Paper for Consideration by WENDWG

Chair Drafting Group report on the S-1XX Implementation Guidelines

Submitted by:	Chair 'Guidelines on the implementation of the WEND-100 principles' drafting group
Executive Summary:	Now that IHO resolution 1/2021: "Principles of the WEND for S-1xx products (WEND-100 Principles)" has been approved, the complementary 'Guidelines on the implementation of the WEND-100 Principles' need to be developed. These Guidelines are a deliverable of the Roadmap for the S-100 Implementation Decade. In order to draft a first iteration for consideration by IRRC14 a number of issues still needs to be resolved. Therefore, WENDWG12 needs to decide on a number of specific decision points. The outcome of those provides guidance necessary to finalize a first iteration of the 'Guidelines on the implementation of the WEND-100 principles".
Related Documents:	IHO resolution 1/2021: "Principles of the WEND for S-1XX Products (WEND-100 Principles)"
Related Projects:	

Introduction/background

The framework for the WEND-100 principles is provided by the IHO resolution 1/2021: "Principles of the WEND for S-1xx products (WEND-100 Principles)". Complementary 'Guidelines on the implementation of the WEND-100 Principles' aim to detail further the applicability of WEND-100 Principles for S-100 based products (or S-1XX products) other than S-101 ENC's. They are iterative in nature and may evolve over time.

During the drafting of these Guidelines, a number of issues has been discussed for which the drafting group has not yet reached a common conclusion. This paper lists and describes these issues and provides specific decision points, as a way to focus the discussion in the limited time available during WENDWG12 .

The outcome of the decision points is to provide the guidance necessary to draft a first iteration of the 'Guidelines on the implementation of the WEND-100 principles' for consideration by IRRC14.

Analyses/Discussion

<u>Use cases</u>

There is debate on the relevance of introducing different use cases; in particular to cover the width of potential uses described of paragraph 1.1 of the WEND-100 principles. Does the WENDWG propose to the IRCC to limit the Guidelines to cover SOLAS and other IMO requirements only or are there other uses to be considered as well?

In order to frame this discussion, the table below compares the text of paragraph 1.1 with the use cases in draft Guidelines version 0.3 provided in Annex A for reference.

Paragraph 1.1	Use cases version 0.3	Remarks
The purpose of WEND-100 Principles is to ensure a world-wide consistent level of high-quality, updated official nautical and hydrographic S-100 based products (S-1XX products) through integrated dissemination services that support current and future hydrographic carriage requirements of Safety of Life at Sea (SOLAS) Chapter V (SOLAS/V) and other requirements of the International Maritime Organization (IMO), **in particular the Performance Standards for Electronic Chart Display and Information Systems (ECDIS).**	<u>SOLAS/V carriage requirement/ECDIS</u>. This use case covers the situation where S-1XX products are used together for 'safe navigation in the context of SOLAS/V' in ECDIS as it evolves under IMO regulations.	Aims at ships meeting SOLAS/V Regulation 19 article 2.10 criteria for ECDIS. So, this use case focusses on the last part of the sentence in bold "in particular the Performance Standards for Electronic Chart Display and Information Systems (ECDIS).
The purpose of WEND-100 Principles is to ensure a world-wide consistent level of high-quality, updated official nautical and hydrographic S-100 based products (S-1XX products) through integrated dissemination services that support current and future hydrographic carriage requirements of Safety of Life at Sea (SOLAS) Chapter V (SOLAS/V) and other requirements of the International Maritime the Organization (IMO)~~, in particular the Performance Standards for Electronic Chart Display and Information Systems (ECDIS).~~	<u>SOLAS/V carriage requirement/other</u>. This use case covers the situation where S-1XX products are used for 'safe navigation in the context of SOLAS/V' other than in ECDIS.	Aims at ships falling under SOLAS/V Regulation 19.article 2.1.4, but not meeting SOLAS/V Regulation 19.article 2.10 criteria for ECDIS. So, this use case focusses on the generic first part of the sentence outside the further specification "in particular the Performance Standards for Electronic Chart Display and Information Systems (ECDIS)" This does not mean that those ships cannot use ECDIS. They may choose to use ECDIS for their navigation.
In addition, the same integrated services should be available for mariners not subject to carriage requirement and the provisions of ECDIS, and to all other users supporting maritime activities.	<u>NOT SOLAS/V</u>. This use case covers the situation where S-1XX products are used for navigation other than for 'safe navigation within the context of SOLAS/V', or for other supporting maritime activities.	Not all ships at sea are required to meet the requirements for nautical products as specified in SOLAS/V. These exemptions[1] fall, by default, under this use case, but these ships can nevertheless use S-1XX products for navigation in ECDIS or otherwise.

