OAP433e

Three-Radio, Three-Stream 802.11N Outdoor Access Point

Seamlessly deploy an outdoor wireless network

With its rugged design, the OAP433e brings secure, high-performance wireless connectivity to outside locations and harsh indoor environments. Featuring a three-radio, three-stream design, the OAP433e is fully compliant with the 802.11n standard and provides a superior user experience in high client density environments such as stadiums, warehouses, and campuses.

Added radios boost the benefits of Channel Layering, multiplying the capacity within a single access point or segregating mission-critical applications. And with all radios working in concert, the AP400 Series delivers a first-class wireless network to high-bandwidth applications. Built for mobility, the AP400 Series and the Meru Virtualized Wireless LAN define the new network edge, working with laptops and any mobile devices brought by users.

Designed for flexibility, the OAP433e can be configured with optional antennas including outdoor omni-directional antennas. In addition, the OAP433e has several mounting accessories such as a wall-mounting bracket and a pole-mounting bracket.

OAP433e Benefits:

- Rugged design for outdoor and harsh indoor applications

- Maximizes performance and gain, minimizes interference through Orthogonal Array Beam Forming antenna system

- Support for Meru's Service Assurance Application Suite including: E(z)RF™ Network Manager, WIPS, and PCI Compliance Manager

- Plug-and-play deployment using centralized Meru Controller

- Supports all 802.11 a/b/g/n devices

- Tool-free, tamper-proof installation

- Three-stream radio technology — 3x3:3 802.11n support in both 2.4 GHz and 5 GHz frequency bands

TECHNOLOGY:	DATA RATE:	CONNECTIVITY:
Patented Virtualized Wireless LAN	1.35 Gbps	380 clients

OAP433e
TECHNICAL SPECIFICATIONS

APPLICATION SUPPORT AND OVER-THE-AIR QoS

SIP and H.323 Support
Dynamic out-of-the-box support for SIP and H.323 applications and codecs

QoS
Configurable dynamic QoS rules over-the-air resource reservation
Automatic, stateful flow detectors for SIP, H.323
Configurable QoS rules for SIP, H.323, Ascom, Avaya, Microsoft, Polycom, Siemens, Shoretel, Vocera, and Cisco SCCP
User-configurable static and dynamic QoS rules per application (user-defined) and per user (stations, users, and port numbers)
Call Admissions Control and Call Load Balancing
WMM support
WMM rate adaptation, optimized based on real-time network conditions

SECURITY

Authentication
Combination of captive portal, 802.1x and open authentication
Advanced security using WPA2802.1x with EAP-Transport Layer Security (EAP-TLS), Tunneled TLS (EAP-TTLS), Protected EAP (PEAP) MSCHAPv2,Smartcard/Certificate, Lightweight EAP (LEAP), EAP-FAST and EAP- MD5, with mutual authentication and dynamic, per user, per session unicast and broadcast keys
Secure HTTPS w/customizable Captive Portal utilizing RADIUS

Encryption Support
Static and dynamic 40-bit and 128-bit WEP keys, TKIP with MIC, AES

Security Policy
RADIUS-assisted, per user and per ESSID access control via MAC filtering; multiple ESSID/BSSID each with flexibility of separate and shared security policy

Rogue Detection and Suppression
All radios capable of scanning 802.11n, 802.11a, and 802.11b/g for rogue devices

MOBILITY

Zero-loss Handoffs
Infrastructure-controlled zero-loss handoff mechanism for standard Wi-Fi clients

CENTRALIZED MANAGEMENT

Zero-Configuration
Automatically selects power and channel settings
Automatically discovers controllers and download configuration settings
Zero touch, plug-and-play deployments

System Management
Centralized and remote management and software upgrades via System Director web-based GUI, SNMP, command-line interface(CLI) via serial port, SSH, Telnet, centrally managed via E(z)RF Management Suite
Centralized security policy for WLAN, multiple ESSIDs and VLANs with their own administrative/security policies

Intelligent RF Management
Coordination of access points with load-balancing for predictable performance; centralized auto-discovery, auto-channel configuration, and auto-power selection for APs; co-channel interference management

WIRELESS SPECIFICATIONS

Wireless Standards
IEEE 802.11 a/b/g/n, IEEE 802.11i support (AES, WEP, WPA, WPA2), IEEE 802.11e, WMM

Power Management
Optimal power control in 1 dBm increments; ability to disable unused radios via software to lower power consumption

Antenna
8 N-Type external antenna connectors, radio 1: 2 x 2 mode, radio 2 & 3: 3 x 3 mode. Optional antennas: 802.11 b/g 8 dBi omni-directional antenna at 2400–2500 MHz (N Male), 802.11a 8 dBi omni-directional Antenna at 5150–5350 MHz (N Male), 802.11a 8 dBi omni-directional Antenna at 5470–5875 MHz (N Male), outdoor dual-band 3-element omni-directional antenna 6.0 dBi at 2.4 GHz, 7.0 dBi at 5 GHz

