

**26<sup>th</sup> Transfer Standard Maintenance and Applications Development  
and  
5<sup>th</sup> Digital Information Portrayal Working Group Meeting  
Silver Spring, Maryland, USA (10-14 June 2013)**



**Minutes**

**TSMAD**

**Chairman:** Barrie Greenslade (UKHO)

**Vice Chairman:** Julia Powell (NOAA)

**Secretary:** Anthony Pharaoh (IHB)

**DIPWG**

**Chairman:** Colby Harmon (NOAA)

**Vice Chairman:** Thomas Mellor (UKHO)

**Secretary:** Alberto Costa Neves (IHB)

**Annexes:**

Annex A – List of Documents

Annex B – Agenda

Annex C – List of Participants

**1. Opening and Administrative Arrangements**

R.Adm Gert Glang opened the meeting with these remarks:

The United States is happy to host this year's combined TSMAD / DIPWG meeting and especially pleased that so many of you could attend this important gathering in Silver Spring, the home of NOAA and the U.S. Office of Coast Survey, America's oldest scientific organization, established by our second president, Thomas Jefferson in 1807.

The U.S. commends the vital work that you are carrying out, not only in continually improving the existing specifications and test datasets that support ENC and its portrayal in ECDIS, but also the development of the S-100 Universal Hydrographic Data Model.

We are strong supporters of S-100 and its potential to improve voyage planning and situational awareness within the maritime domain. Improved metadata and the integration of new products in ECDIS that support ice forecasts, ocean prediction forecasts, tide corrected data and other data layers will change the way navigation is conducted and improve the safety and efficiency of marine transportation.

**1.1 Participant and Apologies.**

Colby Harman welcomed all those new members who were attending the meeting for the first time and noted that an apology had been received from Bjorn Saestad (Navtor), Holger Bothien and Olaf Wenzel (SevenCs GmbH).

**2. Approval of the Agenda.**

The joint agenda (document 2A) was approved by the meeting with the exception that Finland noted that 11.1 was not correct. The sentence should read *'The proposal to amend Encoding Bulletin 53 to read: "Encoders are advised that the attributes SECTR1 and SECTR2 should not be populated for lights that are visible all-round (omni-directional)" was not agreed'*.

**3. Matters Arising from TSMAD-25 (Tokyo)**

3.A. The minutes of the 25<sup>th</sup> TSMAD meeting (document 3A) which took place in Tokyo, Japan (7 to 11 May 2013) were reviewed and approved without comment.

3.B. The list of actions from the 25<sup>rd</sup> TSMAD meeting (document 3B) were reviewed and the status of actions are recorded below.

No	Minutes	Action	Member	Status
1	4.1.1	Report to HSSC5 that work item A.4 (Investigate a suitable grid referencing system for S-100) should be mothballed until there is a better understanding of what is required.	BG	*For HSSC5 Ongoing
2	4.1.1	Report to TSMAD26 on the status of the work item A.9 (Developing an S-10X product specification for Auxiliary Informational Layer Integration). The report must identify whether this work item is still relevant.	LP	*See paper 12.8A – recommending that provision of the guidance information within the S-100 documentation on Product Specifications and the S-10n template fulfils that intent.
3	4.1.1	Report to HSSC5 that work item E.1 (New Objects for caution area objects CNTARE) has been completed, and should be removed from the work plan.	BG	*To be done ongoing
4	4.1.2	The DCEG subgroup are to discuss the issues raised in paper TSMAD25-4.2.1A concerning light numbering and prepare a proposal for consideration by the SNPWG16 and the TSMAD26 meetings.	BG	*Presented to SNPWG16-14-2. JP noted that DCEG will not be including light numbers in S-101
5	4.2.1	Report to SNPWG that TSMAD are not including light numbering.	EM	Done - closed
6	4.2.7	Provide the DGIWG "Liaison Brief to the IHO" paper on the NATO geospatial framework for posting on the IHO web site.	TR/TP Completed	Done – the paper was included on the TSMAD page. Closed
7	4.3	The changes for S-100, identified by the S-102 sub WG, are to be resubmitted to the JP on the S-100 change request form.	WL	*WL reported that this had been completed. Closed
8	4.3.1A	TSMAD members to review the S-100 Product Specification Template document (TSMAD25-4.3.1B) and send comments to Julia Powell. The document is to be completed for consideration at the TSMAD 26 meeting. If approved, it is to be submitted to HSSC5 for approval.	TSMAD	JP reported that this has been completed. Closed
9	4.3.1A	Submit the S-100 <b>Product Specification Template</b> document (TSMAD25-4.3.1B) to the next SNPWG meeting for discussion. All comments to be forwarded to JP.	EM	EM reported that the document had been submitted ad SNPWG16-19.1. <b>SNPWG comments to be sent to JP</b> Closed
10	4.3.2	Produce a paper for consideration at the TSMAD 26 meeting, outlining the changes that must be made to S-100 in order to align it with S-99.	TR/EM	It was decided that these could be included in the long term review. Closed
11	4.3.2	Produce the necessary text and UML diagrams in order to make provision for the inclusion of code lists in the S-100 GFM.	EM	*See paper 11.7C – EM reported an update paper will be presented. Closed
12	4.3.2	Provide a paper for consideration at the TSMAD 26 meeting, recommending how URIs and universal identifiers can be included in S-100.	EM	See paper 11.7E. Done - closed
13	4.3.2	Provide a TSMAD 26 paper on the inclusion of roles in the GFM. This should include examples.	EM	See paper 11.7F Done – closed.
14	4.3.2	Produce exchange set metadata schemas for inclusion in S-100.	TR EK	See paper 11.4A Ongoing.

15	4.3.2	Develop a paper recommending how <b>other primitives</b> (defined in ISO 19107) such as circles can be added to S-100.	EM	Paper updates task. See paper 11.7B Closed.
16	4.3.2	Develop a paper outlining how provision can be made for " <b>format definition files</b> " in an S-100 exchange set.	EM	See paper 11.7A and discussion. Done – closed.
17	4.3.6	Prepare the final model and text for the new temporal model intended to make provision <b>truncated date information</b> . (For TSMAD26).	TR	To be carried over to TSMAD27
18	4.3.8	Include the appropriate revisions concerning the ISO8211 encoding in an S-100 change proposal form, and forward it to the TSMAD vice-chair for inclusion in the next edition of S-100 (Part 10a) document as well as for inclusion in the S-101 document.	HB	Done – closed.
19	4.3.9	Draft a discussion paper for TSMAD 26 – proposing guidance on how producers of non-IHO product specifications can assign unique identifiers, using namespaces.	TR	Ongoing.
20	4.3.10	TSMAD to develop a (non technical) cookbook document "Guideline for S-100 Product Specification Development " to assist organizations using S-100.	TR	Ongoing – IALA are developing a guideline document that could be adapted
21	4.3.12	The S-100 GML schemas are to be distributed to TSMAD members for comment and report back.	TR	See paper 11.3A Done – closed.
22	4.5.1B	Add a column "completion status (as a percentage)" to the S-101 Risk register (paper 4.5.1B). Maintain the register and provide an updated status report during TSMAD meetings.	JP	See paper 10.1A. Done - closed
23	4.5.3A	TSMAD members to discuss the draft test plan (4.5.3A) with experts in their home offices and provide any comments to Julia Powell (NOAA).	ALL	JP reported that no comments were received. - Closed
24	4.5.6	TSMAD sub group to be formed in order to prepare a draft set of validation checks for S-101 ENC's.	RF	RF reported this has not started yet – presently focusing on completing the DCEG. Ongoing
25	4.5.7	Prepare an information paper outlining how vertical datum can be included in S-101 using an information type.	TR	Was discussed at the DCEG. Ongoing.
26	4.5.9A	Write a technical paper on the impact study, focusing on correcting the misconceptions that were reported in paper TSMAD25 - 4.5.9A for HSSC5.	BG	Ongoing
27	4.5.9A	Write a letter to respondents of the impact study thanking them for their input and providing feedback on the results of the responses to include the outcome of action "above"	LL	Ongoing. BG to liaise with LL
28	4.5.11	Sub-working group (comprising of KI, JW, RF and JP) to work on defining S-57 Compilation Scale to S-101 Display Scale Convertor Mappings – and report to TSMAD26.	KI, JW, RF and JP	See Paper 10.7A Done - closed
29	4.6.1A	Request DCEG to develop specific details concerning the proposal to add a new attribute for simplifying the CSP for "least depth or safe clearance depth ..." portrayal (i.e. proposal 1).	DCEG	Done – closed.
30	4.6.1A	The proposal (2) to add a new attribute "maximum surrounding depth" needs to be expanded to look at all the scenarios and provide a paper to the next TSMAD/DIPWG meeting. DCEG.	DCEG	Done - to be covered in the DCEG report.
31	4.6.1A	Add a new simple attribute (which would be used to extend the default distance where sectors overlap) to selected lights features for S-100 portrayal.	DCEG	Done – closed.

32	4.6.2	Noting that options 2 and 3 were the best approach to simplifying the portrayal of restricted areas, the DCEG needs to examine the types of RESTRN groupings and consider creating additional RESARE "type" features.	DCEG	Ongoing
33	4.6.3	Request chairman of DPSWG to rework the proposal on auxiliary files for S-101 (for reasons stated in minutes). RF is to provide assistance to DPSWG chair and present the proposal to the next TSMAD meeting.	RF	Ongoing
34	4.7.1B	Continue the work on developing the test data sets for S-58, and use the positive/negative test datasets produced by USA and UK (paper 4.7.1A) as the basis for a new edition of S-58.	UK/USA	Done - to be taken under the S-58 paper.
35	4.7.2	The S-58 Edition 5 sub-working group, are to identify and list a mandatory minimum set of checks, for discussion at the TSMAD 26 meeting.	S-58 sub-WG	Done - to be taken under the S-58 paper
36	4.7.3	Produce an EB advising encoders that edge primitives should not be encoded at a vertex density greater than 0.3 mm at compilation scale.	JW	Ongoing
37	4.7.4	Implement the proposals presented in the paper TSMAD25-4.7.4 concerning the use of the attribute TECSOU on the object M_QUAL. The wording must be improved to ensure that it is not misinterpreted.	JW	Ongoing
38	4.7.4	Report on the proposals presented in the paper TSMAD25-4.7.4 (Use of the attribute TECSOU on the object M_QUAL) to the DQWG.	EM	Ongoing – next DQWG in July
39	4.8.2	TSMAD members are invited propose improvements to the UOC in order to make it as clear and comprehensive as possible.	All	Done - See Paper 12.4A
40	4.8.3	Develop an EB providing advice on S-58 test 13. This relates to updates to base cells where a warning is raised rather than an error.	JW	Ongoing
41	4.8.3	Update the EBs and FAQs on the IHO web site with those listed in paper TSMAD25-4.8.3 when approved by DPSWG.	TP	Done – new EB and FAQs have been included on the IHO web site.
42	4.9.1	TR to draft a paper on how polar datasets should be treated for S-64 – what will the issues be for type approval – should they be included in S-64, or should they be made available as separately. The paper is to be sent to stakeholders and the chair of 61174, requesting feedback.	TR	Done. See paper drafted by (DTech - IHB)
43	4.10	Highlight the problem concerning cancelling updates to cells to HSSC5 and requests that an update is made to S-64.	BG	Ongoing
44	4.10.1	The chairman is to discuss the issue cancellation cells with the IHB – BG. Type approval agencies need to be informed. S-64 needs to be corrected.	JP	Cancelled - (BG to inform ESRI that they should modify their SW to S-64 and not S-57).
45	4.10.2	TSMAD chair to send the EB on virtual aids to the chairman of DIPWG for comment (and DIPWG approval) before posting on the IHO web site.	BG	Done – closed.
46	4.11.A	TSMAD to produce a new edition of the UOC for consideration by TSMAD26 and submission to HSSC5. The items identified in paper 4.8.2 must also be taken into account.	BG	Ongoing.
47	4.11.A	TSMAD chair to discuss the diagram at Annex A of the TORs with the IHB, and present different options for process to the TSMAD 26 meeting for discussion; with a view to submitting a proposal to HSSC5 thereafter.	BG	Ongoing. BG – this was discussed at the HSSC chair group meeting – new diagram produces – to be discussed later.

