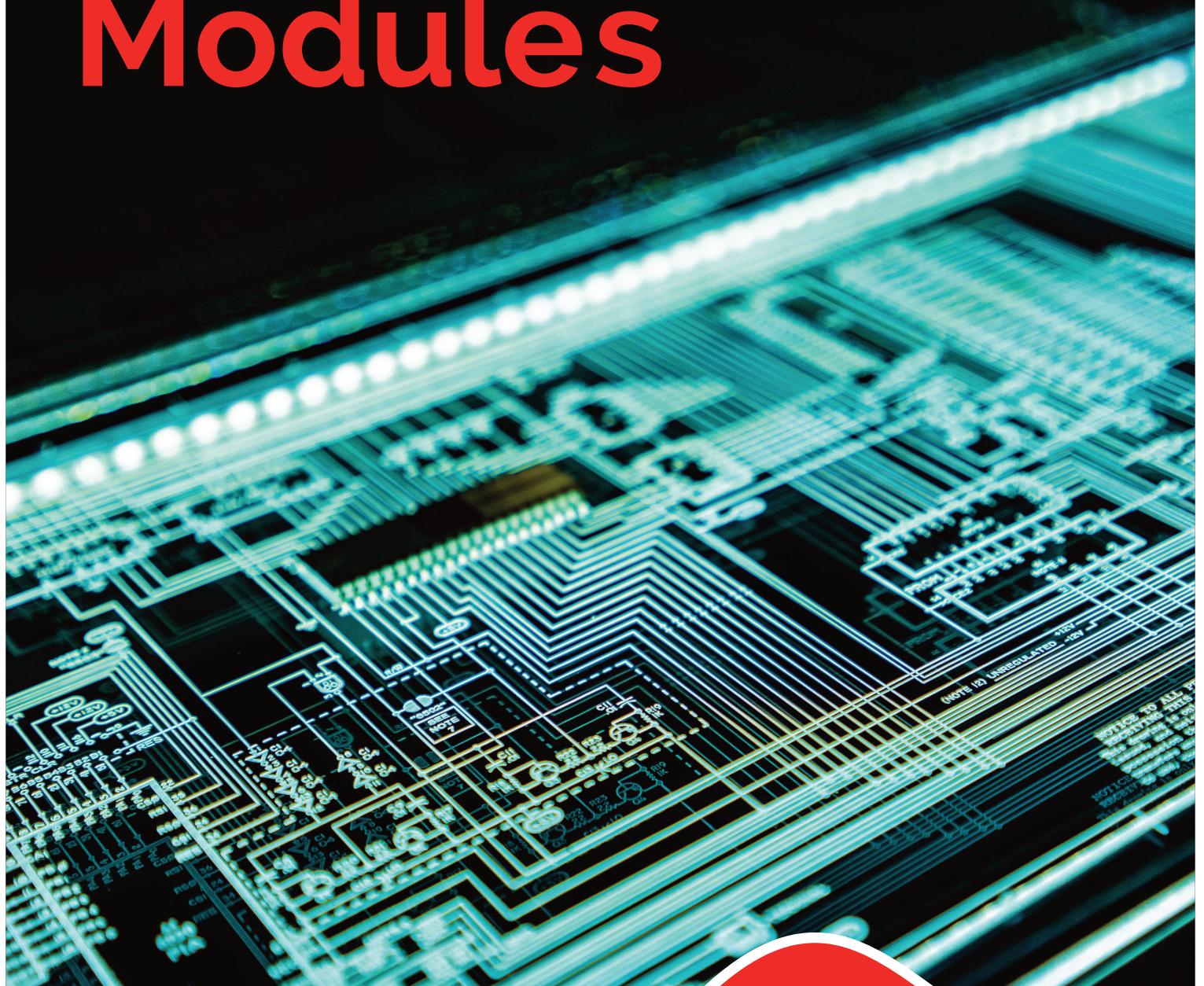


The Leading Global Supplier of

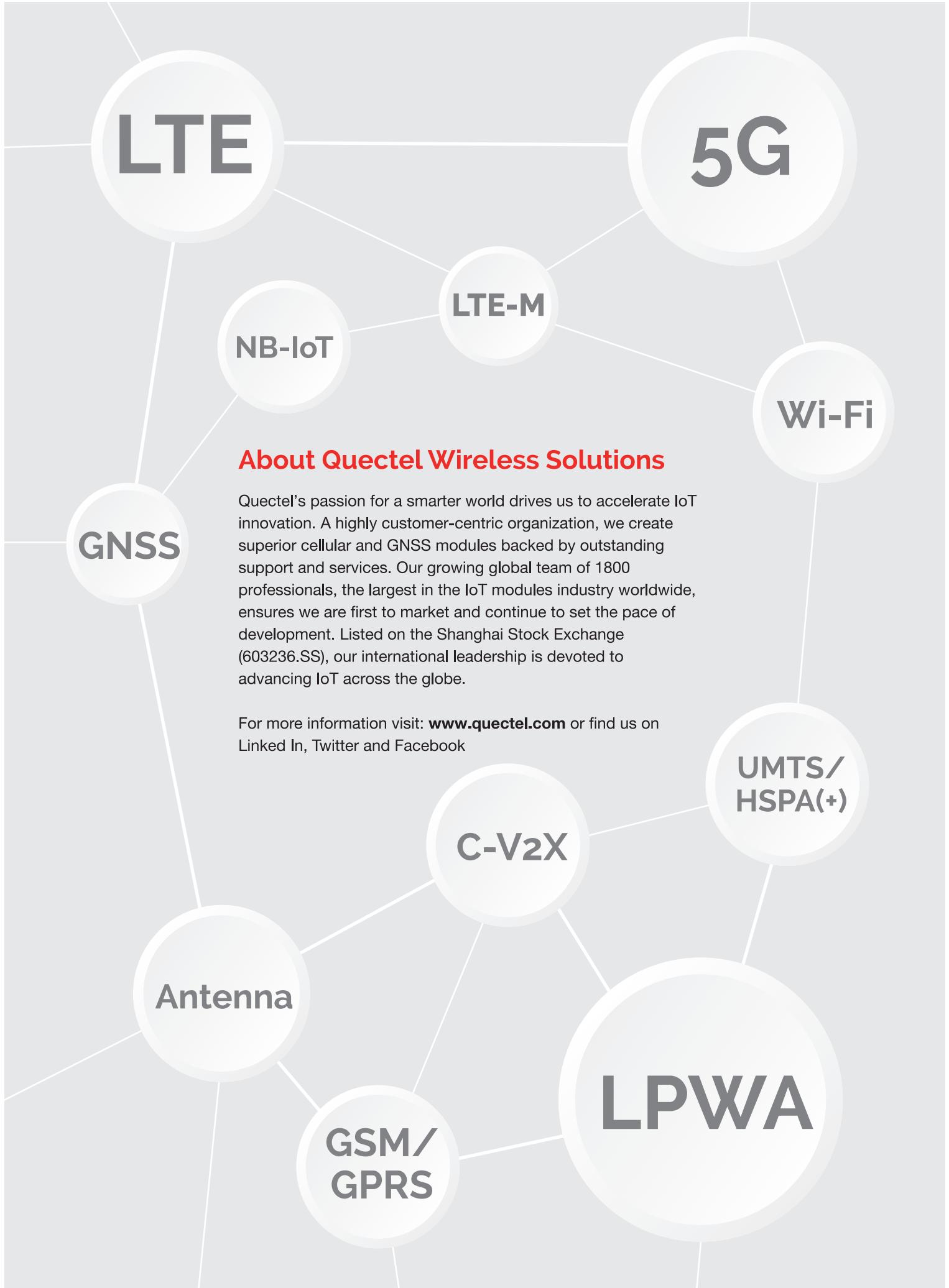
IoT&M2M Modules



For more information contact us on

www.quectel.com   

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



IoT Applications



Telematics and Transport

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



Energy

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



Payment

- Wireless POS
- Cash Registers
- ATMs
- Vending Machines
- Top-up Machines



Safety

- Alarms
- Intrusion Detection
- Smoke Detectors
- Gas Detectors
- Motion Sensors
- Asset Protection



