



FSC-BT1036 User Instructions

Release 6.2

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	4
3	Function Description	5
3.1	Compare related products	5
3.2	Profiles & Features	6
3.3	GATT Default service and characteristic	7
4	Application scenarios	8
4.1	profiles initializing and change parameter	8
4.2	Sink mode connection	9
4.3	Source mode connection	12
4.4	HFP three way calling operations	15
4.5	AVRCP filesystem browsing	16
4.6	AVRCP Cover Art image retrieval	17
4.7	Phonebook/Contact photo downloading	17
5	Appendix	19
5.1	Download PDF	19

Chapter 1

Introduction

1.1 Description

This design guide is suitable for engineers to develop FSC-BT1036 series Bluetooth modules, also suitable for BT955, BT936B, BT909C, BT906 series modules

1.2 Module Default Settings

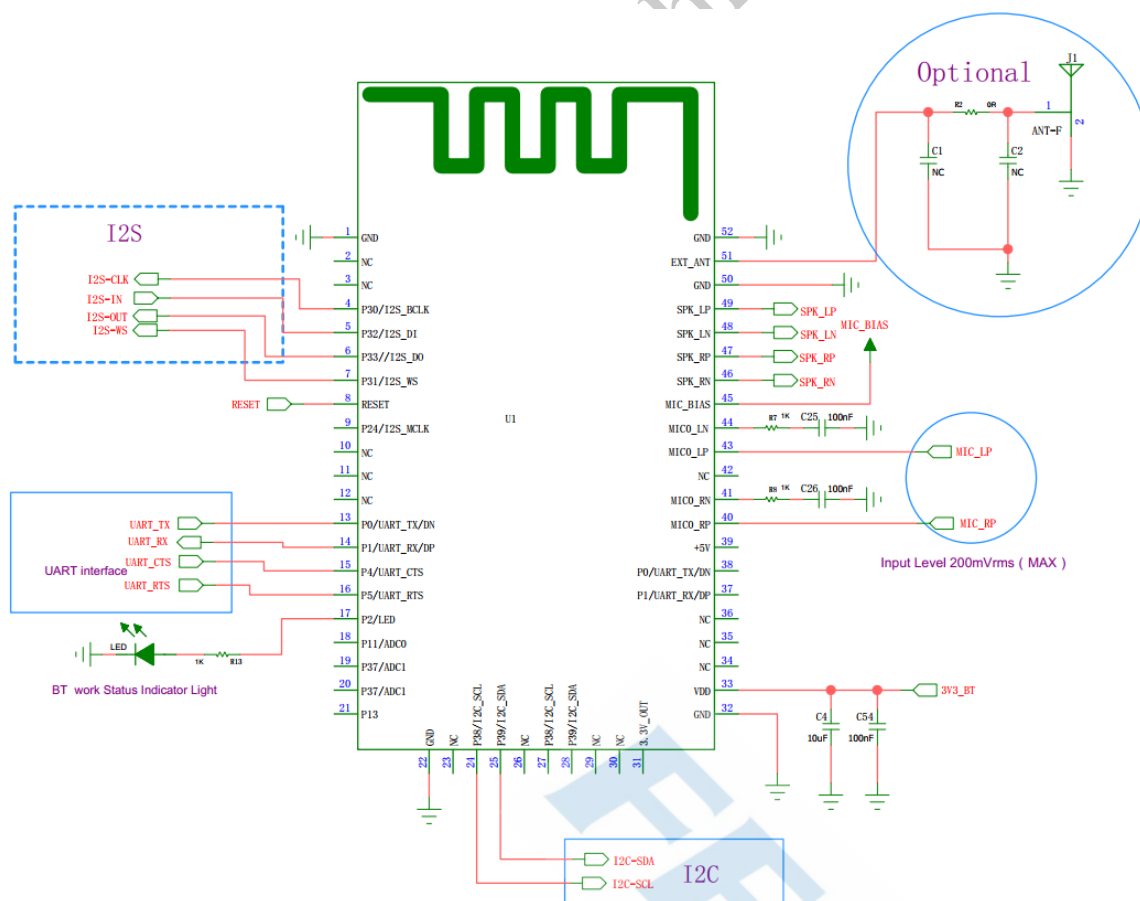
Name	FSC-BT1036-XXXX
LE-Name	FSC-BT1036-LE-XXXX
Pin Code	0000
Secure Simple Pairing Mode	ON
UART Baudrate	115200/8/N/1

