S-64 3.0.0 Current Outline draft

TSMAD27-4.9.1C

0.14 04/11/2013 TR

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6.3 Detection and graphical highlight of areas for which special conditions exist

~~7.0 Other functionality~~

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IHO Test Data Sets for ECDIS

1.0 Introduction

1.1 Change Control History

Version Number	Date of Issue	Author(s)	Brief Description of Change(s)
2.0.0	01/01/2011		Additional test 7.1 added
3.0.0	??/??/????		

1.2 Introduction

The International Hydrographic Organization (IHO) Test Data Sets (TDS) for Electronic Chart and Display Information System (ECDIS) have been produced to fulfil the requirement for a data set necessary to accomplish all ECDIS testing requirements as outlined in the IEC 61174 standard. The TDS has been published as IHO ~~Special~~ Publication Number 64 and consists of numerous data sets required for testing as well as this guide, the TDS Instruction Manual (TIM). The TIM provides supporting documentation about the organization, understanding, and use of the ENC TDS and is intended to be used along with the data sets included in the TDS. It aims to provide appropriate comments about each test including the information about the most suitable data elements, their location and the expected test results.

Commentaire [r1]: M-3 Resolution 39/2009 S= Standards/specifications therefore Publication suffices.

1.3 Acknowledgements

This document has been developed by the IIC Technologies Inc under contract to the National Oceanic and Atmospheric Administration (USA). Edition 3.0.0 was produced with assistance from BSH, Furuno, Jeppesen, Transas and UKHO.

Commentaire [richardso2]: To complete later TR

1.4 Acronyms and Terms

This publication makes extensive use of terms and acronyms described in the IHO S-32 Standard. Additionally, the following acronyms are frequently used:

TDS – Test Data Sets
TIM - TDS Instruction Manual
EUT – Equipment Under Test

1.5 Normative References

This publication provides tests based on the requirements documented in IHO standards. References to the source for a specific test are provided within this document. As specified in the IEC 61174 standard the tests provided are used to ensure conformance to the ECDIS requirements laid out in the IMO performance standard for ECDIS.

Normative References;

IHO S-52 - Specifications for Chart Content and Display Aspects of ECDIS
IHO S-57 - Transfer Standard for Digital Hydrographic Data
IHO S-62 - List of Data Producer Codes
IHO S-63 - Data Protection Scheme

Informative References;

IHO S-32 - Hydrographic Dictionary (provides ECDIS related definitions)
IHO S-65 – ENC Production Guidance

1.6 Key Documents Organizations and Relationships

The development and application of the TDS involves several organizations and related specifications (see Figure 1). In simplest terms, the TDS was produced by the IHO to allow for the complete testing of ECDIS equipment (hardware and software) vis-à-vis the ECDIS Performance Standard. The ECDIS Performance Standard is specified by the International Maritime Organization (IMO) in MSC.232(82), and methods for testing this standard are the responsibility of the International Electrotechnical Commission (IEC) which publishes these requirements in document IEC 61174. All standards are subject to revision. Therefore, users of this are encouraged to use the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid international standards.

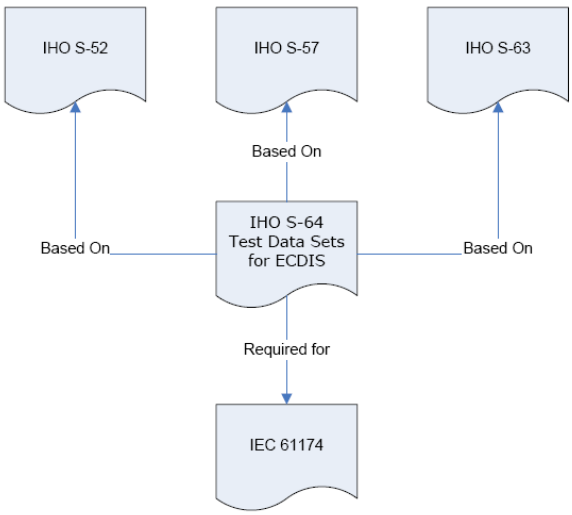


Figure 1 – The TDS and its ~~relatives~~ relationship to other standards.

The S-64 test data set contains both encrypted and unencrypted data. The inclusion of an encrypted dataset, conforming to edition 1.1 of the ENC encryption standard S-63, is so that ECDIS data loading and management operations can be tested under IEC 61174. There is also an unencrypted dataset which tests visualisation and operation aspects of the ECDIS.

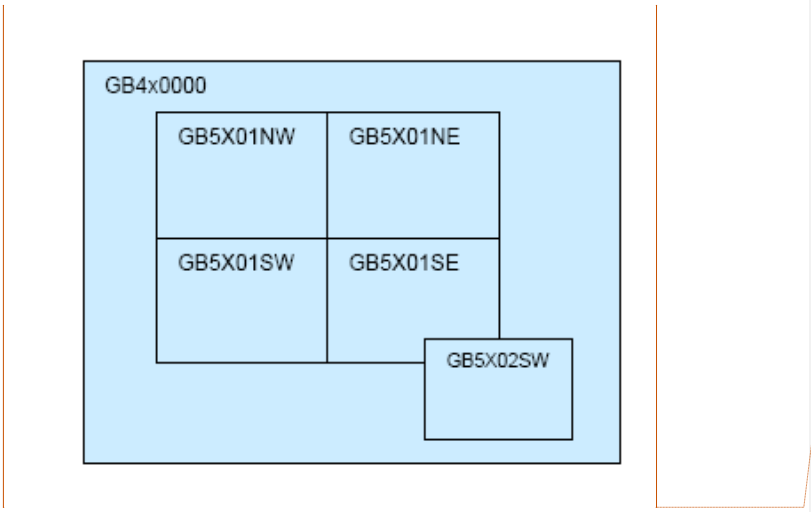
1.7 Structure of the Instruction Manual

This document consists of an introduction followed by tests arranged over 5 sections in a task based layout. All tests are listed in a common format which is shown in the example below; ~~contains four key sections. The first is the introduction. The second outlines the organization of the TDS folders and files. The third section briefly discusses the current edition of S-57 ENC with respect to the TDS. The last section relates the various components of the TDS to the testing methods and results sections in IEC 61174 Section 6. Annotations were added in certain cases to promote clarity.~~

Test reference	*(S-64 reference)*	IHO reference	*(S-52 Part I/S-57)*
Test description			
As short description of what the test covers.			
Set up			
The configuration required to perform the test including cells to be loaded, settings to be applied and any other information as required. Where appropriate this should use the form centre the display on "location" set scale to "scale value".(within this document the scale value assumes the EUT has a screen of the minimum specified size)			
Action			
The action which the test executor must perform.			
Result			
The result which the test executor must observe to complete the test.			

1.8 Organization of the TDS

The TDS contains a folder/directory for each section of the TIM which requires test data ~~IEC 61174~~. ~~Each folder contains a .doc file with information extracted from the TIM.~~ Depending on the test requirement, the folder may also contain an ENC_ROOT directory containing the files of the exchange set (CATALOG.031, .000, plus any updates or other optional/related files, e.g. .TIFF, .txt necessary). Each ENC_ROOT directory also contains a readme.txt file, which may have additional information regarding the content or usage of the files. The TDS data for encrypted data, IEC 61174 section 6.5.3, contains multiple exchange sets, each with their own ENC_ROOT directory and full test scripts describing how to use the data. The location (or path) of ENC exchange set and/or ENC cell will be indicated using ~~bold~~ italic notation, e.g. *2.1.1 Power Up\ENC_ROOT\GB4X000.000* ***~~6.4.1 Power Up\ENC_ROOT\gb4x0000.000~~*** To conform to the directory structure as defined in S-57 Appendix B.1 Section 5.4.3, the ENC_ROOT directory should be located in the media's root directory. This should be viewed as a requirement. However, in practical terms, many systems can "browse" and load files from almost any location. Consult with the equipment manufacturer for further information.



Commentaire [r3]: Expand/update diagram TR await TD completion

Figure 2 – ENC TDS Cell Coverage

1.9 Required Test Items and Use of the TDS

This section lists the items required for the execution of Tests specified in this document and how the TDS should be used. The following items are required;

– IHO ECDIS presentation library contained in S-52, appendix 2 including an ECDIS chart 1 and colour differentiation diagrams. If the manufacturer provides his own presentation library, Chart 1 has to be adapted accordingly;

– IHO S-64 test data sets for ECDIS which includes ENC data, both encrypted and unencrypted, and its updates, together with the associated instruction manual. ~~The contents of these test data sets are described in Annex E.~~

- SENC test data sets, if supported from each SENC distributor. ~~The test data set contents are described in Annex E~~.

The first item in the list, the IHO ECDIS presentation library (from S-52, Appendix 2) including an ECDIS Chart 1 and colour differentiation diagrams must be acquired and installed on the equipment under test (EUT) by the manufacturer, prior to the beginning of the tests.
The second item, the IHO TDS is provided as part of S-64, including the encrypted data. A second TDS for data encrypted using the IHO Encryption Scheme ~~will be~~ is available from the IHO (www.iho.int) as part of IHO Publication S-63. This document is to be considered the "Instruction Manual". The third item on the list, SENC test data set, if supported, must be provided by the manufacturer.

~~Each of the following tests is referenced to the applicable subsection of IEC 61174 Each of the following numbered subsections of the TIM corresponds directly to the equivalent-numbered subsections in Section 6, "Methods of Testing and Required Test Results". Direct quotations from IEC 61174 are annotated with *non-bold italic font.* The TIM will provide guidance as to which ENC cells, updates, or other files (if applicable) can be used, as well as any additional information that may assist in the testing.~~

2.0 Chart Loading and Updating

Commentaire [r4]: Unsure on references in this section? Need to check S-52 App 1 TR

2.1 Chart Loading

2.1.1 Preparation and Power Up

Test reference	2.1.1	IHO reference	???
Test description			
Loading of initial datasets and indication of own ship stationary position.			
Set up			
Load cells *2.1.1 Power Up\ENC_ROOT\GB4X0000.000* *2.1.1 Power Up\ENC_ROOT\GB5X01NW.000* *with the following settings;* *Ship position 32°29.66'S, 060°55.86'E* *Heading 234.0 degrees*			
Action			
Load cells and view the chart display.			
Result			
With the charts displayed the own ship should be placed at the jetty in Micklefirth.			

2.1.2 Number and date in chart library

Test reference	2.1.2	IHO reference	???
Test description			
Loading of initial datasets and confirmation of information in chart library.			
Set up			
Load a cell from *2.1.1 Power Up\ENC_ROOT*			
Action			
Check that in the chart library the information about the cells is provided follows;			

ENC	Edition (EDTN)	Update Number (UPDN)	Update Application Date (UADT)	Issue Date (ISDT)
GB4X0000.000	2	0	20010409	20010409
GB5X01NE.000	1	0	20010406	20010406
GB5X01NW.000	2	0	20010406	20010406
GB5X01SE.000	1	0	20010406	20010406
GB5X01SW.000	1	0	20010408	20010408
GB5X02SE.000	1	0	20010407	20010407

Result
The information in the chart library is identical to the above table.

2.1.3 Load additional cell and check chart library

Test reference	2.1.3	IHO reference	???
Test description			
Loading additional cell and confirmation of its addition to the chart library.			
Set up			
As for test 2.1.2			
Action			
Load the following cell 3.3 Settings\ENC_ROOT\GB4X0001.000 *Check that in the chart library the details of the cell have been added.*			
Result			
The information in the chart library reflects the cell loaded and the chart coverage has changed accordingly.			

2.1.4 Remove cell and check chart library

Test reference	2.1.4	IHO reference	???
Test description			
Removing a cell and confirmation of its removal from the chart library.			
Set up			
As on completion of test 2.1.3			
Action			
Remove the following cell GB4X0001.000 *Check that in the chart library the details of the cell have been removed.*			
Result			
The information in the chart library reflects the cell loaded and the chart coverage has changed accordingly.			

2.1.5 Loading of Corrupted Data

Test reference	2.1.5 a)	IHO reference	???
Test description			
Loading corrupt data.			
Set up			
-			
Action			
Load the following cell *2.1.5 Loading Corrupt Data\ENC_ROOT\GB5X01NE.000*			
Result			
The EUT must generate a warning when loading of this file is attempted.			

Test reference	2.1.5 b)	IHO reference	???
Test description			
Loading corrupt update files.			
Set up			
Load the following cell *2.1.1 Power Up\ENC_ROOT\GB5X01SW.000*			
Action			
Load the following updates *2.1.5 b) Loading of Corrupted Data\ENC_ROOT*			
Result			
The update process should stop, the update flagged as invalid, and the user provided with an appropriate message.			

1 Update and ENC identifiers inconsistent producer codes differ
- a) within the cell
- b) base and update

2 Error detection scheme – former S-58 part 2.3?

1000	Check that the file extension is sequential until a new edition of the base set is issued.	Appendix B.1 (5.7)	E
1001	Check if DSID-UPDN is out of sequence.	Appendix B.1 (5.7)	E
1002	Check for proper usage of file extension, EDTN, UPDN, UADT and ISDT for re-issues of an ENC.	Appendix B.1 (5.7)	E

1003	Check that EDTN starts one higher than the previous edition number.	Appendix B.1 (5.7)	E
1004	Check that the file names of a base set and the re-issue are identical.	Appendix B.1 (5.7)	E

2.2 Updating
(Furuno)
2.2.1 Automatic Updates (6.8.15)

Cover reissue - needs to be made by producer (Jeppesen to assist)
Update review
Discarding irrelevant/not applicable to loaded cells updates (larger test dataset Jeppesen))
Updates not applied notification, case where there is an attempt to load.

