

## X33 Anywhere Network Node



X33 Anywhere Network Node is an industrial-grade 5 GHz tri-radio wireless backhaul unit designed for flexible and expandable deployments regardless of physical constraints. Our Connectivity Technology breaks the traditional hopping limitation of wireless networks by tackling the multi-hop bandwidth degradation, enable X33 to extend connectivity to the locations where extensive fiber optic cabling is unfeasible due to a tight timescale. With the built-in selectable hardware RF filter, it provides interference isolation for delivering the highest end-to-end network throughput.

Anywhere Networks' not only provides absolute security through 128-bit AES link encryption and 256-bit AES end-to-end encryption but also optimizes client traffic management with the flow-based encapsulation. Packets are encrypted and encapsulated starting from the entrance point of the mesh, through travelling the tunnels, then decapsulated and decrypted at the exit points of the mesh. The intermediate nodes act as flow switching nodes without looking into the payloads but based on the encapsulation header to route to the destination. In this approach, we provide enhanced security, capacity and greater transparency at higher level applications.

Ultra high throughput wireless surveillance backhauling applications

- Up to 1,000 Mbps throughput
- 802.3af PoE output port

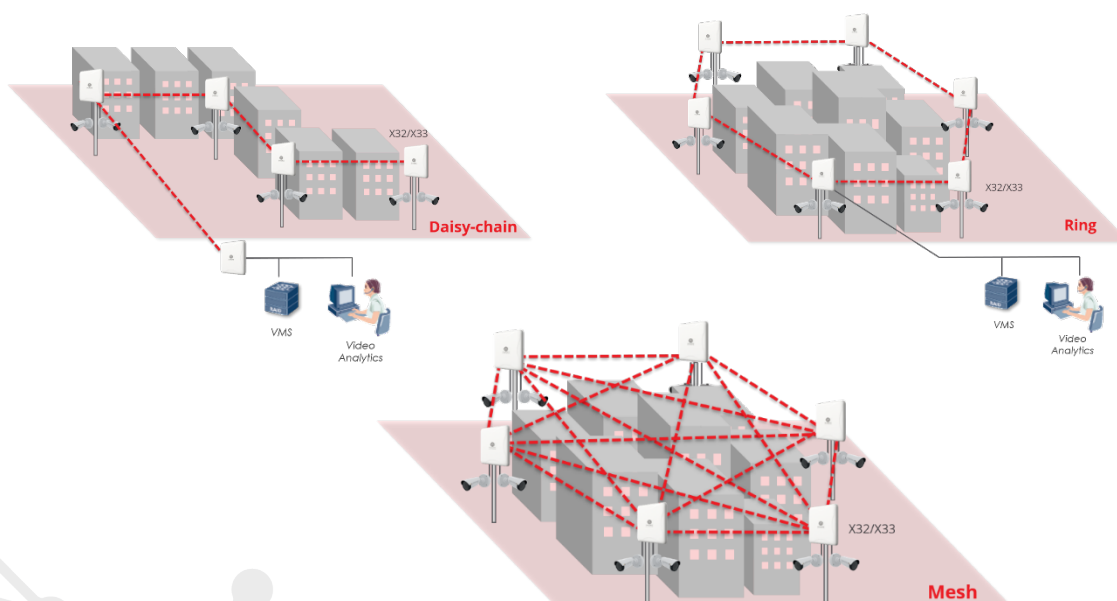
Over 20 hops backhauling with deployment flexibility

