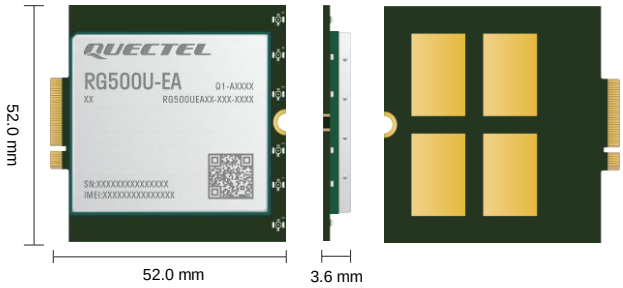
Quectel RG500U-EA M.2

IoT/eMBB-Optimized 5G Sub-6 GHz M.2 Module



Quectel RG500U-EA M.2 is a 5G Sub-6 GHz module optimized specially for IoT and eMBB applications. It supports both 5G NSA and SA modes through 3GPP Release 15 technology, which makes it backward compatible with 4G/3G network.

RG500U-EA M.2 is an industrial-grade module for industrial and commercial applications only.

RG500U-EA M.2 supports a variety of drivers and software functions, VoLTE, VoNR, DFOTA, audio, eSIM* (optional) via communication interfaces such as PCIe, USB, SDIO, UART, SPI, I2C, I2S and GPIOs, integrated with abundant Internet protocols, thus greatly expanding its applications in the IoT industry. RG500U-EA M.2 can be widely used in vertical industries such as smart energy, Internet of Vehicles, industrial Internet, telemedicine, smart education, high-definition video, smart city, and home entertainment.

Key Features

- 5G/LTE-A multi-mode module with M.2 form factor, optimized for IoT and eMBB applications
- Worldwide 5G and LTE-A coverage
- 5G NSA and SA modes
- High-performance and cost-effective
- Feature refinements: DFOTA, VoLTE and VoNR

5G NR Sub-6 GHz Band

LTE Cat 12
Max. 600 Mbps (DL)
Max. 150 Mbps (UL)

Max. 42 Mbps (DL)
Max. 11 Mbps (UL)

Embedded Abundant Protocols

M.2 Form Factor

Quectel Enhanced AT Commands

USB 3.0
High Speed Interface

Voice over NR

Voice over LTE

PCIe 2.0 Interface

Version: 1.1 | Status: Released

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5G Sub-6		RG500U-EA M.2
Region/Operator		EMEA/ APAC/ Latin America
Dimensions (mm)		52.0 × 52.0 × 3.6
Weight (g)		TBD
Temperature Range		
Operating Temperature		-30 °C to +75 °C
Extended Temperature		-40 °C to +85 °C
Frequency Bands		
5G	**5G NR**	3GPP Release 15 NSA/SA operation, Sub-6 GHz
	5G NR NSA	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79
	5G NR SA	n1/ 3/ 5②/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71② 77/ 78/ 79
	MIMO	DL: 4 × 4 MIMO on n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79 UL: 2 × 2 MIMO on n38/ 40/ 41/ 77/ 78/ 79 DL: 2 × 2 MIMO on n5②/ 8/ 20 / 28/ 71②
LTE	**LTE Category**	DL Cat 12, UL Cat 13
	LTE-FDD	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28A/ 28B/ 66
	LTE-TDD	B38/ 40/ 41
	DL 2 × 2 MIMO	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28A/ 28B/ 38/ 40/ 41/ 66
UMTS	**WCDMA**	B1/ 2/ 5/ 8
Certifications		
Regulatory		**Global:** GCF (Planning) **Europe:** CE **Australia/New Zealand:** RCM
Carrier		TBD
Others		RoHS
Data Rates (Max.) ①		
5G SA Sub-6		2 Gbps (DL)/ 1 Gbps (UL)
5G NSA Sub-6		2.6 Gbps (DL)/ 650 Mbps (UL)
LTE		600 Mbps (DL)/ 150 Mbps (UL)
WCDMA		42.2 Mbps (DL)/ 11 Mbps (UL)
Interfaces		
(U)SIM		× 2
USB 2.0		× 1
USB 3.0		× 1
PCIe 2.0		× 1
SDIO 3.0		× 1
SPI		× 1
UART		× 2
I2S		× 1
I2C		× 1
PCM		× 1
Antennas		× 6
Voice		
Voice		Digital Audio, VoLTE and VoNR
Enhanced Features		
eSIM*		○
DTMF		●
DFOTA		●
(U)SIM Card Detection		●
Drivers		
USB Serial Driver		Windows 7/8/8.1/10/11 Linux 2.6–5.18 Android 4.x–12.x
RIL Driver		Android 4.x–12.x
PCIe Driver		Linux 3.10–5.18
USB RNDIS Driver		Windows 7/8/8.1/10/11 Linux 2.6–5.18
USB ECM Driver		Linux 2.6–5.18
USB NCM Driver		Linux 2.6–5.18
Electrical Features		
Supply Voltage Range		3.3–4.4 V, typ. 3.7 V
Power Consumption		TBD @ Power off TBD @ Sleep TBD @ USB 2.0, idle TBD @ USB 3.0, idle

NOTE:

1. ①: Theoretical only. The actual values depend on network conditions.
2. ②: only supported by some ordering codes.
3. *: Under development.
4. ●: Supported.
5. ○: Optional.

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