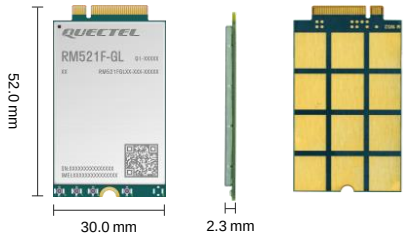
# Quectel RM521F-GL

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




Quectel RM521F-GL is a 5G module optimized specially for IoT/ eMBB applications. Adopting the 3GPP Release 16 technology, it supports both 5G NSA and SA modes. Designed in an M.2 form factor, RM521F-GL is compatible with Quectel 5G module RM50xQ series, LTE-A Cat 6 module EM06, Cat 12 modules EM12, EM12xR, EM120K series, and Cat 16 module EM160R-GL, which facilitates customers' migration from LTE-A to 5G.

RM521F-GL is industrial-grade for industrial and commercial applications only.

The Global version of RM521F-GL nearly covers all the mainstream carriers worldwide. The module supports Qualcomm® IZat™ location technology Gen9C Lite (GPS, GLONASS, BDS, Galileo, and QZSS). The integrated GNSS receiver greatly simplifies the 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 and PCIe drivers for Windows 7/ 8/ 8.1/ 10, Linux, Android) extend the applicability of the module to a wide range of eMBB 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 Features

- 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 supported
- Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- Feature refinements: DFOTA and VoLTE (optional)

5G NR Sub-6 Bands Supported

DL: LTE Cat 20
UL: LTE Cat 18

DL: max. 42 Mbps
UL: max. 5.76 Mbps

Embedded Abundant Protocols

M.2 Form Factor

Multi-constellation GNSS

USB 3.1/PCIe 3.0 Super-Speed Interface

Voice over LTE (Optional)

Quectel Enhanced AT Commands

Version: 1.0.0 | Status: Preliminary

# Quectel RM521F-GL

| 5G Sub-6 | | RM521F-GL |
|---|---|---|
| **Region/Operator** | | Global |
| **Dimensions (mm)** | | 30.0 × 52.0 × 2.3 |
| **Weight (g)** | | Approx. 8.7 |
| **Supply Voltage Range (V)** | | 3.135–4.4, Typical 3.7 |
| **Power Consumption** | | TBD |
| **Temperature Range** | | |
| **Operation Temperature** | | -30 °C to +75 °C |
| **Extended Temperature** | | -40 °C to +85 °C |
| **Frequency Bands** | | |
| **5G NR** | **NSA** | n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79 |
| | **SA** | n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79 |
| **LTE** | **LTE-FDD** | B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 66/ 71 |
| | **LTE-TDD** | B34/ 38/ 39/ 40/ 41/ 42/ 43/ 48 |
| | **LAA** | B46 |
| **UMTS** | **WCDMA** | B1/ 2/ 4/ 5/ 8/ 19 |
| **GNSS** | | GPS/ GLONASS/ BDS/ Galileo/ QZSS |
| **Certifications** | | |
| **Regulatory** | | GCF*/ PTCRB*/ IC*/ FCC* |
| **Carrier** | | TBD |
| **Others** | | TBD |
| **Data Rate (Max.)** ① | | |
| **5G SA Sub-6** | | DL 4.0 Gbps; UL 900 Mbps |
| **5G NSA Sub-6** | | DL 4.0 Gbps; UL 550 Mbps |
| **LTE** | | DL 2.0 Gbps; UL 200 Mbps |
| **WCDMA** | | DL 42 Mbps; UL 5.76 Mbps |
| **Interface** | | |
| **(U)SIM** | | × 2 |
| **USB 2.0** | | × 1 |
| **USB 3.0/ 3.1** | | × 1 |
| **PCIe 3.0** | | × 1 |
| **Antenna (Sub-6/ GNSS)** | | × 4 |
| **Voice** | | |
| **Voice** | | Digital Audio* and VoLTE (Voice over LTE) (Optional) |
| **Enhanced Features** | | |
| **eSIM*** | | ○ |
| **DTMF*** | | ● |
| **DFOTA*** | | ● |
| **(U)SIM Card Detection** | | ● |

Note:
1. ①: The presented data rates are theoretical only, and the actual value depends on network conditions.
2. *: Under development/in progress.
3. ●: Supported; ○: Optional.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