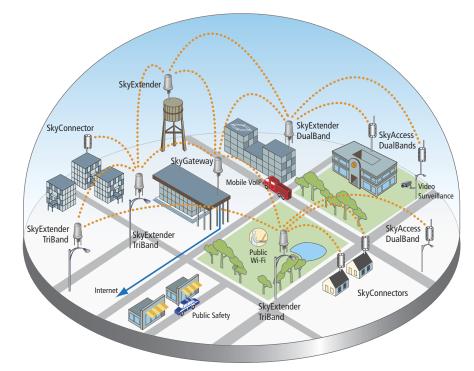# SkyGateway Series

Capacity Injection to the Mesh

The SkyGateway™ series are carrier-class network base stations that provide capacity injection to the mesh network. By deploying SkyGateways, service providers can easily scale available bandwidth to meet changing application demands and enhance network reliability through redundant points of service . Unlike a conventional point-to-multipoint basestation, the SkyGateway is the foundation of a true mesh topology, delivering multi-hop versatility, dynamic rerouting, and outstanding scalability. The SkyGateway is also available in DualBand and TriBand models to enhance local client access in the physical vicinity of the base station where public and municipal applications are served. The SkyGateway series now provides a greater range of options for service providers, integrators, and municipalities to deploy one wireless infrastructure ready to serve multiple private and public sector applications.

The SkyGateway series includes an advanced antenna array called SectorSwitch that provides 360º coverage using eight integrated antenna sectors. SkyGateways communicate with Sky-Extender mesh nodes using OFDM over point-to-point links, which allows SkyPilot to utilize substantially higher output levels as defined by the FCC than conventional omnidirectional antennas. As a result, SkyGateways achieve backhaul links capable of over 28 W EIRP, delivering high modulation rates and the ability to support longer ranges between mesh nodes up to 10 miles/16 km. SkyPilot's intelligent SyncMesh™ technology manages traffic across the mesh network to mitigate interference and support the prioritizing of voice and data for Quality of Service.

SkyGateway DualBand and TriBand models are available with integrated access points that allow for simultaneous local client access without interrupting backhaul communications Access points are available in 2.4 GHz for public Wi-Fi and licensed 4.9 GHz for municipal public safety. Each access point includes a high power radio with a high gain omnidirectional antenna. SkyGateway DualBand and TriBand models allow service providers and municipalities to ensure ubiquitous coverage for public Wi-Fi access, first responders, mobile agency staff communications, and more, while seamlessly managing traffic throughout the SkyPilot wireless mesh network.

Benefits

- **Highly scalable** capacity injector that is easily deployed in the network to meet changing subscriber density and traffic demands

- **Robust mesh backhaul** capable of serving multiple applications over one network

- **SyncMesh intelligence** manages traffic to maximize available bandwidth

- **Overcomes limitations** of point-to-multipoint base stations by offering multi-hop path redundancy for greater network reliability and deployment flexibility

- **Dualband and TriBand** options to support client services
   – 2.4 GHz for standards-based Wi-Fi HotZones
   – 4.9 GHz for licensed public safety agencies

- **Lower OpEx** through the auto-discovery and self-configuration, self-optimization, and self-healing advantages of mesh

- **End-to-end QoS** to support converged voice, data and video

- **Hybrid network** ready for citywide municipal and service provider deployments
   – Fixed broadband Internet services
   – Digital inclusion and public Wi-Fi access
   – Public safety and first responder communications
   – Mobile connectivity for remote agency staff
   – AMR and other e-government initiatives

SkyGateway series is the foundation of a highly scalable, multi-service wireless mesh network

SkyGateway Series

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

Configuration, Management, & Monitoring

- EMS: SkyControl client server application
- NMS integration: SNMPv2c
- IP address: DHCP or static
- Firmware: multiple versions stored in nonvolatile memory; updated over-the-air 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, web browser
- Local management: RS-232 serial console port

Models	SkyGateway	SkyGateway DualBand	SkyGateway TriBand
Mesh Backhaul	4.9-5.8 GHz	4.9-5.8 GHz (see below)	4.9-5.8 GHz (see below)
Local Access	10/100 Mbps Ethernet (PoE)	10/100 Mbps Ethernet (PoE)	10/100 Mbps Ethernet (PoE)
Wi-Fi Access	None	802.11b/g (2.4 GHz) or 802.11a (4.9 GHz)	802.11b/g (2.4 GHz) and 802.11a (4.9 GHz)

Wi-Fi Access Specifications

Access Point	2.4 GHz	4.9 GHz
Frequency Band	2.400-2.483 GHz	4.940-4.990 GHz
Radio (peak Tx)	400 mW / 26 dBm	400 mW / 26 dBm
Antennas	7.4 dBi omni	9.5 dBi omni
EIRP	2.2 W / 33.4 dBm (maximum) 100 mW / 20 dBm (minimum)	3.5 W / 35.5 dBm
Media Access	IEEE 802.11b/g CSMA/CA	IEEE 802.11a CSMA/CA
Modulation	OFDM (802.11g), DSSS (802.11b)	OFDM (802.11a)
Channel Width	20 MHz	5, 10, or 20 MHz
Receive Sensitivity	-98 dBm at 1 Mbps	-94 dBm at 6 Mbps (4.9 GHz)
Authentication	RADIUS support, 802.1x	
Encryption	AES, WPA (EAP-TTLS, EAP-PEAP/MSCHAPv2 with TKIP), MIC, and dynamic WEP	

Mesh Backhaul Specifications

Frequency Band	4.940-5.350 (not available with 4.9 GHz AP), 5.470-5.725, or 5.725-5.850 GHz
Radio (peak Tx)	450 mW / 26.5 dBm
Antennas	Eight – antenna array – 18 dBi integrated sectors (45° horizontal, 6° vertical each sector)
EIRP	44.5 dBm / 28.2 W peak (maximum) (also available in configurations for 36 dBm/ 4 W, 33 dBm / 2 W, and 30 dBm / 1 W for international regulatory compliance)
Media Access	Time Division Duplex (TDD)
Modulation	OFDM with adaptive modulation
Throughput	Up to 20 Mbps UDP / Up to 12 Mbps TCP
Receive Sensitivity	-90 dBm at 6 Mbps
Channel Width	20 MHz
Channel Resolution	5 MHz frequency control
Range	Up to 10 miles/16 Kilometers
Latency	10-12 ms roundtrip per hop
Connectivity	SkyGateway Series and SkyExtender Series, SkyAccess and SkyConnector devices
Authentication	RSA-Based Certificates
Encryption	128-bit AES

Physical Specifications

Connections	One RJ-45 – power and Ethernet (PoE) One RJ-45 – RS-232 serial for local CLI management
Mounting	Mast, tower, utility pole, light pole, building or other infrastructure (optional mounting kits available for some installations)
Indicators (LED)	Wireless activity, wireless link (located on device bottom for easier ground level viewing)
Dimensions	Height: 25 inches / 63.5 cm radome 33 inches / 83.8 cm with antennas
Weight	15.0 pounds / 6.75 Kilograms
Operating Temperature	-40° to 131° F / -40° to 55° C
Wind Loading	Up to 150 mph / 242 kph
Enclosure	NEMA-4X
Power	110 VAC, 50-60Hz input; 8.5-16 Watts (varies by model and other factors)
Certifications	FCC Part 15, FCC 47 CFR Part 15, Class B USA; compliant with UL safety standards; ETSI; ACA: RoHS
EMI	FCC Part 15.107 and 15.109

SkyPilot™ NETWORKS

Leading the Mesh Revolution

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