



Junction Box Wi-Fi Antenna Provides Aesthetically Pleasing, High Density Connectivity at University of Kentucky

Executive Summary

Client:

University of Kentucky

Client Challenge:

Deploy high-performance Wi-Fi throughout large classroom building without disrupting interior aesthetics.

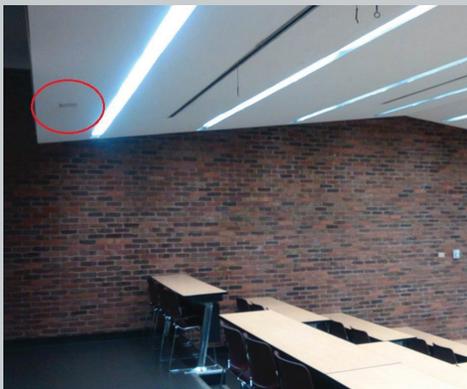
Product Solution:

Junction Box Wi-Fi Antenna

TESSCO No. 585813

Housed within a standard three-gang electrical box, the Junction Box Wi-Fi Antenna offers completely concealed connectivity once installed.

- Easily installs anywhere in drywall or dropped ceiling.
- Antenna within junction box articulates 0-45 degrees for precise coverage
- Cover can be painted with non-metallic paint to match the wall for even greater concealment



Junction Box Wi-Fi Antenna installed in auditorium ceiling



When the University of Kentucky was planning a wireless installation in one of the large classroom buildings on campus, Wayne Campbell, Project Manager for the Information Technology Services department, and Jackie Denault, Wireless Network Engineering Team joined forces to address two critical issues. First, they needed to ensure that the classrooms had the capacity required for high densities of students, each with multiple devices, all demanding wireless access. Second, they needed to maintain the aesthetics of the building interior.

Solution

A new antenna from Ventev was a key product to solving both issues. The patented Junction Box Wi-Fi Antenna was designed for today's enterprise environments where aesthetics and high-performance Wi-Fi are equally important.

The Junction Box Antenna is a directional antenna housed within a standard three-gang electrical box. Once installed, it looks like any other standard junction box cover and blends seamlessly with the environment. The most important feature however is that the antenna within the Junction Box articulates 0-45 degrees, which allows precise beam positioning within the cell coverage area to ensure adequate capacity and minimize channel-to-channel interference, the most significant cause of limited performance in a Wi-Fi network.

Classrooms

In the 25' x 25' classrooms, three Junction Box Wi-Fi Antennas provided excellent coverage and capacity. While the antenna was designed to be installed in drywall, Campbell chose a ceiling installation because the classroom walls are constructed with wire mesh. The drop ceilings in the classrooms turned out to be ideal for installing the Junction Box Wi-Fi Antenna. The antennas were easily and quickly installed into holes cut out of the ceiling tiles. With only the seven inch by five inch junction box covers showing, the antennas were much less noticeable than typical ceiling tile antennas. The antennas' extra long leads were connected to access points placed above the drop ceiling.

Auditoriums

Prior to the upgrade, the 80' x 70' auditoriums had six Cisco 3602i APs. Since the number of devices per student has climbed over the years, the need for multiple connections per student could not be supported by so few APs. Simply adding more access points wouldn't help, as their proximity to each other would reduce signal strength.

Denault decided to upgrade to Cisco 3702e access points, 12 per auditorium, ten connected to directional antennas and two connected to junction box antennas. By doing this, they could limit the number of users per AP and maximize the bandwidth available for each user device.

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Product Solutions:

Co-locating Mount with Antenna

TESSCO No. 568600 / 349502

The Co-Locating Mount is designed to simplify deployments and conceal an access point and external cables. The mounting system features an innovative base that attaches to the AP and mounts the external antenna directly to the AP, creating a co-located solution.

- Eliminates the need to run cable along the ceiling
- Provides a single mount for installer to save time
- Antenna mounting plate articulates +/- 25 degrees enabling precise positioning of the beam



Denault chose to mount many of the APs and antennas using a Co-locating Mount that articulates +/- 25 degrees, to enable precise positioning of the beam.

Two Junction Box Wi-Fi Antennas were installed in the center rear ceiling of each auditorium. The ceiling in the rear of the auditoriums is less than 8' high and having APs or antennas mounted below the ceiling would make them vulnerable to vandalism. By mounting the Junction Box Antennas flush with the ceiling and installing the APs above the ceiling, everything was completely concealed.

The Wi-Fi deployment throughout the building proved to be very successful. Mike Mattone, Network Specialist, surveyed the rooms to ensure that each antenna was working properly and the coverage was correct. The University is planning similar deployments using the Junction Box Wi-Fi Antenna in several other University buildings.



Co-Locating Mounts with access points and antennas were installed in front of the auditorium.