

# **Vessel, rig and field security**

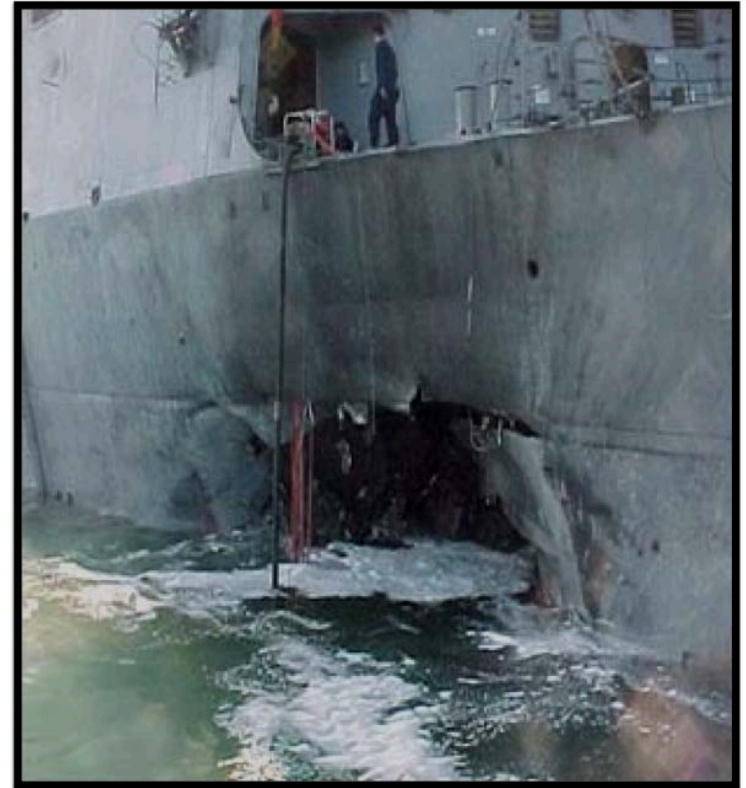


# LRAD History

The LRAD was developed specifically in response to the USS Cole Attack in October 2000

The LRAD fulfills the capability gap for vessels to **HAIL**, **WARN** and **NOTIFY** approaching vessels at significant ranges with clear voice or prerecorded messages in any language

## USS COLE



# LRAD = Force Protection

## LRAD:

- High-intensity
- Directional Acoustic Array
- Long Range
- Crystal Clear
- Hailing
- Notification
- Unmistakable Warning
- Deterrent Tone