48	5.1	Report to JCOMM - Expert Team on Maritime Safety Services (ETMSS) on the discussion concerning the development of their ocean weather forecast product specification, and invite them to liaise with the IHO WWNWS work group.	JP	Completed.
49		Complete an EB for CATZOC catastrophic event	JW	Ongoing.

#### 4. Matters Arising from DIPWG 4

4.A. The minutes of the 4<sup>th</sup> DIPWG meeting (document 4A) which took place at the IHB, Monaco, were reviewed and approved without comment.

4.B. The list of actions from the 4<sup>th</sup> DIPWG meeting (document 3B) were reviewed and the status of actions are recorded below.

Action #	Agenda Item	Action For	Description of DIPWG Action	Status
1	07.4.A	DIPWG	Be prepared to assist ESTI in developing portrayal for ice product when the product reaches an appropriate level of maturity.	Ongoing.
2	08.1.A	CH	Create another proposed single set of symbols for marks based on colour filled paper chart symbols, including safe water marks with just two stripes and new default symbols without question marks.	Ongoing
3	08.1.A	JP CH	Prepare survey for mariners to ask if they would want the colour fill for marks based on their purpose or on their actual colour, as well as soliciting feedback of changes proposed by the simplified/paper chart symbol "beauty contest."	It was decided that this was not necessary any more – Closed.
4	08.3.A	TM CH	Adapt and reformat the TSMAD22/DIPWG3-08.4A rev1, "Draft Specifications for Implementing the Cursor Enquiry and Pick Report in ECDIS" paper as a draft S-52 Deferred Amendment or as part of PresLib 3.5.	Some guidance added to PresLib 4.0 Ongoing.
5	08.3.A	TM	Extract the overarching detail for the Pick Report functionality from the TSMAD22/DIPWG3-08.4A rev1, "Draft Specifications for Implementing the Cursor Enquiry and Pick Report in ECDIS" paper for use in the portrayal section of S-100.	Ongoing.
6	08.3.A	TM	Explore specification of a standardized means to intimate highlighting objects described in pick reports, including the use of specific colours, percentage of transparency, etc. for S-52 and S-100.	Ongoing
7	08.4.A	CH	Review section 7.4.3, "Area Symbolization by a Centred Symbol," of S-52 and make recommendation to SNIPWG regarding a method to avoid overprinting of centred "MPA" and "PSSA" label symbols.	Ongoing
8	08.4.A	EM HP	Make recommendation for shade of green to be used to portray MPA that will not conflict with the portrayal of intertidal areas. Recommendation should include CIE values for Day, Dusk, and Night Colour Tables.	Ongoing
9	08.4.A	TM	Provide guidance discussing which colours are reserved for particular purposes in S-52/S-101 that are not to be used in newly specified S-100 based specifications. The home for this guidance will be determined at a later date.	Ongoing

10	09.1	TM	Develop and manage plan for the review of CSPs. In addition to TM, reviewers will include the industry DIPWG members HA, KI, PL, EM and HP, as well as TSMAD Data Classification and Encoding Guide Sub-Working Group members JP, TR and JW. Goal should be to complete the review by the end of June 2012.	Some progress made. Still needs work. Ongoing.
11	09.1 KI	KI	Develop and manage plan for the compilation of an inventory of S-100 Portrayal Requirements. In addition to KI, other DIPWG members participating will include EK, HP and DB. HA assist in reviewing the final set of requirements assembled by KI from the team's input. Goal should be to complete the inventory by the end of June 2012.	Completed.
12	09.1	CH	Develop and manage plan for the assessment of the three portrayal strategies against the S-100 Portrayal Requirements. Industry DIPWG members participating will include HA, HB, EK and EM. Goal should be to complete the assessment by the end of July 2012.	Completed.
13	09.1	CH	E-mail a DIPWG Letter with the results of the assessment of the three portrayal strategies. The letter will include a recommendation for the selection of one approach based on the results of the assessment. DIPWG members will be asked to affirm the recommendation by replying to the e-mail no later than the end of August.	Delayed until DIPWG-5 Ongoing.
14	09.2A	CH MH	CH will work with IHB to award a small contract to have the S-100 Hydro Portrayal Register data systematically reviewed and corrected.	UKHO is now managing this effort Completed.
15	09.5A	HP KI	Investigate other refinements to the UDWHAZ CSP that could enhance safety without over cluttering the display with isolated danger symbols.	See paper 9.2A – Annex B Ongoing.
16	09.6A	TM CH	Establish DIPWG correspondence sub-working group to prepare proposals for each necessary change for a new Presentation Library by January 2013. Changes may include those identified in the table of UKHO proposed changes shown in paper DIPWG4-09.6A, as well as changes for ECDIS Chart 1, and fixes to the LITDSN C code for the portrayal light characteristics.	TM worked with sub-group of OMEs to refine PresLib4.0 Ongoing.
17	09.6A	HE CH	Determine if there are any changes needed regarding the portrayal or encoding of TSS roundabouts (especially when associated with adjoining ENC cells) and work with CH to prepare a proposal for changes for PresLib3.5.	No feedback – no further action required. Is to be fixed in S-101.
18	09.6A	CH	DIPWG chair to distribute draft Presentation Library for wider stakeholder review prior to DIPWG-5.	Draft made available for DIPWG5. PresLib Sub-working group is continuing to refine PresLib4.0. Ongoing.
19	09.7.A	HP	Prepare fix for LITDSN C code to correct the display of SIGPER in light characteristic for incorporation into PresLib3.5.	Proposed to remove the C code. Cancelled.
20	09.8A	HP	Prepare an amendment to S-52 PresLib to fix any remaining differences between the portrayal of the ECDIS Chart 1 digital files and the paper ECDIS chart 1 graphics in S-52 (that are not addressed by existing deferred amendments). The amendment may be incorporated into the new 3.5 version of the PresLib.	Fix will be incorporated into PresLib4.0 Ongoing.
21	09.9A	KI HP	Write guidance that will explicitly link the safety depth and safety contour to be treated as one value in S-52 in the next edition of the presentation library. This could include a proposal that will change CSPs and narrative text within S-52 to specify that the safety depth and safety contour depth set by the mariner will be treated as one value in ECDIS.	Linked to recent edits to IEC 61174. Ongoing.

22	11.2.A	DIPWG	DIPWG be prepared to support portrayal related improvements to S-64.	Standing by Ongoing.
23	11.7A	JP	Investigate adding OBJNAM display for ACHARE in DA or in PreLib3.5 so that new EB guidance to double encode SEAARE with ACHARE will not be necessary.	Done - closed.
24	11.7A	JP	Add a question to the next Mariner Feedback Survey to ask users which symbol they prefer to be displayed on top when a buoy and a danger (such as a wreck or underwater rock) are co-located. Also ask if the alternative of offsetting the buoy would be preferable. <sup>25</sup> 11.7A CH Investigate means to have Mangrove displayed in standard mode.	Cancelled
26	11.9A	DIPWG TSMAD	Develop guidance that can be used to standardize the loading (display priority) strategy and portrayal for all S-100 based products that will be displayed concurrently with ENC.	Ongoing

## 5. Matters Arising from HSSC-4 (Taunton)

5A + 5B. HSSC4 Actions for TSMAD and DIPWG

Agenda Item	Subject	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS
5.1.1	TSMAD Work Plan	HSSC4/07 TSMAD	<b>TSMAD Chair</b> to include in the TSMAD work plan an additional work item to produce a roadmap (using mind map), taking into account the S-101 impact study and showing key tasks that have to be completed in order to implement S-100, and indicating interaction between the tasks and the implications for stakeholders.	TSMAD25	Pending.
5.1.1	Use of Object Catalogue	HSSC4/08	<b>IHB</b> to circulate the draft edition 3.1.0 of S-57 Appendix B1 Annex A <i>Use of the Object Catalogue for ENC</i> (UOC) to Member States for approval.	30 Nov 2012	Done. CL 102/2012
5.1.2	S-99	HSSC4/09	<b>IHB</b> to circulate the draft edition 1.1.0 of S-99 <i>Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry</i> to Member States for approval.	30 Nov 2012	Done. CL 102/2012
5.1.4	Identifiers for S-100 based P.S.	HSSC4/11 TSMAD	<b>TSMAD</b> to develop, with IHB support and in consultation with the relevant stakeholders, a nomenclature for S-100 based product specifications as part of the GI registry management, and revise S-100, taking into account the following guidance: <ul style="list-style-type: none"> <li>• S-100 to S-199 should be reserved for IHO product specifications;</li> <li>• Non IHO product specifications identifiers should be assigned by the registry manager on a first come first served basis from S-200 onwards.</li> </ul>	Report to HSSC5	Ongoing.
5.1.7	S-101 Test Plan Funding	HSSC4/14 TSMAD	<b>TSMAD</b> to draft a statement of requirements for the development of S-101 test plan and submit it to the IHB for tendering.	TSMAD25	Ongoing. See TSMAD25-4.5.3 rev 1 Ongoing.
5.1.7	S-101 Test Plan Funding	HSSC4/15 TSMAD	<b>IHB</b> to prepare and award a contract for the development of S-101 test plan within the allocated IHO budget.	31 March 2013	Pending. Ongoing.
5.1.8	AIS AtoN and ENCs	HSSC4/16 TSMAD	<b>TSMAD</b> to develop an Encoding Bulletin that describes how to encode virtual AIS Aids to Navigation using the New Object (NEWOBJ) feature.	TSMAD25	Done EB54 (TSMAD) and PB10 (DIPWG).

Agenda Item	Subject	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS
5.3.1	DIPWG Work Plan	HSSC4/19 DIPWG	<b>DIPWG Chair</b> to amend the title of work item A.5 in the DIPWG work plan, to read: "Develop new Presentation Library Version 3.5 and coordinate with TSMAD for appropriate changes to S-64".	DIPWG5	See Consolidated HSSC WP 2013-2014 - V1 Complete
5.3.1	Portrayal Modelling	HSSC4/20 DIPWG	<b>DIPWG Chair</b> to send a note to OEMs to clarify the objectives of a side meeting on portrayal modelling issues, to be held in conjunction with the ECDIS anomalies workshop (London, UK, 15-16 October 2012).	8 Oct 2012	Done.
5.3.1	Portrayal & PL Issues	HSSC4/21	<b>UK</b> (Mr Jonathan PRITCHARD) to provide the DIPWG Chair with all the feedback and information gained from ECDIS anomalies analysis, concerning portrayal and Presentation Library issues. If there is an issue that needs immediate action, <b>DIPWG</b> to issue a portrayal bulletin.	31 Dec 2012	Ongoing.
5.3.1	DIPWG Work	HSSC4/22 DIPWG	<b>DIPWG Chair</b> to liaise with the IHB to agree how best to expedite the work of DIPWG (especially the S-100 portrayal model work) by facilitating the attendance of key persons to focus group meetings.	31 Dec 2012	Done.
5.3.2	Contracting out Portrayal & PL enhancements	HSSC4/23 DIPWG	<b>DIPWG</b> to draft a statement of requirements for each of the following tasks and submit them to the IHB for tendering: a. correction of errors in the hydrographic portrayal register; b. updating the digital presentation files; and c. creation of an S-100 portrayal catalogue builder.	31 Dec 2012	Done. Draft provided by DIPWG Chair
5.3.2	Contracting out Portrayal & PL enhancements	HSSC4/24 DIPWG	<b>IHB</b> to prepare and award a contract for the following tasks, in using the PL fund and/or other available resources: a. correction of errors in the hydrographic portrayal register; b. updating the digital presentation files; and c. creation of an S-100 portrayal catalogue builder.	31 March 2013	Pending
5.3.3	S-100 & S-101 Master Plan	HSSC4/25 TSMAD & DIPWG	<b>TSMAD and DIPWG Chairs</b> to produce, by the end of January 2013, a "master plan" document for the development of S-100 and S-101, in accordance with the life cycle diagram included in resolution 2/2007, incorporating sequencing with DQWG and DPSWG, and scheming the implications for stakeholders.	31 January 2013	Pending
5.6.2	Change to the Use of Object Catalogue	HSSC4/29 TSMAD	<b>TSMAD</b> to apply to S-57 Appendix B.1 Annex A (Use of the Object Catalogue for ENC), the changes identified in section 8 of HSSC4-05.6B and dealing with reflecting the impact of extreme events through CATZOC.	TSMAD25	Pending

5C. Outcome of HSSC Road Map Workshop (RMW) IHB, 27-28 March 2013

BG noted that the meeting was held at the IHB – intended to provide a roadmap for the development of S-100 and S-101. It is intended to provide an executive summary for the HSSC meeting.



