

Certification Memorandum

Large Aeroplane Evacuation Certification Specifications – Cabin Crew Members Assumed to be On Board

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Regulatory requirement(s): CS 25.803

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Log of issues

Issue	Issue date	Change description
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1. Introduction

1.1. Purpose and scope

The purpose of this Certification Memorandum is to provide specific clarification and additional guidance regarding the number of cabin crewmembers assumed to be present on board when determining compliance to the passenger and crew evacuation certification specifications of CS-25.

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 25.803	Emergency Evacuation	---	---	---
AMC 25.803	Emergency Evacuation	---	---	---
FAA AC 25-17A	Transport Airplane Interiors Crashworthiness Handbook	---	---	18/05/09
FAA AC 25.803-1A	Emergency Evacuation demonstrations	---	---	12/03/12

1.3. Abbreviations

AC	Advisory Circular
AMC	Acceptable Means of Compliance
CM	Certification Memorandum
CS	Certification Specification
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration

2. Background

In this document CS-25 specifications are quoted in several places. However, many aeroplane types in service have been certificated to type-certification bases utilising other airworthiness codes (e.g. JAR-25). The certification principles in this Certification Memorandum are equally applicable to those aeroplanes and in such cases the references to CS-25 specifications in this document should be taken as applying to the corresponding paragraphs of the relevant airworthiness code referenced in the particular aeroplane's type-certification basis.

Since October 2014, the minimum number of cabin crew members that may be on board an aeroplane in commercial operation must be determined by an aeroplane operator in accordance with Commission Regulation (EU) No 965/2012, paragraph ORO.CC.100.



This paragraph reads as follows:

“ORO.CC.100 Number and composition of cabin crew

- (a) *The number and composition of cabin crew shall be determined in accordance with 7.a of Annex IV to Regulation (EC) No 216/2008, taking into account operational factors or circumstances of the particular flight to be operated. At least one cabin crew member shall be assigned for the operation of aircraft with an MOPSC of more than 19 when carrying one or more passenger(s).*
- (b) *For the purpose of complying with (a), the minimum number of cabin crew shall be the greater of the following:*
 - (1) *the number of cabin crew members established during the aircraft certification process in accordance with the applicable certification specifications, for the aircraft cabin configuration used by the operator; or*
 - (2) *if the number under (1) has not been established, the number of cabin crew established during the aircraft certification process for the maximum certified passenger seating configuration reduced by 1 for every whole multiple of 50 passenger seats of the aircraft cabin configuration used by the operator falling below the maximum certified seating capacity; or*
 - (3) *one cabin crew member for every 50, or fraction of 50, passenger seats installed on the same deck of the aircraft to be operated.*
- (c) *[...].”*

Sub-paragraph (b)(1) refers to the number of cabin crew members established during the aircraft certification process for the aircraft cabin configuration used by the operator. Sub-paragraph (b)(2) allows for cases where this number has not been established. A simple arithmetic calculation is then defined, based on the number of passenger seats installed and on the number of cabin crew established during the aircraft certification process for the maximum certified passenger seating configuration.

This regulation text has led to appreciable confusion amongst aeroplane operators in regards to which circumstances allow the provisions of sub paragraph (b)(2) to be used.

In the majority of demonstrations of compliance to CS 25.803, as required when changes are made to an aeroplane’s cabin, the specificities of the new cabin configuration are not considered. Rather, compliance is demonstrated by the simple fact that the number of installed passenger seats does not exceed the maximum allowable passenger seating capacity as shown on the relevant TCDS. No mention is made of the number of cabin crew assumed to be on board. This is an acceptable approach to demonstrating compliance to CS 25.803.

However, when a design organisation relies on the content of the TCDS in this way, the number of cabin crew members assumed to be on board the aeroplane for the new cabin design is implicitly taken as being the same as that used by the Type Certificate holder during the certification exercise of the aeroplane. Thus the number of cabin crew referenced in sub paragraph (b)(1) is available, albeit not explicitly documented.

However, as evidenced from discussions with aeroplane operators, this is not clear, and compounding this situation, the chosen wording for sub paragraph (b)(2) is very similar to the same sub paragraph number of the predecessor European operational regulation (Commission Regulation (EC) No 859/2008 (EU-OPS) OPS 1.990) which was in effect until October, 2014. Unlike the new regulation, this earlier regulation text did have the intended effect of allowing a reduction in cabin crew to below that used during the certification process without the need for further substantiation of compliance to CS 25.803. Operators have informed EASA that their understanding of the meaning of sub paragraph (b)(2) in the new regulation was that this reduction methodology remained acceptable with the new regulation.

