FSC-BTAUD-QCC AT Command Set

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1.0

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Chapter 1

Introduction

[中文版]

1.1 Description

This design guide is applicable to engineers developing the following series of Bluetooth modules: audio receiving modules: FSC-BT1038x , FSC-BT1058-RX , FSC-BT1104QI , FSC-BT1026X and audio transmitting modules: FSC-BT1035 , FSC-BT6038 , FSC-BT1058-TX, among which BT1058 can support receiving and transmitting respectively.

1.2 Module default configuration

Name	MODUAL_NAME-XXXX
LE-Name	MODUAL_NAME-LE-XXXX
Secure Simple Pairing Mode	On
UART Baudrate	115200/8/N/1
Note	MODUAL_NAME is the name of the current module

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Chapter 2

Command Description

2.1 Terms

Applicable to the entire document

- {} : Content within {} and {…} is optional.
- << : The host SEND **COMMAND** to the module
- >> : The module **RESPONSE/EVENT** to the host

2.2 Command Format

AT+Command{=Param1{,Param2{,Param3…}}}<CR><LF>

- All commands start with **AT**, end with **<CR><LF>**.
- **<CR>** means “carriage return”, corresponds to hex value 0x0D.
- **<LF>** means “line feed”, corresponds to hex value 0x0A.
- If Command has Parameter, Parameter follows behind ‘=’.
- If Command has multiple Parameters, Parameter must be separated by ‘,’.
- If Command has Response, Response starts with **<CR><LF>**, ends with **<CR><LF>**.
- Module will always report command’s execution result by using **OK** for success or **ERROR** for failure.

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Example:

Read module’s BR/EDR local name

<< AT+NAME

>> +NAME=FSC-BT1038A-XXXX

>> OK

Pick up an incoming call when no call incoming actually

<< AT+HFPANSW

>> ERROR

2.3 Event Format

<CR><LF>+Indication{=Param1{,Param2{,Param3…}}}<CR><LF>

- All Events start with <CR><LF>, end with <CR><LF>.
- If Event has Parameter, Parameter follow behind ‘=’.
- If Event has multiple Parameters, Parameter must be separated by ‘,’.
- Use command AT+SEP to replace default separator for conflict prevention.

Example:

Received “1234567890” from mobile phone via SPP profile

>> +SPPDATA=10,1234567890

Dial number “10086” using a mobile phone when HFP connected

>> +HFPSTAT=4

>> +HFPAUDIO=1

>> +HFPCID=10086

>> +HFPSTAT=6

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Chapter 3

Commands Table

3.1 General Commands

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3.1.1 AT+HELP - Firmware Function/Command Summary

Command	AT+HELP
Response	<FIRMWARE FUNCTION: audio_transceiver> <ENABLE PROFILES:LINKS: ON/OFF> |SPP|:1 |GATTS|:1 |GATTC|:0 |HFP-AG|:1 |A2DP-SRC|:1 |AVRCP-TG|:1 <COMMAND SUMMARY:DESCRIPTION:PROFILE CATEGORY> AT+BTEN:Bluetooth On/Off:|GENERAL| AT+PROFILE:Get/Set Profile:|GENERAL| AT+STAT:Get All Profile State:|GENERAL| … AT+ECHO:Enable/Disable AT Command Echo:|GENERAL| OK
Description	Using help command to get the basic summary information

3.1.2 AT+VER - Get Firmware Version

Command	AT+VER
Response	+VER=Param1,Param2,Param3
`Param1`	Module type
`Param2`	Firmware version
`Param3`	Data of production

Example:

<< AT+VER

>> +VER=FSC-BT1038A,V1.1.2,20250118

>> OK

3.1.3 AT+BAUD - Get/Set Uart Baudrate

Command	**AT+BAUD{=Param}**
`Param`	9600/19200/38400/57600/115200(default)/230400/460800/921600 /1000000/1382400/1500000/2000000
Response	**+BAUD=Param**
`Param`	Return the current baud rate
Description	Module will change baudrate to target value immediately

Example:Query baudrates

<< AT+BAUD

>> +BAUD=115200

>> OK

Example: Set baudrates

<< AT+BAUD=9600

>> OK

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3.1.4 AT+I2SCFG - Get/Set I2S Settings

Command	**AT+I2SCFG{=Param}**
`Param`	Expressed in decimal bit fields, with each bit representing
`BIT[0]`	0:disable; 1:enable
`BIT[1]`	0:master; 1:slave
`BIT[2]`	0:FS=48000Hz; 1:FS=44100Hz
`BIT[3]`	0:left justified; 1:right justified
`BIT[4]`	0:data 1 bit delay; 1:data no delay
`BIT[5-6]`	00: bit depth=16bits 01: bit depth=24bits 10: bit depth=32bits
Response	**+I2SCFG=Param**
Note	When the BT1038 series I2S is set to slave mode, the I2S master must continuously provide a clock; otherwise, the module will panic.

Example:usual configuration and description:

1	I2S Master; Sample rate=48000Hz; Resolution=16bits; Bit clock= 48000*16*2ch=1.536Mhz
3	I2S Slave; Sample rate=48000Hz; Resolution=16bits; Bit clock= 48000*16*2ch=1.536Mhz
65	I2S Master; Sample rate=48000Hz; Resolution=32bits; Bit clock= 48000*32*2ch=3.072Mhz
67	I2S Slave; Sample rate=48000Hz; Resolution=32bits; Bit clock= 48000*32*2ch=3.072Mhz

3.1.5 AT+SPDIFCFG - SPDIF format configuration

Command	AT+SPDIFCFG{=Param}
Param	0 - Disable audio output in SPIDF format 1 - Enable audio output in SPDIF format
Description	The output pin is pin15, and it will take effect after a restart. If the audio output is SPDIF, the I2S configuration will be invalidated.
Note	Some modules do not support SPDIF output

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3.1.6 AT+MICGAIN - Get/Set Analog Input Gain

Command	AT+MICGAIN{=Param}
Param	Microphone input gain +: Increase gain -: Decrease gain
Response	**+MICGAIN=Param**
Description	Param: FSC-BT1035 : 0~15, default:10 FSC-BT6038 : 0~10, default:5 FSC-BT1058-TX : 0~10, default:5
Note	Only supported by audio transmitting modules In USB input mode, the parameter can only be “+” or “-”; This command is invalid when using I2S/SPDIF input

3.1.7 AT+SPKVOL - Get/Set Analog Output Volume

Command	AT+SPKVOL{=Param}
Param	Volume (‘+’ / ‘-’ / 0-15, default:15)
Description	Adjust output volume, adjust A2DP volume during music playback, Adjust HFP volume during calls, and support volume adjustment in LEA mode

3.1.8 AT+REBOOT - Soft Reboot

Command	AT+REBOOT
Response	OK
Description	The module will reboot

3.1.9 AT+RESTORE - Restore Factory Settings

Command	AT+RESTORE
Response	OK
Description	Module restore all factory settings then reboot

3.1.10 AT+BTEN - Bluetooth On/Off

Command	AT+BTEN{=Param}
`Param`	0-Power off 1-Power on
Note	This command is not saved upon power loss

3.1.11 AT+LECFG - Get/Set LE Random MAC Address

Command	AT+LECFG{=Param}
`Param`	0 - Disable; 1 - Enable
Response	+LECFG=Param

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3.1.12 AT+PROFILE - Bluetooth Profile Configuration

Command	**AT+PROFILE{=Param}**
`Param`	Expressed in decimal bit fields, with each bit representing
`BIT[0]`	SPP (Serial Port Profile)
`BIT[1]`	GATT Server (Generic Attribute Profile)
`BIT[2]`	GATT Client (Generic Attribute Profile)
`BIT[3]`	HFP-HF (Hands-Free Profile Handsfree)
`BIT[4]`	HFP-AG (Hands-Free Profile Audio Gateway)
`BIT[5]`	A2DP Sink (Advanced Audio Distribution Profile)
`BIT[6]`	A2DP Source (Advanced Audio Distribution Profile)
`BIT[7]`	AVRCP Controller (Audio/Video remote controller Profile)
`BIT[8]`	AVRCP Target (Audio/Video remote controller Profile)
`BIT[9]`	HID Keyboard (Human Interface Profile)
`BIT[10]`	PBAP Server (Phonebook Access Profile)
`BIT[11]`	Map Server (Message Access Profile)
`BIT[16]`	Bis Sink (Le audio broadcast sink)
`BIT[17]`	Bis Source (Le audio broadcast source)
`BIT[18]`	Cis Sink (Le audio unicast sink)
`BIT[19]`	Cis Source (Le audio unicast source)
Response	**+PROFILE=Param**
Description	It is not possible to enable bothGATT Server & Client, HFP Sink & Source, A2DP Sink & Source,AVRCP Controller & Target If the Profile configuration is changed, the module will automatically restart.
Note	Not supported by audio transmitting modules：GATT Server、HFP-HF、A2DP Sink、AVRCP Controller、HID Keyboard、PBAP; Not supported by audio receiving modules：GATT Client、HFP-AG、A2DP Source、AVRCP Target; FSC-BT1026X 、FSC-BT1035 Not supported le audio

Example:Read the current profile

<< AT+PROFILE

>> +PROFILE=9385

Example:Only enable A2DP Sink and HFP Sink, disable others

<< AT+PROFILE=160

>> OK

Example:Only enable A2DP Source and HFP Source, and disable others

<< AT+PROFILE=80

>> OK

3.1.13 AT+AUTOCONN - Set the number of Bluetooth power-on reconnection attempts

Command	**AT+AUTOCONN{=Param}**
`Param`	(0~15, default:3) (0) Turn Off (1-15) Turn on and reconnect times
Response	**+AUTOCONN=Param**
Description	After being powered on, the module will attempt to establish a connection with the last connected device, retrying for **Param** times.

