European Union Aviation Safety Agency

Notice of Proposed Amendment 2026-01 (D)

issued in accordance with Article 6 of Management Board Decision 01-2022

Proposed amendments to CS-ADR-DSN

Contents

Proposed amendments

The amendments are presented as follows:

— deleted text is ~~struck through~~;

— new text is highlighted;

— an ellipsis '[…]' indicates that the rest of the text is unchanged.

Where necessary, the rationale is provided in *italics.*

List of abbreviations

List of abbreviations

(used in CS-ADR-DSN)

[…]	
RDRS	Runway distance remaining sign
RELs	Runway entrance lights
[…]	

CS ADR-DSN.C.215 Dimensions of runway end safety areas

(a) Length of runway end safety area

(1) A runway end safety area should extend from the end of a runway strip to a distance of at least 90 m and, as far as practicable, extend to a distance of:

(i) 240 m where the code number is 3 or 4 and

(ii) 120 m where the code number is 1 or 2 and the runway is an instrument one; and

(2) A runway end safety area should extend from the end of a runway strip, as far as practicable, to a distance of 30 m where the code number is 1 or 2 and the runway is a non-instrument one.

(b) Notwithstanding the provisions in (a)(1) above, the length of the runway end safety area may be reduced where an arresting system is installed, based on the design specifications of the system.

[…]

Rationale

In accordance with Recommendation 3.5.4 of ICAO Annex 14, Volume I, the length of the runway end safety area (RESA) for a non-instrument runway code 1 or 2 cannot be reduced by installing an arresting system.

CS ADR-DSN.C.236 Engineered Materials Arresting System (EMAS)

[…]

(e) Arresting performance:

(1) An EMAS should be designed to decelerate the design aircraft at an exit speed of 70 knots at both maximum take-off weight (MTOW) and 80 % maximum landing weight (MLW)

without imposing loads that exceed the aircraft's design limits, causing major structural damage to the aircraft or imposing excessive forces on its occupants.

(2) When there is insufficient space available for the design on an EMAS in accordance with paragraph ~~(c)(4)~~ (e)(1) above, an EMAS should be designed to achieve the maximum arresting performance of the critical aeroplane.

[…]

Rationale

Point (e)(2) of CS ADR-DSN.C.236 is amended to ensure the correct reference.

CS ADR-DSN.D.325 Grading of taxiway strips

[…]

(b) The centre portion of a taxiway strip should provide a graded area to a distance from the centre line of the taxiway of not less than that given by the following tabulation:

(1) 10.25 m where the OMGWS is up to but not including 4.5 m;

(2) 11 m where the OMGWS is 4.5 m up to but not including 6 m;

(3) 12.50 m where the OMGWS is 6 m up to but not including 9 m;

(4) ~~18.50~~ 17 m where the OMGWS is 9 m up to but not including 15 m, where the code letter is D;

(5) 19 m where the OMGWS is 9 m up to but not including 15 m, where the code letter is E;

(6) 22 m where the OMGWS is 9 m up to but not including 15 m, where the code letter is F.

Rationale

The proposed change (stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I to Annex 14, Vol I) introduces a correction to the width of the graded portion of code letter D taxiway strip based on the following formula: graded portion of taxiway strip = ½ (taxiway width + shoulder width).

Using this formula, the width for taxiways + shoulder where the code letter is D equals 34 m (see CS ADR-DSN.D.305), resulting in a graded portion of taxiway strip width of 17 m instead of 18.5 m.

CS ADR-DSN.E.345 General

(a) Aprons should be provided to permit the safe loading and off-loading of passengers, cargo, or mail as well as the servicing of aircraft without interfering with the aerodrome traffic.

(b) The design of aprons should take into consideration criteria for safe ground handling, including:

(1) sufficient space between aircraft stands to enable personnel and equipment to move safely and efficiently;

(2) adequate apron markings, apron signs and apron floodlighting;

(3) adequate staging and storage areas for ground support equipment (GSE);

(4) positioning of fixed ground services;

(5) storage areas for unit load devices (ULD);

(6) adequate access and egress routes for fuel, GSE and emergency vehicles;

(7) clearly delineated and visible access and egress routes for passengers;

(8) new technologies (electric charging points, autonomous vehicles, etc.);

(9) wherever practicable, avoidance of service roads at the rear of aircraft stands; and

(10) appropriate protection for persons, equipment and infrastructure from jet blast, propeller wash and rotor downwash.

GM1 ADR-DSN.E.345 General

~~intentionally left blank~~

Further guidance on apron design is given in the ICAO Doc 9157, Aerodrome Design Manual, Part 2, Taxiways, Aprons and Holding Bays and in the ICAO Doc 9184, Airport Planning Manual, Part 1, Master Planning.

For the apron markings, signs and floodlighting see Chapters L, M and N of CS-ADR-DSN.

Rationale

The Aerodromes and Ground handling Safety Risk Portfolio (EASA EPAS Volume III) contains a list of safety issues that have been identified for these two domains, some specifically related to the design of aprons and the activities taking place on this infrastructure: e.g. ground staff movement around aircraft (SI-1019), poor or inadequate apron/stand design and layout (SI-1003) and downwash adverse effects (SI-8041).

The proposed changes (stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I) ensure that the safety related aspects affecting ground handling activities are accounted in the design criteria for aprons and the risks associated with the identified safety issues are mitigated (in conjunction with the requirements of the Ground handling regulations).

GM1 ADR-DSN.E.350 Size of aprons

(a) The total apron area should be adequate to permit safe and expeditious handling of aerodrome traffic at its maximum anticipated density.

(b) The amount of area required for a particular apron layout depends upon the following factors:

(1) the size and manoeuvrability characteristics of the aircraft using the apron;

(2) the volume of traffic using the apron;

(3) clearance requirements;

(4) type of ingress and egress to the aircraft stand;

(5) basic terminal layout or other aerodrome use;

(6) aircraft ground activity requirements (see point (b) of CS ADR-DSN.E.345); and

(7) taxiways and apron service roads.

(c) Commission Delegated Regulation (EU) 2025/20 ~~Passenger aircraft~~ lists the services that are carried out during ~~the time~~ the aircraft turnaround ~~is parked in a stand position include~~: passenger handling, loading and unloading of catering ~~galley;~~ ,toilet and potable water servicing~~e;~~, baggage handling~~;~~, fuelling~~;~~, provision of air conditioning, oxygen, electrical power supply and starting air~~; and~~ , aircraft towing and push-back, aircraft de-icing and anti-icing. Most of these ~~functions~~ services have a vehicle and/or equipment associated with them, or have some type of fixed installation established to conduct these services. Further guidance is given in ICAO Doc 9157, Aerodrome Design Manual, Part 2, Taxiways, Aprons and Holding Bays, paragraph 3.4.6.

[…]

Rationale

GM1 ADR-DSN.E.350 is updated with references to Commission Delegated Regulation (EU) 2025/20 which lists the services provided by ground handlers during an aircraft's turnaround.

CS ADR-DSN.G.400 Clearance distances on a de-icing/anti-icing pad

[…]

(b) A de-icing/anti-icing pad should provide the following minimum clearances between an aircraft ~~using~~ entering or exiting the stand and any adjacent building, aircraft on another stand and other objects:

Rationale

Point (b) is updated in line with the wording of point (b) of CS ADR-DSN.E.365.

