

121.11.05 LIGHTS TO BE DISPLAYED BY LARGE AEROPLANE**1. Aeroplane operating lights****1.1 Definitions**

Any word or expression to which a meaning has been assigned in the Aviation Act, 1962, and the Civil Aviation Regulations, 2001, bears, when used in this technical standard, the same meaning unless the contexts indicates otherwise, and -

“angles of coverage” means -

- (1) Angle of coverage A is formed by two intersecting vertical planes making angles of 70 degrees to the right and 70 degrees to the left respectively, looking aft along the longitudinal axis to a vertical plane passing through the longitudinal axis.
- (2) Angle of coverage F is formed by two intersecting vertical planes making angles of 110 degrees to the right and 110 degrees to the left respectively, looking forward along the longitudinal axis to a vertical plane passing through the longitudinal axis.
- (3) Angle of coverage L is formed by two intersecting vertical planes one parallel to the longitudinal axis of the aeroplane, and the other 110 degrees to the right of the first, when looking forward along the longitudinal axis.
- (4) Angle of coverage R is formed by two intersecting vertical planes one parallel to the longitudinal axis of the aeroplane, and the other 110 degrees to the right of the first, when looking forward along the longitudinal axis;

“horizontal plane” means the plane containing the longitudinal axis and perpendicular to the plane of symmetry of the aeroplane;

“longitudinal axis of the aeroplane” means a selected axis parallel to the direction of flight at a normal cruising speed, and passing through the centre of gravity of the aeroplane;

“making way” means that an aeroplane on the surface of the water is under way and has a velocity relative to the water;

“under command” means that an aeroplane on the surface of the water is able to execute manoeuvres as required by the International Regulations for Preventing Collisions at Sea for the purpose of avoiding other vessels;

“under way” means that an aeroplane on the surface of the water is not aground or moored to the ground or to any fixed object on the land or in the water;

“vertical planes” means planes perpendicular to the horizontal plane; and

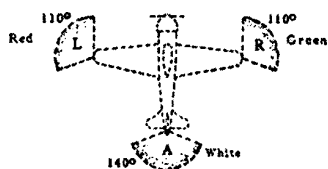
“visible” means visible on a dark night with a clear atmosphere.

1.2 Navigation lights to be displayed in the air

As illustrated in Figure 1, the following unobstructed navigation lights must be displayed:

- (1) A red light projected above and below the plane through angle of coverage L;
- (2) a green light projected above and below the horizontal plane through angle of coverage R;
- (3) a white light projected above and below the horizontal plane rearward through angle of coverage A.

1.3 Lights to be displayed on the water



(1) General

- (a) The International Regulations for Preventing Collisions at Sea require different lights to be displayed in each of the following circumstances:
- (i) When under way;
 - (ii) when towing another vessel or aeroplane;
 - (iii) when being towed;
 - (iv) when not under command and not making way;
 - (v) when making way but not under command;
 - (vi) when at anchor;
 - (vii) when aground.
- (b) The lights required by aeroplanes in each case are described below.

(2) When under way

- (a) As illustrated in Figure 2, the following appearing as steady unobstructed lights;
- (i) a red light projected above and below the plane through angle of coverage L;
 - (ii) a green light projected above and below the horizontal plane through angle of coverage R;
 - (iii) a white light projected above and below the horizontal plane rearward through angle of coverage A; and
 - (iv) a white light projected through angle of coverage F.
- (b) The lights described in the first three items should be visible at a distance of at least 3.7 km (2 nm). The light described in the fourth item should be visible at a distance of 9.3 km (5 nm) when fitted to an aeroplane of 20 m or more in length or visible at a distance of 5.6 km (3 nm) when fitted to an aeroplane of less than 20 m in length.

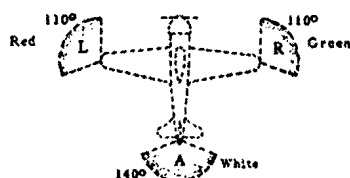


Figure 2

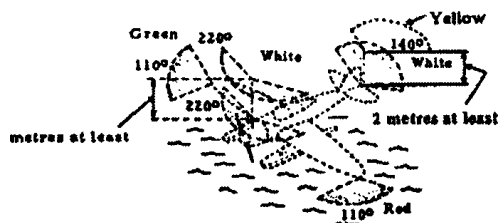
^s(3) When towing another vessel or aeroplane

As illustrated in Figure 3, the following appearing as steady, unobstructed lights:

- (a) the lights described in subparagraph (2);

- (b) a second light having the same characteristics as the light described in the fourth item of subparagraph (2) and mounted in a vertical line at least 2 m above or below it; and
- (c) a yellow light having otherwise the same characteristics as the light described in the third item of subparagraph (2) and mounted in a vertical line at least 2 m above it.

(4) When being towed



The lights described in the first three items of subparagraph (2) appearing as steady unobstructed lights.

(5) When not under command and not making way

As illustrated in Figure 4, two steady red lights placed where they can best be seen, one vertically over the other and not less than 1 m apart, and of such a character as to be visible all around the horizon at a distance of at least 3,7 km (2 nm).

