EnStationAC
EnStation5-AC

5GHz AC867

Outdoor Long Range Wireless Customers Premise Equipment

The edge 802.11ac built-in high performance CPE with MU-MIMO technology for delivering Ultra definition content to long-range distance site.

EnGenius Wireless Long Customers Premise Equipment (CPE) solution is designed for deploying under the pervasive outdoor application. To meet today's requirement on varied net-working environment, EnGenius would like to provide the solution as flexible, robust and effective as the organization they desire.

The built-in **turbo-engine quad-cores solution** is a powerful main chipset to reinforce the calculating power and handling varied wireless traffic under a pervasive environment. The state-of-the-art 802.11ac and MU-MIMO technology brings revolutionary connecting speed and bandwidth for diversity of multimedia applications. EnStation 11AC series equip with a powerful RF interface which supports up to 867 Mbps in 5GHz frequency band to replace 11N 300Mbps solution. With robust IP55 certified casing, these access points are designed to withstand harsh environment conditions including serve and prolonged exposure to sunlight, extreme cold, frost, snow, rainfall, hail and humidity.



Features

- Dual radio 2x2 802.11 ac/a/n Access Point with multi-user MIMO (MU-MIMO for EnStation5-AC Only)
- Boost speed up to 867 Mbps air performance in 5GHz frequency band.
- Engine with 802.11ac Wave 2.0 technology to enhance overall bandwidth and speed to bridge devices. (EnStation5-AC Only)
- Built-in high gain 19dBi directional antenna to deliver content to the long-range distance site.
- Scalable and Flexible Power over Ethernet (PoE) design to extend the deploying distance over 100 meters (328 feet).
- Supply 802.3af output to power up an IP camera or the other compliance device. (EnStationAC only)
- Robust housing with IP55 enclosure rated to resist extremely weather .
- Deliver High resolution content or multiple IP surveillance over wireless transmission
- Choose an operating mode to meet your management and deployment requirement. (AP mode/CB mode/WDS modes)

Wireless Management solution is ideal for deployment in these venues:

- Airport Terminals
- Warehouse Operations
- College Campuses
- Corporate Campuses
- Hospital Buildings
- Construction Sites
- Building Sites
- Shopping Malls
- Resort Properties
- Parks & Campgrounds
- Stadiums & Arena
- Public Lightings

Enterprise Robust Solution

EnStationAC and EnStation5-AC are easily to install anywhere and its internal electronics have been mounted in an **IP55-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 .

Scalable and Flexible deployment for Outdoor Installation

With included mounting accessories, EnStationAC and EnStation5-AC 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, these products had been built in two Gigabit Ethernet ports with power over Ethernet (PoE) functions for receiving power source from the included PoE adapter. With scalable extension over PoE mechanism, Access Points can receive power and signal source easily from **100 meters or 328 feet distance**.

Meanwhile, EnStationAC has the ability to power up 802.3af compliance source over the second lan port, such as EnGenius 802.3af compatible IP camera or Access Point. The ideal and scalable extension can assist operators to deploy applications easily and save the maintenance cost. .

Provide Consistent Performance

Designed by EnGenius could provide the powerful RF interface to assure the reliability of signal strength and sensitivity in a pervasive environment. These optimist interfaces will provide the evenly coverage to assist users to reduce dead spots in their WLAN and boost received signal quality to deliver the best **867Mbps** air performance to wireless client devices.

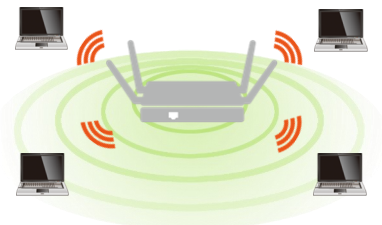
Carry multimedia content over MU-MIMO Transmit Beam-forming technology.

Be a prior AC867 solution, the EnStation5-AC does not only have a built in powerful RF interfaces, but it also features advanced **Multi-User Multiple input Multiple output (MU-MIMO)** and **Transmit beamforming (TxBF)** technologies.

The significant improvement on 802.11ac wave 2.0 is MU-MIMO technology, which enhances a dramatic break-through in the performance and flexible transmission to wireless client devices. MU-MIMO allows multiple spatial streams to be allocated to different clients simultaneously, increasing total throughput, reduce latency, capacity of the WLAN system and increase spectral efficiency.

Beamforming is a standard in 802.11ac wave 2.0 which allows Access Points to focus energy of multiple antennas to transmit in the direction of a particular client device. The innovative technology significantly enhances the higher signal-to-noise ratio and greater throughput of that client .

