

INTERNATIONAL HYDROGRAPHIC  
ORGANIZATION



ORGANISATION HYDROGRAPHIQUE  
INTERNATIONALE

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

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

Chairman: Peter JONES  
Secretary: Andrew HEATH-COLEMAN

UK Hydrographic Office  
Admiralty Way, Taunton, Somerset  
TA1 2DN, United Kingdom

### CSPCWG Letter: 05/2009

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Telephone:  
(Chairman) +44 (0) 1823 337900 ext 3020  
(Secretary) +44 (0) 1823 337900 ext 3656  
Facsimile: +44 (0) 1823 325823  
andrew.coleman@ukho.gov.uk

To CSPCWG Members

Date 14 May 2009

Dear Colleagues,

### **Subject: Draft revision of M-4 Section B-480 to B-499 – Round 2**

Thank you to 16 WG members who responded to CSPCWG Letter 02/2009, commenting on the draft revision of B-480 to B-499. Annex A shows how the members responded to the specific questions which were included as a response form, plus numerous additional comments. Andrew and I have worked our way through all the responses, reviewing all the comments and amending the draft as we believe to be appropriate. Our conclusions on the specific questions are noted on Annex A.

In addition to the above, many other points were raised. These can be found in the second part of Annex A, or in the original 'track change' version by AU (which you will have seen via 'reply to all' emails).

We have studied all suggestions carefully and arrived at what we believe to be the appropriate decision, taking account of all the members' responses. To respond individually to every suggestion would make this letter far too long, so if we have not made a change based on a suggestion which you still feel to be important, please ask for an explanation of our reasoning.

Please review all the changes in the 2nd draft (Annex C, sent separately). Where the change is significant, we have included a brief comment in the margin. There are also some more specific questions, which we have included on the response form at Annex B.

As usual, we show earlier changes and minor editorial corrections in blue, so please concentrate your examination on the new insertions and deletions labelled as made in April or May 2009.

**Please respond by 11 June 2009**, using the response form at Annex B. This will enable us to

maintain the very good progress made.

Yours sincerely,

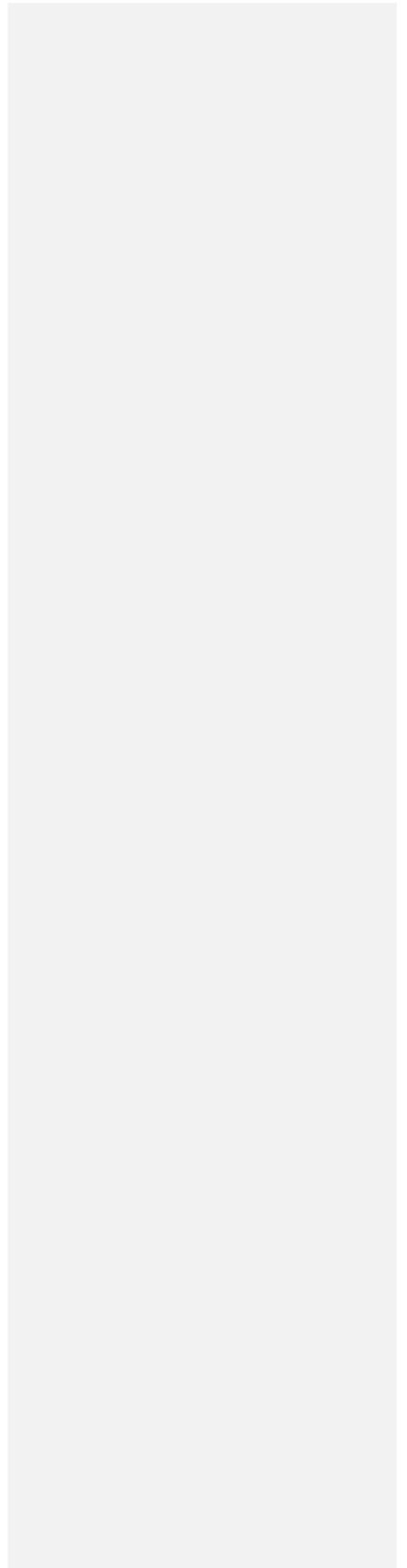
A handwritten signature in black ink, appearing to read "Peter G.B. Jones".

Peter G.B. Jones,  
Chairman

Annex A: Summary of responses to CSPCWG Letter 02/2009

Annex B: Response form

Annex C: 2<sup>nd</sup> draft revision of M-4 Section B-480 to B-499



**M-4 SECTION B-480 TO B-499 – ROUND 1****SUMMARY OF REPOSES TO CSPCWG LETTER 02/2009**

Specification	Question	Yes	No
B-480.2	Do you agree to delete the specification for Radio Calibration Stations, which we believe to be obsolete?	AU, CA, DE, ES, FI, FR, GR, JP, NL, NO, NZ, PK, SE, UA, UK, US, ZA	
B-481.3	Do you agree to delete the specification for Consol beacons, which we believe to be obsolete?	AU, CA, DE, ES, FI, FR, GR, JP, NL, NO, NZ, PK, SE, UA, UK, US, ZA	
B-485.1	a. Do coast radar stations (Ra) still exist? <b>AU:</b> Our Nautical Assessment Officer, on enquiring on this, stated that some Australian ports have their own radar stations, but they are not known as “coast radar stations” and are not depicted on our charts. If this symbol is no longer required, INT1 Sub-WG will also need to note that symbol S1 will need to be marked as obsolescent. <b>NZ:</b> We are not aware of any coast radar stations in New Zealand.	DE, ES, FR, PK, UA	AU, CA, FI, GR, JP, NL, NO, NZ, SE, US, ZA
	b. If yes, should they still be charted? <b>Chairman:</b> sufficient WG members advise that such stations still exist to retain the symbol.	ES, FR, PK, UA	DE, UK
	c. If yes, how does the mariner make contact, if the radio contact details are not available? (Please provide answers below): <b>ES:</b> Mariners make contact over the MMS (Maritime Mobile Service) 16 call-channel. <b>FR:</b> The details to make contact are given at least by sailing directions. <b>PK:</b> Channel 16 <b>UA:</b> Communication in VHF range is used (for Ukraine – channel 16)	ES, FR, PK, UA	

Specification	Question	Yes	No
B-487.3	<p>Should the abbreviation Ra (for Radar) be used in black, as it is in magenta?</p> <p><b>AU:</b> see comment below</p> <p><b>DE:</b> concur with AU</p> <p><b>ES:</b> The change of this abbreviation from magenta into black is not consistent with para B-142.1, which specifies the use of magenta for this abbreviation.</p> <p><b>FR:</b> The use of the abbreviation Ra (in magenta) should be limited to those stations which are considered as Coast Radar Station. This abbreviation should be only used for a function.</p> <p><b>NZ:</b> We agree with USA comment.</p> <p><b>US:</b> Use the abbreviation when there is not enough room to chart the word Radar.</p> <p><b>ZA:</b> For consistency, retain in magenta. Also see B-142.1.</p> <p><b>Chairman:</b> no consensus to change.</p>	CA, FI, GR, JP, NZ, PK, SE, UK	AU, DE, ES, FR, NL, UA, US, ZA
B-491.1	<p>Do you agree to standardize on use of the term 'Boarding place' for pilot stations, and remove 'Meeting place' as an alternative?</p> <p>(INT1 has just 'boarding place')</p> <p><b>CA:</b> Prefer 'Boarding Station'</p> <p><b>US:</b> "Meeting place" infers that both boarding and disembarking take place at the pilot station (as is often the case). "Boarding place" infers that disembarking does not occur at this station; only boarding. Use "Boarding" if disembarking does not occur.</p> <p><b>Chairman:</b> Neither term is really appropriate for disembarking, but separate disembarking points should not usually be charted (as the pilot will tell the master where he wishes to disembark). The clear consensus is for 'boarding place'.</p>	AU, CA, DE, ES, FI, FR, GR, JP, NL, NO, NZ, PK, SE, UA, UK, ZA	US
B-491.3	<p>Do you agree to delete specification B-491.3 and make symbol T2 obsolescent?</p> <p>(We think it is unlikely that pilot station still maintain visual lookouts).</p>	AU, CA, DE, ES, FI, FR, GR, JP, NL, NO, NZ, PK, SE, UA, UK, US, ZA	

Specification	Question	Yes	No
B-491.1	<p>CSC records show that the scale 1:1 000 000 was considered by US and CA to be too small. Do you agree that the coastal navigation scale 1:350 000 (see B-126) is more appropriate? (We have moved the former guidance from B-491.6 to the beginning of the section at B-491.1, where it seems more useful).</p> <p><b>FR:</b> from time to time, there is no chart between 1:750 000 or 1:1 M and the largest scales charts (see GB158 in Red Sea, for Port Soudan for example). It could be necessary to make also reference to landfall charts. I suggest the following sentence “The symbol should be shown on the landfall chart available and all appropriate charts larger than this chart.</p> <p>If this remark is to be taken into account, the forth line of B491.5 should be amended as follow “On smaller scale coastal charts and landfall charts on which inshore detail ....”</p> <p><b>NL:</b> also insert this symbol on the smaller scale charts of 1:375 000 and 1:750 000.</p> <p><b>NO:</b> shows symbols for pilot boarding place in smaller scales, but will now take action to remove the symbols from the smallest scales.</p> <p><b>NZ:</b> We think the coastal navigation small scale limit should be 1:400 000. This is because our coastal navigation series are at scales 1:100 000, 1:200 000, 1:300 000 and 1:400 000.</p> <p><b>Chairman:</b> wording adjusted to allow more latitude.</p>	<p>AU, CA, DE, ES, FI, GR, JP, NO, PK, SE, UA, UK, US, ZA</p>	<p>FR, NL, NZ</p>

