European Union Aviation Safety Agency

Notice of Proposed Amendment 2024-101

in accordance with Article 6 of MB Decision 01-2022

RMT.0196 Update of the flight simulation training device requirements

RMT.0196 SUBTASK 2

EXECUTIVE SUMMARY

This focused consultation proposes the latest regulatory amendments to Part-FCL, Part-ORA Subpart ATO and Part-ORO Subpart FC and associated AMCs and GMs for the implementation of type rating training courses based on the 'task-to-tool' concept, as well as for the introduction of the required FSTD technical requirements for ab-initio training derived from training considerations and the new applicable general requirements of CS-FSTD.

REGULATIONS TO BE AMENDED	**ED DECISIONS TO BE AMENDED/ISSUED**
— Regulation - 1178/2011 - EN - EUR-Lex (europa.eu) — Regulation - 965/2012 - EN - EUR-Lex (europa.eu)	ED Decisions that issue the AMC/GM to support the application of those Regulations: — ED Decision 2011/016/R | EASA (europa.eu) — ED Decision 2012/007/R - AMC & GM to Part-ORA | EASA (europa.eu) — ED Decision 2014/017/R - AMC & GM Part-ORO - Issue 2 | EASA (europa.eu)

AFFECTED STAKEHOLDERS

Air operators, ATOs, DTOs, FSTD operators and manufactures, pilots, instructors, flight examiners, NCAs.

WORKING METHODS

Development	**Impact assessment**	**Consultation**
By EASA with external support	Detailed	Focused [Aircrew TeB, Air Operations TeB, Flight Standards TEC (FS.TEC), Rotorcraft Committee (R.COM), European FSTD Technical Group (EFTeG), invited third-country authorities]

RELATED DOCUMENTS / INFORMATION

— ToR RMT.0196 - Update of flight simulation training devices requirements | EASA (europa.eu)
— NPA 2020-15 - Update of the flight simulation training device requirements | EASA (europa.eu)

PLANNING MILESTONES: According to the latest edition of the EPAS Volume II.

SubTask	Initiation	Consultation	Opinion	Commission IR	Decision
2	ToR RMT.0196 15/07/2016	NPA 2020-15 16/12/2020	2024-Q3[1]	2025[2]	2025[2]

[1] RMT.0196 Opinion is currently planned for 2025-Q1.
[2] RMT.0196 Commission IR and Decision are currently planned for 2026.

RMT.0196

Consultation

on amendments to Regulation (EU) No 1178/2011 and to Regulation (EU) No 965/2012 and associated Acceptable Means of Compliance (AMC) and Guidance Material (GM)

1. Introduction

This document follows the format of EASA Easy Access Rules and is arranged to show deleted, new or amended, as well as unchanged text as follows:

— deleted text is ~~struck through~~;

— new or amended text is highlighted in blue;

— an ellipsis '[…]' indicates that the rest of the text is unchanged.

2. Draft amendments

ANNEX I (PART-FCL) OF REGULATION (EU) NO 1178/2011

FCL.036 Use of FSTDs in training

RMT.0196

When requirements of this Annex (Part-FCL) refer to specific FSTD types and levels, applicants shall be entitled to comply with these requirements by using FSTDs whose qualification certificate includes an FCS, provided that all the following applies:

(a) for each feature, the FCS indicates a fidelity level which is equal to or higher than the equivalent determined in the tables below:

(1) for aeroplanes:

FSTD type and level reference	Equivalent FCS													
	1. Flight Deck Layout And Structure	2. Flight Controls Forces & Hardware	3. Flight Controls Systems Operation	4. Aircraft Systems	5. Performance & Handling - On Ground (O/G)	6. Performance & Handling - In Ground Effect (IGE)	7. Performance & Handling - Out Of Ground Effect (OGE)	8. Sound Cues	9. Vibration Cues	10. Motion Cues	11. Visual Display Cues	12. Navigation	13. Atmosphere And Weather	14. Operating Sites And Terrain
FNPT I	G	G	G	N	N	N	G	N	N	N	N	R	N	N
FNPT II	G	G	G	G	G	G	G	G	N	N	G	R	G	G
FNPT II MCC	G	G	G	G	G	G	G	G	N	N	G	R	G	G
FTD 2	S	R	S	S	N	G	G	G	N	N	N	S	N	N
FSTD qualified to an equivalent standard to level B	S	R	S	S	R	R	R	G	R	G	G	S	G	G

FFS level C	S	S	S	S	S	S	S	R	R	S	R	S	S	S
FFS interim level C	S	S	S	S	S	S	S	R	R	S	R	S	S	S
FFS level D	S	S	S	S	S	S	S	S	S	S	S	S	S	S

(2) for helicopters:

FSTD type and level reference	Equivalent FCS													
	1. Flight Deck Layout And Structure	2. Flight Controls Forces & Hardware	3. Flight Controls Systems Operation	4. Aircraft Systems	5. Performance & Handling - On Ground (O/G)	6. Performance & Handling - In Ground Effect (IGE)	7. Performance & Handling - Out Of Ground Effect (OGE)	8. Sound Cues	9. Vibration Cues	10. Motion Cues	11. Visual Display Cues	12. Navigation	13. Atmosphere And Weather	14. Operating Sites And Terrain
FNPT I	G	G	G	N	N	N	N	N	N	N	N	R	N	N
FNPT II	R	G	R	G	G	G	G	G	N	N	R	R	G	G
FNPT III	R	G	R	G	G	G	G	G	N	N	R	R	G	R
FNPT II MCC	R	G	R	G	G	G	G	G	N	N	R	R	G	G
FNPT III MCC	R	G	R	G	G	G	G	G	N	N	R	R	G	R
FTD 2	R	R	R	S	G	G	G	G	N	N	R	S	G	R
FTD 3	R	R	R	S	G	R	R	R	N	N	R	S	G	R
FFS level C	S	S	S	S	S	S	S	R	R	S	R	S	S	R
FFS level D	S	S	S	S	S	S	S	S	S	S	S	S	S	S

(b) the FSTDs have:

(1) tactile hardware;

(2) primary flight controls whose forces change according to different flight conditions, except in the case of FSTDs whose FCS is below the equivalent of an FNPT II;

(3) in the case of use for MCC training, all the systems, the instrumentation and the indicators required in CS-FSTD.

Rationale

The introduction of this new implementing rule is aimed at allowing the use in training of FSTDs whose qualification certificate includes an FCS by creating an equivalence between FSTDs qualified with types and levels and FSTDs with an FCS only (types and levels will no longer appear in the qualification certificate), while leaving the FSTD type and level references unchanged in the implementing rules.

In point (a), the way to establish the equivalence between the FCS on the qualification certificate of an FSTD and the equivalent FCS associated to an FSTD type and level is described. In the case the FCS of an FSTD is equal to or higher than more than one equivalent FCS, that FSTD shall be deemed equivalent to more than one FSTD type and level.
The equivalent FCSs reported in the tables are the same FCSs of the table of the assigned FCSs in the Appendix IX to Annex VI (Part-ARA).
The equivalence for FFS level A and FFS level B is not reported since no such references are present in Part-FCL. Additionally, in the future, where reference is made to FFS, only FSTDs whose qualification certificate includes an FCS equivalent to that assigned to an FFS level C or FFS level D should be used. FFS level A and FFS level B may still be used as legacy FSTDs.
The reference 'FSTD qualified to an equivalent standard to level B' is reported to reflect the provision of point 14(c) to Appendix 5 to Annex I. The equivalent FCS is that assigned to an FFS level B.
The equivalence for FTD 1 is not determined due to the impossibility to establish a one-fit-all FCS for this FSTD. For the same reason, FTD 1 cannot be given an assigned FCS (see Appendix IX to Annex VI) and, in the case an organisation operating an FSTD decides to use the device for type rating in the new system, a re-evaluation of the device in accordance with CS-FSTD is required. For further details, please refer to Article 10b and its rationale.

In point (b), the conditions for the use in MCC training of FSTDs with an FCS are set. In particular, the requirement in point (b) reflects the need for having the specific equipment for MCC training, which will be listed in the new CS-FSTD as it is today in Appendix 1 to CS FSTD(A).300 for aeroplanes and Appendix 1 to CS FSTD(H).300 for helicopters.

This proposal allows to eliminate the necessity of having a double qualification certificate (FTD 1 or FTD 2 or FTD 3/FNPT II MCC or FNPT III MCC) for FSTDs that are to be used for MCC training. Indeed, with the new system, an FSTD with FCS may be used for MCC training provided that its FCS is at least equivalent to that of an FNPT II MCC or FNPT III MCC and its ESL includes all the required systems and instrumentation.

Considering the advanced draft of CS-FSTD for helicopters, equivalent FCSs for FSTD(H) types/levels are defined and are subject to the focused consultation in March 2024. The equivalent FCS are the same FCS of the table with the assigned FCS in accordance with Appendix IX to Annex VI (Part-ARA). They were established by comparing the general requirements in CS-FSTD(H) initial issue to JAR-STD 1H initial issue, JAR-STD 2H initial issue and JAR-STD 3H initial issue, and to the draft CS-FSTD.

Update from March 2024 focused consultations

To further clarify the applicability of the equivalence table presented in the new regulatory point, the word 'specific' has been added before FSTD in the first paragraph.

