Cell Phone Signal Boosters: The Definitive Guide

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What is a Signal Booster?

A cell phone signal booster amplifies your weak signal in homes, offices and vehicles. From low bars to more. Guaranteed.

The 5 Guarantees of a Cell Phone Booster:
- Boosts your existing 3G & 4G LTE signal up to 32X.
- Works on all phones, tablets, and cellular devices.
- Works with all cell phone carriers in US & Canada (AT&T, Verizon, Sprint, T-Mobile, Rogers, Telus, Bell, etc).
- FCC-certified, permitted for use on all networks in North America.
- One-time investments, no monthly charges or extra fees.

Top 10 Benefits

1. Eliminates Dropped Calls
2. Crystal Clear Voice
3. Quick Text Messages
4. Faster Uploads & Downloads
5. Reliable Connection
6. Improved Reception
7. Wider Coverage
8. Reduced Dead Zones
9. More Bars
10. Longer Battery Life

How a Signal Booster Works: Homes and Buildings

1. Outside Antenna Pulls in Tower Signal
2. Signal Booster Amplifies the Signal
3. Inside Antenna Re-broadcasts Signal
4. Cell Phone Gets Boosted Signal
How a Signal Booster Works: Cars and Vehicles

1. Outside Antenna: Pulls in Tower Signal
2. Signal Booster: Amplifies the Signal
3. Inside Antenna: Re-broadcasts Signal

Cell Phone: Gets Boosted Signal
Types of Boosters & Coverage: Homes and Buildings

** SIGNAL BOOSTERS FOR SMALL SPACES (1-2 rooms) **
150-1,500 sq. ft.

Signal boosters for small spaces usually have 1-2 room coverage (about 150-1,500 sq. ft.). They are the cheapest entry-level units and are perfect for basements, apartments, desktops, small workspaces, and single office, home office (SOHO).

[SHOP NOW]

** SIGNAL BOOSTERS FOR MEDIUM SPACES (entire home or home office) **
1,000-5,000 sq. ft.

Signal boosters for medium spaces usually have 1,000 to 5,000 sq. ft. coverage (the average around 2,500 sq. ft.). They are the most popular choice to boost cell phone signal in homes and small offices.

[SHOP NOW]

** SIGNAL BOOSTERS FOR LARGE SPACES (large office and remote areas) **
2,000-7,500 sq. ft.

Signal boosters for large spaces usually have 2,000 to 7,500 sq. ft. coverage (the average around 5,500 sq. ft.). They are the most powerful in terms of range and are popular choices for businesses, large offices, and remote, rural areas.

[SHOP NOW]

** SIGNAL BOOSTERS FOR COMMERCIAL BUILDINGS (multi-story buildings, large offices, warehouses) **
25,000-50,000 sq. ft.

Commercial and industrial cell phone signal boosters are enterprise solutions. For large buildings and areas such as multi-story buildings, large offices, warehouses, hospitals, and schools. Sq. ft. coverage ranges from 25,000 sq. ft. to 50,000 sq. ft. Although, technically, there is no limit of coverage, because multiple cell phone boosters can be used for maximizing best cell phone coverage.

[SHOP NOW]
Types of Boosters & Coverage: Cars and Vehicles

**SIGNAL BOOSTERS FOR CARS & TRUCKS**

Signal boosters for car & truck are simple plug-and-play units. They come in two forms: cradle (to boost a single cellular phone) or wireless (to boost up to four wireless users. Boosted signal range covers about an arm's length from the inside antenna (about 18-24 inches).

**SIGNAL BOOSTERS FOR RVS & LARGE VEHICLES**

Signal boosters for RV & large vehicle are custom kits specialized for more inside coverage. When paired with a robust outside antenna and stronger inside antenna, boosted signal range covers all or most of the RV or large vehicle.

