

VDB09蓝牙Beacon

使用手册

VDB09 Bluetooth Beacon

User Manual

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设备清单/Product List

设备名称/Device Name	型号/Device No.	数量/Number	备注/Remark
蓝牙 Beacon	VDB09	1PCS	带电量告警灯/With Charge alarm light
电池/Battery	ER18505	2PCS	锂亚电池, 4000mAh*2 Lithium-ion batteriest, 4000mAh*2

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1. 产品介绍/Product Introduction

VDB09 是一款防拆型资产标签蓝牙信标。其广播协议符合蓝牙 BLE 广播协议，包括 iBeacon (Apple) 和 Eddystone (Google) 两种协议。它通常被安装在一个合适的位置，周期性地向它的周围环境进行广播，从而被其他蓝牙设备如蓝牙网关扫描到其广播内容，并计算出位置信息。通常它是不会被其他 BLE 的主机设备连接上的，但是可以通过手机 APP 进行连接，并修改其广播参数等内容。

VDB09 is a non-demolition asset label Bluetooth beacon. Its broadcast protocol is consistent with the Bluetooth BLE broadcast protocol, including both the iBeacon (Apple) protocol and the Eddystone (Google) protocol. It is usually installed in a suitable location and periodically broadcasts to its surroundings, thus being scanned into its broadcast content by other Bluetooth devices, such as a Bluetooth gateway, and calculating the location information. Usually it is not connected by other BLE host devices, but it can be connected through the mobile APP, and modify its broadcast parameters, etc.

95power 是一款 95Power 研发团队研发用于读取 VDB09 参数的手机 APP。用这款 APP 去连接 VDB09，可以读取并修改广播频率、功率，UUID, Major, Minor 和设备名称等参数。当 VDB09 处于广播状态时这些参数将被广播出来。

95power is a mobile APP developed by the 95Power development team to read VDB09 parameters. With this APP to connect to the VDB09, you can read and modified its broadcast frequency, power, UUID, Major, Minor, and device name and other parameters. These parameters will be broadcast out when the VDB09 is in the broadcast state.



图 1 VDB09 产品图/Figure 1 VDB09 Product diagram

1.1 VDB09 内部模块介绍/Internal Modules

VDB09 内部预留加速度传感器，可以采集相应信息并广播出去。

The VDB09 has a reserved internal acceleration to collect the corresponding information and broadcast it out.

VDB09 用两节 ER18505 锂亚电池并联供电，方便更换电池。

VDB09 Two ER18505 lithium sub-batteries are used in parallel to supply power, which is convenient for battery replacement

1.2 VDB09 特性/Features

- ◆ 低功耗/ Low Power Consumption
- ◆ IP67 级防尘防水/ The IP67 grade is dustproof and water-resistant
- ◆ 支持二维码，NFC 定制内容/ Support qr code, NFC customized content
- ◆ 应用灵活/ Flexible application
- ◆ 安装便捷/ Easy to deploy
- ◆ 广播距离可达 100 米/ Advertise Range up to 100 Meters
- ◆ 符合 RoHS, FCC, CE 标准/ RoHS, FCC,CE compliance

1.3 VDB09 应用/Application

- ◆ 资产标签/ Asset Label
- ◆ 室内定位/ Indoor positioning
- ◆ 信息推送/ Information push
- ◆ 身份识别/ Identification
- ◆ 微信摇一摇/ Wechat shake

2. 硬件参数/Hardware Parameters

产品参数//Product Parameter	
尺寸/Dimension	100*60*30.5mm
电池型号/ Battery	ER18505（锂亚电池）/ ER18505 (Lithium-ion batteries)
工作温度/Operating Temperature	-40℃~85℃

传感器参数/Sensor parameters	
加速度传感器/Acceleration transducer	3 轴, $\pm 2g/4g/8g/16g$ 四档可调/ 3 axis, $\pm 2g / 4g / 8g / 16g$ four gear adjustable

