EWS850AP

Dual Band ax Series

Outdoor Long Range Wireless Access Point

The edge 802.11ax built-in Ultra speed Access Point with OFDMA and MU-MIMO technology for high-density use on multiple applications.

EnGenius Wireless Long Access Point solution is designed for deploying on the versatile indoor and outdoor application. To meet today's requirement on varied networking environment, efficiently manages up to 512 clients (per radio) connections with increased capacity, EnGenius would like to provide the solution as flexible, robust and effective as the organization they desire.

The state-of-the-art OFDMA and MU-MIMO technology brings revolutionary connecting speed and bandwidth for diversity of multimedia applications. EWS850AP 11ax solution engineers with powerful RF interfaces that support maximum 2x2 spatial streams with 1201 Mbps in 5GHz frequency band and 574 Mbps in 2.4GHz frequency band. With robust IP67 certified casing, these access points is designed to withstand harsh environment conditions including serve and prolonged exposure to sunlight, extreme cold, frost, snow, rainfall, hail and humidity.

Features

- Dual concurrent 802.11ax architecture and backward compatible with ac wave2/ac/a/b/g/n client devices.
- Advanced 1024-QAM allows Access Points to carry more packets one time could work for delivering high speed rate than the legacy 11ac Access Points.
- Support for up to 512 associated client devices per radio
- Bi-Directional (Download/Upload) OFDMA utilizes air resource for Access Points and client devices efficiency.
- Bi-Directional (Download/Upload) MU-MIMO will reduce usage of airtime for each transmission between Access Point and client devices.
- 360° omni-directional antennas to achieve comprehensive coverage for networking client devices under a pervasive environment.
- Compliance with Proprietary 48V PoE Input for flexible installation and implementing remotely reset/reboot Access Point over 100 meters (328 feet).
- Robust housing with IP67 enclosure rated to deploy at extremely weather .
- Deliver High resolution content or multiple IP surveillance over wireless transmission.
- Systemic and distributed management over EnGenius ezMaster, Skykey controller, and EWS Management switch without licensing or subscription fee.

Wireless Management solution is ideal for deployment in these venues:

- Airport Terminals
- Warehouse Operations
- College Campuses
- Corporate Campuses
- Rail Stations
- Petroleum fields
- Seaport
- Shopping Malls
- Resort Properties
- Parks & Campgrounds
- Stadiums & Arena
- Public Lightings

OFDMA: A foundation from 4G LTE for High Density Connectivity

Orthogonal frequency-division multiple access (OFDMA) allows a single transmission to be split by frequency within a channel. Compared to OFDM technology, OFDMA could scale air resource to carry different types of traffic for delivering to destination at the same time, such as documents and video streams. The optimal solution will help 11ax Access Points to allocate air resource efficiency and reduce the latency between AP and client devices.

Carry varied content over DL/UL MU-MIMO with OFDMA via Beamforming

Be a prior AX solution, EnGenius AP is not only built in powerful RF interfaces, but it also features advanced Multi-Users Multiple input Multiple output (MU-MIMO) on **both download side and upload side**, which enhances a dramatic break-through in the performance and flexible transmission between Access Points and wireless client devices.

MU-MIMO allows multiple spatial streams to be allocated to different clients simultaneously, increasing totally throughput, reduce latency, capacity of the WLAN system and increase spectral efficiency on download side. Compared to download side, MU-MIMO upload side will manage varied client devices to contest air resource within a channel under a pervasive environment. The MU-MIMO upload side coordinates with OFDMA upload side to arrange different types of traffic for using a proper bandwidth within a channel. The intelligent technology will carry multimedia content and web browsing data easily without consuming more time on round-trip between AP and client devices. The smoothly transmission will reduce collision times and enhance capacity of air resource, as well as optimize users experience.

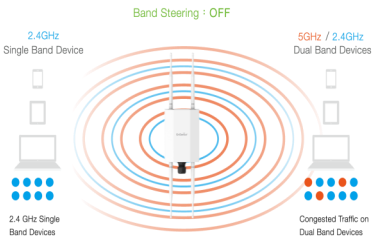
Beamforming is a standard in 11ax which allows Access Points to focus energy of multiple antennas to transmit to a particular client device in that direction of that client. The innovative technology significantly enhances the higher signal-to-noise ratio and greater throughput of that client higher signal-to-noise ratio and greater throughput of that client.

