

PCS Multi-Carrier CDMA Cell Extender

General Information



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. The CE-1819-100MC provides up to 100 Watts of combined CDMA output power per feeder line/antenna.

Model CE-1819-100MC

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Technical 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 100 Watts of usable CDMA output power per sector antenna and can serve up to three sectors with two feeder antennas per sector. As such, a CE-1819-100MC system used in six carrier sector with 3 carriers per antenna can delivers 32 W per carrier.

The CE-1819-100MC was specifically designed for very simple interface with micro and mini base stations without any need of retrofitting the original BTS equipment. The system can be pad mounted at any convenient location or pole-mounted when site space is limited.

The Cell Extender system consists of two major blocks that can be easily connected during the initial installation of the BTS or as a retrofit to an operational BTS. The tower top amplifier (TTA) unit is mounted at the top of the tower next to the Antennas and is responsible for improving the uplink signal from mobile users and increasing the receive sensitivity of the BTS. The TTA is housed in a moisture proof NEMA 4X enclosure and contains low noise receive amplifiers and duplexers. The TTA is powered via DC power that is coupled onto the center conductor of the coax line. It also communicates its operational and alarm status three multi-carrier sectors via the coax line. The Ground Level Unit (GLU) is an outdoor cabinet designed to serve up to three sectors with up to six CDMA carriers per sector. Each sector section consists of high power Duplexers, multi-channel power amplifiers, gain control and bypass circuitry which is activated in case of failure of any critical component of the system. CCI's Multi-channel CDMA Cell Extender employs a unique BTS transmit power recovery technology (patent pending) that allows up to a 25% increase in the efficiency of the system.

Multi-Carrier CDMA Cell Extender Electrical & Mechanical Specification

	Reverse Link	Forward Link
A & D Blocks	1850-1870 MHz	1930-1950 MHz
B Block	1870-1885 MHz	1950-1965 MHz
C Block	1895-1910 MHz	1975-1990 MHz
E & F Blocks	1885-1895 MHz	1965-1975 MHz
Usable CDMA Composite Power Output:	100 Watts at output of cabinet	
System Gain:	Adjustable to 13 dB Max.	Adjustable to 10 dB Max.
Gain Variation:	+/-0.5 dB Max.	+/-0.5 dB Max.
Output Third Order IM3 @ 1.98 MHz Offset:	N/A	-55 dBc/30 kHz
Harmonics and Out of Band Spurious:	N/A	-13 dBm Max.
1 dB Compression Point:	+15 dBm Min.	+56 dBm Typ.
Input /Output VSWR:	1.5:1 Max.	1.5:1 Max.
Up-Link-Down-Link Isolation:	80 dB	
System Noise Figure:	2.0 dB Max.	
Power Requirements:	110 or 220 VAC; 1 Hour Battery Backup included	
Power Consumption:	1 KW Max per Sector	
Dimensions	12"L x 5.5" W x 3"D - Tower Top Unit 77"H x 24"W x 21"D - Ground Level Unit	
Enclosure	NEMA 3R Weather Proof Cabinet	
Connectors	Input from BTS: N-Female Output to hard line: 7 /16 DIN-Female Tower Top Amplifier: 7/16 DIN-Female	
Weight	TTA -20 Lbs. Max., Ground Unit -200 Lbs Max.	
Mounting	TTA -antenna pipe, Ground Unit - 24"x24" pad or H-frame mountable	
Operating Temperature:	-25° to +50° C Ambient	

Additional Information

The Cell Extender is designed to enhance both uplink and downlink limited applications and will boost the performance of the BTS to increase the overall coverage area of the site.

There are four major applications for CDMA Cell Extenders:

1. Sector MOU Enhancement– Typically for fringe sectors with low traffic. The goal is coverage/traffic/MOU increase by increasing footprint and low capacity site substitution by using Cell Extenders in the corresponding sectors of neighboring sites.

2. RSSI and Soft/Hard Hand-Off Enhancement– When signal in overlapping areas is too weak for reliable hand-off, the Cell Extender is installed on two opposing sectors for improved RSSI in the hand-off area. Dropped calls can also be improved in crossed terrain sectors.

3. In-Building and Outdoor High Speed 3G-Data Enhancement- Increased downlink power and uplink sensitivity results in higher data rate throughput.

4. Forward Power Blocking (FPB) or Automatic Level Control (ALC) Mode Reduction- Using Cell Extenders with proper Pilot/Traffic channel power partitioning and sector parameter settings can significantly decrease the FPB without reducing traffic. This approach can delay and, in some cases, eliminate the implementation of second carriers (F2).