Smart Cities

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



Gateways

- DTUs
- Consumer Routers
- Industrial Routers
- VOIP
- Wi-Fi Hotspots



Industry

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



Life & Healthcare

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



Agriculture & Environment

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

Quectel 5G NR Module Family

Product	RG500Q-EA	RG502Q-EA	RG500Q-NA	RG801H-EA	RG801H-EA-M.2	
						
Form Factor	LGA	LGA	LGA	LGA	M.2	
Dimensions (mm)	41.0 x 44.0 x 2.75	41.0 x 44.0 x 2.75	41.0 x 44.0 x 2.75	51.5 x 51.0 x 3.05	58.5 x 62 x 3.65	
5G	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	
Frequency Bands (MHz)	-NA (North America) -EA (EMEA/ APAC)	/ 5G NR: n41/n77/n78/n79/n1'/n3'/n5'/n7'/n8'/n20'/n28'/n38'/n40' LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B20/B26/B28/B32 LTE-TDD: B34/B38/39/B40/B41/B42/B43 WCDMA: B1/B3/B5/B6/B8/B19	/ 5G NR: n41/n77/n78/n79/n1'/n3'/n7'/n8'/n20/n28/n38/n40 LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B20/B26/B28/B32 LTE-TDD: B34/B38/39/B40/B41/B43 WCDMA: B1/B3/B5/B6/B8/B19	5G NR Bands: n2/n5/n7/n12/n25/n41/n48/n66/n71/n77/n78 LTE bands: LTE-FDD: B2/B4/B5/B7/B12/B13/B17/B14/B25/B26/B29/B30/B66/B71 LTE-TDD: B41/B48 LAA: B46; WCDMA Bands:B2/B4/B5	/ 5G NR: n1/n3/n28/n41/n77/n78/n79 LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B5/B8	/ 5G NR: n1/n3/n28/n41/n77/n78/n79 LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B5/B8
Weight (approx.) g	11	11	TBD	TBD	TBD	
Temperature Range	-30°C ~ +75°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-30°C ~ +75°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-30°C ~ +70°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-30°C ~ +70°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	-30°C ~ +70°C (Operation Temperature) -40°C ~ +85°C (Extended Temperature)	
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	•	•	
Data Transmission ²	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 650Mbps (UL)	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 650Mbps (UL)	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 650Mbps (UL)	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 1200Mbps (UL) 5G NSA Sub-6: Max. 2.3Gbps (DL)/ Max. 600Mbps (UL)	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 1200Mbps (UL) 5G NSA Sub-6: Max. 2.3Gbps (DL)/ Max. 600Mbps (UL)	
LTE	LTE-FDD: Max. 1Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 1Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 1.6Gbps (DL)/ Max. 150Mbps (UL)	LTE-FDD: Max. 1.6Gbps (DL)/ Max. 150Mbps (UL)	
UMTS	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	
SMS	•	•	•	•	•	
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/ SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/ SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/ SMS	TCP/UDP/FTP/HTTP/PING/CMU/X/ HTTPS/FTPS/SSL(FILE/MQTT/ MMS/SMTP/SMTPS/PAP/CHAP	TCP/UDP/PPP/NTP/ NITZ/FTP/HTTP/PING/CMUX/ HTTPS/FTPS/SSL(FILE/MQTT/ MMS/SMTP/SMTPS/PAP/CHAP	
Interfaces						
(U)SIM	x 2, 1.8V/ 3.0V	x 2, 1.8V/ 3.0V	x 2, 1.8V/ 3.0V	x 2, 1.8V/ 3.0V	x 2, 1.8V/ 3.0V	
UART	x 3	x 3	x 3	x 2	/	
USB	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1	1.1/2.0/3.0/3.1	1.1/2.0/3.0/3.1	
PCIe	PCIe Gen3 x 2 Lane	PCIe Gen3 x 2Lane	PCIe Gen3 x 2 Lane	x 2, PCIe Gen3 x 2 Lane/PCIe Gen3 x 1 Lane	x 1, PCIe Gen3 x 1 Lane	
RGMII	•	•	•	x 1	/	
PCM	•	•	•	x 1	x 1	
I2C	x 1	x 1	x 1	x 2	x 1	
SPI	•	•	•	x 1	/	
GPIO	•	•	•	•	•	
ADC	x 2	x 2	x 2	x 2	/	
SD Card	•	•	•	x 1	/	
RESET_N	•	•	•	•	•	
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity	Main, Diversity and MIMO	
Enhanced Features						
MIMO	4 x 4 DL	4 x 4 DL	4 x 4 DL	4 x 4 DL	4 x 4 DL	
Digital Audio	•	•	•	Digital Audio*: •	Digital Audio*: •	
VoLTE	Optional	Optional	Optional	•	•	
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	DTMF*: •	DTMF*: •	
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	DFOTA*: •	DFOTA*: •	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	NA	NA	
(U)SIM Card Detection	•	•	•	•	•	
Electrical Features						
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	
Power Consumption	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	
Software Features						
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	•	•	
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10			
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10			
RNDIS Driver*				•	•	
NCM Driver *				•	•	
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10			
ECM Driver*				•	•	
MBIM Driver	Windows 7/8/8.1/10, Linux 3.18~5.4	Windows 7/8/8.1/10, Linux 3.18~5.4	Windows 7/8/8.1/10, Linux 3.18~5.4	MBIM Driver*: •	MBIM Driver*: •	
Gobinet Driver	Linux 2.6~5.4	Linux 2.6~5.4	Linux 2.6~5.4			
QMI_WWWAN Driver	Linux 3.4~5.4	Linux 3.4~5.4	Linux 3.4~5.4			
PCIe Driver	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	PCIe Driver*: •	PCIe Driver*: •	
Certifications	CE/ RCM/ CCC/ SRRC/ NAL/ KC/ JATE/ TELEC	CE/ RCM/ CCC/ SRRC/ NAL/ KC/ JATE/ TELEC	FCC/ IC			
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage					

Note 1: means supported in second stage.

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

* Under development

Quectel 5G NR Module Family

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

Note 1: means supported in second stage.

* Under development

Quectel LTE-A Module Family

Product	EP06	EG06
		
Form Factor	Mini PCIe	LGA
Dimensions (mm)	51.0 × 30.0 × 4.0	37.0 × 39.5 × 2.8
4G	LTE Cat 6	LTE Cat 6
Frequency Bands (MHz)	-E (EMEA/ Australia/ Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32'; LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32; B38+B38; B40+B40; B41+B41; WCDMA: B1/B3/B5/B8
	-EA (EMEA/ Australia/ Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32' LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B3/B5/B7/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32'; B38+B38; B40+B40; B41+B41 WCDMA: B1/B3/B5/B8 GSM: 900MHz, 1800MHz
	-A (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29'; B30/B66; Up to 2 × CA: B2+B2/B5/B12/B13/B29; B4+B4/B5/B12/B13/B29; B7+B5/B7/B12/B26; B25+B5/B12/B25/B26; B30+B5/B12/B29; B66+B5/B12/B13/B29/B66; WCDMA: B2/B4/B5
	-AUTL (Australia)	LTE-FDD: B3/B7/B28; Up to 2 × CA: B3+B3/B7/B28; B7+B7/B28
Weight (approx.) g	6.0	6.7
Temperature Range	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission		
LTE	LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 226Mbps (DL)/ Max. 28Mbps (UL)	LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 226Mbps (DL)/ Max. 28Mbps (UL)
UMTS	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)
SMS	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
Interfaces		
USB	2.0/3.0, Slave Mode	2.0/3.0, Supports Master* and Slave Modes
PCM	•	•
I2C	× 1	× 1
(U)SIM	× 2, 1.8V/ 3.0V	1.8V/ 3.0V
GPIO	× 4	× 2
UART		× 3
ADC		× 2
SPI		
RESET_N	•	•
PCIe		Optional
Antenna	× 3	× 3
Enhanced Features		
MIMO	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL
eCall*	Emergency Service	Emergency Service
BT4.0		
Digital Audio	•	•
VoLTE	Optional	Optional
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS
(U)SIM Card Detection	•	•
Electrical Features		
Supply Voltage Range	3.1~4.4 V, 3.3 V Typ.	3.3~4.3 V, 3.8V Typ.
Power Consumption	3.3mA@Sleep, Typ. 32.1mA @Idle	10µA @Power off 1.5mA @LTE Sleep(PF=128) 1.5mA @LTE Sleep(PF=64) 18mA @Idle
Software Features		
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x
QMI_WWWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.1~4.15
Certifications	Telstra/ Deutsche Telekom/ GCF/ CE/ NCC/ RCM/ FCC/ IC/ CCC/ PTCRB/ AT&T/ Verizon/ Telus/ Sprint/ Rogers/ Bell (TBD)	Deutsche Telekom/ Telstra/ GCF/ CE/ KC/ RCM/ FCC/ CCC/ PTCRB/ IC/ AT&T/ Verizon/ USCC/ British Telekom
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage	

