS    | <chset>            | "GSM"            |
| AT+CSTA    | <type>             | 129              |
| AT+CMEE    | <n>                | 1                |
| AT+CR      | <mode>             | 0                |

|              |                                     |                                                                                                                                     |
|--------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| AT+QDISH     | <disableath>                        | 0                                                                                                                                   |
| AT+CRLP      | <iws>,<mws>,<T1>,<N2>,<Ver1>,<T4>   | 61,61,128,6,0,3                                                                                                                     |
| AT+CLVL      | <level>                             | When AT+QAUDCH=0, the default value is 60<br>When AT+QAUDCH=1, the default value is 40<br>When AT+QAUDCH=2, the default value is 35 |
| AT+CRSL      | <level>                             | 55                                                                                                                                  |
| AT+QSIDET    | <gainlevel>                         | When AT+QAUDCH=0, the default value is 80<br>When AT+QAUDCH=1, the default value is 144                                             |
| AT+QMIC      | <gainlevel>,<gainlevel>,<gainlevel> | 4,9,8                                                                                                                               |
| AT+CUUSD     | <n>                                 | 0                                                                                                                                   |
| AT+CSSN      | <n>,<m>                             | 0,0                                                                                                                                 |
| AT+CSNS      | <mode>                              | 0                                                                                                                                   |
| AT+CMGF      | <mode>                              | 0                                                                                                                                   |
| AT+CNMI      | <mode>,<mt>,<bm>,<ds>,<bfr>         | 2,1,0,0,0                                                                                                                           |
| AT+CSDH      | <show>                              | 0                                                                                                                                   |
| AT+CSMS      | <service>                           | 0                                                                                                                                   |
| AT+QSCLK     | <n>                                 | 0                                                                                                                                   |
| AT+QIURC     | <mode>                              | 1                                                                                                                                   |
| AT+CCWA      | <n>                                 | 0                                                                                                                                   |
| AT+CMOD      | <mode>                              | 0                                                                                                                                   |
| AT+QEXTUNSOL | <mode>                              | 0                                                                                                                                   |
| AT+QTEMP     | <mode>                              | 1                                                                                                                                   |
| AT+QRIMODE   | <timemode>                          | 0                                                                                                                                   |
| AT+COLP      | <n>,<m>                             | 0,1                                                                                                                                 |

|             |                                          |       |
|-------------|------------------------------------------|-------|
| AT+CLIP     | <n>,<m>                                  | 0,1   |
| AT+QCOLP    | <n>                                      | 0     |
| AT+QCLIP    | <n>                                      | 0     |
| AT+QSIMDET  | <enable>,<insert_level>,<pin_cho<br>ice> | 0,0,0 |
| AT+QSIMSTAT | <enable>                                 | 0     |

## 16.6. Summary of URC

Table 9: Summary of URC

| Index | URC Display                                                                             | Meaning                                                             | Condition   |
|-------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------|
| 1     | +CMTI:<mem>,<index>                                                                     | New message is received, and saved to memory                        | AT+CNMI=2,1 |
| 2     | +CMT:[<alpha>],<length><CR><LF><pdu>                                                    | New short message is received and output directly to TE (PDU mode)  | AT+CNMI=2,2 |
| 3     | +CMT:<oa>,<alpha>,<scts>,<to oa>,<fo>,<pid>,<dc>,<sca>,<tos ca>,<length>]<CR><LF><data> | New short message is received and output directly to TE (Text mode) | AT+CNMI=2,2 |
| 4     | +CBM:<length><CR>                                                                       | New CBM is received and output directly (PDU mode)                  | AT+CNMI=2,2 |
| 5     | +CBM:<sn>,<mid>,<dc>,<page>,<pages>,<CR>,<LF><data>                                     | New CBM is received and output directly to TE (Text mode)           | AT+CNMI=2,2 |
| 6     | +CDS:<length><CR><LF><pdu>                                                              | New CDS is received and output directly (PDU mode)                  | AT+CNMI=2,2 |
| 7     | +CDS:<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>                                             | New CDS is received and output directly to TE (Text mode)           | AT+CNMI=2,2 |
| 8     | +CGEV:NW<br>DEACT<PDP_type>,<PDP_addr>,<cid>                                            | GPRS network detach                                                 | AT+CGEREP=1 |
| 9     | +CGEV:ME<br>DEACT<PDP_type>,<PDP_addr>,<cid>                                            | GPRS ME detach                                                      | AT+CGEREP=1 |
| 10    | +CGEV:NW DETACH                                                                         | GPRS network detach                                                 | AT+CGEREP=1 |
| 11    | +CGEV:ME DETACH                                                                         | GPRS ME detach                                                      | AT+CGEREP=1 |

