

WZC NETWORKING LLC

- RF Engineering -

CASE STUDIES





Project Scope

The university is currently in the first year of a three-year project. This will encompass the design, replacement and testing of both IBW/ISM band wireless networks. The Ann Arbor campus is approx. 45 million square feet.

Project Results

In the first year the University of Michigan has estimated a decrease of approx. 27% of helpdesk calls for both cellular/Wi-Fi troubleshooting. Additionally, they have seen an increase of 40% in quality coverage/performance.

Updating the educational system for the new generation of wireless

WZC Networking delivers surveys and designs from experienced professionals.

The University was founded in 1817 as the Catholepistemiad, or University of Michigania. In 1821, it was officially renamed the University of Michigan. Originally located in Detroit, the institution's home moved to Ann Arbor in 1837. One of the original buildings on the Ann Arbor campus still stands and is used today as the President's house. The first Ann Arbor classes were taught in 1841, at which point the U-M had two professors and seven students.

The first commencement was held in 1845 to recognize the graduation of 11 men. Women were first admitted in 1870. The University has grown to include 19 schools and colleges, covering the liberal arts and sciences as well as most professions. Student enrollment surpassed 1,000 by 1865, 10,000 in 1936, and 40,000 in 2006. The fall 2015 enrollment of undergraduate, graduate and professional students was 43,651. The U-M provides campus housing to 9,500 undergraduate students in 18 residence halls and apartment buildings. The current faculty consists of 3,096 individuals who are tenured or on a tenure-track.

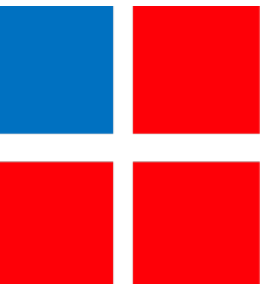
Lecturers, clinical faculty, research professors, librarians, and archivists add 3,808 to the Ann Arbor campus academic staff, for a total faculty headcount of 7,056. The staff count is 14,339. The FY2015 operating revenues from the state appropriation, tuition, research grants and contracts, gifts and other sources reached \$3.59 billion for the Ann Arbor campus. The U-M Health System revenues added \$3.27 billion for a grand total of nearly \$6.86 billion. According to the latest national data, the U-M spends more on research -- \$1.35 billion in FY2014 -- than any other U.S. public university.

Want to see our current progress?

<http://its.umich.edu/projects/wifi-upgrade/node/1>

Wi-Fi/DAS Products Used:

- NetScout/AirMagnet ISM
- ANITE/Keysight Technologies (Cellular)





Project Scope

AVF was having IBW problems in their corporate offices (approx. 250K sq. ft.). During the business day employees as well as upper management would have intermittent delays in sending or receiving calls, SMS and data.

Project Results

Performance testing was completed over a 10-day cycle. Measurements/test calls were compared in different areas of the building with both ANITA Nemo Handy and Pocket TEMS products. Additional sweep/PIM testing was performed on donor antenna and all splitters within the building. Testing results showed that large variance in PIM tests as well as donor antenna adjustments were made to different macro cell tower. The results were a call improvement of at least 45%.

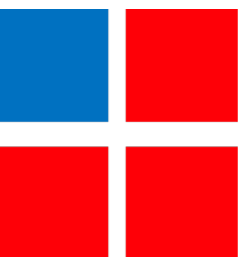
Let our industry leading experience provide you with the best wireless services on the market

WZC Networking is there to help you build your company above and beyond corporate standards

The Art Van Furniture Company was founded in 1959. In 1973, Art Van Furniture moved its headquarters from 12 Mile and Van Dyke Road to the 14 Mile location in Warren, where it is still located today. After 55 years, the family-run business operates 67 Art Van Furniture Stores and 64 PureSleep Mattress Stores in Michigan, Illinois, Indiana, Iowa and Ohio. They are currently the #2 furniture retail chain in the US at approx. \$1B in sales in 2015.

Wi-Fi/DAS Products Used:

- iBwave Enterprise
- Design Software - ANITE/Keysight Technologies
- (Cellular) – CommScope, Corning Mobile Access





Our network designs are unparalleled in the wireless industry

WZC Networking can handle any project, from small business to national corporations.

Project Scope

Design/installation/commissioning of DAS products for new store deployments.

Project Results

Meijer has within their store chain approx. 70+ DAS installations. These installations will support both E911 and two wireless carriers. The two product lines that are required are either Corning Mobile Access or CommScope ION series. The results of these installations are to satisfy local municipality requirements for E911 access and provide an accessible cellular footprint for the two largest carriers.

Meijer was founded in 1934 just after the depression. The Grand Rapids, MI headquartered company had annual sales of \$16.1 B in 2015 and currently has 77,000 employees. Meijer is a family-owned grocery chain operating in the Midwest. Meijer operates over 300 + stores throughout Michigan, Ohio, Indiana, Illinois, Wisconsin and Kentucky. The supercenter stores offer groceries as well as departments such as fashion, automotive, home decor, health and beauty care, pharmacy, electronics and banking. Meijer pioneered the idea of a superstore when, in 1962, it opened its first "Thrifty Acres," a food and general merchandise store that allowed customers to shop for everything they needed with just one trip to the store.

Wi-Fi/DAS Products Used:

- iBwave Enterprise Design Software
- ANITE/Keysight Technologies (Cellular)
- CommScope
- Corning Mobile Access

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