S-101 ENC Project Team

KHOA S-100 Viewer

Presented by KHOA
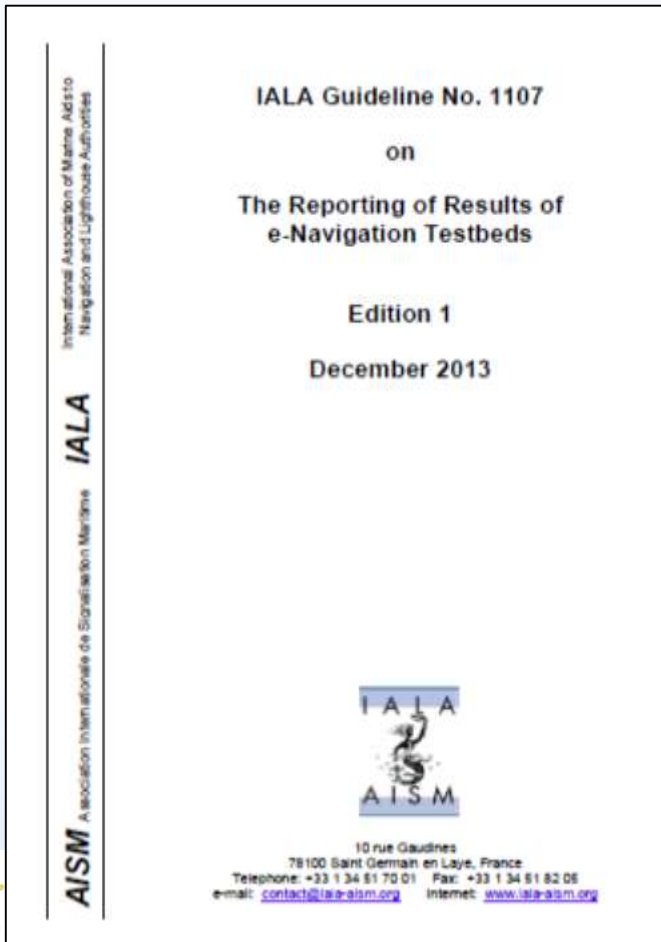
Reporting template for S-100 Testbed project

- Use of the IALA Reporting Guidelines for S-100 Test Beds
  - S-100WG2 meeting in Genoa, Italy (2017)

IALA Guideline No. 1107

on

The Reporting of Results of
e-Navigation Testbeds

Edition 1

December 2013

International Association of Marine Aids to
Navigation and Lighthouse Authorities

IALA

AISM Association Internationale de Signalisation Maritime

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Korea Hydrographic
and Oceanographic Agency

General Information

- **Overview**
  - Name of testbed: KHOA S-100 Testbed Project
  - Location of testbed: Busan, ROK
  - Time and duration of testbed: Ongoing till S-100 testbed project of the IHO is completed
  - Contact person(s): Yong Baek, ybaek@korea.kr (Project Manager)
  - Testbed website: N/A
  - Organization(s) involved : KHOA (Korea Hydrographic and Oceanographic Agency)
  - Funding program and budget: KHOA
 - Last Edited/Updated: 23 March 2018

Executive summary

- Purpose
  - aims to develop Phase 3 (Simple Viewer) and Phase 6 (shore based ECDIS) of S-100 test framework to support the S-100 Testbed project of the IHO
  - Phase 1 : Feature catalogue / Portrayal catalogue
  - Phase 2 : Simple production tool (S-57 to S-101 converter), Simple overlay
  - **Phase 3 : Simple Viewer**
  - Phase 4 : Preliminary product tool (Simple Editor), S-101 Native
  - Phase 5 : Preliminary data packaging and distribution models
  - **Phase 6 : Shore based ECDIS**

