

CIRCULAR LETTER 34/2004
9 June 2004

REPLIES TO CL21/2004

USE OF THE RCDS MODE OF ECDIS
(Submissions by Australia and Norway to IMO MSC/78)

Reference: CL 21/2004

Dear Hydrographer,

Under cover of the reference, the IHB forwarded two submissions, made by Australia and Norway, to the Maritime Safety Committee (MSC) of the International Maritime Organization (IMO) regarding the use of the RCDS mode of ECDIS. Subsequent to the issue of this CL a 3rd paper was submitted to the MSC by France, a copy of which is enclosed at Annex B.

CL21/2004 asked MS to reply to 3 questions. The responses are shown at Annex A and are summarised as follows:

Question 1 – Do you support the Australian submission to MSC 78 *‘Proposal to consider permitting ships to use the Raster Chart Display System (RCDS) mode of ECDIS, without the requirement to carry paper charts?’*
Of 33 replies, 5 voted YES and 28 voted NO.

Question 2 – Do you support the Norwegian proposal that *‘A reasonable phase-in schedule for mandatory requirements for ships to carry ECDIS equipment and to use ENC where available.’*
Of 33 replies 29 voted YES and 4 voted NO.

Question 3 - Do you support the Norwegian proposal that *‘A clarification of the definition of “appropriate folio of up to date paper charts” with respect to paper charts to be carried for areas without ENC coverage and for paper charts to be carried for ECDIS back-up purposes (unless an electronic ECDIS back-up is installed).’*
Of 33 replies 27 voted YES and 6 voted NO.

The matter was discussed during the forenoon of Wednesday 19 May. The MSC agreed that all three papers should be referred to the 50th meeting of NAV which will take place at IMO from 5 -9 July 2004, under the title “Evaluation of the use of ECDIS and ENC development”.

Member States are urged to ensure that their national representatives to the IMO NAV Sub-Committee are fully briefed on this matter.

On behalf of the Directing Committee
Yours sincerely,

Vice Admiral Alexandros MARATOS
President

Annex A: Replies to CL21/2004 dated 22 March 2004

Annex B: Proposal to MSC from France

RESPONSES TO IHB CL 21/2004

USE OF THE RCDS MODE OF ECDIS

Member State	Question 1 ¹	Question 2 a) ²	Question 2b) ³	COMMENTS
ALGERIA	NO	YES	YES	See Annex A
ARGENTINA	NO	YES	YES	
AUSTRALIA	YES	NO	NO	See Annex A
BAHRAIN	NO	YES	YES	
CANADA	YES	YES	YES	See Annex A
CHILE	NO	YES	YES	See Annex A
CHINA	NO	YES	YES	
COLOMBIA	NO	YES	YES	See Annex A
CROATIA	NO	YES	NO	See Annex A
DENMARK	NO	YES	YES	See Annex A
ECUADOR	NO	YES	YES	See Annex A
ESTONIA	NO	YES	YES	
FINLAND	NO	YES	YES	See Annex A
FRANCE	NO	YES	YES	See Annex A
GREECE	NO	YES	YES	
INDIA	NO	YES	YES	See Annex A
ITALY	NO	YES	YES	
JAPAN	NO	NO	NO	
KOREA (Rep. of)	NO	YES	YES	See Annex A
MEXICO	NO	YES	YES	See Annex A
NETHERLANDS, THE	YES	NO	NO	See Annex A
NORWAY	NO	YES	YES	
PORTUGAL	NO	YES	YES	
RUSSIA	NO	YES	YES	
SINGAPORE	YES	YES	NO	
SLOVENIA	NO	YES	YES	
SOUTH AFRICA	NO	YES	YES	
SPAIN	NO	YES	YES	See Annex A
SWEDEN	NO	YES	YES	
THAILAND	NO	YES	YES	
TUNISIA	NO	YES	YES	See Annex A
TURKEY	NO	NO	NO	
UNITED KINGDOM	YES	YES	YES	See Annex A
TOTAL : MS = 33	YES = 5 NO = 28	YES = 29 NO = 4	YES = 27 NO = 6	

