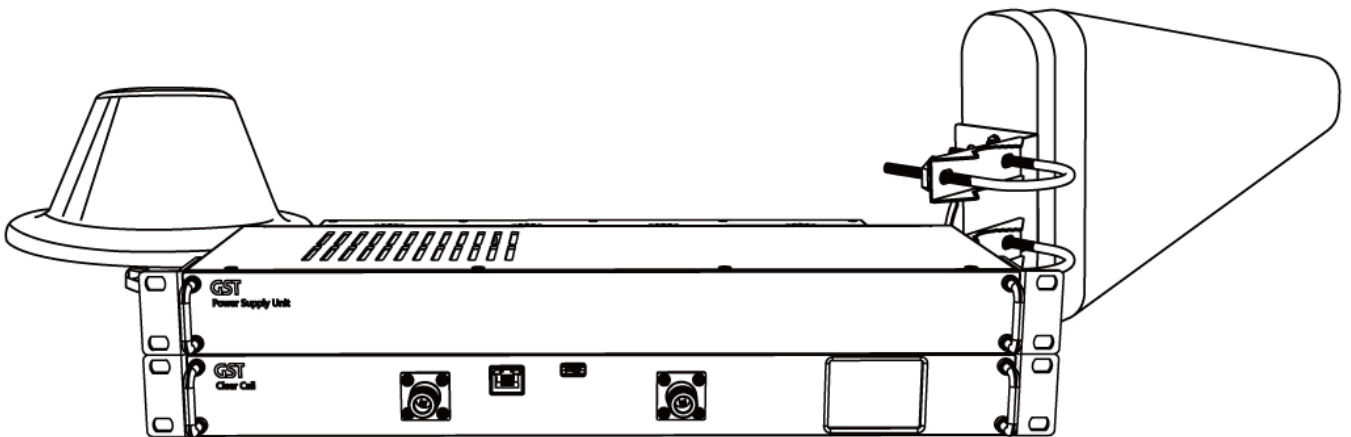


Clear Call User Guide



Building Cellular Signal Booster

This publication provides instructions for installing **Signal Booster Clear Call**.

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Revision History

Date	Version	Changes
2020, November	Version 1.0	Original

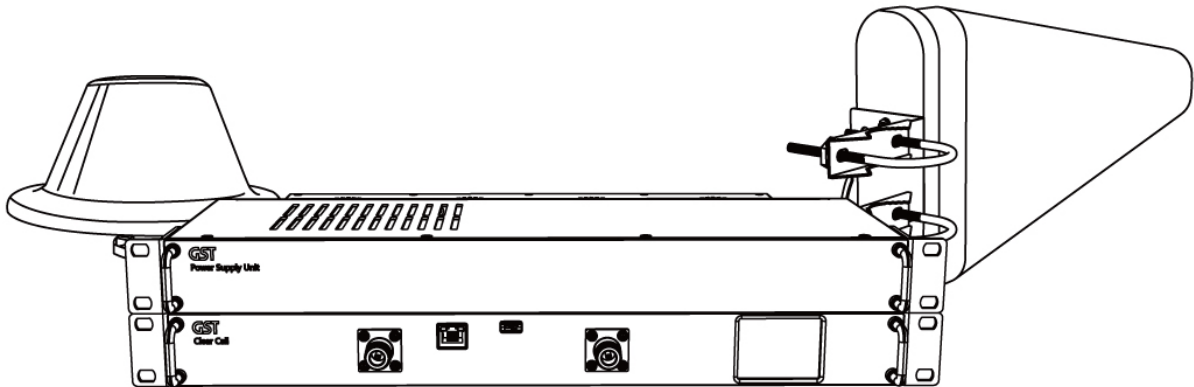
Certification

This equipment complies with FCC directives.

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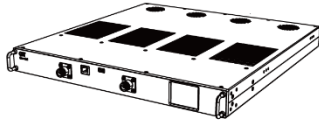
Clear Call



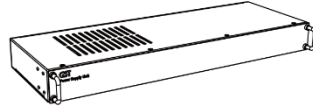
American Booster Clear Call has been designed to improve and extend cellular coverage inside the buildings. Clear Call amplifies signals from the nearest base station and re-transmits them at higher power level. Clear Call provides service at 700MHz LTE, 850MHz Cellular, 1900MHz PCS and 2100MHz AWS frequencies without any additional setup or configuration.



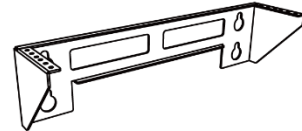
Package Contents



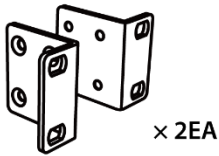
Clear Call
Code No. : 82XKC



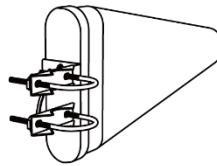
PSU
Code No. : 836XM



2U Wall Mount Bracket
Code No. : 8379L



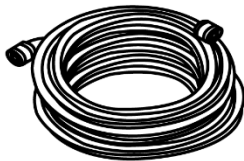
Rack Mount Bracket
Code No. : 836K4



Outside Antenna
Code No. : 83615



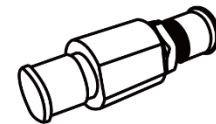
Inside Antenna
Code No. : 83617



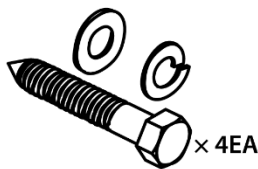
Coaxial Cable 100ft
Code No. : 834TL



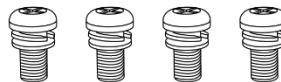
Coaxial Cable 75ft
Code No. : 834TP



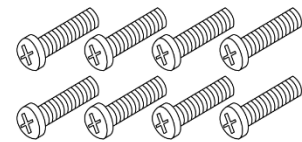
Lightning Protector
Code No. : 830LG



2U Wall Mount Bracket Screw
Hex Lag Screw 3/8*3" x 4EA
(Φ10.5/Φ21mm) Plane Washer, SUS x 4EA
(Φ10.2/Φ18.4mm) Spring Washer, SUS x 4EA



