EVEREST
NETWORKS

DATA SHEET
EVEREST AP1002O*i*

Dual-Radio 802.11ac Wave 2 4x4:4 UHD Indoor Access Point

Everest Networks provides the industry's leading Wi-Fi solutions addressing today's most pressing ultra-high density (UHD) challenges, such as high user engagement, high network capacity, fast throughput, and low total cost of ownership (TCO). Our solutions leverage the Everest Wi-Fi platform, designed and built specifically for UHD venues such as stadiums, arenas, convention centers, shopping malls, transport hubs, auditoriums, campuses, and smart cities.

AN INDUSTRY LEADER

A complementary component of the Everest platform is the AP1002O*i*, an indoor-rated, medium-performance access point (AP) providing short-range coverage. Primarily employed for enterprise-grade low- to medium-density environments such as offices, luxury suites, non-public service areas, and retail outlets, the AP1002O*i* is a multi-gigabit 802.11ac Wave 2 AP featuring dual radios, internal semi-directional antennas, 4x4:4 MIMO and MU-MIMO capabilities, as well as a dual-band scanning radio and a Bluetooth Low-Energy (BLE) radio.

BUILT FROM THE GROUND UP

At its core, the AP1002O*i* employs two independent 802.11ac 4x4:4 Wave 2 MIMO radios, one in the 5-GHz band and another in the 2.4-GHz band, for dual-radio concurrent operation. In addition, the AP1002O*i* utilizes a multi-antenna system with down-ward or outward patterns when ceiling- or wall-mounted, respectively. Along with pattern, and spatial diversity, the multi-antenna system provides coverage patterns which are 160˚-wide directional for reliable and consistent RF signal. Independent of the access radios, the AP1002O*i* also integrates a dual-band scanning radio to provide constant over-the-air threat monitoring and spectrum analysis. Furthermore, the AP1002O*i* supports IoT applications and location services via its BLE radio. Combined with a sturdy metal body for improved solution reliability, the AP1002O*i* provides best-in-class enterprise-grade performance at a lower cost than competitive 802.11ac Wave 2 access points.

The AP1002O*i* also provides additional capabilities such as advanced radio resource management, active multi-radio client load balancing, and assisted roaming, which are fully supported and managed by Everest's WLAN controller wireless management system. Through Everest's WLAN controller's simple and clear user interface, the AP1002O*i* can be easily and quickly configured, managed, monitored, and assessed with minimal user interaction, providing operational efficiency and system scalability (up to 1,000 APs) without compromise.

UNIQUE BENEFITS

- Concurrent **dual-radio** 802.11ac Wave 2 4x4:4SS → PHY rate up to **2.53 Gbps**
- Up to **500** associated devices per AP
- Up to **99+** active devices per AP
- **3.5 Gbps** backhaul: 1 x 2.5G PoE+ and 1x 10/100/1000 Ethernet ports
- Optimized antennas with 160˚-wide (quasi-omni) patterns for 2.4/5 GHz
- Simultaneous pattern and spatial diversity for MIMO and MU-MIMO
- 4x4:4 spatial streams per radio for:
- - 4x4 SU-MIMO devices per radio
- - Up to 3 concurrent 5 GHz MU-MIMO devices
- - 8 parallel streams per AP
- Dual-band scanning radio and BLE radio
- Rated for indoor environments

FEATURES & BENEFITS

CONCURRENT DUAL-RADIO FOR UP TO 2.53 GBPS

The AP1002O*i* leverages the combined power of two 802.11ac Wave 2 radios both operating in 4x4:4 MIMO mode, for a total of 8 parallel spatial streams. One radio is dedicated to the 2.4-GHz band providing MIMO functionality while the other radio is dedicated to the 5-GHz band providing MU-MIMO functionality. In addition, the AP1002O*i* enables concurrent dual-radio operation without impacting the radio's performance for an aggregate PHY throughput of 2.53 Gbps. Integrated within the AP1002O*i* is a dual-band scanning radio and BLE radio for enhanced user functionality. Finally, 3.5 Gbps of wired backhaul is provided by two Ethernet ports, one at 2.5 Gbps and one 1 Gbps.

ADVANCED ANTENNA TECHNOLOGY

The AP1002O*i* has a fully-integrated antenna system featuring polarization, pattern, and spatial diversity for enhanced MIMO and MU-MIMO operation. The 4-spatial steam 160˚-beam profile provides a quasi-omnidirectional down-ward or outward coverage pattern when ceiling- or wall-mounted, respectively, for a reliable, consistent, and defined RF signal in enterprise-grade environments.

ACTIVE CLIENT ROAMING & LOAD BALANCING

Our patent-pending load balancing algorithms performs traffic management to optimize client associations, throughput, and roaming. Based on 802.11k and 802.11v protocols, the algorithm dynamically balances users between intra- and inter-AP radios to maximize radio, client and network performance and capacity.

AUTO DISCOVERY

Upon power-up, the AP1002O*i* is auto-discovered by Everest's WLAN controller which performs AP verification and authorization before commencing data transfer. Once authorized, updated firmware and AP configuration are downloaded in a secured and controlled tunnel for an efficient and fast bring-up and operation.

INTEGRATED ENTERPRISE SECURITY

The AP1002O*i* features integrated, easy-to-configure security technologies providing secure connectivity for employees and guests. Employing the latest 802.11i advanced security features and encryption, with WPA2 authentication, the AP1002O*i* delivers the level of security required in an enterprise or crowded event environment.