¹ Do you support the Australian submission to MSC 78 "Proposal to consider permitting ships to use the Raser Chart Display System (RCDS) mode of ECDIS, without the requirement to carry paper charts" (MSC 78/24/3), as contained in Doc. WEND8-10.1A rev.1

² Do you support the Norwegian proposal to MSC 78 "Comments on MSC 78/4/3 by Australia regarding ECDIS", as contained in Annex A to this CL which recommends:

(a) A reasonable phase-in schedule for mandatory requirements for ships to carry ECDIS equipment and to use ENC where available.

³ (b) A clarification of the definition of "appropriate folio of up to date paper charts" with respect to paper charts to be carried for areas without ENC coverage and for paper charts to be carried for ECDIS back-up purposes (unless an electronic ECDIS back-up is installed).

MEMBER STATE COMMENTS

ALGERIA

Question 1:

Carriage of paper charts is fundamental for the safety of navigation as well as a dependable source of assistance which, under current conditions, should not be abandoned.

Question 2 (a) :

On condition that the provisions become mandatory within at least 10 years.

AUSTRALIA

Question 1:

This proposal offers a safe and pragmatic way to promote the uptake of ECDIS, at least until there is worldwide coverage of ENC. Raster charts offer many safety and efficiency benefits compared to their paper equivalent. Advances in technology have narrowed the gap between RNCs and ENCs.

Question 2(a) :

Making the carriage of ECDIS mandatory will, in the short term, only serve to exacerbate the problem. Where will the ENCs come from? The requirement to carry paper charts and ECDIS will be an unnecessary impost on the shipping industry.

Question 2(b) :

Again, this becomes complex to implement and difficult to monitor and maintain (as more ENCs become available).

CANADA

Question 1:

CA raster and paper products are fundamentally identical in terms of content and presentation. The use of all CA navigation products must be supported with the latest appropriate documentation (e.g. Notices to Mariners).

CHS believes that the IHO should support the proposed Work Programme item contained in the Annex of WEND Letter No. 1/2004. CHS believes that the removal of the paper chart requirement would complement and promote the use of ENCs.

CHS would like to make the following comments and points of clarification:

- i) In Canada, Transport Canada writes the carriage requirements for vessels. CHS's role is to make available the most up-to-date, accurate information possible.
- ii) In Canada, RCDS mode of ECDIS is to be used only in the absence of ENC coverage. As a navigation tool, ENCs are seen as superior to the Raster Navigational Chart (RNC) and CHS's position does not, in any way, suggest "equivalence" between the two products.
- iii) Use of an RNC requires the same prudence as the use of paper charts, particularly in confined waters, when visibility is limited, where the chart scale is small, or the positional accuracy of the chart is low.
- iv) RCDS mode should be complemented with the use of radar (overlay preferable).
- v) There should be some manner of certification for a) ECDIS and ECDIS in RCDS mode of operation to ensure that mariners are fully trained and b) that the ECDIS-RCDS are supported by a service that ensures the ship's digital chart portfolio is maintained up-to-date.
- vi) Port authorities, coast guard, and others carrying out ship inspections should be educated on what to look for vis-à-vis compliance with the above certification.
- vii) The level of service for distribution and updates should be defined.

Question 2 a):

We believe that mandatory requirement is a good long term solution and will take time to implement. For this reason we supported the Australian proposal with some Canadian particularities to stimulate the use of ECDIS in short/medium terms. Also, the level of service (including what areas will be covered and the distribution of updates to synchronize with paper charts) that goes along with the provision of ENC's should also be defined before the phase-in period.

Question 2 b):

Regardless of the acceptance or rejection of the AU proposal, the intent of the statements that relate to this definition should be reviewed.

Further, (and in relation to 2(a)), the IHO should produce a set of guidelines that define how updates across product lines (i.e. paper, RNC and ENC) are coordinated to ensure the timely delivery of this information to mariners. These "level of service" standards would help manage expectations and alleviate the confusion and frustration mariners have expressed over the current situation.