Wall Mount Screw
PH(+) M5*10mm SEMS x 8EA



Rack Mount Screw
10-32*1/2" Truss Head Thread Screw,
SUS x 8EA

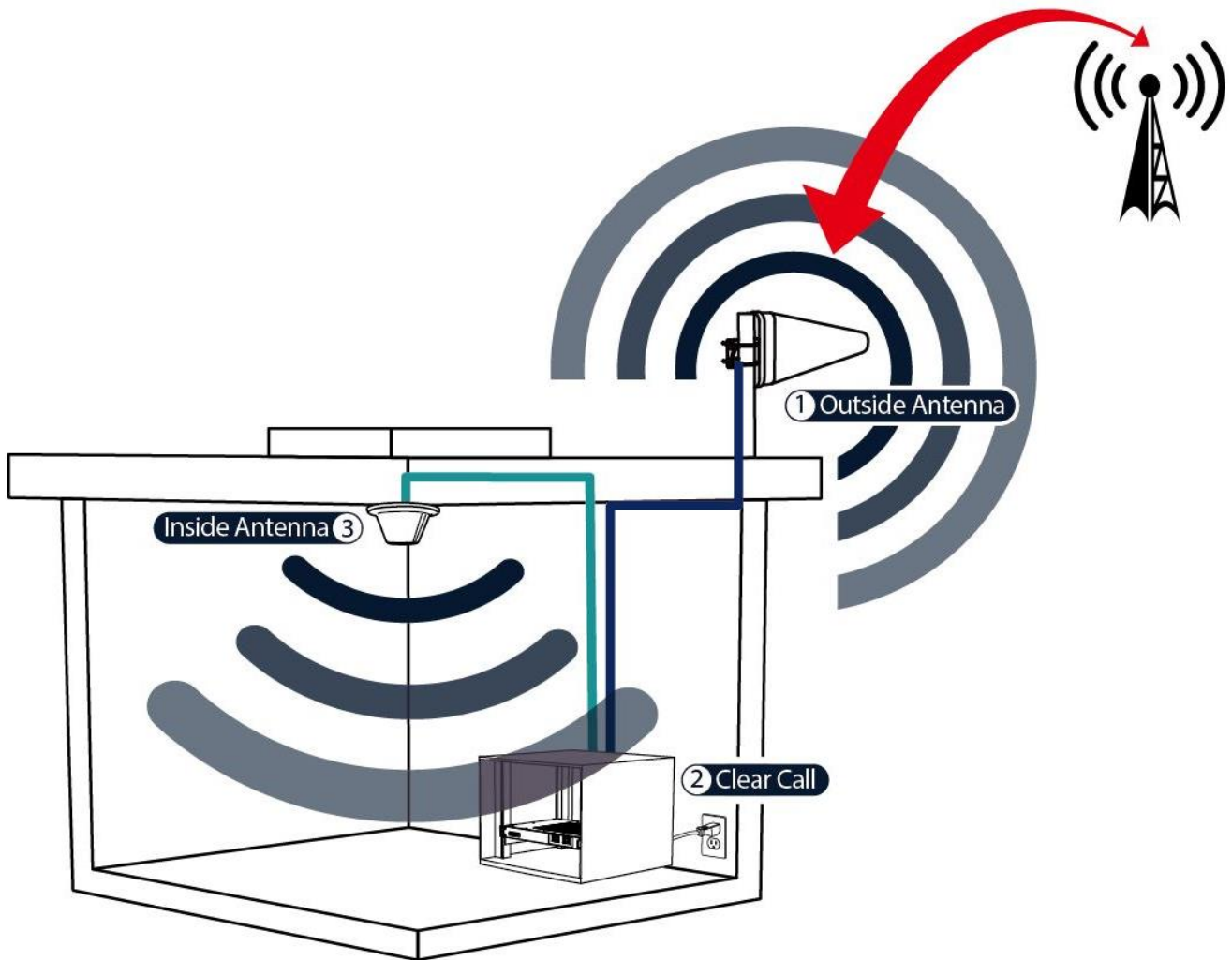


Rack Mount Bracket Screw
FH(+) M4*8mm SUS Black x 28ea



User Guide

Application Example



Clear Call Optional Components

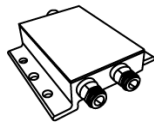
Splitter and several internal antennas may be required in some spaces where signal improvement is required for large houses or buildings. For example, in spaces where signal improvement is required, the signal from Clear Call can be divided into two or more signals using splitter (sold separately) and connected to an internal antenna (sold separately). These optional components can amplify the signal into the required space.

Option Contents

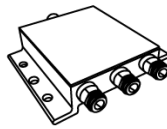
Using multiple inside antennas for increased coverage.



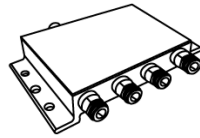
Inside Antenna Kit
Code No. : 83617



Optional Splitter
(2-Way)



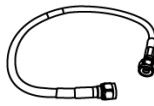
Optional Splitter
(3-Way)



Optional Splitter
(4-Way)



Coaxial Cable 75 ft.
Code No. : 834TP



Coaxial Cable 2 ft.
Code No. : 834TK

Installation Guide

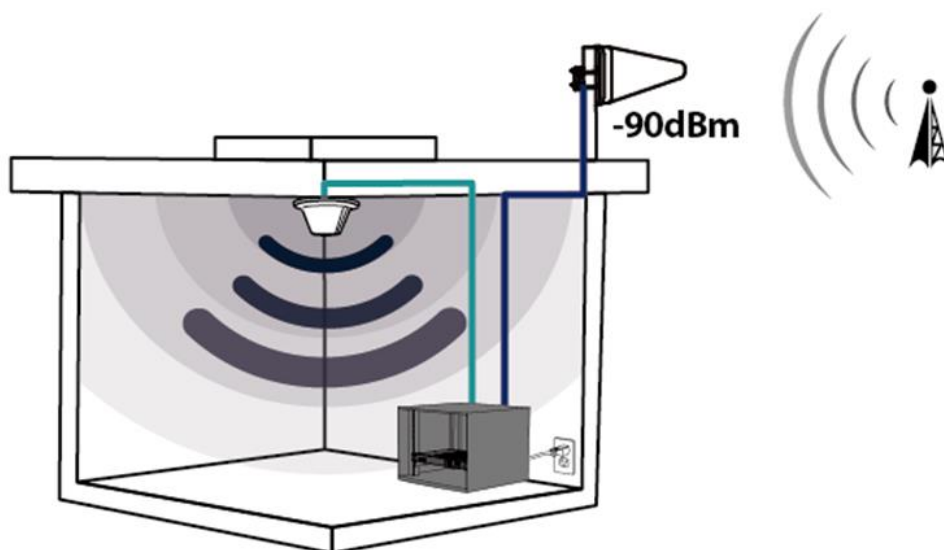
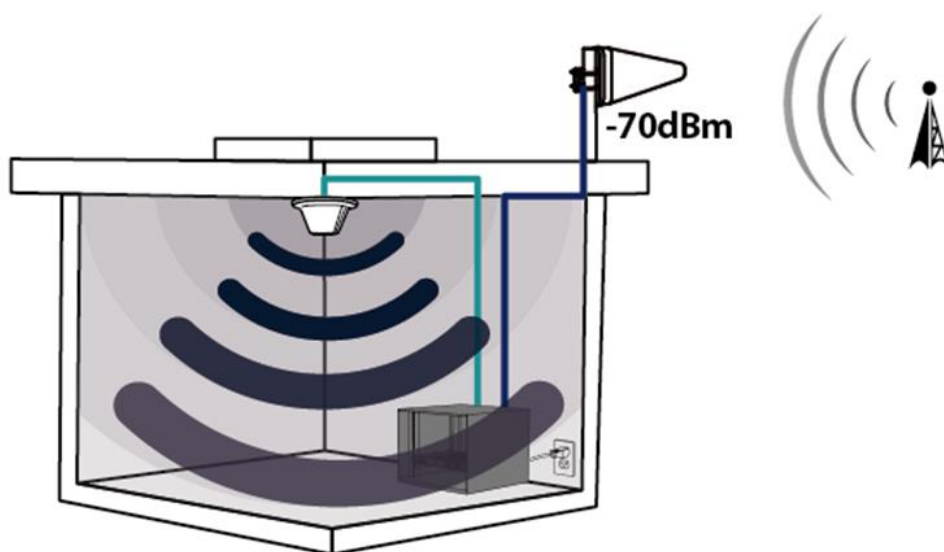
STEP 1. Find the Strongest Signal

1-1. Using an iPhone®
Dial *3001#12345#*, then press Call.

1-2. Using an Android™
Download the 'Network Signal info' from the Google Play store.
After installing, you will be able to view your dB strength.

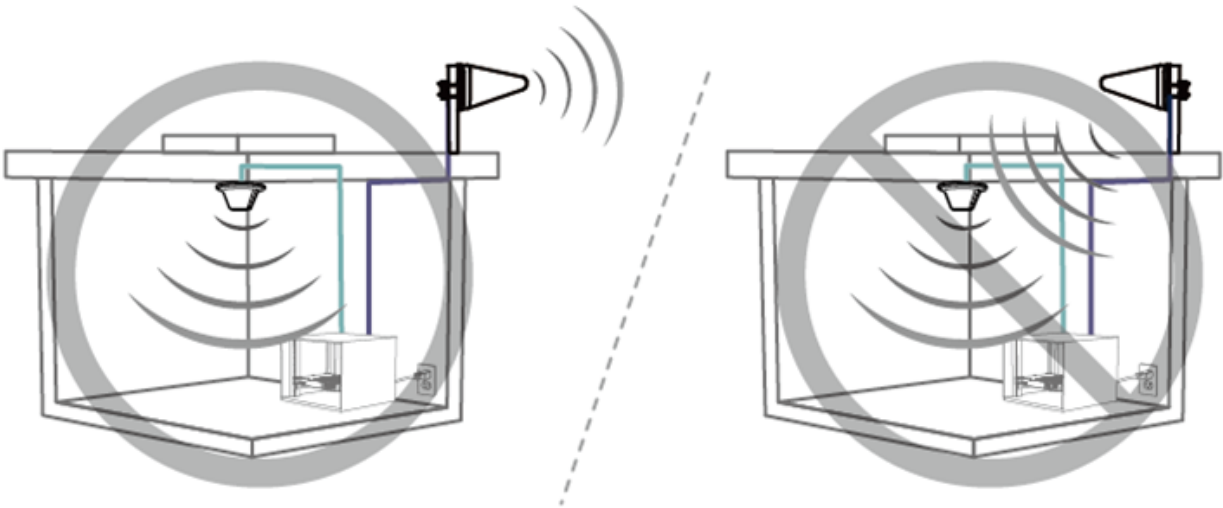
1-3. Using a Meter
If you have a meter that detects and displays the current signal levels, you can use it.