With MU-MIMO and Beamforming technology, EnStation5-AC outdoor long-range Access Point can bring more traffic to wireless bridge devices simultaneously over a longer distance and save time for serving other wireless client devices.



MU-MIMO



MU-MIMO & Beamforming

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 allows the specific VLAN SSID to get more bandwidth and deliver video streaming content to the destination first.



Restrain Wireless Traffic under a Pervasive Environment

To effectively manage the usage of each client device at a LAN topology, **Traffic Shaping** adds control of the bottle of bandwidth for each individual **SSID** or for **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 the EnStation Access Points, your network is protected from attacks at multiple level through advanced wireless encryption standards such as Wi-Fi Protected Access (WPA and WPA2) which uses a temporal key integrity protocol (TKIP) and authentication database, IEEE 802.1X with Radius server. EnGenius also offers the advanced encryption standard (AES) to encrypt traffic between Access Points and client devices. To isolate the internal client devices and guest devices, client isolation can be enabled to avoid each client device to see each other under the same WLAN. Once threats or events are detected, the built-in **E-mail Alerts** system will automatically deliver an e-mail notification for administrators to trigger immediate action on these networks threats.

Technical Specifications Wireless outdoor long-range Access Point

Wireless Radio Specification

Access Point Type:
EnStationAC: Outdoor, IP55, 5GHz 802.11ac 2x2 MIMO is backwards compatible with 802.11 a/n mode
EnStation5-AC: Outdoor, IP55, 5GHz 802.11ac 2x2 MU-MIMO is backwards compatible with 802.11 a/n mode

SU-MIMO:
Two(2) spatial stream SU-MIMO for up to 867 Mbps wireless data rate to a single wireless client device.

MU-MIMO
Two(2) spatial stream MU-MIMO for up to 867 Mbps wireless data rate to transmit to two(2) wireless client devices simultaneously. (EnStation5-AC)

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

Supported Radio Technology
802.11ac/a/g/n: Orthogonal frequency-division multiplexing (OFDM)
802.11n/ac: 2x2 MIMO with 2 streams
802.11ac supports very high throughput (VHT) — VHT 20/40/80 MHz
802.11n supports high throughput (HT) — HT 20/40 MHz
802.11n/ac packet aggregation: AMPDU, ASPDU

Supported Modulation Type
802.11a/n: BPSK, QPSK, 16-QAM, 64-QAM
802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

Transmit Power (Maximum Value)
EnStationAC: 26dBm
EnStation5-AC: 23dBm
Maximum power is limited by regulatory domain

Tx Beamforming (TxBF)
Increasing signal reliability and transmitting distance. (EnStation5-AC).

Supported data rates (Mbps)
802.11a/g: 6, 9, 12, 18, 24, 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)

Power

Maximum Power Consumptio
EnStationAC: 7.832W without PSE output; 23.4W with PSE output
EnStation5-AC: 7W

Power Source
EnStationAC: 802.3af/at Input; Proprietary 48V-54 V PoE (Power: 4, 5; Return: 7, 8)
EnStation5-AC: Proprietary 24V PoE (Power: 4, 5; Return: 7, 8)

Antenna

Antenna Types
Directional high gain 19dBi antenna
Widely frequency supported from 5150MHz to 5925MHz

Interfaces

Networking Interface
Two (2) 10/100/1000 BASE-T RJ-45 Ethernet Ports
PSE Output
Supply 802.3af power source via the 2nd LAN port. (EnStationAC)
LACP
Link Aggregation achieves 2Gbps Throughput (EnStation5-AC)

LED Indicators
Display system and wireless transmission status

Reset Button
Convert Access Point to the Factory default or the Users Default

Mounting

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

Wall Mounting
Mounting bracket to fix unit against a flat surface

Mechanical & Environment

Dimensions (Device only)
190mm (D) x 38mm (H)

Weight
EnStationAC: 460g
EnStation5-AC: TBD

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
IP55

Surge Protection
Line to Line: 1KV
Ling to Ground: 2KV

ESD Protection
Contact: 4KV
Air: 8KV

Compliance Regulatory

FCC
Subpart15 B
Subpart C 15.247
Subpart E 15.407

CE
EN 301 893
EN 50385
EN 55032
EN 55024

RCM
AS/NZS 4268
AS/NZS 2772.2
CISPR 22

R&TTE Directive 1995/5/EC

CB
IEC 60950-1
IEC 60950-22

S-Mark
UL 60950-1

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.

