BC66 Release Notes

NB-IoT Module Series

Rev. BC66-NB_Firmware_Release_Notes_V0110

Date: 2019-12-16

1. Preamble

This document provides the Release Notes for BC66 firmware version **BC66NBR01A10**. It describes major changes compared to firmware version **BC66NBR01A07**. For a detailed listing of all changes, refer to the BC66 AT Command Set.

2. New Features

Item /Category	Brief Description	Since
GENERAL	Added **AT+QPOWD** command to power off the module.	R01A03
GENERAL	Added **AT+QSCLK** command to control module sleep mode.	R01A03
GENERAL	Added **AT+CBC** command to query module supply voltage.	R01A03
NETWORK	Optimized modem performance.	R01A03
NETWORK	Support Full BAND (15 bands).	R01A03
NETWORK	Support Full BAND (16 bands, band 4 is newly added).	R01A06
TCP(IP)	Added data mode for **TCP/UDP** to transfer data more flexibly.	R01A06
MQTT	Added data mode for **MQTT** to transfer data more flexibly.	R01A06
LwM2M	Added **LwM2M** command to support DTLS and Bootstrap. Uplink / downlink method is based on OBJ 19.	R01A06
TCP(IP)	Added **AT+QISEND=<connectid>,0** command to query TCP acked and non-acked bytes in total.	R01A06
GENERAL	Support QuecOpen and Standard mode all in one.	R01A06
GENERAL	Added **AT+QRELLOCK** command to release the sleep lock of ATCI layer. The default time is 10s.	R01A06
NETWORK	Added **AT+QCFG="epco",<enable/disable>** command to configure pco and epco mode.	R01A06
GENERAL	Added **AT+QCFG="atlocktime"** command to configure the sleep lock duration of AT commands.	R01A07
GENERAL	Added **AT+QCFG="dsevent"** command to configure the deep sleep indication.	R01A07
GENERAL	Added **AT+QCFG="initlocktime"** command to configure the sleep duration of module when reboot or wakeup from deep sleep.	R01A07
GENERAL	Added **AT+QCFG="ripin"** command to configure the initial level for RI pin.	R01A07

GENERAL	Added **AT+QCFG="autopdn"** command to configure the auto PDN activation enable or disable after reboot.	R01A07
GENERAL	Added **AT+QCCLK** command for more flexibility time management.	R01A07
NETWORK	Added **AT+QENG=2** mode to query the TX/RX total working time.	R01A07
NETWORK	Added operating mode parameter indication of current network when queried by **AT+QENG=0**.	R01A07
QuecOpen	Added external watchdog feeding feature which needs GPIO configuration in QuecOpen.	R01A07
QuecOpen	Added the GPIO pins (GPIO0, USB_MODE, GPIO6 ~GPIO8).	R01A07
QuecOpen	Added the GPIO pins (USB_MODE, GPIO1 ~GPIO4) support EINT.	R01A07
QuecOpen	Added Ql_UART_GetOption API to query UART parameters.	R01A07
QuecOpen	Added Ql_ADC_Read API to single read ADC values.	R01A07
QuecOpen	Added Ql_OS_GetTaskTickCount and Ql_OS_GetTaskTickCountFromISR for system tick counting.	R01A07
QuecOpen	Added Ql_OS_GetCurrenTaskLeftStackSize API for querying remaining stack size for dedicated task.	R01A07
QuecOpen	Added Ql_Delay_us API to microsecond delay.	R01A07
QuecOpen	Added Ql_Timer_Delete API to delete current timer ID.	R01A07
QuecOpen	Added timer API for microsecond counting.	R01A07
LwM2M	Added buffer mode for Standard LwM2M.	R01A07
LwM2M	Added custom object management for Standard LwM2M.	R01A07
LwM2M	Added **AT+QLWSTATUS** command to query current LwM2M status.	R01A07
TCP(IP)	Added **AT+QIDNSCFG** command to configure DNS server.	R01A07
TCP(IP)	Added echo mode configuration option for TCP/UDP message publishing in data mode.	R01A07
MQTT	Added echo mode configuration option for MQTT message publishing in data mode.	R01A07
LwM2M	Added **AT+QLWCFG="auto_ack",<is_enable>** option to enable/disable the auto observe response mechanism for custom object observe request.	R01A10
LwM2M	Added **AT+QLWCFG="rai_enable",<is_rai_enable>** option to enable/disable the RAI setting of auto update(lifetime) message.	R01A10
LwM2M	Added Observe/read custom object instance level.	R01A10

