



Andrew Corporation
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SUBJECT:

OneBase™ MicroCabinet Cell Extender OBE-1900-2411
 Operational Instruction
 FCC ID: S8L-OBEMICRO1
 Industry Canada ID: 2237F-OBEMICRO1

AUTHOR:

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 Version 1.0

Overview:

The OneBase™ MicroCabinet Cell Extender OBE-1900-2411 system is small, self-contained cabinet unit intended to be used in a single-sector application for cell site signal boosting. The system provides high-power, mixed-mode RF front-end functionality of signal amplification and conditioning for both uplink and downlink cellular base station signals. The OneBase™ MicroCabinet Cell Extender OBE-1900-2411 system can be used for a variety of air interfaces including GSM/EDGE, CDMA, WCDMA interfaces.



System Specifications:

Parameter	Specification	Comment
Frequency Band	1900 MHz	PCS (Personal Communications Services) Band
Operational Bandwidth	60 MHz	Rx: 1850-1910 MHz Tx: 1930-1990 MHz
Operating Temperature	-40°C to +50°C	Outdoor Application: Cold start -40°C, Operational spec at -20°C
Output Power	116 Watts	System output power utilizing MSA1900-135



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Parameter	Specification	Comment
Power Draw	1.3 Kilowatts	At maximum power output, in overdrive
Supported Output Power	40 Watts/carrier for WCDMA or CDMA 25 Watts/carrier for GSM or EDGE	Typical power-per-carrier at the antenna port.
In-Band emissions	-13 dBm/MHz	FCC emissions specification
Transmit Path Gain	+3 dB +/- 6 dB	Variable gain adjustment range
Receive Path Insertion Loss	2.0 dB	Typical
Bypass Loss	0.75 dB	Maximum

Functional Blocks:

The following system modules are capable of being replaced in the field using common tools used by field-support personnel. The primary interfaces of the field replaceable modules are blind-mate type connections or standard cable connections to appropriate interfaces within the cabinet assembly.

- Multi-carrier Power Amplifier (MCPA) Module
- Input Tray Module
- Filter Module
- Rectifier Module
- Bypass Module
- Fan Tray Assembly and associated fan controller



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Alarms:

The OneBase™ MicroCabinet Cell Extender OBE-1900-2411 system characterizes alarm severity according the following table.

ALARM CATEGORY	SEVERITY
Minor	Conditions that do not immediately affect system operation, but lead to more serious problems if ignored (e.g. fan failure).
Major	Conditions that directly affect amplifier operation (e.g. reduced gain), but allow the system to continue operating.
Critical	Conditions which result in sector shutdown, preventing any further cellular call traffic.

MCPA LEDs:

The MCPA module has three (3) LED indicators on the front panel and labeled as follows:

- “ALARM” (Red)
- “WARNING” (Yellow)
- “ACTIVE” (Green)

The following chart summarizes the various LED conditions, alarm severity, and possible failure modes.



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MCPA LEDs		
MCPA LEDs Status	Alarm Severity	Possible Failure Modes
Green: "ON" Yellow: "ON" Red: "ON"	Initial Power-up of MCPA.	NONE LEDs all "ON" simultaneously for about 2 seconds.
Green: "ON"	Normal Operation	NONE
Green: "ON" Yellow: "ON"	Minor	1. MCPA high internal temperature (approximately between 80°C and 90°C). 2. MCPA values on "Micro MCPA Live Display" software indicating: --Poor Return Loss (3-8 dB) --Poor VSWR (2.32 - 5.85)
Yellow: "ON"	Major	1. RF Overdrive (gain reduced) 2. DC voltage out of normal range
Red: "ON"	Critical	1. MCPA internal failure 2. RF Overdrive (> 10 dB) 3. MCPA high internal temperature (above approximately 90°C). 4. MCPA values on "Micro MCPA Live Display" software indicating: --Poor Return Loss (0-3 dB) --Poor VSWR (above 5.85)



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Fan Controller LEDs:

Fan Controller Board LED Status	Alarm Severity	Possible Failure Modes
LED 1, LED 2, LED 5	DISABLED	NONE
LEDs 3, 4, 6: GREEN	Normal Operation	NONE
LED 3: RED		“Fan 1” failed.
LED 4: RED		All three temperature-sensing thermistors on the controller are either shorted or open, resulting in no valid thermistor output.
LED 6: RED		Fan #2 failed.

Dry Contact Summary Alarms:

ALARM	Possible Failure Modes
Door Alarm	Intrusion
Environmental Alarm (ENV)	<ol style="list-style-type: none"> 1. Fan controller loses power. 2. Fan is spinning at less than 1900 RPM. 3. All three thermistors on the controller are either shorted or open, resulting in no valid thermistor output. 4. One fan has failed. 5. Both fans have failed.
Rectifier Alarm”	Rectifier failure
HH Alarm”	DISABLED
Minor	MPCA Minor Failure: See “Table 10”.
Major	MPCA Major Failure: See “Table 10”.
Critical	MPCA Critical Failure: See “Table 10”.



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Installation and Operation Set-Up

The OneBase™ MicroCabinet Cell Extender OBE-1900-2411-1900 Band is shipped from the factory with all necessary internal cables and wiring. Each unit is factory tested to meet overall product requirements. As such, installation of the Micro-1 Cabinet involves the mounting and securing of the cabinet per detailed manual instructions. Power is supplied to the unit via terminal blocks located in the rear of the cabinet behind the fan tray assembly. The Micro-1 Cabinet contains a front panel on/off AC switch located in the upper right, front-facing, of the unit. BTS and Antenna port interfacing is provided on the rear patch panel, with labeled 7/16 DIN connectors.

FCC Statements: FCC ID: S8L-OBEMCPA

This device complies with Part 2, 15, 22, and 24 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning

Changes of modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

RF exposure compliance is addressed at the time of licensing, as required by the responsible FCC Bureau(s), including antenna co-location requirements of 1.1307(b)(3).

Industry Canada Statements: IC:2237F-OBEMCPA

1. Quality Norms : The testing of the equipment is carried out as the norms laid in IC standards.

2. Labeling : OneBase™ MicroCabinet Cell Extender OBE-1900-2411 when sold in Canada will have:

- (a) The certification number, prefixed by the term "IC: ", i.e. IC:2237F-OBEMICRO1
- (b) The manufacturer's name, trade name or brand name, i.e. Andrew Corporation
- (c) A model name or number. Model Name = OneBase™ MicroCabinet Cell Extender
Model Number: OBE-1900-2411
- (d) This device complies with RSS-131, RSS-102 of the IC Rules.

3. External Control

The OneBase™ MicroCabinet Cell Extender OBE-1900-2411 does not have any external controls accessible to the user for any adjustments, to operate in violation of the limits



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prescribed in this Standard. Furthermore, information on internal adjustments, reconfiguration or programmability of the device shall only be made available to service depots and agents of the equipment supplier and NOT to the public.

4. Exposure of Humans to RF Field : The equipment conforms to RSS-102. RF Exposure compliance is also addressed at the time of licensing.

5. Multi-carrier operation : Rated output power of the equipment is for multi-carrier operation, which is 116 Watts maximum total composite. For multiple carriers, the total output power is distributed as required for each RF carrier. The rating per carrier is reduced so the total output power is not exceeded. While there is a possibility of single-carrier use, the maximum output power shall still not exceed 116 Watts. In fact, typical usage for various carriers is usually no greater than 40 Watts per carrier (see Specification table).