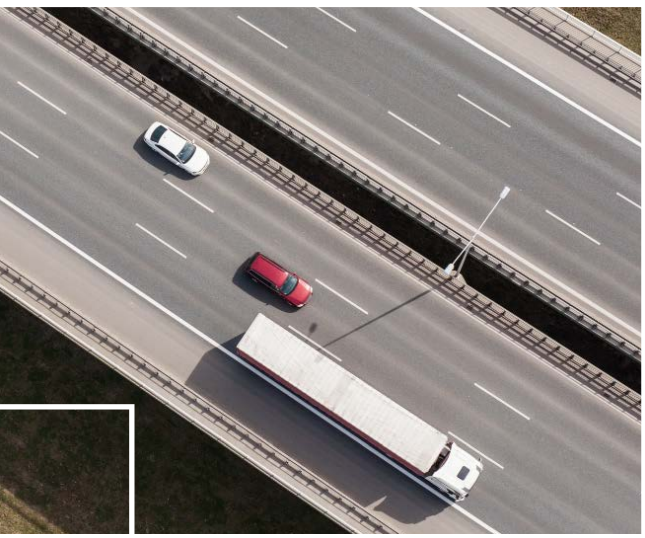
QUECTEL

Build a smarter world

Global IoT solutions provider

IoT modules and antenna catalogue



For more information contact us at
www.quectel.com

About Quectel Wireless Solutions

Quectel's passion for a smarter world drives us to accelerate IoT innovation. A highly customer-centric organization, we are a global IoT solutions provider backed by outstanding support and services. Our growing global team of over 5,800 professionals sets the pace for innovation in cellular, GNSS, satellite, Wi-Fi and Bluetooth modules as well as antennas and services.

With regional offices and support across the globe, our international leadership is devoted to advancing IoT and helping build a smarter world.

For more information, please visit: www.quectel.com, LinkedIn, Facebook and X.

A global end-to-end IoT solutions provider of modules, antennas and services

Cellular

- 5G
- 4G
- LPWA
- 3G/ 2G

Automotive

- 5G/ 4G
- C-V2X
- GNSS
- Cockpit/ IVI
- Wi-Fi & Bluetooth

Smart

- Edge compute
- 5G/4G
- Wi-Fi
- GNSS

Wi-Fi & Bluetooth

- Wi-Fi 7
- Wi-Fi 6E
- Wi-Fi 6
- Wi-Fi 5
- Wi-Fi 4
- BT 5.x
- Sub-G (LoRa/HaLow)

GNSS

- DR positioning
- RTK positioning
- Fusion positioning
- Timing
- Multiple frequency localization
- Single frequency localization
- Integrated antenna
- IMU

Satellite

- 5G NTN
- Proprietary

Antenna

- Embedded antennas
- External antennas
- Cables & accessories
- Automotive antennas
- mmWave antennas

Services

- ODM Services
- Antenna design & testing
- Carrier certification
- Cyber security services
- RTK Correction Solution

Contents

Quectel's IoT vertical framework

Intelligent transportation

IoV
CVI
Vehicle tracking
Asset tracking
Ship tracking
Fleet management
OBD
DVR
UBI auto insurance

Smart energy

Electricity meters
Gas meters
Water meters
Thermal meters
Smart grid
Wind generators
Solar power generation
Charging piles

Payment

Wireless POS
Cash registers
ATM
Vending machines
Top-up machines

Smart city

Street lighting
Traffic lights
Sharing economy
Elevator monitoring
Smart parking
Parking meters
Toll collection systems
Digital indicators
Advertising boards
Smart bins
LED landscape lighting controls

Wireless gateways

DTUs
Consumers routers
Industrial routers
VOIP
Servers
Wi-Fi hotspots

Intelligent agriculture & environmental monitoring

Food traceability
Farmland monitoring
Farm irrigation
Farm management
Meteorological stations
Environmental monitoring
Wildlife protection

Intelligent industry

Industrial PDAs/ scanners
Industrial PCs
Industrial computers
Pipeline monitoring
Robots
Flow meters
Industrial refrigeration
Indoor air detection
Water valves/ Pump controls

Smart life & healthcare

Personal trackers
Pet trackers
Wearables
Gaming consoles
Mobile PCs
Home automation
Elderly monitoring
Patient monitoring
Glucometers
Blood pressure monitors
Remote medical equipment

Smart safety

Alarms
Intrusion detectors
Smoke detectors
Gas detectors
Motion sensors
Asset protection

5G NR modules

5G NR modules

Product		RG650V	RG650E	RG651E*	RM551E-GL*
					
Form factor		LGA	LGA	LGA	M.2
Dimensions (mm)		46.0 × 53.0 × 3.05	46.0 × 53.0 × 3.05	46.0 × 53.0 × 3.05	52.0 × 30.0 × 2.3
5G		Sub-6 GHz	Sub-6 GHz	Sub-6 GHz & mmWave	Sub-6 GHz & mmWave
Frequency bands (MHz)	-EU (EMEA/ APAC/ Brazil)	5G NR: n1/3/5/7/8/20/26/28/38/40/41/71[1]/ 75/76*/77/78; LTE-FDD: B1/3/5/7/8/20/28/32/71[1]; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	5G NR: n1/3/5/7/8/20/26/28/38/40/41/67/ 71[1]/75/76*/77/78; LTE-FDD: B1/3/5/7/8/20/28/32/71[1]; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	-EU(EMEA/APAC[2]/Brazil): 5G NR: n1/3/5/7/8/20/28/38/41/77/78/257/ 258/260/261; LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/41/42/43	/
	-NA (North America)	5G NR: n2/5/7/12/13*/14/25/26/29*/30/38/ 41/48*/66/70*/71/77/78; LTE-FDD: B2/4/5/7/12/13/17/14/25/26/29/ 30/66/71; LTE-TDD: B38/41/42/43/48	5G NR: n2/5/7/12/13*/14/25/26/29*/30/38/ 41/48*/66/70*/71/77/78; LTE-FDD: B2/4/5/7/12/13/17/14/25/26/29/30/ 66/71; LTE-TDD: B38/41/42/43/48	5G NR: n2/5/7/12/13*/14/25/26/29*/30/38/ 41/48*/66/70*/71/77/78/257/258/260/ 261; LTE-FDD: B2/4/5/7/12/13/17/14/25/26/29/ 30/66/71; LTE-TDD: B38/41/42/43/48	/
	-GL (Global)	/	/	/	5G NR: n1/2/3/5/7/8/12/13/14/18/ 20/25/26/ 28/29 (Rx)/30/38/40/41/48/53/66/70/71/75/ 76/77/78/79/91/92/93/94/257/258/260/261; LTE-FDD: B1/2/3/4/5/7/8/12/13/14/ 17/18/19/ 20/25/26/28/29/30/32/ 66/70/71; LTE-TDD: B34/38/39/40/41/42/43/48/53; LAA: B46 (Rx) WCDMA: B1/2/4/5/8/19
Weight (approx.) (g)		17.8	17.8	17.8	8.73
Operating temperature		-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~+75°C
Extended temperature		-40°C ~ +85°C	-40°C ~ +85°C	-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	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)					
5G SA Sub-6		4.67 Gbps (DL)/1.25 Gbps (UL)	7.01 Gbps (DL)/1.25 Gbps (UL)	7.01 Gbps (DL)/1.25 Gbps (UL)	7.01 Gbps (DL)/1.25 Gbps (UL)
5G NSA Sub-6		4.52 Gbps (DL)/730 Mbps (UL)	5.47 Gbps (DL)/730 Mbps (UL)	5.47 Gbps (DL)/730 Mbps (UL)	5.47 Gbps (DL)/730 Mbps (UL)
5G SA mmWave		/	/	8.61 Gbps (DL)/3.54 Gbps (UL)	/
5G NSA mmWave		/	/	9.41 Gbps (DL)/3.66 Gbps (UL)	9.41 Gbps (DL)/3.66 Gbps (UL)
5G TDD + mmWave		/	/	10.95 Gbps (DL)/4.79 Gbps (UL)	/
5G FDD + mmWave		/	/	9.54 Gbps (DL)/3.79 Gbps (UL)	/
LTE		LTE-FDD: 2.0 Gbps (DL)/211 Mbps (UL)	LTE-FDD: 2.0 Gbps (DL)/211 Mbps (UL)	LTE-FDD: 2.0 Gbps (DL)/200 Mbps (UL)	LTE: 2.0 Gbps (DL)/211 Mbps (UL)
UMTS (Mbps)		WCDMA: 42 (DL)/5.76 (UL) (RG650V-EU)	WCDMA: 42 (DL)/5.76 (UL) (RG650E-EU)	/	WCDMA: 42 (DL)/5.76 (UL)
SMS		•	•	•	•
Protocols		TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces					
(U)SIM		1.8/ 3.0 V × 1; 1.8 V × 1 (eSIM external)	1.8/ 3.0 V × 1; 1.8 V × 1 (eSIM external)	1.8/ 3.0 V × 1; 1.8 V × 1 (eSIM external)	1.8/3.0 V × 2 (eSIM optional)
UART		× 3	× 3	× 3	/
USB		2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1
PCIe		2-Lane × 2, 1-Lane × 1	2-Lane × 2, 1-Lane × 1	2-Lane × 2, 1-Lane × 1	1-Lane × 1
PCM		× 2	× 2	× 2	/
I2C		× 2	× 2	× 2	/
SPI		× 2	× 2	× 2	/
GPIO		•	•	•	•
ADC		•	•	•	/
SD card		/	/	/	/
RESET_N		•	•	•	•
Antenna		Sub-6 GHz: × 8 ; GNSS: × 1	Sub-6 GHz: × 8 ; GNSS: × 1	Sub-6 GHz: × 8 ; GNSS: × 1; mmWave: × 8	Sub-6 : × 4; GNSS: × 2; mmWave: × 3
Enhanced features					
MIMO		Sub-6: DL 4 × 4 , UL 2 × 2	Sub-6: DL 4 × 4 , UL 2 × 2	Sub-6: DL 4 × 4 , UL 2 × 2 mmWave: DL 2 × 2 , UL 2 × 2	Sub-6: DL 4 × 4 , UL 2 × 2
Voice		Optional	Optional	Optional	Optional
DTMF		Dual-tone Multi-frequency	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	Delta Firmware over the Air
GNSS		Optional	Optional	Optional	Optional
(U)SIM card detection		•	•	•	•
Electrical features					
Supply voltage range		3.3 V ~ 4.4 V, typ. 3.8 V	3.3 V ~ 4.4 V, typ. 3.8 V	3.3 V ~ 4.4 V, typ. 3.8 V	3.135 V ~ 4.4 V, typ. 3.7 V
Power consumption		0.22 mA @ Power off 2.7 mA @ Sleep	0.22 mA @ Power off 2.7 mA @ Sleep	TBD	TBD
Software features					
USB serial driver		Windows 10/ 11, Linux 2.6 ~ 6.11, Android 4.x ~ 14.x	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 10/11, Linux 2.6 ~ 6.11, Android 4.x ~ 14.x
GNSS driver		Android 4.x ~14.x	Android 4.x ~ 13	Android 4.x ~ 13	Android 4.x ~ 14.x
RIL driver		Android 4.x ~ 14.x	Android 4.x ~ 13	Android 4.x ~ 13	Android 4.x ~ 14.x
NDIS driver*		Windows 10/11*	Windows 8.1/10/11	Windows 8.1/10/11	Windows 10/11*
MBIM driver		Windows 10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 10/11, Linux 3.18 ~ 6.7
Gobinet driver*		Below Linux 2.6	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Below Linux 2.6
QMI_WWAN driver		Linux 2.6 ~ 6.8	Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7	Linux 2.6 ~ 6.8
PCIe driver		Linux 3.10 ~ 6.7	Linux 3.10 ~ 6.7	Linux 3.10 ~ 6.7	Linux 3.10 ~ 6.7
Certifications[3]		CE/RCM/GCF/Verizon/AT&T/T-Mobile/PTCRB/ FCC/IC/Dish	GCF*/CE/ RCM/FCC*/IC*/PTCRB*/Verizon*/ AT&T*/T-Mobile*	Quectel will provide technical support for customer to certify RG651E-NA based device directly	Quectel will provide technical support for customer to certify RM551E-GL based device directly
Recommended applications		Industrial routers, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage

Note 1: Optional.
Note 2: Excluding China/Japan.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G NR modules

Product		RG520N	RG520F	RG525F	RG530F
					
Form factor		LGA	LGA	LGA	LGA
Dimensions (mm)		41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75	48.0 × 45.0 × 2.85	48.0 × 45.0 × 2.85
5G		Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz & mmWave
Frequency bands (MHz)	-EU (EMEA/ APAC[1]/ Brazil)	5G NR: n1/3/5/7/8/20/28/38/40/41/75/76/77/78; LTE-FDD: B1/3/5/7/8/20/28/32; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	5G NR: n1/3/5/7/8/20/28/38/40/41/75/76/77/78; LTE-FDD: B1/3/5/7/8/20/28/32; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	/	5G NR: n1/3/5/7/8/20/28/38/40/41/75/76/77/78/257/258/260/261; LTE-FDD: B1/3/5/7/8/20/28/32; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8
	-EB (EMEA/ APAC[1]/ Brazil)	5G NR: n1/3/5/7/8/20/28/38/40/41/71/75/76/77/78; LTE-FDD: B1/3/5/7/8/20/28/32/71; LTE-TDD: B38/40/41/42/43/71; WCDMA: B1/5/8	5G NR: n1/3/5/7/8/20/28/38/40/41/71/75/76/77/78; LTE-FDD: B1/3/5/7/8/20/28/32/71; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	/	/
	-GT (Europe)	5G NR: n48/77/78; LTE-TDD: B42/43/48	/	/	/
	-NA (North America)	5G NR: n2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71/77/78; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29/30/66/71; LTE-TDD: B38/41/42/43/48; LAA: B46	5G NR: 2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71/77/78; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29/30/66/71; LTE-TDD: B38/41/42/43/48; LAA: B46	5G NR: n2/5/7/12/13/14/25/26/29/30/38/41/48[2]/66/70/71/77[2]/78[2]; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29/30/66/71; LTE-TDD: B38/41/42/43/48; LAA: B46	5G NR: n2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71/77/78/257/258/260/261; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29/30/66/71; LTE-TDD: B38/41/42/43/48; LAA: B46
	-LA (Latin America)	5G NR: n2/5/7/8/28/40/66/78; LTE-FDD: B2/4/5/7/8/26/28/66; LTE-TDD: B40/42; WCDMA: B2/4/5	/	/	/
Weight (approx.) (g)		11	11	14.1	14.1
Operating temperature		-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C
Extended temperature		-40°C ~ +85°C	-40°C ~ +85°C	-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	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)[3]					
5G SA Sub-6		2.4 Gbps (DL)/900 Mbps (UL)	4.0 Gbps (DL)/900 Mbps (UL)	4.0 Gbps (DL)/900 Mbps (UL)	4.0 Gbps (DL)/900 Mbps (UL)
5G NSA Sub-6		3.4 Gbps (DL)/550 Mbps (UL)	4.0 Gbps (DL)/550 Mbps (UL)	4.0 Gbps (DL)/550 Mbps (UL)	4.0 Gbps (DL)/550 Mbps (UL)
5G NSA mmWave		/	/	/	8.8 Gbps (DL)/2.6 Gbps (UL)
5G TDD + mmWave		/	/	/	8.0 Gbps (DL)/3.4 Gbps (UL)
5G FDD + mmWave		/	/	/	8.9 Gbps (DL)/2.7 Gbps (UL)
LTE		LTE-FDD: 1.6 Gbps (DL)/200 Mbps (UL)	LTE-FDD: 2.0 Gbps (DL)/200 Mbps (UL)	LTE-FDD: 2.0 Gbps (DL)/200 Mbps (UL)	LTE-FDD: 2.0 Gbps (DL)/200 Mbps (UL)
UMTS (Mbps)		WCDMA: 42 (DL)/5.76 (UL) (RG520N-EU/RG520N-EB/RG520N-LA)	WCDMA: 42 (DL)/5.76 (UL) (RG520F-EU/RG520F-EB)	/	WCDMA: 42 (DL)/5.76 (UL) (RG530F-EU)
SMS		•	•	•	•
Protocols		TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	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, 1.8 V/2.95 V	× 2, 1.8 V/2.95 V	× 2, 1.8 V/ 2.95 V	× 2, 1.8 V/2.95 V
UART		× 3	× 3	× 3	× 3
USB		2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1
PCIe		Gen3 × 2Lane	Gen3 × 2Lane	Gen3 × 2Lane	Gen3 × 2Lane
PCM		•	•	•	•
I2C		× 1	× 1	× 1	× 1
SPI		•	•	•	•
GPIO		•	•	•	•
ADC		× 2	× 2	× 2	× 2
SD card		•	•	•	•
RESET_N		•	•	•	•
Antenna		Cellular: 4, GNSS: × 1 (RG520N-EB/RG520N-NA/RG520N-GT/RG520N-LA); Cellular: 4 + 2 (optional), GNSS: × 1 (RG520N-EU)	Cellular: 4 + 2 (optional), GNSS: × 1 (RG520F-EU); Cellular: 4, GNSS: × 1 (RG520F-NA)	Cellular: sub6G: 8, GNSS: × 1	Cellular: sub6G x 4 + 2 (optional), mmWave x 8, GNSS: × 1 (RG530F-EU); Cellular: sub6G x 4, mmWave x 8, GNSS: × 1 (RG530F-NA)
Enhanced features					
MIMO		Sub-6: DL 4 × 4, UL 2 x 2	Sub-6: DL 4 x 4, UL 2 x 2	Sub-6: DL 4 x 4 , UL 2 x 2	Sub-6: DL 4 x 4, UL 2 x 2; mmWave: DL 2 x 2, UL 2 x 2
Voice		Optional	Optional	Optional	Optional
DTMF		Dual-tone Multi-frequency	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	Delta Firmware over the Air
GNSS		GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
(U)SIM card detection		•	•	•	•
Electrical features					
Supply voltage range		3.3 V ~ 4.4 V, typ. 3.8 V	3.3 V ~ 4.4 V, typ. 3.8 V	3.3 V ~ 4.4 V, typ. 3.8 V	3.3 V ~ 4.4 V, typ. 3.8 V
Power consumption		0.142 mA @ power off, 2.6 mA @ sleep (typ.)[4] (RG520N-EU/RG520N-EB/ RG520N-GT/ RG520N-NA); TBD (RG520N-LA)	0.142 mA @ power off, 2.6 mA @ sleep (typ.)[4]	104 μA @ Power off, 5.78 mA @ Sleep, 43.31 mA @ USB 2.0, Idle, 63.74 mA @ USB 3.0, Idle (RG525F-NA)	110μA @ Power off, 3.96mA @ Sleep, 33.5mA @ USB2.0, Idle, 50.58mA @ USB3.0, Idle
Software features					
USB serial driver		Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13	Windows 8.1/10/11, Linux 2.6 ~6.7, Android 4.x ~ 13	Windows 8.1/10/11, Linux 2.6~6.7, Android 4.x ~ 13
GNSS driver/ RIL driver		Android 4.x ~ 13	Android 4.x ~ 13	Android 4.x ~ 13	Android 4.x ~ 13
NDIS driver		/	/	/	/
MBIM driver*		Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7
Gobinet driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
QMI_WWAN driver		Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7
PCIe driver		Windows 10/11, Linux 3.10 ~ 6.7	Windows 10/11, Linux 3.10 ~ 6.7	Windows 10/11, Linux 3.10 ~ 6.7	Windows 10/11, Linux 3.10 ~ 6.7
Certifications[4]		Telstra/GCF/CE/RCM/Anatel/Verizon/T-Mobile/AT&T/PTCRB/FCC/IC	CE/RCM/UKCA/GCF/FCC/PTCRB	Rogers/GCF/PTCRB/FCC/IC/T-Mobile	Quectel will provide technical support for customer to certify RG530F based device directly
Recommended applications		Industrial routers, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage

Note 1: Excl. China/Japan.
Note 2: n48/77/78 support 8RX.
Note 3: means the data transmission is theoretical data rate and depends on network conditions.
Note 4: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G NR modules

Product		RM520N	RM530N-GL
			
Form factor		M.2	M.2
Dimensions (mm)		52.0 × 30.0 × 2.3	52.0 × 30.0 × 2.3
5G		Sub-6 GHz	Sub-6 GHz/mmWave
Frequency bands (MHz)	-GL (Global)	5G NR: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/29/30/38/40/41/48/66/70/71/75/76/77/78/79; LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29/30/32/66/71; LTE-TDD: B34/38/39/40/41/42/43/48; LAA: B46; WCDMA: B1/2/4/5/8/19	5G NR: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/29/30/38/40/41/48/66/70/71/75/76/77/78/79/257/258/260/261; LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29/30/32/66/71; LTE-TDD: B34/38/39/40/41/42/43/48; LAA: B46; WCDMA: B1/2/4/5/8/19
	-EU (EMEA/ APAC[1]/ Brazil)	5G NR: n1/3/5/7/8/20/28/38/40/41/71/75/76/77/78; LTE-FDD: B1/3/5/7/8/20/28/32/71; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	/
Weight (approx.) (g)		8.7	8.8
Operating temperature		-30°C ~ +75°C	-30°C ~ +75°C
Extended temperature		-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 (Max.)[2]			
5G SA Sub-6		2.4 Gbps (DL)/900 Mbps (UL)	2.4 Gbps (DL)/900 Mbps (UL)
5G NSA Sub-6		3.4 Gbps (DL)/550 Mbps (UL)	3.4 Gbps (DL)/550 Mbps (UL)
5G NSA mmWave		/	4.0 Gbps (DL)/1.4 Gbps (UL)
LTE		LTE-FDD: 1.6 Gbps (DL)/200 Mbps (UL)	LTE-FDD: 1.6 Gbps (DL)/200 Mbps (UL)
UMTS (Mbps)		WCDMA: 42 (DL)/5.76 (UL)	WCDMA: 42 (DL)/5.76 (UL)
SMS		•	•
Protocols		TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces			
(U)SIM		× 2	× 2
USB		2.0/3.0/3.1	2.0/3.0/3.1
PCIe		PCIe 3.0	PCIe 3.0
Antenna		Sub-6/GNSS x 4 (RM520N-CN/RM520N-GL); Sub-6/GNSS: 4+1 (optional) (RM520N-EU)	Sub-6/GNSS x 4, mmWave × 2
Enhanced features			
MIMO		Sub-6: DL 4 × 4 , UL 2 × 2	Sub-6: DL 4 × 4 , UL 2 × 2 mmWave: DL 2 × 2, UL 2 × 2
Voice		Optional[3]	Optional
DTMF		Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA		Delta Firmware over the Air	Delta Firmware over the Air
GNSS		GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
(U)SIM card detection		•	•
Electrical features			
Supply voltage range		3.135 V ~ 4.4 V, typ. 3.7 V	3.135 V ~ 4.4 V, typ. 3.7 V
Power consumption		195 μA @ Power off; 4.7 mA @ Sleep; 40mA @ USB 2.0, Idle; 60 mA @ USB 3.0, Idle	173μA @ Power off; 5.1mA @ Sleep; 51mA @ USB2.0, Idle; 69.4mA @ USB3.0, Idle
Software features			
USB serial driver		Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13
GNSS driver		Android 4.x ~ 13	Android 4.x ~ 13
RIL driver		Android 4.x ~ 13	Android 4.x ~ 13
NDIS driver		Windows 8.1/10/11	Windows 8.1/10/11
MBIM driver		Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7
Gobinet driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
QMI_WWAN driver		Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7
PCIe driver		Windows 10/11, Linux 3.10 ~ 6.7	Windows 10/11, Linux 3.10 ~ 6.7
Certifications[3]		T-Mobile/Verizon/AT&T/NTT DOCOMO/Deutsche Telekom/Telefónica/Telstra/KT/GCF/PTCRB/CE/Anatel/CCC/RCM/IC/FCC/JATE/TELEC/KC/NCC/SRRC	Quectel will provide technical support for customer to certify RM530N-GL based device directly
Recommended applications		Industrial routers, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage

Note 1: Excl. China/Japan.
Note 2: means the data transmission is theoretical data rate and depends on network conditions.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G NR modules

Product	RG500Q-EU/RG501Q-EU/RG502Q-EU
	
Form factor	LGA
Dimensions (mm)	41.0 × 44.0 × 2.75
5G	Sub-6 GHz
Frequency bands (MHz)	5G NR: n1/3/5/7/8/20/28/38/40/41/77/78; LTE-FDD: B1/3/5/7/8/20/28/32; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8
Region	EMEA/APAC (exclude China)/Brazil
Weight (approx.) (g)	11
Operating temperature	-30°C ~ +75°C
Extended temperature	-40°C ~ +85°C
Control via AT commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)[1]	
5G SA Sub-6	2.1 Gbps (DL)/900Mbps (UL) (RG500Q-EU/RG501Q-EU); 4.2 Gbps (DL)/900Mbps (UL) (RG502Q-EU)
5G NSA Sub-6	2.5 Gbps (DL)/600/650 Mbps (UL)[2] (RG500Q-EU); 3.3 Gbps (DL)/600/650 Mbps (UL)[2] (RG501Q-EU); 5.0 Gbps (DL)/600/650 Mbps (UL)[2] (RG502Q-EU)
LTE	LTE-FDD: 1 Gbps (DL)/200 Mbps (UL) (RG500Q-EU); LTE-FDD: 2 Gbps (DL)/200 Mbps (UL) (RG501Q-EU/RG502Q-EU)
UMTS (Mbps)	WCDMA: 42 (DL)/5.76 (UL)
SMS	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces	
(U)SIM	× 2, 1.8 V/2.95 V
UART	× 3
USB	2.0/3.0/3.1
PCIe	PCIe Gen3 × 2 Lane
RGMII	•
PCM	•
I2C	× 1
SPI	•
GPIO	•
ADC	× 2
SD card	•
RESET_N	•
Antenna	Cellular: 4+2 (B32), GNSS: x 1
Enhanced features	
MIMO	4 × 4 DL
Voice	Optional
DTMF	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air
GNSS	GPS/GLONASS/BDS/Galileo
(U)SIM card detection	•
Electrical features	
Supply voltage range	3.3 V ~ 4.3 V, typ. 3.8 V
Power consumption	0.045 mA @ Power off 1.5 mA @ Sleep, Typ. 25 mA @ Idle
Software features	
USB serial driver	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13
GNSS driver	Android 4.x ~ 13
RIL driver	Android 4.x ~ 13
NDIS driver	Windows 8.1/10/11
MBIM driver	Windows 8.1/10/11, Linux 3.18 ~ 6.7
Gobinet driver	Linux 2.6 ~ 6.7
QMI_WWAN driver	Linux 3.4 ~ 6.7
PCIe driver	Windows 10/11, Linux 3.10 ~ 6.7
Certifications[3]	CE/RCM/GCF
Recommended applications	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage

Note 1: means the data transmission is theoretical data rate and depends on network condition.
Note 2: 600 Mbps is the typical value; while 650 Mbps is the theoretical data rate when the UL 256QAM of both LTE and 5G NR are enabled (LTE UL 256QAM in EN-DC is disabled by default and has not been deployed by operators, and it is not fully tested).
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G NR modules

Product	RM500Q-AE/RM502Q-AE/RM505Q-AE
	
Form factor	M.2
Dimensions (mm)	52.0 × 30.0 × 2.3
5G	Sub-6 GHz
Frequency bands (MHz)	5G NR: n1/2/3/5/7/8/12/20/25/28/38/40/41/48/66/71/77/78/79; LTE-FDD: B1/2/3/4/5/7/8/12 (17)/13/14/18/19/20/25/26/28/29/30/32/66/71; LTE-TDD: B34/38/39/40/41/42/43/48; LAA: B46[1]; WCDMA: B1/2/3/4/5/6/8/19
Region	Global (except for China)
Weight (approx.) (g)	8.7
Operating temperature	-30°C ~ +70°C
Extended temperature	-40°C ~ +85°C
Control via AT commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)[2]	
5G SA Sub-6	2.1Gbps (DL)/450 Mbps (UL) (RM500Q-AE/RM505Q-AE); 4.2 Gbps (DL)/450 Mbps (UL) (RM502Q-AE)
5G NSA Sub-6	2.5 Gbps (DL)/650 Mbps (UL) (RM500Q-AE/RM505Q-AE); 5 Gbps (DL)/650 Mbps (UL) (RM502Q-AE)
5G NSA mmWave	/
LTE	LTE-FDD: 1 Gbps (DL)/200 Mbps (UL) (RM500Q-AE/RM505Q-AE); LTE-FDD: 2 Gbps (DL)/200 Mbps (UL) (RM502Q-AE)
UMTS (Mbps)	WCDMA: 42 (DL)/5.76 (UL)
SMS	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces	
(U)SIM	x 1, 1.8 V/3.0 V (RM500Q-AE/RM502Q-AE) x 2, 1,8 V/3.0 V (RM505Q-AE)
USB	2.0/3.0/3.1
PCIe	PCIe Gen3 × 1 Lane
PCM	x 1
GPIO	•
RESET_N	•
Antenna	Cellular: × 4, GNSS: × 1
Enhanced features	
MIMO	DL: 4 × 4, UL: 2 × 2 (Only n41)
Voice	Optional
DTMF	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM card detection	•
Electrical features	
Supply voltage range	3.135 V ~ 4.4 V, typ. 3.7 V
Power consumption	82 μA @ Power off 4.2 mA @ Sleep, Typ. 32 mA, USB 2.0 @ Idle 55 mA, USB 3.0 @ Idle
Software features	
USB serial driver	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13
GNSS driver	Android 4.x ~ 13
RIL driver	Android 4.x ~ 13
NDIS driver	Windows 8.1/10/11
MBIM driver	Windows 8.1/10/11, Linux 3.18 ~ 6.7
Gobinet driver	Linux 2.6 ~ 6.7
QMI_WWAN driver	Linux 3.4 ~ 6.7
PCIe driver	Windows 10/11, Linux 3.10 ~ 6.7
Certifications[3]	Deutsche Telecom/Verizon/ AT&T/T-Mobile/Telus/Telstra/CE/RCM/GCF/PTCRB/FCC/IC/JATE/TELEC/NCC
Recommended applications	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage

Note 1: RM500Q-AE/RM505Q-AE: only support 2 × 2 MIMO.
Note 2: means the data transmission is theoretical data rate and depends on network conditions.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G NR modules

Product		RG500L	RG600L-EU	RG600L-JP
				
Form factor		LGA	LGA	LGA
Dimensions (mm)		41.0 × 44.0 × 2.75	44.0 × 53.0 × 2.95	44.0 × 53.0 × 2.95
5G		Sub-6 GHz	Sub-6 GHz	Sub-6 GHz
Frequency bands (MHz)	-EU (EMEA/Oceania/Brazil)	5G NR: n1/3/5/7/8/20/28/38/40/41/77/78; LTE-FDD: B1/3/5/7/8/20/28/32; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	RG600L-EUAA: 5G NR: n1/3/5/7/8/20/28/38/40/41/75/76/77/78; LTE-FDD: B1/3/5/7/8/20/28/32; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8 RG600L-EUAB: 5G NR: n1/3/5/7/8/20/28/38/40/41/71/77/78; LTE FDD: B1/3/5/7/8/20/28/71; LTE TDD: B38/40/41/42/43; WCDMA: B1/5/8	/
	-NA (North America)	5G NR: n2/5/7/12/25/38/41/48/66/71/77/78; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29/30/66/71; LTE-TDD: B38/41/42/43/48; LAA: B46	/	/
	-AR (India)	5G: n1/3/5/8/40/78; LTE-FDD: B1/3/5/8; LTE-TDD: B40	/	/
	-ARS (India)	5G: n1/3/40/78; LTE-FDD: B1/3; LTE-TDD: B40	/	/
	-JIO (India)	5G: n78	/	/
	-JP (Japan)	/	/	5G NR: n1/3/28/38/41/77/78/79; LTE-FDD: B1/3/5/8/12/17/18/19/21/26/28; LTE-TDD: B38/41/42
Weight (approx.) (g)		11.16 (RG500L-EU/RG500L-NA); 11.32 (RG500L-AR/RG500L-ARS); 10.91(RG500L-JIO)	16.56	15.14
Operating temperature		-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C
Extended temperature		-40°C ~ +85°C	-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	3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)[1]				
5G SA Sub-6		4.67 Gbps (DL)/1.25 Gbps (UL)	4.67 Gbps (DL)/1.25 Gbps (UL)	4.67 Gbps (DL)/1.25 Gbps (UL)
5G NSA Sub-6		4.67 Gbps(DL)/825 Mbps(UL)(RG500L-EU/RG500L-NA), 3.75 Gbps (DL)/725 Mbps(UL) (RG500L-AR), 4.67 Gbps (DL)/836 Mbps(UL) (RG500L-ARS)	4.67 Gbps (DL)/836 Mbps (UL)	4.67 Gbps (DL)/836 Mbps (UL)
LTE		LTE-FDD: 1.6 Gbps (DL)/211 Mbps (UL) (RG500L-EU/RG500L-NA/RG500L-ARS), 1.6 Gbps (DL)/200 Mbps (UL) (RG500L-AR)	LTE-FDD: 1.6 Gbps (DL)/211 Mbps (UL)	LTE-FDD: 1.6 Gbps (DL)/211 Mbps (UL)
UMTS (Mbps)		WCDMA: 42 (DL)/5.76 (UL) (RG500L-EU/RG500L-NA)	WCDMA: 42.2 (DL)/11.5 (UL)	/
SMS		•	•	•
Protocols		HTTPS/TCP/UDP/FTP/HTTP/PING/FTPS/SSL/NTP	HTTPS/TCP/UDP/FTP/HTTP/PING/FTPS/SSL/NTP	HTTPS/TCP/UDP/FTP/HTTP/PING/FTPS/SSL/NTP
Interfaces				
(U)SIM		× 2 (Dual SIM single standby)	× 2 (Dual SIM single standby)	× 2 (Dual SIM single standby)
UART		× 3 (including 1 Bluetooth UART)	× 3 (including 1 Bluetooth UART)	× 3 (including 1 Bluetooth UART)
USB		× 1 (USB 2.0/3.0)	× 1 (USB 2.0/3.0)	× 1 (USB 2.0/3.0)
PCIe		PCIe 3 × 4(RG500L-EU/RG500L-NA); PCIe 3 × 2 (RG500L-AR); PCIe 3 × 1(RG500L-JIO/RG500L-ARS)	PCIe 3 × 2	PCIe 3 × 2
SGMII		× 2(RG500L-EU/RG500L-NA/RG500L-AR); × 1(RG500L-ARS)	× 2	× 2
PCM		•	•	•
I2C		× 1	× 4	× 4
SPI		× 2(RG500L-EU/RG500L-NA/RG500L-AR/RG500L-ARS); × 1(RG500L-JIO)	× 2	× 2
GPIO		•	•	•
ADC		× 3 (RG500L-EU/RG500L-NA/RG500L-AR); × 2 (RG500L-JIO)	× 3	× 3
SD card		•	•	•
RESET_N		•	•	•
Antenna		Cellular: × 8, GNSS: × 1(RG500L-EU/RG500L-NA); Cellular: × 8, (RG500L-AR); Cellular: × 4, (RG500L-JIO/RG500L-ARS)	Cellular: × 8	Cellular: × 8
Enhanced features				
MIMO		DL: 4 × 4, UL: 2 × 2	DL: 4 × 4, UL: 2 × 2	DL: 4 × 4, UL: 2 × 2
Voice		Optional	Optional	Optional
DTMF		•	•	•
FOTA		•	•	•
GNSS		GPS/BDS/GLONASS/Galileo, L1 only (RG500L-NA); GPS/BDS/GLONASS/Galileo, L1 + L5 (RG500L-EU)	/	/
(U)SIM card detection		•	•	•
Electrical features				
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V	3.3 V ~ 4.3 V, typ. 3.8 V	3.3 V ~ 4.3 V, typ. 3.8 V
Power consumption		80 μA @ Power off 6.5 mA @ Sleep 125 mA @ Idle (USB active)	100 μA @ Power off 6.5 mA @ Sleep 125 mA @ Idle (USB active)	78μA @ Power off 3.37mA @ Sleep 111 mA @ Idle (USB active)
Software features				
USB serial driver		Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13	Linux 3.18 ~ 6.5	Linux 3.18 ~ 6.5
GNSS driver		Android 4.x ~ 13	/	/
RIL driver		Android 4.x ~ 13	/	/
NDIS driver		Windows 8.1/10/11	/	/
MBIM driver		Windows 8.1/10/11, Linux 3.18 ~ 6.7	/	/
Gobinet driver		Linux 2.6 ~ 6.7	/	/
QMI_WWAN driver		Linux 3.4 ~ 6.7	/	/
PCIe driver		Windows 10/11, Linux 3.10 ~ 6.7	/	/
Certifications[2]		GCF/CE/RCM/FCC/IC	GCF/CE/RCM/Anatel(RG600L-EUAA)/KC*(RG600L-EUAA)	JATE/TELEC
Recommended applications		Wireless routers, CPE, industrial routers, home gateways, etc.	Wireless routers, CPE, industrial routers, home gateways, etc.	Wireless routers, CPE, industrial routers, home gateways, etc.

Note 1: means the data transmission is theoretical data rate and depends on network conditions.
Note 2: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G NR modules

Product		RG620T	RG620T-SBK
			
Form factor		LGA	LGA
Dimensions (mm)		44.0 × 53.0 × 2.95	44.0 × 53.0 × 2.95
5G		Sub-6 GHz	Sub-6 GHz
Frequency bands (MHz)	-EU (EMEA/Oceania/Brazil)	5G NR: n1/3/5/7/8/20/28/38/40/41/75/76/77/78; LTE-FDD: B1/3/5/7/8/20/28/32; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	/
	-NA (North America)	5G NR: n2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71/77/78; LTE-TDD: B38/41/42/43/48; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29/30/66/70/71; LAA: B46	/
	-EP (EMEA)	5G NR: n1/3/7/8/28/78; LTE-FDD: B1/3/7/8/28; LTE-TDD: B40	5G NR: n3/28/77/79; LTE-FDD: B1/8; LTE-TDD: B41/42
	-EUC(EMEA/APAC/Brazil)	5G NR: n1/3/5(optional)/7/8/20/28/38/40/41/71(optional)/75/76/77/78; LTE-FDD: B1/3/5(optional)/7/8/18/19/20/26/28/32/71(optional); LTE-TDD: B38/40/41/42/43; WCDMA: B1/5(optional)/8	/
	-EM (EMEA/Oceania/Brazil)	5G NR: n1/3/5 /7/8/20/28/38/40/41/71/77/78; LTE-FDD: B1/3/5/7/8/20/28/71; LTE-TDD: B38/40/41/42/43; WCDMA: B1/5/8	
	-EG (EMEA/Oceania/Brazil)	5G NR: n1/3/5/7/8/20/28/38/40/41/77/78/79; LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41/42/43 ; WCDMA: B1/5/8	
Weight (approx.) (g)		16.82 (RG620T-EU/RG620T-NA); 16.61 (RG620T-EP) 15.42 (RG620T-EUC)	16.59
Operating temperature		-30°C ~ +70°C	-30°C ~ +70°C
Extended temperature		-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 (Max.)[1]			
5G SA Sub-6		7.01 Gbps (DL)/2.5 Gbps (UL)	7.01 Gbps (DL)/2.5 Gbps (UL)
5G NSA Sub-6		5.67 Gbps (DL)/1.46 Gbps (UL)	/
LTE		LTE-FDD: 1.6 Gbps (DL)/211 Mbps (UL)	LTE-FDD: 1.6 Gbps (DL)/211 Mbps (UL)
UMTS (Mbps)		WCDMA: 42.2(DL)/11.5(UL) (RG620T-EU/RG620T-EUC)	/
SMS		•	•
Protocols		HTTPS/TCP/UDP/FTP/HTTP/PING/FTPS/SSL/NTP	HTTPS/TCP/UDP/FTP/HTTP/PING/FTPS/SSL/NTP
Interfaces			
(U)SIM		× 2 (Dual SIM single standby)	× 2
UART		× 3	× 3
USB		× 1 (USB 2.0/3.2)	× 1 (USB 2.0/3.2)
PCIe		PCIe 4 × 1, PCIe 3 × 2, PCIe 4 × 1, PCIe 3 × 1(RG620T-EUC)	PCIe 4 × 1, PCIe 3 × 1
UXSGMII		× 2	× 2
I2C		× 2	× 1
SPI		× 3	× 2
GPIO		•	•
ADC		× 3	× 4
SD card		•	/
RESET_N		•	•
Antenna		Cellular: × 8, GNSS (optional): × 1 (RG620T-EU & EM & EG); Cellular: × 8, GNSS: × 1 (RG620T-NA/RG620T-EP) Cellular: × 8(RG620T-EUC)	Cellular : × 6, GNSS: × 1 (RG620T-SBK)
Enhanced features			
MIMO		DL: 4 × 4, UL: 2 × 2	DL: 4 × 4, UL: 2 × 2
Voice		Optional	Optional
DTMF		•	Dual-tone Multi-frequency
FOTA		•	•
GNSS		GPS/BDS/GLONASS/Galileo/QZSS, L1 + L5 (optional) (RG620T-EU); GPS/BDS/GLONASS/Galileo/QZSS, L1 + L5 (RG620T-EP/RG620T-NA)	GPS/BDS/GLONASS/Galileo/QZSS, L1
(U)SIM card detection		•	•
Electrical features			
Supply voltage range		3.3 V ~ 4.4 V, typ. 3.8 V	3.3 V ~ 4.4 V, typ. 3.8 V
Power consumption		135 μA @ Power off 6 mA @ Sleep 145 mA @ Idle (USB active)	135 μA @ Power down 4 mA @ Sleep 160 mA @ Idle (USB connected)
Software features			
USB serial driver		Linux 3.18 ~ 6.5	Linux 3.18 ~ 6.5
GNSS driver		/	/
RIL driver		/	/
RNDIS driver		/	/
Certifications[2]		CE/RCM/GCF/FCC/IC/PTCRB/AT&T/T-Mobile/Verizon/Telstra*(RG620T-EU) CE*/RCM*/GCF*(RG620T-EUC)	JATA/TELEC
Recommended applications		Industrial routers, CPE, home gateways, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, CPE, MHS, home gateways, industrial PDAs, rugged tablet PCs and digital signage

Note 1: means the data transmission is theoretical data rate and depends on network conditions.
Note 2: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G NR modules

Product		RG500U	RM500U
			
Form factor		LGA	M.2
Dimensions (mm)		41.0 × 44.0 × 2.85	52.0 × 30.0 × 2.3 (RM500U-CNV); 52.0 × 30.0 × 3.75 (RM500U-EA)
5G		Sub-6 GHz	Sub-6 GHz
Frequency bands (MHz)	-EA (APAC/Africa)	5G NR: n1/3/5/7/8/20/28/38/40/41/66/77/78; LTE-FDD: B1/2/3/4/5/7/8/20/28A/28B/66; LTE-TDD: B38/40/41; WCDMA: B1/2/5/8	5G NR: n1/3/5/7/8/20/28/38/40/41/66/77/78; LTE-FDD: B1/2/3/4/5/7/8/20/28/66; LTE-TDD: B38/40/41; WCDMA: B1/2/5/8
	-EB (APAC/Africa)	5G NR: n1/3/5/7/8/20/28/38/40/41/66/77/78; LTE-FDD: B1/2/3/4/5/7/8/20/28/66; LTE-TDD: B38/40/41; WCDMA: B1/2/5/8	/
	-LA (Latin America)	5G NR: n2/5/7/8/28/38/40/66/71/78; LTE-FDD: B2/4/5/7/8/26/28/66/71; LTE-TDD: B38/40; WCDMA: B2/4/5	/
	-CNV (China)	/	5G NR: n1/3/5/8/28A/41/77[1]/78/79; LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/5[1]/8
Weight (approx.) (g)		13 (RG500U-EA); 12.5 (RG500U-EB); 12.2 (RG500U-LA)	9.2 (RM500U-EA); 8.8 (RM500U-CNV)
Operating temperature		-30° C ~ +75° C	-30° C ~ +75° C
Extended temperature		-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 (Max.)[2]			
5G SA Sub-6		2 Gbps (DL)/1 Gbps (UL)	2 Gbps (DL)/1 Gbps (UL)
5G NSA Sub-6		2.6 Gbps (DL)/650 Mbps (UL)	2.6Gbps (DL)/650Mbps (UL) (RM500U-EA); 2.2 Gbps (DL)/575 Mbps (UL) (RM500U-CNV)
LTE (Mbps)		LTE-FDD: 600 (DL)/150 (UL)	LTE-FDD: 600 (DL)/150 (UL)
UMTS (Mbps)		WCDMA: 42.2 (DL)/11 (UL)	WCDMA: 42.2 (DL)/11 (UL)
SMS		•	•
Protocols		TCP/UDP/PPP/FTP/HTTP/HTTPS/FTPS/SSL/NTP	TCP/UDP/PPP/FTP/HTTP/HTTPS/FTPS/SSL/NTP
Interfaces			
(U)SIM		× 2, 1.8 V/ 3.0 V	× 2, 1.8 V/3.0 V
USB		2.0/3.0	2.0/3.0
PCIe		PCIe Gen2 × 1 Lane	PCIe Gen2 × 1 Lane
PCM		•	•
GPIO		•	•
RESET_N		•	•
Antenna		Cellular: × 4 (RG500U-EB); Cellular: × 6 (RG500U-EA/RG500U-LA)	Cellular: × 4
Enhanced features			
MIMO		DL 4 × 4 MIMO: n1/3/7/38/40/41/77/78/79[1], UL 2 × 2 MIMO: n38/40/41/77/78/79[1], DL 2 × 2 MIMO: n5[1]/8/20/28/66[1]/71*& LTE (RG500U-EA); DL 4 × 4 MIMO: n1/3/7/28/38/40/41/66/77/78, UL 2 × 2 MIMO: n38/40/41/77/78, DL 2 × 2 MIMO: n5/8/20 & LTE (RG500U-EB); DL 4 × 4 MIMO: n2/7/28/38/40/66/78, UL 2 × 2 MIMO: n38/40/78, DL 2 × 2 MIMO: n5/8/71 & LTE (RG500U-LA);	DL 4 × 4 MIMO: n1/3/7/28/66/38/40/41/77/78, UL 2 × 2 MIMO: n38/40/41/77/78, DL 2 × 2 MIMO: n5/8/20 & LTE (RM500U-EA); DL 4 × 4 MIMO: n1/28A/41/77/78/79, UL 2 × 2 MIMO: n41/77/78/79, DL 2 × 2 MIMO: n3/5/8 (RM500U-CNV)
Voice		Optional	Optional
DTMF		Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA		Delta Firmware over the Air	Delta Firmware over the Air
GNSS		/	/
(U)SIM card detection		•	•
Electrical features			
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V	3.3 V ~ 4.4 V, typ. 3.7 V
Power consumption		86 μA @ Power off; 4.4 mA @ Sleep; 56 mA @ USB 2.0, idle; 70 mA @ USB 3.0, idle (RG500U-EA); 88 μA @ Power off; 5.0 mA @ Sleep; 56 mA @ USB 2.0, idle; 70 mA @ USB 3.0, idle (RG500U-EB); 82 μA @ Power off; 5.0 mA @ Sleep; 60 mA @ USB 2.0, idle; 73 mA @ USB 3.0, idle (RG500U-LA)	99 μA @ Power off; 4.8 mA @ Sleep; 62 mA @ USB 2.0, idle; 75.5 mA @ USB 3.0, idle (RM500U-EA); 78 μA @ Power off; 5.1 mA @ Sleep; 57 mA @ USB 2.0, idle; 71 mA @ USB 3.0, idle (RM500U-CNV)
Software features			
USB serial driver		Windows 7*/8/8.1/10/11, Linux 2.6 ~ 6.5, Android 4.x ~ 13.x	Windows 7*/8/8.1/10/11, Linux 2.6 ~ 6.5, Android 4.x ~ 13.x
GNSS driver		/	/
RIL driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x
RNDIS driver		Windows 7*/8/8.1/10/11, Linux 2.6 ~ 6.5	Windows 7*/8/8.1/10/11, Linux 2.6 ~ 6.5
MBIM driver		/	/
ECM driver		Linux 2.6 ~ 6.5	Linux 2.6 ~ 6.5
NCM driver		Linux 2.6 ~ 6.5	Linux 2.6 ~ 6.5
PCIe driver		Linux 3.10 ~ 6.5	Linux 3.10 ~ 6.5
Certifications[3]		China Telecom/China Mobile*/China Unicom*/GCF/CE/RCM/FCC	China Telecom*/China Mobile*/China Unicom*/CCC/SRRC/NAL/CE/RCM
Recommended applications		Wireless routers, CPE, industrial routers, home gateways, etc. (RG500U-EA); used in vertical industries such as smart energy, internet of vehicles, industrial internet, telemedicine, smart education, high-definition video, smart city, and home entertainment (RG500U-EB/RG500U-LA);	Wireless routers, CPE, industrial routers, home gateways, etc. (RM500U-CNV) industrial routers, home gateways, set-top boxes, industrial PDAs and digital labels (RM500U-EA)

Note 1: OC optional.
Note 2: means the data transmission is theoretical data rate and depends on network conditions.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G RedCap modules

5G RedCap modules

Product		RG255C	RG255C M.2	RG255C Mini PCIe	RM255C-GL
					
Form factor		LGA	M.2	Mini PCIe	M.2
Dimensions (mm)		29.0 × 32.0 × 2.4	30.0 × 42.0 × 3.25	30.0 × 50.95 × 4.95	42.0 × 30.0 × 2.3
5G		5G RedCap	5G RedCap	5G RedCap	5G RedCap
Frequency bands (MHz)	-NA (North America)	5G: n2/5/7/12/13/14/25/26/30/38/41/48/66/70/71/77/78; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/30/66/71; LTE-TDD: B38/41/42/43/48	/	/	/
	-EU (EMEA/APAC[1]/Brazil)	5G: n1/3/5/7/8/20/28/38/40/41/77/78; LTE-FDD: B1/3/5/7/8/20/28/71; LTE-TDD: B38/40/41/42/43	/	/	/
	-GL (Global)	5G SA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/70/71/77/78/79; LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/30/66/70/71; LTE-TDD: B34/38/39/40/41/42/43/48	5G SA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/70/71/77/78/79; LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/30/66/71; LTE-TDD: B34/38/39/40/41/42/43/48	5G SA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/70/71/77/78/79; LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/30/66/71; LTE-TDD: B34/38/39/40/41/42/43/48	5G SA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/70/71/77/78; LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/30/66/71; LTE-TDD: B34/38/39/40/41/42/43/48
Weight (approx.) (g)		5.2	8.4	11	6.0
Operating temperature		-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C
Extended temperature		-40°C ~ +85°C	-40°C ~ +85°C	-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	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)					
5G (Mbps)		223 (DL)/123 (UL)	223 (DL)/123 (UL)	223 (DL)/123 (UL)	223 (DL)/123 (UL)
LTE (Mbps)		195 (DL)/105 (UL)	195 (DL)/105 (UL)	195 (DL)/105 (UL)	200 (DL)/105 (UL)
UMTS (Mbps)		/	/	/	/
SMS		Support SGS, IMS and NAS SMS	Support SGS, IMS and NAS SMS	Support SGS, IMS and NAS SMS	Support SGS, IMS and NAS SMS
Protocols		TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/MQTT (S)/SMTP (S)/NTP/PING/NITZ/LwM2M protocols	TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/MQTT (S)/SMTP (S)/NTP/PING/NITZ/LwM2M protocols	TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/MQTT (S)/SMTP (S)/NTP/PING/NITZ/LwM2M protocols	TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/MQTT (S)/SMTP (S)/NTP/PING/NITZ/LwM2M protocols
Interfaces					
(U)SIM		× 2	× 2	× 2	× 2
UART		× 2	/	× 1	/
USB		2.0	2.0	2.0	2.0
PCIe		PCIe Gen2 × 1 Lane	PCIe Gen2 × 1 Lane	/	PCIe Gen2 × 1 Lane
PCM		•	•	•	•
GPIO		•	/	/	/
RESET_N		•	•	•	•
Antenna		Cellular: × 2, GNSS: × 1	Cellular: × 2, GNSS: × 1	Cellular: × 2, GNSS: × 1	Cellular: × 2, GNSS: × 1 (Optional)
Enhanced features					
MIMO		/	/	/	/
Voice		Optional	Optional	Optional	/
DTMF		•	•	•	•
DFOTA		•	•	•	•
GNSS		GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/NaVIC*/QZSS
(U)SIM card detection		•	•	•	•
Electrical features					
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V	3.135 V ~ 4.4 V, typ. 3.7 V	3.0 V ~ 3.6 V, typ. 3.3 V	3.135 V ~ 4.4 V, typ. 3.7 V
Power consumption		0.05 mA @ Power off, 1.8 mA @ Sleep, Typical (RG255C-GL) TBD (RG255C-NA*/RG255C-EU*)	0.13 mA @ Power off, 3 mA @ Sleep, Typical	4 mA @ Sleep, Typical	101 μA @ Power off, 2.83 mA @ Sleep mode, 21.97 mA @ Idle state
Software features					
USB serial driver		Windows 8.1/10/11, linux 2.6 ~ 6.7, Android 4.x ~ 13	Windows 8.1/10/11, linux 2.6 ~ 6.7, Android 4.x ~ 13	Windows 8.1/10/11, linux 2.6 ~ 6.7, Android 4.x ~ 13	Windows 8.1/10/11, linux 2.6 ~ 6.7, Android 4.x ~ 13
GNSS driver		Android 4.x ~ 13	Android 4.x ~ 13	Android 4.x ~ 13	Android 4.x ~ 13
RIL driver		Android 4.x ~ 13	Android 4.x ~ 13	Android 4.x ~ 13	Android 4.x ~ 13
NDIS driver		Windows 8.1/10/11	Windows 8.1/10/11	Windows 8.1/10/11	Windows 8.1/10/11
MBIM driver		Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7	Windows 8.1/10/11, Linux 3.18 ~ 6.7
Gobinet driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
QMI_WWAN driver		Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7
PCIe driver		Windows 10/11, Linux 3.10 ~ 6.7	Windows 10/11, Linux 3.10 ~ 6.7	Windows 10/11, Linux 3.10 ~ 6.7	Windows 10/11, Linux 3.10 ~ 6.7
Certifications[2]		FCC/IC/PTCRB/CE/RCM/GCF/Verizon*/AT&T/T-Mobile	CE, RCM, FCC and IC are reported only; GCF*, PTCRB*, AT&T* and T-Mobile* can reuse RG255C-GL certification result; Verizon* need be delta-tested based on RG255C-GL and certified separately as Variant.	CE, RCM, FCC and IC are reported only; GCF*, PTCRB*, AT&T* and T-Mobile* can reuse RG255C-GL certification result; Verizon* need be delta-tested based on RG255C-GL and certified separately as Variant.	FCC/IC/CE/RCM/GCF/PTCRB/AT&T*/Verizon*/T-Mobile*
Recommended applications		Industrial routers, industrial PDAs, rugged tablet PCs, wearable devices and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs, wearable devices and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs, wearable devices and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs, wearable devices and digital signage

Note 1: Excl. China/Japan.
Note 2: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G RedCap modules

Product		RG255AA	RG255AA-CN M.2
			
Form factor		LGA	M.2
Dimensions (mm)		29.0 × 32.0 × 2.4	30.0 × 52.0 × 3.25
5G		5G RedCap	5G RedCap
Frequency bands (MHz)	-CN (China)	5G SA: n1/3/5/8/28/40/41/78/79; LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41	5G SA: n1/3/5/8/28/40/41/78/79; LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41
	-EU (EMEA/ Southeast Asia/Australia/ New Zealand)	5G SA: n1/3/5/7/8/20/28/38/40/41/77/78; LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41/42/43	
Weight (approx.) (g)		4.7	/
Operating temperature		-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature		-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 (Max.)			
5G (Mbps)		226 (DL)/120 (UL)	226 (DL)/120 (UL)
LTE (Mbps)		150 (DL)/50 (UL)	150 (DL)/50 (UL)
UMTS (Mbps)		/	/
SMS		*	*
Protocols		TCP/UDP/PPP/FTP/HTTP/HTTPS/FTPS/SSL/NTP	TCP/UDP/PPP/FTP/HTTP/HTTPS/FTPS/SSL/NTP
Interfaces			
(U)SIM		× 2	× 2
UART		× 2	/
USB		× 1	× 1
PCIe		× 1	× 1
PCM		× 1	× 1
GPIO		•	•
RESET_N		•	•
Antenna		Cellular: × 2	Cellular: × 2
Enhanced features			
MIMO		DL: 2 × 2, UL: 1 × 1	DL: 2 × 2, UL: 1 × 1
Voice		•	•
DTMF		•	•
DFOTA		•	•
GNSS		/	/
(U)SIM card detection		•	•
Electrical features			
Supply voltage range		3.4 V ~ 4.3 V, typ. 3.8 V	3.4 V ~ 4.3 V, typ. 3.8 V
Power consumption		Typical 2.9 mA @ sleep, Typical 39 mA @ Idle	TBD
Software features			
USB serial driver		Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x
RIL driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x
USB RNDIS driver		Windows 8.1/10/11, Linux 2.6 ~ 6.7	Windows 8.1/10/11, Linux 2.6 ~ 6.7
USB ECM driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
Certifications[1]		CCC/SRRC/NAL/CE*/RCM*	CCC*/SRRC*/NAL*
Recommended applications		CPE, MiFi, electric power	Cloud computers

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

5G RedCap modules

Product	RG255G*	RG255G M.2*	RG255G Mini PCIe*
			
Form factor	LGA	M.2	Mini PCIe
Dimensions (mm)	29.0 × 32.0 × 2.4	30.0 × 42.0 × 3.25	30.0 × 50.95 × 4.95
5G	5G RedCap	5G RedCap	5G RedCap
Frequency bands (MHz) -NA* (North America)	5G SA: n2/5/7/12/13/14/25/26/30/38/41/48/66/71/77/78; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/30/66/71; LTE-TDD: 38/41/42/43/48	/	/
Frequency bands (MHz) -EU* (EMEA/APAC/Brazil)	5G SA: n1/3/5/7/8/20/28/38/40/41/77/78; LTE-FDD: B1/3/5/8/20/28/71; LTE-TDD: B38/40/41/42/43	/	/
Frequency bands (MHz) -CN* (China)	5G SA: n1/5/8/28/41/78/79 (optional); LTE-FDD: B1/3/5/8; LTE-TDD: B38/39/40/41	/	/
Frequency bands (MHz) -GL* (Global)	5G SA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/71/77/78; LTE-FDD: B1/2/3/4/5/7/8/12 (17)/13/14/18/19/20/25/26/28/30/66/71; LTE-TDD: 34/38/39/40/41/42/43/48	5G SA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/71/77/78; LTE-FDD: B1/2/3/4/5/7/8/12 (17)/13/14/18/19/20/25/26/28/30/66/71; LTE-TDD: 34/38/39/40/41/42/43/48	5G SA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/71/77/78; LTE-FDD: B1/2/3/4/5/7/8/12 (17)/13/14/18/19/20/25/26/28/30/66/71; LTE-TDD: 34/38/39/40/41/42/43/48
Weight (approx.) (g)	4.85	TBD	TBD
Operating temperature	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C
Extended temperature	-40°C ~ +85°C	-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	3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)			
5G (Mbps)	227 (DL)/122 (UL)	227 (DL)/122 (UL)	227 (DL)/122 (UL)
LTE (Mbps)	150 (DL)/75 (UL)	150 (DL)/75 (UL)	150 (DL)/75 (UL)
SMS	•	•	•
Interfaces			
(U)SIM	× 2	× 2	× 1
UART	× 2	× 2	× 2
USB	USB 2.0 × 1	USB 2.0 × 1	USB 2.0 × 1
PCIe	PCIe 1.0* × 1	PCIe 1.0* × 1	/
PCM	× 1	× 1	× 1
I2C*	× 1	/	× 1
SPI*	× 1	/	/
GPIO	•	•	•
ADC	× 2	/	/
RESET_N	•	•	•
Antenna	Cellular: × 2, GNSS: × 1 (Optional)	Cellular: × 2, GNSS: × 1 (Optional)	Cellular: × 2, GNSS: × 1 (Optional)
Enhanced features			
MIMO	DL: 2 × 2, UL: 1 × 1	DL: 2 × 2, UL: 1 × 1	DL: 2 × 2, UL: 1 × 1
FOTA*	•	•	•
GNSS	•	•	•
(U)SIM Card Detection*	•	•	•
Electrical features			
Supply voltage range	3.3 V ~ 4.3 V, typ. 3.8 V	3.135 V ~ 4.4 V, typ. 3.7 V	3.0 V ~ 3.6 V, typ. 3.3 V
Power consumption	0.06 mA @ Power Off, 1.89 mA @ sleep (Typical)	TBD	TBD
Software features			
USB serial driver	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 14.x*	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 14.x*	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 14.x*
GNSS driver*	Android 4.x ~ 14.x	Android 4.x ~ 14.x	Android 4.x ~ 14.x
RIL driver*	Android 4.x ~ 14.x	Android 4.x ~ 14.x	Android 4.x ~ 14.x
RNDIS driver	Windows 8.1/10/11, Linux 2.6 ~ 6.7	Windows 8.1/10/11, Linux 2.6 ~ 6.7	Windows 8.1/10/11, Linux 2.6 ~ 6.7
MBIM driver	Windows 10/11, Linux 3.18 ~ 6.7	Windows 10/11, Linux 3.18 ~ 6.7	Windows 10/11, Linux 3.18 ~ 6.7
ECM driver	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
NCM driver	Windows 11, Linux 3.10 ~ 6.7	Windows 11, Linux 3.10 ~ 6.7	Windows 11, Linux 3.10 ~ 6.7
PCIe driver*	linux 5.15 ~ 6.7	Linux 5.15 ~ 6.7	Linux 5.15 ~ 6.7
Certifications[1]	FCC*/IC*/PTCRB*/CE*/RCM*/GCF*/CCC*/NAL*	/	/
Recommended applications	Industrial routers, industrial PDAs, rugged tablet PCs, wearable devices and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs, wearable devices and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs, wearable devices and digital signage

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LTE-A modules

Product		EG060K
		
Form factor		LGA
Dimensions (mm)		37.0 × 39.5 × 2.8
4G		LTE Cat 6
Frequency bands (MHz)	-E (EMEA/Australia/ Brazil)	/
	-EA (EMEA/Australia/ Brazil)	LTE-FDD: B1/3/5/7/8/20/28/32[1]; LTE-TDD: B38/40/41/42 (optional)/43 (optional); Up to 2 × CA: B1+B1/3/5/7/8/20/28; B3+B3/5/7/8/20/28; B7+B5/7/8/20/28; B20+B32[1]; B38+B38; B40+B40; B41+B41 WCDMA: B1/3/5/8
	-NA (North America)	LTE-FDD: B2/4/5/7/12/13/14/25/26/29/30/66/71; LTE-TDD: B41/48
	-GT (Global)	LTE-TDD: B40/41/42/43/48
	-JP (Japan)	LTE-FDD: B1/3/5/8/18/19/26/28; LTE-TDD: B41; WCDMA: B1/3/5/6/8/9/19
	-LA (Latin America)	LTE-FDD: B2/4/5/7/8/25/28/66; LTE-TDD: B42/B43; WCDMA: B2/B4/B5/B8
Weight (approx.) (g)		9.1
Operating temperature		-30°C ~ +75°C
Extended temperature		-40°C ~ +85°C
Control via AT commands		3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)		
LTE (Mbps)		LTE-FDD: 300 (DL)/50 (UL); LTE-TDD: 226 (DL)/28 (UL)
UMTS		DC-HSDPA: 42 Mbps (DL)/HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL/UL)
SMS		•
Protocols		QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M*/PING*
Interfaces		
USB		2.0/3.0, supports master* and slave modes
PCM		•
I2S		× 1
SPI		× 1
SDIO		× 1
RFFE		TBD
GRFC		TBD
I2C		× 1
(U)SIM		× 2, 1.8 V/3.0 V
eSIM		Optional
GPIO		× 3
UART		× 3
ADC		× 2
RESET_N		•
PCIe		Optional
Antenna		Main, Diversity and GNSS
Enhanced features		
MIMO		2 × 2, 4 × 2, 4 × 4 DL
eCall		Emergency services
Voice		Optional
DTMF		Dual-tone Multi-frequency
DFOTA		Delta Firmware over the Air
FOTA		•
GNSS		GPS/GLONASS/BeiDou/Galileo/QZSS
(U)SIM card detection		•
Electrical features		
Supply voltage range		3.3 V ~ 4.4 V, typ. 3.8 V
Power consumption		20 μA @ Power off 2.47 mA @ LTE sleep (PF=128) 4.18 mA @ LTE sleep (PF=64) 38.8 mA @ Idle
Software features		
USB serial driver		Windows 7*/8/8.1/10, WinCE 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
RIL driver		Android 4.x/5.x/6.x/7.x/8.x
NDIS driver		Windows 7*/8/8.1/10
RNDIS driver		/
ECM driver		Linux 2.6 or later
Gobinet driver		Linux 2.6 or later
QMI_WWAN driver		Linux 3.4 or later
Certifications[2]		CE/RCM/Verizon/AT&T/T-Mobile/GCF/PTCRB/FCC/IC
Recommended applications		Routers, home gateways, set-top boxes, PDAs, tablet PCs and digital signage

Note 1: B32 is only for secondary component carrier.
Note 2: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LTE-A modules

Product		EG060W-EA
		
Form factor		LGA
Dimensions (mm)		37.0 × 39.5 x 3.05
4G		LTE Cat 6
Frequency bands (MHz)	-EA (EMEA/ APAC[1])	LTE-FDD: B1/3/5/7/8/20/28/32; LTE-TDD: B38/40/41/42[2]/43[2]; 2 × CA: B1+B1/3/5/7/8/20/28/38[2]/40[2]/41[2]/42[2]/43[2]; B3+B3/5/7/8/20/28/38[2]/40[2]/41[2]/42[2]/43[2]; B5+B5[2]/7/38[2]/40/41; B7+B7/8/20/28/32[2]/42[2]; B8+B8[2]/32[2]/38[2]/40/41/42[2]; B20+B32/38/40/41[2]/42[2]/43[2]; B28+B28[2]/32[2]/38[2]/40/41/B42[2]; B38+B38; B40+B40; B41+B41; B42+B42[2]; B43+B43[2]; WCDMA: B1/3[2]/5/8
Weight (approx.) (g)		8.2
Operating temperature		-20°C ~ +70°C
Extended temperature		-25°C ~ +75°C
Control via AT commands		3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)		
LTE (Mbps)		LTE-FDD: 300 (DL)/50 (UL) LTE-TDD: 220 (DL)/30 (UL)
UMTS		DC-HSDPA: 42 Mbps (DL) HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL/UL)
SMS		•
Protocols		TCP/PPP/UDP/FTP*/HTTP/SSL/HTTPS/NTP*/PING/MMS*/SMTPS*/FTPS*/SMTP*
Interfaces		
USB		2.0/3.0, supports master* and slave modes
PCM		× 1
SPI		× 1
SDIO		× 1
I2C		× 1
(U)SIM		× 1
RGMII		× 1
UART		× 2
ADC		× 2
RESET_N		× 1
PCIe		× 2
Antenna		× 2
Enhanced features		
MIMO		•
eCall		•
Voice		•
DTMF		•
DFOTA		/
FOTA		•
GNSS		/
(U)SIM card detection		•
Electrical features		
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V
Power consumption		56 μA @ Power off; 5.42 mA @ Sleep; 58.63 mA @ Idle
Software features		
USB serial driver		Windows 7*/8/8.1/10/11, Linux 2.6 ~ 6.5, Android 4.x ~ 13.x
RIL driver		Android 4.x ~ 13.x
NDIS driver		/
RNDIS driver		Windows 7*/8/8.1/10/11, Linux 2.6 ~ 6.5
ECM driver		Linux 2.6 ~ 6.5
Gobinet driver		/
QMI_WWAN driver		/
Certifications		CE
Recommended applications		Routers, home gateways, set-top boxes, PDAs, tablet PCs and digital signage

Note 1: Excl. China/Japan.
Note 2: Optional.

