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PCS Band Multi Carrier Cell Extender
CCI Model Number CE-1819-125MC-XXXX
USER'S GUIDE

Product Description:

Communication Components, Inc. PCS CDMA Multi-carrier Cell Extender improves the performance of CDMA Base Stations (BTS) in indoor and outdoor locations, allowing for cost efficient implementation of high capacity radio networks.

By increasing both the downlink power and receive sensitivity, CCI's Cell Extender increases the overall coverage area and improves the performance of the site.

Operation Description:

CCI's Multi-channel CDMA Cell Extender is designed to improve overall site performance by boosting both forward and reverse link parameters in a balanced manner. The system is designed to provide 125 Watts of usable CDMA output power per sector antenna (63 W per sector antenna for Canada) and can serve up to three sectors with two feeder antennas per sector. As such, a CE-1819-125MC system used in six-carrier sector with 3 carriers per antenna can deliver 40 W per carrier (21 W per carrier for Canada).

- CCI supplies Cell Extender cabinet that requires a dual 30A 208/240V breaker and two batteries for backup purposes.

RF Connection

Cell Extender cabinet must be bolted to the frame.

- Connect Cell Extender input Tx/Rx and Rx ports (connectors type N located on the connectors plate inside of the main cabinet) with DO and D1 ports of BTS in the proper sector using two DIN-N jumpers.

- Connect Cell Extender output Tx/Rx and Rx ports (Bias-T blocks with DIN connectors located on the connectors plate inside of the main cabinet) with Tx/Rx and Rx ports of Main Lines of the proper sector using two DIN-DIN jumpers.

AC Connection

- 20A Breakers must be installed in the main electrical box (or A-box).
- 3-conductor AC-wire gage 12-14 must be run through metal conduit to the electrical junction box inside of the CCI Cell Extender cabinet. The entry point to this junction box is from the bottom of the cabinet via a corrugated shield.
- Run a standard 6 gauge grounding wire from the site’s main grounding bar (Bus-bar in the A-box) to the CCI Cell Extender cabinet and secure it to the electrical junction box inside the cabinet.
- Run Alarm cable through 1” conduit to the alarm card in BTS. Site technician will make actual connection.
- Install the batteries:
 - a. Place the batteries in the bottom of the cabinet
 - b. Use the short jumper to connect the positive terminal of one battery to the negative terminal of the other battery.
 - c. Cover the battery terminals with the supplied terminal boots.
- Confirm proper electrical connection
 - a. Turn off all breakers on PSU modules located in the Cell Extender cabinet;
 - b. Turn on breakers in the main electrical box (A-box)
 - c. Confirm that the green Power LED on PSU’s turn on.

Setting the RF Output Power on the CE-1819-125MC-XXXxX Cell Extender

The RF output power is adjustable on the Cell Extender. Use Gain Control Block that contains a set of the input signal attenuators. The user must adjust the RF input power to the Cell Extender connecting the proper pad such that the combined RF output power level of any number of the individual carriers does not exceed the levels shown below in order for the RF output spectral emissions to be compliant with the FCC spurious emissions limit of -13 dBm outside of the assigned frequency block. **These levels must not exceed**

Channel Center Frequency (MHz)	Maximum RF Output (Watt)*	Maximum RF Output for Canada (Watt)
1930-1990	125	63

This equipment complies with Part 24 of the FCC rules. Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

In order to comply with FCC rules for RF exposure, it must be observed that the antenna connected to this equipment be fixed on an outdoor structure and that it must have a minimum separation distance of 10 meters between it and any person.

In accordance with Industry Canada RSS-131, the manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5 dB, especially where the output signal is re-radiated and can cause interference to adjacent band users. This power reduction is to be by means of input power or gain reduction and not by an attenuator at the output of the device.

PCS block filters must be installed to achieve compliance with part 24 spurious emission limits. Filters are manufactured by Clearcomm Technologies, part number CCFA-174-XX . Connect the output filter port marked "BTS " with the port on By-Pass module marked "To BTS Duplexer". Connect the filter port marked "ANT" to the By-Pass module port marked " From ANT Duplexer". Connect the filter port marked "AMP OUT" with corresponding attenuator port on Gain Control module. Connect filter port marked "AMP IN" to the Amplifier module port marked " RF OUT".

	* Reverse Link	Forward Link
PCS Operating Range	1850-1910MHz	1930-1990 MHz
Nominal 20 dB Bandwidth	60 MHz	39.27 MHz
PCS band specific filters	AD, BE, FC	AD, BE, FC
Nominal Pass-Band Gain	12 dB max	Adjustable to 13.94 dB max
System Noise Figure:	1.5.0 dB Max.	
System Group Delay:	180 nanosecond Max	
Pass Band Ripple:	+/-0.5 dB Max.	
Output Third Order IM3 @ 1.98 MHz Offset:		-55 dBc/30 kHz
1 dB Compression Point:	+15 dBm Min.	+58.5 dBm Typ.
Input /Output VSWR:	1.5:1 Max.	1.5:1 Max.
Up-Link-Down-Link Isolation	80 dB	
By-Pass Insertion Loss	0.5 dB for ground level unit, 0.3 dB for tower top unit	
Nominal Mean Output Power:	125 W ; 63 W for Canada	
Input and Output Impedance	50 Ohm	
Power Supply Voltage:	220 VAC	
Power Consumption:	1.0 KW Max per sector	
Dimensions	12"L x 5.5" W x 3"D -tower unit 77"H x 24"W x 21"D - ground level unit	
Enclosure	NEMA 3R Weather Proof Cabinet	
Connectors	Input from BTS –type N, F; output to hard lines -7 /16 DIN, F; TTA—7/16 DIN, F	
	TTA –antenna pipe, GLU - concrete pad, 2.5'x2.5' area	
Operating Temperature:	-25° to +50° C Ambient	

** With External Tower Mounted Amplifier*