

Installation User Guide



MODEL : AVHR-5000



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1. General Information

1.1 Precautions



Reference : Things you need to know to operate the product properly



Caution : Things that you need to know not to damage the product



Warning : Showing instructions for users to avoid unexpected hazard



- 1.1.1 Do not drop the device
– Drop could damage the product



- 1.1.2 Do not place near magnetic
– It could be cause of malfunction



- 1.1.3 Product is supposed to be used with the cigarette power code. If you want to use fuse cable, please ask professional installers.



- 1.1.4 Please unplug either with cigarette power code or fuse cable if you don't use



- It may cause battery discharge

- 1.1.5 Set up product on advised location



- It may not properly operate on unadvised location

- 1.1.6 Do not repair or remodel



- It could be cause of malfunction. Please contact a store where you purchased if there is a problem



- 1.1.7. Do not operate device while driving

– It could be cause of traffic accident



- 1.1.8 Turn off the ignition before set up the device.

- 1.1.9 Do not put the device near vehicle air bag in the car

– You could be hurt by burst air bag or air bag which doesn't operate properly



- 1.1.10 Do not handle with wet hands



– Avoid risk of an electric shock

- 1.1.11 Clean up the surface where you set up inside and outside antenna



– It could be cause of a traffic accident when the antennas detached from the surface.

- 1.1.12 Please stop use and unplug when smog comes out of the product or could detect strange odor

AVHR-5000 Dual Amplifier

1.2 Features

1.2.1 Summary

This product is installed on cars, trucks, trailers, boats and homes to improve user's mobile phone signal.

- I. **Decrease dropped call**
- II. **Increase 2G/3G/4G data speed**
- III. **Battery life extension**
- IV. **Voice quality improvement**

It is a RF type amplifier used for only CDMA Cellular bands in the 800MHz and PCS1900MHz .

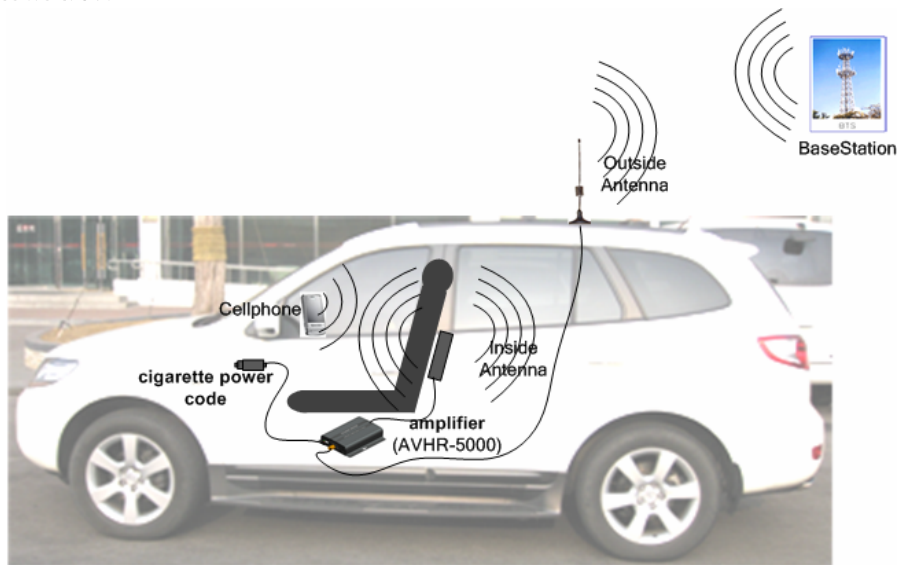
(Please see page 11 for Operating Frequency)

1.2.2 Features

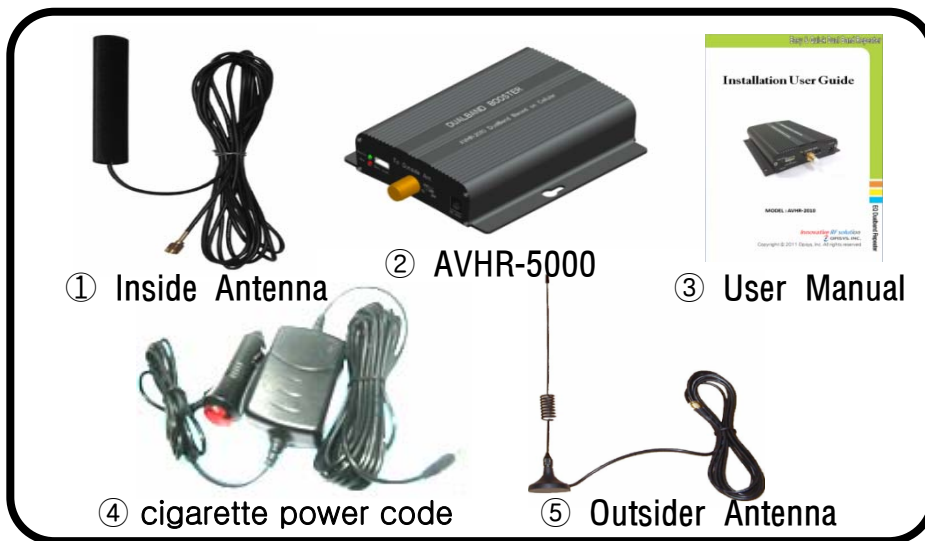
- I. **Strong coverage area**
 - **Gain 55dB**
- II. **Automatic Overload Protect & Detect System**
 - **Plug and play systems**
- III. **IS-95A Spurious Specifications with 25dBm(0.3W) Output power**
 - **Providing high data communication rate**
- IV. **Complete Repeater Kit.**
 - **Providing all components for installation**
- V. **Dual Band Amplifier**
 - **800MHz / 1900MHz**
- VI. **LED Alarm System**
- VII. **GUI(Graphic User Interface)**
 - **Please ask professional installers about GUI program.**
- VIII. **Cost Effective Application for Vehicles, Boats, and Homes**
 - **For at home users need to purchase cables, inside and outside antennas to install.**

