

8th CSPCWG Meeting  
Turku, Finland, 29 November – 2 December 2011

Paper for Consideration by CSPCWG  
Coloured Light Flares

<b>Submitted by:</b>	Secretary
<b>Executive Summary:</b>	WG Letter 6/2011 elicited responses to questions arising from WG7 Action 17. Some of the issues would now benefit from 'round the table' discussions
<b>Related Documents:</b>	S-4 B-470
<b>Related Projects:</b>	None

**Introduction / Background.**

CSPCWG7 Action 17 required the Secretary to draft clarifications to specifications B-470 and B-494 for use of solid magenta flares. In addressing this action, and considering UK's early experience of producing multicoloured charts, it was realized that the questions needed to be wider and would possibly result in further updating of S-4 B-470.4.

Secretary initially collected the opinions of those nations who have been producing multicoloured charts for some time. Their answers are set out in CSPCWG Letter 06/2011. Following this preliminary exercise, Letter 06/2011 then posed a series of questions for the entire group to consider. The responses are attached at Annex A to this paper.

It is proposed that some of these questions would now benefit from 'round the table' discussions, to guide the Secretary in drafting changes to B-470.4

**Analysis / Discussion.**

It is important to bear in mind that some nations have been producing multicoloured charts for some time, without the benefit of international guidance. Consequently, there are differences in their practices; our task is to produce standard guidance which will benefit the majority of HOs who do not yet produce multicoloured charts, but may do so in the future; and also to encourage improved standardization of existing practices, ultimately for the benefit of the mariner. We also need to be aware of the related presentation standards for ENC. One thing revealed in the comments from multicoloured chart producers was an assumption from at least two members (DE and NO) that there would be a scale cut-off for the use of multicolour. This concept was not stated at the time the specifications in B-470.4 were drawn up. It may be appropriate to discuss this first, as the outcome may influence the decisions relating to other questions.

In response to letter 6, the following comments on scale and navigational purpose were made:

AU AU can understand the merits of both arguments in relation to this question, and therefore abstains from indicating a preference. However, AU has investigated a sample of its charts at scales smaller than 1:2000000 and virtually all the lights shown on these charts are white "landfall" lights, and there are no sector lights shown.

- DE Perhaps I misunderstood the discussion but we should not combine “generic” colour chart symbolization with multicoloured chart symbolization. Depending on the scale and degree of generalization we should choose one appropriate. Our proposal for a scale cut-off is 1: 500 000.
- FI Scale cut-off: Our smallest scale modern chart is in 1:250 000, but I would say that our charts in smaller scale would still be multicolour.
- FR Considering the generalization due to scale, a scale cut-off for multicolour charts, or at least definition of appropriate navigational purposes for multicoloured charts, could be useful for the producers of such charts as well for users to understand what is drawn. This should be in accordance, as it has been suggested, with the level of detail of the legends. The use of coloured flare should be retained when a flare is used on standard charts, even for all round light.(except for particular case like P42).
- GR GR believes that the scale (1:500.000) should be the main factor that separates multicolour and standard charts.
- JP Japan has no plans to publish multicoloured chart for the time being. However, we support the opinion of scale cut-off for the use of multicolour. And, we support to use magenta flares on small scale charts.
- LV About scale, it can be noted in lots of cases, as it is already established, that the scale for the same navigational purposes can differ quite great within different navigation regions, for example, Baltic Sea region. If we want to introduce the “cut off “ for multi-coloured charts, then probably it should be the cut off navigational purpose instead, given that the navigational purposes are strictly described in S4 in terms of information and symbology level to be included in each, but scales of them are left to Regional Hydrographic Commissions or HO to determine.
- ZA It seems like that there should be a scale cut-off for multicolour charts which South Africa recommends at < 1:500 000 scale charts.

We should discuss whether a scale or navigational purpose cut-off is appropriate, and if so, where it should be. A cut-off will introduce lack of standardization between charts. To some extent, this already exists at 1:2M (S-4 Part C refers instead of Part B). Choosing a larger scale will make the specifications more complex.

Turning to the other questions:

**Question 1** has a small majority in favour of using a generic magenta flare at platforms. It may be worth having a brief discussion about this.

