VDB2607 Bluetooth Gateway With PoE Datasheet

Document Information		
Title	VDB2607 Bluetooth Gateway With PoE Datasheet	
Document type	Datasheet	
Document number	WN-20060033	
Revision and date	V1.02	25-Feb -2021
Disclosure restriction	Public	

Reversion History

Revision	Description	Approved	Date
V1.0	Initial Release	Sandi Li	2019.10.23
V1.01	Add different antenna combinations	Sherman	2020.4.8
V1.02	Update Poe power supply part description	Susan	2021.1.25

Bill of Material

Name	Mdel	Quantity	Remark
Bluetooth Gateway	VDB2607	1	VDB2607
AC-DC Adapter	BSF-137F	1	IN:AC100-240V/OUTPUT: 5.0V±10%

Content

1. General Description

VDB2607 is an outdoor Bluetooth Gateway with POE or DC power supply. It can be used in various scenarios flexibly. For example, in BLE device remote controlling, it can be used to broadcast information to BLE receivers. Or it can collect data sent by the BLE device and sends it to servers.

VDB2607 support BLE 5.0 with up to 8dBm broadcast TX power, which make it easy to cover more than 100 meters. Its data rate can be up to 2Mbps, allowing longer broadcasting data which contains more information.

The ethernet/WiFi data rate can be up to 100Mbps/580Mbps. It can help provide faster data transmission between server and client BLE devices.

VDB2607 also reserves the zig-bee support and 5G LTE support, making it ready for the coming everything-on-net era.

Figure1: VDB2607

1.1 Application Block Diagram

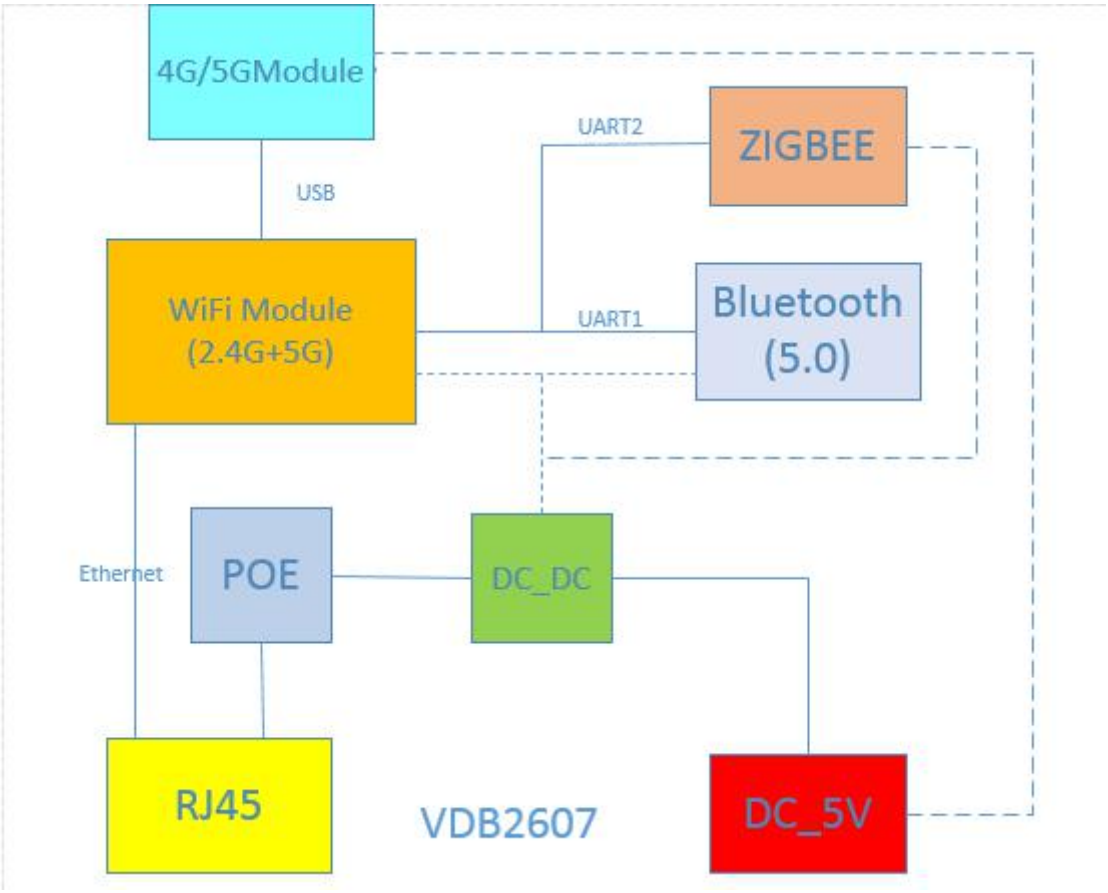


Figure 2: VDB2607 Block Diagram

1.2 Features

Supports the POE switch power supply and 5V adapter power supply;

Support IEEE802.3-2012 Type 1 , the IEEE802.3-2012 Type 1 requires a power supply device (PSE) to provide 44 to 57 V, and the power of the powered device (PD) must not exceed 12.95 W and the current does not exceed 350 mA;

Support IEEE 802.11ac, IEEE 802.11n, IEEE 802.11g, IEEE 802.11b Protocol;

Supporting Network Communication of 4G Module (LTE-TDD/LTE-FDD);

Support Bluetooth ® 5.0;

Supporting waterproof and dustproof;

One WAN/LAN variable network port.

RoHS compliance (Lead-free);

FCC,CE compliance.

1.3 Interface

Antenna Type1: 3 antennas with no LTE support

1：DC_DC Power Supply Interface(φ3.5mm);

2：2.4GHz WiFi antenna;

3：5GHz WiFi antenna;

4：RJ45 Interface(Network Interface and POE Power Supply Interface);

5：BLE antenna.

Antenna Type2: 4 antennas with LTE support but no POE

4：RJ45 Interface is removed and replaced by LTE Antenna (Compared with Antenna Type1)

Antenna Type3: 4 antennas with POE support but no DC

1：DC_IN is removed and replaced by LTE Antenna(Compared with Antenna Type1)

1.3.1 WAN/LAN Port

The VDB2607network port supports five types of lines and super five types of lines, which can transmit data and also support POE power supply (power supply by POE switch is called POE power supply, voltage range 44~57V. Default net-line order is 1,2,3,6,like the figure below). The network port is a WAN/LAN variable port.

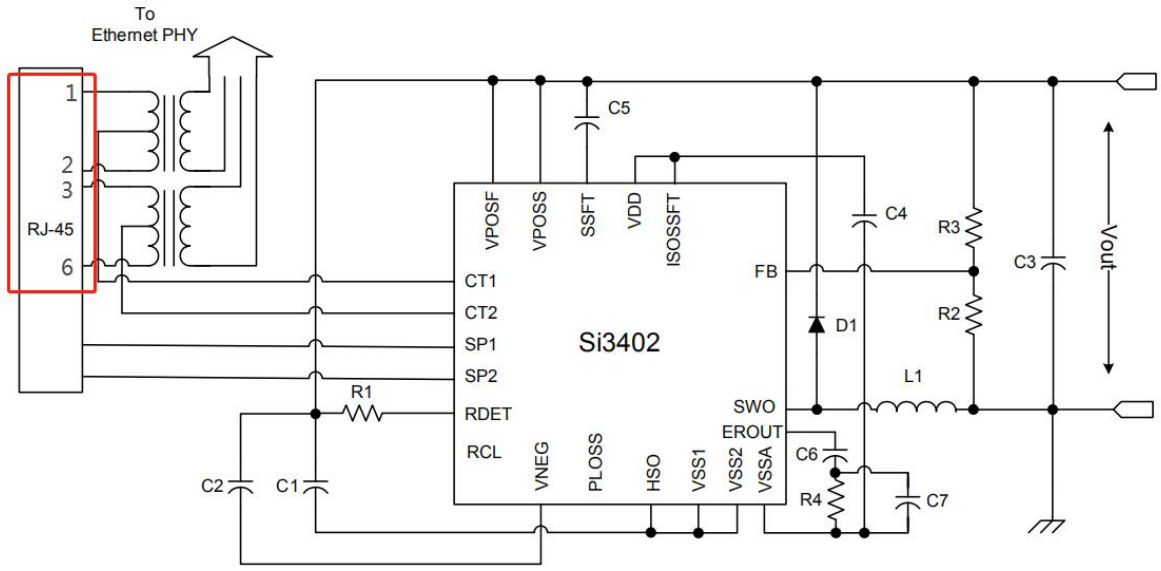


Figure 1.3.1: VDB2607 POE

Attention：None-standard POE power supply may damage this product!

Working mode	net gape
AP Client	LAN
Getway	WAN

Table 1.3.1 Ethernet port working mode

1.3.2 Power Supply Port

The VDB2607 power interface supports DC input, input voltage range is4. 5V to 5.5V, and the current is greater than 1000mA.The voltage interface adopts the DC power socket, and power seat aperture is 3.5mm. The needle diameter is1.35 mm and is positive.

Remark: The input voltage of the 5V power adaptor is AC 100-240V and 50/60Hz, output voltage is 5V 2A.The power connector is positive inside and negative outside.

1.3.3 Reset

There is a reset button inside the VDB2607. After pressing the reset button for more than 5 seconds, the VDB2607 WiFi unit will be restored to the factory settings.

1.3.4 LED

There are four LED lights in VDB2607:

1)Power LED normally on when powered on;

2)Network LED normally on when connected;

3)WiFi LED normally on after connecting to WiFi for 1-2sec;

4)Bluetooth LED flashing once power on.

1.4 Applications

1.4.1 Indoor Positioning:

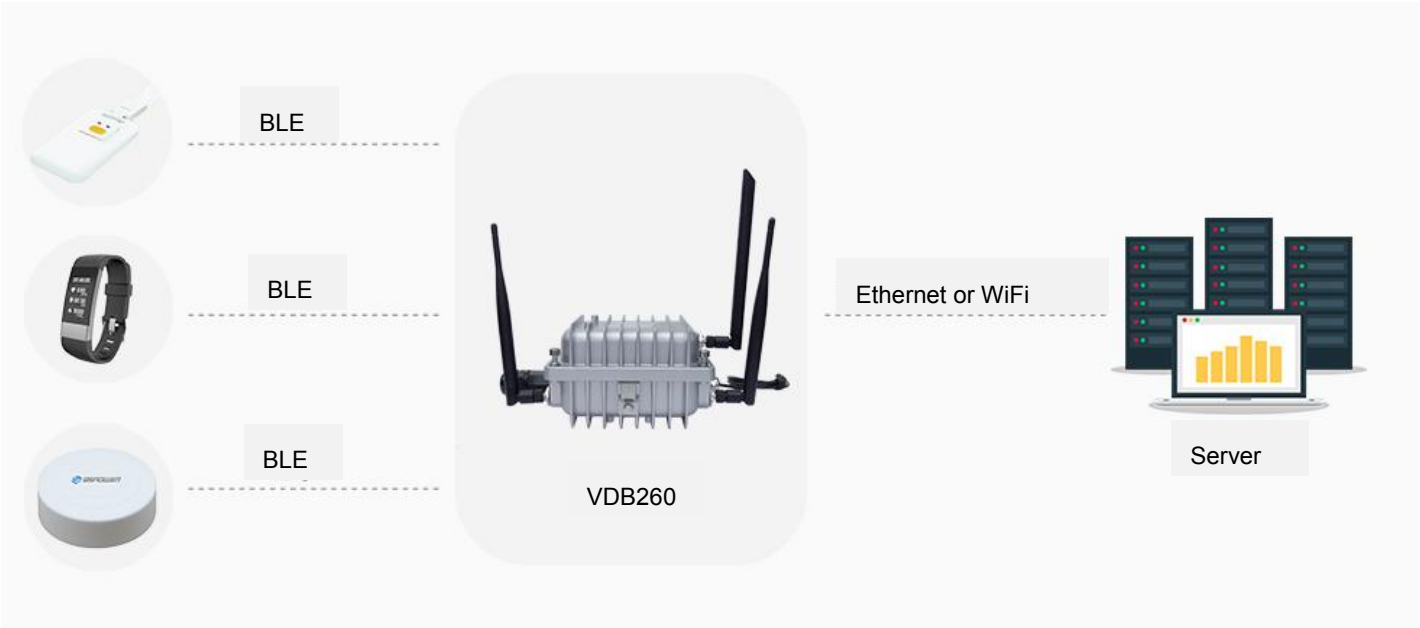
1)VDB2607 Bluetooth module collects information about Beacon nearby, including RSSI, MAC, etc., once per second.

2)Bluetooth module send the Beacon information to WiFi module through UART serial port, once per second.

3)WiFi module transfers the Beacon information to the specified UDP server, and accepts the information returned by the server.

4)Beacon locations can be displayed on the front page after the UDP server analyze and calculate the beacon information. An order can also be delivered to the WiFi module, then sent to the bluetooth module to develop different functions (such as: Lighting lamps and lanterns etc.).

Schematic of Positioning:



Remark：VDB2607 can be connected to the Internet via the POE switch or the wireless router.

2. Module Specification

Dimension	Length: 153mm, width: 138mm, height: 97mm
Power Supply	DC 4.5V to 5.5V 、POE 44V to 57V
Currents	350mA@5V
Operating Temperature	-20℃~70℃
Interface	WAN Port and Power Supply Port
WiFi	
WiFi Protocol	IEEE 802.11ac,IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
Data Rate	IEEE 802.11 b Standard Mode: 1,2,5.5,11Mbps
	IEEE 802.11g Standard Mode: 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11n : MCS0~MCS7 @ HT20/ 2.4GHz band MCS0~MCS7 @ HT40/ 2.4GHz band MCS0~MCS9 @ HT40/ 5GHz band
	IEEE 802.11ac: MCS0~MCS9 @ VHT80/ 5GHz band
Sensitivity	VHT80 MCS9 : -60dBm@10% PER(MCS9) /5GHz band
	HT40 MCS9 : -63dBm@10% PER(MCS9) /5GHz band
	HT40 MCS7 : -70dBm@10% PER(MCS7) /2.4GHz band
	HT20 MCS7 : -71dBm@10% PER(MCS7) /2.4GHz band
	54M: -76dBm@10% PER
	11M: -88dBm@ 8% PER
Transmit Power	IEEE 802.11ac: 13dBm @HT80 MCS9 /5GHz band
	IEEE 802.11ac: 16dBm @HT80 MCS0 /5GHz band
	IEEE 802.11n: 14dBm @HT20/40 MCS7 /5GHz band
	IEEE 802.11n: 16dBm @HT20/40 MCS0 /5GHz band
	IEEE 802.11n: 16dBm @HT20/40 MCS7 /2.4GHz band
	IEEE 802.11g: 16dBm @54MHz
	IEEE 802.11b: 18dBm @11MHz
Wireless Security	WPA/WPA2, WEP, TKIP, and AES
Working mode	Bridge、Gateway、AP Client

Bluetooth	
Bluetooth Protocol	Bluetooth ® 5.0
Data Rate	Uncoded:1Mbps/2Mbps,Coded:125kbps(S=8)/500kbps(S=2)
Wireless Security	AES HW Encryption
Connection Distance	150m
Transmit Power	Tx Power -20 to +8 dBm in 4 dB Steps

3. Configuration

3.1network topology

3.1.1Access through the superior routing network segment

In the Gateway mode of VDB2607, the only network port is WAN,, PC and VDB2607 connect the same superior route, access VDB2607.

VDB2607 works in APCLI mode, where the PC accesses VDB2607 through the same superior route as VDB2607.

The following figure is the topology of the network connection. The WAN port of VDB2607 is connected to the ROUTER's LAN port, and the PERSONAL PC is also connected to the router's LAN port or wireless hotspot. At this point, the management interface of VDB2607 can be accessed through the browser on the PC.

