

# PCS RRH List11 Installation Guide

Product Name : RRH4x40-PCS KS24829L11  
Model Number : 849144431

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Panasonic Mobile Communications Co., Ltd.

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1 INTRODUCTION

1.1 System Overview

PCS RRH List11 connect with BBU which made by Alcatel-Lucent. And, this RRH is transceiver system which is support LTE and CDMA function in 1900MHz frequency band range.

List11 consist from 2pcs of List10 which is connected by optical cabel.

CPRI Interface of one PCS RRH List10 connect to BBU (LTE)

Another one CPRI interface connect to BBU (CDMA)

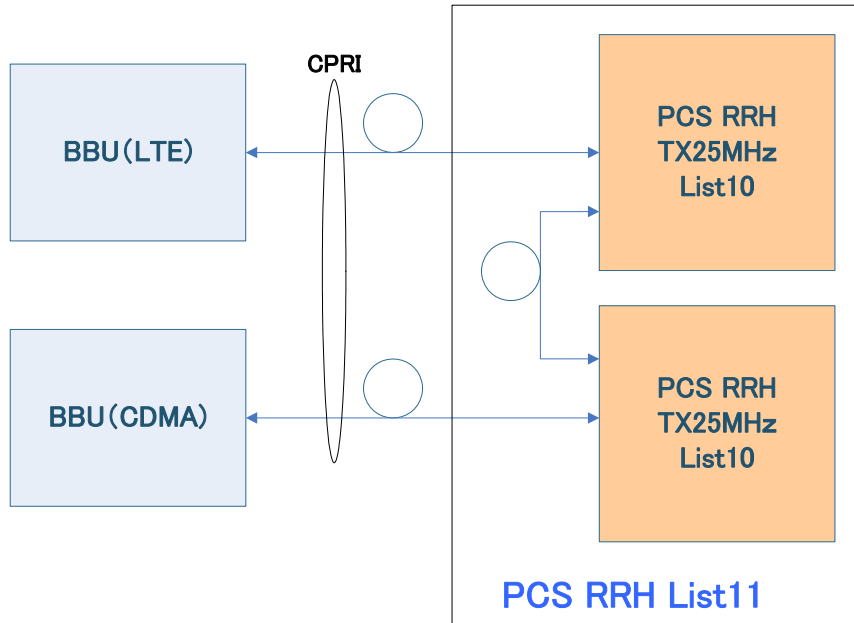


Figure 1-1 System Overview

1.2 Equipment Outline

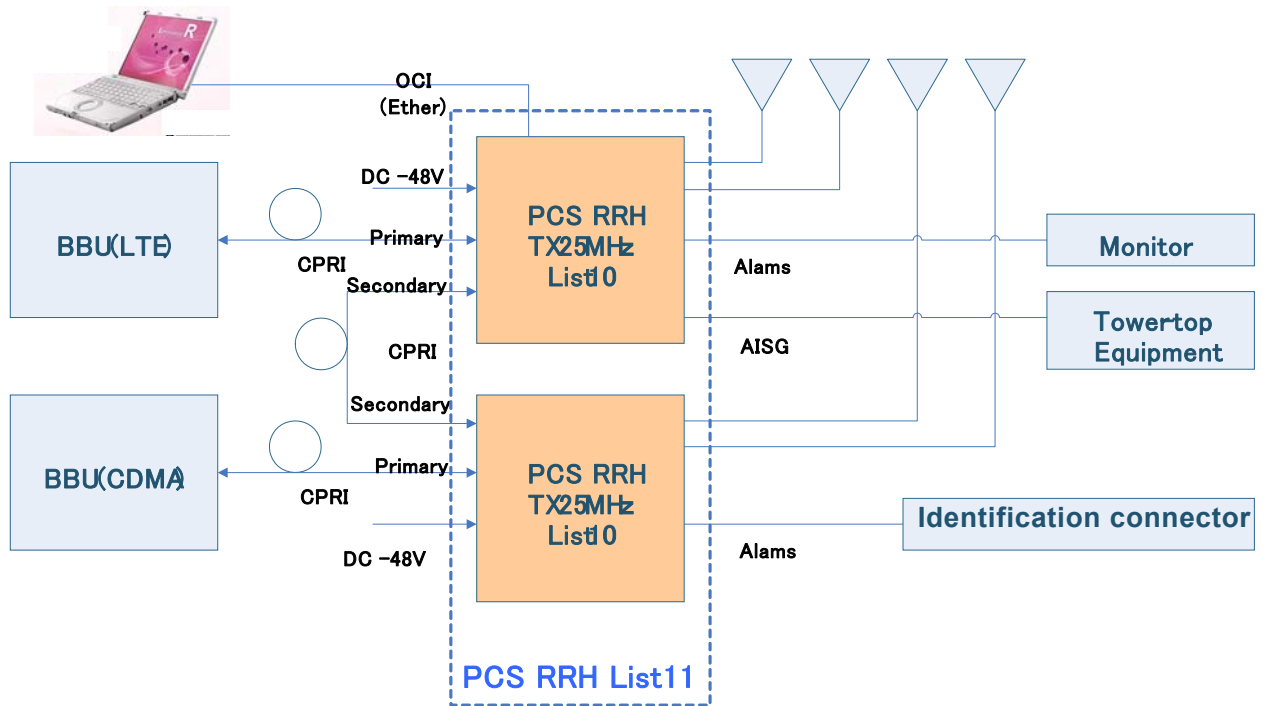


Figure 1-2 Equipment Outline

- ① Execute transmit and receive BBU and UL/DL Digital Signal by optical interface
- ② Enable to maintain RRH with OCI (On site Configuration Interface) and Personal Computer.
- ③ Enable to use Alarm-interface detect function(one is monitoring, another is detection for 2pcs List10)
- ④ AISG supply and control power function which is connected to tower-top equipment from RRH
- ⑤ This system support DC -48V power input
- ⑥ Execute several functions (Status-Control/Tranciver-Control/Mesurement/Failure-Control...) based on control message of BBU.
- ⑦ Enable to download Software(Control Software, DSP Firmware, FPGA Data) as Remotely.

### 1.3 S tructural Outline

#### 【Structure Outline】

- ① 1system(List11) consist from 2pcs of RRH(List10)
- ② Thermal method is naturally air-cooled engine(Cooling Fan Less)
- ③ Enable to load next cable (Power Cable/Optical Cable/AISG Cable/ALM Cable/AUX Cable) from bottom side of the RRH. And, enable to load Antenna Cable from Upper side of the system
