HiBOOST®

We Improve Your Mobile Signal

# User's Manual

## C27G-5S-BTW

MADE IN HUAPTEC

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## WHAT IS INCLUDED

1. HiBoost vehicle booster C27G-5S-BTW
2. Outdoor Antenna & Cable
3. Indoor Antenna &Cable
4. DC/DC Power Adapter

# 1 HOW IT WORKS

The cellular booster provides reliable two-way cellular coverage by improving signal strength in vehicles, where cellular reception is weak or unreliable.

The system amplifies the signal from the nearest cellular tower and retransmits at a higher power level within a local area.

This manual provides simple installation instructions that will have your cellular booster kit running in record time.

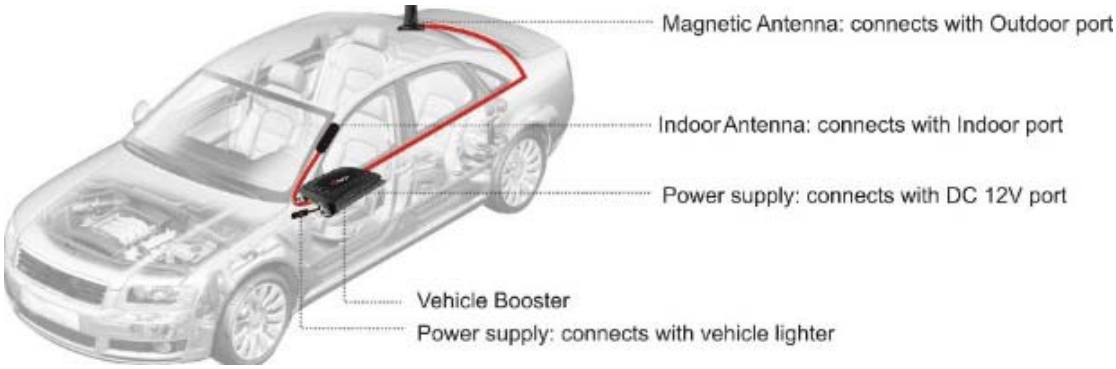
# 2 TOOL REQUIRED

Phillips Screwdriver

Drill

Cellular Phone (to check signal strength)

## HOW TO INSTALL YOUR NEW CELLULAR BOOSTE




## 2.1 Overview

This guide will help you properly install your cellular booster kit. It is important to read through all of the installation steps before installing your equipment. Thoroughly read through the instructions, visualize where all the equipment will need to be installed and do a soft installation before mounting any equipment.

1

- **BOOSTER – select location**
- Install the booster in an area that is protected from the weather, properly ventilated and is away from excessive heat and moisture.

2

- **DONOR ANTENNA (OUTDOOR)- select location**
- Mount the signal (outdoor) antenna in vehicle roof so that it can transmits and receives a signal with a 360 degree beamwidth and does not need to be pointed toward a cellular tower.

3

- **OUTDOOR COAXIAL CABLE - select location**
- The outdoor coaxial cable is used to connect the donor (outdoor) antenna to the booster.

4

- **INDOOR COAXIAL CABLE**
- The indoor coaxial cable is used to connect the server indoor antenna to the booster.

5

- **SERVER ANTENNA (indoor)**
- The ideal location for the distribution antenna will be the area of your property where you need to improve the signal most.
- NOTE:The signal strength will be strongest closest to the antenna.

!

- **IMPORTANT**: The signal antenna (outdoor)should always be separated from the distribution antenna (indoor)by at least 20 vertical feet including the separation of a thick barrier such as a roof or a wall. Depending on the strength of your outdoor signal, the weaker the signal the less separation distance is required.

7

- COMMISSIONING THE SYSTEM

## 2.2 Plan the layout of your system

Before you get started you will need to plan the layout of your system. This involves checking signal strength for signals coming from the cellular tower, as well as antenna, booster and cable placement.

## 2.3 Check for Signal Strength

Select a location on the roof of the vehicle to install the signal antenna, by monitoring your cellular phone's signal strength (signal bars) to find the strongest signal from your carrier's cellular tower.

