



C15F-5B

User's Manual

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CONTENTS

OVERVIEW	3
FUNCTION AND FEATURES	3
PARTS LIST	4
KIT CONFIGURATION	4
ANTENNA SOLUTION.....	5
OPTIONAL ANTENNA KITS.....	5
PPEARANCE & INTERFACE DIAGRAM	7
INSTALLATION GUIDE	8
BEFORE YOUR INSTALL.....	8
INSTALLATION OVERVIEW	8
INSTALLING THE BOOSTER	8
INSTALLING DONOR ANTENNA	9
INSTALLING INDOOR ANTENNA	9
CONNECTED ANTENNAS	9
POWER ON.....	9
IMPORTANT NOTICE	9
TROUBLE SHOOTING	10
SPECIFICATION	11
FCC WARNING.....	11
CONTACT INFORMATION FOR PROVIDERS	13

Overview

C15F-5B wide band mini Booster is designed with harmonious humanity conception, as a perfect combination of environmental protection and signal coverage. The C15F-5B products carried with many features like, low consumption, light weight, high gain, low output power and easy installation, etc, It provides a rapid and perfect solution to solve and optimize the weak signal of houses, offices, hotels, elevators, underground parking lots and other small weak signal area.

On the condition that to assure the normal communication, C15F-5B products using the smallest Rx and Tx power to achieve the link balance among BTS and mobile phone and Boosters, guaranteed that the least Rx and Tx power from the products, the least harm to environmental pollution and human body's radiation.

C15F-5B products has ALC function, which offer the product reliability and the coverage stable signal technically. In addition, the C15F-5B products adds ALC warning directive function to let users knowing signal quality by the indicator's color.

Function and Features

- The system has the automatic gain control function. By comparing the voltage value of the UL detection tube and the line detection tube with the set value, if the sampling value is larger than the set value, then increase the attenuation value of the corresponding channel attenuator until the corresponding detection tube voltage is less than the set value. If the sampling value is less than the set value, then decrease the attenuation value of the corresponding channel attenuator until the corresponding detection tube voltage is larger than the set value or the attenuation value is 0.

The system has the output over power cut off function. When the attenuation value of the UL or DL attenuator caused by the AGC control is more than or equal to 31dB, the system will switch off the corresponding channel. Otherwise, when the attenuation value is less than 31dB, turn on the corresponding channel switch.

The system has self-excited detection function. When its UL or DL occurs self-excitation, the system shuts down the switch and keep 120 seconds, the number of self-excited statistics plus 1. After 120 seconds, turn on the switch of UL and DL, if continue to detect the self-excited then turn off the switch and keep 120s, the number of self-excited statistics plus 1. If there is no self-excited, the self-excited statistics are cleared and the system return to normal. If the self-excited is detected up to 3 times is succession, the switch will be permanently turned off until the power off and restarted. Any detection results in no self-excited before the permanent shut-off, the number of self - excitation statistics will be cleared, and the system will return to normal.

- Booster is a linear amplification of the wireless signal. When the Booster is not installed right and lead to self-excited situation, the Booster by detecting the linear relationship between input and output to determine self-excited, if self-excitation it will turn off their own to prevent Network with itself until troubleshooting.
- Inside the detection area of Boosters, if the UL does not occur calls or data exchange in a long time (about 5 minutes), it will judge this area do not need Booster. At the same time, Booster will shut down the UL automatically and sleep until it detects its UL activity and

return back to the working state.

Through the radio frequency detection. Detect input and output, to determine the immediate work status.

- Booster will directly filter all signal outside the network and do not do control test.
- When UL output power is less than -80dBm and lasts for more than 5 minutes, the UL output switch will turn off, system will get into sleep status.
- Self-excited shut down: When its UL or DL occurs self-excitation, the system shuts down the switch and keep 120 seconds, the number of self-excited statistics plus 1. After 120 seconds, turn on the switch of UL and DL, if continue to detect the self-excited then turn off the switch and keep 120s, the number of self-excited statistics plus 1. If there is no self-excited, the self-excited statistics are cleared and the system return to normal. If the self-excited is detected up to 3 times is succession, the switch will be permanently turned off until the power off and restarted. Any detection results in no self-excited before the permanent shut-off, the number of self - excitation statistics will be cleared, and the system will return to normal.
- Booster will adjust its gain and output power automatically according to the outdoor signal strengthen; auto-sleep function could reduce interference.

