BC95&BC95-G

Difference Introduction

NB-IoT Module Series

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About the Document

History

Revision	Date	Author	Description
1.0	2018-08-28	Evan WU/ Hayden WANG/ Ewent LU	Initial
1.1	2018-12-20	Ewent LU	1. Added the description of RXD design differences in Chapter 2.2. 2. Added Chapter 2.3 to describe the differences of UART reference design between BC95 and BC95-G. 3. Added Chapter 2.4 to describe the differences of current consumption between BC95 and BC95-G.

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1 Introduction

This document describes main differences between BC95 and BC95-G in terms of hardware and software designs, including pin assignment, software functions, AT commands comparison, etc.

2 Hardware Comparison

2.1. Pin Assignment

BC95-G is completely pin-to-pin compatible with BC95, and the pin assignment is illustrated below.

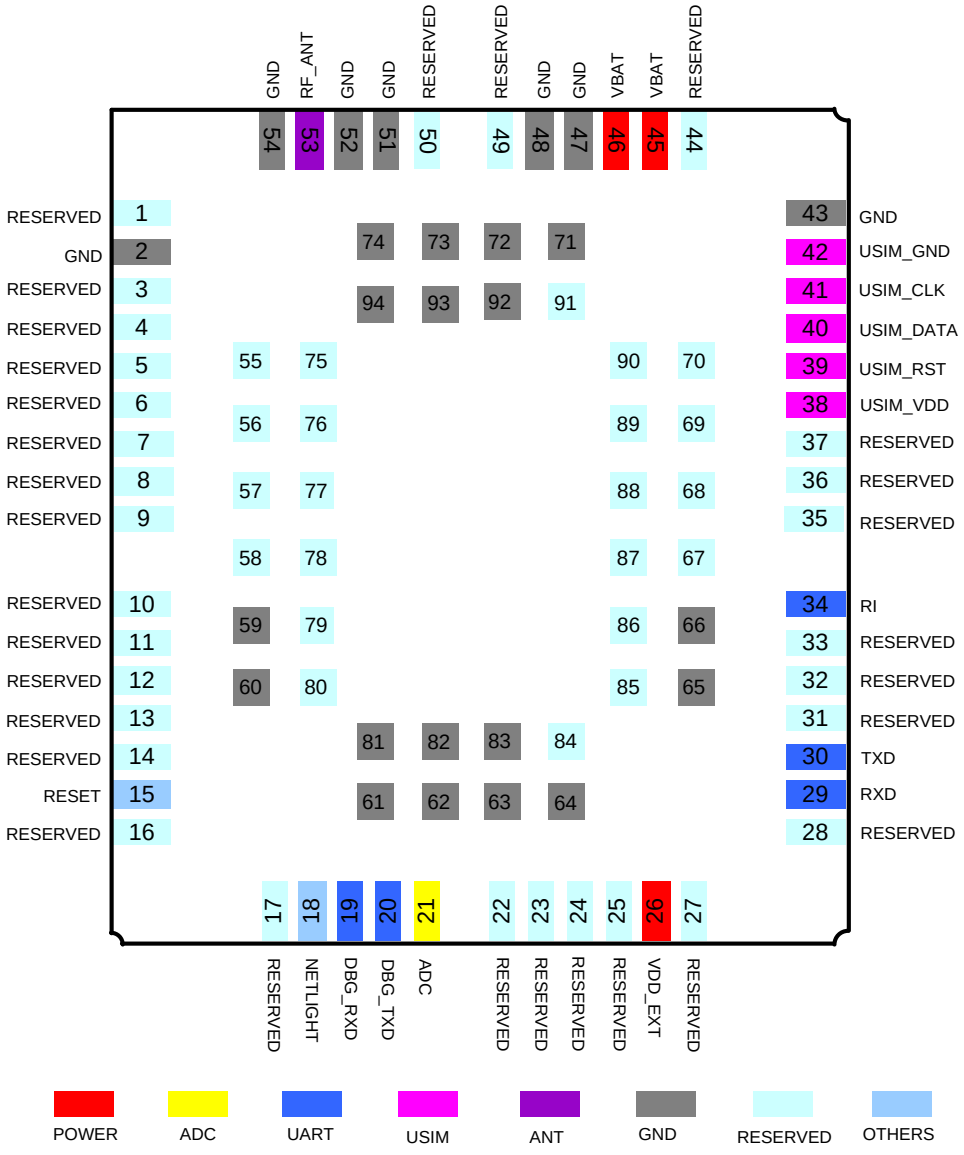

Figure 1: Pin Assignment

2.2. Pin Description and Differences

Table 1: Pin Description and Differences

Pin No.	BC95	BC95-G	Pin Description	Differences
	Pin Name	Pin Name		
1	RESERVED	RESERVED	Reserved	/
2	GND	GND	Ground	/
3	RESERVED	RESERVED	Reserved	/
4	RESERVED	RESERVED		/
5	RESERVED	RESERVED		/
6	RESERVED	RESERVED		/
7	RESERVED	RESERVED		/
8	RESERVED	RESERVED		/
9	RESERVED	RESERVED		/
10	RESERVED	RESERVED		/
11	RESERVED	RESERVED		/
12	RESERVED	RESERVED		/
13	RESERVED	RESERVED		/
14	RESERVED	RESERVED		/
15	RESET	RESET	Reset the module	/
16	RESERVED	RESERVED	Reserved	/
17	RESERVED	RESERVED		/
18	NETLIGHT	NETLIGHT	Network status indication	/
19	DBG_RXD	DBG_RXD	Receive data	/
20	DBG_TXD	DBG_TXD	Transmit data	/

21	ADC	ADC	General purpose analog to digital converter interface	/
22	RESERVED	RESERVED	Reserved	/
23	RESERVED	RESERVED		/
24	RESERVED	RESERVED		/
25	RESERVED	RESERVED		/
26	VDD_EXT [1)]	VDD_EXT [1)]	Supply 3.0V voltage for external circuit	**BC95:** $I_O$max=20mA (Any mode) **BC95-G:** $I_O$max=1mA (In PSM) $I_O$max=20mA (Other modes)
