



AEROSPACE STANDARD

AS6849™

Issued

2022-10

Performance Standards for Passenger and Crew Seats in Advanced Air Mobility (AAM) Aircraft

RATIONALE

A new industry segment for Advanced Air Mobility (AAM) Aircraft is being created. These aircraft are being designed to transport small numbers of passenger for short flights to cater to the air taxi market. Industry standard test requirements and occupant injury criteria that supplement the requirements of AS8049 are required for the seats that will be installed into these aircraft.

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1. SCOPE

1.1 General

This SAE Aerospace Standard (AS) defines qualification requirements, and minimum documentation 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.

This AS is dependent on AS8049D and cannot be used without it. This AS provides revisions to the corresponding sections of AS8049D to incorporate new material specific to AAM aircraft seats. Sections beginning "Modify..." change the current wording of AS8049D by incorporating text applicable to the new seat category. Sections beginning "Add..." incorporate new sections into AS8049D. All other sections of AS8049D are unmodified and are applicable, as appropriate. Test pulse evaluation shall use the method defined in AS8049D, Appendix A.

1.2 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 - Seat type categories

Seat Type	Aircraft Category	Applicable Federal Regulations
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 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.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. 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.

2.1.1 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

2.1.2 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, Acrobatic, and Commuter Category Airplanes

Title 14 Part 25 (14 CFR 25) Airworthiness Standards: Transport Category Airplanes

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

Title 14 Part 29 (14 CFR 29) Airworthiness Standards: Transport 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