5th IHO HSSC Meeting
Shanghai, China, 5-8 November 2013

IEC Activities affecting HSSC

Submitted by:	Convenor of IEC TC80/MT7 ECDIS
Executive Summary:	The document includes information about IEC process to create new edition 4.0 of the IEC 61174 ECDIS standard. This new IEC editions is intended to be based on new editions of the IHO S-52 and S-64. This document also includes preliminary information about IEC intention to extent the IEC 61162 series interface standards to describe how onboard navigation and communication equipment could transfer S-100 based information. Finally this document includes information about conclusions made at IEC TC80 plenary workshop about SQA.
Related Documents:	1. HSSC5-05.1A 2. HSSC5-05.3B
Related Projects:	None

1. New edition of IEC 61174 ECDIS

Introduction / Background

1. IEC 61174 is the testing standard for type approval of ECDIS. It covers testing of compliance with IHO S-52, S-57, S-63 and S-64. Current edition is 3.0 from Sep 2008.

2. Based on IHO and IMO ECDIS anomalies discussions IEC TC80 agreed to establish during 2012 a maintenance team for IEC 61174 to address the issue. The new work item proposal was submitted for voting in Sep 2012 and the MT7 was established in Dec 2012: Hannu Peiponen was selected as the convenor of MT7. The MT7 was given following dates as milestones: CDV Mar 2014, FDIS Mar 2015 and IS Sep 2015.

3. Short description of IEC process: First step is to establish a maintenance team (MT). The MT can publish committee drafts (CD) in order to get feedback about the content of the new draft from the IEC National Committees. The MT has time until the date of committee draft for voting (CDV) to draft the content of the new edition. After issuing of the CDV only the convenor remains available for the secretary of the TC80. The CDV comments are processes by the secretary of TC80 and he creates the next voting draft, the final draft international standard (FDIS). The FDIS comments are processed by IEC headquarter and they create the International Standard (IS). The process is compatible with Word Trade Organization (WTO) rules to remove bias of individual experts and to remove bias of the secretary. The process delay from CDV to IS is long – about 1.5 years.

4. It is important to note that the technical experts are part of the process until the CDV, for which the Mar 2014 is set for new edition of IEC 61174 ECDIS. Second point to note is that the CDV may contain references to external items which are not yet published on the date of publishing of the CDV, but are published before deadline of the CDV voting. For new edition of IEC 61174 the end of CDV voting is assumed to be around Sep 2014.

Analysis / Discussion

5. In IHO the DIPWG is currently responsible for maintenance of S-52 and TSMAD is responsible for S-64. These two standards are linked together as the S-64 is the testing standard for the rules and specifications set by S-52 for presentation and use of S-57 ENC charts, and for S-63 data service and encryption.

6.   The final publishing of both S-52 and S-64 should be synchronized. The working order is such that first the content of the S-52 is agreed and then the related S-64 can be developed including tests for all aspects available in the new edition of S-52. This natural order of events is behind the lack of final draft of new edition for the S-64 for the HSSC5 meeting.

7.   IEC is currently drafting a synchronized publishing of a new edition of IEC 61174 ECDIS standard. Final in force date for all these standards (IHO S-52, IHO S-64 and IEC 61174) is planned to be around summer 2015. The planned date is set today as 2015-09 by the IEC document 80_687e_RR as target date for publishing of the IS. Further we know that IEC has his own long process and voting delays and therefore the target date set for the IEC workgroup to complete drafting is 2014-3 (date set for CDV) and target date set for FDIS is 2015-3.

8.   IMO has published many circulars related to ECDIS software upgrading up to the latest IHO standard. The IMO circulars refer the "Latest IHO standard for ECDIS" web-page of the IHO. We urge IHO to initially place the updated S-52 and S-64 only in the "download" page of the IHO website to make them available to manufacturers and test houses. Subsequently, we urge to coordinate with IEC TC80 and/or CIRM regarding timing of an update of the webpage "Current IHO Standards for ECDIS equipment".   The in force date for new editions of S-52 and S-64 are set by replacing current editions with the new ones in this IHO web-page.