It is the CA view that the role of an HO is to make available information which promotes safe navigation.

Back-up (or "resumption/continuation of safe navigation") requirements should be defined by IMO.

CHILE

Question 1:

ENC production can be strongly affected due to a virtual equivalence between raster and S-57 products.

Question 2 (a):

Norwegian proposal and comments give the necessary technical aspects of the implications of AMSA proposal and phase-in schedule for ships to carry ECDIS equipment and official ENC's.

Question 2(b):

Chile agrees that this matter requires clarification.

COLOMBIA

Question 1:

Only the ECDIS System and the paper charts with RCDS mode can guarantee safety of navigation.

Question 2(a):

The production and use of the ENC's for ECDIS must be increased. It is more expensive but offers more safety advantages.

Question 2(b):

Every country has an obligation to offer mariners at least updated nautical charts, so that the catalogue of charts will at least show the available charts.

CROATIA

Question 1:

We support all the arguments against this proposal presented by the Member States so far (15th CHRIS, 8th WEND), especially the one explaining that adoption of such a proposal could lead to abandonment of ENC's production, which are still superior to RNC in terms of safety.

Besides many MS together with the IHO have put in a lot of work and investments in the ENC project.

Question 2(a):

We support this proposal only tentatively, due to a broad interpretation of the formulation "A reasonable phase-in schedule for "

Question 2(b):

We support opinions which regard the present definition sufficiently obliging and at the same time sufficiently general, allowing national administrations free rein in prescribing the requirement to carry "appropriate folio of up to date paper charts".

Separate comment:

It is the indisputable right of every MS to submit proposals to include certain issues in the IMO work programme, following the procedure rules, as it is the case with submissions to IMO MSC/78 by Australia and Norway. Leaving aside the justification of the proposal, it is our view that such "soloing" can harm the reputation of the IHO, even more so as this subject matter was carefully considered at several IHO meetings, and the prevailing conclusions were not to submit these issues to the IMO at the moment. The IHO maintains and builds its reputation and seriousness by settling disagreements within the organization and a joint approach to the IMO and other bodies, where the proponent and submitter should be the IHO and its representatives. In this case that was ignored, but should be taken into account in the future.

DENMARK

Question 1:

The IMO NAV Sub-Committee considered this issue in the past and a compromise was reached after lengthy discussions about the issue that the Australian proposal tries to change. Today, it is not possible to use ECDIS in the RCDS mode without supplement of (a limited number of) charts.

The result was reached due to a thorough analysis that showed that the use of RCDS and RNC in relation to ECDIS and ENC had some safety-related disadvantages. RCDS has a better functionality than paper charts (shows the position in real time, automatic updating, etc.), but a poorer functionality than ECDIS (cannot automatically sound alarm in the vicinity of shallow water, Traffic Separation Schemes etc., when navigating from one chart to another with a different scale, information about this is not immediately available, and the "field of vision" i.e. the distance that one can look forward Is limited due to the size of the screen). The limited size of the screen in ECDIS mode is compensated by the possibilities of sounding alarms. The differences are described in SN/Circ.207.

It is a complicated issue, which is now brought up again. Countries that have large areas in which navigation is not so very critical, but which would like to make an official digital basis available, can do this today by using RCDS mode of ECDIS, while requiring a back-up of paper charts. If these rules are made less strict, the consequence might be that ENC charts covering new areas will not be produced in the future.

Question 2(a):

ENC production is a complicated and intricate business and, consequently, it will take years before the whole world uses ENC (just as Australia argues). Therefore, it is important to speed up this process. This can be achieved by starting to look at the requirements for ECDIS on board certain ships. In this way, countries that have already produced ENC could see them in use and benefit from the increased safety achieved thereby. In this connection, Denmark would benefit right away. Countries that have produced ENCs without making them available to ships will be encouraged to do so for the benefit of the shipping trade.

