



Powerwave Coverage Solutions

Mecca

Powerwave Powers Wireless Coverage System in Mecca

Encompassing the King Abdul Aziz Endowment in Saudi Arabia, the largest collection of buildings in the world, the in-building distributed antenna system (DAS) delivers uninterrupted wireless access to both voice and data services.

The ritual of pilgrimage to the holy city of Mecca in Saudi Arabia dates back thousands of years. Currently the largest annual pilgrimage in the world and the fifth pillar of Islam, the Hajj is a moral obligation that must be carried out at least once in a lifetime by every able-bodied Muslim who can afford to do so.

While the convergence on Mecca has been ongoing since ancient times, today's modern-day pilgrims rely on mobile communications to stay connected to friends and family along the journey.

The King Abdul Aziz Endowment, located adjacent to the Kaaba and the Masjid al-Haram (The Sacred or Grand Mosque) in Mecca, is considered the largest collection of buildings in the world. Within this assembly of structures is a group of seven towers that united constitute the Al-Bait Towers. From these towers residents and hotel guests can directly see the Kaaba – the site toward which all Muslims, wherever they are on earth, pray five times a day – enabling Muslims to pray from the convenience of their rooms. The Endowment also provides residents and pilgrims with world-class technological advantages via one of the world's largest wireless coverage systems, which delivers uninterrupted wireless access to both voice and data services.

Worship Amidst Wireless

With more than 1.4 million square-meters of built-up floor space, the King Abdul Aziz Endowment is an architectural wonder. To compliment the structures' innovation and modern amenities, Powerwave Technologies was tapped to provide its best-in-class wireless infrastructure to ensure seamless connectivity throughout the premises. Casting a wireless network large and powerful enough to support the size and amount of traffic within the Endowment would require an experienced design team, world-class engineering and tried and tested infrastructure.

In 2008, Powerwave was selected by Mobily Saudi Arabia, the second largest wireless system inside four of the seven King Abdul Aziz Endowment towers. The initial phase of this multi-million dollar deployment also included wireless coverage for the venue's shopping center featuring 450 shops and restaurants, and six-floor

underground parking garage.

Design and deployment was mapped to an aggressive timeline driven by the start of the holy month of Ramadan on September 1. Working with a local partner, Powerwave's team worked ambitiously to install approximately 2,300 Powerwave antennas and 70 Nexus™ FT high-power, triple-band fiber optic repeaters, which feature a modular and robust design that is easy to install, supports multi-carrier and multi-band operation, and offers high capacity and long-reach signal distribution. By leveraging Powerwave Nexus FT repeaters, the coverage system at the King Abdul Aziz Endowment uses fewer repeaters and one-third fewer antennas than competitive solutions.

Additional fiber-based coverage system components, which reside outside of public view, include a fiber optic conversion module located within the centralized base station hotel. Using a common fiber-optic and coaxial backbone among the operators, the DAS solution is highly efficient and provides substantial cost savings over other competing solutions due to fewer initial infrastructure requirements and maintenance routines, shorter installation times, and more streamlined technology upgrades.

Phase I of Powerwave's wireless coverage system deployment at the King Abdul Aziz Endowment supports GSM900, GSM1800 and GSM2100 commercial wireless frequencies. Phase II and Phase III will bring wireless coverage to four additional buildings and a skyscraper at the center of the complex incorporating an additional 2,300 antennas and 70 triple-band fiber optic repeaters.

Powerwave Delivers for Mobily

Demonstrating true professional experience in engineering and project management, Powerwave's best practice process and management systems, total end-to-end project delivery and close client coordination resulted in a wireless project that has been recognized as a resounding success by Mobily Saudi Arabia. By leveraging Powerwave's collective broad-based experience in the deployment of wireless coverage solutions for complex indoor and outdoor environments worldwide, the team was able to meet the project's requirements, paramount of which was to quickly deliver access to wireless communications services.

In addition the King Abdul Aziz Endowment, Powerwave has expertise in creating wireless coverage systems for some of the world's most well-known large venues, including the Olympic Athletic Center of Athens, the Berlin Subway, and the 55-story high-rise Torre Mayor in Mexico City. Leading through design innovation, proven technology and a presence in 15 countries around the globe, Powerwave is addressing the wireless and mobile demands of enterprise and commercial customers today and tomorrow – at work, home, play or while on pilgrimage in Mecca.

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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