

**Minutes of the 14<sup>th</sup> TSMAD Meeting  
Taunton, UK (4 – 8 June 2007)  
and the 2<sup>nd</sup> combined TSMAD/CSMWG Meeting in  
Stavanger, Norway (11 June 2007)**

**Attachments:**

- Annex A – List of Documents
- Annex B – Agenda
- Annex C – List of Participants
- Annex D – UML Diagram
- Annex E – Action Items

The following Minutes are divided into 2 sections, those for the TSMAD14 meeting and further down, those for the 2<sup>nd</sup> combined TSMAD/CSMWG meeting.

**TSMAD14 Minutes:**

**1. Welcome**

1.1 R.Adm Ian Montcreaf (UKHO Hydrographer) welcomed TSMAD 14 members to Taunton and noted that there was significant interest in the S-100 standard and the next ENC Product Specification. He emphasized that there is presently a need to focus on achieving global consistency and coverage and highlighted the need for data producers to rise to the challenge of providing products and services that satisfy the demands of the maritime community.

**2. Approval of the Agenda**

2.1 The agenda was approved and the following items included for discussion under "Any Other Business":

- ENC's on different sounding datums – how are member states dealing with this issue.
- The Concept of Information Objects; there is a need for further discussion on this issue. Holger Bothien was requested to provide a short presentation later in the meeting.
- Peter Parslow requested that the actions from the SNPWG meeting should be discussed. Johannes Melles proposed that this should be presented under the discussion of Information Objects.
- Display of Exclusive Economic Zones (for discussion at CSMWG). There is a need for a method of symbolizing EEZs in ECDIS. (See CSMWG17-03.7A paper from Transas outlining unsymbolised objects). CSMWG have not reached consensus and have proposed a solid line with text - (for discussion during the CSMWG/TSMAD combined meeting).

**3. Minutes of the 13<sup>th</sup> TSMAD Meeting - Wellington, New Zealand**

3.1 The minutes of the 13th TSMAD Meeting, (18 to 22 September, Wellington, New Zealand) were accepted without amendment. The following actions are still outstanding:

- TSMAD12 issue: SAHO ENC display issues – this issue is on the agenda for the combined TSMAD/CSMWG meeting.
- TSMAD12 issue: ENC cells crossing 180 degree longitude. The ENC EB has been approved but not posted yet. Should be included in the IHO TDS which has not been done. **Actions:** ENC EB SubWg to review and issue ENC EB re 180 degree. SevenCs to develop 180 degree example in IHO TDS.
- TSMAD12 issue: advise Chairman of IEC TC80 WG7 of new test required for ENCs crossing 180 degrees. **Action:** Chairman.
- TSMAD13 issue (item 7.1): S-57 booklet to be withdrawn from IHO website and a comprehensive list of all S-57 related documents added to the IHO ENC website. **Action:** Secretary.
- TSMAD13 (item 8): JP reported the status of various outstanding ENC Encoding Bulletins, PELs, linear maritime boundaries (both approved but not posted); ASLs, PSSAs (general E3.1.1 EB issue resolved); AIS is to be discussed by this meeting and resolved at the combined TSMAD/CSMWG meeting; simplified WRECKS encoding bulletin is outstanding.
- TSMAD13 (item 8.8) Radar Reflectors and Daymarks: FAQ and EB (was withdrawn due to S-58).
- TSMAD13 (item 8.9) FAQ for differential GPS with ENC EB SubWg (not drafted yet). See also section 8 below on the ENC EB SubWg issues at hand.
- TSMAD13 (item 9.1): Chairman was to raise at CHRIS18 re HGE to revisit IEC 61174. Only minor changes were made to include new version of the ECDIS PS. **Action:** Chairman to follow up and raise at CHRIS19 and the ECDIS stakeholders' Forum.
- TSMAD13 (item 9.2): DQWG revised TOR but not progressed. IHO CL re nominations for DQWG/S-44 responsibility. Some work done on data quality (spreadsheet) prepared for S-100 re metadata elements.
- TSMAD13 (item 9.3) S-100 Information Object to take away from **CTNARE** and relates to SNPWG. **Action:** to be discussed at this meeting.
- TSMAD13 (item 10.3) Review of definitions and S-32 – leave as an open item. Possibly raise at CHRIS19.

#### 4. S-100 Focus Group Progress Report

4.1 The reports of the S-100 Focus Group (FG) meetings Minutes, Silver Spring, US, November 2006, and Ottawa, Canada, April 2007 were reviewed and agreed. The Chairman highlighted some of the issues that came out of these meetings: The bathymetry BAG specification (from UNH) is to be adopted as an S-100 Product Specification. It will require some reformatting. The digital signatures will also be adopted.

4.2 Some of the issues from the Ottawa, Canada, April 2007 FG meeting included the finalized registry component and discussions about the feature catalogue, ISO 8211 encapsulation for S-101 and forward compatibility issues. It was emphasised that S-57 E3.1 data must work in an S-100 environment.

#### 5. Matters Arising

There were no matters raised.

#### 6. S-101

Profile of 19131 on how to write a Product Specification (TSMAD14-6A.pdf): Discussion commenced with the question of whether there was a requirement for one Product Specification for S-101 with multiple encodings (ISO 8211 and GML) or multiple Product

Specifications, with the meeting agreeing that the one Product Specification option is preferred, incorporating ISO 8211 encapsulation as discussed at the Ottawa Focus Group meeting. The question was then asked as to what encapsulation the OEMs would prefer to use. **Action:** Chair to raise with OEMs at the ECDIS Stakeholders meeting in November.

Julia Powell noted that DGWIG had produced a profile of 19131 and she had used this as a starting point. This document would be used by anyone wanting to prepare an IHO S-100 product specification as a guide document. It will be sent out for comment shortly after the meeting together with the associated ISO profiles. The secretary noted that the document needs to be harmonised with the framework document. The profile must attempt to cover all future product specs including those for products such as gridded data and navigational surfaces.

6.2 S-101 Actions. A number of issues discussed at the Brest meeting pertaining to S-101 were listed. These will be considered in more detail once S-101 gets into a draft format. They included:

- S-57 General Section. The product Specification will only contain what is allowed in an ENC and not items that are prohibited. This was accepted.
- The product specification should include both SCAMIN and SCAMAX - need to define what will this be used for – e.g. to be used for implementing the change from an area to a point feature. Holger Bothien proposed that SCAMIN could be included as part of the spatial component, not as an attribute. Will need very precise rules. SCAMAX accepted provisionally - but there needs to be testing on how to implement it. Also need to check the impact on S-52. Need to establish how Inland ECDIS are implementing this?  
**Action:** AU to prepare a brief paper on how SCAMAX may be utilised.
- The use of the attribute EXPSON for **SOUNDGs** – does not have an impact on the display of soundings. This needs to be rectified for S-101. When it is used for soundings that are shoaler than the surrounding area there needs to be better guidance. Need to review the S-58 test and also tighten up the encoding rules. Should not be used for very large differences in depth. Where the difference in change is greater than a certain amount (%) it should be encoded as an obstruction. Also needs consideration for S-52.
- An example was provided on the encoding of EXPSON for **SOUNDG**. A 7.6m sounding had been recorded in a 200-300 DEPART with an EXPSON = 2 (shoaler than the range of depth of the surrounding depth area). This was very poor encoding practise. When the safety depth was set, the ECDIS display does not highlight these SOUNDGs, and they only are visible in full display and appear as bold soundings. EXPSON has no effect on SOUNDG but does on OBSTRNs and WRECKs. UOC 6.3.1 advises to encode as OBSTRN. But SHOM has examples where EXPSON = 2 is useful in DRGARE (not maintained) when there are slightly shoaler depths within the area. The S-52 rule states: “if shoaler than safety depth, it should be converted to magenta cross. TEWG suggested banning its use (value 2), but this was not endorsed as there will be legitimate cases where it will be required (e.g. in the SHOM example above). This needs to have a well documented consistent approach for S-101.
- S-57 B.1 Section 1.4 - Need for an improved maintenance regime. Rules need to be formulated on what can and can't be changed in a product specification. Clarifications should be allowable within a version but TSMAD needs to decide how

this links to the S-100 maintenance. The feature catalogue needs be more flexible and there needs to be clear distinctions between clarifications and corrections.

- B.1 Section 2 - Need to include a section providing guidance on the use of compilation scale (which should be considered as optimum display scale), and its link with the use of SCAMIN. It was agreed that the concept of adjusting CSCALE to fixed Radar Ranges (as described in the consistency paper) should be adopted (subject to OEM implementing this). It was stressed that this approach would not work unless standardisation of incremental display scales in ECDIS was not achieved. **Action:** TSMAD needs to monitor the implementation of this within ECDIS. Furthermore TSMAD needs to investigate whether the concept of Navigational Purpose could be removed and only be used for cataloguing purposes.
- B.1 Section 2.2 Cells - Grid system for ENC. Discussion about introducing the grid layout as described in Ed 2.0. (Truncating by the data limit – there are some tests in S-57 – there will need to be better guidance in the ENC Product Spec). – France noted that they have used a grid layout in the past but are moving back to paper chart layout as it helps to keep track of both products. Sweden and Australia noted that they use grid layout and felt that this would be more suited to a database scenario. Problem arises when there is a feature going across two cells produced by different nations. Possible solution could be to use a common FOID or perhaps have a second FOID that may be used for this purpose. This needs further investigation. The meeting agreed that including use of a grid system need not be included in the Product Spec, but left up to data producers. **Action:** Members to discuss with their home offices and report to Julia Powell.
- B.1 Section 2.2 Cell size - Is there still the need for the 5 MB on cell size? SevenCs noted that there is the need for a limit but perhaps file size is not ideal and it was suggested the number of objects per cell as an alternative measure. This was not agreed to by the meeting, as the data size of individual features can vary largely from feature to feature (e.g. point v line features). IIC noted that they have experienced that 10% of cells need to be split, perhaps 2% split twice to achieve the 5 MB limit. It was agreed that for performance and internal (system) data management purposes, there should be a limit on file size. Need to investigate the possibility of defining the limit by the number of features. Need to do tests to investigate this option and also to look at an optimal limit for file size. Also need to investigate implementing an upper limit for updates and incorporate guidance on when to do incremental updates and when to do new editions. There was also discussion on the problems with the management of text and picture files within ECDIS.
- B.1 Section 2.3 - What is a logical topological relationship? We should have a better definition and examples. Cannot have coincident geometry in a chain node model. But this makes provision for contour geometry coincident with a depth area. It was agreed that there is a need to improve the topological definitions for “covered by”, “situated within” and other topological relations. Holger - there are also implications for where the topology is not well defined in the data and the ECDIS needs to calculate the topological relation for display purposes (stack over – stack under). There are requirements to make provision for better definition of topology in S-101 in order to improve the quality of the data.
- B.1 Section 3.1 - There is a need to make a clarification to ensure that the FOID remains stable even if a dataset is moved from different production platforms. This is currently not always the case. FOID is used for cross referencing across cells and

was used for relationships (but should not continue in the future S-101). Tidy up for S-101. (Discussed at Ottawa Focus Group). Currently it is not possible to have more than 1 surface per feature.

