



BT909C programming user guide(data)

Release 1.0

Table of contents

1	Introduction	1
1.1	Description	1
1.2	Module Default Settings	1
2	Hardware Description	2
2.1	Pin Diagram	2
2.2	Pin Description	3
2.3	Hardware Design Notes	3
3	Function Description	4
3.1	Profiles & Features	4
3.2	GATT Default service and characteristic	5
4	Command Description	6
4.1	Terms	6
4.2	Command Format	6
4.3	Event Format	7
5	Commands Table	8
5.1	General Commands	8
5.1.1	AT+HELP - Firmware Function/Command Summary	8
5.1.2	AT+SEP - Get/Set Event/Response Separator	9
5.1.3	AT+VER - Get Firmware Version	10
5.1.4	AT+BAUD - Get/Set Uart Baudrate	10
5.1.5	AT+REBOOT - Soft Reboot	11
5.1.6	AT+RESTORE - Restore Factory Settings	11
5.1.7	AT+BTEN - Bluetooth On/Off	12
5.1.8	AT+PROFILE - Bluetooth Profile Selection	12
5.1.9	AT+AUTOCONN - Power On Auto Reconnect Profile Selection	13
5.1.10	AT+STAT - Get All Profile State	13

5.1.11	AT+DEVSTAT - Read Device State	14
5.1.12	AT+ADDR - Get BR/EDR MAC Address	14
5.1.13	AT+LEADDR - Get BLE MAC Address	15
5.1.14	AT+NAME - Get/Set BR/EDR Local Name	15
5.1.15	AT+LENAM - Get/Set BLE Local Name	16
5.1.16	AT+SSP - Get/Set BR/EDR Pairing Mode	16
5.1.17	AT+PIN - Get/Set BR/EDR Pin Code	17
5.1.18	AT+CFM - Accept/Reject Remote Pairing Request	17
5.1.19	AT+COD: Get/Set Device Class	17
5.1.20	AT+PAIR: Get/Set BR/EDR/BLE Visibility	18
5.1.21	AT+PAGE: Get/Set BR/EDR Connectability	19
5.1.22	AT+SCAN - Scan Nearby Devices	19
5.1.23	AT+PLIST - Get/Delete Paired List	20
5.1.24	AT+DSCA - Release All Connections	21
5.1.25	AT+TPMODE - Turn On/Off Throughput Mode	21
5.1.26	AT+SECCFG: Get/Set Security Level	21
5.2	SPP Commands	21
5.2.1	AT+SPPSTAT - Read SPP State	22
5.2.2	AT+SPPCONN - Establish SPP Connection	22
5.2.3	AT+SPPDISC - Release SPP Connection	22
5.2.4	AT+SPPSEND - Send Data Via SPP	22
5.3	GATT Commands	22
5.3.1	AT+GATTSTAT - Read GATT State	23
5.3.2	AT+GATTDISC - Release GATT Connection	23
5.3.3	AT+GATTSEND - Send Data Via GATT	23
5.4	HID Commands	23
5.4.1	AT+HIDSTAT - Read HID State	23
5.4.2	AT+HIDCONN - Establish HID Connection	24
5.4.3	AT+HIDDISC - Release HID Connection	24
5.4.4	AT+HIDMODE - Get/Set HID Input Mode	24
5.4.5	AT+HIDDL - Get/Set HID Report Period	24
5.4.6	AT+HIDSEND - Send HID Keyboard Report	25
5.4.7	AT+HIDCMD - Send HID User Report	26
6	Events Table	27
6.1	General Events	27
6.1.1	+PWRSTAT - Powering State	27

6.1.2	+SCAN - Scan Result	28
6.1.3	+PAIRREQ - Pair Request	28
6.1.4	+PAIRED - Pair Result	29
6.2	SPP Events	29
6.2.1	+SPPSTAT - SPP State	29
6.2.2	+SPPDATA - SPP Received Incoming Data	29
6.3	GATT Events	30
6.3.1	+GATTSTAT - GATT State	30
6.3.2	+GATTDATA - GATT Received Incoming Data	30
6.4	HID Events	30
6.4.1	+HIDSTAT - HID State	31
7	Application scenarios	32
7.1	Read/Write Parameters	32
7.2	Data Throughput	33
7.3	SPP Master-Slave	34
8	Appendix	36
8.1	Download PDF Document	36

Chapter 1

Introduction

[中文]

1.1 Description

This design guide is suitable for engineers to develop FSC-BT909C series Bluetooth modules, also suitable for BT909 series modules

