

Dallas-Fort Worth International Airport

**COVERAGE
SYSTEMS**


New In-Building Distributed Antenna System Supports Mission-Critical Communications at Dallas-Fort Worth International Airport

Reduce Initial Investment
& Lifetime Costs

Simple to Complex
Environments

Speedy Implementation

Challenge

To provide fire, police, medical, security and other emergency services personnel with clear, secure, interference-free radio communications critical to the execution of public safety and Homeland Security procedures.

Solution

An in-building distributed antenna system (DAS) consisting of a series of repeaters and antennas connected to a common fiber-optic backbone devised by Powerwave's Coverage Systems' Innovation team, a group of RF and system engineers specializing in the delivery of turnkey solutions for complex environments.

Result

A scalable, robust coverage system design that enables uninterrupted wireless access for public safety and Homeland Security personnel, and provides a cost-effective, flexible and scalable wireless network platform.

Located halfway between the cities of Dallas and Fort Worth, Texas, DFW International Airport is the world's third busiest, offering nearly 2,000 flights per day and serving 57 million passengers a year. DFW International Airport provides non-stop service to 135 domestic and 39 international destinations worldwide.

Following 9/11, DFW International Airport embarked on a \$2.7 billion, five-year Capital Development Program that included the addition of International Terminal D, a two-million square-foot, tri-level facility that is capable of serving 37,000 passengers daily and 12.8 million passengers annually. When new International Terminal D opened on July 23, 2005, it featured \$45.6 million in security enhancements, including an in-building wireless infrastructure system that was designed and installed by Powerwave.

Powerwave's in-building DAS at DFW International Airport enables RF coverage throughout the new International Terminal D, and provides fire, police, medical, security and other emergency service personnel with clear, secure, interference-free radio communications critical to the execution of public safety and Homeland Security procedures.

Among the key objectives in establishing an in-building DAS for DFW International Airport's new International Terminal D were to:

- Create a common, non-discriminatory, comprehensive communications access system that leverages state-of-the-art technology to provide public safety and Homeland Security personnel with seamless wireless communications throughout the terminal.

- Avoid costly upgrades with a system that is capable of supporting commercial, private and public safety wireless services within a single platform.
- Develop a flexible and scalable platform that is "future-proofed" to accommodate existing public safety and private network frequencies, as well as new and emerging frequencies and technologies.

The Arrival of Enhanced In-Building Communications

With a proven track record for designing and implementing innovative coverage systems for corporate enterprises, wireless service providers and the public safety markets, Powerwave leveraged its broad-based experience as a global provider of end-to-end wireless infrastructure solutions to provide DFW International Airport with a wireless coverage solution that meets the needs of public safety and Homeland Security personnel inside new International Terminal D.

"We are pleased to partner with DFW International Airport in expanding their in-building communications capabilities," said Ronald J. Buschur, president and chief executive officer, Powerwave Technologies. "By carefully integrating our in-building wireless coverage system with new International Terminal D's extensive security enhancements, we were able to provide key personnel with clear, secure radio communications."

Among the logistical challenges faced by Powerwave during the design and implementation of the in-building DAS at DFW International Airport were restricted access to the project due to security requirements and safety regulations.



Powerwave's Coverage System Innovations Team is a team of RF- and system engineers within Powerwave who manage, or assist you in, your projects for cellular coverage worldwide.

Increasing complexity of wireless systems today combines with regulatory restrictions and a variety of practical considerations to demand comprehensive experience and know-how for cost-efficient cellular coverage solutions. Based on Powerwave's outstanding track record of customer projects completed, and on our extensive experience and know-how in quality wireless communications, Powerwave offers novel solutions that are carefully tailored to your specific needs.

Airport

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All Powerwave personnel working on the project were required to obtain all security clearances for access to and work on airport property, and attend mandatory safety training and weekly safety meetings. Upon completion of the DAS installation, there were zero safety incidents.

System design challenges that occurred during the DAS implementation included a situation in the aircraft tarmac area where an existing outdoor simulcast system was interfering with signals from Powerwave's DAS solution. To alleviate this problem, Powerwave created a mechanism for delaying system throughput, thereby eliminating interference caused by competing outdoor signals.

Technology Supports Flexibility, Scalability and Cost-Effectiveness

The in-building coverage system at DFW International Airport converges multiple wireless services onto a single cost-effective, flexible and scalable wireless network platform. Supporting both broadband and narrowband wireless technology, and services ranging from VHF to 1.9GHz, Powerwave's in-building DAS gives public safety and Homeland Security personnel uninterrupted access to wireless services.

Incorporating remote fiber-fed repeaters and bi-directional amplifiers throughout the facility, Powerwave's in-building DAS at DFW International Airport's new International Terminal D uses on-frequency repeaters, designed to transmit and receive wireless signals on the same frequency band, ensuring seamless wireless coverage that is virtually noise-free. The units maintain high per channel RF output power for maximum coverage capacity. High channel selectivity reduces interference, thereby extending two-way radio communications in high-density RF environments such as those found in busy airport terminals.

Powerwave's in-building DAS also includes bi-directional amplifiers in the VHF +800 megahertz (MHz) bands that extend communications in the large, high-traffic terminal environment. The self-contained units incorporate built-in power supplies and utilize two service modules for the amplification of uplink and downlink signals. A-series repeaters offer expanded service for DFW's ARINC communications system on the lower levels of New International Terminal D. ARINC is a two-way communications system used by American Airlines ground personnel, including baggage handlers, which leverage the system's baggage tracking and reconciliation capabilities to ensure baggage security and tracking efficiency.

The inherent flexibility and scalability of Powerwave's indoor DAS at DFW International Airport not only provides a cost-effective platform to support current technological and capacity requirements for additional airport facilities, but also enables the airport to accommodate future private and commercial wireless services with minimal effort and expense.

In August 2005, Powerwave completed the installation of the in-building DAS at DFW International Airport's new International Terminal D. DFW International Airport joins Bush Intercontinental Airport in Houston, Seattle-Tacoma International Airport and Toronto Pearson International Airport in Ontario, Canada, in the deployment of Powerwave's in-building wireless coverage systems.

Powering the Next Wave of Growth in Wireless™

