

The Leading Global Supplier of

IoT & M2M Modules

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www.quectel.com   

Quectel is the leading global supplier of cellular and GNSS modules, with a broad product portfolio covering the most recent wireless technologies

LTE

5G

NB-IoT

LTE-M

Wi-Fi

About Quectel Wireless Solutions

Quectel's passion for a smarter world drives us to accelerate IoT innovation. A highly customer-centric organization, we create superior cellular and GNSS modules backed by outstanding support and services. Our growing global team of 1800 professionals, the largest in the IoT modules industry worldwide, ensures we are first to market and continue to set the pace of development. Listed on the Shanghai Stock Exchange (603236.SS), our international leadership is devoted to advancing IoT across the globe.

For more information visit: www.quectel.com or find us on Linked In, Twitter and Facebook

GNSS

Antenna

C-V2X

**UMTS/
HSPA(+)**

**GSM/
GPRS**

LPWA

IoT Applications



Telematics and Transport

Automotive OEM
Vehicle Tracking
Asset Tracking
Ship Tracking
Fleet Management
OBD
Vehicle Digital Video Recorders (DVR)
Special Purpose Vehicles (SPV)
Usage-Based Insurance (UBI)



Energy

Electricity Meters
Gas Meters
Water Meters
Heat Meters
Smart Grids
Wind Turbines
Solar Panels
Charging Piles



Payment

Wireless POS
Cash Registers
ATMs
Vending Machines
Top-up Machines



Safety

Alarms
Intrusion Detection
Smoke Detectors
Gas Detectors
Motion Sensors
Asset Protection



Smart Cities

Street Lighting
Traffic Lights
Sharing Economy
Smart Elevators
Smart Parking
Parking Meters
Toll Collection Systems
Digital Signage
Smart Bins
Outdoor LED Lighting



Gateways

DTUs
Consumer Routers
Industrial Routers
VOIP
Wi-Fi Hotspots



Industry

Industrial PDAs/ Scanners
Industrial PCs
Rugged Tablet PCs
Pipeline Monitoring
Robots
Flowmeters
Unmanned Aerial Vehicles (UAV)
Industrial Refrigerators
Indoor Air Monitoring
Water Valves/ Pump Controls



Life & Healthcare


Personal Trackers
Pet Trackers
Wearables
Home Automation
Elderly Monitoring
Remote Medical Equipment
Glucometers
Blood Pressure Monitors
Recreational Machines
Patient Monitoring
Laptops



Agriculture & Environment

Trail Cameras
Food Traceability
Farmland Monitoring
Farm Machinery Management
Meteorological Stations
Wildlife Tracking
Irrigation
Environmental Monitoring

Quectel 5G NR Module Family




Product	RG500Q-EA	RG502Q-EA	RG500Q-NA	RG801H-EA	RG801H-EA-M.2
					
Form Factor	LGA	LGA	LGA	LGA	M.2
Dimensions (mm)	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75	51.5 × 51.0 × 3.05	58.5 × 62 × 3.65
5G	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz
Frequency Bands (MHz)	-NA (North America)	/	5G NR Bands: n2/n5/n7/n12/n25/n41/n48/n66/n71/n77/n78 LTE bands: LTE-FDD: B2/B4/B5/B7/B12/B13/B17/B14/B25/B26/B29/B30/B66/B71 LTE-TDD: B41/B48 LAA: B46; WCDMA Bands: B2/B4/B5	/	/
	-EA (EMEA/ APAC)	5G NR: n41/n77/n78/n79/n11/n31/n51/n71/n81/n201/n281/n381/n401 LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B20/B26/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42/B43 WCDMA: B1/B3/B5/B6/B8/B19	5G NR: n41/n77/n78/n79/n11/n31/n51/n71/n81/n201/n281/n381/n401 LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B20/B26/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42/B43 WCDMA: B1/B3/B5/B6/B8/B19	/	5G NR: n1/n3/n28/n41/n77/n78/n79 LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B5/B8
Weight (approx.) g	11	11	TBD	TBD	TBD
Temperature Range	-30°C ~ +75°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-30°C ~ +75°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-30°C ~ +75°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-30°C ~ +70°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-30°C ~ +70°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	•	•
Data Transmission²					
5G	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 650Mbps (UL)	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 650Mbps (UL)	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 650Mbps (UL)	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 1200Mbps (UL) 5G NSA Sub-6: Max. 2.3Gbps (DL)/ Max. 600Mbps (UL)	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 1200Mbps (UL) 5G NSA Sub-6: Max. 2.3Gbps (DL)/ Max. 600Mbps (UL)
LTE	LTE-FDD: Max. 1Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 1Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 1.6Gbps (DL)/ Max. 150Mbps (UL)	LTE-FDD: Max. 1.6Gbps (DL)/ Max. 150Mbps (UL)
UMTS	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)
SMS	•	•	•	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/ SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/ SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/ SMS	Protocols*: TCP/UDP/PPP/NTP/ NITZ/FTP/HTTP/PING/CMUX/ HTTPS/FTPS/SSL/FILE/MQTT/ MMS/SMTP/SMTPS/PAP/CHAP	Protocols*: TCP/UDP/PPP/NTP/ NITZ/FTP/HTTP/PING/CMUX/ HTTPS/FTPS/SSL/FILE/MQTT/ MMS/SMTP/SMTPS/PAP/CHAP
Interfaces					
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
UART	× 3	× 3	× 3	× 2	/
USB	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1	1.1/2.0/3.0/3.1	1.1/2.0/3.0/3.1
PCIe	PCIe Gen3 × 2 Lane	PCIe Gen3 × 2 Lane	PCIe Gen3 × 2 Lane	× 2, PCIe Gen3 × 2 Lane/PCIe Gen3 × 1 Lane	× 1, PCIe Gen3 × 1 Lane
RGMI	•	•	•	× 1	/
PCM	•	•	•	× 1	× 1
I2C	× 1	× 1	× 1	× 2	× 1
SPI	•	•	•	× 1	/
GPIO	•	•	•	•	•
ADC	× 2	× 2	× 2	× 2	/
SD Card	•	•	•	× 1	/
RESET_N	•	•	•	•	•
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity	Main, Diversity and MIMO
Enhanced Features					
MIMO	4 × 4 DL	4 × 4 DL	4 × 4 DL	4 × 4 DL	4 × 4 DL
Digital Audio	•	•	•	Digital Audio*: •	Digital Audio*: •
VoLTE	Optional	Optional	Optional	•	•
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	DTMF*: •	DTMF*: •
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	DFOTA*: •	DFOTA*: •
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	NA	NA
(U)SIM Card Detection	•	•	•	•	•
Electrical Features					
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.
Power Consumption	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off/ TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle
Software Features					
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	•	•
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	•	•
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	•	•
RNDIS Driver*				•	•
NCM Driver *				•	•
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10		
ECM Driver*				•	•
MBIM Driver	Windows 7/8/8.1/10, Linux 3.18~5.4	Windows 7/8/8.1/10, Linux 3.18~5.4	Windows 7/8/8.1/10, Linux 3.18~5.4	MBIM Driver*: •	MBIM Driver*: •
Gobinet Driver	Linux 2.6~5.4	Linux 2.6~5.4	Linux 2.6~5.4		
QML_WWAN Driver	Linux 3.4~5.4	Linux 3.4~5.4	Linux 3.4~5.4		
PCIe Driver	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	PCIe Driver*: •	PCIe Driver*: •
Certifications	CE/ RCM/ CCC/ SRRC/ NAL/ KC/ JATE/ TELEC	CE/ RCM/ CCC/ SRRC/ NAL/ KC/ JATE/ TELEC	FCC/ IC		
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage				

Note 1: means supported in second stage.

Note 2: means the data transmission is theoretical data rate and depends on network condition.

* Under development



Quectel 5G NR Module Family

Product	RM500Q-GL	RM502Q-GL	RM510Q-GL
			
Form Factor	M.2	M.2	M.2
Dimensions (mm)	52.0 × 30.0 × 2.3	52.0 × 30.0 × 2.3	52.0 × 30.0 × 2.3
5G	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz/ mmWave
Frequency Bands (MHz)	-GL (Global) 5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48/n66/n71/n77/n78/n79 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48 LAA: B46 WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48/n66/n71/n77/n78 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48 LAA: B46 WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48/n66/n71/n77/n78/n79/n257/n258/n260/n261 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48 LAA: B46 WCDMA: B1/B2/B3/B4/B5/B6/B8/B19
Weight (approx.) g	8.4	8.4	8.4
Temperature Range	-20°C ~ +60°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-20°C ~ +60°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-20°C ~ +60°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission			
5G	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 650Mbps (UL)	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 650Mbps (UL)	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 3.3Gbps (DL)/ Max. 650Mbps (UL) 5G NSA mmWave: Max. 4.5Gbps (DL)/ Max. 2.9Gbps (UL)
LTE	LTE-FDD: Max. 1Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)
UMTS	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)
SMS	•	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
Interfaces			
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 1, 1.8V/ 3.0V
USB	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1(3.0/3.1 from ES2)
PCIe	PCIe Gen3 × 1 Lane	PCIe Gen3 × 1 Lane	PCIe Gen3 × 2 Lane(1 Lane from ES2)
PCM	•	•	•
GPIO	•	•	•
RESET_N	•	•	•
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS; mmWave IF *4 pairs
Enhanced Features			
MIMO	4 × 4 DL	4 × 4 DL	Sub-6: 4 × 4 DL mmWave: 2 × 2 DL
Digital Audio	•	•	•
VoLTE	Optional	Optional	Optional
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•	•	•
Electrical Features			
Supply Voltage Range	3.135~4.4V, 3.7V Typ.	3.135~4.4V, 3.7V Typ.	3.135~4.4V, 3.7V Typ.
Power Consumption	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle
Software Features			
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10
MBIM Driver	Windows 7/8/8.1/10, Linux 3.18~5.4	Windows 7/8/8.1/10, Linux 3.18~5.4	Windows 7/8/8.1/10, Linux 3.18~5.4
Gobinet Driver	Linux 2.6~5.4	Linux 2.6~5.4	Linux 2.6~5.4
QML_WWAN Driver	Linux 3.4~5.4	Linux 3.4~5.4	Linux 3.4~5.4
PCIe Driver	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
Certifications	CE/ RCM/ CCC/ SRRC/ NAL/ KC/ JATE/ TELEC/ FCC/ IC/ GCF/ PTCRB	CE/ RCM/ CCC/ SRRC/ NAL/ KC/ JATE/ TELEC/ FCC/ IC/ GCF/ PTCRB	FCC/ IC
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage		

Note 1: means supported in second stage.

* Under development

Quectel LTE-A Module Family

Product	EP06	EG06	
			
Form Factor	Mini PCIe	LGA	
Dimensions (mm)	51.0 × 30.0 × 4.0	37.0 × 39.5 × 2.8	
4G	LTE Cat 6	LTE Cat 6	
Frequency Bands (MHz)	-E (EMEA/ Australia/ Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 ¹ ; LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32; B38+B38; B40+B40; B41+B41; WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 ¹ ; LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32; B38+B38; B40+B40; B41+B41; WCDMA: B1/B3/B5/B8
	-EA (EMEA/ Australia/ Brazil)		LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 ¹ LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B3/B5/B7/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32 ¹ ; B38+B38; B40+B40; B41+B41 WCDMA: B1/B3/B5/B8 GSM: 900MHz, 1800MHz
	-A (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 ² /B30/B66; Up to 2 × CA: B2+B2/B5/B12/ B13/B29; B4+B4/B5/B12/B13/B29; B7+B5/B7/B12/B26; B25+B5/B12/B25/B26; B30+B5/ B12/B29; B66+B5/B12/B13/B29/B66; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 ² /B30/B66; Up to 2 × CA: B2+B2/B5/B12/ B13/B29; B4+B4/B5/B12/B13/B29; B7+B5/B7/B12/B26; B25+B5/B12/B25/B26; B30+B5/ B12/B29; B66+B5/B12/B13/B29/B66; WCDMA: B2/B4/B5
	-AUTL (Australia)		LTE-FDD: B3/B7/B28; Up to 2×CA: B3+B3/B7/B28; B7+B7/B28
Weight (approx.) g	6.0	6.7	
Temperature Range	-40°C ~ +85°C	-40°C ~ +85°C	
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	
Data Transmission			
LTE	LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 226Mbps (DL)/ Max. 28Mbps (UL)	LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 226Mbps (DL)/ Max. 28Mbps (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	
SMS	•	•	
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	
Interfaces			
USB	2.0/3.0, Slave Mode	2.0/3.0, Supports Master* and Slave Modes	
PCM	•	•	
I2C	× 1	× 1	
(U)SIM	× 2, 1.8V/ 3.0V	1.8V/ 3.0V	
GPIO	× 4	× 2	
UART		× 3	
ADC		× 2	
SPI			
RESET_N	•	•	
PCIe		Optional	
Antenna	× 3	× 3	
Enhanced Features			
MIMO	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL	
eCall*	Emergency Service	Emergency Service	
BT4.0			
Digital Audio	•	•	
VoLTE	Optional	Optional	
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	
(U)SIM Card Detection	•	•	
Electrical Features			
Supply Voltage Range	3.1~4.4 V, 3.3 V Typ.	3.3~4.3 V, 3.8V Typ.	
Power Consumption	3.3mA@Sleep, Typ. 32.1mA@Idle	10µA @Power off 1.5mA @LTE Sleep(PF=128) 1.5mA @LTE Sleep(PF=64) 18mA @Idle	
Software Features			
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x	
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	
QMI_WWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.1~4.15	
Certifications	Telstra/ Deutsche Telekom/ GCF/ CE/ NCC/ RCM/ FCC/ IC/ CCC/ PTCRB/ AT&T/ Verizon/ Telus/ Sprint/ Rogers/ Bell (TBD)	Deutsche Telekom/ Telstra/ GCF/ CE/ KC/ RCM/ FCC/ CCC/ PTCRB/ IC/ AT&T/ Verizon/ USCC/ British Telekom	
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage		

Note 1: B32 is only for secondary component carrier.
Note 2: B29 is only for secondary component carrier.

