

# Broadband Outdoor Access Point

## EOC Series



### High-Performance Outdoor Connectivity

The EnGenius Broadband Outdoor EOC series is an excellent outdoor Point-to-Point (PtP) and Point-to-Multipoint (PtMP) solution, which is perfect for Internet Service Providers (ISPs) and Smart Cities. It comes equipped with dual 5GHz radios that deliver high-performance throughput, providing up to 2 Gbps in challenging Radio Frequency (RF) environments.

### Simplified Setup and Configuration

The EnGenius EOC series incorporates a dedicated 2.4 GHz radio, which is paired with a user-friendly mobile app to simplify the setup and configuration of PtP and PtMP links. This integration facilitates easy antenna alignment and efficient troubleshooting, allowing for quick and effortless installation, even in challenging locations.

### GPS Integration for Enhanced Network Management\*

Equipped with built-in GPS, the EOC series ensures precise device placement and effective network mapping. This is crucial for PtP/PtMP setups, asset management, and network integration through auto-discovery features.

### Rugged Design and Advanced Security

The EOC series is a rugged outdoor system that is designed to withstand harsh environmental conditions. It comes with an IP67 rating for resilience and features a Dying Gasp module for detecting power failures. The system places a high priority on security by utilizing AES-256 encryption and FIPS-140-2 compliant capability, ensuring reliable and secure communication. With the SkyPoint NMS, you can enjoy comprehensive web-based monitoring and management, while auto-provisioning enables efficient large-scale deployments.

### Intelligent Performance Management

The EOC series boasts intelligent RF and Quality of Service (QoS) management, which allows it to adapt to various conditions and ensure optimal performance for diverse ISP services. This product expertly blends high performance, simplified installation, and robust security, making it a perfect choice for reliable and efficient wireless connectivity in PtP/PtMP applications.

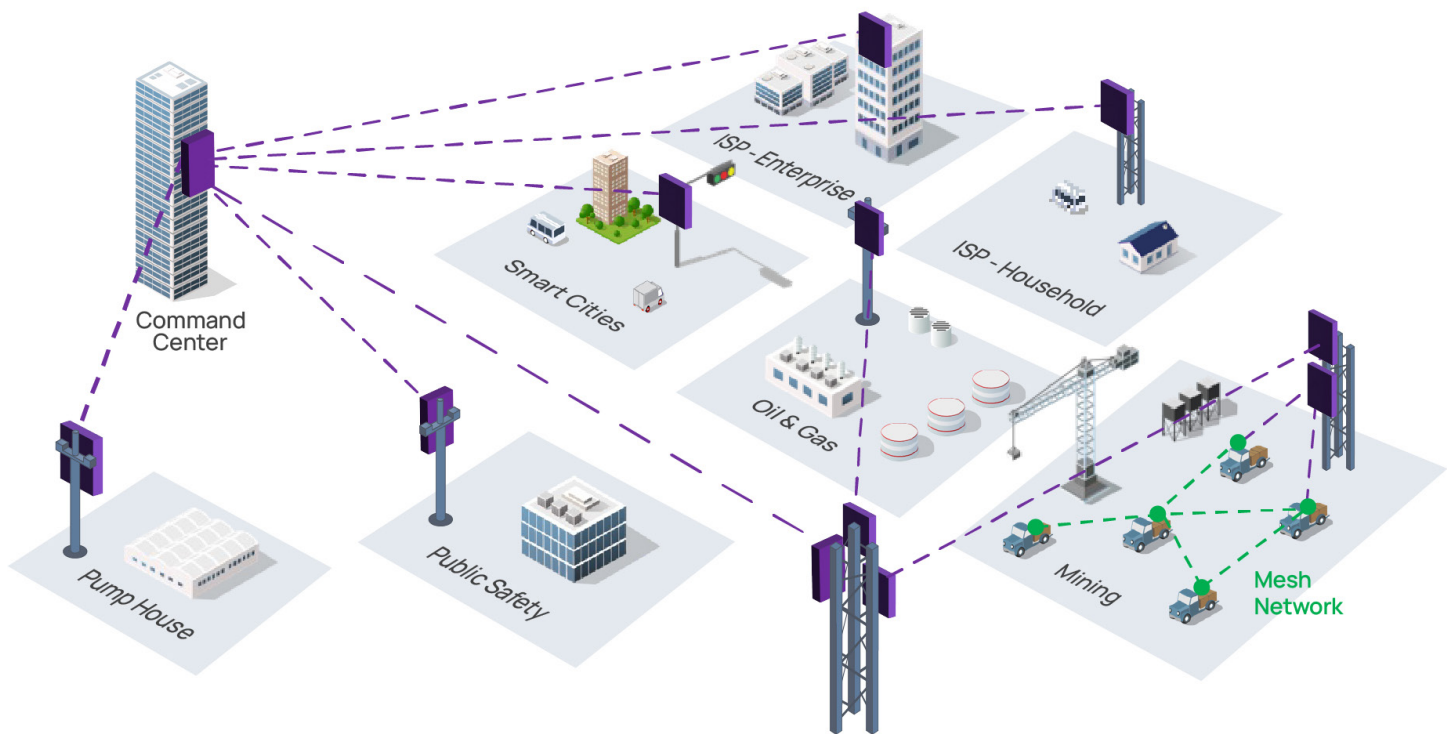
\*Note: Partial functions are available only in specific models.