27	RESERVED	RESERVED	Reserved	/
28	RESERVED	RESERVED		/
29	RXD [2)]	RXD [2)]	Receive data	**BC95-G:** Cannot be left floating in PSM mode.
30	TXD	TXD	Transmit data	/
31	RESERVED	RESERVED	Reserved	/
32	RESERVED	RESERVED		/
33	RESERVED	RESERVED		/
34	RI	RI	Ring indicator	/
35	RESERVED	RESERVED	Reserved	/
36	RESERVED	RESERVED		/
37	RESERVED	RESERVED		/
38	USIM_VDD [3)]	USIM_VDD [3)]	Power supply for USIM card	**BC95:** 3.0V USIM card **BC95-G:** 1.8V or 3.0V USIM card
39	USIM_RST	USIM_RST	USIM card reset	/
40	USIM_DATA	USIM_DATA	USIM card data	/

41	USIM_CLK	USIM_CLK	USIM card clock	/
42	USIM_GND	USIM_GND	USIM card ground	/
43	GND	GND	Ground	/
44	RESERVED	RESERVED	Reserved	/
45	VBAT	VBAT	Main power supply of the module: VBAT=3.1V~4.2V	/
46	VBAT	VBAT		/
47	GND	GND	Ground	/
48	GND	GND		/
49	RESERVED	RESERVED	Reserved	/
50	RESERVED	RESERVED		/
51	GND	GND	Ground	/
52	GND	GND		/
53	RF_ANT	RF_ANT	RF antenna pad	/
54	GND	GND	Ground	/
55~58, 67~70, 75~80, 84~91	RESERVED	RESERVED	Reserved	/
59~66, 71~74, 81~83, 92~94	GND	GND	Ground	/

NOTES

1. [1)] BC95 and BC95-G are different in the output current capacity of VDD_EXT:
   - **BC95**: the maximum output current capacity of VDD_EXT is 20mA in any operation mode.
   - **BC95-G**: the maximum output current capacity of VDD_EXT is 1mA in PSM and 20mA in other operation modes.
2. [2)] Differences between BC95's and BC95-G's RXD reference designs:
   - **BC95**: please refer to ***Figure 2*** for the recommended reference design of RXD.
   - **BC95-G**: When RXD is left floating or the voltage level mismatches, the current consumption of BC95-G in PSM will increase. Therefore, please design RXD according to the recommended

reference design in ***Figure 3***.

3. [3] BC95 and BC95-G are different in terms of the USIM card supported by USIM_VDD:
   - **BC95**: supports 3.0V USIM card.
   - **BC95-G**: supports 1.8V and 3.0V USIM card.

