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Datasheet



Omada Directional AX3000 Wi-Fi 6 Indoor/Outdoor Access Point

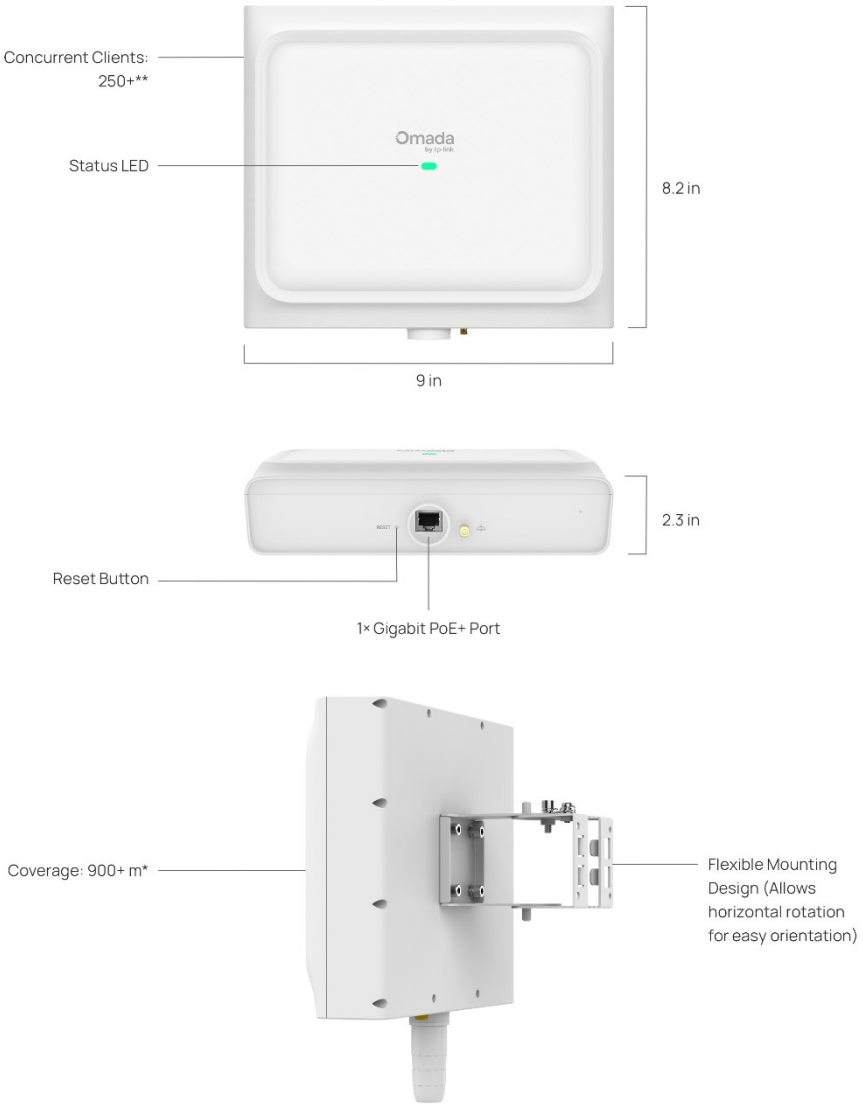
Model: EAP650 D30-Outdoor

Product Overview

EAP650 D30-Outdoor is an Omada directional AX3000 Wi-Fi 6 Indoor/Outdoor Access Point, providing precise and extended outdoor network connections. It is suitable for warehouses and outdoor scenarios such as yards, swimming pools, and parks.