## Features & Benefits

- **MAC Protocol\***: Proprietary PtP and PtMP scheduler for outdoor dense RF deployments.
- **High-efficiency 5GHz Radios**: Offers high link capacity, ideal for Dual Sector and repeater mode PtP and PTMP setups deployments, and supports up to 16 devices in PtMP setups.
- **Automatic RF Corrections**: Enhances network resilience by improving stability and reducing interruptions.
- **Quick Outage Response\***: Features a Dying Gasp module for prompt alerts and response to power-related issues
- **Dynamic Data Rates**: Adjusts transmission speeds based on signal quality for reliable and efficient connections.
- **Auto & Dynamic Channel Selection**: Automatically chooses optimal channels to avoid interference and enhance signal quality.
- **Superior QoS over RF Links**: Prioritizes critical traffic to ensure high service quality and better user experience.
- **Mobile App Radio Tuning**: Integrates a 2.4 GHz radio with a mobile app for easy PtP/PtMP setup, efficient antenna alignment, and streamlined troubleshooting.
- **Enhanced Connectivity**: Employs OFDMA technology and MU-MIMO for improved throughput and coverage.

- **Multi-Tenant Network Efficiency**: Utilizes VLAN, Q-in-Q, and filtering to manage multi-tenant networks effectively and reduce congestion.
- **Power Redundancy\***: Support for redundant PoE input for uninterrupted failover between dual Ethernet ports.
- **Centralized NMS**: Offers a comprehensive web-based platform for network performance, health, and security management.
- **Auto Provisioning**: Streamlines large-scale network deployments with easy, centralized control.
- **Smart Network Mapping\***: Built-in GPS enables auto-discovery and detailed network topology insights.
- **IP67-Rated Casing\***: Ensures durability against harsh environmental conditions, prolonging device lifespan.
- **Uncompromised Security**: Ensures top-tier data protection with AES-256 encryption.
- **High Gain Integrated Directional Antenna\***: Extends wireless networks up to 4 miles point-to-point.
- **3-Axis Pivoting Arm\***: Locks for precise alignment.

\*Note: Partial functions are available only in specific models.



PtP/PtMP Deployment Applications Diagram

## Technical Specifications

Broadband Outdoor Access Point						
Model Number	EOC655		EOC655-C18	EOC655-C23	EOC600	EOC610
Description	Outdoor 5GHz Dual Radio 2x2 Access Point with N-Type Connectors		Outdoor 5GHz Dual Radio 2x2 Access Point with 18dBi Panel Antenna	Outdoor 5GHz Dual Radio 2x2 Access Point with 23dBi Panel Antenna	Outdoor 5GHz 2x2 CPE with 16dBi Patch Antenna	Outdoor 5GHz 2x2 CPE with 19dBi Patch Antenna
Chipset	Qualcomm Chipset - Dual Core CPU, ARM A53, 1.0 GHz				IPQ5018+QCN6102, QCA8337	
Standards	IEEE 802.11ax on 5 GHz				IEEE 802.11a/n/ac/ax on 5 GHz	
Memory	DDR3 1GB, Flash 32 MB, eMMC 8GB				DDR3 4GB, Flash 1GB	
GPS	On board GPS with integrated Antenna, 1PPS pulse, GPS Synchronization				-	
Dying Gasp	40ms (Max)				-	
Thermal Sensor	To monitor board temperature				-	
Compass sensor (magnetometer)	Antenna Alignment				-	
Bluetooth*	For Radio Management				-	
Antenna	2x 2.4GHz: 3.5dBi (Integrated Oni-Directional) 2x 5GHz (Radio1): N-Type Connector 2x 5GHz (Radio2):N-Type Connector	2x 2.4GHz: 3.5dBi (Intgraed Omni-Directional) 2x 5GHz (Radio1): 18dBi Intergrated Panel Antenna 2x 5GHz (Radio2): N-Type Connector	2x 2.4GHz:3.5dBi (Integrated Omni-Directional) 2x 5GHz (Radio1): 23dBi Intergrated Panel Antenna 2x 5GHz (Radio2): N-Type Connector		2x 2.4GHz: - 2x 5GHz -: 16dBi	2x 2.4GHz: - 2x 5GHz -: 19dBi
External Antenna Connector Type	N-Type Female				-	
Physical Interfaces	1x 1G LAN-1 port (802.3at PoE) 1x 2.5G LAN-2 port (Proprietary PoE)				1 x 10/100/1000 BASE-T(Proprietary PoE) 1 x 10/100/1000 BASE-T Proceed reset and reboot when pushing this button	
Power Source	IEEE802.3at or Proprietary 48V/1A or Direct DC Input up-to 56V LAN2 Port				Proprietary 54V (EPA5006GR)	
Operation Modes	Base Station ( BSU ), Subscriber ( SU )				base station(BSU)/subscriber(SU)	
Max Subscribers	16				4	
MAC Protocol	Proprietary polling based OFDMA Scheduling Protocol					
Frequency Bands	5.1 GHz - 5.9 GHz (Broadband Connectivity) 2.4 GHz / Bluetooth (Radio Management)				5 GHz: 5150 MHz ~ 5250 MHz, 5250 MHz ~ 5350 MHz, 5470 MHz ~ 5725 MHz, 5725 MHz ~ 5850 MHz	
Channel Banwidth	20 / 40 / 80 / 160 MHz				20 / 40 / 80 / 160 MHz	
Channel Spacing	5 MHz					
Max Transmit Power	Up to 27 dBm (Combined)				Up to 26 dBm (Combined)	
Dynamic Data Rate Selection (DDRS)	Automatically detect optimal data rate for given link					
Dynamic Channel Selection (DCS)	Selects optimal channel to operate to maintain SLAs (CIR & MIR)					
Auto Transmit Power Control (ATPC)	Automatically adapt the transmit power					
Interference Mitigation	Auto Channel Selection(ACS), Dynamic Channel Selection(DCS), Background Scan(BG Scan) features aid to adapt to varying RF medium					
Encryption	AES 256					