蓝牙参数/Bluetooth parameters	
无线标准/Wireless standards	蓝牙®5.0(No Long-range)/ Bluetooth ®5.0
频率范围/ Frequency range	2400MHz---2483.5MHz
数据速率/ Data rate	1Mbps(Bluetooth ® 4.2); 2Mbps(Bluetooth ® 5.0)
调制技术/ Modulation technique	GFSK 调制/ GFSK modulate
无线安全/ Wireless security	AES HW Encryption
传输功率/ Transmitted power	-20~+4dBm (4 dB 递增/ 4 dB increments)
灵敏度/ Sensitivity	-96dBm at 1Mbps
工作模式/ Work pattern	iBeacon(默认/ Default) / Eddystone (可选/ Selectable)

注：功耗数据仅供参考，未考虑电池自放电因素，当计算寿命大于电池寿命（5 年）时，以电池寿命为准；

电池使用寿命/Battery life			
广播功率/TX Power	覆盖范围/Adv. Distance	广播间隔/Adv. interval	电池使用时间（月） /Battery life(Month)
+4dBm	100m	100ms	26.4
		200ms	42.8
		500ms	71.3
		1000ms	92.5
+0dBm	70m	100ms	33.0
		200ms	52.6
		500ms	79.9
		1000ms	101.0

上述计算默认采用锂亚电池工业装，8000mAh*90%（平均电流不是 1mA）7200mAh 作为电量计算参考。

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 7200mAh as the power reference by default.

3. 电池安装指导/Install Battery

VDB09 在默认情况下，出厂时已安装 2 节 ER18505 锂亚电池。如果您需要更换电池，请遵循以下说明。

By default, the VDB09 comes with Two number ER18505 Lithium-iron batteries. If you need to replace the battery, follow these instructions.

- (1) 用内六角螺丝刀拆卸 4 颗螺丝； /Use an Allen screwdriver to remove four screws;



- (2) 打开 VDB09 的底部外壳，对准电池的正负极，安装 2 节电池； /Open the bottom shell of VDB09, align it with the positive and negative electrodes of the battery, and install two batteries;





4. 软件使用说明/Software Instructions

4.1 VDB09 开机/Starting up

长按 VDB09 按键，直到红色 LED 亮起，松开按键，红灯会持续亮 3s 后熄灭，表示开机成功进入广播状态，之后红色 LED 开始闪烁（8S 一次）。

Long press the VDB09 button, until the red LED lights up, release the button, the red LED will continue to be on for 3S and then off, Indicates successful startup and Enter broadcast mode, and then the red LED starts flashing (once per 8S).

4.2 SOS

VDB09 在工作状态时，长按按键 3s 以上就会触发一次紧急呼救，此时蓝色 LED 会短暂闪烁，代表 SOS 触发成功。

When the VDB09 is in the working state, long press the button for at least 3s to trigger an emergency call. Meanwhile, the blue LED will flash briefly, representing the SOS is successfully triggered.

4.3 低电量/LOW POWER

当标签电量小于 20%后，设备处于低电量模式，红灯 2s 闪烁一次。

When the VDB09's battery level falls below 20%, the device enters low-power mode, with the red light blinking once every 2 seconds.

