

CCU8010

900 MHz, PoE
Base Station with Integrated Antenna

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The WaveRider CCU8010 is a low-cost base station with integrated antenna that uses adaptive OFDM modulation schemes to support more subscriber stations and much higher data rates than its successful predecessor, the CCU3110.

The CCU8010 base station wireless modem delivers high speeds, reliability and advanced management features required to serve both business and residential subscribers. The CCU8010 has a fixed 45° beam that is ideal for “shadow-fill” areas, footprint extension or as a low-cost integrated base station.

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.

Integrated Antenna

A high gain (10 dBi) antenna allows for superior performance in non-line-of-sight environments and enables the CCU8010 to generate the maximum permissible +36 dBm transmitted power.

Non-Line-of-Sight Capabilities

The CCU8010 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 CCU8010 supports significantly more subscribers than the legacy CCU3110. 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 access speeds and lower latencies for their customers.

Adaptive Modulation

The WaveRider CCU8010 supports a range of modulations with signaling rates of 1.5 to 13.5 Mbps and user access speeds up to 8 Mbps. The CCU8010 dynamically adapts to transmit the highest sustainable rate for each of its links to the subscriber modems.

Advanced Management Features

The WaveRider CCU8010 supports RADIUS AAA with specific extended attributes. The CCU8010 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 up to 13.5 Mbps and access speeds up to 8 Mbps
- Best in class Dynamic Polling MAC
- Automatic adaptive modulation to maximize system performance
- 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 up to 5 miles; indoor range up to 2 miles
- Power-Over-Ethernet (no need to run a separate power cable)



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
RF Rx Threshold (at antenna port) [dBm]

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	3/8	12
OFDM	64QAM	3/4	13.5
DSSS	CCK		2.75

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 (for co-location, 96 dB isolation is required)
6.4 MHz
Supports subscriber unit modes: Nomadic, Auto, RADIUS, Static Power On, Signal Level, Signal Quality, Ethernet Link, Master (A)
IP with QoS for VoIP; Forwarding mode: routed, switched, thru-only PPPoE
Telnet w/ Password
RADIUS, DHCP, SNMP, NTP, ftp, Telnet, IP Port filtering

Transmit Output Power
Minimum/Maximum Center Channel Frequency
Channel Bandwidth
Center Frequency Spacing Increment
Orthogonal Channels
Orthogonal Channel Separation
Channel Selection
LED Indication with MDB1000
Data Type
User Access Protocols
Management Protocols

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Radio Performance

Signaling 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

Antenna Specification

Antenna Package
Antenna Gain / HPBW / F/B
Polarization

Integrated with modem in single outdoor package
10 dBi / 45-deg. H & V-pol / 15 dB
Horizontal or Vertical, user selectable through CLI

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

Dimensions

L x W x H
Weight
Materials

16.25" x 8.25" x 3.5" (41.5 cm x 21 cm x 9 cm)
6.4 lb (2.9 kg)
Aluminum base, Plastic uV Protected Radome

Environmental Specifications

Operating Temperature
Storage Temperature
Operating Humidity
Standards
Wind Loading
Ice Loading
Mounting Interface
Orientation

-40 °C to 50 °C plus solar loading
-40 °C to 70 °C
0% to 95% RH (non-condensing @ 50 °C)
Compliant with ETSI-300-019-1-4, Class 4.1 with extended temp. range
Better than 110 mph (180 kph) - maintains alignment to better than 56 mph (90 kph)
Better than 1.25" (32 mm)
Mounts to any secure pole from 1" to 3" (2.5 cm to 7.6 cm)
Mounts horizontally or vertically.

Approvals

Radio
Safety

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

Ordering Information

SKU: WR200-8210 Includes: (1) CCU8010 Base Station Wireless Modem with Integrated Antenna; (1) Universal AC/DC adapter with integrated 48 VDC PoE injector; (1) NA AC cord; (1) 5-ft (1.5 m) CAT5 X-over Jumper; Mounting hardware; (1) PoE Surge Arrestor.



Vecima Networks Inc.
150 Cardinal Place Saskatoon, SK S7L 6H7
☎ (888) 292-8266 / (306) 955-7075
✉ (306) 955-9919
✉ sales@vecima.com

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