## Used to:

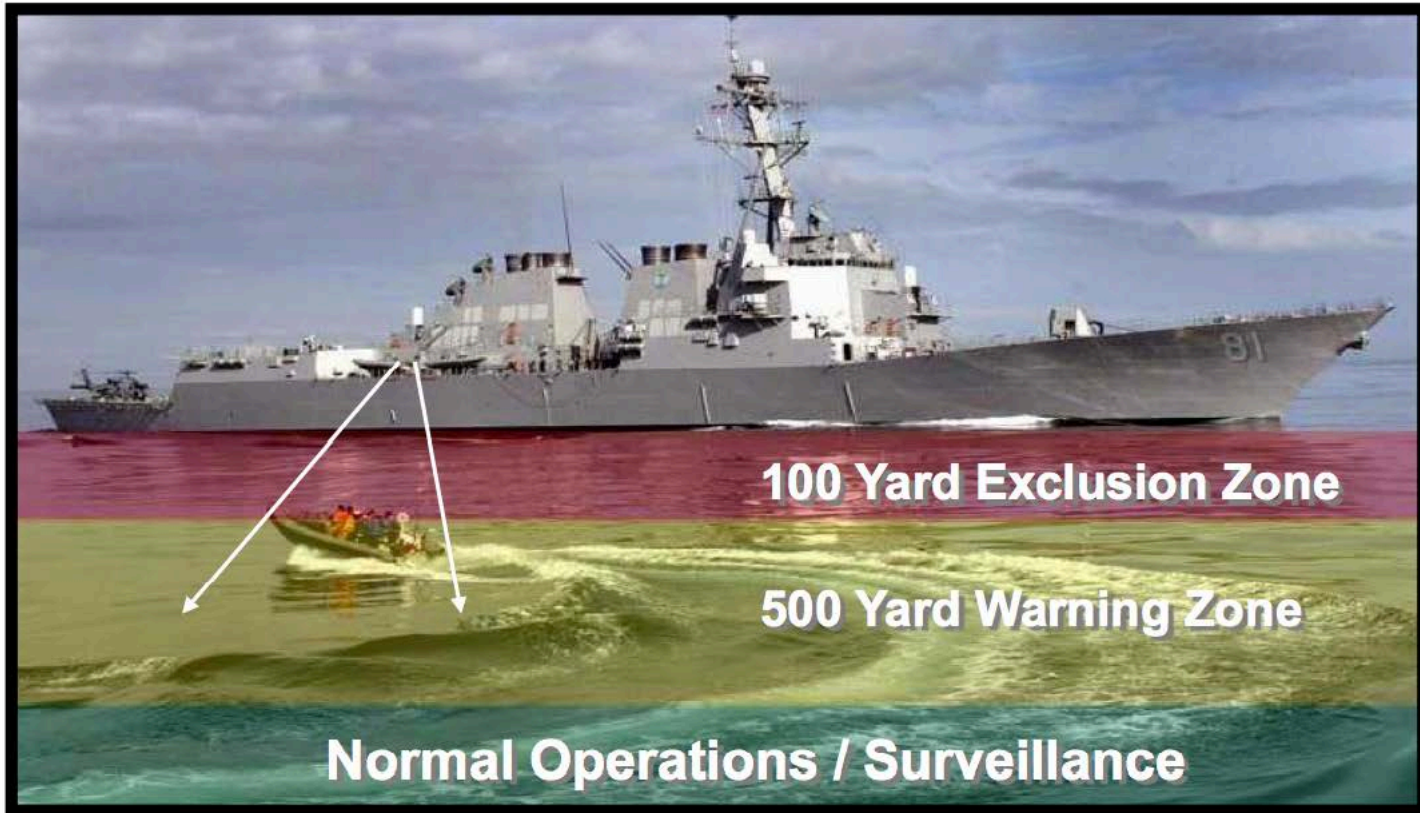
- Communicate
- Establish Intent
- Change Behavior

## Typical Scenario:

Tone/Light → Warn 1 → Warn 2 → Tone → Lethal Force



# USN Employment



LRAD 1000X/RX are the ONLY devices proven to meet USN 500 yard communication requirements.

# Recent Events

Determine intent at a safe range and have time to react with LRAD.



MSC Chartered Vessel Fires on  
Egyptian Merchants  
March 25, 2008



M/V Faina Held Hostage  
by Pirates  
September 28, 2008

# Successful Employment



National Guard Hurricane Katrina



US Army Camp Bucca



US Army Project Sheriff

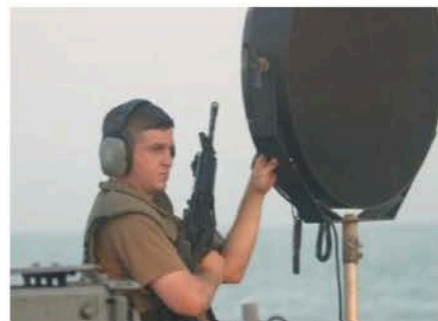


USMC OIF



US Army 416<sup>th</sup> Transportation Command

# Successful Employment



USN 5+ Years



Seabourn Spirit Nov 5, 2005



M/V Resolve & Sunshine Sky  
Apr 1, 2008

# Seabourn Spirit

Repel Attack 55 Meters  
Away November 2005



*“The security team also did well. Under fire, the charged fire hoses to keep the pirates from boarding, they assisted passengers to get them inside the skin of the ship, and they deployed LRAD. The Security Officer was particularly enthusiastic about the performance of LRAD, and in his opinion it saved the day. ”*

**- CO USS Gonzales**



# M/V Resolve & Sunshine Sky

Repel Attack 1100 Meters  
April 2008



*"aimed her (LRAD) using the sight, went to maximum power and volume and activated. The first time the boat seemed to fall off course momentarily, then come back. I activated the unit a second time, this time holding it for a longer period and "waving" it across the target to make sure I "hit". The boat instantly went dead in the water and broke off its attack. The range was estimated at .6 to .8 nm. .... The crew all saw it and they were cheering. I now have a ship full of believers."*