Note The stronger signal you receive from the base station, the better coverage you will have inside your building.



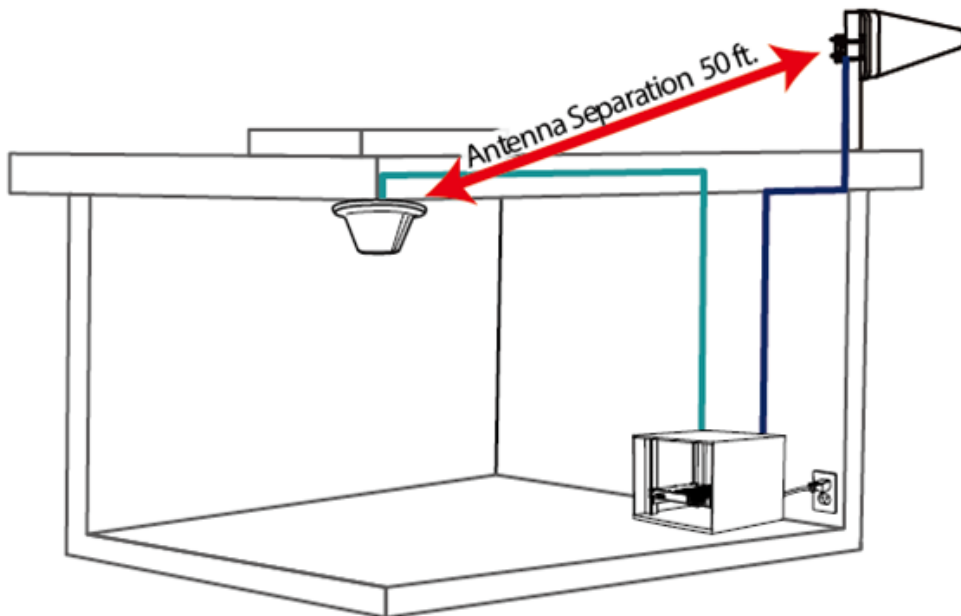
STEP 2. Easy Outside Antenna Installation

The outside antenna must be mounted outside the building with the strongest cell signals. Mount the outside antenna as high as possible facing towards the desired location of the cell tower and facing the opposite direction of the expected location of the inside antenna.



Outside / Inside Antenna Separation

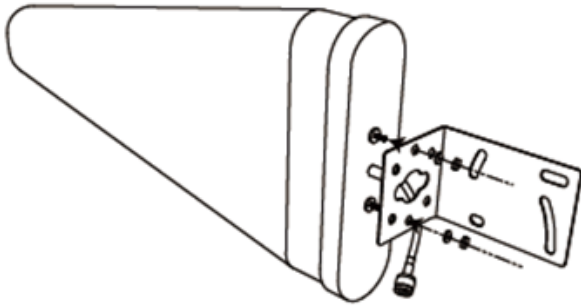
For the best performance, a minimum of 50 ft. distance between outside antenna and inside antenna is recommended. The bigger the separation distance from the antenna, the higher the coverage provided by the booster. However the smaller the separation distance, the lower the coverage provided by the booster.



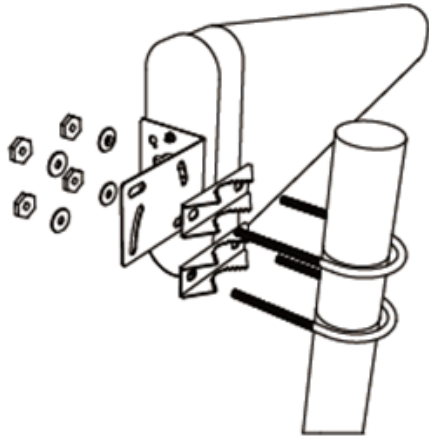
STEP 2. Install the Outside Antenna

Install the outside antenna in the location to receive the strongest signal according to the instructions of STEP2. Make sure the outside antenna is installed facing towards the cell tower.