|    |                                                     |                                                                                                     |                     |
|----|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------|
| 12 | +CGREG:1                                            | Network registered                                                                                  | AT+CGREG=1          |
| 13 | +CGREG:0                                            | Network unregistered                                                                                | AT+CGREG=1          |
| 14 | +CGREG:1,<lac><ci>                                  | Network registered, with location code                                                              | AT+CGREG=2          |
| 15 | +CGREG:0,<lac><ci>                                  | Network unregistered, with location code                                                            | AT+CGREG=2          |
| 16 | +CSQN:<rssi>,<ber>                                  | Signal quality change                                                                               | AT+QEXTUNSOL="SQ",1 |
| 17 |                                                     | Forbidden network is available only                                                                 | AT+QEXTUNSOL="FN",1 |
| 18 | +CMWT:<store>,<index>,<voice>,<fax>,<email>,<other> | Message waiting                                                                                     | AT+QEXTUNSOL="MW",1 |
| 29 | +QGURC:<event>                                      | Unsolicited result code follows particular call state transition                                    | AT+QEXTUNSOL="UR",1 |
| 20 | +CBCN:<bcs>,<bcl>                                   | Display battery connection status and battery charge level                                          | AT+QEXTUNSOL="BC",1 |
| 21 | +QBAND:<band>                                       | Band mode display                                                                                   | AT+QEXTUNSOL="BM",1 |
| 22 | +TSMSINFO:<CMS error info>                          | Additional SMS information                                                                          | AT+QEXTUNSOL="SM",1 |
| 23 | +CCINFO:<Call is Disconnected>,<remain calls>       | Displays the disconnected call ID and the remain call numbers after one of the call is disconnected | AT+QEXTUNSOL="CC",1 |
| 24 | RING                                                | Indicates incoming call                                                                             | N/A                 |
| 25 | Call Ready                                          | Device is ready to make/receive calls                                                               | N/A                 |
| 26 | UNDER_VOLTAGE POWER DOWN                            | Under voltage shutdown indication                                                                   | N/A                 |
| 27 | UNDER_VOLTAGE WARNING                               | Under voltage warning                                                                               | N/A                 |
| 28 | OVER_VOLTAGE POWER DOWN                             | Over voltage shutdown indication                                                                    | N/A                 |
| 29 | OVER_VOLTAGE WARNING                                | Over voltage warning                                                                                | N/A                 |
| 30 | NORMAL POWER DOWN                                   | Normal power down                                                                                   | N/A                 |
| 31 | +CRING:<type>                                       | An incoming call is indicated to the TE with unsolicited result code instead of the normal RING     | AT+CRC=1            |
| 32 | +CREG:<stat>                                        | Indicate registration status of the ME                                                              | AT+CREG=1           |

|    |                           |                                                                                                                                        |                                 |
|----|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 33 | +CREG:<stat>[,<lac>,<ci>] | After cell neighborhood changing shows whether the network has currently indicated the registration of the ME, with location area code | AT+CREG=2                       |
| 34 | RDY                       | ME initialization is successful                                                                                                        | N/A                             |
| 35 | +CFUN:1                   | All function of the ME is available                                                                                                    | N/A                             |
| 36 | +CPIN:<state>             | SIM card pin state                                                                                                                     | N/A                             |
| 37 | MO RING                   | MO call ringing                                                                                                                        | AT+QMOSTAT=1                    |
| 38 | MO CONNECTED              | MO call connected                                                                                                                      | AT+QMOSTAT=1                    |
| 39 | ALARM RING                | Alarm event is triggered                                                                                                               | AT+QALARM=1,<time>,<repeat>,0/1 |
| 40 | ALARM MODE                | ME is switched on by alarm                                                                                                             | AT+QALARM=1,<time>,<repeat>,2   |

## 16.7. Summary of CME ERROR Codes

Final result code **+CME ERROR: <err>** indicates an error related to mobile equipment or network. The operation is similar to **ERROR** result code. None of the following commands in the same command line is executed. Neither **ERROR** nor **OK** result code shall be returned.

