Dossier du BHI N° S3/8157

ESSAIS DE PRESENTATION
DES DONNEES POUR L'ECDIS A L'INTENTION DES NAVIRES

Références: a) LC 19/2011 en date du 24 février 2011 – *Résultats de l'atelier sur les questions relatives au logiciel ECDIS*

Madame la Directrice, Monsieur le Directeur,

1   La lettre circulaire citée en référence a) a rendu compte des résultats d'un atelier accueilli et organisé par le BHI dans le but de rechercher les moyens de résoudre les anomalies de fonctionnement dans l'ECDIS. L'atelier suivait une soumission présentée par le Japon, la Norvège, le Royaume-Uni, la Chambre internationale de la marine marchande (ICS) et la Fédération internationale des associations de capitaines de navire (IFSMA) à la 88ème session du Comité de la sécurité maritime (MSC88) laquelle a porté à l'attention du Comité la question des anomalies de fonctionnement qui avaient été rapportées.

2   Comme indiqué dans la référence a), l'atelier sur les anomalies de fonctionnement dans l'ECDIS a approuvé l'idée que l'OHI élabore un simple test de validation pour l'usager afin de mettre en évidence l'importance pour les navigateurs d'utiliser des équipements ECDIS qui soient conformes aux normes applicables de l'OHI les plus récentes. En particulier, ce test attirerait l'attention sur les objets et fonctionnalités de la carte qui soit ne sont pas affichés soit ne sont pas affichés de façon optimale si les normes les plus récentes de l'OHI ne sont pas mises en oeuvre dans le logiciel de base. Le test attirerait également l'attention des navigateurs sur un certain nombre d'autres anomalies d'implémentation signalées dans certains équipements ECDIS.

3   Un ensemble de données d'essai a maintenant été produit par le RU sous l'autorité du président du groupe de travail de l'OHI sur le dispositif de protection des données (DPSWG), en consultation avec le président du groupe de travail sur la maintenance et le développement d'applications de la norme de transfert (TSMAD). L'ensemble de données d'essai peut être téléchargé, en tant que fichier compressé (.ZIP), à partir du site de l'OHI, à l'adresse suivante :

http://88.208.211.37/iho_pubs/misc/User_Test_Data/User_test_docs.htm

4   Il est prévu que l'ensemble de données d'essai comprenant trois cellules ENC fictives sera distribué dans un premier temps par les RENC officiels en octobre 2011 dans le cadre du cycle habituel de mise à jour. De cette façon, l'ensemble de données

d'essai sera distribué, en réalité, en tant que mise à jour EN gratuite à tous les clients ENC existants. L'ensemble des données et des instructions seront également disponibles pour diffusion *via* d'autres voies le cas échéant, y compris par téléchargement direct à partir du site web de l'OHI. Au moment opportun, les Etats membres pourront envisager de rendre publiques les données d'essai *via* les avis aux navigateurs. L'ensemble de données d'essai sera accompagné d'instructions et d'explications détaillées dont un projet (en anglais, langue maritime internationale) est présenté en annexe A.

5   Il est demandé aux navigateurs des commentaires en retour sur les résultats des tests. Les conclusions de ces commentaires viendront ensuite renseigner un autre atelier sur les anomalies dans l'ECDIS qui doit se tenir approximativement fin 2011. A partir de là, un rapport de suivi sera présenté à la prochaine session du MSC de l'OMI, en 2012.

6   Il est demandé aux Etats membres d'examiner le protocole d'essai et sa documentation et de fournir tout commentaire y relatif. Simultanément, les parties prenantes clé qui participaient à l'atelier sur les anomalies dans l'ECDIS, tous les fabricants d'équipement ECDIS connus et les OING appropriées sont invités à passer en revue et commenter également le protocole.

7   Vous voudrez bien fournir vos commentaires le cas échéant au BHI, **avant le 31 août 2011**.

Veuillez agréer, Madame la Directrice, Monsieur le Directeur, l'assurance de ma haute considération.