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3.1.14 AT+STAT - Read profile status

Command	**AT+STAT**
Response	**+STAT=Param1, Param2, Param3…**
Param1	DEVSTAT
Param2	SPPSTAT
Param3	GATTSTAT
Param4	HFPSTAT
Param5	A2DPSTAT
Param6	AVRCPSTAT
Param7	HIDSTAT
Param8	PBSTAT
Param9	BISSTAT
Param10	CISSTAT
Note	FSC-BT1035 does not support LE-Audio

3.1.15 AT+DEVSTAT - Read device status

Command	**AT+DEVSTAT**
Response	**+DEVSTAT=Param**
Param	Expressed in decimal bit fields
BIT[0]	0: Power Off; 1: Power On
BIT[1]	0: BR/EDR Not Discoverable; 1: BR/EDR Discoverable
BIT[2]	0: BLE Not Advertising; 1: BLE Advertising
BIT[3]	0: BR/EDR Not Scanning; 1: BR/EDR Scanning
BIT[4]	0: BLE Not Scanning; 1: BLE Scanning

Example : Common combinations and descriptions

0	Device power off
1	Device power on
3	Device power on, BR/EDR Discoverable
5	Device power on, BR/EDR Not Discoverable, BLE Advertising
7	Device power on, BR/EDR Discoverable, BLE Advertising
13	Device power on, BR/EDR Not Discoverable, BLE Advertising, Scanning nearby BR/EDR devices

3.1.16 AT+ADDR - Get BR/EDR MAC Address

Command	**AT+ADDR**
Response	**+ADDR=Param**
`Param`	Module’s BR/EDR MAC address (12 Bytes ASCII)

Example:

<< AT+ADDR

>> +ADDR=DC0D30010203

>> OK

3.1.17 AT+LEADDR - Get BLE MAC Address

Command	**AT+LEADDR**
Response	**+LEADDR=Param**
`Param`	Module’s LE MAC address (12 Bytes ASCII)

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3.1.18 AT+NAME - Get/Set BR/EDR Local Name

Command	**AT+NAME{=Param1{,Param2}}**
Param1	BR/EDR local name(1~31 Bytes ASCII)
Param2	MAC address suffix(0/1,default:1) 0: Disable suffix 1: Enable suffix “-XXXX”(lower 4 bytes of MAC address) after local name
Param	**+NAME=Param**
Description	Write local name if parameter exist, otherwise read current local name

Example:

Read current BR/EDR local name

<< AT+NAME

>> +NAME=FSC-BT1038-1234

>> OK

Change module’s BR/EDR local name to “ABC”,and disable suffix

<< AT+NAME=ABC,0

>> OK

Change module’s BR/EDR local name to “ABC”and enable suffix

<< AT+NAME=ABC,1

>> OK

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3.1.19 AT+LENAME - Get/Set BLE Local Name

Command	AT+LENAME{=Param1{,Param2}}
Param1	BLE local name(1~25 Bytes ASCII)
Param2	MAC address suffix(0/1,default:1) 0: 0-Disable suffix 1-Enable suffix “-XXXX”(lower 4 bytes of MAC address) after local name
Description	When Param1 is absent, it defaults to reading the Bluetooth name; when Param1 is present, it is used to set the Bluetooth name.

3.1.20 AT+PIN - Get/Set BR/EDR Pin Code

Command	AT+PIN{=Param}
Param	Pin code(4~15 Bytes ASCII, default:0000)
Response	**+PIN=Param**
Description	The PIN code is only valid in the legacy pairing mode, refer to AT+SSP
Note	FSC-BT1038x , FSC-BT1104QI do not support this command

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Example:Read module’s pin code

<< AT+PIN

>> +PIN=0000

>> OK

Example: Change module’s pin code to “1234”

<< AT+PIN=1234

>> OK

3.1.21 AT+SSP - Get/Set BR/EDR Pairing Mode

Command	AT+SSP{=Param}
Param	Pairing mode (0~2, default:0) (0) Legacy pairing, use pin code for pairing (1) Secure simple pairing, display yes/no in pairing (2) Secure simple pairing, display pairing code and yes/no in pairing
Response	**+SSP=Param**
Note	Need reoot

3.1.22 AT+COD - Get/Set Device Class

Command	AT+COD{=Param}
Param	Device Type(6 bytes ASCII, default:240404 Handsfree device)
Response	**+COD=Param**

For related configuration, please refer to COD.

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3.1.23 AT+PAIR: Get/Set BR/EDR/BLE Visibility

Command	AT+PAIR{=Param}
Param	Mode(0-1) 0: Leave BR/EDR/BLE discoverable mode (stop advertising/broadcasting) 1: Enter BR/EDR/BLE discoverable mode (start advertising/broadcasting)
Description	If no device (BR/EDR or BLE) is connected, the module will always be discoverable; If connected to a remote device, the module will not be discoverable unless it receives this command.

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3.1.24 AT+SCAN - Scan Nearby Devices

Command	AT+SCAN=Param1{,Param2,{Param3}}
Param1	Mode(0-3) 0: Stop scan 1: Scan nearby BR/EDR devices 2: Scan nearby BLE devices 3: Scan nearby BLE-BIS devices
Param2	Scan timeout（1-255 unit：seconds/1.28 seconds），defalut:10
Param3	Name filtering (only valid when Param1=3)
Note	The scan timeout varies between different modules, depending on the specific module.
Description	Format description reference *+SCAN - Scan content format*

Example: Scan nearby BR/EDR devices using AT+SCAN = 1,10, with a scanning duration of 10 seconds

+DEVSTAT=261

+SCAN=1,2,D58C79C88D15,-79,5,N-612

+SCAN=2,2,5820590F1E83,-60,7,Redmi 7

+SCAN=3,2,E0D8C4660C75,-70,16,JMGO-N1 Pro-0127

+SCAN=4,2,789F38FEDCBA,-57,10,FSC-BW256B

+SCAN=5,2,51684A0931E5,-74,17, 闔晨苯 X6000 锛嘉紗

+SCAN=6,2,70CD0D311A59,-73,13,FEASYCOM-WILL

+SCAN=7,2,388F817516D3,-72,7,PSE0500

+SCAN=8,2,947BAE63703F,-62,10,xiaomiqin1

+SCAN=E

+DEVSTAT=5

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3.1.25 AT+PLIST - Get/Delete Paired List

Command	**AT+PLIST{=Param}**
Param	(0/1~8/12 Bytes MAC address) (0) Clear all paired records (1~8) Clear the paired records of the specified index (MAC) Clear pairing records at the specified address
Response1	**+PLIST=Param1,Param2{,Param3}**
Param1	(1~8) Paired device index
Param2	(MAC)MAC address of the paired device
Param3	(UTF8)Bluetooth name of the paired device
Response2	**+PLIST=E** Pairing record query completed
Note	If the parameter is omitted, all pairing records will be listed. Only connection records of BR/EDR devices are supported; LE is not supported temporarily.

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Example:Read the pairing records of the module

<< AT+PLIST

>> +PLIST=1,1C5CF226D773, iPhone12

+PLIST=2,A0BC30075421, Samsung S8

+PLIST=E

>> OK

Example:Clear all paired records of the module

<< AT+PLIST=0

>> OK

3.1.26 AT+DSCA - Disconnect all connections

Command	AT+DSCA
Description	The module disconnects all Bluetooth connections with remote devices(ED/BR,GATT,LEA).

3.1.27 AT+AUDROUTE - Audio Routing Management

Command	AT+AUDROUTE{=Param}
Param	0 Stop audio routing 1 The module transmits audio stream to HP1/HP2 (A2DP playback mode) 2 Voice call between the module and HP1 (HFP SCO) 3 Voice call between the module and HP2 (HFP SCO) 4 Voice call between HFP1 and HP2 (HFP SCO, intercom mode) 5 The module initiates voice call (HFP SCO) to HP1/HP2 6 The module transmits audio stream to HP1 (A2DP playback mode) 7 The module transmits audio stream to HP2 (A2DP playback mode)
Note	Only supported by audio transmitting modules. HP1 and HP2 refer to Bluetooth peer headphones, and the modules in this document only support HP1 (0/1/2) Some firmware uses AT+HFPAUDIO to establish voice calls and AT+A2DPAUDIO to transmit audio streams

3.1.28 AT+TPMODE - Turn on/off transparent transmission mode

Command	AT+TPMODE{=Param}
Param	Mode (0~1, default 0) 0: Command mode 1: Transparent transmission mode
Response	+TPMODE=Param
Description	When connected under the SPP/GATT protocol and with transparent transmission mode enabled, AT commands will be disabled. Each byte received through UART will be sent to the remote end.

