Input paper for the following Committee(s): Purpose of paper:

**□** ARM **□** ENG **□** PAP **X** Input

**X** ENAV **□** VTS **□** Information

Agenda item [[1]](#footnote-1) 9

Technical Domain / Task Number 2 …………………………………

Author(s) / Submitter(s) Jens Schröder-Fürstenberg, IHO NIPWG

**Paper for consideration by IALA ENAV and IHO S-100WG (S-101PT)**

**Coordination of the data model between S-101 and S-201 and addition of data needed for the List of Lights into S-201**

|  |  |
| --- | --- |
| ***Submitted by:*** | NIPWG |
| ***Executive summary:*** | During the work with S-125 (Navigational Services), it was realized that much of the data could be placed within S-201 instead of duplicating lots of the information into a new product specification. Also slight differences between S-101 and S-201 were found. |
| ***Related documents:*** | NIPWG 1-12.1, NIPWG 3-28.3-ANNEX 1 |
| ***Related projects:*** | S-101, S-201, S-125 (Navigational Services) |

# Introduction / Background

S-125 is one of the product specifications assigned to NIPWG. S-125 would include additional light and AtoN data, as well as AIS/V-AIS AtoN and GMDSS data for onboard display. S-125 could be seen as an electronic and extended List of Lights, to be used as a standalone product or as an integrated product which will interact with the S-101 ENC.

At NIPWG2, a slightly new approach to the development of S-125 was taken. It was decided to investigate whether time-sensitive information, chart-updating capability and related parts of Notices to Mariners could be absorbed as a part of the Navigational Services.

At NIPWG3, it became clear, that most data in the S-125 will also be present in the S-101. IALA is working on the development of a product specification S-201, which has the same basic data model as the S-101 product specification. Neither S-101 nor S-201 contains all the data S-125 is assumed to finally contain. However all three are identified to have a large overlap.

The following possible uses for S-125 have been identified:

* Include additional data needed for the List of Lights
* Extending and adding AtoN data on ENC
* Updating or even future streaming of data onboard
* Additional data to features in S-101
* Additional features, that are not included in S-101 (e.g. temporary aids)
* More recent data than that included in S-101 (S-125 could be updated more often than S-101 or even streamed in the future,)

# Analysis / Discussion

Considering the above use cases, the future development of S-201 has been identified as the significant counterpart in relation to the need for and development of S-125. Currently, S-125 is identified to contain much of the same data as S-201. As ordered by HSSC8, NIPWG 3 put the S-125 work on hold in order to investigate the feasibility to extend the S-201 base data model to cover additional features, instead of creating a custom data model within the S-125. The additional data related to the actual AtoNs would probably be best added to the S-201, as this will become the standard way of transferring such data.

While working with the new IHO Registry and the S-122 Marine Protected Area Product Specification, members of the NIPWG team and the registry manager began a discussion on the S-100 allowance of super types. Super types make it easier to share common data within product specifications that are based on the same data structure. We recognize the benefits in this approach and recommend that a super type should be used to contain the shared data in both the S-101 and S-201.

If S-101and S-201 were modeled using a super type containing the shared data, the future interoperability and updating could be simplified. The feature types based on the super type can be extended according to the use cases requests.”

## Small differences between S-101 and S-201

S-201 is similar to the S-101 data model with small differences. The assessment was made by comparing the latest drafts available Q4/2016. The following findings were made:

* AIS- AtoN is not a part of S-201.
* Encoding of Light- equipment seems to differ a bit between S-101 and S-201
* Complex attributes are used in S-101 but not in S-201
* Differences in some structure- and equipment elements

## Addition of data related to List of Lights into S-201

S-201 is meant to be used as a standard way to exchange AtoN information in a consistent form between Lighthouse Authorities, Hydrographic Offices and other organizations. S-201 should contain the AtoN data needed for the charts and nautical publications. Then it would be possible to generate the List of Lights, or a future equivalent. The current draft of S-201 (0.0.1) is lacking some of the information normally described in the List of Lights. Even though this data might not be a vital part of the ENC, it was discussed at NIPWG3, that it would be a proper place to present this data within the S-201, instead of creating an intermediate product specification (S-125) with the additional Light information. A study of the information needed additional to S-57 is found in annex A (NIPWG 1-12.1). This data is also drafted with comments as a part of S-125 draft data model in annex B (NIPWG 3-28.3-ANNEX 1).

# Conclusions

After a review of the contents of both the S-101 and S-201 features, it was found that they are not only strikingly similar. Rather, each of both are missing some data needed to encode AtoN Navigational publications information sufficiently.

It was recognized that the similarities between both the S-101 and S-201 would benefit greatly from using S-100 super types to represent the base data model. At least a common structure should be used for the base data.

The additional information needed for the production of publications should be as far as possible included in the product specification used as the base source. If an intermediate product specification (S-125) is needed to provide additional data, the quantity of data should be kept to a minimum.

Since the S-201 is meant to be used to exchange standardized AtoN information between organizations, we propose that it is extended to include all the data originating from the same authority and needed for production of the List of Lights and possibly other relevant nautical publications.

# Actions required by IALA ENAV and IHO S-100WG (S-101PT)

S-100WG and IALA ENAV Committee are invited:

* to note the paper
* to discuss the feasibility of coordinating development of the data models in order to remove the small differences between them.
* to discuss the feasibility of using a super type that would encompass the shared data contained within both the S-101 and S-201.

IALA ENAV Committee is invited:

* to review S-125 draft data model and consider extending the S-201 to include information needed to produce related Nautical publications
* to discuss whether S-201 is eventually going to be developed towards an ECDIS- compatible PS.
* to notify NIPWG of the outcome of above tasks.

1. Input papers should be assigned to a work task as listed in the Committee work plan which is available in input papers. Leave open if uncertain but consider how the paper is to be processed if not relevant to a work task [↑](#footnote-ref-1)