Repackage expand e.g. user message etc
Text and picture files expand

2.2.2 Manual Updates (6.8.16)

Display and removal of

Cancellations

2.3 Encrypted (6.5.3)
(Await DPSWG)

Update status report – IEC 61174 4.3.7
Ability to reject /amend updates and record in log

Cover SENC SSE 27

Commentaire [r5]: Furuno/DPSWG

Furuno and Jeppesen to complete Section 2.0

3.0 Chart Display

3.1 Display of ENC data

Indication of display mode

3.1.1 Display base category

3.1.1.1 Coastline layer 20x objects

Test reference	3.1.1.1	IHO reference	S-52 App B-F
Test description			
Display Coastline layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "BASE"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.1.2 Safety contour layer 3x Objects

Test reference	3.1.1.2	IHO reference	S-52 App B-F
Test description			
Display Safety contour layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "BASE"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.1.3 Isolated underwater dangers layer 4x objects

Test reference	3.1.1.3	IHO reference	S-52 App B-F
Test description			
Display Isolated underwater dangers layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "BASE"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			

Commentaire [Unknown A6]: Section contains indicative content at this time to indicate what is intended to be included. TR Await Transas content

Result
Confirm that the objects display as follows;

3.1.1.4 Isolated above-water dangers layer 9x objects

Test reference	3.1.1.4	IHO reference	S-52 App B-F
Test description			
Display Isolated above-water dangers layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "BASE"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.2 Standard display category

Base? 3.1.1.1-4 re run

3.1.2.1 Aids to navigation and fixed structures 14x objects

Test reference	3.1.2.1	IHO reference	S-52 App B-F
Test description			
Display Aids to navigation and fixed structures layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "STANDARD"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.2.2 Fairways 1x objects

Test reference	3.1.2.2	IHO reference	S-52 App B-F
Test description			
Display Fairways layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "STANDARD"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			

Result
Confirm that the objects display as follows;

3.1.2.3 Conspicuous features 7x objects

Test reference	3.1.2.3	IHO reference	S-52 App B-F
Test description			
Display Conspicuous features layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "STANDARD"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.2.4 Prohibited and restricted areas 8x objects

Test reference	3.1.2.4	IHO reference	S-52 App B-F
Test description			
Display Prohibited and restricted areas layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "STANDARD"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.2.5 Ferry routes 1x objects

Test reference	3.1.2.5	IHO reference	S-52 App B-F
Test description			
Display Ferry routes layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "STANDARD"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.2.6 Archipelagic sea lanes 1x objects

Test reference	3.1.2.6	IHO reference	S-52 App B-F
Test description			
Display Archipelagic sea lanes layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "STANDARD"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.2.7 Buoys and beacons 5x objects

Test reference	3.1.2.7	IHO reference	S-52 App B-F
Test description			
Display Buoys and beacons layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "STANDARD"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.2.8 Traffic routeing 12x objects

Test reference	3.1.2.8	IHO reference	S-52 App B-F
Test description			
Display Traffic routeing layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "STANDARD"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.3 All other information category

Base + Standard 3.1.1.1-4 re run?

3.1.3.1 Information about the chart display layer 14x objects

Test reference	3.1.3.1	IHO reference	S-52 App B-F
Test description			
Display Information about the chart display layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35'·859S 61°22'·016E			
Result			
Confirm that the objects display as follows;			

3.1.3.2 Natural and man-made features, Port features

3.1.3.2 a) Natural features 11x objects

Test reference	3.1.3.2 a)	IHO reference	S-52 App B-F
Test description			
Display Natural features layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35'·859S 61°22'·016E			
Result			
Confirm that the objects display as follows;			

3.1.3.2 b) Shore structures 13x objects

Test reference	3.1.3.2 b)	IHO reference	S-52 App B-F
Test description			
Display Shore structures layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35'·859S 61°22'·016E			
Result			

Confirm that the objects display as follows;

3.1.3.2 c) Port features 10x objects

Test reference	3.1.3.2 c)	IHO reference	S-52 App B-F
Test description			
Display Port features layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.3.3 Depth, currents etc 14x objects

Test reference	3.1.3.3	IHO reference	S-52 App B-F
Test description			
Display Depth, currents etc layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.3.4 Seabed, obstructions and pipelines 13x objects

Test reference	3.1.3.4	IHO reference	S-52 App B-F
Test description			
Display Seabed, obstructions and pipelines layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.1.3.5 Traffic routes ??x objects

Test reference	3.1.3.5	IHO reference	S-52 App B-F
Test description			
Display Traffic routes layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35'·859S 61°22'·016E			
Result			
Confirm that the objects display as follows;			

3.1.3.6 Special areas 11x objects

Test reference	3.1.3.6	IHO reference	S-52 App B-F
Test description			
Display Special areas layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35'·859S 61°22'·016E			
Result			
Confirm that the objects display as follows;			

3.1.3.7 Service and small craft facilities 11x objects

Test reference	3.1.3.7	IHO reference	S-52 App B-F
Test description			
Display Service and small craft facilities layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35'·859S 61°22'·016E			
Result			
Confirm that the objects display as follows;			

3.1.3.8 Important text ??x objects

Test reference	3.1.3.8	IHO reference	S-52 App B-F
Test description			
Display Important text layer objects.			

Set up
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*
Action
View the objects at position 32°35′·859S 61°22′·016E
Result
Confirm that the objects display as follows;

3.1.3.9 Other text ??x objects

Test reference	3.1.3.9	IHO reference	S-52 App B-F
Test description			
Display Other text layer objects.			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows;			

3.2 Invalid object

3.2.1 Display of Invalid Objects

Test reference	3.2.1 a)	IHO reference	S-52 10.3.3.4
Test description			
Display of object of type point with invalid Object type.			
Set up			
Load the following cell 2.1.1 Power Up\ENC_ROOT\GB5X01NE.000 *Display Mode = "STANDARD"* *Symbolized Boundaries = On*			
Action			
Navigate to 32°30.924'S, 60°58.719'E			
Result			
Confirm that the symbol SY(QUESMRK1) is displayed. *Image required*			

Test reference	3.2.1 b)	IHO reference	S-52 10.3.3.4
Test description			
Display of object of type line with invalid Object type.			
Set up			
As for test 3.2.1 a)			
Action			
Navigate to 32°30.924'S, 60°58.719'E			
Result			
Confirm that the symbol LC(QUESMRK1) is displayed. *Image required*			

Commentaire [richardso7]: Await edited cell TR

Test reference	3.2.1 c)	IHO reference	S-52 10.3.3.4
Test description			
Display of object of type area with invalid Object type.			
Set up			
As for test 3.2.1 a)			
Action			
Navigate to 32°30.924'S, 60°58.719'E			
Result			
Confirm that the symbol AP(QUESMRK1) is displayed.			

Commentaire [richardso8]: Await edited cell TR

Test reference	3.2.1 d)	IHO reference	S-52 10.8.6
Test description			
Display of object with invalid Attribute type.			
Set up			
As for test 3.2.1 a)			
Action			
Navigate to 32°31.740'S, 60°59.155'E			
Result			
Check that the magenta ? symbol displays. *Image Required*			

Commentaire [r9]: Use landmark with an invalid value of CATLMK

Test reference	3.2.1 e)	IHO reference	S-52 10.8.6
Test description			
Display of object with invalid Attribute Value.			
Set up			
As for test 3.2.1 a)			
Action			
Navigate to 32°31.665'S, 60°58.243'E			
Result			
Check that the magenta ? symbol displays.			

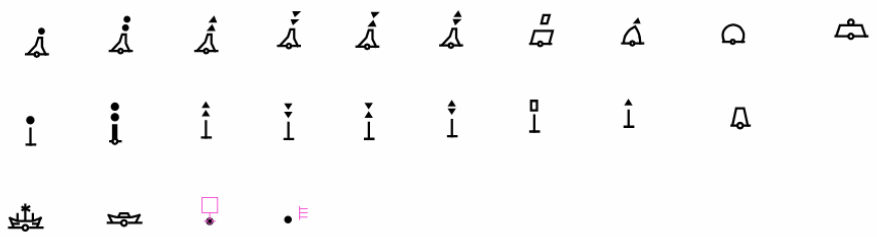
3.2.2 Invalid Object Pick Report Display

Test reference	3.2.2 a)	IHO reference	S-52 10.8.6
Test description			
Display of object information for invalid objects.			
Set up			
As for test 3.2.1 a)			
Action			
1. Select the following objects; *- 32°30.924'S, 60°58.719'E* *- 32°31.740'S, 60°59.155'E* *2. Remove object information from display.*			
Result			
1a. Text associated with chart objects is displayed only when selected. *1b. Object information contained in ENC must be available on demand including attributes of symbols as well as "no-symbol" information; such as territorial waters and compilation scale.* *1c. The displayed text must use common language terms, not hydrographic abbreviations (e.g. the abbreviation (BOYSAW) of the object class, but must be presented as "Buoy, safe water"; the attribute abbreviation (BOYSHP=4) must be presented as "pillar").* *2. Text associated with chart objects must be removed from the display.*			

3.3 Independent Mariner Selections

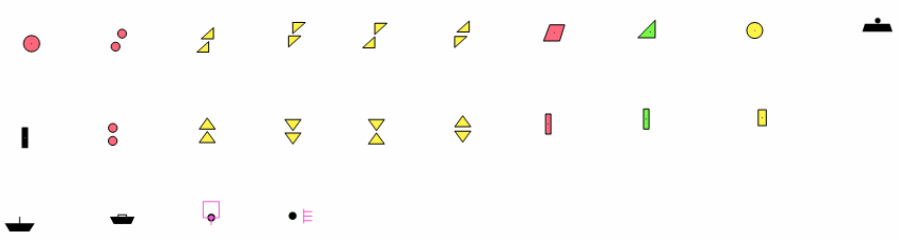
3.3.1 Paper chart and simplified symbols

Test reference	3.3.1 a)	IHO reference	S-52 App B-F
Test description			
Display of objects with paper chart symbols.			
Set up			
Load the following cell 3.3 Settings\ENC_ROOT\GB4X0001.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = On* *Simplified Symbols = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°37′·280S 61°20′·010E			
Result			
Confirm that the objects display as follows;			



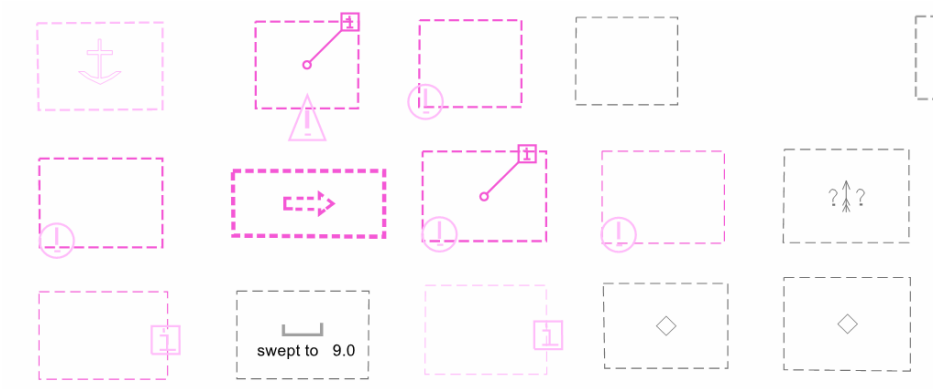
Commentaire [r11]: Add scale when final plots created

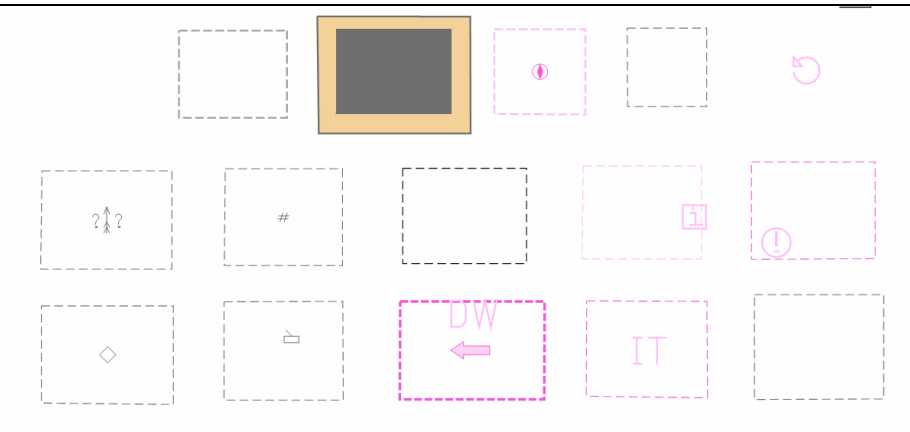
Test reference	3.3.1 b)	IHO reference	S-52 App B-F
Test description			
Display of object with simplified symbols.			
Set up			
As for test 3.3.1 a) and *Simplified Symbols = On*			
Action			
View the objects at position 32°37′·280S 61°20′·010E			
Result			
Confirm that the objects display as follows;			



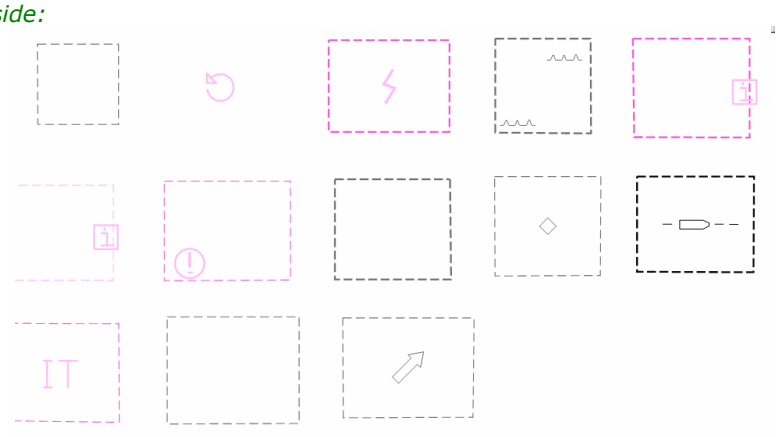
3.3.2 Symbolised and plain boundaries

Commentaire [r12]: Check 5th in from top left M_NSYS? Check when final plots created.

