



# The Bahamas Maritime Authority

## **BMA INFORMATION BULLETIN No. 51**

### **ECDIS, Nautical Charts and Publications: Carriage and Updating Requirements**

#### **Guidance and Instructions for Ship-owners, Managers, Masters, Bahamas Recognised Organisations and Bahamas Approved Nautical Inspectors**

*Note: This Bulletin is to be read in conjunction with MSC.Circ/232(82) & IMO Resolution A.817 (19), Safety of Navigation Circular 207 and Safety of Navigation Circ.276. This Bulletin incorporates former BMA bulletin 18 which is withdrawn.*

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1. All Bahamian registered ships to which Regulation 19 of Chapter V of the SOLAS Convention applies are required to carry nautical charts and publications as per SOLAS V/27.
  2. Paper nautical charts and publications carried under the requirement of 1 above are to be kept corrected to the latest edition of Notices to Mariners. The Notices to Mariners are to be maintained onboard the vessel and are issued in paper form by the hydrographic authorities producing the navigational charts and publications.
  3. Notices to Mariners are now also available in an electronic format and may be distributed directly to the vessel by various mediums by authorised chart agencies on the authority of government authorised hydrographic offices.
  4. Many ships are now carrying SOLAS required documentation in an electronic format.
  5. The BMA considers the carriage of SOLAS required documentation in an electronic format as being equivalent to the carriage of paper documentation as follows:

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**Equivalence regarding digital Electronic Navigational Charts, Raster Navigational Charts, Nautical list of lights and other Digital Nautical Publications**

- i The charts and publications must be issued officially or otherwise authorised and approved by a SOLAS Contracting Government;
  - ii The products must meet the requirements of marine navigation;
  - iii The products must be kept up to date; and adequate back-up (see below) must be provided so that the safety of navigation is not compromised.
  - iv Local electronic versions of charts and publications issued by a third party pertaining to geographical areas of a country may be accepted if that third party regularly receives official data and updates to its charts and publications from a SOLAS Contracting country.
  - v The assessment of the acceptability for use onboard for the above electronic products should be carried out by the Company, taking into account the above guidance on equivalence.
6. Regulation 19 of SOLAS 1974, as amended, Chapter V accepts carriage of an electronic chart display and Information system (ECDIS), which conforms to the performance standards for electronic charts. The Bahamas recognises that ECDIS satisfies the chart carriage requirements of SOLAS 1974, as amended, Ch V Regulation 19.2.1.4
7. For the purposes of compliance with SOLAS 1974, as amended, Ch V Regulation 19.2.1.5 the following back-up arrangements are deemed acceptable for Bahamian registered ships:

<b>Primary System</b>	<b>Back-up arrangement</b>
ECDIS operating with electronic navigational chart (ENC) mode	<b>Either</b> a 2 <sup>nd</sup> independent ECDIS, which has a separate power supply and data input, operating with electronic navigational chart (ENC) mode.  <b>OR</b> Paper charts (adequate and up to date) for intended voyages.
ECDIS operating in the Raster Chart display system (RCDS) mode.	Paper Charts (adequate and up to date) for intended voyages.

8. Masters should be guided by the limitations of RCDS as outlined in the attached IMO Safety of Navigation Circular.

**Electronic versions of Nautical Publications, List of Lights, Tide Tables and other Nautical Publications.**

- i. The electronic versions shall be issued officially by an Administration, authorised hydrographical organization or other relevant approved organisation.
- ii. The digital publications shall be available to the Officer of the Watch, without limitations, on the bridge.
- iii. The computer used shall be dedicated for information storage and retrieval and shall always be connected the emergency source of power required by SOLAS II-1/42 or II-1/43; and
- iv. For backup, the digital publications shall also be installed on another computer onboard, which shall also be made available to the OOW within a short period of time.



Ref. T2/6.01

SN/Circ.207  
7 January 1999

## DIFFERENCES BETWEEN RCDS AND ECDIS

1 The Maritime Safety Committee, at its seventieth session (7 to 11 December 1998), adopted amendments to the performance standards for Electronic Chart Display and Information Systems (ECDIS) to include the use of Raster Chart Display Systems (RCDS).

2 These amendments permit ECDIS equipment to operate in two modes:

- .1 the ECDIS mode when ENC data is used; and
- .2 the RCDS mode when ENC data is not available.

However, the RCDS mode does not have the full functionality of ECDIS, and can only be used together with an appropriate portfolio of up-to-date paper charts.

3 The mariners' attention is therefore drawn to the following limitations of the RCDS mode:

- 1 unlike ECDIS where there are no chart boundaries, RCDS is a chart-based system similar to a portfolio of paper charts;
- 2 Raster navigational chart (RNC) data, itself, will not trigger automatic alarms (e.g. anti-grounding). However, some alarms can be generated by the RCDS from user-inserted information. These can include:
  - clearing lines
  - ship safety contour lines
  - isolated dangers
  - danger areas
- 3 horizontal datums and chart projections may differ between RNCs. Mariners should understand how the chart horizontal datum relates to the datum of the position fixing system. In some instances, this may appear as a shift in position. This difference may be most noticeable at grid intersections and during route monitoring;
- .4 chart features cannot be simplified or removed to suit a particular navigational circumstance or task at hand. This could affect the superimposition of radar/ARPA;
- 5 without selecting different scale charts, the look-ahead capability may be somewhat limited. This may lead to some inconvenience when determining range and bearing or the identity of distant objects;

