

# BG95M5 Release Notes

## LPWA Module Series

Rev. BG95M5\_Firmware\_Release\_Notes\_V0203\_01.004.01.004

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# 1 Preamble

This document provides the Release Notes for BG95M5 firmware version: **BG95M5LAR02A03\_01.004.01.004**. It describes major changes compared to BG95M5 firmware version **BG95M5LAR02A03\_01.002.01.002**. For a detailed listing of all changes, please refer to the BG95 AT Command Set.

Before:

**ATI**

**Quectel**

**BG95-M5**

**Revision: BG95M5LAR02A03**

After:

**ATI**

**Quectel**

**BG95-M5**

**Revision: BG95M5LAR02A03**

**AT+QGMR**

**BG95M5LAR02A03\_01.004.01.004** //Added the new AT to query the full version information

**AT+QAPPVER**

**+QAPPVER: 01.004.01.004** //Added the new AT to query the application version information

## 2 Matters Needing Attention

SN	Brief Description
[1]	Not support Cat-M1 CE Mode B.

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# 3 New Features

## 3.1 New Features of Modem Protocol

Item /Category	Brief description	Since
<b>SIM</b>	Added support <b>AT+QCFG="sim/onchip"</b> command.	R02A02_01. 002.01.002
<b>NETWORK</b>	Added support for LTE Antenna RF Tuner function.	R02A02_01. 002.01.002
<b>NETWORK</b>	Added the AT command <b>AT+QNWCFG="hplmnsearch_ctrl"</b> to configure whether the HPLMN searching timer is enabled.	R02A02_01. 003.01.003
<b>NETWORK</b>	Added AT command <b>AT+QCFG="bandrestore"</b> to restore module band configuration to its default.	R02A02_01. 003.01.003
<b>NETWORK</b>	Added command <b>AT+QCFG="timer",3402</b> for get T3402 configuration.	R02A03_01. 001.01.001
<b>NETWORK</b>	Added command <b>AT+QNWCFG="cfun_init_mode"</b> to configure the CFUN mode when the module power on.	R02A03_01. 001.01.001
<b>NETWORK</b>	Added command <b>AT+QNWCFG="3gpp_rel_control"</b> to configure NB/CATM 3GPP release version.	R02A03_01. 004.01.004
<b>NETWORK</b>	Added command <b>AT+QNWCFG="nb_feature_ctrl"</b> to configure NB features.	R02A03_01. 004.01.004
<b>NETWORK</b>	Added command <b>AT+QNWCFG="catm_feature_ctrl"</b> to configure CATM features.	R02A03_01. 004.01.004
<b>NETWORK</b>	Added command <b>AT+QNWCFG="pci_lock"</b> to restrict module registration to a specified cell.	R02A03_01. 004.01.004

## 3.2 New Features of Modem APP

Item /Category	Brief description	Since
<b>QuecOpen®</b>	Added support load QuecOpen application from NAND DAM partition.	R02A02_01. 001.01.001
<b>GNSS</b>	Added <b>AT+QGPSCFG="gpsdop"</b> to support get the position accuracy data.	R02A02_01. 001.01.001
<b>FTM</b>	Added support GSM FTM RX function.	R02A02_01. 001.01.001
<b>QuecOpen®</b>	Added QAPI for DFOTA solution.	R02A02_01. 001.01.001
<b>QuecThing®</b>	Added support QuecThing function.	R02A02_01. 001.01.001