The names of features 2 and 3 have been changed, respectively, from 'Primary Flight Controls Forces & Hardware' to 'Flight Controls Forces & Hardware' and from 'Primary Flight Controls Systems Operation' to 'Flight Controls Systems Operation'.
Indeed, these features previously contained FSTD requirements solely for the primary flight controls, while secondary flight controls (e.g. flaps) were classified as aircraft systems and regulated under the feature 'Aircraft Systems'. However, this separation led to issues within the requirements in CS-FSTD. As a result, the content of these feature requirements was revised. Now, the FSTD feature requirements encompass all flight controls (i.e., both primary and secondary flight controls), and the names of the features have been updated accordingly by removing the word 'primary'.

To better reflect the comparison between the general requirements of CS-FSTD with the applicable reference PRDs and in reaction to some comments received after the focused consultations held in March 2024, the following changes to the fidelity levels are proposed.

- For aeroplanes:
    - feature 'Aircraft Systems' changed from 'R' to 'G' for FNPT II and FNPT II MCC;
    - feature 'Sound Cues' changed from 'G' to 'N' for FNPT I;
    - feature 'Visual Display Cues' changed from 'S' to 'R' for FFS level C and FFS interim level C;
    - feature 'Navigation' changed from 'S' to 'R' for FNPT II and FNPT II MCC.
- For helicopters:
    - feature 'Navigation' changed from 'S' to 'R' for FNPT I, FNPT II, FNPT II MCC, FNPT III, FNPT III MCC.

Point (b) proposes two new requirements.

Point (b)(1) enforces a requirement to have, in general, tactile hardware for the FSTD types and levels included in the equivalence tables. The new general requirements of CS-FSTD allow the possibility to qualify training devices with a touchscreen representation of the flight deck with generic 'G' or representative 'R' fidelity levels for the 'Flight Deck Layout And Structure' feature, with the aim of allowing the use of such technology for the initial training phases of a type rating training course. The proposal in point FCL.036(b) restricts the possibility of using such training devices for type rating only. Indeed, in Appendix 9 to Part-FCL, there is no specific reference to FSTD types and levels other than FFS. However, according to point FCL.036(a), in order to establish an equivalence with an FFS, a specific 'S' fidelity level for the 'Flight Deck Layout And Structure' feature is needed. According to the general requirements of CS-FSTD, an FSTD with a specific 'S' fidelity level for the 'Flight Deck Layout And Structure' feature can only have tactile hardware. Therefore, the restriction applies to FSTDs used for ab-initio training to preserve the need to have tactile hardware devices. Opening to touchscreen representations of flight deck would require an analysis of the training needs for ab-initio training which has not been carried out as it is not in the scope of RMT.0196.

According to the new general requirements of CS-FSTD, at generic 'G' fidelity level, the 'Flight Controls Systems Operation' feature may not have primary flight controls whose forces change according to different flight conditions. In the current framework, for FNPTs, this is only allowed for FNPT I. Point (b)(2) proposes to capture this concept by enforcing the requirement to have primary flight controls whose forces change according to different flight conditions except in the case of FSTDs whose FCS is below that of an FNPT II.

The formerly presented point (b) with the requirements for MCC training becomes point (b)(3).

AMC2 FCL.110.H LAPL(H) Experience requirements and crediting

RMT.0196

USE OF FSTD IN LAPL(H) TRAINING

(a) In case an FSTD is used in LAPL(H) training, it should:

(1) be qualified with an FCS in its qualification certificate;

(2) have all the following features at a fidelity level equal to or higher that R (representative):

(i) Flight Deck Layout and Structure;

(ii) Flight Controls Forces & Hardware;

(iii) Flight Controls Systems Operation;

(iv) Aircraft Systems;

(v) Performance & Handling – On Ground;

(vi) Performance & Handling – In Ground Effect;

(vii) Performance & Handling – Out of ground Effect.

(3) for those training tasks requiring cueing or environmental features, additionally, have an adequate fidelity level for the relevant features to complete such training tasks. The determination of the required fidelity levels should be based on an analysis of the training needs, taking into consideration the general requirements of CS-FSTD.

(b) Legacy FSTDs may be used for training provided that the representativeness of the FSTD to the type of helicopter used for the skill test is demonstrated by the training organisation, taking into consideration the technical specifications of the training device included in the qualification certificate and in the equipment specification list (ESL).

Rationale

In point FCL.110.H(a)(3)(i), the possibility to use in training an FSTD that represents the type of helicopter that is to be used for the skill test is granted. This AMC proposes two means to comply with such provision, by clarifying the technical requirements that an FSTD should have from a training perspective.

Point (a) presents the case of FSTDs qualified with an FCS, for which all the first seven FSTD features should be at least at representative 'R' fidelity level. In the case of training tasks that require cueing or environmental features, such features should present an adequate fidelity level for the execution of that task, whose determination should be based on an analysis of the training needs, taking into consideration the general requirements of CS-FSTD.

Point (b) presents the case of legacy FSTDs, which may be used if the representativeness of the FSTD is demonstrated.

AMC1 FCL.210.H PPL(H) Experience requirements and crediting

RMT.0196

USE OF FSTD IN PPL(H) TRAINING

(a) In case an FSTD is used in accordance with the provisions of point FCL.210.H(aa)(2)(i), it should:

(1) be qualified with an FCS in its qualification certificate;

(2) have all the following features at a fidelity level equal to or higher that R (representative):

(i) Flight Deck Layout and Structure

(ii) Flight Controls Forces & Hardware

(iii) Flight Controls Systems Operation

(iv) Aircraft Systems

(v) Performance & Handling – On Ground

(vi) Performance & Handling – In Ground Effect

(vii) Performance & Handling – Out of ground Effect

(3) for those training tasks requiring cueing or environmental features, additionally, have an adequate fidelity level for the relevant features to complete such training tasks. The determination of the required fidelity levels should be based on an analysis of the training needs, taking into consideration the general requirements of CS-FSTD.

(b) Legacy FSTDs may be used for training in accordance with the provisions of point FCL.210.H(aa)(2)(i), provided that the representativeness of the FSTD to the type of helicopter used for the skill test is demonstrated by the training organisation, taking into consideration the technical specifications of the training device included in the qualification certificate and in the equipment specification list (ESL).

Rationale

See the rationale for AMC2 FCL.110.H.

FCL.930.TRI TRI – Training course[1]

RMT.0196

(a) The TRI training course shall be conducted:

(1) in the case of MPA, in an FFS or a combination of FSTD(s) and FFS;

(2) in the case of type ratings for SPA and helicopters, in either of the following:

(i) an available and accessible FFS, or a combination of such FFS and FSTD(s);

(ii) a combination of FSTD(s) and the aircraft if an FFS is not available or accessible;

(iii) the aircraft if no FSTD is available or accessible.

[…]

Rationale

In Opinion No 05/2023, the text of point FCL.930.TRI has been amended to align the terminology used to the one presented for Appendix 9 to Annex I (Part-FCL).

To follow the same logic, in reaction to a comment received during the focused consultations held in March 2024, the phrase “or a combination of such FFS and FSTD(s)” is inserted in point (a)(2)(i) to allow the combined use of FFS and FSTD(s).

[1] Highlighted text is already reflecting the amending Regulation following EASA Opinion No 05/2023 (adoption pending).

AMC2 FCL.1015 Examiner standarisation

RMT.0196

[…]

(p) Before undertaking a test or check, an examiner will verify that the aircraft or FSTD intended to be used is suitable and appropriately equipped for the test or check, on the basis of the FSTD qualification certificate and the equipment specification list. Aircraft that fall under points (a), (b), (c), or (d) of Annex I to the Basic Regulation can be used provided that they are subject to an authorisation as per point ORA.ATO.135 or point DTO.GEN.240.

[…]

Rationale

The addition to point (p) is aimed to ensure that examiner relies on the FSTD qualification certificate and the equipment specification list (ESL) when assessing the suitability of the FSTD.

Appendix 9 – Training, skill test and proficiency check for MPL, ATPL, type and class ratings, and proficiency check for the BIR and IR[2]

RMT.0196

A. General

1. Applicants for a skill test shall have received instruction in the same class or type of aircraft to be used in the test.

1a. Training in FFS in accordance with points 1b and 1c of this point Section shall be complemented with take-off and landing training in a single-pilot aircraft operated in single-pilot or multi-pilot operation, or in a multi-pilot aircraft, as applicable, in accordance with point 17 of this Section, unless the training is completed in accordance with point FCL.730.A or constitutes training for cruise relief co-pilots in accordance with Section B, point 6(i), of Section B of this Appendix.

1b. The training for MPA and PL type ratings shall be conducted in an FFS or in a combination of FSTD(s) and FFS. The skill test or proficiency check for MPA and PL type ratings and the issue of an ATPL and an MPL, shall be conducted in an FFS, if available.

1c. The training, skill test or proficiency check for class or type ratings for SPA and helicopters shall be conducted in either of the following:

(a) an available and accessible FFS, or a combination of such FFS and FSTD(s);

(b) a combination of FSTD(s) and the aircraft if an FFS is not available or accessible;

(c) the aircraft if no FSTD is available or accessible.

1d. By way of derogation from point 1c, the training, skill test or proficiency check for class or type ratings for non-complex SPA and for non-complex helicopters may be conducted in a combination of FSTD(s) and the aircraft even if an FFS is available and accessible.

[2] Remark: Highlighted text reflects updates proposed by Opinion No 05/2023 (adoption of amending regulation pending).

1e. By way of derogation from point 1c, the training, skill test or proficiency check for any of the following may be conducted in accordance with points point 1c(a), (b) or (c) of point 1c, irrespective of the availability and accessibility of FFS or FSTD:

(a) non-complex non-high-performance single-pilot aeroplanes;

(b) TMGs;

(c) non-complex helicopters for which the maximum certified seat configuration does not exceed five seats.