* Planning/ Under development/ In progress
• Supported

LTE-A modules

Product		EG120K	EG12	EG18
				
Form factor		LGA	LGA	LGA
Dimensions (mm)		37.0 × 39.5 × 2.8	37.0 × 39.5 × 2.8	37.0 × 39.5 × 2.8
4G		LTE Cat 12	LTE Cat 12	LTE Cat 18
Frequency bands (MHz)	-GT (Global)	/	LTE-TDD: B42/43/48	/
	-EA (EMEA/Australia/ Brazil)	LTE-FDD: B1/3/5/7/8/20/28/32 (optional); LTE-TDD: B38/40/41/42 (optional)/43 (optional); Up to 3 × CA: Intra-band and Inter-band; WCDMA: B1/3/5/8	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; Up to 3 × CA: Intra-band and Inter-band ; WCDMA: B1/3/5/8	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; Up to 3 × CA: Intra-band and Inter-band; WCDMA: B1/3/5/8
	-NA (North America)	-NA (North America) LTE-FDD: B2/4/5/7/12/13/14/25/26/29/30/66/71; LTE-TDD: B41/48	/	LTE-FDD: B2/4/5/7/12/13/14/17[1]/25/26/29/30/66/71; LTE-TDD: B41; Up to 5 × CA: Intra-band and Inter-band; WCDMA: B2/4/5
	-LA* (Latin America) (planning)	LTE-FDD: B2/4/5/7/8/25/28/66; LTE-TDD: B42/43; WCDMA: B2/4/5/8	/	/
	-JP (Japan)	LTE-FDD: B1/3/5/8/18/19/26/28; LTE-TDD: B41; WCDMA: B1/3/5/6/8/9/19	/	/
Weight (approx.) (g)		9.1	9	9
Operating temperature		-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C
Extended temperature		-40°C ~ +85°C	-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	3GPP TS27.007 and Quectel Enhanced AT Commands
Data transmission (Max.)				
LTE		LTE-FDD: 600 Mbps (DL)/150 Mbps (UL); LTE-TDD: 430 Mbps (DL)/90 Mbps (UL)	LTE-FDD: 600 Mbps (DL)/150 Mbps (UL); LTE-TDD: 430 Mbps (DL)/90 Mbps (UL)	LTE-FDD: 1.2 Gbps (DL)/150 Mbps (UL); LTE-TDD: 573 Mbps (DL)/90 Mbps (UL)
UMTS		DC-HSDPA: 42 Mbps (DL)/HSUPA: 11.2 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL)/HSUPA: 11.2 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL)/HSUPA: 11.2 Mbps (UL) WCDMA: 384 Kbps (DL/UL)
SMS		•	•	•
Protocols		QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M*/PING*	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces				
USB		2.0/3.0, supports master* and slave modes	2.0/3.0, slave mode	2.0/3.0, slave mode
PCM		× 1	•	•
I2C		× 1	× 1	× 1
(U)SIM		1.8 V/3.0 V	× 2, 1.8 V/3.0 V	× 2, 1.8 V/3.0 V
eSIM		Optional	/	/
GPIO		× 3	× 2	× 2
UART		× 2	× 3	× 3
ADC		•	× 2	× 2
SPI		× 1	× 1 (optional)	× 1 (optional)
SD card		•	•	•
RESET_N		•	•	•
PCIe		Optional	Optional	Optional
RGMII		/	/	/
Antenna		Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS
Enhanced features				
MIMO		2 × 2, 4 × 2, 4 x 4 DL	2 × 2, 4 × 2, 4 × 4 DL	2 × 2, 4 × 2, 4 × 4 DL
eCall		Emergency services*	•	•
Voice		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/QZSS	GPS/GLONASS/BeiDou/Galileo/QZSS	GPS/GLONASS/BeiDou/Galileo/QZSS
(U)SIM card detection		•	•	•
Electrical features				
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V	3.3 V ~ 4.3 V, typ. 3.8 V	3.3 V ~ 4.3 V, typ. 3.8 V
Power consumption		20 μA @ Power off 2.14 mA @ LTE sleep (PF=128) 3.55 mA @ LTE sleep (PF=64) 37.4 mA @ Idle	20 μA @ Power off 1.83 mA @ Sleep, Typ. 9.41 mA @ Idle	20 μA @ Power off 1.81 mA @ Sleep, Typ. 9.38 mA @ Idle
Software features				
USB serial driver		Windows 7*/8/8.1/10, WinCE 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	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
GNSS driver		/	/	/
RIL driver		Android 4.x/5.x/6.x/7.x/8.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
MBIM driver		Windows 7*/10, Linux 3.18 ~ 5.4	/	/
Gobinet driver		Linux 2.6/3.x/4.x/5.x	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	Linux 3.x (3.4 or later)/4.x/5.x
PCIe driver		/	/	/
Certifications[2]		CE/RCM/Verizon/AT&T/T-Mobile/GCF/PTCRB/FCC/IC	FCC/GCF/CE/RCM	Telstra/GCF/CE/RCM/Verizon/AT&T/T-Mobile/PTCRB/FCC/IC/ USCC
Recommended applications		Routers, home gateways, set-top boxes, PDAs, tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage	Industrial routers, industrial PDAs, rugged tablet PCs and digital signage

Note 1: LTE-FDD B17 is supported through MFBI+B12.
Note 2: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LTE-A modules

Product		EM05	EM060K
			
Form factor		M.2	M.2
Dimensions (mm)		30.0 × 42.0 × 2.3	30.0 × 42.0 × 2.3
4G		LTE Cat 4	LTE Cat 6
Frequency bands (MHz)	-G/GL (Global)	-G(Global) LTE-FDD: B1/2/3/4/5/7/8/12/13/14/18/19/20/25/26/28/66/71; LTE-TDD: B38/39/40/41; WCDMA: B1/2/4/5/6/8/19	-GL (Global) LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29[2]/30/32[1]/66/71; LTE-TDD: B34/38/39/40/41/42/43/46[1] (LAA)/48 (CBRS); Up to 2 ×CA: B2+B2/5/12/13/29[3];B4+B4/5/12/13/29[3]; B5+B5/7/25/30/66; B7+B7/12/26; B12+B12/25/30/66; B13+B66; B25+B25/26; B30+B29; B66+B29/66; B41+B41; WCDMA: B1/2/3/4/5/6/8/19
	-E (EMEA/Australia/New Zealand	LTE-FDD: B1/3/7/8/20/28; LTE-TDD: B38/41; WCDMA: B1/8	/
	-EA (EMEA/Australia/New Zealand)	/	LTE-FDD: B1/3/5/7/8/20/28/32/71[4]; LTE-TDD: 38/40/41/42[4]/43[4]; WCDMA: B1/3/5/8
	-NA (North America)	/	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29/30/66/71; LTE-TDD: B41/42/43/48
	-J (Japan)	/	/
	-CN (China/Thailand/India)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/5/8; EVDO/CDMA: BC0	/
Weight (approx.) (g)		6.0	6.2
Operating temperature		-30°C ~ +70°C	-25°C ~ +75°C
Extended temperature		-40°C ~ +85°C	-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 (Max.)			
LTE (Mbps)		LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)	LTE-FDD: 300 (DL)/50 (UL); LTE-TDD: 226 (DL)/28 (UL)
UMTS		DC-HSDPA: 42 Mbps (DL)/HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL)/HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL/UL)
SMS		•	•
CDMA2000		EVDO: 3.1 Mbps (DL)/1.8 Mbps (UL) 1X Advanced: 307.2 Kbps (DL)/307.2 Kbps (UL)	/
Protocols		TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/NITZ/SMTP/MMS/FTPS/SMTPS/SSL/FILE	QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M*/PING*
Interfaces			
USB		2.0 hi-speed	2.0/3.0*, slave mode
PCM		•	•
I2C		× 1	× 1
(U)SIM		1.8 V/3.0 V	× 2, 1.8 V/3.0 V
eSIM		/	× 1/built-in eSIM (optional)
GPIO		× 1	MIPI interface
RESET_N		•	•
PCIe		/	Optional
Antenna		Main, Diversity /GNSS	Main, Diversity and GNSS
Enhanced features			
MIMO		DL MIMO, support Rx-diversity antenna	2 × 2, 4 × 2 DL
eCall*		/	Emergency services
Voice		•[4]	Optional
DTMF		/	Dual-tone Multi-frequency
DFOTA		•	Delta Firmware over the Air
GNSS		Optional	GPS/GLONASS/BeiDou/Galileo/QZSS
FOTA		/	/
(U)SIM card detection		•	•
Electrical features			
Supply voltage range		3.135 V ~ 4.4 V, typ. 3.3 V	3.135 V ~ 4.4 V, typ. 3.7 V
Power consumption		5 μA @ Power off/3.3 mA (PF=128) @ LTE sleep/20 mA @ Idle	0.07μA @ Power off; 1.80mA @ Sleep, Typ. ; 40 mA @ Idle (EM060K-NA) 0.07 mA @ Power off; 3.47 mA @ Sleep, Typ. ; 38 mA @ Idle (EM060K-GL) 0.07μA @ Power off ; 1.86mA @ Sleep, Typ. ; 38mA @ Idle (EM060K-EA)
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*/8/8.1/10, WinCE 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
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/10.x
MBIM driver		Windows 8/8.1/10, Linux3.18 ~ 5.4	Windows 10
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[5]		CCC/SRRC/NAL/CE/GCF/PTCRB/FCC/RCM	Verizon/AT&T/T-Mobile/NTT DOCOMO/KDDI/Vodafone/British Telecom/Orange/Deutsche Telekom/Telstra/Telefónica/Telus/GCF/PTCRB/NCC/CE/RCM/FCC/IC/JATE/TELEC/Anatel
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, B46 is only for secondary component carrier.
Note 2: B29 is only for secondary component carrier.
Note 3: means LTE-FDD B29 support receiving only, and is only for secondary component carrier in 2 × CA.
Note 4: Optional.
Note 5: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LTE-A modules

Product		EM120K-GL	EM12-G	EM120R-GL	EM121R-GL	EM160R-GL
						
Form factor		M.2	M.2	M.2	M.2	M.2
Dimensions (mm)		42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3
4G		LTE Cat 12	LTE Cat 12	LTE Cat 12	LTE Cat 12	LTE Cat 16
Frequency bands (MHz)	-G/GL (Global)	LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29[2]/30/32[1]/66/71; LTE-TDD: 34/38/39/40/41/42/43/46[3] (LAA)/48 (CBRS); Up to 3 × CA: Intra-band and Inter-band; WCDMA: B1/2/3/4/5/6/8/19	LTE-FDD: B1/2/3/4/5/7/8/9/12/13/14/17/18/19/20/21/25/26/28/29[2]/30/32/66; LTE-TDD: B38/39/40/41; 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: B1/2/3/4/5/8/9/19	LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29[2]/30/32[1]/66; LTE-TDD: B38/39/40/41/42/43/46[3]/48 (CBRS); Up to 3 × CA: Intra-band and Inter-band; WCDMA: B1/2/3/4/5/6/8/19	LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29[2]/30/32[1]/66; LTE-TDD: B38/39/40/41/42/43/46[3]/48 (CBRS); Up to 3 × CA: Intra-band and Inter-band; WCDMA: B1/2/3/4/5/6/8/19	LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29[2]/30/32[1]/66; LTE-TDD: B38/39/40/41/42/43/46[3]/48 (CBRS); Up to 5 × CA: Intra-band and Inter-band; WCDMA: B1/2/3/4/5/6/8/19
Weight (approx.) (g)		6.2	6.0	6.8	6.8	6.8
Operating temperature		-25°C ~ +75°C	-30°C ~ +70°C , -10°C ~ +65°C (Only for UL CA test)	-25°C ~ +75°C	-25°C ~ +75°C	-25°C ~ +75°C
Extended temperature		-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-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	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 (Max.)						
LTE		LTE-FDD: 600 Mbps (DL)/150 Mbps (UL); LTE-TDD: 408 Mbps (DL)/90 Mbps (UL)	LTE-FDD: 600 Mbps (DL)/150 Mbps (UL); LTE-TDD: 430 Mbps (DL)/90 Mbps (UL)	LTE-FDD: 600 Mbps (DL)/150 Mbps (UL); LTE-TDD: 408 Mbps (DL)/90 Mbps (UL)	LTE-FDD: 600 Mbps (DL)/150 Mbps (UL); LTE-TDD: 408 Mbps (DL)/90 Mbps (UL)	LTE-FDD: 1.0 Gbps (DL)/150 Mbps (UL); LTE-TDD: 880 Mbps (DL)/90 Mbps (UL)
UMTS		DC-HSDPA: 42 Mbps (DL)/ HSUPA: 11.2 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL)/ HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL)/ HSUPA: 11.2 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL)/ HSUPA: 11.2 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL)/ HSUPA: 11.2 Mbps (UL) WCDMA: 384 Kbps (DL/UL)
SMS		•	•	•	•	•
Protocols		QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M*/PING*	QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M/PING	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	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	2.0/3.0, slave mode	2.0/3.0, slave mode	2.0/3.0, slave mode
PCM		•	•	•	•	•
I2C		/	× 1	/	/	/
(U)SIM		× 2, 1.8 V/3.0 V	× 2, 1.8 V/3.0 V	× 2, 1.8 V/3.0 V	× 2, 1.8 V/3.0 V	× 2, 1.8 V/3.0 V
eSIM		× 1/built-in eSIM (optional)	external eSIM supported	× 1/built-in eSIM (optional)	× 1/built-in eSIM (optional)	x 1/built-in eSIM (optional)
GPIO		MIPI interface	Optional	MIPI interface	MIPI interface	MIPI interface
RESET_N		•	•	•	•	•
PCIe		Optional	Optional	PCIe Gen2 × 1 Lane	PCIe Gen2 × 1 Lane	PCIe Gen2 × 1 Lane
Antenna		Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS, MIMO × 2
Enhanced features						
MIMO		2 × 2, 4 × 2 DL	4× 2, 2 × 2 DL	2 × 2, 4 × 2 DL	2 × 2, 4 × 2 DL	2 × 2, 4 × 2, 4 × 4 DL
eCall*		Emergency services	Emergency services	Emergency services	Emergency services	Emergency services
Voice		Optional	Optional	Optional	Optional	Optional
DTMF		Dual-tone Multi-frequency	Dual-tone Multi-frequency	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	Delta Firmware over the Air	Delta Firmware over the Air
GNSS		GPS/GLONASS/BeiDou/Galileo/QZSS	GPS/GLONASS/BeiDou/Galileo/QZSS	GPS/GLONASS/BeiDou/Galileo/QZSS	GPS/GLONASS/BeiDou/Galileo/QZSS	GPS/GLONASS/BeiDou/Galileo/QZSS
(U)SIM card detection		•	•	•	•	•
Electrical features						
Supply voltage range		3.135 V ~ 4.4 V, typ. 3.7 V	3.135 V ~ 4.4 V, typ. 3.7 V	3.135 V ~ 4.4 V, typ. 3.7 V	3.135 V ~ 4.4 V, typ. 3.7 V	3.135 V ~ 4.4 V, typ. 3.7 V
Power consumption		61 μA @ Power off 2.58 mA @ Sleep (AT+CFUN=0, USB Suspend) 17.35 mA @ Idle (PF=64, USB Active)	56 μA @ Power off 2.53 mA @ Sleep (AT+CFUN=0, USB disconnected), 19.32 mA @ Idle (PF=64, USB Active)	USB mode 66 μA @ Power off 1.84 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.48 mA @ Idle (PF = 64, USB Active); PCIe only mode 66 μA @ Power off 2.35 mA @ Sleep (AT+CFUN=0, Modem standby) 15.05 mA @ Idle (PF = 64, PCIe Active)	USB mode 66 μA @ Power off 1.84 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.48 mA @ Idle (PF = 64, USB Active); PCIe only mode 66 μA @ Power off 2.35 mA @ Sleep (AT+CFUN=0, Modem standby) 15.05 mA @ Idle (PF = 64, PCIe Active)	USB mode 66 μA @ Power off 1.78 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.75 mA @ Idle (PF = 64, USB Active); PCIe only mode 66 μA @ Power off 2.38 mA @ Sleep (AT+CFUN=0, Modem standby) 15.38 mA @ Idle (PF = 64, PCIe Active)
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*/8/8.1/10/11 Linux: 2.6 ~ 5.X Android 4.x ~ 12.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	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 ~ 12.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*/8/8.1/10/11	Windows 7*/8/8.1/10	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	Linux 2.6/3.x/4.x/5.x	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	Linux 3.x (3.4 or later)/4.x/5.x	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	/	Linux 3.x/4.x/5.x	Linux 3.x/4.x/5.x	Linux 3.x/4.x/5.x
Certifications		Verizon/AT&T/T-Mobile/Telstra/NTT DOCOMO/SoftBank/KDDI/CE/GCF/PTCRB/FCC/IC/RCM/JATE/TELEC/NCC	Vodafone/TIM/Deutsche Telekom/British Telecom/Telefónica/Verizon/AT&T/T-Mobile/Sprint/Rogers/Telus/Telstra/NTT DOCOMO/SoftBank[4]/KDDI/CE/UKCA/GCF/PTCRB/FCC/IC/Anatel/RCM/KC/JETE/TELEC/ICASA/NCC/WHQL	Vodafone/Swisscom/British Telecom/Verizon/AT&T/T-Mobile/Sprint/Telstra/NTT DOCOMO/SoftBank[4]/KDDI/China Mobile/China Unicom/CE/GCF/PTCRB/FCC/IC/Anatel/IFETEL/RCM/KC/JATE/TELEC/ICASA/NCC/CCC/SRRC/NAL	Verizon/AT&T/CE/GCF/PTCRB/FCC/IC/RCM	Vodafone/Swisscom/British Telecom/Verizon/AT&T/T-Mobile/Sprint/Telstra/NTT DOCOMO/SoftBank[4]/KDDI/China Mobile/China Unicom/CE/GCF/PTCRB/FCC/IC/Anatel/IFETEL/RCM/KC/JATE/TELEC/ICASA/NCC/CCC/SRRC/NAL
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.
Note 4: Currently, SoftBank certification is only supported for PC applications.

* Planning/ Under development/ In progress
• Supported

LTE modules

Product		EC21/EC21 Mini PCIe	EC25/EC25 Mini PCIe	EC20-CE/EC20-CE Mini PCIe
				
Form factor		LCC (EC21); Mini PCIe (EC21 Mini PCIe)	LCC (EC25); Mini PCIe (EC25 Mini PCIe)	LCC (EC20-CE); Mini PCIe (EC20-CE Mini PCIe)
Dimensions (mm)		29.0 × 32.0 × 2.4 (EC21); 30.0 × 51.0 × 4.9 (EC21 Mini PCIe)	29.0 × 32.0 × 2.4 (EC25); 30.0 × 51.0 × 4.9 (EC25 Mini PCIe)	29.0 × 32.0 × 2.4 (EC20-CE); 30.0 × 51.0 × 4.9 (EC20-CE Mini PCIe)
LTE category		LTE Cat 1	LTE Cat 4	LTE Cat 4
Frequency bands (MHz)	-CE (China/India)	/	/	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; TD-SCDMA: B34/39; EVDO/CDMA: BC0; GSM: B3/8
	-E (EMEA/South Korea/ Thailand/India)	(EMEA/Thailand/India) LTE-FDD: B1/3/5/7/8/20; WCDMA: B1/5/8; GSM: B3/8	(EMEA/South Korea/Thailand/India) LTE-FDD: B1/3/5/7/8/20; LTE-TDD: B38/40/41; WCDMA: B1/5/8; GSM: B3/8	/
	-EM (EMEA)	/	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/5/8; GSM/EDGE: B3/8	/
	-EU (EMEA/Thailand)	LTE-FDD: B1/3/7/8/20/28A; WCDMA: B1/8; GSM: B3/8	LTE-FDD: B1/3/7/8/20/28A; LTE-TDD: B38/40/41; WCDMA: B1/8 ; GSM: B3/8	/
	-EUX (EMEA/Thailand)	LTE-FDD: B1/3/7/8/20/28A; WCDMA: B1/8; GSM: B3/8	LTE-FDD: B1/3/7/8/20/28A; LTE-TDD: B38/40/41; WCDMA: B1/8 ; GSM: B3/8	/
	-V (Verizon)	LTE-FDD: B4/13	LTE-FDD: B4/13	/
	-A (AT&T/T-Mobile/Canada)	LTE-FDD: B2/4/12; WCDMA: B2/4/5	LTE-FDD: B2/4/12; WCDMA: B2/4/5	/
	-ADL (AT&T/T-Mobile)	/	LTE-FDD: B2/4/12	/
	-AF (AT&T/Verizon/T-Mobile)	/	LTE-FDD: B2/4/5/12/13/14/66/71; WCDMA: B2/4/5	/
	-AFDL (AT&T/Verizon/ T-Mobile)	/	LTE-FDD: B2/4/5/12/13/14/66/71	/
	-AFX (AT&T/Verizon)	/	LTE-FDD: B2/4/5/12/13/14/66/71; WCDMA: B2/4/5	/
	-AFXD (AT&T/Verizon/ T-Mobile)	/	LTE-FDD: B2/4/5/12/13/14/66/71; WCDMA: B2/4/5	/
	-AU (Latin America/ANZ)	LTE-FDD: B1/2[2]/3/4/5/7/8/28; LTE-FDD: B40; WCDMA: B1/2/5/8; GSM: B2/3/5/8	LTE-FDD: B1/2[2]/3/4/5/7/8/28; LTE-TDD: B40; WCDMA: B1/2/5/8; GSM: B2/3/5/8	/
	-AUX (Latin America/ANZ)	LTE-FDD: B1/2[2]/3/4/5/7/8/28; LTE-TDD: B40; WCDMA: B1/2/4/5/8; GSM: B2/3/5/8	LTE-FDD: B1/2[2]/3/4/5/7/8/28; LTE-TDD: B40; WCDMA: B1/2/4/5/8 ; GSM: B2/3/5/8	/
	-AUT (Australia)[1]	LTE-FDD: B1/3/5/7/28; WCDMA: B1/5	/	/
	-J (Japan)	LTE-FDD: B1/3/8/18/19/26	LTE-FDD: B1/3/8/18/19/26; LTE-TDD: B41; WCDMA: B1/6/8/19	/
	-KL (South Korea)	LTE-FDD: B1/3/5/7/8	/	/
	-IN (India)	LTE-FDD: B1/3/5/8/40/41	/	/
Weight (approx.) (g)		4.9 (EC21); 9.8 (EC21 Mini PCIe)	4.9 (EC25); 9.8 (EC25 Mini PCIe)	5.3 (EC20-CE); 10.6 (EC20-CE Mini PCIe)
Operating temperature		–35°C ~ +75°C	–35°C ~ +75°C	–35°C ~ +75°C
Extended temperature		–40°C ~ +85°C (EC21); –40°C ~ +80°C (EC21 Mini PCIe)	–40°C ~ +85°C (EC25); –40°C ~ +80°C (EC25 Mini PCIe)	–40°C ~ +85°C (EC20-CE); –40°C ~ +80°C (EC20-CE Mini PCIe)
Data transmission (Max.)				
LTE data rates (Mbps)		LTE-FDD: 10 (DL)/5 (UL); LTE-TDD: 8.96 (DL)/3.1 (UL)	LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)	LTE-FDD: 150 (DL)/50 (UL) ; LTE-TDD: 130 (DL)/30 (UL)
DC-HSPA+ data rates (Mbps)		42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)
TD-SCDMA data rates (Mbps)		/	/	4.2 (DL)/2.2 (UL)
EVDO data rates (Mbps)		/	/	3.1 (DL)/1.8 (UL)
CDMA2000 data rates (Kbps)		/	/	307.2 (DL)/307.2 (UL)
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)
GPRS data rates (Kbps)		107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)	107 (DL)/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	TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/NITZ/CMUX/ HTTPS/SMTP/MMS/FTPS/SMTPS/SSL/FILE
Interfaces				
(U)SIM		× 1	× 1	× 1
UART		× 2 (EC21); × 1 (EC21 Mini PCIe)	× 2 (EC25); × 1 (EC25 Mini PCIe)	× 2 (EC20-CE); × 1 (EC20-CE Mini PCIe)
USB		× 1	× 1	× 1
I2C		× 1	× 1	× 1 (EC20-CE); × 1 (EC20-CE Mini PCIe optional)
Audio digital (PCM)		× 1	× 1	× 1 (optional)
SDIO		× 2 (EC21 optional)	× 2 (EC25 optional)	× 2 (EC20-CE optional)
ADC		× 2, 15bits (EC21)	× 2, 15bits (EC25)	× 2, 15bits (EC20-CE)
SGMII		× 1 (EC21)	× 1 (EC25)	× 1 (EC20-CE)
Antenna		× 1 Main, × 1 Rx-diversity, × 1 GNSS (optional)	× 1 Main, × 1 Rx-diversity, × 1 GNSS (optional)	× 1 Main, × 1 Rx-diversity (optional), × 1 GNSS (optional)
Enhanced features				
GNSS		Optional	Optional	Optional
Wi-Fi scan		/	/	/
BlueTooth		/	/	/
DTMF		•	•	•
DFOTA		•	•	•
QMI/ RmNet		•	•	•
Audio playback/Audio recording		Optional	Optional	Optional
QuecFile		•	•	• (EC20-CE)
(U)SIM card detection		•	•	•
Firmware update		Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA
Electrical features				
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V (EC21); 3.0 V ~ 3.6 V, typ. 3.3 V (EC21 Mini PCIe)	3.3 V ~ 4.3 V, typ. 3.8 V (EC25); 3.0 V ~ 3.6 V, typ. 3.3 V (EC25 Mini PCIe)	3.3 V ~ 4.3 V, typ. 3.8 V (EC20-CE); 3.0 V ~ 3.6 V, typ. 3.3 V (EC20-CE Mini PCIe)
Power consumption		20 μA @ Power off/ 3 mA @ Sleep, Typ. / 22 mA @ Idle (EC21); 3.5 mA @ Sleep, Typ. / 34 mA @ Idle (EC21 Mini PCIe)	20 μA @ Power off/ 3 mA @ Sleep, Typ. / 22 mA @ Idle (EC25); 3.6 mA @ Sleep, Typ. / 35 mA @ Idle (EC25 Mini PCIe)	11 μA @ Power off/ 1.5 mA @ Sleep (PF=256), Typ. / 20 mA @ Idle (EC20-CE); 4 mA @ Sleep (PF=128), 3.7 mA @ Sleep (PF=256), Typ. / 30 mA @ Idle (EC20-CE Mini PCIe)
Software features				
USB serial driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x
GNSS driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	Android 4.x ~ 13.x
RIL driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	Android 4.x ~ 13.x
RNDIS driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7
ECM driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
MBIM driver		Windows 7/8/8.1/10/11, Linux 3.18 ~ 6.7	Windows 7/8/8.1/10/11, Linux 3.18 ~ 6.7	Windows 7/8/8.1/10/11, Linux 3.18 ~ 6.7
GobiNet driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
QMI_WWAN driver		Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7
Certifications[3]		Carrier certification: Vodafone/Deutsche Telekom/ British Telecom/Verizon/AT&T/T-Mobile/U.S. Cellular/ Rogers/Telstra[4]/Spark/NTT DOCOMO/KDDI/KT/SKT/LGU+; Regulatory certification: CE/GCF/UKCA/RCM/NCC/KC/FCC/ PTCRB/IC/Anatel/JATE/TELEC; Others: WHQL	Carrier certification: Vodafone/Deutsche Telekom/British Telecom/Orange/ Telefónica/KT/SKT/LGU+/Verizon/AT&T/T-Mobile/Rogers/Telus/U.S. Cellular/ Telstra/NTT DOCOMO/SoftBank/KDDI/Bell*/Spark; Regulatory certification: GCF/CE/UKCA/KC/NCC/RCM/NBTC/ICASA/FCC/PTCRB/IC/ Anatel/JATE/TELEC; Others: WHQL	Regulatory certification: NAL/SRRC/CCC (China)
Recommended applications		Telematics, smart metering, mobile POS terminals, gateways, 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.
Note 3: May depend on modules' variant.
Note 4: Data only.
GNSS antenna not supported on EC21-KL.
EC25-ADL/EC25-AFDL/EC25-AFXD/EC25-ADL Mini PCIe/EC25-AFDL Mini PCIe/EC25-AFXD Mini PCIe are requested for data only device.

* Planning/ Under development/ In progress
• Supported

LTE modules

Product		EG21-G/EG21-G Mini PCIe/EG21-GL/EG21-GL Mini PCIe	EG25-G/EG25-G Mini PCIe/EG25-GL/EG25-GL Mini PCIe
			
Form factor		LGA (EG21-G/GL); Mini PCIe (EG21-G Mini PCIe/EG21-GL Mini PCIe)	LGA (EG25-G/GL); Mini PCIe (EG25-G Mini PCIe/EG25-GL Mini PCIe)
Dimensions (mm)		29.0 × 32.0 × 2.4 (EG21-G/GL); 30.0 × 51.0 × 4.9 (EG21-G Mini PCIe/EG21-GL Mini PCIe)	29.0 × 32.0 × 2.4 (EG25-G/GL); 30.0 × 51.0 × 4.9 (EG25-G Mini PCIe/EG25-GL Mini PCIe)
LTE category		LTE Cat 1	LTE Cat 4
Frequency bands (MHz)	-G (Global)	LTE-FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28; LTE-TDD: B38/39/40/41; WCDMA: B1/2/4/5/6/8/19; GSM: B2/3/5/8	LTE-FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28; LTE-TDD: B38/39/40/41; WCDMA: B1/2/4/5/6/8/19; GSM: B2/3/5/8
	-GL (Global)	LTE-FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28/66; LTE-TDD: B34/38/39/40/41; WCDMA: B1/2/4/5/6/8/19; TD-SCDMA-GSM/EDGE: B2/3/5/8	LTE-FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28/66; LTE-TDD: B34/38/39/40/41; WCDMA: B1/2/4/5/6/8/19; TD-SCDMA-GSM/EDGE: B2/3/5/8
Weight (approx.) (g)		4.9 (EG21-G/GL); 9.8 (EG21-G Mini PCIe/EG21-GL Mini PCIe)	4.9 (EG25-G/GL); 9.8 (EG25-G Mini PCIe/EG25-GL Mini PCIe)
Operating temperature		–35°C ~ +75°C	–35°C ~ +75°C
Extended temperature		–40°C ~ +85°C (EG21-G/GL); –40°C ~ +80°C (EG21-G Mini PCIe/EG21-GL Mini PCIe)	–40°C ~ +85°C (EG25-G/GL); –40°C ~ +80°C (EG25-G Mini PCIe/EG25-GL Mini PCIe)
Data transmission (Max.)			
LTE data rates (Mbps)		LTE-FDD: 10 (DL)/5 (UL); LTE-TDD: 8.96 (DL)/3.1 (UL)	LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)
DC-HSPA+ data rates (Mbps)		42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)	384 (DL)/384 (UL)
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)
GPRS data rates (Kbps)		107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)
SMS		•	•
Protocols		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	× 1
UART		× 2 (EG21-G/GL); × 1 (EG21-G Mini PCIe/EG21-GL Mini PCIe)	× 2 (EG25-G/GL); × 1 (EG25-G Mini PCIe/EG25-GL Mini PCIe)
USB		× 1	× 1
I2C		× 1 (EG21-G/GL); × 1 (EG21-G Mini PCIe/EG21-GL Mini PCIe optional)	× 1 (EG25-G/GL); × 1 (EG25-G Mini PCIe/EG25-GL Mini PCIe optional)
Audio digital (PCM)		× 1 (optional)	× 1 (optional)
SDIO		× 2 (EG21-G/GL optional)	× 2 (EG25-G/GL optional)
ADC		× 2, 15bits (EG21-G/GL)	× 2, 15bits (EG25-G/GL)
Antenna		× 1 Main, × 1 Rx-diversity, × 1 GNSS (optional)	× 1 Main, × 1 Rx-diversity, × 1 GNSS (optional)
Enhanced features			
GNSS		Optional	Optional
Wi-Fi scan		/	/
BlueTooth		/	/
DTMF		•	•
DFOTA		•	•
QMI/ RmNet		•	•
Audio playback/Audio recording		Optional	Optional
(U)SIM card detection		•	•
(U)SIM card connector		Optional (EG21-G Mini PCIe/EG21-GL Mini PCIe)	Optional (EG25-G Mini PCIe/EG25-GL Mini PCIe)
Firmware update		Via USB/DFOTA	Via USB/DFOTA
Electrical features			
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V (EG21-G/GL); 3.0 V ~ 3.6 V, typ. 3.3 V (EG21-G Mini PCIe/EG21-GL Mini PCIe)	3.3 V ~ 4.3 V, typ. 3.8 V (EG25-G/GL); 3.0 V ~ 3.6 V, typ. 3.3 V (EG25-G Mini PCIe/EG25-GL Mini PCIe)
Power consumption		13 μA @ Power off/1.8 mA @ Sleep, Typ. /22 mA @ Idle (EG21-G); 12 μA @ Power off/1.3 mA @ Sleep, Typ. /15.4 mA @ Idle (EG21-GL); 2.8 mA @ Sleep, Typ. / 35 mA @ Idle (EG21-G Mini PCIe); 2.3 mA @ Sleep, Typ. / 22.4 mA @ Idle (EG21-GL Mini PCIe)	15 μA @ Power off/1.8 mA @ Sleep, Typ. /22 mA @ Idle (EG25-G); 7 μA @ Power off/1.3 mA @ Sleep, Typ. /15.7 mA @ Idle (EG25-GL); 3.3 mA @ Sleep, Typ. / 35 mA @ Idle (EG25-G Mini PCIe); 2.4 mA @ Sleep, Typ. / 22.3 mA @ Idle (EG25-GL Mini PCIe)
Software features			
USB serial driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7. Android 4.x ~ 13.x
GNSS driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x
RIL driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x
NDIS driver		Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11
MBIM driver		Windows 7/8/8.1/10/11, Linux 3.18 ~ 6.7	Windows 7/8/8.1/10/11, Linux 3.18 ~ 6.7
GobiNet driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
QMI_WWAN driver		Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7
Certifications[1]		Carrier certification: Deutsche Telekom/Verizon/AT&T/Sprint/U.S. Cellular/T-Mobile/Telus; Regulatory certification: GCF/CE/FCC/PTCRB/IC/Anatel/IFETEL/KC/NCC/JATE/TELEC/RCM/ICASA; Others: WHQL	Carrier certification: Deutsche Telekom/Verizon/AT&T/T-Mobile/Sprint/U.S. Cellular/Telus/ Rogers*; Regulatory certification: GCF/CE/PTCRB/FCC/IC/Anatel/IFETEL/SRRC/NAL/CCC/KC/NCC/JATE/ TELEC/RCM/NBTC/IMDA/ICASA; Others: WHQL
Recommended applications		Telematics, smart metering, mobile POS terminals, gateways, safety, tracking and tracing, remote maintenance and control, networking, mobile computing, healthcare, etc.	

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LTE modules

Product		EG91	EG95	EG950A
				
Form factor		LGA	LGA	LGA
Dimensions (mm)		29.0 × 25.0 × 2.45	29.0 × 25.0 × 2.45	29.0 × 25.0 × 2.4
LTE category		LTE Cat 1	LTE Cat 4	LTE Cat 4
Frequency bands (MHz)	-E (Europe)	LTE-FDD: B1/3/7/8/20/28A; WCDMA: B1/8; GSM: B3/8	LTE-FDD: B1/3/7/8/20/28A; WCDMA: B1/8; GSM: B3/8	/
	-EX (Europe)	LTE-FDD: B1/3/7/8/20/28; WCDMA: B1/8; GSM: B3/8	LTE-FDD: B1/3/7/8/20/28; WCDMA: B1/8; GSM: B3/8	/
	-EL (Europe/Asia-Pacific)	/	/	LTE-FDD: B1/3/5/7/8/20/28; WCDMA: B1/5/8
	-NAXD (North America)	LTE-FDD: B2/4/5/12/13/25/26; WCDMA: B2/4/5	LTE-FDD: B2/4/5/12/13/25/26; WCDMA: B2/4/5	/
	-NAX (North America)	LTE-FDD: B2/4/5/12/13/25/26; WCDMA: B2/4/5	LTE-FDD: B2/4/5/12/13/25/26; WCDMA: B2/4/5	/
	-NA (North America)	LTE-FDD: B2/4/5/12/13; WCDMA: B2/4/5	LTE-FDD: B2/4/5/12/13; WCDMA: B2/4/5	/
	-VX (Verizon)	LTE-FDD: B4/13	/	/
	-AUX (Latin America/ANZ)	LTE-FDD: B1/2/3/4/5/7/8/28/66; WCDMA: B1/2/5/8; GSM: B2/3/5/8	LTE-FDD: B1/2/3/4/5/7/8/28/66; WCDMA: B1/2/5/8; GSM: B2/3/5/8	/
	-JP (Japan)	LTE-FDD: B1/3/8/18/19/26	LTE-FDD: B1/3/8/18/19/26; LTE-TDD: B41	/
	-LA (Latin America)	/	/	LTE-FDD: B1/2/3/4/5/7/8/28/66; WCDMA: B1/2/4/5/8
	-ENL (Europe/Asia Pacific/ Australia/New Zealand/ Latin America)	/	/	LTE-FDD: B1/2/3/4/5/7/8/20/28/31/66/72/87; LTE-TDD: B38/40/41; WCDMA: B1/2/4/5/8
Weight (approx.) (g)		3.8	3.8	3.74
Operating temperature		–35°C ~ +75°C	–35°C ~ +75°C	–35°C ~ +75°C
Extended temperature		–40°C ~ +85°C	–40°C ~ +85°C	–40°C ~ +85°C
Data transmission (Max.)				
LTE data rates (Mbps)		10 (DL)/5 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)
DC-HSPA+ data rates (Mbps)		42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	21 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)	/
GPRS data rates (Kbps)		107 (DL)/85.6 (UL)	107 (DL)/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/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/ FILE/MQTT/MMS/SMTP/SMTPS
Interfaces				
(U)SIM		× 2	× 2	× 1
UART		× 2	× 2	× 2
USB		× 1	× 1	× 1
I2C		× 1	× 1	× 1
Audio digital (PCM)		× 1	× 1	× 1
SPI		× 1	× 1	× 1
RESET_N		× 1	× 1	× 1
SDIO		/	/	× 1
ADC		× 1	× 1	× 2
Antenna		× 1 Main, × 1 Rx-diversity, × 1 GNSS (optional)[1]	× 1 Main, × 1 Rx-diversity, × 1 GNSS (optional)[1]	× 1 Main, × 1 Rx-diversity, × 1 GNSS (optional)
Enhanced features				
GNSS[1]		Optional	Optional	Optional
Wi-Fi scan		/	/	/
BlueTooth		/	/	/
E911 (for North America)		•	•	/
Digital audio/VoLTE		Optional	Optional	•
DTMF		•	•	/
DFOTA		•	•	•
QMI/ RmNet		•	•	/
Audio playback/Audio recording		Optional	Optional	•
QuecFile		•	•	•
(U)SIM card detection		•	•	•
Firmware update		Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA
Electrical features				
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V	3.3 V ~ 4.3 V, typ. 3.8 V	3.4 V ~ 4.5 V, typ. 3.8 V
Power consumption		15 μA @ Power off/2.6 mA @ Sleep, Typ./21 mA @ Idle	15 μA @ Power off/2.6 mA @ Sleep, Typ. /21 mA @ Idle	11 μA @ Power off mode /1.1 mA @ LTE sleep mode (PF=256), Typ /18 mA @ Idle mode
Software features				
USB serial driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x
GNSS driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	Android 4.x ~ 13.x
RIL driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	Android 4.x ~ 13.x
NDIS driver		Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11
MBIM driver		Windows 7/8/8.1/10/11, Linux 3.18 ~ 6.7	Windows 7/8/8.1/10/11, Linux 3.18 ~ 6.7	/
GobiNet driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	/
QMI_WWAN driver		Linux 3.4 ~ 6.7	Linux 3.4 ~ 6.7	/
Certifications[2]		Carrier certification: Deutsche Telekom/Telstra[3]/Verizon/ AT&T/T-Mobile/Sprint/Rogers/Telus/U.S. Cellular/NTT DOCOMO/ KDDI/SoftBank*; Regulatory certification: GCF/CE/UKCA/RCM/Anatel/NCC/ PTCRB/FCC/IC/JATE/TELEC; Others: WHQL	Carrier certification: Deutsche Telekom/Telstra[3]/Verizon/ AT&T/T-Mobile/Sprint/Rogers/Telus/U.S. Cellular/NTT DOCOMO/ KDDI/SoftBank*; Regulatory certification: GCF/CE/UKCA/PTCRB/FCC/IC/JATE/ TELEC; Others: WHQL	Regulatory: CE/RCM/UKCA
Recommended applications		Telematics, smart metering, mobile POS terminals, gateways, safety, tracking and tracing, remote maintenance and control, networking, mobile computing, healthcare, etc.		Wildlife cameras

Note 1: GNSS antenna not supported on EG91-E/EG95-E.
Note 2: May depend on modules' variant.
Note 3: EG91-AUX/EG95-AUX (Data Only).
EG91-AUX does not support Rx-diversity.
EG91-NAXD and EG95-NAXD are requested for data only device.

* Planning/ Under development/ In progress
• Supported

LTE modules

Product		EG915Q/EG915Q-NA Mini PCIe	EG916Q
			
Form factor		LGA (EG915Q); Mini PCIe (EG915Q-NA Mini PCIe)	LGA, M.2
Dimensions (mm)		23.6 × 19.9 × 2.4 (EG915Q); 51.0 × 30.0 × 4.9 (EG915Q-NA Mini PCIe)	26.5 × 22.5 × 2.4; 42.0 × 30.0 × 3.25 (M.2)
LTE category		LTE Cat 1 bis	LTE Cat 1 bis
Frequency bands (MHz)	-AF (North America)	LTE-FDD: B2/4/5/12/13/14/66/71	/
	-NA (North America)	LTE-FDD: B2/4/5/12/13/66	/
	-EU (Europe)	/	/
	-JP (Japan)	LTE-FDD: B1/3/8/18/19/26/28	/
	-GL (Global)	/	LTE-FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28/66; LTE-TDD: B34/38/39/40/41
Weight (approx.) (g)		2.3 (EG915Q); 7.1 (EG915Q-NA Mini PCIe)	2.9; 6.5 (M.2)
Operating temperature		-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature		-40°C ~ +85°C (EG915Q); -40°C ~ +80°C (EG915Q-NA Mini PCIe)	-40°C ~ +85°C
Data transmission (Max.)			
LTE data rates (Mbps)		10 (DL)/5 (UL)	LTE-FDD: 10 (DL)/5 (UL); LTE-TDD: 8.96 (DL)/3.1 (UL)
DC-HSPA+ data rates (Mbps)		/	/
WCDMA data rates (Kbps)		/	/
EDGE data rates (Kbps)		/	/
GPRS data rates (Kbps)		/	/
SMS		•	/
Protocols		TCP/UDP/NTP/NITZ/FTP/HTTP/PING/HTTPS/FTPS/SSL/MQTT/CMUX/PPP/FILE/MMS*/SMTP/SMTPS	TCP/UDP/NTP/NITZ/FTP/HTTP/PING/HTTPS/FTPS/SSL/MQTT/CMUX/PPP/FILE/SMTP/SMTPS/MMS*
Interfaces			
USIM		× 2[1] (EG915Q); × 1 (EG915Q-NA Mini PCIe)	× 2[1] (1.8/ 3.0 V); × 1 (1.8/ 3.0 V) (M.2)
UART		× 3[2] (optional) (EG915Q); × 2 (EG915Q-NA Mini PCIe)	× 4[3] (optional)
USB		× 1	× 1
I2C		× 1	× 1
Audio digital (PCM)		× 1	× 1
SDIO		/	/
ADC		× 2 (EG915Q)	× 2
Antenna		× 1 Main, × 1 GNSS (optional)	× 1 Main, × 1 GNSS (optional)
Enhanced features			
GNSS		Optional	Optional
Wi-Fi scan		•	•
BlueTooth		/	/
DTMF		/	/
DFOTA		•	•
QMI/ RmNet		/	/
Audio playback/Audio recording		•	/
QueoFile		•	/
(U)SIM card detection		•	•
Firmware update		Via USB/DFOTA	Via USB/DFOTA
Electrical features			
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V (EG915Q); 3.0~3.6 V, typ.3.3 V (EG915Q-NA Mini PCIe)	3.3 V ~ 4.3 V, typ. 3.8 V
Power consumption		0.4 μA @ Power off mode / 54 μA @ Sleep mode (AT+CFUN = 0, USB disconnected) /130 μA @ Sleep mode (AT+CFUN = 4, USB disconnected) / 4.55 mA @ Idle mode (PF = 64, USB disconnected) / 28.22 mA @ Idle mode (PF = 64, USB connected) (EG915Q); TBD (EG915Q-NA Mini PCIe)	0.5 μA @ Power off/54 μA @ Sleep Mode (AT+CFUN = 0, USB Disconnected)/0.135 mA @ Sleep Mode (AT+CFUN = 4, USB Disconnected)/4.56 mA @ Idle Mode (PF = 64, USB Disconnected)/ 25.80 mA @ Idle Mode (PF = 64, USB Connected)/50.0 μA @ Power off/0.65 mA @ LTE sleep (PF = 128)/0.53 mA @ LTE sleep (PF = 256)/26.2 mA @ Idle (PF = 64, USB active) (M.2)
Software features			
USB serial driver		Windows 10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 14.x	Windows 10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 14.x
GNSS driver		Android 4.x ~ 14.x	Android 4.x ~ 14.x
RIL driver		Android 4.x ~ 14.x	Android 4.x ~ 14.x
RNDIS driver		Windows 10/11, Linux 2.6 ~ 6.7	Windows 10/11, Linux 2.6~ 6.7
MBIM driver		/	/
ECM driver		/	Linux 2.6~6.7
GobiNet driver		/	/
QMI_WWAN driver		/	/
Certifications[4]		Carrier certification: Verizon/AT&T/T-Mobile/Telus/NTT DOCOMO/KDDI/SoftBank*/Bell; Regulatory Certification: FCC/IC/GCF/PTCRB/JATE/TELEC; Others: WHQL	Carrier certification: Verizon/AT&T/T-Mobile/Orange/Vodafone*/Telstra*; Regulatory Certification: CCC/CE/GCF/PTCRB/FCC/IC/RCM/KC/Anatel/JATE/TELEC; Others: WHQL
Recommended applications		Asset management, commercial telematics, payment, RMAC (remote monitoring and control), safety and automation, smart metering and smart grid (EG915Q); IoT gateways, industrial PCs, etc. (EG915Q-NA Mini PCIe)	Asset management, commercial telematics, payment, RMAC (remote monitoring and control), smart safety and automation, smart metering and smart grid

Note 1: Both USIM1 and USIM2 interfaces support 1.8 V USIM cards only, when the USIM2 interface is enabled.
Note 2: The third GNSS serial port is optional.
Note 3: GNSS UART, GNSS Debug UART and GNSS antenna interfaces are optional.
Note 4: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LTE modules

Product	EG800Q	EG800K	EG800AK	EG810M
				
Form factor	LGA	LGA	LGA	LGA
Dimensions (mm)	17.7 × 15.8 × 2.4	17.7 × 15.8 × 2.4	17.7 × 15.8 × 2.4	17.7 × 15.8 × 1.7
LTE category	LTE Cat 1 bis	LTE Cat 1 bis	LTE Cat 1 bis	LTE Cat 1 bis
Frequency bands (MHz) -CN (China/India)	/	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41
Frequency bands (MHz) -NA (North America)	LTE-FDD: B2/4/5/12/13/66	/	/	/
Frequency bands (MHz) -EU	-EU (Europe) LTE-FDD: B1/3/5/7/8/20/28	-EU (Europe/New Zealand/Australia) LTE-FDD: B1/3/5/7/8/20/28	-EU(Europe/ New Zealand/ Australia) LTE-FDD: B1/3/5/7/8/20/28	-EU (Europe/New Zealand/Australia) LTE-FDD: B1/3/5/7/8/20/28
Frequency bands (MHz) -IN (India)	LTE-FDD: B1/3/5/8; LTE-TDD: B40/41	/	/	/
Frequency bands (MHz) -LA	/	-LA (Latin America) LTE-FDD: B2/3/4/5/7/8/28/66	-LA(Argentina/Mexico/Brazil) LTE-FDD: B2/3/4/5/7/8/28/66	-LA (Latin America) LTE-FDD: B2/3/4/5/7/8/28/66
Frequency bands (MHz) -JP(Japan)	/	/	LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/66/71; LTE-TDD: B34/38/39/40/41	/
Frequency bands (MHz) -GL (Global)	/	/	LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/66/71; LTE-TDD: B34/38/39/40/41	/
Weight (approx.) (g)	2.0	1.37	1.35 (EG800AK-CN/EU/LA/JP); TBD (EG800AK-GL)	0.98 (EG810M-CN/EG810M-EU); 1.03 (EG810M-LA)
Operating temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Data transmission (Max.)				
LTE data rates (Mbps)	10 (DL)/5 (UL)	10 (DL)/5 (UL)	LTE-FDD: 10 (DL)/5 (UL), LTE-TDD: 8.96 (DL)/3.1 (UL)	LTE-FDD: 10 (DL)/5 (UL), LTE-TDD: 8.96 (DL)/3.1 (UL) (EG810M-CN); 10 (DL)/ 5 (UL) (EG810M-EU/EG810M-LA)
DC-HSPA+ data rates (Mbps)	/	/	/	/
WCDMA data rates (Kbps)	/	/	/	/
EDGE data rates (Kbps)	/	/	/	/
GPRS data rates (Kbps)	/	/	/	/
SMS	•	Optional (EG800K-CN)	/	Optional
Protocols	TCP/UDP/NTP/NITZ/FTP/HTTP/PING/HTTPS/FTPS/SSL/MQTT/CMUX/PPP/FILE/MMS*/SMTP/SMTPS	TCP/UDP/PPP[1]/NTP/NITZ/FTP[1]/HTTP[1]/PING/HTTPS[1]/FTPS[1]/FILE[1]/SSL/MQTT	TCP/UDP/NTP/NITZ/MQTT/SSL/PPP/PING/FTP/HTTP/HTTPS/FTPS	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/HTTPS/FTPS/SSL/FILE/MQTT/CMUX/MMS*/SMTP*/SMTPS* (EG810M-CN/EG810M-EU); TCP/UDP/PPP*/NTP/NITZ/FTP*/HTTP*/PING/HTTPS*/FTPS*/SSL/FILE*/MQTT*/CMUX*/MMS*/SMTP*/SMTPS* (EG810M-LA)
Interfaces				
USIM	× 1	× 1	× 2, 1.8/ 3.0 V	× 1 (EG810M-CN/EG810M-LA); × 2 (EG810M-EU)
UART	× 3[2]	× 3[3]	× 3[3]	× 3[3]
USB	× 1	× 1	× 1	× 1
I2C	× 1	× 1[4]	× 1[4]	× 1[4]
Audio digital (PCM)	× 1	/	/	× 1
ADC	× 2	× 2	× 2	× 2
Antenna	× 1 Main	× 1 Main, × 1 GNSS (optional)	× 1 Main, × 1 GNSS (optional)(EG800AK-CN/EU/LA)	× 1 Main, × 1 GNSS (optional)
Enhanced features				
GNSS	/	Optional	Optional (EG800AK-CN/EU/LA)	Optional (EG810M-CN)
Wi-Fi scan	•	Optional	Optional	• (EG810M-CN); Optional (EG810M-EU/EG810M-LA)
BlueTooth	/	/	/	/
DTMF	/	/	/	Optional (EG810M-CN/EG810M-EU)
DFOTA	•	•	•	•
Audio playback/Audio recording	•	/	/	Optional (EG810M-CN/EG810M-EU)
QuecFile	•	Optional	•	• (only support ufs)
(U)SIM card detection	•	•	•	•
Firmware update	Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA
Electrical features				
Supply voltage range	3.3 V ~ 4.3 V, typ. 3.8 V	3.4 V ~ 4.3 V, typ. 3.8 V	3.4 V ~ 4.3 V, typ. 3.8 V (EG800AK-CN /EU /LA/JP); 3.4 V ~ 4.5 V, typ. 3.8 V (EG800AK-GL)	3.4 V ~ 4.3 V, typ. 3.8 V
Power consumption	55 μA @ Power off mode 0.06 mA @ Sleep mode (AT+CFUN=0, USB disconnected) 0.15 mA @ Sleep mode (AT+CFUN=4, USB disconnected) 4.50 mA @ Idle mode (PF=64, USB disconnected) 25.50 mA @ Idle mode (PF=64, USB connected)	6.15μA @ Power off mode /0.82mA @ LTE-FDD Sleep mode (PF = 128)/0.72mA @ LTE-FDD Sleep mode (PF = 256)/7.98mA @ LTE-TDD Idle mode (PF = 64 USB disconnected)/19.46mA @ LTE-TDD Idle mode (PF = 64 USB connected) (EG800K-CN); 7.47μA @ Power Off mode/0.64mA @ LTE-FDD Sleep mode (PF = 128)/0.56mA @ LTE-FDD Sleep mode (PF = 256)/7.82mA @ LTE-TDD Idle mode (PF = 64 USB disconnected)/19.66mA @ LTE-TDD Idle mode (PF = 64 USB connected) (EG800K-EU); 7.68 μA @ Power Off mode/0.73 mA @ LTE-FDD Sleep mode (PF = 128)/0.64 mA @ LTE-FDD Sleep mode (PF = 256)/7.43 mA @ LTE-FDD Idle mode (PF = 64, USB disconnected)/19 mA @ LTE-FDD Idle mode (PF = 64, USB connected) (EG800K-LA)	5.58 μA @ Power off/0.99 mA @ LTE-FDD Sleep (PF = 128)/0.92 mA @ LTE-FDD Sleep (PF = 256)/8.845 mA @ LTE-FDD Idle (PF= 64, USB disconnected)/20.615 mA @ LTE-FDD Idle (PF= 64, USB disconnected) (EG800AK-CN); 4.10 μA @ Power off/1.15 mA @ LTE-FDD Sleep (PF = 128)/1.07 mA @ LTE-FDD Sleep (PF = 256)/9.57 mA @ LTE-FDD Idle (PF= 64, USB disconnected)/21.11 mA @ LTE-FDD Idle (PF= 64, USB connected) (EG800AK-EU); 4.10 μA @ Power off/0.92 mA @ LTE-FDD Sleep (PF = 128)/0.83 mA @ LTE-FDD Sleep (PF = 256)/9.31 mA @ LTE-FDD Idle (PF= 64, USB disconnected)/20.90 mA @ LTE-FDD Idle (PF= 64, USB connected) (EG800AK-LA); 5.5 μA @ Power off/0.98 mA @ LTE-FDD Sleep (PF = 128)/0.90 mA @ LTE-FDD Sleep (PF = 256)/9.27 mA @ LTE-FDD Idle (PF= 64, USB disconnected)/21.06 mA @ LTE-FDD Idle (PF= 64, USB connected) (EG800AK-JP/GL)	17.7 μA @ Power off/ 1.0 mA @ LTE Sleep/ 18.2 mA @ Idle (USB disconnected)/ 31.2 mA @ Idle (USB connected) (EG810M-CN) 17.6 μA @ Power off/ 0.73 mA @ LTE Sleep/ 19.2 mA @ Idle (USB disconnected)/ 29.3 mA @ Idle (USB connected) (EG810M-EU) 10.0 μA @ Power off/ 0.79 mA @ LTE Sleep/ 16.99 mA @ Idle (USB disconnected)/28.75 mA @ Idle (USB connected) (EG810M-LA)
Software features				
USB serial driver	Windows 10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 14.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x
GNSS driver	/	/	Android 4.x ~ 12.x	/
RIL driver	Android 4.x ~ 13.x	Android 4.x ~ 13.x	Android 4.x ~ 14.x	Android 4.x ~ 13.x
RNDIS driver	Windows 10/11, Linux 2.6 ~ 6.7	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	Windows 10/11, Linux 2.6 ~ 6.7	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7
ECM driver	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
Certifications[5]	Carrier certification: Verizon/AT&T/ T-Mobile/Deutsche Telekom/Spark; Regulatory certification: GCF/PTCRB/FCC/ IC/CE/UKCA/RCM/Anatel; Others: WHQL	Regulatory certification: CCC/SRRC/NAL/CE/ RCM/FCC/Anatel	Regulatory/Conformance certification: NAL/ SRRC/ CCC/CE/RCM/JATE*/TELEC*/FCC*/IC*/ GCF*/PTCRB*/NCC*/Anatel*; Others: WHQL, RoHS (EG800AK-EU/LA/JP)	Regulatory certifoation: CCC/SRRC/NAL/ CE/ RCM/ FCC*/Anatel*
Recommended applications	Asset management, commercial telematics, payment, RMAC (remote monitoring and control), safety and automation, smart metering and smart grid	Cloud speakers, trackers, POS, data cards, smart safety, industrial PDAs, etc.	Aftermarket telematics, asset management, commercial telematics, payment, vending	Cloud speakers, trackers, POS, data cards, smart safety, industrial PDAs, interphones, student cards, children's smart watches, etc.

Note 1: The PPP, FTP, HTTP, HTTPS, FTPS and FILE protocols are optional.
Note 2: The third auxiliary serial port is under development.
Note 3: Indicates that only QuecOpen® supports the third auxiliary serial port.
Note 4: The QuecOpen® solution can support two I2C interfaces.
Note 5: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LTE modules

Product		EC200U/EC200U Mini PCIe	EC200A/EC200A Mini PCIe	EC200A-xxV1/EC200A-xxV1 Mini PCIe
				
Form factor		LCC (EC200U); Mini PCIe-C (EC200U-CN Mini PCIe-C); Mini PCIe (EC200U-EU/-AU Mini PCIe)	LCC (EC200A); Mini PCIe (EC200A Mini PCIe); Mini PCIe-C (EC200A-CN Mini PCIe-C)	LCC (EC200A-xxV1); Mini PCIe (EC200A-ELV1 Mini PCIe); Mini PCIe-D (EC200A-CNV1 Mini PCIe-D)
Dimensions (mm)		28.0 × 31.0 × 2.4 (EC200U); 30.0 × 51.0 × 3.4 (EC200U-CN Mini PCIe-C); 30.0 × 51.0 × 4.9 (EC200U-EU/-AU Mini PCIe)	29.0 × 32.0 × 2.4 (EC200A); 30.0 × 51.0 × 4.9 (EC200A Mini PCIe); 30.0 × 51.0 × 3.5 (EC200A-CN Mini PCIe-C)	29.0 × 32.0 × 2.4 (EC200A-xxV1); 30.0 × 51.0 × 4.9 (EC200A-ELV1 Mini PCIe); 30.0 × 51.0 × 3.5 (EC200A-CNV1 Mini PCIe-D)
LTE category		LTE Cat 1 bis	LTE Cat 4	LTE Cat 4
Frequency bands (MHz)	-CN (China/India)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; GSM: B3/8	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/5/8; GSM:B3/8	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/5/8; GSM: B3/8
	-EU (Europe/Asia-Pacific)	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; GSM: B2/3/5/8	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/5/8; GSM: B3/8	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/5/8; GSM: B3/8
	-EL (Europe/Asia-Pacific)	/	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/5/8	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/5/8
	-AU (Australia/New Zealand/Latin America)	LTE-FDD: B1/2/3/4/5/7/8/28/66; LTE-TDD: B38/40/41; GSM: B2/3/5/8	LTE-FDD: B1/2/3/4/5/7/8/28/66; LTE-TDD: B40; WCDMA: B1/2/4/5/8; GSM: B2/3/5/8	LTE-FDD: B1/2/3/4/5/7/8/28/66; LTE-TDD: B40; WCDMA: B1/2/4/5/8; GSM: B2/3/5/8
Weight (approx.) (g)		4.1 (EC200U); 7.2 (EC200U-CN Mini PCIe-C); 9.25 (EC200U-EU/-AU Mini PCIe)	4.3 (EC200A); 9.7 (EC200A Mini PCIe); 8.5 (EC200A Mini PCIe-C)	4.2 (EC200A-xxV1); TBD (EC200A-ELV1 Mini PCIe); TBD (EC200A-CNV1 Mini PCIe-D)
Operating temperature		-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature		-40°C ~ +85°C (EC200U); -40°C ~ +80°C (EC200U-CN Mini PCIe-C/EC200U-EU/-AU Mini PCIe)	-40°C ~ +85°C (EC200A); -40°C ~ +80°C (EC200A Mini PCIe/EC200A-CN Mini PCIe-C)	-40°C ~ +85°C
Data transmission (Max.)				
LTE data rates (Mbps)		10 (DL)/5 (UL) (EC200U); LTE-FDD: 10 (DL)/5 (UL), LTE-TDD: 8.96 (DL)/3.1 (UL) (EC200U-CN Mini PCIe-C, EC200U-EU/-AU Mini PCIe)	LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)	LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)
DC-HSPA+ data rates (Mbps)		/	21 (DL)/5.76 (UL)	21 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		/	384 (DL)/384 (UL)	384 (DL)/384 (UL)
EDGE data rates (Kbps)		/	236.8 (DL)/236.8 (UL)	236.8 (DL)/236.8 (UL)
GPRS data rates (Kbps)		85.6 (DL)/85.6 (UL)	85.6 (DL)/85.6 (UL)	85.6 (DL)/85.6 (UL)
SMS		•	•	*
CSD		/	•	*
Protocols		TCP/UDP/PPP/FTP/HTTP/NTP/PING/NITZ/CMUX/HTTPS/SMTP/MMS/FTPS/SMTPS/SSL/FILE (EC200U); TCP/UDP/PPP/NITZ/PING/FILE/MQTT/NTP/HTTP/HTTPS/SSL/FTP/FTPS/CMUX/MMS (EC200U-CN Mini PCIe-C, EC200U-EU/-AU Mini PCIe)	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/FILE/MQTT/MMS/SMTP/SMTPS	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX*/HTTPS/FTPS/SSL/FILE
Interfaces				
(U)SIM		× 1	× 1	× 1
UART		× 3 (EC200U); × 1 (EC200U-CN Mini PCIe-C, EC200U-EU/-AU Mini PCIe)	× 2 (EC200A); × 1 (EC200A Mini PCIe/EC200A-CN Mini PCIe-C)	× 2 (EC200A-xxV1); × 1 (EC200A-ELV1 Mini PCIe/EC200A-CNV1 Mini PCIe-D)
USB		× 1	× 1	× 1
I2C		× 2 (EC200U); × 1 (EC200U-EU/-AU Mini PCIe)	× 1	× 1
Audio digital (PCM)		× 1 (EC200U/EC200U-EU/-AU Mini PCIe)	× 1	/
SDIO		× 1[1]	× 2	× 2*
ADC		× 3 (EC200U)	× 2, 12bits (EC200A)	× 2* (EC200A-xxV1)
Antenna		× 1 Main, × 1 GNSS (optional), × 1 Wi-Fi scan/ Bluetooth (optional) (EC200U) × 1 Main, × 1 GNSS (optional) (EC200U-CN Mini PCIe-C/ EC200U-EU/-AU Mini PCIe)	× 1 Main, × 1 Rx-diversity (optional), × 1 GNSS (optional)	× 1 Main, × 1 Rx-diversity (optional)
Enhanced features				
GNSS		Optional	Optional	/
Wi-Fi scan		Optional	/	/
BlueTooth		Optional	/	/
Digital audio		•	•	/
VoLTE		•	•	/
DTMF		•	•	/
DFOTA		•	•	•
Audio playback/Audio recording		•	•	/
QuecFile		• (only support ufs)	•	•
(U)SIM card detection		•	•	•
Firmware update		• (USB or DFOTA) (EC200U); Via USB/DFOTA (EC200U-CN Mini PCIe-C, EC200U-EU/-AU Mini PCIe)	Via USB/DFOTA	Via USB/DFOTA
Electrical features				
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V (EC200U/EC200U-CN Mini PCIe-C); 3.0 V ~ 3.6 V, typ. 3.3 V (EC200U-EU/-AU Mini PCIe)	3.4 V ~ 4.5 V, typ. 3.8 V (EC200A/EC200A Mini PCIe-C); 3.0 V ~ 3.6 V, typ. 3.3 V (EC200A Mini PCIe)	3.4 V ~ 4.3 V, typ. 3.8 V (EC200A-xxV1/ EC200A-CNV1 Mini PCIe-D); 3.0 V ~ 3.6 V, typ. 3.3 V (EC200A-ELV1 Mini PCIe)
Power consumption		30 μA @Power off mode/1.35 mA @ LTE sleep mode (PF=256), Typ/13 mA @ Idle mode (EC200U) 4.13 mA @ LTE sleep (PF = 128)/3.94 mA @ LTE sleep (PF = 256)/29 mA @ Idle (PF = 64, USB connection)/18 mA @ Idle (PF = 64, USB disconnection) (EC200U-CN Mini PCIe-C); 4.54 mA @ LTE sleep (PF = 128)/4.31 mA @ LTE sleep (PF = 256)/ 37.17 mA @ Idle (PF = 64, USB connection)/22.40 mA @ Idle (PF = 64, USB disconnection) (EC200U-EU/-AU Mini PCIe)	11 μA @ Power off mode/1.1 mA @ LTE sleep mode (PF=256), Typ/18 mA @Idle mode (EC200A); 19 μA @ Power off mode, Typ/27.6 mA @ LTE sleep mode (EC200A Mini PCIe); 1.59 mA @ LTE sleep (PF=256)/28.6 mA @ Idle (PF=64) (EC200A Mini PCIe-C)	EC200A-xxV1: 8.05 μA @ Power off mode / 2.7 mA @ LTE sleep mode (PF = 128)/ 2.4 mA @ LTE sleep mode (PF = 256)/ 22.1 mA @ Idle
Software features				
USB serial driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x
GNSS driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	/
RIL driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	Android 4.x ~ 13.x
RNDIS driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	Windows 8.1/10/11, Linux 2.6 ~ 6.7
ECM driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7
Certifications[2]		Carrier certification: KT; Regulatory certification: NAL/SRRC/CCC/CE/RCM/KC/FCC/Anatel	Regulatory certification: CCC/SRRC/NAL/CE/UKCA/RCM/KC/NCC/FCC/Anatal	Regulatory certification: NAL/SRRC/CCC/CE/RCM/FCC/Anatel
Recommended applications		POS/POC/ETC, shared equipment, data cards, energy control and monitoring, safety and protection, industrial PDAs.	Automotive aftermarket, transportation, green energy, wireless payment, safety, smart cities, mobile gateways, smart industry, tracking, medical monitoring, agriculture and environmental monitoring.	

Note 1: Only QuecOpen® version support.
Note 2: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LTE modules

Product		EG915U	EG912U	EC800UG
				
Form factor		LGA	LGA	LCC
Dimensions (mm)		23.6 × 19.9 × 2.4	29.0 × 25.0 × 2.4	17.7 × 15.8 × 2.4
LTE category		LTE Cat 1 bis	LTE Cat 1 bis	LTE Cat 1 bis
Frequency bands (MHz)	-CN (China/India)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; GSM: B3/8	/	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41;
	-EU (Europe)	LTE-FDD: B1/3/5/7/8/20/28; GSM: B2/3/5/8	/	/
	-EAL (Europe/APAC/Latin)	/	LTE-FDD: B1/2/3/4/5/7/8/20/28/66; LTE-TDD: 38/40/41; GSM: B2/3/5/8	/
	-GL (Global)	/	LTE-FDD: B1/2/3/4/5/7/8/12/13/17/ 18/19/20/25/26/28/66; LTE-TDD: B34/38/39/40/41 GSM: B2/3/5/8	/
	-LA (Latin America)	LTE-FDD: B2/3/4/5/7/8/28/66; GSM: B2/3/5/8	/	/
Weight (approx.) (g)		2.48	3.67	1.3
Operating temperature		–35°C ~ +75°C	–35°C ~ +75°C	–35°C ~ +75°C
Extended temperature		–40°C ~ +85°C	–40°C ~ +85°C	–40°C ~ +85°C
Data transmission (Max.)				
LTE data rates (Mbps)		10 (DL)/5 (UL)	10 (DL)/5 (UL)	10 (DL)/5 (UL)
DC-HSPA+ data rates (Mbps)		/	/	/
WCDMA data rates (Kbps)		/	/	/
EDGE data rates (Kbps)		/	/	/
GPRS data rates (Kbps)		85.6 (DL)/85.6 (UL)	85.6 (DL)/85.6 (UL)	/
SMS		•	•	•
Protocols		TCP/UDP/PPP/FTP/HTTP/NTP/PING/NITZ/CMUX/HTTPS/SMTP/MMS/FTPS/SMTPS/SSL/FILE	TCP/UDP/PPP/FTP/HTTP/NTP/PING/NITZ/CMUX/HTTPS/SMTP/MMS/FTPS/SMTPS/SSL/FILE	TCP/UDP/PPP/NTP/NITZ/PING/SSL/FILE/HTTP(S)/Wi-Fi SCAN FTP(S)[1]/MQTT(S)[1]/LBS[1]/SMS[1]
Interfaces				
(U)SIM		× 2	× 2	×2 USIM1: 1.8 V/3.0 V USIM2(optional): 1.8 V
UART		× 3	× 3	×3(QuecOpen®: × 4 optional)
USB		× 1	× 1	× 1
I2C		× 1	× 1	×1(QuecOpen®: × 3 optional)
Audio digital (PCM)		× 1	× 1	× 1
SDIO		× 1[2]	× 1[2]	×1 (QuecOpen®)
ADC		× 2	× 2	×2
Antenna		× 1 Main, × 1 Wi-Fi scan/Bluetooth (optional)	× 1 Main, × 1 GNSS (optional), × 1 Wi-Fi scan/Bluetooth (optional)	× 1 Main
Enhanced features				
GNSS		/	Optional	/
Wi-Fi scan		Optional	Optional	•
BlueTooth		Optional	Optional	/
VoLTE		•	•	/
DTMF		•	•	/
DFOTA		•	•	•
Audio playback/Audio recording		•	•	/
QuecFile		• (only support ufs)	• (only support ufs)	•
(U)SIM card detection		•	•	•
Dual SIM dual standby single pass		/	/	/
Firmware update		Via USB/DFOTA	Via USB/DFOTA	Via MAIN UART or DFOTA
Electrical features				
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8V	3.3 V ~ 4.3 V, typ. 3.8 V	3.3 V ~ 4.3 V, typ. 3.8 V
Power consumption		30 μA @ power off/1.3 mA @ sleep/13 mA @ idle	34 μA @ Power off 1.7 mA @ LTE sleep (PF = 128) 1.5 mA @ LTE sleep (PF = 256) 30 mA @ Idle (PF = 64, USB connected) 14 mA @ Idle (PF = 64, USB disconnected)	TBD@ Power off TBD @ LTE sleep (PF = 128) TBD@ LTE sleep (PF = 256) TBD @ Idle (PF = 64, USB connected) TBD @ Idle (PF = 64, USB disconnected)
Software features				
USB serial driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	/
GNSS driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	/
RIL driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	/
RNDIS driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	/
ECM driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	/
Certifications[3]		Regulatory certification: GCF/CE/RCM/Anatel/UKCA/NCC/FCC	Regulatory certification: CCC/SRRC/NAL/NCC/CE/FCC/IC/Anatel/RCM/KC	Carrier certification: China Telecom/China Mobile/China Unicom; Regulatory Certification: SRRC/NAL/CCC; Others: RoHS/ WHQL
Recommended applications		POS/POC/ETC, shared equipment, data cards, energy control and monitoring, safety and protection, industrial PDAs.		Payment, RMAC (Remote monitoring & Control applications), smart metering and smart grid

Note 1: TBD.
Note 2: Only QuecOpen® version support.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

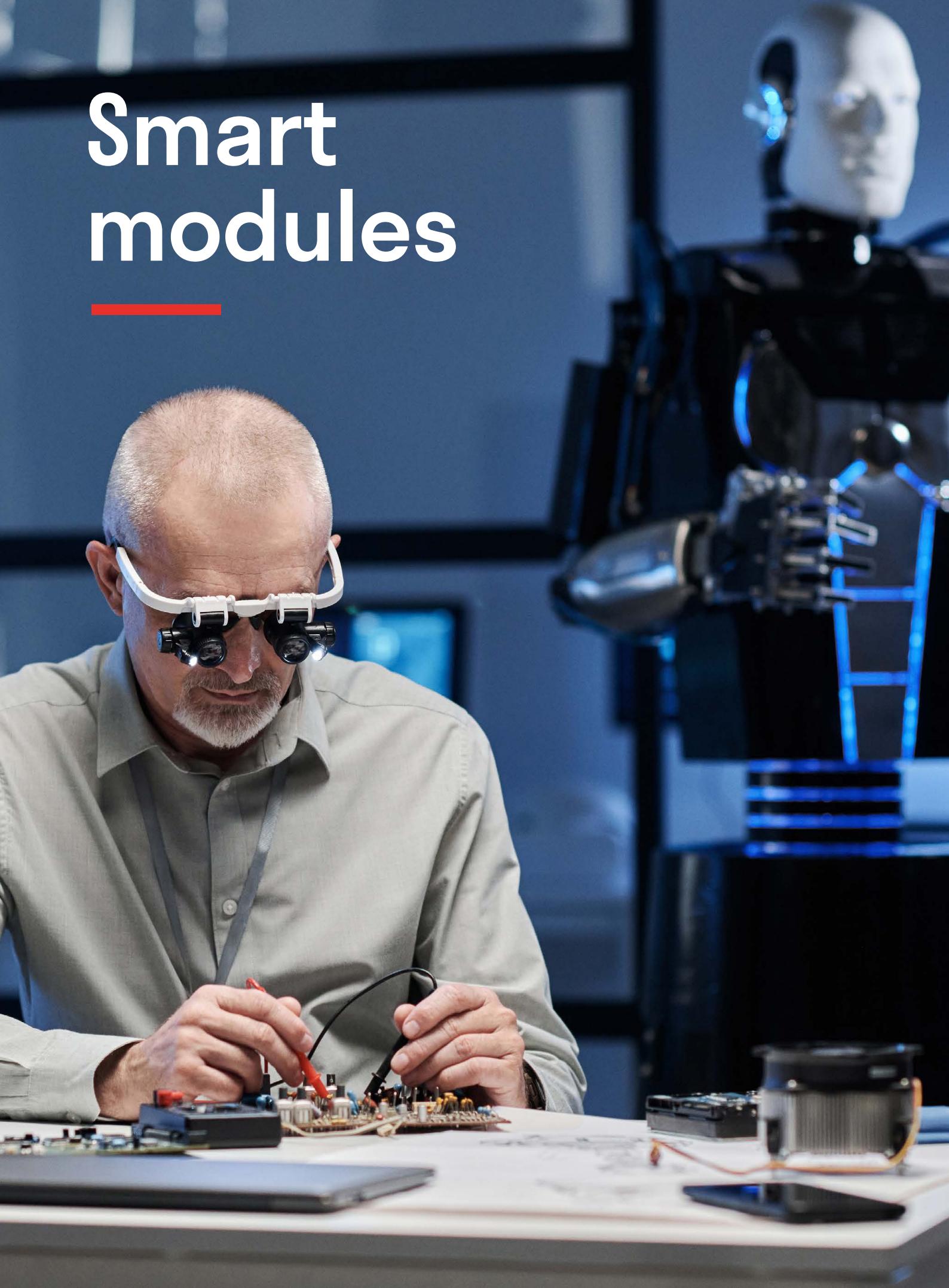
LTE modules

Product		EG915N	EG912N	EG915K
				
Form factor		LGA	LGA	LGA
Dimensions (mm)		23.6 × 19.9 × 2.4	29.0 × 25.0 × 2.4	23.6 × 19.9 × 2.4
LTE category		LTE Cat 1	LTE Cat 1	LTE Cat 1 bis
Frequency bands (MHz)	-EU (Europe)	LTE-FDD: B1/3/7/8/20; GSM: B3/8	/	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41
	-EN (Europe)	/	LTE-FDD: B1/3/5/7/8/20/28/31/72; GSM: B3/8	/
	-EA (Europe/Asia)	LTE-FDD: B1/3/5[1] /7/8/20/28; LTE-TDD: B38[1] /40[1] /41[1] ; GSM: B3/8	/	/
	-LA (Latin America)	LTE-FDD: B2/3/4/5/7/8/28/66; LTE-TDD: B40[1]; GSM: B2/3/5/8	/	LTE-FDD: B2/3/4/5/7/8/28/66
Weight (approx.) (g)		2.46	3.5	2.3
Operating temperature		–35°C ~ +75°C	–35°C ~ +75°C	–35°C ~ +75°C
Extended temperature		–40°C ~ +85°C	–40°C ~ +85°C	–40°C ~ +85°C
Data transmission (Max.)				
LTE data rates (Mbps)		10 (DL)/5 (UL)	10 (DL)/5 (UL)	10 (DL)/5 (UL)
DC-HSPA+ data rates (Mbps)		/	/	/
WCDMA data rates (Kbps)		/	/	/
EDGE data rates (Kbps)		236.8 (DL)/236.8 (UL)	236.8 (DL)/236.8 (UL)	/
GPRS data rates (Kbps)		85.6 (DL)/85.6 (UL)	85.6 (DL)/85.6 (UL)	/
SMS		•	•	/
Protocols		TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/FILE/MQTT/MMS/SMTP/SMTPS	TCP/UDP/PPP/NITZ/PING/MQTT/NTP/HTTP/HTTPS/SSL/FTP/SMTPS/SMTP	TCP/UDP/NTP/NITZ/MQTT/SSL/PPP/ PING/FTP/HTTP/HTTPS/FTPS
Interfaces				
(U)SIM		× 2	× 2	× 1
UART		× 3	× 2	× 3 (main, debug and auxiliary*)
USB		× 1	× 1	× 1
I2C		× 1	× 1	× 1[2]
Audio digital (PCM)		× 1	× 1	/
SDIO		/	/	/
ADC		× 2 (optional)	× 2	× 2
Antenna		× 1 Main, × 1 GNSS (optional)	× 1 Main	× 1 Main, × 1 GNSS (optional)
Enhanced features				
GNSS		Optional	/	Optional
Wi-Fi scan		•	•	•
BlueTooth		/	/	/
VoLTE		Optional	•	/
DTMF		•	•	/
DFOTA		•	•	•
Audio playback/Audio recording		•	•	/
QuecFile		•	•	•
(U)SIM card detection		•	•	•
Firmware update		Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA
Electrical features				
Supply voltage range		3.4 V ~ 4.5 V, typ. 3.8 V	3.3 V ~ 4.3 V, typ. 3.8 V	3.4 V ~ 4.5 V, typ. 3.8 V
Power consumption		24.49 μA @ Power off Mode 1.22 mA @ LTE Sleep Mode (PF = 128, USB disconnected) 1.10 mA @ LTE Sleep Mode (PF = 256, USB disconnected) 16.52 mA @ LTE Idle Mode (PF=64, USB disconnected) 29.39 mA @ LTE Idle Mode (PF=64, USB connected)	30 μA @ Power off mode 1.28 mA @ LTE sleep mode (PF = 128) 1.19 mA @ LTE sleep mode (PF = 256) 20.65 mA @ Idle mode (PF = 64, USB Disconnect) 29.83 mA @ Idle mode (PF = 64, USB Active)	Without GNSS(EU) 8.01 μA @ Power off/0.70 mA @ LTE Sleep (PF = 128, USB Disconnected)/0.61 mA @ LTE Sleep (PF = 256, USB Disconnected)/18.90 mA @ LTE Idle (PF = 64, USB Connected)/9.53 mA @ LTE Idle (PF = 64, USB Disconnected) With GNSS(EU) 16 μA @ Power off/1.40 mA @ LTE Sleep (PF = 128, USB Disconnected)/1.29 mA @ LTE Sleep (PF = 256, USB Disconnected)/26.90 mA @ LTE Idle (PF = 64, USB Connected)/15.45 mA @ LTE Idle (PF = 64, USB Disconnected) Without GNSS(LA) 5.9 μA @ Power off/0.99 mA @ LTE Sleep (PF = 128, USB Disconnected)/0.92 mA @ LTE Sleep (PF = 256, USB Disconnected)/18.53 mA @ LTE Idle (PF = 64, USB Connected)/7.51 mA @ LTE Idle (PF = 64, USB Disconnected) With GNSS(LA) 5.6 μA @ Power off/0.93 mA @ LTE Sleep (PF = 128, USB Disconnected)/0.86 mA @ LTE Sleep (PF = 256, USB Disconnected)/19.05 mA @ LTE Idle (PF = 64, USB Connected)/ 7.84 mA @ LTE Idle (PF = 64, USB Disconnected)
Software features				
USB serial driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7, Android 4.x ~ 13.x	Windows 7/8/8.1/10, Linux 2.6~5.15, Android 4.x~12.x
GNSS driver		Android 4.x ~13.x	/	Android 4.x~12.x
RIL driver		Android 4.x ~ 13.x	Android 4.x ~ 13.x	Android 4.x~12.x
RNDIS driver		Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	Windows 7/8/8.1/10/11, Linux 2.6 ~ 6.7	Windows 7/8/8.1/10, Linux 2.6~5.15
ECM driver		Linux 2.6 ~ 6.7	Linux 2.6 ~ 6.7	Linux 2.6~5.15
Certifications[3]		Regulatory Certification: CE/RCM/UKCA/FCC*/Anatel*	Regulatory certification: CE	Regulatory Certification: CE/RCM/FCC*/Anatel*
Recommended applications		Telematics, smart metering, mobile POS terminals, gateways, safety, tracking and tracing, remote maintenance and control, networking, mobile computing, healthcare.	POS/POC/ETC, shared equipment, data cards, energy control and monitoring, safety and protection, industrial PDAs.	Asset management , commercial telematics, payment , RMAC, smart safety and automation and smart metering.

