Empowering Connections for Cities and Beyond

Integrated PtP & PtMP Solutions for Last-Mile and Backhaul Applications

EnGenius Broadband
Outdoor Wireless Solution

- **U.S.A**

  EnGenius Technologies, Inc.
  sales@engeniustech.com
  www.engeniustech.com

- **Canada**

  EnGenius Technologies Canada
  sales.canada@engeniustech.com
  www.engeniustech.com

- **India**

  EnGenius Networks Private Limited
  indiasales@engeniustech.com
  www.engeniustech.com

- **Europe**

  EnGenius Networks Europe B.V.
  sales@engeniusnetworks.eu
  www.engeniustech.com/eu/

- **Asia Pacific**

  EnGenius Networks Singapore Pte Ltd.
  techsupport@engeniustech.com.sg
  www.engeniustech.com/apac/

- **Dubai, UAE**

  EnGenius International Dubai
  techsupport@engeniustech.com.sg
  www.engeniustech.com/apac/

- **Taiwan**

  EnGenius Networks, Inc.
  sales@engeniustech.com.tw
  www.engeniustech.com/tw/

EnGenius

Bridging Connectivity Across Landscape

EnGenius Broadband Outdoor Wireless Solution

Challenges in Diverse Connectivity: Addressing the Need for High-Speed, Reliable Networks

The demand for reliable, high-speed connectivity is paramount in today's diverse and expanding environments, ranging from bustling urban areas to remote industrial sites. Wireless Internet Service Providers (WISPs) and urban planners face significant challenges in deploying scalable networks that can adapt to various settings. These challenges include complex deployments and ensuring spectrum efficiency and stable connectivity, often proving too intricate for conventional solutions.

Innovative Wireless Solutions: The EnGenius Broadband Outdoor EOC Series

The EnGenius Broadband Outdoor EOC Series is an innovative solution to these widespread challenges. These solutions are designed to work in various environments, and our PtP & PtMP solutions redefine the approach to outdoor wireless connectivity. The EOC series offers a versatile and robust solution with features like dual 5GHz radios for high throughput and IP67-rated casings for environmental resilience, coupled with intelligent RF management. It stands as a pivotal advancement in meeting the diverse connectivity needs of modern landscapes, from urban centers to specialized industrial areas.
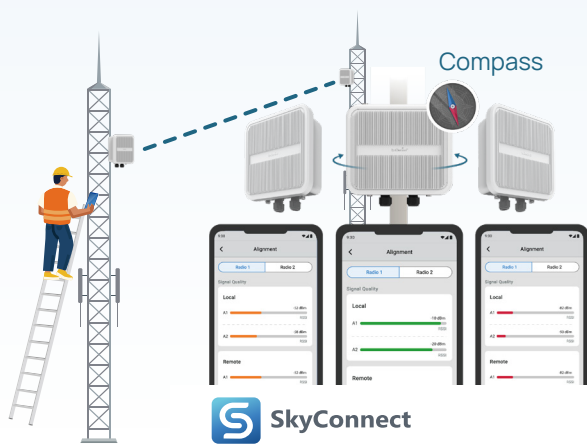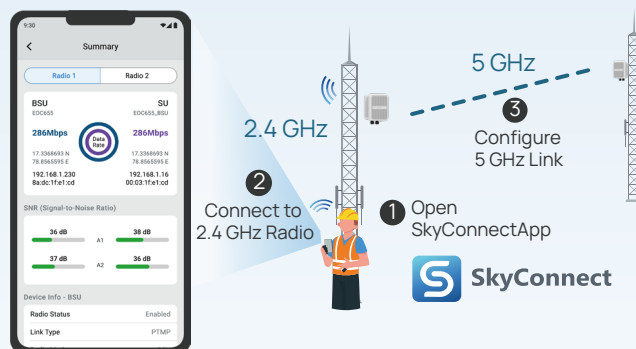
Simplifying 5 GHz Network and Antenna Setup

Dedicated 2.4 GHz Radio

Integration with Mobile App

The series features a dedicated 2.4 GHz management radio specifically designed to enhance the management of 5 GHz PtP/PtMP links via a mobile app- SkyConnect. This integration facilitates seamless setup, configuration, and network monitoring, ensuring uninterrupted data traffic performance. The app offers a user-friendly platform for efficient network adjustments and troubleshooting, bolstering the reliability and accessibility of the 5 GHz links.

