

# S-128

**NIPWG21 - Action Item 09 – Task group to (YIF (lead), HP, RM, Chair, JP, IK, ChG) draft a NIPWG view on the classification of products by 31 Dec 2021.**

Initial considerations for discussion

YLF – 07/09/22 (rev.1)

YLF – 17/08/22

# Requirement for S-128 ([Cf. NIPWG VTC-04 2021 – 10-1-1 from Furuno](#))

- Catalogue should inform about :
  - **What is what with respect of Solas regulation V 27 (carriage requirement)**
  - Up-to-dateness of each product
- Solas regulation V/27 :
  - Nautical chart
  - Nautical publications **such as**
    - sailing directions
    - lists of lights
    - notices to mariners
    - tide tables
    - **all other nautical publications**
- Mariners have obligation to carry products listed in SOLAS V Reg 27

## **Regulation 27 - Nautical charts and nautical publications**

Nautical charts and nautical publications, such as sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage, shall be adequate and up to date.

## S-128 requirements ([Cf. NIPWG VTC-04 2021 – 10-1-1 from Furuno](#))

Based on SOLAS V Reg 9 the contracting governments have obligation to provide their products for mariner as unambiguously as possible. One part of this is the ability of the mariner to know if **an individual product belongs to “nautical charts” or to “nautical publications”**.

Further mariner should be able to know within the “nautical publications” if an individual product belongs to a) sailing directions, b) lists of lights, c) notices to mariners, d) tide tables or e) all other nautical publications so that the mariner is able to check whether mariner has adequate and up to date products in electronic form or in traditional paper-based form

# Classification

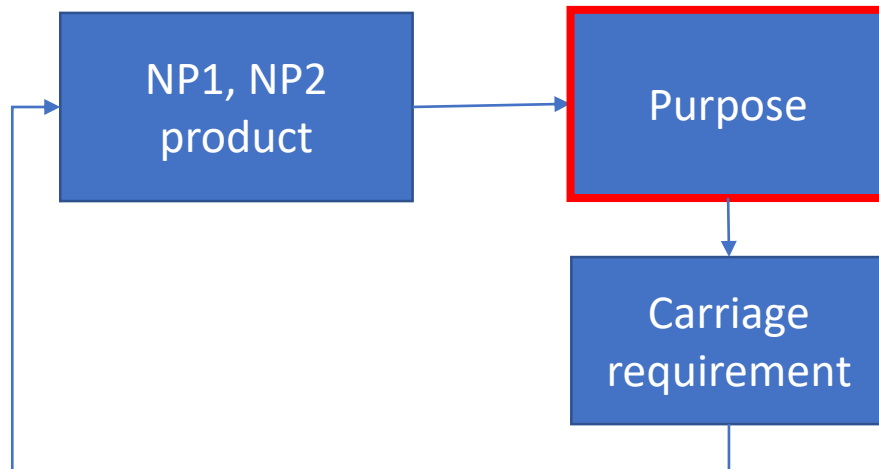
- SOLAS V 27 has two main categories of nautical product, nautical charts and nautical publications, it also lists examples of nautical publications which includes the open ended “all other nautical publications”.
- We have to classify IHO S-100 based products into nautical charts and nautical publications or other (out the scope of SOLAS V 27)
- In the nautical publications category, can we classify some IHO S-100 based products in reference to existing nautical publication (sailing directions, list of lights...) ?
- Such classification should imply an equivalency between the S-100 based product and existing nautical publication