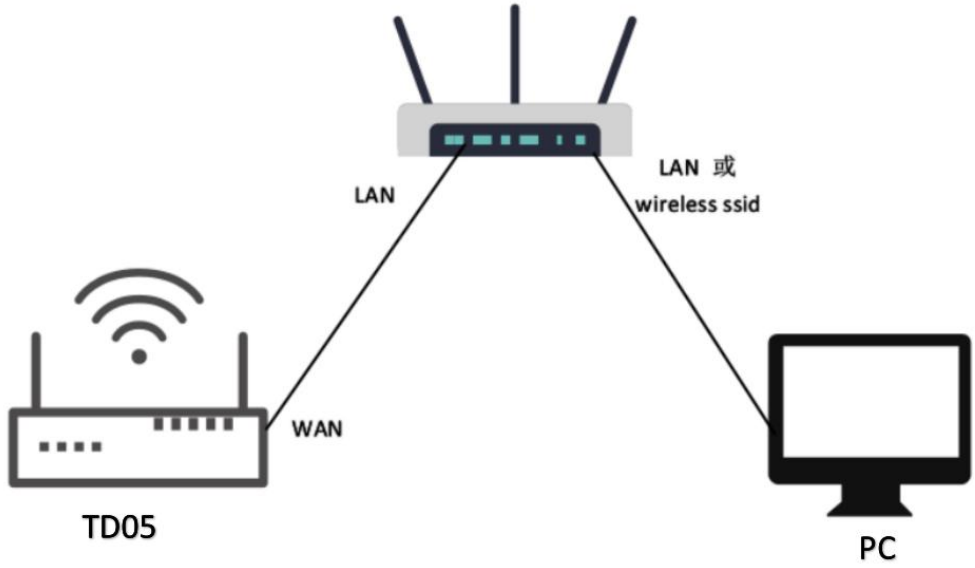


图 3.1 Access through the superior routing network segment

It is assumed that the IP address assigned to VDB2607 by the router is 192.168.0.106, and the IP assigned to THE PC is 192.168.1.118. At this time, the browser can access 192.168.0.106 on the PC, and the Web authentication interface of VDB2607 can be entered.As shown in the figure below

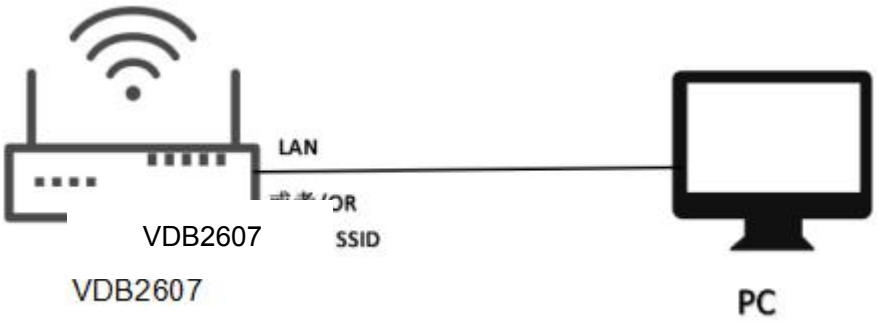
The password of VDB2607 is admin/admin.

3.1.2 Connect via LAN

VDB2607 in Gateway mode, the PC accesses the WIFI module through the WIFI hotspot of VDB2607.

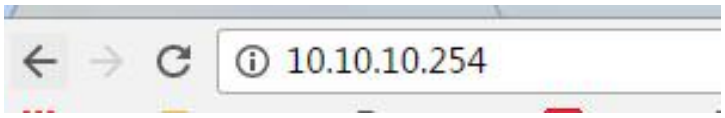
VDB2607 In AP-CLI mode, THE PC can access the WIFI module through the WIFI hotspot of VDB2607 and the unique network port.

After connecting to VDB2607 in the above way, VDB2607 will assign the IP address to the PC.Users can log in to the administration interface of VDB2607 on a PC by accessing the gateway IP.The default IP address network segment is 10.10.10.0/24. Assuming that the user has not modified the IP network segment of VDB2607, then the user can go to the management interface of VDB2607 through the browser on the PC at 10.10.10.254.



Access via VDB2607 LAN

The following is a screenshot of the access on PC:



3.2 Wan configuration

3.2.1Wan port access to the Internet

（1）The system works in gateway mode by default;

Note: Click Save, the configuration can be saved, but it will not take effect immediately. It can be determined once the system is configured.

Click "OK", it will take effect immediately, the network will restart, need to wait for the network recovery;

（2）Wan for dynamic address allocation;

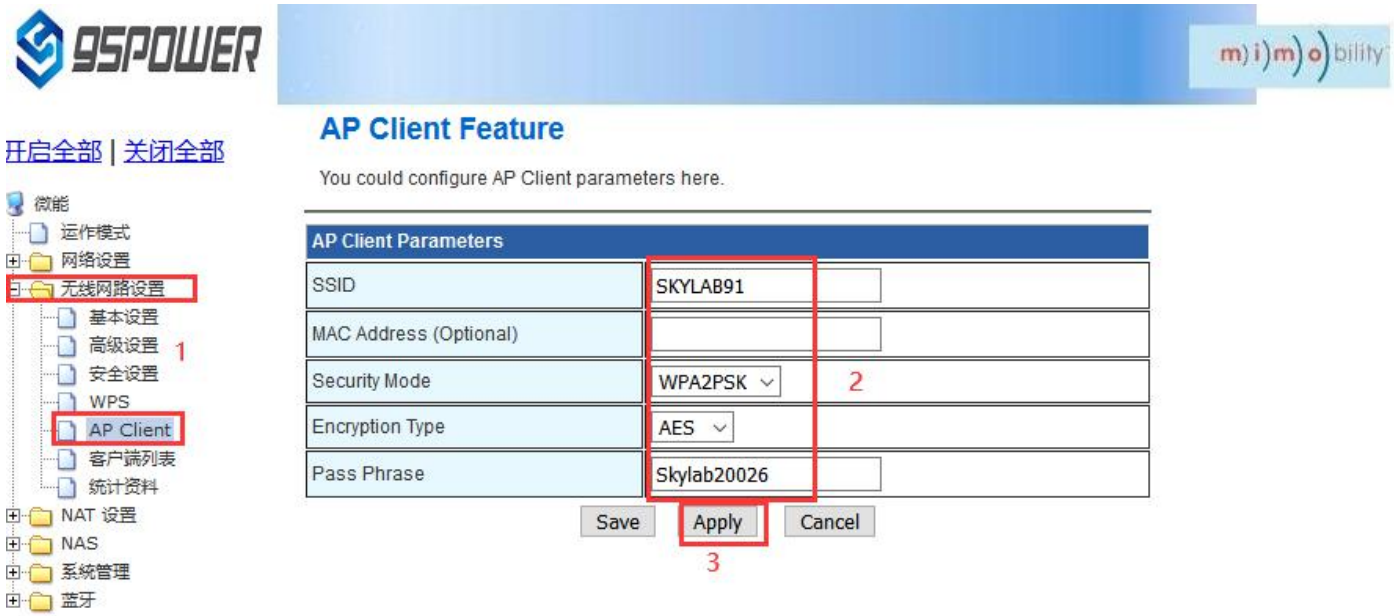
（3）Check the status

3.2.2wireless internet

(1) The system mode is configured as APCLI mode. Follow the operation as shown in the figure below and click "Save" to refresh3

（2）The WAN is configured for dynamic address assignment;

（3）Configure superior AP information;



3.2.3Mobile 4G Internet

(1) Ensure that the mobile network card and 4G antenna are connected well, and the system is configured as Gateway mode;

（2）Wan configuration 3G network mode;

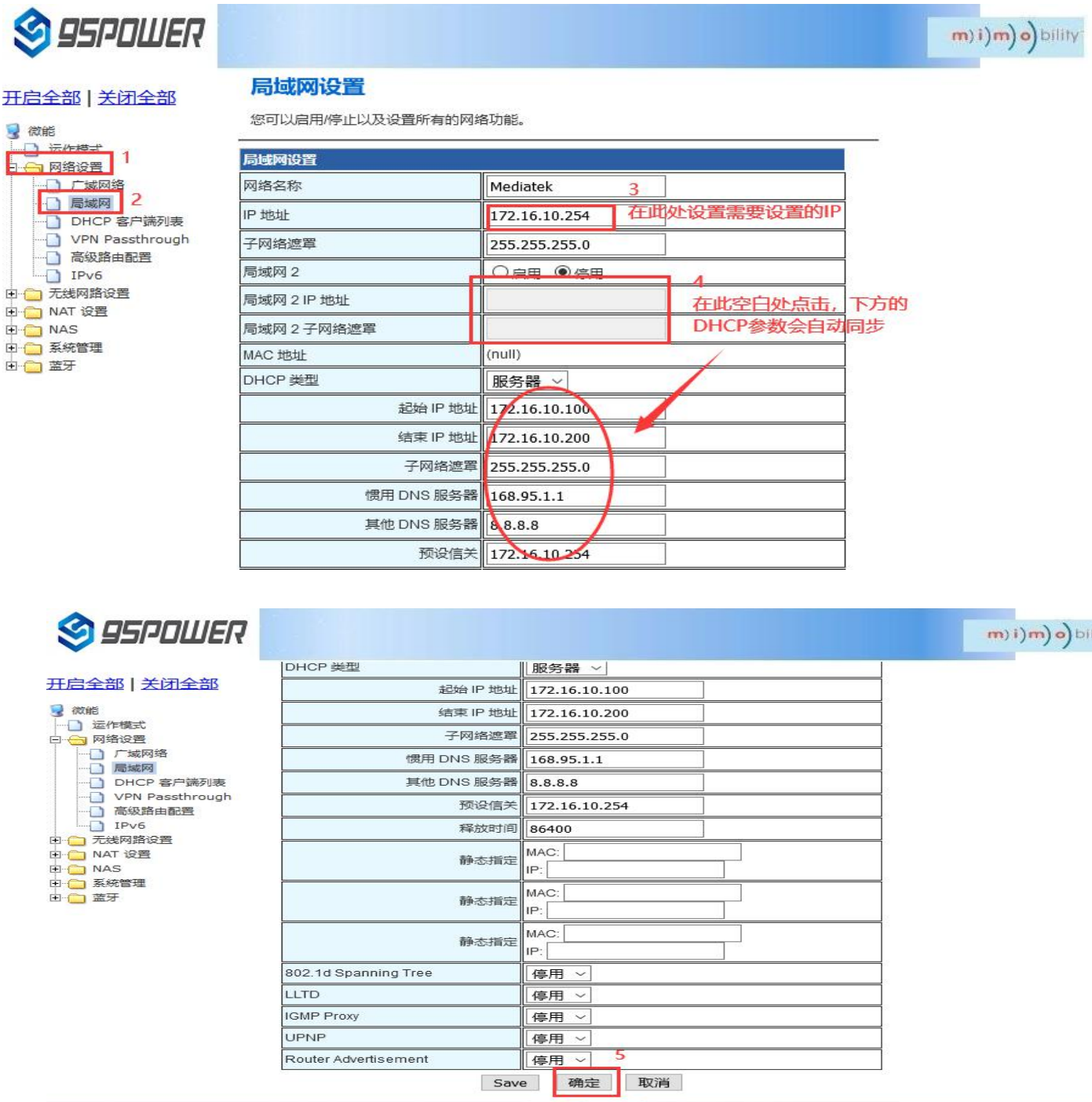
（3）Check the network status;

3.3LAN configuration

3.3.1Change the LAN IP address

The default LAN segment of VDB2607 is 10.10.10.254/24. Customers can modify the LAN IP address according to their needs. The following steps are described:

（1）Follow the steps below;

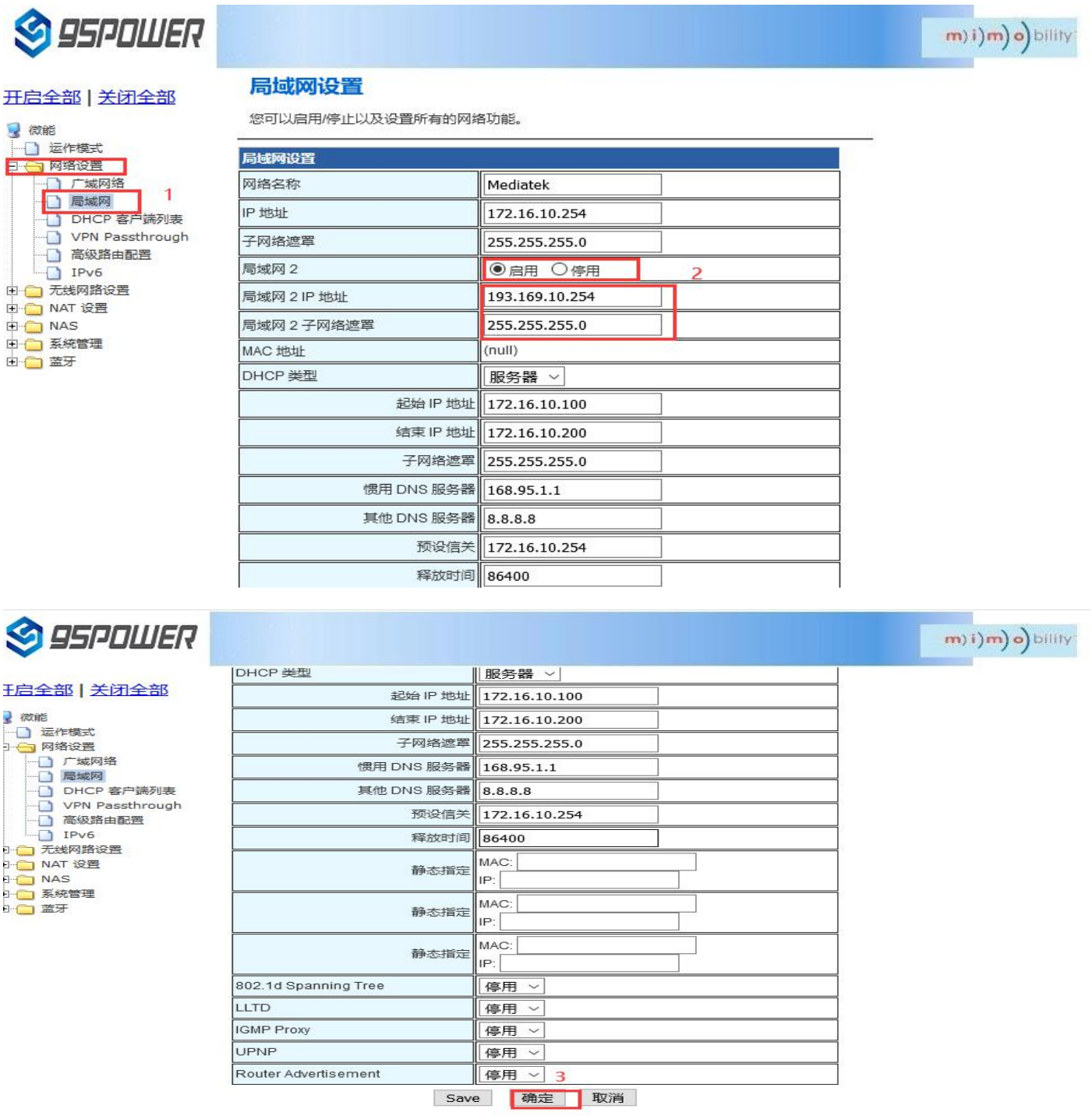


(2) After the IP address is modified, the network will restart. If the WIFI hotspot is used to connect, the network may be disconnected. Connect to the hotspot again and use the newly set IP address to access the module.

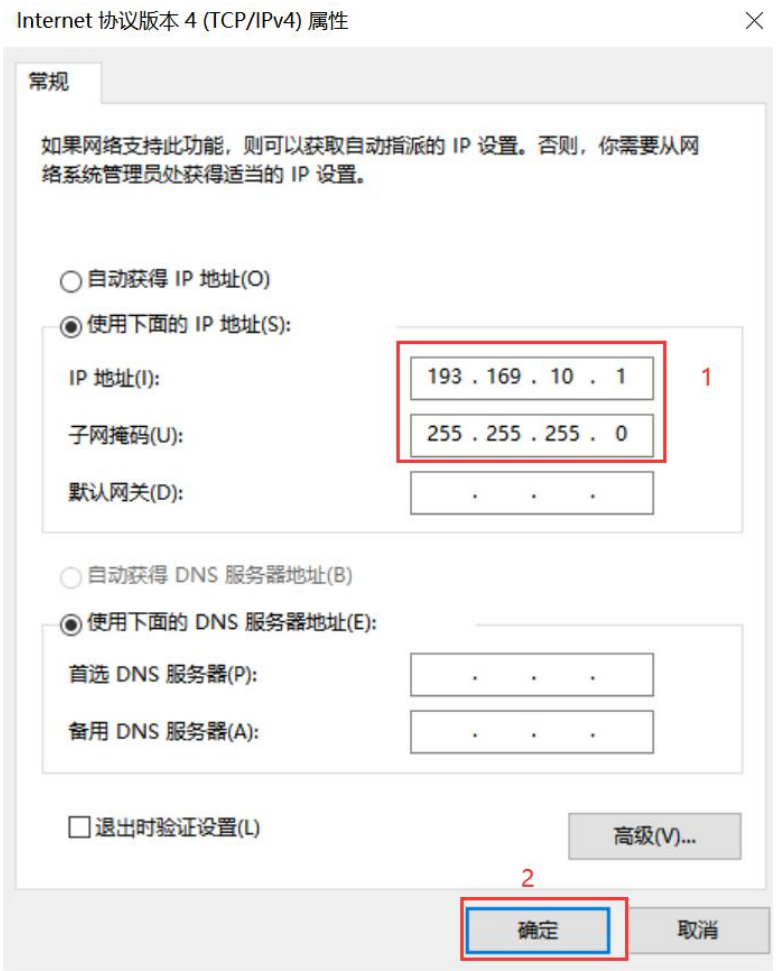
3.3.2/Add LAN segment

Lan2 can be added to LAN segment in VDB2607. Lan2 is not enabled by default.

（1）Follow the steps below to set up LAN2



(2) After lan2 is set up, the user can set the static IP for the network segment and communicate with the set through lan2's IP access gateway.



3.3.3**configuration** DHCP

VDB2607 supports users to modify various DHCP parameters, including starting IP, ending IP, IP address lease time and other parameters, and also supports users to turn off DHCP function and use static IP connection.

