

# Dual Band Repeater Manual

Model : USHR - 0819SS



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# 1. System Introduction

This unit is a repeater for the US Cellular and PCS frequencies. The unit allows coverage in areas where the base station signals are weak. The unit is installed between the base station and the mobile phone and allows better mobile phone coverage by amplifying weak base station signals.

### Main Features

- To maintain constant power level, automatic level control (ALC) function is used.
- In cases of unexpected errors or power levels, the unit will begin its automatic shutdown sequence.

System components are below.



Signal Repeater

Wall Mount Bolts

AC/DC Adapter

# 2. Specifications

## 2.1 Electrical Specification

Item		Specifications		Note
Frequency Range	Down Link	1930 ~ 1990 MHz		US PCS 1900 BW: 60MHz
	Up Link	1850 ~ 1910 MHz		
	Down Link	869 ~ 894 MHz		Cellular 800 BW : 25 MHz
	Up Link	824 ~ 849 MHz		
Input Power limit	Down Link	-28dBm		US PCS 1900 ALC : >25dB
	Up Link	-28dBm		US PCS 1900 ALC : >25dB
	Down Link	-28dBm		Cellular 800 ALC : >25dB
	Up Link	-28dBm		Cellular 800 ALC : >25dB
Output Power	Down Link	+12dBm/1FA		US PCS 1900
	Up Link	+12dBm/1FA		
	Down Link	+12dBm/1FA		Cellular 800
	Up Link	+12dBm/1FA		
Gain	Down Link	65dB ( ± 2dB)		US PCS 1900
	Up Link	65dB ( ± 2dB)		
	Down Link	65dB ( ± 2dB)		Cellular 800
	Up Link	65dB ( ± 2dB)		
Ripple		< 6dB		US PCS 1900
		< 5dB		Cellular 800
Noise Figure		< 8dB		US PCS 1900 / Max Gain
		< 8dB		Cellular 800 / Max Gain
Propagation Delay		1us max		US PCS 1900/ Cellular 800
VSWR		2.0 : 1		US PCS 1900/ Cellular 800
Output Power@1dB Compression		+16dBm/CW		US PCS 1900/ Cellular 800
Output IP3		+31dBm		US PCS 1900/ Cellular 800
Down/Up Link Shutdown Level		+14dBm/Total ( ± 1dB)		US PCS 1900/ Cellular 800
Spurious		±885KHz	-45dBc/30kHz	US PCS 1900, 1FA
		±1.98MHz	-50dBc/30kHz	US PCS 1900, 1FA
		±750KHz	-45dBc/30kHz	Cellular 800, 1FA
		±1.98MHz	-55dBc/30kHz	Cellular 800, 1FA
Frequency Stability		± 0.05ppm		US PCS 1900/ Cellular 800
GUI Interface		RS-232C		
Alarm & Status	Display	GREEN ON	POWER	
		Red-1 ON	Cellular TX/RX Overpower Alarm	
		Red-2 ON	PCS TX/RX Overpower Alarm	
Power Consumption		5.3V / 1.4A		
Input Voltage		DC 5.3V / 1.8A		AC/DC Adapter
RF Connector		N-type Female		

## 2.2 Mechanical Specification

Item	Description	Specifications	Note
Repeater	Dimensions(L*W*H)	119*156*33(mm)	
Total	Weight	<1.5Kg	

### 2.3 Environmental Specification

Item	Specifications	Note
Temperature	-10 ~ 40	
Humidity	5% ~ 95%	

### 2.4 Functional Specification

- a. On excessive input power or if oscillation starts, auto shutdown process begins separately for each Cellular and PCS module in the USHR-0819SS.
- b. To maintain constant power level, automatic level control (ALC) function is used.
- c. Upon reboot from power outage, the unit will initialize to the last operating state before the power outage.

## 3. System Function

USHR-0819SS features and functions are described below.

