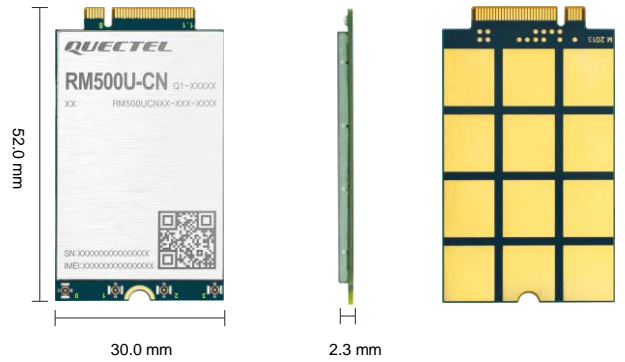




# Quectel RM500U-CN

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



Quectel RM500U-CN is a 5G Sub-6 GHz module optimized specially for IoT and eMBB applications. Adopting the 3GPP Release 15/Release 16<sup>①</sup> technology, it supports both 5G NSA and SA modes, which makes it backward compatible with the 4G/3G network. Designed in an M.2 form factor, RM500U-CN is compatible with Quectel 5G RM500Q series.

RM500U-CN is an industrial-grade module for industrial and commercial applications only.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB and PCIe drivers for Windows, Linux and Android) extend the applicability of the module to a wide range of eMBB and IoT applications such as industrial router, home gateway, STB, industrial PDA, rugged tablet PC, video surveillance and digital signage.



## Key Features

- ✓ 5G/4G/3G 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
- ✓ Feature refinements: DFOTA, VoLTE and VoNR



5G NR Sub-6 GHz Band



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



Max. 42.2 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

# Quectel RM500U-CN

5G Sub-6		RM500U-CN
Region/Operator	EMEA, APAC	
Dimensions (mm)	52.0 × 30.0 × 2.3	
Weight (g)	8.9	
Temperature Range		
Operating Temperature	-30 °C to +75 °C	
Extended Temperature	-40 °C to +85 °C	
Frequency Bands		
5G	5G NR	3GPP Release 15/Release 16 <sup>①</sup> NSA/SA operation, Sub-6 GHz
	5G NR NSA	n41/ 78/ 79
	5G NR SA	n1/ 28/ 41/ 77/ 78/ 79
	MIMO	DL 4 × 4 MIMO on n1/ 41/ 77/ 78/ 79
LTE	LTE Category	DL Cat 12, UL Cat 13
	LTE-FDD	B1/ 2/ 3/ 5/ 7/ 8/ 20/ 28
	LTE-TDD	B34/ 38/ 39/ 40/ 41
	MIMO	DL 2 × 2 MIMO on B1/ 2/ 3/ 5/ 7/ 8/ 20/ 28/ 34/ 38/ 39/ 40/ 41
UMTS	WCDMA	B1/ 2/ 5/ 8
Certifications		
Regulatory	China: SRRC/ NAL/ CCC	
	Europe: CE	
	Australia/New Zealand: RCM	
Carrier	China: China Telecom/ China Mobile*/ China Unicom*	
Others	RoHS/ WHQL	
Data Rates (Max.) <sup>②</sup>		
5G SA Sub-6	2 Gbps (DL)/ 1 Gbps (UL)	
5G NSA Sub-6	2.2 Gbps (DL)/ 575 Mbps (UL)	
LTE	600 Mbps (DL)/ 150 Mbps (UL)	
UMTS	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	× 1	
I2C	× 1	
PCM/I2S	× 1	
Antennas	× 4	
Voice		
Voice	Digital Audio, VoLTE and VoNR	
Enhanced Features		
eSIM	○	
DTMF	●	
DFOTA	●	
(U)SIM Card Detection	●	
5G Network Slicing	●	
5G LAN	○	
5G High-precision Timing	○	
URLLC	○	
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	3.3–4.3 V, typ. 3.7 V	
Power Consumption	90 μA @ Power off	
	3.7 mA @ Sleep	
	70 mA @ USB 3.0, idle	

## NOTE:

- ① : 3GPP Release 16 standard is optional.
- ② : Theoretical only. The actual values depend on network conditions.
- \* : Under planning.
- : Supported.
- : Optional.