# Equivalence

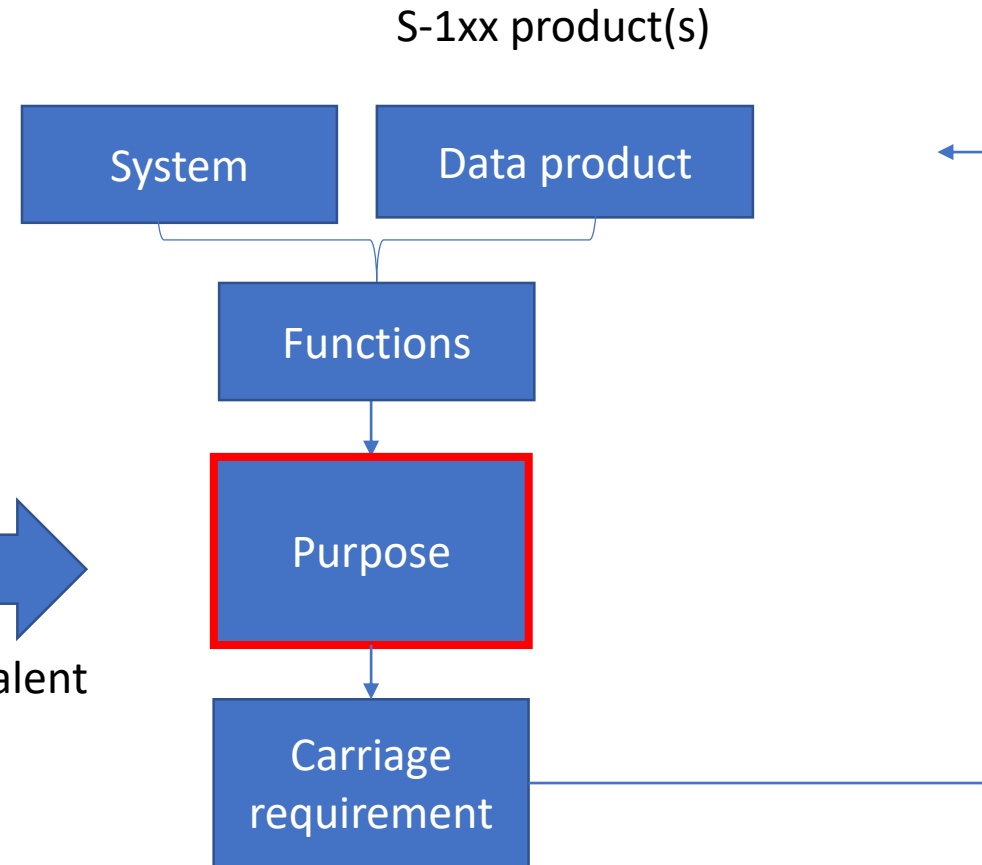
- Equivalent: serve the same purpose

Existing nautical publication.

For example, do the SD have an equivalence with S-100 products ?



Equivalent



## Equivalence - SNPWG-NIPWG pathway

- SNPWG tried for over 10 years to agree what constitutes digital sailing directions so that standardization of content could be done among IHO member states and a product specification developed. At SNPWG 15 in Helsinki 2012, it was realized that it would not be possible to reach consensus on what SD contains and therefore SNPWG started looking at creating **focused product specifications**.
- This decision allowed SNPWG and later NIPWG to move on from the SD discussion into creating product specifications on specific groupings of information. The groupings and content of these was debated over several years before the current grouping was agreed upon by consensus before IHO issued contracts to have the first versions of the product specifications developed.

# Equivalence

- As result, the current NIPWG S-1xx PS are not designed to obtain S-100 products equivalent to existing nautical publications (NP1 and NP2)\* which differ from a country to another.
- S-1XX should be considered as a mean to transfer some data held in existing nautical publications to an ECDIS for viewing
- ECDIS viewing: NIPWG PS in general lack portrayal, this is a huge handicap since it doesn't really allow NIPWG and stakeholders to discuss the important questions of "how will it behave in the ECDIS" or "how will it work with the ENC".

(\*): Publication M3 – Res. 5/2002

# Focus on Sailing direction

- S-126 + S-127 + S-131 data cover partially the SD content, splitting information into smaller data packets.
- SD bring a lot of information together to support coastal navigation and port entry which takes the form of a narrative.
- S-126, S-127, S-131 data for ECDIS viewing do not support the narrative or the overview of navigational context for the area in which the mariner is navigating.
- S126, S-127, S-131 data are an value-added service, additional to SD
- S-126, S-127, S-131 data in isolation or together are not equivalent to SD



## Focus on List of lights

- The main content of the List of lights is a list of geographic objects (lights) which lends itself well to storage in an S-1xx format.
- The List of Lights does hold some General explanatory information and local information at the start of each volume. This information would still need to be held somewhere to ensure equivalence.
- S-125 could be equivalent to the List of Lights and Fog Signal, as long as it could be agreed how and where the general explanatory notes were stored and still available.
- S-125 could be at least the equivalent of the main content of List of lights which is frequently updated.