Client Support
Support for clients that perform active scanning and passive scanning
Support for clients that pre-authenticate
Support for clients that change to and from power save mode rapidly
Power save mode for clients in both QoS mode and non-QoS mode

IEEE 802.11n

Frequency Band
2.412 to 2.472 GHz, 5.18 to 5.32 GHz, 5.5 to 5.825 GHz (frequency range per country codes)

Operating Channels
1 through 11 for 2.4 GHz band (Americas, 1–13 all others)36 through 165 for 5 GHz band (per country codes)

Data Rates (800 nS GI Mbps/400 nS GI Mbps)
20 MHz: 195.0/216.7, 175.5/195.0, 156.0/173.3, 130.0/144.4, 117.0/130.0, 104.0/115.6, 78.0/86.7, 65.0/72.2, 58.5/65.0, 52.0/57.8, 39.0/43.3, 26.0/28.9, 19.5/21.7, 13.0/14.4, 6.5/7.2 Mbps
40 MHz: 405.0/450.0, 364.5/405.0, 324.0/360.0, 270.0/300.0, 243.0/270.0, 216.0/240.0, 162.0/180.0, 135.0/150.0, 121.5/135.0, 108.0/120.0, 81.0/90.0, 54.0/60.0, 40.5/45.0, 27.0/30.0,13.5/15.0 Mbps

Average Transmit Power
2.4n (20 HT) MCS0/8/16: 21 dBm, 2.4n (40 HT) MCS0/8/16: 20 dBm
2.4n (20 HT) MCS7/15/23: 17 dBm, 2.4n (40 HT) MCS7/15/23: 16 dBm
5.0n (20 HT) MCS0/8/16: 18 dBm, 5.0n (40 HT) MCS0/8/16: 17 dBm
5.0n (20 HT) MCS7/15/23: 15 dBm, 5.0n (40 HT) MCS7/15/23: 14 dBm

Receive Sensitivity (for max data rates)
2.4n (20 HT) MCS0/8/16: -92 dBm, 2.4n (40 HT) MCS0/8/16: -93 dBm
2.4n (20 HT) MCS7/15/23: -76 dBm,2.4n (40 HT) MCS7/15/23: -74 dBm
5.0n (20 HT) MCS0/8/16: -93 dBm, 5.0n (40 HT) MCS0/8/16: -92 dBm
5.0n (20 HT) MCS7/15/23: -75 dBm,5.0n (40 HT) MCS7/15/23: -71 dBm

IEEE 802.11a

Frequency Band
5.180–5.240 GHz; 8 Channels (34, 36, 38, 40, 42, 44, 46, 48), 5.280–5.320 GHz; 4 Channels (52, 56, 60, 64), 5.745–5.825 GHz; 5 Channels (149, 153, 157, 161, 165), 5500–5700: 11 channels (100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140)

Operating Channels
Configurable based on country regulations

Data Rates
54, 48, 36, 24, 18, 12, 9, and 6 Mbps with automatic rate adaptation

Transmit Power
19 dBm at 6 Mbps and 16 dBm at 54 Mbps

Receive Sensitivity
-81 dBm at 54 Mbps and -93 dBm at 6 Mbps

IEEE 802.11b/g

Frequency Band
Hardware supports 2.40–2.50 GHz: 2.4 GHz–2.4835 GHz (US, Europe), 2.4 GHz–2.497 GHz (Japan only)

Operating Channels
1–11 US/Canada, 1–13 Europe, and 1–14 Japan3 non-overlapping channels

Transmit Power
17–21 dBm

802.11b Data Rates
11, 5.5, 2, and 1 Mbps with automatic rate adaptation

802.11g Data Rates
54, 48, 36, 24, 18, 12, 9, and 6 Mbps with automatic rate adaptation

802.11b/g Receive Sensitivity
-80 dBm at 54 Mbps, -90 at 11 Mbps, -90 at 6 Mbps and -92 dBm at 1 Mbps

PHYSICAL SPECIFICATIONS

Dimensions
10.25" length × 9.85" width × 2.85" depth (26 cm length × 25 cm width × 7.2 cm depth)

Weight
4 lbs 4 oz (1.93 kgs)

Power
802.3at PoE for 3-radio operation and 802.3af for 2-radio operation
Draws 12.95W to 18W depending on configuration

Environmental
Operating Temperature: -40 to 55° C (-40° to 131° F)
Operating Humidity: 5 to 95% (non-condensing)
Storage Temperature: -40° to 85° C ambient
Storage Humidity: 95% (non-condensing)

Interfaces
One auto sensing 10/100/1000 Base-TX Ethernet (RJ-45),
8 N-Type external antenna connectors, radio 1: 2 x 2 mode, radio 2 & 3: 3 x 3 mode,
Type B USB port

Mounting Options
2–3 inch (5–7.5 cm) diameter pole bracket (included), wall-mounting bracket (included)

MERU NETWORKS®

For more information about Meru OAP433e, visit **www.merunetworks.com** or email your questions to: **info@merunetworks.com**