Note 1: The frequency band is optional.
Note 2: Only QuecOpen® version support.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

Smart modules



Smart modules

Product		SC200L	SC200E
			
Form factor		LCC+LGA	LCC+LGA
Dimensions (mm)		40.5 × 40.5 × 2.85	40.5 × 40.5 × 2.85
LTE feature		LTE Cat 4 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 4 (SC200E-CE/EM/NA/JP/WF/GL)
Frequency bands (MHz)	-CE	-CE (China/ India) LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; GSM: 900/1800MHz	-CE (China) LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41 (140M); WCDMA: B1/8; CDMA: BC0; GSM: 900/1800MHz
	-EU/EM	-EU (EMEA/ APAC) LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/5/8; GSM: 900/1800MHz	-EM (EMEA/South Korea/South Asia/Latin America/India/Australia/New Zealand/South Africa) LTE-FDD: B1/2/3/4/5/7/8/20/28 (A+B); LTE-TDD: B38/40/41 (200M); WCDMA: B1/2/4/5/8; GSM: 850/900/1800/1900MHz
	-AU (ANZ/Brazil)	-AU (Latin America) LTE-FDD: B1/2/3/4/5/7/8/28; LTE-TDD: B38 ; WCDMA: B1/2/4/5/8; GSM: 850/900/1800/1900 MHz	/
	-GL (Global)	/	LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/66/71; LTE-TDD: B34/38/39/40/41; WCDMA: B1/2/4/5/6/8/19; GSM: 850/900/1800/1900MHz
	-NA (North America)	/	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41 (200M)
	-JP (Japan)	/	LTE-FDD: B1/3/5/8/11/18/19/21/26/28; LTE-TDD: B41 (200M); WCDMA: B1/6/8/19
	-WF (Global)	-WF (Wi-Fi) 2.4G & 5G Wi-Fi, 2.4G BT	-WF (Wi-Fi) 2.4G & 5G Wi-Fi, 2.4G BT
CPU		Unisoc SL8541E ARM Cortex 4 x A53 @ 1.4GHz	QCM2290, Quad-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz
GPU		ARM Mali-T820 as 3D graphics accelerator, up to 680 MHz	Qualcomm® Adreno™ 702 Graphics Processing Unit (GPU) with 64-bit addressing
NPU		/	/
Memory		1 GB LPDDR3 + 8 GB eMMC; 2 GB LPDDR3 + 16 GB eMMC	2 GB LPDDR4X + 32 GB eMMC 4 GB LPDDR4X + 64 GB eMMC
Operating system		Android 10	Android 12/13/14/16*
Supply voltage range		3.55 V ~ 4.2 V, typ. 3.8 V	3.55 V ~ 4.4 V, typ. 3.8 V
Weight (approx.) (g)		10	10.3
Operating temperature		-30°C ~ +75°C	-35°C ~ +75°C
Data transmission (Max.)			
LTE (Mbps)		LTE-FDD: 150 (DL)/50 (UL) LTE-TDD: 130 (DL)/30 (UL)	Cat 4: LTE-FDD: 150 (DL)/50 (UL) LTE-TDD: 130 (DL)/30 (UL)
UMTS		DC-HSDPA: 42 Mbps (DL); HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL); DC-HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL/UL)
CDMA2000		EVDO: 3.1 Mbps (DL)/1.8 Mbps (UL) , 1X Advanced: 307.2 Kbps (DL/UL)	EVDO: 3.1 Mbps (DL)/1.8 Mbps (UL) 1X Advanced: 307.2 Kbps (DL/UL)
GSM (Kbps)		EDGE: 296 (DL)/236.8 (UL) , GPRS: 107 (DL)/85.6 (UL)	EDGE: 296 (DL)/236.8 (UL) GPRS: 107 (DL)/85.6 (UL)
Interfaces			
LCM		4-lane MIPI_DSI, HD+ (1440 × 720) @ 60 fps	1 group of 4-lane MIPI DSI, HD+ (1680 × 720) @ 60 fps
Camera		2 groups of MIPI_CSI (2-lane + 1-lane), up to 1.5 Gbps/lane 1 × ISP, 8 MP for rear camera (2-lane) and 2 MP for front camera (1-lane)	2 groups of 4-lane MIPI CSI, up to 2.5 Gbps/lane 2 or 3 cameras supported, up to 25 MP or 13 MP + 13 MP with dual ISP
Touch panel		Capacitive touch panel, I2C controls	Capacitive touch panel
Audio		Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC); 3 outputs: speaker, earpiece, headphone	3 analog inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC); 3 analog outputs: Line Out, earpiece, headphone
Video		Encode: 1080P (H.264) @ 30 fps; WVGA (MPEG-4/VP8) @ 30 fps Decode: 1080P (H.264/MPEG-4/VP8/H.265/DivX4/5/6) @ 30 fps; WVGA (H.263) @ 30 fps	Encoder: 1080P 8-bit H.264/H.265 (HEVC) @ 30 fps Decoder: 1080P 8-bit H.264/H.265 (HEVC)/VP9 @ 30 fps
USB		× 2, USB 2.0 USB1 supports USB OTG, does not support USB hub; up to 480 Mbps; USB2 supports USB host mode and USB hub; up to 100 Mbps	× 1, compliant with USB 2.0/ 3.1, supports USB OTG, charge, etc.
I2C		× 4	× 4
(U)SIM		× 2, support 1.8/2.95 V (U)SIM cards, with (U)SIM card detection function, DSDS supported	× 2 (1.8V/2.95V)
UART		× 2, up to 3.25 Mbps, UART0 supports hardware flow control	× 3, up to 4 Mbps, supports hardware flow control
SDIO		SC200L (Dual-band Wi-Fi): × 1, SD 3.0, 4-bit SDIO (used as the function of SD card by default); SC200L: × 2, SD 3.0, 4-bit SDIO (one is used as the function of SD card by default, while the other for expansion)	× 1 (3.0, 4-bit SDIO)
SD card		× 1, SD 3.0, 4-bit SDIO	× 1, SD 3.0, 4-bit SDIO
PWRKEY		× 1	Pulled up internally to 1.1 V
SPI		× 3	× 1 (multiplexed)
ADC		× 1	× 1, general-purpose ADC interface
GPIO		× 25	× 33
PWM		× 1	× 1
Motor driver		× 1	× 1
Antenna		× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth	× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth (SC200E-WF: × 1, Wi-Fi & Bluetooth)
Enhanced features			
Bluetooth		Bluetooth 2.1 EDR/3.0 HS/4.2 LE/5.0 LE; Support a maximum of 10 ACL/EL/SCO links	2.1 EDR/3.0 HS/4.2 LE/5.0 LE
Wi-Fi		2.4 & 5 GHz, 802.11a/b/g/n/ac; 433 Mbps; STA/AP/P2P	2.4/5 GHz 802.11a/b/g/n/ac
GNSS		GPS/GLONASS or GPS/BDS	GPS/BDS/GLONASS/Galileo/QZSS/SBAS
Charge function		Build-in Charge IC	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology
Dual LCDs		Only support single LCD display	Only support single LCD display
DSDS		Support dual SIM dual standby	Support dual SIM dual standby
Firmware update		Firmware update via USB or OTA	Firmware update via USB and OTA
Certifications[1]		CCC/SRRC*/NAL*/CE/GCF/RCM/Anatel	Verizon/AT&T/T-Mobile/KDDI*/CCC/SRRC/NAL/CE/UKCA/RCM/GCF/KC/Anatel/FCC/IC/PTCRB/JATE/TELEC/DCM/NBTC/NCC
Recommended applications		Smart POS, smart home gateways, smart robots, smart wearables, safety, PDAs & tablets, vending machines, delivery lockers, telematics, mobile computing, in-car video streaming and entertainment systems, etc.	Telematics, mobile POS terminals, gateways, safety, networking, mobile computing, etc.

Note 1: May depend on modules' variant.
SC200L can't be promote to US, Canada, Australia, New Zealand, Japan or South Korea.

* Planning/ Under development/ In progress

Smart modules

Product		SC206E	SC260F
			
Form factor		LCC+LGA	LGA, LCC
Dimensions (mm)		40.5 × 40.5 × 2.85	40.5 × 40.5 × 2.85
LTE feature		LTE Cat 4(SC206E-EM/NA/GL)	LTE Cat 4; 3GPP E-UTRA Release 11 Compliant
Frequency bands (MHz)	-CN (China)	/	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41(140 M); WCDMA: B1/8; GSM: 900/1800 MHz
	-EM (EMEA/South Korea/ South Asia/Latin America/India/ Australia/ New Zealand/South Africa))	LTE-FDD: B1/2/3/4/5/7/8/20/28 (A+B); LTE-TDD: B38/40/41 (200M); WCDMA: B1/2/4/5/8; GSM: 850/900/1800/1900MHz	LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/2/4/5/8; GSM: 850/900/1800/1900 MHz
	-GL (Global)	LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/66/71; LTE-TDD: B34/38/39/40/41(200M); WCDMA: B1/2/4/5/6/8/19; GSM: Quad-band	/
	-NA (North America)	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41 (200M)	/
	-JP (Japan)	LTE-FDD: B1/3/5/8/11/18/19/21/26/28; LTE-TDD: B41(200M); WCDMA: B1/6/8/19	/
	-WF (Global)	2.4G & 5G Wi-Fi, 2.4G BT	WLAN: 2.4 & 5 GHz, 802.11a/b/g/n/ac Bluetooth: Bluetooth 2.1 + EDR/3.0/4.1 LE/4.2 BLE/5.0 LE
CPU		QCM2290, Quad-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz	MT8766, 4 × A53 @ 2.0 GHz
GPU		Qualcomm® Adreno™ 702 Graphics Processing Unit (GPU) with 64-bit addressing	GE8300 & 660 MHz GPU
NPU		/	/
Memory		8GB eMMC + 1GB LPDDR4X 16GB eMMC + 2GB LPDDR4X	4 GB LPDDR4X + 64 GB eMMC
Operating system		Yocto Linux (Kernel 5.15)	Android 13
Supply voltage range		3.55 V ~ 4.4 V, typ. 3.8 V	3.55 V ~ 4.4 V, typ. 3.8 V
Weight (approx.) (g)		10.3	8.3
Operating temperature		-35°C ~ +75°C	-35 °C ~ +75 °C
Data transmission (Max.)			
LTE (Mbps)		Cat 4: LTE-FDD: 150 (DL)/50 (UL) LTE-TDD: 130 (DL)/30 (UL)	LTE-FDD: 150 (DL)/50 (UL) LTE-TDD: 130 (DL)/30 (UL)
UMTS		DC-HSDPA: 42 Mbps (DL); DC-HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL/UL)	DC-HSPA+: 42 Mbps (DL)/ 11.5 Mbps(UL); WCDMA: 384 Kbps (DL/UL)
CDMA2000		EVDO: 3.1 Mbps (DL)/1.8 Mbps (UL) 1X Advanced: 307.2 Kbps (DL/UL)	/
GSM (Kbps)		EDGE: 296 (DL)/236.8 (UL) GPRS: 107 (DL)/85.6 (UL)	EDGE: 236 (DL)/236 (UL) GPRS: 85.6 (DL)/85.6 (UL)
Interfaces			
LCM		1 group of 4-lane MIPI DSI, HD+ (1680 × 720) @ 60 fps	4-lane MIPI DSI, supports up to 1280 × 800 @ 60 fps
Camera		2 groups of 4-lane MIPI CSI, up to 2.5 Gbps/lane 2 or 3 cameras supported, up to 25 MP or 13 MP + 13 MP with dual ISP	Two 4-lane MIPI CSI, up to 2.8 Gbps/ lane Supports 2 cameras, up to 21 MP or 13 MP + 8 MP with dual ISPs
Touch panel		Capacitive touch panel	Capacitive touch panel, controlled by I2C
Audio		3 analog inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC); 3 analog outputs: Line Out, earpiece, headphone	3 analog input: MIC1, MIC2 (earpiece), MIC3 3 analog output: Line-out, earpiece, headphone
Video		Encoder: 1080P 8-bit H.264/H.265 (HEVC) @ 30 fps; Decoder: 1080P 8-bit H.264/H.265 (HEVC)/VP9 @ 30 fps	Encode: 1080P @ 30 fps/ H.263/ H.264/ MPEG4 Decode: 1080P @ 30 fps/ HEVC/ H.263/ H.264/ VP9/ MPEG4
USB		× 1, compliant with USB 2.0/ 3.1, supports USB OTG, charge, etc.	× 1, supports USB 2.0, USB OTG etc.
I2C		× 4	× 7(Multiplexed)
(U)SIM		× 2 (1.8V/2.95V)	× 2, supports 1.8/ 3 V (U)SIM cards; supports (U)SIM card hot swap detection and dual-SIM dual-standby
UART		× 3, up to 4 Mbps, supports hardware flow control	× 2, Debug UART: 2-wire UART, dedicated for debugging UART1: 4-wire UART, up to 3 Mbps data rate, supports RTS and CTS hardware flow control
SDIO		× 1 (3.0, 4-bit SDIO)	/
SD card		× 1, SD 3.0, 4-bit SDIO	× 1, SD 3.0, supports 4-bit SDIO
PWRKEY		Pulled up internally to 1.1 V	0~5 V, pull it down to power on
SPI		× 1 (multiplexed)	× 4 (Multiplexed)
ADC		× 1, general-purpose ADC interface	× 1, general-purpose ADC interface
GPIO		× 33	× 39
PWM		× 1	/
Motor driver		× 1	/
Antenna		× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth (SC206E-WF: × 1, Wi-Fi & Bluetooth)	× 4, Main, Rx-diversity, GNSS, Wi-Fi/ Bluetooth antennas respectively (SC260F-WF*: × 1, Wi-Fi & Bluetooth antenna)
Enhanced features			
Bluetooth		2.1 EDR/3.0 HS/4.2 LE/5.0 LE	Bluetooth 2.1 + EDR/3.0/4.1 LE/4.2 BLE/5.0 LE
Wi-Fi		2.4/5 GHz 802.11a/b/g/n/ac	2.4 & 5 GHz, 802.11a/b/g/n/ac
GNSS		GPS/BeiDou/GLONASS/Galileo/QZSS/SBAS	GPS/BDS/GLONASS/Galileo/QZSS, L1
Charge function		Build-in Charge IC & Fuel Gauge Qualcomm Quick charge technology	/
Dual LCDs		Only support single LCD display	/
DSDS		Support dual SIM dual standby	Support dual SIM dual standby
Firmware update		Firmware update via USB and OTA	Firmware upgrade via USB/OTA
Certifications[1]		Verizon/AT&T/T-Mobile/CE/UKCA/RCM/GCF/KC/Anatel/FCC/IC/PTCRB/JATE/TELEC	CE/RCM/Anatel
Recommended applications		Telematics, mobile POS terminals, gateways, safety, networking, mobile computing, etc.	Smart cash registers, smart POS, tax control machines, smart safety, on-board equipment, smart robots, smart home, smart hardware, industrial smart handheld equipment, audio and video recorders, smart interphones, smart wearables, vending machines, logistics cabinets, etc.

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress

Smart modules

Product		SC280M	SC200P	SC682A
				
Form factor		LGA, LCC	LGA, LCC	LGA, LCC
Dimensions (mm)		40.5 × 40.5 × 2.85	40.5 × 40.5 × 2.85	43.0 × 44.0 × 2.85
LTE feature		LTE Cat 4; 3GPP E-UTRA Release 11 Compliant	LTE Cat 4, conform 3GPP E-UTRA R12 standard , support DL MIMO 2 × 2	LTE Cat 4, 3GPP Release 10
Frequency bands (MHz)	-CN	-CN (China) LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41(140 M); WCDMA: B1/8; GSM: 900/1800 MHz	-CN (China/India) LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; GSM: 900/1800 MHz	/
	-EM: EMEA/South Korea/ South Asia/Latin America/India/ Australia/ New Zealand/South Africa	LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/2/4/5 8; GSM: 850/900/1800/1900 MHz	/	LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/2/4/5/8; GSM/ EDGE (MHz): 850/900/1800/1900
	-JP (Japan)	/	/	LTE-FDD: B1/3/5/8/11/18/19/21/26/28; LTE-TDD: B41
	-AU (Latin America)	/	LTE-FDD: B1/2/3/4/5/7/8/28; LTE-TDD: B38; WCDMA: B1/2/4/5/8; GSM: 850/900/1800/1900 MHz	/
	-EU (EMEA/South Korea/ South Asia/India/ Australia/New Zealand/ South Africa)	/	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/5/8; GSM: 900/1800 MHz	/
	-NA (North America)	/	/	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41
	-WF (Global)	WLAN: 2.4 & 5 GHz, 802.11a/b g/n/ac Bluetooth: Bluetooth 2.1 + EDR/3.0/4.1 LE/4.2 BLE/5.0 LE	-WF* (Global) Only Wi-Fi/Bluetooth	2.4 & 5 GHz, 802.11a/b/g/n/ac
CPU		MT8768, 8-core 64-bit ARM Cortex CPU 4 × A53 @ 2.0 GHz + 4 × A53 @ 1.5 GHz	UIS 7861 Dual-core A75 @1.6GHz+ Hexa-core A55@1.6GHz	SM6115, Kryo 260 Gold: high-performance quad-core 2.0 GHz; + Kryo 260 Silver: low-power quad-core 1.8 GHz
GPU		GE8320 @ 650 MHz GPU	Arm Mali G57	Qualcomm Adreno™ 610 GPU @ 950 MHz
NPU		/	/	1 TOPS
Memory		4 GB LPDDR4X + 64 GB eMMC	32 GB eMMC + 2 GB LPDDR4x(default) 64 GB eMMC + 4 GB LPDDR4x(optional)	3 GB LPDDR4X + 32 GB eMMC
Operating system		Android 13	Android 12/14	Android 14/16*
Supply voltage range		3.55 V ~ 4.4 V, typ. 3.8 V	3.55V ~ 4.4V, typ. 3.8V	3.55 V ~ 4.4 V, typ. 3.8 V
Weight (approx.) (g)		8.3	TBD	11.8
Operating temperature		-35 °C ~ +75 °C	-30°C ~ +75°C	-35°C ~ +75°C
Data transmission (Max.)				
LTE (Mbps)		LTE-FDD :150 (DL)/50 (UL) LTE-TDD :130 (DL)/30 (UL)	Cat 4: LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)	LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)
UMTS		DC-HSPA+: 42.2 Mbps(DL)/11.5 Mbps (UL); WCDMA: 384 kbps (DL/UL)	DC-HSPA+: 42 Mbps(DL)/11 Mbps (UL); WCDMA: 384 kbps (DL/UL)	WCDMA: 384 kbps (DL/UL)
GSM (Kbps)		EDGE: 236 (DL)/236 (UL) GPRS: 85.6 (DL)/85.6 (UL)	EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)	EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)
Interfaces				
LCM		4-lane MIPI DSI, supports up to 1920 × 1200 @ 60 fps	1 × MIPI DSI 4-lane, with up to FHD+ (2520 × 1080) @ 60 fps/ HD+ (1680 × 720) @ 90 fps	4-lane MIPI DSI FHD+ (2520 × 1080) @ 60 fps
Camera		Three groups of MIPI CSI: 1 group of 4-lane CSI, 1 group of 2-lane CSI, 1 group of 1-lane CSI Two 4-lane MIPI CSI, up to 2.8 Gbps/ lane Supports 2 cameras, up to 21 MP or 13 MP + 8 MP with dual ISPs	2 × 4-lane MIPI CSI, 1 × 1-lane MIPI CSI, with up to 2.5 Gbps/ lane up to 3 cameras which can work concurrently, a single camera can support up to 24 M @ 30 fps ZSL	Three 4-lane MIPI CSI, up to 2.5 Gbps/ lane Up to 4 cameras, up to 25 MP with triple ISPs
Touch panel		Capacitive touch panel, controlled by I2C	Capacitive touch panel	Capacitive touch panel, controlled by I2C
Audio		3 analog input: MIC1, MIC2 (earpiece), MIC3 3 analog output: Line-out, earpiece, headphone	Analog outputs × 3: speaker, headset and earpiece Analog inputs × 3: MIC1, MIC2 and MIC3	3 analog inputs: MIC1, MIC2, and MIC3 (including 1 noise-canceling MIC); 3 analog outputs: speaker, earpiece, and headphone
Video		Encode: 1080P @ 30 fps/ H.263/ H.264/ MPEG4 Decode: 1080P @ 30 fps/ HEVC/ H.263/ H.264/ VP9/ MPEG4	Encoding + decoding: H.265/ H.264 1080P @ 60 fps	Encoding: 1080P @ 60 fps; Decoding: 1080P @ 60 fps
USB		× 1, supports USB 2.0, USB OTG etc.	× 1, USB 2.0[1]	USB 3.1 Gen 1 (5 Gbps), USB 2.0 compliant, supporting USB OTG
I2C		× 7 (Multiplexed)	× 7	× 7 (4 of them are dedicated I2Cs, 1 of them is general-purpose I2Cs, while the rest 2 of them are I2Cs multiplexed from other interfaces)
(U)SIM		× 2, supports 1.8/ 3 V (U)SIM cards; supports (U)SIM card hot-plug detection and dual-SIM dual-standby	× 2, 1.8/ 2.95 V (U)SIM card, (U)SIM card hot-swap detection and DSDS	× 2 (1.8/ 2.95 V)
UART		× 2 Debug UART: 2-wire serial port, dedicated for debugging; UART1: 4-wire UART with the speed rate up to 3 Mbps, supporting RTS and CTS hardware flow control	× 4(up to 3 channels working simultaneously)	× 4, 4 Mbps with hardware flow control (2 of them are default UARTs, while the other 2 of them are UARTs multiplexed from other interfaces)
SD card		× 1, SD 3.0, supports 4-bit SDIO	× 1, SD 3.0, 4-bit SDIO	× 1 (SD 3.0, 4-bit SDIO)
PWRKEY		0~5 V, pull it down to power on	× 1, internally pulled up	Pulled up internally to 1.8 V
SPI		× 4 (Multiplexed)	× 4	× 3 (Can be multiplexed as UARTs and I2Ses respectively, and the I2S multiplexed from other interfaces supports both Tx and Rx)
ADC		× 1, general-purpose ADC interface	× 1, general-purpose ADC interface	× 2
I2S		× 2 (Multiplexed)	/	/
GPIO		× 39	× 36	× 23
PWM		/	× 2	/
Motor driver		/	× 1	/
Antenna		× 4, Main, Rx-diversity, GNSS, Wi-Fi/ Bluetooth antennas respectively (SC280M-WF*: × 1, Wi-Fi & Bluetooth antenna)	× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth antennas respectively (SC200P-WF:× 1, Wi-Fi & Bluetooth antenna)	× 4, Main/ Rx-diversity/ GNSS/ Wi-Fi & Bluetooth antenna interface respectively (SC682A-WF*: × 1, Wi-Fi & Bluetooth antenna interface)
Enhanced features				
Bluetooth		Bluetooth 2.1 + EDR/3.0/4.1 LE/4.2 BLE/5.0 LE	Bluetooth 5.0 (BR/ EDR + BLE)[1]	Bluetooth 5.1
Wi-Fi		2.4 & 5 GHz, 802.11a/b/g/n/ac	2.4 & 5 GHz, 802.11 a/b/g/n/ac[1]	2.4 & 5 GHz, 802.11a/b/g/n/ac
GNSS		GPS/GLONASS/BDS/Galileo/QZSS, L1	GPS/GLONASS/BDS/Galileo	GPS/GLONASS/BDS/Galileo/QZSS, L1
Charge function		/	Supported	/
DSDS		Support dual SIM dual standby	Supported	/
Firmware update		Firmware upgrade via USB/OTA	Supported	/
Certifications[1]		CE/RCM	CCC/SRRC/NAL/CE/RCM/Anatel	CE/RCM/KC*/GCF/TELEC*/JATE*/FCC/IC/PTCRB/AT&T/Verizon*/T-Mobile*
Recommended applications		Smart cash registers, smart POS, tax control machines, smart safety, on-board equipment, high-end information acquisition equipment, smart robots, smart home, smart hardware, industrial smart handheld equipment, audio and video recorders, smart interphones, smart wearables, vending machines, logistics cabinets, etc.	smart cash registers, smart POS, tax control machines, smart safety, automotive equipment, high-end information acquisition equipment, smart robots, smart home, smart hardware, industrial smart handheld equipment, audio and video recorders, smart interphones, smart wearables, vending machines, logistics cabinets, etc.	Cloud services IoT, vending, telehealth, security and automation, RMAC (Remote Monitoring & Control Applications), PDA and handheld, payment, display and signage, asset management, commercial telematics, aftermarket telematics

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress

Smart modules

Product		SC200V	SC200J
			
Form factor		LGA, LCC	LGA, LCC
Dimensions (mm)		40.5 × 40.5 × 2.85	40.5 × 40.5 × 2.85
LTE feature		LTE Cat 4	LTE Cat 4, confprm 3GPP E-UTRA R12 standard, support DL MIMO 2 × 2
Frequency bands (MHz)	-CN (China/ India)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; GSM: 900/1800	LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; GSM: 900/1800 MHz
	-EM	-EM(Europe/Middle East/Asia-Pacific/India/Africa) LTE-FDD: B1/2/3/4/5/7/8/20/28/66; LTE-TDD: B38/40/41; WCDMA: B1/2/4/5/8; GSM/EDGE (MHz): 850/900/1800/1900	/
	-EU(EMEA/ South Korea/ South Asia/ India/ Australia/New Zealand/ South Africa)	/	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/5/8; GSM: 900/1800 MHz
	-NA (North America)	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41;	/
	-JP(Japan)	LTE-FDD: B1/3/5/8/11/18/19/21/26/28; LTE-TDD: B41; WCDMA: B1/6/8/19	/
	-WF (Global)	2.4 & 5 GHz, 802.11a/b/g/n/ac, BT 2.1 + EDR/3.0/4.1 LE/4.2 BLE/ 5.0 LE	/
CPU		SM6225 4xA73@2.4 GHz 4xA53@1.9 GHz	UIS 7863 Dual-core A75@2.0GHz+ Hexa-core A55@1.8GHz
GPU		Adreno ™ 610@1.1 GHz	Arm Mali G57
NPU		1 TOPS	/
Memory		4 GB LPDDR4X + 64 GB eMMC (Default) 8 GB LPDDR4X + 128 GB eMMC (Optional)	32 GB eMMC + 2 GB LPDDR4x(default) 64 GB eMMC + 4 GB LPDDR4x(optional)
Operating system		Android 13/14/16*	Android 12/14
Supply voltage range		3.4 V ~ 4.4 V	3.55 V ~ 4.4 V, typ. 3.8 V
Weight (approx.) (g)		10.6	TBD
Operating temperature		-35°C ~ +70°C	-30°C ~ +75°C
Data transmission (Max.)			
LTE (Mbps)		LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)	LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)
UMTS		DC-HSDPA: 42 Mbps (DL); HSUPA: 5.76 Mbps (UL); WCDMA : 384 Kbps (DL/UL)	DC-HSPA+: 42 Mbps (DL)/11 Mbps (UL); WCDMA: 384 Kbps (DL/UL)
TD-SCDMA (Mbps)		/	/
CDMA2000		/	/
GSM (Kbps)		EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)	EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)
Interfaces			
LCM		One 4-lane MIPI DSI, supports up to 1080 × 2520 @ 90 fps	1 × MIPI DSI 4-lane, with up to FHD+ (2520 × 1080) @ 60 fps/ HD+ (1680 × 720) @ 90 fps
Camera		Two 4-lane MIPI CSI, up to 2.5 Gbps/ lane Each 4-lane can be divided into (2-lane + 1-lane), and supports 3 concurrent cameras 3 ISPs, supports up to 3 concurrencies (13 MP + 13 MP + 5 MP) or 2 concurrencies (25 MP + 5 MP or 16 MP + 16 MP) or 1 single connection of 32 MP (30 fps @ ZSL) Up to 64 MP for 1 single camera (ZSL)	2 × 4-lane MIPI CSIs + 1 × 1-lane MIPI CSI, with up to 2.5 Gbps/ lane data rate; up to 3 cameras which can work concurrently; a single camera can support up to 48 M @ 17 fps ZSL
Touch panel		Capacitive touch panel	Capacitive touch pane
Audio		3 analog audio inputs: MIC1, MIC2 and MIC3 3 analog audio outputs: speaker, headset and earpiece	Analog outputs × 3: speaker, headset and earpiece Analog inputs × 3: MIC1, MIC2 and MIC3
Video		Encoding: 1080P @ 60 fps; HEVC/ H.264/ H.265 Decoding: 1080P @ 60 fps; HEVC/ H.264/ H.265/ VP9	Encoding + decoding: H.265/ H.264 1080P @ 60 fps
USB		× 1, supports USB 3.1 Type-C interface, compatible with USB 2.0	× 1, USB 2.0[1]
I2C		× 4	× 7
(U)SIM		× 2, supports 1.8/ 2.95 V (U)SIM cards; supports (U)SIM card hot swap detection and DSDS (Dual-SIM Dual-Standby)	× 2, 1.8/ 2.95 V (U)SIM card, (U)SIM card hot-swap detection and DSDS
UART		× 3, Debug UART: 2-wire serial port, dedicated for debug UART1: 2-wire serial port UART0: 4-wire serial port, supports RTS and CTS hardware flow control	× 4(up to 3 channels working simultaneously)
SD card		× 1, SD 3.0, supports 4-bit SDIO	× 1, SD 3.0, 4-bit SDIO
PWRKEY		1.1 V, internally pulled up	× 1, internally pulled up
SPI		× 1 (Multiplexed from UART0)	× 4
ADC		× 2, general-purpose ADC interface	× 1, general-purpose ADC interface
GPIO		× 26	× 36
PWM		/	/
Motor driver		Supported	× 1
Flashlight driver		/	/
Antenna		× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth antennas respectively	× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth antennas respectively (SC200J-WF*:× 1, Wi-Fi & Bluetooth antenna)
Enhanced features			
Bluetooth		Bluetooth 2.1 + EDR/ 3.0/ 4.1 LE/ 4.2 BLE/ 5.0 LE	Bluetooth 5.0 (BR/ EDR + BLE)[1]
Wi-Fi		2.4 & 5 GHz 802.11a /b/g/n/ac	2.4 & 5 GHz, 802.11 a/b/g/n/ac[1]
GNSS		GPS/GLONASS/BDS/Galileo	GPS/GLONASS/BDS/Galileo
Charge function		Not supported, need a plugin	/
Dual LCDs		/	/
DSDS		Supported	Supported
Firmware update		OTG/USB	Supported
Certifications[1]		CE/TELEC*/JATE*/FCC/IC/ PTCRB/GCF/AT&T/ Verizon/ T-Mobile	CCC/SRRC/NAL/CE/RCM/Anatel
Recommended applications		smart cash registers, smart POS, tax control machines, smart safety, automotive equipment, high-end information acquisition equipment, smart robots, smart home, smart hardware, industrial smart handheld equipment, audio and video recorders, smart interphones, smart wearables, vending machines, logistics cabinets, etc.	

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress

Smart modules

Product		SH602FA-EM
		
Form factor		LCC
Dimensions (mm)		40.5 × 40.5 × 2.85
LTE feature		LTE Cat 4
Frequency bands (MHz)	-EM(EMEA/South Korea/ South Asia/Latin America/India/Australia/ New Zealand/South Africa)	LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/2/4/5/8; GSM Quad band WLAN 2.4 & 5 GHz, 802.11a/b/g/n/ac Bluetooth 2.1 EDR/3.0 HS/4.1 LE/4.2 BLE/5.0 LE GNSS: GPS/GLONASS/BDS/Galileo, L1
	-WF(Global)	/
CPU		MT8786, 2× A75 @ 2.0 GHz + 6× A55 @ 1.8 GHz
GPU		ARM Mali G 52 2 EEMC 2 GPU
NPU		/
Memory		4 GB LPDDR4X + 64 GB eMMC (Default) 2 GB LPDDR4X + 32 GB eMMC (Optional)
Operating system		Android 15*/16*
Supply voltage range		3.55 V ~ 4.4 V, typ. 3.8 V
Weight (approx.) (g)		10.39
Operating temperature		-35 °C ~ +75 °C
Data transmission (Max.)		
LTE (Mbps)		LTE-FDD: 150 (DL)/ 50 (UL) LTE-TDD: 130 (DL)/ 30 (UL)
DC-HSPA+ (Mbps)		42.2 (DL)/ 11.5 (UL)
CDMA2000		/
WCDMA (Kbps)		384 (DL)/ 384 (UL)
GSM (Kbps)		/
Interfaces		
LCM		4 lane MIPI DSI, supports up to FHD+ (1080 × 2520)
Camera		Three groups of 4 lane MIPI CSI: up to 2.5 Gbps/ lane; ISP: 25MP @ 30fps
Touch panel		Capacitive touch panel, controlled by I2C
Audio		3 analog input: MIC1, MIC2 (earpiece), MIC3 3 analog output: Line out, earpiece, headphone
Video		Encode: H.264/HEVC 2560× 1440 @ 30fps Decode: HEVC, H.264, VP9, MPEG2, H.263, MPEG 4 1080p@ 30fps/40Mbps
USB		× 1, supports USB 2.0, USB OTG etc.
I2C		×9 (Multiplexed)
(U)SIM		× 2, supports 1.8/ 3 V (U)SIM cards; supports (U)SIM card hot plug detection and dual SIM dual standby
UART		×2 Debug UART: 2 wire serial port, dedicated for debugging UART1: 4 wire UART with the speed rate up to 3 Mbps; supporting RTS and CTS hardware flow control
SDIO		/
SD card		× 1, SD 3.0, supports 4 bit SDIO
PWRKEY		0-5 V, pull it down to power on
SPI		×6 (Multiplexed)
ADC		×1, general purpose ADC interface
I2S		×2 (Multiplexed)
GPIO		×39
PWM		/
Motor driver		/
Antenna		×4, Main, Rx diversity, GNSS, Wi-Fi/ Bluetooth antennas respectively (SH602FA WF: × 1, Wi-Fi & Bluetooth antenna interface)
Enhanced features		
Bluetooth		/
WLAN		/
Wi-Fi		/
GNSS		/
Charge function		/
Dual LCDs		/
DSDS		Supported
Firmware update		Firmware Upgrade via USB Firmware Upgrade via OTA
Certifications[1]		CE*/RCM*
Recommended applications		Smart cash registers, smart POS, tax control machines, smart safety, on board equipment, high end information acquisition equipment, smart robots, smart home,smart hardware, industrial smart handheld equipment, audio and video recorders, smart interphones, smart wearables, vending machines, logistics cabinets, etc

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress

Smart modules

Product		SC668S	SC696S
			
Form factor		LCC+LGA	LCC+LGA
Dimensions (mm)		43.0 × 44.0 × 2.85	43.0 × 44.0 × 2.85
LTE feature		LTE Cat 4	LTE Cat 4
Frequency bands (MHz)	-CN (China/India)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; CDMA: BC0; GSM: 900/1800MHz	/
	-EM	-EM(Europe/India /South Korea/South Asia/Latin America/Australia/South Africa) LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/39/40/41 (200M); WCDMA: B1/2/4/5/8; GSM: GSM850/EGSM900/DCS1800/PCS1900	-EM(Europe/India/South Korea/South Asia/Latin America/Australia/South Africa) LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/39/40/41 (200M); WCDMA: B1/2/4/5/8; GSM: GSM850/EGSM900/DCS1800/PCS1900
	-NA (North America)	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41
	-JP (Japan)	LTE-FDD: B1/3/5/8/11/18/19/21/26/28; LTE-TDD: B41; WCDMA: B1/6/8/19	/
	-WF (Global)	-WF Only Wi-Fi/BT	Only Wi-Fi/BT
CPU		QCM6125, Kryo Gold: high-performance quad-core processor @ 2.0 GHz; Kryo Silver: low-power quad-core processor @ 1.8 GHz	QCM6125, Kryo Gold: high-performance quad-core processor @ 2.0 GHz; Kryo Silver: low-power quad-core processor @ 1.8 GHz
GPU		Qualcomm high-performance Adreno™ 610 graphics engine	Qualcomm high-performance Adreno™ 610 graphics engine
NPU		1.1 TOPS	1.1 TOPS
Memory		32GB eMMC+3GB LPDDR4X ; 64GB eMMC+4GB LPDDR4X; 128GB UFS+8GB LPDDR4X	16 GB eMMC + 2 GB LPDDR4X
Operating system		Android 10/11/13/15	Linux (kernel 5.15)
Supply voltage range		3.55 V ~ 4.4 V, typ. 3.8 V	3.55 V ~ 4.4 V, typ. 3.8 V
Weight (approx.) (g)		12.0	12.0
Operating temperature		-35°C ~ +75°C	-35°C ~ +75°C
Data transmission (Max.)			
LTE (Mbps)		Cat 4: LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)	Cat 4: LTE-FDD: 150(DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)
UMTS		DC-HSDPA: 42 Mbps (DL); DC-HSUPA: 5.76 Mbps (UL); WCDMA: 384 Kbps (DL/UL)	DC-HSDPA: 42 Mbps (DL); DC-HSUPA: 5.76 Mbps (UL); WCDMA: 384 Kbps (DL/UL)
CDMA2000		EVDO : 3.1 Mbps (DL)/1.8 Mbps (UL) 1X Advanced: 307.2 Kbps (DL/UL)	EVDO : 3.1 Mbps (DL)/1.8 Mbps (UL) 1X Advanced: 307.2 Kbps (DL/UL)
GSM (Kbps)		EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)	EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)
Interfaces			
LCM		4-lane MIPI DSI, supports up to 1920 × 1200 @ 60 fps or 1080 × 2520 @ 60 fps	4-lane MIPI DSI, supports up to 1920 × 1200 @ 60 fps or 1080 × 2520 @ 60 fps
Camera		3 groups of 4-lane MIPI CSI, up to 2.1 Gbps per lane; Each group of 4-lane can be divided into (2-lane + 1-lane), supports up to 6 cameras, supports 2 concurrently working cameras; Dual-ISP, supports up to (16 MP + 16 MP) or up to 24 MP	3 groups of 4-lane MIPI CSI, up to 2.1 Gbps per lane; Each group of 4-lane can be divided into (2-lane + 1-lane), supports up to 6 cameras, supports 2 concurrently working cameras; Dual-ISP, supports up to (16 MP + 16 MP) or up to 24 MP
Touch panel		Capacitive touch panel	Capacitive touch panel
Audio		Analog audio: speakers, handsets, headphones, 3-way microphones	Analog audio: speakers, handsets, headphones, 3-way microphones
Video		Encode: 4K @ 30 fps; HEVC/ H.264/ VP8 Decode: 4K @ 30 fps; HEVC/ H.264/ VP8/ VP9 1080P @ 30 fps, MPEG-2	Encode: 4K @ 30 fps; HEVC/ H.264/ VP8 Decode: 4K @ 30 fps; HEVC/ H.264/ VP8/ VP9 1080P @ 30 fps, MPEG-2
USB		× 1, supports USB 3.1 Type-C interface, compatible with USB 2.0	× 1, supports USB 3.1 Type-C interface, compatible with USB 2.0
I2C		× 2	× 2
(U)SIM		× 2; supports 1.8/ 2.95 V (U)SIM cards; supports (U)SIM card hot swap detection and dual-SIM dual-standby	× 2; supports 1.8/ 2.95 V (U)SIM cards; supports (U)SIM card hot swap detection and dual-SIM dual-standby
UART		× 3 (Debug UART: 2-wire serial port, specialized for debugging use; UART03: 2-wire serial port; UART00: 4-wire serial port, supports RTS and CTS hardware flow control with maximum data rate of 4 Mbps)	× 3 (Debug UART: 2-wire serial port, specialized for debugging use; UART03: 2-wire serial port; UART00: 4-wire serial port, supports RTS and CTS hardware flow control with maximum data rate of 4 Mbps)
SD card		× 1 (3.0, 4-bit SDIO)	× 1 (3.0, 4-bit SDIO)
PWRKEY		Supported	Supported
SPI		× 2	× 2
ADC		× 2, general-purpose ADC interfaces	× 2, general-purpose ADC interface
GPIO		× 20	× 20
I2S		× 2	/
PWM		× 1	× 1
Motor driver		/	/
Flashlight driver		/	/
Antenna		× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth (SC668S-WF: × 1, Wi-Fi & Bluetooth)	× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth (SC696S-WF: × 1, Wi-Fi & Bluetooth)
Enhanced features			
Bluetooth		BT2.1+EDR/3.0/4.1 LE/4.2 BLE/5.0	BT2.1+EDR/3.0/4.1 LE/4.2 BLE/5.0
Wi-Fi		2.4G/5G, 802.11a/b/g/n/ac	2.4G/5G, 802.11a/b/g/n/ac
GNSS		GPS/GLONASS/BeiDou/Galileo/QZSS	GPS/GLONASS/BeiDou/Galileo/QZSS
Charge function		Need external third-party charging chips and meters	Need external third-party charging chips and meters
Dual LCDs		Supports dual screen display, 1920 × 1200 or 1080 × 2520 (MIPI screen) 1920 × 1080 (DP screen)	Supports dual screen display, 1920 × 1200 or 1080 × 2520 (MIPI screen) 1920 × 1080 (DP screen)
DSDS		Supports dual-SIM dual-standby	Supports dual-SIM dual-standby
Firmware update		Firmware update via USB or OTA	Firmware update via USB or OTA
Certifications[1]		Verizon/AT&T/T-Mobile/CCC/SRRC/NAL/CE/RCM/UKCA/GCF/KC/PTCRB/FCC/IC/JATE/TELEC	Verizon/AT&T/CE/RCM/GCF/FCC/IC/PTCRB
Recommended applications		Smart POS, smart home gateways, smart robots, smart wearables, safety, PDAs & tablets, vending machines, delivery lockers, telematics, mobile computing, in-car video streaming and entertainment systems, etc.	Smart POS, smart home gateways, smart robots, smart wearables, safety, PDAs & tablets, vending machines, delivery lockers, telematics, mobile computing, in-car video streaming and entertainment systems, etc.

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress

Smart modules

Product		SE505FE	SG520B
			
Form factor		LGA	LGA
Dimensions (mm)		42.5 × 56.5 × 2.9	42.5 × 56.5 × 2.95
5G feature		Support 3GPP Release 16	3GPP Release 16, DL 4 × 4 MIMO, (SG520B-EM)UL 2 × 2 MIMO
4G		Support 3GPP Release 16	/
LTE feature		/	LTE Cat 15 3GPP Release 16, DL 4 × 4 MIMO (DL)
Frequency bands (MHz)	-CN	-CN*(China) 5G: N1/3/5/8/28/41/78/79; LTE-FDD: B1/3/5/8; LTE-TDD: 34/38/39/40/41 WCDMA: B1/5/8	-CN (China/India) 5G SA/NSA: n1/3/5/8/28/41/78/79; LTE: B1/3/5/8/34/38/39/40/41; WCDMA: B1/5/8
	-EM	-EM*(EMEA/South Korea/South Asia/Latin America/India/Australia/New Zealand/South Africa) 5G: N1/3/5/7/8/20/28/38/40/41/75/77/78; LTE FDD: B1/2/3/4/5/7/8/12/17/18/19/20/26/28/32/66; LTE-TDD:B34/38/39/40/41/42/43; WCDMA:B1/2/4/5/8	-EM (EMEA/South Korea/South Africa/Latin America/Australia/New Zealand/India/China/ Japan) 5G SA/NSA: n1/3/5/7/8/20/28/38/40/41/77/78/79; LTE: B1/2/3/4/5/7/8/12/17/18/19/20/26/28/32/34/38/39/40/41/42; WCDMA: B1/2/4/5/6/8/19; GSM/EDGE: B2/3/5/8
	-NA*(North America)	5G: N2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71/77/78; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29/30/43/46/48/66/71; LTE-TDD: B38/41/42	/
	-WF*(Global)	WLAN: 2.4 & 5 GHz, 802.11a/b/g/n/ac Bluetooth: BT 5.2	/
CPU		MT8863T, 2 × A76 @ 2.4 GHz + 6 × A55 @ 2.0 GHz	QCM4490, octa-core, 2 × A78 @ 2.4 GHz, 6 × A55 @ 2 GHz
GPU		Mali-G57 GPU	Qualcomm® Adreno™ 613
NPU		/	/
Memory		4 GB LPDDR4X + 64 GB eMMC (default) 2 GB LPDDR4X + 32 GB eMMC (Optional)	4 GB LPDDR4X + 64 GB UFS (Default) 8 GB LPDDR4X + 128 GB UFS (Optional)
Operating system		Android 16*	Android 13/14[1]/15[1]/16[1]
Supply voltage range		3.55 V~ 4.4 V, typ. 3.8 V	3.55 V ~ 4.4 V, typ. 4.0 V
Weight (approx.) (g)		/	17.4
Operating temperature		-35 °C ~ +75 °C	-35°C ~ +75°C
Data transmission (Max.)			
5G		NR: 3.27 Gbps (DL)/1.25 Gbps(UL)	SG520B-CN: 5G SA: 2.1 Gbps (DL)/450 Mbps (UL); 5G NSA: 2.5 Gbps (DL)/550 Mbps (UL) SG520B-EM: 5G SA: 2.1 Gbps (DL)/900 Mbps (UL); 5G NSA: 2.5 Gbps (DL)/550 Mbps (UL)
LTE		400 Mbps (DL)/210 Mbps (UL)	0.8 Gbps (DL)/200 Mbps (UL)
DC-HSPA+ (Mbps)		42 (DL)/11.5 (UL)	42 (DL)/5.7 (UL)
WCDMA (Kbps)		384 (DL)/384 (UL)	384 (DL)/384 (UL)
GSM (Kbps)		/	SG520B-EM: EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)
Interfaces			
LCM		4-lane MIPI DSI, supports up to 1080 × 2520 @ 120 fps	FHD+ @ 60/ 90/ 120 Hz
Camera		Three 4-lane MIPI CSI, 32M @ 30fps; 16 MP + 16 MP @ 30 fps	3x MIPI CSI, 2x ISP: 25 MP @ 30 pfs, 16 + 16 MP @ 30 fps, 25 MP @ 30 fps ZSL, 64 MP NZSL
Touch panel		Capacitive touch panel, controlled by I2C	Capacitive touch panel
Audio		3 analog input: MIC1, MIC2 (earpiece), MIC3 3 analog output: Line-out, earpiece, headphone	Needs external audio codec
Video		Encode: 2K 30 fps, H.264/265 Decode: 2K 30 fps, H.264/265/VP9	Encode: 1080p (H.264/ H.265) @ 60 fps; Decode: 1080p (H.264/ H.265) @ 60 fps
USB		× 1, USB 3.1 is backward compatible with USB 2.0	Supports USB 3.1 Gen 1
I2C		× 9 (Multiplexed)	× 8
(U)SIM		× 2, supports 1.8/ 3 V (U)SIM cards; supports (U)SIM card hot swap detection and dual-SIM dual-standby	× 2 (1.8/ 2.95 V)
UART		× 2 Debug UART: 2-wire UART, dedicated for debugging UART1: 4-wire UART, up to 3 Mbps data rate, supports RTS and CTS hardware flow control	× 2
SD card		× 1, SD 3.0, supports 4-bit SDIO	× 1, SDIO 3.0, supports 4-bit SDIO
PWRKEY		Pull it down to power on	1.8 V, pulled up internally
SPI		× 2 (Multiplexed)	× 1
ADC		× 5, general-purpose ADC interface	× 6, general-purpose ADC interfaces
I2S		× 2 (Multiplexed)	× 2
GPIO		× 181	× 56
PWM		/	× 2
Motor driver		/	× 1
Flashlight driver		/	× 1
Antenna		× 7, Cellular antenna(×5), GNSS antenna, Wi-Fi & Bluetooth antenna	× 8, cellular : × 5, Wi-Fi & Bluetooth: × 1, Wi-Fi MIMO: × 1, GNSS: × 1
Enhanced features			
Bluetooth		Bluetooth 5.2	Bluetooth 5.2
WLAN		2.4 & 5 GHz, 802.11a/b/g/n/ac	2.4 & 5 & 6 GHz; 802.11a/b/g/n/ac/ax; Supports DBS, 2 × 2 MU-MIMO
GNSS		GPS/BDS/GLONASS/Galileo/QZSS, L1	GPS/GLONASS/BDS/Galileo/NavIC/QZSS/SBAS; L1
Charge function		/	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology
DSDS		Supports dual SIM dual standby	Supports dual card dual standby
Firmware update		Firmware upgrade via USB/OTA	Firmware update via USB or OTA
Certifications[2]		CE*/RCM*/FCC*	CCC/SRRC/NAL/GCF*/CE*/RCM*/UKCA*
Recommended applications		Smart cash registers, smart POS, tax control machines, smart safety, on-board equipment, smart robots, smart home, smart hardware, industrial smart handheld equipment, audio and video recorders, smart interphones, smart wearables, vending machines, logistics cabinets, etc.	Smart POS, smart home gateways, smart robots, smart wearables, safety, PDAs & tablets, vending machines, delivery lockers, telematics, mobile computing, in-car video streaming and entertainment systems, etc.

Note 1: TBD.
Note 2: May depend on modules' variant.

* Planning/ Under development/ In progress

Product		SG560D
		
Form factor		LGA
Dimensions (mm)		42.5 × 56.5 × 2.95
5G feature		3GPP Release 15, DL 4 × 4 MIMO/UL 2 × 2 MIMO
LTE feature		LTE Cat 15, 3GPP Release 15, DL MIMO 4 × 4
Frequency bands (MHz)	-CE (China/ India)	5G SA/NSA: n1/3/5/8/28/41/78/79; LTE: B1/3/5/8/34/38/39/40/41; WCDMA: B1/5/8
	-EM (EMEA/South Korea/ South Africa/Latin America/Australia/India/ New Zealand/China/ Japan)	5G SA/NSA: n1/3/5/7/8/20/28/38/40/41/77/78/79; LTE: B1/2/3/4/5/7/8/12/17/18/19/20/26/28/32/34/38/39/40/41/42; WCDMA: B1/2/4/5/6/8/19; GSM: B2/3/5/8
	-NA (North America)	5G SA/NSA: n2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71/77/78; LTE: B2/4/5/7/12/13/14/17/25/26/29/30/38/41/42/43/46/48/66/71
	-J (Japan)	/
	-WF (Global)	only Wi-Fi & BT
CPU		Qualcomm QCM6490 ARM Cortex technology 1 x Kryo670 Goldplus @ 2.7 GHz + 3 x Kryo670 Gold @ 2.4GHz + 4 x Kryo670 Silver @ 1.9GHz
GPU		Qualcomm® Adreno™ 643 @ 812 MHz
NPU		12.15 TOPS
Memory		4 GB LPDDR4X + 64 GB UFS 8 GB LPDDR4X + 128 GB UFS
Operating system		Android 12/13/14/15, Ubuntu 20.04, Windows*
Supply voltage range		3.55 V ~ 4.4 V, typ. 4.0 V
Weight (approx.) (g)		17.5
Operating temperature		-35°C ~ +75°C
Data transmission (Max.)		
5G		5G SA: 2.1 Gbps (DL)/450 Mbps (UL); 5G NSA: 2.5 Gbps (DL)/550 Mbps (UL)
LTE		1.2 Gbps (DL)/200 Mbps (UL)
UMTS		DC-HSPA+: 42 Mbps (DL)/5.76 Mbps (UL); WCDMA: 384 Kbps (DL)/384 Kbps (UL)
TD-SCDMA		/
CDMA2000		/
GSM (Kbps)		EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)
Interfaces		
LCM		1 × 4-lane MIPI_DSI, support up to 2.5 Gbps/ lane, 1200 × 2520 @ 144 fps; 1 × DP over Type C, support up to 4K (3840 × 2160) @ 60 fps; Support Wi-Fi Miracast 4K @ 60fps
Camera		4 × 4-lane MIPI_CSI, Supports up to 2.5 Gbps/ lane; 3 × ISP, 3 × 27 MP @ 24 fps; or 3 × 22MP @ 30 fps ; or 36 MP + 27 MP @24 fps; or 36MP + 22MP @ 30 fps; or Max. 1×64 MP @ 30 fps
Touch panel		Capacitive touchscreen, I2C controls
Audio		Needs external audio codec
Video		Encode: 4K (H.264/ H.265) @ 30 fps Decode: 4K (H.264/ H.265/ VP9) @ 60 fps
USB		× 2, USB 3.1 Type-C with DisplayPort 1.4, compatible with USB 2.0; USB 2.0 Host
I2C		× 8, for cameras, touch screens, sensors and other peripherals
(U)SIM		× 2, Support 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function; Support DSDS
UART		× 3, supports 4 Mbps with Hardware Flow Control
SD card		× 1, SD 3.0, 4-bit SDIO
PWRKEY		Supported
SPI		× 1
ADC		× 4, General-purpose ADC interfaces
GPIO		× 35
PWM		× 1
Motor driver		× 1
Flashlight driver		× 1
Antenna		× 8, cellular : × 5, Wi-Fi & Bluetooth: × 1, Wi-Fi MIMO: × 1, GNSS: × 1
Enhanced features		
Bluetooth		Bluetooth 2.1 EDR/3.0 HS/4.2 LE/5.2 LE
Wi-Fi		2.4 & 5 & 6 GHz, 802.11a/b/g/n/ac/ax; Wi-Fi 6E, 2 × 2 MU-MIMO, DBS
GNSS		GPS/GLONASS/BDS/NavIC/Galileo/QZSS/SBAS; L1 + L5
Charge function		Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology
Dual LCDs		/
DSDS		Supports dual SIM dual standby
Firmware update		Firmware update via USB or OTA
Certifications[1]		Verizon*/AT&T/T-Mobile/UKCA/CE/RCM/GCF/PTCRB/FCC/IC
Recommended applications		Smart POS, smart home gateways, smart robots, smart wearables, safety, PDAs & tablets, vending machines, delivery lockers, telematics, mobile computing, in-car video streaming and entertainment systems, etc.

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress

Smart modules

Product		SC362Z	SG368Z
			
Form factor		LGA, LCC	LGA
Dimensions (mm)		SC362Z-AP: 44.0 × 43.0 × 2.9, SC362Z-C: 57.0×41.0×4.9	46.0 × 42.0 × 3.15
Frequency bands (MHz)	-WF (Global)	/	/
	-AP (Global)	/	/
CPU		RK3562/RK3562J, Quad-core ARM Cortex-A53 CPU 1.8 GHz	RK3568, Quad-core ARM Cortex-A55 CPU @ 2.0 GHz
GPU		ARM Mali G52 GPU	ARM Mali-G52
NPU		1 Tops (Commercial-grade only)	1 Tops
Memory		SC362Z-AP: Commercial-grade: LP4/ LP4x, default 2 GB + 32 GB (4 GB + 64 GB, 4 GB + 32 GB and 1 GB + 8 GB are optional) Industrial-grade: LP4/ LP4x, default 2 GB + 16 GB (4 GB + 32 GB and 1 GB + 8 GB are optional) SC362Z-C: 1+8/2+16(DDR4X+EMMC)	Commercial grade: LP4x , default 2 GB + 32 GB (4 GB + 32 GB optional) Industrial grade: LP4x, default 2 GB + 16 GB (4 GB + 32 GB optional)
Operating system		SC362Z-AP: Liunx5.10/Liunx6.10*/Andriod13; SC362Z-C: Liunx5.10/Multi-core one*	Linux (Kernel 4.19/5.10/6.10*)/ Android 13/OpenWrt/OpenHarmony*
Supply voltage range		SC362Z-AP: 3.3 V; SC362Z-C: 5 V	3.3 V ~ 3.5 V, typ. 3.4 V
Weight (approx.) (g)		SC362Z-AP: 11.6; SC362Z-C: 11.7	WF:13.1; AP:12.8
Operating temperature		Commercial-grade: -20°C ~ +75°C; Industrial-grade: -40°C ~ +85°C	WF: Commercial grade: -10°C ~ +75°C, Industrial grade: -40°C ~ +85°C; AP: Commercial grade: -25°C ~ +75°C, Industrial grade: -40°C ~ +85°C
Data transmission (Max.)			
LTE (Mbps)		/	/
UMTS		/	/
TD-SCDMA		/	/
CDMA2000		/	/
GSM		/	/
Interfaces			
LCM		SC362Z-AP: 1 × 4-lane MIPI DSI 1.2: Max. (2048 × 1080) @ 60 Hz ; 4-lane MIPI DSI 1.2: LVDS TIA/ EIA-644-A, Max. (1280 × 800) @ 60 Hz; 1 × BT.1120: Max. 1080 dpi + 1 × BT.656: Max. 576 dpi; 1 × RGB: Max. (2048 × 1080) @ 60 Hz	1 ×HDMI 2.0: Max. (4096 ×2160) @ 60 Hz 8-lane MIPI DSI 1.2: Max. (2048 ×1536) @ 60 Hz or 8-lane LVDS: Max. (1920 ×1080) @ 60 Hz 2 ×4-lane MIPI DSI 1.2: Max. (1920 ×1080) @ 60 Hz 4-lane eDP 1.3: Max. (2560 ×1600) @ 60 Hz 4-lane LVDS: Max. (1280 ×800) @ 60 Hz LCDC RGB parallel display interface supports Max. 24 bits RGB*: Max. (1920 ×1080) @ 60 Hz
Camera		SC362Z-AP: 2 × 4-lane MIPI CSI, which can be divided into 4 × 2-lane MIPI CSI; Max. 2.5 Gbps/ lane, Max. 13 M pixels DVP (BT.656/ 1120) analog camera*	1 ×4-lane MIPI CSI 8M or 2 ×2-lane, up to 2.5 Gbps/ lane Supports DVP* (BT.656/ 1120) analog camera
Touch panel		SC362Z-AP: capacitive touch screen	Supported
Audio		SC362Z-AP: Loudspeaker, earpiece, analog microphones and digital audio	Loudspeaker, earpiece, analog microphones and digital audio
Video		SC362Z-AP: Encoding: H.264, Max. 1920 × 1080 @ 60 fps Decoding: H.264 AVC/ MVC Main Profile yuv400/ yuv420/ yuv422 @ L5.0, Max. 1920 × 1080 @ 60 fps; H.265 HEVC/ MVC Main Profile yuv420 @ L5.0, Max. 4096 × 2304 @ 30 fps; SC362Z-C: Parallel output in the format of 24-bit RGB, with up to 1920 × 1080 @ 60 Hz resolution Output in the format of BT.1120, with up to 1920 × 1080 @ 60 Hz resolution Output in the format of BT.656, with up to 720 × 576 @ 60 Hz resolution	Encoding: 1080p @ 60 fps Decoding: 4K @ 60 fps H.264 AVC/ MVC Main10 Profile yuv400/ yuv420/ yuv422 @ L5.1, H.265 HEVC/ MVC Main10 Profile yuv420 @ L5.1, H.264/ AVC BP/ MP/ HP @ level4.2, H.265/ HEVC MP @ level4.1
USB		SC362Z-AP: × 2, compliant with USB 3.0/ 2.0 USB0: USB 2.0/ 3.0, and USB OTG only (multiplexed with PCIe function pin) USB1: USB 2.0, and USB HOST only; SC362Z-C: Max.× 3, compliant with USB 2.0 specification USB0: USB 2.0; USB OTG USB1 and USB2: USB 2.0; USB HOST only	×4, compliant with USB 3.0/ 2.0 USB0: supports USB 2.0/ USB 3.0, supports USB HOST/ USB OTG USB1: supports USB 2.0/ USB 3.0, only supports USB HOST USB2: only supports USB 2.0, only supports USB HOST USB3: only supports USB 2.0, only supports USB HOST
I2C		SC362Z-AP: Max. × 5; SC362Z-C: Max. × 5	Max. ×5
UART		SC362Z-AP: Max. × 10; SC362Z-C: Max. × 10	Max. ×8 (SG368Z-WF); Max. ×10 (SG368Z-AP)
SD card		SC362Z-AP: × 1, SD 3.0; SC362Z-C: × 1, SD 3.0	× 1, SD 3.0
PWRKEY		SC362Z-AP: PWRKEY/RESET_N/VOL_UP/BOOT/VOL_DOWN; SC362Z-C: UP/DOWN/LEFT/RIGHT/CANCEL/OK	× 1
SPI		SC362Z-AP: Max. × 3, both master and slave modes; SC362Z-C: Max. × 3, both master and slave modes	Max. ×4, supports both master and slave modes
ADC		SC362Z-AP: × 13, general-purpose ADC interfaces; SC362Z-C: × 6, general-purpose ADC interfaces	×5, general-purpose ADC interfaces
GPIO		SC362Z-AP: Max. × 86; SC362Z-C: Max. × 104	Max. ×107 (SG368Z-WF); Max. ×128 (SG368Z-AP)
PWM		SC362Z-AP: Max. × 16; SC362Z-C: Max. × 16	Max. ×14 (SG368Z-WF); Max. ×16 (SG368Z-AP)
Motor driver		/	× 1
Flashlight driver		/	× 3 high-current flash LED drivers, which support both flash and torch modes
WLED Sink		/	/
Antenna		/	× 1, Wi-Fi & Bluetooth (SG368Z-WF)
Enhanced features			
Bluetooth		/	Bluetooth 4.2 (BR/ EDR + BLE)
WLAN		/	2.4 & 5 GHz, Wi-Fi 5, 802.11a/b/g/n/ac
GNSS		/	/
Charge function		/	Supported
Dual LCDs		/	Supported
Firmware update		Supported	Via USB
Certifications[1]		CE/ RCM	SRRC/FCC/IC/KC/CE/RCM/XTS
Recommended applications		smart business displays, express cabinets, electricity, vehicle center consoles, tablet PCs, industrial control terminals, smart home and other industries.	IoT gateways, smart commercial displays, industrial device terminals, smart hospitals, vehicle consoles and automotive NVR.

Note 1: May depend on modules' variant.