*"Lessons learned: It works."*

**- Captain M/V Resolve**

# Green Ridge

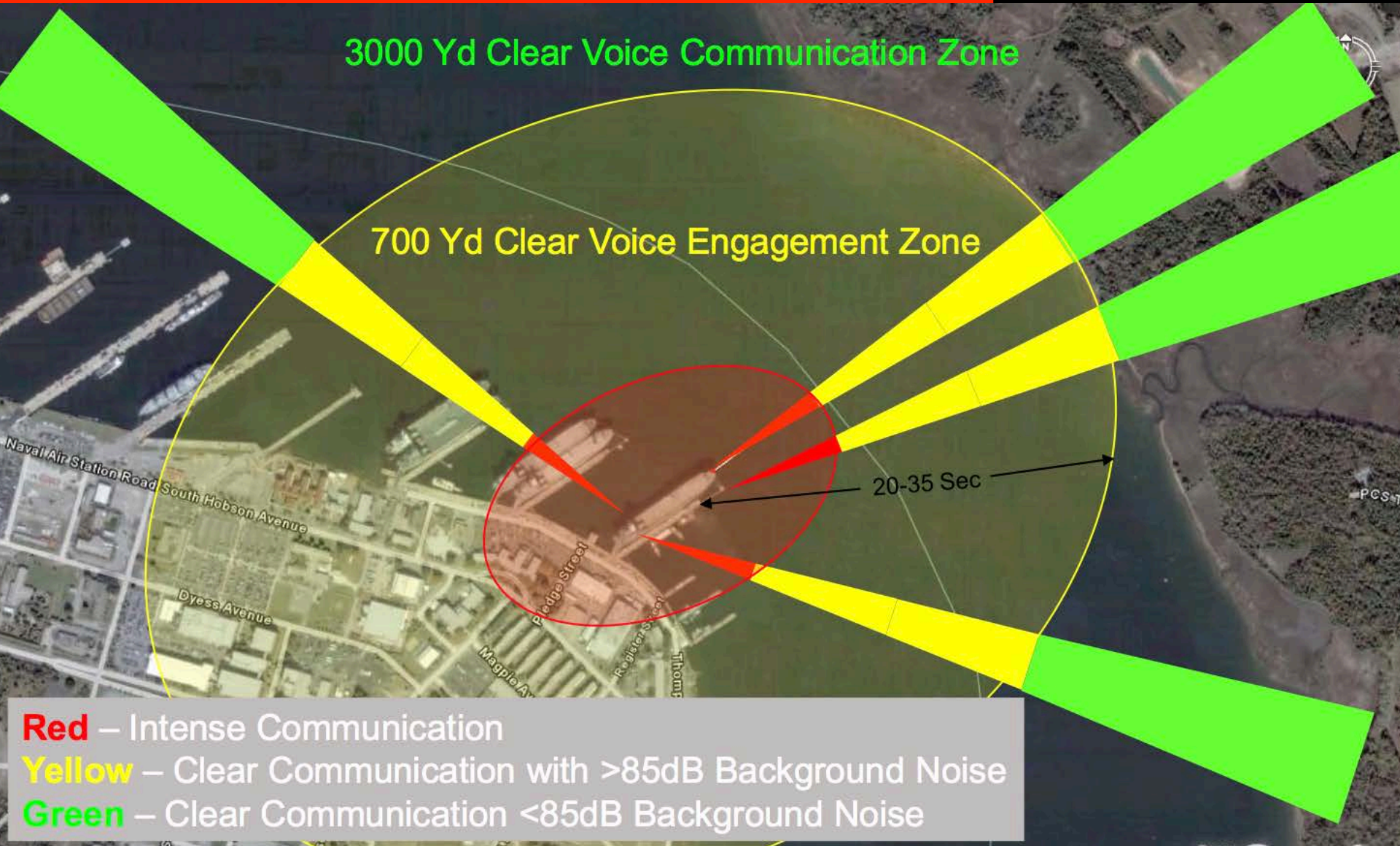
Repel Swarming Attack  
250 yards  
2 Jan 09



“There was a group of 5 small speed boats disguised as fisherman. Then two of them took off towards us. The captain called the mate on the radio to get the LRAD over to the port side. Once the boats got within 1 mile of the ship we Turned on the LRAD. The speed boats got within 500 to 250 yards of the ship before stopping.”