Chapter 2

Hardware Description

2.1 Pin Diagram

FSC-BT1036C as an example:



2.2 Pin Description

Pin	Pin Name	Type	Pin Descriptions
4	I2S_CLK	I/O	I2S BCLK
5	I2S_IN	I	I2S DATA IN
6	I2S_OUT	O	I2S DATA OUT
7	I2S_WS	I/O	I2S SYNC
8	RESET	I	External reset input: active Low
13	UART_TX	O	UART TX
14	UART_RX	I	UART RX
15	UART_CTS	I/O	UART CTS
16	UART_RTS	I/O	UART RTS(default: PA mute pin)
17	LED0	I/O	Output square wave in pairing mode, output high level when bluetooth is connected
18	LED1	I/O	SPP/GATT is not connected to output low level, connected to output high level
32	GND	GND	GND
33	VDD	VDD	Power supply for I/O ports, DC 3.3V
40	MIC_RP	Audio	MIC0/Line_IN differential R input, positive
41	MIC_RN	Audio	MIC0/Line_IN differential R input, negative
43	MIC_LP	Audio	MIC0/Line_IN differential L input, positive
44	MIC_LN	Audio	MIC0/Line_IN differential L input, negative
45	MIC_BASE	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 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

Shenzhen Feasycom Technology Co.,Ltd.

Chapter 3

Function Description

3.1 Compare related products

Module	BT	Tx Power	Size(W*L*H mm)	Chip	Audio
BT1036A	5.2	10dBm	10*11.9*1.8	FSC2061	Stereo Input/Output
BT1036B	5.2	10dBm	13*26.9*2.4	FSC2061	Stereo Input/Output
BT1036C	5.2	10dBm	13*26.9*1.8	FSC2061	Stereo Input/Output
BT955	5.2	10dBm	13*26.9*1.8	FSC2081	Mono Input/Stereo Output
BT936A	4.2	8.5dBm	10*11.9*1.8	CSR8811	Mono Input/Stereo Output
BT936B	4.2	8.5dBm	13*26.9*2.4	CSR8811	Mono Input/Stereo Output
BT909C	4.2	20dBm	13*26.9*2.4	CSR8811	Mono Input/Stereo Output
BT966	5.0	12dBm	13*26.9*2.4	CYW20706	Stereo Input/Output
BT901	4.2	8.5dBm	10*11.9*1.8	CSR8811	No
BT906	4.2	8.5dBm	13*26.9*2.4	CSR8811	Mono Input/Stereo Output
BT909	4.2	20dBm	13*26.9*2.4	CSR8811	No
BT1026C	5.1	9dBm	13*26.9*1.8	QCC3024	Stereo Input/Output
BT1026D	5.1	9dBm	13*26.9*1.8	QCC3034	Stereo Input/Output

Note

- BT90X series modules have been discontinued. Corresponding replacement modules::
BT901->BT936A, BT906->BT936B,BT909->BT909C
- BT966 series modules have been discontinued. Corresponding replacement modules::
BT966->BT1036B, BT966C->BT1036C
- Among them, BT1026C/BT1026D only support audio sink mode, not support source mode.
- Other modules can use the AT+PROFILE command to configure audio sink mode or audio source mode。 sink and source cannot exist at the same time.