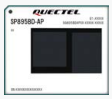
* Planning/ Under development/ In progress

Smart modules

Product		SH602HA-AP	SH603ZA-AP	SH603FC
				
Form factor		LGA, LCC	LGA, LCC	LGA, LCC
Dimensions (mm)		40.5 × 40.5 × 2.90	43.0 × 44.0 × 2.9	43.0 × 44.0 × 2.9
Frequency bands (MHz)	-WF (Global)	/	/	Wi-Fi 6E: 2.4 & 5 & 6 Ghz, 802.11 a/b/g/n/ac/ax, Wi-Fi 2 × 2 Wi-Fi 6: 2.4 & 5 Ghz, 802.11 a/b/g/n/ac/ax, Wi-Fi 1 × 1 Bluetooth 5.x
CPU		X5 Octa-core Arm® Cortex® A55 Cortex-A55 CPU 1.5 GHz @0.85V	RK3576 Commercial-grade: 4 × A72 @ 2.2 GHz + 4 × A53 @ 2.0 GHz Industrial-grade: 4 × A72 @ 1.6 GHz + 4 × A53 @ 1.4 GHz	Genio G520 (MT8371) 2 × A78 @ 2.2 GHz,6 × A55 @ 2.0 GHz
GPU		3D GPU, up to 32Gflops 2D GPU, support for multi-surface composition and 2D graphic processing	Commercial-grade: G52MC3 (900M) Industrial-grade: G52MC3 (700M)	ARM Mali-G57 MC2 GPU
NPU		10 Tops	6 TOPS	10.3 TOPS
Memory		LP4/ LP4x, Default: 4 GB + 32 GB Optional: 2 GB + 8 GB, 2 GB + 16 GB, 4 GB + 16 GB	Commercial-grade: 2 GB LPDDR4x + 32 GB eMMC (Optional) 4 GB LPDDR5x + 64 GB eMMC (Default) 8 GB LPDDR5x + 128 GB eMMC (Optional) 8 GB LPDDR5x + 256 GB eMMC (Optional) Industrial-grade: 2 GB LPDDR4x + 32 GB eMMC (Default) 4 GB LPDDR4x + 64 GB eMMC (Optional)	4 GB LPDDR5X + 64 GB UFS (default) 8 GB LPDDR5X + 125 GB UFS (optional) 12 GB LPDDR5X + 256 GB UFS (optional)
Operating system		Ubuntu22.04	Linux (Kernel 6.1*)/ Android 14/ Debian 11*	Android 15*/Yocto Linux* (Kernel 6.6)/Ubuntu*
Supply voltage range		3.6 V ~ 5V, standard 3.8V	3.55 V ~ 5.5 V, typ. 5 V	3.55 V~ 4.4 V, typ. 3.8 V
Weight (approx.) (g)		TBD	11.5	11.76
Operating temperature		-25°C ~ +85°C	Commercial-grade: -25 °C ~ +75 °C Industrial-grade: -40 °C ~ +85 °C	-35 °C ~ +75 °C
Data transmission (Max.)				
LTE (Mbps)		/	/	/
UMTS		/	/	/
TD-SCDMA		/	/	/
CDMA2000		/	/	/
GSM		/	/	/
Interfaces				
LCM		1 ×4-Lane MIPI DSI TX	1 × 4-lane MIPI DSI-2 v1.1: up to (2560 × 1600)@ 60 Hz 1 × eDP: up to 4096 × 2160 @ 60 Hz 1 × HDMI: up to 4096 × 2160 @ 120 Hz 1 × RGB*: up to 1920 × 1080 @ 60 Hz 1 × EBC*: up to 2560 × 1920 hardware decoding 1 × USB/ DP: up to 4096 × 2160 @ 120 Hz	4-lane MIPI DSI, 4-lane eDP, 4-lane DP(multiplexed from USB3.0), 4-lane LVDS(multiplexed from DSI) Single-screen display: resolution and frame rate up to 5120 × 2160 @ 60 fps or 3840 × 2160 @ 60 fps, 2560 × 1600 @ 120 fps Dual monitors: resolution and frame rate up to 2560 × 1600 @ 60 fps
Camera		MIPI CSI RX: 2 ×4-lane MIPI CSIs can be divided into 4 ×2-lane MIPI CSIs	MIPI-CSI D-PHY v2.0, 4-lane, 4.5 Gbps MIPI-CSI D-PHY v1.2, 2 × 4-lane or 4 × 2-lane or 4 + 2 × 2, 2.5 Gbps DVP*, 8/10/12/16-bit, BT.601/BT.656 and BT.1120 Single-channel ISP, 16M pixels	Two 4-lane MIPI CSI, up to 2.5 Gbps/ lane Supports 2 cameras, dual ISP, up to 16 MP + 16 MP @ 30fps
Touch panel		/	/	Capacitive touch panel, controlled by I2C
Audio		HiFi 5 Audio @ 812 MHz	Digital audio	3 analog input: MIC0, MIC1 (earpiece), MIC2 3 analog output: Line-out, earpiece, headphone
Video		Encoder: H.264/ H.265, with up to 4K @ 60 fps MJPEG, with up to16M @ 30 fps Decoder: H.264/H.265, with up to 4K @ 60 fps MJPEG, with up to16M @ 30 fps	Encoding: H.264/ H.265 standards, up to 4K @ 60 fps Decoding: H.264 AVC/ MVC Main Profile @ L5.2, up to 4K @ 60 fps H.265 HEVC Main Profile @ L6.0, up to 8K @ 30 fps or 4K @ 120 fps VP9 Profile 0/2 @ L6.0, up to 8K @ 30 fps or 4K @ 120 fps AVS2 Profile 0/2 @ L6.0, up to 8K @ 30 fps or 4K @ 120 fps AV1 Main Profile @ L6.0, up to 8K @ 30 fps or 4K @ 120 fps	Encode: 4K @ 60 fps; H.265/H.264/VP9 Decode: 4K @ 30 fps; H.265/H.264
USB		1 ×USB 3.0 USB 2.0,DRD 1 ×USB 2.0,DRD	× 2, compliant with USB 3.2/ 2.0 specifications; USB OTG	× 5 USB 0 complies with USB 3.2 Gen 1 specifications and supports USB OTG; USB 1 complies with the USB 2.0 specification and only supports HOST; USB 2 complies with the USB 2.0 specification and only supports HOST; USB 3 complies with the USB 3.2 Gen 1 specification and only supports HOST; USB 4 complies with the USB 2.0 specification and only supports HOST
I2C		Max.× 7	Max. × 10	× 8 (Multiplexed)
IIS		Max.× 2	Max. × 5	/
SDIO		Max.× 1	Max. × 2 (only 1 SD card, SD 3.0, 4 bits)	× 1, SDIO 3.0, supports 4-bit SDIO
UART		Max.× 7	Max. × 12	× 4 Debug UART: 2-wire UART, dedicated for debugging; UART1: 2-wire UART UART2: 4-wire UART, supports RTS and CTS hardware flow control UART3: 4-wire UART, supports RTS and CTS hardware flow control
SD card		Max.× 1, SD 3.0	/	× 1, SD 3.0, supports 4-bit SDIO
PWRKEY		/	× 1	3.55 V~ 4.4 V ,pull it down to power on
SPI		Max.× 6, both slave and master modes	Max. × 5, master and slave modes	× 4 (Multiplexed)
ADC		Max.× 4,10 bits	× 4, general-purpose ADC interface	× 4, General-purpose ADC interfaces
I2S		Max.× 2	Max. × 5	× 2 (Multiplexed)
GPIO		Max.× 111	Max. × 130	× 104
PWM		Max.× 8	Max. × 16	/
Antenna		/	/	Wi-Fi & Bluetooth antennas
Enhanced features				
Bluetooth		/	/	Bluetooth 5.x
WLAN		/	/	Wi-Fi 6E: 2.4 & 5 & 6 GHz, 802.11 a/b/g/n/ac/ax Wi-Fi 2 × 2 Wi-Fi 6: 2.4 & 5 GHz, 802.11 a/b/g/n/ac/ax Wi-Fi 1 × 1
GNSS		/	/	/
Charge function		/	/	/
Dual LCDs		/	/	/
Firmware update		/	/	Firmware upgrade via USB/OTA
Certifications		NA	CE*/ RCM*	CE*/RCM*/FCC*
Recommended applications		Humanoid robots, wheel-arm robots, quadruped robots, service companion robots, logistics AMR, etc.	smart commercial displays, robots, live videos, smart retails, industrial control, E-books, industry tablets, etc.	Hardware for M2M applications, industrial rugged tablets, smart intercom recorders, edge computing devices, vending machines, and logistics lockers

* Planning/ Under development/ In progress

Smart modules

Product		SG885G-WF	SG882G-AP	SP895BD-AP
				
Form factor		LGA	LGA	LGA
Dimensions (mm)		49.0 × 51.0 × 4.15	33.0× 39.0× 3.85	33.0 × 39.0 × 3.85
Frequency bands (MHz)	-WF (Global)	/	/	/
	-AP (Global)	/	/	/
CPU		QCS8550 1 ×Kryo Prime @ 3.2 GHz + 4 ×Kryo Gold @ 2.8 GHz + 3 ×Kryo Silver @ 2.0 GHz	QCS8550 1 × Kryo Prime @ 3.2 GHz + 4 × Kryo Gold @ 2.8 GHz + 3 × Kryo Silver @ 2.0 GHz	QC8750S Qualcomm® octa-core Oryon™ 64-bit processors @ 2 × 4.32 GHz + 6 × 3.53 GHz
GPU		Adreno™ 740 GPU	Adreno™ 740 GPU	Qualcomm® Adreno™ 830 GPU
NPU		Dual eNPU V3, 4 x HVX, HMX, 48 INT8, 12 FP16 TOPs	Hexagon TMDSP + Hexagon Vector eXtensions (HVX) + Hexagon Matrix eXtensions (HMX)	Qualcomm® Hexagon™ NPU
Memory		8 GB LPDDR5X + 128 GB UFS 3.1 12 GB LPDDR5X + 256 GB UFS 4.0 16 GB LPDDR5X + 256 GB UFS 4.0 16 GB LPDDR5X + 512 GB UFS 4.0	8 GB LPDDR5X + 128 GB UFS 12 GB LPDDR5X + 256 GB UFS 16 GB LPDDR5X + 512 GB UFS	24 GB LPDDR5X + 256 GB UFS 4.0
Operating system		Android 13	Android 13/ Linux (Kernel 5.15)	Android 15/ Linux*
Supply voltage range		3.55 V ~ 4.4 V, typ. 3.8 V	3.55 V ~ 4.4 V, typ. 3.8 V	3.55 V ~ 4.4 V, standard 4 V
Weight (approx.) (g)		18.6	8.6	8.23
Operating temperature		-30°C ~ +75°C	-30 °C ~ +75 °C	-30°C ~ +75°C
Data transmission (Max.)				
LTE (Mbps)		/	/	/
UMTS		/	/	/
TD-SCDMA		/	/	/
CDMA2000		/	/	/
GSM		/	/	/
Interfaces				
LCM		2 × 4-lane MIPI DSI	2 × 4-lane MIPI_DSI, Data rate: up to 2.5 Gbps/lane 5120 × 2880 @ 60 fps or 3480 × 2160 @ 120 fps or 3360 × 1600 @ 144 fps or 2520 × 1200 @ 240 fps DisplayPort v1.4 over Type-C with MST (2 × 4K60 10-bit or 1 × 8K30 with DSC)	2 × 4-lane MIPI DSI Date rate: up to 2.5 Gbps/ lane 3840 × 2560 @ 144 Hz DisplayPort v1.4 (MST, with up to 8K @ 60 Hz)
Camera		6 × 4-lane MIPI CSI	6 × 4-lane MIPI_CSI + 2 × 2-lane MIPI_CSI, up to 8 cameras Data rate: up to 2.5 Gbps/lane 3 × Full ISP + 2 × Lite ISP, 36 MP + 36 MP + 36 MP or 64 MP + 36 or 108M @ 30 fps ZSL	Up to 6 camera interfaces; up to 5 concurrent cameras CSI D-PHY 4-lane, with up to 2.5 Gbps/ lane data rate CSI C-PHY 4-lane, with up to 13.68 Gbps/ trio 3 × Full ISPs + 2 × Lite ISPs 3 × 48 MP @ 30 fps – 3 cameras 1 × 108 MP @ 30 fps ZSL – single camera
Touch panel		Supported	/	/
Audio		SWR, Digital microphone, MI2S interfaces, HIFI I2S	SWR, Digital Microphone, MI2S interfaces, Hi-Fi I2S	SWR, digital MIC, MI2S interface and Hi-Fi I2S
Video		Encoder: 4K @ 120 fps; 8K @ 30 fps Decoder: 4K @ 240 fps; 8K @ 60 fps Native encode support for H.265 Main 10, H.265 Main, H.264 high formats Native decode support for H.265 Main 10, H.265 Main, H.264 High, and VP9 profile 2	Encoder: 4K @ 120 fps; 8K @ 30 fps Decoder: 4K @ 240 fps; 8K @ 60 fps Native encode support for H.265 Main 10, H.265 Main, H.264 High formats Native decode support for H.265 Main 10, H.265 Main, H.264 High, and VP9 Profile 2	Encoder: 4K @ 120 fps; 8K @ 30 fps Decoder: 4K @ 240 fps; 8K @ 60 fps Native encoder supports H.264 and H.265 formats Native decoder supports H.264, H.265, VP9 and AV1 formats
USB		× 1, both USB 3.1/ 2.0 are compliant	× 1, compliant with USB 3.1/ 2.0	× 1, compliant with USB 3.1/ 2.0 specifications
I2C		Max.× 21	Max.× 36 (Multiplex interfaces included)	× 29 (21 of them require 1.8 V power supply)
IIS		/	Max.× 5	× 5 (3 of them require 1.8 V power supply)
SDIO		/	/	× 2
UART		Max.× 10	Max.× 17[1], including 1 × debug UART	× 15 (1 × Debug UART) (13 of them require 1.8 V power supply)
SD card		× 1, SD 3.0	× 2, SD 3.0	× 2, SD 3.0
PWRKEY		× 1	×1	× 1
SPI		Max.× 9	Max.× 16 (: Multiplex interfaces included)	× 12 (10 of them require 1.8 V power supply)
ADC		× 2, General-purpose ADC interfaces	× 4, General-purpose ADC interfaces	× 4, General-purpose ADC interfaces
I2S		/	Max.× 5[1]	× 5 (3 of them require 1.8 V power supply)
GPIO		Supported	Supported	Supported
PWM		Supported	Supports battery voltage detection, fuel gauge, battery temperature detection	/
Motor driver		× 1	× 1	× 1
Flashlight driver		× 2	/	/
WLED Sink		/	/	/
Antenna		× 2, Wi-Fi & Bluetooth, Wi-Fi MIMO	/	/
Enhanced features				
Bluetooth		Bluetooth 5.3 (BR/EDR + BLE)	/	/
WLAN		2.4 & 5 & 6 GHz, 802.11a/b/g/n/ac/ax/be, 2 ×2 MIMO DBS, HBS Wi-Fi 7	/	/
GNSS		/	/	/
Charge function		Supported	/	/
Dual LCDs		Supported*	/	/
Firmware update		Via USB	/	/
Certifications		SRRC/FCC/IC/CE*	FCC/IC/RCM/CE	CE*/ FCC*
Recommended applications		Video conference, live broadcast, games, edge computing, robots AR/VR, Smart retail, intelligent security and other terminal products and industries.	Video conference systems, live streaming devices, gaming, edge computing, robots, AR/ VR, intelligent retail, smart safety, etc.	Video conferencing, Live broadcasting, interactive gaming, edge computing, robotics, AR/ VR, smart retail, smart safety

Note 1: Multiplex interfaces included.

* Planning/ Under development/ In progress

Single board computers (SBC)

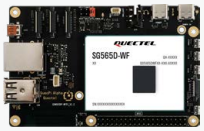
Single board computers (SBC)

Product		QSM368ZP	QSM668SR	QSM560DR
				
Form factor		MOB	MOB	MOB
Dimensions (mm)		100 × 120 × 22.25	102 × 100 × 23	106 × 120
LTE feature		/	LTE Cat 4	/
Frequency bands (MHz)	-CN (China/ India)	/	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41 (200 MHz); WCDMA: B1/8; EVDO/CDMA: BC0; GSM: 900/1800 MHz	/
	-EM(Europe/ Asia Pacific)	/	LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/39/40/41 (200 MHz); WCDMA: B1/2/4/5/8; GSM: 850/900/1800/1900 MHz	/
	-NA (North America)	/	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41(200 MHz)	/
	-WF (Global)	WLAN: 2.4 & 5 GHz, Wi-Fi 5, 802.11a/b/g/n/ac; Bluetooth: 4.2 (BR/ EDR + BLE)	2.4/5 GHz, 802.11a/b/g/n/ac	WLAN: 2.4/5/6 GHz, 802.11a/b/g/n/ac/ax, DBS, 2 × 2 MU-MIMO; BT: Bluetooth 5.2
CPU		RK3568, 4* 64 Quad-core ARM Cortex-A55 CPU @ 2.0 GHz	QCM6125 platform – 8-core 64-bit processor	Octa-core 5G SoC 1 × Gold Plus @ 2.7 GHz+ 3 × Gold @ 2.4 GHz+ 4 × Silver @ 1.9 GHz+ 4 × Silver @ 1.9 GHz
GPU		ARM Mali G52 GPU	Adreno 610 GPU	Adreno™ 643 @ 812 MHz
NPU		1 TOPS	1.1 TOPS	12.15 TOPS
Memory		Commercial-grade: LP4/ LP4x, default 2 GB + 32 GB	4GB+64GB(LPDDR4X + UFS) 3 GB LPDDR4X + 32 GB EMMC* 8 GB LPDDR4X + 128 GB UFS*	4 GB LPDDR4X + 64 GB UFS
Operating system		Linux (Kernel 4.19)/ Android 13	Android/Ubuntu	Ubuntu 20.04
Supply voltage range		DC 10~12 V (typical 12 V/ 5 A)	DC: 12-19 V	DC 7 ~ 12 V
Weight (approx.) (g)		90	97.7	118
Operating temperature		Commercial-grade: -10 °C ~ +75 °C	-20 °C ~ + 75 °C	-35 °C ~ +75 °C
Data transmission (Max.)				
LTE (Mbps)		/	LTE FDD: 150 (DL)/ 50 (UL) LTE TDD: 130 (DL)/ 30 (UL)	/
DC-HSPA+ (Mbps)		/	42 (DL)/ 5.76 (UL)	/
WCDMA (Kbps)		/	384 (DL)/ 384 (UL)	/
CDMA2000		/	EVDO: 3.1 Mbps (DL)/ 1.8 Mbps (UL); 1X Advanced: 307.2 Kbps(DL)/ 307.2 Kbps(UL)	/
GSM (Kbps)		/	EDGE: 296 (DL)/ 236.8 (UL); GPRS: 107 (DL)/ 85.6 (UL)	/
Interfaces				
LCM		1 × 4-lane MIPI DSI, Max 1920 × 1080 @ 60 fps	HDMI	eDP × 1, supports DisplayPort 1.4, up to 4K (3840 × 2160) @ 30 fps
Camera		2 × 2-lane MIPI CSI, Max 2.5 Gbs/ lane, 8 MP	× 2, 4-lane MIPI CSI	3 × MIPI Camera
Touch panel		/	/	/
Audio		Loudspeaker, earpiece and microphone	× 2, digital microphone × 1, speaker × 1, 3.5 mm earphone jack	× 1, 3.5 mm headset jack line out
Video		Encoding: 1080p @ 60 fps Decoding: 4K @ 60 fps H.264 AVC/ MVC Main10 Profile yuv400/ yuv420/ yuv422 @ L5.1, H.265 HEVC/ MVC Main10 Profile yuv420 @ L5.1, H.264/ AVC BP/ MP/ HP @ level4.2, H.265/ HEVC MP @ level4.1	Video coder: 4K @ 30 fps, HEVC/H.264/VP8 Video decoder: 4K @ 30 fps, HEVC/H.264/VP8/VP9 1080P @ 30 fps, MPEG-2	Encoding: 4K (H.264/ H.265) @ 30 fps Decoding: 4K (H.264/ H.265/ VP9) @ 30 fps
USB		2 × USB 2.0 Type-A classic interfaces (USB2, USB3), host mode only; 1 × USB 3.0 Type-A classic interface (USB1), host mode only; 1 × USB 3.0 Type-A classic interface (USB0), host mode only; 1 × Micro USB 2.0 classic interface (USB0), both host and slave modes	× 1, USB 3.0 Type-A × 3, USB 2.0 Type-A	× 5, 4 USB 3.0 Type-A classic interfaces, 1 USB Type-C interface (only supports USB 2.0, used for debugging and firmware upgrade)
I2C		× 2	/	/
(U)SIM		× 1 , which can be connected to Mini PCIe modules	Supported	× 1, supports 1.8/ 2.95 V (U)SIM card
SDIO		1 × SD	Supported	/
UART		× 4	Supported	1 × RS485 2 × RS232
SD card		× 1 , compliant with SD 3.0 specification, supporting hot swap	Supported	× 1
PWRKEY		Supported	/	× 1
SPI		/	/	/
ADC		× 4	Supported	/
I2S		/	Supported	/
GPIO		/	Supported	× 10
PWM		/	/	/
Antenna		1 × Wi-Fi/ Bluetooth antenna	× 4: Main, Rx-diversity, GNSS, Wi-Fi/Bluetooth antennas respectively (QSM668SR-WF*: × 1, Wi-Fi/ Bluetooth antenna)	/
Enhanced features				
Bluetooth		Bluetooth 4.2 (BR/ EDR + BLE)	Bluetooth 2.1 + EDR/ 3.0/ 4.1 LE/ 4.2 BLE/ 5.0 LE	Bluetooth 5.2
Wi-Fi		2.4 & 5 GHz, Wi-Fi 5, 802.11a/b/g/n/ac	2.4/ 5 GHz, 802.11a/ b/ g/ n/ ac	2.4/5/6 GHz, 802.11a/b/g/n/ac/ax, DBS, 2 × 2 MU-MIMO
GNSS		/	GPS/GLONASS/BDS/Galileo/QZSS/SBAS	/
Firmware update		/	/	FW Update over USB
Certifications[1]		CE/RCM	CE*/FCC*	CE*/FCC*
Recommended applications		IoT gateways, smart commercial displays, industrial device terminals, smart hospitals, vehicle consoles and automotive NVR.	Intelligent robots, IoT gateways, smart home devices, industrial equipment terminals, smart commercial displays, intelligent POS systems, smart security solutions, in-vehicle devices, information collection terminals, smart vending machines, and logistics lockers.	Robotics and industrial control fields.

Note 1: May depend on modules' variant.
QSM560DR: Ethernet × 2, 10/100/1000 Mbps ethernet ports, CAN × 1, M.2 × 1, supports external M.2 4G modules.

* Planning/ Under development/ In progress

Single board computers (SBC)

Product		Quectel Pi H1	Quectel Pi M1	Quectel Pi L1
				
Form factor		MOB	MOB	MOB
Dimensions (mm)		68.7 × 108.99 × 20.77	56 × 85 × 21.66	56 × 85 × 21.66
LTE feature		/	LTE Cat 4, 3GPP Release 10	LTE Cat 4, 3GPP Release 10
Frequency bands (MHz)	-EM	/	-EM (EMEA/Asia) LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/2/4/5/8 GSM/ EDGE (MHz): 850/900/1800/1900	-EM (EMEA/South Korea/South Asia/Latin America/India/ Australia/New Zealand/South Africa) LTE-FDD: B1/2/3/4/5/7/8/20/28; LTE-TDD: B38/40/41; WCDMA: B1/2/4/5/8; GSM: 850/900/1800/1900 MHz
	-NA (North America)	/	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41	LTE-FDD: B2/4/5/7/12/13/14/17/25/26/66/71; LTE-TDD: B41(200M)
	-WF (Global)	Wi-Fi 2.4 & 5 G, IEEE 802.11a/b/g/n/ac, Bluetooth 5.0	2.4 & 5 GHz, 802.11a/b/g/n/ac	-WF (Wi-Fi) 2.4G & 5G Wi-Fi, 2.4G BT
CPU		QCS6490, octa-core SoC 1 × Gold Plus @ 2.7 GHz + 3 × Gold @ 2.4 GHz + 4 × Silver @ 1.9 GHz	Octa-core 64-bit ARM Kryo™ 260 processor: Kryo Gold: l4× A73 @ 2.1 GHz Kryo Silver: l4× A53 @ 2.0 GHz	QCM2290, Quad-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz
GPU		Adreno™ 642L/643 @ 812 MHz	64-bit Adreno™ 610 @ 950MHz	Qualcomm® Adreno ™ 702 Graphics Processing Unit (GPU) with 64-bit addressing
NPU		12.15 TOPS @ int8	/	/
Memory		8 GB LPDDR4X + 128 GB UFS	4 GB LPDDR4X + 64 GB eMMC	2 GB LPDDR4X + 32 GB eMMC
Operating system		Linux/Ubuntu*/Debian	Android 14/Yocto Linux*	Android 14*/Yocto Linux*
Supply voltage range		Voltage of the power supply through USB Type-C: 9V	Voltage of the power supply through USB Type-C: 5V	Voltage of the power supply through USB Type-C: 5V
Weight (approx.) (g)		68	55	55
Operating temperature		-20 °C ~ +70 °C	0 °C ~ +70 °C	Normal operating temperature: -20 °C ~ +70 °C
Data transmission (Max.)				
LTE (Mbps)		/	LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)	LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL)
DC-HSPA+ (Mbps)		/	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
WCDMA (Kbps)		/	/	/
CDMA2000		/	/	/
GSM (Kbps)		/	EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)	EDGE: 296 (DL)/236.8 (UL); GPRS: 107 (DL)/85.6 (UL)
Interfaces				
LCM		1 × 4-lane MIPI DSI, with up to 2.5 Gbps/ lane data rate, FHD+ (1200 × 2520) @ 144 fps based on MIPI standards	1 × 4-lane MIPI DSI, with up to 1.5 Gbps/ lane data rate, FHD+ (1080 × 2520) @ 60fps based on MIPI standards	1 × 4-lane MIPI DSI, with up to 1.5 Gbps/ lane data rate, FHD+ (1680 × 720) @ 60fps based on MIPI standards
Camera		4 × 4-lane MIPI CSIs, up to 2.5 Gbps/ lane data rate	2×4-lane MIPI CSIs, up to 2.5 Gbps/ lane data rate	2×4-lane MIPI CSIs, up to 2.5 Gbps/ lane data rate
Touch panel		external capacitive touch screen, controlled by I2C	external capacitive touch screen, controlled by I2C	external capacitive touch screen, controlled by I2C
Audio		1 × 3.5 mm earpiece connector, OMTP and CTIA audio output interface; 1 × HDMI interface, audio output; 1 × on-board DMIC	1 × MX1.25-4P audio interface 1 × HDMI interface for audio output 1 × MEMS Microphone	1 × MX1.25-4P audio interface 1 × HDMI interface for audio output 1 × MEMS Microphone
Video		1 × USB Type-C interface (DP Over USB Type-C), DisplayPort 1.4, with up to 4K (3840 × 2160) @ 60 fps; 1 × HDMI interface, DMI 2.0 (the frame rate is to be determined*), encoding: 4K (H.264/H.265) @ 30 fps, decoding: 4K (H.264/H.265/ VP9) @ 60 fps; 1 × FPC connector1, FHD+ (1200 × 2520) @ 144 fps based on MIPI standards	1 × HDMI interface , HDMI 1.4 (the frame rate is to be determined*), encoding: 1080p (H.264/H.265) @ 60 fps, decoding: 1080p (H.264/H.265/ VP9) @ 60 fps 1 × FPC connector1, FHD+ (1080 × 2520) @ 60 fps based on MIPI standards	1 × HDMI interface , HDMI 1.4 (the frame rate is to be determined*), encoding: 1080p (H.264/H.265) @ 60 fps, decoding: 1080p (H.264/H.265/ VP9) @ 60 fps 1 × FPC connector1, FHD+ (1680 × 720) @ 60 fps based on MIPI standards
USB		1 × USB 3.1 Type-C interface, compatible with USB 2.0, with up to 5 Gbps data rate; 2 × standard USB 2.0 Type-A interface, host mode only, with up to 480 Mbps data rate; 1 × USB Type-C interface, main power supply interface	1 × USB 3.0 Type-C interface with up to 5 Gbps data rate, used for flashing firmware, which needs BOOT to be shorted, and communication in host mode 2 × standard USB 3.0 Type-A interfaces, with host mode only and up to 5 Gbps data rate 2 × standard USB 2.0 Type-A interface, with host mode only and up to 480 Mbps data rate 1 × USB Type-C interface, main power supply interface	1 × USB 3.0 Type-C interface with up to 5 Gbps data rate, used for flashing firmware, which needs BOOT to be shorted, and communication in host mode 2 × standard USB 3.0 Type-A interfaces, with host mode only and up to 5 Gbps data rate 2 × standard USB 2.0 Type-A interface, with host mode only and up to 480 Mbps data rate 1 × USB Type-C interface, main power supply interface
I2C		× 6 (multiplexed with other interfaces)	4× I2C interfaces (multiplexed with other interfaces)	4× I2C interfaces (multiplexed with other interfaces)
(U)SIM		/	/	/
SDIO		× 1 SD 3.0, 4-bit SDIO	× 1 SD 3.0, 4-bit SDIO	× 1 SD 3.0, 4-bit SDIO
UART		× 1 SH1.0 connector, only for debugging; × 4 (multiplexed with other interfaces)	3 × SPI interfaces (multiplexed with other interfaces; master mode only) 4 × UART interfaces (multiplexed with other interfaces)	3 × SPI interfaces (multiplexed with other interfaces; master mode only) 4 × UART interfaces (multiplexed with other interfaces)
SD card		× 1 SD 3.0, 4-bit SDIO	× 1 SD 3.0, 4-bit SDIO	× 1 SD 3.0, 4-bit SDIO
PWRKEY		× 1, internally pulled up	× 1 , internally pulled up	× 1 , internally pulled up
SPI		× 4 (multiplexed with other interfaces)	× 3 (multiplexed with other interfaces)	× 3 (multiplexed with other interfaces)
ADC		× 3	2× MX1.25-4P	1× MX1.25-4P
I2S		× 1 (multiplexed with other interfaces)	× 1 (multiplexed with other interfaces)	× 1 (multiplexed with other interfaces)
GPIO		× 28 (multiplexed with other interfaces)	× 28 (multiplexed with other interfaces)	× 28 (multiplexed with other interfaces)
PWM		× 3	/	/
Antenna		1 × Wi-Fi & Bluetooth antenna	1 × MAIN, main antenna 1 × DRX, rx-diversity antenna 1 × GNSS, GNSS antenna 1 × Wi-Fi / BT, Wi-Fi/ Bluetooth antenna	1 × MAIN, main antenna 1 × DRX, rx-diversity antenna 1 × GNSS, GNSS antenna 1 × Wi-Fi / BT, Wi-Fi/ Bluetooth antenna
Enhanced features				
Bluetooth		Supported	Supported	Supported
WLAN		Supported	Supported	Supported
Wi-Fi		Supported	Supported	Supported
GNSS		/	Optional	Optional
DSDS		/	Supported	Supported
Firmware update		USB0, OTA	USB0, OTA	USB0, OTA
Certifications[1]		FCC/IC/CCC/CE	FCC/IC/CCC/CE	FCC/IC/CCC/CE
Recommended applications		Edge computing, robots, industrial control, multimedia terminals, digital billboards, smart safety, industrial-grade PDA, etc., which cover almost every industry in AIoT.	Edge computing, robots, industrial control, multimedia terminals, digital billboards, smart safety, industrial-grade PDA, etc., which cover almost every industry in AIoT.	Edge computing, robots, industrial control, multimedia terminals, digital billboards, smart safety, industrial-grade PDA, etc., which cover almost every industry in AIoT.

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress

LPWA modules

LPWA modules

Product	BG96	BG95 Series[1]	BG95xA-GL Series	BG950S-GL
				
Form factor	LGA	LGA	LGA	LGA
Dimensions (mm)	26.5 × 22.5 × 2.3	23.6 × 19.9 × 2.2	23.6 × 19.9 × 2.2(BG950A-GL/BG951A-GL/ BG955A-GL)	23.6 × 19.9 × 2.2
RAT	LTE Cat M1/NB1/EGPRS	LTE Cat M1/Cat NB2/EGPRS	LTE Cat M1/Cat NB1/NB2; LTE Cat M1/NB1/NB2/GPRS (BG955A-GL)	Cat-M & NB IoT
Frequency bands (MHz)	LTE-FDD: B1/2/3/4/5/8/12/13/18/19/20/26*/ 28; EGPRS: 850/900/1800/1900MHz	LTE-FDD: B1/2/3/4/5/8/12/13/18/19/20/25/26 (Cat M1 Only)/27 (Cat M1 Only)/28/31/66/71 (Cat NB2 Only)/72/73/85/86[2] (Cat NB2 only)/ 87[2]/88[2]; EGPRS: 850/900/1800/1900MHz	LTE-FDD: B1/2/3/4/5/8/12/13/17 (Cat NB1/ NB2 Only)/18/19/20/25/26 (Cat M1 Only)/27 (Cat M1 Only)/28/66 (BG950A-GL/BG951A-GL/ BG952A-GL/BG953A-GL); LTE-FDD: B1/2/3/4/5/8/12/13/17 (Cat NB1/NB2 Only)/18/19/20/25/26 (Cat M1 Only)/27 (Cat M1 Only)/28/66; GPRS: 850/900/1800/ 1900MHz (BG955A-GL)	Cat M1: B1/2/3/4/5/8/12/13/18/19/20/25/26/ 27/28/66/71 ; Cat NB2: B1/2/3/4/5/8/12/13/17/18/19/20/ 25/26/28/66/71/85
Weight (approx.) (g)	3.1	2.15	2.15 (BG950A-GL/BG951A-GL); 2.05 (BG955A-GL)	2.31
Operating temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Data transmission (Max.)				
LTE Cat M1 data rates (Kbps)	375 (DL)/375 (UL)	588 (DL)/1119 (UL)	588 (DL)/1119 (UL)	Cat M1: 588 (DL)/1119 (UL)
LTE Cat NB1 data rates (Kbps)	32 (DL)/70 (UL)	32 (DL)/70 (UL)	27.2 (DL)/62.5 (UL)	27.2 (DL)/62.5 (UL)
LTE Cat NB2 data rates (Kbps)	/	127 (DL)/158.5 (UL)	127 (DL)/158.5 (UL)	Cat NB2: 127 (DL)/158 (UL)
EDGE data rates (Kbps)	296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)	/	/
GPRS data rates (Kbps)	107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)	85.6 (DL)/42.8 (UL) (BG955A-GL)	/
SMS	•	Point-to-point MO and MT; Text and PDU mode; SMS cell broadcast	Point-to-point MO and MT; Text and PDU mode; SMS cell broadcast	Point-to-Point MO and MT; SMS cell broadcast; Text and PDU mode; SMS storage: ME by default
Protocols	PPP/TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/NITZ/ PING/MQTT (S)/LwM2M/CoAP (S)/IPv6/DNS/NTP	PPP/TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/NITZ/ PING/MQTT (S)/MQTT-SN/LwM2M/CoAP (S)/ IPv6/DNS/NTP	PPP/TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/NITZ/ PING/MQTT/LwM2M	TCP/PPP/UDP/SSL/MQTT/FTP(S)/HTTP(S)/ LwM2M*/IPv4/IPv6/TLS/DTLS/ PING/CoAP*/NITZ
Interfaces				
(U)SIM	1.8 V/ 3 V	1.8 V	1.8 V	× 1 (Supports 1.8 V only)
UART	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG,GNSS)(BG950A-GL/BG951A-GL/BG955A-GL)	× 2
USB	USB 2.0 × 1	USB 2.0 × 1	USB 2.0 × 1	/
I2C	I2C[3] × 1	I2C[3] × 1	/	/
ADC	ADC × 2	ADC × 1	ADC × 2	× 2
GPIO	GPIO × 2 (I2C and NMEA can be re-configured as GPIO)	GPIO[4] × 9	GPIO × 9 (BG950A-GL/BG951A-GL/BG955A-GL)	× 9
RESET	RESET × 1	RESET × 1	RESET × 1	× 1
PCM	PCM[3] × 1	PCM[3] × 1	/	/
Antenna	Primary, GNSS	Antenna[5]: 2 (for main antenna and GNSS antenna, respectively)	2 (for main antenna and GNSS antenna, respectively)	× 2 (Main antenna: × 1; GNSS antenna*: × 1)
Enhanced features				
QuecOpen®	Simplifies the Development of embedded applications	Simplifies the Development of embedded applications	/	/
iSIM	/	/	/	/
DFOTA	•	•	•	•
SIM detection	•	•	•	•
GNSS	Optional	Optional	GPS, GLONASS(BG950A-GL/BG955A-GL); GPS/GLONASS/Galileo/Beidou/QZSS, LTE & GNSS concurrency (BG951A-GL)	•
Firmware update	via USB Interface	via USB Interface	via UART/USB*/DFOTA	•
Electrical features				
Supply voltage range	3.3 V ~ 4.3 V, typ. 3.8 V	typ. 3.8 V / typ. 3.3 V [6]	2.2 V ~ 4.35 V, typ. 3.3 V (BG950A-GL/BG951A-GL); 3.3 V ~ 4.3 V, typ. 3.8 V (BG955A-GL)	VBAT_BB/ VBAT_RF: 2.2 V ~ 4.35 V, typ. 3.3 V
Power consumption	10 μA @ PSM	3.9 μA @ PSM[7]	1.5 μA @ PSM	Power Saving Mode: 1.44 μA @ CAT M1 1.53 μA @ CAT NB1 Sleep Mode @ QSCLK=2: Cat M1: 0.7 mA @ DRX = 1.28 s; 18 μA @ e-I-DRX = 40.96 s; PTW = 1.28 s; DRX = 1.28 s; 12 μA @ e-I-DRX = 81.92 s; PTW = 1.28 s; DRX = 1.28 s;
Max output power	Power class 3 23dBm @ LTE bands	Power class5 21dBm @ LTE bands / Power class3 23dBm @ LTE bands[8] / Power class 2 26dBm @ LTE B31/72/73 of BG95-M4/ Power class 2 26dBm @ LTE B31/72/73 and Power class 3 23dBm @ other LTE bands of BG95-M9	Power class 3 23dBm @ LTE bands	Power class 3 23dBm @ LTE bands
Software features				
USB serial driver	Windows 7/8/8.1/10/11, Linux 2.6 or later, Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/ 12.x/13.x/14.x	Windows 7/8/8.1/10/11, Linux 2.6~5.15, Android 4.x/5.x/6.x/7.x/ 8.x/9.x/10.x/11.x/ 12.x	/	/
GNSS driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/ 12.x/13.x/14.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/12.x	/	•
RIL driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/ 12.x/13.x/14.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/12.x	/	•
NDIS driver	Windows 10/11	/	/	/
Certifications[9]	Vodafone/Deutsche Telekom/Telefónica/ Verizon/AT&T/T-Mobile/U.S._Cellular/Rogers/ Telus/Telstra/SKT/LGU+/NTT DOCOMO/ SoftBank/KDDI/CE/GCF/PTCRB/FCC/IC/IFETEL/ RCM/KC/JATE/TELEC/NBTC/IMDA/ICASA/NCC/CCC	Vodafone/Deutsche Telekom/Telefónica/ Verizon/AT&T/T-Mobile/U.S.Celluar/Orange/ Rogers/Telus/Telstra/KT/SKT/LGU+/NTT DOCOMO/SoftBank*/KDDI/CE/UKCA/GCF/PTCRB/ FCC/IC/Anatel/IFETEL/RCM/KC/JATE/TELEC/ NBTC*/IMDA/NCC/RoHS/ATEX/PEN/CCC	Vodafone /Deutsche Telekom/Verizon/AT&T/ T-Mobile/Telus/Telstra/KT/SKT*/LGU+/NTT DOCOMO*/KDDI*/CE/GCF/PTCRB/FCC/IC/RCM/KC/ JATE/TELEC	GCF/CE/PTCRB/FCC/IC/RCM
Recommended applications	Gas detectors, soil PH testers, optical sensors, machinery alarm systems, irrigation controllers, elevators, asset tracking electronics, pet tracking, water/gas metering, smart parking systems, fire hydrants, smoke alarms, smart bins, street lighting			Trackers, metering, smart health

Note 1: For different variants, please refer to the BG95 specification.
Note 2: BG95-M9 support B86/B87/B88.
Note 3: For Voice Call only.
Note 4: BG95-MF provides 7 GPIO Interfaces, please refer to HD for details.
Note 5: BG95-MF provides 3 antenna interfaces, please refer to HD for details.
Note 6: For the supply voltage of different variants, please refer to the BG95 Hardware Design document.
Note 7: For the power consumption of different variants, please refer to the BG95 Hardware Design document.
Note 8: For the max output power of different variant, please refer to BG95 Hardware Design document.
Note 9: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

LPWA modules

Product	BG600L-M3	BG77	BG77xA-GL Series
			
Form factor	LGA	LGA	LGA
Dimensions (mm)	18.7 × 16.0 × 2.1	14.9 × 12.9 × 1.7	14.9 × 12.9 × 1.9 (BG770A-GL/BG773A-GL)
RAT	LTE Cat M1/Cat NB2/EGPRS	LTE Cat M1/Cat NB2	LTE Cat M1/Cat NB1/NB2
Frequency bands (MHz)	LTE-FDD: B1/2/3/4/5/8/12/13/18/19/20/25/26 (Cat M1 Only)/ 27 (Cat M1 Only)/28/66/71 (Cat NB2 Only)/85; EGPRS: 850/900/1800/1900MHz	LTE-FDD: B1/2/3/4/5/8/12/13/18/19/20/25/26 (Cat M1 Only)/ 27 (Cat M1 Only)/28/66/71 (Cat NB2 Only)/85*	LTE-FDD: B1/2/3/4/5/8/12/13/17 (Cat NB1/NB2 Only)/18/19/ 20/25/26 (Cat M1 Only)/27 (Cat M1 Only)/28/66
Weight (approx.) (g)	1.25	0.73	0.85
Operating temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Data transmission (Max.)			
LTE Cat M1 data rates (Kbps)	588 (DL)/1119 (UL)	588 (DL)/1119 (UL)	588 (DL)/1119 (UL)
LTE Cat NB1 data rates (Kbps)	32 (DL)/70 (UL)	32 (DL)/70 (UL)	27.2 (DL)/62.5 (UL)
LTE Cat NB2 data rates (Kbps)	127 (DL)/158.5 (UL)	127 (DL)/158.5 (UL)	127 (DL)/158.5 (UL)
EDGE data rates (Kbps)	296 (DL)/236.8 (UL)	/	/
GPRS data rates (Kbps)	107 (DL)/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	Point-to-point MO and MT; SMS cell broadcast; Text and PDU mode
Protocols	PPP/TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/NITZ/PING/MQTT (S)/ MQTT-SN/LwM2M/CoAP (S)/IPv6/DNS/NTP	PPP/TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/NITZ/PING/MQTT (S)/ MQTT-SN/LwM2M/CoAP (S)/IPv6/DNS/NTP	TCP/PPP/UDP/SSL/MQTT/FTP(S)/HTTP (S)/LwM2M/IPv4/IPv6/TLS/ DTLS/CoAP/NITZ (BG770A-GL); PPP/TCP/UDP/SSL/TLS/FTP (S)/HTTP (S)/NITZ/PING/MQTT/ LwM2M(BG773A-GL)
Interfaces			
(U)SIM	1.8 V	1.8 V	1.8 V
UART	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, AUX) (BG770A-GL); × 3 (MAIN, DEBUG, GNSS)(BG773A-GL)
USB	USB 2.0 × 1	USB 2.0 × 1	USB 2.0 × 1
I2C	I2C[1] × 1	I2C[1] × 1	/
ADC	ADC × 1	ADC × 2	ADC × 2
GPIO	GPIO × 6	GPIO × 7	GPIO × 7 (BG770A-GL/BG773A-GL); GPIO Max. × 15 (BG772A-GL)
RESET	RESET × 1	RESET × 1	RESET × 1
PCM	PCM[1] × 1	PCM[1] × 1	/
Antenna	2 (for main antenna and GNSS antenna, respectively)	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	/
iSIM	/	/	• (BG773A-GL)
DFOTA	•	•	•
SIM detection	•	•	•
GNSS	Optional	Optional	GPS, GLONASS
RAI	/	/	/
Firmware update	via USB interface	via USB interface	via UART/USB/DFOTA
Electrical features			
Supply voltage range	3.3 V ~ 4.3 V, typ. 3.8 V	2.6 V ~ 4.8 V, typ. 3.3 V [2]	VBAT_BB: 2.2 V ~ 4.35 V, typ. 3.3 V; VBAT_RF: 3.1 V ~ 4.2 V, typ. 3.3 V
Power consumption	4.0 μA @ PSM	3.44 μA @ PSM	1.4 μA @ PSM
Max output power	Power class 5 21dBm @ LTE bands	Power class 5 21dBm @ LTE bands	Power class 3 23dBm @ LTE bands
Software features			
USB serial driver	Windows 7/8/8.1/10/11, Linux 2.6~5.15, Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/12.x	Windows 7/8/9/10/11, Linux 2.6~5.15, Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/12.x	/
GNSS driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/12.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/12.x	/
RIL driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/12.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x/12.x	/
Certifications[3]	Vodafone/Deutsche Telekom/Telefónica*/Verizon*/AT&T*/ T-Mobile/CE/UKCA/GCF/PTCRB/FCC/IC/Anatel/RCM/RoHS	Vodafone/Deutsche Telekom/Verizon/AT&T/T-Mobile/Telus/ CE/UKCA/GCF/PTCRB/FCC/IC/RCM/KC*/JATE/TELEC/NBTC*/NCC/ USCC/RoHS	Vodafone/Deutsche Telekom/Verizon/AT&T/T-Mobile/ Orange/Telus/Telstra/KT/SKT/LGU+/NTT DOCOMO/Softbank*/ KDDI/CE/GCF/PTCRB/FCC/IC/RCM/KC/JATE/TELEC/ICASA/RoHS
Recommended applications	Gas detectors, soil PH testers, optical sensors, machinery alarm systems, irrigation controllers, elevators, asset tracking electronics, pet tracking, water/gas metering, smart parking systems, fire hydrants, smoke alarms, smart bins, street lighting		

Note 1: For voice call only.
Note 2: please refer to the hardware design manual for more specific requirements on the minimum power supply voltage.
Note 3: May depend on modules' variant.
BG77xA-GL Series: USB upgrades require a reserved UART interface; UART upgrades are the preferred option.

* Planning/ Under development/ In progress
• Supported

LPWA modules

Product	BC660K-GL	BC950K-GL
		
Form factor	LCC	LCC
Dimensions (mm)	17.7 × 15.8 × 2.0	23.6 × 19.9 × 2.2
RAT	LTE Cat NB2	LTE Cat NB2
Frequency bands (MHz)	B1/2/3/4/5/8/12/13/17/18/19/20/25/28/66/70/85	B1/2/3/4/5/8/12/13/17/18/19/20/25/28/66/70/85
Weight (approx.) (g)	1.0	1.6
Operating temperature	-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature	-40°C ~ +85°C	-40°C ~ +85°C
Data transmission (Max.)		
LTE Cat NB1 data rates (Kbps)	Single-tone: 25.5 (DL)/16.7 (UL) Multi-tone: 127 (DL)/158.5 (UL)	Single-tone: 25.5 (DL)/16.7 (UL) Multi-tone: 127 (DL)/158.5 (UL)
LTE Cat NB2 data rates (Kbps)	127 (DL)/158.5 (UL)	127 (DL)/158.5 (UL)
GPRS data rates (Kbps)	/	/
SMS	Text mode	Text mode
Protocols	UDP/TCP/PING/LwM2M/SNTP/COAP/COAPS/HTTP/HTTPS*/MQTT/MQTTS/SSL/TLS	UDP/TCP/PING/LwM2M/SNTP/COAP/COAPS/HTTP/HTTPS*/MQTT/MQTTS/SSL/TLS
Interfaces		
(U)SIM	× 1 (1.8V/3.0V)	× 1 (1.8V/3.0V)
UART	UART × 2 (for QuecOpen® version, × 3)	× 2 (QuecOpen®* version, × 3, only one port for debug)
I2C	× 1 (for QuecOpen® version only)	× 1 (for QuecOpen®* only, multiplexed with other pins)
ADC	× 1 (for QuecOpen® version, × 2)	× 1 (QuecOpen®* version, ×4)
GPIO	× 4 (for QuecOpen® version, × 16)	Configurable (for QuecOpen®* only, multiplexed with other pins)
RESET (RESET_N)	× 1	× 1
SPI	× 1 (for QuecOpen® version only)	× 1 (for QuecOpen®* version only, multiplexed with other pins)
PWM	× 1 (for QuecOpen® version only)	× 1 (for QuecOpen®* version only, multiplexed with other pins)
RI	× 1	× 1
PSM_EINT	× 1 (for QuecOpen® version, × 2)	× 1 (for QuecOpen®* version, × 5)
I2S	/	/
NETLIGHT	× 1	× 1
WAKEUP_OUT	/	/
Antenna	× 1	× 1
Enhanced features		
QuecOpen®	•	•
DFOTA	•	•
BLE 5.0	/	/
Firmware update	via UART/DFOTA	via UART/DFOTA
RAI	•	•
Location based services	/	/
eSIM*	Optional	Optional
Electrical features		
Supply voltage range	2.2 V ~ 4.3 V, typ. 3.3 V	2.2 V ~ 4.3 V, typ. 3.6 V
Power consumption	800 nA @ PSM	800 nA @ PSM
Certifications	Vodafone/Deutsche Telekom/Telefónica/Orange/AT&T/T-Mobile/Telstra/Optus/Spark/KT/LGU+/CE/GCF/PTCRB/FCC/IC/Anatel/RCM/KC/JATE/TELEC/NBTC/IMDA/ICASA/NCC	Vodafone/Deutsche Telekom*/Telefónica*/Telstra/KT*/LGU+*/CE/GCF/Anatel*/RCM/KC/NBTC*/IMDA*/ICASA*
Recommended Applications	Gas detectors, soil PH testers, optical sensors, machinery alarm systems, irrigation controllers, elevators, asset tracking, electronics, pet tracking, water/gas metering, smart parking systems, fire hydrants, smoke alarms, smart bins, street lighting	

* Planning/ Under development/ In progress
• Supported

LPWA modules

Product	BC680Z-EU	BC65	BC92	BC95-GR
				
Form factor	LCC	LCC	LCC	LCC
Dimensions (mm)	17.7 × 15.8 × 2.2	17.7 × 15.8 × 2.2	23.6 × 19.9 × 2.2	23.6 × 19.9 × 2.2
RAT	3GPP Rel-14, Cat NB2	LTE Cat NB2	LTE Cat NB2/GSM	LTE Cat NB2
Frequency bands (MHz)	B3/5/8/20/28	LTE Cat NB2: B1[2]/3/5/8/20/28	LTE Cat NB2: B3/5/8/20/28; GSM: 850/900/1800/1900MHz	B3/5/8/20/28
Weight (approx.) (g)	1.1	1.2	1.8	1.6
Operating temperature	-35°C ~ +75°C	-25°C ~ +75°C	-25°C ~ +75°C	-25°C ~ +75°C
Extended temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Data transmission (Max.)				
LTE Cat NB1 data rates (Kbps)	/	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: 25.5 (DL)/16.7 (UL) Multi-Tone: 25.5 (DL)/62.5 (UL)
LTE Cat NB2 data rates (Kbps)	126.5 (DL)/158.5 (UL)	127 (DL)/158.5 (UL)	127 (DL)/158.5 (UL)	127 (DL)/158.5 (UL)
GPRS data rates (Kbps)	/	/	GPRS Class 12: 85.6 (DL)/85.6 (UL)	/
SMS	Only supports PDU	•	•	/
Protocols	UDP/TCP/LwM2M/SNTP/IPv4/IPv6/NITZ/PING	UDP/TCP/SNTP/MQTT/CoAP/PPP/TLS/DTLS/ CoAPS/HTTP/HTTPS	UDP/TCP/SNTP/PPP/MQTT/CoAP/HTTP/HTTPS/FTP/ CoAPS	UDP/TCP/SNTP/MQTT/CoAP*/PPP/TLS/DTLS/HTTP/ HTTPS/SMS/DFOTA
Interfaces				
(U)SIM	× 1	× 1	× 1	× 1
UART	× 2	× 3 (MAIN, DEBUG, AUX)	× 2 (MAIN, DEBUG)	× 3 (MAIN, DEBUG, AUX)
I2C	× 2 (Open only)	/	/	/
ADC	× 1	× 1	× 1	× 1
GPIO	* (Open only)	/	/	/
RESET (RESET_N)	× 1	× 1	× 1	× 1
SPI	× 2 (Open only)	/	/	/
PWM	× 1 (Open only)	/	/	/
RI	RI*: × 1	× 1	× 1	× 1
PSM_EINT	× 1	× 1	× 1	× 1
I2S	/	/	/	/
NET_STATUS (NETLIGHT)	× 1*	/	/	× 1
WAKEUP_OUT	/	/	/	× 1
Antenna	× 2	× 1	× 1	× 1
Enhanced features				
QuecOpen®	•	/	/	*
DFOTA	•	•	•	•
BLE 5.0	/	/	/	/
Firmware update	via UART/DFOTA	via UART/DFOTA	via UART/DFOTA	•
RAI	•	•	•	•
Location based services	Supports GNSS	ECID, OTDOA	ECID, OTDOA	ECID, OTDOA
eSIM*	/	Optional	Optional	Optional
Electrical features				
Supply voltage range	2.2 V ~ 4.5 V	3.2 V ~ 4.2 V, typ. 3.8 V	3.4 V ~ 4.2 V, typ. 3.8 V	3.2 V ~ 4.2 V, typ. 3.6 V
Power consumption	2.8 μA @ PSM, 0.19 mA @ DRX in sleep mode, DRX = 2.56 s, ECL0, 0.11 mA @ eDRX in sleep mode, eDRX=10.24s, ECL0	4 μA @ PSM	4 μA @ PSM	3.8 μA @ PSM 1.2 mA @ Idle, DRX = 2.56 s, ECL 0
Certifications[1]	Vodafone/Telefónica/CE/GCF/Anatel/RCM	Vodafone/Deutsche Telekom/Telefónica/CE/ GCF/RCM	Vodafone/Deutsche Telekom/Vodacom/CE/ GCF/Anatel/RCM/ICASA/MTN	CE/RCM/Anatel
Recommended applications	Gas detectors, soil PH testers, optical sensors, machinery alarm systems, irrigation controllers, elevators, asset tracking, electronics, pet tracking, water/gas metering, smart parking systems, fire hydrants, smoke alarms, smart bins, street lighting			

Note 1: May depend on modules' variant.
Note 2: Optional.

* Planning/ Under development/ In progress
• Supported

Satellite modules

Satellite modules

Product	BG95-S5	BG770A-SN
		
Form factor	LGA	LGA
Dimensions (mm)	23.6 × 19.9 × 2.2	14.9 × 12.9 × 1.9
RAT	IoT-NTN/LTE Cat M1/Cat NB2/EGPRS	IoT-NTN/LTE Cat M1/Cat NB2
Frequency bands (MHz)	IoT-NTN: L-Band (B255)/ S-Band (B256/23); Cat M1: B1/2/3/4/5/8/12/13/18/19/20/25/26/27/28/66/85; Cat NB2: B1/2/3/4/5/8/12/13/18/19/20/25/28/66/71/85; EGPRS: GSM 850/EGSM 900/DCS 1800/PCS 1900	Global: Cat M1: B1/2/3/4/5/8/12/13/18/19/20/25/26/27/28/66; Cat NB2: B1/2/3/4/5/8/12/13/17/18/19/20/25/28/66; IoT-NTN: L-Band(B255)/S-Band (B256/23)
Weight (approx.) (g)	2.15	0.8
Operating temperature	-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature	-40°C ~ +85°C	-40°C ~ +85°C
Data transmission (Max.)		
LTE Cat M1 data rate (Kbps)	588 (DL)/1119 (UL)	Rel-14 588 (DL)/1119 (UL)
LTE Cat NB1 data rate (Kbps)	32 (DL)/70 (UL)	Rel-13 27.2 (DL)/62.5 (UL)
LTE Cat NB2 data rate (Kbps)	127 (DL)/158.5 (UL)	Rel-14 127 (DL)/158 (UL)
EDGE data rate (Kbps)	296 (DL)/236.8 (UL)	/
GPRS data rate (Kbps)	107 (DL)/85.6 (UL)	/
SMS	SMS[1]: Point-to-point MO and MT; Text and PDU mode; SMS cell broadcast	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode
Protocols	PPP/TCP[2]/UDP/SSL[2]/TLS[2]/FTP (S)[2]/HTTP (S)[2]/NITZ/NTP/PING/MQTT[2]/LwM2M[2]/CoAP[2]/IPv6[2]	PPP/TCP[2]/UDP/SSL[2]/DTLS/FTP (S)[2]/HTTP (S)[2]/NITZ/PING/NIDD/MQTT[2]/NTP/LwM2M[2]/CoAP
Interfaces		
(U)SIM	× 1	•
UART	× 3	•
USB	× 1	•
I2C	× 1	/
GPIO	× 9	•
PCM	× 1	/
GRFC	× 2	•
Antenna	× 2	•
Enhanced features		
iSIM	/	•
DFOTA[3]	•	•
SIM detection	•	•
GNSS	•	•
RAI	•	/
Firmware update	•	•
Electrical features		
Supply voltage range	3.3 V ~ 4.3 V, typ. 3.8V	VBAT_BB: 2.2–4.35 V, typ. 3.3 V VBAT_RF: 3.1–4.2 V, typ. 3.3 V
Power consumption	Power consumption @ PSM (μA) :4.4; Power consumption @ LTE Cat M (mA): Sleep mode: 1.58 @ DRX = 1.28 s, 0.82 @ e-I-DRX = 81.92 s; Idle mode: 13.78 @ DRX = 1.28 s, 13.28 @ e-I-DRX = 81.92 s; Active mode: 216 @ 23 dBm, GNSS off; Power consumption @ LTE Cat NB (mA): Sleep mode: 1.56 @ DRX = 1.28 s, 0.83 @ e-I-DRX = 81.92 s; Idle mode: 13.73 @ DRX = 1.28 s, 13.35 @ e-I-DRX = 81.92 s; Active mode: 189 @ 23 dBm, GNSS off; Power consumption @ IoT-NTN (mA): Sleep mode: 2.19 @ DRX = 1.28 s, 0.9 @ e-I-DRX = 81.92 s; Idle mode: 14.46 @ DRX = 1.28 s, 13.34 @ e-I-DRX = 81.92 s; Active mode: 54 @ 24 dBm, GNSS off	Power Saving Mode 1.4 μA Cat M: Sleep Mode: 1.3 mA @ DRX = 1.28 s; 0.07 mA @ e-I-DRX = 81.92 s Idle Mode: 16.2 mA @ DRX = 1.28 s; 16.2 mA @ e-I-DRX = 81.92 s Active Mode: Cat M1: 228 mA @ 23 dB, GNSS off Cat NB: Sleep Mode: 4.4 mA @ DRX = 1.28 s; 0.18 mA @ e-I-DRX = 81.92 s Idle Mode: 17.6 mA @ DRX = 1.28 s; 17.5 mA @ e-I-DRX = 81.92 s Active Mode: Cat NB2: 411 mA @ 23 dB, GNSS off NB-IoT NTN : Sleep Mode: 3.5 mA @ DRX = 1.28 s; 0.2 mA @ e-I-DRX = 81.92 s Idle Mode: 17.1 mA @ DRX = 1.28 s; 17.1 mA @ e-I-DRX = 81.92 s Active Mode: NB-IoT NTN: 525 mA @ 23 dB, GNSS off
Max output power	Power class 3 23dBm	Power class 3 23dBm
Software features		
USB serial driver	•	•
GNSS driver	•	•
RIL driver	•	•
Certifications	Skylo/Verizon/AT&T/CE/GCF/FCC/PTRCB/IC/RCM	Skylo/CE/FCC/RCM/IC
Recommended applications	Vehicle tracking, asset tracking, chassis tracking, container tracking, oil & gas pipeline monitoring, mining, smart grid, vessel connection, maritime buoys, heavy equipment monitoring, construction fleet management, smart agriculture, environmental monitoring	

Note 1: SMS is not supported under IoT-NTN.
Note 2: Currently, due to NTN operator network limitations, those functions are not tested and verified under skylo real network.
Note 3: It is supported only on cellular networks, but not on NTN networks.

* Planning/ Under development/ In progress
• Supported

Automotive modules

Automotive 5G modules

Product		AG59xE-CN
		
Form factor		LGA
Dimensions (mm)		54.5 × 53.0 × 3.45
5G		Sub-6G
4G		LTE Cat 19
Frequency bands (MHz)	-CN (China)	5G SA: n1/3/5/8/28A[2]/41/77/78/79[1] 5G NSA: n77/78/79[1] LTE-FDD: B1/3/5/7[1]/8 LTE-TDD: B34/38/39/40/41 WCDMA: B1[1]/8[1] GSM: 900[1]/1800[1] MHz C-V2X B47: AG590E-CN
Weight (approx.) (g)		23
Operating temperature		-35°C ~ +75°C
Extended temperature		-40°C ~ +85°C
Data transmission (Max.)		
5G SA		2.1 Gbps (DL)/525 Mbps (UL)
5G NSA		2.5 Gbps (DL)/630 Mbps (UL)
LTE FDD data rates		1.6 Gbps (DL)/200 Mbps (UL)
LTE TDD data rates		1.2 Gbps (DL)/120 Mbps (UL)
DC-HSDPA/HSUPA data rates (Mbps)		AG591E: 42 (DL)/5.76 (UL); AG590E: 21 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)
GPRS data rates (Kbps)		107 (DL)/85.6 (UL)
C-V2X data rates (Mbps)		48 (DL)/48 (UL)
SMS		Point-to-point MO and MT, SMS cell broadcast, Text and PDU mode
Protocols		/
Interfaces		
(U)SIM		× 2
UART		× 5
USB 2.0/3.1		× 1
PCIe 3.0		× 2
I2C		× 2
I2S		× 2
RGMII		× 1
SGMII		× 1
SDIO		× 2
SPI		× 2
PCM		× 1
ADC		× 5
GPIO		× 15 (for QuecOpen® version)
RESET_N		× 1 (Reset the module)
Antenna		Main × 1; Diversity × 1; MIMO 3 × 1; MIMO 4 × 1; C-V2X × 2; GNSS × 1
Enhanced features		
QuecOpen® (Open Linux)		•
eCall		/
DFOTA		•
eSIM (eUICC)		/
(U)SIM detection		•
Temperature management		•
GNSS		/
ESD/EMI protection		Realized through internal specific circuits and components
Gigabit ethernet		SGMII/RGMII (optional)
C-V2X TDD B47		AG590E-CN
Dual SIM		DSSS (optional)
QDR 3.0 (External IMU required)		Optional
RTK/PPE		/
Multi-Frequency GNSS (L1/L5)		Optional
UART interface for BT function		/
Advanced security features		
TrustZone		•
Secure boot		•
SE-Linux		•
HSM		Optional
Software features		
USB serial driver		Windows 8.1/10/11, Linux 2.6~6.7
RIL driver/GNSS driver		/
RNDIS driver		Windows 8.1/10/11, Linux 2.6~6.7
ECM driver		Linux 2.6~6.7
GobiNet driver		Linux 2.6~6.7
QMI_WWAN driver		Linux 3.4~6.7
Electrical features		
Supply voltage range		VBAT_BB/VBAT_RF: 3.3~4.3 V DC, typ. 3.8 V DC VBAT_C-V2X: 4.75~5.25 V DC, typ. 5.0 V DC
Power consumption		0.18mA @ Power off 2.2mA @ LTE Sleep (PF=128 typ.) 2.5mA @ 5G NR Sleep (PF=128 typ.) 80mA @ Idle (typ.)
Certifications[3]		CCC
Recommended applications		Automotive

Note 1: Optional band, not supported by default.
Note 2: B28A/n28A supports Tx at 703~733 MHz and Rx at 758~788 MHz.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

Product		AG55xQ
		
Form factor		LGA
Dimensions (mm)		54.5 × 53.0 × 3.45
5G		Sub-6G
4G		LTE Cat 19
Frequency bands (MHz)	-CN (China)	5G-FDD: n1[1]/3[1]/28[1]; 5G-TDD: n41/78/79; LTE-FDD: B1/3/5/7/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; GSM: 900/1800 MHz; C-V2X: B47 (For AG550Q/AG553Q Series)
	-EU (EMEA/Australia/ South Korea/India/ Southeast Asia/Latin America exl. Mexico)	5G-FDD: n1/3/8/20/28; 5G-TDD: n41/78; LTE-FDD: B1/2/3/4/5/7/8/20/28/32[2]; LTE-TDD: B38/40/41/42; WCDMA: B1/3/5/6/8; GSM: 900/1800/850/1900 MHz; C-V2X: B47 (For AG550Q/AG553Q Series)
	-NA (North America/ Mexico)	5G-FDD: n2/5/25/66/71; 5G-TDD: n41/48/77/78; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/28/29[2]/30[2]/66/71; LTE-TDD: B41/48; WCDMA: B2/4/5; GSM: 1900 MHz; C-V2X: B47 (For AG550Q/AG553Q Series)
	-ROW (Japan/Latin America)	/
	-JP* (Japan)	5G-FDD: n1/3; 5G-TDD: n77/78/79; LTE-FDD: B1/3/5/7/8/9/11/19/21/28; LTE-TDD: B41; WCDMA: B1/3/5/8/9/19; C-V2X: B47 (For AG550Q/AG553Q Series)
Weight (approx.) (g)		21
Operating temperature		-40°C ~ +85°C (eCall: +95°C)
Data transmission (Max.)		
5G SA		2.0 Gbps (DL)/450 Mbps (UL)
5G NSA		2.4 Gbps (DL)/550 Mbps (UL)
LTE FDD data rates		1.6 Gbps (DL)/200 Mbps (UL)
LTE TDD data rates		1.4 Gbps (DL)/120 Mbps (UL)
DC-HSDPA/HSUPA data rates (Mbps)		42 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)
GPRS data rates (Kbps)		107 (DL)/85.6 (UL)
C-V2X data rates (Mbps)		48 (Tx)/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		× 2 (supports 1.8 V/3 V USIM/SIM Cards)
UART		× 3 (Main/Debug/BT UART)
USB 2.0/3.1		× 1
PCIe 3.0		× 1
I2C		× 1
I2S		× 1
RGMII		× 1
SDIO		× 1 (for eMMC)
SPI		× 2
PCM		× 1
ADC		× 2 (15-bit)
GPIO		× 15 (For QuecOpen® version only)
RESET_N		× 1 (Reset the module)
Antenna		Main × 1; Diversity × 1; MIMO 3 × 1; MIMO 4 × 1; C-V2X × 2; GNSS × 1; DSDA × 2
Enhanced features		
QuecOpen® (Open Linux)		•
eCall		•
DFOTA		•
eSIM (eUICC)		Optional
(U)SIM detection		•
Temperature management		•
GNSS		GPS/GLONASS/BeiDou/Galileo/QZSS
ESD/EMI protection		Realized through internal specific circuits and components (Electrostatic discharge conforms to ±12KV air discharge and ±8KV of contact discharge)
Gigabit ethernet		Optional
C-V2X TDD B47		Optional
DSDA (Dual SIM dual activation)		Optional
QDR 3.0 (External IMU required)		Optional
RTK/PPE		Optional
Multi-Frequency GNSS (L1/L5)		Optional
UART interface for BT function		Optional
Advanced security features		
TrustZone/TPM*		•
Secure boot		•
SE-Linux		•
Software features		
RIL driver		/
GNSS driver		/
USB ECM driver		Linux 2.6~5.12
USB RNDIS driver		Windows 7/8/8.1/10, Linux 2.6~5.12
USB GobiNet driver		Linux 2.6~5.12
USB QMI_WWAN driver		Linux 3.4~5.12
USB serial driver		Windows 7/8/8.1/10, Linux 2.6~5.12
Electrical features		
Supply voltage range		VBAT_BB/VBAT_RF: 3.3 V ~ 4.3 V (typ. 3.8 V) ; VBAT_C-V2X: 4.75 V ~ 5.25 V (typ. 5.0 V)
Power consumption		0.04 mA @ Power off; 1.4 mA @ Sleep (Typ.); 25.0 mA @ Idle
Certifications[3]		CCC/SRRC/NAL/CE (AG551Q-EU)/RCM (AG551Q-EU)/GCF*/PTCRB*/FCC*/IC*/KC*/JATE*/TELEC*/AT&T*
Recommended applications		Automotive

Note 1: n1/n3/n28 for AG55xQ-CN supports SA only.
Note 2: LTE-FDD B29/B30/B32 supports Rx only.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

Automotive 5G modules

Product		AG57xQ
		
Form factor		LGA
Dimensions (mm)		54.5 × 53.0 × 3.45
5G		Sub-6G
4G		LTE Cat 16
Frequency bands (MHz)	-CN (China)	5G-FDD: n1/3/5[3]/28A[2]; 5G-TDD: n41[3]/77[3]/78/79[3]; LTE-FDD: B1/3/5/7/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; GSM: 900/1800MHz
	-EU (EMEA/Australia/ South Korea/India/ Southeast Asia/Latin America exl. Mexico)	5G-FDD: n1/3/5[3]or n71[3]/8/20/28A; 5G-TDD: n38[3]/40[3]/41/78; LTE-FDD: B1/3/5[3]or B71[3]/7/8/20/28A/32[1]; LTE-TDD: B38/40/41/42[3]; WCDMA: B1/3/5[3]/8; GSM: 900/1800MHz
	-NA (North America/ Mexico)	5G-FDD: n2/5/12/25/66/71; 5G-TDD: n41/78; LTE-FDD: B2/4/5/7/12/13/14/17/25/26/29[1]/30[1]/66/71; LTE-TDD: N41; WCDMA: B41
	-ROW (Japan/ Latin America)	5G-FDD: n1/3/28; 5G-TDD: n41/77/78/79[3]; LTE-FDD: B1/2/3/4/5/7/8/9/11[3]/18/19/21/26/28; WCDMA: B1/3/5/6/7/8/9/19; GSM: 900/1800/850/1900MHz
	-JP* (Japan)	/
Weight (approx.) (g)		TBD
Operating temperature		-40°C ~ +85°C (eCall: +95°C)
Data transmission (Max.)		
5G SA		2.0 Gbps (DL)/450 Mbps (UL)
5G NSA		2.4 Gbps (DL)/550 Mbps (UL)
LTE FDD data rates(Mbps)		1.3 Gbps (DL)/100 Mbps (UL)
LTE TDD data rates (Mbps)		1.2 Gbps (DL)/60 Mbps (UL)
DC-HSDPA/HSUPA data rates (Mbps)		42 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)
GPRS data rates (Kbps)		107 (DL)/85.6 (UL)
C-V2X data rates (Mbps)		48 (Tx)/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/FILE/QMI
Interfaces		
(U)SIM		×2
UART		×3 (UART1/Debug UART/BT UART)
USB 2.0/3.1		×1
PCIe 3.0		×1
I2C		×1
I2S		×1
RGMII		×1
SDIO		×1 (for eMMC/SD)
SPI		×2
PCM		×1
ADC		×2 (15-bit)
GPIO		×15 (For QuecOpen® version only)
RESET_N		×1 (Reset the module)
Antenna		Main × 1; Diversity × 1; MIMO 3 × 1; MIMO 4 × 1; C-V2X × 2; GNSS × 1; DSDA × 2
Enhanced features		
QuecOpen* (Open Linux)		•
eCall		Optional
DFOTA		•
eSIM (eUICC)		Optional
(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
RTK/PPE		Optional
Multi-Frequency GNSS (L1/L5)		Optional
UART interface for BT function		Optional
Advanced security features		
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
USB ECM driver		Linux 2.6 ~ 6.7
USB RNDIS driver		Windows 10/11, Linux 2.6 ~ 6.7
USB GobiNet driver		Linux 2.6 ~ 6.7
USB QMI_WWAN driver		Linux 3.4 ~ 6.7
USB serial driver		Windows 10/11, Linux 2.6~6.7
Electrical features		
Supply voltage range		VBAT_BB/VBAT_RF: 3.3 V ~ 4.3 V (typ. 3.8 V) VBAT_C-V2X: 4.75 V ~ 5.25 V (typ. 5.0 V)
Power consumption		0.028mA @ Power off 1.4mA @ Sleep 25.0mA @ Idle
Certifications[4]		CCC*/SRRC*/NAL*/CE*/GCF*/PTCRB*/FCC*/IC*/RCM*/KC*/JATE*/TELEC*/AT&T*
Recommended applications		Automotive

Note 1: LTE-FDD B29/B30/B32 supports Rx only.
Note 2: n28A supports Tx: 703~733 MHz, Rx:758~788 MHz.
Note 3: Optional.
Note 4: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

Automotive 5G modules

Product		AG56xN
		
Form factor		LGA
Dimensions (mm)		45.0 × 46.9 × 3.25
5G		Sub-6G
4G		LTE Cat 18
Frequency bands (MHz)	-CN (China)	5G-FDD: n1/3/5/8/28A[1]; 5G-TDD: n41/77/78/79; LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/5/8; GSM: 900/1800MHz
	-EU (EMEA/South Korea/ Australia/India/ Southeast Asia)	5G-FDD: n1/3/7/8/20/28A[1]; 5G-TDD: n77/78; LTE-FDD: B1/3/5/7/8/20/28A[1]; LTE-TDD: B38/40/41; WCDMA: B1/3/5/8; GSM: 850/900/1800MHz
	-NA (North America)	5G-FDD: n2/5/12/66; 5G-TDD: n77/78; LTE-FDD: B2/4/5/12/29[2]/66
	-ROW (Japan/ Latin America/Brazil/ Mexico/...)	5G-FDD: n28; 5G-TDD: n77/78/79; LTE-FDD: B1/3/19/21[3]/28; WCDMA: B1/3
Weight (approx.) (g)		16
Operating temperature		-40°C ~ +85°C (eCall: +95°C)
Data transmission (Max.)		
5G SA		3.8Gbps (DL 2CA)/480 Mbps (UL)
5G NSA		3.8Gbps (DL 2CA)/480 Mbps (UL)
LTE FDD data rates		1.5 Gbps (DL)/150 Mbps (UL)
LTE TDD data rates		650 Mbps (DL)/100 Mbps (UL)
DC-HSDPA/HSUPA data rates (Mbps)		42 (DL)/11 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)
GPRS data rates (Kbps)		107 (DL)/85.6 (UL)
C-V2X data rates (Mbps)		/
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
Interfaces		
(U)SIM		× 2
UART		× 4
USB 2.0/3.1		× 1
PCIe 3.0		× 1
I2C		× 2
I2S		× 1
RGMII		× 1
SGMII		× 1
SDIO		× 1
SPI		× 3
PCM		× 1
ADC		× 6
GPIO		× 24
RESET_N		× 1
Antenna		Main × 1; Diversity × 1; MIMO 3 × 1; MIMO 4 × 1; GNSS × 1
Enhanced features		
QuecOpen® (Open Linux)		•
eCall		•
DFOTA		•
Dual/AB system		•
eSIM (eUICC)		•
(U)SIM detection		•
Temperature management		•
GNSS		GPS/GLONASS/BeiDou/Galileo
ESD/EMI protection		Realized through internal specific circuits and components (Electrostatic discharge conforms to ±12KV air discharge and ±8KV of contact discharge)
Gigabit ethernet		Optional
C-V2X TDD B47		/
RTK/ADR		Optional
Multi-Frequency GNSS (L1/L5)		Optional
UART interface for BT function		Optional
Advanced security features		
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 ~ 5.0
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 7/8/8.1/10, 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: 3.3 V ~ 4.3 V (typ. 3.8 V)
Power consumption		0.53mA @ Power off, 4.6mA @ Sleep, Typ. ,140 @ Idle, Typ.
Certifications[4]		CCC/SRRC/NAL/CE/GCF/RCM/PTCRB/FCC/IC/KC*/JATE/TELEC/AT&T/DOCOMO
Recommended applications		Automotive

Note 1: 5G FDD n28A supports Tx at 703–733 MHz and Rx at 758–788 MHz.
Note 2: LTE-FDD B29 supports Rx only.
Note 3: LTE B21 only supports 2x2 MIMO.
Note 4: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

Automotive RedCap modules

Product	AG531C-CN
	
Form factor	LGA
Dimensions (mm)	33.0 ×37.5 ×3.0
5G	Sub-6G
4G	LTE Cat 4
Memory	4+4 MCP
Frequency bands (MHz) -CN (China)	NR-SA: N1/3/5/8/28A/41/77/78; LTE-TDD: Band 34/38/39/40/41; LTE-FDD: 1/3/5/8
Weight (approx.) (g)	8.14
Operating temperature	-35 °C ~ +75 °C
Extended temperature	-40 °C ~ +85 °C
Data transmission (Max.)	
5G (Mbps)	228(DL)/123(UL)
LTE (Mbps)	195(DL)/105(UL)
DC-HSDPA/HSUPA data rates (Mbps)	/
WCDMA data rates (Kbps)	/
EDGE data rates (Kbps)	/
GPRS data rates (Kbps)	/
C-V2X data rates (Mbps)	/
SMS	/
Protocols	/
Interfaces	
USIM	×2 (1.8 V/3.0 V)
UART	×3
USB	2.0: ×1
PCIe	2.0: ×1 (Wi-Fi)
I2C	×1
I2S	/
RGMII	/
SGMII	×1 (1.8 V)
SDIO	×1 (eMMC)
SPI	×1
PCM	/
ADC	×3 (15-bit)
GPIO	×15 (for QuecOpen® version)
RESET_N	/
Antenna	Cellular: ×2, GNSS: ×1
Enhanced features	
eCall	/
QuecOpen®	supported (Open Linux)
DFOTA	•
eSIM	/
(U)SIM Card Detection	•
Temperature management	•
GNSS	L1 + L5
ESD/EMI protection	Realized through internal specific circuits and components
Gigabit ethernet	•
Dual SIM	DSSS
Advanced security features	
TrustZone	•
Secure boot	•
SE-Linux	/
Code/User data backup	•
Software features	
RIL Driver	/
GNSS Driver	/
RNDIS Driver	/
ECM driver	Linux 2.6~6.7
Gobinet Driver	Linux 2.6~3.4
QMI_WWAN driver	Linux 3.4~6.7
USB serial driver	Linux 2.6~6.7 Windows 10/11
Electrical features	
Supply voltage range	3.3 V ~ 4.3 V, typ. 3.8 V
Power consumption	0.095 mA @ Power off 2 mA @ Sleep(Typ.), 20 mA @ Idle
Certifications	CCC/SRRC
Recommended applications	Automotive

• Supported

Automotive LTE-A modules

Product		AG52xR (x=0, 1, 5, 9)
		
Form factor		LGA
Dimensions (mm)		38.0 × 42.0 × 2.65
4.5G		-CN Cat 6; -EU/NA/JP Cat 12, Cat 16, Cat 9, Cat 6 as option
Frequency bands (MHz)	-CN (China)	LTE: B1/3/5/7/8/34/38/39/40/41; UMTS: B1/8; CDMA (Optional): BC0; GSM: 1800MHz/900MHz
	-EU (EMEA/South Korea/ Brazil/India/Australia)	LTE: B1/3/5/7/8/20/28/32 (DL)/38/40/41; UMTS: B1/3/5/8; GSM: 1800MHz/900MHz
	-NA (North America)	LTE-FDD: B2/4/5/7/12/13/14/25/26/29[1]/30*[1]/66/71
	-JP (Japan)	LTE-FDD: B1/3/5/8/9/11/18/19/21/28; LTE-TDD: B41; WCDMA: B1/3/5/8/9/19
	-GL (Global)	LTE-FDD: B1/2/3/4/5/7/8/9/11/12/13/18/19/20/21/25/26/28/29[1]/30[1 2]/32[1]/66/71; LTE-TDD: B34/38/39/40/41; WCDMA: B1/2/3/4/5/6/8/19; GSM: 850/900/1800/1900MHz
Weight (approx.) (g)		9.23
Operating temperature		-40°C ~ +85°C (eCall: +95°C)
Data transmission (Max.)		
LTE data rates (Mbps)		AG521R series/AG525R series: LTE Cat 12: LTE-FDD: 600 (DL)/150 (UL), LTE-TDD: 410 (DL)/90 (UL) LTE Cat 6: LTE-FDD: 300 (DL)/50 (UL), LTE-TDD: 226 (DL)/28 (UL) AG520R series: LTE Cat 12: LTE-FDD: 600 (DL)/75 (UL), LTE-TDD: 410 (DL)/45 (UL) LTE Cat 6: LTE-FDD: 300 (DL)/50 (UL), LTE-TDD: 226 (DL)/28 (UL)
DC-HSPA+ data rates (Mbps)		42 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)
TD-SCDMA data rates (Mbps)		/
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)
GPRS data rates (Kbps)		107 (DL)/85.6 (UL)
C-V2X data rates (Mbps)		30 (Tx)/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		
(U)SIM		/
USIM		× 1 (default), × 2 (optional)
UART		× 3
USB		× 1
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
RESET		Yes
Antenna		5 (2 × 2 MIMO), Reserve for 7 antennas (4 × 4 MIMO) as option
Enhanced features		
QuecOpen® (Open Linux)		•
PCIe for WLAN function		•
Gigabit ethernet		Optional
eCall		•
Multi-APN		•
Temperature management		•
DFOTA		•
eSIM (eUICC)		Optional
(U)SIM detection		•
QDR		Optional
PPE (RTK)		Optional
GNSS		GPS/GLONASS/BeiDou/Galileo/QZSS
ESD/EMI protection		Realized through internal specific circuits and components (Electrostatic discharge conforms to ±10KV air discharge and ±6KV of contact discharge)
C-V2X		Optional
QDR 3.0 (External IMU required)		Optional
Multi-Frequency GNSS (L1/L5)		Optional
Advanced security features		
TrustZone		TrustZone*/TPM*: •
Secure boot		Secure Boot*: •
SE-Linux		•
Code/User data backup		•
Software features		
RNDIS driver		Windows 7/8/8.1/10, Linux 2.6~5.12
ECM driver/Gobinet driver		Linux 2.6~5.12
QMI_WWAN driver		Linux 3.4~5.12
USB serial driver		Windows 7/8/8.1/10, Linux 2.6~5.12
Electrical features		
Supply voltage range		VBAT_BB/VBAT_RF: 3.3 V ~ 4.3 V (typ. 3.8 V) , VBAT_C-V2X: 4.75 V ~ 5.25 V (typ. 5.0 V)
Power consumption		0.021 mA @ Power off/2.03 mA @ LTE sleep, PF=128/1.61 mA @ LTE sleep, PF=256; 15.9 mA @ Idle, PF=64/27.2 mA @ Idle, PF=64, USB Active
Certifications[3]		CCC/SRRC/NAL/CE/RCM/GCF/PTCRB/FCC/IC/UKCA/IFETEL/KC/NCC/JATE/TELEC/Verizon/AT&T/T-Mobile/Telus/KT/NTT DOCOMO/Telstra
Recommended applications		Automotive

Note 1: LTE-FDD B29, B30 and B32 support Rx only.
Note 2: LTE-FDD B30 is subject to carrier's deployment.
Note 3: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

Automotive LTE-A modules

Product		AG519M
		
Form factor		LGA
Dimensions (mm)		38.0 × 42.0 × 3.05
4G		LTE Cat 6
Frequency bands (MHz)	-CN (China/India)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; GSM: 900/1800MHz
	-EU (EMEA/South Korea/ Australia/Southeast Asia/Brazil)	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/41; WCDMA: B1/5/8; GSM: 900/1800MHz
	-NA (North America/ Mexico/Latin America)	LTE-FDD: B2/4/5/7/12/13/17/28; WCDMA: B2/4/5; GSM: 850/1900MHz
	-ROW(Japan/EMEA/ Southeast Asia)	LTE-FDD: B1/3/5/7/8/9/18/19/20/26/28; LTE-TDD: B38/B40/B41; WCDMA:B1/3/5/8/9/19; GSM: 850/1900MHz
Weight (approx.) (g)		10
Operating temperature		-40°C ~ +85°C (eCall: +105°C)
Data transmission (Max.)		
LTE FDD data rates (Mbps)		300 (DL)/50 (UL)
LTE TDD data rates (Mbps)		240 (DL)/30 (UL)
DC-HSDPA/HSUPA data rates (Mbps)		42 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)
EDGE data rates (Kbps)		236.8 (DL)/236.8 (UL)
GPRS data rates (Kbps)		85.6 (DL)/85.6 (UL)
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
Interfaces		
(U)SIM		× 2
UART		× 3
USB 2.0/3.1		× 1
PCIe/USB 3.0 (PCIe by default)		× 1
I2C		× 2
RGMII		× 1
SDIO		× 1
SPI		× 3
ADC		× 3
GPIO		× 15
RESET_N		× 1
Antenna		Main × 1; Diversity × 1
Enhanced features		
QuecOpen® (Open Linux)		•
eCall		•
Dual/AB system		•
eSIM (eUICC)		•
(U)SIM detection		•
Temperature management		•
GNSS		/
ESD/EMI protection		Realized through internal specific circuits and components (Electrostatic discharge conforms to ±12KV air discharge and ±8KV of contact discharge)
Gigabit ethernet		Optional
RTK/ADR		Optional
Multi-Frequency GNSS (L1/L5)		Optional
UART interface for BT function		Optional
Advanced security features		
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 2.6~5.0
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 7/8/8.1/10, 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: 3.8 V ~ 4.3 V (typ. 4.0 V)
Power consumption		0.08mA @ Power off 1.85mA @ Sleep, Typ. 35mA @ Idle, Typ.
Certifications[1]		CCC/SRRC/NAL/CE/RCM/Anatel/GCF*/PTCRB*/FCC*/IC*/KC*/JATE*/TELEC*/AT&T*
Recommended applications		Automotive

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

Automotive LTE modules

Product		AG35
		
Form factor		LGA
Dimensions (mm)		33.0 × 37.5 × 3.0
4G		LTE Cat 4
Frequency bands (MHz)	-E (EMEA/South Korea/ Australia/India/Southeast Asia)	LTE-FDD: B1/3/5/7/8/20/28; LTE-TDD: B38/40; WCDMA: B1/5/8; GSM: B3/8
	-CE (China/India)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; TD-SCDMA: B34/39; CDMA2000 1X/EVDO (Optional): BC0; GSM: B3/8
	-NA (North America)	LTE-FDD: B2/4/5/7/12 (B17)/13; WCDMA: B2/4/5; GSM: B2/5
	-J (Japan)	LTE-FDD: B1/3/5/8/9/19/21/28; LTE-TDD: B41; WCDMA: B1/3/5/6/8/19
	-LA (Latin America)	LTE-FDD: B1/2/3/4/5/7/8/28; WCDMA: B1/2/3/4/5/8; GSM: B2/3/5/8
	-CN (China)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8
Weight (approx.) (g)		8.1
Operating temperature		-35°C ~ +75°C
Extended temperature		-40°C ~ +85°C
Data transmission (Max.)		
LTE data rates (Mbps)		LTE-FDD: 150 (DL)/50 (UL) ; LTE-TDD: 130 (DL)/30 (UL)
DC-HSPA+ data rates (Mbps)		42 (DL)/5.76 (UL)
WCDMA data rates (Kbps)		384 (DL)/384 (UL)
TD-SCDMA data rates (Mbps)		4.2 (DL)/2.2 (UL)
EDGE data rates (Kbps)		296 (DL)/236.8 (UL)
GPRS data rates (Kbps)		107 (DL)/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		
SIM		1.8 V/3.0 V
(U)SIM		× 1 (Support 1.8 V/ 3 V USIM/ SIM Cards)
UART		× 3 (for main UART/ BT/ Debug functions)
HSIC		× 1
USB		USB 2.0 × 1 (with high speed up to 480Mbps)
I2C		× 2 (1 for PCM)
SGMII		× 1
SDIO		× 2 for Wi-Fi and eMMC
SPI		SPI × 1 (for QuecOpen® version only)
PCM		× 1
ADC		× 3, 15bits
GPIO		GPIO >15 (for QuecOpen® Version only)
Antenna		Main, Rx-diversity and GNSS
Enhanced features		
QuecOpen® (Open Linux)		•
eCall		•
Era glonass		•
Multi-APN		•
Temperature management		•
DFOTA		Optional
Voice over USB (USB Audio)		•
QDR		Optional
PPE (RTK)		Optional (Support only in China)
Wi-Fi/BT		•
GNSS		GPS/GLONASS/Beidou/Galileo/QZSS
Advanced security features		
TrustZone		•
Secure boot		•
Code/User data backup		•
Software features		
RIL driver/ GNSS driver		Android 4.x~9.x
RNDIS driver		Windows 7/8/8.1/10, Linux 2.6~5.4
ECM driver/ 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
Electrical features		
Supply voltage range		3.3 V ~ 4.3 V, typ. 3.8 V
Power consumption		20 μA @ Power off/ 1.9 mA @ LTE sleep, PF=128/1.6 mA @ LTE sleep, PF=256/ 22 mA @ Idle, Typ.
Certifications[1]		KT/STK*/Verizon/AT&T/T-Mobile/Rogers/NTT DOCOMO/LGU+*/GCF/CE/FCC/KC/RCM/CCC/SRRC/NAL*/PTCRB/IC/JATE/TELEC/Anatel
Recommended applications		Automotive

Note 1: May depend on modules' variant.