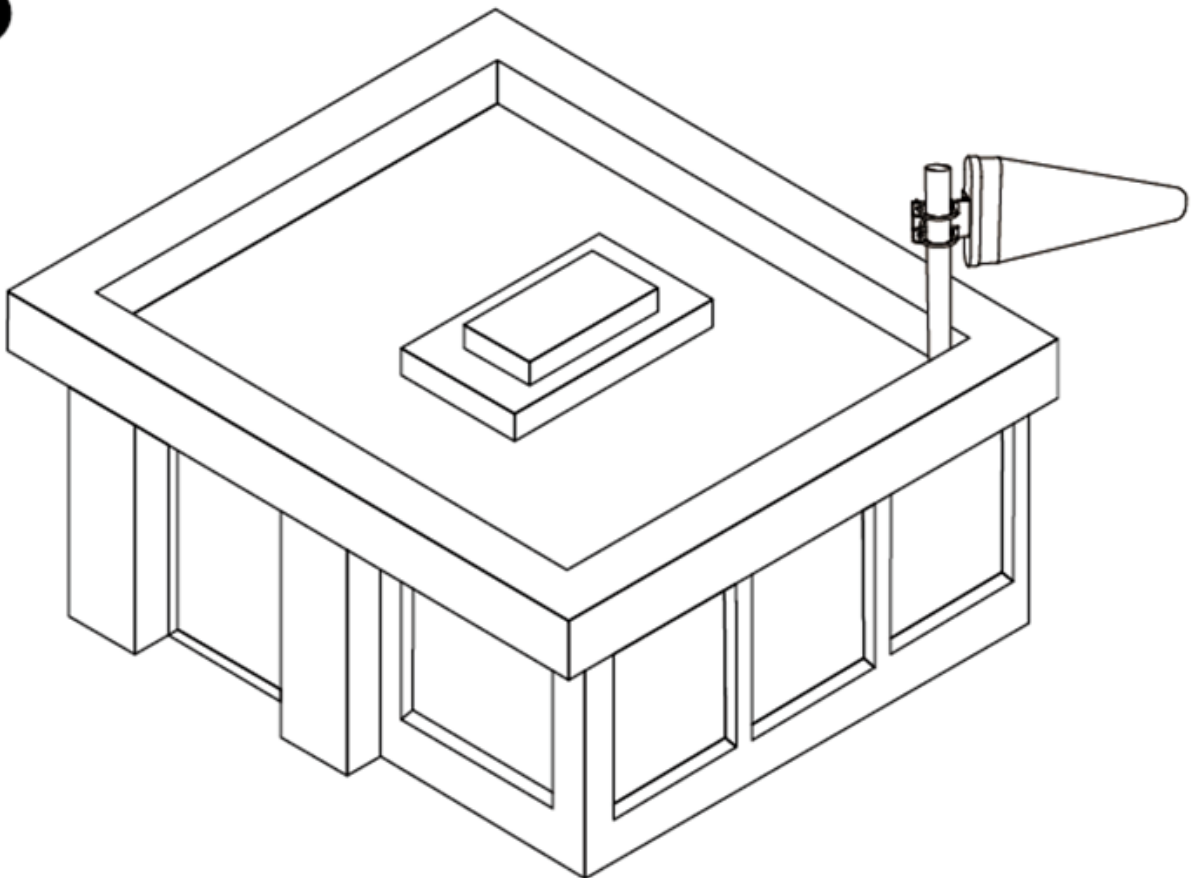
1



2



3



STEP 3. Run the Outside Antenna Cable

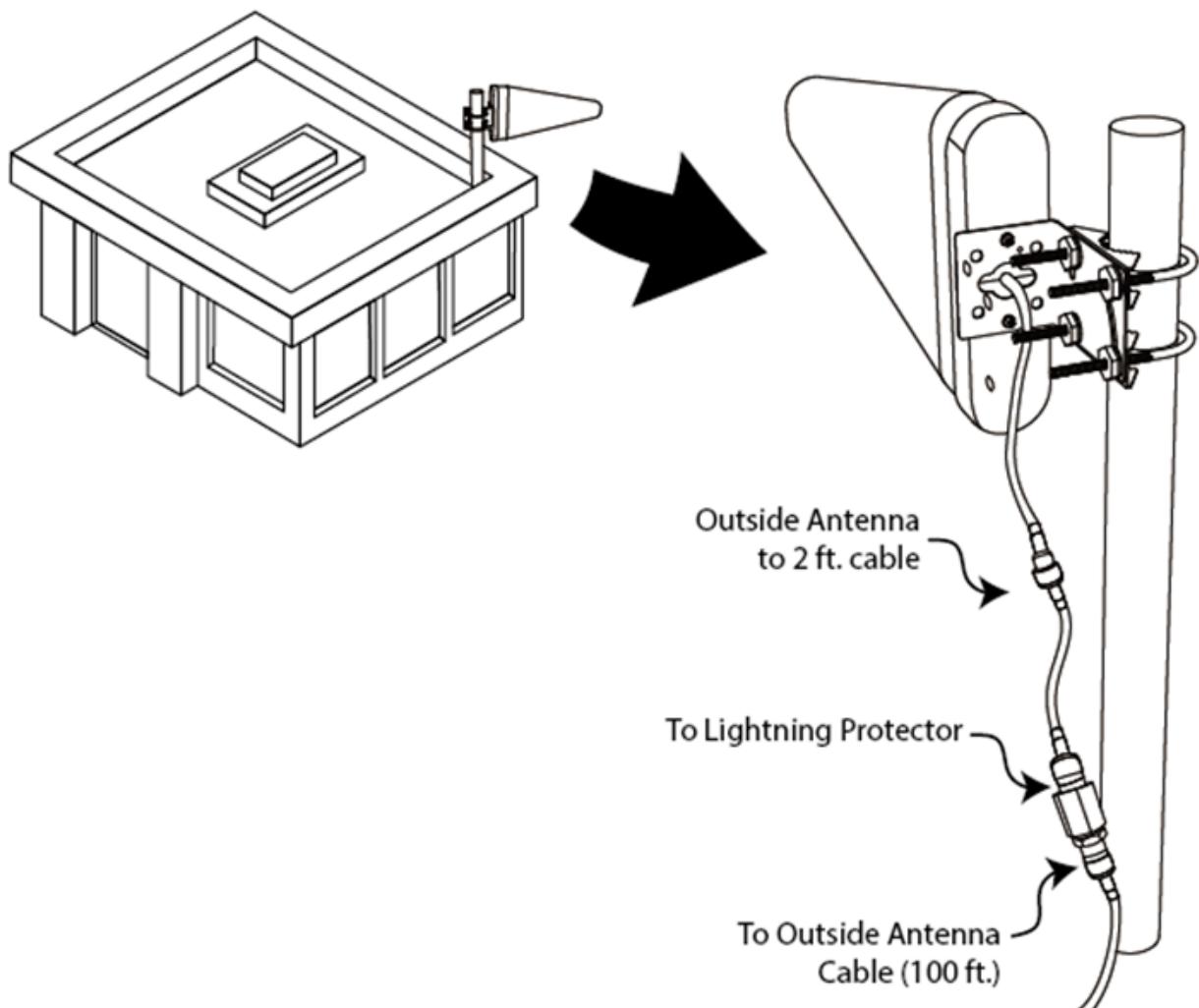
When mounting the outside antenna to the outside wall of your building, the easiest way is to run the cable on the outside of the wall and attach it to the exterior of your office & building.

Then drill a hole through the wall which will allow the cable to appear on the inside of the building. To avoid any potential harm or damage, make sure that there are no electrical outlets, sewer water pipes, or electrical wiring in the wall before drilling.

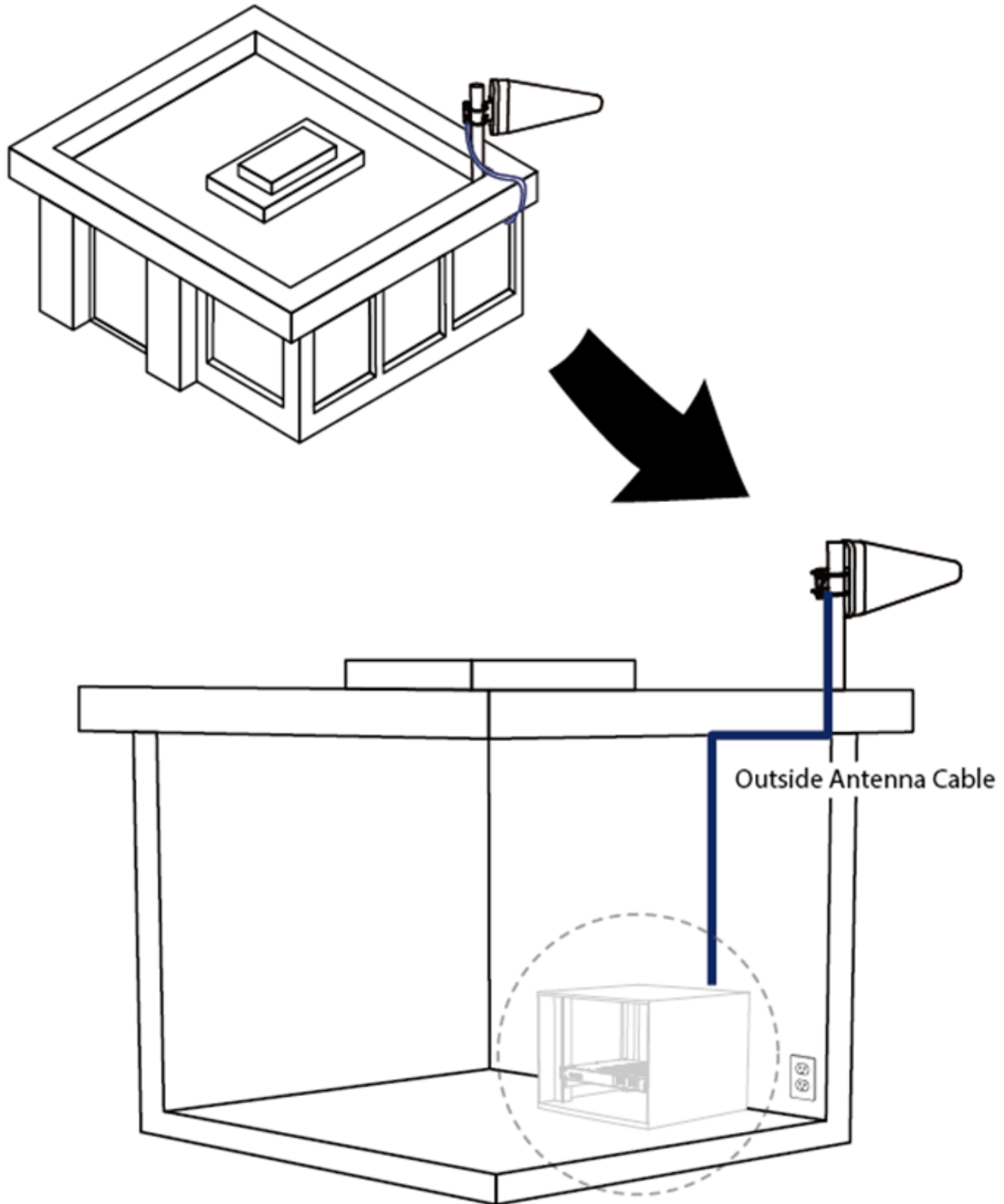
Note TV cables already being used for other purposes can not be shared with the cell booster during installation.

After drilling the required hole, run the cable through and seal it.

In some instances, it may be possible to run the cable up into the fascia of the attic overhang. In this circumstance, the cable will be accessible in the attic for further routing.