* Under development

Quectel LTE-A Module Family

Product		EG12	EG18
			
Form Factor		LGA	LGA
Dimensions (mm)		37.0 × 39.5 × 2.8	37.0 × 39.5 × 2.8
4G		LTE Cat 12	LTE Cat 18
Frequency Bands (MHz)	-EA (EMEA/ Australia/ Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B25/B26/B29/B30/B66/B71 LTE-TDD: B41 Up to 3 × CA: Intra-band and Inter-band WCDMA Bands: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71 LTE-TDD: B41 Up to 5 × CA: Intra-band and Inter-band WCDMA Bands: B2/B4/B5
Weight (approx.) g		9	9
Temperature Range		-40°C ~ +85°C (Extended Temperature)	-40°C ~ +85°C (Extended Temperature)
Control via AT Commands		3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission			
LTE		LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 430Mbps (DL)/ Max. 90Mbps (UL)	LTE-FDD: Max. 1.2Gbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 573Mbps (DL)/ Max. 90Mbps (UL)
UMTS		DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)
SMS		•	•
Protocols		TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
Interfaces			
USB		2.0/3.0, Slave Mode	2.0/3.0, Slave Mode
PCM		•	•
I2C		× 1	× 1
(U)SIM		× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
GPIO		× 2	× 2
UART		× 3	× 3
ADC		× 2	× 2
SPI		× 1 (Optional)	× 1 (Optional)
SD Card		•	•
RESET_N		•	•
PCIe		Optional	Optional
Antenna		Main, Diversity and GNSS	Main, Diversity and GNSS
Enhanced Features			
MIMO		2 × 2, 4 × 2, 4 × 4, DL	2 × 2, 4 × 2, 4 × 4 DL
eCall		•	•
BT4.0			
Digital Audio		•	•
VoLTE		Optional	Optional
DTMF		Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA		Delta Firmware over the Air	Delta Firmware over the Air
GNSS		GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS
(U)SIM Card Detection		•	•
Electrical Features			
Supply Voltage Range		3.3~4.3 V, 3.8 V Typ.	3.3~4.3 V, 3.8 V Typ.
Power Consumption		20µA @Power off 1.83mA @Sleep, Typ. 9.41mA @Idle	20µA @Power off 1.81mA @Sleep, Typ. 9.38mA @Idle
Software Features			
USB Serial Driver		Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver		Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
NDIS Driver		Windows 7/8/8.1/10	Windows 7/8/8.1/10
Gobinet Driver		Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x
QMI_WWAN Driver		Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x
Certifications		CE/ RCM	CE/ RCM/ FCC/ IC/ GCF/ PTCRB/ AT&T/ Verizon/ Telstra/ T-mobile/ USCC*
Recommended Applications		Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage	

Note 1: LTE-FDD B17 is supported through MFBI+B12.

* Under development

Quectel M.2 Module Family

Product		EM05	EM06
			
Form Factor		M.2	M.2
Dimensions (mm)		42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3
4G		LTE Cat 4	LTE Cat 6
Frequency Bands (MHz)	-A (NA)		LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 ¹ /B30/B66 LTE-TDD: B41 Up to 2 × CA: B2+B2/B5/B12/B13/B29 ¹ ; B4+B4/B5/B12/B13/B29 ¹ ; B5+B5/B7/B25/B30/B66; B7+B7/B12/B26; B12+B12/B25/B30/B66; B13+B66; B25+B25/B26; B30+B29; B66+B29/B66; B41+B41 WCDMA: B2/B4/B5
	-E (EMEA/ Australia/New Zealand)	LTE-FDD: B1/B3/B7/B8/B20/B28; LTE-TDD: B38/ B41 WCDMA: B1/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 ¹ LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32 ¹ ; B38+B38; B40+B40; B41+B41 WCDMA: B1/B3/B5/B8
	-J (Japan)		LTE-FDD: B1/B3/B8/B18/B19/B26/B28 LTE-TDD: B41 Up to 2 × CA: B1+B1/B8/B18/B19/B26/B28; B3+B3/B8/B18/B19/B26/B28; B41+B41 WCDMA: B1/B3/B6/B8/B19
	-CE (China/Thailand/India)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B8; EVDO/CDMA: BC0	
	-CML (China)	LTE-TDD: B38/B39/B40/B41	
Weight (approx.) g		6.0	6.0
Temperature Range		-30°C ~ +70°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-40°C ~ +85°C
Control via AT Commands		3GPP TS 27.005, 3GPP TS 27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission			
LTE		LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 226Mbps (DL)/ Max. 28Mbps (UL)
UMTS		DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)
SMS		•	•
CDMA2000		EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) 1X Advanced: Max. 307.2Kbps (DL)/ Max. 307.2Kbps (UL)	
Protocols		TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ NITZ/ SMTP/ MMS/FTPS/ SMTPS/ SSL/FILE	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
Interfaces			
USB		2.0 Hi-Speed	2.0/3.0*, Slave Mode
PCM		•	•
I2C		× 1	× 1
(U)SIM		1.8V/ 3.0V	× 2, 1.8V/ 3.0V
GPIO		× 1	× 11
RESET_N		•	•
PCIe			Optional
Antenna		Main, Diversity and GNSS	Main, Diversity and GNSS
Enhanced Features			
MIMO		DL MIMO, support Rx-diversity Antenna	2 × 2, 4 × 2, DL
eCall*			Emergency Service
BT4.0			
Digital Audio		•	•
VoLTE			Optional
DTMF			Dual-tone Multi-frequency
DFOTA		•	Delta Firmware over the Air
GNSS		Optional	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS
(U)SIM Card Detection		•	•
Electrical Features			
Supply Voltage Range		3.135V~4.4V, 3.3V Typ.	3.135~4.4V, 3.7V Typ.
Power Consumption		5µA @Power off/ 3.3mA(PF=128) @LTE Sleep/ 20mA @Idle	50µA @Power off 4.1mA @Sleep, Typ. 22.1mA @Idle
Software Features			
USB Serial Driver		Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	Windows 7/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x
GNSS Driver		Android 4.x/5.x/6.x/7.x/8.x/9.x	
RIL Driver		Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
MBIM Driver		Windows 8/8.1/10, Linux3.18~5.4	
NDIS Driver		Windows 7/8/8.1/10	Windows 7/8/8.1/10
Gobinet Driver		Linux 2.6~5.4	Linux 2.6/3.x/4.x/5.x
QMI_WWAN Driver		Linux 3.4~5.4	Linux 3.x (3.4 or later)/4.x/5.x
Certifications		CCC/ SRRC/ NAL/ CE/ RCM	GCF/ CE/ NCC/ RCM/ ICASA/ FCC/ PTCRB/ IC/ WHQL/ Verizon/ AT&T/ Telstra/ Deutsche Telekom/ KDDI/ JATE/ TELEC/ Sprint/ KC
Recommended Applications		Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PCs and digital signage.	


Note 1: B32 is only for secondary component carrier.

Note 2: B29 is only for secondary component carrier.

Note 3: means LTE-FDD B29 and B32 support receiving only, and are only for secondary component carrier in 2xCA.

* Under development


Quectel M.2 Module Family

Product	EM12	EM160R-GL
		
Form Factor	M.2	M.2
Dimensions (mm)	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3
4G	LTE Cat 12	LTE Cat 16
Frequency Bands (MHz)	-G (Global) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B21/B25/B26/B28/B29/B30/B32/B66; LTE-TDD: B38/B39/B40/B41 Up to 3 × CA : Intra-band and Inter-band, B1+3+5/7/8/19/20/28, B2+4+5, B2+4+13, B2+5+30, B2+12+30, etc WCDMA: B1/B2/B3/B4/B5/B8/B9/B19	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66; LTE-TDD: B38/B39/B40/B41/B42/B43/B46*/B48(CBRS); Up to 5 × CA: Intra-band and Inter-band WCDMA: B1/B2/B3/B5/B6/B8/B19
Weight (approx.) g	6.0	6.0
Temperature Range	-40°C ~ +85°C (Extended Temperature)	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission		
LTE	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 408Mbps (DL)/ Max. 90Mbps (UL)	LTE-FDD: Max. 1.0Gbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 880Mbps (DL)/ Max. 90Mbps (UL)
UMTS	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)
SMS	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
Interfaces		
USB	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode
PCM	•	•
I2C	× 1	
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
GPIO	× 11	MIPI interface
RESET_N	•	•
PCIe	Optional	PCIe Gen2
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS, MIMO × 2
Enhanced Features		
MIMO	4 × 2, 2 × 2, DL	2 × 2, 4 × 2, 4 × 4 DL
eCall*	Emergency Service	Emergency Service
Digital Audio	•	•
VoLTE	Optional	
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS
(U)SIM Card Detection	•	•
Electrical Features		
Supply Voltage Range	3.135~4.4V, 3.7V Typ.	3.135~4.4V, 3.7V Typ.
Power Consumption	56µA @Power off 3.7mA @Sleep, Typ. 10.3mA @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle
Software Features		
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x
QMI_WWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x
PCIe Driver		Linux 3.x/4.x/5.x
Certifications	CE/ FCC/ IC/ NCC/ RCM/ ICASA/ WHQL/JETE/ TELEC/ GCF/ PTCRB/ Telstra/ AT&T/ Verizon/ Telefonica*	CE/ FCC/ IC/ WHQL*/ JETE*/ TELEC*/ GCF*/ PTCRB*/ Telstra*/ AT&T*/ Verizon*/ Telefonica*
Recommended Applications	Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PCs and digital signage.	

Note 1: B32 is only for secondary component carrier.
Note 2: B29 is only for secondary component carrier.
Note 3: B46 is only for secondary component carrier.

* Under development

Quectel LTE Module Family

Product		EC20 R2.1	EC20 R2.1 Mini PCIe
			
Form Factor		LCC	Mini PCIe
Dimensions (mm)		32.0 x 29.0 x 2.4	51.0 x 30.0 x 4.9
LTE Category		LTE Cat 4	LTE Cat 4
Frequency Bands (MHz)	-CE (China/India)	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8 TD-SCDMA: B34/B39 EVDO/CDMA: BC0 GSM: B3/B8	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8 TD-SCDMA: B34/B39 EVDO/CDMA: BC0 GSM: B3/B8
Weight (approx.) g		5.3	10.6
Working Temperature Range		-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature Range		-40°C ~ +85°C	-40°C ~ +80°C
Data Transmission			
LTE data rate (Mbps)		LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)	LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)
DC-HSPA+ data rate (Mbps)		Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)
WCDMA data rate (Kbps)		Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)
TD-SCDMA data rate (Mbps)		Max. 4.2 (DL)/ Max. 2.2 (UL)	Max. 4.2 (DL)/ Max. 2.2 (UL)
EVDO data rate (Mbps)		Max. 3.1 (DL)/ Max. 1.8 (UL)	Max. 3.1 (DL)/ Max. 1.8 (UL)
CDMA2000 data rate (Kbps)		Max. 307.2 (DL)/ Max. 307.2(UL)	Max. 307.2 (DL)/ Max. 307.2(UL)
EDGE data rate (Kbps)		Max. 296 (DL)/ Max. 236.8 (UL)	Max. 296 (DL)/ Max. 236.8 (UL)
GPRS data rate (Kbps)		Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)
SMS		•	•
CSD		•	•
Protocols		TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ NITZ/ CMUX/ HTTPS/ SMTP/ MMS/ FTSP/ SMTPS/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ NITZ/ CMUX/ HTTPS/ SMTP/ MMS/ FTSP/ SMTPS/ SSL/ FILE
Interfaces			
(U)SIM		1.8V/ 3.0V	1.8V/ 3.0V
UART		2	1
USB		USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)
IIC		•	Optional
Audio Digital (PCM)		•	Optional
SD		•	
SGMII		•	
ADC		x 2, 15bits	
Antenna		Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS
Enhanced Features			
DTMF		•	•
DFOTA		•	•
QMI/ RmNet		•	•
Audio Playback/Audio Recording		Optional	Optional
QuecFile		•	
USB Serial Driver		Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x
GNSS Driver		Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x
RIL Driver		Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x
NDIS Driver		Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10
MBIM Driver		Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4
GobiNet Driver		Linux 2.6~5.4	Linux 2.6~5.4
QMI_WWAN Driver		Linux 3.4~5.4	Linux 3.4~5.4
(U)SIM Card Detection		•	•
GNSS		Optional	Optional
Firmware Update		Via USB/DFOTA	Via USB/DFOTA
Electrical Features			
Supply Voltage Range		3.3V~4.3 V, 3.8V Typ.	3.0V~3.6 V, 3.3V Typ.
Power Consumption		11µA @Power off/ 1.5mA @Sleep (PF=256), Typ. / 20mA @Idle	4mA @Sleep (PF=128), 3.7mA@Sleep (PF=256), Typ. / 30mA @Idle
Certifications		Regulatory Certification: NAL/ SRRC/ CCC (China)	Regulatory Certification: NAL/ SRRC/ CCC (China)
Recommended Applications		Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.	

