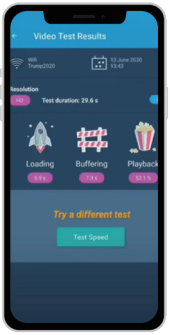
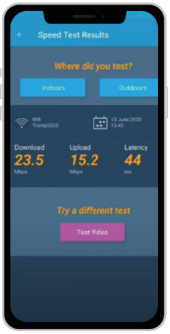
4.4 Signal Quality test

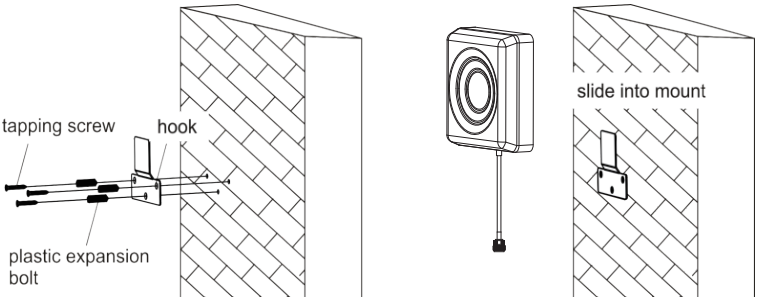
After finding such a location, hold the indoor antenna there and ask the other person to walk back and forth, and use the 3rd party app Network Cell Info Lite & OpenSignal to test the signal strength, voice, and data.
We recommend you to test the signal strength, the voice quality and data speed.

*Notes Again: Just remember that strength and quality are two separate issues. A poor quality "strong" signal can be next to useless, but a clean signal of two bars might be all your device needs.





If the test is good, then congratulations, the indoor antenna position has been successfully found. Please install the indoor antenna.

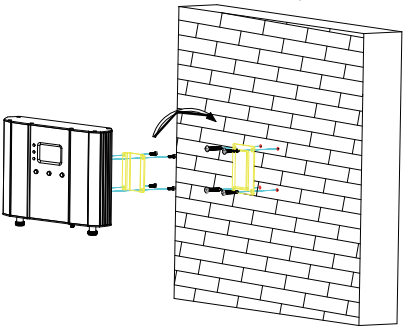


Note : Cellphone are to be used more than 1m away from the Indoor Antenna

Step 5: Install the booster and the cables

Mount the signal booster in a dry and cool area, and it shall be easily accessible for maintenance.

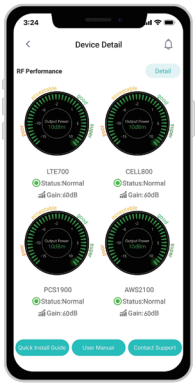
And run the cables neatly, please do use the **water-proof tape** to protect all outside connections from the weather.

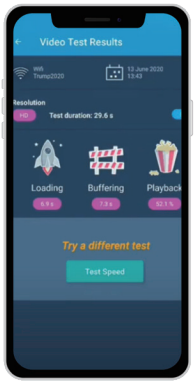


Test again the performance after installation is done

a. First make sure the Signal gauge value is unchanged from the outdoor antenna install.
b. Test by a third-party app, calls and network data are smooth in most indoor signal coverage areas.

a. Now everything is completed and please start to enjoy the mobile services.
b. If the result is not satisfactory or you want to be better, you may repeat the whole or part of the process to improve.
c. Please contact us: Signal Supervisor App online support, Phone and Email in case you have any problems.





LCD Assisted Installation

Flow chart of LCD Assisted Install

Step 1: Download the 3rd Party Mobile Apps

We are going to use 3rd party APPs:

- To find the cell tower location
- To test the signal strength and quality

There are a variety of resources available online: Opensignal,Cell mapper, Network cell info lite, etc.

Please download them beforehand over Android and / or iOS:

※ You can use either of them to your favor. Here we are using Opensignal and Network Cell Info Lite as first two choices.

Step 2: Install the outdoor antenna

2.1 Connect the booster with outdoor antenna.

(1) Put the booster near to the location you would like to install in the future, or a place with power outlet temporarily.