**SIGNAL BOOSTERS FOR BOATS & YACHTS**

Signal boosters for yachts and boats are custom kits specialized for marine use whether docked or on the waters. When paired with a weather-proof outside antenna and stronger inside antenna, boosted signal range covers all or most of the yacht or boat.
Additional Information

WHAT A SIGNAL BOOSTER CAN & CAN'T DO

SIGNAL BOOSTER KIT COMPONENTS

UNDERSTANDING SIGNAL STRENGTH

HOW TO ACCESS YOUR dB SIGNAL

HOW dB GAIN AFFECTS SIGNAL BOOSTING

MOBILE CARRIER FREQUENCIES

REGISTERING YOUR SIGNAL BOOSTER

BEST PRACTICES
What a Signal Booster Can and Can’t Do

A signal booster takes a weak cell signal (3G and/or 4G LTE), amplifies it multiple times up to 32X, and then rebroadcasts the boosted signal to an area in need inside your home or car. They are compatible with all cell phone service providers and work on any phone that uses 2G, 3G, and 4G signals.

While signal boosters are capable of boosting 3G & 4G signals for cell phone companies, it cannot boost landline broadband Wi-Fi Internet from cable and satellite providers (e.g., AT&T U-verse, Comcast, Time Warner Cable, etc.). That product is usually called a Wi-Fi booster, wireless repeater, or range extender.

Cellular speeds of today have greatly improved to match or surpass that of landline Internet. Both are capable of streaming high-speed Internet, therefore, the term ‘Wi-Fi’ is almost synonymous with both technologies.

A cell phone signal booster also cannot create 3G & 4G signals. It can only amplify what signal you’re currently receiving. However, this is a trickier situation than it seems. Because with very weak signal, it could be too faint for your cellphone to pick up. But with a signal booster, it may be possible to get signal in a dead zone or no-service area.

In order to accurately see if you’re in a dead zone, it’s best to learn about decibel (dB) reading.

Also, a cell signal booster amplifies signal inside your home or car. It’s not designed to boost signal outside the building or vehicle, although some coverage may ‘spill over’ to the outside.
Signal Booster Kit Components: Outside Antennas

**OUTSIDE ANTENNAS FOR HOMES & BUILDINGS**

For home cell phone signal boosters, there are two types of outside antennas: omni directional antenna and yagi antenna. Both are capable of pulling in your existing 3G & 4G signals.

- **Omni-Directional Antennas**
  Omni directional antennas are all-around performers. They pull signal in from every direction equally (360 degrees). This is great for locations with multiple cell towers and to boost multiple mobile carriers. So if you have moderate signal and want to support several network providers, this is a popular choice.

- **Yagi Antennas**
  Yagi antennas (also known as uni directional antennas) are specialized performers. They pull signal in from only one direction (around 45 degrees). This allows the antenna to reach farther to the cell tower. This is great for remote, rural areas with only one cell tower and one provider carrier to be boosted. If you have very poor signal with some distance to the cell tower and want to boost just one network carrier, this is the recommended choice.

**OUTSIDE ANTENNAS FOR CARS & VEHICLES**

For cell phone boosters for cars, there are a variety of antennas and mounts. But in general, there is a standard magnet mount antenna for car, a more robust antenna for RV or large vehicles, and a weatherproof/waterproof antenna for boats and yachts.

Car antennas are generally installed vertically and near the center of the car roof. They are omnidirectional antennas that pull in signal from all directions. So it’s important the antenna be free from all obstructions.

- **Magnet Mount Antennas**
  These magnet mount car antennas are standard on most kits and easy to install. They range from 4 to 12 inches, and have a strong magnet base to stay on the roof of any metal vehicle. These antennas are generally low profile for cosmetic reasons and pull in 3G & 4G signals.

- **RV/Trucker Antennas**
  These RV and large vehicle antennas are specialized antennas made for more power and more durability. They’re long, ranging from almost 2 to 3 feet. In general, they are sprint-mounted for shock absorption and feature radials for better antenna performance. These antennas are usually fixed installations and not magnetic, so they need to be paired with a mount. Most antennas pull in 3G & 4G, although some RV/Trucker antennas only specialize in 3G for better voice and text data.
Signal Booster Kit Components: Inside Antennas

**Inside Antennas for Homes & Buildings**

For cell phone boosters for home, there are two types of inside antennas: panel and dome antennas. weBoost (Wilson Electronics) prefers using panel antennas whereas other manufacturers such as SureCall prefers dome antennas.