Options

- ◆ 1A: Single Antenna
- ◆ 1S: Single Sector
- ◆ 2S: Two Sector
- ◆ 3S: Three Sector
- ◆ 04: Bypass Option
- ◆ AD: A & D Band Operation
- ◆ B: B Band Operation
- ◆ EF: EF Band Operation
- ◆ C: C Band Operation

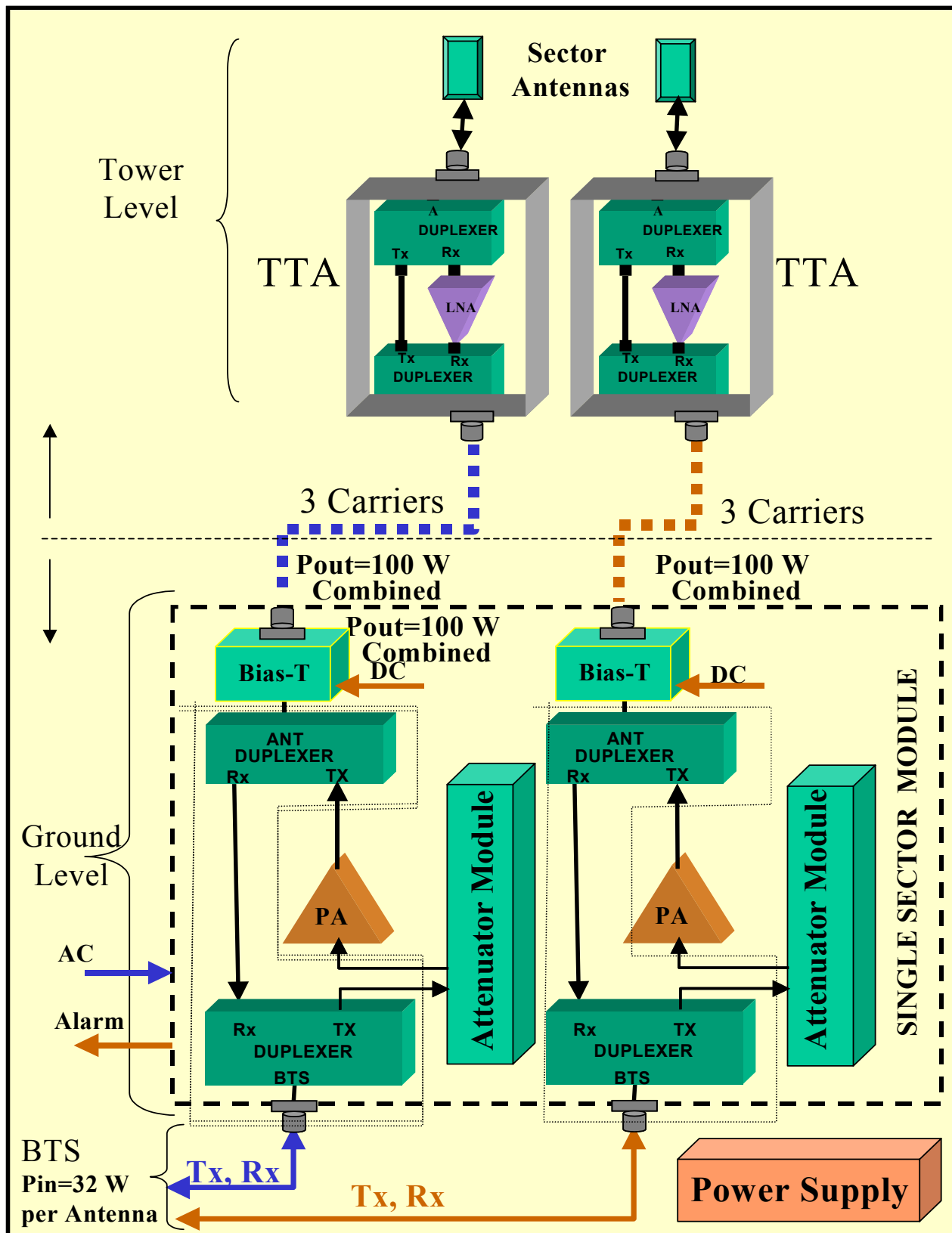
Ordering Information

- ◆ Model CE-1819-100MC

FCC Information

A minimum separation distance of 2 meters between the transmit antenna and nearby persons must be maintained. If this separation distance is not maintained, this device may not be in compliance with FCC RF Exposure rules.

Single Sector Block Diagram: PCS Multi Carrier CDMA Cell Extender



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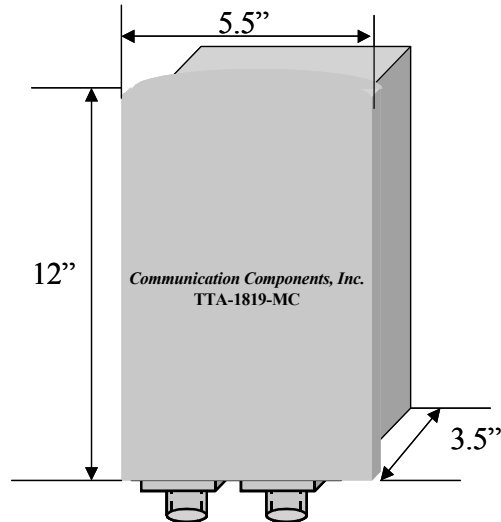
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Outline: PCS Multi-Carrier CDMA Cell Extender

Tower Top Unit



Ground Level Unit



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