Parts List

Kit Configuration



C15F-5B Booster



AC/DC Power Adapter



Indoor Antenna



Donor Antenna



N-male To N-male RF Cable

We will provide many kinds of accessories for the signal booster according to the personal interest, if you want more information, Visit www.amplitec.net.

Antenna Solution

Optional antenna kits

Outdoor Antenna

Option 1: 5/7dBi Outdoor Panel Antenna with 10 meters 5D-FB Coax Cable (N-Male Connectors)



Model	IP0725-770
Frequency Range	698-894/1710-2500MHz
Bandwidth	196/790 MHz
Gain	5/7dBi
VSWR	≤ 1.5
Polarization	Vertical
Max power	100 W
Nominal Impedance	50 Ω

Outdoor Antenna

Option 2: 4/6dBi



Model	OO0725-05360
Frequency Range	698-894/1710-2500-MHz
Bandwidth	196/790-MHz
Gain	4/6dBi
VSWR	≤ 1.5
Polarization	Vertical
Max power	100 W
Nominal Impedance	50 Ω

Indoor Antenna

Option 1:



Model	IP0725-965
Frequency Range	698-894/1710-2500MHz
Bandwidth	196/790-MHz
Gain	7/9dBi
VSWR	≤ 1.5
Polarization	Vertical
Max power	100 W
Nominal Impedance	50 Ω

Option 2: 3dBi Omni Ceiling Antenna



Model	OO0725-03360
Frequency Range	698-894/1710-2500MHz
Bandwidth	196/790 MHz
Gain	3dBi
VSWR	≤1.5
Polarization	Vertical
Max power	100 W
Nominal Impedance	50 Ω

Option 3: 2.5dBi Pucker Rubber Antenna



Model	IG0725-03360
Frequency Range	698-894/1710-2200MHz
Bandwidth	196/790-MHz
Gain	2.5dBi
VSWR	≤1.5
Polarization	Vertical
Max power	100 W
Nominal Impedance	50 Ω

RF Coaxial Cable



Model	NNM400-10M
Frequency Range	0-5.8G Hz
Attenuation	2.2dB @ 2.5G
RF Connector	N-Male
Color	Black
Nominal Impedance	50 Ω

Appearance & Interface Diagram



1. DC+5V: Power supply voltage is +5V
2. BS: Output port, to be connected with service antenna
3. Grounding, equipment can be grounded by screwing
4. MS: Input port, to be connected with donor antenna
5. LTE13+17 Alarm Indicator
Green: Means ALC doesn't work;
Orange: Means ALC starts control in 5~10dB;
Red: Means ALC starts control in 15~20dB。
6. CDMA Alarm Indicator
Green: Means ALC doesn't work;
Orange: Means ALC starts control in 5~10dB;
Red: Means ALC starts control in 15~20dB。
7. AWS Alarm Indicator:
Green: Means ALC doesn't work;
Orange: Means ALC starts control in 5~10dB;
Red: Means ALC starts control in 15~20dB。
8. PCS Alarm Indicator:
Green: Means ALC doesn't work;
Orange: Means ALC starts control in 5~10dB;
Red: Means ALC starts control in 15~20dB。

