



Build a Smarter World

The Leading Global Supplier of

# IoT&M2M Modules

For more information contact  
us at [www.quectel.com](http://www.quectel.com)

**LTE**

**5G**

**NB-IoT**

**LTE-M**

**Wi-Fi**

## About Quectel Wireless Solutions

Quectel's passion for a smarter world drives us to accelerate IoT innovation. A highly customer-centric organization, we create superior cellular and GNSS modules and antennas backed by outstanding support and services. Our growing global team of over 3,000 professionals, the largest in the IoT modules industry worldwide, ensures we are first to market and continue to set the pace of development. Listed on the Shanghai Stock Exchange (603236.SS), our international leadership is devoted to advancing IoT across the globe.

For more information visit: [www.quectel.com](http://www.quectel.com) or find us on Linked In, Twitter and Facebook.

**GNSS**

**UMTS/  
HSPA(+)**

**C-V2X**

**Antenna**

**LPWA**

**GSM/  
GPRS**

# Quectel's IoT Vertical Framework



## 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	RG501Q-EU
			
Form Factor	LGA	LGA	LGA
Dimensions (mm)	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75
5G	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz
Frequency Bands (MHz)	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/B39/B40/B41/B42/B43 WCDMA: B1/B3/B5/B6/B8/B19	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/B39/B40/B41/B42/B43 WCDMA: B1/B3/B5/B6/B8/B19	5G NR Bands: n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78 LTE Bands: LTE-FDD: B1/B3/B5/B7/B8/ B20/B28/B32 LTE-TDD: B38/B40/B41/B42/B43 WCDMA Bands: B1/B5/B8
Region	EMEA/ APAC	EMEA/ APAC	EMEA/ Oceania/ Brazil
Weight (approx.) g	11	11	11
Operating Temperature	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
<b>Data Transmission<sup>1</sup></b>			
5G	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 600/650Mbps (UL) <sup>2</sup>	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 600/650Mbps (UL) <sup>2</sup>	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 3.3Gbps (DL)/ Max. 600/650Mbps (UL) <sup>2</sup>
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. 42 Mbps (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
<b>Interfaces</b>			
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
UART	× 3	× 3	× 3
USB	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1
PCIe	PCIe Gen3 × 2 Lane	PCIe Gen3 × 2Lane	PCIe Gen3 × 2 Lane
RGMI	•	•	•
PCM	•	•	•
I2C	× 1	× 1	× 1
SPI	•	•	•
GPIO	•	•	•
ADC	× 2	× 2	× 2
SD Card	•	•	•
RESET_N	•	•	•
Antenna	Cellular: 6 + 2 (n79), GNSS: × 1	Cellular: 6 + 2 (n79), GNSS: × 1	Cellular: × 4 + 2 (Optional), GNSS: × 1
<b>Enhanced Features</b>			
MIMO	4 × 4 DL	4 × 4 DL	4 × 4 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	•	•	•
<b>Electrical Features</b>			
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.
Power Consumption	0.033mA @ Power off 1.45mA @ Sleep, Typ. 20.1mA @ Idle	0.033mA @ Power off 1.45mA @ Sleep, Typ. 20.1mA @ Idle	0.045mA @Power off 2.0mA @Sleep, Typ. 30mA @Idle
<b>Software Features</b>			
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6-5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6-5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6-5.8, 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 3.18-5.8	Windows 7/8/8.1/10, Linux 3.18-5.8	Windows 10, Linux 3.18-5.8
Gobinet Driver	Linux 2.6-5.8	Linux 2.6-5.8	Linux 2.6-5.8
QMI_WWAN Driver	Linux 3.4-5.8	Linux 3.4-5.8	Linux 3.4-5.8
PCIe Driver	Windows 10, Linux 3.10-5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10-5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10-5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
<b>Certifications</b>	LGU+ / Telstra* / China Telecom/ China Mobile/ China Unicom / CE/ SRRC/ NAL/ CCG/ KC/ RCM/JATE/TELEC/ SKT	CE/ RCM	CE/RCM/GCF
<b>Recommended Applications</b>	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage		

Note 1: means the data transmission is theoretical data rate and depends on network condition.

Note 2: 600 Mbps is the typical value; while 650 Mbps is the theoretical data rate when the UL 256QAM of both LTE and 5G NR are enabled (LTE UL 256QAM in EN-DC is disabled by default and has not been deployed by operators, and it is not fully tested).

\* Under development

# Quectel 5G NR Module Family


Product	RM500Q-GL	RM502Q-GL	RM500Q-AE	RM502Q-AE
				
Form Factor	M.2	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	52.0 × 30.0 × 2.3
5G	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz
Frequency Bands (MHz)	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78/n79 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48; LAA: B46 WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48; LAA: B46 WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78/n79 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12(B17)/B13/B14/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48 LAA: B46 (only support 2 × 2 MIMO) 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(B17)/B13/B14/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48 LAA: B46 (only support 2 × 2 MIMO) WCDMA: B1/B2/B3/B4/B5/B6/B8/B19
Region	Global (except for US)	Global (except for US, China, JP)	Global (except for China)	Global (except for China)
Weight (approx.) g	9	9	8.7	8.7
Operating Temperature	-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
<b>Data Transmission<sup>1</sup></b>				
5G	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 600/650Mbps (UL) <sup>2</sup>	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 600/650Mbps (UL) <sup>2</sup>	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 600/650Mbps (UL) <sup>2</sup>	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 600/650Mbps (UL) <sup>2</sup>
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. 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)	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/HTTPS/PING/SMS
<b>Interfaces</b>				
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 1, 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	2.0/3.0/3.1
PCIe	PCIe Gen3 × 1 Lane	PCIe Gen3 × 1 Lane	PCIe Gen3 × 1 Lane	PCIe Gen3 × 1 Lane
PCM	× 1	× 1	× 1	× 1
GPIO	•	•	•	•
RESET_N	•	•	•	•
Antenna	Cellular: × 4, GNSS: × 1	Cellular: × 4, GNSS: × 1	Cellular: × 4, GNSS: × 1	Cellular: × 4, GNSS: × 1
<b>Enhanced Features</b>				
MIMO	DL: 4 × 4, UL: 2 × 2	DL: 4 × 4, UL: 2 × 2	DL: 4 × 4, UL: 2 × 2(Only N41)	DL: 4 × 4, UL: 2 × 2(Only N41)
Digital Audio	•	•	•	•
VoLTE	Optional	Optional	Optional	Optional
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•	•	•	•
<b>Electrical Features</b>				
Supply Voltage Range	3.135~4.4V, 3.7V Typ.	3.135~4.4V, 3.7V Typ.	3.135~4.4V 3.7V Typ.	3.135~4.4V 3.7V Typ.
Power Consumption	70µA @Power off 5mA @Sleep, Typ. 39mA, USB 2.0 @Idle 64mA, USB 3.0 @Idle	72µA @Power off 6mA @Sleep, Typ. 42mA, USB 2.0 @Idle 65mA, USB 3.0 @Idle	80µA @Power off 4.2mA @Sleep, Typ. 39mA, USB 2.0 @Idle 54.5mA, USB 3.0 @Idle	80µA @Power off 4.2mA @Sleep, Typ. 39mA, USB 2.0 @Idle 54.5mA, USB 3.0 @Idle
<b>Software Features</b>				
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.8, 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	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	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	Windows 7/8/8.1/10
MBIM Driver	Windows 10, Linux 3.18~5.8	Windows 10, Linux 3.18~5.8	Windows 10, Linux 3.18~5.8	Windows 10, Linux 3.18~5.8
Gobinet Driver	Linux 2.6~5.8	Linux 2.6~5.8	Linux 2.6~5.8	Linux 2.6~5.8
QMI_WWAN Driver	Linux 3.4~5.8	Linux 3.4~5.8	Linux 3.4~5.8	Linux 3.4~5.8
PCIe Driver	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
<b>Certifications</b>	CE/RCM/CCC/SRRC/NAL/KC/GCF/KT/LGU+/SKT	CE/RCM/FCC/IC/GCF/PTCRB	CE/RCM/FCC/IC/GCF/PTCRB/T-mobile*/AT&T/ Verizon*/Telstra*/JATE/TELEC/NCC/Deutsche Telecom*	CE/RCM/FCC/IC/GCF/PTCRB/T-mobile*/AT&T/ Verizon*/Telstra*/JATE/TELEC/Deutsche Telecom*
<b>Recommended Applications</b>	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage			

Note 1: means the data transmission is theoretical data rate and depends on network condition.

Note 2: 600 Mbps is the typical value; while 650 Mbps is the theoretical data rate when the UL 256QAM of both LTE and 5G NR are enabled (LTE UL 256QAM in EN-DC is disabled by default and has not been deployed by operators, and it is not fully tested).

\* Under development

# Quectel 5G NR Module





Product	
RM510Q-GL	
	
Form Factor	M.2
Dimensions (mm)	52.0 × 30.0 × 2.3
5G	Sub-6 GHz/ mmWave
Frequency Bands (MHz)	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48/n66/n71/n77/n78/n79/n257/n260/n261 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12(B17)/B13/B14/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
Region	Global
Weight (approx.) g	9.1
Operating Temperature	-30°C ~ +70°C
Extended Temperature	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
<b>Data Transmission<sup>1</sup></b>	
5G	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 600/650Mbps (UL) <sup>2</sup> 5G NSA mmWave: Max. 7.5Gbps (DL)/ Max. 2.9Gbps (UL)
LTE	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)
UMTS	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)
SMS	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
<b>Interfaces</b>	
(U)SIM	× 1, 1.8V/ 3.0V
USB	2.0/3.0/3.1
PCIe	PCIe Gen3 × 1 Lane
PCM	•
GPIO	•
RESET_N	•
Antenna	Cellular: × 4, GNSS: × 1; mmWave IF *4 pairs
<b>Enhanced Features</b>	
MIMO	Sub-6: DL 4 × 4, UL 2 × 2 (Only n41) mmWave: DL 2 × 2, UL 2 × 2
Digital Audio	•
VoLTE	Optional
DTMF	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•
<b>Electrical Features</b>	
Supply Voltage Range	3.135~4.4V, 3.7V Typ.
Power Consumption	80 μA @ Power down 4.2 mA @ Sleep 39 mA @ USB 2.0, Idle 54.5 mA @ USB 3.0, Idle
<b>Software Features</b>	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.8, 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
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
NDIS Driver	Windows 7/8/8.1/10
MBIM Driver	Windows 10, Linux 3.18~5.8
Gobinet Driver	Linux 2.6~5.8
QMI_WWAN Driver	Linux 3.4~5.8
PCIe Driver	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
Certifications	FCC/IC/BCF/PTCRB/CE/RCM
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage

Note 1: means the data transmission is theoretical data rate and depends on network condition.

Note 2: 600 Mbps is the typical value; while 650 Mbps is the theoretical data rate when the UL 256QAM of both LTE and 5G NR are enabled (LTE UL 256QAM in EN-DC is disabled by default and has not been deployed by operators, and it is not fully tested).

\* Under development



# Quectel 5G NR Module Family

Product	RG520N-EU	RG520N-NA	RG520F-EU	RG520F-NA
				
Form Factor	LGA	LGA	LGA	LGA
Dimensions (mm)	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75	45.0 × 48.0 × 2.85 (approx.)	45.0 × 48.0 × 2.85 (approx.)
5G	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz
Frequency Bands (MHz)	5G NR: n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n75/n76/n77/n78 LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B38/B40/B41/B42/B43 WCDMA: B1/B5/B8	5G NR: n2/n5/n7/n12/n13/n14/n25/n26/n29/n30/n38/n41/n48/n66/n70/n71/n77/n78 LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71 LTE-TDD: B38/B41/B42/B43/B48 LAA: B46	5G NR: n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n75/n76/n77/n78 LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B38/B40/B41/B42/B43 WCDMA: B1/B5/B8	5G NR: n2/n5/n7/n12/n13/n14/n25/n26/n29/n30/n38/n41/n48/n66/n70/n71/n77/n78/n75/n258/n260/n261 LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71 LTE-TDD: B38/B41/B42/B43/B48 LAA: B46
Region	EMEA/Oceania/Brazil	North America	EMEA/Oceania/Brazil	North America
Weight (approx.) g	TBD	TBD	TBD	TBD
Operating Temperature	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
<b>Data Transmission<sup>1</sup></b>				
5G	5G SA Sub-6: Max. 2.4 Gbps (DL)/ Max. 900 Mbps (UL) 5G NSA Sub-6: Max. 3.2 Gbps (DL)/ Max. 600 Mbps (UL)	5G SA Sub-6: Max. 2.4 Gbps (DL)/ Max. 900 Mbps (UL) 5G NSA Sub-6: Max. 3.2 Gbps (DL)/ Max. 600 Mbps (UL)	5G SA Sub-6: Max. 6.0 Gbps (DL)/ Max. 900 Mbps (UL) 5G NSA Sub-6: Max. 4.8 Gbps (DL)/ Max. 525 Mbps (UL)	5G SA Sub-6: Max. 6.0 Gbps (DL)/ Max. 900 Mbps (UL) 5G NSA Sub-6: Max. 4.8 Gbps (DL)/ Max. 525 Mbps (UL)
LTE	LTE-FDD: Max. 1.6 Gbps (DL)/ Max. 200 Mbps (UL)	LTE-FDD: Max. 1.6 Gbps (DL)/Max. 200 Mbps (UL)	LTE-FDD: Max. 2.0 Gbps (DL)/Max. 200 Mbps (UL)	LTE-FDD: Max. 2.0 Gbps (DL)/Max. 200 Mbps (UL)
UMTS	WCDMA: Max. 42 Mbps (DL)/ Max. 5.76 Mbps (UL)	/	WCDMA: Max. 42 Mbps (DL)/ Max. 5.76 Mbps (UL)	/
SMS	•	•	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
<b>Interfaces</b>				
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
UART	× 3	× 3	× 3	× 3
USB	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1
PCIe	Gen3 × 2Lane Gen4 × 1Lane (optional)	Gen3 × 2Lane Gen4 × 1Lane (optional)	Gen3 × 2Lane Gen4 × 1Lane (optional)	Gen3 × 2Lane Gen4 × 1Lane (optional)
PCM	•	•	•	•
I2C	× 1	× 1	× 1	× 1
SPI	•	•	•	•
GPIO	•	•	•	•
ADC	× 2	× 2	× 2	× 2
SD Card	•	•	•	•
RESET_N	•	•	•	•
Antenna	Cellular: 4 + 2 (optional), GNSS: × 1	Cellular: 4, GNSS: × 1	Cellular: 4 + 2 (optional), GNSS: × 1	Cellular: 4, GNSS: × 1
<b>Enhanced Features</b>				
MIMO	4 × 4 DL, UL 2 × 2	4 × 4 DL, UL 2 × 2	DL 4 × 4, UL 2 × 2	DL 4 × 4, UL 2 × 2
Digital Audio	•	•	•	•
VoLTE	Optional	Optional	Optional	Optional
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•	•	•	•
<b>Electrical Features</b>				
Supply Voltage Range	3.3–4.4V, 3.8V Typ.	3.3–4.4V, 3.8V Typ.	3.3–4.4V, 3.8V Typ.	3.3–4.4V, 3.8V Typ.
Power Consumption	TBD	TBD	TBD	TBD
<b>Software Features</b>				
USB Serial Driver	Windows 7/8/8.1/10, Linux 3.18–5.12, Android 4.x–11.x	Windows 7/8/8.1/10, Linux 3.18–5.12, Android 4.x–11.x	Windows 7/8/8.1/10, Linux 3.18–5.12, Android 4.x–11.x	Windows 7/8/8.1/10, Linux 3.18–5.12, Android 4.x–11.x
GNSS Driver	Android 4.x–11.x	Android 4.x–11.x	Android 4.x–11.x	Android 4.x–11.x
RIL Driver	Android 4.x–11.x	Android 4.x–11.x	Android 4.x–11.x	Android 4.x–11.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 7/8/8.1/10, Linux 3.18–5.12	Windows 7/8/8.1/10, Linux 3.18–5.12	Windows 7/8/8.1/10, Linux 3.18–5.12	Windows 7/8/8.1/10, Linux 3.18–5.12
Gobinet Driver	Linux 2.6–5.12	Linux 2.6–5.12	Linux 2.6–5.12	Linux 2.6–5.12
QMI_WWAN Driver	Linux 3.4–5.12	Linux 3.4–5.12	Linux 3.4–5.12	Linux 3.4–5.12
PCIe Driver	Windows 10, Linux 3.10–5.8, Android 4.x–11.x	Windows 10, Linux 3.10–5.8, Android 4.x–11.x	Windows 10, Linux 3.10–5.8, Android 4.x–11.x	Windows 10, Linux 3.10–5.8, Android 4.x–11.x
<b>Certifications</b>	CE* / RoHS*	FCC* / IC*	GCF* / CE* / RoHS*	GCF* / PTCRB* / FCC* / IC*
<b>Recommended Applications</b>	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage		Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage	

Note 1: means the data transmission is theoretical data rate and depends on network condition.

\* Under development

# Quectel 5G NR Module Family



Product	RM520N-GL	RM530N-GL
		
Form Factor	M.2	M.2
Dimensions (mm)	52.0 × 30.0 × 2.3	52.0 × 30.0 × 2.3
5G	Sub-6 GHz	Sub-6 GHz/mmWave
Frequency Bands (MHz)	5G NR: n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/n71/n75/n76/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/B39/B40/B41/B42/B43/B48; LAA: B46 WCDMA: B1/B2/B4/B5/B8/B19	5G NR: n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/n71/n75/n76/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/B39/B40/B41/B42/B43/B48; LAA: B46 WCDMA: B1/B2/B4/B5/B8/B19
Region	Global	Global
Weight (approx.) g	TBD	TBD
Operating Temperature	-30°C ~ +70°C	-30°C ~ +70°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
<b>Data Transmission<sup>1</sup></b>		
5G	5G SA Sub-6: Max. 2.4Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 3.2Gbps (DL)/ Max. 600Mbps (UL)	5G SA Sub-6: Max. 2.4Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 3.2Gbps (DL)/ Max. 600Mbps (UL) 5G NSA mmWave: Max. 4.0Gbps (DL)/ Max. 1.4Gbps (UL)
LTE	LTE-FDD: Max. 1.6Gbps (DL)/Max. 200Mbps (UL)	LTE-FDD: Max. 1.6Gbps (DL)/Max. 200Mbps (UL)
UMTS	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
<b>Interfaces</b>		
(U)SIM	× 2	× 2
USB	2.0/3.0/3.1	2.0/3.0/3.1
PCIe	PCIe 4.0	PCIe 4.0
Antenna	Sub-6/GNSS × 4	Sub-6/GNSS × 4, mmWave × 2
<b>Enhanced Features</b>		
MIMO	Sub-6: DL 4 × 4, UL 2 × 2	Sub-6: DL 4 × 4, UL 2 × 2 mmWave: DL 2 × 2, UL 2 × 2
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	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•	•
<b>Electrical Features</b>		
Supply Voltage Range	3.135~4.4V, 3.7V Typ.	3.135~4.4V, 3.7V Typ.
Power Consumption	TBD	TBD
<b>Software Features</b>		
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.8, 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
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
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10
MBIM Driver	Windows 10, Linux 3.18~5.8	Windows 10, Linux 3.18~5.8
Gobinet Driver	Linux 2.6~5.8	Linux 2.6~5.8
QMI_WWAN Driver	Linux 3.4~5.8	Linux 3.4~5.8
PCIe Driver	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
<b>Certifications</b>	GCF*/CE*/PTCRB*/FCC*/IC*/JATE*/TELEC*/RCM*	GCF*/CE*/PTCRB*/FCC*/IC*/JATE*/TELEC*/RCM*
<b>Recommended Applications</b>	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage	

Note 1: means the data transmission is theoretical data rate and depends on network condition.

\* Under development








# Quectel 5G NR Module Family

Product	RG500L-EU	RG500L-NA
		
Form Factor	LGA	LGA
Dimensions (mm)	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75
5G	Sub-6 GHz	Sub-6 GHz
Frequency Bands (MHz)	5G NR: n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78 LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B38/B40/B41/B42/B43 WCDMA: B1/B5/B8	5G NR Bands: n2/n5/n7/n12/n25/n41/n48/n66/n71/n77/n78; LTE Bands: LTE-FDD: B2/B4/B5/B7/B12(B17)/B13/B14/B25/B26/B29/B30/B66/B71; LTE-TDD: B41/B42/B43/B48; LAA: B46; WCDMA: B2/B4/B5
Region	EMEA/ Oceania/ Brazil	NA
Weight (approx.) g	13±0.3	TBD
Operating Temperature	-30°C ~ +70°C	-30°C ~ +70°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP Rel-15 and Quectel Enhanced AT Commands	3GPP Rel-15 and Quectel Enhanced AT Commands
<b>Data Transmission<sup>1</sup></b>		
5G	5G SA Sub-6: Max. 4.67 Gbps(DL)/Max. 2.5 Gbps (UL) 5G NSA Sub-6: Max. 3.74 Gbps(DL)/Max. 1.46 Gbps (UL)	5G SA Sub-6: Max. 4.67 Gbps(DL)/Max. 2.5Gbps (UL) 5G NSA Sub-6: Max. 3.74 Gbps(DL)/Max. 1.46 Gbps (UL)
LTE	LTE-FDD: Max 1.4 Gbps(DL)/ Max. 211 Mbps(UL)	LTE-FDD: Max 1.4 Gbps(DL)/ Max. 211 Mbps(UL)
UMTS	WCDMA: Max. 42Mbps (DL)/Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps(UL)
SMS	•	•
Protocols	MMS*/HTTPS*/SMTP*/TCP*/UDP*/FTP*/HTTP*/PING*/FTPS*/SMTPS*/SSL*/NTP*	HTTPS*/SMTP*/TCP*/UDP*/FTP*/HTTP*/PING*/FTPS*/SMTPS*/SSL*/NTP
<b>Interfaces</b>		
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
UART	/	× 2
USB	2.0/3.0/3.1 <sup>2</sup>	2.0/3.0/3.1 <sup>2</sup>
PCIe	PCIe Gen3 × 1 Lane	PCIe Gen3 × 1 Lane
RGMI	/	/
PCM	•	•
I2C	/	× 1
SPI	/	•
GPIO	•	•
ADC	/	× 3
SD Card	/	•
RESET_N	•	•
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS
<b>Enhanced Features</b>		
MIMO	4 × 4 DL	4 × 4 DL
Digital Audio	•	•
VoLTE	Optional	Optional
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency
FOTA	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•	•
<b>Electrical Features</b>		
Supply Voltage Range	3.15~4.4V, 3.8V Typ.	3.3~4.4V, 3.8V Typ.
Power Consumption	70µA @Power off 6.5mA @Sleep, Typ. TBD @idle	TBD @Power off TBD@Sleep, Typ. TBD @idle
<b>Software Features</b>		
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 2.6~5.14, Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x
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.x/11.x
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.x/11.x
<b>Certifications</b>	GCF*/CE/RCM Operator:TBD	GCF*/ FCC*/ IC*/ PTCRB*
<b>Recommended Applications</b>	Industrial Router, CPE, MiFi, Home gateway	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage

Note 1: means the data transmission is theoretical data rate and depends on network condition.  
Note 2: USB 3.1 only supports 5 Gbps.