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[1] warship/governmental ships, and a number of exclusions up the administration such as ships smaller than 150GT, fishing vessels, ships without mechanical propulsion smaller than 500GT and ships with a domestic destination

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- <u>Decision point 1a</u>. Introduce the 3 use cases to cover the full extent of paragraph 1.1 of the WEND-100 principles for S-102, S-104 and S-111 products in the first iteration of the Guidelines.

- <u>Decision point 1b</u>. Limit the first iteration of the Guidelines to cover the SOLAS/V ECDIS use case for S-102, S-104, and S-111 products only, with a general encouragement to use the same integrated dissemination services for other S-1XX products and/or use cases.

<u>Threshold Ocean/regional S-1XX product</u>

Another outstanding issue is the freedom for users to choose between a range of different options with regional and oceanic coverage (and for producers to supply them). The suggested solution is to use a threshold. If used in combination with S-101 ENCs with a smaller compilation scale than [xxx], it is permissible to have the flexibility to choose between various S-102, S-104, S-111 models. In other words: concurrent/overlapping S-102, S104, S-111 products may be loaded in ECDIS under this threshold.

The question is: how to define this threshold? The table below presents the evolution from S-57 ENCs to S-101 ENCs with the assumption that, for S-101 ENCs, the maximum display scale equals the compilation scale of the ENC.

S-57			S-101	S-57
Navigation purpose	Name	Scale range	Maximum display scale	Selectable range
1	Overview	<1:1,499,999	1:10,000,000	
			1:3,500,00	
			1:1,500,00	96NM
2	General	1;1,499,999-1:350,000	1:700,00	48NM
			1:350,000	24NM
3	Coastal	1:349,999-1:90,000-	1:180,000	12NM
			1:90,000	6 NM
4	Approach	1:89,999-1:22,000	1:45,000	3NM
			1:22,000	1,5 NM
5	Harbour	1:21,999-1:4,000	1:12,000	0,75 NM
			1:8,000	0,5NM
			1:4,000	0,25NM
6	Berthing	>1:4,000	1:3,000	
			1:2,000	
			1:1,000	

How to interpret this table? Ocean and navigation purpose "overview" are a good match. Regional seems to match with navigation purpose "general", however one could argue that a 24 NM selectable range scale would (from a navigational point of view) require harmonized data between S101, S-104 in S-111 in ECDIS. The suggestion is therefore that the threshold for concurrent/overlapping use of S-102, S-104 and S-111 products is set at a maximum display, i.e. compilation scale that is smaller than 1:350,000.

- <u>Decision point 2a</u>. Use a threshold compilation scale/maximum display scale for concurrent use of various S-102, S-104 and S-104 products with S-101 ENCs for the SOLAS/V ECDIS use case to allow for the use of various regional and oceanic models.

- <u>Decision point 2b</u>. Set this threshold at a maximum display, i.e. compilation scale that is smaller than 1:350,000.

- <u>Decision point 2c</u> Don't use a threshold but let Member States define the coverage of S-102, S-104 and S-111 products that they deem necessary for safe navigation in conjunction with their S-101 ENC where all WEND-100 principles apply.

<u>S-128</u>

Another concern regards S-128, Catalogues of Nautical products. S-128 informs the mariners on the availability of products for their safety. S-128 products will likely be developed by individual Members States, service providers and/or other organizations, each for their particular purpose/user group. The question is to what extent is the publication of a Member State's S-1XX product in a catalogue under control of the responsibility of that Member State? In other words: to what extent should the WEND-100 principles apply?

- <u>Decision point 3a</u>. Encourage the use of the integrated dissemination services for SOLAS/V carriage requirements for S-128 products, in addition to other local/bespoke arrangements.

