



**USING ELECTRONIC CHARTS IN
COMMERCIAL SHIPPING**
Hamburg Congress Centre
April 8-9 2003

THE FUTURE OF NAVIGATION DISPLAYS

The work of IEC TC80 WG13

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MCA UK



INTERNATIONAL ELECTROTECHNICAL COMMISSION

Founded in 1906

Members are national standards
organisations

63 Members

109 Technical Committees



TECHNICAL COMMITTEE 80

Maritime navigation and
radiocommunication equipment and
systems

Chairman: Andy Norris of Chartco
- Event Sponsor and producer
Secretary: Mike Rambaut of CIRM

Working Groups



TC80 WORKING GROUPS (of interest)

- 1 Radar & Radar Plotting Aids
- 6 Interfaces
- 7 ECDIS
- 10 Integrated Navigation Systems
- 13 Electronic Navigation Displays



TECHNICAL COMMITTEE 80

Long association with IMO

IMO Resolutions giving recommendations
on Performance Standards

TC80 produces test standards

45 Performance Standards in Chapters IV
and V of SOLAS



IEC STANDARDS - Example

IMO Resolution MSC.86(70), Annex3
Performance Standards for Integrated
Navigation Systems

IEC 61924 Minimum requirements for the
design, manufacture, integration,
methods of testing and required test
results for an Integrated navigation
System



IEC STANDARDS - GENERAL

IEC 60945 General Requirements

IEC 61162 Interfaces

IEC 62288 Displays ?



THE PROBLEMS

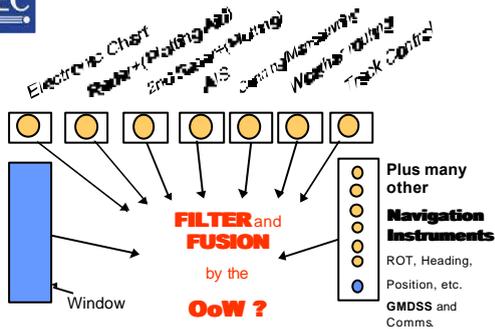
Different Standards require different displays, different ages/states of technology

Definitions, terms, abbreviations, units, symbols and colours are not harmonised

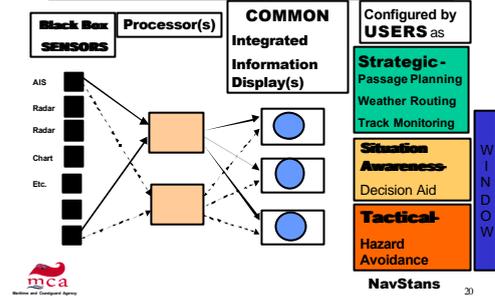
Future need to merge/fuse data and need for indication of integrity/accuracy of information



Current 'Stand-alone' Concept



INTEGRATED INFORMATION DISPLAYS



PROPOSAL

Approach made to IMO in 2001

IMO NAV/47 invited IEC to set up a Working Group

IEC generated a New Work Item Proposal

Working Group 13 set up in 2002



IMO REQUEST TO HARMONISE:

Display and Interaction Objects

Multifunction displays

Co-location, merging, processing, fusion of graphical information and

Indication of quality, status, integrity and accuracy of information.



IMO SPECIFICATION:

- Take account of appropriate IMO Resolutions
- Take account of IMO Decisions on the Human Element
- Take account of appropriate decisions of the IHO



WORKING GROUP 13

- Met 5 times to date
- Members from 10 national standards committees
- Experts from other IEC Working Groups
- Experts from IHO, IALA, RTCM and IMO

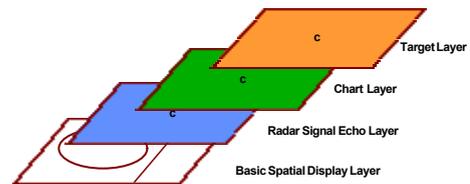


WORKING GROUP 13

- Stresses the importance of operational mariner input
- Has a mission to ensure that final display arrangements are acceptable to watch officers



DISPLAYS derived from Layers of Information

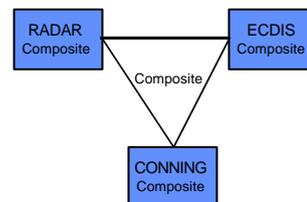


DISPLAYS derived from multiple sources of information

- Navigational aids now routinely display information from multiple sources
- Most displays now provide "composite" presentations e.g. ECDIS with radar, radar with chart, AIS