3.1.29 AT+AUXCFG - Query/configure input mode

Command	AT+AUXCFG{=Param}
Param	mode(0-4,default:0) 0: BT mode 1: LineIn mode 2: Spdif mode 3: I2S mode 4: USB mode
Description	This commandis used to configure the input mode of the module.
Note	FSC-BT1035 The order of Param parameters is different: 0: USB mode 1：LineIn mode 2：Spdif mode 3：I2S mode

Module	Audio Sink			Audio Source	
	BT1038X/BT1058/BT1104QI	BT1026C/D	BT1026E	BT1035	BT6038/BT1058
BT	√	√	√	×	×
LineIn	√	√	√	√	√
Spdif	×	×	√	×	√
I2S	√	√	√	√	√
USB	√	√	√	√	√

Example:Set LineIn mode for input

<< AT+AUXCFG=1

>> OK

3.1.30 AT+RSSI - Get the signal value of connected devices

Command	**AT+RSSI=Param**
Param	(12-byte ASCII) MAC address of the target device
Response	**+RSSI=Param1,Param2**
Param1	(12-byte ASCII) MAC address of the target device
Param2	Connection signal strength value of the target device (0: Unavailable)
Note	Only supported by audio transmitting modules

3.1.31 AT+LINKCFG - Query/Configure Auto Connection

Command	**AT+LINKCFG{=Param1{,Param2}}**
Param1	0: On 1: Off (default:0)
Param2	0: COD filtering function disabled 1: COD filtering function enabled (default:1)
Description	If auto connection is enabled, the module will continuously scan nearby devices after startup (Param2=1), then attempt to connect to the device with the optimal signal strength.
Note	Only supported by audio transmitting modules.

3.1.32 AT+MICMUTE - Mute MIC

Command	AT+MICMUTE=Param
Param	0-unmute 1-mute
Description	Mute the local microphone during a call
Note	Only supported by audio receiving modules

3.1.33 AT+SPKMUTE - Mute Speaker

Command	AT+SPKMUTE=Param
Param	0-unmute 1-mute
Description	Mute the local speaker during audio playback
Note	Only supported by audio receiving modules

3.1.34 AT+GAMEMODE - Enable/Disable Game Mode

Format	AT+GAMEMODE=Param
Param	0: Disable Game Mode 1: Enable Game Mode
Note	Audio receiving modules FSC-BT1038x, FSC-BT1104QI do not support this command Audio transmitting modules do not support this command

Currently, the game mode only supports the classic Bluetooth mode.

When this mode is enabled, the delay of the encoding formats corresponding to AAC and SBC is set from dynamic delay to a fixed low-delay state of 100ms to achieve a better gaming experience.

3.2 HFP Commands

3.2.1 AT+HFPSTAT - Read HFP State

Command	AT+HFPSTAT
Response	+HFPSTAT=Param
Description	Format description reference: *+HFPSTAT - HFP State*

3.2.2 AT+HFPCONN - Establish HFP Connection

Command	AT+HFPCONN{=Param}
`Param`	MAC address of target device (12 Bytes ASCII)
Description	Reconnect to last HFP device if parameter not exist
Note	Both audio transmitting and receiving modules support this command

Example:Connect to last HFP device

<< AT+HFPCONN

>> OK

Example:Connect to specific HFP device with MAC address

<< AT+HFPCONN=1C5CF226D773

>> OK

3.2.3 AT+HFPDISC - Release HFP Connection

Command	AT+HFPDISC
Description	Release current HFP connection with remote device

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3.2.4 AT+HFPRING - Simulate Incoming Call

Command	AT+HFPRING=Param
Param	Phone number (1~25 Bytes ASCII)
Description	Simulate an incoming call from the number “Param”
Note	Only supported by audio transmitting modules

Example:Redial

<< AT+HFPRING

>> OK

Example: Simulate an incoming call from the number “075527924639”

<< AT+HFPRING=075527924639

>> OK

3.2.5 AT+HFPDIAL - Dial/Redial Phone Number

Command	AT+HFPDIAL{=Param}
Param	Phone number (1~25 Bytes ASCII)
Description	Dial specific number if parameter exist, otherwise redial

Example:Redial

<< AT+HFPDIAL

>> OK

Example:Dial number “075527924639”

<< AT+HFPDIAL=075527924639

>> OK

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3.2.6 AT+HFPDTMF - Send DTMF code

Command	AT+HFPDTMF{=Param}
Param	DTMF (0~9/#/*)

Example:Send DTMF code “#” while calling “#”

<< AT+HFPDTMF=#

>> OK

3.2.7 AT+HFPANSW - Pick Up Incoming Call

Command	AT+HFPANSW
Description	Pick Up Incoming Call

3.2.8 AT+HFPCHUP - Reject/Hung up Call

Command	AT+HFPCHUP
Description	Reject/Hung up Call

3.2.9 AT+HFPNREC - Enable/Disable AGHFP Echo Cancellation Algorithm

Command	AT+HFPNREC{=Param}
Param	default:1 0: Disable Ag-hfp cvc 1: Enable Ag-hfp cvc
Response	+HFPNREC=Param
Note	Only supported by audio transmitting modules

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3.2.10 AT+HFPWBS - Enable/Disable WBS Function

Command	AT+HFPWBS{=Param}
Param	default:1 0: Disable Ag-hfp codec negotiation 1: Enable Ag-hfp codec negotiation
Response	**+HFPWBS=Param**
Note	Only supported by audio transmitting modules. Enabling WBS enables 16K call by default, and the setting takes effect after restart.

3.2.11 AT+HFPADTS - Transfer Voice Audio Between Local and Remote Device

Command	AT+HFPADTS=Param
Param	0: Transfer voice audio from module to remote device 1: Transfer voice audio from remote device to module
Description	Transfer voice audio between module and remote device by default if no parameter set
Note	Only supported by audio receiving modules

3.2.12 AT+HFPVR - Start/Stop Voice Recognition of Remote Device

Command	AT+HFPVR=Param
Param	0-Stop 1-Start
Description	Start/Stop Voice Recognition of Remote Device (such as Siri for iOS devices)
Note	Only supported by audio receiving modules

3.2.13 AT+HFPSCO - SHFP SCO Configuration

Command	AT+HFPSCO=Param
Param	0-default 1-always to HF 2-always to AG
Note	Only supported by audio receiving modules

3.2.14 AT+HFPBATT - Send device battery level

Command	AT+HFPBATT=Param
Param	level(0-9)
Note	Only supported by audio receiving modules

3.3 A2DP/AVRCP Commands

3.3.1 AT+A2DPSTAT - Read A2DP State

Command	AT+A2DPSTAT
Response	+A2DPSTAT=Param
Description	Format description reference *+A2DPSTAT - A2DP State*

3.3.2 AT+A2DPCONN - Establish A2DP Connection

Command	AT+A2DPCONN{=Param}
Param	MAC address of target device (12 Bytes ASCII)
Description	Reconnect to last A2DP device if parameter not exist
Note	Both audio transmitting and receiving modules are supported

3.3.3 AT+A2DPDISC - Release A2DP Connection

Command	AT+A2DPDISC
Description	Release current A2DP connection with remote device

3.3.4 AT+A2DPCFG - Read/Write A2DP Configuration

Command	AT+A2DPCFG=Param
Param	A base-10 representation of a bit field, for each bit
BIT[0]	0: Disable AAC Codec 1: Enable AAC Codec
BIT[1]	0: Disable APTX Codec 1: Enable APTX Codec
BIT[2]	0: Disable APTX-LL Codec 1: Enable APTX-LL Codec
BIT[3]	0: Disable APTX-HD Codec 1: Enable APTX-HD Codec
BIT[4]	0: Disable APTX-AD Codec 1: Enable APTX-AD Codec
BIT[5]	0: Disable LDAC Codec 1: Enable LDAC Codec
Note	Param=0： Enable SBC

Example:Read current A2DP configuration

<< AT+A2DPCFG

>> +A2DPCFG=0

>> OK

Example:Set A2DP configuration to: Only enable AAC Codec

<< AT+A2DPCFG=1

>> OK

3.3.5 AT+A2DPDEC - Read A2DP Decoder

Command	AT+A2DPDEC
Response	+A2DPDEC=Param
Param	See the table below
Note	Only supported by audio receiving modules

Param	BT1038X	BT1104QI	BT1058-RX	BT1026C	BT1026D	BT1026E
SBC	1	1	1	1	1	1
AAC	2	2	2	3	3	3
LDAC	3	3	3			10
APTX	4	4	4		5	5
APTX-HD	5	5	5		7	7
APTX-LL						8
APTX-AD	6	6	6			9

3.3.6 AT+A2DPENC - Query A2DP Encoding

Command	AT+A2DPENC
Response	+A2DPENC=Param
Param	1:SBC 2:APTX 3:APTX-HD 4:APTX-LL 5:APTX-AD
Note	Only supported by audio transmitting modules

3.3.7 AT+AVRCPCONN - Establish AVRCP Connection

Command	AT+AVRCPCONN{=Param}
Param	MAC address of the target device (12 Bytes ASCII)
Description	If the parameter is not present, reconnect to the last AVRCP device
Note	Both audio transmitting and receiving modules are supported, and A2DP connection is required first

