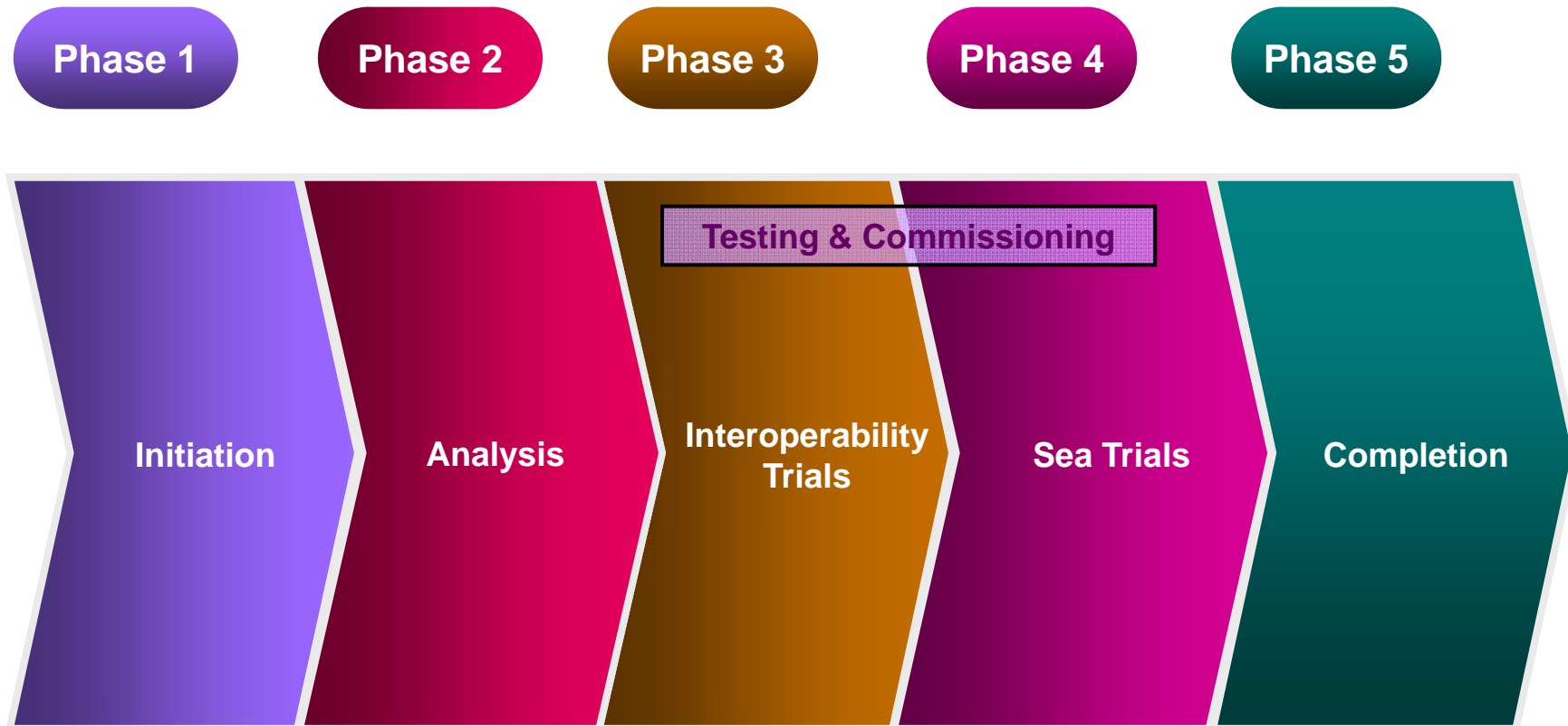


# STET Maritime & CargoTrax Collaborations

**- Pilot Trial for PICO Cell – Mini-TEXEL**



# Pilot Trial - Five Phases



# Broad timeline

5/9/06




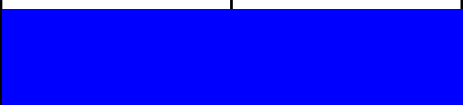

5/10/06

4/11/06

4/12/06

3/1/07

2/2/07

Phase 1 (Initiation)					
Phase 2 (Analysis)					
Phase 3 (Interoperability Trials)					
Phase 4 (Sea Trials)					
Phase 5 (Completion)					



# Phase 1 : Initiation

- Formation of the Project Team
- Determine the Duties and Tasks Inventories
- Determine the Project Schedule
- Conduct Risk Assessment Analysis
- Seeking sponsorship from National Organization & Established Private Enterprises



