

# Quectel RM500Q-GL

IoT/eMBB-Optimized

5G Sub-6 GHz M.2 Module



# RM500Q-GL-AB

## Release Notes

### 5G Module Series

Rev. RM500Q-GL-AB\_Firmware\_Release\_Notes\_V1102\_01.001.01.001

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Our aim is to provide customers with timely and comprehensive service. For any assistance, please contact our company headquarters:

**Quectel Wireless Solutions Co., Ltd.**

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

Tel: +86 21 5108 6236

Email: [info@quectel.com](mailto:info@quectel.com)

**Or our local office. For more information, please visit:**

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## 1. Release Content

This document provides the Release Notes for RM500Q-GL-AB. The current release includes the firmware package.

Package	Version
Firmware	RM500QGLABR11A02M4G_01.001.01.001

## 2. Matters Needing Attention

SN	Item
[1]	SA MBIM dialing is supported in Windows 10 1903 and above versions.
[2]	5G CA and VoNR are not supported.
[3]	RM500QGLABR10XXX firmware version can be upgraded to RM500QGLABR11XXX firmware version; while RM500QGLABR11XXX firmware version cannot be upgraded to RM500QGLABR10XXX firmware version.
[4]	After the RM500QGLABR10XXX firmware version enables the SIM card hot-swapping feature, once it upgrades to RM500QGLABR11XXX firmware version, it needs to be enabled through <b>AT+QSIMDET</b> .

### 3. Release History

#### 3.1. Firmware Release History

Firmware Release	Description
RM500QGLABR10A01M4G_01.001.01.001	Only for sample
RM500QGLABR10A02M4G_01.001.01.001	Commercial sample
RM500QGLABR10A03M4G_01.001.01.001	Commercial sample
RM500QGLABR11A01M4G_01.001.01.001	Mass production
RM500QGLABR11A02M4G_01.001.01.001	Mass production

#### 3.2. New Features

RM500QGLABR10A02M4G_01.001.01.001	
Item	Brief Description
<b>GNSS</b>	Added the default value 4 to NV74235.
<b>5G</b>	Added <b>&lt;5g_basic&gt;</b> in <b>AT+QENDC</b> to obtain 5G NSA icon information.
<b>GENERAL</b>	Enabled kernel configuration item CONFIG_TASKSTATS.
<b>GENERAL</b>	Added <b>AT+QRSSI</b> to query the RSSI value of NR5G SA and LTE RX.
<b>GENERAL</b>	Added <b>AT+QCFG="efratctl"</b> to control the switching of SIM card network modes.
RM500QGLABR10A03M4G_01.001.01.001	
Item	Brief Description
<b>AUDIO</b>	Supported the second PCM.
<b>GENERAL</b>	Added <b>AT+QMAP="lan"</b> to set or query the private IP address assigned by the module to the host in the ECM dialing mode.
<b>Thermal Mitigation</b>	Supported URC reporting on entering and terminating the temperature mitigation level.

NETWORK	Added the following AT commands:
	<ul style="list-style-type: none"> <li>● <b>AT+QNWPREFCFG="policy_band"</b> to query the band configured in the carrier policy;</li> <li>● <b>AT+QNWPREFCFG="ue_capability_band"</b> to query the band configured in the UE capability information.</li> <li>● <b>AT+QNWPREFCFG="nr5g_disable_mode"</b> to disable NR5G.</li> </ul>
	Supported the feature of querying LTE neighboring cells through <b>AT+QENG="neighbourcell"</b> .
GENERAL	Supported the module to pull the Wake_on_wan pin for 1 second to wake up the host in receiving a message when the module was in sleep mode.

#### RM500QGLABR11A01M4G\_01.001.01.001

Item	Brief Description
PCIE	Supported PCIE interface of IPQ4019.
Thermal Mitigation	Optimized MDM thermal mitigation mechanism by modifying Level 3 temperature to 110°C, and modifying Level 2 temperature to 100°C.
GENERAL	Set /nv/item_files/modem/nr5g/ML1/ml1_rrc_validation to 0001 to solve the problem that HUAWEI SA base stations could not be registered in some regions.
GENERAL	Solved the problem that the module could not work normally when you sent files via <b>AT+QFUPL</b> .
GENERAL	Added <b>AT+QMAP="lan"</b> to configure QCMAP LAN IP.
GENERAL	Added <b>AT+QSINR</b> and <b>AT+QSRQ</b> to query the signal-to-noise ratio and received signal value.
GENERAL	Added the feature of flashing fool-proofing that the versions of a different module are not allowed to be upgraded in the module.
NETWORK	Added <b>AT+QNWPREFCFG="nr5g_disable_mode"</b> to configure 5G network mode.
NETWORK	Added <b>AT+QNWPREFCFG="rat_acq_order"</b> to specify the RAT acquisition order.

