



S-101PT6

Quality of horizontal measurement in S-101

Presented by: France

Agenda Item 14
Action S-101PT5-01

S-101PT6 VTC, 23-24 February 2021



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BACKGROUND

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- S-100WG1 (2016, Tokyo) Australia proposed to replace the use of quality of horizontal measurement = 4 (approximate) by value 5 (inadequately surveyed) on “approximate contours”.
- Output: Action S-101PT1 3.2A to prepare a paper to “clarify the use of attribute *quality of horizontal measurement* on DEPCNT at the next DQWG meeting.
- Paper DQWG12-04.7A was submitted by France at DQWG12, pointing out the inconsistency of the current values allowable for this attribute, and suggesting that the DQWG would undertake a review of *quality of horizontal measurement* attribute values.
- A no feedback has been received from the DQWG, this paper proposes changes to the S-101 Feature Catalogue and DCEG.



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DISCUSSION

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- “Approximate” is a well familiar term in IHO charting standards (S-4 / INT1).
- S-57 UOC: spatial attribute *QUAPOS* is normally used with value 4 (approximate) on the geometry (edges) of depth contours in areas where bathymetric data do not allow to draw them precisely.
- *QUAPOS* (generally with values 4 and 5) is also used in S-57 on other individual objects (ex: WRECKS, SOUNDG) to indicate that the position of the object is not precisely known).
- Other values can be used...but:

What is needed / useful to the mariner?

What is implemented by the ECDIS?



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WHAT IS NEEDED / USEFUL TO THE MARINER?

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- Allowable values for *quality of horizontal measurement* in the current DCEG:
 - 1: surveyed
 - 2: unsurveyed
 - 3: inadequately surveyed
 - 4: approximate
 - 5: position doubtful
 - 6: unreliable
 - 9: estimated
 - 10: precisely known
 - 11: calculated
- Values 1, 2 and 3 do not relate to the quality of the measurement but to the global quality of bathymetry in the area (note that “inadequately surveyed” is also value 10 of attribute *survey type*. It is proposed to remove these values.
- Value 6 has about the same meaning than 4 and 5. It is proposed to remove this value.
- Values 9, 10 and 11 bring no useful information or/and are subjective. It is proposed to remove these values.


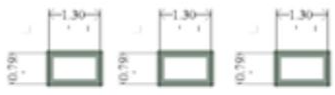



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WHAT IS IMPLEMENTED BY THE ECDIS?

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- *quality of horizontal measurement* provides a qualitative information on the position/geometry of an object. In S-52, when QUAPOS is encoded with values different than 1, 10 and 11, the following symbology is displayed:

		
SOUNDSC2/SOUNDGC2	LOWACCnn	LOWACC01

- In S-101, DF (and post DF):
 - ECDIS functionalities allowing generation of horizontal safety margins calculated on *horizontal position uncertainty* (quantitative information on the position).
 - Population of quantitative attribute must be privileged to qualitative.
 - The use of *quality of horizontal measurement* by the ECDIS will be very limited.
- This is in favour of reducing allowable values for *quality of horizontal measurement*.
- Alternative (radical) solution: Boolean attribute *unreliable* in place of quality of horizontal measurement. But this needs to be investigated as regards to potential effects on other S-10X PS.



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RECOMMENDATIONS

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It is proposed to:

- Reduce the allowable values for quality of horizontal measurement to:
 - 4: approximate
 - 5: position doubtful

This implies changes to the S-101 Feature Catalogue, DCEG, and S-101 Portrayal Catalogue.
- Consider, after a testing period (between S-101 edition 1.0.1 and 1.1.0), whether all other S-1XX products could share this data model, in which case, the IHO registry could be aligned to reflect these changes (it may be worth waiting for testing before suggesting changes in the Registry).
- Consider additional guidance in S-4 to draw the attention of HOs on the importance of populating quantitative rather than qualitative attributes in their data bases, and on the implications in terms of ECDIS functionalities.
- Consider a proposal to the NCWG to merge the notions of approximate and position doubtful, as the difference is questionable in terms of navigation, for nowhere is it written that one would be “less precise” than the other.
- Consider the possibility (and implications) of a Boolean attribute “unreliable” that would replace *quality of horizontal measurement*.



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ACTIONS REQUESTED FROM THE S-101 PROJECT TEAM

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1. Note this paper.
2. Discuss the recommendations.
3. Take any necessary action.