Pour le Comité de direction,

Robert WARD
Directeur

Annexe A: ECDIS Data Presentation Test for Ships – Instructions (anglais seulement)
        [Instructions pour les Essais de présentation des données pour l'ECDIS à l'intention des navires]

INTERNATIONAL HYDROGRAPHIC
ORGANIZATION

ORGANISATION HYDROGRAPHIQUE
INTERNATIONALE

ECDIS Data Presentation Test for Ships
INSTRUCTIONS

Introduction

In 2010 Japan, Norway, the United Kingdom, the International Chamber of Shipping (ICS) and the International Federation of Shipmasters' Association (IFSMA) informed the Maritime Safety Committee of the International Maritime Organization (IMO) of the unexpected behaviour of some ECDIS equipment being used at sea. This resulted in the IMO revising its IMO Safety of Navigation Circular 266 concerning the maintenance of ECDIS software in December. The circular alerts all mariners that the software that controls ECDIS systems at sea should be kept up to date in accordance with the latest IHO standards.

IMO SN.1/Circ.266 rev 1 includes the statement:

ECDIS that is not updated for the latest version of IHO Standards may not meet the chart carriage requirements as set out in SOLAS regulation V/19.2.1.4.

Three NAVAREA warnings have also been issued to alert mariners to the most important issues that had been identified with ECDIS.

An underlying concern relates to whether all ECDIS equipment being used at sea, particularly older equipment, meets the current standards relating to Electronic Navigational Chart (ENC) data and its display in ECDIS. The International Hydrographic Organization (IHO) sets the chart data and portrayal standards for ECDIS on behalf of the IMO.

The IHO standards for ECDIS have been revised a number of times over the years. This has been necessary to improve how chart data is displayed in ECDIS and also to enable new areas recognised by IMO to be shown properly on charts and ECDIS. Examples of the new areas recognised by IMO are Archipelagic Sea Lanes (ASL) and Particularly Sensitive Sea Areas (PSSA). The software in older equipment needs to be upgraded to be able to take advantage of the new standards.

The latest edition of the IHO standards that concern the display and availability of chart data in ECDIS are:

IHO Standard	Name	Effective date of latest edition
S-57 Edition 3.1	IHO Transfer Standard for Digital Hydrographic Data	November 2000
Presentation Library Edition 3.4	IHO Presentation Library for ECDIS	**January 2008**
S-63 Edition 1.1	IHO Data Protection Scheme	March 2008

This means that any ECDIS purchased before 1 January 2008 will not have been built or type-tested in accordance with the latest IHO chart standards.

Not following the latest IHO standards could result in sub-optimal performance of the ECDIS where some chart information may not be shown properly or the appropriate alarms and indications are not raised as expected.

Mariners whose ECDIS software is not up to date should contact the manufacturer or the service agent for assistance.

Is my ECDIS Software Conforming to the Latest IHO Standards?

It should be possible to interrogate the operating software in any ECDIS to determine if the latest standards have been used by the manufacturer. However, the method for finding this information differs from system to system and is not always easy to locate. In any case, it does not necessarily guarantee that the latest IHO standards have been comprehensively implemented. For these reasons, the IHO has developed a test data set in the form of three dummy ENCs that mariners can use to check if the latest IHO standards have been implemented in their equipment. There are six different tests that should take about 15 or 20 minutes to complete.

The tests will highlight those ECDIS systems that have an earlier version of the display presentation library installed or are affected by some of the most common operational anomalies identified to date. The tests are not exhaustive and mariners should be aware of the general information contained in NAVAREA 1 warning 317/10.

The tests require that you load the three dummy ENC cells. The six tests involve looking carefully at various chart objects contained in the ENC cells. Once the tests have been completed, the test cells can be deleted – they have no purpose for navigation.

If your system does not display the chart objects as described below you should contact your ECDIS manufacturer or an appropriate equipment maintenance company to investigate and resolve why there are differences.

Providing Feedback

Once you have carried out the tests, the IHO is very interested to know which ECDIS systems are running with software that does not appear to conform to the latest standards.

As well as reporting the results of the tests to the IHO, if your tests indicate that you may be using an ECDIS system that requires a software upgrade in order to perform optimally, you should contact the Manufacturer or the service agent directly for assistance.

Reporting. The IHO has developed an on-line reporting form at: <<*to be inserted in final version*>>

You will not be required to provide personal details or the details of the ship in which you are sailing.

You will be asked to identify the manufacturer of your ECDIS and the model number or name of the equipment. You will then be asked to provide the results of the six tests that you have carried out.

An off-line version of the reporting form is also included at the end of these instructions. This can be mailed, faxed or emailed to the IHO.

Detailed Instructions

Where a vessel is fitted with ECDIS from different manufacturers or different models from the same manufacturer, then the tests should be run on each of the different systems and a separate report should be compiled for each system.

