

# Quectel RM502Q-AE

IoT/eMBB-Optimized  
5G Sub-6 GHz M.2 Module



# RM502Q-AE-AA

## Release Notes

### 5G Module Series

Rev. RM502Q-AE-AA\_Firmware\_Release\_Notes\_V1302\_01.001.01.001

Date: 2022-06-09

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## 1. Release Content

This document provides the Release Notes for RM502Q-AE-AA. The current release includes the firmware package.

Package	Version
Firmware	RM502QAEAAR13A02M4G_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]	SIM card 2 is disabled due to single-card single-standby function, so there is no ESIM interface displayed.

### 3. Release History

#### 3.1. Firmware Release History

Firmware Release	Description
RM502QAEAAR13A02M4G_01.001.01.001	Mass production
RM502QAEAAR13A01M4G_01.001.01.001	Only for sample

#### 3.2. New Features

RM502QAEAAR13A02M4G_01.001.01.001	
Item	Brief Description
NETWORK	Added <b>AT+QNWCFG="ul_data_path"</b> to query the uplink data path.
NETWORK	Added <b>AT+QNETRC</b> to query ESM, EMM and NR5GMM error codes and control the corresponding URC reporting.
NETWORK	Added <b>AT+QNWCFG="clr_rplmn"</b> to delete the RPLMN information in the SIM card.
DFOTA	Added judgment to limit FOTA URL length to 512 bytes.
DFOTA	Added the function of reporting DFOTA upgrade progress on the Debug port.
GENERAL	Added <b>AT+QNWCFG="sysmode"</b> to query Sysmode and Submode.
GENERAL	Supported RTL8211E.
GENERAL	Added <b>AT+QGPAPN</b> to obtain the current APN.
GENERAL	Supported NR T+T bands combination.
GENERAL	Disabled the GEA1 algorithm by default.
GENERAL	Added <b>AT+QSVN</b> to obtain IMEISV.
GENERAL	Added <b>AT+QMAP="sfe"</b> to control the software acceleration functionality.
GENERAL	Added <b>AT+QNWCFG="rrc_state"</b> to query the RRC state.

GENERAL	Added <b>AT+QNWCFG="msisdn"</b> to query MSISDN from network.
GENERAL	Added <b>AT+QIMSCFG="ims_status"</b> to query the current IMS registration status and configure whether to enable URC reporting of IMS registration status.
SIMCARD	Added <b>AT+QSIMCFG="ATR"</b> to query the ATR value.

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Item	Brief Description
Secure Boot	Enable the Secure Boot function

### 3.3. Improved Features

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Item	Brief Description
NETWORK	Solved the problem that incorrect PLMN information was returned after executing <b>AT+QSCAN</b> .
NETWORK	Extended <b>AT+QSCAN</b> to support querying more parameters under LTE.
NETWORK	Solved the problem that after disabling NSA, you can still query the NSA information with <b>AT+QENG</b> .
NETWORK	Extended <b>AT+QCAINFO</b> to support NSA and SA.
NETWORK	Optimized <b>AT+QRSRP</b> to support querying RSRP under NSA.
NETWORK	Solved the problem that <b>AT+QNWCFG="lte_band_priority"</b> reported an error when the LTE band priority was not configured.
NETWORK	Solved the problem that the camped cells of <b>AT+QENG="servingcell"</b> was not displayed when the SIM card was not inserted.
NETWORK	Extended <b>AT+QCAINFO</b> to add parameters <b>&lt;ul_configured&gt;</b> , <b>&lt;ul_bandwidth&gt;</b> and <b>&lt;ul_earfcn&gt;</b> .
NETWORK	Solved the problem of abnormal return values when executing <b>AT+QENG="servingcell"</b> under NSA.
NETWORK	Solved the problem of abnormal return values when executing <b>AT+QCAINFO</b> .
NETWORK	Solved the problem that the MCC and MNC returned by <b>AT+QNETINFO="servingcell"</b> were invalid values.
NETWORK	Optimized <b>AT+QRSRP</b> by returning -32768 to indicate an invalid value.
NETWORK	Solved the problem that <b>AT+QENG="servingcell"</b> returned an invalid <b>&lt;ARFCNs&gt;</b> under NSA.