#### RM500QGLABR11A02M4G\_01.001.01.001

Item	Brief Description
NETWORK	Added the following CA combinations:
	<ul style="list-style-type: none"> <li>● B4A[4]+B5A[2]+B30A[4];</li> <li>● A[1], B7A[4]+B66A[4];</li> <li>● A[1]+B66A[2], B3C[4,4];</li> <li>● A[1]+B8A[2],B41C[4,4];</li> <li>● A[1]+B42A[2].</li> </ul>
	Added <b>AT+QNWCFG="dss_enable"</b> to control the DSS function.
	Added <b>AT+QNWCFG="lte_cell_id"</b> and <b>AT+QNWCFG="nr5g_cell_id"</b> to obtain ECI/NCI related parameters.

<b>USB</b>	Added <b>AT+QCFG="usbspeed"</b> to switch between USB 2.0 and USB 3.0 interface protocols.
<b>Thermal Mitigation</b>	Set the Level 2 temperature threshold of thermal mitigation mechanism to 105°C.
<b>5G</b>	Added <b>AT+QNWCFG="nr5g_cdrx"</b> to control 5G_CDRX.
<b>GENERAL</b>	Added N66 related bandwidth.
<b>GENERAL</b>	Added Realtake 8111H driver.
<b>GENERAL</b>	Added <b>AT+QETH="eth_driver"</b> to select Ethernet driver.
<b>GENERAL</b>	Added <b>AT+QETH="eth_at"</b> to support SMD switching between Modem port and Ethernet port.

### 3.3. Improved Features

RM500QGLABR10A02M4G_01.001.01.001	
Item	Brief Description
<b>GENERAL</b>	Solved the problem that the DSQMI_NAS_AsyncRespDSHdlr function abnormally releases the requested buffer.
<b>GENERAL</b>	Supported to query <b>&lt;tx_power&gt;</b> in <b>AT+QENG="servingcell"</b> after the module registered to SA network.
<b>GENERAL</b>	Merged a Qualcomm patch to solve the problem that the module would reset in normal temperature vbat+ random power-off stress test.
<b>GNSS</b>	Solved the problem that the debug UART port could not output NMEA sentence.
<b>GENERAL</b>	Solved the problem that the module could not enter the flight mode by pulling down the w_disable pin.
<b>GNSS</b>	Solved the problem that the queried <b>&lt;GNSS_config&gt;</b> value was inconsistent with the configured value after the supported GNSS satellite navigation system is successfully configured with <b>AT+QGPSCFG="gnssconfig",&lt;GNSS_config&gt;</b> .
<b>USB</b>	Solved the problem that the USB port might not report the upgrade progress during the DFOTA upgrade.
<b>NETWORK</b>	Fixed the problem that the RSRP values of RX2 and RX3 of WCDMA and LTE returned by <b>AT+QSRP</b> were incorrect.
RM500QGLABR10A03M4G_01.001.01.001	
Item	Brief Description
<b>GENERAL</b>	Solved the problem of AT command not responding due to data service task blocking during ECM dialing.

GENERAL	Moved <b>AT+QMBNCFG="autosel"</b> to be executed on the Modem.
GENERAL	Changed the configuration of NV65591 that failed to register to the NSA network from FFFFFFFF to 00000000.
GENERAL	Solved the problem of module dump or crash when executing <b>AT+QFUPL</b> to upload files.
GNSS	Solved the problem that the latitude and longitude information obtained by <b>AT+QGPSLOC=1</b> was inconsistent with that in the NMEA sentence.
PCIE	Solved the problem that the module could not dial-up via PCIE.
DFOTA	Solved the problem that the module version did not match and the report was unreasonable after the module was powered off and restarted when DFOTA is upgraded to <b>+QIND: "FOTA","END",0</b> .
GENERAL	Extended <b>AT+QENG</b> to query NSA band and NSA ARFCN-NR and NR5G band information.
GENERAL	Solved the problem that after the module registered to the network, the SINR value queried by <b>AT+QENG="servingcell"</b> was unexpected to be 0.
ECM	Solved the problem that the module could not perform ECM data call after hot-plugging the same SIM card.
GENERAL	Solved the problem that the AT port of the module could not work normally during the real network test.
GENERAL	Solved the problem of NSA band and frequency display error.
PCIE	Solved the problem that PCIE configured by AT command could not be identified on IPQ4019.
GENERAL	Solved the problem that the Saudi Arabia 42001 network queried by <b>AT+QENG="servingcell"</b> was incorrect.