## Focus on Radio Signals

- The case of Radio signals and S-123 is similar to the case of List of lights and S-125
- With a large amount of narrative background information, diagrams

# Conclusion on classification

- The classification of IHO S-100 based product according to the examples of nautical publications listed in V/27 is not appropriate as there is no normative correspondence nor equivalency.
- Only the producer HO might give some statements regarding the correspondence between the information in its NP1, NP2 or application publications and its S-100 products.
- The HO should provide useful information for the mariner to determine which products are adequate for the intended voyage.
- Thus, at the NIPWG level it is proposed to try to classify IHO S-100 based products in nautical charts or in nautical publications, where it seems most natural.

# Tentative of classification (provisional!)

		Nautical chart	Nautical publication	Other
S-101	ENC			
S-102	Bathymetric Surface			
S-103	Sub-surface Navigation			
S-104	Water Level Information for Surface Navigation			
S-111	Surface Currents			
S-121	Maritime Limits and Boundaries			Not for navigation
S-122	Marine Protected Areas			
S-123	Marine Radio Services			
S-124	Navigational Warnings			Pure service
S-125	Marine Aids to Navigation (AtoN)			
S-126	Marine Physical Environment			
S-127	Marine Traffic Management			
S-128	Catalogue of Nautical Products			
S-129	Under Keel Clearance Management (UKCM)			Pure service
S-130	Polygonal Demarcations of Global Sea Areas			Not for navigation
S-131	Marine Harbour Infrastructure			

# Impact on S-128 data model

S-128 ed 1.0.0  
CatalogueElements

«enumeration»  
productType

paper nautical chart = 1  
ENC = 2  
raster nautical chart = 3  
INT Chart = 4  
nautical publication = 5  
S-100 compliant product = 6  
electronic application for safety navigation = 7  
special purpose charts = 8  
e-Navigation service = 9  
others = 10

## V/27 classification

- Nautical chart
- Nautical publications
  - sailing directions
  - lists of lights
  - notices to mariners
  - tide tables
  - other nautical publications
- Other (not V/27 compliant)

# Revision of MSC 232 (82 ) - Electronic Navigational Data Service (ENDS)

**3.1** *Electronic Chart Display and Information System (ECDIS)* means a navigation information system which with adequate back-up arrangements can be accepted as complying with the up-to-date nautical chart and nautical publications required by SOLAS regulations V/19 and V/27, by displaying selected information from a system database ~~electronic navigational chart (SENC)~~ with positional information from navigation sensors to assist the mariner in route planning and route monitoring, and if required display additional navigation-related information.

**3.2** *Electronic Navigational Chart (ENC)* means the database, standardized as to content, structure and format, issued for use with ECDIS by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, and conform to IHO standards. The ENC contains all the nautical chart information necessary for safe navigation ~~and may contain supplementary information in addition to that contained in the paper chart (e.g. sailing directions) which may be considered necessary for safe navigation.~~

**3.3** *Electronic Navigational Data Service (ENDS)* means a special-purpose database compiled from nautical chart and nautical publication data, standardized as to content, structure and format, issued for use with ECDIS by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, and conforming to IHO standards; and, is designed to meet the requirement of marine navigation and the nautical charts and nautical publications carriage requirements in SOLAS regulations V/19 and V/27. The navigational base layer of ENDS is the Electronic Navigational Chart (ENC).

ENDS: new term or new concept?

Clarification needed: An ENC is a ENDS but is, for example, an S-123 product in isolation an ENDS ?

# Revision of MSC 232 (82 ) - Electronic Navigational Data Service (ENDS)

Clarifications made during HSSC14 (cf. HSSC14 report to C6 - C6-04.1A)

21. It should be understood that S-100 fundamentally changes what is on the ECDIS. The single layer official S-57 ENC's will be replaced by multiple, interacting layers of navigational data. Though, the S-101 ENC will always be the navigational base layer. In the new IMO Performance Standards for ECDIS, which was endorsed at the IMO NCSR9 meeting in June, the term *Electronic Navigational Data Service (ENDS)*<sup>2</sup> is used for the multiple layers to be used in S-100 ECDIS. S-98 is the product specification which will handle how multiple layers are portrayed and how alarms are triggered. An example of a usage with clear potential, in areas with critical under keel clearance, is the combination of S-101 ENC, S-102 Bathymetry and S-104 Water Level Information. S-98 will define how S-104 water level information is used to adjust the S-102 depth values and then further how a safety contour is drawn based on the adjusted depth values. Subsequently this depth information will suppress the depth information in the S-101 ENC's.