# Broad timeline

5/9/06

5/10/06

4/11/06

4/12/06

3/1/07

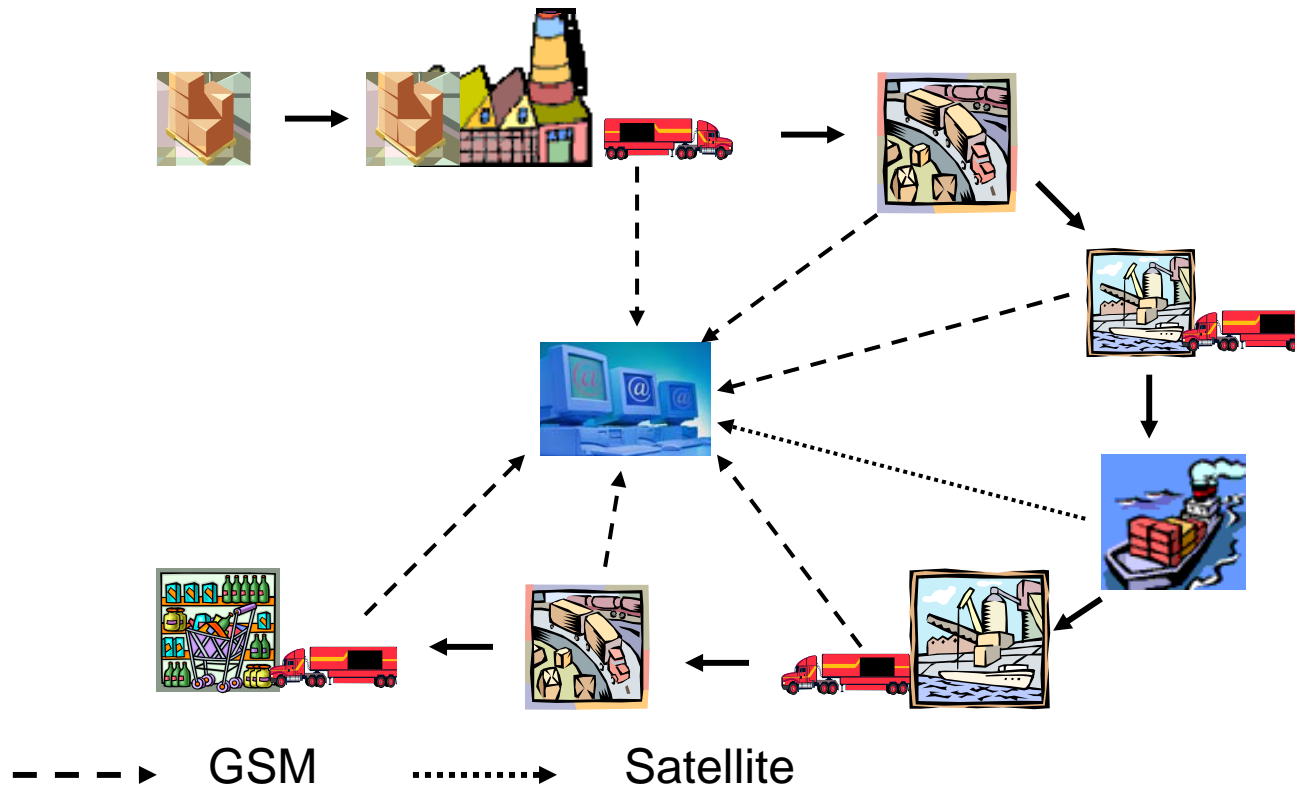
2/2/07

Phase 1 (Initiation)	■				
Phase 2 (Analysis)		■			
Phase 3 (Interoperability Trials)			■		
Phase 4 (Sea Trials)				■	
Phase 5 (Completion)					■



# Phase 2 : Analysis

- Define Operational Scenario



# Phase 2 : Analysis

- Development of Trial Protocol
- Finalization of Project Schedule
- Feasibility Study of Conducting Trials on Land
- Sourcing for Local Contractor
- Contracting Monitoring Agency
- Co-ordination



# Broad timeline

5/9/06      5/10/06      4/11/06      4/12/06      3/1/07      2/2/07

Phase 1 (Initiation)	■				
Phase 2 (Analysis)		■			
Phase 3 (Interoperability Trials)		■			
Phase 4 (Sea Trials)			■	■	
Phase 5 (Completion)				■	■