- B.1 Section 3.3 Objects permitted for use in ENC and their geometric primitives - This will be in the Feature Catalogue – does TSMAD want this pulled out as a quick reference document? Needs to be kept in the Product Spec - could be covered in the data classification and encoding rules. (Same for mandatory files).
- B.1 Section 3.4 Meta objects - Data identification such as a descriptive comment for cell name. Can ISO 8211 be amended to allow for extensions to meta data? Holger said it would require more flexible structure within ISO 8211 (could be converted to GML data). Should be able to access this discovery data without opening the data set. There will probably be additional meta objects that will also go into the header file. TSMAD needs to identify these. Need to extend the ISO 8211 encoding to accommodate additional dataset metadata. Another possibility would be to extend the catalogue file (which the meeting agreed was currently poorly utilised) to keep all the dataset metadata. Need to put out a questionnaire getting the opinion of MS and OEMs. **Action:** Chairman.
- B.1 Section 3.5.2 Mandatory attributes – This section will also go into the Feature Catalogue – does TSMAD want this pulled out as a quick reference document? It was decided that it will go into the encoding rules within the Product Spec.
- B.1 Section 3.5 Missing attribute values – There really needs to be a clarification about missing (empty value) attributes versus unknown attribute values that are not populated. S-57 Edition 2 had a 0 for unknown (empty value) for enumerated attributes. Presently needs to be coded as unknown (empty value) or left blank. The present method works well, but the documentation needs to be clarified.
- B.1 Section 3.5.5 Text attribute values - There have been discussion about eliminating lexical levels in S-100, as it is contained in S-57 we will need to make a decision on how to handle this section and re-word appropriately. When can we have Lexical level 2, but will need to define how character encoding is implemented. At the moment we only make provision for two encodings. We need to define the character repertoire ISO 646. Should be defined in the metadata. E.g. For ENC we only use UTF8.
- B.1 Section 3.5.6 Hierarchy of metadata – There is a need to make provision for feature level metadata. For example, it would be useful to put CSCALE on the feature and not as a polygon area. This is probably needed to make a product that is combination of multiple scales. Was not agreed.
- Need to re-examine all the prohibited attributes. There might be a case where M\_UNIT is still valid. (i.e. un-prohibit them). Needs better motivation if required.
- B.1 Section 3.6 - There was discussion to allow cartographic objects back into the PS in order to enhance ECDIS display. May be useful for name positioning of labels (anchor points, justification and orientation for displayed text) – perhaps cartographic attributes - needs further investigation / discussion, especially in relation to the effect of 'course up' displays on displayed text. Questionnaire required to get feedback. **Action:** Chairman.

- B.1 Section 3.8 Geometry – Needs a review to the validity of this section – in particular whether a geodesic is required. The rule on digitising point density needs to be revisited - is this still valid? ISO 8211 encoding. Holger Bothien provided a presentation on a possible 8211 encoding implementation that caters for the S-100 model. ISO 19107 direction of area boundaries is different to S-57. S-100 will adopt ISO. Can we allow a linear S-101 geodesic – yes if there is a need for it? The interpolation should be defined at the geometry level not at the feature level.
- B.1 Section 3.9 - Need to include the concept of Association Role, and also need to account for explicit roles and associations. The present S-57 documentation is too generic. Is there a need for associations and the use of FOID. Associations are seldom used but FOID is needed for referencing the same features in two different cells. Peter Parslow noted that FOID may be necessary as a unique ID for defining an authoritative reference (e.g. as the authority for a wreck). Need a questionnaire to find out what OEMs would like to have associations for. Also describe the concept of named associations. The requirement to attach .TXT files to certain features - this could be handled using information objects and could replace INFORM. There may also be a need to include control characters. Needs further investigation when there is better knowledge about info objects. **Action:** Chairman to raise this with OEMs – possibly at the next CIRM meeting.
- B.1 Section 3.10 Groups – Review Group 1 skin of the earth. UK has an issue with seasonal PONTON and FLODOC and HULKES pose similar issues. There has been discussion about having more than two groups. This is to be included in the questionnaire.
- B.1 Section 3.11 Language – discussion to handle all text attributes the same way. There would no longer be any national or international attributes (NATF will go). Still an open topic – needs further investigation.
- B.1 Section 3.11.2 Lexical level – Need a decision on the handling of this. See earlier discussion. Need to consider character encoding. It was recommended that UTF8 be adopted.
- B.1 Section 4.4 Units - There is a requirement to specify a unit of resolution for consistency of encoding between producers (e.g. COMF =  $10^7$  – need to determine whether co-ordinates are going to be stored in 32, 64 or 128 bit). This also applies to resolution of attributes (e.g. encode a value as 3.2234 or 3.22).
- B.1 Section 4.4 - IHO ENC Consistency Recommendation No. 11 states that co-ordinates should be held in ENC production systems to a resolution of 0.0000001 - should this be mandated? If so do we ask for specifying COMF =  $10^7$  to be fixed for the product. Resolution should be specified at the product specification. It was decided to keep  $10^7$  for ENC.
- B.1 Section 5.1 Implementation - It was discussed whether this is needed considering that there might be more than one encapsulation. It was decided that this is no longer relevant for S-101.
- B.1 Section 5.3 Encryption – It was decided that a general statement should be included saying that it is not prohibited and S-63 should be used. It was decided that this was a distribution issue and should not be documented in S-101.

- B.1 Section 5.4.1 Exchange set - There is a need to need look at XML tagged formats, or other formats such as video. It was noted that XML would need associated schemas to be developed. The requirement of what can be included in an exchange set must be specific.
- B.1 Section 5.4.2 Volume naming – It was decided that this was more of a RENC issue. Does it belong in a Product Specification and if so, is the content still valid? There does need to be some guidance somewhere otherwise RENCs may take different approaches and OEMs won't know what to expect. It was decided that this is to be retained, but further guidance on its use will be required.
- B.1 Section 5.4.3 Directory structure - There is also a need for stricter guidance on how text files are stored in the ECDIS systems. TSMAD should provide guidance on how these should be managed in an ECDIS and how redundant / duplicated files are removed. There is a need for better documentation describing the naming convention and versioning. There is also a need to develop a mechanism to remove extant files – to be discussed further (sending a 0 byte TXTDSC file to replace the redundant file was suggested). **Action:** ENC EB SubWg to develop an EB on this issue. Different content requires different filename. Using the same filename will overwrite/update the existing file. It was agreed that a new mechanism needs to be developed for S-101.
- B.1 Section 5.6 File naming – Is there a need for the 8 characters limit? It was noted that technology has moved on and this may no longer be relevant. AML have investigated this and indications are that more characters can be used. Needs further investigation including whether navigational purpose and country code are needed in the filename. This should be recorded in the file or in a catalogue file. The producer code could be kept in the filename to ensure that there is no duplication of filename, and navigational purpose had been discussed earlier with a view that it may only be required for cataloguing purposes. It was agreed that this needs further investigation.
- Issue relating to B.1 Section 5.7 – Text and Picture Files – See 5.4.3 above.
- B.1 Section 5.8 Media - It was questioned whether this is still relevant in this day and age of flash drives. It was decided that this was a delivery issue and should not be in S-100 or S-101.
- B.1 Section 5.9 Error Detection - To confirm that the data has been transferred correctly. Still relevant.
- B.1 Section 5.9.1 - Will S-101 still contain the CRC check? It was decided that CRC should be good enough however other signatures such as MD5 or SHA1 should be investigated.
- B.1 Section 6.2.- File structure. Mike Brown proposed a file structure that would keep the 3.1.1 content the same for old ECDIS but have a separate file extension for the S-101 content. There is a need to develop a clear way of differentiating between S-100 Ed ??? exchange sets from S-57 Ed 3.1.1.
- B.1 Section 6.3 and 6.4 - Both of these sections need the prohibited content removed. This was approved.

- S-57 - Part 1 Section 2 “Structure of the standard” – This needs rewording to comply with the new structure. Should be in S-100 and referred to from S-101.
- Part 1 Section 3 ISO 8211 encapsulation – It was agreed that this should be in the S-100 overview and S-101 product specific components.
- Part 1 Section 5 – Needs to be reviewed against the 19100 standards. Need to also harmonize the 19100 definitions between component documents – to go in S-100. Product specific definitions will also be included in S-101.
- Part 1 Section 6 - Should this be changed to S-100 conformance – This was agreed.
- Part 1 Section 7 Maintenance – Separate maintenance regimes for S-100 and for S-101 / other Prod Specs, noting that the Feature Catalogue can be updated as often as required. **Action:** Task group required to scope out the maintenance regime and document it.
- Part 2 Section 1 Model Introduction - Might be useful in the main S-100 document – This was agreed.
- Part 2 Section 2 Model Implementation - This entire section needs to strip out everything BUT the chain-node model. This was agreed.
- Part 2 Section 3 Presentation - This section will change dramatically as we would like to bind features and portrayal together in S-101 – perhaps the core of the group who maintain S-101 should be changed. This work needs to include the participation of CSMWG members.
- Part 3 Section 1.1 Model to Structure translation - Is this section needed? Will need to have an equivalent section in S-101.
- Part 3 Section 2.4 - Use of Character Sets previously discussed – done.
- Part 3 Section 2.5 Field and subfield termination – Will remain in the encoding section.
- Part 3 Section 2.6 Floating Point Values - Discussed previously. – It was agreed that there is a need for a general section about coordinate storage in S-100 and a more precise description in S-101.
- Part 3 Section 2.7 Media and size restrictions - Discussed previously.
- Part 3 Section 2.8 Data Quality - Discussed previously.
- Part 3 Section 3.2.2 Projection and registration control - It was agreed that WGS 84 would continue to be used.
- Part 3 Section 3.4 Checksums - This was discussed earlier.
- Part 3 Section 4.2.2 - Group subfield already discussed.
- Part 3 Section 4.3 Feature Object Identifier field – ASCII presently used for the catalogue file. Uses the floating point numbers for the coordinates. It was decided to keep this in S-101.



- Part 3 Section 4.4 Feature Record Attribute Field - Done previously.
- Part 3 Section 4.5 Feature record national attribute field – Previously discussed.
- Part 3 Section 4.7.3.2 Area boundaries – Done.
- Part 3 Section 6.2 Collection Feature Record - Done.
- Part 3 Section 7 Structure Implementation - This needs to be reviewed by the S-101 – ISO 8211 group.
- Part 2 Annex B – Done
- General issues – Problem with OBSTRNs and alarms in ECDIS. If objects don't have a depth value it defaults to dangerous. Possible solution to have 2 types of obstructions one for dangerous obstructions and one for non dangerous (e.g. pipeline diffuser) obstructions. Another solution to have categories of obstruction relevant to surface navigation – relevant to subsurface navigation or fishing. **Action:** TSMAD members to discuss with their home offices and report back – also members to propose specific new object/attributes to reduce the overuse of caution area.
- Hans raised a number of issues that need to be resolved regarding ECDIS loading policy - attributes PERSTA, PEREND and DATEND, DATSTA. The topic on how these are handled and displayed in ECDIS needs to be improved. The related IEC tests will also need to be looked at and developed.
- Overuse of **CTNARE**. What object classes have had a caution area applied? **Action:** all TSMAD MS to discuss with their home office and compile a list for the next meeting.
- The way updates are handled needs to be reviewed. Need to look at the concept of one update. Better way of showing changes. Perhaps notices to mariners in the update file that would allow the mariner to step through the changes. How can the user demonstrate that his ENC is up to date? Perhaps the update date in the base cell could be used (its use is presently prohibited). **Action:** TSMAD members to discuss with their home office and propose solution for next meeting.
- Unknown objects i.e. non displayable “?” needs to be fixed.
- Restrictions such as the 5MB cell size rule and changes on sizes and resolution of screens. May need a flexible way of defining these. To be discussed during the SCAMIN paper.

6.2.1 A number of additional issues were also raised for consideration. These are as follows:

- Inconsistency in the use of the ORIENT attribute by ECDIS - Deep water route, recommended tracks, Radio calling-in point, Navigational line inconsistent use of direction of digitizing and the ORIENT. The description of the feature object attribute needs to be improved. Some redundancy between the orientation of the line, and the ORIENT attribute and the orientation setting in the presentation library. These

need to be harmonised. DWRTCL, RCRTCL, NAVLNE, RDOCAL, RECTRC (check all uses of attribute ORIENT).

