

# 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\_V1105\_01.001.01.001

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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 | RM500QGLABR11A05M4G_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       |
|-----------------------------------|-------------------|
| RM500QGLABR11A05M4G_01.001.01.001 | Mass production   |
| RM500QGLABR11A04M4G_01.001.01.001 | Mass production   |
| RM500QGLABR11A03M4G_01.001.01.001 | Mass production   |
| RM500QGLABR11A02M4G_01.001.01.001 | Mass production   |
| RM500QGLABR11A01M4G_01.001.01.001 | Mass production   |
| RM500QGLABR10A03M4G_01.001.01.001 | Commercial sample |
| RM500QGLABR10A02M4G_01.001.01.001 | Commercial sample |
| RM500QGLABR10A01M4G_01.001.01.001 | Only for sample   |

#### 3.2. New Features

| RM500QGLABR11A05M4G_01.001.01.001 |                                                                                                                                                                                           |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item                              | Brief Description                                                                                                                                                                         |
| NETWORK                           | Set the default value of <code>&lt;mode_pref&gt;</code> in <code>AT+QNWCFEFCFG="mode_pref"</code> to AUTO to support LTE and 5G NR.                                                       |
| NETWORK                           | Added <code>AT+QNWCFEFCFG="dis_rplmn"</code> and <code>AT+QNWCFEFCFG="dis_rplmnact"</code> to control RPLMN and RPLMNACT respectively.                                                    |
| NETWORK                           | Added <code>AT+QNWCFEFCFG="LTE_AMBR"</code> and <code>AT+QNWCFEFCFG="NR5G_AMBR"</code> to obtain the AMBR information of all activated APNs under LTE and 5G NR.                          |
| NETWORK                           | Added <code>QNWCFEFCFG="nr5g_pref_freq_list"</code> to configure the preference frequency list of NR5G.                                                                                   |
| NETWORK                           | Added <code>AT+QNWCFEFCFG="used_algo"</code> to obtain the current encryption algorithm and integrity algorithm.                                                                          |
| NETWORK                           | Added <code>AT+QNWCFEFCFG="encryp_alg_support"</code> and <code>AT+QNWCFEFCFG="integ_alg_support"</code> to obtain supported encryption algorithms and integrity algorithms respectively. |

|         |                                                                                                                                                             |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NETWORK | Added <b>AT+QNWCFG="nr5g_earfcn_lock"</b> to lock NR5G EARFCN。                                                                                              |
| NETWORK | Added <b>AT+QNWCFG="data_roaming"</b> to control data roaming.                                                                                              |
| MBIM    | Supported MBIM SAR function.                                                                                                                                |
| MBIM    | Supported automatic deletion of read messages when the message space was full.                                                                              |
| PCIE    | Added <b>AT+QPCIE="id"</b> to query PCIe ID information.                                                                                                    |
| ESIM    | Added eSIM LPA feature.                                                                                                                                     |
| 5G      | Enabled all 5G bands.                                                                                                                                       |
| GENERAL | Disabled IMS roaming on CDMAless-Verizon                                                                                                                    |
| GENERAL | Added <b>AT+QCFG="clat"</b> to control clat_enabled.                                                                                                        |
| GENERAL | Added "110", "120" and "119" to the emergency number list of China Mobile, China Telecom, and Unicom when you queried EEC numbers with <b>AT+QECCNUM?</b> . |
| GENERAL | Enabled TCP Keepalive.                                                                                                                                      |
| GENERAL | Added <b>AT+QESMINFO</b> and <b>AT+QEMMINFO</b> to query ESM and EMM error codes.                                                                           |
| GENERAL | Added <b>AT+QNWCFG="dis_4MIMO_enable"</b> to control 4*MIMO under LTE bands.                                                                                |
| GENERAL | Turned off pwm1 by default when the module was powered on.                                                                                                  |

**RM500QGLABR11A04M4G\_01.001.01.001**

| Item    | Brief Description                                                                   |
|---------|-------------------------------------------------------------------------------------|
| NETWORK | Added <b>AT+QNWCFG="nr5g_meas_info"</b> to display 5G neighboring cell information. |
| GENERAL | Added <b>AT+QMAP="mac_bind"</b> to bind IPv4 and MAC addresses.                     |
| GENERAL | Added <b>AT+QSCAN</b> to scan the base station information without a SIM card.      |
| GENERAL | Add <b>AT+QNWCFG="wcdma_cqi"</b> to get the CQI value.                              |
| GENERAL | Added <b>AT+QCFG="ResetFactory"</b> to restore factory settings.                    |
| NETWORK | Added the legality verification of the parameters of <b>AT+QLLM</b> .               |

