LIGHTPOINTE™
WIRELESS

Up to 10 Gbps aggregated system capacity, using non-interfering channels and OMT polarization technology!

#1 Ultra Low Latency Point to Point Wireless Bridges

2015

# The world's highest powered, lowest latency 70/80 GHz E-band millimeter wave bridges

2015 Aire X-Stream Series & AireBeam Series Brochure

Note: If you have a large monitor, select 2-page mode in your PDF software (VIEW menu)

# LightPointe, the leader in wireless bridges, now offers two unique families of 70/80 GHz Millimeter Wave E-band radios... all offering faster-than-fiber performance.

## 70/80 GHz Radios

### AireBeam Series

Carrier grade Layer 2 radios for networks requiring flexible management features, and the highest power available in the industry, up to +23 dBm

Applications:

- Carriers/Mobile 4G/LTE Backhaul
- Service Provider Backbone
- Enterprise Building Connectivity
- School/University Campus Links
- Hospitals/Medical Data Links
- Federal/State/Municipality Links
- Security/Video Backhaul

### Aire X-Stream Series

Ultra Low Latency (ULL) Layer 1 radios designed for networks requiring the absolute lowest latency, and the highest power available, +23 dBm

Applications:

- High Speed Trading Networks (HFT)
- Data Centers & Cloud Networks
- Military & special purpose networks where data transmission speed is paramount
- Extreme long distance installations where daisy-chaining multiple radios (back-to-back) may be required, while maintaining excellent transmission speed/low latency, high availability, and transparent SyncE/IEEE1588 transport

*Electronic Engineering Times:* "Forty innovators building the foundation of the next-gen electronics industry."


Industry-leading 2-year warranty

2 YEARS

# Over 17 years of innovation driven by LightPointe's award winning engineers...

**Whether your organization needs to connect two buildings or deploy a Metropolitan Area Network to provide an entire city with broadband connectivity, LightPointe has the broadest selection of high powered Ultra Low Latency 70/80 GHz backhaul solutions—all backed by the industry's best warranty. These radios are built for performance and reliability. They are proven in financial networks which literally handle millions of dollars worth of transactions—or profits—in a millisecond, and in networks providing broadband to a subscriber base demanding high speed connectivity. Each radio is manufactured and tested in our San Diego, California Design Center. And you'll have the peace of mind of knowing that LightPointe is an ISO-9001:2008 certified company, and that all our radios are FCC and CE certified by an independent compliance lab.**

**Our *AireBeam Series* is perfect for enterprises and 4G/LTE telecom carriers requiring the management features of Layer 2 radios.**

**Our *Aire X-Stream Series* includes radios built for speed—providing the world's lowest latency and highest power output. No other manufacturer's E-band radios are faster than these Layer 1 solutions, which are proven in demanding networks such as High Frequency Trading environments, Data Centers, and Cloud Networks.**

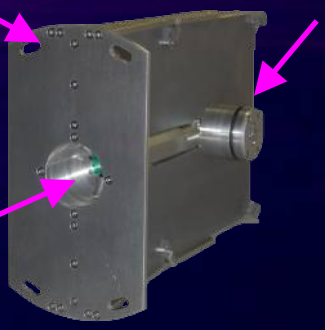
## "FUTURE PROOF" UPGRADEABLE SYSTEMS: LIGHTPOINTE's ADVANCED OMT TECHNOLOGY

**Using a unique waveguide, two radios can be mounted to one antenna, providing a remarkable 2.5 Gbps of capacity. And, since only one antenna is used, there's only one installation site, saving costs every month on building or tower real estate/leasing. Start with one radio, and add another at any time while protecting your investment.**

Mount for 1FT/.3m or 2 FT/.6m antenna (field changeable antenna)

Radio Mount (one on each side)

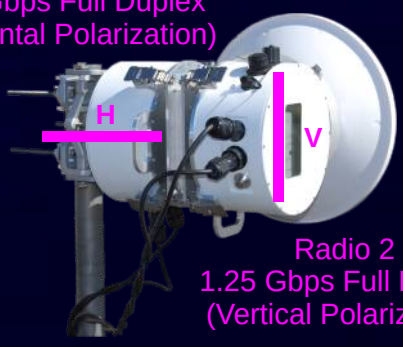
Integrated Feed Horn (capable of simultaneously transmitting & receiving dual polarity MMW signals for an aggregated Layer 1 bridge capacity of 10 Gbps)



Orthomode Transducer (OMT) Coupler

One antenna transmits 2.5 Gbps & receives 2.5 Gbps simultaneously!