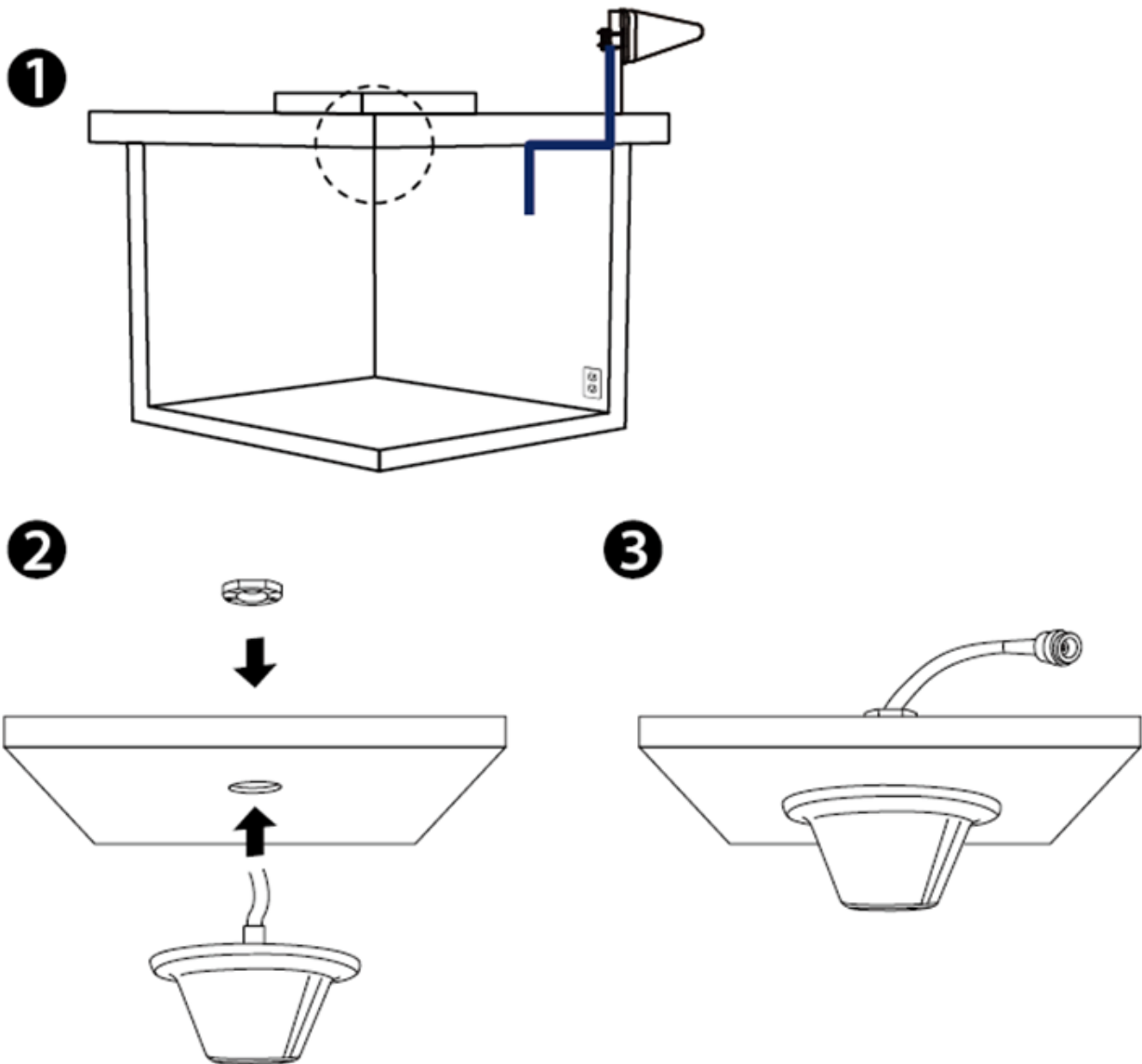
STEP 3. Run the Outside Antenna Cable



STEP 4. Easy Inside Antenna Installation

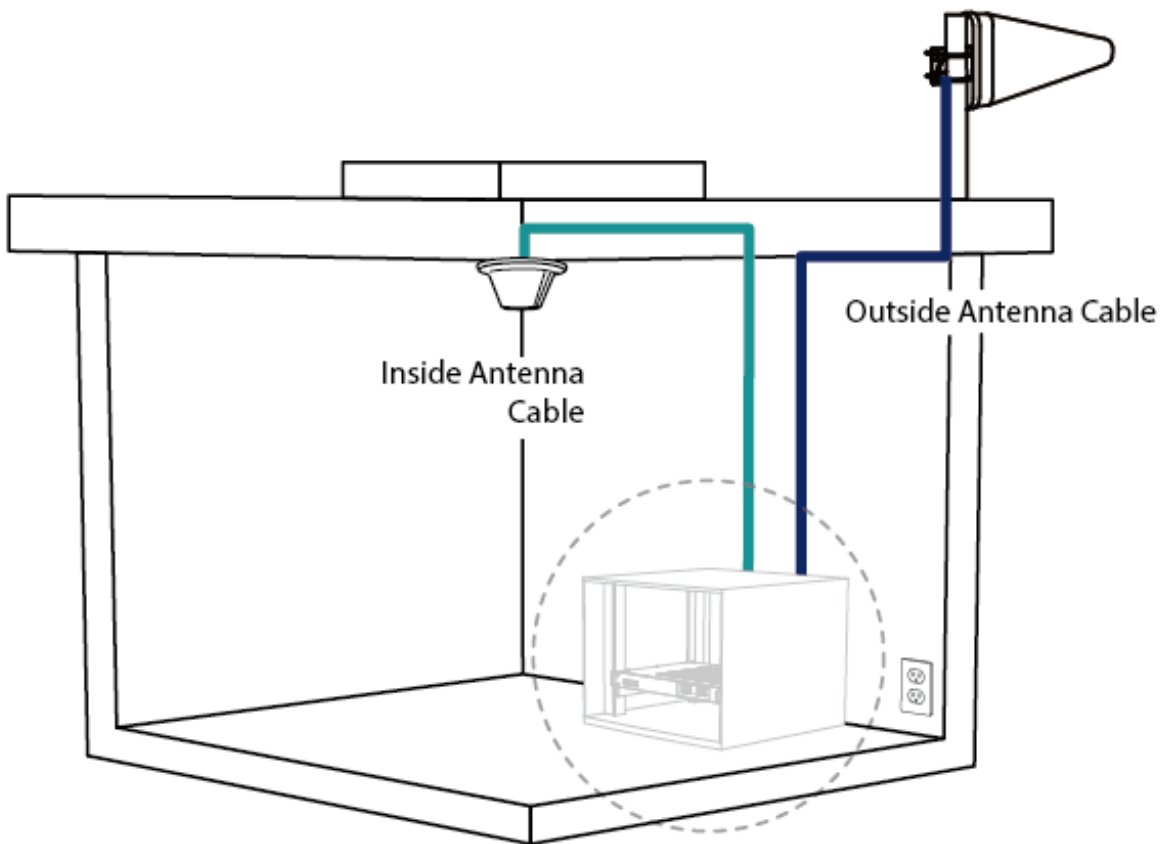
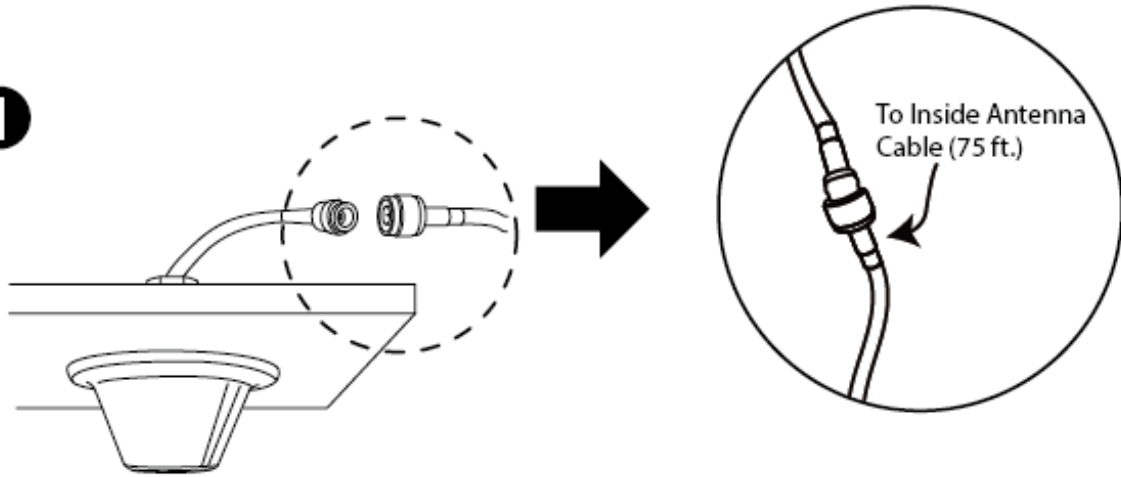
Choose a location for the inside antenna, more advantageously at the center of where the signal needs to be amplified.

