

ED-304

TECHNICAL STANDARD FOR PASSENGER AND CREW SEATS IN ADVANCED AIR MOBILITY (AAM) AIRCRAFT

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CHAPTER 1

INTRODUCTION

1.1 PURPOSE AND SCOPE

This document contains minimum requirements for forward and aft facing seats in Advanced Air Mobility aircraft.

The goal is to achieve occupant protection under normal operational loads and to define test and evaluation criteria to demonstrate occupant protection when the seat is subjected to statically applied ultimate loads and to dynamic test conditions.

While this document addresses system performance, responsibility for the seating system is divided between the seat manufacturer and the installation applicant. The seat manufacturer's responsibility consists of meeting all the seat system performance requirements. The installation applicant has the ultimate system responsibility in assuring that all requirements for safe seat installation have been met.

1.2 APPLICATIONS

Compliance with this standard by manufacturers, installers and users is recommended as a means of assuring that the equipment will satisfactorily perform its intended function(s) under all conditions normally encountered in routine aircraft operations.

Any regulatory application of this document in whole or in part is the sole responsibility of appropriate government agencies.

As the measured values of equipment performance characteristics may be a function of the method of measurement, standard test conditions and methods of test are recommended in this document.

1.3 SEAT TYPES

Modify Table 1 to include three new Seat Types to support the different Aircraft Categories based on Take Off and Landing methods.

TABLE 1-1: SEAT TYPE CATEGORIES

Seat Type	Aircraft Category	Applicable Federal Regulation
D-C	Advanced Air Mobility Aircraft – Conventional Take Off and Landing (CTOL) ⁽¹⁾ Forward/Aft facing only	None ⁽²⁾
D-V	Advanced Air Mobility Aircraft – Vertical Take Off and Landing (VTOL) ⁽¹⁾ Forward/Aft facing only	None ⁽²⁾
D-VC	Advanced Air Mobility Aircraft – Vertical Take Off and Landing with characteristics of both CTOL and VTOL aircraft ⁽¹⁾ Forward/Aft facing only	None ⁽²⁾

(1) An aircraft with characteristics of both CTOL and VTOL means that it has the ability to land both vertically and conventionally, on a runway. Seat type selection shall be defined by the aircraft Type Design holder, or applicant, appropriate to the vehicle.

(2) The requirements for AAM aircraft fall outside the existing regulatory structure. This document will provide applicable means of compliance. EASA SC-VTOL-01 also provides guidance.

1.4 REFERENCES

This document is based on sections of SAE AS8049D and cannot be used without it. CHAPTER 2 of this document specifies how the performance standards for aircraft seats defined in AS8049D should be modified.

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply, unless noted below. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

1.4.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J211/1	Instrumentation for Impact Test - Part 1 - Electronic Instrumentation
SAE J211/2	Instrumentation for Impact Test - Part 2: Photographic Instrumentation
SAE J1733	Sign Convention for Vehicle Crash Testing
ARP5482	Photometric Data Acquisition Procedures for Impact Test
ARP5526	Aircraft Seat Design Guidance and Clarifications
ARP6337	Design, Manufacturing, and Performance Standard for Composite Materials Used on Aircraft Seat Structures
ARP6909	Methods for Determining the Seat Reference Point (SRP) and the Buttock Reference Point (BRP) for Seats in Transport Aircraft, Civil Rotorcraft, and General Aviation Aircraft
AS8049D	Performance Standard for Seats in Civil Rotorcraft, Transport Aircraft, and General Aviation Aircraft

Gowdy, V., DeWeese, R., Beebe, M., Wade, B. et al., "A Lumbar Spine Modification to the Hybrid III ATD For Aircraft Seat Tests," SAE Technical Paper 1999-01-1609, 1999, doi:10.4271/1999-01-1609.

1.4.2 Regulatory Publications

Available from the United States Government Printing Office, 732 North Capitol Street, NW, Washington, DC 20401, Tel: 202-512-1800, www.gpo.gov.

Title 14, Code of Federal Regulations (14 CFR) part 21, Certification Procedures for Products and Parts

Title 14 Part 23 (14 CFR 23) Airworthiness Standards: Normal, Utility, and Acrobatic Category Airplanes

Title 14 Part 27 (14 CFR 27) Airworthiness Standards: Normal Category Rotorcraft

Title 49, Code of Federal Regulations (49 CFR) part 572, Anthropomorphic Test Dummies

FAA Policy Statement AIR-100-3-3-2000: Use of the Hybrid III Anthropomorphic Test Dummy in Seat Dynamic Testing

European Union Aviation Safety Agency (EASA), *Certification Specifications for Normal-Category Aeroplanes (CS-23)*, Amendment 5, Issue 3, Cologne, Germany, 2020

European Union Aviation Safety Agency (EASA), *Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes (CS-25)*, Amendment 27, Cologne, Germany, 2021

European Union Aviation Safety Agency (EASA), *Certification Specifications, Acceptable Means of Compliance and Guidance Material for Small Rotorcraft (CS-27)*, Amendment 9, Cologne, Germany, 2021

European Union Aviation Safety Agency (EASA), *Special Condition for small-category VTOL aircraft, SC-VTOL Issue 1*, dated 2 July 2019.