9.   The assumed and recommended time schedule is:
   - Nov 2013, HSSC5 agree publishing of new edition 6.1 of the S-52 Main standard and publishing of new edition 4.0 of the S-52 Presentation Library
   - Nov 2013, HSSC5 agree plan for creation and publishing of new edition of the S-64
   - Dec 2013, TSMAD has 5 day expert review workshop for S-64
   - Jan 2014, IHO publish the new edition 6.1 of S-52 and the new edition 4.0 of the S-52 Presentation library after the IHO member states voting. This publishing is done so that the new editions are available in parallel with the current editions of 6.0 for S-52 and 3.4 for Presentation Library. In practice both editions are available in the IHO webpage for IHO standard, but only the editions 6.0 and 3.4 are available in the "Latest IHO standard for ECDIS" web-page.
   - Jan/Feb 2014, TSMAD sub-group for S-64 completes the content of the new edition of the S-64
   - Mar 2014, IEC workgroup for new edition of IEC 61174 ECDIS can complete the CDV based on the S-52 agreed by HSSC5 and the completed draft of new edition of the S-64
   - HSSC approve by correspondence the new edition of S-64 during spring 2014. The approval should happen before the end of CDV voting of IEC 61174, which is assumed to be around Sep 2014.
   - Sep 2014, End of CDV voting for new edition of the IEC 61174 ECDIS
   - Mar 2015, Start of IEC FDIS voting
   - After Mar 2015: IHO move new editions of S-52 and S-64 to the "Latest IHO standard for ECDIS" web-page of the IHO.

10.   The main difference of this IEC report and the related input papers HSSC5-5.1A and HSSC5-5.3B is the date of final approval of the new edition of the S-64. The HSSC5-5.1A proposes the final approval of the new edition of the S-64 to happen by HSSC6 in Nov 2014, but that is too late for the IEC process for creation and publication of the new edition of the IECV 61174. IEC cannot reference to an unpublished standard and the published or not published status is essential to know before the end of CDV voting by Sep 2014.

Conclusions
11.   The smooth transition from current editions of IHO S-52, IHO S-64 and IEC 61174 requires careful orchestration.

Justification and Impacts

12.   The process of new clarifying editions of all ECDIS related standards is a response to address known "ECDIS anomalies" and implementation irregularities, and to improve the overall clarity of the specification. The result addresses also feedback of end users as noted by the IMO ECDIS stakeholder meeting in Oct 2012 to discuss about ECDIS and ECDIS anomalies.

Action requested from HSSC
13.   The HSSC is invited to
   a) To consider the proposed time schedule and the actions within it
   b) To especially consider approval of S-64 by correspondence latest by Aug 2014 instead of postponing the final decision to the HSSC6 in Nov 2014.
   c) To consider initially placing the updated S52, Presentation Library and S64 only on the "download" page of the IHO website. Synchronize with IEC TC80 or CIRM regarding update of the webpage "Current IHO Standards for ECDIS equipment"

2. IEC 61162 series interface standards and S-100

Introduction / Background
14.   IEC 61162 series is recognized by IMO Performance Standards for onboard navigation and communication equipment. Therefore the IEC 61162 series standards set the baseline for interoperability between equipment from various manufacturers installed onboard SOLAS ships.

15.   IEC TC80 Plenary is the highest decision making body within the IEC TC80. The plenary meeting is held every second year. In Sep 2013 the IEC TC80 Plenary agreed that IEC needs to address IMO decision about S-100 being the baseline of the e-Navigation. The IEC TC80 plenary agreed that the IEC TC80/WG6 should address the issue and named Mr. Ung G Kim / Republic of Korea as tentative project leader to create the new standard.

16.   The plan is such that the Jan 2014 meeting of the IEC TC80/WG6 is assumed to draft how the issue is addressed and based on this the National Committee of Republic of Korea is assumed to submit a new work item proposal naming Ung G Kim as project leader.