AVHR-5000 Dual Amplifier

1.2.3 Installation



2. System Components



■ System Components

- ① . Inside Antenna: connects signal between mobile phone and amplifier
- ② . AVHR-5000: amplifies signal from outside antenna which receives signal from a base station and sends amplified signal to mobile phone
- ③ . User Manual: shows how to operate system
- ④ . Cigarette Power Code : is the source of electricity
- ⑤ . Outside Antenna: connects signal between base station and amplifier

AVHR-5000 Dual Amplifier

3. Installation

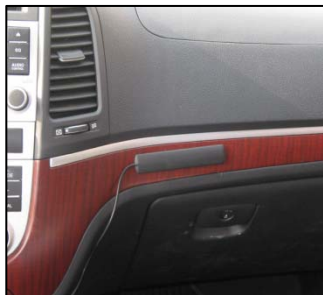
3.1 Outside Antenna Installation

- 3.1.1 Outside antenna is magnetic. So you can mount on the roof of vehicle
- 3.1.2 Outside antenna should be distance at least 5 feet from inside antenna
- 3.1.3 As showing on the picture below, suggested place to mount outside antenna is rear end of roof



3.2 Inside Antenna Installation

- 3.2.1 Inside antenna is self adhesive. You can place it wherever you want
- 3.2.2 Before installation, please remove attached paper
- 3.2.2 Recommend to mount under location shown on the picture



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AVHR-5000 Dual Amplifier

3.3 Amplifier and Antenna Connection

3.3.1 Place the amplifier under the seat or appropriate location.



3.3.2 Connect inside antenna connector to repeater



3.4 Operating Instructions

3.4.1 As the picture shown below, plug in the cigarette power code and press red button to turn on

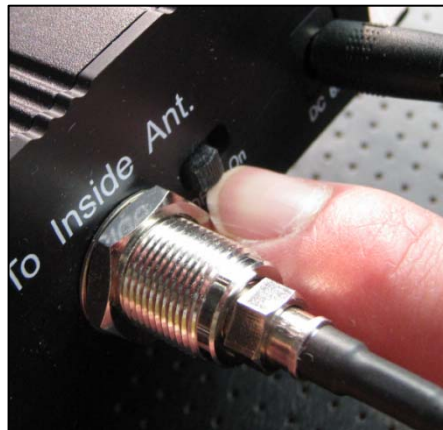


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3.4.2 Connect DC Jack as picture down below



3.4.3 Turn on the Switch as picture down below



3.4.4 After turning on switch, green LED light will be on (Green LED means that system is normal mode)

※ Green and Red LED simultaneously blinks 3 times and then only green LED light will be on



4. Trouble Shooting

4.1 LED Alarm

Item		GREEN LED	RED LED	문제점 찾기
Setting/Resetting		ON (after 3 times blinks)	3 times blinks	See 4.1.1
Normal Mode		ON	OFF	See 4.1.2
Cellular	Overload	Blink(once)	-	See 4.1.3
	Oscillation	Blink(twice)	-	See 4.1.4
	Insufficient Isolation	Blink(3 times)	-	See 4.1.5
	Alarm Checking	Blink(Consecutively)	-	See 4.1.6
PCS	Overload	-	Blink(once)	See 4.1.3
	Oscillation	-	Blink(twice)	See 4.1.4
	Insufficient Isolation	-	Blink(3 times)	See 4.1.5
	Alarm Checking	-	Blink(Consecutively)	See 4.1.5

4.1.1 ① Check if the LED light is on, on the cigarette power code

② Verify that DC code is connected correctly

4.1.2 ① Green LED light is normal mode. If it is blinking 2-3 times in a few seconds, please see 4.1.3 ~ 4.1.6

4.1.3 ① This is normal mode that checking on input power signal and shows signal status to users.

③ It will go back to normal mode soon

4.1.4 ① There is an oscillation between inside and outside antenna.