Radio 1
1.25 Gbps Full Duplex
(Horizontal Polarization)




Radio 2
1.25 Gbps Full Duplex
(Vertical Polarization)

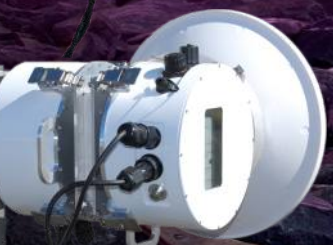
# Aire X-Stream™ Series

## The world's highest powered, Lowest Latency 70/80 GHz Radios. Really.

**<10**
**Less than 10 nanoseconds terminal latency!**


**1.25 Gbps Medium Range**

**1.25 Gbps Long Range**



**2.50 Gbps Medium Range**

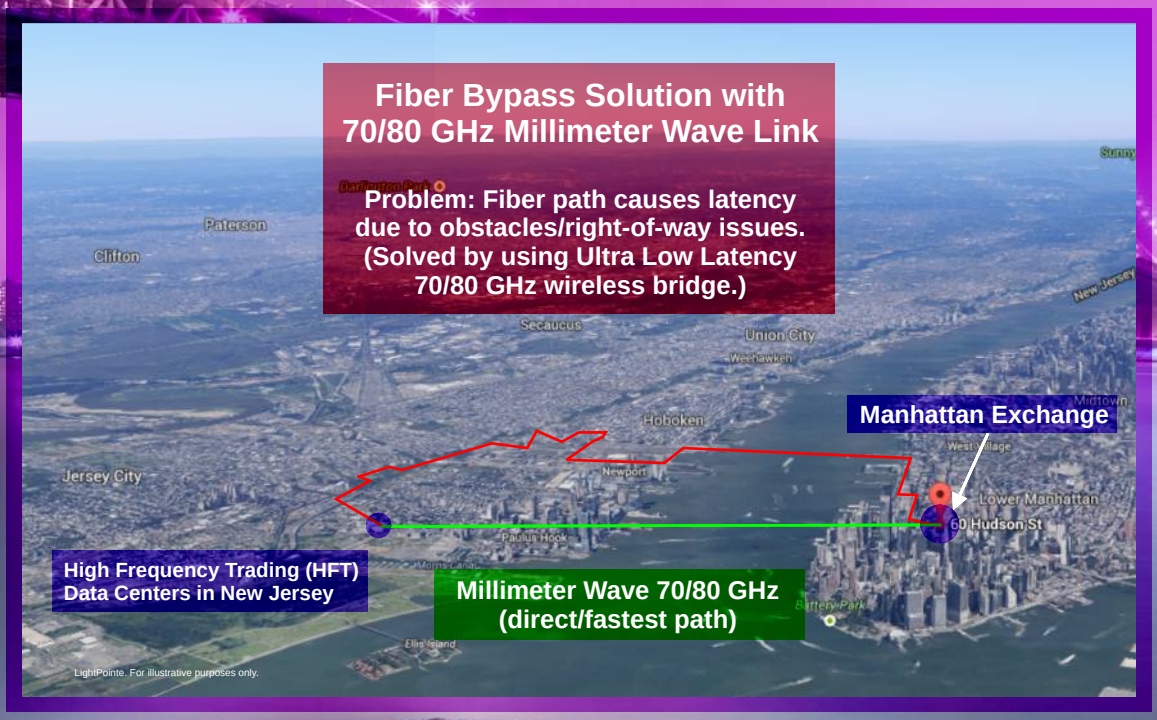
**2.50 Gbps Long Range**

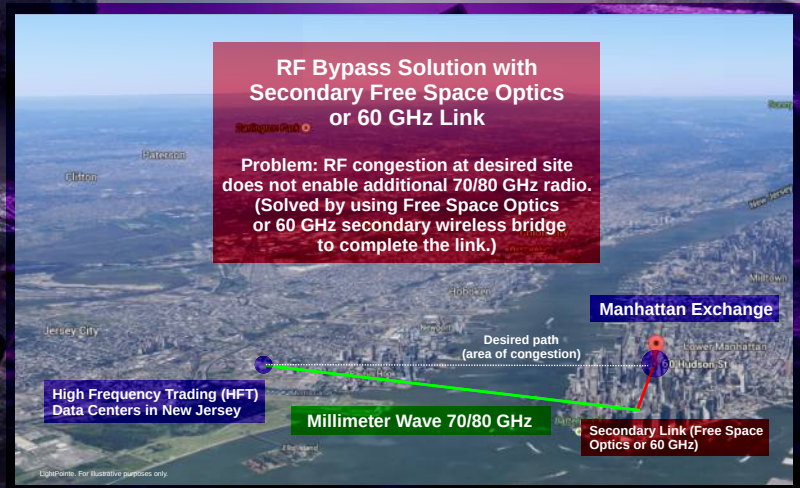
**LightPointe's *Aire X-Stream Series* is ideal for Ultra Low Latency Gigabit capacity transmission. These state-of-the-art backhaul solutions can be utilized to easily establish point-to-point connectivity between buildings and/or towers in high speed Ethernet networks, including High Frequency Trading (HFT) applications and other time-sensitive environments such as real-time military or homeland security applications. With equipment/terminal latency of less than 10 ns/*nanoseconds*—not *milliseconds* as in most competing solutions—these radios offer full duplex Layer 1 transmission transparency with system latency hundreds of times better than alternative transmission technologies.**

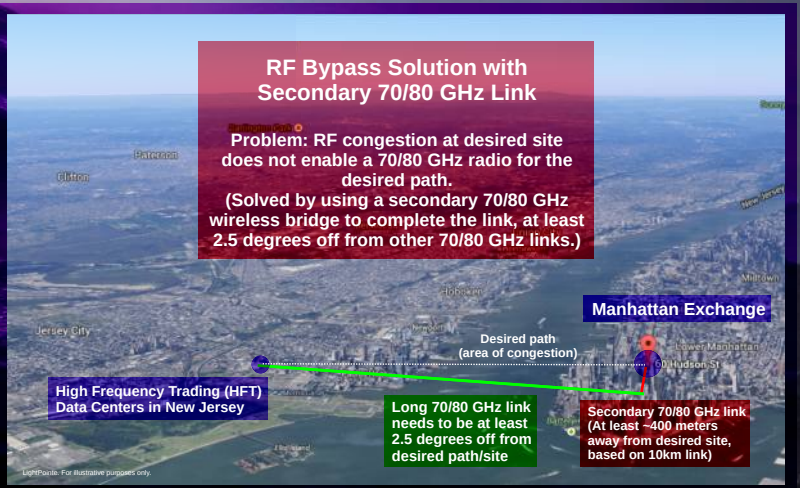
**And—for 2015—they deliver the highest output power possible at up to 23 dBm. Ask your LightPointe representative whether your country allows 20 dBm or the 23 dBm capability of our new "*Plus*" designated models.**

# Aire X-Stream Series Features

- High speed full-duplex Layer 1 transparent transmission up to 2.5 Gbps, for a total aggregated Layer 1 system capacity of up to 10 Gbps.
- World's highest powered (up to 23 dBm) lowest latency 70/80 GHz system.
- Multiple non-interfering frequency channels in the 70/80 GHz bands.
- Two independent Gigabit Ethernet connections via dual polarization operation over a single ultra high gain field changeable antenna (1ft/.3m or 2ft/.6m).
- Clock and Data Recovery (CDR) for extreme long distance cascadable back-to-back operation.
- All outdoor rated radio unit (ODU) with external connector (IP67 rated).
- Choice of RJ45 copper, MM, or SM fiber connectors for each ODU.
- PoE or direct 48 Vdc power connection.
- Low energy consumption (<20W).
- Industry exclusive ODU link indicators.
- In-band and Out-of-Band web browser and SNMP v1/v2c support.