Executive summary

- S-100 Testbed overview
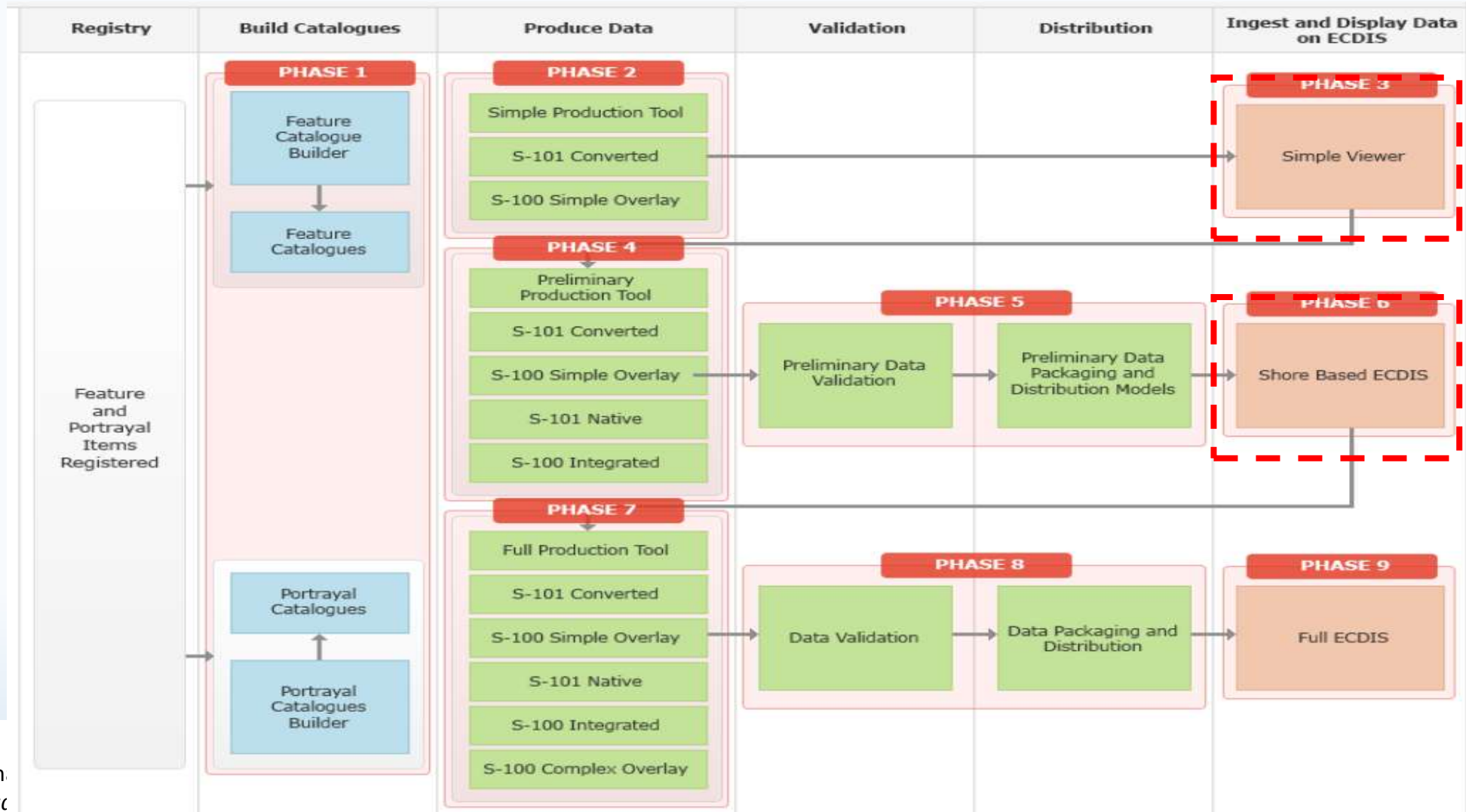
Testbed Information

- The type of user group(s) involved in the test
  - S-100 WG and TSM members, S-100 infrastructure developers and S-100 product specification developers are involved.

- Details of the S-100 testbed solutions
  - S-100 testbed allows testing of S-100 infrastructure including S-100 Registry, FCB and PCB and validation of S-100 TDS production/validation/packaging tools. Since data formats such as 8211, GML, BAG and HDF-5 are used in S-100, S-100 TDS using these formats can be tested.

Testbed Methodology

- Methodology used for data collection
  - Data applied to KHOA S-100 Testbed
    - Feature Catalogue: Produced Test Feature Catalogue using KHOA FCB
    - Portrayal Catalogue: Produced Test Portrayal Catalogue using KHOA PCB
    - TDS in 8211: Produced using NOAA/ESRI Converter or CARIS Composer
    - TDS in GML: Produced using our own editor and converter
    - TDS in BAG: Produced using our own converter which uses open source
    - TDS in HDF-5: Produced using our own converter which uses open source

Testbed Methodology

- ## Procedure used in the testbed
  - ### Technical solutions used
    - S-100 Portrayal process: Portrayal rule was applied and screen was presented (XSLT application method) about S-10X TDS according to S-100 Chapter 9.
    - S-10X TDS: Processing various data formats including 8211, GML, BAG and HDF-5
    - S-100 Exchange Catalogue: Loading and processing data according to information included in exchange set catalogue
    - S-100 Interoperability: Organizing screen presentation methods among S-100 product specifications from portrayal perspective
    - Plug & Play Concept: Changes to data model of S-100 product specifications are applied to Feature/Portrayal Catalogue. Data processing and screen presentation are applied according to Catalogues information.

