

2.5 CHARACTERISTICS OF LIGHTS

Lights are characterised by type, colour, period, phase, elevation (height of focal plane), range, sectors, alignment, etc.

2.5.1 Character of light

Each light has distinctive features which enable it to be recognised easily. These are known as the character or characteristics of the light. The main characteristics are generally determined by the sequence in which, and the intervals at which, the light and darkness are displayed and in certain cases by the various colours of light exhibited.

There are three categories of lights :

A. Fixed lights

B. Rhythmic lights

C. Alternating lights

These are rhythmic lights showing changes of colour on the same bearing.

The most frequent characteristics are shown below, with their names and abbreviations as used in most lists of lights and nautical charts. They can be regarded as international.

2.5.1.1 FIXED LIGHTS

These lights show a steady light with no interruptions or show no change in their character and this for an observer who doesn't change its position.

Fixed = F

The light shows a steady and continuous light (Figure 2.1).

Example

F

F



Figure 2.1

2.5.1.2 RHYTHMIC LIGHTS

Lights showing a periodic succession of light and darkness which are repeated in an identical way and at regular intervals.

2.5.1.2.1 Occulting and Group Occulting Lights

Occulting = Oc

Light with an even intensity of light which is totally eclipsed at regular intervals. The total duration of light in each period is always greater than the total duration of darkness. The intervals of darkness (occultations) are usually all of equal duration and repeated at regular intervals (Figure 2.2)

Example

Oc



Figure 2.2

Group occulting = Oc(x)

Light regularly interrupted by a group of two or more occultations. Each group includes the same number of occultations which are repeated at regular intervals.

The intervals of light separating the occultations within each group are usually of equal duration, and are shorter than the duration of the interval of light between two successive groups (Figure 2.3).

REMARK

the total duration of light in each period may be equal to the total duration of darkness.

Example



Figure 2.3

Composite Group occulting = Oc(x + x)

Group occulting light in which the occultations are combined in alternate groups of different numbers. The intervals of light separating the occultations within each group are usually of equal duration, and are shorter than the duration of the interval of light between two successive groups (Figure 2.4).

REMARK

With group occulting or composite group occulting, the total duration of light in each period may be equal to the total duration of darkness.

Example



Figure 2.4

Isophase = Iso

Light with all durations of light and darkness equal (Figure 2.5).

Example



Figure 2.5

2.5.1.2.3 Flashing and group Flashing lights

Light in which the total duration of light in each period is clearly shorter than than the total duration of darkness and in which the flashed of light are all of equal du-

ration.

Flashing = FI

Light showing a sequence of equal flashes which are repeated at regular intervals and where the duration of the dark intervals is greater than that of the light flashes. The number of flashes is less than 50 flashes per minute (Figure 2.6).

Example

FI



Figure 2.6

Long flashing = L FI

Light in which flashes of not less than 2.0 seconds are repeated at regular intervals (Figure 2.7).

Example

L FL



Figure 2.7

Group flashing = FI(x)

Light showing series of groups of the same number of flashes, which are repeated at regular intervals. The eclipses (dark intervals) separating the flashes within each group are usually of equal duration, and are shorter than the duration of the eclipse between two consecutive groups (Figure 2.8).

Example

FI(2)



Figure 2.8

Composite Group flashing = FI(x + x)

Group flashing light in which the flashes are combined in alternate groups of different numbers of flashes. The eclipses separating the flashes within each group are usually of equal duration, and are shorter than the duration of the eclipse between two consecutive groups (Figure 2.9).

Example

FI(3 + 2)



Figure 2.9

2.5.1.2.4 Quick Flashing lights

A light exhibiting very rapid regular alternations of light and darkness, normally not less than 50 flashes per minute and not more than 80 flashes per minute.

Quick flashing = Q

Light in which the rapid alternations of light and darkness are repeated without interruption (Figure 10).

Examples

Q



Figure 2.10

Group Quick Flashing = Q(x)

Quick flashes which are combined in groups, each number of flashes in the group being indicated by the number in brackets (Figures 2.11, till 2.14).

Q(3)



Figure 2.11

Q(6)



Figure 2.12

Q(6) + LF1W



Figure 2.13

Q(9)



Figure 2.14

The group quick flashing light Q(6) + LF1W is a special character which is used in the IALA buoyage system to indicate a south cardinal buoy (Figure 2.13)

Interrupted quick flashing = IQ (Int Qk Fl)12

Light in which the rapid alternations of light are interrupted at regular intervals by eclipses of long duration (Figure 2.15).

Example

IQ



Figure 2.15

2.5.1.2.5 Very Quick Flashing Lights

Lights in which the flashes are repeated at a rate of not less than 80 flashes per minute and not more than 160 flashes per minute.

Very Quick flashing = VQ

Light showing very quick and regular alternations of light and darkness which are repeated without interruption (Figure 2.16).

Example

VQ



Figure 2.16

Group very Quick Flashing = VQ(x)

Quick flashing light which shows a very specific group of quick flashing lights which are repeated at regular intervals. The number of flashes in the group are indicated by the number in brackets (Figures 2.17 till 2.20).

Examples

VQ(3)



Figure 2.17

VQ(6)



Figure 2.18

V(9)



Figure 2.19

VQ(6) + LF1W



Figure 2.20

The group quick flashing light Q(6) + LF1W is a special character which is used in the IALA buoyage system to indicate a south cardinal buoy (Figure 2.20)

Interrupted very Quick Flashing = IVQ

Light in which the very rapid alternations of light are interrupted at regular intervals by eclipses of long duration (Figure 2.21).

