



Senior Design Project in Electrical & Computer Engineering



87' Patrol Boat Antenna

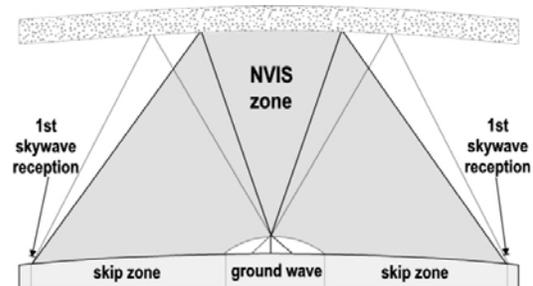
Cadet 1/c Nick Monacelli

Advisors: Professor Michael McKaughan

Sponsors: TISCOM

Background Information

The Coast Guard's 87' patrol boats have had significant difficulties with High Frequency (HF) communications. Every other white hulled cutter with a Law Enforcement mission has benefited from the implementation of Near Vertical Incident Skywave (NVIS) technology. NVIS technology allows for a greater area of reception for assets and improves the overall effectiveness of HF communication in the Coast Guard. Previous cadet projects have worked on implementing NVIS on 110' patrol boats. TISCOM has asked CGA to do the same with the 87' patrol boat.



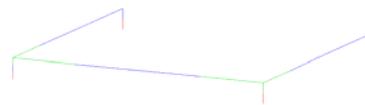
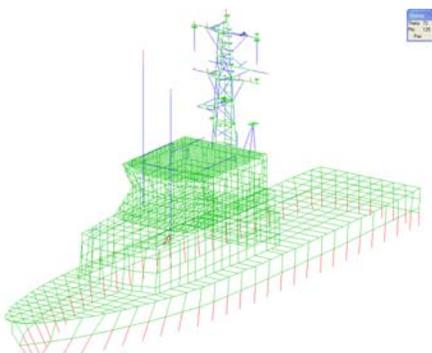
Problem Statement

Design and test an NVIS antenna for use on the 87' patrol boat. Provide a recommendation to TISCOM in May 2008 on the viability of using the antenna throughout the fleet



Methods / System Design

Using computer modeling software, we tested and designed antennas on an 87' patrol boat. Simulations allow us to come up with an optimal solution that can then be built and tested on the platform.



Project Objectives

- Increase HF communication effectiveness on 87' patrol boat using NVIS technology.
- Design and test antenna using computer simulation.
- Test antenna on operational 87' patrol boat.
- Provide recommendation to TISCOM.

Project Timeline

March 15: Have prototype antenna
March 20-24: Testing
April 15: Have analysis completed
May TBD: Final paper/presentation