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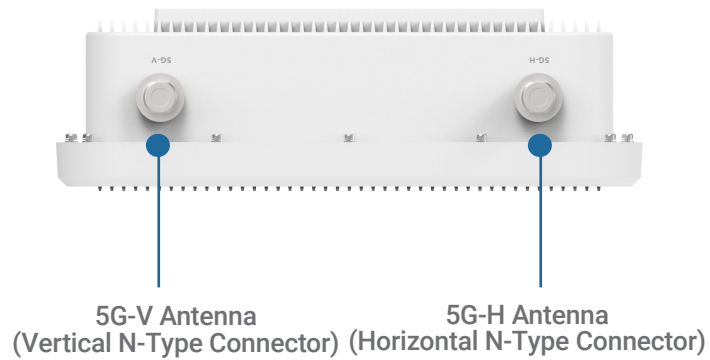
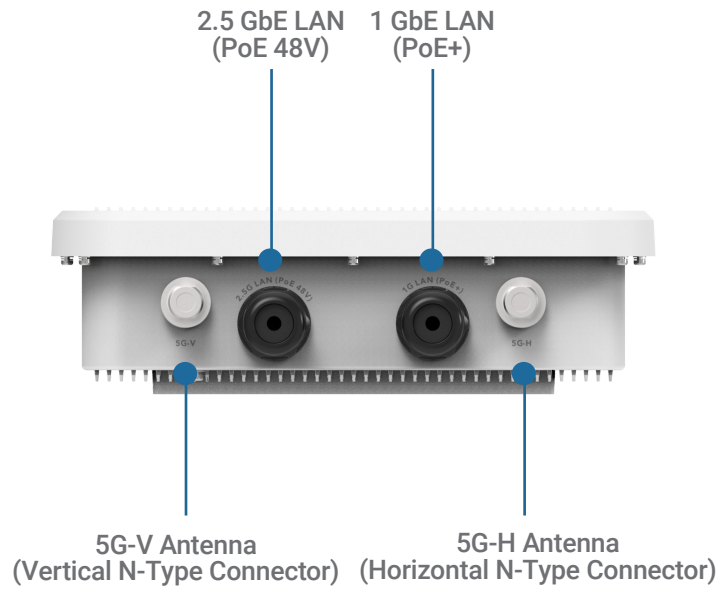
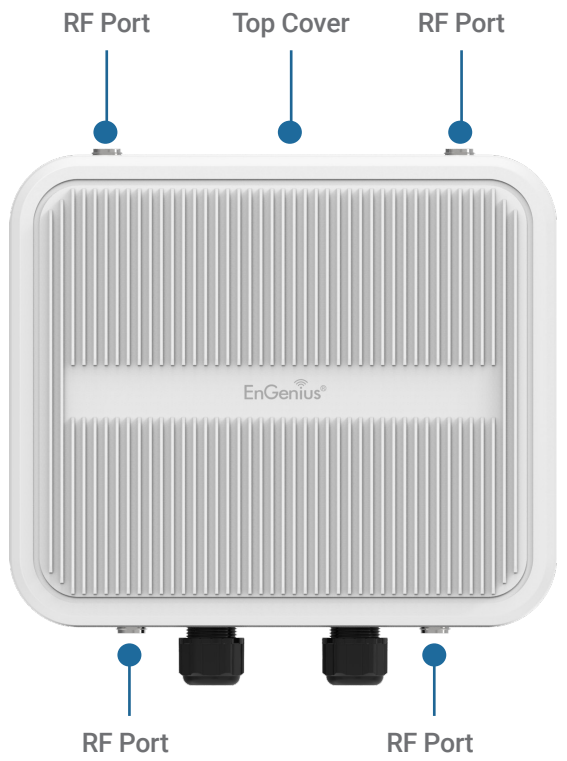
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Spectrum Analyzer	Provides RF medium statistics				
Radio Chains	Dual 2x 2:2			2x 2:2	
Supported Modulation	802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM				
Ethernet	1x GE PoE+ 1x 2.5GE Proprietary PoE			1x GE Proprietary PoE Port 1x GE Port	
Speed	10/100/1000/2500Mbps, Half/Full Duplex, Auto Negotiation			10/100/1000Mbps, Half/Full Duplex, Auto Negotiation	
Jumbo Frame	9K bytes				
PoE Source	Passive 48V/1A, 6KV Surge Protection			Passive 54V /0.6A	
Cable Length	STP Cat5e: MAX 130 meters FTP Cat6: MAX 180 meters				
Surge Protection	6KV Surge Protection on all Ethernet Ports			1KV	
Maximum Power Consumption	21W	25W		PoE: Max. 13W	PoE: Max. 11W
SNMP	v1, v2c, v3				
Authentication	Internal MAC Address Control List, Radius based Authentication				
Traffic Shaping	Downlink and Uplink traffic shaping				
Remote	SSH, Web, TFTP, HTTP, HTTPS, Syslog				
Smart Phone	Android & IOS based Application for Radio Management				
Antenna Alignment	Alignment aid provided via variable audible tone generation algorithm				
Operating Mode	Bridging				
IP Stack	IPv4, IPv6				
VLAN Tagging	802.1Q: Transparent, Access, Trunk, Q-in-Q				
Gateway Features	DHCP Server				
MAC-in-MAC	To improve the multicast traffic performance, IGMP Snooping				
Ethernet-OAM	Fault Link Management				
Packet Filtering	MAC, IP, Protocol, Port				
NTP Server	Stratum 1 NTP Server using GPS – less than 1msec accuracy				
Asymmetric Bandwidth Control	Asymmetric UL/DL committed and maximum information rate per Service Flow				
Packet Classification Capabilities	802.1p priority, IPTOS, VLAN ID, IP addresses, ports, Ethernet addresses, IP protocol, and Ether Type. Support maximum 4 SFC's with maximum 32 PIR's				
Scheduling	Real Time priority-based services				
Temperature Range	Operation: -10°C to +60°C / -14°F to +140°F Storage: -30°C to +80°C / -22°F to +176°F			Operation: -4°~140°F/-20°C~60°C Storage: -40F°~176°F/-40°C~80°C	
Humidity (Non-condensing)	Operating: 90% or less Storage: 90% or less			Storage: 90% or less	

