

StreamLine Broadband Wireless

Product Overview

StreamLine wireless broadband products are a family of highly reliable and extremely competitive point-to-point solutions. Operating in the unlicensed 2 GHz and 5 GHz spectrum bands, StreamLine systems offer high capacity connectivity of up to 48 Mbps and long range of up to 80km.

StreamLine wireless systems are very simple to install at a fraction of the cost of wired infrastructure, such as leased lines or fiber. The license-free, point-to-point solutions can be set up and deployed instantly. The truly plug and play installation enables link deployment to happen in a matter of minutes, even in difficult locations.

StreamLine systems are ideal for:

Carrier backhaul - carrying backbone traffic between ISPs and their PoPs, cell sites, wireless base stations, Wi-Fi hotspots, and more.

Private networks – corporations, universities and schools, banks and government organizations can use StreamLine to securely and easily interconnect their branches with high reliability, transparent connection, and high data rates.

Our systems use an outdoor-mounted unit (ODU) with either an integrated antenna or a connector for external antennas, providing ultimate flexibility of deployment. Extremely reliable, our robust outdoor systems operate even in extreme temperatures.

Highlights

- Long range - up to 80 km
- High capacity - 48 Mbps
- Easy, fast installation
- Robust OFDM Technology
- Non-Line of Sight capability

Applications

- Enterprise Networking: Link corporate offices
- Backhaul: Hotspot, base stations, points of presence
- High throughput access for ISPs and carriers
- Hospital and Educational: Link campuses, blocks



Integrated Antenna Model



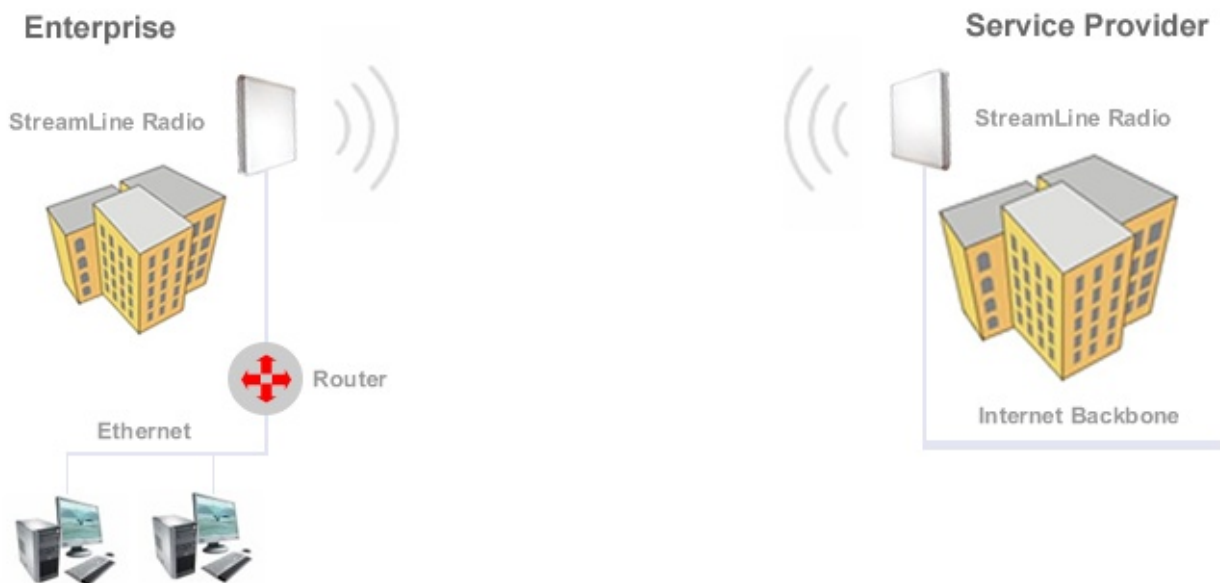
External Antenna Model

Typical Applications

StreamLine for enterprise networking connectivity



StreamLine for Internet Service Providers



Features and Technology

- **External antenna support**

Alloyant offers integrated and external antennas in different gains, sizes and shapes for each of the frequency bands supported by StreamLine. Third party external antennas can also be used. Integrated antenna models of StreamLine offer a medium range – up to 35km, while external antenna models can be used with high-gain antennas to maximize range up to 80km.

