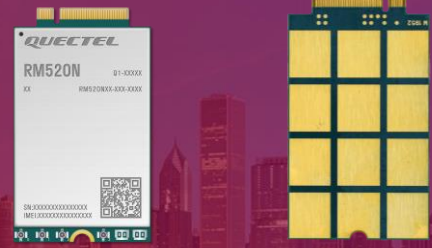


# Quectel RM520N-GL

IoT/eMBB-Optimized

5G Sub-6 GHz M.2 Module



# RM520N-GL-AA

## Release Notes

### 5G Module Series

Rev. RM520N-GL-AA\_Firmware\_Release\_Notes\_V0301\_01.202.01.202

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## 1. Release Content

This document provides the Release Notes for RM520N-GL-AA. The current release includes the firmware package.

Package	Version
Firmware	RM520NGLAAR03A01M4G_01.202.01.202

## 2. Matters Needing Attention

SN	Item
[1]	The firmware version lower than R01A05 needs to be upgraded to the R01A05 version through USB Firehose, and cannot be upgraded to A05 through DFOTA; R01A05 and above the firmware versions can be directly upgraded through DFOTA.
[2]	The new firmware version cannot be downgraded to versions released before RM520NGLAAR01A07M4G_01.200.01.200, otherwise the module will not be able to work normally.

## 3. Release History

### 3.1. Firmware Release History

Firmware Release	Description
RM520NGLAAR03A01M4G_01.202.01.202	Mass production
RM520NGLAAR01A07M4G_01.200.01.200	Mass production
RM520NGLAAR01A06M4G_01.001.01.001	Mass production
RM520NGLAAR01A05M4G_01.001.01.001	Only for sample
RM520NGLAAR01A04M4G_01.001.01.001	Only for sample
RM520NGLAAR01A03M4G_01.001.01.001	Only for sample

### 3.2. New Features

RM520NGLAAR03A01M4G_01.202.01.202	
Item	Brief Description
GENERAL	<p>Added the following AT commands:</p> <ul style="list-style-type: none"> <li><b>AT+QNWPREFCFG="rf_band"</b> to query the RF band supported by the module by default.</li> <li><b>AT+QNWPREFCFG="restore_band"</b> to restore the default band configured in the module.</li> </ul>
RM520NGLAAR01A07M4G_01.200.01.200	
Item	Brief Description
NETWORK	Relevant technical controls have been carried out to restrict normal network registration in regions such as RUS and IRN, thus ensuring that the module can be used only for civilian applications.
GENERAL	The new firmware version cannot be downgraded to previous versions, otherwise the module will not be able to work normally.
GENERAL	Supported the feature of routing behind mobile station.
GENERAL	Added <b>AT+QXQCN</b> to configure and query RF parameters of the module

and import QXCN file.

#### RM520NGLAAR01A06M4G\_01.001.01.001

Item	Brief Description
GENERAL	Supported AQR113C.
GENERAL	Supported URC reporting of PIN-related information (modification, activation, and verification of PIN).
GENERAL	<p>Added the following AT commands:</p> <ul style="list-style-type: none"> <li>● <b>AT+QUPTIME</b> to get the system power-up time.</li> <li>● <b>AT+QFOTAPID</b> to configure the Profile ID used in FOTA upgrade.</li> <li>● <b>AT+QSIMCFG="dual_slot_status"</b> to query related information of the SIM cards when dual SIM cards were both inserted.</li> <li>● <b>AT+QSIMCFG="sim_recovery"</b> to support SIM card recovery and automatic detection.</li> <li>● <b>AT+QNWCFG="nr5g_pathloss"</b> to query NR5G pathloss information.</li> <li>● <b>AT+QPCIE="pcie_gen"</b> to query PCIe GEN in PCIe RC mode.</li> <li>● <b>AT+QNWCFG="cops_auto_mode"</b> to configure whether the mode preference is controlled by <b>AT+COPS</b>.</li> <li>● <b>AT+QNWCFG="nr5g_ulbw"</b> to query NR5G uplink bandwidth.</li> <li>● <b>AT+QNWCFG="lte_ulMCS"</b> to query LTE uplink MCS and modulation type.</li> <li>● <b>AT+QTHERMAL="lte_ul_throttle"</b> to control the uplink rate of Level 1 in LTE PA mechanism.</li> <li>● <b>AT+QTHERMAL="nr_ul_throttle"</b> to configure the uplink rate of Level 1 in NR5G PA mechanism.</li> <li>● <b>AT+QTHERMAL="lte_mtpl_backoff"</b> to control the reduced power value of Level 2 in LTE PA mechanism.</li> <li>● <b>AT+QTHERMAL="nr_mtpl_backoff"</b> to control the reduced power value of the level 2 in NR5G PA mechanism.</li> <li>● <b>AT+QCALLCFG="ussd_format"</b> to configure the report format of +CUSD to be hexadecimal or ASCII.</li> <li>● <b>AT+QSIMCFG="slot_features"</b> to support whether to skip the detection of service130 and service133.</li> </ul>

