Notification of a Proposal to issue a Certification Memorandum

Width of Aisle

EASA CM No.: CM-CS-007 Issue 01 Revision 01 issued 01 June 2017

Regulatory requirement(s): CS 25.815

In accordance with the EASA Certification Memorandum procedural guideline, the European Aviation Safety Agency proposes to issue an EASA Certification Memorandum (CM) on the subject identified above.
All interested persons may send their comments, referencing the EASA Proposed CM Number above, to the e-mail address specified in the "Remarks" section, prior to the indicated closing date for consultation.

EASA Certification Memoranda clarify the European Aviation Safety Agency's general course of action on specific certification items. They are intended to provide guidance on a particular subject and, as non-binding material, may provide complementary information and guidance for compliance demonstration with current standards. Certification Memoranda are provided for information purposes only and must not be misconstrued as formally adopted Acceptable Means of Compliance (AMC) or as Guidance Material (GM). Certification Memoranda are not intended to introduce new certification requirements or to modify existing certification requirements and do not constitute any legal obligation.

EASA Certification Memoranda are living documents into which either additional criteria or additional issues can be incorporated as soon as a need is identified by EASA.

Log of issues

Issue/Revision	Issue date	Change description
Issue 01 Revision 00	27.03.2014	First issue.
Issue 01 Revision 01	01.06.2017	First issue. Revision 01. The initially 'proposed' Certification Memorandum has been published for public consultation on 27 March 2014. The Agency received 39 comments, please refer to EASA Proposed CM-CS-007 Issue 01 Revision 00 – Width of Aisle – Comment Response Document.  CRD Proposed CM-CS-007 Issue 01 Due to significant changes introduced compared to the initially published 'proposed' CM following the EASA review of the comments received, the amended 'proposed' CM is published for another round of public consultation.

Table of Content

1. Introduction

1.1. Purpose and scope

The purpose of this Certification Memorandum is to provide specific guidance about methods of compliance with the requirements of CS 25.815 at Amendment 19 and the equivalent requirements included in JAR/CS-25 at previous Changes/Amendments.

The Certification Memorandum is applicable to moveable items of passenger seats installed on Large Aeroplanes with 20 or more passengers under commercial operations (ref. Deviation on JAR/CS 25.815 Width of Aisle, published on the EASA website on 13/04/2014).

The guidance given in this Certification Memorandum does not apply to cross aisles required by JAR/CS 25.813 and should be considered together with AMC 25.815, which refers to relevant part of the FAA Advisory Circular 25-17A (Transport Airplane Cabin Interiors Crashworthiness Handbook).

1.2. References

It is intended that the following reference materials be used in conjunction with this Certification Memorandum:

Reference	Title	Code	Issue	Date
CS 25.815	CS-25 – Book 1 - Certification Specifications Large Aeroplanes – Subpart D Design and Construction - Width of Aisle	CS-25	19	12/05/2017
AMC 25.815	CS-25 – Book 2 – Acceptable Means of Compliance Large Aeroplanes – Subpart D Design and Construction - Width of Aisle	CS-25	19	12/05/2017
FAA AC 25-17A	Transport Airplane Cabin Interiors Crashworthiness Handbook	N/A	N/A	18/05/2009

1.3. Abbreviations

TT&L	Taxi, Take-Off and Landing

1.4. Definitions

Front Row Seat	A seat installed aft of an interior component other than a seat (bulkhead, galley, lavatory, partition, class divider, etc.), a cross aisle, a passageway leading to an exit.

2. Background

CS 25.815 at Amendment 19 prescribes the following:

"The passenger aisle width at any point between seats must equal or exceed the values in the following table:

Passenger seating capacity	Minimum passenger aisle width (cm (inches))	
	Less than 64 cm (25 inches) from floor	64 cm (25 inches) and more from floor
10 or less	30 (12)*	38 (15)
11 to 19	30 (12)	51 (20)
20 or more	38 (15)	51 (20)

** A narrower width not less than 23 cm (9 inches) may be approved when substantiated by tests found necessary by the Agency."*

FAA AC 25-17A provides the following guidelines on the determination of the width of aisle between interior components other than seats:

"When the measurement is not between seats but between other aisle constraints such as galleys, coat closets, storage compartments, etc., the minimum widths at the specified vertical distance above the floor still prevails."

It must be noted that JAR/CS 25.815 does not explicitly mention any flight phase. Therefore, the specified aisle width is required to be maintained during all phases of flight and not only during taxi, take-off, and landing.

Aisles are required to allow for rapid egress from the aeroplane in an emergency but they also provide the means for crewmembers to access all parts of the cabin during aeroplane operations to address emergency conditions. Additionally, they allow passengers to return to their seats during turbulence. Not providing adequate aisles during flight may prevent the accomplishment of the latter needs.

