

# **AN-USF5-01**

## **Cell Phone Signal Booster**

### **User Manual**

**ANTLENT**

## Introduction

With the popularity of mobile communications, people want to make a call anytime, anywhere, so the coverage requirement of communication network is higher and higher, but the reality is not so, sometimes mobile phone signal is not very good, you want to make a smooth call, even in some places cell phone cannot dial out. In these cases, cell phone signal booster can solve this problem to a certain extent.

## Features

- AGC(Automatic Gain Control): When the downlink output signal is too strong or self-oscillated, the uplink and downlink can automatically reduce the gain and reduce the interference signal.
- Self-Oscillation elimination: The system detects self-Oscillation, first reduces the link gain, then detects the loop, and finds that the self-oscillation is eliminated, the system returns to normal working state, otherwise, the power is turned off to prevent interference signal.
- Inactivity Mode: When no user calls, the device is in standby mode, the uplink power amplifier is switched off, and the static power is decreased by 30%, so as to achieve the purpose of energy saving.
- Equipped with Bluetooth communication function. This function, combined with the mobile terminal app (company specific), allows you to view the operation status of the device and adjust the gain of the device as needed, greatly facilitating customer use and providing reference for online technical support.

## SAFETY WARNINGS

### WARNING:

**This equipment should be installed and operated with minimum distance 20cm (8 inches) between the radiator& your body.**

### FCC Cautions:

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- 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.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instruction

for satisfying RF exposure compliance.

- This transmitter must not be co-located or operating in conjunction with any other Antenna or transmitter.
- 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.
  - 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.

#### **SAFTY WARNING:**

- End users must follow the specific operating instruction for satisfying RF exposure compliance.
- Do not remove the covers during working.
- Do not try to repair or replace any components inside of the equipment. Alteration or abuse of the equipment or other components will void this product's warranty, and could be dangerous to the user.

#### **PACKAGE CONTENTS**

**(1) Packages include the following:**



1



2

1. 1Pcs AN-USF5 Plus Booster with N Female connectors.

2. AC/DC Power Adaptor. 3.Screws Mounting Kits. 3. User manual (this document).

**(2) Booster interface description:**



①**Manual gain control knob and LED light:** You can manually rotate the knob to adjust the gain of the corresponding frequency band .The corresponding LED on the right is used to indicate the following different working conditions of the booster.

LED Indicator	Booster working conditions
LED LIGHT	Continuous GREEN @normal;
	Twinkly GREEN @input signals may be not enough;
	Continuous YELLOW @ stronger input signals, AGC is working;
	Twinkly YELLOW@ self - oscillation happen ,AGC is working.
	Continuous RED@ power supply is shut down;
	Twinkly RED@ self - oscillation happen but power supply is NOT shut down.

②**Power supply jack:** The booster uses a power input range of DC 5-12V.

③**INDOOR and OUTDOOR port:** The two ports are used to connect outdoor and indoor antennas.

**(3)Antennas and Cables:**

In order to use the Booster, you still need the corresponding indoor antenna 1pcs, outdoor antenna 1pcs, outdoor cable 1pcs and indoor cable 1pcs.

Antennas and cables kitting information are as follows

Name		Model	Gain/Loss
Indoor Antenna	Rubber Antenna	PTE-RB-800-2100	3dbi @698-787MHz 3dbi @824-894MHz 3.5dbi @1850-1990MHz 3.5dbi @1710-2155MHz
	Ceiling Antenna	PTE-CI-800-2500	3dbi @698-787MHz 3dbi @824-894MHz 4.5dbi @1850-1990MHz 4.5dbi @1710-2155MHz
	Indoor Panel Antenna	AN-101	7dbi @698-787MHz 7dbi @824-894MHz 8.5dbi @1850-1990MHz 8.5dbi @1710-2155MHz
Outdoor Antenna	Yagi Antenna	PTE-YG-800/1900	8dbi @698-787MHz 8dbi @824-894MHz 10dbi @1710-1755MHz 10dbi @1850-1990MHz 10dbi @2110-2155MHz
	LPDA Antenna	AN-201	9dbi @698-787MHz 9dbi @824-894MHz 10.5dbi @1710-1755MHz 10.5dbi @1850-1990MHz 10.5dbi @2110-2155MHz
	Omni directional glass fiber Antenna	PTE-GF-700-2500	3dbi @698-787MHz 3dbi @824-894MHz 5dbi @1710-1755MHz 5dbi @1850-1990MHz 5dbi @2110-2155MHz
Indoor Cable	20 feet 3D-FB Coaxial cable with N male connector	PTE-3D-FB-5NB	2.19db @698-787MHz 2.29db @824-894MHz 2.42db @1710-1755MHz 2.55db @1850-1990MHz 2.86db @2110-2155MHz
Outdoor Cable	50 feet 3D-FB Coaxial cable with N male connector	PTE-3D-FB-10NB	5.21db @698-787MHz 5.49db @824-894MHz 5.89db @1710-1755MHz 6.25db @1850-1990MHz 6.86db @2110-2155MHz

