

BG96 Release Notes

LPWA Module Series

Rev. BG96_Firmware_Release_Notes_V0207_01.202.01.202

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1 Preamble

This document provides the Release Notes for BG96 firmware version **BG96MAR02A07M1G** (Configuration version **01.202.01.202**). It describes major changes compared to BG96 firmware version **BG96MAR02A07M1G** (Configuration version **01.201.01.201**).

Before:

ATI

Quectel

BG96

Revision: BG96MAR02A07M1G

After:

ATI

Quectel

BG96

Revision: BG96MAR02A07M1G

AT+QGMR

BG96MAR02A07M1G_01.202.01.202

AT+QAPPVER

+QAPPVER: 01.202.01.202

2 Matters Needing Attention

SN	Brief Description
[1]	Not support Cat-M1 CE Mode B.
[2]	The new firmware version cannot be downgraded to versions released before BG96MAR02A07M1G_01.200.01.200, otherwise the module will not be able to work normally.
[3]	To extend the service life of flash, it is recommended that the total number of operations related to powering on/off the module, CFUN switching, repeated execution of NVM commands, or backing up the file system should not exceed 30 times per day.
[4]	For important files (such as certificates, QuecOpen application, key profiles, etc.) stored in file system of the module, you must do backup operations (via AT+QPRTPARA=1 and AT+QPRTPARA=11) during device factory production or after those files are updated and added by your application.
[5]	During the FOTA upgrade process, it is necessary to ensure the stable power supply of the module. If the power is disconnected during the upgrade, there is a small probability that the flash will be damaged.

3 New Features

3.1. New Features of Modem Protocol

Item/Category	Brief description	Since
NETWORK	Relevant technical controls have been carried out to restrict normal network registration in regions such as RUS and IRN, thus ensuring that the module can be used only for civilian applications.	R02A07_01. 200.01.200
NETWORK	Added AT+CESQ command.	R02A07_01. 017.01.017
NETWORK	Added AT commands AT+QNWCFG="backoff" and AT+QNWCFG="clearbackoff" to support query and operation on backoff timer.	R02A07_01. 017.01.017
NETWORK	Added AT+QCFG="irat/timer" command.	R02A07_01. 017.01.017
NETWORK	Added AT+QNWCFG="hplmnsearch_ctrl" command to configure whether enable HPLMN searching timer.	R02A07_01. 017.01.017

3.2. New Features of Modem APP

Item/Category	Brief description	Since
TCP/IP	Added AT+QICFG="asyncmode",(0,1) to configure asynchronous mode to activate PDP.	R02A07_01. 202.01.202
TCP/IP	Added AT+QICFG="timestamp",1 to configure timestamp option of TCP.	R02A07_01. 201.01.201
DFOTA	Supported whole package upgrade of SBL in the process of DFOTA.	R02A07_01. 200.01.200
GENERAL	The new firmware version cannot be downgraded to previous versions, otherwise the module will not be able to work normally.	R02A07_01. 200.01.200
NITZ	Added AT+QCFG="timeupdate",[,(0,1)] to control whether to enable automatic local time update by NITZ.	R02A07_01. 103.01.103
GNSS	Added <code>qapi_QT_Loc_Interval_Set()</code> to set interval time.	R02A07_01. 103.01.103
FTP	Added AT+QFTPCFG="restenable",0 to control whether the FTP REST command was used to download data from breakpoints when the FTP client interacted with the server.	R02A07_01. 103.01.103
FTP	Added AT+QFTPCFG="session_ticket" to configure whether FTP over SSL supported SSL session ticket extension.	R02A07_01. 103.01.103