# Phase 3 : Interoperability Trials

## Phase 3a: Factory Acceptance Trial

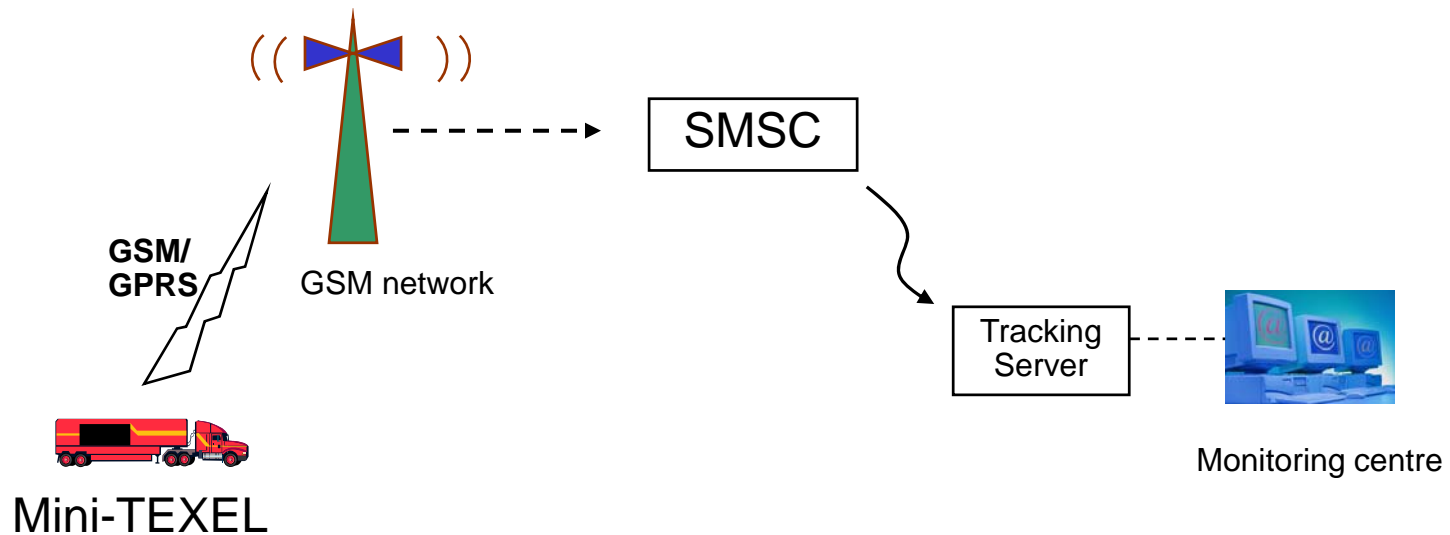
- Ship Installation Unit
- Container Tracking Devices
- Trial phase application software



# Phase 3 : Interoperability Trials

## Phase 3b: GSM Connectivity Acceptance Trial

- Concept of Trial



# Phase 3 : Interoperability Trials

## Phase 3b: GSM Connectivity Acceptance Trial

- Trial conducted on moving truck/platform
  - Loaded on trucks/platform
  - Test out GSM connectivity
  - Functionality of the tracking and monitoring features at AETOS