**Question 3** has a clear majority in favour of multiple flares for ‘separate and different coloured lights charted at the same position’. However, this seems at odds with the decision at CSPCWG7 that ‘Multiple coloured flares at platforms (and other lights) were considered to be unnecessary clutter’ (see CSPCWG7 Record 8.10). It is worth exploring the reason behind this discrepancy, which may be associated with the question about scale cut-off (see DE comment above, implying that ‘generic’ light flares should not be used on multicoloured charts). It is also worth noting FI’s comments on Question 9 here.

**Question 4** has a small majority in favour of using a generic magenta flare at Aero lights. It may be worth having a brief discussion about this.

**Question 9** will need to be addressed by the INT1 subWG, when various specifications for multicoloured charts have become settled.

There seems to be clear votes in favour of the proposals at **questions 2, 5, 6, 7 and 8** and no further discussion seems necessary.

Additional to the above issues, we should consider other possible refining of the specifications at B-470.4:

**Bullet 5:** would it more consistent to always omit the flare if coloured sector arcs are shown (the radial sector limits will easily lead the eye to the light star, except for 360° lights). This would at least reduce the number of cases when a 'generic' magenta flare or group of coloured flares is required.

**Bullets 5 to 8:** should there be a 'standard' size for circles at 360° lights? Another possibility would be to have a range of sizes to try and differentiate longer range from shorter range lights; but perhaps that is adding too much complication. AU disagrees with circles instead of flares, but UK has received chart user feedback that major lights are not emphasized enough compared to lesser sector lights if only marked with a flare. The same problem exists on ENC.

**Bullet 7** may need amendment following the discussions on major lights to follow at the next agenda item.

### **Conclusions.**

None

### **Recommendations.**

None

### **Justification and Impacts.**

- Ensure clarity for the chart user through improved consistency
- Some further changes to specification B-470.4

### **Action required of CSPCWG.**

The CSPCWG is invited to:

Advise on the above questions.

**CSPCWG7 - Action 17****Use of generic magenta light flare on multicoloured charts**

Consolidated Responses to CSPCWG Letter 06/2011

Question No	Question	Yes	No
1	<b>Production platforms (L2/P1).</b> As multiple flares were considered to be unnecessary clutter at CSPCWG7, should platforms be highlighted by:		
	a) a magenta flare (because there are white and red lights and this is the traditional practice) <b>This is the preferred option, by a small majority.</b>	BR, DE, ES, ESRI, GR, JP, LV*, NL, UK, ZA	
	b) a yellow flare (because the white light is the principal navigation light)	AU, DK, FR, LV, SE, US(NOAA)	
	c) a yellow circle (because the main navigation light is an all-round major light).	DK	AU
2	<b>All-round lights with subsidiary sector lights covering a danger (P42).</b> Do you agree with the following guidance: <ul style="list-style-type: none"> <li>Where there is a major all round light, with a separate sector light (eg covering a danger), this should be symbolised by an appropriately coloured circle around the light, with the sector light symbolized separately by its sector, with coloured arc. If the chart scale is too small to show the coloured sector, then its associated light description should also be omitted.</li> </ul> <b>This is approved by almost everyone. The AU objection is to the use of a circle in general.</b>	BR, DE, DK, ES, ESRI, FI, FR, GR, JP, LV, NL, SE, UK, US(NOAA), ZA	AU
3	<b>Separate and different coloured lights charted at the same position.</b> Should these be highlighted by:		
	a) a magenta flare?	JP, UK	
	b) multiple coloured flares? <b>This is a clear majority, but differs from the recent agreement at CSPCWG7 (see record 8.10).</b>	AU, BR, DE, DK, ES, ESRI, FI, FR, GR, LV, NL, SE, US(NOAA), ZA	
4	<b>Aero navigation lights (P60).</b> Should these be highlighted by:		
	a) a magenta flare? <b>This is the preferred option, by a small majority.</b>	BR, ESRI, GR, JP, LV*, SE, UK, US(NOAA), ZA	
	b) a coloured flare?	AU, DE, ES, FI, FR, LV, NL	
	c) a coloured circle?	DK	AU