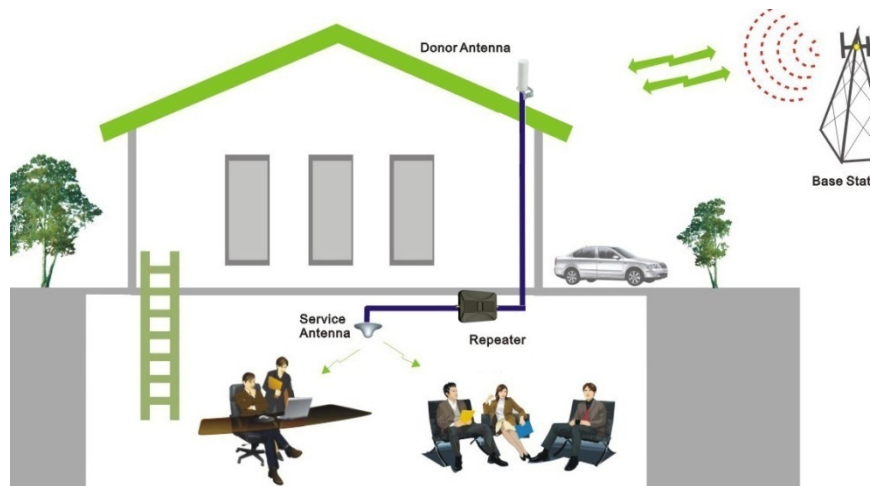
Installation Guide

Before your install

- Make sure have sufficient cable length between proposed donor to server antenna location and booster connector.
- Make sure the position you install the booster is near to one existing electrical outlet, and well ventilated, away from excessive heat, moisture, direct sunlight.

Installation overview

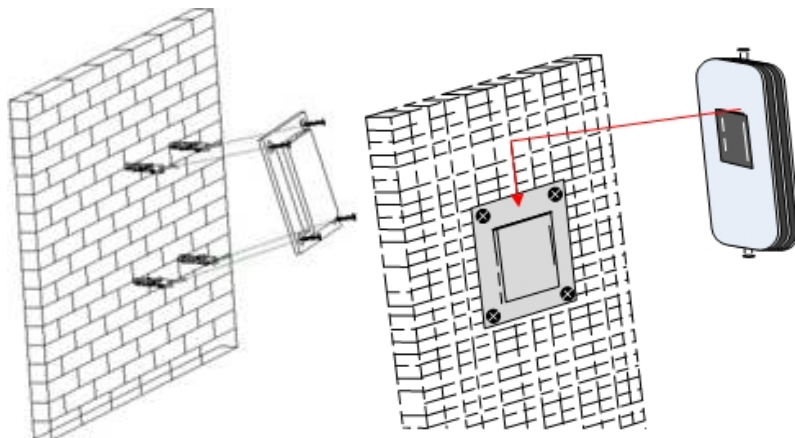
- Install your donor antenna on the roof where there is the strongest signal.
- Mount your signal booster, connect cables to the signal booster from the outside antenna and inside antenna at the designated ports, and connect the booster to AC power supply.
- Install the indoor antenna where you want to improve signals.



1. Donor Antenna 2. C15F-5B Cellular signal booster 3. Indoor antenna

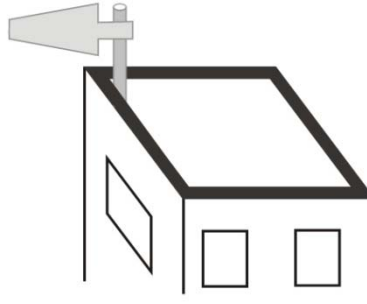
Installing the Booster

1. Select a location close to a power outlet, normally a wall.
2. Mount the booster by supplied screws like the image shows.



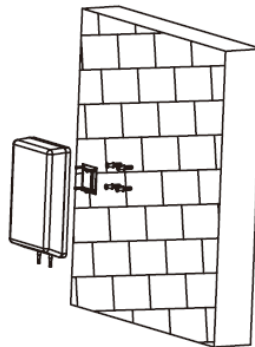
Installing Donor antenna

1. Use your mobile phone find an area with the strongest signal.
2. Select a proper place to install the donor antenna.
3. Based on the installation environment, take the right way to install donor antenna on the best signal place, as below:



Installing Indoor antenna

1. Select a place on a wall projecting the area where you want reception.
2. Mount the bracket on the wall after drilling the screw to the wall.



Connected antennas

1. Take one of cable Connect the Donor antenna to the BS port of the Booster.
2. Take another cable connect the indoor antenna to the MS port of the Booster.

Power on

1. Plug in the 5V/4A DC on the power outlet.
2. Plug in the power adapter in AC (AC100~264V) power outlet.
3. Test the signal inside the coverage area and call quality by telephone.

Important Notice

1. Do not dismounting the equipment by yourself.
2. Do not add extra pressure to Booster surface.

3. Please use the corresponding power supply adaptor for the Booster.
4. Please avoid choose strong electricity, high-intensity magnetic field, corrosive, moist and other likely environment when select the installation location, and make sure the ventilation is good and cool.
5. Please install in the place that is not easy to be reached by kids and irrelevant people.