CS ADR-DSN.L.570 Enhanced taxiway centre line marking

[…]

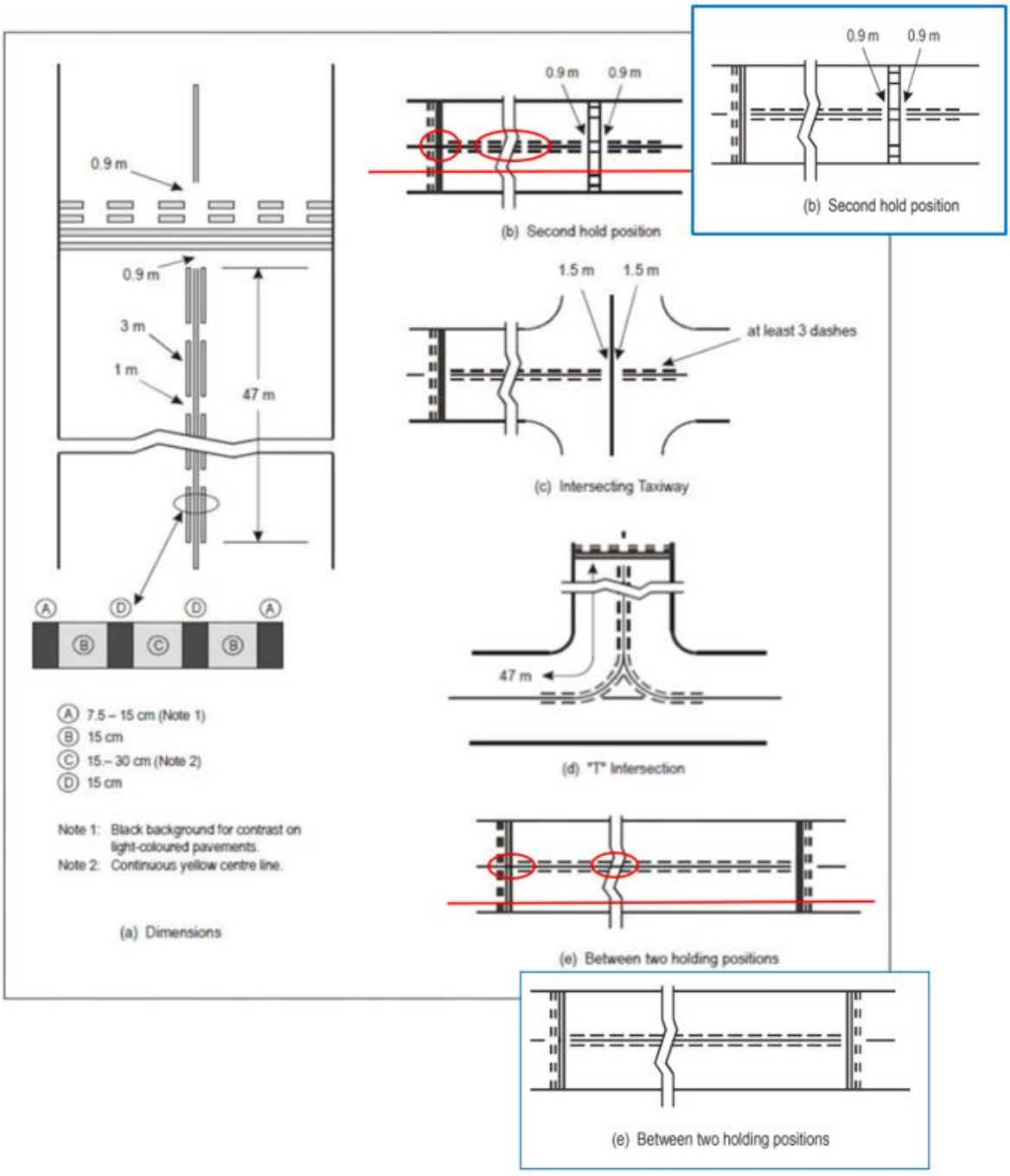


Figure L-6. Enhanced taxiway centre line marking

Rationale

The proposed changes (stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I) ensure the correct depiction of the enhanced taxiway centre line marking.

CS ADR-DSN.L.605 Mandatory instruction marking

[…]

(b) Location:

(1) The mandatory instruction marking on taxiways, where the ~~code letter is A, B, C, or D~~ OMGWS is up to but not including 9 m, should be located across the taxiway equally placed about the taxiway centre line and on the holding side of the runway-holding position marking as shown in Figure L-9(A). The distance between the nearest edge of the marking and the runway-holding position marking or the taxiway centre line marking should be not less than 1 m.

(2) The mandatory instruction marking on taxiways where the ~~code letter is E or F~~ OMGWS from 9 m up to but not including 15 m, should be located on the both sides of the taxiway centre line marking and on the holding side of the runway-holding position marking as shown in Figure L-9(B). The distance between the nearest edge of the marking and the runway-holding position marking, or the taxiway centre line marking should be not less than 1 m.

(c) Characteristics:

[…]

(4) The character height should be 4 m for inscriptions where the ~~code letter is C, D, E, or F~~ OMGWS is from 6 m up to but not including 15 m, and at least 2 m where the ~~code letter is A or B~~ OMGWS is up to but not including 6 m. The inscription should be in the form and proportions shown in Figures L-10A to L-10D.

[…]

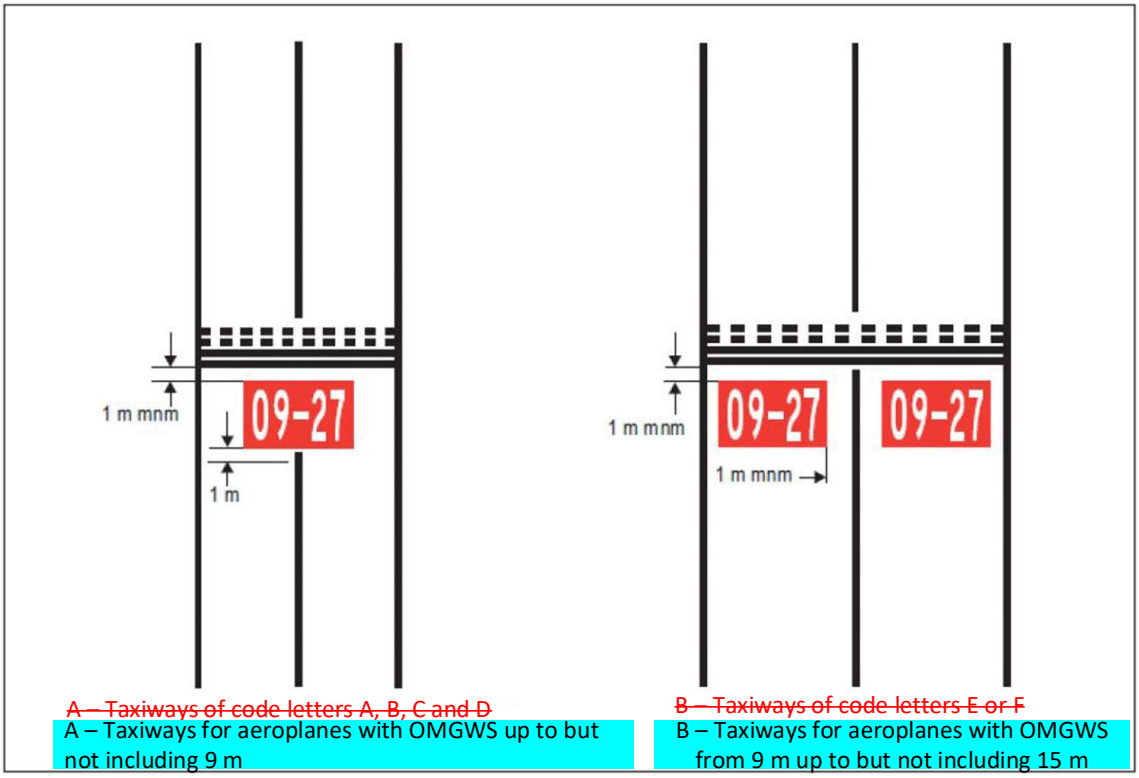


Figure L-9. Mandatory instruction marking

Rationale

Following the changes introduced through CS Issue 4 to the aerodrome reference code methodology (ARC), taxiways are now categorised in accordance with the OMGWS of the various group of aeroplanes they were designed to operate and no longer by the code letters.

The proposed changes (stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I) ensure the provision of the mandatory instruction markings in accordance with the correct categorisation of the taxiways.