- ④ Equipped M6 electrical ground in lower side of the system
- ⑤ In order to monitoring output power of transmission point, Implement 2pcs (List10) of electrical terminal.
- ⑥ There are installing "Water proof cap" and "Dust Proof Cap" as external connector
- ⑦ There are LED in bottom side of the RRH which can monitoring system status.
- ⑧ All function can control by control box which box can be open
- ⑨ Enable to install "ibolt" to upper side of the system

## 1.4 Specification

### 1.4.1 System Specification

No	Item	Content	Remark
1	Input Power	-48V (-37V~-57V)	
2	Power Consumption	340.7W x2	
3	Weight	Less than 20kg	
4	Water resistant level	IP65 as specified by IEC529 IP66 as specified by IEC60529 NEMA type4	
5	Temperature range	-40~+55°C	
6	Humidity range	5~95%	
7	Dimension	W: 330 mm D: 176 mm H: 530 mm ( not include connectors )	
8	Thermal Type	naturally air cooled engine	
9	Setting Location	Outside	

1.4.2 Optical Module Specification

No	Item	Condition/etc	Remark
1	Optical Center Length	<p><b>&lt;Primary port&gt;</b>                      DL : 1550 nm、UL : 1310 nm</p> <p><b>&lt;Secondary port&gt;</b>                      Mix mode : 1550 nm/1310 nm                      RRH1:1550 nm, RRH2:1310 nm                      or                      RRHq:1310 nm, RRH2:1550 nm</p>	
2	Bit Rate	<p><b>&lt;Primary port&gt;</b>                      CDMA : 0.6144 Gbps~1.2288 Gbps                      LTE : 1.2288 Gbps~6.1440 Gbps</p> <p><b>&lt;Secondary port&gt;</b>                      2.4576 Gbps~6.144 Gbps</p>	
3	Transmission Distance	<p><b>&lt;Primary port&gt;</b>                      Maximum 20 km</p> <p><b>&lt;Secondary port&gt;</b>                      Maximum 50m</p>	