Client Bridge Mode (CB Mode)
The Access Point essentially acts as a wireless adapter that connects to an access point to allow a system of wireless access to the network in the client bridge mode.

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.

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.

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

Easy to Management

Multiple SSIDs
BSSID support
Support 8 SSIDs

Guest Network
Isolate each client for avoiding an unnecessary touch, leaking sensitive data, and enhancing Internet security and reliability.

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.

Comprehensive Protection

Wireless Encryption Standard
WEP Encryption—64/128/152 bit
WPA/WPA2 Enterprise (WPA-EAP using TKIP or AES)

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 (EnStation-AC) Wireless outdoor long-range Access Point

Channel	Data Rate	Transmit Power (Aggregated, dBm)	Receive Sensitivity (Aggregated, dBm)
802.11b 2.4 GHz	1 Mbps	-	-
	2 Mbps	-	-
	5.5 Mbps	-	-
	11 Mbps	-	-
802.11g 2.4 GHz	6 Mbps	-	-
	54 Mbps	-	-
802.11a 5 GHz	6 Mbps	26.0	-93.0
	54 Mbps	25.0	-76.0
802.11n HT20 2.4 GHz	MCS 0 / 8	-	-
	MCS 7 / 15	-	-
802.11n HT40 2.4 GHz	MCS 0 / 8	-	-
	MCS 7 / 15	-	-
802.11n HT20 5GHz	MCS 0 / 8	26.0	-92.0
	MCS 7 / 15	25.0	-73.0
802.11n HT40 5GHz	MCS 0 / 8	26.0	-89.0
	MCS 7 / 15	25.0	-72.0
802.11ac VHT20 5GHz	MCS0	26.0	-92.0
	MCS9	23.0	-69.0
802.11ac VHT40 5GHz	MCS0	26.0	-89.0
	MCS9	21.0	-65.0
802.11ac VHT80 5GHz	MCS0	26.0	-86.0
	MCS9	21.0	-62.0

*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.

RF Performance Specification (EnStation5-AC) Wireless outdoor long-range Access Point

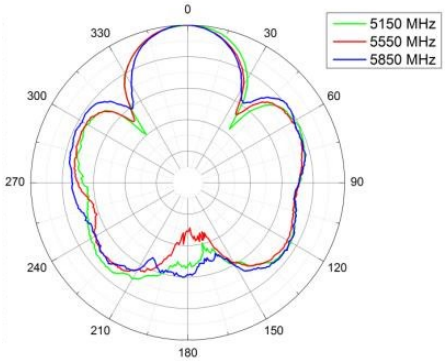
Channel	Data Rate	Transmit Power (Aggregated, dBm)	Receive Sensitivity (Aggregated, dBm)
802.11b 2.4 GHz	1 Mbps	-	-
	2 Mbps	-	-
	5.5 Mbps	-	-
	11 Mbps	-	-
802.11g 2.4 GHz	6 Mbps	-	-
	54 Mbps	-	-
802.11a 5 GHz	6 Mbps	23.0	-91.0
	54 Mbps	21.0	-76.0
802.11n HT20 2.4 GHz	MCS 0 / 8	-	-
	MCS 7 / 15	-	-
802.11n HT40 2.4 GHz	MCS 0 / 8	-	-
	MCS 7 / 15	-	-
802.11n HT20 5GHz	MCS 0 / 8	23.0	-91.0
	MCS 7 / 15	20.0	-72.0
802.11n HT40 5GHz	MCS 0 / 8	23.0	-87.0
	MCS 7 / 15	20.0	-70.0
802.11ac VHT20 5GHz	MCS0	22.0	-91.0
	MCS9	19.0	-72.0
802.11ac VHT40 5GHz	MCS0	22.0	-87.0
	MCS9	18.0	-64.0
802.11ac VHT80 5GHz	MCS0	22.0	-84.0
	MCS9	18.0	-60.0

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*The supported frequency bands are restricted by local regulatory requirements.
*Transmit power is configured in 1.0dBm increments.