- **Dual-Band 4-Stream Wi-Fi 6:** Up to 3.0 Gbps.†
- **Directional Ultra-Range Coverage:** Equipped with built-in 30° high-gain directional antennas to deliver precise and extended coverage.
- **Ideal for Warehouses and Outdoor Scenes:** Features an IP68-rated weatherproof enclosure with -30 °C to +70 °C operating range.
- **Flexible Deployment with PoE Support:** 1× Gigabit PoE+ port reduces costs by delivering power and data over a single Ethernet cable.
- **Quick and Easy Setup:** Features wall/pole mounting with Omada SDN for one-click setup
- **Advanced Features:** Centralized management, mesh, and seamless roaming.Δ

Product Appearance



* Coverage is calculated based on laboratory testing. Actual coverage is not guaranteed and will vary as a result of client limitations and environmental factors.
** The actual capacity depends on the wireless environment and client traffic and is generally less than the maximum number of client connections.

Feature Descriptions

Omada Wi-Fi 6 Technology*

Wi-Fi 6 (802.11ax) delivers 8×8 UL/DL MU-MIMO, OFDMA, 1024-QAM, and a 4× longer OFDMA symbol that extends coverage while improving data transmission speeds by 11% compared to Wi-Fi 5- making it the ideal solution for high-performance, high-density wireless networks.



Precise and Extended Directional Ultra-Range Coverage

Equipped with 4× built-in dual-band directional antennas with high gain to ensure the optimal Wi-Fi experience ideal for precise and extended coverage, delivering extended coverage up to 1,181 ft (360 m) over 2.4 GHz and 2,953 ft (900 m) over 5 GHz.‡

Outdoor-Ready Design for Extreme Conditions

EAP650 D30-Outdoor offers complete dustproof protection and the ability to withstand prolonged submersion in water. It supports IP68 weatherproof and 6 kV lightning protection. Additionally, an extended temperature tolerance of -30 °C to 70 °C makes it ideal for extremely hot and cold environments.

Flexible Deployment with PoE Support

1× Gigabit PoE+ port delivers both power and data through a single cable, cutting deployment costs and outdoor wiring complexity. Works with standard PoE+ switches or the included passive PoE adapter for flexible installation.

Quick and Easy Setup

Flexible installation options, including wall and pole mounts, enable quick deployment in diverse settings. Integration with Omada SDN allows for one-click adoption and automatic device discovery, streamlining the setup process.

Cloud-Based Centralized Management

As part of Omada's unified SDN ecosystem, EAP650 D30-Outdoor works with Omada switches, gateways, and controllers. Businesses gain end-to-end visibility, automated optimization, zero-touch provisioning, and batch configuration—all managed from a single cloud interface.

Seamless Connectivity with Mesh and Roaming

Ensures customers enjoy uninterrupted streaming when moving around by switching clients automatically to the access points with the optimal signal.

Specifications

Hardware Specifications

Item	Description	
Wi-Fi Standards	5 GHz: IEEE 802.11a/n/ac/ax 2.4 GHz: IEEE 802.11b/g/n/ax	
802.11ax	Spatial Streams	• 2.4 GHz: 2×2 Uplink/Downlink MU-MIMO with 2 spatial streams • 5 GHz: 2×2 Uplink/Downlink MU-MIMO with 2 spatial streams
	Frequency Bands	2.400 to 2.4835 GHz ISM 5.150 to 5.250 GHz U-NII-1 5.250 to 5.350 GHz U-NII-2A 5.470 to 5.725 GHz U-NII-2C 5.725 to 5.850 GHz U-NII-3/ISM *Note: Country-Specific Restriction Apply
	Bandwidth	2.4 GHz: 20 MHz/40 MHz 5 GHz: 20 MHz/40 MHz/80 MHz/160MHz *Note: Country-Specific Restriction Apply
	Wireless Data Rate	• 2.4 GHz: 8.6 Mbps to 574 Mbps (MCS0-MCS11, NSS=1 to 2, HE20/40) • 5 GHz: 8.6 Mbps to 2402 Mbps (MCS0-MCS11, NSS=1 to 2, HE20/40/80/160) *Note: Country-Specific Restriction Apply
	Radio Technology	Uplink/downlink OFDMA (Orthogonal Frequency-Division Multiple Access)
	Modulation Type	1024-QAM, 256-QAM. 64-QAM, 16-QAM, QPSK, BPSK
	Frame Aggregation	• A-MPDU (Aggregate MAC Protocol Data Unit) for Tx/Rx • A-MSDU (Aggregate MAC Service Data Unit) for Tx/Rx
	Others	• MRC (Maximal Ratio Combining) • TxBF (Transmit Beamforming) • WPA3 (Wi-Fi Protect Access 3) • DFS (Dynamic Frequency Selection) • CDD (Cycle Delay Diversity) • CSD (Cycle Shift Diversity) • STBC (Space-Time Block Coding) • LDPC (Low-Density Parity-Check)
802.11ac	Spatial Streams	• 5 GHz: 2×2 Downlink MU-MIMO with 2 spatial streams
	Frequency Bands	5.150 to 5.250 GHz U-NII-1 5.250 to 5.350 GHz U-NII-2A 5.470 to 5.725 GHz U-NII-2C 5.725 to 5.850 GHz U-NII-3/ISM *Note: Country-Specific Restriction Apply
	Bandwidth	5 GHz: 20 MHz/40 MHz/80MHz/160 MHz