2.3. UART Reference Design Differences

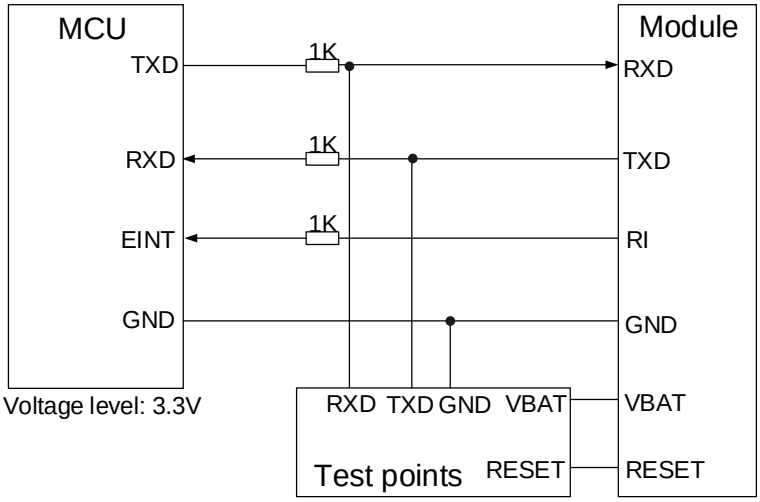

Figure 2: Recommended UART Reference Design for BC95

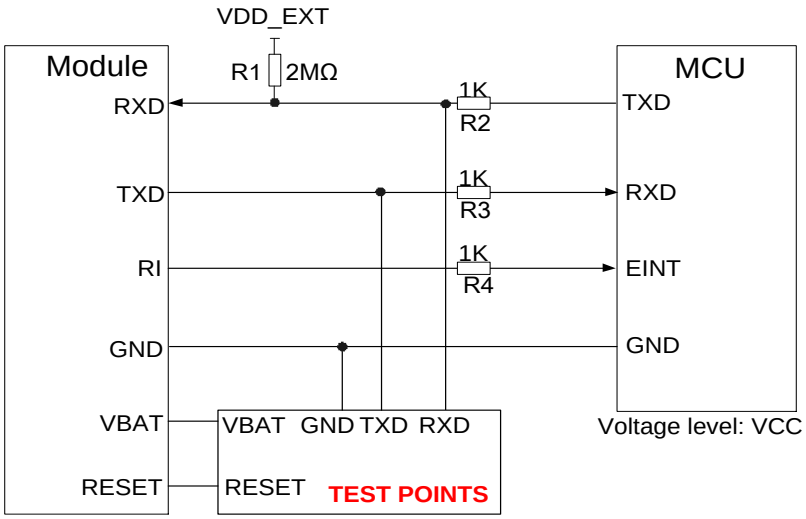

Figure 3: Recommended UART Reference Design for BC95-G

NOTES

Please note the following items while designing the UART interface of BC95-G:

1. In PSM, MCU_TXD cannot be left floating or the current consumption of BC95-G in PSM will increase. It is recommended to pull up the module's RXD to VDD_EXT with a 2MΩ resistor for low current leakage.
2. If VCC > VDD_EXT, a level shifter needs to be added for low power design. Please change the pull-up resistor R1 to 20KΩ and change R2 to a Schottky diode instead (Cathode should be connected to MCU_TXD and anode should be connected the module's RXD). Additionally, it is recommended to configure MCU_RXD as floating input in PSM (both pull-up and pull-down may cause current leakage when the module is in PSM).
3. If VCC < VDD_EXT, please use triode or low-turn-ON/OFF-delay-time MOSFET for level shift design to reduce the current leakage caused by I/O level mismatch.
4. When RXD is left floating or the voltage level mismatches, the current consumption of BC95-G in PSM will increase. Therefore, please design according to the above recommended UART reference design.

2.4. Current Consumption Differences

Table 2: BC95 Current Consumption

Parameter	Description	Conditions	Min.	Typ.	Max.	Unit
I_{VBAT}	PSM	Deep sleep state		3.6		uA
	Idle mode	Standby state @DRX=1.28s		2		mA
	Active mode	Radio transmission (23dBm) (B8/B5/B20)		220		mA
		Radio transmission (23dBm) (B28)		250		mA
		Radio transmission (12dBm) (B8/B5/B20/B28)		80		mA
		Radio transmission (0dBm) (B8/B5/B20/B28)		65		mA
		Radio reception		60		mA