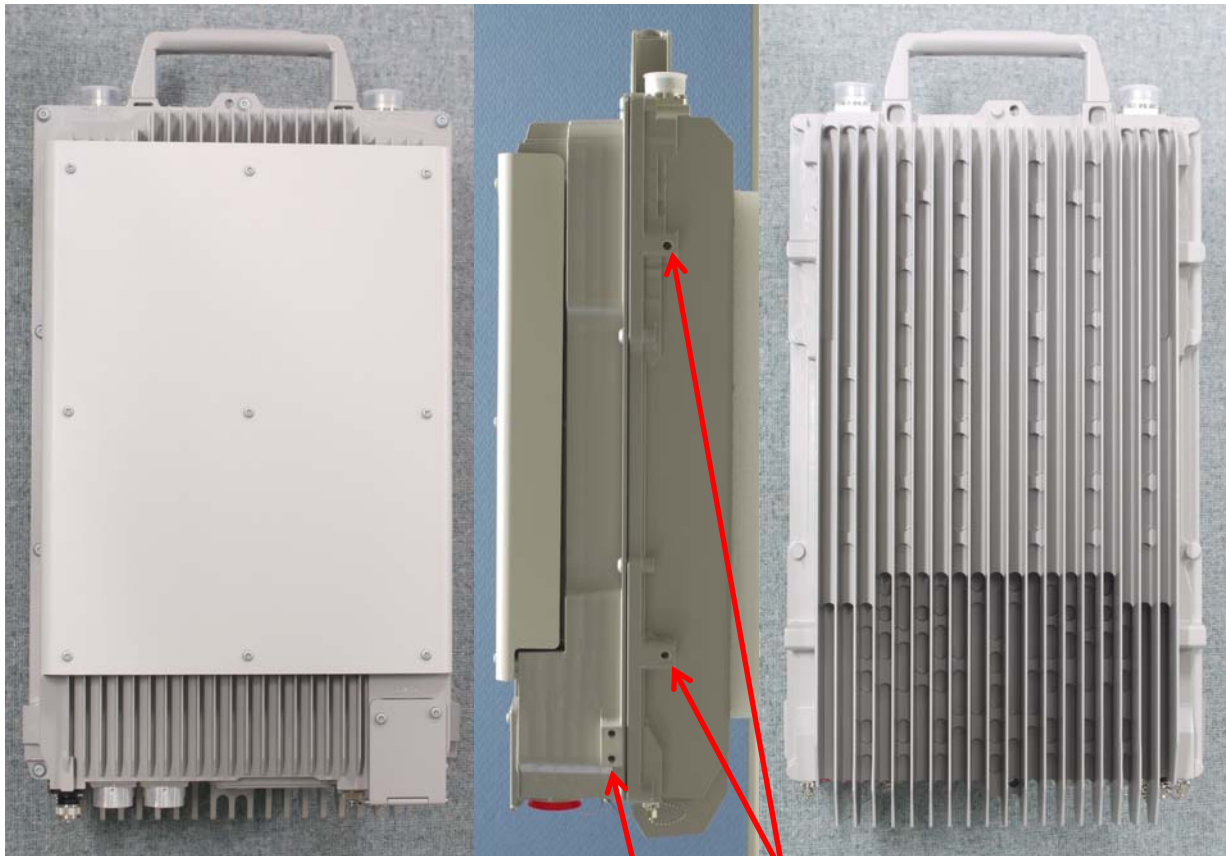


**1.4.3 PCS Band Remote Radio Heads Specification**

No	Item	Type	Remark
1	Support Technologies	LTE/CDMA	
2	RF Output Power	40W/Branch×2×2	List11 consist from 2pcs of List10
3	Downlink RF Frequency	1930 MHz –1995 MHz	
4	Uplink RF Frequency	1850 MHz –1915 MHz	
5	Number of Carrier	LTE : 2Carrier×2 CDMA : 8Carrier×2	List11 consist from 2pcs of List10

## 2 Installing the RRH

### 2.1 Appearance



4-M8 female threads for Equipment mounting  
(There are 2-M8 female threads on opposite side)

4-M6 female threads for Ground Lugs  
(There are 2-M6 female threads on opposite side)



Figure 2-1 Appearance of the RRH with connector covers

2.2 User Interface



Figure 2-2 User Interface (Top view)