\* Under development





# Quectel LTE-A Module Family

Product	EP06	EG06	EG060V	EG060K-EA	EG065K-NA	
						
Form Factor	Mini PCIe	LGA	LGA	LGA	LGA	
Dimensions (mm)	51.0 × 30.0 × 4.0	37.0 × 39.5 × 2.8	37.0 × 39.5 × 3.05	37.0 × 39.5 × 2.8	28.0 × 31.0 × 2.4	
4G	LTE Cat 6	LTE Cat 6	LTE Cat 6	LTE Cat 6	LTE Cat 6	
Frequency Bands (MHz)	-E (EMEA/Australia/Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 <sup>1</sup> ; LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B5/B8/B20/B28; B3-B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20-B32; B38-B38; B40-B40; B41+B41; WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 <sup>1</sup> ; 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 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; B38-B38; B40-B40; B41+B41 WCDMA: B1/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 <sup>1</sup> ; 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 <sup>1</sup> ; B38-B38; B40-B40; B41+B41 WCDMA: B1/B3/B5/B8	/	
	-A (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 <sup>2</sup> /B30/B66; Up to 2 × CA: B2+B2/B5/B12/B13/B29; B4-B4/B5/B12/B13/B29; B7+B5/B7/B12/B26; B25+B5/B12/B25/B26; B30+B5/B12/B29; B66+B5/B12/B13/B29/B66; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 <sup>2</sup> /B30/B66; Up to 2 × CA: B2+B2/B5/B12/B13/B29; B4-B4/B5/B12/B13/B29; B7+B5/B7/B12/B26; B25+B5/B12/B25/B26; B30+B5/B12/B29; B66+B5/B12/B13/B29/B66; WCDMA: B2/B4/B5	/	/	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B25/B26/B30/B66 WCDMA: B2/B4/B5
	-AULTL (Australia)	/	LTE-FDD: B3/B7/B28; Up to 2×CA: B3-B3/B7/B28; B7-B7/B28	/	/	/
Weight (approx.) g	10.1	9.1	6.7	9.1	5.3	
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-20°C ~ +55°C	-30°C ~ +75°C	-30°C ~ +75°C	
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-25°C ~ +60°C	-40°C ~ +85°C	-40°C ~ +85°C	
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	
<b>Data Transmission</b>						
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)	LTE-FDD: Max. 300Mbps (DL)/Max. 50Mbps (UL); LTE-TDD: Max. 220Mbps (DL)/Max. 30Mbps (UL)	LTE-FDD: Max. 300Mbps (DL)/Max. 50Mbps (UL); LTE-TDD: Max. 226Mbps (DL)/Max. 28Mbps (UL)	LTE-FDD: Max. 300Mbps (DL)/Max. 50Mbps (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)	DC-HSDPA: Max. 42Mbps; HSDPA: Max. 21Mbps; HSUPA: Max. 5.76Mbps; WCDMA: Max. 384Kbps (DL)/Max. 384Kbps (UL)	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	TCP/PPP/FTP/HTTP/SMP/T*/MMS*/POP3/SSL/HTTPS/SMTPS*	QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M*/PING*	QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LWM2M*/PING*	
<b>Interfaces</b>						
USB	2.0/3.0, Slave Mode	2.0/3.0, Supports Master* and Slave Modes	2.0, Support Slave and Master* Modes	2.0/3.0, Supports Master* and Slave Modes	2.0/3.0, Supports Master* and Slave Modes	
PCM	•	•	•	•	•	
I2S	/	/	/	× 1	× 1	
SPI	/	/	/	× 1	× 1	
SDIO	/	/	/	× 1	× 1	
RFFE	/	/	/	/	× 1	
GRFC	/	/	/	/	× 4	
I2C	× 1	× 1	× 1	× 1	× 2	
(U)SIM	× 2, 1.8V/ 3.0V	1.8V/ 3.0V	× 1, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	
eSIM	/	/	/	Optional	/	
GPIO	× 4	× 2	× 2	× 3	× 3	
UART	/	× 3	× 2	× 3	× 3	
ADC	/	× 2	× 2	× 2	× 2	
RESET_N	•	•	•	•	× 1	
PCIe	/	Optional	Optional	Optional	Optional	
Antenna	× 3	× 3	Main, Diversity	Main, Diversity and GNSS	× 2(Main Antenna); × 2(Diversity Antennas)	
<b>Enhanced Features</b>						
MIMO	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL	
eCall	Emergency Service*	Emergency Service*	Emergency Service	Emergency Service	Emergency Service*	
Digital Audio	•	•	•	•	Optional	
VoLTE	Optional	Optional	Optional	Optional	Optional	
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency*	
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	/	Delta Firmware over the Air	Delta Firmware over the Air	
FOTA	•	•	Firmware over the Air	/	/	
GNSS	GPS/GLONASS/BeiDou/Galileo/QZSS	GPS/GLONASS/BeiDou/Galileo/QZSS	/	GPS/GLONASS/BeiDou/Galileo/QZSS	/	
(U)SIM Card Detection	•	•	•	•	•	
<b>Electrical Features</b>						
Supply Voltage Range	3.1~4.4 V, 3.3 V Typ.	3.3~4.3 V, 3.8V Typ.	3.3~4.3V 3.8V Typ.	3.3~4.4V 3.8V Typ.	3.3~4.5V, 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	10µA@Power off; 3.7mA@Sleep (PF=128); 5.0mA@Sleep (PF=64) 30mA@Idle	TBD@Power off; TBD@Sleep (PF=128); TBD@Sleep (PF=64) TBD@Idle	24 µA @ Power off; 2.1 mA @ Sleep (PF = 128); 2.8 mA @ Sleep (PF = 64) 9.2mA @ Idle	
<b>Software Features</b>						
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	Windows 7/8/8.1/10 Linux 2.6-5.9 Android 4.x~10.x	Windows 7/8/8.1/10, WinCE 5.0/6.0/7.0*, Linux 2.6/3.x/4.1~4.14, Android 4.x/5.x/6.x/7.x/8.x	Windows 7/8/8.1/10 Linux 2.6-5.12, Android 4.x-11.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~10.x	Android 4.x/5.x/6.x/7.x/8.x	Android 4.x-11.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	
RNDIS Driver	/	/	Windows 7/8/8.1/10; Linux 2.6-5.9	/	/	
ECM Driver	Linux 2.6/3.x/4.1~4.14	Linux 2.6/3.x/4.1~4.14	Linux 2.6-5.9	Linux 2.6 or later	Linux 2.6-5.12	
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	/	Linux 2.6 or later	Linux 2.6-5.12	
QMI_WWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.1~4.15	/	Linux 3.4 or later	Linux 3.4-5.12	
<b>Certifications</b>	Telstra/ Deutsche Telekom/ GCF/ CE/ NCC/ RCM/ FCC/ IC/ CCC/ PTCRB/ AT&T/ Verizon/ Telus/ Sprint/ Rogers/ Bell (TBD)/ ICASA	Deutsche Telekom/ Telstra/ GCF/ CE/ KC/ RCM/ FCC/ CCC/ PTCRB/ IC/ AT&T/ Verizon/ USDC/ British Telekom	CE/NCC	CE*/RCM*	GCF*/FCC*/IC*/PTCRB*/IFETEL*/AT&T*/Firstnet*/Verizon*/Telus*	
<b>Recommended Applications</b>	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage		Router, MIFI, home gateway, set-top box, PDA, tablet PC and digital signage		Police body camera, Routers (including MIFIs), home gateways, set-top boxes, PDAs, tablet PCs, 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	EG120K-EA	EG18	EG512R-EA	
					
Form Factor	LGA	LGA	LGA	LGA	
Dimensions (mm)	37.0 × 39.5 × 2.8	37.0 × 39.5 × 2.8	37.0 × 39.5 × 2.8	38.0 × 42.0 × 2.65	
4G	LTE Cat 12	LTE Cat 12	LTE Cat 18	LTE Cat 12	
Frequency Bands (MHz)	-EA (EMEA/ Australia/ Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/ B32(Optional) LTE-TDD: B38/B40/B41/B42(Optional) / B43(Optional) Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B38/B41/B42/B43 Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B25/B26/ B29/B30/B66/B71 LTE-TDD: B41 Up to 3 × CA: Intra-band and Inter-band WCDMA Bands: B2/B4/B5	/	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/ B26/B29/B30/B66/B71 LTE-TDD: B41 Up to 5 × CA: Intra-band and Inter-band WCDMA Bands: B2/B4/B5	/
Weight (approx.) g	9	9.1	9	8.7	
Operating Temperature	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C	
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	
<b>Data Transmission</b>					
LTE	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 430Mbps (DL)/ Max. 90Mbps (UL) DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL)	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 430Mbps (DL)/ Max. 90Mbps (UL) DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL)	LTE-FDD: Max. 1.2Gbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 573Mbps (DL)/ Max. 90Mbps (UL) DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL)	LTE-FDD: Max. 600Mbps (DL)/ Max. 75Mbps (UL) LTE-TDD: Max. 310Mbps (DL)/ Max. 90Mbps (UL)	
UMTS	WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	
SMS	•	•	•	•	
Protocols	TCP/ UDP/ FTP/ HTTP/ HTTPS/ PING/ SMS	QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M*/PING*	TCP/ UDP/ FTP/ HTTP/ HTTPS / PING/ SMS	TCP/ UDP/ FTP/ HTTP/ HTTPS/ PING/ SMS	
<b>Interfaces</b>					
USB	2.0/3.0, Slave Mode	2.0/3.0, Supports Master* and Slave Modes	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode	
PCM	•	× 1	•	•	
I2C	× 1	× 1	× 1	× 1	
(U)SIM	× 2, 1.8V/ 3.0V	1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	
eSIM	/	Optional	/	× 1/ built-in eSIM (optional)	
GPIO	× 2	× 3	× 2	•	
UART	× 3	× 2	× 3	*	
ADC	× 2	•	× 2	× 2	
SPI	× 1 (Optional)	× 1	× 1 (Optional)	•	
SD Card	•	•	•	*	
RESET_N	•	•	•	•	
PCIe	Optional	Optional	Optional	PCIe Gen2 × 1 Lane	
RGMI	/	/	/	•	
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	
<b>Enhanced Features</b>					
MIMO	2 × 2, 4 × 2, 4 × 4, DL	2 × 2, 4 × 2, 4 × 4 DL	2 × 2, 4 × 2, 4 × 4 DL	2 × 2, 4 × 2, 4 × 4 DL	
eCall	•	Emergency Service*	•	/	
BT4.0	/	/	/	/	
Digital Audio	•	•	•	•	
VoLTE	Optional	Optional	Optional	Optional	
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo	
(U)SIM Card Detection	•	•	•	•	
<b>Electrical Features</b>					
Supply Voltage Range	3.3~4.3 V, 3.8 V Typ.	3.3~4.3 V, 3.8V Typ.	3.3~4.3 V, 3.8 V Typ.	3.3V~4.3V, 3.8V Typ.	
Power Consumption	20µA @Power off 1.83mA @Sleep, Typ. 9.41mA @Idle	TBD @Power off / TBD @LTE Sleep(PF=128) TBD@LTE Sleep(PF=64) TBD@Idle	20µA @Power off 1.81mA @Sleep, Typ. 9.38mA @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	
<b>Software Features</b>					
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, WinCE 5.0/6.0/7.0*, Linux 2.6/3.x/4.1~4.14, Android 4.x/5.x/6.x/7.x/8.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, 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	
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	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	
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 10; Linux 3.18~5.4	/	Windows 7/8/8.1/10, Linux 3.18~5.4	
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	Linux 2.6~5.4	
QMI_WWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.4~5.4	
PCIe Driver	/	/	/	Windows 10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	
<b>Certifications</b>	CE/ RCM	TBD	CE/ RCM/ FCC/ IC/ GCF/ PTCRB/ AT&T*/ Verizon*/ Telstra/ USCC*	CE/ RCM	
<b>Recommended Applications</b>	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage	Router, MIFI, home gateway, set-top box, PDA, tablet PC and digital signage	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	EM060K-GL
			
Form Factor	M.2	M.2	M.2
Dimensions (mm)	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3
4G	LTE Cat 4	LTE Cat 6	LTE Cat 6
Frequency Bands (MHz)	-GL (Global)	/	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29 <sup>2</sup> /B30/B32 <sup>1</sup> /B66/B71 LTE-TDD: B34/B38/B39/B40/B41/B42/B43/B46 <sup>1</sup> (LAA)/B48 (CBRS) Up to 2 × CA: B2+B2/B5/B12/B13/B29 <sup>3</sup> ; B4+B4/B5/B12/B13/B29 <sup>3</sup> ; 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: B1/B2/B3/B4/B5/B6/B8/B19
	-A (NA)	/	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 <sup>2</sup> /B30/B66 LTE-TDD: B41 Up to 2 × CA: B2+B2/B5/B12/B13/B29 <sup>3</sup> ; B4+B4/B5/B12/B13/B29 <sup>3</sup> ; 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 <sup>1</sup> 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 <sup>2</sup> ; 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
	-G (Global)	LTE: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B18/B19/B20/B25/B26/B28/B66/B71/B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19	/
	-CE (China/Thailand/India)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B8; EVDO/CDMA: BCO	/
	Weight (approx.) g	6.0	6.5
Operating Temperature	-30°C ~ +70°C	-30°C ~ +70°C	-25°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS 27.005, 3GPP TS 27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
<b>Data Transmission</b>			
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)	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)	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	QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M*/PING*
<b>Interfaces</b>			
USB	2.0 Hi-Speed	2.0/3.0*, Slave Mode	2.0/3.0*, Slave Mode
PCM	•	•	•
I2C	× 1	× 1	× 1
(U)SIM	1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
eSIM	/	/	× 1/ built-in eSIM (optional)
GPIO	× 1	× 11	MPII interface
RESET_N	•	•	•
PCIe	/	Optional	Optional
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS
<b>Enhanced Features</b>			
MIMO	DL MIMO, support Rx-diversity Antenna	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL
eCall*	/	Emergency Service	Emergency Service
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	Optional	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS
(U)SIM Card Detection	•	•	•
<b>Electrical Features</b>			
Supply Voltage Range	3.135V~4.4V, 3.3V Typ.	3.135~4.4V, 3.7V 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	TBD@Power off TBD @Sleep, Typ. TBD @Idle
<b>Software Features</b>			
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	Windows 7/8/8.1/10, WinCE 5.0/6.0/7.0*, Linux 2.6/3.x/4.1~4.14, Android 4.x/5.x/6.x/7.x/8.x
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	/	/
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x
MBIM Driver	Windows 8/8.1/10, Linux3.18~5.4	Windows 8/8.1/10	Windows 10
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10
Gobinet Driver	Linux 2.6~5.4	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x
QMI_WWAN Driver	Linux 3.4~5.4	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x
<b>Certifications</b>	CCC/ SRRC/ NAL/ CE/ RCM/ FCC/ PTCRB/ GCF	GCF/ CE/ NCC/ RCM/ ICASA/ FCC/ PTCRB/ IC/ WHQL/ Verizon/ AT&T/ Telstra/ Deutsche Telekom/ KDDI/ JATE/ TELECOM/ Sprint/ KC	TBD
<b>Recommended Applications</b>	Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PCs and digital signage.		






Note 1: B32 is only for secondary component carrier, B46 is only for secondary component carrier.

Note 2: B29 is only for secondary component carrier.

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

\* Under development

# Quectel M.2 Module Family

Product	EM12	EM120K-GL	EM120R-GL	EM121R-GL	EM160R-GL
					
Form Factor	M.2	M.2	M.2	M.2	M.2
Dimensions (mm)	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3
4G	LTE Cat 12	LTE Cat 12	LTE Cat 12	LTE Cat 12	LTE Cat 16
Frequency Bands (MHz)	-G (Global) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B21/B25/B26/B28/B29 <sup>1</sup> /B30/B32 <sup>1</sup> /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 <sup>1</sup> /B30/B32 <sup>1</sup> /B66/B71 LTE-TDD: B38/B39/B40/B41/B42/B43/B46 <sup>2</sup> (LAA)/B48 (CBRS) Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29 <sup>1</sup> /B30/B32 <sup>1</sup> /B66 LTE-TDD: B38/B39/B40/B41/B42/B43/B46 <sup>2</sup> /B48 (CBRS) Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29 <sup>1</sup> /B30/B32 <sup>1</sup> /B66 LTE-TDD: B38/B39/B40/B41/B42/B43/B46 <sup>2</sup> /B48 (CBRS) Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29 <sup>1</sup> /B30/B32 <sup>1</sup> /B66 LTE-TDD: B38/B39/B40/B41/B42/B43/B46 <sup>2</sup> /B48 (CBRS) Up to 5 × CA: Intra-band and Inter-band WCDMA: B1/B2/B3/B4/B5/B6/B8/B19
Weight (approx.) g	6.0	TBD	6.8	6.8	6.8
Operating Temperature	-30°C ~ +70°C, -10°C ~ +65°C (Only for UL CA test)	-25°C ~ +75°C	-25°C ~ +75°C	-25°C ~ +75°C	-25°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
<b>Data Transmission</b>					
LTE	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 408Mbps (DL)/ Max. 90Mbps (UL)	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 408Mbps (DL), Max. 90Mbps (UL)	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 408Mbps (DL), Max. 90Mbps (UL)	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)	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)	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	QMI/MBIM/NITZ/HTTP/HTTPS/FTP/ LwM2M <sup>3</sup> /PING <sup>4</sup>	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
<b>Interfaces</b>					
USB	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode
PCM	•	•	•	•	•
I2C	× 1	/	/	/	/
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
eSIM	/	× 1/ built-in eSIM (optional)	× 1/ built-in eSIM (optional)	× 1/ built-in eSIM (optional)	× 1/ built-in eSIM (optional)
GPIO	× 11	MIPI interface	MIPI interface	MIPI interface	MIPI interface
RESET_N	•	•	•	•	•
PCIe	Optional	Optional	PCIe Gen2 × 1 Lane	PCIe Gen2 × 1 Lane	PCIe Gen2 × 1 Lane
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS, MIMO × 2
<b>Enhanced Features</b>					
MIMO	4 × 2, 2 × 2, DL	2 × 2, 4 × 2 DL	2 × 2, 4 × 2 DL	2 × 2, 4 × 2 DL	2 × 2, 4 × 2, 4 × 4 DL
eCall <sup>*</sup>	Emergency Service	Emergency Service	Emergency Service	Emergency Service	Emergency Service
Digital Audio	•	•	•	•	•
VoLTE	Optional	Optional	/	/	/
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS
(U)SIM Card Detection	•	•	•	•	•
<b>Electrical Features</b>					
Supply Voltage Range	3.135~4.4V, 3.7V Typ.	3.135~4.4V 3.7V Typ.	3.135~4.4V 3.7V Typ.	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	USB Mode TBD @ Power down TBD @ Sleep (AT+CFUN=0, USB Suspend) TBD @ Idle (PF = 64, USB Active)	USB Mode 66µA @ Power down 1.84 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.48 mA @ Idle (PF = 64, USB Active) PCIe Only Mode 66µA @ Power down 2.35 mA @ Sleep (AT+CFUN=0, Modem standby) 15.05 mA @ Idle (PF = 64, PCIe Active)	USB Mode 66µA @ Power down 1.84 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.48 mA @ Idle (PF = 64, USB Active) PCIe Only Mode 66µA @ Power down 2.35 mA @ Sleep (AT+CFUN=0, Modem standby) 15.05 mA @ Idle (PF = 64, PCIe Active)	USB Mode 66µA @ Power down 1.78 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.75 mA @ Idle (PF = 64, USB Active) PCIe Only Mode 66µA @ Power down 2.38 mA @ Sleep (AT+CFUN=0, Modem standby) 15.38 mA @ Idle (PF = 64, PCIe Active)
<b>Software Features</b>					
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	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/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	Windows 7/8/8.1/10
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x
QMI_wwan Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x
PCIe Driver	/	Linux 3.x/4.x/5.x	Linux 3.x/4.x/5.x	Linux 3.x/4.x/5.x	Linux 3.x/4.x/5.x
<b>Certifications</b>	CE/ FCC/ IC/ NCC/ RCM/ ICASA/JETE/ TELEC/ GCF/ PTCRB/ Telstra/ AT&T/ Verizon/ Telefonica/ Vodafone/ Deutsche Telekom/ British Telecom / Docomo/ WHQL	TBD	GCF/CE/PTCRB/FCC/IC/ANATEL/IFETEL/ SRRC/ NAL/ CCC/NCC/KC/JATE/ TELEC/ RCM/ICASA/Vodafone/ British Telecom/Swisscom/Verizon/ AT&T/ T-Mobile/ Sprint/China Mobile/ China Unicom/NTT DOCOMO/ SoftBank <sup>5</sup> / KDDI/Telstra <sup>6</sup>	GCF/CE/PTCRB/FCC/IC/ RCM/Verizon/AT&T	GCF/CE/PTCRB/FCC/IC/ANATEL/IFETEL/ SRRC/ NAL/ CCC/NCC/KC/JATE/ TELEC/ RCM/ICASA/Vodafone/ British Telecom/Swisscom/Verizon/ AT&T/ T-Mobile/ Sprint/China Mobile/ China Unicom/NTT DOCOMO/ SoftBank <sup>5</sup> / KDDI/Telstra <sup>6</sup>
<b>Recommended Applications</b>	Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PCs and digital signage.				

Note 1: B32 is only for secondary component carrier.  
 Note 2: B29 is only for secondary component carrier.  
 Note 3: B46 is only for secondary component carrier.  
 Note 4: Currently, SoftBank certification is only supported for PC applications.

