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Seeking Wireless Solutions for Security



Wireless Networks

- Wired networks present significant challenges:
 - Above ground infrastructure is subject to physical attack or accidental insult
 - Trenching and digging is expensive and often prohibited on contaminated sites
 - Time is often an obstacle for emplacement, especially in temporary installations



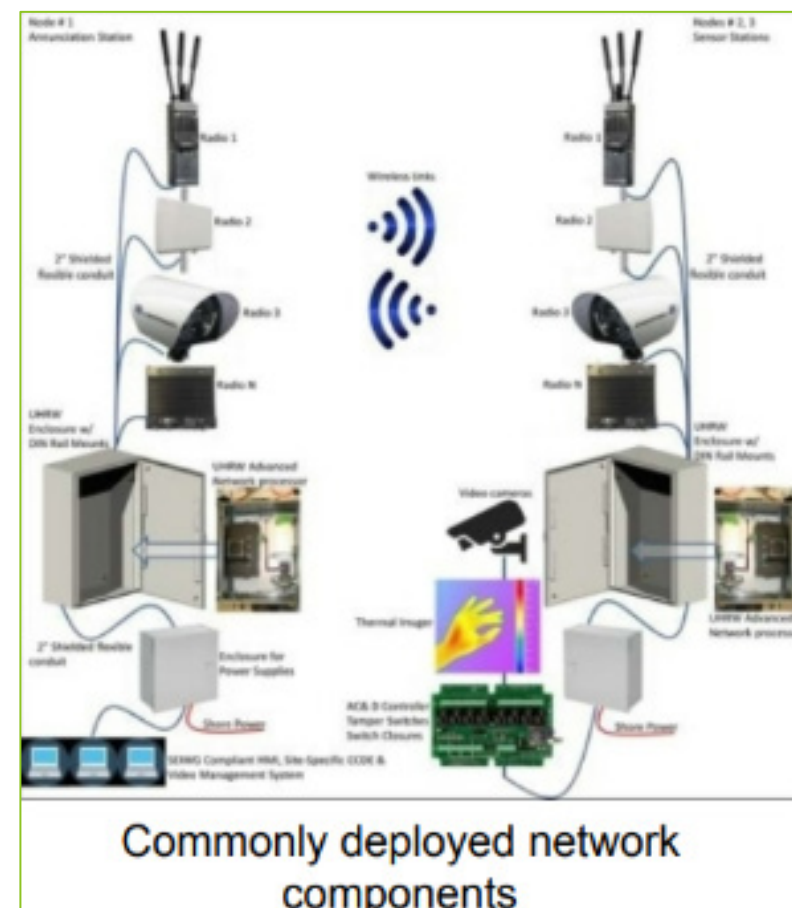
Prospective Solution – CARBON Wireless

CARBON Wireless designed as:

- A robust and secure wireless networking platform
- An option for rapid deployment
- An answer in a wide range of applications:
 - Ad-hoc wireless networks with limited mobility
 - Fixed-site physical security systems
 - Rugged terrain applications



CARBON Wireless Features



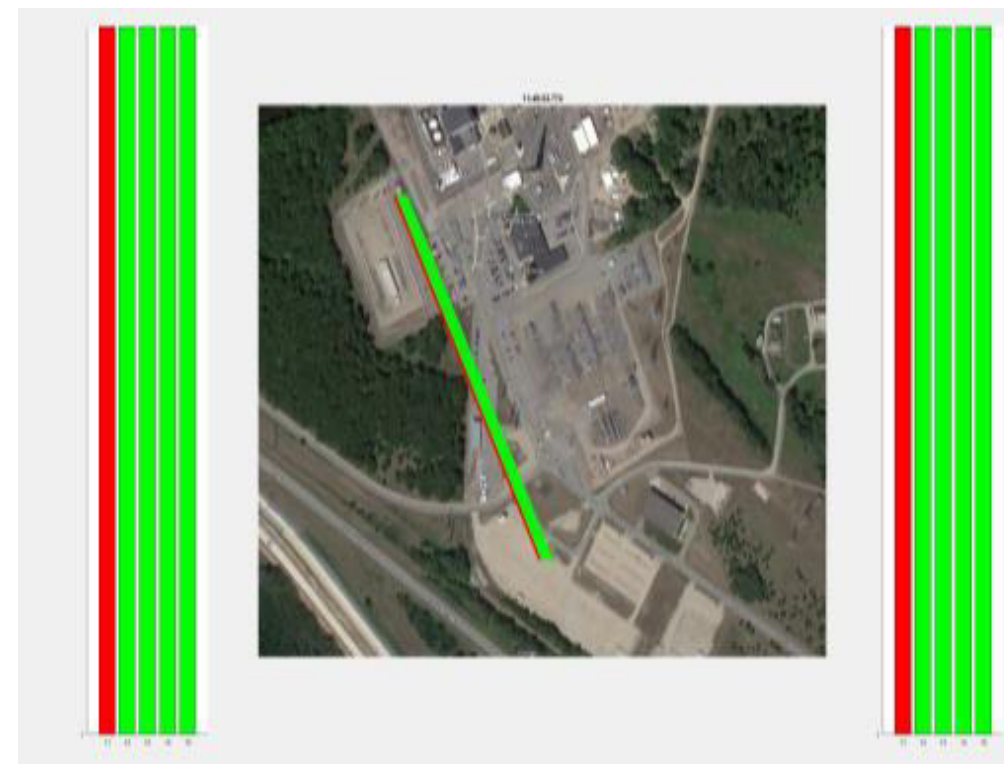
Carbon Wireless Project Key Activities

- FY24 Activities
 - Pilot deployment at the Monticello nuclear power plant site
 - Integration with Deliberate Motion Analytics
- FY25 Activities
 - Internal SNL cyber-intrusion subject matter experts to assess, identify and mitigate against potential cyber-attack avenues against the CARBON systems
 - Stand Up Demonstrational Test Bed at SNL to conduct Jamming Tests, Cyber-Attack Tests and to conduct Live Demonstrations of all CARBON capabilities
 - Identify the relative level of effort to exploit vulnerabilities within a nuclear power plant environment versus likelihood of encountering such level of effort



CARBON Wireless Impact

- Cost Reduction
- Intrusion Detection and Security System Flexibility
- Improved Cybersecurity Measures
- Facilitation of Remote Operations and Safety Monitoring



CARBON wireless link status during communication jamming exercise



Sustaining National Nuclear Assets

lwrs.inl.gov