GM1 ADR-DSN.M.615 General

[…]

(b) In dusk or poor visibility conditions by day, lighting can be more effective than marking. For lights to be effective in such conditions or in poor visibility by night, they should be of adequate intensity. To obtain the required intensity, it should usually be necessary to make the light directional, in which case the arcs over which the light shows should be adequate and so orientated as to meet the operational requirements. The runway lighting system should be considered as a whole, to ensure that the relative light intensities are suitably matched to the same end and are maintained over time. Guidance on maintenance criteria for aeronautical ground lights and on the use of a site standard is contained in the ICAO Doc 9157, Aerodrome Design Manual, Part 4, Visual Aids.

[…]

(k) The elements here above can be applied to solar panels. The following assumptions can be made:

(1) solar panels are inclined so as to efficiently capture the sunlight, conducting to a range of cross section surfaces;

~~(2) the maximum acceptable luminance value has been fixed to 20 000 cd/m^2;~~ and

(2~~3~~) the surfaces varied from 100 m^2 to several hectares.

[…]

Rationale

The value for the maximum acceptable luminance value is proposed to be removed since it needs to be updated to reflect real-world conditions. This will be done through rulemaking task RMT.0751, Protection of aerodrome surroundings. Point (b) is amended to include the reference to the corresponding ICAO Document for further guidance.

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 ADR.OPS.C.015 (b)(6) 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.

[…]

Rationale

The reference to ADR.OPS.C.015 is proposed to be amended for additional clarity.

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 ADR.OPS.C.015 (b)(1) to (b)(3) 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.

[…]

(3) The lights forming the side rows should be placed on each side of the centre line, at a longitudinal spacing equal to that of the centre line lights and with the first light located 30 m from the threshold. Where the serviceability level of the approach lights specified as maintenance objectives in ADR.OPS.C.015 (b)(1) to (b)(3) can be demonstrated, lights forming the side rows may be placed on each side of the centre line, at a longitudinal spacing of 60 m with the first light located 60 m from the threshold. The lateral spacing (or gauge) between the innermost lights of the side rows should be not less than 18 m nor more than 22.5 m, and preferably 18 m, but in any event should be equal to that of the touchdown zone lights.

[…]

(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 ADR.OPS.C.015 (b)(1) to (b)(3) 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 ADR.OPS.C.015 (b)(1) to (b)(3) as maintenance objectives can be demonstrated beyond 300 m from the threshold, each centre line light position may consist of either:

(i) a barrette; or

(ii) a single light source;

all of which should show variable white.

[…]

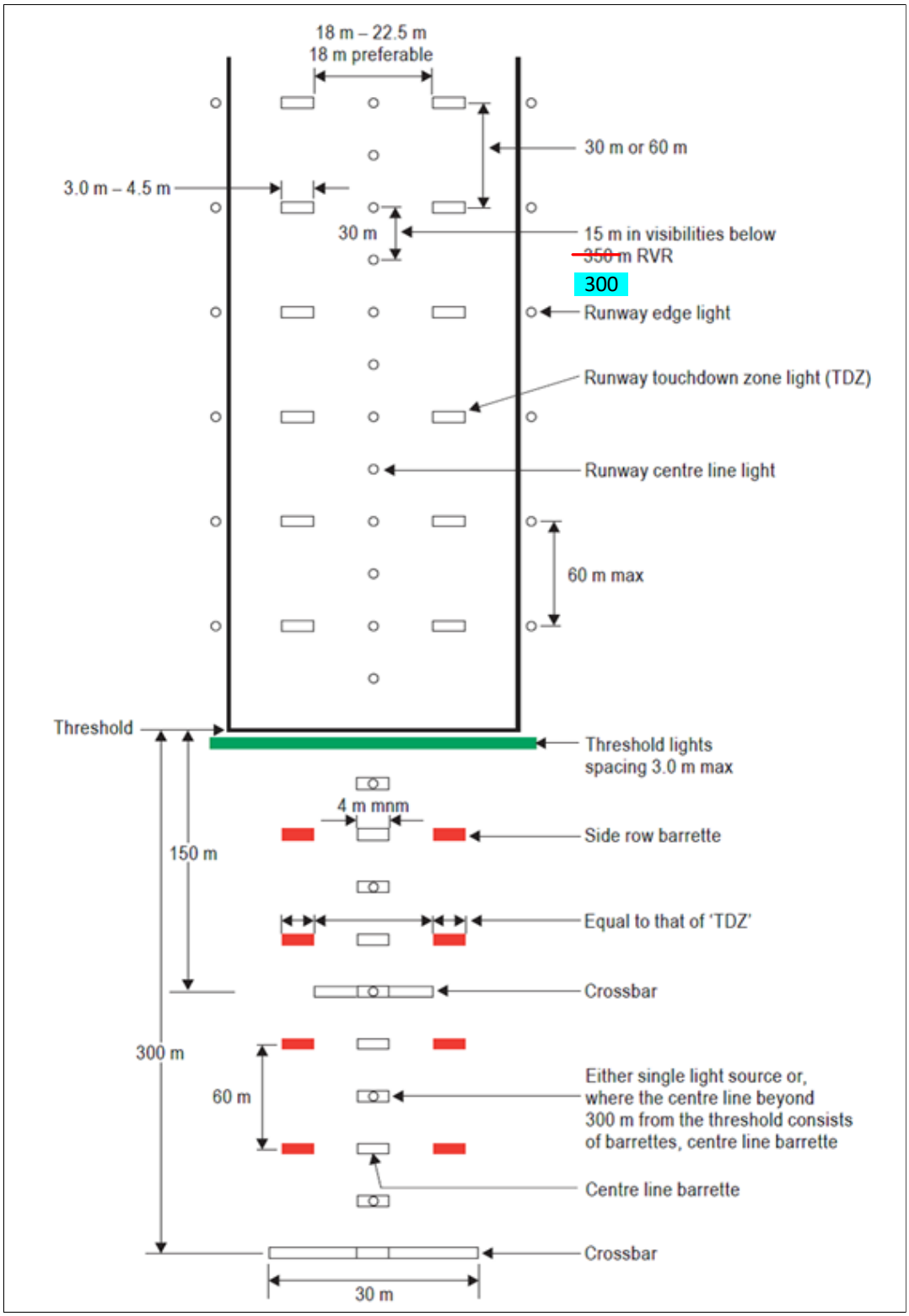


Figure M-3B. Inner 300 m approach and runway lighting for precision approach runways, Categories II and III, where the serviceability levels of the lights specified as maintenance objectives in ADR.OPS.C.015(b)(1) to (3) can be demonstrated.

Rationale

See rationale for CS ADR-DSN.M.690 for the proposed change of the RVR from 350 m to 300 m on Figure M-3B. The references to ADR.OPS.C.015 are proposed to be amended for additional clarity.

