



**IHB File No. S3/8152**

**CIRCULAR LETTER 28/2005  
14 March 2005**

## **EVALUATION OF THE USE OF ECDIS AND ENC DEVELOPMENT**

### References:

- A. CL 50/2004 dated 13 July 2004
- B. CL 68/2004 dated 12 October 2004
- C. CL 9/2005 dated 19 January 2005

Dear Hydrographer,

The IMO Sub-Committee on Safety of Navigation at its 50<sup>th</sup> Session (NAV 50) invited the IHO to evaluate if and to what extent coastal waters are adequately covered by RNC in relation to safety of navigation and to evaluate the extent of worldwide ENC coverage and to report its findings to NAV 51 in June 2005. Consequently the IHB consulted MS at References A, B and C. NAV 50 also established a Correspondence Group (CG) to consider these matters with TOR as set out in Annex A to Reference A. The CG considered it necessary to have a meeting in order to reach consensus and the IHB was pleased to be able to host this meeting on 27 and 28 January 2005. The IHB provided a preliminary report to the CG based on the results of the survey of MS carried out by References A and B. At Reference C, the IHB asked for further updates to the IHO database on ENC availability in order to ensure the validity of the final report to be made to NAV 51. MS comments in response to Reference A are attached at Annex A. Reference A was also circulated as an IMO Circular and 3 responses from non IHO MS were received; these are shown at Annex B.

The CG has prepared its final report to NAV 51 (NAV 51/6) and a copy has been placed on the IHO web site from where it can be downloaded ([www.iho.shom.fr](http://www.iho.shom.fr)) > INT Organizations > IMO.

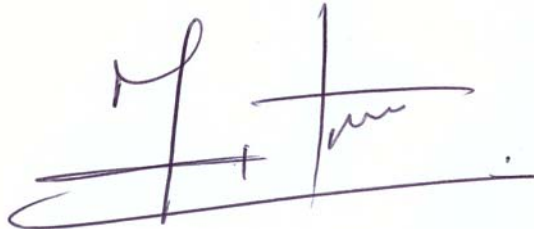
The CG make the following proposals in their report; the full details of which can be seen in the report:

1. The phasing in of compulsory carriage requirements for ECDIS.
2. A definition of an “appropriate portfolio”:
3. A recommendation that the IHO should maintain an on-line catalogue of RNCs, ENCs and requirements for paper chart backup.

4. An invitation to IMO coastal MS to determine, in consultation with their hydrographic authorities, the paper charts required for backup and to inform the IHO accordingly and
5. To consider the need to review SN/Circ.207 to ensure consistency with the proposed clarifications for “an appropriate portfolio of paper charts”.

Based on the replies received in response to the References the IHO has prepared its report to NAV 51 and a copy of this can be viewed on the IHO web site at [www.iho.shom.fr](http://www.iho.shom.fr) > INT Organisations > IMO.

On behalf of the Directing Committee  
Yours sincerely,

A handwritten signature in dark ink, consisting of a large, stylized 'M' followed by a horizontal line and a vertical line, with a smaller signature to the right.

Vice Admiral Alexandros MARATOS  
President

Annex A. MS comments in response to CL 50/2004

Annex B Non MS comments in response to the IMO Circular

**Replies to CL50/2004 - Evaluation of the use of ECDIS and ENC Development.**

**Questions are written below and thereon repeated numerically only.**

**Question 1** - Does your Maritime Safety Agency (MSA) accept the use of ECDIS in RCDS mode for navigation in all, part or none of the waters under their jurisdiction?

**Question 2** - Additional Information

**Question 3** - What are your views regarding the creation of a world-wide chart catalogue for ENCs, RNCs and paper charts used as back up and for the IHO to undertake the responsibility of establishing and maintaining it on behalf of the IMO?