Question No	Question	Yes	No
5	<b>Major floating lights</b> (P6). Do you agree that these should be highlighted by an appropriately coloured flare? (In accordance with the agreement at CSPCWG, a magenta flare would be used if, unusually, there is a multicoloured light).	AU, BR, DE, DK, ESRI, FI, FR, GR, JP, LV, NL, SE, UK, US(NOAA), ZA	
6	<b>Lights without descriptions on small-scale charts</b> (S-4 C-414.1). Should these be highlighted by:		
	a) a magenta flare? <b>This is a clear majority.</b>	BR, DE, ES, ESRI, FR, GR, JP, LV*, NL, SE, UK, ZA	
	b) a yellow flare?	DK, LV	
7	<b>Reserve lights.</b> Do you agree that, even if the description is shown, it should be ignored for the purposes of deciding the flare colour?	AU, BR, DE, DK, ES, ESRI, FI, FR, GR, JP, LV, NL, SE, UK, US(NOAA), ZA	
8	<b>Moiré effect lights</b> (P31). Do you agree that these should continue to be charted by a magenta triangle, regardless of colour (if known)?	AU, BR, ES, ESRI, FI, FR, GR, NL, SE, UK, US(NOAA), ZA	
9	<b>INT1.</b> Do you agree that some kind of explanation of the use of a generic magenta flare on multicoloured charts should be provided for the chart user in INT1? <b>This is a clear majority.</b>	AU, BR, DK, ES, ESRI, FI, FR, GR, JP, LV, NL, SE, UK, US(NOAA), ZA	DE

Further comments (including on whether there should be a scale cut-off for multicolour charts):

AU comments:

Please note that AU does not produce multicolour charts, and has no intention of doing so in the immediate future. This should be taken into consideration when assessing Aus response to the questions above. The following additional comments are numbered to correspond with the numbers in the table above:

1. AU does not agree with the use of a circle to indicate an all-around light. Circles around navigational aids are traditionally associated with radio and radar – not lights. If there is a single flare to be shown, AU prefers the yellow flare option as the white light is the major navigational light at the platform, but would support the option of showing multiple coloured flares.

**A coloured circle for all round major lights has already been agreed (B-470a, bullet 7). It would normally be significantly larger than, and easily distinguished from, a magenta radio circle**

2. As for response to (1) above. AU would prefer the appropriate coloured flare at the light to indicate the all-around light, and the appropriate coloured arc to mark the sector. For the example at INT1 K42, this would be a yellow flare at the light star, and a red arc where the pecked sector arc is located.

As above.

6. AU can understand the merits of both arguments in relation to this question, and therefore abstains from indicating a preference. However, AU has investigated a sample of its charts at scales smaller than 1:2000000 and virtually all the lights shown on these charts are white “landfall” lights, and there are no sector lights shown.

DE comments:

No 1: Single magenta flares should be used on small scale generic charts, on multicoloured charts all existent light colours should be shown as flares.

This implies a different rule for different scales.

No 2: DE agrees in principle. It depends on the degree of generalization. The first step is to show flares instead of sectors and keep the light descriptions. In a smaller scale only the more important light with its description should be shown.

No 5: see comment to No 1

No 8: DE has no experiences in charting moiré effect lights. If a colour is known it should be charted according to our general recommendations.

No 9: Perhaps I misunderstood the discussion but we should not combine “generic” colour chart symbolization with multicoloured chart symbolization. Depending on the scale and degree of generalization we should chose one appropriate. Our proposal for a scale cut-off is 1 : 500 000. For INT1 we should include more examples for multicoloured charts.

This implies a different rule for different scales. Perhaps further discussion needed.

DK comments:

Production platforms: DK would use either the yellow flare or the yellow circle depending on the scale of the chart.

Moiré effect lights: DK abstain from voting on this matter as we have none in Danish waters.

ES comments:

Spain (IHM) has no experience in multicoloured charts.

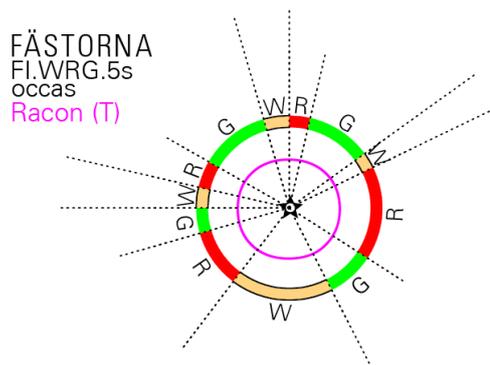
ESRI comments:

There are no technology limitations that would prohibit the implementation of any of these options. Consequently, from a software perspective, Esri does not have a strong opinion regarding the outcome of the questions, and our responses largely reflect the majority opinion expressed by the Member States that are currently producing multicoloured charts.

FI comments:

Question 1: We have no experience with production platforms. All the options are acceptable for us.