QuecOpen®	Added QAPI for SMS solution.	R02A02_01. 002.01.002
QuecOpen®	Added QAPI to support GNSS XTRA related operation.	R02A02_01. 002.01.002
QuecLocator®	Added <b>AT+QCELLSCAN</b> to support get the neighbor cell information.	R02A02_01. 002.01.002
MQTT	Added <b>AT+QMTPUBEX</b> to support publish JSON format data.	R02A02_01. 002.01.002
GNSS	Added support configure GNSS power on mode as cold/warm/hot start.	R02A02_01. 003.01.003
GENERAL	Added Fast powered down function.	R02A03_01. 001.01.001
QuecOpen®	Added QAPI to support SMS list operation.	R02A03_01. 001.01.001
DFOTA	Added command <b>AT+QFOTADL="&lt;file_name&gt;",&lt;type&gt;</b> to support copy DFOTA data package from file system to NAND storage partition.	R02A03_01. 002.01.002
GENERAL	Added command <b>AT+QCFG="dbgctl"</b> to enable or disable QXDM log output or not.	R02A03_01. 002.01.002
GENERAL	Added command <b>AT+QCFGEXT="USBNET"</b> to configure enable/disable ECM function.	R02A03_01. 002.01.002
GENERAL	Added command <b>AT+QCFGEXT="chip_id"</b> to get the chip serial number.	R02A03_01. 002.01.002
GENERAL	Added command <b>AT+QPOWD=2</b> to support fast power down module.	R02A03_01. 002.01.002
HTTP	Added commands <b>AT+QHHTTTPUT/QHHTTTPUTFILE</b> to support HTTP put function.	R02A03_01. 002.01.002
JAMMING DETECTION	Added support GNSS jamming detection.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI to support XTRA operation.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI to support access DFOTA storage partition.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI to support multiple SPI slaver operation.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI to support access DAM_CFG partition.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI qapi_QT_Get_SecBoot_Status to get the secure boot function enabled or not.	R02A03_01. 002.01.002
QuecOpen®	Added QAPI qapi_Status_t qapi_QT_Chip_Serial_Num_Get to get the chip serial number.	R02A03_01. 002.01.002
GENERAL	Added configuration support for FirstNet-ATT.	R02A03_01. 004.01.004
GNSS	Added <b>AT+QGPSCFG ="xtra_autodownload"</b> command to control whether GNSS automatically downloads XTRA files.	R02A03_01.

		004.01.004
<b>GNSS</b>	Added <b>AT+QGPSCFG="gpsweek"</b> command.	R02A03_01. 004.01.004
<b>GNSS</b>	Added command <b>AT+QGPSCFG="xtra_urc"</b> to configure whether to report the related URC in the automatic download process of XTRA files.	R02A03_01. 004.01.004
<b>MQTT-SN</b>	Added support MQTT-SN functionality.	R02A03_01. 004.01.004
<b>NITZ</b>	Added command <b>AT+QCFG="timeupdate"</b> to configure whether the local time of the module is automatically updated according to the network time.	R02A03_01. 004.01.004
<b>PSM</b>	Added command <b>AT+QPSMAUXCFG</b> to optimize the configuration of PSM function.	R02A03_01. 004.01.004
<b>QCTEMP</b>	Added <b>AT+QCTEMP</b> command used for high temperature alarm detection.	R02A03_01. 004.01.004
<b>QuecOpen®</b>	Added new QAPI qapi_QT_Tick_To_Time_V2 for converting 64-bit tick values to a specific unit of time.	R02A03_01. 004.01.004
<b>SMS</b>	Added support for handling CMS error code 42/47.	R02A03_01. 004.01.004
<b>SSL</b>	Added command <b>AT+QSSLRCV=&lt;cliendID&gt;,0</b> to query the length of received read/unread data.	R02A03_01. 004.01.004
<b>SSL</b>	Added <b>AT+QSSLCFG</b> configuration to enable renegotiation function.	R02A03_01. 004.01.004
<b>SSL</b>	Added SNI functionality to SSL for MQTT.	R02A03_01. 004.01.004
<b>SSL</b>	Added command <b>AT+QSSLCRYPT</b> used for AES encryption/decryption and MD5 calculation.	R02A03_01. 004.01.004



