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# S1500 W5 User Manual

V1.0

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## Preface

This document introduces S1500 W5, and guide user to install and configure S1500 W5.

## Revision Record

Version	Date	Author	Description
1.0	2016-10-10	Lisa	Initial released

Confidential

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# 1 S1500 W5 Introduction

## 1.1 Introduction

Magnet is a high-tech company dedicated in RF system and wireless coverage solution. Its products include 3G and 4G wireless communication system.

S1500 W5 is a high quality Small cell, and has superior wireless coverage performance.

This product is deployed by operators for indoor wireless coverage or carried by government public safety agents for network security operations. When used in premise indoor coverage, this product can be installed by set on desktop, mount on wall, or attach to ceiling. It is designed to provide coverage and will not interfere cellular or other wireless networks. This product is not available for commercial or general consumers and it is prohibited from any illegal use.

## 1.2 LED Indicators

LED Name	Description	Status	Status Indicator
PWR	power indicator	Off	Power off
		Green	Power on
WIFI	WIFI indicator	off	WIFI is not ready.
		Green	WIFI is ready to connect.
WCDMA	WCDMA signal indicator	off	WCDMA cell is not setup.
		Green	WCDMA cell is setup.
WAN	Ethernet indicator	off	No Ethernet connection.
		Blinking	Ethernet connection is normal.
CHARGE	battery charge indicator	off	no battery
		red	Battery is not fully charged.
		green	Battery is fully charged.

## 1.3 Operating temperature

-15 ~ 40°C

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## 1.4 Accessories

- **Power adapter**



Figure 1-1 Power Adapter

## 1.5 FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

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- Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.

### **Radiation Exposure Warning**

- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

## **2 Installation and Configuration**

### **2.1 Check Connection**

- Connect the adapter to the Small cell. If battery is put into S1500 W5, you can also use the battery to provide power. Then power on S1500 W5.
- Connect laptop or desktop to LAN port of S1500 W5 by cable. You can also connect it by WIFI.SSID/Password of WIFI printed on the label of S1500 W5.

### **2.2 Check LED Status and Fans**

- When the Small cell is power on, PWR LED should be green.
- If battery is included in the Small cell, when CHARGE LED is red it means the battery is in charging. When CHARGE LED is green it means the battery is charged.
- Wait about 10 seconds, when WIFI LED is green it shows WIFI begin to work.
- Check if the fans work as expected.

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- **Antenna**



Figure 1-2 Antenna

<b>Frequency Range</b>	<b>824MHz~894MHz</b>
<b>Gain</b>	<b>&lt;=3dBi</b>
<b>VSWR</b>	<b>&lt; 2.5:1</b>
<b>Azimuth (3dB beamwidth)</b>	<b>Omni directional</b>
<b>Impedance</b>	<b>50 Ohm</b>
<b>Power</b>	<b>10W</b>
<b>Mounting Style</b>	<b>SMA</b>
<b>Dimensions(mm)</b>	<b>161*9.3 (with knuckle angle)</b>

**Notes:** S1500 W5 has two external antenna ports, but only one antenna port can transmit WCDMA signal when it is working. The reason for the configuration of two antenna ports, is to facilitate use of two kinds of antennas. In the actual application, users can connect two different antennas on two antenna ports, and select one of them as working antenna, and when the user want to change the working antenna, he can configure it by software without the need for hand switch. Antennas should be prepared by customers, we provide this antenna for customer reference only.

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## 2.3 Setup on ANT1

### 2.3.1 Connect Antenna to ANT1 Port

Connect the antennas to the ANT1 port of the Small cell.

### 2.3.2 Connect S1500 W5 by SSH Secure Shell

- Open SSH Secure Shell, click "Quick Connect" button as shown in the following figure 2-1.