HTTP	Added AT+QHTTTPUT to send PUT request to HTTP(S) server through UART or USB. Added AT+QHTTTPUTFILE to send PUT request to HTTP(S) server through file. Supported the BASE 64 authentication function on HTTP client.	R02A07_01. 103.01.103
TCP/IP	Added support new encryption suite TLS-ECDHE-ECDSA-WITH-AES-128-GCM-SHA256(0xC02B).	R02A07_01. 101.01.101
DFOTA	Added command AT+QCFGEXT="SNI" to support SNI for DFOTA downloads.	R02A07_01. 019.01.019
GNSS	Added support 2/5/10Hz location frequency.	R02A07_01. 019.01.019
GNSS	Added command AT+QGPSCFG="nav_mode" to support the selection of appropriate positioning mode.	R02A07_01. 019.01.019
CMUX	Added support AT+QCFG="cmux/flowctrl" to enable/disable flow control in CMUX mode.	R02A07_01. 018.01.018
GENERAL	Added support firehose function for upgrading module firmware.	R02A07_01. 018.01.018
GNSS	Added NMEA UART port support baud rate 230400/460800/921600 bps.	R02A07_01. 018.01.018
MQTT	Added AT+QMTPUBEX to support JSON format data.	R02A07_01. 018.01.018
QuecOpen®	Added QAPI to support output log data thru USB NMEA port in QuecOpen application.	R02A07_01. 018.01.018
GNSS	Added AT+QGPSCFG="speed_threshold" & AT+QGPSCFG="estimation_error" commands.	R02A07_01. 017.01.017
GNSS	Added AT+QGPSCFG="nmea_epe" command.	R02A07_01. 017.01.017
Jamming Detection	Added Support Jamming Detection.	R02A07_01. 017.01.017
GENERAL	Added the mechanism of output data will be discarded actively when USB buffer is full in the condition of USB disconnect.	R02A07_01. 016.01.016
GENERAL	Added command AT+QDIAGPORT to convert DEBUG port to AT port.	R02A07_01. 016.01.016
QuecLocator®	Added support QuecLocator.	R02A07_01. 016.01.016
GENERAL	Added AT command AT+QCTEMP .	R02A07_01. 016.01.016
NETWORK	Added command AT+QCFG="sibinfo" to query some SIB message parameters.	R02A07_01. 016.01.016
NETWORK	Added command AT+QCFG="emmtimer" to query T3402 and T3412.	R02A07_01. 016.01.016
SIM	Added AT command AT+CCHO/AT+CCHC/AT+CGLA .	R02A07_01. 016.01.016
SIM	Added command AT+QCFG="bip/auth",<n> to configure the authentication type in the BIP process.	R02A07_01.

		016.01.016
FTP	Added command AT+QFTPCFG="prefix" to configure ipv6 prefix, to connect IPV4 server under IPV6 net environment.	R02A07_01. 016.01.016
NETWORK	Add Qualcomm CR#2334759, NBFW code change to skip the PDCCCH channel PAGE channel GAP suspend check.	R02A07_01. 016.01.016
NETWORK	Add Qualcomm CR#2503542, Set XTRA download request to every 5 days by default.	R02A07_01. 016.01.016
NETWORK	Add Qualcomm CR#2453654, deadlock when L1 MGR handing COMM CFG REQ.	R02A07_01. 016.01.016
TCP/IP	Added AT command AT+QICFG="tcp/keepalive"	R02A07_01. 014.01.014
SSL	Added AT+QSSLCFG="checkhost" to configure the host name validation.	R02A07_01. 014.01.014
GENERAL	Added AT+QCFG="mmcause" to get the reject reason when module try to attach on GSM.	R02A07_01. 014.01.014
NETWORK	Added AT+QICFG="ipv6prior" to select IPv4 or IPv6 as default PDN type.	R02A07_01. 014.01.014
FILE	Added security file folder function.	R02A07_01. 014.01.014
NETWORK	Added support for IPV6.	R02A07_01. 010.01.010
QuecOpen®	Added QAPI to support disable the power off function of the power key.	R02A07_01. 010.01.010
FILE	Added AT command to support access AP file system.	R02A07_01. 010.01.010
QuecOpen®	Added QAPI to support get random number which generated by hardware.	R02A07_01. 010.01.010
LwM2M	Added AT Command AT+QLWM2M="carrier_cfg" to access carrier_cfg configure file.	R02A07_01. 010.01.010
GENERAL	Added AT Command AT+QCFGEXT="fota_apn" to set APN for FOTA thread.	R02A07_01. 009.01.009
GENERAL	Fixed the bug that wrong order of power down URCs reporting when module power off.	R02A07_01. 009.01.009
CMUX	Fixed the bug that CMUX works abnormally when set the CMUX frame size over 127.	R02A07_01. 009.01.009
GENERAL	Added URC "APP RDY" for prompt ATFWD command ready.	R02A07_01. 009.01.009
SSL	Added AT Command AT+QSSLCFG="sni" to support SNI feature.	R02A07_01. 009.01.009
GENERAL	Added AT Command AT+QICFG="recvind" to control whether to append the received data length in the URC.	R02A07_01. 008.01.008
GENERAL	Added AT Command AT+QCFG="simeffect" .	R02A07_01.