Specification	Question	Yes	No
B-495.1	<p>If a signal station's lights also serve as navigational lights (eg a leading light), should the position circle be replaced by a light star (as it always has been for bridge lights, see B-495.3)?</p> <p>(If yes, how should the characteristic of the light be charted, given that it may vary between eg 3F.R(vert) and 2F.G(vert). Please include suggestions below).</p> <p><b>AU:</b> Signal stations being part of a leading line is not a situation that is normal in AU. But, if the signal station lights themselves perform the function of the leading light, AU would leave the appropriate legend e.g. "SS (Traffic)". If, however, there was a separate light performing the function of the leading light at the position, AU would have this light description first and add e.g. "&amp; SS (Traffic)".</p> <p><b>CA:</b> these are not applicable in Canada but if they are to be charted elsewhere I believe the position circle should be replaced with a light star.</p> <p><b>FR:</b> We wonder if we need to chart the characteristic of signal station's lights considering that 'SS (Traffic)' is charted. This legend and the light star symbol are sufficient to characterize the light. <b>Chairman:</b> Agree. A light description should only be charted if there is a separate light at the same location.</p> <p><b>GR:</b> suggests that signal station's lights serving also as navigational lights should be charted in a similar way as bridge lights serving also as traffic lights are (see B-495.3). In particular they should be charted as light stars, but they should carry the legend "SS(Traffic)" as well. For example:</p> <p>⚓ 3F.R(vert) SS(Traffic)</p> <p><b>NZ:</b> Regarding charting the characteristic of signal station lights – the variances in these lights is so great that it may not be possible to provide specific guidance in M4. Perhaps give some examples of how certain characteristics are charted by some nations.</p> <p><b>US:</b> In complicated situations, a label such as (see note C) might be necessary.</p> <p><b>ZA:</b> No alternative suggestion. Both examples are acceptable.</p> <p><b>Chairman:</b> Text reorganized to clarify, additional cross reference inserted at B-494.</p>	<p>AU, CA, DE, ES, FI, FR, GR, JP, NL, NO, NZ, PK, SE, UA, UK, US, ZA</p>	

Specification	Question	Yes	No
B-495.3	<p>Do you agree that the legend ‘Traffic Sig’ at bridge lights which also serve as traffic signals is an unnecessary complication and using ‘SS(Traffic)’ under the light description is clear? (If yes, T25 would become obsolescent).</p> <p><b>GR:</b> Please clarify which “T25” you are referring to, since in the existing specifications only “T25.1” and “T25.2” exist. <b>Chairman:</b> T25.2 will be obsolescent. T25.1 will be retained; these are used for the warning lights above and below an opening bridge (similar to lock lights), rather than the lights actually on the bridge marking the spans.</p> <p><b>US:</b> “SS(Traffic) may conform to the other signals in this section, but is not as intuitive as “Traffic Sig”, especially in regions where charted signal stations (SS) are rare, such as the U.S.</p>	AU, CA, DE, ES, FI, FR, GR, JP, NL, NO, NZ, PK, SE, UA, UK, ZA	US
B-497.1	<p>Do you agree to delete the specification for SS(Weather)? (We believe they are obsolete).</p> <p><b>FR:</b> See comment below.</p> <p><b>GR:</b> The word “Weather” should also be deleted from the title.</p> <p><b>Chairman:</b> UA and FR consider these still exist, therefore the symbol will be retained (if rarely used).</p>	AU, CA, DE, ES, FI, GR, JP, NL, NO, NZ, PK, SE, US, ZA	FR, UA

Further comments (by country):

**AUSTRALIA** (See also track change version)

**B-483:** The last sentence of the proposed new wording for this clause reads “Whenever possible, the name of the station should be added, in black, to facilitate using in conjunction with an associated publication containing the service details.”. This is in conflict with the second last paragraph of B-480, which reads “The name of the radio station **must** be charted in black text if it is not otherwise evident. It **must** be the name adopted by the operating authority.”. Suggest amending B-480 second last paragraph to read “The name of the radio station **must** be charted, if known, in black text if it is not otherwise evident. It **must** be the name adopted by the operating authority.”.

**Chairman:** Agree.

**B-484:** The current (Edition 6, 2008) BSH INT1 does not show S15 as obsolescent. INT1 Sub-WG to note.

**B-485.2:** Suggest amend the first part of the text after the symbol from “(preferably oriented so that the short strokes point seawards).” to “The symbol should be oriented so that the short strokes point seawards.”.

**Chairman:** Agree.

**B-485.2:** Insert “S4” after the symbol in the last paragraph. **Chairman:** Agree.

**B-486.5:** The “normal” portrayal option should be described first and then any exceptions after. If “the identity of the marks on the chart is clear” is the normal portrayal, as appears to be described in B-433.2, then this should be described as the normal portrayal in B-486.5. Suggest the last

sentence in the first paragraph read: “Where the leading line coincides with a leading line based on lights or visual objects (usually because the positions of the Racons coincide with visual features or lights also used to mark the leading line), the line should be shown in the usual style (see B-433.3) in black only, with the bearing indicated in black above the line (see B-433.2) and in magenta below the line.

[Graphic]

If the marks are not clearly identifiable on the chart, the bearing should be indicated with two legends eg. ‘Lts  $\neq$  270°’ in black above the line (see B-433.2), and ‘Racons  $\neq$  270°’ in magenta below the line.’, and the last paragraph removed.

**Chairman:** Agree. Layout reorganized.

B-487.3: This is an interesting question and created a fair amount of discussion at the AHO. E30.1 – E30.4 are physical features, with the descriptor indicating the function and structure of the physical feature. Showing symbols and the descriptive text in black is therefore compliant with B-141. After discussion AU opinion is that the magenta abbreviation “Ra” is reserved for the beamed, reflected and timed radio waves themselves, hence its being magenta in compliance with B-142.1. If CSPCWG is in agreement with this AU interpretation, then “Ra” as an abbreviation should always be in magenta, and only charted where the station can be used directly by the mariner, as is stated in the bracketed last sentence of the first paragraph. If not, then B-142.1 will need to be amended. Unfortunately, AU could not find any “old timers” who may have known the original intention of this wording, and would not object if CSPCWG has a different interpretation.

**Chairman:** See table above.

AU supports the use of the appropriate landmark symbol to indicate the structure. If the use of “Ra” in black is approved, will this mean that the text “Ra” could be used next to a tower symbol (E29), for instance, to indicate a radar tower? Also, if CSPCWG approves the use of the appropriate landmark symbol, then the first “must” in the preceding paragraph will need to be amended to “should” (as there is now an alternative). **Chairman:** Wording reorganized.

B-489.1: The graphics (and “DID” directions in the comment) need to be discussed further. AU suggests that a clear distinction needs to be made for AIS transmitters located on a physical feature and AIS information being “virtually” transmitted from a position associated with no physical object. It is suggested that the first graphic for M-4 S17.1 remain as it is (it is a fixed transmitter i.e. a physical feature therefore the position circle should be black). For the S17.2 graphic in M-4, the graphic should be replaced with one or both the graphics in INT1 S17.2 (i.e. the magenta circle and italic “AIS” centred on a buoy). The magenta position circle to indicate the position of a “virtual” AIS aid to navigation as agreed at CSPCWG5 is a new symbol, and therefore should be a new symbol in INT1 (INT1 Sub-WG to note), possibly as S17.3; annotated ““Virtual” Automatic Identification System aid to navigation (no physical feature exists)”. This symbol can then be inserted in M-4 below the second paragraph in B-489.1. As the AIS signal is a radio signal which in this case is not associated with any physical feature on the chart, the “AIS” text should be treated as for other radio position fixing text on charts and shown in upright text in all cases.

**Chairman:** Draft as agreed at CSPCWG5, but later developments (eg JP and SE papers) need further consideration. Noted for CSPCWG6 agenda.

B-495: The last paragraph of this clause is virtually repeated in B-495.4. Suggest that this paragraph be removed and everything related to SS (INT) be incorporated in B-495.4. There is also an inconsistency in the requirement to show the light flare between the two paragraphs. In B-495 it is a “should” and in B-495.4 it is a “must” – suggest “should”.

B-495.4: If SS (INT) can be traffic signal stations as this clause indicates (without the text “Traffic”), shouldn’t the sentences used in B-495.1 catering for such lights also forming part of a leading line also apply here?