# 4 Improved Features

## 4.1 Improved Features of Modem Protocol

Item/Category	Brief description	Since
PSM	Fixed the bug that where the module could not access PSM properly after the SIM card was unlocked	R02A02_01.001.01.001
SIM	Fixed the bug that <b>AT+QPINC</b> occasionally returned error.	R02A02_01.002.01.002
NETWORK	Optimized <b>AT+QCFG="band"/"nwscanmode"/"iotopmode"/"nwscanseq"</b> commands match different project configurations.	R02A02_01.002.01.002
NETWORK	Fixed the bug that <b>AT+QNWINFO</b> returning incorrect network information.	R02A02_01.002.01.002
GENERAL	Optimized GSM RF Antenna tuner function.	R02A02_01.002.01.002
NETWORK	Fixed the bug that <b>AT+CGDCONT</b> could mistakenly delete active PDP connections	R02A02_01.003.01.003
NETWORK	Fixed the bug that RRC was released but <b>AT+QENG="SERVINGCELL"</b> returned an incorrect RRC status.	R02A03_01.001.01.001
NETWORK	Optimized RF driver to solve GSM switch spectrum anomaly issue.	R02A03_01.002.01.002
SMS	Added to support CMS Error code 42/47.	R02A03_01.002.01.002
NETWORK	Fixed the bug that <b>AT+QCSCON</b> command returned incorrect RRC connection status occasionally.	R02A03_01.004.01.004
NETWORK	Optimized <b>AT+QCSQ</b> command to support configure whether URC is automatically reported.	R02A03_01.004.01.004
SIM	Added Qualcomm CR#2890754 to fix the bug that failed to update the SIM profile when TCP connection was established.	R02A03_01.004.01.004

## 4.2 Improved Features of Modem APP

Item/Category	Brief description	Since
LwM2M	Fixed the bug that abnormal operation on GPIO26 after enabling	R02A02_01.001.01.001

	LwM2M function.	
FTM	Fixed the bug that module cannot switch from GSM TX FTM to LTE TX FTM.	R02A02_01.001.01.001
GENERAL	Removed the unexpected URC output while module entering into PSM.	R02A02_01.001.01.001
TCP/IP	Fixed the bug that <b>AT+QAUGDCNT</b> returned incorrect result.	R02A02_01.001.01.001
TCP/IP	Fixed the bug that <b>AT+QIDNSGIP</b> returned incorrect IP address under IPV6 supported network.	R02A02_01.001.01.001
GENERAL	Fixed the bug that when the voltage is lower than 3.2V, the voltage percentage queried by the <b>AT+CBC</b> command is always 100%	R02A02_01.002.01.002
NIDD	Fixed the bug that module occasionally crashed when using <b>AT+QCFGEXT="nipdr"</b> to receive hexadecimal data.	R02A02_01.002.01.002
GENERAL	Optimized that unexpected abnormal power consumption during idle mode.	R02A02_01.002.01.002
FTP	Fixed the bug that module returned error when using <b>AT+QFTPGET</b> to get files with file names longer than 254 characters.	R02A02_01.002.01.002
GENERAL	Fixed the bug that <b>AT+CPSMS?/AT+QPSMEXTCFG?/AT+QPSMCFG?</b> returned the result which don't match the description in the guidance document.	R02A02_01.003.01.003
GENERAL	Optimized that change the USB descriptor as Quectel.	R02A02_01.003.01.003
GENERAL	Fixed the bug that <b>AT+CTZU</b> command probability returned an incorrect time.	R02A02_01.003.01.003
GNSS	Optimized GNSS by using the <b>AT+QGPSLOC</b> command to configure whether location information is output in URC.	R02A02_01.003.01.003
GNSS	Disabled GTP function by default.	R02A02_01.003.01.003
QuecLocator®	Optimized AT command <b>AT+QCELLSCAN</b> to add timeout protect mechanism.	R02A02_01.003.01.003
QuecOpen®	Fixed the bug that ADC cannot be closed completely by QAPI.	R02A02_01.003.01.003
TCP/IP	Optimized <b>AT+QICFG="recvind"</b> used to configure to enable/disable the length of output data in URC information.	R02A02_01.003.01.003
GENERAL	Fixed the bug that <b>"APP RDY"</b> loss issue.	R02A03_01.001.01.001
GNSS	Fixed the bug that module stopped positioning early during GNSS	R02A03_01.