CS ADR-DSN.M.685 Runway end lights

[…]

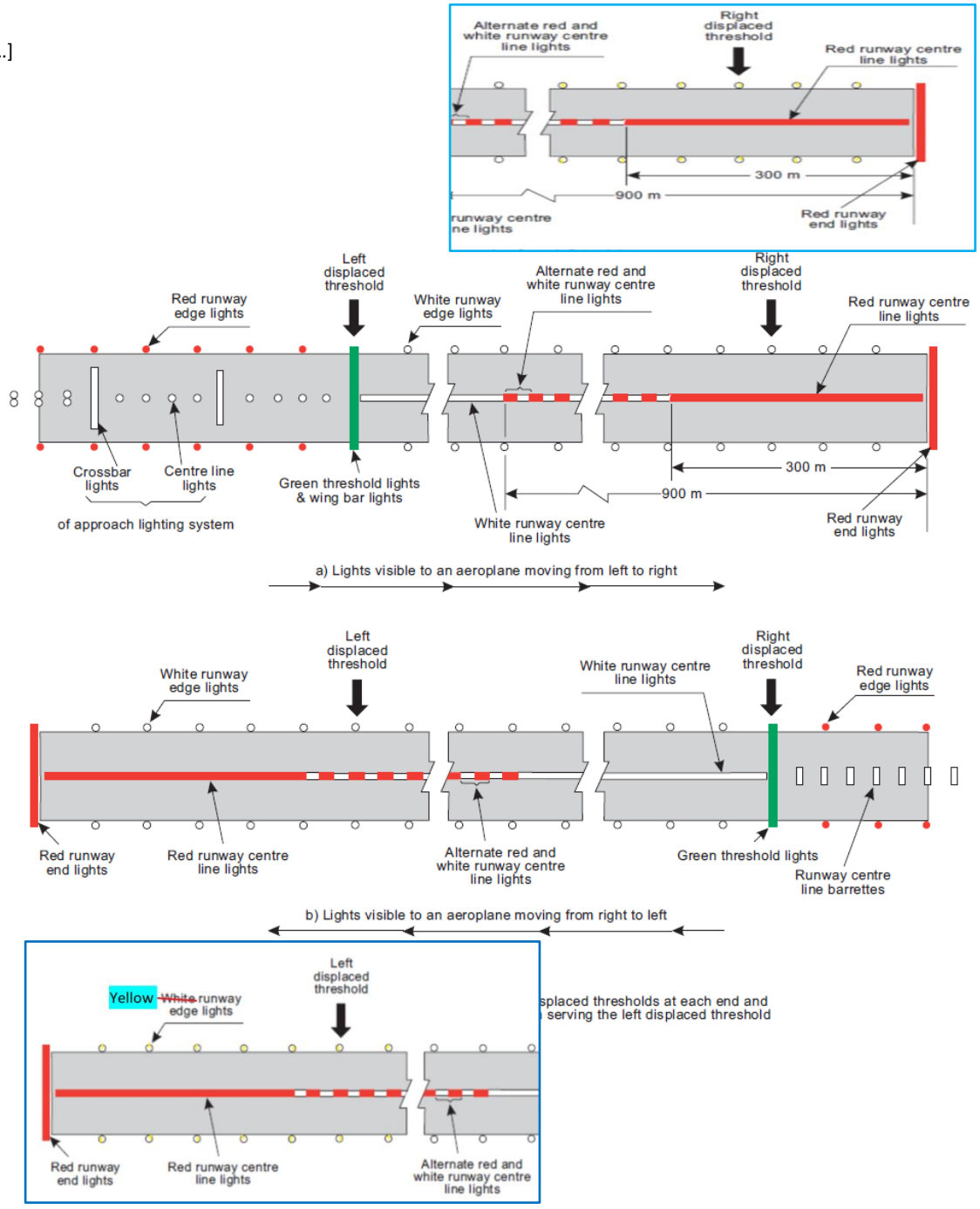


Figure M-8. Example of approach and runway lighting for runway with displaced thresholds

Rationale

Figure M-8 is amended to display yellow instead of white runway edge lights as required by point (c)(1) of CS ADR-DSN.M.675.

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 ADR.OPS.C.015(b)(1) to (b)(3) or (b)(7) can be demonstrated, and the runway is intended for use in runway visual range conditions of ~~350~~ 300 m or greater, the longitudinal spacing may be approximately 30 m.

[…]

Rationale

The proposed change (stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I) ensures that the spacing of the runway centre line lights is aligned with the CAT II RVR definition.

Furthermore, point (b)(7) is added to ADR.OPS.C.015. The longitudinal spacing of the runway centre line lights may be approx. 30 m also for a runway meant for take-off in runway visual range conditions less than a value of 550 m and where the maintenance objectives of point (b)(7) can be demonstrated.

GM1 ADR-DSN.M.700 Rapid exit taxiway indicator lights (RETILs)

[…]

(b) Rapid exit taxiway indicator lights should be considered on a runway intended for use in runway visual range conditions less than a value of ~~350~~ 300 m where the traffic density is heavy.

[…]

Rationale

The proposed change (stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I) ensures the provision of RETILS aligned with the CAT II RVR definition. See also rationale provided for CS ADR-DSN.M.710.

CS ADR-DSN.M.710 Taxiway centre line lights

[…]

(b) Applicability:

(1) Taxiway centre line lights should be provided on an exit taxiway, taxiway, de-icing/anti-icing facility, and apron intended for use in runway visual range conditions less than a value of ~~350~~ 300 m in such a manner as to provide continuous guidance between the runway centre line and aircraft stands, except that these lights need not be provided where the traffic density is light and taxiway edge lights, and centre line marking provide adequate guidance.

(2) Taxiway centre line lights should be provided on a taxiway intended for use at night in runway visual range conditions of ~~350~~ 300 m or greater, and particularly on complex taxiway intersections and exit taxiways, except that these lights need not be provided where taxiway edge lights, and centre line marking provide adequate guidance.

[…]

(4) Taxiway centre line lights should be provided on a runway forming part of a standard taxi-route and intended for taxiing in runway visual range conditions less than a value of ~~350~~ 300 m, except that these lights need not be provided where the traffic density is light and taxiway edge lights, and centre line marking provide adequate guidance.

[…]

(c) Characteristics:

[…]

(4) Taxiway centre line lights should be in accordance with the specifications in CS ADR-DSN.U.940, Figure U-16, U-17, or U-18, as appropriate, for taxiways intended for use in runway visual range conditions of less than a value of ~~350~~ 300 m; Figure U-19 or Figure U-20, as appropriate, for other taxiways.

(5) Where higher intensities are required, from an operational point of view, taxiway centre line lights on rapid exit taxiways intended for use in runway visual range conditions less than a value of ~~350~~ 300 m should be in accordance with the specifications in CS ADR-DSN.U.940, Figure U-16. The number of levels of brilliancy settings for these lights should be the same as that for the runway centre line lights.

[…]

[…]

Rationale

According to ICAO, a study performed in a certified simulator provided evidence that flight crew could maintain positive centre line guidance in conditions down to 300 m RVR on taxiways originally designed to 350 m RVR specifications.

Mathematical comparisons also indicate that a human is not visually able to identify the difference between an RVR of 350 m and 300 m with a taxiway centre line lighting of 30 m across all lighting intensities.

Taxiway infrastructure harmonisation will:

a) not result in any change to the 300 m CAT II RVR value;

b) remove existing conflict and resultant ambiguity, between runway capability and supporting aerodrome visual aid infrastructure; and

c) eliminate missed approaches and their associated risk, as well as diversions in conditions where a landing can be carried out, but the aircraft cannot taxi to the apron as the taxiway lighting system is not compliant with operations below RVR 350 m despite the runway being compliant with CAT II RVR.

CS ADR-DSN.M.715 Taxiway centre line lights on taxiways, runways, rapid exit taxiways, or on other exit taxiways

[…]

(b) Taxiway centre line lights on taxiways:

(1) Taxiway centre line lights on a straight section of a taxiway should be spaced at longitudinal intervals of not more than 30 m, except that:

(i) intervals less than 30 m should be provided on short straight sections; and

(ii) on a taxiway intended for use in RVR conditions of less than a value of ~~350~~ 300 m, the longitudinal spacing should not exceed 15 m.

[…]

(3) On a taxiway curve the spacing of taxiway centre line lights should be as specified in the Table M-3.

RVR	Radius of taxiway curve	Taxiway centre line lights spacing on taxiway curves
< ~~350~~ 300 m	< 400 m	Not greater than7.5 m. This spacing should extend for 60 m before and after the curve.
	≥ 400 m	Not greater than 15 m
≥ ~~350~~ 300 m	< 400 m	Not greater than 7.5 m
	401 m to 899 m	Not greater than 15 m
	> 900 m	Not greater than 30 m

Table M-3. Taxiway centre line lights spacing on taxiway curves

[…]

(e) Taxiway centre line lights on runways: Taxiway centre line lights on a runway forming part of a standard taxi-route, and intended for taxiing in runway visual range conditions less than a value of ~~350~~ 300 m should be spaced at longitudinal intervals not exceeding 15 m.