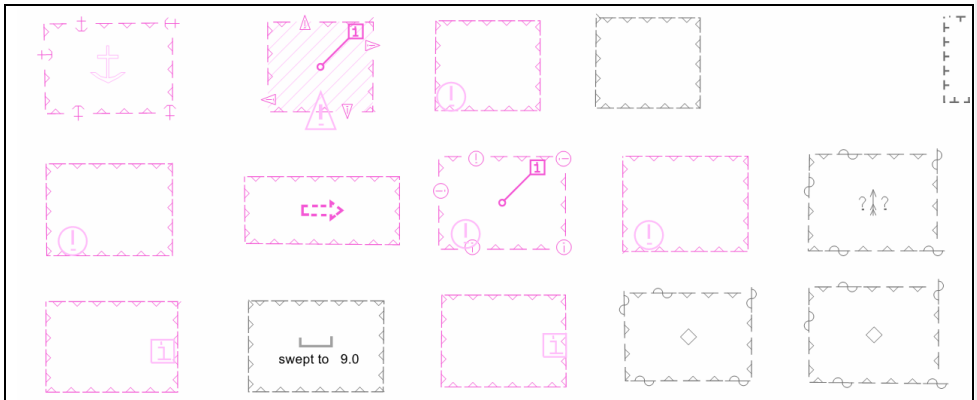
Test reference	3.3.2 a)	IHO reference	S-52 App B-F
Test description			
Display of objects symbolised boundaries.			
Set up			
Load the following cell 3.3 Settings\ENC_ROOT\GB4X0001.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = Off* *Depth Shades = 2*			
Action			
View the objects at position 32°36′·889S 61°21′·429E			
Result			
Confirm that the objects display as follows; *Left side:*  *Centre:*			



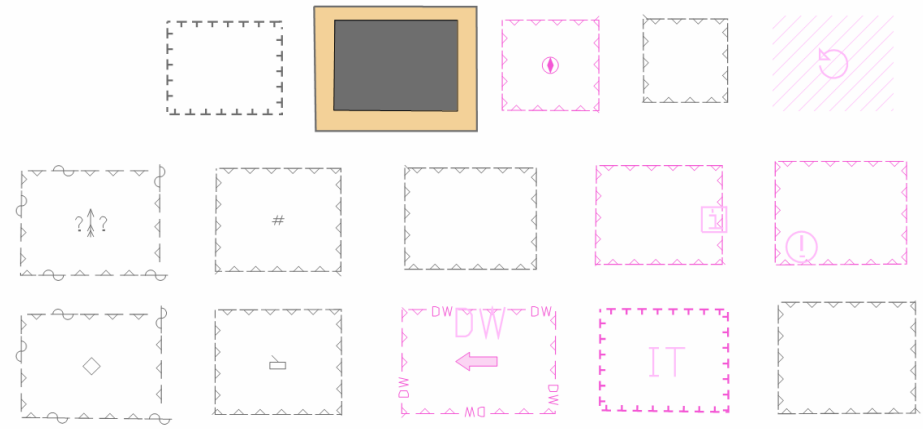
Right side:



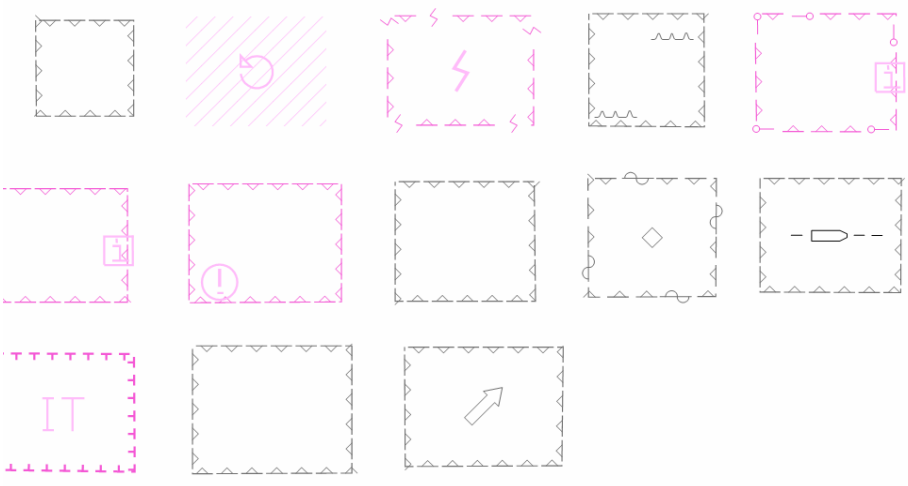
Test reference	3.3.2 b)	IHO reference	S-52 App B-F
Test description			
Display of object with plain boundaries.			
Set up			
As for test 3.3.2 a) and *Symbolised Boundaries = On*			
Action			
View the objects at position 32°36′·889S 61°21′·429E			
Result			
Confirm that the objects display as follows; *Left side:*			



Centre:



Right side:



3.3.3 Date Dependent Display and Functionality

Commentaire [r13]: Test data needs to be developed and the tests in this section completed TR

3.3.3.1 DATSTA/DATEND

Test reference	3.3.3.1 a)	IHO reference	S-52 10.4.1
Test description			
Display of date dependent objects, current date. (DATSTA and DATEND)			
Set up			
Load the following cell ??XXXXXX.000 *Highlight date dependent objects = OFF* *Simplified Symbols = OFF* *Ensure that the system time is set to the current date and time.*			
Action			
View the objects in the following location xx, yy.			
Result			
Confirm that the objects display as in the image below; *Diagram/Image*			

Features required

(A) BOYSPP
Point
CATSPM = 41
BOYSHP = Spherical
COLOUR = Yellow
DATSTA= 20120816
DATEND= 20860816

(B) BOYCAR
Point
CATCAM = 1
BOYSHP = Pillar
COLOUR = Black, Yellow
DATSTA= 20010816
DATEND=20120816

Display – buoy A should display without date dependent symbol. B should not appear.

Test reference	3.3.3.1 b)	IHO reference	S-52 10.4.1
Test description			
Display of time dependent objects, set time. (DATSTA and DATEND)			
Set up			
As for test 3.3.1 a) *Highlight date dependent objects = ON* *Ensure that time is set to 18.02.2012 23:00*			
Action			
View the objects in the following location xx, yy.			
Result			
Confirm that the objects display as in the image below and that a permanent indication is shown as specified in S-52 10.4.1; *Diagram/Image*			

Features required A and B see above.

Display – buoy B should display with date dependent symbol and the indication

Test reference	3.3.3.1 c)	IHO reference	S-52 10.4.1
Test description			
Display of time dependent objects, time range. (DATSTA and DATEND)			
Set up			
As for test 3.3.1 b) *Set the time range as follows;* *Start viewing date= 01.02.2012* *End viewing date= 01.12.2012*			
Action			
View the objects in the following location xx, yy.			
Result			
Confirm that the objects display as in the image below and that a permanent indication is shown as specified in S-52 10.4.1; *Diagram/Image*			

Features required A and B see above.

Display – both buoys should display with the appropriate indication and date dependent symbol.

DATSTA DATEND Route check

Test reference	3.3.3.1 d)	IHO reference	S-52 10.4.1
Test description			
Route checking of time dependent objects, time range. (DATSTA and DATEND)			
Set up			
As for test 3.3.1 c)			
Action			
View the objects in the following location xx, yy.			
Result			
Create a route from xx,yy to xx,yy, check the route and confirm that the following indications are given and the display is as shown; *Diagram/Image*			

Features requires A and B

Both should display and be highlighted, two indications should be provided.

Question for sub group – should this test be expanded to cover more scenarios and object types?

3.3.3.2 PERSTA/PEREND

Test reference	3.3.3.2 a)	IHO reference	S-52 10.4.1
Test description			
Display of date dependent objects, current date. (PERSTA and PEREND)			
Set up			
Load the following cell ??XXXXXX.000 *Highlight date dependent objects = OFF* *Ensure that the system time is set to the current date and time.*			
Action			
View the objects in the following location xx, yy.			
Result			
Confirm that the objects display as in the diagram below; *Diagram/Image*			

Features required

(C) BOYSPP
Point
BOYSHP = Spherical
COLOUR = Yellow
CATSPM = 41
PERSTA= ----03--
PEREND= ----10--
---------Topmark (Cross, Yellow)

(D) BOYSPP
Point
CATSPM = 41
COLOUR = Yellow
BOYSHP = Spherical
PERSTA= ----10--
PEREND= ----12—
----------Topmark (Rhombus, Yellow)

Display – buoy C should display without the date dependent symbol. D should not appear

Test reference	3.3.3.2 b)	IHO reference	S-52 10.4.1
Test description			
Display of time dependent objects, set time. (PERSTA and PEREND)			
Set up			
As for test 3.3.3.2 a) *Highlight date dependent objects = ON* *Ensure that time is set to 18.03.2012 23:00*			
Action			
View the objects in the following location xx, yy.			
Result			

Confirm that the objects display as in the image below and that a permanent indication is shown as specified in S-52 10.4.1; *Diagram/Image*

Features required C and D see above.

Display – buoy C should display with date dependent symbol Buoy D should not appear

Test reference	3.3.3.2 c)	IHO reference	S-52 10.4.1
Test description			
Display of time dependent objects, time range. (PERSTA and PEREND)			
Set up			
As for test 3.3.3.2 b) *Set the time range as follows;* *Start viewing date= 01.02.2012* *End viewing date= 01.11.2012*			
Action			
View the objects in the following location xx, yy.			
Result			
Confirm that the objects display as in the diagram below and that a permanent indication is shown as specified in S-52 10.4.1; *Diagram/Image*			

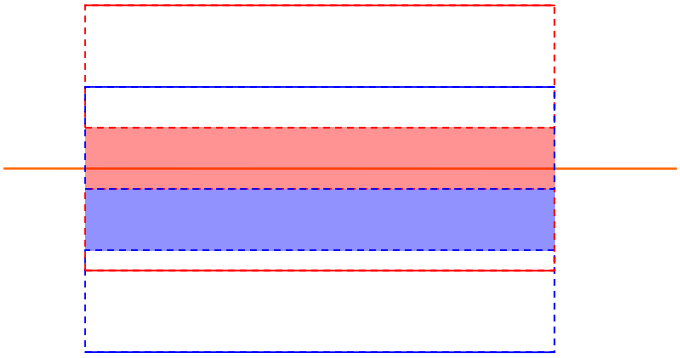
Features required C and D see above.

Display both symbols should display with data dependent symbol indication provided

Test reference	3.3.3.2 d)	IHO reference	S-52 10.4.1
Test description			
Route checking of time dependent objects, time range. (PERSTA and PEREND)			
Set up			
As for test 3.3.3.2 c)			
Action			
View the objects in the following location xx, yy.			
Result			
Create a route from xx,yy to xx,yy, check the route and confirm that the following indications are given and the display is as shown; *Diagram/Image*			

Both objects should be highlighted and should provide an indication
3.3.3.3 Repeat of above checks using a TSS scenario include boundaries lanes and separation zone and shift objects so that when both displayed they cancel

out.



3.3.4 Safety contour

Test reference	3.3.4 a)	IHO reference	S-52 10.5.11
Test description			
Display of default safety contour			
Set up			
Switch on EUT without setting safety contour value (factory default setting). *Load all cells from 2.1.1 Power Up\ENC_ROOT*			
Action			
Display loaded cell GB4x0000.000 and display value set for safety contour.			
Result			
The safety contour value must be set to 30m and the 30m contour in chart GB4X0000.000 must be displayed as safety contour (thick grey line as per S-52).			

Test reference	3.3.4 b)	IHO reference	S-52 10.5.11
Test description			
Display of safety contour			
Set up			
As for test 3.3.4 a)			
Action			
1. Select a safety contour value of 15m. None of the ENCs (with the exception of GB5X01SE.000) have a 15m contour. *2. other values should also be investigated. The harbour charts (i.e. GB5*****.000) contain 0, 2, 5, 10, 20m contours, and the contour intervals on the approach chart (i.e. GB4X0000.000 are 0, 2, 5, 10, 20, 30, 50, 100, 200, 300, and 400m.*			
Result			
1. In cell GB5X01SE.000 the 15m contour and in the other cells the 20m contour must be highlighted as the safety contour. *2. If the selected value of safety contour is not available as a depth contour in the chart, the next deeper contour must be highlighted as the safety contour.*			

Test reference	3.3.4 c)	IHO reference	S-52 13.2.19
Test description			
Display of safety contour and isolated dangers within the safe water enclosed by the ship's safety contour.			
Set up			
As for test 3.3.4 a)			
Action			
1. Set the safety contour value to 5m (shallow contour 2m, deep contour 10m, safety depth 4m). *2. Set the safety contour value to 10m (shallow contour 5m, deep contour 20m, safety depth 7m).*			
Result			
The safety contour must be emphasised and the isolated dangers within the safe water enclosed by the ships safety contour must be displayed as shown in the screen captures contained in *1. S57ed3_1_1 S52ed3_4 PLOT 2.pdf.* *2. S57ed3_1_1 S52ed3_4 PLOT 4.pdf.*			

Commentaire [r14]: Plots may need updating TR

3.3.5 Safety depth

Commentaire [r15]: Datasets and plots need to be expanded to include other object types.