Question 9: Yes, what we need clear guidance that allows:



this:

to be generalized for example like this:



There are some cases, like the one above, in our charts, where the light becomes “over-prominent” when the sectors are shown. The light in the example is a very minor, occasional light, which still needs to be charted. When shown as in the first picture above, it draws focus from the single-coloured, more major lights in the same area.

We have tried the one below, but it got misinterpreted by the chart users.



It would be helpful to know in what way this was misinterpreted. It may be that the mariner assumed the flares represented the actual sectors?

The same method would also be used in congested areas to simplify the presentation of sector lights to reduce clutter.

Scale cut-off: Our smallest scale modern chart is in 1:250 000, but I would say that our charts in smaller scale would still be multicolour.

We understood that the use of multiple coloured flares at light stars was unwelcome (unnecessary clutter), from the discussions at CSPCWG7, but this seems to need reconsideration following the majority answer to question 3 (including FI).

FR comments:

1- France (SHOM) has no experience in multicoloured charts but could produce some of them in the future.

2- Considering the generalization due to scale, a scale cut-off for multicolour charts, or at least definition of appropriate navigational purposes for

multicoloured charts, could be useful for the producers of such charts as well for users to understand what is drawn. This should be in accordance with, as it has been suggested, with the level of detail of the legends. The use of coloured flare should be retained when a flare is used on standard charts, even for all round light.(except for particular case like P42).

Perhaps further discussion needed.

GR comments:

We do not have any experience in Greece about the moiré lights.

GR believes that the scale (1:500.000) should be the main factor that separates multicolour and standard charts.

GR does not have the experience in production of multicolour charts.

JP comments:

Japan has no plans to publish multicoloured chart for the time being. However, we support the opinion of scale cut-off for the use of multicolour. And, we support to use magenta flares on small scale charts.

Moiré effect lights: No experiences with these lights in Japan.

LV comments:

\* In case, if we talk about multi-coloured charts, our opinion is that while chart is navigational purpose the colour should persist, even if we talk about omitting information from smaller scale like in S-4 B-472.4. Further, if looking from multi-coloured perspective, it is mentioned in C-414.1, that “Significant lights ... shall be shown, by symbology only...”, which on multi-coloured charts are coloured flares. The magenta flares could be in charts, if the chart is used in addition with primarily used navigational charts, and these can include Informational Charts, or Routing Guide, or Anti Piracy Measures Chart, etc other special purpose, which falls out of standard multi-coloured folio and where the flare symbol must exist, but also be as less important as it can be, not to draw away the attention from special purpose objects.

About scale, it can be noted in lots of cases, as it is already established, that the scale for the same navigational purposes can differ quite great within different navigation regions, for example, Baltic Sea region. If we want to introduce the “cut off “ for multi-coloured charts, then probably it should be the cut off navigational purpose instead, given that the navigational purposes are strictly described in S4 in terms of information and symbology level to be included in each, but scales of them are left to Regional Hydrographic Commissions or HO to determine.

This adds another perspective to the ‘scale cut-off’ debate.

Comment at 2: Before omitting the information from sector symbol we would also prefer to look for the possibility to show the appropriate colours flare in close to sector main direction with the light description.

Comment at 5: We would like to see “...magenta flare could be used...” in conjunction with the first comment.

NL comments:

Netherlands up till now did not produce A0 INT Charts in multi-colours but will produce in the future.

Our national 1800 series for the small craft is multi-coloured for light sectors etc., but we don't use flares for these charts but coloured light bulbs.

SE comments:

Question No 2: SE agrees in principal. However if the scale is too small to show the sector an option should be to show a flare and retain the light description.

Does this mean 2 flares at the same light, or a circle and flare? (Consistent with the answer to Q3).

US-NOAA comments:

NOAA does not produce multi-coloured charts.

NGA does produce multi-coloured charts.

- As a general comment, any time a magenta flare is used on a multi-coloured chart to symbolize anything other than a red coloured light signal, a note MUST be added to each NAUTICAL CHART (not just INT 1) explaining that fact.

This is a unique point of view.

ZA comments:

South Africa does not produce multicoloured charts at all. As we have no experience, South Africa will align with the majority. However, it was felt to deliver some constructive opinion rather than not responding at all.

It seems like that there should be a scale cut-off for multicolour charts which South Africa recommends at < 1:500 000 scale charts.

IN and NZ abstained from responding as they have no experience in the production of multicoloured charts.