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FLIGHT SIMULATION TRAINING DEVICES TO SUPPORT MULTI-CREW PILOT LICENCE (MPL) PHASE 3 - INTERMEDIATE TRAINING.

1 Introduction

1.1 The purpose of this Circular is to provide guidance to Approved Training Organisations (ATOs) and Flight Simulation Training Device (FSTD) Operators who wish to use FSTDs to support the Multi-Crew Pilot Licence Phase 3 - intermediate training.

2 Background

2.1 Appendix 5 to PART-FCL specifies the minimum requirements for a FSTD that can be used for MPL Phase 3 - intermediate training, as being a FSTD that represents a multi-engine turbine powered aeroplane required to be operated with a co-pilot and qualified to an equivalent standard to level B and **additionally** including:

- a daylight/twilight/night visual system with a continuous cross-cockpit minimum collimated visual field of view providing each pilot with 180 degrees horizontal and 40 degrees vertical field of view; and
- ATC environment simulation.

Note: For MPL Phase 4 - advanced training, the minimum requirement is a Full Flight Simulator (FFS), which is qualified at level D or level C with enhanced daylight visual system, including ATC environment simulation.

2.2 The CAA has identified two areas of potential ambiguity:

a. Firstly, the use of the phrase 'equivalent' in a qualification standard is taken directly from the ICAO document (Annex 1 to the Convention on International Civil Aviation - Personnel Licensing, tenth edition, Appendix 3, Paragraph 4.2(c)) that introduced the MPL concept. There is no published guidance from the European Aviation Safety Agency (EASA) or the International Civil Aviation Organization (ICAO) as to what would constitute 'equivalent' or how 'equivalence' can be achieved.

b. Secondly, at present, a viable automatic 'ATC Environment simulation' is not available to the Industry and furthermore, there is no clear definition of the regulatory standard that is required to be met by the device or the ATO.

2.3 Following the work of an International Working Group (IWG), under the auspices of the Royal Aeronautical Society, ICAO published Edition 3 of the Manual of Criteria for the Qualification of FSTDs, ICAO document 9625. It defines seven types of device by considering the training needs to satisfy the ICAO licensing requirements including MPL Phase 3 training.

2.4 Each of the seven types has an associated set of device features. However, the features for the MPL phase 3 devices have been identified as being preliminary pending a review by ICAO of pertinent information relevant to completed MPL programmes (ICAO document 9625, edition 3, chapter 2, paragraphs 2.2.3, 2.2.6.2 & 2.2.6.3).

2.5 Despite these ambiguities the UK CAA wishes to continue to promote the use of FSTDs to support the MPL training needs and has developed the following guidance to ATOs, FSTD Operators and FSTD manufacturers to clarify these issues.

3 Eligibility Of FSTDs For MPL Phase 3 - Intermediate

3.1 FSTDs representing appropriate aircraft types and qualified to CS-FSTD A FFS level B, C or D, will be considered to have achieved an equivalent standard to level B and will be eligible for MPL Phase 3 provided that they also meet the visual and ATC environment simulation requirements of Appendix 5 to PART-FCL.

3.2 FSTDs not meeting the above criteria will be assessed against a matrix of ‘Device Features’ as shown in Table 1. The Operator will be required to propose an alternative means of compliance for any item that does not meet the requirements of CS-FSTD A level B as applicable to these features. The CAA may need to carry out an evaluation to establish whether or not an equivalent level of fidelity has been achieved.

Table 1 (Extracted from ICAO Doc. 9625 Edition 3 Chapter 2)

DEVICE FEATURES MPL Phase 3 - Intermediate	
Flight Deck Layout & Structure	**R**
Flight Model (Aero & Engine)	**R**
Ground Handling	**R**
Aeroplane Systems	**R**
Flight Controls and Forces	**R**
Sound Cue	**R**
Visual Cue	**S**
Motion Cue	**R1**
Enviroment - ATC	**S**
Enviroment - Navigation	**S**
Enviroment - Weather	**R**
Enviroment - Airports & Terrain	**R**

Key:
Device feature fidelity level:

S (Specific): Highest level of fidelity replicates the specific aeroplane. For visual cueing only: replicates the real world visual environment and perspective. Replicates the real world environment as far as possible for any specific location.

R (Representative): Intermediate level of fidelity representative of an aeroplane of its class, e.g. four-engine turbo-fan aeroplane. It does not have to be type specific. For sound and motion cueing only: replicates the specific aeroplane to the maximum extent possible. However physical limitations currently only provide representative, not specific, cues.

Motion Cue - R1: pilot receives an effective and representative motion cue and stimulus, which provides the appropriate sensations of acceleration of the aeroplane 6 degrees of freedom. Motion cues should always provide the correct sensation. These sensations may be generated by a variety of methods, which are specifically not prescribed. The sensation of motion can be less for simplified non-type specific training, the magnitude of the cues being reduced.

4 ATC Environment Simulation

4.1 Until the ATC environment simulation requirements have been defined an ATO conducting MPL 3 training must incorporate a system of ATC simulation sufficient to meet the training needs. This may be satisfied by the instructor/examiner acting as an ATC unit from the operating station.

4.2 The use of synthetic ATC may be considered ahead of the publication of requirements but will need to be assessed by the CAA as to its impact to the Flight Training course and qualification of the device. The methods used to simulate ATC should be detailed in the training course manual.

5 Application Process

5.1 Technical Suitability of the FSTD.

5.1.1 For devices that are not automatically considered to be eligible (i.e. those full flight simulators already qualified to level B, C or D), ATOs should apply to the UK CAA FSTD Standards Department requesting an assessment of the device or devices to be used to support MPL phase 3 training and identify how the additional visual requirements will be met.

5.1.2 A special evaluation fee in accordance with the CAA's published Scheme of Charges will apply should a further evaluation of the device be necessary.

5.2 For ATC Environment Simulation.

5.2.1 The ATO should apply to the UK CAA Approved Training Organisations Department with details of how the ATC Environment Simulation requirements will be achieved. The CAA will review the methods proposed and will consider whether it has any impact on the Qualification of the nominated FSTD device.