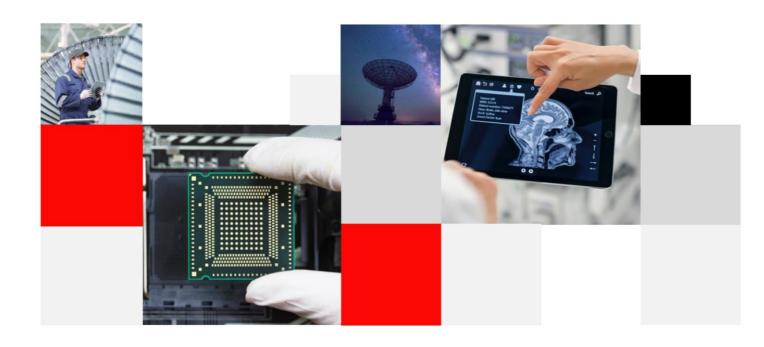# BG95M3 Release Notes

LPWA Module Series

Rev. BG95M3_Firmware_Release_Notes_V0203_01.011.01.011

Date: 2021-03-03

Build a Smarter World

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1 Preamble

This document provides the Release Notes for BG95M3 firmware version: **BG95M3LAR02A03_01.011.01.011**. It describes major changes compared to BG95M3 firmware version **BG95M3LAR02A03_01.009.01.009**. For a detailed listing of all changes, please refer to the BG95 AT Command Set.

Before：
ATI
Quectel
BG95-M3
Revision: BG95M3LAR02A03

After：
ATI
Quectel
BG95-M3
Revision: BG95M3LAR02A03

AT+QGMR
BG95M3LAR02A03_01.011.01.011   //Added the new AT to query the full version information

AT+QAPPVER
+QAPPVER: 01.011.01.011   //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.

3 New Features

2.1 New Features of Modem Protocol

Item /Category	Brief description	Since
NETWORK	Added **AT+QCFG="apn/display"** command.	R02A03_01.003.01.003
NETWORK	Added **AT+VZMTCRAT** command for Verizon.	R02A03_01.003.01.003
NETWORK	Added support for LTE Antenna RF Tuner function.	R02A03_01.003.01.003
NETWORK	Added **AT+QCFG="irat/timer"** command.	R02A03_01.004.01.004
SIM	Added support **AT+QCFG="sim/onchip"** command.	R02A03_01.005.01.005
NETWORK	Added **AT+QCFG="ta"** to support get the TA configuration.	R02A03_01.006.01.006
JAMMING DETECTION	Added support cellular jamming detection.	R02A03_01.006.01.006
SIM	Added support **AT+QCFG="bip/auth"** command.	R02A03_01.006.01.006
NETWORK	Added support **AT+QSPN** command.	R02A03_01.006.01.006
NETWORK	Added command **AT+QNWCFG="cqi"** to get CATM network band channel CQI.	R02A03_01.009.01.009
NETWORK	Added command **AT+QCFG="timer",3402** for get T3402 configuration.	R02A03_01.009.01.009
NETWORK	Added command **AT+QNWCFG="cfun_init_mode"** to configure the CFUN mode when the module power on.	R02A03_01.009.01.009

2.2 New Features of Modem APP

Item /Category	Brief description	Since
SMS	Added SMS function support.	R02A02_01.002.01.002
FILE	Added File function support	R02A02_01.002.01.002
PPP	Added PPP function support.	R02A02_01.002.01.002
TCP/UDP	Added TCP&UDP function support.	R02A02_01.002.01.002
HTTP	Added HTTP function support.	R02A02_01.002.01.002
HTTPS	Added HTTPS function support.	R02A02_01.002.01.002
FTP	Added FTP function support.	R02A02_01.002.01.002
FTPS	Added FTPS function support.	R02A02_01.002.01.002
MQTT	Added MQTT function support.	R02A02_01.002.01.002
MQTTS	Added MQTTS function support.	R02A02_01.002.01.002
SSL	Added SSL/TLS function support.	R02A02_01.002.01.002
NITZ	Added NITZ function support.	R02A02_01.002.01.002
PING	Added Ping function support.	R02A02_01.002.01.002
PSM	Added PSM function support.	R02A02_01.002.01.002
TCP/IP	Added **AT+QICFG="sack"** to configure TCP client SACK option.	R02A03_01.003.01.003
QuecLocator®	Added support QuecLocator.	R02A03_01.003.01.003
GNSS	Added support **AT+QGPSCFG="autogps"** command.	R02A03_01.003.01.003
GNSS	Added support **AT+QGPSCFG="nmeasrc"** command.	R02A03_01.003.01.003
GNSS	Added support **AT+QGPSCFG="priority"** command.	R02A03_01.003.01.003
FILE	Added support Security folder.	R02A03_01.003.01.003
DTLS	Added support PSK auth mode.	R02A03_01.003.01.003

