top signal

4G Home & Office
CELLULAR BOOSTER

User Guide & Installation Manual

Model #TS115721

The Power To Stay Connected

Contents

Top Signal 4G Booster

Introduction:

This manual provides information pertaining to the installation and operation of Top Signals' (TS115721-H, TS115721-HM, TS115721-O, TS115721-OM) 4G 5 Band Amplifier. These units are for CDMA, WCDMA, GSM, EDGE, HSPA+, EVDO, LTE, TDMA and all cellular standards.

Specifications:

Uplink Frequency Range (MHz)	698-716/776-787/824-849/1850-1910/1710-1755/G Block Included
Downlink Frequency Range (MHz)	728-746/746-757/869-894/1930-1990/2110-2155/G Block Included
Supported Standards	CDMA, WCDMA, GSM, EDGE, HSPA+, EVDO, LTE all cellular standards
Impedance	50 ohm
Max Gain	Cellular: 65dB, PCS: 72dB, LTE(AT&T): 63.5dB, LTE(Verizon): 64dB, AWS: 71dB
Gain Adjustment	30dB
VSWR	<=2.0
Operating Temperature	-25° - 60° C
RF Connector	N-Female
Dimensions	7.5 x 5 x 1 (inches)
Weight	1.5 lbs
AC Power Transformer	Input AC110-240V, 50/60Hz Output DC 6V 3.0A

Getting Started

How does a signal booster work?

1. The outside antenna receives the weak signal from the cellphone tower and sends it to the booster which filters and amplifies the signal. Then the inside antenna broadcasts the improved signal to the indoor area where the enhanced cellphone signal is needed.

2. When the user's mobile device transmits, the booster amplifies the device's signal from the inside antenna and sends it to the outside antenna through the cables. The amplified signal is then transmitted to the wireless provider's tower.

Unpacking & Inspection:

Take the components out of the box it was shipped in and perform a soft installation. This will allow you to determine the correct locations for the booster, outside donor antenna, inside antenna and coax cable pathways before anything is permanently mounted.

Inspect all parts and components for damage.

Installation Overview

Before Final Installation:

1. Select a proper location for the rooftop donor antenna. The donor antenna should be placed where there is usable cellular signal and free from any obstructions like: A/C units, walls or other antennas. Use a cellphone in test mode to find the strongest signal from the cell tower.

2. Find an indoor area to mount the amplifier unit. The amplifier unit requires 110v power. This area should be easily accessible, have proper ventilation, and away from any heat sources or moisture.

3. Find the best location to mount the internal antenna. The internal antenna should be centralized in the area of desired coverage by the signal booster.

4. The outside donor antenna should be separated from the inside broadcast antenna by a minimum distance of **50 feet** to avoid any chance of oscillation. If the antennas are too close, the signal booster will run at a reduced power or shut down due to oscillation.

5. Run the coax cable from the outdoor donor antenna to the "outside antenna" port on the signal booster. Then, run the coax cable from the indoor antenna to the "inside antenna" port on the signal booster. All connections should be finger tight and not over tightened. Over tightening the connector can cause damage to the signal booster, antennas, or coax cables. All antennas must be connected before the unit is powered on.

6. Do not leave any service loops or "coils" in the coax cables. Signal will be degraded or blocked from traveling through the coax cable. This will cause the system to under perform or not work at all.