**RM500QGLABR11A03M4G\_01.001.01.001**

| Item       | Brief Description                                                      |
|------------|------------------------------------------------------------------------|
| Voice Call | Added <b>AT+QIMSCFG="urc_qearlymediai"</b> to enable reporting whether |

there was a network ringback tone.

|                    |                                                                                                                      |
|--------------------|----------------------------------------------------------------------------------------------------------------------|
| RmNet              | Added <b>AT+QNETDEVSTATUS</b> to query RmNet device status and query link connection status.                         |
| Thermal Mitigation | Supported configuring MDM thermal mitigation strategy through <b>AT+QCFG="thermal5g/mdm"</b> .                       |
| GENERAL            | Added <b>AT+QNWCFG="up/down"</b> and <b>AT+QGDNRCNT</b> to query rate statistics and data flow statistics.           |
| GENERAL            | Supported UAC feature.                                                                                               |
| GENERAL            | Deleted the subcommands of <b>AT+QCFG="usbspeed"</b> and <b>AT+QCFG="netmaskset"</b> displayed by <b>AT+QCFG=?</b> . |
| SIMCARD            | Added <b>AT+QSIMCFG="disable_physim"</b> to disable SIM card feature.                                                |

**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> |
| NETWORK            | Added <b>AT+QNWCFG="dss_enable"</b> to control the DSS function.                                                                                                                                                                               |
| NETWORK            | Added <b>AT+QNWCFG="lte_cell_id"</b> and <b>AT+QNWCFG="nr5g_cell_id"</b> to obtain ECI/NCI related parameters.                                                                                                                                 |
| USB                | Added <b>AT+QCFG="usbspeed"</b> to switch between USB 2.0 and USB 3.0 interface protocols.                                                                                                                                                     |
| Thermal Mitigation | Set the Level 2 temperature threshold of thermal mitigation mechanism to 105 °C.                                                                                                                                                               |
| 5G                 | Added <b>AT+QNWCFG="nr5g_cdrx"</b> to control 5G_CDRX.                                                                                                                                                                                         |
| GENERAL            | Added N66 related bandwidth.                                                                                                                                                                                                                   |
| GENERAL            | Added Realtake 8111H driver.                                                                                                                                                                                                                   |
| GENERAL            | Added <b>AT+QETH="eth_driver"</b> to select Ethernet driver.                                                                                                                                                                                   |
| GENERAL            | Added <b>AT+QETH="eth_at"</b> to support SMD switching between Modem port and Ethernet port.                                                                                                                                                   |

**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 <code>/nv/item_files/modem/nr5g/ML1/ml1_rrc_validation</code> 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+QSINR</b> and <b>AT+QRSRQ</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="rat_acq_order"</b> to specify the RAT acquisition order.                                                                                     |

**RM500QGLABR10A03M4G\_01.001.01.001**

| Item               | Brief Description                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AUDIO              | Supported the second PCM.                                                                                                                                                                                                                                                                                                                                            |
| GENERAL            | 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.                                                                                                                                                                                                                                        |
| Thermal Mitigation | 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> |
| GENERAL            | 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.                                                                                                                                                                                                                          |

**RM500QGLABR10A02M4G\_01.001.01.001**

| Item    | Brief Description                                                                         |
|---------|-------------------------------------------------------------------------------------------|
| GNSS    | Added the default value 4 to NV74235.                                                     |
| 5G      | Added <code>&lt;5g_basic&gt;</code> in <b>AT+QENDC</b> to obtain 5G NSA icon information. |
| GENERAL | Enabled kernel configuration item CONFIG_TASKSTATS.                                       |
| GENERAL | Added <b>AT+QRSSI</b> to query the RSSI value of NR5G SA and LTE RX.                      |
| GENERAL | Added <b>AT+QCFG="efratctl"</b> to control the switching of SIM card network modes.       |



