

**5TH MEETING OF THE HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE
Shanghai, China, 5-8 November 2013**

**Paper for Consideration by HSSC
Regulatory process associated with the
implementation of S-100 based products and services**

Submitted by:	IHB
Executive Summary:	This paper reports on the outcome of action HSSC4/39: “IHB, in liaison with HSSC chair, to develop an outline of the regulatory process associated with the implementation of S-100 based products and services.”
Related Documents:	Final minutes of HSSC 4 (section 9) HSSC5-07.1A - E-navigation development affecting HSSC HSSC5-07.2A - IMO activities affecting HSSC
Related Projects:	Maintenance of S-100 and development of S-100 based product specifications.

Background

1. During the 4th meeting of the IHO Hydrographic Services and Standards Committee (HSSC), the Chair of the Transfer Standard Maintenance and Applications Development Working Group (TSMAD) suggested that the Committee should start looking at the implications of S-100 from the regulatory perspective (impact on IMO Performance Standards). Accordingly, the following action HSSC4/39 was decided:

“IHB, in liaison with HSSC chair, to develop an outline of the regulatory process associated with the implementation of S-100 based products and services.”

2. This paper presents the outcome of that action.

Scope of S-100 based products and services

3. The carriage requirements defined by Chapter V of the International Convention for the Safety of Life at Sea (SOLAS), as amended, refer to the following products and services which could potentially be standardized through S-100 based product specifications:

- *Navigational warnings* (Regulation V/4);
- *Meteorological warnings and services* (Regulation V/5);
- *Ice information* (Regulation V/6);
- *Nautical charts, sailing directions, lists of lights, tide tables and other nautical publications satisfying the needs of safe navigation and the associated updates* (Regulations V/9 and V/19);
- *Ship reporting systems* (Regulation V/11);
- *Vessel traffic services* (Regulation V/12).

4. Only the products and services under the direct scope of the IHO, shown above in italics, are considered in this paper.

Outline of the regulatory processes

Navigational warnings

5. SOLAS Chapter V refers to the “Guidance on the IMO/IHO World-Wide Navigational Warning Service” (WWNWS) adopted by the IMO Resolution A.706(17), as amended. Additional references include the IMO Resolution A.705(17) “Promulgation of Maritime Safety Information” (MSI), as amended, the Joint IMO/IHO/WMO Manual on MSI (IHO Publication S-53 - IMO/MSC Circular MSC.1/Circ.1310), the International SafetyNET Manual (IMO/MSC Circular MSC.1/Circ.1364) and the NAVTEX Manual (IMO/MSC Circular MSC.1/Circ.1403).

6. The review of these documents is a standing agenda item of the IHO WWNWS Sub-committee which reports to the IHO/IRCC and to the newly-formed IMO Sub-committee on Navigation, Communications, Search and Rescue (NCSR) under the GMDSS agenda item. **It is recommended that the implementation of an S-100 based product specification for navigational warnings be handled through that process.** Moreover, any future developments should be coordinated with the on-going review of the GMDSS and appropriate inputs to the relevant IMO/NCSR Correspondence Group¹ should be considered in due course. Coordination between HSSC and IRCC should be considered as well.

Nautical charts and updates

7. The current SOLAS Regulation V/19.2.1.4 requires ships to carry “*nautical charts (...) to plan and display the ship’s route for the intended voyage and to plot and monitor positions throughout the voyage. An electronic chart display and information system (ECDIS) is also accepted as meeting the chart carriage requirements of this subparagraph. Ships to which paragraph 2.10 applies shall comply with the carriage requirements for ECDIS detailed therein;*”.

8. SOLAS Regulation V/18 defines the specific requirements which apply to navigational systems and equipment in general and to ECDIS in particular:

“1 Systems and equipment required to meet the requirements of regulations 19 and 20 shall be of a type approved by the Administration.

2 Systems and equipment, including associated back-up arrangements, where applicable, installed on or after 1 July 2002 to perform the functional requirements of regulations 19 and 20 shall conform to appropriate performance standards not inferior to those adopted by the Organization.

3 When systems and equipment are replaced or added to on ships constructed before 1 July 2002, such systems and equipment shall, in so far as is reasonable and practicable, comply with the requirements of paragraph 2.

4 Systems and equipment installed prior to the adoption of performance standards by the Organization may subsequently be exempted from full compliance with such standards at the discretion of the Administration, having due regard to the recommended criteria adopted by the Organization. However, for an electronic chart display and information system (ECDIS) to be accepted as satisfying the chart carriage requirement of regulation 19.2.1.4, that system shall conform to the relevant performance standards not inferior to those adopted by the Organization in effect on the date of

¹ See COMSAR17/17, paragraph 3.10.

installation, or, for systems installed before 1 January 1999, not inferior to the performance standards adopted by the Organization on 23 November 1995*.