4.4 关机/Power Off

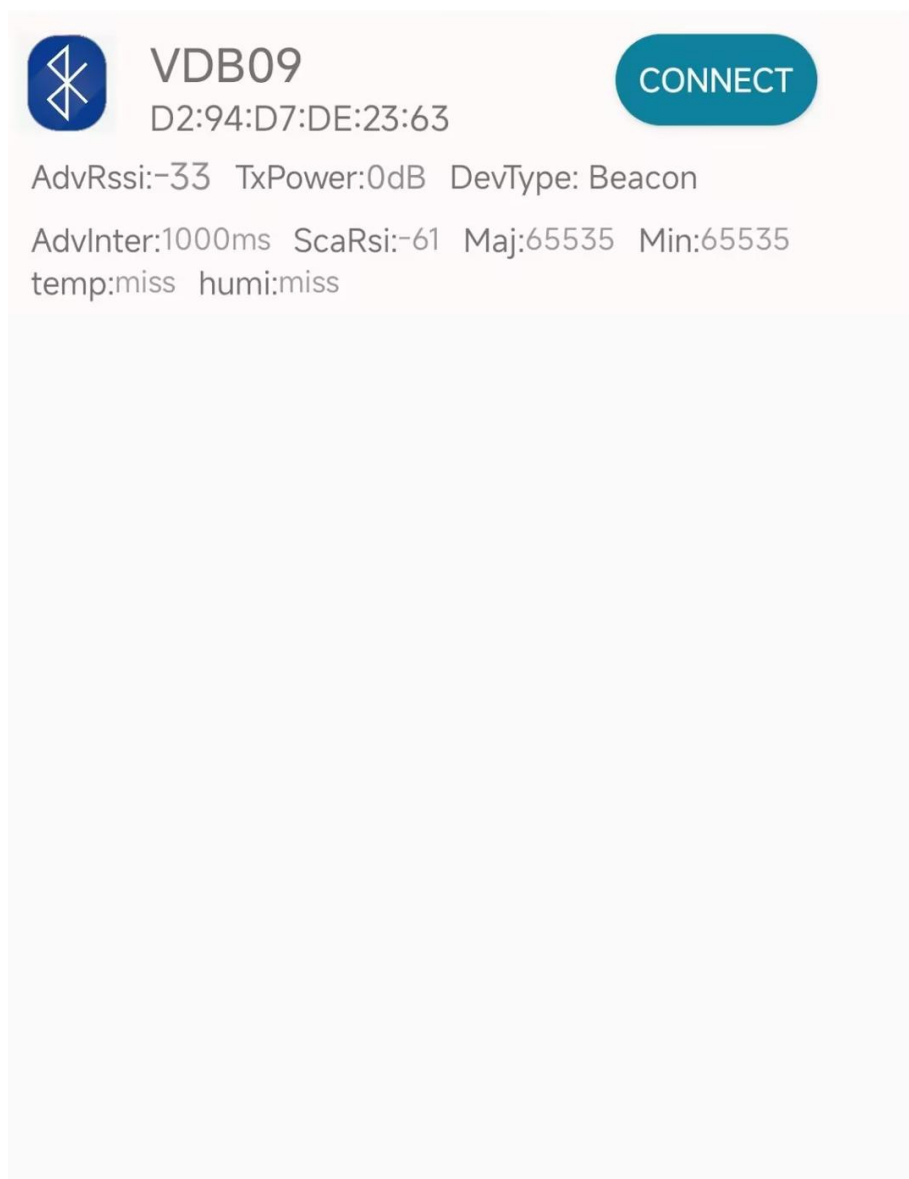
在 VDB09 工作状态时，连续按 4 下按键（短按 3 次长按 1 次，短按时间间隔 1S 之内，长按时间大于 3S），按键操作完，红色 LED 长亮 5S 后灭掉，表示关机成功。

When the VDB09 is working, press the button 4 times continuously (short press 3 times and long press 1 time, short press time interval <1S, long press time >3S). After the button operation, the red LED will light up for 5S and turn off, indicating successful shutdown.

