



<b>Product Name</b>	GAOTek BLE 4.2 Bluetooth Beacon with Push Button
<b>Product SKU</b>	GAOTek-BB-127
<b>Product URL</b>	<a href="https://gaotek.com/product/gaotek-ble-bluetooth-beacon-push-button/">https://gaotek.com/product/gaotek-ble-bluetooth-beacon-push-button/</a>



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## 1. Product Introduction

VDB03 is an asset-label Bluetooth beacon with a function to prevent disassembly. Its broadcast protocol conforms to Bluetooth BLE broadcast iBeacon (Apple) protocol. It is usually installed in a suitable location. It periodically broadcasts to its surroundings so that other Bluetooth devices such as Bluetooth gateways can scan its broadcast content and calculate the location information. It is usually not connected by other BLE host devices but can be connected through mobile apps and modify its broadcast parameters and other contents.

Skylab Beacon is a mobile phone APP developed by the SKYLAB R&D team for configuring VDB03 parameters. When you connect VDB03 with this APP, you can modify its broadcast frequency, power, UUID, Major, Minor, device name, and other parameters. Still, the modification of broadcast frequency will be invalid after the button is pressed and lifted, or the device is powered on again. These parameters will be broadcast when VDB03 is in a broadcast state.



**1 VDB03 Product Picture**



**2 VDB03 Product Picture**

## **1.1 VDB03 Internal Modules**

The VDB03 supports an anti-disassembly button, which can upload an alarm message when the VDB03 is removed. (Ensure the installation surface is flat and press the anti-disassembly button during normal installation.)

The VDB03 is powered by a button lithium metal battery that can be removed and replaced but cannot be recharged.

## **1.2 VDB03 Features**

- ◆ Low Power Consumption
- ◆ prevent the disassembly.
- ◆ Flexible application
- ◆ Easy to deploy.
- ◆ Advertise Range up to 70 Meters.
- ◆ RoHS, FCC, CE RoHS, FCC, CE compliance



### 1.3 VDB03 Application

- ◆ Asset Label
- ◆ Indoor positioning
- ◆ Information push
- ◆ Identification
- ◆ WeChat shake

### 2. Hardware Parameters

Product Parameter	
Dimension(L×W×H)	37.3*23.4*5.1mm
Battery	CR2032
Operating Temperature	-30°C~60°C

Bluetooth Parameters	
Wireless Standards	®4.2
Frequency Range	2400MHz---2483.5MHz
Data Rates	1Mbps(Bluetooth ® 4.2)
Modulation Technique	PWM
Wireless Security	AES HW Encryption
Transmit Power	-25, -19, -13, -8, -3, 0, +2dBm
Sensitivity	-94dBm at 1Mbps BLE
Work Mode	iBeacon

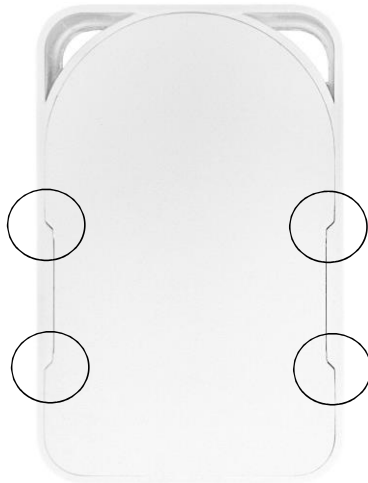
Battery life				
TX Power	Adv. Distance	Adv. interval	Status	Battery Life(Month)
+2dBm	70m	9000ms	Button Down	39.4
		2000ms	Button up	23.3
+0dBm	50m	9000ms	Button Down	43.7
		2000ms	Button up	23.9

Note: The power consumption data is for reference only, and the battery self-discharge factor is not considered. When the calculated life is greater than the battery life (5 years), the battery life shall be the criterion. The above calculation uses 220mAh as the power reference by default.

