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Economic Commission for Europe**Inland Transport Committee****Working Party on Inland Water Transport****Working Party on the Standardization of Technical
and Safety Requirements in Inland Navigation****Fifty-fifth session**

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Item 7 (a) of the provisional agenda

**Promotion of River Information Services and other Information
and Communication Technologies in inland navigation:****Recommendation on electronic chart display and information system
for inland navigation (resolution No. 48, revision 3)****Amendments to the Recommendation on electronic chart
display and information system for inland navigation
(resolution No. 48, revision 3)****Transmitted by the Chair of the International Inland ECDIS Expert
Group****Mandate**

1. This document is submitted in line with cluster 5: Inland Waterway Transport, paragraph 5.1 of the programme of work 2018-2019 (ECE/TRANS/SC.3/2017/24) adopted by the Inland Transport Committee at its eightieth session (20-23 February 2018).
2. At its fifty-fourth session, the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation started considering the amendment proposal to the Recommendation on electronic chart display and information system for inland navigation (Inland ECDIS) – Resolution No. 48, revision 3, prepared by the Chair of the International Inland ECDIS Expert Group (ECE/TRANS/SC.3/WP.3/108, paras. 75–78), and asked the secretariat in cooperation with the Chair of the International Inland ECDIS Expert Group to prepare a draft proposal for updating parts A, B and C of the annex to the resolution.
3. The Working Party may wish to start considering the proposed amendments in the annex and decide as appropriate.

Annex*

Recommendation on Electronic Chart Display and Information System for Inland Navigation (Inland ECDIS)

A. Preface

1. Since the late 1990s, reflections and experiments using telematics for the support of inland navigation have been made in several member States of the United Nations Economic Commission for Europe (~~UNECE~~). In different research and development projects the radar image on the display in the skipper's wheelhouse was underlaid by an electronic chart. This is a safer and more efficient approach of inland navigation.

2. The discussions established that only an internationally agreed upon procedure would be successful, since a skipper could not be expected to employ different equipment in each country. Thus, the internationally introduced and very mature Electronic Chart Display and Information System (ECDIS) – originally developed for maritime navigation – was also considered for inland navigation. The idea was to adopt ECDIS for inland navigation and to supplement some distinct inland features, but not to change the original ECDIS standard. In this way, compatibility was possible between the original – Maritime – ECDIS and Inland ECDIS. This is important for the estuaries of the rivers, where sea vessels as well as inland vessels navigate.

3. In 1998, the European Union (~~EU~~) appointed an **International** Inland ECDIS Expert Group (Expert Group) for the development of an Inland ECDIS Standard. The Expert Group submitted its first proposal on 1 January 1999.

4. In ~~the year~~ 2000, ~~the competent committees of~~ the Central Commission for the Navigation of the Rhine (CCNR) ~~in Strasbourg~~ installed an Ad-hoc Working Group for Inland ECDIS with the order to draft the Inland ECDIS Standard of CCNR.

5. The Ad-hoc Working Group took the results of the Expert Group as the basis for their further work and developed edition 1.0 of the Inland ECDIS Standard. The Inland ECDIS Standard has been adopted not only by CCNR, but also by the Danube Commission, the ~~UNECE and International Navigation Association~~ **the World Association for Waterborne Transport Infrastructure** (PIANC). The standard has become the first in inland navigation to have been recognized by all these organizations.

6. For ~~the UNECE~~, the Inland ECDIS Standard was adopted by ~~R~~resolution No. 48, "Recommendation on Electronic Chart Display and Information System for Inland Navigation (Inland ECDIS)" (TRANS/SC.3/156), approved by the ~~UNECE~~ Working Party on Inland Water Transport (SC.3) on 25 October 2001. In this ~~R~~resolution, SC.3 recommended that Governments, intergovernmental organizations, regional economic integration organizations, river commissions and private entities apply the Inland ECDIS Standard for producing electronic charts for inland navigation. It also recommended Governments to bring their national inland waterway navigation legislation in accordance with the standard.

