

# CEL-FI GO

## INSTALLATION GUIDE

### PLEASE READ THIS FIRST

Thank you for purchasing the Cel-Fi GO G41. It is the most powerful signal booster in its class, but following the instructions for set up is very important. This installation guide contains everything we've learned from helping hundreds of people just like you to boost their signal

Give this a read before you start, as it will save you time in the long run.

Should you encounter any problems with your Cel-Fi GO G41 installation, or would like someone to walk you through it, don't hesitate to call us at **1-800-470-6777**.



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# CONTENTS



WHAT YOU SHOULD KNOW BEFORE INSTALLATION .....	1
COMPATIBILITY .....	1
<b>1 · ANTENNA TYPES .....</b>	<b>2</b>
<b>2 · ISOLATION AND NECESSARY SEPARATION .....</b>	<b>4</b>
<b>3 · ANTENNA AND AMPLIFIER PLACEMENT .....</b>	<b>5</b>
<b>3 · CONFIGURATIONS .....</b>	<b>7</b>
<b>4 · BOOSTER ASSEMBLY .....</b>	<b>8</b>
<b>5 · SYNCH THE CEL-FI GO-X TO YOUR CARRIER     WITH THE CEL-FI WAVE APP .....</b>	<b>11</b>
<b>6 · FEATURES OF THE WAVE APP .....</b>	<b>12</b>
<b>7 · TIPS AND FAQS .....</b>	<b>15</b>

# WHAT YOU SHOULD KNOW BEFORE INSTALLATION

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The Cel-Fi GO G41 provides an industry-leading 100 dB of amplification for a single cellular carrier .

Proper installation ensures you receive the most significant boost to your cellular signal possible.

The Cel-Fi GO G41 system is composed of three core components: the amplifier, the outside (or donor) antenna, and an inside antenna. There are two main issues people have when installing the Cel-Fi GO G41: proper placement of their antennas, and finding usable signal to boost.

We might as well get the biggest problem out of the way now: if you go all over your property and cannot make a call or get reception of any kind, the Cel-Fi GO G41 will not work for you. The booster requires existing signal to function. Without that, it won't function. Please call us at **1-800-470-6777** for a return.

## ANTENNA LOCATIONS AND SIGNAL QUALITY MATTER MORE THAN ANYTHING.

Review the "Isolation and Necessary Separation" and "Antenna and Amplifier Placement" sections carefully. Getting these two things right is the key to getting great coverage. Use the "Antenna Position Test" in the Wave app for best results.

## COMPATIBILITY

The Cel-Fi GO G41 works with:

- ✓ AT&T
- ✓ Verizon
- ✓ T-Mobile
- ✓ US Cellular
- ✓ And all other US carriers and MVNOs

*As a reminder, you will need to set which carrier to amplify via the Cel-Fi WAVE app. The carrier can be changed at any time. For more on this, see Page 11.*

# 1 ANTENNA TYPES

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There are three major types of outdoor antennas used by the Cel-Fi GO G41. Your default kit configuration will include at least one of these outdoor antennas.

## OUTDOOR:

**Yagi (Directional)** - Gathers signal from the direction you point. Requires aiming, but provides more power to the system. The Yagi bundled with your Cel-Fi GO G41 has a 45-degree directional beam and up to +11 dBi of gain.



BT512389

**The Arrow (LDBA)** - A versatile high-gain antenna, The Arrow has a 30-degree directional beam and effective range of over 10 miles. Great for rural and suburban areas which need that extra bit of power.



BT974921

**The Long Ranger (Ultra-High Gain)** - Our most powerful outdoor antenna option. With a 10-degree directional beam, this provides up to a staggering +28 dBi of gain. It is designed for the most rural areas with the worst signal, but requires precise aiming.



BT974822

# 1 ANTENNA TYPES

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## INDOOR:

**Dome** – Projects boosted signal in a 360 degree circle. Provides less power than a panel antenna, but covers more area. Best for wide open spaces and drop-tile ceiling, but can be used anywhere for improved effect.



BT512600

**Low-Profile Dome** – A high-gain, inconspicuous dome antenna with similar functionality. A great option for wide-open rooms and office spaces, but can be installed anywhere, including hallways and small rooms.



BT512358

**Panel** – Projects boosted signal in a 45 degree directional beam. A panel antenna provides more power than a dome antenna, but can be trickier to implement effectively. Best for hallways and places where projecting signal over a long distance. They can be mounted in an attic of a 2 story house pointed down to illuminate 1st floor.