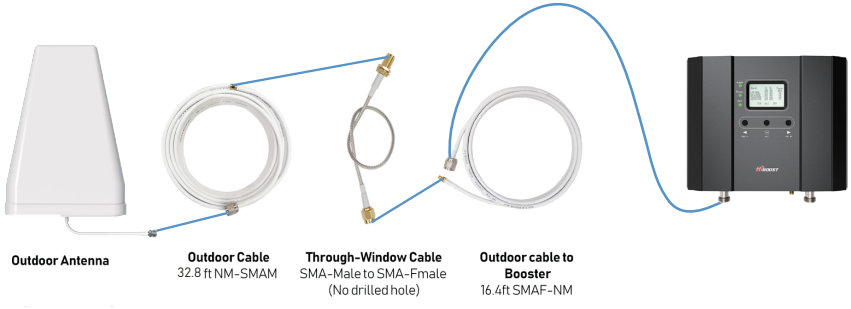
(2) Keep the booster connected with Bluetooth/WiFi antenna.

(3)Switch on the booster and make sure the signal supervisor app links with it smoothly.

(4)Connect the 16.4ft cable with the booster's outdoor port. The booster supports hot plug.

(5) Then connect the window cable with 16.4ft cable and pull the window cable outside and connect it with 32.8ft cable. In case window cable is not needed, connect the 16.4ft cable with 32.8ft cable directly.

(6) Connect the other side of 32.8ft cable with the outdoor antenna.

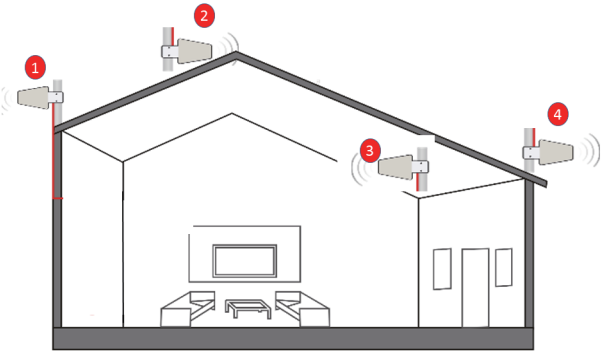


*HiBoost 15K SmartLink can be directly connected to the outdoor antenna with the 50ft NM-NM cable.

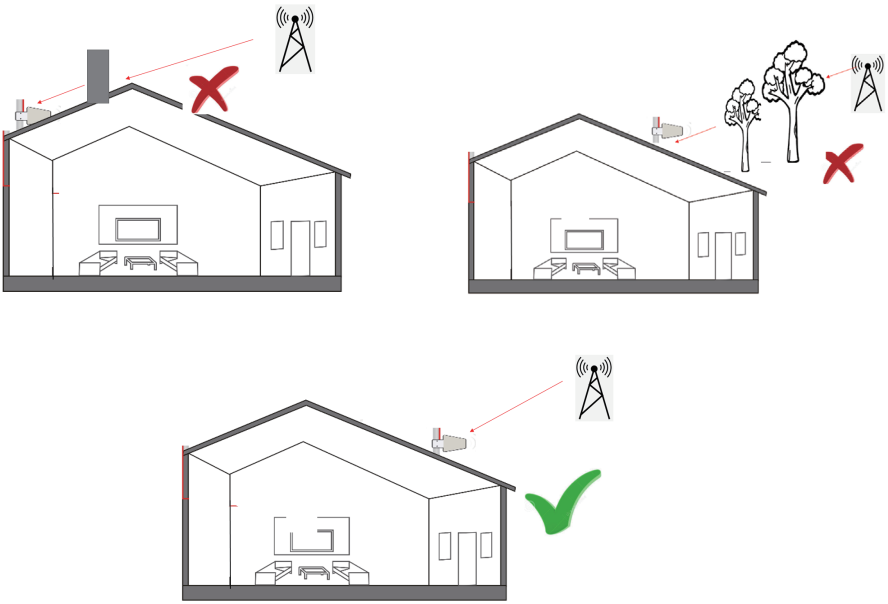
Notes:
It is a must **NOT** to connect indoor antenna at this moment as it will influence the outside signal finding.

2.2 Select the possible location for best outside signal.

Bring your mobile phone with the 3rd party APPs and the outdoor antenna to the location where the best outside signal can be found. The outdoor antenna is recommended to be at the four corners or high end of the roof, or attic.



The outdoor antenna needs to maintain a clear line of sight with the cell tower. And it is necessary to avoid the roof or other stuffs from blocking the outdoor antenna.



2.3 Use 3rd party APP to locate the tower(s)

1) Now open “Opensignal”, use it to detect the approximate position of the nearby cell tower.