<sup>\*</sup> Under development

# Quectel LTE Module Family

Product	EC21/EC21 Mini PCIe	EC25/EC25 Mini PCIe	EC20 R2.1/EC20 R2.1 Mini PCIe	
				
Form Factor	LCC (EC21), Mini PCIe (EC21 Mini PCIe)	LCC (EC25), Mini PCIe (EC25 Mini PCIe)	LCC (EC20 R2.1), Mini PCIe (EC20 R2.1 Mini PCIe)	
Dimensions (mm)	32.0 × 29.0 × 2.4 (EC21) 51.0 × 30.0 × 4.9 (EC21 Mini PCIe)	32.0 × 29.0 × 2.4 (EC25) 51.0 × 30.0 × 4.9 (EC25 Mini PCIe)	32.0 × 29.0 × 2.4 (EC20 R2.1) 51.0 × 30.0 × 4.9 (EC20 R2.1 Mini PCIe)	
LTE Category	LTE Cat 1	LTE Cat 4	LTE Cat 4	
-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: BCC; GSM: B3/B8	
Frequency Bands (MHz)	-E (EMEA/Korea/Thailand/India)	-E (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20 WCDMA: B1/B5/B8; GSM: B3/B8	/	
	-EU (EMEA/Thailand)	LTE-FDD: B1/B3/B7/B8/B20/B28A WCDMA: B1/B8; GSM: B3/B8	/	
	-EUX (EMEA/Thailand)	LTE-FDD: B1/B3/B7/B8/B20/B28A WCDMA: B1/B8; GSM: B3/B8	/	
	-V (Verizon)	LTE-FDD: B4/B13	/	
	-A (AT&T/Mobile/Canada)	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)	/	LTE-FDD: B2/B4/B5/B12/B13/B14/B66/B71; WCDMA: B2/B4/B5	
	-AFXD (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/B3/B4/B5/B7/B8/B28; LTE-FDD: B40; WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/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/B3/B4/B5/B7/B8/B28; LTE-TDD: B40; WCDMA: B1/B2/B4/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28; LTE-TDD: B40; WCDMA: B1/B2/B4/B5/B8; GSM: B2/B3/B5/B8	/
-AUT (Australia) <sup>1</sup>	LTE-FDD: B1/B3/B5/B7/B28; WCDMA: B1/B5	/	/	
-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)	5.3 (EC20 R2.1); 10.6 (EC20 R2.1 Mini PCIe)	
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	
Extended Temperature	-40°C ~ +85°C (EC21); -40°C ~ +80°C (EC21 Mini PCIe)	-40°C ~ +85°C (EC25); -40°C ~ +80°C (EC25 Mini PCIe)	-40°C ~ +85°C (EC20 R2.1); -40°C ~ +80°C (EC20 R2.1 Mini PCIe)	
<b>Data Transmission</b>				
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)	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)	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)	
TD-SCDMA data rate (Mbps)	/	/	Max. 4.2 (DL) / Max. 2.2 (UL)	
EVDO data rate (Mbps)	/	/	Max. 3.1 (DL) / Max. 1.8 (UL)	
CDMA2000 data rate (Kbps)	/	/	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)	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)	
SMS	•	•	•	
CSD	•	•	•	
Protocols	TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/HTTPS/SMTP/MMS*/FTPS*/SMTPS/SSL	TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/HTTPS/SMTP/MMS*/FTPS*/SMTPS/SSL	TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/NITZ/CMUX/HTTPS/SMTP/MMS*/FTPS*/SMTPS/SSL/FILE	
<b>Interfaces</b>				
(U)SIM	1.8V/3.0V	1.8V/3.0V	1.8V/3.0V	
UART	2 (EC21); 1 (EC21 Mini PCIe)	2 (EC25); 1 (EC25 Mini PCIe)	2 (EC20 R2.1); 1 (EC20 R2.1 Mini PCIe)	
USB	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	
IIC	•	•	• (EC20 R2.1); Optional (EC20 R2.1 Mini PCIe)	
Audio Digital (PCM)	Optional	Optional	• (EC20 R2.1); Optional (EC20 R2.1 Mini PCIe)	
SD	• (EC21)	• (EC25)	• (EC20 R2.1)	
ADC	× 2, 15bits (EC21)	× 2, 15bits (EC25)	× 2, 15bits (EC20 R2.1)	
SGMII	• (EC21)	• (EC25)	• (EC20 R2.1)	
GPIO	• (Only Supported on QuecOpen <sup>®</sup> )	• (Only Supported on QuecOpen <sup>®</sup> )	/	
Antenna	Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS	
<b>Enhanced Features</b>				
DTMF	•	•	•	
DFOTA	•	•	•	
QM/RmNet	•	•	•	
Audio Playback/Audio Recording	Optional	Optional	Optional	
QuecFile	•	•	• (EC20 R2.1)	
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	Windows 7/8/8.1/10, Linux 2.6-5.4, 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	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	
NDIS Driver	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	
GobiNet Driver	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	
(U)SIM Card Detection	•	•	•	
GNSS	Optional	Optional	Optional	
Firmware Update	Via USB/DFOTA	Via USB/DFOTA	Via USB/DFOTA	
<b>Electrical Features</b>				
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)	3.3V-4.3 V, 3.8V Typ. (EC20 R2.1) 3.0V-3.6 V, 3.3V Typ. (EC20 R2.1 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)	11µA @Power off/ 1.5mA @Sleep (PF=256), Typ. / 20mA @Idle (EC20 R2.1); 4mA @Sleep (PF=128), 3.7mA @Sleep (PF=256), Typ. / 30mA @Idle (EC20 R2.1 Mini PCIe)	
<b>Certifications</b>	Carrier Certification: Vodafone/ Deutsche Telekom/ British Telecom/ Telefónica/ Verizon/ AT&T/ T-Mobile/ U.S. Cellular/ Rogers/ SKT/ KT/ NTT DCOMO/ KDDI/ Telstra/ LGU+ 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 DCOMO/ SoftBank/ KDDI/ Bell/ SKT/ LGU+/ Telstra/ KT Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ KC/ NCC/ JATE/ TELEC/ RCM/ FAC/ NBTC/ ICASA/ IFETEL Others: WHQL	Regulatory Certification: NAL/ SRRC/ CCC (China)	
<b>Recommended Applications</b>	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.			

Note 1: Inapplicable to Mini PCIe.



Note 2: Rx-diversity not supported.

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

EC25-AFXD and EC25-AFXD Mini PCIe are requested for data only device.



\* Under development

# Quectel LTE Module Family

Product	EG21-G/EG21-G Mini PCIe	EG25-G/ EG25-G Mini PCIe
		
Form Factor	LGA (EG21-G) Mini PCIe (EG21-G Mini PCIe)	LGA (EG25-G) Mini PCIe (EG25-G Mini PCIe)
Dimensions (mm)	32.0 × 29.0 × 2.4 (EG21-G) 51.0 × 30.0 × 4.9 (EG21-G Mini PCIe)	32.0 × 29.0 × 2.4 (EG25-G) 51.0 × 30.0 × 4.9 (EG25-G Mini PCIe)
LTE Category	LTE Cat 1	LTE Cat 4
Frequency Bands (MHz)	-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	4.9 (EG21-G), 9.8 (EG21-G Mini PCIe)	4.9 (EG25-G), 9.8 (EG25-G Mini PCIe)
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C (EG21-G) -40°C ~ +80°C (EG21-G Mini PCIe)	-40°C ~ +85°C (EG25-G) -40°C ~ +80°C (EG25-G Mini PCIe)
<b>Data Transmission</b>		
LTE data rate (Mbps)	LTE-FDD: Max. 10Mbps (DL)/Max. 5Mbps (UL) LTE-TDD: Max. 8.96Mbps (DL)/Max. 3.1Mbps (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	•	•
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/NITZ/CMUX/ HTTPS/ SMTP/ MMS*/ FTSP*/ SMTSP/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/NITZ/CMUX/ HTTPS/ SMTP/ MMS*/ FTSP*/ SMTSP/ SSL/ FILE
<b>Interfaces</b>		
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V
UART	2 (EG21-G), 1 (EG21-G Mini PCIe)	2 (EG25-G), 1 (EG25-G Mini PCIe)
USB	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)
IIC	•	•
Audio Digital (PCM)	Optional	Optional
SD	•(EG21-G)	•(EG25-G)
ADC	× 2, 15bits (EG21-G)	× 2, 15bits (EG25-G)
GPIO	• (Only Supported on Quec0pen™)	• (Only Supported on Quec0pen™)
Antenna	Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS
<b>Enhanced Features</b>		
DTMF	•	•
DFOTA	•	•
QMI/ RmNet	•	•
Audio Playback/Audio Recording	Optional	Optional
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 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
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
NDIS Driver	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10
MBIM Driver	Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4
GobiNet Driver	Linux 2.6~5.4	Linux 2.6~5.4
QMI_WWAN Driver	Linux 3.4~5.4	Linux 3.4~5.4
(U)SIM Card Detection	•	•
(U)SIM Card Connector	Optional (EG21-G Mini PCIe)	Optional (EG25-G Mini PCIe)
GNSS	Optional	Optional
Firmware Update	Via USB/DFOTA	Via USB/DFOTA
<b>Electrical Features</b>		
Supply Voltage Range	3.3V~4.3 V, 3.8V Typ. (EG21-G) 3.0V~3.6 V, 3.3V Typ. (EG21-G Mini PCIe)	3.3V~4.3 V, 3.8V Typ. (EG25-G) 3.0V~3.6 V, 3.3V Typ. (EG25-G Mini PCIe)
Power Consumption	13µA@Power off, 1.7mA@Sleep, Typ., 22mA@Idle (EG21-G)	13µA@Power off, 1.7mA@Sleep, Typ., 22mA@Idle (EG25-G) 2.7mA@Sleep, Typ. / 25mA@Idle (EG25-G Mini PCIe)
Certifications	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	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ Sprint/ U.S. Cellular/ Telus/ T-Mobile/ Rogers* Regulatory Certification: SRRG/ NAL/ CCC/ GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ IFETEL/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ ICASA/ IMDA/ FAC* 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

# Quectel LTE Module Family



Product	EG91	EG95	
			
Form Factor	LGA	LGA	
Dimensions (mm)	25.0 × 29.0 × 2.25	25.0 × 29.0 × 2.25	
LTE Category	LTE Cat 1	LTE Cat 4	
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
	-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	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66; WCDMA: B1/B2/B5/B8 GSM: B2/B3/B5/B8
Weight (approx.) g	3.8	3.8	
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	
<b>Data Transmission</b>			
LTE data rate (Mbps)	Max. 10 (DL)/ Max. 5 (UL)	Max. 150 (DL)/ Max. 50 (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	•	•	
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	
<b>Interfaces</b>			
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V	
UART	2	2	
USB	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	
IIC	•	•	
Audio Digital (PCM)	Optional	Optional	
SPI	•	•	
SGMII	/	/	
GPIO	• (Only Supported on QuecOpen <sup>®</sup> )	• (Only Supported on QuecOpen <sup>®</sup> )	
Antenna	Pads for Primary, Rx-diversity and GNSS <sup>1</sup>	Pads for Primary, Rx-diversity and GNSS <sup>1</sup>	
<b>Enhanced Features</b>			
EG911 (for North America)	•	•	
DTMF	•	•	
DFOTA	•	•	
QMI/ RmNet	•	•	
Audio Playback/Audio Recording	Optional	Optional	
QuecFile	•	•	
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
NDIS Driver	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	
MBIM Driver	Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4	
GobiNet Driver	Linux 2.6~5.4	Linux 2.6~5.4	
QMI_WWAN Driver	Linux 3.4~5.4	Linux 3.4~5.4	
(U)SIM Card Detection	•	•	
GNSS <sup>1</sup>	Optional	Optional	
Firmware Update	Via USB/DFOTA	Via USB/DFOTA	
<b>Electrical Features</b>			
Supply Voltage Range	3.3V~4.3 V, 3.8V Typ.	3.3V~4.3 V, 3.8V Typ.	
Power Consumption	15µA@Power off, 2.6mA@Sleep, Typ., 21mA@Idle	15µA@Power off, 2.6mA@Sleep, Typ., 21mA@Idle	
<b>Certifications</b>	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ T-Mobile/ Sprint/ Rogers/ Telus	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ T-Mobile/ Rogers/ Telus/ Sprint	
	Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ FAC/ NCC/ RCM Others: WHQL	Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ FAC Others: WHQL	
<b>Recommended Applications</b>	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 and EG95-NAXD are requested for data only device.

\* Under development





# Quectel LTE Module Family

Product	EC200S	EC200A
		
Form Factor	LCC	LCC
Dimensions (mm)	32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4
LTE Category	LTE Cat 1	LTE Cat 4
Frequency Bands (MHz)	-CN (China/India)	/
	-EU (EMEA/APAC)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28; LTE-TDD: B38/B40/B41; GSM: B2/B3/B5/B8
	-EN (EMEA/APAC)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B31/B72; GSM: B3/B8
	-AU (LATAM/ANZ)	/
Weight (approx.) g	4.3	4.5
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C
<b>Data Transmission</b>		
LTE data rate (Mbps)	LTE-FDD: Max. 10 (DL) / Max. 5 (UL) LTE-TDD: Max. 7.5 (DL) / Max. 1 (UL)	LTE-FDD: Max. 150Mbps (DL) / Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL) / Max. 30Mbps (UL)
DC-HSPA+ data rate (Mbps)	/	Max. 21 (DL) / Max. 5.76 (UL)
WCDMA data rate (Kbps)	/	Max. 384 (DL) / Max. 384 (UL)
EDGE data rate (Kbps)	Max. 236.8 (DL) / Max. 236.8 (UL)	Max. 236.8Kbps (DL) / Max. 236.8Kbps (UL)
GPRS data rate (Kbps)	Max. 85.6 (DL) / Max. 85.6 (UL)	Max. 85.6 Kbps (DL) / Max. 85.6 Kbps (UL)
SMS	•	
Protocols	TCP/ UDP/ PPP/ NTP/ NITZ/ FTP/ HTTP/ PING/ CMUX/ HTTPS/ FTPS/ SSL/ FILE/ MQTT/ MMS/ SMTP/ SMTPS	TCP/ UDP/ PPP/ NTP/ NITZ/ FTP/ HTTP/ PING/ CMUX/ HTTPS/ FTPS/ SSL/ FILE/ MQTT/ MMS/ SMTP/ SMTPS
<b>Interfaces</b>		
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V
USB	2.0 Hi-Speed	2.0 Hi-Speed
PCIe	•	
PCM	•	•
I2C	× 1	× 1
GPIO	NA	NA
RESET_N	•	•
Antenna	Main × 1	Main, 4G Diversity
<b>Enhanced Features</b>		
MIMO	/	DL MIMO, support Rx-diversity Antenna
Digital Audio	•	•
VoLTE	•	•
DTMF	•	•
DFOTA	•	•
GNSS	•(Optional)	NA
(U)SIM Card Detection	•	•
<b>Electrical Features</b>		
Supply Voltage Range	3.4V~4.5V, 3.8V Typ.	3.4V~4.5V, 3.8V Typ.
Power Consumption	15 μA @Power off Mode 1.1 mA @LTE Sleep Mode (PF = 128) 0.9 mA @LTE Sleep Mode (PF = 256) 18.5 mA @Idle Mode	11 μA @ Power off 1.5mA @ LTE Sleep (PF=128) 1.2mA @ LTE Sleep (PF=256) 33 mA @ Idle
<b>Software Features</b>		
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.10, Android 4.x~10.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.12, Android 4.x~11.x
GNSS Driver	Android 4.x~10.x	NA
RIL Driver	Android 4.x~10.x	Android 4.x~11.x
Certifications	CCC/ SRRC/ NAL/ CE/ RCM	CCC/ SRRC/ NAL/ CE/ UKCA*/RCM*/FCC*/Anatel*
Recommended Applications	Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PC and digital signage.	



\* Under development

# Quectel LTE Module Family

Product	EC200U	EG915U	
			
Form Factor	LCC	LGA	
Dimensions (mm)	31.0 × 28.0 × 2.4	23.6 × 19.9 × 2.4	
LTE Category	LTE Cat 1	LTE Cat 1	
Frequency Bands (MHz)	-CN (China/India)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; GSM: B3/B8	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; GSM: B3/B8
	-EU (Europe)	/	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 GSM: B2/B3/B5/B8
	-EU (EMEA/APAC/ANZ)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 GSM: B2/B3/B5/B8	/
	-LA (Latin America)	/	LTE-FDD: B2/B3/B4/B5/B7/B8/B28/B66 GSM: B2/B3/B5/B8
Weight (approx.) g	4.1	2.48	
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	
<b>Data Transmission</b>			
LTE data rate (Mbps)	Max. 10 (DL)/ Max. 5 (UL)	Max. 10 (DL)/ Max. 5 (UL)	
DC-HSPA+ data rate (Mbps)	/	/	
WCDMA data rate (Kbps)	/	/	
EDGE data rate (Kbps)	/	/	
GPRS data rate (Kbps)	Max. 85.6 (DL)/ Max. 85.6 (UL)	Max. 85.6 (DL)/ Max. 85.6 (UL)	
SMS	•	•	
Protocols	TCP/UDP/PPP/NITZ/PING/FILE/MQTT/NTP/HTTP/HTTPS/SSL/FTP/FTPS/CMUX/MMS	TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/NITZ/CMUX/HTTPS/SMT/SMTPS/MMS/FTPS/SMT/SSL/FILE	
<b>Interfaces</b>			
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V	
UART	3	3	
USB	2.0 Hi-Speed	2.0 Hi-Speed	
I2C	2	1	
Audio Digital	•	•	
GPIO	/	1	
RESET_N	•	/	
SGMII	/	/	
SD	•	*	
Antenna	Main Antenna, GNSS Antenna, Wi-Fi Scan/Bluetooth Antenna	Main Antenna, Wi-Fi Scan/Bluetooth Antenna	
<b>Enhanced Features</b>			
MIMO	/	/	
Digital Audio (PCM)	•	•	
VoLTE	•	•	
DTMF	*	•	
DFOTA	•	•	
Audio Playback/Audio Recording	/	•	
QuecFile	•	•	
GNSS	•(Optional)	•(Optional)	
(U)SIM Card Detection	•	•	
Firmware Update	•(USB or FOTA)	USB or FOTA	
<b>Electrical Features</b>			
Supply Voltage Range	3.3V~4.3 V, 3.8V Typ.	3.3V~4.3 V, 3.8V Typ.	
Power Consumption	30µA @Power off Mode/ 1.35mA @LTE Sleep Mode(PF=256), Typ/ 13mA @Idle Mode	30 µA @ power off 1.3 mA @ sleep 13 mA @ idle	
<b>Software Features</b>			
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.12, Android 4.x~11.x	Windows 7/8/8.1/10, Linux 2.6~5.12, Android 4.x~11.x	
GNSS Driver	Android 4.x~11.x	/	
RIL Driver	Android 4.x~11.x	Android 4.x~11.x	
<b>Certifications</b>	NAL/ SRRC/ CCC/ CE/ RCM	CE*/RCM*/GCF*/Anatel*	
<b>Recommended Applications</b>	POS/POC/ETC, shared equipment, data card, energy control and monitoring, Safety and protection, and industrial PDA.		

\* 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)	-CEL (China) LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA: BCO GSM: 900/1800MHz	-CEL (China) LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA: BCO GSM: 900/1800MHz	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8; CDMA: BCO; GSM: 900/1800MHz
	-E/EM (EMEA/Africa/Southeast Asia/Australia/South America)	-E (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8; GSM: 850/900/1800/1900MHz	-EL (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; LTE-TDD: B38/B40 WCDMA: B1/B5/B8; GSM: 850/900/1800/1900MHz	-EM (EMEA/Africa/Southeast Asia/Australia/South America) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41; WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz
	-A /NA (North America)	-A (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26 WCDMA: B1/B2/B4/B5/B8; GSM: 850/1900MHz	-AL (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26 WCDMA: B1/B2/B4/B5/B8; GSM: 850/1900MHz	-NA (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5
	-AU (ANZ/Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B5/B8; GSM: 850/900/1800/1900MHz	-AUL (ANZ/Brazil) LTE-FDD: B1/B3/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B5/B8; GSM: 850/900/1800/1900MHz	/
	-J/JP <sup>1</sup> (Japan)	-J (Japan) LTE-FDD: B1/B3/B8/B18/B19/B26; LTE-TDD: B41 WCDMA: B1/B6/B8/B19	-JL (Japan) LTE-FDD: B1/B3/B8/B18/B19/B26; LTE-TDD: B41 WCDMA: B1/B6/B8/B19	-JP <sup>1</sup> (Japan) LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28 LTE-TDD: B41; WCDMA: B1/B6/B8/B19
	-W/WF* (Global)	-W (Wi-Fi) Only Wi-Fi & BT	-WL (Wi-Fi) Only Wi-Fi & BT	-WF* (Global) Only Wi-Fi & BT
CPU	MSM8909, ARM Cortex-A7 microprocessor cores (quad-core) up to 1.1GHz	MSM8909, ARM Cortex-A7 microprocessor cores (quad-core) up to 1.1GHz	QCM2150, Quad-core ARM Cortex-A53 64-bit CPU @ 1.3GHz	
GPU	Adreno™ 304	Adreno™ 304	Adreno™ 308	
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	
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	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	
<b>Data Transmission</b>				
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)	
<b>Interfaces</b>				
LCM	4-lane MIPI_DSI, up to 1.5Gbps/lane HD (720P) @60fps 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	4-lane MIPI_DSI, up to 1.5Gbps/lane HD (720P) @60fps 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	4-lane MIPI_DS, HD+ (1440*720) @60fps 2 groups of 4-lane MIPI_CSI, up to 2.1Gbps per lane; Up to 13MP with dual ISP	
Camera	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	3 analog audio inputs and 3 analog audio outputs	
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 concurrency: 1080p @30fps decode+720p@30fps encode	
USB	× 1 USB 2.0 Compliant, Support USB OTG	× 1 USB 2.0 Compliant, Support USB OTG	× 1 USB 2.0 Compliant, Support USB OTG	
I2C	× 3	× 3	× 4	
(U)SIM	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	
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 Driver	× 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	
<b>Enhanced Features</b>				
BT	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	
WLAN	2.4G/5G, 802.11 a/b/g/n	2.4G/5G, 802.11 a/b/g/n	2.4G/5G, 802.11 a/b/g/n	
GNSS	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	
Charge Function	Build-in Charge IC	Build-in Charge IC	Build-in Charge IC	
Dual LCD	Only support single LCD Display	Only support single LCD Display	Only support single LCD Display	
DSDS	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	
Firmware Upgrade	Firmware Upgrade via USB	Firmware Upgrade via USB	Firmware Upgrade via USB	
<b>Certifications</b>	CE/ GCF/ RCM/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ Telstra/ T-Mobile/Telus*/ JATE/ TELECOM/ KDDI/ NTT-DOCOMO/ CCC/ SRRC/ NAL/ NCC/ KC/ Softbank	CE/ GCF/ RCM/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ Telstra/ T-Mobile*/ Telus*/ JATE*/ TELECOM*/ CCC*/ SRRC*/ NAL*/ NCC*/ KC*	GCF/ CE/ RCM/ FCC/ PTCRB/ AT&T/ Verizon/ Telstra*/ IC/ JATE*/ TELECOM*/ CCC	
<b>Recommended Applications</b>	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.			

Note1: TBD.

