

Signal Booster Installation Guide



Mobile 3G
Smart Technology III™
Signal Booster

Contents:

How it Works	1
Before Getting Started	2
Quick Installation Overview	2
Installing the Outside Antenna	2
Installing the Low-Profile Antenna	3
Installing a Wilson Electronics Signal Booster	3
Powering Up a Wilson Electronics Signal Booster	3
Understanding the Signal Booster Lights	4
Warnings and Recommendations	5
Guarantee and Warranty	6
Signal Booster Specifications	Back Cover

Appearance of device and accessories may vary.

Note: This manual contains important safety and operating information. Please read and follow the instructions in this manual. Failure to do so could be hazardous and result in damage to your Signal Booster.

Installation Instructions for the Following Wilson Electronics Signal Boosters:

Mobile 3G Smart Technology III™ Signal Booster

Model # 460002 FCC ID: PWO460002 IC ID: 4726A-460002

The term "IC" before the radio certification number only signifies that Industry Canada technical specifications were met.

KIT CONFIGURATION

Wilson Electronics manufactures a wide variety of antennas to help you customize your Signal Booster for your specific application. See your dealer or visit www.WilsonElectronics.com.



Signal Booster



DC power supply
6V / 2A (**859913**)

INSIDE ANTENNA OPTIONS

301152 - Slim Low Profile w/ 10' RG174

311106 - Low Profile w/ 14' RG58

OUTSIDE ANTENNA OPTIONS

Mini-Mag

301126 w/ 12.5 RG174 cable- SMA

301113 w/ 12.5 RG174 cable - FME

12" Mag Mount

311103 w/ 12.5' RG174

311125 w/ 12.5' RG174

311128 w/ 12.5' RG174

314202 w/ 12.5' RG174

Trucker Antenna

311101 w/10.5' RG58

311701 w/10.5' RG58

Trucker Antenna

311119 w/13.5' RG58

311133 w/13.5' RG58

Marine Antenna

311130-5810 w/10.5' RG58

Glass Mount

311102 w/14' RG58

311114 w/14' RG58

NMO Antenna

Kit 311104-5810

- 800/1900 NMO Antenna
- 10' RG58 Cable

Kit 311112-5810

- 800/1900 NMO Antenna
- 10' RG58 Cable

Kit 314203-5810

- 800/900/1900 NMO Antenna
- 10' RG58 Cable

Kit 311104-17410

- 800/1900 NMO Antenna
- 10' RG174 Cable

Kit 311104-40015

- 800/1900 NMO Antenna
- 15' LMR400 Cable

Kit 311112-17410

- 800/1900 NMO Antenna
- 10' RG174 Cable

Kit 314203-17410

- 800/900/1900 NMO Antenna
- 10' RG174 Cable

Kit 311112-40015

- 800/1900 NMO Antenna
- 15' LMR400 cable

Kit 314203-40015

- 800/900/1900 NMO antenna
- 15' LMR400 cable

How it Works

Your new Wilson Signal Booster has been carefully engineered to significantly improve the performance of your cell phone and cellular data card in mobile applications. Together with an Outside Antenna, the Signal Booster's state-of-the-art technology is designed to increase your signal, reduce dropped calls and increase data communication rates.

The Outside Antenna will collect the cell tower signal and send it through the cable to the Signal Booster which is then boosted and sent to the Inside Antenna. Result – improved signal!

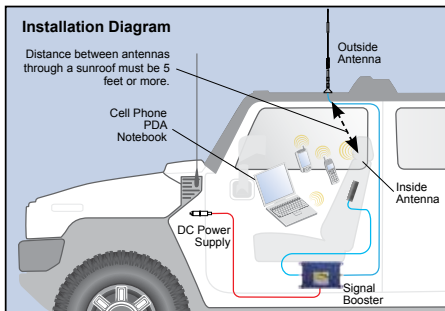
1

Contact Wilson Electronics's Technical Support Team with any questions at 866-294-1660
Or email: tech@wilsonelectronics.com Mon.- Fri. Hours: 7am to 6 pm MST.

Before Getting Started

This guide will help you properly install your Wilson Electronics Dual-Band Mobile Wireless Signal Booster. **It is important to read through all of the installation steps for your particular application prior to installing any equipment.** Read through the instructions, visualize where all the equipment will need to be installed and do a soft installation before mounting any equipment. Contact Wilson Electronics Technical Support Team with any questions at 866-294-1660.

Quick Installation Overview



Warning: In a wireless installation, do not plug the Signal Booster directly into the cell phone and/or data card using an antenna adapter. It may damage the Signal Booster, cell phone and/or data card.

Warning: Do not plug in the DC power supply until the Outside and Inside Antenna cables are attached to the Signal Booster.



Installing the Outside Antenna

To receive the best cell signal, select a location in the center of the vehicle's roof 12 inches away from any other antennas or windows. If the vehicle has a sunroof, it is important to separate the Inside and Outside Antennas by at least five feet. This prevents the Signal Booster from overloading or oscillating. As shown above. Follow the specific antenna installation instructions included with the Outside Antenna.