- Attribute value separators – list separated with commas – e.g. inconsistent use of this for COMCHA (uses semi colons). NATSUR uses slashes (ordered separated attribute - solution to this will be the complex attribute).
- COMCHA – Comment from SNPWG - Definitions need to be fixed.
- Issue of displaying ENCs at the poles. This is not a display issue – it is up to the user to choose the correct display projection.
- All tidal features are to be reviewed; some may be outside S-101 in their own product specification.
- Magnetic Variation – why is this required – is it used/needed? Should it be made a separate layer? Needs to be investigated whether it should be included in the ENC. Finland noted that Finish mariners require it (or like to have MAGVAR). Perhaps if the gyro breaks the MAGVAR together with a magnetic compass will be used. Point features difficult to find on ECDIS.
- If the loading policy and overlap is no longer based on navigational purpose and compilation scale the loading policy will be much more complex. More precise rules will have to be developed. Navigational Purpose will not be removed but will become a meta object.
- ENC – cancelled cells and reissue. Proposal not to use reissue – use only new edition. Holger advised that reissue is a good fall back if an update fails. Decided to keep it but recommend that it is to be used by service providers. Will be for optional use.
- New edition update – gives notification of an impending update. In the digital world this is no longer relevant and should be removed from S-101.
- Cancellation updates – needs better documentation on its use.
- Topic discussed in Brest – concept of changing the concept of ENC to variable scale (scaleable e.g. coastline, contours) and fixed scale (non-scaleable e.g. point features and “point to point” lines) dataset. The fixed scale dataset will provide base coverage ENC for planning purposes. Needs further investigation.
- List attributes: all are to be reviewed and some may need to be features in their own right. Need to be careful how much change we make to the S-101 model.

### 6.3 SCAMIN Paper

6.3.1 Richard Fowle (IC-ENC) provided a presentation on a new version of the SCAMIN paper that was originally issued in October 2003. The new version has been expanded to include additional minimum SCAMIN values, provides a new more advanced approach and lists feature object classes to which SCAMIN should be applied.

6.3.2 Canada – asserted that this should not be accepted as mandatory for S-57. Furthermore Canada stated that Canada and the US have already applied a North American CSCALE/SCAMIN solution. They were prepared to consider this proposal for S-

101 but felt that it should not be implemented for S-57. Canada were also not happy for the new proposal to be published as a Technical Resolution, as the previous proposal was issued to HOs via CL as a guidance document.

6.3.3 The Chairman noted that the new proposal goes a long way to providing a consistent way of applying SCAMIN – and it provides much needed guidance. It was based on a considerable amount of work by the RENCs and extended the previous proposal.

6.3.4 Tony Pharaoh noted that if Canada and US were using their own consistent policy for SCAMIN, they should not be affected by the new proposal. ECDIS would benefit from the use of ENC's that are consistent for the whole of North America, and the mariner would be presented with a consistent representation between adjacent cells for the entire region. The real (and urgent) problem is in those areas where there may be several adjacent coastal states producing ENC's using different (or no) policy for applying SCAMIN, and providing guidance for those countries that are inexperienced in ENC production. In parts of Northern Europe, an ECDIS may be required to load cells produced by several coastal states within a relatively short passage. It is in these areas where the inconsistent application of CSCALE/SCAMIN causing most concern and would benefit from a consistent regime as presented in the new proposal. Furthermore the major difference between the last proposal and the new one is the identification of those feature object classes to which SCAMIN should be applied. This facilitates the implementation of a "rule based" application of SCAMIN by SW vendors and could greatly ease the burden of applying SCAMIN consistently.

6.3.5 The Chairman recommended that TSMAD should approve the proposal for S-57, and after a great deal of discussion as to the wording of the recommendations to CHRIS, the following was approved by the meeting. The approval was in 2 parts: TSMAD fully supports the use of SCAMIN in S-57 ENC's and secondly, it should include the wording on how it should be applied.

TSMAD recommends [to CHRIS] that SCAMIN should be used for all ENC's. Further it endorses the JTEWG paper as the preferred procedure for S-57 E3.1 and 3.1.1 ENC's. This practice should be used by Member States, RENCs and Regional Hydrographic Commissions in order to achieve consistency in ENC coverage.

It is recommended that this be issued to MS as a CHRIS Letter, and be brought to the attention of IHO Stakeholders. In light of concerns expressed at ESF2 (July 2006) and more recently by the JTEWG (May 2007), it is proposed that this be accomplished as soon as possible.

**Action:** The Chairman is to propose to CHRIS that it be adopted and distributed via CL and presented to RHCs.

#### 6.4 Encoding – 8211 versus GML:

6.4.1 TSMAD needs to decide whether there should be a separation between the content and carrier i.e. one content model and several encapsulations – or should S-101 be restricted to one encoding – ISO 8211? Tony Pharaoh noted that it would be preferable to have one Product Specification with Annexes for different encodings (e.g. ISO 8211, GML or SENC). Hugh Astle (CARIS) questioned the issue of updating with multiple encodings i.e. would multiple encodings require multiple update regimes?

6.4.2 Holger Bothien noted that there is a need to identify issues such as the way to describe the structure for new encodings such as GML (e.g. how do we structure the

coordinate links – inline or using XLINK). The eventual change-over date from S-57 to S-101 also needs to be raised. **Action:** Chairman to report back to CHRIS.

6.4.3 It was concluded that for ENCs one encapsulation would be best and it is proposed to use ISO 8211, but at this stage GML should not be fully discounted. TSMAD will need to seek the opinion of OEMs at the combined CSMWG meeting in Stavanger. Hugh Astle noted that if ISO 8211 is to be changed for S-101, this needs to be clearly documented. Holger Bothien added that it won't only be a case of changes to the ISO 8211 encapsulation, but also the data model.

6.4.4 Holger Bothien - another consideration is the file size which may be an issue for using GML. – TP advised that this need not be an issue as GML compresses very efficiently.

## 7. S-100 issues

Julia provided a presentation on the profile for producing S-100 product specifications and noted that at the Ottawa meeting it became evident that there were some overlaps with the Framework document. The two documents will be harmonized to remove overlapping content. The data capture and encoding rules (equivalent to the UOC) will need considerable work.

Julia listed components of the Product Specification and noted that it will also have to include a section on portrayal. **Action:** Portrayal needs to be discussed at the combined CSMWG meeting in Stavanger (see below).

The draft document is to be distributed for comment and for progression to CD – if comments are not too extensive, outstanding issues could possibly be resolved by email discussion. **Action:** Julia Powell

### 7.1 Feature Data Dictionary component (S-100-2):

The following issues were raised by Holger Bothien:

- Section 5.2.2 Alpha Code Identifier. It was felt that lower case characters for 3 and 4 should be included. The Chairman cautioned that if this is allowed, it may result in some users thinking that they are non official feature classes. The change was agreed.
- Table 3 – Change the definition of aggregation. This was agreed.
- Section 5.11.c - An explanation noting that the use of camel case is an XML convention should be inserted. This was agreed.
- Discussion about the approval of the FDD document. Concerning Annex A. It was decided to remove the example at Annex A and include a URL pointer to examples on the registry web site. Should enumerated values have camel case identifier? It was decided that this was not necessary as it would be redundant information. FDD Component Document was accepted, with minor edits.
- It was proposed that the registry owner be the IHO. The registry manager will be the IHB.
- IHO Register manager will be Thomas Mellor.

- Members of the Control Body will constitute TSMAD members (as stated in the FDD document. A sub group of TSMAD (the Control Body) will decide whether a proposal is acceptable or not. If they can't decide, it will go to the full TSMAD. TSMAD appointed the following members for the sub WG to deal with registration issues; Germany (Johannes Melles), Australia (Jeff Wootton), USA (Julia Powell), ICE-ENC (Richard Fowle), Canada (Deon Gatleon), South Africa (Sidney Osborne), 7Cs (Holger Bothien), France (Guy Uguen). The TSMAD Chairman will be the facilitator.
- Submitting organizations: Each IHO MS will nominate a person to vet all submissions for completeness. **Action:** IHB will need to send out a CL asking for MS to nominate a person when ready.

## 7.2 Opening the register for new items.

### 7.3 Feature Catalogue Component:

7.3.1 The chair highlighted some proposed changes to the ISO/TC211 19110 document that could seriously compromise the S-100 profiles compatibility. Two issues of concern related to the relationship (bindings) between features and attributes and proposed amendment to 19110. The main concern is the proposal to amend the weak type relationship, (with a one to many cardinality) to a strong type of relationship (with a cardinality of one to one). It was also noted that the extent of the changes went beyond what would be expected for an amendment, and the changes should have been a revision.

7.3.2 Peter Parslow highlighted the changes to the model, and suggests that TSMAD members lobby their national bodies to vote against the proposed amendments. He outlined the concept of a FDD and how it relates to the production of a product specification and associated Feature Catalogue. (See paper 14.7B). It was decided to model the ENC catalogue so as to conform with the existing version of 19110 (2005) including the IHO extension (extended binding). This was presented in a UML model by Holger Bothien. **Action:** MS to lobby national bodies against the proposed amendments to ISO 19110 (Barrie has a letter for this).

7.3.3 This model includes the concept of the information object classes and complex attributes. Aggregate bindings will be used to define items such as traffic separation objects. 19110 has the aggregation on the role whereas the S-100 model makes provision for named aggregations for concepts such as traffic separation schemes. CARIS reminded the meeting that there was a need to look at the dictionary code. It could be the registry item identifier, or could be the code/date.

7.3.4 The model presented by Holger Bothien is included at Annex D.

7.3.5 Peter Parslow noted that the definitions should be included in the data dictionary and there is a need for a business rule within S-100 stating that all definitions should be included in the FDD. **Action:** It was agreed to revise the diagram to make it look more like a 19110 implementation by correspondence for finalization at the next Focus Group meeting.

### 7.4 Framework Component:

7.4.1 There is a need to decide who the main target audience will be for the document - GIS or ENC production audience. For example, the description of schemas at section 4.2 could have a different meaning for different communities. It was decided that the terminology needs to be directed towards the IHO data producing community – e.g. need to

use more acceptable (generic) GIS terms such as feature classes rather than object class. There is a need to have a mapping to IHO (S-57) terminology. It was agreed to insert a sentence describing the intended audience in the introduction. Hugh Astle proposed that a possible structure may be to have an introduction paper to map across standards followed by the “ISO speak” text used in conjunction with a glossary.

7.4.2 Concerning Section 4.5 – It was noted that this needs to be a bit less specific, and should not present the options of model or feature driven approaches – just the main components.

7.4.3 Figure 3 needs to be moved to the top of the document and needs to be made more intelligible. For example, replace terms such as “universe of discourse”. Also add a section describing the concept of the FDD linking to the Feature Catalogue.

## 7.5 Coordinate Reference System Component:

7.5.1 ISO reference document 19111 is now under revision after publication. The report submitted to the Brest TSMAD meeting identified what should be included in the profile. A breakout group was convened to discuss this and Holger Bothien reported on their conclusions:

7.5.1.1 It was decided to include an authority and a code using a simplified ISO approach adopting 19115 within this component, rather than being separate.

7.5.1.2 It was questioned whether there is a need for an Engineering CRS (local datums for raw survey data for port development?). This probably would not be needed for S-100 products but could be added later if required as a new version of S-100. **Action:** TSMAD members need to ask their home office experts whether this would be required. This should be reported to Holger Bothien and copied to the Chairman.