3.3.8 AT+AVRCPDISC - Release AVRCP Connection

Command	AT+AVRCPDISC
Description	Terminate the current AVRCP connection with the remote device
Note	This command only initiates a disconnection request, and the actual status queried shall be determined based on the actual result

3.3.9 AT+AVRCPSTAT - Read AVRCP State

Command	AT+AVRCPSTAT
Response	+AVRCPSTAT=Param
Description	Format description reference:ref:*REF104*

3.3.10 AT+AVRCPCFG - Get/Set AVRCP Configuration

Command	AT+AVRCPCFG{=Param}
`Param`	A base-10 representation of a bit field, default:9, for each bit:
`BIT[0]`	Auto get track ID3 information (title, artist, album).0:disable 1:enable default:1
`BIT[1-3]`	Auto get track play progress if value > 0. 0:disable default:5(second)
`BIT[4]`	Auto get volume change value. 0:disable 1:enable default:1
Note	Only supported by audio receiving modules

Example: Read AVRCP configuration

<< AT+AVRCPCFG

>> +AVRCPCFG=1

OK

Example: Get track play progress every 1 second

<< AT+AVRCPCFG=3

>> OK

3.3.11 AT+ABSVOL - Query/Configure Remote Absolute Volume

Command	AT+AT+ABSVOL{=Param}
`Param`	Set remote volume (0~127) +: Volume increases -: Volume decrease
Response	**AT+ABSVOL=Param**
Note	This command must be sent after the AVRCP connection is established, and the remote device must support the absolute volume control function
Note	Only supported by audio transmitting modules

3.3.12 AT+PLAYPAUSE - Track Play/Pause

Command	AT+PLAYPAUSE
Description	Send play or pause command to the remote media player according to the current play status (play when paused, pause when playing), supporting classic Bluetooth play/pause and BIS play/pause
Note	Only supported by audio receiving modules

3.3.13 AT+PLAY - Track Play

Command	AT+PLAY
Description	Send play command to the remote media player, supporting classic Bluetooth playback and BIS playback
Note	Only supported by audio receiving modules

3.3.14 AT+PAUSE - Track Pause

Command	AT+PAUSE
Description	Send pause command to the remote media player, supporting classic Bluetooth pause and BIS pause
Note	Only supported by audio receiving modules

3.3.15 AT+STOP - Track Stop

Command	AT+STOP
Description	Send play stop command to the remote media player, only supporting classic Bluetooth playback stop
Note	Only supported by audio receiving modules

3.3.16 AT+FORWARD - Track Forward

Command	AT+FORWARD
Description	Send forward command to remote media player
Note	Only supported by audio receiving modules

3.3.17 AT+BACKWARD - Track Backward

Command	AT+BACKWARD
Description	Send backward command to remote media player
Note	Only supported by audio receiving modules

3.3.18 AT+FFWD - Track FastForward

Command	AT+FFWD=Param
`Param`	0-Fast Forward Release, 1-Fast Forward Press
Description	Send fast forward command to remote media player
Note	Only supported by audio receiving modules

3.3.19 AT+RWD - Track Rewind

Command	AT+RWD=Param
Param	0-Rewind Release, 1-Rewind Press
Description	Send rewind command to remote media player
Note	Only supported by audio receiving modules

3.4 PBAP Commands

3.4.1 AT+PBSTAT - Read PBAP state

Command	AT+PBSTAT
Response	+PBATAT=Param
Description	Format description reference *+PBSTAT - PBAP State*
Note	Only supported by audio receiving modules

3.4.2 AT+PBCONN - Establish PBAP Connection

Command	AT+PBCONN{=Param}
Param	MAC address of target device (12 Bytes ASCII)
Description	Module will use current HFP device’ MAC address if parameter not exist. Default firmware support: When sending AT+PBDOWN, it automatically connects to PBAP.
Note	Only supported by audio receiving modules. Please enable the permission for accessing contacts on the mobile phone side.

3.4.3 AT+PBDISC - Release PBAP Connection

Command	AT+PBDISC
Description	Release current PBAP connection with remote device
Note	Only supported by audio receiving modules

3.4.4 AT+PBDOWN - Download Phonebook

Command	AT+PBDOWN=Param1{,Param2}
`Param1`	Phonebook type(0-5) (0) Phonebook (SIM Storage) (1) Phonebook (Phone Storage) (2) Received call log (3) Dialed call log (4) Missed call log (5) All call log
`Param2`	Max items (1~65535, default:3000 for phonebook; 50 for call log)
Description	For some phones (e.g. iPhone), the contact download permission must be turned on in phone’s Bluetooth settting. Please refer to the application scenarios *Phonebook Download*
Note	Only supported by audio receiving modules

3.5 SPP Commands

3.5.1 AT+SPPSTAT - Read SPP State

Command	AT+SPPSTAT
Response	+SPPATAT=Param
Description	Format description reference *+SPPSTAT - SPP State*

3.5.2 AT+SPPCONN - Establish SPP Connection

Command	AT+SPPCONN{=Param}
`Param`	MAC address of target device (12 Bytes ASCII)
Description	Establish an SPP connection with a remote device
Note	Both audio transmitting and receiving modules are supported

3.5.3 AT+SPPDISC - Release SPP Connection

Command	AT+SPPDISC
Description	Release current SPP connection with remote device

3.5.4 AT+SPPSEND - Send Data Via SPP

Command	AT+SPPSEND=Param1,Param2
`Param1`	Payload length (1~492)
`Param2`	Payload (1~492 Bytes)
Description	If throughput mode is on, this command is de-active

Example: Send data “1234567890” to remote device via SPP

<< AT+SPPSEND=10,1234567890

>> OK

3.6 GATT Commands

3.6.1 AT+GATTSTAT - Read GATT State

Command	AT+GATTSTAT
Response	+GATTATAT=Param
Description	Format description reference *+GATTSTAT - GATT State*

3.6.2 AT+GATTDISC - Release GATT Connection

Command	AT+GATTDISC
Description	Release current GATT connection with remote device

3.6.3 AT+GATTSEND - Send Data Via GATT

Command	AT+GATTSEND=Param1,Param2
`Param1`	Payload length (1~492)
`Param2`	Payload (1~492 Bytes)
Description	If throughput mode is on, this command is de-active

Example: Send data “1234567890” to remote device via GATT

<< AT+GATTSEND=10,1234567890

>> OK

3.7 BIS 指令

3.7.1 AT+BISSTAT - Read BIS State

Command	AT+BISSTAT
Response	+BISATAT=Param
Description	Format description reference *+BISSTAT - BIS State*

3.7.2 AT+BISCONN - BIS Synchronize Broadcast Source

Command	AT+BISCONN=Param1{,Param2,Param3}
Param1	MAC address
Param2	Broadcast advertising_sid
Param3	Broadcast broadcast_id
Description	Synchronize the BIS broadcast source. If Param2 and Param3 are omitted, initiate scanning first, then initiate connection if the MAC address matches
Note	Obtain advertising_sid and broadcast_id with reference to "AT+SCAN=3" BIS pause and playback refer to "AT+PLAYPAUSE" This command is not supported by audio transmitting modules

Example: Add the synchronized and discovered BIS broadcast source via

AT+BISCONN=00025B00FF00,15,62640

+BISCONN=00025B00FF00,15,62640

OK

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3.7.3 AT+BISDISC - BIS Remove Broadcast Source

Command	AT+BISDISC{=Param}
Param	Address code
Description	Remove the BIS broadcast source according to the MAC address, remove all BIS sources if the address is omitted
Note	This command is not supported by audio transmitting modules

3.8 CIS Commands

3.8.1 AT+CISSTAT - Read CIS State

Command	AT+CISSTAT
Response	+CISSTAT=Param
Description	Format description reference:ref:*REF110*

3.8.2 AT+CISCONN - Establish CIS Connection

Command	AT+CISCONN=Param1{,Param2}
`Param1`	MAC address of the target device (12-byte ASCII string)
`Param2`	(0) Public address (1) Random address
Note	This command is only valid in the mono audio broadcast mode

3.8.3 AT+CISDISC - Disconnect CIS Connection

Command	AT+CISDISC
Note	This command only initiates a disconnection request The actual status queried shall be determined based on the actual result This command is only valid in the mono audio broadcast mode

Chapter 4

Events Table

4.1 General Events

4.1.1 +PAIRED - Pair Result

Format	+PAIRED=Param
`Param`	MAC address (12 Bytes ASCII) of current pairing device

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4.1.2 +SCAN - Scan content format

Format1	**+SCAN=Param1,Param2,⋯,Param6{,Param7,Param8}**
Param1	index
Param2	Device address type（0-2） (0) LE public address (1) LE random address (2) BR/EDR address
Param3	MAC address (12 Bytes ASCII)
Param4	RSSI (-127 ~ -1)
Param5	Name length, i.e., the size of Param6 (if present)
Param6	Name
Param7	advertising sid
Param8	broadcast id
Format2	+SCAN=E: stop scan
Description	Stop when the timeout is reached or 8 devices are scanned (+SCAN=E) When using AT+SCAN=1/2, the return type is Format1, Format3 When using AT+SCAN=3, the return type is Format2 or Format3, which can be used for BIS synchronization