1.2 Module Default Settings

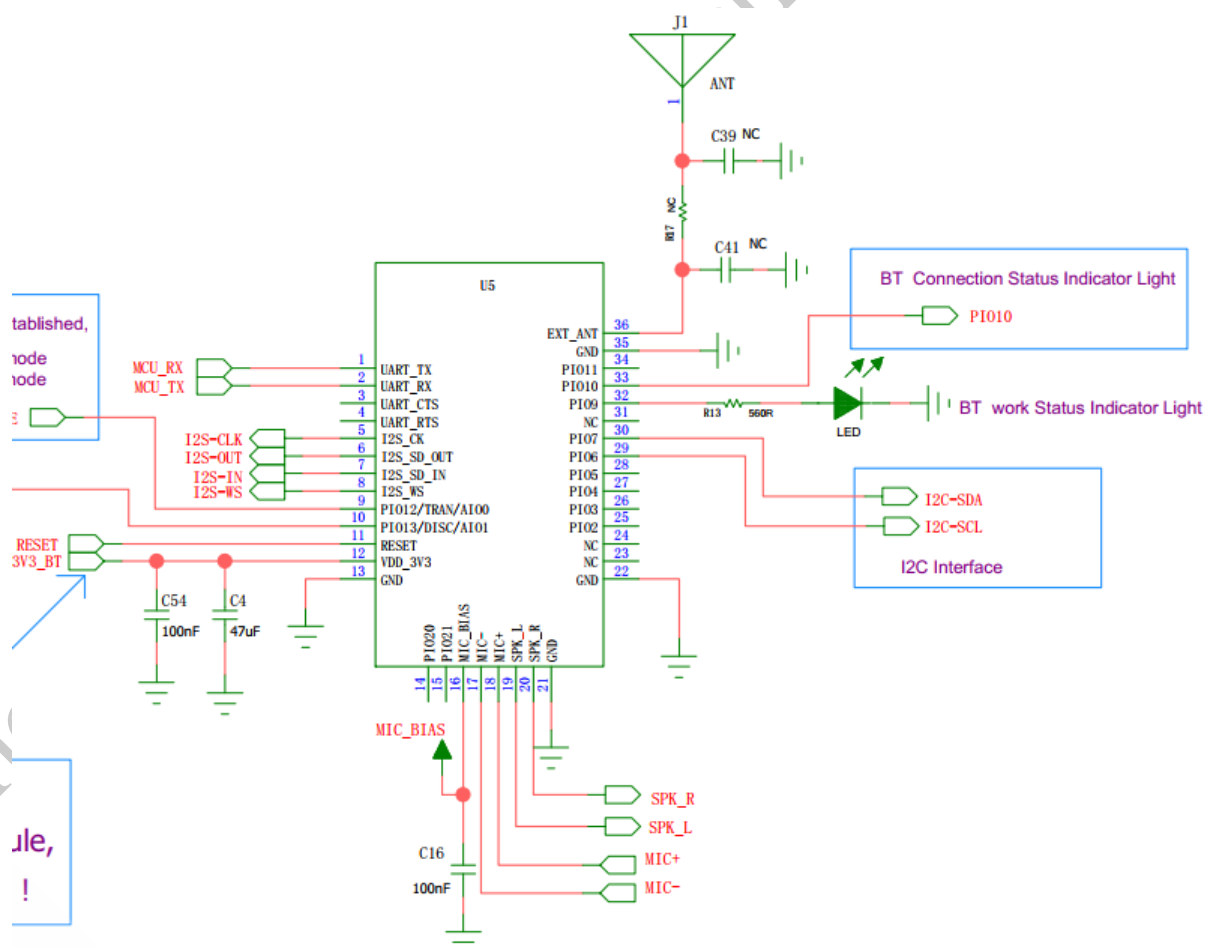
Name	FSC-BT909C-XXXX
LE-Name	FSC-BT909C-LE-XXXX
Pin Code	0000
Secure Simple Pairing Mode	ON
UART Baudrate	115200/8/N/1

Chapter 2

Hardware Description

2.1 Pin Diagram

FSC-BT909C as an example:



2.2 Pin Description

Pin	Pin Name	Type	Pin Descriptions
1	UART_TX	O	UART TX
2	UART_RX	I	UART RX
3	UART_CTS	I/O	UART CTS
4	UART_RTS	I/O	UART RTS
11	RESET	I	External reset input: active Low
12	VDD	VDD	Power supply for I/O ports, DC 3.3V
13	GND	GND	GND
32	LED	I/O	Output square wave in pairing mode, output high level when bluetooth is connected
18	STATUS	I/O	bluetooth is not connected to output low level, connected to output high level
51	EXT_ANT	ANT	Change the 0 ohm resistance near the antenna, you can connect an external Bluetooth antenna

2.3 Hardware Design Notes

- The simple test of the module only needs to connect VDD/GND/UART_RX/UART_TX to use
- After drawing the schematic diagram, please send it to Feasycom for review,so as to avoid the Bluetooth distance not reaching the best effect

