

# User Manual

Wideband Consumer Signal Booster

4K Mate Plus (F10GTI-5S-IOT)

4K Mate Plus Pro (F10GTI-5S-IOT.PRO)

10K Mate Plus (F15GTI-5S-IOT)

10K Mate Plus Pro (F15GTI-5S-IOT.PRO)

15K Mate Plus (F20GTI-5S-IOT)

15K Mate Plus Pro (F20GTI-5S-IOT.PRO)

3150 Premier Drive, Suite 130,  
Irving, TX 75063  
(972) 870-5666  
service@hiboost.com  
www.hiboost.com





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# Package Content

## HiBoost 4K/10K/15K Mate Plus



Outdoor Antenna



Outdoor Cable  
49.2ft NM-SMAM



Through-Window Cable  
SMA-Male to SMA-Female  
(No drilled hole)



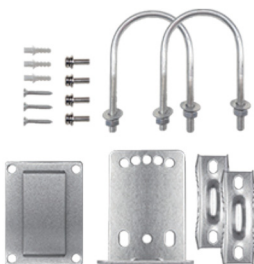
Outdoor Cable to Booster  
16.4ft SMAF-SMAM



Booster



Power Supply



Accessories for main parts  
are all provided



Waterproof tape  
to protect connetctions

# Package Content

## HiBoost 4K/10K/15K Mate Plus Pro



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Outdoor Cable  
49.2ft NM-SMAM



Through-Window Cable  
SMA-Male to SMA-Female  
(No drilled hole)



Outdoor Cable to Booster  
16.4ft SMAF-SMAM



Booster



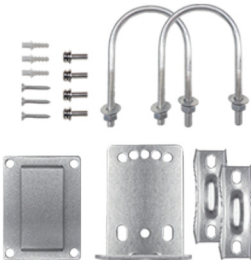
Indoor Cable  
30ft NM-SMAM



Indoor Antenna



Power Supply



Accessories for main parts  
are all provided



Waterproof tape  
to protect connetctions

NOTE: Available accessories can be purchased through HiBoost.com

Warning: Un-authorized antennas, cables, and/or coupling devices are prohibited by new FCC rules. Please contact FCC for details: 1(888)-CALL-FCC

## Authorized Accessories List

### Outdoor Antenna & Cable Kit Options

Outdoor antenna HODL698-2700V8i60A 698-960/1710-2700MHz 8/9dBi

Outdoor cable Hiboost240/4D 49.2ft/15M

Outdoor cable Hiboost240/4D 16.4ft/5M

### Indoor Antenna & Cable Kit Options

Indoor antenna AI698-2700V09iB 698-960MHz/1710-2700MHz 7dBi

Indoor cable Hiboost240/4D 30ft/9.14M

## Introduction

Thanks again for purchasing HiBoost cell Booster. The HiBoost Mate Plus/Pro series is a collection of precision-engineered products that improve cellular reception inside of homes and businesses by amplifying incoming and outgoing cell phone signals.

Both HiBoost Mate Plus and Mate Plus Pro have built-in antennas, so both can directly receive and send signals through boosters. But Plus Pro has one more indoor antenna to facilitate the need to cover more rooms.

HiBoost Mate Plus/Pro exclusive cloud-based Signal Supervisor mobile application and LCD display allow users to monitor the live status of HiBoost Mate Plus/Pro cell phone signal boosters directly from the LCD display or remotely from a mobile device anywhere at any time.

If there are any issues while installing a HiBoost Mate Plus/Pro cell phone signal booster, please contact the HiBoost technical support team through the following options:

**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](mailto:service@hiboost.com)

 [www.hiboost.com](http://www.hiboost.com)

# Pre-Installation Instructions

We strongly recommend you to read the user guide completely before beginning the installation.

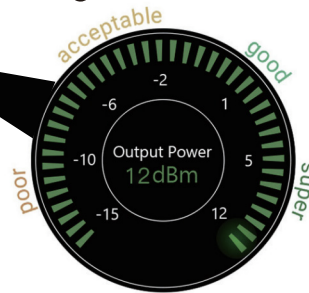
HiBoost 4K/10K Mate Plus/Plus Pro provide 2 options of booster installation, APP and LCD installation ways are unique methods provided by HiBoost

## 1. App assisted installation, **FIRST CHOICE** From Page 13~27.

It's more convenient and many work could be done by ONE person, and the most important is that the obtained signal can be very precise.



The App helps you find the best signal outside



## 2. LCD assisted installation, **SECOND CHOICE** From Page 28~41.

It can achieve the same precise effect as App guidance. But it may need two people and the installation process is a little cumbersome.





Touchable LCD meter tells how strong the signal is





## Then why has HiBoost spent extra big efforts and costs to design APP and LCD signal meters to help you install?

Out of the various reasons, the most important reason is that we would like you, our valuable client, to get the maximum output power from the booster system in order to get optimal signal reception for all your mobile devices.

 As it is known and a big thanks, FCC makes signal boosters legal in 2014 so that every body can install and benefit from the signals;

 But FCC regulations do limit the gain and output power of all consumer boosters to low values in order to avoid any interference to the cell towers;

 Furthermore FCC stipulates that any improper install should trigger immediately further reduction of the booster's already-limited gain and power to protect the towers.

 Therefore, you can understand how important you need to find the perfect outside signal from the tower and how important to squeeze every last gain and power from the booster, even 1dB more power is so precious when you suffer from no signals.

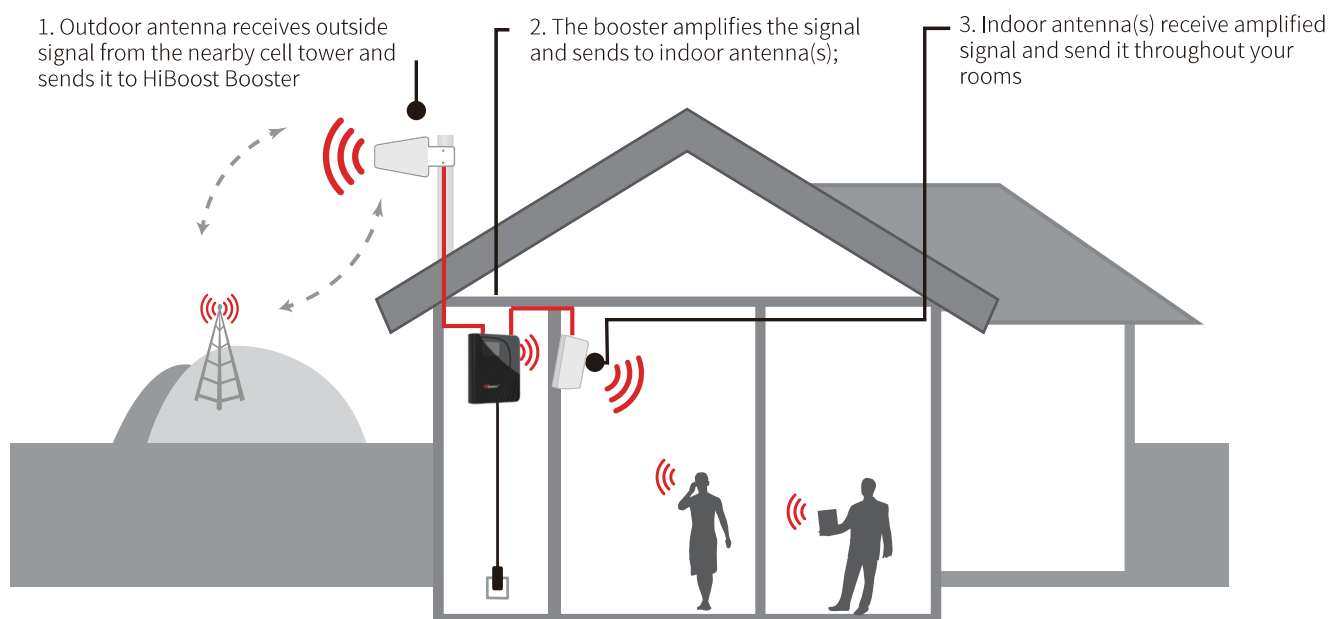
HiBoost App & LCD signal meters will help you to fine tune the best power and get as much cover of your spaces.

## General Working Principle:

Before we start any of the two ways, please allow us to spend 3 pages to make you understand how the booster system works for you.

※ Please do spend sometime to read it fully, as it is crucial to get full bars for your rooms.