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

* Under development

Quectel LTE-A Module Family

Product	EG12	EG18
	 <p>QUECTEL EG12 XX Q1-Axxxx EG120X-XXXX-XXXX SN:XXXXXXXXXXXXXX IMEI:XXXXXXXXXXXXXX</p>	 <p>QUECTEL EG18 XX Q1-Axxxx EG180X-XXXX-XXXX SN:XXXXXXXXXXXXXX IMEI:XXXXXXXXXXXXXX</p>
Form Factor	LGA	LGA
Dimensions (mm)	37.0 × 39.5 × 2.8	37.0 × 39.5 × 2.8
4G	LTE Cat 12	LTE Cat 18
Frequency Bands (MHz)	-EA (EMEA/ Australia/ Brazil) LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 Up to 3 x CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 Up to 3 x CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8
	-NA (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B25/B26/B29/B30/B66/B71 LTE-TDD: B41 Up to 3 x CA: Intra-band and Inter-band WCDMA Bands: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17 ¹ /B25/B26/B29/B30/B66/B71 LTE-TDD: B41 Up to 5 x CA: Intra-band and Inter-band WCDMA Bands: B2/B4/B5
Weight (approx.) g	9	9
Temperature Range	-40°C ~ +85°C (Extended Temperature)	-40°C ~ +85°C (Extended Temperature)
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission		
LTE	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 430Mbps (DL)/ Max. 90Mbps (UL)	LTE-FDD: Max. 1.2Gbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 573Mbps (DL)/ Max. 90Mbps (UL)
UMTS	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)
SMS	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
Interfaces		
USB	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode
PCM	•	•
I2C	× 1	× 1
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
GPIO	× 2	× 2
UART	× 3	× 3
ADC	× 2	× 2
SPI	× 1 (Optional)	× 1 (Optional)
SD Card	•	•
RESET_N	•	•
PCIe	Optional	Optional
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS
Enhanced Features		
MIMO	2 × 2, 4 × 2, 4 × 4, DL	2 × 2, 4 × 2, 4 × 4 DL
eCall	•	•
BT4.0		
Digital Audio	•	•
VoLTE	Optional	Optional
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS
(U)SIM Card Detection	•	•
Electrical Features		
Supply Voltage Range	3.3~4.3 V, 3.8 V Typ.	3.3~4.3 V, 3.8 V Typ.
Power Consumption	20µA @Power off 1.83mA @Sleep, Typ. 9.41mA @Idle	20µA @Power off 1.81mA @Sleep, Typ. 9.38mA @Idle
Software Features		
USB Serial Driver	Windows 7/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x
QMI_WWWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x
Certifications	CE/ RCM	CE/ RCM/ FCC/ IC/ GCF/ PTCRB/ AT&T*/ Verizon*/ Telstra/ T-mobile*/ USCC*
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage	

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

* Under development

Quectel M.2 Module Family

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

Note 1: B32 is only for secondary component carrier.

Note 2: B29 is only for secondary component carrier.

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

* Under development

Quectel M.2 Module Family

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

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

* Under development

Quectel LTE Module Family

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

* Under development

Quectel LTE Module Family

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

Note 1: Inapplicable to Mini PCIe.

Note 2: Rx-diversity not supported.

GNSS antenna not supported on EC25-MX/EC21-KL.

Quectel LTE Module Family

Product	EG91	EG95	EG25-G/ EG25-G Mini PCIe	EG21-G/EG21-G Mini PCIe
			 	 
Form Factor	LGA	LGA	LGA (EG25-G) Mini PCIe (EG25-G Mini PCIe)	LGA (EG21-G) Mini PCIe (EG21-G Mini PCIe)
Dimensions (mm)	25.0 × 29.0 × 2.25	25.0 × 29.0 × 2.25	32.0 × 29.0 × 2.4 (EG25-G) 51.0 × 30.0 × 4.9 (EG25-G Mini PCIe)	32.0 × 29.0 × 2.4 (EG21-G) 51.0 × 30.0 × 4.9 (EG21-G Mini PCIe)
LTE Category	LTE Cat 1	LTE Cat 4	LTE Cat 4	LTE Cat 1
Frequency Bands (MHz)	-E (Europe)	LTE-FDD: B1/B3/B7/B8/B20/B28A; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28A; WCDMA: B1/B8; GSM: B3/B8	
	-EX (Europe)	LTE-FDD: B1/B3/B7/B8/B20/B28; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28; WCDMA: B1/B8; GSM: B3/B8	
	-NAXD* (North America)	LTE-FDD: B2/B4/B5/B12/B13/B25/ B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13/B25/ B26; WCDMA: B2/B4/B5	
	-NAX (North America)	LTE-FDD: B2/B4/B5/B12/B13/B25/ B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13/B25/ B26; WCDMA: B2/B4/B5	
	-NA (North America)	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5	
	-NS (North America)	LTE-FDD: B2/B4/B5/B12/B13/B25/ B26; WCDMA: B2/B4/B5		
	-VX (Verizon)	LTE-FDD: B4/B13		
	-AUX* (Latin America/ ANZ)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/ B28/B66; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8		
	-G (Global)		LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/ B20/B25/B26/B28; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/ B20/B25/B26/B28; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8
Weight (approx.) g	3.8	3.8	4.9 (EG25-G), 9.8 (EG25-G Mini PCIe)	4.9 (EG21-G), 9.8 (EG21-G Mini PCIe)
Working Temperature Range	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature Range	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C (EG25-G) -40°C ~ +80°C (EG25-G Mini PCIe)	-40°C ~ +85°C (EG21-G) -40°C ~ +80°C (EG21-G Mini PCIe)
Data Transmission				
LTE data rate (Mbps)	Max. 10 (DL)/ Max. 5 (UL)	Max. 150 (DL)/ Max. 50 (UL)	LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30(UL)	LTE-FDD: Max. 10Mbps (DL)/Max. 5Mbps (UL) LTE-TDD: Max. 8.96Mbps (DL)/Max. 3.1Mbps (UL)
DC-HSPA+ data rate (Mbps)	Max. 42 (DL)/Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)
WCDMA data rate (Kbps)	Max. 384 (DL)/Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)
EDGE data rate (Kbps)	Max. 296 (DL)/Max. 236.8 (UL)	Max. 296 (DL)/ Max. 236.8 (UL)	Max. 296 (DL)/ Max. 236.8 (UL)	Max. 296 (DL)/ Max. 236.8 (UL)
GPRS data rate (Kbps)	Max. 107(DL)/Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)
SMS	•	•	•	•
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ CMUX/ HTTPS/ SMTP/ MMS*/ FTPS*/ SMTPS/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ CMUX/ HTTPS/ SMTP/ MMS*/ FTPS*/ SMTPS/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/NITZ/ CMUX/ HTTPS/ SMTP/ MMS*/ FTPS*/ SMTPS/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/NITZ/ CMUX/ HTTPS/ SMTP/ MMS*/ FTPS*/ SMTPS/ SSL/ FILE
Interfaces				
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V	1.8V/ 3.0V	1.8V/ 3.0V
UART	2	2	2 (EG25-G), 1 (EG25-G Mini PCIe)	2 (EG21-G), 1 (EG21-G Mini PCIe)
USB	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)
IIC	•	•	•	•
Audio Digital (PCM)	Optional	Optional	Optional	Optional
SPI	•	•	•(EG25-G) x 2, 15bits (EG25-G)	•(EG21-G) x 2, 15bits (EG21-G)
SD				
ADC				
GPIO	• (Only Supported on QuecOpen®)	• (Only Supported on QuecOpen®)	• (Only Supported on QuecOpen®)	• (Only Supported on QuecOpen®)
Antenna	Pads for Primary, Rx-diversity and GNSS ¹	Pads for Primary, Rx-diversity and GNSS ¹	Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS
Enhanced Features				
eCall* (for Europe)	•	•		
E911 (for North America)	•	•		
DTMF	•	•	•	•
DFOTA	•	•	•	•
QMI/ RmNet	•	•	•	•
Audio Playback/Audio Recording	Optional	Optional	Optional	Optional
QuecFile	•	•		
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
NDIS Driver	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10
MBIM Driver	Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4
GobiNet Driver	Linux 2.6~5.4	Linux 2.6~5.4	Linux 2.6~5.4	Linux 2.6~5.4
QMI_WWAN Driver	Linux 3.4~5.4	Linux 3.4~5.4	Linux 3.4~5.4	Linux 3.4~5.4
(U)SIM Card Detection	•	•	•	•
(U)SIM Card Connector			Optional (EG25-G Mini PCIe)	Optional (EG21-G Mini PCIe)
GNSS ¹	Optional	Optional	Optional	Optional
Firmware Update	Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA
Electrical Features				
Supply Voltage Range	3.3V~4.3 V, 3.8V Typ.	3.3V~4.3 V, 3.8V Typ.	3.3V~4.3 V, 3.8V Typ. (EG25-G) 3.0V~3.6 V, 3.3V Typ. (EG25-G Mini PCIe)	3.3V~4.3 V, 3.8V Typ. (EG21-G) 3.0V~3.6 V, 3.3V Typ. (EG21-G Mini PCIe)
Power Consumption	15µA@Power off, 2.6mA@Sleep, Typ. , 21mA@Idle	15µA@Power off, 2.6mA@Sleep, Typ. , 22mA@Idle	13µA@Power off, 1.7mA@Sleep, Typ. , 22mA@Idle (EG25-G) 2.7mA @Sleep, Typ. / 25mA @Idle (EG25-G Mini PCIe)	13µA@Power off, 1.7mA@Sleep, Typ. , 22mA@Idle (EG21-G)
Certifications	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ T-Mobile/ Sprint/ Rogers/ Telus Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ FAC/ NCC* Others: WHQL	Carrier Certification: Deutsche Telekom/ Verizon/ AT&/ Sprint/ U.S. Cellular/ Telus/ Rogers* Regulatory Certification: SRRC/ NAL/ CCC/ GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ IFETEL/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ ICASA/ IMDA/ FAC* Others: WHQL	Carrier Certification: Verizon/ AT&T/ T-Mobile/ Deutsche Telekom/ Sprint/U.S.Cellular/ Telus* Regulatory Certification: CE/ FCC/ IC/ RCM/ PTCRB/ GCF/ Anatel/ JATE/ TELEC/ NCC/ ICASA/ IFETEL/ KC Others: WHQL	
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.			