Testbed Methodology

- Procedure used in the testbed
  - Standards
    - S-100 Universal Hydrographic Data Model, Ver. 3.0
    - S-101 ENC Electronic Navigational Chart (ENC)
    - S-102 Bathymetric Surface
    - S-104 Water Level Information for Surface Navigation
    - S-111 Surface Currents
    - S-122 Marine Protected Areas
    - S-124 Navigational Warnings
    - S-412 Weather Overlay
   - S-100 Interoperability Design Specification

Testbed Results

- Processing various data formats of S-100
  - 8211 (vector): S-101 ENC
  - GML (vector): S-122 MPA, S-124 NW, S-412 Weather
  - BAG (grid): S-102 Bathy
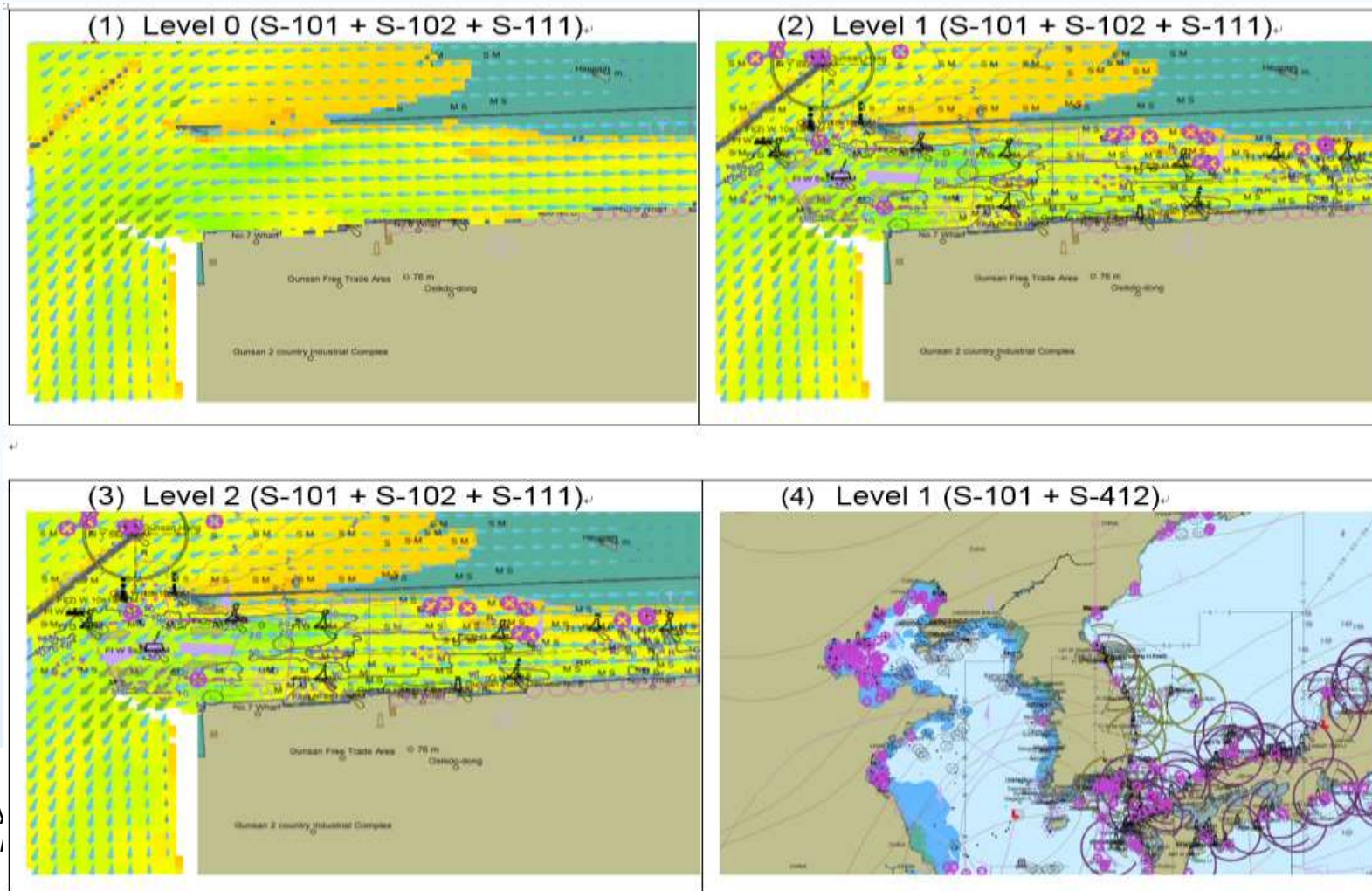 - HDF-5 (grid): S-104 Water level, S-111 Surface current
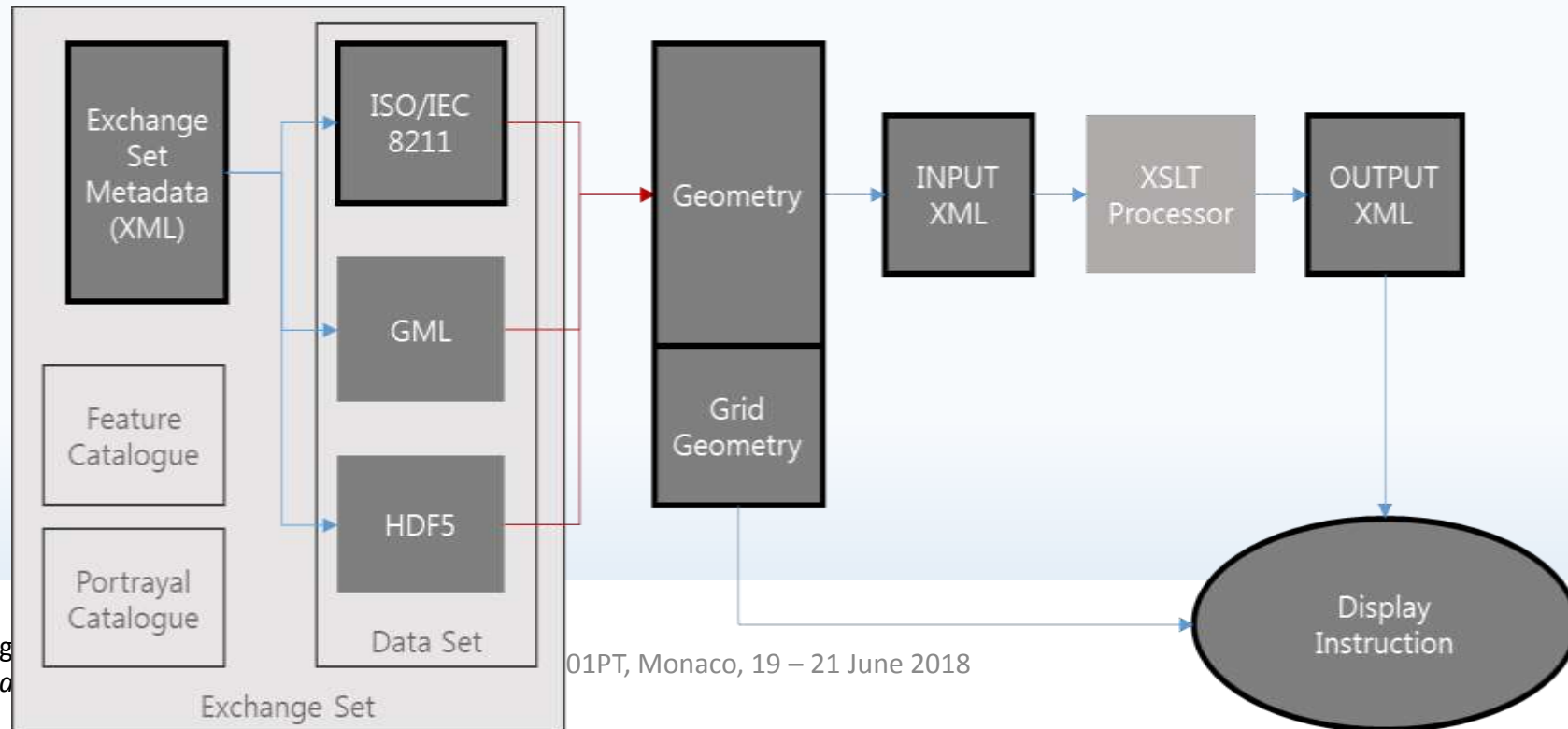
Testbed Results