	positioning.	001.01.001
<b>GNSS</b>	Fixed the bug that the GNSS NMEA sentence had only 5 decimal places but should have been 6 decimal places.	R02A03_01. 001.01.001
<b>QuecOpen®</b>	Fixed the bug that QAPI of ATC Pipe send out data was incomplete when it encountered '\0'.	R02A03_01. 001.01.001
<b>LwM2M</b>	Optimized LwM2M AT commands.	R02A03_01. 001.01.001
<b>SSL</b>	Fixed the bug that data loss during SSL retransmission.	R02A03_01. 001.01.001
<b>CoAP</b>	Fixed the bug that module crashed occasionally with send CON type data.	R02A03_01. 001.01.001
<b>PING</b>	Fixed the bug that URC results were not returned for a period of time after <b>AT+QPING</b> was executed continuously.	R02A03_01. 001.01.001
<b>CoAP</b>	Added Qualcomm CR#2829284 to fix "CoAP Crash during send failure due to double free of CoAP packet" issue.	R02A03_01. 002.01.002
<b>CMUX</b>	Fixed the bug that upload file failure via CMUX port 3 or 4.	R02A03_01. 002.01.002
<b>DFOTA</b>	Fixed the bug that failed to download DFOTA package from some HTTP servers that do not support HTTP head method.	R02A03_01. 002.01.002
<b>GENERAL</b>	Fixed the bug that several pins' power level cannot hold default configuration during downloading progress.	R02A03_01. 002.01.002
<b>GENERAL</b>	Fixed the bug the firmware upgrade failure via QFLASH firehose mode.	R02A03_01. 002.01.002
<b>GENERAL</b>	Fixed the bug that part of the data was truncated and lost when sending data with "\0" characters in transparent mode after enabling AUX AT port (via <b>AT+QDIAGPORT</b> ).	R02A03_01. 002.01.002
<b>GENERAL</b>	Fixed the bug that USB failed to load successfully on the Raspberry Pi evaluation board.	R02A03_01. 002.01.002
<b>GENERAL</b>	Fixed the bug that GPIO_O7 changed abnormally when module starting up.	R02A03_01. 002.01.002
<b>GENERAL</b>	Fixed the bug that power level of debugging UART pins were always out of control during the firmware download progress.	R02A03_01. 002.01.002
<b>GNSS</b>	Fixed the bug that <b>AT+QGPSGNMEA="GSV"</b> returned error occasionally if configure <b>AT+QGPSCFG="autogps",1</b> .	R02A03_01. 002.01.002
<b>GNSS</b>	Fixed the bug that leap second time injection error causes GNSS location failure.	R02A03_01. 002.01.002

<b>GNSS</b>	Added QCOM CR2748699 to fix GNSS load failure issue.	R02A03_01. 002.01.002
<b>MQTT</b>	Fixed the bug that encountered concatenated package in MQTT downlink data.	R02A03_01. 002.01.002
<b>MQTT</b>	Fixed the bug that module would fail to connect to a normal server after connecting to a closed server several times in a row.	R02A03_01. 002.01.002
<b>MQTT</b>	Fixed the bug abnormal power consumption encountered after close the MQTT connection.	R02A03_01. 002.01.002
<b>QuecOpen®</b>	Fixed the bug that QuecOpen SSL QAPI cannot work normally after enable secure boot function.	R02A03_01. 002.01.002
<b>QuecOpen®</b>	Optimized module only "*.mbn" format QuecOpen application can be loaded if secure boot enabled.	R02A03_01. 002.01.002
<b>QuecOpen®</b>	Fixed the bug that encountered memory leak while frequent opening/closing of UART serial port.	R02A03_01. 002.01.002
<b>QuecOpen®</b>	Optimized internal object pool to 140K Bytes.	R02A03_01. 002.01.002
<b>TCP/IP</b>	Fixed the bug that TCP handshake failure if the "shift.cnt" of the "TCP Window Scale Option" in TCP SYNC frame is 14.	R02A03_01. 002.01.002
<b>CoAP</b>	Fixed the bug that CRC validation failure for COAP downloaded FOTA file.	R02A03_01. 004.01.004
<b>DFOTA</b>	Optimized <b>AT+QFOTADL</b> command to download the server files to the Apps file system.	R02A03_01. 004.01.004
<b>DFOTA</b>	Optimized command <b>AT+QFOTADL</b> to support breakpoint download and resume function.	R02A03_01. 004.01.004
<b>DNS</b>	Merge the CR#2895096 to fix the bug that modem crash issue during test DNS query in DT lab.	R02A03_01. 004.01.004
<b>DTLS</b>	Fixed the bug that no URC was reported during the configured timeout when DTLS couldn't connect.	R02A03_01. 004.01.004
<b>FOTA</b>	Optimized the FOTA upgrade strategy to solve the potential bug of insufficient memory causing the data stream cannot be properly parsed.	R02A03_01. 004.01.004
<b>FOTA</b>	Optimized FOTA upgrade strategy to solve the problem that FOTA download fails due to the failure of DNS resolution in the scenario where AP-side data services already exist.	R02A03_01. 004.01.004
<b>FTM</b>	Optimized LTE FTM TX sending logic to fix the bug that TX power of some LTE bands did not conform to the expected setting.	R02A03_01. 004.01.004