2) Insert your detail address in “Search city” box. (following figure 1)

3) Enter signal dashboard, and click “CELL TOWERS”. Then zoom in map to find best one, it will show a blue line with your place which means your cellphone connected one. (following figure 2&3)

4) When you find such location, check the strength, test voice and data speed. A good signal shall not only be strong, but also be clear in voice and fast in data speed.

Notes:

Just remember that strength and quality are two separate issues. A poor quality “strong” signal can be next to useless, but a clean signal of two bars might be all your device needs.

OPENSIGNAL

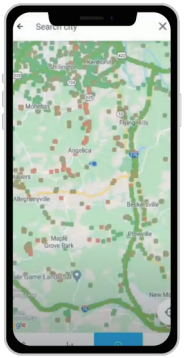


Figure 1

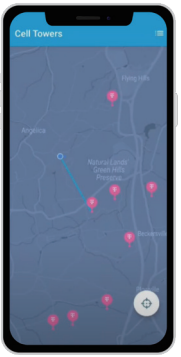


Figure 2

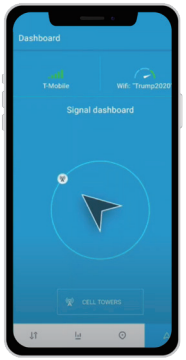


Figure 3

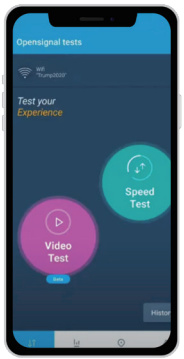


Figure 4

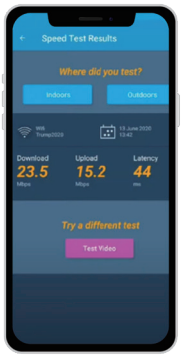


Figure 5

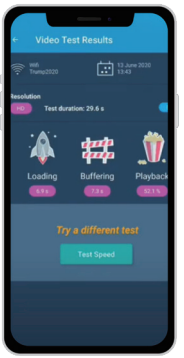
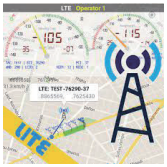


Figure 6

You can also use the “Network Cell Info Lite” to locate the tower and measure the signal strength before & after install.
The good point of Network Cell Info Lite is that you can see the signal levels.
But it seems to be only available for Android.



The signal strength requested by the booster system is as below.

SIGNAL STRENGTH	EXCELLENT	GOOD	FAIR	POOR	DEAD ZONE
3G/1X	-70dBm	-70 to -85dBm	-86 to -100dBm	-101 to -109dBm	-101dBm
4G/LTE	-90dBm	-90 to -105dBm	-106 to -110dBm	-111 to -119dBm	-120dBm

Your signal strength is going to be a good indicator of how fast you can download and stream, but for voice, it’s more like “Can I make a call, or not?” If you can make a call you should not care how many bars you have, as long as the call goes through and everyone can hear everyone. Looking at bars is just going to make you cranky.

The reason to test your internet speed is to make sure you'll be able to stream high-bandwidth movies, like those from Netflix, Hulu, Amazon, and other providers. If your internet speed is too slow, you'll get choppy video or regular buffering.

2.4 Look for the best location and direction of outdoor antenna

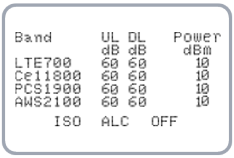
Now pick up the outdoor antenna and point to above cell tower and adjust its position precisely, ask your partner to watch the LCD signal gauge to get a strongest possible output signal.

Ask your partner to look at the signal meter value, 10dBm is the best.

Notes: The output power level in the signal meter is the level for the indoor antenna.

