

## Paper for Consideration by the S-100WG

### Information about S-421 Route Plan exchange

<b>Submitted by:</b>	Hannu Peiponen / IEC TC80 Chair
<b>Executive Summary:</b>	This paper informs about IEC TC80 activity to create Product Specification S-421 for Route Plan Exchange.
<b>Related Documents:</b>	Annex S of IEC 61174 Ed4 ECDIS
<b>Related Projects:</b>	N/A

#### Introduction / Background

1. IEC has published international standard IEC 61174 for ECDIS. Latest edition 4 is from year 2015.
2. The edition 4 of IEC 61174 contains Annex S about a format for Route Exchange. This format is often called by name "RTZ", the abbreviation used as type in the filename. The fully described use cases of this format has been between two ECDIS equipment or between an ECDIS and its backup arrangement. Both use cases have been mandated by IMO revised performance standard MSC.232(82) for ECDIS.
3. Availability of standardized format to export or import Route Plans from or to an ECDIS has tempted various e-Navigation testbed projects to use the RTZ-format, for example, EfficienSea2, Sesame Straits and STM validation.
4. e-Navigation is a concept of IMO and IMO have further defined that the baseline of e-Navigation is S-100. Based on this IEC TC80 agreed that the RTZ-format shall be transformed into S-100 domain. IEC TC80 applied for domain ownership from IHO and IHO granted a number range S-421 ... S-429 for S-100 based Product specification to be published by the IEC. S-421 has been agreed as the S-100 number of the Route Plan Exchange. This Product Specification has also a number in the IEC series of international standards, IEC 63173.
5. The planned timeline of IEC TC80 is
  - Drafting by the workgroup until 1<sup>st</sup> quarter of 2020
    - During drafting three meetings per year
    - First CD for public commenting has been scheduled for Feb 2018. Today assumed to be available at earliest in Jun 2018
  - IEC approval process consisting of CDV and FDIS comments & votings from summer 2020 to 2<sup>nd</sup> quarter of 2021

#### Analysis/Discussion

6. IEC is drafting the new standard based on the lessons learned from RTZ-format
  - Just publishing a format do not guarantee inter-operability as every implementation will use their own interpretation how to use available objects and their attributes. Interoperability requires deeper understanding, for example, as described by use cases.
  - Just declaring objects or attributes as mandatory or option will not facilitate large scale implementation of any optional items. Reasons behind optionality – for example related only to a specific use case should be explained.
7. Tentative plan of "profiles" (i.e. use cases) to be described in the S-421/IEC 63173 include for example
  1. Route exchange ship to ship
  2. Sharing of Route plan (with someone in shore)
  3. Route Cross Check (for example by VTS to check the safety of the plan)
  4. Just in time arrival (to facilitate more efficient use of recourse)
  5. Enhanced monitoring (for example by VTS to detect deviations from the plan)
  6. Port Collaborative Decision Making (Port CDM) (to facilitate more efficient use of resources)
  7. Ice navigation (to obtain suggested route of more easier sailing through an area)
  8. UKCM (together with S-129 to facilitate UKCM service)
  9. Fleet Route Planning (business interest of the shipowner)

10. Chart management (automation of chart licence management)
11. Extension of a Route Plan to cover all requirements of IMO Voyage Plan

8. Some principle of drafting includes

- 'Profiles' of the Route exchange will be classified as mature and immature
- Objects and attributes common to all mature profiles will be specified as minimum mandatory for compliance with this standard
- Objects and attributes not common to all mature profiles will be specified as options within the overarching object model of this standard
- However, objects and attributes not common to all mature profiles will be mandatory within their profiles (i.e. individual profiles have no options, all are mandatory to implement)
- Immature profiles and objects/attributes used only by immature profiles will be available in an informative Annex of this standard
- Manufacturer shall declare for which profiles his equipment has compliance

### **Conclusions**

9. Not applicable for information only paper.

### **Recommendations**

10. Recommendation is to guide all uses of Route Plan exchange with ECDIS to use the new S-421.

### **Justification and Impacts**

11. Not applicable for information only paper.

### **Action Required of S-100WG**

The S-100WG is invited to:

- a) note the information available in this paper.