

6th CSPCWG MEETING
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Paper for Consideration by CSPCWG

Virtual AIS Aids to Navigation Symbolology for Paper Charts

Submitted by:	Australia (Jeff Wootton)
Executive Summary:	Discussions are taking place in various fora regarding symbolology for virtual AIS aids to navigation where the message being broadcast serves a specific navigational purpose (e.g. lateral, cardinal, isolated danger).
Related Documents:	CSPCWG6-INF1 (zip file)
Related Projects:	S-4 and INT1 development

Introduction / Background

The establishment of AIS as aids to navigation is gaining momentum, and discussions have been taking place in various organisations, including IMO and IALA, regarding symbolology on navigational products for AIS aids to navigation. Most of these discussions to date have centred on portrayal in ECDIS, but increasingly the issue of the portrayal of AIS aids to navigation on paper charts is being raised. Although CSPCWG has already agreed to symbols for AIS aids to navigation, the issue of symbolising Virtual AIS aids to navigation that serve a specific navigational purpose has not yet been addressed. This paper discusses the requirement to depict such AIS aids to navigation that are of a semi-permanent or permanent nature. Whether or not to depict AIS aids to navigation of a short term or temporary nature will not be discussed in this paper.

Analysis / Discussion

CSPCWG agreed to basic symbolology for AIS aids to navigation during CSPCWG5 in Sydney in 2008. The revised section of S-4 (B-489.1) is currently subject to IHO stakeholder feedback (IHO CL 55/2009), and assuming that this review is approved, the new edition of S-4 will implement this new symbolology and INT1 will be amended accordingly. From an ENC perspective, the recommended policy is not to show AIS aid to navigation information in ENC (ENC Encoding Bulletin No. 17) as ECDIS is intended for use in integrated bridge systems, on which AIS targets will be overlaid on the ENC (symbolology already exists for these AIS targets).

AIS aids to navigation exist in three forms – Real (physical), Synthetic (monitored or predicted) and Virtual. A full description of these types of AIS aids to navigation can be found in IALA_guidelines_no_1062_AIS_AtoN (included with CSPCWG6 papers). Real and Synthetic AIS aids to navigation are associated with actual physical navigation aids (buoys or beacons), and paper chart symbolology for these types of AIS aids to navigation is considered to be straight forward – the magenta radio circle with the legend “AIS” (in upright or italic text) is centred on the physical charted aid to navigation (buoy or beacon symbol). If the message being broadcast for the AIS aid to navigation indicates a specific navigational purpose (e.g. lateral, cardinal, isolated danger), this is implied on the paper chart by the symbolology for the physical aid. A paper submitted by Japan to the IMO Maritime Safety Committee at its 86th session (included with CSPCWG6 papers) suggests such symbolology for Real AIS aids to navigation which agrees with the above, but Synthetic AIS aids to navigation are not included in this paper.

A Virtual AIS aid to navigation is not associated with any physical feature. For this reason the CSPCWG approved symbol for a virtual AIS aid to navigation is a magenta position circle (INT1 – B22) with the magenta radio circle, and annotated “AIS”. The issue with this symbol on the paper chart is that if the message being broadcast for the Virtual AIS aid to navigation indicates a specific navigational purpose (e.g. lateral, cardinal, isolated danger) this is not implied in this symbol. The Japanese paper suggests

paper chart symbology similar to the symbol for a Real AIS aid to navigation, the difference being that the radio circle is a dashed line. The issues with this symbology are:

- Too much similarity with the symbol for a Real AIS aid to navigation; and
- The black symbol for the identifying characteristic of the aid implies the existence of a physical feature (S-4 – B-141). This may confuse the mariner as he would expect to see a physical aid to navigation at the charted position.

One of the main defining characteristics of a physical aid to navigation in the IALA Maritime Buoyage System is the topmark, and the colour associated with the topmark. In order to keep the symbology for a Virtual AIS aid to navigation serving a specific navigational purpose simple, and imply that there is no physical feature at the position of the aid, it is suggested that the CSPCWG approved symbol (INT1 – S17.1) be used, with the appropriate IALA Maritime Buoyage System topmark symbol in magenta positioned on top of the small magenta position circle. If considered necessary, the relevant IALA Maritime Buoyage System colour abbreviation consistent with the purpose of the aid, in magenta, may be positioned below the position circle.

Recommendations

It is recommended that CSPCWG endorse the above suggestion for the encoding of Virtual AIS aids to navigation serving a specific navigational purpose. If endorsed, an additional paragraph and related symbols should be inserted at B-489.1, and additional examples of these symbols included at INT1. The location of these symbols will need to be determined, but it is suggested that they be included at a new S18.

Justification and Impacts

The establishment of AIS aids to navigation, including Virtual AIS aids to navigation serving a specific navigational purpose, is quickly gaining momentum. Paper chart symbology for such aids is required so as to give the mariner a clear indication of the nature of the aid, without causing confusion with visual aids to navigation. If approved, Australia would be prepared to compile draft wording and symbols for S-4 with the assistance of the CSPCWG Secretary. The INT1 Sub-Working Group would be required to address any approved amendments to INT1.

Action required of CSPCWG

The CSPCWG is invited to:

- a. Consider this submission
- b. Determine, on the merit of the Recommendations above, appropriate action