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IP Rating (Outdoor only)	IP67			IP55	
Wind loading	200Kmph				165Kmph
ESD Protection (Outdoor only)	Contact: 4KV Air: 8KV				
Weight	2.02 kgs / 4.45 lbs	1.91 kgs / 4.21 lbs		610g	558g
Dimensions	267x227x82mm 267*258.1*82mm (w/n-type & cable gland)	267x227x82mm 267*255.1*82mm (w/n-type & cable gland)	305x305x82mm 305*305*82mm (w/n-type & cable gland)	260 x 84 x 55 mm	Φ190 x 38 mm
Package Contents	1 – Outdoor Access Point 1 – Pole-Mounting Brackets 1 – PoE Injector with AC Power Cable 1 – Ethernet Cable Cat5e 1.5 mts 1 – Grounding Cable 1.8 mts			1-EOC600 Outdoor CPE 1-EPA5006GR with AC cord 2-Pole-Mounting Brackets 1-Wall-Mount Screw Set 1-Product Card	1-EOC610 Outdoor CPE 1-EPA5006GR with AC cord 2-Pole-Mounting Brackets 1-Wall-Mount Screw Set 1-Product Card
Safety Compliance	CB				
WEEE	Yes				
RoHS	Yes				
Regulatory Compliance	FCC CE IC UKCA				
MTBF	100K hours				