4.5 扫描蓝牙信标/Scan Bluetooth beacons

打开 APP，如果手机提示打开蓝牙，请允许，手机自动开始扫描周围的蓝牙信标。

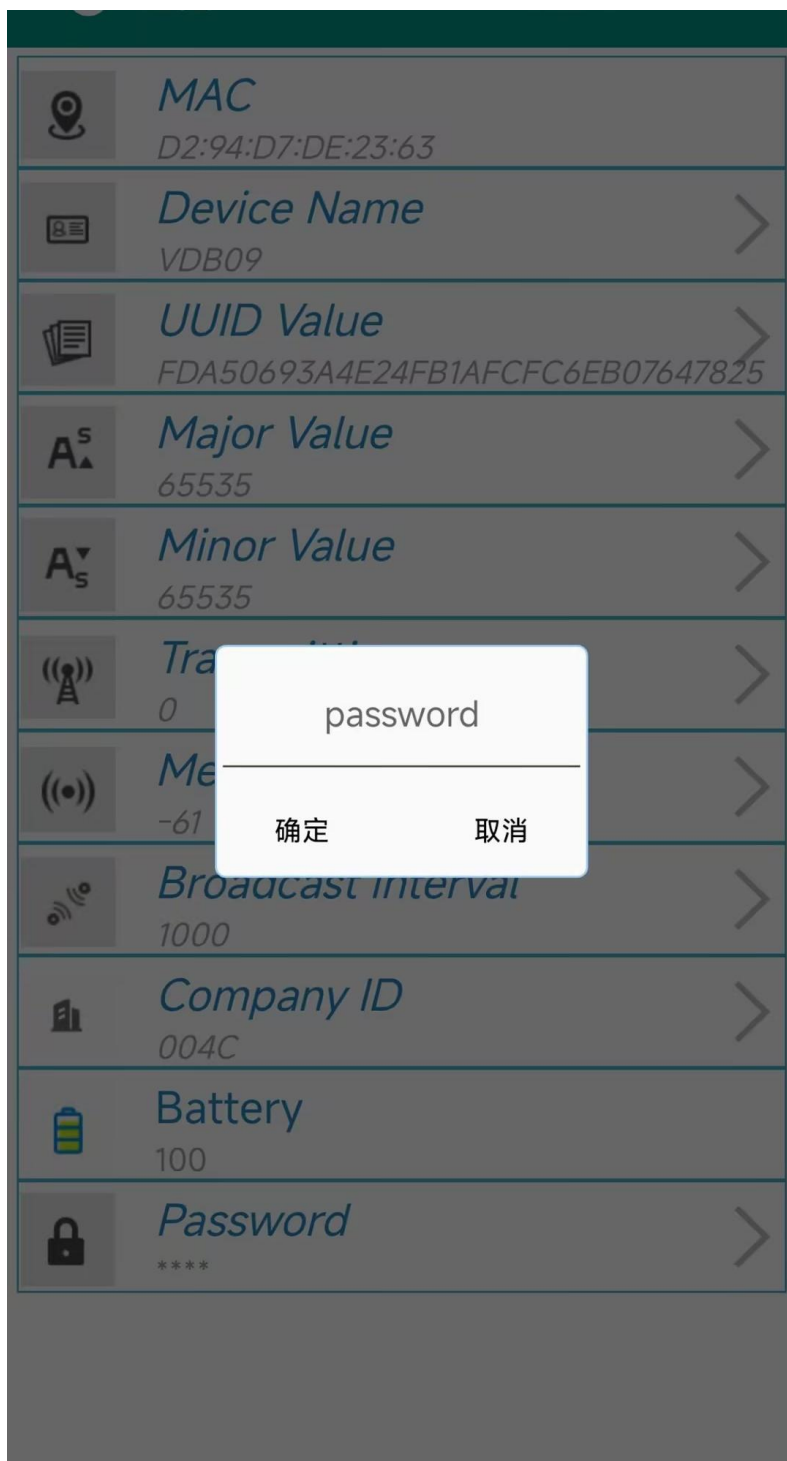
Open the APP, if the phone prompts to open Bluetooth, please allow the phone to automatically start scanning the surrounding Bluetooth beacon.



4.6 连接蓝牙信标/Connect Bluetooth Beacon

点击要连接的蓝牙信标，30 秒内输入密码，即可获得操作权限。(出厂密码:1234)

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



4.7 配置介绍/Configuration introduction

	MAC BC:02:6E:C2:C3:02	
	Device Name VDB02S	>
	UUID Value E91792623DB63DA18105509059372215	>
	Major Value 65535	>
	Minor Value 65535	>
	Transmitting power 0	>
	Measured Power -61	>
	Broadcast interval 500	>
	Company ID 004C	>
	Battery 100	
	Password ****	>

介绍 Introductions:

MAC: MAC 地址（不可修改）/ Chip MAC address(non-modifiable)

Device Name: 所选蓝牙信标的名称/ The name of the Bluetooth 5.0 Beacon which is selected.

