



FSC-BT690 User Guide

Release 1.0.1

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Chapter 1

Introduction

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1.1 Description

This design guide is suitable for engineers developing FSC-BT690 series Bluetooth modules

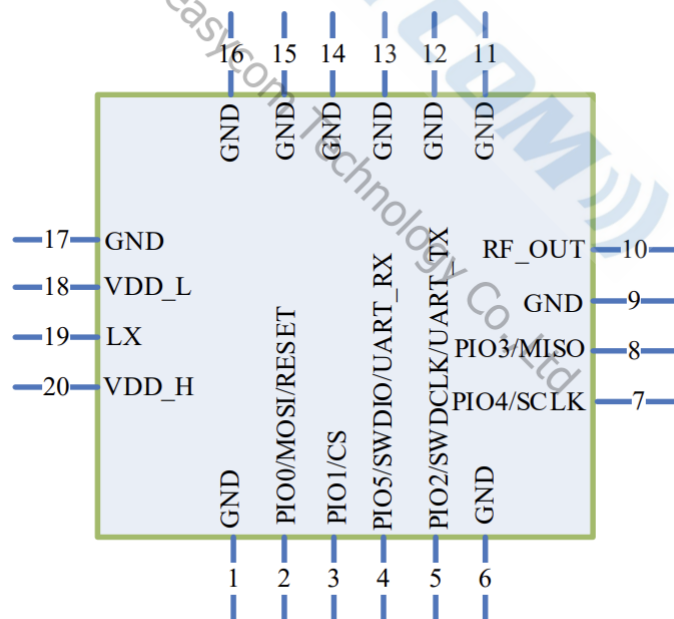
1.2 Module Default Settings

Name	Feasycom
Service UUID	FFF0
Write UUID	FFF2
Notify UUID	FFF1
UART Baudrate	115200/8/N/1

Chapter 2

Hardware Description

2.1 Pin Diagram



2.2 Pin Description

Pin	Pin Name	Type	Pin Descriptions
1	GND	GND	GND
2	RESET	I	External reset input: Active LOW, with an internal pull-up
3	UART_RX	I	UART data input
4	UART_TX	O	UART data output
10	RF_OUT	RF	Rf output, impedance 50 ohms
20	VDD	Power	Power supply voltage 3.3V, LDO power supply preferred

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 prevent the Bluetooth distance from not reaching the best effect

Chapter 3

Function Description

3.1 Mode

Throughput mode	when disconnected, the data received by the serial port is analyzed according to the AT command; when connected, all the data received by the serial port is sent to the remote Bluetooth as it is.
Command mode	when disconnected, the data received by the serial port is analyzed according to the AT command; when connected, The data received by the serial port is still parsed according to the AT command. when it is necessary to send data to the remote end, send AT+LESEND command.

3.2 GATT Throughput Service

type	UUID	Permissions	Description
Service	0xFFF0		GATT Throughput Service
Write	0xFFF2	Write, Write Without Response	APP send data to module
Notify	0xFFF1	Notify	Module send data to remote

Chapter 4

AT Command Description

4.1 Command Description

Throughout this specification:

- Content between { } is optional
- Content behind << represents a **COMMAND** from Host
- Content behind >> represents a **RESPONSE** to Host

PS:Note All commands of the BT690 cannot be saved after a power failure. Customers should pay attention to the initial configuration parameters before using the module

4.2 Command

The command is the control command sent by the host to the module actively. After receiving the command, the module needs to reply <CR><LF>OK<CR><LF> as a response.

4.3 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>**
- The module should always return the result of instruction execution (success returns **OK**, failure returns **ERROR**)

Example:

Read module’ s name

<< AT+VER

>> +VER=1.0.0,FSC-BT690

>> OK

Write invalid baudrate

<< AT+BAUD=0

>> ERROR

4.4 Event

Event is the data that the module actively sends to the host. Generally used to indicate a change of state or data received.