* Under development





Quectel LTE Module Family

Product	EC21/EC21 Mini PCIe	EC25/EC25 Mini PCIe	
			
Form Factor	LCC (EC21), Mini PCIe (EC21 Mini PCIe)	LCC (EC25), Mini PCIe (EC25 Mini PCIe)	
Dimensions (mm)	32.0 x 29.0 x 2.4 (EC21) 51.0 x 30.0 x 4.9 (EC21 Mini PCIe)	32.0 x 29.0 x 2.4 (EC25) 51.0 x 30.0 x 4.9 (EC25 Mini PCIe)	
LTE Category	LTE Cat 1	LTE Cat 4	
Frequency Bands(MHz)	-E (EMEA/Korea/Thailand/India)	-E (EMEA/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; WCDMA: B1/B5/B8; GSM: B3/B8	-E (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; LTE-TDD: B38/B40/B41; WCDMA: B1/B5/B8; GSM: B3/B8
	-EU (EMEA/Thailand)	LTE-FDD: B1/B3/B7/B8/B20/B28A; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28A; LTE-TDD: B38/B40/B41; WCDMA: B1/B8; GSM: B3/B8
	-EUX (EMEA/Thailand)	LTE-FDD: B1/B3/B7/B8/B20/B28A; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28A; LTE-TDD: B38/B40/B41; WCDMA: B1/B8; GSM: B3/B8
	-V (Verizon)	LTE-FDD: B4/B13	LTE-FDD: B4/B13
	-A (AT&T/T-Mobile/Canada)	LTE-FDD: B2/B4/B12; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B12; WCDMA: B2/B4/B5
	-AF (AT&T/Verizon/T-Mobile)		LTE-FDD: B2/B4/B5/B12/B13/B14/B66/B71; WCDMA: B2/B4/B5
	-AFX (AT&T/Verizon/T-Mobile)		LTE-FDD: B2/B4/B5/B12/B13/B14/B66/B71; WCDMA: B2/B4/B5
	-MX (Mexico)		LTE-FDD: B2/B4/B5/B7/B28/B66; WCDMA: B2/B4/B5
	-AU (Latin America/ANZ)	LTE-FDD: B1/B2 ² /B3/B4/B5/B7/B8/B28; LTE-FDD: B40; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2 ² /B3/B4/B5/B7/B8/B28; LTE-TDD: B40; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8
	-AUX (Latin America/ANZ)	LTE-FDD: B1/B2 ² /B3/B4/B5/B7/B8/B28; LTE-TDD: B40; WCDMA: B1/B2/B4/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2 ² /B3/B4/B5/B7/B8/B28; LTE-TDD: B40; WCDMA: B1/B2/B4/B5/B8; GSM: B2/B3/B5/B8
	-AUT (Australia) ¹	LTE-FDD: B1/B3/B5/B7/B28; WCDMA: B1/B5	LTE-FDD: B1/B3/B5/B7/B28; WCDMA: B1/B5
	-AUTL (Australia) ¹		LTE-FDD: B3/B7/B28
	-J (Japan)	LTE-FDD: B1/B3/B8/B18/B19/B26	LTE-FDD: B1/B3/B8/B18/B19/B26; LTE-TDD: B41; WCDMA: B1/B6/B8/B19
	-KL (Korea)	LTE-FDD: B1/B3/B5/B7/B8	
Weight (approx.) g	4.9 (EC21) 9.8 (EC21 Mini PCIe)	4.9 (EC25) 9.8 (EC25 Mini PCIe)	
Working Temperature Range	-35°C ~ +75°C	-35°C ~ +75°C	
Extended Temperature Range	-40°C ~ +85°C (EC21) -40°C ~ +80°C (EC21 Mini PCIe)	-40°C ~ +85°C (EC25) -40°C ~ +80°C (EC25 Mini PCIe)	
Data Transmission			
LTE data rate (Mbps)	LTE-FDD: Max. 10 (DL) / Max. 5 (UL); LTE-TDD: Max. 8.96 (DL) / Max. 3.1 (UL)	LTE-FDD: Max. 150 (DL) / Max. 50 (UL); LTE-TDD: Max. 130 (DL) / Max. 30 (UL)	
DC-HSPA+ data rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)	
WCDMA data rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)	
EDGE data rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)	Max. 296 (DL)/ Max. 236.8 (UL)	
GPRS data rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)	
SMS	•	•	
CSD	•	•	
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ HTTPS/ SMTP/ MMS/ FTPS/ SMTPS/ SSL	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ HTTPS/ SMTP/ MMS/ FTPS/ SMTPS/ SSL	
Interfaces			
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V	
UART	2 (EC21) 1 (EC21 Mini PCIe)	2 (EC25) 1 (EC25 Mini PCIe)	
USB	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	
IIC	•	•	
Audio Digital (PCM)	Optional	Optional	
SD	• (EC21)	• (EC25)	
ADC	x 2, 15bits (EC21)	x 2, 15bits (EC25)	
SGMII	• (EC21)	• (EC25)	
GPIO	• (Only Supported on QuecOpen [®])	• (Only Supported on QuecOpen [®])	
Antenna	Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS	
Enhanced Features			
eCall [*]	•	•	
DTMF	•	•	
DFOTA	•	•	
QM/RmNet	•	•	
Audio Playback/Audio Recording	Optional	Optional	
QuecFile	•	•	
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
NDIS Driver	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	
MBIM Driver	Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4	
GobiNet Driver	Linux 2.6~5.4	Linux 2.6~5.4	
QMI_WWAN Driver	Linux 3.4~5.4	Linux 3.4~5.4	
(U)SIM Card Detection	•	•	
GNSS	Optional	Optional	
Firmware Update	Via USB/DFOTA	Via USB/DFOTA	
Electrical Features			
Supply Voltage Range	3.3V~4.3V, 3.8V Typ. (EC21); 3.0V~3.6V, 3.3V Typ. (EC21 Mini PCIe)	3.3V~4.3V, 3.8V Typ. (EC25); 3.0V~3.6V, 3.3V Typ. (EC25 Mini PCIe)	
Power Consumption	20µA @Power off/ 3mA @Sleep, Typ. / 22mA @Idle (EC21) 3.5mA @Sleep, Typ. / 34mA @Idle (EC21 Mini PCIe)	20µA @Power off/ 3mA @Sleep, Typ. / 22mA @Idle (EC25) 3.6mA @Sleep, Typ. / 35mA @Idle (EC25 Mini PCIe)	
Certifications	Carrier Certification: Vodafone/ Deutsche Telekom/ British Telecom/ Telefónica/Verizon/ AT&T/ T-Mobile/ U.S. Cellular/ Rogers/ SKT/ KT/ NTT DOCOMO/ SoftBank/ KDDI/ Telstra Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ KC/ NCC/ JATE/ TELEC/ RCM/ FAC Others: WHQL	Carrier Certification: Vodafone/ Deutsche Telekom/ British Telecom/ Telefónica/ Verizon/ AT&T/ T-Mobile/ U.S. Cellular/ Rogers/ Telus/ NTT DOCOMO/ SoftBank/ KDDI/ Bell/ SKT/ LGU+/ Telstra [*] Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ KC/ NCC/ JATE/ TELEC/ RCM/ FAC/ NBTC/ ICASA/ IFETEL Others: WHQL	
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.		

Note 1: Inapplicable to Mini PCIe.
Note 2: Rx-diversity not supported.
GNSS antenna not supported on EC25-MX/EC21-KL.

* Under development




Quectel LTE Module Family

Product	EG91	EG95	EG25-G/ EG25-G Mini PCIe	EG21-G/EG21-G Mini PCIe	
					
Form Factor	LGA	LGA	LGA (EG25-G) Mini PCIe (EG25-G Mini PCIe)	LGA (EG21-G) Mini PCIe (EG21-G Mini PCIe)	
Dimensions (mm)	25.0 × 29.0 × 2.25	25.0 × 29.0 × 2.25	32.0 × 29.0 × 2.4 (EG25-G) 51.0 × 30.0 × 4.9 (EG25-G Mini PCIe)	32.0 × 29.0 × 2.4 (EG21-G) 51.0 × 30.0 × 4.9 (EG21-G Mini PCIe)	
LTE Category	LTE Cat 1	LTE Cat 4	LTE Cat 4	LTE Cat 1	
Frequency Bands (MHz)	-E (Europe)	LTE-FDD: B1/B3/B7/B8/B20/B28A; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28A; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28; WCDMA: B1/B8; GSM: B3/B8	
	-EX (Europe)	LTE-FDD: B1/B3/B7/B8/B20/B28; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28; WCDMA: B1/B8; GSM: B3/B8	
	-NAXD* (North America)	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	
	-NAX (North America)	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	
	-NA (North America)	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5	
	-NS (North America)	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5	
	-VX (Verizon)	LTE-FDD: B4/B13	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B25/B26/B28; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B25/B26/B28; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8
	-AUX* (Latin America/ ANZ)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B25/B26/B28; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B25/B26/B28; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8
	-G (Global)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B25/B26/B28; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B25/B26/B28; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8
	Weight (approx.) g	3.8	3.8	4.9 (EG25-G), 9.8 (EG25-G Mini PCIe)	4.9 (EG21-G), 9.8 (EG21-G Mini PCIe)
Working Temperature Range	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	
Extended Temperature Range	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C (EG25-G) -40°C ~ +80°C (EG25-G Mini PCIe)	-40°C ~ +85°C (EG21-G) -40°C ~ +80°C (EG21-G Mini PCIe)	
Data Transmission					
LTE data rate (Mbps)	Max. 10 (DL)/ Max. 5 (UL)	Max. 150 (DL)/ Max. 50 (UL)	LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30(UL)	LTE-FDD: Max. 10Mbps (DL)/Max. 5Mbps (UL) LTE-TDD: Max. 8.96Mbps (DL)/Max. 3.1Mbps (UL)	
DC-HSPA+ data rate (Mbps)	Max. 42 (DL)/Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)	
WCDMA data rate (Kbps)	Max. 384 (DL)/Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)	
EDGE data rate (Kbps)	Max. 296 (DL)/Max. 236.8 (UL)	Max. 296 (DL)/Max. 236.8 (UL)	Max. 296 (DL)/Max. 236.8 (UL)	Max. 296 (DL)/Max. 236.8 (UL)	
GPRS data rate (Kbps)	Max. 107(DL)/Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)	
SMS	•	•	•	•	
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ CMUX/ HTTPS/ SMTP/ MMS/ FTPS/ SMTPS/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ CMUX/ HTTPS/ SMTP/ MMS/ FTPS/ SMTPS/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/NITZ/ CMUX/ HTTPS/ SMTP/ MMS/ FTPS/ SMTPS/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/NITZ/ CMUX/ HTTPS/ SMTP/ MMS/ FTPS/ SMTPS/ SSL/ FILE	
Interfaces					
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V	1.8V/ 3.0V	1.8V/ 3.0V	
UART	2	2	2 (EG25-G), 1 (EG25-G Mini PCIe)	2 (EG21-G), 1 (EG21-G Mini PCIe)	
USB	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	
IIC	•	•	•	•	
Audio Digital (PCM)	Optional	Optional	Optional	Optional	
SPI	•	•	•	•	
SD			•(EG25-G)	•(EG21-G)	
ADC			× 2, 15bits (EG25-G)	× 2, 15bits (EG21-G)	
GPIO	• (Only Supported on QuecOpen®)	• (Only Supported on QuecOpen®)	• (Only Supported on QuecOpen®)	• (Only Supported on QuecOpen®)	
Antenna	Pads for Primary, Rx-diversity and GNSS ¹	Pads for Primary, Rx-diversity and GNSS ¹	Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS	
Enhanced Features					
eCall* (for Europe)	•	•			
E911 (for North America)	•	•			
DTMF	•	•	•	•	
DFOTA	•	•	•	•	
QMI/ RmNet	•	•	•	•	
Audio Playback/Audio Recording QuecFile	Optional	Optional	Optional	Optional	
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	Android 4.x/ 5.x/ 6.x/ 7.x/8.x/9.x	
NDIS Driver	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	
MBIM Driver	Windows 8/ 8.1/ 10, Linux 3.8-5.4	Windows 8/ 8.1/ 10, Linux 3.8-5.4	Windows 8/ 8.1/ 10, Linux 3.8-5.4	Windows 8/ 8.1/ 10, Linux 3.8-5.4	
GobiNet Driver	Linux 2.6-5.4	Linux 2.6-5.4	Linux 2.6-5.4	Linux 2.6-5.4	
QMI_WWAN Driver	Linux 3.4-5.4	Linux 3.4-5.4	Linux 3.4-5.4	Linux 3.4-5.4	
(U)SIM Card Detection	•	•	•	•	
(U)SIM Card Connector			Optional (EG25-G Mini PCIe)	Optional (EG21-G Mini PCIe)	
GNSS ¹	Optional	Optional	Optional	Optional	
Firmware Update	Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA	
Electrical Features					
Supply Voltage Range	3.3V~4.3 V, 3.8V Typ.	3.3V~4.3 V, 3.8V Typ.	3.3V~4.3 V, 3.8V Typ. (EG25-G) 3.0V~3.6 V, 3.3V Typ. (EG25-G Mini PCIe)	3.3V~4.3 V, 3.8V Typ. (EG21-G) 3.0V~3.6 V, 3.3V Typ. (EG21-G Mini PCIe)	
Power Consumption	15µA@Power off, 2.6mA@Sleep, Typ. , 21mA@Idle	15µA@Power off, 2.6mA@Sleep, Typ. , 21mA@Idle	13µA@Power off, 1.7mA@Sleep, Typ. , 22mA@Idle (EG25-G) 2.7mA @Sleep, Typ. / 25mA @Idle (EG25-G Mini PCIe)	13µA@Power off, 1.7mA@Sleep, Typ. , 22mA@Idle (EG21-G)	
Certifications	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ T-Mobile/ Sprint/ Rogers/ Telus Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ FAC/ NCC* Others: WHQL	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ T-Mobile/ Rogers/ Telus Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ FAC Others: WHQL	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ Sprint/ U.S. Cellular/ Telus/ T-Mobile/ Rogers* Regulatory Certification: SRRC/ NAL/ CCC/ GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ IFETEL/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ ICASA/ IMDA/ FAC* Others: WHQL	Carrier Certification: Verizon/ AT&T/ T-Mobile/ Deutsche Telekom/ Sprint/U.S.Cellular/ Telus* Regulatory Certification: CE/ FCC/ IC/ RCM/ PTCRB/ GCF/ Anatel/ JATE/ TELEC/ NCC/ ICASA/ IFETEL/ KC Others: WHQL	
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.				

Note1: GNSS antenna not supported on EG91-E/EG95-E.
EG91-AUX does not support Rx-diversity.
EG91-NAXD, EG95-NAXD only support data service.

