



FEASYCOM

FSC-BT630

Get Started

Version 1.0

1 Introduction

This application note describes a quick start for using FSC-BT630 – Feasycom’s BLE Bluetooth 5.0 data-transceiving module. FSC-BT630 is capable of the 2 Mbps and the Advertising Extensions features of Bluetooth 5.0 and supports many profiles including ATT, GATT (Server & Client), etc. Feasycom provides modules (standard firmware), apps, SDKs and programming examples to the customers. If the standard firmware of the module doesn’t fit the applications of customers, Feasycom could offer customization for the firmware of the module. For firmware customization, please contact support@feasycom.com.

1.1 Technical Facts

1.1.1 Host Communication Interface

- FSC-BT630’s communication interface with the external Host is UART.
- The default UART settings are 115200 bps, 8 data bits, no parity, 1 stop bit.
- The UART flow control function of CTS and RTS is available to use.

1.1.2 Bluetooth Default Settings

- Device name: **Feasycom**
- Device name, service UUID are included in the advertising data
- No password for BLE

1.1.3 BLE UUIDs

- Service UUID: **FFF0**
- Notify UUID: **FFF1**
- Write or Write without Response UUID: **FFF2**

1.1.4 Throughput Mode and AT-Command Mode

- FSC-BT630 works in throughput mode by default.
- Throughput mode (when TPMODE=1) means that there would be transparent transmission after Bluetooth connection established. After power on and initialization completed, FSC-BT630 automatically enters AT-command state, then the host MCU can send AT commands to the module. When the module gets connected with another Bluetooth device, it automatically enters throughput state, every byte received from the host MCU will be entirely delivering to remote Bluetooth device without any change, so does the reverse direction. In other words, the FSC-BT630 enters AT-command state when disconnected, enters throughput state when connected.
- AT-command mode (when TPMODE=0) means that FSC-BT630 works in AT-command state at any time after power on and initialization completed.

1.1.5 AT Commands Format

- Every AT command starts with ‘AT’ and ends with Carriage Return (CR, encoded to 0x0D in the ASCII character set) and Line Feed (LF, encoded to 0x0A in the ASCII character set).

1.1.6 Transmission Speed

- When FSC-BT630 runs in high-speed mode at best conditions (distance between Bluetooth devices less than 1m, no barrier exist between Bluetooth devices, etc) and the UART baud rate is 921600 bps, its maximum BLE transmission speed can reach up to 64 kB/s with an iPhone 8 or a Galaxy S8.
- For high speed and excellent stability, UART flow control with CTS and RTS is required.

1.2 Documents

- **FSC-BT630 Datasheet V1.2 EN**

The datasheet of FSC-BT630. It provides the technical features, specifications, characteristics and some other information of the module, the last page of the datasheet attaches the reference circuit design.

- **FSC-BT6XX Programming User Guide V3.0(BLE)**

The common programming user guide for FSC-BT630. It provides complete information on how to use the UART, PIO, and other interfaces to program with the module, a complete list and detailed descriptions of AT commands are included.

- **FSC-BT6XX MultRole Programming User Guide V5.0(BLE)**

The multi-role (multi-connection) programming user guide for FSC-BT630. It provides complete information on how to use the UART, PIO, and other interfaces to program with the module, a complete list and detailed descriptions of AT commands are included. The developer is able to build multi-connection prototypes by this user guide and a specific standard firmware.

- **FSC-DB006 6 PIN Bluetooth Dev Board User Guide V1.0**

The get started manual of FSC-DB006-BT630. FSC-DB006-BT630 is a development board consist of FSC-DB006 and FSC-BT630, it enables the developers to quickly try out their ideas by FSC-DB006-BT630 and efficiently build their prototypes with FSC-BT630.