**Question 4** - Any other comments?

**ALGERIA**

- 1) NONE
- 2) An adequate spare paper chart coverage is compulsory in all waters under the jurisdiction of the national MSA
- 3) The creation of this chart catalogue will make it easier for navigators to make their choice of an itinerary and chart, allowing for a more safer navigation in the waters. We have no objection to the IHB holding the catalogue and keeping it up to date, however, certain questions must be looked at (finances and feasibility, etc...)
- 4) -

**ARGENTINA**

- 1) ALL
- 2) When the ECDIS be used in RCDS mode, an essential copy of the paper chart at the adequate scale should be included. Paper charts will include the planned track and the positioning of the ship in such charts should be updated with the necessary frequency as to assume the ECDIS functions in safe way.
- 3) We agree
- 4) The RCDS mode has to be used only when the ENC is missing. The RCDS mode should be used prudently, using the same shipping rules as for the paper charts.

**AUSTRALIA**

- 1) ALL
- 2) However, AMSA will permit Australian Registered ships within near coastal waters (defined as being inside the Australian Exclusive Zone) to use ECDIS in RCDS mode without paper chart backup, so long as a safety case (risk assessment) is presented to AMSA. For all other ships AMSA requires ECDIS as per IMO performance standards with associated back-up arrangements.
- 3) -
- 4) -

**BAHRAIN**

- 1) ALL
- 2) The MSA of Bahrain relies on the classification societies rules and regulations for acceptance.
- 3) Bahrain endorses the proposal.
- 4) -

**BRAZIL**

- 1) NONE
- 2) We believe that the use of RCDS will inhibit S-57 mode production, and therefore , restrict the potential use of ECDIS as a multifunctional database.
- 3) We believe that this is a good way to provide information to interested States and indirectly to permit a panoramic view of States hydrographic development in order to organize capacity building support. Additionally, IHO is the competent organ to treat subjects such that, and must be the consultative authority in navigational charts.
- 4) -

**CANADA**

1) PART

2) RCDS mode can be used where ENC coverage is not available

In RCDS mode, the paper chart is required for backup.

Alternative requirements for non-SOLAS vessels (eg: smaller, domestic) will likely be investigated in the future, which may include allowing RCDS to be used as back-up (ie, no paper chart back-up requirement).

3) This would be a highly desirable and relevant task for the IHO to undertake. Such a centrally managed product would be a great service to mariners and chart portfolio managers.

4) IHO could contract out the production and maintenance of this catalogue.

**CHILE**

1) NONE

2) -

3) The development of an ENC catalogue along with RNCs and paper charts will be a great benefit to the whole international maritime community.

4) -

**CHINA**

1) NONE

2) -

3) China supports IHO to undertake the responsibility of establishing and maintaining a world-wide chart catalogue for ENCs, RNCs and paper charts used as back up, on behalf of the IMO, because it is good for mariners and other interested parties to get the available information of official digital charts and paper charts.

4) -

**COLOMBIA**

1) ALL

2) Colombia agrees provided that a safety copy of the paper chart is carried in board only until the official ENCs be available.

3) It is very important, as this is a way of informing about the cartographic coverage (ENCs, RNCs and paper charts) of an IHO and an IMO Member State.

4) -

**CROATIA**

1) ALL

2) Croatian MSA accepted the use of ECDIS in RCDS mode for navigation in all waters and implemented it in the Technical Regulation of the Croatian Register of Shipping (Part 16. Aids for Navigation) clearly indicating the requirement for paper chart back up in case of the use of ECDIS in RCDS mode.

3) Croatia supports the creation of worldwide chart catalogue under responsibility of the IHO on behalf of the IMO.

4) -

**CYPRUS**

1) No box ticked

2) The subject is discussed amongst the maritime authorities in Cyprus, but no decision has been taken yet.

3) Cyprus agrees for the creation of a world wide catalogue and the IHO to maintain it.

4) -

**DENMARK**

1) NONE

2) -

3) Excellent idea. It will be a tool that can help increase safety of navigation.