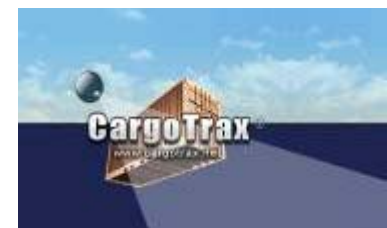
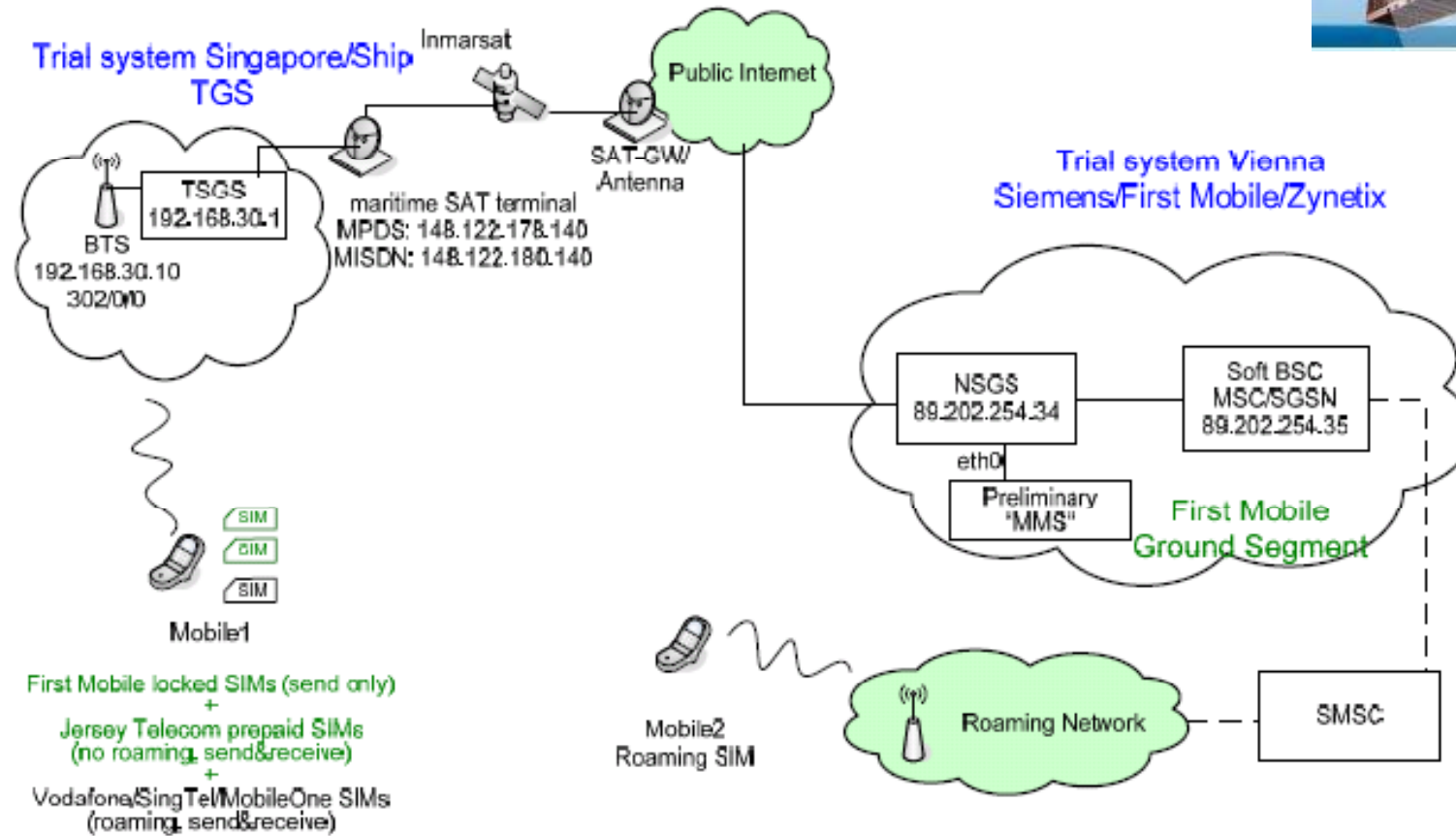


