

Paper for Consideration by S-101Project Team**[Portrayal of Light sectors based on new attributes added to DCEG and FC]**

Submitted by:	Norway
Executive Summary:	The S-101 data model for sector lights was extended to add extra attributes carrying information about the length of the sector lines to be drawn on the display. This has been added to the DCEG and the Feature Catalogue. However, it remains to add portrayal instructions to the Portrayal Catalogue to utilize these attributes when drawing the light sectors..
Related Documents:	S101PT01-3.4A_SectorLights.pdf S-100WG1-S-101PT1 minutes
Related Projects:	-

Introduction / Background

This issue was presented at S-101PT1 as paper S101PT01-3.4A_SectorLights (referenced above)

From the S-101PT1 minutes:

3.4A Attribute for sector length

Paper by Norwegian Coastal Administration, presented by Guttorm Tomren (GT), on how sector lights are presented in ECDIS within Norwegian waters. The core issue was that the paper chart shows the range of the light sector, while ECDIS doesn't portray this. In paper chart, major sectors are made more prominent than lesser important ones. There is general support within the group in recognizing that this is an issue and that it needs to be fixed. A subgroup (Odd Aage Foere (OF), GT, Hans Engberg (HE) and Miko Hovi (MK)) worked out a proposal on how to S-101 can be amended to cover the issue.

Report from the S-101 light sector breakout group

The proposal adds cartographic attributes to better control the portrayal of sectors (lights and radar transponder beacons), and additional guidance in the DCEG for cartographers.

The proposal was discussed with JW and will be added to the DCEG.

⇒ JW to update DCEG reflecting the proposal from the S-101 light sector breakout group

The action was completed and these attributes were added to the DCEG and the Feature Catalogue in S-101 1.0.0 .

Extract from DCEG section 19.3 Sector lights:

sector limit			(S) C	0,1
sector limit one			(S) C	1,1
sector bearing	(SECTR1)	sector limit one/sector bearing ≠ sector limit two/sector bearing (0 = 360)	(S) RE	1,1
sector line length			(S) IN	0,1
sector limit two			(S) C	1,1

Analysis/Discussion

The S-101 data model includes this and valid S-101 test data can be produced containing these attributes, but it remains to add drawing instructions to the Portrayal Catalogue in order to have the sector light sectors displayed at correct length utilizing these attributes when populated.

According to existing notes on light sectors in S-52 13.2.4 CSP LIGHTS06, the leg lines are normally drawn to 25mm to avoid clutter - and the mariner should be able to select full light sector lines in which case they will be extended to the nominal range of the light:

13.2.4 Conditional Symbology Procedure LIGHTS06

Light flares, light sectors & light coverage (S-57)

Applies to: S-57 Object Class "light" (LIGHTS)

Spatial Object(s): Point

Spatial Relation(s): Point objects at identical location

Attribute(s) used: "colour" (COLOUR); "category of light" (CATLIT); "sector 1" (SECTR1); "sector 2" (SECTR2); «orientation» (ORIENT) "visibility of light" (LITVIS); "value of nominal range" (VALNMR)

Parameter(s): Object to be symbolized from SENC

User parameters: Show full length leg lines.

Defaults: Display Priority given by look-up table;
OVERRADAR priority given by look-up table;
Display Category given by look-up table;
Viewing Group given by look-up table

Remarks: A light is one of the most complex S-57 objects. Presentation depends on whether it is a light on a floating or fixed platform, range, colour etc. This conditional symbology procedure derives the correct presentation from these parameters and also generates an area that shows the coverage of the light.

Notes on light sectors:

- 1.) The radial leg-lines defining the light sectors are normally drawn to only 25mm from the light to avoid clutter (see continuation B). However, the mariner should be able to select «full light-sector lines» and have the leg-lines extended to the nominal range of the light (VALMAR).
- 2.) Continuation of this procedure symbolizes the sectors at the light itself. In addition, it should be possible, upon request, for the mariner to be capable of identifying the colour and sector limit lines of the sectors affecting the ship even if the light itself is off the display.

Further note: The sub-procedure LITDSN02, which generates the light description text-string, is provided as a descriptive narrative. Note: it does not use the default value for attribute VALNMR generated by CSP_LIGHTS.

Based on this information, and considering the optional encoding of the sector line length attribute implemented in the S-101 data model, the logic for drawing and displaying the length of the leg lines should be as follows:

1. Sector Line Length encoded - encoded value must be used to display length of line.
2. Sector Line Length not encoded - standard value (25mm) must be used to display length of line.
3. If mariner activates "full light-sector lines" functionality - Value of Nominal Range must be used to display length of line

Conclusions

Portrayal Catalogue should be amended to add drawing instructions for sector lights utilizing the attributes for sector line length.

Recommendations

It is recommended to add this to the Portrayal Catalogue at the earliest opportunity so it can be tested in test beds prior to the next edition of S-101 is published.

Justification and Impacts

The ability to encode values for sector line lengths in the ENC, and have it displayed in the ECDIS with correct length according to these values, similar to how it is displayed in the paper charts, has been identified by the Norwegian test bed as one of the major improvements of the S-101 ENC compared to the S-57 ENC. For Norwegian (and Nordic?) waters with heavy use of sector lights, this could very well become a selling point for the mariner to migrate to an S-100 ECDIS when it becomes available.

Action Required of S-101PT

The S-101PT is invited to:

- a. Note this paper
- b. Discuss the proposal and adjust if needed
- b. Agree to add this to the Portrayal Catalogue at the earliest opportunity