1f. If FSTDs are used during training, testing or checking, the following shall apply:

(a) an FSTD shall only be used for a particular exercise if the FSTD possesses the features and related fidelity levels to simulate the relevant aircraft in that exercise to the extent which is necessary for the candidate to:

(i) develop the skills as necessary for the appropriate stage of training;

(ii) demonstrate the skills to safely operate the relevant aircraft during the relevant exercise for testing and checking.

(b) additionally, the suitability of the FSTDs used shall be verified against the applicable 'Table of functions and subjective tests' and the applicable 'Table of FSTD validation tests' contained in the primary reference document applicable for the device used.

All restrictions and limitations indicated on the device's qualification certificate or on the associated equipment specification list (ESL) shall be considered.

1g. Where specified, other training devices (OTDs) may be used to perform training tasks of a type rating training programme. However, the training time completed on such devices shall not be counted towards the minimum FSTD training time specified in the relevant type rating training programme.

[…]

SPECIFIC REQUIREMENTS FOR THE SKILL TEST/PROFICIENCY CHECK FOR TYPE RATINGS FOR MULTI-PILOT AIRCRAFT, FOR SINGLE-PILOT AIRCRAFT WHEN OPERATED IN MULTI-PILOT OPERATIONS, FOR MPL AND FOR ATPL

[…]

18. For the upset recovery training, 'stall event' means either an approach-to-stall or a stall. An FFS level C or level D can be used by the ATO to either train recovery from a stall or demonstrate the type-specific characteristics of a stall, or both, provided that:

(a) the FFS has been qualified in accordance with the special evaluation requirements in CS-FSTD(A) Issue 2 or CS-FSTD, as applicable; and

[…]

B. Specific requirements for the aeroplane category

[…]

CONTENT OF THE TRAINING/SKILL TEST/PROFICIENCY CHECK

5. Single-pilot aeroplanes, except for high performance complex aeroplanes

(a) The following symbols mean:

[…]

~~OTD = Other training devices may be used for this exercise~~

X = ~~An FFS shall be used for this exercise; otherwise, an aeroplane shall be used if appropriate for the manoeuvre or procedure~~ An aeroplane shall not be used for this exercise

[…]

(b) The practical training shall be conducted at least at the training equipment level shown as (P), or may be conducted on any higher level of equipment shown by the arrow (---->).

The following abbreviations are used to indicate the training equipment used:

[…]

OTD = other training device

[…]

TMGs AND SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
	SECTION 1						
1 1.1	Departure Preflight including: – documentation; – mass and balance; – weather briefing; and – NOTAM.	P	~~OTD~~				
1.2	Pre-start checks						
1.2.1	External	P#	~~OTD~~ ~~P#~~	P		M	
1.2.2	Internal	P#	~~OTD~~ P#	P		M	
1.3	Engine starting: normal malfunctions		P~~---->~~	---->		M	
1.4	Taxiing		P~~---->~~	---->		M	
1.5	Pre-departure checks: engine run-up (if applicable)		P~~---->~~	---->		M	
1.6	Take-off procedure: – normal with flight manual flap settings; and – crosswind (if conditions are available).		P~~---->~~	---->		M	

TMGs AND SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
1.7	Climbing: – Vx/Vy – turns onto headings; and – level off.		P---->	---->		M	
1.8	ATC liaison – compliance, R/T procedures		P---->			M	
	SECTION 2						
2 2.1	Airwork (visual meteorological conditions (VMC)) Straight and level flight at various airspeeds including flight at critically low airspeed with and without flaps (including approach to ~~V~~ V_{mca} when applicable)		P---->	---->			
2.2	Steep turns (360° left and right at 45° bank)		P---->	---->		M	
2.3	Stalls and recovery: (i) clean stall; (ii) approach to stall in descending turn with bank with approach configuration and power; (iii) approach to stall in landing configuration and power; and (iv) approach to stall, climbing turn with take-off flap and climb power (single-engine aeroplanes only)		P---->	---->		M	
2.4	Handling using autopilot and flight director (may be conducted in Section 3), if applicable		P---->	---->		M	
2.5	ATC liaison – Compliance, R/T procedures		P---->	---->		M	
	SECTION 3A						
3A 3A.1	En route procedures VFR (see B.5 (c) and (d)) Flight plan, dead reckoning and map reading		P---->	---->			
3A.2	Maintenance of altitude, heading and speed		P---->	---->			

TMGs AND SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
3A.3	Orientation, timing and revision of ETAs		P---->	---->			
3A.4	Use of radio navigation aids (if applicable)		P---->	---->			
3A.5	Flight management (flight log, routine checks including fuel, systems and icing)		P---->	---->			
3A.6	ATC liaison – compliance, R/T procedure		P---->	---->			
	SECTION 3B						
3B 3B.1*	Instrument flight Departure IFR		P---->	---->		M	
3B.2*	En route IFR		P---->	---->		M	
3B.3*	Holding procedures		P---->	---->		M	
3B.4*	3D operations to decision height/altitude (DH/A) of 200 ft (60 m) or to higher minima if required by the approach procedure (autopilot may be used to the final approach segment vertical path intercept)		P---->	---->		M	
3B.5*	2D operations to minimum descent height/altitude (MDH/A)		P---->	---->		M	
3B.6*	Flight exercises including simulated failure of the compass and attitude indicator: – rate 1 turns; and – recoveries from unusual attitudes.		P---->	---->		M	
3B.7*	Failure of localiser or glideslope		P---->	---->			
3B.8*	ATC liaison – compliance, R/T procedures		P---->	---->		M	
	Intentionally left blank						
	SECTION 4						
4	Arrival and landings		P---->	---->		M	

TMGs AND SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
4.1	Aerodrome arrival procedure						
4.2	Normal landing		P---->	---->		M	
4.3	Flapless landing		P---->	---->		M	
4.4	Crosswind landing (if suitable conditions)		P---->	---->			
4.5	Approach and landing with idle power from up to 2 000 ft above the runway (single-engine aeroplanes only)		P---->	---->			
4.6	Go-around from minimum height		P---->	---->		M	
4.7	Night go-around and landing (if applicable)		P---->	---->			
4.8	ATC liaison – compliance, R/T procedures		P---->	---->		M	
	SECTION 5						
5	Abnormal and emergency procedures (This section may be combined with Sections 1 through 4.)						
5.1	Rejected take-off at a reasonable speed		P---->	---->		M	
5.2	Simulated engine failure after take-off (single-engine aeroplanes only)			P		M	
5.3	Simulated forced landing without power (single-engine aeroplanes only)			P		M	
5.4	Simulated emergencies: (i) fire or smoke in flight; and (ii) systems' malfunctions as appropriate		P---->	---->			
5.5	ME aeroplanes and TMG training only: engine shutdown and restart (at a safe altitude if performed in the aircraft)		P---->	---->			
5.6	ATC liaison – compliance, R/T procedure						

TMGs AND SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
	SECTION 6						
6 6.1*MAR	Simulated asymmetric flight (This section may be combined with Sections 1 through 5.) Simulated engine failure during take-off (at a safe altitude unless carried out in an FFS or an FNPT II)		P---->	---->~~X~~		M	
6.2*	Asymmetric approach and go-around		P---->	---->		M	
6.3*	Asymmetric approach and full-stop landing		P---->	---->		M	
6.4	ATC liaison – compliance, R/T procedures		P---->	---->		M	
	SECTION 7						
7	UPRT						
7.1	Flight manoeuvres and procedures						
7.1.1	Manual flight with and without flight directors (no autopilot, no autothrust/autothrottle, and at different control laws, where applicable)		P---->	---->			
7.1.1.1	At different speeds (including slow flight) and altitudes within the FSTD training envelope.		P---->	---->			
7.1.1.2	Steep turns using 45° bank, 180° to 360° left and right		P---->	---->			
7.1.1.3	Turns with and without spoilers		P---->	---->			
7.1.1.4	Procedural instrument flying and manoeuvring including instrument departure and arrival, and visual approach		P---->	---->			
7.2 7.2.1	Upset recovery training Recovery from stall events in: – take-off configuration; – clean configuration at low altitude; – clean configuration near maximum operating altitude; and – landing configuration		P---->	---->			

TMGs AND SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
7.2.2	The following upset exercises: – recovery from nose-high at various bank angles; and – recovery from nose-low at various bank angles.		P	X ~~An aeroplane shall not be used for this exercise~~			
7.3	Go-around with all engines operating* from various stages during an instrument approach		P~~—>~~	---->			
7.4	Rejected landing with all engines operating: – from various heights below DH/MDH 15 m (50 ft) above the runway threshold – after touchdown (baulked landing) – In aeroplanes which are not certificated as transport category aeroplanes (JAR/FAR 25) or as commuter category aeroplanes (SFAR 23), the rejected landing with all engines operating shall be initiated below MDH/A or after touchdown.		P~~—>~~	---->			

6. Multi-pilot aeroplanes and single-pilot high-performance complex aeroplanes

(a) The following symbols mean:

[…]

~~OTD = Other training devices may be used for this exercise~~

X = ~~An FFS shall be used for this exercise; otherwise an aeroplane shall be used if appropriate for the manoeuvre or procedure.~~ An aeroplane shall not be used for this exercise.

P→ = The exercise shall be completed in a properly qualified FSTD.

[…]

(b) The practical training shall be conducted at least at the training equipment level shown as (P), or may be conducted on any higher level of equipment shown by the arrow (---->).