### 3.3. Improved Features

| RM500QGLABR11A05M4G_01.001.01.001 |                                                                                                                                                              |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item                              | Brief Description                                                                                                                                            |
| VOICE CALL                        | Solved the problem that no URC <b>NO CARRIER</b> report after the MO called the module to successfully establish a call and then hung up the call.           |
| NETWORK                           | Solved the problem of incorrect service provider name returned by AT+QSPN.                                                                                   |
| NETWORK                           | Optimized <b>AT+QNWCFG="LTE_tx_pwr"</b> to support querying PUCCH, PRACH, SRS and PUSCH TX power.                                                            |
| NETWORK                           | Solved the problem of incorrect TX power returned by <b>AT+QNWCFG="nr5g_tx_pwr"</b> .                                                                        |
| NETWORK                           | Extended <b>AT+QSCAN</b> to obtain or calculate the frequency of the carrier center.                                                                         |
| NETWORK                           | Solved the problem of insufficient display bit width of the NR 5G cell ID queried by <b>AT+QENG="servingcell"</b> .                                          |
| NETWORK                           | Solved the problem that <b>AT+QENG="servingcell"</b> abnormally obtained TX power when the module was not transmitting data.                                 |
| NETWORK                           | Solved the problem that the returned value of <b>AT+QENG="neighbourcell"</b> was incorrect.                                                                  |
| NETWORK                           | Modified <b>AT+QCAINFO</b> by replacing the value of <b>&lt;SINR&gt;</b> with <b>&lt;RSSNR&gt;</b> .                                                         |
| NETWORK                           | Solved the problem that the 5GS network did not change but the URC was reported abnormally after the module deregistered and then re-registered the network. |
| NETWORK                           | Solved the problem of URC <b>+CREG</b> and <b>+CEREG</b> report error if you queried network status when the module was in weak or no signal strength.       |
| USB                               | Solved the problem that USB3.1 port could not be enumerated normally in some scenarios in Linux.                                                             |
| USB                               | Extended <b>AT+QCFG="usbspeed"</b> and added the switch between USB3.1 Gen1 and Gen2.                                                                        |
| MBIM                              | Solved the problem of abnormal signal value displayed on the interface after Windows 10 1903 woke up from sleep.                                             |
| RF RX FTM                         | Optimized <b>AT+QRFTESTNR5G="RX"</b> to support testing other level signals other than -50 dbm.                                                              |
| GENERAL                           | Solved the problem of incorrect return value of <b>AT+QCAINFO</b> .                                                                                          |
| GENERAL                           | Solved the problem that the module could not power down normally after executing <b>AT+QPOWD=1</b> .                                                         |
| GENERAL                           | Optimized <b>+CREG/+CGREG/+CEREG/+C5GREG</b> URC report logic to ensure                                                                                      |

|         |                                                                                                                                                                                                                                                                                                                                         |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | that there were empty lines between URCs.                                                                                                                                                                                                                                                                                               |
| GENERAL | Solved the problem that the Windows interface abnormally showed no signal after registering for 5G SA with NDIS dial-up under Win10.                                                                                                                                                                                                    |
| GENERAL | Solved the problem of URC reporting abnormally when the cell signal did not change.                                                                                                                                                                                                                                                     |
| GENERAL | Solved the problem of <b>A/</b> would be executed once more.                                                                                                                                                                                                                                                                            |
| GENERAL | Solved the problem that the return value of <b>AT+QENG="neighbourcell"</b> was incorrect under LTE.                                                                                                                                                                                                                                     |
| GENERAL | Solved the format problem of the return values of <b>AT+QIMSCFG="user_agent"</b> without double quotes.                                                                                                                                                                                                                                 |
| GENERAL | Solved the problem that Windows OS could not display the 5G icon after the module successfully registered the 5G NSA under Verizon.                                                                                                                                                                                                     |
| GENERAL | Solved the problem that <b>AT+QCFG="ims"</b> could not query the IMS registration status under SA network.                                                                                                                                                                                                                              |
| GENERAL | Solved the problem that the SIM card slot configuration did not take effect due to the change of the hash value.                                                                                                                                                                                                                        |
| GENERAL | Solved the problem that <b>AT+QGDNRcnt</b> could not save the traffic statistics results to NVM.                                                                                                                                                                                                                                        |
| GENERAL | Solved the problem that some ports could not report FOTA URC.                                                                                                                                                                                                                                                                           |
| GENERAL | Extended <b>AT+QSCAN</b> to support querying cell ID and tracking area code.                                                                                                                                                                                                                                                            |
| GENERAL | Optimized <b>AT+QMBNCFG="Select"</b> so that it can query the currently selected MBN information.                                                                                                                                                                                                                                       |
| GENERAL | Solved the problem of network access failure in some scenarios (such as roaming) after AT&T 3G sunset.                                                                                                                                                                                                                                  |
| GENERAL | Solved the problem that the airplane mode could not be entered through the wdis pin.                                                                                                                                                                                                                                                    |
| GENERAL | Optimized foolproof strategy to be compatible with the old firmware version.                                                                                                                                                                                                                                                            |
| GENERAL | Solved the following problems:<br><ol style="list-style-type: none"> <li>Solved the problem that the maximum UL and DL rate issued by the base station to the module could not be obtained;</li> <li>Solved the problem that ACQ_DB was not saved probabilistically when using China Telecom SIM card to search the network.</li> </ol> |
| GENERAL | Solved the problem of <b>&lt;eps_mobile_identity&gt;</b> error in the return value of <b>AT+QIMSCFG="qirep"</b> .                                                                                                                                                                                                                       |
| GENERAL | Solved the probabilistic problem of return error through <b>AT+QRSRQ</b> .                                                                                                                                                                                                                                                              |
| GNSS    | Fixed the problem of incomplete GSV sentences obtained by <b>AT+QGPGNMEA="GSV"</b> .                                                                                                                                                                                                                                                    |
| GNSS    | Upgraded NMEA sentences to comply with 0183 v4.11 protocol.                                                                                                                                                                                                                                                                             |