* Planning/ Under development/ In progress
• Supported

Automotive C-V2X modules

Product	AG15	AG18	AG190W
			
Form factor	LGA	LGA	LGA
Dimensions (mm)	28.0 × 32.0 × 2.85	28.0 × 32.0 × 2.85	35.6 × 29.6 × 3.3
C-V2X TDD	B47 for Global	B47 for Global	B47 for Global
	B46D for Japan (optional)	B47 for Global	B47 for Global
Frequency bands (MHz) - (Global)	/	B47	B47
Weight (approx.) (g)	5.735	TBD	6.0
Operating temperature	-35°C ~ +75°C	-35°C ~ +75°C	-40 °C ~ +85 °C
Data transmission (Max.)			
LTE data rates (Mbps)	C-V2X TDD: 26 (TX)/26 (RX)	/	C-V2X TDD: 30 (TX)/26 (RX)
Interfaces			
UART	× 2	×2	×3
USB	×1 (USB 2.0/3.0)	×1 (USB 2.0/3.0)	×1 (USB 2.0)
PCIe	× 1	×1	/
SPI	× 1	×1	×1
I2C	× 2	×1	/
1PPS	× 1	×1	×1
ADC	× 2	×2	/
GPIO	× 4	×4	×3
Antenna	Main/Rx-diversity/GNSS antenna Interfaces	× 3 (C-V2X (× 2) and GNSS antenna Interfaces)	× 2 (C-V2X)
Enhanced features			
High security	•	*	/
Secure boot	•	•	/
SELinux	*	*	/
ESD/EMI protection	•	/	/
QDR (optional)	/	•	/
PPE (RTK) (optional)	/	*	/
Temperature management	/	•	/
DFOTA	/	•	/
GNSS	•	•	/
Code/User data back up	/	•	/
Realized through internal specific circuits and components	•	/	/
HSM	/	/	•
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	/	•	•
PCIe driver	•	TBD	TBD
Protocol	QMI (Qualcomm MSM Interface)	/	/
Electrical features			
Output power	Class 3 (23dBm±2dB) for C-V2X	Class 3 (23dBm±2dB) for C-V2X	Class 3 (23dBm±2dB) for C-V2X
Supply voltage	VBAT_BB: 3.3 V ~ 4.3 V, typ. 3.8 V VBAT_RF: 4.75 V ~ 5.25 V, typ. 5.0 V	VBAT_BB: 3.3 V ~ 4.3 V, typ. 3.8 V VBAT_RF: 4.75 V ~ 5.25 V, typ. 5.0 V	VBAT: 4.8~5.2 V, typ. 5.0 V 3.15 V~3.45 V, typ. 3.3 V
Power consumption	80 μA @ PowerOff	TBD	334.30 mA @ C-V2X, 27.25 mA @ C-V2X
Sensitivity	C-V2X TDD B47: -96dBm ; C-V2X TDD B46D: -96dBm	2RX: -97.5dBm SISO: TBD	SISO: -95.7
Certifications	SRRC	SRRC*, CE*	CE
Recommended applications	Automotive	V-BOX, T-BOX	V-BOX, T-BOX

* Planning/ Under development/ In progress
• Supported

Automotive C-V2X modules

Product	AG215S
	
Form factor	LGA
Dimensions (mm)	AG215S-CN/ -GL: 33.5 × 33.0 × 3.25 ; AG215S-GLR: 33.5 × 35.0 × 3.25
Weight (approx.) (g)	7.07
Operating temperature	-40°C ~ +85°C
Application processor module	Based on automotive grade application Processor for C-V2X and telematics
Interfaces	
SDIO	•
PCIe	PCIe Gen2*
USB	USB 3.0*1 and USB2.0*1
RGMII	RGMII up to 1 Gbps
UART	•
SPI	•
I2C	•
1PPS (Input)	•
ADC	•
Enhanced features	
Powerful cores	64-bit ARM Cortex-A53 Microprocessor Cores, 1.4 GHz Dual-Core Processor (Quad-Core Processor Optional), Optimized communication performance with Quectel AG520R/AG550Q/AG553Q, Dedicated AP for ITS stack and applications
Embedded ECDSA hardware engine	Supports NIST p-384, NIST p-256, Brainpool p-384, Brainpool p-256, SM2 256 bit Curves
Scalable ECDSA capability	Up to 2500TPS through embedded engine and CPU (based on NIST p-256 and SM2)
Hardware crypto engine embedded (optional)	Secure key generation and storage, digital signature and verification, Up to 2000TPS ECSDA capability (based on NIST p-256 and SM2)

* Planning/ Under development/ In progress
• Supported

Automotive smart modules

Product		AG600K	AG855G
			
Form factor		LGA	SIP
Dimensions (mm)		45.0 × 46.9 × 3.35	52.0 × 50.0 × 4.51
LTE feature		LTE Cat 6 (AG600K-CN)	/
Frequency bands (MHz)	-CN (China)	LTE-FDD: B1/3/5/8; LTE-TDD: B34/38/39/40/41; WCDMA: B1/8; GSM/EDGE: 900/1800 MHz	/
	-WF (Global)	Only Wi-Fi/BT	/
CPU		QCM6125 Kryo Gold: high-performance quad-core processor @ 2.0 GHz; Kryo Silver: low-power quad-core processor @ 1.8 GH	SA8155 Kryo 485 – 64-bit applications processor with a 2 MB L3 cache ▪ Quad high-performance Kryo Gold cores Three Kyro Gold cores with a 256 KB L2 cache per core, targeting up to 2.1312 GHz, One Kyro Gold prime core with a 512 KB L2 cache, targeting 2.4192 GHz, ▪ Quad low-power Kryo Silver cores with a 128 KB L2 cache per core, targeting up to 1.7856 GHz
GPU		Qualcomm high-performance Adreno™ 610 graphics engine	Adreno 640 GPU OpenGL ES 3.2, Vulkan and Vulkan Compute, DX12.x OpenCL 2.0 full profile, DirectCompute
Memory		AG600K-CN: 64GB UFS+ 4GB LPDDR4X 64GB UFS+ 6GB LPDDR4X 128GB UFS+8GB LPDDR4X AG601K-WF: 64GB UFS+ 6GB LPDDR4X 128GB UFS+ 8GB LPDDR4X AG602K-WF: 64GB UFS+6GB LPDDR4X	Dual DDR configuration. 6+6GB/8+8GB is optional
Operating system		Android10/13	Hypervisor/QNX/Android
Supply voltage range		3.55 V ~ 4.4 V, typ. 3.8 V	3.13 V ~ 3.46 V, typ. 3.3V
Weight (approx.) (g)		15.5	21
Operating temperature		-35°C ~ +75°C	-40°C ~ 85°C
Data transmission (Max.)			
LTE (Mbps)		LTE-FDD: 150 (DL)/50 (UL); LTE-TDD: 130 (DL)/30 (UL) (AG600K-CN)	/
UMTS		DC-HSDPA: 42 Mbps (DL); DC-HSUPA: 11.2 Mbps (UL); WCDMA: 384 Kbps (DL/UL) (AG600K-CN)	/
TD-SCDMA		N/A (AG600K-CN)	/
CDMA2000		N/A (AG600K-CN)	/
GSM (Kbps)		EDGE: 296 (DL)/ 236.8 (UL); GPRS: 107 (DL)/ 85.6 (UL) (AG600K-CN)	/
Interfaces			
LCM		One group of 4-lane MIPI DSI Up to FHD+ 1080 × 2520 @ 60 fps	× 2, MIPI DSI (4-lane) × 1, DisplayPort 1.4 over USB Type-C
Camera		3 groups of 4-lane MIPI CSI, up to 2.1 Gbps per lane	× 4, 4-lane MIPI CSI
Touch panel		One I2C interface used for TP	support
Audio		Analog audio: speakers, handsets, headphones, 3-way microphones	× 5 (Max), PCM/TDM/I2S
Video		Encode: 4K @ 30 fps; HEVC/ H.264/ VP8 Decode: 4K @ 30 fps; HEVC/ H.264/ VP8/ VP9 1080P @ 30 fps, MPEG-2	Encode: 4K 60 Decode: 4K 120 Supports 4K60 decoding and 4K30 encoding meanwhile
USB		× 1, supports USB 3.1 Type-C interface, compatible with USB 2.0	× 2, USB1, USB 2.0, Support reuse as DisplayPort 1.4 USB2, USB 3.1 (1 × HS + 1 × SS)
I2C		× 2	× 20 (Max)
(U)SIM		× 2; supports 1.8/ 2.95 V (U)SIM cards; supports (U)SIM card hot swap detection and dual-SIM dual-standb	/
UART		× 3 (Debug UART: 2-wire serial port, specialized for debugging use; UART03: 2-wire serial port; UART00: 4-wire serial port, supports RTS and CTS hardware flow control with maximum data rate of 4 Mbps)	× 20 (Max)
SD card		× 1 (3.0, 4-bit SDIO)	× 1
PWRKEY		1.8V, Pulled up internally	1.8V, Pulled up internally
SPI		× 1	× 20 (Max)
ADC		× 2	× 3
I2S		× 2	× 5
GPIO		× 38	× 175 (Max)
PWM		× 1	support
Antenna		× 4, Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth (AG600K-CN) × 1, Wi-Fi & Bluetooth (AG600K-WF)	/
Enhanced features			
BT		BT5.0	/
Wi-Fi		2.4G/5G, 802.11 a/b/g/n/a	/
GNSS		Single-band GNSS: L1 Constellation: GPS, GLONASS, BDS, Galileo, QZS	/
Charge function		Build-in Charge IC	/
Dual LCDs		support independent display for 2 LCDs	support
DSDS		support dual SIM dual standby	/
Firmware update		Firmware update via USB or OTA	support
Certifications		CCC/SRRC/NAL	AEC-Q104
Recommended applications		In-vehicle integrated machines, etc.	Autosmart cockpit

* Planning/ Under development/ In progress
• Supported

Automotive smart modules

Product		AS830M
		
Form factor		SiP (BGA)
Dimensions (mm)		63.0 × 63.0 × 4
LTE feature		/
Frequency bands (MHz)	-CN (China)	5G NR SA: n1/3/5/8/28A/41/77/78/79; 5G NR NSA: n41/77/78/79; LTE FDD: B1/3/5/8; LTE TDD: B34/38/39/40/41; WCDMA: B1/5/8
CPU		4 nm, Kryo™ 485 processor 8 × MKL/MTH/ KL, 1 × Kryo Prime @ 3.2 GHz + 4 × Kryo Gold @ 2.8 GHz + 3 × Kryo Silver @ 2.0 GHz QCM8538 computing power ≈ 200 KDMIPS
GPU		Adreno™ 740 GPU
Memory		8 GB × 2 LPDDR5X + 128 GB UFS 3.1 12GB × 2 LPDDR5X + 256 GB UFS 3.1
Operating system		Android/Linux
Supply voltage range		3.55 V ~ 4.4 V, typ. 4.0 V
Weight (approx.) (g)		35.2
Operating temperature		-35 °C ~ +75 °C
Data transmission (Max.)		
5G		NSA: 4.46 Gbps (DL)/660 Mbps (UL) SA: 4.3 Gbps (DL)/570 Mbps (UL)
LTE (Mbps)		FDD: 450 (DL)/75 (UL) TDD: 383 (DL)/45 (UL)
UMTS		DC-HSDPA: 42 Mbps(DL) HSUPA: 5.76 Mbps (UL) WCDMA: 384 Kbps (DL)/(UL)
TD-SCDMA		/
CDMA2000		/
GSM (Kbps)		296 (DL)/ 236.8 (UL)
Interfaces		
LCM		One 4-lane DisplayPort (DP compatible with USB 3.1 Gen 2) The DisplayPort mode complies with the VESA DisplayPort V1.4 specification and supports 2 × 4K60 10 bits (MST) or 1 × 8K30 (DSC) 2 × 4-lane DSI; DSI supports up to 5120 × 2880 (60 Hz)
Camera		8 × 4-lane CSI
Touch panel		One I2C interface used for TP
Audio		I2S/ TDM/ PCM
Video		Encoding: 4K @ 120 fps; 8K @ 30 fps Decoding: 4K @ 240 fps; 8K @ 60 fps Native encoding supports H.265 Main 10, H.265 Main, and H.264 high formats Native decoding supports H.265 Main 10, H.265 Main, H.264 High, and VP9 profile 2
USB		1 × USB 2.0 or USB 3.1 Gen 2, which can be used for the AT command communication, data transfer, software debugging, and firmware upgrade OTG (USB 3.1 can be multiplexed as DP)
I2C		15 × I2C interfaces 6 × general-purpose I2C interfaces for peripheral devices such as TP, NFC, and APPS 6 × dedicated I2C interfaces for cameras 2 × dedicated I2C interfaces for display screens 1 × dedicated I2C interface for the sensor
(U)SIM		2 × (U)SIM interfaces, 1.8/ 3 V (U)SIM cards; (U) SIM card hot plug detection
UART		Debug UART × 1 General-purpose UARTs × 2
SD card		× 1 (3.0, 4-bit SDIO)
PWRKEY		1.2V
SPI		7 × SPI interfaces Only master mode 1.8 V voltage domain Clock frequency: up to 50 MHz
ADC		3 × general-purpose ADC interfaces
I2S		6 × I2S interfaces, one of which supports 4 data channels All I2S interfaces can be configured as PCM and TDM formats
GPIO		× 58
PCIe		1 × PCIe interface
Antenna		Main, Rx-diversity, GNSS, Wi-Fi & Bluetooth, MIMO, eCall*
Enhanced features		
BT		Bluetooth2.1+EDR/3.0/4.1LE/4.2BLE/5.4LE
Wi-Fi		802.11a/ b/ g/ n/ ac/ ax/ be, 2 × 2 MIMO
GNSS		GPS/GLONASS/BDS/Galileo/QZSS/NavIC; L1+L5
Charge function		/
Dual LCDs		support independent display for 2 LCDs
DSDS		/
Firmware update		Firmware upgrade via USB or OTA
Certifications		CCC//NAL/SRRC*/AECQ104*
Recommended applications		integrated intelligent cockpit

Automotive NTN modules

Product	AC200XT-SD
	
Frequency bands	Rx: 2.170.0108~2.199.970 Tx: 1.980.0108~2.009.970
Form factor	LGA
CPU	HTD1010
Memory	1Gb
Operating system	RTOS
Dimensions (mm)	41.1 × 30 × 2.85
Operating temperature	-40 °C ~ +85 °C
Weight (approx.) (g)	13.8
General features	
Modulation mode	П/4 c qpsk
I/O interfaces	
RESET	× 1
SIM	× 1
UART	× 1
PCM	× 1
Antenna	× 2
PWRKEY	× 1
Enhanced features	
SIM detection	× 1
Powerful Cores	HTD1010
Firmware update	Support
Electrical characteristics	
Supply voltage range	VBAT: 3.5 V ~ 4.5 V, typ. 3.8 V VCC_PA: 4 V ~ 5 V, typ. 4.5 V
working parameters	
Transmit power (Pout)	35.5dBm
antenna gain	5.26dBic
Recommended applications	Automotive

* Planning/ Under development/ In progress

Automotive Wi-Fi & Bluetooth modules

	Automotive RF Wi-Fi & Bluetooth modules			
Product	**AF20**	**AF50T**	**AF51Y**	**AF55C**
				
Frequency bands	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz
MIMO	/	2 × 2 + 2 × 2, Dual MAC, support DBS	2 × 2 + 1 × 1, Dual MAC	2 × 2
WLAN standard	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac/ax
BT standard	BT 5.0	BT 5.2	BT 5.2	BT 5.2
Form factor	LGA	LGA	LGA	LGA
Dimensions (mm)	17.2 × 15.2 × 2.26	19.5 × 21.5 × 2.3	19.5 × 21.5 × 2.5	19.5 × 21.5 × 2.85
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) (g)	1.26	2.1	2.32	2.7
General features				
Modulation mode	CCK/BPSK/QPSK/16QAM/64QAM/256QAM	CCK/BPSK/QPSK/16QAM/64QAM/256QAM/ 1024QAM	CCK/BPSK/QPSK/16QAM/64QAM/256QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/ 256QAM/1024QAM
Encryption mode	WEP/TKIP/AES/WPA-PSK/WPA2-PSK	WPA3	WPA3	OPEN/WPA2/WPA3
AP (max access point)	16	32	32	8
Operator mode	AP/STA	AP/STA	AP/STA	AP/STA
I/O interfaces				
PCIe	/	× 1 (PCIe 2.0)	× 1 (PCIe 2.0)	× 1 (PCIe 2.0)
SDIO	× 1 (SDIO 3.0)	/	/	× 1 (optional)
UART	× 1	× 1	× 1	× 1
PCM	× 1	× 1	× 1	× 1
Wi-Fi antenna	/	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1)
BT antenna	/	× 1 (ANT_BT) (optional)	× 1 (ANT_BT) (optional)	× 1 (ANT_BT) (optional)
Wi-Fi/BT antenna	× 1 (ANT_Wi-Fi1/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)
Electrical characteristics				
Supply voltage range	Core supply voltage : 3.3 V; I/O supply voltage : 1.8 V	Core supply voltage : 0.95 V, 1.35 V, 1.95 V; I/O supply voltage : 1.8 V; RF supply voltage : 3.85 V	PA supply voltage: 2.2 V; I/O supply voltage: 1.8 V; Core supply voltage: 1.8 V	Core supply voltage: 3.3 V; I/O supply voltage: 1.8 V
Physical rate (max.)				
802.11a	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11b	11 Mbps	11 Mbps	11 Mbps	11 Mbps
802.11g	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11n	135 Mbps	600 Mbps	300 Mbps	600 Mbps
802.11ac	433 Mbps	866 Mbps	866 Mbps	866 Mbps
802.11ax	/	1774.5 Mbps	/	1.2 Gbps
BLE	1 Mbps	2 Mbps	2 Mbps	2 Mbps
Recommended applications	Automotive	Automotive	Automotive	Automotive

AF20 can work with Quectel AG35 module to provide Wi-Fi/BT function.
AF50T/AF51Y can work with Quectel AG52xR and AG55x0 module to provide Wi-Fi/BT function.

Automotive Wi-Fi & Bluetooth modules

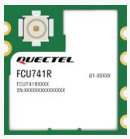
	Automotive RF Wi-Fi & Bluetooth modules					
Product	**AH20C**	**AF31G**	**AF66T**	**AF67E**	**AF68E**	**AF61Y**
						
Frequency bands	2.4 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz/6 GHz	2.4 GHz/5 GHz
MIMO	/	2 × 2 MIMO	2 × 2 + 2 × 2, Dual MAC, support BDS	2 × 2 MIMO, dual MAC	2 × 2 + 2 × 2, Dual MAC, support BDS	2 × 2 + 1 × 1, Dual MAC
WLAN standard	/	IEEE 802.11 a/b/g/n/ac	IEEE 802.11 a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac
BT standard	BT 5.2	BT 5.0	BT 5.2	BT 5.3	BT 5.3	BT 5.2
Form factor	LGA	LGA	LGA	LGA	LGA	LGA
Dimensions (mm)	13.0 × 13.0 × 2.45	23.0 × 23.0 × 3.0	23.0 × 23.0 × 3.0	23.0 × 23.0 × 3.0	23.0 × 23.0 × 3.0	23.0 × 23.0 × 3.0
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) (g)	0.71	3.11	3.42	3.3	3.39	3.58
General features						
Modulation mode	GFSK/π/4-DQPSK/8-DPSK/ Gaussia	CCK/DSSS/OFDM/BPSK/QPSK/ QAM	Wi-Fi: DBPSK/DQPSK/CCK/BPSK/ QPSK/16QAM/64QAM/256QAM/ 1024QAM; BT: GFSK/ Π/4 DQPSK/8DPSK	BPSK/QPSK/CCK/16QAM/ 64QAM/256QAM/1024QAM	CCK/BPSK/QPSK/16QAM/ 64QAM/256QAM/1024QAM/ 4096QAM	CCK/BPSK/QPSK/16QAM/ 64QAM/256QAM
Encryption mode	/	WPA 3	WPA 3	WPA3	WPA 3	WPA 3
AP (max access point)	/	10	32	32	32	32
Operator mode	/	AP/STA	AP/STA	AP/STA	AP/STA	AP/STA
I/O interfaces						
PCIe	/	× 1	× 1	× 1 (PCIe 2.0)	× 1 (PCIe 2.0)	× 1 (PCIe 2.0)
SDIO	/	/	/	/	/	/
UART	× 1	× 1	× 1	x 1	× 1	× 1
PCM	× 1	× 1	× 1	x 1	× 1	× 1
Wi-Fi antenna	/	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1)
BT antenna	× 1 (ANT_BT)	/	× 1 (ANT_BT) (optional)	× 1 (ANT_BT) (optional)	× 1 (ANT_BT) (optional)	× 1 (ANT_BT) (optional)
Wi-Fi/BT antenna	/	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)
Electrical characteristics						
Supply voltage range	Core supply voltage: 3.3 V; I/O supply voltage: 1.8 V	VDD_RF: 3.14 V ~ 3.46 V, typ. 3.3 V; VDD_IO: 1.71 V ~ 1.89 V, typ. 1.8 V	VDD_RF: 3.3 V ~ 4.25 V, typ. 3.85 V; VDD_CORE: 1.90 V, 1. 35 V, 0.95 V; VDD_IO: 1.71 V ~ 1.89 V, typ. 1.8 V	VDD_PA_A: 3.14 V ~ 4.25 V, typ. 3.3 V VDD_PA_B: 1.71 V ~ 2.1 V, typ. 1.8 V VDD_CORE: 1.90 V, 1. 35 V, 0.95 V VDD_IO: 1.71 V ~ 1.89 V, typ. 1.8 V	VDD_PA_A: 3.8 V; VDD_PA_B: 1.8 V; VDD_CORE: 1.90 V, 1. 35 V, 0.95 V	PA supply voltage: 2.2V; I/O supply voltage: 1.8 V; Core supply voltage: 1.8 V
Physical rate (max.)						
802.11a	/	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11b	/	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps
802.11g	/	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11n	/	300 Mbps	300 Mbps	300 Mbps	600 Mbps	600 Mbps
802.11ac	/	866 Mbps	866 Mbps	866 Mbps	866 Mbps	866 Mbps
802.11ax	/	/	2G : 573.5 Mbps, 5G : 1200 Mbps	1440 Mbps	3.6 Gbps	/
BLE	1Mbps	1Mbps	2 Mbps	2 Mbps	2 Mbps	2 Mbps
Recommended applications	Automotive	Automotive	Automotive	Automotive	Automotive	Automotive

Automotive Wi-Fi & Bluetooth modules

	Automotive RF Wi-Fi & Bluetooth modules	
Product	**AF65E**	**AB35TA**
		
Frequency bands	2.4 GHz/5 GHz/6 GHz	2.4 GHz
MIMO	2 × 2 MIMO, Single MAC	/
WLAN standard	IEEE 802.11a/b/g/n/ac/ax	/
BT standard	BT 5.3	BT 5.4, LE Audio
Form factor	LGA	LGA
Dimensions (mm)	23.0 × 23.0 × 3.0	17.0 × 17.0 × 2.7
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) (g)	3.3	1.7
General features		
Modulation mode	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM	GFSK, Π/4 DQPSK, 8DPSK
Encryption mode	WPA3	/
AP (max access point)	16	7
Operator mode	AP/STA	/
I/O interfaces		
PCIe	× 1(PCIe 2.0)	/
SDIO	/	/
UART	× 1	× 1
PCM	× 1	× 1
Wi-Fi antenna	× 1 (ANT_Wi-Fi1)	/
BT antenna	× 1 (ANT_BT) (optional)	× 1 (ANT_BT)
Wi-Fi/BT antenna	× 1 (ANT_Wi-Fi0/BT)	/
Electrical characteristics		
Supply voltage range	VDD_CORE_VL Power Supply: 0.9 V~1.2 V, typ.0.95 V; VDD_CORE_VM Power Supply: 1.30 V~1.42 V, typ. 1.35 V; VDD_CORE_VH Power Supply: 1.85 V~2.0V, typ. 1.9 V; VDD_PA Power Supply: 1.71 V~2.1 V, typ. 1.8 V; VDD_IO Power Supply: 1.71 V~1.89 V, typ. 1.8 V;	VBAT: 1.8 V VDD_IO: 1.8 V
Physical rate (max.)		
802.11a	54 Mbps	/
802.11b	11 Mbps	/
802.11g	54 Mbps	/
802.11n	300 Mbps	/
802.11ac	1133 Mbps	/
802.11ax	2400 Mbps	/
BLE	2 Mbps	/
Recommended Applications	Automotive	Automotive infotainment, rear seat entertainment

Wi-Fi & Bluetooth modules

RF Wi-Fi & Bluetooth modules

	Wi-Fi 4					
Product	**FC30R**	**FC909A**	**FCS940R**	**FCS945R**	**FCU741R**	**FCU743R**
						
Frequency bands	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz
MIMO	1 × 1	1 × 1	1 × 1	1 × 1	1 × 1	1 × 1
WLAN standard	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11a/b/g/n	IEEE 802.11a/b/g/n	IEEE 802.11a/b/g/n
BT standard	/	BT 5.2	BT 5.0	BT 5.2	/	BT 5.2
Form factor	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	12.0 × 12.0 × 2.1	12.0 × 12.0 × 1.95	12.0 × 12.0 × 2.0	12.0 × 12.0 × 2.15	13.0 × 12.2 × 2.25	13.0 × 12.2 × 2.0
Operating temperature	-40°C ~ +85°C	-30°C ~ +85°C	0°C ~ +70°C or -20°C ~ +80°C	-20°C~ +70°C (-40°C ~ +85°C Optional)	-20°C ~ +70°C	-20°C ~ +70°C
Weight (approx.) (g)	0.58	0.6	0.53	0.62	0.68	0.56
General features						
Modulation mode	DBPSK/DQPSK/BPSK/QPSK/ CCK/16QAM/64QAM	DSSS/OFDM/DBPSK/DQPSK/ CCK/BPSK/QPSK/16QAM/ 64QAM	OFDM/CCK/BPSK/QPSK/16QAM/ 64QAM	CCK/BPSK/QPSK/DQPSK/ 16QAM/64QAM	CCK/DBPSK/DQPSK/BPSK/ QPSK/16QAM/64QAM	CCK/DBPSK/DQPSK/BPSK/ QPSK/16QAM/64QAM
Encryption mode	WPA3	WPA3	WPA3	WPA3	WPA3	WPA3
I/O interfaces						
PCIe	/	/	/	/	/	/
SDIO	× 1 (SDIO 3.0)	× 1 (SDIO 2.0)	× 1 (SDIO 2.0)	× 1 (SDIO 2.0)	/	/
USB	/	/	/	/	× 1	× 1 (USB2.0)
SPI	/	/	/	/	/	/
UART	/	× 1	× 1	× 1	/	/
PCM	/	× 1	× 1	× 1	/	/
Wi-Fi antenna	× 1 (ANT_Wi-Fi1)	/	/	/	× 1 (ANT_Wi-Fi1)	/
BT antenna	/	/	/	× 1 (ANT_BT) (optional)	/	/
Wi-Fi/BT antenna	/	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi/BT)	/	× 1 (ANT_Wi-Fi0/BT)
Electrical characteristics						
Supply voltage range	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V; VDDIO: 1.75 V ~ 1.89 V, typ. 1.8 V 3.0 V ~ 3 .6 V, typ. 3.3 V	VBAT: 3.0 V ~ 4.8 V, typ. 3.3 V; VDDIO: 1.71 V ~ 3.63 V, typ. 1.8/3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V; VDDIO: 1.62 V ~ 3.6 V, typ. 1.8/3.3 V	VBAT: 3.0 V~3.6 V, typ. 3.3 V; VDD_IO: 1.62 V ~ 1.98 V, typ. 1.8 V, 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V
Power consumption	OFF State: 31 μA @ VDD3V3 power supply 1 μA @ VDD_SDIO power supply Idle (no connection): 60 mA @ VDD3V3 power supply 2 mA @ VDD_SDIO power supply	Max. current at Tx mode: 300 mA @ VBAT 0.7 mA @ VIO	Max. current at Tx mode: 364.6 mA @ VBAT 26.6 mA @ VDDIO	Max. current at Tx mode: 335 mA @ VBAT 0.3 mA @ VDD_IO	Max. current at Tx mode: 400 mA @ VBAT	Max. current consumption : 410.2 mA @ 3.3 V
Physical rate (max.)						
802.11a	/	/	/	54 Mbps	54 Mbps	54 Mbps
802.11b	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps
802.11g	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11n	150 Mbps	72 Mbps	150 Mbps	150 Mbps	150 Mbps	150 Mbps
802.11ac	/	/	/	/	/	/
802.11ax	/	/	/	/	/	/
Certifications	SRRC/CE/FCC/IC/RCM/KC*/JATE/ TELEC	SRRC/CE/FCC/IC	SRRC/CE/FCC/IC/RCM/KC*/ JATE*/TELEC*	SRRC/CE/FCC/IC/RCM/KC/JATE*/ TELEC*	SRRC/CE/FCC/IC/RCM/KC*/JATE/ TELEC	SRRC/CE/FCC/IC/RCM/KC*/ JATE*/TELEC*
Recommended applications	Telematics, smart metering, mobile POS terminals, gateways, safety, tracking and tracing, remote maintenance and control, networking, mobile computing, healthcare, etc.	OTT, smart speakers, projectors, POS, IPC	IPC, printers, POS, speakers, display, etc.	Printers, POS, attendance machines, vacuum cleaners, smart speakers, digital signage, set-top boxes/IPTV, smart home control screens, etc.	Printers, POS, attendance machines, vacuum cleaners, smart speakers, digital signage, set-top boxes/IPTV, smart home control screens, etc.	Video transmission, printers, POS, attendance machines, vacuum cleaners, smart speakers, digital signage, set-top boxes/IPTV, smart home control screens, etc.

FC30R can work with Quectel EC20-CE/EC21/EC25/EC200A module to provide Wi-Fi/BT function.

* Planning/ Under development/ In progress

RF Wi-Fi & Bluetooth modules

	Wi-Fi 5							
Product	**FC20**	**FC21**	**FC900E**	**FC905A**	**FCS950U**	**FCS851U**	**FCS950R**	**FC906A**
								
Frequency bands	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz
MIMO	1 × 1	1 × 1	1 × 1	1 × 1	1 × 1	/	1 × 1	1 × 1
WLAN standard	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac	/	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac
BT standard	BT 5.0	BT 5.0	BT 5.0	BT 5.0	BT 5.0	BT 5.0	BT 5.3	BT 5.4
Form factor	LCC	LCC	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	16.6 × 13.0 × 2.05	16.6 × 13.0 × 2.05	12.0 × 12.0 × 2.05	12.0 × 12.0 × 1.55	12.0 × 12.0 ×2.15	15.0× 13.0× 2.25 15.0× 13.0× 1.85 (without shielding cover)	12.0 × 12.0 × 2.35	12.0 × 12.0 × 1.55
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-30°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-20°C~ +70°C (-40°C ~ +85°C Optional)	-20°C ~ +70°C
Weight (approx.) (g)	0.81	0.73	0.53	0.6	0.55	0.81; 0.49(without shielding cover)	0.58	0.5
General features								
Modulation mode	DSSS/CCK/BPSK/QPSK/ DBPSK/DQPSK/16QAM/ 64QAM/256QAM	DSSS/CCK/BPSK/QPSK/ DBPSK/DQPSK/16QAM/ 64QAM/256QAM	BPSK/QPSK/CCK/ 16QAM/64QAM/ 256QAM	DSSS/CCK/BPSK/QPSK/ DBPSK/DQPSK/16QAM/ 64QAM/256QAM	DSSS/DBPSK/DQPSK/ CCK/BPSK/QPSK/ 16QAM/64QAM/ 256QAM	DSSS/CCK/BPSK/ QPSK/DBPSK/DQPSK/ 16QAM/64QAM/ 256QAM	DBPSK/DQPSK/CCK/ BPSK/QPSK/16QAM/ 64QAM/256QAM	DSSS/CCK/BPSK/ QPSK/16QAM/ 64QAM/256QAM
Encryption mode	WPA3	WPA3	WEP/TKIP/AES/WPA-PSK/WPA2-PSK	WPA3	WPA3	WPA3	WPA3	WPA/WPA2/WPA3
I/O interfaces								
PCIe	/	/	/	/	/	/	/	/
SDIO	× 1 (SDIO 3.0)	× 1 (SDIO 3.0)	× 1 (SDIO 3.0)	× 1 (SDIO 3.0)	× 1(SDIO 3.0)	× 1(SDIO 3.0)	× 1 (SDIO 3.0)	× 1 (SDIO 3.0) (optional)[1]
USB	/	/	/	/	/	/	/	× 1 (USB2.0) (optional)[1]
SPI	/	/	/	/	/	/	/	/
UART	× 1	× 1	× 1	× 1	× 1*	× 1*	× 1	× 1 (optional)
PCM	× 1	× 1	× 1	× 1	× 1	× 1	× 1	× 1
Wi-Fi antenna	/	/	/	/	/	× 1 (ANT_BT)	/	/
BT antenna	/	/	/	/	/	× 2 (ANT_Wi-Fi0, ANT_ Wi-Fi1/BT)	/	/
Wi-Fi/BT antenna	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1(ANT_Wi-Fi0/BT)	/	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)
Electrical characteristics								
Supply voltage range	VBAT: 3.14 V ~ 3 .46 V, typ. 3.3 V; VDDIO: 1.71 V ~ 3.46 V, typ. 1.8 V/3.3 V	VBAT: 3.14 V ~ 3 .46 V, typ. 3.3 V; VDDIO: 1.71 V ~ 3.46 V, typ. 1.8 V/3.3 V	VBAT: 3.14 V ~ 3.46 V, typ. 3.3 V; VDDIO: 1.71V ~ 3.46 V, typ. 1.8V/3.3 V	VBAT: 3.13 V ~ 4.8 V, typ. 3.6 V; VDDIO: 1.71 V ~ 3.63 V, typ. 1.8V/3.3 V	VBAT: 3.2 V ~ 3.4 V, typ. 3.3 V	VBAT: 3.1 V ~ 3.4 V, typ. 3.3 V VIO: 1.7 V ~ 1.98 V, typ. 1.8 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V; VDDIO: 1.62 V ~ 3.6 V, typ. 1.8V/3.3 V	VBAT: 3.2 V ~ 4.8 V, typ. 3.6 V; VDD_IO: 1.62 V ~ 3.63 V, typ. 1.8V/ 3.3 V
Power consumption	OFF State (Wi-Fi is disabled): 2 μA @ 3.3 V WLAN power supply 554 μA @ 1.8 V I/O Pins power supply Idle (Wi-Fi is enabled without any device connected): 66 mA @ 3.3 V WLAN power supply 6.5 mA @1.8 V I/O Pins power supply	OFF State (Wi-Fi is disabled): 0 μA @ 3.3 V WLAN power supply 179 μA @1.8 V I/O Pins power supply Idle (Wi-Fi is enabled without any device connected): 31 mA @ 3.3 V WLAN power supply 2.8 mA @ 1.8 V I/O Pins power supply	Max. current at Tx mode: 404.7mA @ VBAT 6.61 mA @ VIO	319mA @ VBAT ; 0.59mA @ VIO	AAMD-LDO: 196mA @ TX 2.4G 185mA @ TX 5G ABMD-DC-DC: 99mA @ TX 2.4G 84mA @ TX 5G	/	Max. current at 802.11n/ac MIMO Tx mode: 375 mA @ 3.3 V 0.85 mA @ 1.8 V	Max. current at Tx mode: 315 mA @ VBAT 0.18 mA @ VIO
Physical rate (max.)								
802.11a	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11b	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps
802.11g	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11n	150 Mbps	150 Mbps	150 Mbps	150 Mbps	150 Mbps	300 Mbps	150 Mbps	150 Mbps
802.11ac	433 Mbps	433 Mbps	433 Mbps	433.3 Mbps	433 Mbps	866.6 Mbps	433 Mbps	433.3 Mbps
802.11ax	/	/	/	/	/	/	/	/
Certifications	SRRC/CE/FCC/IC/ Anatel/RCM/KC/JATE/ TELEC	SRRC/CE/FCC/IC/RCM/ JATE/TELEC	SRRC/CE/FCC/IC/RCM/ UKCA	SRRC/CE/FCC/IC/JATE/ TELEC	SRRC/CE/RCM/FCC/IC/ Anatel	CE/FCC/IC/RCM/SRRC	SRRC/CE/FCC/IC/RCM/ KC*/JATE*/TELEC*	SRRC/CE/FCC/IC/RCM
Recommended applications	Telematics, smart metering, mobile POS terminals, gateways, safety, tracking and tracing, remote maintenance and control, networking, mobile computing, healthcare, etc.		Various industrial and commercial applications inc: smart speakers, set-top boxes, POS machines, etc.	Various commercial/ industrial applications e.g. POS machines and speaker boxes	Meet different needs of industrial and commercial applications, such as POS machines and facial recognition	smart speaker, TV, OTT	POS, robot, printers, smart speaker, etc.	Smart homes, industrial applications

Note 1: The module can support SDIO interface or USB interface, but they cannot be utilized simultaneously. You can choose the corresponding module model according to the actual application. For details, please contact Quectel technical support.
FC20 can work with Quectel EC20 R2.0/EC20-CE/EC21/EC25 modules to provide Wi-Fi/BT function.
FC21 can work with Quectel EC20 R2.0/EC20-CE/EC21/EC25 modules to provide Wi-Fi/BT function.

* Planning/ Under development/ In progress

RF Wi-Fi & Bluetooth modules

	Wi-Fi 5		
Product	**FC80A**	**FCS850R**	**FCS850R-B**
			
Frequency bands	2.4 GHz+5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz
MIMO	2 × 2 or 1 × 1 + 1 × 1 in RSDB (Real Simultaneous Dual Band) mode	2 × 2	2 × 2
WLAN standard	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac
BT standard	BT 5.1	BT 5.0	BT 5.0
Form factor	LCC	LCC	LCC
Dimensions (mm)	15.0 × 13.0 × 2.2	15.0 × 13.0 × 2.3	15.0 × 13.0 × 2.3
Operating temperature	-40°C ~ +85°C	-20°C ~ +70°C	-20°C ~ +70°C
Weight (approx.) (g)	0.86	0.79	0.79
General features			
Modulation mode	BPSK/QPSK/CCK/16QAM/64QAM/256QAM	DBPSK/DQPSK/BPSK/QPSK/CCK/16QAM/64QAM/256QAM	DBPSK/DQPSK/BPSK/QPSK/CCK/16QAM/64QAM/256QAM
Encryption mode	WPA3	WPA3	WPA3
I/O interfaces			
PCIe	/	/	/
SDIO	× 1 (SDIO 3.0)	× 1 (SDIO 3.0)	× 1 (SDIO 3.0)
USB	/	/	/
SPI	/	/	/
UART	× 1	× 1	× 1
PCM	× 1	× 1	× 1
Wi-Fi antenna	× 1 (ANT_Wi-Fi1) × 1 (ANT_Wi-Fi0)	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1) × 1 (ANT_Wi-Fi0)
BT antenna	/	/	× 1 (ANT_BT)
Wi-Fi/BT antenna	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	/
Electrical characteristics			
Supply voltage range	VBAT: 3.2 V ~ 4.5 V, typ. 3.3 V; VDDIO: 1.7 V ~ 3.6 V, typ. 1.8V/3.3 V	VBAT: 3.1 V ~ 3.6 V, typ. 3.3 V; VDDIO: 1.7 V ~ 3.6 V, typ. 1.8V/3.3 V	VBAT: 3.1V ~ 3.6 V, typ. 3.3 V; VDDIO: 1.7 V ~ 3.6 V, typ. 1.8V/3.3 V
Power consumption	Max. current at 802.11n/ac MIMO Tx mode: 627 mA @ 3.3 V 0.7 mA @ 1.8 V	Max. current at 802.11n/ac MIMO Tx mode: 389.83 mA @ 3.3 V 16.26 μA @ 1.8 V	Max. current at 802.11n/ac MIMO Tx mode: 389.83 mA @ 3.3 V 16.26 μA @ 1.8 V
Physical rate (max.)			
802.11a	54 Mbps	54 Mbps	54 Mbps
802.11b	11 Mbps	11 Mbps	11 Mbps
802.11g	54 Mbps	54 Mbps	54 Mbps
802.11n	300 Mbps	300 Mbps	300 Mbps
802.11ac	866 Mbps	866.7Mbps	866.7Mbps
802.11ax	/	/	/
Certifications	SRRC/CE/FCC/IC/KC/JATE/TELEC/RCM	SRRC/CE/FCC/IC/RCM/KC*/TELEC*/JATE*	SRRC/CE/FCC/IC/RCM/KC*/TELEC*/JATE*
Recommended applications	Smart homes, industrial controls	Set-top boxes, smart speakers, digital signage, VR/AR, smart gateways, conference terminals, intelligent projectors, cloud computing, etc.	

* Planning/ Under development/ In progress

RF Wi-Fi & Bluetooth modules

	Wi-Fi 6									
Product	**FC62E*/FC64E**	**FC06E**	**FCE863R**	**FCS866R**	**FGS060N**	**FGS061N**	**FCU865R**	**FCU760K**	**FCU760K-N**	**FCU760K-NL**
										
Frequency bands	2.4 GHz/5 GHz (FC62E*) ; 2.4 GHz + 5 GHz (FC64E)	2.4 GHz + 5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz
MIMO	2 × 2 (FC64E support DBS, FC62E* not support DBS)	2 × 2 + 2 × 2	2 × 2	2 × 2	1 × 1	1 × 1	/	1 × 1	1 × 1	1 × 1
WLAN standard	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE802.11a/b/g/n/ac/ax	IEEE802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax
BT standard	BT 5.2	BT 5.3	BT 5.2	BT 5.2	BT 5.4	BT 5.4	BT 5.3	BT 5.4	BT 5.4	BLE 5.4
Form factor	LCC	LCC	LCC	LCC	LGA	LGA	LCC	LCC	LCC	LCC
Dimensions (mm)	18.0 × 19.9 × 2.1	25.5 × 22.0 × 2.25	15.0 × 13.0 × 2.0	15.0 × 13.0 × 2.0	14.0 × 13.0 × 2.0	14.0 × 13.0 × 2.0	15.0 × 13.0 × 2.0	13.0 × 12.2 × 2.0	13.0 × 12.2 × 2.0	13.0 × 12.2 × 2.0
Operating temperature	-30°C ~ +75°C	-30°C ~ +75°C	-20°C ~ +70°C (-40°C ~ +85°C Optional)	-20°C ~ +70°C	-40°C ~ +85°C	-40°C ~ +85°C	-20°C ~ +70°C	-20°C ~ +80°C	-20°C ~ +80°C	-20°C ~ +80°C
Weight (approx.) (g)	1.63	2.27	0.84	0.79	0.7	0.7	0.82	0.62	0.62	0.52
General features										
Modulation mode	DBPSK/DQPSK/CCK/BPSK/QPSK/QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM/OFDMA	DSSS/OFDM/DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM	DSSS/OFDM/DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM	DSSS/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM	DSSS/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM	DSSS/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM
Encryption mode	WPA3	WPA3	WPA3	WPA3	WPA3	WPA3	WPA3	WEP/WPA/WPA2/WPA3-SAE	WEP/WPA/WPA2/WPA3-SAE	WEP/WPA/WPA2/WPA3-SAE
I/O interfaces										
PCIe	× 1 (PCIe 3.0)	× 1 (PCIe 3.0)	× 1	/	/	/	/	/	/	/
SDIO	/	/	/	× 1 (SDIO 3.0)	× 1 (SDIO 3.0)	× 1 (SDIO 3.0)	/	/	/	/
USB	/	/	/	/	/	/	USB 2.0	× 1 (USB 2.0)	× 1 (USB2.0)	× 1 (USB2.0)
SPI	/	/	/	/	× 1	/	/	/	/	/
UART	× 1	× 1	× 1	× 1	× 1	× 1	/	/	/	/
PCM	× 1	× 1	× 1	× 1	× 1	× 1	/	× 1	× 1	/
Wi-Fi antenna	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1) × 1 (ANT_Wi-Fi0)	× 1 (ANT_Wi-Fi0)	× 1 (ANT_Wi-Fi0)	/	/	/	/	/	/
BT antenna	/	× 1 (ANT_BT)	× 1 (ANT_BT) (Optional)	× 1 (ANT_BT) (Optional)	/	/	/	× 1 (ANT_BT) (Optional)	× 1 (ANT_BT) (Optional)	/
Wi-Fi/BT antenna	× 1 (ANT_Wi-Fi0/BT)	/	× 1 (ANT_Wi-Fi1/BT) (Optional)	× 1 (ANT_Wi-Fi1/BT) (Optional)	/	× 1 (ANT_Wi-Fi/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)
Wi-Fi/BT/Thread antenna	/	/	/	/	× 1 (ANT_Wi-Fi/BT/Thread)	/	/	/	/	/
Electrical characteristics										
Supply voltage range	Core Supply Voltage: 0.95, 1.35, 1.95, 1.8, 2.2, 3.3 (Optional); I/O Supply Voltage: 1.8 V;	VDD_CORE_VL: 0.95 V; VDD_CORE_VM: 1.35 V; VDD_CORE_VH: 1.95 V; VDD_FEM: 5 V/ 3.3 V	VBAT: 3.0V ~ 3.6 V, typ. 3.3 V; VDD_IO: 1.7 V ~ 3.6 V, typ. 1.8/3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V VDDIO: 1.62 V ~ 3.6 V, typ. 1.8/3.3 V	VBAT_3V3: 3.14 V ~ 3.46 V, typ. 3.3 V; VBAT_1V8: 1.71V ~ 1.89 V, typ. 1.8 V	VBAT_3V3: 3.14 V ~ 3.46 V, typ. 3.3 V VBAT_1V8: 1.71 V ~ 1.89 V, typ. 1.8 V	VBAT: 3.0~3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V
Power consumption	TBD	Max. current at non-signaling mode (DBS): 490 mA @ 0.95 V 320 mA @ 1.35 V 8 mA @ 1.8 V 151 mA @ 1.95 V 1350 mA @ 5 V	Max. current at 802.11n/ac/ax MIMO Tx mode: 413.1 mA @ 3.3 V 0.4mA @ 1.8 V	Max. current at 802.11n/ac/ax MIMO Tx mode: 292.29 mA @ 3.3 V 62.74 μA @ 1.8 V	Max. current at Tx mode: 368 mA @ VBAT_3V3 300 mA @ VBAT_1V8	Max. current at Tx mode: 300 mA @ VBAT_3V3 400 mA @ VBAT_1V8	Max. current at 802.11n HT40 non-signaling Tx mode: 576.5 mA	Max. current at Tx mode: 353 mA @VBAT	Max. current at Tx mode: 310.6 mA@VBAT	Max. current at Tx mode: 509.2 mA @ VBAT
Physical rate (max.)										
802.11a	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11b	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps
802.11g	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11n	600 Mbps	300 Mbps	300 Mbps	300 Mbps	150 Mbps	150 Mbps	150 Mbps	150 Mbps	150 Mbps	150 Mbps
802.11ac	866 Mbps	866 Mbps	866.7 Mbps	866.7 Mbps	433.3 Mbps	433.3 Mbps	433 Mbps	433.3 Mbps	200 Mbps	200 Mbps
802.11ax	1200 Mbps (FC62E*); 1774.5 Mbps (FC64E)	1774.5 Mbps	1201 Mbps	1201Mbps	600.4 Mbps	600.4 Mbps	600 Mbps	600.4 Mbps	286.8 Mbps	286.8 Mbps
802.11be	/	/	/	/	/	/	/	/	/	/
Certifications	FC62E*: SRRC*/CE*/FCC*/IC*/RCM*/KC*; FC64E: SRRC/CE/FCC/IC/RCM/KC/JATE/TELEC	SRRC/CE/FCC/IC/RCM/KC/UKCA	SRRC/CE/FCC/IC/RCM/KC/JATE*/TELEC	SRRC/CE/RCM/FCC/IC/KC/JATE*/TELEC*	CE/FCC/IC/RCM	CE/FCC/IC/RCM/SRRC	SRRC*/CE/RCM/FCC*/IC*/JATE/TELEC/KC*	SRRC/CE/FCC/IC	SRRC/CE/FCC/IC	SRRC/CE*/FCC*/IC*
Recommended applications	CPE, OTT, smart TVs	CPE, MiFi, OTT	Set-top boxes, smart speakers, digital signage, VR/AR, smart gateways, conference terminals, intelligent projectors, cloud computing, etc		Charging pile, Camera, Smart homes and industrial applications	Smart homes and industrial applications	IPTV, NVR, projectors, traffic recorder	Intelligent projector	Intelligent projector	Smart projector

* Planning/ Under development/ In progress

RF Wi-Fi & Bluetooth modules

	Wi-Fi 6					
Product	**FCS960K**	**FCS960K-E**	**FCS960K-N**	**FCS960K-NL**	**FCS962N-LP**	**FGD966X**
						
Frequency bands	2.4 GHz/ 5 GHz	2.4 GHz + 5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz
MIMO	1 × 1	1 × 1	1 × 1	1 × 1	1 × 1	/
WLAN standard	IEEE802.11a/b/g/n/ac/ax	IEEE802.11a/b/g/n/ac/ax	IEEE802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11 a/b/g/n/ac/ax
BT standard	BT 5.4	BT 5.4	BT 5.4	BLE 5.4	BT 5.4	BLE 5.4
Form factor	LCC	LCC	LCC	LCC	LCC	LGA
Dimensions (mm)	12.0 × 12.0 × 2.0	12.0 × 12.0 ×1.9	12.0 × 12.0 × 2.0	12.0 × 12.0 × 1.9	12.0 × 12.0 × 1.55	12.0 × 12.0 × 2.0
Operating temperature	-20°C ~ +80°C	-40°C~+85°C	-20°C~+80°C	-20°C ~ +80°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) (g)	0.59	0.55	0.59	0.56	0.49	0.58
General features						
Modulation mode	DSSS/CCK/BPSK/QPSK/16QAM/ 64QAM/256QAM/1024QAM	DSSS/CCK/BPSK/QPSK/16QAM/ 64QAM/256QAM/1024QAM	DSSS/CCK/BPSK/QPSK/16QAM/ 64QAM/256QAM/1024QAM	DSSS/CCK/BPSK/QPSK/16QAM/ 64QAM/256QAM/1024QAM	DSSS/CCK/BPSK/QPSK/DBPSK/ DQPSK/16QAM/64QAM/256QAM/ 1024QAM	DSSS/OFDM/DBPSK/DQPSK/CCK/ BPSK/QPSK/16QAM/64QAM/ 256QAM
Encryption mode	WEP/WPA/WPA2/WPA3-SAE	WEP/WPA/WPA2/WPA3-SAE	WEP/WPA/WPA2/WPA3-SAE	WEP/WPA/WPA2/WPA3-SAE	WPA3	WPA2/ WPA3
I/O interfaces						
PCIe	/	/	/	/	/	/
SDIO	× 1 (SDIO 3.0)	× 1 (SDIO 3.0)	× 1 (SDIO3.0)	× 1 (SDIO 3.0)	SDIO 3.0	× 1 (SDIO 3.0)
USB	/	/	/	/	/	× 1 (USB2.0)
SPI	/	/	/	/	/	× 1 (for Thread & Zigbee)
UART	× 1	× 1	× 1	× 1	× 1	×1
PCM	× 1	× 1	× 1	/	× 1	/
Wi-Fi antenna	/	/	/	/	/	/
BT antenna	× 1 (ANT_BT) (Optionl)	× 1 (ANT_BT) (Optional)	× 1 (ANT_BT) (Optional)	× 1 (ANT_BT) (Optional)	/	/
Wi-Fi/BT antenna	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi0/BT)	/
Wi-Fi/BT/Thread antenna	/	/	/	/	/	× 1 (ANT_ Wi-Fi/BT/Thread)
Electrical characteristics						
Supply voltage range	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.2 V ~ 4.8 V, typ. 3.3 V VDD_IO: 1.62 V ~ 1.98 V, typ. 1.8 V	Power supply voltage: VBAT_3V3: 3.14 V ~ 3.46 V, typ. 3.3 V I/O power supply voltage VDDIO: 3.14 V ~ 3.46 V, typ. 3.3 V, 1.71 V ~ 1.89 V, typ. 1.8 V
Power consumption	Max. current at Tx mode: 381.56 mA @ VBAT	Max. current at Tx mode: 189.76 mA @ VBAT	Max. current at Tx mode: 309.4 mA @ VBAT	Max. current at Tx mode: 189.75 mA @ VBAT	Maximum current consumption in transmit mode: 350mA @ VBAT 5mA @ VDDIO	Max. current at Tx mode: 476 mA @ 3.3 V, 61mA @ 1.8 V
Physical rate (max.)						
802.11a	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11b	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps
802.11g	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps
802.11n	150 Mbps	150 Mbps	150 Mbps	150 Mbps	72.2 Mbps	72.2 Mbps
802.11ac	433.3 Mbps	433.3 Mbps	200 Mbps	200 Mbps	86.7 Mbps	86.7 Mbps
802.11ax	600.4 Mbps	600.4 Mbps	286.8 Mbps	286.8 Mbps	143.4 Mbps	114.7 Mbps
802.11be	/	/	/	/	/	/
Certifications	SRRC/CE/FCC/IC	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM	CE*/FCC*/SRRC*
Recommended applications	Commercial and industrial applications Demand	Commercial and industrial applications Demand	Commercial and industrial applications Demand	Commercial and industrial applications Demand	Network cameras, video doorbells, smart homes, smart glasses, smart door locks, smart speakers, smart lighting, and household appliances, etc.	Printer, charging pile, IPC, building intercom

* Planning/ Under development/ In progress

RF Wi-Fi & Bluetooth modules

	Wi-Fi 6E			Wi-Fi 7				Bluetooth
Product	**FC65E*/FC66E**	**FC66E-B**	**FCS963N-LP**	**FGE576Q**	**FME170Q-865**	**FGE575T**	**FME175T**	**HCR022R**
								
Frequency bands	2.4 GHz/5 GHz/6 GHz (FC65E*) ; 2.4 GHz + 5 GHz/6GHz (FC66E)	2.4 GHz + 5 GHz/6 GHz (FC66E-B)	2.4 GHz/5 GHz/6 GHz	2.4 GHz/5 GHz/6 GHz	2.4 GHz/ 5 GHz/ 6 GHz	2.4 GHz/5 GHz/6 GHz	2.4 GHz/5 GHz/6 GHz	/
MIMO	2 × 2 (FC66E support DBS, FC65E* not support DBS)	2× 2 (FC66E-B support DBS)	/	2 × 2 (support DBS)	2 × 2 (support DBS and HBS)	2 × 2 + 2 × 2	2 × 2 + 2 × 2	/
WLAN standard	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax/be	IEEE 802.11a/b/g/n/ac/ax/be	IEEE 802.11a/b/g/n/ac/ax/be	IEEE 802.11a/b/g/n/ac/ax/be	/
BT standard	BT 5.2	BT 5.2	BT 5.4	BT 5.3	BT 5.4	BT 5.4	BT 5.4	BT 5.0
Form factor	LCC	LCC	LCC	LGA	M.2	LGA	M.2	LCC
Dimensions (mm)	18.0 × 19.9 × 2.1	18.0 × 19.9 × 2.1	12.0 × 12.0 × 1.55	16.0 × 20.0 × 1.8	30.0 × 22.0 × 2.25	18.0 × 14.0 × 1.9	30.0 × 22.0 × 2.45	15.0 × 12.0 × 2.2
Operating temperature	-30°C ~ +75°C	-30°C ~ +75°C	-40°C ~ +85°C	-20°C ~ +70°C	-10°C ~ +65°C	-10°C ~ +70°C	-10°C ~ +70°C	-40 °C ~ +105 °C
Weight (approx.) (g)	1.63	1.6	0.5	1.25	2.57	0.98	2.33	0.59
General features								
Modulation mode	DBPSK/DQPSK/CCK/BPSK/QPSK/QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/QAM	DSSS/CCK/BPSK/QPSK/DBPSK/DQPSK/16QAM/64QAM/256QAM/1024QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM/4096QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM/4096QAM	/
Encryption mode	WPA3	WPA3	WPA3	WPA3	WPA3	WPA/WPA2/WPA3	WPA/WPA2/WPA3	/
I/O interfaces								
PCIe	× 1 (PCIe 3.0)	× 1 (PCIe 3.0)	/	× 1 (for Wi-Fi)	× 1 (for Wi-Fi)	× 1 (PCIe 2.1)	× 1 (PCIe 2.1)	/
SDIO	/	/	× 1 (for Wi-Fi)	/	/	/	/	/
USB	/	/	/	× 1 (for Bluetooth)	× 1 (for Bluetooth)	× 1 (USB2.0)	× 1 (USB2.0)	/
SPI	/	/	/	/	/	/	/	/
UART	× 1	× 1	× 1 (for Bluetooth)	× 1 (for Bluetooth)	/	/	/	× 1
PCM	× 1	× 1	× 1 (for Bluetooth Audio)	× 1 (for Bluetooth)	× 1 (for Bluetooth)	× 1	× 1	× 1
Wi-Fi antenna	× 1 (ANT_Wi-Fi1)	× 1 (ANT_Wi-Fi1) × 1 (ANT_Wi-Fi0)	1 × 1	/	/	× 1 (ANT_Wi-Fi0)	× 1 (ANT_Wi-Fi0)	/
BT antenna	/	× 1 (ANT_BT)	Share an antenna with Wi-Fi	/	/	/	/	× 1 (PCB antenna, first-generation RF coaxial connector, pin antenna) (optional)
Wi-Fi/BT antenna	× 1 (ANT_Wi-Fi0/BT)	/	× 1	× 1 (ANT_Wi-Fi1/BT) × 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi1/BT) × 1 (ANT_Wi-Fi0/BT)	× 1 (ANT_Wi-Fi1/BT)	× 1 (ANT_Wi-Fi1/BT)	/
Wi-Fi/BT/Thread antenna	/	/	/	/	/	/	/	/
Electrical characteristics								
Supply voltage range	Core Supply Voltage: 0.95, 1.35, 1.95, 1.8, 2.2, 3.3 (Optional); I/O Supply Voltage: 1.8 V;	VDD_CORE_VL: 1.0 V; VDD_CORE_VM: 1.8 V; VDD_CORE_VH: 2.0 V; VDD_RF: 2.0 V; I/O Supply Voltage: 1.8 V	VBAT: 3.0 V ~ 4.8 V, typ. 3.3 V VDD_IO: 1.62 V ~ 1.98 V, typ. 1.8 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VCC: 3.0 V ~ 3.6 V, typ. 3.3 V	3.13 V ~ 3.46 V, typ. 3.3 V
Power consumption	TBD	TBD	Max. current at TX mode: 148.65 mA @ VBAT 3.11 mA @ VDD_IO	Max. current at Tx mode: 1373mA @ VBAT	Max. current at Tx mode: 1126.5 mA @ VCC	Maximum current consumption in transmission mode: 748mA	Maximum current consumption in transmission mode: 748mA	Maximum power consumption: 65.64 mA, 217 mW
Physical rate (max.)								
802.11a	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	/
802.11b	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	11 Mbps	/
802.11g	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	54 Mbps	/
802.11n	600 Mbps	600 Mbps	72.2 Mbps	600 Mbps	600 Mbps	300 Mbps	300 Mbps	/
802.11ac	1732 Mbps	1732 Mbps	86.7 Mbps	1732 Mbps	1732 Mbps	1732 Mbps	1732 Mbps	/
802.11ax	2400 Mbps (FC65E*); 3000 Mbps (FC66E)	3000 Mbps	143.4 Mbps	3000 Mbps	3000 Mbps	2400 Mbps	2400 Mbps	/
802.11be	/	/	/	3600 Mbps	5800 Mbps	2900 Mbps	2900 Mbps	/
Certifications	FC65E*: SRRC/CE/FCC/IC/RCM/KC; FC66E: SRRC/CE/FCC/IC/RCM/KC/JATE/TELEC	SRRC/CE/FCC/IC/RCM/KC/JATE/TELEC	SRRC*/ CE*/ FCC*/ IC*/ RCM*	SRRC/CE/RCM/FCC/IC/KC*/TELEC*	CE/FCC/IC/RCM/SRRC	Anatel/CE/FCC/IC/JATE/KC/NCC/RCM/TELEC/UKCA/SRRC	Anatel/CE/FCC/IC/JATE/KC/NCC/RCM/TELEC/UKCA/SRRC	SRRC*/CE*/FCC*/IC*/RCM*
Recommended applications	CPE, OTT, smart TVs	CPE, MiFi, OTT, smart TVs	Network cameras, video doorbells, smart homes, smart glasses, smart locks, smart speakers, smart lighting, and home appliances.	Cloud gaming, 8K A/V streaming, AR/VR, industrial IoT and telemedicine	Laptops computer, etc.	Laptops computer, etc.	Laptops computer, etc.	In-vehicle, smart speakers, etc.