[…]

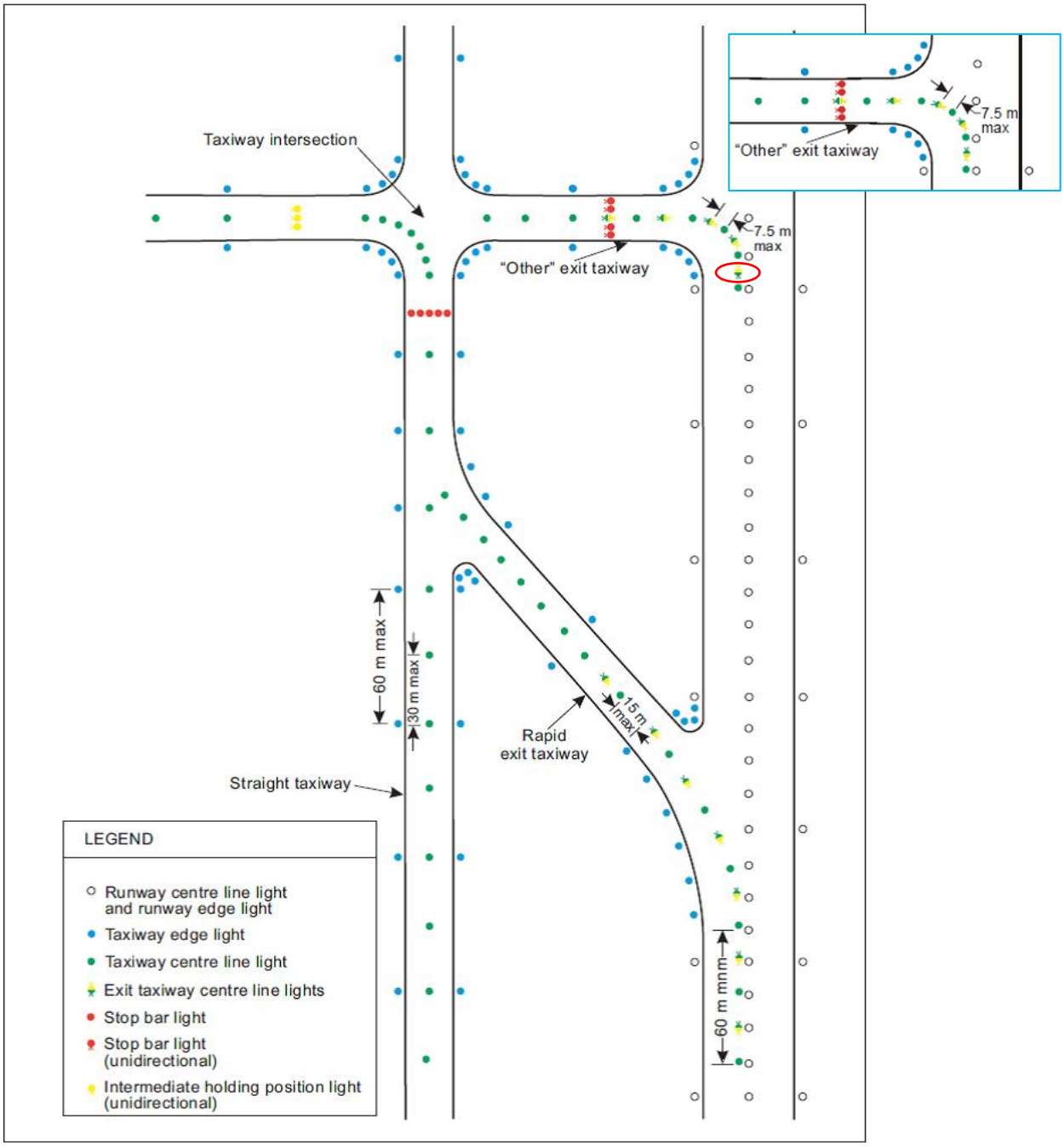


Figure M-10. Taxiway lighting

Rationale

For the proposed changes to points (b)(1), (b)(3) and (e) see rationale for CS ADR-DSN.M.710.

Figure M-10 is amended to ensure the correct depiction of the taxiway centreline lights pattern in line with CS ADR-DSN.M.710.

CS ADR-DSN.M.725 Runway turn pad lights

[…]

(b) Applicability:

(1) Runway turn pad lights should be provided for continuous guidance on a runway turn pad intended for use in runway visual range conditions less than a value of ~~350~~ 300 m to enable an aeroplane to complete a 180-degree turn, and align with the runway centre line.

[…]

[…]

Rationale

See rationale for CS ADR-DSN.M.710.

CS ADR-DSN.M.735 Intermediate holding position lights

(a) Applicability:

(1) Except where a stop bar has been installed, intermediate holding position lights should be provided at an intermediate holding position intended for use in runway visual range conditions less than a value of ~~350~~ 300 m.

[…]

[…]

Rationale

See rationale for CS ADR-DSN.M.710.

GM1 ADR-DSN.M.770 Road-holding position light

Where a road intersects a taxiway where operationally required, a suitable holding position light may be located adjacent to the road-holding~~way/taxiway intersection~~ position marking 1.5 m (±0.5 m) from one edge of the road, i.e. left or right as appropriate to the local road traffic regulations.

Rationale

'Taxiway intersection marking' is proposed to be replaced by the correct datum for the placement of the light, i.e. 'road-holding position marking' (in line with point (b) of CS ADR-DSN.M.770). See also the rationale provided for GM2 ADR.OPS.A.005(a).

CS ADR-DSN.N.775 General

[…]

(b) Applicability:

[…]

(2) A variable message sign should be provided where:

(i) the instruction or information displayed on the sign is relevant only during a certain period of time; and/or

(ii) there is a need for variable predetermined information to be displayed on the sign to meet the requirements of the implementation of surface movement guidance and control system (SMGCS) at an aerodrome~~.~~;and/or

(iii) there is an operational need to indicate temporarily closed or restricted areas, as well as to provide information on operational restrictions to aerodrome users.

(c) Characteristics:

(1) Signs should be frangible. Those located near a runway or taxiway should be sufficiently low to preserve clearance for propellers and the engine pods of jet aircraft. The installed height of the sign should not exceed the dimension shown in the appropriate column of Table N-1, except for runway distance remaining signs (see CS ADR-DSN.N.801).

(2) Mandatory instruction signs and information ~~S~~signs should be rectangular, as shown in Figures N-4 and N-6 with the longer side horizontal.

[…]

~~(7) The taxiing guidance signs should be in accordance with the specifications of paragraphs (c)(8) to (c)(22).~~

(~~8~~7) The location distance for taxiing guidance signs including runway exit signs should conform to Table N-1.

Sign height (mm)				Perpendicular distance from defined taxiway pavement edge to near side of sign	Perpendicular distance from defined runway pavement edge to near side of sign
Runway code number	Legend	Face (min)	Installed (max)		
1 or 2	200	~~400~~ 300	700	5–11 m	3–10 m
1 or 2	300	~~600~~ 450	900	5–11 m	3–10 m
3 or 4	300	~~600~~ 450	900	11–21 m	8–15 m
3 or 4	400	~~800~~ 600	1 100	11–21 m	8–15 m

Table N-1. Location distances for taxiing guidance signs including runway exit signs

(~~9~~8) Inscription heights should conform to the Table N-2.

[…]

(~~10~~9) Where a taxiway location sign is installed in conjunction with a runway designation sign (see CS ADR-DSN.N.785(b)(9)), the character size should be that specified for mandatory instruction signs.

(~~11~~10) The dimensions should be as follows for:

[…]

(~~12~~11) Sign luminance should be as follows:

[…]

(~~13~~12) The luminance ratio between red and white elements of a mandatory instruction sign should be between 1:5 and 1:10.

(14~~~~13) The average luminance of the sign is calculated by establishing grid points as shown in Figure N-1, and using the luminance values measured at all grid points located within the rectangle representing the sign.