Table 3: BC95-G Current Consumption

Parameter	Description	Conditions	Min.	Typ.	Max.	Unit
I_{VBAT}	PSM	Deep sleep state		3		uA
	Idle mode	Standby state, DRX=1.28s		2		mA
	Active mode @Single-tone (3.75kHz/15kHz)	Radio transmission, 23dBm (B1/B3)		250		mA
		Radio transmission, 23dBm (B8/B5/B20)		220		mA
		Radio transmission, 23dBm (B28)		280		mA
		Radio transmission, 12dBm (B1/B3/B8/B5/B20/B28)		130		mA
		Radio transmission, 0dBm (B1/B3/B8/B5/B20/B28)		70		mA
		Radio reception		60		mA
	Active mode @Multi-tone (15kHz)	Radio transmission, 23dBm (B1/B3/B8/B5/B20/B28)		350		mA

3 Software Comparison

The software comparison between BC95 and BC95-G is based on firmware versions as listed below.

Table 4: Firmware Versions

	BC95	BC95-G
Firmware Version	V100R100C10B657SP5	V150R100C20B300SP2

3.1. Software Function Differences

Table 5: Software Function Differences

Function	BC95	BC95-G
Multi-Tone	Not Supported	Supported
ECID	Not Supported	Supported (For Testing Only)
OTDOA	Not Supported	Supported (For Testing Only)
IPv6	Not Supported	Supported
TCP	Not Supported	Supported
LwM2M	Not Supported	Supported
MQTT	Not Supported	Supported

3.2. Output/Indication Information Differences

Table 6: Boot Output Information Differences

Boot Output Information	BC95	BC95-G
Power on Boot	**REBOOT_CAUSE_UNKNOWN**	**REBOOT_CAUSE_SECURITY_PMU_POWER_ON_RESET**
Hardware Reset	**REBOOT_CAUSE_SECURITY_RESET_UNKNOWN**	**REBOOT_CAUSE_SECURITY_RESET_PIN**

Table 7: Huawei IoT Platform Function and Indication Information Comparison

Huawei IoT Platform	BC95	BC95-G
Platform Function	When the Huawei IoT platform is not used, the platform registration function needs not to be disabled.	When the Huawei IoT platform is not used, the platform registration function needs to be disabled through **AT+QREGSWT=2**.
Indication Information	No URC Indication	**+QLWEVTIND:0** **+QLWEVTIND:3**

Table 8: DFOTA Upgrade Indication Information Comparison

DFOTA Upgrade	BC95	BC95-G
DFOTA Upgrade Indication Information	**FIRMWARE DOWNLOADING** **FIRMWARE DOWNLOADED** **FIRMWARE UPDATING** **REBOOT_CAUSE_SECURITY_RESET_UNKNOWN** **FIRMWARE UPDATING** **FIRMWARE UPDATE SUCCESS** **FIRMWARE UPDATE OVER**	**+QLWEVTIND:5** **FIRMWARE DOWNLOADING** **FIRMWARE DOWNLOADED** **FIRMWARE UPDATING** **REBOOT_CAUSE_SECURITY_FOTA_UPGRADE** **FIRMWARE UPDATE SUCCESS** **FIRMWARE UPDATE OVER**

3.3. AT Command Differences

The following illustrates the differences of the AT commands supported by both BC95 and BC95-G.

3.3.1. Network Related Command

3.3.1.1. AT+COPS PLMN Selection

BC95	BC95-G
Test Command **AT+COPS=?**	Test Command **AT+COPS=?**
Response **+COPS:(2,,,"46000"),,(0-2),(2)** **OK**	Response **+COPS: (2,,,"46011"),(3,,,"46000"),(3,,,"46001"),,(0-2),(2)** **OK**

Differences Description: Return values of **AT+COPS=?** are different.

- **BC95**
  1) PLMN setting can be queried in any state of RRC, but the return value is the information that has been configured in the USIM card.
  2) Other AT commands can be executed before the response of **AT+COPS=?** command is returned. The maximum response time of this command is 300ms.

- **BC95-G**
  1) PLMN setting can only be queried when RRC is not connected, and the return value is the operator's PLMN value existing in the current network.
  2) Other AT commands cannot be executed before the response of **AT+COPS=?** command is returned, otherwise, an error will be reported. The maximum response time of this command is 630s.

3.3.2. UDP Related Commands

3.3.2.1. AT+NSOCR Create a Socket

BC95	BC95-G
Write Command **AT+NSOCR=<type>,<protocol>,<listen port>[,<receive control>]**	Write Command **AT+NSOCR=<type>,<protocol>,<listenport>[,<receive control>[,<af_type>[,<ip address>]]]**
Response **<socket>** **OK**	Response **<socket>** **OK**

Differences Description: Supported socket types (**<type>**) and the starting value of created socket reference number (**<socket>**) in the response are different.