Analysis / Discussion
17.   When established, the IEC process is assumed to check availability of suitable objects and attributes for all traditional elements/fields in the IEC 61162-1 sentences. This may lead to introduction of additional objects and attributes for the S-100 GI registry.

18.   It is assumed that the new IEC 61162 series standard will describe how to encode and decode S-100 objects and attributes in order that they can be transferred over existing IEC 61162 interfaces. Such interfaces are currently available for various technical methods including serial line (4800 bit/s and 38400 bit/s), CAN-bus and Ethernet. Further it is assumed that this encoding and decoding process might be similar to what is currently defined for onboard AIS transponders (i.e. the radio communication interface of AIS follows ITU 1374 standard while the AIS interface from transponder to other onboard equipment follows IEC 61162-1 standard).

19.   It is assumed that IEC interfaces do not need an S-10X product specification. An open issue is if there is a need to have a domain owner to maintain the interfaces related items in S-100 GI registry. IEC welcome any guidance from IHO for these subjects.

Conclusions
20.   There is a need for IEC and IHO to co-operate for this issue.

Justification and Impacts
21.   The process is justified by the IMO decision of setting IHO S-100 as baseline for e-Navigation. The process will have positive impact for the implementation of the e-Navigation.

Action requested from HSSC

21. The HSSC is invited to
    a) To note information provider
    b) To inform IEC which workgroup of the HSSC is the most suitable for the IEC to liaise for this issue.

3. Conclusions from IEC workshop for SQA

Introduction / Background

22. IMO e-Navigation process includes SQA for e-Navigation related items. IEC TC80 creates and maintains IEC standards for navigation and communication equipments for onboard use in SOLAS ships. Such equipments are in the core of implementation of the e-Navigation.

23. CIRM meeting in Apr 2013 had a workshop about SQA. Based on this workshop IEC had an own workshop attached to the TC80 Plenary in Sep 2013. The workshop was attended by representatives of the IEC TC80 National Committees. The representatives included both industry and maritime administrations (Australia, UK and USA).

Analysis / Discussion

24. First conclusion was that all IEC/ISO standards proposed in IMO NAV 59/6/2 are related to "safety critical" equipments or systems. However none of the current IMO defined equipment falls within the "safety critical" although they might be "safety related". Reason is that IMO has defined in IMO performance standards the mandatory fail to safe procedures. The IEC/ISO SQA standards pointed out in IMO NAV 59/6/2 address such system for which the manufacturer himself needs to address the fail to safe issue by analysing possible "safety critical" use cases for which the manufacturer shall apply the extensive procedures as required in IEC/ISO SQA standards.

25. After the first conclusion there was a holistic discussion what is left out of the Software Quality Assurance SQA initiative as available in IMO NAV 59/6/2. The SQA does not solve anything for shipborne segment, because manufacturers for shipborne segment are already based on IEC 60945 required to have certified quality management system: ISO 9001 or equivalent. If more than generic ISO 9001 is required for shipborne segment then the most natural add on is the ISO 90003, which specifies rules how to apply generic rules of ISO 9001 for software quality management. Quality management is an issue for shore segment and distribution segment as they have today no obligation to have any certified quality management.

26. Second conclusion was that the real issue is Service Lifecycle Management SLM. The conclusion focuses on service. The service should be understood including all actors in the service chain: data source, data distribution and onboard use of data. The SLM of the service chain should set rules for example for application of certified quality systems, application of quality assurance tests in data production, how each party informs others for any change, how long is transition period for a change in the service chain, what to do with legacy systems in any part of the service chain, how to inform end of life for service or system, how to inform end of keeping service, system or equipment up-to-date for latest rules, etc.

Conclusions

27. Establishing Service Lifecycle Management SLM for IHO defined products or services is the way forward.

Justification and Impacts

28. The establishing of SLM is justified as a method to address quality control for e-Navigation. The impact is overall improvement of the quality and service experience by the end users.

Action requested from HSSC

29. The HSSC is invited to
    a) To note information provided
    b) To consider to include SLM into future work of the workgroups of the HSSC.