1.3 Development Boards

1.3.2 FSC-DB006-BT630

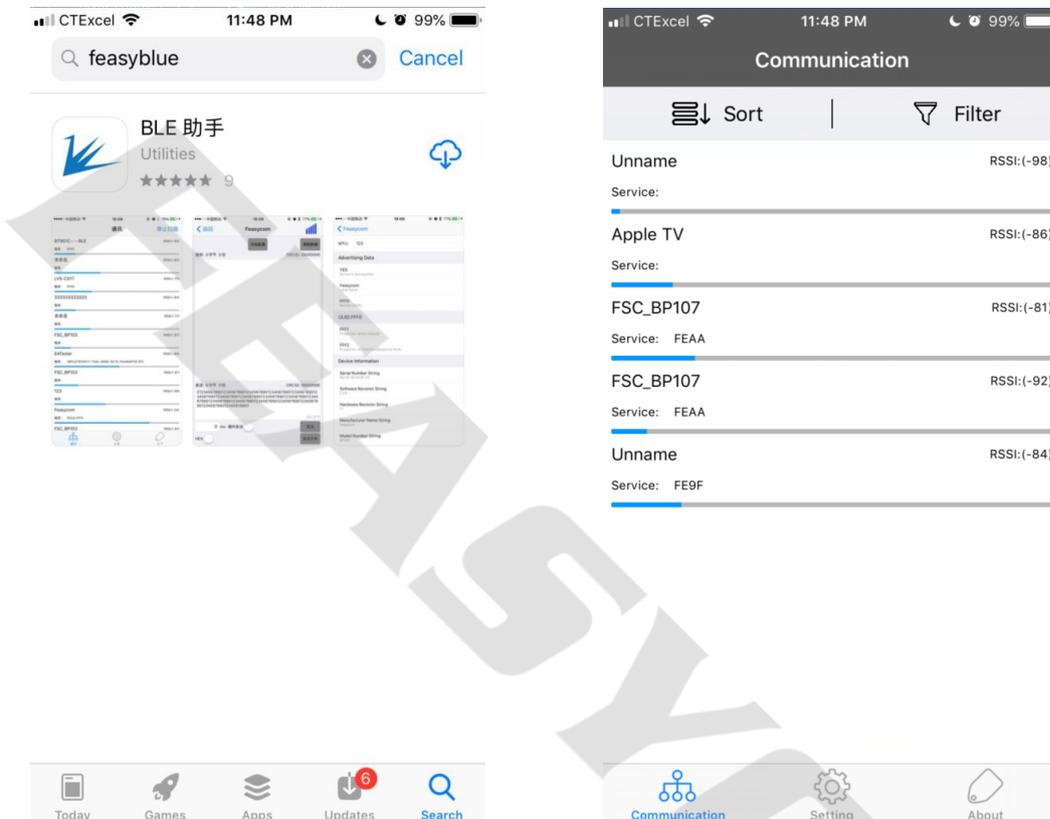


FSC-DB006-BT630 is a development board consist of FSC-DB006 and FSC-BT630, it also integrates a USB-to-UART chip (CP2104), LEDs, and peripheral circuits. The CP2104 and USB header of FSC-DB006-BT630 provides the ability of plug and play. FSC-DB006-BT630 enables the developers to quickly try out their ideas and efficiently build their prototypes with FSC-BT630. For more information about how to use FSC-DB006-BT630, please refer to **FSC-DB006 6 PIN Bluetooth Dev Board User Guide V1.0**.

1.4 Apps and Tools

1.4.1 FeasyBlue - iOS App

FeasyBlue iOS app is available in iOS App Store, search “FeasyBlue” in App Store to download, an operating example on android phone:



Installation

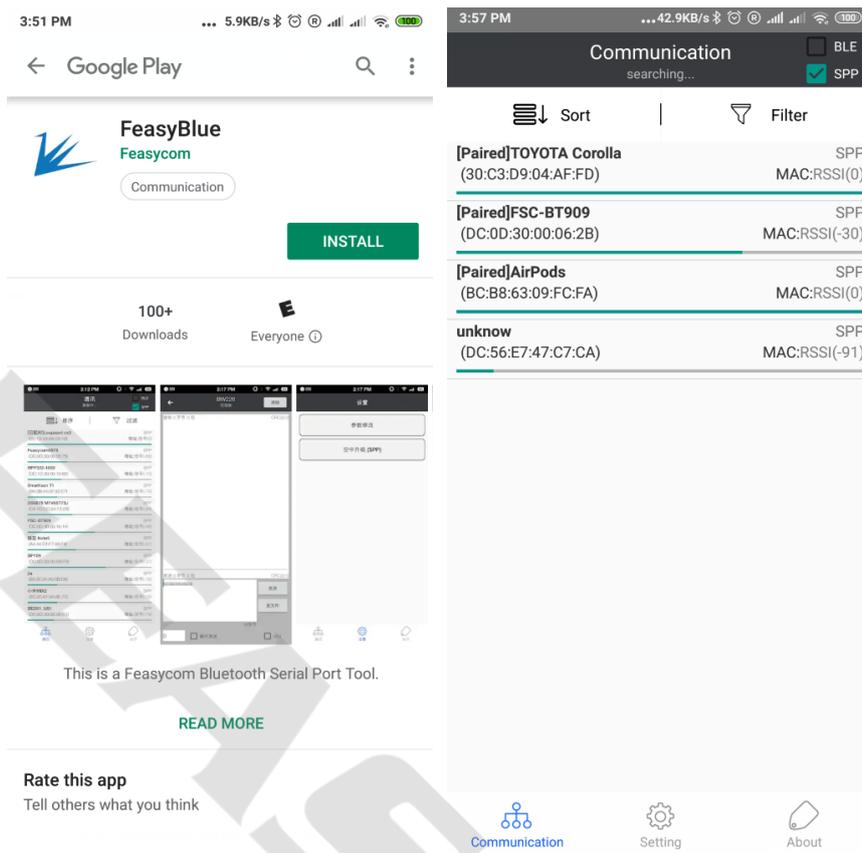
FeasyBlue Home Page

The app’s features:

- Interfacing the module by Bluetooth.
- Communication. Searching, connecting, data transceiving.
- Properties Defining. Configuring the module.
- OTA Upgrade. Upgrading the module’s firmware over-the-air.

1.4.2 FeasyBlue - Android App

FeasyBlue Android app is available in Google Play Store, [click here](#) or search “FeasyBlue” in Play Store to download, an operating example on android phone:



Installation

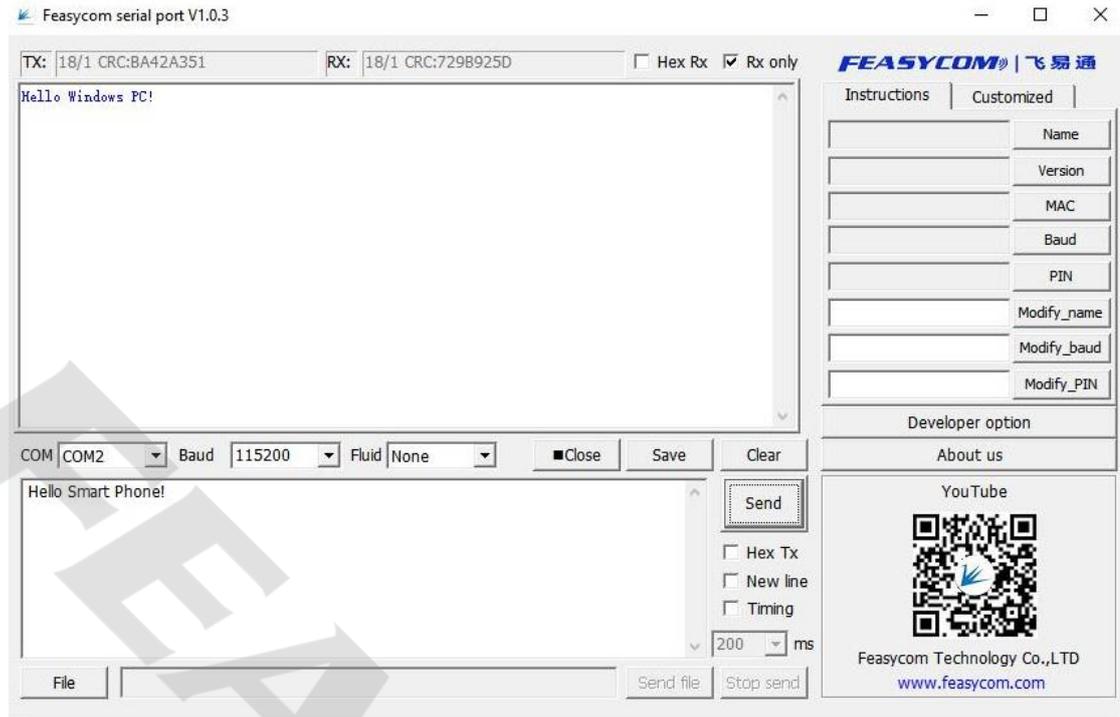
FeasyBlue Home Page

The app's features:

- Interfacing the module by Bluetooth.
- Communication. Searching, connecting, data transeiving.
- Properties Defining. Configuring the module.
- OTA Upgrade. Upgrading the module's firmware over-the-air.

1.4.3 Feasycom Serial Port - Windows App

Feasycom Serial Port Windows app is available on www.feasycom.com, [click here](#) to download, an operating example on windows PC:



Feasycom Serial Port Home Page

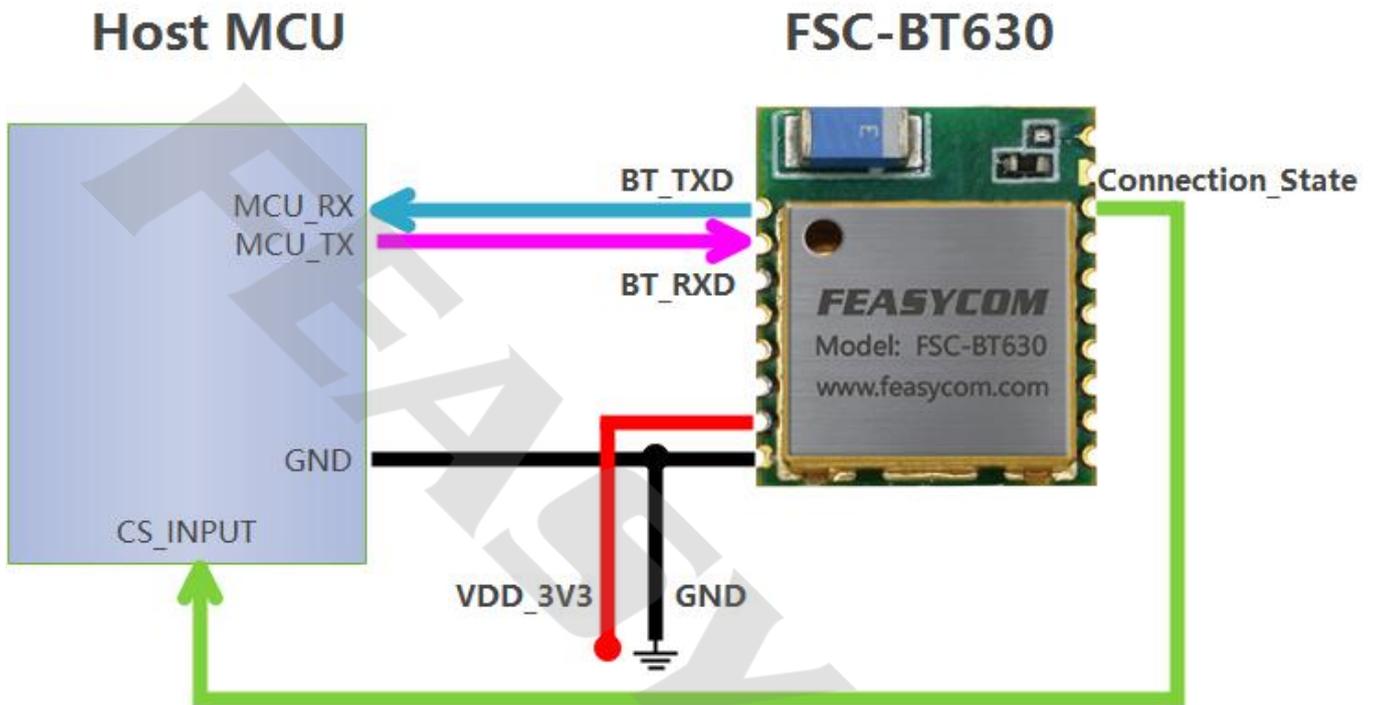
The app's features:

- Interfacing the module by UART.
- Communication. Searching, connecting, data transceiving.
- Configuration. Read/Write the module's parameters.