Separation of the Inside and Outside Antennas is very important. The metal roof of the vehicle acts as a barrier and helps shield the two antennas from each other, preventing oscillation (feedback).

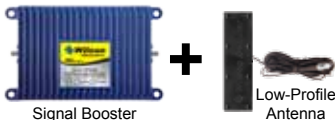
The Outside Antenna must be installed vertically. Signal performance will be degraded if the antenna is not vertical.

The antenna cable may run through the door to the Signal Booster.

For a more professional looking installation, run the antenna cable under the door seal. The antenna cable is small enough to easily tuck under the door seal or plastic molding. Carefully pull down the door seal. Run the cable through the seal and push the seal back into place. This prevents constant wear and tear on the cable as the door opens and closes.



Installing the Low-Profile Antenna



Warning: Do not install the Low-Profile Antenna within four inches of metal. (Metal found inside the vehicle's seat will not affect the antenna's performance.)



Warning: Do not plug in the DC power supply until the Outside and Inside Antenna cables are attached to the Signal Booster.

Installing a Wilson Electronics Signal Booster



Select a location to install the Signal Booster that is away from excessive heat, direct sunlight, moisture and has proper ventilation.

Run the cable from the Outside Antenna and attach it to the connector labeled "Outside Antenna" on the Signal Booster.

Attach the Low-Profile Antenna cable to the connector labeled "Inside Antenna" on the Signal Booster.

NOTE: The aluminum casing of a Wilson Signal Booster will adjust very quickly to the ambient temperature of its environment. For example, in the summer, when the inside of a car can reach 140 degrees Fahrenheit, the Signal Booster temperature may be 150 degrees or higher. The casing will be hot to the touch, similar to a metal door handle or a steering wheel. Such high temperatures will not damage the Signal Booster, nor do they pose a fire risk to the vehicle. As recommended in these instructions, install the Signal Booster in a location with adequate ventilation. Keep the area free of items that could block air flow to the Signal Booster.

Powering up a Wilson Electronics Signal Booster



6 V DC / POWER

ON/OFF SWITCH



IMPORTANT:

Do not power up the Signal Booster unless antenna cables are attached to Signal Booster.

Connect the power cable from the DC plug-in power supply to the Signal Booster marked "POWER" and insert the large end into DC power socket (the vehicle power adapter outlet).

The Signal Booster may remain on all the time. However, leaving the Signal Booster on in a vehicle when it is not running can discharge or drain the battery in a day or two. Switch the power supply off when not in use.

A good option is to power the Signal Booster through the ignition switch so the Signal Booster is turned on and off with the vehicle.

An available option to do this with is the Hardwire Kit from Wilson Electronics (#859923).

Understanding the Signal Booster Lights



All green lights: Signal Booster is working properly



Solid Red Light: Signal Booster has shut down on that frequency



Blinking Red: Signal Booster has shutoff

Lights and Troubleshooting for Mobile Boosters

Note: *The power light will turn green when the Signal Booster is successfully powered up. When the 800 MHz or 1900 MHz lights are lit green, the Signal Booster is amplifying the outside signal.*

Green: If the indicator lights on the Signal Booster are green, the unit is powered up and working properly.

Red: If one or more lights on the Signal Booster are red, this indicates that the Signal Booster has shut down on that frequency to prevent an oscillation (feedback). First, make sure that all connections are tight. The Outside Antenna needs to be moved farther from the Inside Antenna. Move the Outside Antenna on the roof of the car to the rear of the car, but at least 8-12 inches from the rear or side windows. Reset the Signal Booster by disconnecting then reconnecting the power to the Signal Booster.

Blinking Red: If one or more of the lights on the Signal Booster are blinking red, this means that the Signal Booster has shutoff due to close proximity to the handset or mobile device. Increase the distance between the handset and the Inside Antenna until the light is no longer flashing red. Contact Wilson Electronics Technical Support Team for assistance.

Warnings and Recommendations

-  **Warning:** In a wireless installation, do not plug the Signal Booster directly into the cell phone or cellular data card using an antenna adapter. It will damage the Signal Booster, cell phone or cellular data card.
-  **Warning:** Do not plug in the DC power supply until the Outside and Inside Antenna cables are attached to the Signal Booster.
-  **Warning:** The Inside Antennas must have a 1.5 feet of separation distance from all active users.
-  **Warning:** **RF Safety:** Any antenna used with this device must be located at least 8 inches from all persons.
-  **Warning:** Use only the power supply provided in this package. The power supply must be 6 V DC Output.

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.

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

This device complies with Part 15 of FCC rules. Operation is subject to 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 Wilson Electronics could void the authority to operate this equipment.