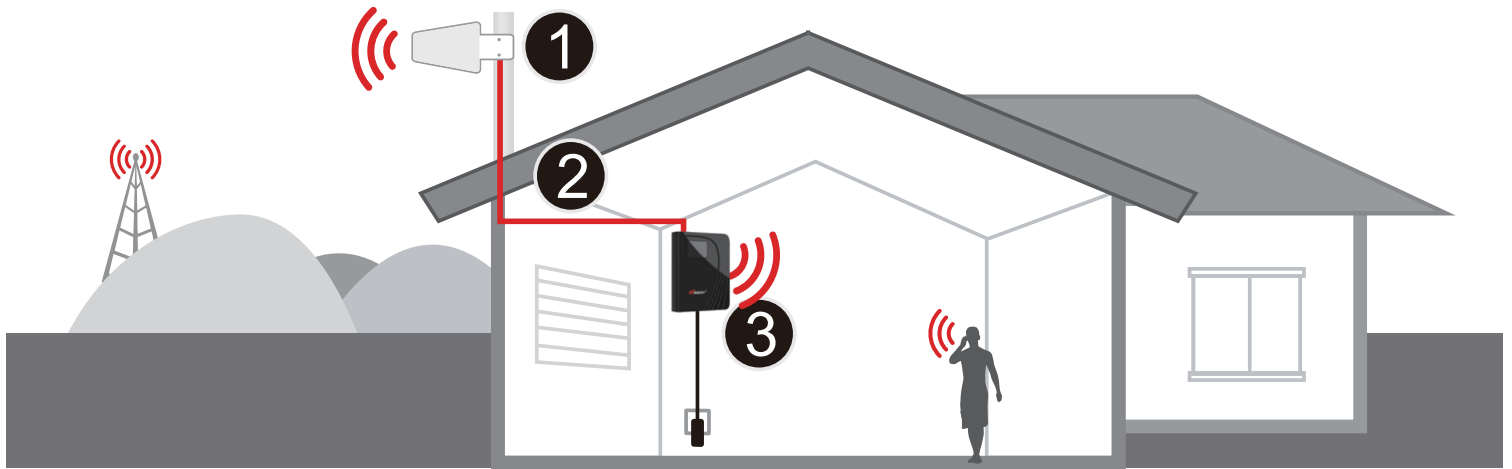
## How HiBoost Booster works



Vice versa, booster(plus)/indoor antenna receives cellphone signal and sends to the booster  
The booster then amplifies the signal and sends it to outdoor antenna  
Outdoor antenna sends signal to the cell tower  
Then you can make phone calls and internet streaming.



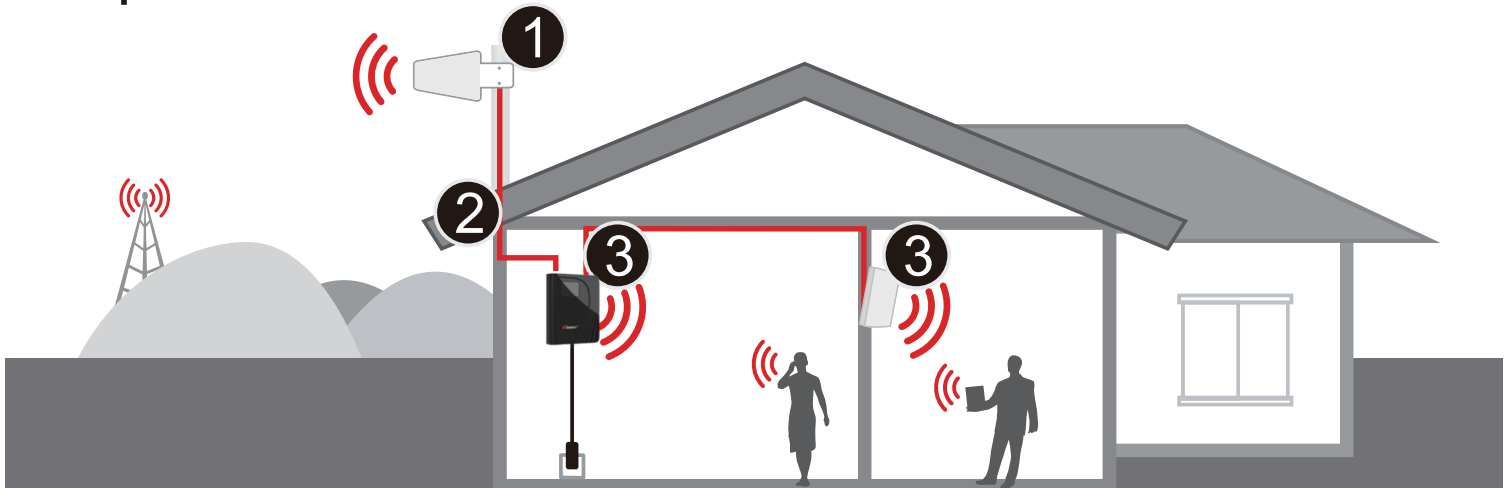
## Built-in Antenna Method



- 1 -Outdoor wide band Directional antenna
- 2 -Hiboost240 low-loss cable
- 3 -Home Plus with built-in antenna

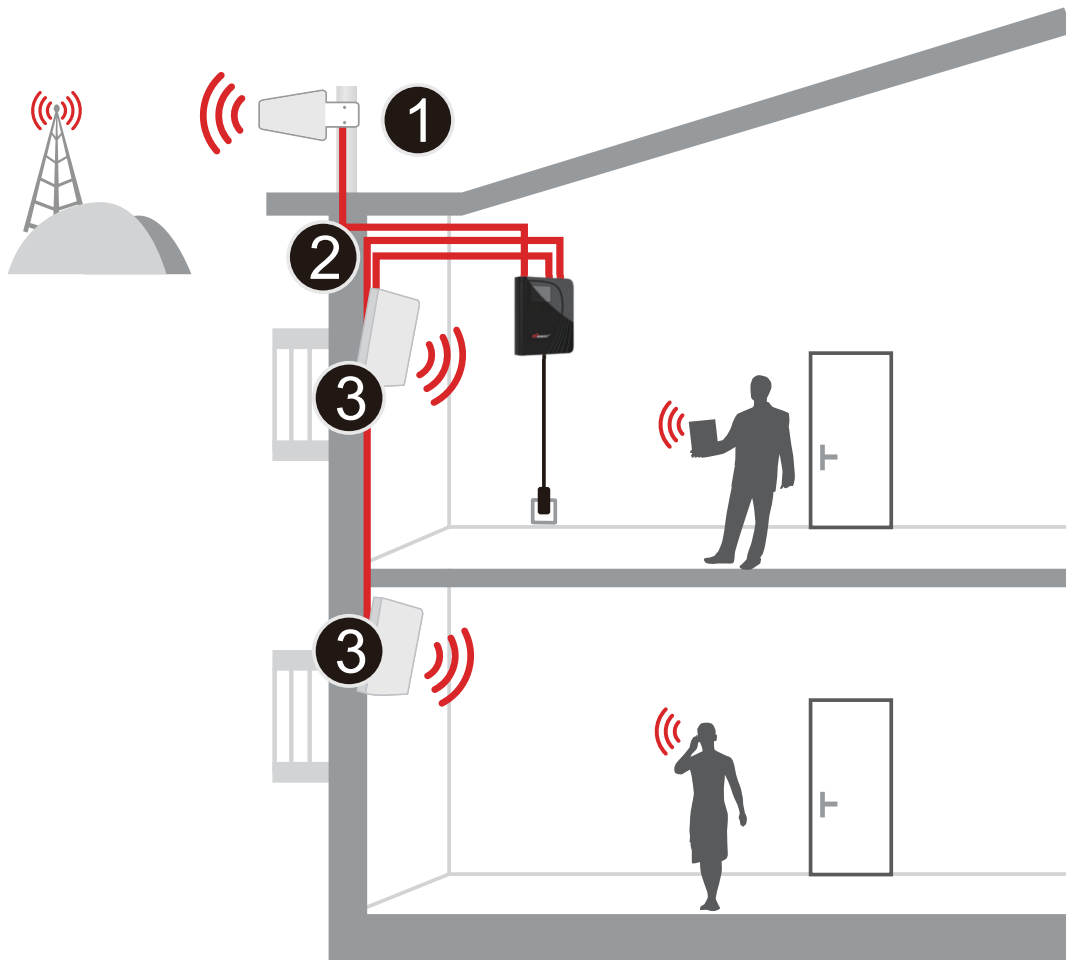
Noted: applicable to 4K Mate Plus and 10K Mate Plus

## Optional Antenna Methods



- 1-Outdoor wide band Directional antenna
- 2-Hiboost240 low-loss cable
- 3-You can add an indoor panel antenna and Hiboost240 low-loss cable to extend the coverage