TCP/IP	Added support **AT+QGDCNT/AT+QAUGDCNT** commands.	R02A03_01. 003.01.003
CMUX	Added support CMUX function.	R02A03_01. 003.01.003
HTTPS	Added support HTTPS SNI function.	R02A03_01. 003.01.003
LwM2M	Added support **AT+ODIS** for AT&T OMA certification.	R02A03_01. 003.01.003
FTM	Added support FTM function.	R02A03_01. 003.01.003
GNSS	Added support GNSS GEO fence function.	R02A03_01. 003.01.003
DNS	Added support **AT+QCFGEXT="dnsc_timeout"** to configure the timeout of DNS.	R02A03_01. 003.01.003
FILE	Added support open file operations in append mode.	R02A03_01. 003.01.003
PSM	Added support exit from PSM with PON_TRIG pin.	R02A03_01. 003.01.003
GNSS	Added support GNSS NHz positioning function.	R02A03_01. 004.01.004
NIDD	Added support NIDD(Non-IP Data Delivery) function.	R02A03_01. 004.01.004
NETWORK	Added **AT+QNWCFG="acqdb"** to get information about the last time the network was camped.	R02A03_01. 004.01.004
SIM	Added AT commands **CCHO/CGLA/CCHC** support.	R02A03_01. 004.01.004
NETWORK	Added AT commands **AT+QNWCFG="backoff"** and **AT+QNWCFG="clearbackoff"** to support query and operation on backoff timer.	R02A03_01. 004.01.004
GNSS	Added AT command **AT+QGPSCFG="xtrafilesize"** to support select the XTRA file size as needed.	R02A03_01. 004.01.004
GNSS	Added **AT+QGPSCFG="gpsdop"** to support get the position accuracy data.	R02A03_01. 004.01.004
FTM	Added support GSM FTM RX function.	R02A03_01. 004.01.004
TCP/IP	Added support IPv6 function.	R02A03_01. 004.01.004
PSM	Added AT command **AT+QNWCFG="activetimer"** to enable module automatically enter into PSM if there is no AT command interaction in the specified time.	R02A03_01. 004.01.004
GNSS	Added AT command **AT+QGPSXTRATIME** to inject time for XTRA.	R02A03_01. 004.01.004
GNSS	Added AT command **AT+QGPSCFG="xtra_info"** to get more details about the XTRA files injected into the module.	R02A03_01. 004.01.004
QuecThing®	Added support QuecThing function.	R02A03_01. 004.01.004
QuecOpen®	Added QAPI to support SMS related operation.	R02A03_01. 005.01.005
QuecOpen®	Added QAPI to support GNSS XTRA related operation.	R02A03_01. 005.01.005
QuecLocator®	Added **AT+QCELLSCAN** to support get the neighbor cell information.	R02A03_01. 005.01.005

