



Powerwave Coverage Solutions

Greater Toronto Airports Authority (GTAA)

New Distributed Antenna System Delivers Private Mobile Radio Services to Law Enforcement, Public Safety and GTAA Personnel

Toronto's Pearson International Airport is the 17th busiest airport in North America, and the 27th busiest airport in the world. More than 65 airlines operate out of TPIA, which serves more than 28 million passengers each year. The GTAA is responsible for the management, operation, and maintenance of TPIA, and currently develops and maintains some of the most advanced airport facilities and systems in the world.

In 2002, building upon its long-standing history of working with the GTAA, Powerwave Technologies began development and implementation of an indoor distributed antenna system (DAS) for Terminal 1 and corresponding parking garage at TPIA.

Comprised of a flexible, multi-service wireless infrastructure system, the indoor DAS now delivers private mobile radio services to law enforcement and public safety personnel throughout the newly constructed Terminal 1 and corresponding parking garage, Terminal 3, Infield Terminal and Infield Tunnel. The system also offers expansion capabilities to support future services including cellular PCS and 3G, with minimal impact to the existing infrastructure.

Among the key objectives in establishing an indoor DAS at TPIA were to:

- Create a common, non-discriminatory, comprehensive communications access system that leverages state-of-the-art technology to provide law enforcement and public safety personnel with seamless wireless communications throughout TPIA facilities.
- 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.
- Provide a minimum of 99.9 percent system availability.
- Offer a 95 percent RF coverage guarantee.

Powerwave Aims High With a Robust and Flexible Design

Powerwave faced several challenges during the design, development and implementation of the TPIA DAS. First, and foremost, was the extensive coordination with several architects and engineers at the GTAA to develop a system that would meet strict architectural and construction codes, as well as aesthetic guidelines. In addition, the new system would have to be installed during the construction phase of Terminal 1 and its parking structure, requiring Powerwave to collaborate with multiple parties, including construction personnel, to ensure current “live” coverage in existing facilities would not be compromised.

Leveraging its broad-based experience in designing systems to accommodate wireless communications for law enforcement and public safety agencies, Powerwave developed a highly reliable, flexible, cost-effective turnkey solution for distributing multiple RF signals throughout the TPIA.

Powerwave also designed the indoor DAS with a coverage enhancement solution using predominantly passive components to provide TPIA with a more reliable wireless connection, ensuring greater system availability and overall system integrity throughout the facility.

Easy to Install and Maintain

By using a broadband antenna in conjunction with coaxial cable, only one type of antenna must be installed to accommodate all in-building frequencies within Terminal 1. Because there is no need for separate antennas for each service with Powerwave’s indoor DAS, fewer parts need to be maintained once the system has been installed. To enable rapid maintenance and ensure minimal loss of service, all modules deployed throughout the system are hot-swappable -- designed to be quickly added or removed while the system is live, without disconnecting any RF connections.

In addition, all active components of the system reside in secure, non-public areas of the TPIA, so airport travelers are not inconvenienced during system maintenance and repair. The system also provides a substantial cost savings over other competing solutions due to fewer initial infrastructure requirements and ease of maintenance routines, shorter installation times and smoother technology upgrades.

Scalability - Now and in the Future

The inherent flexibility and scalability of Powerwave’s indoor DAS at TPIA not only provides a cost-effective platform to support current technological and capacity requirements for additional airport facilities, but enables TPIA to accommodate future private and commercial wireless services with minimal effort and expense. New modules, servicing new and subsequent public safety and emergency services frequencies may easily be added as new technology is required, or to accommodate user demand, as well as provide coverage extension for these bands.

24/7 Comprehensive, Remote Network Monitoring and Management

To provide support and maintenance of the RF coverage system and ensure 99.9 percent uptime availability, the indoor DAS also includes Powerwave's InView™ Management System. This state-of-the art network alarm monitoring and control system allows Powerwave to provide control of all active equipment installed throughout all five TPIA facilities 24 hours a day, 7 days a week, 365 days a year. Airport network administrators are notified immediately by Powerwave via its Network Operations Center (NOC) if a system fault occurs. In the event of a critical fault, Powerwave service personnel can be dispatched immediately, or can resolve the problem via the Internet. This feature dramatically reduces maintenance costs by avoiding the need to send service personnel on site to correct minor system issues.

“Our multi-technology platform is specifically designed to be the most reliable and cost-effective method for providing access to wireless communications services in an indoor environment,” said David Quinn, managing director, Coverage System Innovations, Powerwave Technologies. “With the design and implementation phase of the indoor distributed antenna system at TPIA now complete, public safety personnel can now experience seamless connectivity anytime and anywhere throughout the covered terminals.”

About Powerwave Technologies

A global leader in end-to-end wireless coverage and capacity solutions, Powerwave Technologies, Inc. offers cutting edge wireless infrastructure to address the demands of enterprise and commercial customers. Powerwave offers a comprehensive suite of solutions, including Antennas, Base Station Solutions and Coverage Solutions. Powerwave's product line supports all wireless network protocols and frequencies including Next Generation Networks in 4G technology such as WiMAX™ and LTE®. Powerwave solutions, products and services also help wireless operators and OEMs reduce capital and operating expenses, speed rollout of services, improve coverage and capacity, and reduce environmental impact. For more information, visit us at www.powerwave.com.



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