		008.01.008
GENERAL	Added AT Command AT+CSIM .	R02A07_01. 008.01.008
GENERAL	Added AT Command AT+QAPPVER .	R02A07_01. 008.01.008
GENERAL	Added AT Command AT+QGMR to query the full version information, including the protocol version number and application version number of modem.	R02A07_01. 007.01.007
GENERAL	Added AT Command AT+QCFG="airplanecontrol" to enable/disable airplane mode.	R02A07_01. 007.01.007
GENERAL	Added AT Command AT+QCFG="gpio" for configuration of some GPIOs.	R02A07_01. 007.01.007
LwM2M	Added AT Command AT+QLWM2M="psk" to enable automatic generation of PSK data.	R02A07_01. 007.01.007
GENERAL	Added USB suspend function.	R02A07_01. 007.01.007
GENERAL	Added AT Command AT+QCFGEXT="disusb" to enable/disable USB port function.	R02A07_01. 009.01.009

4 Improved Features

4.1. Improved Features of Modem Protocol

Item/Category	Brief description	Since
NETWORK	Fixed module probability crash issue while enabling C-DRX under NB-IoT network.	R02A07_01. 201.01.201
NETWORK	Disabled GEA1/GEA2 and enabled GEA3/GEA4 by default under GSM.	R02A07_01. 201.01.201
NETWORK	Fixed the test failure on GEA1 certification case.	R02A07_01. 201.01.201
NETWORK	Fixed the problem that URC +CEDRX: 0 was not reported when the module reselected from a cell that supported eDRX to a cell that did not support eDRX.	R02A07_01. 200.01.200
NETWORK	Fixed the bug that AT+QENG="servingcell" returned incorrect RRC status.	R02A07_01. 102.01.102
NETWORK	Fixed the bug that duplicate or incorrect reporting of T3324 and T3412 timer values when issue AT+CREG queries.	R02A07_01. 101.01.101
NETWORK	Added new 2G RF PA driver (RadRock model).	R02A07_01. 101.01.101
NETWORK	Added Qualcomm CR2138709 to fix the issue that while moving from NB1 to M1, NAs is starting CPSR procedure	R02A07_01. 019.01.019
NETWORK	Fixed the bug that AT+QNWCFG="TA" probability returned incorrect result in GSM network.	R02A07_01. 019.01.019
NETWORK	Fixed the bug that AT+QCFG="servicedomain" returned incorrect results when AT+CGATT=0 was configured.	R02A07_01. 019.01.019
NETWORK	Merged Qualcomm CR2125301 to fix the issue that HPLMN searching cause module lost network service for a very long time.	R02A07_01. 018.01.018
NETWORK	Fixed the bug that module returns incorrect band information with AT+QNWINFO occasionally after module camped on network.	R02A07_01. 017.01.017
NETWORK	Optimization that added inactivity timer configuration (default is 35 seconds) to avoid the problem of RRC not releasing for a quite long time.	R02A07_01. 017.01.017