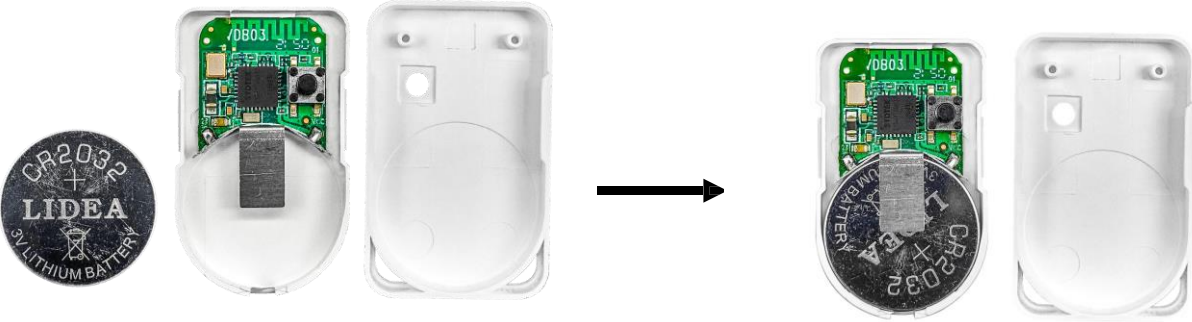
### 3. Install Battery

By default, the VDB03 comes with a button lithium metal battery. If you need to replace the battery, follow these instructions.

- (1) Use a flat-head screwdriver or tweezers to insert into the circle below, and then pry open the back shell;



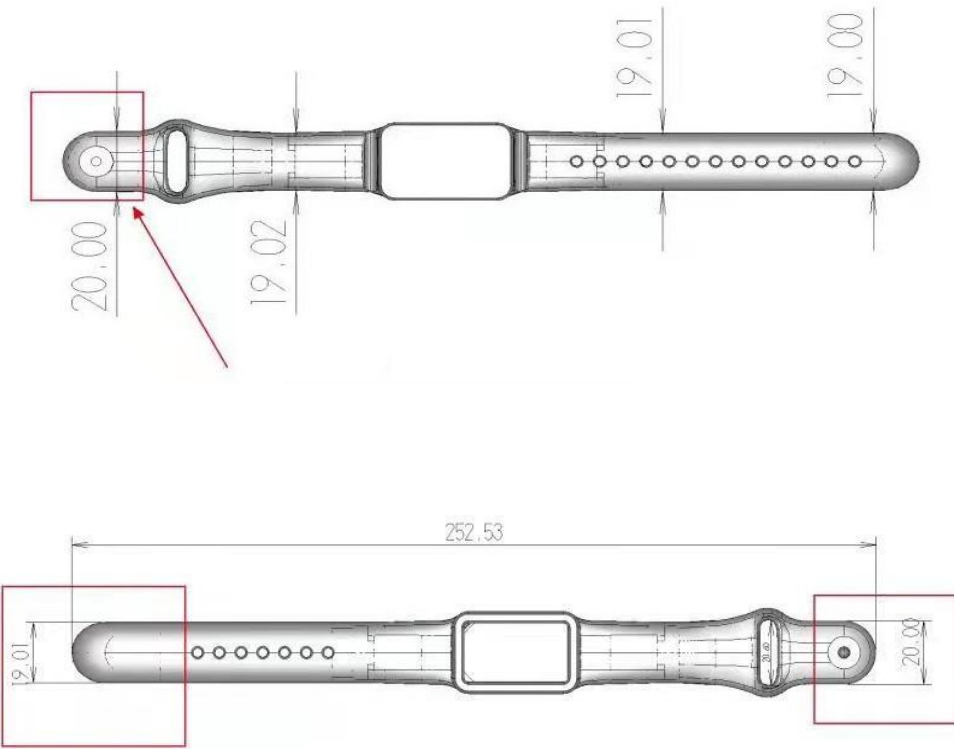
(2) Then take out the product, remove the old battery, and place the new battery according to the position of the old battery, and the product can work normally;