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

\* Under development

# Quectel Smart Module Family


Product	SC200L	SC200E	
			
Form Factor	LCC+LGA	LCC+LGA	
Dimensions (mm)	40.5 × 40.5 × 2.85	40.5 × 40.5 × 2.85mm	
LTE Feature	LTE Cat 4 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 4(SC200E-CE/EM) LTE Cat 6(SC200E-NA)	
Frequency Bands(MHz)	-CE (China)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8; GSM: 900/1800MHz	-CE*/CN*(China) LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41 (140M); WCDMA: B1/B8 CDMA: BCO; GSM: 900/1800MHz
	-EU/EM (EMEA/Africa/ South America/Korea/ South Asia/Latin America/Australia/India/ New Zealand/South Africa)	-EU (EMEA/Africa/Southeast Asia/South America) LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41; WCDMA: B1//B5/B8 GSM: 900/1800MHz	-EM* (EMEA/Korea/South Asia/Latin America/Australia/India/New Zealand/South Africa) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/ B20/B28 (A+B); LTE-TDD: B38/B40/B41 (200M) WCDMA: B1/B2/B4/B5/B8; GSM: 850/900/1800/1900MHz
	-AU (ANZ/Brazil)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE-TDD: B38; WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900 MHz	
	-NA* (North America)	/	-NA* (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B14/ B17/B25/B26/B66/B71; LTE-TDD: B41 (200M)
	-JP <sup>1</sup> (Japan)	/	-JP <sup>1</sup> (Japan) LTE-FDD: B1/B3/B5/B8/B11/B18/B19/ B21/B26/B28 (A+B); LTE-TDD: B41 (120M) WCDMA: B1/B6/B8/B19
	-MW/WF (Global)	/	-WF* (Wi-Fi) 2.4G & 5G Wi-Fi, 2.4G BT
	CPU	SL8541E, Quad-core ARM Cortex-A53 64-bit CPU @ 1.4 GHz	QCM2290, Quad-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz
GPU	ARM mali820	Qualcomm® Adreno™ 702 Graphics Processing Unit (GPU) with 64-bit addressing	
Memory	1 GB LPDDR3 + 8 GB eMMC 2 GB LPDDR3 + 16 GB eMMC	32GB eMMC + 2GB LPDDR4X (Default) 32GB eMMC + 3GB LPDDR4X (Optional)	
Operating System	Android 10.0	Android 11/12	
Supply Voltage Range	3.55V ~ 4.2V, 3.8V Typ.	3.5V ~ 4.4V, 3.8V Typ.	
Weight (approx.) g	10	/	
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	
<b>Data Transmission</b>			
LTE (Mbps)	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	Cat 6*: LTE-FDD: Max. 300 (DL)/ Max. 75 (UL) LTE-TDD: Max. 265 (DL)/ Max. 45 (UL) Cat 4: LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL) HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSDPA: Max. 42Mbps (DL) DC-HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	
CDMA2000	EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) , 1X Advanced: Max. 307.2Kbps (DL/UL)	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)	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	
<b>Interfaces</b>			
LCM	4-lane MIPI_DSI, HD+ (1440 × 720) @ 60 fps	1 group of 4-lane MIPI DSI, HD+ (1680 × 720) @ 60 fps	
Camera	2 groups of MIPI_CSI (2-lane + 1-lane), up to 1.5 Gbps/lane 1 × ISP, 8 MP for rear camera (2-lane) and 2 MP for front camera (1-lane)	2 groups of 4-lane MIPI CSI, up to 2.5 Gbps/lane Support 2 or 3 cameras, up to 25 MP @ 30 fps with dual ISP	
Touch Panel	Capacitive touch panel, I2C controls	Capacitive Touch Panel	
Audio	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (MIC1 & MIC3 can support dual-microphone noise-canceling) 3 outputs: speaker, earpiece, headphone	3 analog inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC) 3 analog outputs: Line Out, earpiece, headphone	
Video	Encoder: 1080P (H.264) @ 30 fps; WVGA (MPEG-4/VP8) @ 30 fps Decoder: 1080P (H.264/MPEG-4/VP8/H.265/DivX4/5/6) @ 30 fps; WVGA (H.263) @ 30 fps × 2	Encode: 30fps 1080P H.264/265 Decode: 30fps 1080P H.264/265	
USB	USB1 supports USB OTG, does not support USB hub, up to 480 Mbps USB2 only supports USB Host mode, supports USB hub, up to 100 Mbps	× 1, compliant with USB 2.0/ 3.1, supports USB OTG, charge, etc.	
I2C	× 4	× 6	
(U)SIM	× 2, support 1.8/2.95 V (U)SIM cards, with (U)SIM card detection function, DSDS supported	× 2 (1.8V/2.95V)	
UART	× 2, up to 3.25 Mbps, UART0 supports hardware flow control	× 4, up to 4 Mbps, supports hardware flow control	
SDIO	/	× 1 (3.0, 4-bit SDIO)	
SD Card	× 1, SD 3.0, 4-bit SDIO	/	
PWRKEY	Internally pulled up to VBAT	1.2V, Pulled-up Internally	
SPI	× 1, multiplexed from GPIOs	× 3	
ADC	× 1	× 1, general-purpose ADC interface	
GPIO	× 25	24 (Dedicated), 69 (Max.)	
PWM	× 1	× 1	
Motor Driver	× 1	× 1	
Flashlight Driver	/	/	
WLED Sink	/	/	
Antenna	× 4, Main/Rx-diversity/GNSS/Wi-Fi & Bluetooth antenna respectively	× 4, Main/Rx-diversity/GNSS/Wi-Fi & Bluetooth antenna interface respectively (SC200E-WF: × 1, Wi-Fi & Bluetooth antenna interface)	
<b>Enhanced Features</b>			
BT	Bluetooth 2.1 EDR/3.0 HS/4.2 LE/5.0 LE Support a maximum of 10 ACL/BEL/SCO links	2.1 EDR/3.0 HS/4.2 LE/5.0 LE	
WLAN	2.4&5 GHz, 802.11a/b/g/n/ac	2.4/5 GHz 802.11a/b/g/n/ac	
GNSS	GPS/GLONASS or GPS/BeiDou	GPS/BeiDou/GLONASS/Galileo/QZSS/SBAS	
Charge Function	Build-in Charge IC	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology	
Dual LCD	Only support single LCD Display	Only support single LCD Display	
DSDS	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	
Firmware Upgrade	Firmware Upgrade via USB or OTA	Firmware Upgrade via USB and OTA	
<b>Certifications</b>	GCF*/CE*/Anatel*/CCC/SRRC*/NAL*	CCC*/SRRC*/NAL*/CE*/UKCA*/RCM*/GCF*/KC*/ANATEL*/FCC*/IC*/PTCRB*/NCC*/NBTC*/JATEL*/TELEC*/Telstra*/AT&T*/Verizon*/T-Mobile*	
<b>Recommended Applications</b>	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.	

Note 1: planning.

SC200L can't be promote to US, Canada, Australia, New Zealand, Japan, South Korea or Taiwan region.


\* Under development

# Quectel Smart Module Family

Product	SC600Y	SC600T	SC606T	
				
Form Factor	LCC+LGA	LCC+LGA	LCC+LGA	
Dimensions (mm)	43.0 × 44 × 2.85	43.0 × 44 × 2.85	43.0 × 44 × 2.85	
LTE Feature	LTE Cat 6 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 6 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 6 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	
Frequency Bands (MHz)	-EM ( EMEA/ India/ Korea/ South Asia/ Latin America/ Australia/ ANZ/ South Africa)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5
	-JP (Japan)	LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28 LTE-TDD: B41 WCDMA: B1/B6/B8/B19	LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28 LTE-TDD: B41 WCDMA: B1/B6/B8/B19	/
	-WF (Global)	Only Wi-Fi & BT	Only Wi-Fi & BT	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	MSM8953, Octa-core ARM Cortex-A53 64-bit CPU @2.0GHz	
GPU	Adreno™ 506 with 64-bit addressing	Adreno™ 506 with 64-bit addressing	Adreno™ 506 with 64-bit addressing	
Memory	16GB eMMC+2GB LPDDR3	16GB eMMC+2GB LPDDR3	16GB eMMC+2GB LPDDR3	
Operating System	Android 9/10	Android 9/10	Yocto Linux OS(Kernel 3.18)	
Supply Voltage Range	3.55V ~ 4.4V, 3.8V Typ.	3.55V ~ 4.4V, 3.8V Typ.	3.55V ~ 4.4V, 3.8V Typ.	
Weight (approx.) g	13.0	13.0	13	
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	
<b>Data Transmission</b>				
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)	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-HSPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (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)	
<b>Interfaces</b>				
LCM	4-lane MIPI_DSI0 + 4-lane MIPI_DSI1 WUXGA (1920×1200) @60fps	4-lane MIPI_DSI0 + 4-lane MIPI_DSI1 WUXGA (1920×1200) @60fps	4-lane MIPI_DSI0 + 4-lane MIPI_DSI1 WUXGA (1920×1200) @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	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	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	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	Video encoding and decoding: Support recording and playback of 4k videos at 30fps Wi-Fi Video encoding and decoding: 1080P at 30fps	
USB	× 1 USB 3.0 and 2.0 Compliant, Support USB OTG	× 1 USB 3.0 and 2.0 Compliant, Support USB OTG	× 1 USB 3.0 and 2.0 Compliant, Support USB OTG	
I2C	× 5	× 5	× 5	
(U)SIM	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	
UART	× 4 Support 4Mbps with Hardware Flow Control	× 4 Support 4Mbps with Hardware Flow Control	× 4 Support 4Mbps with Hardware Flow Control	
SDIO	× 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	× 2 Can be Multiplexed into UART and I2S Respectively, and I2S Supports Both Tx and Rx	× 2 Can be Multiplexed into UART and I2S Respectively, and I2S Supports Both Tx and Rx	× 2 Can be Multiplexed into UART and I2S Respectively, and I2S Supports Both Tx and Rx	
ADC	× 2 General purpose ADC interfaces	× 2 General purpose ADC interfaces	× 2 General purpose ADC interfaces	
GPIO	× 19	× 19	× 19	
PWM	× 2	× 2	× 1	
Motor Driver	× 1	× 1	/	
Flashlight Driver	× 2	× 2	/	
WLED Sink	× 4	× 4	/	
Antenna	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	
<b>Enhanced Features</b>				
BT	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	
WLAN	2.4G/5G, 802.11 a/b/g/n/ac	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	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	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	Support Dual LCDs for Independent 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	
<b>Certifications</b>	CE/ RCM/ GCF/ NCC/ Telstra/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ T-Mobile / JATE/ TELEC / KDDI / NTT DOCOMO/ IFETEL/ ANATEL/ KC	CE/ RCM/ GCF/ NCC/ Telstra/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ T-Mobile / JATE/ TELEC/ KDDI / NTT DOCOMO/ IFETEL/ ANATEL/ KC	CE/ RCM/ GCF/ FCC/ IC/ PTCRB/ AT&T/ Verizon	
<b>Recommended Applications</b>	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.			



\* Under development

# Quectel Smart Module Family

Product		SC66
		
Form Factor	LCC+LGA	
Dimensions(mm)	43.0 × 44.0 × 2.85	
LTE Feature	LTE Cat 6	
Frequency Bands(MHz)	-CE (China)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B8 TD-SCDMA: B34/B39; CDMA: BC0; GSM: 900/1800MHz
	-E (EMEA/ Korea/ Thailand/ India)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 (A+B); LTE-TDD: B38/B39/B40/B41 (200M) WCDMA: B1/B2/B4/B5/B8; GSM: 850/900/1800/1900MHz
	-A (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71; LTE-TDD: B41 (200M) WCDMA: B2/B4/B5
	-J (Japan)	LTE-FDD: B1/B3/B5/B8/B11/B18/B19 B21/B26/ B28 (A+B); LTE-TDD: B41 (120M) WCDMA: B1/B6/B8/B19
	-MW/WF (Global)	-MW (Wi-Fi) 2 × 2 Wi-Fi MIMO & BT
CPU	SDM660, Customized 64-bit ARM v8.0-compliant AP (Kryo260 CPU) Kryo Gold Quad high-performance cores targeting 2.2GHz, L2 - 1MB Kryo Silver Quad low-power cores targeting 1.843GHz, L2 - 1MB	
GPU	Qualcomm® Adreno 512 at 650MHz	
Memory	32GB eMMC + 3GB LPDDR4X (Default) 64GB eMMC + 4GB LPDDR4X (Optional)	
Operating System	Android 9/10	
Supply Voltage Range	3.55V ~ 4.4V, 4V Typ.	
Weight (approx.) g	12.0	
Operating Temperature	-35 °C ~ +75 °C	
<b>Data Transmission</b>		
LTE (Mbps)	Cat 6*: LTE-FDD: Max. 300 (DL)/ Max. 50 (UL) LTE-TDD: Max. 265 (DL)/ Max. 30 (UL) Cat 4: LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL) DC-HSPA: 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)	
<b>Interfaces</b>		
LCM	2560×1600 @60fps primary display + 4k@30fps over DP Dual MIPI DSI	
Camera	4-lane MIPI_CSIx3, up to 2.1Gbps/Lane, Support 3 or 4 Cameras, Up to 24MP with Dual ISPs	
Touch Panel	Capacitive Touch Panel	
Audio	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	
Video	Encoding: 4K(HEVC/H264/VP8)@30FPS Decoding: 4K(HEVC/H264/VP8/VP9)@30FPS	
USB	× 2, Compliant with USB3.1 and 2.0 specifications, with transmission rates up to 5Gbps on USB3.1 and 480Mbps on USB2.0	
I2C	× 5	
(U)SIM	× 2 (1.8V/2.95V)	
UART	× 4, (one group Support 4Mbps with Hardware Flow Control)	
SDIO	× 1 (3.0, 4-bit SDIO)	
PWRKEY	1.8V, Pulled-up Internally	
SPI	× 1, only support master mode	
ADC	× 2 General purpose ADC interfaces	
GPIO	× 22	
PWM	× 1	
Motor Driver	/	
Flashlight Driver	/	
WLED Sink	/	
Antenna	Main antenna, Rx-diversity antenna, GNSS antenna, Wi-Fi/BT antenna and WIFI_MIMO antenna interfaces (SC66-CE and SC66-W do not support MIMO Wi-Fi)	
<b>Enhanced Features</b>		
BT	BT 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE	
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/ KC/ UKCA	
Recommended Applications	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.	



\* Under development

# Quectel Smart Module Family

Product	SA800U	SG865W
		
Form Factor	B2B Connector	LGA
Dimensions(mm)	60.0 × 37.0 × 6.55	60.0 × 37.0 × 6.55
LTE Feature	/	/
Frequency Bands (MHz)	- MW/WF (Global) - WF (Wi-Fi) 2 × 2 Wi-Fi MIMO & BT	- WF (Wi-Fi) 2 × 2 Wi-Fi MIMO & BT
CPU	SDA845, Qualcomm® Kryo™ 385 64-bit Processor (Octa-core) CPU Quad high-performance Kryo cores at 2.649 GHz Quad low-power Kryo cores at 1.766 GHz	QCS8250, 64-bit application processors (Kryo 585) with 4 MB L3 cache: 1 × Kryo 585 Gold prime core Fmax at 2.842 GHz – with 512 KB L2 cache 3 × Kryo 585 Gold cores Fmax at 2.419 GHz – with 256 KB L2 cache per core 4 × Kryo 585 Silver cores Fmax at 1.805 GHz – with 128 KB L2 cache per core
GPU	Qualcomm® Adreno™ 630	Adreno 650 at 587 MHz – 4K 60 fps UI or 2 × 2K 60 fps UI
Memory	64GB UFS + 4GB LPDDR4X	64GB UFS + 8GB LPDDR5
Operating System	Android 9/10	Android 10
Supply Voltage Range	3.55V ~ 4.4V, 3.8V Typ.	3.55V ~ 4.4V, 3.8V Typ.
Weight (approx.) g	15.0	TBD
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C
<b>Data Transmission</b>		
LTE (Mbps)	/	/
UMTS	/	/
TD-SCDMA	/	/
CDMA2000	/	/
GSM	/	/
<b>Interfaces</b>		
LCM	Supports 2 groups of 4-lane MIPI_DSI Dual independent display 3840 × 2440 @ 60 fps for primary display + 4K @60 fps over DP	2 × 4-lane MIPI DSI 5040 × 2160 @ 60 fps with 8-lane MIPI 2 × (2560 × 2560 @ 60 fps with 4-lane MIPI) 2 × 4K @ 60 fps over DP (MST Mode) Wi-Fi display: 4K @ 60 fps
Camera	3 groups of 4-lane + 1 group of 2-lane MIPI_CSI, up to 2.5 Gbps/lane 2 Full ISPs + 1 Lite ISP Supports 3 cameras of 16 MP + 16 MP + 2 MP working simultaneously Supports single camera of up to 32 MP	2 × Full ISP + 2 × Lite ISP 2 × Front-end input: 25 MP (4:3) or 18 MP (16:9 aspect ratio) 2 × Front-end input: mono/YUV Interface
Touch Panel	Capacitive Touch Panel	Capacitive Touch Panel
Audio	QCELP, EVS, EVRC, EVRC-B, EVRC-WB, G.709en, G.729 A/AB, AMR-NB, AMR-WB, GSM-EFR, GSM-FR, GSM-HR	QCELP, EVS, EVRC, EVRC-B, EVRC-WB, G.709en, G.729 A/AB
Video	4K @ 60 fps H.264/265 encoding + decoding Supports HDR	Video coding: 8K @ 30 fps Video decoding: 8K @ 60 fps 2 × USB 3.1 with Type-C USB1 supports USB OTG and DisplayPort V1.4 USB2 only supports USB host mode
USB	× 2, USB 3.1, one of which supports Type-C with DisplayPort	
I2C	× 15	× 4
(U)SIM	/	/
UART	× 13, Supports up to 4 Mbps and hardware flow control	× 4
SDIO	× 1 (SD 3.0, 4-bit SDIO)	× 1, SD 3.0
PWRKEY	PWRKEY, VOL_UP, VOL_DOWN, HOME_KEY	Internally pulled up
SPI	× 15	× 4, only support master mode
ADC	× 2	× 4, general-purpose ADC interfaces
GPIO	× 109	× 16
PWM	× 2	/
Motor Driver	× 1	× 1
Flashlight Driver	× 3	3 high-current flash LED drivers, which support both flash and torch modes Up to 1.5 A in total for FLASH_LED1/FLASH_LED2 in flash mode Up to 0.75 A for FLASH_LED3 in flash mode
WLED Sink	not support	not support
Antenna	Wi-Fi/BT, Wi-Fi MIMO, BT*, FM*	Wi-Fi/BT, Wi-Fi MIMO, BT*, FM*
<b>Enhanced Features</b>		
BT	BT 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE
WLAN	2.4G/5G, 802.11a/b/g/n/ac	2.4G/5G, 802.11a/b/g/n/ac/ax
GNSS	/	/
Charge Function	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology	Used for battery voltage detection, fuel gauge, battery temperature detection
Dual LCD	Support Dual LCDs for Independent Display	Support Dual LCDs for Independent Display
DSDS	/	/
Firmware Upgrade	A/B OTA Firmware Upgrade via USB	A/B OTA Firmware Upgrade via USB
<b>Certifications</b>	KC	TBD
<b>Recommended Applications</b>	Smart cash registers, smart home gateways, smart robots, smart wearables, Safety, PDA & tablets, vending machines, delivery lockers, police and law enforcement equipment, in-car video streaming and entertainment systems, etc.	Smart cash registers, smart home gateways, smart robots, smart wearables, Safety, PDA & tablets, vending machines, delivery lockers, police and law enforcement equipment, in-car video streaming and entertainment systems, etc.

\* Under development

# Quectel LPWA Module Family

Product	BG96	BG95 Series <sup>1</sup>
		
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 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
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C
<b>Data Transmission</b>		
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; SMS Cell Broadcast
Protocols	PPP/TCP/UDP/SSL/TLS/FTP(S)/HTTP(S)/NITZ/PING/MQTT(S)/LwM2M/CoAP(S)/IPv6/DNS/NTP	PPP/TCP/UDP/SSL/TLS/FTP(S)/HTTP(S)/NITZ/PING/MQTT(S)/MQTT-SN/LwM2M/CoAP(S)/IPv6/DNS/NTP
<b>Interfaces</b>		
(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 <sup>2</sup> × 1	I2C <sup>2</sup> × 1
ADC	ADC × 2	ADC × 1
GPIO	GPIO × 2 (I2C and NMEA can be re-configured as GPIO)	GPIO <sup>3</sup> × 9
RESET	RESET × 1	RESET × 1
PCM	PCM <sup>2</sup> × 1	PCM <sup>2</sup> × 1
Antenna	Primary, GNSS	Antenna <sup>1</sup> ; 2 (for Main Antenna and GNSS Antenna, respectively)
<b>Enhanced Features</b>		
QuecOpen <sup>4</sup>	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/10.x/11.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x
NDIS	Windows 7/8/8.1/10	/
USB Serial Driver	Windows 7/8/8.1/10 Linux 2.6 or later; Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x	Windows 7/8/8.1/10, Linux 2.6-5.12, Android 4.x/5.x/6.x/7.x/ 8.x/9.x/10.x/11.x
SIM Detection	•	•
GNSS	Optional	Optional
Firmware Update	via USB Interface	via USB Interface
<b>Electrical Features</b>		
Supply Voltage Range	3.3 ~ 4.3V, 3.8V Typ.	3.8V Typ. /3.3V Typ. <sup>5</sup>
Power Consumption	10µA@PSM	3.9µA@PSM <sup>6</sup>
Max Output Power	Power Class 3 23dBm @ LTE Bands	Power Class5 21dBm @ LTE Bands / Power Class3 23dBm@ LTE Bands <sup>7</sup> / Power Class 2 26dBm@ LTE B31/72/73 of BG95-M4
<b>Certifications</b>	Vodafone / Deutsche Telekom/ Telefónica/ Verizon/ AT&T/ T-Mobile/ Sprint/ Telus/ Rogers/ SKT/LGU+/ NTT DOCOMO/ SoftBank/KDDI/ Telstra/ GCF/ CE/FCC/ PTCRB/ IC/ IFETEL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ IMDA/ ICASA/ U.S. Cellular	China Telecom*/ China Mobile*/ China Unicom*/ Vodafone/ Deutsche Telekom/ Verizon/ AT&T/ T-Mobile/ Sprint/SKT/ NTT DOCOMO/ SoftBank*/ KDDI/ Telstra/ SRRG*/ NAL*/ CGC/ GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC*/IMDA/ RoHS/ ATEX*/ PEN/ KT/UCKA/ LGU+/Telefónica/U.S.Cellular/Telus/Orange/Rogers
<b>Recommended Applications</b>	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: For Voice Call Only.

Note 3: BG95-MF provides 7 GPIO Interfaces, please refer to HD for details.

Note 4: BG95-MF provides 3 antenna interfaces, please refer to HD for details.

Note 5: For the supply Voltage of different Variants, please refer to the BG95 Hardware Design document.




Note 6: For the power consumption of different variants, please refer to the BG95 Hardware Design document.

Note 7: For the max output power of different variant, please refer to BG95 Hardware Design document.