MQTT	Added **AT+QMTPUBEX** to support publish JSON format data.	R02A03_01. 005.01.005
GENERAL	Added **AT+QCFGEXT="pwm"** to support PWM related operation.	R02A03_01. 005.01.005
FILE	Added **AT+QFCRC**/**AT+QFCPY** commands.	R02A03_01. 006.01.006
DNS	Added **AT+QIDNSCFG** to support configure module DNS address.	R02A03_01. 006.01.006
GNSS	Added **AT+QGPSCFG="nmea_epe"** & **AT+QGPSCFG="estimation_error"** commands.	R02A03_01. 006.01.006
GNSS	Added **AT+QGPSCFG="xtra_apn"** command.	R02A03_01. 006.01.006
GENERAL	Added support configure debug UART as second AT command port.	R02A03_01. 006.01.006
CoAP	Added support CoAP AT commands.	R02A03_01. 006.01.006
CMUX	Added support **AT+QCFG="cmux/flowctrl"** to enable/disable flow control in CMUX mode.	R02A03_01. 006.01.006
GNSS	Added **AT+QGPSCFG="xtra_download"** command to support manual triggering of download XTRA files.	R02A03_01. 006.01.006
NIDD	Added support RAI for NIDD(Non-IP Data Delivery) function.	R02A03_01. 006.01.006
GENERAL	Added Fast powered down function.	R02A03_01. 009.01.009
QuecOpen®	Added QAPI to support SMS list operation.	R02A03_01. 009.01.009
DFOTA	Added command **AT+QFOTADL="<file_name>",<type>** to support copy DFOTA data package from file system to NAND storage partition.	R02A03_01. 011.01.011
GENERAL	Added command AT+QCFG=**"dbgctl"** to enable or disable QXDM log output or not.	R02A03_01. 011.01.011
GENERAL	Added command **AT+QCFGEXT="USBNET"** to configure enable/disable ECM function.	R02A03_01. 011.01.011
GENERAL	Added command **AT+QCFGEXT="chip_id"** to get the chip serial number.	R02A03_01. 011.01.011
GENERAL	Added command AT+QPOWD=2 to support fast power down module.	R02A03_01. 011.01.011
HTTP	Added commands **AT+QHTTPPUT/QHTTPPUTFILE** to support HTTP put function.	R02A03_01. 011.01.011
JAMMING DETECTION	Added support GNSS jamming detection.	R02A03_01. 011.01.011
QuecOpen®	Added QAPI to support XTRA operation.	R02A03_01. 011.01.011
QuecOpen®	Added QAPI to support access DFOTA storage partition.	R02A03_01. 011.01.011
QuecOpen®	Added QAPI to support multiple SPI slaver operation.	R02A03_01. 011.01.011
QuecOpen®	Added QAPI to support access DAM_CFG partition.	R02A03_01. 011.01.011
QuecOpen®	Added QAPI qapi_QT_Get_SecBoot_Status to get the secure boot function enabled or not.	R02A03_01. 011.01.011
QuecOpen®	Added QAPI qapi_Status_t qapi_QT_Chip_Serial_Num_Get to get the chip serial number.	R02A03_01. 011.01.011

4 Improved Features

3.1 Improved Features of Modem Protocol

Item/Category	Brief description	Since
NETWORK	Fixed the bug that incorrect band information returned occasionally while module camping on the network.	R02A03_01.003.01.003
NETWORK	Fixed the bug that incorrect result returned when **CEREG=4** mode.	R02A03_01.003.01.003
NETWORK	Optimized **AT+QCFG="band"/"nwscanmode"/"iotopmode"/"nwscanseq"** commands match different project configurations.	R02A03_01.003.01.003
NETWORK	Optimized that configure eDRX disabled as default.	R02A03_01.003.01.003
NETWORK	Optimized that incorrect RAT description in QENG command.	R02A03_01.003.01.003
NETWORK	Fixed the bug that where **AT+COPS?** returned the wrong operator name.	R02A03_01.003.01.003
NETWORK	Fixed the bug that **AT+QENG="servingcell"** returning incorrect RRC status when module is in connection state.	R02A03_01.003.01.003
NETWORK	Optimized that **AT+COPS=?** only search GSM network when module under GSM network.	R02A03_01.004.01.004
NETWORK	Fixed the bug that **AT+CEDRXS=?** returned incorrect result.	R02A03_01.004.01.004
SIM	Fixed the bug that **AT+QPINC** occasionally returned error.	R02A03_01.005.01.005
NETWORK	Optimized that AT command **AT+CSCS** no longer affects the result of **AT+COPS?**.	R02A03_01.005.01.005
NETWORK	Fixed the bug that **AT+QNWINFO** returning incorrect network information.	R02A03_01.005.01.005
NETWORK	Fixed the bug that configure **AT+CGREG=4**, the result format reported by URC is incorrect.	R02A03_01.006.01.006
SIM	Optimization that added CR2758392 to fix USCC SIM profile activate failure issue.	R02A03_01.009.01.009