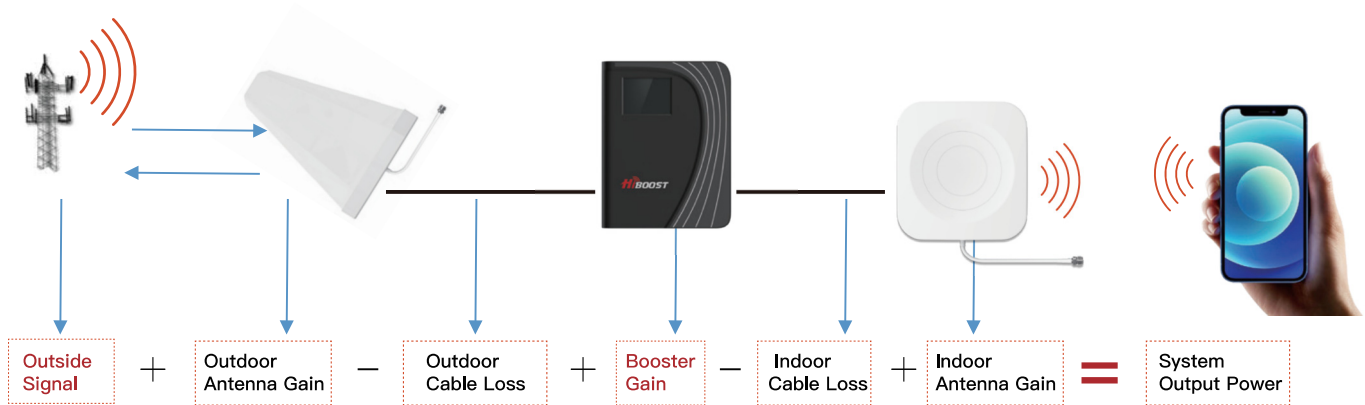
Noted: applicable to 4K Mate Plus Pro and 10K Mate Plus Pro; Or 4K Mate Plus and 10K Mate Plus with purchased secondary indoor antenna.



- 1-Outdoor Wide Band Directional Antenna
- 2-Hiboost240 Low-loss Cable
- 3-You can add 3<sup>rd</sup> indoor antenna kit with SMA-N connector to extend the coverage. (Built-in antenna will be automatically disabled)

Noted: applicable to 4K Mate Plus Pro and 10K Mate Plus Pro;when 3<sup>rd</sup> indoor antenna is added.

## Working Principle in Formula



Out of the Formula:

**Outside Signal:** To be received by outdoor antenna from cell tower

Outdoor Antenna Gain: The gain of outdoor antenna

Outdoor Cable Loss: The loss of the outdoor cable

**Booster Gain:** The actual working gain of the booster

Indoor Cable Loss: The loss of the indoor cable

Indoor Antenna Gain: The gain of indoor antenna

### For example:

**-70dBm + 11dBi - 4.5dB + 65dB - 2dB + 7dBi = 6.5dBm (System Output Power)**

Since the figures in **Black** color are fixed when you finish the purchase, thus the **RED** figures of

**1. Outside Signal**

**2. Booster Gain** will play a vital role in reaching the best output power during the install, especially when we know the FCC limits the booster system values.

So the user guide is focused on:

1. Getting the best outside signal.
2. Keeping the maximum booster gain.

# More notes on how to keep the maximum booster gain

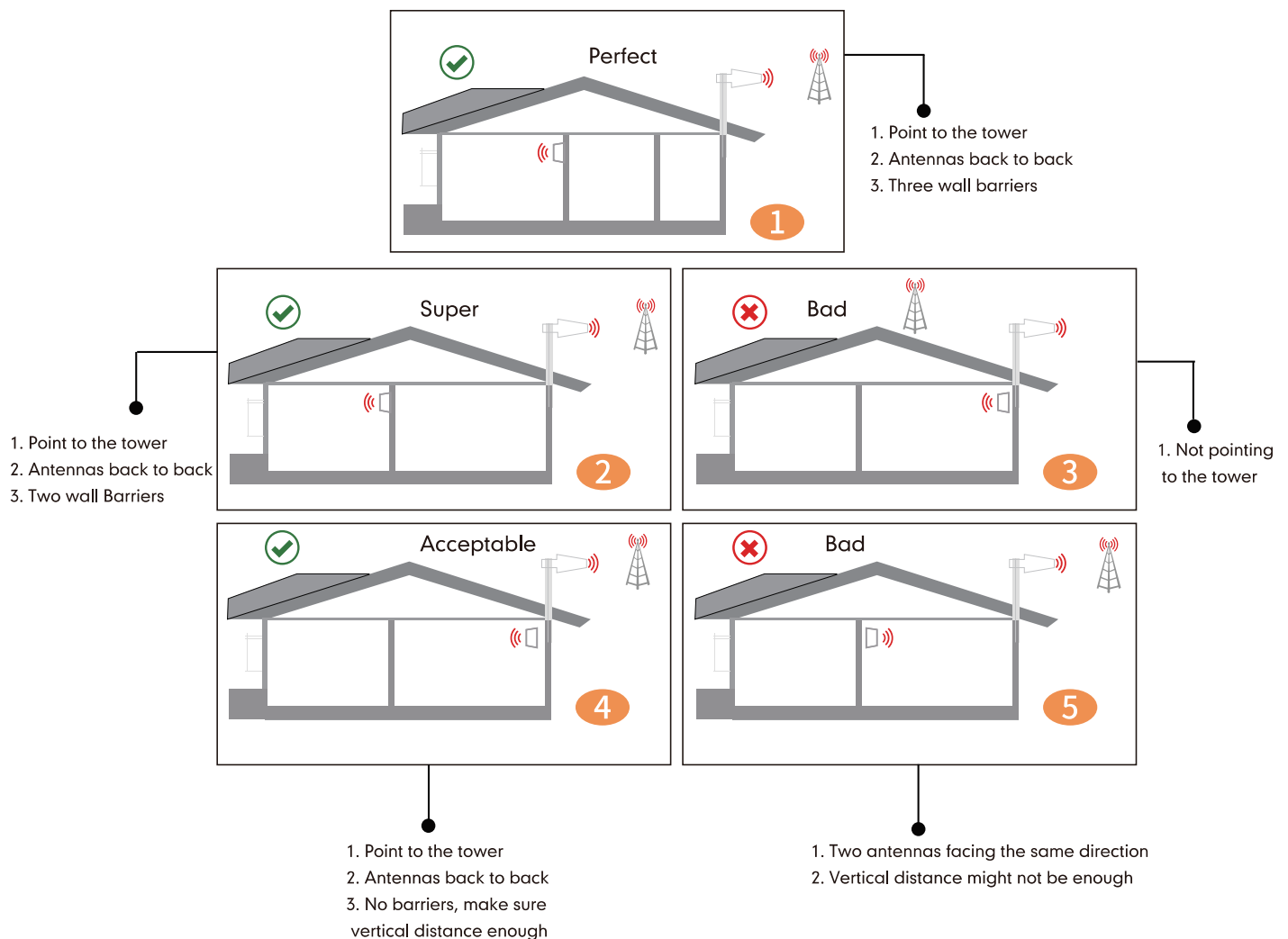
The loop back from the outdoor antenna to the indoor antennas will reduce the gain, so the principle to keep the maximum booster gain is to avoid the loop back from the outdoor antenna to the indoor antennas.

1) Increase the distance between the outdoor and indoor antennas, generally the same vertical distance generates more loss than horizontal, and to follow easily, a Typical Required Distance Between Outdoor and Indoor Antennas Over 30 feet (10 meters) horizontal distance or 13 feet (4 meters) vertical distance.

2) The outdoor and indoor antennas shall be back to back.

3) Use barriers between the indoor and outdoor antennas.

※ Please note: This separation is not an absolute mandate. The idea is to isolate the outdoor antenna from the two indoor antennas.



# Notes about LCD Display

These are instructions that will allow users to install a Barsguard cell phone booster using the LCD Display.

Following LCD status indicators and control buttons on the booster.

DL Output Power Amount: Indicates the amount of DL output power for this frequency band. 10dbm(4k) or 12dbm(10k) is the best .

Band: Shows the working frequency bands the booster is operating on.

DL Output Power Status: Indicates the status of DL output power for this frequency band.



Details: Click the corresponding frequency band (the hot area range is the entire instrument panel + text) to enter the frequency band parameter details page;

Reset Screen: Click on the screen to turn off the screen immediately, and the touch screen lights up; if there is no operation within 3 minutes, the screen turns off, and the screen is turned on again to display the home page by default.

Frequency band status: full gain status (normal status, blue), weak oscillation status (yellow), oscillation shutdown status (red), and user active shutdown status (gray).