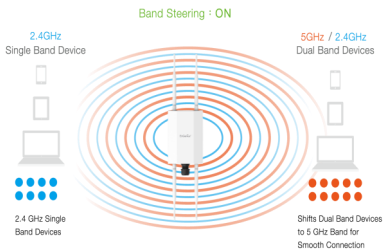
Enhance Capacity and Efficiency

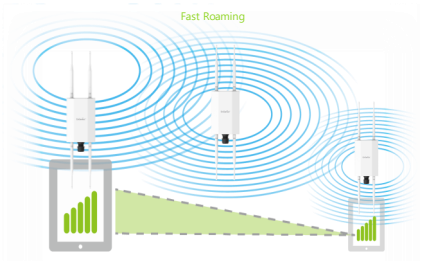
Compared to 11ac solution, 11ax solution could carry **4x symbol OFDM symbol** which can be significantly enhanced efficiency and transmitting PHY rate, as well as extend coverage on both indoor and outdoor application easily. To carry more data at the same time, modulation has been expanded from 11ac 256-QAM to **1024-QAM** which can be enhanced **25% capacity** of bit and reduce error margin during delivering data. The other breakthrough innovation of 11ax is to introduced **BSS coloring** technology for marking different colors on each data which will allows client devices to stop receiving a frame and return to sleep mode as soon as they recognize these frames are not of interest to them. The benefit of BSS coloring also reduces channel interference and channel collision of an access point, as well as improve to transmit signal easily.

Exquisite RF Management to Achieve Optimal Wireless Performance

To assist client devices to get the optimal performance under a pervasive environment, **Band Steering** automatically steers dual-band capable client devices to the appropriate channel, while prefer 5GHz or band balancing works to maintain a balanced number of clients per Access Point. Configuring multiple Access Points to serve your own devices (BYOD) in enterprise class wireless LAN environment can enable **Fast Roaming** to reduce roaming delay time and to secure seamless connection on VOIP service when mobile devices move between Access Points.







Securable Portals for different purpose

Administrators can also use **Virtual LAN (VLAN)** with **Guest Network** to isolate each client for avoiding an unnecessary touch, leaking sensitive data, and enhancing Internet security and reliability for internal network.

With **VLAN per SSID**, the Integrate VLAN ID with a WLAN service set identifier (SSID) interface will deliver packets to the defined path. The built-in QoS mechanism could allow the specific VLAN SSID to get more bandwidth and deliver video streaming content to the destination first.

EnGenius advanced **Cross-band VLAN pass-through** provides a powerful interface to deliver VLAN-tag packets between 2.4GHz frequency band and 5GHz frequency band without removing VLAN-tag. The integrated **Management VLAN and Cross -band VLAN pass-through** function on dual-band Access Points forces a command from a 2.4GHz capable client device and then deliver this command via 5GHz frequency to the other 5GHz capable Access Point throughout WDS BR mode. The ideal combination dramatically enhances the security on operating devices from remotely-side, reduces the maintenance cost, and labor fee significantly.

Restrain Wireless Traffic under a Pervasive Environment

To effective manage the usage of each client devices at a LAN topology, **Traffic Shaping** controls the bottle of bandwidth to offer the limited bandwidth for an individual **SSID** or **each client** per Access Point. This constraint offers the constant bandwidth to perform specific applications like VOIP and video streaming fluently and smoothly without air congestion on each client devices.

Comprehensive Network Protection

With EWS Access Points, your network is protected from attacks at multiple level through advanced wireless encryption standards such as Wi-Fi Protected Access WPA2 and WPA3. WPA2 uses authentication database and IEEE 802.1X with Radius server. Built on the WPA2, **WPA3-Personal** use more resilient password-based authentication and leverages Simultaneous Authentication of Equals (SAE), a secure key establishment protocol between devices, to against password guessing attempts by third parties. **WPA3-Enterprise** providing additional protections for sensitive data transmitting via 192-bit cryptographic tool. This technology brings new capabilities to enhance Wi-Fi protections in personal and enterprise networks. WPA3 has backward compatibility with WPA2 devices.