- **BC95**
  1) Only **<type>**=DGRAM (indicates UDP socket) is supported.
  2) **<socket>**, indicating a reference to created socket, supports values starting from 0 or 1.

- **BC95-G**
  1) Both **<type>**=DGRAM (indicates UDP socket) and **<type>**=STREAM (indicates TCP socket) are supported.
  2) **<socket>**, indicating a reference to created socket, supports values starting from 1, 2 or 3.
  3) Additional parameters **<af_type>** and **<ip address>** are supported.

3.3.2.2. AT+NSOST SendTo Command (UDP Only)

BC95	BC95-G
Write Command **AT+NSOST=<socket>,<remote_addr>,<remote_port>,<length>,<data>**	Write Command **AT+NSOST=<socket>,<remote_addr>,<remote_port>,<length>,<data>[,<sequence>]**
Response **<socket>,<length>** **OK**	Response **<socket>,<length>** **OK**

Differences Description: The maximum data length and the return values are different.

- **BC95**
  1) Supports data transmission of maximally 512 bytes at a time with **<length>** and **<data>**.
  2) The return value does not support URC reporting.

- **BC95-G**
  1) Supports data transmission of maximally 1358 bytes at a time with **<length>** and **<data>**.
  2) Parameter **<sequence>** is additionally supported. After the transmission is completed, if **<sequence>** is set from 1 to 255, the result will be reported as URC in the form of **+NSOSTR:<socket>,<sequence>,<status>**.

3.3.2.3. AT+NSOSTF SendTo Command with Flags (UDP Only)

BC95	BC95-G
Write Command **AT+NSOSTF=<socket>,<remote_addr>,<remote_port>,<flag>,<length>,<data>**	Write Command **AT+NSOSTF=<socket>,<remote_addr>,<remote_port>,<flag>,<length>,<data>[,<sequence>]**
Response **<socket>,<length>** **OK**	Response **<socket>,<length>** **OK**

Differences Description: The maximum data length and the return values are different.

- **BC95**
  1) Supports data transmission of maximally 512 bytes at a time with **<length>** and **<data>**.
  2) The return value does not support URC reporting.

- **BC95-G**
  1) Supports data transmission of maximally 1358 bytes at a time with **<length>** and **<data>**.
  2) Parameter **<sequence>** is additionally supported. After the transmission is completed, if **<sequence>** is set from 1 to 255, the result will be reported as URC in the form of **+NSOSTR:<socket>,<sequence>,<status>**.

3.3.3. UART Baud Rate Configuration Related Command

3.3.3.1. AT+NATSPEED Configure UART Port Baud Rate

BC95	BC95-G
Test Command	Test Command

AT+NATSPEED=?	**AT+NATSPEED=?**
Response **+NATSPEED:(4800,9600,57600,115200),(0-30),(0,1),(0-3),(1,2)** **OK**	Response **+NATSPEED:(4800,9600,57600,115200,230400,460800),(0-30),(0,1),(0-3),(1,2),(0-2),(0,1)** **OK**

Differences Description: Default return values are different.

- **BC95**
  Only supports 4 baud rates.

- **BC95-G**
  Supports 6 baud rates, as well as parity check and software flow control.

3.3.4. Huawei IoT Platform Related Commands

3.3.4.1. AT+NMGS Send a Message

BC95	**BC95-G**
Write Command **AT+NMGS=<length>,<data>**	Write Command **AT+NMGS=<length>,<data>[,<seq_num>]**
Response **OK** **[+NSMI:<status>]**	Response **OK** **[+NSMI:<status>[,<seq_num>]]**

Differences Description: Parameters supported by the command are different.

- **BC95**
  1) Does not support **<seq_num>**.
  2) When sent message status indication is enabled with **AT+NSMI=1**, the URC in the form of **+NSMI:<status>** will be reported and the parameter **<status>** indicates SENT or DISCARDED.

- **BC95-G**
  1) Supports **<seq_num>**, of which the range is 1-255.
  2) When sent message status indication is enabled with **AT+NSMI=1**, the URC in the form of **+NSMI:<status>[,<seq_num>]** will be reported and the parameter **<status>** indicates SENT, SENT_TO_AIR_INTERFACE or DISCARDED.

NOTE

+NSMI:<status> for BC95 and **+NSMI:<status>[,<seq_num>]** for BC95-G are message status indications that will be reported after setting **AT+NSMI=1**. When **AT+NSMI=0** is set, there will only be a response of **OK** for **AT+NMGS** write command.