**<err>** values are mostly used by common message commands. The following table lists most of general and GPRS related **ERROR** Codes. For some GSM protocol failure cause described in GSM specifications, the corresponding **ERROR** codes are not included.

**Table 10: Different Coding Schemes of +CME ERROR: <err>**

| Code of <err> | Meaning                     |
|---------------|-----------------------------|
| 0             | Phone failure               |
| 1             | No connection to phone      |
| 2             | Phone-adaptor link reserved |
| 3             | Operation not allowed       |
| 4             | Operation not supported     |

|    |                                            |
|----|--------------------------------------------|
| 5  | PH-SIM PIN required                        |
| 6  | PH-FSIM PIN required                       |
| 7  | PH-FSIM PUK required                       |
| 10 | SIM not inserted                           |
| 11 | SIM PIN required                           |
| 12 | SIM PUK required                           |
| 13 | SIM failure                                |
| 14 | SIM busy                                   |
| 15 | SIM wrong                                  |
| 16 | Incorrect password                         |
| 17 | SIM PIN2 required                          |
| 18 | SIM PUK2 required                          |
| 20 | Memory full                                |
| 21 | Invalid index                              |
| 22 | Not found                                  |
| 23 | Memory failure                             |
| 24 | Text string too long                       |
| 25 | Invalid characters in text string          |
| 26 | Dial string too long                       |
| 27 | Invalid characters in dial string          |
| 30 | No network service                         |
| 31 | Network timeout                            |
| 32 | Network not allowed - emergency calls only |
| 40 | Network personalization PIN required       |
| 41 | Network personalization PUK required       |

|     |                                               |
|-----|-----------------------------------------------|
| 42  | Network subset personalization PIN required   |
| 43  | Network subset personalization PUK required   |
| 44  | Service provider personalization PIN required |
| 45  | Service provider personalization PUK required |
| 46  | Corporate personalization PIN required        |
| 47  | Corporate personalization PUK required        |
| 103 | Illegal MS                                    |
| 106 | Illegal ME                                    |
| 107 | GPRS services not allowed                     |
| 111 | PLMN not allowed                              |
| 112 | Location area not allowed                     |
| 113 | Roaming not allowed in this location area     |
| 132 | Service option not supported                  |
| 133 | Requested service option not subscribed       |
| 134 | Service option temporarily out of order       |
| 148 | Unspecified GPRS error                        |
| 149 | PDP authentication failure                    |
| 150 | Invalid mobile class                          |
| 151 | Link NS SP person PIN required                |
| 152 | Link NS SP person PUK required                |
| 153 | Link SIM C person PIN required                |
| 154 | Link SIM C person PUK required                |
| 302 | Command conflict                              |
| 601 | Unrecognized command                          |
| 602 | Return error                                  |

|      |                                       |
|------|---------------------------------------|
| 603  | Syntax error                          |
| 604  | Unspecified                           |
| 605  | Data transfer already                 |
| 606  | Action already                        |
| 607  | Not AT command                        |
| 608  | Multi command too long                |
| 609  | Abort COPS                            |
| 610  | No call disconnect                    |
| 3513 | Unread records on SIM                 |
| 3515 | PS busy                               |
| 3516 | Couldn't read SMS parameters from SIM |
| 3517 | SM not ready                          |
| 3518 | Invalid parameter                     |
| 3738 | CSCS mode not found                   |
| 3742 | CPOL operation format wrong           |
| 3765 | Invalid input value                   |
| 3769 | Unable to get control                 |
| 3771 | Call setup in progress                |
| 3772 | SIM powered down                      |
| 3773 | Invalid CFUN state                    |
| 3774 | Invalid ARFCN                         |
| 3775 | The pin is not in GPIO mode           |

## 16.8. Summary of CMS ERROR Codes

Final result code **+CMS ERROR: <err>** indicates an error related to mobile equipment or network. The operation is similar to ERROR result code. None of the following commands in the same command line is executed. Neither **ERROR** nor **OK** result code shall be returned.

