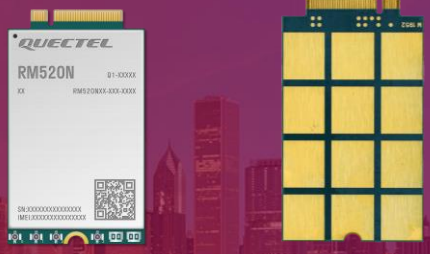
Quectel RM520N-GL

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_V0108_01.200.01.200

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

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Contents

1. Release Content

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

Package	Version
Firmware	RM520NGLAAR01A08M4G_01.200.01.200

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 FOTA; R01A05 and above the firmware versions can be directly upgraded through FOTA.
[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]	To extend the service life of flash, the following operations should be avoided to be performed frequently: powering on/off the module, CFUN switching, SIM card hot swapping, dual-SIM switching, and repeated execution of NVM commands.
[4]	It is not recommended to directly modify the pre-set APN profiles. Please create an APN profile after the existed CID number. Suppose you modify the APN profile of IMS, SOS, etc. with added specific attributes, these attributes are hidden after modification, causing the profile to still be unavailable.
[5]	During the FOTA upgrade process, it is necessary to ensure the stable power supply of the module. If the power is disconnected during the upgrade, there is a small probability that the flash will be damaged.
[6]	M.2 module is encapsulated without SPI, and SLIC cannot be mounted on the module.

3. Release History

3.1. Firmware Release History

Firmware Release	Description
RM520NGLAAR01A08M4G_01.200.01.200	Mass production
RM520NGLAAR01A07M4G_01.203.01.203	Mass production
RM520NGLAAR01A07M4G_01.202.01.202	Mass production
RM520NGLAAR01A07M4G_01.201.01.201	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

RM520NGLAAR01A08M4G_01.200.01.200	
Item	**Brief Description**
/	/
RM520NGLAAR01A07M4G_01.203.01.203	
Item	**Brief Description**
/	/
RM520NGLAAR01A07M4G_01.202.01.202	
Item	**Brief Description**
GENERAL	Added the following AT commands:

	● **AT+QNWCFG="nr5g_mimo_info"** to control whether to list 5G DL and UL MIMO information.
RM520NGLAAR01A07M4G_01.201.01.201	
Item	**Brief Description**
GENERAL	Added the following AT commands: ● **AT+QNWCFG="ledmode"** to set the blinking mode of the network light. ● **AT+QWDSCFG="operator_reserved_pco"** to configure PCO. ● **AT+QNWCFG="nitz_ons"** to query PLMN long name and short name from NITZ. ● **AT+QAUDRDY** to query the status of the Audio service on AP side.
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 **AT+QXQCN** 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	Added the following AT commands: ● **AT+QUPTIME** to get the system power-up time. ● **AT+QFOTAPID** to configure the Profile ID used in FOTA upgrade. ● **AT+QSIMCFG="dual_slot_status"** to query related information of the SIM cards when dual SIM cards were both inserted. ● **AT+QSIMCFG="sim_recovery"** to support SIM card recovery and automatic detection. ● **AT+QNWCFG="nr5g_pathloss"** to query NR5G pathloss information. ● **AT+QPCIE="pcie_gen"** to query PCIe GEN in PCIe RC mode. ● **AT+QNWCFG="cops_auto_mode"** to configure whether the mode preference is controlled by **AT+COPS**. ● **AT+QNWCFG="nr5g_ulbw"** to query NR5G uplink bandwidth. ● **AT+QNWCFG="lte_ulMCS"** to query LTE uplink MCS and modulation type.

	• **AT+QTHERMAL="lte_ul_throttle"** to control the uplink rate of Level 1 in LTE PA mechanism. • **AT+QTHERMAL="nr_ul_throttle"** to configure the uplink rate of Level 1 in NR5G PA mechanism. • **AT+QTHERMAL="lte_mtpl_backoff"** to control the reduced power value of Level 2 in LTE PA mechanism. • **AT+QTHERMAL="nr_mtpl_backoff"** to control the reduced power value of the level 2 in NR5G PA mechanism. • **AT+QCALLCFG="ussd_format"** to configure the report format of +CUSD to be hexadecimal or ASCII. • **AT+QSIMCFG="slot_features"** to support whether to skip the detection of service130 and service133.
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 **AT+QTHERMAL** to expand related configurations of thermal management.
GENERAL	Added **AT+QDPRSAR** to set a DPR scheme.
RM520NGLAAR01A03M4G_01.001.01.001	
Item	**Brief Description**
/	/