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

* Under development

Quectel Smart Module Family

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

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

Quectel Smart Module Family

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

* Under development

Quectel Smart Module Family

Product	SC66
	
Form Factor	LCC+LGA
Dimensions(mm)	43.0 x 44.0 x 2.85
LTE Feature	LTE Cat 6
Frequency Bands(MHz)	-CE (China) -E (EMEA/ Korea/ Thailand/ India) -A (North America) -J (Japan) -MW (Global)
CPU	SDM660, Customized 64-bit ARM v8.0-compliant AP (Kryo260 CPU) Kryo Gold Quad high-performance cores targeting 2.2GHz, L2 - 1MB Kryo Silver Quad low-power cores targeting 1.843GHz, L2 - 1MB
GPU	Qualcomm® Adreno 512 at 650MHz
Memory	32GB eMMC + 3GB LPDDR4X (Default) 64GB eMMC + 4GB LPDDR4X (Optional)
Operating System	Android 9.0/10.0
Supply Voltage Range	3.55V ~ 4.4V, 4V Typ.
Weight (approx.) g	12.0
Operating temperature range	-35 °C ~ +75 °C
Data Transmission	Cat 6*: LTE-FDD: Max. 300 (DL)/ Max. 50 (UL) LTE-TDD: Max. 265 (DL)/ Max. 30 (UL) Cat 4: LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL) DC-HSDPA: Max. 42Mbps (DL) DC-HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)
TD-SCDMA	Max. 4.2Mbps (DL)/2.2Mbps (UL)
CDMA2000	EVDO: Max. 3.1Mbps (DL)/ 1.8Mbps (UL) 1X Advanced: Max. 307.2Kbps (DL/UL)
GSM	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)
Interfaces	
LCM	2560x1600 @60fps primary display + 4k@30fps over DP Dual MIPI DS1
Camera	4-lane MIPI_CSIx3, up to 2.1Gbps/Lane, Support 3 or 4 Cameras, Up to 24MP with Dual ISPs
Touch Panel	Capacitive Touch Panel
Audio	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC
Video	Encoding: 4K(HEVC/H264/VP8)@30FPS Decoding: 4K(HEVC/H264/VP8/VP9)@30FPS
USB	x 2, Compliant with USB3.1 and 2.0 specifications, with transmission rates up to 5Gbps on USB3.1 and 480Mbps on USB2.0
I2C	x 5
(U)SIM	x 2 (1.8V/2.95V)
UART	x 4, (one group Support 4Mbps with Hardware Flow Control)
SDIO	x 1 (3.0, 4-bit SDIO)
PWRKEY	1.8V, Pulled-up Internally
SPI	x 1, only support master mode
ADC	x 2 General purpose ADC interfaces
GPIO	x 22
PMW	x 1
Antenna	Main antenna, Rx-diversity antenna, GNSS antenna, Wi-Fi/BT antenna, FM* antenna and WiFi_MIMO antenna interfaces (SC66-CE and SC66-W do not support MIMO Wi-Fi)
Enhanced Features	
BT	BT2.1+EDR/3.0/4.1 LE/4.2 BLE/5.0
WLAN	2.4G/5G, 802.11a/b/g/n/ac
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS/ SBAS
Charge Function	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology
Dual LCD	Support Dual LCDs for Independent Display
DSDS	Support Dual SIM Dual Standby
Firmware Upgrade	A/B OTA Firmware Upgrade via USB
Certifications	CE/ GCF/ FCC/ PTCRB/ NCC/ AT&T/ Verizon/ RCM/ IC/ JATE/ TELEC/ CCC/ SRRC/ NAL
Recommended Applications	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.

* Under development

Quectel LPWA Module Family

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

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

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

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

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

Note 5: Special variant.

* Under development

Quectel LPWA Module Family

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

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

* Under development

Quectel LPWA Module Family

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

O & * Under development

Quectel Automotive Module Family

Product	AG35
Form Factor	LGA
Dimensions (mm)	33.0 × 37.5 × 3.0
4G	LTE Cat 4
Frequency Bands (MHz)	<ul style="list-style-type: none"> -E (EMEA/Korea/Australia/ India/Southeast Asia) LTE-FDD: B1/B3/B5/B7/B8/B20/B28; LTE-TDD: B38/B40; WCDMA: B1/B5/B8; GSM: B3/B8 -CE (China/India) LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA2000 1X/EVDO(Optional); BC0; GSM: B3/B8 -NA (North America) LTE-FDD: B2/B4/B5/B7/B12(B17)/B13; WCDMA: B2/B4/B5; GSM: B2/B5 -J (Japan) LTE-FDD: B1/B3/B5/B8/B9/B19/B21/B28; LTE-TDD: B41; WCDMA: B1/B3/B5/B6/B8/B19 -LA (Latin America) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28; WCDMA: B1/B2/B3/B4/B5/B8; GSM: B2/B3/B5/B8
Weight (approx.) g	8.1
Temperature Range	-40 °C ~ +85 °C
Data Transmission	
LTE(data rate (Mbps)	LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)
DC-HSPA+ data rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)
WCDMA data rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)
TD-SCDMA data rate (Mbps)	Max. 4.2 (DL)/ Max. 2.2 (UL)
EDGE data rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)
GPRS data rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)
SMS	Point-to-point MO/MT SMS Cell Broadcast Text and PDU Mode
Protocols	TCP/UDP/PPP/PING/FTP(S)/ HTTP(S)/SMTP/SSL/TLS/ MMS/NTP/ FILE/QMI
Interfaces	
(U)SIM	× 1 (Support 1.8V/ 3V USIM/ SIM Cards)
UART	× 3 (for Main UART/ BT/ Debug Functions)
HSIC	× 1
USB	USB 2.0 × 1 (with High Speed up to 480Mbps)
IIC	× 2 (1 for PCM)
SGMII	× 1
SDIO	× 2 for Wi-Fi and eMMC
SPI	SPI > 1 (for QuecOpen Version Only)
Audio Digital (PCM)	× 1
ADC	× 3, 15bits
GPIO	GPIO >15 (for QuecOpen Version Only)
Antenna	Main, Rx-diversity and GNSS
Enhanced Features	
QuecOpen® (Open Linux)	•
eCall	•
Era Glonass	•
Multi-APN	•
Temperature Management	•
DFOTA	•
Voice over USB (USB Audio)	•
QDR	Optional
PPE (RTK)	Optional (Support only in China)
GNSS	GPS/ GLONASS/ Beidou/ Galileo/ QZSS
Advanced Security Feature	
TrustZone	•
Secure Boot	•
Code/User Data Backup	•
Software Features	
RIL Driver	Android 4.x~9.x
RNDIS Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4
ECM Driver	Linux 2.6~5.4
Gobinet Driver	Linux 2.6~5.4
QMI_WWAN Driver	Linux 3.4~5.4
USB Serial Driver	Windows 7/ 8/ 8.1/10, Linux 2.6~5.4, Android 4.x~9.x
GNSS Driver	Android 4.x~9.x
Electrical Features	
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.
Power Consumption	20μA @Power off/ 1.9mA @LTE Sleep, PF=128/ 1.6mA @LTE Sleep, PF=256/ 22mA @Idle, Typ.
Certifications	CCC/ SRRCC/ NAL/ GCF/ CE/ FCC/ KC/ RCM/ Anatel/ KT'/ STK'/ LGU+/' PTCRB/ IC/ AT&T/ Rogers/ T-Mobile/ Verizon/ JATE/ TELECO/ NTT DOCOMO'
Recommended Applications	Automotive