7.5.1.3 Units of Measure (UOM) have been included for the hydrographic profile.

7.5.1.4 CoordinateSystemAxis - The vertical, image and geodetic datums have been included.

7.5.1.5 CoordinateOperation (transforms between coordinate ref systems) have been included.

7.5.1.6 Support for compound coordinate systems has been included.

7.5.1.7 **Action:** Holger to complete the draft component with some good (relevant) examples on how to use it. Ask organizations for use cases.

## 7.6 Metadata part 2 Component:

7.6.1 Unfortunately the leader of this component was not able to participate in the meeting and this item was therefore postponed till the next Focus WG meeting.

## 7.7 Discussion on copyright:

7.7.1 The Chairman reported that he is still pursuing the issue with ISO but noted that there is a reduced need to copy ISO content from the 19100 documents. The framework document copyright issues appear to be resolved. There is still a need to decide whether S-100 will be free or a non-free IHO document when published. Tony Pharaoh suggested that this should be referred to the new IHO study group tasked to review IHO document pricing,

distribution, and copyright. UK noted that they have received permission to make their S-100 development documents available without having to include a copyright note. US reported that they don't have any copyright restrictions. **Action:** Chairman to follow up ISO and report to CHRIS.

#### 7.8 Information Object (New Item):

7.8.1 Holger's gave a presentation on Information objects based on a previous paper by Hugh Astle from CARIS and proposed a change to the general feature model. Information Objects have no geometry and carry information about other objects, such as geo or composite objects. They can also be shared between objects which will provide significant advantages for updating. For example they could be used to facilitate adding multiple chart notes (info) to a single object.

#### 7.9 SNPWG – Information Objects:

7.9.1 Peter Parslow reported on the SNPWG approach to information objects (as implemented in a separate draft product specification) using a slightly different approach. The SNPWG will use strongly typed relationship, whereas S-101 approach is weakly typed.

7.9.2 Nautical Pubs hold a lot of information concerning regulations and recommendations, some of which have geometry, others don't. SNPWG have adopted information object with an association to the geo object. (e.g. CategoryOfRegulation: customs, quarantine, traffic, harbour, fairway, anchorage, immigration, police, environmental).

7.9.3 A question arose as to how Nautical Pubs objects may relate to S-101 features and how they could interact between layers of the two products. It was proposed that the FOID could be used as the link between S-101 and SNPWG common features. To maintain currency between the two product specifications, FOID will have to be maintained. This needs further investigation.

### 8. ENC Encoding Bulletin Sub-Working Group

8.1 Procedures. Julia Powel outlined the new procedures (doc TSMAD 14-8A.pdf) and the present status of the ENC Encoding Bulletins (document TSMAD14-8B). Due to work pressures, she is no longer able to lead this item. New procedures require that proposing Member States will have to draft up the wording of the proposed bulletins. The sub WG (comprising SAN, FI, FR, BSH, AU, IC-ENC, NOAA, CHS and UK) will review the proposal and if there is consensus (full agreement), it will be posted, if not it will be referred to full TSMAD. Julia Powel also pointed out that encoding bulletins and FAQs were not always consulted by ENC producers and perhaps TSMAD needs to find a more proactive way of promulgating information. Tony Pharaoh proposed the publication of a newsletter to be published periodically containing bulletins, FAQs and other relevant info to ENC producers. This could be used to inform encoders of a broad spectrum of issues relating to ENC production and nautical cartography.

8.2 Outstanding Items. The following items which had been discussed at previous meetings needed to be considered for inclusion in S-101:

8.2.1 A display problem with sloping ground had been raised at TSMAD12 by Sidney Osborne (RSA). **Action:** Australia to raise this at the next CSMWG – CR noted that this was not raised at CSMWG16 and was not on the agenda for next week at the Norway meeting. CR will follow up SO on current status of this issue.

8.2.2 The 180 degree longitude boundary problem. Australia had been tasked to draft a FAQ. However, it was agreed that this should have been an Encoding Bulletin. Julia Powell noted that this had been done but still needs to be posted on the IHO web site. **Action:** Julia Powell to forward to IHB. The TSMAD12 Chair Mike Brown, was to write to IEC outlining the 180 deg long problem. Julia Powell informed the meeting that IEC TC80 WG 7 is dormant. **Action:** The Chairman (BG) to follow up with IEC.

8.2.3 Test Data Set (past action for 7Cs to develop a test data set) – Holger Bothien reported that this still needs to be done. It needs to be included with the IHO Test Data Set when completed. **Action:** Holger and IHB. (TDS)

8.2.4 The S-57 Booklet. This has been withdrawn. **Action** IHB: The S-57 documents need to be cleaned up on the IHO web site.

8.2.5 It was decided that the issue concerning Port Entry Lights (PELs) – would be dealt with later in the meeting under agenda 8.4.

8.2.6 Prohibited use of underscore for cell names. **Action:** ENC EB SubWg to issue FAQ.

8.2.7 Linear maritime boundaries. This item has been completed but needs to be posted on the IHO web site. **Action:** JP and IHB.

8.2.8 Australia – ESSA PSSA. An edition 3.1.1 encoding bulletin has been completed but needs to be discussed later during the meeting.

8.2.9 AIS Encoding Bulletin concerning the use of INFORM. No agreement could be reached on this bulletin and it will therefore be added to the agenda for the combined CSMWG / TSMAD meeting.

8.2.10 The Encoding Bulletin for wrecks had not been completed and it was recommended to do so during a break out meeting. This was not completed during the meeting. **Action:** For completion by Encoding Bulletins SubWG.

8.2.11 The Encoding Bulletin for radar reflector objects – this was withdrawn due to S-58 having been completed.

8.2.12 The FAQ for DGPS. Australia drafted a proposal, which was sent to Julia Powell. To be completed during the meeting. This was not completed during the meeting. **Action:** For completion by Encoding Bulletins SubWG.

8.2.13 Proposed prohibiting EXPSON=2 for SOUNDGs. France provided examples of their legitimate use for ENCs in non-maintained DRGAREs.

Many other HOs also portray these soundings on their paper charts. It was agreed not to prohibit the use of EXPSON=2 for SOUNDGs and the requirement was withdrawn. Some situations where EXPSON=2 is used can be very critical for navigation. Action: TSMAD needs to find a solution to this issue (Perhaps a warning in S58 ?). Needs further investigation.

8.2.14 Underwater turbines and current farms (see INT1 L24 and M-4 B-445.10 and B-445.11). **Action:** ENC EB SubWg to issue FAQ for underwater turbines and current farms.

8.2.15 Wind turbines and farms (see INT1 L5.1, 5.2 and M-4 B-445.8 and 445.9). **Action:** ENC EB SubWg to issue FAQs for wind turbines and wind farms.

8.2.16 Unknown Object EB. This agenda item was withdrawn.



8.2.17 EB for PELs. **Action:** This is to re-worked by the ENC EB Sub WG – Australia to lead, the group to also include France, New Zealand, USA and any HO lights experts.

8.2.18 AIS EB. Is a feature or attribute required for this AIS. It was noted that this also needs to be symbolised and it was therefore decided to raise and discuss this at the CSMWG. **Action:** Chair to raise this at the CSMWG.

8.2.19 EEZ EB. NOAA and CHS proposal for EEZ - S-58 check. It was decided not to downgrade the S-58 Error to a warning. It was decided that an encoding bulleting should be produced to recommend that the disputed areas should be encoded as a caution area. **Action:** ENC EB Sub WG to produce a bulletin concerning disputed areas.

8.2.20 Emergency Wreck Buoy (TSMAD14-14 and TSMAD14-10B). Australia – noted that the EB on the web site is no longer relevant and should be removed. **Action:** IHB.

8.2.21 It was noted that ENC Encoding Bulletin 13 on BUAARE should be withdrawn until issues pertaining to the Presentation Library are sorted out. **Action:** IHB and ENC EB SubWg.

8.2.22 There is a need for a new ENC EB SubWg coordinator. Julia Powell is no longer able to continue in this capacity. Jeff Wootton (AU) is to take over for the interim (12 months) until Australia has a better understanding of the reorganization in their office. **Action:** Jeff Wootton to review TSMAD14-10B and all issues raised at this meeting concerning ENC EBs and FAQs and action all items through the ENC EB SubWg by email before the next meeting. JP to send JW copies of all relevant proposals.

8.2.23 France requires guidance for the management of updates for Traffic Separation Schemes and that this should be in the S-101 Data Encoding Rules. UKHO have prepared some internal guidance on TSS. It was agreed that further investigation was required for this. **Action:** France to draft a proposal for ENC EB SubWg to consider as FAQ or EB.

8.2.24 All ENC EBs will need to be considered for S-101. **Action:** S-101 coordinators to add to their action list

## 9. National Proposals

9.1 No National Proposals were submitted.

## 10. Reports form other IHO working groups

10.1 Colours and Symbols Maintenance Working Group (**CSMWG**):  
Chris Roberts reported that there hasn't been a CSMWG meeting since TSMAD13. However MD05 will be released after the CSMWG17 meeting. This will include immediate corrections which will drive a new edition of the PL (E3.4). This is scheduled for 1 Jan 2008, however implementation is not likely to be before 1 Jan 2009 so S-57 E3.1.1 features will not be able to be displayed before then. In the interim they should display as 'unknown' objects if the Presentation Library is not upgraded to E3.4.

10.2 Chart Standardization and Paper Chart WG (**CSPCWG**):  
Chris Roberts reported that all CSPCWG Letters are now forwarded to TSMAD for comments (which is now part of the responsibility of the ENC EB SubWg). M-4 is the authoritative reference (not INT 1). There has been a big review of the official INT 1. Recent CSPCWG issues included the IALA emergency wreck buoys trials. Email from CSPCWG chairman recommended that no action should be taken until the trials on the

wreck buoy are complete. There is an Encoding Bulletin in preparation for emergency wreck buoy. These can be encoded using BOYSPP (and it was suggested that “emergency wreck buoy” should be inserted in OBJNAM). The Chairman noted that the EB SubWg should continue to monitor this with a view to preparing an EB when the IALA trials have been completed and CSPCWG have reached a conclusion. **Action:** ENC EB SubWg to monitor progress.

Another issue is Temporary and Preliminary notices to mariners. A new section in M-4 on general chart maintenance will be developed by CSPCWG. The need for encoding T&P NtMs was also highlighted at the JTEWG. It was noted that there seemed to be different ways that they were being implemented. Some organizations were not using these at all for ENC. IC-ENC noted that with the digital era, it should be possible to get updates or new editions to the user much faster and there may be a reduced need for them. USA noted that they are needed from a legal liability issue. Chair noted that TSMAD needs to follow the lead provided by CSPCWG, and we may need to extend/modify S-101 as required. **Action:** CR to monitor the work of CSPCWG, and advise TSMAD when a draft is available, so that any ENC actions can be initiated.

Attention was drawn to the TSMAD13 papers 9.2 and 9.2A which include numerous issues that affect S-57 in relation to ENCs. The review of M-4 and INT1 is expected to take at least another couple of years and someone else will need to continue to closely monitor this work from 2008. Those TSMAD papers include new references to M-4 for S-57 and S-101, but there are also numerous suggestions which need to be considered by TSMAD for the Hydrographic FDD (new features, attributes and enumerated elements). **Action:** to be reviewed by the FDD sub-group when the content of the Hydrographic register is being reviewed (based on S-57).