<b>GNSS</b>	Fixed the bug that with <b>AT+QGPSLOC=2</b> configuration, the module couldn't display some special latitude/longitude information correctly.	R02A03_01.004.01.004
<b>GNSS</b>	Fixed the bug that <b>AT+QGPSXTRATIME</b> command returned incorrect time, missing the leap seconds.	R02A03_01.004.01.004
<b>GNSS</b>	Fixed the bug that COG was not calculated correctly.	R02A03_01.004.01.004
<b>GPIO</b>	Optimized the number of GPIO interrupt support to 5.	R02A03_01.004.01.004
<b>HTTP</b>	Fixed the bug that after sending POST request when HTTP body data type is configured to 3(multipart/form-data), <b>AT+QHTTPREAD</b> always returns 705 error code.	R02A03_01.004.01.004
<b>HTTP</b>	Adjusted the maximum length of HTTP URL from 700 to 3000 bytes.	R02A03_01.004.01.004
<b>Jamming Detection</b>	Fixed the bug that related URC might be lost after removing the interference source in GSM network.	R02A03_01.004.01.004
<b>MQTT</b>	Fixed the bug in <b>AT+QMTPUBEX</b> command that if there are multiple pairs of curly braces in payload, data transmission will fail.	R02A03_01.004.01.004
<b>NITZ</b>	Added Qualcomm CR#2918361 to fix the bug that AT+CCLK probability returned an incorrect time after the module recovered from a network outage.	R02A03_01.004.01.004
<b>PSM</b>	Fixed the bug that when the module entered PSM but there is no PSM POWER DOWN URC reported.	R02A03_01.004.01.004
<b>QuecLocator®</b>	Fixed the bug that Queclocator doesn't work properly.	R02A03_01.004.01.004
<b>QuecOpen®</b>	Optimized that customer must invoke the QAPI QAPI_QT_MAIN_UART_ENABLE_SET firstly if want to configure the main AT port as a general UART port in a QuecOpen Application.	R02A03_01.004.01.004
<b>QuecOpen®</b>	Fixed the bug that source file cannot be deleted probabilistically after QuecOpen application was updated.	R02A03_01.004.01.004
<b>QuecOpen®</b>	Fixed the bug that TCP long connection consumption is high under QuecOpen.	R02A03_01.004.01.004
<b>SSL</b>	Fixed the bug that when SSL certificate file size exceeds 32K bytes would lead to connection establishment failure.	R02A03_01.004.01.004

## 5 Known Issues

NA.

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# 6 Functions

## Basic Function

SMS	Voice Call	Data Call	Fax	USSD	PHB	STK	CMUX	Dual UART
Y	N	N	N	N	N	N	Y	N
FILE <sup>1)</sup>	Triple UART							
Y	N							

## Protocol Function

TCP/UDP	PPP	FTP	HTTP	NITZ	PING	HTTPS	TCP SSL	FTPS
Y	Y	Y	Y	Y	Y	Y	Y	Y
MQTT	LwM2M							
Y	Y							

## Special Function

GNSS	DFOTA	PSM	Quec Open <sup>®</sup>	Quec Locator <sup>®</sup>	Quec Thing <sup>®</sup>
Y	Y	Y	Y	Y	Y

## NOTES

1. Y means the firmware supports this function.
2. N means the firmware does not support this function.
3. <sup>1)</sup> Supports UFS FILE only.