EnGenius also offers the advanced encryption standard to encrypt traffic between Access Points and client devices. To isolate the internal client devices and guest devices, client isolation can avoid each client device to see each other under the same WLAN. Once threats or events are detected, built-in **E-mail Alerts** systems will automatically deliver an e-mail notification for administrators to trigger immediate actions on these networks threats.

Scalable and Flexible deployment for Outdoor Installation

EWS850AP is easily to install anywhere and its internal electronics have been mounted in an **IP67-rated** enclosure, one of the better waterproof and dustproof rating available, designed to withstand harsh environment conditions including serve and prolonged exposure to sunlight, extreme cold, frost, snow, rainfall, hail and humidity .

With included mounting accessories, EWS850AP provides reliable kits to fix this device on anywhere for delivering wireless signal under outdoor environment. To save the maintenance cost and labors fee on deploying Access Points, EWS850AP built with power over Ethernet (PoE) functions for receiving power source and implementing remotely reset/reboot via the included PoE adapter from **100 meters or 328 feet distance.**

Meanwhile, EnGenius EWS850AP also built in external SMA interfaces for users to connect with other high-gain directional antennas for delivering the wireless signal to long-range distance.

Technical Specifications Wireless outdoor long-range Access Point

Wireless Radio Specification

Access Point Type:
Outdoor, IP67, dual radios concurrent, 5GHz 802.11ax 2x2 MU-MIMO is backwards compatible with 802.11 ac/a/n mode, 2.4GHz 802.11 ax 2x2 MU-MIMO is backwards compatible with 802.11 b/g/n.

SU-MIMO:
Two(2) spatial streams SU-MIMO for 2.4GHz and two(2) spatial streams SU -MIMO for 5GHz up to totally 1,774Mbps wireless data rate to a single 11ax wireless client device under the both 2.4GHz and 5GHz radio.

MU-MIMO
Two(2) spatial streams multi-user (MU)-MIMO for up to 1201 Mbps wireless data rate to transmit to one(1) two streams MU-MIMO 11ax capable wireless client devices under 5GHz simultaneously.
Two(2) spatial streams multi-user (MU)-MIMO for up to 574 Mbps wireless data rate to transmit to one(1) two streams MU-MIMO 11ax capable wireless client devices under 2.4GHz simultaneously.

Frequency Radio
2.4GHz: 2400MHz ~ 2482MHz
5GHz: 5150MHz~5250MHz, 5250MHz~5350MHz, 5470~5725MHz, 5725MHz~5850MHz
Support radios and channels will be varied on the configured regulatory domain.

Supported Radio Technology
802.11ax: Orthogonal Frequency Division Multiple Access (OFDMA)
802.11b: Direct-sequence spread-spectrum (DSSS)
802.11ac/a/g/n: Orthogonal Frequency Division Multiple (OFDM)
802.11ax supports high efficiency(HE) — HE 20/40/80 MHz
802.11ac supports very high throughput (VHT) — VHT 20/40/80 MHz
802.11n supports high throughput (HT) — HT 20/40 MHz
802.11n supports very high throughput under the 2.4GHz radio –VHT40 MHz (256-QAM)
802.11n/ac/ax packet aggregation: A-MPDU, A-SPDU

Supported Modulation Type
802.11b: BPSK, QPSK, CCK
802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM
802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM

Transmit Power (Maximum Value)
2.4GHz: 23dBm
5GHz: 25dBm
Maximum power is limited by regulatory domain

MU-MIMO
MU-MIMO allows multiple spatial streams to be allocated to different clients simultaneously on both download and upload sides.

OFDMA
Orthogonal frequency-division multiple access (OFDMA) allows a single transmission to be split by frequency within a channel.

High Density Connectivity
Provides connectivity for a maximum of 512 associate clients per radio

Tx Beamforming (TxBF)
Increasing signal reliability and transmitting distance.

BSS Coloring
BSS coloring marks different colors on each data which will allows client devices to stop receiving a frame and return to sleep mode as soon as they recognize these frames are not of interest to them.

Target Wake time (TWT)
The target wake time feature lets your devices to keep a radio receiver sleeping and wake it up as needed to receive periodic transmissions from an access point. The result is significant power-saving for battery-powered devices.