# AireBeam™ Series

## Flexible Layer 2  70/80 GHz Radios

**Carrier-grade millimeter wave wireless bridges for long distance business, government, and 4G carrier applications up to 2.5 Gbps.**

**80 GHz**
**1.25 Gbps**
**Medium Range**

**80 GHz**
**1.25 Gbps**
**Long Range**

**80 GHz**
**2.50 Gbps**
**Medium Range**

**80 GHz**
**2.50 Gbps**
**Long Range**

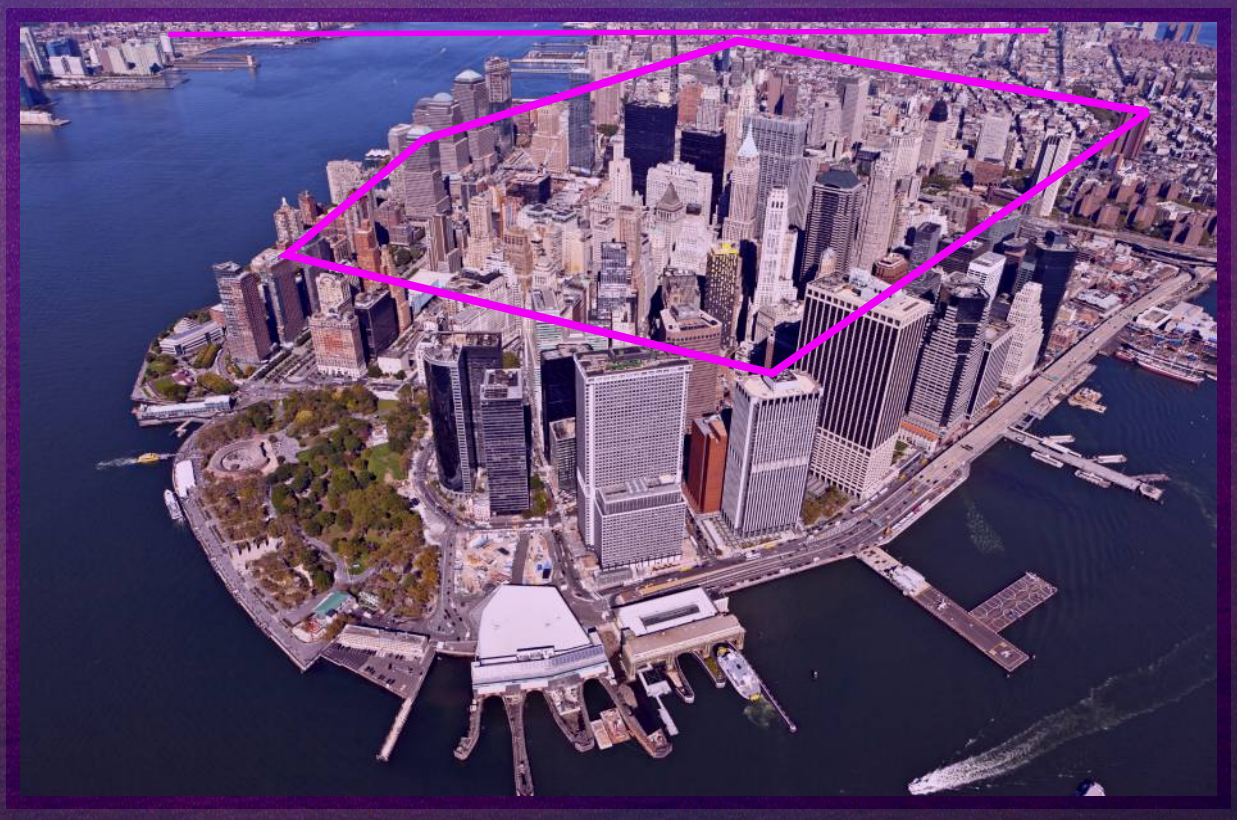
**LightPointe's AireBeam Series is an ideal state-of-the-art backhaul solution for multi-mile long distance Layer 2 Gigabit Ethernet transmission for enterprise, government, and carrier customers.**