*This function is only available in the EOC655 series.

5 GHz

③ Configure 5 GHz Link

2.4 GHz

② Connect to 2.4 GHz Radio

① Open SkyConnectApp

SkyConnect

Intuitive Mobile App

Easy Antenna Alignment

The series incorporates compass sensors to align antennas, which is critical for optimal signal strength precisely. During installation, the mobile app offers real-time orientation feedback, ensuring that PtP and PtMP configurations antennas are correctly directed. This app-assisted alignment guarantees enhanced signal quality and network performance in various outdoor settings.

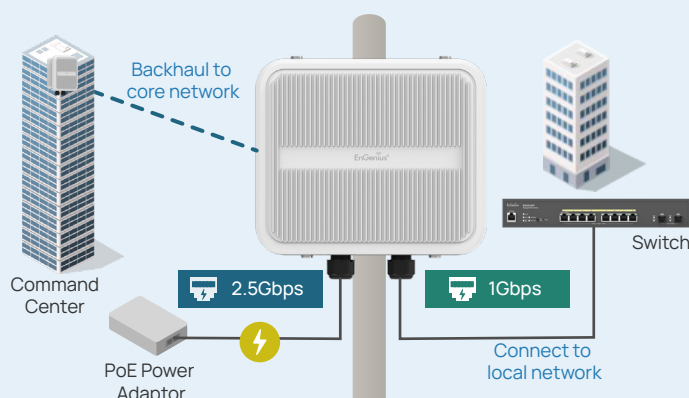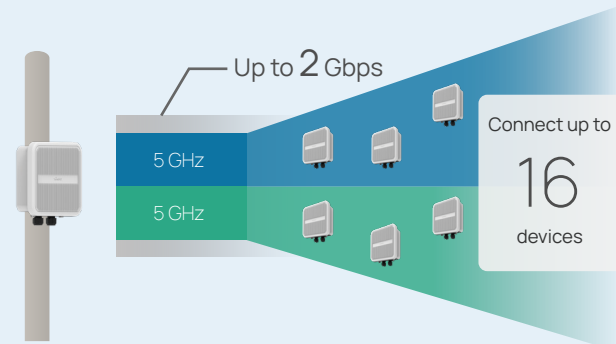*This function is only available in the EOC655 series.

Compass

SkyConnect

High-Speed, High-Capacity Networking

Dual 5 GHz Radios

High-Capacity Connectivity

The series is equipped with Dual 5 GHz Radios and boasts a 2 Gbps link capacity, ideal for high-density RF environments. This setup facilitates robust, high-speed data transmission and supports connecting up to 16 devices in PtMP setups. It ensures stable and efficient connectivity, crucial for handling multiple high-bandwidth demands simultaneously, making it an excellent choice for network-intensive scenarios.

*This function is only available in the EOC655 series.

Up to 2 Gbps

5 GHz

5 GHz

Connect up to 16 devices

Dual PoE Ports

Enhanced Bandwidth and Flexibility

The broadband outdoor wireless AP has Dual Ethernet Ports, offering enhanced bandwidth capabilities of up to 2.5 Gbps. This design boosts network speed and efficiency and provides flexible connectivity options. One port can serve a wired local network connection if needed, accommodating diverse network architectures and catering to various connectivity requirements with ease.
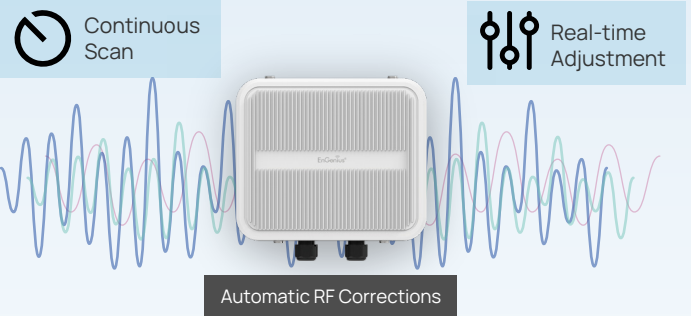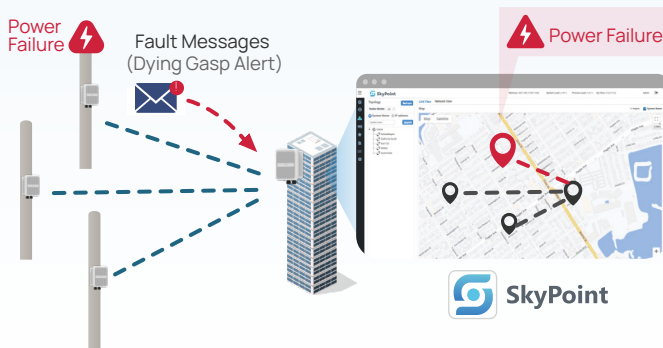
*This function is only available in the EOC655 series.