4.2. Improved Features of Modem APP

Item/Category	Brief description	Since
FILE	Added stricter access restrictions to files in the security directory of file system.	R02A07_01. 202.01.202
FTP	Added the handling of error code 425 in FTP.	R02A07_01. 202.01.202
LwM2M	Optimized the handling of retransmissions during data transmission with SSL.	R02A07_01. 202.01.202
DFOTA	Optimized the internal algorithm to reduce the size of the DFOTA package.	R02A07_01. 201.01.201
FTP	Fixed the problem that the module could not work normally during FTPS stress test.	R02A07_01. 201.01.201
FTP	Fixed the problem of error reporting when AT+QFTPLIST was executed under IPv6 network.	R02A07_01. 201.01.201
GNSS	Fixed the problem that the GNSS calendar timestamp error occurred during week roller at 0 o'clock.	R02A07_01. 201.01.201
MQTT	Fixed the problem that +QMTOPEN was not reported when PDP deactivation occurred during the DNS resolution process after AT+QMTOPEN was executed.	R02A07_01. 201.01.201
MQTT	Fixed the problem that the data sent by the server was not reported due to MQTT packet splicing.	R02A07_01. 201.01.201
NTP	Fixed the problem that the time synchronized by using AT+QNTP became the time from four days ago.	R02A07_01. 201.01.201
QuecOpen®	Fixed the problem that the return value of <code>qapi_QT_Get_USB_Event()</code> was incorrect.	R02A07_01. 201.01.201
SIM	Optimized SIM initialization judgment logic when EPSNSC file of SIM card was abnormal.	R02A07_01. 201.01.201
GENERAL	Added the restore point to improve the robustness of file system restore function.	R02A07_01. 201.01.201
GENERAL	Optimized the backup function of file system on AP side to enhance the robustness of backup and restore function of file system.	R02A07_01. 201.01.201
GENERAL	Synchronized the fix solution of CVE vulnerability.	R02A07_01. 201.01.201
DFOTA	Fixed the failure on DFOTA package download using domain name under IPv6 network.	R02A07_01. 200.01.200
GNSS	Solved the problem that the timestamp at 0 o'clock every Sunday in GNSS NMEA sentences was incorrect.	R02A07_01. 200.01.200
TCP/IP	Fixed the problem that "+++" was simultaneously sent when the "+++" was input in USB MODEM port to exit from transparent transmission mode.	R02A07_01. 200.01.200

MQTT	Optimized the logic of MQTT disconnection when MQTT Client sent MQTT DISCONNECT package, and currently the specified URC was reported according to the server's behavior.	R02A07_01. 103.01.103
MQTT	Fixed the problem that the module was abnormally rebooted once the server was disconnected when the MQTT client continually sent data to the server with 4096 bytes in the weak NB-IoT network.	R02A07_01. 103.01.103
MQTT	Fixed the probabilistic problem that the URC was not reported when MQTT client published QoS=0 message under the weak signal.	R02A07_01. 103.01.103
TCP/IP	Fixed the bug of no URC report if the failure occurred caused by the network exception when TCP/IP application protocol performed DNS parsing.	R02A07_01. 103.01.103
FTP	Fixed the bug that FTP could download the content that exceeded the remaining space size displayed by the current file system of the module through the AT+QFTPGET .	R02A07_01. 103.01.103
COMMON	Solved the probabilistic problem that the serial port could not work normally.	R02A07_01. 103.01.103
ATC	Optimized the ATV initialization logic, that is, the TA response format was configured as ATV 1 if the default configuration was failed to be read.	R02A07_01. 103.01.103
Cell JD	Fixed the problem that NOJAMMING might not be reported when the jamming was removed under the GSM network.	R02A07_01. 103.01.103
ATC	Fixed the problem that the data was truncated when encountering "\0" if the data was transmitted in the transparent transmission mode after debug UART was configured as AT port.	R02A07_01. 103.01.103
SSL	Fixed the problem that no Close-Notify was sent to the server when AT+QSSLCLOSE was executed to automatically close a DTLS client connection.	R02A07_01. 103.01.103
ATC	Fixed the problem that the data transmitted through ATC PIPE was truncated when encountering "\0".	R02A07_01. 103.01.103
HTTP	Fixed the problem that the data mode cannot be exited after AT+QHHTTPREAD was executed if the second GET/POST requests were completed with URL2 under the situation that two different HTTP URLs were configured, and the first GET/POST requests have been completed with URL1.	R02A07_01. 103.01.103
SSL	Enabled SSL check host feature to prevent the certificate validity check failure on SSL client using multi-domain certificate.	R02A07_01. 103.01.103
SSL	Fixed the problem of memory leak caused by abnormal socket state during SSL handshake.	R02A07_01. 103.01.103
TCP/IP	Fixed the problem that when there was data in the TCP receive buffer, +URC: "closed" was not reported after the server actively disconnected the TCP connection.	R02A07_01. 103.01.103
TCP/IP	Fixed the problem of memory leak caused by entering the illegal characters when AT+QISENDEX was executed.	R02A07_01. 103.01.103

