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ORGANIZATION



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## CHART STANDARDIZATION & PAPER CHART WORKING GROUP (CSPCWG)

[A Working Group of the Hydrographic Services and Standards Committee (HSSC)]

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### CSPCWG Letter: 06/2010

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Date 22 March 2010

### To CSPCWG Members

Dear Colleagues,

### **Subject: CSPCWG6 Actions 14-16 (virtual AIS Aids to Navigation)**

This letter addresses CSPCWG6 Actions 14 to 16 and is intended to keep you informed of developments on the subject of virtual aids to navigation (AtoN).

Action 14 requires the Secretary and Vice Chairman to draft chart specifications for virtual AIS AtoN. This action has not yet been progressed, as we awaited news from the IALA workshop on the subject in January (Action 15, now time-expired, refers).

Action 16 required Michel Huet to provide CSPCWG with a report from the IALA workshop. Michel forwarded a [letter from IHB Director Robert Ward, which provided a report on the meeting](#), a draft IALA paper (Annex A to the IHB letter) and consequential comments by IHB on the CSPCWG6 report on this subject (Annex B to the IHB letter). The letter was sent to the Chairmen of CSPCWG, TSMAD and DIPWG. The IHB comments were scrutinised by UKHO experts and consequently returned to IHB with UKHO's responses (at Annex to this letter). IHB have reviewed these and confirmed that they are acceptable to them.

I have attached the original IHB letter with annexes to the covering email for your information. We are now in a position to progress Action 14, which will be the subject of a further letter in due course.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Peter G.B. Jones", with a date "5/3/10" written below it.

Peter G.B. Jones,  
Chairman

Annex: Comments on Annex B to IHB Letter S3/3103 of 3 Feb 2010

COMMENTS ON ANNEX B TO IHB LETTER S3/3103 OF 3 FEB 2010  
IMPLEMENTATION OF VIRTUAL AIDS TO NAVIGATION

**CSPCWG discussion** on symbolisation of Virtual AtoN (from CSPCWG6 Report, Dec 09)

**IHB comments** resulting from IHB participation in IALA VAtaN Workshop (Jan. 2010)

**UKHO response** to IHB comments (Feb 2010)

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The meeting reviewed the submissions from Japan, Sweden and Australia and came to the following conclusions for symbolization on paper charts:

- The position of the virtual AtoN should be identified by a small magenta position dot and surrounding diamond (the diamond shape connects to the existing AIS transmission symbol).

**IHB Comment:** It is correct that the diamond shape connects to AIS. However, a virtual AtoN may in the not too distant future be transmitted by means other than AIS, e.g. Loran C or satellite. Any symbol of virtual AtoN should therefore not refer to any specific carrier like AIS. As a result, the small magenta position dot is fine but the diamond shape is not appropriate.

**UKHO Response:** Agree IHB comment. Symbol to be a small position circle with centre dot.

- The generic 3mm diameter magenta 'radio circle' should be added, as with all AtoN utilising radio transmissions.

**IHB Comment:** There will not be any radio transmission from the virtual AtoN position. The magenta 'radio circle' is therefore not appropriate.

**UKHO Response:** The radio circle is a universally long-accepted symbol to highlight an aid consisting of a radio transmission, as opposed to a visible light (highlighted by a flare) or a sound signal (highlighted by the three magenta arcs INT1 R1). While it is true that in the case of a virtual (or synthetic) AtoN, the actual transmission does not emanate from the charted position, that is immaterial to the chart user, who perceives the transmission to be from that position. This has already been accepted for virtual AIS in S-4 B-489.1. UKHO believes that the radio circle should be retained:

- in accordance with B-489.1,
  - as indicating it is a radio signal based AtoN
  - to appropriately highlight the symbol cartographically on the chart
  - to distinguish it from ECDIS overlay symbols.
- The standard IALA topmarks should be used, attached directly to the top of the position diamond (**now circle**), as representing the purpose of the AtoN in an easily recognisable way. The size of the topmark should be as on buoys, but the colour should be magenta, in recognition of the non-physical nature of the virtual AtoN. (Exceptionally, the special 'X' topmark should be separated from the diamond by a short stem).

**IHB Comment:** This is fine.

- A colour abbreviation should not be included (as a virtual colour is not a real concept).

**IHB Comment:** This is fine.

- A short magenta identifying legend 'V-AIS' should be added adjacent to the radio circle.