\* Under development



# Quectel LPWA Module Family








Product	BG600L-M3	BG77	BG770A-GL
			
Form Factor	LGA	LGA	LGA
Dimensions (mm)	18.7 × 16.0 × 2.1	14.9 × 12.9 × 1.7	14.9 × 12.9 × 1.9
RAT	LTE Cat M1/Cat NB2/EGPRS	LTE Cat M1/Cat NB2	LTE Cat M1/Cat NB1/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*	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B17 (Cat NB1/NB2* Only)/B18/B19/B20/B25/B26 (Cat M1 Only)/B27 (Cat M1 Only)/B28/B66
Weight (approx.) g	1.25	0.73	0.85
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
<b>Data Transmission</b>			
LTE Cat M1 data rate (Kbps)	Max. 588 (DL), Max. 1119 (UL)	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)	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)	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	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode
Protocols	PPP/TCP/UDP/SSL/TLS/FTP(S)/HTTP(S)/NITZ/PING/MQTT(S)/MQTT-SN/LwM2M/CoAP(S)/IPv6/DNS/ NTP	PPP/TCP/UDP/SSL/TLS/FTP(S)/HTTP(S)/NITZ/PING/MQTT(S)/MQTT-SN/LwM2M/CoAP(S)/IPv6/DNS/ NTP	TCP/PPP/UDP/SSL/MQTT/FTP(S)/HTTP(S)/LwM2M/IPv4/IPv6/TLS/DTLS/CoAP/NITZ
<b>Interfaces</b>			
(U)SIM	1.8V	1.8V	1.8V
UART	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, AUX)
USB	USB 2.0 × 1	USB 2.0 × 1	USB 2.0 × 1 (FS Only)
I2C	I2C <sup>1</sup> × 1	I2C <sup>1</sup> × 1	I2C* × 1
ADC	ADC × 1	ADC × 2	ADC × 2
GPIO	GPIO × 6	GPIO × 7	GPIO × 7
RESET	RESET × 1	RESET × 1	RESET × 1
PCM	PCM <sup>1</sup> × 1	PCM <sup>1</sup> × 1	PCM* × 1
Antenna	2 (for Main Antenna and GNSS Antenna, respectively)	2 (for Main Antenna and GNSS Antenna, respectively)	2 (for Main Antenna and GNSS Antenna, respectively)
<b>Enhanced Features</b>			
QuecOpen <sup>®</sup>	Simplifies the Development of Embedded Applications	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/10.x/11.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x	/
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6-5.12, Android 4.x/5.x/6.x/7.x/ 8.x/9.x/10.x/11.x	Windows 7/8/8.1/10, Linux 2.6-5.12, Android 4.x/5.x/6.x/7.x/ 8.x/9.x/10.x/11.x	/
SIM Detection	•	•	•
GNSS	Optional	Optional	GPS, GLONASS
RAI	/	/	/
Firmware Update	via USB Interface	via USB Interface	via UART/USB*/DFOTA
<b>Electrical Features</b>			
Supply Voltage Range	3.3V-4.3V, 3.8V Typ.	2.6V-4.8V, 3.3V Typ. <sup>2</sup>	VBAT_BB: 2.2-4.35 V, Typ. 3.3 V VBAT_RF: 3.1-4.2 V, Typ. 3.3 V
Power Consumption	4.0μA@PSM	3.44μA@PSM	1.4μA@PSM
Max Output Power	Power Class 5 21dBm @ LTE Bands	Power Class 5 21dBm @ LTE Bands	Power Class 3 23dBm @ LTE Bands
<b>Certifications</b>	Vodafone/ Deutsche Telekom/ Telefónica*/ Verizon*/ AT&T/ T-Mobile/ Sprint*/ CCC*/ GCF/ CE/ FCC/ RCM/ PTCRB/ IC/ RoHS / ANATEL	China Telecom*/ China Mobile*/ China Unicom*/ Vodafone/ Deutsche Telekom/ Verizon/ AT&T/ T-Mobile/ Sprint/ SRRC*/ NAL*/ CCC*/ GCF/ CE/ FCC/ PTCRB/ IC/ KC*/ NCC/ JATE/ TELECOM/ RCM/ NBTC*/ Telus/ USCC RoHS	FCC/CE/IC/RCM/TELEC*/JATE*/Deutsche Telekom/SKT*/ Vodafone*/PTCRB/GCF/AT&T*/Verizon*/ RoHS
<b>Recommended Applications</b>	Gas Detector, Soil PH Tester, Optical Sensor, Machinery Alarm System, Fire Hydrant, Smoke Alarm, Smart Bin, Street Lighting	System, Irrigation Controller, Elevator, Asset Tracking Electronics, Person/ Pet Tracking, Water/ Gas Metering, Smart Parking	

Note 1: For Voice Call Only.

Note 2: please refer to the hardware design manual for more specific requirements on the minimum power supply voltage.

\* Under development



# Quectel LPWA Module Family

Product	BC95-G <sup>1</sup>	BC68 <sup>1</sup>	BC66	BC66-NA	BC660K-GL	BC65	BC92
							
Form Factor	LCC	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	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	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/B2/B3/B4/B5/B8/B12/ B13/B17/B18/B19/B20/ B25/B28/B66/B70/B85	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	1.0±0.2	1.2±0.2	1.8±0.1
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-25°C ~ +75°C	-25°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
<b>Data Transmission</b>							
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: 25.5 (DL) / 16.7 (UL) Multi-Tone: 127 (DL) / 158.5 (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)	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/PING/LwM2M*/ SNTP/MQTT/MQTTs/SSL/TLS	UDP/TCP/SNTP/MQTT/CoAP*/ PPP/TLS/DTLS	UDP/TCP/SNTP/PPP/MQTT/ CoAP*/HTTP*/HTTPS*/FTP
<b>Interfaces</b>							
(U)SIM	× 1 Supports 1.8V/ 3.0V USIM Card	× 1 Supports 1.8V/ 3.0V USIM Card	1.8V	1.8V	1.8/3.0V	1.8V/3.0V	1.8V/3.0V
UART	× 2	× 2	× 3 (MAIN, DEBUG, AUX)	× 3 (MAIN, DEBUG, AUX)	UART × 2 (for QuecOpen <sup>®</sup> version, × 3)	× 3 (MAIN, DEBUG, AUX)	× 2 (MAIN, DEBUG)
I2C	× 2 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1* (QuecOpen Version only)	/	/
ADC	× 1, 10bits (QuecOpen Version Only)	× 1, 10bits (QuecOpen Version Only)	× 1	× 1	ADC × 1 (for QuecOpen <sup>®</sup> version, × 2)	× 1	× 1
GPIO	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	GPIO × 4 (for QuecOpen <sup>®</sup> version, × 13)	/	/
RESET	× 1	× 1	× 1	× 1	× 1	× 1	× 1
SPI	× 2 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	SPI* × 1 (for QuecOpen <sup>®</sup> version only)	/	/
PSM_EINT	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	× 1	× 1	PSM_ENIT × 1 (for QuecOpen <sup>®</sup> version, × 2)	× 1	× 1
I2S	/	/	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	/	/	/
NETLIGHT	/	/	/	/	× 1	/	/
Antenna	Pads for Primary	Pads for Primary	Primary	Primary	Primary	Primary	Primary
<b>Enhanced Features</b>							
QuecOpen <sup>®</sup>	•	•	•	•	•	/	/
DFOTA	•	•	•	•	•	•	•
Firmware Update	via UART/ DFOTA	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	o	/
<b>Electrical Features</b>							
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.	2.2~4.3 V, 3.3 V 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, ECLD 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, ECLD 250mA @Tx, 23dBm (B1/ B3) 220mA @Tx, 23dBm (B8/B5/B20) 280mA @Tx, 23dBm (B28) 60mA @Rx	3.5µA @ PSM	3.6µA @ PSM	800 nA @ PSM	4µA @PSM	4µA @PSM
Certifications	CE/ GCF/ RCM/ NCC/ JATE/ TELEC/ KC/ NBTC/ Vodafone Global / Deutsche Telekom / Telstra / Softbank/ KT/ Telefonica/ LGU+/ ATEX/ IMDA/ ANATEL/ FAC	CE/ GCF/ RCM/ NCC/ JATE/ TELEC/ IMDA / Deutsche Telekom/ Vodafone/ Telstra/ ATEX/ Softbank/ KC/ Telefonica/ TIM/ Altice-MEO/FAC	NCC/ IC/ CE/ RCM/ GCF/ FCC/ PTCRB/ JATE/ TELEC/ KC/ NBTC/ T-Mobile/ Altice/ TIM (Telecom Italia)/ Vodafone/ ATEX/ IMDA/ AT&T/ LGU+*/ Softbank/ Telstra/ Telefonica/ Deutsche Telekom/ Verizon*	NCC*/ IC/ CE/ RCM/ GCF/ FCC/ PTCRB/ JATE/ TELEC/ KC/ NBTC*/ T-Mobile/ Vodafone/ ATEX*/ IMDA*/ AT&T*/ LGU+*/ Softbank*/ Telstra*/ Telefonica*/ Deutsche Telekom/ Verizon*	CE/RCM/FCC/IC/PTCRB*/ GCF*/AT&T*/Verizon*/DT/ Vodafone*/KC*/LGU+*/KT*	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						

Note 1: The EOL has already been released.


o & \* Under development

# Quectel LPWA Module Family


Product	BC95-GV	BC68-GV
		
Form Factor	LCC	LCC
Dimensions (mm)	19.9 × 23.6 × 2.2	15.8 × 17.7 × 2.0
RAT	LTE Cat NB2	LTE Cat NB2
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;
Weight (approx.) g	1.5±0.2	1.0±0.2
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C
<b>Data Transmission</b>		
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)
LTE Cat NB2 data rate (Kbps)	Extended TBS/2 HARQ : 125 (DL)/150 (UL)	Extended TBS/2 HARQ : 125 (DL)/150 (UL)
SMS	•	•
Protocols	IPv4/ IPv6/ UDP/ TCP/ Non-IP/ CoAP/ LwM2M/ DTLS/ MQTT/ HTTP/ DNS/ TLS*/ MQTTS*	IPv4/ IPv6/ UDP/ TCP/ Non-IP/ CoAP/ LwM2M/ DTLS/ MQTT/ HTTP/ DNS/ TLS*/ MQTTS*
<b>Interfaces</b>		
(U)SIM	× 1 Supports 1.8V/ 3.0V	× 1 Supports 1.8V/ 3.0V
UART	× 2 (QuecOpen®* Version: × 3)	× 2 (QuecOpen®* Version: × 3)
I2C	Max. × 4 (QuecOpen®* Version Only)	Max. × 3 (QuecOpen®* Version Only)
ADC	× 2 (QuecOpen®* Version: × 4)	× 2 (QuecOpen®* Version: × 3)
GPIO	Config (QuecOpen®* Version Only)	Config (QuecOpen®* Version Only)
SPI	× 2 (QuecOpen®* Version Only)	× 2 (QuecOpen®* Version Only)
PWM	× 2 (QuecOpen®* Version Only)	× 2 (QuecOpen®* Version Only)
RI	× 1	× 1
RESET_N	× 1	× 1
NETLIGHT	× 1	× 1
WAKEUP_OUT	× 1	× 1
Antenna	Pads for Primary	Pads for Primary
<b>Enhanced Features</b>		
QuecOpen®	•	•
DFOTA	•	•
BLE 5.0	•	•
Firmware Update	via UART/DFOTA/DOFTA Over BLE	via UART/DFOTA/DOFTA Over BLE
RAI	•	•
Location Based Service	ECID, OTDOA	ECID, OTDOA
eSIM*	○	○
<b>Electrical Features</b>		
Supply Voltage Range	2.1–4.2 V, typical 3.0/3.6 V	2.1–4.2 V, typical 3.0/3.6 V
Power Consumption	2 µA @ PSM 0.23 mA @ Idle Mode, DRX = 2.56 s, ECL0 310 mA @ Tx, 23 dBm (B1/B3) 210 mA @ Tx, 23 dBm (B5/B8/B20) 210 mA @ Tx, 23 dBm (B28) 75 mA @ Tx, 12 dBm (B1/B3/B5/B8/B20/B28) 45 mA @ Tx, 0 dBm (B1/B3/B5/B8/B20/B28) 23 mA @ Rx	2 µA @ PSM 0.23 mA @ Idle Mode, DRX = 2.56 s, ECL0 310 mA @ Tx, 23 dBm (B1/B3) 210 mA @ Tx, 23 dBm (B5/B8/B20) 210 mA @ Tx, 23 dBm (B28) 75 mA @ Tx, 12 dBm (B1/B3/B5/B8/B20/B28) 45 mA @ Tx, 0 dBm (B1/B3/B5/B8/B20/B28) 23 mA @ Rx
<b>Certifications</b>	CE*/ GCF*/ RCM*/ NCC*/ JATE*/ TELEC*/ KC*/ NBTC*/ Vodafone*/ Global* / Deutsche Telekom* / Telstra* / Softbank*/ KT*/ Telefónica*/ LGU+*/ ATEX*/ IMDA*/ ANATEL*/ FAC*	CE*/ GCF*/ RCM*/ NCC*/ JATE*/ TELEC*/ IMDA* / Deutsche Telekom*/ Vodafone*/ Telstra* / ATEX*/ Softbank*/ KC*/ Telefónica*/ TIM*/ Altice-MEO*/ FAC*
<b>Recommended Applications</b>	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	

\* 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)	-F (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
	-CN (China)	/
	-EU (EMEA/Australia/Korea/India/Southeast Asia)	/
	-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
	-JP	/
-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	
Operating Temperature	-40°C ~ +85°C	
<b>Data Transmission</b>		
LTE data rate	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (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)	
C-V2X data rate (Mbps)	/	
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	
<b>Interfaces</b>		
(U)SIM	× 1 (Support 1.8V/ 3V USIM/ SIM Cards)	
USIM	/	
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)	
I2S/PCM	/	
I2C	/	
RGMI	/	
Audio Digital (PCM)	× 1	
ADC	× 3, 15bits	
PCIe	/	
GPIO	GPIO > 15 (for QuecOpen Version Only)	
JTAG/QDSS	/	
RESET	/	
Antenna	Main, Rx-diversity and GNSS	
<b>Enhanced Features</b>		
QuecOpen <sup>®</sup> (Open Linux)	•	
PCIe for WLAN Function	/	
UART/PCM for Bluetooth Function	/	
Gigabit Ethernet	/	
eCall	•	
Era Glonass	•	
Multi-APN	•	
Temperature Management	•	
DFOTA	•	
eSIM (eUICC)	/	
(U)SIM Detection	/	
Voice over USB (USB Audio)	•	
QDR	Optional	
PPE (RTK)	Optional (Support only in China)	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	
ESD/EMI Protection	/	
C-V2X	/	
QDR 3.0 (External IMU Required)	/	
Multi-Frequency GNSS (L1/L5)	/	
<b>Advanced Security Feature</b>		
TrustZone	•	
Secure Boot	•	
SE-Linux	/	
Code/User Data Backup	•	
<b>Software Features</b>		
RIL Driver/ GNSS Driver	Android 4.x-9.x	
RNDIS Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4	
ECM Driver/ GobiNet Driver	Linux 2.6-5.4	
QMI_wwan Driver	Linux 3.4-5.4	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6-5.4, Android 4.x-9.x	
<b>Electrical Features</b>		
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.	
<b>Certifications</b>		
	CCC/ SRRC/ NAL/ GCF/ CE/ FCC/ KC/ RCM/ ANATEL/ KT/ STK*/ LGU-*/ PTCRB/ IC/ AT&T/ Rogers/ T-Mobile/ Verizon/ JATE/ TELEC/NTT DOCOMO	
<b>Recommended Applications</b>		
	Automotive	

Note 1: n1/n3/n28 for AG55xQ-CN supports SA only.  
Note 2: LTE-FDD B29/B30/B32 supports Rx only.

Product	AG55xQ	
		
Form Factor	LGA	
Dimensions (mm)	54.5 × 53.0 × 3.45	
5G	Sub-6G	
4G	LTE Cat 19	
Frequency/Bands (MHz)	-CN (China)	5G-FDD: n1 <sup>1</sup> /n3 <sup>1</sup> /n28 <sup>1</sup> ; 5G-TDD: n41/n78/n79; LTE-FDD: B1/B3/B5/B7/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B8; GSM: 900/1800 MHz; C-V2X: B47 (For AG550Q/AG553Q Series)
	-EU (EMEA/Australia, Korea/India/Southeast Asia/Latin America excl. Mexico)	5G-FDD: n1/n3/n8/n20/n28; 5G-TDD: n41/n78; LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28/B32; LTE-TDD: B38/B40/B41/B42; WCDMA: B1/B3/B5/B6/B8; GSM: 900/1800/850/1900 MHz; C-V2X: B47 (For AG550Q/AG553Q Series)
	-NA (North America/Mexico)	5G-FDD: n2/n5/n25/n66/n71; 5G-TDD: n41/n48/n77/n78; LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B29 <sup>2</sup> /B30 <sup>2</sup> /B66/B71; LTE-TDD: B41/B48; WCDMA: B2/B4/B5; GSM: 1900 MHz; C-V2X: B47 (For AG550Q/AG553Q Series)
	-JP <sup>3</sup> (Japan)	5G-FDD: n1/n3; 5G-TDD: n77/n78/n79; LTE-FDD: B1/B3/B5/B7/B8/B9/B11/B19/B21/B28; LTE-TDD: B41; WCDMA: B1/B3/B5/B8/B9/B19; C-V2X: B47 (For AG550Q/AG553Q Series)
Weight (approx.) g	21	
Operating Temperature	-40°C ~ +85°C (eCall: +95°C)	
<b>Data Transmission</b>		
5G SA	Max. 2.0Gbps (DL)/450Mbps (UL)	
5G NSA	Max. 2.4Gbps (DL)/550Mbps (UL)	
LTE FDD Data Rate	Max. 1.6Gbps (DL)/ Max. 200Mbps (UL)	
LTE TDD Data Rate	Max. 1.4Gbps (DL)/ Max. 120Mbps (UL)	
DC-HSDPA/HSUPA 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	
<b>Interfaces</b>		
(U)SIM	× 2 (Support 1.8V/ 3V USIM/ SIM Cards)	
UART	× 3 (Main/Debug/BT UART)	
USB 2.0/3.1	× 1	
PCIe 3.0	× 1	
IIC	× 1	
IIS	× 1	
RGMI	× 1	
SDIO	× 1 (for eMMC)	
SPI	× 2	
Audio Digital (PCM)	× 1	
ADC	× 2 (15-bit)	
GPIO	× 15 (For QuecOpen <sup>®</sup> version only)	
RESET_N	× 1 (Reset the module)	
Antenna	Main × 1; Diversity × 1; MIMO 3 × 1; MIMO 4 × 1; C-V2X × 2; GNSS × 1; DSDA × 2	
<b>Enhanced Features</b>		
QuecOpen <sup>®</sup> (Open Linux)	•	
eCall	•	
DFOTA	•	
eSIM (eUICC)	Optional	
(U)SIM Detection	•	
Temperature Management	•	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	
ESD/EMI Protection	Realized through Internal Specific Circuits and Components (Electrostatic Discharge Conforms to ±12KV air discharge and ±8KV of contact discharge)	
Gigabit Ethernet	Optional	
C-V2X TDD B47	Optional	
DSDA (Dual SIM Dual Activation)	Optional	
QDR 3.0 (External IMU Required)	Optional	
RTK/PPE	Optional	
Dual-Frequency GNSS (L1+L5)	Optional	
UART Interface for BT Function	Optional	
<b>Advanced Security Feature</b>		
TrustZone/TPM*	•	
Secure Boot	•	
SE-Linux	•	
<b>Software Features</b>		
USB ECM Driver	Linux 2.6-5.12	
USB RNDIS Driver	Windows 7/8/8.1/10, Linux 2.6-5.12	
USB GobiNet Driver	Linux 2.6-5.12	
USB QMI_wwan Driver	Linux 3.4-5.12	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6-5.12	
<b>Electrical Features</b>		
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	0.04mA @Power off; 1.4mA @Sleep(Typ.); 25.0mA @idle	
<b>Certifications</b>		
	CCC/ SRRC/ NAL/ FCC*/ IC*/ PTCRB*/ GCF*/ AT&T/ CE(AG551Q-EU)/ KC*/ JATE*/ TELEC*/ RCM(AG551Q-EU)	
<b>Recommended Applications</b>		
	Automotive	

\* Under development


# Quectel Automotive Module

Product		AG52xR (x=1, 2)
		
Form Factor	LGA	
Dimensions (mm)	38.0 × 42.0 × 2.65	
4.5G	-CN Cat 6; -EU/NA/JP Cat 12, Cat 16, Cat 9, Cat 6 as option	
Frequency Bands (MHz)	-CN (China)	LTE: B1/B3/B5/B7/B8/B34/B38/B39/B40/B41; UMTS: B1/B8; CDMA(Optional): BCO; GSM: 1800MHz/900MHz
	-EU (EMEA/Australia/ Korea/India/ Southeast Asia)	LTE: B1/B3/B5/B7/B8/B20/B28/B32(DL)/B38/B40/B41; UMTS: B1/B3/B5/B8; GSM: 1800MHz/900MHz
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B25/B26/B29/B30*/B66/B71
	-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	
Operating Temperature	-40°C ~ +85°C (eCall: +95°C)	
<b>Data Transmission</b>		
LTE data rate	AG521R series LTE Cat 16: LTE-FDD: Max. 1.0Gbps (DL)/150Mbps (UL), LTE-TDD: Max. 716Mbps (DL)/90Mbps (UL) LTE Cat 12: LTE-FDD: Max. 600Mbps (DL)/150Mbps (UL), LTE-TDD: Max. 410Mbps (DL)/90Mbps (UL) LTE Cat 6: LTE-FDD: Max. 300Mbps (DL)/50Mbps (UL), LTE-TDD: Max. 226Mbps (DL)/28Mbps (UL) AG520R series LTE Cat 16: LTE-FDD: Max. 1.0Gbps (DL)/75Mbps (UL), LTE-TDD: Max. 716Mbps (DL)/45Mbps (UL) LTE Cat 12: LTE-FDD: Max. 600Mbps (DL)/75Mbps (UL), LTE-TDD: Max. 410Mbps (DL)/45Mbps (UL) LTE Cat 6: LTE-FDD: Max. 300Mbps (DL)/50Mbps (UL), LTE-TDD: Max. 226Mbps (DL)/28Mbps (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)	/	
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/GMI	
<b>Interfaces</b>		
(U)SIM	/	
USIM	× 1 (default), × 2 (optional)	
UART	3 × UARTs	
HSIC	/	
USB	× 1	
IIC	/	
SGMII	/	
SDIO	× 1 (eMMC)	
SPI	× 1	
I2S/PCM	× 1 I2S, × 1 PCM	
I2C	× 1	
RGMII	× 1	
Audio Digital (PCM)	/	
ADC	× 2	
PCIe	× 1	
GPIO	× 8 (Only Open)	
JTAG/QDSS	Yes	
RESET	Yes	
Antenna	5 (2 × 2 MIMO), Reserve for 7 antennas(4 × 4 MIMO) as option	
<b>Enhanced Features</b>		
QuecOpen™ (Open Linux)	•	
PCIe for WLAN Function	•	
UART/PCM for Bluetooth Function	•	
Gigabit Ethernet	Optional	
eCall	•	
Era Glonass	/	
Multi-APN	•	
Temperature Management	•	
DFOTA	•	
eSIM (eUICC)	Optional	
(U)SIM Detection	•	
Voice over USB (USB Audio)	/	
QDR	Optional	
PPE (RTK)	Optional	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	
ESD/EMI Protection	Realized through Internal Specific Circuits and Components (Electrostatic Discharge Conforms to ±10KV air discharge and ±6KV of contact discharge)	
C-V2X	Optional	
QDR 3.0 (External IMU Required)	Optional	
Multi-Frequency GNSS (L1/L5)	Optional	
<b>Advanced Security Feature</b>		
TrustZone	TrustZone*/ TPM*: •	
Secure Boot	Secure Boot*: •	
SE-Linux	•	
Code/User Data Backup	•	
<b>Software Features</b>		
RIL Driver/ GNSS Driver	Android 4.x~11.x	
RNDIS Driver	Windows 7/8/8.1/10, Linux 2.6~5.12	
ECM Driver/ Gobinet Driver	Linux 2.6~5.12	
QMI_WWAN Driver	Linux 3.4~5.12	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.12, Android 4.x~11.x	
<b>Electrical Features</b>		
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/ 2.03mA@LTE Sleep, PF=128/1.61mA@LTE Sleep, PF=256; 15.9mA@Idle, PF=64/27.2mA@Idle, PF=64, USB Active	
Certifications	CCC/ SRRC/ NAL/ FCC/ IC/ PTCRB/ GCF/ CE*/ RCM*/ Verizon*/ AT&T/ T-Mobile	
Recommended Applications	Automotive	


Note 1: LTE-FDD B29, B30 and B32 support Rx only.

