

# CCU8000

900 MHz, PoE

Base Station

[www.vecima.com](http://www.vecima.com)



The CCU8000 is a high capacity base station that uses adaptive OFDM modulation schemes to support more subscriber stations and much higher data rates than its successful predecessor, the CCU3100.

Wireless Internet service providers are now able to deliver higher speeds to meet the growing bandwidth requirements of business and residential subscribers. The CCU8000 is backward compatible with the WaveRider Plug'n Play indoor subscriber station (EUM3005), the ruggedized outdoor integrated station (EUM3006) and the nomadic mobile station (MMT9000) for true investment protection.

## Features

### High-Speed OFDM Modulation Schemes

The multiple modulation schemes based on Orthogonal Frequency Division Multiplexing are ideal in non-line-of-sight and highly multipath radio environments for robust and spectrum efficient communications over different channel conditions and ranges.

### Wide Variety of Outdoor Antennas

Superior performance through a variety of outdoor tower antennas enables the CCU8000 to generate a maximum permissible average transmit power of +36 dBm EIRP. Select between omni or sector, horizontal or vertical polarization to optimize RF performance.

### Non-Line-of-Sight Capabilities

The CCU8000 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 to the EUM8000 integrated outdoor modem.

### High Capacity

The fully scalable CCU8000 supports significantly more subscribers than the legacy CCU3100. WaveRider's Dynamic Polling MAC, which provides the most efficient channel use in the industry, enables Grade-of-Service controls that permit operators to confidently provide high access speeds and low latencies for their customers.

### Adaptive Modulation

The WaveRider CCU8000 supports a range of modulations with signaling rates of 1.5 to 13.5 Mbps and user access speeds up to 8 Mbps. The CCU8000 dynamically adapts to transmit the highest sustainable rate for each of its links to the subscriber modems.

### Advanced Management Features

The WaveRider CCU8000 supports RADIUS AAA with specific extended attributes. The CCU8000 supports SNMP monitoring and PPPoE to allow operators to easily manage large numbers of subscribers on a single system.

## Advantages

- Over-the-air data rates of 1.5 to 13.5 Mbps and user access speeds up to 8 Mbps
- Best in class Dynamic Polling MAC
- Multiple Data Rates - automatically selects the highest rate achievable for the distance
- Operates in unlicensed 902 to 928 MHz band
- Choice of forwarding modes: routed, switched, thru-only
- QoS supporting VoIP
- Industry standard interfaces and management
- LOS range up to 25 miles; NLOS range up to 5 miles
- Backward compatibility with EUM3005, EUM3006 and MMT9000

## Radio Specifications

Radio Type & Wireless Topology  
Subscriber/Terminal Unit Compatibility  
Operating Frequency Band  
Radio Access  
Radio Modulation

Base Station for STAR Topology  
EUM8000, EUM3005, EUM3006, MMT9000  
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

Type	Modulation	FEC Rate	Signalling Rate [Mbps]	RF Rx Threshold (at antenna port) [dBm]
OFDM	BPSK	1/2	1.5	-88
OFDM	BPSK	3/4	2.25	-87
OFDM	QPSK	1/2	3	-86
OFDM	QPSK	3/4	4.5	-84
OFDM	16QAM	1/2	6	-81
OFDM	16QAM	3/4	9	-77
OFDM	64QAM	2/3	12	-73
OFDM	64QAM	3/4	13.5	-72
DSSS	CCK		2.75	-87

Transmit Output Power  
Minimum/Maximum Center Channel Frequency  
Channel Bandwidth  
Center Frequency Spacing Increment  
Orthogonal Channels  
Orthogonal Channel Separation  
Channel Selection  
LED Indication  
Data Type  
Management Protocols

Up to +36 to 25 dBm EIRP (software selectable) depending on modulation scheme  
905.2/924.8 MHz  
5.5 MHz  
0.2 MHz  
4 (recommend external bandpass filter for each)  
6.6 MHz  
Supports subscriber unit modes: Nomadic, Auto, RADIUS, Static  
Power On, Radio Activity, Ethernet Link, Ethernet Activity  
IP with QoS for VoIP; Forwarding mode: routed, switched, thru-only PPPoE  
RADIUS, DHCP, SNMP, NTP, ftp, Telnet, IP Port filtering

## Radio Performance

Signalling Rate  
User Data Rate  
Number of Users  
Maximum Link Path Distance

1.5, 2.25, 2.75, 3, 4.5, 6, 9, 12 and 13.5 Mbps  
Up to 8 Mbps  
Up to 300, dependant on assigned GoS and data traffic  
Up to 25 miles (40 km) LOS First Fresnel Zone Clearance

## Data and Power Interface

Ethernet Connector  
Power over Ethernet  
Max. Ethernet Cable Length

10/100BaseT RJ-45 HDX Ethernet Jack (TIA - T568A)  
+48 VDC, 802.3af Mode B compatible PoE, pairs 1 & 4  
330 feet (100 m)

## Power over Ethernet Injector

Input  
Output  
Power Consumption (typical)

Auto-sensing 100-240 VAC, 47-63 Hz  
48 VDC, 350 mA max  
10 W

## RF Connector

N-type female

## Dimensions

L x W x H  
Weight  
Materials

7.0" x 5.75" x 2.13" (15.8 cm x 12.9 cm x 4.8 cm)  
4.2 lb (1.9 kg)  
Extruded Aluminum

## Environmental Specifications

Operating Temperature / Storage Temperature  
Operating Humidity  
Enclosure Rating  
Mounting

(-40° C to 50° C) / (-40° C to 70° C)  
0% to 95% RH (non-condensing @ 50° C)  
NEMA/UL/CSA Type 12, IP66  
Wall, CCU shelf or enclosure

## Approvals

Radio  
Safety

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

## Ordering Information

SKU: WR200-8200

Includes: CCU8000 Base Station Wireless Modem; Universal AC/DC adapter with integrated 48 VDC PoE injector; NA AC cord; 5-ft (1.5m) N-(m) to N-(m) LMR200 cable; Pair wall mount brackets; setup antenna; (2) 5-ft (1.5 m) CAT5 Straight Jumper; N-(f) to N-(f) Lightning arrestor; PoE Surge Arrestor



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