

## Paper for consideration by HSSC12/NIPWG7/TSM7

## Architectural Display of S-100 related products

<b>Submitted by:</b>	NIPWG Chair
<b>Executive Summary:</b>	Overarching presentation of the relations between various S-100 based products
<b>Related Documents:</b>	HSSC10-05.3A Rev5, HSSC 11-05.3D
<b>Related Projects:</b>	NIL

**Introduction / Background**

At HSSC10 and HSSC11 NIPWG presented an architectural display of S-100 based products. HSSC considered the intention behind that presentation and invited NIPWG to develop that further. The presentation attached to this document presents the current status and raises questions which need further discussions and considerations, see Annex A.

**Analysis/Discussion**

General:

A principle discussion of the division into "Front-of-bridge/ECDIS" and "Back-of-Bridge/ECS" is aimed to reduce the impact of IMO regulations to the delivery and provision process.

An adequate and harmonised product specification description is essential to assign product specification to front-of-bridge or back-of-bridge use correctly.

Certain levels of the interoperability specification S-98 may apply to both "Front-of-bridge/ECDIS" and "Back-of-Bridge/ECS" products. The fundamental assumption of this diagram is that all front-of-bridge products are affected by S-98 whereas S-98 affects only few of the back-of-bridge products.

Interoperability level 0 (Overlay), level 1 (Interleaving) and level 2 (Feature class suppression) are the most relevant levels at this stage. Level 3 (Feature Hybridisation) and level 4 (Spatial Operations) have been described from the scientific point of view so far. Considering that level 3 may be needed for key S-104/S-102 water level calculation, the usefulness of Level 4 will be discussed at a later date reflecting the results of practical tests. The product specification discussion further below describes which interoperability levels apply to which product specification, if appropriate.

IMO impact:

It is assumed that the provision of independent products which need IMO consideration may result significant delay due to IMO routine (SOLAS Chapter V, ECDIS Performance Standards). Alternatively, the IMO influence could be limited by defining

- that the contents of all front-of-bridge products have been merged by service providers ashore (RENC and/or VAR to be determined) and will be provided as one database which is applicable to SOLAS Chapter V Reg 2<sup>1</sup> to ships,
- that some products will be provided in back-of-bridge applications.

Portrayal requirements:

Independent of how much IHO is eager to define portrayal and portrayal instructions, relevant IMO guideline should be considered. Investigations should seek clarity whether the IMO considered the applicability of their guidelines to radio based database provision according to SOLAS Chapter V Reg 2. The response will be the driver of further work on portrayal.

Alternative approach for any back-of-bridge use can limit the IHO workload (see Annex B).

<sup>1</sup> "Nautical chart" or "nautical publication" is a special-purpose map or book, or a specially compiled database from which such a map or 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 (providing hydrographic services).

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Data quality indicators:

Data quality indicators should only apply to products under the remit of IHO. Other communities might define their own data quality indicators or may adapt the IHO approach.

S-124 (WWNWS) which has IMO and IHO involvement does not follow the IHO data quality instructions as they cannot assess the quality of the source data. What they can ensure is that the source data will be provided in a way which is in-line with the IHO data quality instructions.

“Front-of-bridge/ECDIS” product specifications:

S-101	Fundamental basis for both front-of-bridge and back-of-bridge devices. Will a future version of S-101 cover the S-103 scope and make S-103 superfluous?
S-102	Interoperability level 3 may be needed for key water level calculation. Possible effects on SENC need to be considered. The depth information can deteriorate/improve the S-101 information. That could have effects on spatial operations such as the determination of the “Safety contour line”.
S-104	Interoperability level 3 may be needed for key water level calculation. The water level information can deteriorate/improve the S-101 information. Possible effects on SENC need to be considered. The current edition provides only information on predicted data and no real-time data.
S-111	Surface current information overlay the S-101 information. Interoperability level 1 interleaves S-111 information when navigational important S-101 features are concealed.
S-124	The data overlay S-101 data. A certain level of transparency of the portrayal is requested. The process on vessels is that the data are assessed and then a digested form of the content is transferred into the voyage plan for use front-of-bridge if required. Simply using data on front-of-bridge facilitates clutter on the monitoring screen.
S-129	The data overlay S-101 data. A certain level of transparency of the portrayal is requested. The information will be pre-processed ashore and the presentation of go-areas or no-go-areas will managed on board.