Mark that area as the installation location for the Donor (outdoor)

**IMPORTANT:** To prevent the system from oscillation (feedback) you want to ensure that there is enough separation between the distribution and signal antenna or that they are shielded from each other to ensure the distribution antenna does not send a signal back into the signal antenna. If you cannot achieve these separations, either choose an alternate location for the donor (outdoor) antenna or determine if there are natural barriers in the building construction itself that will attenuate signals between the two antennas so that oscillation can be prevented.

## 2.4 Run coaxial cable

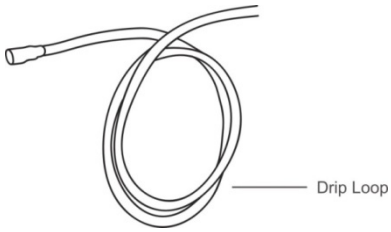
Loosely run the coaxial cable from your outdoor antenna to your booster. (After you have tested the system you can permanently secure the coaxial cable).

As you route and pull cabling, follow these general guidelines:

- Bend cables and route them smoothly, and protect the outer skin against any damage.
- Keep horizontal cables straight and fasten them with a tie every two to three feet.
- Bind and fasten vertical cables every two to three feet.
- Waterproof all outdoor connections with silicone caulking
- Be careful when plugging the connector in so as not to damage the center pins on the connectors.

## 2.5 Install the Donor (Outdoor) antenna

Connect the supplied coaxial cable to the antenna. We recommend applying silicone caulking to fully waterproof the connection.
Attach the cable in such a way that a drip loop is formed.
Once mounted, connect one end of the coaxial cable to the donor (outdoor) antenna and the other end to the cellular booster where it is marked "Outdoor"



## 2.6 Install the Server (Indoor) antenna

Connect one end of the coaxial cable to the antenna and the other end to the cellular booster where it is marked “Indoor”.

Select the installation location of your supplied server (indoor) antenna based on the following:

**Magnetic antenna**

Place in the center of the area where the signal needs to be amplified.

For Magnetic antenna, it comes with cable default which is no need to buy extra cable.

**Panel antenna**

Place in the outer perimeter of the area the signal needs to be amplified.

## 2.7 Install your cellular booster

Install the cellular booster in a location that is properly ventilated and not exposed to excessive heat, moisture and/or direct sunlight. The optimal area would be located near a power outlet.

It should be mounted in an easily accessible area so it’s easy to perform general maintenance with the coaxial cable connections, dip switch settings and power adaptor.

Make sure all cables and antennas are securely connected before commissioning the system.

## 2.8 Power up your cellular booster

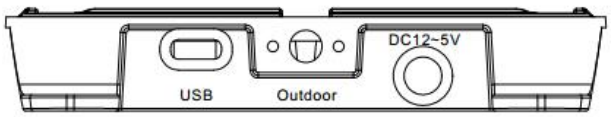
Once all the Following precautions have been taken, power on the cellular booster.

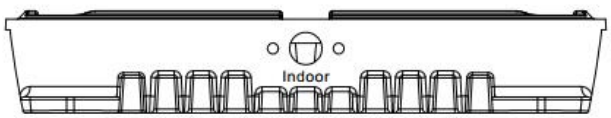
1. Verify that you have left at least 0.5 meter of vertical separation space between the indoor and outdoor antennas.
2. Never point the front of the donor (outdoor) antenna towards the inside of the server (outdoor)antenna.
3. Verify that the supplied coaxial cables from both the donor (outdoor) antenna and the server (outdoor)antenna are properly connected to the cellular booster before powering it up.
4. Carefully plug in the supplied power adaptor into the back of the cellular booster where it is marked ‘DC 12~5V’ and connect the other end to a power outlet.

The LED indicator marked power should light up blue.

# 3 UNDERSTAND THE PORTS, and LED STATUS,MGC

## 3.1 Repeater ports



| Connector | Description |
|---|---|
| Indoor | SMA-female connector, for connection to indoor antenna |
| Outdoor | SMA-female connector, for connection to outdoor antenna |
| DC 12-5V | Power wire port |
| USB | For debug connector |

### 3.2 LED Status

| LED | Status | Definition |
|---|---|---|
| Alarm | blue | It is working properly |
| | Red | Alarm |
| | off | No power input |
| Bluetooth | blue | Normal |
| WIFI | blue | Normal |

# 4 UNDERSTAND THE ANTENNA

## 4.1 Donor (Outdoor) antenna

**The Omni Antenna**

The omni antenna is a very precise omni-directional antenna with a 360 degree reach. This antenna should be installed in a high position and it does not need to be pointed toward a cellular tower.