Test reference	3.3.5	IHO reference	S-52 13.2.15
Test description			
Display of objects with respect to value of safety depth			
Set up			
As for test 3.3.4 a) *Display of spot soundings shall be switched on.*			
Action			
1. Set the safety depth value to 10m (no IHO plots with 10m safety depth available). *2. Set the safety depth value to 4m (shallow contour 2m, safety contour 5m, deep contour 10m).* *3. Set the safety depth value to 7m (shallow contour 5m, safety contour 10m, deep contour 20m).* *4. Set the safety depth value to 12m (no IHO plots with 12m safety depth available).*			
Result			
1. The objects shown with depth values shallower than 10m must be emphasised. *2. The objects shown with depth values shallower than 4m must be emphasised as shown in the screen captures contained in S57ed3_1_1 S52ed3_4 PLOT 3.pdf.* *3. The objects shown with depth values shallower than 7m must be emphasised as shown in the screen captures contained in S57ed3_1_1 S52ed3_4 PLOT 4.pdf.* *4. The spot soundings shallower than 12m must be emphasised.*			

3.3.6 Shallow pattern

Test reference	3.3.6	IHO reference	S-52 10.5.7
Test description			
Display of shallow pattern.			
Set up			
Load all cells from 2.1.1 Power Up\ENC_ROOT with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres* *Display Mode = "OTHER"* *Symbolized Boundaries = On* *Shallow Water Pattern = On* *Depth Shades = 2*			
Action			
View the objects at position 32°35'·859S 61°22'·016E			
Result			
Confirm that the diamond shallow pattern is displayed as follows; *Image required*			

3.3.7 Colour palettes

Test reference	3.3.7 a)	IHO reference	S-52 App A
Test description			
Display of ENC in Day palette			
Set up			
Load cell ??XXXXXX.000 with the following settings; *Safety Contour = 10 metres* *Safety Depth = 10 metres*			

Display Mode = "OTHER" *Colour Palette = "DAY"* *Symbolized Boundaries = On* *Depth Shades = 2*
Action
View the objects at position 32°35′·859S 61°22′·016E
Result
Confirm that the objects display as follows; *Image required*

Test reference	3.3.7 b)	IHO reference	S-52 App A
Test description			
Display of ENC in Dusk palette			
Set up			
As for test 3.3.7 a) *Colour Palette = "DUSK"*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows; *Image required*			

Test reference	3.3.7 c)	IHO reference	S-52 App A
Test description			
Display of ENC in Night palette			
Set up			
As for test 3.3.7 a) *Colour Palette = "NIGHT"*			
Action			
View the objects at position 32°35′·859S 61°22′·016E			
Result			
Confirm that the objects display as follows; *Image required*			

3.3.8 Display of additional Chart Information Symbol

Commentaire [r16]: Test Data to be created , TR

Test reference	3.3.8 a)	IHO reference	S-52 10.6.1.1
Test description			
Display of additional chart information symbol (INFORM).			
Set up			
Load the following cell ??XXXXXX.000 *Highlight additional chart information = OFF* *Simplified Symbols = OFF* *Ensure that the system time is set to the current date and time.*			
Action			
View the objects in the following location xx, yy.			
Result			
Confirm that the objects display as in the image below; *Diagram/Image*			

5x objects with inform, ninfom, txtdsc etc should display without symbol.

Test reference	3.3.8 b)	IHO reference	S-52 10.6.1.1
Test description			
Display of additional chart information symbol.			
Set up			
Load the following cell ??XXXXXX.000 *Highlight additional chart information = ON* *Simplified Symbols = OFF*			
Action			
View the objects in the following location xx, yy.			
Result			
Confirm that the objects display as in the image below; *Diagram/Image*			

Above objects should display with symbol

3.4 Non-Official Data

Test reference	3.4	IHO reference	S-52 10.1.7
Test description			
Loading and display of non-official data.			
Set up			
Load the following cell 3.4 Non-Official Data\ENC_ROOT\1B5X01NE.000 *(The producer code of this cell has been changed from GB to 1B and the agency code (AGEN) has been modified from 540 to 65535 as specified in S-57 clauses 4.3.1 and 2.1.)*			
Action			
Visually inspect the cell.			
Result			
Confirm that the cell displays bounded by the LC(NONHODAT) symbol as defined in the presentation library and that the warning "No official data available. Refer to paper chart" appears.			

Note 1: A list of ENC producer agency codes was originally published in November 1996 as Annex A to S-57 Appendix A, under the title "IHO Codes for Producing Agencies". Because the list of producer codes is liable to revision more frequently

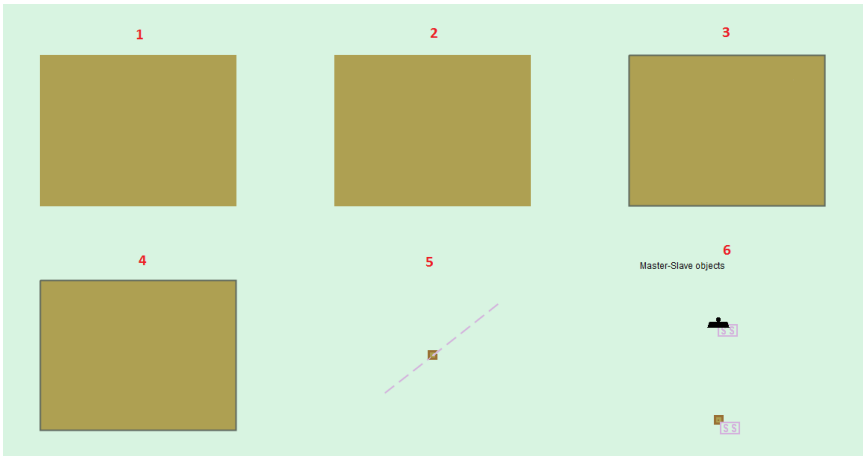
than the S-57 standard, it was subsequently decided to publish the list of ENC producer codes in a stand-alone IHO publication S-62 - ENC Producer Codes.

3.5 Area of No Data

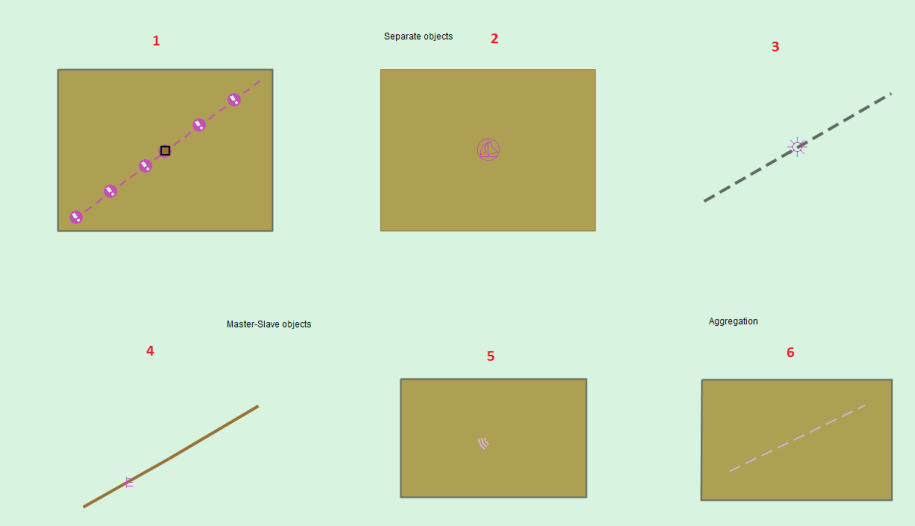
Test reference	3.5	IHO reference	S-52 10.1.8
Test description			
Loading and display of areas of no data.			
Set up			
Load the following cell 2.1.1 Power Up\ENC_ROOT\GB4X0000.000			
Action			
View a display area for which no ENC data is present, the area around the edge of the cell.			
Result			
Confirm that the "no data" area symbolization defined in the presentation library is displayed in the appropriate area.			

3.6 Display priorities

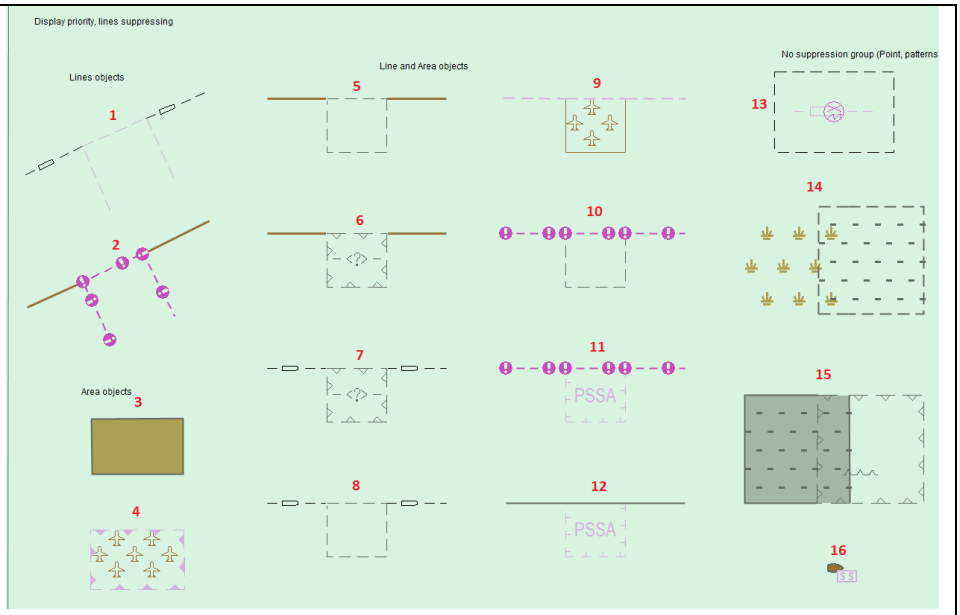
Test reference	3.6.1	IHO reference	S-52 10.3.4.1
Test description			
Different priority and different geometry			
Set up			
Load the following cell 3.6 Display priorities\ENC_ROOT\ with the following settings; *Safety Contour = 30 metres* *Display Mode = "OTHER"* *Text display = On* *Shallow pattern = On* *Information indication = On* *Symbolized Boundaries = On* *Simplified Symbols = Off*			
Action			
View the objects at position 32°20'·400S 61°20'·650E scale 1:5000			
Result			
Confirm that items 1-6 display as shown in the graphic below;			



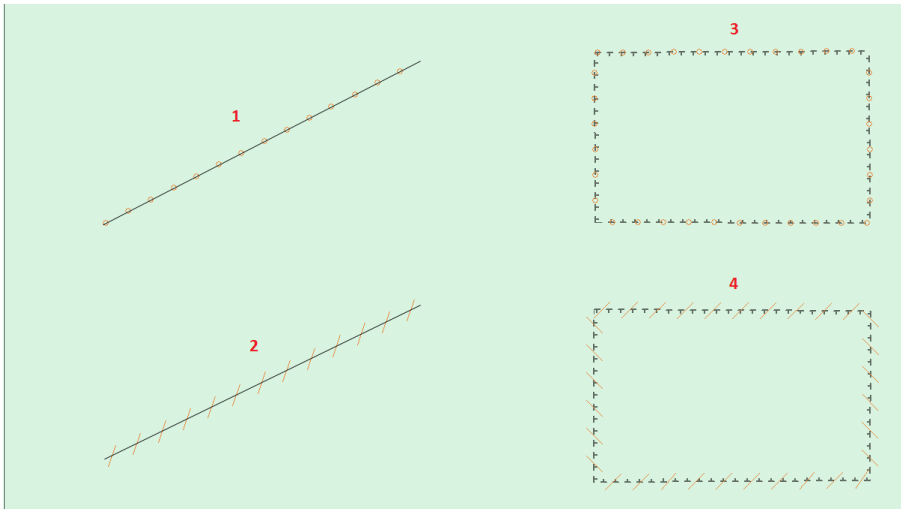
Test reference	3.6.2	IHO reference	S-52 10.3.4.1
Test description			
Same priority and different geometry			
Set up			
As for test 3.6.1			
Action			
View the objects at position 32°20′·400S 61°21′·900E scale 1:5000			
Result			
Confirm that items 1-6 display as shown in the graphic below;			



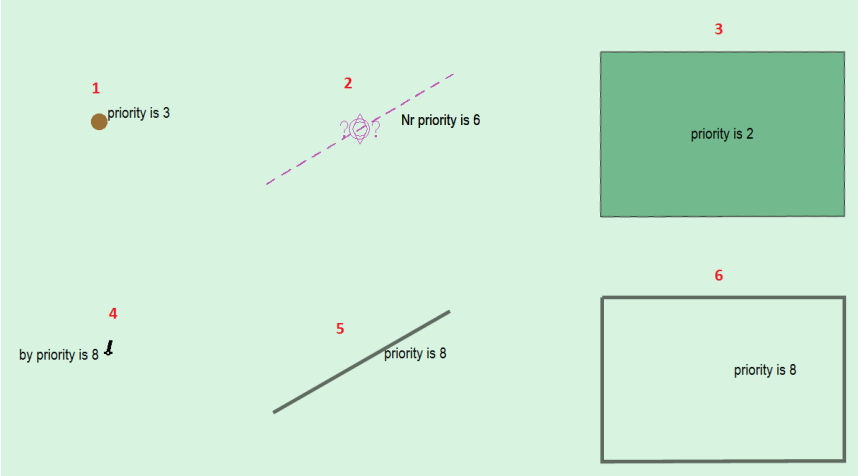
Test reference	3.6.3	IHO reference	S-52 10.3.4.1
Test description			
Line suppression			
Set up			
As for test 3.6.1			
Action			
View the objects at position 32°20′·400S 61°23′·150E scale 1:5000			
Result			
Confirm that items 1-16 display as shown in the graphic below;			