“Back-of-Bridge/ECS” product specifications:

S-122	Back-of-Bridge use. A portrayal of all information would clutter the screen. Level 1 is appropriate. Certain S-101 restricted areas (regulatory of navigational) could be duplicated in some of the product specifications but should not replace S-101 information. This information can be considered as relevant for voyage and route planning purposes.
S-123	
S-125	
S-126	
S-127	
S-128	This product could be used by PSC (Port state Control) Officers to cross check the currentness of the data aboard.
S-411 (Sea Ice Information)	The current development status doesn’t justify a use neither on front-of-bridge nor on back-of-bridge. If maturity evolves the back-of-bridge use of S-412 and S-413 is most likely. The weather is rather a long term development and nothing happens immediately. S-411 could also be used front-of-bridge as this is information could be relevant for route monitoring.
S-412 (Weather Overlay)	
S-413 (Weather and Wave Conditions)	

Product Specifications with no responsible HSSC WGs:

S-103 (Subsurface Navigation)	The questions here are: <ul style="list-style-type: none"> <li>to which HSSC WG should this be assigned to?</li> <li>should this be moved to the “Front-of-Bridge/ECDIS” part?</li> </ul>
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	<ul style="list-style-type: none"> <li>• which kind of information should be covered; for military submarines or/and to such things as remotely-operated vehicles and underwater drones used in the scientific/civilian sector?</li> </ul>
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Product Specification to be used in GIS only:

S-121 (Limits and Boundaries)	
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### **Justification and Impacts**

A clear description of the architectural infrastructure of S-100 based product specifications under the remit of IHO is essential for the steering of the product specifications development.

### **Recommendations**

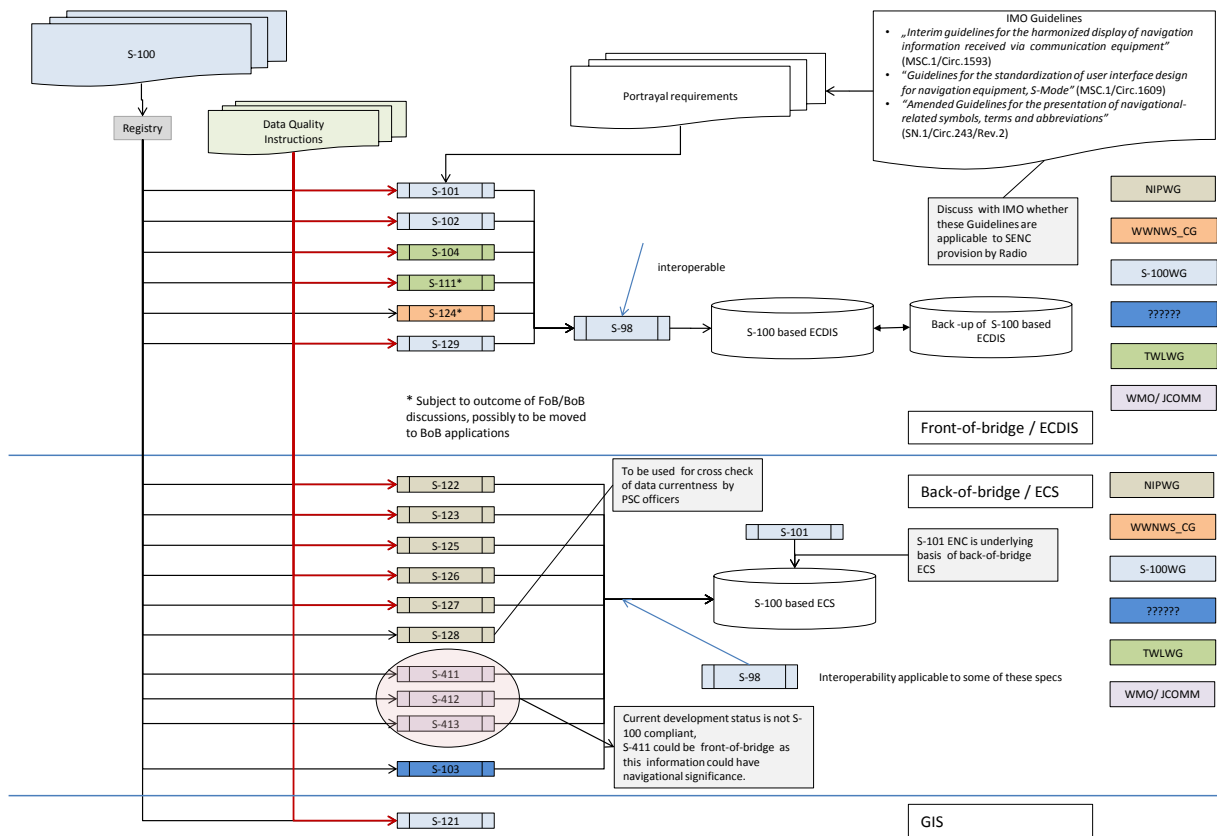
Provision of appropriate descriptions of product specifications purpose is essential and should be initiated as soon as possible. The architectural display and the Strategy Implementation should be kept harmonised.

