

COVERAGE SYSTEMS

University of Kentucky, Lexington, KY

Powerwave Deploys In-Building Wireless Infrastructure Solution

Challenge To design and implement a wireless coverage system capable of supporting commercial wireless voice and data services within four dormitories on the University of Kentucky campus.

Solution A distributed antenna system (DAS) comprised of a series of antennas, coaxial cabling systems, and carrier-specific repeaters.

Result: A robust, neutrally hosted wireless coverage system that enhances access to wireless voice and data services and promotes student safety inside the dormitories and on perimeter walkways.

Distributed Antenna System (DAS) installed in partnership with Independence Communications helps to enhance access to wireless voice and data services and promote student safety in and around four campus dormitories

Founded in 1865 as a land-grant institution adjacent to downtown Lexington, the University of Kentucky is nestled in the scenic heart of Kentucky Bluegrass country. From its humble beginnings, with only 190 students and 10 professors, the University of Kentucky's campus has grown to cover more than 716 acres with more than 26,000 students and nearly 11,000 employees.

In late 2005, University of Kentucky officials set out to enhance student and staff access to wireless voice and data services, starting with four new dormitories – Smith Hall, Baldwin Hall, Ingels Hall and the New North Hall – and their perimeter walkways.

As a state-funded entity, the University was required to use government-approved contractors. Independence Communications, a leading distributor of wireless communications systems in Kentucky and Ohio, had an established track record for providing state-of-the-art wireless communications systems for government agencies. In fact, they had recently installed a statewide public safety system for the Commonwealth of Kentucky.

University officials contracted with Independence Communications in August 2006, and asked them for assistance in identifying an equipment provider. After reviewing a number of proposals, Independence Communications selected Powerwave.

“Powerwave met all of our requirements in terms of manufacturing capabilities, technology, engineering expertise, and price,” said Ed Scheumann, integration manager, Independence Communications. “We were also impressed by its reputation and experience in designing and implementing multi-technology, multi-carrier wireless communications systems for a variety of small and large venues worldwide.”



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Lesson Plan: Preparing for Installation

Prior to designing a wireless communications system for the University of Kentucky dormitories, a team of representatives from Independence Communications and Powerwave conducted a site visit. They found that the major barrier to ubiquitous wireless voice and data communications inside the new dormitories was the cinderblock walls and UV-glazed windows, two obstacles that Powerwave's DAS system could easily overcome. The team was given permission to utilize the existing cable trays for horizontal distribution, which made the installation much quicker and met the university's structure wiring standards. Properly sized communications rooms allowed for housing of the DAS equipment.

Following the site visit, Powerwave designed a DAS that would place 120 antennas on all three floors of each 70,000 square foot building. The antennas were connected via 14,000 feet of coaxial cable, with several repeaters in place for each carrier subscribing to the system.

Making the Grade: Overcoming Installation Challenges

While plans for the DAS installation at University of Kentucky dormitories were seemingly straightforward, like many technology deployments, it was not a standard textbook case.

Among the unique challenges faced by Powerwave and Independence Communications during the installation of the DAS within the four University of Kentucky dormitories was an inability to gain rooftop access the buildings. Instead, the installation team was required to use a crane, which added to the cost of the project.

Conclusion

In December 2007, Powerwave and Independence Communications completed installation of the DAS system in the four dormitories on the University of Kentucky campus. The system passed all tests with flying colors and now supports multiple wireless carriers and all current commercial wireless frequency bands, with a migration path to future technologies and services. Student residents, staff, faculty and visitors benefit from uninterrupted wireless voice and data communications inside the dormitories and on perimeter walkways.

"We are pleased to initiate this state-of-the-art wireless coverage system within our dormitories," said Doyle Friskney, CIO, University of Kentucky. "We feel strongly that by improving on-campus communications capabilities, we are not only providing our students, staff and faculty with a higher level of service, but also increasing their safety. Should an incident happen inside one of these dormitories, students or staff members can immediately call for help using their wireless phones. Without the coverage capabilities provided by the DAS, they would have to locate a land line telephone, or leave the building to make an emergency call."



Powerwave Wideband Coverage System (WCS) product line is a flexible platform for wireless enhancement remote of the base station. This line of products can be coaxially or fiber optically fed to provide capacity to underserved areas of the network. Applications for this versatile product are indoor distributed antenna systems and outdoor coverage challenges. Same reliable, field proven technology as Powerwave's Repeater products, as well as the same O&M software for complete OMS 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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