4.2 HFP Events

4.2.1 +HFPSTAT - HFP State

Format	+HFPSTAT=Param
Param	(0~6) (0) Unsupported (1) Standby (2) Connecting (3) Connected (4) Outgoing call (5) Incoming call (6) Active call

4.2.2 +HFPDEV - HFP Remote Device Information

Format	+HFPDEV=Param1{,Param2}
Param1	(12 Bytes ASCII), Remote MAC address of current HFP connection
Param2	(UTF8), Remote device name of current HFP connection

Example: HFP connect success with device

>> +HFPDEV=1C5CF226D774, iPhone

4.2.3 +HFPCID - Incoming/Outgoing Call Number

Format	+HFPCID=Param
Param	(1~25 Bytes ASCII), Call number

Example: Dial number 10086

<< AT+HFPDIAL=10086

>> +HFPSTAT=4

>> +HFPCID=10086

>> +HFPCIE=China Mobile

>> +HFPAUDIO=1

Example: Incoming call with number 13265463800

>> +HFPSTAT=5

>> +HFPCID=13265463800

>> +HFPCIE=Jerry

>> +HFPAUDIO=1

4.2.4 +HFPCIE - Incoming/Outgoing Call Name

Format	**+HFPCIE=Param**
`Param`	(UTF8), Call name
Note	This event is supported by IOS mobile phones, but not supported by most Android phones

4.2.5 +HFPAUDIO - HFP Voice Audio State

Format	**+HFPAUDIO=Param**
`Param`	(0) HFP voice audio disconnected, audio input/output routed to remote device (1) HFP voice audio connected, audio input/output routed to module

4.2.6 +HFPSIG - HFP Remote Device Network Signal Strength

Format	**+HFPSIG=Param**
`Param`	(0~5)Network signal strength of remote device

4.2.7 +HFPROAM - HFP Remote Device Roaming State

Format	+HFPROAM=Param
Param	(0/1) Roaming state of remote device

4.2.8 +HFPBATT - HFP Remote Device Battery Level

Format	+HFPBATT=Param
Param	Receive mode: Mobile phone (0~5) Battery level of the remote device Transmit mode: Headphone (0-9) Battery level of the remote device

4.2.9 +HFPNET - HFP Remote Device Network Operator Selection

Format	+HFPNET=Param
Param	（UTF8）Network operator selection of remote device

4.2.10 +HFPMANU - HFP Remote Device Manufacture

Format	+HFPMANU=Param
Param	（UTF8）Manufacture name of remote device

4.2.11 +HFPNUM - HFP Remote Device Phone Subscriber Number

Format	+HFPNUM=Param
Param	(ASCII)Phone subscriber number of remote device

4.2.12 +HFPIBR - HFP Remote Device In-band-ring Support

Format	+HFPIBR=Param
Param	0-Not supported 1-Supported
Description	Report whether the current connected phone support in-band-ring

4.2.13 +HFPSR - HFP Sample rate

Format	+HFPSR=Param
Param	Sample rate: 8000/16000/32000

4.3 A2DP/AVRCP Events

4.3.1 +A2DPSTAT - A2DP State

Format	+A2DPSTAT=Param
Param	(0) Unsupported (1) Standby (2) Connecting (3) Connected (4) Paused (5) Streaming

4.3.2 +A2DPDEV - A2DP Remote Device Information

Format	+A2DPDEV=Param1{,Param2}
Param1	(12 Bytes ASCII), Remote device’s MAC address of current A2DP connection
Param2	(UTF8), Remote device’s name of current A2DP connection

4.3.3 +A2DPSR - A2DP Remote Device Information

Format	+A2DPSR= 参数
Param	A2DP encoding sampling rate

4.3.4 +AVRCPSTAT - AVRCP State

Format	+AVRCPSTAT=Param
Param	(0) Unsupported (1) Standby (2) Connecting (3) Connected

4.3.5 +PLAYSTAT - Media Player State

Format	+PLAYSTAT=Param
Param	(0) Stopped (1) Playing (2) Paused (3) Fast Forwarding (4) Fast Rewinding

4.3.6 +CTVOLUP - Receive Volume Increase

Format	+CTVOLUP
Description	Received the command from the CT side to increase the device volume
Note	This indication exists only for audio transmitting modules

4.3.7 +CTVOLDN - Receive Volume Decrease

Format	+CTVOLDN
Description	Received the command from the CT side to decrease the device volume
Note	This indication exists only for audio transmitting modules

4.3.8 +CTPLAY - Play

Format	+CTPLAY
Description	Received the play resume command from the CT side
Note	This indication exists only for audio transmitting modules

4.3.9 +CTPAUSE - Pause

Format	+CTPAUSE
Description	Received the pause command from the CT side
Note	This indication exists only for audio transmitting modules

4.3.10 +CTFWD - Next Track

Format	+CTSTOP
Description	Received the command to play the next track from the CT side
Note	This indication exists only for audio transmitting modules

4.3.11 +CTBACK - Previous Track

Format	+CTBACK
Description	Received the command to play the previous track from the CT side
Note	This indication exists only for audio transmitting modules

4.3.12 +TRACKSTAT - Media Player Play Progress

Format	+TRACKSTAT=Param1,Param2,Param3
Param1	(0~4), Media Player State, see +PLAYSTAT
Param2	(Decimal ASCII),Elapsed time of current track in millisecond
Param3	(Decimal ASCII),Total time of current track in millisecond

4.3.13 +TRACKINFO - Media Track Information

Format	+TRACKINFO=Param1,Param2,Param3
Param1	title
Param2	artist
Param3	album

Example: Phone playing song “Creep-Radio Head”

>> +TRACKINFO=Creep , Radiohead , Pablo Honey

4.4 PBAP Events

4.4.1 +PBSTAT - PBAP State

Format	+PBSTAT=Param
Param	(0) Unsupported (1) Standby (2) Connecting (3) Connected (4) Downloading

4.4.2 +PBCNT - Phonebook Entries of Remote Device

Format	+PBCNT=Param
Param	Phonebook entries of remote device

4.4.3 +PBDATA - Phonebook Data

Format1	+PBDATA=Param1<FF>Param2<FF>Param3{<FF>Param4}
Param1	Type (0) Phonebook (SIM Storage) (1) Phonebook (Phone Storage) (2) Received call log (3) Dialed call log (4) Missed call log
Param2	Name
Param3	Number
Param4	(15 Bytes ASCII), Call time if current download type is call log Format: Year(4Bytes) Month(2Bytes) Day(2Bytes) T(1Byte) Hour(2Bytes) Minute(2Bytes) Second(2Bytes). e.g. 20161012T152826 represents 2016/10/12/15/28/26
Format2	+PBDATA=E Download complete
Description	Call time may not exist for some mobile phones

Example: Download all phonebook

<< AT+PBDOWN=1

>> +PBCNT=234

+PBDATA=1,Jack,18219146201

+PBDATA=1,kenan,8613771972680

……

+PBDATA=E

Example: Download 10 dialed call log

<< AT+PBDOWN=3,10

>> +PBDATA=3,China Mobile,10086,20171013T103516

+PBDATA=3,Jerry,18688967507,20171012T152826

……

+PBDATA=E

4.5 SPP Events

4.5.1 +SPPSTAT - SPP State

Format	+SPPSTAT=Param
Param	(0) Unsupported (1) Standby (2) Connecting (3) Connected

4.5.2 +SPPDATA - SPP Received Incoming Data

Format	+SPPDATA=Param1,Param2
Param1	Payload length
Param2	Payload

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Example: Received data “1234567890” from remote device via SPP

<< +SPPDATA=10,1234567890

4.6 GATT Events

4.6.1 +GATTSTAT - GATT State

Format	+GATTSTAT=Param
Param	(0) Unsupported (1) Standby (2) Connecting (3) Connected

4.6.2 +GATTDATA - GATT Received Incoming Data

Format	+GATTDATA=Param1,Param2
Param1	Payload length
Param2	Payload

Example: Received data “1234567890” from remote device via GATT

<< +GATTDATA=10,1234567890

4.7 BIS Events

4.7.1 +BISSTAT - BIS State

Format	+BISSTAT=Param1{,Param2}
Param1	Device 1： (0) Unsupported (1) Standby (2) Syncing (3) Synced (4) Paused (5) Streaming
Param2	Device 2： (0) Unsupported (1) Standby (2) Syncing (3) Synced (4) Paused (5) Streaming
Note	Param2 is present when there is a second synchronized device, and the audio transmitting module only has the (1)Standby and (5)Streaming states

4.8 CIS Events

4.8.1 +CISSTAT - CIS State

Format	+CISSTAT=Param
Param	(0) Unsupported (1) Standby (2) Connecting (3) Connected (4) Paused (5) Streaming

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Chapter 5

Hardware Description

5.1 Pin Diagram

FSC-BT1038x & FSC-BT1058-RX:

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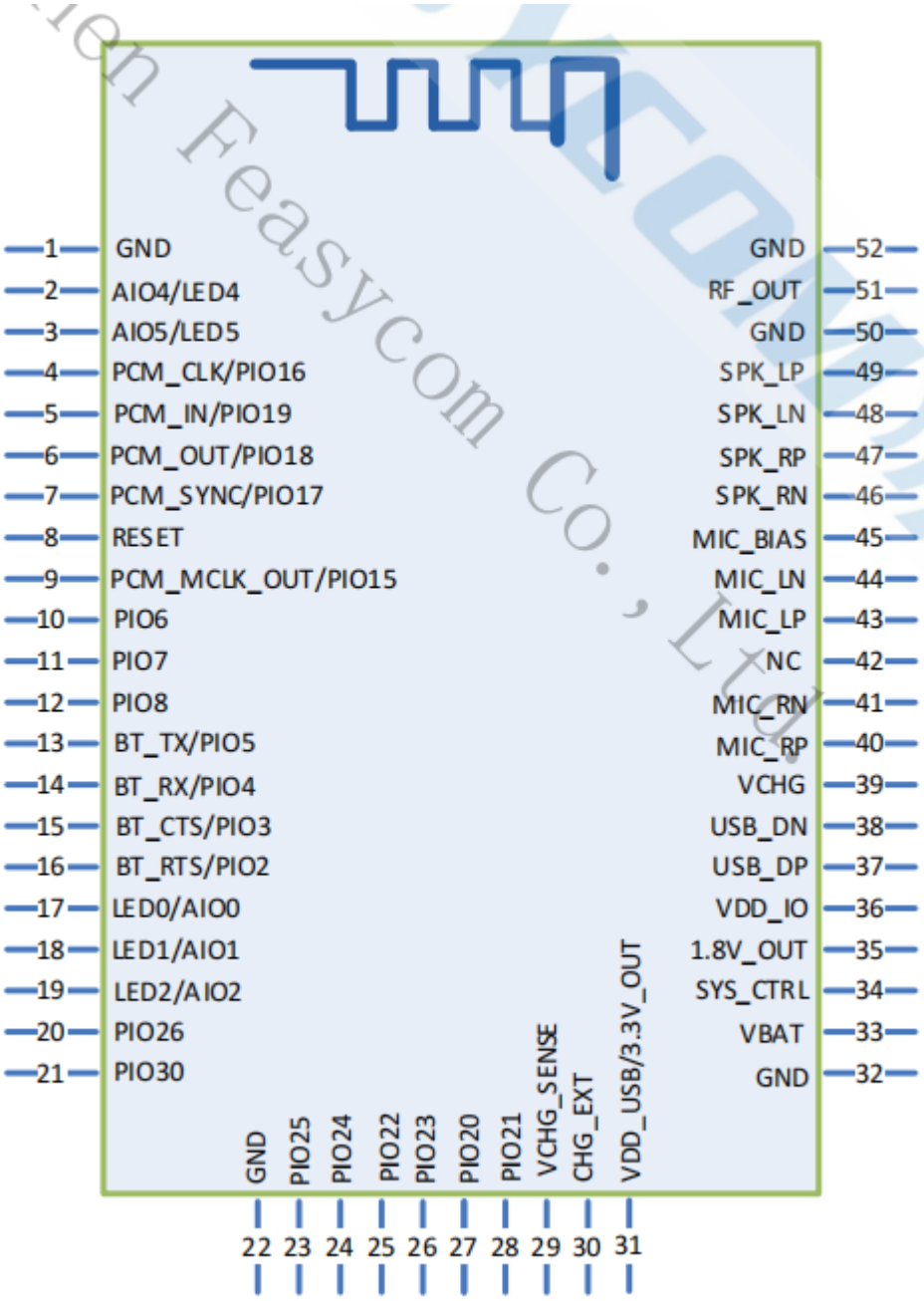
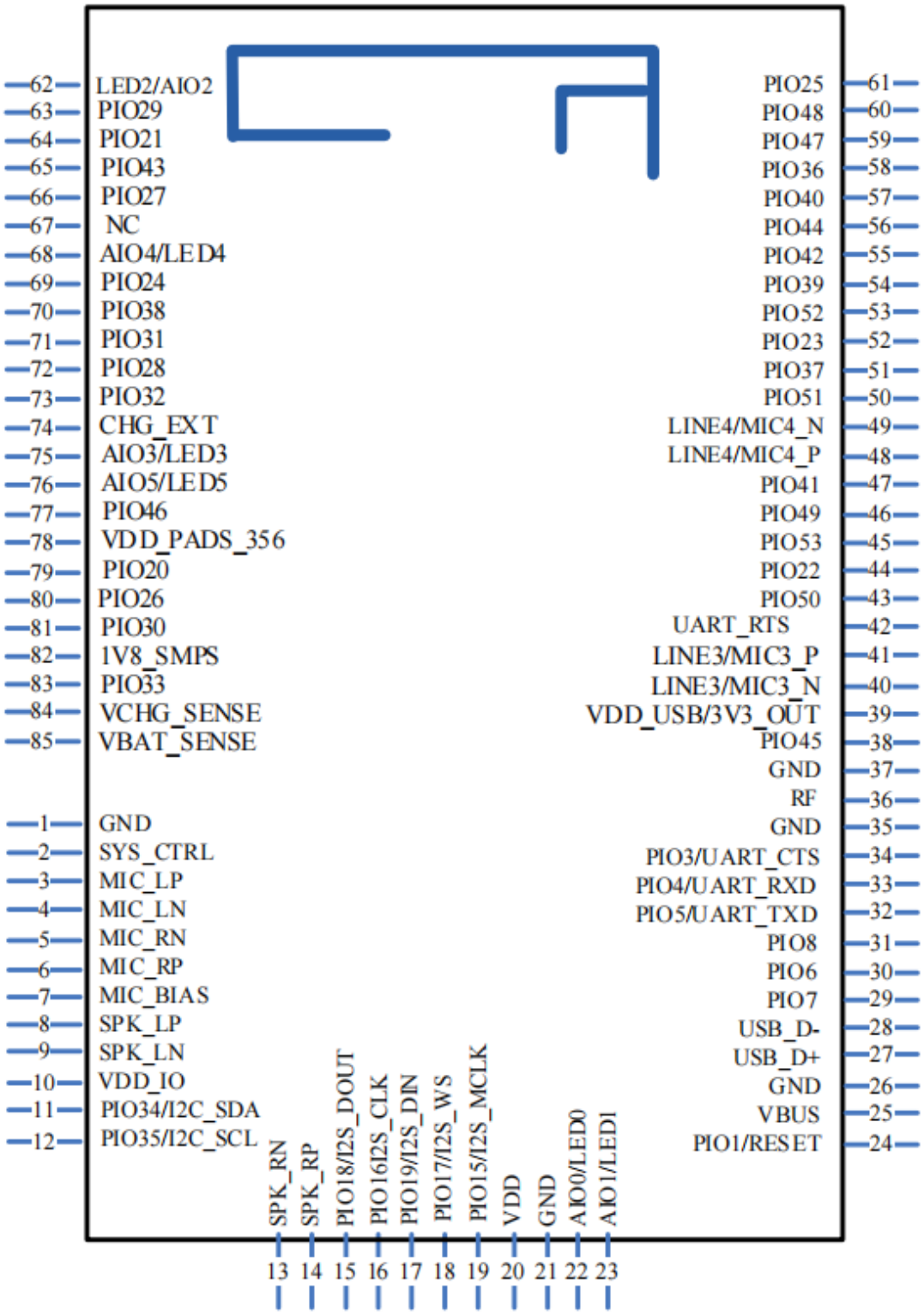


FSC-BT1104QI:



5.2 Pin Description

FSC-BT1038x & FSC-BT1058-RX:

Pin	Pin Name	Type	Pin Descriptions
1	GND	Vss	Power Ground
2	LED4	I/O	General-purpose analog/digital input or open drain LED output
3	LED5	I/O	General-purpose analog/digital input or open drain LED output
4	PCM_CLK	I/O	PCM_BCLK
5	PCM_IN	I/O	PCM_DIN[0]
6	PCM_OUT	O	I2S DATA OUT
7	PCM_SYNC	I/O	PCM_SYNC
8	RESET	I	Low-level Reset
9	PCM_MCLK	I/O	MCLK_OUT
13	UART_TX	O	UART_TX
14	UART_RX	I	UART_RX
15	UART_CTS	I/O	UART flow control pin (no connection by default) / SPIIF output
16	UART_RTS	I/O	UART flow control pin (default PA)
17	LED0	I/O	Outputs square wave in pairing mode, Outputs high level when Bluetooth is connected
18	LED1	I/O	Outputs low level when BIS is disconnected, Outputs high level when connected
19	LED2	I/O	General-purpose analog/digital input or open drain LED output
29	VCHG_SENSE	Analog	Charger input sense pin after external mode sense-resistor,High impedance

continues on next page

Table 1 – continued from previous page

Pin	Pin Name	Type	Pin Descriptions
30	CHG_EXT		External charger transistor current control. Connect to base of external charger transistor as per application schematic.
31	VDD_USB /3.3V_OUT		3.3V voltage output (MAX. 50mA OUT)
32	GND	Vss	Power Ground
33	VBAT_IN	Vdd	3.3V power supply, LDO power supply is recommended
34	SYS_CTRL	I	Power pin, long press to power on/off
36	VDD_IO	I	pio supply(1.8v~3.3v)
37	USB_DP		USB Full Speed device D+
38	USB_DN		USB Full Speed device D-
39	VCHG	Vdd	Charger input to Bypass regulator.(USB VBUS)
40	MIC_RP	Audio	MIC2/Line_IN differential R input, positive
41	MIC_RN	Audio	MIC2/Line_IN differential R input, negative
43	MIC_LP	Audio	MIC1/Line_IN differential L input, positive
44	MIC_LN	Audio	MIC1/Line_IN differential L input, negative
45	MIC_BIAS	Audio	MIC Power Supplies
46	SPK_RN	Audio	Headphone/speaker differential R output, negative
47	SPK_RP	Audio	Headphone/speaker differential R output, positive
48	SPK_LN	Audio	Headphone/speaker differential L output, negative
49	SPK_LP	Audio	Headphone/speaker differential L output, positive
51	EXT_ANT	ANT	Change the 0-ohm resistor near the antenna to connect an external Bluetooth antenna
52	GND	Vss	Power Ground