NETWORK	Added CR2748699/CR2761613 to solve the problem of data transmission failure when switching GNSS/LTE.	R02A03_01.009.01.009
NETWORK	Fixed the bug that incorrect network information returned by QNWINFO after module registration with BAND27/B85.	R02A03_01.009.01.009
NETWORK	Fixed the bug that RRC was released but **AT+QENG="SERVINGCELL"** returned an incorrect RRC status.	R02A03_01.009.01.009
NETWORK	Added CR2761912 to solve CAT-M network 5RB registration issue.	R02A03_01.009.01.009
NETWORK	Optimized RF driver to solve GSM switch spectrum anomaly issue.	R02A03_01.011.01.011
SMS	Added to support CMS Error code 42/47.	R02A03_01.011.01.011

3.2 Improved Features of Modem APP

Item/Category	Brief description	Since
FTP	Fixed the bug that FTP connection failed in explicit FTP mode over TLS.	R02A03_01.003.01.003
FTP	Fixed the bug that URC output abnormally after uploading files in implicit FTP mode over TLS.	R02A03_01.003.01.003
GENERAL	Fixed the bug that no URC output after enable the AP READY function by **AT+QCFG="apready"** command.	R02A03_01.003.01.003
HTTP	Fixed the bug that HTTP get data timeout retry but always return 703 error result.	R02A03_01.003.01.003
GENERAL	Fixed the bug that **AT+QCFG="airplanecontrol"** configuration but no effect.	R02A03_01.003.01.003
QuecOpen®	Fixed the bug that data is easily lost when being output via UART port quickly.	R02A03_01.003.01.003
FILE	Optimized that report error 405 while deleting a nonexistent file.	R02A03_01.003.01.003
GENERAL	Fixed the bug that PSM_IND pin behave incorrectly in PSM.	R02A03_01.003.01.003
GENERAL	Fixed the bug that power down URC cannot output issue.	R02A03_01.003.01.003
MQTT	Fixed the bug that incomplete data reception after MQTT session recovery was enabled.	R02A03_01.003.01.003
PPP	Fixed the bug that PPP cannot work issue.	R02A03_01.003.01.003

PSM	Adjust the PSM threshold value to 20 seconds.	R02A03_01. 003.01.003
QPING	Fixed the bug that a memory leak caused by continuous execution of **AT+QPING** command.	R02A03_01. 003.01.003
GNSS	Fixed the bug that an extra '\0' with NMEA statement output.	R02A03_01. 003.01.003
GENERAL	Optimized that when an abnormal crash is encountered, the default behavior of the optimization module is reset mode.	R02A03_01. 003.01.003
DFOTA	Fixed the but that the parameter "*timeout*" configuration did not take effect.	R02A03_01. 004.01.004
SSL	Optimized SSL to support a new cipher suite 0XC02B.	R02A03_01. 004.01.004
GNSS	Fixed the bug that negative values in GNSS latitude and longitude results.	R02A03_01. 004.01.004
GNSS	Optimized the AT command **AT+QGPSCFG="priority"** configuration take effect immediately.	R02A03_01. 004.01.004
TCP/IP	Fixed the bug that module lost the listening mode occasionally after abnormally handshake.	R02A03_01. 004.01.004
GENERAL	Optimized **AT+QCFG="band"** to support parameter configuration starting with 0x hex string.	R02A03_01. 004.01.004
LwM2M	Fixed the bug that abnormal operation on GPIO26 after enabling LwM2M function.	R02A03_01. 004.01.004
FTM	Fixed the bug that abnormal function of GSM FTM TX.	R02A03_01. 004.01.004
TCP/IP	Fixed the bug that **AT+QIRD** get incorrect data in TCP buffer data mode.	R02A03_01. 004.01.004
MQTT	Fixed the bug that module lost URC corresponding to QMTOPEN and QMTCLOSE under weak network signal.	R02A03_01. 004.01.004
GENERAL	Optimized GSM RF Antenna tuner function.	R02A03_01. 004.01.004
GENERAL	Fixed the bug that incorrect result reported after enabled **AT+QINDCFG="csq",1**.	R02A03_01. 004.01.004
TCP/IP	Fixed the bug that **AT+QAUGDCNT** returned incorrect result.	R02A03_01. 004.01.004
GNSS	Fixed the bug that returned incorrect timestamp in the GNSS NMEA sentences.	R02A03_01. 004.01.004
PSM	Fixed the bug that where the module could not access PSM properly after the SIM card was unlocked	R02A03_01. 004.01.004
GENERAL	Fixed the bug that still can get the CCID number after unplugging the SIM card.	R02A03_01. 004.01.004
QuecLocator	Fixed the bug that module crashed occasionally while issue **AT+QLBS** under CAT.M network.	R02A03_01. 004.01.004
GENERAL	Fixed the bug that **AT+CPOL** command returned incorrect characters.	R02A03_01.