* Under development


Quectel Smart Module Family

Product	SC20	SC20 Linux	SC200R	
				
Form Factor	LCC+LGA	LCC+LGA	LCC+LGA	
Dimensions (mm)	40.5 × 40.5 × 2.8	40.5 × 40.5 × 2.8	40.5 × 40.5 × 2.8	
LTE Feature	LTE Cat 4 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 4 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 4 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	
Frequency Bands (MHz)	-CE (China)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA: BC0; GSM: 900/1800MHz	-CEL (China) LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA: BC0; GSM: 900/1800MHz	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B8; CDMA: BC0; GSM: 900/1800MHz
	-E/EM (EMEA/Africa/Southeast Asia/Australia/South America)	-E (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; LTE-TDD: B38/B40/B41; WCDMA: B1/B5/B8; GSM: 850/900/1800/1900MHz	-EL (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; LTE-TDD: B38/B40 WCDMA: B1/B5/B8; GSM: 850/900/1800/1900MHz	-EM (EMEA/Africa/Southeast Asia/Australia/South America) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28; LTE-TDD: B38/B40/B41; WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz
	-A /NA* (North America)	-A (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26; WCDMA: B1/B2/B4/B5/B8; GSM: 850/1900MHz	-AL (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26; WCDMA: B1/B2/B4/B5/B8; GSM: 850/1900MHz	-NA* (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/ B71 LTE-TDD: B41; WCDMA: B2/B4/B5
	-AU (ANZ/Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B5/B8; GSM: 850/900/1800/1900MHz	-AUL (ANZ/Brazil) LTE-FDD: B1/B3/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B5/B8; GSM: 850/900/1800/1900MHz	
	-J (Japan)	-J (Japan) LTE-FDD: B1/B3/B8/B18/B19/B26; LTE-TDD: B41; WCDMA: B1/B6/B8/B19	-JL (Japan) LTE-FDD: B1/B3/B8/B18/B19/B26; LTE-TDD: B41 WCDMA: B1/B6/B8/B19	-JP* (Japan) LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28; LTE-TDD: B41; WCDMA: B1/B6/B8/B19
	-W/WF* (Global)	-W (Wi-Fi) Only Wi-Fi & BT	-WL (Wi-Fi) Only Wi-Fi & BT	-WF* (Global) Only Wi-Fi & BT
CPU	MSM8909, ARM Cortex-A7 microprocessor cores (quad-core) up to 1.1GHz	MSM8909, ARM Cortex-A7 microprocessor cores (quad-core) up to 1.1GHz	QCM2150, Quad-core ARM Cortex-A53 64-bit CPU @1.3GHz	
GPU	Adreno™ 304	Adreno™ 304	Qualcomm™ Adreno™ 308 graphics processing unit (GPU) with 64-bit addressing	
Memory	8GB eMMC+1GB LPDDR3; 16GB eMMC+2GB LPDDR3	8GB eMMC+1GB LPDDR3	8GB eMMC+1GB LPDDR3; 16GB eMMC+2GB LPDDR3	
Operating System	Android 7.1/8.1	Yocto Linux OS(Kernel 3.18)	Android 10.0	
Supply Voltage Range	3.5V ~ 4.2V, 3.8V Typ.	3.5V ~ 4.2V, 3.8V Typ.	3.55V ~ 4.2V, 3.8V Typ.	
Weight (approx.) g	9.8	9.8	10.2	
Operating temperature range	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	
Data Transmission				
LTE (Mbps)	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL) HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSDPA: Max. 42Mbps (DL) HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSDPA: Max. 42Mbps (DL) HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	
TD-SCDMA	Max. 4.2Mbps (DL)/ Max. 2.2Mbps (UL)	Max. 4.2Mbps (DL)/ Max. 2.2Mbps (UL)	/	
CDMA2000	EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) , 1X Advanced: Max. 307.2Kbps (DL/UL)	EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) , 1X Advanced: Max. 307.2Kbps (DL/UL)	EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) , 1X Advanced: Max. 307.2Kbps (DL/UL)	
GSM	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) , GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) , GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) , GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	
Interfaces				
LCM	4-lane MIPI_DSI, up to 1.5Gbps/lane HD (720P) @60fps	4-lane MIPI_DSI, up to 1.5Gbps/lane HD (720P) @60fps	4-lane MIPI_DS, HD+ (1440*720) @60fps; Wi-Fi display: 1080P 30fps (UBWC)	
Camera	Use MIPI_CSI, up to 1.5Gbps/lane Support two Cameras: 2-lane MIPI_CSI for Rear Camera, up to 8MP 1-lane MIPI_CSI for Front Camera, up to 2MP	Use MIPI_CSI, up to 1.5Gbps/lane Support two Cameras: 2-lane MIPI_CSI for Rear Camera, up to 8MP 1-lane MIPI_CSI for Front Camera, up to 2MP	2 groups of 4-lane MIPI_CSI, up to 2.1Gbps per lane; Up to 13MP with dual ISP	
Touch Panel	Capacitive Touch Panel	Capacitive Touch Panel	Capacitive Touch Panel	
Audio	2 analog audio inputs and 3 analog audio outputs	2 analog audio inputs and 3 analog audio outputs	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	
Video	Encode: 30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8) Decode: 30fps 1080P (H.264/MPEG-4/ VP8/H.265 DivX4/5/6), 30fps WVGA (H.263)	Encode: 30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8) Decode: 30fps 1080P (H.264/MPEG-4/ VP8/H.265 DivX4/5/6), 30fps WVGA (H.263)	Video encoding: 1080p @30fps(H.264) Video decoding: 1080p @30fps(H.264, HEVC, and VP8) Video encoding and decoding: 1080p @30fps + 720p@30fps For HEVC playback, concurrency is 720p at 30 fps decode + 720p at 30 fps encode	
USB	× 1 USB 2.0 Compliant, Support USB OTG	× 1 USB 2.0 Compliant, Support USB OTG	× 1 Compliant with USB 2.0, Support USB OTG, USB OTG + Charge, etc	
I2C	× 3	× 3	× 4	
(U)SIM	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	× 2 support 1.8/2.95V (U)SIM cards, with (U)SIM card detec- tion function; DSDS supported	
UART	× 2 Support 4Mbps with Hardware Flow Control	× 2 Support 4Mbps with Hardware Flow Control	× 3 Support 4Mbps, One of them supports Hardware Flow Control	
SD Card	× 1 (3.0, 4-bit SDIO)	× 1 (3.0, 4-bit SDIO)	× 1 (3.0, 4-bit SDIO)	
PWRKEY	1.8V, Pulled-up Internally	1.8V, Pulled-up Internally	1.8V, Pulled-up Internally	
SPI	× 1	× 1	× 3 Can be multiplexed into UART/I2S/GPIO respectively	
ADC	× 1 General purpose ADC interfaces	× 1 General purpose ADC interfaces	× 1 General purpose ADC interfaces	
GPIO	× 25	× 25	× 35	
PWM	× 1	× 1	× 1	
Motor Drive	× 1	× 1	× 1	
Flash Driver	/	/	/	
WLED Sink	/	/	/	
Antenna	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	
Enhanced Features				
BT	BT2.1+EDR/3.0/4.1LE (BT4.2 on Android 7.1)	BT2.1+EDR/3.0/4.1LE (BT4.2 on Android 7.1)	BT 2.1 + EDR/3.0/4.1 LE /BT4.2, Support a maximum of 10 ACL/BEL/SCO links	
WLAN	2.4G/5G, 802.11 a/b/g/n	2.4G/5G, 802.11 a/b/g/n	2.4G/5G, 802.11 a/b/g/n 150Mbps, STA/AP/P2P	
GNSS	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	
Charge Function	Build-in Charge IC	Build-in Charge IC	Build-in Charge IC	
Dual LCD	Only support single LCD Display	Only support single LCD Display	Only support single LCD Display	
DSDS	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	
Firmware Upgrade	Firmware Upgrade via USB	Firmware Upgrade via USB	Firmware Upgrade via USB	
Certifications				
	CE/ GCF/ RCM/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ Telstra/ T-Mobile/Telus/ JATE/ TELEC/ CCC/ SRRC/ NAL/ NCC/ KC	CE/ GCF/ RCM/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ Telstra/ T-Mobile/Telus/ JATE/ TELEC/ CCC/ SRRC/ NAL/ NCC/ KC*	GCF/ CE/ RCM/ FCC/ PTCRB/ AT&T/ Verizon/ Telstra/ IC/ JATE/ TELEC/ CCC*	
Recommended Applications				
	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.			

SC20-E LTE-TDD B41 does not support full-frequency and the bandwidth of it is 2555-2655MHz.

* Under development

Quectel Smart Module Family

Product	SC600Y	SC600T	
			
Form Factor	LCC+LGA	LCC+LGA	
Dimensions (mm)	43.0 x 44 x 2.85	43.0 x 44 x 2.85	
LTE Feature	LTE Cat 6 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 x 2	LTE Cat 6 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 x 2	
Frequency Bands(MHz)	-CE (China)		
	-EM (EMEA/ India/ Korea/ South Asia/ Latin America/ Australia/ ANZ/ South Africa)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/ B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5
	-JP (Japan)	LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28 LTE-TDD: B41 WCDMA: B1/B6/B8/B19	LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28; LTE-TDD: B41; WCDMA: B1/B6/B8/B19
	-WF (Global)	Only Wi-Fi & BT	Only Wi-Fi & BT
CPU	SDM450 , Octa-core ARM Cortex-A53 64-bit CPU @1.8GHz	MSM8953, Octa-core ARM Cortex-A53 64-bit CPU @2.0GHz	
GPU	Adreno™ 506 with 64-bit addressing	Adreno™ 506 with 64-bit addressing	
Memory	16GB eMMC+2GB LPDDR3	16GB eMMC+2GB LPDDR3	
Operating System	Android 9.0/10.0	Android 9.0/10.0	
Supply Voltage Range	3.5V ~ 4.4V, 3.8V Typ.	3.55V ~ 4.4V, 3.8V Typ.	
Weight (approx.) g	13.0	13.0	
Operating temperature range	-35 °C ~ +75 °C	-35 °C ~ +75 °C	
Data Transmission			
LTE (Mbps)	Cat 6*: LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 265Mbps (DL)/ Max. 35Mbps (UL) Cat 4: LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	Cat 6*: LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 265Mbps (DL)/ Max. 35Mbps (UL) Cat 4: LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSDPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	
TD-SCDMA			
CDMA2000			
GSM	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	
Interfaces			
LCM	4-lane MIPI_DSI0 + 4-lane MIPI_DSI1 WUXGA (1920x1200) @60fps	4-lane MIPI_DSI0 + 4-lane MIPI_DSI1 WUXGA (1920x1200) @60fps	
Camera	3 Groups of 4-lane MIPI_CSI, up to 2.1Gbps/lane, Support 3 or 4 Cameras, Up to 21MP with Dual ISPs	3 Groups of 4-lane MIPI_CSI, up to 2.1Gbps/lane, Support 3 or 4 Cameras, Up to 24MP with Dual ISPs	
Touch Panel	Capacitive Touch Panel	Capacitive Touch Panel	
Audio	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	
Video	Video encoding and decoding: 1080P at 60fps Wi-Fi Video encoding and decoding: 1080P at 30fps	Video encoding and decoding: Support recording and playback of 4k videos at 30fps Wi-Fi Video encoding and decoding: 1080P at 30fps	
USB	× 1 USB 3.0 and 2.0 Compliant, Support USB OTG	× 1 USB 3.0 and 2.0 Compliant, Support USB OTG	
I2C	× 5	× 5	
(U)SIM	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	
UART	× 4 Support 4Mbps with Hardware Flow Control	× 4 Support 4Mbps with Hardware Flow Control	
SDIO	× 1 (3.0, 4-bit SDIO)	× 1 (3.0, 4-bit SDIO)	
PWRKEY	1.8V, Pulled-up Internally	1.8V, Pulled-up Internally	
SPI	× 2 Can be Multiplexed into UART and I2S Respectively, and I2S Supports Both Tx and Rx	× 2 Can be Multiplexed into UART and I2S Respectively, and I2S Supports Both Tx and Rx	
ADC	× 2 General purpose ADC interfaces	× 2 General purpose ADC interfaces	
GPIO	× 19	× 19	
PMW	× 2	× 2	
Motor Drive	× 1	× 1	
Flashlight Driver	× 2	× 2	
WLED Sink	× 4	× 4	
Antenna	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna,Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	
Enhanced Features			
BT	BT2.1+EDR/3.0/4.1 LE/4.2 BLE	BT2.1+EDR/3.0/4.1 LE/4.2 BLE	
WLAN	2.4G/5G, 802.11 a/b/g/n/ac	2.4G/5G, 802.11 a/b/g/n/ac	
GNSS	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	
Charge Function	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge 3.0 technology	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge 3.0 technology	
Dual LCD	Support Dual LCDs for Independent Display	Support Dual LCDs for Independent Display	
DSDS	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	
Firmware Upgrade	Firmware Upgrade via USB	Firmware Upgrade via USB	
Certifications	CE/ RCM/ GCF/ NCC/ Telstra*/ FCC/ IC/ PTCRB/ AT&T/ Verizon*/ T-Mobile / JATE/ TELEC/ KDDI* / NTT DOCOMO*	CE/ RCM/ GCF/ NCC/ Telstra* / FCC/ IC/ PTCRB/ AT&T/ Verizon*/ T-Mobile / JATE/ TELEC/ KDDI* / NTT DOCOMO*	
Recommended Applications	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.		



* Under development

Quectel Smart Module Family

Product		SC66
		
Form Factor	LCC+LGA	
Dimensions(mm)	43.0 × 44.0 × 2.85	
LTE Feature	LTE Cat 6	
Frequency Bands(MHz)	-CE (China)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA: BC0; GSM: 900/1800MHz
	-E (EMEA/ Korea/ Thailand/ India)	LTE-FDD: B1/B2/ B3/ B4/ B5/ B7/ B8/ B20/ B28 (A+B) LTE-TDD: B38/ B39/ B40/ B41 (200M) WCDMA: B1/ B2/ B4/ B5/ B8 GSM: 850/900/1800/1900MHz
	-A (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71; LTE-TDD: B41(200M); WCDMA: B2/B4/B5
	-J (Japan)	LTE-FDD: B1/B3/B5/B8/B11/B18/B19 B21/B26/ B28 (A+B); LTE-TDD: B41(120M); WCDMA: B1/ B6/ B8/ B19
	-MW (Global)	-MW (Wi-Fi) 2 × 2 Wi-Fi MIMO & BT
CPU	SDM660, Customized 64-bit ARM v8.0-compliant AP (Kryo260 CPU) Kryo Gold Quad high-performance cores targeting 2.2GHz, L2 - 1MB Kryo Silver Quad low-power cores targeting 1.843GHz, L2 - 1MB	
GPU	Qualcomm® Adreno 512 at 650MHz	
Memory	32GB eMMC + 3GB LPDDR4X (Default) 64GB eMMC + 4GB LPDDR4X (Optional)	
Operating System	Android 9.0/10.0	
Supply Voltage Range	3.55V ~ 4.4V, 4V Typ.	
Weight (approx.) g	12.0	
Operating temperature range	-35 °C ~ +75 °C	
Data Transmission		
LTE (Mbps)	Cat 6*: LTE-FDD: Max. 300 (DL)/ Max. 50 (UL) LTE-TDD: Max. 265 (DL)/ Max. 30 (UL) Cat 4: LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL) DC-HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	
TD-SCDMA	Max. 4.2Mbps (DL)/2.2Mbps (UL)	
CDMA2000	EVDO: Max. 3.1Mbps (DL)/ 1.8Mbps (UL) 1X Advanced: Max. 307.2Kbps (DL/UL)	
GSM	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	
Interfaces		
LCM	2560×1600 @60fps primary display + 4k@30fps over DP Dual MIPI DSI	
Camera	4-lane MIPI_CSIx3, up to 2.1Gbps/Lane, Support 3 or 4 Cameras, Up to 24MP with Dual ISPs	
Touch Panel	Capacitive Touch Panel	
Audio	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	
Video	Encoding: 4K(HEVC/H264/VP8)@30FPS Decoding: 4K(HEVC/H264/VP8/VP9)@30FPS	
USB	× 2, Compliant with USB3.1 and 2.0 specifications, with transmission rates up to 5Gbps on USB3.1 and 480Mbps on USB2.0	
I2C	× 5	
(U)SIM	× 2 (1.8V/2.95V)	
UART	× 4, (one group Support 4Mbps with Hardware Flow Control)	
SDIO	× 1 (3.0, 4-bit SDIO)	
PWRKEY	1.8V, Pulled-up Internally	
SPI	× 1, only support master mode	
ADC	× 2 General purpose ADC interfaces	
GPIO	× 22	
PMW	× 1	
Antenna	Main antenna, Rx-diversity antenna, GNSS antenna, Wi-Fi/BT antenna, FM* antenna and WIFI_MIMO antenna interfaces (SC66-CE and SC66-W do not support MIMO Wi-Fi)	
Enhanced Features		
BT	BT2.1+EDR/3.0/4.1 LE/4.2 BLE/5.0	
WLAN	2.4G/5G, 802.11a/b/g/n/ac	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS/ SBAS	
Charge Function	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology	
Dual LCD	Support Dual LCDs for Independent Display	
DSDS	Support Dual SIM Dual Standby	
Firmware Upgrade	A/B OTA Firmware Upgrade via USB	
Certifications	CE/ GCF/ FCC/ PTCRB/ NCC/ AT&T/ Verizon/ RCM/ IC/ JATE/ TELEC/ CCC/ SRRC/ NAL	
Recommended Applications	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.	

