System Integration for Enhanced Loran

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Disclaimer

The views expressed in this briefing are those of the authors and are <u>not</u> to be construed as official or reflecting the views of the U. S. Coast Guard, the Department of Homeland Security, or the U. S. Government.

Overview

1. Steps to Implementation/Case for requirements.
2. Status of LSU efforts / projects
3. How you can help

Steps to Implementation

- Analyze differences between requirements for LORAN-C and Enhanced Loran
- Generate comprehensive set of requirements
- Re-define the system implementation in terms of those requirements.
- Make the changes to meet the requirements (constrained optimization)
- Finalize essential technologies / capabilities
- -----------> **Enhanced LORAN!**

Defining System by Requirements

- In general, this will explicitly map the features and requirements of each component of the Enhanced Loran system
- Will build flexibility into the system
- Allows for better maintenance, troubleshooting, and prioritization of system trouble reports.
- Will allow for more efficient operation

Finalizing Technologies/Capabilities

- **Differential LORAN**
  - Message format, data path, sky-wave issues, Performance trials.
- **Maritime Survey Procedures**
  - Data format, frequency to mitigate temporal gradient
- **GPS Independence**
  - Paper clock, UTC Synchronization, Performance trials,
- **Command & Control**
  - Current system analysis, effective handling of increased information load

Comprehensive Requirements

- Performance Requirements (LER)
- Operational & C2 Requirements
- Legal Requirements (archived integrity/accuracy data)
- Engineering (LSU,
- Maintenance (LSU
- Scalability (allows for expansion/contraction)

LSU Projects

- **LDC & Maritime Research**
  - Maritime surveys, monitor sites, prototyping, revised signal specification
- **LEMS**
  - Operational receiver, revised monitoring system
- **LICOS**
  - Command & control (C2), network infrastructure
- **Timing Research**
  - UTC Synchronization, paper clock, LDC timing performance evaluation

Be Part of the Action!

- The USCG Loran Support Unit wants input from the Loran research community on *anything* and *everything* related to this process!

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Questions?

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