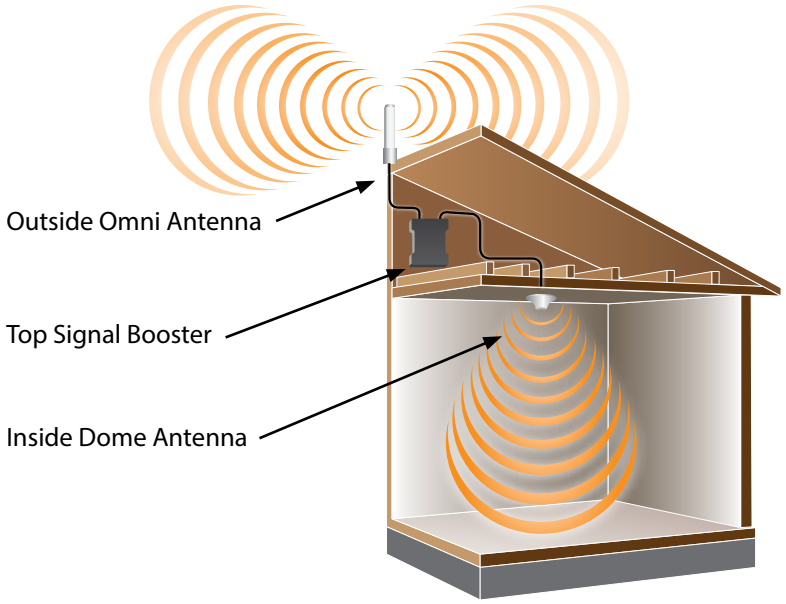
7. Power the unit on, and check the indicator lights. Under normal function, all lights should be green. If lights do not show green, adjust the gain knobs down on the given frequency until the light turns green, or contact your **Dealer** or **Top Signal** at **855-357-5500** and ask for technical support.

Single Antenna Install

Outside Antenna:

When selecting a site for your "Outdoor Antenna", make sure that you have enough signal strength at that location.

Connect the "Outside Antenna" to the bi-directional amplifier using the RF coaxial cable by attaching the cable to the "Outdoor Antenna" connector on the bottom side of the Amplifier.



Inside Antenna:

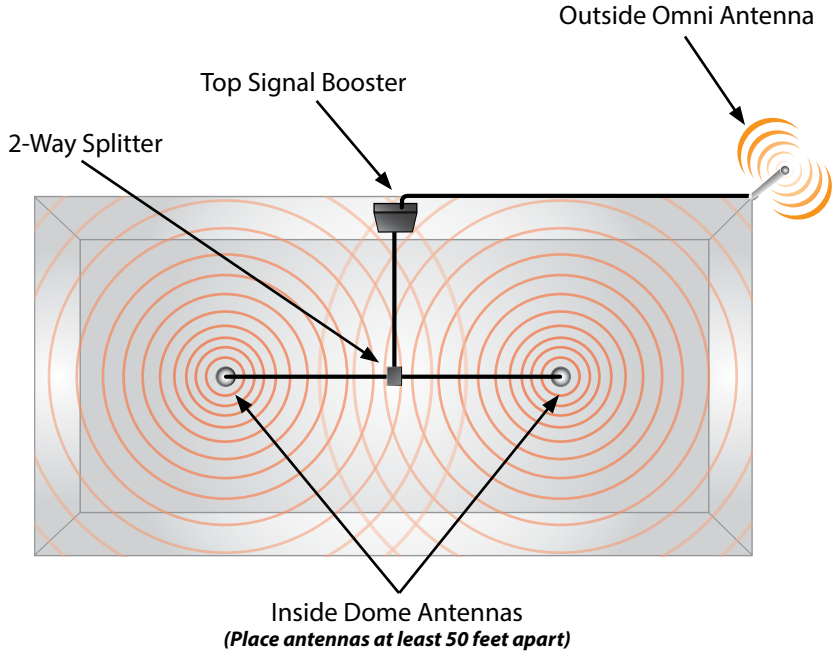
Install the "Indoor Antenna" at the desired location. It should be free of metallic obstructions in order to have effective coverage. Connect the coax cable to the "Indoor Antenna" connector on the Amplifier.

Two Antenna Install

Outside Antenna:

Connect the "Outside Antenna" to the bi-directional amplifier using the RF coaxial cable by attaching the cable to the "Outdoor Antenna" connector on the bottom side of the Amplifier.

Attach the 10 foot jumper cable to the "Indoor Antenna" connector and attach the other end to the 2-Way Splitter.