**<err>** values are mostly used by common message commands:

**Table 11: Different Coding Schemes of +CMS ERROR: <err>**

| Code of <err> | Meaning                 |
|---------------|-------------------------|
| 300           | ME failure              |
| 301           | SMS ME reserved         |
| 302           | Operation not allowed   |
| 303           | Operation not supported |
| 304           | Invalid PDU mode        |
| 305           | Invalid text mode       |
| 310           | SIM not inserted        |
| 311           | SIM pin necessary       |
| 312           | PH SIM pin necessary    |
| 313           | SIM failure             |
| 314           | SIM busy                |
| 315           | SIM wrong               |
| 316           | SIM PUK required        |
| 317           | SIM PIN2 required       |
| 318           | SIM PUK2 required       |
| 320           | Memory failure          |
| 321           | Invalid memory index    |

|      |                                          |
|------|------------------------------------------|
| 322  | Memory full                              |
| 330  | SMSC address unknown                     |
| 331  | No network                               |
| 332  | Network timeout                          |
| 500  | Unknown                                  |
| 512  | SIM not ready                            |
| 513  | Message length exceeds                   |
| 514  | Invalid request parameters               |
| 515  | ME storage failure                       |
| 517  | Invalid service mode                     |
| 528  | More message to send state error         |
| 529  | MO SMS is not allow                      |
| 530  | GPRS is suspended                        |
| 531  | ME storage full                          |
| 3513 | Unread records on SIM                    |
| 3515 | PS busy                                  |
| 3516 | Couldn't read SMS parameters from SIM    |
| 3517 | SM not ready                             |
| 3518 | Invalid parameter                        |
| 3742 | Incorrect <oper> format                  |
| 3765 | Invalid input value                      |
| 3769 | Unable to get control of required module |
| 3771 | Call setup in progress                   |
| 3772 | SIM powered down                         |
| 3773 | Unable to operate in this CFUN state     |

|      |                             |
|------|-----------------------------|
| 3774 | Invalid ARFCN in this band  |
| 3775 | The pin is not in GPIO mode |

## 16.9. Summary of Cause for Extended Error Report

### 16.9.1. Location ID for the Extended Error Report

Table 12: Location ID for the Extended Error Report

| ID | Description                                       |
|----|---------------------------------------------------|
| 0  | No error (default)                                |
| 1  | Cause for protocol stack (PS) layer               |
| 2  | Internal cause for Mobility Management (MM) layer |
| 3  | Cause for PPP/IP-Stack                            |

### 16.9.2. Cause for Protocol Stack (PS) Layer

Table 13: Cause for Protocol Stack (PS) Layer

| Cause    | Description                 |
|----------|-----------------------------|
| CM Cause |                             |
| 0        | Radio link fail             |
| 1        | Unassigned number           |
| 3        | No route to destination     |
| 6        | Channel unacceptable        |
| 8        | Operator determined barring |
| 10       | Call barred                 |
| 11       | Reserved                    |

|    |                                           |
|----|-------------------------------------------|
| 16 | Normal call clearing                      |
| 17 | User busy                                 |
| 18 | No user responding                        |
| 19 | User alerting, no answer                  |
| 21 | Call rejected                             |
| 22 | Number changed                            |
| 25 | Pre-emption                               |
| 26 | Non-selected user clearing                |
| 27 | Destination out of order                  |
| 28 | Invalid number format (incomplete number) |
| 29 | Facility rejected                         |
| 30 | Response to STATUS ENQUIRY                |
| 31 | Normal, unspecified                       |
| 34 | No circuit/channel available              |
| 38 | Network out of order                      |
| 41 | Temporary failure                         |
| 42 | Switching equipment congestion            |
| 43 | Access information discarded              |
| 44 | Requested circuit/channel not available   |
| 47 | Resource unavailable, unspecified         |
| 49 | Quality of service unavailable            |
| 50 | Requested facility not subscribed         |
| 55 | Incoming calls barred within the CUG      |
| 57 | Bearer capability not authorized          |
| 58 | Bearer capability not presently available |

|     |                                                                    |
|-----|--------------------------------------------------------------------|
| 63  | Service or option not available, unspecified                       |
| 65  | Bearer service not implemented                                     |
| 68  | ACM equal or greater than ACM maximum                              |
| 69  | Requested facility not implemented                                 |
| 70  | Only restricted digital information bearer capability is available |
| 79  | Service or option not implemented, unspecified                     |
| 81  | Invalid transaction identifier value                               |
| 87  | User not member of CUG                                             |
| 88  | Incompatible destination                                           |
| 91  | Invalid transit network selection                                  |
| 95  | Semantically incorrect message                                     |
| 96  | Invalid mandatory information                                      |
| 97  | Message type non-existent or not implemented                       |
| 98  | Message type not compatible with protocol state                    |
| 99  | Information element non-existent or not implemented                |
| 100 | Conditional information element error                              |
| 101 | Message not compatible with protocol                               |
| 102 | Recovery on timer expiry                                           |
| 111 | Protocol error, unspecified                                        |
| 127 | Interworking, unspecified                                          |
| 128 | Telematic interworking not supported                               |
| 129 | Short message Type 0 not supported                                 |
| 130 | Cannot replace short message                                       |
| 143 | Unspecified TP-PID error                                           |
| 144 | Data coding scheme (alphabet) not supported                        |

