CSPCWG9-08.1B

9th CSPWG MEETING
Seoul, Republic of Korea, 13-16 November, 2012

Paper for Consideration by CSPCWG

Group and Interrupted Q, VQ and UQ lights

Submitted by:	UK
Executive Summary:	What is the difference between a group and interrupted light?
Related Documents:	S-4, S-12
Related Projects:	None

Introduction / Background.

AU raised this issue in an email to Secretary dated 23/01/12, as follows:

1. For quick and very quick flashing lights, there exist both the classes 'group' and 'interrupted' (i.e. group quick and interrupted quick, etc). The question is - what is the difference between a group class and an interrupted class? From looking in the Admiralty List of Lights and INT1, it looks like the difference is in the length of the long eclipse compared with the length of the sequence of flashes (although the diagram for quick lights in the Admiralty List of Lights does not appear to support this, while the corresponding diagram in INT1 (BSH) does). If the length of the long eclipse is longer than the length of the sequence of flashes it is a group class light, and if the length of the long eclipse is shorter than the length of the sequence of flashes, it is an interrupted class light. Is this interpretation correct?
2. To take this a little further, flashing lights do not contain the class 'interrupted', and ultra quick lights do not carry the class 'group'. Does this mean that flashing lights cannot have a long eclipse that is of shorter length than the length of the sequence of flashes? Does this mean that ultra quick lights cannot have a long eclipse that is of longer length than the length of the sequence of flashes? Note also that there also exists the class 'group occulting', but no 'interrupted occulting'.
3. In the Admiralty List of Lights, the following definitions are given:
    a. Group [flashing/quick/very quick]: A [flashing/quick/very quick] light in which a specified group is regularly repeated.
    b. Interrupted [quick/very quick/ultra quick]: A [quick/very quick/ultra quick] light in which the sequence of flashes is interrupted by a regular repeated eclipse of constant and long duration.
4. The S-32 definitions are similar to the above.
5. The interpretation of the terms that I have provided above has come only from looking at the diagrams supplied in the Admiralty List of Lights and INT1; there is no further information in S-4 or S-12. The definitions do not, in my opinion, provide a clear distinction between these terms, and this may need to be addressed in S-32.

Since this email from AU, Secretary has been engaged in considerable correspondence to try and resolve the issue.

Analysis / Discussion.

Various different ideas on how these terms are differentiated have been offered by UKHO Lights experts and also UK General Lighthouse Authorities: none of them seem to be adequate, particularly when compared with the actual examples found, or likely to be readily understood by chart users. After some email exchanges with various 'experts', Secretary wrote as follows to **IALA's Technical Co-ordination Manager (Mike Hadley):**

1. The 4th question was on the definitions of Group v Interrupted in relation to Q, VQ and UQ lights. Although Malcolm Nicholson [Principal Development Engineer (Visual Signalling) The General Lighthouse Authorities of the UK and Ireland] suggested (email 10 Feb) that the use of interrupted should be removed or at least discouraged, you will have seen Hal Milner's [UKHO Lights officer] response pleading for its retention and some clearer guidance about its use (email 14 Feb). Hal is suggesting that IHO should resolve the matter in one of two ways – but I am not sure that IHO should take the lead on resolving this. Perhaps it should be a joint IALA/IHO decision?
2. From my, perhaps simplistic, view, it seems that it is confusing to have both the options of 'group' and 'interrupted' associated with Q and VQ lights (but only 'interrupted' for UQ). I presume that the problem with using the term 'group' for UQ is that it is simply impossible to count the number of flashes; the same is probably true for VQ, but it should be relatively easy to count the flashes for a Q light. Would the simplest solution be to use only the term 'group' in association with Q, and only the term 'interrupted' in association with VQ and UQ? This would mean removing the options for IQ and group VQ.

The response actually came from Capt Phillip Day AFNI, Director of Marine Operations at the Northern Lighthouse Board (UK):

> Group Q and VQ are countable and used widely eg cardinal marks, Group UQ is not mentioned in the IALA Navguide. Interrupted VQ and UQ are not defined but are listed in 'Table of Maximum period for rhythmic characters of aids to navigation lights'. This reflects the recommendation E110. There is clearly an area here to tidy up and I would suggest we report back on this after the next EEP and ANM committees when this can be discussed.

Unfortunately, it seems this question was <u>not</u> referred to the EEP (Engineering, Environmental and Preservation) and ANM (Aids to Navigation Management) committees in April. It will now be considered by the ANM committee in November (in Brisbane at the same time as our CSPCWG9 meeting). The next meeting after that will be April 2013 (expected to be in France).

While it is surely correct that IALA should provide a definitive answer, there nevertheless seems to be a current lack of understanding about the definitions and it is possible that IHO (from CSPCWG) could at least supply a proposal.

From the various correspondence entered into by the Secretary, both internally in UKHO and externally with IALA and UK's GLA (General Lighthouse Authority), only one current theory about the definitions seems to be tenable: that 'Interrupted' has been used in the case of 'ultraquick' lights because of the impossibility of counting the flashes in a group. Its use then seems to have been extended to 'very quick' (where it is just possible to count the flashes) and 'quick' (where it is easy to count the flashes).

To avoid this confusion, we could suggest removing the terms 'IQ' and 'IVQ' and just retaining 'IUQ'. Quick and very quick lights would then always be described as group,

eg Q(3) or VQ(3). Note that there is no option for group ultra-quick, eg ‘UQ(3). Some amendments would be needed to S-4, S-12 and INT1.

Note: S-12 graphics 5.2/5.3 adds an element of confusion, by differentiating Q(3)10s from IQ.10s by showing short eclipses between the flashes for the former, but not the latter. This is not similarly reflected in 6.2/6.3 for VQ, nor INT1 P10.6 and 10.7. Also, the ‘remark’ in the right hand column in S-12 5.2 seems to be located against the wrong light character.

Conclusions.

So far, the combined expertise of the lights experts in the AU and UK hydrographic offices, the British and Irish GLA and IALA’s Technical Coordination Manager has failed to uncover a clear differentiation between these terms. It is therefore unlikely that most chart and Light Lists users could have a clear understanding of any difference. In such case, it seems appropriate to use only the one term (for Q and VQ lights) and reserve IUQ for ultra quick lights where counting groups is impossible.

Recommendations.

Propose to IALA that, to avoid confusion, the terms ‘IQ’ and ‘IVQ’ should be redundant. Quick and very quick lights would then always be described as group (unless continuous), eg Q(3) or VQ(3). Such a suggestion may need to be progressed through an IHO-IALA liaison note.

Once agreed with IALA, the outcomes will need to be referred to HDWG to update S-32.

Justification and Impacts.

1. Removal of confusion.

2. Changes required to S-4, S-12 (ownership unknown), INT1 and possibly national Lists of Lights.

3. May need to revise some charted light descriptions.

Action required of CSPCWG.

The CSPCWG is invited to:

> Consider the above and advise WG officers how to proceed.
>
> Consider if there are other known experts (national, international), to seek further advice.