Fix the outdoor antenna direction when you get the best output power

LCD signal meter tells how strong the signal is

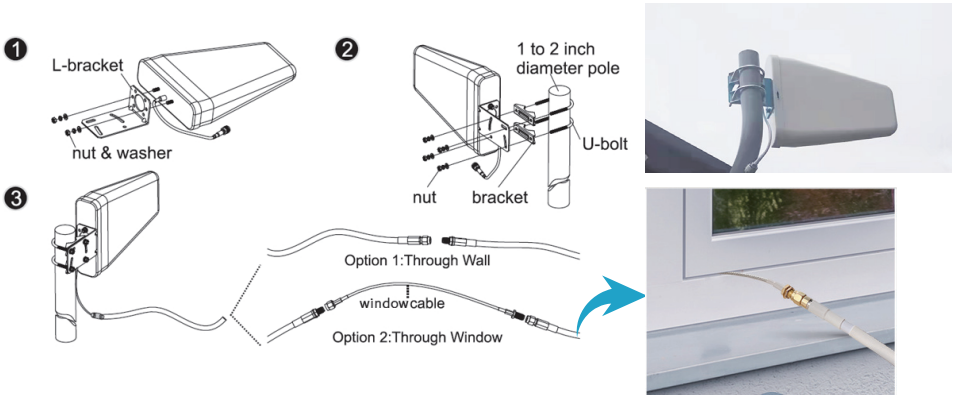


Professional Tips

- Keep in mind that it is normal for the output values may vary dynamically between 1-3 dB
- To optimize the signal for one carrier, point the outdoor antenna towards the closest cell phone tower designated to that carrier
- To optimize the signal for more than one carrier, point the outdoor antenna between multiple towers
- Make sure to slowly turn the antenna while taking the readings so the booster has time to adjust the reading
- Test and install the antenna at the same height where power outputs and gain values reach the booster's maximum capacity
- **if you can't get a good output power, which shows --, most probably the install will fail. Either please find a new place to find good signal again, or drop the install.**

2.5 Fix outdoor antenna

Now install the outdoor antenna firmly

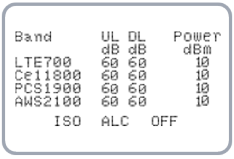


The connector of the cable connection part is glued with black waterproof tape to prevent long-term signal drop and reduce signal loss!

2.6 Reconfirm that the signal on LCD signal meter is the best!

And take photo of LCD signal meter for future comparison during indoor antenna install. What you are going to be paying attention to here, is the gain values. If you have interference between your indoor and outdoor antennas, then the booster will lower the gain and these values will decrease.

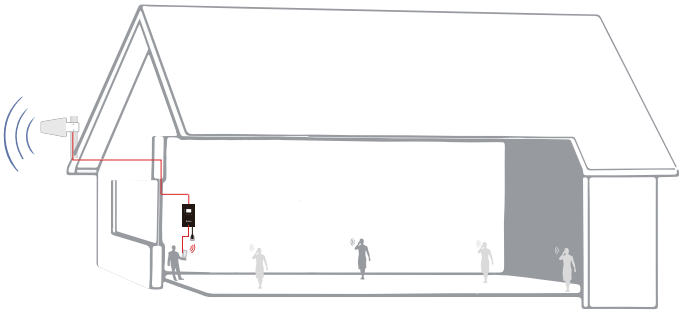
LCD signal meter tells how strong the signal is



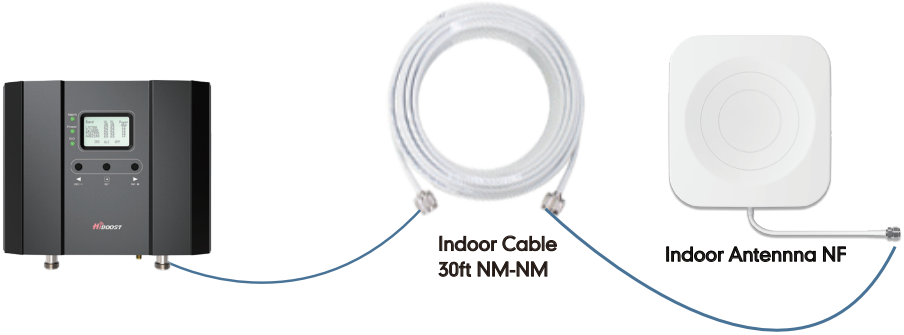
Step 3: Install the indoor antenna

3.1 Now it's turn to install the indoor antenna.

Note: It is better to have two people at this stage. One can go around to find the best place for indoor antenna. While the other can walk around to make tests all over to make sure every spot is covered with stable and high quality signal.



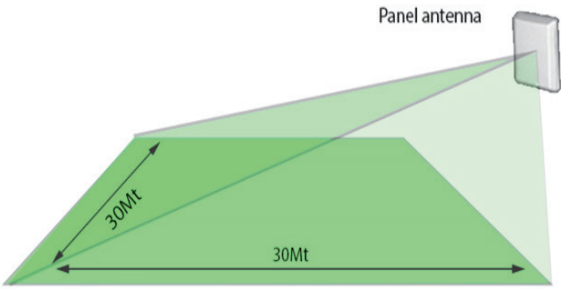
3.2 Connect the indoor antenna with the booster by indoor cable, and switch on the booster.