Notes: The above model antennas are suitable for AN-USF5-01 booster.

**Warning: Unauthorized antennas, cables and/or coupling devices are prohibited**

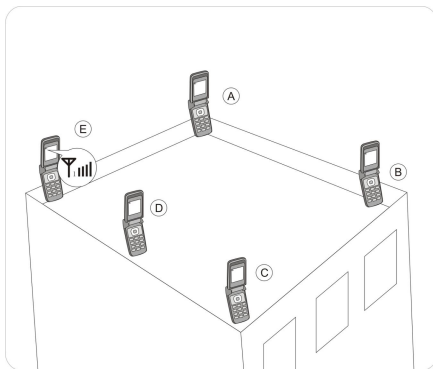
by FCC rules. Please contact FCC for details: 1-888-CALL-FCC

The antenna, cables, and other accessories of the booster kits shall not be modified without the approval of the ANNTLENT company, otherwise it shall be deemed invalid.

## **INSTALLATION INSTRUCTIONS**

### **(1) Installation of Outdoor Antenna**

The booster's main function is to improve weak RF signals of an area. A simple formula: Input power+ Gain= Output power. The signal strength from the outdoor antenna directly affects the efficiency of the indoor coverage. It is very important to choose the outdoor antenna location in order to get the best signals.



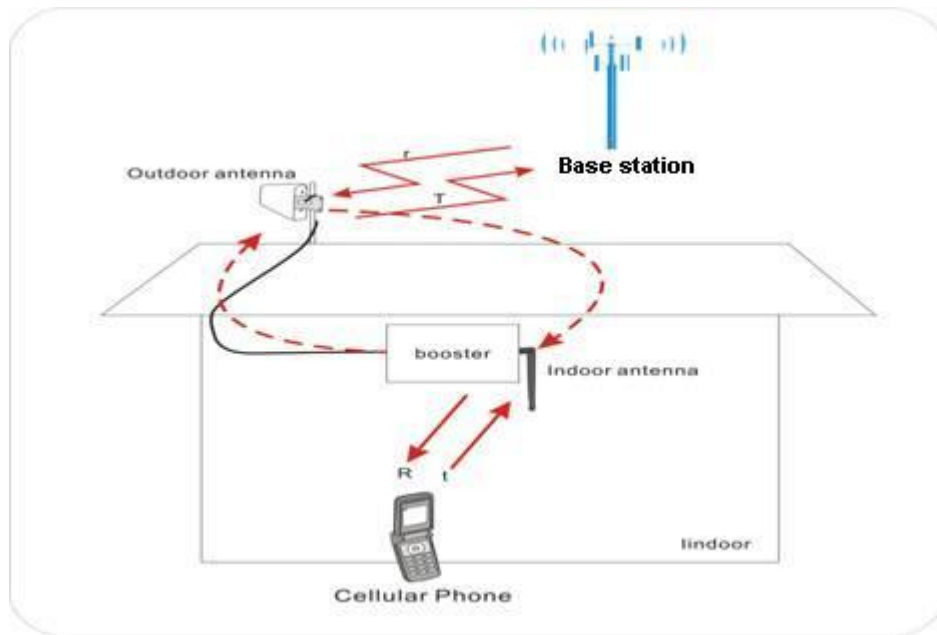
- Testing the signal strength received from outdoor antenna mounted in site by mobile phone:
- Please select the top of building to install the outdoor antenna if total floors are less than 7 floors, and shall try your best to select places like balcony or platform lower than 7<sup>th</sup> floor for outdoor antenna if the buildings are over 7 floors, because the mobile signals are clean at less than 7<sup>th</sup> floor.
- The mobile phone shall display full bar signals in location where the outdoor antenna is installed
- The phone calls or data transmission shall be smooth and stable by 3 times testing in location where the outdoor antenna is to be installed
- As shown from the above illustration, testing the signals from A to E, and select a best place that displays full bar signals to install the outdoor antenna.
- Selecting the installation direction of outdoor antenna.
- The outdoor antenna shall point to the direction of the tower, and it would be much better to keep line of sight.
- Please select the opposite directions for outdoor antenna and indoor antenna. If outdoor and indoor antennas have to be installed in the same direction, please