**Chairman:** Layout reorganized, repetition removed.

**FINLAND**

**B-481.5:** *Although the transmitting DGPS station is usually automatically selected there exists systems and applications onboard that require manual selection of proper (usually the closest) DGPS station. As an example, some of our own survey vessels use navigation instruments that require that the user inputs the proper station details. In these cases charting the stations helps in selecting the most proper one.*

**Chairman:** ‘Usually’ added.

**B-494, B-495:** *Question: How should the flare(s) be used on multicolour charts when there are several colours in the light signal? For example the INT traffic signals have three colours; red, green and yellow, and the Finnish lock and bridge signals are four-coloured; red, green, white and purple.*

**Chairman:** Possible solution offered, see also Annex B question.

**B-496.1:** *Question: Would there be any suitable alternative for the legend ‘Tide gauge’ that could be used? We are charting the recording tide gauges along the coast and on the lakes, but the English legend can not be intuitively recognised by users with only basic skills in English. (‘Tide’ is misleading since there is no tide here and ‘gauge’ is quite unfamiliar word for many.) This is why we have used a trilingual legend so far (Mareografi/Mareograf/Water gauge). We have a plan to replace the trilingual legend with ‘Mareograph’ to save space, but it would always be better if there would be some guidance in M-4.*

**Chairman:** There is no other suitable word in English. T32.2 is well established and actually of little interest to the mariner. Visual scales are more useful for the mariner and here we agree that the word ‘tide’ may be unhelpful in certain areas, amended to ‘visual’.

**FRANCE**

B-495.4: FR agrees with the use of *additional* in brackets.

B-497.1: we can find SS associated with meteorology in general (For example : Chile has such use :

**CHILE**

9a	9a	Storm
1a	1a	Bad weather
48a	48a	Variable
47a	47a	The traffic, loading and unloading of cargo are totally suspended; lighters and tugs should make fast.
46a	46a	The traffic of small craft is suspended in the bay on account of bad weather.

Note: (a) These signals correspond to the current synoptic chart.

(b) The “Bad weather” signal should be interpreted as a forecast of N’ly winds of force 4 to 7 which hinder shipping movements in the bay: this situation is already considered threatening and, accordingly, the appropriate precautionary measures should be taken.

So, we think that SS(Weather) could be kept in M4. **Chairman:** Agree.

## NORWAY

**B-480:** The graphics of the black position circle shown in B-480 to B-497 vary in size. The symbols S1-3.5, 10-14, 16-17.2 and 51 in B-480 – B-486 and B-489.1 are smaller than those in B-487.3, B-494 – B-497. We think the black position circle should all be of the same bigger size. **Chairman:** Agree. DID requested to correct in pdf version.

**B-481.5:** Last sentence: If required ... (insert space)

**B-486.3:** In text: Racon (Z), in graphic: Racon(Z). Never space before parentheses in Racon text.

**B-489.1:** Black centre position circle (delete magenta). **Chairman:** No, magenta agreed at CSPCWG5.

The department dealing with coast radio stations and radar stations is not a part of the Norwegian Hydrographic Service. We have therefore had a few difficulties getting correct and sufficient information.

NHS is charting radio stations where high masts are visible from sea, such as the following two examples from NO Chart 11, but the letter coding is obviously not correct:



Farsund radiopilestasjon (is really not a RDF station, but has still got that name, in Norwegian):

It is a receiving station for MF. The station is remotely controlled by Rogaland radio. The station is being used both for continuous listening on Distress frequencies and for performing commercial radio services. Receiving frequencies can be found in "List of Coast Stations".



Farsund radio (is not providing QTG service):

It is a transmitting station for MF. The station is remotely controlled by Rogaland radio. The station is being used both for transmitting on Distress frequencies and for performing commercial radio services. Transmitting frequencies can be found in "List of Coast Stations".

Should such stations rather be charted as Coast guard stations?

**Chairman:** Separate response to this question sent to Norway 20/04/09. They should be charted as masts.

## SWEDEN

### B-489.1

*In the case of a virtual AIS AtoN. Should upright or sloping letters be used for the legend 'AIS'? I suppose that the legend should be upright when the signal is on land and sloping when it is in water, but it is a bit unclear in this paragraph.*

This specific paragraph (B-489.1) was discussed at the CSPCWG5 in Sydney in connection with an IALA draft guideline about 'The establishment of AIS as an Aid to Navigation'. SE would like to draw to your attention that this IALA guideline has now been approved by IALA. See also [http://site.ialathree.org/pages/publications/documentspdf/doc\\_223\\_eng.pdf](http://site.ialathree.org/pages/publications/documentspdf/doc_223_eng.pdf)

**Chairman:** Agree. Wording clarified.

The Swedish Maritime Administration (SMA) and the Swedish Transport Agency have discussed this specific IALA guideline and many questions arise especially regarding 'Virtual AIS AtoN'. Different types of virtual AIS AtoN are mentioned in the guideline – lateral marks, cardinal marks, safe water marks, isolated danger marks and special marks. If this will come into use there are possibly a need to portray this in ENC's and paper charts. SMA has written a paper where we try to summaries some of these questions. This paper is going to be discussed at the 53<sup>rd</sup> Nordic Hydrographic Commission Meeting in Helsinki, 21-23 April, 2009. Since I thought that these questions would be relevant for further discussions within the CSPCWG I do also attach this paper here in our answer. See NHC53-AIS.pdf.

**Chairman:** Draft as agreed at CSPCWG5, but later developments (eg JP and SE papers) need further consideration. Noted for CSPCWG6 agenda.

#### **B-491.5**

'On smaller scale coastal charts on which inshore detail is mostly omitted, the magenta symbol:



should be inserted in the approaches to a port which is known to have a regular pilotage service.'

*Suggests moving this paragraph to 491.1 to avoid confusion.*

**Chairman:** Disagree; this sentence further explains how to chart pilots where the location of the boarding place is unknown (ie on small scale charts). The other use of the boarding place symbol on its own is already adequately covered at B-491.1.

#### **B-494**

*If a light flare is used what colour should be used in multi coloured charts? It could be very complicated to chart all colours used at a signal station and would clutter the chart if several flares with different colours should be used. Suggests changing the use of flare from should to may.*

**Chairman:** Possible solution offered, see also Annex B question.

#### **SOUTH AFRICA**

B-480.3 Loran (Long Range..... (Amend). **Chairman:** Done.

**QUESTIONS ARISING FROM THE RESPONSES TO CSPCWG LETTER 2/2009**

Response form

(please return to CSPCWG Secretary by 11 June 2009)

[andrew.coleman@ukho.gov.uk](mailto:andrew.coleman@ukho.gov.uk)

Specification	Question	YES	NO
B-486.5	In order to simplify INT1, do you agree that the version of S3.5 showing both leading Racons and leading Lights should be deleted, as it is an intuitive combination symbol? (This would mean that the current 8 Racon symbols in INT1 S3 would be reduced to 5, deleting the existing 3.1, 3.2 and the second 3.5. The leading Racons, ie first graphic at 3.5, would be retained)		
B-489.1	Not a question, but please note the marginal request to provide papers on AIS discussions and developments to the Secretary.		
B-494 & B-495.4	Do you agree that a half red/half green flare is suitable for indicating a SS on multicoloured charts? Please see comments in Annex A by FI and SE. The offered solution falls short of fully answering the problem, therefore we would appreciate comments and other solutions. We may need to discuss further at CSPCWG6, although we hope that we will be able to progress this section to IHO Member State approval before then.		

We hope to be able to publish the B480-499 revision during this year, although we recognise there is outstanding work on AIS and multicoloured flares. If necessary, these can be addressed subsequent to publication.

Further comments:

Name:

Member State:

**B-480 RADIO POSITION-FIXING STATIONS: GENERAL**

Transmissions from radio stations may provide mariners with a line of position. Most radio position-fixing systems require Radio Direction Finding (RDF) equipment to determine the bearing of the transmitting device; such equipment is generally no longer fitted on vessels. The exception is 'emergency use only' VHF-based direction finding services (which do not use RDF equipment); for details see B-483. Consequently, the following radio position-fixing stations are now obsolete and there is no longer any value in charting them:

- a. Circular (non-directional) (RC), directional (RD) and rotating pattern (RW) marine radiobeacons;
- b. Consol beacons (Consol);
- c. Aeronautical radiobeacons (Aero RC);
- d. Radio direction-finding stations (except VHF-based emergency stations) (RG);
- e. Coast Radio Stations providing 'QTG' service (R).

If it is required to chart any radio station, the position must be shown by a black position circle, unless the position is already charted by another symbol, such as a light star or radio mast. ~~printed in black, if it does not require to be charted for other reasons (for example, it may be at a lighthouse). Black is inconvenient but necessary for precise register. Where it is also a prominent visual mark near the coast its position may be shown by the symbol for a radio mast or tower (see B-375).~~

The location of a charted radio station must be emphasised by a magenta circle 3mm radius, centred on the position. This symbol is generally referred to as a radio circle; it is also used for coast radar stations providing range and bearing on request (see B-485.1), various radar beacons (see B-486) and AIS-equipped aids to navigation (see B-489). The international abbreviation indicating the type of transmission must be ~~printed shown~~ in magenta adjacent to the circle. More than one abbreviation may be shown against one radio circle if appropriate.

The name of the radio station must be charted, if known, in black text if it is not otherwise evident. It must be the name adopted by the operating authority.

For radio masts and towers which serve as landmarks, see B-375.