（1）The following steps are to close the DHCP service

Here are the steps to set the DHCP server parameters:

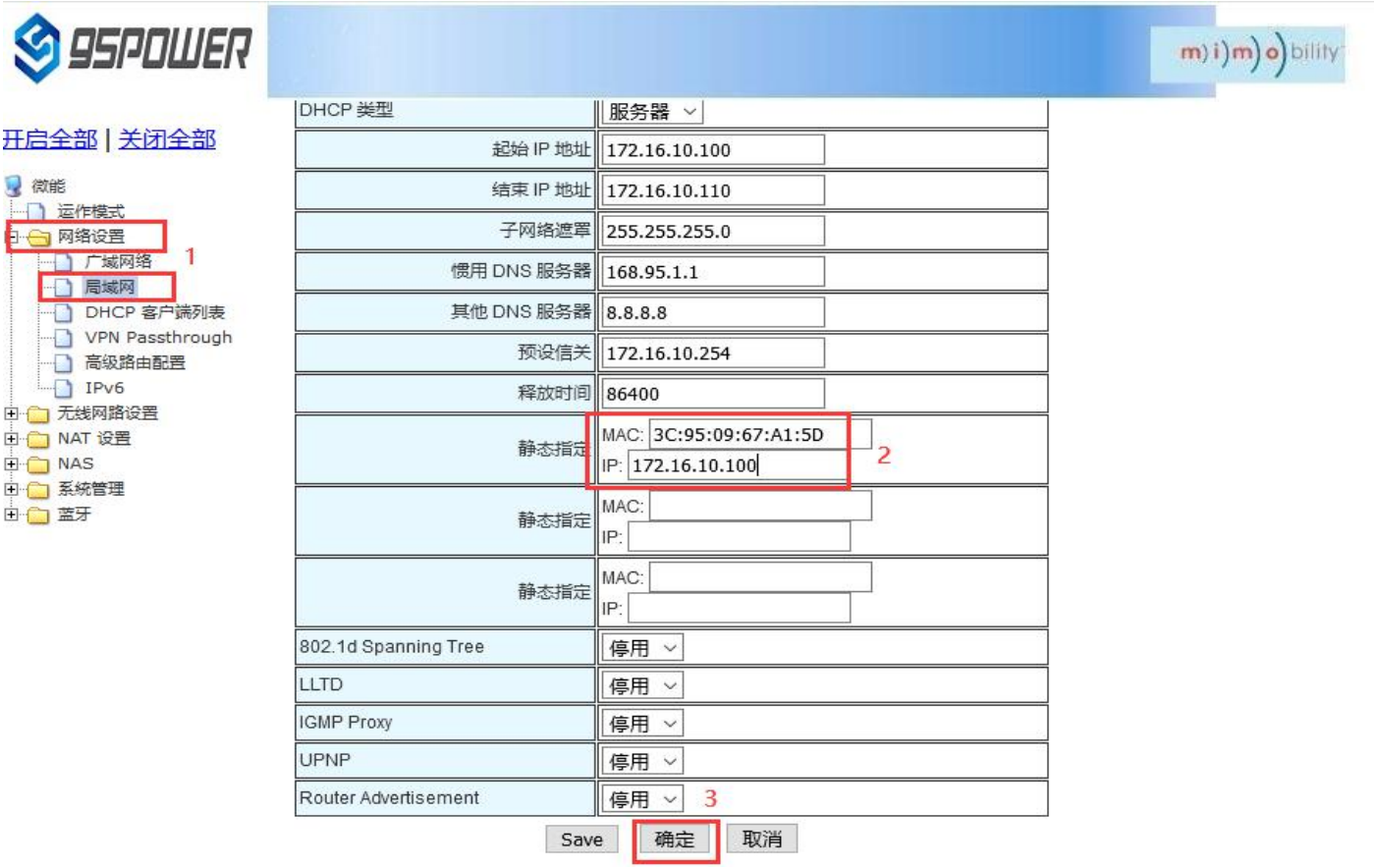
（1）Set according to the steps shown in the diagram

3.3.4/Bind IP address

In the debugging process, when the server side is simulated on PC for testing, the IP address of THE PC can be bound so that the IP address of the server can be fixed during the test.

(1) You can first check the DHCP list of VDB2607 and copy the MAC corresponding to PC.The following is the steps to view the DHCP list:

(1) Bind THE IP address of PC through the following method. After binding, the PC is connected to VDB2607, and the IP obtained is the binding IP address.



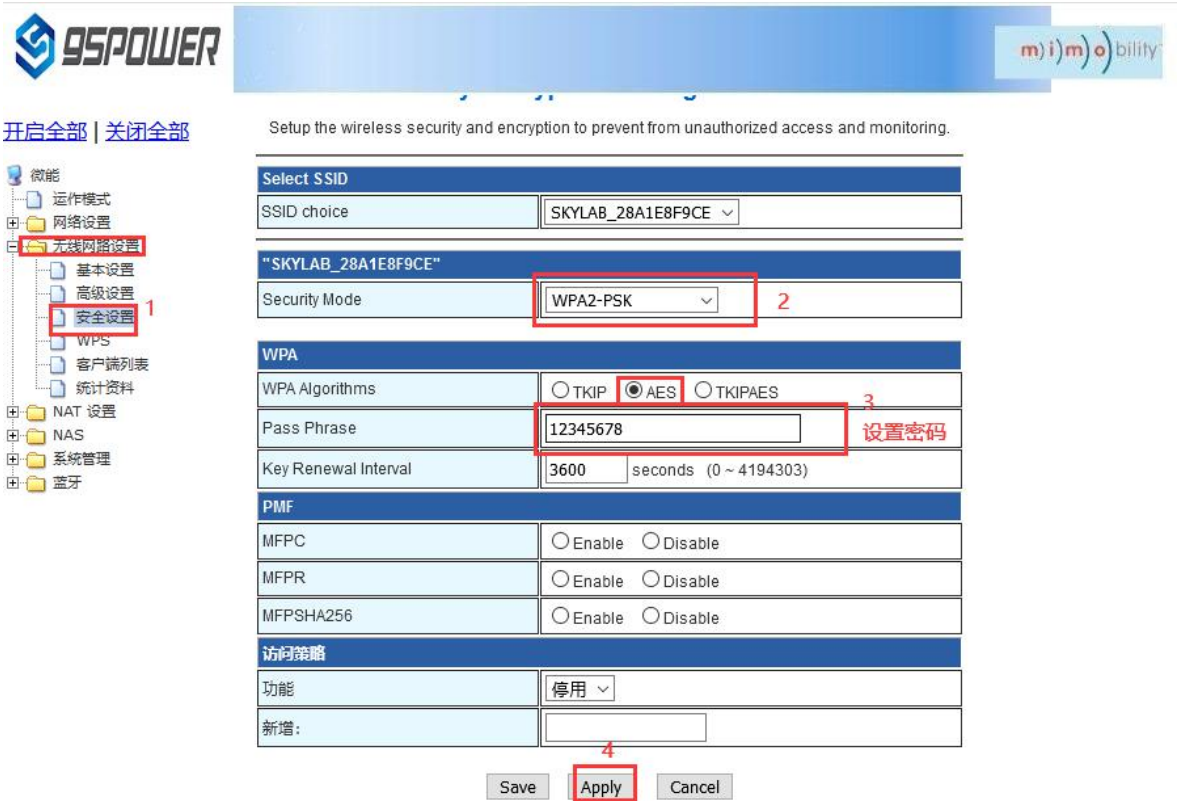
3.4Wireless parameter configuration

3.4.1Modify WIFI hotspot name and set fixed channel

3.4.2Set hotspot encryption/unencryption

Here is the step-by-step diagram for setting up an open hot spot:

Here is the configuration diagram for setting up a password connection:



4、Server information configuration

The user can configure the server address and port information through the Web interface, which requires VDB2607 to be accessible.In addition, the default Internet access mode of VDB2607 is UDP protocol. In the Web

interface, you can customize the communication protocol, and the optional protocol is TCP/UDP/MQTT.The configuration method is as follows:

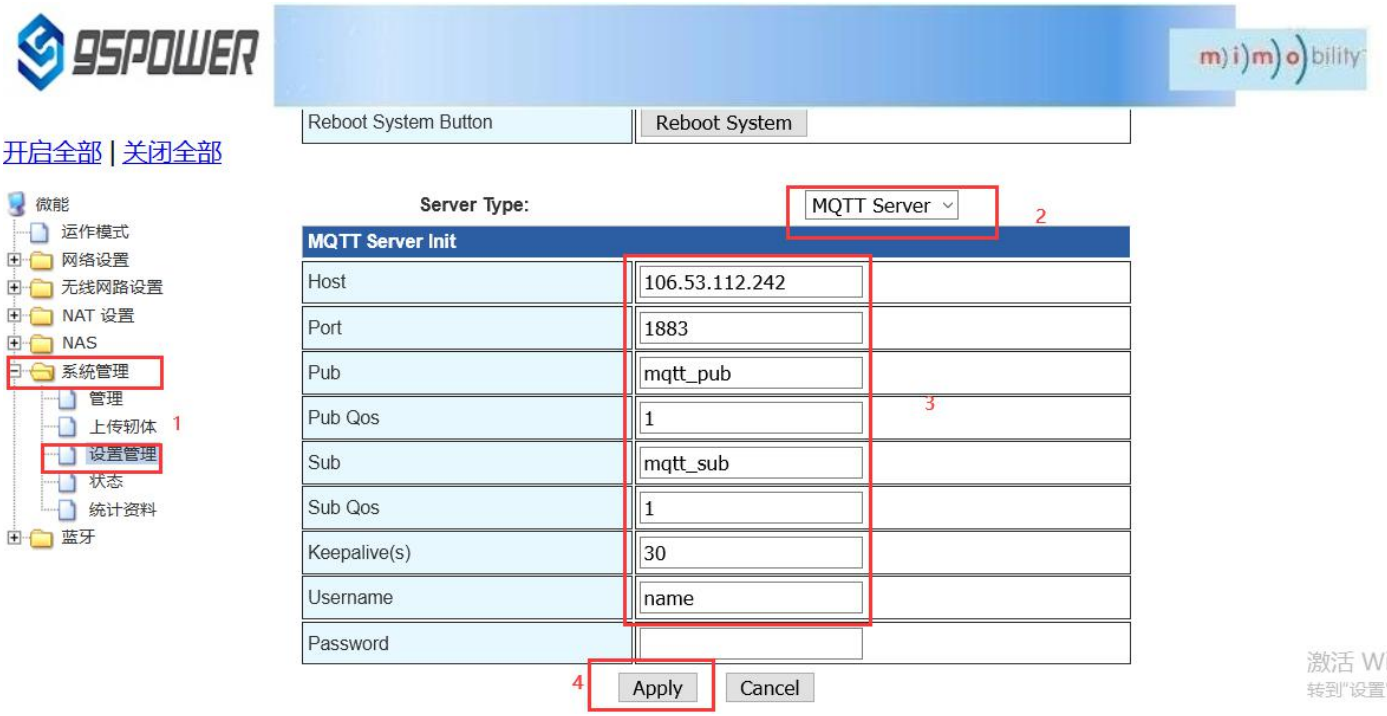
4.1Configure for TCP protocol communication

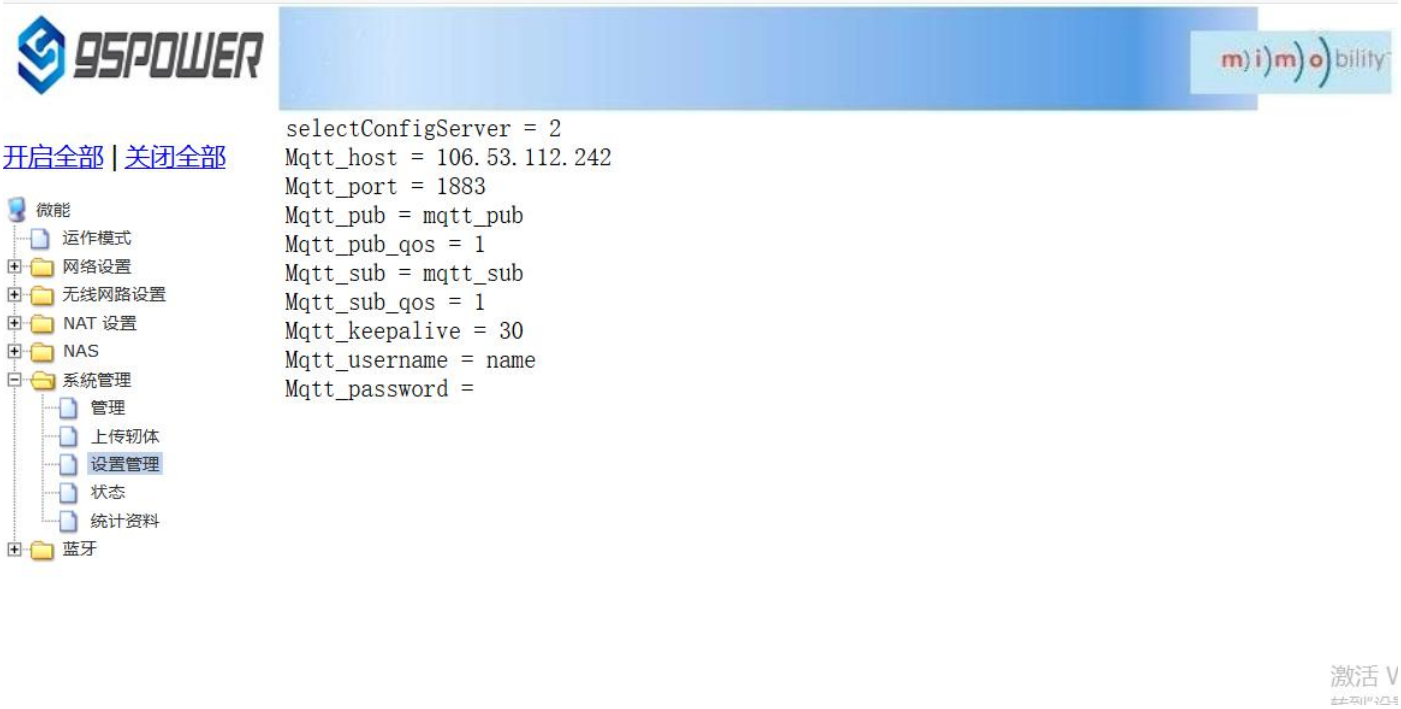
The configuration is the communication mode of TCP protocol. The configuration screenshot is as follows

4.2It is configured for UDP protocol communication

The configuration is UDP protocol communication. The configuration screenshot is as follows:

4.3 Configure for MQTT protocol communication





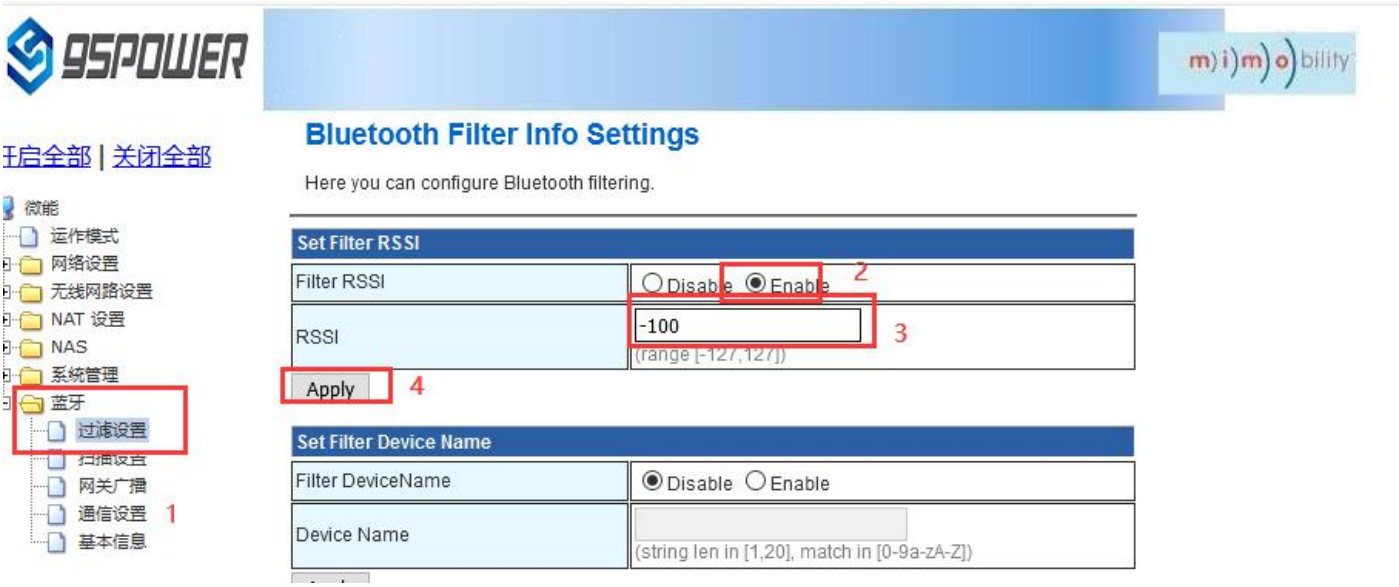
5、 Set bluetooth information

Users can configure various parameters of Bluetooth through the Web interface, including scanning and filtering parameters, scanning data parameters, gateway Bluetooth broadcasting parameters, and uUids that gateway Bluetooth communicates with APP and device.