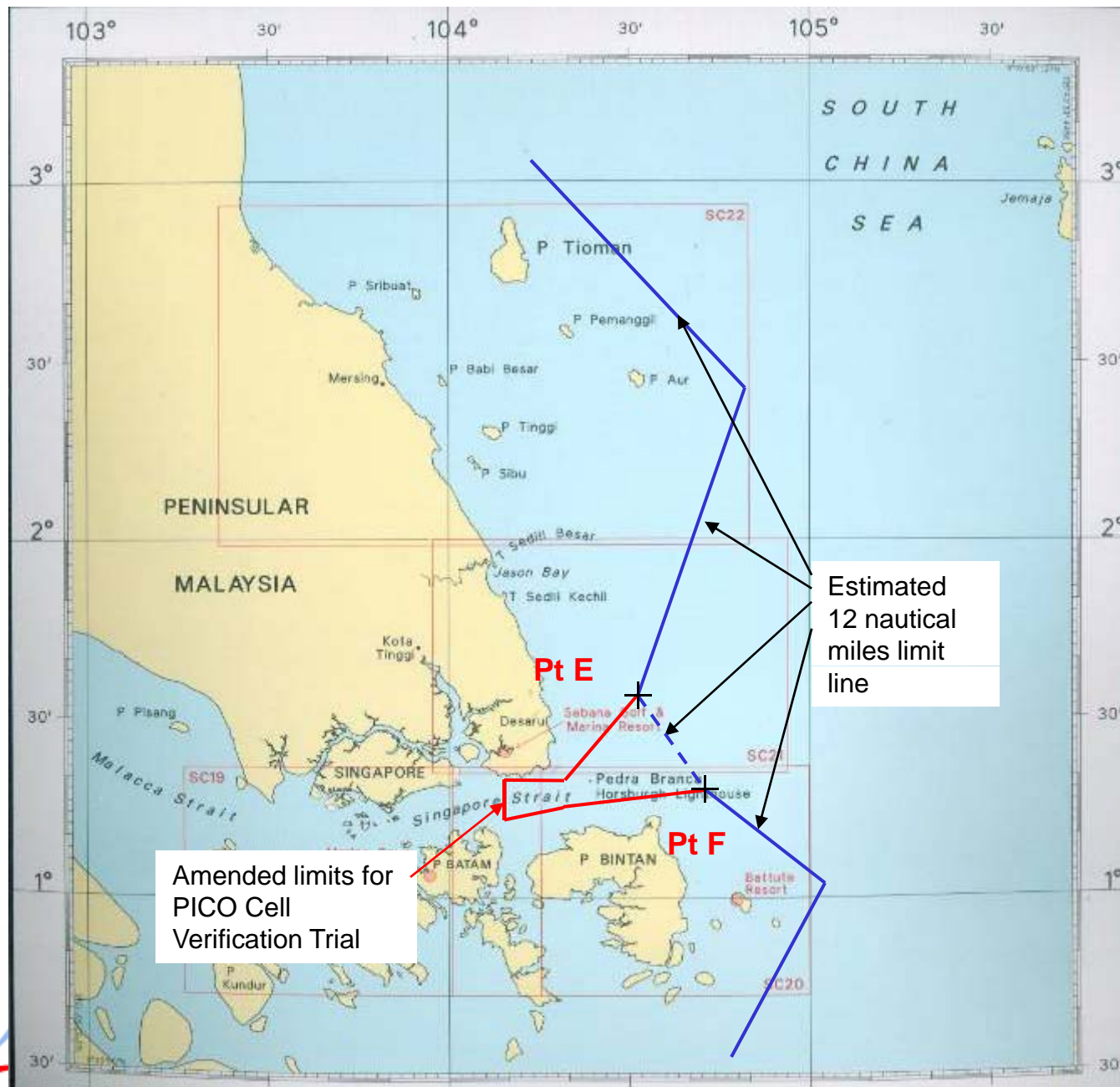
# Phase 3 : Interoperability Trials

## Phase 3c: Pico Cell Connectivity Acceptance Trial

- Feasibility of conducting this acceptance trial onboard boat/ship
- Test Linkages of Ship Installation Unit via Satellite Communication







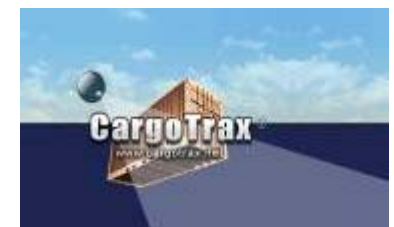
Pt E and Pt F can be any point on the 12 nautical miles Limit line











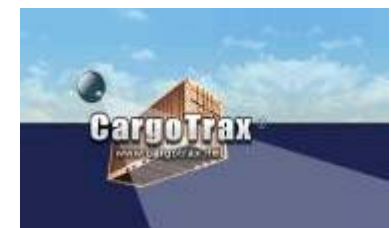
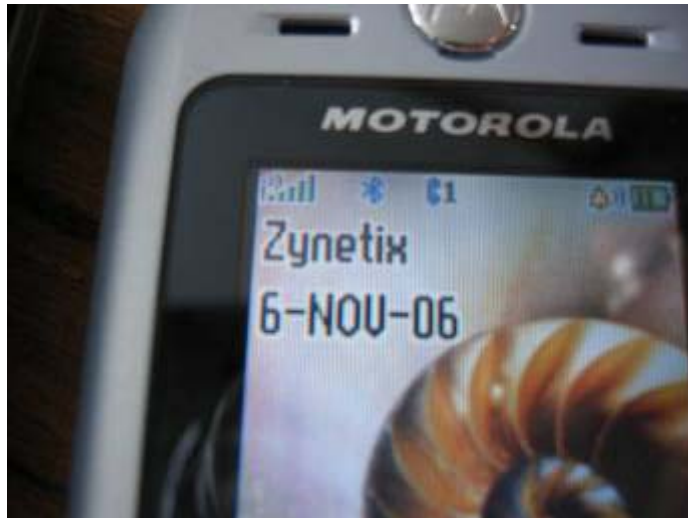


```
Shell No. 2 - Kartolo
Session Edit View Bookmarks Settings Help
Every 2.0s: ./posbts

-- BTS on/off --
SIEMENS-GOB-AGS-MIB::btsAdminState.1 = INTEGER: unlock(0)






-- Current position (Lat/Lon) --
SIEMENS-GOB-AGS-MIB::latitude.0 = STRING: "1.25845"
SIEMENS-GOB-AGS-MIB::longitude.0 = STRING: "104.186"

-- System state --
SIEMENS-GOB-AGS-MIB::gsmSystemState.0 = INTEGER: nightMode(4)
SIEMENS-GOB-AGS-MIB::btsAdminState.1 = INTEGER: unlock(0)
SIEMENS-GOB-AGS-MIB::bssLinkOn1BtsAgsOperState.1 = INTEGER: enable(0)
SIEMENS-GOB-AGS-MIB::bssLinkRs1BtsAgsOperState.1 = INTEGER: disable(0)
SIEMENS-GOB-AGS-MIB::bssLinkAgsGgsOperState.0 = INTEGER: enable(0)
SIEMENS-GOB-AGS-MIB::gsmAdminState.0 = INTEGER: unlock(0)
```