Supported data rates (Mbps)
802.11b: 1, 2, 5.5, 11
802.11a/g: 6, 9, 12, 18, 36, 48, 54
802.11n: 6.5 to 300 (MCS0 to MCS15)
802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS=1 to 2)
802.11ax:
2.4GHz: 9 to 574 (MCS0 to MCS11, NSS=1 to 2)
5GHz: 18 to 1201 (MCS0 to MCS11, NSS=1 to 2)

Power

Maximum Power Consumption
Maximum 15.9W

Power Source
802.3af/at Compliance Source
Proprietary 48V-54V
Active Ethernet (Power Over Ethernet, PoE)

Antenna

SMA Type interfaces
2.4GHz: Two(2) detachable 5.0dBi SMA antennas
5GHz: Two(2) detachable 5.0dBi SMA antennas
Optional Solutions
Alternative solution to compatible with SA2216 and SA5219 sector Antennas.

Interfaces

Networking Interface
One (1) 10/100/1000/2500 BASE-T RJ-45 Ethernet Ports

LED Indicators
Display system and wireless transmission status

Reset Button on PoE Adapter
Convert Access Point to the Factory default or the Users Default through the reset button of the accompanied EPA5006GR

Mounting

Pole Mounting
Assemble a mounting bracket to fix this Access Point on a pole.

Wall Mounting
Mount this Access Point on a flat wall

Mechanical & Environment

Dimensions (Device only)
190x 124 x 47 mm (7.48" x 4.88" x 1.85")

Weight
720g

Operating
Temperature: -20°C~60°C (-4°F~140°F)
Humidity: 0% ~ 90% typical

Storage
Temperature: -30°C~80°C (-22°F~176°F)
Humidity: 0% ~ 90% typical

Environment Protection Level
IP67

Surge Protection
1KV

ESD Protection
Contact: 4KV
Air: 8KV

Compliance Regulatory

FCC
Subpart15 B
Subpart C 15.247
Subpart E 15.407

CE
EN 300 328 / EN 301 893 / EN 301 489 / EN 50385
EN 55032 / EN 55035/ EN 61000

CB
IEC 60950-1
IEC 60950-22
IEC 62368-1

IC
RSS-102
RSS-247

Technical Specifications Wireless outdoor long-range Access Point

Operating Mode

Access Point Mode (AP Mode)
Be an Access Point behaves like a central connection for station or clients that support IEEE 802.11 ac/a/b/g/n network.

Mesh Mode
Mesh modes establish wireless connection to avoid interconnection on air. The architecture will be flexible for users to keep connection to Gateway side always.

WDS Modes (WDS AP, WDS BR, WDS Station)
WDS modes uses WDS technology to establish the wireless connection via filling MAC address in both Access Points to enlarge the wireless area.

Exquisite RF Management

ACK timeout (Distance Control)
Set the ACK timeout to assure the proper distance to deliver wireless signal properly

Site Survey
Scan signal level of an environment to provide parameters for performing Auto Transmit power and auto channel.

Auto Transmit Power
Automatically adjust power level

Auto Channel
Automatically assign a clearly channel to perform RF transmission under a pervasive environment.

Fast Roaming (802.11k)
Collect the parameters of neighborhood Access Points to find the optimal AP.

Fast Roaming (802.11v)
Cognize the signal strength of client devices under each to steer these client devices to one of Access Points if signal level is less than the default value of AP systems.

Band Steering
Steer client devices to a proper frequency band for getting more bandwidth and speed under an Access Point.

RSSI Threshold
Kick client devices that the signal (RSSI) is above the set value from the AP for reducing the interference and optimize the connecting quality.

Optimize Performance

Quality of Service
Compliance with IEEE 802.11e standard
Prioritizes voice over data for both tagged and untagged traffic
Transmit video, voice and data at the same SSID

Power Save Mode
Support U-APSD

Pre-Authentication
Compliance with 802.11i &11x

PMK Caching
Compliance with 802.11i
If wireless client devices has authenticated to an access point, it does not perform a full authentication exchange when client devices roaming between access points.

Fast Roaming (802.11r)
Use a Fast Transition key to handover between Access Points

Multicast to Unicast Conversion
Using the IGMP protocol, an access Point delivers high definition content to a large number of clients simultaneously.

Concurrent Users
100 client devices to connect to the Access Point simultaneously.

Easy to Management

Multiple SSIDs
BSSID support
Support 8 SSIDs on both 2.4GHz and 5GHz bands.