3.3.4.2. AT+NNMI New Message Indications

BC95	BC95-G
Read Command **AT+NNMI?**	Read Command **AT+NNMI?**
Response **+NNMI:0** **OK**	Response **+NNMI:1** **OK**

Differences Description: Default return values are different:

- **BC95**
  The default return value is 0.

- **BC95-G**
  The default return value is 1.

3.3.4.3. AT+QLWULDATAEX Send CON/NON Message

BC95	BC95-G
Write Command **AT+QLWULDATAEX=<length>,<data>,<mode>**	Write Command **AT+QLWULDATAEX=<length>,<data>,<mode>[,<seq_num>]**
Response **OK** **[+QLWULDATASTATUS:<status>]**	Response **OK** **[+QLWULDATASTATUS:<status>[,<seq_num>]]**

Differences Description: Parameters supported by the command are different.

- **BC95**
  1) Does not support **<seq_num>**.

2) The URC in the form of **+QLWULDATASTATUS:<status>** will be reported when it is configured to send a CON message (**<mode>** is set to 0x0100)**.**

- **BC95-G**
  1) Supports **<seq_num>**, of which the range is 0-255.
  2) The URC in the form of **+QLWULDATASTATUS:<status>[,<seq_num>]** will be reported when it is configured to send a CON message (**<mode>** is set to 0x0100).

3.3.4.4. AT+QLWULDATASTATUS Query CON Messages Sent Status

BC95	BC95-G
Read Command **AT+QLWULDATASTATUS?**	Read Command **AT+QLWULDATASTATUS?**
Response **+QLWULDATASTATUS:<status>** **OK**	Response **+QLWULDATASTATUS:<status>[,<seq_num>]** **OK**

Differences Description: Parameters returned by the command are different.

- **BC95**
  Only **<status>** will be returned.

- **BC95-G**
  <status> and **<seq_num>** will be returned.

3.3.4.5. AT+NMSTATUS Message Registration Status

BC95	BC95-G
Test Command **AT+NMSTATUS=?**	Test Command **AT+NMSTATUS=?**
Response **UNINITIALISED** **MISSING_CONFIG** **INIT_FAILED** **INIITIALISING**	Response **UNINITIALISED** **MISSING_CONFIG** **INIITIALISING** **INIITIALISED**

INIITIALISED	**INIT_FAILED**
REGISTERING	**REGISTERING**
REREGISTERING	**REGISTERED**
REGISTERED	**DEREGISTERED**
REREGISTERED	**MO_DATA_ENABLED**
MO_DATA_ENABLED	**NO_UE_IP**
NO_UE_IP	**REJECTED_BY_SERVER**
MEMORY_ERROR	**TIMEOUT_AND_RETRYING**
COAP_ERROR	**REG_FAILED**
MSG_SEND_FAILED	**DEREG_FAILED**
REJECTED_BY_SERVER	**OK**
TIMEOUT_AND_RETRYING	
TIMEOUT_AND_FAILED	
OK	

Differences Description: Default return values of the command are different:

- **BC95**
  17 types of message registration status are supported.
- **BC95-G**
  14 types of message registration status are supported.

3.3.4.6. AT+QSECSWT Set Data Encryption Mode

BC95	BC95-G
Write Command **AT+QSECSWT=<type>[,<renegotiation time>]**	Write Command **AT+QSECSWT=<type>[,<NAT type>]**

Response **OK**	Response **OK**

Differences Description: Setting parameters of the command are different.

- **BC95**
  Supports setting parameter **<renegotiation time>** to configure the renegotiation time.

- **BC95-G**
  Supports fixed renegotiation times based on different **<NAT type>** types.

3.3.5. Other Commands

3.3.5.1. AT+NPING Test IP Network Connectivity to a Remote Host

BC95	BC95-G
Write Command **AT+NPING=<remote_address>[,<p_size>[,<timeout>]]**	Write Command **AT+NPING=<remote_address>[,<p_size>[,<timeout>]]**
Response **OK**	Response **OK**

Differences Description: The value range of **<p_size>** (indicating the size in bytes of echo packet payload) is different.

- **BC95**
  Supports a range from 8 to 1460 for **<p_size>**, and the default value is 8.

- **BC95-G**
  Supports a range from 12 to 1500 for **<p_size>**, and the default value is 12.

