

**25th IHO-TSMAD Meeting
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Paper for Consideration by TSMAD

Considerations on the implementation of Annex 1 to TSMAD Terms of Reference

Submitted by:	IHB
Executive Summary:	This paper reviews the implementation of the procedure to manage the Use of the Object Catalogue for ENC and the Encoding Bulletins.
Related Documents:	Final minutes of HSSC2 Final minutes of HSSC3 TSMAD Terms of Reference as amended at HSSC3 IHO CL 90/2012 of 29 October 2012

Introduction / Background

- At its 20th meeting (May 2010), TSMAD reviewed the procedure to manage the Use of the Object Catalogue for ENC (UOC - S-57 Appendix B.1, Annex A) and the Encoding Bulletins (EB) in order to ensure that safety issues get appropriate consideration and visibility. TSMAD presented its recommendation at HSSC2 (October 2010). HSSC instructed TSMAD to incorporate the procedure in its business rules. This led to the introduction of Annex 1 to TSMAD Terms of Reference as approved by HSSC3 (November 2011). A copy is attached in Annex A.
- This paper reviews the implementation of Annex 1 from the IHB perspective.

Analysis

- 21 EBs have been produced since May 2010. All but one have been handled by TSMAD as “non safety issues”. The exception relates to EB53 dealing with the description of all-round (omni-directional) lights.
- In mid-October 2012, the TSMAD Chair alerted the IHB on user feedback about an issue related to the encoding and display of all-round (or omni-directional) lights in ENC. Clause 12.8.1 of the UOC provides guidance for the encoding of lights, including the population of the attributes SECTR1 (Sector limit one) and SECTR2 (Sector limit two), where it is stated that these attributes are “only for sector lights”. It appeared that in some cases lights that are visible all-round had been encoded as LIGHTS objects with attributes SECTR1 = 0 and SECTR2 = 360. It was reported that, in some ECDIS, LIGHTS objects which had been encoded in this way were displayed as a single dashed line, with no light flare or coloured “halo” to indicate that the light is visible all-round. This could result in screen clutter on some ECDIS displays and could potentially confuse the mariner.
- In accordance with the procedure described in Annex A, the S-57 sub-group of TSMAD published EB53 which advises ENC producers that the attributes SECTR1 and SECTR2 must not be populated for lights that are visible all-round. An inventory of the deviations from this interpretation showed that 9 ENC producers were concerned with one accounting for 72% of the cases. Considering that the practice of populating sector limits in all-round lights was not appropriate and that the issue was of navigational significance, the Chair of TSMAD proposed that the IHB issue a Circular Letter so as to inform all ENC producers and request corrective action when appropriate. This was done through CL 90/2012 of 29 October 2012. Member States were invited to inform the Directing Committee, with copy to TSMAD Chair, of any difficulty, feedback or comments at their earliest convenience.
- To date only two Member States have provided comments. One MS, not identified in the inventory as being concerned, confirmed that there was no deviation in its ENCs. The MS most concerned, according to the

inventory, objected to the contents of CL90/2012 and provided the comments attached in Annex B. Two main points are raised in these comments:

(i) the first one deals with the analysis of the causes of the problem and the adequacy of the actions taken to resolve it (i.e. portrayal versus encoding issue);

(ii) the second one deals with the criteria and process for assessing and resolving safety issues.

7. Noting that no other ENC producer concerned by the deviations had objected to CL 90/2012, the Member State concerned was informed that the CL would not be withdrawn and that his comments would be forwarded to TSMAD for further consideration.

8. With no intention to pre-empt the views of TSMAD, the IHB notes that the procedure in Annex A allows for fast track processing of non-safety issues while requiring a longer process for issuing EBs related to safety issues. In the first case (non-safety issue) the S-57 sub-group may publish an EB when prompted by the TSMAD chair group. In the second case (safety issue), the EB is not supposed to be considered until a full review cycle involving IHO Member States and stakeholders has been completed and then analysed by the TSMAD chair group.