* Under development

Quectel LPWA Module Family

Product	BG96	BG95 Series ¹
		
Form Factor	LGA	LGA
Dimensions (mm)	26.5 × 22.5 × 2.3	23.6 × 19.9 × 2.2
RAT	LTE Cat M1/ NB1/ EGPRS	LTE Cat M1/Cat NB2/EGPRS
Frequency Bands (MHz)	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26 ² /B28 LTE-TDD: B39 (Cat M1 Only) EGPRS: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26(Cat M1 Only)/ B27 (Cat M1 Only)/B28/B31 ³ /B66/B71 (Cat NB2 Only)/B72 ³ /B73 ³ /B85 EGPRS: 850/900/1800/1900MHz
Weight (approx.) g	3.1	2.15
Temperature Range	-40°C ~ +85°C	-40°C ~ +85°C
Data Transmission		
LTE Cat M1 data rate (Kbps)	Max. 375 (DL), Max. 375 (UL)	Max. 588 (DL), Max. 1119 (UL)
LTE Cat NB1 data rate (Kbps)	Max. 32 (DL), Max. 70 (UL)	Max. 32 (DL), Max. 70 (UL)
LTE Cat NB2 data rate (Kbps)		Max. 127 (DL), Max. 158.5 (UL)
EDGE data rate (Kbps)	Max. 296 (DL), Max. 236.8 (UL)	Max. 296 (DL), Max. 236.8 (UL)
GPRS data rate (Kbps)	Max. 107 (DL), Max. 85.6 (UL)	Max. 107 (DL), Max. 85.6 (UL)
SMS	•	Point-to-point MO and MT; Text and PDU Mode
Protocols	PPP/ TCP/ UDP/ SSL/ TLS/ FTP(S)/ HTTP(S)/ NITZ/ PING/ MQTT/ LwM2M	PPP/ TCP/UDP/ SSL/ TLS/ FTP (S)/ HTTP (S)/ MQTT/ CoAP/ LwM2M
Interfaces		
(U)SIM	1.8V/ 3V	1.8V
UART	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, NMEA)
USB	USB 2.0 × 1	USB 2.0 × 1
I2C	I2C × 1	I2C ² × 1
ADC	ADC × 2	ADC × 1
GPIO	GPIO × 2 (I2C and NMEA can be re-configured as GPIO)	GPIO ² × 9
RESET	RESET × 1	RESET × 1
PCM	•	PCM ⁴ × 1
Antenna	Primary, GNSS	Antenna ³ : 2 (for Main Antenna and GNSS Antenna, respectively)
Enhanced Features		
QuecOpen [®]	Simplifies the Development of Embedded Applications	Simplifies the Development of Embedded Applications
DFOTA	•	•
GNSS/RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x	GNSS/RIL Driver ⁴ : Android 4.x/5.x/6.x/7.x/8.x/9.x
NDIS	Windows 7/ 8/ 8.1/ 10	
USB Serial Driver	Windows 7/ 8/ 10 Linux 2.6 or later, Android 4.x/ 5.x/ 6.0	USB Serial Driver ⁴ : Windows 7/8/8.1/10, Linux 2.6-5.4, Android 4.x/5.x/6.x/7.x/ 8.x/9.x
SIM Detection	•	•
GNSS	Optional	•
Firmware Update	via USB Interface	via USB Interface
Electrical Features		
Supply Voltage Range	3.3 ~ 4.3V, 3.8V Typ.	3.8V Typ. /3.3V Typ. ⁴
Power Consumption	10µA@ PSM	3.9µA@PSM
Max Output Power	Power Class 3 23dBm @ LTE Bands	Power Class5 21dBm @ LTE Bands / Power Class3 23dBm@ LTE Bands ⁵
Certifications	Vodafone / Deutsche Telekom/ Telefónica/ Verizon/ AT&T/ T-Mobile/ Sprint/ Telus/ Rogers/ SKT/LGU+/ NTT DOCOMO/ SoftBank/KDDI/ Telstra/ GCF/ CE/FCC/ PTCRB/ IC/ IFETEL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ IMDA/ ICASA/ U.S. Cellular	China Telecom/ China Mobile/ China Unicom/ Vodafone/ Deutsche Telekom/ Verizon/ AT&T/ T-Mobile/ Sprint/SKT/ NTT DOCOMO/ SoftBank/ KDDI/ Telstra/ SRRC/ NAL/ CCC/ GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ IMDA/ RoHS/ ATEX/ PEN
Recommended Applications	Gas Detector, Soil PH Tester, Optical Sensor, Machinery Alarm System, Irrigation Controller, Elevator, Asset Tracking Electronics, Person/ Pet Tracking, Water/ Gas Metering, Smart Parking System, Fire Hydrant, Smoke Alarm, Smart Bin, Street Lighting	

Note 1: For different variants, please refer to the BG95 specification.

Note 2: BG95-MF provides 7 GPIO Interfaces, please refer to HD for details.



Note 3: BG95-MF provides 3 antenna interfaces, please refer to HD for details.

Note 4: For the supply Voltage of different Variants, please refer to the BG95 Hardware Design document.

Note 5: Special variant.

* Under development







Quectel LPWA Module Family

Product	BG600L-M3	BG77
		
Form Factor	LGA	LGA
Dimensions (mm)	18.7 × 16.0 × 2.1	14.9 × 12.9 × 1.7
RAT	LTE Cat M1/Cat NB2/EGPRS	LTE Cat M1/Cat NB2
Frequency Bands (MHz)	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26(Cat M1 Only)/B27 (Cat M1 Only)/B28/B66/B71 (Cat NB2 Only)/B85 EGPRS: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26(Cat M1 Only)/B27 (Cat M1 Only)/B28/B66/B71 (Cat NB2 Only)/B85*
Weight (approx.) g	1.25	0.73
Temperature Range	-40°C ~ +85°C	-40°C ~ +85°C
Data Transmission		
LTE Cat M1 data rate (Kbps)	Max. 588 (DL), Max. 1119 (UL)	Max. 588 (DL), Max. 1119 (UL)
LTE Cat NB1 data rate (Kbps)	Max. 32 (DL), Max. 70 (UL)	Max. 32 (DL), Max. 70 (UL)
LTE Cat NB2 data rate (Kbps)	Max. 127 (DL), Max. 158.5 (UL)	Max. 127 (DL), Max. 158.5 (UL)
EDGE data rate (Kbps)	Max. 296 (DL), Max. 236.8 (UL)	
GPRS data rate (Kbps)	Max. 107 (DL), Max. 85.6 (UL)	
SMS	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode
Protocols	PPP/TCP/UDP/SSL/TLS/FTP(S)/HTTP(S)/MQTT/CoAP/LwM2M	PPP/TCP/UDP/SSL/TLS/FTP(S)/HTTP(S)/MQTT/CoAP/LwM2M
Interfaces		
(U)SIM	1.8V	1.8V
UART	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, NMEA)
USB	USB 2.0 × 1	USB 2.0 × 1
I2C	I2C* × 1	I2C* × 1
ADC	ADC × 1	ADC × 2
GPIO	GPIO × 6	GPIO × 7
RESET	RESET × 1	RESET × 1
PCM	PCM* × 1	PCM* × 1
Antenna	2 (for Main Antenna and GNSS Antenna, respectively)	2 (for Main Antenna and GNSS Antenna, respectively)
Enhanced Features		
QuecOpen®	Simplifies the Development of Embedded Applications	Simplifies the Development of Embedded Applications
DFOTA	•	•
GNSS/RIL Driver*	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x
SIM Detection	•	•
GNSS	•	•
Firmware Update	via USB Interface	via USB Interface
Electrical Features		
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.	2.6V~4.8V, 3.3V Typ. ¹
Power Consumption	3.9µA@PSM	3.2µA@PSM
Max Output Power	Power Class 5 21dBm @ LTE Bands	Power Class 5 21dBm @ LTE Bands
Certifications	Vodafone*/Deutsche Telekom*/Telefónica*/Verizon*/AT&T*/T-Mobile*/Sprint*/CCC*/GCF/CE/FCC/PTCRB/IC*/RoHS	China Telecom*/China Mobile*/China Unicom*/Vodafone*/Deutsche Telekom*/Verizon*/AT&T*/T-Mobile*/Sprint*/SRRC*/NAL*/CCC*/GCF/CE/FCC/PTCRB/IC*/KC*/NCC*/JATE/TELEC*/RCM/NBTC*/RoHS
Recommended Applications	Gas Detector, Soil PH Tester, Optical Sensor, Machinery Alarm System, Irrigation Controller, Elevator, Asset Tracking Electronics, Person/ Pet Tracking, Water/ Gas Metering, Smart Parking System, Fire Hydrant, Smoke Alarm, Smart Bin, Street Lighting	

Note 1: please refer to the hardware design manual for more specific requirements on the minimum power supply voltage.


* Under development


Quectel LPWA Module Family

Product	BC95-G	BC68	BC66	BC66-NA	BC65	BC92
						
Form Factor	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	19.9 × 23.6 × 2.2	15.8 × 17.7 × 2.0	15.8 × 17.7 × 2.0	15.8 × 17.7 × 2.0	17.7 × 15.8 × 2.2	23.6 × 19.9 × 2.2
RAT	LTE Cat NB2	LTE Cat NB2	LTE Cat NB1	LTE Cat NB2	LTE Cat NB2	LTE Cat NB2/GSM
Frequency Bands (MHz)	B1 @H-FDD: 2100MHz ; B3 @H-FDD: 1800MHz ; B5 @H-FDD: 850MHz ; B8 @H-FDD: 900MHz ; B20 @H-FDD: 800MHz ; B28 @H-FDD: 700MHz ;	B1 @H-FDD: 2100MHz ; B3 @H-FDD: 1800MHz ; B5 @H-FDD: 850MHz ; B8 @H-FDD: 900MHz ; B20 @H-FDD: 800MHz ; B28 @H-FDD: 700MHz ;	LTE Cat NB1: B1/ B2/ B3/ B4/ B5/ B8/B12/ B13/ B17/ B18/ B19/ B20/ B25/ B28/ B66/ B26*	LTE Cat NB2: B1/B2/B3/B4/B5/B8/B12/B13/ B17/B18/B19/B20/B25/B28/ B66/B71/B85/B26*	LTE Cat NB2: B1/ B3/ B5/ B8/ B20/B28	LTE Cat NB2: B3/ B5/ B8/ B20/ B28 GSM: 850/900/1800/1900MHz
Weight (approx.) g	1.8±0.2	1.1±0.2	1.2±0.2	1.2±0.2	1.2±0.2	1.8±0.1
Temperature Range	-40 °C ~ +85 °C	-40°C ~ +85°C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-25 °C ~ +75 °C	-25 °C ~ +75 °C
Data Transmission						
LTE Cat NB1 data rate (Kbps)	Single Tone: 25.2 (DL) / 15.625 (UL) Multi Tone: 25.2 (DL) / 54 (UL)	Single Tone: 25.2 (DL) / 15.625 (UL) Multi Tone: 25.2 (DL) / 54 (UL)	Single Tone: 25.5 (DL) / 16.7 (UL) Multi Tone: 25.5 (DL) / 62.5 (UL)	Single Tone: 25.5 (DL) / 16.7 (UL) Multi Tone: 25.5 (DL) / 62.5 (UL)	Single-Tone: Max. 25.5 (DL)/16.7 (UL) Multi-Tone: Max. 25.5 (DL)/62.5 (UL)	Single-Tone: Max. 25.5 (DL)/16.7 (UL) Multi-Tone: Max. 25.5 (DL)/62.5 (UL)
LTE Cat NB2 data rate (Kbps)	Extended TBS/2 HARQ : 125 (DL)/150 (UL)	Extended TBS/2 HARQ : 125 (DL)/150 (UL)		Max. 127 (DL)/158.5 (UL)	Max. 127 (DL) / 158.5 (UL)	Max. 127 (DL)/158.5 (UL)
GPRS data rate (Kbps)						GPRS Class 12: Max. 85.6 (DL)/85.6 (UL)
SMS	•	•	•	•	•	•
Protocols	IPv4/ IPv6/ UDP/ CoAP/ LwM2M/ Non-IP/ DTLS / TCP/ MQTT	IPv4/ IPv6/ UDP/ CoAP/ LwM2M/ Non-IP/ DTLS / TCP/ MQTT	UDP/ TCP/ LwM2M/ MQTT/ SNTP/ PPP/ CoAP/ TLS/ DTLS/ HTTP/ HTTPS*	UDP/ TCP/ LwM2M/ MQTT/ SNTP/ PPP/ CoAP/ TLS/ DTLS/ HTTP/ HTTPS*	UDP/TCP/LwM2M*/SNTP/ FTP*/MQTT/CoAP*/PPP/TLS*/ DTLS*/HTTP*	UDP/TCP/LwM2M/SNTP/PPP/ MQTT/CoAP*/HTTP*/HTTPS*/ FTP*
Interfaces						
(U)SIM	× 1 Supports 1.8V/ 3.0V USIM Card	× 1 Supports 1.8V/ 3.0V USIM Card	1.8V	1.8V	1.8V/3V	1.8V/3V
UART	× 2	× 2	× 3 (MAIN, DEBUG, AUX)	× 3 (MAIN, DEBUG, AUX)	× 3 (MAIN, DEBUG, AUX)	× 2 (MAIN, DEBUG)
I2C	× 2 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 2 (QuecOpen Version Only)	
ADC	× 1, 10bits (QuecOpen Version Only)	× 1, 10bits (QuecOpen Version Only)	× 1	× 1	× 1	× 1
GPIO	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	
RESET	× 1	× 1	× 1	× 1	× 1	× 1
SPI	× 2 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	
PSM_EINT	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	× 1	× 1	× 1	× 1
I2S			× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)		
Antenna	Pads for Primary	Pads for Primary	Primary	Primary	Primary	Primary
Enhanced Features						
QuecOpen®	•	•	•	•	•	•
DFOTA	•	•	•	•	•	•
Firmware Update	via UART/ DFOTA	via UART/ DFOTA	via UART/ DFOTA	via UART/ DFOTA	via UART/ DFOTA	via UART/ DFOTA
RAI	•	•	•	•	•	•
Location Based Service	ECID, OTDOA	ECID, OTDOA		ECID* , OTDOA*	ECID, OTDOA	ECID, OTDOA
eSIM*	O		O	O	O	
Electrical Features						
Supply Voltage Range	3.1~4.2V, 3.6V Typ.	3.1~4.2V, 3.6V Typ.	2.1V~3.63V, 3.3V Typ.	2.1V~3.63V, 3.3V Typ.	3.2V~4.2V, 3.8V Typ.	3.4V~4.2V, 3.8V Typ.
Power Consumption	3µA @PSM 0.5mA @Idle Mode, DRX=2.56s, ECL0 250mA @Tx, 23dBm (B1/B3) 220mA @Tx, 23dBm (B8/B5/B20) 280mA @Tx, 23dBm (B28) 60mA @Rx	3µA @PSM 0.5mA @Idle Mode, DRX=2.56s, ECL0 250mA @Tx, 23dBm (B1/B3) 220mA @Tx, 23dBm (B8/B5/B20) 280mA @Tx, 23dBm (B28) 60mA @Rx	3.5µA @ PSM	3.6µA @ PSM	4.5µA @PSM	4µA @PSM
Certifications	CE/ GCF/ RCM/ NCC/ JATE/ TELEC/ KC/ NBTC/ Vodafone Global / Deutsche Telekom / Telstra / Softbank/ KT/ Telefónica/ LGU+/ ATEX*/ IMDA/ Anatel	CE/ GCF/ RCM/ NCC/ JATE/ TELEC/ IMDA / Deutsche Telekom/ Vodafone/ Telstra / ATEX/ Softbank/ KC/ Telefónica/ TIM/ Altice-MEO	NCC/ IC/ CE/ RCM/ GCF/ FCC/ PTCRB/ JATE/ TELEC/ KC/ NBTC/ T-Mobile/ Altice/ TIM(Telecom Italia)/ Vodafone/ ATEX/ IMDA/ AT&T/ LGU+*/ Softbank/ Telstra/ Telefonica*/ Deutsche Telekom/ Altice-MEO/ Verizon*	NCC*/ IC/ CE/ RCM/ GCF/ FCC/ PTCRB/ JATE/ TELEC/ KC/ NBTC*/ T-Mobile/ Vodafone/ ATEX*/ IMDA*/ AT&T*/ LGU+*/ Softbank*/ Telstra*/ Telefonica*/ Deutsche Telekom/ Verizon*	CE/ RCM	CE/ GCF/ Vodafone*/ MTN/ ICASA*/ Vodacom
Recommended Applications	Gas Detector, Soil PH Tester, Optical Sensor, Machinery Alarm System, Irrigation Controller, Elevator, Asset Tracking, Electronics, Person/Pet Tracking, Water/Gas Metering, Smart Parking System, Fire Hydrant, Smoke Alarm, Smart Bin, Street Lighting					