		004.01.004
GENERAL	Fixed the bug that **AT+COPS?** command returned incorrect PLMN.	R02A03_01. 004.01.004
TCP/IP	Fixed the bug that the reported data length is not correct when **AT+QICFG="recvind"** is enabled.	R02A03_01. 005.01.005
FTP	Fixed the bug that module returned error when using **AT+QFTPGET** to get files with file names longer than 254 characters.	R02A03_01. 005.01.005
NIDD	Fixed the bug that module occasionally crashed when using **AT+QCFGEXT="nipdr"** to receive hexadecimal data.	R02A03_01. 005.01.005
FTM	Fixed the bug that Antenna RF tuner doesn't work under GSM RAT.	R02A03_01. 005.01.005
QuecOpen®	Fixed the bug that ADC cannot be closed completely by QAPI.	R02A03_01. 005.01.005
GENERAL	Optimized that unexpected abnormal power consumption during idle mode.	R02A03_01. 005.01.005
GENERAL	Fixed the bug that when the voltage is lower than 3.2V, the voltage percentage queried by the **AT+CBC** command is always 100%	R02A03_01. 005.01.005
GENERAL	Fixed the bug that module using the **AT+QCFG="band"** query command returned an incorrect list of GSM bands.	R02A03_01. 005.01.005
GENERAL	Fixed the bug that **AT+CPSMS?/AT+QPSMEXTCFG?/AT+QPSMCFG?** returned the result which don't match the description in the guidance document.	R02A03_01. 005.01.005
GENERAL	Optimized that change the USB descriptor as Quectel.	R02A03_01. 005.01.005
GENERAL	Fixed the bug that **AT+CTZU** command probability returned an incorrect time.	R02A03_01. 005.01.005
NIDD	Fixed the bug that unexpected URC reported when disconnect NIDD connection.	R02A03_01. 006.01.006
DFOTA	Fixed the bug that HTTP download under IPV6 network.	R02A03_01. 006.01.006
DFOTA	Optimized to support HTTP URL length to 2048 characters.	R02A03_01. 006.01.006
DFOTA	Fixed the bug that HTTP authentication exception in DFOTA download.	R02A03_01. 006.01.006
DFOTA	Fixed the but that where APN configuration did not take effect using **AT+QCFGEXT="fota_apn"**.	R02A03_01. 006.01.006
UDP	Added **AT+QISENDEX** command support to configure RAI function.	R02A03_01. 006.01.006
QuecOpen®	Fixed the bug that qapi_time_get returns incorrect time after module had been running for a long time (more than 49.7 days).	R02A03_01. 006.01.006
CMUX	Fixed the bug that module cannot enter into slow clock mode in CMUX mode.	R02A03_01. 006.01.006