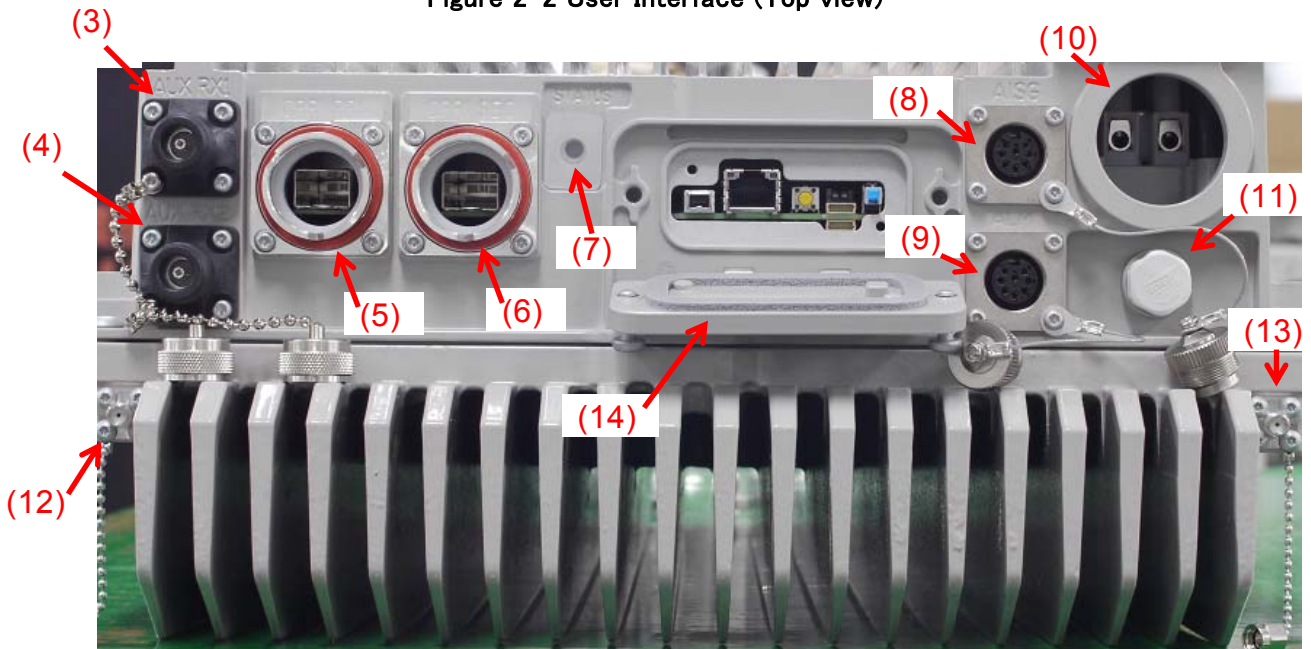


Figure 2-3 User interface (Bottom view)

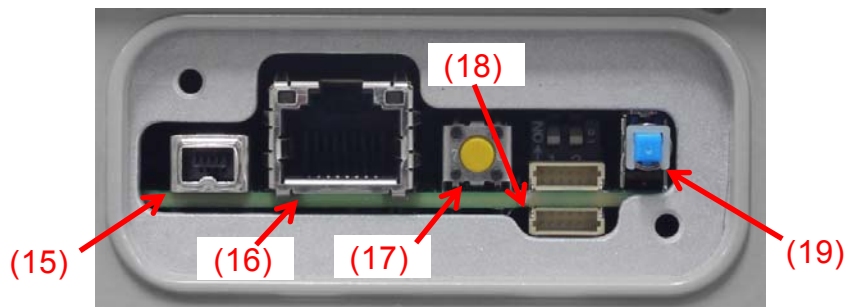


Figure 2-4 Detail of Service Access Ports

Table 2-1 Connectors, LED, Reset button etc.

No.	Location	Connector Name	Connector Type and Comment		
1	On the Top	TX/RX 1	7/16 DIN F		
2		TX/RX 2	7/16 DIN F		
3	On the Bottom	AUX RX1	N-type F		
4		AUX RX2	N-type F		
5		CPRI PRI	SFP Connector	Tyco Electronics 1888247-1	
			SFP Shield Cage	Tyco Electronics 2007198-1	
			Flange Connector	SFP with Waterproof Radial Part# R299.988.00	
6		CPRI SEC	SFP Connector	Tyco Electronics 1888247-1	
			SFP Shield Cage	Tyco Electronics 2007198-1	
			Flange Connector	SFP with Waterproof Radial Part# R299.988.00	
7		Status LED	Indicate green or red or yellow		
8		AISG	Female 8-pin circular connector, per IEC 60130-9		
9		External	User Alarms 1-4	Female 8-pin circular connector, per IEC 60130-9	
10			DC -48V IN	Water-proof entry connector can be mounted	
11			Ventilator		
12			TX MON 1	SMA F	
13	TX MON 2		SMA F		
14	Service access door				
15	Service access Port		Serial Interface	IEEE1394	
16	On the Bottom of the RRH		(Ethernet)	RJ45	
17		Reset button	-		
18		Domestic Port 1			
19		Sensor for service access door			