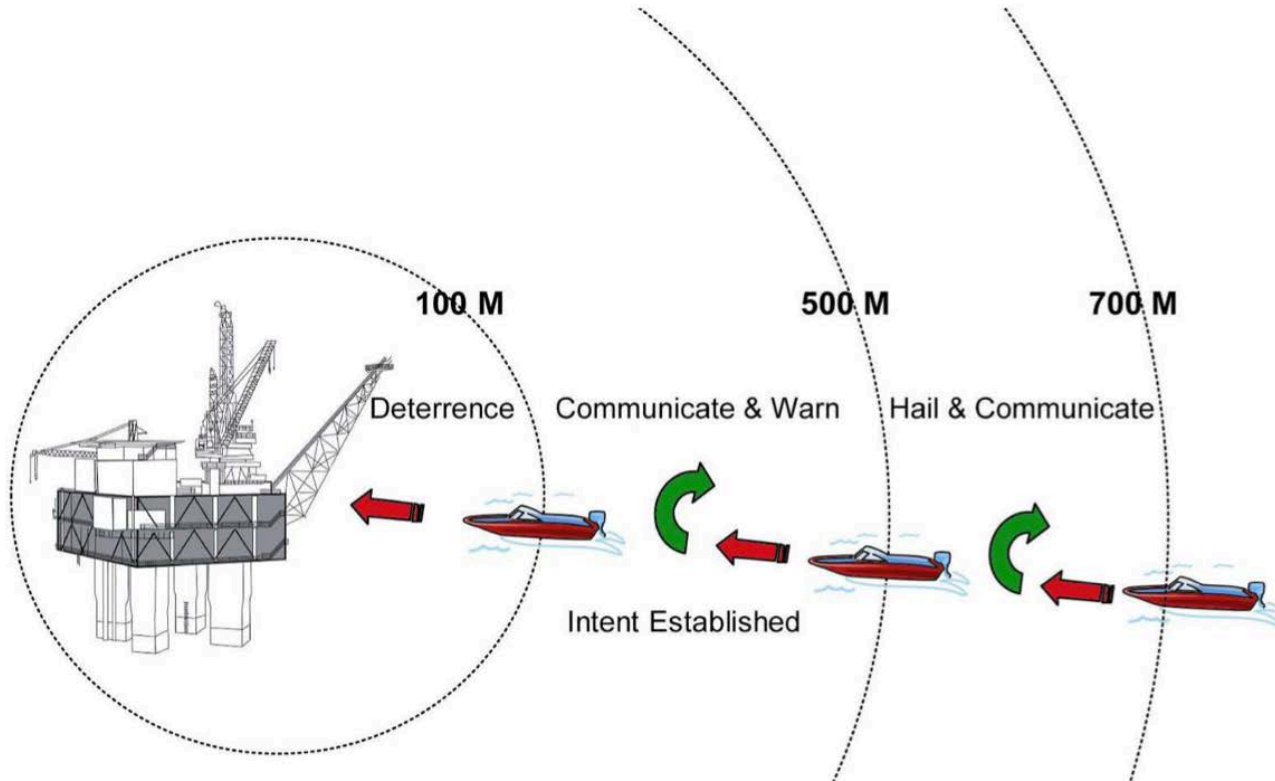
**- Mechanic M/V Green Ridge**

# Vessel Engagement Zone



# Commercial Employment

LRAD provides vessel/platform operators the ability to determine the intent of a potential threat at the earliest possible moment and at the greatest distance.



# Typical Security Plan

Determine intent at a safe range and have time to react with LRAD.

1. 1500M - Attempt to raise COI on VHF
2. 1250M - Play LRAD Tone and Plain Voice Message
3. Repeat Playing Message until 500M
4. 500M - All Hands on Deck/Safe Room
  - a. Escalate Message Warning
  - b. Man and Arm Escalation of Force
  - c. Notify Coalition Vessels
5. 100M - Continuous Tone and Escalate Force
6. On Board - Flood decks and passageways with sound etc.

# Commercial Vessels



Fleet requirement for:  
Princess Cruise Lines  
Cunard  
P&O Australia  
P&O UK  
Holland America  
Seabourn  
Costa Cruise Lines



Successfully  
deployed and  
used on the  
ARC line of  
RO-RO  
vessels since  
2006.