Item	Description	
	Wireless Data Rate	• 5 GHz: 6.5Mbps to 1733Mbps (MCS0-MCS9, NSS=1 to 2, VHT20/40/80/160)
	Radio Technology	OFDM (Orthogonal Frequency-Division Multiplexing)
	Modulation Type	1024-QAM .256-QAM. 64-QAM, 16-QAM, QPSK, BPSK
	Frame Aggregation	• A-MPDU (Aggregate MAC Protocol Data Unit) for Tx/Rx • A-MSDU (Aggregate MAC Service Data Unit) for Tx/Rx
	Others	• MRC (Maximal Ratio Combining) • TxBF (Transmit Beamforming) • WPA3 (Wi-Fi Protect Access 3) • DFS (Dynamic Frequency Selection) • CDD (Cycle Delay Diversity) • CSD (Cycle Shift Diversity) • STBC (Space-Time Block Coding) • LDPC (Low-Density Parity-Check)
802.11n	Spatial Streams	• 2.4 GHz: 2×2 MIMO with 2 spatial streams • 5 GHz: 2×2 MIMO with 2 spatial streams
	Frequency Bands	2.400 to 2.4835 GHz ISM 5.150 to 5.250 GHz U-NII-1 5.250 to 5.350 GHz U-NII-2A 5.470 to 5.725 GHz U-NII-2C 5.725 to 5.850 GHz U-NII-3/ISM *Note: Country-Specific Restriction Apply
	Bandwidth	20 MHz/40 MHz
	Wireless Data Rate	• 2.4 GHz: 6.5Mbps to 300 Mbps (MCS0-MCS7, NSS=1 to 2, HT20/40) • 5 GHz: 6.5Mbps to 300 Mbps (MCS0-MCS7, NSS=1 to 2, HT20/40)
	Radio Technology	OFDM (Orthogonal Frequency-Division Multiplexing)
	Modulation Type	64-QAM, 16-QAM, QPSK, BPSK
	Frame Aggregation	• A-MPDU (Aggregate MAC Protocol Data Unit) for Tx/Rx • A-MSDU (Aggregate MAC Service Data Unit) for Tx/Rx
	Others	• MRC (Maximal Ratio Combining) • TxBF (Transmit Beamforming) • WPA3 (Wi-Fi Protect Access 3) • DFS (Dynamic Frequency Selection) • CDD (Cycle Delay Diversity) • CSD (Cycle Shift Diversity) • STBC (Space-Time Block Coding) • LDPC (Low-Density Parity-Check)
Antenna	Wi-Fi	• 2.4 GHz: 2 × 12 dBi (peak gain), Built-in Directional Antennas • 5 GHz: 2 × 15 dBi (peak gain), Built-in Directional Antennas • Beamwidth: 30° Horizontal; 30° Vertical *Note: The gains above are the single-antenna peak gains.