#### 10.3 Standardization of Nautical Publications Working Group (**SNPWG**):

The Chairman of this WG Johannes Melles reported that the last meeting took place in February 2007 and the group is now in the process of modelling their requirements. Feature/object classes have been split into thematic groups, some of which have been finished and a draft documents published. Some work for traffic management still needs to be completed. They hope to have a first draft version of a features and attributes list for inclusion in the Nautical Publications Register ready by the next TSMAD meeting. Regional task groups have been formed to tackle different areas of work. Presently 14 geo objects have been identified, with another 17 under discussion. A number of additional attributes for exiting object classes have been identified; presently 16 with about another 5 under discussion. 81 new attributes have presently been identified with another 20 under discussion. All proposals are on the IHO website. There has been much discussion about the information object. It has been proposed to make extensive use of this new construct. Presently SNPWG has identified 10 information object classes and it is expected that about another 5 will be included. In certain instances, it is not always clear whether to use an info or geo object. The SNPWG chairman highlighted some important issues. There is a need for a better mechanism for the delimiter for list attributes and to handle the multiple use of attributes. A method needs to be considered for repeating attributes on an object. There is a need to harmonize the hydro and the N\_PUB registers. There may be a need to have a common meeting of the control bodies of the two registers to resolve uncertain (potentially duplicate) entries. One of the SNPWG working groups have identified some potential problems and will be meeting with the TSMAD Chairman the following week. The next SNPWG meeting is to take place during 1 to 7 September at the IHB in Monaco.

#### 10.4 IC-ENC/Primar Stavanger Joint Technical Experts Working Group (**JTEWG**):

Stig Osaland (ECC Norway) Reported that about 17 nations attended the 2007 JTEWG meeting, and consideration was being given to holding a regional meeting for South America nations. During the meeting, there was some discussion of the validation tools

provided by SW manufacturers. They also presented new ideas on how these systems could be made more efficient. An important item of discussion during the meeting was the issue of SCAMIN and centred on the new SCAMIN paper. Richard Fowle reported that ENC EBs will be reported in IC-ENC Newsletters.

#### 10.5 Harmonization Group on Marine Information Overlays (HGMIO):

Lee Alexander reported that the HGMIO had agreed on a general content specification using MIO layers.

The group will also be developing an encoding guide along the lines of the Inland ENC version. HGMIO expect to have a register for MIO objects, and will continue to use the OEF until they are ready to set up an MIO register. MIO symbolisation may be a separate register similar to S-52 Chart1. The group will be preparing guidance on how competent authorities can handle requests for MIO features. The International Association of Lighthouse Authorities (IALA) have requested HGMIO to look at AIS binary message format. Interest in MIO has been steadily increasing and MIO information could be as important as ENC's information to the mariner in the future.

#### 10.6 Inland ENC Harmonization Group:

Lee Alexander reported that there is now a harmonization group between N America and European Inland ENC development. This Group found that the IENCs specs and products were very similar. This has resulted in the production of a harmonised encoding guide for Inland ENC. The next meeting of the Inland ENC group is to take place in Rio di Janeiro during October 2007. It was proposed at the IH Conference that IHO should work closer with the IENC communities. In conclusion, Lee Alexander noted that there is a need to communicate to IENC community where IHO is going; there is also a need to improve S-100 terminology.

### 11. TSMAD input to IHO Work Programme.

Not discussed.

### 12. Action from the CHRIS Report

12.1 IEC document 61174. It was noted that there was a requirement to tighten up some of the clauses contained in this document and TSMAD needs to make proposals for changes that will be required for S-101. It was proposed that this should be done via the Harmonizing Group of Experts (HGE). This needs to be reported to CHRIS19. **Action:** For Chairman (BG).

12.2 The resurrection of the DQWG was discussed at CHRIS18. Nominations for chairman had been sent out. TSMAD chairman noted that quite a bit of work has been done on quality elements for bathy surveys and metadata and this should be passed to this new WG when it is functioning. **Action:** For Chairman (BG).

12.3 The Feature Data Dictionary - Register definitions. The Spreadsheets produced by Chris Drinkwater have been sent to the S-32 Working Group. The Chairman reported that the definitions would not be included in the body of S-32 but only as an Annex to which reference will be made. Australia noted that there may be several definitions for the same concept and this will need an extensive review. The chairman agreed that there should be some attempt to harmonize definitions where possible however the updated definitions as contained in the spreadsheet should be used as the primary source. Australia proposed that this should be raised at CHRIS19. **Action:** For Chairman (BG).

### 13. Any Other Business

13.1 Discussion on List Attributes – Document TSMAD14-7.A 7Cs noted that this is useful access. There is a need to have more domain specific attributes and in some cases objects. In cases where attributes are used for different concepts, they should be split up. **Action:** The TSMAD group needs to look at this (with particular emphasis on list attributes). CARIS suggested that S-58 should be reviewed as a start for those attributes that fall into this category.

13.2 Sounding datum. Lee Alexander requested that the documentation for the S-100 information document be updated – an update of the existing S100 component diagram was edited during the meeting and is copied below.

<<S-100 Component >>

#### 14. 2<sup>nd</sup> combined TSMAD and CSMWG Meeting (extracted from CSMWG17 Draft Minutes).

##### 1. Open and welcome

The 2<sup>nd</sup> combined meeting of TSMAD and CSMWG members was opened by Mathias Jonas (MJ) who was appointed Chairman of the joint meeting. There were about 22 members present representing 6 MS, 7 manufacturers and the IHB. Members of the WGs introduced themselves. The latest papers were circulated for downloading by members.

Docs: CSMWG17-01ARev3 - Document list

CSMWG17-01BRev2 – Participants (to be completed at the meeting)

CSMWG17-01CRev1 Membership and contacts of CSMWG (to be circulated at meeting for updates)

Apologies: Lee Alexander.

Papers CSMWG17-01B and 01C were circulated for updating by those in attendance and for any of the TSMAD members who want to be on the contacts list for CSMWG issues.

**Action:** CSMWG Sec to update both for posting on the IHO website.

##### 2. Approval of the Agenda

Doc: CSMWG17-02ARev 3 -Draft Agenda

Note this draft agenda covers both the combined CSMWG/TSMAD meeting held on 11 June, and the CSMWG17 meeting held 12-13 June. The combined meeting Agenda is listed first in this doc.

The agendas of the combined meeting and CSMWG17 were agreed. MJ outlined the order that the issues would be discussed, giving priority to important issues (grey highlight).

##### 3. The following numbering refers to the agenda items for the 2<sup>nd</sup> combined CSMWG/TSMAD meeting

3.1	IALA Emergency Wreck marking Buoys ( <i>CHRIS action 18/6</i> ) [coded as BOYSPP].	CSMWG17-03.1A TSMAD14-8.G
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MJ provided background on these buoys. A ship sunk near a main channel, 4 isolated danger buoyage were added but 2-3 more ships still hit the wreck. IALA invented this new buoy for a trial. FR and UK intend to make use of these buoys for trial purposes. TSMAD suggests it may be encoded as **BOYSPP**. Buoys should only be in place 1-3 days (CSMWG17-3.1A) so do we need a new symbol. Time limit is questionable and an AIS virtual buoy may be more likely. **BOYSPP** symbol is all yellow, but there is no symbol with

blue and yellow. Barrie Greenslade, Chairman of TSMAD (BG): OBJNAM will be used for 'Emergency wreck marking buoy'. As trial, suggests we do not make any large effort to portray this. ENC's can be encoded using existing S-57 E3.1 attributes. As software takes so long to implement, suggests we do not make any special symbol. Olaf Wentzel (OW): we need to reduce the number the symbols, so stay with existing **BOYSPP**.

The CSMWG agreed that we use existing symbology.

Inga Tellefsen (IT) mentioned that these buoys had been discussed at the CSPCWG3 meetings and as they are proposed to be positioned on the wreck, if the wreck is still floating, this would be difficult to encode.

**Action:** TSMAD will issue an ENC Encoding Bulletin on this shortly. No action for CSMWG. Topic closed.

3.2	CHRIS WGs support e-navigation (CHRIS18 4.4)	CSMWG17-03.2A
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MJ: Working paper, e-navigation is a buzz word to generate funds. But anything to raise the importance of navigation is useful for ECDIS. A NAV 53 paper relates. At the end of the NAV paper is a definition (in red) for e-nav.

Julia Powell (JP): this is a political paper on the issues but there is no mention of the IHO S-52 standard, only mention of IEC.

MJ: If opportunity arises, let IMO representatives know that IHO also plays a part. IALA is involved with traffic management issues.

For interest only. IHO are veterans of e-nav.

**Action:** Topic closed

3.3	TSMAD and CSMWG collate information on E3.1.1 matters requiring consideration by IEC for CHRIS19 in Nov 2007 (CHRIS Action 18/17).
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Pol Le Bihan (PB): S-64 TDS still needs to be updated (separate agenda item).

MJ: for type approval issues, new TDS, new object classes, new portrayal concepts.

**Action:** Combined paper to be prepared by the Chairs of TSMAD and CSMWG for CHRIS19.

3.4	Continuation of coding of linear depth areas (CHRIS17 Item 5.2), (CHRIS18 Item 6.2, page 14)	CSMWG16-6.3A
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MJ referred to the paper from CSMWG16 and explained it can be laborious work for encoders. HOs are keen not to encode them. Safety contour can be portrayed without encoding in the new PL. Shortfall has now been corrected and is now part of MD05 (to be discussed later). What will be the date to stop encoding linear depth areas (LDAs)? Mandatory function of ECDIS proposed as 1 Jan 2008 when new PL comes into force. BG: legacy ECDIS, how long before they will update their PresLibs? Many ships will not update

their ECDIS. JP: IMO also considering compulsory updates to software including ECDIS (NAV 53 in 2007). MJ: NAV 52 released a revised ECDIS PS to come into force **1 Jan 2009** so we could coincide stopping ENC production of linear depth areas with this date. Alarming of safety contour will continue even if the older systems do not highlight the bold line of the safety contour. Chris Roberts (CR) advised that LDAs will not have to be removed from existing ENCs.

**Action:** CSMWG will revise Chart Presentation Bulletin (CPB) No4 on the IHO bulletin board (CR) and MJ will advise CHRIS19 and stakeholders forum (SF) of the proposed dates. TSMAD may prepare an ENC EB? (Jeff Wootton (JW)).

3.5	Encoding 'unknown' objects – proposed ENC EB from CSMWG16 actions 4 and 5	CSMWG17-03.5A
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CR: TSMAD didn't want to support this approach with an encoding bulletin. Could be issued as a Chart Presentation Bulletin (CPB).

MJ: Very little to do with encoding nor chart presentation, suggested possible IHO CL to MS, especially regarding the NtM suggestion to announce the use of S-57 3.1.1 objects.

**Action:** MJ to include in CSMWG report to CHRIS19

3.6	ENC Encoding Bulletin for PELs (CSMWG16 Action 33)	<b>TSMAD14-8D</b>
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MJ: all singing all dancing symbology for ECDIS could be the final result in the longer term, but not realistic at present (see the www ref in the doc).

Richard Coombes (RC): prepared an information package on PELs, and TSMAD are preparing an ENC Encoding Bulletin (JW). PELs have a similar purpose to a directional light but using new technology.

CR: CSMWG members please let JW or CR know if you would like to contribute to the ENC EB.

Richard Fowle (RF): suggested referring such EBs to both WGs.

MJ: CSMWG will consider such new proposed ENC EBs such as oscillating lights.

**Action:** AU (JW) as TSMAD SubWg coordinator, to send draft ENC Encoding Bulletins to CSMWG members for information before posting on IHO website. JW to prepare and issue EB for PELs

3.7	Object classes not symbolised in current S-52 PresLib (CSMWG16 Action 47). Point BRIDGE not symbolised	CSMWG17-03.7A
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Konstantin Ivanov (KI): all S-57 objects have an entry in the LUT or default. Sometimes there are no rules in the LUTs, which results in no display.