4) -

**ESTONIA**

- 1) NONE
- 2) All waters under Estonian jurisdiction are covered with ENC and there is no need to use ECDIS in RCDS mode.
- 3) Estonia strongly supports the ideas of creation of a world-wide chart catalogue and IHO would be the best institution to establish and maintain it.
- 4) -

**FINLAND**

- 1) NONE
- 2) -
- 3) This kind of catalogue would be useful. If it is established, then the IHO should take responsibility of it.
- 4) -

**FRANCE**

- 1) None
- 2) The question is ambiguous. It seems to deal with the possible statutory use of ECDIS in RCDS mode without paper charts onboard, whereas the international law (IMO and IHO) states that it is compulsory to carry both onboard at the same time. Countries which do not tick the NONE box and which have signed the SOLAS Convention (chapter V) are in contradiction with themselves.
- 3) Regarding a worldwide portfolio of electronic charts, it is unnecessary to list all the raster charts available. Unlike ENC for which the WEND principles foresee a uniqueness at source, there can be several raster charts of the same area, as long as they are official and kept up to date there is no reason to retain one series rather than another.

Also, with each ENC creation, there is no need to distribute a Raster substitution chart, therefore it would be advisable to regularly adjust the raster charts list and withdraw those where ENCs are available.

In the medium term the only worthwhile raster charts will be those where no ENC creation is planned: should an RNC catalogue be created, only this category of raster charts should be included.

As for paper charts, there are two topics to deal with: the composition of the paper chart portfolio to use in conjunction with the ECDIS in RCDS mode and the composition of paper charts having to be carried in case of a deficient ECDIS system. The task could be given to the INT Chart groups of the Regional Hydrographic Commissions rather than creating specific bodies .

- 4) The bridge equipment should only use official nautical information and exclusively ENCs or charts in the zones covered by ENCs.

**GERMANY**

- 1) NONE
- 2) Germany is only accepting the use of ECDIS in RCDS mode in German waters where ENC are not available (as required by the PS) and under the conditions established by the Flag-State concerned. At the end of this year ENCs will be available for all German Waters.
- 3) -
- 4) -

**GREECE**

- 1) ALL
- 2) In case of use in RCDS mode, paper chart back up is obligatory.
- 3) A world-wide chart catalogue could be proved very useful for navigators. IHO is the proper body for the establishment of this catalogue.
- 4) -

**ITALY**

- 1) NONE
- 2) The Italian MSA has been informed by the Italian HO that all the waters under their jurisdiction is covered by ENCs.
- 3) We agree with this proposal.

4) -

**JAPAN**

1) NONE

2) -

3) IHO is the most suitable organisation for establishing a world-wide chart catalogue for both digital and paper charts, in order to improve world-wide user's convenience.

4) - A chart catalogue should be produced and maintained by the state which produces the charts. We propose that the IHO should establish and maintain a world-wide chart catalogue by the method as follows:

- the IHO recommends all MS which publish charts to establish and maintain a catalogue on the web sites of the states.
- The IHO links the IHO web site to the sites above mentioned
- The IHO collects the information of the charts of the states which do not have the web sites and non member states and put them on the IHO web site.

We believe this method will make the IHO play a role sufficiently.

**KOREA (Rep of)**

1) NONE

2) -

3) We consider that the ENC Catalogue has been established on the IHO web site, so it could be maintained by the IHB on behalf of the IMO. Also a catalogue for paper charts will be necessary for the purpose of back up, but our institute does not agree with the RNC catalogue.

4) -

**MONACO**

1) NONE

2) This reply is coherent with the ratification of the SOLAS Convention

3) The task appears to be fairly complicated and large for the IHB to manage. Three files will have to be generated in parallel with permanent updates with each creation or change of category.

4) -

**NETHERLANDS**

1) PART

2) Only ECDIS in RCDS mode is accepted for navigation using official RNCs when official ENC do not exist. When complying with other conditions as stated in SLS14.Circ/191 there is no additional requirement for paper chart back up.

3) -

4) There is a minor difference with an earlier response by the HO of the Netherlands to a similar questionnaire by IHO to the HOs. As use of ECDIS in RCDS mode is not allowed in those areas where ENC do not exist the answer should be PART. Those areas without ENC coverage in the NL are small, only the approach to the port of Harlingen and Delfzijl and some inland waters used by maritime vessels.