Guest Network
Isolate each client for avoiding an unnecessary touch, leaking sensitive data, and enhancing Internet security and reliability. The function will only available on stand-alone mode.

VLAN Tag
Independent VLAN setting can be enable or disable. Any packet that enters the Device without a VLAN tag will have a VLAN tag inserted with a PVID (Ethernet Port VID).

VLAN Pass-through
Broadcast VLAN-tag packets to find the destination and deliver packets over the defined path. The functions allows network topology scalable and flexible.

VLAN Per SSID
Integrate VLAN ID with a SSID interface to forward packets over the defined path. The functions isolate client devices to get more security.

Management VLAN
Feature is enabled with specified VLAN ID, the device will only allow management access with the same specified VLAN ID from remotely location by using protocols such as telnet, SSH, snmp, syslog etc.

Traffic Shaping
Controls the bottle of bandwidth to offer the limited bandwidth for an individual **SSID** or **each client** per Access Point.

MAC Address Filtering
Filter up to 32 sets MAC addresses per SSID

E-Mail Alert
Provides a network monitoring tool for administrators to stay informed the configuration change.

Save Configuration as Users Default
Save the customized configuration as default value for different customer demands.

Wi-Fi Scheduler
Perform a regular reboot on access point at assigned schedule
Perform it to enable or disable 2.4GHz or 5GHz interface from a period time.

SNMP &MIB&CLI
v1/v2c/v3 support
MIB I/II, Private MIB
CLI Supported

RADIUS Accounting
Help operators to offload 3G to Wi-Fi seamlessly

Wireless Clients list
Provide the list to display real status of wireless client devices on this Access Point.

Hotspot 2.0
This function will allow client devices to discover wireless Access Point under an environment and to automatically exchange data for getting authorization on accessing Internet when roaming between Access Points.

Comprehensive Protection

Wireless Encryption Standard
WPA3/WPA2 Personal
WPA3/WPA2 Enterprise

Hide SSID in beacons

Client Isolation
Block/Isolate the communication between the associated clients under the same WLAN.

HTTPS
A secure communication protocol can be enabled to allow secure management web access over a computer network.

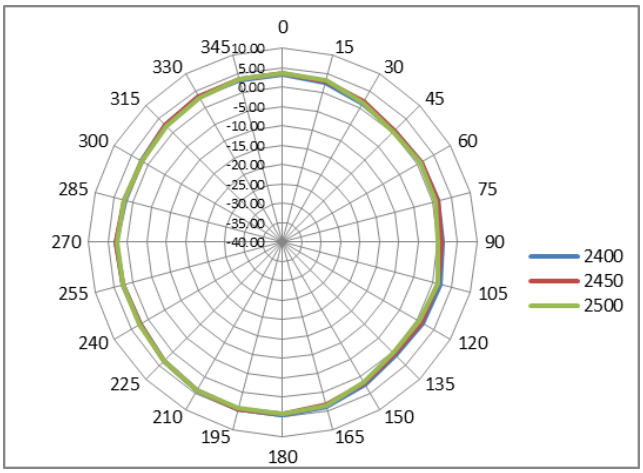
SSH Tunnel
A secure communication protocol can be enabled to allow secure remote shell access or command execution.