1. Disassemble the antenna and assembled nut. (Caution of Loss)
2. Draw a line first on the ceiling-text where the antenna will be installed.
3. Drill holes in the area where the lines are drawn using a drill and hole processing tool. (greater than $\Phi 15$ mm)
4. Drill a hole and insert the antenna cable into the ceiling texture as shown above.
5. Once all antennas are inserted into the ceiling-tech, secure the antenna body with the disassembled nut (to make sure that the ceiling-text and antenna are in close contact).



STEP 4. Easy Inside Antenna Installation

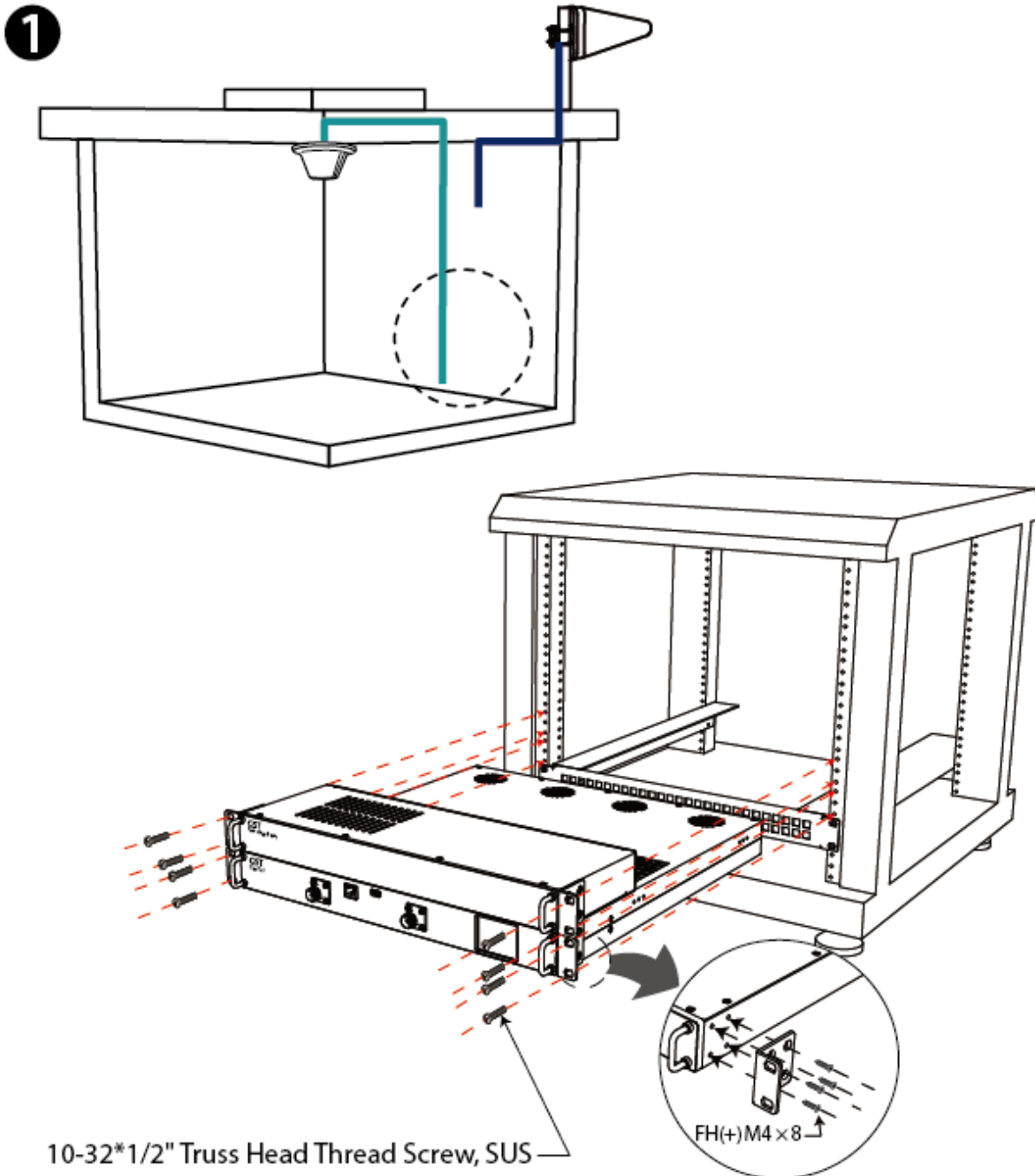
1



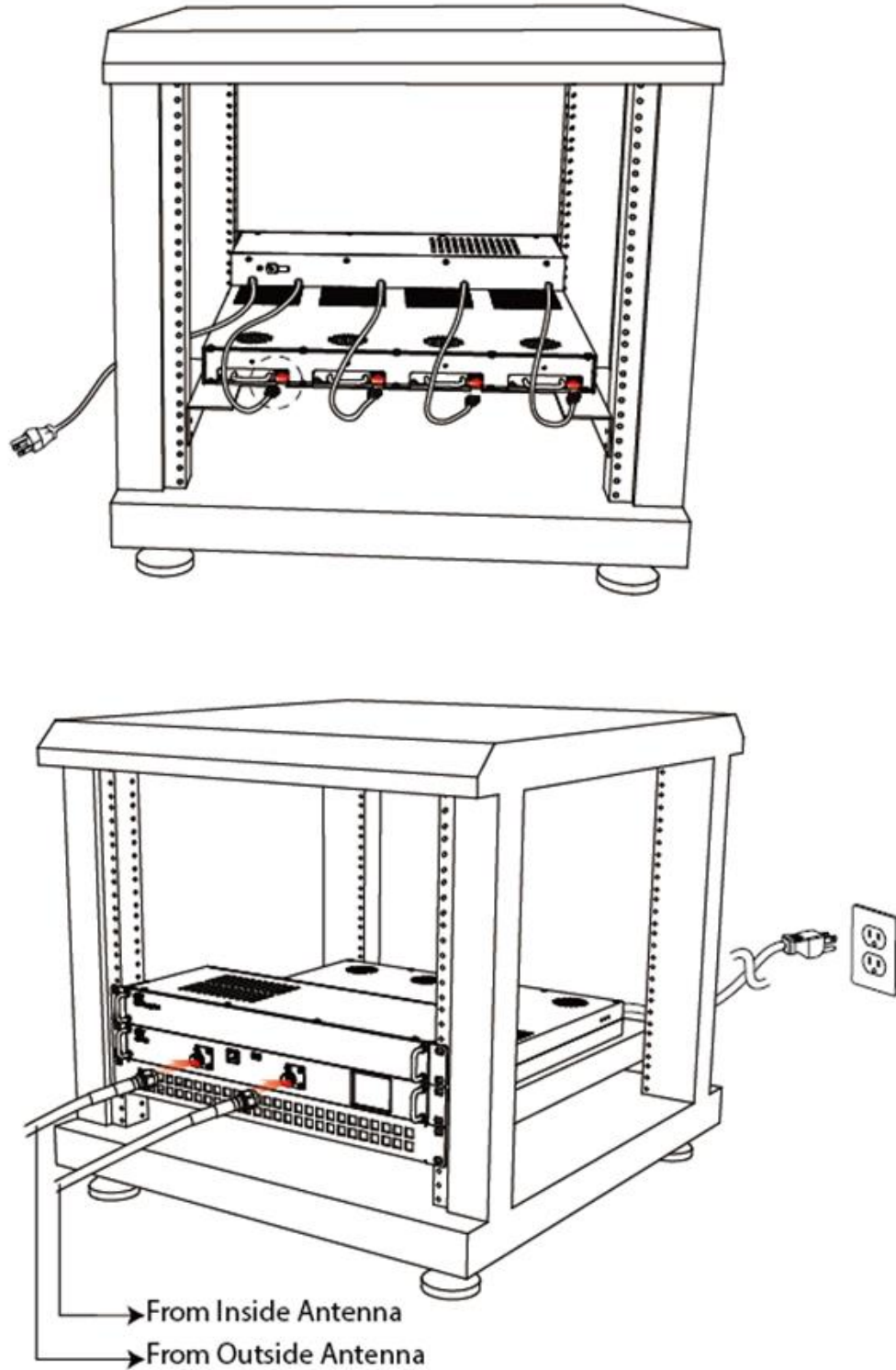
STEP 5. Easy Rack-Mounted Installation

Choose a location for the signal booster, preferably away from excessive heat, direct sunlight, moisture and is free from high temperatures. Do not place the signal booster in an air-tight enclosure. Attic installations may expose the booster to high heat.