<u>Loading the Test Data</u>

The test data is contained in three dummy ENC cells: AA2TDS02; AA5TDS05 and AA5TDS52. These cells are located in a landlocked area of the world so there should be no impact on other ENCs loaded in your ECDIS. If you have any problems loading the test ENCs you should contact your ECDIS manufacturer or an appropriate equipment maintenance company for further information.

The test data is distributed in an unencrypted form in a folder structure with all the required files. No permits are required In order to load the cells. Most systems will allow cells to be installed from either removable media or from CD-ROM/DVD optical drives. If the test data is to be written to optical media then the volume name (e.g of a CD-ROM) should be set to "V01X01".

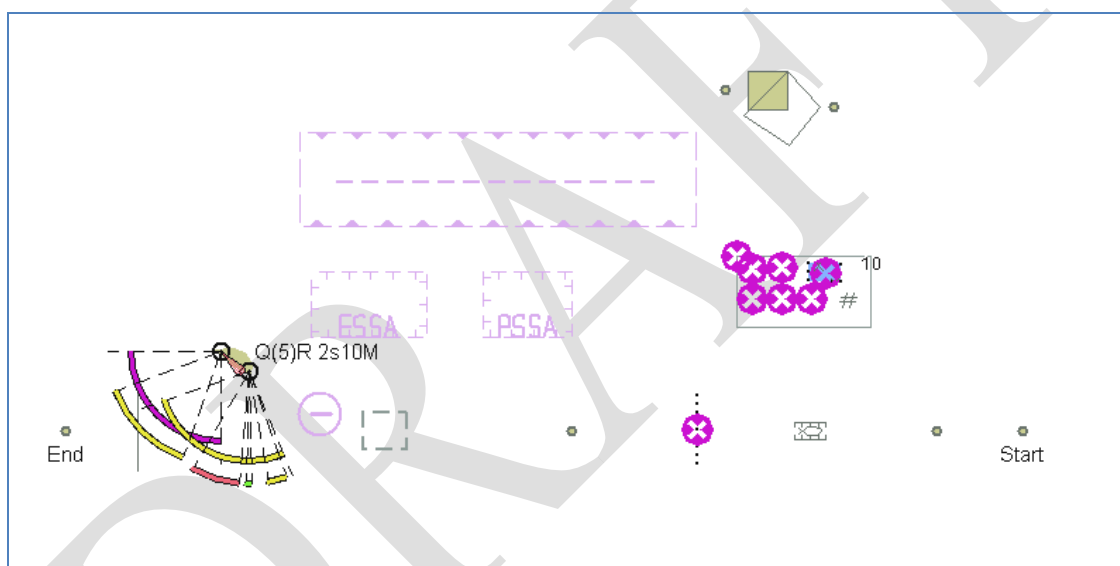When you load the three test data cells, the ECDIS display should look something like this:

Figure 1 – Test Data

<u>Removing the Test Data</u>

Select the cells AA2TDS02; AA5TDS05 and AA5TDS52 and simply delete them.

ECDIS Display Settings for the Test

Before performing the tests ensure that the ECDIS display settings are as follows.

Display Mode:	STANDARD
Text Display:	On – set to display all text attributes
Safety Contour:	Default values are suitable to begin the tests
Safety Depth:	Default values are suitable to begin the tests
Scale:	1:50,000 – 1:100,000 (3 or 6 NM radar range scale)

Once the display is centred on approximate position 43º 49'.0N 068º 58.5'E, the objects shown in figure 1 should be visible.

Test 1 -   Display of Archipelagic Sea Lanes, Environmentally Sensitive Sea Areas and Particularly Sensitive Sea Areas

The test data contains an Archipelagic Sea Lane (ASL) bounded by the following coordinates:

<div align="center">

43º 50'.020224N

068º 56'.140272E   068º 59'.422872E

43º 49'.460286N

</div>
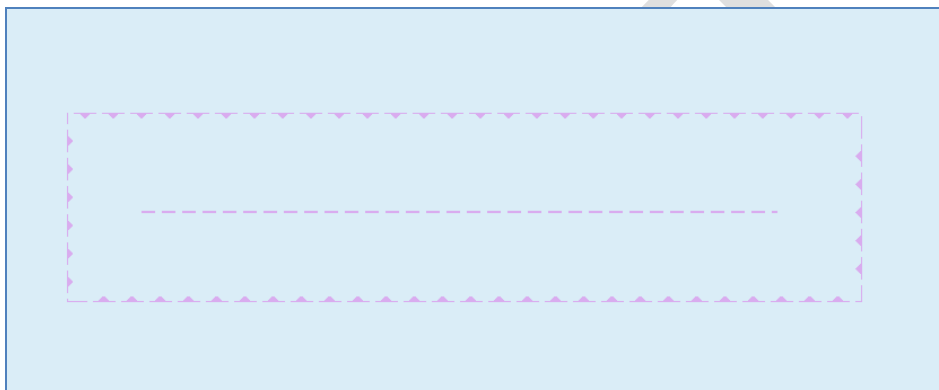
The ASL should look like this:

Figure 2 – The Archipelagic Sea Lane should look like this

The test data contains an Environmentally Sensitive Sea Area and a Particularly Sensitive Sea Area bounded by the following coordinates:

ESSA:

<div align="center">

43º 49'.190286N

068º 56'.236956E   068º 57'.194574E

43º 48'.803580N

</div>

PSSA:

<div align="center">

43º 49'.190286N

068º 57'.659568E   068º 58'.396194E

43º 48'.803580N
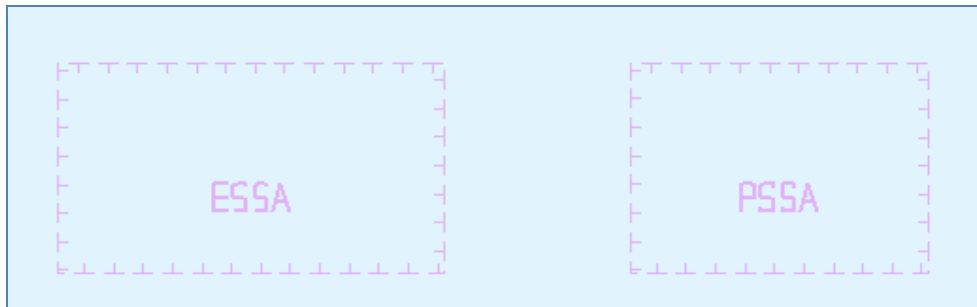
</div>

The ESSA and PSSA should look like this:

Figure 3 – The ESSA and PSSA should look like this

An ECDIS that is unable to display ASL, ESSA and PSSA correctly may display the boundaries as dashed lines with question mark symbols.

Questions to answer:
Do the ASL, ESSA and PSSA display as shown in diagrams 2 and 3?
YES   no further action required.
NO   Your ECDIS software may not be following the latest IHO standards – you should contact the manufacturer or an appropriate equipment maintenance company for clarification.

Test 2 - Display of NEWOBJ

So that new chart objects can be included in ENCs in the future without needing to change the IHO Presentation Library, the IHO has included a chart data object called "NEWOBJ" (new Object). An example has been included in the test data.

In this example, as well as a black 5mm square, there should also be a display of text that reads "Presentation Library 3.4". Ensure that all the text options on the ECDIS are switched on to display this text.

The "NEWOBJ" at position 43º 48'.938814N   068º 59'.405010E should look like this:
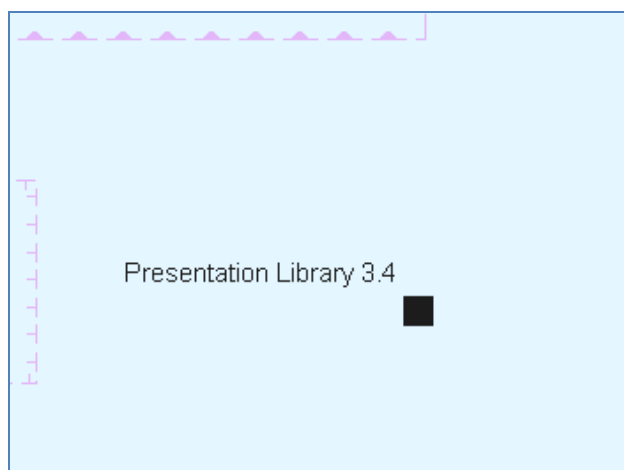

Figure 4 – The "NEWOBJ" object should look like this

Questions to answer:

Does the "NEWOBJ" object display as shown in diagrams 4, including the text "Presentation Library 3.4"?

YES   no further action required.

NO   Your ECDIS software may not be following the latest IHO standards – you should contact the manufacturer or an appropriate equipment maintenance company for clarification.