**Note:** Please be careful to distinguish between positive and negative poles.

#### 4 Watchband size

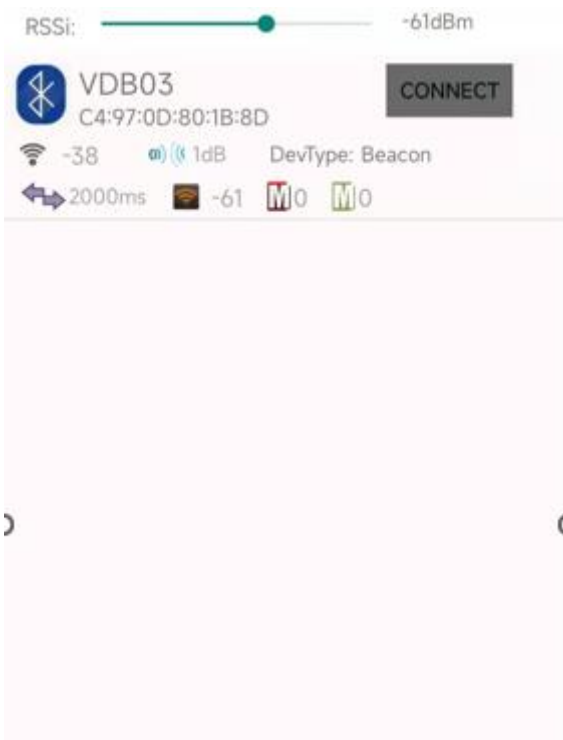
Unit: mm



## 5. Software Instructions

### 5.1 Scan Bluetooth beacons.

Open the APP. If the mobile phone prompts you to turn on Bluetooth, please allow it. After entering the APP interface, drag RSSI (received signal strength indicator) to the appropriate position, and then click "Start scan", the mobile phone will start to scan the surrounding Bluetooth beacons.





### 5.2 Connect Bluetooth 4.2 Beacon

Click the Beacon you want to connect, and enter the password within 30 seconds, to obtain operating privileges. (Factory Password:1234).

### 5.3 Configuration introduction



**Introductions:**

- MAC:** Chip MAC address(non-modifiable)
- Device Name:** The name of the Bluetooth 4.2 Beacon that is selected.
- UUID Value:** ISO/IEC11578:1996 128 (16)/128-bit identifier according to ISO/IEC11578:1996 standard (32 hexadecimal digits)
- Major Value:** 16 (0-65535)/ set 16-bit identifier (0-65535)
- Minor Value:** 16 (0-65535)/ set 16-bit identifier (0-65535)
- Transmitting Power:** Transmit power
- Measured Power:** 1 Signal strength at 1 meter (Beacon transmission power is 0dBm )
- Broadcast interval:** Beacon advertise interval
- Company ID:** The ID number is used as a distinction
- Battery:** Beacon battery Capacity(non-modifiable)

After the information is configured, the configuration will take effect after the Bluetooth connection is disconnected.



## 5.4 Modify Bluetooth 4.2 Beacon Name

Click the “Device Name”, and the following UI will be opened. Then enter a length of less than 20-bit English characters as the Beacon device name in the following “Enter a Name” box. Then click “confirm to modify”. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

## 5.5 Modify UUID

Click the “UUID”, and the following UI will be opened. Then enter a 32-byte string of sixteen as the UUID of Beacon in the following “Enter a value” box. Then click “confirm to modify”. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

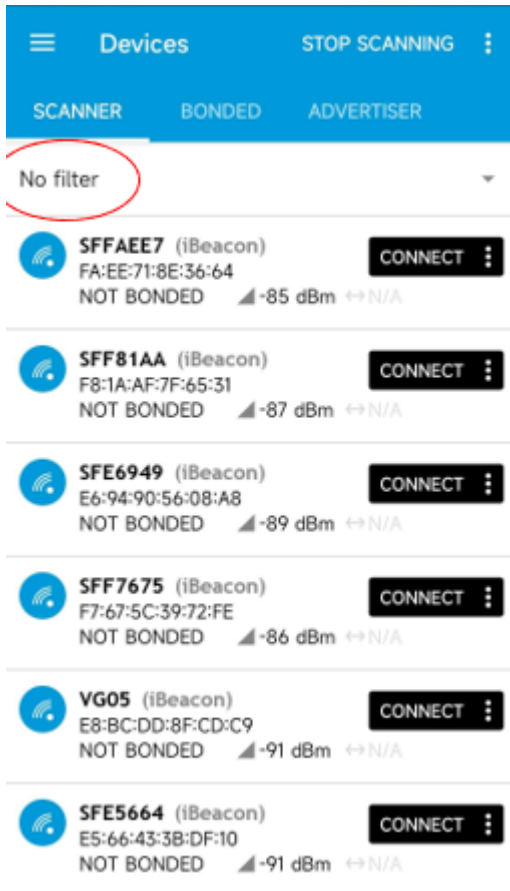
## 5.6 Modify Major, Minor

Click the "Major", and the following UI will be opened. Then set a value between 0~65535 as the Major value of the device in the following “Enter a value” box. Then click “confirm to modify”. Minor is similar, click Minor to enter modify. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