**The AireBeam Series provides  low latency operation at full duplex Gigabit Ethernet bandwidth, low power consumption at less than 20 Watts, and there are two  user selectable antenna configurations for long distance (2 foot/.6m antenna), and medium distance (1 foot/.3m antenna) applications.**

**AireBeam radios are available at different frequency settings and with +20 dBm or +23 dBm of output power (“Plus” models).**

# AireBeam Features

- High speed full-duplex Gigabit Ethernet  transmission.
- Two independent Gigabit Ethernet connections via dual polarization operation over a single antenna.
- Highest E-Band transmission technology at up to +23 dBm.
- Low radio latency (< 40 microseconds).
- Multiple non-interfering frequency channels in the 70/80 GHz bands.
- All outdoor rated radio unit (ODU) with external connector (IP67 rated).
- Choice of RJ45 copper, MM, or SM fiber connectors for individual ODU.
- Ultra high gain 1ft/.3m & 2ft/.6m field-changeable antennas.
- Power-over-Ethernet (PoE) or direct 48 Vdc  power connection.
- Industry exclusive ODU link optimizer/indicators.
- Easy-mount polarization adjustment.
- Low energy consumption (<20W).
- In-band and Out-of-Band  web browser and SNMP v1/v2c support.
- Industry Leading 2 year warranty.



# AireBeam Specs

## 1.25 Gbps
## Layer 2 Radios
## +20 or +23 dBm

| Product Specification | AireBeam Medium Range (1 foot/.3m) | AireBeam Long Range (2 foot/.6m) |
|---|---|---|
| Description | Outdoor MMW Radio transceiver with integrated high gain antenna including mounting/alignment assembly and power supply | |
| Frequency of Operation | 72.375 - 82.375 GHz and 74.875 - 84.875 GHz (FDD), digitally modulated | |
| Transmission Power | +20 dBm or +23 dBm (depending on country) | |
| Dimensions w/o Antenna | (57L x 33W x 36H) cm | (70 x 51 x 66) cm |
| Antenna Size | 1 foot/.3m | 2 foot/.6m |
| Antenna Gain | 45 dBi | 51 dBi |
| Antenna Polarization | Horizontal/Vertical | |
| Polarization adjustment | Field adjustable via ODU rotation | |
| Antenna HPBW | 0.7° | 0.5° |
| Unit Weight | 8.2 kg | 11.1 kg |
| Operating Voltage | 110/230 ac; direct 48 Vdc (fully outdoor rated) or Power over Ethernet (PoE) | |
| Operating Temperature | -35°C to +60°C (-31°F to 140°F) | |
| Humidity Range | Up to 95% (Non-Condensing) | |
| Environmental/IP Rating | IP67 | |
| Power Consumption | 20W max/Radio ODU | |
| Mounting Options | Pole mount alignment bracket w/coarse & fine-alignment (60-110 mm pole diameters) | |
| Status-LEDs | Power, TX Data, LOS, Overload, Data In, Data Out | |
| Alignment tools | Antenna mounted Site Alignment spotting tool, RSSI LED bar graph | |
| Range | Up to 10 miles/16.5 km or more, depending upon rain zone and availability required | |