* Planning/ Under development/ In progress

MCU Wi-Fi & Bluetooth modules

	Wi-Fi 4						
Product	**FC41D**	**FCM100D**	**FCM740D**	**FLM040D**	**FLM140D**	**FLM240D**	**FLM340D**
							
Microcontroller (MCU)	ARM968 (120 MHz)	ARM968 (120 MHz)	ARM968 (120 MHz)	ARM968 (120 MHz)	ARM968 (120 MHz)	ARM968 (120 MHz)	ARM968 (120 MHz)
ChipSet	BK7231M	BK7231M	BK7231M	BK7231M	BK7231M	BK7231M	BK7231M
Frequency bands	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
WLAN standard	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n
BT standard	BLE 5.2	BLE 5.2	BLE 5.2	BLE 5.2	BLE 5.2	BLE 5.2	BLE 5.2
Form factor	LCC	LCC	LCC+ DIP	DIP	DIP	DIP+LCC	DIP
Dimensions (mm)	20.0 × 18.0 × 2.6	24.0 × 16.0 × 2.6	20.3 × 15.8 × 2.7	15.0 × 16.8 × 1.85	17.91 × 14.99 × 2.8	17.3 × 15 × 2.8	12.7 × 8.5 × 2.6
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C/ -40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +85°C	-40° C ~ +105° C	-40°C ~ +105°C
Weight (approx.) (g)	1.51	1.55	1.06	0.55	0.83	0.85	0.32
General features							
RAM	256 KB	256 KB	256 KB	256 KB	256 KB	256 KB	256 KB
PSRAM	/	/	/	/	/	/	/
Flash	2 MB/ 4 MB	2 MB/4 MB	2 MB/4 MB	2 MB/4 MB	2 MB/4 MB	2 MB/4 MB	2 MB/4 MB
Codec	/	/	/	/	/	/	/
Modulation mode	PSK/QPSK/CCK/16QAM/ 64QAM	PSK/QPSK/CCK/16QAM/ 64QAM	PSK/QPSK/CCK/16QAM/ 64QAM	PSK/QPSK/CCK/16QAM/ 64QAM	PSK/QPSK/CCK/16QAM/ 64QAM	PSK/QPSK/CCK/16QAM/ 64QAM	PSK/QPSK/CCK/16QAM/ 64QAM
Encryption mode	WPA-PSK/WPA2-PSK/ WPA3-SAE	WPA-PSK/WPA2-PSK/ WPA3-SAE	WPA-PSK/WPA2-PSK/ WPA3-SAE	WPA-PSK/WPA2-PSK/ WPA3-SAE	WPA-PSK/WPA2-PSK/ WPA3-SAE	WPA-PSK/WPA2-PSK/ WPA3-SAE	WPA-PSK/WPA2-PSK/ WPA3-SAE
Working mode	STA/AP	STA/AP	STA/AP	STA/AP	STA/AP	STA/AP	STA/AP
Protocols	TCP/UDP/MQTT/HTTP/HTTPS/ MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/ MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/ MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/ MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/ MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/ MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/ MQTTS
I/O interfaces							
GPIO	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support
UART	× 2	× 2	× 2	/	× 1	/	/
SDIO	/	/	/	/	/	/	/
SPI	QuecOpen® support	/	QuecOpen® support	/	/	/	/
USB	/	/	/	/	/	/	/
I2C	QuecOpen® support	QuecOpen® support	QuecOpen® support	/	/	/	/
I2S	/	/	/	/	/	/	/
ADC	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support
PWM	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support
DAC	/	/	/	/	/	/	/
PCM	/	/	/	/	/	/	/
Audio in	/	/	/	/	/	/	/
Audio out	/	/	/	/	/	/	/
LCD	/	/	/	/	/	/	/
EMAC	/	/	/	/	/	/	/
JTAG	/	/	/	/	/	/	/
SWD	/	/	/	/	/	/	/
Antenna	× 1 (RF coaxial connector, external antenna pin, PCB antenna) (optional)	× 1 (RF coaxial connector, external antenna pin, PCB antenna) (optional)	× 1 (RF coaxial connector, PCB antenna) (optional)	× 1 (Ceramic antenna)	× 1 (PCB antenna)	× 1 (RF coaxial connector, PCB antenna) (optional)	× 1 (external antenna pin)
Electrical characteristics							
Supply voltage range	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V
Power consumption	IDLE: 23.27 mA	IDLE: 23.27 mA	IDLE: 24.94 mA	IDLE: 24.21 mA	IDLE: 24.14 mA	IDLE: 24.14 mA	IDLE: 23.27 mA
Certification	SRRC/CE/FCC/IC/Anatel/ RCM/KC/TELEC/Bluetooth BQB	SRRC/CE/FCC/IC/Anatel/ RCM/TELEC	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM/UKCA	SRRC/CE/FCC/IC/RCM/UKCA	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM
Recommended applications	Smart homes, industrial controls	Smart homes, industrial controls	Smart homes, industrial controls	Smart homes, industrial controls	Smart homes, industrial controls	Smart homes, industrial controls	Smart homes, industrial controls

* Planning/ Under development/ In progress

MCU Wi-Fi & Bluetooth modules

	Wi-Fi 4				Wi-Fi 6			
Product	**FGM842D**	**FGM842D-P**	**FGM840R**	**FLM142D**	**FCM360W**	**FLM263D**	**FCM665D**	**FCMA62N**
								
Microcontroller (MCU)	ARM968 (160MHz)	ARM968 (160MHz)	ARM Cortex-M33&M23	ARM968 (up to 160 MHz)	RISC processor (240 MHz)	RISC-V (320 MHz)	ARMv8-M Star Triple-Core (Up to 480 MHz)	ARM Cortex-M33 processor (260 MHz)
ChipSet	BK7238	BK7238	RTL8720DF	BK7238	ECR6600-A40D	BK7235	BK7258	RW610
Frequency bands	2.4 GHz	2.4 GHz	2.4 GHz/5 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4GHz & 5GHz
WLAN standard	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n	IEEE 802.11 a/b/g/n	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n/ax	IEEE 802.11 b/g/n/ax	IEEE 802.11 b/g/n/ax	IEEE 802.11a/b/g/n/ac/ax
BT standard	BLE 5.2	BLE 5.2	BLE 5.0	BLE 5.2	BLE 5.1	BLE 5.2	BLE 5.4 & BT 2.1	BLE 5.3
Form factor	LGA	LGA	LGA	DIP	LCC	DIP	LCC	LCC
Dimensions (mm)	12.5 × 13.2 × 1.8	16.6 × 13.2 × 1.8	12.5 × 13.2 × 2.05	17.9 × 15.0 × 2.8	25.5 × 18.0 × 3.2	17.3 × 15 × 2.8	31.4 × 18.0 × 2.15	38.3 × 21.6 × 4.8 (4pin header) 37.8 x 21.6 x 3.65 (no 4pin header)
Operating temperature	-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C/ -40°C ~ +105°C (optional)	-40°C ~ +105°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) (g)	1.05	1.14	0.72	TBD	1.65	0.85	1.96	3.6
General features								
RAM	288 KB	288 KB	/	288 KB	512 KB	512 KB	/	1.2 MB
PSRAM	/	/	512 KB	/	/	/	8 MB/16 MB	/
Flash	2 MB	2 MB	4 MB	2 MB	4 MB/8 MB	4 MB	8 MB/16 MB	8 MB
Codec	/	/	/	/	/	/	/	/
Modulation mode	DSSS/CCK/BPSK/QPSK/16QAM/64QAM	DSSS/CCK/BPSK/QPSK/16QAM/64QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM	DSSS/CCK/BPSK/QPSK/16QAM/64QAM	PSK/QPSK/CCK/16QAM/64QAM	DSSS/CCK/BPSK/QPSK/16QAM/64QAM	BPSK/QPSK/CCK/16QAM/64QAM	DSSS/OFDM/DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM
Encryption mode	WPA-PSK/WPA2-PSK/WPA3-SAE	WPA-PSK/WPA2-PSK/WPA3-SAE	WPA-PSK/WPA2-PSK/WPA3-SAE/AES-128/DES/SHA/TrustZone/Secure Boot	WPA-PSK/WPA2-PSK/WPA3-SAE/AES-128/TRNG	WPA-PSK/WPA2-PSK/WPA3-SAE	WPA-PSK/WPA2-PSK/WPA3-SAE	WPA/WPA2/WPA3 (Personal); AES/RSA/ECC	WPA-PSK/WPA2-PSK/WPA3-SAE/AES-128
Working mode	STA/AP	STA/AP	STA/AP	STA/AP	STA/AP	STA/AP	STA/AP	AP/ STA
Protocols	Wi-Fi: TCP/UDP/MQQT BLE: ATT/GATT/HID/HCI/SPP	Wi-Fi: TCP/UDP/MQQT BLE: ATT/GATT/HID/HCI/SPP	WI-FI: TCP 、UDP、TLS、SSL、HTTP/HTTPS、MQTT/MQTTS、webSocket、CoAP 、FTP BLE: ATT/GATT	Wi-Fi: TCP/UDP/MQTT/HTTP BLE: ATT/GATT/HID	TCP/UDP/MQTT/HTTP/HTTPS/MQTTS	Wi-Fi: TCP/UDP/MQQT BLE: ATT/GATT/HID/HCI/SPP	TCP/UDP/MQTT/HTTP/HTTPS/MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/MQTTS
I/O interfaces								
GPIO	QuecOpen® support	QuecOpen®support	QuecOpen® support	QuecOpen®support	QuecOpen® support	QuecOpen®support	QuecOpen®support	QuecOpen® support
UART	× 2	× 2	× 2	× 1	× 3	× 2	× 2	× 2
SDIO	/	/	QuecOpen®support	/	/	/	QuecOpen®support	/
SPI	QuecOpen® support	QuecOpen®support	QuecOpen®support	/	QuecOpen® support	QuecOpen®support	QuecOpen®support	QuecOpen® support
USB	/	/	QuecOpen®support	/	/	/	× 1	/
I2C	QuecOpen® support	QuecOpen®support	QuecOpen®support	/	QuecOpen® support	QuecOpen®support	QuecOpen®support	QuecOpen® support
I2S	/	/	/	/	QuecOpen® support	QuecOpen®support	QuecOpen®support	QuecOpen® support
ADC	QuecOpen® support	QuecOpen®support	QuecOpen®support	QuecOpen®support	QuecOpen® support	QuecOpen®support	QuecOpen®support	/
PWM	QuecOpen® support	QuecOpen®support	QuecOpen®support	QuecOpen®support	QuecOpen® support	QuecOpen®support	QuecOpen®support	QuecOpen® support
DAC	/	/	/	/	/	/	QuecOpen®support	/
Audio in	/	/	/	/	/	/	QuecOpen®support	/
Audio out	/	/	/	/	/	/	QuecOpen®support	/
LCD	/	/	/	/	/	/	QuecOpen®support	/
EMAC	/	/	/	/	/	/	QuecOpen®support	/
SWD	/	/	QuecOpen® support	/	/	/	/	× 1
Antenna	× 1 (3th RF coaxial connector, external antenna pin) (optional)	× 1 (PCB antenna)	× 1 (RF coaxial connector, external antenna pin) (optional)	× 1 (PCB antenna)	× 1 (RF coaxial connector, external antenna pin, PCB antenna) (optional)	× 1 (RF coaxial connector, PCB antenna) (optional)	× 1 (RF coaxial connector, PCB antenna) (optional)	× 1 (RF coaxial connector, PCB antenna) (optional)
Electrical characteristics								
Supply voltage range	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V	VBAT: 4.5 V ~ 5.5 V, typ. 5.0V
Power consumption	IDLE: 6.147 mA	IDLE: 6.147 mA	IDLE: 9.80 mA; DTIM3: 18.33 mA (Wi-Fi low power consumption), 484.82 µA (Wi-Fi low power consumption sleep) DTIM10: 18.15 mA (Wi-Fi low power consumption), 182.24 µA (Wi-Fi low power consumption sleep)	IDLE: 6.10 mA	IDLE: 34.24 mA	IDLE: 23.02 mA	IDLE: 6.72mA	IDLE: 37.06mA
Certification	SRRC/CE/RCM/FCC/IC/KC/TELEC/JATE/NCC	SRRC/CE/RCM/FCC/IC/KC/TELEC/JATE/NCC	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM/UKCA/Anatel	SRRC/CE/FCC/IC/RCM/UKCA	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM/Bluetooth BQB
Recommended applications	Smart homes, industrial IoT	Smart homes, industrial IoT	smart homes and industrial IoT scenarios	Smart homes and industrial IoT scenarios	Smart homes, industrial controls	Smart homes, industrial IoT	AI-enabled toys/ home appliances/ massagers/ learning cameras/ speakers/ smart glasses/ aroma diffusers/ lighting, PV inverters, energy storage batteries, smart central control Hubs, doorbells & smart locks, two-wheeler dashboards, etc.	Smart homes, industrial IoT

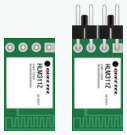
* Planning/ Under development/ In progress

MCU Wi-Fi & Bluetooth modules

	Wi-Fi 6				
Product	**FCM363X**	**FCM266D**	**FCMF66D**	**FCM361R**	**FLM163D**
					
Microcontroller (MCU)	ARM Cortex-M33 processor (260 MHz)	ARMv8-M Star MCU processor (up to 240 MHz)	ARMv8-M Star MCU processor (up to 240 MHz)	KM4 & KR4 dual-core	RISC-V (up to 320 MHz)
ChipSet	RW610	BK7236	BK7236	RTL8710ECF	BK7235
Frequency bands	2.4 GHz/5 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
WLAN standard	IEEE 802.11 a/b/g/n/ac/ax	IEEE 802.11 b/g/n/ax	IEEE 802.11 b/g/n/ax	IEEE 802.11 b/g/n/ax	IEEE 802.11 b/g/n/ax
BT standard	BLE 5.4	BLE 5.4	BLE 5.4	BLE 5.2	BLE 5.2
Form factor	LCC+LGA	LCC	LCC	LCC	DIP
Dimensions (mm)	25.5 × 18.0 × 3.16 mm	20.0 × 18.0 × 2.4	22.5 × 13.5 × 2.4	19.2 × 18.0 × 2.4	17.3 × 15.0 × 2.8
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +105°C	-40 °C to +85 °C/ -40 °C to +105 °C (Optional)	-40°C ~ +85°C
Weight (approx.) (g)	1.51	1.23	1.12	1.34	0.83
General features					
RAM	1.2 MB	640 KB	640 KB	768 KB	/
PSRAM	up to 8 MB (optional)	/	/	/	512 KB
Flash	8 MB	4 MB	4 MB/8 MB	8 MB	4 MB
Codec	/	/	/	/	/
Modulation mode	DSSS/CCK/BPSK/QPSK/DBPSK/DQPSK/ 16QAM/64QAM/256QAM	BPSK/QPSK/CCK/16QAM/64QAM	BPSK/QPSK/CCK/16QAM/64QAM	DBPSK/DQPSK/CCK/BPSK/QPSK/ 16QAM/64QAM/256QAM	CCK/BPSK/QPSK/16QAM/64QAM
Encryption mode	WPA-PSK/WPA2-PSK/WPA3-SAE/ AES-128	WPA-PSK/WPA2-PSK/WPA3-SAE/TRNG/ AES/RSA/SHA/ECC	WPA-PSK/WPA2-PSK/WPA3-SAE/TRNG/ AES/RSA/SHA/ECC	WPA-PSK/WPA2-PSK/WPA3-SAE	WPA-PSK/WPA2-PSK/WPA3-SAE
Working mode	AP/ STA	AP/ STA	AP/ STA	AP/ STA	AP/ STA
Protocols	TCP/UDP/MQTT/HTTP/HTTPS/MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/MQTTS	TCP/UDP/MQTT/HTTP/HTTPS/MQTTS	Wi-Fi: TCP 、 UDP 、 TLS、 SSL、 HTTP/ HTTPS、 MQTT/MQTTS、 webSocket、 CoAP BLE: ATT/GATT/HID	Wi-Fi: TCP/UDP/MQQT BLE: ATT/GATT/HID/HCI/SPP
I/O interfaces					
GPIO	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support
UART	× 4	× 2	× 2	× 2	× 1
SDIO	QuecOpen® support	QuecOpen® support	× 1	/	/
SPI	QuecOpen® support	× 1	× 1	QuecOpen® support	/
USB	× 1	/	/	/	/
I2C	QuecOpen® support	× 1	× 1	QuecOpen® support	/
I2S	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	/
ADC	QuecOpen® support	× 1	× 7	QuecOpen® support	QuecOpen® support
PWM	QuecOpen® support	× 1	× 2	QuecOpen® support	QuecOpen® support
DAC	QuecOpen® support	/	/	/	/
PCM	QuecOpen® support	/	/	/	/
Audio in	/	/	/	/	/
Audio out	/	/	/	/	/
LCD	QuecOpen® support	/	/	/	/
EMAC	/	/	/	/	/
JTAG	× 1	/	/	/	/
SWD	× 1	/	/	QuecOpen® support	/
Antenna	×1 (RF coaxial connector, PCB antenna) (Optional)	× 1 (RF coaxial connector, external antenna pin, PCB antenna) (optional)	× 1 (RF coaxial connector, external antenna pin, PCB antenna) (optional)	× 1 (RF coaxial connector)	× 1 (PCB antenna)
Electrical characteristics					
Supply voltage range	3.14 V ~ 3.46 V, typ. 3.3 V	2.0 ~ 4.35V, typ.3.3V	2.0 V ~ 4.35 V, typ.3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V
Power consumption	IDEL: 51.57 mA	Idle 5.3 mA	Idle 6.5 mA	IDLE: 13.77 mA; DTIM3: 25.6 mA; DTIM10: 24.13 mA	IDLE: 24.36 mA
Certification	CE/FCC/IC/RCM/SRRC/JATE/TELEC/ Bluetooth BQB	SRRC/CE/FCC	SRRC/CE/FCC	SRRC/CE/FCC/IC/RCM	SRRC/CE/FCC/IC/RCM
Recommended applications	Smart homes and industrial IoT scenarios	Photovoltaic inverters, energy storage batteries, smart central control systems, doorbells and door locks, etc.	Photovoltaic inverters, energy storage batteries, smart central control systems, doorbells and door locks, etc.	home appliances, photovoltaic inverters, energy storage batteries	for smart devices such as sockets and converters

* Planning/ Under development/ In progress

MCU Bluetooth modules

Product	HCM111Z	HLM311Z	HCM010S	HCM010S-E	HCM511S	HCM511S-E	HCM512S	HCM320Z	HGMB11S
									
Microcontroller (MCU)	ARM Cortex-M3 (48 MHz)	ARM Cortex-M3 (up to 48 MHz)	ARM Cortex-M33 (80 MHz)	ARM Cortex-M33 (80 MHz)	ARM Cortex-M33 (76.8 MHz)	ARM Cortex-M33 (76.8 MHz)	ARM Cortex-M33 (76.8 MHz)	ARM Cortex-M3 (48 MHz)	ARM Cortex-M33 (76.8 MHz)
ChipSet	FR8016HA	FR8012HAQ-J	EFR32BG21	EFR32BG21	EFR32BG22	EFR32BG22	EFR32BG27	FR3036D-C	EFR32BG22
Frequency bands	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
WLAN standard	/	/	/	/	/	/	/	/	/
BT standard	BLE 5.3	BLE 5.0	BLE 5.4	BLE 5.4	BLE 5.4	BLE 5.4	BLE 5.4	BLE 5.3	BLE 5.4
Form factor	LCC	DIP	LCC	LCC	LCC	LCC	LCC	LCC	LGA
Dimensions (mm)	15.0 × 12.0 × 2.25	18.0 × 10.16 × 8.5 (L-type); 24.78 × 10.0 × 5.0 (I-type)	20.0 × 15.6 × 2.35	20.0 × 15.6 × 2.4	16.6 × 11.2 × 2.1	16.6 × 11.2 × 2.1	16.6 × 11.2 × 2.1	16.5 × 13.3 × 2.5	11.0 × 7.4 × 2.0
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) (g)	0.62	0.82 (L-type); 0.94 (I-type)	1.14	0.98	0.57	0.62	0.57	0.75	0.27
General features									
RAM	48 KB	48 KB	64 KB	64 KB	32 KB	32 KB	64 KB	128 KB	32KB
PSRAM	/	/	/	/	/	/	/	/	/
Flash	512 KB	512 KB	768 KB	768 KB	352 KB/512 KB	352 KB/512 KB	768 KB	1 MB	512KB
Codec	/	/	/	/	/	/	/	/	/
Modulation mode	GFSK	GFSK	GFSK	GFSK	GFSK	GFSK	GFSK	/	GFSK
Encryption mode	TRNG/AES128 ECB	TRNG/AES128 ECB	AES128/256, SHA-1, SHA-2 (up to 256 bits), ECC (up to 256 bits), ECDSA (up to 256 bits), ECDH, J-Pak, TRNG, secure boot	AES128/256, SHA-1, SHA-2 (up to 256 bits), ECC (up to 256 bits), ECDSA (up to 256 bits), ECDH, J-Pak, TRNG, secure boot	AES128/192/256, SHA-1, SHA-2, ECC, ECDSA, ECDH, TRNG, secure boot	AES128/192/256, SHA-1, SHA-2, ECC, ECDSA, ECDH, TRNG, secure boot	AES128/256, SHA-1, SHA-2, ECC, ECDSA, ECDH, TRNG, secure boot	/	AES128/256, SHA-1, SHA-2, ECC, ECDSA, ECDH, TRNG, secure boot
Working mode	Server/Client/ Server + Client	Server	Server/Client/ Server + Client	Server/Client/ Server + Client	Server/Client/ Server + Client	Server/Client/ Server + Client	Server/ Client/ Server + Client	/	Server/Client/ Server+Client
Protocols	ATT/GATT/HCI/HID	BLE: ATT/GATT/HCI	ATT/GATT/HID/HCI	ATT/GATT/HID/HCI	ATT/GATT/HID/HCI	ATT/GATT/HID/HCI	ATT/GATT/HID/HCI	/	ATT/GATT/HID/HCI
I/O interfaces									
GPIO	QuecOpen® support	/	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	/
UART	× 1	× 1	× 3	× 3	QuecOpen® support	QuecOpen® support	QuecOpen® support	× 1	/
SDIO	/	/	/	/	/	/	/	/	/
SPI	QuecOpen® support	/	QuecOpen® support	QuecOpen® support	/	/	/	QuecOpen® support	/
USB	/	/	/	/	/	/	/	/	/
I2C	QuecOpen® support	/	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	/
I2S	/	/	QuecOpen® support	QuecOpen® support	/	/	/	/	/
ADC	QuecOpen® support	/	QuecOpen® support	QuecOpen® support	/	/	/	QuecOpen® support	/
PWM	QuecOpen® support	/	QuecOpen® support	QuecOpen® support	/	/	/	QuecOpen® support	/
DAC	/	/	/	/	/	/	/	/	/
PCM	/	/	/	/	/	/	/	/	/
Audio in	/	/	/	/	/	/	/	/	/
Audio out	/	/	/	/	/	/	/	/	/
LCD	/	/	/	/	/	/	/	/	/
EMAC	/	/	/	/	/	/	/	/	/
JTAG	/	/	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	/	/
SWD	/	/	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support	/	/
Antenna	× 1 (RF coaxial connector, external antenna pin, PCB antenna) (Optional)	× 1 (PCB antenna)	× 1 (PCB antenna)	× 1 (RF coaxial connector, PCB antenna, pin antenna interface) (Optional)	× 1 (PCB antenna)	× 1 (RF coaxial connector, pin antenna (optional))	× 1 (PCB antenna)	× 1 (RF coaxial connector, external antenna pin, PCB antenna) (optional)	SMD ceramic antenna
Electrical characteristics									
Supply voltage range	VBAT: 2.4 V ~ 4.3 V, typ. 3.3 V	VBAT: 2.4 V ~ 4.3 V, typ. 3.3 V	VBAT: 1.71 V ~ 3.8 V, typ. 3.3 V	VBAT: 1.71 V ~ 3.8 V, typ. 3.3 V	VBAT: 1.71 V ~ 3.8 V, typ. 3.3 V	VBAT: 1.71 V ~ 3.8 V, typ. 3.3 V	VBAT: 1.71 V ~ 3.8 V, typ. 3.3 V	VBAT: 2.1 V ~ 3.6 V, typ. 3.3 V	1.71 V ~ 3.8 V, typ. 3.3 V
Power consumption	IDLE: 5.487 mA	IDLE: 5.53 mA	IDLE: 6.443 mA	IDLE: 6.402 mA	IDLE: 1.918mA	IDLE: 1.871 mA	IDLE: 2.1mA Sleep: 2.97μA	IDLE: 3.9 mA Sleep: 8.79 μA	IDLE: 1.8 mA
Certification	SRRC/CE/FCC/IC/ RCM/KC/Bluetooth BQB/TELEC	SRRC/CE/FCC/IC/ RCM/Bluetooth BQB	SRRC/CE/FCC/IC/ RCM/Bluetooth BQB	SRRC/CE/RCM/FCC*/ IC*/Bluetooth BQB	SRRC/CE/RCM/FCC/ IC/Bluetooth BQB/ TELEC/Anatel*/KC*/ NCC*/TDRA/URSEC/ ICASA*/ENACOM*	SRRC/CE/FCC/IC/ RCM/Bluetooth BQB/ Anatel*/TELEC	SRRC/CE/RCM/FCC/ IC/Bluetooth BQB*	SRRC/CE/RCM/ FCC/IC/Bluetooth BQB	CE/FCC/IC/RCM/SRRC/ Bluetooth BQB
Recommended applications	Smart homes, industrial controls	Smart homes, Industrial controls	Smart homes, industrial controls	Smart homes, industrial controls	Suitable for asset tags and beacons, portable medical devices, Bluetooth mesh network low-power nodes, battery powered sensing products, etc.		Suitable for asset tags and beacons, portable medical devices, Bluetooth mesh network low-power nodes, battery powered sensing products, etc.	Smart home, industrial control	E-cigarettes, smart home

* Planning/ Under development/ In progress

Sub-GHz modules

	Wi-Fi HaLow		
Product	**FGH100M***	**FGH100M-J***	**FGH100M-H***
			
Processor or microcontroller	/	/	/
ChipSet	/	/	/
Frequency bands	850 ~ 950 MHz	920.5 ~ 928.1 MHz	902 ~ 928 MHz
Form factor	LGA	LGA	LGA
Dimensions (mm)	13.0 × 13.0 × 2.2	13.0 × 13.0 × 2.2	13.0 × 13.0 × 2.2
Operating temperature	-30°C~+85°C	-30°C ~ +85°C	-30°C ~ +85°C
Weight (approx.) (g)	0.72	0.70	0.71
General features			
RAM	/	/	/
PSRAM	/	/	/
Flash	/	/	/
Modulation mode	OFDM/BPSK/QPSK/16QAM/64QAM	OFDM/BPSK/QPSK/16QAM/64QAM	OFDM/BPSK/QPSK/16QAM/64QAM
Encryption mode	AES/SHA-256/SHA-384/SHA-512/WPA3	AES/SHA-256/SHA-384/SHA-512/WPA3	AES/SHA-256/SHA-384/SHA-512/WPA3
I/O interfaces			
GPIO	/	/	/
PCIe	/	/	/
SDIO	× 1 (SDIO2.0)	× 1 (SDIO2.0)	× 1 (SDIO2.0)
SPI	× 1	× 1	× 1
UART	/	/	/
USART	/	/	/
USB	/	/	/
Jlink	/	/	/
I2C	/	/	/
PCM	/	/	/
SWD	/	/	/
JTAG	/	/	/
Antenna	× 1 (Wi-Fi antenna)	× 1 (Wi-Fi antenna)	× 1 (Wi-Fi antenna)
Electrical characteristics			
Supply voltage range	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V; VDDIO: 1.8 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V; VDDIO: 1.8 V ~ 3.6 V, typ. 3.3 V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3 V; VDDIO: 1.62 V ~ 3.6 V, typ. 3.3 V; VDD_FEM: 4.85 V ~ 5.25 V, typ. 5.0 V
Transmit power (Max.)	11 dBm, 21 dBm (Optional)	11 dBm	27 dBm
Power consumption	TBD	TBD	TBD
Certification	CE/FCC/IC/RCM	TELEC	FCC/RCM/Anatel
Recommended applications	IPC, industrial automation, mobile devices, POS, smart building, home automation	IPC, industrial automation, mobile devices, POS, smart building, home automation	IPC, industrial automation, mobile devices, POS, smart building, home automation

* Planning/ Under development/ In progress

Sub-GHz modules

	Sub-1 GHz				
Product	**KG100S**	**KG200Z**	**KCMA32S**	**KGM133S**	**KGM133S-P**
					
Processor or microcontroller	ARM Cortex®-M33 (up to 80 MHz)	ARM Cortex-M4	ARM Cortex-M33 (up to 80MHz)	ARM Cortex-M33 (78 MHz)	ARM Cortex-M33 (78 MHz)
ChipSet	EFR32BG21*	STM32WLE5JCI6	EFR32MG21	EFR32MG24	EFR32MG24
Frequency bands	863M ~ 928M & 2.4G	470~510 MHz, 862~928 MHz LoRa	2.4 GHz	2.4 GHz	2.4 GHz
Form factor	LGA	LGA	LCC+LGA	LGA	LGA
Dimensions (mm)	15.0 × 15.0 × 2.25	12.0 × 12.0 × 1.8	20.0 × 12.0 × 2.2	12.5× 13.2 × 2.2	16.6× 13.2 × 2.2
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +105°C	-40°C ~ +105°C
Weight (approx.) (g)	0.94	0.56	0.72	0.69	0.75
General features					
RAM	96KB	64 KB	64 KB/96 KB	256KB	256KB
PSRAM	/	/	/	/	/
Flash	1 MB	256 KB	768 KB/1024 KB	1536 KB/2.5 MB/3.5 MB (optional)	1536 KB/2.5 MB/3.5 MB (optional)
Modulation mode	FSK, GFSK, Sub-1 GHz CSS	LoRa/(G)FSK/(G)MSK/BPSK	DSSS/GFSK/OQPSK	(G)FSK/OQPSK/(G)MSK	(G)FSK/OQPSK/(G)MSK
Encryption mode	/	AES Hardware Encryption	AES128/256, SHA-1, SHA-2 (up to 256 bits), ECC (up to 256 bits), ECDSA (up to 256 bits), ECDH, J-Pake, TRNG, secure boot	AES128/256, SHA-1, SHA-2 (up to 256 bits), ECC (up to 256 bits), ECDSA (up to 256 bits), ECDH, J-Pake, TRNG, secure boot	AES128/256, SHA-1, SHA-2 (up to 256 bits), ECC (up to 256 bits), ECDSA (up to 256 bits), ECDH, J-Pake, TRNG, secure boot
I/O interfaces					
GPIO	Amazon Sidewalk SDK	QuecOpen® support	QuecOpen® support	QuecOpen® support	QuecOpen® support
PCIe	/	/	/	/	/
SDIO	/	/	/	/	/
SPI	Amazon Sidewalk SDK	QuecOpen® support	QuecOpen® support	/	/
UART	× 1	QuecOpen® support	/	QuecOpen® support	QuecOpen® support
USART	/	QuecOpen® support	QuecOpen® support	/	/
USB	/	/	/	/	/
Jlink	× 1	× 1	/	/	/
I2C	Amazon Sidewalk SDK	QuecOpen® support	QuecOpen® support	/	/
PCM	/	/	/	/	/
SWD	/	QuecOpen® support	/	/	/
JTAG	/	/	/	/	/
Antenna	× 2 (Sub-1 GHz CSS x 1 , BLE x 1)	× 1 (Sub-1 GHz CSS x 1)	× 1 (PCB antenna/ 1st generation RF coaxial connector/ pin antenna interface*)	× 1 (4th generation RF coaxial connector, pin antenna interface) (optional)	× 1 (PCB antenna)
Electrical characteristics					
Supply voltage range	VBAT: 3.0 V ~ 3.6 V, typ. 3.3V	VBAT: 3.0 V ~ 3.6 V, typ. 3.3V	1.71 V ~ 3.8 V, typ. 3.3 V	1.71 V ~ 3.8 V, typ. 3.3 V	1.71 V ~ 3.8 V, typ. 3.3 V
Transmit power (Max.)	22 dBm	20 dBm	20 dBm	19.5 dBm	19.5 dBm
Power consumption	IDLE: 0.6mA	IDLE: 4.7μA	/	IDLE: 269 μA Deep sleep:4.42 μA	IDLE: 269 μA Deep sleep:4.42 μA
Certification	CE/FCC/IC/BQB	CE/FCC/IC/Anatel/RCM	SRRC/CE/RCM/FCC*/IC	CE/FCC/IC/RCM/SRRC/Thread/Matter	CE*/FCC*/IC*/RCM*/SRRC*/Matter*/ Thread
Recommended applications	Smart homes, industrial controls	Smart homes, industrial controls	Smart lighting, smart buildings and smart home	Electricians, lighting, home appliances, kitchen appliances, sensors	

* Planning/ Under development/ In progress

Sub-GHz modules

	Sub-1 GHz		
Product	**KCMCA6S**	**KCMCA6S-N**	**KCM0A5S**
			
Processor or microcontroller	ARM Cortex-M33 (up to 78MHz)	ARM Cortex-M33 (up to 78MHz)	ARM Cortex-M33 (up to 97.5 MHz)
ChipSet	EFR32FG23	EFR32FG23	EFR32FG25
Frequency bands	868 MHz, 433 MHz*, 915/920MHz*, 315 MHz*	868 MHz, 433 MHz*, 915/920MHz*, 315 MHz*	470~928 MHz(optional)
Form factor	LCC	LCC	LCC
Dimensions (mm)	14.0× 25.4 × 2.9	14.0× 25.4 × 2.9	28.0 × 22.0 × 3.15
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) (g)	1.57	1.57	2.765
General features			
RAM	32 KB	32 KB	256 KB
PSRAM	/	/	/
Flash	256 KB	256 KB	Max. 2MB
Modulation mode	2/4 FSK, OQPSK, DSSS, (G)MSK, OOK	2/4 FSK, OQPSK, DSSS, (G)MSK, OOK	Wi-SUN FSK、Wi-SUN MR OFDM MCS 0-6 (Option1/2/3/4)、802.15.4 SUN MR O-QPSK*
Encryption mode	AES-128/AES-256*/ECC*/SHA-1*/SHA-2*	AES-128/ AES-256*/ ECC*/ SHA-1*/ SHA-2*	AES-128、AES-192、AES-256、ECC、SHA-1、SHA-2/256
I/O interfaces			
GPIO	QuecOpen® support	QuecOpen® support	Open support
PCIe	/	/	/
SDIO	/	/	/
SPI	/	/	Open support
UART	/	/	/
USART	QuecOpen® support	QuecOpen® support	Open support
USB	/	/	/
Jlink	/	/	Open support
I2C	QuecOpen® support	QuecOpen® support	Open support
ADC	QuecOpen® support	QuecOpen® support	Open support
PCM	/	/	/
SWD	/	/	Open support
JTAG	/	/	/
Antenna	LCC pin Antenna	LCC pin Antenna	× 1 (1st generation RF coaxial connector, pin antenna interface) (Optional)
Electrical characteristics			
Supply voltage range	VBAT: 1.71 V ~ 3.8 V, typ. 3.3 V	VBAT: 1.71 V ~ 3.8 V, typ. 3.3 V	VBAT: 3.45 V ~ 5.5 V, typ. 5.0 V
Max. output power	14 dBm	14 dBm	/
Power consumption	Idle: 6.72 mA	Idle : 6.72 mA	/
SAW filter	•	/	/
Certification	CE	CE	FCC*/IC*/Anatel*/RCM*/Wi-SUN FAN 1.1*
Recommended applications	They are ideal for smart water/electricity/gas/heat meters and AMI (Advanced Metering Infrastructure) systems, while also demonstrating strong potential in IoT connectivity scenarios.		Smart metering (electricity/water/gas meters), smart street lighting, smart cities, precision agriculture, and industrial IoT solutions.

* Planning/ Under development/ In progress
• Supported

GNSS modules

GNSS modules

	DR and high precision GNSS						
Product	**L26-ADR**	**L26-UDR**	**L26-DR (AA)**	**LC29H (BA)**	**LC29H (CA)**	**LC29H (DA)**	**LC29H (EA)**
							
GNSS	GPS: L1 C/A GLONASS: L1 Galileo: E1 BDS: B1I QZSS: L1 C/A	GPS: L1 C/A GLONASS: L1 Galileo: E1 BDS: B1I QZSS: L1 C/A	GPS: L1 C/A; GLONASS: L1; Galileo: E1; BDS: B1I; QZSS: L1 C/A	GPS/QZSS: L1 C/A, L5; GLONASS: L1; Galileo: E1, E5a; BDS: B1I, B2a NavIC: L5*	GPS/QZSS: L1 C/A, L5; GLONASS: L1; Galileo: E1, E5a; BDS: B1I, B2a NavIC: L5*	GPS/QZSS: L1 C/A, L5; GLONASS: L1; Galileo: E1, E5a; BDS: B1I, B2a NavIC: L5*	GPS/QZSS: L1 C/A, L5; GLONASS: L1; Galileo: E1, E5a; BDS: B1I, B2a NavIC: L5*
Form factor	LCC	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	12.2 × 16.0 × 2.3	12.2 × 16.0 × 2.3	12.2 × 16.0 ×2.3	12.2 × 16.0 × 2.5	12.2 × 16.0 × 2.5	12.2 × 16.0 × 2.5	12.2 × 16.0 × 2.5
Weight (approx.) (g)	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Storage temperature	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C
General features							
Working mode	4wheels-ADR	4wheels-UDR	PVT	DR+RTK	DR	1Hz RTK	10Hz RTK+Heading[1]
Chip solution	Teseo III	Teseo III	Teseo III	AG3335A/T	AG3335A/T	AG3335A/T	AG3335AA/B
L1 band receiver (C/A code) channel number	48 Track/2 Fast Acq	48 Track/2 Fast Acq	48 Track/2 Fast Acq	Tracking and acquisition total: 135	Tracking and acquisition total: 135	Tracking and acquisition total: 135	Tracking and acquisition total: 135
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	WAAS/EGNOS/MSAS/GAGAN	Developing
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Sensitivity: Autonomous acquisition	-145 dBm	-145 dBm	-145 dBm	-147 dBm	-147 dBm	-147 dBm	-147 dBm
Sensitivity: Reacquisition	-152 dBm	-152 dBm	-152 dBm	-157 dBm	-157 dBm	-157 dBm	-157 dBm
Sensitivity: tracking	-162 dBm	-162 dBm	-162 dBm	-165 dBm	-165 dBm	-165 dBm	-165 dBm
TTFF (time to first fix): Cold start	32 s, Autonomous	32 s, Autonomous	32 s, Autonomous	26 s	26 s	26 s	26 s
TTFF (time to first fix): Warm start	25 s, Autonomous	25 s, Autonomous	27 s, Autonomous	16 s	16 s	16 s	16 s
TTFF (time to first fix): Hot start	2 s	2 s	2 s	1 s	1 s	1 s	1 s
Position accuracy (autonomous)	1.5 m CEP	1.5 m CEP	1.5 m CEP	Autonomous: 1 m	Autonomous: 1 m	Autonomous: 1 m	Autonomous: 1 m
Position accuracy (RTK)	/	/	/	RTK: < 0.1 m + 1 ppm	/	RTK: 1 cm + 1 ppm	RTK: 1 cm + 1 ppm
Velocity accuracy (without aid)	0.1m/s	0.1m/s	0.1m/s	0.03 m/s	0.03 m/s	0.03 m/s	0.03 m/s
Convergence time (RTK)	/	/	/	RTK: < 10 s	/	RTK: < 10 s	RTK: < 10 s
Maximum acceleration accuracy (without aid)	0.1 m/s²	0.1 m/s²	0.1 m/s²	/	/	/	/
Accuracy of 1PPS signal (RMS)	50 ns	50 ns	50 ns	20 ns	20 ns	20 ns	20 ns
Max update rate	10 Hz	10 Hz	10 Hz	GNSS : 1 Hz IMU : 100 Hz (MAX)	GNSS : 1 Hz IMU : 100 Hz (MAX)	GNSS: 1 Hz RTK: 1 Hz	GNSS: 1Hz RTK: 1~10Hz
Baud rate (default)	115200 bps	115200 bps	115200 bps	115200 bps	115200 bps	115200 bps	460800 bps
Geo-fence	/	/	/	•	•	•	•
Jamming detection	/	•	/	•	•	•	•
Anti-jamming	/	/	/	/	/	/	/
Built-in LNA	•	•	•	•	•	•	•
Electrical data							
Power supply (VCC)	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V, typ. 3.3 V	3.1 V ~ 3.6 V	3.1 V ~ 3.6 V	3.1 V ~ 3.6 V	3.1 V ~ 3.6 V
I/O voltage	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	Same as VCC	2.8 V	2.8 V	2.8 V	2.8 V
Power consumption (acquisition)	81 mA	84 mA	81 mA	32 mA	30 mA	30 mA	30 mA
Power consumption (tracking)	80 mA	81 mA	80 mA	32 mA	30 mA	30 mA	30 mA
Power consumption (backup)	8 µA	8 µA	8 µA	25 µA	25 µA	25 µA	25 µA
Interfaces							
UART	•	•	•	Adjustable: 9600–3000000 bps Default: 115200 bps	Adjustable: 9600–3000000 bps Default: 115200 bps	Adjustable: 9600–3000000 bps Default: 115200 bps	Adjustable: 9600–3000000 bps Default: 460800 bps
I2C (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	Active or passive	Active or passive
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	Automotive tracking, OBD	Automotive tracking, OBD	Automotive tracking, OBD	Trackers, high-precision navigation, delivery robots	Trackers, high-precision navigation, delivery robots	Trackers, high-precision navigation, delivery robots	Trackers, high-precision navigation, delivery robots

Note 1: Heading function need 2pcs LC29H (EA) work together.

* Planning/ Under development/ In progress
• Supported

		DR and high precision GNSS		
Product		**LG290P (03)**	**LG580P (03)**	**LG680P (03)**
				
GNSS		GPS: L1 C/A, L1C*, L5, L2C; GLONASS: L1, L2; Galileo: E1, E5a, E5b, E6; BDS: B1I, B1C, B2a, B2b, B2I, B3I; NavIC: L5; QZSS: L1 C/A, L1C*, L5, L2C; SBAS: L1	GPS: L1 C/A, L2C, L5 GLONASS: L1*, L2* Galileo: E1, E5a, E5b, E6* BDS: B1I, B1C, B2I, B2a, B2b, B3I* QZSS: L1 C/A, L2C, L5, L6* NavIC: L5 SBAS: L1	GPS: L1 C/A, L2C, L5 GLONASS: L1, L2 Galileo: E1, E5a, E5b, E6 BDS: B1I, B1C, B2I, B2a, B2b, B3I QZSS: L1 C/A, L2C, L5, L6 NavIC: L5 SBAS: L1
Form factor		LGA	LGA	LGA
Dimensions (mm)		12.2 × 16.0 × 2.6	21.0 × 16.0 × 2.7	22.0 × 17.0 × 2.7
Weight (approx.) (g)		0.9	1.4	1.7
Operating temperature		-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Storage temperature		-40°C ~ +95°C	-40°C ~ +95°C	-40°C ~ +95°C
General features				
Working mode		RTK	RTK+Heading	RTK
Chip solution		KT5030	KT5030	KT5030
L1 band receiver (C/A code) channel number		Tracking 1040	Tracking 1040	Tracking 1040
L1 band receiver (C/A code) SBAS		WASS/EGNOS/BDSBAS/MSAS/GAGAN/KASS/ASECNA/SouthPAN/SDCM	WASS/EGNOS/BDSBAS/MSAS/GAGAN/KASS/ASECNA/SouthPAN/SDCM	WASS/EGNOS/BDSBAS/MSAS/GAGAN/KASS/ASECNA/SouthPAN/SDCM
A-GNSS		*	*	*
Sensitivity	Autonomous acquisition	-145dBm	-145 dBm	-145 dBm
	Reacquisition	-155 dBm	-155 dBm	-155 dBm
	tracking	-160 dBm	-160 dBm	-160 dBm
TTFF (time to first fix)	Cold start	28 s	28 s	28 s
	Warm start	28 s	28 s	28 s
	Hot start	1.7 s	1.8 s	1.8s
Position accuracy		Autonomous: 0.7 m CEP RTK: 0.8 cm + 1 ppm	Autonomous: 1m CEP RTK: 0.8 cm + 1 ppm	Autonomous : 1 m CEP RTK: 0.8 cm + 1 ppm
Velocity accuracy (without aid)		0.03 m/s	0.03 m/s	0.03 m/s
Convergence time (RTK)		5 s	5 s	5s
Accuracy of 1PPS signal (1σ)		5 ns	5 ns	5 ns
Max update rate		20 Hz	20 Hz*	20 Hz
Baud rate (default)		460800 bps	460800 bps	460800 bps
Geo-fence		•	•	•
Jamming detection		*	*	*
Anti-jamming		*	*	*
Built-in LNA		/	/	/
Electrical data				
Power supply (VCC)		3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V
I/O voltage		3.3 V	3.3 V	3.3 V
Power consumption (acquisition)		99 mA	98 mA	88 mA
Power consumption (tracking)		99 mA	116 mA	96 mA
Power consumption (backup)		12 μA	18 μA	18 μA
Interfaces				
UART		•	•	•
I2C (NMEA)		*	*	*
RESET		•	•	•
Time pulse		•	•	•
Antenna				
Short-circuit protection & open-circuit detection		•	/	•
Antenna type		Active	Active	Active
Antenna power		External	External	External or VDD_RF
Certifications		CE	CE*	CE*
Recommended applications		Intelligent robots, precision agriculture, surveying and mapping, automatic driving, etc.	Intelligent robots, precision agriculture, surveying and mapping, automatic driving, etc.	Intelligent robots, precision agriculture, surveying and mapping, automatic driving, etc.

* Planning/ Under development/ In progress
• Supported

GNSS modules

		DR and high precision GNSS		
Product		**LG695P (00)**	**LG695P(03)**	**LG690P (03)**
				
GNSS		GPS: L1 C/A, L2C, L5 GLONASS: L1, L2 Galileo: E1, E5a, E5b, E6 BDS: B1I, B1C, B2I, B2a, B2b, B3I QZSS: L1 C/A, L2C, L5, L6 NavIC: L5 L-band SBAS: L1	GPS: L1 C/A, L2C, L5 GLONASS: L1 Galileo: E1, E5a, E5b BDS: B1I, B1C, B2I, B2a, B2b QZSS: L1 C/A, L2C, L5 NavIC: L5 SBAS: L1	GPS: L1 C/A, L2C, L5 GLONASS: L1 Galileo: E1, E5a, E5b BDS: B1I, B1C, B2I, B2a, B2b QZSS: L1 C/A, L2C, L5 NavIC: L5 SBAS: L1
Form factor		LGA	LGA	LGA
Dimensions (mm)		22.0 × 17.0 × 3.3	22.0 × 17.0 × 2.7	22.0 × 17.0 × 2.7
Weight (approx.) (g)		2.3	2.0	1.8
Operating temperature		-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +105°C
Storage temperature		-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +105°C
General features				
Working mode		GNSS Raw Data	RTK + GNSS Raw Data	RTK + GNSS Raw Data
Chip solution		KT5030A	KT5030A	KT5030A
L1 band receiver (C/A code) channel number		Tracking 1040	Tracking 1040	Tracking 1040
L1 band receiver (C/A code) SBAS		WASS/EGNOS/BDSBAS/MSAS/GAGAN/KASS/ASECNA/SouthPAN/SDCM	WASS/EGNOS/BDSBAS/MSAS/GAGAN/KASS/ASECNA/SouthPAN/SDCM	WASS/EGNOS/BDSBAS/MSAS/GAGAN/KASS/ASECNA/SouthPAN/SDCM
A-GNSS		*	•	*
Sensitivity	Autonomous acquisition	-145 dBm	-145 dBm	-145 dBm
	Reacquisition	-155 dBm	-155 dBm	-155 dBm
	tracking	-160 dBm	-160 dBm	-160 dBm
TTFF (time to first fix)	Cold start	30 s	30 s	30 s
	Warm start	30 s	30 s	30 s
	Hot start	2 s	2 s	2 s
Position accuracy		Autonomous : 1 m CEP	Autonomous : 1 m CEP RTK: 0.8 cm + 1 ppm	Autonomous : 1 m CEP RTK: 0.8 cm + 1 ppm
Velocity accuracy (without aid)		0.03 m/s	0.03 m/s	0.03 m/s
Convergence time (RTK)		/	/	5 s
Maximum acceleration accuracy (without aid)		0.1 m/s²	0.1 m/s²	0.1 m/s²
Accuracy of 1PPS signal (1σ)		5 ns	5 ns	5 ns
Max update rate		20 Hz	20 Hz	20 Hz
Baud rate (default)		921600 bps	460800 bps	460800 bps
Geo-fence		•	•	•
Jamming detection		*	•	*
Anti-jamming		*	/	*
Built-in LNA		/	/	/
Electrical data				
Power supply (VCC)		3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V
I/O voltage		3.3 V	3.3 V	3.3 V
Power consumption (acquisition)		120 mA	95 mA	95 mA
Power consumption (tracking)		120 mA	100 mA	100 mA
Power consumption (backup)		50 μA	25 μA	25 μA
Interfaces				
UART		•	•	•
I2C (NMEA)		/	/	/
RESET		•	•	•
Time pulse		•	•	•
Antenna				
Short-circuit protection & open-circuit detection		/	/	/
Antenna type		Active	Active	Active
Antenna power		External or VDD_RF	External or VDD_RF	External or VDD_RF
Certifications		CE*	CE*	CE*
Recommended applications		Intelligent robots, precision agriculture, surveying and mapping, automatic driving, etc.	Intelligent robots, precision agriculture, surveying and mapping, automatic driving, etc.	Intelligent robots, precision agriculture, surveying and mapping, automatic driving, etc.

* Planning/ Under development/ In progress
• Supported

GNSS modules

	DR and high precision GNSS								
Product	**LG69T (AA)**	**LG69T (AD)**	**LG69T (AB)***	**LG69T (AM)**	**LG69T (AJ)**	**LG69T (AF)**	**LG69T (AI)**	**LG69T (AP)**	**LG69T (AR)**
	Compatible								
									
GNSS	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BDS: B1I; B2a	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BDS: B1I; B2a	GPS/QZSS: L1 C/A; L2C or L5 Galileo: E1; E5b or E5a BDS: B1I; B2I or B2a GLONASS: L1 or L2	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BDS: B1I; B2a	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BDS: B1I; B2a	GPS: L1 C/A; L5 Galileo: E1; E5a BDS: B1I; B2a QZSS: L1 C/A; L5	GPS/QZSS: L1 C/A; L2C or L5 Galileo: E1; E5b or E5a BDS: B1I; B2I or B2a GLONASS: L1 or L2	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BDS: B1I; B2a	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BDS: B1I; B2a
Form factor	LGA	LGA	LGA	LGA	LGA	LGA	LGA	LGA	LGA
Dimensions (mm)	22.0 × 17.0 × 3.1	22.0 × 17.0 × 3.1	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3
Weight (approx.) (g)	1.9	1.9	2.7	2.6	2.5	2.7	2.7	2.7	2.4
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +105°C	-40°C ~ +85°C	-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +85°C	-40°C ~ +105°C
Storage temperature	-40°C ~ +95°C	-40°C ~ +95°C	-40°C ~ +105°C	-40°C ~ +95°C	-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +105°C	-40°C ~ +95°C	-40°C ~ +105°C
General features									
Working mode	IMU raw data + GNSS raw data	PVT/Raw	Raw	RTK+Heading[1]	RAW	DR & IMU	RAW	DR+RTK+Heading[1]	Raw
Chip solution	TESEO V	TESEO V	TESEO APP	TESEO V	TESEO V	TESEO V	TESEO V	TESEO V	TESEO V
L1 band receiver (C/A code) channel number	80 Tracking channels, 4 Fast acquisition channels	80 Tracking channels, 4 Fast acquisition channels	80 Tracking channels, 4 Fast acquisition channels	80 Tracking channels, 4 Fast acquisition channels	80 Tracking channels, 4 Fast acquisition channels	80 Tracking channels, 4 Fast acquisition channels	80 Tracking channels, 4 Fast acquisition channels	80 Tracking channels, 4 Fast acquisition channels	80 Tracking channels, 4 Fast acquisition Channels
L1 band receiver (C/A code) SBAS	•	•	•	/	•	•	•	/	•
A-GNSS	•	•	/	•	•	•	•	•	•
Sensitivity — Autonomous acquisition	-145 dBm	-145 dBm	-144 dBm*	-145 dBm	-145 dBm	-145 dBm	-145 dBm	-145 dBm	-145 dBm
Sensitivity — Reacquisition	-153 dBm	-153 dBm	-153 dBm*	-153 dBm	-153 dBm	-153 dBm	-153 dBm	-153 dBm	-153 dBm
Sensitivity — Tracking	-160 dBm	-160 dBm	-159 dBm*	-160 dBm	-160 dBm	-160 dBm	-160 dBm	-160 dBm	-160 dBm
TTFF (time to first fix) — Cold start	36 s	36 s	36 s*	36 s	36 s	36s	36 s	36 s	36 s
TTFF (time to first fix) — Warm start	30 s	30 s	30 s*	30 s	30 s	30s	30 s	30 s	30 s
TTFF (time to first fix) — Hot start	3 s	3 s	3 s*	3 s	3 s	3s	3 s	3 s	3 s
Position accuracy (autonomous)	1.0 m CEP	1.0 m CEP	1.0 m CEP	1.0 m CEP	1.0 m CEP	1.0m CEP	1.0 m CEP	1.0 m CEP	1.0 m CEP
Position accuracy (RTK)	cm[2]	cm[2]	cm[2]	0.01 m+ppm CEP	cm[2]	/	cm[2]	0.01 m+ppm CEP	cm[2]
Velocity accuracy (without aid)	0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s	0.1m/s	0.1 m/s	0.1 m/s	0.1 m/s
Convergence time (RTK)	/	/	/	<10 s	/	/	/	<10 s	/
Maximum acceleration accuracy (without aid)	0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²
Accuracy of 1PPS signal (RMS)	50 ns	50 ns	50 ns	50 ns	50 ns	50ns	50 ns	50 ns	50 ns
Max update rate	RAW: 10 Hz IMU: 100 Hz	RAW: 10 Hz PVT: 1 Hz	RAW: 10 Hz	PVT: 10 Hz	RAW: 10 Hz IMU: 100 Hz	PVT:10 Hz IMU: 100 Hz	RAW: 10 Hz	PVT: 10 Hz IMU raw data: 100 Hz	RAW: 10 Hz
Baud rate (default)	460800 bps	460800 bps	460800 bps	460800 bps	460800 bps	460800 bps	460800 bps	460800 bps	460800 bps
Geo-fence	/	/	/	•	/	•	/	•	/
Jamming detection	•	•	•	*	•	•	•	*	•
Built-in LNA	•	•	/	•	•	•	•	•	•
Electrical data									
Power supply (VCC)	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V
I/O voltage	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V
Power consumption (acquisition)	242 mA	235 mA	VCC: 55 mA, VCC_CORE: 230 mA	330 mA	245 mA	275 mA	295 mA	360 mA	245 mA
Power consumption (tracking)	237 mA	232 mA	VCC: 55 mA, VCC_CORE: 225 mA	335 mA	245 mA	274 mA	295 mA	360 mA	245 mA
Power consumption (backup)	55 µA	55 µA	55µA	55 µA	55 µA	55 µA	55 µA	55 µA	55 µA
Interfaces									
UART	•	•	•	•	•	•	•	•	•
RESET	•	•	•	•	•	•	•	•	•
Time pulse	•	•	•	•	•	•	•	•	•
Antenna									
Antenna type	Active	Active	Active	Active	Active	Active	Active	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	External or internal	External or internal
Certifications	CE	CE	CE/ASIL-B	CE	/	CE	/	CE	/
Recommended applications	Automotive, high-precision navigation, delivery robots	Automotive, high-precision navigation, delivery robots	Automotive, high-precision navigation, delivery robots	Automotive, high-precision navigation, delivery robots	Automotive, high-precision navigation, delivery robots	Automotive, high-precision navigation, delivery robots	Automotive, high-precision navigation, delivery robots	Automotive, high-precision navigation, delivery robots	Automotive, high-precision navigation, delivery robots

Note 1: Heading function need LG69T (AP) and LG69T (AM) work together.
Note 2: Depending on external precision positioning engine.

* Planning/ Under development/ In progress
• Supported

GNSS modules

		GNSS positioning and orientation
Product		**LC02H (BA)**
		
GNSS		GPS/GLONASS/Galileo/BDS/QZSS
Form factor		LCC
Dimensions (mm)		24.0 × 22.0 × 2.55
Weight (approx.) (g)		2.5
Operating temperature		-40°C ~ +85°C
Storage temperature		-40°C ~ +90°C
General features		
Chip solution		AG3335M
L1 band receiver (C/A code) channel number		75
L1 band receiver (C/A code) SBAS		•*: WAAS/EGNOS/MSAS/GAGAN
A-GNSS		Supported
Sensitivity	Autonomous acquisition	-148 dBm
	Reacquisition	-160 dBm
	Tracking	-165 dBm
Orientation accuracy		Heading angle accuracy: 0.2°/m (1 m Baseline) Tilt angle accuracy: 0.3° Roll angle accuracy: 0.3°
TTFF (time to first fix)	Cold start	28 s, Autonomous
	Warm start	22 s, Autonomous
	Hot start	1 s
Position accuracy (autonomous)		Horizontal: 1.5 m CEP Vertical: 3.5 m CEP
Velocity accuracy (without aid)		/
Maximum acceleration accuracy (without aid)		/
Accuracy of 1PPS signal (RMS)		/
Max update rate		1 Hz
Baud rate (default)		115200 bps
Geo-fence		•
Jamming detection		•
Anti-jamming		•
Built-in LNA		•
Electrical data		
Power supply (VCC)		3.1 V ~ 3.6 V, typ. 3.3 V
I/O voltage		2.8 V
Power consumption (acquisition)		83 mA
Power consumption (tracking)		83 mA
Power consumption (backup)		50 μA
Interfaces		
UART		•
I2C (NMEA)		*
RESET		•
Time pulse		•
Antenna		
Short-circuit protection & open-circuit detection		/
Antenna type		Active or passive
Antenna power		Internal
Certifications		CE*
Recommended applications		Communication station antennas, precision agriculture, construction machinery attitude control, vehicle/ship positioning & orientation, etc.

* Planning/ Under development/ In progress
• Supported

		Timing			
Product		**L26-T**	**LC29T**	**LC98S**	**LC26G-T**
					
GNSS		GPS/Galileo/GLONASS/BDS/QZSS	GPS/Galileo/GLONASS/BDS/QZSS	GPS/BDS/GLONASS/Galileo/QZSS	GPS/GLONASS/Galileo/BDS/QZSS
Form factor		LCC	LCC	LCC	LCC
Dimensions (mm)		12.2 × 16.0 × 2.3	12.2 × 16.0 × 3.1	22.4 × 17.0 × 2.6	12.2 × 16.0 × 2.4
Weight (approx.) (g)		0.9	1.1	1.68	0.85
Operating temperature		-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Storage temperature		-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C
General features					
Working mode		Timing static mode	Timing static mode	Timing static mode	Timing static mode
Chip solution		Teseo III	Teseo V	Teseo III	AG3352
L1 band receiver (C/A code) channel number		48 Track/2 Fast Acq	80 Track/4 Fast Acq	48 Track/2 Fast Acq	47 Track
L1 band receiver (C/A code) SBAS		WAAS/EGNOS/MSAS/GAGAN	WAAS/EGNOS/MSAS/GAGAN	WAAS/EGNOS/MSAS/GAGAN	WAAS/EGNOS/MSAS/GAGAN
A-GNSS		Supported	Supported	Supported	Supported
Sensitivity	Autonomous acquisition	-147 dBm	-145 dBm[1]	-146 dBm[1]	-148 dBm[1]
	Reacquisition	-153 dBm	-153 dBm[1]	-155 dBm[1]	-160 dBm[1]
	Tracking	-162 dBm	-161 dBm[1]	-161 dBm[1]	-165 dBm[1]
TTFF (time to first fix)	Cold start	32 s, Autonomous	35 s, Autonomous	29 s, Autonomous	28 s, Autonomous
	Warm start	30 s, Autonomous	24 s, Autonomous	28 s, Autonomous	25 s, Autonomous
	Hot start	2 s	2 s, Autonomous	2 s	1 s
Position accuracy (autonomous)		1.5 m CEP	1.5 m CEP	1.5 m CEP	1.5 m CEP
1PPS timing accuracy (1σ)		< 13.6 (±6.8) ns	< 13.6 (±6.8) ns	< 13.6 (±6.8) ns	≤ 16 (±8) ns
Frequency reference		/	10 MHz	/	/
Max update rate		5 Hz	10 Hz	10 Hz	1 Hz
Baud rate (default)		9600/115200 bps	115200 bps	115200 bps	115200 bps
Geo-fence		/	/	/	•
Jamming detection		•	•	•	•
Anti-jamming		/	/	/	•
Built-in LNA		•	•	/	•
Electrical data					
Power supply (VCC)		3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	1.75 V ~ 1.98 V, typ. 1.8 V
I/O voltage		typ. 3.3 V	3.0 V ~ 3.6 V	3.0 V ~ 3.6 V	1.8 V
Power consumption (acquisition)		80 mA (GPS+GLONASS+Galileo)	222 mA (GPS+BDS+GLONASS+Galileo+QZSS)	78 mA (GPS + GLONASS)	36 mA
Power consumption (tracking)		73 mA (GPS+GLONASS+Galileo)	232 mA (GPS+BDS+GLONASS+Galileo+QZSS)	74 mA (GPS + GLONASS)	36 mA
Power consumption (backup)		7 μA	55 μA	/	13 μA
Interfaces					
UART		•	•	•	•
I2C (NMEA)		/	*	*	•
RESET		•	•	•	•
Time pulse		•	•	•	•
Antenna					
Short-circuit protection & open-circuit detection		•	•	•	•
Antenna type		Active or passive	Active	Active or passive	Active or passive
Antenna power		External or internal	External or internal	External or internal	Internal
Certifications		CE	/	CE	CE
Recommended applications		High-precision timing	High-precision timing for base stations	High-precision timing for base stations	High-precision timing: financial services, power synchronization, communication base stations, railway dispatching

Note 1: Demonstrated with a good external LNA.

* Planning/ Under development/ In progress
• Supported

GNSS modules

	Standard precision GNSS - single band					
Product	**LG77L (IC)**	**L76-L**	**LC760Z (00)**	**LC76G (AB)**	**LC76G (PA)**	**LC76G (PB)**
		Compatible				
						
GNSS	GPS/GLONASS/Galileo/BDS/QZSS	GPS/GLONASS/Galileo/BDS/QZSS	GPS/Galileo/GLONASS/QZSS	GPS/GLONASS/Galileo/BDS/QZSS	GPS/GLONASS/Galileo/BDS/QZSS	GPS/GLONASS/Galileo/BDS/QZSS
Form factor	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	7.0 × 7.0 × 2.0	10.1 × 9.7 × 2.5	10.1 × 9.7 × 2.3	10.1 × 9.7 × 2.4	10.1 × 9.7 × 2.4	10.1 × 9.7 × 2.4
Weight (approx.) (g)	0.2	0.6	0.5	0.5	0.6	0.6
Operating temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Storage temperature	-40°C ~ +90°C	-40°C ~ +90°C	-45°C ~ +95°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C
General features						
Working mode	Standard	Standard	Standard	Standard	Standard	Standard
Chip solution	MT3333	MT3333	HD8120	AG3352Q	AG3352Q	AG3352Q
L1 band receiver (C/A code) channel number	33 Track/ 99 Acq	33 Track/ 99 Acq.	24 Track / 64 Acq.	47 Track	47 Track	47 Track
L1 band receiver (C/A code) SBAS	WAAS/EGNOS/MSAS/GAGAN	WAAS/EGNOS/MSAS/GAGAN	Supported	Supported	Supported	Supported
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported
Sensitivity – Autonomous acquisition	-146 dBm	-149 dBm	-149 dBm	-147 dBm	-147 dBm	-147 dBm
Sensitivity – Reacquisition	-156 dBm	-161 dBm	-158 dBm	-159 dBm	-159 dBm	-159 dBm
Sensitivity – Tracking	-163 dBm	-167 dBm	-160 dBm	-166 dBm	-166 dBm	-166 dBm
TTFF (time to first fix) – Cold start	25 s, Autonomous 17 s, with EASY ™	32 s, Autonomous 15 s, with EASY™	28 s, Autonomous 15 s, with AGNSS	28s, Autonomous 15s, with EASY ™ 5s, with EPO™	28 s, Autonomous 15 s, with EASY ™ 5 s, with EPO™	28 s, Autonomous 15 s, with EASY ™ 5 s, with EPO™
TTFF (time to first fix) – Warm start	23 s, Autonomous 5 s, with EASY ™	30 s, Autonomous 5 s, with EASY™	26 s, Autonomous 4 s, with AGNSS	25s, Autonomous 2s, with ESAY™	25 s, Autonomous 2 s, with ESAY™	25 s, Autonomous 2 s, with ESAY™
TTFF (time to first fix) – Hot start	2 s	2 s	1 s	1 s	1 s	1 s
Position accuracy (autonomous)	2.5 m CEP	2.5 m CEP	2.0 m CEP	1.5 m CEP	1.5 m CEP	1.5 m CEP
Velocity accuracy (without aid)	0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s
Maximum acceleration accuracy (without aid)	0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²
Accuracy of 1PPS signal (RMS)	35 ns	100 ns	100 ns	30 ns	30 ns	30 ns
Max update rate	10 Hz	10 Hz	5 Hz	10 Hz	1 Hz	1 Hz
Baud rate (default)	9600 bps	9600 bps	115200 bps	115200 bps	115200 bps	115200 bps
Geo-fence	•	•	•	•	•	•
Jamming detection	•	•	•	•	•	•
Anti-jamming	•	•	•	•	•	•
Built-in LNA	/	•	•	•	•	•
Electrical data						
Power supply (VCC)	2.8 V ~ 4.3 V	2.8 V ~ 4.3 V	2.8 V ~ 3.6 V	2.55 V ~ 3.6 V	2.55 V ~ 3.6 V	1.75 V ~ 1.98 V
I/O voltage	1.7 V ~ 1.9 V/ 2.7 V ~ 2.9 V	2.7 V ~ 2.9 V	Same as VCC	2.55 V ~ 3.6 V	2.55 V ~ 3.6 V	1.75 V ~ 1.98 V
Power consumption (acquisition)	24 mA (GPS + GLONASS)	31 mA (GPS + GLONASS)	23 mA (GPS + Galileo + GLONASS)	36 mA (G3B)	10 mA (G3B)	15 mA (G3B)
Power consumption (tracking)	23 mA (GPS + GLONASS)	31 mA (GPS + GLONASS)	22 mA (GPS + Galileo + GLONASS)	36 mA (G3B)	10 mA (G3B)	15 mA (G3B)
Power consumption (backup)	6 µA	8 µA	13 µA	13 µA	13 µA	13 µA
Interfaces						
UART	•	•	•	•	•	•
I2C (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	Active or passive
Antenna power	External	External or internal	External or internal	External or internal	External or internal	External or internal
Certifications	CE	CE	CE	CE	CE	CE
Recommended applications	Vehicle trackers, asset trackers, safety, industrial PDAs & PNDs, digital cameras	Vehicle trackers, asset trackers, safety, industrial PDAs & PNDs, digital cameras	Vehicle trackers, asset trackers, safety, industrial PDAs & PNDs, digital cameras	Vehicle trackers, asset trackers, safety, industrial PDAs & PNDs, digital cameras	Vehicle trackers, asset trackers, safety, industrial PDAs & PNDs, digital cameras	Vehicle trackers, asset trackers, safety, industrial PDAs & PNDs, digital cameras

* Planning/ Under development/ In progress
• Supported

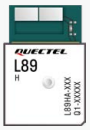
		Standard precision GNSS - single band			
Product		**LS550G (00)***	**LC762Z(00)**	**LC26G (AB)**	**LC260Z (00)**
					
GNSS		GPS/GLONASS/Galileo/BDS/QZSS	GPS + BDS + QZSS	GPS/GLONASS/Galileo/BDS/QZSS	GPS/Galileo/BDS/QZSS/SBAS/QZSS or GPS/Galileo/GLONASS/QZSS/SBAS/QZSS
Form factor		LGA	LCC	LCC	LCC
Dimensions (mm)		5.0 × 5.0 × 1.05	10.1 × 9.7 × 2.0	12.2 × 16.0 × 2.4	12.2 × 16.0 × 2.4
Weight (approx.) (g)		0.07	0.5	0.5	1
Operating temperature		-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Storage temperature		-40°C ~ +90°C	-40°C ~ +95°C	-40°C ~ +90°C	-40°C ~ +95°C
General features					
Working mode		Standard	Standard	Standard	Standard
Chip solution		AG3352B	HD8122R	AG3352Q	HD8120
L1 band receiver (C/A code) channel number		47 Track	24 Track / 88 Acq.	47 Track	24 Track / 64 Acq.
L1 band receiver (C/A code) SBAS		Supported	/	Supported	Supported
A-GNSS		Supported	Supported	Supported	Supported
Sensitivity	Autonomous acquisition	-147 dBm	-148dBm	-147 dBm	-148 dBm
	Reacquisition	-158 dBm	-156 dBm	-159 dBm	-158 dBm
	Tracking	-165 dBm	-161 dBm	-166 dBm	-159 dBm
TTFF (time to first fix)	Cold start	28 s	28 s, Autonomous 10 s, With AGNSS	28 s, Autonomous 15 s, with EASY ™ 5 s, with EPO™	@ GPS + Galileo + BDS + QZSS 28 s, Autonomous 15 s, with AGNSS 5 s,with EPO ™ @ GPS + GLONASS + Galileo + QZSS 28 s, Autonomous 15 s, with AGNSS 5 s,with EPO ™
	Warm start	25 s	23 s, Autonomous 4 s, With AGNSS	25 s, Autonomous 2 s, with ESAY™	@ GPS + Galileo + BDS + QZSS 26 s, Autonomous 4 s, with AGNSS @ GPS + GLONASS + Galileo + QZSS 26 s, Autonomous 5 s, with AGNSS
	Hot start	1 s	1 s	1 s	@ GPS + Galileo + BDS + QZSS 1 s @ GPS + GLONASS + Galileo + QZSS 2 s
Position accuracy (autonomous)		1.5 m CEP	2.0 m CEP	1.5 m CEP	2 m CEP
Velocity accuracy (without aid)		0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s
Maximum acceleration accuracy (without aid)		0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²
Accuracy of 1PPS signal (RMS)		30 ns	30 ns	20 ns	100 ns
Max update rate		1 Hz	10 Hz	10 Hz	5 Hz
Baud rate (default)		115200 bps	115200 bps	115200 bps	115200 bps
Geo-fence		•	/	•	/
Jamming detection		•	/	•	•
Anti-jamming		•	/	•	/
Built-in LNA		•	•	•	•
Electrical data					
Power supply (VCC)		1.75 V ~ 1.98 V, typ. 1.8 V	3.0 V ~ 3.6 V	2.55 V ~ 3.6 V	2.8 V ~ 3.6 V, typ. 3.3 V
I/O voltage		Typ. 1.8 V	3.0 V ~ 3.6 V	typ. 3.3 V	2.8 V ~ 3.6 V, typ. 3.3 V
Power consumption (acquisition)		25.75mW	24 mA	36 mA (G3B)	@ GPS + Galileo + BDS + QZSS 20 mA @ GPS + GLONASS + Galileo + QZSS 22 mA
Power consumption (tracking)		25.75mW	21 mA	36 mA (G3B)	@ GPS + Galileo + BDS + QZSS 20 mA @ GPS + GLONASS + Galileo + QZSS 22 mA
Power consumption (backup)		20.7μW	16 μA	15 μA	13 μA
Interfaces					
UART		•	•	•	•
I2C (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
Antenna power		External or internal	External or internal (through VDD_RF)	External or internal	External or internal
Certifications		/	/	CE	/
Recommended applications		Portable and wearable devices	Vehicle-mounted and transportation, electronic dog, shared bicycle, electric motorcycle tracker, financial risk control tracker, intelligent security, smart city, smart industry, personal tracking, medical monitoring, agriculture, etc.	Vehicle trackers, asset trackers, safety, industrial PDAs & PNDs, digital cameras	Fleet management, tracker, T-BOX, safety driving assistant

* Planning/ Under development/ In progress
• Supported

GNSS modules

		Standard precision GNSS - dual band			
Product		**LC79H (AL)**	**LC29H (AA)**	**LC29H (AI)**	**LG695H (06)**
					
GNSS		GPS/QZSS: L1 C/A, L5 GLONASS: L1 Galileo: E1, E5a BDS: B1I, B2a NavIC: L5	GPS/QZSS: L1 C/A, L5 GLONASS: L1 Galileo: E1, E5a BDS: B1I, B2a NavIC: L5	GPS/GLONASS/Galileo/BDS/QZSS/NavIC/SBAS	GPS + GLONASS + BDS+ Galileo + QZSS
Form factor		LCC	LCC	LCC	LGA
Dimensions (mm)		10.1 × 9.7 × 2.4	12.2 × 16.0 × 2.5	12.2 × 16.0 × 2.5	22.0 × 17.0 × 3.3
Weight (approx.) (g)		0.5	0.9	0.9	2.25
Operating temperature		-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +105°C
Storage temperature		-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +95°C	-40°C ~ +105°C
General features					
working mode		Standard mode	Standard mode	Standard mode	IMU & GNSS Raw data
Chip solution		AG3335M	AG3335M	AG3335M	AG3335
L1 band receiver (C/A code) channel number		Tracking and acquisition total: 135	Tracking and acquisition total: 135	Tracking and acquisition total: 75	/
L1 band receiver (C/A code) SBAS		WAAS, EGNOS, MSAS, GAGAN	WAAS, EGNOS, MSAS, GAGAN	WAAS, EGNOS, MSAS, GAGAN	WAAS/EGNOS/MSAS/GAGAN
A-GNSS		Supported	Supported	Supported	Supported
Sensitivity	Autonomous acquisition	-148 dBm	-147 dBm	-150 dBm	-145 dBm
	Reacquisition	-159 dBm	-159 dBm	-160 dBm	-160 dBm
	Tracking	-166 dBm	-165 dBm	-165 dBm	-165 dBm
TTFF (time to first fix)	Cold start	26 s	26 s	29 s	26 s
	Warm start	18 s	16 s	24 s	16 s
	Hot start	1 s	1 s	1 s	1 s
Position accuracy (autonomous)		1.0 m CEP	1.0 m CEP	1.8 m CEP	1.0 m CEP
Velocity accuracy (without aid)		0.03 m/s	0.03 m/s	0.1 m/s	0.1 m/s
Maximum acceleration accuracy (without aid)		/	/	/	0.1 m/s²
Accuracy of 1PPS signal (RMS)		20 ns	20 ns	80 ns	50 ns
Max update rate		PVT: 1 Hz	PVT: 1 Hz	PVT: 1 Hz	10 Hz
Baud rate (default)		115200 bps	115200 bps	115200 bps	460800 bps
Geo-fence		•	•	•	/
Jamming detection		•	•	•	/
Anti-jamming		•	/	/	/
Built-in LNA		•	•	•	/
Electrical data					
Power supply (VCC)		1.75 V ~ 1.98 V	3.1 V ~ 3.6 V	3.1 V ~ 3.6 V, typ. 3.3 V	typ. 3.3V
I/O voltage		2.8 V	2.8 V	Typ. 2.8 V	Same as VCC
Power consumption (acquisition)		33 mA	24 mA	16 mA	25 mA
Power consumption (tracking)		33 mA	24 mA	16 mA	25 mA
Power consumption (backup)		20 μA	25 μA	51 μA	60 μA (198 μW) @ Backup mode (VCC is not disconnected) 85 μA (280.5 μW) @ Backup mode (VCC is disconnected)
Interfaces					
UART		9600~921600 bps (Default:115200 bps)	9600~3000000 bps (Default:115200 bps)	•	•
I2C (NMEA)		•	•	•	/
RESET		•	•	•	•
Time pulse		•	•	•	•
Antenna					
Antenna type		Active or passive	Active or passive	Active or passive	Active
Antenna power		External or internal	External or internal	External or internal	External
Certifications		CE	CE	CE	CE*
Recommended applications		Shared mobility, delivery robots, GIS	Shared mobility, delivery robots, GIS	Application areas include trackers, asset preservation, vehicle navigation, etc.	Shared mobility, delivery robots, GIS

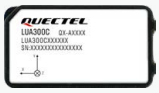
* Planning/ Under development/ In progress
• Supported

		Integrated antenna							
Product		**LC86L (C)**	**LC86G (AA)**	**LC86G (AB)**	**LC86G (LA)**	**LC86G (PA)**	**L86**	**L89 R2.0**	**L96**
		Compatible							
									
GNSS		GPS/GLONASS/Galileo/ BDS/QZSS	GPS/BDS/Galileo	GPS/GLONASS/Galileo	GPS/GLONASS/BDS/ Galileo/QZSS	GPS/GLONASS/Galileo/ BDS/QZSS	GPS/GLONASS/BDS/ Galileo/QZSS	GPS/GLONASS/BDS/ Galileo/IRNSS/QZSS	GPS/GLONASS/BDS/ Galileo/QZSS
Form factor		LCC	LCC	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)[1]		16.0 × 16.0 × 6.95	16.0 × 16.0 × 6.95	16.0 × 16.0 × 6.95	18.4 × 18.4 × 6.95	16.0 × 16.0 × 6.95	18.4 × 18.4 × 6.95	26.4 × 18.4 × 7.4	14.0 × 9.6 × 2.0
Weight (approx.) (g)		6	5.9	5.9	8	5.9	7.6	8.2	0.6
Operating temperature		-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Storage temperature		-40°C ~ +90°C	-40°C - +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C
General features									
Chip solution		MT3333	AG3352	AG3352	AG3352	AG3352	MT3333	AG3335	MT3333
L1 band receiver (C/A code) channel number		33 Track/ 99 Acq	47 Track	47 Track	47 Track	47 Track	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq.
L1 band receiver (C/A code) SBAS		WAAS/EGNOS/MSAS/ GAGAN	WAAS/EGNOS/MSAS/ GAGAN	Supported	WAAS/EGNOS/MSAS/ GAGAN	Supported	WAAS/EGNOS/MSAS/ GAGAN	WAAS/EGNOS/MSAS/ GAGAN	WAAS/EGNOS/MSAS/ GAGAN
A-GNSS		Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Sensitivity	Autonomous acquisition	-148 dBm	-148 dBm	-148 dBm	-148 dBm	-148 dBm	-149 dBm	-148 dBm	-148 dBm
	Reacquisition	-162 dBm	-160 dBm	-160 dBm	-160 dBm	-160 dBm	-161 dBm	-157 dBm	-160 dBm
	Tracking	-166 dBm	-166 dBm	-166 dBm	-166 dBm	-166 dBm	-167 dBm	-165 dBm	-165 dBm
TTFF (time to first fix)	Cold start	35 s, Autonomous 15 s, with AGNSS	30 s, Autonomous 12 s, with EASY ™	30 s, Autonomous 12 s, with EASY ™	30 s, Autonomous 12 s, with EASY ™	30 s, Autonomous 12 s, with EASY ™	35 s, Autonomous 15 s, with AGNSS	<35 s, Autonomous <15 s, with EASY™	35 s, Autonomous 15 s, with EASY™
	Warm start	30 s, Autonomous 5 s, with AGNSS	28 s, Autonomous 2 s, with EASY ™	28 s, Autonomous 2 s, with EASY ™	25 s, Autonomous 2 s, with EASY ™	28 s, Autonomous 2 s, with EASY ™	30 s, Autonomous 5 s, with AGNSS	<30 s, Autonomous <5 s, with EASY™	30 s, Autonomous 5 s, with EASY™
	Hot start	2 s	1 s	1 s	1s	1 s	1 s	<1 s	1 s
Position accuracy (autonomous)		2.5 m CEP	1.5 m CEP	1.5 m CEP	1.5 m CEP	1.5 m CEP	2.5 m CEP	1.8 m CEP	2.5 m CEP
Velocity accuracy (without aid)		0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s	0.03 m/s	0.1 m/s
Maximum acceleration accuracy (without aid)		0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²	0.1 m/s²	/	0.1 m/s²
Accuracy of 1PPS signal (RMS)		100 ns	30 ns	30 ns	30 ns	30 ns	100 ns	100 ns	100 ns
Max update rate		10 Hz	10 Hz	10 Hz	10 Hz	1 Hz	10 Hz	1 Hz	10 Hz
Baud rate (default)		9600 bps	115200 bps	115200 bps	115200 bps	115200 bps	9600 bps	9600 bps	9600 bps
Geo-fence		•	•	•	•	•	•	•	•
Jamming detection		•	•	•	•	•	•	•	•
Anti-jamming		•	•	•	•	•	•	/	•
Built-in LNA		•	•	•	•	•	•	•	•
Electrical data									
Power supply (VCC)		2.8 V ~ 4.3 V	2.55 V ~ 3.6 V	2.55 V ~ 3.6 V	2.55 V ~ 3.6 V	2.55 V ~ 3.6 V	2.8 V ~ 4.3 V	3.1 V ~ 4.3 V	2.8 V ~ 4.3 V
I/O voltage		2.7 V ~ 2.9 V	2.55 V ~ 3.6 V	2.55 V ~ 3.6 V	2.55 V ~ 3.6 V	2.55 V ~ 3.6 V	2.7 V ~ 2.9 V	3.0 V	2.7 V ~ 2.9 V
Power consumption (acquisition)		32 mA (GPS+GLONASS)	30 mA	33 mA	34 mA	11 mA	32 mA (GPS+GLONASS)	32 mA	25 mA
Power consumption (tracking)		30 mA (GPS+GLONASS)	30 mA	33 mA	34 mA	11 mA	30 mA (GPS+GLONASS)	32 mA	20 mA
Power consumption (backup)		7 μA	13 μA	13 μA	13 μA	13 μA	7 μA	51 μA	7 μA
Interfaces									
UART		•	•	•	•	•	•	•	•
I2C (NMEA)		/	/	/	/	/	/	•	•
RESET		•	•	•	•	•	•	•	•
Time pulse		•	•	•	•	•	•	•	•
Antenna									
Short-circuit protection & open-circuit detection		•	•	•	•	•	•	•	/
Antenna automatic switch		•	•	•	•	•	•	•	/
Antenna type		Embeded patch antenna or external active antenna	Embeded patch antenna or external active antenna	Embeded patch antenna or external active antenna	Embeded patch antenna or external active antenna	Embeded patch antenna or external active antenna	Embeded patch antenna or external active antenna	Embeded patch antenna and chip antenna, external active antenna	Embeded chip antenna or external active antenna
Antenna power		Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal
Certifications		CE	CE	CE	CE	CE	CE	CE	CE
Recommended applications		Vehicle or asset trackers, DVRs, connected PNDs & PDAs, safety, digital cameras, etc.	Vehicle or asset trackers, DVRs, connected PNDs & PDAs, safety, digital cameras, etc.	Vehicle or asset trackers, DVRs, connected PNDs & PDAs, safety, digital cameras, etc.	Vehicle or asset trackers, DVRs, connected PNDs & PDAs, safety, digital cameras, etc.	Vehicle or asset trackers, DVRs, connected PNDs & PDAs, safety, digital cameras, etc.	Vehicle or asset trackers, DVRs, connected PNDs & PDAs, safety, digital cameras, etc.	(Dedicated for India market) standard tracking	Asset tracking, digital cameras

Note 1: Please refer to the design document for footprint size.