Test 3 – Complex Lights

The test data includes two lights located on a small land area. In both positions, the data indicates two sectored lights, mounted vertically, one above the other. As in this case, where there are two sectored lights at the same position, the arcs for each sectored light should be separated by 5mm as shown on the illustration below.

With the "text" option activated in ECDIS, the light characteristics should be visible. The NW light has a signal period of 2.5 seconds and a nominal range of 10.4NM. Some ECDIS round the period and range down to the nearest whole number so this may display incorrectly as: "Q(5) R2s 10M".
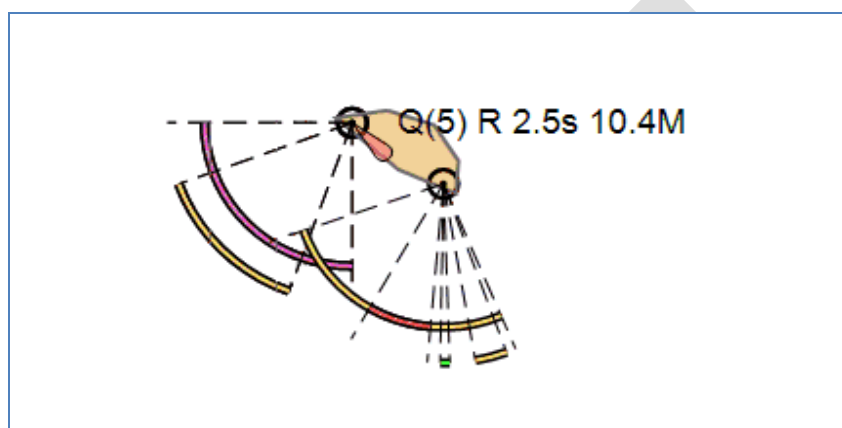
The correct display should look like this:

Figure 5 – The complex light should look like this

Questions to answer:

Are the light sectors shown as two arcs 5mm apart and radiating from the light position, as indicated in diagram 5?

YES   no further action required

NO   You should inform your ECDIS manufacturer that you suspect that the characteristics for complex lights are not being displayed in your ECDIS in accordance with the latest IHO standards

        In the meantime, you should take note of how complex lights are being displayed in your ECDIS.

Does the light characteristics indicate "Q(5) R2.5s 10.4M" as shown in diagram 5?

YES   no further action required

NO   You should inform your ECDIS manufacturer that you suspect that the characteristics for complex lights are not being displayed in your ECDIS in accordance with the latest IHO standards

        In the meantime, you should take note of how complex lights are being displayed in your ECDIS.

Test 4 – Obstructions and Isolated Dangers

The display of obstructions and isolated dangers in ECDIS is complex. Unfortunately, not all ECDIS equipment performs as intended by the IHO Standards. This test is intended to confirm that the more common display issues are not present in your ECDIS. For this test, the ship's safety contour/depth should initially be set to 10m and the display should be set to "Standard Display".

There are eight objects within the 10m depth area. Seven objects should be displayed as isolated dangers when the ship's safety contour is set to 10m.

One of the isolated dangers has a sounding value of 8.5m. When the safety contour/depth is set to 8m this danger should still be displayed.

With the ship's safety contour/depth set to 10m, the correct display should look like this:
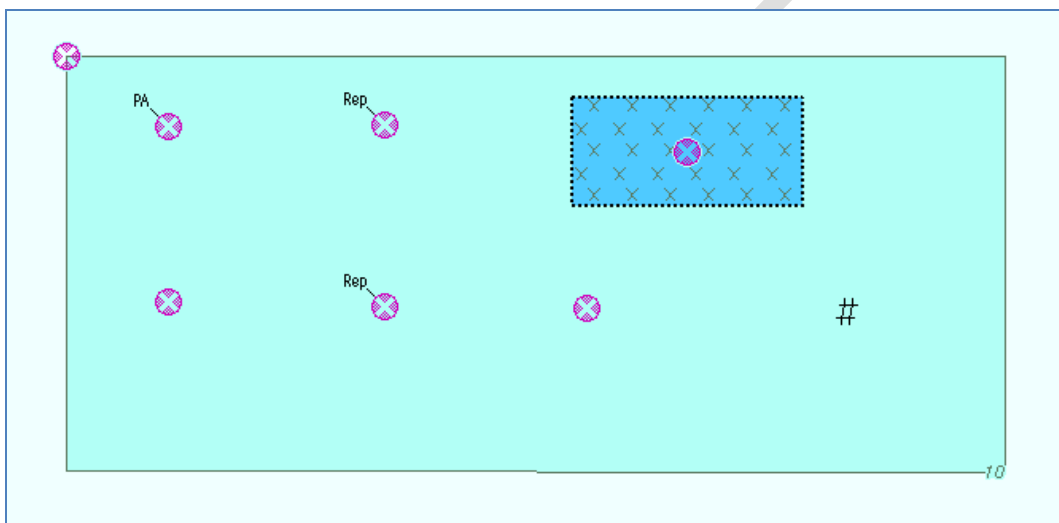