The following abbreviations are used to indicate the training equipment used:

[…]

OTD = other training device

[…]

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
	SECTION 1						
1 1.1	Flight preparation Performance calculation	P	~~OTD~~ ~~P~~				
1.2	Aeroplane external visual inspection; location of each item and purpose of inspection	P#	~~OTD~~ P#	P			
1.3	Cockpit inspection		P~~---->~~	---->			
1.4	Use of checklist prior to starting engines, starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies		P~~---->~~	---->		M	
1.5	Taxiing in compliance with ATC instructions or instructions of instructor		P~~---->~~	---->			
1.6	Before take-off checks		P~~---->~~	---->		M	
	SECTION 2						
2 2.1	Take-offs Normal take-offs with different flap settings, including expedited take-off		P~~---->~~	---->			
2.2*	Instrument take-off; transition to instrument flight is required during rotation or immediately after becoming airborne		P~~---->~~	---->			
2.3	Crosswind take-off		P~~---->~~	---->			
2.4	Take-off at maximum take-off mass (actual or simulated maximum take-off mass)		P~~---->~~	---->			
2.5 2.5.1*	Take-offs with simulated engine failure: shortly after reaching V2		P~~---->~~	---->			
	(In aeroplanes which are not certificated as transport category or commuter category aeroplanes, the engine failure						

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
	shall not be simulated until reaching a minimum height of 500 ft above the runway end. In aeroplanes having the same performance as a transport category aeroplane regarding take-off mass and density altitude, the instructor may simulate the engine failure shortly after reaching V2)						
2.5.2*	between V1 and V2		P	X		M FFS only	
2.6	Rejected take-off at a reasonable speed before reaching V1		P~~--->~~	---->		M	
	SECTION 3						
3 3.1	Flight manoeuvres and procedures Manual flight with and without flight directors (no autopilot, no autothrust/autothrottle, and at different control laws, where applicable)		P~~--->~~	---->			
3.1.1	At different speeds (including slow flight) and altitudes within the FSTD training envelope		P~~--->~~	---->			
3.1.2	Steep turns using 45° bank, 180° to 360° left and right		P~~--->~~	---->			
3.1.3	Turns with and without spoilers		P~~--->~~	---->			
3.1.4	Procedural instrument flying and manoeuvring including instrument departure and arrival, and visual approach		P~~--->~~	---->			
3.2	Tuck under and Mach buffets (if applicable), and other specific flight characteristics of the aeroplane (e.g. Dutch Roll)		P~~--->~~	~~--->~~X ~~An aero-plane shall not be used for this exercise~~		FFS only	

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
3.3	Normal operation of systems and controls engineer's panel (if applicable)	P	~~OTD~~ ~~P~~---->	---->			
3.4	Normal and abnormal operations of following systems:					M	A mandatory minimum of 3 abnormal items shall be selected from 3.4.0 to 3.4.14 inclusive
3.4.0	Engine (if necessary propeller)	P	~~OTD~~ ~~P~~---->	---->			
3.4.1	Pressurisation and air conditioning	P	~~OTD~~ ~~P~~---->	---->			
3.4.2	Pitot/static system	P	~~OTD~~ ~~P~~---->	---->			
3.4.3	Fuel system	P	~~OTD~~ ~~P~~---->	---->			
3.4.4	Electrical system	P	~~OTD~~ ~~P~~---->	---->			
3.4.5	Hydraulic system	P	~~OTD~~ ~~P~~---->	---->			
3.4.6	Flight control and trim system	P	~~OTD~~ ~~P~~---->	---->			
3.4.7	Anti-icing/de-icing system, glare shield heating	P	~~OTD~~ ~~P~~---->				
3.4.8	Autopilot/flight director	P	~~OTD~~ ~~P~~---->			M (single pilot only)	
3.4.9	Stall warning devices or stall avoidance devices, and stability augmentation devices	P	~~OTD~~ ~~P~~---->				
3.4.10	Ground proximity warning system, weather radar, radio altimeter, transponder		P~~---->~~				
3.4.11	Radios, navigation equipment, instruments, FMS	P	~~OTD~~ ~~P~~---->				
3.4.12	Landing gear and brake	P	~~OTD~~ ~~P~~---->	---->			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
3.4.13	Slat and flap system	P	~~OTD~~ ---->	---->			
3.4.14	Auxiliary power unit (APU)	P	~~OTD~~ ~~P~~---->	---->			
	Intentionally left blank						
3.6	Abnormal and emergency procedures:					M	A mandatory minimum of 3 items shall be selected from 3.6.1 to 3.6.9 inclusive
3.6.1	Fire drills, e.g. engine, APU, cabin, cargo compartment, flight deck, wing and electrical fires including evacuation		P~~---->~~	---->			
3.6.2	Smoke control and removal		P~~---->~~	---->			
3.6.3	Engine failures, shutdown and restart at a safe height		P~~---->~~	---->			
3.6.4	Fuel dumping (simulated)		P~~---->~~	---->			
3.6.5	Wind shear at take-off/landing		P	X		FFS only	
3.6.6	Simulated cabin pressure failure/emergency descent		P~~---->~~	---->			
3.6.7	Incapacitation of flight crew member		P~~---->~~	---->			
3.6.8	Other emergency procedures as outlined in the appropriate aeroplane flight manual (AFM)		P~~---->~~	---->			
3.6.9	TCAS event	P→	~~OTD~~ ~~P~~---->	X ~~An aero-plane shall not be used~~		FFS only	

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
3.7 3.7.1	Upset recovery training Recovery from stall events in: – take-off configuration; – clean configuration at low altitude; – clean configuration near maximum operating altitude; and – landing configuration.		P FFS qualified for the training task only	X ~~An aeroplane shall not be used for this exercise~~			
3.7.2	The following upset exercises: – recovery from nose-high at various bank angles; and – recovery from nose-low at various bank angles		P FFS qualified for the training task only	X ~~An aeroplane shall not be used for this exercise~~		FFS only	
3.8	Instrument flight procedures						
3.8.1*	Adherence to departure and arrival routes and ATC instructions		P~~—>~~	---->		M	
3.8.2*	Holding procedures		P~~—>~~	---->			
3.8.3*	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach procedure						
	Note: According to the AFM, RNP APCH procedures may require the use of autopilot or flight director. The procedure to be flown manually shall be chosen taking into account such limitations (for example, choose an ILS for 3.8.3.1 in the case of such AFM limitation).						
3.8.3.1*	Manually, without flight director		P~~—>~~	---->		M (skill test only)	
3.8.3.2*	Manually, with flight director		P~~—>~~	---->			
3.8.3.3*	With autopilot		P~~—>~~	---->			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
3.8.3.4*	Manually, with one engine simulated inoperative during final approach, either until touchdown or through the complete missed approach procedure (as applicable), starting: (i) before passing 1 000 ft above aerodrome level; and (ii) after passing 1 000 ft above aerodrome level. In aeroplanes which are not certificated as transport category aeroplanes (JAR/FAR 25) or as commuter category aeroplanes (SFAR 23), the approach with simulated engine failure and the ensuing go-around shall be initiated in conjunction with the 2D approach in accordance with 3.8.4. The go-around shall be initiated when reaching the published obstacle clearance height/altitude (OCH/A); however, not later than reaching an MDH/A of 500 ft above the runway threshold elevation. In aeroplanes having the same performance as a transport category aeroplane regarding take-off mass and density altitude, the instructor may simulate the engine failure in accordance with exercise 3.8.3.4.		P--->	---->		M	
3.8.4*	2D operations down to the MDH/A		P*--->	---->		M	
3.8.5	Circling approach under the following conditions: (a)*approach to the authorised minimum circling approach altitude at the aerodrome in question in accordance with the local instrument approach		P*--->	---->			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
	facilities in simulated instrument flight conditions; followed by: (b) circling approach to another runway at least 90° off centreline from the final approach used in item (a), at the authorised minimum circling approach altitude. Remark: If (a) and (b) are not possible due to ATC reasons, a simulated low visibility pattern may be performed.						
3.8.6	Visual approaches		P---->	---->			
	SECTION 4						
4	Missed approach procedures		P*---->	---->			
4.1.	Go-around with all engines operating* during a 3D operation on reaching decision height		P*---->	---->			
4.2.	Go-around with all engines operating* from various stages during an instrument approach		P*---->	---->			
4.3.	Other missed approach procedures		P*---->	---->			
4.4*	Manual go-around with the critical engine simulated inoperative after an instrument approach on reaching DH, MDH or MAPt		P*---->	---->		M	
4.5.	Rejected landing with all engines operating: – from various heights below DH/MDH; – after touchdown (baulked landing) In aeroplanes which are not certificated as transport category aeroplanes (JAR/FAR 25) or as commuter category aeroplanes (SFAR 23), the rejected landing with all engines operating shall be initiated below MDH/A or after touchdown.		P---->	---->			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES		PRACTICAL TRAINING				ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures		OTD	FSTD	A	Instructor initials when training completed	Tested or checked in FSTD or A	Examiner initials when test or check completed
	SECTION 5						
5 5.1.	Landings Normal landings* with visual reference established when reaching DA/H following an instrument approach operation		P				
5.2.	Landing with simulated jammed horizontal stabiliser in any out-of-trim position		P~~—>~~	X ~~An aeroplane shall not be used for this exercise~~		FFS only	
5.3.	Crosswind landings (aircraft, if practicable)		P~~—>~~	---->			
5.4.	Traffic pattern and landing without extended or with partly extended flaps and slats		P~~—>~~	---->			
5.5.	Landing with critical engine simulated inoperative		P~~—>~~	---->		M	
5.6.	Landing with two engines inoperative: – aeroplanes with three engines: the centre engine and one outboard engine as far as practicable according to data of the AFM; and – aeroplanes with four engines: two engines at one side		P	X		M FFS only (skill test only)	

C. Specific requirements for the helicopter category

[…]

CONTENT OF THE TRAINING/SKILL TEST/PROFICIENCY CHECK

GENERAL

5. The following symbols mean:

[…]

X = A helicopter shall not be used for this exercise.