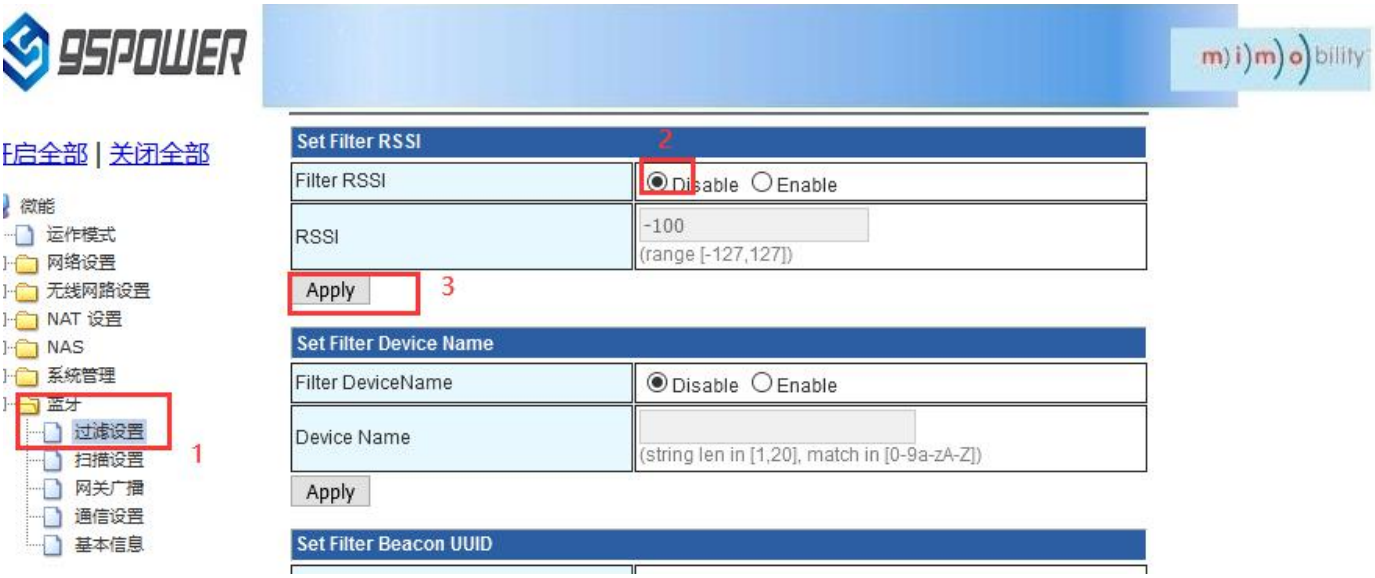
5.1Configure Bluetooth filtering information

5.1.1、Set/unfilter signal strength RSSI value

Set the filtered signal strength RSSI value

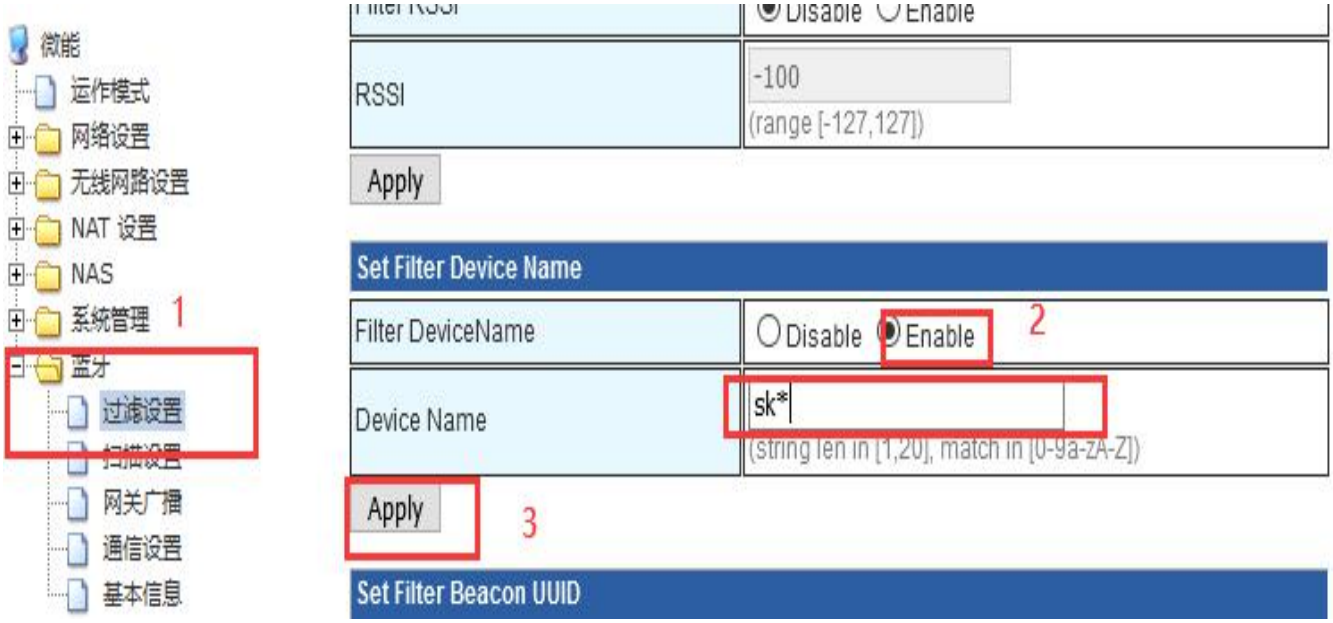


Cancel the RSSI value setting of scanning filter signal strength;