Question 2(b):

A clarification of the definition has however already been given by Denmark as shown below:

Statement by the Government of Denmark

1. When paper nautical charts serve as the only back-up arrangement, the charts shall include the planning route; and in narrow waters, the ship's position shall be updated regularly enabling a safe take-over of ECDIS functions.

2. Ships sailing in waters not covered by ENC shall be provided with an appropriate up-to-date folio of paper nautical charts, e.g.

.1 for general route appraisal or passage execution; medium scale charts in the range 1:750,000 to 1:500,000.

.2 for general route appraisal or passage execution in open seas; medium scale charts in the range 1:100,000 to 1:500,000

.3 for general route appraisal or passage execution in congested coastal waters or port approaches: charts with a scale larger than 1:100,000.

ECUADOR

Question 1:

The Raster Chart display system does not offer all the requirements needed for safe navigation.

Question 2(a):

ENC production must be encouraged in order to have worldwide coverage.

Question 2(b):

It is necessary to note that for the ECDIS to operate, an external source of energy is required, which might fail even taking into account that there is an auxiliary source of electrical power; for this reason we consider it wise to have a set of paper charts to ensure 100% information coverage.

FINLAND

Question 1:

Finland believes that the Norwegian proposal is more feasible to enhance the safety of navigation.

Question 2(a):

This is also in compliance with the decisions of the Helsinki Commission on the Baltic Sea.

FRANCE

See IMO document MSC 78/24/18 attached.

INDIA

Question 1:

RCDS mode of ECDIS at present does not fully support various safety alarm features of ECDIS along with standardized coding and symbols, hence up-to-date portfolio of paper charts should be mandatory to carry.

Question 2(a):

To promote ENC coverage and safety of navigation, ships equipped with ECDIS System must make use of ENCs wherever available. This decision will greatly pressurize the production of ENCs by various countries.

Question 2(b):

Up to date route-wise paper chart folio requirement should be made mandatory.

JAPAN

Question 2 (a):

We do not oppose the Norwegian proposal. We consider that enough examination should be necessary.

KOREA, Republic of

Question 1:

Does not support this proposal in order to make a good usage of ENC. Since ENCs are different from Raster Chart in the functional aspects, we cannot acknowledge it as equal chart as ENC for the sake of safe navigation.

Question 2(a):

The mandatory requirements for ships to carry ECDIS will be essential for safe navigation. Thus the phase-in schedule will be necessary for further use of ECDIS and ENC.

MEXICO

Question 1:

We cannot do without paper charts and there is not 100% coverage in nautical raster charts.

Question 2(a):

Because such a program will allow the use of electronic charts, which give broader and more detailed information resulting in increased safety of navigation.

Question 2(b):

It is not clear as to what the referenced text refers to.

THE NETHERLANDS

Question 1:

At WEND-8 NLHO proposed not to schedule/discuss this matter at IMO/MSC; since this matter is now scheduled as an IMO-agenda item NL supports the Australian submission. This is in accordance with the NL submission for WEND-8: " reluctant to support the reopening of the ECDIS/RCDS-matter at IMO, although there is a shared view that the RECDs-mode significantly improves "situational awareness" and supports decision-making and that the mandatory additional use of the equivalent paper charts does not contribute to this".

PORTUGAL

Question 1:

Proposals like the one that is under discussion now can cause serious damage to the image of ENCs as well as decrease the use of ENCs and slow the progress of ENC production. All MS should support and encourage even more the production and the use of ENCs.

Question 2 (a):

The use of ENCs and the reasonable phase-in schedule for mandatory requirements for ships to carry ECDIS equipment should follow up the increase of worldwide coverage. Hopefully, in the medium term, the coverage should be complete or least almost complete. As hydrographic offices, this must be our final objective.

Question 2(b):

Proposals like the one that is under discussion here and another one made by USA-NOAA at the last CHRIS meeting (Doc. CHRIS 15-10.1A) should implicate more detailed clarifications for some words and definitions that could cause confusion and misunderstanding about what is, or what is not, possible or legal. All MS should avoid those misunderstandings.