Chapter 3

Function Description

3.1 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)

3.2 GATT Default service and characteristic

Type	UUID	Characteristic	Description
Service	0xFFF0		throughput services
Write	0xFFF2	Write, Write Without Response	app send to module
Notify	0xFFF1	Notify	module send to app

Chapter 4

Command Description

4.1 Terms

- Throughout this specification:
- Content between { } is optional
- Content behind << represents a COMMAND from Host
- Content behind >> represents a RESPONSE/EVENT to Host

4.2 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 “ERR<code>” for failure

Error Code	Meaning
001	Failed
002	Invalid parameter
003	Invalid state
004	Command mismatch
005	Busy
006	Command not supported
007	Profile not turned on
008	No memory
Others	Reserved for future use

Example:Read module' s BR/EDR local name

<< AT+VER

>> +VER=FSC-BT1036-XXXX

>> OK

4.3 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

Chapter 5

Commands Table

5.1 General Commands

5.1.1 AT+HELP - Firmware Function/Command Summary

Command	AT+HELP
Response	<FIRMWARE FUNCTION: appropriate working scenario > <OTA PATH: latest suitable firmware path on server for upgrade On-The-Air> <ENABLED PROFILES: LINKS: ON/OFF> <COMMAND SUMMARY: DESCRIPTION: PROFILE CATEGORY>
Description	Using help command to get the basic summary information

5.1.2 AT+SEP - Get/Set Event/Response Separator

Command	AT+SEP{=Param}
Param	hex value 0x01~0xFF, default: ‘,’ , specially, using ‘0’ instead of ‘xFF’ for convenience
Response	+SEP=Param
Description	The parameter of events/responses may contain value same to the default separator, using this command to replace default separator for conflict prevention (replace the default separator ‘,’ to hex value ‘xFF’ typically)

Example:Read module’ s paired record (device name contains ‘,’ already)

<< AT+PLIST

>> +PLIST=1,32808,1C5CF226D773, Tony, iPhone12

>> +PLIST=2,40, A0BC30075421, Samsung S8

>> +PLIST=E

>> OK

Example: Replace separator to ‘0xFF’

<< AT+SEP=0

>> OK

Example: Read module’ s paired record again

<< AT+PLIST

>> +PLIST=1<FF>32808<FF>1C5CF226D773<FF>Tony, iPhone12

>> +PLIST=2<FF>40<FF> A0BC30075421<FF>Samsung S8

>> +PLIST=E

>> OK

5.1.3 AT+VER - Get Firmware Version

Command	AT+VER
Response	+VER=Param1,Param2,Param3
Param1	Module type
Param2	Firmware version
Param3	Data of production
Note	The date of production in response will not be changed after firmware upgrade

Example:

```
<< AT+VER
```

```
>> +VER=BT1036,V2.6.1,20220922
```

```
>> OK
```

5.1.4 AT+BAUD - Get/Set Uart Baudrate

Command	AT+BAUD{=Param}
Param	2400/4800/9600/19200/38400/57600/115200(default)/128000/ 230400/256000/460800/512000/921600/1382400
Response	+BAUD=Param1,Param2,Param3
Param	All baudrates supported by current module
Description	Module will change baudrate to target value immediately or after reboot depending on firmware,BT1036、BT955、BT909C not support 2400

Example:Query baudrates supported by current module then change baudrate from 115200 bps

to 921600 bps

<< AT+BAUD

>> +BAUD=2400,4800,9600,19200,38400,57600,115200,128000,230400,256000,
460800,512000,921600,1382400

>> OK

<< AT+BAUD=921600

>> OK

Module switch baudrate to 921600 immediately, host change baudrate as well, query module' s
name at new baudrate

<< AT+NAME

>> +NAME=FSC-BT91036-1F26

>> OK

5.1.5 AT+REBOOT - Soft Reboot

Command	AT+REBOOT
Response	OK
Description	Module release all Bluetooth connections with remote device then re-boot

Example:

<< AT+REBOOT

>> OK

5.1.6 AT+RESTORE - Restore Factory Settings

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

Example:

```
<< AT+RESTORE
```

```
>> OK
```

5.1.7 AT+BTEN - Bluetooth On/Off

Command	AT+BTEN{=Param}
Param	0-Power off 1-Power on

5.1.8 AT+PROFILE - Bluetooth Profile Selection

Command	AT+PROFILE{=Param}
Param	A base-10 representation of a bit field, for each bit:
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[15]	iAP2 (For iOS devices)
Response	+PROFILE=Param
Description	GATT Server and Client, HFP Sink and Source, A2DP Sink and Source, AVRCP Controller and Target cannot be enabled simultaneously because of mutual exclusion.

