Quectel EM060K-GL

LTE-A Cat 6 M.2 Module

42.0 mm

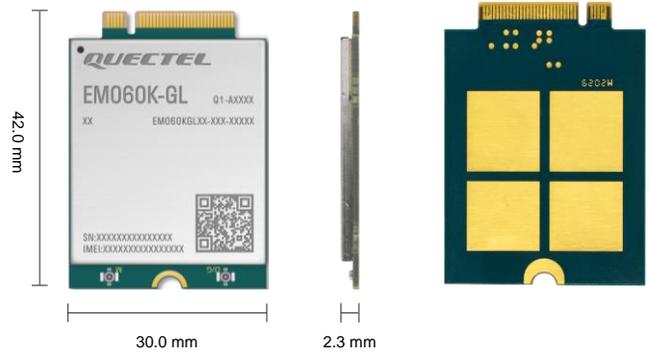30.0 mm   2.3 mm

Quectel EM060K-GL is an LTE Advanced Category 6 module. Adopting the 3GPP Release 12 technology, it supports a theoretical downlink peak data rate of 300 Mbps and a theoretical uplink peak data rate of 50 Mbps. Designed in M.2 form factor, the module is compatible with Quectel LTE-A Cat 6 module EM06, Cat 12 modules EM12-G/ EM121R-GL/EM120R-GL，Cat 16 module EM160R-GL and 5G modules RM500Q/RM502Q Series, which facilitates customers' migration between different modules.

EM060K-GL is designed for global market and nearly covers all the mainstream carriers worldwide. The module supports Qualcomm® IZat^{TM} location technology gpsOne 9HT (GPS, GLONASS, BeiDou/Compass and Galileo). The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning capability.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows, Linux, Android/optional Built-in eSIM) extend the applicability of the module to a wide range of applications such as industrial router, home gateway, STB, industrial laptop, consumer laptop, industrial PDA, rugged tablet PC, and digital signage, etc.

Key Features

- ✔ LTE-A Cat 6 module with M.2 form factor
- ✔ Support DL 2 Carrier Aggregation and 64QAM
- ✔ Worldwide LTE-A and UMTS/HSPA+ coverage
- ✔ Built-in eSIM (optional), DSSA
- ✔ Low power mode
- ✔ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- ✔ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems

4G LTE
Cat6
Max. 300 Mbps (DL)
Max. 50 Mbps (UL)

3G HSPA+
Max. 42 Mbps (DL)
Max. 11.2 Mbps (UL)

M.2
M.2 Form Factor

Embedded Abundant Protocols

PCIe Gen2 Interface

Multi-constellation GNSS

USB 2.0/3.0 Interface

AT
Quectel Enhanced AT Commands

Version: 1.0.0 | Status: Preliminary

Quectel EM060K-GL

LTE Cat 6		EM060K-GL
Region/Operator		Global
Package		M.2 Package, Key-B
Dimensions		42.0 mm × 30.0 mm × 2.3 mm
Weight		TBD
Temperature Range		
Operation Temperature		-25 °C to +75 °C
Extended Temperature		-40 °C to +85 °C
Frequency Bands		
LTE	**LTE-FDD**	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29①/B30/B32①/B66/B71
	LTE-TDD	B34/B38/B39/B40/B41/B42/B43/B46① (LAA)/B48 (CBRS)
	DL 2CA	Intra-band and Inter-band
	DL 64QAM	Supported
	UL 16QAM	Supported
UMTS	**WCDMA**	B1/B2/B3/B4/B5/B6/B8/B19
GNSS		GPS/GLONASS/BeiDou(COMPASS)/Galileo
Certifications		
Regulatory		GCF (Global)* CE (Europe) * PTCRB (North America)* FCC (America)* IC (Canada)* CCC (China)*
Carrier		Verizon*/ AT&T*/ T-Mobile/Telstra* (Australia)
Others*		WHQL
Data Rate (Max.)		
LTE		300 Mbps (DL); 50 Mbps (UL)
UMTS	**DC-HSDPA**	42 Mbps (DL)
	DC-HSUPA	11.2 Mbps (UL)
	WCDMA	384 kbps (DL); 384 kbps (UL)
Interfaces		
(U)SIM Interfaces (1.8/3.0 V)		× 2
USB 2.0/3.0, supporting Slave Mode		× 1
PCIe Interface		× 1 (RC mode *: PCIe Gen 2, for Wi-Fi, ethernet functions)
PCM		× 1
SPI		× 1
Control and Indication Interfaces*		× 7 (Airplane mode control, GNSS control, Wake-up control*, RF status indication, etc.)
Cellular/WLAN COEX UART Interface*		× 1
Antenna Tuner Control Interfaces*		× 2
Configuration Pins		× 4
Antenna Interfaces		× 2 (Main, Rx-diversity/GNSS)

Note:

1. ①: For secondary component carrier only.

2. *: Under development/In progress.

3. TBD: To Be Determined.

QUECTEL

LTE Cat 6	EM060K-GL
Enhanced Features	
MIMO: DL 2 × 2	●
eCall: Emergency Service*	●
(U)SIM Card Detection	●
Built-in eSIM	○
DSSA: Dual SIM, Single Active	●
DFOTA: Delta Firmware Over-the-Air	●
Embedded GNSS	●
SMS	
Point-to-point MO and MT	●
SMS Cell Broadcast	●
Text and PDU Mode	●
3GPP	●
Windows OS SMS Push Feature	●
Software Features	
3GPP	3GPP E-UTRA Release 12
AT Command	3GPP TS 27.007 Quectel Enhanced AT Commands
Protocols	QMI/MBIM/NITZ/HTTP/HTTPS/FTP/LwM2M*/PING*

Drivers		
	MBIM Driver	Windows 10
	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/10.x
	RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x
	NDIS Driver	Windows 7/8/8.1/10
	ECM Driver*	Linux 2.6/3.x/4.x/5.x
	Gobinet Driver	Linux 2.6/3.x/4.x/5.x
	QMI_WWAN Driver	3.x (3.4 or later)/ 4.x/5.x

Electrical Features	
Supply Voltage Range	3.135–4.4 V, typ. 3.7 V
Transmitting Power	**USB Mode** • LTE-FDD: Class 3 (23 dBm ±2 dB) • LTE-TDD: Class 3 (23 dBm ±2 dB) • WCDMA: Class 3 (24 dBm +1/-3 dB)
Power Consumption	**USB Mode** TBD @ Power down TBD @ Sleep TBD @ Idle (PF = 64, USB Active)

Note:
1. *: Under development/In progress.
2. ● Supported"; ○: Optional.