Trouble shooting

1. The AC/DC Power Adapter LED is OFF

Cause	Action
Power cable of the power adapter unit has not been connected or faulty	Check connection of adapter system

2. The AC/DC Power Adapter LED is ON(Green) but no signal transmits

Cause	Action
Signal cable from outdoor antenna has not been connected	Check all connections
Coaxial cable is connected but cable is damage or connector is broken	Make sure there is no sharp bends or breaks in the cable. and check the connectors to see whether they are fixed firmly or not

3. Output power is not enough (Green)

Cause	Action
Input signal is too weak and unstable. (The Alarm LED is green)	Adjust the donor antenna's position and direction, make sure the input signal is moderate.

4. Output power is full (Orange)

Cause	Action
The Boosters is working in linearity (The Alarm LED is Orange)	This is the best working condition for the Booster, do not need to take any action.

5. Signal Oscillation (Red)

Cause	Action
Over accepting of donor antenna or strong interference (The Alarm LED is red)	Adjust the donor antenna's position and direction, make sure the input signal is moderate.
The isolation between donor antenna and service antenna is not enough (The Alarm LED is red)	Increase the distance between the two antennas, make sure the isolation more than 80db.

Specification

Items		Uplink	Downlink
Frequency Range	LTE17	704 ~ 716 MHz	734 ~ 746 MHz
	LTE13	776 ~ 787 MHz	746 ~ 757 MHz
	Cellular	824 ~ 849 MHz	869 ~ 894 MHz
	AWS	1710 ~ 1755 MHz	2110 ~ 2155 MHz
	PCS	1850 ~ 1910 MHz	1930 ~ 1990 MHz
Output Power	/	21± 3dBm	4± 1dBm
Gain	/	60±3dB	60±3dB
Ripple	/	≤8 dB	≤8 dB
Max. Input Power Without Damage		-43 dBm	-60 dBm
Spurious Emission	9kHz~1GHz	≤-36 dBm	≤-36 dBm
	1GHz~12.75GHz	≤-30 dBm	≤-30 dBm
ALC Active 20dB		△ ≤2 dB	△ ≤2 dB
Alarm	ALC not Active	—	Green
	ALC Active 5~10dB	—	Orange
	ALC Active 15~20dB	—	Red
	Self-oscillation	—	Red Flashing (UL OFF)
Time Delay		≤0.5 μs	≤0.5 μs
Power Supply		DC:5V	
Power Consumption		< 20 W	
RF Connector		N-Female	
Environment Conditions		IP40	
Humidity		< 90%	
Operating Temperature		-10℃ ~ +55℃	

FCC Warning

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.

You **MUST** operate this device with approved antenna and cables as specified by the manufacturer. Antennas **MUST** be installed at least 20cm(8 inches) from any person.

You **MUST** cease operating this device immediately if requested by the FCC or a licensed wireless service provider.

WARNING. E911 location information may not be provided or may be inaccurate for calls served by using the device.

This device may be operated **ONLY** in a fixed location for in-building usage.

Warning 1: The Inside Antennas for fixed installations must have 20 cm (8 inches) of separation distance from all active users.

Warning 2: The Outdoor Antennas for fixed installations must be installed no higher than 10 meters above ground.

Safeguard Features

This product has automatic gain and oscillation control system that will automatically adjust the gain and the output power if a signal anomaly occurs. This product is designed to operate as a tethered (direct connect) unit within a cellular system, for maximum performance in weak signal coverage areas.

Antennas

Warning message for use of unauthorized antennas, cables, and/ or coupling devices. You **MUST** operate this device with authorized antennas and cables specified by the manufacturer. Antennas **MUST** be installed at least 20 cm (8 inches) from any person.

Contact Information for providers

A subscriber must have the consent of a wireless provider to operate a Consumer Signal Booster. Please register your booster with your wireless service provider, refer to contact information for providers

Sprint:

signalbooster@sprint.com

T-Mobile:

www.T-Mobile.com/BoosterRegistration

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

Verizon:

<http://www.verizonwireless.com/wcms/consumer/register-signal-booster.html>

AT&T:

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

U.S. Cellular:

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

Metro PCS

<https://www.metropcs.com/support/signal-booster>