P# = The training shall be complemented by supervised helicopter inspection.

6. The practical training shall be conducted at least at the training equipment level shown as (P), or may be conducted up to any higher equipment level shown by the arrow (---->).

The following abbreviations are used to indicate the training equipment used:

FFS = full-flight simulator

FTD = flight training device

H = helicopter

OTD = other training device

[…]

SINGLE/MULTI-PILOT HELICOPTERS		PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures		OTD	FSTD	H	Instructor initials when training completed	Checked in FSTD or H	Examiner initials when test completed
	SECTION 1 – Preflight preparations and checks						
1.1	Helicopter exterior visual inspection; location of each item and purpose of inspection	P#	P#	P		M (if performed in the helicopter)	
1.2	Cockpit inspection		P	---->		M	
1.3	Starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies		P	---->		M	
1.4	Taxiing/air taxiing in compliance with ATC instructions or with instructions of an instructor		P	---->		M	
1.5	Pre-take-off procedures and checks		P	---->		M	
	SECTION 2 – Flight manoeuvres and procedures						
2.1	Take-offs (various profiles)		P	---->		M	
2.2	Sloping ground or crosswind take-offs & landings		P	---->			
2.3	Take-off at maximum take-off mass (actual or simulated maximum take-off mass)		P	---->			
2.4	Take-off with simulated engine failure shortly before reaching TDP or DPATO		P	---->		M	
2.4.1	Take-off with simulated engine failure shortly after reaching TDP or DPATO		P	---->		M	

SINGLE/MULTI-PILOT HELICOPTERS		PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures		OTD	FSTD	H	Instructor initials when training completed	Checked in FSTD or H	Examiner initials when test completed
2.5	Climbing and descending turns to specified headings		P	---->		M	
2.5.1	Turns with 30° bank, 180° to 360° left and right, by sole reference to instruments		P	---->		M	
2.6	Autorotative descent		P	---->		M	
2.6.1[3]	For single-engine helicopters (SEH): — autorotative landing; or — Power recovery, provided that applicants, in the preceding year, completed training that included an autorotative landing and that training was entered and signed in the applicants' logbook by the instructor. For multi-engine helicopters (MEH): power recovery.		P	---->		M	
2.7	Landings, various profiles		P	---->		M	
2.7.1	Go-around or landing following simulated engine failure before LDP or DPBL		P	---->		M	
2.7.2	Landing following simulated engine failure after LDP or DPBL		P	---->		M	
	SECTION 3 – Normal and abnormal operations of the following systems and procedures						
3	Normal and abnormal operations of the following systems and procedures:					M	A mandatory minimum of 3 items shall be selected from this section
3.1	Engine		P	---->			
3.2	Air conditioning (heating, ventilation)		P	---->			
3.3	Pitot/static system		P	---->			
3.4	Fuel System		P	---->			
3.5	Electrical system		P	---->			
3.6	Hydraulic system		P	---->			
3.7	Flight control and trim system		P	---->			
3.8	Anti-icing and de-icing system (if applicable)		P	---->			

[3] Remark: Highlighted text reflects updates proposed by Opinion No 05/2023 (adoption of amending regulation pending).

SINGLE/MULTI-PILOT HELICOPTERS		PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures		OTD	FSTD	H	Instructor initials when training completed	Checked in FSTD or H	Examiner initials when test completed
3.9	Autopilot/Stability augmentation devices/Flight director		P	---->			
3.10	~~Stability augmentation devices~~ EGPWS/HTAWS (if applicable)		P	---->			
3.11	Weather radar, radio altimeter, transponder		P	---->			
3.12	Area navigation system		P	---->			
3.13	Landing gear system		P	---->			
3.14	APU		P	---->			
3.15	Radio, navigation equipment, instruments and FMS		P	---->			
	SECTION 4 – Abnormal and emergency procedures						
4	Abnormal and emergency procedures					M	A mandatory minimum of 3 items shall be selected from this section
4.1	Fire drills (including evacuation if applicable)		P	---->			
4.2	Smoke control and removal		P	---->			
4.3	Engine failures, shutdown and restart at a safe height		P	---->			
4.4	Fuel dumping (simulated, if applicable)		P	---->			
4.5	Tail rotor control failure (if applicable)		P	---->			
4.5.1	Tail rotor loss (if applicable)		P	X ~~A helicopter shall not be used for this exercise~~			
4.6	Incapacitation of crew member – only for MPH ~~only~~ and SPH operated in MPO		P	---->			
4.7	Transmission malfunctions		P	---->			

SINGLE/MULTI-PILOT HELICOPTERS		PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures		OTD	FSTD	H	Instructor initials when training completed	Checked in FSTD or H	Examiner initials when test completed
4.8	TCAS event (if applicable)		P	X			
4.~~8~~9	Other emergency procedures as outlined in the appropriate flight manual		P	---->			
	SECTION 5 – Instrument flight procedures (to be performed in IMC or simulated IMC)						
5.1	Instrument take-off: transition to instrument flight is required as soon as possible after becoming airborne		P*	---->*			
5.1.1	Simulated engine failure during departure		P*	---->*		M*	
5.2	Adherence to departure and arrival routes and ATC instructions		P*	---->*		M*	
5.3	Holding procedures		P*	---->*			
5.4	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach procedure		P*	---->*			
5.4.1[4]	Manually, without flight director. Note: According to the AFM, RNP APCH procedures may require the use of autopilot or flight director. The procedure to be flown manually shall be chosen taken into account such limitations (for example, choose an ILS for 5.4.1 in the case of such AFM limitation).		P*	---->*		M* (unless Exercise 5.4.2 is completed)	
5.4.2[5]	Manually, with flight director		P*	---->*		M* (unless Exercise 5.4.1 is completed)	
5.4.3	With coupled autopilot		P*	---->*			
5.4.4	Manually, with one engine simulated inoperative; engine failure has to be simulated during final approach before passing 1 000 ft above aerodrome level until		P*	---->*		M*	

[4] Remark: Highlighted text reflects updates proposed by Opinion No 05/2023 (adoption of amending regulation pending).
[5] Remark: Highlighted text reflects updates proposed by Opinion No 05/2023 (adoption of amending regulation pending).

SINGLE/MULTI-PILOT HELICOPTERS		PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures		OTD	FSTD	H	Instructor initials when training completed	Checked in FSTD or H	Examiner initials when test completed
	touchdown or until completion of the missed approach procedure						
5.5	2D operations down to the MDA/H		P*	---->*		M*	
5.6	Go-around with all engines operating on reaching DA/H or MDA/MDH		P*	---->*			
5.6.1	Other missed approach procedures		P*	---->*			
5.6.2	Go-around with one engine simulated inoperative on reaching DA/H or MDA/MDH		P*	---->*		M*	
5.7	IMC autorotation with power recovery		P*	---->*		M*	
5.8	Recovery from unusual attitudes manually and, if applicable, with auto recovery mode		P*	---->*		M*	
	SECTION 6 — Use of optional equipment						
6	Use of optional equipment		P	---->			

Rationale

The proposal to amend the Section A, point 1., is aimed at including a regulatory hook to guarantee that an FSTD with adequate features and fidelity levels is used for training, testing and checking. To comply with these requirements, applicants need to be trained, tested and checked on FSTD with FCS that meet the minimum FCS for a specific exercise as required by the applicable training matrices which will be included in a newly created AMC to Appendix 9. Additionally, the use of FSTDs need to follow the provisions this new AMC.

The point is also amended to explain that restrictions and limitations will be included in the ESL.

Point 18 is modified to set up requirements for UPRT use of FSTD qualified under the new CS-FSTD.

Amendment in point 1(a) is added to enable use of FSTD other than FFS in type rating training, testing and checking for SPA and helicopters. By allowing the use of a combination of FFS and FSTD(s) in training, testing, checking, the rules provide additional flexibility.

To simplify the understanding of the list of training task, avoid misunderstandings and have a common approach between aeroplanes and helicopters, the meaning of the symbol X is changed to express the restriction from using an aeroplane or a helicopter for specific training tasks. Where the regulation mandates the use of an FFS for a skill test or a proficiency check, 'FFS only' is written in the relevant

column. In addition, the training matrix in the AMC that is currently being drafted will specify the equivalent FCS of an FFS level C for the testing & checking level.

Following a proposal from the helicopters' training experts working on the training matrix for helicopters the list of training tasks for helicopters is expanded to include the following new training manoeuvres/procedures:

- EGPWS/HTWAS, if applicable;
- TCAS event, if applicable.

The stability augmentation system training is proposed to be moved from training task 3.10 to task 3.9 due to its nature. Indeed, in the helicopter domain, reference is normally made to autopilot/stability augmentation system.

Additionally, the training for anti-icing and de-icing system operations, fuel damping procedures and the use of flight director is only required if applicable to the type of helicopter being simulated, given the low number of helicopters that have such systems.

The recovery from unusual attitudes should be training with and without auto recovery mode, as applicable.

A clarification has been made for task 4.6 to include the pilot incapacitation training for single-pilot certified helicopters operated in multi-pilot operations.

Finally, it is specified that the recovery from unusual attitudes shall be trained both manually and with the use of auto recovery mode, if applicable to the relevant type of helicopter.

Update from March 2024 focused consultations

Following a thorough revision of Appendix 9, some inconsistencies have been noted in the way the symbols and the terminology are used.

