

Paper for Consideration by ENCWG4

Overscale area pattern behaviour in ECDIS

Submitted by:	Australia (AHO)
Executive Summary:	Australia's experience is that the use of the overscale area pattern in ECDIS does not align, in full, with all of the S-52 requirements.
Related Documents:	S-52, S-64
Related Projects:	S101PT

Introduction / Background

The use of the overscale area pattern AP(OVERSC01) has not been interpreted and implemented equally by all ECDIS manufacturers.

The AHO's interpretation of S-52 is that ECDIS should not show the overscale pattern in areas where a ship is navigating. Only the overscale indication should be shown in this scenario.

Another area of concern is the way different ECDIS manufacturers deal with the 'selective' display of the overscale area pattern AP(OVERSC01). In one instance, when the 'Chart scale boundary' layer option was switched off, the ECDIS turned both, the overscale area pattern AP(OVERSC01) and the 'chart scale boundary' LC(SCLBDY51), off simultaneously. On a different ECDIS only the 'Chart scale boundary' was turned off and the overscale area pattern was still visible. The first approach seems to be in line with S-52 because both lines' symbology are part of the same viewing group (21030 - Standard display) but the latter not. Furthermore, the second ECDIS will always display the overscale area pattern even if the display group is set to 'Base'.

Existing S-64 tests do not currently check ECDIS behaviour for any of these scenarios.

Based on all these ECDIS display inconsistencies, the AHO would like the NCWG to clarify what are the expected results for ECDIS in regards to the depiction of the overscale area pattern, especially in areas where only one ENC, covering the whole display area, is shown at more than 2 times its compilation scale.

Analysis/Discussion

S-52 PL 4.0.2 Part I states that:

- Note at the end of Section 10.1.10.1 'Overscale Indication' - *'If the display is compiled from more than one ENC of the same compilation scale, and if the mariner deliberately chooses to zoom in so that the display scale exceeds the compilation scale, then **only the "overscale indication" must be shown. The "overscale pattern" AP(OVERSC01) must not be shown.***
- 10.1.10.2 'Overscale Area at a Chart Scale Boundary' – 'Section 10.1.10.1 above dealt with overscale deliberately selected by the mariner. A different overscale situation arises when the ship approaches a scale boundary from a larger to a smaller scale ENC, typically when leaving harbour, as illustrated in the data coverage diagram below. In combining data from the large scale and the small scale ENCs to generate a display at the larger scale, the ECDIS will have "grossly enlarged" the small scale data to the left of the scale boundary on this figure.

In addition to drawing the scale boundaries, the "grossly overscale" part of the display must be identified with pattern AP(OVERSC01), as illustrated. Its display priority is 3; over-radar; standard display; viewing group 21030.

In this context, "grossly enlarged" and "grossly overscale" must be taken to mean that the display scale is enlarged/overscale by X2 or more with respect to the compilation scale. For example, at the left edge of Fig 5 the display scale of 1/12,500 is X4 the compilation scale of 1/50,000, and so the overscale pattern is required.

Note that in this situation the pattern AP(OVERSC01) must only be shown on the area compiled from the smaller scale ENC. **If the area from the larger scale ENC is also overscale, this must be indicated by the "overscale indication". The pattern AP(OVERSC01) must not be shown on the part of the display taken from the larger scale ENC.** For example if the display scale of the situation in the

data coverage diagram was 1/3,500 the area of compilation scale 1/12,500 would have an overscale indication of X 3.6 but would have no pattern AP(OVERSC01).

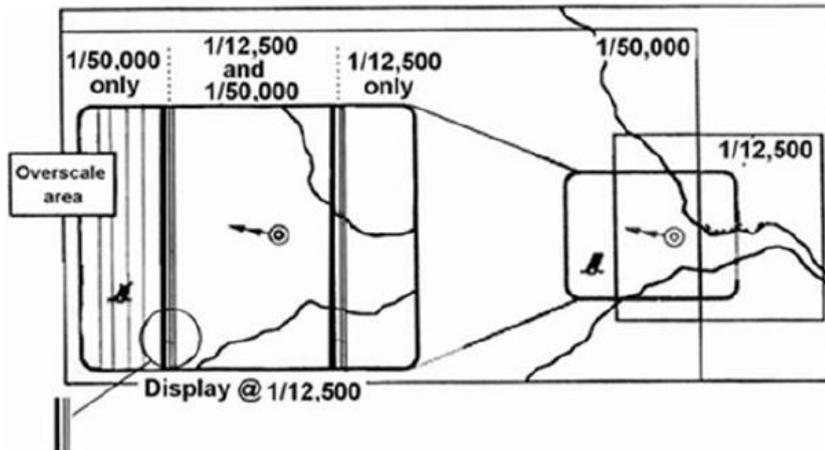


Fig 5. Data Coverage Diagram

S-52 Ed 6.1.1 states that:

- 3.2.3 (8b) 'Overscale area at scale boundary' – 'The smaller scale data will normally be enlarged to match the larger scale ENC, and in this case the "overscale area" symbol should be used to identify any part of the chart display shown at two or more times the compilation scale. *Note that this symbol applies only to the automatic overscaling performed by the ECDIS in matching ENCs at different compilation scales. It should not be applied to an overscale display deliberately requested by the mariner, which should trigger the overscale indication required by IMO Performance Standard section 6.1.1.'*

Symbol Name: AP(OVERSC01) RN: 461

Symbol Explanation: over scale part of a display containing data from more than one navigation purpose

Look up table aff

Pivot Point Column
Pivot Point Row:

Width of Boundary
Height of Boundary

Does this mean that the over scale pattern is not applicable when the display area is made of ENCs with the same navigational purpose (even if both had been grossly overscaled)? What happens if they have the same NPs but different compilation scales? Sometimes they have different NPs but the same comp. scale (e.g. in an M_CSCL object)!