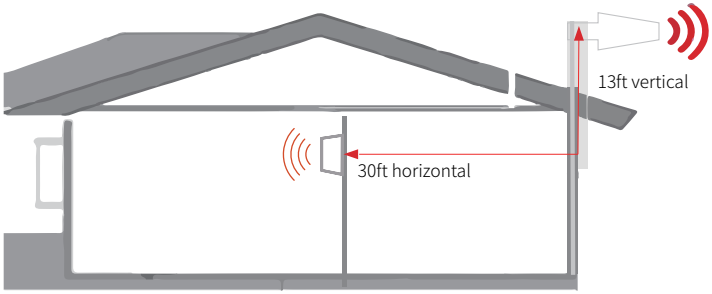


Note : Cellphone are to be used more than 1m away from the Indoor Antenna

3.3 Find the proper location for indoor antenna

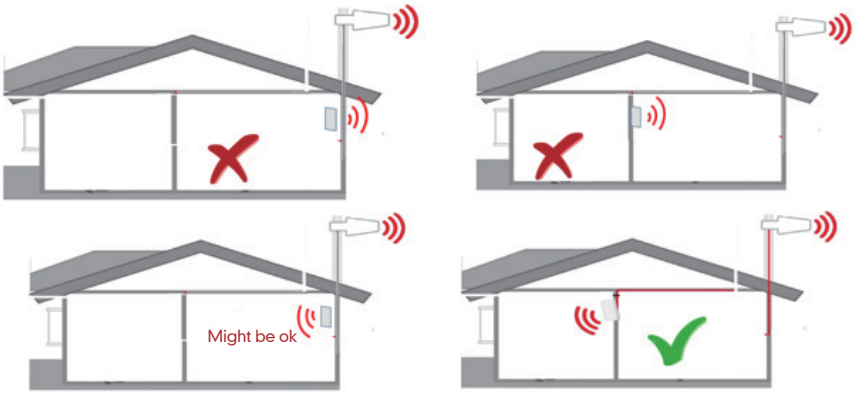
1) Determine the location according to the antenna's radiation pattern. The radiation pattern is 80° horizontal and 70° vertical. So try to make sure the space will fall into its radiation pattern.





2) After finding the location, hold it there, and ask the other person to compare the gain and power on LCD signal meter, they shall keep the same or very nearby with the photo taken during outdoor antenna install. This is to avoid the loop back between outdoor and indoor antennas, please move the indoor antenna till you get unchanged or slightly changed gain and power. This step is quite crucial for the booster's best performance.

=



Two requests of indoor antenna install

A. Radiation shall be good enough to cover whole space

B. Loop back shall be avoided

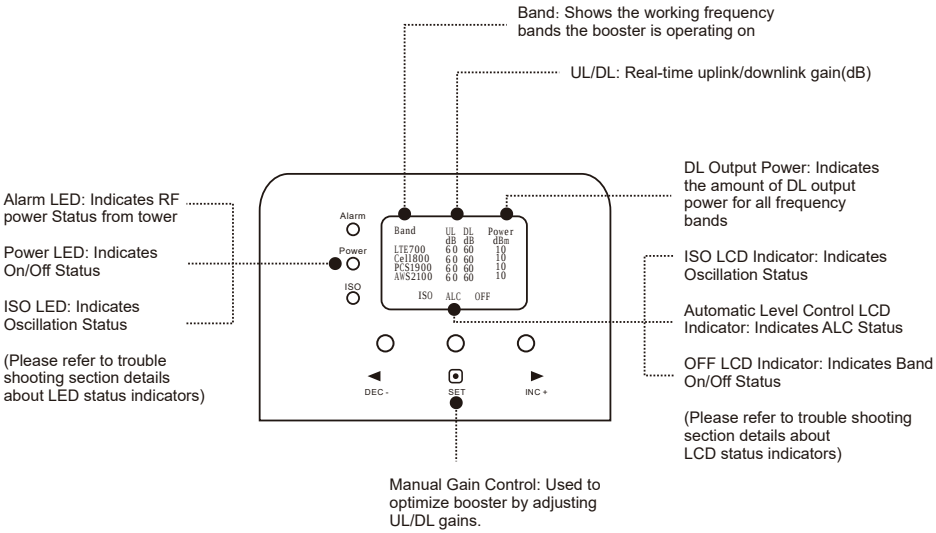
Again the tips to avoid the loop back

1. Increase the distance between the outdoor and indoor antennas
2. The outdoor and indoor antennas shall be back to back
3. Use barriers between the indoor and outdoor antennas

Notes about LCD Display

These are instructions that will allow users to install a Super/Utral Signal cell phone booster using the LCD Display.