Item	Description	
Interfaces	• 1 x 10M/100M/1000M Gigabit Ethernet Port (RJ45); PoE in	
IoT	BLE5.2,1Mbps	
Memory	• Flash: 1Gbit • DRAM: 4Gbit	
Button	1 × Reset button: Press the button for longer than 5 seconds to make the device restore to factory settings.	
Indicator	1 × Yellow/Green system LED indicates on the front: • Power-on status • Firmware initialization or upgrade status • Uplink service status • Error status	
Reliability	MTBF (Mean Time between Failure)	EU: 431225 hours at the operating temperature of 25℃ (77℉) ; US: 368070 hours at the operating temperature of 25℃ (77℉)
Power Supply	Input	802.3at PoE+ or 48V Passive PoE
	Output	/
Power Consumption	• 802.3at (PoE): 14.7w, 2.4GHz radio 2×2, 5GHz radio 2×2. wired link rate can be up to 1Gps • Idle mode: 6.6W (PoE);	
Surge/Lightning Protection	Ethernet Ports: ±6 kV	
ESD/EMP Protection	• Air discharge: ±8 kV • Contact discharge: ±4 kV *Note: ESD/EMP Protection means Electrostatic Discharge/Electromagnetic Pulse Protection independently.	
Tx Power	Maximum transmit power	CE (ERIP) • 2.4 GHz: 20 dBm • 5 GHz: 23 dBm in U-NII-1, 23 dBm in U-NII-2A, 30 dBm in U-NII-2C FCC (Conducted Power) • 2.4 GHz: 25 dBm • 5 GHz: 25 dBm in U-NII-1, 25 dBm in U-NII-2A,25 dBm in U-NII-2C, 25 dBm in U-NII-3 *Note: MIMO combined power, excluding antenna gains. The actual transmit power depends on local laws and regulations.
	Minimum transmit power	CE (ERIP) • 2.4 GHz: 6 dBm • 5 GHz: 7 dBm in U-NII-1, 7 dBm in U-NII-2A, 7 dBm in U-NII-2C FCC (Conducted Power) • 2.4 GHz: 4 dBm • 5 GHz: 4 dBm in U-NII-1, 4 dBm in U-NII-2A, 4 dBm in U-NII-2C, 4dBm in U-NII-3 *Note: MIMO combined power, excluding antenna gains. The actual transmit power depends on local laws and regulations.

Item	Description	
	Adjustable power increment	1 dB
Environment	Temperature	• Operating: -30℃ to +70℃ (32℉ to +104℉) • Storage: -40℃ to +70℃ (-40℉ to +158℉)
	Humidity	• Operating: 10% to 90% (non-condensing) • Storage: 5% to 90% (non-condensing)
	Altitude	• Storage: up to + 2000 m (6561feet) • Operating: up to + 2000 m (6561feet)
Unit	Dimensions (W×D×H)	• Main Unit: 230 × 207.5 × 58 mm (9.05 in. x 8.16 in. x 2.28 in.) • Shipping Unit: 354 × 85 × 255 mm (13.94 in. x 3.35 in. x 10.04 in.)
	Weight	• Main Unit: 1.4 kg (3.08 lbs) • Mounting Bracket: 0.2 kg (0.44 lbs) • Shipping Unit: 2.1 kg (4.63 lbs)
	Mounting	• Pole Mount (Kits included) • Wall Mount (Kits included)

Software Specifications

Item	Description	
Wireless Functions	Maximum number of BSSIDs	16 (8 on each band)
	Maximum number of associated STAs	256
	Guest Network	Yes
	ACS (Automatic Channel Selection)	Yes
	Airtime Fairness	Yes
	Band Steering	Yes
	802.11 Rate Control	Yes
	Rogue AP Detection	Yes
	URL Filtering	Yes
	RF Scan	No
	WLAN Optimization	Yes
	WIDS/WIPS	No
	Lock to AP	Yes
	Rate Limit	• SSID Rate Limit • Client Rate Limit
	Load Balance	• Maximum Associated Clients • RSSI Threshold
	MLO	• No
	Roaming	• 802.11 k • 802.11v • 802.11r • Non-Stick Roaming • Ping-Pong Roaming Suppression • AI Roaming *Note: Only support Layer 2 Roaming currently.
	Multicast/Broadcast Management	• Multicast-to-Unicast Conversion • ARP-to-Unicast Conversation • Multicast Filtering • Multicast/Broadcast Rate Limit
	QoS (Quality of Service)	• WMM (Wi-Fi Multimedia) • DSCP (Differentiated Services Code Point) • U-APSD (Unscheduled Automatic Power Save Delivery)
	Others	• EoGRE Tunnel

