



Executive Summary

DFW Public Safety Centric DAS Upgrade and Expansion

The design, integration and turnup of a distributed antenna system providing quad-band, airport wide coverage supporting VHF and UHF, for airport interoperability and 700/800 MHz, for public-safety bands. The network architecture consists of approximately 50, 5W, multi band remotes which are fed by two head-end locations capable of fiber redundancy to ensure uptime reliability and uplink channel control to ensure communications during high radio traffic in the event of an extensive emergency response.

Size and Scope (complexity)

- VHF and UHF for airport interoperability and 700/800 MHz public-safety bands.
- Full Code and Standards Compliance, Including future band 14 FirstNET integration.
- Fiplex as the OEM, also provided the project management including staging, factory acceptance testing and final commissioning.
- Fiplex provided the complete system engineering, design and testing services with Fiplex team members.
- Solution is designed to deliver: Mission Critical Redundancy, Multiband support, Software defined NMS and post installation monitoring, Industry's best noise mitigation via Uplink Squelch per channel / per time slot.
- DFW is a single platform solution capable of handling conventional radio traffic and latest p25 phase two, eliminating near far and combining VHF/UHF with 700/800 MHz in a space saving, reduced complexity, UNIQUE single box deployment.
- The project is part of a larger, phased deployment, replacing legacy active components and leveraging significant layer one infrastructure, while increasing performance over the legacy system and future proofing the newly deployed base of new active components.

Impact (advancement for the industry)

- The DFW project is a perfect reference case for the industry at large, the facility is managed as a small yet comprehensive Jurisdiction. This includes the license holder, fire and life safety departments, IT and communications departments, an outdoor macro network and in-building environments covering a wide variety of space types including public, private, secure, and egress ...
- The project is a perfect example of how a solution should be envisioned, designed, deployed, and operated. It demonstrates the positive impact of harmonized code interpretation and adoption, stan-

dards and best practices, technology, and experience, resulting in a unique frictionless environment, achieved by the stakeholders.

- Transit requirements are unique, often stretching the limitation of most OEM solution providers. The project's success demonstrates how the highest level of performance can be delivered by flexible, innovative technology.
- DFW sets the bar for true mission critical performance and economic efficiency needed to drive ERRCs industry's Mission success.
- The project highlights the need for performance and demonstrates how technology can address mission critical requirements with solutions that increase flexibility, reduce complexity, and support a more scalable and economic business opportunity.

Quality of Workmanship: Harmonization is key.

- The project's requirements were clearly defined and the installation and performance quality is evident. With this level of clarity, harmonization delivers quality.
- Quality is demonstrated and evident with all stakeholders setting benchmarks to deliver a comprehensive project plan that addressed the industry's top challenges: Uplink Noise, Near Far, Oscillation, Interference, Survivability.
- The project team has delivered on all challenges, often exceeding requirements. Initial surveys indicate a 20 dB reduction in uplink noise over the legacy solution. Fiplex's innovative per channel / per time slot automatic gain control functionality eliminates uplink noise and mitigates Near Far during extreme, high response scenarios.
- The project included multiple levels of quality gating including baseline measurements of the legacy system, design reviews, Factory Acceptance Testing, Pilot System, cut over planning and final acceptance testing.

Innovation: DFW leverages Unique Innovation

- Providing VHF, UHF and 700/800 MHz in a single platform result in a reduced footprint, reduced complexity, and simplified management.
- Fiber redundancy ...true mission critical innovation.
- Better coverage using higher power, fiber fed, 5-Watt remotes to efficiently meet coverage requirements.
- Ability to leverage existing DAS assets with the latest technology overcoming challenges of insertion loss while simplifying the multiband deployment requirement.
- Lowering the combined uplink noise to the macro network exceeding previous infrastructure performance.
- Delivering expansion and post implementation flexibility through a common software enabled configuration NMS. This serves to maintain project timelines and increase final solution performance through in field tuning.