Following LED status indicators and control buttons on the booster .



	LED/LCD STATUS INDICATORS
Alarm LED	Indicates RF Power Status from tower
Power LED	Indicates ON/OFF Status
ISO LED	Indicates Oscillation Status
Manual Gain Control	Used to optimize booster by adjustment of UL/DL
OFF LCD Indicator	Indicates Band ON/OFF Status
Automatic Level Control	Indicates ALC Status
ISO LCD Indicator	Indicates Oscillation Status
DL Output Power	Realtime Uplink/Downlink Gain In dB
Bluetooth/Wi-Fi Indicator	Indicates Bluetooth and Wi-Fi are Enabled
UL/DL	Realtime Uplink and Downlink Gain
Band	Shows working frequency bands the booster is operating on

3.4 Signal quality test

After finding such a location, hold the indoor antenna there and ask the other person to walk back and forth, and use the 3rd party app to test the signal strength, voice, and data.
We recommend you to test the signal strength, the voice quality and data speed.

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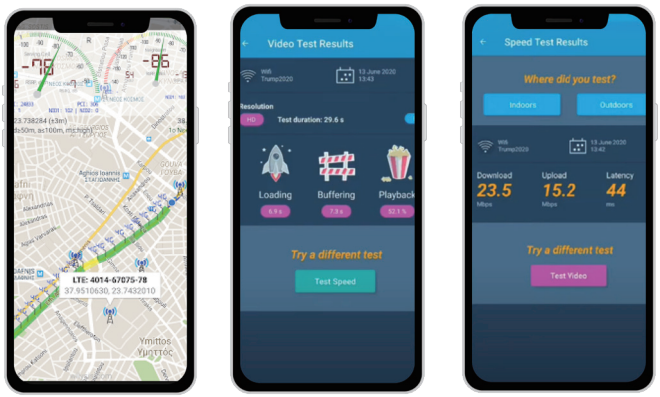
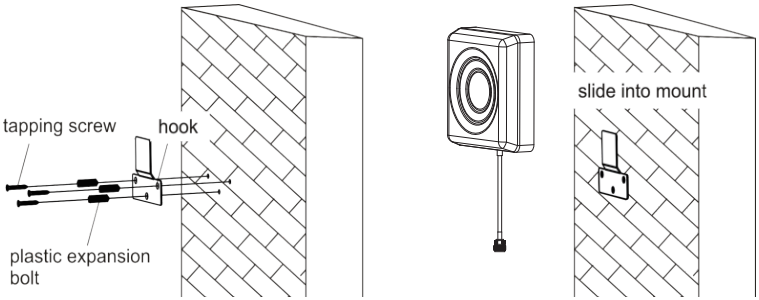


If the test is good, then congratulations, the indoor antenna position has been successfully found. Please install the indoor antenna.



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Step 4: Install the booster and the cables

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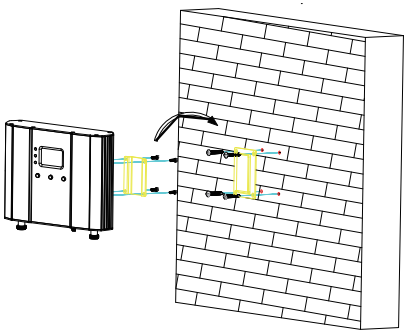
And run the cables neatly, please do use the **water-proof tape** to protect all outside



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a. First make sure the LCD gauge value is unchanged from the outdoor antenna install.
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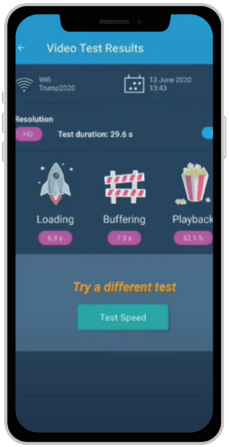
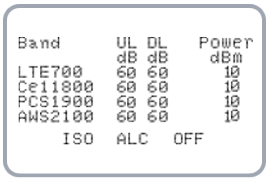
a. Now everything is completed and please start to enjoy the mobile services.
b. If the result is not satisfactory or you want to be better, you may repeat the whole or part of the process to improve.
c. Please contact us: Signal Supervisor app online support, Phone and Email in case you have any problems.





