

## CHANGE HISTORY

Issue	Date	Summary of Change
3	02/11/17	Version agreed by Steering Committee
4	01/10/22	Updated to reflect experiences gained and evolution of ECDIS performance, and Member comments, discussed at Steering Committee 23 and endorsed by SC vote (CL2022/18 and 20). Process descriptions removed from this policy document.

## CURRENT POLICY (FROM 01/10/2022)

IC-ENC will consider each case of overlapping ENC coverage individually, following the principles of this policy. For the purposes of this policy, ENC data is considered to be overlapping if the data coverage (M\_COVR object with attribute value CATCOV=1) of two or more cells of the same compilation scale and / or navigational purpose covers the same geographical location, and is larger than 5m in width (as measured 'on the ground').

IC-ENC will assess each instance, reaching a conclusion of:

- HO Must Correct:** If the ENCs have been created by the same Producing Authority, or if the ENC have been created by differing Producing Authorities and the overall Impact Assessment has been classified as High (see Annex A)
- HO Should Correct:** If the ENCs have been created by differing Producing Authorities and the overall Impact Assessment has been classified as Medium or Low (see Annex A)
- Accept:** If the overlap is less than 5m wide along agreed adjoining national data limits, or over land.

When a new cell or a new edition is received for validation a test for overlapping data with existing data will be performed. Where overlapping data is identified, it will be assessed by IC-ENC to provide an indication of the potential impact on the user (see Annex A).

The following policies will apply:

1. If the overlapping data is from the same producer, this will be an "HO must correct" issue (i.e. expected to be resolved before release). Note, if an established ENC Producer joins IC-ENC and its own data contains overlapping ENCs, the folio may be released by IC-ENC, with a defined plan for the Producer to resolve its internal overlaps, prioritised by IC-ENC's assessment. This is because the overlapping data is already in use, and including it this way, subject to this IC-ENC policy, will bring increased visibility and resolution effort to these cases.
2. If the overlap is between two different producers, and both members of IC-ENC:
  - 2.1 If this resolution is expected to be swift (up to one month), the overlap will be considered "HO Must Correct" and resolved by the Producers before the new ENC is distributed by IC-ENC.
  - 2.2 If the resolution is expected to be delayed (longer than one month):
    - o IC-ENC will conduct an impact assessment of the content within the area of overlap, reporting results to both Producers, an evaluation will be made of the estimated time for a successful resolution of the overlap.
    - o The Producers will aim to resolve the overlap before release. If this is not possible, reduce, as far as possible, any negative impact on the user resulting from variation in the charting of the same geographic area.
    - o IC-ENC will facilitate this, e.g. by coordinating the exchange of data, following which IC-ENC distribute the new ENC (see Step 5).

3. If the overlap is between two different producers, a member of IC-ENC and a member of another RENC:  
As step 2, but IC-ENC's liaison will be with its Member and with the other RENC.

4. If the overlap is between two different producers, a member of IC-ENC and a non-RENC nation  
As step 2, but IC-ENC's liaison will be with its Member and with the other nation.

IC-ENC members agree the need to respond to IC-ENC's emails/questions/comments etc within 10 working days of receipt.

Steps 1 – 4 are activities conducted before an ENC is issued to Value Added resellers. If, after these steps have been followed, the ENC Producer instructs IC-ENC to issue its ENC under the specific direction of the Producer, IC-ENC will follow Step 5:

5. When IC-ENC issues a new ENC that creates overlapping coverage (or another party releases a new ENC that overlaps with an existing ENC in the IC-ENC folio), this will be tracked by IC-ENC. This information is then available to:

- IHO WENDWG Chair (annually, to inform the ENC coverage report)
- RHC Chairs and ENC Co-ordinators as required, to support regional ENC dialogue (source of contact: [https://www.iho.int/iho\\_pubs/standard/S-11/Regional\\_INT\\_Chart\\_Coordinators.pdf](https://www.iho.int/iho_pubs/standard/S-11/Regional_INT_Chart_Coordinators.pdf)).
- IHO-S as required (info@iho.int)

For the avoidance of doubt, IC-ENC will not make an assessment of the production responsibilities or sovereign rights of a member to produce and issue the ENCs IC-ENC receives from it. As described above, all instances of overlapping ENCs will be the result of specific instruction from, and at the responsibility of, the Producer.