Action No	Agenda item	Action	Target Date / Event	Status
RMW/1	1a	<b>TSMAD Chair</b> to produce: - a revised draft S-101 Roadmap based on the agreed structure and taking into account the comments of the participants (including a section on the S-57 to S-101 converter); - a process diagram with milestones and "what if?", including HSSC and IHO/MS review/approval/decision points.	Report to TSMAD26-DIPWG5	Ongoing.
RMW/2	1b	<b>DTECH and HSSC Chair</b> to prepare a draft framework for the S-100 master plan with three components: - maintenance of S-100 and GI Registry, (including clarification on pending issues - such as portrayal - and associated uncertainties), - impact on / interaction with stakeholders, - S-101 Roadmap.	1 <sup>st</sup> draft for mid-June and revised draft submitted to HSSC5	Ongoing.
RMW/3	2	<b>DTECH</b> to prepare a revised draft on the regulatory process associated with the implementation of S-100 based IHO products and services.	Submission to HSSC5	Ongoing - to be submitted to HSSC5.
RMW/4	2	<b>HSSC Chair</b> to investigate the relevance of color calibration for ECDIS screens.	Report to TSMAD26-DIPWG5	Ongoing - to be discussed during the week.
RMW/5	3	<b>TSMAD Chair</b> to investigate contract support possibilities for consolidation of the Registry Infrastructure.	Report to TSMAD26-DIPWG5	Ongoing - a company in Taunton has been approached.
RMW/6	3	<b>TSMAD Chair</b> to continue acting as Registry Manager for the time being.	Until further notice	Ongoing.
RMW/7	3	<b>TSMAD and DIPWG Chairs</b> to investigate options for portrayal register governance (procedures and personnel).	Report to TSMAD26-DIPWG5	Ongoing. To be discussed during the meeting.
RMW/8	3	<b>TSMAD Chair</b> to update the GI Registry interface according to S-99 Edition 1.1.0.	15 April 2013	Ongoing.
RMW/9	3	<b>TSMAD Chair</b> to clean the Registry front page and associated lists	Immediately	Done – help file needs updating.
RMW/10	3	<b>IHB</b> to submit a paper on IHO S-100 governance.	Submission to HSSC5	Ongoing
RMW/11	4	<b>TSMAD</b> to address potential ambiguities in the guidance for use of attributes SECTR1 and SECTR2 for all-round lights when preparing the next edition of the UoC.	Report to HSSC5	Ongoing - to be discussed later in the week.
RMW/12	4	<b>DIPWG</b> to reconsider the CSP for displaying all round lights and develop a portrayal bulletin if appropriate.	Consideration at DIPWG5	Ongoing.
RMW/13	4	<b>DTECH and TSMAD Chair</b> to revise the wiring diagram in the Annex to the TSMAD TORs.	Submission to HSSC5	Ongoing - (first draft prepared by DTECH) will be presented to HSSC5
RMW/14	4	<b>DTECH and DPWIG Chair</b> to develop a wiring diagram for portrayal bulletins.	Submission to HSSC5	Ongoing (first draft prepared by DTECH).
RMW/15	4	<b>IHB</b> to inform MS of the posting of every future EB and PB by CL.	When applicable	Ongoing.
RMW/16	5	<b>IHB</b> to issue CL announcing HSSC5 meeting details.	Not later than the end of April	Done.
RMW/17	6a	<b>TSMAD</b> to revisit the draft statement of work for the development of the S-101 test plan.	TSMAD26	On-going.
RMW/18	6b	<b>DIPWG Chair and TSMAD Chair</b> to validate the revised draft statement of work for S-100 Portrayal and S-101 Portrayal Catalogue Development.	20 April 2013	On-going.
RMW/19	6b	<b>IHB</b> to send a request for proposals for S-100 Portrayal and S-101 Portrayal Catalogue Development.	27 April 2013	After RMW/18.

Action No	Agenda item	Action	Target Date / Event	Status
RMW/20	6b	IHB to report on proposals for S-100 Portrayal and S-101 Portrayal Catalogue Development.	Report to DIPWG5	After RMW/19
RMW/21	7a	IHB to submit a paper for consideration at TSMAD26 on the inclusion of polar cells in S-64.	Submission to TSMAD26	Done.
RMW/22	7a	HSSC Chair to develop a status report on e-navigation development in consultation with IHB.	Submission to HSSC5	Ongoing.

## 6 Reports of Activities of Other Working Groups

### 6.1A SNPWG Report

JFS reported that the SNPWG working group had held its 16<sup>th</sup> meeting in Silver Spring during the previous week.

SNPWG conducted a questionnaire (HSSC4 action) and provided a report on the outcomes of the investigation. This was an HSSC4 action and the results will be reported to the next HSSC meeting. The findings of the report were discussed by the meeting and based on these the SNPWG decided to commence developing a radio services product specification. The SNPWG needs to use the S-100 GML profile and would like it to be completed as soon as possible. The SNPWG also has a requirement for code lists and unique identifiers, and are also waiting for feedback from the Data Quality WG for assistance with quality parameters. The NP features and attributes in the NP WIKI have still to be loaded the Feature Concept Dictionary. SNPWG are waiting for the feature catalogue builder to be available in order to complete the Marine Protected Areas Product Specification.

It is proposed to have the next SNPWG meeting in Rostock during the week starting 7 April 2014.

### 6.2A CSPCWG Report

JW reported that all work carried out since the last TSMAD has been done by correspondence.

No new documents have been published since last TSMAD meeting. Some work has continued on S-11 Part A. A few new symbols (e.g. diving prohibited) had been approved for inclusion in INT1 and S-4. There are no action items required for TSMAD/DIPWG as a result of CSPCWG work. The issue of radio activated lights and fog signals are currently under discussion. There was also a general discussion about paper charts and a sub-WG has been tasked to develop a position paper on "what will the future of the paper chart be" – to be submitted to HSSC5. CSPCWG will also submit a proposal for HSSC5 to consider changing the name of the WG to better reflect their work. The review of S-4 continues and a new version is expected soon.

JW noted that the recommendations presented in the CSPCWG report to TSMAD25 had not been discussed at that meeting. These recommendations will be considered via correspondence by the TSMAD S-57 Maintenance Sub-WG, with any implications on S-101 development to be raised with the S-101 DCEG Sub-WG.

The next CSPCWG meeting is scheduled to take place in Wellington, New Zealand in January 2014.

### 6.3A DQWG Report

No report provided. TR reported that there were several items being undertaken by the group that were of relevance to TSMAD and the next DQWG meeting is scheduled to take place in July 2013.

### 6.4A TWLWG and SCWG Report

JP reported that the TWLWG had held a meeting in Helsinki in May 2013. The WG are working on developing a tide variable coverage layer for use with ENCs in an ECDIS. The metadata associated with the display should be available with the delivered tidal data. The next meeting is scheduled to take place in Canada in April 2014.

The SCWG held its 1st meeting at NOAA Silver Spring, USA from 29 to 31 May 2013. Representatives from Canada, France, Netherlands, Spain, USA, and the IHB attended the meeting.

The SCWG has developed a user survey questionnaire to elicit customer requirements and potential product usage. The SCWG has also drafted a Work Plan for the period 2013-2017, which will be submitted to HSSC 5 for endorsement.

The SCWG are seeking guidance and input from industry partners to assist in the development of the Product Specification. All papers from the meeting are available from the SCWG section of the IHO web site. Kurt Hess (NOAA – USA) and Louis Maltais (CHS – Canada) were confirmed as chair and vice-chair respectively.

***(See action item 1).***

The next meeting is scheduled to take place in Canada in June 2014.

#### 6.5A MSDIWG Report (Tuesday)

MSDI WG held their last meeting in Denmark. Peter Hartman was elected as chairman and Ellen Vos as vice chairperson. The MSDIWG is mainly focused on data and services for application other than marine navigation such as marine exploitation maritime defence/security, disaster prevention etc. The MSDIWG have produced a cookbook, which is intended to assist member states set up their own marine spatial data infrastructures (the cookbook, IHO document P-17, can be downloaded from the IHO web site). See associated presentation.

#### 6.6A DPSWG Report

TP reported that DPSWG had its last meeting in February 2013. The WG discussed a new version of S-63, which could be used in conjunction with future S-100 based datasets, in particular ENC data. The DPSWG has submitted paper 11.9A with some proposals on data integrity measures.

Many users of the S-63 security scheme have not implemented the latest edition (1.1.1) of the standard. The previous edition will no longer be supported after January 2014 and users of the security scheme are encouraged to change to the new edition as soon as possible.

The current IHO top level scheme administrator (SA) certificate will expire in August 2013. The IHB have sent out letters to data servers and OEMs informing them of this and requesting that they take appropriate action. The new certificate can be downloaded from the IHO web site.

## 7. Activities of Other Organizations

### 7.1A IALA

TR reported that IALA have adopted S-100 for their geospatial standards development. The IALA portrayal working group have produced a draft portrayal document 'Harmonized Portrayal of e-Navigation-related Information.'

IALA have also developed product specification template for their product specifications. They are also working on producing a common guideline document. TR and EM will be attending an IALA S-100 Workshop scheduled to take place during the week following the TSMAD26/DIPWG5 meeting.

### 7.2A ISO TC211

TP reported that the last IHO TC211 meeting had taken place in Busan, Korea from 27 to 31 May. Several standards of interest to TSMAD are at various stages of completion.

19117 (Portrayal) has recently been published as an international standard.

The following documents have progressed from CD to DIS;

- 19110 - Methodology for feature cataloguing
- 19136-2 - Geography Markup Language (GML) – Part 2: Extended schemas and encoding rules.
- 19103 - Conceptual schema language.
- 19135-1 Procedures for item registration – Part 1: Fundamentals
- 19109 - Rules for application schema

ISO TC211, together with the IHO and OGC, has developed a report for the United Nations Initiative on Global Geospatial Information Management (UN-GGIM). The draft report provides an analysis of the standardization needs that are relevant to the UN-GGIM issues in relation to the current standards baselines from ISO/TC 211, the OGC and the IHO. It is planned to submit the report to the next meeting, which is scheduled to take place in Cambridge, UK from 24 to 26 July 2013. TR noted that revision of TC211 standards profiled in S-100 need to be considered by TSMAD. A spreadsheet would provide a means of tracking such changes and their review.

**(See action item 2).**

#### 7.3A IEC

HP reported that the IEC WG 80 are working on the portrayal section of the standard (assumed to be 61174 but 62288 relates to AIS systems). There are new AIS symbols being developed. An ECDIS Work Group has been established to draft a CD document, which is shortly to be posted for review. It would be desirable to synchronize the IEC work item with the acceptance of S-52 and S-64. If there are delays with S-52 and S-64, the WG will ask IEC secretariat to delay the release of the standard. TM noted that many of the tests in S-52 have been moved into S-64 for the new edition 4.

Concerning the polar tests, HP noted that all ECDIS must operate up to 85 N/S. ECDIS will provide special notification that it is possible to operate at higher latitudes. Test datasets need to be developed for testing this and he suggested that 4 cells be developed to cover polar areas. The cells should be configured so that no cell will cover a pole. IEC support moving all ECDIS tests into S-64.

David Blevins noted that these issues also affect radar, specifically chart radar and this should be taken into account.

#### 7.4A WMO JCOMM ETSI

No report provided.

#### 7.5A WMO JCOMM ETMSS

A presentation was provided by Christie Schulz (NOAA), on marine forecasting, weather and ocean forecasting and ocean prediction centre. She reported that NOAA is working on a project to create an S-100 feature catalogue for ocean features and attributes.

