



SUMMARY OF PROPOSED CHANGE



Update of aeroplane flight simulator standards

Part 60 Manual of Standards - Synthetic training devices

Date	March 2019
Project number	FS 18/07
File ref	D18/620198

Introduction

Part 60 of the *Civil Aviation Safety Regulations 1998 (CASR)* addresses the qualification, operation and approval of synthetic training devices that may be used by a person to gain aeronautical experience. Part 60 regulations require that synthetic training devices meet technical specifications and standards necessary for the particular flight simulator, or flight training device, and that they are qualified for use.

These specifications and standards are contained in a Manual of Standards (MOS) and are published by CASA. The Part 60 MOS is subject to revision in-line with technological advances and is reviewed and amended in consultation with affected stakeholders.

In 2003, CASA aligned technical requirements for aeroplane flight simulators with standards published by the International Civil Aviation Organization (ICAO), the United States Federal Aviation Administration (FAA) and the Joint Aviation Authorities of Europe (JAA).

Chapter 3 of the Part 60 MOS was aligned with the standards detailed in:

- ICAO Manual of Criteria for the Qualification of Flight Simulators, Doc 9625-AN/938 Second Edition 2003.
- FAA's proposed Federal Aviation Regulation (FAR) Part 60 Appendix A (which was published and commonly referred to as Change 1.)
- Joint Aviation Requirements Aeroplane Flight Simulators (JAR-STD 1A Amendment 3 dated 1 July 2003).

In 2008, the Part 60 MOS was amended to update the standards for:

- helicopter flight simulators to FAR Part 60 Appendix C and Joint Aviation Requirement – Flight Simulation Training Devices Helicopter Flight Simulation Training Devices (JAR FSTD H)
- aeroplane Flight Training Device to FAR Part 60 Appendix B and Joint Aviation Requirement – Flight Simulation Training Devices Aeroplane Flight Simulation Training Devices (JAR FSTD A)
- helicopter Flight Training Devices to FAR Part 60 Appendix D and JAR FSTD H.

In 2016, the Manual of Standards (MOS) – Part 60 Amendment Instrument 2016 (No. 1) updated the standards for helicopter Flight Simulators, aeroplane Flight Training Devices, and helicopter Flight Training Devices from the JAR standards to the European Aviation Safety Agency – Certification Specifications for Helicopter Flight Simulation Training Devices (CS-FSTD(H)) and Certification Specifications for Aeroplane Flight Simulation Training Devices (CS-FSTD(A)) respectively.

Purpose and scope of the proposed amendments

ICAO, European Aviation Safety Agency (EASA) and FAA have all updated their aeroplane flight simulator standards since 2003. The current standards are:

- ICAO Manual of Criteria for the Qualification of Flight Simulation Training Devices, Volume 1 — Aeroplanes 4th Edition.
- Federal Aviation Regulation (FAR) Part 60 Change 2 Appendix A.

- EASA Certification Specifications for Aeroplane Flight Simulation Training Devices (CS-FSTD(A)) Issue 2.

These updated standards include requirements which increase the scope of the Validated Training Envelope including:

- Increasing fidelity to support stall and upset prevention and recovery training (UPRT).
- Increasing the fidelity of the simulation of engine and airframe icing effects.
- Upgrade of the capabilities of the instructor operating station (IOS) to ensure adequate feedback to the instructor in UPRT training sequences.

These standards will allow the approval of simulators to support the UPRT programs required under the 2014 amendments to Annexes 1 and 6.

CASR Part 121 becomes effective on 25 March 2021. CASA proposes to include FAR Part 60 Change 1 Appendix A as an aeroplane flight simulator standard until this date to enable existing flight simulators an additional upgrade path for UPRT rather than requiring a complete upgrade to Change 2 standards.

The proposed amendment updates the aeroplane flight simulator standards in the Part 60 MOS to directly reference ICAO, FAA and EASA standards.

Helicopter flight simulators, aeroplane and helicopter flight training devices are currently referenced to the FAA and EASA standards.

Directly referencing the latest ICAO, FAA and EASA standards in the MOS avoids the need for CASA to compile a new MOS based on the international standards.

Previous consultations

CASA's previous consultation on Aeroplane Flight Simulator Standards occurred during the development of Part 60 - refer NPRM 02200S.

In May 2017, CASA began a series of in-depth consultations on the implementation issues surrounding the ICAO Annex 1 and 6 amendments mandating UPRT. Inherent in every stage of these on-going consultations was the expectation that CASA would upgrade the MOS to enable industry stakeholders wanting (or being directed) to conduct UPRT and to have their flight simulators qualified under an up-to-date MOS that referenced international standards. Over the course of a number of stakeholder engagement activities no objections were expressed about the revision to the Part 60 MOS provided adequate transition and saving provisions were made for existing flight simulators.

On 20 February, 2019, CASA conducted an information workshop in Melbourne. The proposed changes to the MOS including the impact on subsequent training needs were discussed with industry stakeholders. The current Consultation Draft was prepared following that workshop.

Impact on industry

There is no negative impact on existing aeroplane flight simulators in Australia or those qualified and overseen by CASA in off-shore locations. New flight simulators will be qualified against the new standards.

Operators wanting to conduct additional training activities (e.g. UPRT) will be able to have their flight simulators qualified and approved for the new training with the additional qualification requirements aligned to International standards. Without the MOS change this would not be possible.

The following table provides a summary of the effect on device evaluation and qualification in some representative scenarios under the proposed changes.

Summary of simulator standards under the proposed MOS revision

Scenario	Operator Action	Standard for initial and recurrent evaluations under the proposed MOS revision
Existing Flight Simulators qualified under CASR Part 60	Nil	No Change. Device remains qualified and recurrent evaluations are carried out to the standard listed on the flight simulator certificate.
Existing Flight Simulators qualified under CASR Part 60	Upgrade the device (e.g. to introduce the capability for Extended Envelope Training)	The applicant can select one of the following standards: <ul style="list-style-type: none"> • FAR Part 60 Change 1 Appendix A (until 25 March 2021) plus required additional tests from the FAA's FSTD Directive 2 • FAR Part 60 Change 2 Appendix A. • EASA CS-FSTD(A) Issue 2. • ICAO 9625 4th Edition.
New Flight Simulators (including newly procured off-shore second-hand devices)	Qualify the flight simulator under CASR Part 60	The applicant can select one of the following standards: <ul style="list-style-type: none"> • FAR Part 60 Change 1 Appendix A (until 25 March 2021). • FAR Part 60 Change 2 Appendix A. • EASA CS-FSTD(A) Issue 2. • ICAO 9625 4th Edition.

Safety risk analysis

All existing aeroplane flight simulators qualification certificates will remain valid. Existing devices will continue to be evaluated against the qualification standard that is referenced on the certificate.

Regulation impact statement

CASA will consider the responses to this SPC and submit a Preliminary Assessment to the Office of Best Practice Regulation (OBPR) outlining the impact of the proposed amendments. CASA will prepare a Regulation Impact Statement if required by the OBPR.

Closing date for comment

CASA will consider all comments received as part of this consultation process and incorporate changes as appropriate.

Comments on the draft instrument Manual of Standards (MOS) –Part 60 should be submitted through the online response form by close of business 10 April 2019.