Quick Troubleshooting Guide

Eliminate Flashing ISO LCD Display Indicator and Quick Flashing Green, Quick Flashing Red ISO LED Indicator problems:

1. Adjust the outdoor antenna direction, keeping it away from the indoor antenna-restart the booster.
2. Increase the vertical or horizontal distance between the outdoor antenna and the indoor antenna-restart booster.
3. Use metal or wall barriers to increase the isolation between the indoor and outdoor antennas-restart booster.
4. Change the indoor antenna type to an antenna with a more directional antenna pattern-orient the indoor antenna and the outdoor antenna so they are not pointing at each other.

The ISO issues are solved when the ISO LED is "Green" or "Slow Flashing Green" or no flashing ISO legend.

Eliminate poor coverage problems when Power“– – – ” legend on LCD and Alarm LED is Green

1. If the signal has not been improved, please check below:

·A weak downlink signal leads to the low output signal level-change the direction or position of the outdoor antenna.

·Try replacing the outdoor antenna with a higher gain antenna to increase the amount of signal being received.

·Check to see if it is necessary to add more indoor antennas-barriers such as walls can block the signal indoors.

·Check the booster to make sure the output power is maximized-the user may need to replace the booster with a more powerful one if the amount of outdoor signal available is limited.

2. If the signal in a small section of the building hasn't been improved, try the following:

·Check to see if the indoor antenna is installed correctly-try moving and adjusting the indoor antenna to improve coverage.

Other Troubleshooting Issues
Reference the chart below to identify the current status of the booster.

LED STATUS INDICATORS		
LED	STATUS	INDICATION
Alarm LED	GREEN	Below full output power
	SLOW FLASHING GREEN	Full output power
	QUICK FLASHING GREEN	Output power is too high
	QUICK FLASHING RED	Booster will automatically shut off due to excessive DL signal from tower
Power LED	GREEN	Normal
	OFF	DC Power Problem
ISO LED	GREEN	Indicates oscillation status
	SLOW FLASHING GREEN	Slight loop back or self-oscillation
	QUICK FLASHING GREEN	Deep loop back or self-oscillation
	QUICK FLASHING RED	Booster is automatically shutting off

If there are any issues while installing a HiBoost cell phone signal booster, please contact the technical support team through the following channels:

Online Support: Create a ticket or chat via Signal Supervisor app

(972) 870-5666 (M-F from 9 am – 5 pm CST)

service@hiboost.com

www.hiboost.com

Technical Specifications

Model No.	15K Smart Link（F20G-5S-IOT）
Working Bands	Band 12/17/Band 13/Band 5/Band 25/2/Band 4
UL Frequency Range	698-716 / 776-787 / 824-849 / 1850-1915 / 1710-1755
DL Frequency Range	728-746 / 746-757 / 869-894 / 1930-1995 / 2110-2155
Maximum Gain	70 dB
Maximum Output Power	DL 12 dBm
I/O Port	N-Female
Weight	> 5.0 lb / 2.2 kg
Dimensions	8.6in x 6.5in x 2in / 218mm x 165mm x 50mm
MGC(Step Attenuation)	>25 dB /1 dB Step
Impedance	50 ohm
Environment Condition	IP40
Power Supply	Input AC 100~240V, 50/60Hz, Output DC 12 V/3 A

Notes: Support 5G only that's been or will be deployed in current 4G by DSS (Dynamic Spectrum Sharing) by carriers.

Booster Safeguard Features

Anti-oscillation:

When the device detects an oscillation signal exceeding 0 dBm, it will individually shut down the UL and DL CKTs within 0.3 to 1 second. Operations will restart with a device check after 62 seconds, totaling four retries including the initial check but not exceeding five attempts. Afterward, the device will be permanently shut down until the user restarts it.

AGC, Power Control/Cut-off, and Noise Limitation:

The device amplifier automatically controls the gain and power of the device within a controllable input, amplifying incoming signals from cellular towers and phones without distortion. When the input signal level exceeds this range, the device will cut off power to the UL and DL CKTs to reduce output noise. This situation may occur in the following scenarios:
1. Circuit oscillation
2. Outdoor antennas near cellphone signal towers
3. Proximity of the phone to indoor antennas during use
4. UL CKT will be disabled within 5 minutes after the end of a call. The device amplifier adjusts to reduce the gain and power of the UL and DL CKTs. The DL AGC CKT functions as a variable gain based on the received level of the outdoor antenna.