Aisle widths should be determined with seats and their moveable features in the most critical position allowed by the design. This practice is based on the assumption that the seats could be in this configuration during an emergency. For example, when the in-armrest video monitor of a seat (E/C front-row, Premium Economy, B/C) is deployed, the minimum aisle width of 51 cm (20") might not be maintained above 64 cm (25") of height from the floor.

As a result of repetitive findings during cabin inspection conducted on several aeroplane models, EASA has concluded that seat design has developed in a way that the cases of non-compliance with CS 25.815 during phases of flight other than Taxi, Take-Off and Landing (TT&L), are increasing. This trend is mainly due to the proliferation of seat places equipped with in-armrest table and/or monitor.

3. EASA Certification Policy

3.1. EASA Policy

Seat moveable items are not expected to encroach into the minimum aisle width specified in CS 25.815 during any phase of flight.

For the measurement of the aisle width, all possible stable position of moveable items (e.g. armrests, armcaps, deployable video monitors, tray tables, etc.) should be evaluated. Any non-self-supporting position does not need to be considered. For example, armrest covers which need to be lifted only during deployment/stowage of in-armrest table and which are then spring loaded closed do not need to be considered.

In general, for the dimensional checks of aisles cylinders of 51 cm (20”) and 38 cm (15”) diameter can be used. An aisle width fully compliant to CS 25.815 will allow a 51 cm (20”) diameter cylinder placed above a 38 cm (15”) diameter cylinder with a height equal to 63 cm (25”), to slide along the aisle. In doing so the lower cylinder may move relative to the upper one but should always remain entirely within the vertical projection of the upper cylinder.

EASA considers that the necessity to provide the occupants of seats with tables and monitors, may result in minor encroachments into the minimum required aisle width. Such minor encroachments can be considered negligible during phases of flight other than Taxi, Take-Off and Landing (TT&L), and thus are not to be considered non-compliances to CS 25.815, provided that the criteria specified in the present Certification Memorandum are met.

EASA would like to highlight that it should always be a design objective to minimize the encroachment into the aisle of such moveable items.

The criteria for the identification of acceptable encroachments of seat moveable items into the aisle width envelope required by CS 25.815 are the following:

1) Encroachment into the dimensional aisle width limits of CS 25.815 is allowed:
    a. Only in phases of flight other than TT&L.
    b. Only for deployable video monitors and tables that are not electrically operated, under the limitations specified below, in points 2 and 3 respectively. However, if deemed necessary, additional guidance specifically addressing deployable video monitors and tables that are electrically operated may be released by EASA in the future.
2) Video monitors
    a. Encroaching into the minimum aisle width envelope defined by CS 25.815 is allowed for deployable video monitors mounted on front row seats. In addition, it is allowed when a change in seat abreast (e.g. central triple seat installed behind a central quadruple seat) results in the need to provide seats with deployable video monitors. It is not allowed on repetitive seat rows.
    b. If a deployable video monitor encroaches into the minimum aisle width envelope required by CS 25.815, all the following conditions should be met:
        i) The minimum aisle width in the worst case stable position of the deployable video monitors should be at least 23 cm (9 inches).
        ii) In the event of any encroachment allowed by i) above, it should be possible to restore the minimum aisle width envelope required by CS 25.815 through the application of a force on the video monitor not greater than 45 N (10 lbf) with a single sweeping motion using one hand. The sweeping motion may not necessarily be in the direction of travel along the aisle, may include changes in direction but no changes to grip. The

application of the load should be intuitive. For example, opening an armrest cover to stow the video monitor is not allowed.

iii) In any position after deployment, regardless if stable or not, monitors installed on different seats should not come in contact with each other.

3) Tables

a. Encroachment into the minimum aisle width envelope defined by CS 25.815 is considered acceptable on all seat rows. If a table encroaches into the minimum aisle width envelope required by 25.815, all the following conditions should be met:

i) The hinge mechanism of a deployed in-armrest table may have a length up to 102 mm (4”) and a height up to 51 mm (2”), measured from the top of the seat armrest, but should not protrude into the aisle beyond the armrest.

ii) A table leaf with a thickness of maximum 25 mm (1”) may rest on an armrest but should not protrude into the aisle beyond the armrest.

3.2. Who this Certification Memorandum affects

This Certification Memorandum affects all organisations that design cabin interiors for which the Certification Basis includes CS 25.815 at Amendment 19 or the equivalent requirements included in JAR/CS-25 at previous Changes/Amendments.

4. Remarks

1. This EASA Proposed Certification Memorandum will be closed for public consultation on the **13th of July 2017**. Comments received after the indicated closing date for consultation might not be taken into account.
2. Comments regarding this EASA Proposed Certification Memorandum should be referred to the Certification Policy and Safety Information Department, Certification Directorate, EASA. E-mail CM@easa.europa.eu.
3. For any question concerning the technical content of this EASA Proposed Certification Memorandum, please contact:

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