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Item	Brief Description
GENERAL	Solved the problem that there was no <b>RING#</b> report on the USB port after a voice call.
GENERAL	Solved the problem of <b>AT+QTLS</b> reporting error when the SIM card was not inserted.
GENERAL	Solved the problem that the module kept restarting after switching to a Telecom card after downloading the version and activating the China mobile or Unicom SIM card.
GENERAL	Solved the problem that no corresponding URC was reported after enabling automatic time zone report and then executing <b>AT+CTZR=1</b> or <b>AT+CTZR=2</b> .
GENERAL	Changed the configuration of NV65591 that failed to register to the NSA network from FFFFFFFF to 00000000.
GENERAL	Solved the problem that the module could not enter the flight mode by pulling down the w_disable pin.
NETWORK	Solved the problem of incorrect return value returned by <b>AT+QENG="servingcell"</b> .
NETWORK	Solved the problem that the value of <b>&lt;CQI&gt;</b> returned by <b>AT+QENG</b> in LTE mode was



	incorrect.
<b>NETWORK</b>	Solved the problem of NSA band display error.
<b>GENERAL</b>	Solved the problem that the AT port of the module could not work normally during the test.
<b>GENERAL</b>	Solved the problem that no result was returned with <b>AT+QIMSCFG="user_agent"</b> .
<b>GENERAL</b>	Removed to query the received signal power under WCDMA through <b>AT+QSRP</b> .
<b>GENERAL</b>	Solved the problem of failing to obtain LTE neighboring cells information.
<b>GENERAL</b>	Solved the problem that the signal received power value of <b>AT+QSRQ</b> on WCDMA was not within the range.
<b>GENERAL</b>	Solved the problem that the new baseline would cause the module to reboot abnormally with ECM dial-up.
<b>GENERAL</b>	Merged a Qualcomm patch to optimize the problem of unstable uplink rate of 5G NSA.
<b>GENERAL</b>	Added a <CR><LF> to the return value of <b>AT+QCFG="usbnet"</b> .
<b>GNSS</b>	Solved the problem of incorrect latitude and longitude information returned by <b>AT+QGPSLOC</b> .

#### RM500QGLABR11A02M4G\_01.001.01.001

Item	Brief Description
<b>NETWORK</b>	Solved the problem that the module could not work normally when executing <b>AT+QIMSACT=0</b> .
<b>NETWORK</b>	Solve the problem that the return value of <b>AT+CREG</b> after setting <b>AT+CGATT=0</b> was wrong after inserting the SIM card of China Mobile or China Telecom.
<b>NETWORK</b>	Maintained the default value of <SINR> of <b>AT+QENG="servingcell"</b> to -32768 when NSA network was in idle state.
<b>NETWORK</b>	Solved the problem that when <b>AT+QGPAPN=1</b> was executed under real network, the module would not work normally under certain environment.
<b>MBIM</b>	Solved the problem that there is no notification report on the host after configuring SMS with <b>AT+CNMI</b> and <b>AT+CSMP</b> .
<b>Low Power</b>	Solved the problem that there was no URC report when the module received SMS in sleep mode.
<b>5G</b>	Solved the problem that <b>AT+QNWLOCK="common/5g"</b> did not take effect after module restart.
<b>GENERAL</b>	Solved the problem that the band value returned by <b>AT+QENG</b> in EN-DC mode was incorrect.
<b>GENERAL</b>	Solved the problem that there was no URC <b>+QIND: SMS DONE</b> report at module restart.
<b>GENERAL</b>	Extended <b>AT+CPOL</b> to check whether the SIM card supported NR5G.

<b>GENERAL</b>	Solved the problem that emergency call information could not be found via <b>AT+CLCC</b> when making an emergency call.
<b>GNSS</b>	Solved the problem of returning historical residual information when executing <b>AT+QGPSTIMEA</b> for the first time.
<b>SIMCARD</b>	Solved the problem that the SIM card hot-swapping feature enabled on the LE.1.1 baseline was not enabled after the module was upgraded to the LE.1.2 baseline if you queried through <b>AT+QSIMDET</b> , but the actual function did not take effect.