When paired with a splitter, multiple inside antennas can be used with one amplifier. This a great option for multi-story coverage, long distance coverage, or boosting cell phone signals in certain parts of the building.

- **Panel Antennas**
  Panel antennas broadcast signal in one direction and are generally mounted on the wall, although they can be ceiling-mounted. They're best suited for multiple floor coverage or long rectangular spaces.

- **Dome Antennas**
  Dome antennas broadcast signal in all directions and are generally mounted on the ceiling. Best suited for single floor coverage.

**Inside Antennas for Cars & Vehicles**

For car cell phone boosters, there are generally two types of inside antennas: the low-profile inside antenna that radiates signal up to an arm's length for car use and the panel antenna that covers a much bigger area for RVs, semi-trucks, and yachts.

- **Low-Profile Antennas**
  Low-Profile Antennas are perfect for cars and sedans, they can be mounted using the provided velcro attachment. These types of antennas come included with almost all vehicle signal boosters. They boost 3G and 4G, and generally broadcast signal up to 4 feet in diameter, so about an arm's length away from the antenna is considered normal conditions.

- **Panel Antennas**
  Inside Panel Antennas are much better suited for large vehicles that have a lot of room, for example RVs and Boats. These antennas are included in specialty kits that are specifically for those types of situations. Whereas the low-profile antenna broadcasts signal an arm's length away from the antenna, an inside panel antenna covers much more ground and generally cover the length of the average RV and boat. They boost 3G & 4G.
Signal Booster Kit Components: Cables and Connectors

Cables are used to connect the amplifier and the antennas. There are usually two sets of cables in each signal booster kit. One to connect the amplifier to the outside antenna and one to connect the amplifier to the inside antenna.

Although the idea of having longer cable to work with is great for installation flexibility, signal degrades with cable length, so it is important to work with the shortest and appropriate grade of cable to ensure minimal signal loss.

**RG-6 Cable**

The majority of cell boosters for home use RG-6 coax cable and F-connectors. These are the same common cables and connectors you find in every home (satellite & cable TV). Cable length tops out at 50 ft.

**LMR 400 / Wilson 400 Cable**

Commercial cell signal boosters for larger areas (>10,000 sq. ft.) use LMR-400, an ultra low loss cable. They are fitted with N-Connectors. They are much thicker than RG-6 and used for installations where longer cable is needed. Cable length tops out at 1000 ft.

**RG-174 Cable**

Car cell boosters generally use RG-174 coax cables and are fitted with SMA-connectors. Cable length tops out at 10 ft.

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Understanding Signal Strength

Although the number of bars on your cell phone is generally a good way to judge signal strength, it’s also subjective across cell phone providers. So what might be 3 bars on Sprint just might be 1 bar on Verizon despite having the exact same signal and exact same data speed.

That’s because there is no unified standard on how mobile phone companies represent bars and cell signal strength.

The best, most accurate, and technical way is to look at decibel (dB) reading. Cell phone signal strength is measured in decibels.

-50 dB represents great signal. Full bars. -110 dB is virtually no signal. A no-service dead zone. This is true across all carriers and all phones.

![Signal Levels Diagram]

What Causes a Weak Cell Phone Signal?

1. DISTANCE FROM CELL PHONE TOWER
One biggest reasons of poor service is distance from the cell tower. The farther away you’re from the cell tower, the weaker the signal your cell phone receives and inversely the closer you are to your carrier’s cell tower the better your cell signal is.

2. OUTSIDE INTERFERENCE
Cell signals are basically radio waves (the AM/FM kind) that cover great distances but are easily disrupted. They generally need a line of sight to the cell tower for effective transmissions. Trees, hills, mountains, tall structures (buildings, billboards, other urban surroundings), and weather (rain, thunderstorms, and snow) can easily affect your signal.