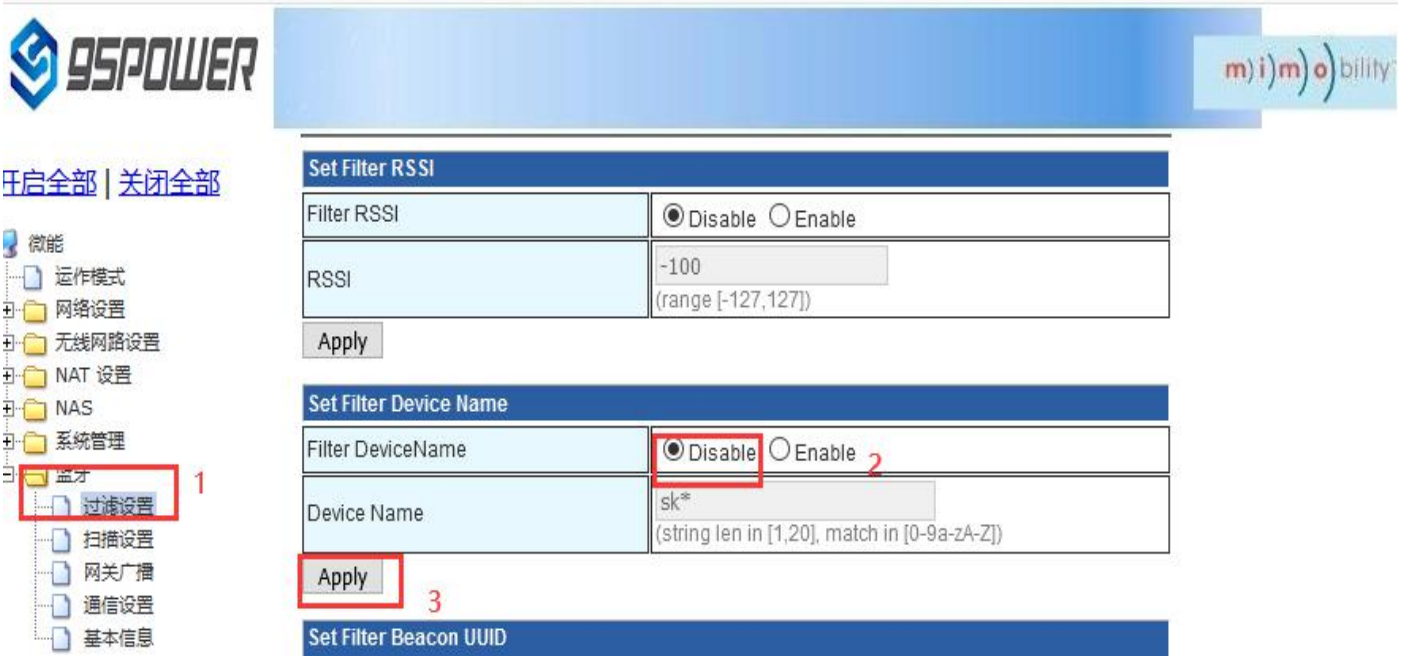


5.1.2、Set/unscan filter device name

Set the Settings name for the scan

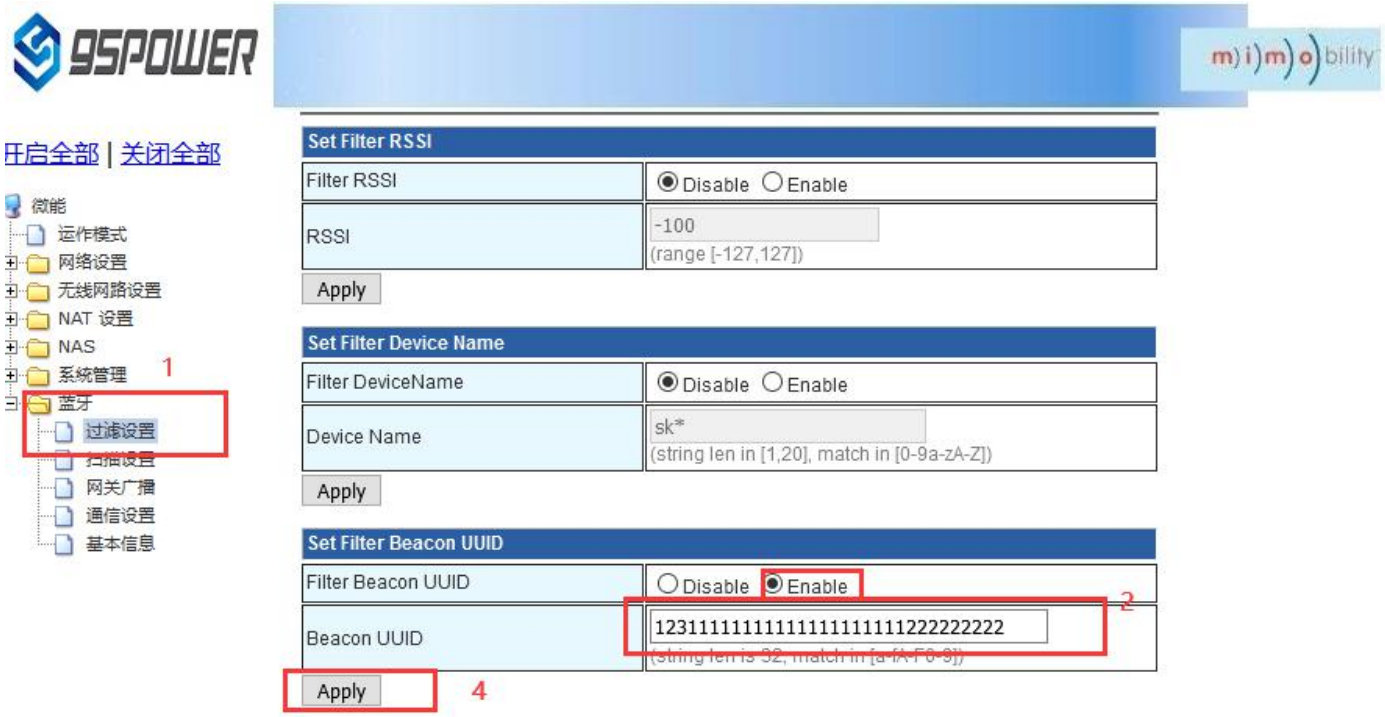


Unset the filter device name

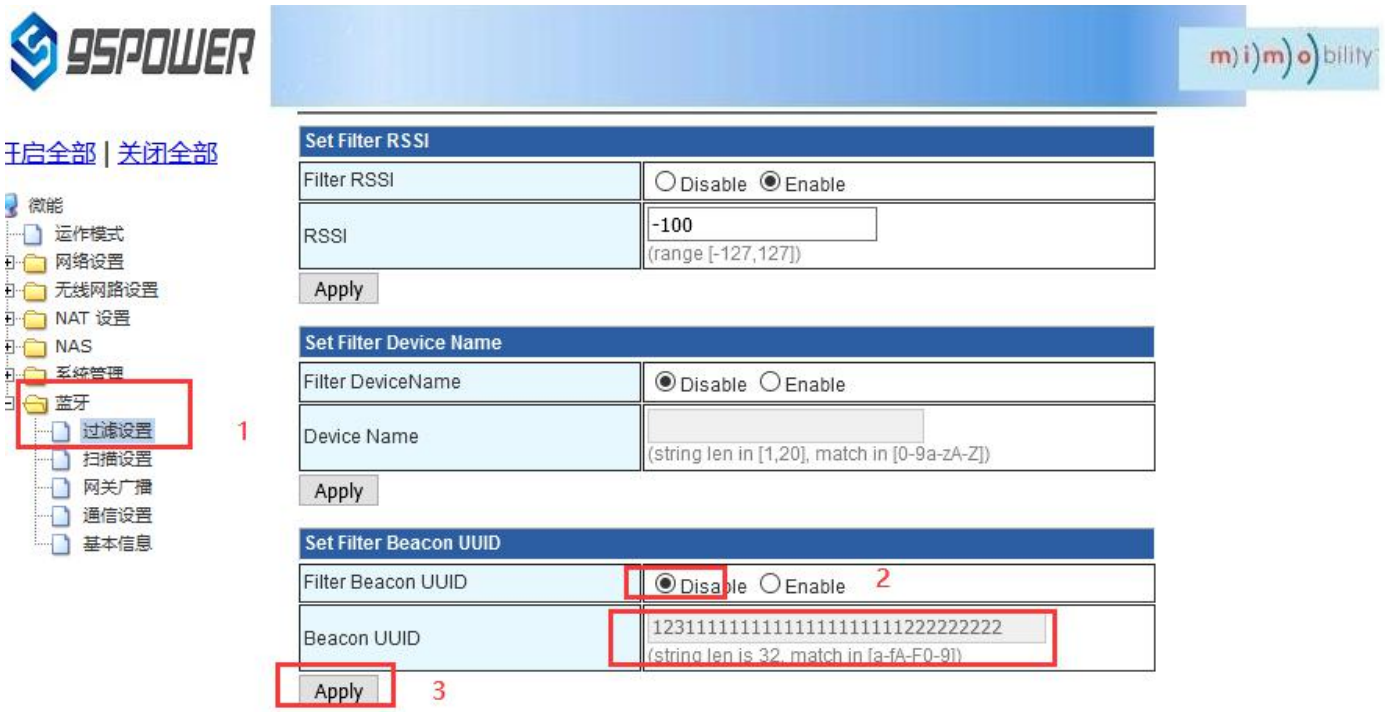


5.1.3、Set/Unscan the filtered Beacon UUID

Set the scan filter Beacon UUID

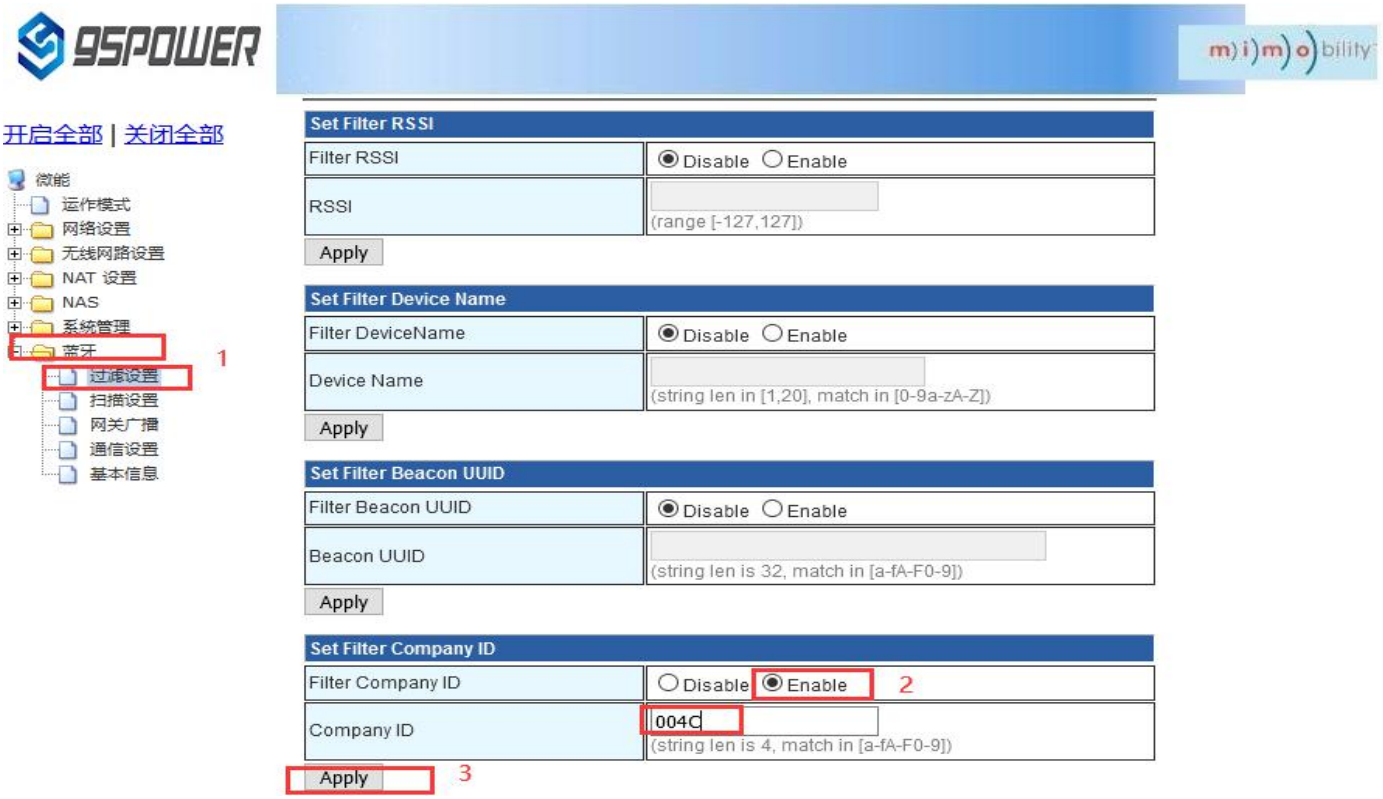


Unset the scan filter Beacon UUID

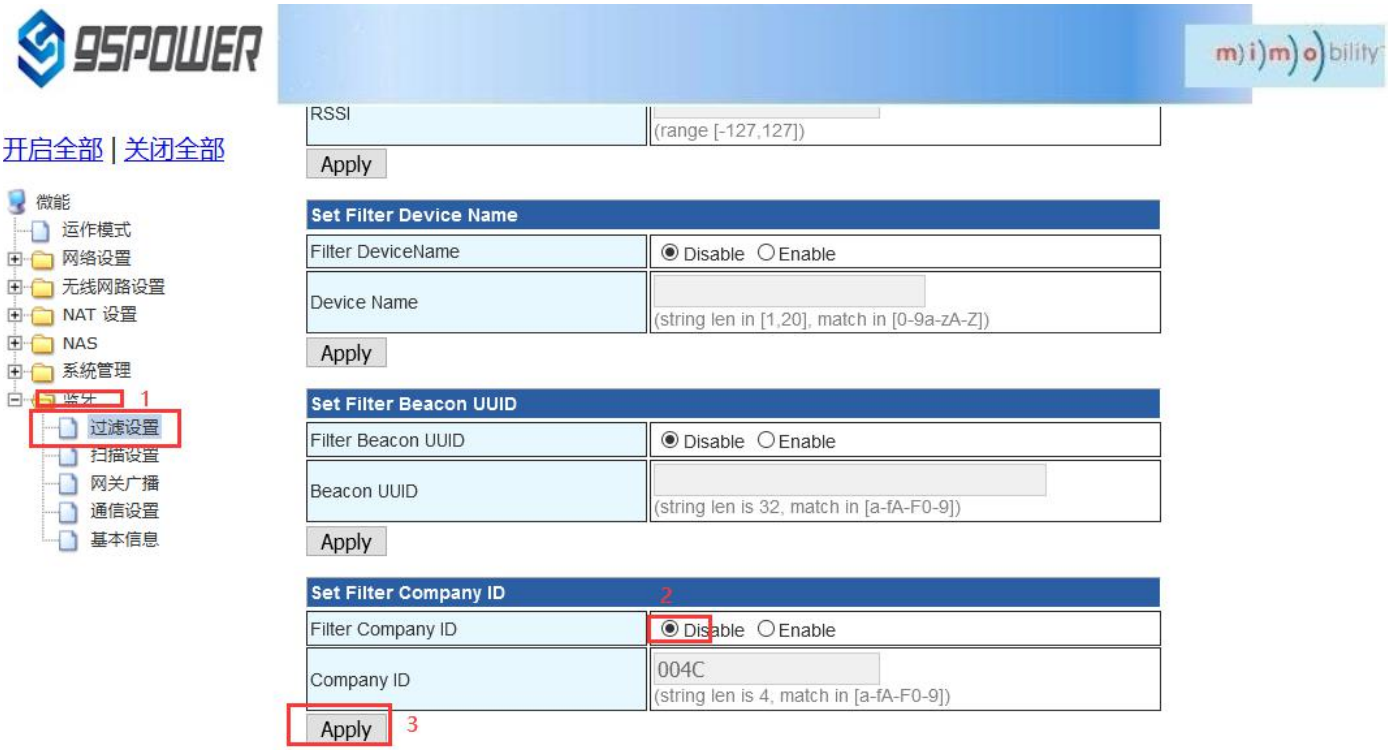


5.1.4、Set/unscan filtered CompanyId

Set the CompanyId for scanning and filtering



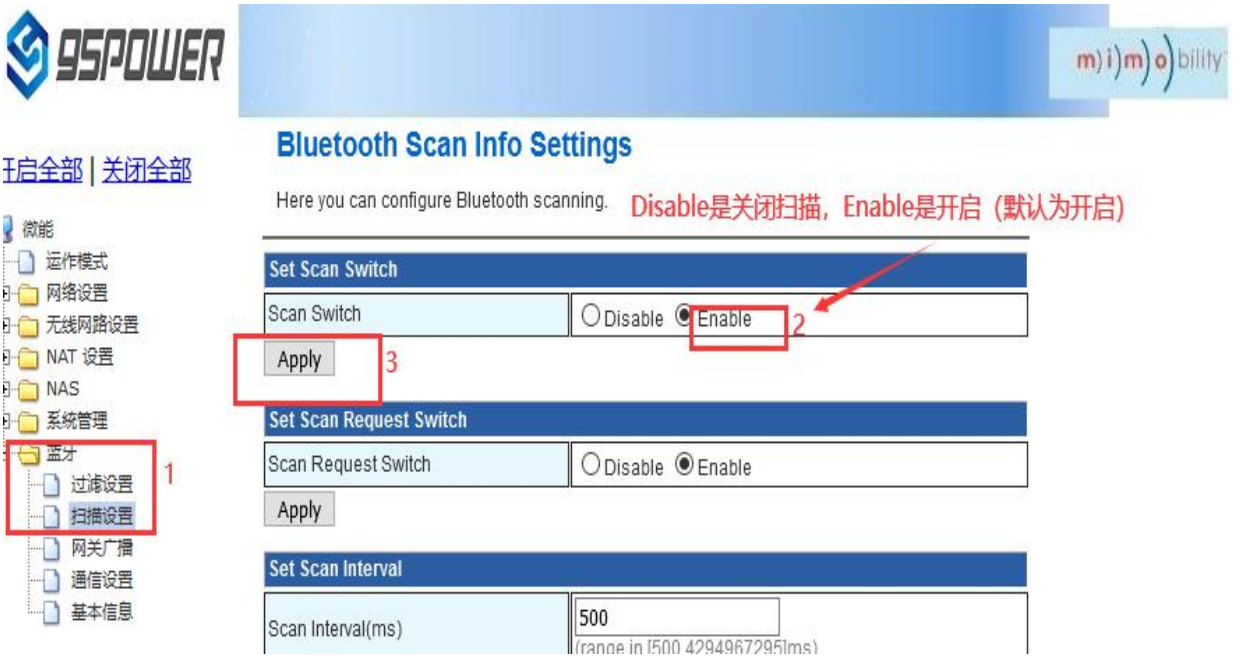
Unset the scan filter CompanyId



5.2 Configure the Bluetooth scan parameters

5.2.1、 Set the scan output switch

The steps to set the Bluetooth scan output switch are as follows:

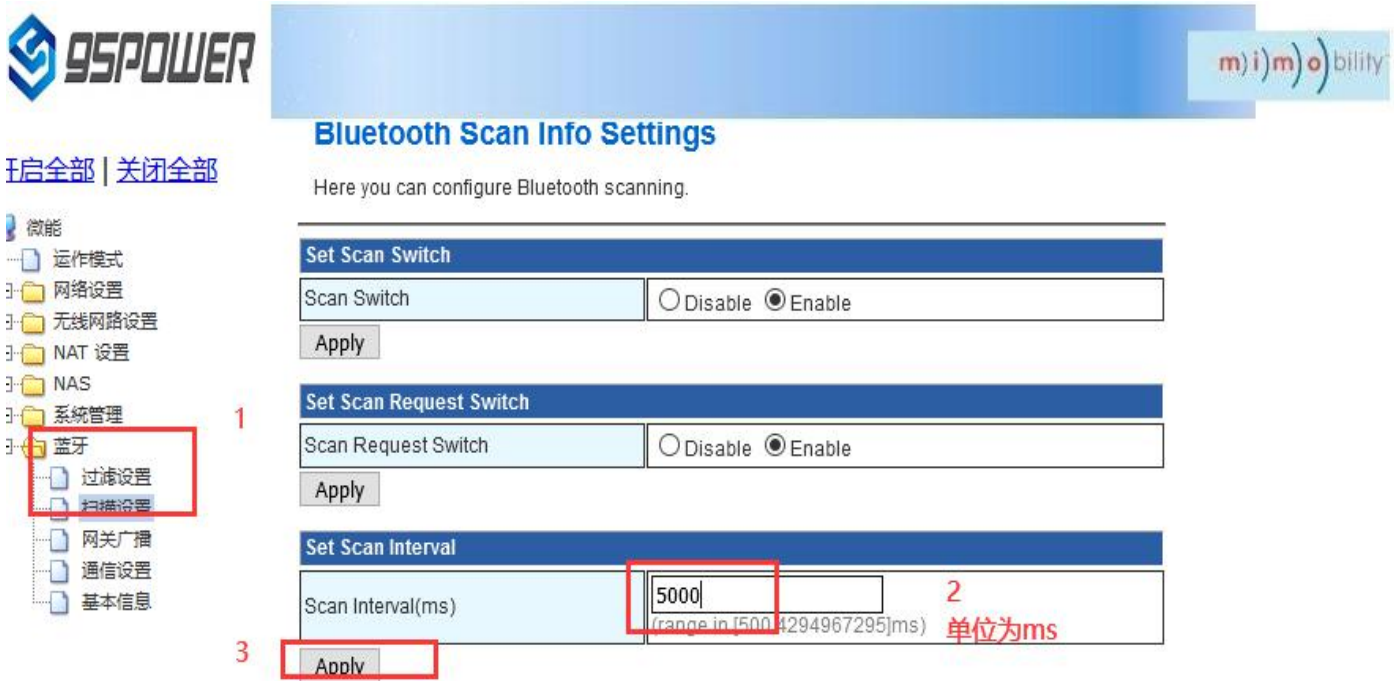


5.2.2、 Sets whether to start a scan request

When the scan request is started, the scan output is 62 bytes, which is started by default.When the scan request is not started, the amount of data output from the scan is 31 bytes.

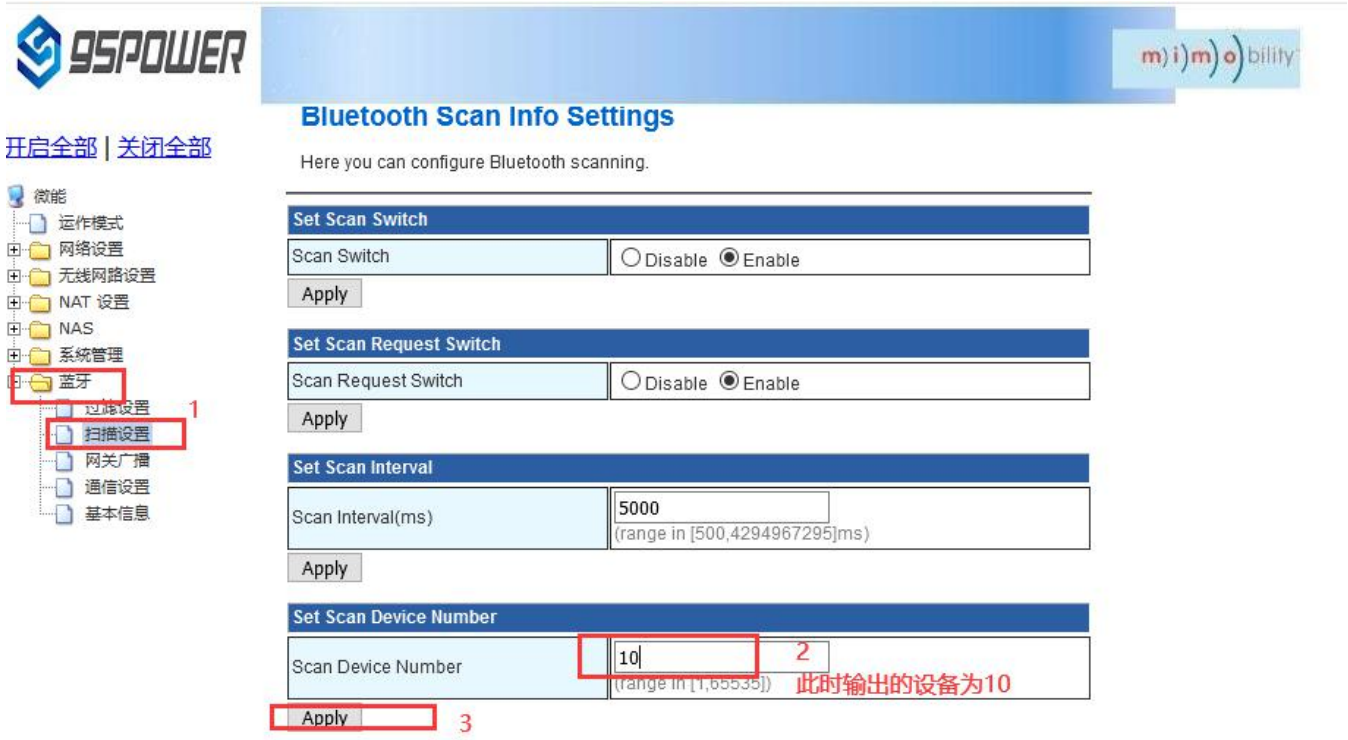
5.2.3、Set the time interval for the scan output

Set the time interval of scan output to a minimum of 500ms.



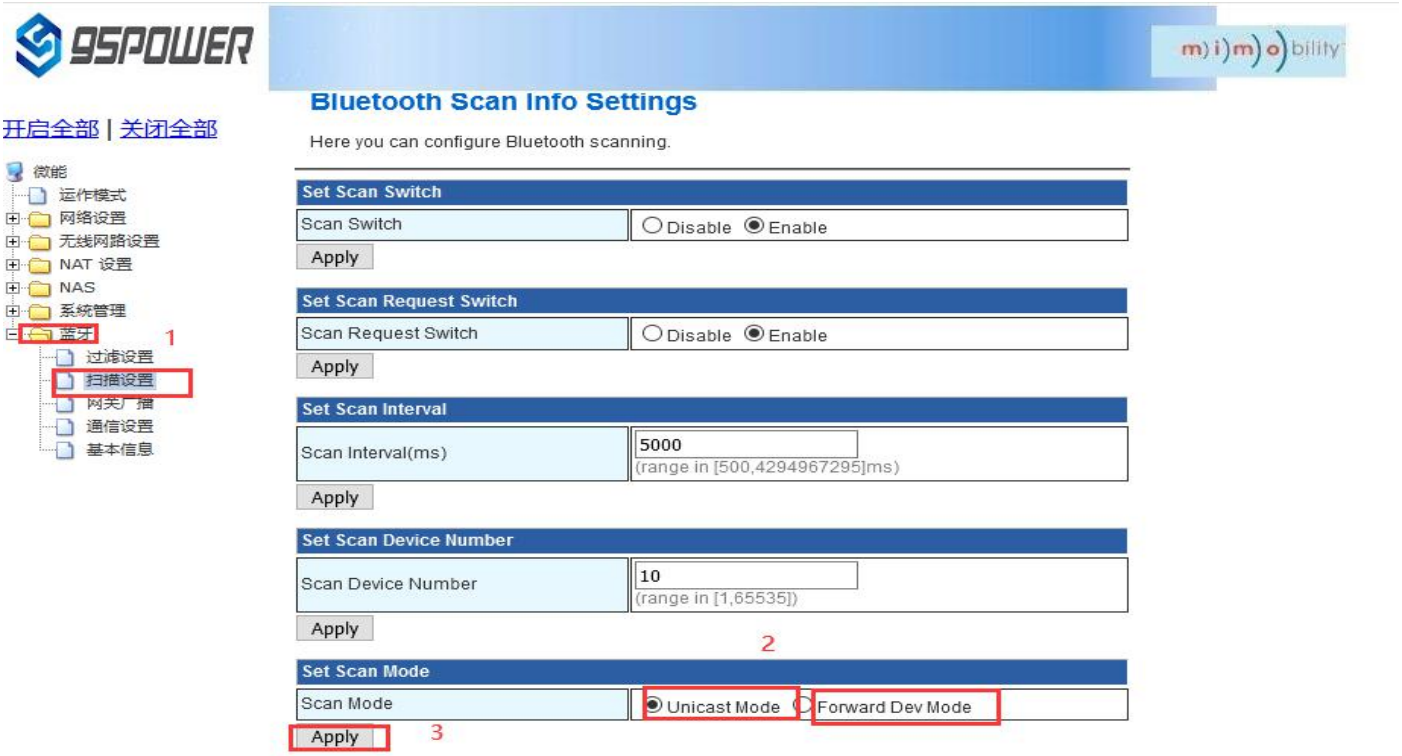
5.2.4、Sets the number of output device information at a time

Set the amount of device information output at a time to a minimum of 1.