- B-480.1** Aeromarine radiobeacons, if charted, must be denoted by the abbreviation 'RC', as ~~'' (Aero-marine radiobeacons do not require a separate abbreviation because there is no functional distinction from those exclusively for marine use.~~

**S10**

- B-480.2** ~~Radio calibration stations are radiobeacons which transmit over a short range, either routinely or on request, in order to enable ships' equipment to be calibrated. They must not be charted; and marine radiobeacons which provide a calibration service in addition to their normal transmissions must not be distinguished on charts.~~

- B-480.2** Loran (~~L~~ong Long Range Aid to Navigation) is a low frequency electronic position-fixing system. The signals are broadcast from widely spaced masts and are currently available in North West Europe, North America and parts of Asia. It provides a back-up for or alternative to satellite navigation systems and may be partly integrated with them. There is no requirement to include details of the Loran system on charts.

**Commentaire [c1]:** DID: please ensure latest version of graphics are used throughout section, and that all dot/circle positions are a consistent size (ie as T20).

**B-481 MARINE RADIOBEACONS AND GLOBAL NAVIGATION SATELLITE SYSTEMS**

**B-481.1** ~~Circular (non-directional) marine radiobeacons (RC) are generally sited to give, over the sea, as uninterrupted a transmission path as possible. Their locations are also chosen to permit good cross-fixes to be taken. In a given locality they may, for ease of identification, be GROUPED on a common frequency on which they transmit in a timesharing commutation pattern were formerly charted as:~~



**S10**

~~Rotating pattern radiobeacons (RW) were formerly charted as; (sometimes called radio lighthouses) enable a ship to determine her true bearing in relation to the beacon, without the use of direction-finding equipment, by counting the number of time markers transmitted after a commencement signal and before a null. This count is converted to a true bearing in relation to the beacon by means of a calibration table.~~



**S12**

~~It is no longer useful to chart these radiobeacons, see B-480. All circular and rotating pattern marine radiobeacons shall be charted on medium and large scale charts except in the following circumstances:~~

- ~~a. on large scale charts, if radio position fixing would not be used within the area covered;~~
  - ~~b. on medium scale charts, if an excessive number of radiobeacons occurs, when a selection shall be made using criteria of position and range; and~~
  - ~~c. on charts of 1:500,000 and smaller, radiobeacons must be excluded if the chart does not permit navigation within range of them, and in particular, low powered MARKER radiobeacons with a range of not more than 10 n miles must normally be omitted where larger scale charts are available, except on charts used for planning and routing, eg. INT 140 of the North Sea.~~
- ~~Service details (morse identification signal, radiated frequency, audio frequency, mode of transmission, output power, range, times of operation, sequence of grouped transmissions) must not normally be charted.~~

**B-481.2** ~~Directional radiobeacons (RD), of short range, were formerly charted as; are designed to assist vessels negotiating restricted channels or making a harbour entrance. They give 'on course' signals on the fixed bearing line and differing 'off course' signals in each of the adjacent sectors. The bearing line should be shown in magenta by a fine dashed line with a legend near the seaward end such as 'RD 270°'. Where the bearing line coincides with a leading line defined by lights or other visual features, a leading line should be shown in the usual style in black (see B 433.3), with two legends eg. 'Lts # 270°' in black above the line, and 'RD 270°' in magenta below the line.~~



**S11**

~~Where the bearing line coincided with a leading line defined by lights or other visual features, they were charted as:~~



**S11**

~~It is no longer useful to chart these radiobeacons, see B-480.~~

~~**B-481.3** — **Consol beacons** a long range form of rotating pattern radiobeacon for aeromarine use. Obtaining a bearing with a ship's direction finder on the periodic transmission helps to resolve the multiple ambiguity in the directional signals radiated in the Consol system.~~

~~They shall be charted with the legend 'Consol' to identify them as Consol beacons.~~



~~S13~~

**B-481.3** Older forms of electronic positioning have been largely superseded by **Global Navigation Satellite Systems (GNSS)**, such as the Global Positioning System (GPS). Satellite systems are normally referred to World Geodetic System 1984 Datum (WGS84). It is therefore helpful to draw the mariner's attention to the horizontal datum by indicating boldly in the chart margin whether a chart's datum is compatible with WGS84; see B-202 and B-255.3.

~~**Distance finding stations**, from which synchronised radio and audio signals are emitted to enable elapsed time and thereby distance off to be measured, shall not be indicated as such, but the radiobeacon and air fog signal at the station shall be charted in the normal way.~~

**B-481.4** **Differential Global Positioning System (DGPS)** is an enhancement to the Global Positioning System that uses a network of fixed ground-based reference stations to broadcast the difference between the positions indicated by the satellite systems and the known fixed positions.

DGPS stations that provide DGPS corrections to the mariner may be charted. However, as the corrections are normally automatically fed into onboard systems, charting the site of the DGPS station does not usually assist the mariner. If required, they must be charted as:



S51

**Commentaire [c2]:** Following advice from FI.

**B-482 AERONAUTICAL RADIOBEACONS**

~~Aeronautical radiobeacons were formerly charted as: operating in the LF and MF bands may be of value for position fixing at sea, especially in areas where marine radiobeacons are few, are unreliable, or suffer heavy radio interference. They may be found useful: if the service is available continuously or at least at specified hours; if they are located in coastal areas, offering extensive marine coverage; and if there is not rough terrain between the radiobeacon and the coast, since an inhomogeneous propagation path may render bearings unreliable.~~

~~Appropriate aeronautical radiobeacons must be charted, using the legend 'Aero RC', printed in magenta.~~



S16

It is no longer useful to chart these radiobeacons, see B-480.

~~Service details must not normally be charted (see B-481.1).~~

~~An aeronautical radiobeacon located in the vicinity of a marine radiobeacon must only be charted if the service is continuous and the range is significantly greater. On smaller scale charts it may, however, be shown in preference to the marine radio beacon.~~

~~An aeronautical radiobeacon operating an on-request service may exceptionally be charted if it can be requested through a Coast Radio Station of the Maritime Mobile Service.~~

**B-483 RADIO DIRECTION-FINDING STATIONS**

Radio direction-finding stations were established on shore to provide a radio-location service, being equipped with means to ascertain the bearing of a signal transmitted from a ship and to communicate to it either directly, or through a Coast radio Station, the result of the observations. This was formerly an automated service for vessels equipped with Radio Direction Finding (RDF) equipment, but as this is now not generally carried by vessels, that form of the service is now obsolete.

Direction-finding is now only provided as an emergency service by VHF. If required, such stations must be charted as: ~~They shall be charted using the abbreviation "RG", printed in magenta.~~



**S14**

The position circle may be replaced by a symbol such as a radio mast, if appropriate. Generally, they should be shown on charts which allow navigation within about 50 miles of the transmitter (or a little more for very high transmitters). It is important to show the actual position of the transmitter, so that any bearing plotted from it is accurate. Whenever possible, the name of the station should be added, in black, to facilitate using in conjunction with an associated publication containing the service details.

**B-484 COAST RADIO STATIONS PROVIDING 'QTG' SERVICE**

~~Certain Coast Radio Stations providing QTG service were formerly charted as: will transmit on request, usually on an appropriate frequency reserved for the purpose, signals for use with ships' direction-finding equipment. A radio bearing may thus be obtained at times when the Coast Station would not otherwise be transmitting, or not transmitting on a usable frequency.~~

~~The 'QTG' service is less often used today, but in those areas where radiobeacons are not available, Coast Stations which provide this service must be charted using the abbreviation 'R', printed in magenta.~~



**S15**

It is no longer useful to chart these stations, see B-480.

~~If the signals may be radiated from an auxiliary transmitter situated a significant distance from the main transmitter, the positions of both must be charted so that the vessel's observed bearing may be referred to the correct origin.~~

~~Other Coast Stations of the Maritime Mobile Service must not be charted as radio position-fixing stations. For radio masts and towers which serve as landmarks, see B-375.~~

**Commentaire [c3]:** INT1 producers please note to make S15 obsolescent.

**B-485 RADAR STATIONS AND RADAR-CONSPICUOUS OBJECTS: GENERAL**

Radar services provided for the mariner to ascertain his position may be classified as follows:

- a. Coast radar stations (Ra); ~~and~~
- b. Radar beacons (see B-486).

If the station or beacon is not located at a charted aid to navigation or landmark, its position, if required, must be denoted by a black position circle, ~~printed in black.~~

The location of the charted station or beacon must be emphasised by a magenta radio circle, centred on the position, see B-480.

The **international** abbreviation indicating the type of station **must** be **shown** in magenta, adjacent to the circle.

**B-485.1** **Coast radar stations** (Ra) are shore-based stations which the mariner can contact by radio to obtain a position. ~~The stations must be charted if in order for the ship a vessel's position is to be given in terms of bearing and distance from the station, it must be charted. However, these stations are of declining importance. If required to be charted, the symbol S1 must be used: them. See also B-487.3.~~



**S1**

**B-485.2** **Radar-conspicuous objects.** Natural **and** manmade features which are known to give an unexpectedly strong radar response may be distinguished by the **magenta** symbol:



**S5**

~~The symbol should be (preferably oriented so that the short strokes point seawards.) in magenta.~~ Features such as coastal cliffs would be expected to give a strong response and do not need the symbol.

For use of the **black** symbol  **S4**, meaning a **radar reflector**, see B-455.8 and B-459.2 (on beacons) and B-465 (on buoys).