It is intended to complete the baseline feature catalogue by Oct 2013. It will to be sent to the WMO for approval. They are also working on a product specification for an ocean data overlay. It is to be used as an ENC overlay. WMO will have a three month comment period – after which work will commence on the product specification. (See presentation).

#### 7.6A DGIWG

No report provided.

#### 7.7A International Oil and Gas Producers Association (OGP)

TR provided a Power Point presentation provided by Gareth Wright on the activities of the International Oil and Gas Producers Association (OGP). He reported that he had attended an OGP meeting in the Netherlands earlier in the year. OGP have developed a seabed survey data model and there is a need for further liaison between IHO and OGP.

#### 7.8A GMWG (Geospatial Maritime Working Group)

EV noted that the GMWG is part of NATO, and noted that the group had produced specifications for the production of six different AML layers which are designed to be used in a WECDIS.

The current AML layers are based on S-57 but the group are working on converting these to S-100 based products. The new AML products will allow these layers be combined into one layer. The GMWG are also working on some gridded data products. The GMWG standards are maintained by the technical panel of the TMG.

The GMWG work is also based on ISO-19100 suite of standards (as are the S-100 standards) and form part of the NATO geospatial Framework (NGIF). NATO is developing a Defence Maritime Framework model to bridge the gap between NATO and S-100.

EV recommended that there should be closer liaison between the GMWG/DGIWG and TSMAD, and invited TSMAD members to participate in the GMWG work activities.

#### 7.9A DOALOS Report

See item 11.10A.

### **8. Continuing Portrayal Topics**

#### 8.1A S-52 Edition 4.0

TM reported that UKHO offered to undertake a revision of part 1 of the S-52 Presentation Library in order to address the ECDIS anomalies and to simplify the content for ECDIS developers. The lookup and colour tables have been removed from part 1 and placed into their own sections in line with other IHO standards. The CSP's have been converted from Nassi-Shneiderman (NS) diagrams to UML by Jeppesen. The raster-symbol description format has been removed and a new template for TS\_PAD has been included which is to be use in the ECDIS pick report. Several other issues were discussed notably, data consistency requirements section; removed text related to S-57 data encoding; inserted generic guidance on data overlaps and data loading.

HP noted that this is not specific enough and the document needs more definite guidance for manufacturers. There is no way for an ECDIS to know which cell to load on top, and this needs to be well described in the standard.

France proposed that in overlap areas the last updated cell should get loaded on top. HP noted that the rule should allow for more predictable behavior, for example providing a facility to switch between alphabetical or reverse alphabetical stacking order.

TR noted that the new UML diagrams exactly replicate the logic contained in the NS diagrams. The task was not to change the logic, but only to make them clearer and easier to understand.

TM proposed to lead a small sub working group to review and finalize S-52 and noted that there will be no more content changes to the document. He reported that in order to complete the work, there will be a need for another 2 meetings. Offers have been received from Jeppesen and Seven C's to host meetings. It is planned to

have meetings in July and September.

**(See Action item 3).**

8.1B S-52 Presentation Library v4.0

Document 8.1 B contains version 4 of the new presentation library. No discussion.

8.1C S-52 Presentation Library Ed. 3.4 to Ed. 4.0 with Redline Markup

No discussion.

8.1D Finalization of S-52 Presentation Library Ed. 4.0

TM reported that the HSSC3 meeting approved the production of a new edition of certain items the S-52 Presentation Library. DIPWG are required to produce the new edition of the Presentation Pibrary for submission to HSSC5 (Nov 2013). He suggested that, as this is a very large task and it is recommended that a DIPWG panel be established to review and amend the new Presentation Library. This activity was reported under agenda item 8.1A.

8.1E S-52 Presentation Library Ed. 3.4 Part I

Document zip file. No discussion.

8.1F S-52 Presentation Library V4.0 Review of Comments

Document zip file. No discussion.

8.2A Harmonizing Digital and Paper ECDIS Chart 1

TM reported that there are some differences between the portrayal of the ECDIS Chart 1 digital files and the paper Chart 1 graphics in S-52. These need to be fixed in Version 4.0 of the S-52 Presentation Library. He proposed that a sub WG be formed to complete this work for submission to HSSC5.

**(See action item 4).**

8.3A ECDIS Interface for Safety Depth & Safety Contour

TM reported that, at the DIPWG 4 meeting, it was recommended that ECDIS should always use the same value for the Safety Depth and the Safety Contour Value in order to limit the mariner from only entering either one or the other values. Text to cater for this has been included in IEC 61174, but this must first be changed in version 4 of the S-52 Presentation library.

**(See action item 5).**

8.4A U.S. Chart No. 1, Edition 12

CB provided a brief overview of a new U.S. Chart 1 publication which now contains chart symbols and the equivalent the ECDIS symbols. It was noted that this is a very useful publication for both paper chart and ENC production. The publication is freely available for download from the NOAA web site at; <http://www.nauticalcharts.noaa.gov/mcd/chartno1.htm>. CB noted that he wished to thanks the CSPCWG, BSH, and Jeff Wootton for the very helpful review comments that they provided on the document.

## **9. New Portrayal Topics & S-100/101 Portrayal**

9.1A S-100 Portrayal Model

HA provided high a level review of the portrayal model which is included as documented 9.1A. It describes how feature data are transformed into portrayal instructions. The portrayal processor uses the portrayal instructions to generate the portrayal. The main difference to the existing S-52 model is that the conversion is done by the xslt transformation.

BG noted that; the model in the document restricts the symbol encoding type to SVG only, and proposed that the model should make provision for multiple symbol encoding types. This was agreed by the meeting. HP proposed that this should not be an open list of encoding as this would compromise interoperability.

The meeting endorsed the S-100 Portrayal Model, and approved its inclusion in section 9 of S-100. It also endorsed the continued work of the sub-working group to enhance to model in order to support all remaining elements of S-100 portrayal.

The deadline for the completion of Part 9 (portrayal model) and Part 9a (SVG encoding) should be in sufficient time for approval at the next combined meeting (April 2014).

#### 9.1B S-101 Portrayal Catalogue Preparation

JP explained that as a result of the work on the S-101 DCEG document, there have been requirements for some significant changes from S-57 encoding methods. Some attributes have been converted into complex attributes. New features and attributes have been added in order to cater for existing S-52 look up tables and there are CSPs that can't be directly mapped to the S-101 Portrayal Catalogue structure.

For the S-100/S-101 test and development phase, there is a need for an S-101 PC aligned to the DCEG. It is recommended that DIPWG form a sub WG to discuss and document the new rules and symbols that are needed for S-101 ENCs, based on the work carried out by the S-101 DCEG Sub-WG.

***(See action item 6).***

#### 9.1C S-101 Portrayal Catalogue LUT

CH noted that document 9.1C is intended to track changes needed for the Portrayal Catalogue for S-101. Changes in the way that some features and attributes are modelled will result in change relating to portrayal rules in LUT.

#### 9.2A New possible sources of ECDIS anomalies

HP noted that following the 2012 DIPWG decision to produce a new edition of the S-52 Presentation Library and S-64 test data set to clarify ECDIS anomalies, Furuno Finland has compared the current editions of S-52 and S-64 against different generations of Furuno ECDIS models. They have identified issues that need clarification in order to avoid new ECDIS anomalies. These are presented in Annexes A, B and C.

Annex A - the current method of **displaying linear depth areas** will result in the mariners seeing different safety contour label values. This may cause misinterpretation of the chart.

HP reported that obstructions on top of un-surveyed areas behave differently to obstructions on top of depth areas. He proposed that TSMAD/DIPWG should aim to publish a new edition sometime before the 2014 meeting, and recommended that the review Sub-WG review the changes before the document is made available for publishing. The meeting endorsed the technical proposal detailed in the Annexes A, B.

***(See action item 7).***

#### 9.3A Cases of ECDIS Portrayal that must be improved.

GS noted that several issues of poor portrayal have been reported to SHOM by mariners. Sounding values on wrecks and obstructions sometimes overlap when displayed at compilation scale. A possible solution may be to have a mechanism to assign a priority for the features that are most dangerous so that they display above the other overlapping features.

JS reported that there have been reports of features being partly obscured because of their proximity to overlapping or adjoining ENC cells. Some mariners have proposed that the portrayal of towers and lights on ECDIS are not sufficiently prominent. They are less prominent than some buoys for example.

PLeB noted that he is of the opinion that systems showing this problem are not prioritizing display priorities correctly. There is no sorting order for features that overlap.

RF noted that these problems could be overcome to a certain extent by using SCAMIN or alternatively areas could be grouped into a single area showing the least depth.

The meeting decided that issues related to features being cut off and the issues relating to symbol weight need to be addressed by the expert panel. No action is required for the "overlapping soundings on wrecks" problem. ***(See action item 8).***

#### 9.4A Calibration Guidelines for Displays in S-52

RP (Robert Powell) proposed that using the S-52 method to perform ECDIS monitor calibration has numerous problems. S-52 includes incorrect representation of formulas, there are errors in the C code application and the actual method for calibration for LCD's if floored. There is a need to update the ECDIS calibration standard so that it is commensurate with the current technology. He proposed that Annex B should be edited to fix all the inconsistencies and those elements that are no longer relevant should be removed.

HP proposed that there are currently too many hardware technologies available, and the WG should not attempt to make provision for them all in S-52. S-52 should specify the colour tokens and the tolerances, and these should be independent of calibration of the hardware technology. Calibration technologies are hardware dependent and should be removed from S-52. Calibration of CRT, LCD and other technologies should be described in the relevant IEC document.

It was agreed that hardware specific content should be removed from Annex B of S-52. The colour tokens and tolerances should remain in the document.

#### 9.4B Comments about S-52 Colour Calibration Formula

HP noted that FFOy had been requested to comment on the proposal TSMAD26/DIPWG5-09.4A, "Calibration Guidelines for Displays" in S-52. He was of the opinion that the CRT based mathematical example provided in S-52 is outdated and this is causing confusion. He proposed that any mathematical model should be excluded from the new edition of the S-52 or alternatively included as an example only. This was agreed by the meeting.

#### 9.4C Recommendation on S-52 Colour Calibration Procedure

DB reported that guidance on colour calibration in S-52 Annex B which only describes an analytical model for CRT monitors has not changed since 1997. He proposed that S-52 should avoid specifying the process of implementation and focus on required performance and verification tests.

#### 9.4D Comment about recommendation on S-52 Colour Calibration Procedure

HP noted that this paper comments on papers 9.4A, 9.4B and 9.4C, and proposed some edited text at Annex 1. He noted that IEC TC80 is responsible for maintaining issues related to the colour calibration of navigation



instruments. Currently colour calibration based on S-52 coordinates, and tolerances are in both (IEC 61174 (ECDIS only) and IEC 62288. The IEC TC80 workgroup drafting the new edition of IEC 61174 have decided to remove this duplication and it is proposed that the IEC 61174 references in TSMAD26\_DIPWG5-9.4C\_Recommendation\_on\_S-52\_Color\_Calibration\_Procedure.doc should be replaced by IEC 62288.

The proposed text at Annex A to paper 9.4D was agreed by the meeting.

**(See action item 9).**

#### 9.5A S-100 Portrayal Section Review

JP proposed that as the S-101 portrayal model is not expected to gain approval at DIPWG5 there is a need to fast track the portrayal section for S-101. Some work has been undertaken to extract sections of S-52 that are needed for S-101 and these are currently in Annex A of the Implementation Guidance section of the S-101 Product Specification. She recommended that a sub-working group be formed to complete this work.

**(See action item 10).**

### 10. S-101 Development Topics

#### 10.1A S-101 Risk Register Update

JP reported that the purpose of the risk register is to track the status of the different components S-101 development and it should be used to identify where additional resources are needed. She reported that;

- S-100 Portrayal is about 85% completed – since TSMAD 25 it has gone from red to yellow. It is anticipated to approve the model at the meeting.
- S-100 Portrayal Catalogue Builder should move to yellow. It can only be completed after the acceptance of the S-100 portrayal model. The catalogue builder will have to undergo conformance testing. This is expected to take from 6 to 8 months to complete.
- S-100 Feature Catalogue Builder – JP reported that this has been completed but needs testing. TR reported that due to changes to the registry, the catalogue builder needs some updating.