5.2.5、Sets the scan single broadcast universal device mode or the forward work card mode

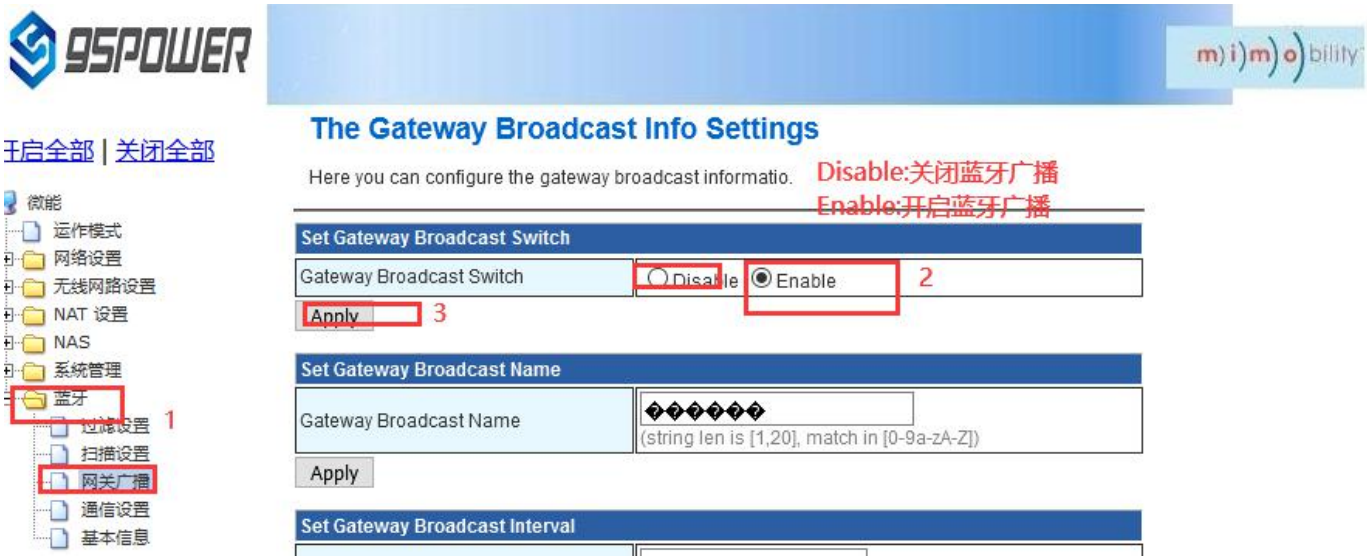
The default is single broadcast universal device mode, which can be set to transfer card mode according to application needs.



5.3 Configure the gateway to broadcast configuration information

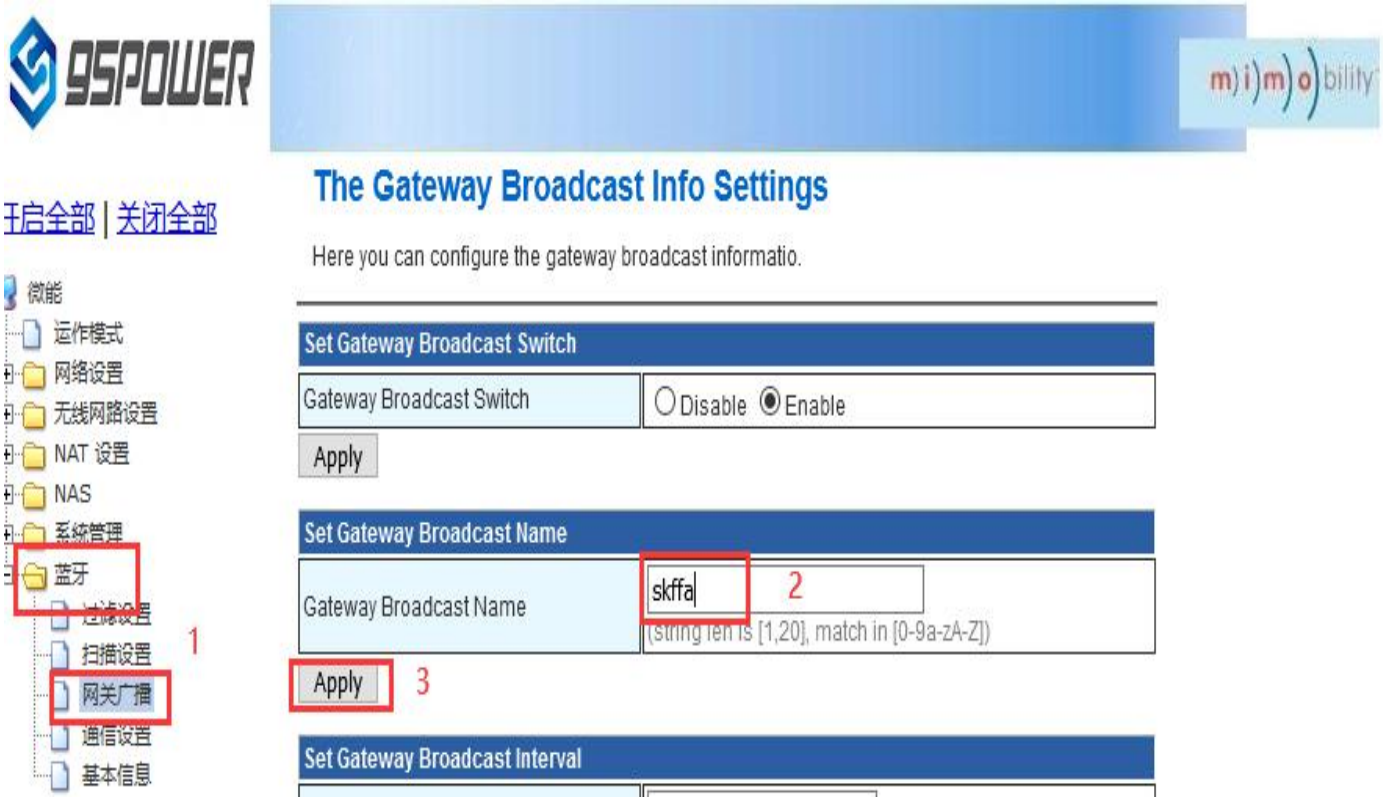
5.3.1、Set the gateway broadcast switch

The default gateway turns on Bluetooth broadcasting, and users can turn off Bluetooth broadcasting according to their needs.

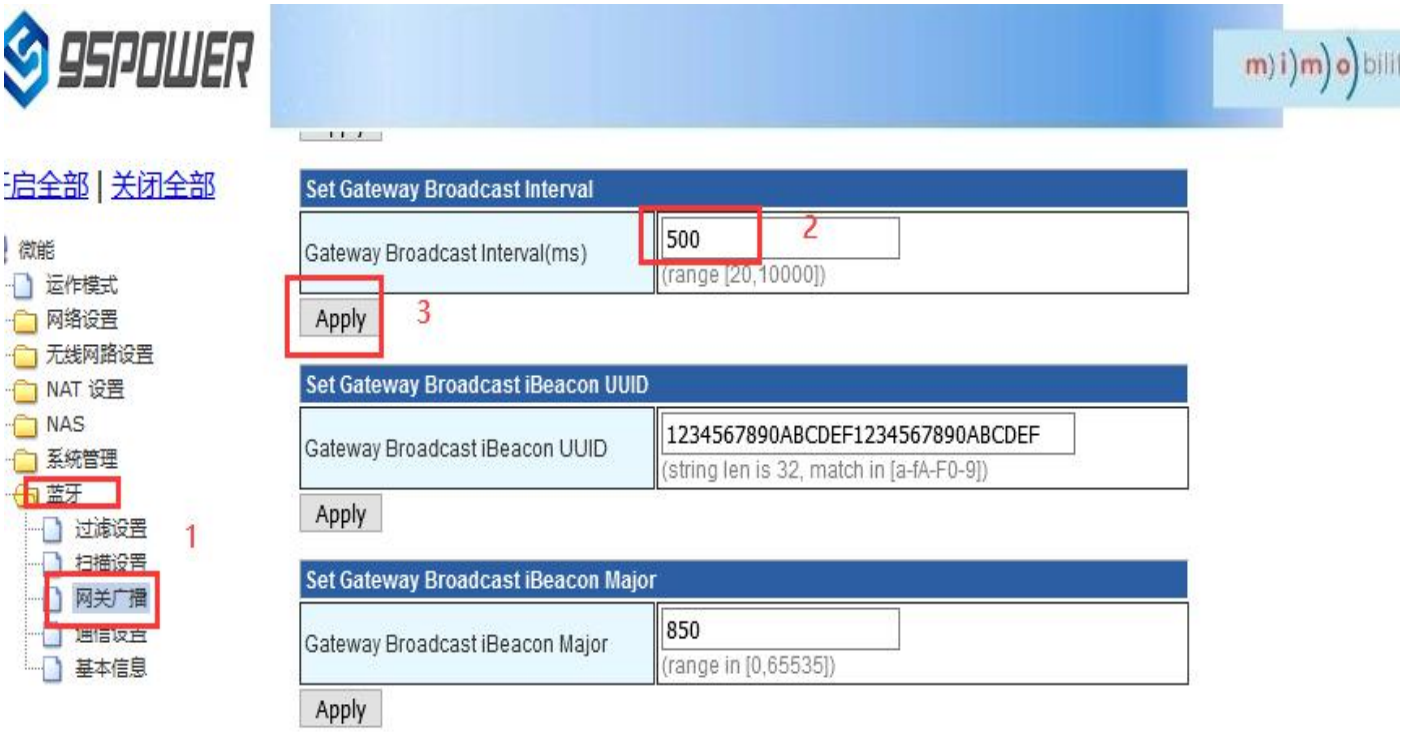


5.3.2、Set the gateway broadcast name

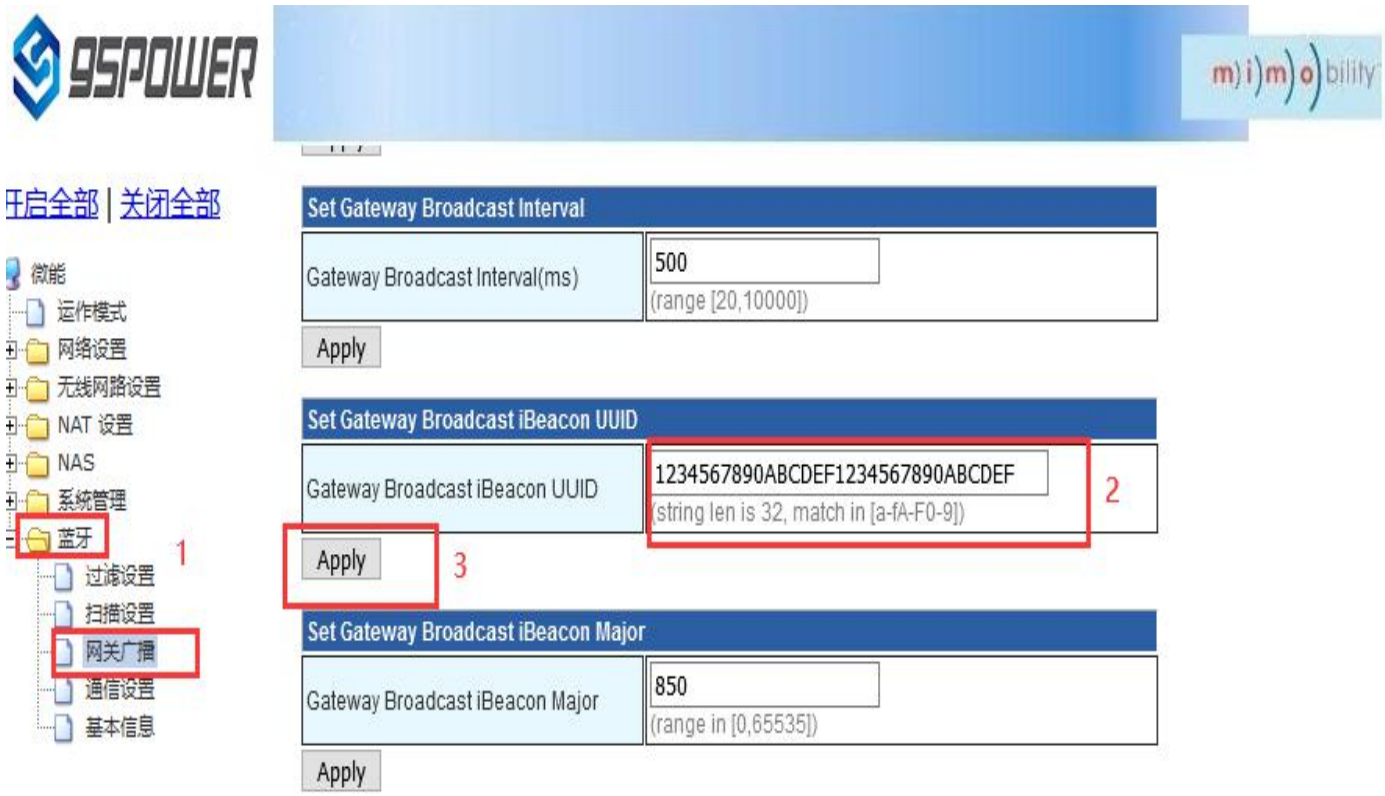
Sets the name of the Bluetooth broadcast to a maximum length of 20 bytes.



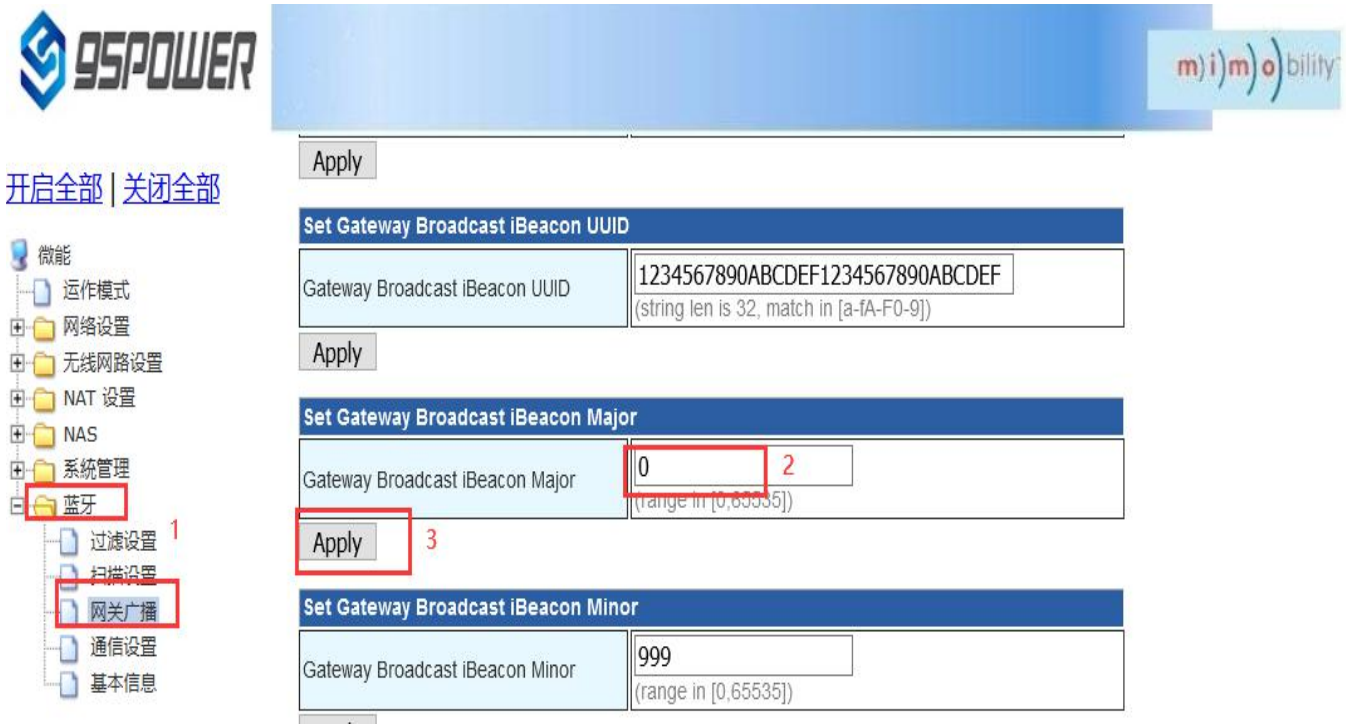
5.3.3、 Set the interval between gateway broadcasts



