

ELECTROMAGNETIC PROTECTION FOR CRITICAL OPERATIONS CENTERS

A FARADAY STRUCTURES SUCCESS STORY

PROBLEM

Wireless has become the new default standard for information and communications networks, including a variety of devices now in use at large-scale operations centers. This potentially introduces vulnerabilities for hackers to steal valuable information, or disrupt and even damage systems.

SOLUTION

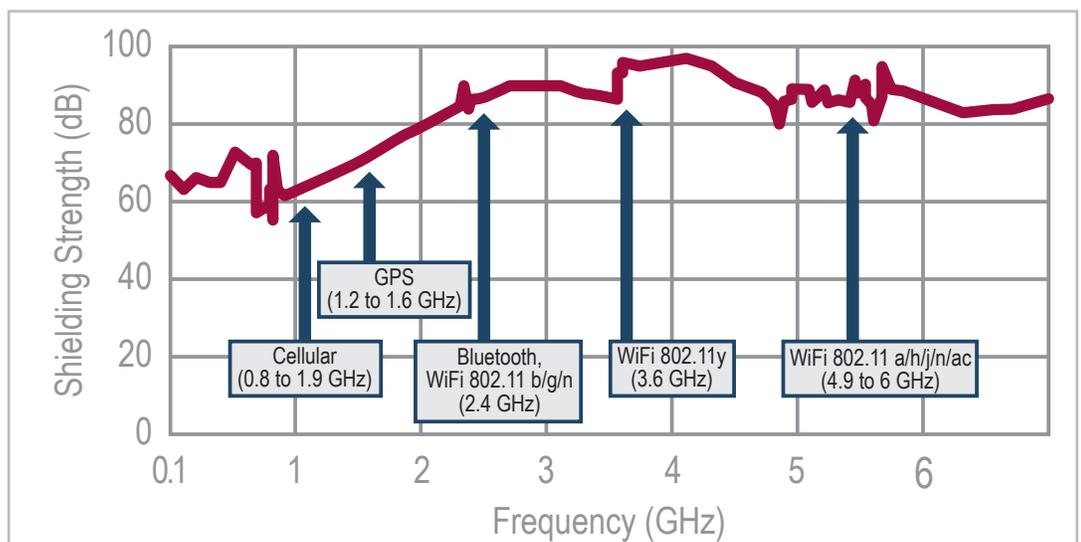
You can't hack what you can't see. Faraday Structures provides secure environments that keep your information contained, and your networks and devices safe from intrusion or harm.

In answer to the increasingly congested and insecure wireless environment, Faraday Structures leverages decades of private and federally funded developments into a comprehensive shielding solution for facilities, including protection from incidental and intentional electromagnetic anomalies. Using proprietary self-developed materials and methods, Faraday delivers a full-systems approach for electromagnetic protection and wirelessly secured environments. Capabilities and services include inspection/assessment, installation, testing, certification, monitoring, and technology development.

SUCCESS

Faraday Structures offers complete installation and testing for electromagnetically secured environments, including operational data centers. Our approach relies on proprietary electrically conductive wallpapers, polymer-based sealants, and other conductive construction-based materials to for quick, cost-effective installation. The subject of this case study is a federal data center. This installation encompassed the remodel of an in-use operational facility, with complete systems and subsystems for physical access, digital access control systems, security and alarm systems, fire sensing and sprinkler systems, multiple high power facility electrical feeds, communications systems, ventilation, circulating plumbing systems, and internal air circulation using a raised floor, drop ceiling, and wall cavity architecture. Faraday's conductive shielding wallpapers were used to line the hard deck inner surface area of the room (below floor, behind walls, above ceiling), and all penetration points were sealed with Faraday's conductive elastomer construction adhesive. Shielding wallpaper layers were hermetically sealed with a hard urethane for physical durability and long-term environmental exposure. As this was an active facility, special care was taken to minimize downtime and ensure that the installation occurred on schedule, which was

Faraday Structures
Shielded Room
Performance
(typical protection levels)



SUCCESS CONT'D

successfully accomplished. Furthermore, even with a significant level of development engineering and a complex configuration in a remote installation site, the total per-square-foot cost to shield the space was below the entry level thresholds of current metal-sheet based facility shielding options.

The space was independently tested by Science Applied Research Associates, Inc. (SARA) before and after installation of shielding layers. High resolution test maps with multiple frequency bandwidths and offset distances were used. Final testing was conducted and verified by an independent federal agency. All shielding performance level objectives were met. In addition, the space was tested for cell phone and WiFi network shielding. Multiple cell phones, across multiple carriers, were shown to have no cellular, WiFi, Bluetooth, or GPS connections in the shielded space. Both on-site existing WiFi and specially installed WiFi networks were shown to be completely shielded by the space, even when an enterprise-grade router was placed directly against the walls of the space, with receiving devices directly on the other side of the wall.

BENEFITS

Faraday Structures has proven that its shielding solutions are high performance, cost effective solution for operational data centers. The Faraday team was able to attain a shielding effectiveness of over 60 dB from 200 MHz to 1 GHz, and over 80 dB in the 1 GHz to 6 GHz range where consumer wireless systems operate. Additional functional testing of this room confirmed denial of all cellular and wireless service.

“Completing the shielding this in-use facility with our conductive construction materials is yet another validation of a decade of development and testing, proving that significant shielding can be fully realized in critical facilities protected with our new approach,” said Dr. Nathan Hansen, co-founder and CEO of Faraday Structures. “This milestone positions Faraday Structures to continue rolling out our products and services for customers that demand the best in electromagnetic protection at a price point that allows for true widespread deployment.”

Cellphones tested inside the space had no cellular, WiFi, GPS, or Bluetooth connections.