3.2 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)

3.3 GATT Default service and characteristic

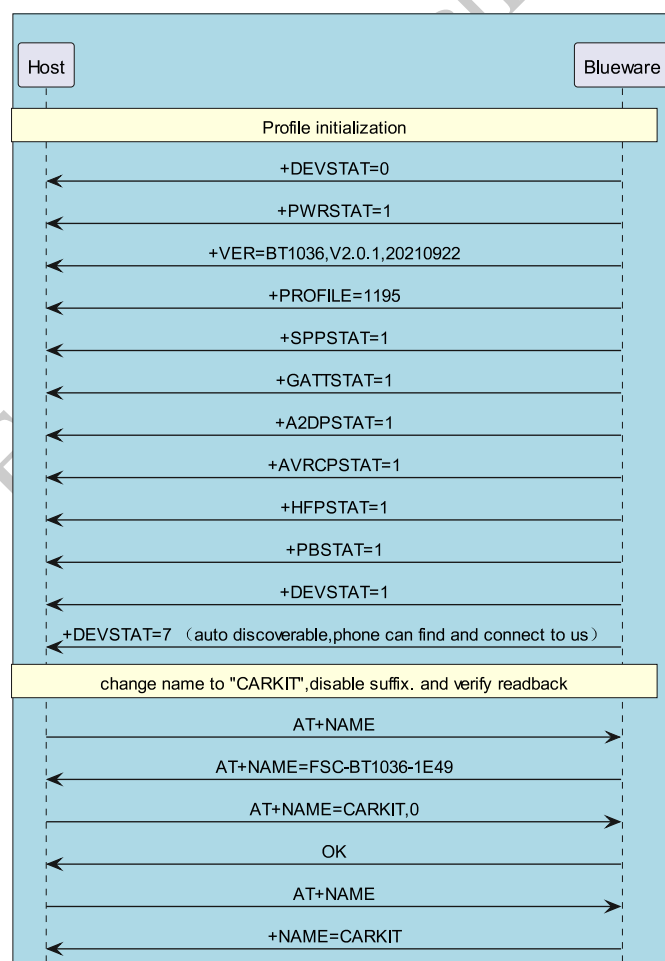
Type	UUID	Characteristic	Description
Service	0xFFFF0		throughput services
Write	0xFFFF2	Write, Write Without Response	app send to module
Notify	0xFFFF1	Notify	module send to app