| Networking | |
|---|---|
| Data Rate | 1.25 Gbps, Gigabit Ethernet, Full Duplex |
| Protocol | 802.3z (Gigabit Ethernet) |
| OSI Layer | Physical Layer 2 |
| Ethernet Clock/Sync. | CDR to support daisy-chain configuration |
| QoS support | Tagged based and protocol based prioritization, strict and weighted queuing models |
| Latency | < 40 microseconds |
| Ethernet Interfaces | Primary: copper 100/1000Base-TX or fiber 1000Base-SX/LX via standard SFP<br>Secondary/DualPath: 100/1000Base-TX |
| Data Rate | Gigabit Ethernet, Full Duplex |
| Physical Connections | Fully outdoor rated IP67 network connection (No need to open radio enclosure) |
| Management Interface | User selectable in-band management (VLAN support) or via separate out-of-band Ethernet connection |
| Management Access | Integrated Ethernet based Web Browser GUI, SNMP v1/v2c (optional v3), RMON, |
| Alarm Reporting | Via SNMP traps, SYSLOG |

| REGULATORY | |
|---|---|
| United States: | FCC 47 CFR Part 15 Class A, FCC CFR 47 Part 101; IC ICES-003 Class A |
| International: | CE MARK<br>EN 302 217-3 v1.3.1 (2009-7); EN 302 217-2-2 v1.4.1(2010-07);<br>EN 302 217-4-2 (2010-01); EN 301 489-04 V1.4.1 (2009-05); EN 61000-3; EN 61000-4<br>EN 60950-1:2006 + A1:2010 |

# AireBeam Specs

## 2.5 Gbps
## Layer 2 Radios
## +20 or +23 dBm

| **Product Specification** | **AireBeam™ Medium Range (1 foot/.3m)** | **AireBeam Long Range (2 foot/.6m)** |
|---|---|---|
| Description | Outdoor MMW Radio transceivers with integrated high gain antenna including mounting/alignment assembly and power supply | |
| Frequency of Operation | 72.375 - 82.375 GHz and 74.875 - 84.875 GHz (FDD), digitally modulated | |
| Transmission Power | +20 dBm or +23 dBm (depending on country) | |
| Dimensions w/o Antenna | (22D x 12H) cm | |
| Antenna Size | 1 foot/.3m | 2 foot/.6m |
| Antenna Gain | 45 dBi | 51 dBi |
| Antenna Polarization | Dual H/V via supplied Dual Polarization Adaptor (DPA) | |
| Polarization adjustment | Field adjustable via ODU rotation | |
| Port-to-Port isolation | >40 dB | |
| Antenna HPBW | 0.7° | 0.5° |
| Unit Weight | (Depends on options/contact Sales) | |
| Operating Voltage | 110/230 ac; direct 48 Vdc (fully outdoor rated) or Power over Ethernet (PoE) | |
| Operating Temperature | -35°C to +60°C (-31°F to 140°F) | |
| Humidity Range | Up to 95% (Non-Condensing) | |
| Environmental/IP Rating | IP67 | |
| Power Consumption | 20W/Radio ODU x 2 | |
| Mounting Options | Pole mount alignment bracket w/coarse & fine-alignment (60-110 mm pole diameters) | |
| Status-LEDs | Power, TX Data, LOS, Overload, Data In, Data Out | |
| Alignment tools | Antenna mounted Site Alignment spotting tool, RSSI LED bar graph | |
| Range | Up to 5 miles/8.5 km or more, depending upon rain zone and availability required | |

| **Networking** | |
|---|---|
| Data Rate | 2.50 Gbps Gigabit Ethernet, Full Duplex |
| Protocol | 802.3z (Gigabit Ethernet) |
| OSI Layer | Physical Layer 2 |
| Configurations | 2+0 (unprotected) and 1+1(protected) |
| Ethernet Clock/Sync. | CDR to support daisy-chain configuration |
| QoS support | Tagged based and protocol based prioritization, strict and weighted queuing models |
| Latency | < 40 microseconds |
| Ethernet Interfaces | Primary: copper 100/1000Base-TX or fiber 1000Base-SX/LX via standard SFP<br>Secondary/DualPath: 100/1000Base-TX |
| Physical Connections | Fully outdoor rated IP67 network connection (No need to open radio enclosure) |
| Management Interface | User selectable in-band management (VLAN support) or via separate out-of-band Ethernet connection |
| Management Access | Integrated Ethernet based Web Browser GUI, SNMP v1/v2c (optional v3), RMON, |
| Alarm Reporting | Via SNMP traps, SYSLOG |