7. Further development by the Expert Group of the standard into edition 2.0 was driven by several aspects:

(a) The **European Union's** research and development ~~EU~~ project COMPRIS (Consortium Operational Management Platform River Information Services) further developed the Inland ECDIS Standard its applications. These developments have been focused on the information side of Inland ECDIS with special regard to voyage planning;

(b) As the Inland ECDIS Standard had not been officially recognized by the International Hydrographic Organization (IHO) in the beginning, there were some

* *Note by the secretariat:* the text proposed for deletion is ~~strike through~~, the new text is **bold** (in the main text) and **bold italics** (in titles).

incompatibilities between edition 3.1 of **IHO Special Publication No. S-57, “IHO Transfer Standard for Digital Hydrographic Data”** S-57 and the ~~first~~ **initial** Inland ECDIS Standard. In order to ensure the future compatibility of Inland ECDIS and S-57 and its foreseen successors S-100 and S-101, it was necessary to obtain recognition by IHO. Therefore, an international harmonization group with the participation of the Russian Federation, the United States of America (US) and several countries from South America and Asia was set up to get a better basis for a worldwide recognition of Inland ECDIS. The Inland ENC Harmonization Group (IEHG) was mandated as a task force of the Expert Group. IEHG developed an Inland ENC Encoding Guide on the basis of a similar document of the US Army Corps of Engineers (USACE). This document was amended with the additional features and attributes of the European approach. ~~after a thorough check on which features and attributes to introduce.~~ Whenever possible, the American approach of using pure S-57 to encode the same real world entities was applied. All the amendments of COMPRIS and the harmonization process were introduced in the documents of the Inland ECDIS standard by the Expert Group. IEHG has been recognized as a Non-Governmental International Organization (NGIO) by IHO in 2009. An Inland ENC Domain has been implemented by IEHG within the S-100 registry of IHO;

(c) ~~The European~~ Directive 2005/44/EC **of the European Parliament and of the Council** of 7 September 2005 “on harmonized river information services (RIS) on inland waterways in the Community”²² required the adoption of a technical specification in the area of Inland ECDIS.

8. The Expert Group had delivered its proposal for edition 2.0 in June 2006 to the relevant international organizations for adoption. Based on this proposal from the Expert Group, SC.3 at its fiftieth session decided to update its ~~R~~resolution No. 48 accordingly (ECE/TRANS/SC.3/174, para. 50). The first revised edition of the resolution was issued by ~~the~~ UNECE in 2007 (ECE/TRANS/SC.3/156/Rev.1).

9. In February 2011, the Chair of the Expert Group informed SC.3 about an updated edition of the Inland ECDIS Standard (edition 2.3). Edition 2.3 was also transmitted by the Expert Group to the River Information Services (RIS) Committee of the **European Union**, which approved the proposal to use it for the Commission Regulation on Inland ECDIS within the framework of Directive 2005/44/EC. The work on the second revised edition of resolution No. 48 was, thus, initiated by ~~UNECE~~ in 2011. During this revision, the term “Inland ECDIS Standard” was replaced by “Technical specifications for Inland ECDIS”. The ~~revised second revision of the~~ resolution was ~~approved~~ **adopted** by the fifty-sixth session of SC.3 on 12 October 2012 as resolution No. 77.

10. The ~~following~~ diagram in **Part B** and the comparison table of the structures of the standard for (Maritime) ECDIS and of the technical specifications for Inland ECDIS in **appendix 4** show the structure of the Inland ECDIS and the mapping between (maritime) ECDIS and the technical specifications for Inland ECDIS, edition 2.34.