### 3.4. Known Issues

Item	Bug Description
<b>NETWORK</b>	If the parameters of <b>AT+QLLM</b> exceed the specified range, it returns <b>OK</b> , and it is expected to return <b>ERROR</b> .
<b>PCIE</b>	After the module enables ADB, the USB port cannot send and receive AT commands.
<b>GENERAL</b>	When executing <b>AT+QMBNCFG="SELECT"</b> to manually activate MBN, it returns <b>ERROR</b> for the first time, and it needs to be executed again to take effect.
<b>GENERAL</b>	When dialing up to network with NDIS, after executing <b>AT+CGATT=0</b> , the dialing state continues to disconnect and reconnect.
<b>GENERAL</b>	When a Unicom SIM card is inserted, <b>AT+CTZU</b> and <b>AT+CTZR</b> do not take effect.
<b>GNSS</b>	After configuring the parameters of <b>AT+QGPSCFG="gpsnmeatype"/"glonassnmeatype"/"galileonmeatype"/"beidou nmeatype"</b> , the commands take effect immediately, but it becomes invalid after restarting the module.
<b>SIMCARD</b>	<b>+CPIN</b> , <b>+QUSIM</b> , <b>+QIND</b> are abnormally reported repeatedly if you use <b>AT+QUIMSL0T</b> to switch the SIM card.

#### NOTE

Verification Environment is shown below. For more details, please contact Quectel technical support.

For Windows,

USB Driver: Quectel\_LTE&5G\_Windows\_USB\_Driver\_V2.2.4.zip

Qflash Tool: QFlash\_V4.18

QLog Tool: QWinLog\_V1.6.1.zip

For Linux,

QMI\_WWAN Driver: Quectel\_Linux&Android\_QMI\_WWAN\_Driver\_V1.2.0.14.zip

GobiNet Driver: Quectel\_Linux&Android\_GobiNet\_Driver\_V1.6.2.9.zip

PCIE Driver: Quectel\_Linux\_PCIE\_MHI\_Driver\_V1.3.0.13.zip

QFirehose Tool: Quectel\_LTE&5G\_QFirehose\_Linux&Android\_V1.4.zip

Quectel-CM Tool: Quectel\_QConnectManager\_Linux\_V1.6.0.16.zip  
QLog Tool: Quectel\_QLog\_Linux&Android\_V1.5.zip  
Quectel IPQ driver: Quectel\_Linux\_PCIE\_MHI\_Driver\_V1.3.0.15.zip  
Qualcomm IPQ driver: spf11.1

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## 4. Functions List

Category	Item	Supported Version(Since)	Note
Basic Function	SMS	RM500QGLABR10A01M4G_01.001. 01.001	
	Voice Call	/	Under debugging
	VoLTE	/	Under debugging
	NETWORK	RM500QGLABR10A01M4G_01.001. 01.001	
File Function	UFS	RM500QGLABR10A01M4G_01.001. 01.001	
	RAM	RM500QGLABR10A01M4G_01.001. 01.001	
Protocol Function	QMI	RM500QGLABR10A01M4G_01.001. 01.001	
Interface Function	USB	RM500QGLABR10A01M4G_01.001. 01.001	
	MBIM	RM500QGLABR10A01M4G_01.001. 01.001	Applicable to Windows 10 version 1903 and above
	RmNet	RM500QGLABR10A01M4G_01.001. 01.001	
	PCIE	RM500QGLABR10A01M4G_01.001. 01.001	
	AGPS	RM500QGLABR10A01M4G_01.001. 01.001	
Upgrade Function	DFOTA	RM500QGLABR10A02M4G_01.001. 01.001	
SIM Function	(U)SIM Detection	RM500QGLABR10A01M4G_01.001. 01.001	
	DSSS	RM500QGLABR10A02M4G_01.001. 01.001	
	RF RX FTM	RM500QGLABR10A02M4G_01.001. 01.001	
Special Function	RF TX FTM	RM500QGLABR10A02M4G_01.001. 01.001	
	LowPower	RM500QGLABR10A02M4G_01.001. 01.001	
	Thermal Mitigation	RM500QGLABR10A02M4G_01.001. 01.001	

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5G Function	5G	RM500QGLABR10A01M4G_01.001. 01.001
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Quectel Wireless Solutions is the leading global supplier of cellular and GNSS modules, with a broad product portfolio covering the most recent wireless technologies of 5G, LTE/LTE-A, NB-IoT/LTE-M, UMTS/HSPA(+), GSM/GPRS and GNSS. As a professional IoT (Internet of Things) technology developer and cellular module supplier, Quectel is able to provide one-stop services for IoT cellular modules. Quectel products have been widely applied in IoT/M2M fields including smart payment, telematics and transport, smart energy, smart cities, security, wireless gateways, industry, healthcare, agriculture, and environment monitoring.