(6) When making way but not under command

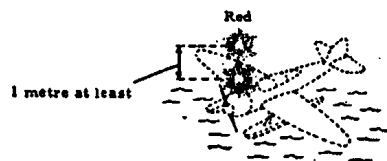


Figure 4

As illustrated in Figure 5, the lights described in subparagraph (5) and the first three items of subparagraph (2).

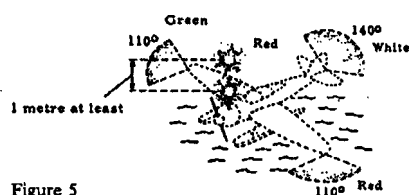


Figure 5

Note: The display of lights prescribed in subparagraphs (5) and (6) above is to be taken by other aircraft as signals that the aeroplane showing them is not under command cannot therefore get out of the way. They are not signals of aeroplanes in distress and requiring assistance.

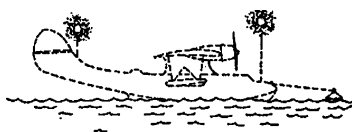
(7) When at anchor

- (a) If less than 50 m in length, where it can best be seen, a steady white light (Figure 6), visible all around the horizon at a distance of at least 3.7 km (2nm).

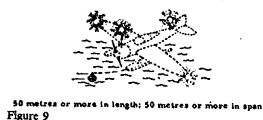
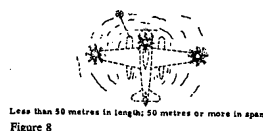


Figure 6

- (b) If 50 m or more in length, where they can best be seen, a steady white forward light and a steady white rear light (Figure 7) both visible all around the horizon at a distance of at least 5.6 km (3 nm).



- (c) If 50 m or more in span a steady white light on each site (Figures 8 and 9) to indicate the maximum span and visible, so far as practicable, all around the horizon at a distance of at least 1.9 km (1 nm).



- (8) When aground

The lights prescribed in paragraph (7) and in addition two steady red lights in vertical line, at least 1 m apart so placed as to be visible all around the horizon.

121.11.8 SIGNALS

1. Distress signals

- (1) The following signals, used either together or separately, mean that grave and imminent danger threatens, and immediate assistance is requested:
- A signal made by radiotelegraphy or by any other signalling method consisting of the group SOS (. . . _ _ _ . . . in the Morse Code);
 - a signal sent by radiotelephony consisting of the spoken word MAYDAY;
 - rockets or shells throwing red lights, fired one at a time at short intervals;
 - a parachute flare showing a red light.
- (2) Alarm signals for actuating radiotelegraph and radiotelephone auto-alarm systems:
- The radiotelegraph alarm signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds and the duration of the interval between consecutive dashes one second. It may be transmitted by hand but its transmission by means of an automatic instrument is recommended.
 - The radiotelephone alarm signal consists of two substantially sinusoidal audio frequency tones transmitted alternately. One tone has a frequency of 2 200 Hz and the other a frequency of 1 300 Hz, the duration of each tone being 250 milliseconds.
 - The radiotelephone alarm signal, when generated by automatic means, must be sent continuously for a period of at least thirty seconds but not exceeding one minute; when generated by other means, the signal must be sent as continuously as practicable over a period of approximately one minute.

- (3) None of the provisions in this paragraph prevents the use, by an aeroplane in distress, of any means at its disposal to attract attention, make known its position and obtain help.

2. Urgency signals

- (1) The following signals, used either together or separately, mean that an aeroplane wishes to give notice of difficulties which compel it to land without requiring immediate assistance:
- (a) The repeated switching on and off of the landing lights; or
 - (b) the repeated switching on and off of the navigation lights in such manner as to be distinct from flashing navigation lights.
- (2) The following signals, used either together or separately, mean that an aeroplane has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or of some person on board or within sight:
- (a) A signal made by radiotelegraphy or by any other signalling method consisting of the group XXX;
 - (b) a signal sent by radiotelephony consisting of the spoken words PAN, PAN.
- (3) None of the provisions in this paragraph prevent the use, by an aeroplane in distress, of any means at its disposal to attract attention, make known its position and *obtain help*.

3. Visual signals used to warn an unauthorised aeroplane flying in, or about to enter a restricted, prohibited or danger area

By day and by night, a series of projectiles discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars will indicate to an unauthorised aeroplane that it is flying in, or about to enter a restricted, prohibited or danger area, and that the aeroplane is to take such remedial action as may be necessary.

4. Signals for aerodrome traffic

- (1) Light and pyrotechnic signals

Instructions

Light	From aerodrome control to		
	Aircraft in flight		
Directed towards aircraft concerned (see Figure 1.1)	Steady green	Cleared to land	Cleared for take-off
	Steady red	Give way	Stop
	Series of green flashes	Return for landing*	Cleared to taxi
	Series of red flashes	Aerodrome at this aerodrome and proceed to apron*	Taxi clear of landing area in use
	Series of white flashes	Notwithstanding any previous instructions, do not land for the time being	Return to starting point on the aerodrome
	Steady red on final approach		
* Clearance to land and to taxi will be given in due course.			