3.3.5.2. AT+CGDCONT Define a PDP Context

BC95	BC95-G
Test Command **AT+CGDCONT=?**	Test Command **AT+CGDCONT=?**
Response **+CGDCONT:(0-10),("IP","NONIP"),,,(0),(0),,,,,(0,1)**	Response **+CGDCONT:(0-10),("IP","NONIP","IPV6","IPV4V6"),,,(0),(0),,,,,(0,1)**

OK	**OK**
Write Command **AT+CGDCONT=<cid>[,<PDP_type>[,<APN>]]**	Write Command **AT+CGDCONT=<cid>[,<PDP_type>[,<APN>[,,,,,,,,<NSLPI>]]]**
Response **OK**	Response **OK**

Differences Description: <APN> values and PDP types (**<PDP_type>**) are different.

- **BC95**
  1) **<APN>** value will be acquired even when not being configured.
  2) The default **<PDP_type>** is IPv4.

- **BC95-G**
  1) **<APN>** value, which is empty when not being configured, is set by the write command.
  2) The default **<PDP_type>** is IPv4v6.

3.3.5.3. AT+NCONFIG Configure UE Behaviors

BC95	BC95-G
Read Command **AT+NCONFIG?**	Read Command **AT+NCONFIG?**
Response **+NCONFIG:AUTOCONNECT,TRUE** **+NCONFIG:CR_0354_0338_SCRAMBLING,TRUE** **+NCONFIG:CR_0859_SI_AVOID,TRUE** **+NCONFIG:COMBINE_ATTACH,FALSE** **+NCONFIG:CELL_RESELECTION,FALSE** **+NCONFIG:ENABLE_BIP,FALSE** **OK**	Response **+NCONFIG:AUTOCONNECT,TRUE** **+NCONFIG:CR_0354_0338_SCRAMBLING,TRUE** **+NCONFIG:CR_0859_SI_AVOID,TRUE** **+NCONFIG:COMBINE_ATTACH,FALSE** **+NCONFIG:CELL_RESELECTION,TRUE** **+NCONFIG:ENABLE_BIP,FALSE** **+NCONFIG:MULTITONE,TRUE** **+NCONFIG:NAS_SIM_POWER_SAVING_ENABLE,TRUE** **+NCONFIG:BARRING_RELEASE_DELAY,64** **+NCONFIG:RELEASE_VERSION,13** **+NCONFIG:RPM,FALSE** **+NCONFIG:SYNC_TIME_PERIOD,0** **+NCONFIG:IPV6_GET_PREFIX_TIME,15** **+NCONFIG:NB_CATEGORY,1** **+NCONFIG:RAI,FALSE** **+NCONFIG:HEAD_COMPRESS,FALSE** **+NCONFIG:RLF_UPDATE,FALSE** **+NCONFIG:CONNECTION_REESTABLISHMENT,FALSE** **OK**

Differences Description: Default return values of the command are different.

- **BC95**
  6 UE behaviors are supported.

- **BC95-G**
  18 UE behaviors are supported.

3.3.5.4. AT+NUESTATS Query UE Statistics

BC95	BC95-G
Execution Command **AT+NUESTATS**	Execution Command **AT+NUESTATS**
Response **Signal power:-32768** **Total power:-32768** **TX power:-32768** **TX time:0** **RX time:0** **Cell ID:4294967295** **ECL:255** **SNR:-32768** **EARFCN:4294967295** **PCI:65535** **RSRQ:-32768** **OK**	Response **Signal power:-32768** **Total power:-32768** **TX power:-32768** **TX time:0** **RX time:0** **Cell ID:4294967295** **ECL:255** **SNR:-32768** **EARFCN:4294967295** **PCI:65535** **RSRQ:-32768** **OPERATOR MODE:0** **OK**

Differences Description: Default return values of the command are different.

- **BC95**
  OPERATOR MODE is not supported.

- **BC95-G**
  OPERATOR MODE is supported.