**BLUE:** Blue icon with ULN/AOL (Normal/Overload) indicates that a band is working correctly with maximum allowable gain.

**YELLOW:** Yellow icon with OSC (Oscillation) indicates band gain reduction because of a slight self-oscillation condition. Due to self-oscillation issue, please check the antenna system. Reinstall antennas and increase the isolation between outdoor and indoor antennas, and then turn the booster on to reactivate the band and maximize performance. After the proper isolation is done, the yellow icon will return to blue.

Note: when the icon is yellow, the band still works normally, but the gain is reduced.

**RED :** Red icon with SHDN (Shutdown) indicates a band has been shut down because of a strong self-oscillation condition or an over load condition (You could click the icon to see which condition now is). 1. For the strong self-oscillation condition, please check distance and direction of outdoor antenna and indoor antenna, increase the isolation of both antennas. After the isolation is enough, the red icon will return to blue upon reboot. 2. For the over load condition, It's because of that the input signal is too strong, please adjust outdoor antenna's direction to reduce the strength of the input signal, then turn the booster on to reactivate the band. When the gain is reduced enough, the red icon will return to blue upon reboot.

**GRAY:** Gray icon with DIS (Disabled) indicates band has been disabled..

## Booster Light Patterns

COLOR	INDICATION
Blue	Band works correctly with maximum allowable gain
Yellow	Band gain reduction because of a slight loopback condition
Red	1. Band has been shut down because of a strong loopback condition
	2. Band has been shut down because of an overload condition
Gray	Band has been disabled.

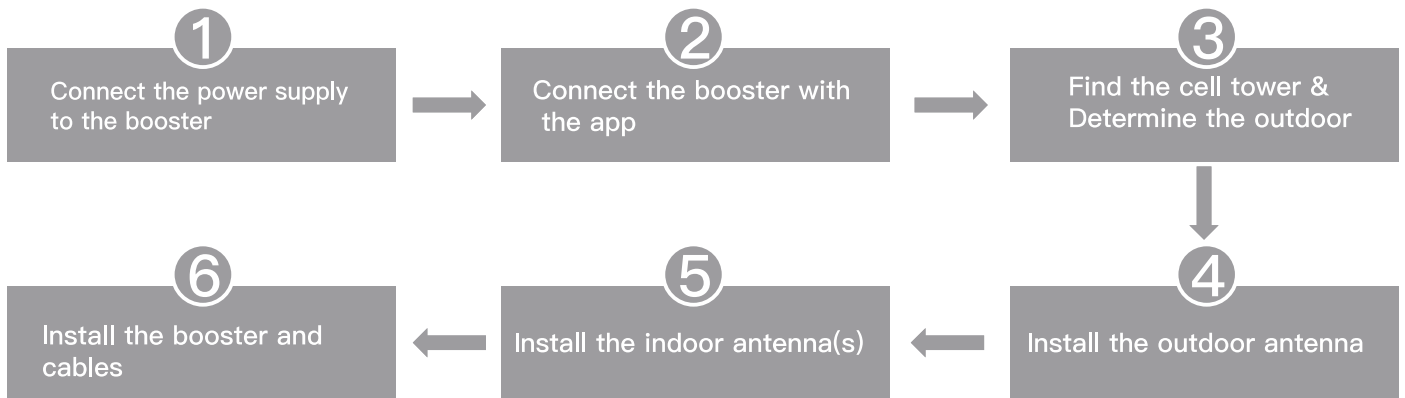
## Bands contained in the Gauges

Gauge	Band	Uplink	Downlink
LTE700	12/17	698-716MHz	728-746MHz
	13	776-787MHz	746-757MHz
CELL800	5	824-849MHz	869-894MHz
PCS1900	25/2	1850-1915MHz	1930-1995MHz
AWS2100	4	1710-1755MHz	2110-2155MHz

Please just focus on the gauge that contains the band you are using.

# APP Assisted Installation

## Flow chart of App Assisted Installation



### Step 1: Connect the power supply to the booster



Power Supply



Signal Booster

## Step 2: Connect the booster with the app

Download the Signal Supervisor App, register ID and booster.



1) Search "Signal Supervisor" on Google Play/ App Store, or scan the above QR Code to download.

2) Register on the Signal Supervisor APP.

3) Plug in the booster

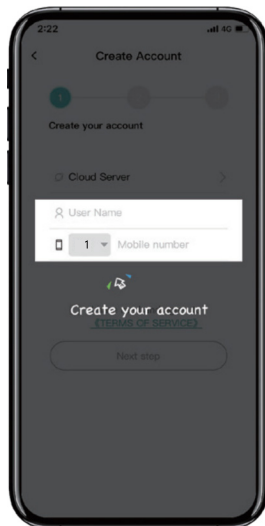
\* The Bluetooth/WiFi antenna is of built-in type,

\* There is no need to connect outdoor or indoor antennas at this moment.

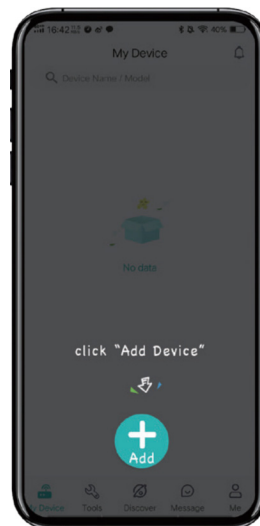
4) Click "Add Device" to register the booster into the APP. And we recommend WiFi connection because the Bluetooth connection can't go beyond 30ft. Check more steps about the App uses as below.



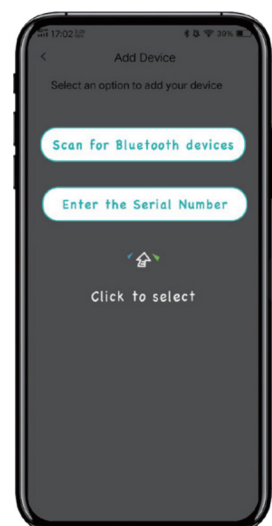
1



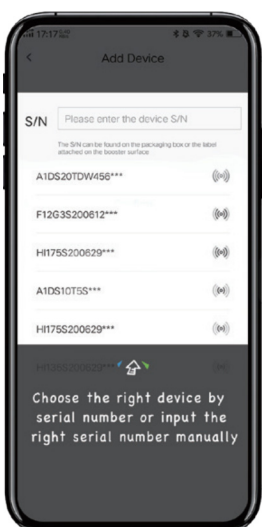
2



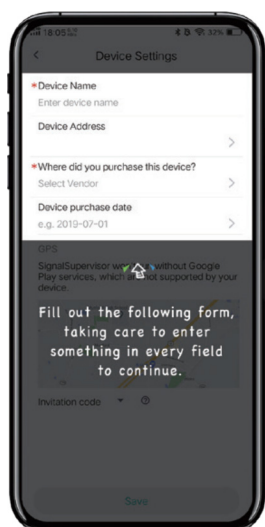
3



4



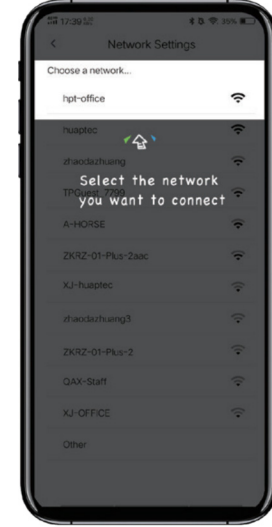
5



6



7



8



Due to the variety of phone models and the WiFi router types, there is a situation, though it is rare, where the booster cannot be linked to the Signal Supervisor app successfully.

If such situation is encountered:

\* You can alternatively use LCD signal meter to assist your installation.

And Bluetooth/WiFi disconnection won't influence the booster working status at all.

\* Or please use another cell phone or change a WiFi router if you insist an app assisted installation.

Please contact our tech support if you have difficulties in installation, and we will provide the best solution for you.

### Step 3: Find the cell tower & Determine the outdoor antenna's position

#### 3.1 Find the band you are using

For Android

Download NetWork Cell Info Lite in the Google store and open it.

It can be seen from the example picture that the frequency band is band 13.