# Cable Laying Vessels



*“By the way our ship ... has had to use her LRAD’s 4 times in the last week to warn fishing vessels to remain clear of our cable track. Each time the fishing vessels responded immediately. We are using a warning we had translated into Egyptian when we hail them.”*

## 8 Vessels

- 16 LRAD 1000X’s
- Bought for Anti Piracy
- Saving Time and Money in Daily Operations

# LRAD Products



Model	RX	1000X	500X	300X	100X
Max dB	152 dB	152 dB	148 dB	139 dB	135 dB
Max range	3000 M	3000M	2000M	1000M	500M
Range 88dB	1000 M	800 M	400 M	200 M	200 M
Power Req	48 VDC	110-220 VAC	12-24 VDC (AC Optional)	12-24 VDC	Battery



# LRAD-RX

Allows central control station to be the first responder.

Provides:

Remote Controlled

Unambiguous Warning at 750+  
Meters with 88dB of  
Background Noise

Uses:

Enforce Vessel Security Zones

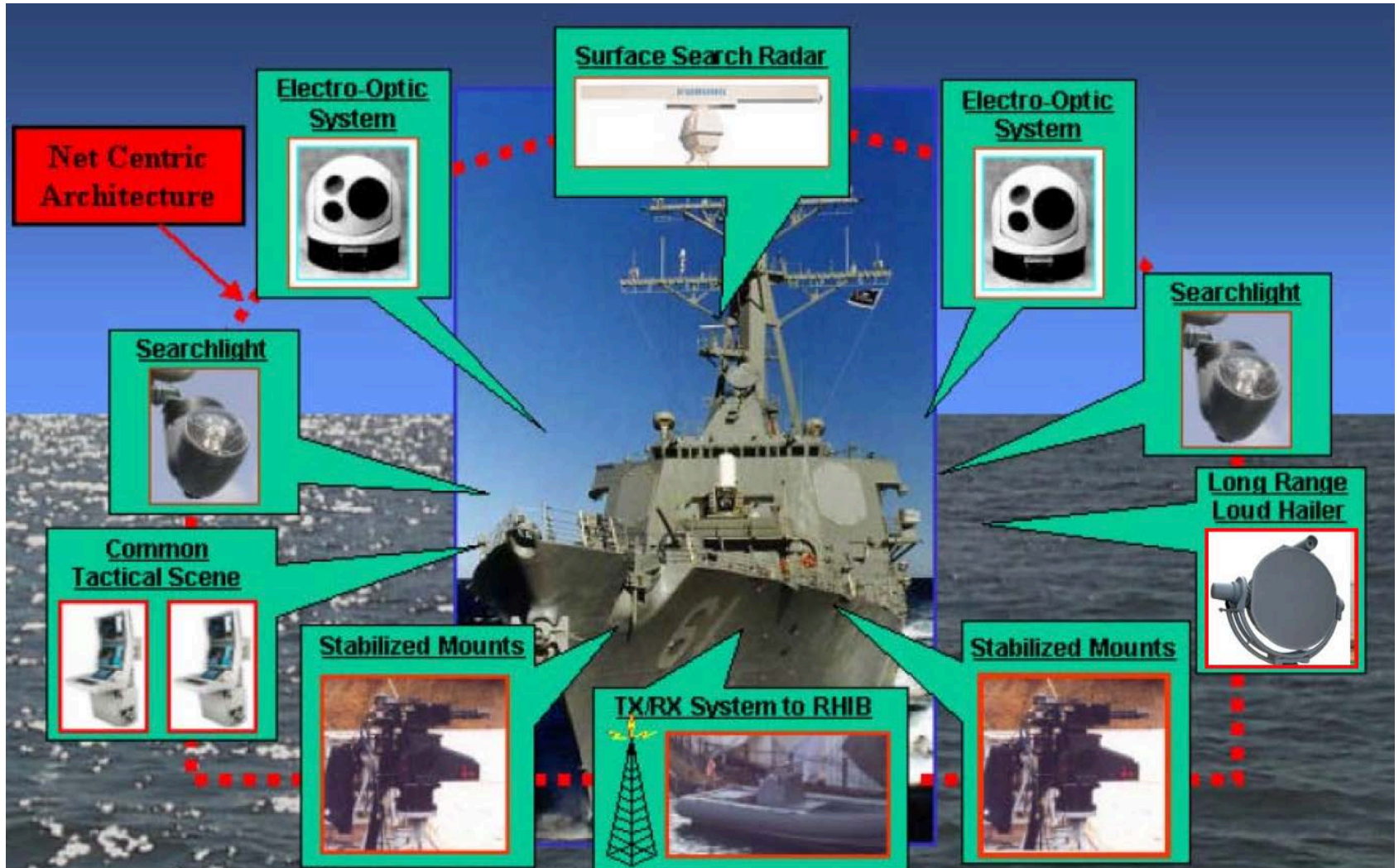
Large Commercial Vessels

Infrastructure Protection Piers

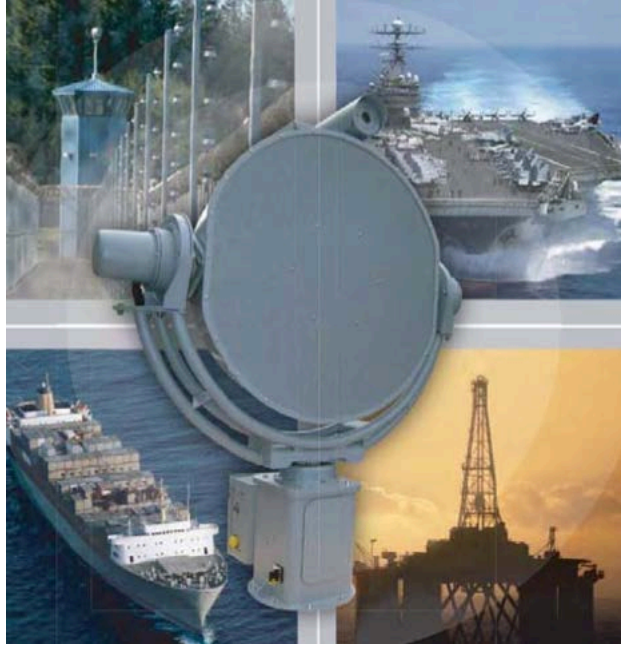


Do more with less with LRAD-RX

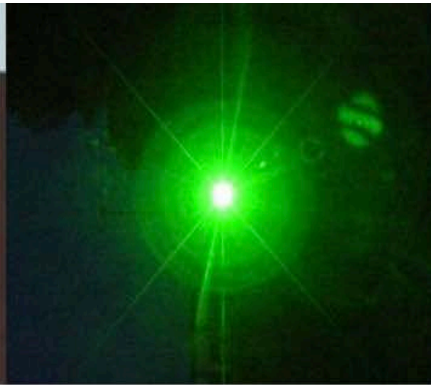
# USN Shipboard Protection System



# Multi Spectrum Solutions



- Host Nation Language Warnings
- Intense Warning Tone
- High Powered White Light
- Green Laser Dazzler