NOTE:This antenna is not meant to capture signal from multiple carriers.

**The Magnetic Antenna**

**The omni antenna is a very precise omni-directional antenna with a 360 degree reach. This antenna should be installed in a high position and it does not need to be pointed toward a cellular tower.**

## 4.2 External Server (Indoor) antenna

**The Magnetici Antenna**

The omni antenna is an omni-directional antenna with a 360 degree reach. It is designed to distribute the signal from the center of the affected area.

**The Panel Antenna**

The panel is a directional antenna with a 120 degree reach and is designed to distribute the signal from a perimeter wall or ceiling.

## 4.3 Authorized Kitting Options

The following accessories are authorized by the FCC to be used with the Hiboost vehicle Signal Booster. Outdoor antenna & cable kit options

| Outdoor Antenna | Outdoor Antenna Gain | | | | |
|---|---|---|---|---|---|
| | Lower 700MHz | Upper 700MHz | Cellular | PCS | AWS-1 |
| Omni antenna | 4 | 4 | 4 | 5 | 6 |
| magnetic antenna（include cable） | 1 | 1 | 2 | 3 | 4 |
| Outdoor Cable | | | | | |
| Outdoor Cable | Outdoor Cable Loss | | | | |
| | Lower 700MHz | Upper 700MHz | Cellular | PCS | AWS-1 |
| HiBoost200 (50 feet) | 2.2 | 2.3 | 2.3 | 4.0 | 4.6 |
| Indoor Antenna | | | | | |
| Indoor Antenna | Indoor Antenna Gain | | | | |
| | Lower | Upper | Cellular | PCS | AWS-1 |
| panel antenna | -2 | -2 | -2 | 0.5 | 0.5 |
| magnetic antenna（include cable） | -1.5 | -1.5 | -1.5 | 2.5 | 2 |
| Indoor Cable | | | | | |
| Indoor Cable | Indoor Cable Loss | | | | |
| | Lower 700MHz | Upper 700MHz | Cellular | PCS | AWS-1 |
| HiBoost200 (30 feet) | 4 | 4 | 4 | 4.5 | 4.5 |

**Warning:** Unauthorized antennas cables and/or coupling devices are prohibited by FCC rules. The antenna, cables, and other accessories of the booster kits shall not be modified without authorized, otherwise it shall be deemed invalid.

# TROUBLESHOOTING

Eliminate Alarm warning problems:

1. Adjust the outdoor antenna direction, keeping it away from indoor antenna. Restart booster.
2. Increase the vertical or horizontal distance between the outdoor antenna and indoor antenna. Restart booster.
3. Use barriers to increase the isolation.

4. Change the indoor antenna type to an antenna with a more directional antenna pattern. Orient the indoor antenna and outdoor antenna so they point in opposite directions.
5. Reduce the booster's downlink gain via setting the gain parameter in app. Keep the uplink gain value and downlink gain value the same then restart the booster.
Note: Uplink gain must be equal to or not less than 5dB below the downlink gain, to avoid interference with the local carrier's cell site network.
Target: The Alarm issues are solved when there is no Alarm warning from the app.
Eliminate ALC warning problems:
1. Adjust the antennas' directions or locations to lower downlink received signal level.
2. Slowly reduce the downlink gain via setting the gain parameter in app.
3. If the above methods don't work, reduce the booster's gain with an external attenuator in line with the outdoor antenna or replace with lower gain antenna.
Target: The overload issues are fixed when there is no ALC warning from the app. Please note that a low gain may result in smaller coverage area. This can be improved by adjusting the outdoor antenna to receive a stronger signal. Eliminate poor coverage problems when Power or ALC is warning:
1. If the signal has not been improved, please check below:
¢The weak downlink signal leads to the low output signal level. Change the direction or position of the outdoor antenna. You may also try replacing the outdoor antenna with a higher gain antenna to increase the incoming signal.
*Check to see if it is necessary to add more indoor antennas. Barriers such as walls can block the signal indoors. You should also check the booster to make sure the power is maximized. Try installing more indoor antennas or replace the booster with a higher powered one.
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 the antenna to improve coverage.
Try adjusting the direction the indoor antenna is pointing.
Check whether it is necessary to add one or more antennas to enhance the coverage of special areas.