\* Under development

# Quectel C-V2X Module

Product	AG15
	
Form Factor	LGA
Dimensions (mm)	32.0 × 28.0 × 2.85
C-V2X TDD	B47 for Global B46D for Japan (optional)
Weight (approx.) g	5.735
Operating Temperature	-40 °C ~ +85 °C
<b>Data Transmission</b>	
LTE data rate (Mbps)	C-V2X TDD: Max. 26 (TX)/Max. 26 (RX)
Protocols	QMI (Qualcomm MSM Interface)
<b>Interfaces</b>	
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
<b>Enhanced Features</b>	
High Security	•
Secure Boot*	•
SELinux*	•
ESD/EMI Protection	•
Realized through Internal Specific Circuits and Components	•
<b>Software Features</b>	
USB Serial Driver	•
Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0*	•
Linux 2.6/3.x/4.1-4.14	•
Android 4.x/5.x/6.x/7.x/8.x	•
PCIe Driver	•
Protocol	QMI (Qualcomm MSM Interface)
<b>Electrical Features</b>	
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
<b>Certifications</b>	TBD
<b>Recommended Applications</b>	Automotive

# Quectel Application Processor Module

Product	AG215S
	
Form Factor	LGA
Dimensions (mm)	33.0 × 33.5 × 3.3
Weight (approx.) g	7.07
Operating Temperature	-40 °C ~ +85 °C
Application Processor Module	Automotive Grade Application Processor for C-V2X and Telematics
<b>Interfaces</b>	
SDIO	•
PCIe	PCIe Gen2*
USB	USB 3.0*1 and USB2.0*1
RGMI	RGMI up to 1 Gbps
UART	•
SPI	•
I2C	•
1PPS (Input)	•
ADC	•
<b>Enhanced Features</b>	
Powerful Cores	64-bit ARM Cortex-A53 Microprocessor Cores, 1.4 GHz Dual-Core Processor (Quad-Core Processor Optional), Optimized communication performance with Quectel AG520R/ AG550Q/AG553Q, Dedicated AP for ITS stack and applications
Embedded ECDSA Hardware Engine	Support NIST p-384, NIST p-256, Brainpool p-384, Brainpool p-256, SM2 256 bit Curves
Scalable ECDSA Capability	Up to 2500TPS through embedded engine and CPU (based on NIST p-256 and SM2)
Hardware Crypto Engine Embedded(Optional)	Secret key generation and storage, digital signature and verification, Up to 2000TPS ECDSA capability (based on NIST p-256 and SM2)

\* Under development








# Quectel Wi-Fi & BT Module Family

Product	AF20	AF50T	AF51Y	FC20	FC21
					
Dimensions (mm)	17.2 × 15.2 × 2.26	19.5 × 21.5 × 2.3	19.5 × 21.5 × 2.5	16.6 × 13.0 × 2.05	16.6 × 13.0 × 2.05
Operating Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) g	1.26	2.1	2.32	0.81	TBD
<b>General Features</b>					
Function	Wi-Fi 2.4GHz + 5GHz & BT 5.0	Wi-Fi 2.4GHz + 5GHz & BT 5.2	Wi-Fi 2.4GHz + 5GHz & BT 5.2	Wi-Fi 2.4GHz+5GHz & BT 5.0	Wi-Fi 2.4GHz + 5GHz & BT 5.0
WLAN Standard	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac
BT Standard	BT 5.0	BT 5.2	BT 5.2	BT 5.0	BT 5.0
Modulation Mode	CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM	CCK/BPSK/QPSK/16-QAM/ 64-QAM/ 256-QAM	CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM
Encryption Mode	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	WPA3	WPA3	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK
AP (Max Access Point)	16	32	32	16	16
Operator Mode	AP/ STA	AP/ STA	AP/ STA	AP/ STA	AP/ STA
<b>I/O Interfaces</b>					
PCIe	/	1 (PCIe 2.0)	1 (PCIe 2.0)	/	/
SDIO	1 (SDIO 3.0)	/	/	1 (SDIO 3.0)	1 (SDIO 3.0)
UART	1	1	1	1	1
PCM	1	1	1	1	1
Antenna	1 (Wi-Fi & BT Antenna)	2 × Wi-Fi Ant with shared BT Ant, independant BT Ant is optional	2X Wi-Fi Ant, 1X BT Ant	1 (Wi-Fi & BT Antenna)	1 (Wi-Fi & BT Antenna)
<b>Electrical Characteristics</b>					
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	PA Supply Voltage: 2.2V I/O Supply Voltage: 1.8V Core Supply Voltage: 1.8V	Power Supply Voltage: 3.14 ~3.46V, 3.3V Typ. I/O Power Supply Voltage: 1.71 ~ 3.46V, 1.8/3.3V Typ.	Power Supply Voltage: 3.14 ~3.46V, 3.3V Typ. I/O Power Supply Voltage: 1.71 ~ 3.46V, 1.8/3.3V Typ.
Power Consumption	TBD	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	OFF State(Wi-Fi is disabled): 0µA @3.3V WLAN power supply 179µA @1.8V I/O Pins power supply Idle(Wi-Fi is enabled without any device connected): 31mA @3.3V WLAN power supply 2.8mA @1.8V I/O Pins power supply
<b>Data Transmission</b>					
802.11a	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps
802.11b	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps
802.11g	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps
802.11n	Max. 150Mbps	Max. 600Mbps	Max. 300Mbps	Max. 150Mbps	Max. 150Mbps
802.11ac	Max. 433Mbps	Max. 866Mbps	Max. 866Mbps	Max. 433Mbps	Max. 433Mbps
802.11ax	/	Max. 1774.5Mbps	/	/	/
BLE	Max. 1Mbps	Max. 2Mbps	Max. 2Mbps	Max. 1Mbps	Max. 1Mbps
<b>Recommended Applications</b>	Automotive	Automotive	Automotive	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.	

AF20 can work with Quectel AG35 module to provide Wi-Fi/BT function.  
 FC20 can work with Quectel EC20 R2.0/EC20 R2.1/EC21/EC25 modules to provide Wi-Fi/BT function.  
 FC21\* can work with Quectel EC20 R2.0/EC20 R2.1/EC21/EC25 modules to provide Wi-Fi/BT function.  
 AF50T can work with Quectel AG520R and AG550U module to provide Wi-Fi/BT function.

\* Under development

# Quectel Wi-Fi & BT Module Family




Product	FC30R	FG50V*	FC62E*/FC64E*	FC65E*/FC66E*	HC06U	FC41D	FC80A
							
Dimensions (mm)	12.0 × 12.0 × 2.1	19.5 × 21.5 × 2.1	18 × 19.9 × 2.1	18 × 19.9 × 2.1	16.5 × 13.3 × 2.3	20 × 18 × 2.6	15 × 13 × 2.2
Operating Temperature	-30°C ~ +85°C (FC30R)	-30°C ~ +85°C	-30°C ~ +85°C	-30°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-30°C ~ +75°C
Weight (approx.) g	0.57	1.95	1.62	1.62	0.85	1.05	0.86
<b>General Features</b>							
Function	Wi-Fi 2.4GHz	Wi-Fi 2.4GHz + 5GHz + BT 5.1	Wi-Fi 2.4GHz + 5GHz & BT 5.1	Wi-Fi 2.4GHz + 5GHz + 6GHz & BT 5.1	BT 5.0	WiFi 2.4G+BT 5.2	Wi-Fi 2.4GHz + 5GHz + BT 5.0
WLAN Standard	802.11b/g/n	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	/	802.11b/g/n	802.11a/b/g/n/ac
BT Standard	/	BT 5.1	BT 5.1	BT 5.1	BLE 5.0	BT 5.2	BT 5.0
Modulation Mode	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM	DBPSK/ DQPSK/ CCK/ BPSK/ QPSK/ QAM	DBPSK/ DQPSK/ CCK/ BPSK/ QPSK/ QAM	/	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM
Encryption Mode	TKIP/ AES/ WPA-PSK/ WPA2-PSK	WPA3	WPA3	WPA3	SMP	WPA3	WPA3
AP (Max Access Point)	16	32	32	32	/	TBD	TBD
Operator Mode	AP/ STA	AP/ STA	AP/ STA	AP/ STA	/	AP/ STA	AP/ STA
<b>I/O Interfaces</b>							
PCIe	/	1(PCIe 2.0)	1(PCIe 3.0)	1(PCIe 3.0)	/	/	/
SDIO	1(SDIO 3.0)	/	/	/	/	/	1
UART	/	1	1	1	1	1	1
PCM	/	1	1	1	/	/	1
Antenna	1 (Wi-Fi Antenna)	2 × Wi-Fi Ant with shared BT Ant, independent BT ant is optional	2 × Wi-Fi Ant with shared BT Ant, independent BT ant is optional	2 × Wi-Fi Ant with shared BT Ant, independent BT ant is optional	× 1 (Built-in ceramic antenna, Built-out Pin antenna)	× 1 (Built-out Pin antenna, IPEX antenna, PCB antenna)	2 X Wi-Fi Ant with shared BT Ant
<b>Electrical Characteristics</b>							
Supply Voltage Range	3.0 ~3.6V, 3.3V Typ. 1.75 ~ 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	Core Supply Voltage: 0.95, 1.35, 1.95, 1.8, 2.2, 3.3(Optional) I/O Supply Voltage: 1.8V;	Core Supply Voltage: 0.95, 1.35, 1.95, 1.8, 2.2, 3.3(Optional) I/O Supply Voltage: 1.8V;	I/O Supply Voltage: 3.3V Power Supply Voltage: 3.3V	Power Supply Voltage: 3.3V	Power Supply Voltage: 3.2V-4.5V I/O Supply Voltage: 1.7V-3.6V, Typ. 1.8V/3.3V
Power Consumption	OFF State: 31 μA @ VDD3V3 power supply 1 μA @ VDD, SDIO power supply Idle (no connection): 60 mA @ VDD3V3 power supply 2 mA @ VDD, SDIO power supply	TBD	TBD	TBD	TBD	TBD	TBD
<b>Data Transmission</b>							
802.11a	/	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. 600 Mbps	Max. 600 Mbps	/	Max. 72Mbps	Max. 300Mbps
802.11ac	/	Max. 866Mbps	Max. 866 Mbps	Max. 1732 Mbps	/	/	Max. 866Mbps
802.11ax	/	Max. 1774.5Mbps	Max. 1174.5 Mbps	Max. 2400 Mbps	/	/	/
BLE	/	Max. 2Mbps	Max. 2Mbps	Max. 2Mbps	Max. 1Mbps	Max. 1Mbps	Max. 2Mbps
Recommended Applications	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	CPE, MIFI, OTT, Smart TV	CPE, MIFI, OTT, Smart TV	low-power data transmission, keyboard, mouse, remote control, sports and leisure equipment, mobile phone accessories and consumer electronics products	Smart home, industrial control	Smart home, industrial control

FC30R can work with Quectel EC20 R2.1/EC21/EC25 module to provide Wi-Fi/BT function. FG50V\* can work with Quectel RG5000 module to provide Wi-Fi/BT function.

\* Under development








# Quectel UMTS/HSPA(+) Module Family

Product	UG96	UG89	UC200T/ UC200T Mini PCIe
			
Form Factor	LGA	LGA	LCC
Dimensions (mm)	22.5 × 26.5 × 2.2	27.6 × 25.4 × 2.35	32.0 × 29.0 × 2.4 (UC200T) 30.0 × 51.0 × 4.9 (UC200T Mini PCIe)
3G	UMTS/HSPA	UMTS/HSPA+	UMTS/HSPA+
Frequency Bands (MHz)	-EM (Europe & Middle East)	/	UMTS: B1/B8; GSM: 900/1800MHz
	-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
Weight (approx.) g	3.1	3.77	4.3 (UC200T)
Operating Temperature	-35 °C ~ +75 °C	Operating Temperature*: -35°C ~ +75°C	Operating Temperature*: -35°C ~ +75°C
Extended Temperature	-40 °C ~ +85 °C	Extended Temperature*: -40°C ~ +85°C	Extended Temperature*: -40°C ~ +85°C
<b>Data Transmission</b>			
HSPA data rate (Mbps)	7.2 (DL)/ 5.76 (UL)	Max. 21 (DL)/ Max. 5.76 (UL)	Max. 21 (DL)/ Max. 5.76 (UL)
UMTS data rate (Kbps)	384 (DL)/ 384 (UL)	Max. 384 (DL/UL)	Max. 384 (DL/UL)
GPRS data rate (Kbps)	85.6 (DL)/ 85.6 (UL)	Max. 85.6 (DL/UL)	Max. 85.6 (DL/UL)
EDGE data rate (Kbps)	296 (DL)/ 236.8 (UL)	Max. 236.8 (DL/UL)	Max. 236.8 (DL/UL)
SMS	•	•	•
CSD	•	•	•
Protocols	TCP/UDP/PPP/MMS/HTTP/HTTPS/SNTP/SMT/FTP/ NTP/NITZ/PING/SSL	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/FILE/MQTT/SNTP/MMS/SMT/FTP	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/FILE/MQTT/SNTP/MMS/SMT/FTP
<b>Interfaces</b>			
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
UART	1	2	2
USB	2.0 Hi-Speed	2.0 Hi-Speed	2.0 Hi-Speed
Audio Digital (PCM)	Optional <sup>1</sup>	Optional <sup>1</sup>	•
RTC Backup	•	•	•
ADC	/	× 2, 12bits	× 2, 12bits
Antenna	Pads for Primary	Pads for Primary	Pads for Primary
SIM Card Holder	/	/	Optional
<b>Enhanced Features</b>			
eCall	o	/	/
DTMF	•	o	o
QuecFOTA <sup>2</sup>	/	•	•
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-11.x	Android 4.x-11.x
NDIS	/	Windows 7/8/8.1/10	Windows 7/8/8.1/10
USB Serial Driver	Windows 7/8/8.1/10 Windows CE5.0/6.0/7.0* Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10 Linux 2.6~5.12 Android 4.x-11.x	Windows 7/8/8.1/10 Linux 2.6~5.12 Android 4.x-11.x
SIM Detection	•	•	•
Firmware Update	via USB/ UART Interface	via USB/ UART Interface	via USB/ UART Interface
<b>Electrical Features</b>			
Supply Voltage Range	3.3~4.3V, 3.8V Typ.	3.3~4.5V, 3.8V Typ.	3.4V~4.5V, 3.8V Typ. (UC200T) 3.0~3.6V, 3.3V Typ. (UC200T Mini PCIe)
Power Consumption	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	17µA @Power Off 1.8mA @GSM Sleep, DRX=5 3.0mA @WCDMA Sleep, PF=128 35mA @Idle
Certifications	CE/ FCC/ GCF/ PTCRB/ ANATEL/ RCM/ IFETEL/ Movistar/ ICASA/ JATE/ TELEC/ DoC <sup>2</sup> / Telefonica / Deutsche Telekom/IC/RCM	CE/ FCC/ GCF/ PTCRB/ ANATEL/ RCM/ IFETEL	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 Module 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
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C
Extended Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
<b>Data Transmission</b>					
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
<b>Specifications for Voice</b>					
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
<b>Interfaces</b>					
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	/	•	/	/	/
<b>Enhanced Features</b>					
eCall	•	•	/	/	•
Jamming Detection	•	•	/	•	•
DTMF	•	•	o	/	•
Audio Playback/ Audio Recording	•	•	•	•	•
Dual-SIM	/	•	/	/	/
QuecFOTA®	•	•	DFOTA	DFOTA	•
QuecCell	•	•	•	•	•
QuecFile	•	•	•	•	•
QuecOpen®	•	•	o	•	/
RIL for Android	•	•	•	•	•
MUX	•	•	•	•	• (Scan Only)
Bluetooth	•	•	/	/	/
<b>Electrical Features</b>					
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
<b>Certifications</b>	CE/ ANATEL/ ICASA	CE	CE	CE	CE/ ANATEL
<b>Recommended Applications</b>	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 Module Family

Product	M95	M95-R	MC60/ MC60E	MC90
				
Form Factor	LCC	LCC	LCC	LCC
Dimensions (mm)	19.9 × 23.6 × 2.65	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	850/ 900/ 1800/ 1900
Weight (approx.) g	3.0	3.0	1.3	1.4
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C
Extended Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
<b>Data Transmission</b>				
GPRS Multi-slot Class	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)
SMS	•	•	•	•
Protocols	TCP/ UDP/ PPP/ MQTT/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL	TCP/ UDP/ PPP/ MQTT/ HTTP/ FTP/ PING/ NTP/ NITZ/ SSL	TCP/ UDP/ PPP/HTTP/ FTP/ SSL/ PING/ NTP/ NITZ/ SMS/MQTT	TCP/ UDP/ PPP/HTTP/ FTP/ SSL/ PING/ NTP/ NITZ/ SMS/MQTT
<b>Specifications for Voice</b>				
Speech Codec Modes	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
<b>Interfaces</b>				
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
Audio Analog	2 inputs/ 2 outputs	2 inputs/ 2 outputs	1 input/ 2 outputs	1 input/ 2 outputs
Audio Digital (PCM)	•	•	•	•
RTC Backup	•	•	•	•
UART	2	2	4	4
ADC	/	/	× 1, 10bit	× 1, 10bit
SD Card Interface	/	/	•	/
GPIO	/	/	•	•
Temperature Detection	•	/	•	•
<b>Enhanced Features</b>				
eCall	•	/	•	•
Jamming Detection	•	/	•	•
DTMF	•	•	•	•
Audio Playback/ Audio Recording	•	•	•	•
Dual-SIM	•	/	•	•
QuecFOTA <sup>®</sup>	•	•	•	•
QuecCell	•	•	•	•
QuecFile	/	/	•/◦	•
QuecOpen <sup>®</sup>	/	/	•	•
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
<b>Electrical Features</b>				
Power Supply	3.3 ~ 4.6V	3.45 ~ 4.25V	3.3 ~ 4.6V	3.3 ~ 4.3V
Low Power Consumption	1.3mA @DRX=5 1.2mA @DRX=9	1.4mA @DRX=5 1.3mA @DRX=9	1.2mA @DRX=5 0.8mA @DRX=9	1.2mA @DRX=5 0.8mA @DRX=9
<b>Certifications</b>	CE/ GCF/ Vodafone/ PTCRB/ FCC/ IC/ ANATEL/ Rogers/ RCM/ NCC/ TELCEL/ UCRF/ ICASA	CE*	CE/ FCC/ ANATEL/ ICASA/ GCF	CE
<b>Recommended Applications</b>	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Mobile Computing, Healthcare, etc.			

◦ & \* Under development







# Quectel GNSS Module Family

	Standalone Positioning/ Timing Modules						
Product	L26	L26-LB	L26-ADR	L26-UDR	L26-T	LC98S	
	Compatible						
							
GNSS	GPS/ GLONASS/ Galileo/ BeiDou/QZSS	GPS/ GLONASS/BeiDou/ QZSS	GPS/ Galileo/ 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	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	16.0 × 12.2 × 2.3	22.4 × 17.0 × 3.1	
Weight (approx.) g	1.0	1.0	0.9	0.9	0.9	1.68	
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	
<b>General Features</b>							
Working Mode			4wheels-ADR	4wheels-UDR	Timing Static Mode	Timing Static ModeW	
Chip Solution	MT3333	AG3331	Teseo III	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	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	WAAS/ EGNOS/ MSAS/ GAGAN	
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported	
Sensitivity	Autonomous Acquisition	-148dBm	-149dBm	-145dBm	-145dBm	-147dBm	-146dBm <sup>2</sup>
	Reacquisition	-160dBm	-161dBm	-152dBm	-152dBm	-154dBm	-155dBm <sup>2</sup>
	Tracking	-167dBm	-167dBm	-162dBm	-162dBm	-162dBm	-161dBm <sup>2</sup>
TTFF (Time To First Fix)	Cold Start	<35s, Autonomous <15s, With EASY™	<32s, Autonomous <15s, With EASY™	<32s, Autonomous	<32s, Autonomous	<32s, Autonomous	<26s, Autonomous
	Warm Start	<30s, Autonomous <5s, With EASY™	<28s, Autonomous <8s, With EASY™	<25s, Autonomous	<25s, Autonomous	<25s, Autonomous	<19s, Autonomous
	Hot Start	<1s	<1s	<2s	<2s	<2s	<3s
Position Accuracy(autonomous)	<2.5m CEP	<2.5m CEP	<1.5m CEP	<1.5m CEP	<1.5m CEP	<1.5m CEP	
Velocity Accuracy(without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	
Maximum Acceleration Accuracy (without aid)	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	<100ns	≤6.8ns	≤6.8ns	
Max Update Rate	10Hz	10Hz	1Hz	10Hz	10Hz	10Hz	
Baud Rate (default)	9600bps	Baud Rate (default) <sup>1</sup> : 9600bps/115200bps	115200bps	115200bps	9600bps	115200bps	
Geo-fence	•	•	/	/	•	/	
Jamming Detection	•	•	/	•	•	•	
Anti-jamming	•	•	/	/	/	•	
Built-in LNA	•	•	•	•	•	•	
<b>Electrical Data</b>							
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	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	3.0V to 3.6V	
Power Consumption (Acquisition)	29mA (GPS+GLONASS) 26mA (GPS)	31mA (GPS+GLONASS)	72mA (GPS) 79mA (GPS+GLONASS+Galileo)	84mA (GPS+GLONASS+Galileo)	64mA (GPS) 71mA (GPS+GLONASS+Galileo)	76mA (GPS + GLONASS)	
Power Consumption (Tracking)	21mA (GPS+GLONASS) 18mA (GPS)	27mA (GPS+GLONASS)	58mA (GPS) 74mA (GPS+GLONASS+Galileo)	81mA (GPS+GLONASS+Galileo)	51mA (GPS) 67mA (GPS+GLONASS+Galileo)	78mA (GPS + GLONASS)	
Power Consumption (Backup/Low Power mode)	7μA	8μA	17μA	13μA	9μA	TBD	
<b>Interfaces</b>							
UART	•	•	•	•	•	•	
IIC (NMEA)	/	•	/	/	/	*	
Reset	•	•	•	•	•	•	
Time Pulse	•	•	•	•	•	•	
<b>Antenna</b>							
Short-Circuit Protection & Open-Circuit Detection	•	•	•	•	•	•	
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	
<b>Certifications</b>							
CE	CE	CE	CE	CE	CE	CE	
<b>Recommended Applications</b>							
Vehicle Tracker, Asset Tracker, Industrial PDA			Automotive tracking , OBD	Automotive tracking , OBD	High-precision timing	High-precision timing for base stations	

Note 1: The default baud rate is different for different firmware versions.  
 Note 2: Demonstrated with a good external LNA.