4.5 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 ‘,’

Example:

Receive data from APP in command mode

>> +DATA=10,1234567890

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Chapter 5

Commands Table

5.1 AT - Serial communication test

Command	AT
Response	OK
Description	When powering on or changing the baud rate, test the UART communication between the host and the module

Example:

<< AT

>> OK

5.2 AT+NAME - Get/Set Local Name

Command	AT+NAME{=Param1{,Param2}}
Param1	local name(1~29 Bytes ASCII)
Param2	MAC address suffix(0/1,default:0) 0: Disable suffix 1: Enable suffix “XXXX” (lower 4 bytes of MAC address) after local name
Response	+NAME=Param
Param	local name
Description	Write local name if parameter exist, otherwise read current local name

Example:

Read current local name

<< AT+NAME

>> +NAME=Feasycom

>> OK

Change module' s local name to “ABC”

<< AT+NAME=ABC

>> OK

Change module' s local name to “ABC” and enable suffix

<< AT+NAME=ABC,1

>> OK

5.3 AT+VER - Get Firmware Version

Command	AT+VER
Response	+VER=Param
Param	Firmware version
Description	Get Firmware Version

Example:

<< AT+VER

>> +VER=1.0.0,FSC-BT690

>> OK

5.4 AT+ADDR - Get MAC Address

Command	AT+ADDR
Response	+ADDR=Param
Param	Module' s MAC address (12 Bytes ASCII)
Description	Get MAC Address

Example:

<< AT+ADDR

>> +ADDR=DC0D30010203

>> OK

5.5 AT+BAUD - Get/Set Uart Baudrate

Command	AT+BAUD{=Param}
Param	baudrate(2400/4800/9600/14400/19200/28800/38400/ 57600/115200/230400/460800/500000/921600/1000000, default:115200)
Response	+BAUD=Param
Param	baudrate
Description	Module will change baudrate to target value immediately

Example:

Query baudrate

<< AT+BAUD

>> +BAUD=115200

>> OK

Change baudrate

<< AT+BAUD=9600

>> OK

5.6 AT+REBOOT - Soft Reboot

Command	AT+REBOOT
Response	OK
Description	Module release all Bluetooth connections then reboot

Example:

<< AT+REBOOT

>> OK

5.7 AT+RESTORE - Restore Factory Settings

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

Example:

<< AT+RESTORE

>> OK

5.8 AT+TXPOWER - Get/Set TX Power

Command	AT+TXPOWER{=Param}
Param	tx power(0~11 default:8) The transmitted power from 0 to 11 is:-19.5db,-13.5dB,-10.0db,-7.0db,-5.0db,-3.5db,-2.0db,-1.0db,0db,1.0db,1.5db,2.5db
Response	+TXPOWER=Param
Param	tx power
Description	Get/Set TX Power

Example:

Get tx powe

<< AT+TXPOWER

>> +TXPOWER=3

>> OK

Set tx power to 0dbm

<< AT+TXPOWER=8

>> OK

5.9 AT+LPM - Get/Set Low Power Config

Command	AT+LPM{=Param}
Param	low power mode (0/1, default: 0) 0: disable 1: enable low power and wake up by UART
Response	+LPM=Param
Param	low power mode
Description	Get/Set low power config

Example:

Get low power config

<< AT+LPM

>> +LPM=0

>> OK

Set serial port wakeup mode

<< AT+LPM=1

>> OK

5.10 AT+ADVINT - Get/Set Advertising Interval

Command	AT+ADVINT{=Param}
Param	advertising interval (100~10000 ms, default: 152ms)
Response	+ADVINT=Param
Param	advertising interval
Description	Get/Set advertising interval

Example:

Get advertising interval

```
<< AT+ADVINT
```

```
>> +ADVINT=687
```

```
>> OK
```

Set advertising interval to 100ms

```
<< AT+ADVINT=100
```

```
>> OK
```

5.11 AT+ADVDATA - Get/Set Advertising Manufacturer Specific Data

Command	AT+ADVDATA{=Param}
Param	manufacturer specific data, tag 0xff(len <= 25)
Response	+ADVDATA=Param
Param	manufacturer specific data, tag 0xff
Description	Get/Set advertising manufacturer specific data

Example:

Get advertising manufacturer specific data, \x is hexadecimal data

```
<< AT+ADVDATA
```

```
>> +ADVDATA=\x03\x01\x02
```

```
>> OK
```

Set advertising manufacturer specific data, \x is hexadecimal data

```
<< AT+ADVDATA=\x03\x01\x02
```

```
>> OK
```

5.12 AT+ADVTTYPE - Get/Set Broadcast Type

Command	AT+ADVTTYPE{=Param}
Param	broadcast type: 0:not directionally connectable 1:non-connectable broadcast
Response	+ADVTTYPE=Param
Param	broadcast type
Description	Get/Set broadcast type