**IHB Comment:** As said above, a virtual AtoN may be transmitted by means other than AIS and its symbology should therefore be disconnected from the carrier. Showing the legend 'AIS' is therefore not appropriate. It is suggested associating the 'V' letter, which clearly stands for 'virtual', to the magenta position dot and the IALA topmarks, e.g. by showing 'V' below the position dot. The "V" is also the way that virtual AtoNs will be distinguished in the navigation-related symbology adopted by IMO – thereby providing some consistency for mariners.

**UKHO Response:** e-LORAN is perhaps in doubt as an available carrier in the foreseeable future. Other carriers are possible, as listed in the IALA paper, although the IALA paper makes clear that is a long term alternative. In the short term, only AIS transmissions are likely. UKHO believes it is important that the user

is aware of which signal carrier will be used (and thus whether the signal will be received depending on the vessel's equipment fit) and therefore that 'AIS' should be retained. It also believes that it is useful to associate the 'V' with the carrier(s). Other abbreviation can be envisaged for the future, such as V-SAT, V-WiMAX. By putting the V under the dot/circle, further chart clutter at the point symbol will be introduced, reducing the clarity of the symbol and also making it more difficult to position accurately when other detail (eg the object being marked) is in the same position or close by.

IHB Comment: It is likely that Japan will submit a revised proposal for additional "navigation-related" symbols to describe VAtoNs at NAV56 in July 2010. On IMO/IEC symbols for AIS transmitted VAtoN, the predominant shape will continue to be a diamond, incorporating topmarks as appropriate. These symbols would therefore be clearly distinguishable from corresponding chart symbols, as being discussed by IHB/CSPCWG.

UKHO Response: Agree IHB comment. The use of the magenta radio circle (retained iaw discussion above) compared to the blue diamond will help to ensure there is a clear distinction.

- o All text should be upright, as this is not a floating AtoN and therefore not subject to drifting.

Comment: This is fine.

The Secretary has prepared the following examples:



There are still issues of how this should be portrayed in INT1 (eg by a few examples or a complete series), which may need to be inserted by NM. Also whether a special symbol would be needed if V-AIS AtoN are used as way points (effectively 'fairway buoys') or whether the safe water topmark would be appropriate. These should be resolved easily if/when IALA and IMO decide to proceed with such systems. The Secretary was tasked to draft a specification in anticipation. Captain Ward suggested that WG members should consider attending the IALA workshop in January or, alternatively, brief their national representatives.

IHB Comment: As a result of the IALA workshop, it is clear that there will now be a need to develop chart symbols for virtual AtoN used as way points or to mark safe water. In addition, it is possible that in the future areas and lines will in future be transmitted as virtual AtoNs. Chart symbols will therefore be required for these also.

UKHO Response: Propose that the top symbol in the examples shown above (amended to dot/circle in lieu of diamond) is adequate for use as waypoint/safe water, which are really synonymous.

It does not seem necessary to design symbols for virtual lines and areas until it is clear that there is a requirement. Also, it may be that any such features would be constructed through a combination of points.

There was no significant discussion about synthetic AIS AtoN. It is expected that the current symbols for real AIS AtoN will be used, although time may prove that some differentiation between 'monitored' and 'predicted' synthetic AtoN may be required.

IHB Comment: the synthetic AtoN concept is not relevant to virtual AtoN.

UKHO Response: It is relevant to the extent that a synthetic AtoN does not actually transmit from its apparent position, so any decision about the use of a radio circle applies equally to virtual and synthetic AtoN.

**ACTION 14: Secretary & Vice Chair** to draft a specification for S-4 for virtual AIS AtoN, ready for when approved versions are established.

A specification can only be drafted when the symbolization is agreed. It will probably include some statement that temporary and dynamic virtual AtoN cannot be charted. It is anticipated that many of these will be in VTS areas, and be part of the VTS service with details provided in associated publications (eg UKHO's ALRS Vol 2).

**ACTION 15: All WG members** to advise national representatives to IALA workshop on V-AIS (Paris late January 2010).

**ACTION 16:** M Huet to provide CSPCWG with a report from the IALA workshop on V-AIS

Received 3 Feb 2010.

**ACTION 17:** Vice Chair to advise DIPWG and TSMAD of the need to discuss V-AIS further at their next meeting.