SINGAPORE

Question 1:

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

SLOVENIA

Question 1:

An "appropriate folio of up to date paper charts" should be carried at all times, regardless of the use of ENC or RNC. We also propose to reconsider the definition of the term "appropriate folio" (see also comment at 2 (a)).

Question 2 (a):

We support this recommendation and would suggest that the Governments (in reference to the Resolution A.958(23)) would intensify the promotion of using an ECDIS with ENCs and to increase the production of ENC cells.

SPAIN

Question 1:

This is considered as a step backwards in the necessary ENC production with a worldwide coverage.

Question 2a):

In some areas, the mandatory use of ECDIS/ENCs can be convenient.

Question 2b):

Any measure eliminating ambiguities is good, both for the mariner and the Maritime Administrations.

TUNISIA

Question 1:

ECDIS in RCDS mode does not guarantee a clear and unambiguous presentation of essential information using standardized symbols and coding system and does not minimize or detect human errors through monitoring and alarm system, as required by paragraphs 3 and 7 of chapter V/15 of the SOLAS Convention. This fact may cause misinterpretation of data displayed on RNCs and thus impede maritime safety, especially in particular sensitive sea areas (PSSA). For this reason we believe that an appropriate folio of up to date paper charts should be carried for ECDIS back-up purposes when using RCDS mode in order to ensure awareness of the mariner about dangers to navigation that may be not properly displayed on RNCs.

Question 2(b) : We believe that limiting the use of paper charts to those sea areas which lack ENC coverage (and which we suppose are gradually waning) will lighten the burden of manual chart updating and will implement the use of ENCs onboard ships faster.

TURKEY

Question 1:

As it is stated in item 6 of ref. (b) Annex A there are many limitations for using ECDIS in RCDS mode and TN DNHO does not support the Australian submission.

UK

Question 1:

UK fully supports the Australian proposal.

Since the amendment of the ECDIS performance standard in 1998 to include the RCDS mode of operation we have gained considerable experience in the use of RNCs as a primary aid to navigation. S/N Circular 207 lists the limitations of RNCs with respect to ENC; whilst these remain valid, in practice it has been shown that they are not an impediment to the safe use of RNCs as a primary aid to navigation and that they do not support the need to carry a supplementary outfit of paper charts. It should also be noted that developments in computer technology and RCDS implementations have reduced the impact on the user of these limitations. For instance the increased speed at which charts can now be displayed means that look-ahead can be preserved through rapidly changing between charts of different scale giving an effect not dissimilar to zooming an ENC. Those using the RCDS mode of operation as a primary aid to navigation have reported considerable benefits of safety and efficiency over the use of the paper chart.

Whilst it is recognised that ECDIS using ENC's provides the mariner with a powerful and comprehensive navigational tool the continuing lack of comprehensive ENC coverage is acting to impede the take up of ECDIS by ship owners – it is estimated that even now only 65% of new build vessels (some 700 vessels per year) have ECDIS fitted. It is considered that adopting the Australian proposal would act as an incentive to ship owners to fit ECDIS to new builds and also to retrofit existing vessels in the knowledge that the systems would, due to the good coverage of ENC's and RNC's combined, be fully utilised and that there would be no duplication of costs for paper and electronic charts. Adoption of the proposal could have a marked effect on the numbers of ECDIS systems deployed in the short term; this would mean that as ENC's become available there is a larger potential base for their use.

UK does not believe that this proposal would adversely effect the production of ENC's; on the contrary the quicker that mariners are exposed to the electronic charting the earlier that they will recognise the benefits brought by the enhanced capabilities of ENC's and this will drive the demand for them. If, as we believe, this proposed change in the regulations speeds up the fit of ECDIS systems then this will be a positive step for ENC.

Question 2 (a):

UK supports the Norwegian proposal.

It is clear from use to date that ECDIS (whether using ENC's or RNC's) is of benefit to safety of navigation; indeed for some classes of vessel where traditional methods of navigation are inadequate such as in high speed craft, it becomes an essential navigation tool. Equally for vessels either carrying hazardous cargo or transiting through particularly sensitive waters, there are potential environmental advantages for these to be fitted with ECDIS to enhance situational awareness.

