



SkyPilot Connector

SkyPilot Network CPE Device

The SkyPilot® Connector is a CPE endpoint of the SkyPilot network, a low-latency, high-bandwidth radio system operating in the 5.0 GHz band as a self-forming, self-balancing, and self-healing wireless mesh network. The Connector provides client devices with a wired Ethernet connection to the broadband Layer 2 Ethernet transport supported by the SkyPilot wireless mesh network. In this way, the Connector offers its users reliable and cost-effective broadband wireless access to support TCP/IP and other traffic.

The SkyPilot Connector has been designed to be quickly and simply deployed. The Connector's audible and visual cues help in aligning its integrated panel antenna toward nearby SkyPilot Extenders or Gateways. The Connector's auto-discovery and auto-provisioning features then ensure proper installation in the network and minimize both deployment and ongoing operational costs. The SkyPilot network allows bandwidth to be allocated on a per-device basis, making it possible for a SkyPilot service provider to charge for different service tiers based on varying data rates and usage, while VLANs can be used to further segregate user data and network access. These capabilities enable a service provider to offer a range of advanced, revenue-enhancing, and transparent services to their users.

The SkyPilot Connector can be configured to operate in a variety of different 5 GHz bands for a wide range of international deployments, using a high-gain integrated panel antenna to provide directional coverage to other SkyPilot mesh nodes. The SkyPilot network's intelligent mesh technology manages traffic across the mesh network to mitigate interference and support the prioritization of voice and data for improved Quality of Service (QoS) performance. Moreover, the SkyPilot network's mesh architecture improves network reliability and link integrity by creating a self-healing infrastructure using best-path, vector-based routing algorithms. Automatic link discovery and dynamic adjustment of modulation and Forward Error Correction (FEC) parameters further optimize the quality of each link. Overall, the SkyPilot network can realize throughput rates of up to 20 Mbps (UDP) and 12 Mbps (TCP) with a two-way latency of < 10 ms per hop.

Cost-Effective CPE Endpoint

- OFDM modulation improves multipath performance and allows Non-Line-of-Sight deployment
- Mesh routing through SkyPilot network avoids buildings, hills, and other obstacles

Layer 2 Ethernet Transport

SkyPilot Network

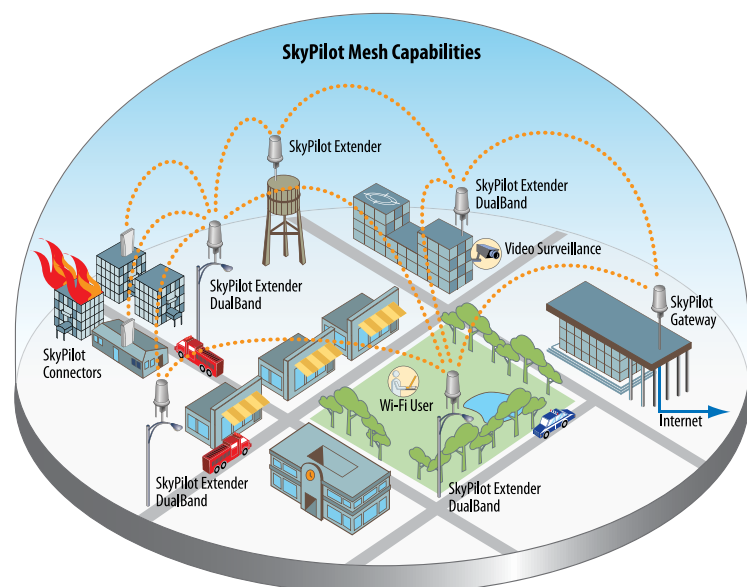
- Low latency: < 10 ms per hop (round-trip)
- High capacity: throughput of up to 20 Mbps (UDP) and 12 Mbps (TCP)
- Superior communications performance: supports end-to-end QoS on a per-application or per-client basis, allowing differentiated service offerings
- Mesh network topology allows deployment across entire service area, supporting applications such as:
 - Fixed broadband Internet services
 - Public Wi-Fi access
 - Public safety and first responder communications
 - Other public or private communications network initiatives

Traffic Management

- VLAN support with IEEE 802.1Q
- Traffic prioritization using IEEE 802.1p, protocol type, IP Port, IP DiffServ/ToS field, and/or IP address
- Traffic filtering using protocol type, IP port and/or IP address
- Traffic shaping with upstream and downstream per-user rate control