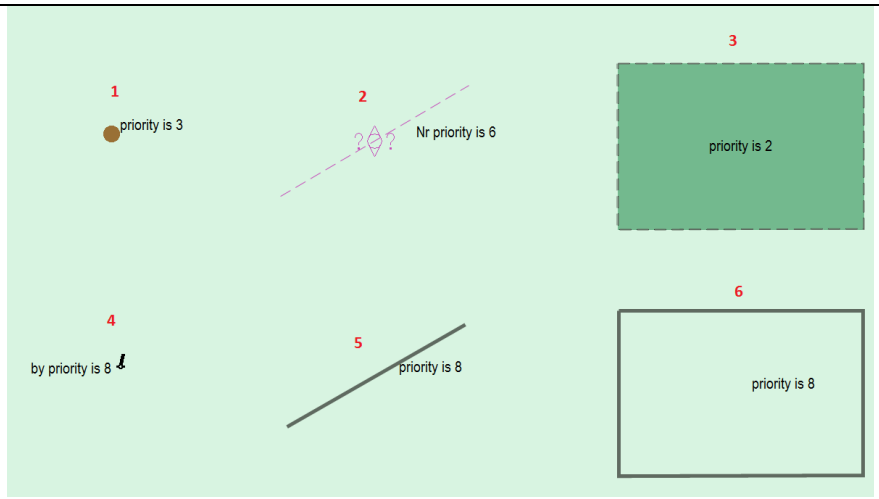
Test reference	3.6.4	IHO reference	S-52 10.3.4.1
Test description			
Manual updates			
Set up			
As for test 3.6.1			
Action			
View the objects at position 32°21′·100S 61°20′·650E scale 1:5000			
Result			
Confirm that items 1-4 display as shown in the graphic below;			



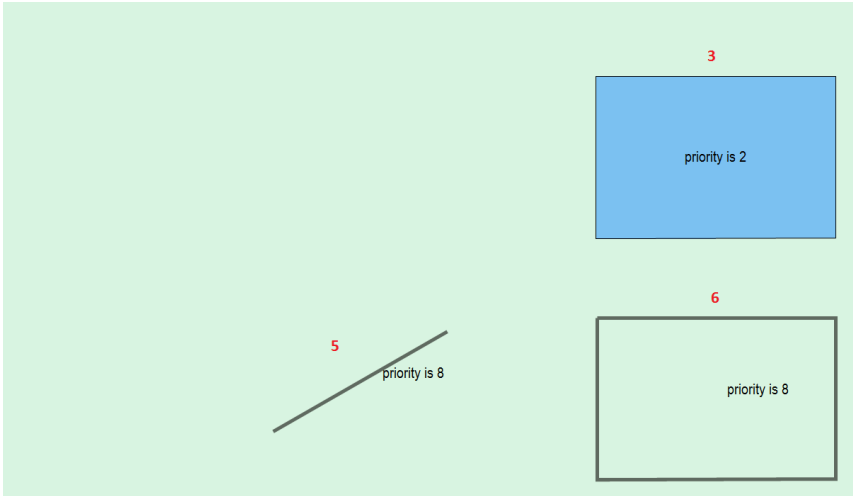
Test reference	3.6.5 a)	IHO reference	S-52 10.3.4.1
Test description			
Text display			
Set up			
As for test 3.6.1			
Action			
View the objects at position 32°21′·100S 61°21′·900E scale 1:5000			
Result			
Confirm that items 1-6 display as shown in the graphic below;			

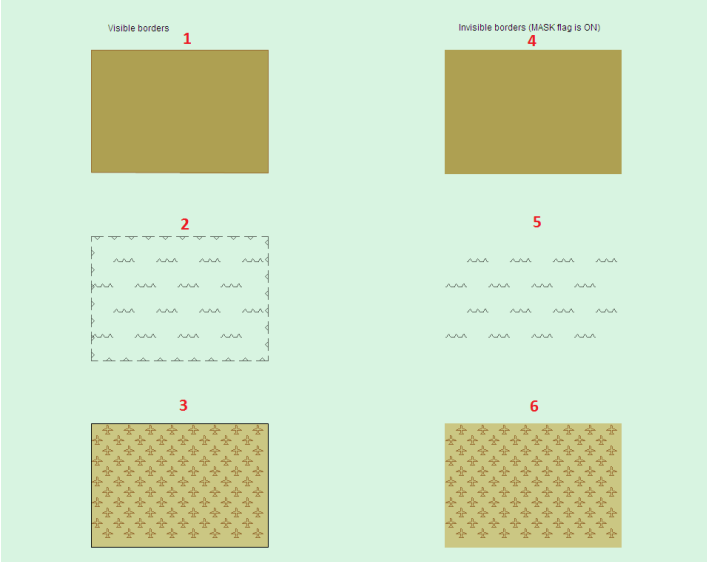


Test reference	3.6.5 b)	IHO reference	S-52 10.3.4.1
Test description			
Text display			
Set up			
As for test 3.6.5 a) except *Display Mode = "STANDARD"*			
Action			
View the objects at position 32°21′·100S 61°21′·900E scale 1:5000			
Result			
Confirm that items 1-6 display as shown in the graphic below;			

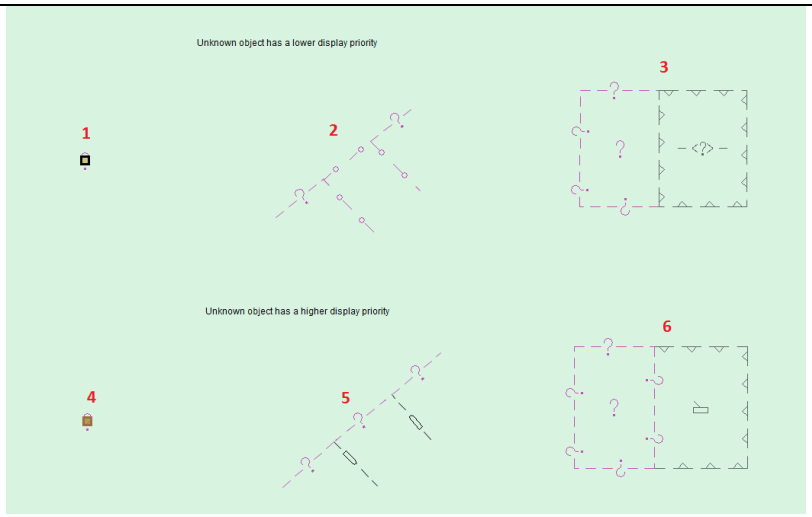


Test reference	3.6.5 c)	IHO reference	S-52 10.3.4.1
Test description			
Text display			
Set up			
As for test 3.6.5 b) except *Display Mode = "BASE"*			
Action			
View the objects at position 32°21′·100S 61°21′·900E scale 1:5000			
Result			
Confirm that items 3,5 and 6 display as shown in the graphic below;			

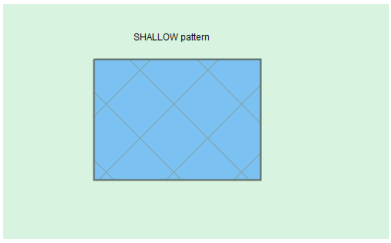


Test reference	3.6.6	IHO reference	S-52 10.3.4.1
Test description			
Display of area borders			
Set up			
As for test 3.6.5 c) except *Display Mode = "OTHER"*			
Action			
View the objects at position 32°21′·100S 61°23′·150E scale 1:5000			
Result			
Confirm that items 1-6 display as shown in the graphic below; 			

Test reference	3.6.7	IHO reference	S-52 10.3.4.1
Test description			
Display of unknown symbol			
Set up			
As for test 3.6.6			
Action			
View the objects at position 32°21′·850S 61°20′·650E scale 1:5000			
Result			
Confirm that items 1-6 display as shown in the graphic below;			

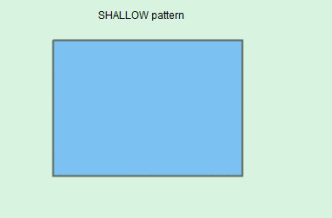


Test reference	3.6.8.1 a)	IHO reference	S-52 10.3.4.1
Test description			
Display of shallow pattern symbol			
Set up			
As for test 3.6.6			
Action			
View the objects at position 32°21′·850S 61°21′·900E scale 1:5000			
Result			
Confirm that the item marked as SHALLOW pattern is shown as in the graphic below;			



Test reference	3.6.8.1 b)	IHO reference	S-52 10.3.4.1
Test description			
Display of shallow pattern symbol			
Set up			
As for test 3.6.8.1 a) except; *Shallow pattern = Off*			
Action			
View the objects at position 32°21′·850S 61°21′·900E scale 1:5000			

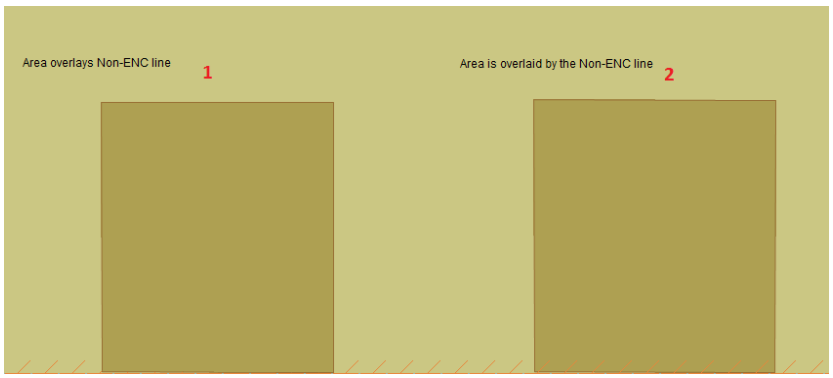
Result
Confirm that the item marked as SHALLOW pattern is shown as in the graphic below;



~~Test reference~~	~~3.6.8.2 b)~~	~~IHO reference~~	~~S-52 10.3.4.1~~
~~Test description~~			
~~*Inform symbol, clarify this section*~~			
~~Set up~~			
~~*As for test 3.6.8.1 a) except;*~~ ~~*Shallow pattern = Off*~~			
~~Action~~			
~~*View the objects at position 32°21′·850S 61°21′·900E scale 1:5000*~~			
~~Result~~			
~~*Confirm that the item marked as SHALLOW pattern is shown as in the graphic below;*~~			

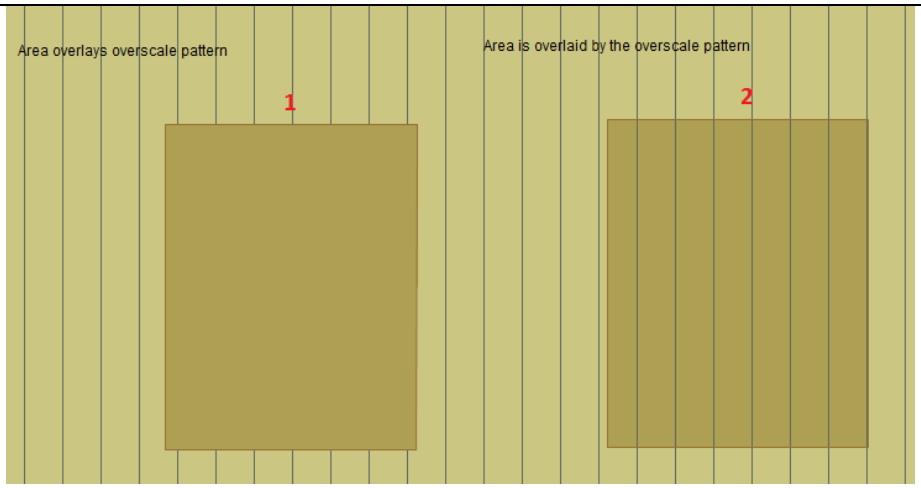
Commentaire [r17]: Superseded by new section 3.3.8 TR

Test reference	3.6.8.3	IHO reference	S-52 10.3.4.1
Test description			
Unofficial data boundary display			
Set up			
As for test 3.6.8.1 a) and in addition; *Non-ENC borders = On*			
Action			
View the objects at position 32°22′·450S 61°24′·250E scale 1:5000			
Result			
Confirm that items 1 and 2 display as shown in the graphic below;			

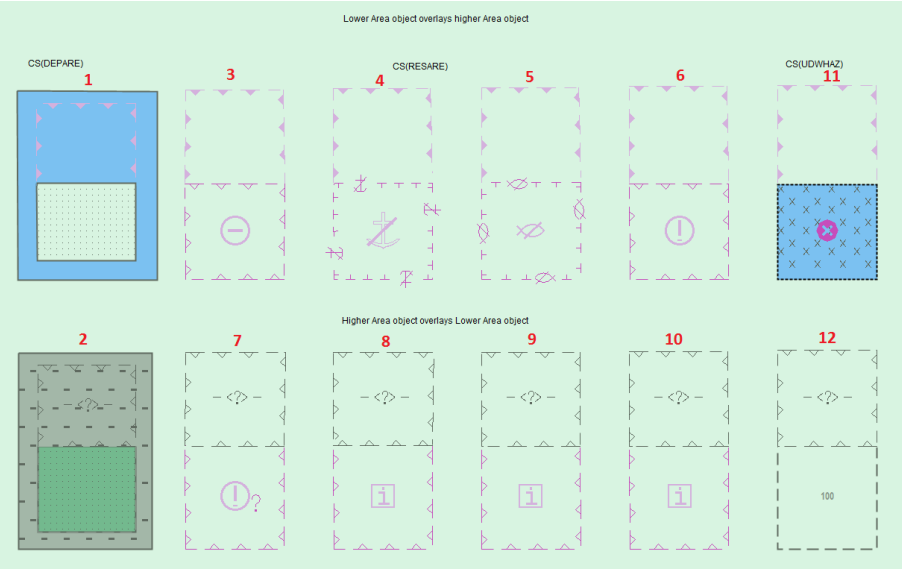


Test reference	3.6.8.4	IHO reference	S-52 10.3.4.1
Test description			
Scale boundary display			
Set up			
As for test 3.6.8.3 and in addition; *Scale borders = On* *Non-ENC borders = Off*			
Action			
View the objects at position 32°22′·450S 61°23′·800E scale 1:5000			
Result			
Confirm that items 1 and 2 display as shown in the graphic below; 			

