



AMAZON CASE STUDY

Case Study: Nationwide Public Safety DAS Services for Amazon Facilities

THE CLIENT: AMAZON

With hundreds of massive warehouses and fulfillment centers across the United States, Amazon required a comprehensive and reliable solution to ensure seamless communication and public safety connectivity within their facilities.



THE CHALLENGE:

Amazon's vast warehouses, with their steel and concrete construction and storage racks, created significant challenges for radio frequency (RF) signal penetration. This resulted in poor coverage for critical public safety communications like police, fire, and emergency services inside the facilities. Maintaining code-compliant and effective in-building communication systems was essential for safeguarding Amazon's workforce and assets.



Emergency Radio Communication Enhancement System (ERCES) Distributed Antenna Systems (DAS) provide dedicated communication channels for first responders, ensuring they can communicate with each other and with external personnel, enhancing their safety and coordination during emergencies. Amazon needed these DAS systems to be functional as it is a critical component of life safety systems for buildings:



Code compliance:

International Fire Code (IFC 510.1) requires that, “All new buildings shall have approved radio coverage for emergency responders.” Many local building codes and Authorities Having Jurisdiction (AHJ) require adequate in-building radio coverage for public safety purposes. DAS systems are designed to meet these requirements, ensuring that buildings comply with local and national codes related to emergency communication and life safety. Also, per IFC 510.6.1 and NFPA 1221 11.3.9.2.3.1, ERCES systems must undergo annual inspection and testing.



Emergency communication:

In the event of an emergency, such as a fire or natural disaster, reliable communication is essential for coordinating evacuation efforts, dispatching first responders, and providing critical information to occupants. DAS ensures that emergency personnel and building occupants have uninterrupted radio coverage throughout the building, allowing them to communicate effectively during crisis situations.



Life Safety:

During an emergency evacuation, DAS facilitates communication between building managers, security personnel, and occupants. Clear and reliable communication channels are crucial for providing instructions, updates, and guidance, ensuring an orderly and efficient evacuation process.

“U.S. fire departments responded to an estimated average of 1,450 structure fires in warehouse properties per year (excluding refrigerated or cold storage).

These fires caused an annual average of \$283 million in direct property damage, two civilian deaths, and 16 civilian injuries.”

2022 National Fire Protection Association (NFPA), Warehouse Structures Fire report



THE SOLUTION

To address these requirements, Commdex, a leading provider of in-building wireless solutions, provided services that encompassed a wide range of activities across Amazon's nationwide network of warehouses. Commdex's nationwide team of certified technicians and RF engineers worked closely with Amazon to develop and implement a comprehensive Distributed Antenna System (DAS) strategy. This involved the installation, maintenance, and ongoing optimization of high-performance bi-directional amplifiers (BDAs), coaxial and fiber optic cabling, and an extensive network of antennas throughout Amazon's facilities.



DAS Maintenance:

Proactive maintenance of the DAS equipment to prevent downtime and ensure optimal performance. This includes preventive maintenance checks, optimization and replacements of critical components.



Repairs:

Prompt and efficient repair services to address any unforeseen issues with the DAS system. Commdex's team provides diagnosis and resolution of hardware/software issues to minimize disruption to warehouse operations.



Baseline Testing:

Comprehensive RF testing and mapping to establish a performance benchmark for the DAS system and compliance verification with local fire codes. This data serves as a reference point for future maintenance and troubleshooting or for the design of a new DAS system.



Annual Audits:

Performing in-depth annual audits to ensure the DAS system continues to meet all regulatory requirements and Amazon's specific needs. This includes verifying signal strength, coverage areas, and overall system health. Commdex's team provides detailed documentation, photos and reports after completion.



Upgrades:

As technology evolves and Amazon's needs change, Commdex provides expert recommendations and executes upgrades, system expansions and capacity enhancements to the DAS network. This ensures Integration of new technologies and features and maintains optimal system performance.



New Installs:

As needed, Commdex provides turnkey deployment of new DAS systems in any additional warehouses Amazon establishes. Services include system design, Installation, and commissioning.



THE RESULTS

Through Commdex's expertise and dedicated services, Amazon's warehouses achieved robust and reliable in-building public safety communications, ensuring:

- Compliance with stringent fire codes and regulations
- Uninterrupted emergency communications capability
- Enhanced safety for employees and first responders
- Minimal downtime and service disruptions
- Scalability to accommodate future expansions

Commdex's comprehensive approach to DAS maintenance, repair, and upgrades proved to be a valuable asset for Amazon to ensure consistency across all facilities with a trusted and experienced provider capable of delivering a nationwide, turnkey solution for their mission-critical in-building wireless needs. By ensuring reliable public safety communications for its network of nationwide warehouses, Commdex has played a crucial role in ensuring code compliance and providing Amazon with safer and more efficient work environments for all.