Example

IVQ



Figure 2.21

2.5.2.1.6 Ultra Quick Quick Flashing Lights

A light exhibiting ultra rapid regular alternations of light and darkness. The rate of quick flashes is not less than 160 flashes per minute.

Ultra Quick Flashing = UQ

Light showing continuous ultra rapid flashes of light (Figure 2.22).

Example

UQ



Figure 2.22

Interrupted Ultra Quick Flashing = IUQ

Light in which the ultra rapid alternations of light are interrupted at regular intervals by eclipses of long duration (Figure 2.23).

Example

IUQ



Figure 2.23

2.5.1.2.7 Morsecode lights

Morsecode light = Mo

Light in which flashes of different duration are grouped to reproduce a Morse character or characters. The total duration of light in each period is shorter than the total duration of darkness (Figure 2.24).

Example

Mo(K)



Figure 2.24

2.5.1.2.8 Fixed and Flashing Lights

A combination of a fixed light and flashes of greater brilliance.

Fixed and flashing = F FI

Fixed light varied at regular intervals by a flash of greater brilliance (Figure 20).

Example

F FI



Figure 2.25

Fixed and Group flashing = F FI(x)

Fixed light varied at regular intervals by a group of two or more flashes of greater brilliance (Figure 2.26).

Example

F FI(3)



Figure 2.26

REMARK : usually, F FI and F FI(x) lights are seldomly employed because at great distance they can be mistaken for single flashing lights.

2.5.1.3 ALTERNATING LIGHTS

These are rhythmic lights showing light of alternating colour over the same angle

Alternating = AI

Light which shows changes of colour on the same bearing (Figure 2.27).

Example

AI.WGR



Figure 2.27

An alternating light may be fixed, flashing, group flashing, occulting, group occulting, fixed and flashing, fixed and group flashing or fixed and composite group flashing (Figures 2.28 and 2.29).

AI.FI WR



Figure 2.28

AI.FI(2) WR



Figure 2.29

2.5.2. Period of a light

The period of a light is the time taken to exhibit one complete cycle of its characteristic pattern (light and darkness) be it a single flash (or occulting) or a group of flashes (or a group of occultings) (Figure 2.30 till 2.33).

2.5.2.1 INDICATION OF THE PERIOD

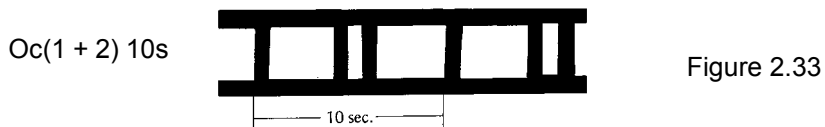
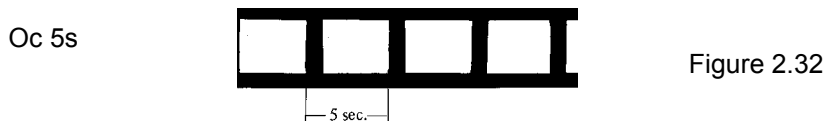
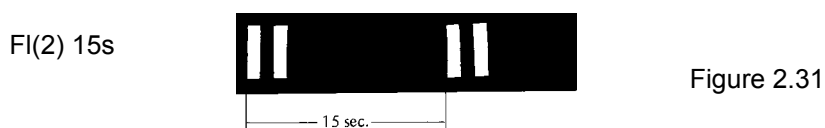
In the lists of lights and on charts, the period is given in seconds after the character of the light.

Examples

FI 5s



Figure 2.30



2.5.3 Phases of a light

Each element of the sequence of a light during one period is called a phase. The lists of lights indicate the duration of each phase.

In the English Admiralty List of Lights the intervals of light are preceded by the abbreviation fl for flashing lights, by lt for occulting lights and the intervals of darkness by the abbreviation ecl (Plate I, column 7).

In the American Light List the phases are given in column 4 - characteristics (Plate V) and in the List of Lights in column 4 - characteristic. The intervals of light are followed by the abbreviation fl and the intervals of darkness by the abbreviation ec (Plate V).

2.5.4 Number of lights

Sometimes two lights are erected in the same position; this is annotated in the list of lights by the number 2 preceding the characteristics of the lights.

When both lights are exhibited on the same lighthouse they are shown in the Admiralty List of Lights in the column headed 'structure (7)' by the term 'same tower' or 'same structure'. In the French lists of lights this is shown in the column 'nom-description-position approchee', (name-description-approximate position) by the words, 'Même tour'.

2.5.5 Colour of lights

The lists of lights always mention the colour of the light or lights, even if this colour is white. The colour is given between the character and the period of the light (Plates I, III, IV, V, VI, VII and VIII).

On charts, all lights are shown as being white, unless another colour is given adjacent to the characteristics of the light. When the light includes different sectors of which one or more are white, the colour of the white light is then also expressly mentioned (Figures 2.34 till 2.37).

Examples

Fl R 5s



Figure 2.34

Q G

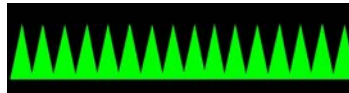


Figure 2.35

Fl(3) R 30s

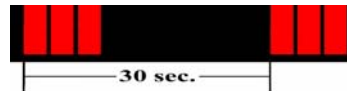


Figure 2.36

Al.Fl(3) WRG 15s

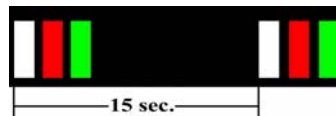


Figure 2.37