HTTP	Fixed the bug that HTTP GET/POST returned error 719 occasionally.	R02A07_01. 102.01.102
QuecOpen®	Fixed the bug that qapi_time_get() returned incorrect real time after module restart.	R02A07_01. 102.01.102
MQTT	Fixed the bug that if subscribe to 5 topics at the same time, then unsubscribe 5 topics at the same time, the exist connection will be disconnected.	R02A07_01. 101.01.101
QuecOpen®	Fixed the bug that AP_READY cannot be controlled correctly in QuecOpen application.	R02A07_01. 101.01.101
DNS	Fixed the bug that where the DNS server address could not be configured when the PDP type was configured to IPV4V6.	R02A07_01. 019.01.019
HTTP	Adjusted the maximum length of HTTP URL from 700 to 3000 bytes.	R02A07_01. 019.01.019
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.	R02A07_01. 019.01.019
MQTT	Fixed the bug that encountered concatenated package in MQTT downlink data.	R02A07_01. 019.01.019
MQTT	Fixed the bug in AT+QMTSUB command that when subscribing to a topic with double quotes, data transmission will fail.	R02A07_01. 019.01.019
QuecLocator®	Fixed the bug that provided Wi-Fi information but the module was still unable to locate successfully under NB-IoT network.	R02A07_01. 019.01.019
QuecOpen®	Fixed the bug that qapi_getsockopt returned an incorrect timeout result.	R02A07_01. 019.01.019
CMUX	Fixed the bug that module cannot wakeup from QSCLK mode by pull down DTR pin.	R02A07_01. 018.01.018
FILE	Fixed the bug that module occasionally crashed while deleting file.	R02A07_01. 018.01.018
FTP	Fixed the bug that uploading/downloading files (the name length of the files more than 255 characters) to/from FTP server always failed.	R02A07_01. 018.01.018
FTP	Fixed the issue that incorrect size of file downloaded from FTP server.	R02A07_01. 018.01.018
GENERAL	Fixed the bug that QLTS returned incorrect time.	R02A07_01. 018.01.018
GENERAL	Fixed the bug that AT+CBC always returned 100% power when power voltage lower than 3.2V.	R02A07_01. 018.01.018
GNSS	Fixed the bug that decimal place in the HEPE return value was always 0.	R02A07_01. 018.01.018
MQTT	Optimization that added support MQTT can publish data length to 5120 bytes.	R02A07_01. 018.01.018
QuecOpen®	Fixed the bug that closing ADC channel with QAPI was unsuccessful.	R02A07_01. 018.01.018
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).	R02A07_01. 018.01.018

GENERAL	Optimization that module restarts itself by default in exceptional cases.	R02A07_01.017.01.017
TCP/IP	Fixed the bug that the reported data length is not correct when AT+QICFG="recvind" is enabled.	R02A07_01.017.01.017
TCP/IP	Fixed the bug that module prompts that the number of data received is 32 bytes more than it actually received.	R02A07_01.017.01.017
FILE	Optimization that added support open file operations in append mode.	R02A07_01.017.01.017
FTP	Fixed the bug that connection opened failure when the FTP server response data contained multi-line characters.	R02A07_01.017.01.017
CMUX	Optimization that supports output the NMEA sentence thru CMUX NMEA port.	R02A07_01.017.01.017
GNSS	Fixed the bug that switch GNSS on and off for long periods of time can cause the module to crash unexpectedly.	R02A07_01.017.01.017
NIDD	Fixed the bug that missing data received by NIDD.	R02A07_01.017.01.017
MQTT	Fixed the bug that data probability losing when MQTT publish a large amount of data to server.	R02A07_01.017.01.017
GENERAL	Improved AT command AT+QCFG="ledmode" to control netlight always on or always off.	R02A07_01.016.01.016
GENERAL	Fixed the bug that flow control enabled by default under CMUX.	R02A07_01.016.01.016
HTTP	Fixed the bug that executing HTTPREAD command don't exit data mode when get HTTP server's body is 0.	R02A07_01.016.01.016
NETWORK	Fixed the bug of incorrect format of CEREG query command when AT+CEREG=4 .	R02A07_01.016.01.016
NETWORK	Fixed the bug that eDRX URC report error in OOS state.	R02A07_01.016.01.016
SSL	Fixed the bug that caused the module to enter an abnormal state by sending 0 byte of data using the AT+QSSSEND command.	R02A07_01.016.01.016
HTTP	Fixed the bug that module can't get HTTP server's response when the command AT+QHTTPPOST had returned OK.	R02A07_01.016.01.016
SMS	Fixed the bug that executing AT+CMGW command without <oa/da> will report error.	R02A07_01.016.01.016
TCP/IP	Fixed the bug that executing AT+QIOPEN can't be succeed when the value of DNS handle exceeded 32768 if building TCP connection with domain name.	R02A07_01.016.01.016
LWM2M	Fixed the bug that module report error when read /6/0/4 in Verizon LWM2M certification.	R02A07_01.016.01.016
LWM2M	Fixed the bug that module can't do business when LWM2M client received NULL response.	R02A07_01.016.01.016
LWM2M	Change the number of LwM2M CoAP packet retransmission times from 4 to 2.	R02A07_01.016.01.016