FTM	Fixed the bug that module cannot switch from GSM TX FTM to LTE TX FTM.	R02A03_01.006.01.006
FTM	Fixed the bug that the first time of FTM RX returns an incorrect value.	R02A03_01.006.01.006
TCP/IP	Fixed the bug that the modem side data service would fail due to the AP side data service.	R02A03_01.006.01.006
CoAP	Fixed the bug that module crashed occasionally with send CON type data.	R02A03_01.009.01.009
DFOTA	Optimize DFOTA package download mechanism to improve download success rate.	R02A03_01.009.01.009
FILE	Fixed the bug that **AT+QFCRC**/**AT+QFCPY** did not support file paths prefixed with "UFS:".	R02A03_01.009.01.009
GENERAL	Fixed the bug that AT command combinations using semicolon connections did not execute correctly.	R02A03_01.009.01.009
GENERAL	Fixed the bug that "**APP RDY**" loss issue.	R02A03_01.009.01.009
GNSS	Fixed the bug that incorrect error code returned by **AT+QGPSCFG="estimation_error"** when GPS is off.	R02A03_01.009.01.009
GNSS	Fixed the bug that module crashed occasionally when inject XTRA file.	R02A03_01.009.01.009
GNSS	Fixed the bug that module stopped positioning early during GNSS positioning.	R02A03_01.009.01.009
GNSS	Fixed the bug that the GNSS NMEA sentence had only 5 decimal places but should have been 6 decimal places.	R02A03_01.009.01.009
Jamming Detection	Optimized Jamming Detection function under CAT-M network.	R02A03_01.009.01.009
LwM2M	Optimized LwM2M AT commands.	R02A03_01.009.01.009
NETWORK	Fixed the bug that GSM FTM TX continuous mode work abnormally.	R02A03_01.009.01.009
PING	Fixed the bug that URC results were not returned for a period of time after **AT+QPING** was executed continuously.	R02A03_01.009.01.009
QuecLocator®	Fixed the bug that provided WiFi information but the module was still unable to locate successfully under NBIoT network.	R02A03_01.009.01.009
QuecOpen®	Fixed the bug that QAPI of ATC Pipe send out data was incomplete when it encountered '\0'.	R02A03_01.009.01.009
SSL	Fixed the bug that data loss during SSL retransmission.	R02A03_01.009.01.009
CoAP	Added Qualcomm CR#2829284 to fix "CoAP Crash during send failure due to double free of CoAP packet" issue.	R02A03_01.011.01.011
CMUX	Fixed the bug that upload file failure via CMUX port 3 or 4.	R02A03_01.011.01.011
DFOTA	Fixed the bug that failed to download DFOTA package from some	R02A03_01.

	HTTP servers that do not support HTTP head method.	011.01.011
GENERAL	Fixed the bug that several pins' power level cannot hold default configuration during downloading progress.	R02A03_01. 011.01.011
GENERAL	Fixed the bug the firmware upgrade failure via QFLASH firehose mode.	R02A03_01. 011.01.011
GENERAL	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 **AT+QDIAGPORT**).	R02A03_01. 011.01.011
GENERAL	Fixed the bug that USB failed to load successfully on the Raspberry Pi evaluation board.	R02A03_01. 011.01.011
GENERAL	Fixed the bug that GPIO_O7 changed abnormally when module starting up.	R02A03_01. 011.01.011
GENERAL	Fixed the bug that power level of debugging UART pins were always out of control during the firmware download progress.	R02A03_01. 011.01.011
GNSS	Fixed the bug that **AT+QGPSGNMEA="GSV"** returned error occasionally if configure **AT+QGPSCFG="autogps",1**.	R02A03_01. 011.01.011
GNSS	Fixed the bug that leap second time injection error causes GNSS location failure.	R02A03_01. 011.01.011
GNSS	Added QCOM CR2748699 to fix GNSS load failure issue.	R02A03_01. 011.01.011
MQTT	Fixed the bug that encountered concatenated package in MQTT downlink data.	R02A03_01. 011.01.011
MQTT	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. 011.01.011
MQTT	Fixed the bug abnormal power consumption encountered after close the MQTT connection.	R02A03_01. 011.01.011
QuecOpen®	Fixed the bug that QuecOpen SSL QAPI cannot work normally after enable secure boot function.	R02A03_01. 011.01.011
QuecOpen®	Optimized module only "*.mbn" format QuecOpen application can be loaded if secure boot enabled.	R02A03_01. 011.01.011
QuecOpen®	Fixed the bug that encountered memory leak while frequent opening/closing of UART serial port.	R02A03_01. 011.01.011
QuecOpen®	Optimized internal object pool to 140K Bytes.	R02A03_01. 011.01.011
TCP/IP	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. 011.01.011

5 Known Issues

Item/Category	Brief Description
QuecLocator®	Function cannot work properly due to internal bug.

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 [1]	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 ®	Quec Locator®	Quec Thing ®
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. [1] Supports UFS FILE only.