Product Views

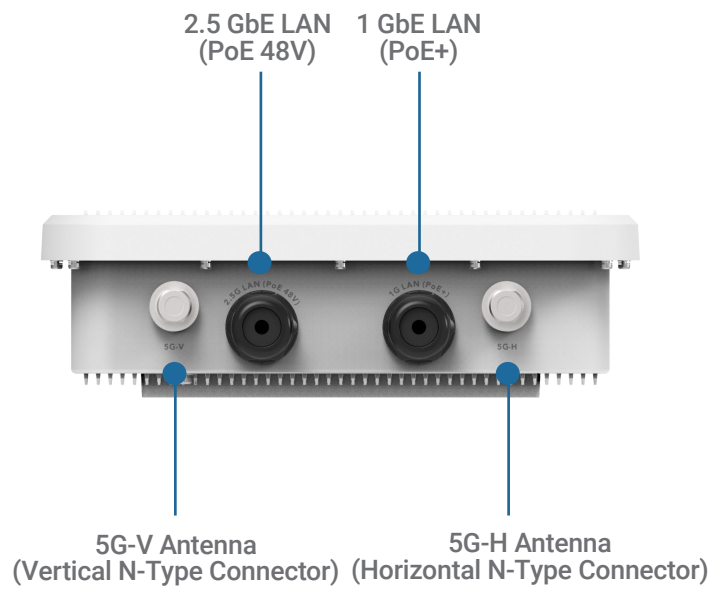
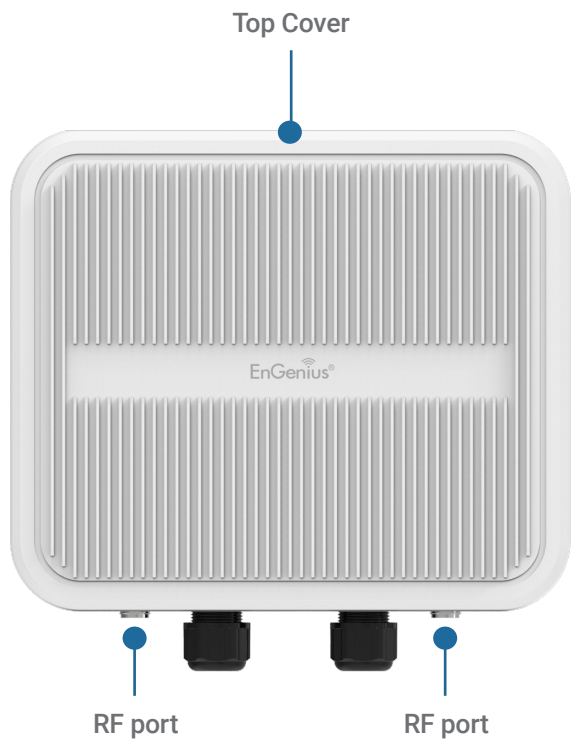
EOC655





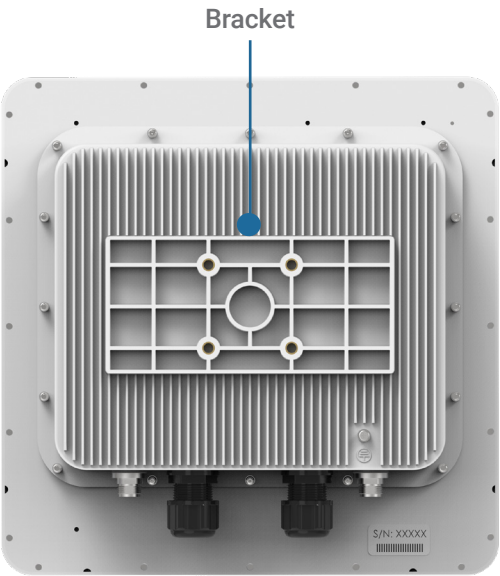
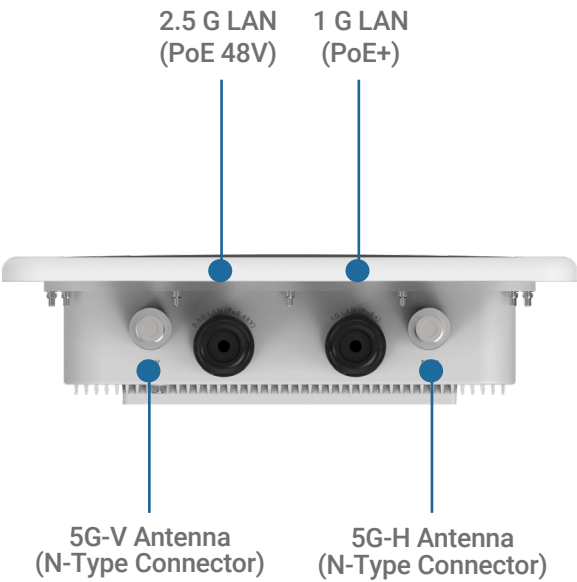
Product Views