### Modify Minor

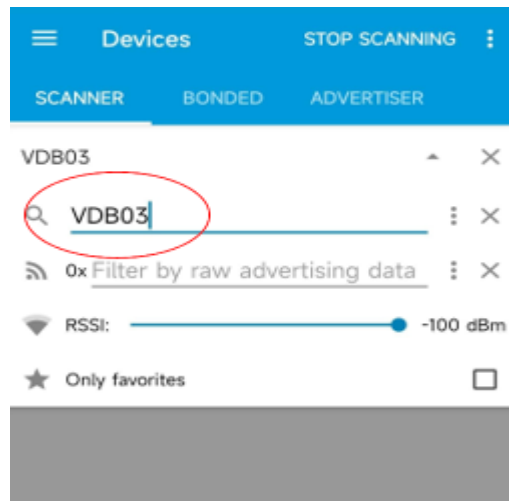
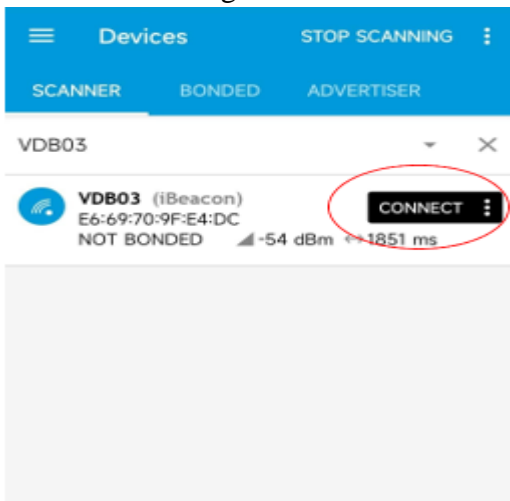
Just like you did above to modify Major, click Minor to enter the change.

## 5.7 Modify Transmitting Power

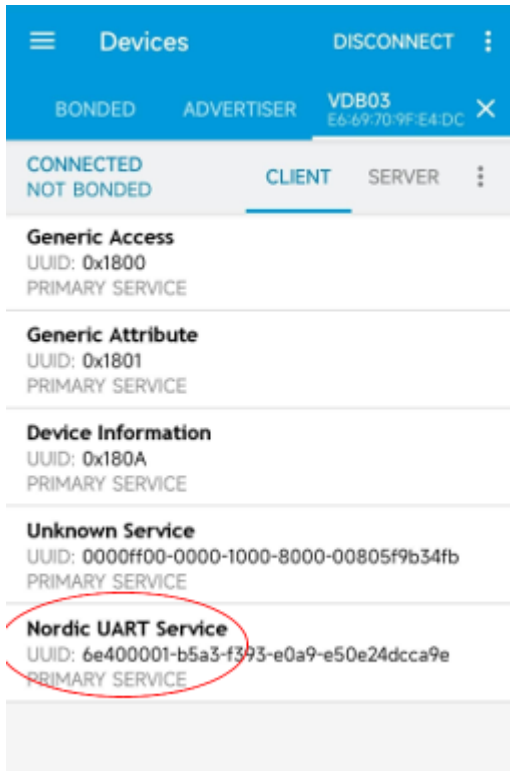


Another APP, nRF Connect, is used to modify the transmitting power.

1. Open nRF Connect and scan Bluetooth beacons around after the drop-down screen is refreshed.
2. To find the target beacon conveniently, click "No Filter" and enter VDB03 in the first column.



3. Click "CONNECT" on the right to enter the interface in the left picture below, and then click "Nordic UART Service" in the bottom column.