Action Required of TSMAD

9. TSMAD is invited to:

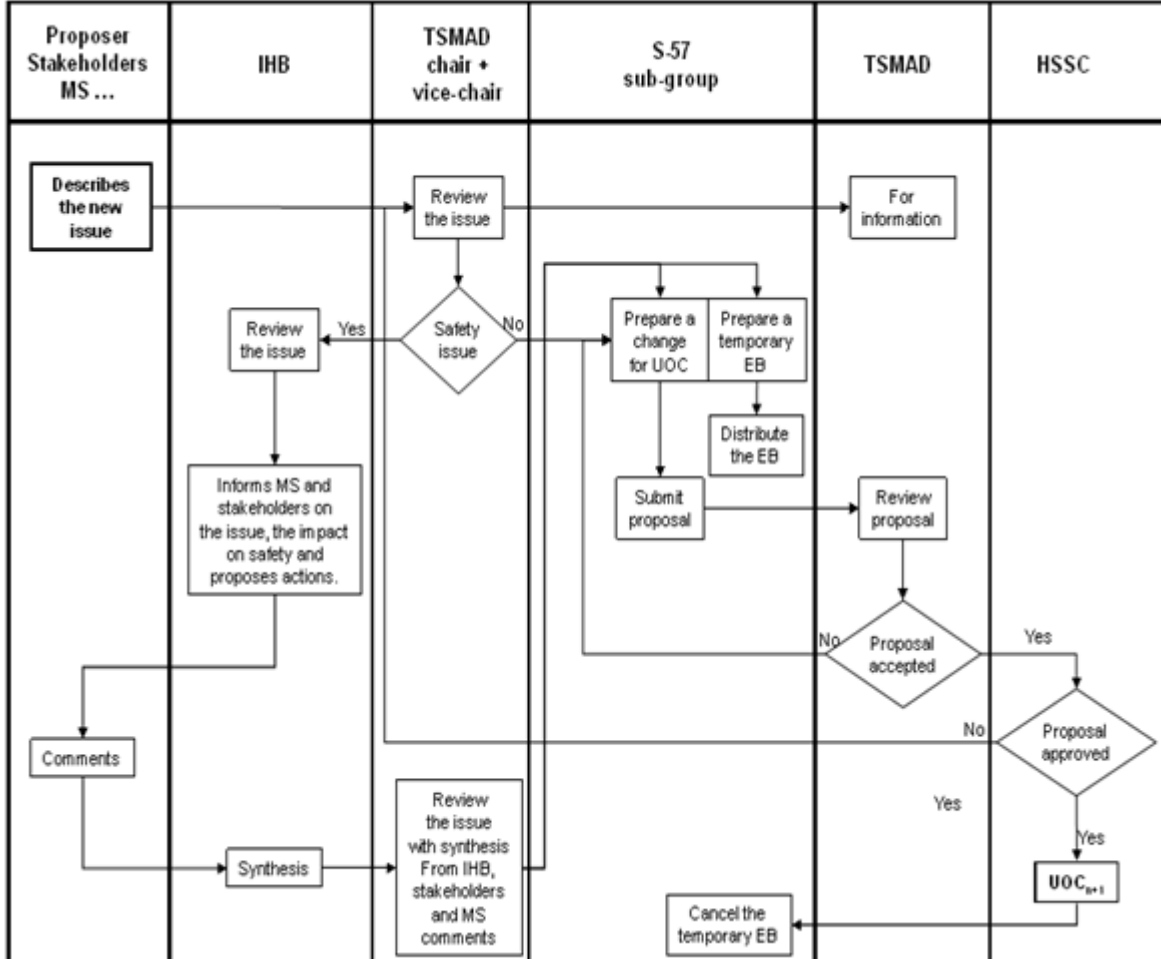
a **provide its views** on the comments in Annex B and the adequacy of the procedure in Annex A, in the light of EB related issues considered since May 2010, and

b **take any other action** as considered appropriate.

Annex A to TSMAD25-4.11.1

TSMAD Terms of Reference

Annex 1



Annex B to TSMAD25-4.11.1

Comments from one IHO Member State on IHO CL90/2012

1. Basic problem is an erroneous implementation by the OEMs concerned

The C&S MD5 (Jan 2008) on page 48 explicitly states that "All-around-lights of 360 degrees are displayed identical to sector lights".