SPECIFICATIONS

Performance and Capacity

Associated Devices

Up to 500

Active Devices

Up to 99+, upto 1 Mbps per device

Peak PHY Rates

5 GHz: 1.733 Gbps

2.4 GHz: 800 Mbps

Total: 2.53 Gbps

Backhaul

3.5 Gbps (1x 2.5 Gbps and 1x 10/100/1000 Ethernet ports)

Advanced Radio Technology

Radios Per AP

5 GHz: 1x 802.11ac Wave 2

2.4 GHz: 1x 802.11n

MIMO

4x4 (SU-MIMO and MU-MIMO)

MIMO Streams (per radio)

SU-MIMO (2.4/5 GHz):
- 4 streams for 4x4 devices
- Max.: 433.3 Mbps per stream
- Max.: 1,733 Mbps (5 GHz)

MU-MIMO:
- 3 streams for 3 concurrent devices

Features

TPC, DFS, TxBF, SGI

MRC, MLD, CDD, STBC, LDPC

Max Tx Power (varies by country code, band, MCS)

2.4 GHz: 24 dBm

5 GHz: 24 dBm

Rx Sensitivity

802.11n (MCS0, HT20): -97 dBm

802.11ac (MCS0, VHT20): -92 dBm

Other

Dual-band scan radio and BLE radio for IoT devices, input/output

Antenna Characteristics

Antenna Characteristics

Band-optimized

8 Internal and integrated antennas

Outward/downward

Pattern, polarization, spatial

Antenna Patterns

2.4/5 GHz: 160° -wide

Max Physical Antenna Gain

2.4 GHz: 4 dBi

5 GHz: 5.84 dBi

WiFi Specifications

Supported Standards

IEEE 802.11a/b/g/n/ac

Supported Rates

802.11b: 1 - 11 Mbps

802.11a/g: 1 - 54 Mbps

802.11n: 6.5 - 600 Mbps (MCS0-31, 1 - 4 SS)

802.11ac Wave 2: 6.5 to 1.733 Gbps (MCS0-9, 1 - 4SS)

802.11n-2.4 GHz: 6.5 - 800 Mbps (MCS0-9, 1 - 3SS)

802.11 HT: HT20/40

802.11 VHT: VHT20/40/80

Supported Channels (availability based on country code)

2.4 to 2.472 GHz: 1 - 13 (FCC/IC)

2.4 to 2.4835 GHz: 1 - 14 (ETSI)

5.15 - 5.25 GHz: 36 - 48 (FCC: U-NII-1/IC/ETSI)

5.25 - 5.35 GHz: 52 - 64 (FCC: U-NII-2A/IC/ETSI)[1]

5.47 - 5.725 GHz: 100 - 140 (FCC: U-NII-2C/IC/ETSI)[1]

5.725 - 5.850 GHz: 149 - 165 (FCC: U-NII-3/IC)

[1] Pending certification

Channelization

20/40/80 MHz

Security

Wi-Fi Protected Access (WPA)

IEEE 802.11i (WPA2, RSN)

Transport Layer Security (TLS)

Datagram Transport Layer Security

IEEE 802.1X

Encryption: AES, TKIP, PSK, CBC, CCM, CCMP128,256

SPECIFICATIONS

Power

Max Input Power (per port)

25.5 W @ 42.5 - 56 VDC

Max Power Consumption

25.5 W (~1.45 BTUs/min)

DC

12V/3A (USB is operational with DC) or AC/DC adapter 110-240V

Physical Interfaces

Ethernet

1x 100/1000/2500 Mbps

1x 10/100/1000 Mbps

Auto-sensing

802.3 10 Base-T

802.3u 100 Base-T

802.3ab 1000 Base-T

802.3bz 2.5G Base-T

PoE 802.3af (Type I) [802.3af]

PoE+ 802.3at (Type II) [802.3at]

LLDP

Physical Characteristics

Dimensions

210 mm x 210 mm x 35 mm

8.3 in x 8.3 in x 1.4 in

Weight

0.7 Kg (1.5 lbs)

Environmental

Operating temperature: 0˚C to 45°C (32°F to 113°F)

Storage temperature: -40°C to 70°C (-40°F to 158°F).

Operating humidity: 5% to 95% non-condensing

Operating altitude: 3000 m

Shock and vibrations: ETSI 300-19-2-4 spec T41.E 4M3

Surge immunity

UV resistant

Reliability

MTBF

401,314 hours (calculated)

MTTR

30 minutes

Wireless and Traffic Management

Wireless and Traffic: Standards

802.11e QoS

802.11k RRM

802.11r Fast BSS transition (FT)

802.11v Wireless Network Management

802.11ae Prioritization of Management Frames

Wireless and Traffic: Features

Airtime fairness

Client load balancing

Dynamic radio management based on per: client, radio, and AP metrics

Interfaces

Everest's WLAN controller: WMS and AC

Certification and Compliance

Wi-Fi Alliance

Wi-Fi Certified n, ac

Wi-Fi Protected Access (WPA2)

Protected Management Frames

Voice-Enterprise

WMM® (Wi-Fi Multimedia™)

Regulatory and Safety

Emissions (EMI/EMC):
- FCC Part 15, Class B
- ICES-003 issue 6, Class B
- VCCI (CISPER 32)

Radio:
- FCC Part 15c, part 15e (US)
- RSS-247 (Canada)
- ARIB STD-T66, ARBI STD-77 (Japan)

Surge: IEC 61000-4-5 Edition 2.0 2014, EN61000-4-5:2014

Safety:
- UL60950-1/ IEC60950-1
- UL2043 (Plenum Rated)

Shock and vibrations:
- IEC 68-2-27
- IEC 68-2-06