### **3.1 Operation and Monitoring Functions**

- 3.1.1 This unit uses 3 LED display to distinguish its operating modes. The green LED indicates that power is ON. The red LED for the 800 or the 1900 band is displayed only when that module is shutdown. When the unit is initializing, all three LED lights blink 1 to 3 times.
- 3.1.2 To maintain constant power level, automatic level control (ALC) function is used. When ALC detects excessive input power, auto shutdown process begins separately for each Cellular and PCS module of the USHR-0819SS.

### **3.2 Characteristics and Features**

- 3.2.1 The unit is installed between the base station and the mobile phone and allows better mobile phone coverage by amplifying weak base station signals.
- 3.2.2 This unit receives the downlink signal from the base station and processes the signal using the ALC to pass a consistent signal (even if there is a variation from the downlink signal) to the mobile phone.
- 3.2.3 This unit receives the uplink signal from the mobile phone and processes the signal using the ALC to pass a consistent signal (even if there is a variation from the uplink signal) to the base station.
- 3.2.4 Up on reboot from power outage or manual ON/OFF, the unit will initialize to the last operating state before the power was off.
- 3.2.5 As the mobile phone is roaming out of the unit's coverage area, the call hand-off should be smooth and there should be no interruption of the call in progress.

## **4. Installation**

## 4.1 Introduction

The optimal installation method is explained below.

## 4.2 System Components

This unit consists of the power adapter, the signal repeater, and wall mount bolts. Please check to make sure that you all parts listed here.

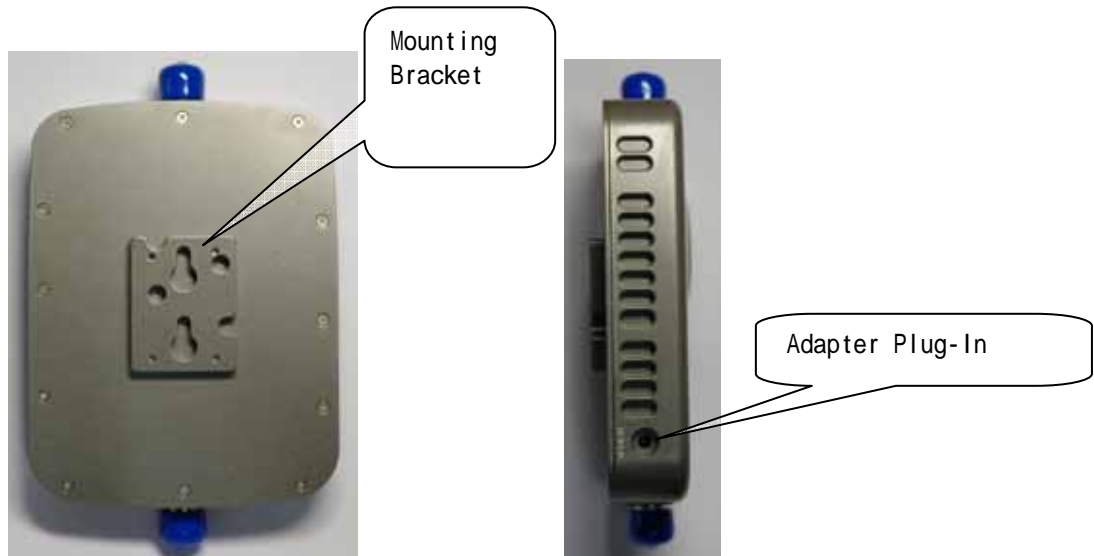
## 4.3 Installation Location

In areas where the base station signal is weak.



#### 4.4 Installation Method

Locate an area in the building or in the room where the downlink signal (base station to mobile phone) is weak. Then, install the unit on the wall using the wall mount bolts.



