CS-ADR-DSN ISSUE 5 — CHANGE INFORMATION

EASA publishes new issues of certification specifications as consolidated documents. These documents are used for establishing the certification basis for applications made after the date of entry into force of the applicable issue.

Consequently, except for a note '[Issue: ADR-DSN/5]' under the amended paragraph, the consolidated text of CS-ADR-DSN does not allow readers to see the detailed changes that have been introduced compared to the previous issue. To allow readers to see these detailed changes, this document has been created. The same format as for publication of notices of proposed amendments (NPAs) has been used to show the changes:

— deleted text is ~~struck through;~~

— new or amended text is highlighted in blue;

— an ellipsis '[…]' indicates that the remaining text is unchanged in front of or following the reflected amendment.

CS ADR-DSN.A.001 Applicability

The certification specifications (CSs) ~~in Book 1~~ and the related guidance material (GM) ~~in Book 2~~ are applicable to aerodromes that fall~~ing~~ within the scope of ~~the~~ Regulation (EU~~C~~) 2018/1139~~No 216/2008~~(Basic Regulation).

GM1 ADR-DSN.A.001 Applicability

~~(a) The certification specifications in Book 1 and the related guidance material contained in Book 2 are applicable to the aerodromes that fall in the scope of the Commission Regulation (EC) No 216/2008 (Basic Regulation).~~

~~(b)~~ At an aerodrome~~, which~~ that falls within the scope of the Basic Regulation and has more than one runway, at least one runway should meet the criteria contained in Article 24 of the Basic Regulation. However, it is not compulsory for other 'types' of runways at an aerodrome~~, it is not compulsory that those runways~~ to meet the criteria of Article 24 of the Basic Regulation. Such runways may be n~~N~~on-instrument runways, unpaved runways, shorter~~n~~ than 800 m runways, runways which are not open to public use or for commercial air transport. The certification specifications ~~in Book 1~~ and guidance material ~~of Book 2~~ are applicable also to those runways.

CS ADR-DSN.A.002 Definitions

For the purposes of CS-ADR-DSN ~~Books 1 and 2~~, the following definitions should apply:

[...]

'Certification specifications' mean technical standards adopted by the Agency indicating means to show compliance with Regulation (EU~~C~~) 2018/1139 ~~No 216/2008~~ and its Implementing Rules and which can be used by an organisation for the purpose of certification.

[…]

'Frost' means ice crystals formed from airborne moisture on a surface whose temperature is below freezing; frost differs from ice in that the frost crystals grow independently and therefore have a more granular texture.

Note 1: 'Below freezing' refers to air temperature equal to or less than the freezing point of water (0 degree Celsius).

Note 2: Under certain conditions, frost can cause the surface to become very slippery and it is then reported appropriately as downgraded RWYCC.

[...]

'Ice' means water that has frozen or compacted snow that has transitioned into ice in cold and dry conditions.

'Instrument runway' means one of the following types of runways intended for the operation of aircraft using instrument approach procedures:

1. 'Non-precision approach runway': a~~n instrument~~ runway served by visual aids and at least one non-visual aid, intended for landing operations following a type A instrument approach operation ~~providing at least directional guidance adequate for a straight-in approach~~.

2. 'Precision approach runway, Category I': a~~n instrument~~ runway served by ~~non-~~visual aids and at least one non-visual aid~~s~~, intended for landing operations following a type B CAT I instrument approach operation ~~with a decision height (DH) not lower than 60 m (200 ft) and either a visibility not less than 800 m or a runway visual range (RVR) not less than 550 m~~.

3. 'Precision approach runway, Category II': a~~n instrument~~ runway served by ~~non-~~visual aids and at least one non-visual aid~~s~~, intended for landing operations following a type B CAT II instrument approach operation ~~with a decision height (DH) lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range (RVR) not less than 300 m~~.

4. 'Precision approach runway, Category III': a~~n instrument~~ runway served by ~~non-~~visual aids and at least one non-visual aid~~s~~, intended for landing operations following a type B CAT IIIA, IIIB or IIIC instrument approach operation to and along the surface of the runway ~~and:~~.