Example:Read current profile selection

```
<< AT+PROFILE
```

```
>> +PROFILE=3
```

Example:Enable SPP profile, disable the others

```
<< AT+PROFILE=1
```

```
>> OK
```

Note: Only support spp、gatt、hid

5.1.9 AT+AUTOCONN - Power On Auto Reconnect Profile Selection

Command	AT+AUTOCONN{=Param}
Param	A base-10 representation of a bit field, format same with AT+PROFILE
Response	+AUTOCONN=Param
Description	Module will attempt to establish connection to devices in paired list after power on.

5.1.10 AT+STAT - Get All Profile State

Command	AT+STAT
Response	+STAT=Param1, Param2, Param3...
Description	Query all current enabled profile' s state

Example: Read current profile selection

```
<< AT+PROFILE
```

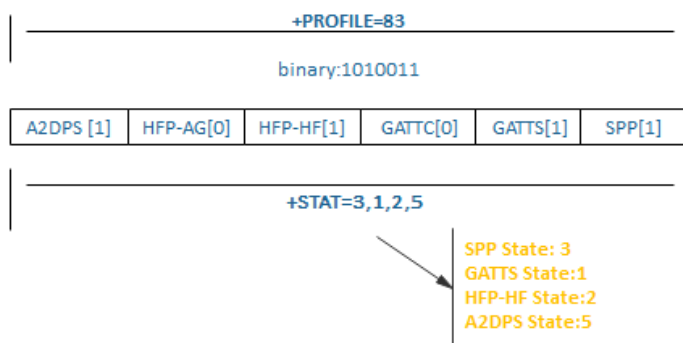
```
>> +PROFILE=83
```

Example:Read profile state

```
<< AT+STAT
```

```
+STAT=3,1,2,5
```

```
>> OK
```



5.1.11 AT+DEVSTAT - Read Device State

Command	AT+DEVSTAT
Response	+DEVSTAT=Param
Param	A base-10 representation of a bit field, for each bit:
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:usual combination and description

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

5.1.12 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

5.1.13 AT+LEADDR - Get BLE MAC Address

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

5.1.14 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
Response	+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-BT1036-XXXX

>> OK

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

<< AT+NAME=ABC,0

>> OK

Example: Change module's BR/EDR local name to "ABC" and enable suffix

<< AT+NAME=ABC,1

>> OK

5.1.15 AT+LENAM - Get/Set BLE Local Name

Command	AT+LENAM{=Param1{,Param2}}
Param1	BLE local name(1~25 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
Response	+LENAM=Param

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

Command	AT+SSP{=Param}
Param	Pairing mode (0~3, default:2) (0) Legacy pairing, use pin code for pairing (1) Secure simple pairing, auto pairing (2) Secure simple pairing, display yes/no in pairing (3) Secure simple pairing, passkey compare, user need to accept/reject pair request with command AT+CFM
Response	+SSP=Param
Note	need reboot

5.1.17 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	Pin code only work in legacy pairing mode, see AT+SSP

Example:Read module' s pin code

```
<< AT+PIN
```

```
>> +PIN=0000
```

```
>> OK
```

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

```
<< AT+PIN=1234
```

```
>> OK
```

5.1.18 AT+CFM - Accept/Reject Remote Pairing Request

Command	AT+CFM=Param1, Param2
Param1	12 Bytes MAC address of remote device
Param2	0-Reject remote pairing request 1-Accept remote pairing request
Description	Only used for pairing request in pairing mode 3, see AT+SSP

5.1.19 AT+COD: Get/Set Device Class

Command	AT+COD=Param
Param	Class of device(6 bytes ASCII, default:240408 Handsfree device)
Response	+COD=Param

Related configuration reference: [COD](#).

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

Command	AT+PAIR=Param
Param	Mode(0-3) 0: Leave BR/EDR/BLE discoverable mode (stop advertising/broadcasting) 1: Enter BR/EDR discoverable mode (start broadcasting) 2: Enter BLE discoverable mode (start advertising) 3: Enter BR/EDR/BLE discoverable mode (start advertising/broadcasting)
Description	Module will always be discoverable if no device connected (BR/EDR or BLE), and be undiscoverable if connected with remote device, unless received this command

5.1.21 AT+PAGE: Get/Set BR/EDR Connectability

Command	AT+PAGE=Param
Param	Mode(0-1) 0: Leave BR/EDR connectable mode (stop paging) 1: Enter BR/EDR connectable mode (start paging)
Description	Module will always be connectable mode if no device connected, and be unconnectable if connected with remote device, unless received this command

