

**TERMS OF REFERENCE**

<b>Task Nr:</b>	26.002
<b>Issue:</b>	1
<b>Date:</b>	17 September 2010
<b>Regulatory reference:</b>	Articles 5(5)(e)(vi) and 5(6) of the Basic Regulation <sup>1</sup> ,
<b>Reference documents:</b>	CS-25 <sup>2</sup> , Certification Specifications for Large Aeroplanes JAR 26 amendment 3 <sup>3</sup> , Subpart B "Commercial Air Transport (Aeroplanes)" NPA 2009-01 on "Operational Suitability Certificate and Safety Directives", 16/01/2009 <sup>4</sup> . JAR-25 change 13 <sup>5</sup> , upgrading the seating system certification standards (arising from JAA NPA 25C,D-211). FAR Part 25 amendment 25-64 <sup>6</sup> , final rule upgrading the seating system certification standards. FAR Part 121 amendment 121-315 <sup>7</sup> , final rule requiring improved seats in air carrier transport category aeroplanes. FAA AC 25.562-1B, dated 10 January 2006, providing guidance for the dynamic testing of seats.

**1. Subject: Additional airworthiness specifications for operations: Seat crashworthiness improvement on Large Aeroplanes - Dynamic testing 16g****2. Problem/Statement of issue and justification; reason for regulatory evolution (regulatory tasks):****a) Regulatory framework for additional airworthiness specifications for operations**

In the JAA system, specific additional airworthiness specifications were prescribed under JAR-26 (Additional Airworthiness Requirements for Operations). In particular, Subpart B was dedicated to commercial air transport (Aeroplanes). If rendered mandatory by

<sup>1</sup> 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, 19.03.2008, p. 1). Regulation as last amended by Commission Regulation (EC) 1108/2009 of the European Parliament and of the Council of 21 October 2009 (OJ L 309, 24.11.2009, p. 51).

<sup>2</sup> Certification Specifications, including Airworthiness Codes and Acceptable Means of Compliance, for Large Aeroplanes (« CS-25 »), as last amended by ED Decision N°2010/005/R dated 05 August 2010 (Amendment 9).

<sup>3</sup> Joint Aviation Requirements – Additional airworthiness requirements for operations (JAR-26) amendment 3, dated 01 December 2005.

<sup>4</sup> See NPA 2009-01 on Rulemaking Archives page [http://www.easa.europa.eu/ws\\_prod/r/r\\_archives.php](http://www.easa.europa.eu/ws_prod/r/r_archives.php).

<sup>5</sup> Joint Aviation Requirements for Large Aeroplanes (JAR-25) change 13, dated 05 October 1989.

<sup>6</sup> US Code of federal regulations, Title 14 Aeronautics and Space, Part 25 (Airworthiness standards: Transport category airplanes), amendment 25-64 effective 16 June 1988 (docket No. 25040).

<sup>7</sup> US Code of federal regulations, Title 14 Aeronautics and Space, Part 121 (Operating requirements: domestic, flag, and supplemental operations), amendment 121-315 effective 27 October 2005 (docket No. FAA-2002-13464-2).

Member States' National laws, they were/are applicable to operators of aeroplanes operating under commercial air transportation. Further subparts in JAR-26 were reserved for other categories of aircraft and operations, but were not used.

In the frame of EASA rulemaking task 21.039<sup>8</sup>, the Agency is defining a new regulatory framework, including definition of implementing rules for the elaboration and adoption of additional airworthiness specifications for a given type of aircraft and type of operation. A proposal was made through NPA 2009-01 and its CRD is scheduled to be published by December 2010. The final Opinion is scheduled for April 2011. This rulemaking task will provide the legal tools within the EU framework for imposing additional airworthiness specifications for operations and should be adopted by the European Commission in April 2012.

However, the exact form and details of the legal tool will not affect the technical substance of the measures to be imposed. The Agency has therefore decided to proceed with the preparation and public consultation of these measures in parallel with the finalisation of the legal tool(s) for imposing them.