install them only after the signal quality is tested and the self-oscillation is avoided. If the directional antenna is selected, the main directional angle should point to the tower antenna.

- If the performance is poor due to weak signals or poor phone call quality, please adjust the direction of outdoor antenna or change its position in order to obtain the best calling effect.
- The wide band booster supports all mobile operators or different mobile systems, so please adjust the outdoor antenna direction to have balance between signals of different mobile operators or various mobile systems.
- Connect the outdoor antenna to the booster connector marked **OUTDOOR** with 10 meters 3D-FB Coaxial cable with N male connector

**Important : Outdoor antenna installation ---Notes:**

- In order to avoid interference, please note that the outdoor antenna should be far away from the following objects of metal, high-voltage line, RF antenna and high-voltage transformer.
- Booster is a two-way signal Booster. So proper isolation between outdoor antenna and indoor antenna is necessary in order to avoid self-oscillation.
- The minimum distance between outdoor antenna and indoor antenna shall be more than 10 meters; again the direction of outdoor and indoor antennas shall be opposite.
- As shown in the below illustration, the booster the downlink signal **T** from the tower and send to the indoor antenna hereafter. If the distance between outdoor antenna and indoor antenna is less than the required distance, the amplified signal **R** will go back from indoor antenna to outdoor antenna. So it will lead to self-oscillation and reduce the coverage area, also the bad calling quality could happen at the same time, and the worse is that the mobile network could be influenced badly and the operators will finally come to shut off the booster system.



- If isolation can't be achieved by the limited distance, the roof of the building or any other barriers can be used in between to increase isolation.
- Fix the donor antenna after selecting the best position, and adjust slightly its height or angles in order to get the signals with suitable input power level and calling quality.

## (2) Installation of Indoor Antenna

- Proper antennas shall be selected according to the site conditions and the requirement.
- Omni antenna (Indoor ceiling omni antenna or whip antenna), is suitable to be installed in the center and radiate all directions.
- Indoor antenna must be operated at a fixed location inside a building, it is better to use a directional panel antenna when the coverage building is long and narrow.
- Connect the indoor antenna to the booster connector marked **INDOOR** with 20 FEET 3D-FB Coaxial cable with N male connector

### Notes:

**Booster transmitting in 1710-1755 MHz should be install/operate in one of two ways:**

- (i) the antenna for the device must be installed to comply with the 10 meter above ground maximum antenna height limitation **OR**
- (ii) the antenna for the device has a 10 meter above ground maximum antenna height limitation when the device is used with a handset that covers the 1710-1755 MHz band and that owners could be subject to potential FCC enforcement action for noncompliance.



### (3) Booster Installation

- Do not place the equipment in direct sunlight or in an area that has abrupt temperature and humidity changes .
- it is suggested that the booster is installed in a cool, dry and ventilated room without erosive gas and smoke.
- Connect power adaptor to the booster, connect The other end of power adaptor to the power outlet.

#### WARNING:

The input voltage for the booster is 5~12V DC. DO NOT use this Booster with a regular power supply that NOT 5~12V DC . otherwise, it will be damaged and the user may also be injured.