- Selectable hardware RF filter
- 2x5 GHz radio
- 1x2.4/5 GHz radio

Industrial-grade hardware design

- IP 67 weatherproof
- 6kV surge protection

## Deployment Architecture



## X33 Anywhere Network Node Specifications

| Wireless                         |                                                                               |                                                                                       |                                       |
|----------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------|
| Operating Frequency <sup>1</sup> | 2.400 - 2.4835 GHz; 4.940 - 4.990 GHz<br>5.150 - 5.350 GHz; 5.470 - 5.850 GHz |                                                                                       |                                       |
| Modulation                       | OFDM: BPSK, QPSK,16QAM, 64QAM,256QAM<br>DSSS: DBPSK, DQPSK, CCK               |                                                                                       |                                       |
| No. of Spatial Stream            | 2×2: 2 MIMO                                                                   |                                                                                       |                                       |
| Channel Bandwidth <sup>1</sup>   | 20/40/80/160 <sup>2</sup> MHz Channel                                         |                                                                                       |                                       |
| Data Rate                        | 173 Mbps (20MHz); 400 Mbps (40 MHz); 867 Mbps (80 MHz); 1733 Mbps (160 MHz)   |                                                                                       |                                       |
| Receive Sensitivity              | Radio 0/1                                                                     | -87 dBm (20 MHz); -84 dBm (40 MHz); -81 dBm (80 MHz); -78 dBm (160 MHz)               |                                       |
|                                  | Radio 2                                                                       | -91 dBm (20 MHz); -88 dBm (40 MHz); -85 dBm (80 MHz); -82 dBm (160 MHz and 80+80 MHz) |                                       |
| Transmit Power <sup>1</sup>      | Radio 0/1                                                                     | 5 GHz, 21 dBm (Max.)                                                                  |                                       |
|                                  | Radio 2                                                                       | 2.4/5 GHz, 23 dBm (Max.)                                                              |                                       |
| Features                         | Interference mitigation by selectable RF filter, Spectrum Analyzer            |                                                                                       |                                       |
| Antenna                          |                                                                               |                                                                                       |                                       |
| Connected To                     | Radio 0                                                                       | Radio 1                                                                               | Radio 2                               |
| Type                             | Built-in 5 GHz                                                                | External 5 GHz                                                                        | External 2.4/5 GHz                    |
| Gain                             | 20 dBi                                                                        | Optional                                                                              | Optional                              |
| Polarization                     | Vertical & Horizontal                                                         | Antennas: 5 GHz 19 dBi 2×N-female                                                     | Antennas: 2.4/5 GHz 5/7 dBi Dual-band |
| Horizontal Beamwidth             | 17°                                                                           | Panel, More Options on Request                                                        | N-male                                |
| Vertical Beamwidth               | 17°                                                                           |                                                                                       | Omni; 5 GHz 19 dBi 2×N-female         |
| VSWR                             | 1.8 (Max.)                                                                    |                                                                                       | Panel, More Options on Request        |
| Front-to-back Radio              | -30 dB (Min.)                                                                 |                                                                                       |                                       |
| Isolation                        | 35 dB (Min.)                                                                  |                                                                                       |                                       |
| Network                          |                                                                               |                                                                                       |                                       |
| Topology                         | Point-to-Point (PtP), Point-to-Multipoint (PtMP), Daisy-chain, Ring, and Mesh |                                                                                       |                                       |
| Redundancy                       | Flow-based routing, Multiple Drop-off Point, Bonded Link                      |                                                                                       |                                       |
| Mobility                         | Mobile Mode and Static Mode                                                   |                                                                                       |                                       |
| Path Selection                   | Bandwidth-based metrics load balancing                                        |                                                                                       |                                       |
| Traffic Optimization             | BUM Traffic Management                                                        |                                                                                       |                                       |
| Features                         | End-to-End Layer 2 Transparent, VLAN 802.11Q pass-through                     |                                                                                       |                                       |

