

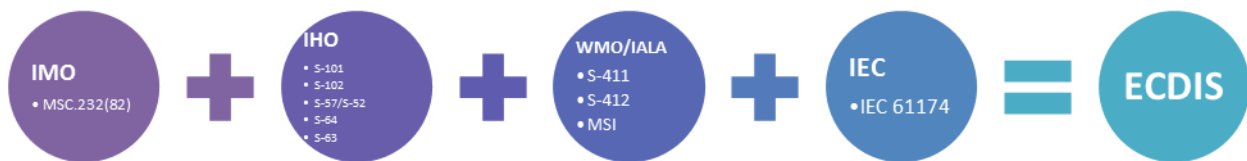
## Paper for Consideration by the HSSC8

### Potential Impacts of S-100, S-101 and other S-100 based product specifications on IEC 61174 and IMO MSC.232(82)

<b>Submitted by:</b>	S-100 Working Group Chair
<b>Executive Summary:</b>	HSSC7 requested that the S100WG investigate and identify any amendments to existing IMO Performance Standards that may be required to use S-100 based products, including S-101 ENCs.
<b>Related Documents:</b>	S-101, IEC 61174, IMO MSC.232(82)
<b>Related Projects:</b>	S-100

#### Introduction / Background

As S-100 is maturing and there is a widespread interest amongst the navigation community to develop different types of S-100 based products, it is important to understand the impacts that S-100 and its associated product specifications may have on ECDIS related standards that are outside the control of the IHO standards development process.



In particular, there are two standards that directly affect ECDIS:

- International Maritime Organisation MSC.232(82) – Revised Performance Standards for Electronic Chart Display and Information Systems
- International Electrotechnical Commission IEC 61174 – Maritime navigation and radiocommunication equipment and systems – Electronic chart display and information system (ECDIS) – Operational and performance requirement, methods of testing and required test results.

#### Analysis/Discussion

In 2014, this issue was brought to the attention of TSMAD and DIPWG at TSMAD24 (Paper 10.6A). The following is extracted from the minutes of the meeting in regards to that topic:

*10.6.A S-101 Impacts to IEC 61174 and IMO PS [Powell]* - JP reported that TSMADWG and DIPWG need to consider the impact that the introduction of S-101 data may have on non IHO standards such as the IMO ECDIS performance standards and the IEC Standards (IEC 61174 - Operational and performance requirement, methods of testing). She noted that there should be minimal impact for IMO document MSC.232(82) as most references to IHO standards are only included in an annex to the document. The only change required would be to change S-57 with S-101 in the appropriate places.

The introduction of S-101 will have a larger impact for the IEC 61174 standard as this document currently references S-52 in at least 87 instances and references type approval tests for each of these clauses.

Robert Ward noted that the IMO performance standard drives the testing standard, however the work on the test standard could begin sooner provided that the product specification is stable. IMO won't adopt a standard until it has been thoroughly tested. A strategy subgroup was tasked to discuss this further.

Report back from the strategy subgroup. JP reported that the intention of the discussion group was to examine what the implications for implementing S-101 would be. It was also necessary to examine what would be required to include new tests for S-101 data in IEC 6117. It was concluded that S-64 could be expanded to cater for this and it should also include functional tests. The IMO performance standard had references to footnotes that should not have a large impact. DB noted that the IEC is due to produce a revised version of 61174 by 2015, and TSMAD should attempt to include all new S-101 required text for the new edition.

It should be noted that beyond this breakout group at TSMAD24, nothing progressed further on the topic as S-101 was still in a draft stage and S-52/S-64 were in the process of undergoing major updates.

In order to assess the impacts that S-100 and S-101 may have on these two standards, a preliminary assessment was made to determine the extent to which the standards reference the existing IHO ENC standards (S-57, S-52, S-64).

### **IMO MSC.232(82)**

IMO MSC.232(82) is a performance standard, which by definition outlines the minimum requirements that are needed for an ECDIS. S-101 will have very little impact on this standard. The key item is that IMO defines the following for Chart Information:

The chart information to be used in ECDIS should be the latest edition, as corrected by official updates of that issued by or on the authority of a Government, government-authorized Hydrographic Office or other relevant government institution, and conform to IHO standards.

The IHO standards are only incorporated as references to S-52, S-57 and S-63. In addition, since the requirements for ECDIS remain unchanged, the only change that would need to be made to this document is to include S-100 (?) as a reference to IHO standards. The problem is that with an ever evolving suite of product specifications under development, it may not be practical to call out each type of product specification that may be used in an ECDIS.

### **IEC 61174 and S-64**

S-100 and S-101 will also require changes to IEC 61174 and also a new edition of S-64 (or S-164) to incorporate the required tests and test data sets for S-100 based ECDIS.

At the 4<sup>th</sup> S-100 Test Strategy Meeting the participants discussed what the impacts that S-100 would have on the related IMO/IEC standards. It was noted that for the IMO Performance Standard is a minimum set of requirements, so at a minimum the footnote could be amended to also reference S-101. But the question still remains regarding the other set of S-100 based standards that are also intended to be used within an S-100 ECDIS. Another comment was made that perhaps, S-100 should not be used in with the terms of ECDIS, but rather solely as part of ENavigation framework. However, the reality is that the improved modelling contained within an S-101 ENC and the interoperability of other S-100 based product specifications to provide the mariner with additional information to make informed decisions will most likely drive the market to want to provide and S-100 Based ECDIS for regulated carriage.

## **Conclusions**

As a result, the greater community understands that there will need to be changes to the IMO performance standard and to the IEC 61174, but the question, is how do we go about identifying what needs to be changed and proposing the change. In addition, the S-100 ECDIS Interoperability Specification will also have to be taken into consideration.

## **Recommendations**

After discussing the potential amendments to standards that maybe affected by S-100 and considering the timeline for the finalization of various product specifications it is still too premature to open up any formal discussion regarding what should be amended, or ask for an IMO Member State to submit a request to IMO for a change. It is recommended that this issue be revisited again at HSSC9 by holding an ECDIS/ENavigation stakeholder day. This will allow for more maturation in the S-100 Test Bed and a better understanding of what is really needed to change in regards to the IMO Performance Standard.

## **Justification and Impacts**

The biggest potential impact to delaying a request to the IMO in regards to S-100 based standards for use in ECDIS is that it will delay the amendment of any relevant documents. However, it was noted that the uptake in the S-100 Environment will most likely occur in the sub-SOLAS ECS and ENavigation market first – which will then optimally promulgate up to the ECDIS standards.

## **Action Required HSSC8**

The HSSC8 are invited to:

- a. note this report
- b. discuss other S-100 implications
- c. agree to revisit this discussion at HSSC9 by holding an ECDIS Stakeholder Forum in conjunction with HSSC9