EASA has accepted that this situation is confusing and that insistence on compliance to the new regulation at this stage, which may lead to an increase in the calculated minimum acceptable number of cabin crew, would be unreasonable. It has thus been indicated to operators that, as and until the situation can be fully resolved, usage of the reduction provisions of sub paragraph (b)(2) may be assumed to be applicable,



provided there is no specific mention of an assumed number of cabin crew members in the CS 25.803 compliance documentation for the particular passenger cabin in question.

In order that the situation outlined above not be perpetuated any further than necessary, it has also been decided to request from now on that aeroplane cabin design substantiation documentation involving a showing of compliance to the emergency evacuation requirements (CS 25.803) will include a clear statement regarding the assumed number and location of cabin crew members.

This Certification Memorandum is issued in order to highlight the issue and to request that this information be provided by design organisations in the future.

3. EASA Certification Policy

The applicant for approval of a passenger cabin design, or for changes to a passenger cabin with potential to affect emergency evacuation, must show compliance to the emergency evacuation specifications of CS 25.803. In the case of cabins with more than 44 installed passenger seats, this must be done by actual demonstration or by analysis based on previous demonstration.

The specifications of CS 25.803 must be complied with for the desired maximum passenger seating capacity and with the number of crew members required by the operating rules.

For a particular aeroplane type the applicant for the aeroplane Type Certificate (TC) will be the first to perform this exercise. The TC applicant will achieve this via a demonstration or analysis involving the desired maximum passenger seating capacity. For reasons of an optimised design, the maximum passenger seating capacity substantiated will normally be at or approaching that allowed by CS 25.807 for the number and type of emergency exits that the TC applicant has chosen to provide.

The maximum passenger seating capacity substantiated will be quoted in the EASA Type Certification Data Sheet (TCDS) published on the EASA website.

Approval for any subsequent cabin layout, with a passenger seating capacity of up to but not exceeding that first substantiated, can rely on similarity to the original substantiation by the Type Certificate holder. This may be done on the basis of not exceeding the maximum substantiated passenger seating capacity indicated in the TCDS. However, the new cabin layout should not possess any unusual features which could adversely affect evacuation performance and which were unlikely to have been present in the cabin layout used by the Type Certificate holder for their initial compliance substantiation.

In the case of subsequent applications for approval of cabin layouts by the Type Certificate holder, this is an obvious possibility. This certification substantiation approach has however, also been found acceptable by EASA for approval of cabin layouts designed and submitted for approval by any other suitably qualified design organisation.

Due to the wording of the operational rule prior to October 2014, it was not particularly critical that the number of cabin crew associated with such a subsequent substantiation of continued compliance to CS 25.803 was highlighted by the design organisation in their substantiation documentation. The provision of sufficient evenly distributed cabin crew seats to comply with at least the "one per 50 passenger seats" element of the operational rule was tacitly accepted as the only certification element of note in regards to number of cabin crew. This was because the applicable operational rule allowed a subsequent reduction in cabin crew.

However, with the introduction of the new ORO.CC.100 operational rule, a higher emphasis on the assumptions underlying the emergency evacuation certification is required and from now on the number of cabin crew assumed to be present in the passenger cabin for the substantiation of compliance to the evacuation requirements of CS 25.803 should be clearly indicated in the associated certification documentation.



Furthermore, it has become clear that in some cases the optimum locations of cabin crew members within the passenger cabin during taxi, take-off and landing might not be obvious. Therefore, the assumed seating locations of the cabin crew members should also be clearly indicated.

4. Compliance Procedures

4.1. Indication of Certification Assumptions Regarding Cabin Crew Members

When preparing compliance documentation for demonstration of compliance to CS 25.803, Design Organisations should include a clear indication of the number of cabin crew members assumed, and their locations in the cabin.

4.2. Who this Certification Memorandum affects

Applicants for and holders of EASA approvals for aeroplane cabin designs involving demonstration of compliance to CS/JAR/FAR 25.803. Both EU and non-EU design organisations are affected by this Certification Memorandum.

5. Remarks

1. Suggestions for amendment(s) to this EASA Certification Memorandum should be referred to the Certification Policy and Safety Information Department, Certification Directorate, EASA. E-mail CM@easa.europa.eu.
2. For any question concerning the technical content of this EASA Certification Memorandum, please contact:

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