- Development of S-100 Exchange set processing function
  - functions and procedure for the project
    - Process S-100 Exchange Catalogue files and load several data sets included in package at once
    - Identify Feature and Portrayal Catalogue included in exchange set before processing data set and process it using the Catalogues
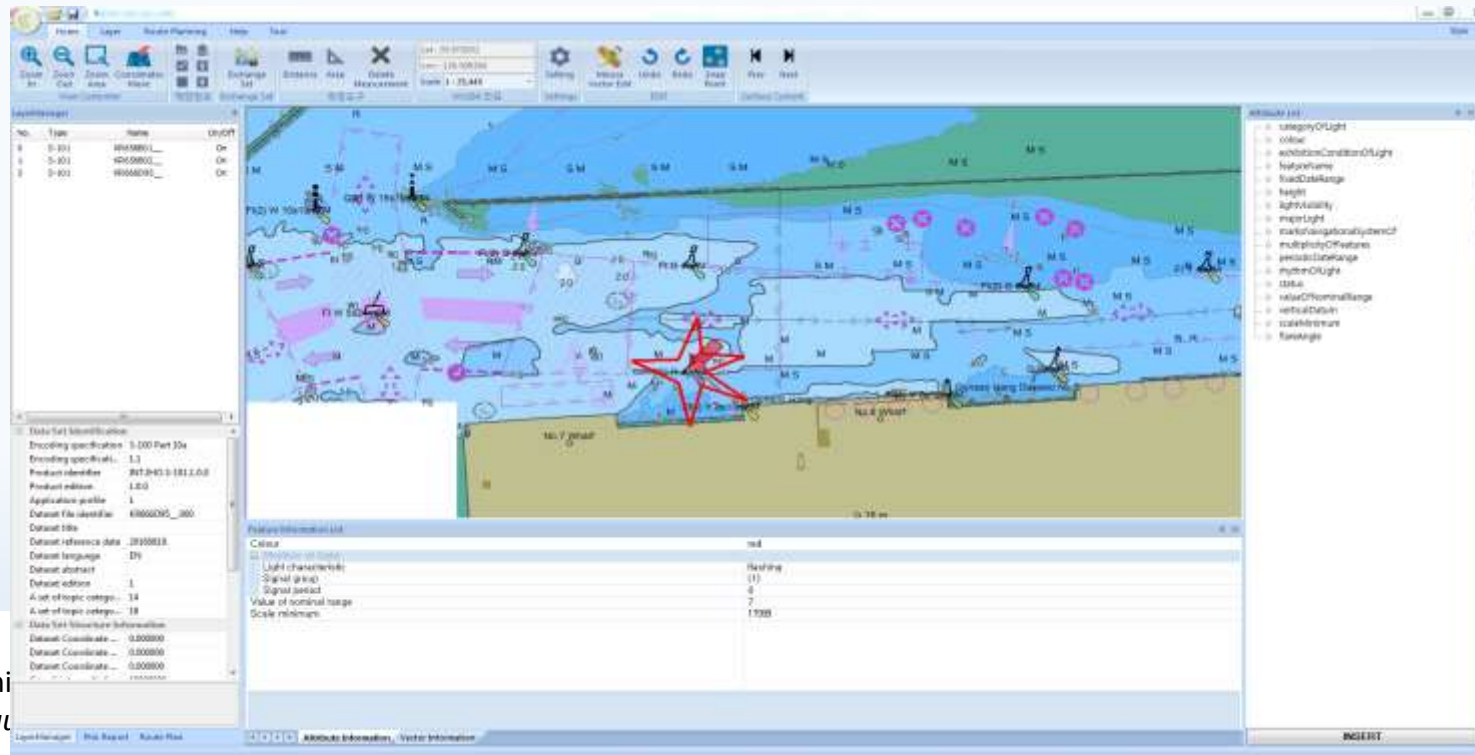
Testbed Results

- Test application of S-100 Interoperability Catalogue
  - Interoperability functions with Level 0, 1 and 2

(1) Level 0 (S-101 + S-102 + S-111)

(2) Level 1 (S-101 + S-102 + S-111)

(3) Level 2 (S-101 + S-102 + S-111)

(4) Level 1 (S-101 + S-412)

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Future plan

- Data Coverage
  - Chart loading and unloading will be tested