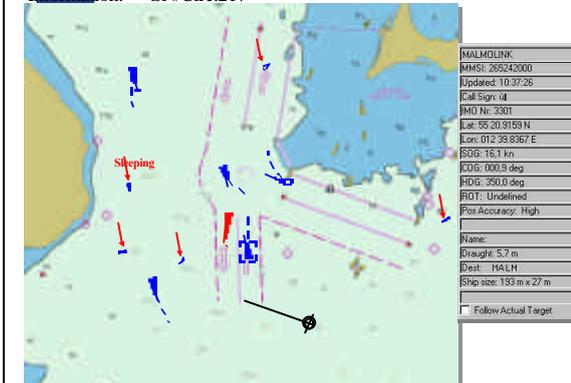


THE COMPOSITE TRIANGLE

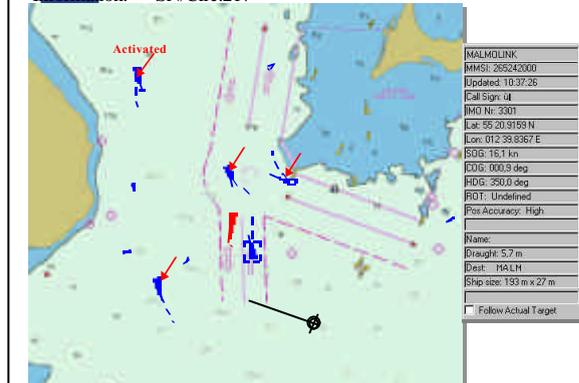


Sensors: Log, Gyro, GPS, AIS etc

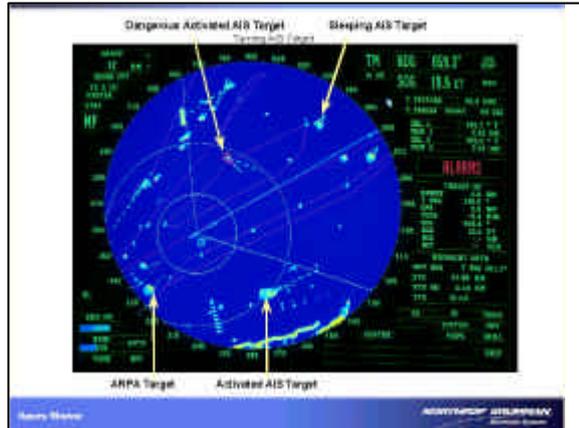
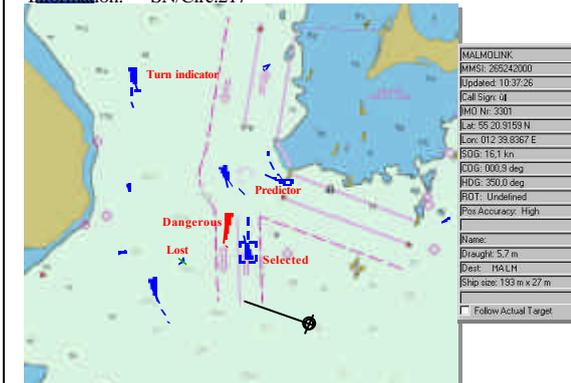
Interim Guidelines for the Presentation and Display of AIS target Information. SN/Circ.217



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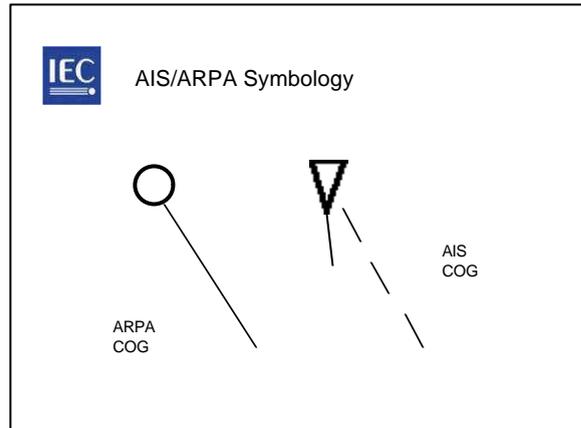
WORK TO DATE

- Identify conflicts in Standards
- Study harmonisation of display of objects
- Develop a draft IMO performance standard for presentation of navigational information
- Start standard IEC 62288



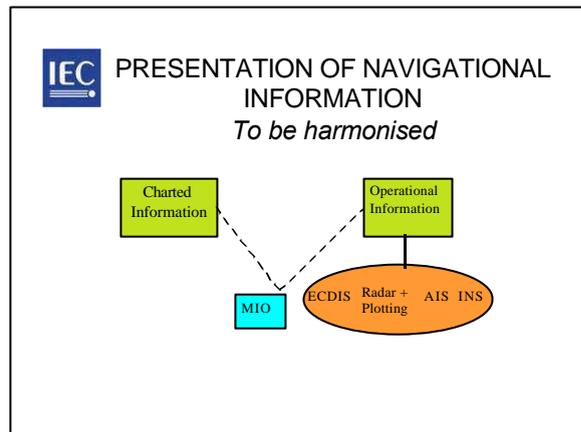
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IEC **Draft IMO performance standard – Presentation of Navigation Related Information**

Principles:

- Conform with IMO general requirements
- Support IMO performance standards
- Conform with IEC 62288
- Present information consistently irrespective of source



Draft IMO performance standard – Presentation of Navigation Related Information (Continued)

Additionally:

Permit composite presentations appropriate to
specific navigation tasks providing:

- The source of the information is defined
- Conflicting or confusing combinations are avoided
- For chart information the screen area should be at least 270 x 270mm



WORK TO DATE

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IEC 62288

Technical details of displays and
processing of information

Harmonised list of definitions

Harmonised list of Abbreviations and Units

Harmonised list of symbols and colours

Harmonised list of controls



PROGRESS

Harmonised abbreviations and units
drafted

Harmonised symbols drafted

Harmonised colours under study



NEXT STEPS

Respond to IMO NAV/49 July 2003 with a
draft performance standard

Invite IMO NAV/49 to comment on the
work to date on abbreviations, units,
harmonised symbols

Develop IEC 62288 to a stage for public
comment by end 2003



FINAL THOUGHT

A display of ECDIS with radar

A display of radar with chart

In the future:

Are these the same ????



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