MJ: what is the practical use for point **BRIDGE** – encoders cannot see a use.

CR: suggested referring this doc to TSMAD for further requests for symbols if required.

BG: commented that aggregation objects will not be adopted in S-100 and will be replaced with new named association features and modelled slightly differently. E.g. **TSSAGR** or something similar for a Traffic Separation Scheme. Aggregations won't be in S-101 unless an intelligent use can be adopted for ECDIS. What benefit could there be to the mariner? (may be agenda item 3.13 issue).

MJ: may relate to synchronised lights as aggregations.

JP: this paper mentions EEZ not being symbolised.

**Action:** Enhancement to S-52 wording regarding EEZ in MD05. No CSMWG action regarding the document. Topic closed.

3.8	ENC Encoding Bulletins current status
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JP: (as previous coordinator of SubWg for ENC EBs). **LNDARE** line features are currently not symbolised so the EB is incorrect (see agenda item 3.9 below). Involve CSMWG in new EBs. AIS can now be symbolised on paper charts.

MJ: AIS is to be displayed on ECDIS but not encoded as such in ENCs. ECDIS receives the signal and displays it accordingly. It will be a new symbol under IMO requirements (part of MD05). No ENC EB is required regarding how to encode AIS. Reminded all WG members to check the IHO website under TSMAD for ENC EBs.

BG: TSMAD considering IHO CLs for all new ENC EBs.

CR: RENCs considering publishing ENC EBs in their newsletters.

MJ: suggested circulating EBs to RHCs as well

**Action:** TSMAD to consider wider circulation of ENC EBs including RHCs (JW). Topic closed.

3.9	<b>LNDARE</b> line features –	CSMWG17-03.9A
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Raised in 3.8 above regarding existing ENC EB.

MJ: opened discussion as follow on from last CSMWG meeting. Only point and area features are listed for symbolisation. AU raised question why not line objects. Text for lines is an issue and unusual. Could invent a LUT entry.

BG: line **LNDARE** is usually on small scale ENCs.

RF: IC-ENC has found numerous line **LNDARE**, not so uncommon.

OW: wouldn't hurt to add to LUT.

MJ: this aspect of the problem was already sorted out and solved during the draft process of MD05. There was agreement to add a new LUT to symbolize OBJNAM.

PB: FR encoded point **LNDRGN** to see name of **BUAARE** – double encoding.

JP: an ENC EB for **BUAARE** has been issued.

**Action:** Add new LUT for **LNDARE** line to MD05. TSMAD to review the existing ENC EB on **LNDARE** line features (JW).

### 3.10 S-101 new ENC Product Specification

BG Gave a presentation on what is being discussed by TSMAD as ideas and concepts. Would appreciate any feedback:

**Multiple cells:** currently inefficient structure of cells and issues with updates. Possibility of one layer with all nav marks as an example. Some objects only occur in one layer or could still be in several cells. Small scale ENCs possibly not scaleable.

**Information objects:** overuse of **CTNARE** to be avoided. Information objects being considered in a far more efficient manner for S-100 - may not have geometry. Attribute of an attribute concept. Data types to be cleaned up to reduce complex formatting.

**Encapsulation:** ISO 8211 or GML? 8211 will still do everything we want, but will require a few changes. SENC delivery. CHRIS18 insisted that backward compatibility (ECDIS portraying both S-57 E3.1.1 ENCs and S-101 ENCs) be maintained.

**New geometry** (Geodesic interpretation). Concepts include the ability to include projected lines, complex or composite curves made up of different components, particularly for large areas. Will also help to overcome issues with areas split at cell boundaries and linking across cells.

**Themes:** currently only groups 1 and 2, but features cannot be shared between themes. This will be made possible.

**Cartographic representation**, especially text. Concept of new attributes such as anchor point, angle, etc. particularly for buoys along a channel or dredged areas to avoid clutter in channels.

**Missing attribute values:** questionmark symbols for missing mandatory attribute for unknown objects. There is no point listing something without knowing what it is. Portrayal and or terms to be further investigated. More intelligent attributes e.g. secret, unknown or not supplied intentionally. OW: asked who will be responsible for portrayal in S-101. BG replied that this needs to be debated and discussed further.

**Cell sizes:** to be reviewed (5MB no longer realistic). Not encoding linear depth areas will help, tests to be conducted by TSMAD.

**Text and picture files:** redundant files are an issue. No method to overwrite old files is explained in the current specifications. Update mechanism being considered. Probably dump TIFF for S-100 and considering JPEG 2000. Use of colour pictures to be considered for S-100 eg. for SNPWG sailing directions.

**File naming convention:** 8 letter restriction, make more meaningful. More information in the catalogue file.



**Navigational Purposes:** disconnect navigational purpose from the data use. Only use 'display' scale, not 'compilation' scale. Nav purpose may be retained for cataloguing purposes only.

**Feature display attribution:** taking S-57 E3.1.1 symbology concepts further.

**Upgradeable ECDIS:** Feature Catalogue and Presentation Library sent out with data sets.

**S-57 compatibility:** same geometry to retain backward compatibility.

**OEM input:** TSMAD desperately needs input possibly via workshops with all stakeholders.

**Updating mechanism:** 'modify' being considered.

Need to **mandate far more to force consistency**. Better explanations to make it clear what is expected, how it is anticipated attributes will be used.

**Action:** No action for CSMWG at this time, but members encouraged to provide feedback on S-100/S-101 concepts. Could have another combined meeting as S-101 is further developed (see date and venue for next meeting – agenda item 12 below). TSMAD to conduct testing on cell sizes for S-101.

3.11	Revised SCAMIN paper by IC-ENC (JTEWG)	CSMWG17-03.11A
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MJ: a SCAMIN workshop was held in 1997 and problems are basically still the same. In 2003 the first consistency paper on SCAMIN was issued and this has now been updated and improved in the current paper. Europe, Singapore and AU are all in general agreement with this approach to SCAMIN, but for Canada and USA there is some disagreement with the specified method. Demonstrates the weakness of the IHO in not being able to mandate such procedures. FR suggested that CSMWG should consider SCAMIN being automatically applied by the PresLib.

RF gave a brief presentation. JTEWG (May 2007) agreed to the paper with slight changes as a proposal for S-101. There were also several software manufacturers at the JTEWG meeting who will enhance their software to help make encoding SCAMIN easier. This SCAMIN procedure was subsequently endorsed by the TSMAD and it is anticipated that a CHRIS Letter will be issued shortly, but the suggested method is still not mandatory and agreement was not reached to adopt it for S-101. Tony Pharaoh (TP) read out the TSMAD motion to CHRIS and advised that the gross differences in the use of SCAMIN, especially between adjoining ENC's was the real issue. He expects the proposed method to fix 80% of the issues, if adopted.

Issues taken from the paper for CSMWG in particular:

MJ: p5 of Apr version of the paper refers to the revised ECDIS PS revision of the components of the display base. The only change is to buoys and beacons which will be in **standard display**. OW: should we apply SCAMIN to **display base**. Could clarify and identify those objects which should not have SCAMIN applied – an encoding issue. PB: value of the safety contour also influences **WRECKS** for example. SCAMIN paper has a list of S-57 object classes (at the back) that may be used as a guide. Michel Huet (MH): advised that the 2004 IHO CL suggested a Technical Resolution (TR), but TRs do not give more strength to the recommendations, only provides more visibility and a holding place until adopted into a standard. All recommendations should be included in an IHO standard or TR.

CHRIS agreed that SCAMIN had not been applied widely enough and the discussion was how to make such issues more highly visible. MH needs to discuss this matter with the IHO directing committee as how to best publicise these new SCAMIN recommendations. JP: only the SCAMIN part of the 2004 CL has been updated, but there are other issues such as compilation scales, etc which have not been addressed in this paper. The 2004 CL probably needs to be reviewed. JW: not just SCAMIN but the compilation scale and default display scales in ECDIS issues (to be discussed later).

BG: in certain cases, HOs should be able to apply SCAMIN to **display base** features. Either controlled by TSMAD or list of object classes in S-52. OW: TSMAD should have control. Needs to be clarified in S-52 as different manufacturers handle this differently. KI: Transas interpretation is that SCAMIN cannot be applied to display base. Conditional Symbol Procedures (CSPs) complicate this issue. OW: leave control of SCAMIN with encoders, suggested minor clarification to S-52.

It was agreed to add a clarification to the proposed CHRIS Letter stating that any S-57 object class that has the SCAMIN attribute, should be applied to the display.

**Action:** TSMAD response to CHRIS19. (See TSMAD14 Minutes above for further details on the endorsement of this paper by TSMAD).

- 3.12 Portrayal issues raised by TSMAD members:
- |  |                |
|--|----------------|
| Radar range display scale standardisation                |                |
| Portrayal of narrow sectors on directional lights        | CSMWG17-03.12A |
| Strip light portrayal issues with PL 3.3 – SAHO          | CSMWG17-03.12B |
| Strip light portrayal issues with PL 3.3 – UKHO response | CSMWG17-03.12C |

**Radar range display scale standardisation** (also referred to in 3.13 and 3.14 below)

MJ: part of proposed loading strategy workshop. (see 3.14 below).

**Portrayal of narrow sectors on directional lights** (CSMWG17-03.12A)

AU: sectors smaller than 1 degree, presentation is no longer valid (light flare).

OW: even if the CSP is changed, resolution of ECDIS displays would restrict clear depiction. Tests by SevenCs didn't improve the display. Default flare is the issue for portrayal. Is this a directional light? Difficult to depict this narrow light from sea. Best approach would be to widen the sector in the field.

OW: further explained the situation on the whiteboard. The problem is that for sectors less than 1 degree, the CSP for LIGHTS05 checks the difference between SECTR1 and SECTR2 and if <1 degree or = 360 degrees, portrays a light flare. The issue affects both all round lights and narrow sectors. A check of M-4 and S-57 provided no specific advice on encoding narrow or all round lights (CR to raise this at respective meetings). Proposal is to change the CSP so that all round 360 degree lights and narrow sectors will be portrayed as sectors, not as light flares. There appears to be no explanation as to why the check was added to the original CSP, except that it is almost impossible to discern such narrow sectors at sea. There is an S-58 check for identical SECTR1 and SECTR2.

MJ: tentatively agree to adopt this solution, but we should have a test before promulgation of the revised CSP as a deferred amendment in MD05.

RF: will the light flare appear when SECTR1 or SECTR2 is not defined? OW: Yes.

KI: has seen circles on ENC's. OW explained that SevenCs has specific software to portray them for all round lights.

**Action:** OW and MJ to change CSP LIGHTS05 to portray all sectors. Apply test check (BSH), and add to MD05. CR to check and update paper numbering for IHO website. CR to raise the depiction of narrow sectors and all-round lights for M-4 and TSMAD SubWg to consider an ENC EB.

### **Strip light** portrayal issues with PL 3.3 – SAHO (CSMWG17-03.12C)

Issue, when encoded as CATLIT (strip light) the characteristics do not portray. When not encoded as strip light, characteristics display.

John Klippen (JK): after further investigation it was found that SAHO has only encoded one light, whereas if two lights had been encoded (one for the nav light and a second for the strip light), the portrayal would have been correct. It should be noted that the light characteristics for strip lights, flood lights and spot lights are NOT portrayed. This could be a new CPB.

MJ: this example demonstrates the importance of having both encoding experts and C&S experts at these meetings.

**Action:** JK to draft explanatory text for technical details of coding. MJ to prepare a letter to South Africa regarding strip lights, pointing out that the issue is an encoding matter and that PresLib does not portray the characteristics of strip lights, flood lights and spot lights.