* *Recommendation on Performance Standards for Electronic Chart Display and Information Systems (ECDIS) (resolution A.817(19)).*”

9. Considering that ECDIS installed before 1 January 1999 will either be out of service by the time S-101 based ENC are available or no longer up-gradable, only more recent systems are addressed in the subsequent analysis.

10. The current IMO ECDIS Performance Standards (IMO/MSC Resolution MSC.232(82)) allows that ECDIS installed before 1 January 2009 conform to “*performance standards not inferior to those specified in the Annex to resolution A.817(19), as amended by resolutions MSC.64(67) and MSC.86(70);*”.

11. With regard to ECDIS installed on or after 1 January 2009, IMO/MSC Resolution MSC.232(82) specifies that:

(paragraph 4.1): “*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*”.

* *IHO Special Publication S-52 and S-57 (see appendix 1).*”

(paragraph 4.3): “*Requirements for structure and format of the chart data, encryption of chart data as well as the presentation of chart data are within the scope of relevant IHO standards, including those listed in appendix 1.*”

12. Appendix 1 lists the relevant technical standards and specifications developed by the IMO, the IHO and the IEC with the following provision: “*The latest edition of these documents should be obtained from the organization concerned.*”.

13. Based on the previous considerations, it could be argued that the introduction of an S-100 based ENC Product Specification (S-101) is nothing more than introducing a new edition of S-57 and S-52 without any regulatory impact, unless it affects the ECDIS Performance Standards. However the on-going development of S-101 is based on the assumption that the optimum handling of S-101 ENC will require significant changes in ECDIS. **This implies, as a minimum, a revision of the ECDIS Performance Standards, and, possibly, of the associated requirements** listed in paragraph 2.4 of the current Performance Standards:

- IEC Publication 60945 (referred to in IMO resolution A.694(17)),
- IMO/MSC resolution MSC.191(79),
- IMO/MSC Circular MSC/Circ.982.

14. In accordance with IMO Resolution A.886(21), the IMO/MSC is responsible for approving amendments to Performance Standards. A revision would therefore need to be introduced through the IMO/NCSR. At its 91st session the IMO/MSC had agreed (MSC91/22, paragraph 19.21) “*to include in the 2012-2013 biennial agenda of the NAV Sub-Committee and provisional agenda for NAV 59, an output on “Consideration of ECDIS matters related to the implementation of the carriage requirements in SOLAS regulations V/19.2.10 and V/19.2.11”, with a target completion year of 2014.*” Noting that the restructuring of IMO Sub-committees may result in a reduction in the number of active agenda items, it is recommended to advise IMO to consider the revision process not later than 2014 (i.e. NCSR 1).

15. One of the main benefits of S-100 based equipment is the access to other S-100 products and services interoperable with ENC. It relates directly with one of the five prioritized potential e-navigation solutions selected by the IMO Correspondence Group (CG) on e-navigation:

S4: Integration and presentation of available information in graphical displays received via communication equipment.

The relevant risk control options (RCO) are:

RCO 1: *integration of navigation information and equipment including improved software quality assurance, and*

RCO 3: *standardized mode(s) for navigation equipment.*

Therefore, it is recommended to advise IMO to consider the revision of the relevant Performance Standards and other instruments, if required, as a component of the draft e-navigation strategy implementation plan to be finalized in 2014 for consideration by NCSR 1.

Nautical publications and updates

16. The current SOLAS Regulation V/19.2.1.4 requires ships to carry “(...) *nautical publications to plan and display the ship’s route for the intended voyage*”. According to SOLAS Regulation V/2.2, “(...) *nautical publication is a special-purpose (...) book, or a specially compiled database from which such a (...) book is derived, that is issued officially by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution and is designed to meet the requirements of marine navigation.*”

** Refer to appropriate resolutions and recommendations of the International Hydrographic Organization concerning the authority and responsibilities of coastal States in the provision of charting in accordance with regulation 9.”*

17. Accordingly the introduction of S-100 based nautical publications does not require, as such, any new IMO instruments or any amendment to existing instruments, subject to interoperability requirements concerning S-100 based equipment (ECDIS or others). **Addressing these requirements should nevertheless be considered as a component of the draft e-navigation strategy implementation plan.**

Action required of HSSC

18. HSSC is invited to:

- a. **note** this report;
- b. **endorse** the recommendations proposed in paragraphs 15 and 17, and
- c. **take** any other **action** as appropriate.