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IHO HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE

Monaco, 15 October 2018

HSSC LETTER 02/2018

NEW EDITIONS OF IHO TECHNICAL STANDARDS

**Endorsement of draft Edition 4.0.0 of S-100 - *Universal Hydrographic Data Model*
and**

Rejection of draft Edition 2.0.0 of S-102 - *Bathymetric Surface Product Specification*

Reference:

- A. HSSC Letter 01/2018 dated 23 July – *New Editions of IHO Technical Standards - Call for HSSC Endorsement of:*
 - *draft Edition 4.0.0 of S-100 - Universal Hydrographic Data Model*
 - *draft Edition 2.0.0 of S-102 - Bathymetric Surface Product Specification*
- B. Terms of Reference and Rules of Procedure of the Hydrographic Services and Standards Committee (HSSC)
- C. IHO CL 15/2018 dated 08 February – *Continuation of the Adoption Process of HSSC and IRCC Recommendations*

Dear Colleagues,

1. Reference A invited the members of the HSSC to consider the endorsement of the following draft editions of IHO publications:
 - draft Edition 4.0.0 of S-100 - *Universal Hydrographic Data Model*; and
 - draft Edition 2.0.0 of 102 - *Bathymetric Surface Product Specification*.
2. The Secretariat of the HSSC thanks the 21 Member States represented in the HSSC that replied to Reference A: Australia, Canada, Chile, Cuba, Estonia, Finland, France, Germany, Greece, India, Italy, Japan, Netherlands, Poland, Republic of Korea, Singapore, South Africa, Sweden, Turkey, United Kingdom, United States of America.
3. For S-100 Edition 4.0.0, 20 responding Member States endorsed the draft Edition, with one Member State abstaining. Three Member States offered comments in addition to their vote. These comments are provided in Annex A to this Letter; and have been assessed by the appropriate Subject Matter Experts within the IHO S-100 Working Group (S-100WG) and amendments made to the draft as required. There were no formal comments provided by the HSSC observer organizations.
4. For S-102 Edition 2.0.0, 17 responding Member States endorsed the draft Edition. Four Member States did not approve the draft New Edition; with seven Member States offering comments in addition to their vote. These comments are also provided in Annex A to this letter. There were no formal comments provided by the HSSC observer organizations.

5. When Reference A was issued there were 34 Member States of the IHO represented in the HSSC. In accordance with article 2.5 of Reference B, the minimum number of affirmative votes required was therefore 18. As a result:

- the proposal submitted for the draft Edition 4.0.0 of S-100 is **endorsed**, taking into account the comments from Member States reported in Annex A.
- the proposal submitted for the draft Edition 2.0.0 of S-102 is **rejected**.

6. In accordance with Reference C, the final draft of Edition 4.0.0 of S-100 will be prepared and recommended for approval and subsequent adoption by the Member States. The decision of the HSSC regarding the draft Edition 2.0.0 of S-102 will be reported to the Chair of the S-100WG, along with the associated Member States' comments, for consideration and action of the S-102 Project Team.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Luigi Sinapi', written in a cursive style.

Rear Admiral Luigi SINAPI

Chair, HSSC

Distribution: All HSSC Contacts

Annex A: Comments received in response to HSSC Letter 01/2018.

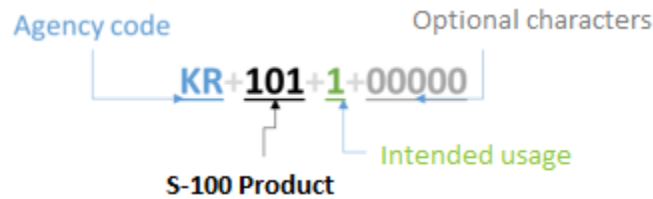
COMMENTS RECEIVED IN RESPONSE TO HSSC LETTER 01/2018

CANADA

S-102 Edition 2.0.0. **Vote: YES**

Comment:

1. Canada endorses the draft Edition 2.0.0 of S-102; however, with the following clarification requested.
2. In paper 6.4 presented to S-100WG3, it was proposed that the S-100 name convention would be as follows:



3. It appears from the S-100WG3_Actions.xls document, that the WG endorsed this recommendation: *6.4Action: include guidance on file naming conventions (based on paper 6.4) in the PS Guide Book, taking into account the comments made during the meeting.*

4. The dataset naming for S-102 is indicated as:

11.2.3 Dataset file naming

XXX+CCCC+0000000000

The file name forms a unique identifier where:

- *XXX – identifies the S-100 Product.*
- *CCCC - identifies the S-62 Agency Code. (If the last two characters are not available in S-62 zeros (0) must be used. For example AA00).*
- *0000000000 – characters assigned for individual product definition. Characters A to Z, 0 to 9 and the special character _ (underscore) can be used for product definition. All 10 characters must be assigned a value.*

The maximum number of characters is seventeen.

