



Seat crashworthiness improvement on large aeroplanes — Dynamic testing 16 g

RELATED NPA/CRD 2013-20 — RMT.0069 (26.002) — 20.5.2016

EXECUTIVE SUMMARY

This Opinion addresses a safety issue related to the crashworthiness of passenger and cabin crew seats in order to mitigate the risk of post-crash injuries or deaths.

Certification Specifications for large aeroplanes (CS-25) provides specifications to protect large aeroplane occupants from serious injuries in case of emergency landing. These specifications are: CS 25.785, CS 25.561, and CS 25.562, and they only apply to new large aeroplane types being certified and to some significant changes to the existing types.

The specific objective of this Opinion is to improve the protection of occupants on board large aeroplanes operated in commercial air transportation (CAT), when they are involved in a survivable accident.

This Opinion proposes, within the new framework introduced by Regulation (EU) 2015/640 (Part-26) and the related CS-26, to introduce additional airworthiness requirements and specifications for operations in order to make CS 25.562 specifications applicable also to newly produced large aeroplanes of already approved types.

The proposed changes are expected to increase safety and improve harmonisation with the corresponding Federal Aviation Administration (FAA) requirements.

Applicability		Process map	
Affected regulations and decisions:	Regulation (EU) 2015/640 (Part-26) ED Decision 2015/013/R (CS-26)	Terms of Reference	17.9.2010
Affected stakeholders:	Manufacturers and operators of large aeroplanes used in CAT of passengers in the EU Member States Aircraft seat manufacturers	Concept Paper:	No
Driver/origin:	Safety	Rulemaking group:	No
Reference:	Decision No. 2003/2/RM (CS-25)	RIA type:	Full
		Technical consultation during NPA drafting:	Yes
		Publication date of the NPA:	10.10.2013
		Duration of NPA consultation:	3 months
		Review group:	No
		Focused consultation:	No
		Publication date of the Decision:	2016/Q3



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1. Procedural information

1.1. The rule development procedure

The European Aviation Safety Agency (hereinafter referred to as the 'Agency') developed this Opinion in line with Regulation (EC) No 216/2008¹ (hereinafter referred to as the 'Basic Regulation') and the Rulemaking Procedure².

This rulemaking activity is included in the Agency's [4-year Rulemaking Programme](#) under RMT.0069 (26.002). The scope and timescale of the task were defined in the related [Terms of Reference](#) (ToR).

The draft text of this Opinion has been developed by the Agency. All interested parties were consulted through NPA 2013-20³. 34 comments were received from 17 interested parties, including industry, National Aviation Authorities (NAAs), and social partners.

The Agency has addressed and responded to the comments received on the NPA. The comments received and the Agency's responses thereto are presented in Comment-Response Document (CRD) 2013-20⁴.

The final text of this Opinion and the draft regulation has been developed by the Agency.

The process map on the title page summarises the major milestones of this rulemaking activity.

1.2. The structure of this Opinion and related documents

Chapter 1 of this Opinion contains the procedural information related to this task. Chapter 2 'Explanatory Note' explains the core technical content. The draft rule text proposed by the Agency is published on the Agency's website⁵.

1.3. The next steps in the procedure

This Opinion contains proposed changes to a European Union (EU) regulation. It is addressed to the European Commission to be used as a technical basis in order to prepare a legislative proposal.

The Decision containing the related Certification Specifications (CS-26) and Guidance Material (GM) will be published by the Agency when the related regulation is adopted by the European Commission.

¹ Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1).

² The Agency is bound to follow a structured rulemaking process as required by Article 52(1) of the Basic Regulation. Such a process has been adopted by the Agency's Management Board and is referred to as the 'Rulemaking Procedure'. See Management Board (MB) Decision No 01-2012 of 13 March 2012 concerning the procedure to be applied by the Agency for the issuing of Opinions, Certification Specifications and Guidance Material (Rulemaking Procedure).

³ In accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the Rulemaking Procedure.

⁴ <http://easa.europa.eu/document-library/comment-response-documents>

⁵ <http://easa.europa.eu/document-library/opinions>



2. Explanatory Note

2.1. *Issues to be addressed*

In the case of emergency landing and survivable accident, the level of protection provided by the seats of passengers and cabin crew was found not to be optimal on large aeroplanes.

Therefore, improvements of seating system certification standards were introduced in JAR-25 Change 13 (dated 5 October 1989), and were later on transposed by the Agency in CS-25. Aeroplanes which were type certified before the introduction of these improvements of standards have not necessarily upgraded their seating system, thus offering a lower level of occupant protection compared to more recent types.

JAR-25 Change 13 upgraded the seating system certification standards from a 9 g static standard to an upgraded 9 g static standard and a new 16 g dynamic standard.

This issue affects large aeroplanes, still being produced and used for CAT of passengers, having a type certification basis which does not include the latest seating system standards introduced in JAR-25 Change 13 and transposed by the Agency in CS-25.

2.2. *Objectives*

The overall objectives of the EASA system are defined in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Chapter 2. The specific objective of this proposal is, therefore, to improve the protection of occupants on board large aeroplanes operated in CAT of passengers, when they are involved in a survivable accident or emergency landing.

2.3. *Outcome of the consultation*

A summary of comments as well as responses to individual comments can be found in CRD 2013-20.

2.4. *Summary of the Regulatory Impact Assessment (RIA)*

The RIA published in NPA 2013-20 compared the following two options:

- Option 1 requiring 16 g seats to be fitted on newly produced large aircraft used in CAT;
- Option 2 requiring 16 g seats to be fitted on **in-service and newly produced large aircraft** used in CAT ('retrofit').

The RIA concluded that the Option 1 is proportionate and cost-effective while achieving the safety objectives. On the other hand, the costs of retrofitting the in-service fleet (Option 2) are considered not proportionate with the potential safety gain. Therefore, Option 1 is the preferred one.

Further to the comments received during the NPA consultation, the Agency decided to propose a longer transition period to comply with the new requirement.

The RIA also recommended to exclude large aeroplanes which, although operated in CAT, would typically not offer scheduled flights, i.e. corporate jets or the so-called 'VIP' aircraft.



2.5. Overview of the proposed amendments

A new paragraph related to seat crashworthiness is proposed to be added to Part-26.

Following the existing structure of Part-26 and CS-26, the requirement set out in Part-26 is limited to high-level objectives, applicability, and implementation dates only, whereas the detailed means to comply with are described in CS-26.

Done at Cologne, on 20 May 2016

Patrick Ky
Executive Director



3. References

3.1. *Affected regulations*

Commission Regulation (EU) 2015/640 of 23 April 2015 on additional airworthiness specifications for a given type of operations and amending Regulation (EU) No 965/2012 (OJ L 106, 24.4.2015, p. 18)

3.2. *Affected decisions*

ED Decision 2015/013/R of 8 May 2015 adopting Certification Specifications for additional airworthiness specifications for operations 'CS-26 — Issue 1'

3.3. *Reference documents*

Decision No. 2003/2/RM of the Executive Director of the Agency of 17 October 2003 on certification specifications, including airworthiness codes and acceptable means of compliance, for large aeroplanes 'CS-25'