# Broad timeline

5/9/06      5/10/06      4/11/06      4/12/06      3/1/07      2/2/07

Phase 1 (Initiation)					
Phase 2 (Analysis)					
Phase 3 (Interoperability Trials)					
Phase 4 (Sea Trials)					
Phase 5 (Completion)					



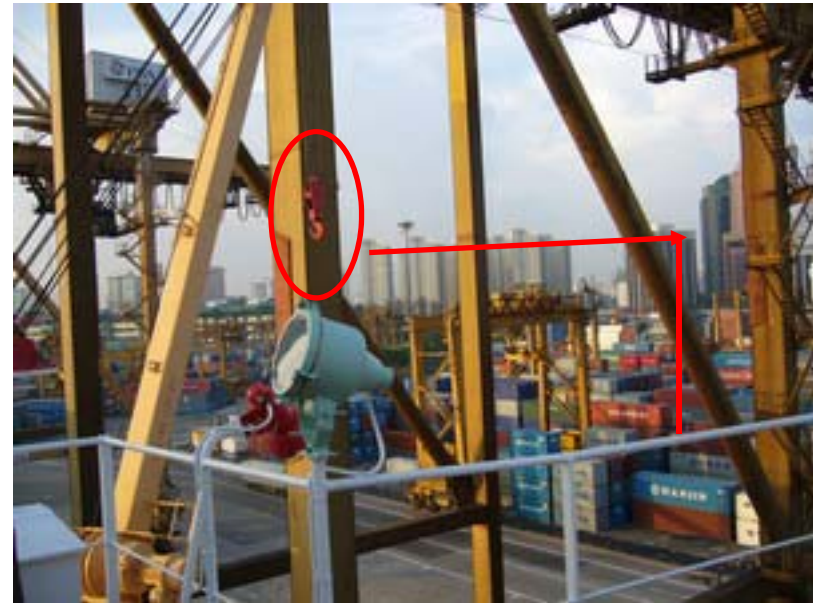
# Phase 4 : Sea Trials

## Phase 4a: Pre Sea Acceptance Trial

- Detailed co-ordinations with TriaGnoSys, Hansabaltic Oy, First Mobile, CargoTrax, local contractors and PIL
  - Installation of Ship Installation unit
  - Confirmations of Sea Routes and Land Routes
- Pre Sea Trial
  - Full Harbour Trial in Port



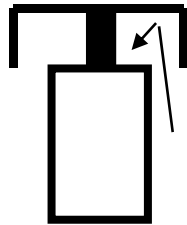
# Ship's Crane to load SIU



- Ship's crane hook enough clearance of more than 1.2m above bridge wing railing. Need short sling on SIU.



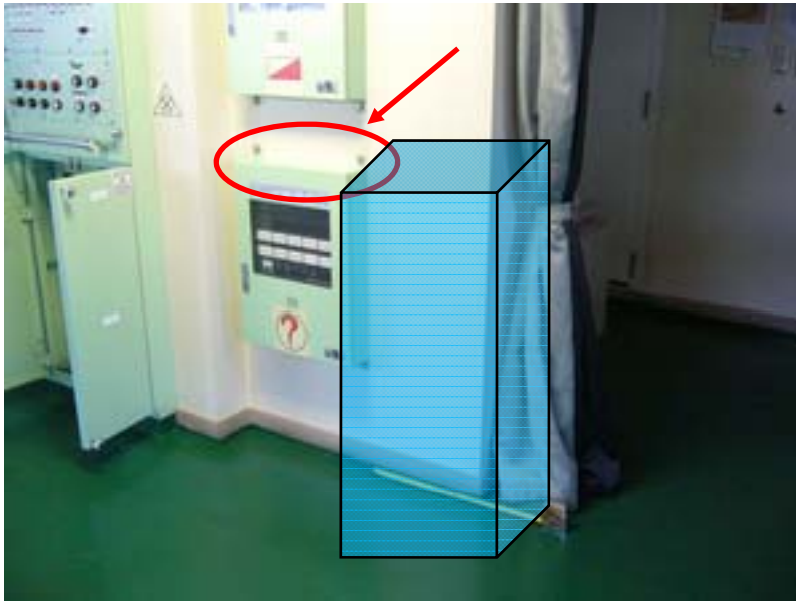
# Wirings from Monkey Island



- Wrigs from 4 antennas will go thru the natural vent duct and comes out directly into bridge above radio console.
- Mushroom over on natural vent can placed back with wires in position.