BT974143

# 2 ISOLATION AND NECESSARY SEPARATION

## ISOLATION IS A MEASURE OF SEPARATION BETWEEN THE INDOOR AND OUTDOOR ANTENNAS.

The Cel-Fi GO G41 automatically throttles its gain (amplification) up or down to avoid “oscillation.” Oscillation is a type of feedback that occurs if the indoor and outdoor antennas are too close together.

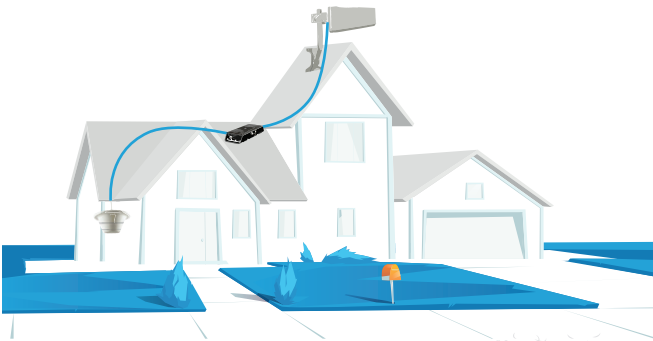
The more isolation between the outside and indoor antenna you have, the more the Cel-Fi GO G41 will be able to amplify your signal, and the better your signal will be inside the building. As a general rule, you should strive to have either **50 feet of horizontal distance or 20 feet of vertical distance** between the outdoor and indoor antennas.

## EXAMPLE OF POOR ISOLATION



- ✗ Not enough vertical separation between outdoor and indoor antenna.
- ✗ Not enough horizontal separation between outdoor and indoor antenna.
- ✗ Not enough building materials between indoor and outdoor antenna.

## EXAMPLE OF GOOD ISOLATION



- ✓ Good vertical separation.
- ✓ Outdoor antenna pointing away from indoor antenna.
- ✓ Multiple layers of building materials between antennas.

*\*Note - Antenna placement is one of the major considerations for avoiding isolation issues during installation.*

# 3 ANTENNA AND AMPLIFIER PLACEMENT

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## OUTDOOR ANTENNA PLACEMENT

Finding the best location possible for the Outdoor Antenna is critical. There are two things you need to consider:

- 1 Isolation from the Indoor Antenna(s)
- 2 Signal quality

If you end up with a situation where you have to prioritize avoiding oscillation over somewhat higher quality signal, prioritize avoiding oscillation. *However, remember – if you've only got good quality signal in one outdoor area, that's where the outdoor antenna should be placed, no matter what.*

## HOW TO MEASURE SIGNAL QUALITY

For some buildings, the location with the best signal may be on top of the roof. In others, the best location is the side of the building. The best way to find out is to test.

There are four ways you can measure signal quality:

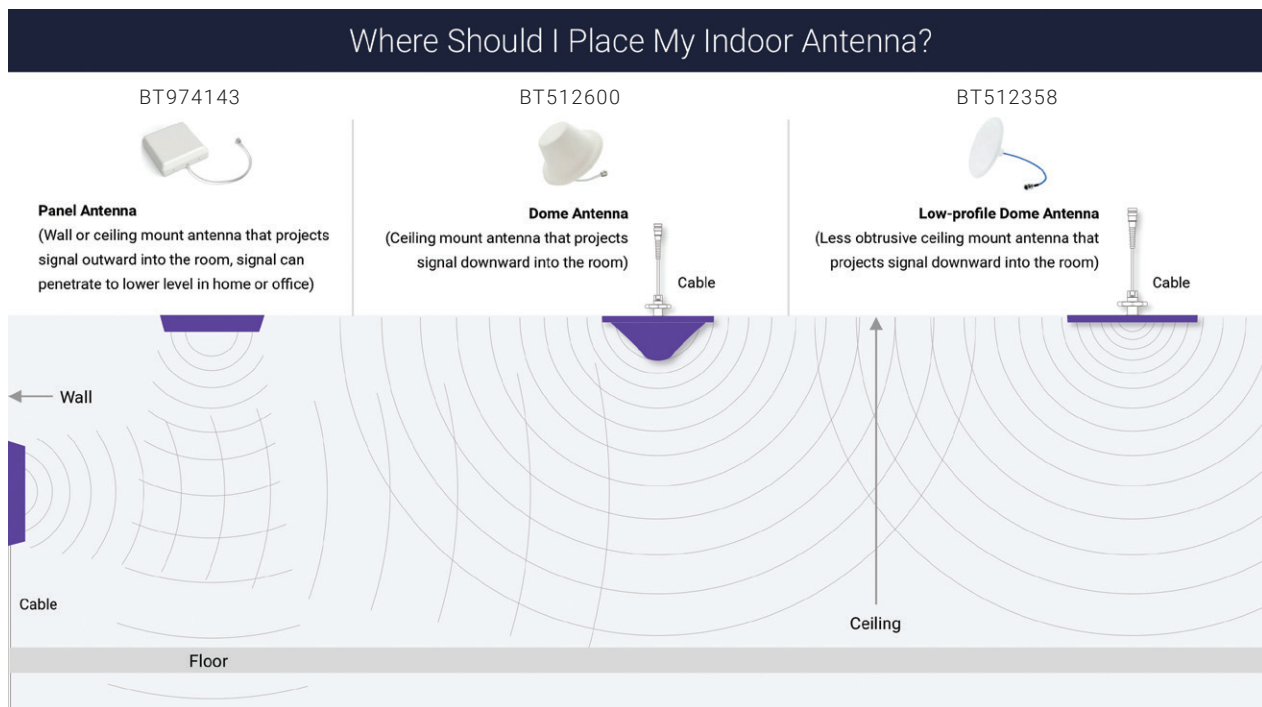
- 1 Look at the number of bars (easiest, but least reliable method) on your phone
- 2 Download the OpenSignal app for iPhone or the Network Cell Info Lite app for Android (best method)
- 3 Measure SINR (signal-to-noise ratio) with the Cel-Fi WAVE app
- 4 Use Wave Antenna Pointing Feature

To find the best Outdoor Antenna location: walk around the perimeter of your building with your phone. If you can safely get up on the roof check the signal there. You're looking for a location with good SINR (ideally above 5 dB) and good isolation from the indoor antenna locations.

# 3 ANTENNA AND AMPLIFIER PLACEMENT

## INDOOR ANTENNA PLACEMENT

For best results, place the indoor antenna(s) near where you're most likely to use your cellular devices.