NETWORK	Optimized the judgment of <b>AT+COPS</b> on the ENDC registration result.
NETWORK	Solved the problem that <b>AT+QSCAN=3,1</b> did not display 5G cell information in some cases.
NETWORK	Solved the problem that <b>AT+QSCAN</b> could not get LTE cell information.
NETWORK	Displayed <b>AT+QSCAN</b> to support querying LTE cell bandwidth information and 5G cell SSB SCS information.
GENERAL	Solved the problem that the MPDN rule was not deleted when the module was powered off, which affected the module configuration when it was powered on the next time.
GENERAL	Solved the probabilistic problem of frequent network disconnection and reconnection caused by frequent dial-up failures in private network.
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 IP address and other information.
GENERAL	Modified <b>AT+QGPAPN</b> to adapt it to NSA.
GENERAL	Optimized the IMEI anti-tampering function.
GENERAL	Solved the problem that only one APN could be queried through <b>AT+QGPAPN</b> after multiple data call under SA.
GENERAL	Solved the problem that the configuration would be rewritten after configuring <b>&lt;enable&gt;</b> of <b>AT+QCFG="pdp/duplicatechk"</b> and then restarted the module.
GENERAL	Solved the problem of incorrect APN configurations for 5G-ATT and Telstra_Australia_Commercial MBN.
GENERAL	Solved the problem that no URC <b>+C5GREG: &lt;stat&gt;</b> was reported when the module switched from LTE to NR5G after configuring <b>AT+C5GREG=1</b> .
GENERAL	Optimized the compatibility of the module with the RTL8125 PHY.
GENERAL	Solved the problem that <b>&lt;APN_name&gt;</b> returned by <b>AT+QNWCFG="Ite_ambr"</b> was x.
GENERAL	Solved the problem that the caller number could not be recognized under the German network.
GENERAL	Updated the MBN of Telstra_Australia_Commercial, and the updated date was 202201111.
GENERAL	Solved the problem of <b>AT+QSPN</b> returning wrong information on limited service.
GENERAL	Optimized the command set of <b>AT+QETH</b> to support Ethernet PHY attribute configurations of PCIe interface.
GENERAL	Modified the Tx power of B38/B40/B41/B42/B43 to 26 dBm compliant to PC2.
GENERAL	Solved the problem that <b>&lt;stat&gt;</b> of the currently registered operator in the returned result of <b>AT+COPS=?</b> was incorrect when the module was registered on 5G SA.

GENERAL	Optimized <b>AT+QMAP="LANIP"</b> to make it take effect immediately.
GENERAL	Solved the problem that <b>AT+QNWCFG="clr_rplmn"</b> could not clear RPLMN when you used certain SIM cards.
GENERAL	Solved the problem that the SIM card could not be recognized after enabling Secure Boot and deleting the simlock configuration file.
GNSS	Solved the problem of no NMEA sentence output when <b>AT+QGPS=2</b> was entered in the situation that the return value <plane> of <b>AT+QGPSCFG="plane"</b> was 0.
GNSS	Solved the problem that the GNSS function was disabled after the module woke up from sleep.
LWM2M	Solved the problem that LwM2M could not start normally after you executed <b>AT+CFUN=1,1</b> and the module was rebooted.
SIMCARD	Solved the problem that the SMS center address remained the same when you switched the SIM cards to a different operator in hot-swap mode.
SIMCARD	Solved the problem of returning ERROR due to insufficient QMI memory resources after executing <b>AT+CGLA</b> .
SIMCARD	Solved the problem of failure to open the SIM channel when the eSIM did not activate the profile.
USB	Solved the problem that the USB GSI interface failed to connect to the IPA pipe with low probability.

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Item	Brief Description
/	/

### 3.4. Known Issues

Item	Bug Description
DFOTA	After the module is upgraded by Dfota, after downloading the differential package, the USB port cannot be recognized after the port is dropped. After the upgrade is completed, the USB port can be recognized, and the upgrade progress is not reported by the URC during the whole process.

**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\_V5.3

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\_V1.4.5.3.zip

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

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

Quectel IPQ Driver: Quectel\_Linux\_PCIE\_MHI\_Driver\_V1.3.0.18.zip

Qualcomm IPQ Driver: spf11.3

## 4. Functions List

Category	Item	Supported Version(Since)	Note
Basic Function	SMS	RM502QAEAAR13A01M4G_01.001.01.001	/
	NETWORK	RM502QAEAAR13A01M4G_01.001.01.001	/
Protocol Function	QMI	RM502QAEAAR13A01M4G_01.001.01.001	/
	LwM2M	RM502QAEAAR13A02M4G_01.001.01.001	/
Interface Function	USB	RM502QAEAAR13A01M4G_01.001.01.001	/
	MBIM	RM502QAEAAR13A01M4G_01.001.01.001	/
	RmNet	RM502QAEAAR13A01M4G_01.001.01.001	/
	PCIE	RM502QAEAAR13A01M4G_01.001.01.001	/
Locate Function	AGPS	RM502QAEAAR13A01M4G_01.001.01.001	/
Upgrade Function	DFOTA	RM502QAEAAR13A01M4G_01.001.01.001	/
SIM Function	(U)SIM Detection	RM502QAEAAR13A01M4G_01.001.01.001	/
Special Function	RF RX FTM	RM502QAEAAR13A01M4G_01.001.01.001	/
	RF TX FTM	RM502QAEAAR13A01M4G_01.001.01.001	/
	LowPower	RM502QAEAAR13A01M4G_01.001.01.001	/
	Thermal Mitigation	RM502QAEAAR13A01M4G_01.001.01.001	/
5G Function	5G	RM502QAEAAR13A01M4G_01.001.01.001	/

## About Quectel

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