In the case of aeroplanes, power-lift aircraft and airships, other training devices (OTDs) are referred to in Section B, Section D and Section E for practical training. Furthermore, AMC3 ORA.ATO.125 refers to the use of OTDs in a helicopter type rating training programme. However, for this specific case, no reference to OTDs is present in Section C.

It should also be noted that there is no reference to OTDs in Appendix 9, Section A, point 1, where the training devices that shall be used for training, testing and checking are defined. In addition, the definition of flight simulation training device contained in Article 2 of Regulation (EU) No 1178/2011 clearly excludes OTDs. This also consistent with the definition of OTDs in point FCL.010.

In EASA's understanding, where specified, OTDs may be used in practical training for specific training tasks of Appendix 9. However, where reference is given to minimum FSTD hours in a training programme, the training time completed on such devices shall not be counted.

To fully clarify the concept, the following amendments are proposed.

1) Introduction of a new paragraph in Appendix 9, Section A (point 1g) to clearly explain what may be accomplished using OTDs in practical flight training.
2) Introduction of a new 'OTD' column in the tables with the list of training tasks of Section B and Section C.
3) Deletion of 'OTD' from the list of symbols in points 5(a) and 6(a) of Section B.
4) Introduction of 'OTD' in the list of abbreviations in points 5(b) and 6(b) of Section B and in point 6 of Section C.

Where training can be performed in an OTD, a P has been added in the 'OTD' column.

In the case of helicopters, training task 1.1 may be performed with the support of an OTD as for aeroplanes, but the task shall be complemented by supervised helicopter inspection. For this reason, the symbol P# has been introduced in point 5 of Section C and included in the 'OTD' column of the table with the list of helicopter training tasks.

Minor changes have been applied to the tables of aeroplane training tasks to align the use of the symbol '---->' with the use in the tables of training tasks for helicopters, power-lift aircraft and airships.

One typo for aeroplane training task 2.1 has been corrected in the list of training tasks for TMGs AND SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH-PERFORMANCE COMPLEX AEROPLANES.

The new symbol 'P→' has been introduced specifically for the TCAS event task for aeroplanes to indicate that the task shall be completed in an FSTD.

AMC3 to Appendix 9 Training, skill test and proficiency check for MPL, ATPL, type and class ratings, and proficiency check for IRs

RMT.0196

TRAINING MATRICES FOR TYPE RATING TRAINING

(a) General

(1) The training matrices provide, for each training task, the minimum fidelity levels that a training device should have for each of its features.

For each training task, the training matrices contain two rows with FCS as follows:

T (Training): The minimum FCS that an FSTD should have for the introduction of a training task. The training accomplished on such an FSTD should be credited towards the issuance of the type rating, but the training would not be completed to proficiency.

TP (Training to proficiency): The minimum FCS that an FSTD should have for the introduction, continuation or completion of a training task. The training accomplished on such an FSTD should be credited towards the issuance of the type rating and the training is completed to proficiency.

(2) When, in accordance with AMC5 ORA.ATO.125, determining the suitability of a training device for the execution of the applicable training tasks, the appropriate training matrix should be used.

(i) For multi-pilot aeroplanes and for single-pilot high performance complex aeroplanes:

	Manoeuvre/Procedure	Training to proficiency (TP) / Training (T)	1.Flight deck layout and structure	2. Flight controls forces & hardware	3. Flight controls systems operation	4. Aircraft systems	5. Performance & handling - On Ground	6. Performance & handling - In Ground Effect	7. Performance & Handling - Out of Ground Effect	8. Sound cues	9. Vibration cues	10. Motion cues	11. Visual cues	12. Navigation	13. Atmosphere and weather	14. Operating Sites and terrain
Section 1 – Flight preparation																
1.1	Performance calculation	TP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		T	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	Aeroplane external visual inspection; location of each item and purpose of inspection	TP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		T	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3	Cockpit inspection	TP	S	R	G	S	G	N	N	N	N	N	N	N	G	N
		T	R	R	G	R	G	N	N	N	N	N	N	N	G	N
1.4	Use of checklist prior to starting engines, starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies	TP	S	R	G	S	G	N	N	R	N	N	G	S	R	G
		T	G	R	G	R	G	N	N	G	N	N	N	R	G	N
1.5	Taxiing in compliance with ATC instructions or instructions of instructor	TP	S	S	S	S	S	N	N	R	R	S	R	S	R	G
		T	G	R	R	R	R	N	N	G	N	N	R	R	G	G
1.6	Before take-off checks	TP	S	S	R	S	R	N	N	R	R	R	R	S	R	G
		T	G	G	G	R	G	N	N	G	N	N	N	R	G	N

Section 2 – Take-offs																	
2.1	Normal take-offs with different flap settings, including expedited take-off	TP	S	S	S	S	S	S	S	R	R	S	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.2	Instrument take-off; transition to instrument flight is required during rotation or immediately after becoming airborne	TP	S	S	S	S	S	S	S	R	R	S	S	S	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	R	G	G
2.3	Crosswind take-off	TP	S	S	S	S	S	S	S	R	R	S	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	R	R	N	G	G
2.4	Take-off at maximum take-off mass (actual or simulated maximum take-off mass)	TP	S	S	S	S	S	S	S	R	R	S	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.5.1	Take-offs with simulated engine failure shortly after reaching V2	TP	S	S	S	S	S	S	S	R	R	S	S	N	R	R
		T	R	R	R	R	R	R	R	G	G	R	R	N	G	G
2.5.2	Take-offs with simulated engine failure between V1 and V2	TP	S	S	S	S	S	S	S	R	R	S	S	S	S	S
		T	R	R	R	R	R	R	R	G	G	R	R	N	G	G
2.6	Rejected take-off at a reasonable speed before reaching V1	TP	S	S	S	S	S	N	N	R	R	S	S	N	R	R
		T	R	R	R	R	R	N	N	G	G	R	R	N	G	G
Section 3 – Flight manoeuvres and procedures																	
3.1	Manual flight with and without flight directors (no autopilot, no autothrust/autothrottle, and at different control laws, where applicable)	TP	R	S	S	S	N	N	S	G	R	R	R	N	G	N
		T	G	R	R	R	N	N	R	N	N	N	G	N	G	N
3.1.1	At different speeds (including slow flight) and altitudes within the FSTD training envelope	TP	R	S	S	S	N	N	S	G	R	R	R	N	G	N
		T	G	R	R	R	N	N	R	N	N	N	G	N	G	N
3.1.2	Steep turns using 45° bank, 180° to 360° left and right	TP	R	S	S	S	N	N	S	G	R	R	R	N	G	N
		T	G	R	R	R	N	N	R	N	N	N	G	N	G	N
3.1.3	Turns with and without spoilers	TP	R	S	S	S	N	N	S	G	R	R	R	N	G	N
		T	G	R	R	R	N	N	R	N	N	N	G	N	G	N
3.1.4	Procedural instrument flying and manoeuvring including instrument departure and arrival, and visual approach	TP	S	S	S	S	N	N	S	G	R	R	R	S	G	G
		T	G	R	R	R	N	N	R	N	N	N	G	R	G	G
3.2	Tuck under and Mach buffets (if applicable), and other specific flight characteristics of the aeroplane (e.g. Dutch Roll)	TP	S	S	S	S	S	S	S	G	S	S	S	S	S	S
		T	G	R	R	R	N	N	R	N	G	G	G	N	G	N
3.3	Normal operation of systems and controls engineer's panel (if applicable)	TP	R	N	N	S	N	N	N	N	N	N	N	N	G	N
		T	G	N	N	R	N	N	N	N	N	N	N	N	G	N
Section 3.4 – Normal and abnormal operations of following systems																	
3.4.0	Engine (if necessary propeller)	TP	S	S	S	S	N	N	S	R	R	R	N	N	G	N
		T	G	G	G	R	N	N	G	G	N	N	N	N	G	N

3.4.1	Pressurisation and air conditioning	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
3.4.2	Pitot/static system	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
3.4.3	Fuel system	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
3.4.4	Electrical system	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
3.4.5	Hydraulic system	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
3.4.6	Flight control and trim system	TP	R	S	S	S	N	N	S	N	R	R	N	N	G	N	
		T	G	R	R	R	N	N	G	N	N	N	N	N	G	N	
3.4.7	Anti-icing/de-icing system, glare shield heating	TP	R	N	G	S	N	N	S	N	R	R	R	N	R	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	R	N	
3.4.8	Autopilot/flight director	TP	S	R	R	S	N	N	S	N	N	N	N	R	G	N	
		T	G	G	G	R	N	N	G	N	N	N	N	R	G	N	
3.4.9	Stall warning devices or stall avoidance devices, and stability augmentation devices	TP	R	R	R	S	N	N	S	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
3.4.10	Ground proximity warning system, weather radar, radio altimeter, transponder	TP	R	R	R	S	N	N	S	N	N	N	N	N	R	R	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	R	
3.4.11	Radios, navigation equipment, instruments, FMS	TP	R	N	G	S	N	N	G	N	N	N	N	S	R	G	
		T	G	N	G	R	N	N	G	N	N	N	N	S	G	G	
3.4.12	Landing gear and brake	TP	R	S	S	S	S	S	S	R	R	R	G	N	G	G	
		T	G	R	R	R	R	R	R	G	N	N	N	N	G	N	
3.4.13	Slat and flap system	TP	R	S	S	S	S	S	S	N	N	R	N	N	G	N	
		T	G	R	R	R	R	R	R	N	N	N	N	N	G	N	
3.4.14	Auxiliary power unit (APU)	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
Section 3.6 – Abnormal and emergency procedures																	
3.6.1	Fire drills e.g. engine, APU, cabin, cargo compartment, flight deck, wing and electrical fires including evacuation	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
3.6.2	Smoke control and removal	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N	
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N	
3.6.3	Engine failures, shutdown and restart at a safe height	TP	S	S	S	S	N	N	S	R	R	R	N	N	G	N	