Backhaul to core network

Command Center

PoE Power Adaptor

2.5Gbps

1Gbps

Switch

Connect to local network

Advanced Stability & Rapid Response

Intelligent RF Management

Fortified Stability

This product features advanced RF management, automatically monitoring and adjusting the RF environment to optimize performance. By actively scanning for interference and signal issues, it adapts settings like power levels and frequency bands, ensuring consistent network stability. This automatic correction minimizes downtime and maintains high-quality performance, crucial in varied RF conditions.

Continuous Scan

Real-time Adjustment

Automatic RF Corrections

Power Failure

Fault Messages (Dying Gasp Alert)

Power Failure

SkyPoint

Dying Gasp

Rapid Power Outage Response

The EOC655 series' 'Dying Gasp' feature detects imminent power loss, swiftly sending alerts to the network management system. This rapid notification includes critical device status, enabling administrators to pinpoint and address power-related issues quickly. Utilizing residual energy efficiently, it ensures prompt alert transmission, significantly reducing network downtime and aiding in faster troubleshooting, especially in large or complex networks
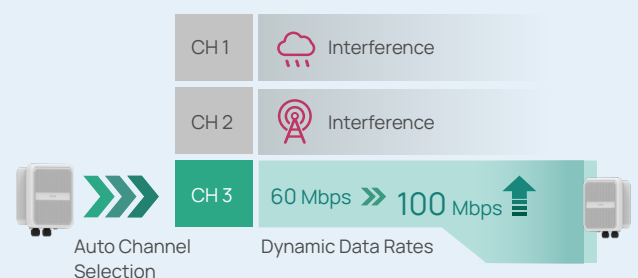
*This function is only available in the EOC655 series.

Smart Connectivity: Dynamic Rates & Enhanced QoS
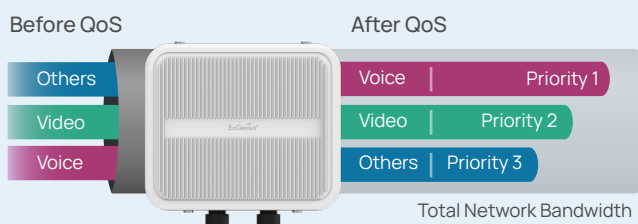
Dynamic Data Rates

Auto Channel Selection

This AP series can dynamically adjust data rates to balance speed and stability, enhancing connection quality even in fluctuating signal conditions. Additionally, Auto & Dynamic Channel Selection continuously scans for and switches to the least congested channels, significantly reducing interference. This dual approach ensures the network remains robust and efficient, improving performance and reliability in various wireless environments.

CH 1	Interference
CH 2	Interference
CH 3	60 Mbps » 100 Mbps

Auto Channel Selection

Dynamic Data Rates

QoS Management

Optimized Traffic Flow

QoS management in the EOC series prioritizes essential traffic, allocating bandwidth to critical applications such as VoIP and video conferencing. This approach is vital in busy networks, ensuring high performance for priority services. Managing traffic effectively enhances user experience, especially for time-sensitive applications requiring high bandwidth, thus maintaining consistent and optimal network functionality.
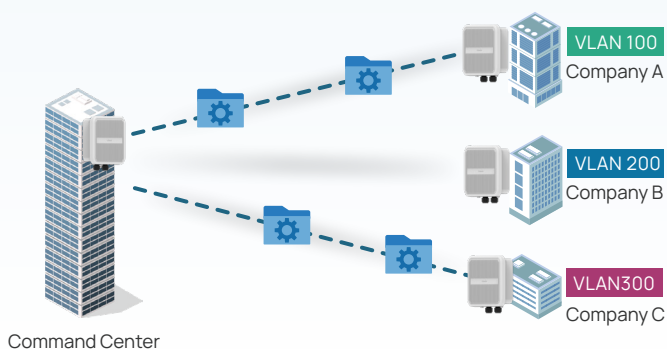

Before QoS

Others
Video
Voice

After QoS

Voice	Priority 1
Video	Priority 2
Others	Priority 3

Total Network Bandwidth

Optimized Multi-Tenant Networking

VLAN & Q-in-Q

Efficient Traffic Isolation

VLAN technology in this Series facilitates secure traffic isolation for each tenant in multi-tenant environments, creating distinct networks on shared infrastructure. Q-in-Q technology allows efficient management of complex network hierarchies, like in campuses or business centers, by encapsulating multiple VLAN tags within a single VLAN, streamlining network structure while maintaining data separation and reducing operational costs.