In our understanding, following the CSP diagram in PL 3.4 for LIGHTS05 the drawing procedure for 0 - 360 lights always reaches the drawing guidance "FIRST SYMBOLIZE THE ARC WITH A SOLID LINE, 4 UNITS WIDE, COLOUR OUTLW. THEN SYMOBLIZE THE ARCT WITH THE COLOUR, LINSTYLE AND LINE WIDTH SELECTED ABOVE. RADIUS ON THE DISPLAY IS 25mm." According to these specifications, an arc should always have been drawn for 360 degree sectors. So far to our knowledge all OEMs have implemented this case.

In this case the basic problem seems to be that there is at least one OEM which has an erroneous implementation. The implementation of 0-360 sectors in the picture in Annex A of CL 90/2012 shows that the symbolisation is not according to these specifications. In our opinion this is not an ENC encoding error, but an erroneous implementation of PL, and thus the OEMs concerned should correct their ECDIS software.

=> IHB to contact the OEMs concerned and to ask them to modify their software, and to inform their users.

Because it seems obvious that 0 - 360 sectors are an expected input for portrayal, and we cannot find any specification in S-57 or other related documents prohibiting to use 0 - 360 sectors, then the specifications need to be clarified to clearly state that this is allowed. The CL 90/2012 and the Encoding Bulleting 53 should be withdrawn ASAP for further more thorough analysis of the reasons, rationale, consequences and actions.

=> IHB to withdraw the CL 90/2012 and EB53 ASAP, for further studies

=> IHB to initiate actions to clarify the specifications so that the use 0 - 360 encoding is explicitly allowed.

Actually, based on a quick look to the picture in Annex A of CL 90/2012 there seems to be also other non-standard presentations, e.g. the light arcs for "normal" sectors are drawn without the black outer lines and thus difficult to see. Is that ECDIS really a type approved one?

As a history background we can note that before 2008 the use of 0 - 360 degree sectors was explicitly mentioned and allowed in PL. In 2007 the specifications were changed in order to eliminate narrow (less than 1 degree) sectors. There was no discussion that the portrayal of 0 - 360 sectors was not needed, but rather expected to have them. Since 2008 there has been common understanding that the use of 0 - 360 degree sectors is allowed. So far this has not been an issue at all because all OEMs have implemented their ECDIS software to take care of this case. We have encoded our ENCs always in this way and we have not received any information or reports on this kind of problems. This also clearly indicates that this way of encoding has been recognised as a valid one. We agree that this way of encoding is diverting on the encoding used by the majority of HOs. We believe that for us a suitable timing for us to change our encoding may be when the S-101 data model has been approved and taken into use.

2. Assessing this case as safety critical

The justification to that this is a serious major navigation safety issue is not clear for us. What is the extent of this problem? We have not received information on how many ECDIS systems this problem

exists, or how many OEMs have implemented their presentation this way. How many users are using these ECDIS systems? Are these ECDIS systems type approved? How many ENC producers are encoding 0 – 360 sectors?

The rationale for the proposed action expressed during the discussions or shown in CL 90/2012 is that the “may result in screen clutter on some ECDIS displays and could potentially confuse the mariner”. This sentence indicates that this may be a safety issue, but has someone really claimed that this is? There are other features which really clutter the display in some cases, e.g. texts. In our understanding there are not sufficient facts to assess this case as a safety critical issue. When looking the picture in Annex A, we can notice that the picture is not nice, but is there really a possibility for a real mis-interpretation, if the “Full length” option of the sector lines is not selected (at least in the case if the mariners have been warned on this until the ECDIS software have been updated)? The second reason may be that the colours of lights are not visible. But the same applies in this ECDIS also to the “normal” sectors, which are drawn in a non-standard way and difficult to see, as can be noticed in the picture in Annex A.