Product	AG520R
Form Factor	LGA
Dimensions (mm)	38.0 × 42.0 × 2.85
4.5G	LTE Cat 16
Frequency Bands (MHz)	<ul style="list-style-type: none"> -CN (China) LTE: B1/B3/B5/B7/B8/B34/B38/B39/B40/B41; UMTS: B1/B8; CDMA(Optional): BC0; GSM: 1800MHZ/900MHZ -EU (EMEA/Australia/ Korea/India/ Southeast Asia) LTE: B1/B3/B5/B7/B8/B20/B28/B32(DL)/B38/B40/B41; UMTS: B1/B3/B5/B8 GSM: 1800MHZ/900MHZ -NA (North America) LTE-FDD: B2/B4/B5/B7/B12(B17)/B13; B71; UMTS: B2/B4/B5; -JP LTE-FDD: B1/B3/B5/B8/B9/B11/B18/B19/B21/B28; LTE-TDD: B41; WCDMA: B1/B3/B5/B8/B9/B19
Weight (approx.) g	9.23
Temperature Range	-40 °C ~ +85 °C, eCall +95°C
Data Transmission	
LTE data rate	LTE-FDD: Max. 1Gbps (DL)/ 75Mbps (UL), LTE-TDD: Max. 880Mbps (DL)/45Mbps (UL)
DC-HSPA+ Data Rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)
WCDMA data rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)
EDGE data rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)
GPRS data rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)
C-V2X data rate (Mbps)	Max. 30 (Tx)/ Max. 30(Rx)
SMS	Point-to-point MO and MT SMS Cell Broadcast Text and PDU Mode
Protocols	TCP/ UDP/ PPP/ PING/ FTP(S)/ HTTP(S)/SMTP/ SSL/ TLS/ MMS/ NTP/ DTMF/ FILE/ QMI
Interfaces	
USB	× 1
UART	3 × UARTs
USIM	× 1
Antenna	× 7 or × 5(2 × 2 MIMO for CN)
RESET	Yes
SDIO	× 1(eMMC)
SPI	× 1
I2S/PCM	× 1 I2S, × 1 PCM
I2C	× 1
RGMII	× 1
ADC	× 2
PCIe	× 1
GPIO	× 8 (Only Open)
JTAG/QDSS	Yes
Enhanced Features	
QuecOpen® (Open Linux)	•
eCall	•
DFOTA	•
eSIM (eUICC)	•
(U)SIM Detection	•
Temperature Management	•
GNSS	GPS/ GLONASS/ BeiDou/ Galileo
ESD/EMI Protection	Realized through Internal Specific Circuits and Components
Gigabit Ethernet	Optional
C-V2X	Optional
DSDA (Dual SIM Dual Activation)	Optional
QDR 3.0 (External IMU Required)	Optional
Multi-Frequency GNSS (L1/L5)	Optional
UART Interface for BT Function	Optional
Advanced Security Feature	
TrustZone/ TPM*	•
Secure Boot*	•
SE-Linux	•
Software Features	
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
RNDIS	Windows 7/8/8.1/10, Linux 2.6~5.4
ECM	Linux 2.6~5.0
Gobinet	Linux 2.6~5.0, Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
QMI_WWAN Driver	Linux 3.4~5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x
Electrical Features	
Supply Voltage Range	VBAT_BB/VBAT_RF: 3.3V~4.3V (3.8V Typ.) VBAT_C-V2X: 4.75V~5.25V (5.0V Typ.)
Power Consumption	0.021mA @Power off 2.87mA @LTE Sleep, PF=128/2.28mA @LTE , PF=256 Sleep, 47.89mA @Idle, PF=64/ 68.82mA @Idle, PF=64, USB Active, Typ.
Certifications	TBD
Recommended Applications	Automotive

* Under development

Quectel Automotive Module Family

Quectel C-V2X Module

Product	AG55xQ
Form Factor	LGA
Dimensions (mm)	54.5 × 53.0 × 3.35
5G	Sub-6G
4G	LTE Cat 19
Frequency Bands (MHz)	<ul style="list-style-type: none"> -CN (China) 5G: N41/N78/N79; LTE: B1/B3/B5/B7/B8/B34/B38/B39/B40/B41; WCDMA: B1/B8; GSM: B3/B8 -EU (EMEA/Australia, Korea/India/ Southeast Asia/Latam America exl. Mexico) 5G: N1/N3/N8/N20/N28/N41/N78; LTE: B1/B2/B3/B4/B5/B6/B7/B8/B20/B28/B32rx/B38/B40/B41/B42; WCDMA: B1/B3/B5/B8; GSM: B2/B3/B5/B8 -NA (North America/ Mexico) 5G: N2/N5/N41/N66/N71/N78; LTE: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B29rx/B30rx/B41/B66/B71; WCDMA: B2/B4/B5 -JP* (Japan) 5G: N1/N3/N77/N78/N79; LTE: B1/B3/B5/B8/B9/B11/B19/B21/B28/B41; WCDMA: B1/B3/B5/B8/B9/B19;
Weight (approx.) g	18
Temperature Range	-40 °C ~ +85 °C, eCall +95°C
Data Transmission	
5G Data Rate	Max. 2.12Gbps (DL)/900Mbps & 450Mbps (UL)
LTE FDD Data Rate	Max. 2.02Gbps (DL)/ Max. 75Mbps (UL)
LTE TDD Data Rate	Max. 1.69Gbps (DL)/ Max. 45Mbps (UL)
DC-HSPA+ Data Rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)
WCDMA Data Rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)
EDGE Data Rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)
GPRS Data Rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)
C-V2X Data Rate (Mbps)	Max. 48 (Tx)/ Max. 48(Rx)
SMS	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode
Protocols	TCP/ UDP/ PPP/ PING/ FTP(S)/ HTTP(S)/SMTP/ SSL/ TLS/ MMS/ NTP/ DTMF*/ FILE/ QMI
Interfaces	
(U)SIM	× 1 (Support 1.8V/ 3V USIM/ SIM Cards)
eSIM/eUICC	× 1
UART	× 3 (Main/Debug/BT UART)
USB 2.0/3.1	× 1
PCIe 3.0	× 1
IIC	× 1
IIS	× 1
RGMII	× 1
SDIO	× 1 (for eMMC)
SPI	× 1
Audio Digital (PCM)	× 1
ADC	× 2 (15-bit)
GPIO	× 15 (For QuecOpen® version only)
RESET_N	× 1 (Reset the module)
Antenna	<ul style="list-style-type: none"> Main × 1 (4G/5G TRX) Diversity × 1 (n78/n79 TRX, 4G DRX) MIMO 3 × 1 (n41 TRX, 4G MIMO) MIMO 4 × 1 (4G/5G MIMO) C-V2X × 2 (TRX0/TRX1) GNSS × 1 DSDA × 2 (Main/ DIV)
Enhanced Features	
QuecOpen® (Open Linux)	•
eCall	•
DFOTA	•
eSIM (eUICC)	•
(U)SIM Detection	•
Temperature Management	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo /QZSS
ESD/EMI Protection	Realized through Internal Specific Circuits and Components
Gigabit Ethernet	Optional
C-V2X TDD B47	Optional
DSDA (Dual SIM Dual Activation)	Optional
QDR 3.0 (External IMU Required)	Optional
Multi-Frequency GNSS (L1/L2/L5)	Optional
UART Interface for BT Function	Optional
Advanced Security Feature	
TrustZone/ TPM*	•
Secure Boot	•
SE-Linux	•
Software Features	
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
RNDIS	Windows 7/8/8.1/10, 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_WWWAN Driver	Linux 3.4~5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x
Electrical Features	
Supply Voltage Range	VBAT_BB/VBAT_RF: 3.3V~4.3V (3.8V Typ.) VBAT_C-V2X: 4.75V~5.25V (5.0V Typ.)
Power Consumption	TBD @Power off TBD @Sleep, Typ. TBD @Idle
Certifications	TBD
Recommended Applications	Automotive