VLAN
Segment a single physical network into multiple independent networks.

VLAN 100
Company A

Q-in-Q
Create a hierarchy of VLANs to efficiently manage multiple tenants' networks.

VLAN 200
Company B

VLAN 220
Accounting Dept.

VLAN240
Engineering Dept.

VLAN 260
Marketing Dept.

VLAN300
Company C

VLAN 100
Company A

VLAN 200
Company B

VLAN300
Company C

Command Center

Multicast and Broadcast Filtering

Optimal Bandwidth Utilization

Multicast and broadcast filtering efficiently manage bandwidth in multi-tenant environments by selectively controlling traffic types. This technique ensures only relevant data is transmitted, preventing unnecessary bandwidth consumption and network congestion. It's particularly beneficial in shared network settings, enabling ISPs to provide faster, more reliable internet services by optimizing bandwidth usage and enhancing the overall network experience for all tenants.

Enhanced Protection and Durability

IP67

Extreme Durability
IP67 casing ensures superior environmental protection.

6KV

Advanced Surge Shielding
Robust up to 6KV surge defense.

Uncompromised Security
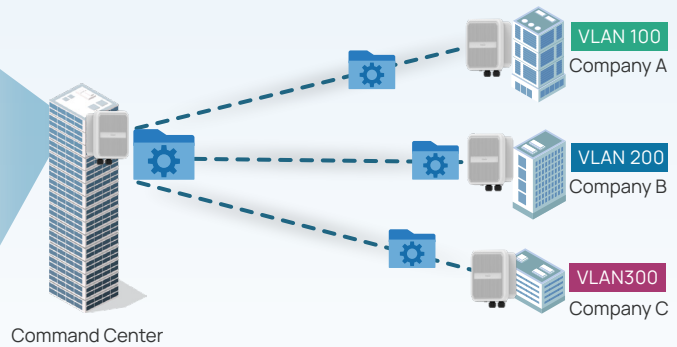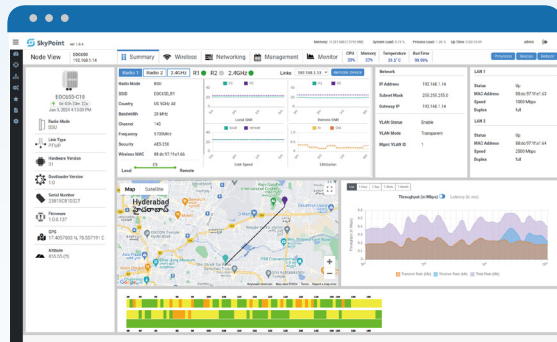Advanced AES-256 encryption ensures maximum data protection.

*This function is only available in the EOC655 series.