**SIMCARD** Solved the problem that there was no URC **+CPIN: NOT INSERTED** report when the module was powered on without inserting the SIM card.

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| Item           | Brief Description                                                                                                                                                                                                |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NETWORK</b> | Solved the problem that the parameter configuration of <b>AT+QNWPREFCFG="rat_acq_order"</b> did not take effect after switching between <b>AT+CFUN=0</b> and <b>AT+CFUN=1</b> or after the module was restarted. |
| <b>NETWORK</b> | Optimized the WCDMA band format of <b>&lt;band&gt;</b> in <b>AT+QNWINFO</b> to keep it consistent with the actual band name.                                                                                     |
| <b>NETWORK</b> | Solved the problem that <b>&lt;MCC&gt;</b> and <b>&lt;MNC&gt;</b> of the LTE cells returned by <b>AT+QSCAN</b> under SA had no value.                                                                            |
| <b>NETWORK</b> | Fixed the problem that the value of <b>&lt;ri&gt;</b> in <b>AT+QNWCFG="nr5g_csi"</b> was incorrect.                                                                                                              |
| <b>GENERAL</b> | Solved the problem that the parameter configuration of <b>AT+C5GREG</b> was not saved after restart.                                                                                                             |
| <b>PCIE</b>    | Solved the problem that the USB port could not send and receive AT commands after enabling ADB.                                                                                                                  |

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| Item                      | Brief Description                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NETWORK</b>            | Solved the problem that the return value of <b>AT+QENG="neighbourcell"</b> was too long and the module could not work normally.           |
| <b>NETWORK</b>            | Solved the problem of incorrect PLMN information returned by <b>AT+QENG="servingcell"</b> when sharing base stations.                     |
| <b>NETWORK</b>            | Solved the problem that when the module registered to SA, <b>&lt;cellID&gt;</b> returned by <b>AT+QENG="servingcell"</b> was incorrect.   |
| <b>NETWORK</b>            | Expanded <b>AT+QRSRP</b> to support returning the current network standard.                                                               |
| <b>NETWORK</b>            | Solved the problem that the band value of EN-DC NSA 5G queried by <b>AT+QENG</b> is inconsistent with the band value printed in QXDM log. |
| <b>NETWORK</b>            | Enabled DSS by default.                                                                                                                   |
| <b>LowPower</b>           | Solved the problem that the configured <b>AT+QSCLK</b> did not take effect after module restarting.                                       |
| <b>LowPower</b>           | Solved the problem that the hibernation time of the module was too long.                                                                  |
| <b>Thermal Mitigation</b> | Solved the problem that the return value of <b>AT+QTEMP</b> was incorrect.                                                                |
| <b>Thermal Mitigation</b> | Optimized PA thermal mitigation strategy.                                                                                                 |
| <b>GENERAL</b>            | Solved the problem of return <b>ERROR</b> after executing <b>AT+QLLM</b> .                                                                |
| <b>GENERAL</b>            | Solved the problem of incorrect upload and download rates queried by <b>AT+QNWCFG="up/down"</b> .                                         |

