

12th CHRIS MEETING
Valparaiso, Chile, 23-25 October 2000
Distribution of ENC's by means of SENC Distribution

COMMENTS TO THE DOCUMENT CHRIS/12/7A REV 1
(Comments to CHRIS Committee by Finland, supported by Sweden)

The Finnish Hydrographic Office has studied the proposal presented in the document CHRIS/12/7A Rev 1 and has the following opinion on it:

Finland is against the proposed SENC distribution and the proposed amendment to the IHO Publication S-52.

The main reasons for this opinion are:

Goals of the IHO standardisation

1. Finland has the opinion that the ultimate goal for the whole IMO and IHO standardisation work is to ensure the safety of navigation by specifying one universal and open transfer standard for ENC's which can be used by all Hydrographic Offices and by all ECDIS systems. This goal has been also mentioned in S-52 in Paragraph 1.1(2) *'the ENC's will be made available in a standard format and all equipment should be designed to accept it'* and in Paragraph 3.1(a) *'ENC data should be delivered using IHO Transfer Standard for Digital Hydrographic Data (S-57)'*, and in IMO PS paragraph 2.2 *'ENC means the database, standardized as to content, structure and format'*.
2. If the proposed SENC distribution will be allowed then there will quite soon be many proprietary SENC formats supported by major manufacturers. Thus one of the main goals of the IHO standardisation work will be lost. Further on, when these proprietary formats are widely in use and the users are familiar with them then the use of ENC distribution will in practice fade down and the vendors will reduce their support to this functionality. Finally there will be many de-facto proprietary standards in use and the mariner will be dependent on his selected ECDIS manufacturer.
3. The wording of the proposal to the S-52 paragraph 3.3(d) in document CHRIS/12/7A is not clear. *'official copy of HO supplied ENC is to be kept onboard...'*. Does this mean that there should always be both ENC and SENC, if SENC distribution is used? If this is the intention, then there will be onboard data according to two formats. This is also against the goals of the standardisation. Also the wording at the end of that paragraph *'... through the same process'* is undefined and gives no guidance.
4. If the SENC distribution is allowed the ECDIS should be capable of running and the mariners should learn and practise to use two security schemes, one for SENC (delivered by the ECDIS manufacturer) and one for ENC (delivered by a RENC), at least for updates from a RENC these two security schemes. This is also against the goals of the standardisation.

5. The proposed SENC distribution is not open because SENCs are by definition proprietary, see S-52 Paragraph 3.3(a). In this respect the ENC-to-SENC conversion is not similar to ENC encryption. The CHRIS requires that if encryption is used it should be based on established open standard and the algorithms should be available in Public Domain (see document CHRIS/12/9.1A). These principles should also be applied to the ENC-to-SENC conversion if that is allowed. Proprietary formats over which the IHO has no control are against the goals of the standardisation.
6. According to the IHO Strategic Plan (Task 3.1.2) the aim of the IHO is to have its standardisation work recognised more internationally on the ISO level (see document CHRIS/12/14.2B). The proposed SENC distribution is contradictory to this aim because then the IHO gives out the control of the actual transfer standard to private enterprises.
7. It is true that the IMO and IHO specifications are minimum requirements. The intention of the ENC-to-SENC conversion onboard was to ensure that there will be only one transfer standard. The value of the IMO and IHO standardisation work may be questionable, if the specifications give some requirements, but in practise the quite different work-around operations are allowed.

Safety of Navigation

8. If the goal for one universal transfer standard will be lost then the safety of navigation may be threatened.
9. For example, in the case of emergency if the mariner needs more ENC data or updates to them he is dependent on the service of his ECDIS manufacturer or his SENC distributor. To be able to use on the services of a RENC, the mariner should have contractual arrangements with a RENC. Even if he has this kind of contract and the ECDIS is capable of reading ENC, the mariner may not have experience of performing this functionality because of lack of training or the low level of support of the loading software. Also, the fact that there will be many SENC formats and even different versions of them will increase the possibility of confusions and human or software errors when loading new data or updates to ECDIS systems.