		T	G	G	G	R	N	N	G	G	N	N	N	N	G	N
3.6.4	Fuel dumping (simulated)	TP	R	N	G	S	N	N	G	N	N	N	N	N	G	N
		T	G	N	G	R	N	N	G	N	N	N	N	N	G	N
3.6.5	Wind shear at take-off/landing	TP	S	S	S	S	S	S	S	R	R	S	S	S	S	S
		T	R	R	R	R	R	R	R	G	N	N	R	N	R	G
3.6.6	Simulated cabin pressure failure/emergency descent	TP	S	R	R	S	N	N	S	G	R	R	N	N	G	R
		T	G	G	G	R	N	N	R	N	N	N	N	N	G	N
3.6.7	Incapacitation of flight crew member	TP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		T	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6.8	Other emergency procedures as outlined in the appropriate aeroplane flight manual (AFM)	TP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		T	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6.9	TCAS event	TP	S	S	S	S	S	S	S	R	R	S	S	S	S	S
		T	G	R	R	R	N	N	G	N	N	N	N	N	G	N
Section 3.7 – Upset Prevention and Recovery																
3.7.1	Recovery from stall events in: - take-off configuration - clean configuration at low altitude - clean configuration near maximum operating altitude - landing configuration	TP	S	S	S	S	S	S	S	R	S	S	S	S	S	S
		T	S	S	S	S	S	S	S	R	S	S	S	S	S	S
3.7.2	The following upset exercises: – recovery from nose-high at various bank angles; and – recovery from nose-low at various bank angles	TP	S	S	S	S	S	S	S	R	S	S	S	S	S	S
		T	S	S	S	S	S	S	S	R	S	S	S	S	S	S
Section 3.8 – Instrument flight procedures																
3.8.1	Adherence to departure and arrival routes and ATC instructions	TP	R	R	R	S	N	N	R	G	N	N	N	S	R	N
		T	G	G	G	R	N	N	G	N	N	N	N	R	G	N
3.8.2	Holding procedures	TP	R	R	R	S	N	N	R	G	N	N	N	S	R	N
		T	G	G	G	R	N	N	G	N	N	N	N	R	G	N
3.8.3.1	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach procedure manually, without flight director	TP	S	S	S	S	N	N	S	R	N	N	R	S	R	G
		T	G	R	R	R	N	N	G	G	N	N	G	R	G	G
3.8.3.2	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach procedure manually, with flight director	TP	S	S	S	S	N	N	S	R	N	N	R	S	R	G
		T	G	R	R	R	N	N	G	G	N	N	G	R	G	G
3.8.3.3	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach procedure with autopilot	TP	S	S	S	S	N	N	S	R	N	N	R	S	R	G
		T	G	G	G	R	N	N	G	G	N	N	G	R	G	G

3.8.3.4	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach procedure manually, with one engine simulated inoperative during final approach, either until touchdown or through the complete missed approach procedure (as applicable), starting: (i) before passing 1 000 ft above aerodrome level; and (ii) after passing 1 000 ft above aerodrome level.	TP	S	S	S	S	S	S	S	R	R	R	S	S	R	R
		T	G	R	R	R	G	G	G	G	N	N	G	R	G	G
3.8.4	2D operations down to the MDH/A	TP	S	S	S	S	N	N	S	R	N	N	R	S	R	G
		T	G	G	G	R	N	N	G	G	N	N	G	R	G	G
3.8.5	Circling approach under the following conditions: (a)*approach to the authorised minimum circling approach altitude at the aerodrome in question in accordance with the local instrument approach facilities in simulated instrument flight conditions; followed by: (b) circling approach to another runway at least 90° off centreline from the final approach used in item (a), at the authorised minimum circling approach altitude.	TP	S	S	S	S	N	N	S	R	N	R	S	S	R	R
		T	R	R	R	R	N	N	G	G	N	N	R	R	G	R
3.8.6	Visual approaches	TP	S	S	S	S	N	N	S	R	N	R	S	N	R	R
		T	R	R	R	R	N	N	G	G	N	N	R	N	G	R
Section 4 – Missed approach procedures																	
4.1	Go-around with all engines operating during a 3D operation on reaching decision height	TP	S	S	S	S	N	N	S	R	N	S	N	S	R	G
		T	R	R	R	R	N	N	R	G	N	N	N	R	G	G
4.2	Go-around with all engines operating from various stages during an instrument approach	TP	S	S	S	S	N	N	S	R	N	S	N	S	R	G
		T	R	R	R	R	N	N	R	G	N	N	N	R	G	G
4.3	Other missed approach procedures	TP	S	S	S	S	N	N	S	R	N	S	N	S	R	G
		T	R	R	R	R	N	N	R	G	N	N	N	R	G	G
4.4	Manual go-around with the critical engine simulated inoperative after an instrument approach on reaching DH, MDH or MAPt	TP	S	S	S	S	N	N	S	R	R	S	N	S	R	G
		T	R	R	R	R	N	N	R	G	N	N	N	R	G	G
4.5	Rejected landing with all engines operating: - from various heights below DH/MDH; - after touchdown (balked landing)	TP	S	S	S	S	S	S	S	R	R	S	S	S	R	R
		T	R	R	R	R	R	R	R	G	N	N	G	R	G	R
Section 5 – Landings																	
5.1		TP	S	S	S	S	S	S	S	R	R	S	S	S	R	R

	Normal landings with visual reference established when reaching DA/H following an instrument approach operation	T	R	R	R	R	R	R	R	G	N	N	R	R	G	R
5.2	Landing with simulated jammed horizontal stabiliser in any out-of-trim position	TP	S	S	S	S	S	S	S	R	R	S	S	S	S	S
		T	R	R	R	R	R	R	R	G	N	R	R	N	G	R
5.3	Crosswind landings (aircraft, if practicable)	TP	S	S	S	S	S	S	S	R	R	S	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	R	R	N	G	R
5.4	Traffic pattern and landing without extended or with partly extended flaps and slats	TP	S	S	S	S	S	S	S	R	R	S	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	R
5.5	Landing with critical engine simulated inoperative	TP	S	S	S	S	S	S	S	R	R	S	S	N	R	R
		T	R	R	R	R	R	R	R	G	G	R	R	N	G	R
5.6	Landing with two engines inoperative: - aeroplanes with three engines: the centre engine and one outboard engine as far as practicable according to data of the AFM; and - aeroplanes with four engines: two engines at one side	TP	S	S	S	S	S	S	S	R	R	S	S	S	S	S
		T	R	R	R	R	R	R	R	G	G	R	R	N	G	R

(ii) For helicopters:

	Manoeuvre/Procedure	Training to proficiency (TP) / Training (T)	1. Flight deck layout and structure	2. Flight controls forces & hardware	3. Flight controls systems operation	4. Aircraft systems	5. Performance & handling - On Ground	6. Performance & handling - In Ground Effect	7. Performance & Handling - Out of Ground Effect	8. Sound cues	9. Vibration cues	10. Motion cues	11. Visual cues	12. Navigation	13. Atmosphere and weather	14. Operating Sites and terrain
Section 1 – Preflight preparations and checks																
1.1	Helicopter exterior visual inspection; location of each item and purpose of inspection	TP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		T	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	Cockpit inspection	TP	S	R	G	S	G	N	N	N	N	N	N	N	G	N
		T	R	R	G	R	G	N	N	N	N	N	N	N	G	N
1.3	Starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies	TP	S	S	S	S	S	N	N	R	S	S	G	S	R	G
		T	R	R	R	R	R	N	N	G	N	N	G	R	G	G
1.4	Taxiing/air taxiing in compliance with ATC instructions or with instructions of an instructor	TP	S	S	S	S	S	S	N	R	R	R	R	N	R	R
		T	R	R	R	R	R	R	N	G	N	N	R	N	G	G
1.5	Pre-take-off procedures and checks	TP	S	R	R	S	R	N	N	G	G	G	R	S	R	R
		T	R	R	R	R	R	N	N	G	N	N	R	R	G	G
Section 2 – Flight manoeuvres and procedures																
2.1	Take-offs (various profiles)	TP	S	S	S	S	S	S	S	R	G	R	S	N	R	R