Chapter 4

Application scenarios

4.1 profiles initializing and change parameter

The following figure shows Profile initialization and name modification



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

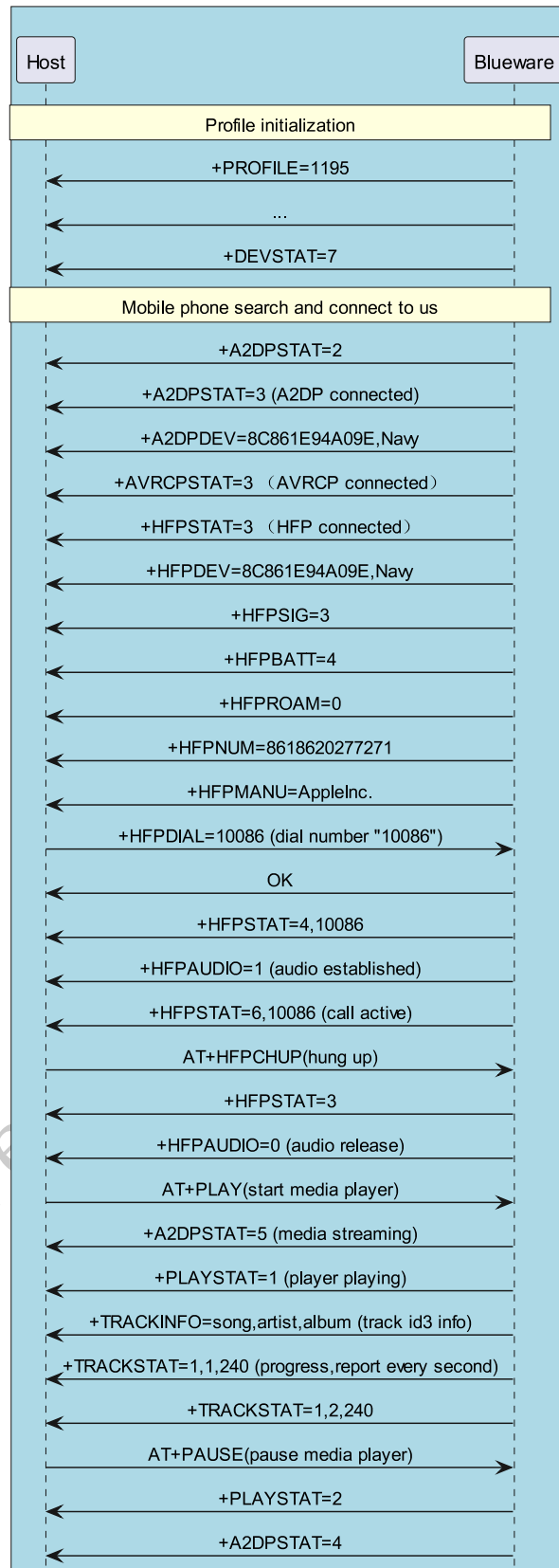
4.2 Sink mode connection

Note

If the factory firmware is an integrated transceiver program, the program default pro-

file=339, Need to send AT+PRFOILE=1195 to configure audio receiving(sink) mode (Enable SPP, GATT Server, HFP Sink, A2DP Sink, AVRCP-Controller, PBAP). Some module transceiver programs do not support PBAP, such as BT955 module

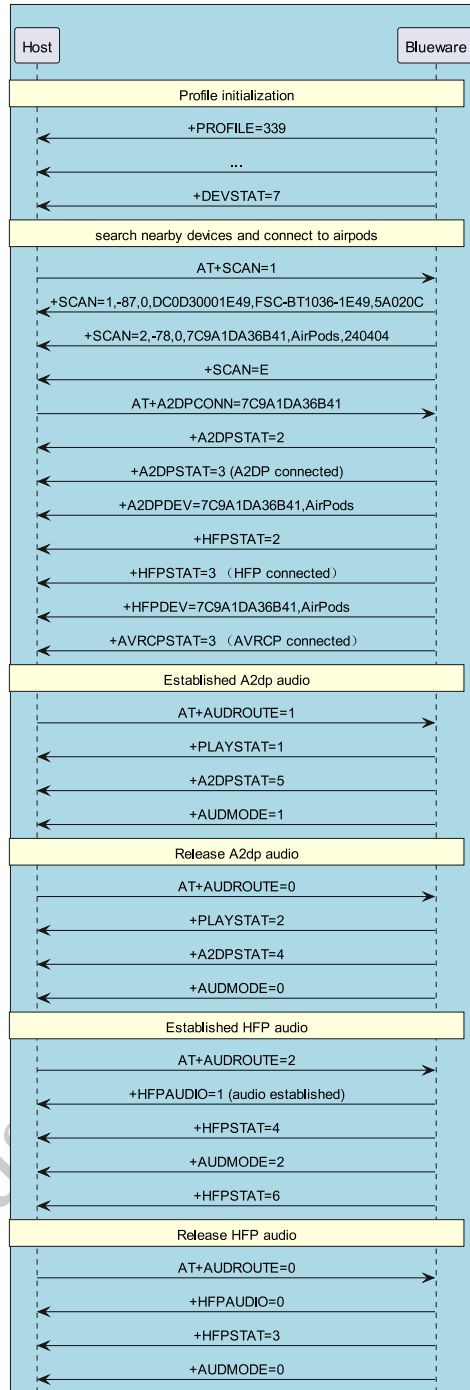
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4.3 Source mode connection

Note

The transmission(source) mode connection needs to configure the module to A2DP Source, HFP Source, The program will not automatically enter the audio transmission mode or the call (intercom) mode after connecting the headset and speaker by default, you need to send the command: Start audio transmission (AT+AUDROUTE=1) Start HFP (AT+AUDROUTE=2)



MCU connects to AirPods and starts audio transmission Reference code:

```

1 #define PROFILE_HFP_HF                (uint16) (BIT3)
2 #define PROFILE_HFP_AG                (uint16) (BIT4)
3 #define PROFILE_A2DP_SINK              (uint16) (BIT5)
4 #define PROFILE_A2DP_SOURCE            (uint16) (BIT6)
5