Figure 6
– with the safety contour set at 10m, the obstructions should look like this

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Questions to answer:

With the ship's safety contour/depth set to 10m, do the obstructions display as shown in diagram 6?

YES   no further action required

NO   You should inform your ECDIS manufacturer that you suspect that obstructions and isolated dangers are not being displayed in your ECDIS accordance with the latest IHO standards.

           In the meantime, you should take note of how obstructions and isolated dangers are being displayed in your ECDIS.
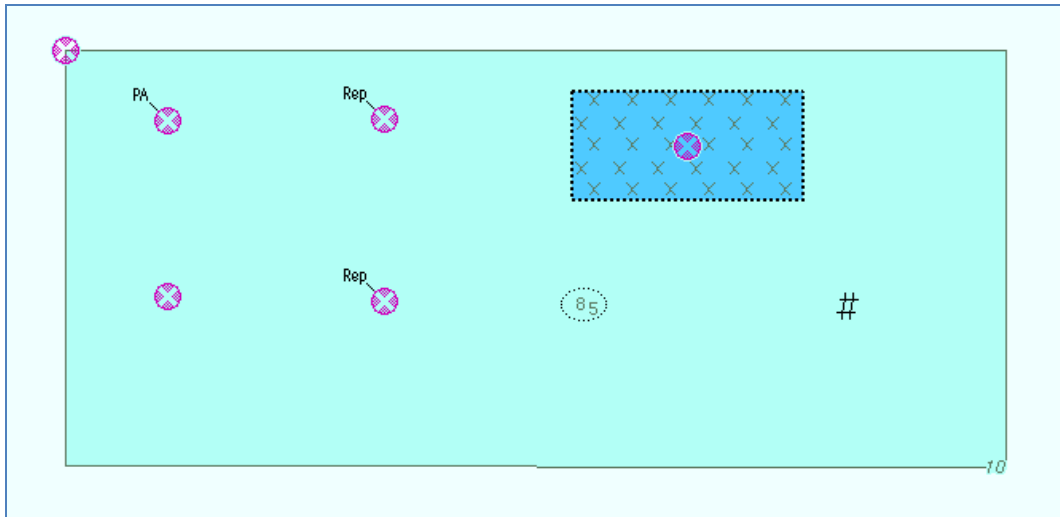
Figure 7
– with the safety contour set at 8m, the isolated danger (8.5m) should look like this

With the ship's safety contour/depth set to 8m, does the isolated danger with a depth of 8.5m display as shown in diagram 7?
YES   no further action required
NO   Your ECDIS software may not be up to date – you should contact the manufacturer or an appropriate equipment maintenance company

Test 5 – Route Checking

Some ECDIS equipment does not raise alarms or indications when it is using ENC data at certain scales, even though the latest standards intend that it should raise alarms at all scales.

The test data contains six chart objects all of which should trigger an alarm when a route between "Start" and "End" is planned and then checked. The test objects are (from east to west).

1. A point land area contained in a small scale (usage band 2) ENC cell

2. A marine aquaculture point object

3. A line obstruction with an undefined value of sounding

4. A point land area contained in a large scale (usage band 5) ENC cell

5. A territorial sea area marked as "Area to be avoided"

6. A line land area contained in a small scale (usage band 2) ENC cell

The test objects are located in a straight line between the point land areas (which look like very small round islands) named as "Start" and "End" in the diagram below:
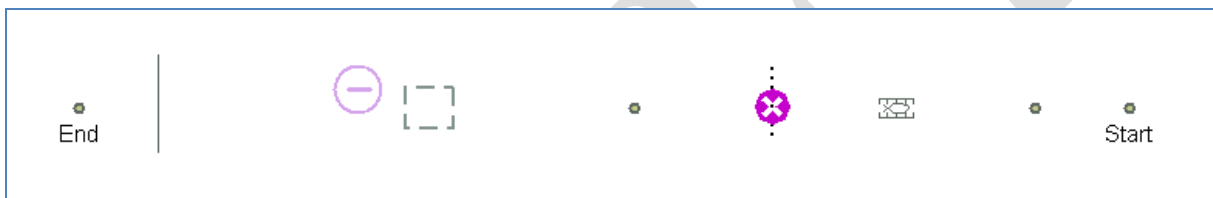