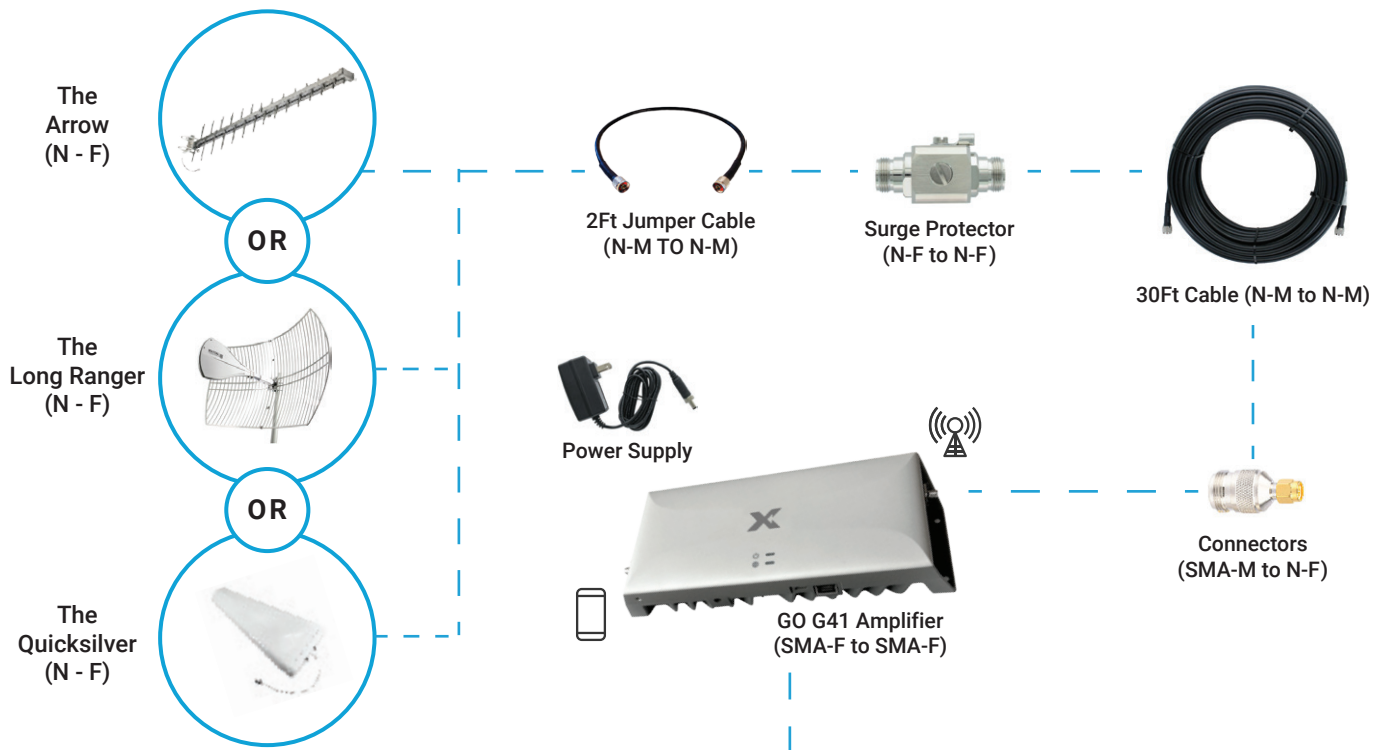


## FINE TUNING YOUR ANTENNAS

The Antenna Position Test feature of the Cel-Fi WAVE app can help you test and compare multiple Outdoor Antenna locations, and will help you aim the antenna at the source of the best signal.

## AMPLIFIER PLACEMENT

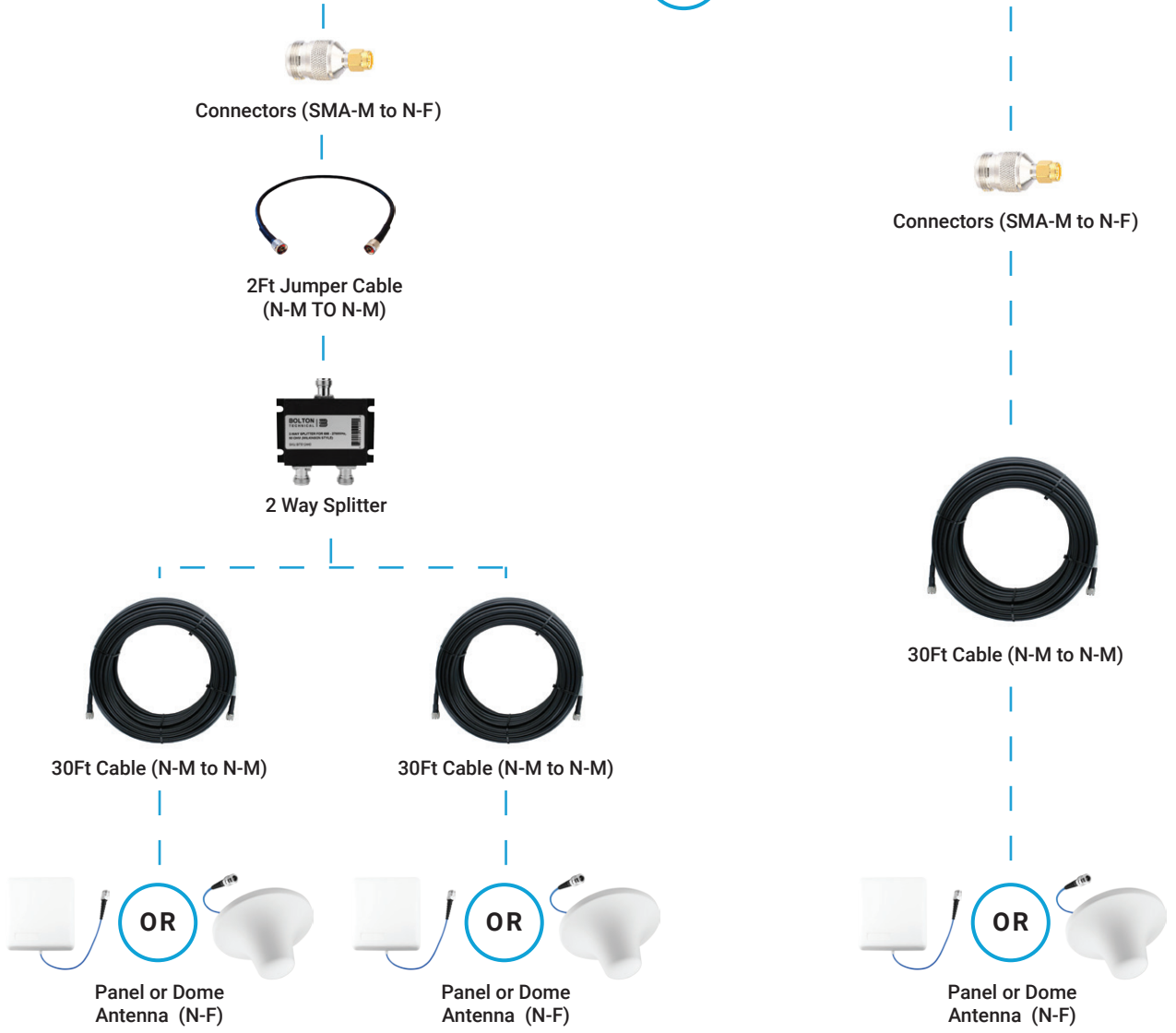
Your Cel-Fi GO G41 should be placed in a cool, dry area with access to a power source. For best results, use an uninterruptible power supply and surge protector to allow for its continued function during blackouts.