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- .6 orientation of the RCDS display to other than chart-up, may affect the readability of chart text and symbols (e.g., course-up, route-up);
  - .7 it may not be possible to interrogate RNC features to gain additional information about charted objects;
  - .8 it is not possible to display a ship's safety contour or safety depth and highlight it on the display, unless these features are manually entered during route planning;
  - .9 depending on the source of the RNC, different colours may be used to show similar chart information. There may also be differences in colours used during day and nighttime;
  - .10 an RNC should be displayed at the scale of the paper chart. Excessive zooming in or zooming out can seriously degrade RCDS capability, for example, by degrading the legibility of the chart image; and
  - .11 mariners should be aware that in confined waters, the accuracy of chart data (i.e., paper charts, ENC or RNC data) may be less than that of the position-fixing system in use. This may be the case when using differential GNSS. ECDIS provides an indication in the ENC which allows a determination of the quality of the data.
- 3 Member Governments are requested to bring this information to the attention of the relevant authorities and all seafarers for guidance and action, as appropriate.
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**IMO**

Ref. T2-OSS/2.7.1

SN.1/Circ.276  
10 December 2008

**TRANSITIONING FROM PAPER CHART TO ELECTRONIC CHART DISPLAY  
AND INFORMATION SYSTEMS (ECDIS) NAVIGATION**

1 The Sub-Committee on Safety of Navigation (NAV), at its fifty-fourth session (30 June to 4 July 2008), while developing draft carriage requirements for ECDIS, recognizing that proper training will be an important factor in the successful implementation of an ECDIS carriage requirement; and, notwithstanding the expectation that the current review of the STCW Convention and STCW Code, due for completion in 2010, will fully take into account the human element and training requirements necessary for a smooth transition from the use of paper charts to ECDIS, agreed that Administrations, seafarers, shipowners and operators, maritime training organizations and ECDIS equipment manufacturers would all benefit from corresponding guidance transitioning from paper chart to ECDIS navigation, whenever ships are first equipped with ECDIS, regardless of whether or not it is part of a mandatory carriage requirement.

2 The NAV Sub-Committee therefore developed Guidance on transitioning from paper chart to Electronic Chart Display and Information Systems (ECDIS) navigation, as set out in the annex.

3 The Maritime Safety Committee, at its eighty-fifth session (26 November to 5 December 2008), concurred with the Sub-Committee's views, approved the Guidance on transitioning from paper chart to Electronic Chart Display and Information Systems (ECDIS) navigation, as set out in the annex and encouraged their use by the relevant authorities.

4 Contracting Governments and international organizations are invited to bring the annexed Guidance to the attention of all concerned.

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## **GUIDANCE ON TRANSITIONING FROM PAPER CHART TO ECDIS NAVIGATION**

### **Introduction**

1 The following guidance and information is provided to assist those involved with the transition from paper chart to ECDIS navigation.

### **Transition and training**

2 As an initial step, shipowners and operators should undertake an assessment of the issues involved in changing from paper chart to ECDIS navigation. Ships' crews should participate in any such assessment so as to capture any practical concerns or needs of those that would be required to use ECDIS. Such a process will help facilitate an early understanding of any issues to be addressed and will aid ships' crews prepare for change.

3 Documenting the assessment of issues, combined with the development of ECDIS standard operating procedures, will help lead to the adoption of robust ECDIS navigation practices, simplification of crew training and facilitate smooth handovers between crews.

4 In addition, shipowners and operators should ensure that their ships' crews are provided with a comprehensive familiarization programme\* and type-specific training; and that the ships' crew fully understand that the use of electronic charts aboard ship continues to require the need for passage planning.

### **IHO catalogue of chart coverage**

5 The International Hydrographic Organization (IHO) provides an online chart catalogue that details the coverage of Electronic Navigational Charts (ENC) and Raster Navigational Charts (RNC) (where they exist and where there is not yet ENC coverage) together with references to coastal State guidance on any requirements for paper charts (where this has been provided). The catalogue also provides links to IHO Member States' websites where additional information may be found. The IHO online chart catalogue can be accessed from the IHO website at: [www.iho.int](http://www.iho.int).

### **Additional information**

6 In addition to national and international rules, regulations, the IMO model course and performance standards, the IHO has published an online publication *Facts about electronic charts and carriage requirements*. It is a recommended source of information on ECDIS hardware, training and the technical aspects of electronic chart data. Copies are available free of charge from various sources including: [www.iho.int](http://www.iho.int) and [http://www.ic-enc.org/page\\_news\\_articles2.asp?id=12](http://www.ic-enc.org/page_news_articles2.asp?id=12)

7 Another useful source of information on ECDIS is *The Electronic Chart*, 2nd edition, by Hecht, Berking, Büttgenbach, Jonas and Alexander (2006). This book describes the basic components, functionality and capabilities and limitations of ECDIS. *The Electronic Chart* is published by GITC, The Netherlands, ISBN: 90-806205-7-2 and is available via: [www.hydro-international.com](http://www.hydro-international.com).

8 Reference should also be made to other Safety of Navigation Circulars (SN/Circs.) issued by the Organization, in particular, SN/Circ.207/Rev. 1 on Differences between RCDS and ECDIS; SN/Circ.213 on Guidance on chart datums and the accuracy of positions on charts; SN/Circ.255 on Additional guidance on chart datums and the accuracy of positions on charts; and SN/Circ.266 on Maintenance of Electronic Chart Display and Information System (ECDIS) software. These and other IMO guidance material can be downloaded from the IMO website, [www.imo.org](http://www.imo.org).

9 Shipowners and operators should always refer to their national Administrations for the latest information on ECDIS carriage and use.

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