

GUIDELINES ON ASSESSING AND ELIMINATING THE RISK OF OVERLAPPING ENC CELLS

Submitted by UK

Introduction

1. IHO standards specifically prohibit overlaps of data within ENCs of the same navigational purpose / usage band (S57 Appendix B1 2.2). Consequently, ECDIS manufacturers are given no formal guidance by any of the standards, test datasets or the type approval process which specifies how their systems should behave when overlapping data is encountered.
2. It is clear that a number of overlaps currently exist within the WEND database. There are examples where one producer nation has produced two ENCs which overlap each other and these overlaps should be easy to eliminate. Other overlaps simply require a technical arrangement between two different producer nations to eliminate the overlap between their cells. There are also examples of overlaps the cause of which may be more geopolitical in nature and consequently may be more difficult to eliminate. However, even in these cases, attempts should be made by producer nations to reduce any risks to mariners resulting from overlapping data. These notes have been prepared to help in the process of assessing and eliminating the risks of overlapping ENC cells.

ECDIS Behaviour

3. Although ECDIS behaviour varies considerably, most systems seem to deal with an overlap in one of three ways:
 - a. Both of the overlapping cells are shown. This frequently occurs. Features from both cells covering the overlapping area are shown on screen, often with slightly different positions (particularly for area-centred symbols and where there are contour or coastline differences). This usually results in a very cluttered, unclear and unhelpful view for the end user.
 - b. Only one of the overlapping cells is shown. The selection is based on the ECDIS' own algorithm for display and this is often based on the compilation scale of the overlapping ENCs.
 - c. One or both cells appear but features from the overlapping ENCs appear and disappear as the display is panned and zoomed.
4. The largest scale data available within the SENC for the area should be used by the ECDIS for alarms and indications.
5. The main risk, therefore, is that the user of the ECDIS will be unable to navigate effectively because of screen clutter, omitted data or anomalous display behaviour. Discussions have been held about the possibility of the ENC / ECDIS display standard being altered to specify ECDIS behaviour for overlapping data but the main concern is that it would be condoning a practice by ENC producers which is prohibited by IHO standards.

Criteria for Assessing the Risk

6. The severity of risk presented by any overlap is likely to depend on the following factors:
 - a. The geographical location of the overlap (port approaches worse than deep water) and shipping density in that area (many ships worse than few).
 - b. The size of the area of overlapping data (large is worse than small).
 - c. The scale of the overlapping cells (large scale probably worse than small scale but the quality of the different scales is also a factor as some ECDIS display the larger scale automatically where overlaps occur).

- d. Shipping route patterns - the direction that ships usually transit through the area covered by the overlapping data (where there is a large north to south overlap it would potentially present a greater risk where ships are normally heading north or south than where they are normally heading east or west).
- e. Differences in the overlapping data – relating to positions of the same feature and also the existence or non-existence of features (many worse than few).

Procedures for Addressing the Risk

- 7. The following procedures are suggested to accelerate the task of eliminating overlaps and reducing the risks presented by them:
 - a. Producer nations which have overlaps within their own coverage should, as soon as possible, crop the cells to eliminate the overlap.
 - b. Where possible, producer nations which have overlaps with another nation's coverage should take the initiative in discussing arrangements with the other nation for cropping either or both cells to eliminate the overlap. Agreeing an exchange of data may be helpful to facilitate such cropping.
 - c. Where eliminating overlaps is not possible, producer nations should nonetheless examine the data within the areas of overlap with a view to ensuring, wherever possible, that the data is the same. In prioritising this work, account should be taken of the criteria in paragraph 6. Agreeing an exchange of data may be helpful to facilitate the comparison.
- 8. Regional Hydrographic Commissions (RHCs) and Regional ENC Coordinating Centres (RENCs) have a role in facilitating and monitoring this work.