Compliance of the SENC distribution with the IMO ECDIS PS and IHO S-52

10. The IMO Performance Standard for ECDIS (IMO PS) has a very clear statement regarding the conversion from ENC to SENC (IMO PS Paragraph 2.3: *'System Electronic Navigational Chart (SENC) means a database resulting from the transformation of the ENC by ECDIS for appropriate use,'*).
11. The IMO PS is the main specification. The authority of the IHO specification S-52 is directly derived from this IMO PS (S-52 paragraph 2.3(a) states: *'IMO PS always to be referred to when applying these Specifications'*). The IHO Publication S-52 specifies in its paragraphs 3.3(d) that the conversion should be done in ECDIS and the ENC should be kept onboard. The CHRIS Committee cannot change the specifications of S-52 to be inconsistent with the IMO PS. Finland believes, that in the document CHRIS/12/7A this issue has been interpreted incorrectly.
12. In the case that the IHO wants to raise the issue to be discussed at the IMO, Finland will make the following comments:

- This is an important issue and should be decided at least on the WEND Committee level, or perhaps seeking an opinion of all Member States by a Circular Letter.
- Bearing in mind the recent process of renewing the SOLAS/V specifications, Finland would like that a possible proposal to the IMO from the IHO should be a unanimous opinion of all the Member States.
- Bearing in mind the public imago of the IHO it may be very unwise if the IHO changes its opinions on one of the basic issues of the whole standardisation work just now when the whole concept is entering into wide use.

Compliance with the WEND Principles

13. The WEND Principle 4.2 specifies *'There should be compliance with all relevant IHO and IMO standards and criteria'*. The WEND Principles were created on a basis of the IMO and IHO Specifications which clearly specify the ENC-to-SENC conversion to be done by ECDIS. Thus there has been no reason to address this particular issue in the WEND Principles.
14. Finland has the opinion that the WEND Principles are valid only with the current ENC distribution definitions. If the proposed SENC distribution will be allowed then the WEND Principles should be reviewed.

In addition, Finland will also point out the following opinions or concerns on this issue:

Technical and legal issues

15. Speed of the ENC-to-SENC conversion should not be any major issue. The Finnish HO has been reported that an average compilation time by a type approved ECDIS for all ENCs available at PRIMAR in September 2000 (total 1074 ENCs, 470 ERs) is about 14 seconds/ENC and about 11 seconds/ER. This means the conversion for all the available ENCs from PRIMAR will take some 4 hours and for all updates less than 1.5 hours.
16. To ensure the consistency of updating of the SENC may be complex if the ENC-to-SENC conversion is done by the manufacturer and the mariner will need updates directly from a RENC in ENC format.
17. Now, when the ENC Product Specifications and the ENC Validation checks are available, there should not be any problems doing the ENC-to-SENC conversion onboard. This is due the fact that the ENC producers will widely utilise the same validation software and checks as the ECDIS manufacturers.
18. SENC is not intended as a transfer format but as an internal storage structure inside ECDIS. The management of SENC versions may be complex. It seems likely, that the SENC structure should be fixed at a certain version, else there will be different versions for different customers and e.g. the delivery of SENC or updates will vary between different ECDIS versions even on a single customer. The ECDIS functionality and capability is based on its SENC structure. It is very likely that the ECDIS manufacturers will invent more efficient SENC structures, that is new transfer format version. This means that the existing ECDIS systems should be renewed or there should be a conversion in ECDIS from the old SENC format used for data distribution to the new more efficient

structure for operating the ECDIS. In practise this means that there will be different proprietary data transfer standards without the IHO having no control over them.

19. The legal issues are not clear. For instance, who has the copyright of SENCs, or can HOs take any responsibility of SENCs produced without the control of any HO?

Commercial issues

20. There has not shown any real benefits to the HOs or to the mariners if the SENC distribution is allowed for ECDIS. The price of the ENCs is not dependent on the distribution method. The benefits mentioned in the proposal at the end of the Chapter 2 are not valid. For the first bullet point: there will be needed two security schemes (see above paragraph 4) and for the second bullet point: these benefits are not valid for ECDIS, but rather for ECS.
21. The main reasons for the low utilisation of ECDIS systems are the low coverage of the ENC availability and the limited number of type approved ECDIS, not the data distribution methods.
22. The proposed SENC distribution contains many commercial threats to the HOs, the mariners or the ECDIS manufacturers e.g.
- the mariners will be dependent on the ECDIS manufacturer they have selected also for data supply
 - free commercial competition between ECDIS manufacturers and ENC distributors will be more restricted
 - few major ECDIS manufacturers may control the whole business
 - the smaller ECDIS manufacturers may loose their investments to ECDIS development which has been based on the existing IMO and IHO specifications.

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13 October 2000