**B-486** **RADAR BEACONS**

Radar beacons are transmitters operating in the marine radar frequency band. The signals produce a characteristic line on a vessel's radar display enabling the mariner to determine his position with greater certainty than would be possible by means of a normal radar display alone. **If charted, they must be shown by a black position circle (if not located at a charted aid to navigation or landmark), emphasised by a magenta radio circle and adjacent abbreviation, see B-480.**

**B-486.1** **Ramarks** are radar beacons, operating at present in the 3cm (X) marine radar frequency band, which transmit continuously. The signals produce a line on the ship's radar display from the position of the ship to the circumference and indicate the bearing. Ramarks should be charted, on appropriate scales, **in magenta**, using the **radio** circle and **adjacent** abbreviation 'Ramark'; see B-480.



**S2**

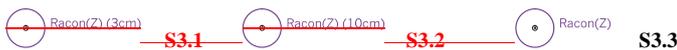
The sweep period and range of the ramark **should** not **normally** be shown on charts. If required, the sector coverage should be shown in the same way as for racons (see B-486.4).

**B-486.2** **Racons** are radar transponder beacons which emit a characteristic signal when activated by the emissions of a vessel's radar. The signal produces a bearing line on a radar display running approximately from the position of the racon towards the circumference. The signal may be coded to provide a Morse or other identification symbol on the radar display. Racons in regular service only **must** be charted. (It is usual for racons to be established initially on an experimental basis, in some cases for long periods, while they are being evaluated; **they should not be charted** until they have been accepted for permanent use). They **must** be shown on appropriate scales, **in magenta**, using a **radio** circle and **adjacent international abbreviation** 'Racon'; see B-480, ~~B-486.3 to B-486.5.~~ The sweep period and range of the racon **should** not **normally** be shown on charts.

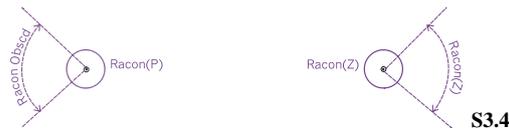
**B-486.3** **Identification and response frequencies of racons.** The Morse identification letter **should** be added in parentheses, eg. 'Racon(Z)'.

Racones emit a signal in the 3cm (X), the 10cm (S), or both marine radar bands. This information was formerly charted, but to avoid clutter, and the possibility of confusion between Racons transmitting in both bands and where the information is unavailable, ~~the bands~~ should not be charted. Such details are best given in associated publications, which may also provide other information such as sweep time, range and length of flash on a radar display. ~~The signal will thus produce an image on the ship's radar display working in the band concerned. Racons operating in the 3cm band only must be charted as 'Racon (3cm)'; those in the 10cm band as 'Racon (10 cm)'; and Racons operating in both bands simply as 'Racon'.~~

**Commentaire [c4]:** INT1 producers please note removal of band widths.



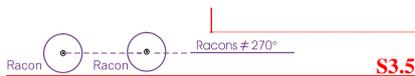
**B-486.4** **Racon with sector of obscured reception.** Where a chart shows a racon without any sector limits, the mariner will assume that the signal can be received at any position within the range of the racon. If, for some reason, the racon signal is obscured between certain bearings, this information should be shown on appropriate scale charts in magenta by sector limits and arcs. 'Sector limit' is used to denote the line or bearing of a Racon where the signal disappears. There may be a small angle of uncertainty at the limit of the arc of reception of the signal; it is impracticable to show this angle. 'Sector arc' is used to denote the curved line against which the legend 'Racon Obscd' is inserted. If necessary, the sector of reception may be shown. Limits of sectors and arcs **should** be charted as magenta fine dashed lines (about 10 dashes to 10mm) with small arrowheads at the ends of the sector arcs. ~~(For sector lights, see B-475).~~



**B-486.5** **Leading racons** are established such that, when their bearing lines are coincident on a vessel's radar display, the bearing serves to indicate the track to be followed. The leading line should be represented, in magenta, by a bold continuous line for the part of the track which may be followed, and a fine dashed line (approximately 6 dashes per 10mm) ~~or dotted line, preferably the former,~~ for the remainder of the line up to the rear mark. ~~The bearing should be inserted in magenta above the line at the seaward end. In accordance with B-433, if the marks are not clearly identifiable on the chart, a (See B-433.3 for visual leading lines). A legend such as 'Racons ≠ 270°' should be shown in magenta near the seaward end of the line.~~

**Commentaire [c5]:** Specification rearranged on advice from AU.

**Commentaire [c6]:** DID: please reinsert ≠ in magenta

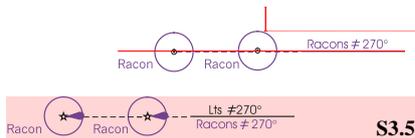


**Commentaire [c7]:** DID: please insert simplified portrayal, ie the lower graphic without the legends on the line (just retain the bearings).

Where the leading line coincides with a leading line based on lights or visual objects (usually because ~~Where~~ the positions of the Racons coincide with visual features or lights also used to mark the leading line), the line should be shown in the usual style (see B-433) in black only, ~~with the bearing indicated but with two legends eg. 'Lts ≠ 270°' in black above the line, and 'Racons ≠ 270°' in magenta below the line. If the marks are not clearly identifiable on the chart, the bearing should be indicated with two legends, eg 'Lts ≠ 270°' in black and 'Racons ≠ 270°' in magenta, eg:~~

**Commentaire [c8]:** DID: please reinsert ≠ in magenta

**Commentaire [c9]:** DID: please insert simplified portrayal, ie the lower graphic without the legends on the line (just retain the bearings).



**Commentaire [c10]:** To simplify INT1, this version could be removed, as it is just a combination symbol, which is intuitive.

**B-487 RADAR SURVEILLANCE SYSTEMS**

Many large ports have a radar surveillance system covering their approaches to provide guidance for vessels, particularly in poor visibility. There are also [radar surveillance systems covering larger regions, such as the Channel Navigation Information Services, covering the Dover Strait \(Pas de Calais\) and approaches.](#)

Systems vary but generally have in common the following features, which [should](#) be shown on charts [as appropriate to the scale](#):

- a. One or more large radar scanners, frequently mounted on high towers. These are visually conspicuous and are charted in accordance with the specifications for landmarks (see B-340).
- b. The maximum range of the system forms an arc or series of overlapping arcs. ~~In some cases~~ The outermost arc showing where vessels first come under radar surveillance [should](#) be charted. See B-487.1.
- c. To assist the passing of positional information to ships, some [port](#) authorities wish to have their radar reference lines [shown](#) on charts. See B-487.2

**B-487.1 Radar range** arcs may be shown where considered useful, in magenta with the **international abbreviation** ‘Ra’, and possibly the name of the station, eg:



**M31**

**B-487.2 Radar reference lines** are mid-channel lines corresponding to lines incorporated in [vessel traffic services \(VTS, see B-488.3\)](#) radar displays. A line is used as a positional reference so that the [VTS](#) authorities may easily give a [vessel](#) her position, relative to the line, when visibility is poor. [These must be charted on appropriate scale charts.](#)

Where the lines fall exactly on charted recommended routes or tracks, the reference lines should be shown by the **international abbreviation** ‘Ra’, in magenta, against the track symbols, at regular intervals. Where the reference lines do not fall on charted tracks they should be shown by a magenta dashed line (approximately 4 dashes per 10mm), with the **international abbreviation** ‘Ra’. A local radar guidance system may require a reference line of particular design, eg it may be divided into sections with reference names or numbers; these should be charted. These lines are primarily reference lines and do not necessarily represent the exact tracks to be followed by all vessels guided by radar. An explanatory note may be included on the chart, if required.



**M32.1**



**M32.2**

**Commentaire [c11]:** DID: please reverse the bearings, ie 090°-270°

**B-487.3 A radar station** established for traffic surveillance [must](#) be charted, [if required](#), by a [black](#) position circle ~~in black~~ and the [black](#) legend ‘Radar Surveillance Station’, or equivalent. As such stations do not require a knowledge by a [vessel](#) (wanting a position check) of the radar station’s location, they [must](#) not be charted as Coast Radar Stations, ie, they [must](#) not have magenta [radio](#) circles or the abbreviation ‘Ra’. (It is considered advisable to reserve the abbreviation ‘Ra’ for those stations which can be used directly by the mariner).



**M30**

The radar tower or scanner may form a landmark. If so, it **must** be charted by a **black** position circle or the appropriate landmark symbol (eg mast, tower) with a descriptive legend, in which the term 'radar' **must** not be abbreviated, ~~printed in black.~~

o Radar Mast	<b>E30.1</b>
o Radar Tr	<b>E30.2</b>
o Radar Sc	<b>E30.3</b>
o Radome	<b>E30.4</b>

**Commentaire [c12]:** DID: please add alternative depiction against 30.1 and 30.2, showing respectively a Mast and a Tower symbol with the word Radar alongside.

~~**B-487.4** — For other features associated with radar see B-485, B-486 and B-488.~~

**B-488 RADIO REPORTING (CALLING-IN) POINTS AND LINES; VESSEL TRAFFIC SERVICES**

**B-488.1** Radio reporting points have been established in certain busy waterways and port approaches to assist traffic control. On passing these points, vessels are required to report on VHF to a Traffic Control Centre, which may be part of a Vessel Traffic Service, see B-488.3.