#### RM520NGLAAR01A05M4G\_01.001.01.001

Item	Brief Description
GENERAL	Configured the project as data-only.
GENERAL	Configured Commercial-TMO MBN as data-only.

#### RM520NGLAAR01A04M4G\_01.001.01.001

Item	Brief Description
Thermal Mitigation	Added <b>AT+QTHERMAL</b> to expand related configurations of thermal management.
GENERAL	Added <b>AT+QDPRSAR</b> to set a DPR scheme.
RM520NGLAAR01A03M4G_01.001.01.001	
Item	Brief Description
/	/

### 3.3. Improved Features

RM520NGLAAR03A01M4G_01.202.01.202	
Item	Brief Description
NETWORK	Modified the value of <b>&lt;SRS_tx_pwr&gt;</b> in the return result of <b>AT+QNWCFG="lte_tx_pw"</b> .
NETWORK	Solved the problem that NR5G NSA bandwidth returned by <b>AT+QENG="servingcell"</b> and <b>AT+QCAINFO</b> was inconsistent with that under the actual circumstance.
NETWORK	Solved the problem that ANR did not work in ENDC.
RF TX FTM	Extended <b>AT+QTXFTMEX</b> to add <b>&lt;nr_srs&gt;</b> parameter.
GENERAL	Solved the problem that there was a sudden change in the Rx traffic value queried by <b>AT+QGDNRCNT</b> when the dial-up was disconnected.
GENERAL	Solved the problem that URC could only be sent through the USB AT port, USB modem port and UART1 because the URC reporting ports were limited.
RM520NGLAAR01A07M4G_01.200.01.200	
Item	Brief Description
GENERAL	Extended <b>AT+QSINR</b> to obtain the SINR value in NSA.
GENERAL	Solved the problem that the RSRP and RSRQ values returned by <b>AT+QSCAN</b> in some cases were null.
RM520NGLAAR01A06M4G_01.001.01.001	
Item	Brief Description
NETWORK	Extended <b>AT+QNWCFG="ledmode"</b> to support turning off all lights.

<b>USB</b>	Optimized <b>AT+QCFG="usbcfg"</b> to support disabling or enabling QDL and QDSS.
<b>GENERAL</b>	Solved the problem that the bandwidth value returned by <b>AT+QENG="servingcell"</b> did not match the actual value.
<b>GENERAL</b>	Optimized the MBN exception recovery mechanism.
<b>GENERAL</b>	Optimized the verification mechanism of DFOTA and ABFOTA for the file name of upgrade firmware package.
<b>GENERAL</b>	Optimized <b>AT+QCAINFO</b> to add restrictions and judgments on the network so that the parameters were returned after connecting to the network.
<b>GENERAL</b>	Extended <b>AT+QSCAN</b> to add <b>&lt;scan_LTE_band&gt;</b> and <b>&lt;scan_NR5G_band&gt;</b> .
<b>GENERAL</b>	Solved the problem of not supporting the query of the uplink frequency of LTE under NSA with <b>AT+QNWCFG="freq_info"</b> .
<b>GENERAL</b>	Optimized <b>AT+QIMSCFG="service"</b> for parameter configuration to take effect immediately.
<b>GENERAL</b>	Extended <b>AT+QENDC</b> to add parameter and to support URC reporting.
<b>GENERAL</b>	Forbade to execute <b>AT+CFUN=0</b> or <b>AT+CFUN=1</b> when #W_DISABLE1 was in low level.
<b>GENERAL</b>	Modified the URC default report port to All Port.

