

Producing the next generation of Integrated GPS/eLoran Receivers

### Performance Results for eLGPS 1110

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## Outline

- eLGPS 1110 features
- Stationary results
- Marine results
- Results from customers
- LDC results
- Questions

### Features

- Position
  - Integrated and LORAN-C TDs solution (configurable)
  - WAAS and EGNOS enabled GPS chip (SiRF III)
  - ASF Tables (LORAN Propagation Model)
- Heading
  - Better than 1° accuracy
- LDC
  - Decode all transmitted messages
  - Can accommodate growing Almanac table
  - Eurofix, work in progress
- Output
  - RS 422, NMEA 0183
  - Configurable rates and NMEA sentence list



### Static Results

- 24 x 7
- 1 Hz, binary analysis output (6 Mbytes / hour)
- Internal Oscillator













# LORAN: 2D Distribution

(Ref: On-board GPS)







## Marine Tests and Results

- Experience real marine scenarios
- Variety of vessels
- Study customer setups

#### **Test Vessels:**



#### **CrossRate Boat:**

- Since Jan. 2009
- 2 3 days a week
- 2 hours 6 hours trials



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#### **Casco Bay Ferries:**

- 65' 122' steel boats
- 2 3 times a month
- 1 hour 2 hours trials



#### **Fishermen and Lobster boats:**

- 27' 65' wood, fiberglass vessels
- Periodic trials
- 1 hour 8 hours trials











#### Ferry

- Wide band
- Close to 100 kHz

Lobster boat

• Wide band



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### **Casco Bay Trial**





# Integrator: 2D Distribution







# Cambridge, UK: Mobile test



- As reported, LORAN only; 90 kms trial; approx. offset 200m from GPS
- No ASFs

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NMEA output



# LDC Demodulation

- Continuously monitors LDC (only secondary).
- Maintains an internal Almanac table.
- Updates the table with new stations and nominal values.
- Corrections supersede ASF values.
- Decoded Type 0, 1, and 15 messages from 8970 Seneca (10 dB SNR).



# Summary

- Solid performance results
- Tested on variety of vessels
- Robust noise mitigation algorithms
- LDC ready, Eurofix coming soon



# Questions



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