```

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```

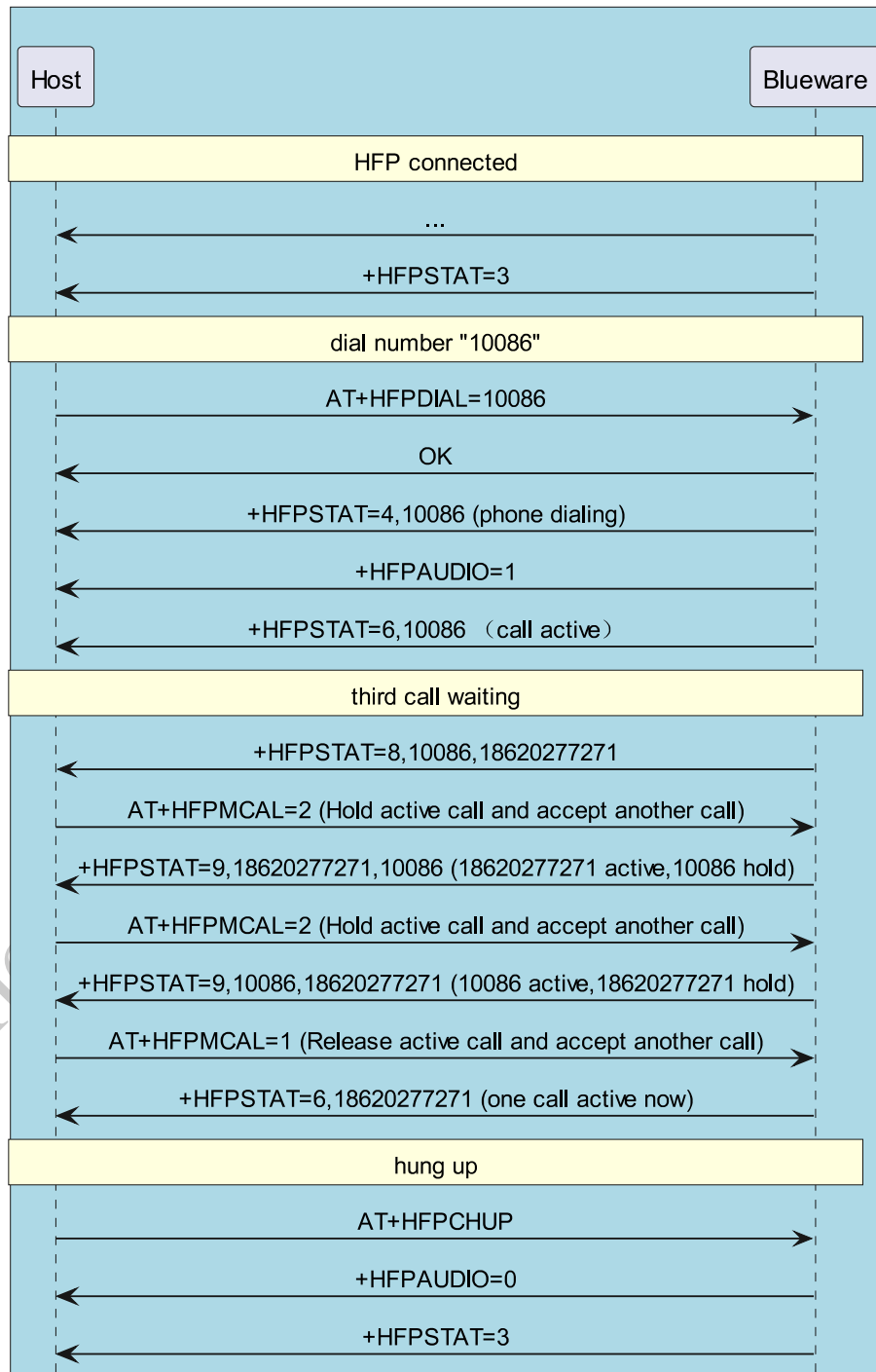
6 void bt_connect(void)
7 {
8     //enable hfp source,a2dp source,avrcp tg,spp,gatt
9     uart_send("AT+PROFILE=339\r\n"); //if profile changes,module_
    ↪will auto reboot,
10     wait_ms(500);
11     uart_send("AT+PROFILE\r\n");
12     uint32 profiles = uart_read("+PROFILE",profiles);
13     if(profiles & (PROFILE_A2DP_SOURCE|PROFILE_HFP_AG))
14     {
15         uint8 addr[6];
16         uint8 buf[30]={0};
17         uint8 a2dp_state=0