### 3.13 Special S-100 attributes to simplify symbology for S-101 ENC's CSMWG17-03.13A

Matter mentioned in 3.7 and 3.10 above. Could also apply to features such as synchronised lights. May be discussed in future combined meetings as S-101 is further developed.

**Action:** No current action

### 3.14 Cell loading policy

(Including item 3.16: update mechanism). RF: there is a trend for ECDIS to display small scale data at a larger scale, rather than large scale data at a smaller scale. We need a common loading strategy to overcome this. OW agreed there are issues. Also consider radar range display tables. MJ: more harmonised portrayal of data is required. SevenCs previously suggested a loading strategy workshop which was rejected. Could make this a fixed requirement in S-52 but may get opposition from industry. OW: suggests a 'best use scale' as a possible attribute for S-101. BG: must change concept of 'compilation scale' away from 'source scale'. This is not understood by many encoders. We want a 'display scale' concept. MJ: will need more technical experts from OEMs involved in decisions.

BG: IC-ENC has experimented with SCAMIN, viewing at compilation scale. RF: OEMs use different step values when zooming in or out. JW gave an example of issues faced in AU with compilation scales.

Night viewing picture files: problem on human perceptions. Why display these files at night? Suppress picture files at night. Issue for S-101, not for S-57 unless a simple solution is found.

**Action:** MJ will report this matter to CHRIS19 for next stakeholders forum (SF) with proposed action of a possible workshop on cell loading issues in particular. Specific input papers would have to be prepared for such paper addressing the problems from both data production and OEM side.

3.15	S-100 IHO Portrayal and symbol register – (status of S-100)	(status CSMWG17-08A refers
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PB gave a presentation on the proposed portrayal register for S-100. The first version will not involve navigational aspects of the PresLib (anti-grounding implementations). Used the new version of ISO 19117 but didn't follow it exactly, trying to retain the current language of the existing PresLib. Need to decide which database implementation, access, format, management. The IHO will need at least one person to maintain the portrayal register.

As an example, **WRECKS** CSPs have been converted to XML file format. Introduced attribute rules as generic rules.

Could have a catalogue for paper chart and for SENC. It is proposed to keep them separate in the model.

No mechanism to handle colour tables. No solution yet? Only encoded day mode of operation. Had a problem with associating viewing groups. Examples of rules for paper chart symbolization have been made. Links between rules has yet to be made.

Similarly, a separate model will be required to handle symbol rules. Search tools have been developed.

Simple line styles have been listed as a register. More complex symbols are divided into components. Need to consider management of these in an efficient manner.

Pattern symbols proposed to be described once, rather than as separate components as is done in the current PresLib. There are relationships built between simple symbols and complex line styles. When the same symbol has a separate anchor point, it is proposed to have one symbol with links somehow to the different anchor points.

There is still considerable work to complete this task. Need to raise some of the issues with the continuing development of ISO 19117 which is under review.

Comments: BG was very pleased with this approach, as it fits in perfectly with S-100 and offers a potential solution to the whole portrayal issue. XML is highly suited to this approach. PB putting 19117 into practice has found some issues. The benefit of closely following the standard leads to better interoperability. Next meeting of ISO 19117 will be in China with next ISO Plenary. DGIWG is considering a super register of IHO and their own symbols. Need to stay in touch with DGIWG work. The application of management of register (ISO 19135) is progressing well in TSMAD. Version control is important as is a proposal mechanism for managing new symbols or symbol rules.

KI: investigate including all CSPs into the model? PB: all except those affected by anti-grounding complexity.

PB: Maintenance of the registers will be a real issue.

JP: need an XML interface so that anyone can maintain this once in a register.

MJ: Special rules for anti-grounding may not need to be in the register as it is a very specialised use.

BG: we need to consider a format for symbology?

OW: who will be liable for portrayal? IHO? OEMs have no control any more so cannot be held liable. Who will do the maintenance? IHB to note requirements for a portrayal register manager.

BG: how is type approval involved if a version of the register fails?

BG: ISO 19117 is still being edited so we have time to react to IHO requirements. Need expert involvement in the 19117 editing group.

MJ: can we endorse the work by PB and continue this work. Members agreed.

**Action:** MJ to confirm the completion of the work according to the contract in place and to extend contract with PB for further steps in development. Add future requirement for a register manager for portrayal in CHRIS19 report.

3.16 Update mechanism required for text and picture files within ECDIS.

See discussion above in 3.14 and TSMAD14 minutes for more details.

3.17 Symbolization of EEZ boundary and continental shelf limit

MJ: CSPCWG is considering a continental shelf limit symbol.

CR: AU requires EEZ symbology on ECDIS similar to paper charts.

JP: should be displayed as there are issues for US charts for maritime enforcement.

OW: Lookup table entry already has a simple line style (grey line).

MJ: text of S-52 says otherwise for EEZ. Members agreed that the grey line is an adequate symbol.

**Action:** Amendment to S-52 wording regarding EEZ (as it is symbolised) for MD05.

3.18 Portrayal/Display of MIOs

CSMWG17-03.18A

MJ: consider the options for CSMWG involvement in MIOs.

JP: USA is seeking standardisation of portrayal for coral reefs, marine protected areas and other features.

OW: thinks that screen dumps like Chart1 is all that is being asked for as guidance for manufacturers.

MJ: MIOs want to display something and asking for guidance which way they should go. We need testing and practise. Currently MIOs have the freedom to develop something, as long as they can register it. HGMIO should forward proposals to CSMWG for consideration and comment.

BG: Robert Ward's recent email referred to this matter and there is concern that IMO may ask IALA to manage this of the IHO doesn't take a lead role.

MJ: as MIOs are not on permanent display, they should be given flexibility to meet their own requirements, but not conflicting with S-52 symbology. He suggested that HGMIO should build their own register.

BG: could be a register under the IHO registry. Could be some funding involved.

MH: 'MIO development procedures' have been developed by RW, MH and LA and includes a section on C&S encoding, which was approved by CHRIS. This text should be examined for possible updating to agree with this meeting's conclusion.

MJ conclusion: MIO symbology is not considered as part of the permanent display on ECDIS. Instead, MIO objects and symbolization serves for planning tasks and general synopsis rather than for route monitoring and collision avoidance. HGMIO is therefore free to invent and propose useful symbology considering rules and guidance within S-52 App. 2. A period of consultation between HGMIO and CSMWG and practical testing of the usefulness of the proposed symbology should be followed by the registration of the resulting MIO symbology. In this registration process MIO symbols will NOT be added to the CSMWG/S-52 PresLib register which is currently under preparation under the IHO umbrella. Instead, HGMIO will have to build their own register for MIO-symbols within the IHO registry or an OEF register in the interim.

**Action:** MJ to inform HGMIO chairman and to include conclusion in CSMWG report to CHRIS19

**Conclusion of 2<sup>nd</sup> combined TSMAD/CSMWG meeting:**

MJ and BG thought the combined meeting was very useful and were encouraged by the progress being made with IHO registers. There are still some uncertainties and a few open items to deal with at CSMWG18. Both Chairmen thanked all TSMAD participants and thought the combined meeting was a very good example how CHRIS working groups should cooperate.

**15 Date and place of next TSMAD meetings.**

Focus Group (FG) meeting – Hamburg September – tentative date – week starting 17 Sept). (Germany requested that earlier prior notice be given for FG meetings).

Next TSMAD meetings –

TSMAD 15 - Monaco week starting 14 January, 2008

TSMAD 16 - Cape Town week starting 5 May 2008

FG 5 - ???

TSMAD 17 - Hawaii for 2008 ?

## Annex A

### List of Documents

Document No	Document Title
Logistics	Logistics (i.e. travel and accommodation) information for the meeting.
TSMAD14-Schedule	Meeting Schedule (23 April)
TSMAD14-1A	List of Meeting Documents
TSMAD14-1B	List of Participants (23 April)
TSMAD14-2Rev2	Draft Agenda (Revision 2)
TSMAD14-3A	Minutes of the 13th TSMAD Meeting
TSMAD14-4A	Focus Group 2 Meeting Report, Silver Spring, November 2006
TSMAD14-4B	Focus Group 3 Meeting Report, Ottawa, Canada, April 2007
TSMAD14-6A	Profile of 19131 to write a product spec
TSMAD14-6B	S-101 Actions
TSMAD14-6C	SCAMIN (IC-ENC Proposal contained within SCAMIN_2007.zip file)
TSMAD14-7A	Feature Data Dictionary Component – TSMAD vote
TSMAD14-7B	Feature Catalogue Component
TSMAD14-7C	Framework Component
TSMAD14-7D	Coordinate Reference System Component
TSMAD14-7E	Metadata part 2 Component
TSMAD14-8A	Procedures
TSMAD14-8B	Outstanding Items
TSMAD14-8C	Unknown Object EB
TSMAD14-8D	PEL EB
TSMAD14-8E	AIS EB
TSMAD14-8F	Proposal for New Encoding Bulletin - EXEZNE and TESARE

## Agenda

1. **Opening and Administrative Arrangements**
  - 1.1 List of Documents (TSMAD14-1A.pdf)
  - 1.2 List of Participants (TSMAD14-1B.pdf)
2. **Approval of Agenda**
  - 2.1 Agenda (TSMAD14-2.pdf)
3. **Minutes of the 13<sup>th</sup> TSMAD Meeting, 18 to 22 September, Wellington, New Zealand**
  - 3.1 Minutes (TSMAD14-3A.pdf)
4. **S-100 Focus Group Progress Report**
  - 4.1 Minutes, Silver Spring, November 2006(TSMAD14-4A.pdf)
  - 4.2 Minutes, Ottawa, Canada, April 2007 (TSMAD14-4B.pdf)
5. **Matters arising**
6. **S-101**
  - 6.1 Profile of 19131 to write a product spec (TSMAD14-6A.pdf)
  - 6.2 S-101 Actions (TSMAD14-6B.pdf)
  - 6.3 SCAMIN (TSMAD14-6C.pdf)
  - 6.4 Encoding – 8211 versus GML
7. **S-100**
  - 7.1 Feature Data Dictionary Component – TSMAD vote (TSMAD14-7A.pdf)
  - 7.2 Opening the registry for new items - discussion
  - 7.3 Feature Catalogue Component - (TSMAD 14-7B.pdf)
  - 7.4 Framework Component (TSMAD 14-7C.pdf)
  - 7.5 Coordinate Reference System Component (TSMAD 14-7D.pdf)
  - 7.6 Metadata part 2 Component (TSMAD 14-7E.pdf)
8. **Encoding Bulletin Working Group**
  - 8.1 Procedures (TSMAD 14-8A.pdf)
  - 8.2 Outstanding Items (TSMAD 14-8B.pdf)
  - 8.3 Unknown Object EB (TSMAD 14-9C.pdf)
  - 8.4 PEL EB (TSMAD 14-9D.pdf)
  - 8.5 AIS EB (TSMAD 14-9E.pdf)
  - 8.7 EEZ EB (TSMAD 14-9F.pdf)
9. **National Proposals**
10. **Reports form other IHO working groups**
  - 10.1 Colours and Symbols Maintenance Working Group (CSMWG)
  - 10.2 Chart Standardization and Paper Chart Working Group (CSPCWG)
  - 10.3 Standardization of Nautical Publications Working Group (SNPWG)
  - 10.4 IC-ENC/Primar Stavanger Joint Technical Experts Working Group (JTEWG)
  - 10.5 Harmonization Group on Marine Information Overlays (HGMIO)
11. **TSMAD input to IHO Work Programme**
12. **Any Other Business**
13. **Date and Place of meetings for 2007-2008**
14. **Joint TSMAD/CSMWG meeting agenda**
  - 14.1 IALA Emergency Wreck marking Buoys (*CHRIS action 18/6*)