**DUAL ANTENNA KIT**

OR

**SINGLE ANTENNA KIT**



# 4 BOOSTER ASSEMBLY

## GETTING THE PARTS SET UP

REFER TO THE DIAGRAM ON THE NEXT PAGE 8 AS NEEDED.

1. Connect the two Connectors (SMA-M to N-F) cable adapters to each side of the amplifier.



2. Note the two icons (Cellphone and Antenna Tower) by the Cel-Fi unit's two SMA connectors.



### PRO TIP

The Tower Icon connects to Outdoor Antenna and Cell Phone Icon connects to indoor antenna.

3. Connect the cables to the SMA-M to N-F Connectors and hand-tighten them.



### PRO TIP

Make sure to uncoil the cable before connecting the Antennas.

# 4 BOOSTER ASSEMBLY

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## GETTING THE PARTS SET UP

4. Connect the splitters (if any), and Indoor Antenna(s) (panel or dome) to the indoor end of the Cel-Fi GO G41 and hand-tighten the connector(s).
5. Connect the Outdoor Antenna to the 2 ft cable, Lightning Surge Protector, and long cable. The Surge Protector should be installed outdoors, just before the cable enters the building, and should be connected to the building ground (*ground wire and ground rod not included*). Make sure you connect the outdoor “donor” antenna feed to the side of the amplifier that has a small icon of a cell tower.
6. Connect the Cel-Fi GO G41 power supply to the amplifier and plug in the amplifier.



### PRO TIP

When the amplifier is first plugged in it will flash Red, then the Amplifier will flash Green. When Flashing Green on the amplifier; it is still searching mode (for the best cellular signal). After approximately 15 minutes the amplifier light will turn Solid Green which indicates that the amplifier has acquired the cellular tower.

**Disclaimer:** *We highly recommend using a ground wire and ground rod when installing a signal booster.*

# 5 SYNCH THE CEL-FI GO G41 TO YOUR CARRIER WITH THE CEL-FI WAVE APP

The Cel-Fi WAVE App allows for carrier setup and switching, remote monitoring, real-time status updates, and more. To get the most out of your Cel-Fi GO G41 (and get the boost for your carrier of choice), you'll need to follow these steps.

- Download the “Cel-Fi Wave” app to your phone or tablet from [cel-fi.com/software](http://cel-fi.com/software) or directly from the iOS App Store or Google Play.
- Open the app while keeping your phone within 4 feet of the Cel-Fi GO G41 to start pairing. This may take a few minutes, the app will say “searching,” “syncing data,” and finally “gathering data.”
- Register your device when prompted to do so. This is required by law.
- Check that your carrier is shown in the bottom left of the “Dashboard” screen.