### APP OPERATION

- 1.Install APP software on your phone.
2. Run the Bluetooth app. Before running the app, first turn on the Bluetooth function on the terminal device. The app has three main functions: "My Device", "Source Direction", and "Video Teaching".
- 3.Add device: After clicking on "Scan Bluetooth devices", the app will find a device and click "Connect" to add the device to the app. When configuring the device during the process of adding it, name the device, such as "aa", and confirm to display the successful addition; The device icon will appear in 'My Device'.
- 4.Equipment operation:  
Click the device icon to enter the device description interface, as shown in Figure 1, which describes the basic information of the device; Each disc in the figure represents a frequency band. The figure shows how many frequency bands the device supports, the number of each frequency band and the output power (indicated by the intermediate data and the disc ring progress k

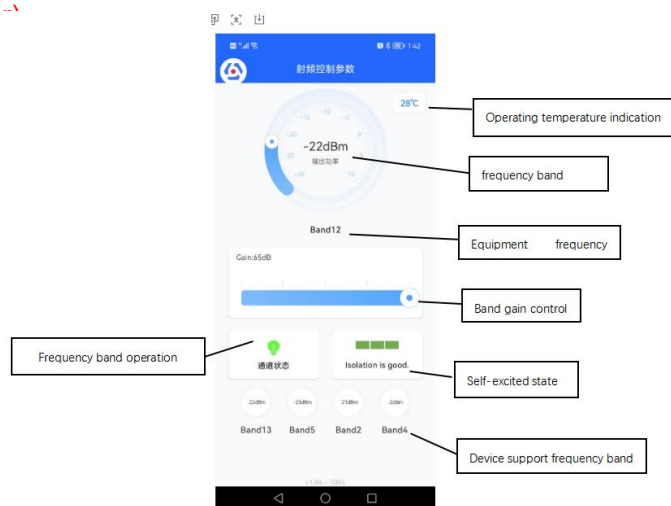


Figure 1

Figure 2

5. Equipment frequency band status and control: Click on each disc to enter the frequency band operation interface, as shown in Figure 3.

(1) Equipment temperature indication: indicates the temperature at which the equipment is operating.

(2) Equipment frequency band power: the power under this frequency band.

Device frequency band number: The frequency band number corresponding to this interface.

(3) Frequency band gain control: The gain of this frequency band can be controlled, and the user can set the gain of each frequency band to allow the device to operate at the optimal power.

(4) Self excitation state of the frequency band: the self excitation state of the frequency band. The green progress bar indicates the self excitation state. The longer the progress bar is, the more normal it will be. The shorter the progress bar is, the more normal it will be poor.

(5) Frequency band operating status: The operating status in this frequency band, with green indicating normal operation and red indicating shutdown

(6) Click on each disc under the frequency band supported by the device to switch to another frequency band and view the details of another frequency band.

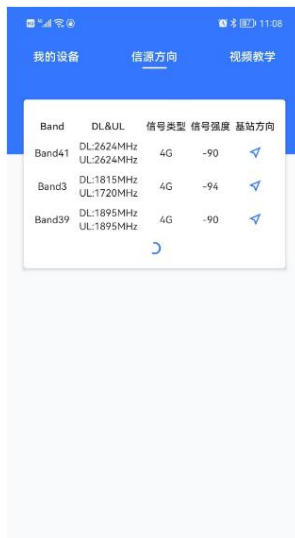


Figure 3



Figure 4

6. In Figure 3, the terminal device scans around three base station sources and lists their types and strengths. Click on the arrow corresponding to the direction of the base station to enter Figure 4. The source is described in Figure 7, and the large disk indicates the direction of the source. When installing an outdoor antenna, as long as the outdoor antenna is aligned in this direction, the device can achieve optimal reception and transmission effects.

## 7.Video teaching

This is used to place some explanatory documents for users, describing the key points of equipment installation, maintenance, and technical support.

## **TROUBLESHOOTING AND SUPPORT**

Problem	Resolution
LED is not light	<ol style="list-style-type: none"><li>1.Find an alternate power adaptor and try again.</li><li>2.Check the power outlet, the power adapter plug maybe is poor connected.</li><li>3.If the problem is still not solved, please contact our company support at support@ANNTLENT.com</li></ol>
Booster has no effect	<ol style="list-style-type: none"><li>1. Check whether the direction of the booster is wrong connected.</li><li>2. Make a call to your mobile phone operator to determine if the frequency band is correct.</li><li>3. Check whether the indoor and outdoor antenna is installed correctly</li><li>4. At the location where the outdoor is installed, if your mobile phone is able to receive a stable 3 bars cell phone signal, If not, find a location where the mobile phone can receive a better signal to install the outdoor antenna.</li><li>5. Whether or not your house is a metal roof. If so, you will need to set up your outdoor antenna at least 3 meters above the roof.</li></ol>
Booster has effect ,but the effect is not ideal	<p>Check if your outdoor signal is very weak. If you can only receive one or two bars cell phone signal in the outdoor.</p> <p>If so, contact our customer service and ask to replace the booster or antenna with a higher gain alternative.</p>
Mobile phone can receive full signal, but can not normally make a call	<p>It Usually means that the booster is self-oscillated, please make the distance between the indoor and outdoor antenna as far as possible, it is better to use a wall or metal to Separate the indoor antenna and the outdoor antenna.</p>