(~~15~~14) The average value is the arithmetic average of the luminance values measured at all considered grid points.

(~~16~~15) The ratio between luminance values of adjacent grid points should not exceed 1.5:1. For areas on the sign face where the grid spacing is 7.5 cm, the ratio between luminance values of adjacent grid points should not exceed 1.25:1. The ratio between the maximum and minimum luminance value over the whole sign face should not exceed 5:1.

(~~17~~16) The forms of characters, i.e. letters, numbers, arrows, and symbols for mandatory instruction and information signs should conform to those shown in Figures N-2A to N-2H. The width of characters and the space between individual characters should be determined as indicated in Table N-3.

(~~18~~17) The face height of signs should be as follows:

Legend height	Face height (min)
200 mm	~~400~~ 300 mm
300 mm	~~600~~ 450 mm
400 mm	~~800~~ 600 mm

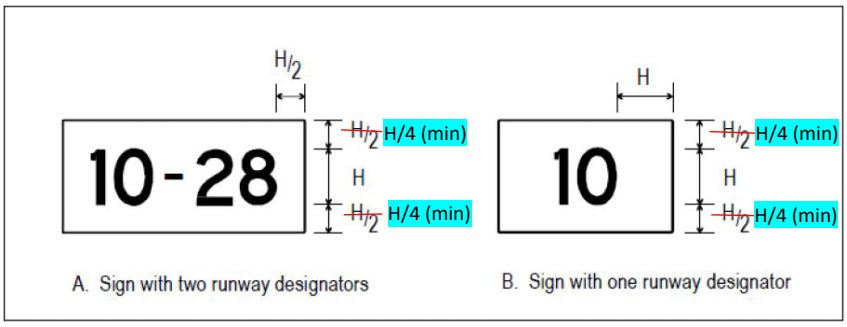
(~~19~~18) The face width of mandatory instruction and information signs should be determined using Figure N-3 except that, where a mandatory instruction sign is provided on one side of a taxiway only, the face width should not be less than:

(i) 1.94 m where the code number is 3 or 4; and

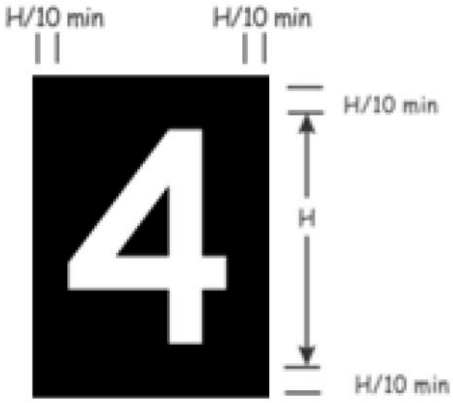
(ii) 1.46 m where the code number is 1 or 2.

(19) The face width of RDRS should be determined using Figure N-4.

[…]



Note: 'H' stands for the inscription height.
Figure N-3. Sign dimensions



Note: 'H' stands for the inscription height.
Figure N-4. Sign dimensions for RDRS

[…]

Rationale

A new point (b)(2)(iii) is added in line with point (g) of ADR.OPS.B.071.

The remaining proposed changes (stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I) to point (c) are necessary due to the introduction of the RDRS, while the proposed changes to the face height of the signs (stemming from ICAO State Letter 20/35 - Amendment 15 to Annex 14, Vol I) ensure alignment with the corresponding SARPS of ICAO Annex 14, Vol I.

GM1 ADR-DSN.N.775 General

[…]

(e) Guidance on the width of characters and the space between individual characters for RDRS is contained in the Aerodrome Design Manual (Doc 9157), Part 4, Visual Aids.

Rationale

See rationale provided for CS ADR-DSN.N.775.

CS ADR-DSN.N.800 Road-holding position sign

[…]

(c) Where a road intersects a taxiway, a suitable sign may be located adjacent to the road-holding~~way/taxiway intersection~~ position marking 1.5 m from one edge of the road, i.e. left or right as appropriate to the local road traffic regulations.

Rationale

See rationale provided for GM1 ADR-DSN.M.770.

CS ADR-DSN.N.801 Runway distance remaining signs (RDRS)

(a) Applicability:

(1) The inclusion of detailed specification for RDRS is not intended to imply that RDRS have to be provided at an aerodrome.

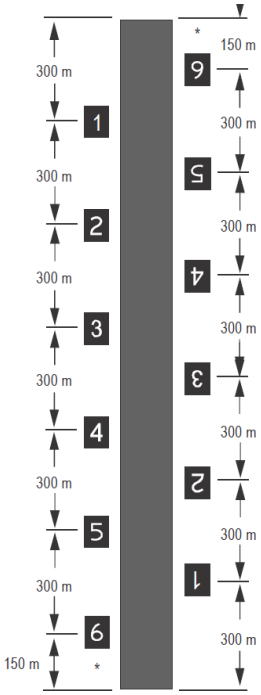
(2) Where installed, the purpose of RDRSs is to provide pilots with distance-to-go information to the extremity of the runway, to enhance situational awareness and enable pilots to decide whether to commence a go-around or to apply braking action for more efficient rollout and runway exit speeds.

(b) Location:

(1) Where provided, RDRS should be located on one side of the runway, relative to the direction of operation (take-off or landing). RDRS should be placed along the full length of the runway, at longitudinal spacing of approximately 300 m (±30 m), parallel and equidistant from the runway centre line as shown in Figure N-8. An RDRS may be omitted if the sign cannot be placed within the tolerance of ±30 m.

(2) Displaced threshold areas that are used for take-off and/or roll-out should be treated as part of the runway for purposes of locating the signs.

(3) RDRS should be placed outside the edges of the runway at a distance shown in Table N-4.



Note 1. Example based on a 1950 m runway length.

Note 2. Signs less than 300 m from the take-off end as indicated by asterisks(*) may be omitted.

Figure N-8. Runway distance remaining signs

(c) Characteristics:

(1) Where provided, an RDRS should be single faced, consisting of an inscription in white on a black background.

(2) The installed height of an RDRS should not exceed the dimension shown in the appropriate column of Table N-4.

(3) All RDRSs on one runway should be of the same size.

Sign height (mm)				Perpendicular distance from defined runway pavement edge to near side of sign
Runway code number	Legend	Face (min)	Installed (max)	
1 or 2	640	760	1 070	6–10.5 m
3 or 4	1 000	1 200	1 520	15–22.5 m
3 or 4	1 200	1 500	1 600	25 m or more

Table N-4. Location distances for RDRS

GM1 ADR-DSN.N.801 Runway distance remaining signs (RDRS)

(a) RDRSs do not have to be provided at all aerodromes. An aerodrome operator considering the installation of such signs may wish to assess their need, depending on factors such as aircraft type (e.g. frequent turbojet aircraft operations, including military), runway length, aerodrome elevation, aerodrome geometry, traffic levels, existing visual cues (e.g., runway edge lights, centreline lights, runway markings), lack of runway end safety area, lack of runway friction and climate. Aerodrome safety committees such as the local runway safety team (LRST) may be of assistance in this process (see ADR.OR.D.027) together with the aerodrome's competent authority.

(b) Runway excursions may take place in all visibility or weather conditions. The use of RDRS signs may be an effective runway excursion prevention measure. RDRS can provide pilots with additional distance-related information, which can be crucial for decision-making during approach and landing. When combined with existing visual cues (e.g., runway edge lights, centreline lights, runway markings), RDRS can enhance situational awareness by providing additional runway distance data, allowing pilots to better assess the runway length remaining for landing or take-off. It is essential that pilots operating at aerodromes with RDRS be familiar with the purpose of these signs.

(c) Declared distances do not affect the location of runway distance remaining signs.

(d) Guidance on installing RDRSs is given in the Aerodrome Design Manual (Doc 9157), Part 4.

(e) Provisions related to the identification of hazards and management of safety risks, including the need for safety risk assessment related to runway safety, is available in PANS-Aerodromes (Doc 9981), Chapter 8.