② This status is caused by a structure around that temporarily disturbs mobile signals. Please move your vehicle to other location. LED light will turn to green

AVHR-5000 Dual Amplifier

- 4.1.5 ① There is a insufficient isolation between inside and outside antenna
② While installing if LED light blinks three times, move the inside and outside antenna away and turn on/off and move antenna as needed.
③ If there was no blinking problem while set up but happens after, it could be caused by surrounding structure but that could be come back to normal if you move to different location.
- 4.1.6 ① Repeater CPU software is checking out if there are any problems such as isolation, overload or conciliation.
② On alarm checking status repeater is not operating

4.2 Insufficient Outside Signal Problem

After repeater installed, if there is insufficient outside signal around your vehicle such as uncovered signal area, you may not use your mobile phone

4.3 Vehicle Battery Discharge Problem

Verify cigarette power code LED light is on as shown below. If not, check either vehicle key is appropriately positioned or engine is on. In case of battery discharge, replace battery.



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5. Specification

5.1 Amplifier Specification

Items		Cellular	PCS	Remarks
Operating Frequency	Downlink	869 ~ 894 MHz	1930 ~ 1990 MHz	CDMA Only
	Uplink	824 ~ 849 MHz	1850 ~ 1910 MHz	CDMA Only
Gain	Downlink	55dB±2.0dB	55dB±2.0dB	
	Uplink	55dB±2.0dB	55dB±2.0dB	
Output Power Level	Downlink	+10dBm	+10dBm	@ 1FA
	Uplink	+25dBm	+25dBm	
Ripple	Downlink	< 5dB	< 7dB	
	Uplink	< 5dB	< 7dB	
Noise Figure	Downlink	< 5dB	< 5dB	
	Uplink	< 5dB	< 5dB	
ALC Level	Downlink	+10dBm ±1dB	+10dBm ±1dB	@ 1FA
	Uplink	+25dBm ±1dB	+25dBm ±1dB	
Shutdown Level	Downlink	+10dBm ±1dB	+10dBm ±1dB	After ALC
	Uplink	+25dBm ±1dB	+25dBm ±1dB	
Spurious	Downlink & Uplink	-45dBc/30kHz @±885KHz		@PCS
		-50dBc/30kHz @±1.98MHz		
		-45dBc/30kHz @±750KHz		@Cellular
		-50dBc/30kHz @±1.98MHz		
VSWR		< 1 : 1.8		
Propagation Delay		< 1us		
Frequency Stability		≤ ±0.05ppm		
GUI Interface		RS-232C		
Isolation Detection Range		45dB ~ 65dB		
Only Uplink Shutdown		≥ -45dBm ±1dB @ downlink Input Signal		For BTS Protection
Input Voltage		6.0Vdc / 3.5A		Cigar Charger 's Vdc
Power Consumption		6.0Vdc / 840mA		@ No call
RF Connector Type		FME-male		
Operating Temperature		-40°C ~ +50°C (-40°F ~ 122°F)		
Weight		< 2.2 lbs (< 1.0kg)		
Size(L*W*H)		4.9*4.8*1.4nch (125.5 * 123 * 35.5mm)		

5.2 Outside Antenna Specification

Items	Cellular	PCS	Remarks
Operating Frequency	820 ~ 890 MHz	1710 ~ 1990 MHz	-
Bandwidth	70MHz	170MHz	-
Gain	5dBi		-
VSWR	≤ 2.0 : 1		-
Impedance	50 Ω		-
Polarization	Vertical		-
Connector	FME(Female)		-
Antenna Length	28Cm		-
Weight	220g		-
Cable Length	5M		-

5.3 Inside Antenna Specification

Items	Cellular	PCS	Remarks
Operating Frequency	820 ~ 890 MHz	1710 ~ 1990 MHz	-
Bandwidth	70MHz	170MHz	-
Gain	2dBi		-
VSWR	≤ 2.0 : 1		-
Impedance	50 Ω		-
Polarization	Vertical or Horizontal		-
Connector	FME(Female)		-
Weight	50g		-
Cable Length	2M		-

5.4 Cigarette Power Code Specification

5.4.1 Input Specification

Items	Min	Typical	Max
Normal DC Input Voltage	12V	-	24V
DC Input Voltage Range	12V	-	24V
DC Input Voltage Current	-	-	3.0A

5.4.2 Output Specification

Items	Min	Typical	Max
Normal DC Output Voltage	-	6.0Vdc	-
DC Output Voltage Range	5.7Vdc	-	6.3Vdc
Load Current Range	-	-	3.5A
Ripple	-	-	350mV
Over Current Protection	4.2	-	7.0A
Short Circuit Protection	-	Yes	-

6. Certificates

6.1 FCC Certification

- Model : AVHR-5000
- Certificate Data : 2011.03
- Certificate No.:



6.2 IC Certification

- Model : AVHR-5000
- Certificate Data : 2011.03
- Certificate No.:

7. Requirement

A minimum separation distance of 8 inches (20 cm) must be maintained between the user/bystander and the vehicle mounted external antenna to satisfy FCC RF exposure requirements.

For more information about RF exposure, visit the FCC website at www.fcc.gov