5.1.22 AT+SCAN - Scan Nearby Devices

Command	AT+SCAN=Param1{,Param2{,Param3}}
Param1	scan type(0~3) 0: Stop scan 1: Scan nearby BR/EDR devices 2: Scan nearby BLE devices 3: Scan nearby BR/EDR/BLE devices
Param2	(1~48)Scan period. unit:1.28s, default:12.8s
Param3	(1~25 Bytes ASCII)Name filter. Filter scan results with name if set
Description	Format description reference: +SCAN - Scan Result

5.1.23 AT+PLIST - Get/Delete Paired List

Command	AT+PLIST{=Param}
Param	(0/1~8/12 Bytes MAC address) (0) Clear all paired record (1~8) Clear specific paired record with index (MAC) Clear specific paired record with MAC address
Response1	+PLIST=Param1, Param2, Param3{,Param4}
Param1	(1~8) Paired device' s index
Param2	A base-10 representation of a bit field, support profiles of device, see AT+PROFILE
Param3	(MAC) Paired device' s MAC address
Param4	(UTF8) Paired device' s name
Response2	+PLIST=E End of the paired record

Example:Read module' s paired record

<< AT+PLIST

>> +PLIST=1,32808,1C5CF226D773, iPhone12

+PLIST=2,40, A0BC30075421, Samsung S8

+PLIST=E

>> OK

Example:Clear module' s paired record

<< AT+PLIST=0

>> OK

5.1.24 AT+DSCA - Release All Connections

Command	AT+DSCA
Description	Module release all Bluetooth connections with remote device

5.1.25 AT+TPMODE - Turn On/Off Throughput Mode

Command	AT+TPMODE{=Param}
Param	Throughput mode(0~1, default:0) 0: Turn Off 1: Turn On
Response	+TPMODE=Param
Description	When SPP/GATT profile connected and throughput mode is on, the AT command will be de-active, every byte received via physical UART will be sent to air, vice visa

5.1.26 AT+SECCFG: Get/Set Security Level

Command	AT+PAIR=Param
Param	Mode(0-1),default:0 0: Level 0 1: Level 2

5.2 SPP Commands

5.2.1 AT+SPPSTAT - Read SPP State

Command	AT+SPPSTAT
Response	+SPPATAT=Param
Description	Format description reference: <i>+SPPSTAT - SPP State</i>

5.2.2 AT+SPPCONN - Establish SPP Connection

Command	AT+SPPCONN{=Param}
Param	MAC address of target device (12 Bytes ASCII)

5.2.3 AT+SPPDISC - Release SPP Connection

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

5.2.4 AT+SPPSEND - Send Data Via SPP

Command	AT+SPPSEND=Param1,Param2
Param1	Payload length (1~492)
Param2	Payload (1~492 Bytes UTF8)
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

5.3 GATT Commands

5.3.1 AT+GATTSTAT - Read GATT State

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

5.3.2 AT+GATTDISC - Release GATT Connection

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

5.3.3 AT+GATTSEND - Send Data Via GATT

Command	AT+GATTSEND=Param1,Param2
Param1	Payload length (1~492)
Param2	Payload (1~492 Bytes UTF8)
Description	If throughput mode is on, this command is de-active

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

```
<< AT+SPPSEND=10,1234567890
```

```
>> OK
```

5.4 HID Commands

5.4.1 AT+HIDSTAT - Read HID State

Command	AT+HIDSTAT
Response	+HIDATAT=Param
Description	Format description reference: +HIDSTAT - HID State

5.4.2 AT+HIDCONN - Establish HID Connection

Command	AT+HIDCONN{=Param}
Param	MAC address of target device (12 Bytes ASCII)

5.4.3 AT+HIDDISC - Release HID Connection

Command	AT+HIDDISC
Description	Release current HID connection with remote device

5.4.4 AT+HIDMODE - Get/Set HID Input Mode

Command	AT+HIDMODE{=Param}
Param	HID keyboard input mode (0~1), default 1 (0) Hex key code (1) Ascii key code (English)
Note	Module can support various keyboard language with specify firmware, such as: TURKEY SPAIN PORTUGAL FRANCE GERMANY ITALY CZECH JAPAN

5.4.5 AT+HIDDLTY - Get/Set HID Report Period

Command	AT+HIDDLTY{=Param}
Param	HID report period in millisecond, default 10 ms

5.4.6 AT+HIDSEND - Send HID Keyboard Report

Command	AT+HIDSEND=Param1,Param2
Param1	Report length
Param2	Report payload
Note	For special key code: 0x0D -> ENTER 0x08 -> BACKSPACE 0x09 -> TAB 0x20 -> SPACE

Example: Send key code 'A' to remote device (on AT+HIDMODE=1)

>> AT+HIDSEND=1,A

<< OK

Example: Send key code 'A' to remote device (on AT+HIDMODE=0)