- <u>Decision point 3b</u>. Production of S-128 containing a Member State's S-1XX product information can only be carried out by service providers or other organizations if delegated by that Member State.

<u>Matrix</u>

In the initial stages of the work, a matrix was used to express the varied applicability of the WEND-100 principles to S-1XX products and their use. On the one hand, it provided insight and, on the other hand, it drove a level of detail and complexity with the following discussion that might not be needed for the first iteration of the Guidelines.

As an example, Annex B provides a translation of the text of Guidelines v0.3 into a matrix. The question is whether this level of detail is useful, or an over-complication for the first iteration of the Guidelines?

- <u>Decision point 4a</u>. Aim for the first iteration of the Guidelines at being good enough with a written text only. Use a matrix, if necessary, internally within the WENDWG.

- <u>Decision point 4b</u>. Provide a matrix as Annex to the main body of first iteration of the Guidelines, detailing the written text.

<u>S-98</u>

A question raised was to what extent does S-98 on interoperability address the overlaps (at small scales) between S-101 and the S102, S104 and S111 products? The answer was that S-98 doesn't address overlaps between product lines, nor does it address overlaps within product lines. The overlaps within a specific product (i.e. S-101) would be addressed within the product specification. S-98 deals with how data would be portrayed with a number of different products on top of each other. It hasn't addressed what to do if you have two S-102

products - other than carry forward the S-52 rule where the system or user has to pick one (both cannot be displayed simultaneously).

As a consequence, the full range of S-98 interoperability levels can only be applied to products provided by one organization (preferably based on data base entries). Keeping this in mind, inconsistencies when mixing products from different organizations is a real issue. An issue that should therefore be addressed by the Guidelines.

- Decision point 5. Don't refer to S-98 in the Guidelines as a solution for inconsistency issues

Completeness

There is also debate on including or not S-124, S-128 and S-129 products in the first iteration of the Guidelines for various reasons: ranging from maturity to out of scope. S-124, S-128 and S-129 are mentioned in the S-100 Roadmap in the same time frame as S-101.

- Decision point 6a. For completeness, mention S-124, S-128 and S-129 products in the first iteration of the Guidelines.

- Decision point 6b. Don't mention S-124, S-128 and S-129 products in the first iteration of the Guidelines as they are not mature enough.

Conclusion

Decisions are needed to bring the first iteration of the 'Guidelines on the implementation of the WEND-100 principles' forward.

Recommendation

Decide on the 12 grouped decision points formulated in this paper. The outcome of these provides guidance necessary to draft a first iteration of the Guidelines on the implementation of the WEND-100 principles for consideration by IRRC14.

Justifications and impacts

A first IRCC-draft of the Guidelines on the implementation of the WEND-100 principles is necessary to meet the amended roadmap for the S-100 Implementation Decade. It currently includes the "S-1XX Implementation Guidelines" as a deliverable per decision C5/21.

Moreover, the timely completion of a first IRCC-draft of the Guidelines is in line with the Targets 1.1 and SPI 1.1.2 of the IHO Strategic plan for 2021-2026.

Action required of WENDWG

The WENDWG is invited to:

a. Note the report of the Chair of the 'Guidelines on the implementation of the WEND-100 principles' drafting group.

b. Determine the way ahead for the first iteration of the 'Guidelines on the implementation of the WEND-100 principles' by way of deciding on the decision points on the following issues:

- Use cases. Introduce use cases to cover the width of paragraph 1.1 of the WEND-100 principles or not, and if so which ones.

- Threshold Ocean/regional S-1XX product. Introduce a threshold compilation scale for concurrent use of S-1XX products or not, and if so which one.

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- S-128. Production of S-128 Catalogues containing a Member State's S-1XX product information only by delegation of that Member State or not.

- Matrix. Provide a matrix as an Annex to the main body text of the Guidelines, detailing the written text, or not.

- S-98. Refer to S-98 in the Guidelines as a solution to inconsistency issues or not.

- Completeness. For completeness mention S-124, S-128 and S-129 products in the Guidelines, or not.

c.   Take any other action as considered appropriate.

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