

SkyExtender DualBand



Key Benefits

- Long-range mesh backhaul enables deployment flexibility for Wi-Fi services
- Dual radio architecture (one for 802.11b/g subscribers and one for 5 GHz backhaul) overcomes well-documented inefficiencies and scalability issues with single-radio, omnidirectional mesh networks
- 5 GHz backhaul combines benefits of mesh networking and point-to-point links
 - Mesh networking: 360° coverage, multiple links with optimized routing and link redundancy, load balancing capabilities
 - Point-to-point links: high-power (28.2 W/44.5 dBm EIRP) focused beams and eight 18 dBi antennas improve penetration and extend range up to 10 miles/16 km
- High-power (3.2 W/35 dBm EIRP) Wi-Fi access point with 9 dBi antenna provides broad coverage to 802.11b/g subscribers
- Supports SkyConnector CPE for fixed Internet access services to enterprise and residential subscribers
- Multi-service network capable of providing end-to-end security and quality of service for VoIP
- Auto-discovery and rapid provisioning minimize deployment expenses
- Multiple topology options and network scalability enables growth capabilities
- OFDM modulation can provide non-line of sight (NLOS) connectivity in multipath environments

SkyExtender DualBand – High-Capacity Mesh Backhaul with AP

The SkyExtender™ DualBand's unique integration of a long-range mesh backhaul and industry-standard 802.11 access point gives service providers great flexibility when deploying Wi-Fi access networks. With the extended range of the mesh backhaul, Wi-Fi can be deployed in dense coverage patterns, like blanketing the downtown area of a city, as well as being deployed in targeted locations such as hotzones or residences. This allows multiple distinct and separate Wi-Fi networks to connect to a high-capacity, redundant mesh backhaul to provide an economical and efficient means of deploying Wi-Fi access in outdoor environments.

Another significant benefit of the SkyExtender DualBand is its dual radio architecture, which eliminates the capacity conflict between subscriber access and the network backhaul. The 2.4 GHz radio provides an 802.11b/g access point with high-speed connectivity to Wi-Fi clients (laptops, PDAs, wireless VoIP phones) and the 5 GHz radio leverages SkyPilot's innovative 8-antenna array to connect to the high-capacity, redundant wireless mesh backhaul and to SkyConnector™ CPE. The separation of access from backhaul enables the use of multiple non-overlapping channels when deploying a "honeycomb" of Wi-Fi cells, thus providing much greater throughput, subscriber density, network capacity, and scalability throughout the Wi-Fi access network. The result is a practical, elegant network architecture for deploying Wi-Fi access services to metropolitan, municipal, and campus networks.

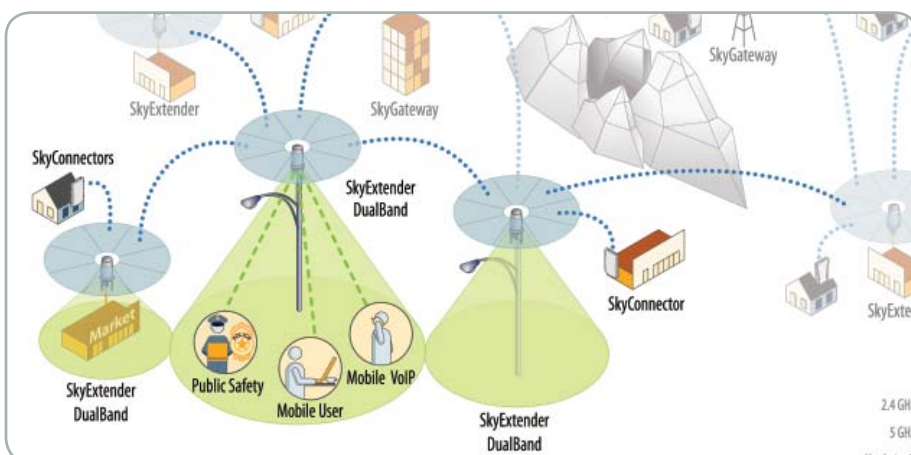
Metropolitan, Municipal, and Campus Wireless Networks

- Municipal districts, business parks, and residences
- Public safety, essential services, and telemetry
- Educational and corporate campuses
- Public outdoor spaces – shopping malls, recreation areas, and parks