<< AT+HIDSEND=2, x00 x04

>> OK

Note: As payload is hex value, hence actual command is:

41 54 2B 48 49 44 53 45 4E 44 3D 32 2C 00 04 0d 0a

Where:

00 : modifier

04 : key code

Module will auto send debounce key code by itself

5.4.7 AT+HIDCMD - Send HID User Report

Command	AT+HIDCMD=Param
Param	2 bytes hid user report e.g., for iPhone: Play/Pause: 00 CD Stop: 00 B7 Forward: 00 B5 Backward: 00 B6 Fast Forward: 00 B3 Rewind:00 B4 Record:00 B2 VolumpUp:00 E9 VolumpDn:00 EA Mute:00 E2 On screen keyboard Toggle:01 AE

Example: Send Volume Up to iPhone

<< AT+HIDCMD= x00 xE9

>> OK

Note: As the payload is hex value, hence actual command is:

41 54 2B 48 49 44 43 4D 44 3D 00 E9 0D 0A

Chapter 6

Events Table

6.1 General Events

6.1.1 +PWRSTAT - Powering State

Format	+PWRSTAT=Param
Param	0-Powering off 1-Powering on(booting)
Description	AT Command is not recommended to be used while powering on/off state

6.1.2 +SCAN - Scan Result

Format1	+SCAN =Param1,Param2,Param3, Param4,Param5,Param6
Param1	Index
Param2	RSSI (-127 ~ -1)
Param3	Device address type (0~3) (0) BR/EDR address (1) LE public address (2) LE random address (3) iOS device with Carplay support
Param4	MAC address (12 Bytes ASCII)
Param5	Device Name for BR/EDR devices or advertising data for LE devices
Param6	Class of device(6 Bytes ASCII)
Format2	+SCAN=E: Scan stopped

Example: Scan BR/EDR nearby devices

<< AT+SCAN=1

>> OK

>> +SCAN=1,-32,3,B019C66209FA,wt-iphone,7A020C

>> +SCAN=2,-74,0,DC0D30000053,BW226,040680

>> +SCAN=3,-43,0,00158354F994,LAPTOP-3L,120104

>> +SCAN=E

6.1.3 +PAIRREQ - Pair Request

Format	+PAIRREQ=Param1,Param2[,Param3]
Param1	Passkey (000000~999999)
Param2	MAC address (12 Bytes ASCII) of current pairing device
Param3	Name of current pairing device

6.1.4 +PAIRED - Pair Result

Format	+PAIRED=Param1,Param2
Param1	Pair result (0)-Success (1~255)-Failed reason
Param2	MAC address (12 Bytes ASCII) of current pairing device

6.2 SPP Events

Note: Events for iAP2 (Apple Accessory Protocol) and AAP (Android Auto Protocol) are almost the same with SPP, which are:

- +IAPSTAT, +IAPDATA for iAP2 profile
- +AAPSTAT, +AAPDATA for AAP profile

Document will omit these events.