FSC-BT1104QI:

Pin	Pin Name	Type	Pin Descriptions
1	GND	Vss	Power Ground
2	SYS_CTRL	I	Power pin, long press to power on/off
3	MIC1_P	Audio	MIC1/Line1_IN differential input, positive
4	MIC1_N	Audio	MIC1/Line1_IN differential input, negative
5	MIC2_N	Audio	MIC2/Line2_IN differential input, negative
6	MIC2_P	Audio	MIC2/Line2_IN differential input, positive
7	MIC_BIAS	Audio	Mic bias output
8	SPK_LP	Audio	Differential line output 1, positive
9	SPK_LN	Audio	Differential line output 1, negative
10	VDD_IO	I	IO VDD 1.8V/3.3V
11	I2C_SDA	I/O	I2C_SDA
12	I2C_SDA	I/O	I2C_SDA
13	SPK_RN	Audio	Differential line output 2, negative
14	SPK_RP	Audio	Differential line output 2, positive
15	I2S_DOUT	I/O	I2S_DOUT
16	I2S_BCLK	I/O	I2S_BCLK
17	I2S_DIN	I/O	I2S_DIN
18	I2S_WS	I/O	I2S_WS
19	I2S_MCLK	I/O	I2S_MCLK
20	VDD_IO	Vdd	3V3
21	GND	Vss	Power Ground
22	LED0	O	Outputs square wave in pairing mode, Outputs high level when Bluetooth is connected
23	LED1	O	Outputs low level when BIS is disconnected, Outputs high level when connected
24	RESET	I	Low-level Reset
25	VBUS	I	USB audio input function supported, 5V input
26	GND	Vss	Power Ground
27	USB_DP		USB Full Speed device D+
28	USB_DN		USB Full Speed device D-

continues on next page

Table 2 – continued from previous page

Pin	Pin Name	Type	Pin Descriptions
32	UART_TXD	I/O	UART_TXD
33	UART_RXD	I/O	UART_RXD
34	UART_CTS	I/O	UART_CTS
35	GND	Vss	Power Ground
36	RF_ANT	RF	Change the 0-ohm resistor near the antenna to connect an external Bluetooth antenna
39	VDD_USB /3V3_OUT	O	3.3V voltage output (MAX. 50mA OUT)
40	LINE3/MIC3_N	Audio	MIC3/Line3_IN differential input, negative
41	LINE3/MIC3_P	Audio	MIC3/Line3_IN differential input, positive
42	UART_RTS	I/O	UART_RTS
48	LINE4/MIC4_P	Audio	MIC4/Line4_IN differential input, positive
49	LINE4/MIC4_N	Audio	MIC4/Line4_IN differential input, positive
62	LED2	I/O	Outputs low level when CIS is disconnected, Outputs high level when connected
68	LED4	I/O	General-purpose analog/digital input or open drain LED output.
74	CHG_EXT	O	External charger transistor current control. Connect to base of external charger transistor as per application schematic.
75	LED3	I/O	General-purpose analog/digital input or open drain LED output.
76	LED5	I/O	General-purpose analog/digital input or open drain LED output.
78	VDD_PADS_356	I	VDD 1.8V/3.3V
82	1V8_SMPS	O	1.8V pio output

continues on next page

Table 2 – continued from previous page

Pin	Pin Name	Type	Pin Descriptions
84	VCHG_SENSE	Analog	Charger input sense pin after external mode sense-resistor,High impedance
85	VBAT_SENSE	Analog	Battery voltage sense input

5.3 Hardware design notes

- The simple test of the module only needs to connect VDD/VDD_IO/VBUS/GND/UART_RX/UART_TX to use
- After drawing, please send it to feasy.com for review so as not to have the best bluetooth distance

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Chapter 6

Functional Notes

6.1 Compare related products

Module	BT1104QI	BT1058	BT1038A	BT1038B	BT6038	BT1026B	BT1026C	BT1026D	BT1026E	BT1035	BT806A	BT806B	BT1006A
Chip	QCC3095	QCC5181	QCC3083	QCC3084	QCC3086	QCC3031	QCC3024	QCC3034	QCC5125	QCC3056	CSR8670	CSR8675	QCC3007
TX&RX	RX	TX&RX	RX	RX	TX	RX	RX	RX	RX	TX	TX&RX	TX&RX	RX
APTX	√	√	√	√	√	√	x	√	√	√	√	√	x
APTX-HD	√	√	√	√	√	√	x	√	√	√	√	√	x
APTX-LL	x	x	x	x	x	√	x	√	√	√	√	√	x
APTX-AD	√	√	√	√	√	x	x	x	√	√	x	x	x
LDAC	√	√	√	√	x	x	x	x	√	x	x	x	x
LEA-BIS	√	√	√	√	√	x	x	x	x	x	x	x	x
LEA-CIS	√	√	√	√	√	x	x	x	x	x	x	x	x
CVC	Headset	Headset	HandsFree	Headset	x	HandsFree	Headset	Headset	HandsFree	x	HandsFree	HandsFree	HandsFree
Upgrade	OTA/UART	OTA/UART	OTA/UART	OTA/UART	OTA/UART	OTA/UART	OTA/UART	OTA/UART	OTA/UART	OTA/UART	UART	UART	UART
Version	5.4	5.4	5.4	5.4	5.4	5.1	5.1	5.1	5.1	5.2	5.0	5.0	5.0

Note

- BT1038A: AptX-AD and CVC require license purchase
- BT1038B: AptX-AD requires license purchase
- BT1035: Requires license purchase

6.2 Profiles & Features

- SPP (Serial Port Profile)
- GATTS (Generic Attribute Profile LE-Peripheral role)
- GATTC (Generic Attribute Profile LE-Central role)
- HFP-HF (Hands-Free Profile)

- HFP-AG (Hands-Free-AG Profile)
- A2DP-Sink (Advanced Audio Distribution Profile)
- A2DP-Source (Advanced Audio Distribution Profile)
- AVRCP-Controller (Audio/Video remote controller Profile)
- AVRCP-Target (Audio/Video remote controller Profile)
- HID-DEVICE (Human Interface Profile)
- PBAP (Phonebook Access Profile)
- MAP (Message Access Profile)
- LEA (LE Audio)
- BIS (Broadcast Isochronous Stream)
- CIS (Connected Isochronous Stream)

6.3 GATT Service

Type	UUID	Characteristic	Description
Service	0xFFF0		Throughout Service
Notify	0xFFF1	Notify	From Module to APP
Write	0xFFF2	Write， Write Without Response	From APP to Module

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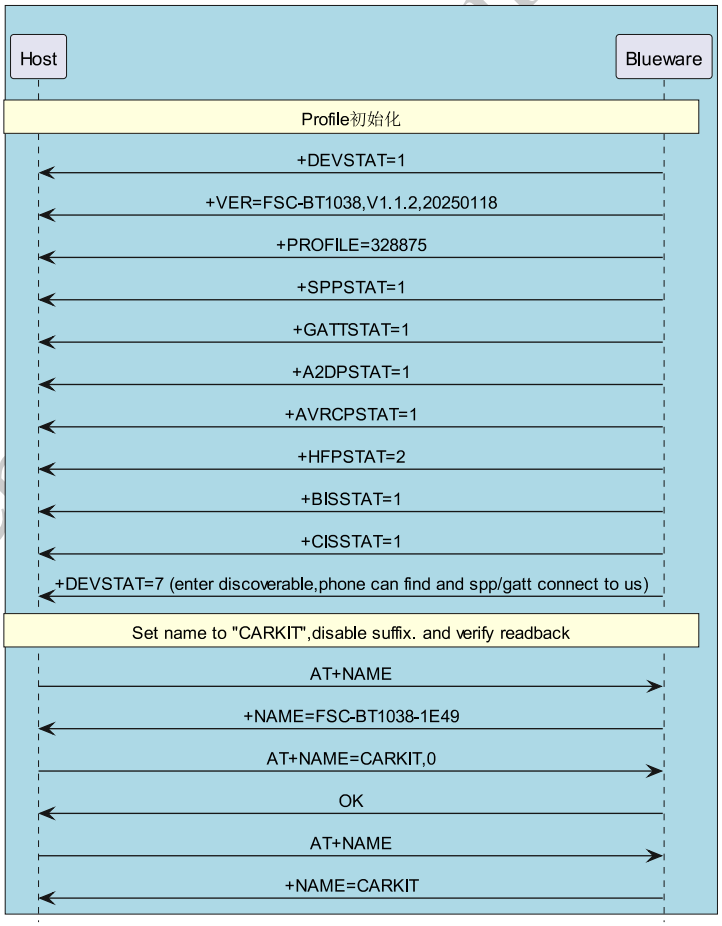
Chapter 7