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

* Under development

Quectel Wi-Fi Module Family

Product	AF20	AF50T*	FC20/ FC20-N	FC21*	FC30R/FC31R*	FG50V*/FG50K*
					 	 
Dimensions (mm)	17.2 × 15.2 × 2.2	19.5 × 21.5 × 2.3	16.6 × 13.0 × 2.1	16.6 × 13.0 × 2.1	12.0 × 12.0 × 2.1	19.5 × 21.5 × 2.1
Operation Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-30° C ~ +85°C (FC30R) 0° C ~ +70°C (FC31R)	-30°C ~ +85°C
Weight (approx.) g	1.26	2.1	0.81	TBD	0.57	TBD
General Features						
Function	Wi-Fi 2.4GHz + 5GHz & BT 4.2	Wi-Fi 2.4GHz + 5GHz & BT 5.1	Wi-Fi 2.4GHz + 5GHz & BT 4.2* (FC20) Wi-Fi 2.4GHz + BT 4.2* (FC20-N)	Wi-Fi 2.4GHz + 5GHz & BT 4.2	Wi-Fi 2.4GHz	Wi-Fi 2.4GHz + 5GHz & BT 5.1
WLAN Standard	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac 802.11b/g/n (FC20-N)	802.11a/b/g/n/ac (FC20) 802.11b/g/n (FC20-N)	IEEE 802.11a/b/g/n/ac	802.11b/g/n	IEEE 802.11a/b/g/n/ac/ax
BT Standard	BT 4.2	BT 5.1*	BT 4.2	BT 4.2	/	BT 5.1*
Modulation Mode	CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM (FC20)	CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM (FC20-N)	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM
Encryption Mode	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	WPA3	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	TKIP/ AES/ WPA-PSK/ WPA2-PSK	WPA3
AP (Max Access Point)	16	32	16	16	16	32
Operator Mode	AP/ STA	AP/ STA	AP/ STA	AP/ STA	AP/ STA	AP/ STA
I/O Interfaces						
PCIe 3.0		1				1
SDIO	1(SDIO 3.0)		1(SDIO 3.0)	1(SDIO 3.0)	1(SDIO 3.0)	
UART	1	1	1	1	0	1
PCM	1	1	1	1	0	1
Antenna	1 (Wi-Fi & BT Antenna)	2 × Wi-Fi Ant with shared BT Ant, independant BT ant is optional	1 (Wi-Fi & BT Antenna)	1 (Wi-Fi & BT Antenna)	1 (Wi-Fi Antenna)	2 × Wi-Fi Ant with shared BT Ant, independant BT ant is optional
Electrical Characteristics						
Supply Voltage Range	3.14 ~3 .46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	Core Supply Voltage : 0.95V, 1.35V, 1.95V; I/O Supply Voltage : 1.8V; RF Supply Voltage : 3.85V	3.14 ~3 .46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	3.14 ~3 .46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	3.0 ~3 .6V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	Core Supply Voltage : 0.95V, 1.35V, 1.95V; I/O Supply Voltage : 1.8V; RF Supply Voltage : 3.85V
Power Consumption	TBD	TBD	0µA @OFF State, 3.3V WLAN Supply Voltage 554µA @OFF State, 1.8V I/O Pins Supply Voltage 66mA @Idle,3.3V WLAN Supply Voltage 6.5mA @Idle,1.8V I/O Pins Supply Voltage	TBD	0µA @OFF State, 3.3V WLAN Supply Voltage 554µA @OFF State,1.8V I/O Pins Supply Voltage 66mA @On State(no connection), 3.3V WLAN Supply Voltage 6.5mA @On State(no connection),1.8V I/O Pins Supply Voltage	TBD
Data Transmission						
802.11a	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	/	Max. 54Mbps
802.11b	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps
802.11g	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps
802.11n	Max. 150Mbps	Max. 600Mbps	Max. 150Mbps	Max. 150Mbps	Max. 150Mbps	Max. 600Mbps @FG50V; Max. 300Mbps @FG50K;
802.11ac	Max. 433Mbps	Max. 866Mbps	Max. 433Mbps	Max. 433Mbps	/	Max. 866Mbps
802.11ax		Max. 1774.5Mbps				Max. 1774.5Mbps for FG50V Max. 1200Mbps for FG50K
BLE	Max. 1Mbps	Max. 2Mbps	Max. 1Mbps	Max. 1Mbps	/	Max. 2Mbps
Recommended Applications	Automotive	Automotive	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.			CPE, MIFI, OTT, Smart TV

AF20 can work with Quectel AG35 module to provide Wi-Fi/BT function.
 FC20 can work with Quectel EC20 R2.0/EC20 R2.1/EC21 modules to provide Wi-Fi/BT function.
 FC21* can work with Quectel EC20 R2.0/EC20 R2.1/EC21/EC25 modules to provide Wi-Fi/BT function.
 FC30R/FC31R* can work with Quectel EC20 R2.1/EC21/EC25/EC20T module to provide Wi-Fi/BT function.
 AF50T* can work with Quectel AG520R and AG550Q module to provide Wi-Fi/BT function.
 FG50V* can work with Quectel RG500Q module to provide Wi-Fi/BT function.

* Under development

Quectel UMTS/HSPA(+) Module Family

Product	UC15/ UC15 Mini PCIe	UG96	UC200T/ UC200T Mini PCIe
Form Factor	LCC	LGA	LCC
Dimensions (mm)	29.0 × 29.0 × 2.5 (UC15) 51.0 × 30.0 × 4.9 (UC15 Mini PCIe)	22.5 × 26.5 × 2.2	32.0 × 29.0 × 2.4 (UC200T) 30.0 × 51.0 × 4.9 (UC200T Mini PCIe)
3G	UMTS/HSDPA	UMTS/HSPA	UMTS/HSPA+
Frequency Bands (MHz)	-E (Europe) UMTS: 900/2100; GSM: 900/1800		
	-EM (Europe & Middle East) UMTS: 850/1900;		UMTS: B1/B8 GSM: 900/1800MHz
	-A (America) GSM: 850/900/1800/1900		
	-G (Global)	UMTS: 800/850/900/1900/2100; GSM: 850/900/1800/1900	
	-GL (Global)		UMTS: B1/B2/B5/B8 GSM: 850/900/1800/1900MHz
	-T (Thailand) UMTS: 850/2100; GSM: 850/900/1800/1900		
Weight (approx.) g	4.3 (UC15)	3.1	4.3 (UC200T)
Temperature Range	-40 °C ~ +85 °C (UC15) / -40 °C ~ +80 °C (UC15 Mini PCIe)	-40 °C ~ +85 °C	Working Temperature Range*: -35°C ~ +75°C Extended Temperature Range*: -40°C ~ +85°C
Data Transmission			
HSPA data rate (Mbps)	3.6 (DL)	7.2 (DL)/ 5.76 (UL)	Max. 21 (DL)/ Max. 5.76 (UL)
UMTS data rate (Kbps)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	Max. 384 (DL/UL)
GPRS data rate (Kbps)	85.6 (DL)/ 85.6 (UL)	85.6 (DL)/ 85.6 (UL)	Max. 85.6 (DL/UL)
EDGE data rate (Kbps)	236.8 (DL)	296 (DL)/ 236.8 (UL)	Max. 236.8 (DL/UL)
SMS	•	•	•
CSD	•	•	•
Protocols	TCP/UDP/PPP/MMS/FTP/SMTP/SMTPS/HTTP/HTTPS/ PING/SSL	TCP/UDP/PPP/MMS/HTTP/HTTPS/SMTP/SMTPS/FTP/ NTP/NITZ/PING/SSL	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/ FTPS/SSL/FILE/MQTT/SMTP*/MMS*/SMTPS*
Interfaces			
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
UART	1	1	2
USB	2.0 Hi-Speed	2.0 Hi-Speed	2.0 Hi-Speed
Audio Analog	Optional ¹		
Audio Digital (PCM)	Optional ¹	Optional ¹	•
RTC Backup		•	•
ADC	x 2, 12bits		x 2, 12bits
GPIO			
Antenna	Pads for Primary	Pads for Primary	Pads for Primary
SIM Card Holder			Optional
Enhanced Features			
eCall	•	O	
DTMF	•	•	O
QuecFOTA®	•		•
DFOTA	•	•	
Audio Playback/ Audio Recording	•	O	
QuecFile	•		
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.0/7.x/8.x/9.x
NDIS			Windows 7/8.1/10
MUX	Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x		
USB Serial Driver	Windows 7/8.1/10 Windows CE5.0/6.0/7.0* Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8.1/10 Windows CE5.0/6.0/7.0* Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8.1/10 Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x
SIM Detection	•	•	•
GNSS			
Firmware Update	via USB/ UART Interface	via USB/ UART Interface	via USB/ UART Interface
Electrical Features			
Supply Voltage Range	3.3 ~ 4.3V (UC15) 3.0~3.6V, 3.3V Typ. (UC15 Mini PCIe)	3.3~4.3V, 3.8V Typ.	3.4V~4.5V, 3.8V Typ. (UC200T) 3.0~3.6V, 3.3V Typ. (UC200T Mini PCIe)
Power Consumption	1.8mA @ GSM sleep, DRX=9 1.7mA @ UMTS sleep, DRX=9	1.1mA @ GSM sleep, DRX=9 1.7mA @ UMTS sleep, DRX=9	17µA @ Power Off 1.8mA @ GSM Sleep, DRX=5 3.0mA @ WCDMA Sleep, PF=128 35mA @ Idle
Certifications	CE/ GCF/ FCC/ PTCRB/ IC/ AT&T/ Rogers/ NCC/ NBTC/ OFCA/ RCM/ CCC/ SRRC/ NAL/ DoC ²	CE/ FCC/ GCF/ PTCRB/ Anatel/ RCM/ IFETEL/ Movistar/ ICASA/ JATE/ TELEC/ DoC ² / Telefonica / Deutsche Telekom/ IC/ RCM	CE/ Anatel/ RCM
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.		

Note 1: Only Supported in Telematics Version.

Note 2: Only Support Russia.