# Electronic Navigational Data Service (ENDS)

- 3.1 *Electronic Chart Display and Information System (ECDIS)* means a navigation information system which with adequate back-up arrangements can be accepted as complying with the up-to-date nautical chart and nautical publications required by SOLAS regulations V/19 and V/27, by displaying selected information from a system database ~~electronic navigational chart (SENC)~~ with positional information from navigation sensors to assist the mariner in route planning and route monitoring, and if required display additional navigation-related information.
- 3.2 *Electronic Navigational Chart (ENC)* means the database, standardized as to content, structure and format, issued for use with ECDIS by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, and conform to IHO standards. The ENC contains all the nautical chart information necessary for safe navigation ~~and may contain supplementary information in addition to that contained in the paper chart (e.g. sailing directions) which may be considered necessary for safe navigation.~~
- 3.3 *Electronic Navigational Data Service (ENDS)* means a special-purpose database compiled from nautical chart and nautical publication data, standardized as to content, structure and format, issued for use with ECDIS by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, and conforming to IHO standards; and, is designed to meet the requirement of marine navigation and the nautical charts and nautical publications carriage requirements in SOLAS regulations V/19 and V/27. The navigational base layer of ENDS is the Electronic Navigational Chart (ENC).

ENDS = official + IHO standardized + database + nautical chart or nautical publication type + **for use with ECDIS**

# Impact on S-128 data model – Classification with 3 attributes

## V/27 classification

- Nautical chart
- Nautical publications
  - sailing directions
  - lists of lights
  - notices to mariners
  - tide tables
  - other nautical publications
- Other (Not V/27 compliant)

## ENDS\*

- Yes/No

## Type

- Paper nautical chart
- Raster nautical chart
- ENC – S-57
- ENC – S-101
- Paper publication (NP1)
- Digital publication based upon existing paper publication (NP2)
- S-100 compliant product (could be the S-1xx list)
- Electronic application for navigation
- E-navigation service
- Other

«enumeration»

productType

paper nautical chart = 1  
ENC = 2  
raster nautical chart = 3  
INT Chart = 4  
nautical publication = 5  
S-100 compliant product = 6  
electronic application for safety navigation = 7  
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others = 10

(\*): ENDS = official + IHO standardized + database + nautical chart or nautical publication type + for use with ECDIS



Thank You

# Annex IHO resolution 5/2002 – NP1, NP2, NP3 definitions

CONTENT AND GENERAL ARRANGEMENT	5/2002		A7.1
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1 Digital Nautical Publications may be produced in two arrangements, firstly as a stand-alone product based on existing paper publications, and secondly in the form of a compiled database intended primarily to work within an ECDIS.

2 For the sake of clarity, Nautical Publications shall be defined by the following:

- a) NP1 – Printed paper publications
- b) NP2 – Digital publications based upon existing paper publications
- c) NP3 – Digital dataset(s) fully compatible with ECDIS that serve the purpose otherwise provided by NP1 or NP2.

*Note: Data Specifications for NP3 have yet to be finalised and therefore are not specifically referred to in this document.*

3 It is resolved that Digital Nautical Publications (NP2 and NP3) shall at least fulfil the functions of corresponding printed nautical publications (NP1).

4. Digital Nautical Publications (NP2 and NP3) need not slavishly follow the requirements of presentation and organisation laid down for printed publications (NP1). However, the relevant resolutions and recommendations for printed publications (NP1) shall serve as guidance regarding content and purpose.

See also [2/2002 \(A2.14\)](#), [6/2002 \(A7.2\)](#), [7/2002 \(A7.3\)](#), [8/2002 \(A7.4\)](#) and IHO Publication S-12.