Example S-102 File Name: 102U200_HLIA2R3D0

5. It is evident that the order of the designated characters, the use of “intended usage” designation and the overall number of allowable characters between the two specifications are different.
6. As noted, CA would like some clarification on these apparent differences.
7. CA would like it noted that it supports the S-100 dataset naming convention and does not support the S-102 naming convention as it is now proposed.

FINLAND

S-102 Edition 2.0.0. **Vote: NO**

Comment:

We find the content of clauses 6.2.4, 6.3.1 and 6.3.4 problematic and are therefore unable to endorse the draft. In our view, these parts require further development by the Project Team and should not be included in the standard until later stage.

We propose removing from edition 2.0.0 the content of 6.2.4 and 6.3.1 entirely and the two last sentences of 6.3.4. With these changes we would be able endorse the draft.

We also propose removing the text "*, hence negating the need for horizontal uncertainties.*" from the end of 4.4.2.1 paragraph 1 and "*Each S-102 dataset must only have a single extent as it is a coverage feature. Datasets with the same maximum display scale may overlap, however the set of all extents must not overlap. This rule applies even if several producers are involved.*" from the beginning of 4.6. These clauses are still being discussed in the Project Team and should not be included in the standard until more clarity is achieved.

GERMANY

S-100 Edition 4.0.0. Vote: YES

Comment:

The editorial comments (see comment section) should be considered BEFORE the final version will be provided for MS approval.

Comments:

3-7.2: Punctuation: (that is., its relevant sub-type,...)

3-10: Spelling Error: through the website <http://mrnregistry.org>, which also contain(s) references to the full set

Part 4a Table of Content: 4a-5.6.5 Error! Bookmark not defined.

4a-2-2: When the usage of this ISO plan is be scheduled? The reader doesn't know if that is active or not.

4a-5.6.3: Reference: "... mandatory (Table B.3). To make..." Where is table B3, or B3 from which source?

4b-1: 3rd paragraph Quote "ISO 19115-1 defines the guidelines for describing geographic information and services. Although its model does make some provision for imagery and gridded data, these requirements were not fully developed at the time of initial publication of ISO 19115 in 2003, which has since been replaced by ISO 19115-1. This metadata part of S-100 is based on ISO 19115-2:2009 which was produced to provide the additional structure to more extensively describe the derivation of geographic imagery and gridded data, and it is intended to augment ISO 19115."

A shorter and more precise version for a technical product specification would be "This metadata part of S-100 is based on ISO 19115-2:2009."

10b-8.5.2: The list of allowable values consists of a subset of the values allowed by ISO 19136 plus extensions for spline and interpolated curve segments (the forthcoming new edition of ISO 19107 clarifies that the list of interpolations in the standard is not exhaustive):

The referenced of this section has mentioned 19107:2003. What is the impact of a "forthcoming new edition"?

10b-14 page 544: 2nd paragraph Quote: "EXAMPLE: Given a feature catalogue that defines a feature named "Marine Protected Area" with code "MarineProtectedArea" the corresponding feature in the dataset must use "MarineProtectedArea" as the local name – for example, <S122:MarineProtectedArea ... or <MarineProtectedArea ..."

That example is difficult to understand. Rather, it should state: "Within a S-122 (Marine Protected Area) dataset, for a feature named "Restricted area regulatory" with CamelCase code "RestrictedAreaRegulatory" the corresponding feature in the dataset must use <S122:RestrictedAreaRegulatory> or <RestrictedAreaRegulatory>."

App. 11-D: The link which should provide a word version of the template leads to the S-100WG site and no further information is provided there (checked 26 July 2018)

14-8: Directly underneath the header is a dead reference to a figure 14-6 (page 690). The figure comes on the next page (page 691) with a correct figure title

15 Preface: Is it really necessary to provide such in-deep historical information in a "Universal Hydrographic Datamodel"? The first and the second last paragraphs should be sufficient.

