

be used as the equivalent of the ground level when determining the number of light levels.

- (10) Where high-intensity obstacle lights, Type B, are used, they should be located at three levels:
 - (i) at the top of the tower;
 - (ii) at the lowest level of the catenary of the wires or cables; and
 - (iii) at approximately midway between these two levels.
- (11) The installation setting angles for high-intensity obstacle lights, Types A and B, should be in accordance with Table Q-1.
- (12) The number and arrangement of low-, medium- or high-intensity obstacle lights at each level to be marked should be such that the object is indicated from every angle in azimuth. Where a light is shielded in any direction by another part of the object, or by an adjacent object, additional lights should be provided on that object in such a way as to retain the general definition of the object to be lighted. If the shielded light does not contribute to the definition of the object to be lighted, it may be omitted.

(d) Low-intensity obstacle lights — Characteristics:

- (1) Low-intensity obstacle lights on fixed objects, Types A and B, should be fixed-red lights.
- (2) Low-intensity obstacle lights, Types A and B, should be in accordance with the specifications in Table Q-2.
- (3) Low-intensity obstacle lights, Type C, displayed on vehicles associated with emergency or security should be flashing-blue and those displayed on other vehicles should be flashing-yellow.
- (4) Low-intensity obstacle lights, Type D, displayed on follow-me vehicles should be flashing-yellow.
- (5) Low-intensity obstacle lights, Types C and D, should be in accordance with the specifications in Table Q-2.
- (6) Low-intensity obstacle lights on objects with limited mobility such as aerobridges, should be fixed-red. The intensity of the lights should be sufficient to ensure conspicuity considering the intensity of the adjacent lights and the general levels of illumination against which they would normally be viewed.
- (7) Low-intensity obstacle lights on objects with limited mobility should as a minimum be in accordance with the specifications for low-intensity obstacle lights, Type A, in Table Q-2.

(e) Medium-intensity obstacle lights — Characteristics:

- (1) Medium-intensity obstacle lights, Type A, should be flashing-white lights, Type B should be flashing-red lights, and Type C should be fixed-red lights.
- (2) Medium-intensity obstacle lights, Types A, B and C, should be in accordance with the specifications in Table Q-2.
- (3) Medium-intensity obstacle lights, Types A and B, located on an object should flash simultaneously.

(f) High-intensity obstacle lights — Characteristics:

- (1) High-intensity obstacle lights, Types A and B, should be flashing-white lights.
- (2) High-intensity obstacle lights, Types A and B, should be in accordance with the specifications in Table Q-2.

CS-ADR-DSN — BOOK 1**CHAPTER Q — VISUAL AIDS FOR DENOTING OBSTACLES**

- (3) High-intensity obstacle lights, Type A, located on an object should flash simultaneously.
- (4) High-intensity obstacle lights, Type B, indicating the presence of a tower supporting overhead wires, cables, etc., should flash sequentially; first the middle light, second the top light, and last the bottom light. The intervals between flashes of the lights should approximate the following ratios:

Flash interval between**Ratio of cycle time**

Middle and top light

1:13

Top and bottom light

2:13

Bottom and middle light

10:13

Height of light unit above terrain	Angle of the peak of the beam above the horizontal
Greater than 151 m AGL	0°
122 m to 151 m AGL	1°
92 m to 122 m AGL	2°
Less than 92 m AGL	3°

Table Q-1. Installation setting angles for high-intensity obstacle lights

CS-ADR-DSN — BOOK 1

CHAPTER Q — VISUAL AIDS FOR DENOTING OBSTACLES

1	2	3	4	5	6	7	8	9	10	11	12
Light type	Colour	Signal type/flash rate	Peak intensity (cd) at given background luminance		Vertical beam spread ^a	Intensity (cd) at given elevation angles when the light unit is levelled ^d					
			Above 500 cd/m ²	50-500 cd/m ²		Below 50 cd/m ²	-10° ^e	-1° ^f	±0° ^f	+6°	+10°
Low-intensity Type A (fixed obstacle)	Red	Fixed	N/A	10 mnm	10 mnm	10°	—	—	—	10 mnm ^g	10 mnm ^g
Low-intensity Type B (fixed obstacle)	Red	Fixed	N/A	32 mnm	32 mnm	10°	—	—	—	32 mnm ^g	32 mnm ^g
Low-intensity Type C (mobile obstacle)	Yellow/blue ^a	Flashing (60-90 fpm)	N/A	40 mnm ^b 400 max	40 mnm ^b 400 max	12° ^h	—	—	—	—	—
Low-intensity Type D (follow-me vehicle)	Yellow	Flashing (60-90 fpm)	N/A	200 mnm ^b 400 max	200 mnm ^b 400 max	12° ⁱ	—	—	—	—	—
Medium-intensity Type A	White	Flashing (20-60 fpm)	20 000 ^b ±25 %	20 000 ^b ±25 %	2 000 ^b ±25 %	3° mnm	3°% max	50 % mnm 75 % max	100 % mnm	—	—
Medium-intensity Type B	Red	Flashing (20-60 fpm)	N/A	N/A	2 000 ^b ±25%	3° mnm	—	50 % mnm 75 % max	100 % mnm	—	—

Medium-intensity Type C	Red	Fixed	N/A	N/A	2 000 ^b ±25%	3° mnm	—	50 % mnm 75 % max	100 % mnm	—	—
High-intensity Type A	White	Flashing (40-60 fpm)	200 000 ^b ±25%	20 000 ^b ±25%	2 000 ^b ±25%	3°-7°	3°% max	50 % mnm 75 % max	100 % mnm	—	—
High-intensity Type B	White	Flashing (40-60 fpm)	100 000 ^b ±25%	20 000 ^b ±25%	2 000 ^b ±25%	3°-7°	3°% max	50 % mnm 75 % max	100 % mnm	—	—

^a CS ADR.DSN.Q.850, (d) (3)

^b Effective intensity as determined in accordance with the ICAO Doc 9157, Aerodrome Design Manual, Part 4, Visual Aids.

^c Beam spread is defined as the angle between two directions in a plane for which the intensity is equal to 50 % of the lower tolerance value of the intensity shown in columns 4, 5, and 6. The beam pattern is not necessarily symmetrical about the elevation angle at which the peak intensity occurs.

^d Elevation (vertical) angles are referenced to the horizontal.

^e Intensity at any specified horizontal radial as a percentage of the actual peak intensity at the same radial when operated at each of the intensities shown in columns 4, 5, and 6.

^f Intensity at any specified horizontal radial as a percentage of the lower tolerance value of the intensity shown in columns 4, 5, and 6.

^g In addition to specified values, lights should have sufficient intensity to ensure conspicuity at elevation angles between ±0° and 50°.

^h Peak intensity should be located at approximately 2.5° vertical.

ⁱ Peak intensity should be located at approximately 17° vertical.

fpm = flashes per minute; N/A = not applicable

Table Q-2. Characteristics of obstacle lights