Inside Antennas:

Install the "Indoor Antennas" at the desired locations, **(Antennas should be at least 50 feet apart)**. Connect the coax cable to the "Indoor Antennas" and into the 2-Way Splitter.

Installation cont.

Amplifier Installation:

TURN-ON PROCEDURE:

CAUTION: Please make sure all RF connectors are tightened and cables and antennas are connected. Powering up the unit with no antenna attached might cause irreparable damage to the amplifier.

When installing your signal booster's outside antenna, finding the strongest outside signal is important as it is the key to your best coverage.

The best way to determine your signal strength is to have your phone in Field Test Mode. Field Test Mode allows you to view the signal strength in a numeric value (-dBm). Where as the graph style bars or dots shown on most phones are inaccurate. The Field Test Mode will vary from phone to phone.

For iPhones: You can enter the code ***3001#12345#*** into the dialing keypad. After doing this the iPhone will enter Field Test Mode and the signal strength will then be displayed in the upper left hand corner as -80 dBm for example. In comparison, a strong signal is -60 dBm and a weak signal is -100 dBm.

There is also a free app called Field Tester that can be downloaded from the App Store.

For Android Phones: To find the Field Test Mode on most Android phones go to Settings> More > About Device> Status. Look for the line that says Signal Strength. Android Phones can also use free apps such as Advanced Signal Status and Signal Check Lite. When reading signal outside always allow 30 seconds to 1 minute for the phone to update its signal for the most accurate readings.

Overview

Amplifier Diagram:

In the event of a shut down, re-aligning or moving the indoor and/or outdoor antennas may solve the problem.

Operation - Overview

Booster Overview and Adjustment:

1. **Outside Connection Port -** This is the outside antenna connection for the coax cable connected to the outside donor antenna.
2. **Inside Connection Port -** This is the inside antenna connection for the coax cable connected to inside antenna(s).
3. **Mode Button -** Pressing the Mode button once will automatically cycle through each frequency and show the output on the LED display. Pressing the Mode button a second time will allow the user to manually cycle through each frequency by pressing the Band button. The corresponding band will be indicated by the green light to the right. Pressing the Mode button a third time will turn off all the displays, except the power light.
4. **Band Button -** Pressing this button will manually cycle through the frequencies of the amplifier to let the user know how much signal output power each frequency has at a given setting. The LED readout will list 0-8 for signal output (see table on page 11), the higher the number the stronger the output. The Mode button has two scan modes for the frequencies as described above.
5. **When the LED** displays **"E"** it indicates that the antennas are not separated adequately or that the booster is overheating.
6. **Blue Adjustment Knobs -** These knobs allow the user to adjust the gain up or down for the frequencies individually to fine tune the installation. With the maximum being 72 and the minimum 40.
7. **Indicator/Warning Lights -** Depending on the Mode you have selected, the green lights will indicate if the booster is functioning correctly. When in auto or manual scan mode the solid green light next to each frequency indicates that the booster is operating correctly.
8. **The Power light** (near the power plug) indicates that the power is turned on.
9. **Blinking green** lights indicate that the antennas are too close together or that the booster is experiencing too strong of a signal from outside.
10. **The LED** will display **"F"** when one or more of the frequencies have shut down due to oscillation (feedback) or overload (too strong of an outside signal).

Cautions - Output Table

Warning and Recommendations:

WARNING: RF Safety: Any antenna used with this device must be located at least 8 inches away from any person.

WARNING: Do not connect a mobile phone or mobile data device directly to the booster with a cable. Damage to the phone, device or booster may result.

WARNING: Use only the approved manufacturer power supply with this booster. Other power supplies may cause damage to the booster.

WARNING: Verify that both the Outside Antenna and Inside Antenna are connected to the signal booster before powering it up.

Signal Output LED Readout Table:

LED Readout	Output Power
0	<=80dBm
1	>=70dBm
2	>=60dBm
3	>=50dBm
4	>=40dBm
5	>=30dBm
6	>=15dBm
7/8	>0dBm

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