\* Under development







# Quectel GNSS Module Family

		Standalone Modules					
Product	LG77L(A)	LG77L(B) <sup>2</sup>	LG77L(C) <sup>2</sup>	L70-R <sup>2</sup> /L70-RL <sup>2</sup>	L76 <sup>2</sup> /L76B <sup>2</sup> /L76-L <sup>2</sup>	L76-LB <sup>2</sup>	
		Compatible			Compatible		
							
GNSS	GPS/ BeiDou/QZSS/GLONASS	GPS/ BeiDou/QZSS/GLONASS	GPS/GLONASS/Galileo/BeiDou/QZSS	GPS/ QZSS	GPS/GLONASS/Galileo/BeiDou/QZSS	GPS/BeiDou/QZSS/GLONASS	
Form Factor	LCC	LCC	LCC	LCC	LCC	LCC	
Dimensions (mm)	7.0 × 7.0 × 2.0	7.0 × 7.0 × 2.0	7.0 × 7.0 × 2.0	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.5	
Weight (approx.) g	0.2	0.2	0.2	0.6	0.6	0.5	
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	
<b>General Features</b>							
Chip Solution	AG3331	AG3331	MT3333	MT3337	MT3333	AG3331	
L1 Band Receiver (C/A Code) Channel Number	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	22 Track/ 66 Acq.	33 Track/ 99 Acq.	33 Track/ 99 Acq.	
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported	
Sensitivity	Autonomous Acquisition	-147dBm	-147dBm	-146dBm	-148dBm (L70-R) -149dBm (L70-RL)	-148dBm (L76/ L76B) -149dBm (L76-L)	-149dBm
	Reacquisition	-156dBm	-156dBm	-156dBm	-160dBm (L70-R) -161dBm (L70-RL)	-160dBm (L76/ L76B) -161dBm (L76-L)	-161dBm
	Tracking	-158dBm	-158dBm	-163dBm	-165dBm (L70-R) -167dBm (L70-RL)	-165dBm (L76/ L76B) -167dBm (L76-L)	-167dBm
TTFF (Time To First Fix)	Cold Start	<26s, Autonomous <14s, With EASY™	<26s, Autonomous <14s, With EASY™	<25s, Autonomous <17s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<32s, Autonomous <15s, With EASY™
	Warm Start	<24s, Autonomous <4s, With EASY™	<24s, Autonomous <4s, With EASY™	<23s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<28s, Autonomous <8s, With EASY™
	Hot Start	<2s	<2s	<2s	<1s	<1s	<1s
Position Accuracy (autonomous)	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP	
Velocity Accuracy (without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	
Maximum Acceleration Accuracy (without aid)	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	<100ns	<100ns	<100ns	
Max Update Rate	10Hz	10Hz	10Hz	5Hz (L70-R/ L70-RL)	10Hz	10Hz	
Baud Rate(default)	9600bps	9600bps	9600bps	9600bps	9600bps	Baud Rate (default) <sup>1</sup> : 9600bps/115200bps	
Geo-fence	•	•	•	/	•	•	
Jamming Detection	•	•	•	•	•	•	
Anti-jamming	•	•	•	•	•	•	
Built-in LNA	/	/	/	Supported by L70-RL	Supported by L76-L	/	
<b>Electrical Data</b>							
Power Supply	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	
I/O Voltage	1.7V to 1.9V/ 2.7V to 2.9V	1.7V to 1.9V/ 2.7V to 2.9V	1.7V to 1.9V/ 2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V L76LB(L): 1.7V to 1.9V	
Power Consumption (Acquisition)	25mA (GPS+GLONASS)	25mA (GPS+GLONASS)	24mA (GPS+GLONASS)	16mA (L70-R) 21mA (L70-RL)	25mA (GPS+GLONASS)/ 21mA (GPS) (L76) 23mA (GPS+BeiDou) (L76B) 29mA (GPS+GLONASS) (L76-L) 18mA (GPS+GLONASS)/ 15mA (GPS) (L76) 18mA (GPS+BeiDou) (L76B) 22mA (GPS+GLONASS) (L76-L)	31mA (GPS+GLONASS)	
Power Consumption (Tracking)	24mA(GPS+GLONASS)	24mA(GPS+GLONASS)	23.0mA (GPS+GLONASS)	13mA (L70-R) 18mA (L70-RL)	18mA (GPS+GLONASS)/ 15mA (GPS) (L76) 18mA (GPS+BeiDou) (L76B) 22mA (GPS+GLONASS) (L76-L)	27mA (GPS+GLONASS)	
Power Consumption (Backup/Low power mode)	6μA	6μA	6μA	8μA (L70-R/ L70-RL)	7μA	8μA	
<b>Interfaces</b>							
UART	•	•	•	•	•	•	
IIC (NMEA)	•	•	•		Supported by L76-L	•	
CAN	/	/	/	/	/	/	
Reset	•	•	•	•	•	•	
Time Pulse	•	•	•	•	•	•	
<b>Antenna</b>							
Short-Circuit Protection & Open-Circuit Detection	•	•	•	/	/	/	
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	
Antenna Power	External	External	External	External or internal	External or internal	External or internal	
<b>Certifications</b>							
CE	CE	CE	CE	CE	CE	CE	
<b>Recommended Applications</b> Vehicle Tracker, Asset Tracker, Safety, Industrial PDA or PND, Digital Camera, etc.							

Note 1: The default baud rate is different for different firmware versions.  
 Note 2: Integrated RTC.

\* Under development










# Quectel GNSS Module Family

		Dual Band Precision Modules					
Product	LC79D(A)	LC79D(C) *	LC79H(AL) *	LC29D(B) *	LC29D(C) <sup>1</sup>	LC29H*(AA)	
		Compatible			Compatible		
							
GNSS	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1	GPS L1 Galileo E1 QZSS L1 GPS L5 Galileo E5 QZSS L5 BeiDou B1 BeiDou B2a GLONASS L1	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1 B2a	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1	GPS L1 Galileo E1 QZSS L1 GPS L5 Galileo E5 QZSS L5 BeiDou B1 BeiDou B2a GLONASS L1	
Form Factor	LCC+LGA	LCC+LGA	LCC	LCC	LCC	LCC	
Dimensions (mm)	9.7 × 10.1 × 2.4	9.7 × 10.1 × 2.4	10.1 × 9.7 × 2.4	16.0 × 12.2 × 2.4	16.0 × 12.2 × 2.4	16.0 × 12.2 × 2.4	
Weight (approx.) g	0.42	0.42	0.28	0.9	0.9	0.9	
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	
<b>General Features</b>							
working mode	standard mode	2wheels-ADR/ 4wheels-ADR/ 4wheels-UDR mode	standard mode	DR+RTK mode	2wheels-ADR mode	standard mode	
Chip Solution	BCM47755B1	BCM47755B1	AG3335M	BCM47765	BCM47755	AG3335M	
L1 Band Receiver (C/A Code) Channel Number	32 channels	32 channels	135 channels	48 channels	32 channels	135 channels	
L1 Band Receiver (C/A Code) SBAS	Support (Only support GAGAN)*	Support (Only support GAGAN)*	WAAS, EGNOS, MSAS* and GAGAN	*	*	WAAS, EGNOS, MSAS* and GAGAN	
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported	
Sensitivity	Autonomous Acquisition	-147dBm	-147 dBm	-148dBm	-148dBm	-147 dBm	
	Reacquisition	-158dBm	-158dBm	-157 dBm	-157dBm	-162 dBm	
	Tracking	-163dBm	-163dBm	-165 dBm	-162dBm	-163dBm	-165 dBm
TTFF (Time To First Fix)	Cold Start	<34s, Autonomous	<34s, Autonomous	<28s, Autonomous <15s, With EASY™	<34s, Autonomous	<34s, Autonomous	<28s, Autonomous <15s, With EASY™
	Warm Start	<30s, Autonomous	<30s, Autonomous	<20s, Autonomous <3s, With EASY™	<30s, Autonomous	<30s, Autonomous	<20s, Autonomous <3s, With EASY™
	Hot Start	<2s	<2s	<1 s	<2s	<2s	<1s
Position Accuracy (autonomous)	<1.2m CEP	<1.2m CEP	1.0m CEP	Autonomous: < 1.0 m CEP	<1.2m CEP	1.0m CEP	
Position Accuracy (RTK)	/	/	0.1m/s	<0.5m	/	0.1m/s	
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)	/	/	/	TBD	/	/	
Convergence Time (RTK)	/	/	/	TBD	/	/	
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)	<34.9ns	<34.9ns	<100ns	TBD	TBD	<100ns	
Max Update Rate	1Hz	5Hz	10Hz	10Hz	10Hz	10Hz	
Baud Rate(default)	115200bps	115200bps	115200bps	115200bps	115200bps	115200bps	
Geo-fence	•	•	•	*	*	•	
Jamming Detection	/	/	•	/	/	•	
Anti-jamming	/	/	/	/	/	/	
Built-in LNA	•	•	•	•	•	•	
<b>Electrical Data</b>							
Power Supply	1.7V to 1.9V	1.7V to 1.9V	1.7-1.9V	2.7V to 3.6V	2.7V to 3.6V	3.1-3.6V	
I/O Voltage	1.7V to 1.9V	1.7V to 1.9V	1.8V	2.7V to 3.6V	2.7V to 3.6V	2.8V	
Power Consumption (Acquisition)	47mA (GPS+BeiDou+GLONASS+Galileo+QZSS+IRNSS)	47mA (GPS+BeiDou+GLONASS+Galileo+QZSS+IRNSS)	TBD	50mA*	53mA	30mA	
Power Consumption (Tracking)	43mA (GPS+BeiDou+GLONASS+Galileo+QZSS+IRNSS)	43mA (GPS+BeiDou+GLONASS+Galileo+QZSS+IRNSS)	TBD	37mA*	39mA	43mA	
Power Consumption (Backup/Low power mode)			51μA			51μA	
<b>Interfaces</b>							
UART	•	•	•	•	•	•	
IIC (NMEA)	/	• (work in master mode)	•	/	/	•	
CAN	/	/	/	/	/	/	
Reset	•	•	•	•	*	•	
Time Pulse	•	•	•	•	•	•	
<b>Antenna</b>							
Short-Circuit Protection & Open-Circuit Detection	/	/	/	/	/	/	
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	
Certifications	CE	CE	CE*	CE*	CE	CE*	
Recommended Applications	Shared mobility , delivery robots , GIS						

Note 1: This module also supports SPI.







\* Under development

# Quectel GNSS Module Family

Dual Band Precision Modules									
Product	LG69T(AA)*	LG69T(AD)*	LG69T(AB)*	LG69T(AI)*	LG69T(AJ)*	LG69T(AK)*	LG69T(AQ)*	LG69T(AM)*	LG69T(AS)*
									
GNSS	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BeiDou: B1; B2a	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BeiDou: B1; B2a	GPS/QZSS: L1 C/A; L2C Galileo: E1; E5b BeiDou: B1; B2I GLONASS: L1	GPS/QZSS: L1 C/A; L2 or L5 Galileo: E1; E5b or E5a BeiDou: B1; B2I or B2a Glonass: L1	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BeiDou: B1; B2a	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BeiDou: B1; B2a L-band	GPS: L1 C/A; L5 Galileo: E1; E5a BeiDou: B1; B2a	GPS: L1 C/A; L5 Galileo: E1; E5a BeiDou: B1; B2a	GPS/QZSS: L1 C/A; L5 Galileo: E1; E5a BeiDou: B1; B2a
Form Factor	LGA	LGA	LGA	LGA	LGA	LGA	LGA	LGA	LGA
Dimensions (mm)	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.3	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15
Weight (approx.) g	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C to +105 °C	-40 °C to +105 °C	-40 °C to +105 °C	-40 °C to +105 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C to +105 °C	-40 °C to +105 °C	-40 °C to +105 °C	-40 °C to +105 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C
<b>General Features</b>									
Working Mode	DR*/Raw	PVT/Raw	Raw	Raw	Raw	Raw	DR*+RTK*	RTK*	Base station
Chip Solution	TESEO V	TESEO V	TESEO APP	TESEO V	TESEO V	TESEO V	TESEO V	TESEO V	TESEO V
L1 Band Receiver (C/A Code) Channel Number	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels
L1 Band Receiver (C/A Code) SBAS	*	*	/	/	/	/	/	/	/
A-GNSS	*	*	/	/	/	/	/	/	/
Sensitivity	Autonomous Acquisition	-145dBm	-145dBm	TBD	-145dBm	-145dBm	TBD	-145dBm	-145dBm
	Reacquisition	-153dBm	-153dBm	TBD	-152dBm	-152dBm	TBD	-153dBm	-153dBm
	Tracking	-160dBm	-160dBm	TBD	-159dBm	-159dBm	TBD	-160dBm	-160dBm
TTFF (Time To First Fix)	Cold Start	<36s	<36s	<36s	<35s	<35s	<36s	<36s	<36s
	Warm Start	<30s	<30s	<30s	<30s	<30s	<30s	<30s	<30s
	Hot Start	<3s	<3s	<3s	<3s	<3s	<3s	<3s	<3s
Position Accuracy (autonomous)	<1.0m CEP	<1.0m CEP	<1.0m CEP	<1.0m CEP	<1.0m CEP	<1.0m CEP	<1.0m CEP	<1.0m CEP	<1.0m CEP
Position Accuracy (RTK)	/	/	/	/	/	/	<0.2m CEP	<0.2m CEP	/
Velocity Accuracy (without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s
Velocity Accuracy (RTK)	/	/	/	/	/	/	/	/	/
Convergence Time (RTK)	/	/	/	/	/	/	<10s	<10s	/
Maximum Acceleration Accuracy (without aid)	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	<100ns	<100ns	<100ns	<100ns	<100ns	<100ns
Max Update Rate	RAW: 10Hz; IMU: 100Hz; PVT: 1Hz	RAW: 10Hz; PVT: 1Hz	RAW: 10Hz	RAW: 10Hz	RAW: 10Hz; IMU: 100Hz	RAW: 10Hz	PVT: 10Hz; IMU: 100Hz	PVT: 10Hz	RAW: 1Hz
Baud Rate(default)	460800bps	115200bps	460800bps	460800bps	460800bps	460800bps	460800bps	460800bps	460800bps
Geo-fence	/	/	/	/	/	/	/	/	/
Jamming Detection	/	/	/	/	/	/	/	/	/
Anti-jamming	/	/	/	/	/	/	/	/	/
Built-in LNA	•	•	•	•	•	/	•	•	•
<b>Electrical Data</b>									
Power Supply	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V
I/O Voltage	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V
Power Consumption (Acquisition)	TBD	221 mA (Typ.)	TBD	295 mA (Typ.)	245 mA (Typ.)	TBD	TBD	TBD	TBD
Power Consumption (Tracking)	TBD	218 mA (Typ.)	TBD	295 mA (Typ.)	245 mA (Typ.)	TBD	TBD	TBD	TBD
Power Consumption (Backup/Low power mode)	TBD	48µA(Typ.)	TBD	55µA(Typ.)	55µA(Typ.)	TBD	TBD	TBD	TBD
<b>Interfaces</b>									
UART	•	•	•	•	•	•	•	•	•
IIC (NMEA)	/	/	/	/	/	/	/	/	/
CAN	/	/	/	/	/	/	/	/	/
Reset	•	•	•	•	•	•	•	•	•
Time Pulse	•	•	•	•	•	•	•	•	•
<b>Antenna</b>									
Short-Circuit Protection & Open-Circuit Detection	/	/	/	/	/	/	/	/	/
Antenna Type	Active	Active	Active	Active	Active	Active	Active	Active	Active
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal
<b>Certifications</b>	CE*	CE*	CE*	CE*	CE*	CE*	CE*	CE*	CE*
<b>Recommended Applications</b>	Automotive , High precision navigation , Delivery robots								

\* Under development

# Quectel GNSS Module Family





Product	Antenna Modules					
	L80/ L80-R	LC86L (A)	LC86L (C)	L86	L89 R2.0	L96
	Compatible					
						
GNSS	GPS/QZSS	GLONASS/GPS/ BeiDou/QZSS	GPS/GLONASS/Galileo/BeiDou/QZSS	GPS/ GLONASS/BeiDou/Galileo/QZSS	GPS/ GLONASS/ BeiDou/ Galileo/IRNSS/QZSS	GPS/ GLONASS/BeiDou/Galileo/QZSS
Form Factor	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm) <sup>1</sup>	16.0 × 16.0 × 6.45	16.0 × 16.0 × 6.95	16.0 × 16.0 × 6.95	18.4 × 18.4 × 6.45	18.4 × 26.4 × 6.8	9.6 × 14.0 × 2.0
Weight (approx.) g	6.0	6.0	6	7.6	8.2	0.6
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C
<b>General Features</b>						
Chip Solution	MT3339 (L80) MT3337 (L80-R)	AG3331	MT3333	MT3333	AG3335	MT3333
L1 Band Receiver (C/A Code) Channel Number	22 Track/ 66 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq.
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported
Sensitivity	Autonomous Acquisition	-148dBm	-148dBm	-148dBm	-147dBm	-148dBm
	Reacquisition	-160dBm	-161dBm	-162dBm	-161dBm	-160dBm
	Tracking	-165dBm	-166dBm	-166dBm	-167dBm	-165dBm
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™	<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™	<30s, Autonomous <5s, With EASY™
	Hot Start	<1s	<2s	<2s	<1s	<1s
Position Accuracy(autonomous)	<2.5m CEP	<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	<0.1m/s
Maximum Acceleration Accuracy (without aid)	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>	<0.1m/s <sup>2</sup>
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	<100ns	<100ns	<100ns
Max Update Rate	10Hz (L80) 5Hz (L80-R)	10Hz	10Hz	10Hz	1Hz	10Hz
Baud Rate(default)	9600bps	9600bps	9600bps	9600bps	9600bps	9600bps
Geo-fence	•(Supported by L80)	•	•	•	•	•
Jamming Detection	•	•	•	•	•	•
Anti-jamming	•	•	•	•	•	•
Built-in LNA	•	•	•	•	•	•
<b>Electrical Data</b>						
Power Supply	3.0V to 4.3V	2.8V 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	2.7V to 2.9V	3.0 V	2.7V to 2.9V
Power Consumption (Acquisition)	25mA	32mA (GPS+GLONASS)	32mA (GPS+GLONASS)	30mA (GPS+GLONASS)	32mA	25mA (GPS+GLONASS) 22mA (GPS)
Power Consumption (Tracking)	20mA	31mA (GPS+GLONASS)	30mA (GPS+GLONASS)	26mA (GPS+GLONASS)	32mA	20mA (GPS+GLONASS)/ 20mA (GPS)
Power Consumption (Backup)	7μA	6μA	7μA	7μA	32μA	7μA
<b>Interfaces</b>						
UART	•	•	•	•	•	•
IIC (NMEA)	/	/	/	/	/	•
Reset	•	•	•	•	•	•
Time Pulse	•	•	•	•	•	•
<b>Antenna</b>						
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 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	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




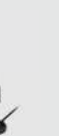
Note 1: Please refer to the design document for footprint size.

\* Under development



# 5G Antennas

Product	YE0001BA	YE0003AA	YE0007AA	YE0025AA
				
Frequency Bands (MHz)	600-6000	699-5000	600-6000	698-960,1710-5000
Technology	5G	5G	5G	5G
Cable Length (mm)	n/a	n/a	n/a	n/a
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Terminal	Terminal	Terminal	Terminal
Dimensions (mm)	221 × 26.95 × 13.5	190 × Ø 16	152.4 × 21.79 × 14.49	199 × 22
Matched Quectel Modules	5G/4G/3G/2G/LPWA			




Product	YE0027AA	YE0028AA	YE0037AA	YXH001AA
				
Frequency Bands (MHz)	699-5000	700-2700, 3300-5000	700-5000	700-960, 1710-2690, 3300-5000
Technology	5G	5G	5G	5G
Cable Length (mm)	3000 (RG58)	1500	1000	1000 (RG195)
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Magnetic	Magnetic	Magnetic	Magnetic
Dimensions (mm)	221 × Ø 61	234 × Ø 60, 1.5 DS	88 × Ø 30, LMR100	285 × 45
Matched Quectel Modules	5G/4G/3G/2G/LPWA			

Product	YF0002AA	YF0002BA	YF0002CA	YF0002DA
				
Frequency Bands (MHz)	700-960, 1710-2700, 3300-5000	1710-2700, 3300-5000	1710-2700, 3300-5000	700-960, 1710-2700, 3300-5000
Technology	5G	5G	5G	5G
Cable Length (mm)	n/a	n/a	n/a	n/a
Connector Type	Spring contact	Spring contact	Spring contact	Spring contact
Mounting Type	Screw	Screw	Screw	Screw
Dimensions (mm)	60.1 × 12.25 × 10.1	41.25 × 10.1 × 10.1	37.25 × 9.6 × 10.1	50.25 × 20.1 × 10.1
Matched Quectel Modules	5G/4G/3G/2G/LPWA			





Product	YF0017AA	YF0017BA	YF0020AA	YC0018BA
				
Frequency Bands (MHz)	1500-6000	1100-6000	600-6000	617-5925
Technology	5G	5G	5G	5G
Cable Length (mm)	193 ±3	193 ±3	184 ±3	n/a
Connector Type	IPEX IV	IPEX IV	IPEX IV	n/a
Mounting Type	Adhesive	Adhesive	Adhesive	SMT
Dimensions (mm)	49 × 13 × 0.13	49 × 13 × 0.13	90.15 × 15.2 × 0.13	42 × 7 × 3
Matched Quectel Modules	5G/4G/3G/2G/LPWA			

The parameters shall be subject to the Specification.

# 5G Antennas

Product	YP0009AA	YP0009BA	YP0009CA
			
Frequency Bands (MHz)	1500-6000	1100-6000	600-6000
Technology	5G	5G	5G
Cable Length (mm)	193 ±3	193 ±3	188 ±3
Connector Type	IPEX IV	IPEX IV	IPEX IV
Mounting Type	Adhesive	Adhesive	Adhesive
Dimensions (mm)	49 × 13 × 0.85	49 × 13 × 0.85	78.5 × 14.2 × 0.85
Matched Quectel Modules	5G/4G/3G/2G/LPWA		

# Cellular(4G&3G&2G) Antennas

Product	YC0003AA	YC0001AA	YC0017BA	YC0002AA
				
Frequency Bands (MHz)	698-960, 1695-2200, 2300-2700	698-960, 1710-2690	698-960, 1710-3800	698-960, 1710-2690
Technology	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)
Cable Length (mm)	n/a	n/a	n/a	n/a
Connector Type	n/a	n/a	n/a	n/a
Mounting Type	SMD	SMD	SMD	SMD
Dimensions (mm)	40 × 7 × 3	35.0 × 8.5 × 3.0	26 × 8 × 3	42 × 10 × 3
Matched Quectel Modules	4G/3G/2G/LPWA			

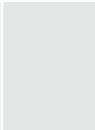
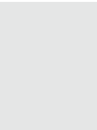
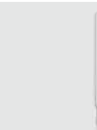
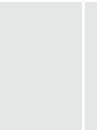
Product	YF0022AA	YF0007BA	YFCA002AA	YF0006AA	YF0006DA	YF0028AA
						
Frequency Bands (MHz)	700-2690	600-960, 1427.9-1495.9, 1710-2170, 2300-2700	700-2690	690-960, 1710-2170, 2300-2690	690-960, 1710-2170, 2300-2690	698-3000
Technology	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)
Cable Length (mm)	75 ±3	75 ±3	75 ±3	30 ±3	75 ±3	150 ±2
Connector Type	RF1	RF1	RF1	U.FL Generation I	IPEX I	IPEX I
Mounting Type	Adhesive	Adhesive	Adhesive	Adhesive	Adhesive	Adhesive
Dimensions (mm)	40 × 15 × 1.6	50 × 25 × 0.85	30 × 20 × 0.13	50 × 25 × 0.13	50 × 25 × 0.13	96 × 21 × 0.2
Matched Quectel Modules	4G/3G/2G/LPWA					

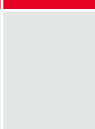

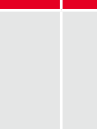
Product	YECT002AA	YECT003AA	YE0009AA	YCN001AA
				
Frequency Bands (MHz)	700-960, 1710-2690	698-960, 1710-2700	824-2700	700-2700
Technology	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)
Cable Length (mm)	n/a	n/a	n/a	n/a
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Terminal	Terminal	Terminal	Terminal
Dimensions (mm)	196.2 × 16 × 13	113 × Φ 10	190 × 16	144 × Φ 13
Matched Quectel Modules	4G/3G/2G/LPWA			

The parameters shall be subject to the Specification.