- **Support for multitude of frequency bands**

Multiple frequency bands ensure that a StreamLine link can be installed anywhere in the world where unlicensed frequencies are open or unregulated.

- **Stable, advanced radio technology**

StreamLine uses OFDM (Orthogonal Frequency Division Multiplexing) physical layer. OFDM is the most efficient radio physical layer for long-range, non-line of sight broadband wireless systems. Resilient to interference, multipath effects, fading and Doppler shifts, this technology has been successfully tested and implemented in the harshest environments.

- **Automatic Channel Selection**

StreamLine can automatically detect degradation in link performance and scan different channels to find the one with least interference, providing a more stable and reliable link even in crowded environments. It also enables deploying large numbers of links while preventing interference from other radio systems in the vicinity. ACS is an integral feature of StreamLine and is now available in all products.

- **Flexible channel size**

Streamline is unique in that it allows the user to select the size of the wireless channel it uses. With size choices of 20, 10, and 5 MHz, it allows to vary the data rate against better interference tolerance. Since smaller channel size allows for more non-overlapping channels and is less likely to collide with an interference source nearby, this is a great way to evade interference in a noisy or crowded environment.

- **Automatic Transmit Power Control**

This feature automatically adjusts the transmit power of the StreamLine system to ensure that it operates with a high degree of reliability while generating the least amount of interference. Supported in all StreamLine products, ATPC helps avoid co-location interference.

- **Adaptive Modulation technology**

Adaptive Modulation is a smart, automated technique to maintain a radio link even through conditions that would cause a regular wireless data link to fail (severe fading, multipath, interference, obstructions, etc.) When adverse radio conditions occur, the Adaptive Modulation engine detects the signal degradation and automatically shifts down to a lower-rate, but more robust modulation mode.

- **Fast, easy installation**

A built-in audible installation helper makes the installation's antenna lineup procedure a breeze. The helper uses audio signals (beeps) to indicate received signal strength, providing live feedback to the installer and significantly speeding the setup process.

Technical Specifications

General

ODU: Outdoor die-cast weatherproof radio unit
IDU: brick-type PoE power supply/interface unit
ODU cable: Outdoor-rated shielded CAT-5 cable
Maximum CAT5 cable run: 100m
ODU antenna connector: N-Type Female

Radio

Frequency Bands

2.300 – 2.400 GHz
2.400 – 2.483 GHz
4.940 – 4.990 GHz
5.150 – 5.350 GHz
5.470 – 5.725 GHz
5.725 – 5.850 GHz
5.865 – 5.935 GHz

Raw data rate: up to 48 Mbps
Channel bandwidth: 20 MHz – 5/10/20 MHz support
Duplexing: TDD
Radio technology: OFDM
Modulation: Fixed and adaptive BPSK, QPSK, 16QAM, 64QAM
Maximum Transmit Power: Up to 18/23 dBm
Receiver Dynamic Range: >60 dB
Error Correction coding: Fixed and adaptive convolution FEC 1/2, 2/3, 3/4
Encryption: 128-bit AES

Data interface

Ethernet interface: 10/100BaseT, Auto-negotiation
Ethernet interface framing/coding: IEEE 802.3/U
Ethernet interface line impedance: 100 Ohm
Networking model: Auto-learning bridge
Bridge MAC address capacity: up to 2047 MAC addresses (IEEE 802.1Q)
Data Latency: 3 msec (typical)
VLAN Support: Transparent
Connector: RJ-45

Mechanical

ODU (with 1 ft panel integrated antenna) 30.5 cm (H) x 30.5 cm (W) x 5.8 cm (D)
Weight: 1.5kg / 3.3lbs
ODU (without integrated antenna) 24.5 cm (H) x 13.5 cm (W) x 4.0 cm (D)
Weight: 1.0kg / 2.2lbs

Power and Mounting

Power supply: 100-240 VAC, 50/60 Hz; -24 VDC; -48 VDC
ODU Power Consumption: 10W max
Mounting: Pole and wall mount brackets supplied

Environmental

Outdoor Unit Enclosure: IP67 outdoor weatherproof
ODU Operating Temperature: -35 degrees C to +60 degrees C
Humidity: Up to 100% non-condensing
IDU - Up to 90% non-condensing

Regulatory

Safety compliance: TUV - CAN-CSA
EMC compliance: FCC – ETSI - CAN-CSA
RoHS and WEEE: Compliant