|         |                                                                                                                                                     |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| GENERAL | Solved the problem that the output voltage was too high when the WWAN_LED light was on, and the light brightness was not enough.                    |
| GENERAL | Optimized the format of <b>AT+QAUDCFG="slic_IndRep"</b> , <b>AT+QAUDCFG="uac_cfg"</b> and <b>AT+QAUDCFG="uac_switch"</b> .                          |
| GENERAL | Solved the problem that the configuration of <b>AT+QCFG="ims"</b> did not take effect after switching to another MBN when the module was shut down. |
| GENERAL | Solved the problem that the module would reboot when querying MBN list with <b>AT+QMBNCFG="list"</b> .                                              |

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| Item      | Brief Description                                                                                                                                                  |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NETWORK   | Solved the problem that the module could not work normally when executing <b>AT+QIMSACT=0</b> .                                                                    |
| NETWORK   | 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. |
| NETWORK   | Maintained the default value of <SINR> of <b>AT+QENG="servingcell"</b> to -32768 when NSA network was in idle state.                                               |
| NETWORK   | Solved the problem that when <b>AT+QGPAPN=1</b> was executed under real network, the module would not work normally under certain environment.                     |
| MBIM      | 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> .                                 |
| Low Power | Solved the problem that there was no URC report when the module received SMS in sleep mode.                                                                        |
| 5G        | Solved the problem that <b>AT+QNWLOCK="common/5g"</b> did not take effect after module restart.                                                                    |
| GENERAL   | Solved the problem that the band value returned by <b>AT+QENG</b> in EN-DC mode was incorrect.                                                                     |
| GENERAL   | Solved the problem that there was no URC <b>+QIND: SMS DONE</b> report at module restart.                                                                          |
| GENERAL   | Extended <b>AT+CPOL</b> to check whether the SIM card supported NR5G.                                                                                              |
| GENERAL   | Solved the problem that emergency call information could not be found via <b>AT+CLCC</b> when making an emergency call.                                            |
| GNSS      | Solved the problem of returning historical residual information when executing <b>AT+QGPSGNMEA</b> for the first time.                                             |

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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 | Deleted <b>AT+QRSSI</b> .                                                                    |

|                                          |                                                                                                                                                                        |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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> .          |
| 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.                                                          |
| NETWORK                                  | Solved the problem of NSA band display error.                                                                                                                          |
| GENERAL                                  | Solved the problem that the AT port of the module could not work normally during the test.                                                                             |
| GENERAL                                  | Solved the problem that no result was returned with <b>AT+QIMSCFG="user_agent"</b> .                                                                                   |
| GENERAL                                  | Removed to query the received signal power under WCDMA through <b>AT+QRSRP</b> .                                                                                       |
| GENERAL                                  | Solved the problem of failing to obtain LTE neighboring cells information.                                                                                             |
| GENERAL                                  | Solved the problem that the signal received power value of <b>AT+QRSRQ</b> on WCDMA was not within the range.                                                          |
| GENERAL                                  | Solved the problem that the new baseline would cause the module to reboot abnormally with ECM dial-up.                                                                 |
| GENERAL                                  | Merged a Qualcomm patch to optimize the problem of unstable uplink rate of 5G NSA.                                                                                     |
| GENERAL                                  | Added a <b>&lt;CR&gt;&lt;LF&gt;</b> to the return value of <b>AT+QCFG="usbnet"</b> .                                                                                   |
| GNSS                                     | Solved the problem of incorrect latitude and longitude information returned by <b>AT+QGPSLOC</b> .                                                                     |
| <b>RM500QGLABR10A03M4G_01.001.01.001</b> |                                                                                                                                                                        |
| <b>Item</b>                              | <b>Brief Description</b>                                                                                                                                               |
| GENERAL                                  | 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.                                                                                      |