6.2.1 +SPPSTAT - SPP State

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

6.2.2 +SPPDATA - SPP Received Incoming Data

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

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

<< +SPPDATA=10,1234567890

6.3 GATT Events

6.3.1 +GATTSTAT - GATT State

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

6.3.2 +GATTDATA - GATT Received Incoming Data

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

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

<< +GATTDATA=10,1234567890

6.4 HID Events

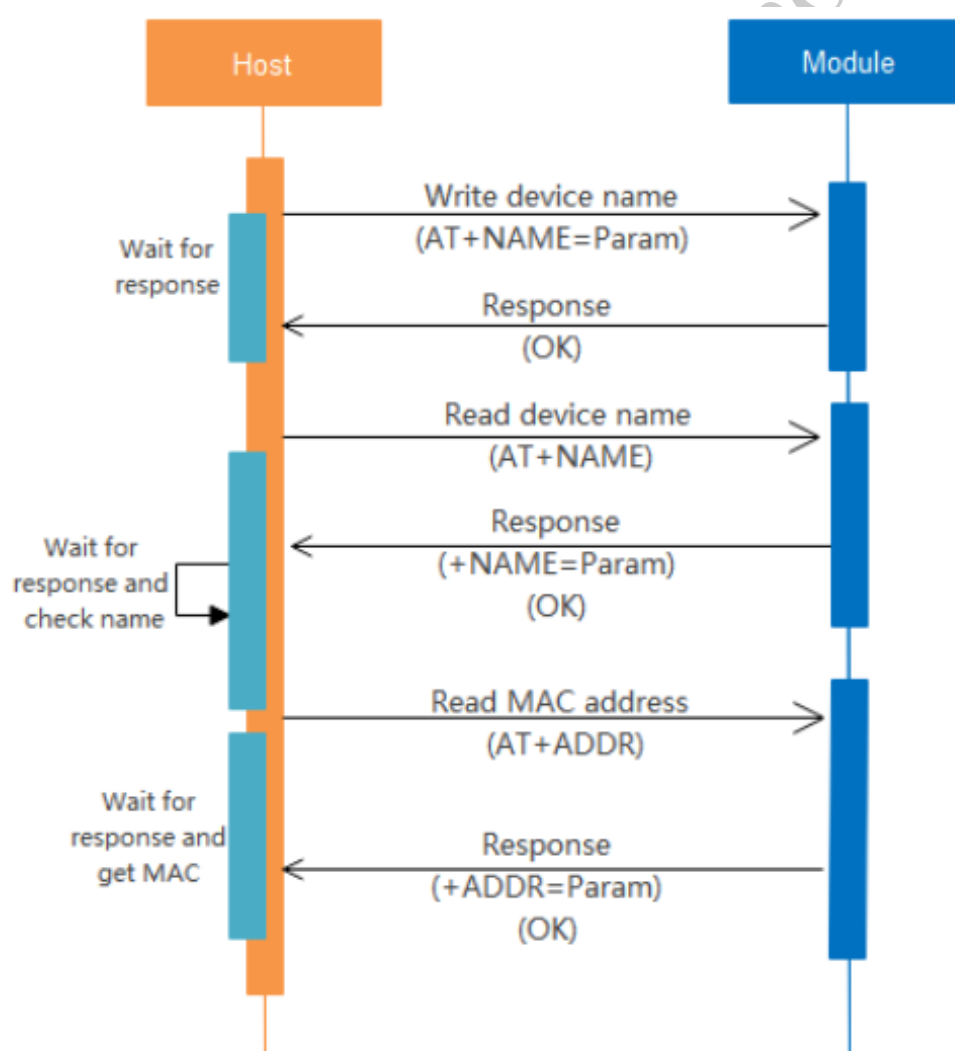
6.4.1 +HIDSTAT - HID State

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

Chapter 7

Application scenarios

7.1 Read/Write Parameters



MCU change device name CARKIT reference code:

```

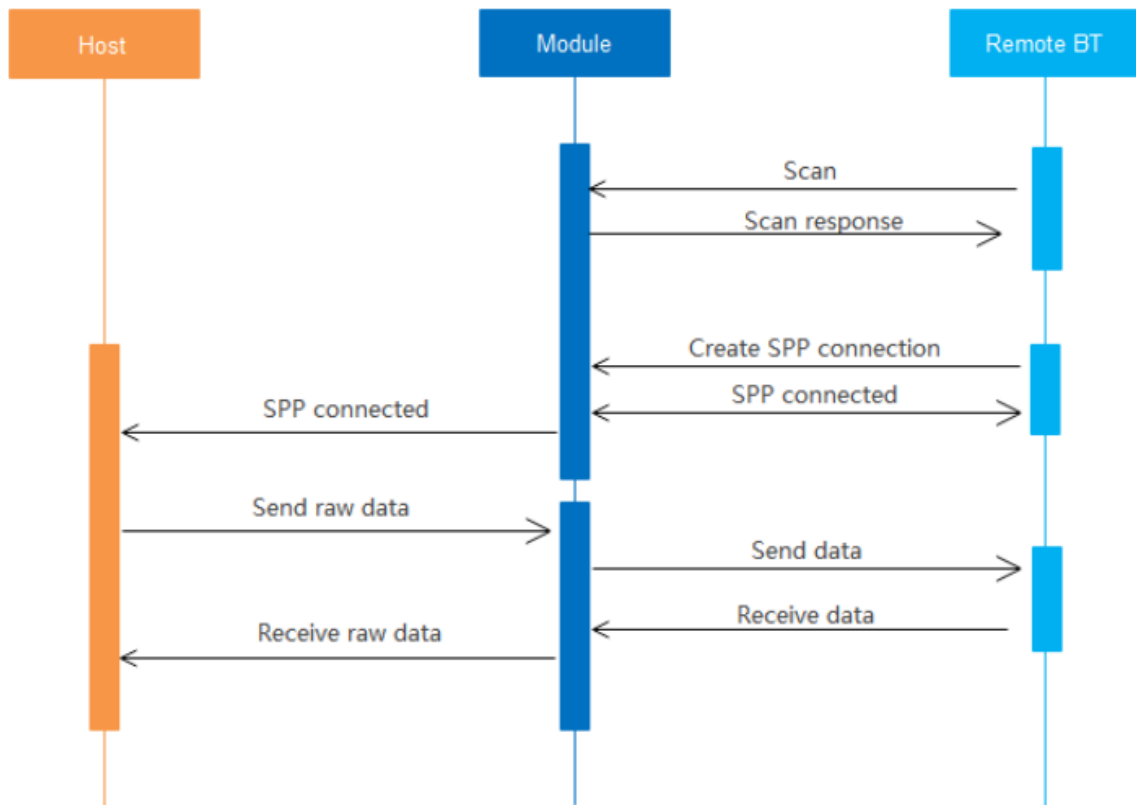
1 void change_name(void)
2 {
3     uart_send("AT+NAME\r\n");
4     if(uart_read("+NAME", name_buf))
5     {
6         if(memcmp(name_buf, "CARKIT", 6))
7         {
8             uart_send("AT+NAME=CARKIT, 0\r\n");           //defalut_
9             disable MAC address suffix
10            uart_send("AT+NAME\r\n"); // read bt name
11            if(uart_read("+NAME", name_buf))
12            {
13                if(memcmp(name_buf, "CARKIT", 6))
14                {
15                    //change name fail
16                }
17                else
18                {
19                    //change name success
20                }
21            }
22        }
23    }