3. INSIDE INTERFERENCE
Dense building material (thick concrete or brick), metal, glass, radiant barrier, and other conductive material or clutter (electrical or magnetic) will either weaken or block incoming signal. So even you if have great outside signal and even if you are close to a cell tower, inside interference can still cause you have poor signal.
How to Access Your dB Signal

1. **GO INTO PHONE MODE**

2. **DIAL AND CALL *3001#12345**

3. **YOU’LL ENTER FIELD TEST MODE**

4. **DRAG DOWN YOUR NOTIFICATIONS BAR AND YOU WILL SEE YOUR dB READING IN THE LEFT HAND CORNER.**

**Neighbor Measurements**

Once you have access to dB reading, walk around the perimeter of your home. The closer the number gets to -50 dB, then you’ll know which areas of your home have the better reception.

Anything higher than a -110 dB means you’re technically in a dead zone. If your signal is teetering on the edge (-100 to -105 dB), then this means a cell phone signal booster can definitely improve your signal.
Additional Information: How dB gain affects Signal Boosting

How dB Gain Affects Signal Boosting

The signal booster takes the signal pulled in from the outside antenna and amplifies the signal up to 32x. Amplifiers are rated by the amount of decibel gain (power) it can produce. Decibels are measured exponentially. For every +3 dB increase, this equals to double the power. This also means for every -3 dB decrease, this equals to one half the power.

Please keep this in mind when comparing signal boosters. A + 3 dB gain is significant!

Comparing Booster dB Gains

**FOR HOMES & BUILDINGS**

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**FOR CARS & VEHICLES**

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<th>Price</th>
<th>Users</th>
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</table>
Mobile Carrier Frequencies

Cell phone signals are simply radio waves that operate on various frequencies.

3G normally operates at the 850 MHz and 1900 MHz frequencies. Therefore, a “dual-band” amplifier will boost those two bands that make up 3G.

4G normally operates at the 700 MHz or 1700/2100 MHz (AWS) frequencies. Therefore, a “five-band” amplifier will boost all of 3G and 4G! Most cell phone boosters are compatible with all cell phone carriers and all phones on the five major frequencies listed above.

However, there are some signal boosters that are carrier-specific and some frequencies carriers use that cell signal boosters aren’t compatible with.

Please refer to the chart below to find out more about your cell phone provider frequencies in US and Canada.

**US Carrier Frequencies**

- **verizon**
  - 3G: 800/1900 MHz (CDMA)
  - 4G: 700 MHz - Band 13
    - 850 MHz - Band 5
    - 1700/2100 MHz - Band 4

- **Sprint**
  - 3G: 800/1900 MHz (CDMA)
  - 4G LTE: 800 MHz - Band 25
    - 1900 MHz - Band 25

- **T-Mobile**
  - 3G: 1700/2100 MHz (GSM)
  - 4G LTE: 700 MHz - Band 12
    - 1700/2100 MHz - Band 4

- **boost**
  - 3G: 800/1900 MHz (CDMA)
  - 4G LTE: 800 MHz - Band 26
    - 1900 MHz - Band 25

- **metroPCS**
  - 3G: 700 MHz - Band 12
  - 4G LTE: 700 MHz - Band 12
    - 1700/2100 MHz - Band 4
**Best Practices**

**LICENSED BY FCC**
First and foremost, please make sure that your cell phone signal booster is licensed by the FCC (all our boosters are licensed). Unlicensed cell phone signal boosters are not regulated therefore can cause disruptions to your wireless operator network and may destroy equipment.

**SIGNAL & COVERAGE**
Second, although each signal booster is categorized by coverage size in a typical situation, a more powerful booster may be needed in cases of extremely poor signal and challenging conditions. In cases of good to moderate signal, a cell booster may extend coverage to an ideal square footage or even more. In cases of poor to little signal, a cell booster will still pull in and amplify your 3G and/or 4G. However, coverage may be less than what is expected. So it’s important to contact a trained specialist who can give you realistic solutions and not just try to sell you a box.

**OPTIMIZING FOR MAXIMUM BOOST**
Third, while installing a cell phone booster is relatively easy, optimizing for maximum signal boost may take some extra care. Again, it’s important to read instructions and contacting certified customer support to provide the best way to improve your cell phone reception.
Thank you for reading our guide, should you need further assistance:

**Call Us**
Monday to Friday, 9AM-6PM CST at:
Canadian Customers: 1-800-373-2927

**Email Us:**
sales@wilsonamplifierscanada.ca