3.3.5.5. AT+NUESTATS=RADIO Query UE Statistics

BC95	BC95(R2.0)/BC95-G
Write Command **AT+NUESTATS=RAIOD**	Write Command **AT+NUESTATS=RAIOD**
Response **NUESTATS:RADIO,Signal power:-32768** **NUESTATS:RADIO,Total power:-32768** **NUESTATS:RADIO,TX power:-32768** **NUESTATS:RADIO,TX time:0** **NUESTATS:RADIO,RX time:0** **NUESTATS:RADIO,Cell ID:4294967295** **NUESTATS:RADIO,ECL:255** **NUESTATS:RADIO,SNR:-32768** **NUESTATS:RADIO,EARFCN:4294967295** **NUESTATS:RADIO,PCI:65535** **NUESTATS:RADIO,RSRQ:-32768** **OK**	Response **NUESTATS:RADIO,Signal power:-32768** **NUESTATS:RADIO,Total power:-32768** **NUESTATS:RADIO,TX power:-32768** **NUESTATS:RADIO,TX time:0** **NUESTATS:RADIO,RX time:0** **NUESTATS:RADIO,Cell ID:4294967295** **NUESTATS:RADIO,ECL:255** **NUESTATS:RADIO,SNR:-32768** **NUESTATS:RADIO,EARFCN:4294967295** **NUESTATS:RADIO,PCI:65535** **NUESTATS:RADIO,RSRQ:-32768** **NUESTATS:RADIO,OPERATOR MODE:0** **OK**

Differences Description: Default return values of the command are different.

- **BC95**
  OPERATOR MODE is not supported.
- **BC95-G**
  OPERATOR MODE is supported.

3.3.5.6. AT+NPOWERCLASS Set the Mapping for Band and Power Class

BC95	BC95-G
Test Command **AT+NPOWERCLASS=?**	Test Command **AT+NPOWERCLASS=?**
Response **+NPOWERCLASS:(5),(3,5)** **OK**	Response **+NPOWERCLASS:(5,8,3,28,20,1),(3,5,6)** **OK**

Differences Description: Supported bands and the power class value (**<power class>**) of the command is different.

- **BC95**
  Single band (5) is supported. And **<power class>** supports 3 and 5.

- **BC95-G**
  Multiple bands (5, 8, 3, 28, 20, 1) are supported. And **<power class>** supports 3, 5 and 6.

3.4. Additional AT Commands of BC95-G

The following table lists the additional AT commands of BC95-G when comparing with that of BC95.

Table 1: Additional AT Commands of BC95-G

No.	AT Commands	Description
1	AT+QLEDMODE	Set NETLIGHT LED Function Mode
2	AT+CGCONTRDP	Read PDP Context Dynamic Parameters
3	AT+CNMPSD	No More PS Data
4	AT+NQSOS	Query the List of Pending Socket Message
5	AT+NSOCO	Connect Command (TCP Only)
6	AT+NSOSD	Send Command (TCP Only)
7	+NSOCLI	Socket Close Indicator (Response Only)

8	AT+NIPINFO	IP Address Information Report
9	AT+NCPCDPR	Configure PDP Context Dynamic Parameters to be Read
10	AT+NQPODCP	Query Pending Originating Data List via the Control Plane
11	AT+QDNS	Trigger DNS Domain Name Resolution
12	AT+QLWSREGIND	Register Control
13	AT+QLWULDATA	Send Data
14	AT+QLWFOTAIND	Set DFOTA Update Mode
15	AT+QREGSWT	Set Registration Mode
16	+QLWEVTIND	LwM2M Event Report (Response Only)
17	AT+QRESETDTLS	Reset DTLS Mode
18	AT+QDTLSSTAT	Query the State of DTLS
19	AT+QLWSERVERIP	Set/Delete Bootstrap/LwM2M Server IP
20	AT+QCHIPINFO	Read System Information
21	AT+NSONMI	Control UDP/TCP Downlink Data Format

NOTE

For more details of the above-mentioned AT commands, please refer to *Quectel_BC95-G&BC68_AT_Commands_Manual*.

4 Appendix A References

Table 9: Related Documents

SN	Document Name	Remark
[1]	Quectel_BC95_Hardware_Design	BC95 hardware design
[2]	Quectel_BC95-G_Hardware_Design	BC95-G hardware design
[3]	Quectel_BC95_AT_Commands_Manual	BC95 AT commands manual
[4]	Quectel_BC95-G&BC68_AT_Commands_Manual	BC95-G&BC68 AT commands manual

Table 10: Terms and Abbreviations

Abbreviation	Description
DNS	Domain Name System
DTLS	Datagram Transport Layer Security
ECID	Enhanced Cell ID
IPv4	Internet Protocol Version 4
IPv6	Internet Protocol Version 6
LwM2M	Lightweight Machine to Machine
NB-IoT	Narrow Band Internet of Thing
OTDOA	Observed Time Difference of Arrival
PDP	Packet Data Protocol
PLMN	Public Land Mobile Network
TCP	Transmission Control Protocol
UART	Universal Asynchronous Receiver/Transmitter

UE	User Equipment
UDP	User Datagram Protocol
URC	Unsolicited Result Code