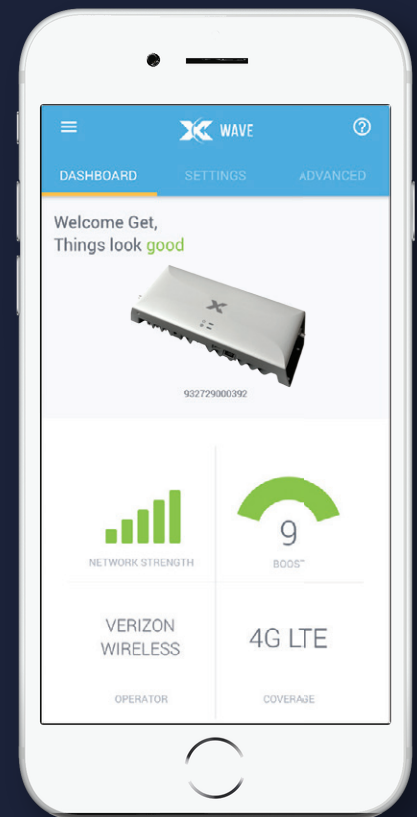
## PRO TIP

If your carrier is not selected for your provider you will need to select which carrier you want to connect to (AT&T, T-Mobile, Verizon, Etc.). This can be changed through the menu system which will send the carrier change to the amplifier [i.e. Settings - Carrier - This change will take 10-15 minutes].

**Note:** Update the software for the Cel-Fi GO G41 if necessary (this may take 10 to 20 minutes).

## CHANGING CARRIER BEING BOOSTED

To change the carrier, go to “Settings” and then “Carrier”. Changing carriers takes a few minutes, so don't turn off your booster or move your phone away during the process. This is necessary for your booster to function properly.



# 6 FEATURES OF THE WAVE APP

## THE ANTENNA POSITION TEST

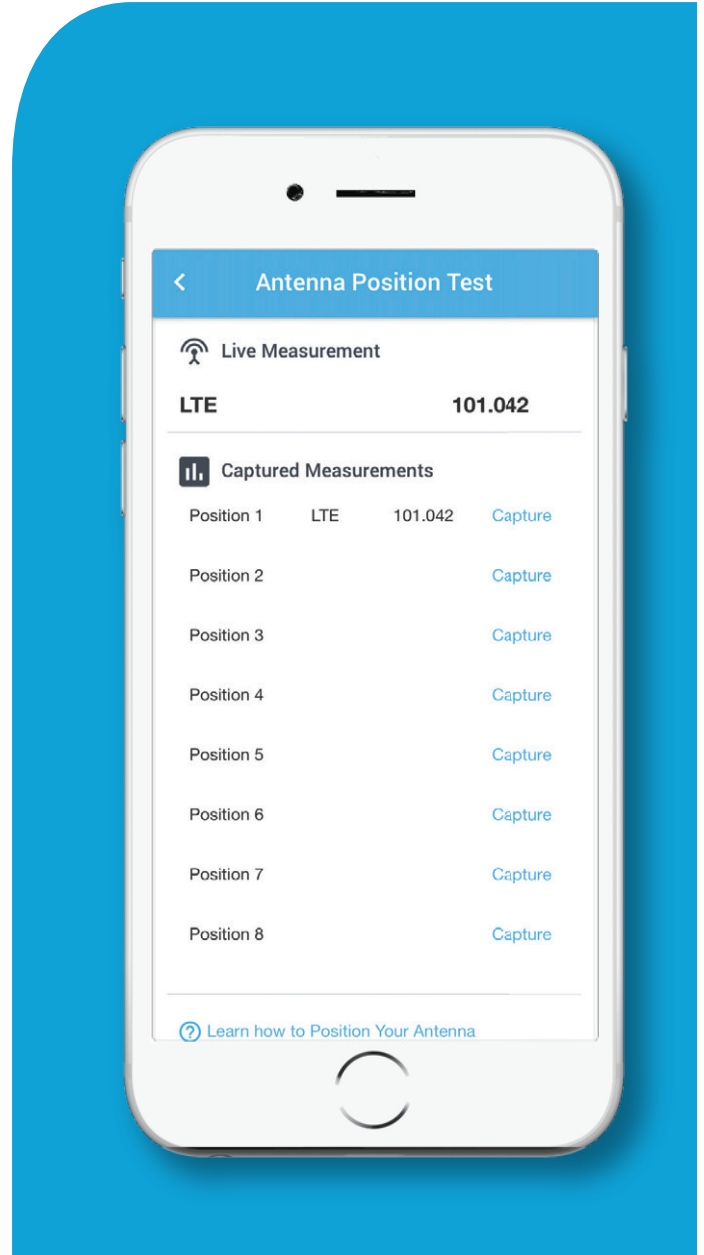
The Wave app comes with an Antenna Position Test that can help you achieve the best signal quality.