### 2.3 Cable List

1. Power cable; # 14 AWG strand wires are recommended.  
From # 14 to # 8 AWG strand wires are available.

## 2.4 Power cable installing procedure

1. Preparation of Power cable
  - 1.1. Remove the jacket of power cable by 30 mm.
  - 1.2. Strip the jacket from an inner cable by 8 mm.

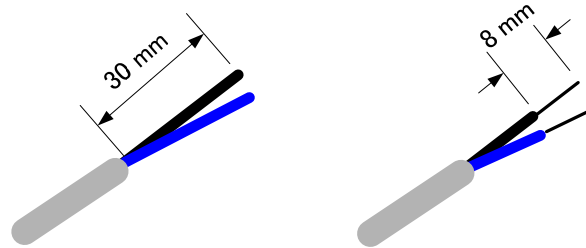


Figure 2-5 Preparation of Power cable

	<b>Warning</b> Do not damage the power cable when cutting around jacket.
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2. Loose the screws of cabling cavities cover.
3. Open the cover
4. Mount entry connector (water-proof type) on the DC-48V-IN port.

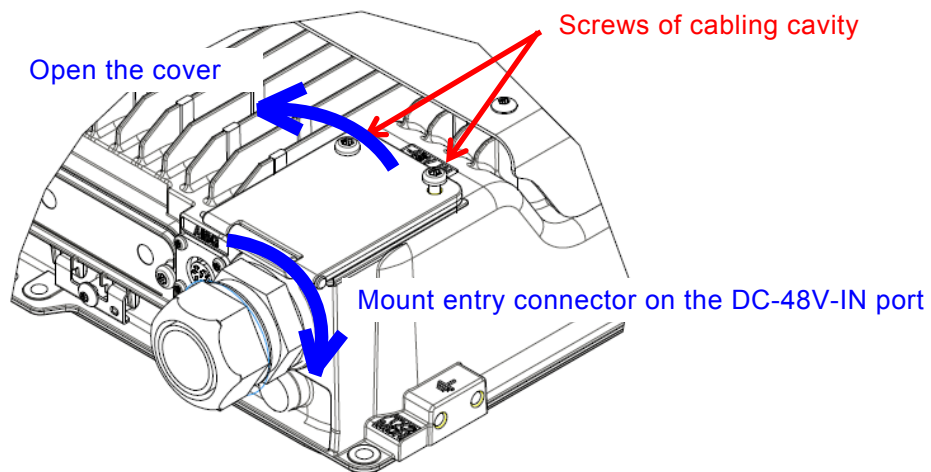


Figure 2-6 Preparation of the equipment

5. Put power cable inside from the hole of entry connector
6. Loose cable fixing screws of terminal block
7. Insert each cable to the suitable hole of terminal, according to the instruction of the rear of the cover
8. Fix the terminal screws 10 in-lbs (1.13 Nm)