They Radio reporting points must be shown on charts by a magenta circle with an arrowhead or arrowheads, in magenta, thus:



The symbol must be shown in the centre of the fairway if a position is not otherwise specified, and oriented to denote the direction(s) of vessel movement. A single arrowhead indicates that a report is required only when a vessel is bound in that direction. At route junctions, reporting points may have more than two arrowheads, each pointing in the general direction of vessel movement.

If the radio reporting point has an alphanumeric designator, it must be shown in magenta a distinctive style within the circle, eg:



If the designator is too large to fit in the circle, it may be shown adjacent to it. It should not be necessary to show VHF channels on the chart, as the mariner will normally refer to an associated publication for reporting details. If required, however, references to VHF may be given adjacent to the circle, not inside it. It must be prefixed 'VHF' to distinguish it from an alphanumeric designator shown outside the circle, eg:



Alternatively, VHF channel areas may be shown on a diagram, which may be combined with other information, see B-298.

The name of the station to which reports should be made may be inserted, in sloping magenta text, adjacent to the symbol, see B-488.3. If the requirement to report by radio relates to certain classes of vessels only, this should be indicated by a magenta legend adjacent to the symbol, (eg 'Tankers') or a note on the chart, which may refer to an associated publication for further details.

**B-488.2** Radio reporting line. Where vessels are required to report on crossing a defined line, the line must be charted, normally by a dashed magenta line (general maritime limit of non-restricted area - N1.2), with small reporting point symbols superimposed across the line:



Circle diameter 1.85mm, triangle base 1.15mm, triangle height 1.50mm. Symbols should be inserted at approximately 40mm intervals.

A single arrowhead must be used if a report is required only when a vessel is bound in that direction. If the reporting line coincides with another limit, the symbols should be superimposed on that limit. See also B-439.6k.

**B-488.3** A Vessel Traffic Service (VTS) is a service implemented by a competent authority to improve the safety and efficiency of vessel traffic operations and to protect the environment. A VTS provides, from one or more traffic control centres, a number of services which may include:

- Traffic management for the safe and efficient movement of vessels within the area, usually including mandatory reporting;
- Navigational assistance to support onboard decision making, usually on request (see also B-487.2 for radar reference lines);
- Information for vessels operating in the area, eg: on arrival, berthing, anchoring and departure from ports; about movements of other vessels; on navigational hazards; regarding weather. These may be regularly broadcast or be available on request.

A VTS may cover an individual port, or a much larger regional VTS (possibly containing local VTS), may provide services to vessels in the outer approaches to ports, or transiting through the region. Consequently, there may be VTS within VTS and also overlapping VTS, making it difficult for the mariner to always be aware which VTS area is applicable. Therefore, wherever the information is available, limits of VTS areas should be charted, at least on the largest scale chart and on appropriate smaller scales where navigation is practicable and/or to assist passage planning.

VTS limits should be charted by a magenta dashed line (N1.2) with a legend in sloping magenta text along the inside of the line, eg *Severn VTS* (see Note). If the VTS limit coincides with another limit, that limit should be retained, but the legend added. The limit of a VTS area may coincide with a radar surveillance arc (see B-487.1) or a radio reporting line (see B-488.2).

A note should be added to the chart, listing all the VTS areas which have vessel reporting requirements if they fall wholly or partially within the chart, whether the limits can be charted or not or the reporting points cannot be charted (for example because they are time rather than position related). For example, for one VTS:

VESSEL REPORTING  
For details of the [Name] VTS, see [associated publication].

or for several VTS, eg:

VESSEL REPORTING  
For details of the following [vessel traffic services and vessel reporting systems],  
see [associated publication]:

- London VTS
- Ramsgate Port Information Service
- Medway Navigation Service
- Dover Strait Reporting System (CALDOVREP).

If there is no available publication, essential details may be given in the note. To assist cross referencing, it is important to use exactly the form of name used in any associated publication, noting that not all vessel traffic services or reporting systems have ‘VTS’ as part of the name. The abbreviation VTS should be used when applicable (as this is an **international abbreviation**).

Within VTS areas there are usually designated positions or lines at which vessels are required to report to a traffic centre, see B-488.1. Where vessels are required to report by radio on entering or leaving a VTS area, the limit of the VTS area should be charted as a radio reporting line, see B-488.2.

If there is more than one VTS (or other reporting authority) in the area of the chart, the appropriate name(s) should be charted in sloping magenta text against the reporting point. The name should be as succinct as possible to avoid clutter, eg London, Ramsgate, Medway or CALDOVREP in the examples above, but the full name should be included in the note.

Where a radio reporting point requires reports to more than one authority, all the names should be inserted, as close as possible to the arrow head which applies to that authority. The name must be that of the authority to which the report should be made, not of the port which is being approached, if different. Names must be included on the largest scale chart and, if **roomspace permits**, on all other scales on which the reporting point is shown, including charts that may be used for route planning. The same principles should be applied at selected points along a radio reporting line.

**B-489 AUTOMATIC IDENTIFICATION SYSTEM (AIS)**

The Automatic Identification System (AIS) is an autonomous and continuous broadcast system, operating in the VHF maritime mobile band. It exchanges information such as vessel identification, position, course, speed, etc and can also be applied to Aids to Navigation. It is in this latter application that it may be useful to chart the transmitter.

**B-489.1** An AIS-equipped Aid to Navigation (AtoN) may provide a positive identification of the aid. It may also transmit an accurate position, and provide additional information such as actual tidal height or local weather; details of these functions, which cannot be charted, should be provided in associated publications as appropriate. AIS transmitters on AtoN must be charted using the **magenta radio circle** and **international abbreviation ‘AIS’**, see B-480, in magenta:



**S17.1**



**S17.2**

**S17.1** (with the letters in upright text) must be used with fixed aids, **real or virtual**. **S17.2** (with the letters in sloping text) must be used with floating aids, **real or virtual**. In most cases, the **black magenta** centre position circle should be replaced by the symbol for the actual AtoN, eg a light star or buoy symbol. If it is necessary to chart a ‘virtual’ AIS AtoN, where no physical aid exists, then the centre position circle (**a magenta version of B22**) must be used in lieu of the AtoN symbol.

**Commentaire [c13]:** DID: please change centre dot & small circle to magenta

**Commentaire [c14]:** Clarified following comment from SE.

**Commentaire [c15]:** The change to a magenta position circle for virtual AIS was agreed by CSPCWG5 (as there is no physical aid at the position). INT1 will need to be amended. However, the presentation of virtual (and possibly synthetic) AIS is still evolving, including discussions within IALA and IMO. AU, JP (via IMO) and SE (via NHC53) have also proposed possible solutions. It is premature to try and cover these issues during this revision, so we propose no further change to this section, at least until CSPCWG6. **Please would members supply copies of any papers, discussions, etc on the subject to Secretary.**

**B-490 MARINE SERVICES AND SIGNAL STATIONS**

The type and location of marine services must be shown on large scale charts and, for pilotage services, also on appropriate smaller scale charts. Actual details of the service should be given in associated publications.

**B-490.1 Types of station** fall into the following groups:

- a. Pilot stations. The most important feature is the position of the ~~meeting (or boarding place, for which a special symbol exists; see B-491.~~ The shore station ~~may sometimes communicate visually with ships but cannot generally be considered a type of signal station and~~ should be charted with a legend. See B-491.
- b. Coastguard stations. These may sometimes be combined with a signal station or a Harbour Master office. See B-492.
- c. Rescue stations and refuges. These are not generally associated with signal stations. ~~A special symbol exists to represent the location of lifeboats or other equipment.~~ See B-493.
- d. Signal stations
  - i. ~~Storm, ice and weather signals; also time signals.~~ See B-494 for general information about signal stations
  - ii. Traffic signals, regulating ship movements. See B-495.
  - iii. ~~Tidal and water level indicator signals~~ ~~Tide gauges and coded signals showing height of tide; also tidal stream and sluicing signals.~~ See B-496.
  - iv. Other signal stations with several different functions, or established for reporting ship movements (but not including radio reporting points). See B-497.
  - ~~v. Danger signals, eg, for firing areas.~~



**B-491 PILOT STATIONS**

For charting purposes the term ‘Pilot Station’ is applied to any of the following positions:

- a. **At sea**, the ~~meeting~~ (boarding place; the pilot vessel may either cruise in the area or come out on request. Off some large ports pilots on outgoing ships may be disembarked at a different location. Pilots may board from a helicopter; it is then less important for a ship to reach the exact position of the ~~meeting~~ boarding place but an approximate position should still be charted. Some pilot stations are used solely for long-distance (deep-sea) pilots.
- b. **Ashore**, it may be a lookout station, keeping visual watch, or an office from which pilots may be requested ~~only by other means such as radio or telephone.~~

~~In any particular case, p~~ Pilots may be in constant attendance, in regular attendance at certain limited times, or available by previous arrangement only. The primary purpose of charted pilotage information is to show the **position** of the facility. Because of the many variations in the service provided, the main source of information on pilotage must be in an associated

publication, such as *Sailing Directions* or *Radio Lists*.

**B-491.1** The position of a **pilot boarding place** or **pilot cruising vessel** must be shown by the magenta symbol:



**T1.1**

The symbol should be shown on ~~all appropriate charts larger than 1:350 000~~ coastal navigation scale charts (usually about 1:350 000) scale, with the additional details below shown on port approach and harbour charts.