During using your Booster, if the Booster interferes with your radio or other electronic device, move the Booster further away from those devices, you might be able to solve it yourself.

If necessary, please contact your local dealer or send e-mail to our support team by the following methods:

E-mail: support@ANNTLENT-tech.com

If you want to know about ANNTLENT Company and products for more information, please visit at: [www.ANNTLENT.com](http://www.ANNTLENT.com)

## Consumer booster warning label:

**This is a CONSUMER device.**

**BEFORE USE, you MUST REGISTER THIS DEVICE** with your wireless provider and have your provider's consent. Most wireless providers consent to the use of signal boosters. Some providers may not consent to the use of this device on their network. If you are unsure, contact your provider.

You **MUST** operate this device with approved antennas and cables as specified by the manufacturer. Antennas **MUST** be installed at least 20 cm (8 inches) from any person.

You **MUST** cease operating this device immediately if requested by the FCC or a licensed wireless service provider.

You **MUST** cease operating this device immediately if requested by the ISED or a licensed wireless service provider.

**WARNING.** E911 location information may not be provided or may be inaccurate for calls served by using this device.

This device may be operated **ONLY** in a fixed location for in-building use.

**BEFORE USE, you MUST meet all requirements set out in CPC-2-1-05**

A subscriber must have the consent of a wireless provider to operate a Consumer Signal Booster. Subscribers may obtain provider consent in a variety of ways. For example, AT&T, Sprint, T-Mobile, and Verizon Wireless have voluntarily committed to allow their subscribers to use properly certificated Consumer Signal Boosters (i.e., boosters that meet the new rules) on their networks. Also, a signal booster manufacturer could seek authorization for use of a particular booster model on behalf of all subscribers of individual providers. Alternatively, a provider may specify a testing protocol that if satisfied would result in licensee consent to specific booster models. A subscriber may also seek a licensee's express consent to operate a signal booster, e.g., by phone call or e-mail

The following selected information about wireless providers' Consumer Booster registration mechanisms supplements the requirements and information, and the FCC Signal Boosters website (<http://wireless.fcc.gov/signal-boosters/>).

Sprint Nextel will allow consumers to register their signal boosters by calling their toll-free number. They have already trained their calling center and have designated an engineer to handle inquiries. They may eventually allow consumers to register on their

website but they want to gauge how the process works via phone first.

- T-Mobile online registration link: ([www.T-Mobile.com/BoosterRegistration](http://www.T-Mobile.com/BoosterRegistration));  
(<https://saqat.t-mobile.com/sites/SignalBooster#>).
- Verizon's online registration link:  
(<http://www.verizonwireless.com/wcms/consumer/register-signal-booster.html>).
- AT&T will allow online registration and will inform OET Lab with the weblink when it is ready.
- U.S.Cellular :  
(<http://www.uscellular.com/uscellular/support/fcc-booster-registration.jsp>).

## **WARRANTY**

### **Warranty information applicable to your Booster**

- Warranty Period: 2 year.
- Type of Warranty Service: Customer Replaceable Unit and Customer Carry-In or Mail-In Service.
- ANNTLENT Company is not responsible for Shipping Cost.

For Warranty service consult the telephone list at [www.ANNTLENT-tech.com/contact us](http://www.ANNTLENT-tech.com/contact-us).

### **What this Warranty Covers**

ANNTLENT warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to ANNTLENT's Official Published Specifications which are available on request.

The warranty period for the Machine starts on the original date of installation. The date on your invoice or sales receipt is the date of installation unless ANNTLENT or your reseller informs you.

### **This warranty does not cover the following:**

Failure resulting from misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance by you;

The warranty is voided by removal or alteration of identification labels on the Machine or its parts.

### **Copyright Information**

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