| Security                                                                                                                                                       |                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Link Encryption                                                                                                                                                | 128-bit AES                                                                  |
| End-to-end Encryption                                                                                                                                          | 256-bit AES                                                                  |
| Client MAC Access Control                                                                                                                                      | Whitelist <sup>2</sup> , Blacklist                                           |
| Neighbor MAC Access Control                                                                                                                                    | Whitelist, Blacklist                                                         |
| Management                                                                                                                                                     |                                                                              |
| User Interface                                                                                                                                                 | Anywhere Node Manager (A-NM) for A-OS                                        |
| Support                                                                                                                                                        | Remote Firmware Upgrade, SNMP v1/v2c <sup>2</sup> , MIB support <sup>2</sup> |
| Hardware                                                                                                                                                       |                                                                              |
| No. of Radio                                                                                                                                                   | 2×5 GHz Radio, 1×2.4/5 GHz Radio                                             |
| Network Interface                                                                                                                                              | 1xGE & PoE Input Port; 1xGE & PoE Output Port (802.3af)                      |
| LED                                                                                                                                                            | PWR; ETH0; ETH1; PD; RADIO 0; RADIO 1; RADIO 2                               |
| Power Supply                                                                                                                                                   | Proprietary High Power PoE Injector (60W)                                    |
| Power Consumption                                                                                                                                              | 38 W (Max.)                                                                  |
| Antenna Movement                                                                                                                                               | ±30° Up/Down-tilt                                                            |
| MTBF                                                                                                                                                           | 350,000 hours (50° C)                                                        |
| Physical Characteristics                                                                                                                                       |                                                                              |
| Dimensions                                                                                                                                                     | 305×305×111 mm (w/ Bracket, w/o Mounting)                                    |
| Weight                                                                                                                                                         | 3.5 kg (Net w/o Mounting); 4.5 kg (Net w/ Mounting); 5.4 kg (Gross)          |
| Mounting                                                                                                                                                       | Pole (ø30 to ø60 mm) and Wall Mounting                                       |
| Environmental                                                                                                                                                  |                                                                              |
| Temperature                                                                                                                                                    | -40° C to 65° C (Operating)                                                  |
| Humidity                                                                                                                                                       | 5% to 95 % Non-condensing                                                    |
| Elevations                                                                                                                                                     | 86 to 106 kPa                                                                |
| Wind Loading                                                                                                                                                   | 256 km/h (Max.)                                                              |
| Weatherproof                                                                                                                                                   | IP67, 6 kV Common Mode Surge Protection                                      |
| Certification                                                                                                                                                  |                                                                              |
| FCC, CE, RCM, OFCA                                                                                                                                             |                                                                              |
| Standard Warranty                                                                                                                                              |                                                                              |
| First year free limited hardware warranty and firmware upgrade. The 1/3/5-year extended warranties are available under specific purchase terms and conditions. |                                                                              |
| Ordering Information                                                                                                                                           |                                                                              |
| Part Number                                                                                                                                                    | GE.AP-X330-00                                                                |
| Description                                                                                                                                                    | X33 Tri-5GHz MeshRanger                                                      |

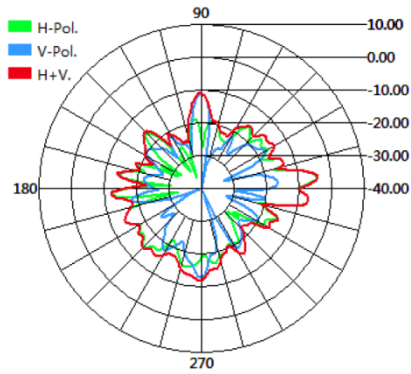
<sup>1</sup>operating frequency, transmit power and channel bandwidth vary by country/region settings

<sup>2</sup>available in the future updates

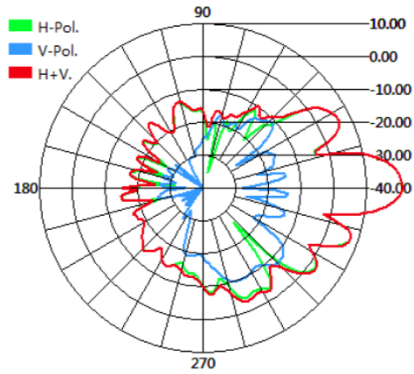
## Antenna Patterns for Built-in 5GHz 20dBi 2x2 Panel Antenna