Test reference	3.6.8.5	IHO reference	S-52 10.3.4.1
Test description			
Overscale pattern display			
Set up			
As for test 3.6.8.4 and in addition; *Overscale indication = On*			
Action			
View the objects at position 32°22′·650S 61°23′·800E scale 1:5000			
Result			
Confirm that items 1 and 2 display as shown in the graphic below;			



Test reference	3.6.9	IHO reference	S-52 10.3.4.1
Test description			
Display of objects with priority affected by conditional symbology procedures			
Set up			
As for test 3.6.1			
Action			
View the objects at position 32°21′·850S 61°23′·150E scale 1:5000			
Result			
Confirm that items 1- 12 display as shown in the graphic below;			



Test reference	3.6.10	IHO reference	S-52 10.4.2
Test description			
Display of objects with values of SCAMIN			
Set up			
As for test 3.6.1			
Action			
Result			

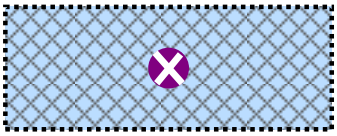
Commentaire [r18]: Test needs to be developed TR

3.6.11 Display of Centred Symbols

Commentaire [r19]: May need to re-title 3.6 to reflect this TR

Test reference	3.6.11 a)	IHO reference	S-52 8.5.1
Test description			
Display of centred symbols in the centre of an area.			
Set up			
Load the following cell ??XXXXXX.000 *Symbolised Boundaries = ON*			
Action			
Centre the screen on location xx, yy, at scale XXXXXXX			
Result			
Confirm that the objects display as in the image below; *Diagram/Image* *Zoom out to scale XXXXX and confirm that the objects now display as follows;* *Diagram/Image*			

Object (A) OBSTRN WATLEV=3 VALSOU = NULL
(A) should display with centred symbol in the centre of the area.

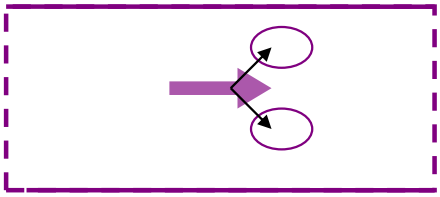


After zoom the centred symbol should disappear as it no longer fits in the area.

Test reference	3.6.11 b)	IHO reference	S-52 8.5.1
Test description			
Display of centred symbols offset.			
Set up			
Load the following cell ??XXXXXX.000 *Symbolised Boundaries = ON*			
Action			
Centre the screen on location xx, yy, at scale XXXXXXX			
Result			
Confirm that the objects display as in the image below; *Diagram/Image* *Zoom out to scale XXXXX and confirm that the objects now display as follows;*			

Diagram/Image

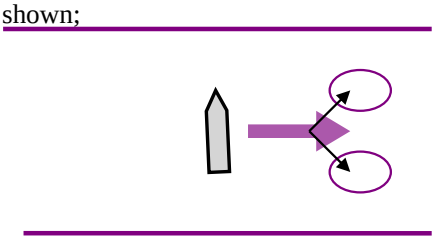
Object (B) TSSLPT ORIENT = 90 RESTRN = Fishing Prohibited, Anchoring Prohibited
(B) should display with centred symbol in the centre of the area. With the restrn symbols offset as shown;



Again after zoom symbols should disappear as they no longer fit. Whether the separate symbols should disappear before the arrow might be getting too specific and complicated.

Test reference	3.6.11 c)	IHO reference	S-52 8.5.1
Test description			
Display of centred symbols which conflict with the own ship symbol.			
Set up			
Load the following cell ??XXXXXX.000 *Symbolised Boundaries = ON*			
Action			
Centre the screen and the own vessel on location xx, yy, at scale XXXXXXX			
Result			
Confirm that the objects display as in the image below; *Diagram/Image*			

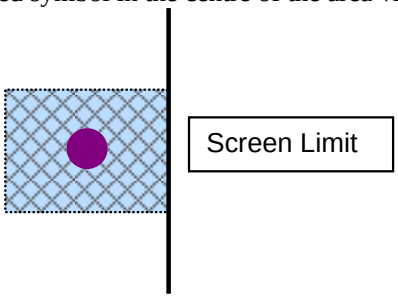
Use Object (B)
(B) should display with own ship centred and symbols offset to avoid and with the restrn symbols offset as shown;



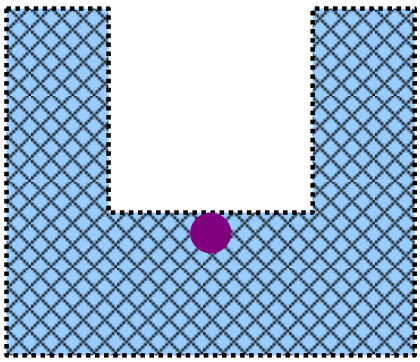
Test reference	3.6.11 d)	IHO reference	S-52 8.5.1
Test description			
Display of centred symbols when area is partially off screen.			
Set up			
Load the following cell ??XXXXXX.000 *Symbolised Boundaries = ON*			
Action			
Centre the screen and the own vessel on location xx, yy, at scale XXXXXXX			
Result			

Confirm that the objects display as in the image below; *Diagram/Image*

Object (A) OBSTRN WATLEV=3 VALSOU = NULL
(A) should display with centred symbol in the centre of the area visible.



Test reference	3.6.11 e)	IHO reference	S-52 8.5.1
Test description			
Display of centred symbols within complex areas.			
Set up			
Load the following cell ??XXXXXX.000 *Symbolised Boundaries = ON*			
Action			
Centre the screen and the own vessel on location xx, yy, at scale XXXXXXX			
Result			
Confirm that the objects display as in the image below; *Diagram/Image*			



Object (C) centred symbol shall remain inside shape. Additional tests with area partially off screen each side could be included using this object.

3.7 Scale and navigation purpose

3.7.1 Display of overscale indication

Commentaire [r20]: Needs multiple scales and coefficient

Test reference	3.7.1 a)	IHO reference	S-52 10.1.10.1
Test description			
Display of overscale indication.			
Set up			
Load the cells from 2.1.1 Power Up\ENC_ROOT			
Action			
Zoom in beyond 1:25,000. This is the compilation scale of the harbour usage band cells.			
Result			
Confirm that an overscale indication is provided.			

Test reference	3.7.1 b)	IHO reference	S-52 10.1.10.2
Test description			
Display of overscale pattern.			
Set up			
Load the cells from 2.1.1 Power Up\ENC_ROOT			
Action			
Zoom in beyond 1:XXXXXX. This is the compilation scale of the harbour usage band cells.			
Result			
Confirm that the overscale pattern AP(OVERSC01) is displayed.			

3.7.2 Indication of larger scale data

Test reference	3.7.2	IHO reference	S-52 10.1.10.3
Test description			
Indication of better (larger) scale data being available.			
Set up			
Load the following cells; *2.1.1 Power Up\ENC_ROOT\GB4X0000.000* *2.1.1 Power Up\ENC_ROOT\GB5X01NW.000* *Position the own ship at 32°29.668'S, 060°55.864'E with a heading of 234.0 degrees. The will place the ship at the jetty in Micklefirth.*			
Action			
Select the less detailed navigational purpose cell (GB4X0000.000). Observe this cell.			
Result			
Confirm that an indication is provided that more detailed navigational purpose data is available.			

3.7.3 Boundaries between compliation scales

Test reference	3.7.3	IHO reference	S-52 10.1.9.1
Test description			
Boundaries between compilation scales.			
Set up			
Load the following cell; *2.1.1 Power Up\ENC_ROOT\GB4X0000.000*			

Action
Centre the display on 32°21.010"S, 060°57.920"E and zoom to 1:45,000
Result
Confirm that either the LS(SOLD,1,CHGRD) or LC(SCLBDY51) is shown for the diagonal limit across the cell. Also confirm that the overscale indication is provided.

3.7.4 Display of data from another navigational purpose

Commentaire [r22]: HP Plots

Test reference	3.7.4	IHO reference	
Test description			
Display of data from a smaller scale navigational purpose to completely cover the display.			
Set up			
Load the cells from 2.1.1 Power Up\ENC_ROOT			
Action			
Centre the display at 32°30.000"S 60°59.836"E *Zoom in so that harbour detail (buoyage, lights) is shown.*			
Result			
Confirm that east of 32°30.000"S 60°58.000"E data from the smaller navigational purpose is shown.			

Commentaire [r23]: Overlap test required

3.7.5 Display of graphical index

Test reference	3.7.5	IHO reference	S-52 10.1.7
Test description			
Display of graphical index of cell boundaries.			
Set up			
Load the cells from 2.1.1 Power Up\ENC_ROOT			
Action			
Navigate to a graphical index of cell boundaries.			
Result			
Confirm that a graphical index of the cell boundaries is displayed and access to the edition number and date of each cell is available.			

3.7.6 Change of display scale

Test reference	3.7.6	IHO reference	????
Test description			
Change of display scale by chart scale values and by increments of dislayed range values in nautical miles.			
Set up			
Load the cells from 2.1.1 Power Up\ENC_ROOT			
Action			
Change display scale by chart scale values and by increments of displayed range values in nautical miles.			
Result			
Confirm that the display changes accordingly.			

Commentaire [r24]: TR Confirm location of S-52 requirement?

3.7.7 Impact of SCAMIN on display

Commentaire [r25]: Plots required

Test reference	3.7.7	IHO reference	S-52 10.4.2
Test description			
Impact of SCAMIN values on display of charted objects.			
Set up			
Load the cells from 2.1.1 Power Up\ENC_ROOT *Set display mode to OTHER and select to display Soundings.* *Deselect any SCAMIN override setting.*			
Action			
Observe the following locations at the display scale given;			

Chart centre	*Display scale*	*Displayed objects*
32°33.540"S 61°07.700"E	*1:100,000*	*Soundings Off*
32°33.540"S 61°07.700"E	*1:75,000*	*Soundings On*
32°33.540"S 61°07.700"E	*1:40,000*	*Soundings On*
32°34.600"S, 60°58.500"E	*1:125,000*	*Soundings (within 10m contour)Off*
32°34.600"S, 60°58.500"E	*1:90,000*	*Soundings (within 10m contour)On*

Result
Confirm that the objects display as indicated in the table.

3.7.8 Display of scale bar

Test reference	3.7.8	IHO reference	S-52 10.5.1
Test description			
Display of scale bar at appropriate scales.			
Set up			
Load the cells from 2.1.1 Power Up\ENC_ROOT *Set display mode to BASE.*			
Action			
Zoom to a display scale greater than 1:80,000 (such as 1:25,000), observe the display.			
Result			
Confirm that a scale bar is displayed. Also confirm that the scale bar is displayed between 2mm and 4mm from the left side of the chart display area.			

3.7.9 Display of latitude bar

Test reference	3.7.9	IHO reference	S-52 10.5.1
Test description			
Display of latitude bar at appropriate scales.			
Set up			
Load the cells from 2.1.1 Power Up\ENC_ROOT *Set display mode to BASE.*			
Action			
Zoom to a display scale less than 1:80,000 (such as 1:300,000), observe the display.			
Result			
Confirm that a latitude bar is displayed. Also confirm that the scale bar is displayed between 2mm and 4mm from the left side of the chart display area.			

~~z) IC-ENC SCAMIN~~

3.8 Additional Display Functions

3.8.1 Display of Navigator's Notes

Test reference	3.8.1	IHO reference	S-52 App B-F
Test description			
The display of navigator's notes.			
Set up			
Load the following cell 2.1.1 Power Up\ENC_ROOT\GB4X0000.000			
Action			
Create a navigator's note.			
Result			
Confirm that the navigator's notes can be displayed.			

Commentaire [r26]: Expand to cover removal of mariners notes

3.8.2 Mariner Entered Objects

Test reference	3.8.2	IHO reference	S-52 App B-F
Test description			
Functionality of mariner entered objects.			
Set up			
As for test 3.8.1			
Action			
Create the following mariner entered objects *1.Add a mariners object of type point.* *2.Add a mariners object of type area* *3.Add a mariners object of type area and specify a fill style as described in S-52, appendix 2/2.3.1b.* *4. Add 10 mariner entered objects of type line.* *5. Add 25 characters of text as a mariners object.*			
Result			
Check that all information added by the mariner (items 1-5) is distinguishable. Check that all of these objects can be added to the SENC. Recall them from the SENC and check that they may be deleted.			

~~3.8.3 Manufacturer Displayed Information~~

~~Test reference~~	~~3.8.3~~	~~IHO reference~~	
~~Test description~~			
~~*Display of manufacturer displayed information if supported.*~~			
~~Set up~~			
~~*As for test 3.8.1*~~			
~~Action~~			
~~*If provided confirm that*~~ ~~*Manufacturers caution*~~ ~~*Manufacturers info*~~ ~~*Manufacturers area*~~ ~~*the caution (!) or information (i) symbol is used to call up a note on the alphanumeric display by cursor picking; .2 simple lines, or areas without colour fill, are set up for cursor picking to give an explanatory note in the alphanumeric display. Colour fill shall*~~			

~~*not be used; .3 manufacturer information is distinguishable as described in S 52, appendix 2/2.3.1c), and does not overwrite i.e. degrade HO chart information.*~~
~~Result~~

3.8.4 Adjustment of depth information by tidal height

Test reference	3.8.4	IHO reference	????
Test description			
Depth information is not affected by tidal height information.			
Set up			
Load the following cell 2.1.1 Power Up\ENC_ROOT\GB4X0000.000			
Action			
Confirm by analytical evaluation that depth information is not affected by tidal height.			
Result			
Depth information is not affected by tidal height.			