2 Application Scenarios

2.1 Basic

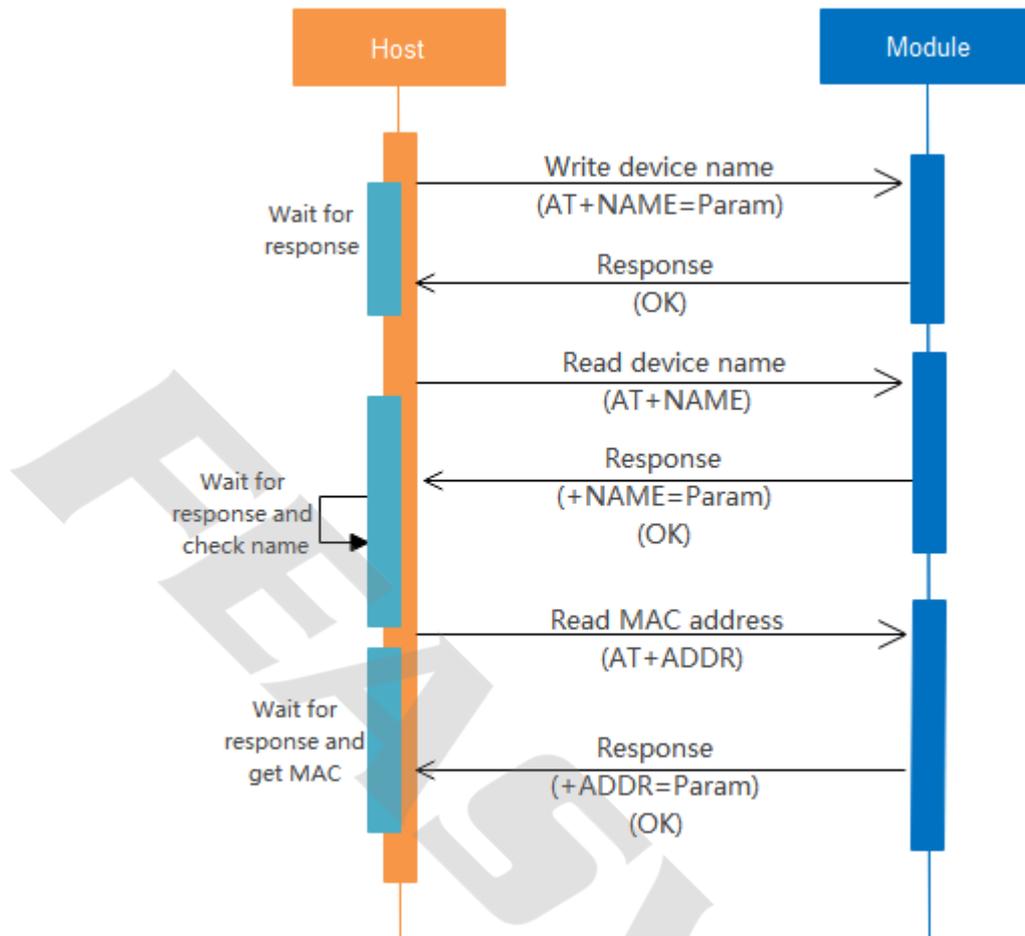
2.1.1 Wiring with a Host MCU



1. This is the minimum system for a quick test. For the qualified circuit reference design, please refer to the last page of FSC-BT630's datasheet.