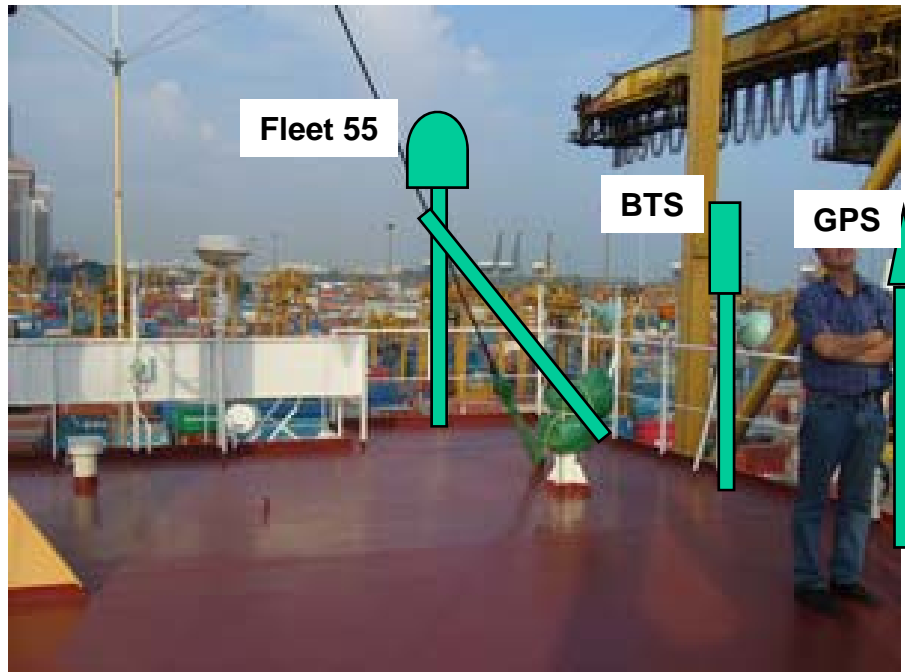
# Location of SIU in Bridge



- SIU will be placed in above location in bridge portside.
- Lashing point will be provided using brackets and secured using anchor bolt on box panel.



# Antennas on Monkey Island



- Fleet 55 antenna stand = 2m,
- BTS antennas x 2 stands (Port and Stbd) = 1.2m
- GPS antenna stand = 1.5m



# Phase 4 : Sea Trials

## Phase 4b: Sea Acceptance Trial

- Sea Trial
  - Conduct of Planned & Unplanned Casualty Modes
  - Collection of results from AETOS, PIL



## Phase 4 : Sea Trials

- Onboard PIL vessel “Kota Gemar”
- Sea trial officially commenced when the vessel departed Singapore on 7 March 2007 at 3:30am.



# Phase 4 : Sea Trials

Sea Trial onboard PIL vessel “Kota Gemar”

Sea trial officially commenced on 7 March at 3:30am.

- The trial vessel’s itinerary was as follows.
  - Laem Chabang (Thailand) 8 Mar 2007
  - Shanghai (China) 14 Mar 2007
  - Ningbo (China) 16 Mar 2007
  - Shekou (China) 18 Mar 2007
  - Hong Kong (China) 18 Mar 2007
  - Singapore 22 Mar 2007
  
- Trial officially concluded when the vessel returned to Singapore on 22 March 2007 at 9pm.



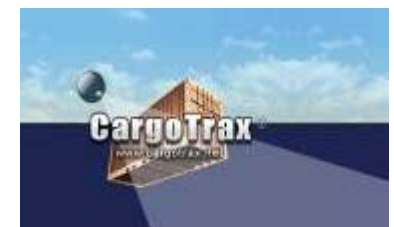
# Phase 4 : Sea Trials



Fig 1. Setting up the SIU beside the shielded room on 5 Mar 07.



Fig 2. Getting ready to work on the SIU on 5 Mar 07.



