Datasheet

X33 Tri-5GHz A-NN
ICA Technology

Anywhere
INTELLIGENT CONNECTIVITY

X33 is an industrial-grade 5 GHz tri-radio wireless backhaul unit designed for flexible and expandable deployments regardless of physical constraints. Thanks to our Intelligent Connectivity Anywhere (ICA) technology, A-NN X33 extends connectivity to the locations where extensive fiber optic cabling is unfeasible due to a tight timescale.

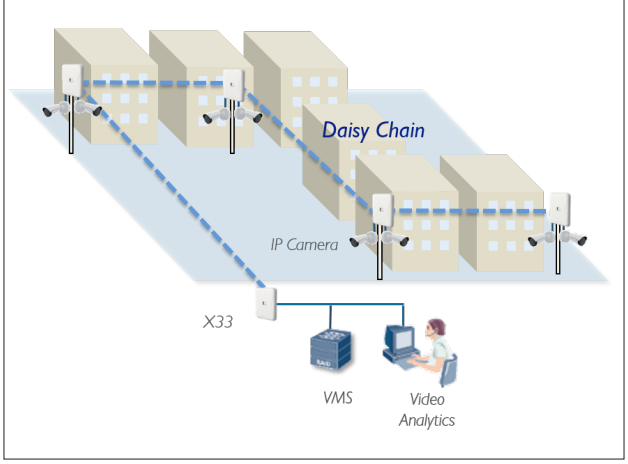
The ICA technology breaks the traditional hopping limitation of wireless networks by tackling the multi-hop bandwidth degradation. With the built-in selectable hardware RF filter, it provides interference isolation for delivering the highest end-to-end network throughput.

Ultra high throughput wireless surveillance backhauling applications	• Up to 1,000 Mbps throughput[1] • 802.3af PoE output port
Greater than 20 hops backhauling with deployment flexibility	• Selectable hardware RF filter • 2 × 5 GHz radio, 1 × 2.4 / 5 GHz radio
Industrial-grade hardware design	• IP 67 weatherproof • 6kV surge protection

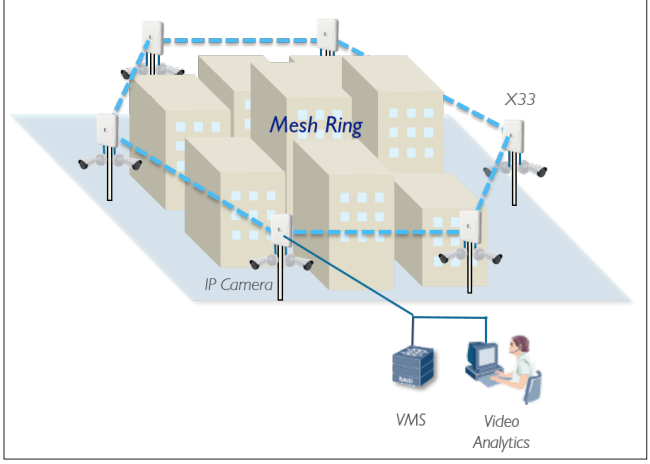
[1] Lab-tested in controlled environment using 160MHz channel bandwidth based on PTOS 2.4 firmware

Deployment Architecture

Daisy Chain



Mesh Ring



X33 Tri-5GHz MeshRanger

Specifications

Wireless

Operating Frequency (Country-dependent)	2.400 - 2.4835 GHz 5.150 - 5.350 GHz 5.470 - 5.850 GHz	
Modulation Techniques	OFDM: BPSK, QPSK,16QAM, 64QAM, 256QAM DSSS: DBPSK, DQPSK, CCK	
No. of Spatial Stream	2×2: 2 MIMO, 20/40/80/160 MHz Channel [2]	
Receive Sensitivity	Radio 0/1	-87 dBm (20 MHz); -84 dBm (40 MHz); -81 dBm (80 MHz); -78 dBm (160 MHz) [2]
	Radio 2	-91 dBm (20 MHz); -88 dBm (40 MHz); -85 dBm (80 MHz); -82 dBm (160 MHz and 80+80 MHz) [2]

Transmit Power (Country-dependent)	Radio 0/1	Radio 2
	5 GHz	2.4/5 GHz
	21 dBm (Max.)	23 dBm (Max.)

Features	Interference mitigation by selectable RF filter

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 Antennas: 5 GHz 19 dBi 2 × N-female Panel, More Options on Request	Optional 2.4/5 GHz 5/7 dBi Dual-band N-male Omni; 5 GHz 19 dBi 2 × N-female Panel, More Options on Request
Polarization	Vertical & Horizontal		
Horizontal Beamwidth	17°		
Vertical Beandwidth	17°		
VSWR	1.8 (Max.)		
Front-to-back Ratio	-30 dB (Min.)		
Isolation	35 dB (Min.)		

Networking

Available features vary with different software version.