   ~~A — intended for operations with a decision height (DH) lower than 30 m (100 ft), or no decision height and a runway visual range (RVR) not less than 175 m; or~~

   ~~B — intended for operations with a decision height (DH) lower than 15 m (50 ft), or no decision height and a runway visual range (RVR) less than 175 m but not less than 50 m; or~~

   ~~C — intended for operations with no decision height (DH) and no runway visual range (RVR) limitations.~~

[...]

'Slush' means snow that is so water-saturated that water will drain from it when a handful is picked up or will splatter if stepped on forcefully ~~snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8~~.

'Snow' (on the ground):

— 'Dry snow' means snow from which a snowball cannot readily be made ~~can be blown if loose or, if compacted by hand, will fall apart again upon release; specific gravity: up to but not including 0.35~~.

— 'Wet snow' means snow that contains enough water to be able to make a well-compacted, solid snowball, but water will not squeeze out ~~which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5~~.

— 'Compacted snow' means snow ~~which~~ that has been ~~compressed~~ compacted into a solid mass such that aeroplane tyres, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface ~~resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over~~.

'Standing water' means water of depth greater than 3 mm.

Note: Running water of depth greater than 3 mm is reported as 'standing water' by convention.

[...]

'Type A instrument approach operation' means an instrument approach operation with a minimum descent height or decision height at or above 75 m (250 ft);

'Type B instrument approach operation' means an instrument approach operation with a decision height below 75 m (250 ft). Type B instrument approach operations are categorised as follows:

1. Category I (CAT I): a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m;
2. Category II (CAT II): a decision height lower than 60 m (200 ft), but not lower than 30 m (100 ft) and a runway visual range not less than 300 m;
3. Category IIIA (CAT IIIA): a decision height lower than 30 m (100 ft) or no decision height and a runway visual range not less than 175 m;
4. Category IIIB (CAT IIIB): a decision height lower than 15 m (50 ft) or no decision height and a runway visual range less than 175 m, but not less than 50 m;
5. Category IIIC (CAT IIIC): no decision height and no runway visual range limitation.

[...]

'Wet ice' means ice with water on top of it or ice that is melting.

Note: Freezing precipitation can lead to runway conditions associated with wet ice from an aeroplane performance point of view. Wet ice can cause the surface to become very slippery. It is then reported appropriately as downgraded RWYCC.

GM1 ADR-DSN.B.030 Runway threshold

[...]

(e) Displaced threshold:

(1) If an object extends above the approach surface and the object cannot be removed, consideration should be given to displacing the threshold permanently.

(2) To meet the obstacle limitation objectives of the certification specifications~~,~~ prescribed in ~~Book 1,~~ Chapter H, the threshold should ideally be displaced down the runway for the distance necessary to provide that the approach surface is cleared of obstacles.

[...]

CS ADR-DSN.B.165 Objects on runway strips

[...]

(b) No fixed object, other than visual aids required for air navigation or those required for aircraft safety purposes and which must be sited on the runway strip, and satisfying the relevant frangibility requirement in Chapter T, should be permitted on a runway strip:

(1) within 77.5 m of the runway centre line of a precision approach runway Category I, II or III where the code number is 4 and the code letter is F; or

(2) within 60 m of the runway centre line of a precision approach runway Category I, II or III where the code number is 3 or 4; or

(3) within 45 m of the runway centre line of a precision approach runway Category I where the code number is 1 or 2.

~~No mobile object should be permitted on this part of the runway strip during the use of the runway for landing or take-off.~~

[…]

GM1 ADR-DSN.D.295 Rapid exit taxiways

(a) The following guidance applies particularly to rapid exit taxiways (see Figure D-1). The general requirements for taxiways, as prescribed in the relevant certification specifications, ~~Book 1~~ are also applicable to rapid exit taxiways. Guidance on the provision, location and design of rapid exit taxiways is included in ICAO Doc 9157, Aerodrome Design Manual, Part 2, Taxiways, Aprons and Holding Bays.

[…]

GM1 ADR-DSN.H.405 Applicability

[…]

(g) In addition to the requirements described in ~~Book 1,~~ the certification specifications of Chapter H, it may be necessary to call for other restrictions to development and construction on and in the vicinity of the aerodrome in order to protect the performance of visual and electronic aids to navigation and to ensure that such development does not adversely affect instrument approach procedures and the associated obstacle clearance limits.