Note Please assemble only the screws according to the following procedure.

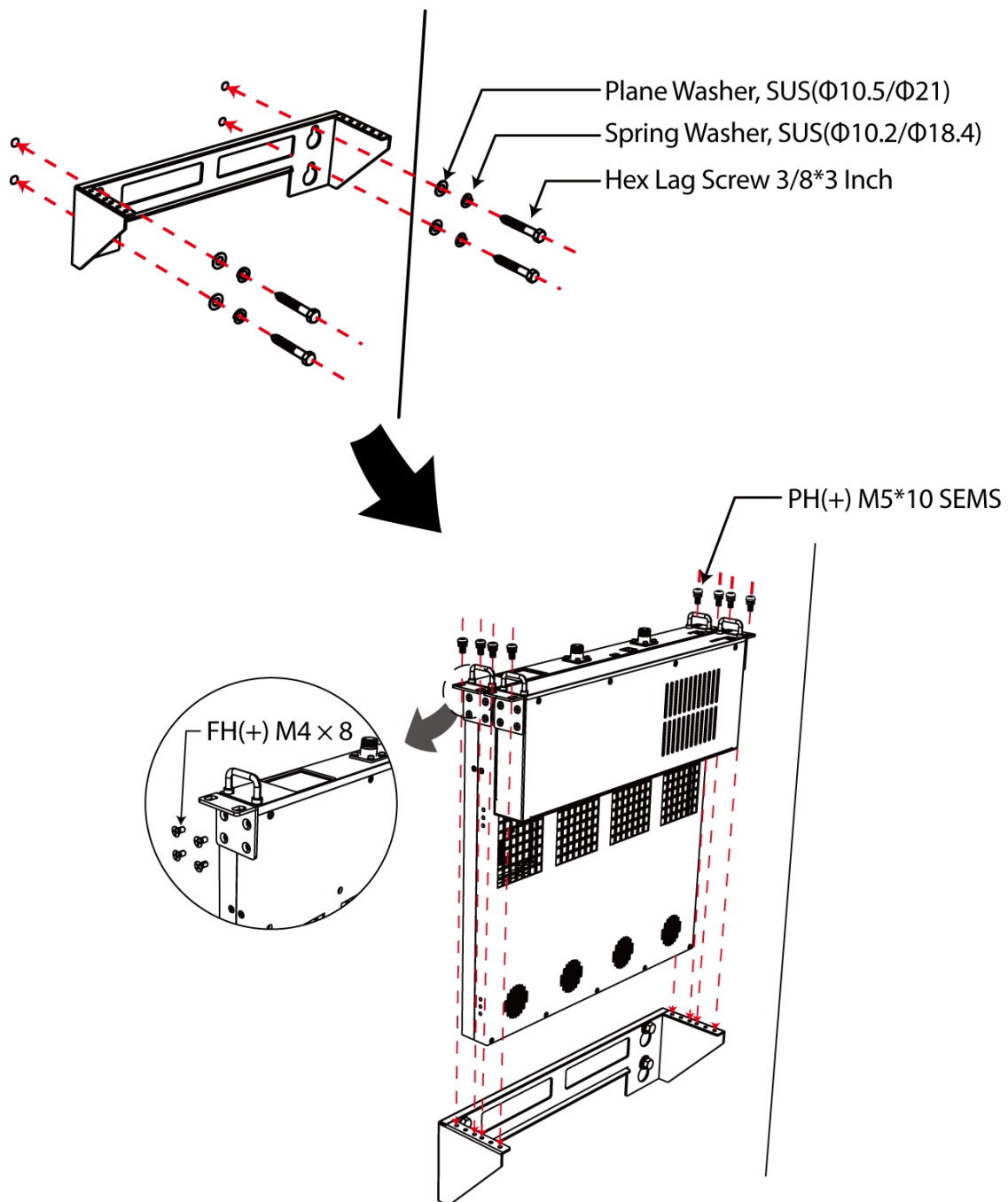


STEP 5. Easy Rack-Mounted Installation

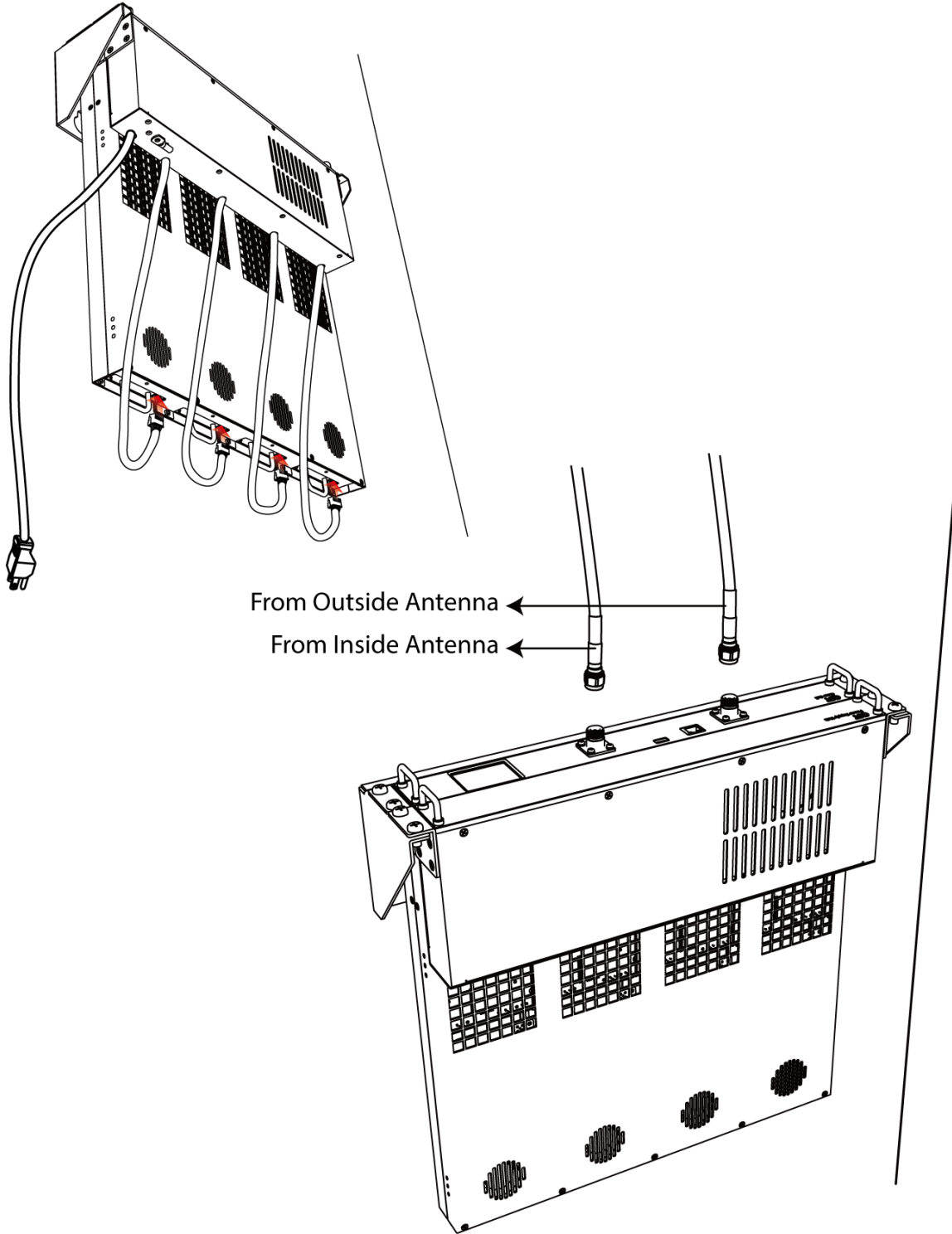


STEP 6. Easy Wall-Mounted Installation

Choose a location for the signal booster, preferably away from excessive heat, direct sunlight, moisture and is free from high temperatures. Do not place the signal booster in an air-tight enclosure. Attic installations may expose the booster to high heat.