O & * Under development

Quectel Automotive Module Family


Product	AG35	
		
Form Factor	LGA	
Dimensions (mm)	33.0 × 37.5 × 3.0	
4G	LTE Cat 4	
Frequency Bands (MHz)	-E (EMEA/Korea/Australia/India/Southeast Asia)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28; LTE-TDD: B38/B40; WCDMA: B1/B5/B8; GSM: B3/B8
	-CE (China/India)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA2000 1X/EVDO(Optional): BC0; GSM: B3/B8
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B17/B13; WCDMA: B2/B4/B5; GSM: B2/B5
	-J (Japan)	LTE-FDD: B1/B3/B5/B8/B9/B19/B21/B28; LTE-TDD: B41; WCDMA: B1/B3/B5/B6/B8/B19
	-LA (Latin America)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28; WCDMA: B1/B2/B3/B4/B5/B8; GSM: B2/B3/B5/B8
Weight (approx.) g	8.1	
Temperature Range	-40 °C ~ +85 °C	
Data Transmission		
LTE(data rate (Mbps)	LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)	
DC-HSPA+ data rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)	
WCDMA data rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)	
TD-SCDMA data rate (Mbps)	Max. 4.2 (DL)/ Max. 2.2 (UL)	
EDGE data rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)	
GPRS data rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)	
SMS	Point-to-point MO/MT SMS Cell Broadcast Text and PDU Mode	
Protocols	TCP/UDP/PPP/PING/FTP(S)/ HTTP(S)/SMTP/SSL/TLS/ MMS/NTP/ FILE/QMI	
Interfaces		
(U)SIM	× 1 (Support 1.8V/ 3V USIM/ SIM Cards)	
UART	× 3 (for Main UART/ BT/ Debug Functions)	
HSIC	× 1	
USB	USB 2.0 × 1 (with High Speed up to 480Mbps)	
IIC	× 2 (1 for PCM)	
SGMII	× 1	
SDIO	× 2 for Wi-Fi and eMMC	
SPI	SPI > 1 (for QuecOpen Version Only)	
Audio Digital (PCM)	× 1	
ADC	× 3, 15bits	
GPIO	GPIO >15 (for QuecOpen Version Only)	
Antenna	Main, Rx-diversity and GNSS	
Enhanced Features		
QuecOpen® (Open Linux)	•	
eCall	•	
DFOTA	•	
eSIM (eUICC)	•	
(U)SIM Detection	•	
Temperature Management	•	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	
ESD/EMI Protection	Realized through Internal Specific Circuits and Components	
Gigabit Ethernet	Optional	
C-V2X	Optional	
DSDA (Dual SIM Dual Activation)	Optional	
QDR 3.0 (External IMU Required)	Optional	
Multi-Frequency GNSS (L1/L5)	Optional	
UART Interface for BT Function	Optional	
Advanced Security Feature		
TrustZone	•	
Secure Boot	•	
Code/User Data Backup	•	
Software Features		
RIL Driver	Android 4.x~9.x	
RNDIS Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4	
ECM Driver	Linux 2.6~5.4	
Gobinet Driver	Linux 2.6~5.4	
QMI_WWAN Driver	Linux 3.4~5.4	
USB Serial Driver	Windows 7/ 8/ 8.1/10, Linux 2.6~5.4, Android 4.x~9.x	
GNSS Driver	Android 4.x~9.x	
Electrical Features		
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.	
Power Consumption	20µA @Power off/ 1.9mA @LTE Sleep, PF=128/ 1.6mA @LTE Sleep, PF=256/ 22mA @Idle, Typ.	
Certifications		
	CCC/ SRRC/ NAL/ GCF/ CE/ FCC/ KC/ RCM/ Anatel/ KT/ STK/ LGU+*/ PTCRB/ IC/ AT&T/ Rogers/ T-Mobile*/ Verizon*/ JATE/ TELECOM/ NTT DOCOMO*	
Recommended Applications		
	Automotive	


Product	AG520R	
		
Form Factor	LGA	
Dimensions (mm)	38.0 × 42.0 × 2.85	
4.5G	LTE Cat 16	
Frequency Bands (MHz)	-CN (China)	LTE: B1/B3/B5/B7/B8/B34/B38/B39/B40/B41; UMTS: B1/B8; CDMA(Optional): BC0; GSM: 1800MHZ/900MHZ
	-EU (EMEA/Australia/Korea/India/Southeast Asia)	LTE: B1/B3/B5/B7/B8/B20/B28/B32(DL)/B38/B40/B41; UMTS: B1/B3/B5/B8; GSM: 1800MHZ/900MHZ
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71; UMTS: B2/B4/B5;
	-JP	LTE-FDD: B1/B3/B5/B8/B9/B11/B18/B19/B21/B28; LTE-TDD: B41; WCDMA: B1/B3/B5/B8/B9/B19
Weight (approx.) g	9.23	
Temperature Range	-40 °C ~ +85 °C, eCall +95°C	
Data Transmission		
LTE data rate	LTE-FDD: Max. 1Gbps (DL)/ 75Mbps (UL), LTE-TDD: Max. 880Mbps (DL)/45Mbps (UL)	
DC-HSPA+ Data Rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)	
WCDMA data rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)	
EDGE data rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)	
GPRS data rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)	
C-V2X data rate (Mbps)	Max. 30 (Tx)/ Max. 30(Rx)	
SMS	Point-to-point MO and MT SMS Cell Broadcast Text and PDU Mode	
Protocols	TCP/ UDP/ PPP/ PING/ FTP(S)/ HTTP(S)/SMTP/ SSL/ TLS/ MMS/ NTP/ DTMF/ FILE/ QMI	
Interfaces		
USB	× 1	
UART	3 × UARTs	
USIM	× 1	
Antenna	× 7 or × 5(2 × 2 MIMO for CN)	
RESET	Yes	
SDIO	× 1(eMMC)	
SPI	× 1	
I2S/PCM	× 1 I2S, × 1 PCM	
I2C	× 1	
RGMII	× 1	
ADC	× 2	
PCIe	× 1	
GPIO	× 8 (Only Open)	
JTAG/QDSS	Yes	
Enhanced Features		
QuecOpen® (Open Linux)	•	
eCall	•	
DFOTA	•	
eSIM (eUICC)	•	
(U)SIM Detection	•	
Temperature Management	•	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	
ESD/EMI Protection	Realized through Internal Specific Circuits and Components	
Gigabit Ethernet	Optional	
C-V2X	Optional	
DSDA (Dual SIM Dual Activation)	Optional	
QDR 3.0 (External IMU Required)	Optional	
Multi-Frequency GNSS (L1/L5)	Optional	
UART Interface for BT Function	Optional	
Advanced Security Feature		
TrustZone*/ TPM*	•	
Secure Boot*	•	
SE-Linux	•	
Software Features		
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
RNDIS	Windows 7/8/8.1/10, Linux 2.6~5.4	
ECM	Linux 2.6~5.0	
Gobinet	Linux 2.6~5.0, Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
QMI_WWAN Driver	Linux 3.4~5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x	
Electrical Features		
Supply Voltage Range	VBAT_BB/VBAT_RF: 3.3V~4.3V (3.8V Typ.) VBAT_C-V2X: 4.75V~5.25V (5.0V Typ.)	
Power Consumption	0.021mA @Power off 2.87mA @LTE Sleep, PF=128/2.28mA @LTE , PF=256 Sleep, 47.89mA @Idle, PF=64/ 68.82mA @Idle, PF=64, USB Active, Typ.	
Certifications		
	TBD	
Recommended Applications		
	Automotive	

* Under development

Quectel Automotive Module Family






Quectel C-V2X Module

Product	AG55xQ	
		
Form Factor	LGA	
Dimensions (mm)	54.5 × 53.0 × 3.35	
5G	Sub-6G	
4G	LTE Cat 19	
Frequency Bands (MHz)	-CN (China)	5G: N41/N78/N79; LTE: B1/B3/B5/B7/B8/B34/B38/B39/B40/B41; WCDMA: B1/B8; GSM: B3/B8
	-EU (EMEA/Australia, Korea/India/Southeast Asia/Latam America exl. Mexico)	5G: N1/N3/N8/N20/N28/N41/N78; LTE: B1/B2/B3/B4/B5/B6/B7/B8/B20/B28/B32rx/B38/B40/B41/B42; WCDMA: B1/B3/B5/B8; GSM: B2/B3/B5/B8
	-NA (North America/Mexico)	5G: N2/N5/N41/N66/N71/N78; LTE: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B29rx/B30rx/B41/B66/B71; WCDMA: B2/B4/B5
	-JP* (Japan)	5G: N1/N3/N77/N78/N79; LTE: B1/B3/B5/B8/B9/B11/B19/B21/B28/B41; WCDMA: B1/B3/B5/B8/B9/B19;
Weight (approx.) g	18	
Temperature Range	-40 °C ~ +85 °C, eCall +95°C	
Data Transmission		
5G Data Rate	Max. 2.12Gbps (DL)/900Mbps & 450Mbps (UL)	
LTE FDD Data Rate	Max. 2.02Gbps (DL)/ Max. 75Mbps (UL)	
LTE TDD Data Rate	Max. 1.69Gbps (DL)/ Max. 45Mbps (UL)	
DC-HSPA+ Data Rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)	
WCDMA Data Rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)	
EDGE Data Rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)	
GPRS Data Rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)	
C-V2X Data Rate (Mbps)	Max. 48 (Tx)/ Max. 48(Rx)	
SMS	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode	
Protocols	TCP/ UDP/ PPP/ PING/ FTP(S)/ HTTP(S)/SMTP/ SSL/ TLS/ MMS/ NTP/ DTMF*/ FILE/ QMI	
Interfaces		
(U)SIM	× 1 (Support 1.8V/ 3V USIM/ SIM Cards)	
eSIM/eUICC	× 1	
UART	× 3 (Main/Debug/BT UART)	
USB 2.0/3.1	× 1	
PCIe 3.0	× 1	
IIC	× 1	
IIS	× 1	
RGMI	× 1	
SDIO	× 1 (for eMMC)	
SPI	× 1	
Audio Digital (PCM)	× 1	
ADC	× 2 (15-bit)	
GPIO	× 15 (For QuecOpen® version only)	
RESET_N	× 1 (Reset the module)	
Antenna	Main × 1 (4G/5G TRX) Diversity × 1 (n78/n79 TRX, 4G DRX) MIMO 3 × 1 (n41 TRX, 4G MIMO) MIMO 4 × 1 (4G/5G MIMO) C-V2X × 2 (TRX0/TRX1) GNSS × 1 DSDA × 2 (Main/ DIV)	
Enhanced Features		
QuecOpen® (Open Linux)	•	
eCall	•	
DFOTA	•	
eSIM (eUICC)	•	
(U)SIM Detection	•	
Temperature Management	•	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo /QZSS	
ESD/EMI Protection	Realized through Internal Specific Circuits and Components	
Gigabit Ethernet	Optional	
C-V2X TDD B47	Optional	
DSDA (Dual SIM Dual Activation)	Optional	
QDR 3.0 (External IMU Required)	Optional	
Multi-Frequency GNSS (L1/L2/L5)	Optional	
UART Interface for BT Function	Optional	
Advanced Security Feature		
TrustZone/ TPM*	•	
Secure Boot	•	
SE-Linux	•	
Software Features		
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
RNDIS	Windows 7/8.1/10, Linux 2.6~5.0	
ECM	Linux 2.6~5.0	
Gobinet	Linux 2.6~5.0, Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
QMI_WWAN Driver	Linux 3.4~5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x	
USB Serial Driver	Windows 7/8.1/10, Linux 2.6~5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x	
Electrical Features		
Supply Voltage Range	VBAT_BB/VBAT_RF: 3.3V~4.3V (3.8V Typ.) VBAT_C-V2X: 4.75V~5.25V (5.0V Typ.)	
Power Consumption	TBD @Power off TBD @Sleep, Typ. TBD @Idle	
Certifications	TBD	
Recommended Applications	Automotive	

Product	AG15
	
Form Factor	LGA
Dimensions (mm)	32.0 × 28.0 × 2.85
C-V2X TDD	B47 for Global B46D for Japan
Weight (approx.) g	5.735
Temperature Range	-40 °C ~ +85 °C
Data Transmission	
LTE data rate (Mbps)	C-V2X TDD: Max. 26 (TX)/Max. 26 (RX)
Protocols	QMI (Qualcomm MSM Interface)
Interfaces	
UART	× 2
USB	USB2.0/3.0x1
PCIe	× 2 (1 for PCM)
SPI	× 1
I2C	× 2 for Wi-Fi and eMMC
1PPS	× 1
ADC	× 2
GPIO	× 4
Antenna	Main, Rx-diversity and GNSS
Enhanced Features	
High Security	•
Secure Boot*	•
SELinux*	•
ESD/EMI Protection	•
Realized through Internal Specific Circuits and Components	•
Software Features	
USB Serial Driver	•
Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0*	•
Linux 2.6/3.x/4.1~4.14	•
Android 4.x/5.x/6.x/7.x/8.x	•
PCIe Driver	•
Protocol	QMI (Qualcomm MSM Interface)
Electrical Features	
Output Power	Class 3 (23dBm±2dB) for C-V2X
Supply Voltage	VBAT_BB: 3.3V~4.3V, 3.8V Typ. VBAT_RF: 4.75V~5.25V, 5.0V Typ.
Power Consumption	80µA@PowerOff
Sensitivity	C-V2X TDD B47: -96dBm C-V2X TDD B46D: -96dBm
Certifications	TBD
Recommended Applications	Automotive