## JUSTIFICATION

Overlapping data between cells within the same usage band is not allowed. ENC Product Specification paragraph 2.2 states: *“Cells with the same navigational purpose may overlap. However, data within the cells must not overlap. Therefore, in the area of overlap only one cell may contain data, all other cells must have a meta object M\_COVR with CATCOV = 2 covering the overlap area. This rule applies even if several producers are involved.”*

IHB Circular Letter 47/2004 dated 5 July 2004 states: *“There must be no overlapping data between cells of the same navigational purpose (see S-57, Appendix B.1 clause 2.2), except at national boundaries, where, if it is difficult to achieve a perfect join, a 5 metre overlapping buffer zone may be used.”*

Research identified that overlapping data causes serious problems for users of certain ECDIS which display both overlapping cells, and IC-ENC's approach to overlapping ENC's was previously based on a risk assessment accounting for a range of factors. The policy has evolved to consider the impact on the user as a result of improvements in ECDIS performance for overlapping ENC's – there is now greater consistency in these cases.

The ECDIS Presentation Library has been updated and effectively promulgated to all ECDIS users, such that now, in the case of overlapping ENC's, one of the ENC's will be selected for display. This successfully mitigates the previous potential impact of display issues such as repeated content etc. The safety problem that the two ENC's might show different navigational content (and which one is “right”?) remains, and it is noted that there is no defined decision criteria regarding which of the two ENC's will be chosen for display by the ECDIS algorithm.

Noting that overlapping data is often the result of political considerations and not technical policies, resolution times can be long and/or indefinite. The IC-ENC policy assesses the potential impact on the user, and the process limits this as far as possible by making release of overlapping ENC's the last resort.

IC-ENC offers production advice, support and a quality assurance service to its members only, its remit is not to assess, define or comment on national jurisdiction and areas of production responsibility. IC-ENC is not placed to offer arbitration between parties with differences based on political considerations. Its members work in collaboration with each other and so IC-ENC must accept that all ENC's it receives have been produced in good faith.

IC-ENC collates, maintains and communicates information about overlaps to:

- VARs (so that they are informed of all new overlapping data in the IC-ENC folio at the same time it is delivered to them)
- WENDWG Chair (so the IHO can be responsive to IMO requests for information and assessment on progress with adequate ENC coverage and other charting matters)
- RHCs & IHO-S if required (to assist these bodies with ENC issues, schemas etc)

The main elements of the policy v3 were the result of collating member feedback from IC-ENC Circular Letter 2014\_14, and builds on IRCC endorsed WENDWG approach to processing overlaps (IHO IRCC6 – Decision 15 refers). For further information see IC-ENC Papers produced for Steering Committee 15 (papers SC15.8.1a-d).

Further practical enhancements to the policy, based on IC-ENC lessons learned, were approved at Steering Committee 16. Refinement of policy made following internal audit of process November 2016. Version 4 of the policy is the result of a IC-ENC experiences, Steering Committee dialogue, and IHO-based dialogue particularly via the WENDWG and in particular IHO Resolution 1/2018. The evolution of the ECDIS performance, and discussions at Steering Committee 22, have specifically prompted an update in 2022 through dialogue with the Steering Committee (see Circular Letter 2022/02) and endorsed at meeting SC23 in July 2022.

## CONTROL MECHANISM

Visual Assessment check – ICE-WP2 refers. Data Manager is responsible for implementing the policy in a consistent manner.

**CONTROL MECHANISM TESTED:** Regularly through validations/validator competence assessment framework.

**LAST REVIEWED DATE**

September 2022

**NEXT REVIEW DUE**

September 2024

**FUTURE POLICY UNDER CONSIDERATION**

Consideration will need to be made to overlapping S-101 ENC's and other S-1XX products.

Consideration will need to be made to the future performance of S-100 ECDIS.