RF Performance Specification Wireless outdoor long-range Access Point

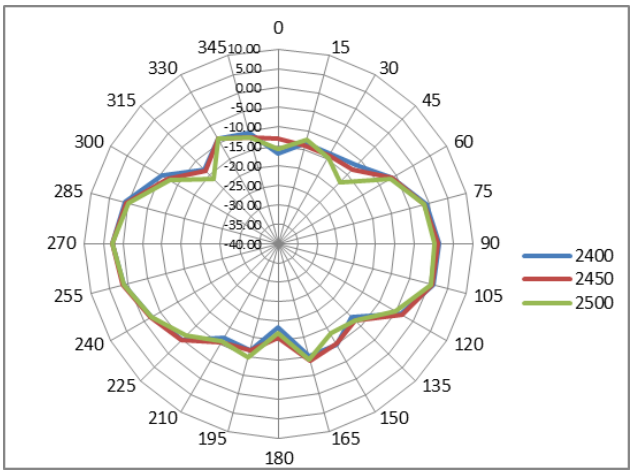
Channel	Data Rate	Transmit Power (Aggregated, dBm)	Receive Sensitivity (Aggregated, dBm)
802.11b 2.4 GHz	1 Mbps	23	-93
	11 Mbps	23	-85
802.11g 2.4 GHz	6 Mbps	23	-88
	54 Mbps	21	-72
802.11a 5 GHz	6 Mbps	25	-90
	54 Mbps	22	-72
802.11n HT20 2.4 GHz	MCS 0 / 8	23	-88
	MCS 7 / 15	21	-69
802.11n HT40 2.4 GHz	MCS 0 / 8	22	-85
	MCS 7 / 15	20	-66
-802.11n HT20 5GHz	MCS 0 / 8	25	-90
	MCS 7 / 15	22	-70
802.11n HT40 5GHz	MCS 0 / 8	25	-87
	MCS 7 / 15	22	-68
802.11ac VHT20 5GHz	MCS0	25	-90
	MCS8	21	-66
802.11ac VHT40 5GHz	MCS0	25	-87
	MCS9	20	-63
802.11ac VHT80 5GHz	MCS0	25	-83
	MCS9	20	-58
802.11ax HE20 2.4GHz	MCS0	23	-88
	MCS11	17	-60
802.11ax HE40 2.4GHz	MCS0	23	-85
	MCS11	18	-57
802.11ax HE20 5GHz	MCS0	25	-90
	MCS11	19	-60
802.11ax HE40 5GHz	MCS0	25	-87
	MCS11	19	-58
802.11ax HE80 5GHz	MCS0	25	-83
	MCS11	19	-55

*Maximum RF performance of the hardware provided. Maximum transmit power is limited by local regulatory.
*The supported frequency bands are restricted by local regulatory requirements.
*Transmit power is configured in 1.0dBm increments.