## IMPORTANT NOTES

The 2 most important things to look for when setting up your system is:

| | |
|---|---|
| 1 | A good input signal (the best you can find) |
| 2 | Isolating the outdoor (donor) antenna from the indoor (server) antennas so they do not feedback into each other. |

By capturing the best input signal you will be able to enjoy the maximum coverage and best quality signal inside where your Indoor antennas are located. The better the input signal, the better the output signal. In order to find the best input signal, you want to place your outdoor antenna as high as possible with the least amount of obstruction between the antenna and the cellular base tower. A clear line of site is ideal.

Isolating the signal from the antennas is done by ensuring that the antennas are not

pointing to each other and by having enough distance or barrier shielding in between them. The signals travel like rays of sunlight, a directional antenna will send the signal in the direction that it is pointing. An omni directional antenna will send the signal in every direction around it. So depending on your equipment it's important to be sure that your Indoor antenna is not sending the signal back into the outdoor antenna.

**THINGS TO CHECK WHEN EXPERIENCING WEAK CELLULAR SIGNAL**

1. Check all connections on the cable, antennas, and booster.
2. Check cable for bends and or cuts.
3. All LED lights on the booster should be blue.
4. Outdoor antenna and the indoor antennas have adequate separation and are not causing feedback.

# 5 FREQUENTLY ASKED QUESTIONS

WHY ARE THE LED LIGHTS TURNING FLASHING GREEN, FLASHING RED OR SHUTTING OFF?

There are certain cases where your system could be experiencing oscillation. This can be attributed to either the quality of your input signal or having your outdoor antenna and indoor antenna too close together. Please review the following guidelines to help resolve this issue:

1. Adjust the direction of the outdoor antenna. If the system is receiving a very high input signal, you can point your outdoor antenna away from the cellular tower to reduce the strength of the input signal and therefore, reduce the oscillation. Alternatively if your system is receiving a very poor quality signal (weak and unusable signal), you can high the antenna to increase the strength of the input signal. Sometimes this may require completely repositioning the antenna to a location where you can achieve a line of site to the tower.

2. Increase the separation between the outdoor antenna and the indoor antenna. This can be achieved by increasing the distance between the two antennas or by placing barriers between them.

# 6 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 equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

# 7 Warning and Statement

**Note:**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:

- Reorient 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 Huaptec could void the user's authority to operate the equipment.

**Note:** For a complete list of antennas and cables approved for use with these boosters see **Authorized Kitting Options** pages 7&8.

**FURTHER INFORMATION ON SIGNAL BOOSTER END-USE REGISTRATION**
The following is currently active contact of US wireless provider for booster register.
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 RF EXPOSURE STATEMENT**

This equipment complies with ISEDC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The minimum distance from body to use the device is 20cm.

Cet équipement est conforme aux limites d'exposition aux rayonnements RF de l'ISEDC définies pour un environnement non contrôlé. Cet émetteur ne doit pas être situé ou fonctionner conjointement avec une autre antenne ou un autre émetteur. La distance minimale du corps à utiliser le dispositif est de 20cm.

## ISEDC Statement:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: 1. This device may not cause interference; 2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans 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 ne doit pas produire de brouillage; 2. 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).
Link to 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.

**Ce produit est un appareil de CONSOMMATION**

AVANT DE L'UTILISER, vous **DEVEZ** conformer à toutes les exigences établies dans la CPC-2-1-05.

Vous DEVEZ utiliser cet appareil avec des antennes et des câbles approuvés, conformément aux indications du fabricant. Les antennes DOIVENT être installées à au moins 20 cm d'une personne.

Vous DEVEZ cesser d'utiliser cet appareil immédiatement à la demande d'ISDE ou d'un fournisseur de services sans fil autorisé.

AVERTISSEMENT: Les renseignements relatifs à l'emplacement du service E911 pourraient être non fournis ou inexacts pour les appels effectués au moyen de cet appareil.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