Item	Description	
Security and Authentication	ACL	
	MAC Filter	
	802.1X Authentication	
	MAC-Based Authentication	
	• None • Enhanced Open • WPA/WPA2/WPA3-Personal • WPA/WPA2/WPA3-Enterprise	
	Radius Accounting	
	• PPSK without Radius • PPSK with Radius (Generic Radius with bound MAC/EKMS/Generic Radius with unbound MAC)	
	Captive Portal	• No Authentication • Simple Password • Hotspot (Voucher / Local User / SMS / RADIUS / Form Auth) • RADIUS Server • External LDAP Server • External Portal Server • Pre-Authentication Access • Authentication-Free Client
	EAP Types	• EAP-TLS • EAP-TTLS • EAP-PEAP • EAP-CHAP • EAP-SIM • EAP-AKA • EAP-GTC • EAP-FAST • EAP-MD5 • EAP-MSCHAPv2 • PEAPv0 • PEAPv1
Management methods	Omada Controller	• Omada Controller V5.15 and above • Omada Essential V5.15 and above
	App	Omada App V4.25 and above
	Standalone Management	Yes
	Standalone Mesh	Yes
	SSH	Yes
	SNMP	v1, v2c, v3
Operating Modes	AP	Yes

Item	Description	
	Repeater	Yes
	Mesh	Yes
System Feature	System Log	Yes
	Reboot Schedule	Yes
	WLAN Schedule	Yes
	NTP (Network Time Protocol)	Yes
	Email Alerts	Yes
	Firmware Upgrade	Yes
	Restore & Backup	Yes
	LED Control	Yes
Network Features	VLAN	• SSID VLAN • Dynamic VLAN • Management VLAN
	Static IP / DHCP Client	Yes
	IPv4/IPv6	Yes
	LLDP (Link Layer Discovery Protocol)	Yes
	mDNS	Yes
	Tools	• Ping / Traceroute / DNSLookup • Packet Capture • Terminal

Standards Compliance and Certifications

Item	Category	Description
Standards Compliance	IEEE Standards	• IEEE 802.11a/b/g/n/ac/ax/be • IEEE 802.11e/i/k/v/r • IEEE 802.1x/q • IEEE 802.3at • IEEE 802.3ab • IEEE 802.3bz • IEEE 802.3x
	Radio Standards	• ETSI EN 300 328 • ETSI EN 301 893 • EN 50385 EN50665 EN IEC 62311 • FCC Part 15E • RSS-247, RSS-GEN • LP0002
	EMC Standards	• EN 55032 • EN 55035 • EN 301489-1 • EN 301489-17 • EN 301489-19 • FCC Part 15C • ICES-003 issue7 • CNS 15936
	Safety Standards	• EN 62368-1 • IEC 62368-1 • CNS 15598-1
	Security Standards	• WPA-Personal/Enterprise • WPA2-Personal/Enterprise • WPA3-Personal/Enterprise • OWE
	RoHS	• Directive 2011/65/EU, Directive (EU) 2015/863 • EN IEC 63000: 2018
	Others	• Equipment Radio Regulations: 2008 (including amendments) • VCCI-CISPR 32
Certifications	• Wi-Fi Alliance: Wi-Fi 7 (R1), Wi-Fi 6 (R2), Wi-Fi 6E, WPA3-R3, WPA3-Suite B, Enhanced Open Security • FCC/CE/NCC/VCCI/JRF/BSMI	