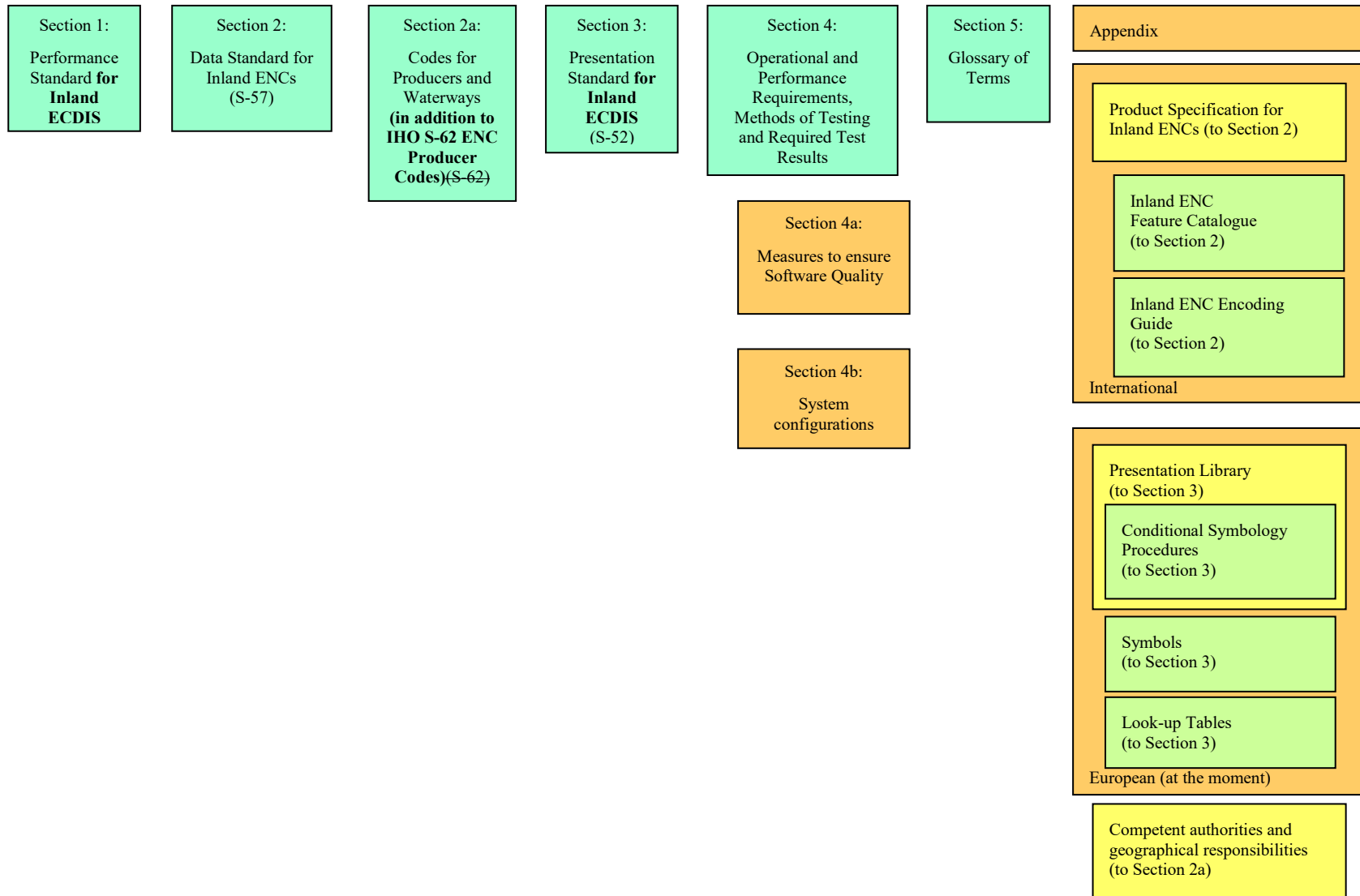
11. **The Expert Group started working on edition 2.4 of the Inland ECDIS Standard in 2011. IEHG and by the Inland ECDIS Expert Group adopted edition 2.4 in 2015 and forwarded to the European Commission and ECE. The third revision of resolution No. 48 was adopted by the fifty-ninth session of SC.3 on 11 November 2015 as resolution No. 84. According to the new internal rules, the European Commission started a “Better Wording” procedure with the aim to make technical standards more clear and better to understand. It required additional amendments to the newly adopted edition 2.4, and also to the third revision of resolution No. 48, however, no substantial changes were necessary. This work was finalized in 2018. The revised Inland ECDIS standard edition 2.4 was introduced by Commission Implementing Regulation (EU) 2018/1973 of 7 December 2018 amending Implementing Regulation No 909/2013 on the technical specifications for the electronic chart display and information system for inland navigation (Inland ECDIS) referred to in Directive 2005/44/EC of the European Parliament and of the Council.**