# LRAD 1000-X

**Weight:** 80 lbs

**LRAD Emitter Dimensions:** 34 in diameter x 6.1 in depth (circular)

**Power:** 90-240 VAC, 50-60 Hz

**Current:** Max 8 amps, continuous 4 amps

**Audio input:** Networks, Microphones, MP3, CD, Computer Audio Output

**Amplifiers:** Internal

**Operating mode SPL **Maximum 152dB** @ 1 meter**

**Beam width:** +/-15° @ 2kHz

**Beam Pattern:** Conical-Symmetrical



**Only product tested and proven to meet USN ATRP requirements!**

# LRAD 1000-X

WINNER: NSWCC Crane Shipboard Protection System Contract  
(270 Units)

Provides:  
Unambiguous Warning at  
750+ Meters with 88dB of  
Background Noise

Uses:  
Large Navy Vessels  
Large Commercial Vessels  
Piers  
Infrastructure Protection



# LRAD 500-X

**Weight:** 45 lbs

**LRAD Emitter Dimensions:** 25 in wide x 12 in depth

**Power:** 12-24VDC (direct connection, no inverter)

**Consumption:** 25 Watts continuous, 250 peak

**Audio input:** Networks, Microphones, MP3, CD,

Computer Audio Output

**Amplifiers:** Internal or External

**Continuous Acoustic Power:** 148 dB

**Nominal beam width:** +/-15° @ 2kHz

**Beam Pattern:** Conical-Symmetrical



**Only product tested and proven to meet 300 yd ATFP requirements!  
Small Vessel/Vehicle Acoustic Hailing Device Solution**