Each device signal amplifier undergoes individual testing and factory settings to comply with FCC guidelines. Users cannot arbitrarily adjust the software and hardware settings of the signal amplifier. Only the factory can program the device.

FCC Information:

This device complies with FCC rules and guidelines for consumer devices and provides reasonable protection against harmful interference when installed in residential areas. Operation is subject to the following two conditions:
1. This device must not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC and ISEDC Statements

FCC RF EXPOSURE STATEMENT

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 colocated or operating in conjunction with any other antenna or trans-mitte.his equipment should be installed andoperated with minimum distance 20cm between the radiator& your body.

ISEDC RF EXPOSURE STATEMENT

The devices is compliance with RF exposure limits. The minimum distance from body to use the device is 20 CM.

Le présent appareil est conforme aux conformité ou aux limites d'intensité de champ RF. La distance minimale du corps à utiliser le dispositif est de 20 CM.

This device complies with part 15 of the FCC Rules. 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 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:

- Re-orient 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

Changes or modifications not expressly approved by HiBoost could void the user's authority to operate the equipment. For a complete list of antennas and cables approved for use with these boosters see Authorized Kitting Options

FCC 27.50(d)(4) Statement: Fixed, mobile, and portable (handheld) stations operating in the 1710-1755 MHz band are limited to 1-watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground.

FURTHER INFORMATION ON SIGNAL BOOSTER END-USE REGISTRATION
The following links are the currently active contacts for booster registration with U.S. wireless providers:
https://www.uscellular.com/uscellular/support/fcc-booster-registration.jsp
https://www.sprint.com/legal/fcc_boosters.html
https://www.verizonwireless.com/solutions-and-services/accessories/register-signal-booster/ https://support.t-mobile.com/docs/DOC-9827
https://securec45.securewebsession.com/attsignalbooster.com/

ISEDC Statement: This device complies with Innovation, Science, and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d' Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil nedoit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
This device complies with Innovation, Science and Economic Development Canada ICES-003 Compliance Label: CAN ICES-3 (B)/ NMB-3(B). Le présent appareil est conforme Innovation, science et développement économique Canada ICES-003 Étiquette de conformité: CAN ICES-3 (B) / NMB-3 (B).
Please follow the link to access the CPC-2-1-05:
http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08942.html

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.

In Canada, **BEFORE USE**, you must meet all requirements set out in ISED CPC-2-1-05.

You **MUST** operate this device with approved antennas and cables as specified by the manufacturer. Antennas **MUST** be installed least 20 cm(8 inches)from(i. e..**MUST NOT** be installed within 20 cm of)any person.

You **MUST** cease operating this device immediately if requested by the FCC(or ISED in Canada)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(i.e., may operate in a fixed location only)for in-building use.

Return and Warranty Policies

30-Day Money-Back Guarantee: If for any reason the performance of any product is not acceptable, the product may be returned to the reseller within 30-days with proof of purchase. Please contact the customer support team.

3-Year Warranty: Signal boosters and kits are warranted for 3 years. We will repair or replace the unit and will cover the cost of delivery back to consumers located within the continental US and Canada. We will only cover shipping to our office if the booster was delivered to you recently, and was delivered defective.Damage caused by the use of non-company power supplies or other accessories is not covered under warranty.

Customers can choose to return the signal boosters and kits directly to the manufacturer at the purchaser's expense with a dated proof of purchase and a Returned Material Authorization (RMA) number supplied by us. RMA numbers may be obtained by contacting customer support at 972-870- 5666 or support @hiboost.com

This warranty does not apply to any signal boosters or kits determined by us to have been subjected to tampering, misuse, abuse, neglect, or mishandling that alters or damages physical or electronic properties.

We are not liable for any Signal Supervisor application network connectivity issues. The cell phone signal booster relies on a strong, continuous and reliable connection to the internet in order to communicate with the cell phone application. For all Signal Supervisor Application related issues, please check your network strength and call our technical support.

Failure to use a surge-protected AC power strip with at least a 1000 Joule rating will void your warranty. Damage caused by lightning is not covered by this warranty.

All of the products that are packaged with other accessory products are intended for resale and used as a single integrated system. Such product kits are required to be sold to the end-users or subsequent reseller as packaged.