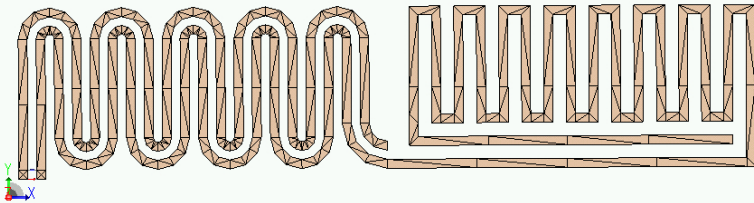


RFID Concepts and Applications

- Reduce Size of tag
- Maximize Efficiency
- Chipless Tags
- Minimal Power (in presence of ordance)



Operational and Performance Capabilities - Summary

Adapt small tag designs to weapon systems and consider design processes without chip to reduce power requirements in the presence of ordance

- Maximize bandwidth to the fundamental limits of antennas
- Improve efficiency of structure
- Minimize power requirements
- Evaluate performance in new frequency bands and determine the tradeoffs

Technical Approach:

- Task 1: For a given footprint, optimize the design of RFID tags to approach the fundamental limit in bandwidth and gain using appropriate meander techniques
- Task 2: Improve the efficiency of small tag structures to improve response to minimal power
- Task 3: Develop chipless RFID tags based on pole-residue concepts of antenna structures to minimize power requirements in the system.
- Task 4: Design a reader concept to optimize low power operation of a tag in the presence of ordance
- Task 5: Build and Measure sample tag structures to demonstrate the performance characteristics

To Be Developed:

- Optimized tag antenna design for given footprint limitations
- Techniques for improving efficiency
- Demonstration of a tagless RFID structure and ID differentiation

Corporate Information:

Virginia Tech, Wireless@VT, VA Tech Antenna Group
Dr. William A. Davis / Dr. Majid Manteghi
302 Whittemore Hall (0111), Blacksburg, VA, 24061
Tel: 540-231-6307; Fax: 540-231-3362; E-mail:
wadavis@vt.edu
<http://antenna.ece.vt.edu/>