• Supported

GNSS modules

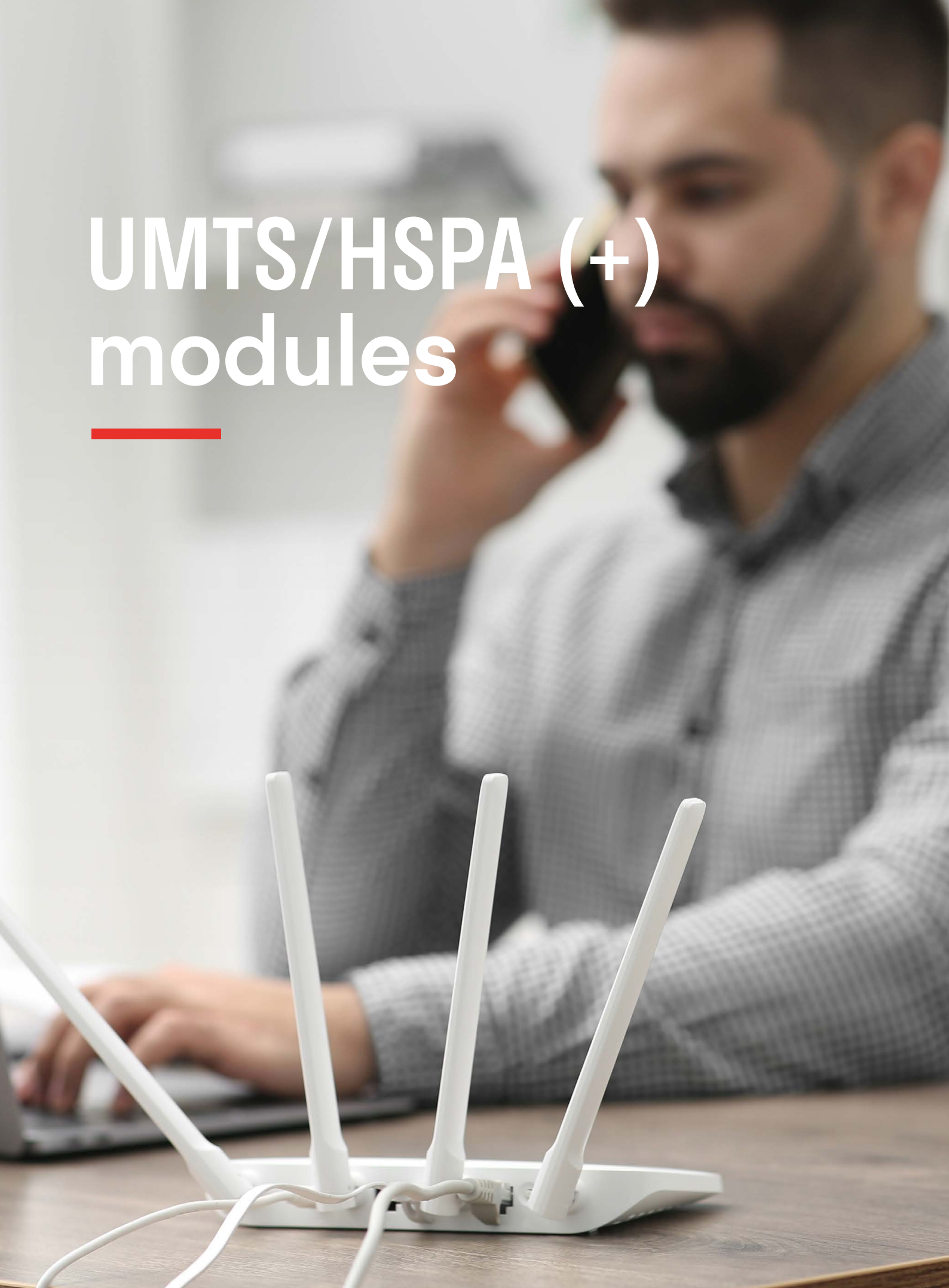
	IMU module	
Product	**LUA600A**	**LUA300C**
		
Dimensions (mm)	25.0 × 25.0 × 12.5	10.4 × 18.8 × 11.1
Weight (approx.) (g)	11.3	2.4
Operating temperature	-40°C ~ +105°C	-40°C ~ +105°C
Storage temperature	-40°C ~ +105°C	-40°C ~ +105°C
General features		
Chip solution	SCHA634	ASM330LHB
Update rate	10–400 Hz; Default: 100 Hz	/
Gyroscope specifications		
Range	±300 °/s	±250 °/s
Bias instability	Typ. 1.8 °/h (X/Y axis), 1.4 °/h (Z axis) Max. 2.6 °/h (X/Y axis), 2.1 °/h (Z axis)	2.5 °/h
Angular random walk	Typ. 0.09 °/√ h (X/Y axis), 0.1 °/√ h (Z axis) Max. 0.13 °/√ h (X/Y axis), 0.15 °/√ h (Z axis)	0.2 °/√ h
Bias Error over Temperature (-40 °C to +105 °C)	Typ. 0.01 °/s Max. 0.02 °/s	0.03 °/s
Scale factor error	Typ. 0.04 % Max. 0.15 %	0.3%
Non-Linearity	Typ. 0.003 % FS Max. 0.01 % FS	0.005 % FS
Misalignment error	Typ. 0.004° Max. 0.01°	0.003°
Accelerometer specifications		
Range	±6g	±8 g
Bias instability	Typ. 15 μg Max.18 μg	30 μg
Velocity random walk	Typ. 0.035 m/s/√h Max. 0.05 m/s/√h	0.025 m/s/√ h
Bias error over temperature (-40 °C to +105 °C)	Typ. 0.05 mg (X/Y axis); 1mg (Z axis) Max. 0.1 mg (X/Y axis); 2mg (Z axis)	0.8 mg
Scale factor error	Typ. 0.02% (X/Y axis); 0.03 % (Z axis) Max. 0.05% (X/Y axis); 0.12 % (Z axis)	0.02%
Non-Linearity	Typ. 0.008%FS (X/Y axis); 0.008 %FS (Z axis) Max. 0.02%FS (X/Y axis); 0.02 %FS (Z axis)	0.006 %
Misalignment Error	Typ. 0.002° (X/Y axis); 0.004 ° (Z axis) Max. 0.01° (X/Y axis); 0.017 ° (Z axis)	0.01°
Electrical features		
Power supply (VCC)	3.0 V ~ 3.6 V, typ. 3.3 V	3.0 V ~ 3.6 V, typ. 3.3 V
I/O voltage	Following VCC	Following VCC
Power consumption (@ 3.3 V)	75 mA	2.6 mA
Interfaces		
UART	Baud rate: 115200–921600 bps; Default: 460800 bps	/
SPI	Max. clock frequency: 8 MHz	Max. clock frequency: 10 MHz[1]
CAN	Max. Baud Rate (CAN): 1 Mbps Max. Baud Rate (CAN FD): 2 Mbps	/
Recommended applications	Automated driving, high-precision navigation, robotics, etc.	Automated driving, high-precision navigation, robotics, etc.

Note1:The module contains 3 SPI slave devices, so the host should be able to support 3 SPI slave devices.

• Supported

		Smart antenna	
Product		**QLM29HBAA-GM**	**QLM29HCAA-GM**
			
GNSS		GPS/QZSS: L1 C/A, L5 GLONASS: L1 Galileo: E1, E5a BDS: B1I, B2a	GPS/QZSS: L1 C/A, L5 GLONASS: L1 Galileo: E1, E5a BDS: B1I, B2a
Form factor		/	/
Dimensions (mm)		72 × 57.6 × 22.3	72 × 57.6 × 22.3
Weight (approx.) (g)		220	220
Operating temperature		-40°C ~ +85°C	-40°C ~ +85°C
Storage temperature		-40°C ~ +105°C	-40°C ~ +105°C
General features			
Working mode		DR+RTK	DR
Chip solution		AG3335A/T	AG3335A/T
L1 band receiver (C/A code) channel number		Tracking and acquisition total: 135	Tracking and acquisition total: 135
L1 band receiver (C/A code) SBAS		• (WAAS/EGNOS/MSAS/GAGAN)	• (WAAS/EGNOS/MSAS/GAGAN)
A-GNSS		Supported	Supported
Sensitivity	Autonomous acquisition	-147 dBm	-147 dBm
	Reacquisition	-157 dBm	-157 dBm
	Tracking	-165 dBm	-165 dBm
TTFF (time to first fix)	Cold start	26 s	26 s
	Warm start	16 s	16 s
	Hot start	1 s	1 s
Position accuracy (autonomous)		Autonomous: 1 m	Autonomous: 1 m
Position accuracy (RTK)		RTK: < 0.1 m + 1 ppm	/
Velocity accuracy (without aid)		0.03 m/s	0.03 m/s
Convergence time (RTK)		RTK: < 10 s	/
Maximum acceleration accuracy (without aid)		/	/
Accuracy of 1PPS signal (RMS)		20 ns	20 ns
Max update rate		GNSS : 1 Hz IMU : 100 Hz (MAX)	GNSS : 1 Hz IMU : 100 Hz (MAX)
Baud rate (default)		115200 bps	115200 bps
Geo-fence		•	•
Jamming detection		•	•
Anti-jamming		/	/
Built-in LNA		•	•
Electrical data			
Power supply (VCC)		4 V ~ 5.5 V, typ. 5 V	4 V ~ 5.5 V, typ. 5 V
Power Consumption		39.8 mA	42 mA
Interfaces			
RS232		115200 bps	115200 bps
UART		/	/
I2C (NMEA)		/	/
Antenna			
Short-circuit protection & open-circuit detection		/	/
Antenna type		Active	Active
Antenna power		Internal	Internal
Certifications		CE	CE
Recommended applications		Car sharing, vehicle navigation	Car sharing, vehicle navigation

UMTS/HSPA (+) modules



Product	UC200A-GL
	
Form factor	LCC
Dimensions (mm)	29.0 × 32.0 × 2.4
3G	UMTS/HSPA+
Frequency bands (MHz)	UMTS: B1/2/5/8; GSM: 850/900/1800/1900MHz
Region	Global
Weight (approx.) (g)	4.3
Operating temperature	-35°C ~ +75°C
Extended temperature	-40°C ~ +85°C
Data transmission (Max.)	
HSPA data rates (Mbps)	21 (DL)/5.76 (UL)
UMTS data rates (Kbps)	384 (DL/UL)
GPRS data rates (Kbps)	85.6 (DL/UL)
EDGE data rates (Kbps)	236.8 (DL/UL)
SMS	•
CSD	•
Protocols	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/FILE/MQTT/MMS/SMTP/SMTPS
Interfaces	
SIM	1.8 V/ 3 V
UART	2
USB	2.0 hi-speed
Audio digital (PCM)	•
RTC backup	•
ADC	× 2, 12bits
Antenna	Pads for primary
Enhanced features	
DTMF	•
QuecFOTA®	•
DFOTA	•
SIM detection	•
Firmware update	via USB/ DFOTA
Electrical features	
Supply voltage range	3.4 V ~ 4.5 V, typ. 3.8 V
Power consumption	17 μA @ Power Off 1 mA @ Sleep
Software features	
USB serial driver	Windows 7/8/8.1/10/11, Linux 2.6 ~ 5.15, Android 4.x ~ 12.x
RIL driver	Android 4.x ~ 12.x
Certifications	CE/FCC/Anatel/RCM
Recommended applications	Telematics, smart metering, mobile POS terminals, gateways, safety, tracking and tracing, remote maintenance and control, networking, mobile computing, healthcare, etc.

• Supported

GSM/GPRS modules

GSM/GPRS modules

Product	M66	M65	M95	M95-R	MC60/ MC60E
					
Form factor	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	17.7 × 15.8 × 2.3	17.7 × 15.8 × 2.3	23.6 × 19.9 × 2.65	23.6 × 19.9 × 2.65	18.7 × 16.0 × 2.1
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	1.1	3.0	3.0	1.3
Operating temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Data transmission (Max.)					
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/FTP/HTTP/SMTP/NITZ/ PING/NTP/SSL/MQTT/HTTPS/SMTPS	TCP/UDP/PPP/FTP/HTTP/NITZ/PING/ NTP/SSL/MQTT/HTTPS	TCP/UDP/PPP/FTP/HTTP/SMTP/NITZ/ PING/NTP/SSL/MQTT	TCP/UDP/PPP/FTP/HTTP/NITZ/PING/ NTP/SSL/MQTT	TCP/UDP/PPP/FTP/HTTP/NITZ/PING/ NTP/SSL/HTTPS/MQTT
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	1.8 V/3 V	1.8 V/3 V	1.8 V/ 3 V	1.8 V/3 V	1.8 V/3 V
Audio analog	1 input/2 outputs	1 input/2 outputs	2 inputs/ 2 outputs	2 inputs/ 2 outputs	1 input/ 2 outputs
Audio digital (PCM)	•	/	•	•	•
RTC backup	•	•	•	•	•
UART	3	3	2	2	4
ADC	× 1, 10bit	× 1, 10bit	/	/	× 1, 10bit
SD card interface	•	/	/	/	•
GPIO	/	/	/	/	•
Temperature detection	/	/	•	/	•
Enhanced features					
eCall	•	/	•	/	•
Jamming detection	•	/	•	/	•
DTMF	•	/	•	•	•
Audio playback/Audio recording	•	•	•	•	•
Dual-SIM	/	/	•	/	•
QuecCell	/	•	/	/	/
QuecFile	•	•	/	/	/
MUX	•	•	•	•	•
Bluetooth	•	/	/	/	BT 3.0 (MC60) BT 3.0/ BT4.0 (MC60E)
GNSS	/	/	/	/	BEIDOU/GPS/GLONASS/Galileo/QZSS
Electrical features					
Power supply	3.3 V ~ 4.6V	3.45 V ~ 4.25 V	3.3 V ~ 4.6 V	3.45 V ~ 4.25 V	3.3 V ~ 4.6 V
Low power consumption	1.3mA @ DRX=5 1.2mA @ DRX=9	1.2mA @ DRX=5 1.1mA @ DRX=9	1.3mA @ DRX=5 1.2mA @ DRX=9	1.4mA @ DRX=5 1.3mA @ DRX=9	1.2mA @ DRX=5 0.8mA @ DRX=9
Certifications	Vodafone/Deutsche Telekom/CE/ GCF/FCC/Anatel/ICASA/UCRF	CE/Anatel	Vodafone/CE/GCF/PTCRB/FCC/IC/ Rogers/Anatel/RCM/ICASA/NCC/ UCRF/Telenor	CE/Anatel	CE/GCF/FCC/Anatel/ICASA/UCRF
Recommended applications	Telematics, smart metering, mobile POS terminals, gateways, safety, tracking and tracing, remote maintenance and control, networking, mobile computing, healthcare, etc.				

• Supported

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YECN028AA

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YECN001J1A

YECT001W1AM

YECA000G1AM

YFCX001WWAH

YECT010W7AM

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YECT005G3AM

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	AVG. 45%
Peak gain	4.6dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	15.6 × 13 × 130mm
Form factor	Rubber
Mounting type	Terminal
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	200mm
Operation temperature	–40°C to +85°C

YECT001W1AM

5G terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Efficiency	30%–75%
Peak gain	2.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	52.6 × 18.6 × 9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	Right angle SMA male
IP rating	IP53
Operation temperature	–40°C to +85°C

YECT001W1BM

5G terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Efficiency	35%–80%
Peak gain	4.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ9 × 54.9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP53
Operation temperature	–40°C to +85°C

YECT010W1AM

5G terminal mount rubber monopole external antenna

Compliant

RoHS

Electrical data

Frequency range	700–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Efficiency	AVG. 50%
Peak gain	3.0dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ 10.22 × 69.5mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP53
Operation temperature	–40°C to +85°C

YECT004W1A

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	20%–70%
Peak gain	5.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP67
Operation temperature	–40°C to +85°C

YECT004W5AM

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	20%–70%
Peak gain	5.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	140 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	Fakra female Code Z
IP rating	IP67
Operation temperature	–40°C to +85°C

YECT104WAAM

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	20%–68%
Peak gain	5.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ20 × 145 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	N type male
IP rating	IP67
Operation temperature	–40°C to +85°C

YECT005W1A

5G terminal mount rubber dipole external antenna

Compliant

RoHS

Electrical data

Frequency range	600–6000 MHz
Efficiency	52% AVG.
Peak gain	3.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	–40°C to +85°C

YECT005WFA

5G terminal mount rubber dipole external antenna

Compliant

RoHS

Electrical data

Frequency range	600-6000 MHz
Efficiency	50% AVG.
Peak gain	4.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13mm
Form factor	Rubber
Mounting type	Terminal
Connector type	RP SMA male
Operation temperature	–40°C to +85°C

YECT005W1W

5G terminal mount rubber dipole external antenna

Compliant

RoHS

Electrical data

Frequency range	600-6000 MHz
Efficiency	55% AVG.
Peak gain	4.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	-40°C to +85°C

YECT005W1AM

5G terminal mount rubber dipole external antenna

Compliant

RoHS

Electrical data

Frequency range	600-6000 MHz
Efficiency	50% AVG.
Peak gain	2.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ13 × 196.2 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	-20°C to +70°C

YECN009AA

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600-6000 MHz
Efficiency	30%-80%
Peak gain	3.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	200 × 21 × 8 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	-40°C to +85°C

YECN028AA

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	410–470 MHz, 617–960 MHz, 1427–6000 MHz
Efficiency	25%–80%
Peak gain	5.8 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	225 × 54.5 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP66
Operation temperature	–40°C to +85°C

YECT028W1A

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Efficiency	45%–85%
Peak gain	5.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	225 × 54.5 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP66
Operation temperature	–40°C to +80°C

YECT102WAAH

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Efficiency	45%–85%
Peak gain	5.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	231 × 54.5 × 14.5 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	TNC male
IP rating	IP66
Operation temperature	–40°C to +85°C

YECT103W7AH

5G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Efficiency	45%–85%
Peak gain	5.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	233 × 54.5 × 20 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	N type male
IP rating	IP66
Operation temperature	–40°C to +85°C

YECT002W1A

5G terminal mount rubber dipole external antenna
Compatible with Japan market

Compliant

RoHS & REACH

Electrical data

Frequency range	600–5000 MHz
Efficiency	55% AVG.
Peak gain	2.8 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	209 × 42 × 6 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	–20°C to +60°C

YFCX001WWAH

5G adhesive mount transparent film + cable dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	700–960 MHz, 1450–2690 MHz, 3300–6000 MHz
Efficiency	30%–70%
Peak gain	6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	118.2 × 42.7 mm
Form factor	Transparent film + cable
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174
Cable length	108 mm
Operation temperature	–40°C to +85°C

YECT000WBA

5G screw mount stubby monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1400–2690 MHz, 3300–6000 MHz
Efficiency	20%–90%
Peak gain	8.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ40.6 × 104 mm
Form factor	Stubby
Mounting type	Screw
Connector type	N type female
IP rating	IP67 & IP69K
IK rating	IK10
Operation temperature	-40°C to +85°C

YECT101W7AH

5G terminal mount stubby monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1400–2690 MHz, 3300–6000 MHz
Efficiency	20%–90%
Peak gain	8.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ40.6 × 78 mm
Form factor	Stubby
Mounting type	Terminal
Connector type	N type male
IP rating	IP67 & IP69K
IK rating	IK10
Operation temperature	-40°C to +85°C

YECN001J1A

5G screw mount stubby monopole external antenna

Compatible with ECE-R118 cables under demand

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1400–2690 MHz, 3300–6000 MHz
Efficiency	30%–90%
Peak gain	8.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ40.6 × 104 mm
Form factor	Stubby
Mounting type	Screw
Connector type	SMA male
Cable type	ALSR200
Cable length	300 mm
IP rating	IP67 & IP69K
IK rating	IK10
Operation temperature	-40°C to +85°C

YECA000G1AM

5G adhesive mount low profile dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz, 3300–6000 MHz
Efficiency	35%–80%
Peak gain	4.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	116.5 × 21.7 × 5.6 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174
Cable length	215 mm
Operation temperature	–40°C to +85°C

YECM001L1AH

5G magnetic mount whip monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	30%–65%
Peak gain	6.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 82.2 mm
Form factor	Whip
Mounting type	Magnetic
Connector type	SMA male
Cable type	RG174LL
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YECA001L1AH

5G adhesive mount whip monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	30%–65%
Peak gain	6.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 83.2mm
Form factor	Whip
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174LL
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YECT010W7AM

5G terminal mount fiberglass dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600-960 MHz, 1400-2700 MHz, 3300-5000 MHz
Efficiency	45%–85%
Peak gain	7.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ25.5 × 300 mm
Form factor	Fiberglass
Mounting type	Terminal
Connector type	N type male
IP rating	IP67
Operation temperature	–40°C to +85°C

EXTERNAL

4G antennas

YECT003W1A

YECW000N1A

YECT011W1AM

YECA000M1A

YECM002L1AH

YE0006AA

YECT001W1CM

YECT009W1AM

For more information please visit Quectel.com

YECT012G3AM

4G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	700–960 MHz, 1710–2690 MHz
Efficiency	AVG. 45%
Peak gain	4.6dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	15.6 × 13 × 130mm
Form factor	Rubber
Mounting type	Terminal
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	200mm
Operation temperature	–40°C to +85°C

YECT001W1DM

4G terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	35%–75%
Peak gain	2.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ9 × 54.9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP53
Operation temperature	–40°C to +85°C

YECT001W1CM

4G terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	30%–70%
Peak gain	3.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	52.6 × 18.6 × 9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	Right angle SMA male
IP rating	IP53
Operation temperature	–40°C to +85°C

YECT001W1WM

4G terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	50% AVG.
Peak gain	3.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	52.6 × 18.6 × 9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP54
Operation temperature	–40°C to +85°C

YECT003W1A

4G terminal mount rubber monopole external antenna
Compatible with Japan market

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz; 1450–2690 MHz; 3300–3800 MHz
Efficiency	25%–80%
Peak gain	3.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ12.4 × 50.8 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP67
Operation temperature	–40°C to +85°C

YECT011W1AM

4G terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	20%-70%
Peak gain	4.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector Type	SMA male
IP Rating	IP67
Operation temperature	–40°C to +85°C

YECT012W1AM

4G terminal mount rubber dipole external antenna

Compliant

RoHS

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	52% AVG.
Peak gain	3.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA Male
Operation temperature	–40°C to +85°C

YECT009W1AM

4G terminal mount rubber monopole external antenna
Compatible with Japan market

Compliant

RoHS

Electrical data

Frequency range	600–960 MHz, 1710–2690 MHz
Efficiency	20%–65%
Peak gain	2.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ10.22 × 69.5 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	–40°C to +85°C

YE0013CA

4G terminal mount rubber monopole external antenna
Compatible with Japan market

Compliant

RoHS

Electrical data

Frequency range	698–2700 MHz
Efficiency	45%–95%
Peak gain	4.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ10.2× 115.4 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP66
Operation temperature	–40°C to +85°C

YCN001AA

4G terminal mount rubber monopole external antenna
Compatible with Japan market

Compliant

RoHS

Electrical data

Frequency range	698–960 MHz, 1560–1610 MHz, 1710–2700 MHz
Efficiency	48% AVG.
Peak gain	0 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ13 × 144 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP66
Operation temperature	–40°C to +85°C

YECT007AA

4G pole mount fiberglass dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–2690 MHz
Efficiency	40%–95%
Peak gain	1.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ20 × 300 mm
Form factor	Fiberglass
Mounting type	Pole
Connector type	N type male
IP rating	IP65
Operation temperature	–40°C to +85°C

YE0010AA

4G adhesive mount low profile dipole external antenna
Compatible with Japan market

Compliant

RoHS

Electrical data

Frequency range	698–2700 MHz
Efficiency	30%–80%
Peak gain	2.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	152 × 18 × 11.1 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174
Cable length	1000 mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YECA000M1A

4G adhesive mount low profile monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz 1710–2690 MHz
Efficiency	36% AVG.
Peak gain	2.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ99.98 × 17.46 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	ALSR100
Cable length	1460 mm
IP rating	IP68
IK rating	IK10
Operation temperature	–40°C to +85°C

YECA000J1AM

4G adhesive mount low profile monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	35%–80%
Peak gain	4.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	60 × 16 × 6.3 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174
Cable length	213 mm
Operation temperature	–40°C to +85°C

YECW000N1A

4G screw mount low profile PIFA external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	450–470 MHz, 698–960 MHz, 1710–2690 MHz
Efficiency	20%–60%
Peak gain	3.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	150 × 50 × 36.5 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	ALSR100
Cable length	2000 mm
Operation temperature	–40°C to +85°C

YECW058L1BM

4G screw mount low profile dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	790–960 MHz, 1710–2690 MHz
Efficiency	50% AVG.
Peak gain	7.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	223.18 × 74.09 × 76.50 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	1500 mm
Operation temperature	–40°C to +85°C

YECW058L1CM

4G screw mount low profile dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	450–470 MHz, 790–960 MHz, 1710–2690 MHz
Efficiency	50% AVG.
Peak gain	7.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	223.18 × 74.09 × 76.50 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	1500 mm
Operation temperature	–40°C to +85°C

YECM002L1AH

4G magnetic mount whip monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	37% - 65%
Peak gain	4.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 82.2 mm
Form factor	Whip
Mounting type	Magnetic
Connector type	SMA male
Cable type	RG174LL
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YECA002L1AH

4G adhesive mount whip monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698– 960 MHz, 1710 – 2690 MHz
Efficiency	37% – 65%
Peak gain	4.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 83.2 mm
Form factor	Whip
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174LL
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMN105J1AM

4G screw mount low profile monopole external antenna

Compliant

RoHS

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	50% AVG.
Peak gain	5.0 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ 46 × 16 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	300 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMN117L1B

4G screw mount low profile monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	410–470 MHz, 698–2690 MHz
Efficiency	30%–70%
Peak gain	4.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ108 × 45 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	1000 mm
IP rating	IP67 & IP69K
IK rating	IK09
Operation temperature	–40°C to +85°C

YECN001L1A

4G screw mount stubby IFA external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	450–470 MHz, 698-960 MHz, 1710-2690 MHz
Efficiency	22%-64%
Peak gain	2.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ40.6 × 104 mm
Form factor	Stubby
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	1000 mm
IP rating	IP67 & IP69K
IK rating	IK10
Operation temperature	–40°C to +85°C

YE0006AA

4G magnetic mount whip monopole external antenna
Compatible with Japan market

Compliant

RoHS

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	25%–60%
Peak gain	4.5 dBi
Radiation pattern	omni–directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 318 mm
Form factor	Whip
Mounting type	Magnetic
Connector type	SMA male
Cable type	RG174
Cable length	1500 mm
IP rating	IP65
Operation temperature	–40°C to +85°C

YECM000M5AH

4G adhesive & magnetic & screw mount low profile dipole external antenna

Compliant

RoHS & REACH&POPS

Frequency range

450–470 MHz, 698–960 MHz, 1710–2690 MHz

Efficiency	38%~65%
Peak gain	4.4dBi
Radiation pattern	omni-directional
Polarization	Linear
Polarization	Linear

Mechanical data

Dimensions	109.28 × 89 × 25.8mm
Form factor	Low profile
Mounting type	Adhesive & Magnetic & Screw
Connector type	Right angle Fakra female code D
Cable type	ALSR100
Cable length	1520mm
IP rating	IP68
Operation temperature	–40°C to +85°C

EXTERNAL

Wi-Fi antennas

YEBT001W1AM

YEBA000J1AM

YEBA001L1AH

YEBT001WFAM

YEBT001WFBM

YEBT010W1AM

For more information please visit Quectel.com

YEBT001WFBM

Wi-Fi terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	35%–70%
Peak gain	4.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ9 × 54.9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	RP SMA male
IP rating	IP54
Operation temperature	–40°C to +85°C

YEBT001WFXM

Wi-Fi terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	60% AVG.
Peak gain	4.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ9 × 54.9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	RP SMA male
IP rating	IP54
Operation temperature	–40°C to +85°C

YEBT062W1AM

Wi-Fi terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5850–5925 MHz, 5925–7125 MHz
Efficiency	50% AVG.
Peak gain	4.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	52.6 × 18.6 × 9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP54
Operation temperature	–40°C to +85°C

YEBT001WFAM

Wi-Fi terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	30%–65%
Peak gain	2.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	52.6 × 18.6 × 9mm
Form factor	Rubber
Mounting type	Terminal
Connector type	Right angle RP SMA male
IP rating	IP54
Operation temperature	–40°C to +85°C

YEBT001WFWM

Wi-Fi terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	50% AVG.
Peak gain	2.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	52.6 × 18.6 × 9mm
Form factor	Rubber
Mounting type	Terminal
Connector type	RP SMA male
IP rating	IP54
Operation temperature	–40°C to +85°C

YEBT010W1AM

Wi-Fi terminal mount rubber monopole external antenna

Compliant

RoHS

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	38%–65%
Peak gain	4.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ10.22 × 69.5 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	RP SMA male
Operation temperature	–40°C to +85°C

YEBT001W1AM

Wi-Fi terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500MHz, 5150–5850MHz, 5925–7125 MHz
Efficiency	45%–70%
Peak gain	4.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	RP SMA male
IP rating	IP67
Operation temperature	–40°C to +85°C

YEBT002W1AM

Wi-Fi terminal mount rubber monopole external antenna

Compliant

RoHS

Electrical data

Frequency range	2400–2500MHz, 5150–5850MHz, 5925–7125 MHz
Efficiency	45%–75%
Peak gain	4.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	RP SMA male
Operation temperature	–40°C to +85°C

YEBT064W1AM

Wi-Fi terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	50% AVG.
Peak gain	4.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP67
Operation temperature	–40°C to +85°C

YEBA000J1AM

Wi-Fi adhesive mount low profile dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500MHz, 5150–5850MHz, 5925–7125 MHz
Efficiency	45%–65%
Peak gain	2.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	60 × 16 × 6.3 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174
Cable length	209 mm
Operation temperature	–40°C to +85°C

YEBT002E3AM

WIFI terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	37%~64%
Peak gain	2.8dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	15.6 × 13 × 130mm
Form factor	Rubber
Mounting type	Terminal
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100mm
Operation temperature	–40°C to +85°C

YEBA001L1AH

Wi-Fi adhesive mount whip monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	30%–65%
Peak gain	4.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 83.2 mm
Form factor	Whip
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174LL
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEBM001L1AH

Wi-Fi magnetic mount whip monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	30%–65%
Peak gain	4.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 82.2 mm
Form factor	Whip
Mounting type	Magnetic
Connector type	SMA male
Cable type	RG174LL
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEBT002W7AM

WIFI terminal mount fiberglass dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400-2500MHz
Efficiency	0.73
Peak gain	4.3dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ 25.5 × 300mm
Form factor	Fiberglass
Mounting type	Terminal
Connector type	N type male
IP rating	IP67
Operation temperature	–40°C to +85°C

YEVT001W7AM

V2X/DSRC terminal mount fiberglass array external antenna

Compliant

RoHS & REACH

Electrical data

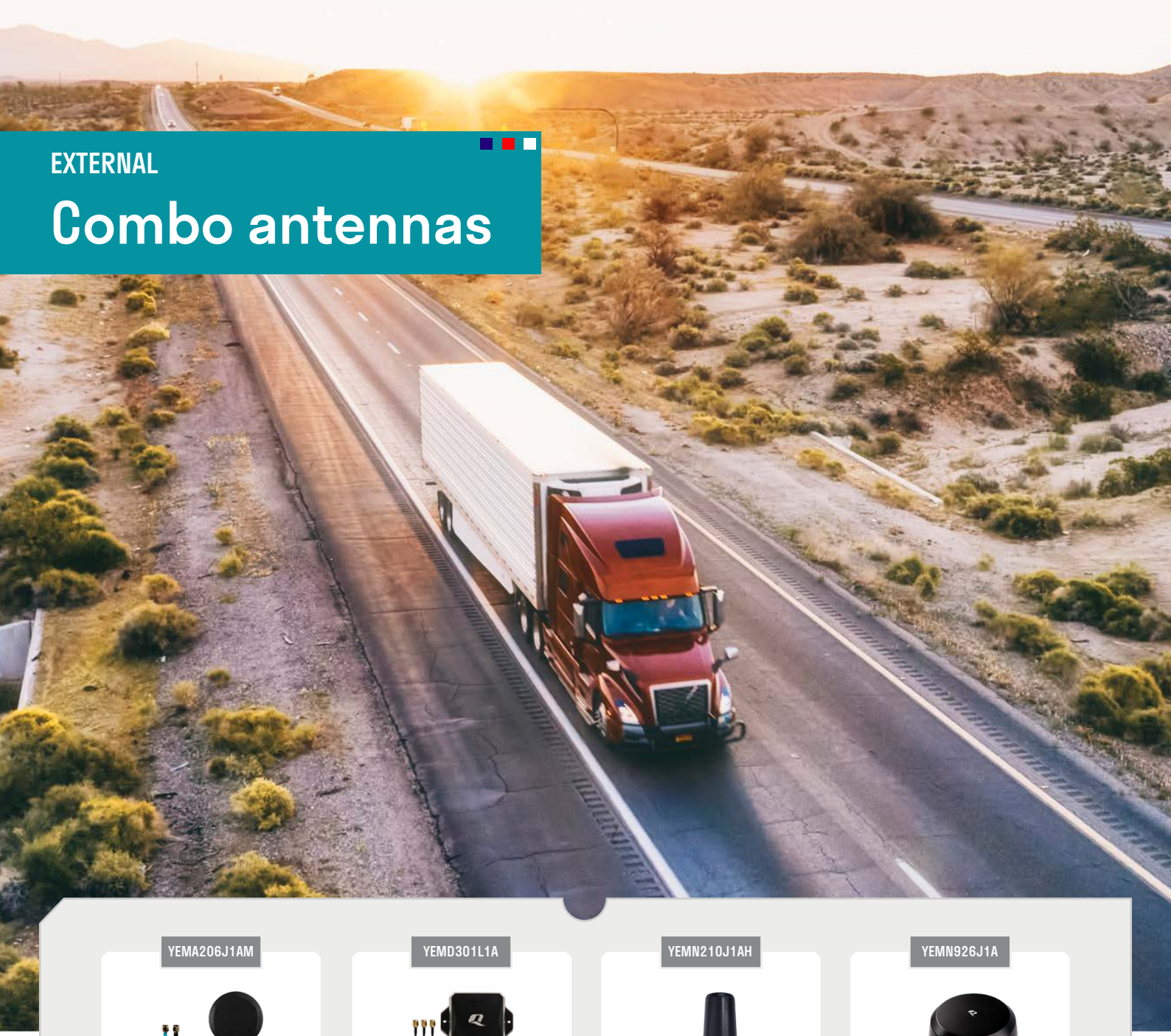
Frequency range	5850-5925MHz
Efficiency	59.5%~65.1%
Peak gain	7.1dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ 25.5 × 600mm
Form factor	Fiberglass
Mounting type	Terminal
Connector type	N type male
IP rating	IP67
Operation temperature	–40°C to +85°C

EXTERNAL

Combo antennas



YEMA206J1AM

YEMD301L1A

YEMN210J1AH

YEMN926J1A

YEMN016AA

YEMA013AA

YEMA300QXA

YEMX425J1A

For more information please visit Quectel.com

YEMN205J1AM

WIFI 2in1 screw mount combo external antenna

Compliant

RoHS

Electrical data

Frequency range	2400–2500 MHz; 5150–5850 MHz
Efficiency	AVG. 55%
Peak gain	4.7dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ46 × 16 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	300mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YEMA206J1AM

4G & GNSS L1 2in1 adhesive mount combo external antenna

Compliant

RoHS

Electrical data

Frequency range	4G × 1: 698–960 MHz; 1710–2690 MHz GNSS L1 × 1: 1559–1606 MHz
Efficiency	4G × 1: 65% AVG. GNSS L1 × 1: 60% AVG.
Peak gain	4G × 1: 7.0 dBi GNSS L1 × 1: 4.4 dBi
Radiation pattern	4G × 1: omni-directional GNSS L1 × 1: Directional
Polarization	4G × 1: Linear GNSS L1 × 1: RHCP
LNA gain	16 ± 3 dB

Mechanical data

Dimensions	Φ82 × 18.2 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	300 mm & 300 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMA004AA

4G & Wi-Fi 2in1 screw mount Combo external antenna

Compliant

RoHS

Electrical data

Frequency range	4G × 1: 698–960 MHz, 1710–2690 MHz Wi-Fi × 1: 2400–2500 MHz
Efficiency	4G × 1: 25%–50% Wi-Fi × 1: 35%–45%
Peak gain	4G × 1: 2.8 dBi Wi-Fi × 1: 2.6 dBi
Radiation pattern	4G × 1: omni-directional Wi-Fi × 1: omni-directional
Polarization	4G × 1: Linear Wi-Fi × 1: Linear

Mechanical data

Dimensions	Φ81 × 14.5 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	900 mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YEMN210J1AH

5G & Wi-Fi 2in1 screw mount Combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	5G × 1: 600–960 MHz & 1400–6000 MHz Wi-Fi × 1: 2400-2500 MHz
Efficiency	5G × 1: 20%-80% Wi-Fi × 1: 53~62%
Peak gain	5G × 1: 5.9 dBi Wi-Fi × 1: 4.4 dBi
Radiation pattern	5G × 1: omni-directional Wi-Fi × 1: omni-directional
Polarization	5G × 1: Linear Wi-Fi × 1: Linear

Mechanical data

Dimensions	Φ40.6 × 104 mm
Form factor	Stubby
Mounting type	Screw
Connector type	SMA male
Cable type	RG174LL
Cable length	300 mm
IP rating	IP67 & IP69K
IK rating	IK10
Operation temperature	–40°C to +85°C

YEMN311J1AH

5G & GNSS 3in1 multiple mount combo external antenna

Compliant

RoHS

Electrical data

Frequency range	5G × 2: 600–960 MHz, 1710–2690 MHz, 3300–6000 MHz GNSS × 1: 1565–1606 MHz
Efficiency	5G × 2: 55% AVG. GNSS × 1: 55% AVG.
Peak gain	5G × 2: 5.8 dBi GNSS × 1: 5.3 dBi
Radiation pattern	5G × 2: omni-directional GNSS × 1: omni-directional
Polarization	5G × 2: Linear GNSS × 1: Linear
LNA gain	17 ±3 dB

Mechanical data

Dimensions	Φ54 × 91.8 mm
Form factor	Stubby
Mounting type	Multiple
Connector type	SMA male
Cable type	RG174
Cable length	300 mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YEMN312J1AH

5G & Wi-Fi & GNSS 3in1 multiple mount combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	5G × 1: 617–960 MHz, 1420–2690 MHz, 3300–6000 MHz Wi-Fi × 1: 2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz GNSS × 1: 1565–1606 MHz
Efficiency	5G × 1: 60% AVG. Wi-Fi × 1: 60% AVG. GNSS × 1: 52% AVG.
Peak gain	5G × 1: 7.3 dBi Wi-Fi × 1: 7.9 dBi GNSS × 1: 2.62 dBi
Radiation pattern	5G × 1: omni-directional Wi-Fi × 1: omni-directional GNSS × 1: Directional
Polarization	5G × 1: Linear Wi-Fi × 1: Linear GNSS × 1: RHCP
LNA gain	17 ±3 dB

Mechanical data

Dimensions	Φ54 × 91.8 mm
Form factor	Stubby
Mounting type	Multiple
Connector type	SMA male
Cable type	RG174
Cable length	300 mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YEMX223J1A

5G 2in1 multiple mount Combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	410–470 MHz, 617–960 MHz, 1420–1520 MHz, 1710–2690 MHz, 3300–3800 MHz, 4000–6000 MHz
Efficiency	50% AVG.
Peak gain	5.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	186 × 176 × 100.5 mm
Form factor	Low profile
Mounting type	Multiple
Connector type	SMA male
Cable type	ALSR200
Cable length	450 mm
IP rating	IP67
IK rating	IK09
Operation temperature	–40°C to +85°C

YEMA200L1AH

4G 2in1 adhesive mount combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	50% AVG.
Peak gain	3.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	143.73 × 51.33 × 15 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male & SMA male
Cable type	RG174LL & RG174LL
Cable length	1028mm & 1028 mm
IP rating	IP68
Operation temperature	–40°C to +85°C

YEMA300QXA

4G & Wi-Fi & GNSS L1 3in1 adhesive mount Combo external antenna

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	4G × 1: 698–960 MHz, 1710–2690 MHz Wi-Fi × 1: 2400–2500 MHz, 5150–5850 MHz GNSS × 1: 1559–1606MHz
Efficiency	4G × 1: 25%–60% Wi-Fi × 1: 47%–53% GNSS × 1: 50%–75%
Peak gain	4G × 1: 4.1 dBi Wi-Fi × 1: 2.7 dBi GNSS × 1: 2.4 dBi
Radiation pattern	4G × 1: omni-directional Wi-Fi × 1: omni-directional GNSS × 1: Directional
Polarization	4G × 1: Linear Wi-Fi × 1: Linear GNSS × 1: RHCP
LNA gain	18 ± 3 dB

Mechanical data

Dimensions	143.73 × 51.33 × 15 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male & RP SMA male
Cable type	RG174LL & RG174
Cable length	1028 mm
IP rating	IP68
Operation temperature	–40°C to +85°C

YEMD301L1A

4G & GNSS L1 3in1 multiple mount Combo external antenna

Compliant

RoHS & REACH & POPS & CE

Electrical data

Frequency range	4G × 2: 698–960 MHz, 1710–2690 MHz GNSS × 1: 1565–1606 MHz
Efficiency	4G × 2: 40%–70% GNSS × 1: 76%–79%
Peak gain	4G × 2: 5.5 dBi GNSS × 1: 2.18 dBi
Radiation pattern	4G × 2: omni-directional GNSS × 1: Directional
Polarization	4G × 2: Linear GNSS × 1: RHCP
LNA gain	18 ± 3 dB

Mechanical data

Dimensions	109.28 × 89 × 25.8 mm
Form factor	Low profile
Mounting type	Multiple
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	1025 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMD302L1A

4G & Wi-Fi & GNSS L1 3in1 multiple mount combo external antenna

Compliant

RoHS & REACH & POPS & CE

Electrical data

Frequency range	4G × 1: 698–960 MHz, 1710–2690 MHz Wi-Fi × 1: 2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz GNSS × 1: 1565–1606 MHz
Efficiency	4G × 1: 30%–75% Wi-Fi × 1: 33%–58% GNSS × 1: 76%–79%
Peak gain	4G × 1: 5.1 dBi Wi-Fi × 1: 5.8 dBi GNSS × 1: 2.18 dBi
Radiation pattern	4G × 1: omni-directional Wi-Fi × 1: omni-directional GNSS × 1: Directional
Polarization	4G × 1: Linear Wi-Fi × 1: Linear GNSS × 1: RHCP
LNA gain	18 ± 3 dB

Mechanical data

Dimensions	109.28 × 89 × 25.8 mm
Form factor	Low profile
Mounting type	Multiple
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	1025 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMD301L1B

4G & GNSS L1 3in1 multiple mount combo external antenna

Compliant

RoHS & REACH & POPS & CE

Electrical data

Frequency range	4G × 2: 698–960 MHz, 1710–2690 MHz GNSS × 1: 1565–1606 MHz
Efficiency	4G × 2: 40%-70% GNSS × 1: 76%~79%
Peak gain	4G × 2: 5.5 dBi GNSS × 1: 2.18 dBi
Radiation pattern	4G × 2: omni-directional GNSS × 1: Directional
Polarization	4G × 2: Linear GNSS × 1: RHCP
LNA gain	28 ± 3 dB

Mechanical data

Dimensions	109.28 × 89 × 25.8 mm
Form factor	Low profile
Mounting type	Multiple
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	1025 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMD302L1B

4G & Wi-Fi & GNSS L1 3in1 multiple mount combo external antenna

Compliant

RoHS & REACH & POPS & CE

Electrical data

Frequency range	4G × 1: 698–960 MHz, 1710–2690 MHz Wi-Fi × 1: 2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz GNSS × 1: 1565–1606 MHz
Efficiency	4G × 1: 30%-75% Wi-Fi × 1: 33%~58% GNSS × 1: 76%~79%
Peak gain	4G × 1: 5.1 dBi Wi-Fi × 1: 5.8 dBi GNSS × 1: 2.18 dBi
Radiation pattern	4G × 1: omni-directional Wi-Fi × 1: omni-directional GNSS × 1: Directional
Polarization	4G × 1: Linear Wi-Fi × 1: Linear GNSS × 1: RHCP
LNA Gain	28 ± 3 dB

Mechanical data

Dimensions	109.28 × 89 × 25.8 mm
Form factor	Low profile
Mounting type	Multiple
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	1025 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMA301J1AM

4G & GNSS L1 3in1 adhesive mount combo external antenna

Compliant

RoHS

Electrical data

Frequency range	4G × 2: 698–960 MHz, 1710–2690 MHz GNSS L1 × 1: 1559–1606 MHz
Efficiency	4G × 2: 60% AVG. GNSS L1 × 1: 60% AVG.
Peak gain	4G × 2: 7.0 dBi GNSS L1 × 1: 4.4 dBi
Radiation pattern	4G × 2: omni-directional GNSS L1 × 1: Directional
Polarization	4G × 2: Linear GNSS L1 × 1: RHCP
LNA gain	16 ±3 dB

Mechanical data

Dimensions	Φ82 × 18.2 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	300 mm & 300 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMN302Q1A

4G & GNSS L1 3in1 screw mount Combo external antenna

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	4G × 2: 698–960 MHz, 1710–2690 MHz GNSS × 1: 1565–1606 MHz
Efficiency	4G × 2: 30%–55% GNSS × 1: 66% AVG.
Peak gain	4G × 2: 3.3 dBi GNSS × 1: 2.57 dBi
Radiation pattern	4G × 2: omni-directional GNSS × 1: Directional
Polarization	4G × 2: Linear GNSS × 1: RHCP
LNA gain	18 ± 3 dB

Mechanical data

Dimensions	Φ81.4 × 16.5 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	ALSR100 & RG174
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YB0014AA

4G & GNSS L1 3in1 screw mount Combo external antenna
Compatible with Japan market

Compliant

RoHS

Electrical data

Frequency range	4G × 2: 698–960 MHz, 1710–2690 MHz GNSS × 1: 1559–1586 MHz
Efficiency	4G × 2: 10%–20% GNSS × 1: 36%~44%
Peak gain	4G × 2: –2.2 dBi GNSS × 1: 1.75dBi
Radiation pattern	4G × 2: omni-directional GNSS × 1: Directional
Polarization	4G × 2: Linear GNSS × 1: RHCP
LNA gain	22 ± 3 dB

Mechanical data

Dimensions	Φ81×14.5 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	3000 mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YEMN308L1AM

4G & GNSS L1 3in1 screw mount combo external antenna

Compliant

RoHS

Electrical data

Frequency range	4G * 2: 698–960 MHz, 1710–2690 MHz GNSS L1 * 1: 1565–1606 MHz
Efficiency	4G * 2: 30%~56% GNSS L1 * 1: 0.48
Peak gain	4G * 2: 3.1dBi GNSS L1 * 1: 1.32dBi
Radiation pattern	4G * 2: omni-directional GNSS L1 * 1: Directional
Polarization	4G * 2: Linear GNSS L1 * 1: RHCP
LNA gain	18 ±3dB

Mechanical data

Dimensions	Φ 81 × 15.5mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	300mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMN310L1AM

4G & GNSS L1 3in1 screw mount combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	4G * 2: 698–960 MHz, 1710–2690 MHz GNSS L1 * 1: 1565–1606 MHz
Efficiency	4G * 2: AVG. 45% GNSS L1 * 1: 26.7%~62.5%
Peak gain	4G * 2: 6.3dBi GNSS L1 * 1: 1.57dBi
Radiation pattern	4G * 2: omni-directional GNSS L1 * 1: Directional
Polarization	4G × 2: Linear GNSS L1 * 1: RHCP
LNA gain	18 ± 3 dB

Mechanical data

Dimensions	89.3 × 86.3 × 35.4mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	300mm & 300mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMX425J1A

5G 4in1 multiple mount Combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	410–470 MHz, 617–2690 MHz, 3300–6000 MHz
Efficiency	50% AVG.
Peak gain	5.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	186 × 176 × 150 mm
Form factor	Low profile
Mounting type	Multiple
Connector type	SMA male
Cable type	ALSR200
Cable length	450 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMN017AA

5G & GNSS L1 & L5 5in1 screw mount Combo external antenna

Compatible with ECE-R118 cables under demand

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	5G × 2: 600–960 MHz, 1400–6000 MHz; 5G × 2: 1400–6000 MHz GNSS × 1: 1164–1189 MHz, 1559–1606 MHz
Efficiency	5G × 2: 50% AVG. ; 5G × 2: 30%–70% GNSS × 1: L1: 40%–42%, L5: 45%–47%
Peak gain	5G × 2: 5 dBi; 5G × 2: 4.9 dBi GNSS × 1: L1: –1.2 dBi, L5: 0 dBi
Radiation pattern	5G × 2: omni-directional; 5G × 2: omni-directional GNSS × 1: Directional
Polarization	5G × 2: Linear; 5G × 2: Linear GNSS × 1: RHCP
LNA gain	28 dB

Mechanical data

Dimensions	Φ103.5 × 42.5 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG405 & RG174
Cable length	300 mm
IP rating	IP67 & IP69K
IK rating	IK09
Operation temperature	–40°C to +85°C

YEMN400J1AH

5G 4in1 screw mount Combo external antenna

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	5G × 2: 600-6000 MHz, 5G × 2: 1400-6000 MHz
Efficiency	5G × 2: 50% AVG., 5G × 2: 30%-70%
Peak gain	5G × 2: 5.0 dBi, 5G × 2: 4.9 dBi
Radiation pattern	5G × 2: omni-directional, 5G × 2: omni-directional
Polarization	5G × 2: Linear, 5G × 2: Linear

Mechanical data

Dimensions	Φ103.5 × 42.5 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG405
Cable length	300 mm
IP rating	IP67 & IP69K
IK rating	IK09
Operation temperature	–40°C to +85°C

YEMN301J1AH

5G & GNSS L1& L5 3in1 screw mount Combo external antenna

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	5G × 2: 600-6000 MHz GNSS L1 & L5 × 1: 1164-1189 MHz, 1559-1606 MHz
Efficiency	5G × 2: 50% AVG. GNSS L1 & L5 × 1: L1: 40%-42%, L5: 45%-47%
Peak gain	5G × 2: 5.0 dBi GNSS L1 & L5 × 1: L1: -1.2 dBi, L5: 0 dBi
Radiation pattern	5G × 2: omni-directional GNSS L1 & L5 × 1: L1: -1.2 dBi, L5: 0 dBi
Polarization	5G × 2: Linear GNSS L1 & L5 × 1: RHCP
LNA gain	28 dB

Mechanical data

Dimensions	Φ103.5 × 42.5 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG405 & RG174
Cable length	300 mm & 300 mm
IP rating	IP67 & IP69K
IK rating	IK09
Operation temperature	–40°C to +85°C

YEMN016AA

5G & GNSS L1 & L5 5in1 screw mount Combo external antenna
Compatible with ECE-R118 cables under demand

Compliant

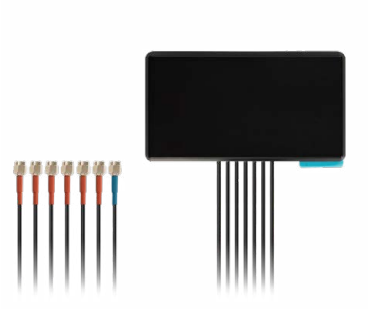
RoHS & REACH & CE

Electrical data

Frequency range	5G × 2: 600–960 MHz, 1400–6000 MHz; 5G × 2: 1400–6000 MHz GNSS × 1: 1164–1189 MHz, 1559–1606 MHz
Efficiency	5G × 2: 20%–70%; 5G × 2: 20%–60% GNSS × 1: L1: 50%–52%, L5: 75%–78%
Peak gain	5G × 2: 5.9 dBi; 5G × 2: 4.7 dBi GNSS × 1: L1: 2.7 dBi, L5: 4.3 dBi
Radiation pattern	5G × 2: omni-directional; 5G × 2: omni-directional GNSS × 1: Directional
Polarization	5G × 2: Linear, 5G × 2: Linear, GNSS × 1: RHCP
LNA gain	28 dB

Mechanical data

Dimensions	204.4 × 86.7 × 32 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	300 mm
IP rating	IP67 & IP69K
Operation temperature	–40°C to +85°C



YEMM701K1AH

5G & GNSS L1 7in1 magnetic mount combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	5G * 4: 600–960 MHz, 1400–6000 MHz 5G * 2: 1400–6000 MHz GNSS L1 * 1: 1565–1606 MHz
Efficiency	5G * 4: AVG. 35% 5G * 2: AVG. 30% GNSS L1 * 1: 40%~45%
Peak gain	5G * 4: 2.7dBi 5G * 2: 2.1dBi GNSS L1 * 1: 1.94dBi
Radiation pattern	5G * 4: omni-directional 5G * 2: omni-directional GNSS L1 * 1: Directional
Polarization	5G * 4: Linear 5G * 2: Linear GNSS L1 * 1: RHCP
LNA gain	18 ±3dB

Mechanical data

Dimensions	133 × 73 × 19.1mm
Form factor	Low profile
Mounting type	Magnetic
Connector type	SMA male
Cable type	RG174LL & RG174
Cable length	1000mm & 1000mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YB0027AA

5G & GNSS L1 & L5 9in1 screw mount Combo external antenna

Compatible with ECE-R118 cables under demand

Compliant

RoHS & REACH

Electrical data

Frequency range	5G × 4: 600–960 MHz, 1400–6000 MHz; 5G × 4: 1400–6000 MHz GNSS × 1: 1164–1189 MHz, 1559–1606 MHz
Efficiency	5G × 4: 25%–60%; 5G × 4: 30%–70% GNSS × 1: L1: 45%–66%, L5: 80%–85%
Peak gain	5G × 4: 4.9 dBi; 5G × 4: 4.1 dBi GNSS × 1: L1: 3.8 dBi, L5: 4.7 dBi
Radiation pattern	5G × 4: omni-directional; 5G × 4: omni-directional GNSS × 1: Directional
Polarization	5G × 4: Linear; 5G × 4: Linear GNSS × 1: RHCP
LNA gain	22 ± 3 dB

Mechanical data

Dimensions	Φ162 × 56 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	300 mm
IP rating	IP67 & IP69K
IK rating	IK09
Operation temperature	–40°C to +85°C

YEMN701J1AH

5G & GNSS L1 & L5 7in1 screw mount Combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	5G × 4: 600-6000MHz; 5G × 2: 1400-6000MHz GNSS × 1: 1164-1189MHz, 1559-1606MHz
Efficiency	5G × 4: 25%-60%; 5G × 2: 30%-70% GNSS × 1: L1:45%-66%, L5:80%-85%
Peak gain	5G × 4: 4.9 dBi; 5G × 2: 4.1 dBi GNSS × 1: L1: 3.8dBi, L5: 4.7dBi
Radiation pattern	5G × 4: omni-directional; 5G × 2: omni-directional GNSS × 1: Directional
Polarization	5G × 4: Linear; 5G × 2: Linear GNSS × 1: RHCP
LNA gain	28 dB

Mechanical data

Dimensions	Φ162 × 56mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	300 mm
IP rating	IP67 & IP69K
IK Rating	IK 09
Operation temperature	–40°C to +85°C

YEMN926J1A

5G & GNSS L1 & L5 9in1 screw mount Combo external antenna
Compatible with ECE-R118 cables
under demand

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	5G × 4: 600–960 MHz, 1400–6000 MHz; 5G × 4: 1400–6000 MHz GNSS × 1: 1164–1189 MHz, 1559–1606 MHz
Efficiency	5G × 4: 46% AVG. ; 5G × 4: 30%–60% GNSS × 1: L1: 45%–66%, L5: 80%–85%
Peak gain	5G × 4: 4.3 dBi; 5G × 4: 5.4 dBi GNSS × 1: L1: 3.8 dBi, L5: 4.7 dBi
Radiation pattern	5G × 4: omni-directional; 5G × 4: omni-directional GNSS × 1: Directional
Polarization	5G × 4: Linear; 5G × 4: Linear GNSS × 1: RHCP
LNA gain	22 ± 3 dB

Mechanical data

Dimensions	Φ167 × 57 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	ALS302 & RG174
Cable length	300 mm
IP rating	IP67 & IP69K
IK rating	IK09
Operation temperature	-40°C to +85°C

YEMA013AA

5G & GNSS L1 & L5 9in1 adhesive mount Combo external antenna
Compatible with ECE-R118 cables
under demand

Compliant

RoHS & REACH & CE

Electrical data

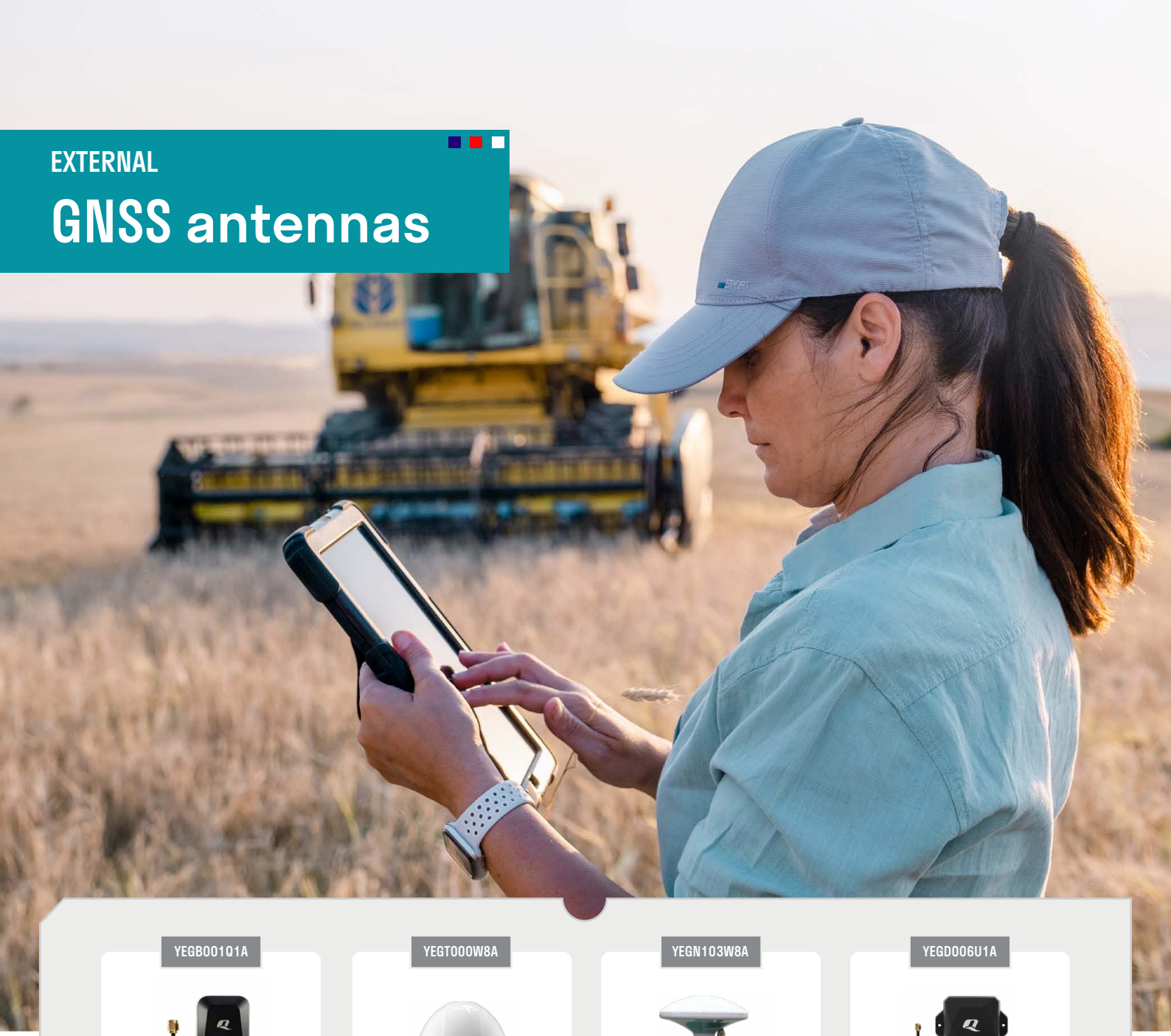
Frequency range	5G × 4: 600–960 MHz, 1400–6000 MHz; 5G × 4: 1400–6000 MHz GNSS × 1: 1166–1186 MHz, 1559–1606 MHz
Efficiency	5G × 4: 30%–75%; 5G × 4: 30%–70% GNSS × 1: L1: 50%–53%, L5: 55%–60%
Peak gain	5G × 4: 5.6 dBi; 5G × 4: 6.3 dBi GNSS × 1: L1: 4.2 dBi, L5: 2.8 dBi
Radiation pattern	5G × 4: omni-directional; 5G × 4: omni-directional GNSS × 1: Directional
Polarization	5G × 4: Linear; 5G × 4: Linear GNSS × 1: RHCP
LNA gain	28 dB

Mechanical data

Dimensions	264.6 × 161.2 × 30.6 mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	ALSR200 & RG174
Cable length	300 mm
IP rating	IP67 & IP69K
IK rating	IK09
Operation temperature	-40°C to +85°C

EXTERNAL

GNSS antennas



YEGB001Q1A

YEGT000W8A

YEGN103W8A

YEGD006U1A

YEGT003W1AM

YEGT010W1AM

YEGT001W1AM

YETN001L1A

For more information please visit Quectel.com

YEGB000Q1C

GNSS L1 adhesive & magnetic mount low profile active external antenna
Compatible with ECE-R118 cables under demand

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	1565–1606 MHz
Efficiency	70%–73%
Peak gain	1.7 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 ± 3 dB

Mechanical data

Dimensions	46 × 36 × 15.8 mm
Form factor	Low profile
Mounting type	Adhesive & magnetic
Connector type	SMA male
Cable type	RG174
Cable length	3000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEGA001Q1AM

GNSS L1 adhesive mount low profile active external antenna

Compliant

RoHS

Electrical data

Frequency range	1559–1606 MHz
Efficiency	42.1%~45.3%
Peak gain	-0.34dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	21 ±3dB

Mechanical data

Dimensions	55.6 × 50.3 × 18mm
Form factor	Low profile
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174
Cable length	3000mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YEGM001Q1AM

GNSS L1 magnetic mount low profile active external antenna

Compliant

RoHS

Electrical data

Frequency range	1559–1606 MHz
Efficiency	42.1%~45.3%
Peak gain	-0.34dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	21 ±3dB

Mechanical data

Dimensions	55.6 × 50.3 × 18mm
Form factor	Low profile
Mounting type	Magnetic
Connector type	SMA male
Cable type	RG174
Cable length	3000mm
IP rating	IP66
Operation temperature	–40°C to +85°C

YEGB000Q1A

GNSS L1 & L5 adhesive & magnetic mount low profile active external antenna
Compatible with ECE-R118 cables under demand

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	1164–1189 MHz, 1559–1606 MHz
Efficiency	L1: 40%–70%, L5: 50%–60%
Peak gain	L1: 3.4 dBi, L5: 1.4 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	62 × 56 × 23 mm
Form factor	Low profile
Mounting type	Adhesive & magnetic
Connector type	SMA male
Cable type	RG174
Cable length	3000 mm
IP rating	IP68
IK rating	IK09
Operation temperature	–40°C to +85°C