LwM2M	Added Object 4 resource 4(4/0/4) which can query the current dynamic allocated IPV6 address when IPV6 is enabled.	R01A10
LwM2M	Supported feature of DTLS Resumption. The goal of this feature is to reduce the amount of data interaction between the module and server after the deep sleep wakes up and to be more protocol compliant.	R01A10
LwM2M	Added **AT+QLWCFG="recovery_mode",<mode>** command to control whether the module automatically recovers from deep sleep. The **AT+QLWRECOVER** command is used to trigger module's recovery logic when the manual recover mode is enabled.	R01A10
DNS	Optimize DNS Cache feature. Put the DNS resolution result to RETSRAM and the DNS resolution will not be restarted until the TTL expires.	R01A10
QuecOpen	Added Ql_OS_SetEventFromISR API for set event in ISR routine.	R01A10
QuecOpen	Added multiple channels ADC sampling via API.	R01A10
QuecOpen	Added Ql_GetWakeUpReason API for query the wake up reason.	R01A10
QuecOpen	Added Ql_PowerDownAPI for power down the module.	R01A10
QuecOpen	Added Ql_vsprintf and Ql_vsnprintf API for flexibility trace format control.	R01A10
QuecOpen	Added **AT+QLOCPU** for flexibility switch between QuecOpen and Standard Firmware.	R01A10
QuecOpen	Added FreeRTOS API in QuecOpen.	R01A10
QuecOpen	Added TCP/UDP Socket API in QuecOpen.	R01A10
QuecOpen	Added API in QuecOpen for obtain current APP version number.	R01A10
QuecOpen	Added API in QuecOpen for obtain current power supply voltage.	R01A10
QuecOpen	Added API in QuecOpen for deep sleep event callback register.	R01A10
QuecOpen	Added Hardware flow for UART1 in QuecOpen.	R01A10
GENERAL	Added feature of UART DFOTA.	R01A10
GENERAL	Added **AT+QADC** command for ADC sampling via ADC0 channel.	R01A10
GENERAL	Added URC RI mask option to **AT+QCFG** command.	R01A10
TCP(IP)	Added feature of TLS.	R01A10
MQTTS	Added feature of MQTTS.	R01A10
MQTT	Added MQTT over IPV6.	R01A10

NETWORK	Added **AT+QEDRXCFG** command for eDRX cycle and PTW duration configuration.	R01A10
NETWORK	Added **AT+QBANDSL** command for band priority selection.	R01A10
NETWORK	Added combine attach/UP/UPIOT/multiDRB options to **AT+QCFG** command.	R01A10

3. Improved Features

Item/Category	Brief Description	Since
MQTT	Fixed the bug that the module is crash when downlink data length is 1024 bytes and the outputted data format is configured as hex.	R01A06
GENERAL	Change the **AT+QBAND?** response which is indicated as setting band not operating band.	R01A06
QuecOpen	Unrestricted the time interval limitation of ADC sampling. The minimum time interval can be configured as 10ms.	R01A06
QuecOpen	Modified the implementation of **Ql_OS_GetMessage** for dedicated scenarios – ADC/Normal EINT/Normal TIMER. This function will not return after the callback is called. It will go to the message receive code again internally to fetch the next message.	R01A06
QuecOpen	Fixed the bug that some GPIOs will hop during power on phase.	R01A06
NETWORK	Fixed the bug that SINR value is probability show as invalid value -127 when executing **AT+QENG=0** command.	R01A06
GENERAL	Fixed the bug that **AT+QSCLK** command is returned ERROR when executed in lower case format.	R01A06
NETWORK	Improved the network searching mechanism. Preferred band and preferred frequencies is selected according to the EHPLMN/HPLMN of inserted SIM card.	R01A06
NETWORK	Fixed the bug that low probability crash or hang up when executing **AT+COPS** and **AT+CGATT**.	R01A06
LwM2M	Improved the stability of Standard LwM2M and changed some format of AT commands.	R01A07
QuecOpen	Fixed the bug that module probability crash issue when using hardware SPI interface.	R01A07
QuecOpen	Fixed the bug that UART will be stuck when receive 1400 more bytes in one time.	R01A07
QuecOpen	Fixed the bug that UART data is corrupted when using multiple UART ports.	R01A07
QuecOpen	Fixed the bug that the time reading result is wrong when set a time-zone not equal to 32 using Ql_SetLocalTime API.	R01A07

