Advanced Fiber Products Ltd.

G-DataWave Wireless Communication Systems

Advanced Fiber Products Ltd. (AFP) is a leading designer, developer and manufacturer of optical and optoelectronic products for telecom, enterprise, oil and gas, video broadcast and military markets. AFP offers a wide range of novel components, modules, optical sub-assemblies and also complete media conversion and data transmission solutions. It provides competitive products and excellent service all over the world. AFP's facilities are located near Cambridge in the United Kingdom and in Chicago, USA.

AFP's offers a novel new communications capability combining photonics and microwave technologies in partnership with Battelle Laboratories in Ohio. The new system offers a wireless communications link that operates at millimeter-wave bands to provide 20 Gigabit per second operation. The equipment offers a data transmission rate that is many times that of conventional wireless links and works seamlessly with conventional 10G Ethernet switching.

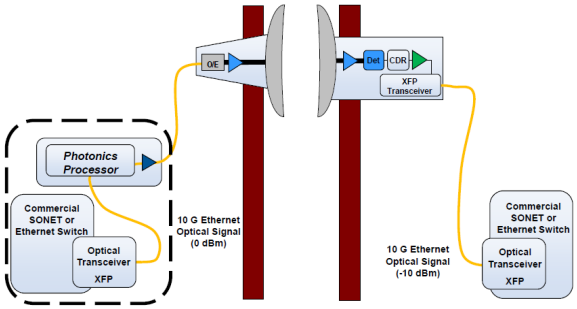
Operating at distances up to 12 miles, the system provides the smallest possible latency afforded by a dedicated link and a reliable highly competitive data carrying capacity for permanent and mobile communications.

Applications

- Corporate and Bank Networks
- Government campus and safety networks
- Mobile Broadcast
- Radar remoting
- 4G Cell tower backhaul
- Military land, sea and airborne platforms

Features

- Ultra-low signal latency
- High plug power efficiency
- Fiber remote antenna
- Frequency selectable
- Phase locked coherent signal
- Easily re-deployable



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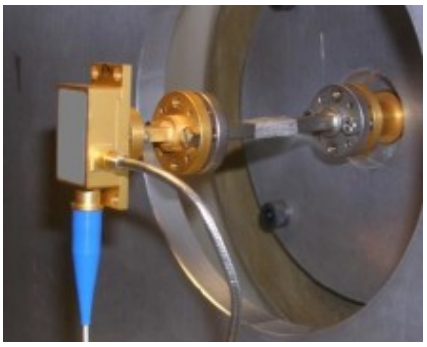
System Specification

Frequency Range(s): 71-109.5 GHz

Latency: 5.4 µsec @ 1 mile

Frequency Source: Synthesized

Data Rate: up to 20 Gb/s



Transmitter

- Frequency Accuracy: 0.0002%
- EIRP: 31.1 dBW
- Optical Interface: Fiber: Single Mode (SMF-28), 1550 nm, FC/PC Connector
- Electrical Control Interface: RJ-45 10/100baseT
- Optical and Ethernet Conduit Connector: 3/4"
- Power Cable Conduit Connector: 1/2"
- Power Consumption: 2515W
- Input Voltage: 120 VAC, 15 A
- Size: 27” x 26” x 23” (H x W x D)
- Weight: 60 lb (27 kg)
- Operating temperature range: -27 to 131 °F (-33 to + 55 °C)
- Humidity: to 85% non-condensing

Receiver

- Error Free Threshold: -35 dBm (@ antenna output port)
- System Noise Figure: ≤ 9.5 dB
- Error Correction: None
- Optical Interface Fiber: Single Mode (SMF-28), 1550 nm, FC/PC Connector, -1 dBm to +2 dBm
- Electrical Control Interface: RJ-45 10/100baseT
- Optical and Ethernet Conduit Connector: 3/4"
- Power Cable Conduit Connector: 1/2"
- Power Consumption: 422 W
- Input Voltage: 120 VAC, 15 A
- Size: 27” x 26” x 24” (H x W x D)
- Weight: 70 lb (32 kg)
- Operating temperature range: -27 to 131 °F (-33 to + 55 °C)
- Humidity: to 85% non condensing