| **REGULATORY** | |
|---|---|
| United States: | FCC 47 CFR Part 15 Class A, FCC CFR 47 Part 101; IC ICES-003 Class A |
| International: | CE MARK<br>EN 302 217-3 v1.3.1 (2009-7); EN 302 217-2-2 v1.4.1(2010-07);<br>EN 302 217-4-2 (2010-01); EN 301 489-04 V1.4.1 (2009-05); EN 61000-3; EN 61000-4<br>EN 60950-1:2006 + A1:2010 |

# Aire X-Stream Specs

## 1.25 Gbps
## Ultra Low Latency Layer 1 Radios
## +20 or +23 dBm

| Product Specification | Aire X-Stream Medium Range | Aire X-Stream Long Range |
|---|---|---|
| Description | Ultra-low latency Layer 1 transparent outdoor MMW Radio transceiver with integrated high gain antenna including mounting/alignment assembly and power supply | |
| Frequency of Operation | 72.375 / 82.375 GHz and 74.875 / 84.875 GHz (FDD), digitally modulated | |
| Transmission Power | +20 dBm or +23 dBm (depending on country) | |
| ODU Dimensions | (29D x12H) cm | |
| Antenna Size | 1 foot/.3m | 2 foot/.6m |
| Antenna Gain | 45 dBi | 51 dBi |
| Antenna Polarization | Horizontal/Vertical | |
| Polarization adjustment | Field adjustable via ODU rotation | |
| Antenna HPBW | 0.7° | 0.5° |
| Unit Weight | 8.2 kg | 11.1 kg |
| Operating Voltage | 110/230 ac; direct 48 Vdc (fully outdoor rated) or Power over Ethernet (PoE) | |
| Operating Temperature | -35°C to +60°C (-31°F to 140°F) | |
| Humidity Range | Up to 95% (Non-Condensing) | |
| Environmental/IP Rating | IP67 | |
| Power Consumption | <20W/ODU | |
| Mounting Options | Pole mount alignment bracket w/coarse & fine-alignment (60-110 mm pole diameters) | |
| Status-LEDs | Power, RSSI LED bar graph, LOL, Overload | |
| Alignment tools | Antenna mounted Site Alignment spotting tool, RSSI LED bar graph | |
| Range | Up to 10 miles/16.5 km or more, depending upon rain zone and availability required | |

| Networking | |
|---|---|
| Data Rate | 1.25 Gbps, Full Duplex |
| OSI Layer | Physical Layer 1 |
| Ethernet Clock/Sync. | CDR to support daisy-chain configuration, Transparent Sync-E, IEEE1588v2 |
| Equipment Latency | < 10 nanoseconds |
| Physical Interface | Singlemode (SM) or multimode (MM) fiber, LC style connector |
| Ethernet Interface | 1000Base-SX/LX |
| Physical Connections | Fully outdoor rated IP67 network connection (No need to open radio enclosure) |
| Management Interface | Out-of-band 10/100 based RJ-45 Ethernet connection |
| Management Access | Integrated Ethernet based Web Browser GUI, SYSLOG, SNMP v1/v2c |
| Alarm Reporting | Via SNMP traps, SYSLOG |

| REGULATORY | |
|---|---|
| United States: | FCC 47 CFR Part 15 Class A, FCC CFR 47 Part 101; IC ICES-003 Class A |
| International: | CE MARK<br>EN 302 217-3 v1.3.1 (2009-7); EN 302 217-2-2 v1.4.1(2010-07);<br>EN 302 217-4-2 (2010-01); EN 301 489-04 V1.4.1 (2009-05); EN 61000-3; EN 61000-4<br>EN 60950-1:2006 + A1:2010 |