S-102 Edition 2.0.0. **Vote: NO**

Comment:

a) The approval process has procedural errors.

1. Germany is not able to endorse a Product Specification which bases on an S-100 edition which has not been adopted by the Member States yet.

2. Germany is missing a Statement that the S-102 data model components have been completely inserted into the IHO registry.

2.1 Are the data model components completed and validated?

2.2 Does an approval protocol exist?

3. A red line version is missing.

4. An intermediate version between the May/June version and the version which has been provided for HSSC endorsement has not been circulated within the project team before the version was provided for HSSC endorsement.

5. A consolidated comment paper is not publicly available. That makes the compare of versions impossible.

b) The Product specification has significant technical errors. The editorial comments (see comment section) provide more information.

Generic errors or inconsistencies

The use of terms S-100 vs. S100 and S-102 vs. S102 should be harmonised throughout the whole document.

The following Product Specification elements have not been provided.

Necessary:

- Sample Data and Validation checks.
- Entity Relationship Model is missing. If that has been stored elsewhere on the internet, no directory has been provided.
- Following parts are only available as part of the Product Specification in pdf Format:
 - Feature Catalogue. Chapter 4.3.1 of the ProdSpec indicates that the FC can be downloaded from the IHO website.
 - Application Schema.

Optional:

- Supplementary tools are not publicly available, such as Converter (possibly BAG to S102). The availability of such a tool on the IHO website was announced at the April S102PT meeting.

Establishing a test bed environment is impossible with the information provided. At the current stage of development, the Product Specification cannot be used, not even for testing purposes (see editorial, and more important, technical issues listed below).

Editorial

General observation:

Parts of the product specification content are contradictory, inconsistent, undefined and/or difficult to understand. The expert check results more confusion than clarification.

Section 1.1: Explanations of the history of format definitions do not belong in a product specification. A statement which format is being used is sufficient.

Section 1.2: Reference to the S-101 ENC Product specification is missing (see 4.7.1)

Section 1.4 Abstract and Section 3 Purpose: Bearing in mind that the ENC depth information is most relevant for safety of navigation, the explicit reference to use S-102 in ECDIS systems should be questioned.

Section 4.3: The section causes confusion for the reader.

4.3.1 It describes S-102 Feature Catalogues; which in fact, don't exist on the IHO website. The download reference is not useable. Rather, it could be referenced to Annex D

4.3.2 It refers to associated meta data

4.3.2.2 It describes meta data just for the purpose of saying that no meta data exist. Or, the distinction between meta data and meta features is not clear. A reference to section 12 would be beneficial as this section describes the metadata usage.

4.3.5 The statement that no complex attributes are defined is not mandatory. It is already mentioned in 4.3.5.2

Section 4.4: 4.4.2.1 It refers now to meta data provided in **MD_GridSpatialRepresentation** and mandatory meta data items

Section 4.7: 4.7.1 The reference to the S-101 ENC Product Specification needs an S-101 edition number or it should be stated in section 1.2

Section 8: The colons at the end of each header make no sense

Figure B.4 is not readable

Figure B.7 is not readable

Figure B.9 is not readable

Figure B.11 is not readable

Figure B.13 is not readable

Figure B.17 is not readable

Section B-1.2: If S102_TrackingList is under development, the entry "**(dataCodingFormat=1)**" makes no sense

Technical (the first few pages have been checked against technical requirements)

4.1: Last sentence:

Mismatch between the statement "A separate metadata file is distributed with the HDF5 S-102 that contains the full metadata for that file." and Figure 4.1 which doesn't present the separate metadata file

4.2: UML diagram:

The bathymetric content box contains a further box which says "BAG Content". The BAG format is not supported by the associated text.

4.2: Mismatch between figure 4.3 and associated text.

Within the figure the discrete point is named “**S102_TrackingListCoverage**. Within the text the point is described as **S102_Tracking_List**.

4.2: Missing attributes in figure 4.4

According to 4.2.1.1.1.1 the class S102_Grid is not presented in figure 4.4

The attribute **depthEstimate** is missing in figure 4.4

4.2.1.1.1.2: The attribute **maximumDisplayScale** is missing in figure 4.4

The reference to figure 11.1 is wrong. The document contains a table 11.1

B-1-1 S102_Grid: Figure B.2 is showing **S102Grid**. It is not clear whether that is identical with **S102_Grid**

Annex D: The Feature Catalogue is incomplete, e.g. attributes described in section 4.2.1.1 have not been incorporated into the Feature Catalogue.