#### Part 2

- S-101 Product Specification - S-101 is out for a final round of comments. The document is fairly stable and needs testing. Excluding portrayal, it is about 95% complete and is due for completion in Oct 2013.
- S-101 Portrayal (section 9) is only about 10% complete.
- S-101 Data Classification and Encoding Guide – good progress made during the meeting preceding the TSMAD/DIPWG meeting – a baseline version is estimated to be 90% complete.
- Adding new S-101 features and attributes to the FCD. JP reported that work on this had not commenced yet. A baseline Feature Catalogue to be built by TR.
- Creating a new version of the Feature Catalogue – TR to complete by December 2013.
- S-57 to S-101 convertor has been updated. There is a need to provide test data. The due date is Jan 2014. BG proposed that there is also a requirement to produce a converter for ENC updates.
- S-58 for S-101 Data Validation. JP proposed that this is a task for the S-58 item leader, and should be included as an annex to S-101.

#### PART 3: S-100/S-101 Test Bed Risk Register

- S-100/S-101 Overarching Test Strategy. JP reported that this needs further defining and the S-101 test cases need to be developed under contract. It is expected to be completed in October 2012.
- The S-101 Test Cases is due to be completed in October 2013.

- The S-101 Test Plan is due to be completed in October 2013
- The S-101 ECDIS (non-type approved) capable of testing S-101 – May 2014.

RD questioned whether there should be tests for production systems. LP noted that if the data is validated as correct, then the system must be correct.

**(See action item 11).**

#### 10.1B S-101 Roadmap

BG noted that the roadmap was a requirement that was assigned to TSMAD at the HSSC4 meeting. It lays out a roadmap for the issues that need to be addressed to complete S-101 and its component parts and attempts to identify the impact that these will have for Hydrographic Offices and stakeholder communities. BG invited TSMAD members to help to review the various sections of the roadmap and provide him with any comments they may have.

EV noted that the document would have an impact on the MSDI work and should be made available to this working group. BG reported that the roadmap document will be presented to the HSSC5 meeting where the chairs of all HSSC working groups will be present.

#### 10.2A S-101 Punch List Status

JP reviewed the S-101 list of items that had been identified for changes to the product specification document.

- 3 Spatial Resolution - accepted
- 4.3.2.3 Aggregated Feature Type -accepted
- 4.3.4 Information Type - accepted
- 4.4 Feature Object Identifier - accepted
- 4.5.1 Data Coverage - accepted
- 4.8.2 Masking - HB comment accepted.
- 4.8.2 Masking – accepted.
- 12.1 Figure 16 S-101 Exchange Set – class details – accepted.
- 12.1.1 Copyright – accepted.
- 12.1.2 Digital Signature Reference and Value - ?
- B1.6.20 Curve Component field in S-101 – accepted.
- B1.7 Data Cancellation - no action.
- General section – accepted.

#### 10.2B S-101 Latest Draft (MS Word version)

JP reported that document 10.2B represented the latest draft version of the S-101 Product Specification. The document had undergone several reviews and she requested TSMAD members to review the document and provide any feedback to her as soon as possible.

#### 10.3A S-101 Additional values for min and max display scale (spatial resolutions)

JP reported that the TSMAD25 meeting agreed that the specification for spatial resolution needs to be improved at the upper and lower end of the range for S-101. Any new values should not be based on actual values used for S-57 ENC production.

The meeting agreed to add the following spatial resolutions to S-101: 10 000 000; 3 000, 2 000 and 1 000 to the existing ranges. RF proposed to change 3 million to 3.5 million – this was agreed. TR noted that it will be mandatory to use these scales, but it won't be necessary to produce data at the scales.

JW noted that these are a minimum set of ECDIS display scales. The scales were initially aligned with radar ranges. If the standard ranges are used by both data producers and ECDIS manufacturers, this will result in better presentation and loading of ENCs in ECDIS.

#### 10.4A S-101 Multiple Data Coverage

JP reported that US had noticed an inconsistency between the existing definition of dataCoverage and the data loading and unloading algorithm in S-101. Currently, S-101 allows for multiple dataCoverages within a single dataset and the algorithm for data loading and unloading does not take this rule into account. This may lead to inconsistencies in how data is loaded in an S-101 ECDIS.

BG questioned why is there a dataset within a dataset. Australia noted that they would only support this if the M\_CSCL was re-introduced.

The meeting did not agree with the proposal for removing multiple dataCoverages within a dataset for S-101 as presented in the paper.

**(See action item 12).**

#### 10.5A S-101 FC and PC management

JP reported that during the latest review of the S-101 Product Specification, it was noted that there was a lack of guidance on what effect the updating process for Feature and Portrayal Catalogues would have on ECDIS behaviour. She proposed a few different scenarios for discussion;

The first option proposed that the ECDIS would manage multiple Feature and Portrayal Catalogues in order to correctly portray data that was created on different versions of the Product Specification. The metadata associated with each dataset would describe which Product Specification it is associated with.

The second option proposed that, for each new edition of a Product Specification, cumulative Feature and Portrayal Catalogues would be released. In this case, the ECDIS will only have to manage a single Feature Catalogue and Portrayal Catalogue.

It was recommended that a sub-working group should provide guidance for inclusion in the S-101 Product Specification's implementation guidance based on option 2

HP noted that the proposal in option 1 is very simple and in his opinion will not work taking into account the large number of ENC cells available. He proposed that the number of catalogues that should be allowed in an ECDIS must be limited to no more than 3.

**(See action item 13).**

#### 10.6A S-101 DCEG SubWG Report

JW reported that the DCEG had met during the week prior to the TSMAD/DIPWG meeting. The group had reviewed almost 500 comments that had been received on the latest version of the document. There was a significant contribution from US NGA to support alignment with NATO development efforts.

Some important items that were discussed include:

- A new clause in the "Introductory" section dealing with text placement.
- A number of issues relating to quality of bathymetric data discussed – these were referred to the DQWG.
- Minimum and maximum display scales for coverage data. These were re-modelled to enumerate attribute type.

- The nautical publications meta feature has been removed from S-101 ENCs.
- Orientation was removed from Navigational System of Marks, and a new feature to encode local direction of buoyage added.
- Ice information – some additional values are required for S-101 ENCs (to cater for seasonal ice)
- The display of some features (e.g. Sloping Ground) – proposal to be developed for DIPWG.
- Pingo’s were re-modelled.
- Bridge span feature was re-modelled to remove conditional mandatory attributes.
- New proposal for encoding works in progress (UK).
- New attributes “minimum surrounding depth” and “default clearance depth” have been introduced to remove portrayal CSP for wrecks, underwater rocks and obstructions.
- A proposal is to be developed for a new feature “Buoy Non-navigational”. It was decided to refer this to the CSPCWG for feedback.
- Slight re-modelling of lights to have all sector lights as a single feature. This was done to cater for obscured sectors. Also to introduce a new attribute to cater for new sectors.
- Navigation aids section was re-structured to be more logically ordered. It is presently based on S-4, but it was noted that this is not very logical for the DCEG.
- Retro-reflectors were being re-modelled to complex attributes for navigation aids. It was noted that if they can’t exist in isolation, then they should be a complex attribute.
- New proposal for AIS Aids to Navigation was accepted. This will be a single feature and will be included in the next draft.
- It was decided to develop an “S-57 to S-101” crosswalk document to aid S-57 compilers. It will be a standalone document.
- It was decided that the “definitions” need to be improved and rationalised.

Future work items to be completed include:

- Incorporate results of discussions from DCEG Sub-WG4 meeting in the document (July 2013).
- DCEG Sub-WG review task - to be completed by the end of August 2013.
- TSMAD review - to be completed by September 2013.
- “Baseline” version 0.0.1 of DCEG document to be completed for Test Bed development. (It is to be available by October 2013).
- There are still about 20 proposals that need consideration.

There was discussion about the diagrams required for the document. Some had been supplied by NOAA however there is a need to harmonise these for consistency. NGA are to do some work on this.

**(See action item 14, 15 and 16).**

10.7A. S-101 Min and Max Display Scale convertor values.

JP reported that at the TSMAD 25 meeting, a sub WG was tasked with improving the feature mappings used by the S-57 to S-100 converter. The intention was to take the various values that are in CSCL and M\_CSCL and provide a standard mapping to both minimum and maximum display scale for a converted S-101 ENC.

BG cautioned that this needs to be managed carefully and there is a needs to include some built in constraints. If it allows for a large number of values to be used it could result in large inconsistencies. JW noted that this was just to enable an override to the standard values. He proposed that this should be covered within test datasets and is to be finalised at the TSMAD27 meeting.

10.8A Machine readability in the S-100 concept

HP reported that FFOy are of the opinion that the IHO portrayal development work needs to address IMO required alerts and indications based on the charted data. There have been some positive discussions about including the machine readable alerts and indications model into the portrayal section of S-52.

However the machine readable HMI model is actually what is required to make the "viewing group model" available as a machine readable component of the "portrayal".

He reported that the total machine readability needs parameter/registry based instructions to replace all current hardcoded software elements associated with a layer. This view is based on experience with hardcoded layers such as AML and AIO.

There is also a need to develop an alerts and indications model and a model for the viewing that link to the portrayal "context" item in the S-100 portrayal model.

BG noted that there was not a need to set up a group to deal with this, as it was due to be completed in the course of catalogue development activities. It was also noted that viewing groups and display modes also need to be considered in the current model.

#### 10.9A S-101 Test Strategy

JP reported that the test strategy documents had been submitted to the TSMAD 25 meeting. She noted that this is a work in progress and she proposed that TSMAD should move forward with the test plan although the Portrayal Catalogue and Feature Catalogue builders were not yet available.

TR noted that it is difficult to test standards in isolation. An established approach is to test the systems that use the standards and the standards are therefore tested as part of the system testing. HA supported this approach and noted that any test strategy should be based on a standard systems approach. The meeting reviewed the diagram presented by TR, and it was noted that this needs to be incorporated into the master plan.

***(See action item 17).***

#### 10.9B S-101 Requirements Traceability Matrix (Excel version)

JP reported that the requirements traceability matrix spreadsheet had been developed to provide a mapping from requirements laid out in S-101 to the future test cases that will be developed under the S-101 Test Plan.

#### 10.9C S-101 Test Plan

Same as the test strategy document - see document 10.9A.

### **11. S-100**

#### 11.1A S-100 Status of Past Proposals

JP went through the spread sheet (document 11.1A). There were no additional comments.

#### 11.2A S-100 Maintenance - Change Proposal Form

JP noted that the S-100 change proposal form had been developed to formalise proposal for changes to the standard. The form is to be used for all proposals for clarifications, corrections, and extensions to the standard.

***(See action item 18).***

#### 11.2B S-10n Product Specification Template

JP reported that the S-10n Product Specification template had been developed in order to provide guidance on the development of S-100 Product Specifications. This will replace section S-100 Appendix 11B. She noted that there will also be a requirement to include a template for coverage data types. JSF noted that the existing template is too ENC specific and proposed that it should be more generic to cater for other Product Specifications. This was agreed by the meeting.

**(See action item 19).**

#### 11.3A S-100 GML Profile Update

TR reported that at the TSMAD25 meeting, the UK reported on the progress with developing the GML profile for S-100 and this resulted in an action to provide the complete profile and documentation for consideration at the TSMAD26 meeting for comment. This was completed in February 2013 however several items which are not catered for in the GML profile need discussion and further work. These include;

- Attributes on spatial objects. It's not clear how to cater for attributes on a spatial object such as SCAMIN in the S-100 spatial schema. BG noted that this had been discussed at ISOTC211 meeting and is not included in the GFM. This needs further investigation.
- Associations, Aggregations and Compositions. It's not clear how these should be modelled in UML and reflected in application schema conforming to the profile.
- Updating – the profile does not currently support updating.

TR noted that, in its present form the draft GML profile could be used for the UN DOALOS and the MPA Product Specifications. He noted that The EU project Accseas is developing an "Aids to Navigation" Product Specification using the profile and the UK is using this profile for an "Aids to Navigation" Product Specification.