O &* Under development

Quectel GSM/GPRS Family

Product	M66	M66-DS	M65	M08-R	M89
					
Form Factor	LCC	LCC	LCC	LCC	LGA
Dimensions (mm)	15.8 × 17.7 × 2.3	15.8 × 17.7 × 2.3	15.8 × 17.7 × 2.3	15.7 × 17.6 × 2.4	18.8 × 27.6 × 2.3
Frequency Range (MHz)	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900
Weight (approx.) g	1.3	1.3	1.1	1.18	2.15
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C	-40°C ~ +85°C	-40°C ~ +85°C	-40 °C to +85 °C
Data Transmission					
GPRS Multi-slot Class	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable
Data Rate (kbps)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)
SMS	•	•	•		•
Protocols	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL	TCP/ UDP/ PPP/ HTTP/ FTP/ PING/ NTP/ NITZ/ SSL/ IPv6*	TCP/ UDP/ PPP/ HTTP/ NTP/ PING/ TTS/ FTP/ SSL/ MQTT/ HTTPS/ IPv6*	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL
Specifications for Voice					
Speech Codec Modes	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR
Echo Arithmetic	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction
Interfaces					
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
Audio Analog	1 input/ 2 outputs	1 input/ 2 outputs	1 input/ 2 outputs	1 input/ 1 output	1 input/ 2 outputs
Audio Digital (PCM)	•	•			
RTC Backup	•	•	•	•	•
UART	3	3	3	3	2
ADC	× 1, 10bit	× 1, 10bit	× 1, 10bit	× 1, 10bit	× 1, 10bit
SD Card Interface	•	•			
GPIO					•
Temperature Detection		•			
Enhanced Features					
eCall	•	•			•
Jammer Detection	•	•		•	•
DTMF	•	•	O		•
Audio Playback/ Audio Recording	•	•	•	•	•
Dual-SIM		•			
QuecFOTA®	•	•	DFOTA	DFOTA	•
QuecCell	•	•	•	•	•
QuecFile	•	•	•	•	•
QuecOpen®	•	•	O	•	
RIL for Android	•	•	•	•	•
MUX	•	•	•	•	•(Scan Only)
Bluetooth	•	•			
Wi-Fi					
GNSS					
Electrical Features					
Power Supply	3.3 ~ 4.6V	3.3 ~ 4.6V	3.45 ~ 4.25V	3.45 ~ 4.25V	3.3 ~ 4.6V
Low Power Consumption	1.3mA @DRX=5 1.2mA @DRX=9	1.3mA @DRX=5 1.2mA @DRX=9	1.2mA @DRX=5 1.1mA @DRX=9	1.3mA @DRX=5 1.2mA @DRX=9	2.8mA @DRX=5 2.7mA @DRX=9
Certifications	CE/ Anatel/ ICASA	CE	CE	CE	CE/ Anatel
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Mobile Computing, Healthcare, etc.				

O & * Under development

Quectel GSM/GPRS Family

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

O & * Under development

Quectel GNSS Module Family

	Standalone Positioning/ Timing Modules																						
Product	L26	L26-LB	L26-T	L26-DR	LC98S*																		
	Compatible		Compatible																				
																							
GNSS	GPS/ GLONASS/ Galileo/ BeiDou/ QZSS	GPS/ GLONASS/BeiDou/ QZSS	GPS/ Galileo/ GLONASS/ BeiDou/ QZSS	GPS/ Galileo/ GLONASS/ BeiDou/ QZSS	GPS/ BeiDou/ GLONASS/Galileo/ QZSS																		
Form Factor	LCC	LCC	LCC	LCC	LCC																		
Dimensions (mm)	16.0 × 12.2 × 2.4	16.0 × 12.2 × 2.3	16.0 × 12.2 × 2.3	16.0 × 12.2 × 2.3	22.4 × 17.0 × 3.1																		
Weight (approx.) g	1.0	1.0	0.9	0.9	1.68																		
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C																		
General Features																							
Chip Solution	MT3333	AG3331	Teseo III	Teseo III	Teseo III																		
L1 Band Receiver (C/A Code) Channel Number	33 Track/ 99 Acq	33 Track/ 99 Acq	48 Track/2 Fast Acq	48 Track/2 Fast Acq	48 Track/2 Fast Acq																		
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN																		
A-GNSS	Supported	Supported	Supported	Supported	Supported																		
Sensitivity	<table border="0"> <tr> <td>Autonomous Acquisition</td><td>-148dBm</td><td>-149dBm</td><td>-147dBm</td><td>-145dBm</td><td>-145 dBm</td></tr> <tr> <td>Reacquisition</td><td>-160dBm</td><td>-161dBm</td><td>-154dBm</td><td>-152dBm</td><td>-152 dBm</td></tr> <tr> <td>Tracking</td><td>-167dBm</td><td>-167dBm</td><td>-162dBm</td><td>-162dBm</td><td>-162 dBm</td></tr> </table>	Autonomous Acquisition	-148dBm	-149dBm	-147dBm	-145dBm	-145 dBm	Reacquisition	-160dBm	-161dBm	-154dBm	-152dBm	-152 dBm	Tracking	-167dBm	-167dBm	-162dBm	-162dBm	-162 dBm				
Autonomous Acquisition	-148dBm	-149dBm	-147dBm	-145dBm	-145 dBm																		
Reacquisition	-160dBm	-161dBm	-154dBm	-152dBm	-152 dBm																		
Tracking	-167dBm	-167dBm	-162dBm	-162dBm	-162 dBm																		
TTFF (Time To First Fix)	<table border="0"> <tr> <td>Cold Start</td><td><35s, Autonomous <15s, With EASY™</td><td><35s, Autonomous <15s, With EASY™</td><td><32s, Autonomous</td><td><32s, Autonomous</td><td>< 31s, Autonomous</td></tr> <tr> <td>Warm Start</td><td><30s, Autonomous <5s, With EASY™</td><td><30s, Autonomous <5s, With EASY™</td><td><25s, Autonomous</td><td><25s, Autonomous</td><td>< 24s, Autonomous</td></tr> <tr> <td>Hot Start</td><td><1s</td><td><1s</td><td><2s</td><td><2s</td><td>< 1s</td></tr> </table>	Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<32s, Autonomous	<32s, Autonomous	< 31s, Autonomous	Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<25s, Autonomous	<25s, Autonomous	< 24s, Autonomous	Hot Start	<1s	<1s	<2s	<2s	< 1s				
Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<32s, Autonomous	<32s, Autonomous	< 31s, Autonomous																		
Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<25s, Autonomous	<25s, Autonomous	< 24s, Autonomous																		
Hot Start	<1s	<1s	<2s	<2s	< 1s																		
Position Accuracy(autonomous)	<2.5m CEP	<2.5m CEP	<1.5m CEP	<1.5m CEP	< 2m CEP																		
Velocity Accuracy(without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s																		
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²																		
Timing Accuracy (1σ)	<100ns	<100ns	≤6.8ns	<100ns	≤6.8ns																		
Max Update Rate	10Hz	10Hz	10Hz	10Hz	10Hz																		
Baud Rate (default)	9600bps	9600bps	9600bps	115200bps	115200bps																		
Geo-fence	•	•	•																				
Jammer Detection	•	•	•	•	•																		
Anti-jamming	•	•			•																		
Built-in LNA	•	•	•	•	•																		
Electrical Data																							
Power Supply	2.8V to 4.3V	2.8V to 4.3V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V																		
I/O Voltage	2.7V to 2.9V	2.7V to 2.9V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V																		
Power Consumption (Acquisition)	29mA (GPS+GLONASS) 26mA (GPS)	29.4mA (GPS+GLONASS)	64mA (GPS) 71mA (GPS+GLONASS+Galileo)	72mA (GPS) 79mA (GPS+GLONASS+Galileo)	84 mA (GPS + BeiDou)																		
Power Consumption (Tracking)	21mA (GPS+GLONASS) 18mA (GPS)	26.6mA (GPS+GLONASS)	51mA (GPS) 67mA (GPS+GLONASS+Galileo)	58mA (GPS) 74mA (GPS+GLONASS+Galileo)	74mA(GPS + BeiDou)																		
Power Consumption (Backup/Low Power mode)	7µA	7.8µA	9µA	17µA	50 µA																		
Interfaces																							
UART	•	•	•	•	•																		
IIC (NMEA)		•			•																		
Reset	•	•	•	•	•																		
Time Pulse	•	•	•	•	•																		
Antenna																							
Short-Circuit Protection & Open-Circuit Detection	•	•	•	•	•																		
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive																		
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal																		
Certifications	CE	CE	CE	CE																			
Recommended Applications	Vehicle Tracker, Asset Tracker, Industrial PDA		High-precision timing	Automotive tracking , OBD	High-precision timing for base stations																		