Multi-Service Applications

- Outdoor Public Access Networks
- Business or residential broadband Internet access
- Wireless Voice over IP (wVoIP)
- Video surveillance and security for public or private networks

Provide scalable Wi-Fi capacity and coverage with the SkyExtender DualBand



SkyExtender Dualband System Specifications

Access Point

- 16 SSIDs with VLAN mapping
- Dynamic channel selection

Traffic Management

- VLAN support: IEEE 802.1q
- Traffic Prioritization: IEEE 802.1p, protocol type, IP port, IP ToS field, and IP address list
- Traffic Filtering: protocol type, IP port, and IP address list
- Traffic Shaping: upstream and downstream per-user rate control

Topology

- Mesh, point-to-multipoint, and point-to-point, in any combination and with multiple hops between base station and subscriber nodes

Configuration, Management, & Monitoring

- NMS integration: SNMPv2c
- EMS: SkyProvision and SkyControl
- IP address: DHCP or static
- Firmware: Multiple versions stored in nonvolatile memory; updated via FTP
- Provisioning: Manual or automated
- Configuration file: XML over HTTP
- SNMP MIBs: MIB-II (RFC 1213); EtherLike (RFC 2665); Bridge (RFC 1493); 802.11; SkyPilot private MIB
- Remote logging
- Remote management: CLI via Telnet, SNMPv2c
- Local management: RS-232 serial console port

Wireless

	5 GHz wireless backhaul (mesh, point-to-multipoint, or point-to-point)	802.11b/g AP (Wi-Fi subscriber access)
Frequency band	4.940-5.150, 5.150-5.450, 5.450-5.725, or 5.725-5.850 GHz	2.400-2.497 GHz
EIRP (EIRP selected for country-specific regulations)	44.5 dBm/28.2 W peak, 36 dBm/4 W average, 33 dBm/2 W average, 30 dBm/1 W average, or 36 dBm/4 W peak	35.0 dBm/3.2 W or 29.0 dBm/800mW
Media access	Time Division Duplex (TDD)	802.11b/g CSMA/CA
Modulation technique	OFDM with adaptive modulation	OFDM with adaptive modulation (802.11g) & DSSS (802.11b)
Modulation rates	6 to 54 Mbps	802.11b: 1 to 11 Mbps 802.11g: 6 to 54 Mbps
Throughput	Up to 20 Mbps	
Latency	10-12 ms roundtrip per hop	
Antennas	8-antenna array (360° coverage) Each antenna: 45° horizontal x 6° vertical, 18 dBi	2 external 9 dBi omnidirectional antennas with transmit & receive diversity
Channel width	5, 10, or 20 MHz	20 MHz
Channel resolution	5 MHz frequency control	5 MHz frequency control
Receive sensitivity	-90 dBm at 6 Mbps modulation	-98 dBm at 1 Mbps modulation
Connectivity	Connects with SkyGateways, SkyExtenders, SkyExtender DualBands, and SkyConnectors	Connects with 802.11b/g Wi-Fi clients
Authentication	MD5-based certificates	RADIUS support for multiple servers, 802.1x
Encryption	128-bit AES encryption on all wireless links	AES, WPA (EAP-TTLS, EAP-PEAP/ MSCHAPv2 with TKIP), MIC, and dynamic WEP

Product Specifications

Connectors	RJ-45: power (Power over Ethernet) RJ-45: RS-232 serial for local management
Mounting	Tower, utility pole, lampposts, building, or other infrastructure Outside diameter up to 2.0"
LEDs	Wireless activity, wireless link
Dimensions	33.0" (83.8 cm) H x 12.2" (31.0 cm) diameter
Weight	15.0 pounds (6.75 kg)
Operating temperature	-40° to 131° F (-40° to 55° C)
Wind loading	Up to 150 mph (240 km/h)
Enclosure/humidity	NEMA-4X
Power	110VAC, 50-60 Hz input; 10 Watts
Certifications	FCC Part 15, FCC 47 CFR Part 15, Class B USA; compliance with UL safety standards, CE, C-Tick, IC RSS210 Issue 5
EMI and susceptibility	FCC Part 15.107 and 15.109
Warranty	One-year limited warranty on hardware; 90-day limited warranty on software



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