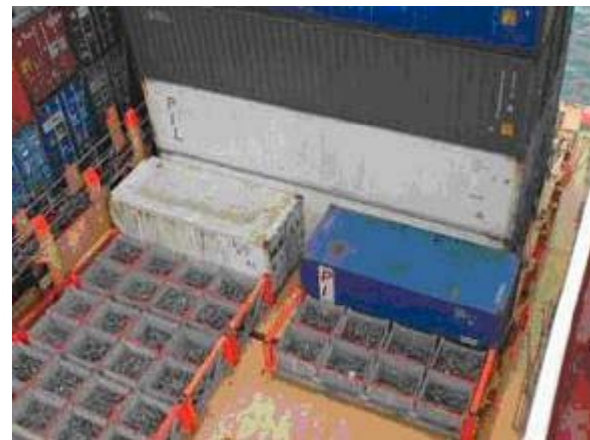
# Phase 4 : Sea Trials



Fig 4. Loading of trial reefer. Note the 2 mini-TEXEL antennae on the door



Fig 5. Location of trial reefer (In white) onboard



# Phase 4 : Sea Trials



Fig 7. Installing cables for SIU



Fig 9. Installed SIU



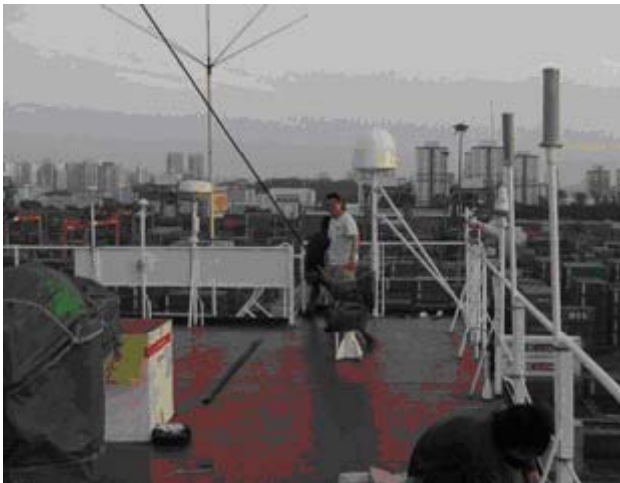
Fig 8. Installation of SIU



Fig 10. Preparing for Installation of BTS antennae



# Phase 4 : Sea Trials



# Phase 4 : Sea Trials



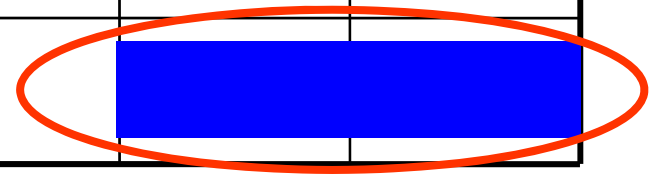
Fig 9. Route of trial vessel plotted on Google Earth (courtesy of TriaGnoSys)



# Broad timeline

5/9/06      5/10/06      4/11/06      4/12/06      3/1/07      2/2/07

Phase 1 (Initiation)	■				
Phase 2 (Analysis)		■			
Phase 3 (Interoperability Trials)			■		
Phase 4 (Sea Trials)			■	■	
Phase 5 (Completion)				■	■



# Phase 5 : Completion

- Conduct:
  - Evaluation of products against original objectives
  - Evaluation of system against original objectives
  - Establish mechanism for the continued collection and management of customer requirements for the next versions of the system and its elements
  - Lesson learnt and recommendation for future trials if needed

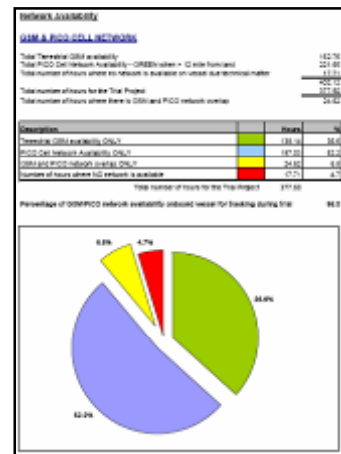
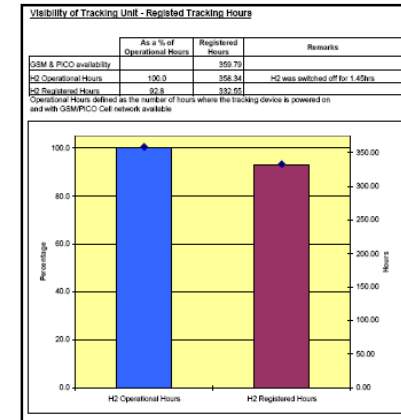
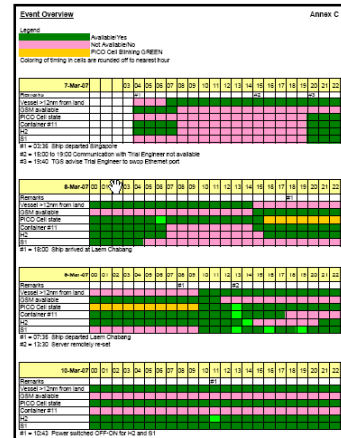


# Phase 5 : Completion

## Pilot Trial Report For SECURED by CargoTrax Solution

7 to 22 March 2007

STET Maritime Bureau Pte Ltd  
1 Maritime Square  
11-19 HarbourFront Centre  
Singapore 099253



# Thank You