UUID Value: 按照 ISO/IEC11578:1996 标准的 128 位标识符(16 字节)/128-bit identifier according to ISO/IEC11578:1996 standard (32 hexadecimal digits)

Major Value: 16 位标识符(0-65535)/ set 16-bit identifier (0-65535)

Minor Value: 16 位标识符(0-65535)/ set 16-bit identifier (0-65535)

Transmitting Power: 发射功率/ Transmit power

Measured Power: 距离 1 米时的参考信号强度/Signal strength at 1 meter（Beacon transmission power is 0dBm）

Broadcast interval: Beacon 广播间隔/Beacon advertise interval

Company id: 作为区分的 id 号/The id number is used as a distinction

Battery: Beacon 电池电量（无法修改）/ Beacon battery Capacity(non-modifiable)

Password: Beacon 密码（默认 1234）/Beacon connection password（Default 1234）

配置好信息后，蓝牙连接断开，配置将生效。

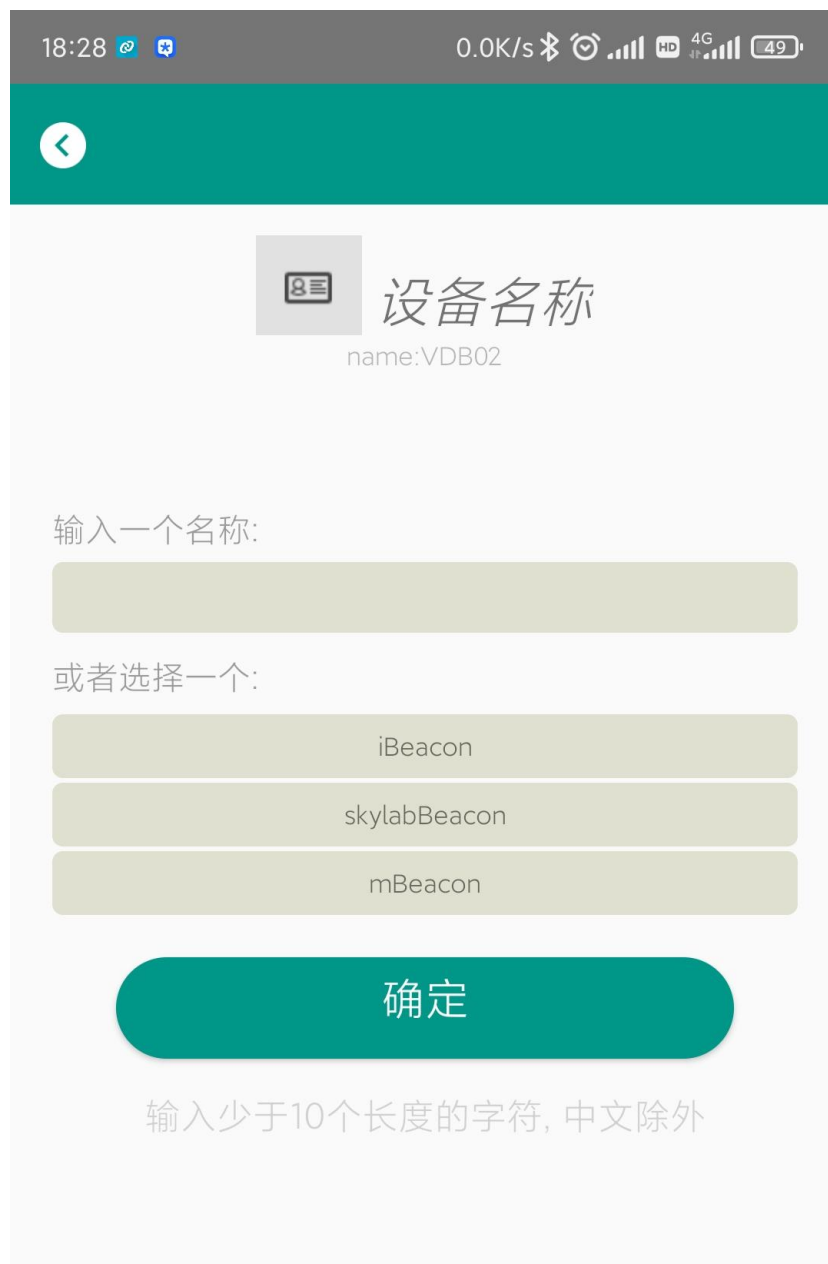
After the information is configured ,the configuration will take effect after the bluetooth connection is disconnected.