ITALY

S-102 Edition 2.0.0. **Vote: YES**

Comment:

Annex I, paragraph I-3.2 "Generation of a production Grid": it's mentioned a 6 metre grid as an example of reduction of the "high density grid" and of the number of grid nodes but also as the source for all soundings extracted to support chart production. Even if it just represents an example, we consider not completely correct to define in this way the sounding selection for charting that it's not only based on the spatial resolution grid. In our opinion it would be more appropriate to define the 6 metre grid as an example of a reduction of grid nodes not related to chart production.

NETHERLANDS

S-100 Edition 4.0.0. **Vote: YES**

Comment:

Editorial comments by NLHO to draft edition 4.0.0 of S-100

Part 3 – pg 11	The ISO 19109 class GF_TemporalAttributeType is not realised explicitly in the S-100 GFM. Temporal information shall be modelled using the thematic attribute type S100_GF_ThematicAttributeType (see section 6.3.3 for more details).	Section 6.3.3 not found
7-4.2.5.1	A GM_Polygon(Figure 7-3) is defined by a boundary (see 7-5.2.7 below) and an underlying surface to which this boundary is connected.	7-5.2.7 not found

S-102 Edition 2.0.0. **Vote: YES**

Comment:

Editorial comments by NLHO to draft edition 2.0.0 of S-102.

Page	Text	Remark
5	For further information on dataset metadata see the metadata clause.	Which metadata clause and where to be found?
24	See Table 12.4 - Code describing how uncertainty was determined, or Table A2 - Group Level Metadata – Grid Parameters for Vertical Uncertainty Type.	Table A2 was not found
35	014– inlandWaters [see clause 8.5]	clause 8.5 not found
52	See Part 4a Tables 4a-2 and 4a-3	Part 4a Tables 4a-2 and 4a-3 not found
92	See Figure G.2	There’s no Figure G.2
93	See Figure G.3 for a graphic representation of the survey area at 0.5 metre resolution	There’s no Figure G.3
	Note: If the 6-metre surface serves as the source for a complimentary S-102 dataset there will be ~169 nodal depths underneath a single charted sounding. See Figure G.3.	There’s no Figure G.3

SWEDEN

S-102 Edition 2.0.0. Vote: NO

Comment:

The S-102 draft revision 2.0.0 has not been provided to the project team (PT) before this version was published for HSSC endorsement. The Swedish PT representative in the S-102 PT has been in contact with other MS representatives and technical errors have been identified by these project team members. See e.g. HSSC CL 01/2018 response by Germany. If the draft edition 2.0.0 had been provided to the PT these technical errors would possibly been identified and corrected.

Sweden is in general positive and can endorse the S-102 edition 2.0.0 when the identified errors have been corrected.

UNITED KINGDOM

S-100 Edition 4.0.0. Vote: ABSTAIN

Comment:

UK wishes to abstain from voting. Having not fully reviewed the standard it would irresponsible to give our support to recommending approval by the wider IHO membership.

Given the level of detail, complexity and importance of these standards, and due to the scarcity of the required technical competence within the hydrographic community, UK recommends that HSSC should consider how an independent and thorough peer review could be conducted by a party outside of the

IHO community. Such a review would provide assurance to the wider IHO membership that our implementation of the ISO 19000 series is robust.

S-102 Edition 2.0.0. **Vote: NO**

Comment:

UK cannot endorse the new edition for the following reasons:

- * Edition 2.0.0 of S-102 assumes that edition 4.0.0 of S-100 has been approved. As a matter of principle, it is not possible to approve the new edition of S-102 based on a version of S-100 that has not yet been approved.
- * To sensibly review the new S-102 it should be supplied with some test data to demonstrate its effect.
- * References in S-102 to S-101 are inappropriate because S-101 has not yet been released. Statements such as in section 4.7.1 saying that ‘S-102 shall conform to the S-101 dataset loading and unloading algorithm’, is clearly not achievable without an approved version of S-101.
- * References to the use of S-102 in ECDIS are misleading and misguided as it is unclear how an S-102 ‘overlay’ would relate to ENC depth data in an ECDIS operating to comply with SOLAS.
- * Many of the figures in Annex B are unreadable due to poor resolution of screen images.