Rationale

EASA is proposing to follow the same approach as ICAO (stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I), i.e. not to mandate the compulsory installation of RDRS at all aerodromes. Instead, aerodrome operators should assess the need individually and discuss it in the local runway safety team (LRST) as well as with their competent authority.

The proposed specifications for the location and characteristics are in line with the corresponding SARPS of ICAO Annex 14, Vol I, with one exception: while ICAO is providing the possibility to choose from 3 different configurations, EASA is proposing the one according to Figure N-8 (corresponding to Configuration C of ICAO Annex 14, Vol I). The advantage of this configuration is that the runway distance remaining is more accurately reflected for a runway length that is not an exact multiple of 300 m. Additionally, this configuration is better correlated with the colour coding of the runway edge and centreline lights.

A pre-NPA consultation with the Commercial Aviation Community Steering Group (CA.CSTG), showed that the organisations of this group (in particular flight crew ones) support the implementation of the RDRS. When combined with existing visual cues (e.g., runway edge lights, centreline lights, runway markings), RDRS can enhance situational awareness by providing additional runway distance data, allowing pilots to better assess the runway length remaining for landing or take-off. However, to

maximise the effectiveness of RDRS, training for the flight crews on how to interpret and use the signs is essential.

CS ADR-DSN.Q.846 Lighting of fixed objects

[…]

(b) Low-intensity obstacle lights, Types A, B, C, ~~and~~ D and E, medium-intensity obstacle lights, Types A, B and C and high-intensity obstacle lights Types A and B, should be in accordance with the specifications in Table Q-1, CS ADR-DSN.U.930 and Figure U-1A or U-1B, as appropriate.~~.~~

[…]

Rationale

Point (b) is amended to ensure that all types of lights are listed, including Type E which is already included in Table Q-1.

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

(a) Closed runway and taxiway markings

Characteristics ~~of closed markings~~: The closed marking should be of the form and proportions as detailed in Figure R-1, Illustration (a), when displayed on a runway, and should be of the form and proportions as detailed in Figure R-1, Illustration (b), when displayed on a taxiway. The marking should be white when displayed on a runway and should be yellow when displayed on a taxiway.

[…]

(b) Closed runway lighting

(1) Form and proportions: The closed runway lighting as viewed by the pilot should be of the equivalent elevated form and proportions as detailed in Figure R-2, showing a minimum of five lights uniformly spaced on each branch, with a minimum interval as specified by Table R-2.

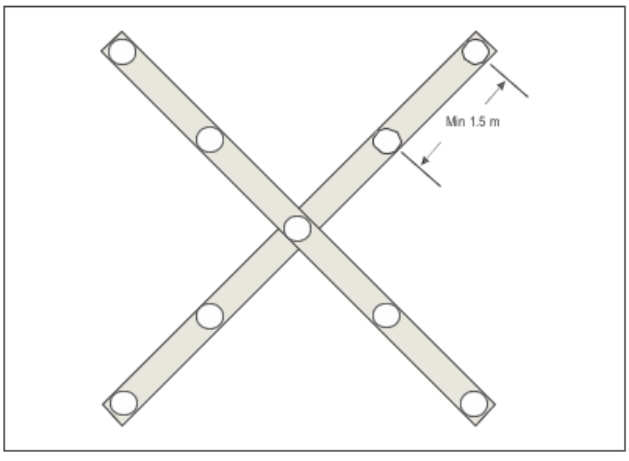


Figure R-2. Example of equivalent elevated closed runway lighting with five lights per branch

Number of lights per branch	Minimum interval between centre of lights
5	1.5 m
7	1.0 m
9	0.8 m

Table R-1. Minimum interval between closed runway lights centres

(2) Lights characteristics:

(i) Closed runway lights should show flashing variable white in the direction of approach to the runway.

(ii) Closed runway lights should simultaneously flash at a rate of one second on and one second off.

(iii) Closed runway lights should automatically revert to fixed lights in the event of the flashing system failure.

(iv) Closed runway lights should be in accordance with the specifications in CS ADR-DSN.U.940, Figure U-30 and be able to switch between day and night intensities.

(v) Closed runway lights chromaticity should be in accordance with the specifications in CS ADR-DSN.U.930 and Figure U-1A or U-1B, as appropriate.

(3) Elevated panels:

(i) The elevated panels of the closed runway lights should provide means for adjusting and levelling to allow tilting to an angle of approximately 5 degrees from vertical.

(ii) The elevated panels of the closed runway lights should be frangible.

(4) Electrical system:

(i) The closed runway lighting should be provided with primary and secondary power supply.

(ii) The electrical systems for the power supply and the control of the closed runway lighting should be so designed that the closed runway lighting system is operated independently of runway lighting systems.

(iii) The electrical circuit should be designed in such a way that the failure of a light does not lead to the extinguishment of the assembly.

(iv) The maximum switch-over time between the primary and the secondary power supply should be 15 seconds.

(5) Monitoring system: A system of monitoring should be employed to indicate the operational status of the closed runway lighting.

Rationale

See rationale for point (f) of ADR.OPS.B.071.

*The runway closed lighting has already been in use before the introduction of the dedicated SARPS in Annex 14, Volume I (*ICAO State Letter 25/23 – Amendment 18) *with different variations of the design characteristics. The proposed certification specifications were developed to accommodate these existing systems where possible, while ensuring harmonisation with the new ICAO SARPS.*

GM2 ADR-DSN.R.855 Closed runways and taxiways, or parts thereof

Closed runway lighting

A closed runway lighting is provided in accordance with ADR.OPS.B.071.

The closed runway lighting may be either fixed or mobile. The fixed version is characterised by lights provided on the runway surface usually connected to the aerodrome's electrical system, while the mobile version is characterised by lights mounted on elevated panels powered by an external source (e.g. generator, battery, etc.).

The fixed closed runway lighting may be formed as if shadowed (i.e. stretched) from the equivalent elevated structure (see Appendix 3, Note 3). Guidance on the sizing of a fixed closed runway lighting is given in the Aerodrome Design Manual (Doc 9157), Part 4.

Where the closed runway lighting has its own primary and secondary power supply, the power supply is capable of a minimum of 24 hours continuous operation.

Guidance on the frangible design of visual and non-visual aids for navigation is given in the ICAO Doc 9157, Aerodrome Design Manual, Part 5, Electrical Systems.

The closed runway lighting is designed to resist to winds of at least 60 km/h and operate at temperatures between -40° C and +55° C.

Rationale

See rationale for point (b) of CS ADR-DSN.R.855.

CS ADR-DSN.U.940 Aeronautical ground light characteristics

Figure U-5. Isocandela diagram for approach centre line light and crossbars (white light)

Notes:

[…]

(d) See collective notes for Figures U-5 to U-15, U-29 and U-30.

Figure U-6. Isocandela diagram for approach side row light (red light)

Notes:

[…]

(d) See collective notes for Figures U-5 to U-15, U-29 and U-30.

Figure U-7. Isocandela diagram for threshold light (green light)

Notes:

[…]

(c) See collective notes for Figures U-5 to U-15, U-29 and U-30.

[…]

Figure U-8. Isocandela diagram for threshold wing bar light (green light)

Notes:

[…]

(c) See collective notes for Figures U-5 to U-15 , U-29 and U-30.

[…]

Figure U-9. Isocandela diagram for touchdown zone light (white light)

Notes:

[…]

(c) See collective notes for Figures U-5 to U-15 , U-29 and U-30.

Figure U-10. Isocandela diagram for runway centre line light with 30 m longitudinal spacing (white light) and rapid exit taxiway indicator light (yellow light)

Notes:

[...]

(d) See collective notes for Figures U-5 to U-15 , U-29 and U-30.

Figure U-11. Isocandela diagram for runway centre line light with 15 m longitudinal spacing (white light) and rapid exit taxiway indicator light (yellow light)

Notes:

[…]

(d) See collective notes for Figures U-5 to U-15 , U-29 and U-30.