4.8 修改蓝牙信标名称/Modify Bluetooth Beacon Name

点击“Device Name”，出现以下 UI，然后在“输入一个名称”框中输入长度小于 12 位的英文字符名称，也可以在“或者选一个”里选一个名称。然后点击“确认修改”。

Click the “Device Name”, the following UI will be opened. Then enter a length of less than 12-bit English characters as 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.



18:28 0.0K/s 4G 49

设备名称
name:VDB02

输入一个名称:

或者选择一个:

iBeacon

skylabBeacon

mBeacon

确定

输入少于10个长度的字符, 中文除外

4.9 修改 UUID/Modify UUID

点击“UUID”，出现以下 UI，然后在“输入一个 UUID 值”框中输满 16 个字节（32 个十六进制字符）作为 Beacon 的 UUID。然后点击“确认修改”。

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



The screenshot shows a mobile application interface for modifying a UUID. At the top, there is a status bar with the time 18:28, signal strength, and battery level. Below the status bar is a teal header with a back arrow. The main content area has a light gray background. It features a document icon and the title "UUID值". Below the title, the current UUID is displayed: "uuid:FDA50693A4E24FB1AFCFC6EB07647825". There is a prompt "请输入一个值:" followed by a large, empty, light green input field. Below the input field, there is a prompt "或者选择一个:" followed by three buttons, each containing a 32-character hexadecimal string: "FDA50693A4E24FB1AFCFC6EB07647825", "00112233445566778899AABBCCDDEEFF", and "12345678123456781234567812345678". At the bottom, there is a large teal button labeled "确定". Below the button, a note states "UUID是由32个16进制数组成".

4.10 修改 Major、Minor/ Modify Major、Minor

点击“Major”，出现如下界面，然后在“请输入一个值”框中设置 0~65535 为设备的 Major 值。然后点击“确认”，修改成功后会在界面下方显示“修改成功”。

Click the "Major", the following UI will be opened. Then set a value between 0~65535 as the Major value of the device in the following "Enter an 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.



The screenshot shows a mobile application interface for modifying the Major value. At the top, there is a status bar with the time 18:29, network speed 0.0K/s, and various icons. Below the status bar is a teal header with a back arrow. The main content area has a light gray background. It features a logo with 'A^s' and the word 'Major' in a stylized font, with 'major:65535' below it. There are two input options: a text box labeled '请输入一个值:' (Please enter a value:) and a list of three buttons labeled '1000', '12345', and '65535' under the heading '或者选择一个:' (Or choose one:). A large teal button labeled '确定' (Confirm) is at the bottom. Below the button, there is a gray text prompt: '从0到65535中选取一个值作为Major' (Select a value from 0 to 65535 as the Major).

修改 Minor/Modify Minor

同上面 Major 类似，点击 Minor 进入修改即可。

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

4.11 修改发射功率/Modify Transmitting Power

点击“发射功率”出现以下界面，点击设置框，选择需要的发射功率，点击确认。

Click "发射功率" to appear in the following interface, click the Settings box, select the required transmit power, and click confirm.



4.12 修改参考信号强度/Modify the reference signal strength

点击“Measured Power”，出现如下界面，在距离 Beacon 1 米远处，然后在“请输入一个值”框中设置测量功率，可调范围-100dBm~-30dBm，默认为-61dBm。然后点击“确认”，修改成功后会在界面下方显示“修改成功”。

Click "Measured Power", 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", 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 含义为：当接收设备接收到的信号强度为-61dBm 时，可认为该设备距离 Beacon 约为 1 米。