EOC655-C18



Product Views

EOC655-C23





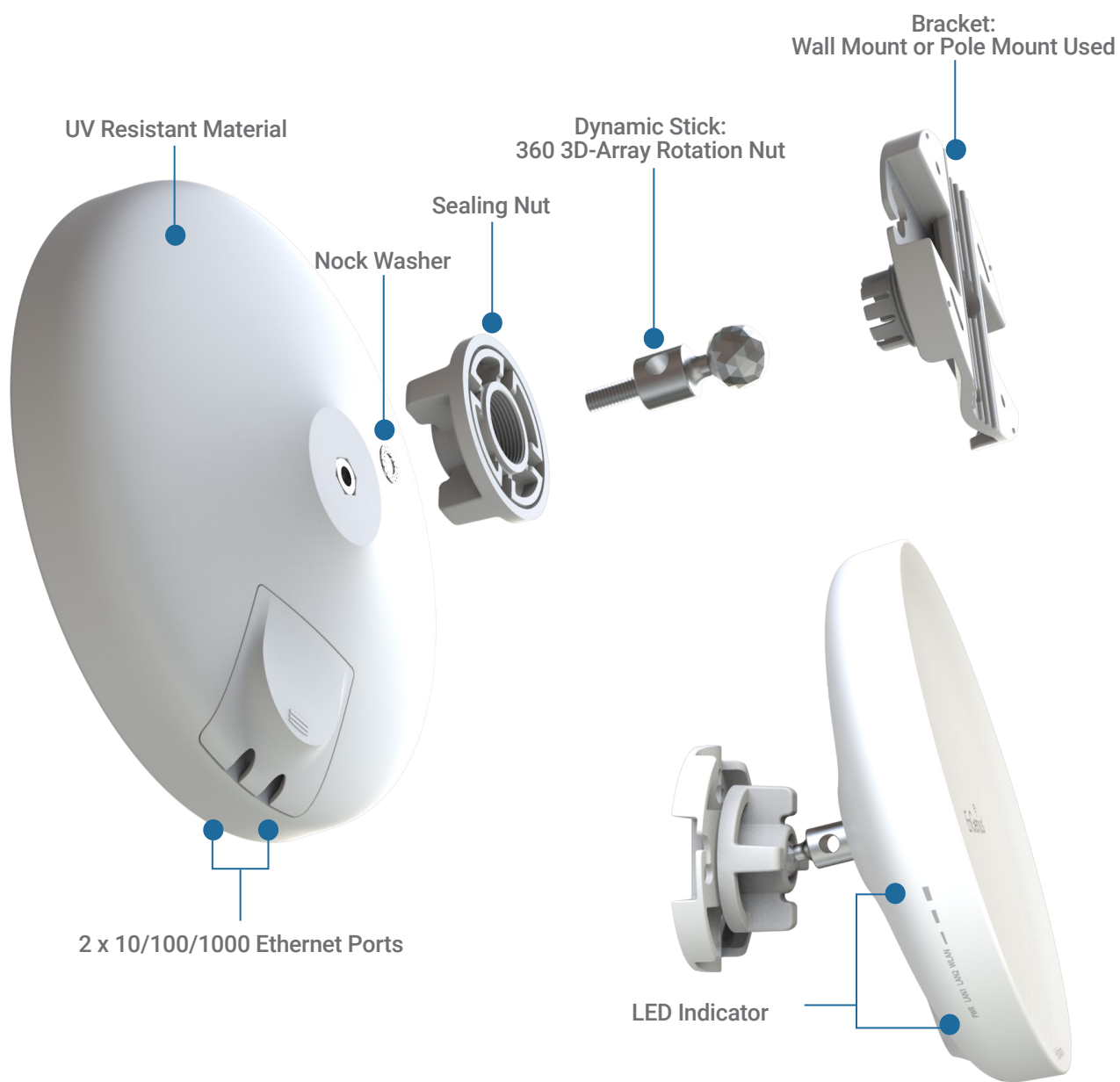
Product Views

EOC600



Product Views

EOC610

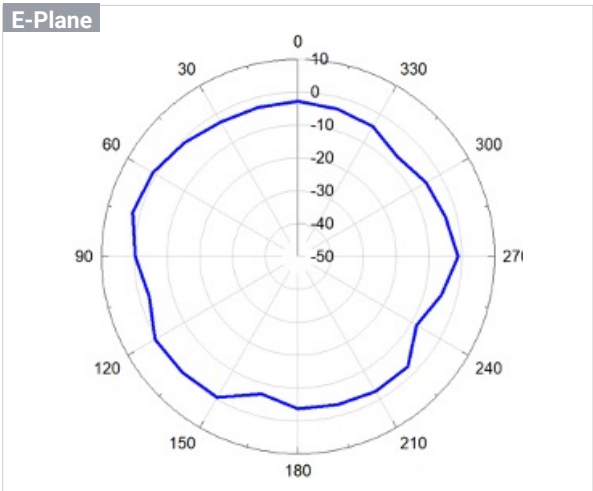


# Antenna Patterns

## EOC655 & EOC655-C18

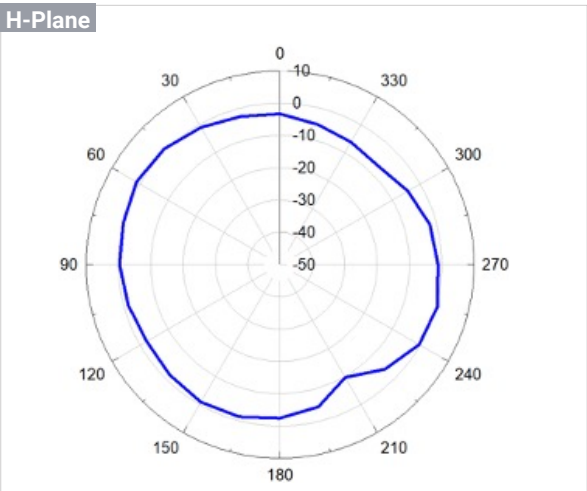
2.4GHz

E-Plane



2.4GHz

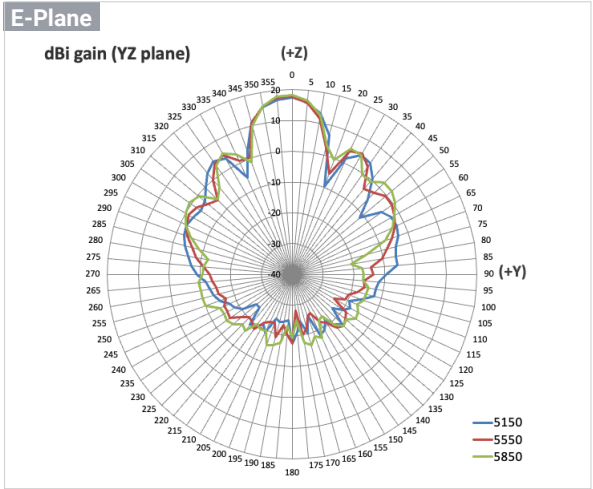
H-Plane



## EOC655-C18

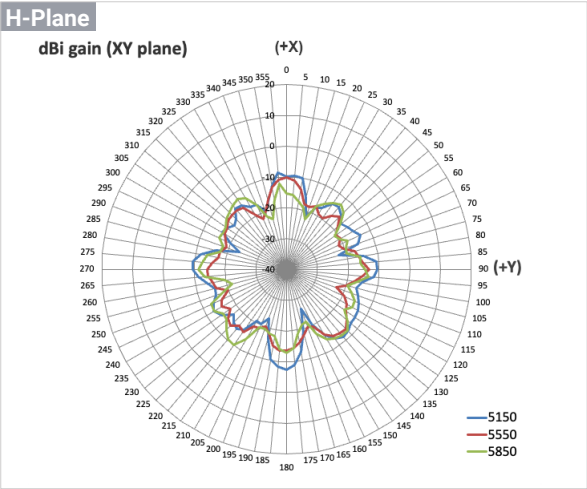