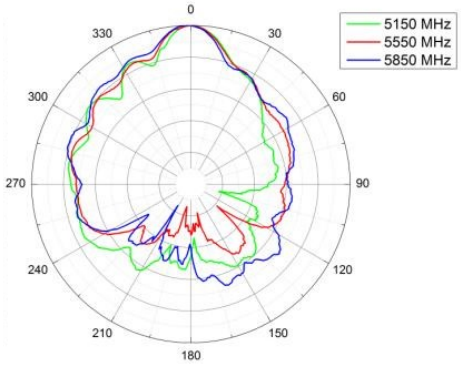
Antennas Patterns Wireless outdoor long-range Access Point

EnStationAC & EnStation5-ac

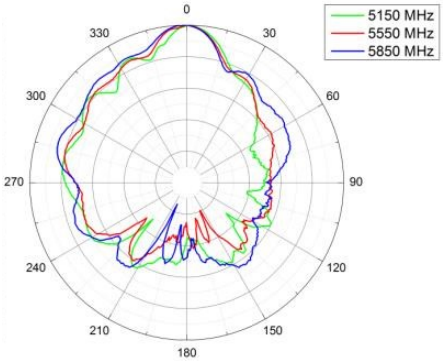
Port1: E-Plane



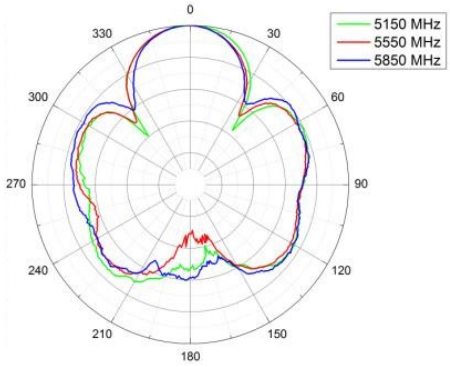
Port1: H-Plane



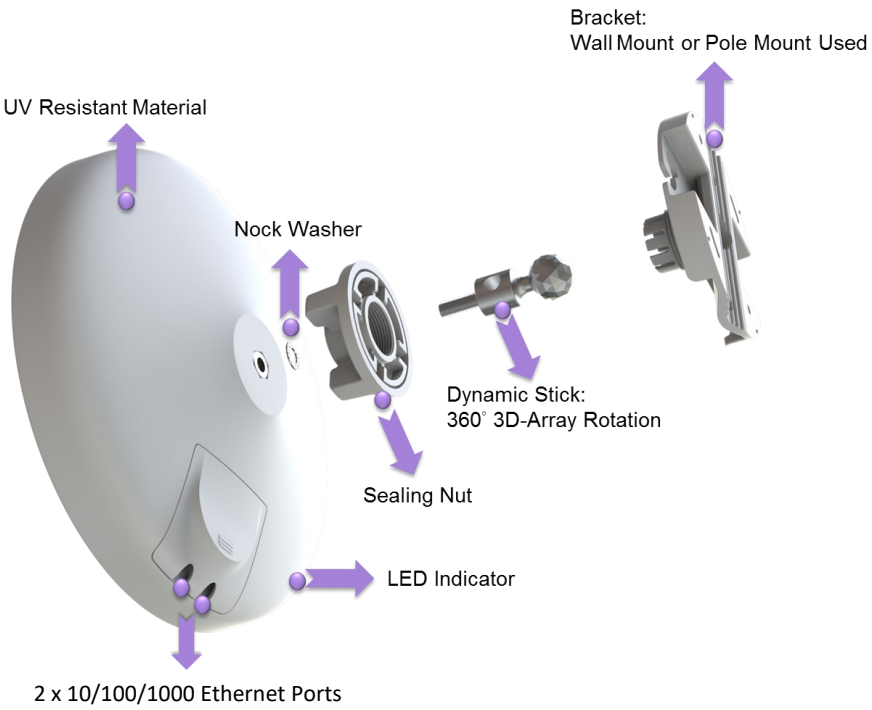
Port2: E-Plane



Port2: H-Plane



Physical Interfaces



	EnStation5-AC	EnStationAC
		
Standards	802.11ac Wave2 and a/n	802.11ac Wave1 and a/n
Frequency	5150MHz~5850MHz*	5150MHz~5850MHz*
Tx Power	23dBm	26dBm
Data Rates	867 Mbps	867 Mbps
Antennas	Directional 19dBi	Directional 19dBi
Physical Interface	1 x Gigabit 24V PoE Input LAN Port 1 x Gigabit Data LAN Port	1 x Gigabit 802.3af/at Input LAN Port 1 x Gigabit 802.3af PSE Output LAN Port
Radio Chains/Streams	2x2: 2	2x2: 2

* The supported channels and maximum Tx power will be varied by the local regulatory.

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Version 1.0— 04/13/16