STEP 6. Easy Wall-Mounted Installation



Troubleshooting

In case of abnormal operation, technician should diagnose abnormality via remote access or directly connecting to repeater using Ethernet cable. If technician is required to conduct repairs due to major alarm, repeater should first be powered off, and then technician should prepare the proper measurement equipment before trying to fix the problem. In most cases of major repairs, GST will simply replace the unit and conduct repairs at the appropriate facility.

Simple Troubleshooting Method

- 1) Check LED status at rear of module
 - Green LED on: Normal operation with maximum allowable gain.
 - Red LED on: Shutdown by oscillation condition or over output.
- 2) Check external and internal connectors to ensure that all connections are tightly secure.
- 3) If user thinks there is a serious problem, call after sales team for over-the-phone technical support. 913-469-6699.



Functions

ALC (Auto Level Control)

ALC maintains limit of the output power in order to protect bad influence to the Base Station.

AGC (Auto Gain Control)

The Signal Booster checks isolation between inside and outside antennas once a day.

AGC sets up downlink and uplink gain value automatically depending on the input power level.

ASD (Auto Shutdown)

There are two cases when ASD works.

- 1) Outside antenna and Inside antenna are not isolated enough from each other.
So in order to protect the Signal Booster from damage, it will automatically shutdown at this frequency.
- 2) Uplink Signal coming from the outside antenna to Base Station is too strong and may cause troubles to carriers network, so the Signal Booster will shutdown at this frequency.

Specifications

Parameter	Downlink	Uplink	Remark
700MHz LTE	728MHz ~ 757MHz	698MHz ~ 716MHz	Band 12 & 13
		776MHz ~ 787MHz	
800MHz Cellular	869MHz ~ 894MHz	824MHz ~ 849MHz	Band 5
1900MHz PCS	1930MHz ~ 1995MHz	1850MHz ~ 1915MHz	Band 25
2100MHz AWS	2110MHz ~ 2155MHz	1710MHz ~ 1755MHz	Band 4

Parameter	Specification			
Frequency	700MHz (Band 12 & Band 13)	800MHz (Band 5)	1900MHz (Band 25)	2100MHz (Band 4)
Downlink Output	-4dBm	+1dBm	0dBm	-2dBm
Uplink Output	+19dBm	+19dBm	+20dBm	+22dBm
Downlink Gain	58dB	61dB	64dB	69dB
Uplink Gain	55dB	57dB	62dB	67dB
UL Noise Figure	≤ 7dB			
Impedance	50Ω			
VSWR	2.0 : 1			
RF Connector	N-Type Female			
AC-DC Adapter	Input : AC 90 ~ 132V, Output : DC 12V			
Size(Chassis)	17.2 * 18.1 * 1.75 inch			
Operating Temperature	32 ~ 122°F (0 ~ 50°C)			
Humidity	0 ~ 80%			

* Each Power and Gain has a tolerance of ±3dB.

Safety Guidelines

WARNING

ELECTRIC SHOCK

Opening the Signal Booster could result in electric shock and may cause severe injury.

DAMAGE TO EQUIPMENT

Use only the power supply provided in this package.

Operating the Signal Booster with antennas in very close proximity facing each other could lead to a severe damage to the Signal Booster.

The installation height of the antenna for AWS band (1700/2100 MHz) operations is limited to 10 meters above ground for compliance with Section 27.50

CAUTION

THE SIGNAL BOOSTER SHOULD BE INSTALLED AS CLOSE AS POSSIBLE TO THE POWER SOURCE. THIS REPEATER IS FOR INDOOR USE ONLY AND SHOULD BE INSTALLED INSIDE OF THE BUILDING.

FCC ID : U88-CCQ13

IC : 8137A-CCQ13

MODEL : Clear Call

This is a CONSUMER device

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.

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 at least UL : 170cm, DL : 20cm from (i.e., MUST NOT be installed within UL : 170cm, DL : 20cm 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.

For more information on registering your signal booster with your wireless provider, please see below

<https://www.sprint.com/en/legal/signal-boosters.html?id16=signal%20booster>

<https://support.t-mobile.com/docs/DOC-9827>

<https://www.verizonwireless.com/solution-and-services/accessories/register-signal-booster/>

<http://securec45.securewebsession.com/attsignalbooster.com/>

<https://www.uscellular.com/uscellular/support/fcc-booster-registration.jsp>

FCC Warning Statements

FCC Part 15.105 statement Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Part 15.21 statement

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

RF Exposure Statement

The antenna(s) must be installed such that a minimum separation distance of at least UL : 170cm, DL : 20cm is maintained between the radiator (antenna) and all persons at all times. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

Use of unauthorized antennas, cables, and/or coupling devices not conforming with ERP/EIRP and/or indoor-only restrictions is prohibited.

IC Warning Statements

RSS-GEN, Sec. 7.1.2 – (transmitters)

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

RSS-GEN, Sec. 7.1.2 – (detachable antennas)

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

RF Radiation Exposure

This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of UL : 170cm, DL : 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. RF exposure will be addressed at time of installation and the use of higher gain antennas require larger separation distances.

RSS-102 RF Exposure

L'antenne (ou les antennes) doit être installée de façon à maintenir à tout instant une distance minimum de au moins UL : 170cm, DL : 20cm entre la source de radiation (l'antenne) et toute personne physique. Cet appareil ne doit pas être installé ou utilisé en conjonction avec une autre antenne ou émetteur.



WARRANTY

Opening or tampering with the Signal Booster will void all warranties.

American Booster provides a 2-year warranty with all its equipment.

Every product of American Booster is guaranteed to be free of material defects or component malfunctions.

This warranty does not cover to any Signal Boosters that have been exposed to any misuse, abuse, physical damage or inadequate maintenance.

Products returned by customers must be in their original, unmodified condition, shipped in the original packaging with proof of purchase documentation enclosed, and a Return Merchandise Authorization (RMA) number printed on the outside of the shipping box.

To repair or replace damaged Signal Boosters we may include refurbished American Booster's products.

 **SDoC statement****Supplier's Declaration of Conformity****47 CFR § 2.1077 Compliance Information**

Unique Identifier : Clear Call

Responsible Party – U.S. Contact Information

GS Teletech, Inc.

8206 Marshall Drive,

Lenexa, Kansas 66214

Contact point Charles You

chyu@gsteletechinc.com

Office : 1-913-469-6699

Fax : 1-913-661-0163

FCC Compliance Statement (e.g., products subject to Part 15)

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.

Statements

If the Signal Booster is not in use for 5 minutes, it will reduce gain until a signal is detected. If a detected signal is too high in a frequency band, or if the Signal Booster detects an oscillation, the Signal Booster will automatically turn the power of on that band. For a detected oscillation the Signal Booster will automatically resume normal operation after a minimum of 1 minute. After 5 minute such automatic restarts, any problematic bands are permanently shut off until the Signal Booster has been manually restarted by momentarily removing power from the Signal Booster. Noise power, gain, and linearity are maintained by the Signal Booster's microprocessor. The detailed information was included in the Operational description.



 8206 Marshall Drive, Lenexa, KS 66214

 Technical Support : 913 469 6699

 www.gsteletechinc.com

 **Memo**

A large rectangular area with rounded corners, containing 20 horizontal dashed lines for writing a memo.

 **Memo**

A large rectangular area with rounded corners, containing 20 horizontal dashed lines for writing a memo.

 **Memo**

A large rectangular area with rounded corners, containing 20 horizontal dashed lines for writing a memo.

GST Delivering
RF Performance

www.gsteletechinc.com
Technical Support : 913 469 6699