Commentaire [r27]: Ref required could be implied from 12.2.16? TR

~~3.8.5 Display of non-ENC data~~

~~For this test AML 3.0 data has been provided the manufacturer must provide appropriate non-ENC data as is supported by the EUT. If the EUT only supports S-57 ENC data this test is not mandatory.~~

~~Test reference~~	~~3.8.5~~	~~IHO reference~~	
~~Test description~~			
~~*Non-ENC data can be distinguished from ENC and appropriate notification is provided.*~~			
~~Set up~~			
~~*Load the cells from 3.8.5 Non-ENC data\ENC_ROOT*~~			
~~Action~~			
~~*View the non-ENC data.*~~			
~~Result~~			
~~*Verify that the non-ENC data is distinguishable from the ENC data and that a prominent warning on non-ENC data is displayed.*~~			

Checks for overlays separate

3.9 Display of ENC covering Polar Regions

Commentaire [r28]: Tests to be developed, await test data TR

Radar echo overlays

Display priorities s

3.9.1

3.9.2 Display ENC covering up to 85 degrees (mandatory)

Above 85 degrees separate optional test if claiming capability

4.0 Chart related functions

4.1 Mode and orientation

Test reference	4.1 a)	IHO reference	S-52 10.5.4
Test description			
Display of the north arrow symbol.			
Set up			
Load the following cell 2.1.1 Power Up\ENC_ROOT\GB4X0000.000			
Action			
Observe the display. *If the EUT offers the capability to show other than north-up presentation; Change the presentation to non-north up and observe the display.*			
Result			
Confirm that the north arrow symbol is always displayed at the top left corner of the chart area, not overlapping the scale or latitude bar. If the EUT supports changing to non-north up presentations confirm that the symbol realigns to north.			

Test reference	4.1 b)	IHO reference	???
Test description			
True motion operation.			
Set up			
As for test 4.1 a)			
Action			
Ensure that true motion is provided. *Reset the display and check that the generation of the neighbouring area takes place automatically at a distance selected by the mariner.*			
Result			
Confirm that true motion operation is provided and that the generation of the neighbouring area takes place automatically at a distance selected by the mariner.			

Commentaire [r29]: Ref required

Test reference	4.1 c)	IHO reference	???
Test description			
Manual adjustment of chart display area and own ship position.			
Set up			
As for test 4.1 a)			
Action			
Manually adjust the chart display area. *Change the position of own ship relative to the edge of the display.*			
Result			
Confirm that it is possible to change manually the chart area and the position of own ship relative to the edge of the display.			

Commentaire [r30]: Ref required

Test reference	4.1 d)	IHO reference	S-52 8.5.2
Test description			
Over-writing of own ship symbol.			
Set up			
As for test 4.1 a) *Ship position as follows; 32°35.300"S 61°06.232"E*			
Action			
Where a ship centred display mode is provided, select a display scale such that the display shows only a portion of the chart which lies entirely within an area which is symbolized with a centred symbol (for example traffic lane).			
Result			
Confirm that the centred symbol does not over-write the own ship symbol.			

Commentaire [r31]: Now covered at 3.6.11 still required here? TR

Test reference	4.1 e)	IHO reference	S-52 10.1.8
Test description			
No ENC data available.			
Set up			
As for test 4.1 a) *Ship position as follows; 32°24.53'S 061°19.29'E (within ENC data coverage (M_COVR) where CATCOV=2 (no coverage available).*			
Action			
Observe the display.			
Result			
Confirm that a "No ENC available" indication is provided that includes guidance to refer to a paper chart or RCDS mode of operation.			

Test reference	4.1 f)	IHO reference	S-52 10.1.8
Test description			
No ENC data available.			
Set up			
As for test 4.1 a) *Ship position as follows; 32°27.88"S 061°20.66"E (an area with no ENC)*			
Action			
Observe the display.			
Result			
Confirm that a "No ENC available" indication is provided.			

Test reference	4.1 g)	IHO reference	???
Test description			
Display in non 'north-up' orientation.			
Set up			
As for test 4.1 a)			
Action			
For each bearing-stabilised orientation other than 'north-up' that may be provided, confirm by analytical evaluation that for turning rates between 0 deg/s and 20 deg/s the displayed chart symbols and text do not re-orient more often than 2 times per second and remain legible if they do not remain fixed.			
Result			
Confirm that the displayed chart symbols and text do not re-orient more often than 2 times per second and remain legible.			

Commentaire [r32]: Ref required TR

4.4 Object information

Commentaire [r33]: Needs review against 10.8.1 TR

Test reference	4.4 a) & b)	IHO reference	S-52 10.8.1
Test description			
Display of object information			
Set up			
As for test 4.2 b)			
Action			
1. Select several objects of *- depth area;* *- restricted area;* *- sea area;* *- depth contour;* *- ferry route;* *- recommended track;* *- buoy (e.g. buoy and light at 32°29.50"S 061°00.46"E);* *- light;* *- wreck.* 2. *Remove object information from display.*			
Result			
1a. Text associated with chart objects is displayed only when selected. *1b. Object information contained in ENC must be available on demand including attributes of symbols as well as "no-symbol" information; such as territorial waters and compilation scale.* *1c. The displayed text must use common language terms, not hydrographic abbreviations (e.g. the abbreviation (BOYSAW) of the object class, but must be presented as "Buoy, safe water"; the attribute abbreviation (BOYSHP=4) must be presented as "pillar").* *2. Text associated with chart objects must be removed from the display.*			

Test reference	4.4 c)	IHO reference	S-52 10.8.1
Test description			
Display of object information			
Set up			
As for test 4.4 a) & b)			
Action			
1. Select an example of a note encoded using TXTDSC (text description) (e.g. caution area at approximately, 32°34.74"S 061°08.92"E); *2. Repeat step 1 for different light conditions (DAY, DUSK, NIGHT).*			
Result			
1. The note must be displayed within the light level of the current display and that it can be easily read, for example by displaying the note as it might appear on a paper chart (e.g. content of GBIECTMP.TXT file as contained in the directory of loaded ENCs). *2. The note must be displayed as appropriate for the selected light condition (DAY, DUSK, NIGHT).*			

Test reference	4.4 d)	IHO reference	S-52 10.8.1
Test description			
Display of object information			
Set up			
Load cell *2.1.1 Power Up\ENC_ROOT\GB4X0000.000*			

Action
1. Select an example of PICREP (picture representation) *1a. select landmark object at 32°31.95"S 60°54.34"E and select picture representation for display;* *1b. select area object of 32°30.25"S 60°54.64"E with nautical publication (M_NPUB) and select picture representation for display;* *2. Repeat step 1a and b for different light conditions (DAY, DUSK, NIGHT).*
Result
1a. The picture GBTESTPC.TIF must be displayed; *1b. The picture GBX4000T.TIF must be displayed;* *2. The pictures must be displayed as appropriate for the selected light condition (DAY, DUSK, NIGHT). It shall not affect the user's night vision.*

Test reference	4.4 e)	IHO reference	S-52 10.9
Test description			
Display of object information			
Set up			
Load all cell *2.1.1 Power Up\ENC_ROOT\GB5X01SW.000*			
Action			
1. Select an example of TS_PAD (tidal stream panel information) *1a. select tidal stream panel information object at 32°31.45"S 60°56.35"E for display;* *2. Select an example of TS_PRH (tidal stream prediction by harmonic methods)* *2a. select tidal stream prediction by harmonic methods object at 32°32.57"S 60° 57.69"E for display;* *3. Repeat step 1 and 2 for different light conditions (DAY, DUSK, NIGHT).*			
Result			
1a. The data must be displayed in a way that it can be easily read and is logically presented, for example by displaying the data as it might appear on a paper chart; *2a. The data must be displayed in a way that it can be easily read and is logically presented, for example by displaying the data as it might appear on a paper chart;* *3. The data must be displayed as appropriate for the selected light condition (DAY, DUSK, NIGHT).*			

Commentaire [r34]: Diagram reflect S-52???

4.5 Radar and Plotting Information

Where the capability for displaying radar, radar tracks or AIS is provided, in addition to the requirements of IEC 62288 for radar displays and presentation of target information, perform the following:

Commentaire [r35]: Should just cover under over simulator needed for plots

Test reference	4.5 a)	IHO reference	???
Test description			
Display of Radar and AIS overlays with SENC information.			
Set up			
Load the following cell 2.1.1 Power Up\ENC_ROOT\GB4X0000.000			
Action			
Switch on the following (where available); • *Radar image overlay* • *Radar tracked target information* • *AIS information*			
Result			
Confirm that the display of SENC information is not degraded and can be clearly distinguished.			

Test reference	4.5 b)	IHO reference	???
Test description			
Accuracy and conformity of Radar and AIS overlay display.			
Set up			
As for test 4.5 a)			
Action			
Observe the display. *Switch on the following (where available);* • *Radar image overlay* • *Radar tracked target information* • *AIS information*			
Result			
Confirm that displayed overlays match in scale, orientation, projection and accuracy within the ranges defined in IEC 62288. Confirm that a scale change of the radar, if it is a separate unit, does not affect the radar image overlay of the EUT scale, orientation, projection and accuracy.			

Test reference	4.5 c)	IHO reference	???
Test description			
Removal of Radar and AIS overlays.			
Set up			
As for test 4.5 a)			
Action			
By single operator action remove the radar image overlay, tracked target information, AIS information and other added navigational information from the display.			
Result			
Confirm that the information is removed from the display.			

Test reference	4.5 d)	IHO reference	???
Test description			
Removal of Radar and AIS overlays.			
Set up			
As for test 4.5 a)			
Action			
Set EUT to accept and display transferred radar tracked target and AIS information, as available. Set the simulator to the equivalent of stabilized, north-up mode and to 12-mile range.			
Result			
Confirm that the target and AIS information is being accepted and displayed correctly.			

Test reference	4.5 e)	IHO reference	???
Test description			
Change of radar antenna offset.			
Set up			
As for test 4.5 a)			
Action			
Change the radar antenna offset.			
Result			
Confirm that the position of radar image overlay and the radar tracked targets, as available, on the EUT changes accordingly.			

4.6 Accuracy

~~6.6a Transformation between a local datum and WGS-84:~~

In this section calculations are based on the WGS-84 spheroid:

Semi-major axis 6378137.0000m
Semi-minor axis 6356752.3142m
Eccentricity squared 0.00669437999013
Flattening 298.257223563

Conversion of metres (m) to nautical miles (NM) uses
1 NM = 1852 m.

4.6.1 Geodesic distance and azimuth between geographical positions

Test reference	4.6.1 a)	IHO reference	
Test description			
True distance and azimuth between two geographical positions a).			
Set up			
Load all cells from; *2.1.1 Power Up\ENC_ROOT*			
Action			
Measure the distance and azimuth between the following two objects; Viking 49/27-B 32 35.224S 61 17.710E Corund Cape Light 32 27.436S 60 58.609E			
Result			
Confirm that the results are as follows; True Distance 33193.554 m / 17.9231 NM Forward Bearing 295.614 degrees Reverse Bearing 115.785 degrees			

Test reference	4.6.1 b)	IHO reference	
Test description			
True distance and azimuth between two geographical positions b).			
Set up			
As for test 4.6.1a)			
Action			
Measure the distance and azimuth between the following two objects; Viking 49/27-B 32 35.224S 61 17.710E Castlerigg Light 32 23.280S 60 58.496E			
Result			
Confirm that the results are as follows; True Distance 37326.351 m / 20.1546 NM Forward Bearing 306.172 degrees Reverse Bearing 126.344 degrees			

Commentaire [r37]: Refer to 61174 tables for accuracy values

Commentaire [richardso38]: No test required

Test reference	4.6.1 c)	IHO reference	
Test description			
True distance and azimuth between two geographical positions c).			
Set up			
As for test 4.6.1a)			
Action			
Measure the distance and azimuth between the following two objects; Corund Cape Light 32 27.447S 60 58.599E Worm Head Light 32 31.958S 60 54.337E			
Result			
Confirm that the results are as follows; True Distance 10680.859 m / 5.7672 NM Forward Bearing 218.665 degrees Reverse Bearing 38.703 degrees			

4.6.2 Geodesic geographical position from a known position and distance/azimuth

Test reference	4.6.2 a)	IHO reference	
Test description			
Geographical position from known position and distance/azimuth a).			
Set up			
As for test 4.6.1a)			
Action			
From the following position; Viking 49/27-B 32 35.224S 61 17.710E *Enter a distance and bearing of;* True Distance 33193.554 m / 17.9231 NM Forward Bearing 295.614 degrees			
Result			
Confirm that the end geographical position is; Corund Cape Light 32 27.436S 60 58.609E			

Test reference	4.6.2 b)	IHO reference	
Test description			
Geographical position from known position and distance/azimuth b).			
Set up			
As for test 4.6.1a)			
Action			
From the following position; Viking 49/27-B 32 35.224S 61 17.710E *Enter a distance and bearing of;* True Distance 37326.351 m / 20.1546 NM Forward Bearing 306.172 degrees			
Result			
Confirm that the end geographical position is; Castlerigg Light 32 23.280S 60 58.496E			