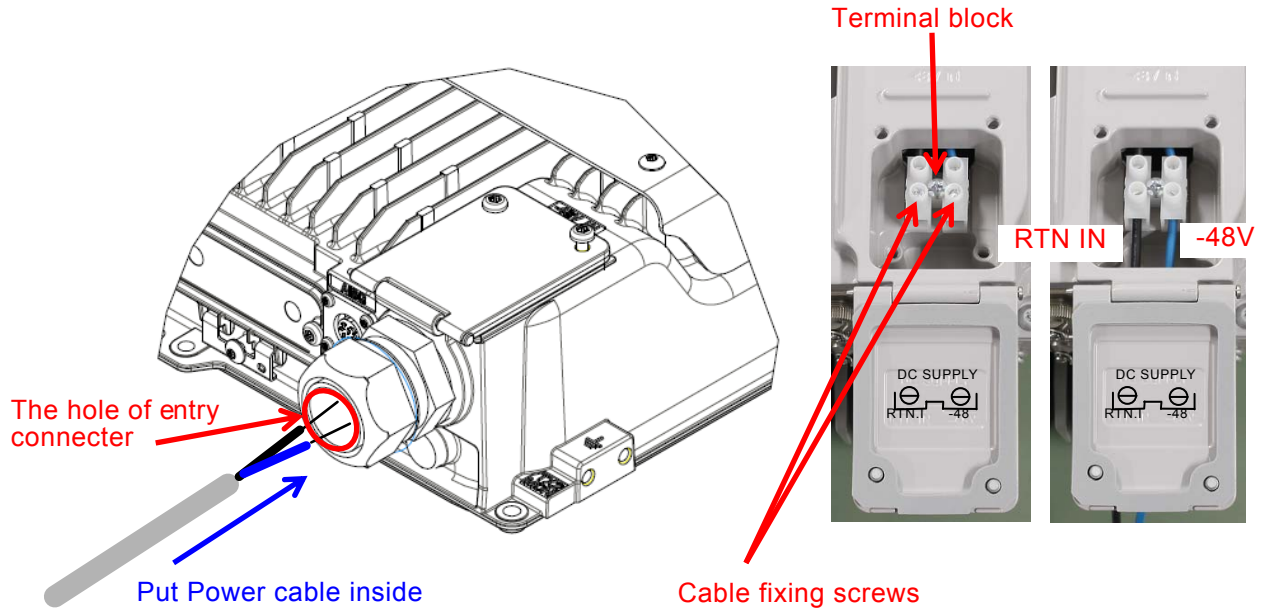


Figure 2-7 Fixing Power cables

9. Fix the cable by entry connector
10. Close the cabling cavities cover
11. Fix the screws of cabling cavity's cover xx Nm

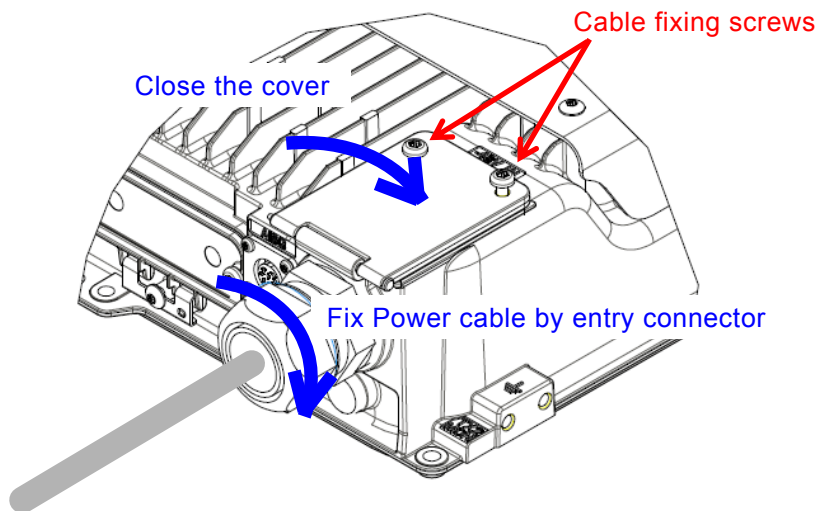


Figure 2-8 Fixing Power cable and cover

**2.5 Powering On the RRH**

1. Turn off the breaker of the power supply and connect the power supply cable.
2. Connect the other cables before turn on the breaker.
3. After start up the BBU, please turn on the power supply to RRH.
4. Please confirm the RRH start state with Status LED.

**2.6 Status LED**

LED Display States

No.	Status	LED Display
1	No Power Supplied	Off
2	Initial Power Supply	Solid Red
3	External Power Supply Failure	Flash Red
4	Software Download	Flash Yellow
5	Nonrecoverable Critical Failure	Solid Red
6	Recoverable Critical Failure	Flash Red
7	Slave CPRI Link Failure	Solid Yellow
8	Non-Critical Nonrecoverable Failure	Solid Red
9	Non-Critical Recoverable Failure	Flash Red
10	External Antenna Failure	Flash Red
11	Normal Operation	Solid Green
12	Standby	Flash Green



**3 FCC WARNING**

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

Properly shielded and grounded cables and connectors must be used for connection to host computers and / or peripherals in order to meet FCC emission limits.

Data transmission is always initiated by software, which is then passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinues transmission in case of either absence of information to transmit or operational failure.

Frequency Tolerance: 11 ppb

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