### **Action required of HSSC12/NIPWG7/TSM7**

The HSSC12/NIPWG7/TSM7 is invited to:

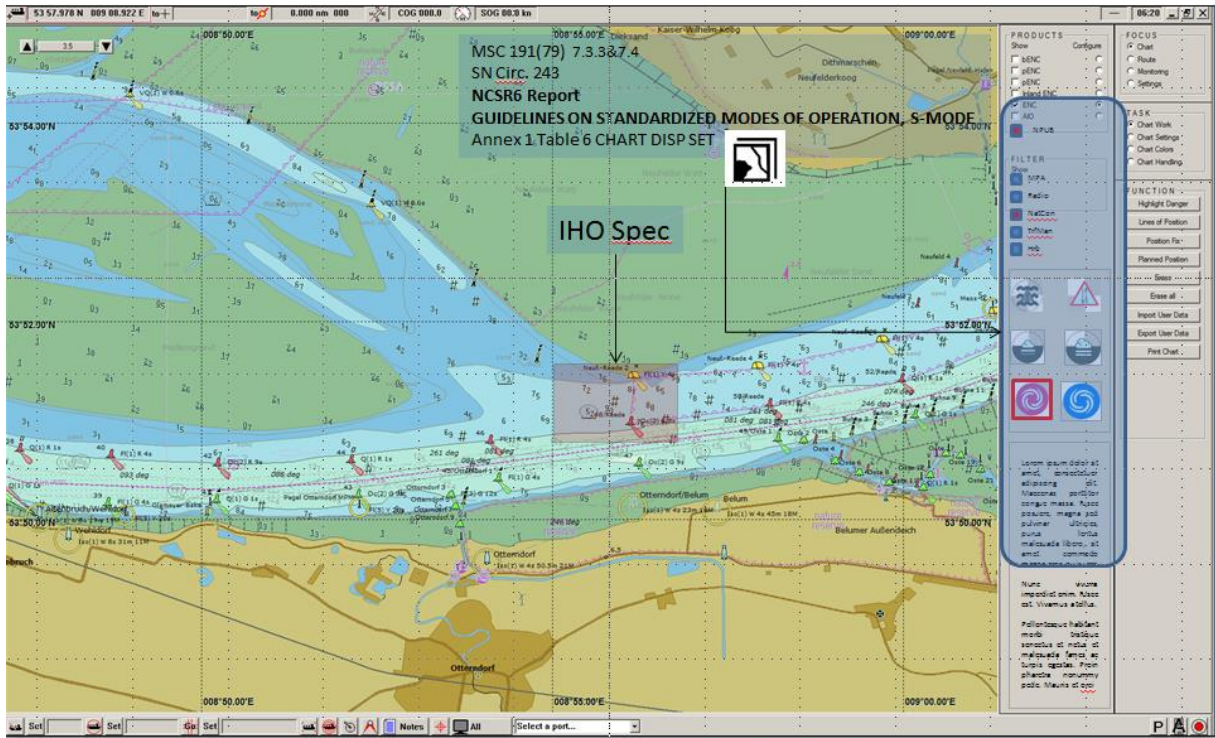
- a. note this paper,
- b. discuss the presentation and act appropriately.

# Annex A:



As of 4 September 2019

Annex B



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