5GHz

E-Plane



5GHz

H-Plane

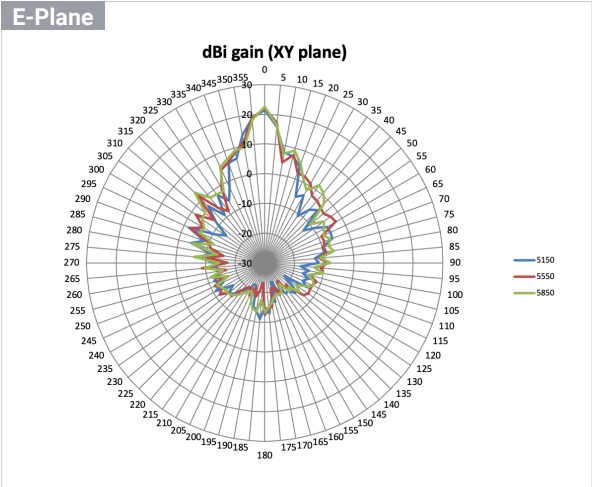


# Antenna Patterns

EOC655-C23

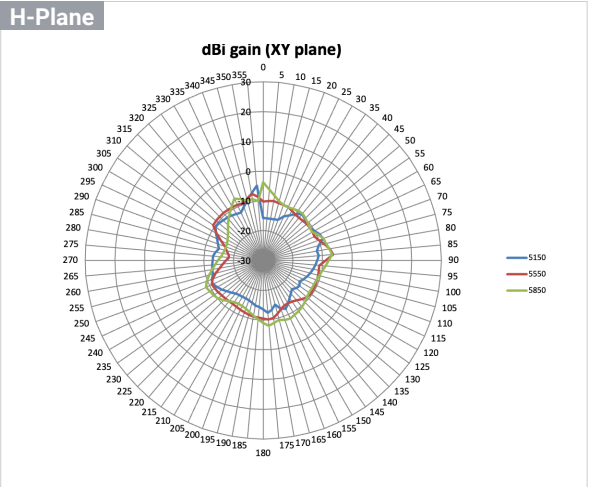
5G

E-Plane



5G

H-Plane

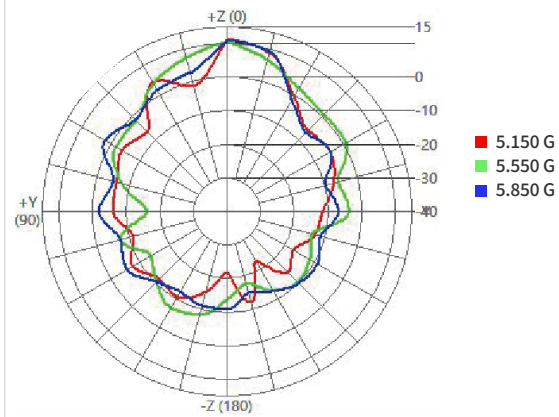


# Antenna Patterns

EOC600

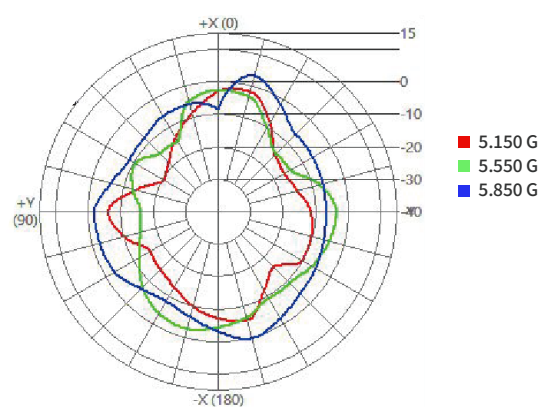
Port1

E-Plane



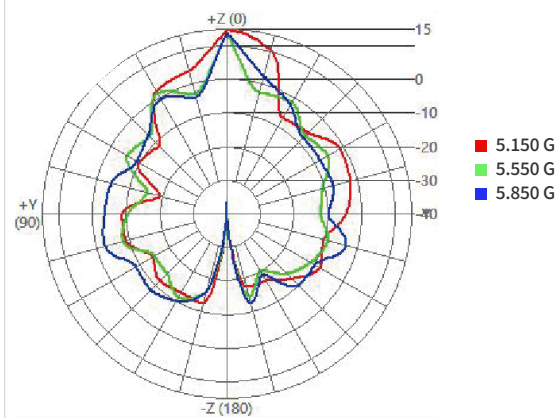
Port1

H-Plane



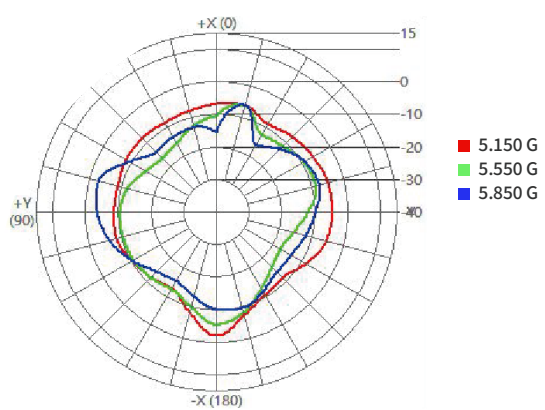