(According to the form before, you need to pay attention to Gauge LTE700)

Then click MAP. You can see your phone connecting to a tower, and you can try aiming your outdoor antenna at it. But sometimes this is not accurate. You could also move to Step 3.2 to find the tower

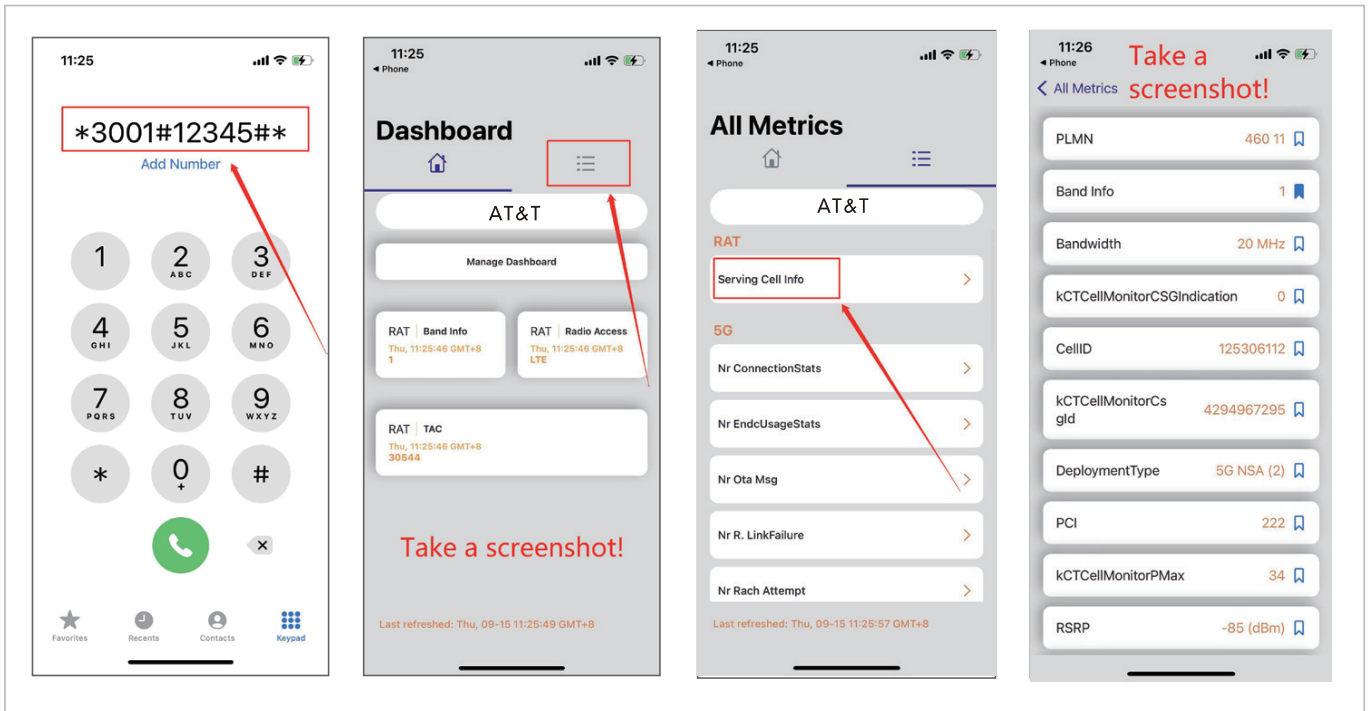
Note: Please take screenshots at this stage.



For ios

(1) Dial \*3001#12345#\*

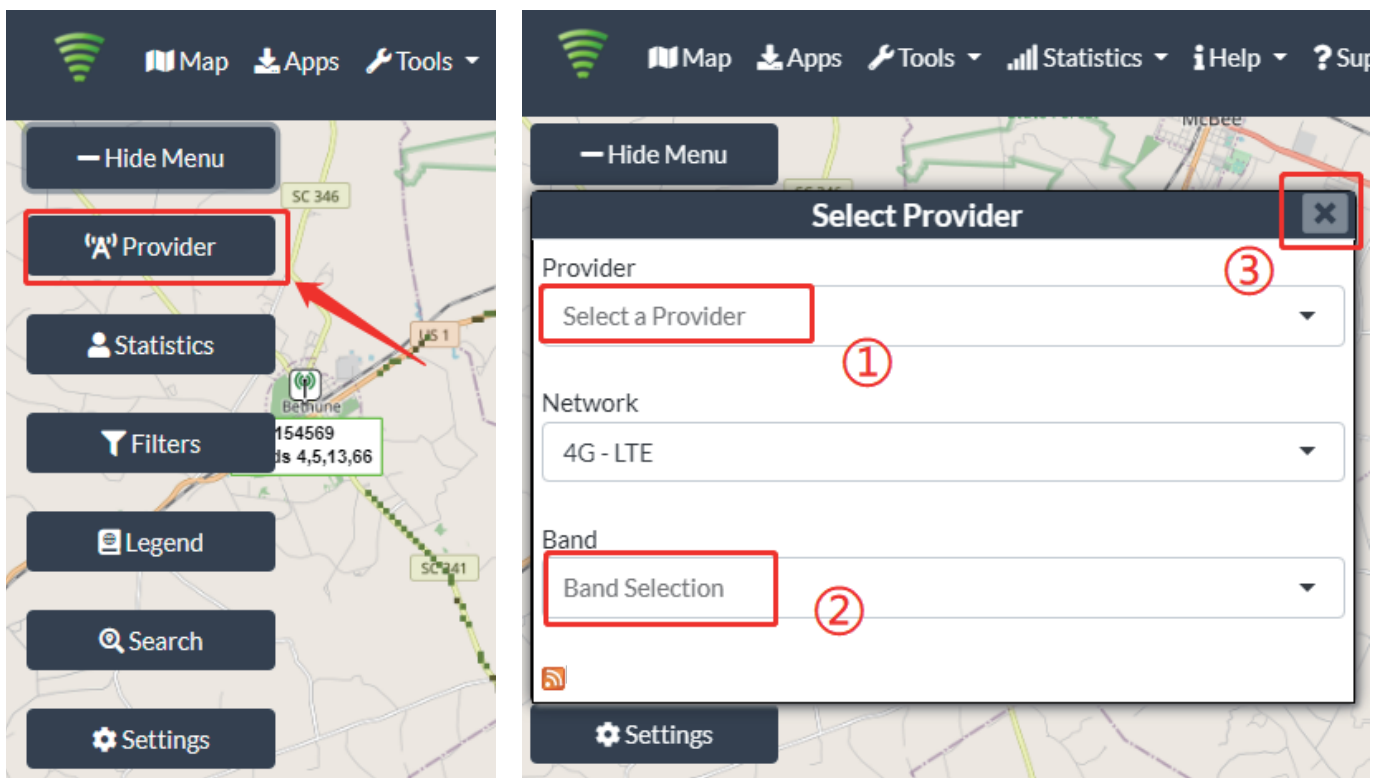
(2) Follow the instructions, take the screenshots as required.



### 3.2 Find the cell tower

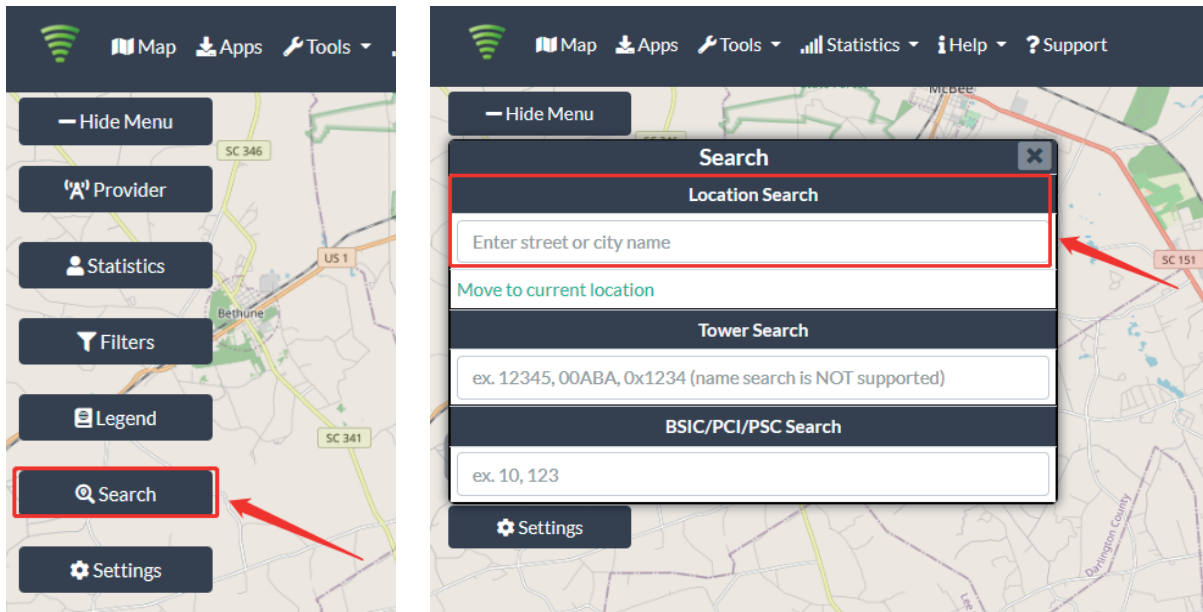
(1) Enter cellmapper.net

(2) Choose your own carrier and band here.