We believe that the current rules are not clear enough. A very small group of people can make a decision which may have major consequences to other bodies. There are no clear criteria and process specifications to assess if an issue is a safety critical issue. No clear rationale nor the extent of the problem has been forwarded. Any clear rationale was not mentioned in the CL 90/2012.

=> IHB to initiate actions to clarify the criteria and process for assessing an issue to be a safety critical.

3. Consequences of the EB53 in our case

In our understanding this EB53 is a major change of the content of S-57. Not only a clarification.

In our case we have some 2 400 lights with 0-360 sectors. Practically all our some 200 ENC cells contain several of these lights. Our ENCs are derived and maintained in a database. We have an ENC production line developed by third party. The process to amend the software requires time and money. The option to manually edit our ENCs is also laborious and is a deviation to our normal process.

The consequence of the implementation of this EB is that we need to make new editions or issue ERs on all of our ENCs, to validate them, and to forward them to RENC. Finally all the ECDIS users using our ENCs must update (them). Similar actions are needed for all those ENC producers who are encoding this way. This is not an easy, simple or quick task. Further on we need to do this additional work for all future releases until the software has been amended. For us it is not possible to take this kind of actions in short term.

4. Comments to the process of dealing with safety critical issues

Even if asked, we have not received any information on the extent of this problem, but we may assume that there are only one or very few OEMs concerned, and they have released their ECDIS software recently. There are likely not many mariners using these ECDIS systems. It should be easy to contact them. We believe that it would have been more appropriate to contact these OEMs, and to ask them to modify their software and to inform and warn their users than to issue an EB.

We do not agree on the way that if an OEM implements a strange ECDIS software, which is not following the PL specifications, then to avoid the consequences, the IHB sets the burden of resolving the issue on the ENC producers. These are requested to urgently amend their ENC encoding (which is according to the specifications) and to amend their existing ENCs. During the discussions it has been widely agreed that this case is a portrayal problem. However the solution presented in the EB 53 refers to encoding of ENC and thus only to ENC producers.

According to the Annex 1 of TSMAD TORs the S-57 Sub-group has an important role. However, so far we have understood it to be more an ad-hoc like sub-group to address some specific topics during the TMSAD meetings or meanwhile. We do not remember if the composition of this sub-group is formally defined anywhere. It seems obvious that the role of this sub-group needs to be clarified and its composition formalised.

The procedure in the Annex 1 of the TSMAD TORs seems not to be clear. Following strictly the arrows in the diagram indicates that in safety critical issues the Members States and Stakeholders should be informed and feedback from them to be reviewed. After that the issue returns back to the S-57 sub-group for preparing and releasing an EB, if needed. In our understanding only a limited number of experts have been contacted on this issue (mainly S-57 sub-group). However the CL 90/2012 request actions from all RHCs, from all MS and even from non-member states.

To avoid this kind of cases in the future we propose to clarify the TSMAD TORs for specifying more clearly the process of issuing urgent EBs. Also process shown in Annex 1 should be clarified. The criteria for safety critical issues should be defined. It should be specified that real encoding clarifications to be forwarded via EBs and portrayal clarifications via Portrayal Bulletins.

=> IHB to initiate actions to clarify procedures for amending the specifications in safety critical cases [clarify the process, formalise S-57 sub-group]

In order to enable the IHB to handle this kind of cases fluently, the IHB may study ways and measures to improve the communication to OEMs and users.

=> IHB to take actions to study ways and measures to improve the communication to OEMs and users

5. Our summary and recommendations

In our opinion the issuing of CL90/2012 and EB53 was based on insufficient and erroneous analysis on the real cause of the problem. There was very limited analysis of the consequences. The proposed solution is tasked to a wrong body.

Thus we strongly ask the IHB to re-consider this issue and to take the corrective actions as proposed above.

Hopefully this clarifies our position and our proposals. Due the very short time we were not able to analyse this issue and its consequences in details and could not forward all relevant information to you before launching the CL 90/2012. We are still busy all the time and I believe that there may still be other relevant details which need to be clarified on this issue.

We believe that this issue should be raised at the next TSMAD and DIPWG meetings and to be forwarded also to HSSC5. We are willing to contribute on processing this further on.