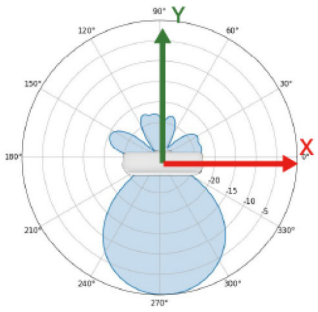
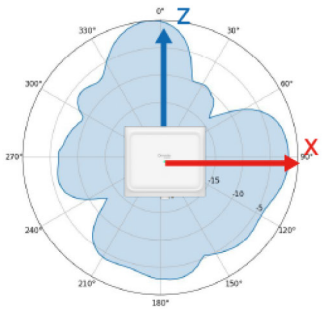
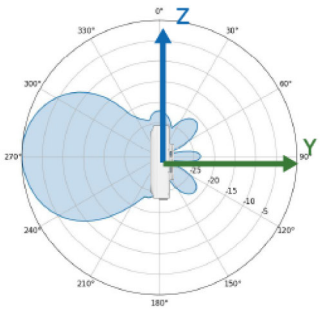
RF Performance

Frequency Band	Wi-Fi Protocol & Bandwidth	MCS Index / Data Rate	EU/US Maximum Transmit Power (dBm) per transmit chain	Receiver Sensitivity (dBm) per receive chain
2.4 GHz	802.11n, HT20	MCS0	10/22	-96
		MCS7	10/18	-77
	802.11n, HT40	MCS0	10/22	-93
		MCS7	10/18	-74
	802.11ax, HE20	MCS0	10/22	-95
		MCS11	10/16	-65
	802.11ax, HE40	MCS0	10/22	-92
		MCS11	10/16	-62
5 GHz	802.11n, HT20	MCS0	18/22	-97
		MCS7	18/19	-76
	802.11n, HT40	MCS0	18/22	-94
		MCS7	18/19	-73
	802.11ac, VHT20	MCS0	18/22	-97.5
		MCS8	18/18.5	-74
	802.11ac, VHT40	MCS0	18/22	-94.5
		MCS9	18/18	-69
	802.11ac, VHT80	MCS0	18/20	-90.5
		MCS9	18/18	-65
	802.11ac, VHT160	MCS0	18/14	-88
		MCS9	18/14	-61
	802.11ax, HE20	MCS0	18/22	-96
		MCS11	18/17	-66
	802.11ax, HE40	MCS0	18/22	-92
		MCS11	18/17	-64
	802.11ax, HE80	MCS0	18/20	-88.5
		MCS11	18/17	-61
	802.11ax, HE160	MCS0	18/14	-86
		MCS11	18/14	-59

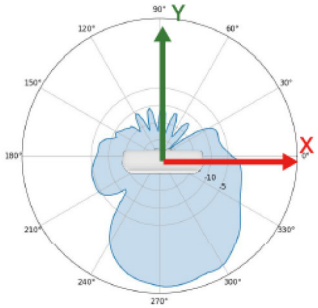
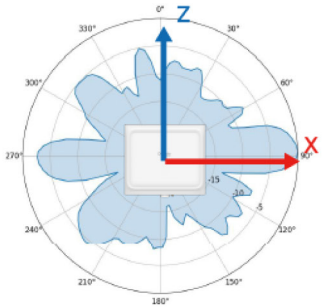
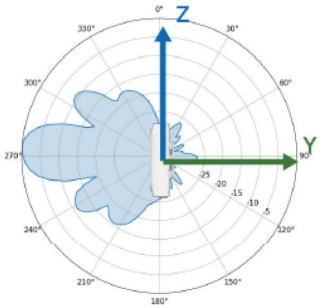
Antenna Radiation Patterns