The following comment was received from an IC-ENC Member, and this input will be considered as we learn more through experience of applying the new policy:

- "We reiterate our comments to the draft IC-ENC Overlapping ENC policy (version 4) in our response to CL 02/2022. We disagree with the deletion of para 4 Annex A, it should be kept as it was or insert it into the new table of criteria.

The seven criteria that formerly classified potential impact of overlapping (low, medium, high) have been summarized into a table, which covers all the deleted items except for para 4, which established the criteria of the size of the overlapping as a percentage: low up to 20%, medium 30-40-50%; high over 50%. Although the text states that acceptable overlapping is under 5 meter wide or on land, deleting para 4 creates ambiguity and potentially major conflicts. As stated in the text, current ECDIS allow users to select which ENC to display wherever there is overlapping. However, when two ENC's overlap the user faces the issue of determining which is the correct ENC, lacking reliable criteria. Consequently, we think that Annex A para 4 should not be removed, or alternatively insert it into the new table classifying overlapping."

**FUTURE PROCESS IMPROVEMENT UNDER CONSIDERATION**

Inclusion of QGIS and AIS information to refine impact assessment process

Improved reporting functionality (e.g. continually available master file, rather than distribution by periodic email).

## ANNEX A CRITERIA FOR ASSESSING THE IMPACT

The severity of the potential impact on the ECDIS navigator by any overlap will be made by an impact assessment of the (mis)alignment of navigationally significant content.

**Differences in the overlapping data relating to the positions of features and the existence/non-existence of features (point, line and area objects),** i.e. many worse than few.

When making an impact assessment, the consistency of data content within the area of overlap will be used to determine the potential impact. The IC-ENC Validation Team will use the same judgement criteria for assessing this as that used when conducting vertical consistency checks between two Usage Bands, using the processes and guidance described in document IC-ENC WP-02, including the list of priority objects. The same method of categorising errors used in ENC Validation will be used to make an assessment of the severity of any inconsistencies.

The table below is for guidance, noting that it is not pragmatic to attempt to define a policy that caters for every conceivable scenario. IC-ENC Validators will use their experience to assess each case, under the guidance in the base cell validation document (WP-02). The rationale for the impact conclusion will be recorded and be available to stakeholders.

Overlap impact assessment	Comments
Low	<p>The overlapping data content is sufficiently aligned to support safe navigation if either of the ENC's is chosen for display by the ECDIS algorithm. In other words, the data is mostly consistent between the two cells, with only minor (if any) misalignment between (any) significant content.</p> <p>Both HOs should continue to work towards resolving these. The justification for HOs to resolve 'Low' overlaps is to prevent the chance of content becoming misaligned in the future.</p> <p>Notes: An Overview (Band 1) case will always be 'Low' noting the purpose of the ENC (planning). If the overlap is over land, this will be 'Low', as impact on the user is negligible.</p>
Medium	<p>The overlapping data content contains some inconsistencies which have the potential to impact negatively on the user and safe navigation.</p> <p>There may be several objects captured inconsistently or missing from either cell which require correction as soon as practicable, e.g. caution areas, submarine cables, pipelines, lights, buoys, beacons.</p> <p>i.e. If the same inconsistency of data was identified during IC-ENC's vertical consistency check between two cells in neighbouring usage bands, the validation categorisation would be: HO SHOULD CORRECT</p> <p>IC-ENC will track the resolution of the overlap to its conclusion. Both HOs should continue to work towards resolving these cases.</p>
High	<p>The overlapping data content presents a definite negative impact on the user and undermines the safety of navigation.</p> <p>There may be important objects captured inconsistently or missing from either cell which require immediate action, e.g. Traffic Separation Schemes, wrecks, depth contours, depth areas, missing obstructions in critical locations relevant to chart purpose</p>

i.e. If the same inconsistency of data was identified during IC-ENC's vertical consistency check between two cells in neighbouring usage bands, the validation categorisation would be: HO MUST CORRECT

IC-ENC will proactively track and facilitate resolution of the overlap to its conclusion. IC-ENC will issue such warnings as it thinks fit in the circumstances of the case, and shall bring such warnings to the attention of relevant stakeholders.