4. Click the three arrow symbols pointing down to the right of "TX Characteristic" to connect;



Menu icon | **Devices** | DISCONNECT | More icon

BONDED | ADVERTISER | **VDB03** | More icon  
E6-69-70-9F-E4-DC

CONNECTED | NOT BONDED | CLIENT | SERVER | More icon

UUID: 0x1800  
PRIMARY SERVICE

---

**Generic Attribute**  
UUID: 0x1801  
PRIMARY SERVICE

---

**Device Information**  
UUID: 0x180A  
PRIMARY SERVICE

---

**Unknown Service**  
UUID: 0000ff00-0000-1000-8000-00805f9b34fb  
PRIMARY SERVICE

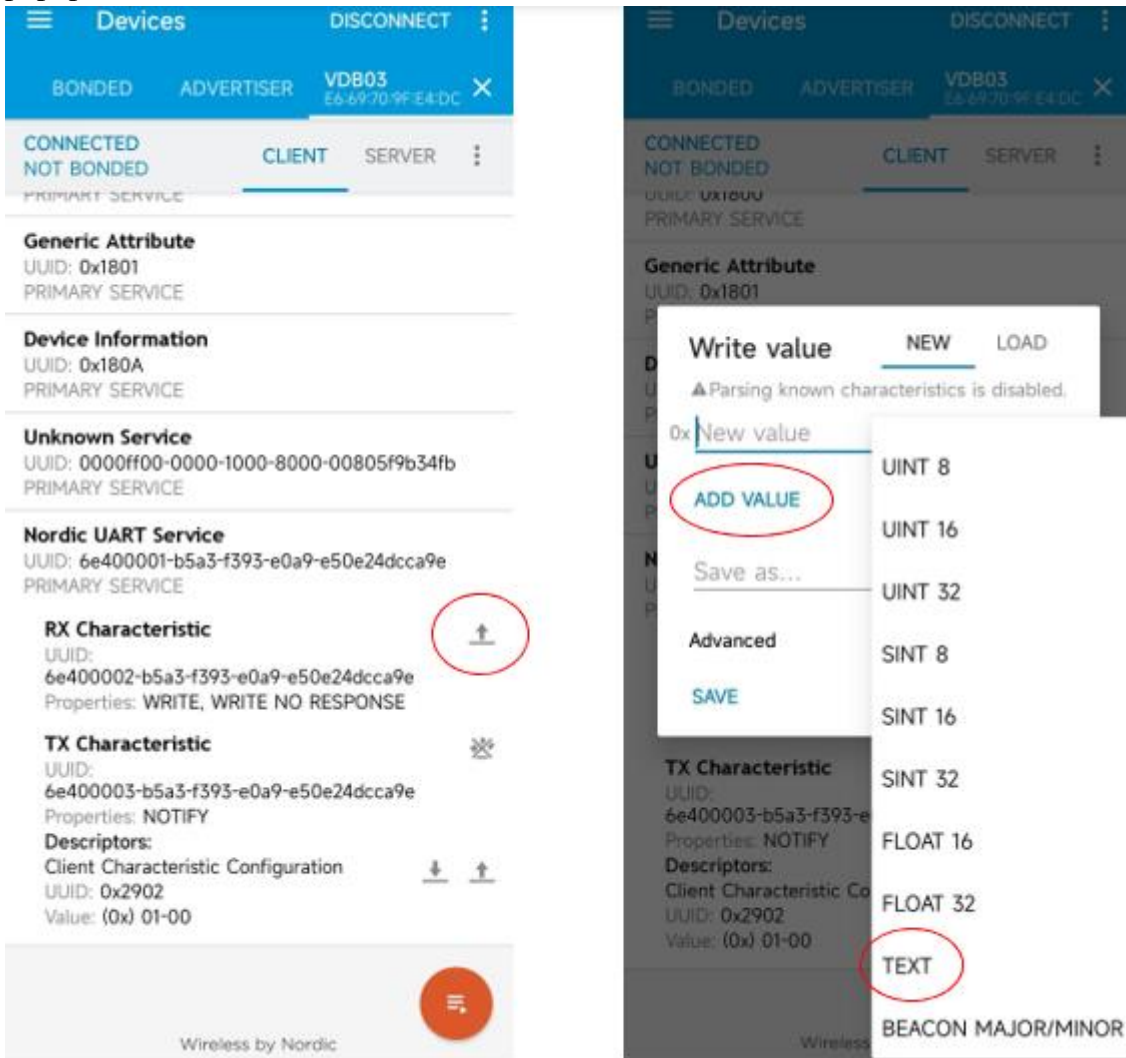
---

**Nordic UART Service**  
UUID: 6e400001-b5a3-f393-e0a9-e50e24dcca9e  
PRIMARY SERVICE

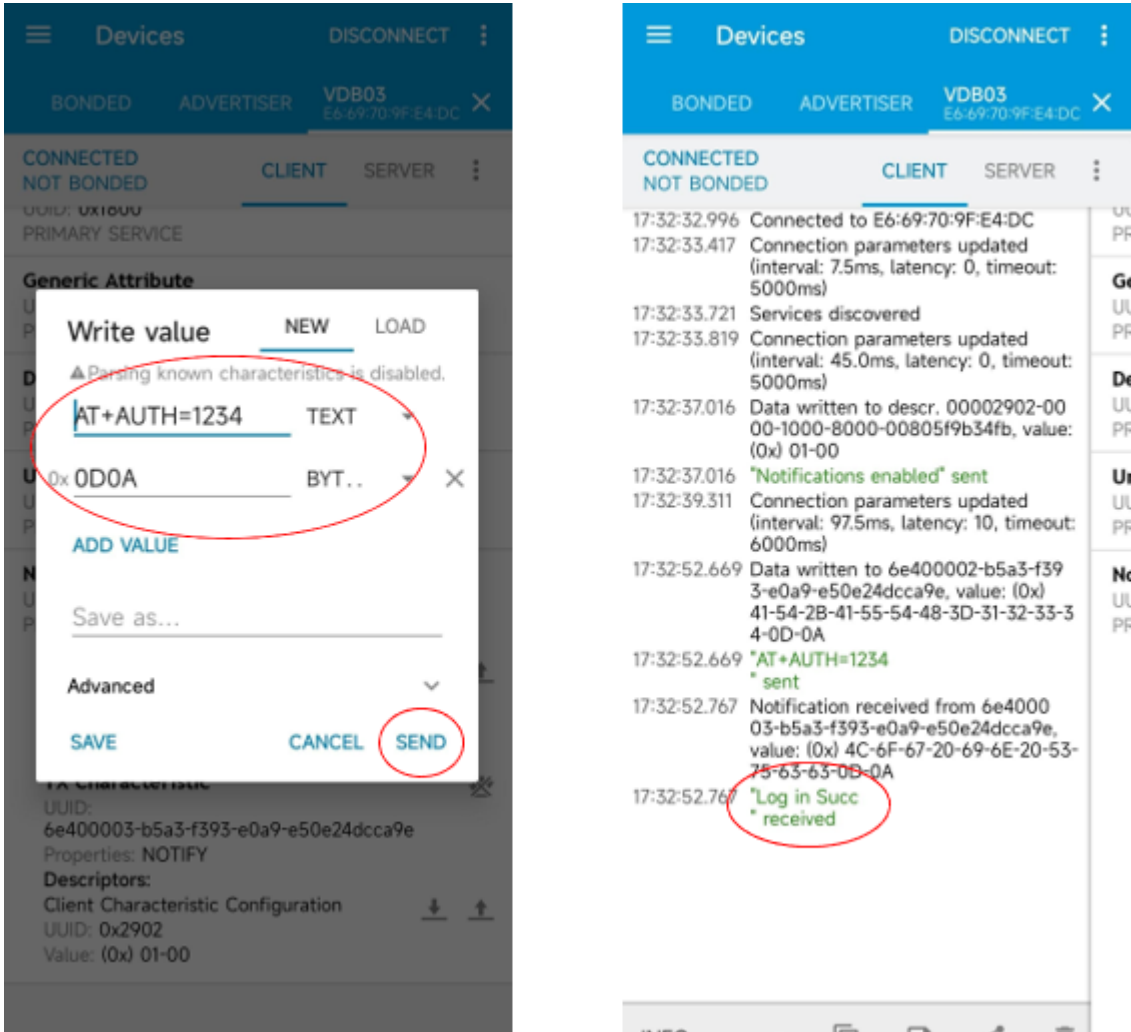
- RX Characteristic** ↑  
UUID: 6e400002-b5a3-f393-e0a9-e50e24dcca9e  
Properties: WRITE, WRITE NO RESPONSE
- TX Characteristic** ↓ (circled)  
UUID: 6e400003-b5a3-f393-e0a9-e50e24dcca9e  
Properties: NOTIFY  
Descriptors: Client Characteristic Configuration