**NEW ZEALAND**

1) NONE

2) New Zealand's MSA Regulations (Maritime Rule Part 25) requires the carriage of paper charts either as the main source for marine navigation, or as back up to an ENC as part of an ECDIS. The NZ MSA does not accept the use of ECDIS in RCDS mode as the main source for navigation. This regulation may require a change to include RCDS as a result of amendments to IMO resolution A.817 (19) through Resolution MSC. 86(70).

NZ MSA has no real issue with ECDIS in RCDS mode but ECDIS using ENC with paper back up is the preferred option, with RCDS being the second tier of preference. Noting that RCDS is the cheaper option the MSA will rely on LINZ's long-term strategies on ENC and ECDIS before translating this into legislature.

3) A very good idea as it will show the APPROVED charts for an administration area of responsibility. It will need, however, some form of criteria detailed to ensure that there is no uniformity of authorised charts across various countries. This is especially important for emerging countries.

4) Although New Zealand does not at present consider that RNC or ENC can replace paper charts without paper chart backup, once sufficient approved ENCs are available to industry, that policy may need to be reviewed. NZ does not have any comments to add regarding the Terms of Reference for the NAV 50 Correspondence Group.

#### **NORWAY**

1) NONE

2) Two thirds of the Norwegian coast is covered by ENCs in the main chart series over coastal waters, by date, full coverage will be obtained by 2007.

Reference is further made to IMO SLS. 14/Circ. 174 where the Government of Norway gives notification of acceptance of the following equivalent arrangements under the provision of regulation I/5 in SOLAS: - "Ships are fitted with an ECDIS, type approved in accordance with relevant international standards, with adequate back-up arrangements are accepted as meeting chart carriage requirements of SOLAS Regulation V/20 when sailing in waters covered by officially issued Electronic Navigational Charts (ENC).

3) Norway fully supports the creation of a worldwide catalogue for chart requirements in coastal waters and recognises IHO as the competent Organisation to establish and maintain such a catalogue on behalf of IMO as the competent authority on maritime safety.

4) IHO Member States should ensure full harmonisation in the production of ENCs especially in the border zones between different countries, and to facilitate the production of ENCs in international waters.

#### **SINGAPORE**

1) ALL

2) On condition that ENCs must be used where available. RNCs to be used as an interim solution only. A timeline for the use of RNCs should be set.

3) -

4) -

#### **SLOVENIA**

1) ALL

2) Slovenian MSA does not require paper chart back up. As long as there are updated electronic charts (raster or vector) they are sufficient for the navigation through Slovenian national waters.

3) We support the idea of creating the catalogue and also that the IHO would maintain it. Of course Member States should report to the IHO about their updated chart catalogues in regular intervals (for instance once a month or when the catalogue is changed). We would also suggest that the list of available Regional ENC (RENC) centres should be added to the catalogue as a reference to which charts are available at each RENC centre. This would ease mariner's search for charts.

4) Since the advantages of the ENC (vector chart) to RNC (Raster chart) is well known, we appeal to all Member States (and other countries) to increase production of ENC cells for their waters, and give them to RENC centre for distribution. Also, there should be more RENC centres established for the worldwide distribution of electronic charts, so the mariners would be in a position to acquire all charts for their voyages in one place-hopefully from one single RENC centre of their choice.

#### **SOUTH AFRICA**

1) NONE

2) Full paper chart back up required

3) Supported as it will assist Mariners with passage planning. If it forms part of the chart catalogue for ENCs as the single data base it will be the most user-friendly option.

4) -

#### **SWEDEN**

1) NONE

2) Up to date paper charts or up to date ENCs on ECDIS for the intended voyage. ECDIS on bridge – as back-up a second ECDIS on independent energy source or an appropriate portfolio of up to date paper charts. The use of private charts or ECSs are not for navigation. Raster charts are not for navigation. When sailing in waters not covered by ENC charts or when no up to date ENC charts are available on board, up to date paper charts for the intended voyage must be used.