Figure 8 – Chart features that should raise a warning during route checking mode

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Questions to answer:

Do all six chart objects on the route raise a warning when you check the direct route between "Start" and "End"?

YES   no further action required from you

NO   You should inform your ECDIS manufacturer that you suspect that not all navigational hazards required by the latest IHO standards are being detected.

           In the meantime, you should take note of which objects do not raise a warning. You will have to check for these (and there may be others) by visual inspection until your ECDIS software is upgraded.

Test 6 – Overlapping Data

The test data includes two overlapping cells (AA5TDS05 and AA5TDS52) that use the same Navigation Purpose Code (usage band 5). This will test how well your ECDIS equipment handles overlapping or duplicate data. Some ECDIS equipment does not handle duplicate or overlapping ENC data very well. In some ECDIS, both sets of data can be seen, in other cases, one set of data obscures the other.

One overlapping cell has a large square land area and a very small point land area to its west. The other overlapping cell has a large diamond land area with a very small point land area to its east. Zoom in and out to see if there are changes to what data you see.

land areas in cell AA5TDS05   land areas in cell AA5TDS52

Figure 9

Take note of what your display shows. Are you seeing all the data that is available in both ENC cells? Can you see both of the large land areas and the small point land areas?

Questions to answer:

Do you see the square, the diamond and both of the small point land areas?

YES   Take note that you are able to see two overlapping ENCs at the same time. However, also note that this may result in a confusing display, especially if the data has been issued by different Hydrographic Offices and is not identical in every way.

NO   You should take note of the fact that whenever there is overlapping or duplicated ENC data in your ECDIS, you may not be able to see all the available data and your ECDIS may not react (raise warnings) on some of the "obscured" data.

         If you become aware that two ENC Producers (Hydrographic Offices) are issuing overlapping data, you should inform the relevant Hydrographic Offices and the IHO.

FEEDBACK FORM

ECDIS Data Presentation Test for Ships

This report will enable the IHO and other ECDIS Stakeholders to provide a general report to the IMO and to ECDIS manufacturers.

If, as a result of the tests, any operational deficiency is observed, then mariners should contact the manufacturer or service agent directly to seek assistance.

Date tests performed: ………………….

ECDIS manufacturers name: …………………………………………………..

ECDIS model number or type designator or version number
(for example *ACME Navigator 200B*): …………………………………………………..

Report of Test Results:

Test 1 - Display of Archipelagic Sea Lanes, Environmentally Sensitive Sea Areas and Particularly Sensitive Sea Areas

Did the ASL, ESSA and PSSA display as shown in diagrams 2 and 3?

YES   NO

Test 2 - Display of NEWOBJ

Does the "NEWOBJ" object display as shown in diagrams 4, including the text "Presentation Library 3.4"?

YES   NO

Test 3 – Complex Lights

Are the light sectors shown as two arcs 5mm apart and radiating from the light position, as indicated in diagram 5?

YES   NO

Test 4 – Obstructions and Isolated Dangers

With the ship's safety contour/depth set to 10m, do the obstructions display as shown in diagram 6?

            YES   NO

With the ship's safety contour/depth set to 8m, does the isolated danger with a depth of 8.5m display as shown in diagram 7?

            YES   NO

Test 5 – Route Checking

Do all six chart objects on the route raise a warning when you check the direct route between "Start" and "End"?

            YES   NO

Test 6 – Overlapping Data

Do you see the square, the diamond and both of the small point land areas?

            YES   NO

Any other Comments

If you have any other comments to make about the performance of your ECDIS in relation to the IHO standards, please include them here.

Send the completed form to:

International Hydrographic Bureau
4, quai Antoine 1er
BP 445
MC 98011
MONACO Cedex
Principaute de Monaco

Fax: +377 93 10 81 40

email: info@ihb.mc

website: www.iho.int