Test reference	4.6.2 c)	IHO reference	
Test description			
Geographical position from known position and distance/azimuth c).			
Set up			
As for test 4.6.1a)			
Action			
From the following position; Corund Cape Light 32 27.447S 60 58.599E *Enter a distance and bearing of;* True Distance 10680.859 m / 5.7672 NM Forward Bearing 218.665 degrees			
Result			
Confirm that the end geographical position is; Worm Head Light 32 31.958S 60 54.337E			

4.6.3 Rhumb line distance and azimuth between geographical positions

Test reference	4.6.3 a)	IHO reference	
Test description			
True distance and azimuth between two geographical positions a).			
Set up			
Load all cells from; *2.1.1 Power Up\ENC_ROOT*			
Action			
Measure the distance and azimuth between the following two objects; Viking 49/27-B 32 35.224S 61 17.710E Corund Cape Light 32 27.436S 60 58.609E			
Result			
Confirm that the results are as follows; True Distance 33193.567 m / 17.9231 NM Forward Bearing 295.699 degrees Reverse Bearing 115.699 degrees			

Test reference	4.6.3 b)	IHO reference	
Test description			
True distance and azimuth between two geographical positions b).			
Set up			
As for test 4.6.1a)			
Action			
Measure the distance and azimuth between the following two objects; Viking 49/27-B 32 35.224S 61 17.710E Castlerigg Light 32 23.280S 60 58.496E			
Result			
Confirm that the results are as follows; True Distance 37326.365 m / 20.1546 NM Forward Bearing 306.258 degrees Reverse Bearing 126.258 degrees			

Test reference	4.6.3 c)	IHO reference	
Test description			
True distance and azimuth between two geographical positions c).			
Set up			
As for test 4.6.1a)			
Action			
Measure the distance and azimuth between the following two objects; Corund Cape Light 32 27.447S 60 58.599E Worm Head Light 32 31.958S 60 54.337E			
Result			
Confirm that the results are as follows; True Distance 10680.859 m / 5.7672 NM Forward Bearing 218.684 degrees Reverse Bearing 38.684 degrees			

4.6.4 Geodesics

Test reference	4.6.4 a)	IHO reference	
Test description			
Geodesic lines and circle, northern quadrant.			
Set up			
As for test 4.6.1a)			
Action			
Plot positions listed in sets 2-6 of the following document; *4.6 Accuracy - Geodesic*			
Result			
Confirm that the lines drawn pass through or sufficiently close to the listed positions and that the Geodesic circle corresponds to range rings at 2,000,000m intervals.			

Test reference	4.6.4 b)	IHO reference	
Test description			
Geodesic lines and circle, crossing the equator.			
Set up			
As for test 4.6.1a)			
Action			
Plot positions listed in sets 7-11 of the following document; *4.6 Accuracy - Geodesic*			
Result			
Confirm that the lines drawn pass through or sufficiently close to the listed positions and that the Geodesic circle corresponds to range rings at 2,000,000m intervals.			

Test reference	4.6.4 c)	IHO reference	
Test description			
Geodesic lines southern quadrant.			
Set up			
As for test 4.6.1a)			
Action			

Plot positions listed in sets 12-16 of the following document; *4.6 Accuracy - Geodesic*
Result
Confirm that the lines drawn pass through or sufficiently close to the listed positions and that the Geodesic circle corresponds to range rings at 2,000,000m intervals.

4.6.5 Rhumb Lines

Test reference	4.6.5 a)	IHO reference	
Test description			
Rhumb lines, northern quadrant.			
Set up			
As for test 4.6.1a)			
Action			
Plot positions listed in sets 2-5 of the following document; *4.6 Accuracy – Rhumb Lines*			
Result			
Confirm that the lines drawn pass through or sufficiently close to the listed positions.			

Test reference	4.6.5 b)	IHO reference	
Test description			
Rhumb lines, crossing the equator.			
Set up			
As for test 4.6.1a)			
Action			
Plot positions listed in sets 6-9 of the following document; *4.6 Accuracy - Rhumb Lines*			
Result			
Confirm that the lines drawn pass through or sufficiently close to the listed positions.			

Test reference	4.6.5 c)	IHO reference	
Test description			
Rhumb lines, southern quadrant.			
Set up			
As for test 4.6.1a)			
Action			
Plot positions listed in sets 12-16 of the following document; *4.6 Accuracy - Rhumb Lines*			
Result			
Confirm that the lines drawn pass through or sufficiently close to the listed positions.			

4.7 Symbols

~~Former 6.7.1 a) and b)~~

4.7.1 Symbol Size

Test reference	4.7.1	IHO reference	
Test description			
Display of symbols in size shown in the IHO presentation library.			
Set up			
Load one or more cells from 2.1.1 Power Up\ENC_ROOT			
Action			
Perform zoom-in and zoom-out operations in each display mode.			
Result			
Confirm that the symbols do not decrease in size below that shown in the IHO presentation library.			

Commentaire [richardso39]: Covered at 3.1

Commentaire [r40]: Decrease or increase

4.7.2 Display of own ship

Test reference	4.7.2	IHO reference	
Test description			
Display of own ship as a symbol or true to scale.			
Set up			
As for test 4.7.1			
Action			
Observe the own ship change to display as true to scale or as a symbol as appropriate.			
Result			
Confirm that the own ship displays as a symbol and as true to scale when this option is selected.			

4.7.3 Display of ECDIS chart 1 symbols of correct size

Commentaire [r42]: Tolerance 0.5mm

Test reference	4.7.3	IHO reference	S-52 16.1
Test description			
Display of the check symbol of the correct size (in mm).			
Set up			
Load the following cell from ECDIS Chart 1 as provided in IHO S-52 Appendix 2); ~~AA5C1Q00.000~~ AA5C1AB2.000			
Action			
Observe the CHKSYM01 symbol within the Information about the chart display (A,B) section.			
Result			
Confirm that the height of the CHKSYM01 symbol is not less than 5mm.			

Commentaire [richardso43]: Incorrect Chart 1 cell had been referenced.

4.7.4 Size in pixels of the check symbol CHKSYM01

Test reference	4.7.4	IHO reference	???
Test description			
Display of the check symbol of the correct size (in pixels).			
Set up			
As for test 4.7.3			
Action			
Observe the CHKSYM01 symbol within the Information about the chart display (A,B) section.			
Result			
Confirm that the number of pixels (lines) which comprise the vertical extent of the symbol CHKSYM01 is not less than 16.			

4.7.5 Display of text as the correct size

Commentaire [r44]: Tolerance and separate chart from pick report

Test reference	4.7.5	IHO reference	S-52 9.1
Test description			
Display of text within the chart display and pick report.			
Set up			
Load one or more cells from *2.1.1 Power Up\ENC_ROOT*			
Action			
Observe the chart display. *Pick an object and observe the text within the pick report.* *Create a mariners note with text and observe its display.*			
Result			
Confirm that for all text observed the height of upper-case characters is not less than 3.5 mm.			

4.7.6 Display redraw

Commentaire [r45]: HP to provide scale

Test reference	4.7.6	IHO reference	
Test description			
Display of text within the chart display and pick report.			
Set up			
Load one or more cells from *2.1.1 Power Up\ENC_ROOT* *Simulate the own ships movement from Micklefirth through the Mickelfirth channel and to the Mickleden TSS roundabout.*			
Action			
Monitor the display.			
Result			
Confirm that the display redraws in less than 5 seconds for the duration of the own ship movement. *Select the display of the area north of the Lowesmore Oilfield confirm that the display redraws in 5 seconds or informs the user and retains the previous display until ready.*			

4.8 Units and Legend

Commentaire [r46]: Reflect clarified S-52 text

Test reference	4.8	IHO reference	S-52 10.6.2
Test description			
Display of elements of general information.			
Set up			
Load one or more cells from *2.1.1 Power Up\ENC_ROOT*			
Action			
Check that the following information is presented; *a. units for depth;* *b. units for height;* *c. scale of display;* *d. data quality indicator;* *e. sounding/vertical datum;* *f. horizontal datum;* *g. the value of the safety depth;* *h. the value of the safety contour;* *i. magnetic variation;* *j. date and number of last update affecting the chart cells currently in use;* *k. edition number and date of issue of the ENC;* *l. chart projection.*			
Result			
The information listed must be presented clearly.			

4.9 Other Chart Related Functionality

4.9.1 Presentation Library

Test reference	4.9.1	IHO reference	S-52 4.3
Test description			
Display of presentation library edition number.			
Set up			
N/A			
Action			
Navigate to the appropriate dialog where the presentation library edition number can be found.			
Result			
Presentation library edition number 4.0 must be displayed.			

4.9.2 ECDIS Chart 1

Commentaire [r47]: Compare with plots

Test reference	4.9.2 a)	IHO reference	S-52 18.2.2
Test description			
Display of ECDIS chart 1.			
Set up			
N/A			
Action			
Navigate to ECDIS chart 1.			
Result			
Confirm that ECDIS chart 1 is displayed.			

Test reference	4.9.2 b)	IHO reference	S-52 18.2.2
Test description			
Interrogation of ECDIS chart 1.			
Set up			
With ECDIS chart 1 displayed.			
Action			
Interrogate 3 symbols by cursor pick.			
Result			
Upon interrogation the description of the symbol as contained in the presentation library is presented.			

4.9.3 Chart Related Information

Test reference	4.9.3 a)	IHO reference	
Test description			
Display of depth unit information.			
Set up			
Load any ENC cells from the TDS.			
Action			
Observe the display.			
Result			
Confirm that the depth units are indicated on the same screen as the chart			

display.

Test reference	4.9.3 b)	IHO reference	
Test description			
Display of additional chart related information.			
Set up			
Load any ENC cells from the TDS.			
Action			
View the ECDIS display and identify the following information; *.1 positional data and time;* *.2 legend;* *.3 object description and associated attributes (result of "cursor query");* *.4 textual information from SENC;* *.5 list of abbreviations (from INT-1);* *.6 result from navigational computations;* *.7 record of ENC-updates;* *.8 list of categories which are removed from standard display;* *.9 symbol library. (See S-52, Annex A.)*			
Result			
Confirm that the information listed is accessible and is displayed clearly to the user on the same screen as the chart display.			

5.0 Route planning (6.9.2)
(Jeppesen/Furuno)
Expand to cover checking functionality
To include specific routes with expected alarm outcomes etc
(Dependent on S-52 being expanded to include alarm details as proposed at anomalies meeting)
Cover manual updates also

Test reference	5.1	IHO reference	
Test description			
Inputting a route.			
Set up			
Action			
Plot the route provided in (document) and check the route.			
Result			
The following alerts and indications must be provided in the order listed below;			

Test reference	5.2	IHO reference	
Test description			
Detection of objects during route checking.			
Set up			
Action			
Plot the route provided in (document) and check the route.			
Result			
The following alerts and indications must be provided in the order listed below;			

6.0 Route monitoring (6.9.3)
(Jeppesen/Furuno)

Expand to cover alarm functionality
To include specific routes with expected alarm outcomes etc
To cover non-official data also
To cover no data situation
Cover manual updates

~~7.0 Other functionality~~

~~7.1 Twelve hour log~~

~~Test reference~~	~~7.1 a)~~	~~IEC 61174 reference~~	~~6.9.4~~
~~Test description~~			
~~*Creation and simulation of voyage recording test route plan.*~~			
~~Set up~~			
~~*N/A*~~			
~~Action~~			
~~*Create a route which forms a loop.*~~ ~~*Simulate the execution of the route.*~~			
~~Result~~			
~~*Confirm that the route simulation runs in perpetuity.*~~			

~~Test reference~~	~~7.1 b)~~	~~IEC 61174 reference~~	~~6.9.4~~
~~Test description~~			
~~*Recording and fidelity of twelve hour log.*~~			
~~Set up~~			
~~*N/A*~~			
~~Action~~			
~~*Simulate the voyage recording test route plan for 12 hours.*~~ ~~*During this time attempt to edit the log.*~~			
~~Result~~			
~~*Confirm that it is not possible to edit the log. Also confirm that at the end of the 12 h period, the EUT log can be analyzed according to the procedures in the operating manual and the results shall comply with the test carried out.*~~			

~~Test reference~~	~~7.1 c)~~	~~IEC 61174 reference~~	~~6.9.4~~
~~Test description~~			
~~*Creation and simulation of voyage recording test route plan.*~~			
~~Set up~~			
~~*N/A*~~			
~~Action~~			
~~*Review the record for the previous 12 hours.*~~			
~~Result~~			
~~*Confirm that the record contains the following information as a minimum;*~~ ~~*- details of any manual adjustment to the geographic position of the ship.*~~ ~~*- time, position, heading and speed at 1 minute intervals*~~ ~~*- (displayed ENC and largest scale) ENC source,, edition date, cell and update history at 1 minute intervals*~~			

Commentaire [r48]: IEC 61174 4.10.7 TR

~~7.2 Voyage record~~

~~Test reference~~	~~7.2 a)~~	~~IEC 61174 reference~~	~~6.9.5~~
~~Test description~~			
~~*Creation and simulation of voyage recording test route plan.*~~			
~~Set up~~			
~~*N/A*~~			
~~Action~~			
~~*Continue to simulate the route plan for a further 12 hours.*~~ ~~*Review the record for the initial 12 hour period.*~~			
~~Result~~			
~~*Confirm that the record contains the following information as a minimum;*~~ ~~*- the complete track for the entire voyage at intervals not exceeding 4 hours.*~~ ~~*Also confirm that the logging capacity for the voyage has a minimum capacity of 3 months.*~~			

~~Test reference~~	~~7.2 b)~~	~~IEC 61174 reference~~	~~6.9.5~~
~~Test description~~			
~~*Preservation of voyage recording information.*~~			
~~Set up~~			
~~*N/A*~~			
~~Action~~			
~~*Preserve the record for the entire voyage.*~~			
~~Result~~			
~~*Confirm that the record is preserved.*~~			