```

Note: modify any parameters, it is recommended to query first and then modify the final verification

7.2 Data Throughput

- Typical SPP Slave Data Throughput Interaction:

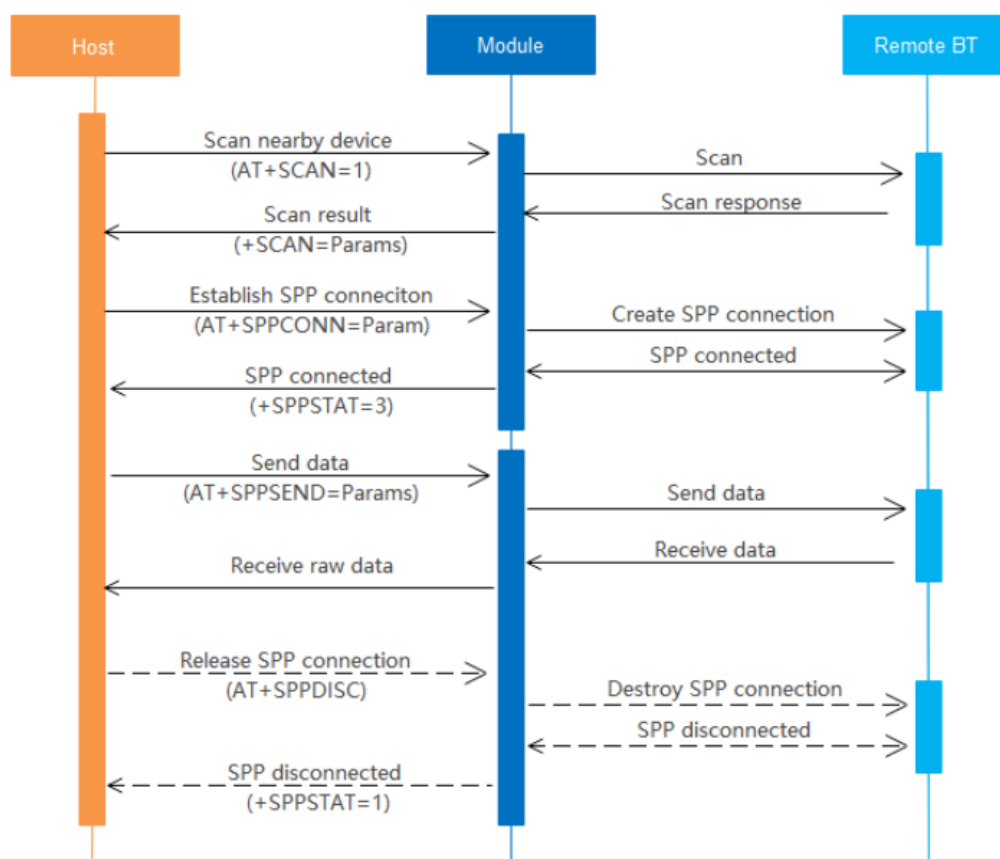


7.3 SPP Master-Slave

- One of the standard firmwares of the module simultaneously supports SPP master and SPP slave features, when the user use the AT commands for the SPP master feature, the module will act as master role, otherwise, it acts as slave role.
- The list of AT commands for the SPP master feature:

Commands	Description
AT+SCAN	Scan nearby devices
AT+SPPCONN	Establish SPP connection
AT+SPPSTAT	Read SPP state
AT+SPPDISC	Release SPP connection
AT+SPPSEND	Send data via SPP

- Typical AT-Command Mode SPP Master Interaction:



Chapter 8

Appendix

8.1 Download PDF Document

Download PDF Document