3) From the Swedish MSA point of view such a chart catalogue is not needed, but if IHB find establishment of such a catalogue appropriate for the cooperation between IHO and IMO, Sweden has no objection.

4) -

#### **TURKEY**

1) ALL

2) Turkey supports the use of RCDS mode of ECDIS for navigation in all the waters under its jurisdiction and the appropriate portfolio of paper charts as back up unless Turkey provides the ENC's for its waters.

3) Turkey supports the creation of a world-wide chart catalogue for ENC's, RNC's and paper charts used as back up and for the IHO to undertake the responsibility of establishing and maintaining it on behalf of the IMO.

4) -

#### **UKRAINE**

1) NONE

2) -

3) We support the creation of a world-wide chart catalogue for ENC's and paper charts used as back up, but we consider inadvisable to develop systems of RNC's because of their unpromising nature. We believe that IHO is able to establish and maintain such catalogue on behalf of IMO.

4) -

#### **UNITED KINGDOM**

1) PART

2) UK Maritime and Coastguard Agency (MCA) fully supports the use of RCDS mode to meet carriage requirements in accordance with the ECDIS Performance Standard [A817(19)] as amended. The appropriate folio of paper charts to be carried by a vessel navigating in RCDS mode is determined through a formal risk assessment process undertaken by the shipping company, in accordance with the detailed guidance contained in Marine Guidance Note (MGN) 194. Where ENC coverage of a suitable scale for navigation is available within waters of the UK jurisdiction (or elsewhere) then RCDS mode should not be employed to meet carriage requirements. UK has ENC coverage of its national waters in several navigational purpose bands; however there are some lesser used ports and regions where the largest scales are not available; for these areas ECDIS may be used in RCDS mode. UK believes that the NAV Correspondence Group will need to take care in interpreting the results of this question which takes a 'Port State' view of the RCDS issue. The answers are likely, in the main, to be a reflection of the ENC coverage available within their national waters. It is quite possible for an Administration to accept RCDS operation for its Flag registered vessels for areas where ENC's are not available; even though this might not be applicable within their national waters.

3) IHO already maintains a catalogue of ENC's and it would be possible to extend this to include RNC's-however for clarity it should only show these where ENC's are not available. Such a catalogue would be a useful aid to the mariner. However, UK believes that it would be a much more difficult task to show paper charts that may be used as back up due to the lack of an internationally agreed interpretation of the requirements. If the Correspondence Group is able to resolve this issue then the inclusion of paper charts may be feasible; however the task of populating and updating such a catalogue should not be underestimated.

4) -

#### **USA (NOS)**

1) ALL

2) The official regulations of the United States Coast Guard, which is responsible for regulating and enforcing carriage requirements, were written prior to the use of electronic charts. They are in the process of being updated, but until then, the Coast Guard has issued a policy statement that where SOLAS and existing US regulations conflict, SOLAS prevails. So essentially, foreign vessel entering US waters can use ECDIS, but when used in RCDS mode, paper chart back up is required.

3) The United States supports the position that the IHO should create and maintain a world wide chart catalogue for ENC's, RNC and paper charts used as back up.

4) None.



**Response from IMO non IHO Member States**

**Note Question 3 was not asked on the IMO Circular**

**Bulgaria**

- 1) All
- 2) The Bulgarian Maritime Administration accepts the use of ECDIS in RCDS mode for navigation in all sea areas under the jurisdiction of the Republic of Bulgaria, subject to paper charts back-up.
- 4) -

**Lithuania**

- 1) All
- 2) We Lithuanian Maritime Safety Administration are accepting all charts (in any form). If vessel is using ECDIS in RCDS mode, then back up on paper charts is requested.
- 4) -

**Qatar**

- 1) None
- 2) Port Authority and Recognized Organizations require up to date Paper Charts on board as a prime Aid to Navigation. Private Charts Raster Charts and other modes are not approved for Navigation in waters of Jurisdiction.
- 4) ECDIS is acceptable provided a second independent back up is available.