Configuration, Management & Monitoring

- SkyPilot Element Management System (EMS) using SNMPv2c
- Dynamic or static IP addresses
- Firmware is "over-the-air" upgradeable
- Manual or automated provisioning
- Remote management via Telnet, SNMPv2c, or web interface
- Remote logging



SkyPilot Connectors provide reliable and cost-effective CPE devices for the SkyPilot network

SkyPilot Connector Specifications

5 GHz Mesh Specifications

Frequency Band	4.940 to 6.075 GHz, including: <ul style="list-style-type: none"> US: 4.940 - 4.990 GHz public safety US: 5.250 – 5.350 GHz U-NII mid US: 5.470 – 5.725 GHz U-NII worldwide US: 5.725 – 5.850 GHz U-NII upper World: 5.850 – 6.075 GHz extended range
Transmit Power	<ul style="list-style-type: none"> 30 dBm (maximum at radio antenna port) Reduced as needed for regulatory compliance
Antenna	<ul style="list-style-type: none"> Directional panel Isotropic gain <ul style="list-style-type: none"> 15.1 dBi @ 4.900 GHz 16.0 dBi @ 5.350 GHz 16.3 dBi @ 5.725 GHz Beamwidth: ~24° azimuth, ~16° elevation
Media Access	Time Division Duplex (TDD)
Modulation	OFDM with adaptive modulation
Data Rates	6 / 9 / 12 / 15 / 18 / 24 / 36 / 48 / 54 Mbps
Receive Sensitivity (3% FER @ antenna port)	<ul style="list-style-type: none"> -92.0 dBm @ 6 Mbps -92.0 dBm @ 9 Mbps -90.0 dBm @ 12 Mbps -89.0 dBm @ 18 Mbps -85.0 dBm @ 24 Mbps -82.0 dBm @ 36 Mbps -76.0 dBm @ 48 Mbps -73.0 dBm @ 54 Mbps
Channel Width	20 MHz
Channel Resolution	5 MHz frequency control
Range	Up to 7.5 miles / 12 kilometers
Network Security	<ul style="list-style-type: none"> AES-128 encryption Certificate-based authentication

Physical Specifications

Connectivity	<ul style="list-style-type: none"> 10/100Base-T port to/from client device(s) and as Power-over-Ethernet (PoE) power input To/from SkyPilot Gateways and/or Extenders as an endpoint node of the SkyPilot 5 GHz mesh network
Input Voltage	<ul style="list-style-type: none"> 48 VDC PoE 8P8C connector AC/DC adapter and PoE injector: 100~240 VAC / 47~63 Hz
Power	14 Watts (maximum)
Surge Protection	<ul style="list-style-type: none"> Requires Trilliant part 620-00705-01 or equivalent Weatherproof PoE-compatible 10/100Base-T CAT5 lightning protector (8P8C or unterminated)
Dimensions	H x W x D <ul style="list-style-type: none"> 11.0 x 6.5 x 4.5 (inches) 28.0 x 16.5 x 11.4 (centimeters)
Weight	2.5 lbs / 1.1 kg
Operating Temperature	-40 to +158 °F / -40 to +70 °C
Humidity	5 to 95% non-condensing
Wind Loading	120 mph / 193 km/h
Installation	Pole- or panel-mounted (eave, rooftop, chimney, etc.)
Enclosure	<ul style="list-style-type: none"> Outdoor UV-stabilized plastic IP65 Tamper proof seal/locking mechanism

Compliance Specifications

Unlicensed Radio Operation	<ul style="list-style-type: none"> FCC Part 15 Subpart C & E Industry Canada RSS-210 Other regulatory domains
Device IDs	5.250-5.350 GHz; 5.470-5.850 GHz <ul style="list-style-type: none"> FCC: RV7-SC6000 IC: 5550A-SC6000 4.940-4.990 GHz <ul style="list-style-type: none"> FCC: RV7-SD1087 IC: na
EMI/EMC	<ul style="list-style-type: none"> FCC Part 15 Subpart B (Class B) Industry Canada ICES-003 (Class B) EN 301-489
Safety	<ul style="list-style-type: none"> UL 60950-1 CSA C22.2 No. 60950-1 EN 60950-1
Environmental	RoHS



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