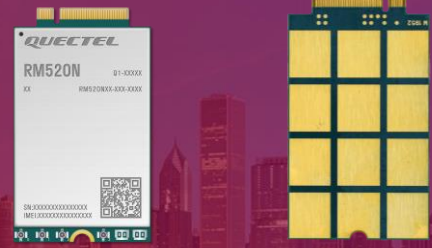


# Quectel RM520N-GL

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\_V0106\_01.200.01.200

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## 1. Release Content

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

| Package  | Version                           |
|----------|-----------------------------------|
| Firmware | RM520NGLAAR01A06M4G_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 DFOTA; R01A05 and above the firmware versions can be directly upgraded through DFOTA. |
| [2] | The new firmware version cannot be downgraded to previous versions, otherwise the module will not be able to work normally.   |

### 3. Release History

#### 3.1. Firmware Release History

| Firmware Release                  | Description     |
|-----------------------------------|-----------------|
| RM520NGLAAR01A06M4G_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

| RM520NGLAAR01A06M4G_01.200.01.200 |   |
|-----------------------------------|---|
| Item                              | Brief Description   |
| 5G                                | Enabled NSA of FirstNet.  |
| GENERAL                           | 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.   |
| GENERAL                           | Added AT+QMBNCFG="repair" to enable or disable the function of comparing the number of MBNs loaded locally and RFS MBNs in the MBN inspection mechanism.  |
| 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

RM520NGLAAR01A06M4G\_01.200.01.200

| Item    | Brief Description   |
|---------|---|
| NETWORK | Extended <b>AT+QNETRC</b> so that when the URC of ESM reject cause was reported, you could enable or disable ext_mode to report PDN number. |
| NETWORK | Solved the problem of uneven antenna signal strength when the module registered on some band.   |
| 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.                                       |
| GENERAL | Modified APN login user name and password length to 64.   |

RM520NGLAAR01A06M4G\_01.001.01.001

| Item    | Brief Description  |
|---------|--|
| NETWORK | Extended <b>AT+QNWCFG="ledmode"</b> to support turning off all lights.   |
| USB     | Optimized <b>AT+QCFG="usbcfg"</b> to support disabling or enabling QDL and QDSS.   |
| GENERAL | Solved the problem that the bandwidth value returned by <b>AT+QENG="servingcell"</b> 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 <b>AT+QCAINFO</b> to add restrictions and judgments on the network so that the parameters were returned after connecting to the network. |
| GENERAL | Extended <b>AT+QSCAN</b> to add <b>&lt;scan_LTE_band&gt;</b> and <b>&lt;scan_NR5G_band&gt;</b> .   |
| GENERAL | Solved the problem of not supporting the query of the uplink frequency of LTE under NSA with <b>AT+QNWCFG="freq_info"</b> .                        |
| GENERAL | Optimized <b>AT+QIMSCFG="service"</b> for parameter configuration to take effect immediately.  |

|         |  |
|---------|--|
| GENERAL | Extended <b>AT+QENDC</b> to add parameter and to support URC reporting.                    |
| GENERAL | Forbade to execute <b>AT+CFUN=0</b> or <b>AT+CFUN=1</b> 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 <b>AT+QNWCFG="rrc_state"</b> 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 <b>AT+QGPAPN</b> to support querying IPv4 addresses.  |
| GENERAL | Extended <b>AT+QRSRP</b> to support querying NSA information.  |
| GENERAL | Modified <b>AT+QGPAPN</b> to adapt it to NSA.  |
| GENERAL | Optimized the reporting logic of URC <b>+C5GREG</b> .  |
| GENERAL | 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

| Item    | Brief Description  |
|---------|--|
| NETWORK | Extended <b>AT+QCAINFO</b> 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 <b>AT+QENG</b> . |

#### 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\_V1.2.2.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<br>_01.001.01.001 | /    |
|                    | Network          | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
| File Function      | UFS              | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
| Protocol Function  | QMI              | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
|                    | NITZ             | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
|                    | LwM2M            | RM520NGLAAR01A06M4G<br>_01.001.01.001 | /    |
| Interface Function | USB              | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
|                    | MBIM             | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
|                    | RmNet            | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
|                    | PCIE             | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
| Locate Function    | AGPS             | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
| Upgrade Function   | DFOTA            | RM520NGLAAR01A05M4G<br>_01.001.01.001 | /    |
| SIM Function       | DSSS             | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
|                    | (U)SIM Detection | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
|                    | ESIM             | RM520NGLAAR01A06M4G<br>_01.001.01.001 | /    |
| Special Function   | Wi-Fi 6          | RM520NGLAAR01A04M4G<br>_01.001.01.001 | /    |
|                    | Low Power        | RM520NGLAAR01A04M4G<br>_01.001.01.001 | /    |
|                    | RF RX FTM        | RM520NGLAAR01A03M4G<br>_01.001.01.001 | /    |
|                    | RF TX FTM        | RM520NGLAAR01A03M4G                   | /    |

|                   |                    |                                       |   |
|-------------------|--------------------|---------------------------------------|---|
|                   |                    | _01.001.01.001                        |   |
|                   | SAR                | RM520NGLAAR01A04M4G<br>_01.001.01.001 | / |
|                   | Thermal Mitigation | RM520NGLAAR01A04M4G<br>_01.001.01.001 | / |
| Security Function | Secure boot        | RM520NGLAAR01A06M4G<br>_01.001.01.001 | / |
| 5G Function       | 5G                 | RM520NGLAAR01A03M4G<br>_01.001.01.001 | / |

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