Symbol Colours: CHGRD

Pattern Type: Linear
Pattern Spacing: Constant

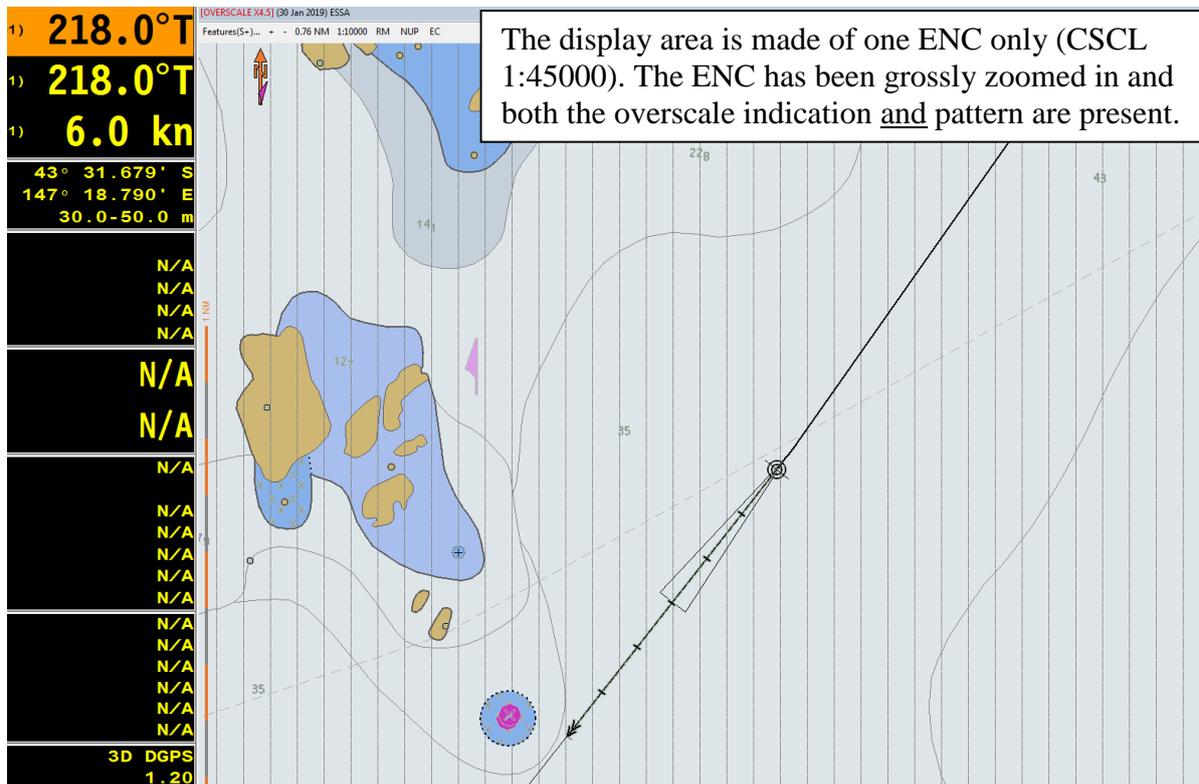
Minimum Distance: 0.00
Maximum Distance: 0.00

Comments: Line weight 0.3 mm

Examples on ENC: N/A

References:

S57	INT 1
M_CSCL	Not specified



Conclusions

The AHO is of the opinion that the intention of the existing S-52 guidance regarding the use of the overscale area pattern AP(OVERSC01) is to avoid creating additional clutter in the area where a ship is navigating. This means that if the mariner decides to over zoom the ENC that the ship is using for navigation, the overscale indication should be displayed only.

Recommendations

- Discuss the topic and clarify what are the expectations regarding the use of the overscale pattern in areas grossly overscaled (X2 or more) and containing the position of the ship. Do we expect ECDIS to display the overscale indication and area pattern or just the overscale indication?
- If the answer is that only the overscale pattern should be displayed then this expectation has to be clearly expressed in in the document (S-52).
- Decide whether the overscale pattern can be turned off or not. If not, should it be part of the Base display like the 'non-HO data boundary' LC(NONHODAT) - viewing group 11060?

Justification and Impacts

ECDIS must have a standard way of warning mariners about overscaling. Current wording in S-52 seems not to be in line with what several ECDIS manufacturers have been implementing. This may generate confusion to mariners when changing ships and does not help with the provision of generic ECDIS training.

Action Required of ENCWG

The ENCWG is invited to:

- a) discuss the topic,
- b) decide on the expected ECDIS behaviour regarding overscale warnings,
- c) make changes to S-52 to unambiguously convey this information to OEMs and
- d) create a new S-64 test to ensure an standardize ECDIS performance.