

DAS)))) ((((Simplified

Max Planck Institute: Wireless Coverage in a Lab Filled with Electron Microscopes

What is a DAS?

“Mobility” is changing the landscape for how we can work, live, and play. While productivity has improved because of our new wireless world and applications, quality of service can suffer indoors. Users face cell coverage issues because buildings constructed of metal, concrete, and energy-efficient glass impede the actual RF (radio frequency) signals for wireless systems. In addition, developments in building codes mean that owners must have a public-safety wireless system installed for police, fire, and other emergency responders. The most common way to address this has been to build two disparate systems for commercial cellular and public safety. However, there are now options in the market that combine one DAS (distributed antenna system) suitable for all wireless needs, leveraging infrastructure that is shared at a lower overall cost.

High-tech research facilities usually have very exacting requirements in terms of building specifications. When the Max Planck Florida Institute for Neuroscience was planning a new \$64 million laboratory, they engaged with **DAS Simplified** to ensure that cellular and public safety radio coverage would be seamless inside the entire facility, as well as not interfere with any of the facility’s experimentation.

The Challenge

Leadership at Max Planck set a high bar for the new facility. Their goal was to develop the best sustainable laboratory design in Florida. The building’s lab and office spaces have large windows that face due north for maximum daylight, and south facing offices have external shades sequenced to provide adequate light, while diminishing glare and heat. However, this “low-E” glass actually acts as a barrier to wireless signals.

Additionally, exacting equipment like electron microscopes and core imaging facilities added to the complexity of the wireless system. Experiments can be ruined by a movement so miniscule that it pushes a molecule a millionth of a millimeter. Planners for the facility fretted about turbulence created by HVAC systems and electromagnetic interference from things as mundane as nearby elevators.



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The Solution

Jade Communications of Boca Raton realized that they did not have the in-house expertise in wireless systems to meet their client's challenges, and they turned to DAS Simplified. After careful research and reference checks, they hired DAS Simplified for the complete project including site survey, system design, and fabrication of a system that encompassed all wireless technologies.

Unique lab wall construction that was designed to shelter and isolate expensive lab equipment was an initial challenge for the DAS Simplified team. These walls were found to completely block RF transmission, and thus their designers had to take into account the special structure of the building to ensure that cell phones and radio systems would work consistently throughout the facility.

DAS Simplified installed a turn-key system for the operation of 800 MHz radio systems, as well as all major commercial cellular carriers. DAS

Simplified guaranteed the required wireless signal strength needed for all of these systems to operate in every square foot of the building, 100% of the time.

The DAS installation was finished in time for the facility's opening, and without any change orders. One final, critical component was DAS Simplified's coordination with cellular carriers for their approval of the system. Since the carriers own the signal that is rebroadcast within the building, they require a design that will not impact the outdoor or 'macro' network. Owners of unapproved systems face censure and fines by the FCC.

Ongoing system operation and monitoring for Max Planck is ensured

by a UPS (uninterruptible power supply) in the event of a power failure, as well as an automatic SNMP-based software module with a link to DAS Simplified's NOC (network operations center). This helps provide assurance of 24x7 performance to meet local building and fire codes.

The mission of Max Planck is to empower and enable the world's leading researchers, with leading edge tools and resources to give them the very best working conditions. **The system installed by DAS Simplified at Max Planck means a safe working environment where their wireless devices work everywhere**, all the time, allowing them to continue to make groundbreaking discoveries with worldwide impact.

Max Planck's DAS Simplified solution includes:

- AT&T
- Verizon
- Sprint
- T-Mobile
- 800 MHz Public Safety

Warranty & Maintenance:

- One year warranty
 - Remote monitor and control
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