Unified Management

Centralized Management and Configuration
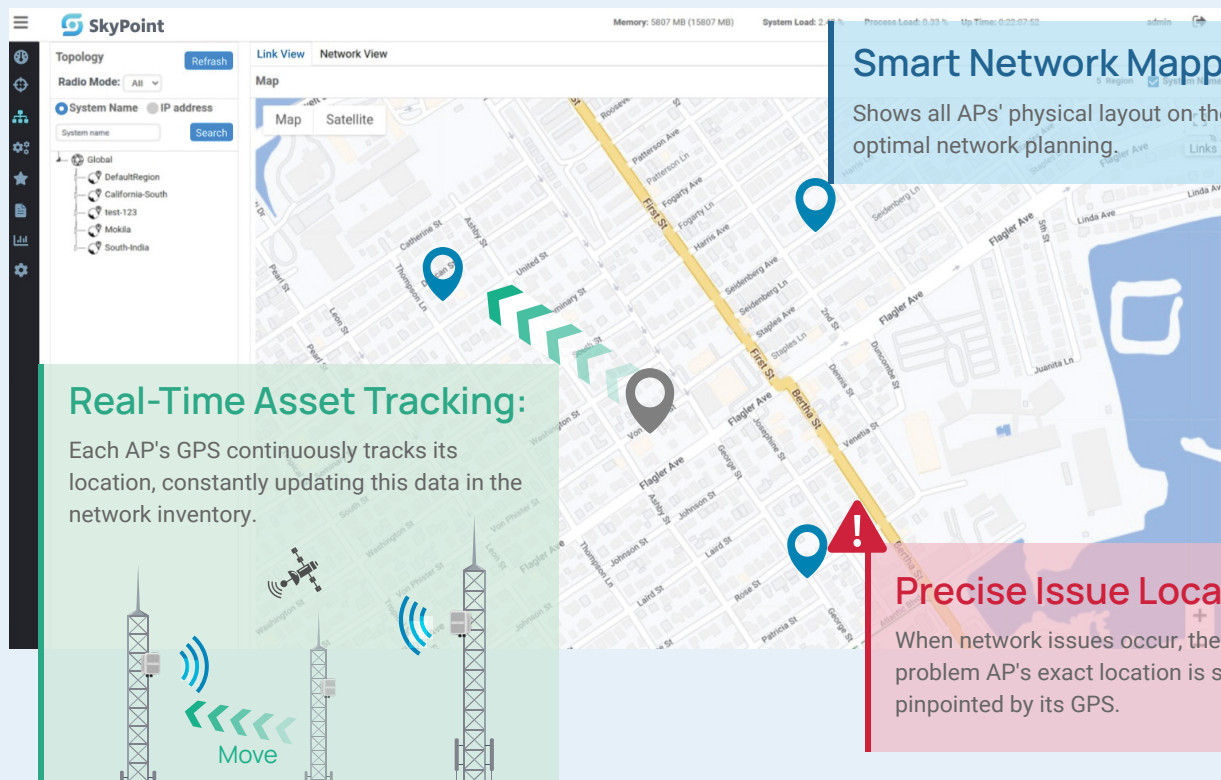

Command Center

Unified Platform:

Efficiently monitor and manage network performance, health, and security via a centralized web-based platform.

Auto Provisioning:

Simplify large-scale network setup by using template-based configuration or pre-configured settings.

Integrated GPS

Real-Time and Precise Mapping

Smart Network Mapping:

Shows all APs' physical layout on the map for optimal network planning.

Real-Time Asset Tracking:

Each AP's GPS continuously tracks its location, constantly updating this data in the network inventory.
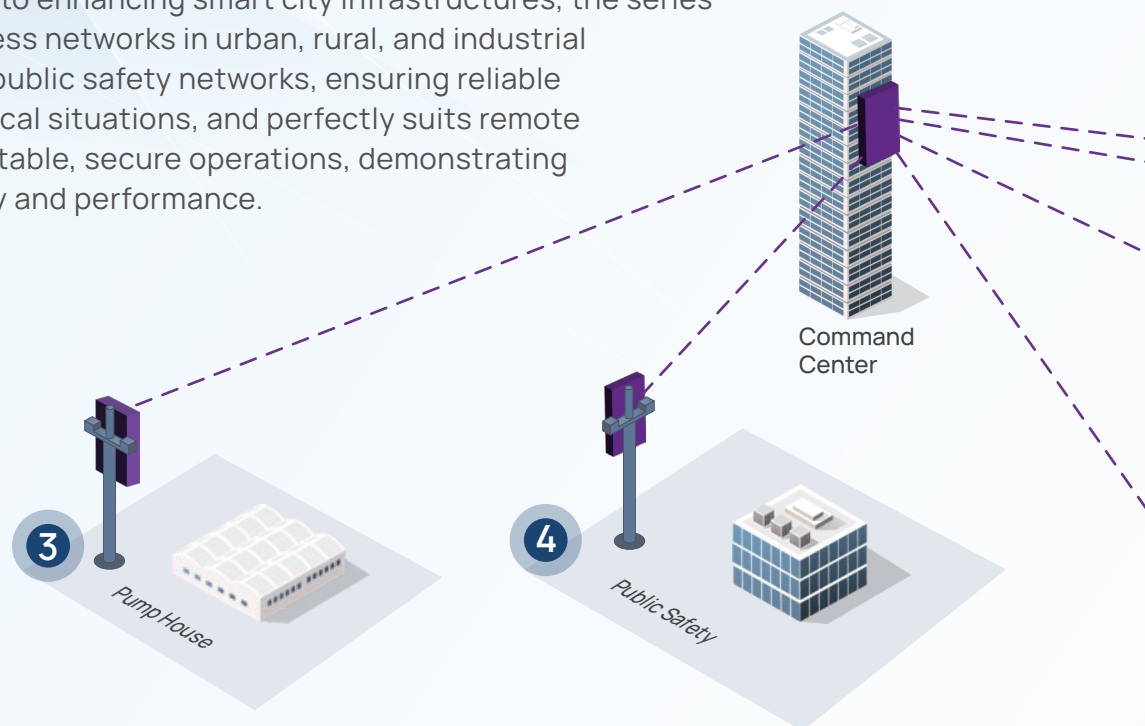
Precise Issue Location:

When network issues occur, the problem AP's exact location is swiftly pinpointed by its GPS.

Move

Maximizing Connectivity in Urban, Rural, and Industrial Applications

The EnGenius Broadband Outdoor EOC Series excels in diverse settings, offering tailored solutions for each unique application.

From empowering Wireless Internet Service Providers with efficient last-mile connectivity to enhancing smart city infrastructures, the series supports robust wireless networks in urban, rural, and industrial domains. It's ideal for public safety networks, ensuring reliable communication in critical situations, and perfectly suits remote industrial control for stable, secure operations, demonstrating unparalleled versatility and performance.

Command Center

3 — Pump House

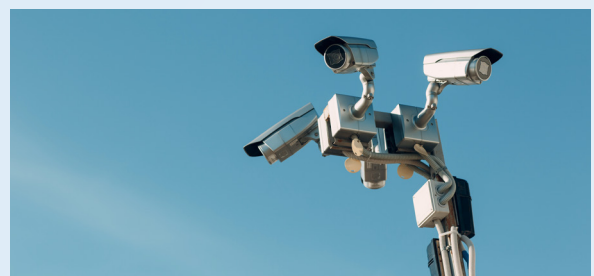4 — Public Safety

3 SCADA Application

Challenge
Communication disruptions and security risks in industry.

Solution Benefits
- AES-256 Security: Paramount for SCADA data integrity.
- Adaptive Connectivity: Stable operation in industrial environments for consistent data flow.

4 Public Safety- Video Backhaul

Challenge
Inconsistent video transmission and environmental vulnerability.

Solution Benefits
- High-Speed Video Transmission: Ensure uninterrupted surveillance footage.
- Advanced Layer 2 Features: Efficient traffic segmentation for public safety.

1. Smart Cities- Utilities & Traffic Intersection

Challenge
Difficulties in network resilience, scalability, and security for diverse urban needs amidst security concerns.

Solution Benefits
- GPS Integration: Efficient smart utility and traffic system deployment.
- Intelligent RF Management: Reliable urban connectivity with minimized interference.

