

LMS8000

900 MHz Non-Line-of-Sight
OFDM Broadband Wireless System

www.vecima.com

Vecima Networks' next generation IP data networking system, designed specifically for the 900 MHz spectrum, features OFDM modulation technology and significantly higher over-the-air data rates than its successful predecessor, the LMS4000.



CCU8000
Base Station



EUM8000
Integrated Outdoor
Subscriber Modem



NCL8000
Point-to-Point Outdoor
Wireless Bridge



CCU8010
Base Station with
Integrated Antenna

Features

OFDM Modulation

The high capacity base station uses OFDM modulation schemes to support more subscribers and higher data rates than its successful predecessor, the CCU3100.

Adaptive Modulation

The LMS8000 features a new key enhancement: adaptive modulation. This allows each individual radio modem to dynamically adapt to transmit the highest sustainable rate for its link to the base station.

Non-Line-of-Sight Capabilities

The LMS8000 is the ideal solution for areas with heavy tree coverage or other line-of-sight barriers. Developed specifically for the 900 MHz spectrum, the system delivers non-line-of-sight (NLOS) connections averaging 5 miles with the outdoor modem. Customers have established LOS links of up to 25 miles.

High Capacity

The fully scalable LMS8000 supports up to 3 times the subscriber capacity of the legacy LMS4000 system. WaveRider's Dynamic Polling MAC, which provides the most efficient channel use in the industry, enables grade-of-service (GoS) controls that permit operators to provision desired access speeds for their customers.

Advanced Management Features

The LMS8000 supports RADIUS AAA. It also offers SNMP monitoring and PPPoE support, enabling operators to easily manage large numbers of subscribers on a single system.

LMS8000 Advantages

- True 'plug and play' end-user equipment
- Supports VoIP
- Over-the-air data rates up to 13.5 Mbps and access speeds up to 8 Mbps
- Automatic adaptive modulation to maximize system capacity
- LOS range up to 25 miles; NLOS range up to 5 miles
- Dynamic Polling MAC
- Built-in spectrum analyzer
- Supports RADIUS AAA and SNMP
- CCU8000/CCU8010 are backward compatible with EUM3005/3006 and MMT9000 subscriber stations
- PPPoE support



CCU8000 Part Number
 EUM8000 Part Number
 NCL8000 Part Number
 CCU8010 Part Number

WR200-8200
 WR200-8000
 WR150-8902
 WR200-8210

The following technical specifications are for the CCU8000 base station and EUM8000 integrated outdoor subscriber station. (for technical specifications on the NCL8000 point-to-point outdoor wireless bridge and CCU8010 base station with integrated antenna, please see the NCL8000 and CCU8010 brochures)

Radio Specifications

Operating Frequency
 Radio Access
 Radio Modulation

902 to 928 MHz
 Dynamic Polling MAC & ARQ
 Orthogonal Frequency Division Multiplexing (OFDM) with 8 different levels of quadrature amplitude modulation (QAM) and forward error correction (FEC) plus Direct Sequence Spread Spectrum (DSSS) with Complementary Code Keying (CCK) modulation
 High setting: +26 dBm; Low setting: +15 dBm (software selectable)

Maximum Output Power

Type	Modulation	FEC Rate	Signalling Rate [Mbps]
OFDM	BPSK	1/2	1.5
OFDM	BPSK	3/4	2.25
OFDM	QPSK	1/2	3
OFDM	QPSK	3/4	4.5
OFDM	16QAM	1/2	6
OFDM	16QAM	3/4	9
OFDM	64QAM	3/4	12
OFDM	64QAM	3/4	13.5
DSSS	CCK		2.75

RF Rx threshold (internal antenna port, not including antenna gain) [dBm]
 -88
 -87
 -86
 -84
 -81
 -77
 -73
 -72
 -87

Minimum/Maximum Center Channel Frequency
 Channel Bandwidth
 Center Frequency Spacing Increment
 Orthogonal Channels
 4 Orthogonal Channel Set Center Frequencies
 Alternate Channel Isolation Requirement
 Antenna Connector

905.2/924.8 MHz
 5.5 MHz
 0.2 MHz
 4 (recommend external bandpass filter for each)
 905.2 MHz, 911.8 MHz, 918.4 MHz, 924.8 MHz
 82 dB (w/ recommended cavity filters 37 dB)
 CCU8000: N-type female
 EUM8000: Integrated antenna

Radio Performance

Maximum Over-the-Air Raw Data Rate
 User Data Rate
 Maximum Link Path Distance

Up to 13.5 Mbps at 64 QAM
 Up to 8 Mbps
 Up to 25 miles (40 km)

Power Specifications

PoE Power Injector Input
 PoE Power Injector Output
 Power Consumption (typical)

Auto sensing 100-240 VAC, 47-63 Hz
 48 VDC, 350 mA max, 802.3af Mode B compatible power-over-ethernet
 10 W

Interface Specifications

Ethernet Data Interface

10/100BaseT RJ-45 HDX ethernet jack (TIA-T568A)

Environmental Specifications

Operating / Storage Temperature
 Operating Humidity
 Enclosure Rating

(-40° C to 50° C) / (-40° C to 70° C)
 0% to 95% RH (non-condensing)
 CCU8000: NEMA/UL/CSA Type 12, IP66
 EUM8000: ETSI-300-019-1-4, Class 4.1

Approvals

Radio Transmitter

FCC Part 15, Subpart C, 15.247
 Industry Canada RSS-102 and RSS-210.
 UL, CSA

Safety

For detailed specifications, please see the respective product brochures

For support information on WaveRider products, visit www.wr.vecimasupport.com



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