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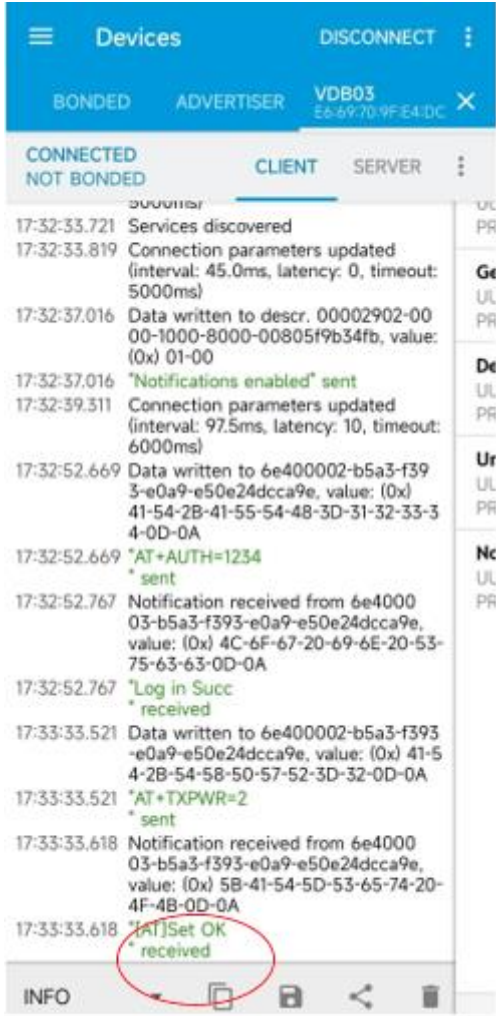
- Click the arrow symbol pointing upwards on the right of "RX Characteristic" and set it in the popup interface;



- After entering the following command, click "SEND" and then pull the interface to the right, you can see "Log in Succ "received.



- Return to the original interface, click the arrow symbol on the right of "RX Characteristic", input the following instructions, click "SEND", and then pull the interface to the right, you can see "[AT]Set OK" received, indicating that the transmitting power is modified successfully.



The power can be set to: -25dbm, -19dbm, -13dbm, -8dbm, -3dbm, 0dBm, 2dBm. The default is 0dBm. Click OK.





## 5.8 Modify the reference signal strength

Click "Measured Power", and the following interface will appear, 1 meter away from the Beacon, and then set the Measured Power in the box of "Please input a value", an adjustable range of -100dbm ~ -30dbm, default is -61dbm. Click OK. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

Measured Power means: that when the signal intensity received by the receiving equipment is -61dbm, it can be considered that the distance between the equipment and the Beacon is about 1m.

## 5.9 Modify Advertise Interval

Click "Broadcast Interval", and the following interface is displayed. In the "Please Enter a value" box, set the broadcast interval. The default value is 2000ms. Click OK. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

## 5.10 Modify Company ID

Click "Company ID" and the following interface appears. Fill in a 4-digit hexadecimal number in the "Please enter a value" box as the Company ID. Click OK. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

### Modify Password

Click "Password", the following interface appears, and then enter 4 characters in the "Enter a Password" box as the connection Password, the default is 1234. Click OK. After the modification is successful, "Modification succeeded" will be displayed at the bottom of the interface.

Note: Please save your password in advance, once you change the new password, the original password will be invalid, you must use the new password to log in.

## 5.11 Download the APP

At present, the latest APP has not been put on the shelves, please contact the sales staff. The APP names are Skylab Beacon and nRF Connect.



**Contact us: [sales@gaotek.com](mailto:sales@gaotek.com)**

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