Each Signal Booster is individually tested and factory set to ensure FCC compliance. The Signal Booster cannot be adjusted without factory reprogramming or disabling the hardware. The Signal Booster will amplify, but not alter the incoming and outgoing signals in order to increase coverage of authorized frequency bands only. If the Signal Booster is not in use for five minutes, it will reduce gain until a signal is detected. If a detected signal is too high in a frequency band, or if the Signal Booster detects and oscillation, the Signal Booster will automatically turn the power off on that band. For a detected oscillation the Signal Booster will automatically resume normal operation after a minimum of 1 minute. After 5 (five) such restarts, any problematic bands are permanently shut off until the Signal Booster has been manually restarted by momentarily removing the power from the Signal Booster. Noise power, gain, and linearity are maintained by the Signal Booster's microprocessor.

About Wilson Electronics

Wilson Electronics, LLC has been a leader in the wireless communications industry for over 40 years. The company designs and manufactures Signal Boosters, antennas and related components that significantly improve cellular phone signal reception and transmission in a wide variety of applications, mobile (vehicle, RV, marine) and in-building (home, office, machine to machine).

With extensive experience in antenna and Signal Booster research and design, the company's engineering team uses a state-of-the-art testing laboratory, including an anechoic chamber and network analyzers, to fine-tune antenna designs and performance. For its Signal Boosters, Wilson Electronics uses a double electrically shielded RF enclosure and cell tower simulators for compliance testing.

Wilson Electronics Signal Boosters feature patent-pending Smart Technology III™ that enables them to automatically adjust their power based on cell tower requirements. By detecting and preventing oscillation (feedback), signal overload and interference with other users, these Smart Technology III™ Signal Boosters improve network cell phone areas without compromising carrier systems.

All products are engineered and assembled in the company's 100,000 square-foot headquarters in St. George, Utah. Wilson Electronics has product dealers in all 50 states as well as in countries around the world.

30-Day Money-Back Guarantee

All Wilson Electronics products are protected by Wilson Electronics 30-day money-back guarantee. If for any reason the performance of any product is not acceptable, simply return the product directly to the reseller with a dated proof of purchase.

2-Year Warranty

Wilson Electronics Signal Boosters are warranted for two (2) years against defects in workmanship and/or materials. Warranty cases may be resolved by returning the product directly to the reseller with a dated proof of purchase.

Signal Boosters may also be returned directly to the manufacturer at the consumer's expense, with a dated proof of purchase and a Returned Material Authorization (RMA) number supplied by Wilson Electronics. Wilson Electronics shall, at its option, either repair or replace the product. Wilson Electronics will pay for delivery of the repaired or replaced product back to the original consumer within the continental U.S..

This warranty does not apply to any Signal Boosters determined by Wilson Electronics to have been subjected to misuse, abuse, neglect, or mishandling that alters or damages physical or electronic properties.

RMA numbers may be obtained by contacting Technical Support at 866-294-1660.

Disclaimer: The information provided by Wilson Electronics, LLC is believed to be complete and accurate. However, no responsibility is assumed by Wilson Electronics, LLC for any business or personal losses arising from its use, or for any infringements of patents or other rights of third parties that may result from its use.

Copyright © 2014 Wilson Electronics, LLC. All rights reserved.

U.S. Patent Nos. – 7,221,967; 7,729,669; 7,486,929; 7,409,186; 7,783,318; 8,583,034; 8,583,033; D565,021

Contact Wilson Electronics's Technical Support Team with any questions at 866-294-1660
Or email: tech@wilsonelectronics.com Mon.- Fri. Hours: 7am to 6 pm MST.

Signal Booster Specifications

		Dual Band Specifications	
Model Number		460002	
Connectors		FME	
Impedance (input/output)		50 ohms	
Dimensions		5.6 x 3.6 x 1.7 inch or 14.2 x 9.1 x 4.4 cm	
Weight		1.2 lbs or 0.54 kg	
Frequency		824-894 MHz / 1850-1990 MHz	
¹Passband Gain (nominal)		800 MHz	1900 MHz
		47.8 dB	43.8 dB
²20 dB Bandwidth (nominal)		Typical	Maximum
800 MHz (uplink/downlink)		41.1	42.9
1900 MHz (uplink/downlink)		76.1	76.5
Power output for single cell phone (uplink) dBm		800 MHz	1900 MHz
		23.4	23.4
Power output for single cell phone (downlink) dBm		800 MHz	1900 MHz
		-3.1	-0.9
³Power output (uplink) for multiple cell phones:		Maximum Power	
	No. Tones	800 MHz	1900 MHz
	2	23.3	18.0
	3	19.8	14.5
	4	17.3	12.0
	5	15.3	10.1
	6	13.7	8.5
⁴Power output for multiple received channels (downlink).		Maximum Power	
	No. Tones	800 MHz	1900 MHz
	2	-1.4	2.5
	3	-4.9	-1.0
	4	-7.9	-3.5
	5	-9.3	-5.4
	6	-10.9	-7.0
Noise Figure (typical)		3 dB nominal	
Isolation		> 90 dB	
Power Requirements			
Signal Booster Usage		6 V, 0.5 A - 1.5 A (subject to uplink power)	

The Manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5 dB, especially where the output signal is re-radiated and can cause interference to adjacent band users. This power reduction is to be by means of input power or gain reduction and not by an attenuator at the output of the device.