**RM520NGLAAR01A05M4G\_01.001.01.001**

<b>Item</b>	<b>Brief Description</b>
<b>NETWORK</b>	Extended <b>AT+QNWCFG="rrc_state"</b> to support URC reporting.
<b>GENERAL</b>	Solved the problem that the AT port could not work properly after configuring to report the URC through all ports.
<b>GENERAL</b>	Extended <b>AT+QGPAPN</b> to support querying IPv4 addresses.
<b>GENERAL</b>	Extended <b>AT+QRSRP</b> to support querying NSA information.
<b>GENERAL</b>	Modified <b>AT+QGPAPN</b> to adapt it to NSA.
<b>GENERAL</b>	Optimized the reporting logic of URC <b>+C5GREG</b> .
<b>GENERAL</b>	Solved the problem that only one APN could be queried through <b>AT+QGPAPN</b> after multiple data call under SA.

**RM520NGLAAR01A04M4G\_01.001.01.001**

<b>Item</b>	<b>Brief Description</b>
<b>NETWORK</b>	Extended <b>AT+QCAINFO</b> to support querying CA information under NSA and SA.
<b>NETWORK</b>	Solved the problem that after disabling NSA, you can still query the NSA information with <b>AT+QENG</b> .



**GENERAL**

Updated the command set and the response format of **AT+QMAP**.

RM520NGLAAR01A03M4G\_01.001.01.001

Item	Brief Description
/	/

### 3.4. Known Issues

Item	Bug Description
/	/

**NOTE**

Verification Environment is shown below. For more details, please contact Quectel Technical Support.

For Windows:

USB Driver: Quectel\_Windows\_USB\_Driver(Q)\_NDIS\_V2.2.14.zip

Qflash Tool: QFlash\_V5.6

For Linux:

QMI\_WWAN Driver: Quectel\_Linux\_QMI\_WWAN\_Driver\_V1.2.1.zip

GobiNet Driver: Quectel\_Linux&Android\_GobiNet\_Driver\_V1.6.3.zip

PCIE Driver: Quectel\_Linux\_PCIE\_MHI\_Driver\_V1.3.1.zip

QFirehose Tool: Quectel\_LTE&5G\_QFirehose\_Linux&Android\_V1.4.10.zip

Quectel-CM Tool: Quectel\_QConnectManager\_Linux\_V1.6.1.zip

QLog Tool: Quectel\_QLog\_Linux&Android\_V1.5.14.zip

For IPQ:

Quectel PCIE Driver: Quectel\_Linux\_PCIE\_MHI\_Driver\_V1.3.1.zip

## 4. Functions List

Category	Item	Supported Version (Since)	Note
Basic Function	SMS	RM520NGLAAR01A03M4G _01.001.01.001	/
	Network	RM520NGLAAR01A03M4G _01.001.01.001	/
File Function	UFS	RM520NGLAAR01A03M4G _01.001.01.001	/
Protocol Function	QMI	RM520NGLAAR01A03M4G _01.001.01.001	/
	NITZ	RM520NGLAAR01A03M4G _01.001.01.001	/
	LwM2M	RM520NGLAAR01A06M4G _01.001.01.001	/
Interface Function	USB	RM520NGLAAR01A03M4G _01.001.01.001	/
	MBIM	RM520NGLAAR01A03M4G _01.001.01.001	/
	RmNet	RM520NGLAAR01A03M4G _01.001.01.001	/
	PCIE	RM520NGLAAR01A03M4G _01.001.01.001	/
Locate Function	AGPS	RM520NGLAAR01A03M4G _01.001.01.001	/
Upgrade Function	DFOTA	RM520NGLAAR01A05M4G _01.001.01.001	/
SIM Function	DSSS	RM520NGLAAR01A03M4G _01.001.01.001	/
	(U)SIM Detection	RM520NGLAAR01A03M4G _01.001.01.001	/
	ESIM	RM520NGLAAR01A06M4G _01.001.01.001	/
Special Function	Wi-Fi 6	RM520NGLAAR01A04M4G _01.001.01.001	/
	Low Power	RM520NGLAAR01A04M4G _01.001.01.001	/
	RF RX FTM	RM520NGLAAR01A03M4G _01.001.01.001	/
	RF TX FTM	RM520NGLAAR01A03M4G	/

		_01.001.01.001	
	SAR	RM520NGLAAR01A04M4G _01.001.01.001	/
	Thermal Mitigation	RM520NGLAAR01A04M4G _01.001.01.001	/
Security Function	Secure boot	RM520NGLAAR01A06M4G _01.001.01.001	/
5G Function	5G	RM520NGLAAR01A03M4G _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.