Where an area is specified, rather than an exact position, the symbol may be shown, as appropriate:

- centred within a magenta maritime limit in general (N1.2),
- for a large area, the symbol may be placed, north up, between dashes at approximately 40mm intervals along the limit,
- within a waiting (holding) or an anchorage area, see B-431.3 and B-431.9

~~in magenta.~~ If there is a special name for the pilotage district, or if the pilots are used for a distant port, the name of the district or port may be added, **in magenta sloping text, adjacent to** the symbol, eg:



**T1.2**

Where the position of a station varies with sea conditions, ~~add~~ a legend, eg 'Bad weather' or equivalent **should be added** in magenta sloping text, adjacent to the symbol at the alternative inshore, sheltered location. ~~Where a station is used solely for disembarkation, add 'Disembark' or equivalent, in magenta alongside the symbol, in sloping lettering.~~ Similarly where a station is used solely for long-distance pilots, a legend add 'Deep Sea' or equivalent **should be added**. Where a station is used solely for disembarkation, there is usually no need to chart it (as it is not a meeting place). However, if it is required to chart it, ~~add a legend 'Disembark' or equivalent~~ **should be added**.



**T1.3**

**B-491.2** ~~Pilots transferred by helicopter. The position of a meeting (boarding) place to which a pilot boat comes out from shore must be shown by the symbol~~



**T1.1**

~~If necessary, the name of the district or port may be added alongside, also in magenta~~



**T1.2**

~~Where a station is used solely for pilots to board from a helicopter, the international abbreviation 'H' must be added, in magenta sloping text, adjacent to the symbol, as a sloping letter.~~



**T1.4**

Where an area is specified, rather than an exact position, the symbol may be shown:

- centred within a magenta maritime limit in general (N1.2),
- for a large area, the  symbol may be placed, north up, between dashes at approximately 40mm intervals along the limit, as well as inserting **T1.4** in the centre of the area.

**B-491.3** ~~A pilot lookout station at a shore position may be shown on large scale charts by the legend 'Pilot lookout', or equivalent, because it is considered preferable to reserve use of the symbol for positions of meeting places, at sea.~~



**Commentaire [c16]:** INT 1 producers please note: T2 must be amended to obsolescent in INT1

**B-491.3** A pilot office ~~where no visual watch is known to be kept~~ may be shown on large scale harbour plans by the symbol for a building with the legend 'Pilots', or equivalent, adjacent to it.



**B-491.4** A port which is known to have a pilotage service, but where the location of the boarding place is not known or is off-outside the chart's limits, may have the magenta legend '(Pilots)', or equivalent, added ~~in magenta~~ under the name of the port on the harbour and approach scale charts.



~~B-491.6~~ On smaller scale coastal navigation charts on which inshore detail is mostly omitted, the magenta symbol:



should be inserted in the approaches to a port which is known to have ~~known or assumed meeting/boarding places to indicate the existence of~~ a regular pilotage service ~~at those ports~~.

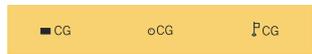
**B-492 COASTGUARD STATIONS**

The organisation of coast-watching and rescue services differs from country to country. For charting purposes it is assumed that two distinct functions can be recognised, even though they may be parts of the same organisation co-ordinating and effecting life saving and performing other services. The two functions are:

- a. Watch-keeping - stations at which a watch is kept either continuously, or at certain times only, are sited so as to have a commanding view, are often associated with signal stations, and are visually prominent. They are referred to below as Coastguard stations.
- b. Rescue - the places at which life saving equipment is held, especially lifeboats (usually in relatively sheltered positions, near sea level) are not necessarily visually prominent and their precise position is not important; they are referred to below as Rescue stations (~~and are described in~~ see B-493).

**B-492.1** **Coastguard stations** are located along the coasts of most maritime nations. Their primary purpose in former days was to enforce customs regulations, observe the movements of ships and to watch for signs of distress at sea. These functions are largely superseded by modern telecommunications and Search & Rescue (SAR) arrangements, coordinated by regional Maritime Rescue and Coordination Centres (MRCC).

**B-492.2** Many modern Coastguard services no longer maintain visual watch from fixed stations. However, because stations were usually situated so as to have a commanding view and may therefore be visually prominent and make good fixing marks, the buildings may still be charted as landmarks. If charted, the position of a coastguard station: ~~the position shall~~ must be shown either by a building symbol or the symbol for a signal station or flagstaff, as appropriate. The **international abbreviation** ‘CG’ should be inserted in black text adjacent to the symbol, if the building is still in use as a coastguard lookout. Where appropriate, the abbreviations for Signal Station should also be shown. ~~(Use of the symbol  to indicate the position of a coastguard station is to be discontinued).~~



**T10**

~~**B-492.3**~~ **B-492.2** Maritime Rescue and Coordination Centres are part of a constantly manned communications watch system. They should be charted, if required, by a suitable building symbol with the **international abbreviation** ‘MRCC’ adjacent. The name of the station may be included, eg ‘MRCC Swansea’.

**Commentaire [c17]:** See CSPCWG5 Action 26

~~**Coastguard stations: the legend** shall generally be abbreviated, preferably as CG. Important stations, maintaining continuous watch, may (if required) be distinguished from stations which maintain only a limited watch, by having their name inserted eg ‘Brixham CG’. Where appropriate, the abbreviations for Signal Station, Storm signals, etc, should also be shown.~~



**T10**

**B-493 RESCUE STATIONS AND REFUGES**

The range of equipment used in rescue is wide, eg: ~~search & rescue from~~ search & rescue ~~from~~ helicopters; fast, long-distance lifeboats; ~~to~~ inflatable inshore lifeboats ~~and rocket equipment~~. It is not possible to make such distinctions on charts. ~~It is recommended that~~ ~~Rescue~~ lifeboat stations of all types ~~other than those accompanying fishing fleets, shall~~ should be shown on the largest scale charts. ~~Station with rocket equipment may be charted if though desirable.~~

**B-493.1** The symbol for a rescue station is:



T12

without any accompanying abbreviation. It **should normally** be shown in lieu of any building housing the lifeboat but on large scale charts may be shown alongside such a building or slipway.

**B-493.2** A lifeboat lying at a mooring may be shown by



T13

The symbol **should normally be shown adjacent to** the mooring buoy, **but may be shown** in lieu of the buoy on charts on which mooring buoys are not shown.

**B-493.3** A combined coastguard and rescue station may be shown by charting the coastguard station in its correct position with the rescue station symbol alongside it.



T11

**B-493.4** A refuge for shipwrecked mariners should be charted by the **international abbreviation**

Ref T14

The abbreviation should be inserted adjacent to an appropriate symbol, such as a building (D5) or a refuge beacon (Q124).

**Commentaire [c18]:** This replaces the special Antarctic symbol for a refuge, as agreed at CSPCWG2

**B-494** **SIGNAL STATIONS: GENERAL**

**Signal stations** communicating visually have declined in importance ~~but are still of some significance~~. They are charted not only for their main role of signalling information and instructions but also as a form of landmark. The signals ~~generally exhibit lights by day and night but displayed~~ may display shapes or flags ~~or semaphore~~ by day, ~~and lights by night~~. If required to be charted, the position of the station should be represented by a position circle (B22 - see B-305.1) with a light flare, ~~unless it is known that the signals are not lights~~. On multicoloured charts, a light flare which is half red and half green may be used.

**Commentaire [c19]:** This is a suggestion in response to FI and SE's question about how to show signal station flares on multi-coloured charts. Comments, please, on response form. A graphic can be included if approved. We envisage the flare being divided lengthwise.

**B-494.1** **Signal stations.** The **international abbreviation** for a signal station with no specified function is 'SS':



T20

Where the function of the signal is specified, the **international abbreviation** 'SS' must precede the function given in brackets eg 'SS(Lock)', or equivalent.

**B-494.2** **Descriptions of lights** used for signalling purposes **must** not normally be inserted on charts. However, exceptions to this rule would include lights which in normal mode are used as aids to navigation, such as leading lights used also as port entry signals. For details, see B-495.

~~The significance of these visual signals has declined but, as they are often prominent landmarks, they should be shown on the largest scale charts.~~

~~**B-494.1** **Storm, weather and ice signal stations**, if considered of sufficient importance to the mariner either as a source of warning signals or as a landmark, should be shown on the largest scale charts by a position circle and legend, eg 'SS(Storm)' or equivalent. Traffic signals should take precedence over storm signals if there is insufficient space to chart both.~~

⊙SS(Storm)

**T28**

⊙SS(Weather)

**T29**

⊙SS(See)

**T30**

**B-494.2** — **Time signals** are usually balls hoisted at a prominent place overlooking a harbour or anchorage, and released at an exact time. Where considered a landmark they should be charted on the largest scales by a position circle and legend, eg <sup>1</sup>SS(Time)<sup>2</sup> or equivalent. Time guns should not be charted.

⊙SS(Time)

**T31**

**B-495 TRAFFIC SIGNAL STATIONS**

Signals generally exhibit lights by day and night but may display shapes or flags by day. The nature of traffic signals varies from country to country and even from port to port. For charting purposes traffic signals can be considered to include:

- a. Port entry and departure signals;
- b. Lock, docking and berthing and canal signals;
- c. Bridge signals;
- d. ~~Any other signals regulating traffic movement~~ International traffic -

~~The nature of traffic signals varies from country to country and, in many countries, from port to port signals.~~

Signal stations are normally charted by a position circle with flare and legend. However, lit signals may also form part of a leading line, or the lights may be permanently displayed to assist an approaching vessel identify the port. In such cases, a light star should replace the position circle.