Port2

E-Plane



Port2

H-Plane

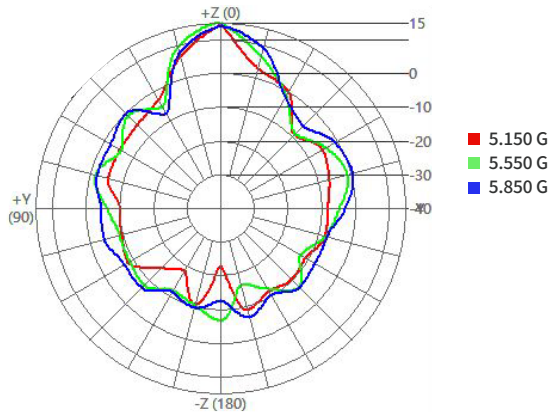


# Antenna Patterns

## EOC610

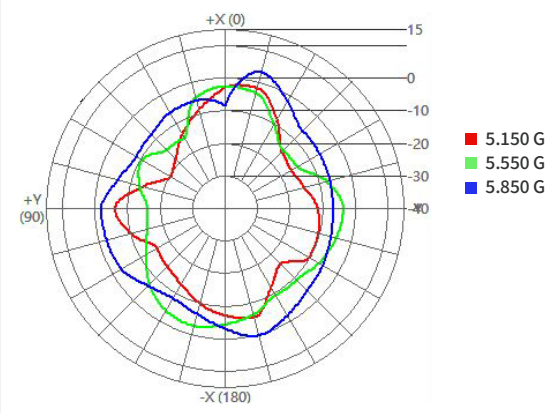
Port1

E-Plane



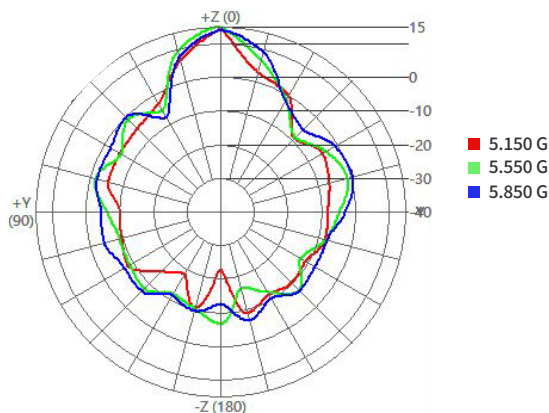
Port1

H-Plane



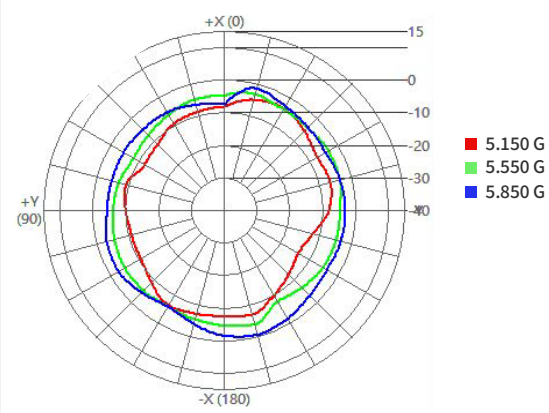
Port2

E-Plane



Port2

H-Plane



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Version 1.5 1128/2024

EnGenius