GNSS	Improved command AT+QGPSLOC to let module report location actively.	R02A07_01. 016.01.016
GNSS	Improved command AT+QGPSCFG , output NEMA sentences through UART2(debug) port.	R02A07_01. 016.01.016
NETWORK	Fixed the bug that CSQ value display 99 when RSSI is 0.	R02A07_01. 016.01.016
SSL	Fixed the bug that module's SSL state didn't update when the other party closed SSL connection.	R02A07_01. 016.01.016
FTP	Fixed the bug that using command AT+QFTPGET to get data connection status failed after successfully building FTP connection in IPV6 environment.	R02A07_01. 016.01.016
GNSS	Fixed the bug that QGPSLOC command still can query location sentences after GPS loss of lock.	R02A07_01. 016.01.016
GNSS	Change the NMEA sentence parameter of the DEBUG port output.	R02A07_01. 016.01.016
TCP/IP	Enabled TCP Graceful Dormant Close Connection.	R02A07_01. 016.01.016
SSL	Fixed the bug that module can't establish a connection with Apache server using IP address after SNI feature was enabled.	R02A07_01. 016.01.016
SMS	Fixed the bug that module's SMS storage location setting can't be saved after the module was power down.	R02A07_01. 016.01.016
HTTP	Fixed the bug that configuring HTTP URL in IPV6 environment but the querying result of the URL is for HTTPS.	R02A07_01. 016.01.016
GENERAL	Improved the URC report of PMIC when opened high temperature detection feature.	R02A07_01. 016.01.016
FOTA	Fixed the bug that configuring the parameters "user" and "pass" is invalid when using the command AT+QCFGEXT="fota_apn" .	R02A07_01. 016.01.016
NETWORK	Fixed the bug that the configuration of the command AT+QCFG="servicedomain" can't be saved after the module was power down.	R02A07_01. 016.01.016
DFOTA	Optimized for support HTTP URL access with username and password.	R02A07_01. 014.01.014
GENERAL	Fixed the bug that there is always error returned when querying IMSI number immediately after RDY is reported.	R02A07_01. 014.01.014
GENERAL	Fixed the bug that data is easily lost when being output via UART port quickly.	R02A07_01. 014.01.014
FILE	Fixed the bug that there is error returned occasionally when using AT+QFDEL to delete file.	R02A07_01. 014.01.014
MQTT	Fixed the bug that the MQTT data output is missing when MQTT downstream contains '\0' characters.	R02A07_01. 014.01.014
GENERAL	Optimized module stability at high temperature with 85 degrees Celsius.	R02A07_01. 014.01.014
LwM2M	Supported 3/0/30000 for Verizon Motive test requirement.	R02A07_01.