CS ADR-DSN.M.626 Simple approach lighting systems

(a) Location and composition:

(1) A simple approach lighting system should consist of a row of lights on the extended centre line of the runway extending, whenever possible, over a distance of not less than 420 m from the threshold with a row of lights forming a crossbar 18 m or 30 m in length at a distance of 300 m from the threshold (see Figure M-1).

(2) The certification specifications~~, as prescribed in Book 1~~ provide for the basic characteristics for simple approach lighting systems. For certain aspects of these systems, some latitude is permitted~~,~~ for example, in the spacing between centre line lights and crossbar.

[…]

CS ADR-DSN.M.630 Precision approach Category I lighting system

[…]

(c) Characteristics:

[…]

(2) Where the serviceability level of the approach lights specified as a maintenance objective in ~~CS ADR-DSN.S.895~~ ADR.OPS.C.015 can be demonstrated, each centre line light position should consist of either:

(i) a single light source; or

(ii) a barrette.

When barrettes are composed of lights approximating to point sources, the lights should be uniformly spaced at intervals of not more than 1.5 m. The barrettes should be at least 4 m in length.

[…]

CS ADR-DSN.M.635 Precision approach Category II and III lighting system

(a) Location and composition:

(1) The approach lighting system should consist of a row of lights on the extended centre line of the runway, extending, wherever possible, over a distance of 900 m from the runway threshold. In addition, the system should have two side rows of lights, extending 270 m from the threshold, and two crossbars, one at 150 m and one at 300 m from the threshold, all as shown in Figure M-3A. Where the serviceability level of the approach lights specified as maintenance objectives in ~~CS ADR-DSN.S.895~~ ADR.OPS.C.015 can be demonstrated, the system may have two side rows of lights extending 240 m from the threshold, and two crossbars, one at 150 m, and one at 300 m from the threshold, all as shown in Figure M-3B.

[…]

(b) Characteristics

(1) The centre line of a precision approach Category II and III lighting system for the first 300 m from the threshold should consist of barrettes showing variable white, except that where the threshold is displaced 300 m or more, the centre line may consist of single light sources showing variable white. Where the serviceability level of the approach lights specified in ~~CS ADR-DSN.S.895~~ ADR.OPS.C.015 can be demonstrated, the centre line of a precision approach Category II and III lighting system for the first 300 m from the threshold may consist of:

[…]

(3) Where the serviceability level of the approach lights in ~~CS ADR-DSN.S.895~~ ADR.OPS.C.015 as maintenance objectives can be demonstrated beyond 300 m from the threshold, each centre line light position may consist of either:

[…]