Application Scenarios

7.1 Profile Initialization and Set Device Name

The figure below shows Profile initialization and name modification



MCU reference code for modifying the device name CARKIT. It is recommended to query first, then modify, and finally verify when changing any parameters:

```
void change_name(void)
{
    uart_send("AT+NAME\r\n");
    if(uart_read("+NAME",name_buf))
    {
        if(memcmp(name_buf,"CARKIT",6))
        {
            uart_send("AT+NAME=CARKIT,0\r\n");       //defalut disable MAC address suffix
            uart_send("AT+NAME\r\n"); // read bt name
            if(uart_read("+NAME",name_buf))
            {
                if(memcmp(name_buf,"CARKIT",6))
                {
                    //change name fail
                }
                else
                {
                    //change name success
                }
            }
        }
    }
}
```

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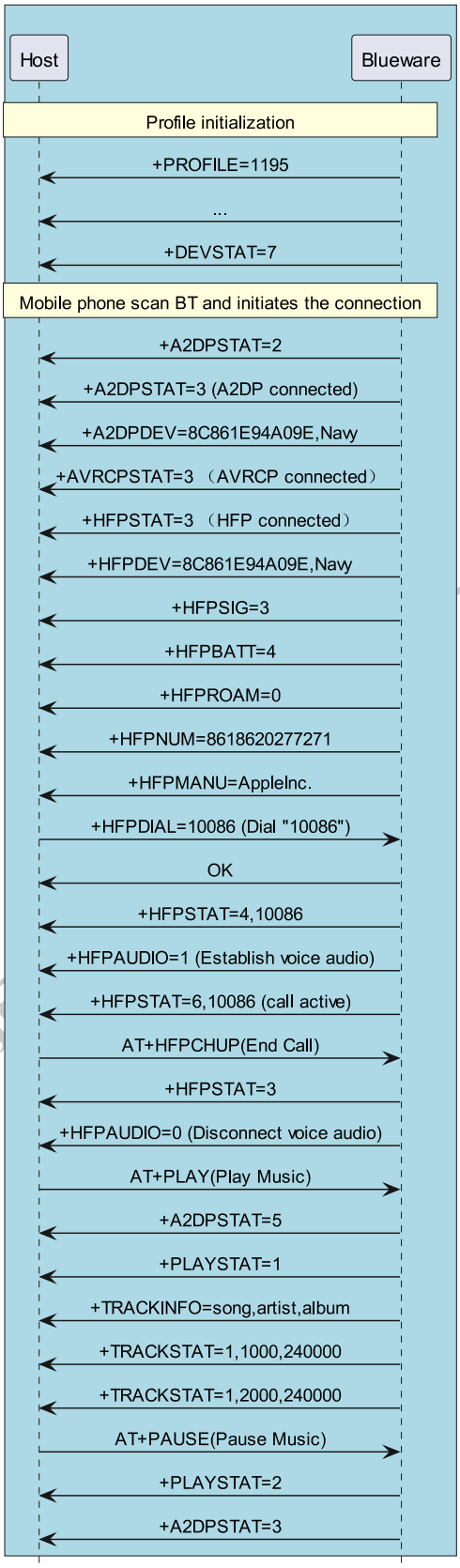
7.2 BR/EDR Bluetooth Receive Mode Connection



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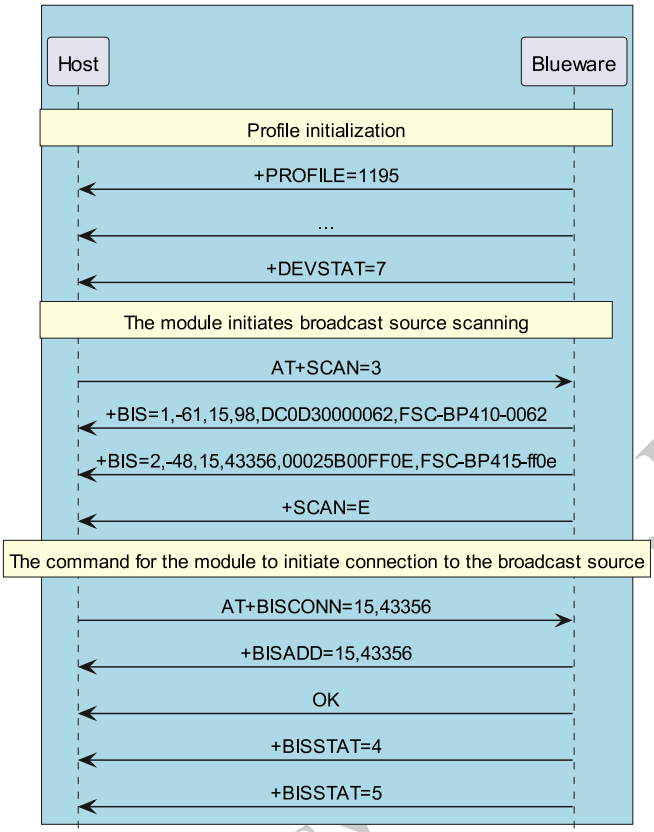
7.3 LE Audio Broadcast Scan and Connect



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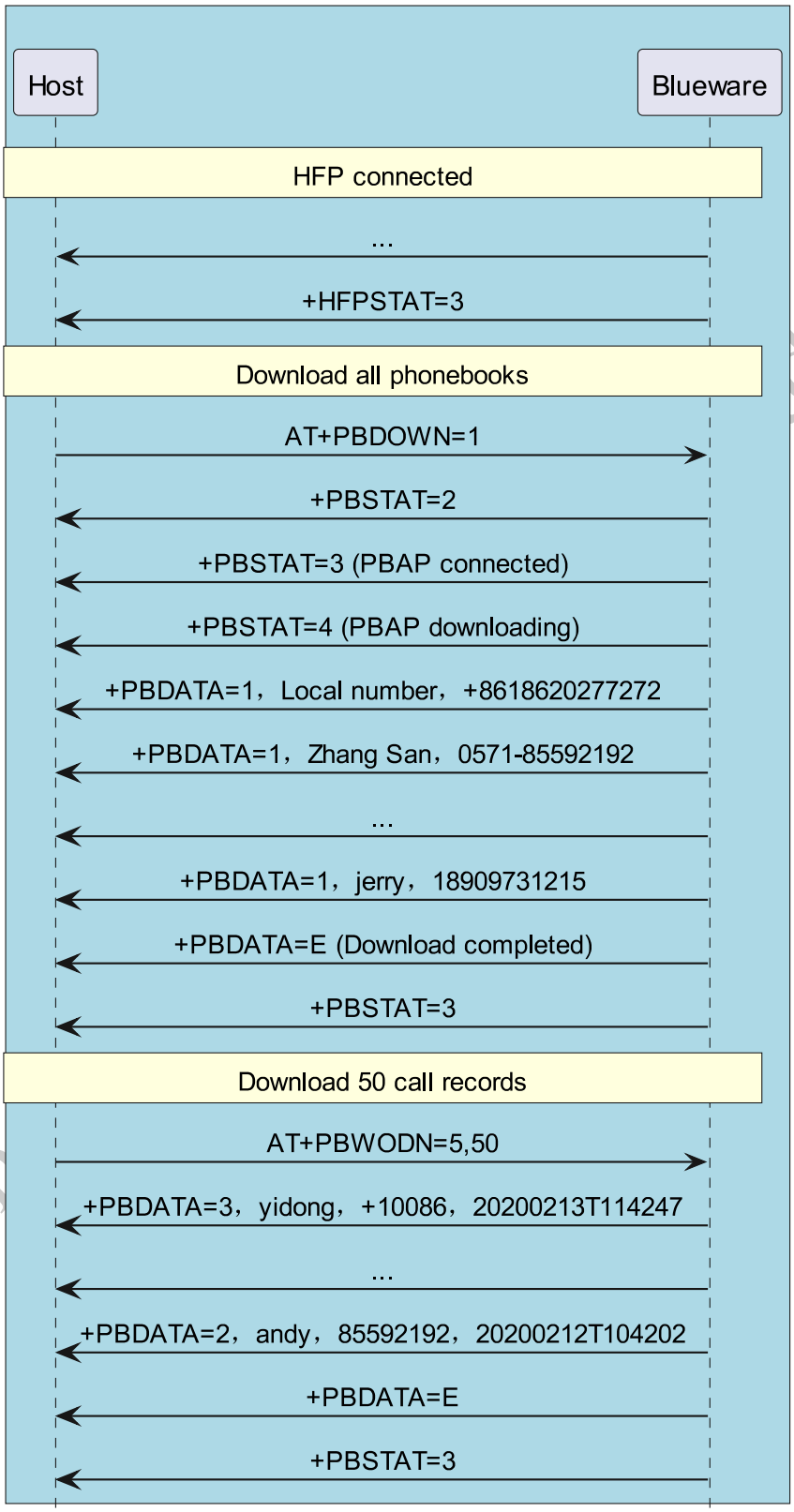
7.4 Phonebook Download



Chapter 8

Contact Information

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Chapter 9

Appendix

9.1 PDF Download

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