# Quectel RM500Q

## 5G Sub-6GHz M.2 Module


Quectel RM500Q is a 5G module optimized specially for IoT/eMBB applications. Adopting the 3GPP Rel. 15 LTE technology, it supports both 5G NSA and SA modes. Designed in an M.2 form factor, RM500Q is compatible with Quectel LTE-A Cat 6 module EM06, Cat 12 module EM12 and Cat 20 module EM20 , which will facilitate customers to migrate from LTE-A to 5G.

The global version RM500Q-GL nearly covers all the main stream carriers worldwide. The module supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou and Galileo). The integrated GNSS receiver 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/PCIe drivers for Windows 7/8/8.1/10, Linux, Android) extend the applicability of the module to a wide range of M2M and IoT applications such as industrial router, home gateway, STB, industrial laptop, consumer laptop, industrial PDA, rugged tablet PC, video surveillance and digital signage.

## Key Benefits

- 5G/4G/3G Multi-mode module with M.2 form factor, optimized for IoT and eMBB applications
- Worldwide 5G and LTE-A coverage
- Both NSA and SA modes
- Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- Feature refinements: DFOTA and VoLTE (optional)

5G NR Sub6 Bands Supported

LTE Cat 20 Max 2.0 Gbps (DL) Max 150Mbps (UL)

Max 42Mbps (DL) Max 5.76Mbps (UL)

Embedded Abundant Protocols

M.2 Form Factor

Multi-constellation GNSS

USB 3.1/PCIe 3.0 High Speed Interface

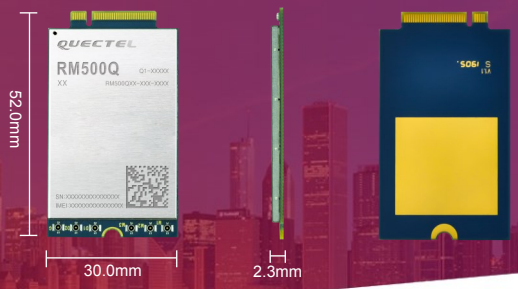
Voice over LTE

Quectel Enhanced AT Commands

Rev.: V1.0 | Status: Preliminary

# Quectel RM500Q

## 5G Sub-6GHz M.2 Module




### Variant for Global

**RM500Q-GL**

5G NR: n1/n2/n3/n5/n7/n8/n20/n28/n41/n66/ n71/n77/n78/n79

LTE: B1/B2/B3/B4(66)/B5(18/19/26)/B7/B8/ B12(17)/B13/B14/B20/B25/B26/B28/ B29/B30/B32/B38/B39/B40/B41/B42/ B43/B46/B48/B71

DL 4×4 MIMO:

5G NR: n1/n2/n3/n7/n41/n66/n77/n78/n79

LTE: B1/B2/B3/B4/B7/B25/B30/B38/B39/ B40/B41/B42/B43/B48/B66

DL 256QAM

UL 64QAM

WCDMA: B1/B2/B3/B4/B5/B8/B9/B19

### Interfaces

USB 2.0/3.0/3.1: Support Slave Mode

(U)SIM: 1. 8V/3.0V

ANTCTL × 4

W_DISABLE1#: Control Airplane Mode

RESET#: Reset the Module

WAKE_ON_WAN#: Wake up the Host

WWAN_LED#: Indicate Network Status

PCIe Gen 3

Main, Diversity and GNSS Antenna Interfaces

### Enhanced Features

Digital Audio and VoLTE (Voice over LTE) (Optional)

(U)SIM Card Detection

DFOTA: Delta Firmware Upgrade Over-the-Air

GNSS: GPS/GLONASS/BeiDou/Galileo

Embedded eUICC

### Electrical Characteristics

Output Power:

Class 2 for n41/n77/n78/n79

Class 3 for other 5G NR bands

Class 3 for LTE-FDD

Class 3 for LTE-TDD

Class 3 WCDMA

Consumption:

TBD @Power off

TBD @Sleep, Typ.

TBD @Idle

Sensitivity:

TBD

### Software Features

MBIM Driver: Windows 10

USB Serial Driver: Windows 7/8/8.1/10, Linux 2.6/3.x/4.1-4.14, Android 4.x/5.x/6.x/7.x

RIL Driver: Android 4.x/5.x/6.x

NDIS Driver: Windows 7/8/8.1/10

ECM Driver*: Linux 2.6/3.x/4.1-4.14

Gobinet Driver: Linux 2.6/3.x/4.1-4.14

QMI_WWAN Driver: Linux 3.x (3.4 or later)/4.1-4.14

Protocols:

PPP/QMI/NTP*/TCP*/UDP*/FTP*/HTTP*/PING*/ HTTPS*/SMTP*/MMS*/FTPS*/SMTPS*/SSL*

### General Features

3GPP E-UTRA Release 15

Supply Voltage: 3.1V~4.4V, 3.7V Typ.

Temperature Range: -40°C ~ +85°C

Dimensions: 52.0mm × 30.0mm × 2.3mm

M.2 Package

Approx. TBD

3GPP TS27.007 and Quectel Enhanced AT Commands

### Approvals

Carrier①

Regulatory①:

GCF (Global)

CE (Europe)

FCC/PTCRB (North America)

CCC (China)

Others:

RoHS Compliant

WHQL

* Under Development

① means TBD.


HQ address: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Tel: +86 21 51086236 Email: info@quectel.com