Figure U-12. Isocandela diagram for runway end light (red light)

Notes:

[…]

(b) See collective notes for Figures U-5 to U-15 , U-29 and U-30.

Figure U-13. Isocandela diagram for runway edge light where width of runway is 45 m (white light)

Notes:

[…]

(e) See collective notes for Figures U-5 to U-15 , U-29 and U-30.

Figure U-14. Isocandela diagram for runway edge light where width of runway is 60 m (white light)

Notes:

[…]

(e) See collective notes for Figures U-5 to U-15, U-29 and U-30.

[...]

Collective notes to Figures U-5 to U-15, U-29 and U-30

[…]

(b) Figures U-5 to U-14 as well as Figure U-29, show the minimum allowable light intensities. The average intensity of the main beam is calculated by establishing grid points as shown in Figure U-15 and using the intensity value measures at all grid points located within and on the perimeter of the ellipse representing the main beam. The average value is the arithmetic average of light intensities measured at all considered grid points.

[…]

(d) ~~Average intensity ratio. The ratio between the average intensity within the ellipse defining the main beam of a typical new light and the average light intensity of the main beam of a new runway edge light should be as follows:~~

The average intensity within the ellipse defining the main beam of a new light is established as a ratio of the minimum (1.0) average intensity of a new runway edge light. The ratios also define the maximum allowed main beam average intensity for the lights in the lighting system supporting runway operations.

Figure U-5	Approach centre line and crossbars	~~1.5 to 2.0~~ 2.0 to 3.0	(white light)
Figure U-6	Approach side row	0.5 to 1.0	(red light)
Figure U-7	Threshold	1.0 to 1.5	(green light)

Figure U-8	Threshold wing bar	1.0 to 1.5	(green light)
Figure U-9	Touchdown zone	0.5 to 1.0	(white light)
Figure U-10	Runway centre line (longitudinal spacing 30 m)	0.5 to 1.0	(white light)
Figure U-11	Runway centre line (longitudinal spacing 15 m)	0.5 to 1.0 for CAT III	(white light)
		0.25 to 0.5 for CAT I, II	(white light)
Figure U-12	Runway end	0.25 to 0.5	(red light)
Figure U-13	Runway edge (45 m runway width)	1.0 to 1.5	(white light)
Figure U-14	Runway edge (60 m runway width)	1.0 to 1.5	(white light)

[…]

Figure U-16. Isocandela diagram for taxiway centre line (15 m spacing), RELs, no-entry bar, and stop bar lights in straight sections intended for use in runway visual range conditions of less than a value of ~~350~~ 300 m where large offsets can occur and for low-intensity runway guard lights, Configuration B

[…]

Figure U-17. Isocandela diagram for taxiway centre line (15 m spacing), no-entry bar, and stop bar lights in straight sections intended for use in runway visual range conditions of less than a value of ~~350~~ 300 m

[…]

Figure U-18. Isocandela diagram for taxiway centre line (7.5 m spacing), RELs, no-entry bar, and stop bar lights in curved sections intended for use in runway visual range conditions of less than a value of ~~350~~ 300 m

[…]

Figure U-19. Isocandela diagram for taxiway centre line (30 m, 60 m spacing), no-entry bar, and stop bar lights in straight sections intended for use in runway visual range conditions of ~~350~~ 300 m or greater

[…]

Figure U-20. Isocandela diagram for taxiway centre line (7.5 m, 15 m, 30 m spacing), no-entry bar, and stop bar lights in curved sections intended for use in runway visual range conditions of ~~350~~ 300 m or greater

[…]

Figure U-29. Isocandela diagram for take-off and hold lights (THL) (red light)

Notes:

[…]

(b) See collective notes for Figures U-5 to U-15 ~~and Figure U-29~~ ,U-29 and U-30.

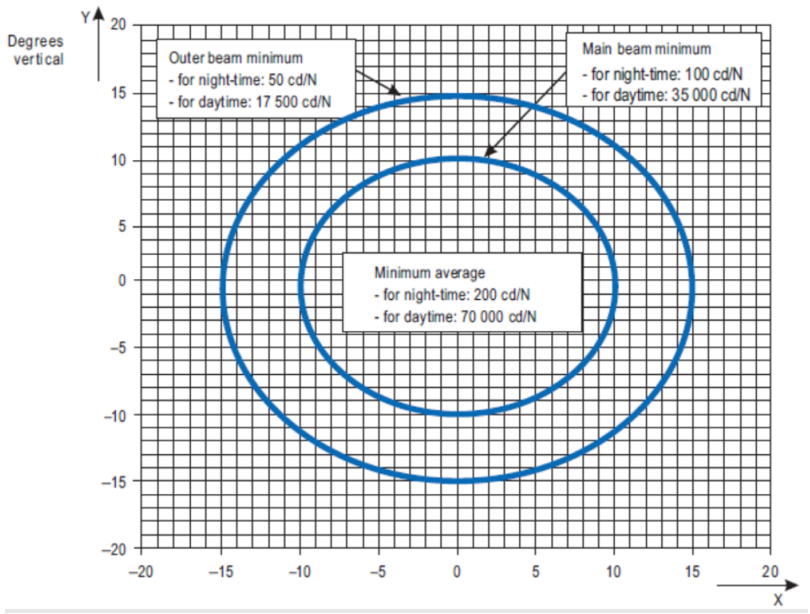


Figure U-30. Isocandela diagram for closed runway lights (white light)

Notes:

(a) Curves calculated on formula

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

a	10	15
b	10	15

(b) N is the total number of lights of the closed runway lighting.

(c) See collective notes for Figures U-5 to U-15, U-29 and U-30.

Rationale

See rationale for CS ADR-DSN.M.690 and GM1 ADR-DSN.M.700 regarding the changes to the RVR value. The reference to Figure U-29 is added as it is currently missing.

The remaining proposed changes are stemming from ICAO State Letter 25/23 - Amendment 18 to Annex 14, Vol I:

Point (d) of the collective notes to Figures U-5 to U-15 and U-29 establishes values for aeronautical ground lights as a ratio of the minimum average intensity of a runway edge light, and is amended to correspond with the changes to ADR.OPS.C.015.

The ratio given by point (d) does not correspond with the value in Figure U-5. This figure requires a minimum average intensity of 20 000 cd, while point (d) requires a minimum average intensity of 1.5 times the minimum average intensity of a new runway edge light (10 000 cd) which is only 15 000 cd. Point (d) is amended to require a minimum of 2.0 times the minimum average intensity of a new runway edge light (10 000 cd) which is 20 000 cd and corresponds with the value in Figure U-5. As a consequence, the current maximum value of 2.0 is also amended since this has become the minimum value. Maintaining the current intensity difference of 1 to 2.66 (50 per cent of 1.5 to 2.0) would lead

to a new ratio of 2.0 to 2.67. This maximum value of 2.67 is rounded to a value of 3.0. This will limit the intensity difference to 1 to 3 (50 per cent of 2.0 to 3.0). An acceptable value, since it is used for the threshold and using 3.0 and not 2.67 increases the ease of use of the ratios.

The ratios given by point (d) do not define a maximum intensity for the runway edge itself. It is important to define a maximum intensity for the runway edge. This will maintain uniformity between individual runway edge lights and maintain acceptable ratios with other lights to guarantee a uniform image of the lighting system supporting runway operations. The intensity difference used for the threshold, approach centre line and cross bars of 1 to 3 is used. Starting from the minimum value of 1.0 a maximum value of 1.5 for the runway edge is defined.

A new Figure U-30 is added containing the isocandela diagram for closed runway lights (white light).

GM1 ADR-DSN.U.940 Aeronautical ground light characteristics

~~intentionally left blank~~

Guidance on maintenance criteria for aeronautical ground lights and the use of a site standard is contained in the ICAO Doc 9157, Aerodrome Design Manual, Part 4, Visual Aids.

Rationale

See rationale for CS ADR-DSN.U.940.