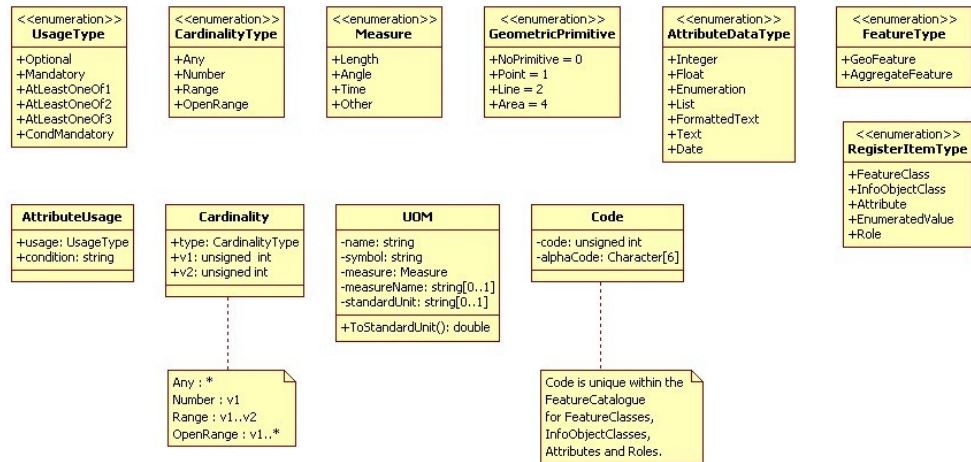
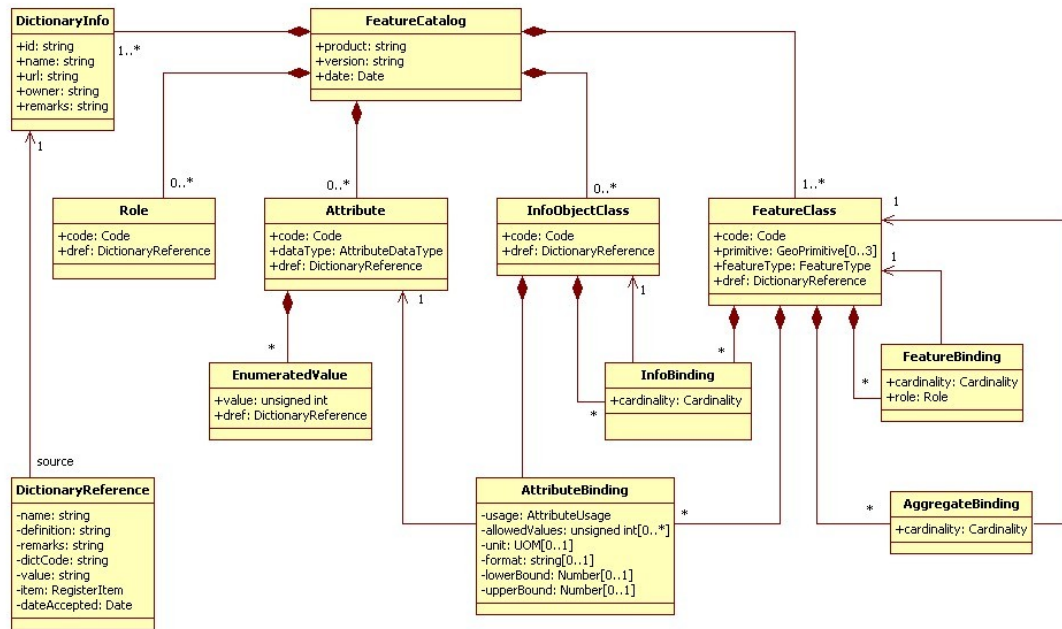


- 14.2 CHRIS WGs support e-navigation (CHRIS18 4.4)
- 14.3 TSMAD and CSMWG collate information on E3.1.1 matters requiring consideration by IEC for CHRIS19 in Nov 2007 (Action 18/17).
- 14.4 Continuation of coding of linear depth areas (CHRIS18 Item 6.2, page 14)
- 14.5 Encoding 'unknown' objects – proposed ENC EB from CSMWG16 actions 4 and 5
- 14.6 ENC Encoding Bulletin for PELs (CSMWG16 Action 33)
- 14.7 Object classes not symbolised in current S-52 presLib (CSMWG16 Action 47)
- 14.8 ENC Encoding Bulletins current status
- 14.9 LNDARE point features –
- 14.10 S-101 new ENC Product Specification
- 14.11 Revised SCAMIN paper by IC-ENC
- 14.12 Portrayal issues raised by TSMAD members:
- 14.13 Special S-100 attributes to simplify symbology for S-101 ENCs
- 14.14 Cell loading policy
- 14.15 S-100 IHO Portrayal and symbol register – (status of S-100)

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UML DIAGRAM – Feature Catalogue



### TSMAD 14 Action Items

- 3.1 **Actions:** ENC EB SubWg to review and issue ENC EB re 180 degree.
- Chairman to advise Chairman of IEC TC80 WG7 of new test required for ENCs crossing 180 degrees. **Action:** Chairman.
  - Follow up and raise the issue of HGE to revisit IEC 61174, at CHRIS19 and the ECDIS stakeholders' Forum. **Action:** Chairman
- 6 S-101
- Raise encapsulation (ISO8211 and GML) with OEMs at the ECDIS Stakeholders meeting in November. **Action:** Chairman.
- 6.2 S-101 Actions.
- Prepare a brief paper on how SCAMAX may be utilised. **Action:** Jeff Wootton.
  - TSMAD needs to monitor the implementation of this within ECDIS. Furthermore TSMAD needs to investigate whether the concept of Navigational Purpose could be removed and only be used for cataloguing purposes. **Action:** TSMAD
  - Cells - Grid system for ENC. Discuss with their home offices and report to Julia Powel. **Action:** TSMAD Members
  - B.1 Section 3.9 - Need to include the concept of Association Role. Raise this issue with OEMs – possibly at the next CIRM meeting. **Action:** Chairman.
  - Stricter guidance on how text files are stored in the ECDIS systems. **Action:** ENC EB SubWg to develop an EB on this issue.
  - Maintenance – separate maintenance regimes for S-100. **Action:** Task group required to scope out the maintenance regime and document it.
  - Problem with OBSTRNs and alarms in ECDIS. **Action:** TSMAD members to discuss with their home offices and report back – also members to propose specific new object/attributes to reduce the overuse of caution area.
  - Overuse of **CTNARE**. **Action:** all TSMAD MS to discuss with their home office and compile a list of features that have been encoded as a caution area for the next meeting.
  - The way updates are handled needs to be reviewed. **Action:** TSMAD members to discuss with their home office and propose solution for next meeting.
- 6.3 SCAMIN paper: **Action:** The Chairman is to propose to CHRIS that it be adopted and distributed via CL and be presented to RHCs.
- 6.4.2 The eventual change-over date from S-57 to S-101 also needs to be raised. **Action:** Chairman to report back to CHRIS.
7. S-100 Issues. **Action:** Portrayal needs to be discussed at a future combined CSMWG meeting.

The draft S-100 product specification profile document is to be distributed for comment and for progression to CD **Action:** Julia Powell.

7.1 Feature Data Dictionary component (S-100-2). Submitting organizations. **Action:** IHB will need to send out a CL asking for MS to nominate a person.

7.3.2 19110 Proposed Amendments. **Action:** MS to lobby national bodies against the proposed amendments to ISO 19110 (Chairman has a letter for this).

7.3.5 **Action:** It was agreed to revise the diagram to make it look more like a 19110 implementation by correspondence for finalization at the next Focus Group meeting.

7.5.1.2. Engineering CRS - **Action:** TSMAD members need to ask their home office experts whether this would be required. This should be reported to Holger Bothien and copied to the Chairman.

7.5.1.7 **Action:** Holger to complete the draft component with some good (relevant) examples on how to use it. Ask organizations for use cases.

7.7.1 Copyright Issue - **Action:** Chairman to follow up ISO and report to CHRIS.

8.2.1 A display problem with sloping ground - **Action:** Australia to raise this at the next CSMWG – CR noted that this was on the agenda for next week at the Norway meeting.

8.2.2 The 180 degree longitude boundary problem. **Action:** Julia Powel to forward EB to IHB. **Action:** The Chairman to follow up with IEC.

8.2.3 Test Data Set - **Action:** Holger and IHB..

8.2.4 The S-57 Booklet to be withdrawn from the IHO web site. **Action:** IHB.

8.2.6 Prohibited use of underscore for cell names. **Action:** ENC EB SubWg to issue FAQ.

8.2.7 Linear maritime boundaries. This item has been completed but needs to be posted on the IHO web site. **Action:** JP and IHB.

8.2.10 The Encoding Bulletin for wrecks. **Action:** For completion by Encoding Bulletins SubWG.

8.2.11 The FAQ for DGPS. - **Action:** For completion by Encoding Bulletins SubWG

8.2.14 Underwater turbines and current farms. **Action:** ENC EB SubWg to issue FAQ for underwater turbines and current farms.

8.2.17 EB for PELs. **Action:** This is to re-worked by the ENC EB Sub WG – Australia to lead, the group to also include France, New Zealand, USA and any HO lights experts.

8.2.18 AIS EB. - **Action:** Chair to raise this at the CSMWG.

8.2.19 EEZ EB. NOAA and CHS proposal for EEZ - S-58 check. **Action:** ENC EB Sub WG to produce a bulletin concerning disputed areas.

8.2.20 Emergency Wreck Buoy (TSMAD14-14 and TSMAD14-10B). Australia – noted that the EB on the web site is no longer relevant and should be removed. **Action:** IHB.

8.2.21 Encoding Bulletin 13 on BUAARE should be withdrawn. **Action:** IHB and ENC EB SubWg.

8.2.22 New ENC EB SubWg coordinator. **Action:** Jeff Wooten to review TSMAD14-10B and all issues raised at this meeting concerning ENC EBs and FAQs and action all items through the ENC EB SubWg by email before the next meeting. JP to send JW copies of all relevant proposals.

8.2.23 Guidance for the management of updates for Traffic Separation Schemes. **Action:** France to draft a proposal for ENC EB SubWg to consider as FAQ or EB.

8.2.24 All ENC EBs will need to be considered for S-101. **Action:** S-101 coordinators to add to their action list.

10.2 Preparation of a new EB following the completion of the IALA trials and when CSPCWG have reached a conclusion. **Action:** ENC EB SubWg to monitor progress.

12.1 IEC document 61174 - requirement to tighten up some of the clauses- HGE. **Action:** for Chairman.

12.2 The resurrection of the DQWG. Quality elements for bathy surveys and metadata and this should be passed to this new WG when it is functioning. **Action:** Chairman

12.3 The Feature Data Dictionary - Register definitions. There should be some attempt to harmonize definitions where possible. Australia proposed that this should be raised at CHRIS 19. **Action** TSMAD Chairman.

#### **Combined TSMAD /CSMWG Actions**

3.3 **Action:** Combined paper to be prepared by the Chairs of TSMAD and CSMWG for CHRIS19.

3.5 **Action:** MJ to include in CSMWG report to CHRIS19

3.8 **Action:** TSMAD to consider wider circulation of ENC EBs including RHCs (JW).

3.9 **Action:** add new LUT for **LNDARE** line to MD05.  
TSMAD to review the existing ENC EB on **LNDARE** line features (JW).

3.11 **Action:** TSMAD response to CHRIS19. (See TSMAD14 Minutes for further details on the endorsement of this paper by TSMAD).