#### Vehicle Mounted External Antenna (optional , if available)

A minimum separation distance of 8 inches (20cm) 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](http://www.fcc.gov)

### 5. Trouble Shooting

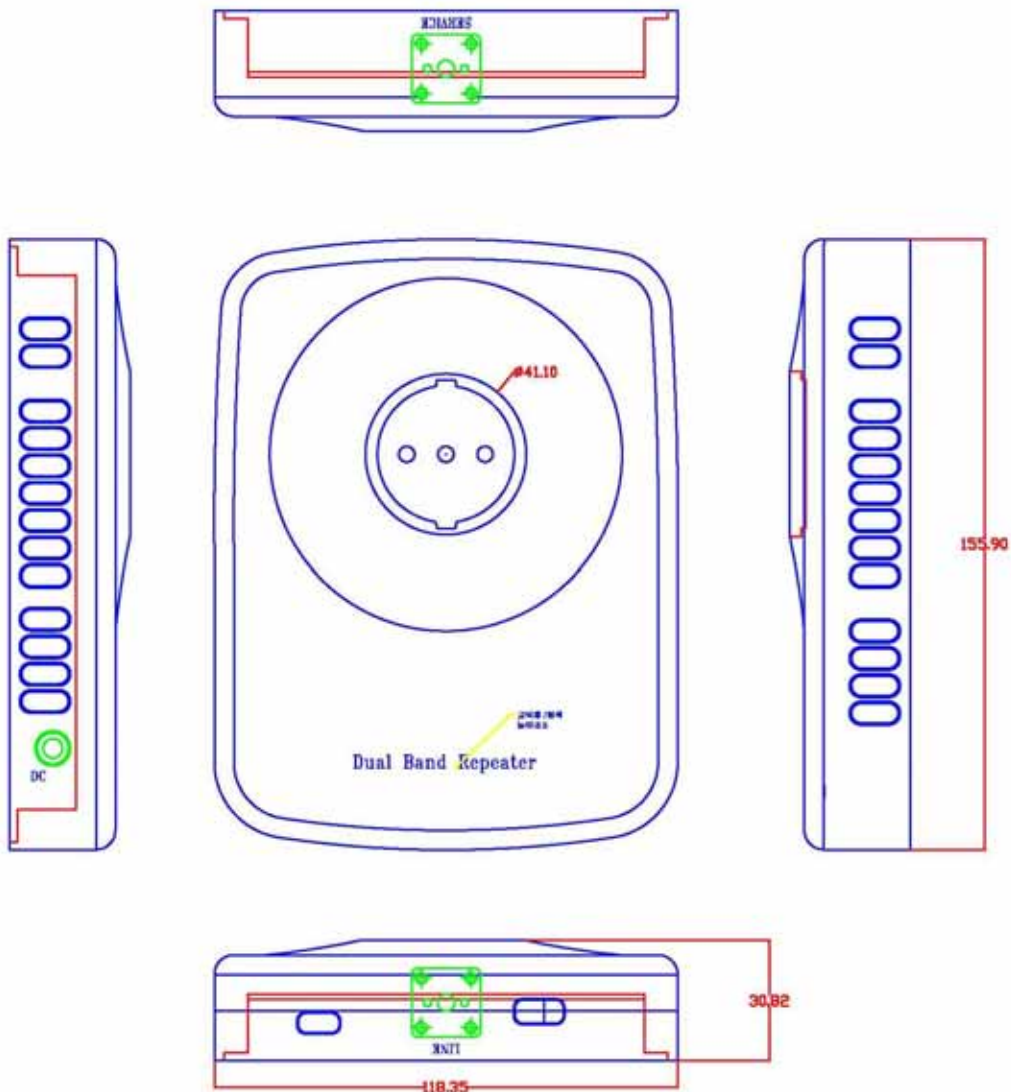
To make sure the signal repeater is working, please make sure to check that the unit's power is plugged in correctly and then turn the unit on and off.

### CAUTION!

There are no user serviceable parts in the Dual Band Repeater.  
DO NOT OPEN the unit. There is a danger of an electric shock.  
Opening the covers of the unit will void all warranties .



## 6. Drawings



## 7. Marks and Packaging

### 7.1 Outside Markings

- The unit should display the manufacturer's logo and it may also display the customer's logo.
- The unit should display the model, the serial number, and FCC Certification number.

### 7.2 Packaging Method

- To protect from shipping, the unit should be packed using the export standard packing procedure.
- Corrugated box should be used for outside packaging and foam padding should be used for the inside to protect the unit during shipping and handling.