* Under development

Quectel Wi-Fi Module Family

Product	AF20	AF50T*	FC20/ FC20-N	FC21*	FC30R/FC31R*	FG50V*/FG50K*
						
Dimensions (mm)	17.2 × 15.2 × 2.2	19.5 × 21.5 × 2.3	16.6 × 13.0 × 2.1	16.6 × 13.0 × 2.1	12.0 × 12.0 × 2.1	19.5 × 21.5 × 2.1
Operation Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-30°C ~ +85°C (FC30R) 0°C ~ +70°C (FC31R)	-30°C ~ +85°C
Weight (approx.) g	1.26	2.1	0.81	TBD	0.57	TBD
General Features						
Function	Wi-Fi 2.4GHz + 5GHz & BT 4.2	Wi-Fi 2.4GHz + 5GHz & BT 5.1	Wi-Fi 2.4GHz+5GHz & BT 4.2* (FC20) Wi-Fi 2.4GHz & BT 4.2* (FC20-N)	Wi-Fi 2.4GHz + 5GHz & BT 4.2	Wi-Fi 2.4GHz	Wi-Fi 2.4GHz + 5GHz & BT 5.1
WLAN Standard	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac/ax	802.11a/b/g/n/ac (FC20) 802.11b/g/n (FC20-N)	IEEE 802.11a/b/g/n/ac	802.11b/g/n	IEEE 802.11a/b/g/n/ac/ax
BT Standard	BT 4.2	BT 5.1*	BT 4.2	BT 4.2	/	BT 5.1*
Modulation Mode	CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM	CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM (FC20) CCK/ BPSK/ QPSK/ 16QAM/ 64QAM (FC20-N)	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM
Encryption Mode	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	WPA3	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	TKIP/ AES/ WPA-PSK/ WPA2-PSK	WPA3
AP (Max Access Point)	16	32	16	16	16	32
Operator Mode	AP/ STA	AP/ STA	AP/ STA	AP/ STA	AP/ STA	AP/ STA
I/O Interfaces						
PCIe 3.0		1				1
SDIO	1(SDIO 3.0)		1(SDIO 3.0)	1(SDIO 3.0)	1(SDIO 3.0)	
UART	1	1	1	1	0	1
PCM	1	1	1	1	0	1
Antenna	1 (Wi-Fi & BT Antenna)	2 × Wi-Fi Ant with shared BT Ant, independant BT ant is optional	1 (Wi-Fi & BT Antenna)	1 (Wi-Fi & BT Antenna)	1 (Wi-Fi Antenna)	2 × Wi-Fi Ant with shared BT Ant, independant BT ant is optional
Electrical Characteristics						
Supply Voltage Range	3.14 ~3.46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	Core Supply Voltage : 0.95V, 1.35V, 1.95V; I/O Supply Voltage : 1.8V; RF Supply Voltage : 3.85V	3.14 ~3.46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	3.14 ~3.46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	3.0 ~3.6V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	Core Supply Voltage : 0.95V, 1.35V, 1.95V; I/O Supply Voltage : 1.8V; RF Supply Voltage : 3.85V
Power Consumption	TBD	TBD	0µA @OFF State, 3.3V WLAN Supply Voltage 554µA @OFF State, 1.8V I/O Pins Supply Voltage 66mA @Idle,3.3V WLAN Supply Voltage 6.5mA @Idle,1.8V I/O Pins Supply Voltage	TBD	0µA @OFF State, 3.3V WLAN Supply Voltage 554µA @OFF State,1.8V I/O Pins Supply Voltage 66mA @On State(no connection), 3.3V WLAN Supply Voltage 6.5mA @On State(no connection),1.8V I/O Pins Supply Voltage	TBD
Data Transmission						
802.11a	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	/	Max. 54Mbps
802.11b	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps
802.11g	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps
802.11n	Max. 150Mbps	Max. 600Mbps	Max. 150Mbps	Max. 150Mbps	Max. 150Mbps	Max. 600Mbps @FG50V; Max. 300Mbps @FG50K;
802.11ac	Max. 433Mbps	Max. 866Mbps	Max. 433Mbps	Max. 433Mbps	/	Max. 866Mbps
802.11ax		Max. 1774.5Mbps				Max. 1774.5Mbps for FG50V Max. 1200Mbps for FG50K
BLE	Max. 1Mbps	Max. 2Mbps	Max. 1Mbps	Max. 1Mbps	/	Max. 2Mbps
Recommended Applications	Automotive	Automotive	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.			CPE, MIFI, OTT, Smart TV

AF20 can work with Quectel AG35 module to provide Wi-Fi/BT function.
 FC20 can work with Quectel EC20 R2.0/EC20 R2.1/EC21/EC25 modules to provide Wi-Fi/BT function.
 FC21* can work with Quectel EC20 R2.0/EC20 R2.1/EC21/EC25 modules to provide Wi-Fi/BT function.
 FC30R/FC31R* can work with Quectel EC20 R2.1/EC21/EC25/EC200T module to provide Wi-Fi/BT function.
 AF50T* can work with Quectel AG520R and AG550Q module to provide Wi-Fi/BT function.
 FG50V* can work with Quectel RG500Q module to provide Wi-Fi/BT function.

* Under development






Quectel UMTS/HSPA(+) Module Family

Product	UC15/ UC15 Mini PCIe	UG96	UC200T/ UC200T Mini PCIe
			
Form Factor	LCC	LGA	LCC
Dimensions (mm)	29.0 × 29.0 × 2.5 (UC15) 51.0 × 30.0 × 4.9 (UC15 Mini PCIe)	22.5 × 26.5 × 2.2	32.0 × 29.0 × 2.4 (UC200T) 30.0 × 51.0 × 4.9 (UC200T Mini PCIe)
3G	UMTS/HSDPA	UMTS/HSPA	UMTS/HSPA+
Frequency Bands (MHz)	-E (Europe)	UMTS: 900/2100; GSM: 900/1800	
	-EM (Europe & Middle East)		UMTS: B1/B8 GSM: 900/1800MHz
	-A (America)	UMTS: 850/1900; GSM: 850/900/1800/1900	
	-G (Global)		UMTS: 800/850/900/1900/2100; GSM: 850/900/1800/1900
	-GL (Global)		
	-T (Thailand)	UMTS: 850/2100; GSM: 850/900/1800/1900	
Weight (approx.) g	4.3 (UC15)	3.1	4.3 (UC200T)
Temperature Range	-40 °C ~ +85 °C(UC15)/-40 °C ~ +80 °C (UC15 Mini PCIe)	-40 °C ~ +85 °C	Working Temperature Range*: -35°C ~ +75°C Extended Temperature Range*: -40°C ~ +85°C
Data Transmission			
HSPA data rate (Mbps)	3.6 (DL)	7.2 (DL)/ 5.76 (UL)	Max. 21 (DL)/ Max. 5.76 (UL)
UMTS data rate (Kbps)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	Max. 384 (DL/UL)
GPRS data rate (Kbps)	85.6 (DL)/ 85.6 (UL)	85.6 (DL)/ 85.6 (UL)	Max. 85.6 (DL/UL)
EDGE data rate (Kbps)	236.8 (DL)	296 (DL)/ 236.8 (UL)	Max. 236.8 (DL/UL)
SMS	•	•	•
CSD	•	•	•
Protocols	TCP/UDP/PPP/MMS/FTP/SMTP/SMTPTS/HTTP/HTTPS/PING/SSL	TCP/UDP/PPP/MMS/HTTP/HTTPS/SMTP/SMTPTS/FTP/NTP/NITZ/PING/SSL	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/FILE/MQTT/SMTP*/MMS*/SMTPTS*
Interfaces			
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
UART	1	1	2
USB	2.0 Hi-Speed	2.0 Hi-Speed	2.0 Hi-Speed
Audio Analog	Optional ¹		
Audio Digital (PCM)	Optional ¹		
RTC Backup		•	•
ADC	× 2, 12bits		× 2, 12bits
GPIO			
Antenna	Pads for Primary	Pads for Primary	Pads for Primary
SIM Card Holder			Optional
Enhanced Features			
eCall	•	O	
DTMF	•	•	O
QuecFOTA [®]	•		•
DFOTA	•	•	
Audio Playback/ Audio Recording	•	O	
QuecFile	•		
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.0/7.x/8.x/9.x
NDIS			Windows 7/8/8.1/10
MUX	Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x		
USB Serial Driver	Windows 7/8/8.1/10 Windows CE5.0/6.0/7.0* Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10 Windows CE5.0/6.0/7.0* Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10 Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x
SIM Detection	•	•	•
GNSS			
Firmware Update	via USB/ UART Interface	via USB/ UART Interface	via USB/ UART Interface
Electrical Features			
Supply Voltage Range	3.3 ~ 4.3V (UC15) 3.0~3.6V, 3.3V Typ. (UC15 Mini PCIe)	3.3~4.3V, 3.8V Typ.	3.4V~4.5V, 3.8V Typ. (UC200T) 3.0~3.6V, 3.3V Typ. (UC200T Mini PCIe)
Power Consumption	1.8mA@ GSM sleep, DRX=9 1.7mA@ UMTS sleep, DRX=9	1.1mA@GSM sleep, DRX=9 1.7mA@UMTS sleep, DRX=9	17µA @Power Off 1.8mA @GSM Sleep, DRX=5 3.0mA @WCDMA Sleep, PF=128 35mA @Idle
Certifications	CE/ GCF/ FCC/ PTCRB/ IC/ AT&T/ Rogers/ NCC/ NBTC/ OFCA/ RCM/ CCC/ SRRC/ NAL/ DoC ²	CE/ FCC/ GCF/ PTCRB/ Anatel/ RCM/ IFETEL/ Movistar/ ICASA/ JATE/ TELEC/ DoC ² / Telefonica / Deutsche Telekom/ IC/RCM	CE/ Anatel/ RCM
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.		

Note 1: Only Supported in Telematics Version.
Note 2: Only Support Russia.




O & Under development

Quectel GSM/GPRS Family

Product	M66	M66-DS	M65	M08-R	M89
					
Form Factor	LCC	LCC	LCC	LCC	LGA
Dimensions (mm)	15.8 × 17.7 × 2.3	15.8 × 17.7 × 2.3	15.8 × 17.7 × 2.3	15.7 × 17.6 × 2.4	18.8 × 27.6 × 2.3
Frequency Range (MHz)	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900
Weight (approx.) g	1.3	1.3	1.1	1.18	2.15
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C	-40°C ~ +85°C	-40°C ~ +85°C	-40 °C to +85 °C
Data Transmission					
GPRS Multi-slot Class	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable
Data Rate (kbps)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)
SMS	•	•	•		•
Protocols	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL	TCP/ UDP/ PPP/ HTTP/ FTP/ PING/ NTP/ NITZ/ SSL/ IPV6*	TCP/ UDP/ PPP/ HTTP/ NTP/ PING/ TTS/ FTP/ SSL/ MQTT/ HTTPS/ IPV6*	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL
Specifications for Voice					
Speech Codec Modes	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR
Echo Arithmetic	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction
Interfaces					
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
Audio Analog	1 input/ 2 outputs	1 input/ 2 outputs	1 input/ 2 outputs	1 input/ 1 output	1 input/ 2 outputs
Audio Digital (PCM)	•	•			
RTC Backup	•	•	•	•	•
UART	3	3	3	3	2
ADC	× 1, 10bit	× 1, 10bit	× 1, 10bit	× 1, 10bit	× 1, 10bit
SD Card Interface	•	•			
GPIO					•
Temperature Detection		•			
Enhanced Features					
eCall	•	•			•
Jamming Detection	•	•		•	•
DTMF	•	•	O		•
Audio Playback/ Audio Recording	•	•	•	•	•
Dual-SIM		•			
QuecFOTA®	•	•	DFOTA	DFOTA	•
QuecCell	•	•	•	•	•
QuecFile	•	•	•	•	•
QuecOpen®	•	•	O	•	
RIL for Android	•	•	•	•	•
MUX	•	•	•	•	•(Scan Only)
Bluetooth	•	•			
Wi-Fi					
GNSS					
Electrical Features					
Power Supply	3.3 ~ 4.6V	3.3 ~ 4.6V	3.45 ~ 4.25V	3.45 ~ 4.25V	3.3 ~ 4.6V
Low Power Consumption	1.3mA @DRX=5 1.2mA @DRX=9	1.3mA @DRX=5 1.2mA @DRX=9	1.2mA @DRX=5 1.1mA @DRX=9	1.3mA @DRX=5 1.2mA @DRX=9	2.8mA @DRX=5 2.7mA @DRX=9
Certifications	CE/ Anatel/ ICASA	CE	CE	CE	CE/ Anatel
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Mobile Computing, Healthcare, etc.				






O & * Under development

Quectel GSM/GPRS Family

Product	M95	MC60/ MC60E	MC90
			
Form Factor	LCC	LCC	LCC
Dimensions (mm)	19.9 × 23.6 × 2.65	16.0 × 18.7 × 2.1	15.0 × 25.6 × 2.3
Frequency Range (MHz)	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900
Weight (approx.) g	3.0	1.3	1.4
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
Data Transmission			
GPRS Multi-slot Class	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable
Data Rate (kbps)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)
SMS	•	•	•
Protocols	TCP/ UDP/ PPP/ MQTT/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL/	TCP/ UDP/ PPP/HTTP/ FTP/ SSL/ PING/ NTP/ NITZ/ SMS/ MQTT	TCP/ UDP/ PPP/HTTP/ FTP/ SSL/ PING/ NTP/ NITZ/ SMS/ MQTT
Specifications for Voice			
Speech Codec Modes	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR
Echo Arithmetic	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction
Interfaces			
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
Audio Analog	2 inputs/ 2 outputs	1 input/ 2 outputs	1 input/ 2 outputs
Audio Digital (PCM)	•	•	•
RTC Backup	•	•	•
UART	2	4	4
ADC		× 1, 10bit	× 1, 10bit
SD Card Interface		•	
GPIO		•	•
Temperature Detection	•	•	•
Enhanced Features			
eCall	•	•	•
Jamming Detection	•	•	•
DTMF	•	•	•
Audio Playback/ Audio Recording	•	•	•
Dual-SIM	•	•	•
QuecFOTA®	•	•	•
QuecCell	•	•	•
QuecFile		•/O	•
QuecOpen®		•	•
RIL for Android	•	•	•
MUX	•	•	•
Bluetooth		BT 3.0 (MC60) BT 3.0/ BT4.0 (MC60E)	
Wi-Fi			• (only Scan)
GNSS		BEIDOU/ GPS/ GLONASS/Galileo/ QZSS	BEIDOU/ GPS/ GLONASS/Galileo/ QZSS
Electrical Features			
Power Supply	3.3 ~ 4.6V	3.3 ~ 4.6V	3.3 ~ 4.3V
Low Power Consumption	1.3mA @DRX=5 1.2mA @DRX=9	1.2mA @DRX=5 0.8mA @DRX=9	1.2mA @DRX=5 0.8mA @DRX=9
Certifications	CE/ GCF/ Vodafone/ PTCRB/ FCC/ IC/ Anatel/ Rogers/ RCM/ NCC/ TELCEL/UCRF/ ICASA	CE/ FCC/ Anatel/ ICASA/ GCF	CE*
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Mobile Computing, Healthcare, etc.		