Example:

Get broadcast type

```
<< AT+ADVTTYPE
```

```
>> +ADVIN=0
```

```
>> OK
```

Set the broadcast type to non-connectable broadcast

```
<< AT+ADVTTYPE=1
```

```
>> OK
```

5.13 AT+DISC - Disconnect Specified Connection

Command	AT+DISC
Response	OK
Description	disconnect Bluetooth connection

Example:

disconnect device

<< AT+DISC

>> OK

5.14 AT+TPMODE - Get/Set Throughput Mode

Command	AT+TPMODE{=Param}
Param	Mode (0~1, default 1) 0: Command Mode 1: Throughput Mode
Response	+TPMODE=Param
Param	Mode
Description	Command Mode: When bluetooth connected and in throughput mode, the AT command will be de-active. Throughput Mode: every byte received via physical UART will be sent to remote.

Example:

Throughput Mode

<< AT+TPMODE=1

>> OK

Command Mode

<< AT+TPMODE=0

>> OK

5.15 AT+LESEND - Send Data to Remote Device

Command	AT+LESEND{=Param1,Param2}
Param1	Connection index
Param2	data
Response	OK
Description	Send data to remote device

Example:

Send data to the connected device

<< AT+LESEND=4,2022

>> OK

Chapter 6

Event Table

6.1 +GATTSTAT - GATT State

Indication	+GATTSTAT=Param1
Param1	GATT State (1~3) 1: Standby 2: Connecting 3: Connected
Description	In the command mode, if the connection status of the module changes, it will be actively reported through +GATTSTAT

Example:

Connected

>> +GATTSTAT=3

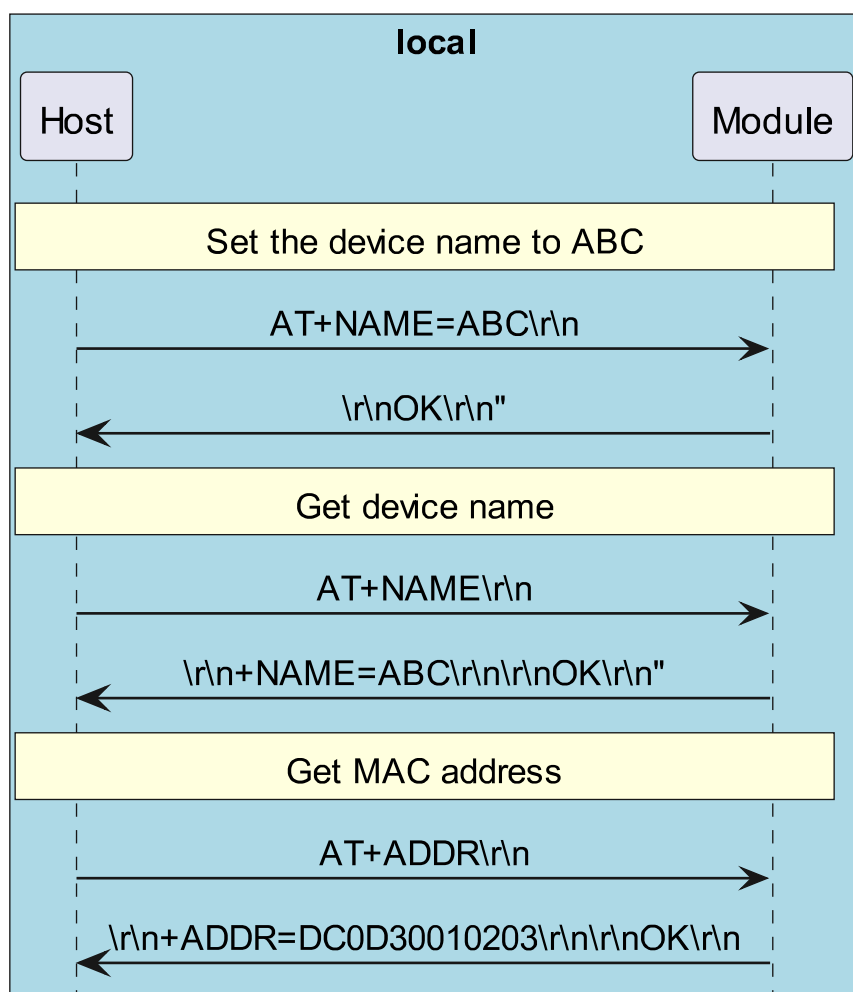
Chapter 7

Application Scenarios

7.1 Get/Set The Default Parameters of The Module

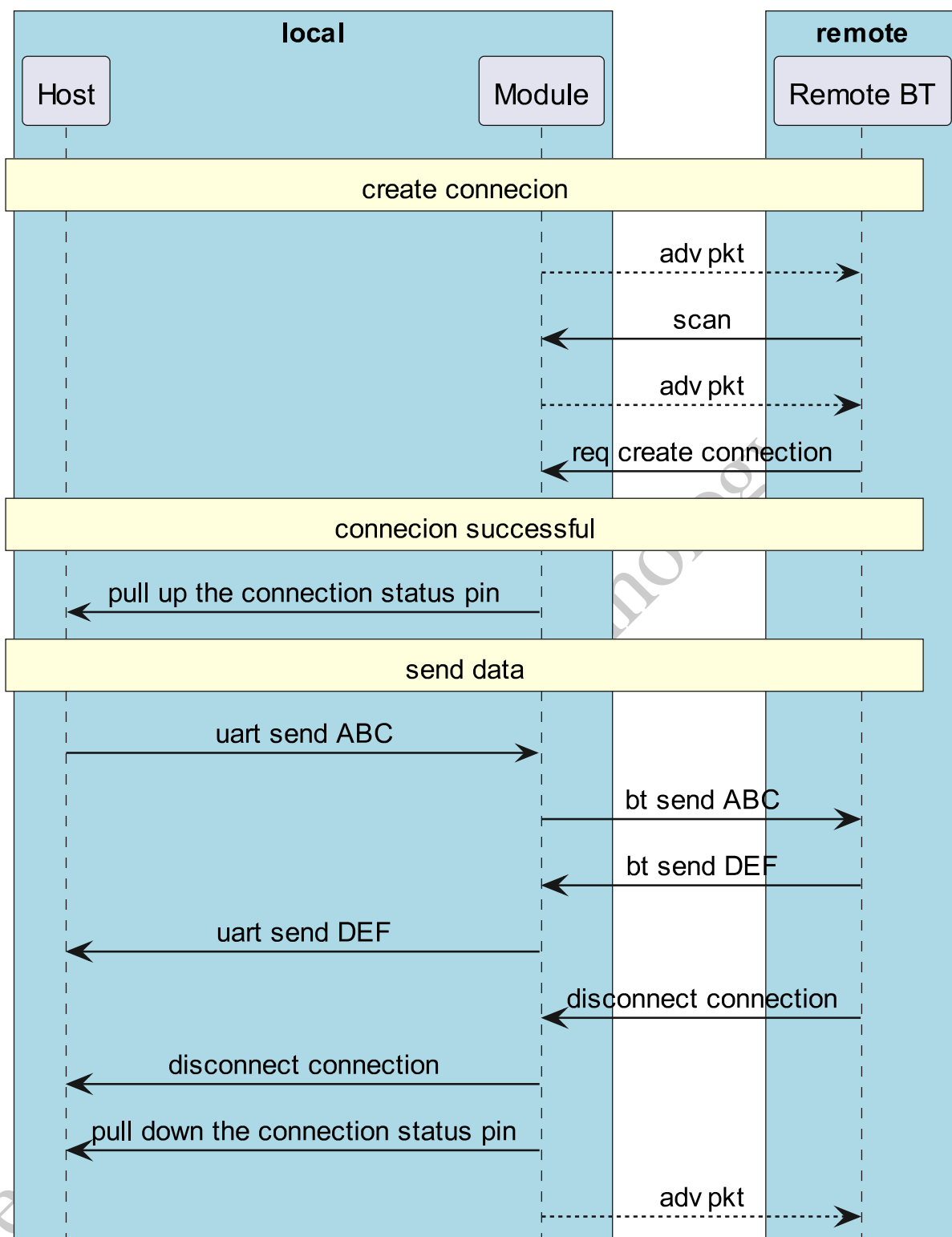
When the module is disconnect state, it will parse the uart data according to the AT command. The host can get and set the default parameters of the module, as shown in the figure below:

1. Set the device name to ABC
2. Get device name
3. Get MAC address



7.2 Process of Sending Data

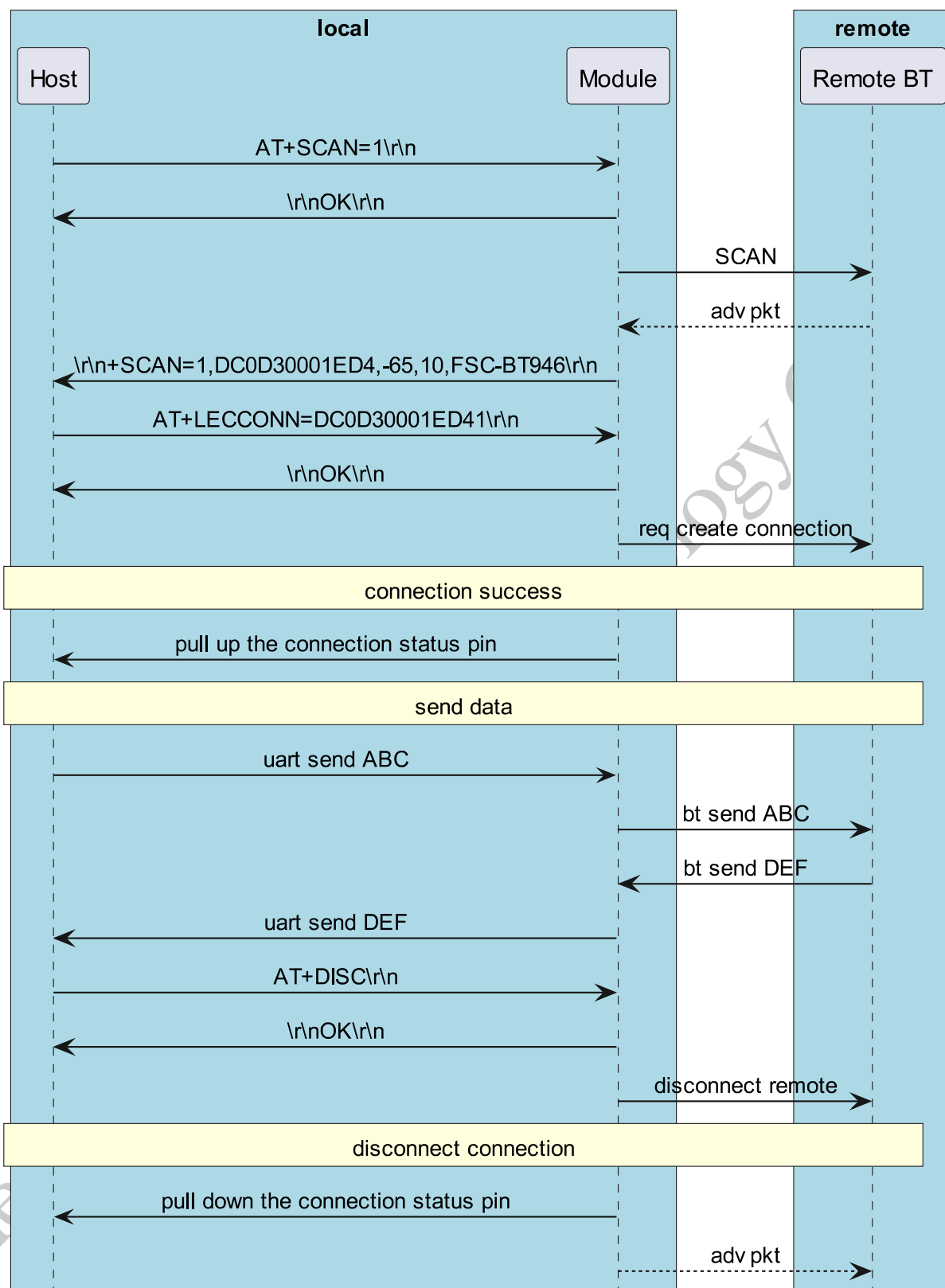
When the module is powered on, it will continue to send advertising data, and the remote device (mobile phone) can scan the advertising packet. And initiate a connection request to the module. After the connection is successful, the module will pull up the connection status pin to notify the host that the Bluetooth connection is successful. The host can send data to the remote device through the Bluetooth module, and the remote device can also send data to the host.



7.3 The Module Acts as the Central to Connect to The Remote Device

The module can be used as a master device to connect to the slave device, and the host can send commands to control the module to scan and connect and disconnect. The figure below shows the process of connecting other devices:

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Chapter 8

Appendix

8.1 Download PDF Document

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