* Under development

Quectel GNSS Module Family

Product	Standalone Modules			Dual Band Precision Modules				
	L70-R/L70-RL	L76/L76B/L76-L	L76-LB	LC79D	LC29D*	LG69T(AP)*	LG69T(AA)*	
	Compatible				Compatible			
GNSS	GPS/ QZSS	GPS/GLONASS/Galileo/BeiDou/QZSS	GPS/BeiDou/QZSS/GLOMSS	GPS L1 L5/Galileo E1 E5/QZSS L1 L5/IRNSS L5/GLOMSS L1/BeiDou B1	GPS L1L5/Galileo E1 E5/QZSS L1 L5/IRNSS L5/GLOMSS L1/BeiDou B1	GPS L1 C/A Galileo E1 B/C QZSS L1 C/A GPS L5 Galileo E5a QZSS L5 NAVIC (IRNSS) L5 BeiDou B1/ B2a	GPS L1 C/A GLONASS G1/G2 Galileo E1 B/C QZSS L1/L2 C/A GPS L2C BeiDou B1/ B2I	
Form Factor	LCC	LCC	LCC	LCC+LGA	LCC	LGA	LGA	
Dimensions (mm)	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.4	16.0 × 12.2 × 2.4	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	
Weight (approx.) g	0.6	0.6	0.6	0.42	0.9	1.9	1.9	
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	
General Features								
Chip Solution	MT3337	MT3333	AG3331	BCM47755B1	BCM47758	TESEO V	TESEO V	
L1 Band Receiver (C/A Code) Channel Number	22 Track/ 66 Acq.	33 Track/ 99 Acq.	33 Track/ 99 Acq.	32 channels	32 channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	Support (Only support GAGAN)*	*	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported	/	
Sensitivity	Autonomous Acquisition	-148dBm (L70-R) -149dBm (L70-RL)	-148dBm (L76/ L76B) -149dBm (L76-L)	-149dBm	-147dBm	TBD	-147dBm	
	Reacquisition	-160dBm (L70-R) -161dBm (L70-RL)	-160dBm (L76/ L76B) -161dBm (L76-L)	-161dBm	-158dBm	TBD	-158dBm	
	Tracking	-165dBm (L70-R) -167dBm (L70-RL)	-165dBm (L76/ L76B) -167dBm(L76-L)	-167dBm	-163dBm	TBD	-163dBm	
TTFF (Time To First Fix)	Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<34s, Autonomous	<32s, Autonomous	<35s, Autonomous	
	Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous	<25s, Autonomous	<30s, Autonomous	/	
	Hot Start	<1s	<1s	<1s	<2s	<2s	<1.5s	
Position Accuracy (autonomous)	<2.5m CEP	<2.5m CEP	<2.5m CEP	<1.2m CEP	<1m CEP	<1.2m CEP	/	
Position Accuracy (RTK)					/	<0.15m CEP	/	
Velocity Accuracy (without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	/	
Velocity Accuracy (RTK)						<0.05m/s	/	
Convergence Time (RTK)						<10s	/	
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	/	
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	<34.9ns	TBD	<20ns	/	
Max Update Rate	5Hz (L70-R/ L70-RL)	10Hz	10Hz	1Hz	50Hz	RAW: 10Hz; PVT: 10Hz RTK: 50Hz; IMU: 100Hz	RAW: 1Hz; IMU: 50Hz	
Baud Rate(default)	9600bps	9600bps	9600bps	115200bps	115200bps	460800bps	460800bps	
Geo-fence	•	•	•	•	•	•		
Jammer Detection	•	•	•			•		
Anti-jamming	•	•	•			•		
Built-in LNA	Supported by L70-RL	Supported by L76-L		•	•	•	•	
Electrical Data								
Power Supply	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	1.7V to 1.9V	2.7V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
I/O Voltage	2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	1.7V to 1.9V	2.7V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
Power Consumption (Acquisition)	16mA (L70-R) 21mA (L70-RL)	25mA (GPS+GLONASS)/ 21mA (GPS)(L76) 23mA (GPS+BeiDou) (L76B) 29mA (GPS+GLONASS) (L76-L)	25.5mA (GPS+GLONASS)	47mA (GPS+BeiDou+ GLONASS+Galileo+ QZSS+ IRNSS)	TBD	TBD	TBD	
Power Consumption (Tracking)	13mA (L70-R) 18mA (L70-RL)	18mA (GPS+GLONASS)/ 15mA (GPS) (L76) 18mA (GPS+BeiDou) (L76B) 22mA (GPS+GLONASS) (L76-L)	23.1mA (GPS+GLONASS)	43mA (GPS+BeiDou+ GLONASS+Galileo+ QZSS+ IRNSS)	TBD	TBD	TBD	
Power Consumption (Backup/Low power mode)	8µA (L70-R/ L70-RL)	7µA	7.7µA	200µA@Sleep Mode 17µA@Standby Mode	TBD	TBD	TBD	
Interfaces								
UART	•	•	•	•	•	•	•	
IIC (NMEA)		Supported by L76-L	•	•	•	•	•	
CAN						•		
Reset	•	•	•	•	•	•	•	
Time Pulse	•	•	•	•	•	•	•	
Antenna								
Short-Circuit Protection & Open-Circuit Detection						•	•	
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	Active	Active	
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	
Certifications	CE	CE	CE	CE	CE*	CE*	CE*	
Recommended Applications	Vehicle Tracker, Asset Tracker, Safety, Industrial PDA or PND, Digital Camera, etc.			Shared mobility , delivery robots , GIS		Automotive , High precession navigation , Delivery robots		

LG69T(AA)* only supports output RAW DATA.

* Under development

Quectel GNSS Module Family

Product	Antenna Modules				
	L80/ L80-R	LC86L*	L86	L89	L96
Compatible					
					
GNSS	GPS/QZSS	GLONASS/GPS/ BeiDou/QZSS	GPS/ GLONASS/BeiDou/Galileo/ QZSS	GPS/ GLONASS/BeiDou/Galileo/ IRNSS/QZSS	GPS/ GLONASS/BeiDou/Galileo/ QZSS
Form Factor	LCC	LCC	LCC	LCC+LGA	LCC
Dimensions (mm)	16.0 × 16.0 × 6.45	16.0 × 16.0 × 6.95	18.4 × 18.4 × 6.45	16.0 × 26.4 × 6.8	9.6 × 14.0 × 2.0
Weight (approx.) g	6.0	6.0	7.6	8.2	0.6
Temperature Range	-40 °C to +85 °C	-40 °C to +85 °C			
General Features					
Chip Solution	MT3339 (L80) MT3337 (L80-R)	AG3331	MT3333	Teseo III	MT3333
L1 Band Receiver (C/A Code) Channel Number	22 Track/ 66 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	48 Track/2 Fast Acq	33 Track/ 99 Acq.
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN			
A-GNSS	Supported	Supported	Supported	Supported	Supported
Sensitivity	Autonomous Acquisition	-148dBm	-148dBm	-149dBm	-147dBm
	Reacquisition	-160dBm	-159dBm	-161dBm	-156dBm
	Tracking	-165dBm	-165dBm	-167dBm	-162dBm
TTFF (Time To First Fix)	Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™
	Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™
	Hot Start	<1s	<1s	<1s	<1.5s
Position Accuracy(alternative)	<2.5m CEP	<2.5m CEP	<2.5m CEP	<1.8m CEP	<2.5m CEP
Velocity Accuracy(without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	3.9ns	<100ns
Max Update Rate	10Hz (L80) 5Hz (L80-R)	10Hz	10Hz	10Hz	10Hz
Baud Rate(default)	9600bps	9600bps	9600bps	9600bps	9600bps
Geo-fence	•(Supported by L80)	•	•	•	•
Jammer Detection	•	•	•	•	•
Anti-jamming	•	•	•	•	•
Built-in LNA	•	•	•	•	•
Electrical Data					
Power Supply	3.0V to 4.3V	2.8V to 4.3V	3.0V to 4.3V	3.1V to 4.3V	2.8V to 4.3V
I/O Voltage	2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	3.0 V	2.7V to 2.9V
Power Consumption (Acquisition)	25mA	31.8mA (GPS+GLONASS)	30mA (GPS+GLONASS)	99mA (GPS+GALILEO+IRNSS)	25mA (GPS+GLONASS) 22mA (GPS)
Power Consumption (Tracking)	20mA	31.5mA (GPS+GLONASS)	26mA (GPS+GLONASS)	95mA (GPS+GALILEO+IRNSS)	20mA (GPS+GLONASS)/ 20mA (GPS)
Power Consumption (Backup)	7µA	1.4mA@Standby Mode; 6µA@Backup Mode	7µA	7µA	7µA
Interfaces					
UART	•	•	•	•	•
IIC (NMEA)				•	•
Reset	•	•	•	•	•
Time Pulse	•	•	•	•	•
Antenna					
Short-Circuit Protection & Open-Circuit Detection	Supported by L80	•	•	•	
Antenna Automatic Switch	Supported by L80	•	•	•	
Antenna Type	Embedded patch antenna or external active antenna	Embedded patch antenna or external active antenna	Embedded patch antenna or external active antenna	Embedded patch antenna and chip antenna, external active antenna	Embedded chip antenna or external active antenna
Antenna Power	Internal	Internal	Internal	Internal	External
Certifications					
CE	CE	CE	CE		CE
Recommended Applications		Vehicle or Asset Tracker, DVR, Connected PND & PDA, Safety, Digital Camera, etc.		(Dedicated for India market) standard tracking	Asset tracking, digital cameras

* Under development

Europe

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

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

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Vancouver, B.C.

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



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South Africa: Johannesburg/Gauteng

Asia Pacific

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

Greater China

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Fuzhou	Ningbo	Xi'an
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