It was decided that this profile will mainly be used for non ENC products and as it has not yet been determined whether the GML extended constructs are required, they will not be considered for the S-100 profile at this stage. This does not preclude them being added later for a specific requirement.

**(See action item 20).**

#### 11.4A S-100 Metadata Schemas Update

TR reported that following a review of the S-100 metadata, it was noted that S-100 specifies two types of metadata namely; standalone metadata (following - ISO 19115 and ISO 19139) and exchange set metadata. He proposed that there is a requirement to provide some explanation on how the different metadata approaches should be reflected in metadata documents, and how they should be managed. He therefore proposed that the S-100 metadata section need to be reviewed.

It was proposed that there is a requirement to undertake a revision of the S-100 metadata section to make the implementation clearer and there is also a need to develop an S-100 metadata register.

**(See action item 21).**

#### 11.5A S-100 Route Exchange Format

No paper. TR reported that this item had been forwarded to the IEC 61174 WG for consideration and possible further work. BG questioned why IEC are working on an encoding format.

#### 11.6A Proposal to add CATOBS value to the S-100 FCD

LP proposal that an additional value (cleared production platform) be added to the Feature Data Dictionary for CATOBS (Category of Obstruction). The proposal was accepted by the meeting.

#### 11.7A Schema Definition and Validation Files

RM reported that data encoded in XML or other formats may use external schema definition files to specify the structure and content of dataset files and proposed that S-100 application developers will need to consider the location, maintenance, and distribution of S-100 schema definition files for use by OEMs and/or end users. The proposal was noted for future consideration.

#### 11.7B S-100 Geometries Progress

RM noted that this item reports on the TSMAD 25 action to produce a paper recommending how additional geometries defined in ISO 19107 can be added to S-100. Some products have a requirement for geometries other than those included in S-100 Edition 1.0.0. The proposed options are; is there a need to do anything, is there a need to add content to S-100 incrementally, or is there a need to include all ISO 19107 geometric constructs.

The additional geometries required for S-100 include a circle, sector and offset arc geometries. RM provided some examples of the use of other types of geometries used in Notices Mariners.

HA proposed that it was not a good idea to include the additional geometry types in Product Specifications as this may result in limited interoperability.

**(See action item 22).**

#### 11.7C S-100 Codelists Progress

RM reported that this paper reports on the TSMAD 25 action to produce necessary text and UML diagrams to provide for the inclusion of code lists in S-100. He noted that, although code lists may not be required for S-101, they were necessary for some of the SNPWG Product Specifications, and may be required for other future Product Specifications. TSMAD noted the paper and supported the continuation of the action item to TSMAD 27 and their inclusion in the next edition of S-100.

**(See action item 23).**

#### 11.7D Change Proposal - Feature Association field

RM reported that Jeppesen proposed to change field tag for the Feature Association field (10a-5.11.4) and label for False Easting (10a-5.2.2.a) in order to eliminate any potential conversational misunderstanding between the two terms. The change proposal was accepted by the meeting and is to be included in the next edition of S-100.

#### 11.7E Uniform Resource Identifiers for S-100 and Change Proposal Form

RM reported that the S-100 Product Specifications and e-navigation data products / applications, are likely to need persistent identifiers for different kinds of items. This will include definitions and services as well as data. S-100 Edition 1.0.0 does not define object identifiers although S-101 will probably use the S-57 inherited FOID. He proposed to make provision for the use of Uniform Resource Identifiers (URIs) as globally unique persistent identifiers that enable different S-100 data products to harmonize data and maintain an objects validity through production, distribution, and use. Use cases include, nautical publications data, provision of services.

He recommended that provision should be made for the inclusion of persistent global identifiers in S-100 data products. This should include the use of URI, URL, and URN. The meeting accepted the recommended changes and the change control form for inclusion in the next edition of S-100.

#### 11.7F Roles in S-100 and Roles Change Proposal

RM proposed that S-100 and ISO 19103 include certain conventions for default role names. ISO 19109 does not distinguish between feature and information types and treats both as feature types. He proposed that the ISO 19103 conventions for default role names should be adopted.

Product Specifications should be allowed to use default role names if the application domain's semantics permit. The default "both" should be replaced by "associatedWith", the latter being more meaningful. Information associations should permit navigability in both directions and naming of both association ends.

The meeting accepted the recommended changes and change control form for inclusion in the next edition of S-100.

#### 11.7G Feature Catalogue and Change Proposal

RM reported that changes to the General Feature Model were discussed at TSMAD 22. This included making provision for two types of associations - feature associations and information associations, and the concept that associations can also have thematic attributes. He noted that these changes to the GFM are needed to increase flexibility for modelling (especially for nautical publications and domains other than ENCs). The changes to the Feature Catalogue are necessary to keep the Feature Catalogue consistent with the updated GFM.

Product Specifications will need to declare the conventions they use for default and optional roles RM proposed that the impact on data products and applications should be minimal as S-100 data products have yet to be produced.

The proposal for context-specific aliases and numeric codes originated at an earlier TSMAD meeting. RM expressed Jeppesen's concerns about putting format-specific information in a feature catalogue.

The proposed modifications for association classes were accepted. The modifications for default roles and information association navigability were accepted. The proposal for context-specific aliases and numeric codes was accepted in principle but needs further discussion for finalization. The discussion is to be lead by TR.

The meeting accepted the recommended changes and the change control form in principle. This is for inclusion in S-100.

#### 11.7H Red Line Documents for S-100 changes 11.7 agenda items

JP reported that since S-100 was first published, a number of corrections, clarifications and extensions had been identified. She noted that a marked up version highlighting changes had been produced for the following S-100 sections; Part 1 Conceptual Schema Language, Part 2 - Management of Registers, Part 2a - Feature Concept Dictionaries, Part 3 - General Feature Model and Rules for Application Schema, Part 5 - Feature Catalogue, Part 11 Product Specifications, which reflect the proposed changes for the next edition of the publication.

#### 11.8A Persistent Global Feature / Object Identifiers

TP reported that this issue had been discussed at the SNPWG16 meeting and the proposal was also the subject of paper 11.7E. He noted that in his opinion persistent identifiers should be globally unique and should have the same lifespan as the feature/object to which it is assigned. Furthermore he reported that he had some reservation about the use of FOID as part of a unique identifier as they are subject to change and currently do not have the same lifespan as objects to which they are assigned, however he supported use of a URI as part of a unique identifier.

#### 11.9A Data Integrity Measures

HP reported that that this item came from discussions at the last DPSWG meeting concerning S-100 security and authentication. He proposed that there is a lot of duplication between S-63 and S-57 which needs to be sorted out for S-100. The current S-63 standard is derived from the old Primar Security Scheme and replicates content and metadata within the S-57 standard. The current CRC is too easy to crack and the proposal is to move the



CRC check to a DSR integrity checks. The implementation details will be specified in each individual Product Specification (if required).

It was proposed that a general “data integrity” measure need to be included in S-100s metadata.

**(See action item 24).**

#### 11.10A S-100 Maritime Boundary Exchange Specification

MM presented the Maritime Boundary Exchange Specification and explanatory notes. He noted that the spatial description of maritime limits is becoming too complex for traditional legal instruments. Paper or “legal concepts” submissions don’t suit the user requirements and DOALOS are not geared to accept digital data submissions in multiple proprietary formats. There are limitations to the legal mechanism to make a “digital” proclamation, and so Geosciences Australia has used the IHO S100 digital exchange standard to develop a product specification for submitting their marine boundary spatial information. The reason for using S-100 is because legally the LOS convention references charts and S-100 is the primary standard for future charting requirements. MM proposed that the Product Specification should be registered as an S-100n Product Specification.

**(See action item 25).**

#### 11.10B S-100 Maritime Boundary Product Specification Explanatory Notes

MM noted that the accompanying notes had been provided in support of paper 11.10A and were background information only.

#### 12.1A S-58 5.0.0 Draft Document

TR reported that TSMAD is revising S-58 to provide a robust set of classified checks. HSSC considered that there should be a minimum set of checks which should enable ENC data to meet a defined minimum standard.

The next stage is for TSMAD to endorse this draft for wider review and submission to HSSC5. TSMAD also needs to consider the finalisation of test data to support consistent application of the standard and enable testing.

Some comments were received on the draft new version which will be evaluated for inclusion in the document.

JW noted that validation checks are also used by compilers for quality control purposes and in his opinion many of the tests are too generic. This is resulting in warnings because of exceptions required for certain features. This is resulting in excessive warnings.

TR reported that the criteria are based on the IC-ENC / Primar check classifications. RF noted that the intention was to allow each HO to easily identify at a minimum the issues that must be fixed for a cell to be released as an ENC. JW proposed that the new edition is no longer consistent with the UOC as there are now many “musts” in S-57 that have been classified as “warnings” in S-58. RF noted that the Australian comments had been taken into account and consistency between S-57 and S-58 will be restored.

After discussion the issue concerning the SCAMIN on the master slave objects that indicate (warning) will only be included on navigational aids.

The proposal for check 26 concerning formats / data types, was not accepted

TR reported that the US and UK have produced some S-58 test datasets. Some additional checks still need to be produced, but have not been done yet due to a lack of resources and he invited volunteers to undertake this task. He noted that there should also to be a mechanism to test validation software.

The meeting endorsed draft 1.0 of S-58 5.0.0 for distribution to the full stakeholder community for review, after which it is to be to HSSC 5 for approval.

**(See action items 26).**

#### 12.1B S58 Testing Producing Excessive Warnings

RF reported that certain S58 tests are testing for optional encodings and producing warnings when the encoding is not present.

There are excessive warnings that are not relevant and need to be ignored while others need to be addressed which is proving to be confusing for data checkers. In particular tests relating to C\_AGGR and C\_ASSO cause excessive warning. He recommended that test 1682 stop issuing warnings for optional encoding of non-mandatory C\_AGGR and C\_ASSO objects.

He proposed that TSMAD should consider halting warnings for any optional S-57 encodings in order to further reduce the clutter associated with excessive warnings currently generated. He proposed that the majority of HOs ignore the generated output anyway. SO enquired whether this could be switched off in the ECDIS validation package.

JW proposed that it warnings relating to associations and aggregations should be grouped and printed at the bottom of the list of warnings.

HA proposed that there needs to be consistent wording in the way errors and warnings are reported. He noted that for the future, it would be good to categorize the errors/warnings so that they can be sorted onto different types or themes so that manufacturers can switch groups of error/warning message off and on as required.

**(See action item 27).**

#### 12.2A Test Data Set for chart related alerts and indications

TR proposed that TSMAD/DIPWG should agree to an ongoing plan to include alerts and indicators in the S-64 test datasets so that they can be used for ECDIS testing. He proposed the adoption of the following principles;

- the content of the test data sets should be amended for changes agreed during a TSMAD/DIPWG if required;
- plots should be made from the test data set using different conditions (i.e. different values of the safety contour, different selections for areas with special conditions, different scales, etc.);
- a panel of experts (from from IHO member states and OEMs) should be invited to review and accept the final version before changes are included in S-64 and before requesting approval by the HSSC.

**(See action item 28).**

#### 12.2B S-64 3.0.0 Progress

TR reported that work has progressed on the new edition of S-64 which will provide a more comprehensive and robust test data suite to support ECDIS testing and type approval. A small group of industry experts led by the UK has been undertaking the work and TR reported that, although significant progress had been made, it will not be completed in order to meet its target completion date for submission to HSSC5. BG noted that this work item needs close and continued coordination with IEC/TC 80.

The meeting endorse the scope and changes presented in the draft document and endorse the completion of the documentation and test data sets for submission to TSMAD 27.

TR proposed to have an S-64 breakout meeting to review the text and define a list of what S-52 changes that might cause issues. Furthermore he proposed that S-64 might need to be taken over by another WG for future maintenance.

#### 12.3A Proposals for a new Supplement for S-57

TR reported that there were several changes that need to be included in S-57 and proposed that TSMAD should consider the production of a new Supplement document. The following proposals were discussed:

- The proposal to prepare a Supplement to S-57 for submission to HSSC 5 reflecting the proposed addition to S-57 Appendix B 1 ENC Product Specification was approved.
- The proposal to amend the title of S-58 in Edition 5.0.0 to remove 'Recommended' was approved.
- The proposal to explore the development of an accreditation service for ENC validation software using the proposed S-58 5.0.0 test datasets – approved in principle, but needs further investigation.
- The proposed approach to achieving the minimum check standard described at paragraph 4 of paper 12.3A was approved.
- HP's proposal to remove the L primitive for depth areas (DEPARE) was accepted.

