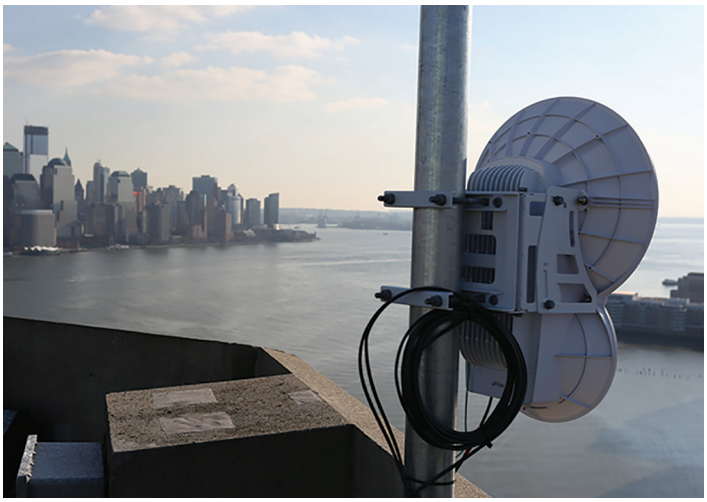
TECHNOLOGY
DATASHEET

UBIQUITI NETWORKS

AIRFIBER RADIO

- Superior Throughput with No RF Losses
- Innovative Zero IF Radio
- Flexible FPGA Architecture
- Revolutionary Media Access Control
- Multiple Input, Multiple Output Spatial Multiplexing
- Time and Bandwidth Resource Management



Superior Throughput with No RF Losses

Starting with the silicon chip, the Ubiquiti Networks™ Research and Development (R&D) team created airFiber®, a sophisticated system robust enough to perform in the harshest RF noise environments. Designed for high-performance backhauls and outdoor, PtP (Point-to-Point) bridging, airFiber AF24 efficiently delivers up to 1.5+ Gbps, aggregate throughput.

Systems for millimeter-wave frequencies typically experience RF (Radio Frequency) losses, which occur when part of the RF is lost in the switches and filters. The R&D team eliminated such RF losses, so the link budget is robust and airFiber has better noise figure and higher transmit power efficiency.

Innovative Zero IF Radio

Designed with two multiplexed transmitters and two multiplexed receivers, the airFiber radio is Zero IF (Intermediate Frequency); it is a direct-conversion radio that generates and decodes the received signal at baseband, so there is no intermediate frequency and virtually no signal loss between the radio and antenna. The R&D team invented numerous algorithms to control the amplitude and phase. The end results are excellent spectral shape and freedom from spurious responses that stem from conversion by-products.

Flexible FPGA Architecture

The highly flexible FPGA (Field Programmable Gate Array) architecture can be further field-optimized through firmware upgrades. airFiber features both sophistication and reprogrammability; you can add features as they become available and enhance system performance through firmware upgrades.

Revolutionary Media Access Control

The R&D team created a new MAC (Media Access Control), which is the link between the radio control (FPGA) and physical network. All real-time packet processing is placed in dedicated parallel hardware rather than in software. All real-time functions related to digital signal processing and coding are handled in fully custom hardware that is reconfigurable, so the MAC is extremely powerful while retaining the inherent flexibility of a software-defined system.

Multiple Input, Multiple Output Spatial Multiplexing

airFiber incorporates an OFDM (Orthogonal Frequency Division Multiplexing) system to use linear, 2x2, MIMO (Multiple Input, Multiple Output) spatial multiplexing, which has two benefits: enhanced spectral efficiency and the ability to maintain reliable links in poor propagation environments.

Time and Bandwidth Resource Management

airFiber automatically scales its modulation based on channel quality but has the ability to be reconfigured from a time/bandwidth perspective to enable the best possible performance in a wide variety of deployment scenarios.

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