|     |                                  |
|-----|----------------------------------|
| 145 | Message class not supported      |
| 159 | Unspecified TP-DCS error         |
| 160 | Command cannot be acted          |
| 161 | Command unsupported              |
| 175 | Unspecified TP-Command error     |
| 176 | TPDU not supported               |
| 192 | SC busy                          |
| 193 | No SC subscription               |
| 194 | SC system failure                |
| 195 | Invalid SME address              |
| 196 | Destination SME barred           |
| 197 | SM Rejected-Duplicate SM         |
| 198 | TP-VPF not supported             |
| 199 | TP-VP not supported              |
| 208 | SIM SMS storage full             |
| 209 | No SMS storage capability in SIM |
| 210 | Error in MS                      |
| 211 | Memory Capacity Exceeded         |
| 212 | SIM Application Toolkit Busy     |
| 213 | SIM data download error          |
| 224 | CP retry exceed                  |
| 225 | RP trim timeout                  |
| 226 | SMS connection broken            |
| 255 | Unspecified error cause          |
| 304 | Invalid PDU mode parameter       |

|     |                                                    |
|-----|----------------------------------------------------|
| 305 | Invalid TEXT mode parameter                        |
| 313 | SIM failure                                        |
| 320 | Memory failure                                     |
| 321 | Invalid memory index                               |
| 322 | Memory full                                        |
| 330 | SMSC address unknown                               |
| 340 | No +CNMA acknowledgement expected                  |
| 500 | Unknown error                                      |
| 512 | SMS no error                                       |
| 513 | Message length exceeds maximum length              |
| 514 | Invalid request parameters                         |
| 515 | ME storage failure                                 |
| 516 | Invalid bearer service                             |
| 517 | Invalid service mode                               |
| 518 | Invalid storage type                               |
| 519 | Invalid message format                             |
| 520 | Too many MO concatenated messages                  |
| 521 | SMSAL not ready                                    |
| 522 | SMSAL no more service                              |
| 523 | Not support TP-Status-Report&TP-Command in storage |
| 524 | Reserved MTI                                       |
| 525 | No free entity in RL layer                         |
| 526 | The port number is already registered              |
| 527 | There is no free entity for port number            |
| 528 | More Message to Send state error                   |

|          |                                |
|----------|--------------------------------|
| 529      | MO SMS is not allow            |
| 530      | GPRS is suspended              |
| 531      | ME storage full                |
| 532      | Doing SIM refresh              |
| CC Cause |                                |
| 768      | Command not allowed            |
| 769      | Illegal card ID                |
| 770      | Call allocation fail           |
| 771      | BC fill fail                   |
| 772      | Call RE EST                    |
| 773      | Illegal DTMF tone              |
| 774      | Illegal BC                     |
| 775      | Modify actual mode             |
| 776      | Data action fail               |
| 777      | No response from network       |
| 778      | Call accept not allowed        |
| 896      | General cause                  |
| SS Cause |                                |
| 1024     | Cause none                     |
| 1025     | Unknown subscriber             |
| 1033     | Illegal subscriber             |
| 1034     | Bearer service not provisioned |
| 1035     | Tele service not provisioned   |
| 1036     | Illegal equipment              |
| 1037     | Call barred                    |