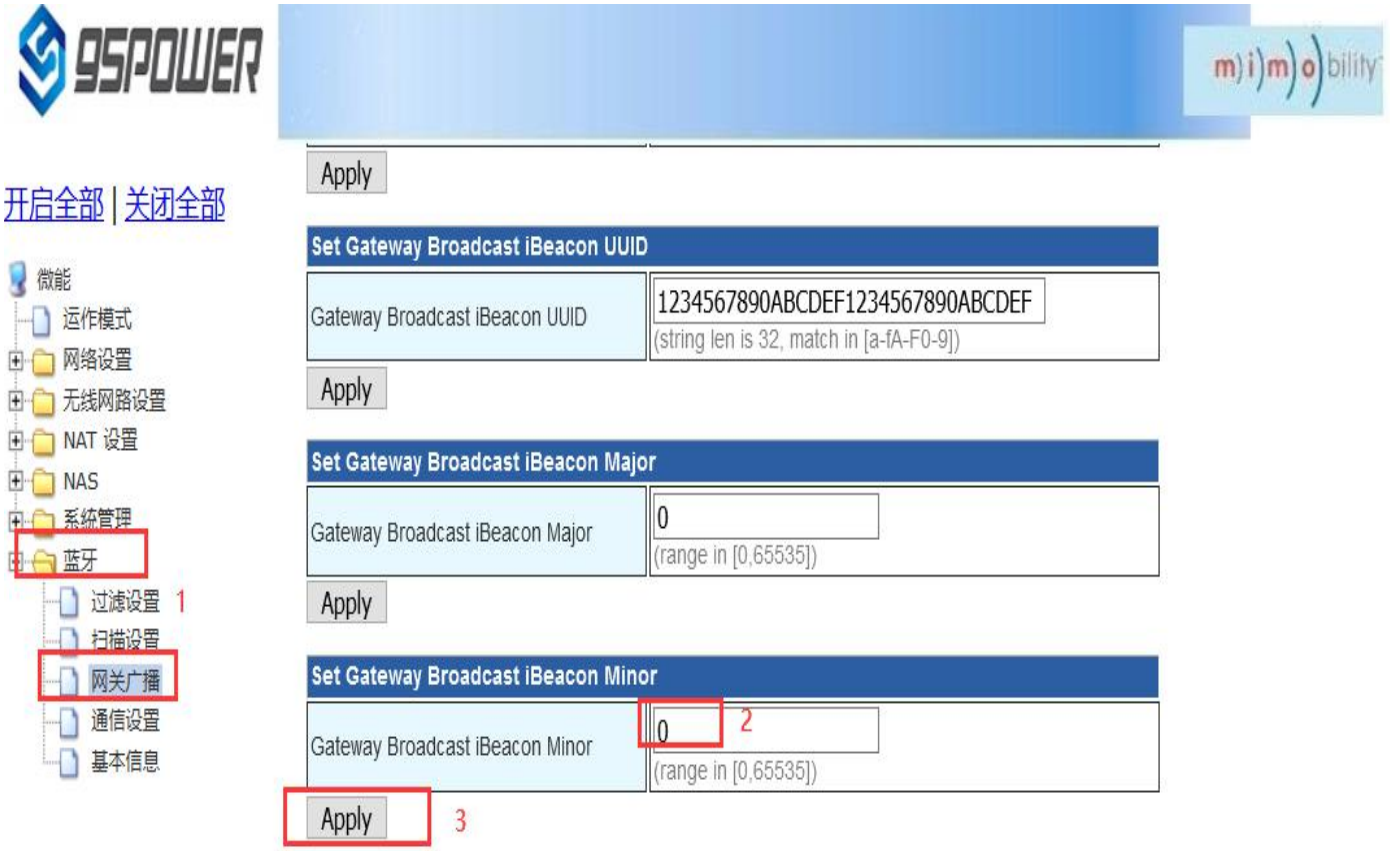
5.3.4 Set the iBeacon UUID for the gateway broadcast



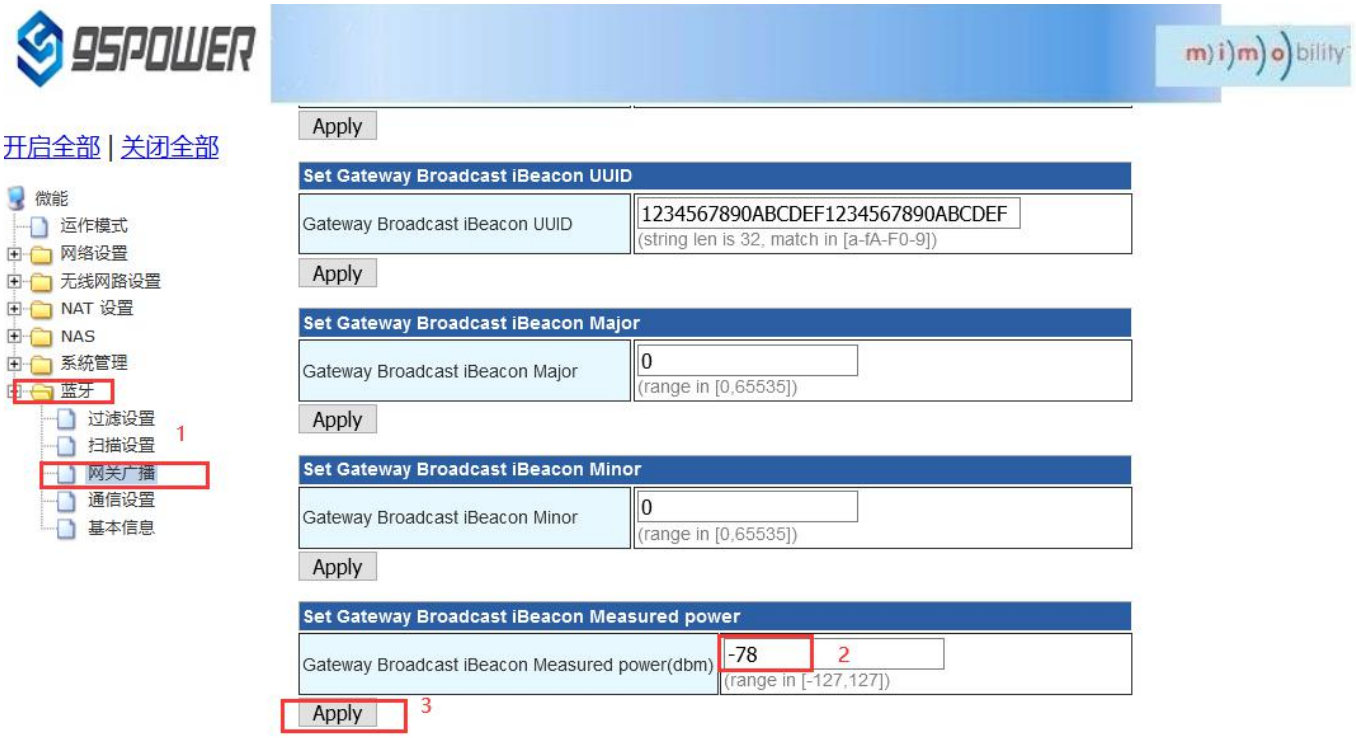
5.3.5、 Set the iBeacon Major for gateway broadcast



5.3.6、 Set the iBeacon Minor for gateway broadcast

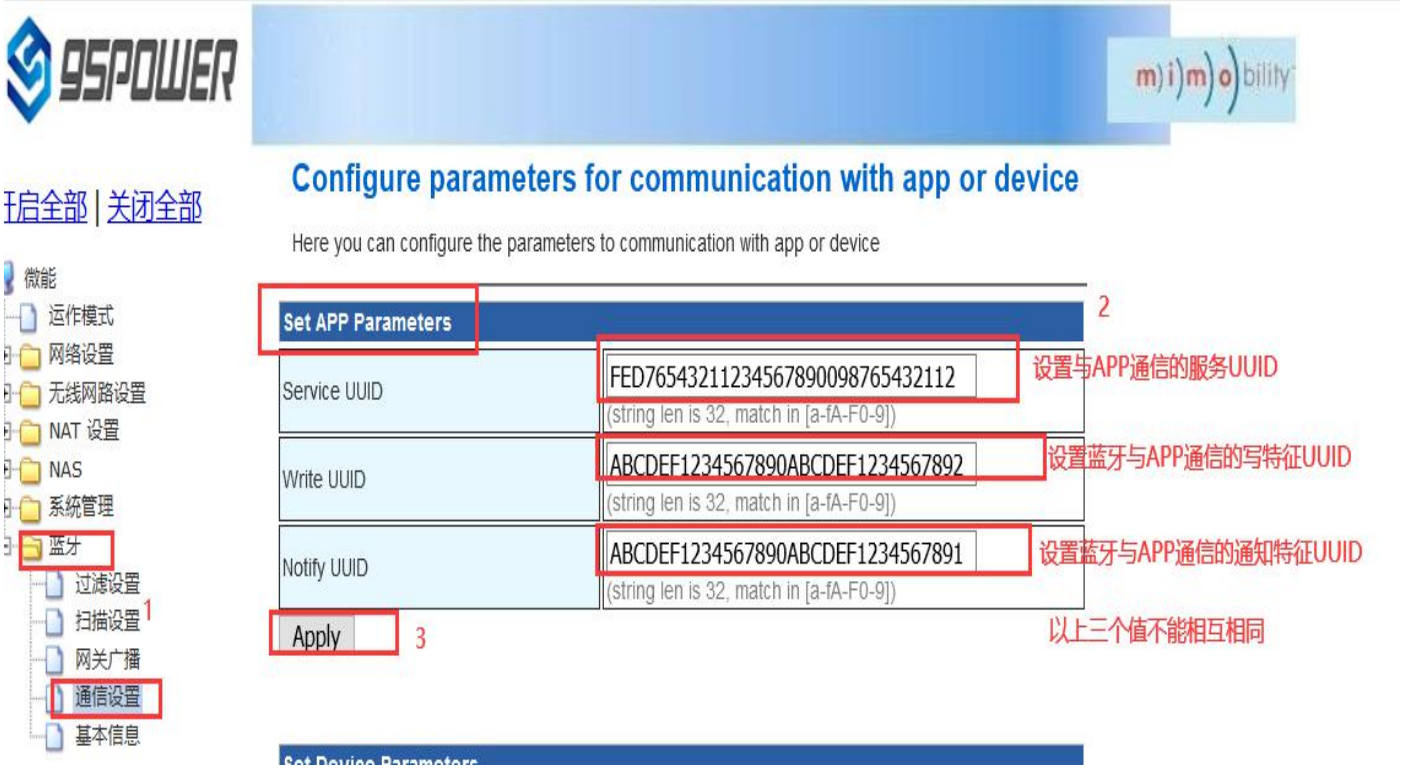


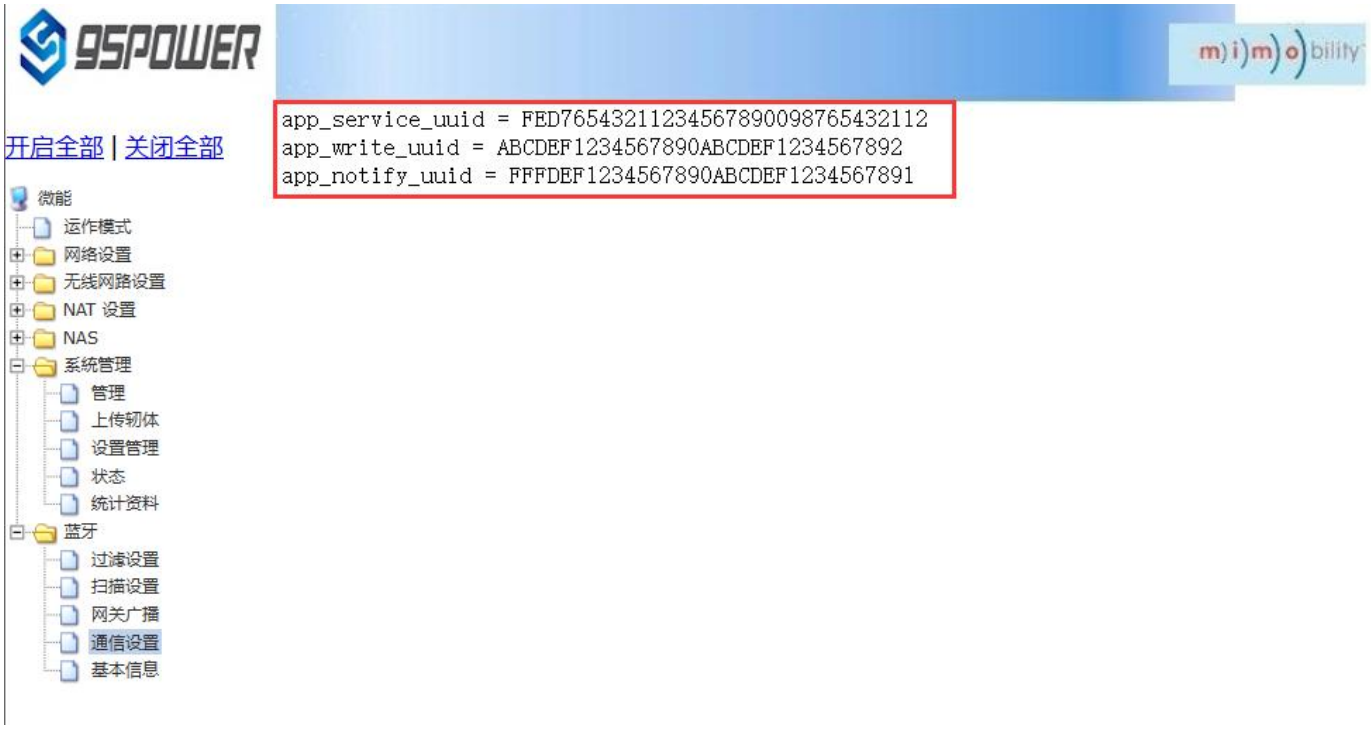
5.3.7、Set iBeacon Measured Power for gateway broadcast



5.4 Configure the parameters associated with communication

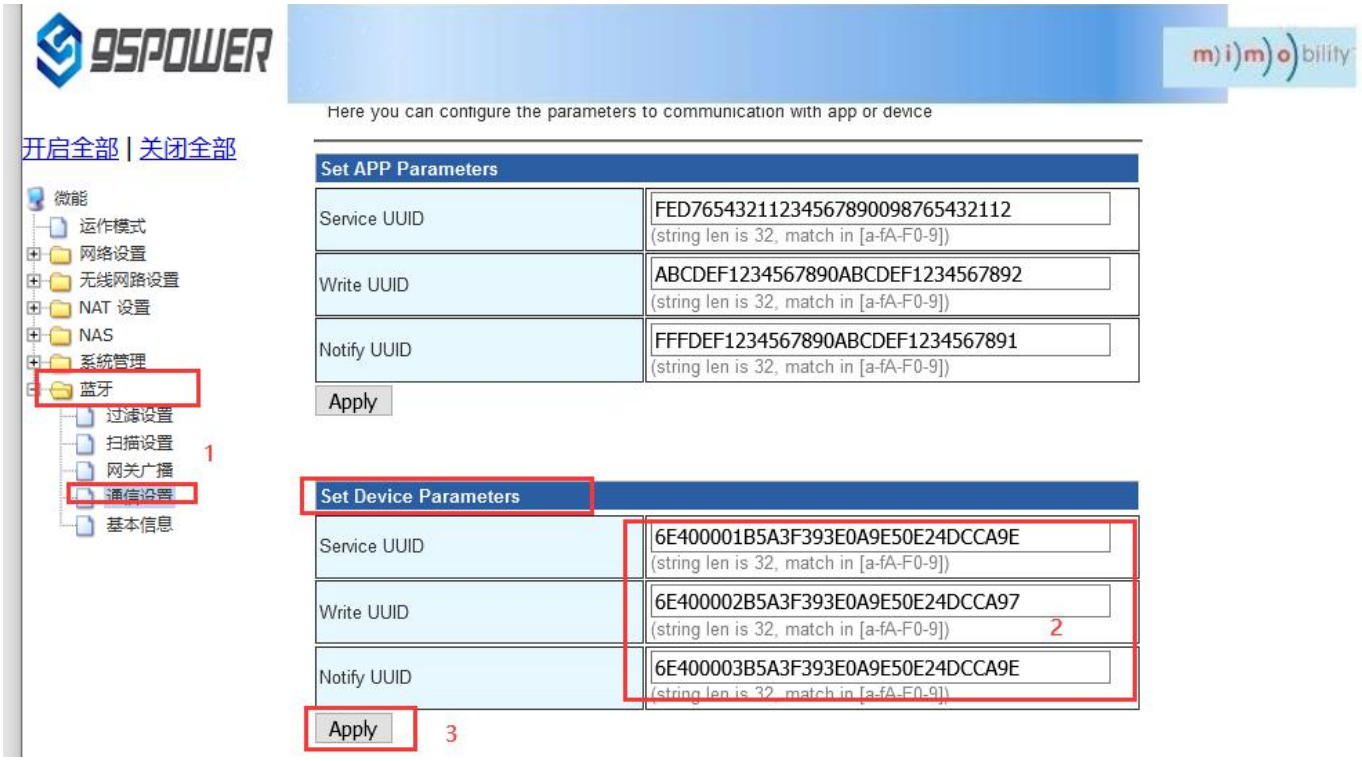
5.4.1 Configure the UUID that communicates with the APP



