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Report regarding future aspects of the Inland ECDIS Standard

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Content, The Inland ECDIS Standard

Worldwide standard for navigation on inland waterways (Is Inland ECDIS prepared for future challenges?)

- Inland Electronic Chart Display and Information System (Inland ECDIS)
- Inland Electronic Navigational Chart (IENC)
- Technical standardization and legislation
- Why Inland ECDIS?

Future aspects of Inland ECDIS (IEEG, CESNI/TI)

- Database for on board applications
- Additional amendments regarding navigational restrictions (dynamic data)
- Separating the type approval process of Inland ECDIS Systems
- Harmonizing the maritime ECDIS (S-101) and the Inland ECDIS Standard (S-401)
Inland Electronic Chart Display and Information System (Inland ECDIS)

- **Hardware on board**
  - AIS Transponder (own position, connected with the ECDIS-System)
  - At least one screen (Inland ECDIS Chart, better two screens, one for navigation, one for information)

- **Software on board**
  - Visualization of the IENC, head up oriented
  - Use of other sensor data (Heading-Sensor, Radar, Transponder, ….)
Inland Electronic Navigational Chart (IENC)

**Content:**

Objekt oriented, digital navigational chart, based on the S-57 Standard of the IHO

- Land area: shore line, berth, anchorage areas, shoreline constructions, buoys, notice marks, signal stations, terminals, connection to road and railway…
- Water area: fairway, navigable water, depth areas…
- Shipping related constructions: locks, weirs, bridges, harbours, crossing pipes and cables, ferries…
- Ordering system: waterway kilometers
- Additional Attribute can be shown by „Pick Report“
Technical standardization and legislation

**Technical Standards**

- **S-100 (IHO) for all Products of IHO and others**
- **ECDIS: S-101 Product Specification**
- **S-401 (IEHG) Inland ECDIS Product Specification**

**In future**

- **S-101 DCEG**
- **S-401 DCEG**
- **DCEG Builder**
- **S-401 PC**
- **S-101 PC**
- **Feature Catalogue Builder**
- **Portrayal Catalogue Builder**

**Abbreviations:**
- IHO: International Hydrographic Organization
- IMO: International Maritime Organization
- IEEG: Inland ENC Harmonization Group
- IEHG: European Inland ECDIS Expert Group
- CESNI: Comité Européen pour l'Élaboration de Standards dans le Domaine de Navigation Intérieure
- UNECE: United Nations Economic Commission for Europe
- CCNR: Rhine
- Moselle Commission
- Sava Commission

**Exceptions:**

- International Waterways
  - Waterway Commissions:
    - CCNR Rhine
    - Moselle Commission
    - Sava Commission
Direct influence of other standards/regulations

Example „Police regulations“:
- Rheinschifffahrtspolizeiverordnung
- Moselschifffahrtspolizeiverordnung
- Donauschifffahrtspolizeiverordnung
- Binnenschifffahrtsstraßenordnung
- Seeschifffahrtsstraßenordnung

Basics:
Inland:
CEVNI (UNECE)
(Code Européen des Voies de la Navigation Intérieure)

Maritime:
IALA
(International Association of Lighthouse Authorities)
Why **Inland** ECDIS?

Narrow conditions at bridges
Why Inland ECDIS?

Narrow conditions at locks and ship lifts
Why Inland ECDIS?

Inland specific objects
Why **Inland** ECDIS?

Different conditions in different regions
Future aspects of Inland ECDIS?

Database for on board applications

- The shipmaster as well as an IT system for navigational assistance (autonomous sailing) has to make their own decisions on board. These autonomous decisions need:
  - Static information (from Inland ECDIS)
  - Dynamic information (from on board sensors, from off shore)

- Inland ECDIS is well prepared to be the on board database also for IT systems in future, but has to be extended.
Future aspects of Inland ECDIS?

Additional visualization of navigational restrictions (dynamic data)

- A first step is the integration of information regarding navigational restrictions, received by AIS AtoN messages

- We plan this for the next standard version: IES2.5
Future aspects of Inland ECDIS?

Separating the type approval process

- The requirements for Inland ECDIS type approval are part of the product specification, but distributed over the document.

- During the last few years test standards, based on standardised methods, have been established, e.g. the AIS test standard was provided by CESNI.

- It would be useful to have also an according test standard for Inland ECDIS.

- We like to reach this in two steps:
  - First: Summarizing all type approval related requirement in an appendix of the next standard version (IES2.5).
  - Second: Forwarding it to CESNI in order to provide an own Inland ECDIS Test Standard for the following IES version (S-401).
Future aspects of Inland ECDIS?

Harmonizing the maritime ECDIS (S-101) and the Inland ECDIS Standard (S-401)

- This is done within RIS COMEX and includes:
  - Product specification
  - Feature catalogue
  - Portrayal catalogue
  - Data classification and encoding guide

- This standard version reaches in the period of the next CESNI/TI work program
The Inland ECDIS Standard within CESNI/TI

Thank you for your kind attention!

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