	PTOS	aOS
Topology	PtP (Daisy Chain & Ring)	PtP (Daisy Chain & Ring), PtMP, Mesh
Redundancy	STP-based	Flow-based routing
Path Selection	STP-based	Bandwidth-based metrics load balancing
Traffic Optimization	-	BUM traffic management
Features	End-to-End Layer 2 Transparent, VLAN 802.11 Q pass-through	

Security

	PTOS	aOS
Neighbor MAC Access Control	White list	White list [3], black list [3]
Link Encryption	128-bit AES	128-bit AES
End-to-end Encryption	-	256-bit AES [3]
Authentication	Open system, Shared key, WPA/ WPA-PSK, WPA2/ WPA2-PSK, 802.1x (EAP-PEAP/ TLS/ TTLS/ SIM/ AKA)	WPA2-PSK

Management

	PTOS	aOS
User Interface	SmartMoment, MeshProvision Server (Require separate purchase)	Anywhere Node Manager
Support	Remote Firmware Upgrade, SNMP v1/v2c, MIB support	Remote Firmware Upgrade, SNMP v1/ v2c [3], MIB support [3]

Hardware

No. of Radio	2 × 5 GHz Radio, 1 × 2.4/5 GHz Radio
Network Interface	1 x GE & PoE Input Port; 1 x GE & PoE Output Port (802.3af)
LED	PWR; ETH0; ETH1; PD; RADIO 0; RADIO 1; RADIO 2
Power Supply	Proprietary High Power PoE Injector (60 W)
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	265 km/h (Max.)
Weatherproof	IP67, 6 kV Common Mode Surge Protection

Certification

FCC, CE, RCM, OFCA

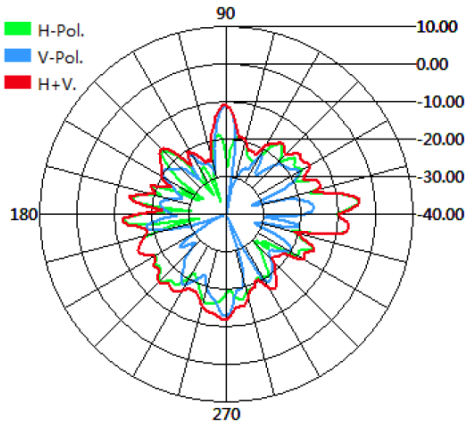
Warranty

[2] 160MHz support for aOS will be available in the future
[3] Will be available in the future

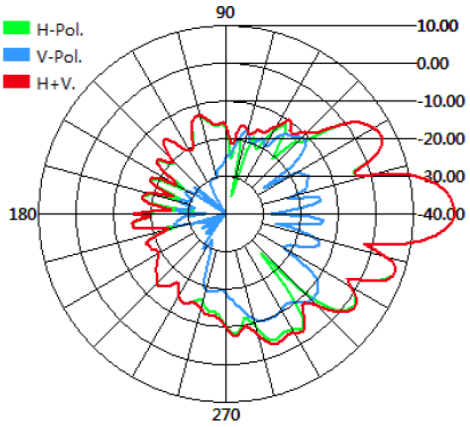
Antenna Patterns for Built-in 5GHz 20dBi 2×2 Panel Antenna