# Aire X-Stream Specs

## 2.5 Gbps
## Ultra Low Latency Layer 1 Radios
## +20 or +23 dBm

| Product Specification | Aire X-Stream Medium Range | Aire X-Stream Long Range |
|---|---|---|
| Description | Ultra-low latency Layer 1 transparent outdoor MMW Radio transceiver with integrated high gain antenna including mounting/alignment assembly and power supply | |
| Frequency of Operation | 72.375 / 82.375 GHz and 74.875 / 84.875 GHz (FDD), digitally modulated | |
| Transmission Power | +20 dBm or +23 dBm (depending on country) | |
| Dimensions w/o Antenna | (22D x 12H) cm | |
| Antenna Size | 1 foot/.3m | 2 foot/.6m |
| Antenna Gain | 45 dBi | 51 dBi |
| Antenna Polarization | Dual H/V Polarization via supplied Polarization Adapter (DPA) | |
| Polarization adjustment | Field adjustable +/- 3° | |
| Port-to-Port isolation | >40 dB | |
| Antenna HPBW | 0.7° | 0.5° |
| Unit Weight | (Depends on options/contact Sales) | |
| Operating Voltage | 110/230 ac; direct 48 Vdc (fully outdoor rated) or Power over Ethernet (PoE) | |
| Operating Temperature | -35°C to +60°C (-31°F to 140°F) | |
| Humidity Range | Up to 95% (Non-Condensing) | |
| Environmental/IP Rating | IP67 | |
| Power Consumption | 20W/Radio ODU x 2 | |
| Mounting Options | Pole mount alignment bracket w/coarse & fine-alignment (60-110 mm pole diameters) | |
| Status-LEDs | Power, RSSI LED bar graph, LOL, Overload | |
| Alignment tools | Antenna mounted Site Alignment spotting tool, RSSI LED bar graph | |
| Range | Up to 5 miles/8.5 km or more, depending upon rain zone and availability required | |

| Networking | |
|---|---|
| Data Rate | 2.50 Gbps, Full Duplex |
| OSI Layer | Physical Layer 1(Protocol transparent) |
| Configurations | 2+0 (unprotected) and 1+1(protected) |
| Ethernet Clock/Sync. | CDR to support daisy-chain configuration, Transparent Sync-E, IEEE1588v2 |
| Equipment Latency | < 10 nanoseconds |
| Physical Interface | Singlemode (SM) or multimode (MM) fiber, LC style connector |
| Ethernet Interface | 1000Base-SX/LX |
| Physical Connections | Fully outdoor rated IP67 network connection (No need to open radio enclosure) |
| Management Interface | Out-of-band 10/100 based RJ-45 Ethernet connection |
| Management Access | Integrated Ethernet based Web Browser GUI, SYSLOG, SNMP v1/v2c |
| Alarm Reporting | Via SNMP traps, SYSLOG |

| REGULATORY | |
|---|---|
| United States: | FCC 47 CFR Part 15 Class A, FCC CFR 47 Part 101; IC ICES-003 Class A |
| International: | CE MARK<br>EN 302 217-3 v1.3.1 (2009-7); EN 302 217-2-2 v1.4.1(2010-07);<br>EN 302 217-4-2 (2010-01); EN 301 489-04 V1.4.1 (2009-05); EN 61000-3; EN 61000-4<br>EN 60950-1:2006 + A1:2010 |

Industry-leading
2-year warranty

2
YEARS

## World-class companies and organizations have deployed LightPointe


# LIGHTPOINTE™
WIRELESS

**Founded in 1998, LightPointe is the number one manufacturer of hybrid RF-FSO wireless bridges in the world and the leader in high-powered, low latency E-band radios. The company is owned by employees and the acclaimed Berg & Berg Enterprises of Silicon Valley, a multi-billion dollar diversified organization.**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