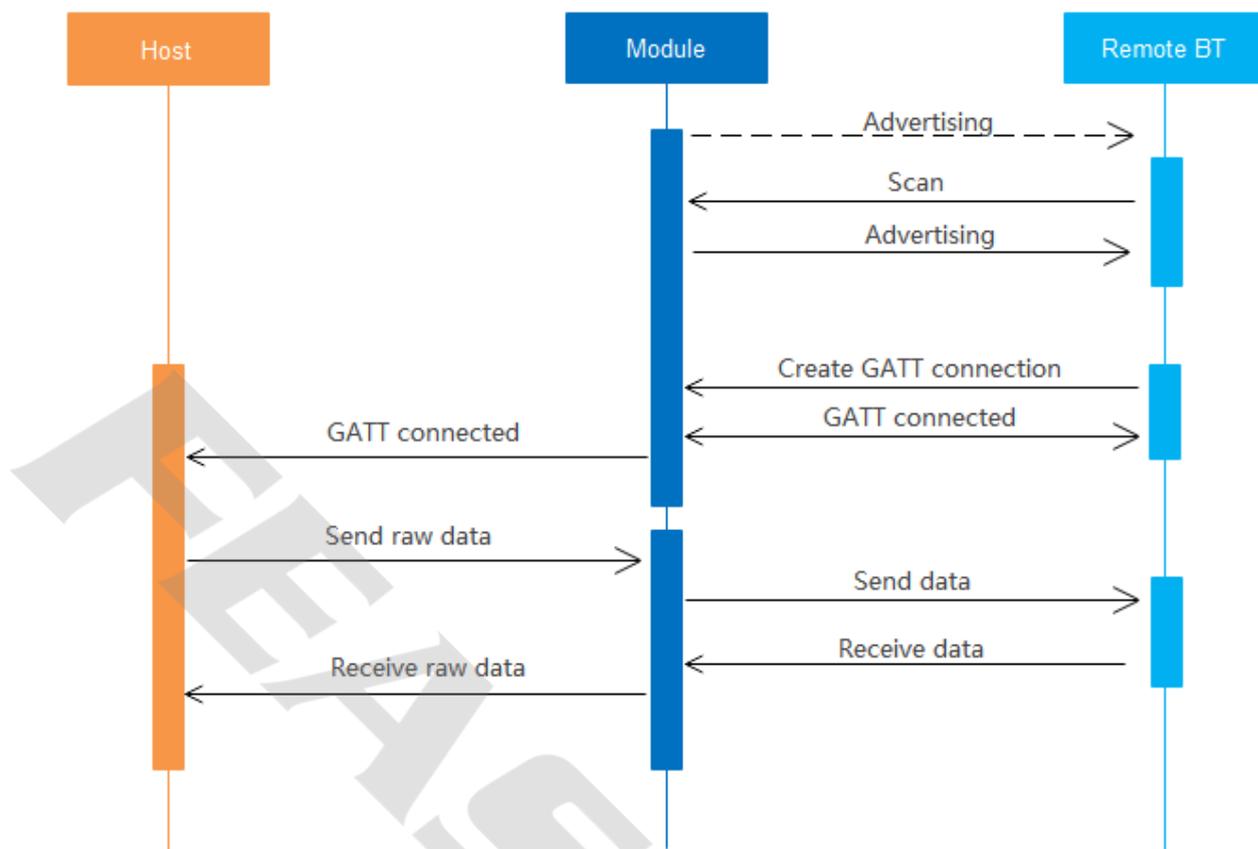
2.1.2 Read/Write Parameters

- Read or write the module's parameters by AT commands is allowed in AT-command state, please refer to Section 1.1.4 for the timing that the module enters AT-command state.
- Device name, baud rate, MAC address are the most frequently used parameters in applications. For more information about AT commands programming, please refer to *FSC-BT6XX Programming User Guide V3.0(BLE)* or *FSC-BT6XX MultiRole Programming User Guide V5.0(BLE)*. For programming example, please refer to *Feasycom Module Programming Example 1.1*.
- Typical Read/Write Parameters Interaction:



2.1.3 Data Throughput

- Full duplex transparent communication is available in throughput state, please refer to Section 1.1.4 for the timing that the module enters throughput state.
- For programming example, please refer to **Feasycom Module Programming Example 1.1**.
- Typical GATT Server Data Throughput Interaction:

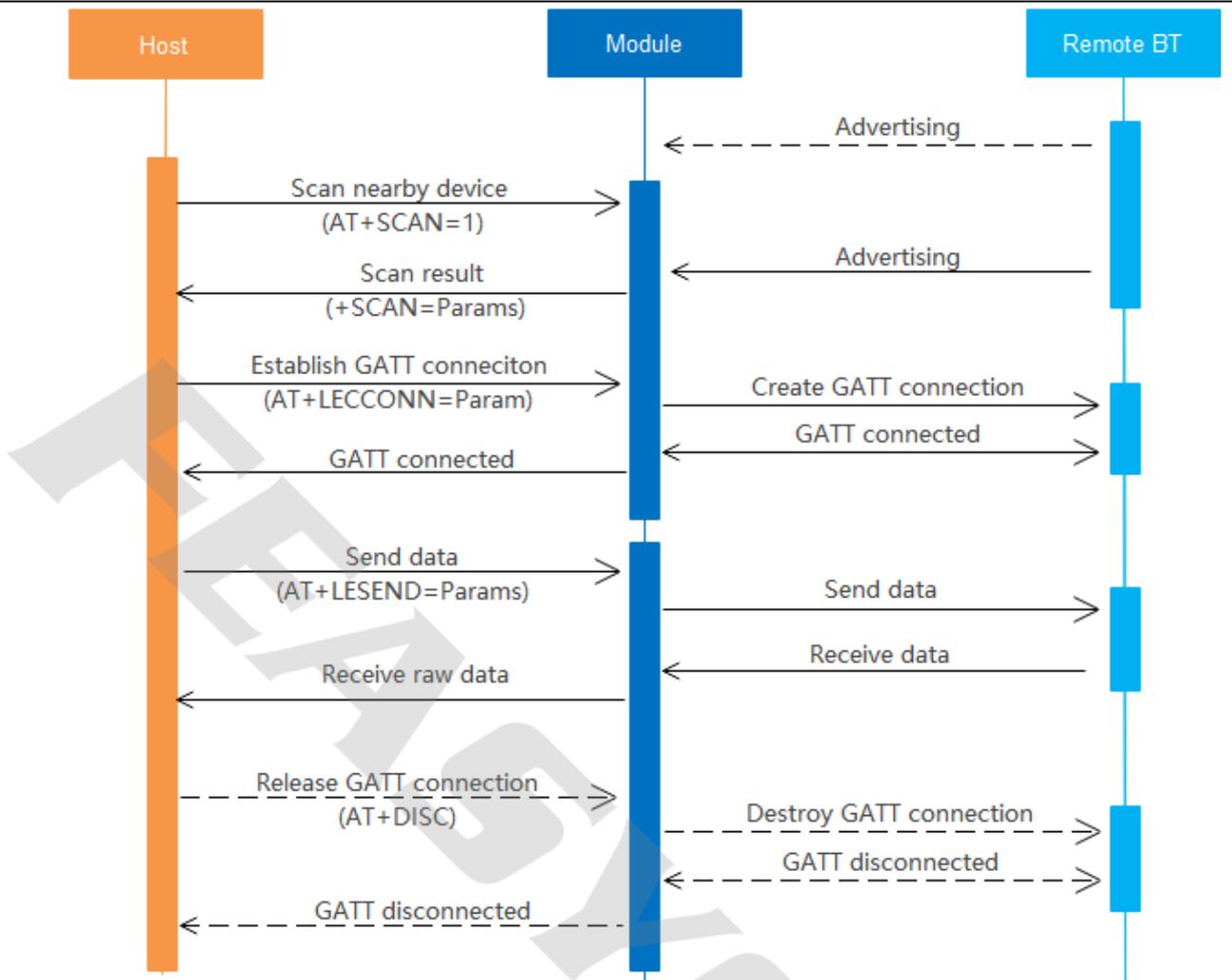


2.1.4 GATT Server-Client

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

Commands	Description	
AT+SCAN	Scan nearby devices	
AT+LECONN	Establish GATT connection	
AT+DISC	Release all Bluetooth connections	Only available in AT-command mode
AT+LESEND	Send data via GATT	
Note: for more information about these commands, please refer to <i>FSC-BT6XX Programming User Guide V3.0(BLE)</i>		

- Typical AT-Command Mode GATT Client Interaction:



3 Value-added Services

- SDK
- App Support
- PCB Design
- Development Board
- Firmware Development
- Depth Customization
- Certification Request
- Turn-Key Production Testing & Manufacturing

For sales service, please contact sales@feasycom.com

For technical support, please contact support@feasycom.com