Internal Antenna

2.4 GHz

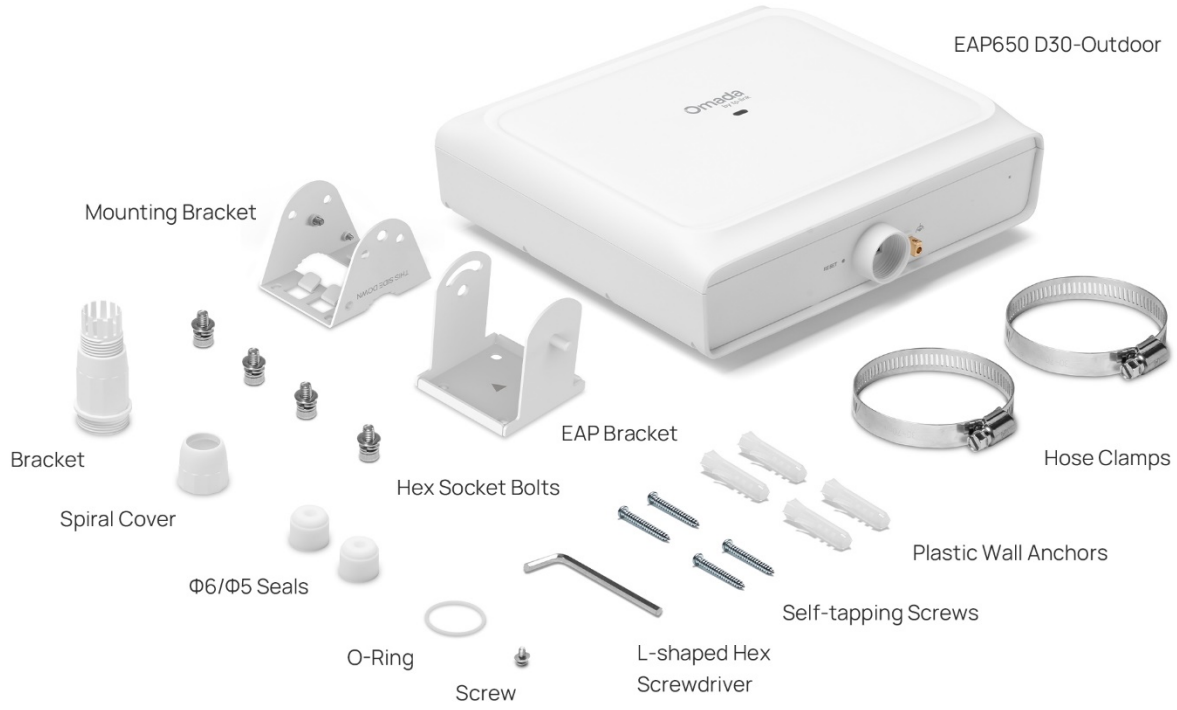
XY Plane	XZ Plane	YZ Plane
		

5 GHz

XY Plane	XZ Plane	YZ Plane
		

Package Contents

Item	Quantity
EAP650 D30-Outdoor	1
Waterproof Kit	1 (See the picture below for details)
Mounting Kit	1 (See the picture below for details)
Installation Guide	1



Support Services

We are committed to providing you with comprehensive and reliable support services to ensure seamless experience with Omada products.

- Contact Support: https://support.omadanetworks.com/#contact-us
- Warranty Services: https://www.omadanetworks.com/support/replacement-warranty/

Revision History

Version	Date	Description
V1.0	2026-03-06	Initial release.
V1.1	2026-11-06	Fixed table display issues.

†Maximum wireless signal rates are the physical rates derived from IEEE Standard 802.11 specifications. Actual wireless data throughput and wireless coverage are not guaranteed and will vary as a result of network conditions, client limitations, and environmental factors, including building materials, obstacles, volume and density of traffic, and client location.

‡Coverage value is calculated based on laboratory testing. Actual coverage is not guaranteed and will vary as a result of client limitations and environmental factors.

△Omada Mesh, Seamless Roaming, Captive Portal, and Cloud Access require the use of an Omada controller. Please refer to the User Guides of Omada controllers for configuration methods.

*Use of Wi-Fi 6 (802.11ax) and its features, including OFDMA, 1024-QAM, and more, requires clients to support the corresponding features.

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