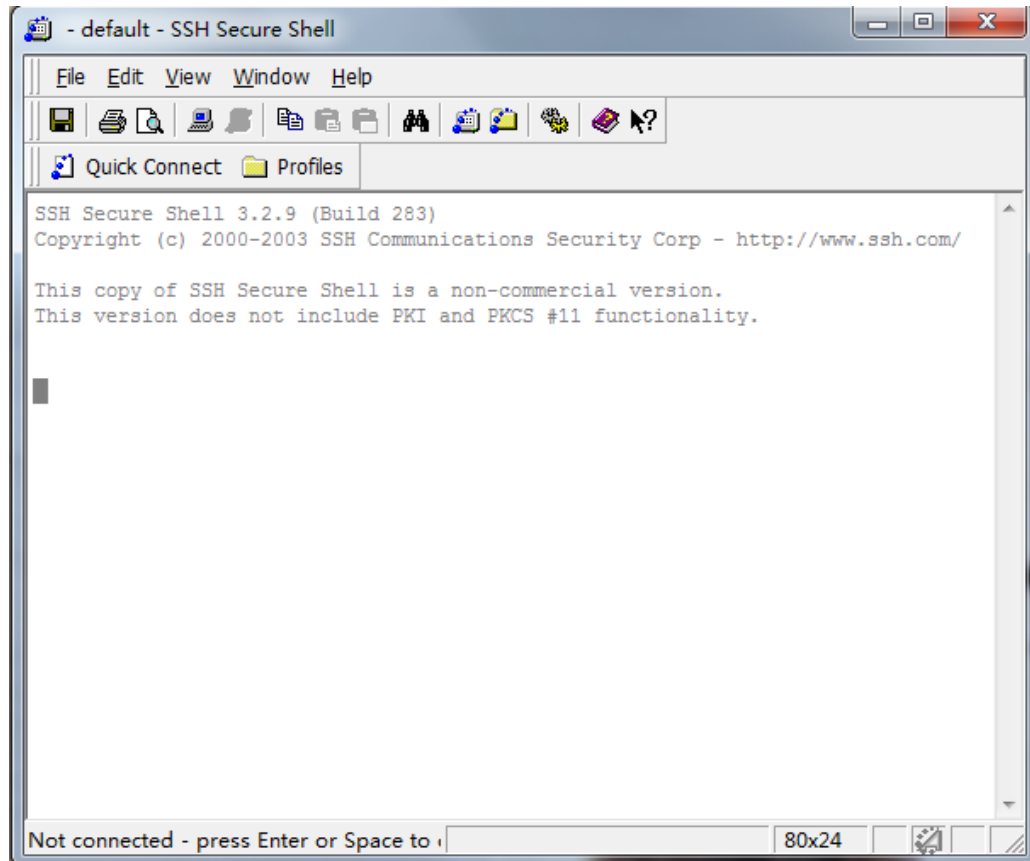


Figure 2-1 Quick Connect

- Input Host Name 192.168.100.50, default User Name, Port 22 and choose Authentication Password, and click "Connect" button.



Figure 2-2 Connection to S1500 W5



- Input default password and click "OK" button.

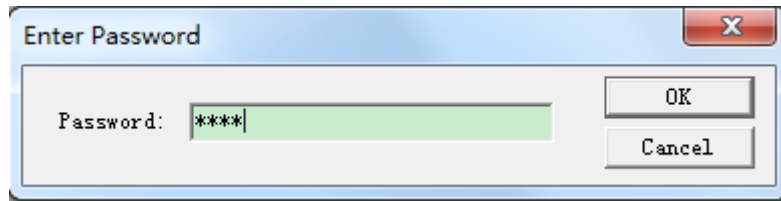


Figure 2-3 Input Password

- It will enter S1500 W5.