YEGN000Q1A

GNSS L1 & L5 bracket mount low profile active external antenna
Compatible with ECE-R118 cables under demand

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	1164–1189 MHz, 1559–1606 MHz
Efficiency	L1: 40%–70%, L5: 50%–60%
Peak gain	L1: 3.4 dBi, L5: 1.4 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	62 × 56 × 23 mm
Form factor	Low profile
Mounting type	Bracket
Connector type	SMA male
Cable type	RG174
Cable length	3000 mm
IP rating	IP68
IK rating	IK09
Operation temperature	–40°C to +85°C

YEGB001Q1A

GNSS L1 & L5 adhesive & magnetic mount low profile active external antenna
Compatible with ECE-R118 cables under demand

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	1165–1189 MHz, 1559–1606 MHz
Efficiency	L1: 32%–52%, L5: 50%–52%
Peak gain	L1: 1.2 dBi, L5: 1 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	55.2 × 48 × 20.5 mm
Form factor	Low profile
Mounting type	Adhesive & magnetic
Connector type	SMA male
Cable type	RG174
Cable length	3000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEGN001Q1A

GNSS L1 & L5 bracket mount low profile active external antenna
Compatible with ECE-R118 cables
under demand

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	1164–1189 MHz, 1559–1606 MHz
Efficiency	L1: 32%–52%, L5: 50%–52%
Peak gain	L1: 1.2 dBi, L5: 1 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	55.2 × 48 × 20.5 mm
Form factor	Low profile
Mounting type	Bracket
Connector type	SMA male
Cable type	RG174
Cable length	3000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEGD006U1A

GNSS full band adhesive & magnetic & screw mount low profile active external antenna

Compliant

RoHS & REACH & POPS & CE

Electrical data

Frequency range	Lower band: 1164-1300 MHz; L-band: 1525-1559 MHz; Upper band: 1559-1606 MHz
Efficiency	Lower band: 63%; L-band: 51%; Upper band: 80%
Peak gain	Lower band: 3.27 dBi; L-band: 2.46 dBi; Upper band: 4.77 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA Gain	30 ± 4 dB

Mechanical data

Dimensions	109.28 × 89 × 25.8 mm
Form factor	Low profile
Mounting type	Adhesive & magnetic & screw
Connector type	SMA male
Cable type	RG174
Cable length	5055 mm
IP rating	IP68
Operation temperature	–40°C to +85°C

YEGT002W1AM

GNSS L1 terminal mount rubber passive external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	57%–62%
Peak gain	2.2 dBi
Radiation pattern	omni–directional
Polarization	Linear

Mechanical data

Dimensions	52.6 × 18.6 × 9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male 90
IP rating	IP53
Operation temperature	–40°C to +85°C

YEGT003W1AM

GNSS L1 terminal mount rubber passive external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	52%–56%
Peak gain	1.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ9 × 54.9 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP53
Operation temperature	–40°C to +85°C

YEGT010W1AM

GNSS L1 magnetic mount rubber passive external antenna

Compliant

RoHS

Electrical data

Frequency range	1559–1606 MHz
Efficiency	75.5%–78.2%
Peak gain	3.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ10.22 × 69.5 mm
Form factor	Rubber
Mounting type	Magnetic
Connector type	SMA male
Operation temperature	–40°C to +85°C

YEGT001W1AM

GNSS L1 terminal mount rubber passive external antenna

Compliant

RoHS

Electrical data

Frequency range	1559–1606 MHz
Efficiency	70%–76%
Peak gain	2.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ13 × 135 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	–40°C to +85°C

YEGT000W8A

GNSS L1 & L5 screw mount low profile active external antenna

Compliant

RoHS

Electrical data

Frequency range	1164–1189 MHz, 1559–1606 MHz
Efficiency	L1: 27%–36%, L5: 45%–48%
Peak gain	L1: –0.5 dBi, L5: –0.5 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	28 dB

Mechanical data

Dimensions	Φ65 × 45 mm
Form factor	Low profile
Mounting type	Screw
Connector type	TNC female
IP rating	IP67
Operation temperature	–40°C to +85°C

YEGN103W8A

GNSS L1 & L2 & L5 & E6 & L-band magnetic mount low profile active external antenna

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	1164–1300 MHz, 1525–1606 MHz
Efficiency	Lower band: 67%, L-band: 49%, Upper band: 77%
Peak gain	Lower band: 5.4 dBi, L-band: 3.3 dBi, Upper band: 5.5 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	40 ± 4 dB

Mechanical data

Dimensions	Φ146.4 × 71.43 mm
Form factor	Low profile
Mounting type	Magnetic
Connector type	SMA male
Cable Type	RG174
Cable Length	3000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YEGR001W8AH

GNSS L1 & L2 & L5 & E6 & L-band terminal mount low profile active external antenna

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	1164-1300 MHz,1525-1606 MHz
Efficiency	L2/L5/E6/B3: 30%~67%, L1: 58%~76%
Peak gain	L2/L5/E6/B3: 5.4 dBi, L1: 5.5 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	40 ± 4 dB

Mechanical data

Dimensions	Φ146.4 × 71.43 mm
Form factor	Low profile
Mounting type	Terminal
Connector type	TNC female
IP rating	IP67
Operation temperature	–40°C to +85°C

YEGN002W8AH

GNSS full band screw mount low profile active external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1164-1300 MHz,1525-1606 MHz
Efficiency	Lower Band: 62%; L-band: 69%; Upper Band: 89.8%
Peak gain	Lower Band: 4.5 dBi; L-band: 4.7 dBi; Upper Band: 6.1 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	37 ±4 dB

Mechanical data

Dimensions	Φ146.4 × 71.43 mm
Form factor	Low profile
Mounting type	Screw
Connector type	TNC female
IP rating	IP67
Operation temperature	–40°C to +85°C

YETN001L1A

L-Band & GNSS L1 & Iridium screw mount low profile passive external antenna

Compliant

RoHS & REACH & CE

Electrical data

Frequency range	GNSS: 1559–1606 MHz L-Band: 1518–1559 MHz,1626–1660 MHz,1668–1675 MHz Iridium: 1616–1626 MHz
Efficiency	GNSS: 60%–65% L-Band: 45%–72% Iridium: 68%–70%
Peak gain	GNSS: 4.3 dBi L-Band: 4.2 dBi Iridium: 4.2 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	106.15 × 87.21 × 26.5 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	ALS302
Cable length	524 mm
IP rating	IP67 & IP69K
IK rating	IK09
Operation temperature	–40°C to +85°C

EXTERNAL

LPWA/ISM antennas

YENA001L1AH

YENT001W1AM

For more information please visit Quectel.com

YENT060W1AM

LPWA/ISM terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	863–930 MHz
Efficiency	50% AVG.
Peak gain	1.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ 9.4 × 34.7 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	–40°C to +85°C

YENT002F3AM

LPWA/ISM terminal mount rubber dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	860–930 MHz
Efficiency	AVG. 56.2%
Peak gain	1.9dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	15.6 × 13 × 130 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	150mm
Operation temperature	–40°C to +85°C

YENT000W1AM

LPWA/ISM terminal mount rubber monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	410-470 MHz
Efficiency	24%-83%
Peak gain	1.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
IP rating	IP67
Operation temperature	–40°C to +85°C

YENT001W1AM

LPWA/ISM terminal mount rubber monopole external antenna

Compliant

RoHS

Electrical data

Frequency range	410-470 MHz
Efficiency	57%~70%
Peak gain	1.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	–40°C to +85°C

YENT002W1AM

LPWA/ISM terminal mount rubber dipole external antenna

Compliant

RoHS

Electrical data

Frequency range	850-950 MHz
Efficiency	41-57%
Peak gain	1.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	RP SMA male
Operation temperature	–40°C to +85°C

YENT001W1WM

LPWA/ISM terminal mount rubber monopole external antenna

Compliant

RoHS

Electrical data

Frequency range	410–470 MHz
Efficiency	60% AVG.
Peak gain	1.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	135 × 15.6 × 13 mm
Form factor	Rubber
Mounting type	Terminal
Connector type	SMA male
Operation temperature	–40°C to +85°C

YENM001L1AH

LPWA/ISM magnetic mount whip monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	433–435 MHz, 450–470 MHz
Efficiency	35%–40%
Peak gain	3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 82.2 mm
Form factor	Whip
Mounting type	Magnetic
Connector type	SMA male
Cable type	RG174
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YENA001L1AH

LPWA/ISM adhesive mount whip monopole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	433–435 MHz, 450–470 MHz
Efficiency	35%–40%
Peak gain	3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ30 × 83.2 mm
Form factor	Whip
Mounting type	Adhesive
Connector type	SMA male
Cable type	RG174
Cable length	1000 mm
IP rating	IP67
Operation temperature	–40°C to +85°C

YECW058L1AM

LPWA/ISM screw mount low profile dipole external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	400–470 MHz
Efficiency	55% AVG.
Peak gain	2.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	223.18 × 74.09 × 76.50 mm
Form factor	Low profile
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	1500 mm
Operation temperature	–40°C to +85°C

YENT006W7AM

LPWA/ISM terminal mount fiberglass array external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	902-928MHz
Efficiency	0.677
Peak gain	3.8dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ 25.5 × 600mm
Form factor	Fiberglass
Mounting type	Terminal
Connector type	N type male
IP rating	IP67
Operation temperature	–40°C to +85°C

YENT005W7AM

LPWA/ISM terminal mount fiberglass array external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	860–870 MHz
Efficiency	0.65
Peak gain	3.1dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Φ 25.5 × 600mm
Form factor	Fiberglass
Mounting type	Terminal
Connector type	N type male
IP rating	IP67
Operation temperature	–40°C to +85°C

YEMJ294JPAM

5G 2in1 screw mount combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	617–5950 MHz
Peak gain	6.5 dBi
Polarization	Linear

Mechanical data

Dimensions	Φ 256 × 18 mm
Form factor	Small cell
Mounting type	Screw
Connector type	4.3.10-female
Cable type	402 NM FJ
Cable length	300 mm
Operation temperature	–40°C to +60°C

YEMG493KPAM

5G 4in1 wall & pole mount combo external antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	3300–4200 MHz
Peak gain	12 dBi
Polarization	±45°

Mechanical data

Dimensions	210 × 210 × 48 mm
Form factor	Small cell
Mounting type	Wall & Pole
Connector type	4.3.10-female
Cable type	402 NM FJ
Cable length	500 mm
IP rating	IP65
Operation temperature	–40°C to +60°C

YEMG298WBAM

Wi-Fi 2in1 pole mount combo external antenna

Compliant

RoHS

Electrical data

Frequency range	Wi-Fi × 1: 2400–2483 MHz Wi-Fi × 1: 5150–5850 MHz
Peak gain	Wi-Fi × 1: 14 dBi Wi-Fi × 1: 17 dBi
Polarization	Vertical & Horizontal

Mechanical data

Dimensions	270 × 270 × 43.41 mm
Form factor	Small cell
Mounting type	Pole
Connector type	N type female & N type female
Operation temperature	–40°C to +65°C

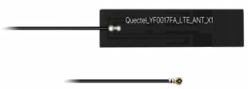
EMBEDDED

5G antennas

YC0018CA

YPCS001AA

YF0017FA

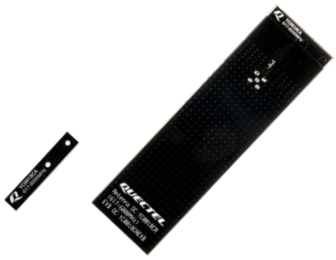


YFCA010AA

YFCA011AA

YF0020EA

For more information please visit Quectel.com



YC0018CA

5G SMT mount PCB chip IFA embedded antenna

EVB

YC0018CAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	617–960 MHz, 1420–1520 MHz, 1710–2690 MHz, 3300–4200 MHz, 4400–5000 MHz, 5150–5850 MHz
Efficiency	20%–75%
Peak gain	5.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 40 × 7 × 3 mm; EVB: 141 × 40.4 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YPCS001AA

5G SMT mount PCB chip monopole embedded antenna

EVB

YPCS001AAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	1427–5850 MHz
Efficiency	20%–65%
Peak gain	2.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 20 × 10 × 3 mm, EVB: 60 × 20 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YF0017FA

5G adhesive mount FPC + cable dipole embedded antenna

Compliant

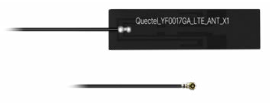
RoHS & REACH

Electrical data

Frequency range	1500–6000 MHz
Efficiency	45%–75%
Peak gain	4.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	49 × 13 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	201 mm
Operation temperature	–40°C to +85°C



YF0017GA

5G adhesive mount FPC + cable dipole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1100–6000 MHz
Efficiency	53% AVG.
Peak gain	6.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	49 × 13 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	201 mm
Operation temperature	–40°C to +85°C

YF0020EA

5G adhesive mount FPC + cable dipole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	30%–90%
Peak gain	4.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	90.3 × 15.3 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	202 mm
Operation temperature	–40°C to +85°C

YFCA010AA

5G adhesive mount FPC + cable dipole embedded antenna

Compliant

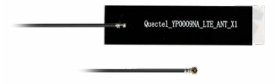
RoHS & REACH

Electrical data

Frequency range	410–470 MHz; 698–960 MHz; 1400–6000 MHz
Efficiency	23%–68%
Peak gain	3.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	138.8 × 16.2 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	101 mm
Operation temperature	–40°C to +85°C



YP0009NA

5G adhesive mount PCB + cable dipole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1100–6000 MHz
Efficiency	30%–80%
Peak gain	5.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	49 × 13 × 0.8 mm
Form factor	PCB + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	202 mm
Operation temperature	–40°C to +85°C

YP0009OA

5G adhesive mount PCB + cable dipole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	30%–75%
Peak gain	5.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	78.5 × 14.2 × 0.8 mm
Form factor	PCB + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	202 mm
Operation temperature	–40°C to +85°C

YPCA006AA

5G adhesive mount PCB + cable dipole embedded antenna

Compliant

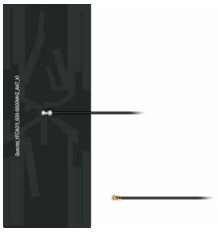
RoHS & REACH

Electrical data

Frequency range	410–470 MHz; 698–960 MHz; 1400–6000 MHz
Efficiency	16%–75%
Peak gain	3.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	150 × 16.2 × 0.6 mm
Form factor	PCB + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	101 mm
Operation temperature	–40°C to +85°C



YFCA011AA

5G adhesive mount FPC + cable dipole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1520–6000 MHz
Efficiency	20%–75%
Peak gain	7.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	120 × 47 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.37
Cable length	150 mm
Operation temperature	–40°C to +85°C

YFCP018WWA

5G SMT mount PCB chip IFA embedded antenna
Compatible with Japan market

EVB

YFCP018WWAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	617–960 MHz, 1420–1520 MHz, 1710–2690 MHz, 3300–4200 MHz, 4400–5000 MHz, 5150–5850 MHz
Efficiency	43% AVG.
Peak gain	2.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 40 × 7 × 3 mm, EVB: 141 × 40.4 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YFCP001WWA

5G SMT mount PCB chip monopole embedded antenna
Compatible with Japan market

EVB

YFCP001WWAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	1427–5850 MHz
Efficiency	45% AVG.
Peak gain	2.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 20 × 10 × 3 mm, EVB: 60 × 20 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

EMBEDDED

4G antennas

YC0003BA

YMCP001AA

YMCP002AA

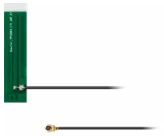
YF0006PA

YF0003FA

YF0028AA

YC0002AA

YPCA004AA



For more information please visit Quectel.com

YC0001CA

4G SMT mount PCB chip IFA embedded antenna
Compatible with Japan market

EVB

YC0001CAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2700 MHz
Efficiency	42% AVG.
Peak gain	2.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 35 × 8.5 × 3 mm, EVB: 121.4 × 65 × 1 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YC0002AA

4G SMT mount PCB chip IFA embedded antenna
Compatible with Japan market

EVB

YC0002AAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz,1710–2690 MHz
Efficiency	30%–80%
Peak gain	3.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 42 × 10 × 3 mm, EVB: 131 × 60 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YC0002BA

4G SMT mount PCB chip IFA embedded antenna

EVB

YC0002BAEVB

Compliant

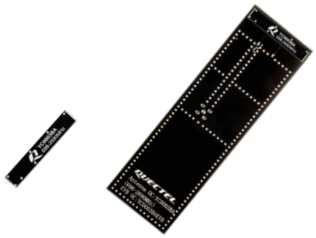
RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	30%–75%
Peak gain	4.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 42 × 10 × 3 mm, EVB: 131 × 60 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YC0003BA

4G SMT Mount PCB chip IFA embedded antenna

EVB

YC0003BAEVB

Compliant

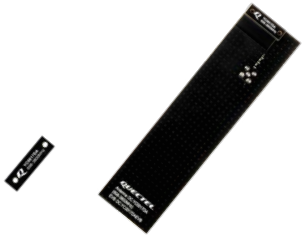
RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	30%–60%
Peak gain	3.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 40 × 7 × 3 mm, EVB: 136.5 × 43 × 1 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YC0017DA

4G SMT mount PCB chip IFA embedded antenna

EVB

YC0017DAEVB

Compliant

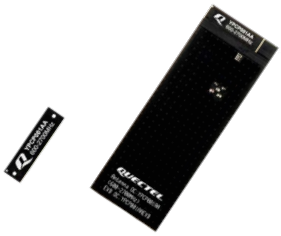
RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz, 3300–3800 MHz
Efficiency	25%–75%
Peak gain	3.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 25 × 7 × 3 mm, EVB: 140 × 36 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YPCP001AA

4G SMT mount PCB chip IFA embedded antenna

EVB

YPCP001AAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1710–2690 MHz
Efficiency	20%–75%
Peak gain	3.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 36 × 9 × 3 mm, EVB: 110 × 45.5 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YPCP003AA

4G SMT mount PCB chip IFA embedded antenna
Compatible with Japan market

EVB

YPCP003AAEVB

Compliant

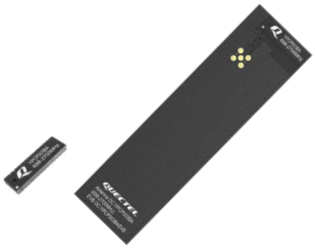
RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1695–2200 MHz, 2300–2700 MHz
Efficiency	50% AVG.
Peak gain	3.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 28 × 8 × 3 mm, EVB: 130 × 36 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YPCP003BA

4G SMT mount PCB chip IFA embedded antenna

EVB

YPCP003BAEVB

Compliant

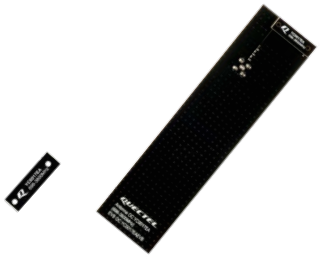
RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1695–2200 MHz, 2300–2700 MHz
Efficiency	46% AVG.
Peak gain	3.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 28 × 8 × 3 mm, EVB: 130 × 36 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YC0017EA

4G SMT mount PCB chip IFA embedded antenna

EVB

YC0017EAEVB

Compliant

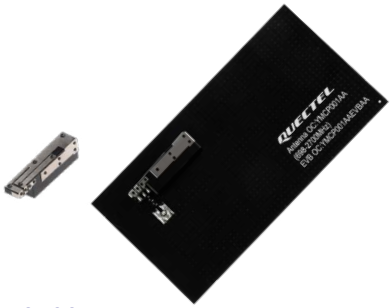
RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz, 3300–3800 MHz
Efficiency	20%–75%
Peak gain	3.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 25 × 7 × 3 mm, EVB: 140 × 36 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YMCP001AA

4G screw mount sheet metal + holder PIFA embedded antenna
Compatible with Japan market

EVB

YMCP001AAEVBAA

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2700 MHz
Efficiency	48% AVG.
Peak gain	2.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 43.19 × 12.73 × 8.15 mm YMCP001AAEVBAA : 145 × 75 mm
Form factor	Sheet metal + holder
Mounting type	Screw
Operation temperature	–40°C to +85°C

YMCP002AA

4G SMT mount sheet metal PIFA embedded antenna

EVB

YMCP002AAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1710–2690 MHz
Efficiency	40%–75%
Peak gain	3.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 40 × 7.23 × 7.6 mm, EVB: 40 × 136.5 mm
Form factor	Sheet metal
Mounting type	SMT
Operation temperature	–40°C to +85°C

YFCA002HA

4G adhesive mount FPC + cable monopole embedded antenna
Compatible with Japan market

Compliant

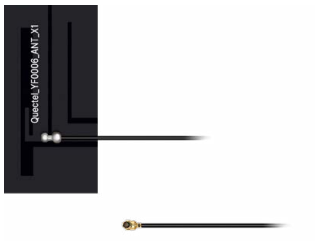
RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	20%–75%
Peak gain	3.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	30 × 20 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	86.5 mm
Operation temperature	–40°C to +85°C



YF0006PA

4G adhesive mount FPC + cable monopole embedded antenna
Compatible with Japan market

Compliant

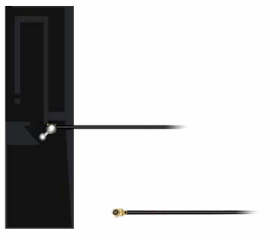
RoHS & REACH

Electrical data

Frequency range	698–2700 MHz
Efficiency	52% AVG.
Peak gain	3.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	50 × 25 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	90 mm
Operation temperature	-40°C to +85°C



YF0003FA

4G adhesive mount FPC + cable monopole embedded antenna

Compliant

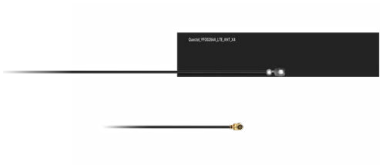
RoHS

Electrical data

Frequency range	824–960 MHz, 1710–2690 MHz
Efficiency	25%–70%
Peak gain	3.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	62 × 19 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	150 mm
Operation temperature	-40°C to +85°C



YF0028AA

4G adhesive mount FPC + cable dipole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	698–2690 MHz
Efficiency	30%–75%
Peak gain	3.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	94 × 21 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.37
Cable length	150 mm
Operation temperature	-40°C to +85°C

YF0022DA

4G adhesive mount PCB + cable monopole embedded antenna
Compatible with Japan market

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	46% AVG.
Peak gain	2.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	15 × 40 × 0.8 mm
Form factor	PCB + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	74.5 mm
Operation temperature	–40°C to +85°C

YF0007KA

4G adhesive mount PCB + cable monopole embedded antenna
Compatible with Japan market

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1427.9–1495.9 MHz 1710–2690 MHz
Efficiency	58% AVG.
Peak gain	3.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	50 × 25 × 0.8 mm
Form factor	PCB + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.37
Cable length	74.5 mm
Operation temperature	–40°C to +85°C

YPCA004AA

4G adhesive mount PCB + cable monopole embedded antenna
Compatible with Japan market

Compliant

RoHS

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	43% AVG.
Peak gain	2.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	40 × 10 × 1.15 mm
Form factor	PCB + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFCP002WWA

4G SMT mount PCB chip IFA embedded antenna
Compatible with Japan market

EVB

YFCP002WWAEVB

Compliant

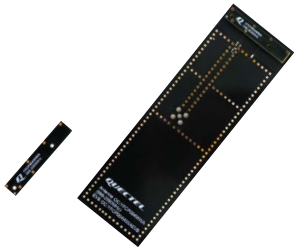
RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	35%~72%
Peak gain	3.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 42 × 10 × 3 mm, EVB: 131 × 60 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	-40°C to +85°C



YFCP004WWA

4G SMT mount PCB chip IFA embedded antenna
Compatible with Japan market

EVB

YFCP004WWAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz
Efficiency	27%–68%
Peak gain	2.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 40 × 7 × 3 mm, EVB: 136.5 × 43 × 1 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	-40°C to +85°C

YFCP017WWA

4G SMT mount PCB chip IFA embedded antenna
Compatible with Japan market

EVB

YFCP017WWAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz, 3300–3800 MHz
Efficiency	26%–66%
Peak gain	2.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 25 × 7 × 3 mm, EVB: 140 × 36 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	-40°C to +85°C

YFCP017WWB

4G SMT mount PCB chip IFA
embedded antenna
Compatible with Japan market

EVB

YFCP017WWBEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1710–2690 MHz, 3300–3800 MHz
Efficiency	29%–73%
Peak gain	2.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 25 × 7 × 3 mm, EVB: 140 × 36 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YFCP005WWA

4G SMT Mount PCB chip IFA
embedded antenna
Compatible with Japan market

EVB

YFCP005WWAEVB

Compliant

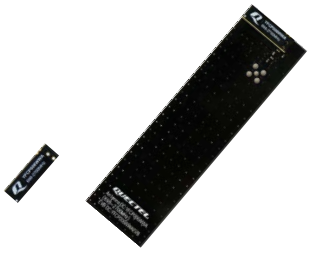
RoHS & REACH

Electrical data

Frequency range	600–960 MHz, 1710–2690 MHz
Efficiency	45% AVG.
Peak gain	2.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 36 × 9 × 3 mm, EVB: 126.5 × 45.5 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YFCP006WWA

4G SMT mount PCB chip IFA
embedded antenna
Compatible with Japan market

EVB

YFCP006WWAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz, 1695–2200 MHz, 2300–2690 MHz
Efficiency	48% AVG.
Peak gain	2.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 28 × 8 × 3 mm, EVB: 130 × 36 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YFCH001WWA

4G Screw mount sheet metal + holder PIFA embedded antenna
Compatible with Japan market

EVB

YFCH001WWAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	698–960 MHz,1710–2700 MHz
Efficiency	45% AVG.
Peak gain	2.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 43.19 × 12.73 × 8.15 mm, EVB: 145 × 75 mm
Form factor	Sheet metal + holder
Mounting type	Screw
Operation temperature	-40°C to +85°C

YFCH002WWA

4G SMT mount sheet metal PIFA embedded antenna
Compatible with Japan market

EVB

YFCH002WWAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	600–960 MHz,1710–2690 MHz
Efficiency	22%–64%
Peak gain	2.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

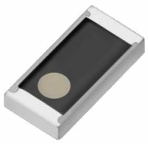
Mechanical data

Dimensions	Antenna: 40 × 7.23 × 7.6 mm, EVB: 136.5 × 43 mm
Form factor	Sheet metal
Mounting type	SMT
Operation temperature	-40°C to +85°C

EMBEDDED

Wi-Fi antennas

YC0009AA



YC0010AA

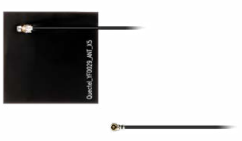
YFBC001WWA

YXU00A0AA

YF0026AA

YF0027AA

YF0029AA



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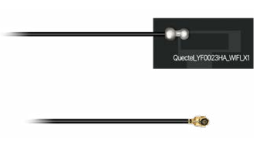


For more information please visit Quectel.com

YC0009AA

Wi-Fi SMT mount ceramic chip IFA embedded antenna

EVB

YC0009AAEVB

Compliant

RoHS

Electrical data

Frequency range	2400–2500 MHz
Efficiency	55%–70%
Peak gain	0.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 3.2× 1.6× 0.5 mm, EVB: 91 × 51 mm
Form factor	Ceramic chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YC0010AA

Wi-Fi SMT mount ceramic chip monopole embedded antenna

EVB

YC0010AAEVB

Compliant

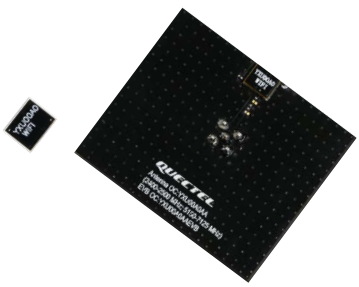
RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz
Efficiency	55%–70%
Peak gain	3.8 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 5.2 × 2 × 1.2 mm, EVB: 90 × 50 mm
Form factor	Ceramic chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YXU00A0AA

Wi-Fi SMT mount PCB chip loop embedded antenna
Compatible with Japan market

EVB

YXU00A0AAEVB

Compliant

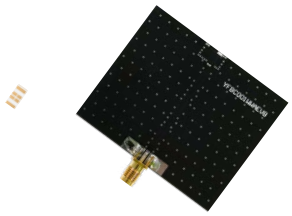
RoHS

Electrical data

Frequency range	2400–2500 MHz; 5150–7125 MHz
Efficiency	45%–70%
Peak gain	3.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 8 × 6.6 × 1.6 mm, EVB: 60 × 50 × 1.6 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YFBC001WWA

Wi-Fi SMT mount ceramic chip loop embedded antenna

EVB

YFBC001WWAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	25%–65%
Peak gain	2.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 1.6 × 0.8 × 0.4 mm, EVB: 60 × 50 × 1 mm
Form factor	Ceramic chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YF0011KA

Wi-Fi adhesive mount FPC + cable dipole embedded antenna
Compatible with Japan market

Compliant

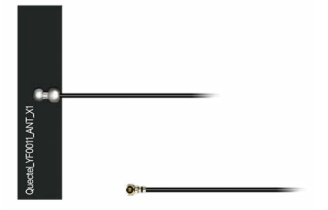
RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz
Efficiency	60%–80%
Peak gain	3.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	38.9 × 9 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	50.5 mm
Operation temperature	–40°C to +85°C



YF0011SA

Wi-Fi adhesive mount FPC + cable dipole embedded antenna

Compliant

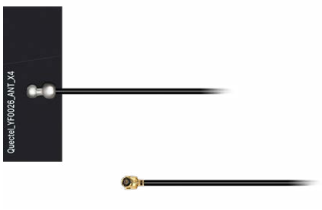
RoHS

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz
Efficiency	40%–75%
Peak gain	3.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	38.9 × 9 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YF0026AA

Wi-Fi adhesive mount FPC + cable PIFA embedded antenna

Compliant

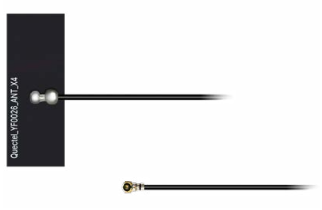
RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	50%–80%
Peak gain	6.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	28.9 × 11 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.37
Cable length	100 mm
Operation temperature	–40°C to +85°C



YF0026LA

Wi-Fi adhesive mount FPC + cable PIFA embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	50%–80%
Peak gain	5.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	28.9×11 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YF0027AA

Wi-Fi adhesive mount FPC + cable PIFA embedded antenna

Compliant

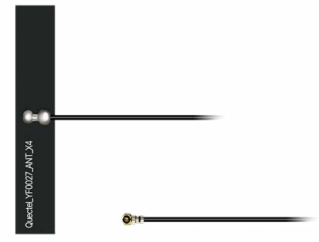
RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	45%–85%
Peak gain	6.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	38 × 7 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.37
Cable length	100 mm
Operation temperature	–40°C to +85°C



YF0027CA

Wi-Fi adhesive mount FPC + cable PIFA embedded antenna

Compliant

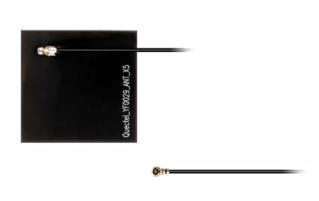
RoHS

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	35%~70%
Peak gain	5.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	38×7 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YF0029AA

Wi-Fi adhesive mount FPC + cable PIFA embedded antenna

Compliant

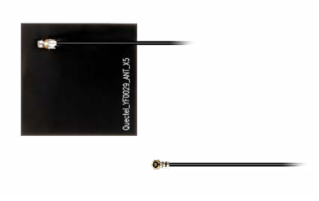
RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	40%–80%
Peak gain	7.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	29.98×30.85 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.37
Cable length	100 mm
Operation temperature	–40°C to +85°C



YF0029CA

Wi-Fi adhesive mount FPC + cable PIFA embedded antenna

Compliant

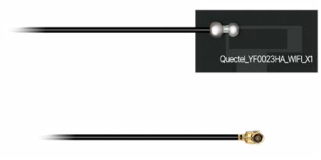
RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	40%–75%
Peak gain	6.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	29.98 × 30.85 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YF0023HA

Wi-Fi adhesive mount FPC + cable monopole embedded antenna

Compliant

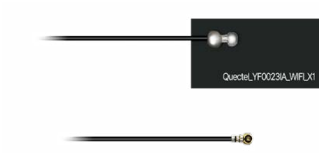
RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 4900–5850 MHz, 5925–7125 MHz
Efficiency	45%–80%
Peak gain	6.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	22.7×11.9 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	-40°C to +85°C



YF0023IA

Wi-Fi adhesive mount FPC + cable monopole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 4900–5850 MHz, 5925–7125 MHz
Efficiency	45%–85%
Peak gain	5.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	22.7×11.9 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	100 mm
Operation temperature	-40°C to +85°C

YF0023FA

Wi-Fi adhesive mount FPC + cable monopole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 4900–5850 MHz, 5925–7125 MHz
Efficiency	55%~90%
Peak gain	7.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	37.8 × 7.5 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	-40°C to +85°C

YF0023GA

Wi-Fi adhesive mount FPC + cable monopole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz, 5150–5850 MHz, 5925–7125 MHz
Efficiency	50%–85%
Peak gain	7.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	37.8 × 7.5 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF4L
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

EMBEDDED

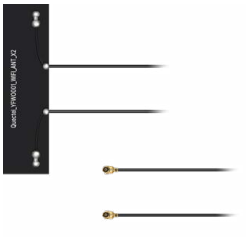
Combo antennas

YFWO001AA

YFWO002AA

YFMA200E3AM

For more information please visit Quectel.com



YFWO001AA

Wi-Fi 2in1 adhesive mount combo embedded antenna

Compliant

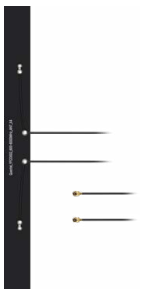
RoHS & REACH

Electrical data

Frequency range	2400–2500 MHz; 5150–7150 MHz
Efficiency	45%–75%
Peak gain	5.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	78.6 × 21.4 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFCO002AA

5G 2in1 adhesive mount Combo embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	600–6000 MHz
Efficiency	35%–70%
Peak gain	5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	237 × 22 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	150 mm
Operation temperature	–40°C to +85°C

YFMA200E3AM

5G & Wi-Fi 2in1 adhesive mount Combo embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	5G × 1: 600-6000 MHz Wi-Fi × 1: 2400-2500 MHz, 5150-5850 MHz, 5925-7125 MHz
Efficiency	5G × 1: 33-76%; Wi-Fi × 1: 47-66%
Peak gain	5G × 1: 5 dBi; Wi-Fi × 1: 3.7 dBi
Radiation pattern	5G × 1: omni-directional; Wi-Fi × 1: omni-directional
Polarization	5G × 1: Linear; Wi-Fi × 1: Linear

Mechanical data

Dimensions	124.2 × 36.4 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	125 mm
Operation temperature	–40°C to +85°C

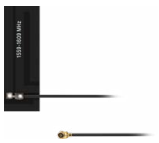
EMBEDDED

GNSS antennas

YC0013AA

YPGS001AA

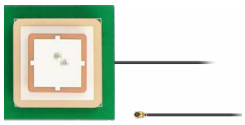
YFGA003AA



YFGC025WWC

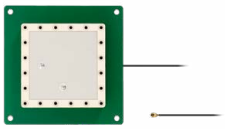
YFGC233WWA

YFGC007E3A

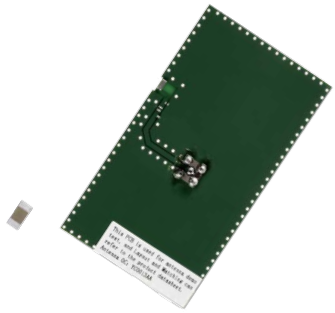


YFGN000H1AC

YFTA009E3AM



For more information please visit Quectel.com



YC0013AA

GNSS L1 SMT mount ceramic chip passive embedded antenna

EVB

YC0013AAEVB

Compliant

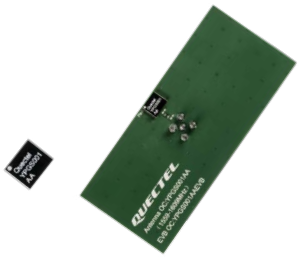
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	55%–65%
Peak gain	0.8 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 3.2 × 1.6 × 0.6 mm, EVB: 90 × 50 mm
Form factor	Ceramic chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YPGS001AA

GNSS L1 SMT mount PCB chip passive embedded antenna

EVB

YPGS001AAEVB

Compliant

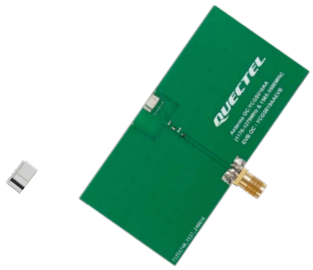
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	51%–54%
Peak gain	1.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 7 × 5.8 × 0.8 mm, EVB: 80 × 35 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C



YCGS010AA

GNSS L1 & L2 & L5 & E6 SMT mount ceramic chip passive embedded antenna

EVB

YCGS010AAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	1164–1300 MHz, 1565–1586 MHz
Efficiency	L2/L5/E6/B3: 42%–50%, L1: 70%–74%
Peak gain	L2/L5/E6/B3: 1.3 dBi, L1: 2.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 5 × 3 × 0.5 mm, EVB: 80 × 40 mm
Form factor	Ceramic chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YFGA003AA

GNSS L1 cable passive FPC + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	53%–55%
Peak gain	1.6 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	39.45 × 13.25 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	RF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA005AA

GNSS L1 adhesive mount FPC + cable passive embedded antenna

Compliant

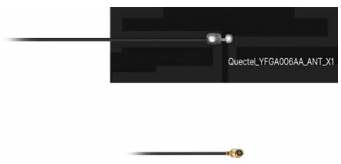
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	60%–65%
Peak gain	3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	61.15 × 11.24 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100.5 mm
Operation temperature	–40°C to +85°C



YFGA006AA

GNSS L1 & L2 & L5 & E6 adhesive mount FPC + cable passive embedded antenna

Compliant

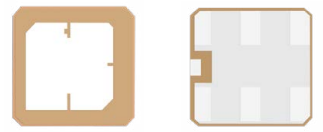
RoHS & REACH

Electrical data

Frequency range	1164–1300 MHz, 1559–1606 MHz
Efficiency	40%–75%
Peak gain	3.9 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	74.5 × 24.5 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	143 mm
Operation temperature	–40°C to +85°C



YFGC009WWA

GNSS L1 SMT mount ceramic patch passive embedded antenna

Compliant

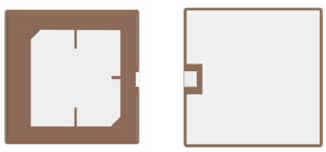
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	23%–57%
Peak gain	0.9 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	15 × 15 × 4 mm
Form factor	Ceramic patch
Mounting type	SMT
Operation temperature	–40°C to +85°C



YFGC009WWB

GNSS L1 SMT mount ceramic patch passive embedded antenna

Compliant

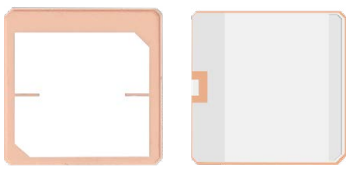
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	42%–68%
Peak gain	2.1 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	18 × 18 × 4 mm
Form factor	Ceramic patch
Mounting type	SMT
Operation temperature	–40°C to +85°C



YFGC009WWC

GNSS L1 SMT mount ceramic patch passive embedded antenna

Compliant

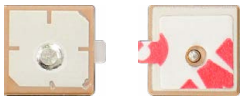
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	70%–75%
Peak gain	3.9 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 4 mm
Form factor	Ceramic patch
Mounting type	SMT
Operation temperature	–40°C to +85°C



YFGC010WWA

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

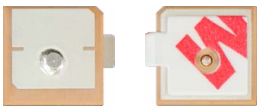
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	20%–33%
Peak gain	0.1 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	10.2 × 10.2 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC012WWA

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

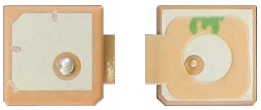
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	20%–37%
Peak gain	–2.4 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	12 × 12 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & Soldering
Operation temperature	–40°C to +85°C



YFGC012WWB

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

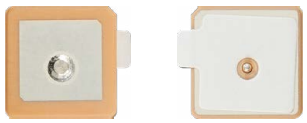
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	28%–30%
Peak gain	–1 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	12 × 12 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC015WWA

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

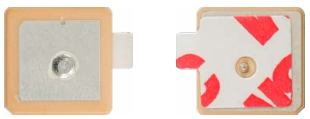
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	25%–65%
Peak gain	2.1 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	15 × 15 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC015WWB

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

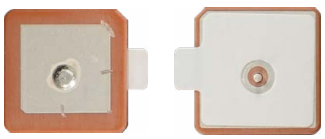
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	35%–60%
Peak gain	1.8 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	15 × 15 × 4mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC018WWA

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	32%–68%
Peak gain	2.3 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	18 × 18 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC020WWA

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	25%–70%
Peak gain	2.9 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	20 × 20 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC025WWC

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

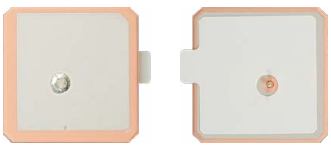
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	60%–80%
Peak gain	3.6 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC025WWD

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	50%–80%
Peak gain	3.6 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC025WWA

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

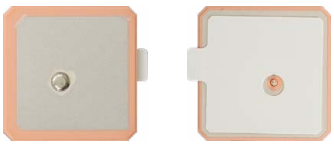
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	30%–58%
Peak gain	0.8 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 2 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC025WWB

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	23%–60%
Peak gain	2.1 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 2 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC225WWA

GNSS L1 & L5 adhesive & soldering mount ceramic patch passive embedded antenna with 2 pins

Compliant

RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 55%–59%, L5: 50%–53%
Peak gain	L1: 1.2 dBi, L5: 1.1 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 4 + 18 × 18 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC000WWAM

GNSS L1 & L5 adhesive & soldering mount ceramic patch passive embedded antenna with 1 pin

Compliant

RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 65%, L5: 44%
Peak gain	L1: 0.58 dBi, L5: -0.31 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 4 + 18 × 18 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	-40°C to +85°C

YFGC041WWAM

GNSS L1 & L5 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1164–1189 MHz, 1559–1606 MHz
Efficiency	L1: 39.2%, L5: 23.4%
Peak gain	L1: -0.6 dBi, L5: -2.5 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 2 + 18 × 18 × 2 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	-40°C to +85°C

YFGC035WWA

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	72%–82%
Peak gain	4.4 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	35 × 35 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	-40°C to +85°C

YFGC035WWB

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	78%–83%
Peak gain	3.6 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	35 × 35 × 6 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC035WWC

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

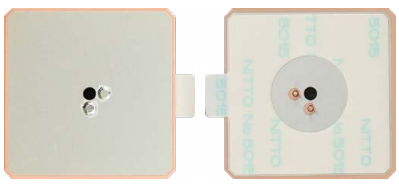
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	63%–69%
Peak gain	3.8 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	35 × 35 × 6 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC040WWA

GNSS L1 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

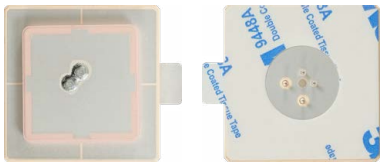
RoHS & REACH

Electrical data

Frequency range	1559–1606 MHz
Efficiency	66%–73%
Peak gain	4.3 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	40 × 40 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC238WWA

GNSS L1 & L5 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 45%–63%, L5: 40%–50%
Peak gain	L1: 3.9 dBi, L5: 1.4 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	38 × 38 × 6 + 28 × 28 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC233WWA

GNSS L1 & L5 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

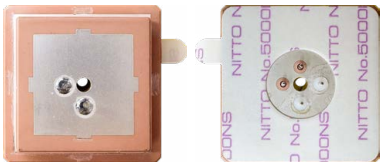
RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 45%–60%, L5: 40%–44%
Peak gain	L1: 2.3 dBi, L5: 0.7 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	33 × 33 × 4 + 25 × 25 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C



YFGC235WWA

GNSS L1 & L5 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 44%–53%, L5: 45%–50%
Peak gain	L1: 2.9 dBi, L5: 1.2 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	35 × 35 × 6 + 28 × 28 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC245WWA

GNSS L1 & L5 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 45%–60%, L5: 45%–50%
Peak gain	L1: 3.6 dBi, L5: 1 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	45 × 45 × 6 + 40 × 40 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGC245WWB

GNSS L1 & L5 adhesive & soldering mount ceramic patch passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 52%–64%, L5: 55%–60%
Peak gain	L1: 4.4 dBi, L5: 2.9 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	45 × 45 × 8 + 40 × 40 × 4 mm
Form factor	Ceramic patch
Mounting type	Adhesive & soldering
Operation temperature	–40°C to +85°C

YFGA010E3BM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	14%–16%
Peak gain	–4.5 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	10.2 × 10.2 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA012E3BM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	36%
Peak gain	-1.7 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	12 × 12 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA015E3BM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	30%–46%
Peak gain	–1 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	15 × 15 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA018E3BM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

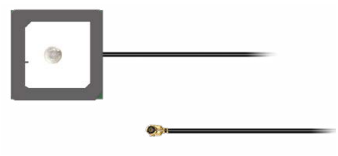
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	44%–53%
Peak gain	–0.3 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	18 × 18 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA020E3BM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

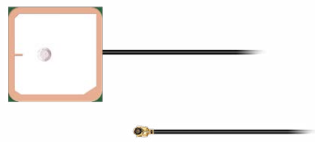
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	53.8% ~ 58.7%
Peak gain	0.4 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	20 × 20 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA025E3DM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	65%–74%
Peak gain	0.7 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA025E3BM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	47%
Peak gain	-0.4 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	25 × 25 × 5.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA035E3BM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559 - 1606 MHz
Efficiency	75% ~ 81%
Peak gain	1.21 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	35 × 35 × 7.9 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA035E3DM

GNSS L1 buckle mount ceramic patch + cable passive embedded antenna

Compliant

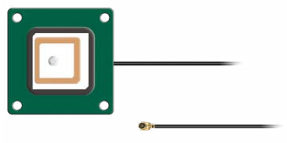
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	78% ~ 83%
Peak gain	1.39 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	35 × 35 × 9.9 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA225E3BM

GNSS L1 & L5 screw mount ceramic patch + cable passive embedded antenna

Compliant

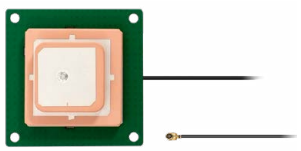
RoHS & REACH

Electrical data

Frequency range	1164–1189 MHz,1559-1606 MHz
Efficiency	L1: 65%, L5: 44%
Peak gain	L1: 0.6 dBi, L5: –0.3 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	39 × 39 × 12.1 mm (25 × 25 × 4 + 18 × 18 × 4 mm)
Form factor	Ceramic patch + cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA235E3CM

GNSS L1 & L5 screw mount ceramic patch + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	78%
Peak gain	2.69 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	50 × 50 × 12.2 mm (35 × 35 × 4 + 25 × 25 × 4 mm)
Form factor	Ceramic patch + cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA010E3AM

GNSS L1 buckle mount ceramic patch + cable active embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	14%–16%
Peak gain	–4.5 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	16 dB

Mechanical data

Dimensions	10.2 × 10.2 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA012E3AM

GNSS L1 buckle mount ceramic patch + cable active embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	36% AVG.
Peak gain	–1.7 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	16 dB

Mechanical data

Dimensions	12 × 12 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA015E3AM

GNSS L1 buckle mount ceramic patch + cable active embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	30%–46%
Peak gain	–1 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	16 dB

Mechanical data

Dimensions	15 × 15 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

YFGA018E3AM

GNSS L1 buckle mount ceramic patch + cable active embedded antenna

Compliant

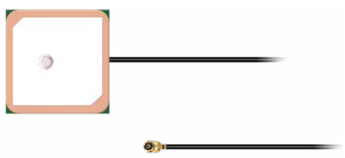
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	44%–53%
Peak gain	–0.3 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	16 dB

Mechanical data

Dimensions	18 × 18 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA025E3CM

GNSS L1 buckle mount ceramic patch + cable active embedded antenna

Compliant

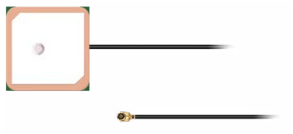
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	65%–74%
Peak gain	0.7 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	16 dB

Mechanical data

Dimensions	25 × 25 × 7.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA025E3AM

GNSS L1 buckle mount ceramic patch + cable active embedded antenna

Compliant

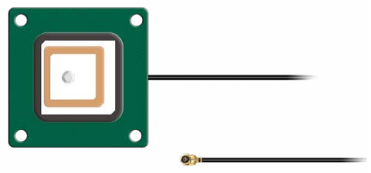
RoHS & REACH

Electrical data

Frequency range	1559-1606 MHz
Efficiency	45%–47%
Peak gain	–0.45 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	16 dB

Mechanical data

Dimensions	25 × 25 × 5.5 mm
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA225E3AM

GNSS L1 & L5 screw mount ceramic patch + cable active embedded antenna

Compliant

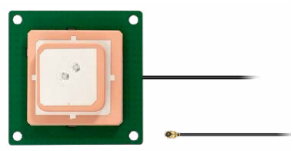
RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 55%–57%, L5: 35%–39%
Peak gain	L1: –0.2 dBi, L5: –1 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	14 dB

Mechanical data

Dimensions	39 × 39 × 12.1 mm (25 × 25 × 4 + 18 × 18 × 4 mm)
Form factor	Ceramic patch + cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA233E3AM

GNSS L1 & L5 screw mount ceramic patch + cable active embedded antenna

Compliant

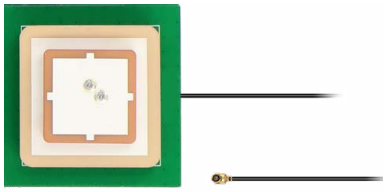
RoHS & REACH

Electrical data

Frequency range	1164–1189 MHz, 1559–1606 MHz
Efficiency	L1: 28~59%, L5: 38.8%
Peak gain	2.64 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	50 × 50 × 12.2 mm (33 × 33 × 4 + 25 × 25 × 4 mm)
Form factor	Ceramic patch + cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGC007E3A

GNSS L1 & L5 buckle mount ceramic patch + cable active embedded antenna

Compliant

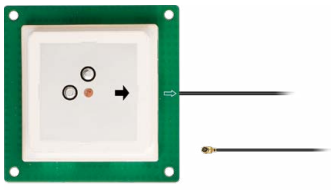
RoHS

Electrical data

Frequency range	1164–1189 MHz, 1559–1606 MHz
Efficiency	L1: 32%–50%, L5: 50%–53%
Peak gain	L1: 1.2 dBi, L5: 1.1 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	50 × 50 × 14.5 mm (38 × 38 × 6 + 25 × 25 × 4 mm)
Form factor	Ceramic patch + cable
Mounting type	Buckle
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA245E3AM

GNSS L1 & L5 screw mount ceramic patch + cable active embedded antenna

Compliant

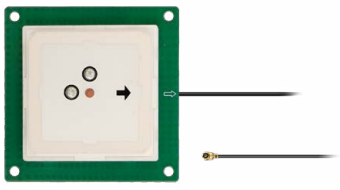
RoHS & REACH

Electrical data

Frequency range	1164-1189 MHz, 1559-1606 MHz
Efficiency	L1: 48.9-74%, L5: 54.9%
Peak gain	2.17 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	59 × 59 × 14.2 mm (45 × 45 × 6 + 40 × 40 × 4 mm)
Form factor	Ceramic patch + Cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA245E3BM

GNSS L2 & L5 screw mount ceramic patch + cable active embedded antenna

Compliant

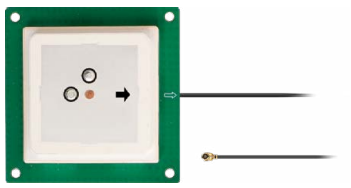
RoHS & REACH

Electrical data

Frequency range	1217-1238 MHz, 1559-1606 MHz
Efficiency	L1: 46%-73%, L2: 58%-61%
Peak gain	L1: 3.5 dBi, L2: 2 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	59 × 59 × 14.2 mm (45 × 45 × 6 + 40 × 40 × 4 mm)
Form factor	Ceramic patch + Cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGA245E3CM

GNSS L1 & L2 & L5 screw mount ceramic patch + cable active embedded antenna

Compliant

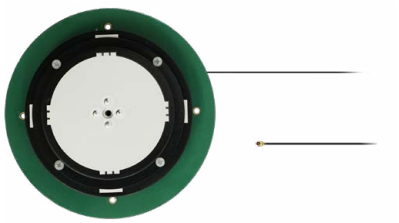
RoHS & REACH

Electrical data

Frequency range	1164–1238 MHz, 1559–1606 MHz
Efficiency	L1: 50%–76%, L2/L5: 28%–35%
Peak gain	L1: 3.6 dBi, L2/L5: –1 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	17 dB

Mechanical data

Dimensions	59 × 59 × 16.2 mm (45 × 45 × 8 + 40 × 40 × 4 mm)
Form factor	Ceramic patch + cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C



YFGN001H3AM

GNSS full band screw mount PPO patch + cable active embedded antenna

Compliant

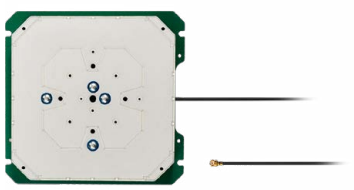
RoHS & REACH

Electrical data

Frequency range	1164–1300 MHz, 1525–1606 MHz
Efficiency	Lower Band: 58%; L-band: 45.2%; Upper Band: 67%
Peak gain	Lower Band: 5.6 dBi; L-band: 3.1 dBi; Upper Band: 5.4 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	40 ±4 dB

Mechanical data

Dimensions	Φ122 × 24.2 mm
Form factor	PPO Patch + cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	220 mm
Operation temperature	–40°C to +85°C



YFGD000AA

GNSS full band screw mount PPO patch + cable active embedded antenna

Compliant

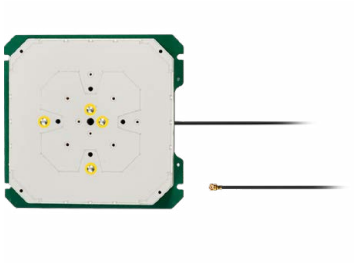
RoHS & REACH & POPS

Electrical data

Frequency range	1164–1300 MHz, 1525–1606 MHz
Efficiency	Lower Band: 50%; L-band: 38%; Upper Band: 53%
Peak gain	Lower Band: 3.7 dBi; L-band: 1.5 dBi; Upper Band: 3.5 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	38 ±4 dB

Mechanical data

Dimensions	78.6 × 75.6 × 16.2 mm
Form factor	PPO Patch + cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	89 mm
Operation temperature	–40°C to +85°C



YFGD000BA

GNSS L1 & L2 & L5 screw mount PP0 patch + cable active embedded antenna

Compliant

RoHS & REACH & POPS

Electrical data

Frequency range	1164–1238 MHz, 1559–1606 MHz
Efficiency	L1: 51.8%–65.1%; L2: 45.7%; L5: 63.2%–71.3%
Peak gain	L1: 1.87 dBi; L2: 2.07 dBi; L5: 2.15 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	38 ±4 dB

Mechanical data

Dimensions	78.6 × 75.6 × 16.2 mm
Form factor	PP0 Patch + Cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.37
Cable length	89 mm
Operation temperature	–40°C to +85°C

YFGN000H1AC

GNSS full band screw mount Air Dielectric + cable active embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	1164–1300 MHz,1525–1606 MHz
Efficiency	Lower Band: 38.8%–54.9%; L-band: 58.5%; Upper Band: 52.9%–65.6%
Peak gain	Lower Band: 5.02 dBi; L-band: 5.02 dBi; Upper Band: 5.54 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	35 ±4 dB

Mechanical data

Dimensions	Φ 122 × 22.5 mm
Form factor	Air Dielectric + Cable
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	300 mm
Operation temperature	–40°C to +85°C

YFGN000H1CC

GNSS full band screw mount Air Dielectric + cable active embedded antenna

Compliant

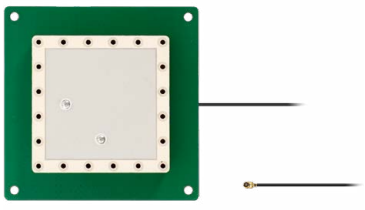
RoHS

Electrical data

Frequency range	1164–1300 MHz,1559–1606 MHz
Efficiency	55% AVG.
Peak gain	5.7 dBi
Radiation pattern	Directional
Polarization	RHCP
LNA gain	35 ±4 dB

Mechanical data

Dimensions	Φ 122 × 22.5 mm
Form factor	Air Dielectric + Cable
Mounting type	Screw
Connector type	SMA male
Cable type	RG174
Cable length	300 mm
Operation temperature	–40°C to +85°C



YFTA009E3AM

L-Band & GNSS L1 & iridium screw mount ceramic patch + cable passive embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	GNSS: 1559–1606 MHz, L-Band: 1518–1559 MHz,1626–1660 MHz,1668–1675 MHz Iridium: 1616–1626.5 MHz
Efficiency	GNSS: 75%-80%, L-Band: 60%-91%, Iridium: 87%
Peak gain	GNSS: 5.3 dBi, L-Band: 5.6 dBi, Iridium: 2.38 dBi
Radiation pattern	Directional
Polarization	RHCP

Mechanical data

Dimensions	80 × 80 × 13.3 mm (50 × 50 × 10 mm)
Form factor	Ceramic patch + cable
Mounting type	Screw
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

EMBEDDED

LPWA/ISM antennas

YCIS002AA

YCIS003AA

YSIS001AA

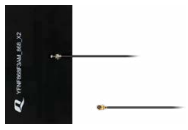
YPCS002AA

YMCP003AA

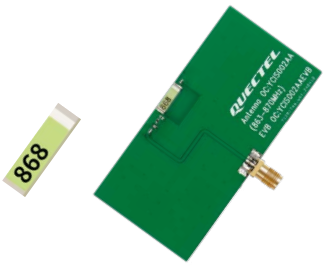
YFOA004AA

YFNF915F3AM

YFNF868F3AM



For more information please visit Quectel.com



YCIS002AA

LPWA/ISM SMT mount ceramic chip IFA embedded antenna

EVB

YCIS002AAEVB

Compliant

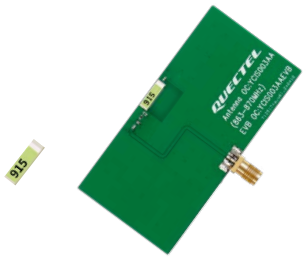
RoHS

Electrical data

Frequency range	863–870 MHz
Efficiency	40%~60%
Peak gain	0.7 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 10 × 3.2 × 0.5 mm, EVB: 80 × 40 mm
Form factor	Ceramic chip
Mounting type	SMT
Operation temperature	-40°C to +85°C



YCIS003AA

LPWA/ISM SMT mount ceramic chip IFA embedded antenna

EVB

YCIS003AAEVB

Compliant

RoHS

Electrical data

Frequency range	902–928 MHz
Efficiency	35%~70%
Peak gain	1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 10 × 3.2 × 0.5 mm, EVB: 80 × 40 mm
Form factor	Ceramic chip
Mounting type	SMT
Operation temperature	-40°C to +85°C

YFNP017WWA

LPWA/ISM SMT mount PCB chip monopole embedded antenna

EVB

YFNP017WWAEVB

Compliant

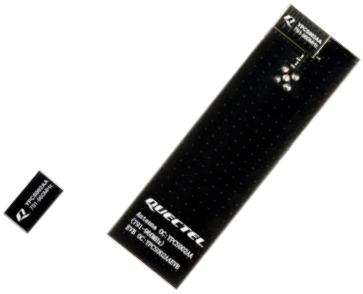
RoHS & REACH

Electrical data

Frequency range	790–960 MHz
Efficiency	40%–60%
Peak gain	0.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 25 × 7 × 3 mm, EVB: 105.53 × 25 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	-40°C to +85°C



YPCS002AA

LPWA/ISM SMT mount PCB chip monopole embedded antenna

EVB

YPCS002AAEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	791–960 MHz
Efficiency	20%–35%
Peak gain	1.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 20 × 11 × 1.6 mm, EVB: 115 × 35 × 0.8 mm
Form factor	PCB chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YFNP002WWAM

LPWA/ISM SMT mount PCB chip monopole embedded antenna

EVB

YFNP002WWAMEVB

Compliant

RoHS & REACH

Electrical data

Frequency range	433–435 MHz
Efficiency	0.158
Peak gain	-4.9dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 17 × 4 × 1.5mm, EVB: 197.7 × 92 × 1mm
Form factor	PCB Chip
Mounting type	SMT
Operation temperature	–40°C to +85°C

YSIS001AA

LPWA/ISM SMT mount spring + holder monopole embedded antenna

EVB

YSIS001AAEVBAA

Compliant

RoHS & REACH & TSCA

Electrical data

Frequency range	412–427 MHz, 433–435 MHz, 450–470 MHz
Efficiency	25% AVG.
Peak gain	0.4 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 30 × 7 × 7 mm, EVB: 185 × 90 × 1 mm
Form factor	Spring + holder
Mounting type	SMT
Operation temperature	–40°C to +85°C

YMCP003AA

LPWA/ISM SMT mount sheet metal PIFA embedded antenna

EVB

YMCP003AAEVBAA

Compliant

RoHS & REACH

Electrical data

Frequency range	790–960 MHz
Efficiency	60%–70%
Peak gain	1.1 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	Antenna: 40.99 × 6.68 × 3.99 mm, EVB: 135 × 45 mm
Form factor	Sheet metal
Mounting type	SMT
Operation temperature	–40°C to +85°C

YFNF915F3AM

LPWA/ISM adhesive mount FPC + cable dipole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	915 MHz
Efficiency	70%–73%
Peak gain	2.5 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	120.2 × 25 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF 1
Cable type	RF1.13
Cable length	150 mm
Operation temperature	–40°C to +85°C

YFNF868F3AM

LPWA/ISM adhesive mount FPC + cable PIFA embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	868 MHz
Efficiency	65%–70%
Peak gain	1.3 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	70× 40 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF 1
Cable type	RF1.13
Cable length	150 mm
Operation temperature	–40°C to +85°C

YFOA004AA

LPWA/ISM adhesive mount FPC + cable monopole embedded antenna

Compliant

RoHS & REACH

Electrical data

Frequency range	410–470 MHz
Efficiency	45%~54%
Peak gain	0.2 dBi
Radiation pattern	omni-directional
Polarization	Linear

Mechanical data

Dimensions	100×20 mm
Form factor	FPC + cable
Mounting type	Adhesive
Connector type	IPEX MHF1
Cable type	RF1.13
Cable length	100 mm
Operation temperature	–40°C to +85°C

Product Name

DC~6 GHz SMA female to IPEX MHF1 cable with an O-ring

Compliant

RoHS

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA female
Connector type2	IPEX MHF1
Cable type	RF1.13
Operation temperature	-40°C to +80°C

OC	Cable length
YSAN025AA	100 mm
YSAN025BA	150 mm
YSAN025CA	200 mm
YSAN025DA	250 mm
YSAN025EA	300 mm

Product Name

DC~6 GHz RP SMA female to IPEX MHF1 cable with an O-ring

Compliant

RoHS

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	RP SMA female
Connector type2	IPEX MHF1
Cable type	RF1.13
Operation temperature	-20°C to +85°C

OC	Cable length
YSAN026AA	100 mm
YSAN026BA	150 mm
YSAN026CA	200 mm
YSAN026DA	250 mm
YSAN026EA	300 mm

Product Name

DC~6 GHz SMA female to IPEX MHF4L cable with an O-ring

Compliant

RoHS

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA female
Connector type2	IPEX MHF4L
Cable type	RF1.13
Operation temperature	-40°C to +80°C

OC	Cable length
YSAN027AA	100 mm
YSAN027BA	150 mm
YSAN027CA	200 mm
YSAN027DA	250 mm
YSAN027EA	300 mm

Product Name

DC~6 GHz SMA female to IPEX MHF4L cable

Compliant

RoHS

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA female
Connector type2	IPEX MHF4L
Cable type	RF1.13
Operation temperature	-40°C to +80°C

OC	Cable length
YSAN027FA	150 mm
YSAN027GA	200 mm
YSAN027HA	250 mm
YSAN027IA	300 mm
YSAN027JA	500 mm

Product Name

DC~6 GHz RP SMA female to IPEX MHF4L cable with an O-ring

Compliant

RoHS

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	RP SMA female
Connector type2	IPEX MHF4L
Cable type	RF1.13
Operation temperature	-40°C to +80°C

OC	Cable length
YSAN028AA	100 mm
YSAN028BA	150 mm
YSAN028CA	200 mm
YSAN028DA	250 mm
YSAN028EA	300 mm

Product Name

DC~6 GHz RP SMA female to IPEX MHF4L cable

Compliant

RoHS

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	RP SMA female
Connector type2	IPEX MHF4L
Cable type	RF1.13
Operation temperature	-40°C to +80°C

OC	Cable length
YSAN028FA	100 mm
YSAN028GA	150 mm
YSAN028HA	200 mm
YSAN028IA	250 mm
YSAN028JA	300 mm

Product Name

DC~6 GHz SMA male to SMA female cable with LMH mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	ALSR200
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX013XQA	700 mm
YLUX013XQD	1700 mm
YLUX013XQG	2700 mm
YLUX013XQK	4700 mm

Product Name

DC~6 GHz SMA male to SMA female cable with MH mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	ALSR200
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX013XQB	700 mm
YLUX013XQE	1700 mm
YLUX013XQH	2700 mm
YLUX013XQL	4700 mm

Product Name

DC~6 GHz SMA male to SMA female cable with Wi-Fi mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	ALSR200
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX013XQC	700 mm
YLUX013XQF	1700 mm
YLUX013XQJ	2700 mm
YLUX013XQM	4700 mm

Product Name

DC~2GHz SMA male to SMA female cable with GNSS mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~2 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	RG174
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX013XQN	700 mm
YLUX013XQP	1700 mm
YLUX013XQQ	2700 mm
YLUX013XQR	4700 mm

Product Name

DC~6 GHz SMA male to SMA female cable with LMH mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	ALS302
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX016XQA	700 mm
YLUX016XQD	1700 mm
YLUX016XQG	2700 mm
YLUX016XQK	4700 mm

Product Name

DC~6 GHz SMA male to SMA female cable with MH mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	ALS302
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX016XQB	700 mm
YLUX016XQE	1700 mm
YLUX016XQH	2700 mm
YLUX016XQL	4700 mm

Product Name

DC~6 GHz SMA male to SMA female cable with Wi-Fi mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	ALS302
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX016XQC	700 mm
YLUX016XQF	1700 mm
YLUX016XQJ	2700 mm
YLUX016XQM	4700 mm

Product Name

DC~6 GHz SMA male to SMA female cable with LMH mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	RG405
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX017XQA	700 mm
YLUX017XQD	1700 mm
YLUX017XQG	2700 mm
YLUX017XQK	4700 mm

Product Name

DC~6 GHz SMA male to SMA female cable with MH mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	RG405
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX017XQB	700 mm
YLUX017XQE	1700 mm
YLUX017XQH	2700 mm
YLUX017XQL	4700 mm

Product Name

DC~6 GHz SMA male to SMA female cable with Wi-Fi mark

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	SMA female
Cable type	RG405
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX017XQC	700 mm
YLUX017XQF	1700 mm
YLUX017XQJ	2700 mm
YLUX017XQM	4700 mm

Product Name

DC~6 GHz fakra female Code C to SMA female cable

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	Fakra female Code C
Connector type2	SMA female
Cable type	RG174
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX030LLAM	700 mm
YLUX031NLAM	1700 mm
YLUX032QLAM	2700 mm
YLUX033ULAM	4700 mm

Product Name

DC~6 GHz fakra female Code D to SMA female cable

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	Fakra female Code D
Connector type2	SMA female
Cable type	RG174
Operation temperature	-40°C to +85°C

OC	Cable length
YLUX034LLAM	700 mm
YLUX035NLAM	1700 mm
YLUX036QLAM	2700 mm
YLUX037ULAM	4700 mm

Product Name

DC~6 GHz fakra female Code D to SMA female cable

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	Fakra female Code D
Connector type2	SMA female
Cable type	ALSR100
Operation temperature	–40°C to +85°C

OC	Cable length
YLUX038LLAM	700 mm
YLUX039NLAM	1700 mm
YLUX040QLAM	2700 mm
YLUX041ULAM	4700 mm

Product Name

DC~6 GHz SMA male to TNC male cable

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	SMA male
Connector type2	TNC male
Cable type	RG174
Operation temperature	–40°C to +85°C

OC	Cable length
YEGX000Q1AM	3000 mm

Product Name

DC~6 GHz IPEX MHF1 to N type female cable

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	IPEX MHF1
Connector type2	N type female
Cable type	RG178
Operation temperature	–40°C to +80°C

OC	Cable length
YLUN001GQAH	200 mm

Product Name

DC~6 GHz IPEX MHF1 to TNC male cable

Compliant

RoHS & REACH

Electrical data

Frequency range	DC~6 GHz

Mechanical data

Connector type1	IPEX MHF1
Connector type2	TNC male
Cable type	RG178
Operation temperature	–40°C to +80°C

OC	Cable length
YLUN002GQAH	200 mm

Accessories

YAXX001XXA

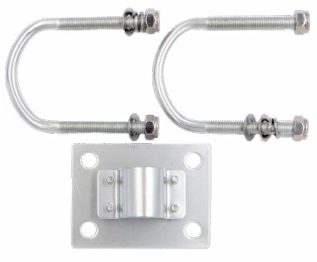
Accessory-Bracket

Compliant

RoHS & REACH

Mechanical data

Dimensions	82.2 × 60.31 × 48 mm
Operation temperature	-40°C to +85°C



YBY00A0IA

Accessory-Bracket

Compliant

RoHS

Mechanical data

Dimensions	80 × 60 × 86 mm
Operation temperature	-20°C to +85°C

YEGM003WWAM

Accessory-Bracket

Compliant

RoHS

Mechanical data

Dimensions	Φ108×123mm
Operation temperature	-40°C to +85°C

Custom antenna design services

In addition to standard products, Quectel also provide full-process customized antenna services. Tailored to your equipment performance requirements and production scenarios, Quectel can design bespoke antenna solutions that cover the entire lifecycle, including performance optimization, structural adaptation, manufacturing, and assembly. These solutions precisely address core challenges such as signal issues and spatial adaptation, helping your equipment achieve superior communication performance and production efficiency.

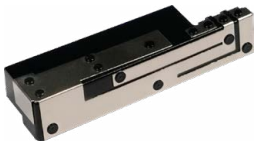
NFC antenna

NFC antenna

Spring antenna

LDS antenna

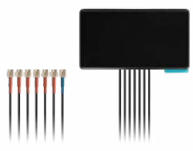
Transparent antenna



Sheet metal antenna

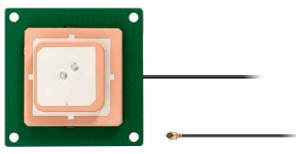
PCB antenna

Combo antenna



Combo antenna

Stacked patch antenna



Stacked patch antenna

Fiberglass antenna

Rubber antenna

Cable

Connector

Build a smarter world

Europe

Czech Republic: Prague
Denmark: Copenhagen
France: Nice/Paris
Germany: Augsburg/Berlin/Hannover/Munich
Ireland: Navan
Italy: Casatenovo/Milan
Poland: Gdynia/Warsaw/Wroclaw
Serbia: Belgrade
Slovenia: Ljubljana
Spain: Barcelona
Sweden: Sollentuna/Stockholm
Switzerland: Zurich
The Netherlands: Eindhoven
Turkey: Istanbul
UK: Birmingham/London/Manchester/Oxford

North America

Canada:
Mississauga/Toronto, ON
Vancouver, B.C

United States:
Alpharetta, GA
Chicago, IL
Houston/Round Rock/San Marcos, TX
Irvine/Orange County/San Diego/
Scotts Valley/Silicon Valley, CA
Point Roberts, WA

Israel / Africa

Israel: Tel Aviv
South Africa: Gauteng/Johannesburg
Egypt: Cairo

Asia Pacific

Australia: Melbourne/Sydney
India: Bangalore/Delhi/Hyderabad/Mumbai
Indonesia: Bandung/Jakarta
Japan: Tokyo
Korea: Seoul
Malaysia: Penang
Pakistan: Lahore
Philippines: Manila/Pasay City
Singapore
Thailand: Bangkok/Samutprakarn
Vietnam: Hanoi/Ho Chi Minh City

Latin America

Argentina: Buenos Aires
Brazil: Sao Paulo
Mexico: Mexico City / Queretaro

50+ sales offices, 8 R&D centers globally
90+ distributors
Serving 7000+ customers
Modules are sold to 150+ countries and regions

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V8.5

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