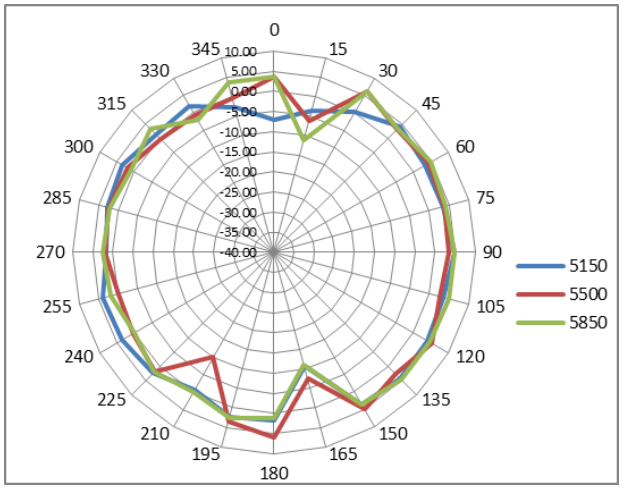
2.4GHz H-Plane



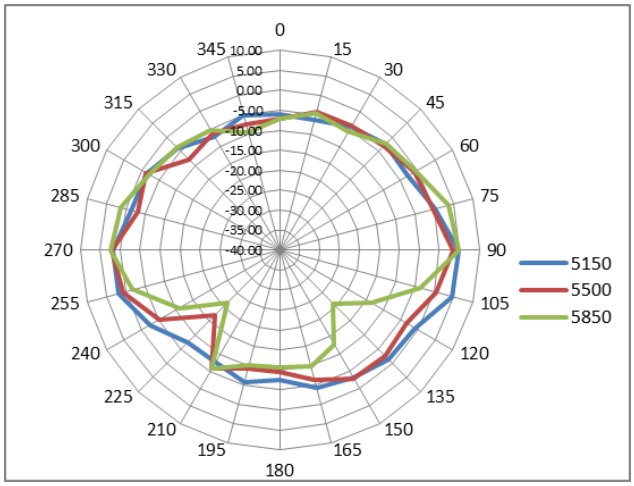
2.4GHz E-Plane



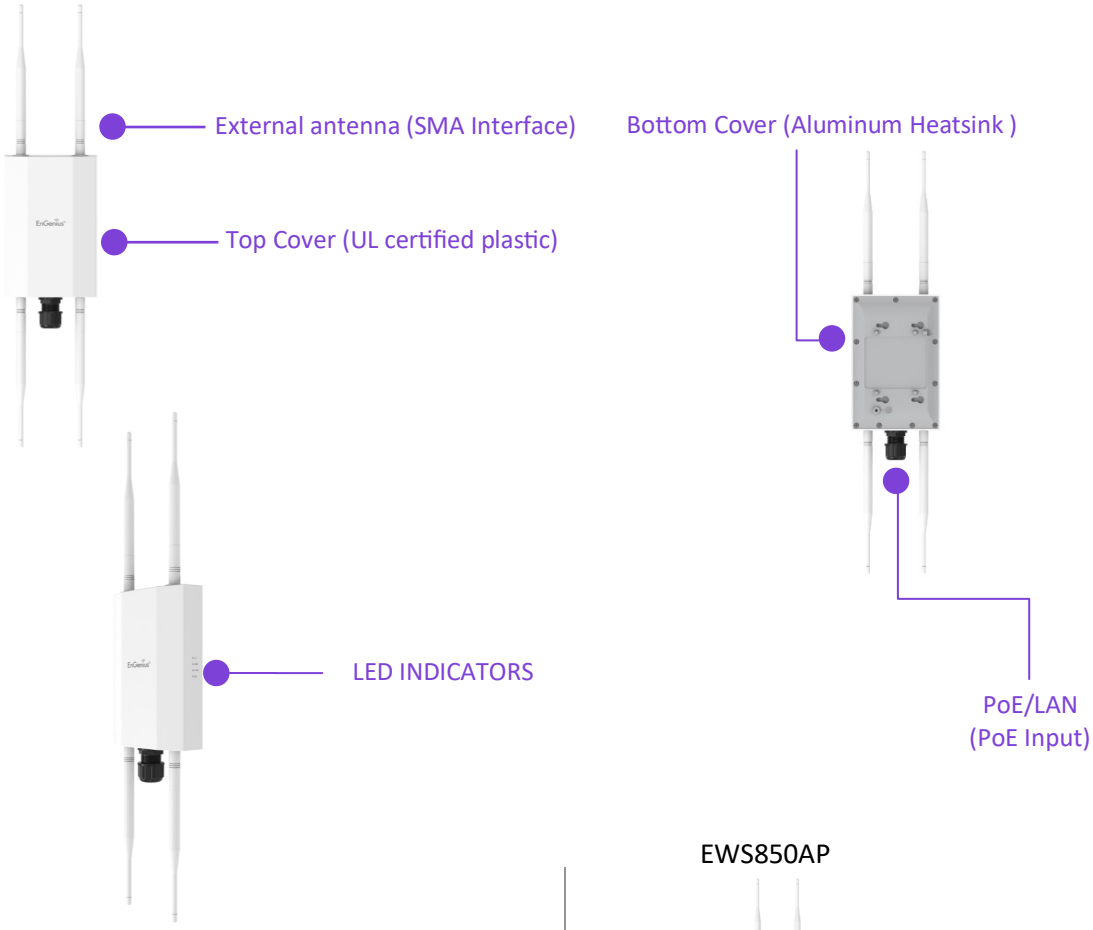
5GHz H-Plane



5GHz E-Plane



Physical Interfaces



EWS850AP

Standards	802.11ax and ac/a/b/g/n compliance
Frequency	2.4GHz+5GHz
Data Rates	574 Mbps + 1201 Mbps
Antennas	2.4GHz: 5.0dBi; 5GHz: 5.0dBi
Physical Interface	1 x 2.5 Gigabit LAN 4 x SMA Connector Interfaces
Radio Chains/Streams	2x2: 2

Costa Mesa, California, USA | (+1) 714 432 8668
www.engeniustech.com

Markham, Ontario , Canada | (+1) 905 940-8181
www.engeniustech.com

Dubai, UAE | (+971) 4 339 1227
www.engenius-me.com

Singapore | (+65) 6227 1088
www.engeniustech.com.sg

Eindhoven, Netherlands | (+31) 40 8200 887
www.engeniusnetworks.eu

Features and specifications subject to change without notice. Trademarks and registered trademarks are the property of their respective owners. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. Prior to installing any surveillance equipment, it is your responsibility to ensure the installation is in compliance with local, state and federal video and audio surveillance and privacy laws.

Version 3.— 09/01/20