

**15<sup>th</sup> CHRIS MEETING**  
**IHB, Monaco, 10-13 June 2003**

**LEGAL STATUS OF RASTER CHART DISPLAY SYSTEM MODE OF ECDIS**  
*(June 2003)*

United States (NOAA)

1. Summary

<b><i>Executive summary:</i></b>	Use of ECDIS in the RCDS mode is subject to certain extra restrictions. Experience by mariners with raster charts show that these restrictions are unnecessary. This proposal would remove the extra restrictions.
<b><i>Actions to be taken:</i></b>	IHO submit an item for the IMO's Maritime Safety Committee recommending amendments to the ECDIS Performance Standard to remove the extra requirements on the RCDS mode of operation.
<b><i>Related documents:</i></b>	IMO Resolution A.817 (19) as amended by IMO Resolution MSC.64(67) including Appendix 7 IMO Resolution MSC.86 (70) IHO Special Publication No. 61

2. Introduction / Scope

An ECDIS operating in the RCDS mode has extra requirements placed on its use. Those requirements are:

- an "appropriate folio of up-to-date paper charts" must be used in conjunction with the raster navigational charts when operating in the RCDS mode; and
- the RCDS mode may only be used when official ENCs are not available.

Since these extra requirements were imposed, the world has gained 8 years of experience with raster navigational charts (RNCs) and their use. Thousands of different raster charts are available. Millions of copies have been sold. Based on this experience, it is clear that these precautionary, extra requirements are unnecessary and may safely be removed. Doing so would encourage mariners to use electronic navigation without compromising safety.

3. Analysis/Discussion.

The RCDS mode of operation was added to the ECDIS Performance Standard after that standard had been adopted. This action was taken to recognize the reality of a situation that had arisen from which mariners could benefit. The situation was the successful production of official Raster Navigational Charts by several hydrographic offices. These official RNCs were of high quality, were supported by official update services, and were usable in navigation software that evolved to be far more functional and practical than anticipated when the ECDIS Performance Standards were started.

The IHO, the Harmonizing Group on ECDIS, and the IMO's Navigation Safety Committee debated the safety, benefits, and the potential problems with RNCs. Results from sea trials and evaluations involving hundreds of mariners in several nations' coastal waters and on international voyages were considered, including results from the SHARED trials. The

conclusions were that the use of RNCs in an ECDIS was safe, and that it provided benefits to the safety of navigation when compared to the paper chart. Further, the availability of official RNCs and the ease of their production could provide benefits to mariners immediately while hydrographic offices continued to compile ENC.

As a result of this debate, Appendix 7 to the ECDIS Performance Standard was adopted permitting an RCDS Mode of Operation. The production of RNCs was optional for hydrographic offices. The use of RCDS, when permitted, was optional for mariners. The specification of an “appropriate folio of up-to-date paper charts” was left to each coastal state.

Some nations, however, remained unconvinced of the safety of RCDS because it had lesser capabilities than ECDIS using ENCs (full ECDIS). There was also concern that permitting RCDS would detract from the compilation of ENCs and from the adoption of full ECDIS by mariners. A compromise was reached in which 3 actions were taken:

- an “appropriate folio of up-to-date paper charts” was required when operating in the RCDS mode;
- the RCDS mode was permitted only when official ENCs were not available;
- IMO Circular SN/Circ.207, “Differences Between RCDS and ECDIS” was published 7 January, 1999.

The folio of paper charts was intended to compensate for the limited overview and lookahead capability of electronic charts, a limitation felt to be greater for RNCs than ENCs. The limitation on using RNCs only when ENCs were not available was to prevent RNCs from detracting from the adoption of full ECDIS. The IMO Circular was to alert mariners to the fact that the RCDS mode of operation did not offer the full capability of an ECDIS.

Since the debate on RCDS began, thousands of different RNCs have become available and millions of copies have been sold. Successful update services are in place. Mariners have gained significantly more experience with RCDS. Further, the impact of RCDS on ECDIS use and ENC production has been observed.

From this recent experience, it can be concluded that the precautionary, extra requirements placed on the RCDS mode of operation, and on the use of RNCs, are unnecessary. Concerning the “folio of paper charts”, nations choosing to produce RNCs have sufficiently good chart coverage to permit an RNC of smaller scale to provide adequate overview capability. This makes the need for an accompanying folio of paper charts unnecessary. Concerning the limit on using RCDS only when ENCs are not available, mariners are proving to be skilled enough with electronic navigation to select the tool most appropriate for the task at hand. The IMO Circular on the differences between RCDS and ECDIS has helped inform them of their options, and a general prohibition on the use of RCDS is inappropriate. Concerning the impact of RCDS on the commitment to ENCs and full ECDIS, there is simply no evidence of a nation’s ENC collection effort having been affected by the option to produce RNCs. Neither is there any evidence that the availability of RCDS has deterred mariners from adopting full ECDIS.

In light of these facts, the CHRIS is invited to reconsider the restrictions on the use of RNCs and the RCDS mode of operation of ECDIS; and to initiate action to remove those restrictions. The RCDS mode of operation has proven to be an enhancement to the safety of navigation in its own right, and mariners should be permitted to elect to use it based on their own situation, preferences, and ability.

The subject is within the scope of IHO objectives. It is not within the scope of a current IHO work program item. Adequate standards exist. The benefits justify the proposed action.

4. Benefits.

Removal of the extra requirements on RCDS is expected to increase its use, thus encouraging mariners to adopt electronic navigation. The benefits of electronic navigation, such as real-time positioning on a chart display, are well known and will not be repeated here. Further, removing the extra requirements on RCDS will reduce confusion as to what is an acceptable electronic navigation system, and how and when it may be used.

The production of RNCs by a hydrographic office would still be optional. Use of ECDIS in the RCDS mode would likewise continue to be optional.

5. Working Groups.

The CHRIS committee is the appropriate committee to submit this request to IHO.

6. Other relevant information.

None provided.

7. Priority.

Medium

8. Target completion date.

June 13, 2003

9. Action Required.

The CHRIS committee is invited to submit an item to the IMO Maritime Safety Committee, through the IHO, recommending that the following amendments to the ECDIS Performance Standard (Resolution A.817(19) as amended) be made:

- Modify paragraph 1.9 of the ECDIS Performance Standard to read, "Some ECDIS equipment may operate in the Raster Chart Display System (RDS) mode as defined in Appendix 7. Unless otherwise specified in Appendix 7, the RCDS mode of operation should conform to performance standards not inferior to those set out in this Annex." This modification deletes the introductory phrase, "When the relevant chart information is not available in the appropriate form (see section 4)."
- Delete Section 1.2 from the ECDIS Performance Standard, Appendix 7, RCDS Mode of Operation. This deletion removes the restriction that states "When operating in the RCDS mode, ECDIS equipment should be used together with an appropriate portfolio of up-to-date paper charts."