Rulemaking task 21.039(k) covers the transfer of existing JAR-26 amendment 3 requirements. In addition, the Agency is also developing new additional airworthiness specifications for operation which are identified in the Agency Rulemaking Programme and Planning. This rulemaking task (26.002) is one of these tasks.

#### **b) Definition of the issue: level of protection from seating system**

In case of emergency landing and survivable impact accident, the level of protection available from passengers and cabin crews seats is not optimal on some Large Aeroplanes.

Indeed, improvements to seating system certification standards were introduced in JAR-25 change 13 (dated 05 October 1989). JAR-25 change 13 upgraded the seating system certification standards from a 9g static standard to an upgraded 9g static standard and a new 16g dynamic standard. These new standards are now included in EASA CS-25. However, aeroplanes type certificated before these improvements have not necessarily upgraded their seating system. Their level of occupants' protection is therefore lower level than that of more recent types, and can result in a more notable number of potential serious injuries and fatalities in case of an accident.

#### **c) Regulation history and status on seating system certification standards – EASA and FAA**

In the EU, CS-25 provides specifications to protect Large Aeroplanes occupants from serious injury in case of emergency landing. These specifications are included in CS 25.785, CS 25.561 and CS 25.562, and are applicable to new Large Aeroplane types certification and some significant changes to existing types. As stated above, upgraded standards were introduced in JAR-25 amendment 13.

In the USA, FAR Part 25 provides similar specifications as CS-25 for new types, except that the applicability of 25.562 (b) and (c) dynamic tests includes flight crew seats, which are excluded in CS-25. The improvement of seat standards was introduced with amendment 25-64 effective 16 June 1988. FAA AC 25.562-1B provides guidance to industry for the dynamic testing of seats.

In addition, the FAA published in 2005 a final rule amending Part 121 (amendment 121-315) which requires in §121.311 that "after October 27, 2009, no person may operate a transport category airplane type certificated after January 1, 1958 and manufactured on or after October 27, 2009 in passenger-carrying operations under this part unless all

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Note: Task 21.039 contains additional subtasks from 21.039 (a) to 21.039 (k) in support of the Operational Suitability Data concept. Please refer to the Rulemaking Programme for details.

passenger and flight attendant seats on the airplane meet the requirements of § 25.562 in effect on or after June 16, 1988”.

Paragraph 25.561 of EASA CS-25 and FAR Part 25 provides for seats static loads testing instructions up to 9g in the forward direction. Seats meeting these testing requirements are commonly called “9g seats”.

Paragraph 25.562 of EASA CS-25 and FAR Part 25 provide for dynamic seat testing instructions with acceleration levels up to 16 g in the forward longitudinal direction, and also seat occupant protection criteria like the Head Injury Criterion (HIC). Seats meeting these testing requirements are commonly called “16g seats”. CS-25 excludes flight crew seats from this paragraph.

### 3. Objective:

The objective is to improve the protection of occupants onboard Large Aeroplanes operated for commercial air transportation (CAT) of passengers, when they are involved in a survivable impact accident.

This improvement would be reached by introducing on Large Aeroplanes used for CAT that were type certificated without the JAR-25 change 13 standard improvements, passengers and cabin crews seats meeting the improved standard for dynamic testing and occupant protection, already used for type certification of new Large Aeroplanes.

### 4. Specific tasks and interface issues (Deliverables):

- Define the regulatory options to reach the objective defined above. The options could consider full or partial 16g seats (i.e. meeting the full CS 25.562 requirements, or a part of these requirements), and implementation on newly manufactured or in-services Large Aeroplanes.
- Based on the defined options, establish the Regulatory Impact Assessment (RIA).
- Considering the RIA outcome and the objective to harmonise as much as possible with FAR Part 121 rule (amendment 121-315), determine a preferred option.
- Draft the specifications and, based on the available results of the task 21.039, determine the regulatory tool to mandate the specifications.

### 5. Working Methods (in addition to the applicable Agency procedures):

Agency

### 6. Time scale, milestones:

NPA publication: 2011/Q2

Decision/Opinion to be published in 2012/Q3