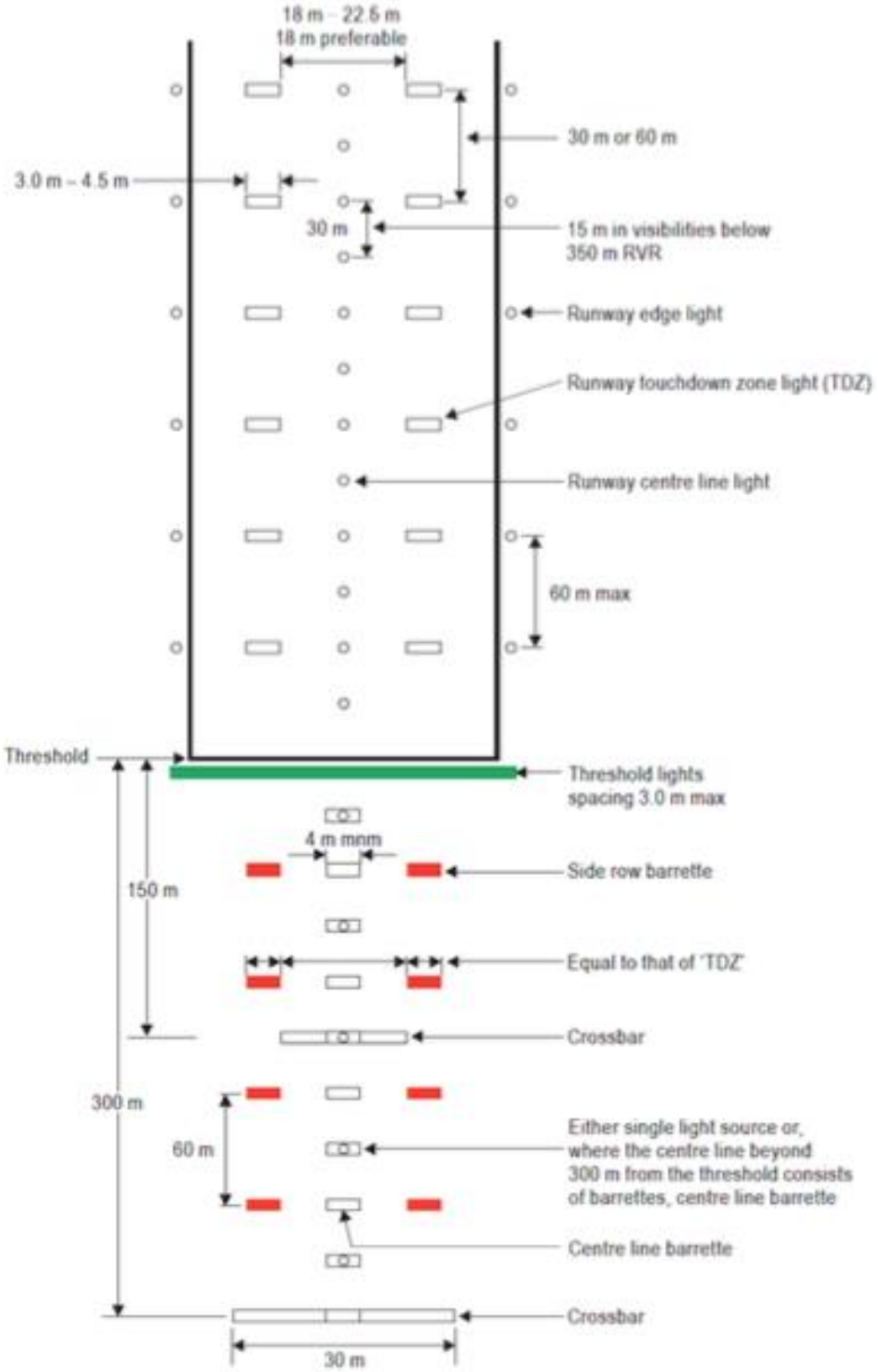

Figure M-3B. Inner 300 m approach and runway lighting for precision approach runways, Categories II and III, where the serviceability levels of the lights specified as maintenance objectives in ~~CS ADR-DSN.S.895~~ ADR.OPS.C.015 (b)(1) to (3) can be demonstrated.

[…]

CS ADR-DSN.M.690 Runway centre line lights

[…]

(c) Location: Runway centre line lights should be located along the centre line of the runway, except that the lights may be uniformly offset to the same side of the runway centre line by not more than 60 cm where it is not practicable to locate them along the centre line. The lights should be located from the threshold to the end at longitudinal spacing of approximately 15 m. Where the serviceability level of the runway centre line lights specified as maintenance objectives in ~~CS ADR.DSN.S.895~~ ADR.OPS.C.015 (b)(1) to (b)(3) can be demonstrated, and the runway is intended for use in runway visual range conditions of 350 m or greater, the longitudinal spacing may be approximately 30 m.

[…]

CS ADR-DSN.M.705 Stopway lights

(a) Applicability: Stopway lights should be provided for a stopway intended for use at night, or in runway visual range conditions less than a value of 800 m.

[…]

CS ADR-DSN.Q.850 ~~Lighting of other objects~~

~~(a) Low intensity obstacle lights, Type C, should be displayed on vehicles and other mobile objects excluding aircraft.~~

~~(b) 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.~~

~~(c) Low intensity obstacle lights, Type D, should be displayed on follow me vehicles.~~

~~(d) Low intensity obstacle lights on objects with limited mobility such as aerobridges should be fixed red, and, as a minimum, be in accordance with the specifications for low intensity obstacle lights, Type A, in Table Q 1. 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.~~

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GM1 ADR-DSN.Q.850 ~~Lighting of other objects~~

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CS ADR-DSN.R.855 Closed runways and taxiways, or parts thereof

[…]

(d) When a runway, or taxiway, or portion thereof is permanently closed, all normal runway and taxiway markings should be ~~obliterated~~ physically removed.