1. Place your indoor antenna(s) approximately where they will be installed.
2. In the Wave app, go to the “Settings” tab, and under the “Antenna Settings” tab select the “Antenna Position Test” option.
3. The app will guide you through taking multiple measurements. Try multiple outdoor antenna locations and directions.



### PRO TIP

On the Wave app while checking your Antenna Positions it will give you the option of 8 different positions and see what the app feels is the best position for the antenna. It is best to do these Antenna Positions in a 360 degree circle to find your best position. As you point the antenna the system/app is looking for what it believes is the best signal, not necessarily what is the strongest signal.



# 6 FEATURES OF THE WAVE APP

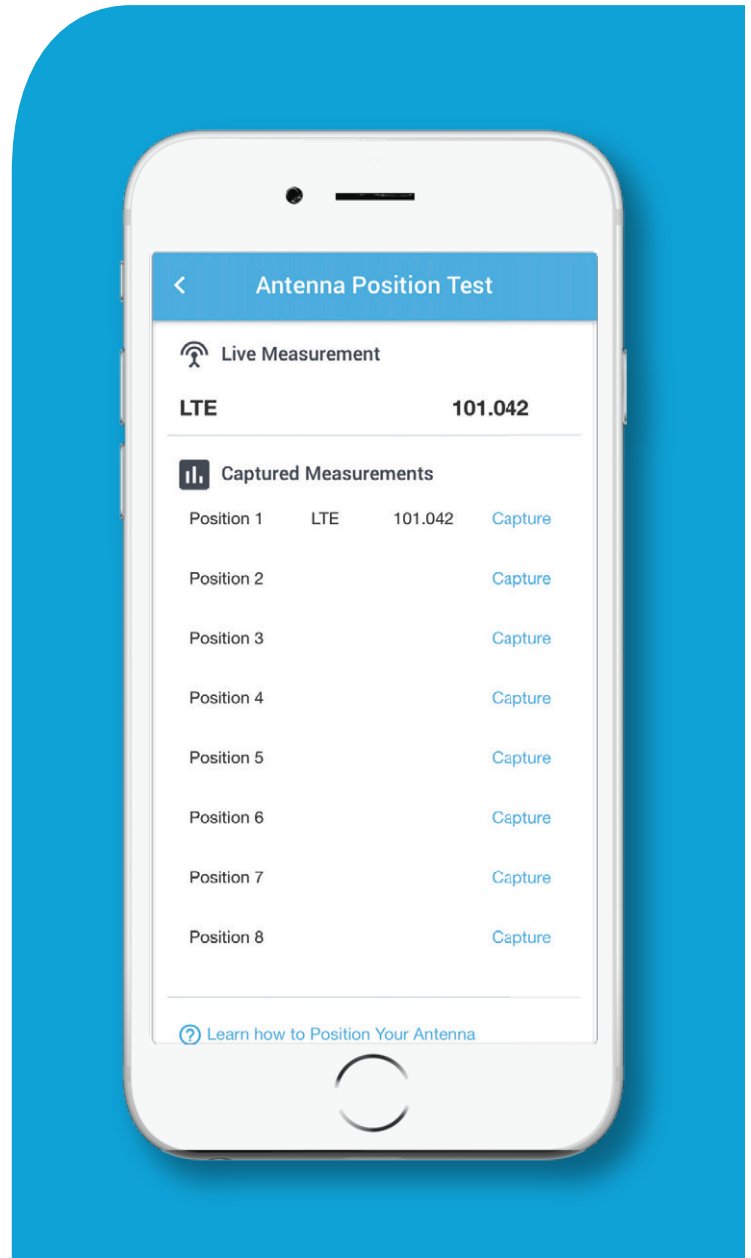
## THE ANTENNA POSITION TEST CONTINUED

4. The higher the number, the better the signal.
5. Once you're done, the Wave app will calculate the best location for your outdoor antenna.



### PRO TIP

- Stationary Mode has up to 100 db of amplification whereas the Mobile option only has 65 db of amplification (much less).
- For advanced users if you need to turn off troublesome bands you can do so under Channel Settings - Band Settings and click or unclick any channel/ bands you do not want the amplifier to use. We **DO NOT** recommend making any changes on this section unless you are an advanced user.



# 6 FEATURES OF THE WAVE APP

## BOOSTER MODE

Under the “Booster Settings” section of the “Settings” tab of the Wave app, there is an option to change the booster mode from “Stationary” to “Mobile.”