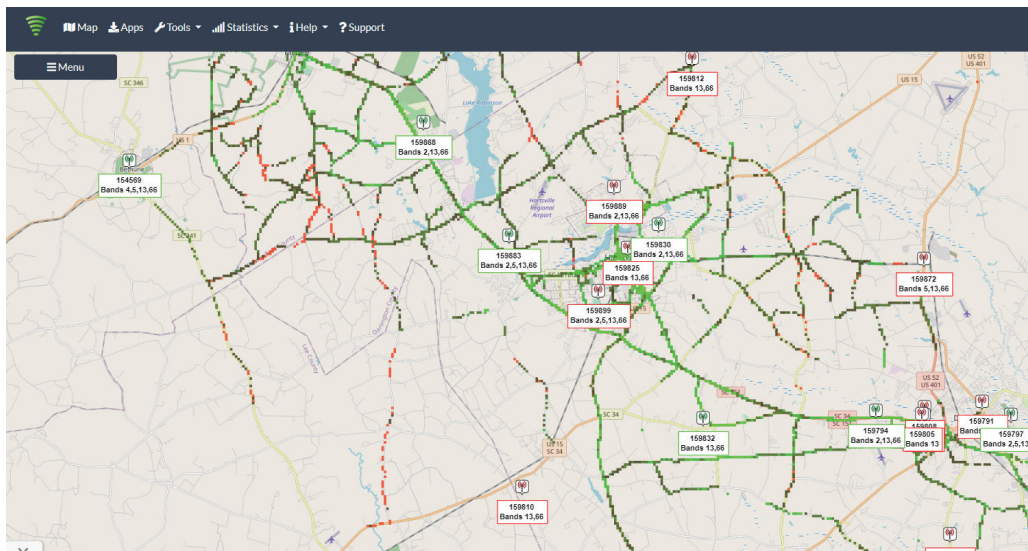
(3) Then enter the coordinate of where you are trying to install the signal booster, and press Enter key.

(In fact when you open Cellmapper, the map on the right will automatically locate your area if you've given the site permission to access your location. If you found tower sites not even displayed on the map, it might be because the app intercepts the locations for security reasons.)



(4) After the map jumps to the location, you can scroll the mouse pulley and zoom it out, then you will see the tower near the location. It would be better to take a screenshot of this page to guide the following installing steps. Should you have any questions, please contact our tech support.

Note: If you need help finding the tower, please contact our tech support and provide your carrier, band and screenshots taken in the last steps.

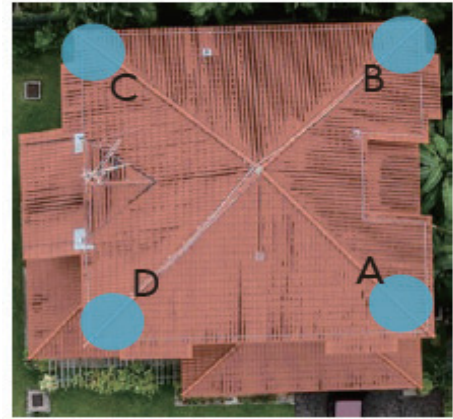


### 3.3 Determine the outdoor antenna's position

The outdoor antenna is usually placed at one of the 4 ends of the roof.

Please choose the position according to the tower's location.

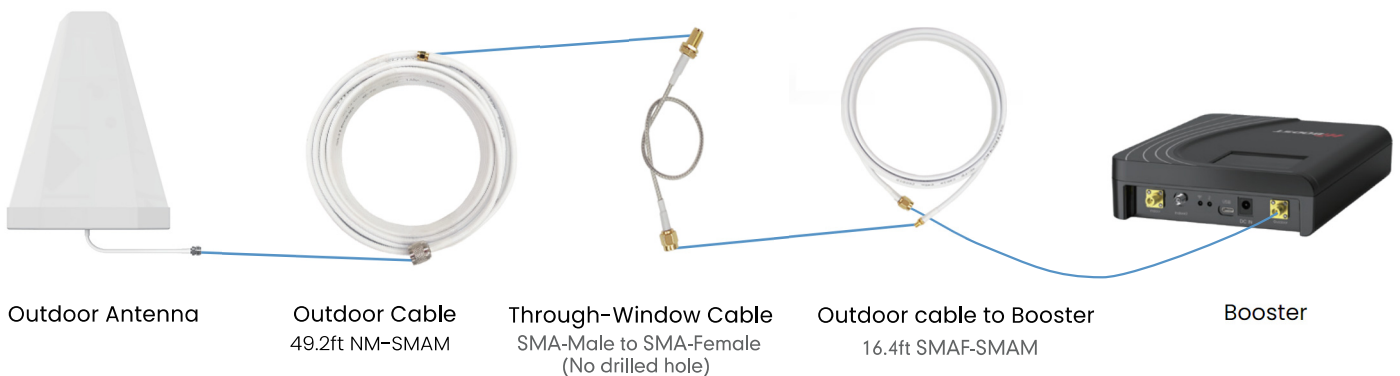
Make sure there are no barriers between the antenna and the tower.



## Step 4 Install the outdoor antenna

### 4.1 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) Plug in the booster and make sure the Signal Supervisor app links with it smoothly.
- (3) Connect the 16.4ft cable with the booster's outdoor port. The booster supports hot plug.
- (4) Then connect the window cable with 16.4ft cable and pull the window cable outside and connect it with 49.2ft cable. In case window cable is not needed, connect the 16.4ft cable with 49.2ft cable directly.
- (5) Connect the other side of 49.2ft cable with the outdoor antenna.

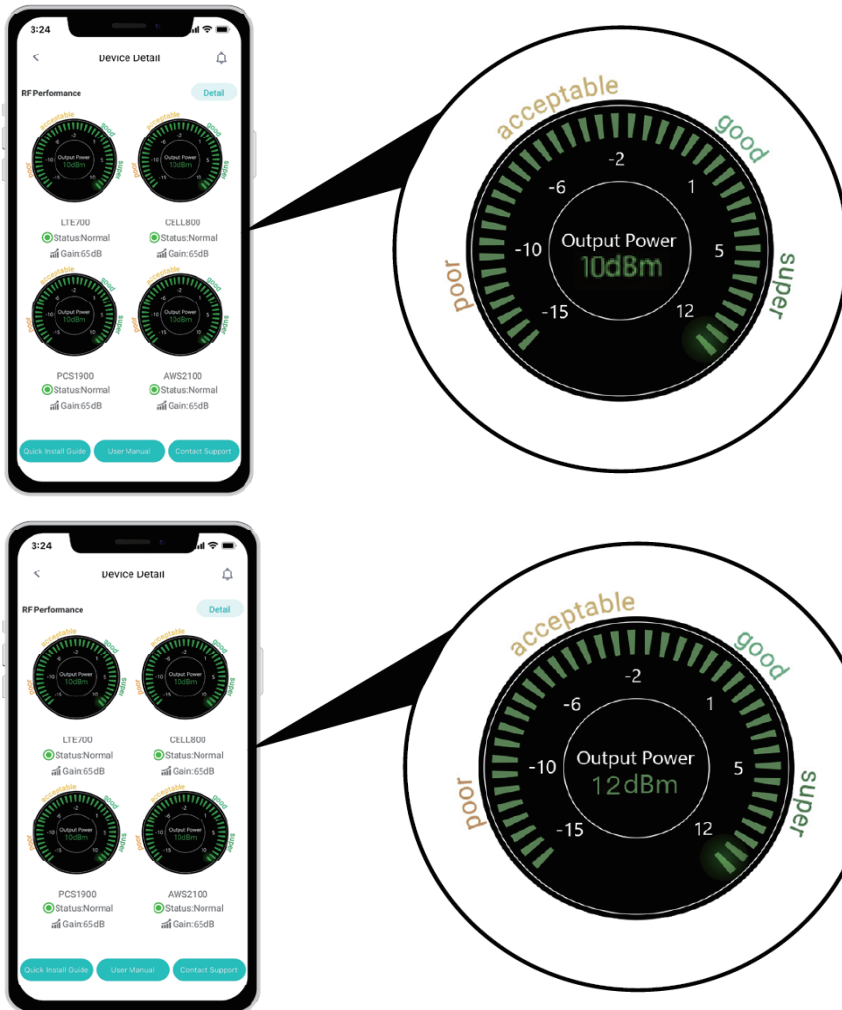


#### Notes:

\*Please do NOT to connect indoor antenna at this moment as it will influence the outside signal finding.