Vertical Polarization, 5.15 GHz

XY-plane

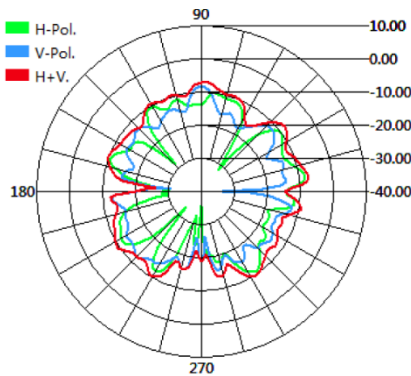


XZ-plane

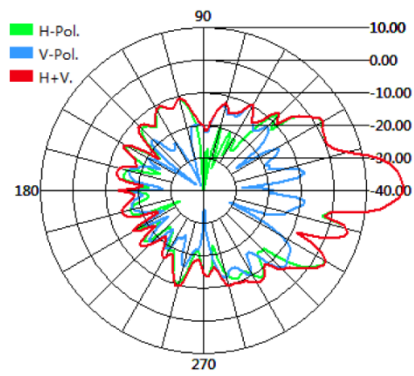


Vertical Polarization, 5.50 GHz

XY-plane

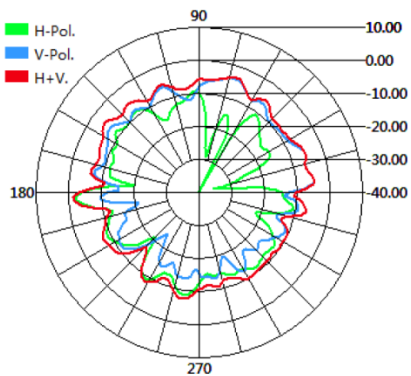


XZ-plane

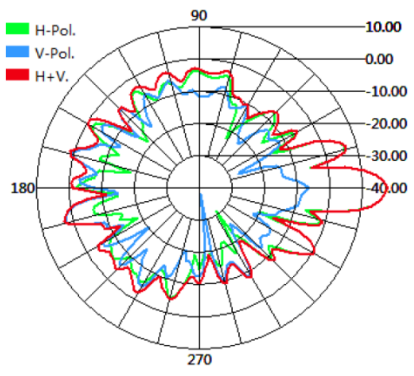


Vertical Polarization, 5.85 GHz

XY-plane

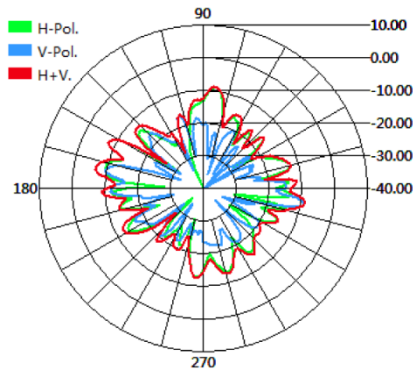


XZ-plane

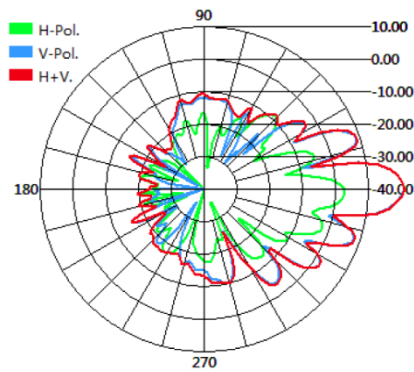


## Horizontal Polarization, 5.15 GHz

XY-plane

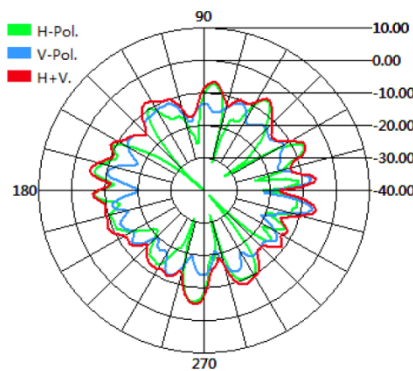


XZ-plane

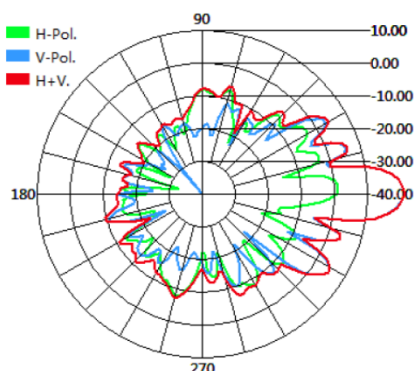


## Horizontal Polarization, 5.50 GHz

XY-plane

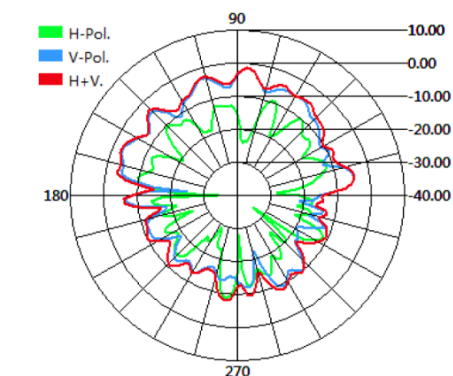


XZ-plane

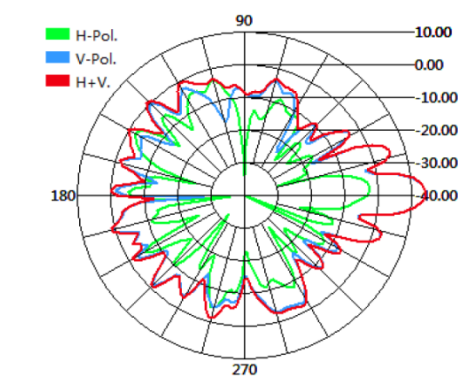


## Horizontal Polarization, 5.85 GHz

XY-plane



XZ-plane



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