[...]

GM1 ADR-DSN.R.855 Closed runway and taxiways, or parts thereof

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Information regarding the physical removal of runway and taxiway markings is contained in AMC1 ADR.OPS.C.015(d) and GM1 ADR.OPS.C.015(d).

CS ADR-DSN.S.880 Electrical power supply systems

[…]

Runway	Lighting aids requiring power	Maximum switch-over time
Non-instrument	Visual approach slope indicators[a] Runway edge[b] Runway threshold[b] Runway end[b] Obstacle[a] Stopway end Stopway edge	See CS ADR-DSN.S.875(d) and CS ADR-DSN.S.880(d)
Non-precision approach	Approach lighting system Visual approach slope indicators[a, d] Runway edge[d] Runway threshold[d] Runway end[d] Obstacle[a] Stopway end Stopway edge	15 seconds 15 seconds 15 seconds 15 seconds 15 seconds 15 seconds 15 seconds 15 seconds
Precision approach Category I	Approach lighting system Runway edge[d] Visual approach slope indicators[a, d] Runway threshold[d] Runway end Essential taxiway[a] Obstacle[a] Stopway end Stopway edge	15 seconds 15 seconds 15 seconds 15 seconds 15 seconds 15 seconds 15 seconds 15 seconds 15 seconds
Precision approach Category II/III	Inner 300 m of the approach lighting system Other parts of the approach lighting system Obstacle[a] Runway edge Runway threshold Runway end Runway centre line Runway touchdown zone Runway guard lights All stop bars Essential taxiway Stopway end Stopway edge	1 second 15 seconds 15 seconds 15 seconds 1 second 1 second 1 second 1 second 15 seconds 1 second 15 seconds 1 second 15 seconds
Runway meant for take-off in runway visual range conditions less than a value of 800 m	Runway edge Runway end Runway centre line All stop bars Essential taxiway[a] Obstacle[a] Stopway end Stopway edge	15 seconds[c] 1 second 1 second 1 second 15 seconds 15 seconds 1 second 15 seconds

a.	Supplied with secondary power when their operation is essential to the safety of flight operation.
b.	The use of emergency lighting should be in accordance with any procedures established.
c.	One second where no runway centre line lights are provided.
d.	One second where approaches are over hazardous or precipitous terrain.

Table S-1. Secondary power supply requirements (see CS ADR-DSN.S.875(d))

CS ADR-DSN.S.890 Monitoring

[…]

(d) For a runway meant for use in runway visual range conditions less than a value of 550 m, the lighting systems detailed in Table S-1 should be monitored automatically so as to provide an indication when the serviceability level of any element falls below a minimum serviceability level specified in ~~CS ADR-DSN.S.895(c) to (g)~~ ADR.OPS.C.015 (b)(1) to (b)(7). This information should be automatically relayed to the maintenance crew.

[…]

CS ADR-DSN.S.895 ~~Serviceability levels~~

~~(a) A light should be deemed to be unserviceable when the main beam average intensity is less than 50 % of the value specified in the appropriate Figure in CS ADR-DSN.U.940. For light units where the designed main beam average intensity is above the value shown in CS ADR-DSN.U.940, the 50 % value should be related to that design value.~~

~~(b) A system of preventive maintenance of visual aids should be employed to ensure lighting and marking system reliability.~~

~~(c) The system of preventive maintenance employed for a precision approach runway Category II or III should have as its objective that, during any period of Category II or III operations, all approach and runway lights are serviceable and that, in any event, at least:~~

~~(1) 95 % of the lights are serviceable in each of the following particular significant elements:~~

~~(i) precision approach Category II and III lighting system, the inner 450 m;~~

~~(ii) runway centre line lights;~~

~~(iii) runway threshold lights; and~~

~~(iv) runway edge lights.~~

~~(2) 90 % of the lights are serviceable in the touchdown zone lights;~~

~~(3) 85 % of the lights are serviceable in the approach lighting system beyond 450 m; and~~

~~(4) 75 % of the lights are serviceable in the runway end lights.~~

~~(5) In order to provide continuity of guidance, the allowable percentage of unserviceable lights should not be permitted in such a way as to alter the basic pattern of the lighting system.~~

(6) Additionally, an unserviceable light should not be permitted adjacent to another unserviceable light, except in a barrette or a crossbar where two adjacent unserviceable lights may be permitted.