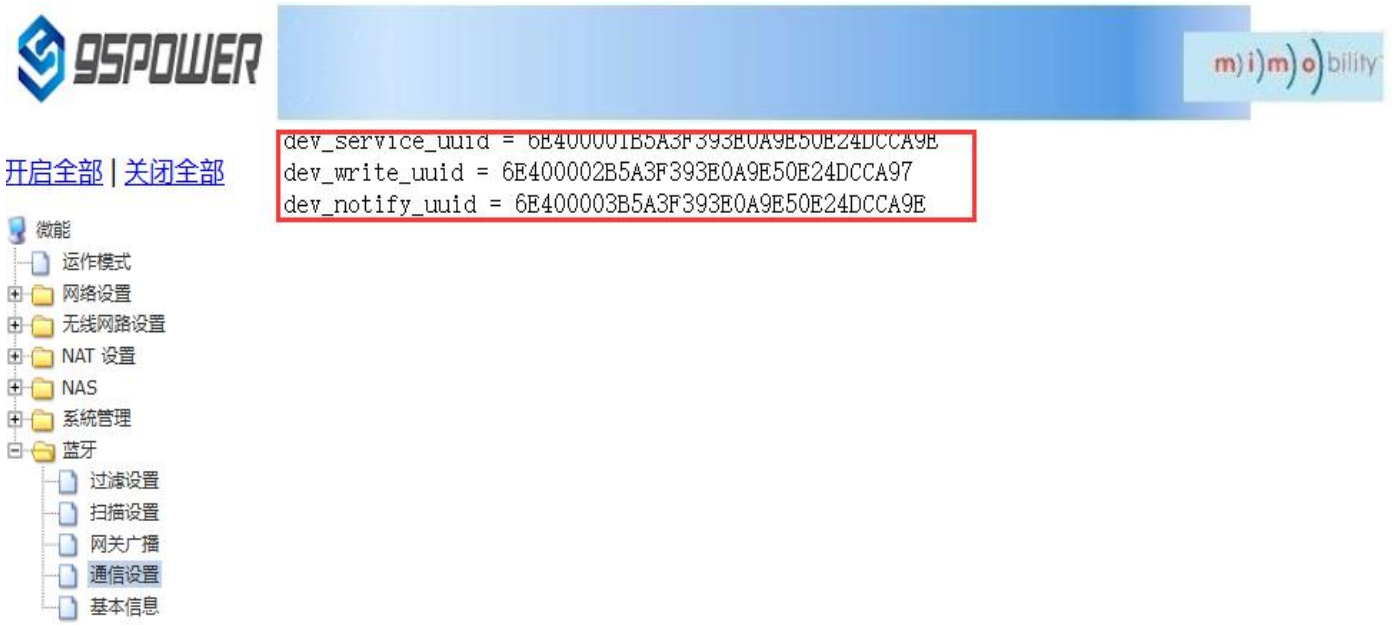


Click "Communication Settings" to view the Settings.After the setup is successful, you need to restart the gateway for the configuration to take effect.Here is how to restart the gateway

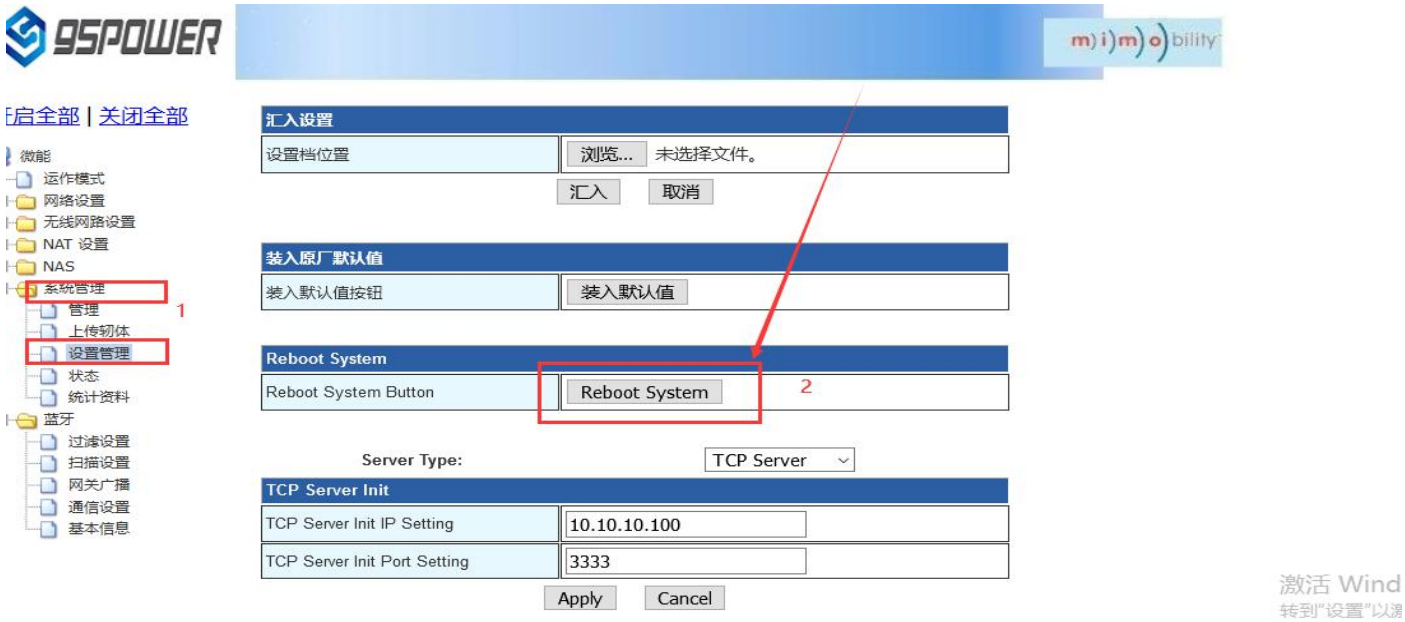
5.4.2 Configure the UUID that communicates with the device



After clicking Apply, the interface will jump to, as shown below:



Click "Communication Settings" to return to the corresponding interface to check the Settings.After the setup is successful, you need to restart the gateway for the configuration to take effect, as follows



6、 System management configuration

6.1 Set up the WEB interface display

VDB2607 web pages support simplified Chinese, traditional Chinese, English display, default for simplified Chinese display.Customers can switch the displayed language according to their needs. The operation steps are as follows:

(1) Select the language to be switched. Take Switching to English as an example. In figure 2, select English.

（1）Check the switching effect

6.2 factory data reset；restore factory setting

If you need to restore factory Settings, please follow the steps shown below.

6.3 Restart the system

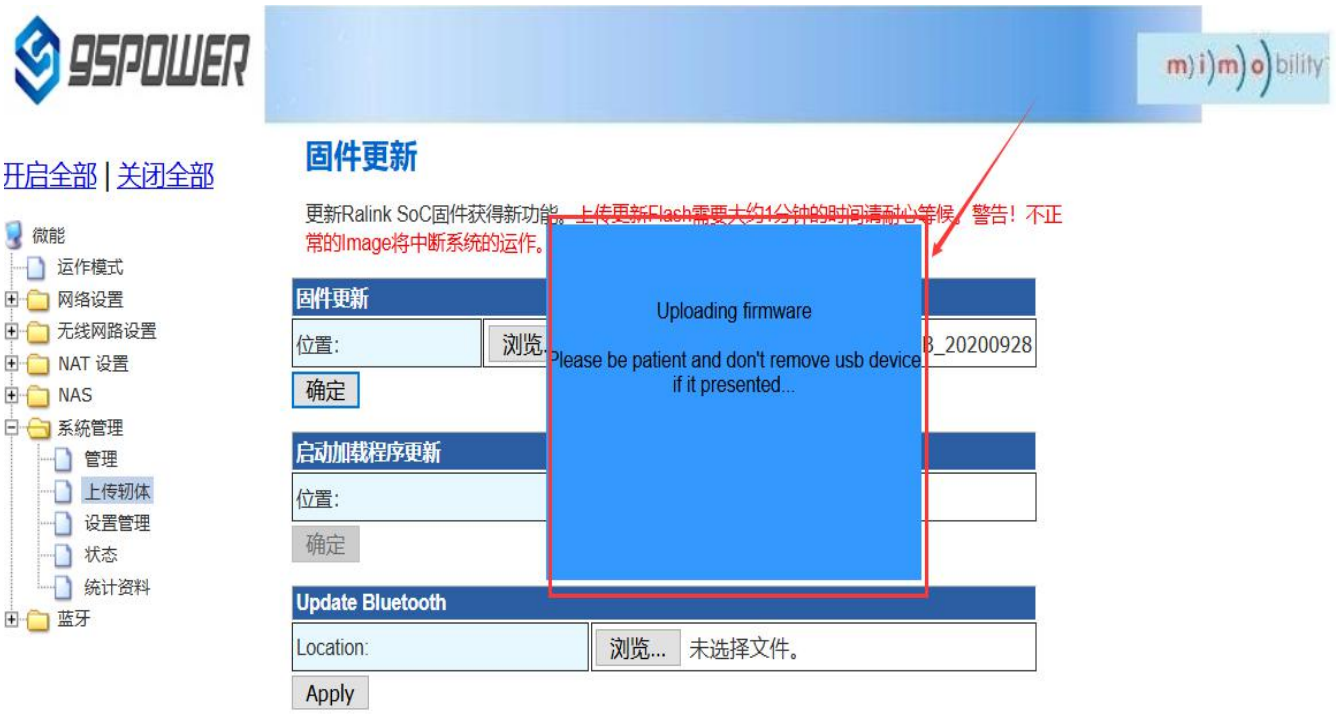
Here are the steps to restart the system

6.4 upgrade system

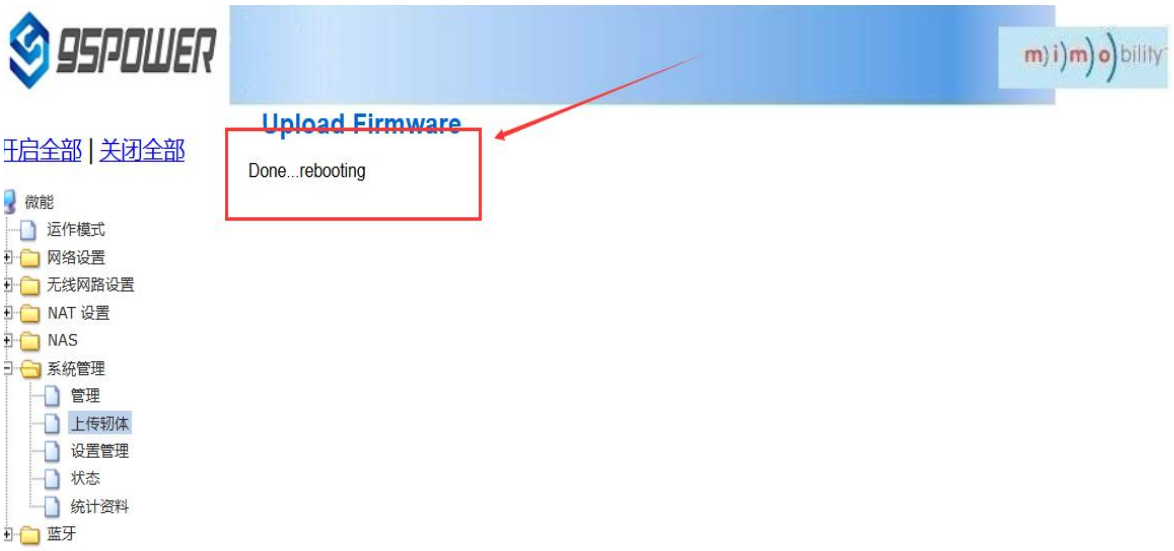
WIFI firmware can be upgraded through the Web interface. The upgrade steps are as follows:

(1) After clicking 2 in the figure below, select the firmware you need to upgrade locally. When you confirm, a prompt of 3 appears and click OK to start the upgrade.

(1) During the upgrade process, a prompt as shown in the figure below will appear. Do not power off until the prompt disappears. At this point, power off may cause the module to be upgraded to brick



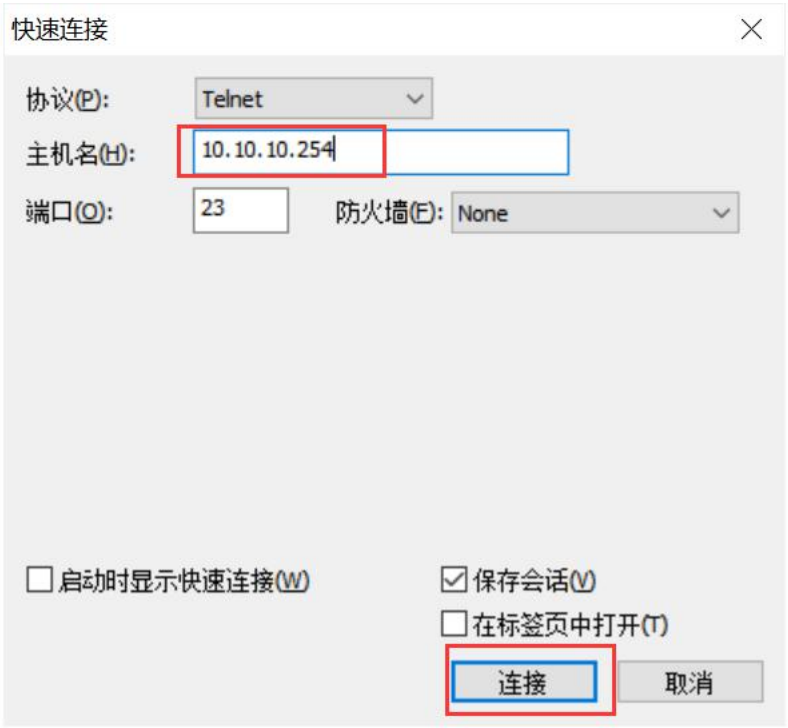
(2) After the successful upgrade, there will be a prompt to restart the system, as shown in the figure below.



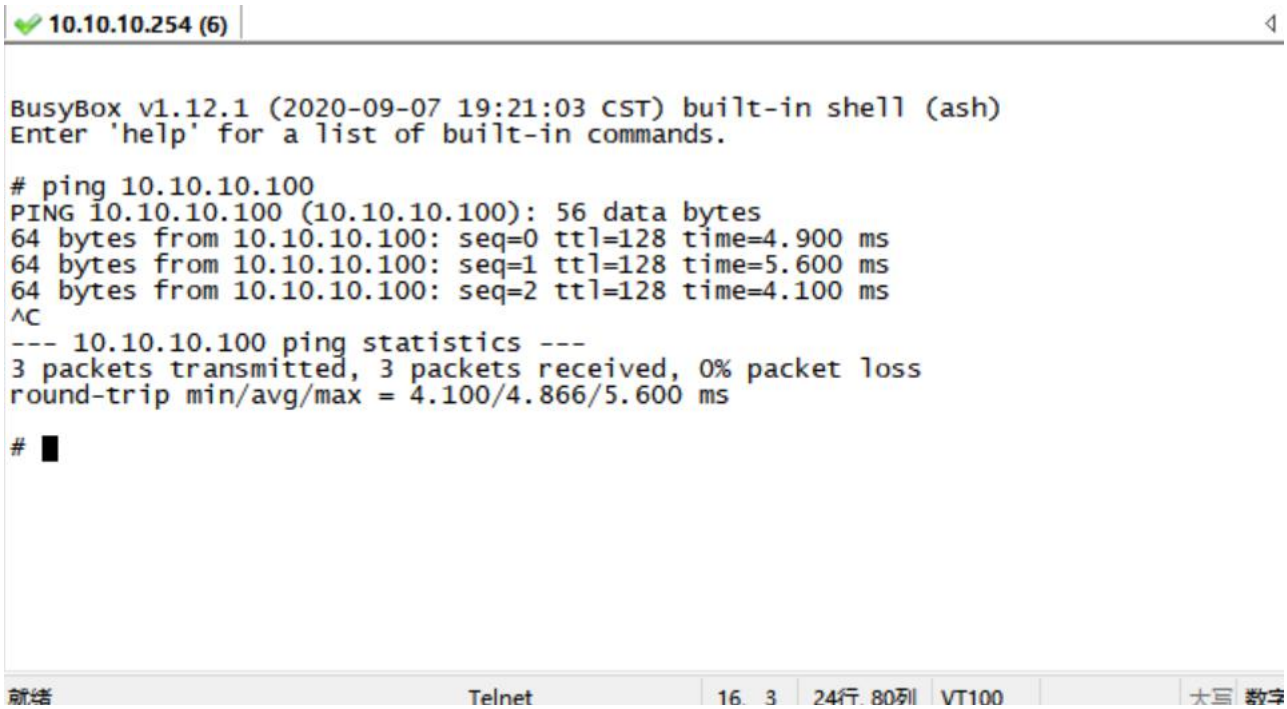
6.5 Telnet test management

The following describes the process of configuring Telnet using the SecureCRT tool.

(1) Select Telnet protocol, host name 10.10.10.254, port default 23;



（1） After entering the administrative terminal, use the command detection



7. Contact Information

95Power Information Technology Co., Ltd

深圳市微能信息科技有限公司

Address: 6 Floor, No.9 Building, Lijincheng Scientific & Technical park, Gongye East Road, Longhua District, Shenzhen, Guangdong, China

Tel: 86-755 23779409

Fax: 86-755 23779409

E-mail: sales@95power.com.cn

Website: www.95power.com.cn