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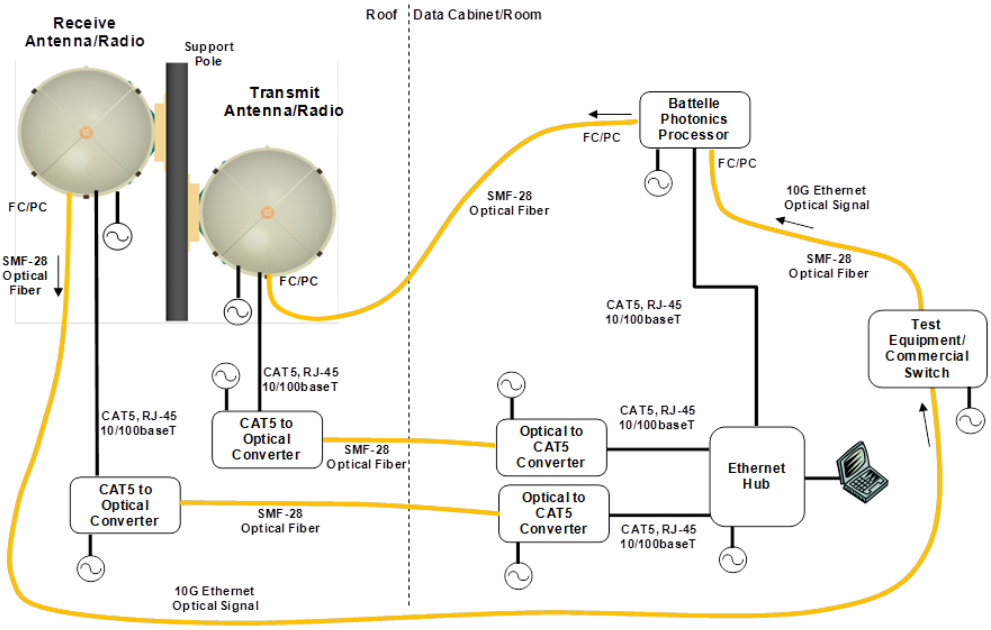
Diagram of the Typical Installation Per Site



Processor Specification

- Input: Fiber - Single Mode (SMF-28), 1550 nm, FC/PC Connector, -1 dBm to -16 dBm
- Output: Fiber - Single Mode (SMF-28), 1550 nm, FC/PC Connector, -1 dBm to +2 dBm
- Package: Rack Mount
- Electrical Control Interface: RJ-45 10/100baseT
- Power Consumption: 75 W
- Input Voltage: 120 VAC, 15 A
- Size: 4U, 7” x 17” x 13” (H x W x D)

Client Data

- Digital Line Rates: 10 Gbps full duplex
- Native Network: 10GigE
- Data Format: IEEE Std 802.3-2008
- Line Rate: 10.3125 Gbit/s
- OSI Layer: Physical Layer 1
- Interface: Fiber— Single Mode (SMF-28), 1550 nm, FC/PC Connector

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Antenna Specification

- Size and Type: 2 ft (61 cm) parabolic
- Pole Outer Diameters (OD) Accommodated: 2.5”, 4”, and 5”
- Mounting Method: U-bolt
- Minimum Tx/Rx Separation: 5 ft
- Polarization: Vertical and Horizontal
- Gain: 53 dBi @ 100 GHz
- 3 dB Beam Width: 15.7 ft (4.8 m) @ 100 GHz & 1-mile (1.61 km)
- Beam Divergence Half Angle: 0.17°
- Angular variation from horizontal: ±60°

Fault and Configuration Management

- Protocol: SNMPV2c interface: RJ-45 10/100baseT for network manager connectivity via CAT5 Ethernet cable.
- Performance Monitoring: Signal lock, temperature

Site Readiness Accommodations

- FCC license for the locations is necessary prior to conducting demonstrations.
- Tx and Rx antenna mounting poles must be made available for demonstrations. Tx and Rx antennas can be mounted on a common pole.
- Link length of not less than 382 yards (350 meters) and not more than 1-mile (1.61 km) with a clear and unobstructed line of sight within a ±60° angular variation from horizontal.
- The two antennas are to be elevated at least 30 feet (9 meter) above the ground.
- 120 VAC to power each component of the system as well as test equipment.
- Temperature controlled space at room temperature to house test equipment on roller rack/ cart at each end. Equipment dimensions 42” x 27” x 33” (H x W x D).
- Duplex single mode, 1550 nm optical fiber with FC/PC connectors extending from the environmentally controlled room to each antenna location.
- CAT5 Ethernet cable at antenna location that extends to environmentally controlled space or nearby router that provides network connectivity to the environmentally controlled space.

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G-DataWave Ordering Information:

Model Number	Center Carrier Frequency (GHz)	Max. Data Rate	Error Free Range	Notes
MMW-73GHz-5G	E-band	5	12 mi (19.3 km)	US, E-Band: FCC Part 101, "Light Licensing"
MMW-105GHz-10G	W-band	10	1.4 mi (2.3 km)	US, W-Band: Reserved for Fixed and Mobile Communications
MMW-73GHz-10G	E-band	10	12 mi (19.3 km)	US, E-Band: FCC Part 101, "Light Licensing"
MMW-105GHz-20G	W-band	20	1.4 mi (2.3 km)	US, W-Band: Reserved for Fixed and Mobile

Please Note: All product specifications are subject to change. Please consult with AFP

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