For these reasons UK believes that a progressive approach to mandatory carriage of ECDIS for specific vessel types, vessel cargoes and particular geographic areas to be desirable. It is a matter of debate as to whether the requirement should extend to all vessels in all areas. It would be hoped that, once established in the core of world trading fleets, and the benefits of ECDIS recognised, the vast majority of remaining vessels would be fitted for its use; the remainder being phased out as ships are replaced.

UK supports the view that, where ENC's exist, they must be used within ECDIS to fulfil carriage requirements. Individual nations, should if they so wish, have the freedom to give RNC's the same status as ENC's for carriage requirement purposes for their own waters.

UK believes the Australian and Norwegian proposals to be complementary and that if taken forward together they would provide a strong base for the growth in the use of ECDIS and a consequential improvement in safety of navigation to the benefit of seafarers and the environment.

Question 2 (b):

UKHO supports the proposal.

It is undoubtedly true that the lack of clarity over the definition of 'an appropriate folio of paper charts' has no doubt been an additional factor in the slower than anticipated take-up of ECDIS. Under existing regulations Flag States have the right to decide on the definition of 'appropriate', however only a small percentage have so far documented their policy on this matter and where such policy does exist there are considerable differences in the approaches taken.

UK believes that the clarification proposed by Australia (ie the removal of the requirement to carry paper charts) is the only action that is required.

A further cause of confusion to potential ECDIS purchasers / users is the wording of part of Regulation 19.2.1.4 'ECDIS *may* be accepted as meeting carriage requirements'; this can be interpreted as meaning that nations may decide on this matter. The intention of this wording was to allow the mariner to have the choice of continuing to use paper charts or to use ECDIS instead. Clarification of this point would be beneficial.



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MARITIME SAFETY COMMITTEE
78th session
Agenda item 24

MSC 78/24/18
15 March 2004
Original: FRENCH

WORK PROGRAMME**Comments on MSC 78/24/3 submitted by Australia concerning ECDIS****Submitted by France****SUMMARY**

Executive summary: With regard to document MSC 78/24/3 submitted by Australia, France understands and supports the aim of promoting greater use of ECDIS, but cannot support the proposal to authorize the use of ECDIS in RCDS mode without a requirement to carry an appropriate portfolio of up-to-date paper charts.

Action to be taken: *Paragraph 7*

Related documents: Resolution A.817(19); resolution MSC.86(70); SN/Circ.207; MSC 78/24/3

Introduction

1 This document is submitted in accordance with paragraph 4.10.5 of the Guidelines on the Organization and Method of Work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies (MSC/Circ.1099- MEPC/Circ.405) and contains comments on the proposals made in document MSC 78/24/3.

Analysis

2 The aim of the proposal submitted by Australia in document MSC 78/24/3 is clearly to promote the use of ECDIS. France supports that aim inasmuch as ECDIS helps to enhance the safety of navigation.

3 The IMO regulations in resolution A.817(19), as amended by resolution MSC.86(70), provide for two situations according to which ECDIS uses either full mapping (the vector database called ENC) or simplified mapping (the raster database, or single image on paper charts, called RCDS).

4 During the adoption of SN/Circ.207, it was established that considerable differences existed between the two operating modes, and that it was necessary to impose the requirement that a portfolio of up-to-date paper charts be kept available for use in RCDS mode.

For reasons of economy, this document is printed in a limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies.

5 The differences between the two modes identified in SN/Circ.207 remain, and consequently there is still the need to carry paper charts, at least when the RCDS mode is used.

6 The meaning of the phrase .appropriate portfolio of up-to-date paper charts. must be clarified for the use of ECDIS, both in RCDS mode and in single-operator mode.

Action requested of the Committee

7 The Committee is invited to consider the above-mentioned points in discussing the Australian proposal contained in document MSC 78/24/3.