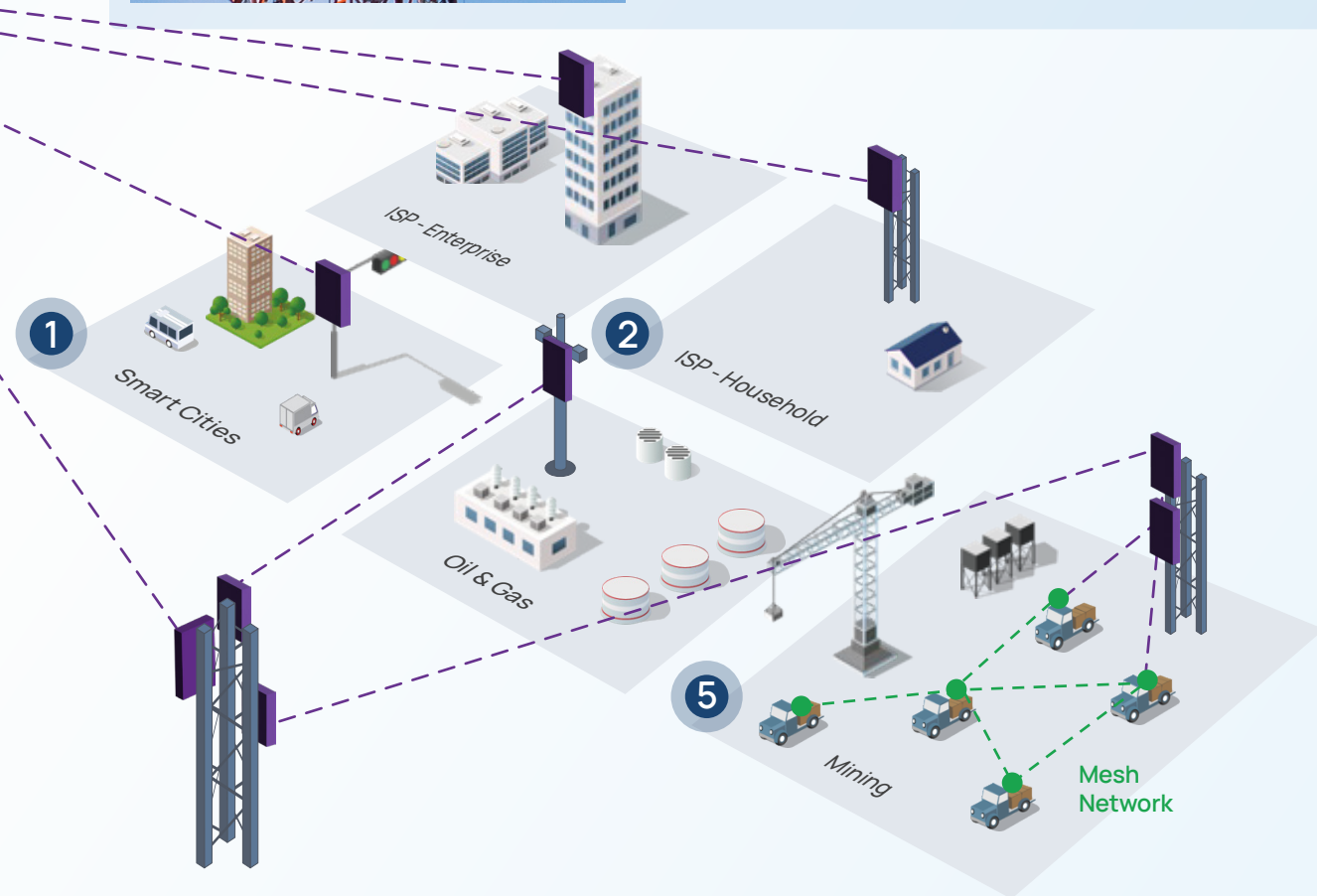## 2. Enterprise & ISP Connectivity Services

Challenge
Struggling with network scalability and deployment complexities.

Solution Benefits
- High-Capacity Links: Supporting data-intensive applications.
- Cloud-Based Provisioning: Simplifying large-scale network management.

ISP - Enterprise

ISP - Household

Smart Cities

Oil & Gas

Mining

Mesh Network

5. Mining- Access & Mesh Network Backhaul

Challenge
Communication instability in harsh in remote environments.

Solution Benefits
- Rugged Outdoor Performance: Suited for harsh mining conditions.
- Effortless Setup via the App: Simplify remote area network management.
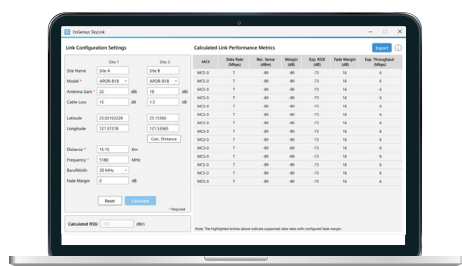
Streamline Your Broadband Outdoor Network Management

Experience effortless network control with EnGenius' suite of management tools. SkyLink, SkyConnect, SkyLocator, and SkyPoint NMS synergize to offer unparalleled ease in deployment, monitoring, and maintenance, ensuring your network's optimal performance and reliability across all environments.