		014.01.014
LWM2M	Added Qualcomm CR2192472 to resolve bootstrapping connection failure issue.	R02A07_01. 014.01.014
GENERAL	Fixed the bug that AT+CBC results showed incorrect power percentages	R02A07_01. 014.01.014
NETWORK	Fixed the bug that module reports incorrect CEREG status with service domain configure with CS & PS.	R02A07_01. 011.01.011
MQTT	Fixed the bug that module received a large amount of data in GSM mode and could not output to the serial port occasionally.	R02A07_01. 011.01.011
GNSS	Fixed the bug that module cannot output NMEA data to USB NMEA port occasionally.	R02A07_01. 011.01.011
GNSS	Fixed the bug that incorrect location status after GNSS lost its location.	R02A07_01. 011.01.011
FTM	Fixed the bug that incorrect result returned of QRXFTM when module is tested under Band 13.	R02A07_01. 011.01.011
TCP/IP	Optimized for IPV6 support.	R02A07_01. 011.01.011
GENERAL	Fixed the bug that module blocked after execute AT+CGACT=1,1 under Cat-M1 network.	R02A07_01. 011.01.011
PING	Fixed the bug that remove network after executing the AT+QPING , there is no URC reported.	R02A07_01. 011.01.011
NETWORK	Fixed the bug that module cannot register to network after manually deactivating MBN.	R02A07_01. 011.01.011
GENERAL	Optimized for the AT+QFOTADL to support the URL longer than 100 characters, up to 1000 characters.	R02A07_01. 010.01.010
SSL	Fixed the bug that get partial data but always returning all data when execute AT+QSSLRECV .	R02A07_01. 010.01.010
GNSS	Optimized for AT+QGPSCFG to support configure the baud rate of the UART NMEA port.	R02A07_01. 010.01.010
SMS	Fixed the bug that unexpected URC “ +CMTI: -1 ” reported when module received WAP push type message.	R02A07_01. 010.01.010
FTP	Optimized hostname processing mechanism.	R02A07_01. 010.01.010
QuecOpen®	Fixed the bug that IIC working abnormal in QuecOpen solution.	R02A07_01. 010.01.010
FILE	Fixed the bug that file system abnormal if delete the file which still in downloading.	R02A07_01. 010.01.010
FTM	Fixed the bug that AT+QRXFTM returns an abnormal query value.	R02A07_01. 010.01.010
NETWORK	Fixed the bug that when change module to another RAT, “No service” returned by AT+QNWINFO occasionally.	R02A07_01. 010.01.010
SMS	Fixed the bug that “+CMS ERROR code 500” reported when execute	R02A07_01.

	AT+CMGS.	010.01.010
LwM2M	Fixed the bug that reporting firmware version number includes compiling timestamp when client connects to server.	R02A07_01. 009.01.009
LwM2M	Fixed the bug that reporting Error#506 when module starts FOTA progress.	R02A07_01. 009.01.009
LwM2M	Added URCs for prompt DFOTA package download start and completely of In-Band.	R02A07_01. 009.01.009
LwM2M	Fixed the bug that in case of server has an invalid/mismatch DFOTA package, LwM2M client cannot perform the firmware package download when execute motive case#11.01 repeatedly.	R02A07_01. 009.01.009
FILE	Fixed the bug that cannot use “+++” exit from data mode when downloading file over 1MB from module.	R02A07_01. 009.01.009
GENERAL	Fixed the bug that incorrect response returned when execute AT+QENG="servingcell" .	R02A07_01. 009.01.009
CMUX	Fixed the bug that CMUX works abnormally when set the CMUX frame size over 127.	R02A07_01. 009.01.009
GENERAL	Optimized AT+QCFGEXT="nipdr" to support display the returned data in hexadecimal format.	R02A07_01. 008.01.008
GENERAL	Optimized AT+QLWM2M commands.	R02A07_01. 008.01.008
GENERAL	Fixed the bug that incorrect format when execute AT+QPSMCFG=?/AT+QPSMEXTCFG=? .	R02A07_01. 008.01.008
TCP/IP	Fixed the bug that TCP handshake failed when set TCP window scale option with 14.	R02A07_01. 008.01.008
MQTT	Optimized AT+QMTPUB to enable specifying the load length.	R02A07_01. 007.01.007
GENERAL	Fixed the bug that DTR pin has no internal pull up when module powers on.	R02A07_01. 007.01.007
GENERAL	Fixed the bug that DCD pin cannot be controlled by AT&C command.	R02A07_01. 007.01.007
MQTT	Fixed the bug that data transmission sometime fails when sending data with a long-time interval.	R02A07_01. 007.01.007
GENERAL	Optimized the file system performance.	R02A07_01. 007.01.007
GENERAL	Fixed the bug that AT+CFUN=1,1 cannot be executed after set module enter into FTM mode.	R02A07_01. 007.01.007

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	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

Jamming Detection	GNSS	PSM	DFOTA	Quec Locator®	Quec Open®
Y	Y	Y	Y	Y	Y

NOTE

- Y means the firmware supports this function.
- N means the firmware does not support this function.