RM500QGLABR10A02M4G\_01.001.01.001

| Item    | Brief Description                                                                                                                                                                                                                                          |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GENERAL | Solved the problem that the DSQMI_NAS_AsyncRespDSHdlr function abnormally releases the requested buffer.                                                                                                                                                   |
| GENERAL | Merged a Qualcomm patch to solve the problem that the module would reset in normal temperature vbat+ random power-off stress test.                                                                                                                         |
| GNSS    | Solved the problem that the debug UART port could not output NMEA sentence.                                                                                                                                                                                |
| GENERAL | Solved the problem that the module could not enter the flight mode by pulling down the w_disable pin.                                                                                                                                                      |
| GNSS    | 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> . |
| USB     | Solved the problem that the USB port might not report the upgrade progress during the DFOTA upgrade.                                                                                                                                                       |
| NETWORK | Fixed the problem that the RSRP values of RX2 and RX3 of WCDMA and LTE returned by <b>AT+QRSRP</b> were incorrect.                                                                                                                                         |



### 3.4. Known Issues

| Item    | Bug Description                                                                                                                                                        |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GENERAL | When dialing up to network with NDIS, after executing <b>AT+CGATT=0</b> , the dialing state continues to disconnect and reconnect.                                     |
| GENERAL | When a Unicom SIM card is inserted, <b>AT+CTZU</b> and <b>AT+CTZR</b> do not take effect.                                                                              |
| SIMCARD | <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.                                   |
| GENERAL | There is a small probability of some MBNs missing during the firmware upgrade, which can be restored by rebooting the module.                                          |
| GENERAL | After the UAC function is enabled, the module calls the mobile phone, and the mobile phone answers, then the audio that PC records during the call has current noises. |

**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\_V5.2

QLog Tool: QWinLog\_V1.6.8.zip

For Linux,

QMI\_WWAN Driver: Quectel\_Linux&Android\_QMI\_WWAN\_Driver\_V1.2.0.23.zip

GobiNet Driver: Quectel\_Linux&Android\_GobiNet\_Driver\_V1.6.2.15.zip

PCIE Driver: Quectel\_Linux\_PCIE\_MHI\_Driver\_V1.3.0.17.zip

QFirehose Tool: Quectel\_LTE&5G\_QFirehose\_Linux&Android\_V1.4.5.zip

Quectel-CM Tool: Quectel\_QConnectManager\_Linux\_V1.6.0.26.zip

QLog Tool: Quectel\_QLog\_Linux&Android\_V1.5.zip

For IPQ,

Quectel IPQ driver: Quectel\_Linux\_PCIE\_MHI\_Driver\_V1.3.0.15.zip

Qualcomm IPQ driver: spf11.1

## 4. Functions List

| Category           | Item             | Supported Version(Since)          | Note                                            |
|--------------------|------------------|-----------------------------------|-------------------------------------------------|
| Basic Function     | SMS              | RM500QGLABR10A01M4G_01.001.01.001 | /                                               |
|                    | Voice Call       | RM500QGLABR10A03M4G_01.001.01.001 | /                                               |
|                    | VoLTE            | RM500QGLABR10A03M4G_01.001.01.001 | /                                               |
|                    | 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 | /                                               |
| Locate Function    | AGPS             | RM500QGLABR10A01M4G_01.001.01.001 | /                                               |
| Upgrade Function   | DFOTA            | RM500QGLABR10A02M4G_01.001.01.001 | /                                               |
| Audio Function     | Slic             | RM500QGLABR11A05M4G_01.001.01.001 | /                                               |
| SIM Function       | (U)SIM Detection | RM500QGLABR10A01M4G_01.001.01.001 | /                                               |
|                    | DSSS             | RM500QGLABR10A02M4G_01.001.01.001 | /                                               |
|                    | ESIM             | RM500QGLABR11A05M4G_01.001.01.001 | /                                               |
| Special Function   | RF RX FTM        | RM500QGLABR10A02M4G_01.001.01.001 | /                                               |
|                    | RF TX FTM        | RM500QGLABR10A02M4G_01.001.01.001 | /                                               |



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|             |                       |                                       |   |
|-------------|-----------------------|---------------------------------------|---|
|             |                       | 01.001                                |   |
|             | LowPower              | RM500QGLABR10A02M4G_01.001.<br>01.001 | / |
|             | Thermal<br>Mitigation | RM500QGLABR10A02M4G_01.001.<br>01.001 | / |
| 5G Function | 5G                    | RM500QGLABR10A01M4G_01.001.<br>01.001 | / |

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## About Quectel

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.