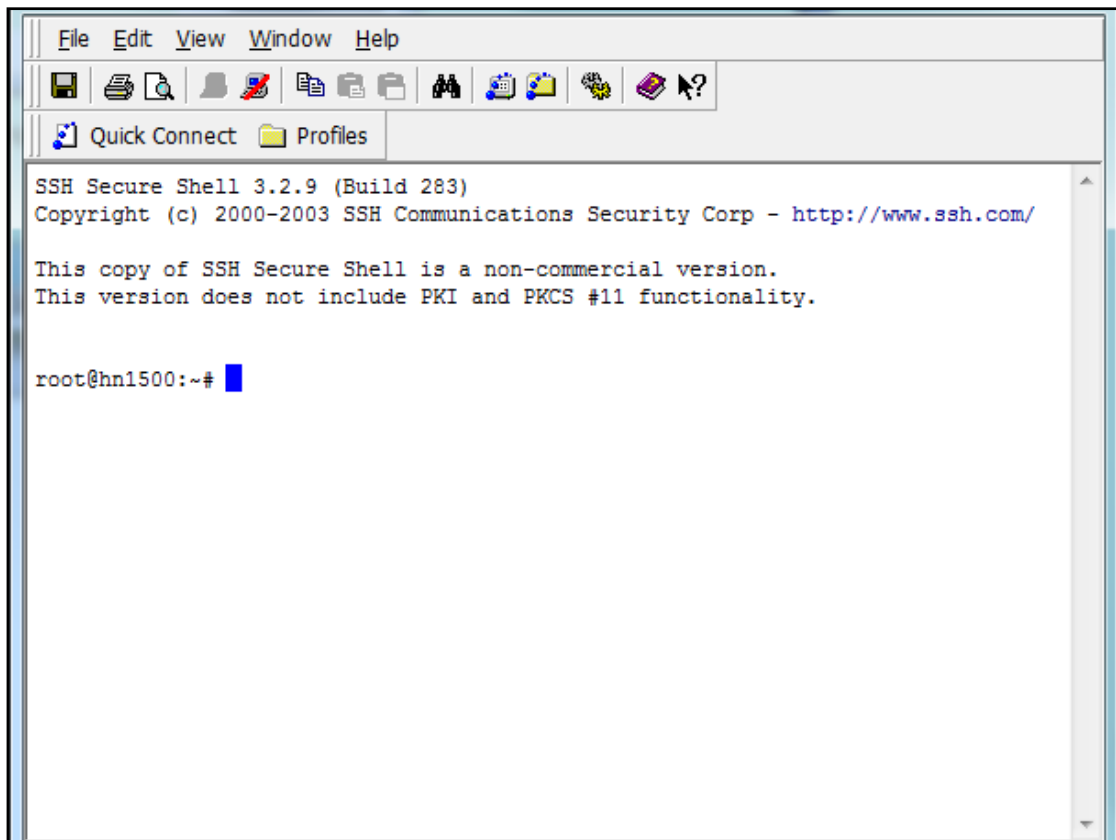


Figure 2-4 Enter S1500 W4

### 2.3.3 Configuration

- Run the following commands successively:

**monitor stop**

**vi pc8219-setup-850m.lua**

Enter i

Set radioSetTxChannel as 4537 and radioSetRxChannel as 4132.

Ensure radioSetRergister is as below:

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radioSetRegister(RADIO\_CHIP\_ADF4602, 0x16, 0x801f)

Press ESC

Enter **:wq**

### 2.3.4 Setup WCDMA Signal on ANT1

- Run the following commands successively:

**./picoradioapp -b pc8219-setup-850m.lua**

**vctcxo -i&**

**./l1MsgApp -l PC8219\_PC7302\_design\_Dev0.pa -c tm1**

- It will setup WCDMA signal on frequency 871.4 on ANT1.

Press CTRL +C to exit, it will stop to setup the signal.

Edit radioSetTxChannel and radioSetRxChannel to setup different frequency.

Frequency point and corresponding frequency is listed as below:

	<b>Uplink</b>	<b>Downlink</b>
Frequency Band	869-894MHz	824-849MHz

## 2.4 Setup on ANT2

### 2.4.1 Connect Antenna to ANT2 Port

Connect the antennas to the ANT2 port of the Small cell.

### 2.4.2 Configuration

- Run the following commands successively:

**monitor stop**

**vi pc8219-setup-850m.lua**

Enter **i**

Set radioSetTxChannel as 4357 and radioSetRxChannel as 4132.

---

Ensure radioSetRergister is as below:

```
radioSetRegister(RADIO_CHIP_ADF4602, 0x16, 0xc01f)
```

Press ESC

Enter **:wq**

### 2.4.3 Setup WCDMA Signal on ANT2

- Run the commands successively:

```
./picoradioapp -b pc8219-setup-850m.lua
```

```
vctcxo -i&
```

```
./l1MsgApp -l PC8219_PC7302_design_Dev0.pa -c tm1
```

- It will setup WCDMA signal on frequency 871.4 on ANT2.

Press CTRL +C to exit, it will stop to setup the signal.

Edit radioSetTxChannel and radioSetRxChannel to setup different frequency.

Frequency point and corresponding frequency is listed as above.