# LRAD 500-X

## Small Vessel Security Solution

- Over 120 Deployed with USN in last year
  - Tested at Aberdeen Proving Ground
  - Tested at Fort Monroe
  - Tested at Yorktown
- Rugged, marine product
- Providing small vessel comms
- Well beyond 300 meters



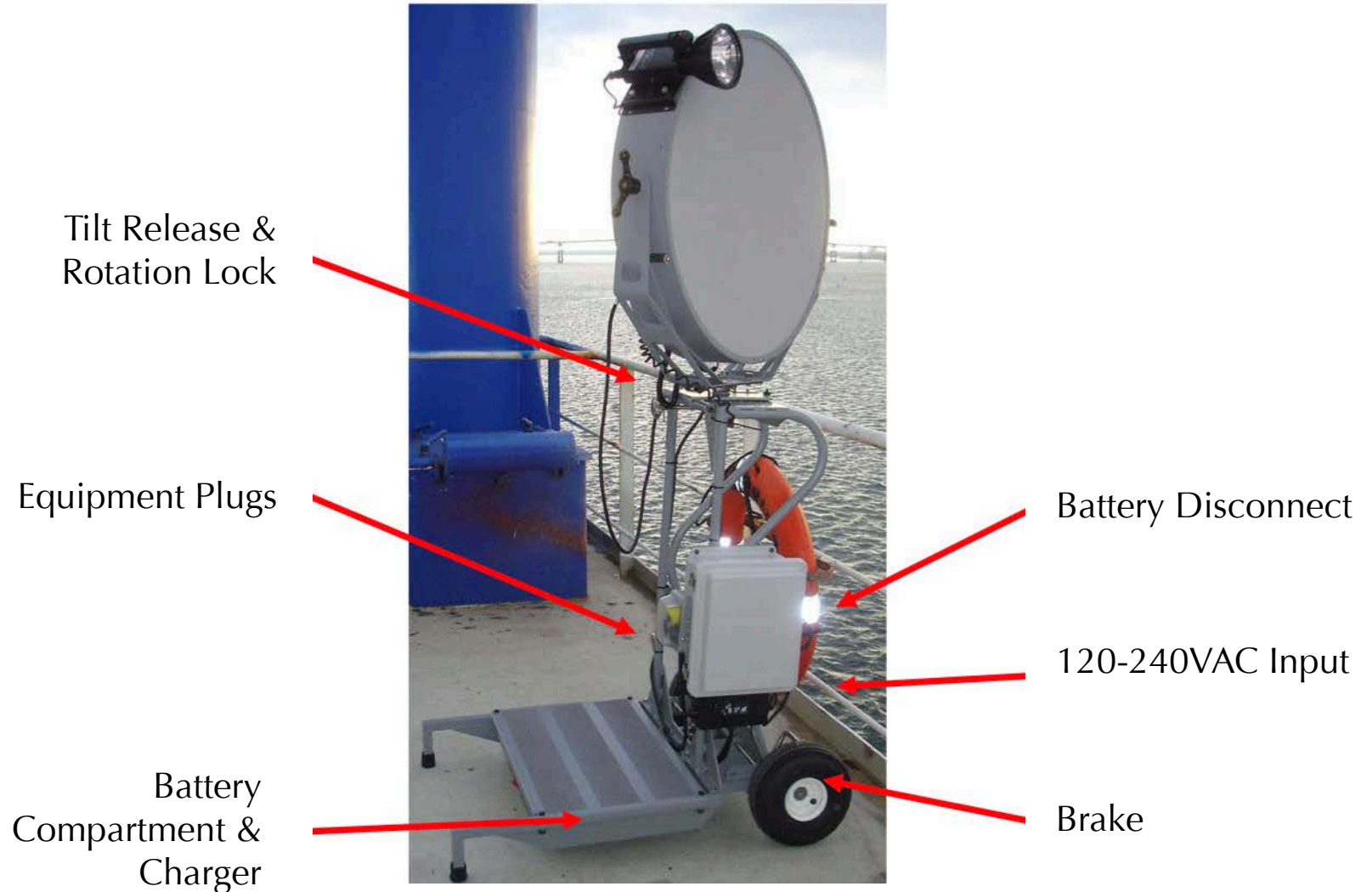
# Scram Cart

- Wheeled Mounting System
- Integrated Power Supply
- 120-240VAC Charging Station