***(See action items 29 and 30).***

#### 12.4A Proposals to amend the UOC

TR noted that several changes to the UOC were proposed in TSMAD25 paper 4.8.2. This resulted in TSMAD25 action 39 which invited TSMAD members to contribute to further proposals for changes for inclusion in a new edition of the UOC. These changes include:

- A proposal to amend "Reported Anchorages". This was accepted in principle – but it was noted that the text needs some improvement. New text is to be drafted.
- CTNARE coincident with DEPCNT proposal. The proposal was accepted in principle, however the proposed text to be improved.
- Isolated dangers and isolated nodes. The proposal was accepted in principle, but text needs to be improved. GU noted that this change will require a new S-58 test.
- Racon response frequencies. After discussion the UK proposed that there is a need for clarification regarding Racon response frequencies keeping S-4 B486.3 in mind, and invited members to carry out further investigation for consideration at TSMAD 27.
- SMCFAC area. RF notes that this causes a portrayal problem. Accepted in principle – with slightly revised text. GU noted that this requires an additional S-58 test.
- Discontinuities between surveys. The text proposed by UK was accepted.
- Wadis - the proposal to add the remark to the UOC was accepted.
- Masking - the recommended masking policy proposed to be added to the UOC was accepted in principle but needs to be further developed. RF noted that the RENCs Joint Technical Experts Working Group (JTEWG) had been tasked to provide guidance on this.

***(See action items 31, 32, 33 34 and 35).***

#### 12.4B Sector Light Clarification for the UOC

LP noted that there is discontinuity in the UOC concerning the encoding of sector lights and provided the following recommendations for consideration by the UOC and S-58 maintenance sub-working groups;

- Clarification needs to be provided on what category of lights constitutes a sector light. This will help to clarify which light objects SECTR1 and SECTR2 attributes are considered to be mandatory – agreed.

- Include mandatory attribution checks for lights corresponding to the clarification for the UOC recommendation for SECTR1 and SECTR2 – agreed.
- Clarification needs to be provided for directional lights i.e. whether directional lights “have mandatory SECTR1 and SECTR2 attribution” or “mandatory ORIENT attribution”.
- Based on the proposal above, S-58 check 1790, needs to be reviewed.

JW reported that these are mainly issues of semantics.

#### 12.4.C. Proposals to amend the UOC

LP proposed that there are disconnects between the procedure outlined within the UOC for the encoding of seabed areas and the reporting of errors via the S-58 checks for the same feature.

It was agreed to add a column to the table and include “Not present”

***(See action items 36).***

#### 12.5A. Testing of ECDIS Equipment for Use in the Polar Regions.

TP reported that the growth of ship traffic in the Arctic and Antarctic environments has led the International Maritime Organization (IMO) to consider the development of an international code of safety for ships operating in polar waters, known informally as “The Polar Code”. The IMO Performance Standard for ECDIS includes a general requirement that “The ENC and all updates to it should be displayed without any degradation of their information content.” The IEC Standard 61174 refers to IHO Publication S-64 and it is therefore important to include appropriate polar ENC data sets in S-64. This is necessary to ensure that polar navigation can be confirmed during type approval testing.

HP reiterated his comments during the IEC report and noted that all ECDIS must be able to operate in higher latitudes (up to 85 N/S) and should provide special notification that they are able to operate in higher latitudes than 85 N/S. Test datasets sets need to be developed to test for this. He proposed that 4 cells should be produced to cover polar areas, but they should not cover the actual pole.

BG noted that the UK were in possession of some polar datasets, and noted that they would reconfigure these so as to conform to the layout proposed by HP.

***(See action items 37).***

#### 12.6A. TSMAD Work plan and roadmap (HSSC4/07) update from TSMAD 25

BG reported on TSMAD work plan and roadmap which was initially proposed at the HSSC4 meeting and subsequently discussed at TSMAD 25 meeting. He noted that this was an ongoing item of work, and would be presented to the next HSSC meeting.

#### 12.7A Proposed numbering nomenclature for S-100 and the GI Registry

No paper provided.

#### 12.8A Develop an S-10X product specification for Auxiliary Informational Layer Integration

BG – requested clarification as to whether this item that was on the TSMAD Work Programme was relevant.

LP provided a presentation outlining the activities carried out for Work Item A9 which was to facilitate the addition of auxiliary navigational information. It was intended to provide a mechanism to incorporate auxiliary navigational layers such as ice, high density bathymetry and currents with S-101 datasets. She noted that the

work item had been fulfilled via the inclusion of guidance information in the S-100 Product Specification section and in the S-10n template section.

**(See action items 38).**

### **13. Any other Business**

13.1A Proposal to formalize the identifiers for S-100 based Product Specifications.

TR reported that there had been some discussion on an the S-100 numbering system for both S-100 IHO and non IHO Product Specifications. DIaD noted that IEHG would prefer to have an "S" number in order to associate their product with S-100. If the domain for non IHO product specifications was to be 200, they would prefer it to be an S-20n number.

BG noted that numbers would have to be included in a Registry so that numbers could not be re-used. LA noted that this item should be better dealt with by the IMO / IHO harmonization group.

TP reminded the meeting of the comments by HB recorded in the TSMAD 25 minutes (at 4.3.9).

*"HB proposed that the IHO should not be defining numbers for other organization. Non IHO users of the standard should able to define their own numbers. He proposed that it would be much better to use name spaces and the only criteria that should be specified is that the identifiers must be unique. This was agreed by the meeting. (See action item 19)".*

HA noted that it's important to have a common reference place (namespace) if there is going to be multiple products in a system such as ECDIS.

**(See action items 39).**

13.2 INF1- ROK Submission Standard Management System

SO noted that many national HOs now publish not only traditional products (e.g., paper nautical charts and ENC's) for maritime activities, but 'customized' ENC-related datasets including Port ENC, Inland ENC, AML etc ...

As many HOs transition from file-based production systems to database system approach there will be a need for mechanisms to manage the various types of products and services that are produced from hydrographic source databases.

SO invited the meeting assess the need for, and benefits of developing a guideline document to support the establishment of a feature/symbol standard management system that can be used by national HOs for other types of hydrographic products/services. The guidance document would be based on the S-100 and S-99 Standards.

TSMAD confirm that this project will help further development activities related to the broader use of S-99 and S-100 related standards.

13.3 INF2 - ROK submission EAHC Marine Environmental MIO

SO noted that at a recent EAHC meeting, a presentation on the status of the Marine Electronic Highway (MEH) Project for the Malacca and Singapore Straits was provided, and this had included a GIS index of Environmentally Sensitive Sea Areas. At this meeting, it was agreed that hydrographic organizations are probably the appropriate bodies to produce and maintain Environmental MIO databases. An EAHC Marine Environment MIO working group was established and it was agreed that the WG should focus on oil spill response. The WG will try to develop a Product Specification and datasets based on existing international and national guidelines.

SO requested that the meeting take note of this initiative. He asked members to provide comments or recommendations that may be helpful for developing an S-10X Product Specification for marine environmental areas.

#### 13.4 Report on the Wiring Diagram

BG noted that he had been involved in discussion regarding the structure of the wiring diagram showing the decisions process for resolving issues in relation to ENCs and promulgating ENC Encoding Bulletins. He requested TSMAD members to review the diagram, and provide any feedback to him.

***(See action items 40).***

#### 14. Review of Meeting Actions

A review of the meeting actions was carried out. RF reported that there was also an action to amend S-58 test 2000 with reference to the changes to allowable light colours.

***(See action items 41).***

#### 15. Date and Venue of Next Meeting

SSO noted that the Brazilian Directorate of Hydrography and Navigation were pleased to host the 27<sup>th</sup> TSMAD meeting. He proposed a tentative date of the first week of December 2013 at a venue in Rio or close by.

JW reported that the Australian Hydrographic Office had offered to host the next joint TSMAD28/DIPWG6 meeting during April or May 2014, in either Cairns or Wollongong.

#### 16. Close of Meeting

BG thanked CH, JP and all members of the NOAA Office of Coast Survey for all their hard work in organizing the meeting and providing excellent logistical support. CH thanked all delegates for their participation and hard work which had resulted in a very fruitful meeting.

## List of Documents.

Doc No	Document Title
01A	List of Documents
01B	List of Participants
02A	Joint Agenda for TSMAD-26 and DIPWG-5
03A	TSMAD25 - Minutes
03B	Status of Actions from TSMAD-25
04A	Minutes of the 4th DIPWG Meeting and Status of Actions from DIPWG-4
05A	HSSC Actions for TSMAD
05B	HSSC Actions for DIPWG
05C	Outcome of HSSC Road Map Workshop (RMW), IHB - 27-28 March 2013 Wiring Diagram
06.1A	SNPWG
06.2A	CSPCWG
06.3A	DQWG
06.4A+B	TWLWG and SCWG Report
06.5A	MSDIWG
06.6A	DPSWG
07.1A	IALA Draft IALA Guideline on Harmonised Portrayal of e-Nav Info
07.2A	ISO
07.3A	IEC
07.4A	WMO JCOMM ETSI
07.5A	WMO JCOMM ETMSS
07.6A	DGIWG
07.7A	OGP
07.8A	GMWG (Geospatial Maritime Working Group)
07.9A	DOALOS S-100 Maritime Boundary P.S. Explanatory Notes
08.1A	S-52 Edition 4.0 Changes to S-52 Presentation Library to Produce Ver 4.0
08.1B rev1	S-52 Presentation Library v4.0 (.zip)
08.1C rev1	S-52 Presentation Library e3.4 to v4.0 Redlines
08.1D	Finalization of S-52 Presentation Library v4.0

08.1E	S-52 Presentation Library e3.4 Part I (.zip)
08.1F rev1	S-52 Presentation Library V4.0 Review of Comments (.zip)
08.2A	Harmonizing Digital and Paper ECDIS Chart 1
08.3A	ECDIS Interface for Safety Depth & Safety Contour
08.4A	U.S. Chart No. 1, Edition 12 (132 MB)
09.1A	S-100 Portrayal Model
09.1A.1	S-100 Part 9 Portrayal
09.1B	S-101 Portrayal Catalogue Prep Work
09.1C	S-101 Portrayal Catalogue LUT
09.2A	New possible sources of ECDIS anomalies
09.3A	Cases of ECDIS Portrayal to Improve
09.4A	Calibration Guidelines for Displays in S-52
09.4B	Comments about S-52 Colour Calibration Formula
09.4C	Recommendation on S-52 Color Calibration Procedure
09.4D	Comment about recommendation on S-52 Colour Calibration Procedure
09.5A	S-100 Portrayal Section Review
10.1A	S-101 Risk Register Update
10.1B	Master Plan for the development and implementation of S-100
10.2A	S-101 Punch List Status
10.2B	S-101 Latest Draft (MS Word version)
10.3A	S-101 Additional values for min and max display scale (spatial resolutions)
10.4A	S-101 Multiple DataCoverage
10.5A	S-101 FC and PC management
10.6A	S-101 DCEG SubWG report
10.7A	S-101 Min and Max Display Scale convertor values
10.8A	Machine readability in the S-100 concept
10.9A	S-101 Test Strategy
10.9B	S-101 Requirements Traceability Matrix (Excel version)
10.9C	S-101 Test Plan
11.1A	S-100 Status of Past Proposals - Proposed Tracking
11.2A	S-100 Maintenance - Change Proposal Form
11.2B	S-10n Product Specification Template
11.3A	S-100 GML Profile Update