The Mobile setting should only be used if you are using the booster on the go in a vehicle or RV. It reduces the gain of the unit from 100 dB to 65 dB. This mode requires a different antenna setup optimized for vehicles.

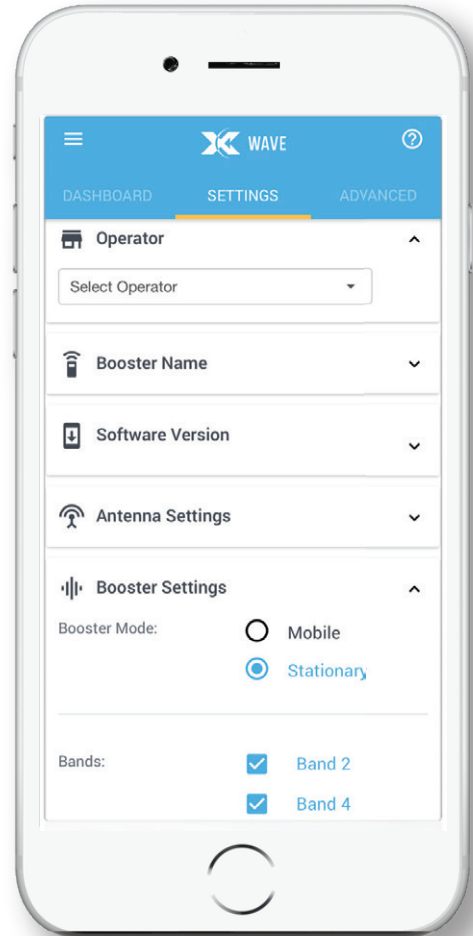
## BANDS

The “Bands” settings under the “Booster Settings” section allows you to control which bands are scanned and amplified by the Cel-Fi GO G41. In some cases, the carrier networks will try to hand you off to the highest band automatically, even if it isn't the best quality signal. Lower frequency bands also propagate further. In such cases, it can help to lock the Cel-Fi to just the 700 MHz frequency band (12, 13 or 17).

Here are how the band numbers show match up to different frequencies:

- Band 12/13/17 = 700 MHz;**
- Band 2 = 1900 MHz;**
- Band 4 = 2100 MHz;**
- Band 5 = 850 MHz.**

This is fairly advanced, however, and in general simply switching the amplifier to your carrier should be enough to see a significant improvement in your signal quality.



# 7 TIPS AND FAQS

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## INSTALLATION TIPS

### **If you unplug the cable from the outdoor antenna, make sure to reset the Cel-Fi GO G41.**

The Cel-Fi GO G41 will start scanning as soon as you unplug the cable to the outdoor antenna. To make sure it scans all the frequencies, restart the unit after you reconnect the cable.

### **If you can, cut and crimp any longer lengths of extra cable.**

If you can't do that, make sure to keep any cable loops as large as possible to minimize negative side-effects (*4 ft or wider loops are best*).

## FREQUENTLY ASKED QUESTIONS

### **How do I know if I have enough isolation between outdoor and indoor antennas?**

Under the "Advanced" tab of the Wave app, look at the "Downlink TX Power" and "Downlink Echo Gain" under each Super Channel. If the Downlink TX Power is less than 5 dBm and the Downlink Echo Gain is between 5 to 10 dB (+ or -), you need more isolation between your indoor and outdoor antennas for best performance.

### **What can I do to improve the number of bars my phone is showing or increase my upload and download speeds?**

The most important thing you can do improve performance is to improve the signal quality at your outside antenna. Look at the "Donor SINR" measurement for each Super Channel under the "Advanced" tab of the Wave app. Your Donor SINR should be at least 0 dB. If you can get to 3 dB or higher, that's great – the higher the better (the maximum is 30 dB).

To improve SINR, try moving the outdoor antenna to new locations, and pointing it in different directions. You can also upgrade your outdoor antenna to a Cel-Fi or Bolton Technical LPDA Antenna (available at [SignalBoosters.com](http://SignalBoosters.com)).



## Notes

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## NEED HELP? WE'RE READY AND WAITING.

Signal boosters aren't always easy to install. In fact, getting everything up and running can sometimes be a pain. But the end result is worth it.

SignalBoosters.com provides lifetime technical support on every system we sell. We've installed hundreds of these devices ourselves, and can walk you through troubleshooting and fine-tuning your installation for best results.

Simply give us a call, start a live chat on our website, or send us an email.



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Questions? Chat with us!