|      |                                          |
|------|------------------------------------------|
| 1040 | Illegal SS operation                     |
| 1041 | SS error status                          |
| 1042 | SS not available                         |
| 1043 | SS subscription violation                |
| 1044 | SS incompatibility                       |
| 1045 | Facility not supported                   |
| 1051 | Absent subscriber                        |
| 1053 | Short term denial                        |
| 1054 | Long term denial                         |
| 1058 | System failure                           |
| 1059 | Data missing                             |
| 1060 | Unexpected data value                    |
| 1061 | PW registration failure                  |
| 1062 | Negative PW check                        |
| 1067 | Number of PW attempts violation          |
| 1078 | Position method failure                  |
| 1095 | Unknown alphabet                         |
| 1096 | USSD busy                                |
| 1145 | Rejected by user                         |
| 1146 | Rejected by network                      |
| 1147 | Deflection to served subscriber          |
| 1148 | Special service code                     |
| 1149 | Invalid deflection to number             |
| 1150 | Max number of MPTY participants exceeded |
| 1151 | Resources not available                  |

|          |                                                     |
|----------|-----------------------------------------------------|
| 1152     | General problem, unrecognized component             |
| 1153     | General problem, mistyped component                 |
| 1154     | General problem, badly structured component         |
| 1155     | Invoke problem, duplicate invoked                   |
| 1156     | Invoke problem, unrecognized operation              |
| 1157     | Invoke problem, mistyped parameter                  |
| 1158     | Invoke problem, resource limitation                 |
| 1159     | Invoke problem, initiating release                  |
| 1160     | Invoke problem, unrecognized linked ID              |
| 1161     | Invoke problem, linked resource unexpected          |
| 1162     | Invoke problem, unexpected linked operation         |
| 1163     | Return result problem, RR unrecognized invoked      |
| 1164     | Return result problem, RR, return result unexpected |
| 1165     | Return result problem, RR mistyped parameter        |
| 1166     | Return error problem, RE, unrecognized invoked      |
| 1167     | Return error problem, RE return error unexpected    |
| 1168     | Return error problem, RE unrecognized error         |
| 1169     | Return error problem, RE unexpected error           |
| 1170     | Return error problem, RE mistyped parameter         |
| MM Cause |                                                     |
| 2048     | Cause none                                          |
| 2050     | IMSI unknown in HLR                                 |
| 2051     | Illegal MS                                          |
| 2052     | IMSI unknown in VLR                                 |
| 2053     | IMEI not accepted                                   |

|      |                                     |
|------|-------------------------------------|
| 2054 | Illegal ME                          |
| 2055 | GPRS not allowed                    |
| 2056 | None GPRS not allowed               |
| 2057 | MS ID not derived by network        |
| 2058 | Implicit detach                     |
| 2059 | PLMN not allowed                    |
| 2060 | Location area not allowed           |
| 2061 | Roaming area not allowed            |
| 2062 | GPRS not allowed in PLMN            |
| 2063 | No suitable cells in LA             |
| 2064 | MSC temp not reachable              |
| 2065 | Network failure                     |
| 2068 | MAC failure                         |
| 2069 | Sync failure                        |
| 2070 | Congestion                          |
| 2080 | Serve option not supported          |
| 2081 | Request serve option not subscribed |
| 2082 | Serve option temp out of order      |
| 2086 | Call cannot be identified           |
| 2088 | No PDP context activated            |
| 2096 | Retry upon entry into a new cell    |
| 2111 | Retry upon entry into a new cell    |
| 2143 | Semantically incorrect message      |
| 2144 | Invalid MM info                     |
| 2145 | Message type non existent           |

|           |                                               |
|-----------|-----------------------------------------------|
| 2146      | Message type incompatible with protocol state |
| 2147      | IE not implemented                            |
| 2148      | Conditional MM IE error                       |
| 2149      | Message not compatible with protocol state    |
| 2159      | Protocol error unspecified                    |
| 2160      | Access barred                                 |
| 2161      | Assignment reject                             |
| 2162      | Random access failure                         |
| 2163      | RR no service                                 |
| 2164      | PLMN search reject emergency                  |
| 2165      | RR connection release                         |
| 2166      | Authentication failure                        |
| 2167      | IMSI detach                                   |
| 2168      | Abort by network                              |
| 2169      | Connection timeout                            |
| 2170      | Enqueue fail                                  |
| 2171      | Not updated                                   |
| 2172      | State not allowed                             |
| 2173      | Emergency not allowed                         |
| 2174      | No service                                    |
| 2175      | Access class barred                           |
| SIM Cause |                                               |
| 2560      | Command success                               |
| 2561      | Command fail                                  |
| 2562      | Fatal error                                   |