11.4A	S-100 Metadata Schemas Update
11.5A	S-100 Route Exchange Format
11.6A	Proposal to add CATOBS value to the S-100 FCD
11.7A	Schema Definition and Validation Files
11.7B	S-100 Geometries Progress
11.7C	S-100 Codelists Progress
11.7D	Change Proposal - Feature Association field
11.7E	Uniform Resource Identifiers for S-100 and Change Proposal form (zip)
11.7F	Roles in S-100 and Roles Change Proposal
11.7G	Feature Catalogue and Change Proposal
11.7H	Red Line Documents for S-100 changes 11.7 agenda items (zip)
11.8A	Persistent Global Feature / Object Identifiers
11.9A	Data Integrity Measures
11.10A	S-100 Maritime Boundary Exchange Specification
11.10B	S-100 Maritime Boundary Product Specification Explanatory Notes
12.1A	S-58 5.0.0 Draft Document Draft documents as ZIP or as 7z format.
12.1B	S58 Testing Producing Excessive Warnings
12.2A	Test Data Set for chart related alerts and indications and Test Datasets (zip)
12.2B	S-64 3.0.0 Progress
12.2C	S-64_3.0.0 Outline Draft 0.9
12.3A	Proposal for a new S-57 Supplement
12.3B	S-57 3.1.3 Proposed new supplement document
12.4A	UK Proposals to Amend the UOC
12.4B	Sector Light Clarification for the UOC
12.4C	Disconnect for between UOC3.1 and S-58 - (NATSUR/NATQUA)
12.5A	Testing of ECDIS Equipment for Use in the Polar Regions
12.6A	TSMAD Work plan and roadmap (HSSC4/07) update from TSMAD 25
12.7A	Proposed numbering nomenclature for S-100 and the GI Registry
12.8A	Develop an S-10X product specification for Auxiliary Informational Layer Integration. (TSMAD Work Item 9A)
INF1	ROK Submission Standard Management System
INF2	ROK submission EAHC Marine Environmental MIO

## Agenda

Document Number Prefix*	Agenda Item	Agenda Item / Document Title
1. Opening and Administrative Arrangements		[Greenslade / Harmon]
TSMAD26/DIPWG5	01A	List of Documents
TSMAD26/DIPWG5	01B	List of Participants
2. Approval of Joint Agenda		[Greenslade / Harmon]
TSMAD26/DIPWG5	02A	Joint Agenda for TSMAD-24 and DIPWG-4
3. Matters Arising from TSMAD-25 (Tokyo)		[Greenslade]
TSMAD26/DIPWG5	03A	Minutes of TSMAD-25 (Tokyo) Jan 2013
TSMAD26/DIPWG5	03B	Status of Actions from TSMAD-25
4. Matters Arising from DIPWG-4 (Monaco)		[Harmon]
TSMAD26/DIPWG5	04A	Minutes of DIPWG4 ( Monaco ) May 2012
TSMAD26/DIPWG5	04B	Status of Actions from DIPWG-4
5. Matters Arising from HSSC-4 (Taunton)		[Greenslade / Harmon]
TSMAD26/DIPWG5	05A	HSSC Actions for TSMAD
TSMAD26/DIPWG5	05B	HSSC Actions for DIPWG
TSMAD26/DIPWG5	05C	Outcome of HSSC Road Map Workshop (RMW), IHB - 27-28 March 2013
6. Reports of Activities of Other Working Groups		[Harmon]
TSMAD26/DIPWG5	06.1A	SNPWG [ Fuerstenberg]
TSMAD26/DIPWG5	06.2A	CSPCWG [Wootton]
TSMAD26/DIPWG5	06.3A	DQWG [?]
TSMAD26/DIPWG5	06.4A	TWLWG and SCWG [?]
TSMAD26/DIPWG5	06.5A	MSDIWG [?]
TSMAD26/DIPWG5	06.6A	DPSWG [Pharaoh]
7. Activities of Other Organizations		[Greenslade]
TSMAD26/DIPWG5	07.1A	IALA [???
TSMAD26/DIPWG5	07.2A	ISO [Pharaoh]
TSMAD26/DIPWG5	07.3A	IEC [?]
TSMAD26/DIPWG5	07.4A	WMO JCOMM ETSI [?]
TSMAD26/DIPWG5	07.5A	WMO JCOMM ETMSS [?]
TSMAD26/DIPWG5	07.6A	DGIWG [?]
TSMAD26/DIPWG5	07.7A	OGP [?]
TSMAD26/DIPWG5	07.8A	GMWG (Geospatial Maritime Working Group) [Vos]
TSMAD26/DIPWG5	07.9A	DOALOS [McGregor]
8. Continuing Portrayal Topics		[Harmon]
TSMAD26/DIPWG5	08.1A	S-52 Edition 4.0 Changes to S-52 Presentation Library to Produce Ver 4.0 [Mellor]
TSMAD26/DIPWG5	08.1B	S-52 Presentation Library v4.0 [Mellor]

TSMAD26/DIPWG5	08.1C	S-52 Presentation Library v3.4 to v4.0 Redlines	[Mellor]
TSMAD26/DIPWG5	08.1D	Finalization of S-52 Presentation Library v4.0	[Mellor]
TSMAD26/DIPWG5	08.1E	S-52 Presentation Library e3.4 Part I	[Mellor]
TSMAD26/DIPWG5	08.1F	S-52 Presentation Library V4.0 Review of Comments	[Mellor]
TSMAD26/DIPWG5	08.2A	Harmonizing Digital and Paper ECDIS Chart 1	[Mellor]
TSMAD26/DIPWG5	08.3A	ECDIS Interface for Safety Depth & Safety Contour	[Mellor]
TSMAD26/DIPWG5	08.4A	U.S. Chart No. 1, Edition 12 (132 MB)	[Harmon]
9. New Portrayal Topics & S-100/101 Portrayal			[Harmon]
TSMAD26/DIPWG5	09.1A	S-100 Portrayal Model	[Astle]
TSMAD26/DIPWG5	09.1A.1	S-100 Part 9 Portrayal	[Astle]
TSMAD26/DIPWG5	09.1B	S-101 Portrayal Catalogue Prep Work	[Powell]
TSMAD26/DIPWG5	09.1C	S-101 Portrayal Catalogue LUT	[Powell]
TSMAD26/DIPWG5	09.2A	New possible sources of ECDIS anomalies	[Peiponen]
TSMAD26/DIPWG5	09.3A	Cases of ECDIS Portrayal to Improve	[SHOM]
TSMAD26/DIPWG5	09.4A	Calibration Guidelines for Displays in S-52	[?]
TSMAD26/DIPWG5	09.4B	Comments about S-52 Colour Calibration Formula	[Peiponen]
TSMAD26/DIPWG5	09.4C	Recommendation on S-52 Color Calibration Procedure	[Blevins]
TSMAD26/DIPWG5	09.4D	Comment about recommendation on S-52 Colour Calibration Procedure	[Peiponen]
TSMAD26/DIPWG5	09.5A	S-100 Portrayal Section Review	[Powell]
10. S-101 Development Topics			
TSMAD26/DIPWG5	10.1A	S-101 Risk Register Update	[Powell]
TSMAD26/DIPWG5	10.1B	S-101 Roadmap	[Greenslade]
TSMAD26/DIPWG5	10.2A	S-101 Punch List Status	[Powell]
TSMAD26/DIPWG5	10.2B	S-101 Product Specification - Latest Draft	[Powell]
TSMAD26/DIPWG5	10.3A	S-101 Additional values for min and max display scale	[Powell]
TSMAD26/DIPWG5	10.4A	S-101 Multiple Data Coverage	[Powell]
TSMAD26/DIPWG5	10.5A	S-101 FC and PC management	[Powell]
TSMAD26/DIPWG5	10.6A	S-101 DCEG SubWG report	[Richardson/Wootton]
TSMAD26/DIPWG5	10.7A	S-101 Min and Max Display Scale convertor values	[Powell]
TSMAD26/DIPWG5	10.8A	Machine readability in the S-100 concept	[Peiponen]
TSMAD26/DIPWG5	10.9A	S-101 Test Strategy	[Powell]
TSMAD26/DIPWG5	10.9B	S-101 Requirements Traceability Matrix	[Powell]
TSMAD26/DIPWG5	10.9C	S-101 Test Plan	[Powell]
11. S-100			
TSMAD26/DIPWG5	11.1A	S-100 Status of Past Proposals (proposal tracking)	[Powell]
TSMAD26/DIPWG5	11.2A	S-100 Maintenance - Change Proposal Form	[Powell]
TSMAD26/DIPWG5	11.2B	S-100 Product Specification Template	[Powell]
TSMAD26/DIPWG5	11.3A	S-100 GML Profile Update	[Richardson]
TSMAD26/DIPWG5	11.4A	S-100 Metadata Schemas Update	[Richardson/Kuwalek]
TSMAD26/DIPWG5	11.5A	S-100 Route Exchange Format	[Richardson]

TSMAD26/DIPWG5	11.6A	Proposal to add CATOBS value to the S-100 FCD	[Patterson]
TSMAD26/DIPWG5	11.7A	Schema Definition and Validation Files	[Mong]
TSMAD26/DIPWG5	11.7B	S-100 Geometries Progress	[Mong]
TSMAD26/DIPWG5	11.7C	S-100 Codelist Progress	[Mong]
TSMAD26/DIPWG5	11.7D	Change Proposal - Feature Association field	[Mong]
TSMAD26/DIPWG5	11.7E	Uniform Resource Identifiers for S-100 + Change Proposal	[Mong]
TSMAD26/DIPWG5	11.7F	Roles in S-100 and Roles + Change Proposal	[Mong]
TSMAD26/DIPWG5	11.7G	Feature Catalogue Proposal + Change Proposal	[Mong]
TSMAD26/DIPWG5	11.7H	Review of Redline changes for agenda items 11.7n	[Mong]
TSMAD26/DIPWG5	11.8A	Persistent Global Feature / Object Identifiers	[IHB]
TSMAD26/DIPWG5	11.9A	Data Integrity Checks	[DPSWG]
TSMAD26/DIPWG5	11.10A	S-100 Maritime Boundary Exchange Specification	[McGregor]
TSMAD26/DIPWG5	11.10B	S-100 Maritime Boundary Product Specification Explanatory Notes	[McGregor]
<b>12. General TSMAD Topics</b>			
TSMAD26/DIPWG5	12.1A	S-58 5.0.0 Draft Document	[Richardson/Fowle]
TSMAD26/DIPWG5	12.1B	S58 Testing Producing Excessive Warnings	[Patterson]
TSMAD26/DIPWG5	12.2A	Test Data Set for chart related alerts and indications	[]
TSMAD26/DIPWG5	12.2B	S-64 3.0.0 Progress Report	[Mellor]
TSMAD26/DIPWG5	12.2C	S-64 3.0.0 Outline Draft	[Mellor]
TSMAD26/DIPWG5	12.3A	Proposal for a new S-57 Supplement	[Richardson]
TSMAD26/DIPWG5	12.3B	S-57 3.1.3 Proposed new supplement document	
TSMAD26/DIPWG5	12.4A	UK Proposals to Amend the UOC	[Richardson]
TSMAD26/DIPWG5	12.4B	Sector Light Clarification for the UOC	[Patterson]
TSMAD26/DIPWG5	12.4C	Disconnect for between UOC3.1 and S-58 (NATSUR/NATQUA)	[Patterson]
TSMAD26/DIPWG5	12.5A	Testing of ECDIS Equipment for Use in the Polar Regions	[IHB]
TSMAD26/DIPWG5	12.6A	TSMAD Work plan and roadmap (HSSC4/7) update from TSMAD25	[?]
TSMAD26/DIPWG5	12.7A	Proposed numbering for S-100 and the GI Registry (HSSC4	[?]
TSMAD26/DIPWG5	12.8A	Develop an S-10X product specification for Auxiliary Informational Layer Integration. (TSMAD Work Item 9A)	[Patterson]
TSMAD26/DIPWG5	INF1	Standard Management System	[Sewoong]
TSMAD26/DIPWG5	INF2	EAHC Marine Environmental MIO	[Sewoong]
<b>13. Any Other Business</b>			[Greenslade / Harmon]
<b>14. Review of Meeting Actions</b>			[Greenslade / Harmon]
<b>15. Date and Venue of Next Meeting</b>			[Greenslade / Harmon]
<b>16. Close of Meeting</b>			[Greenslade / Harmon]

\* Items that do not show the "TSMAD26/DIPWG5" document prefix do not have a document associated with the agenda topic.

## Annex C

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