Vertical Polarization, 5.15 GHz

XY-plane

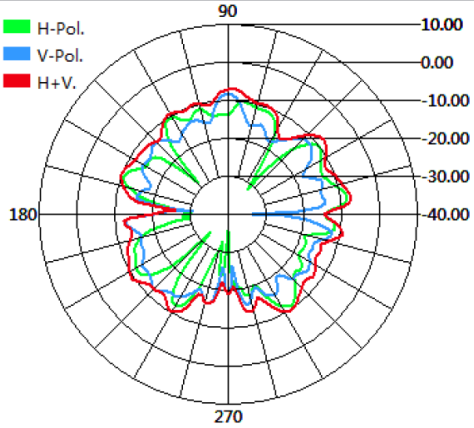


XZ-plane

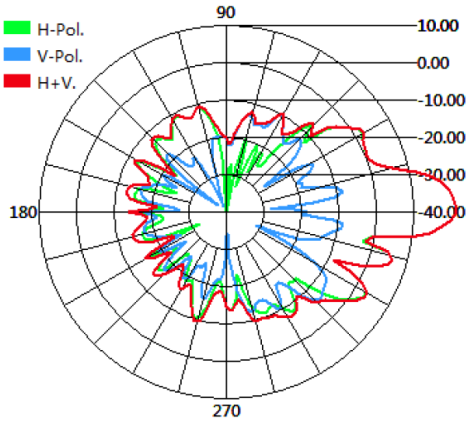


Vertical Polarization, 5.50 GHz

XY-plane

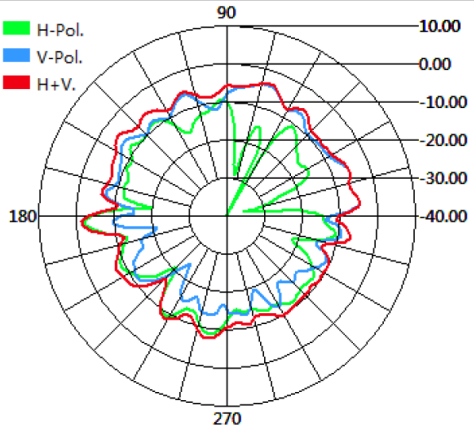


XZ-plane

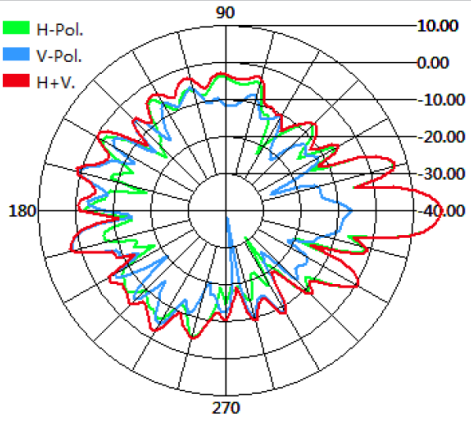


Vertical Polarization, 5.85 GHz

XY-plane



XZ-plane

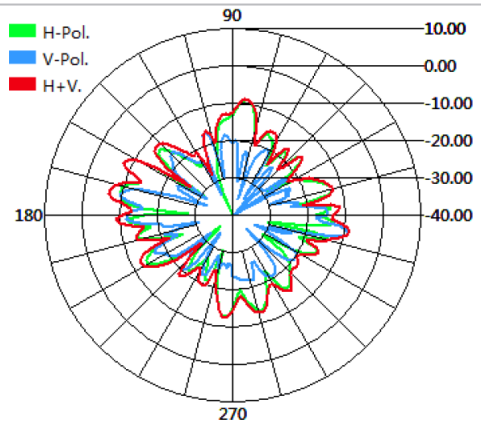


Anywhere

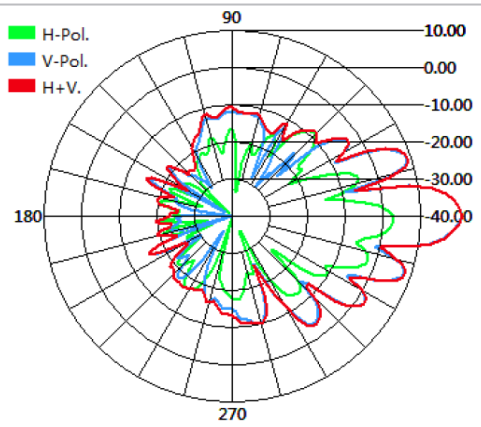
INTELLIGENT CONNECTIVITY

Horizontal Polarization, 5.15 GHz

XY-plane

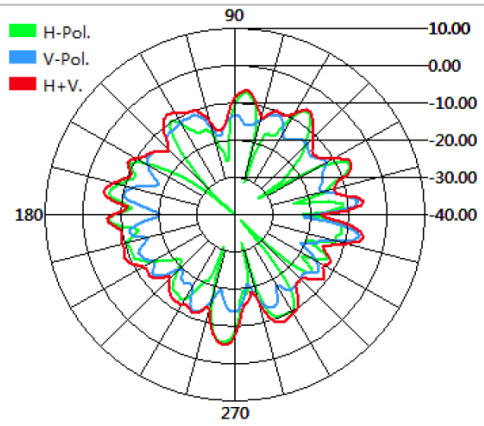


XZ-plane

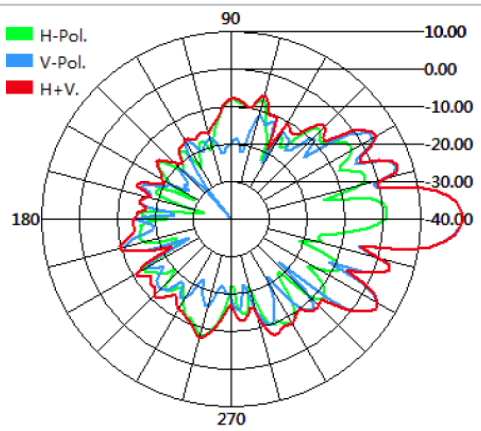


Horizontal Polarization, 5.50 GHz

XY-plane



XZ-plane



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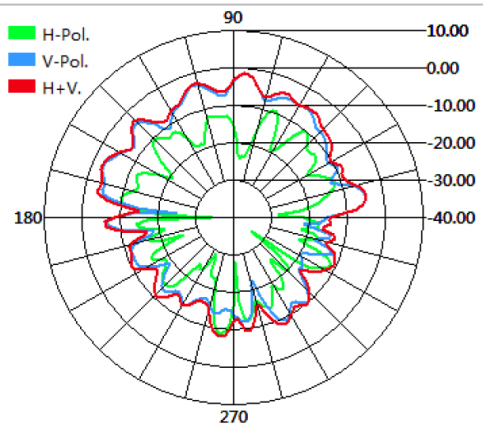
XY-plane



XZ-plane