O & * Under development

Quectel GNSS Module Family

		Standalone Positioning/ Timing Modules				
Product	L26	L26-LB	L26-T	L26-DR	LC98S*	
		Compatible		Compatible		
						
GNSS	GPS/ GLONASS/ Galileo/ BeiDou/ QZSS	GPS/ GLONASS/BeiDou/ QZSS	GPS/ Galileo/ GLONASS/ BeiDou/ QZSS	GPS/ Galileo/ GLONASS/ BeiDou/ QZSS	GPS/ BeiDou/ GLONASS/Galileo/ QZSS	
Form Factor	LCC	LCC	LCC	LCC	LCC	
Dimensions (mm)	16.0 × 12.2 × 2.4	16.0 × 12.2 × 2.3	16.0 × 12.2 × 2.3	16.0 × 12.2 × 2.3	22.4 × 17.0 × 3.1	
Weight (approx.) g	1.0	1.0	0.9	0.9	1.68	
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	
General Features						
Chip Solution	MT3333	AG3331	Teseo III	Teseo III	Teseo III	
L1 Band Receiver (C/A Code) Channel Number	33 Track/ 99 Acq	33 Track/ 99 Acq	48 Track/2 Fast Acq	48 Track/2 Fast Acq	48 Track/2 Fast Acq	
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	
A-GNSS	Supported	Supported	Supported	Supported	Supported	
Sensitivity	Autonomous Acquisition	-148dBm	-149dBm	-147dBm	-145dBm	-145 dBm
	Reacquisition	-160dBm	-161dBm	-154dBm	-152dBm	-152 dBm
	Tracking	-167dBm	-167dBm	-162dBm	-162dBm	-162 dBm
TTFF (Time To First Fix)	Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<32s, Autonomous	<32s, Autonomous	< 31s, Autonomous
	Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<25s, Autonomous	<25s, Autonomous	< 24s, Autonomous
	Hot Start	<1s	<1s	<2s	<2s	< 1s
Position Accuracy(autonomous)	<2.5m CEP	<2.5m CEP	<1.5m CEP	<1.5m CEP	< 2m CEP	
Velocity Accuracy(without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	
Timing Accuracy (1σ)	<100ns	<100ns	≤6.8ns	<100ns	≤6.8ns	
Max Update Rate	10Hz	10Hz	10Hz	10Hz	10Hz	
Baud Rate (default)	9600bps	9600bps	9600bps	115200bps	115200bps	
Geo-fence	•	•	•			
Jamming Detection	•	•	•	•	•	
Anti-jamming	•	•			•	
Built-in LNA	•	•	•	•	•	
Electrical Data						
Power Supply	2.8V to 4.3V	2.8V to 4.3V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
I/O Voltage	2.7V to 2.9V	2.7V to 2.9V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
Power Consumption (Acquisition)	29mA (GPS+GLONASS) 26mA (GPS)	29.4mA (GPS+GLONASS)	64mA (GPS) 71mA (GPS+GLONASS+Galileo)	72mA (GPS) 79mA (GPS+GLONASS+Galileo)	84 mA (GPS + BeiDou)	
Power Consumption (Tracking)	21mA (GPS+GLONASS) 18mA (GPS)	26.6mA (GPS+GLONASS)	51mA (GPS) 67mA (GPS+GLONASS+Galileo)	58mA (GPS) 74mA (GPS+GLONASS+Galileo)	74mA(GPS + BeiDou)	
Power Consumption (Backup/Low Power mode)	7μA	7.8μA	9μA	17μA	50 μA	
Interfaces						
UART	•	•	•	•	•	
IIC (NMEA)		•			•	
Reset	•	•	•	•	•	
Time Pulse	•	•	•	•	•	
Antenna						
Short-Circuit Protection & Open-Circuit Detection	•	•	•	•	•	
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal	
Certifications						
	CE	CE	CE	CE		
Recommended Applications						
	Vehicle Tracker, Asset Tracker, Industrial PDA		High-precision timing	Automotive tracking , OBD	High-precision timing for base stations	

* Under development


Quectel GNSS Module Family

Product	Standalone Modules			Dual Band Precision Modules				
	L70-R/L70-RL	L76/L76B/L76-L	L76-LB	LC79D	LC29D*	LG69T(AP)*	LG69T(AA)*	
	Compatible					Compatible		
								
GNSS	GPS/ QZSS	GPS/GLONASS/Galileo/ BeiDou/QZSS	GPS/BeiDou/QZSS/ GLONASS	GPS L1 L5/Galileo E1 E5/QZSS L1 L5/IRNSS L5/GLONASS L1/BeiDou B1	GPS L1L5/Galileo E1 E5/ QZSS L1 L5/IRNSS L5/ GLONASS L1/BeiDou B1	GPS L1 C/A Galileo E1 B/C QZSS L1 C/A GPS L5 Galileo E5a QZSS L5 NAVIC (IRNSS) L5 BeiDou B1/ B2a	GPS L1 C/A GLONASS G1/G2 Galileo E1 B/C QZSS L1/L2 C/A GPS L2C BeiDou B1/ B2I	
Form Factor	LCC	LCC	LCC	LCC+LGA	LCC	LGA	LGA	
Dimensions (mm)	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.4	16.0 × 12.2 × 2.4	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	
Weight (approx.) g	0.6	0.6	0.6	0.42	0.9	1.9	1.9	
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	
General Features								
Chip Solution	MT3337	MT3333	AG3331	BCM47755B1	BCM47758	TESEO V	TESEO V	
L1 Band Receiver (C/A Code) Channel Number	22 Track/ 66 Acq.	33 Track/ 99 Acq.	33 Track/ 99 Acq.	32 channels	32 channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	Support (Only support GAGAN)*	.	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported	/	
Sensitivity	Autonomous Acquisition	-148dBm (L70-R) -149dBm (L70-RL)	-148dBm (L76/ L76B) -149dBm (L76-L)	-149dBm	-147dBm	TBD	-147dBm	/
	Reacquisition	-160dBm (L70-R) -161dBm (L70-RL)	-160dBm (L76/ L76B) -161dBm (L76-L)	-161dBm	-158dBm	TBD	-158dBm	/
	Tracking	-165dBm (L70-R) -167dBm (L70-RL)	-165dBm (L76/ L76B) -167dBm(L76-L)	-167dBm	-163dBm	TBD	-163dBm	/
TTFF (Time To First Fix)	Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<34s, Autonomous	<32s, Autonomous	<35s, Autonomous	/
	Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous	<25s, Autonomous	<30s, Autonomous	/
	Hot Start	<1s	<1s	<1s	<2s	<2s	<1.5s	/
Position Accuracy (autonomous)	<2.5m CEP	<2.5m CEP	<2.5m CEP	<1.2m CEP	<1m CEP	<1.2m CEP	<1.2m CEP	
Position Accuracy (RTK)					/	<0.15mCEP	/	
Velocity Accuracy (without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	/	
Velocity Accuracy (RTK)						<0.05m/s	/	
Convergence Time (RTK)						<10s	/	
Maximum Acceleration Accuracy (without aid)	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²	/	
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	<34.9ns	TBD	<20ns	/	
Max Update Rate	5Hz (L70-R/ L70-RL)	10Hz	10Hz	1Hz	50Hz	RAW: 10Hz; PVT: 10Hz RTK: 50Hz; IMU: 100Hz	RAW: 1Hz; IMU: 50Hz	
Baud Rate(default)	9600bps	9600bps	9600bps	115200bps	115200bps	460800bps	460800bps	
Geo-fence								
Jamming Detection	•	•	•					
Anti-jamming	•	•	•					
Built-in LNA	Supported by L70-RL	Supported by L76-L		•	•	•	•	
Electrical Data								
Power Supply	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	1.7V to 1.9V	2.7V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
I/O Voltage	2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	1.7V to 1.9V	2.7V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
Power Consumption (Acquisition)	16mA (L70-R) 21mA (L70-RL)	25mA (GPS+GLONASS)/ 21mA (GPS)(L76) 23mA (GPS+BeiDou) (L76B) 29mA (GPS+GLONASS) (L76-L)	25.5mA (GPS+GLONASS)	47mA (GPS+BeiDou+ GLONASS+Galileo+ QZSS+ IRNSS)	TBD	TBD	TBD	
Power Consumption (Tracking)	13mA (L70-R) 18mA (L70-RL)	18mA (GPS+GLONASS)/ 15mA (GPS) (L76) 18mA (GPS+BeiDou) (L76B) 22mA (GPS+GLONASS) (L76-L)	23.1mA (GPS+GLONASS)	43mA (GPS+BeiDou+ GLONASS+Galileo+ QZSS+ IRNSS)	TBD	TBD	TBD	
Power Consumption (Backup/Low power mode)	8µA (L70-R/ L70-RL)	7µA	7.7µA	200µA@Sleep Mode 17µA@Standby Mode	TBD	TBD	TBD	
Interfaces								
UART	•	•	•	•	•	•	•	
IIC (NMEA)		Supported by L76-L	•	•	•	•	•	
CAN						•		
Reset	•	•	•	•	•	•	•	
Time Pulse	•	•	•	•	•	•	•	
Antenna								
Short-Circuit Protection & Open-Circuit Detection						•	•	
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	Active	Active	
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	
Certifications	CE	CE	CE	CE	CE*	CE*	CE*	
Recommended Applications	Vehicle Tracker, Asset Tracker, Safety, Industrial PDA or PND, Digital Camera, etc.			Shared mobility , delivery robots , GIS		Automotive , High precision navigation , Delivery robots		

LG69T(AA)* only supports output RAW DATA.

* Under development

Quectel GNSS Module Family

Product	Antenna Modules				
	L80/ L80-R	LC86L*	L86	L89	L96
	Compatible				
					
GNSS	GPS/QZSS	GLONASS/GPS/ BeiDou/QZSS	GPS/ GLONASS/BeiDou/Galileo/QZSS	GPS/ GLONASS/BeiDou/Galileo/IRNSS/QZSS	GPS/ GLONASS/BeiDou/Galileo/QZSS
Form Factor	LCC	LCC	LCC	LCC+LGA	LCC
Dimensions (mm)	16.0 × 16.0 × 6.45	16.0 × 16.0 × 6.95	18.4 × 18.4 × 6.45	16.0 × 26.4 × 6.8	9.6 × 14.0 × 2.0
Weight (approx.) g	6.0	6.0	7.6	8.2	0.6
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
General Features					
Chip Solution	MT3339 (L80) MT3337 (L80-R)	AG3331	MT3333	Teseo III	MT3333
L1 Band Receiver (C/A Code) Channel Number	22 Track/ 66 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	48 Track/2 Fast Acq	33 Track/ 99 Acq.
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN
A-GNSS	Supported	Supported	Supported	Supported	Supported
Sensitivity	Autonomous Acquisition	-148dBm	-148dBm	-147dBm	-148dBm
	Reacquisition	-160dBm	-159dBm	-156dBm	-160dBm
	Tracking	-165dBm	-165dBm	-167dBm	-162dBm
TTFF (Time To First Fix)	Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™
	Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™
	Hot Start	<1s	<1s	<1s	<1.5s
Position Accuracy(autonomous)	<2.5m CEP	<2.5m CEP	<2.5m CEP	<1.8m CEP	<2.5m CEP
Velocity Accuracy(without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s
Maximum Acceleration Accuracy (without aid)	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²	<0.1m/s ²
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	3.9ns	<100ns
Max Update Rate	10Hz (L80) 5Hz (L80-R)	10Hz	10Hz	10Hz	10Hz
Baud Rate(default)	9600bps	9600bps	9600bps	9600bps	9600bps
Geo-fence	•(Supported by L80)	•	•	•	•
Jamming Detection	•	•	•	•	•
Anti-jamming	•	•	•	•	•
Built-in LNA	•	•	•	•	•
Electrical Data					
Power Supply	3.0V to 4.3V	2.8V to 4.3V	3.0V to 4.3V	3.1V to 4.3V	2.8V to 4.3V
I/O Voltage	2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	3.0 V	2.7V to 2.9V
Power Consumption (Acquisition)	25mA	31.8mA (GPS+GLONASS)	30mA (GPS+GLONASS)	99mA (GPS+GALILILEO+IRNSS)	25mA (GPS+GLONASS) 22mA (GPS)
Power Consumption (Tracking)	20mA	31.5mA (GPS+GLONASS)	26mA (GPS+GLONASS)	95mA (GPS+GALILILEO+IRNSS)	20mA (GPS+GLONASS)/ 20mA (GPS)
Power Consumption (Backup)	7μA	1.4mA@Standby Mode; 6μA@Backup Mode	7μA	7μA	7μA
Interfaces					
UART	•	•	•	•	•
IIC (NMEA)				•	•
Reset	•	•	•	•	•
Time Pulse	•	•	•	•	•
Antenna					
Short-Circuit Protection & Open-Circuit Detection	Supported by L80	•	•	•	
Antenna Automatic Switch	Supported by L80	•	•	•	
Antenna Type	Embedded patch antenna or external active antenna	Embedded patch antenna or external active antenna	Embedded patch antenna or external active antenna	Embedded patch antenna and chip antenna, external active antenna	Embedded chip antenna or external active antenna
Antenna Power	Internal	Internal	Internal	Internal	External
Certifications	CE	CE	CE		CE
Recommended Applications	Vehicle or Asset Tracker, DVR, Connected PND & PDA, Safety, Digital Camera, etc.			(Dedicated for India market) standard tracking	Asset tracking, digital cameras

* Under development

Europe

Czech Republic: Prague
Denmark: Copenhagen
France: Sophia Antipolis/Paris/Nice/Toulouse
Germany: Berlin/Munich/Stuttgart/Tripstadt
Italy: Milan/Turriaco
Poland: Gdynia/Wroclaw/Nedza/Warsaw
Romania: Timisoara

Russia: Moscow/St. Petersburg
Slovenia: Ljubljana/Sencur
Spain: Barcelona/Granada
Sweden: Stockholm/Sollentuna
The Netherlands: Eindhoven
Turkey: Istanbul
UK: London/Birmingham/Oxford

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Fuzhou	Ningbo	Xi'an
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Hangzhou	Shenyang	Zhongshan

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South Africa: Johannesburg/Gauteng

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India: Mumbai/Bangalore/Delhi/Hyderabad
Indonesia: Jakarta/Bandung
Japan: Tokyo/Yokohama
Korea: Seoul

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Philippines: Manila/Pasay City
Singapore
Thailand: Bangkok/Samutprakarn
Vietnam: HoChiMinh City/Hanoi

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Brazil: Sao Paulo
Mexico: Mexico City/San Nicolas De Los Garza

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 Modules are sold to 150+ countries and regions

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