12. In February 2019, the Chair of the Expert Group prepared an amendment proposal to resolution No. 48. revision 3, for consideration by the fifty-fourth session of the Working Party on the Standardization of Technical and Safety Requirements in

Inland Navigation (SC.3/WP.3), which was finalized and adopted by SC.3 as resolution No. 48, revision 4, in ...

413. Technical appendices **to the Inland ECDIS Standard** established by the Expert Group can be consulted in English at the website of SC.3: www.unece.org/trans/main/sc3/sc3res.html.

B. Structure of the technical specifications for Inland ECDIS *edition 2.4*



Appendix 4 Comparison of the structures of the standard for (Maritime) ECDIS and of the technical specifications for Inland ECDIS

<i>(Maritime) ECDIS</i>	<i>Inland ECDIS</i>	<i>OPEN ECDIS FORUM</i> <i>http://ienc.openecdis.org</i>
IMO MSC.232(82) revised Performance Standards for Electronic Chart Display and Information Systems (ECDIS), December 2006	Section 1: Performance Standard	
Appendix 1: Reference Documents		
Appendix 2: SENC Information available for display during route planning and route monitoring		
Appendix 3: Navigational Elements and Parameters		
Appendix 4: Areas for which special conditions exist		
Appendix 5: Alarms and Indicators		
Appendix 6: Back-up requirements		
Appendix 7: RCDS mode of operation		
IHO S-57: Transfer Standard for Digital Hydrographic Data, edition 3.1 (including Supplement No. 2, June 2009)	Section 2: Data Standard for Inland ENC's	
Part 1: General Introduction		Inland ENC Feature Catalogue
Part 2: Theoretical Data Model		Bathymetric Inland ENC Feature Catalogue
Part 3: Data Structure		Product Specification for Inland ENC's
Appendix A: IHO Object Catalogue		Product Specification for bathymetric Inland ENC's
Chapter 1: Object Classes		
Chapter 2: Attributes		
Annex B: Attributes/Object Classes Cross Reference		
Appendix B: Product Specifications		
Appendix B.1: ENC Product Specification		
Annex A: Use of the Object Catalogue for ENC		
Annex B: Example of CRC Coding		IENC Encoding Guide
Appendix B.2: IHO Object Catalogue Data Dictionary Product Specification		
IHO S-62 ENC Producer Codes, edition 2.5, December 2009	Section 2a: Codes for Producers and Waterways	OEF (www.openecdis.org): Codes for Producers and Waterways (not part of the Inland ECDIS technical specifications)
IHO S-52 Specification for Chart Content and Display Aspects of ECDIS, edition 6, March 2010	Section 3: Presentation Standard	Presentation Library for Inland ECDIS
Annex A: IHO ECDIS Presentation Library		Look-up Tables
Annex B: Procedure for initial calibration of colour displays		Symbols
Annex C: Procedure for maintaining the calibration of displays		Conditional Symbology Procedures

<i>(Maritime) ECDIS</i>	<i>Inland ECDIS</i>	<i>OPEN ECDIS FORUM</i> <i>http://ienc.openecdis.org</i>
Appendix 1: Guidance on Updating the Electronic Chart Annex A: Definitions and Acronyms Annex B: Current Updating Practice for Paper Charts Annex C: Estimate of Data Volume	IEC 61174 edition 3.0: ECDIS – Operational and Performance Requirements, Methods of Testing and Required Test Results, 2008	Section 4: Operational and Performance Requirements, Methods of Testing and Required Test Results Section 4a: Measures to Ensure Software Quality Section 4b: System Configurations Section 5: Glossary of Terms
IHO S-32 Appendix 1: Hydrographic Dictionary – Glossary of ECDIS-Related Terms		