\*Please place the booster within 30ft to the possible installation location of outdoor antenna if Bluetooth connection is applied. This is to ensure the App can connect to the booster.

## 4.2 Adjust and fix the outdoor antenna



Have your outdoor antenna pointed to the cell tower you found before and observe the reading on the app. Adjust the outdoor antenna accordingly.

Target: Try to get the highest possible output power for each band and try to make 2-3 gauges turn green.

- 1) You can either look at the signal meter value, full output power is the best
- 2) Or you can look at the signal description, Super is the best

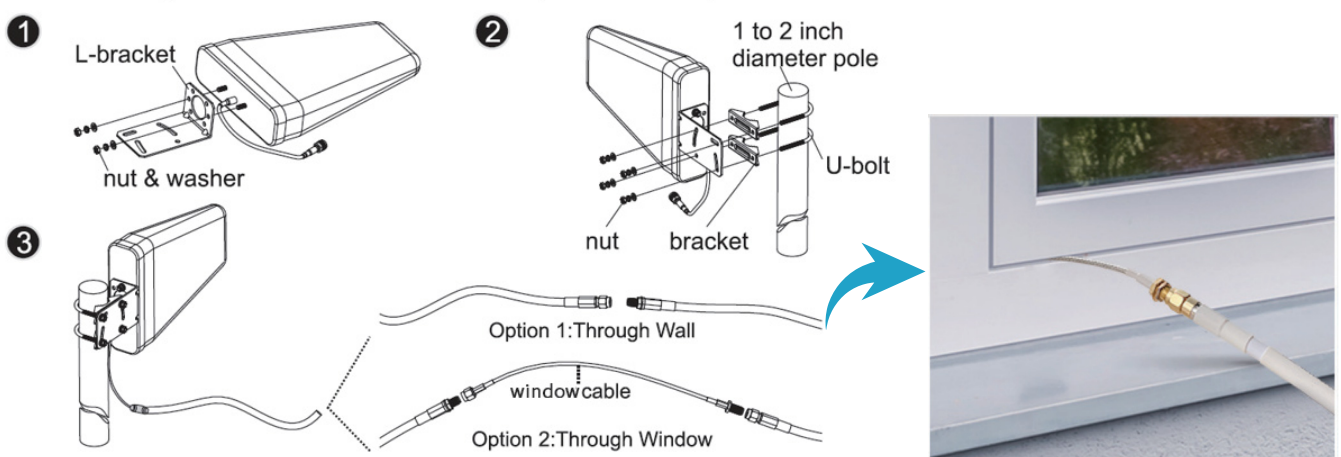
The full output power for 4K Mate Plus and 4K Mate Plus pro is 10dbm.  
And the full gain is 65dB.

The full output power for 10K Mate Plus and 10K Mate Plus pro is 12dbm.  
And the full gain is 68dB.

## 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, for instance, the value is below POOR level, it is highly likely that the installation will fail. Please either find a new place with better signal or drop the installation.

### 4.3 Install the outdoor antenna firmly



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



### 4.4 Reconfirm that the signal on signal gauge is the best!

Please **do take following screen shot** for future comparison during indoor antenna installation.

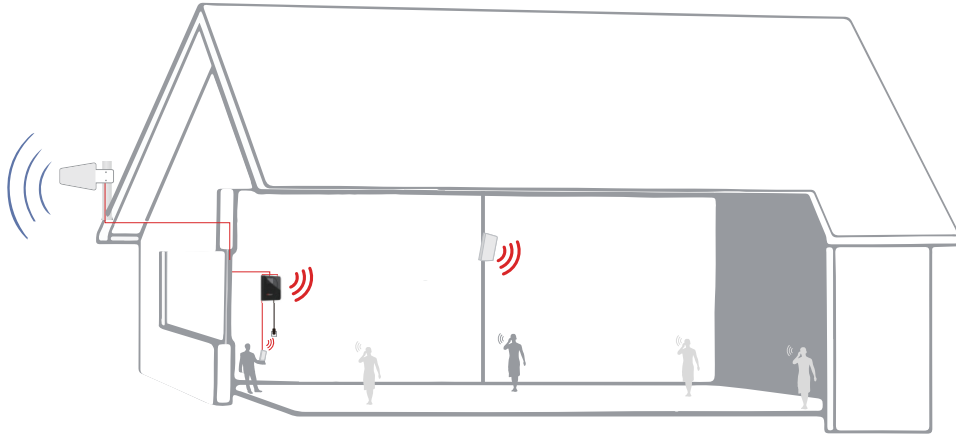
What you are going to be paying attention to here, is the gain values. If you have interference between your indoor and outdoor antennas, then the booster will lower the gain and these values will decrease.



## Step 5: Install the indoor antenna(s)

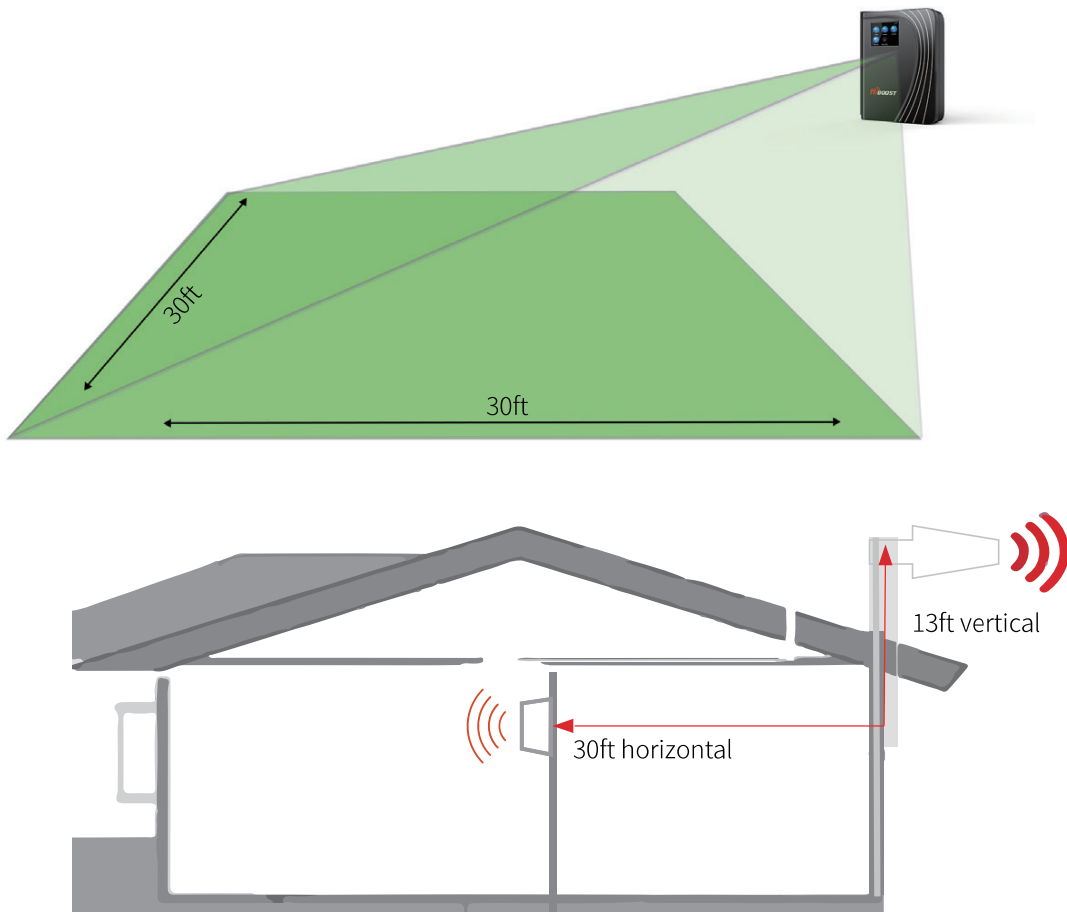
### Now it's turn to install the indoor antenna

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 do test all over to make sure every spot is covered with stable and high quality signal.