NETWORK	Fixed the bug that module low probability stuck when switch CFUN frequently.	R01A07
NETWORK	Fixed the bug that the extended T3412 can not be configured to 320H by AT+CPSMS command.	R01A07
GENERAL	Fixed the bug that module will be waked up by RTC timer if enable when in power down mode.	R01A07
NETWORK	Fixed the bug that module can't enter PSM mode when RRC connection released.	R01A07
GENERAL	Improved the accuracy timing of RTC.	R01A07
TCP(IP)	Fixed the bug that **AT+QIDNSGIP** command can't show the correct resolved IPV6 address.	R01A07
TCP(IP)	Fixed the bug that data transfer failed when special characters contained in payload via **AT+QISEND** command.	R01A07
MQTT	Fixed the bug that there is an invalid "00" after **+QMTPUB: 0,0,0** when in the mode of qos:0 msgid:0 condition.	R01A07
MQTT	Fixed the bug that URC is not prompted when special characters (+ or #) are included in the payload.	R01A07
MQTT	Fixed the bug that data transfer failed when special characters contained in payload via **AT+QMTPUB** command.	R01A07
NTP	Fixed the bug that DNS resolution always fail when executing **AT+QNTP** command.	R01A07
GENERAL	Fixed the bug that module low probability can't enter deep sleep which is caused by GPT timer.	R01A07
GENERAL	Fixed the issue that Minimum Output Power error for category NB1.	R01A07
GENERAL	Fixed the issue that General ON/OFF Time Mask failed for category NB1.	R01A07
GENERAL	Fixed the bug that there is no **+CPIN: NOT READY** reported when SIM card is not inserted after booting the module.	R01A07
NETWORK	Fixed the bug that **+CSCON** URC abnormal reporting issue.	R01A07
LwM2M	Optimized the implementation of **AT+QLWADDOBJ/AT+QLWDELOBJ** which supports add/delete custom objects before registration.	R01A10
LwM2M	Fixed the bug that auto ping timer is invalid issue.	R01A10
LwM2M	Fixed the bug that "access_mode" is not prompted in **AT+QLWCFG?** respond.	R01A10
LwM2M	Fixed the bug that module will assert when JSON format data is received.	R01A10
LwM2M	Fixed the bug that JSON data can't be notified via **AT+QLWNOTIFY**.	R01A10
LwM2M	Modify URC **+QLWURC: "lifetime changed,%d"** to **+QLWURC: "lifetime_changed",%d**.	R01A10

LwM2M	Modify URC **+QLWURC:binding_changed,%s** to **+QLWURC: "binding_changed",%s**.	R01A10
LwM2M	Fixed the bug that module will assert when downlink write data length exceeds 50 Bytes.	R01A10
LwM2M	Fixed the bug that low probability module exception occurred when frequently notify data to server.	R01A10
LwM2M	Fixed the bug that data is truncated when blank space is contained in the payload in buffer mode.	R01A10
LwM2M	Fixed the DTLS version (1.0) mismatch DTLS client hello packet with the actual V1.2 Issue.	R01A10
LwM2M	Optimize auto register mechanism which is required by TMO Operator.	R01A10
GENERAL	Fixed the bug that "\r\n" is not contained in ENTER DEEPSLEEP URC.	R01A10
GENERAL	Fixed some bugs in NETLIGHT.	R01A10
GENERAL	Optimize the implementation of **AT+QSCLK=1** to release all the known AP locks for quick sleep control.	R01A10
GENERAL	Fixed the bug that ADC sampling is not accurate when the divider resistor is too high.	R01A10
GENERAL	Fixed the bug that RI pin abnormal hopping when module power on, reboot or deep sleep wakeup.	R01A10
NTP	Fixed the bug that DNS request can't stop due to **AT+QNTP** command.	R01A10
NTP	Fixed the bug that NTP port is always fixed to 123 and can't configure.	R01A10
MQTT	Extend the max length of username and password from 64 bytes to 256 bytes.	R01A10
TCP(IP)	Fixed the bug that the hex format data is always sent out when ESC is inputted in data mode rather than quit the data mode and discard the input data.	R01A10
TCP(IP)	Fixed the bug that TCP/UDP over IPV6 can't work properly via **AT+QIOPEN.**	R01A10
TCP(IP)	Fixed the bug that DNS query result is displayed blank or wrong format via AT+QIDNSCFG=1.	R01A10
NETWORK	Fixed the bug that module is abnormal wakeup which is triggered by poll interval mechanism in eSIM.	R01A10
NETWORK	Fixed the bug that module is abnormal wakeup due to bug in "periodic attempts may be postponed while the MS is in power saving mode".	R01A10
NETWORK	Fixed the bug that abnormal TAU is triggered after module exit PSM mode.	R01A10
NETWORK	Fixed the bug that SIM initialization fails when binary record length is exceeds 255 bytes which cause module can't register to network.	R01A10

NETWORK	Fixed the bug that blank is omitted after colon with URC **+CTZV** and **+CTZE**.	R01A10
QuecOpen	Fixed the bug that module will low possibility stuck when executes **AT+CGATT** command in QuecOpen.	R01A10
QuecOpen	Optimized timer management in QuecOpen.	R01A10

4. Functions

Basic Function

Protocol Function							
TCP/UDP	NITZ	PING	NTP	LwM2M	MQTT	MQTTS	TLS
Y	Y	Y	Y	Y	Y	Y	Y

Special Function		
DFOTA	PSM	QuecOpen
Y	Y	Y

NOTES

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