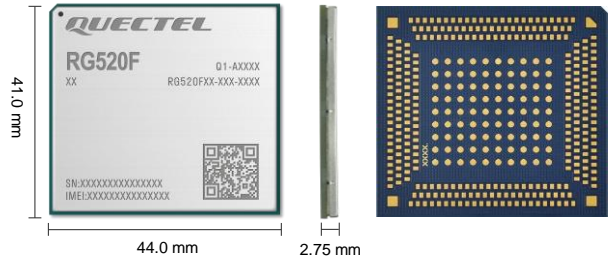


# Quectel RG520F Series

## IoT/eMBB-Optimized 5G Sub-6 GHz LGA Module



Quectel RG520F is a series of 5G Sub-6 GHz LGA modules optimized specially for IoT and eMBB applications. Adopting the 3GPP Rel-16 technology, it supports both 5G NSA and SA modes with Option 3x/3a and Option 2 network architectures, which makes it backwards compatible with 4G/3G network. It is pin-to-pin compatible with Quectel 5G module RG50xQ series and LTE-A Cat 12 module EG512R-EA. The module can meet customers' different application demands for high speed, large capacity, low latency, high reliability, etc.

RG520F series module is an industrial-grade module for industrial and commercial applications only.

RG520F series contains two variants: RG520F-EU and RG520F-NA. It supports Qualcomm® IZat™ location technology Gen 9VT (GPS, GLONASS, BDS, Galileo and QZSS). 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 (USB 2.0/3.0/3.1, PCIe 3.0/4.0, PCM, UART, etc.) and abundant functionalities (USB drivers for Windows 7/8/8.1/10/11, Linux and Android) extend the applicability of the module to a wide range of IoT and eMBB applications such as business routers, home gateway, STB, industrial laptops, consumer laptops, industrial PDAs, rugged tablet PCs, and video surveillance.



### Key Features

- ✓ 5G/4G/3G multi-mode module with LGA form factor, optimized for IoT and eMBB applications
- ✓ Worldwide 5G and LTE-A coverage
- ✓ 5G 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 Sub-6 GHz Bands



LTE Cat 20 (DL)  
LTE Cat 18 (UL)



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



Embedded Abundant Protocols



LGA Form Factor



Multi-constellation GNSS



USB 3.1 High Speed Interface



PCIe 4.0 Interface



Voice over LTE (Optional)



Quectel Enhanced AT Commands

Version: 1.0 | Status: Released

# Quectel RG520F Series

	RG520F-EU	RG520F-NA
<b>Region/Operator</b>	EMEA/ APAC <sup>①</sup> / Brazil	North America
<b>Dimensions (mm)</b>	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75
<b>Weight (g)</b>	Approx. 11 g	Approx. 11 g
<b>Temperature Range</b>		
<b>Operating Temperature</b>	-30 °C to +75 °C	-30 °C to +75 °C
<b>Extended Temperature</b>	-40 °C to +85 °C	-40 °C to +85 °C
<b>Frequency Bands</b>		
	<b>5G NR</b>	<b>3GPP Rel-16 NSA/SA operation, Sub-6 GHz</b>
<b>5G</b>	<b>5G NR NSA</b>	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78
	<b>5G NR SA</b>	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78
	<b>DL 4 × 4 MIMO</b>	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78
	<b>LTE Category</b>	<b>DL Cat 20/ UL Cat 18</b>
<b>LTE</b>	<b>LTE-FDD</b>	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32
	<b>LTE-TDD</b>	B38/ 40/ 41/ 42/ 43
	<b>LAA</b>	-
	<b>DL 4 × 4 MIMO</b>	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43
<b>WCDMA</b>	B1/ 5/ 8	-
<b>GNSS</b>	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS
<b>Certifications</b>		
<b>Regulatory</b>	TBD	TBD
<b>Carrier</b>	TBD	TBD
<b>Others</b>	RoHS	RoHS
<b>Data Rates (Max.)<sup>②</sup></b>		
<b>5G SA Sub-6</b>	4.0 Gbps (DL)/ 900 Mbps (UL)	4.0 Gbps (DL)/ 900 Mbps (UL)
<b>5G NSA Sub-6</b>	4.0 Gbps (DL)/ 550 Mbps (UL)	4.0 Gbps (DL)/ 550 Mbps (UL)
<b>LTE</b>	2.0 Gbps (DL)/ 200 Mbps (UL)	2.0 Gbps (DL)/ 200 Mbps (UL)
<b>WCDMA</b>	42 Mbps (DL)/ 5.76 Mbps (UL)	-
<b>Interfaces</b>		
<b>(U)SIM</b>	× 2	× 2
<b>UART</b>	× 4	× 4
<b>SD Card</b>	× 1	× 1
<b>USB 2.0/3.0/3.1</b>	× 1	× 1
<b>PCIe 3.0/4.0</b>	Gen3, Lane × 2 or Gen4, Lane × 1	Gen3, Lane × 2 or Gen4, Lane × 1
<b>PCM</b>	× 1	× 1
<b>I2S</b>	× 1	× 1
<b>I2C</b>	× 1	× 1
<b>SPI</b>	× 1	× 1
<b>ADC</b>	●	●
<b>RESET_N</b>	●	●
<b>GPIOs (QuecOpen<sup>®</sup>)</b>	●	●
<b>Antennas</b>	Cellular: 4 + 2 (optional); GNSS: × 1	Cellular: 4; GNSS: × 1
<b>Voice</b>		
<b>VoLTE</b>	Digital Audio and VoLTE (Voice over LTE) (optional)	Digital Audio and VoLTE (Voice over LTE) (optional)
<b>Enhanced Features</b>		
<b>eSIM</b>	○	○
<b>DTMF*</b>	●	●
<b>DFOTA</b>	●	●
<b>(U)SIM Card Detection</b>	●	●
<b>Drivers</b>		
<b>USB Serial Driver</b>	Windows 7/8/8.1/10/11; Linux 2.6–5.18; Android 4.x–12.x	Windows 7/8/8.1/10/11; Linux 2.6–5.18; Android 4.x–12.x
<b>RIL Driver</b>	Android 4.x–12.x	Android 4.x–12.x
<b>PCIe MHI Driver</b>	Linux 3.10–5.18	Linux 3.10–5.18
<b>USB NDIS Driver</b>	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11
<b>USB MBIM Driver</b>	Windows 10/11; Linux 3.18–5.18	Windows 10/11; Linux 3.18–5.18
<b>USB GobiNet Driver</b>	Linux 2.6–5.18	Linux 2.6–5.18
<b>USB QMI_WWAN Driver</b>	Linux 3.4–5.18	Linux 3.4–5.18
<b>Electrical Features</b>		
<b>Supply Voltage Range</b>	3.3–4.4 V, typ. 3.8 V	3.3–4.4 V, typ. 3.8 V
<b>Power Consumption</b>	TBD	TBD

## NOTE:

- ①: Excluding China/Japan.
- ②: Theoretical only; actual values depend on network conditions.
- \*: Under development/Planning/in progress.
- : Supported.
- : Optional.
- TBD: To Be Determined.