|          |                             |
|----------|-----------------------------|
| 2563     | No inserted                 |
| 2564     | CHV not init                |
| 2565     | CHV verify error            |
| 2566     | CHV block                   |
| 2567     | Access not allow            |
| 2568     | SAT command busy            |
| 2569     | DL error                    |
| 2570     | Memory problem              |
| 2571     | Technical problem           |
| 2572     | PUK unlock                  |
| SM Cause |                             |
| 3080     | Operator determined barring |
| 3097     | LLC SND failure             |
| 3098     | Insufficient resource       |
| 3099     | Unknown APN                 |
| 3100     | Unknown PDP address or type |
| 3101     | Authentication failure      |
| 3102     | Activation reject GGSN      |
| 3103     | Activation reject           |
| 3104     | Unsupported service option  |
| 3105     | Unsubscribed service option |
| 3106     | Out of order service option |
| 3108     | Regular deactivation        |
| 3109     | QOS not accepted            |
| 3110     | Network fail                |

|           |                                          |
|-----------|------------------------------------------|
| 3111      | Reactivation required                    |
| 3112      | Unsupported network context activation   |
| 3113      | Semantic error in TFT operation          |
| 3114      | Syntactical error in TFT operation       |
| 3115      | Unknown PDP context                      |
| 3116      | Semantic error in packet filter          |
| 3117      | Syntax error in packet filter            |
| 3118      | PDP context WO TFT already act           |
| 3153      | Invalid TI                               |
| 3167      | Incorrect message                        |
| 3168      | Invalid MAND info                        |
| 3169      | Unimplemented message type               |
| 3170      | Incompatible message type protocol state |
| 3171      | Unimplemented IE                         |
| 3172      | Conditional IE error                     |
| 3173      | Incompatible message protocol state      |
| 3183      | Unspecified                              |
| 3184      | Startup failure                          |
| ABM Cause |                                          |
| 3273      | Success                                  |
| 3274      | Invalid network account ID               |
| 3275      | GPRS reactivate                          |
| 3276      | GPRS protocol rejection                  |
| 3283      | Rejected                                 |
| 3284      | Slot limited                             |

|           |                        |
|-----------|------------------------|
| 3285      | Abort                  |
| 3286      | None auto deactivation |
| TCM Cause |                        |
| 3372      | Invalid parameter      |
| 3373      | NSAPI not in use       |
| 3374      | ACL action not allowed |
| 3375      | ACL SIM file full      |
| 3376      | ACL add entry failed   |
| 3377      | ACL del entry failed   |
| 3378      | ACL set entry failed   |
| 3379      | ACL SIM read failed    |
| 3380      | ACL SIM write failed   |

### 16.9.3. Internal cause for MM layer

Table 14: Internal Cause for MM Layer

| Cause | Description              |
|-------|--------------------------|
| 112   | Forbidden PLMN           |
| 113   | Access class barred      |
| 114   | No coverage              |
| 115   | GPRS service not allowed |
| 116   | Timer expiry             |
| 117   | SIM inserted             |
| 118   | SIM removed              |
| 119   | SIM absent               |
| 120   | SIM invalid for PS       |

|     |                               |
|-----|-------------------------------|
| 121 | SIM invalid for CS            |
| 122 | SIM invalid for PS and CS     |
| 123 | Low layer fail                |
| 124 | Connection in progress        |
| 125 | Not updated                   |
| 126 | Connection establish failure  |
| 127 | Connection abort              |
| 128 | Connection failure            |
| 129 | Emergency not allowed         |
| 130 | No GPRS coverage              |
| 131 | Abnormal LU                   |
| 132 | Abnormal LU less than 4 times |
| 133 | Same LAI IMSI attaching       |

#### 16.9.4. Cause for PPP/IP-Stack

Table 15: Cause for PPP/IP-Stack

| Cause | Description                             |
|-------|-----------------------------------------|
| 0     | No error                                |
| 1     | LCP fail                                |
| 2     | Authentication fail                     |
| 3     | IPCP fail                               |
| 4     | ESC detect                              |
| 5     | Plug out detect                         |
| 6     | PPP GPRS dialup already activated       |
| 7     | PPP not activated by external modem yet |

|    |                                         |
|----|-----------------------------------------|
| 8  | PPP already activated by external modem |
| 9  | PPP not activated by WAP over CSD yet   |
| 10 | PPP already activated by WAP over CSD   |
| 11 | PPP wrong CSD mode ID                   |
| 12 | PPP detect AT command during dialup     |
| 13 | PPP detect escape during dialup         |