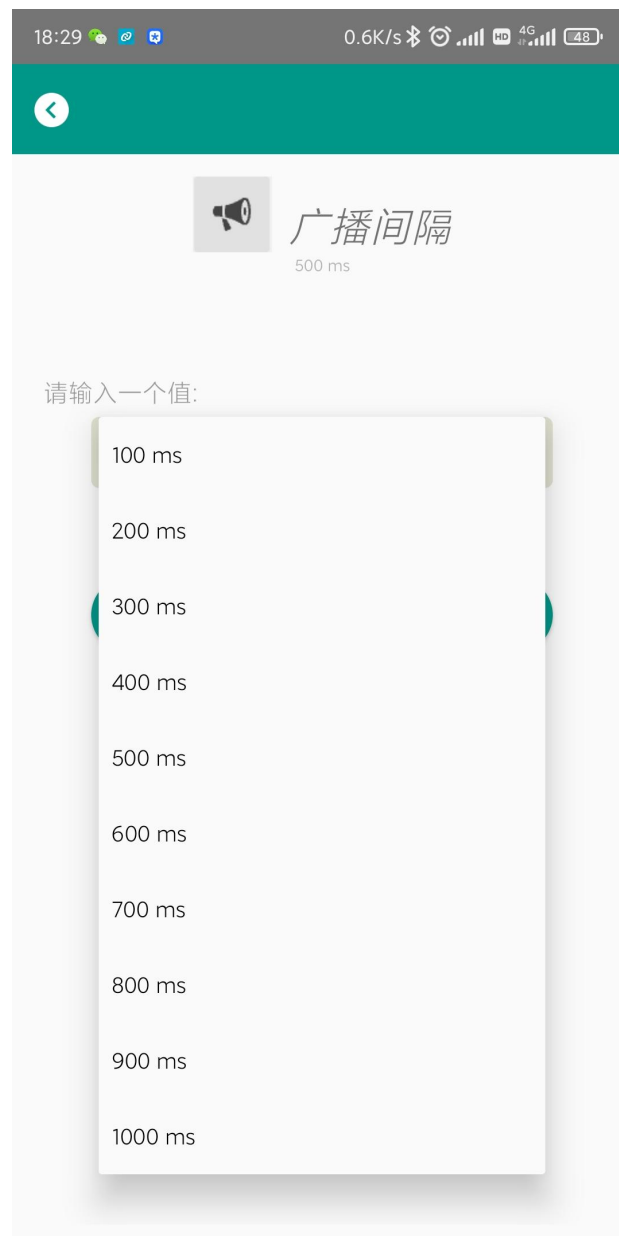
Measured Power means: when the signal intensity received by the receiving equipment is -61dbm, it can be considered that the distance between the equipment and the Beacon is about 1m.



4.13 修改广播间隔/ Modify the broadcast interval

点击“广播间隔”出现如下 UI，设置广播间隔，广播间隔可以设置为 100ms、200ms、300ms、400ms、500ms、600ms、700ms、800ms、900ms 和 1000ms。默认为 500ms。然后点击“确认修改”。

Click the "Broadcast interval" to appear in the following UI, and set the broadcast interval, which can be set to 100ms, 200ms, 300ms, 400ms, 500ms, 600ms, 700ms, 800ms, 900ms, and 1000ms. The default is 500ms. Then click "Confirm Modification."



4.14 修改 Company id//Modify Company id

点击“Company id”出现如下界面，在“请输入一个值”框中填写一个 4 位的 16 进制数作为 Company id。然后点击“确认”，修改成功后会在界面下方显示“修改成功”。

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.



4.15 修改密码/ Modify Password

点击“Password”，出现如下界面，然后在“输入一个密码”框中输入 4 个字符作为连接密码，默认为 1234。然后点击“确认”，修改成功后会在界面下方显示“修改成功”。

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.



注意：请提前保存好您的密码，一旦修改新密码，原密码将失效，必须用新密码才能登陆。

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.

4.16 APP 下载/ AAP download

目前最新 APP 尚未上架，请联系销售人员提供，APP 名称 95power。

The latest APP is not yet on the shelves, please contact the salesperson to provide the APP name 95power.

5. 联系方式/ Contact information

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