5th IHO HSSC Meeting
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Paper for Consideration by HSSC

Comments by Finland to the status of S-57, scope of S-58 and the authority between S-57 and S-58

Submitted by:	*Finland*
Executive Summary:	*The document requests clarifications to the status of S-57, scope of S-58 and authority between of S-57 and S-58*
Related Documents:	*1. HSSC5-05.1A_Report of TSMAD to HSSC5* *2. Draft e5.0.0 of S-58 ENC Validation Checks (Rev.1)* *3. Draft S-57 Supplement No. 3*
Related Projects:	*None*

Introduction / Background

1. There are some uncertainties of the within S-57 and S-58 standards which need clarifications.

Analysis / Discussion

Status of S-57

2. S-57 is officially "frozen". However there are published several Supplements to Use of Object Catalogue, which introduce substantial improvements to use of S-57.

3. IMO Circular Letters related to ECDIS software upgrading up to the latest IHO standard and refer to “Latest IHO standard for ECDIS” on the IHO web pages. This web page refers to S-57 Supplements on footnotes intended only for ENC producers, not for ECDIS manufacturers. So in the manufactures' point of view these supplements do not exist, and not required by IMO.

4. HSSC is invited to clarify the status of S-57 and its Supplements.

Scope of S-58

5. The original scope of *S-58* was to be as guidance to producers of ENC validation tools when developing their validation software.

6. TSMAD now proposes in the Draft Supplement No. 3 Appendix B.1 that " IHO standard S-58 contains validation checks to be used to verify that an ENC meets the requirements laid out in this specification. ENC cells must meet the minimum validation requirements defined in S-58 in order to conform to this product specification". In the introduction of the proposed *e5.0.0 of S-58* it is stated that “It specifies the checks that at a minimum, producers of ENC validation tools should include in their validation software. This software must be used by hydrographic offices to help ensure that their ENC data are compliant with the S-57, Appendix B1 ENC Product Specification.”

7. These proposed specifications means that the use of S-58 will be mandatory for Hydrographic Offices. This is a major change of the scope of the S-58 which should be indicated very clearly. This change of the scope has been quite weakly informed in the TSMAD

Report as "*A new Supplement No.3 has been produced to strengthen the mandatory role of using S-58 for ENC validation*". In the proposed draft of S-58 it is mentioned in an unclear way in the middle of introduction as "This software must be used by hydrographic offices". To which software this sentence refers? Who should approve or audit them? Should these software be type approved? Can HOs use only software developed by "producers of ENC validation tools" but not to use their own software within their production line? The main issue should be that the ENCs are errorless regardless of the tools how they are validated.

8. Finland proposes that HSSC clearly confirms this change of scope of S-58 and task TSMAD to clarify the introduction of S-58.

Authority between S-57 and S-58

9. Finland has identified that there are inconsistencies between S-57 and S-58. This causes uncertainty because the order of authority of the S-57 and S-58 is not specified.

10. There is at least one case where the specifications of S-57 and S-58 are in contradiction. If an All Weather Terminal is encoded according to the Use of Object Catalogue (S-57 Appendix B.1 Annex A, clause 4.6.1 Harbour installation) we get a *Warning* while testing with current version e4.2.0 S-58 (Test 54 BUISGL). This sounds reasonable because the situation in reality is like that but exceptional, and the operator needs check that this is not unintended error. The Test 54a in the proposed new version of S-58 gives a *Critical error* in this case. So in this case the encoding is according to the S-57 and UOC, but a *Critical error* will be reported. More details of this case are in Annex 1.

11. This issue was discussed in June with some S-58 experts. There was no support to change that back as *Warning* level, but comments were that also *Critical errors* may be by-passed. We believe that this is not the right way to deal with this kind of issues and this reduces the importance of the tests and confuses the meaning of *Critical errors*. Actually, this new requirement specified in the proposed S-58 set a totally new requirement for ENC, because it is not based on any specific S-57 requirement, but on "logical consistency".

12. Finland proposes HSSC to specify explicitly that the S-57 has the order of authority over the S-58, if there are inconsistencies between these standards.

13. In addition, Finland requests the level of Test 54a to be changed back as a *Warning* before final approval of e5.0.0 of S-58.

Justification and Impacts

14. There should be no conflicting specifications between IHO standards.

Action Required of HSSC

15. The HSSC5 meeting is invited to

- clarify the status of S-57 and Supplements to S-57
- clearly confirm the change of scope of S-58 and task TSMAD to clarify the introduction of S-58
- specify that S-57 has the order of authority over S-58
- change the level or test 54a as a *Warning* before final approval of e5.0.0 of S-58

Annex 1. Details of an example case of inconsistencies between S-57 and S-58

Annex 1. **Details of an example case of inconsistencies between S-57 and S-58**

S-58 specifies the following error message levels:

Critical Error An error which would make an ENC unusable in ECDIS through not loading or causing an ECDIS to crash or presenting data upon which is unsafe for navigation.

Error An error which may degrade the quality of the ENC through appearance or usability but which will not pose a significant danger when used to support navigation.

Warning An error which may be duplication or and inconsistency which will not noticeably degrade the usability of an ENC in ECDIS.

Finland has a real world case with All Weather Terminal like in pictures below.

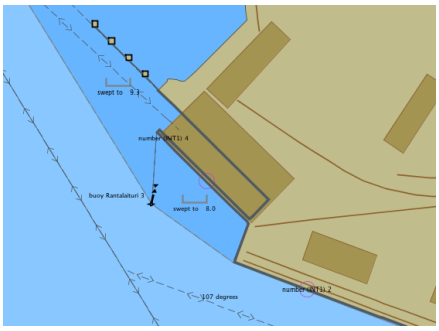
This has been encoded according to the S-57 UOC (in S-57 Appendix B.1 Annex A clause 4.6.1 Harbour Installation, underlining by us):

> "If it is required to encode a covered terminal into which ships can go, this should be done using **HRBFAC** with the purpose of the terminal defined by CATHAF. The roof of the terminal may be encoded using the attribute NATCON, and the maximum height and/or draught of vessels able to use the terminal encoded using the attribute INFORM. Alternatively, the roofed structure may be encoded using a **BUISGL** object (see clause 4.8.15)."

We believe this encoding feasible because inside the building there is a navigable water area and this area and the building (BUISGL) overlap.

When testing this with e4.2.0 S-58 Test 54, this causes a Warning. This is correct because the situation is true but exceptional, and the operator should check that this is not an unintentional error.

On ECDIS screen this looks like in picture right. (coastline and part of fairway can be seen inside a dark brown building; water colour covered by dark brown, but in practice there is a depth area not land area.)



While testing this with the proposed e5.0.0 S-58 Test 54a ("For each CRANES, BUISGL, FORSTC, LNDMRK or SILTNK object of type area that is not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON object of type area."), it reaturns a **Critical Error.**

In our understanding in this case when encoding according to S-57 UOC and testing with the proposed version of S-58 we receive a Critical Error. This should be corrected.