If the signal light is also the navigational light, no additional light description should be inserted.

If the navigational light is different from the signal light, but shown from the same position, then a light description should be inserted in accordance with B-471.8, eg:

~~new international rules under the title 'Recommendations for port traffic signals'. Where signals at charted signal stations conform to the IALA 'Recommendations for Port Traffic Signals', see B-495.4, the international abbreviation '(INT)' should follow the abbreviation 'SS' and should replace or precede other legends in parenthesis in B-495.1 to B-495.4; see B-495.5.~~

**B-495.1** Port entry and departure signals are important and ~~the station from which they are shown~~ should be charted ~~by a position circle or building symbol with using~~ the legend 'SS(Traffic)' or equivalent.

⊙SS(Traffic)

T22

**Commentaire [c20]:** DID, please insert another version of T22 with a star and flare and an additional light description, ie:  
Oc.4s12M  
SS(Traffic)

~~Such signals may also form part of a leading line, or the lights may be permanently displayed to assist an approaching vessel identify the port. In such cases, a light star should replace the position circle. Large ports may combine control functions in a centralised signal station, usually prominent, which may be charted as 'Port Control Signal Station', or 'SS(Port Control)', or equivalent.~~

⊙SS(Port Control)

T23

**Commentaire [c21]:** DID: please add flare

**Commentaire [c22]:** DID: please add flare

**B-495.2** Lock, docking and berthing signals may be displayed within, or in the approaches to, a port. These should be shown on harbour charts where space permits, using the appropriate legend, eg, 'SS(Lock)' or equivalent.

⊙SS(Lock)

T24

**Commentaire [c23]:** DID: please add flare

**B-495.3** Bridge signals. Signals at opening bridges may be charted if required, using the legend 'SS(Bridge)' or equivalent.

⊙SS(Bridge)

T25.1

**Commentaire [c24]:** DID: please add flare

**B-495.4** Bridge lights marking the centres of navigable spans (and sometimes non-navigable spans) are not primarily traffic signals and should be charted by light stars, where space permits, with the colour of the light shown in light descriptions. Where such lights change character to regulate traffic movements they should be charted as light stars, where space permits, but should carry the legend 'Traffic Sig SS(Traffic)', or equivalent.



**Commentaire [c25]:** INT1 producers please note to make T25.2 obsolescent.

**Commentaire [c26]:** DID: please improve graphic

**B-495.4 International traffic signals.** In 1982, the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) published new international rules for signals under the title 'Recommendations on Port Traffic Signals'. An updated version was issued in 1998. It is expected that existing signals will gradually be replaced, so that eventually all ports throughout the world will have uniform basic signals. In addition to controlling port traffic, these signals may also be used to control movement at locks and bridges.

The principal characteristics of the international rules are:

- Only lights are used;
- The main movement message given by a Port Traffic Signal shall always comprise 3 lights vertically disposed. No additional light shall be added to the column carrying the main messages;
- ~~Red lights indicate 'Do not proceed'.~~
- 1. ~~Green lights indicate 'Proceed, subject to the conditions stipulated'~~
- ~~A yellow light to the left of the column exempts smaller vessels in certain circumstances. It is optional~~
- ~~for special purposes may be added to the right of the column. They are optional.~~
- Main messages are:
  - ~~2-1,3~~ flashing red lights indicate a serious emergency: all vessels to stop or divert according to instructions.
  - ~~3-2,3~~ fixed or slow occulting red lights indicate 'Vessels shall not proceed'.
  - ~~4-3,3~~ fixed or slow occulting green lights indicate 'Vessels may proceed. One way traffic'.
  - ~~5-4,2~~ (upper and middle) fixed or slow occulting green lights indicate 'Vessels may proceed. Two way traffic'.
  - ~~6-5,2~~ (upper and lower) fixed or slow occulting green lights indicate 'A vessel may proceed only when it has received specific orders to do so'.
- A single yellow light to the left of the column carrying main messages 2 or 5 above, at the level of the upper light, may be used to indicate that 'Vessels which can safely navigate outside the main channel need not comply with the main message';
- Signals auxiliary (additional) to the main signal may be devised by the appropriate local authority. Such auxiliary signals should employ only yellow and/or white lights and should be displayed to the right of the column carrying the main message.

**Commentaire [c27]:** Auxiliary is the word used by IALA in E-111 – is it generally understood?

Where a traffic signal is known to conform with the above rules, the **international abbreviation 'INT', in parentheses, should follow the abbreviation 'SS':**

~~SS(INT)~~ **T21**

Commentaire [c28]: DID: please add flare

~~'INT' should replace or precede other legends in parenthesis in B-495.1 to B-495.3, eg 'SS(INT:lock)'. 'SS(INT)' must be used. In such cases any case, the legend '(Traffic)' is not required. Where considered necessary, other legends may follow 'INT' eg 'SS(INT:lock)'. A light flare must be added to the position circle. On multicoloured charts, the flare may be half red and half green.~~

~~SS(INT)~~ **T21**

Commentaire [c29]: DID: please add flare

**B-496 TIDAL AND WATER LEVEL INDICATOR SIGNALS**

The following features, all connected with showing or recording the height of the tide or strength of tidal stream, may be found on some large scale charts:

- a. A visual scale which directly shows the height of the water above ~~chart datum or a local~~ datum. They are often found at lock entrances indicating the depth of water over the sill. A variation is found near some bridges, indicating the headroom as the water level rises and falls.
- b. ~~Some ports provide signals~~ Signals, visible from some distance, which indicate the height of tide or strength of tidal stream ~~by means of hoisted shapes or lights.~~
- c. Automatically recording tide gauges which do not normally have a facility for direct reading by the mariner.
- d. Tidal 'stations', ie, places for which predicted heights are available in published tide tables.

Any of the above may be found together at the same location.

**B-496.1** ~~Tide Visual~~ scales and recording tide gauges are minor features which may be charted on the largest scale charts if space permits.

Commentaire [c30]: Amended to match wording above, and to remove 'tide' as requested by FI. INT1 subWG please note to amend term.

The location of visual scales should be shown by the symbol.

~~⊕~~ **T32.1**

The location of a recording tide gauge ~~recorder~~ may be indicated by a legend, if thought useful.

Commentaire [c31]: FI ask whether another word could be used. We do not think there is another suitable word in English. T32.2 is well established though actually of little interest to the mariner. Visual scales are more useful for the mariner and here we agree that the word 'tide' may be unhelpful in certain areas.

○ Tide gauge **T32.2**

**B-496.2** Tide signals are prominently displayed at some ports and range from a simple system which merely shows whether there is enough water to enter a drying harbour (or whether the level is rising or falling) to an elaborate coded system of shapes and lights which, when totalled, give a fairly accurate guide to the depth of water. They should be charted on the larger scale charts by means of a position circle with the legend 'SS(Tide)' or equivalent. Traffic signals, see B-495, should take precedence over tide signals if there is insufficient space to chart both.

○ SS(Tide) **T33**

**B-496.3** Tidal stream signals giving both speed and direction of the tidal flow, are displayed in a similar manner to other tidal information. They are usually sited in the approaches to narrow channels where the rate of the tidal stream is strong, and can be read from some distance off, thus enabling the mariner to plan, or time, his approach. They should be charted similarly to tide signals, using the legend 'SS(Stream)' or equivalent. In some areas maritime traffic control is dependent on tidal streams; in such cases the regulations may be explained in a note.

⊙SS(Stream)

**T34**

~~**B-496.4** Tidal ‘Stations’ are defined in this context as places for which published tide tables give predicted heights (see B-406.1). No exact location is charted but it is important to ensure that the names of such places are included on all appropriate charts. Latitudes and longitudes of places which might be difficult to locate are given in the tabular statement on the chart and in the tide tables.~~

**B-497 OTHER SIGNAL STATIONS**

**B-497.1 Storm, weather and ice signal stations**, if considered of sufficient importance to the mariner either as a source of warning signals or as a landmark, should be shown on the largest scale charts by a position circle and legend, eg ‘SS(Storm)’ or equivalent. Traffic signals should take precedence over storm signals if there is insufficient space to chart both.

⊙SS(Storm)

**T28**

⊙SS(Weather)

**T29**

**Commentaire [c32]:** FR and UA wish to retain SS (Weather)

⊙SS(ice)

**T30**

**B-497.2 Danger signals**, eg, for firing areas. The position circle may be replaced by a flagstaff (E27) or small light star and flare (P1) depending on the nature of the signal.

⊙SS(Danger)

**T35**

⊙SS(Firing)

**T36**

~~Signal stations send and receive signals and messages by radio telegraph cable and, sometimes, visual methods. Coastal signal stations are usually situated at vantage points where ships converge or pass close to, so that visual signals can be exchanged. They should be charted by a position circle with abbreviation ‘SS’.~~

⊙SS

**T20**

~~**B-497.1** Telegraph stations should be charted in the same way as signal stations. Modern means of communications enable all coastal signal stations to perform the functions of Telegraph stations.~~

⊙SS

**T27**

**Commentaire [c33]:** T27 & T31 (ex B-494.2) should be deleted from INT1