3.3. Improved Features

RM520NGLAAR01A08M4G_01.200.01.200	
Item	**Brief Description**
GENERAL	Updated the Verizon ENDC whitelist as required by Verizon.
RM520NGLAAR01A07M4G_01.203.01.203	
Item	**Brief Description**
GENERAL	Fixed DFIT#1 issue to make module acquire 3LTE+1NR when working under Samsung n77 Infra for Verizon MBN.
GENERAL	Fixed Motive issue on TC2.08 for Verizon MBN.
GENERAL	Hard code 5G Stand Alone was disabled in SW and not allowed to use AT command to enable or disable SA for Verizon MBN.
GENERAL	Disabled 2CC on N77 for non-contiguous carriers for Verizon MBN.
RM520NGLAAR01A07M4G_01.202.01.202	
Item	**Brief Description**
NETWORK	Extended **AT+QNWCFG="ssb_beam_id"** to add **<RSRQ>** and **<PCID>** in the return value of the command and to query all SSB beam information that have been measured currently.
NETWORK	Modified the value of **<SRS_tx_pwr>** in the return result of **AT+QNWCFG="lte_tx_pwr"**.
RF TX FTM	Extended **AT+QTXFTMEX** to add **<nr_srs>** parameter.
RmNet	Solved the probabilistic problem that RmNet data call failed in some special cases.
GENERAL	Solved the problem that the module probabilistically did not forward IPV6 NS packets to LAN device in bridge mode.
RM520NGLAAR01A07M4G_01.201.01.201	
Item	**Brief Description**
DFOTA	Added judgment to limit FOTA URL length to 512 bytes.
MBIM	Solved the problem of incorrect signal grids of Windows OS.
RF TX FTM	Solved the problem of error reported when n41 was tested with **AT+QTXFTMSRS**.
GENERAL	Optimized cw2017 driver to solve the problem that the module might not be

	available in some scenarios.
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.
GENERAL	Solved the following problems related to **AT+CLCC**: ● An error was reported when **AT+CLCC** was executed during EPSFB process. ● The voice call status queried through **AT+CLCC** was abnormal after the data call ended.

RM520NGLAAR01A07M4G_01.200.01.200	
Item	**Brief Description**
GENERAL	Extended **AT+QSINR** to obtain the SINR value in NSA.
GENERAL	Solved the problem that the RSRP and RSRQ values returned by **AT+QSCAN** in some cases were null.

RM520NGLAAR01A06M4G_01.001.01.001	
Item	**Brief Description**
NETWORK	Extended **AT+QNWCFG="ledmode"** to support turning off all lights.
USB	Optimized **AT+QCFG="usbcfg"** to support disabling or enabling QDL and QDSS.
GENERAL	Solved the problem that the bandwidth value returned by **AT+QENG="servingcell"** did not match the actual value.
GENERAL	Optimized the MBN exception recovery mechanism.
GENERAL	Optimized the verification mechanism of DFOTA and ABFOTA for the file name of upgrade firmware package.
GENERAL	Optimized **AT+QCAINFO** to add restrictions and judgments on the network so that the parameters were returned after connecting to the network.
GENERAL	Extended **AT+QSCAN** to add **<scan_LTE_band>** and **<scan_NR5G_band>**.
GENERAL	Solved the problem of not supporting the query of the uplink frequency of LTE under NSA with **AT+QNWCFG="freq_info"**.
GENERAL	Optimized **AT+QIMSCFG="service"** for parameter configuration to take effect immediately.
GENERAL	Extended **AT+QENDC** to add parameter and to support URC reporting.
GENERAL	Forbade to execute **AT+CFUN=0** or **AT+CFUN=1** when #W_DISABLE1 was in low level.
GENERAL	Modified the URC default report port to All Port.

RM520NGLAAR01A05M4G_01.001.01.001	
Item	**Brief Description**

NETWORK	Extended **AT+QNWCFG="rrc_state"** to support URC reporting.
GENERAL	Solved the problem that the AT port could not work properly after configuring to report the URC through all ports.
GENERAL	Extended **AT+QGPAPN** to support querying IPv4 addresses.
GENERAL	Extended **AT+QRSRP** to support querying NSA information.
GENERAL	Modified **AT+QGPAPN** to adapt it to NSA.
GENERAL	Optimized the reporting logic of URC **+C5GREG**.
GENERAL	Solved the problem that only one APN could be queried through **AT+QGPAPN** after multiple data call under SA.
RM520NGLAAR01A04M4G_01.001.01.001	
Item	**Brief Description**
NETWORK	Extended **AT+QCAINFO** to support querying CA information under NSA and SA.
NETWORK	Solved the problem that after disabling NSA, you can still query the NSA information with **AT+QENG**.
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_V2.4.6.zip
Qflash Tool: QFlash_V6.0.zip

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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