# Scram Cart



# Scram Cart Operation



1



2



3

# Range Comparison

**Red** – Intense Communication

**Yellow** – Clear Communication with >85dB Background Noise

**Green** – Clear Communication <85dB Background Noise

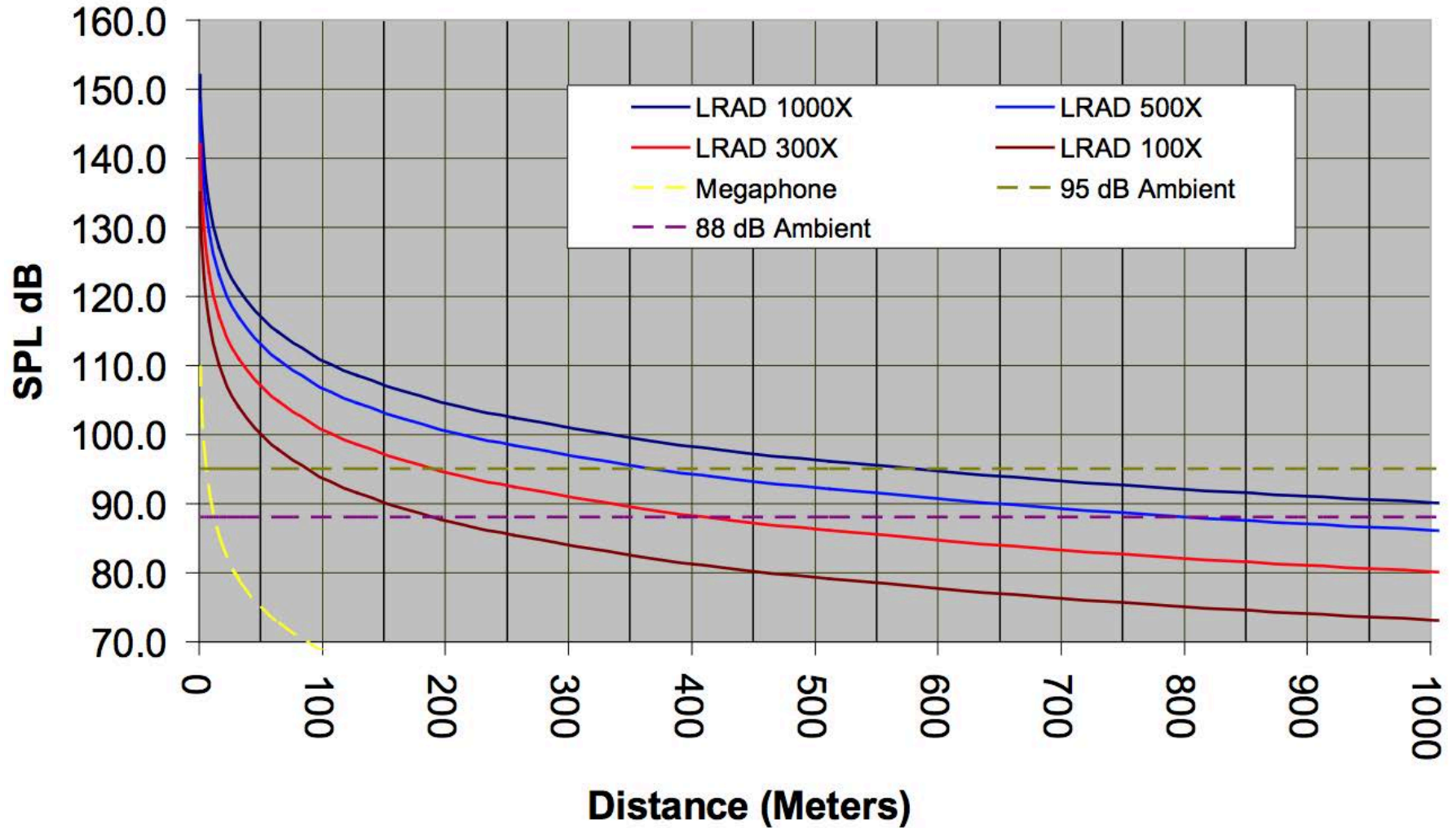
Max Observed Range 2.0 km / 2200+ yds

500X

Max Observed Range 2.8 km / 3000+ yds

1000X

# LRAD Volume vs. Distance



# Contact



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