# Cellular(4G&3G&2G) Antennas

Product	YE0006AA	YE0010AA	YB0010AA	YB0016AA	YE0012AA	YE0021AA	YE0029AA
							
Frequency Bands (MHz)	700-2700	698-2700	698-960, 1710-2690	698-960, 1710-2700	824-960, 1710-2690	690-960, 1710-2690	700-2700
Technology	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)
Cable Length (mm)	1500	1000 ±30	2000 ±30	3000 ±50 (LMR200)	250 ±10	1500 ±30	3000 ±50 (LMR100)
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Magnetic	Adhesive	Magnetic	Screw	Adhesive	Magnetic	Magnetic
Dimensions (mm)	318 × Φ 30, RG174	152 × 18 × 5.9	Φ 84 × 81.5 × 16	54 × 91	116.5 × 21.7 × 5.6	112 × 29.8	88 × Φ 30
Matched Quectel Modules	4G/3G/2G/LPWA						

Product	YDX001AA	YE0002AA	YE0013AA	YGL001AA
				
Frequency Bands (MHz)	824-2690	699-2700	700-2700	700-960, 1710-2690
Technology	LTE (4G)	LTE (4G)	LTE (4G)	LTE (4G)
Cable Length (mm)	n/a	n/a	n/a	n/a
Connector Type	SMA Male (center pin)	RP-SMA Male (center receptacle)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Terminal	Terminal	Terminal	Terminal
Dimensions (mm)	208 × Φ 12	174.6 × 19.2	115.4 × 17.5 × Φ 10.2	196.2 × 16 × 13
Matched Quectel Modules	4G/3G/2G/LPWA			

Product	YE0008AA	YE0011AA	YKL001CA
			
Frequency Bands (MHz)	824-960, 1710-2170	824-960, 1710-2170	NB: 800-1000, 1700-1900
Technology	2G/3G/NB-IoT	2G/3G/NB-IoT	3G/NB-IoT/2G
Cable Length (mm)	n/a	n/a	310 ±10
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Terminal	Terminal	Screw
Dimensions (mm)	52 × Φ 10	50 × Φ 10	50 × 48
Matched Quectel Modules	LPWA/3G/2G module series		

# GPS&GNSS Antennas

Product	YC0013AA	YCGA001AA	YCGA002AA	YG0038AA
				
Frequency Bands (MHz)	1559-1606	1559-1606	1559-1606	1559-1606
Technology	GNSS	GNSS L1	GNSS L1	GNSS L1
Cable Length (mm)	n/a	n/a	n/a	n/a
Connector Type	n/a	n/a	n/a	n/a
Mounting Type	SMD	Pin Mounting	Pin Mounting	Pin Mounting
Dimensions (mm)	3.2 × 1.6 × 0.6	10 × 10 × 4	12 × 12 × 4	13 × 13 × 4
Matched Quectel Modules	GNSS L1 module series			


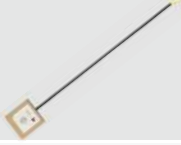


The parameters shall be subject to the Specification.

# GPS&GNSS Antennas

Product	YG0043AA	YG0046AA	YG0005AA	YG0062AA
				
Frequency Bands (MHz)	1559-1606	1559-1606	1559-1606	1559-1606
Technology	GNSS L1	GNSS L1	GNSS L1	GNSS L1
Cable Length (mm)	n/a	n/a	n/a	n/a
Connector Type	n/a	n/a	n/a	n/a
Mounting Type	Pin Mounting	Pin Mounting	Pin Mounting	Pin Mounting
Dimensions (mm)	15 × 15 × 4	18 × 18 × 2	18 × 18 × 4	25 × 25 × 4
Matched Quectel Modules	GNSS L1 module series			

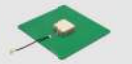
Product	YCGO004AA	YCGO005AA	YCGO006AA	YCGO007AA
				
Frequency Bands (MHz)	1559-1606	1559-1606	1559-1606	1559-1606
Technology	GNSS L1 (passive)	GNSS L1 (passive)	GNSS L1 (passive)	GNSS L1 (passive)
Cable Length (mm)	50±2	50±2	50±2	50±2
Connector Type	IPEX1	IPEX1	IPEX1	IPEX1
Mounting Type	Cable Mounting	Cable Mounting	Cable Mounting	Cable Mounting
Dimensions (mm)	10 × 10 × 6.5	15 × 15 × 6.5	18 × 18 × 6.5	25 × 25 × 6.5
Matched Quectel Modules	GNSS L1 module series			

Product	YG0034AA	YG0021AA	YG0032AA	YG0015AA
				
Frequency Bands (MHz)	1559-1606	1560-1605	Beidou: 1561 ±5 ; GPS: 1575 ±5	1559-1606
Technology	GNSS L1 (active)	GNSS L1 & B1 & G1 (active)	GNSS L1 & B1 & G1 (active)	GNSS L1 (active)
Cable Length (mm)	35±2	42 ±3	55	55 ±3
Connector Type	IPEX1	IPEX1	IPEX1	IPEX1
Mounting Type	Cable Mounting	Cable Mounting	Cable Mounting	Cable Mounting
Dimensions (mm)	13 × 13 × 6.8	18.4 × 18.4 × 8.86	18 × 18 × 6.6	25 × 25 × 8.25
Matched Quectel Modules	GNSS L1 module series			

Product	YCGO008AA	YCGO009AA	YCGO010AA	YCGO011AA
				
Frequency Bands (MHz)	1559-1606	1559-1606	1559-1606	1559-1606
Technology	GNSS L1 (active)	GNSS L1 (active)	GNSS L1 (active)	GNSS L1 (active)
Cable Length (mm)	50±3	50±2	50±3	50±3
Connector Type	IPEX1	IPEX1	IPEX1	IPEX1
Mounting Type	Cable Mounting	Cable Mounting	Cable Mounting	Cable Mounting
Dimensions (mm)	10 × 10 × 6.5	15 × 15 × 6.5	18 × 18 × 6.5	25 × 25 × 6.5
Matched Quectel Modules	GNSS L1 module series			

The parameters shall be subject to the Specification.

## GPS/GNSS Antennas

Product	YCGS004AA	YCGS005AA	YCGS006AA	YAT001AA	YAT001BA	YBS00A1AA
						
Frequency Bands (MHz)	1560-1606	1560-1606	1560-1606	1176, 1575	1176, 1575	1176, 1575
Technology	GNSS L1&G1	GNSS L1&G1	GNSS L1&G1	GNSS L1&L5	GNSS L1&L5	GNSS L1&L5
Cable Length (mm)	n/a	n/a	n/a	n/a	n/a	n/a
Connector Type	n/a	n/a	n/a	n/a	n/a	n/a
Mounting Type	SMD	SMD	SMD	Cable Mounting	Cable Mounting	Cable Mounting
Dimensions (mm)	9 × 9 × 4	18 × 18 × 4	25 × 25 × 4	25 × 25 × 4 & 18 × 18 × 4	25 × 25 × 2 & 18 × 18 × 2	40 × 40 × 4 & 45 × 45 × 6
Matched Quectel Modules	GNSS L1 modules series			GNSS L1/L5 modules series		

Product	YAT001CA	YG0030AA	YC0008AA	YFGA001AA	YFGA002AA	YFGA004AA
						
Frequency Bands (MHz)	1176, 1575	1176, 1575	1173, 1575	1160-1270, 1560-1605	1559-1609	1160-1270, 1560-1605
Technology	GNSS L1 & L5 (active)	GNSS L1 & L5 (passive)	GNSS L1 & L5 (passive)	GNSS L1 & 2 & L5 & L6	GNSS L1	GNSS L1&2&L5&L6
Cable Length (mm)	40 ±2	100 ±2	n/a	100	100	100
Connector Type	IPEX I	IPEX I	n/a	IPEX I	IPEX I	IPEX I
Mounting Type	Cable Mounting	Cable Mounting	SMD	Adhesive	Adhesive	Adhesive
Dimensions (mm)	25 × 25 × 2 & 18 × 18 × 4	52 × 52 × 9.9	30 × 5 × 5	74.56 × 24.5 × 0.25	61.15 × 11.24	43 × 24 × 0.12
Matched Quectel Modules	GNSS L1/L5 module series			GNSS L1 modules series		GNSS L1/L5 modules


Product	YG0035AA	YLY001CA	YB0017AA	YG0028AA
				
Frequency Bands (MHz)	1561, 1575	1568 ±10	GPS L1/L5, BD B1/B2, GLONASS L1	1561-1602, 1166-1186
Technology	GNSS L1 & B1 & G1 (active)	GNSS L1 & B1 & G1 (active)	GNSS L1 & L5 (active)	GNSS L1 & L5 (active)
Cable Length (mm)	3000 ±20	2000	L = 3000	3000 (RG174)
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Magnetic	Magnetic	Magnetic	Magnetic
Dimensions (mm)	50.3 × 38.4 × 17.1	45.5 × 38 × 13.5	61.5 × 56.5 × 23	∅ 54 × 38
Matched Quectel Modules	GNSS L1 module series		GNSS L1/L5 module series	

## Wi-Fi&Bluetooth Antennas

Product	YC0009AA	YC0010AA	YEW001AA
			
Frequency Bands (MHz)	2400-2500	2400-2500	2400-2500
Technology	Wi-Fi (Bluetooth)	Wi-Fi (Bluetooth)	Wi-Fi (Bluetooth)
Cable Length (mm)	n/a	n/a	RG174 L = 1500
Connector Type	n/a	n/a	SMA Male (center pin)
Mounting Type	SMD	SMD	Magnetic
Dimensions (mm)	3.2 × 1.6 × 0.5	5.2 × 2.0 × 1.2	∅ 30 × 77.4
Matched Quectel Modules	FC30R		

The parameters shall be subject to the Specification.

# Wi-Fi&Bluetooth Antennas

Product	YF0011AA	YF0026AA	YF0027AA	YF0029AA
				
Frequency Bands (MHz)	2400-2500, 5150-5850	2400-2500, 4900-5850, 5925-7125	2400-2500, 4900-5850, 5925-7125	2410-2490, 4920-5925
Technology	Wi-Fi (Bluetooth)	Wi-Fi (Bluetooth)	Wi-Fi (Bluetooth)	Wi-Fi (Bluetooth)
Cable Length (mm)	44 ±13	100 ±2	100 ±2	100 ±2
Connector Type	IPEX 1 (U.FL Generation I)	IPEX 1 (U.FL Generation I)	IPEX 1 (U.FL Generation I)	IPEX 1 (U.FL Generation I)
Mounting Type	Adhesive	Adhesive	Adhesive	Adhesive
Dimensions (mm)	38.9 × 9 × 0.12	28.9 × 11 × 0.2	42 × 7 × 0.2	30 × 30 × 0.25
Matched Quectel Modules	All Wi-Fi/BT modules (Except Wi-Fi 6E)	All Wi-Fi/BT modules		All Wi-Fi/BT modules (Except Wi-Fi 6E)

Product	YE0031AA	YE0032AA	YE0038AA	YEW004AA	YEW001AA
					
Frequency Bands (MHz)	2.4-2.5 GHz, 5.15-5.85 GHz	2.4-2.5 GHz, 5.15-5.85 GHz	2400-2500, 5150-5850	2400-2500, 5150-7150	2400-2500, 5150-5850
Technology	Wi-Fi (Bluetooth)	Wi-Fi (Bluetooth)	Wi-Fi (Bluetooth)	Wi-Fi 6 (Bluetooth)	Wi-Fi 6 (Bluetooth)
Cable Length (mm)	n/a	n/a	n/a	n/a	n/a
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Terminal	Terminal	Terminal	Terminal	Terminal
Dimensions (mm)	52 ±2	50 ±2	195 × 13	109 × Ø 10	200 × 13
Matched Quectel Modules	All Wi-Fi/BT modules (Except Wi-Fi 6E)			All Wi-Fi/BT modules	All Wi-Fi/BT modules (Except Wi-Fi 6E)

# Combo


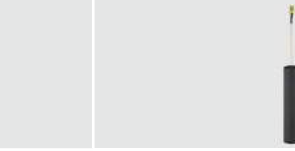
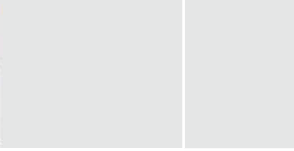
Product	YB0007xx	YB0008AA	YB0009AA	YB0014AA
				
Frequency Bands (MHz)	700-960, 1710-2690, 3300-5000	4G MAIN: 698-960, 1710-2690; GNSS: 1575.42 ±5, 1561.098 ±5; 4G DIV: 1710-2690;	4G: 824-960, 1710-2690; GPS, BD: 1575.42 ±10, 1561 ±10	LTE Main & Div: 698-960, 1700-2700; GNSS: 1561-1571; 1602-1606
Technology	5G	Main LTE & DIV; LTE & GNSS	LTE & GNSS	LTE (4G)
Cable Length (mm)	500 ±30	300 ±10	310 ±10	3000 (RG174)
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Screw	Adhesive	Screw	Screw
Dimensions (mm)	Ø 120 × 43	Ø 84 × 17.5	33 × 48	81 × 27.5
Matched Quectel Modules	5G/4G/3G/2G/LPWA	All 4G/3G/2G modules & GNSS L1 modules		

Product	YB0015AA	YK001AA	YB0032AA	YB0033AA	YB0022AA
					
Frequency Bands (MHz)	LTE: 698-960, 1700-2700; Wi-Fi, BT: 2400-2500; GNSS: 1561 ±5, 1575 ±5	BT: 2400-2500; 4G: 824-960; 1710-2690; GPS, BD: 1575.42 ±10, 1561 ±10	700-960, 1700-2700	LTE Main & Div: 700-960, 1700-2700; GNSS: 1559-1610 MHz (active)	LTE Main & Div: 700-2700; Wi-Fi: 2400-5850; GNSS: 1561/1575.42/1602
Technology	LTE/GPS & BD/Wi-Fi	LTE (4G)	Main LTE&DIV LTE	Main LTE&DIV LTE&GNSS	Main LTE&DIV LTE&GNSS&Wi-Fi&Wi-Fi2
Cable Length (mm)	300 ±20 (RG174)	310 ±10	2000	2000	1000
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (Center Pin)	SMA Male (Center Pin)	FME Female Connector
Mounting Type	Screw	Screw	Screw	Screw	Screw
Dimensions (mm)	54 × 91	33 × 48	Ø 120 × 43	Ø 120 × 43	Ø 120 × 43
Matched Quectel Modules	4G/3G/2G modules & GNSS L1 modules & 2.4G Wifi modules		4G/3G/2G/LPWA modules	4G/3G/2G/LPWA modules&GNSS L1 modules	4G/3G/2G/LPWA modules&GNSS L1 modules & All Wi-Fi/BT modules (Except Wi-Fi 6E)



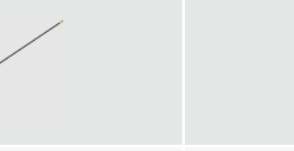
The parameters shall be subject to the Specification.


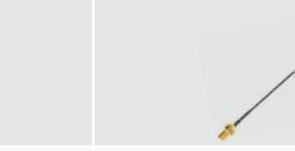
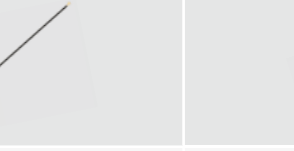
Product	YB0031AA	YEMA003AA	YEMA004AA	YEWN004AA
				
Frequency Bands (MHz)	LTE: 698-960; 1710-2690; GNSS: 1575.42 ±5, 1561.098 ±5	LTE: 700-2700; Wi-Fi: 2400-5850 1561/1575.42/1602	4G: 698-960, 1710-2690 Wi-Fi & Bluetooth: 2400-2500	2400-2500, 5150-5850
Technology	LTE & GNSS	LTE&GNSS	LTE&Wi-Fi	Wi-Fi&Wi-Fi
Cable Length (mm)	RG174 L=300	3000	900	300
Connector Type	SMA Male (center pin)	4G: FAKRA D GNSS: FAKRA C	SMA Male (Center Pin)	SMA Male (Center Pin)
Mounting Type	Adhesive	Adhesive	Screw	Screw
Dimensions (mm)	Ø 84 × 17.5	Ø 84 × 17.5	Ø 81 × 14.5	Ø 46 × 15
Matched Quectel Modules	All 4G/3G/2G modules & GNSS L1 modules	4G/3G/2G/LPWA modules&GNSS L1 modules	4G/3G/2G/LPWA modules& 2.4G WiFi modules	All WiFi/BT Modules Series (Except Wi-Fi 6E)

## ISM

Product	YE0019AA	YE0039BA	YEIM001AA
			
Frequency Bands (MHz)	450-470	430-470, 790-960	465-475
Technology	ISM	ISM	ISM
Cable Length (mm)	/	75	2000(RG174)
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Mounting Type	Terminal	Adhesive	Magnet
Dimensions (mm)	109 × 10	117 × 21.81 × 5.47	Ø 30 × 131

## Cable Assembly

Product	YM0003AA	YM0003AB	YM0013AA
			
External/Patch/Embedded	Embedded	Embedded	Embedded
Frequency Bands (MHz)	0-6000	0-6000	0-6000
Technology	LTE(4G)	LTE(4G)	LTE(4G)
Form Factor	Cable assembly	Cable assembly	Cable assembly
Cable Length (mm)	100	200	300
Connector Type	SMA-female to IPEX I	RP-SMA-female to IPEX I	SMA-female to IPEX I
Mounting Type	Screw	Screw	Screw
Dimensions (mm)	100	200	300
Matched Quectel Modules	All modules (5G excluded)		

Product	YM0004AA	YM0005AA	YSAN001AA
			
External/Patch/Embedded	Embedded	Embedded	Embedded
Frequency Bands (MHz)	0-6000	0-6000	0-6000
Technology	5G	5G	5G
Form Factor	Cable assembly	Cable assembly	Cable assembly
Cable Length (mm)	100	150	300
Connector Type	SMA-female to IPEX IV	SMA-female to IPEX IV	SMA-female to IPEX IV
Mounting Type	Screw	Screw	Screw
Dimensions (mm)	100	150	300
Matched Quectel Modules	All 5G modules (RM50x0 Series, RG50x0 Series)		

The parameters shall be subject to the Specification.

**Europe**

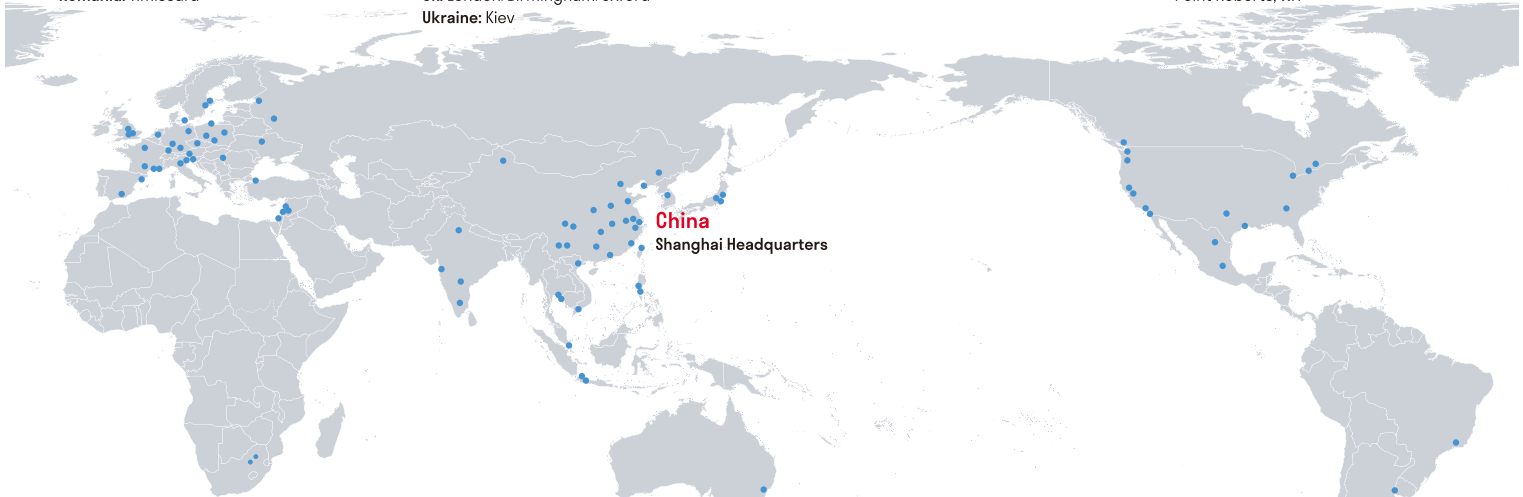
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**Vietnam:** HoChiMinh City/Hanoi

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**Mexico:** Mexico City/San Nicolas De Los Garza

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 90+ distributors  
 Serving 6000+ customers  
 Modules are sold to 150+ countries and regions

**Overseas**

**Africa**  
 Email: africa-sales@quectel.com

**ANZ**  
 Email: anz-sales@quectel.com

**Benelux**  
 Email: benelux-sales@quectel.com

**Brazil**  
 Email: brazil-sales@quectel.com

**CIS**  
 Email: cis-sales@quectel.com

**DACH**  
 Email: dach-sales@quectel.com

**East-Europe**  
 Email: easteuropa-sales@quectel.com

**France**  
 Email: france-sales@quectel.com

**Iberia**  
 Email: iberia-sales@quectel.com

**India**  
 Email: india-sales@quectel.com

**Israel**  
 Email: israel-sales@quectel.com

**Italy**  
 Email: italy-sales@quectel.com

**Japan**  
 Email: japan-sales@quectel.com

**Korea**  
 Email: korea-sales@quectel.com

**Latin America**  
 Email: latinamerica-sales@quectel.com

**Middle East**  
 Email: middleeast-sales@quectel.com

**Nordic**  
 Email: nordic-sales@quectel.com

**North America**  
 Email: northamerica-sales@quectel.com

**S.E.A**  
 Email: sea-sales@quectel.com

**South East Europe**  
 Email: see-sales@quectel.com

**Turkey**  
 Email: turkey-sales@quectel.com

**UK&Ireland**  
 Email: uk-sales@quectel.com

**Headquarters**

Building 5, Shanghai Business Park Phase III (Area B),  
 No.1016 Tianlin Road, Minhang District, Shanghai 200233, China  
 Tel: +86 21 5108 6236

**Hefei R&D Center**

Building 1-C, China Speech Valley Area A, 3335 Xiyu Road,  
 High-tech Zone, Hefei, Anhui 230088, China  
 Tel: +86 551 6586 9386

**Canada R&D Center**

10551 Shellbridge Way, Richmond, British Columbia,  
 BC V6X 2W9, Canada  
 Tel: +1 604 370 8741

**Shanghai R&D Center**

Building 13, Shanghai Business Park Phase III (Area B),  
 No.1036 Tianlin Road, Minhang District, Shanghai 200233, China  
 Tel: +86 21 5108 6236

**Foshan R&D Center**

Floor 9-10, Building 2, Sanshan Science and Technology Innovation Center,  
 No. 12 Gangkou Road, Sanshan New City, Guicheng Street, Nanhai District, Foshan,  
 Guangdong 528000, China  
 Tel: +86 757 6663 6236

**Serbia R&D Center**

Regus, GTC 19 Avenue, 38-40 Vladimira Popovica Street,  
 New Belgrade 11070, Serbia

**Guilin R&D Center**

Floor 4, Building 9, Guilin Electric Valley, Chaoyang Road, Qixing District, Guilin, Guangxi 541004 China