

COVERAGE SYSTEMS

DAS Enhances Revamped Convention Center

Powerwave Delivers Public Safety, Commercial Wireless, and Wi-Fi Services

Challenge To design and implement a wireless coverage system capable of supporting public safety, cellular/PCS and Wi-Fi communications in a newly expanded two-million square-foot Convention Center in a major Southwestern city.

Solution An indoor distributed antenna system (DAS) supporting 800 MHz (20 frequencies) of Specialized Mobile Radio Services (SMRS) for public safety communications; 800 MHz, 900 MHz and 1900 MHz commercial wireless frequencies; and, Wi-Fi services.

Result A robust wireless coverage system that easily supports uninterrupted wireless voice and data communications during the convention center's peak traffic times, and offers a migration path to future wireless voice and data services for public safety and commercial wireless subscribers.

Powerwave Partners with Hunt-Russell-Alvarado and Premise One, Inc., to Design and Install a Distributed Antenna System (DAS) Supporting Public Safety, Commercial Wireless, and Wi-Fi Communications

The convention center is a premier meeting destination in the Southwest. It offers a unique business culture that strikes a balance between state-of-the-art facilities and an exciting location within the cultural heart of a major Southwestern metropolis. Located less than seven miles from a main airport and within minutes of two major freeways, the convention center is surrounded by a vibrant, multi-billion dollar revitalization effort, that has resulted in upscale retail shopping, entertainment, restaurants, museums, theaters, visual arts and sports venues.

Prior to the revitalization of the convention center, employees and visitors did not have access to Wi-Fi services, two-way radio or cellular amplified services within the facility.

The city selected Powerwave Technologies to design a DAS system for the newly revitalized convention center after evaluating Powerwave's public safety and commercial DAS installations completed by Powerwave at Seattle-Tacoma International Airport (SeaTac); Dallas-Ft. Worth International Airport (DFW); and the Mandalay Bay Resort & Casino in Las Vegas, which is comprised of the 865,000 square-foot hotel and casino, and 2.15 million square-foot Mandalay Bay Convention Center.



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Powerwave was chosen because we brought many strengths to the table, including manufacturing capabilities, engineering expertise, project management and design coordination. Being a one-stop-shop was a big plus for the city. In addition, the city was also impressed by Powerwave's reputation within the industry and outstanding rapport with major wireless carriers, which helped to facilitate contract negotiations for wireless voice and data services at the convention center.

Key objectives that the city wanted to achieve with the DAS system were:

- To provide wireless voice and data services for the convention center's newly renovated campus, phase one of the project.
- To support public safety and commercial wireless communications, as well as Wi-Fi services using a single antenna system.
- To implement a modular system that could easily support system expansion as renovation was completed in other areas of the convention center.
- To install a system that offers a migration path that supports future wireless voice and data services.

Collaboration with a Twist

Even though the city hired Powerwave Technologies to design and implement the DAS at the Phoenix Convention Center, the project quickly became a collaborative effort between Powerwave, Hunt-Russell-Alvarado, which is overseeing construction management for the revitalization of the convention center, and Premise One, Inc. Powerwave's installation partner.

One of the unique challenges that Powerwave faced during the implementation of the DAS was the city's requirement to hire a qualified minority-owned installation partner. Powerwave conducted a local search and found Premise One, Inc., a low-voltage contractor based in Phoenix.

A High Tech Wireless Coverage System for a State-of-the-Art Venue

Everything about the new convention center is on the cutting edge, from the lighting, sound and temperature controls to the full-service kitchen, fit to accommodate world-class chefs. The city even changed the convention center's name and updated the logo to convey to meeting planners and the general public that the new convention center truly is a state-of-the-art venue.

To match the sophistication of the convention center's other high tech features, Powerwave designed a DAS system comprised of radiating cables connected to rooftop antennas, and donor antennas that capture signals from public safety and commercial wireless carriers throughout the West Hall of the convention center. Five head-end rooms located throughout the convention center's West, South and North* Halls amplify the wireless signals and convert them from RF to fiber optic for improved transmission of high-frequency digital and analog signals over long distances.

This configuration of the DAS system not only supports clear, wireless voice and data coverage within the halls of the convention center, but also gives public safety users and commercial subscribers access to wireless voice and data services on the sidewalks outside the convention center.

*The North Hall building is currently in the installation phase working in conjunction with the construction of the building to be completed in the summer of 2008.



Powerwave Wideband Coverage System (WCS) product line is a flexible platform for wireless enhancement of a base station signal remotely. This line of products can be connected via coax or fiber cable to provide capacity to underserved areas of the network. Applications for this versatile product are indoor distributed antenna systems (DAS) and outdoor coverage challenges. Future expansion and upgrading is made easy using a modular design. Same reliable, field proven technology as Powerwave's Repeater products, as well as the same O&M software for complete NetWay Manager (NWM) and OM-Online compatibility.

Key Benefits

- Ultimate flexibility
- Proven technology
- Fiber or Coaxial feed
- Ease of installation
- Output Power options
- Standard O&M platform

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The companies who partnered with Powerwave noted that our project managers and engineers were very professional and found our technology expertise and understanding of wireless coverage systems unmatched. The general consensus was that Powerwave's experience was ideally suited for installing DAS systems in a large venue like the convention center.

Conclusion

In August 2006, Powerwave Technologies and Premise One completed installation of the DAS system in the West Hall of the convention center. The DAS system supports 800 MHz (20 frequencies) of Specialized Mobile Radio Services (SMRS) for public safety communications; 800 MHz, 900 MHz and 1900 MHz commercial wireless frequencies; and, Wi-Fi services, while offering a migration path to support future wireless voice and data services.

About Powerwave Technologies

Powerwave Technologies is a leading source of end-to-end wireless solutions for wireless communications networks. Powerwave designs, manufactures and markets antennas, boosters, combiners, filters, repeaters, multi-carrier RF power amplifiers, tower-mounted amplifiers and advanced coverage solutions, all for use in cellular, PCS and 3G networks throughout the world. Corporate headquarters are located at 1801 E. St. Andrew Place, Santa Ana, CA 92705. Telephone (714) 466-1000. For more information on advanced wireless coverage and capacity solutions, please call (888)-PWR-WAVE (797-9283) or visit our web site at www.powerwave.com. Powerwave, Powerwave Technologies and the Powerwave logo are registered trademarks of Powerwave Technologies, Inc.

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