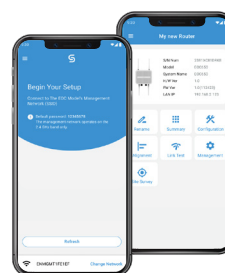**Download Management Tools**

Pre-Install Planning

SkyLink

Link Budget Tool

SkyLink is a critical tool for wireless network planning and design, used in pre-installation. It calculates RF link performance, ensuring network design feasibility and guiding the selection of appropriate equipment and configurations.
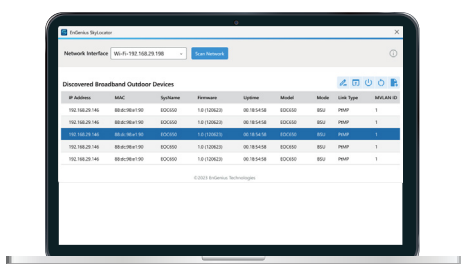
On-site Deployment

SkyConnect

Mobile App

SkyConnect an intuitive app designed to assist users in easily deploying and configuring wireless PTP and PTMP APs. It provides real-time monitoring, various configuration options, antenna alignment assistance, and RF link testing streamlining the setup process.
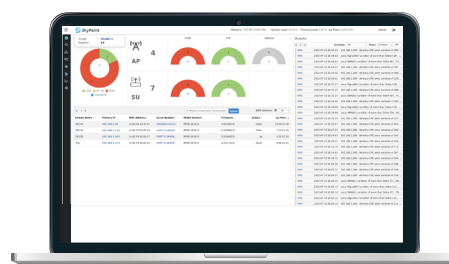
On-site Monitoring

SkyLocator

Discovery and Management Tool

SkyLocator is a tool that helps service providers and enterprises manage outdoor wireless networks by discovering and monitoring outdoor broadband devices. It assists in inventory tracking, performance assessment, and troubleshooting.

Unified Management

SkyPoint

Network Management Software

SkyPoint NMS is a centralized, web-based platform tailored for managing enterprise-class broadband outdoor wireless APs. It offers comprehensive network monitoring, management, template-based setup, and advanced configuration capabilities, serving as a central hub for the entire network infrastructure.

EnGenius Broadband Outdoor EOC Series

Broadband Outdoor Access Point

EOC Series	EOC655	EOC655-C18	EOC600	EOC610
Model Number	EOC655	EOC655-C18	EOC600	EOC610
Wi-Fi Standard	802.11a/n/ac/ax	802.11a/n/ac/ax	802.11a/n/ac/ax	802.11a/n/ac/ax
Radio	5 GHz / 5GHz	5 GHz / 5GHz	5 GHz	5 GHz
Management Radio	2.4GHz	2.4GHz	2.4GHz	2.4GHz
Max. Data Rate (5 GHz)	up to 2.4 Gbps	up to 2.4 Gbps	1200 Mbps	1200 Mbps
Radio Chains	2 x 2:2 (per radio)	2 x 2:2 (per radio)	2 x 2:2	2 x 2:2
Transmit Power on (2.4 GHz)	25dBm	25dBm	9dBm	15dBm
Transmit Power on (5 GHz)	24dBm / 21dBm	24dBm / 21dBm	26dBm	26dBm
Antennas (2.4 GHz)	3.5dBi	3.5dBi	2.12dBi	3.9dBi
Antennas (5 GHz)	N-Type / N-Type	18dBi / N-Type	16dBi (Port1: 40°x20°;Port2: 40°x20°)	19dBi (Port1: 25°x20°; Port2: 17°x24°)
Antenna Beamwidth	NA	Azimuth:15°, Elevation:15°	Azimuth:40°, Elevation:20°	Azimuth:25°, Elevation:24°
Power-over-Ethernet	802.3af/at / Proprietary 56V	802.3af/at / Proprietary 56V	Proprietary 54V	Proprietary 54V
Ethernet Ports	1x 2.5G Proprietary Port 1x GE PoE+ Port 6KV Cable Surge Protection on all Ethernet ports	1x 2.5G Proprietary Port 1x GE PoE+ Port 6KV Cable Surge Protection on all Ethernet ports	1x GE Proprietary PoE Port 1x GE Port	1x GE Proprietary PoE Port 1x GE Port
Mounting Type	Pole mount	Pole mount	Wall/Pole mount	Wall/Pole mount
IP Rating	IP67	IP67	IP55	IP55
Dimensions	267 x 227 x 82mm 267 x 258.1 x 82mm (w/n-type & cable gland)	267 x 227 x 82mm 267 x 258.1 x 82mm (w/n-type & cable gland)	260 x 84 x 55 mm	Φ190 x 38 mm
Operating Modes	AP/STA	AP/STA	base station(BSU)/ subscriber(SU)	base station(BSU)/ subscriber(SU)
MU-MIMO	●	●	●	●
Beamforming	●	●	●	●
Mobile App	● (SkyConnect)	● (SkyConnect)	● (SkyConnect)	● (SkyConnect)