### 5.1 Find a proper location for the booster

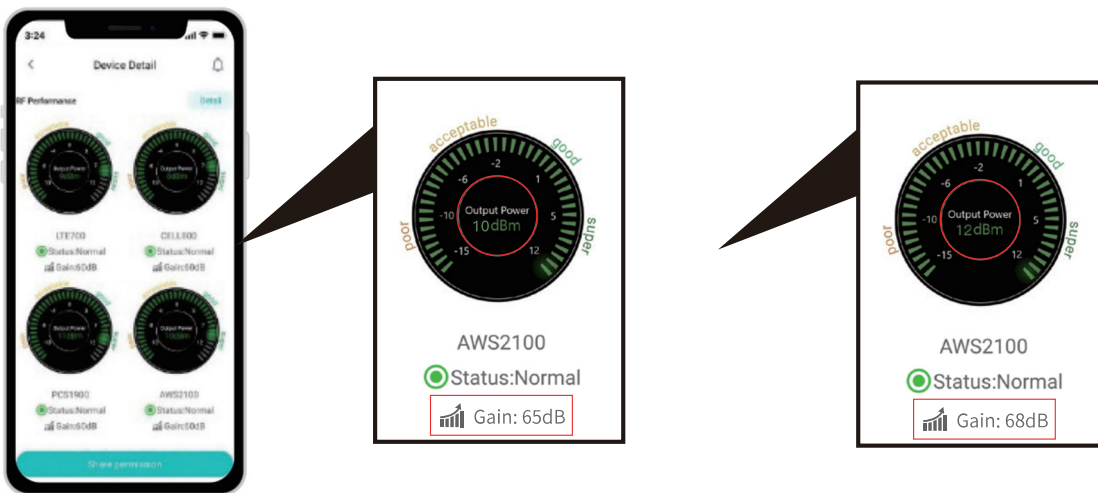
1) As 4K/10K Mate Plus and 4K/10K Mate Plus Pro are equipped with a built-in antenna, the booster should be installed as a panel antenna. The radiation pattern is 80° horizontal and 70° vertical. So try to make sure your indoor antenna pointed to the area you would like to cover with signal.



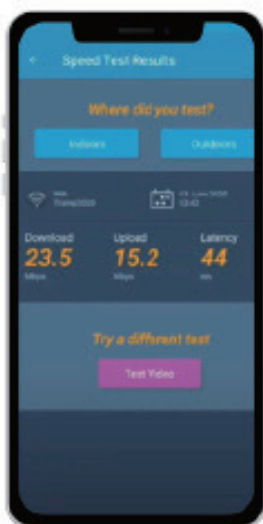
## 5.2 Adjust the indoor antenna

It would be best if you could make the two antennas face opposite directions.

For 4K Mate Plus and 4K Mate Plus Pro, make sure that the gain reaches about 60 dB; For 10K Mate Plus and 10K Mate Plus Pro, make sure that the gain reaches about 65 dB. If not, please adjust the direction of the indoor antenna/increase the vertical and horizontal distance between the two antennas/add some barriers.



## 5.3 Signal quality test



You could do the following:

- (1) First make sure the signal gauge value is unchanged from that during the outdoor antenna installation.
- (2) Do speed tests with the booster on and off, and make a comparison.
- (3) Check if the number of signal bars increases.
- (4) Make a phone call or send messages and check if the voice and streaming are better.



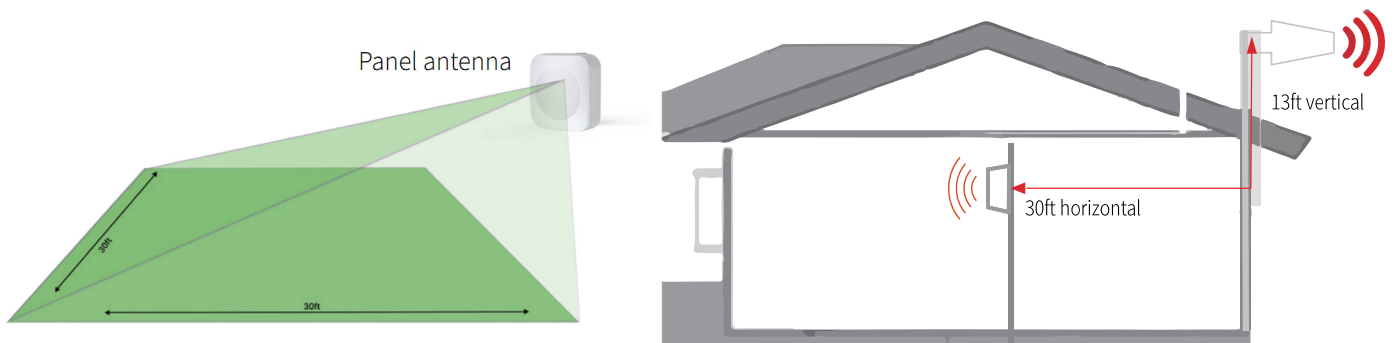
Please skip to Step6 if you use 4k/10k Mate Plus.

5.4 Connect the indoor antenna with the booster's indoor 1 port by indoor cable, and plug in the booster.



Notes: 4K/10K Mate Plus has a built-in antenna so you needn't to install indoor panel antenna(s), 4K/10K Mate Plus Pro is the same situation but if you need more rooms to be covered, follow this step. (Each HiBoost Plus/Pro series has two additional indoor antennas' port, but it should be noted that if indoor2 port is occupied, the built-in antenna will be disabled)

#### 5.4 Adjust the indoor panel antenna



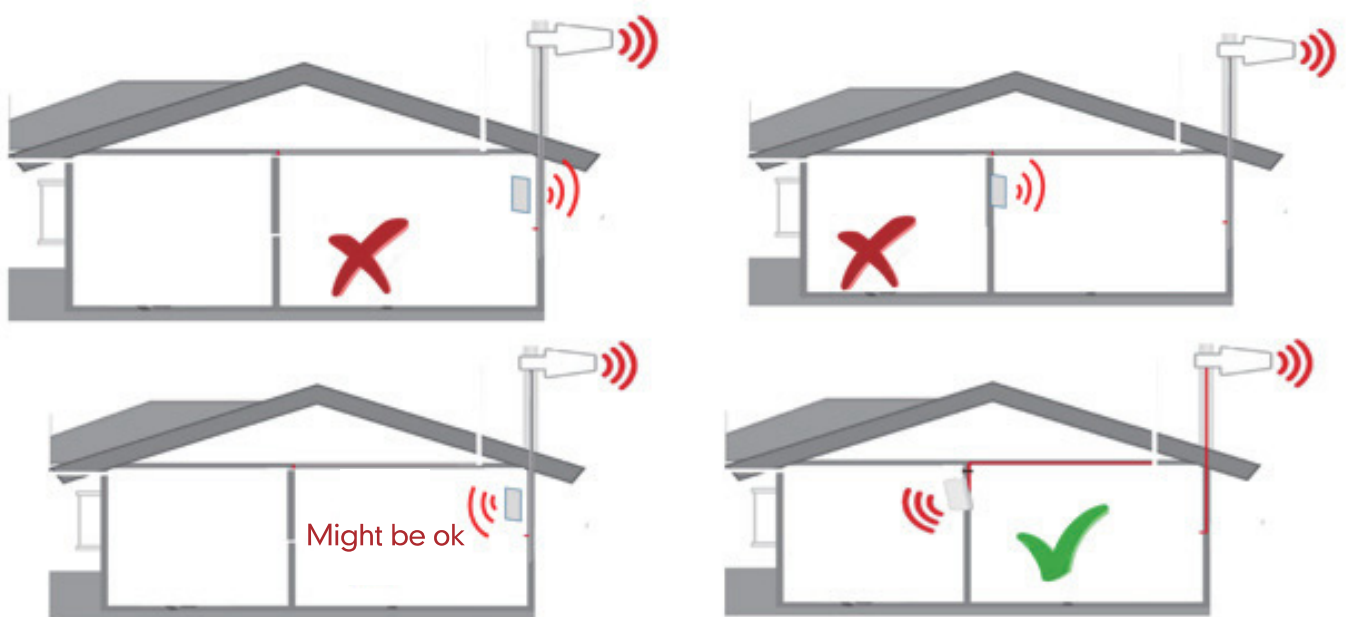
Have your indoor antenna pointed to the area you would like to cover with signal.

#### Notes:

- (1) It would be best if you could make the outdoor antenna and the two indoor antennas face opposite directions.
- (2) For 4K Mate Plus Pro, please make sure the gain reaches about 60dB. If not, please adjust the direction of the indoor antenna/increase the vertical and horizontal distance between the two antennas/add some barriers.
- (3) For 10K Mate Plus Pro, please make sure the gain reaches about 65dB. If not, please adjust the direction of the indoor antenna/increase the vertical and horizontal distance between the two antennas/add some barriers.

## Two requests of indoor antenna installation

- A. Radiation shall be good enough to cover whole space
- B. Loopback shall be avoided



### Again the tips to avoid the loopback

1. Increase the distance between the outdoor and indoor antennas
2. The outdoor and indoor antennas shall face opposite directions
3. Utilize barriers between the indoor and outdoor antennas