(d) The system of preventive maintenance employed for a stop bar provided at a runway holding position used in conjunction with a runway intended for operations in runway visual range conditions less than a value of 550 m should have the following objectives:

(1) no more than two lights should remain unserviceable; and

(2) two adjacent lights should not remain unserviceable unless the light spacing is significantly less than that specified.

(e) The system of preventive maintenance employed for a taxiway intended for use in runway visual range conditions less than a value of 550 m should have as its objective that no two adjacent taxiway centre line lights be unserviceable.

(f) The system of preventive maintenance employed for a precision approach runway Category I should have as its objective that, during any period of Category I operations, all approach and runway lights are serviceable and that, in any event, at least 85 % of the lights are serviceable in each of the following:

(1) precision approach Category I lighting system;

(2) runway threshold lights;

(3) runway edge lights; and

(4) runway end lights.

In order to provide continuity of guidance an unserviceable light should not be permitted adjacent to another unserviceable light unless the light spacing is significantly less than that specified.

(g) The system of preventive maintenance employed for a runway meant for take-off in runway visual range conditions less than a value of 550 m should have as its objective that, during any period of operations, all runway lights are serviceable, and that in any event:

(1) at least 95 % of the lights are serviceable in the runway centre line lights (where provided) and in the runway edge lights; and;

(2) at least 75 % of the lights are serviceable in the runway end lights.

In order to provide continuity of guidance, an unserviceable light should not be permitted adjacent to another unserviceable light.

(h) The system of preventive maintenance employed for a runway meant for take-off in runway visual range conditions of a value of 550 m or greater should have as its objective that, during any period of operations, all runway lights are serviceable, and that, in any event, at least 85 % of the lights are serviceable in the runway edge lights and runway end lights. In order to provide continuity of guidance, an unserviceable light should not be permitted adjacent to another unserviceable light.

Light type	CAT II/III Approach	CAT I Approach	RVR<550m take-off	RVR>550m take-off
Approach inner 450 m	95 %	85 %	-	-
Approach outer 450 m	85 %	85 %	-	-
Runway threshold	95 %	85 %	-	-

~~Runway centre line~~	~~95 %~~	~~85 %~~	~~95 %~~	~~85 %~~
~~Runway edge~~	~~95 %~~	~~85 %~~	~~95 %~~	~~85 %~~
~~Runway end~~	~~75 %~~	~~85 %~~	~~75 %~~	~~85 %~~
~~Touchdown zone~~	~~90 %~~	~~(85 %)[a]~~	~~-~~	~~-~~
~~*Note (a): If touchdown zone lights are available.*~~				

~~Table S-2. Allowable percentages of serviceable lights~~

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GM1 ADR-DSN.S.895 ~~Serviceability levels~~

~~(a) (Serviceability levels are intended to define the maintenance performance level objectives.~~

~~(b) Guidance on preventive maintenance of visual aids is given in the, ICAO Doc 9137, Airport Services Manual, Part 9, Airport Maintenance Practices.~~

~~(c) With respect to barrettes, crossbars and runway edge lights, lights are considered to be adjacent if located consecutively and:~~

~~(1) laterally: in the same barrette or crossbar; or~~

~~(2) longitudinally: in the same row of edge lights or barrettes.~~

~~(d) In barrettes and crossbars, guidance is not lost by having two adjacent unserviceable lights.~~

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GM1 ADR-DSN.T.915 Siting of equipment and installations on operational areas

(a) The design of light fixtures and their supporting structures, light units of visual approach slope indicators, signs and markers is specified in CS ADR-DSN.M.615, CS ADR-DSN.M.640, CS ADR-DSN.N.775, and the certification specifications of ~~Book 1~~ Chapter P respectively.

[…]

(d) Requirements for obstacle limitation surfaces are specified in the certification specifications of ~~Book 1,~~ Chapter J.