18         uart_send("AT+SCAN=1\r\n");
19         uart_read_scan_addr("+SCAN",addr);
20         sprintf(buf,"AT+A2DPCONN=%s\r\n",addr);
21         uart_send(buf); //send a2dp connect
22
23         uart_read("+A2DPSTAT",a2dp_state);
24         if(a2dp_state == 3) //a2dp connected
25         {
26             uart_send("AT+AUDROUTE=1"); // start a2dp audio
27         }
28         uart_read("+A2DPSTAT",a2dp_state);
29         if(a2dp_state == 5)
30         {
31             //a2dp streaming
32         }
33     }
34     else
35     { /*not support master*/}
36 }

```

4.4 HFP three way calling operations

Note

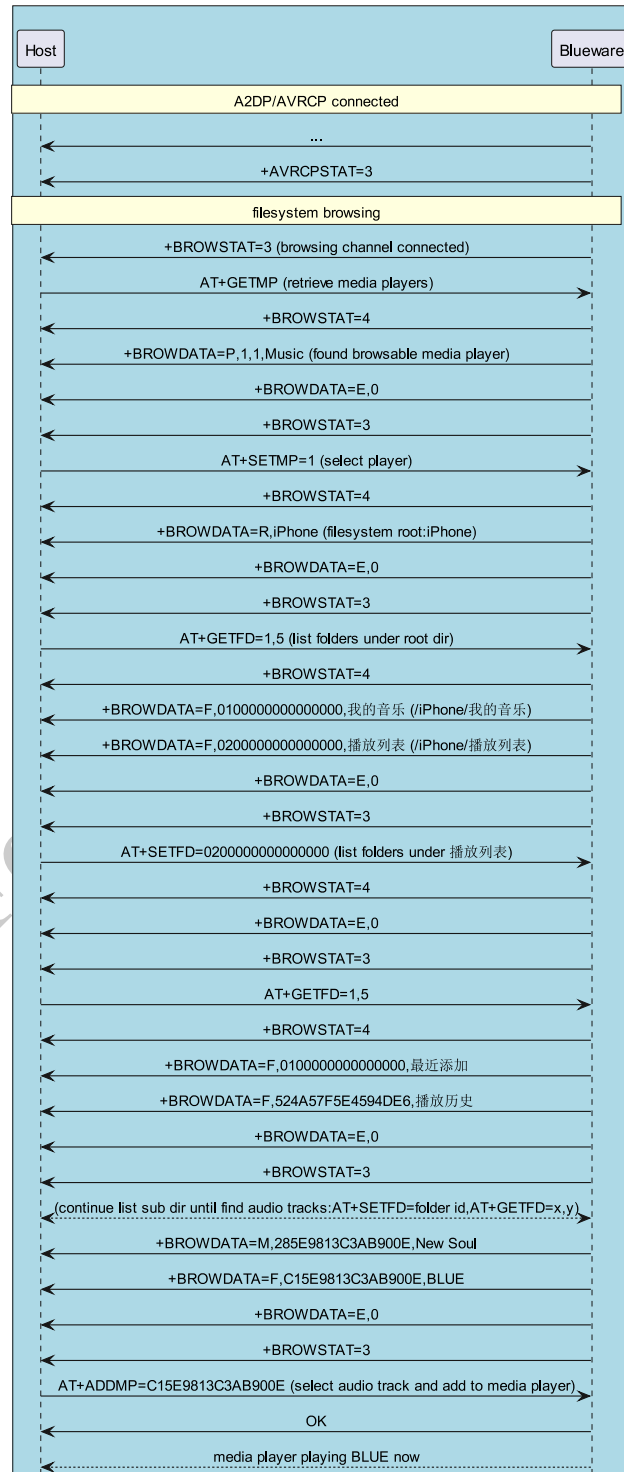
BT1036, BT955 and other modules have not enabled the three way calling function. If you need to test this function, please contact Feasycom



4.5 AVRCP filesystem browsing

Note

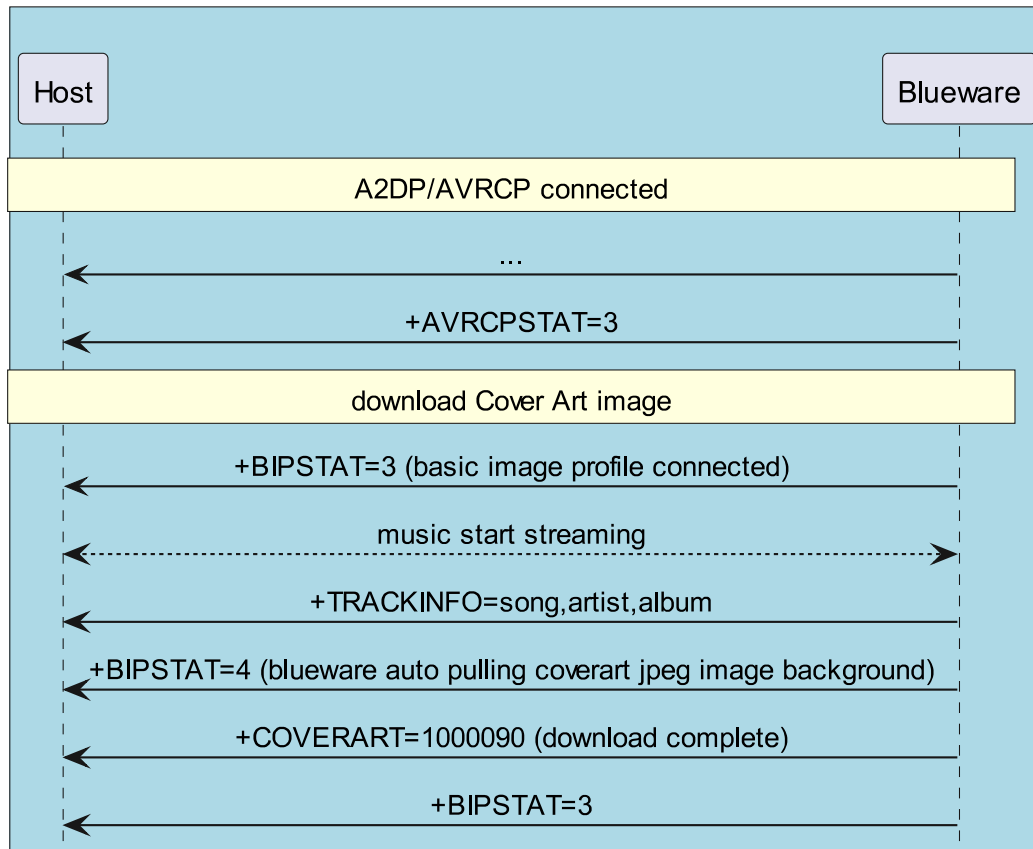
BT1036, BT955 and other modules have not enabled the three way calling function. If you need to test this function, please contact Feasycom



4.6 AVRCP Cover Art image retrieval

Note

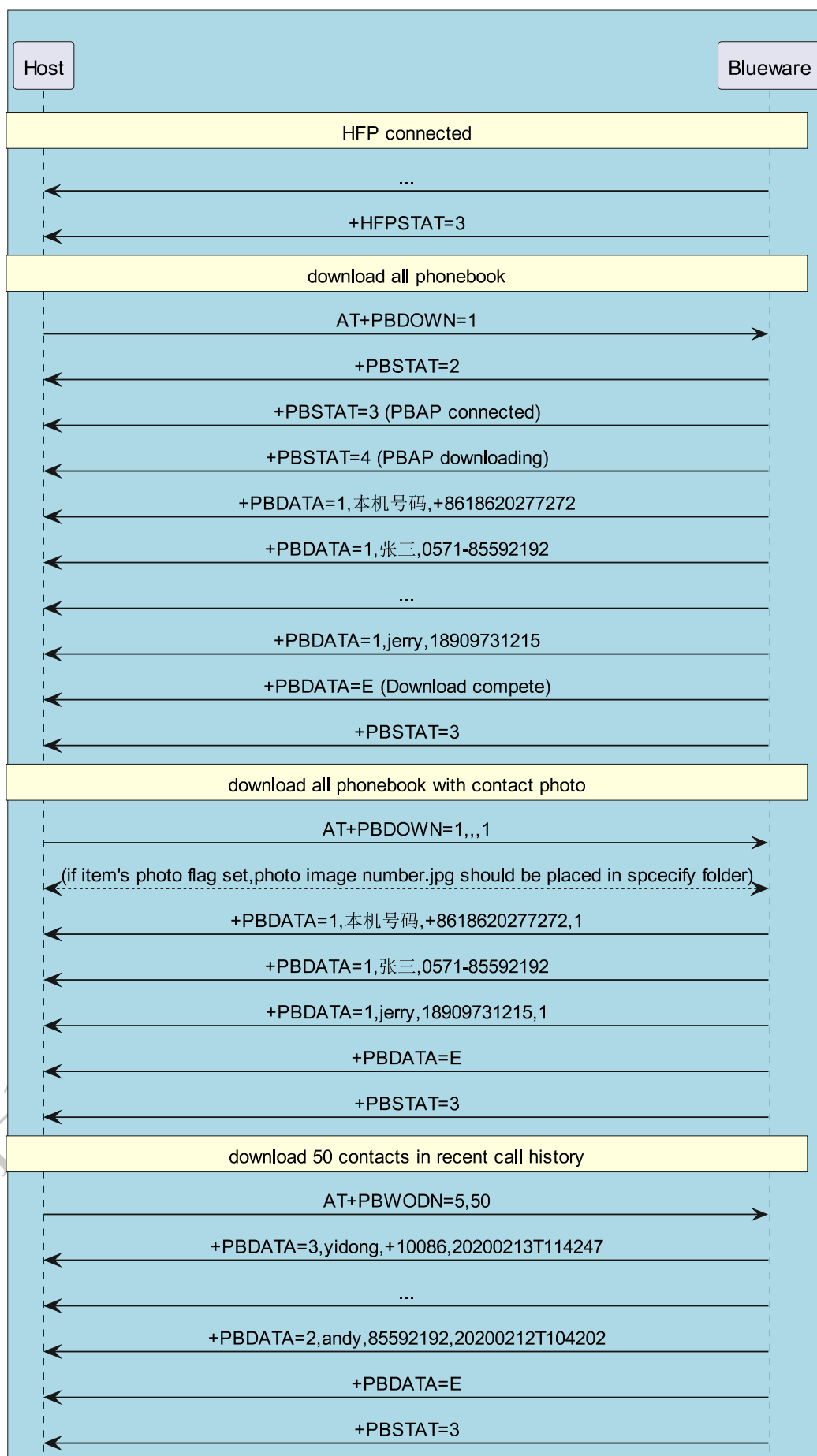
Cover Art image download is only supported by the car protocol stack module, not supported by the SOC audio module



4.7 Phonebook/Contact photo downloading

Note

Contact photo download is only supported by the car protocol stack module, not supported by the SOC audio module. When some firmware does not support downloading, it will automatically connect to PBAP, and you need to send `AT+PBCONN` to connect to PBAP before downloading.



Chapter 5

Appendix

5.1 Download PDF

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