		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.2	Sloping ground or crosswind take-offs & landings	TP	S	S	S	S	S	S	S	R	G	R	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.3	Take-off at maximum take-off mass (actual or simulated maximum take-off mass)	TP	S	S	S	S	S	S	S	R	G	R	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.4	Take-off with simulated engine failure shortly before reaching TDP or DPATO	TP	S	S	S	S	S	S	S	R	R	R	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.41	Take-off with simulated engine failure shortly after reaching TDP or DPATO	TP	S	S	S	S	S	S	S	R	R	R	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.5	Climbing and descending turns to specified headings	TP	S	S	S	S	N	N	S	G	G	G	G	N	R	N
		T	R	R	R	R	N	N	R	G	N	N	G	N	G	N
2.5.1	Turns with 30° bank, 180° to 360° left and right, by sole reference to instruments	TP	S	S	S	S	N	N	S	G	G	G	N	N	R	N
		T	R	R	R	R	N	N	R	G	N	N	N	N	G	N
2.6	Autorotative descent	TP	S	S	S	S	N	N	S	R	R	R	R	N	R	G
		T	R	R	R	R	N	N	R	G	N	N	R	N	G	G
2.6.1	For single-engine helicopters (SEH) autorotative landing or for multi-engine helicopters (MEH) power recovery	TP	S	S	S	S	S	S	S	R	R	R	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.7	Landings, various profiles	TP	S	S	S	S	S	S	S	R	R	R	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.7.1	Go-around or landing following simulated engine failure before LDP or DPBL	TP	S	S	S	S	S	S	S	R	R	R	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
2.7.2	Landing following simulated engine failure after LDP or DPBL	TP	S	S	S	S	S	S	S	R	R	R	S	N	R	R
		T	R	R	R	R	R	R	R	G	N	N	R	N	G	G
Section 3 – Normal and abnormal operations of the following systems and procedures																
3.1	Engine	TP	S	S	S	S	S	S	S	R	G	G	G	N	G	G
		T	G	R	G	S	G	G	G	G	N	N	G	N	G	G
3.2	Air conditioning (heating, ventilation)	TP	S	N	G	S	N	N	G	N	N	N	N	N	G	N
		T	G	N	G	S	N	N	G	N	N	N	N	N	G	N
3.3	Pitot/static system	TP	S	N	G	S	N	N	G	N	N	N	G	N	R	N
		T	G	N	G	S	N	N	G	N	N	N	G	N	R	N
3.4	Fuel System	TP	S	N	G	S	N	N	G	N	N	N	N	N	G	N
		T	G	N	G	S	N	N	G	N	N	N	N	N	G	N
3.5	Electrical system	TP	S	N	G	S	G	G	G	N	N	N	G	N	G	G
		T	G	N	G	S	G	G	G	N	N	N	G	N	G	G

3.6	Hydraulic system	TP	S	S	S	S	R	R	R	N	N	N	G	N	G	G
		T	G	S	R	S	R	R	R	N	N	N	G	N	G	G
3.7	Flight control and trim system	TP	S	S	S	S	G	G	G	N	N	N	G	N	G	G
		T	G	S	R	S	G	G	G	N	N	N	G	N	G	G
3.8	Anti-icing and de-icing system	TP	R	N	N	R	N	N	G	G	G	G	N	N	R	N
		T	G	N	N	G	N	N	G	G	N	N	N	N	G	N
3.9	Autopilot/Stability augmentation devices/Flight director	TP	S	S	S	S	S	S	S	N	G	G	R	R	S	R
		T	G	R	R	R	R	R	R	N	N	N	G	R	R	R
3.10	EGPWS/HTAWS (if applicable)	TP	S	R	G	S	N	N	G	N	N	N	R	N	G	R
		T	G	G	G	R	N	N	G	N	N	N	G	N	G	R
3.11	Weather radar, radio altimeter, transponder	TP	S	N	G	S	N	N	G	N	N	N	G	N	R	R
		T	G	N	G	S	N	N	G	N	N	N	G	N	R	R
3.12	Area navigation system	TP	S	N	G	S	N	N	G	N	N	N	N	R	G	G
		T	G	N	G	S	N	N	G	N	N	N	N	R	G	G
3.13	Landing gear system	TP	S	R	R	S	R	R	R	N	G	G	R	N	G	R
		T	G	R	R	S	R	R	R	N	G	G	R	N	G	R
3.14	APU	TP	S	N	G	S	N	N	G	N	N	N	N	N	G	N
		T	G	N	G	S	N	N	G	N	N	N	N	N	G	N
3.15	Radio, navigation equipment, instruments and FMS	TP	S	N	G	S	N	N	G	N	N	N	N	S	G	G
		T	G	N	G	S	N	N	G	N	N	N	N	R	G	G
Section 4 – Abnormal and emergency procedures																	
4.1	Fire drills (including evacuation if applicable)	TP	S	S	S	S	S	S	S	N	N	N	R	N	G	R
		T	S	R	R	S	R	R	R	N	N	N	R	N	G	R
4.2	Smoke control and removal	TP	S	N	G	S	N	N	G	N	N	N	R	N	G	R
		T	S	N	G	S	N	N	G	N	N	N	R	N	G	R
4.3	Engine failures, shutdown and restart at a safe height	TP	S	S	S	S	N	S	S	R	R	R	R	G	G	R
		T	R	R	R	S	N	G	G	G	G	G	G	G	G	R
4.4	Fuel dumping (simulated, if applicable)	TP	R	N	G	R	N	N	G	N	N	N	N	N	G	N
		T	G	N	G	G	N	N	G	N	N	N	N	N	G	N
4.5	Tail rotor control failure (if applicable)	TP	R	S	S	S	R	S	S	N	G	S	S	N	G	R
		T	G	R	R	R	R	R	R	N	G	R	R	N	G	R
4.5.1	Tail rotor loss (if applicable)	TP	R	S	S	S	R	S	S	G	R	S	S	N	G	R
		T	G	R	R	R	R	R	R	N	G	R	R	N	G	R
4.6		TP	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	Incapacitation of crew member – only for MPH and SPH operated in MPO	T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	Transmission malfunctions	TP	S	S	S	S	R	R	R	G	G	G	R	N	G	G
		T	R	R	R	R	R	R	R	G	G	G	G	N	G	G
4.8	TCAS event (if applicable)	TP	S	R	G	S	N	N	G	N	N	N	R	N	G	N
		T	G	G	G	R	N	N	G	N	N	N	N	N	G	N
4.9	Other emergency procedures as outlined in the appropriate flight manual	TP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		T	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Section 5 – Instrument flight procedures (to be performed in IMC or simulated IMC)																	
5.1	Instrument take-off: transition to instrument flight is required as soon as possible after becoming airborne	TP	S	S	S	S	N	S	S	G	R	R	R	S	R	G
		T	R	R	R	R	N	R	R	G	N	N	R	R	G	G
5.1.1	Simulated engine failure during departure	TP	S	S	S	S	N	S	S	G	R	R	R	S	R	G
		T	R	R	R	R	N	R	R	G	N	N	G	R	G	G
5.2	Adherence to departure and arrival routes and ATC instructions	TP	R	R	R	S	N	N	R	G	N	N	N	S	R	N
		T	G	G	G	R	N	N	G	G	N	N	N	R	G	N
5.3	Holding procedures	TP	R	R	R	S	N	N	R	G	G	G	N	S	R	N
		T	G	G	G	R	N	N	G	G	N	N	N	R	G	N
5.4.1	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach, manually, without flight director	TP	S	S	S	S	N	N	R	G	N	N	G	S	R	G
		T	R	R	R	R	N	N	G	G	N	N	G	R	G	G
5.4.2	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach, manually, with flight director	TP	S	S	S	S	N	N	R	G	N	N	G	S	R	G
		T	R	R	R	R	N	N	G	G	N	N	G	R	G	G
5.4.3	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach, with coupled autopilot	TP	S	R	R	S	G	R	R	G	N	N	G	S	R	G
		T	R	G	G	R	G	G	G	G	N	N	G	R	G	G
5.4.4	3D operations to DH/A of 200 ft (60 m) or to higher minima if required by the approach, manually, with one engine simulated inoperative; engine failure has to be simulated during final approach before passing 1000 ft above aerodrome level until touchdown or until completion of the missed approach procedure	TP	S	S	S	S	N	N	R	G	R	R	S	S	R	R
		T	R	R	R	R	N	N	G	G	N	N	R	R	G	G
5.5	2D operations down to the MDA/H	TP	S	S	S	S	N	N	R	G	N	N	G	S	R	G
		T	R	R	R	R	N	N	G	G	N	N	G	R	G	G
5.6	Go-around with all engines operating on reaching DA/H or MDA/MDH	TP	S	S	S	S	N	N	R	G	R	R	G	S	R	G
		T	R	R	R	R	N	N	G	G	N	N	G	R	G	G
5.6.1	Other missed approach procedures	TP	S	S	S	S	N	N	R	G	R	R	G	S	R	G

		T	R	R	R	R	N	N	G	G	N	N	G	R	G	G
5.6.2	Go-around with one engine simulated inoperative on reaching DA/H or MDA/MDH	TP	S	S	S	S	N	N	R	G	R	R	G	S	R	G
		T	R	R	R	R	N	N	G	G	N	N	G	R	G	G
5.7	IMC autorotation with power recovery	TP	S	S	S	S	N	N	R	G	R	R	R	N	G	N
		T	R	R	R	R	N	N	G	G	N	N	R	N	G	N
5.8	Recovery from unusual attitudes manually and, if applicable, with auto recovery mode	TP	S	S	S	S	N	N	R	G	R	R	N	N	G	N
		T	R	R	R	R	N	N	G	G	N	N	N	N	G	N

(b) Training considerations

(1) The FSTD Capability Signatures (FCS) included in the training matrices are meant to provide an acceptable mean of compliance with respect of the provisions of Appendix 9, Section A, point 1f and to receive training credit towards the minimum FSTD training hours specified in the relevant type rating training programme. The training matrices have been determined by analysing, for each training task, the training requirements of a type rating training course for the relevant category of aircraft. Additionally, the technical requirements for each fidelity level assigned to a feature have been analysed to ensure that they are sufficient to satisfy the identified training needs. Such analysis evaluates each training task independently from the others. However, the FCS in the training matrices are not meant to be used in isolation but should be used to support the design of a training programme in accordance with AMC5 ORA.ATO.125(b).

(2) The evaluation of the fidelity levels assigned to each feature takes into consideration the requirements of a type rating training course syllabus. Additional requirements for specific trainings have not been evaluated. Organisations that provide training in accordance with Regulation (EU) No 965/2012 for operations that require specific approval should carefully evaluate the fidelity levels required for the relevant features of an FSTD to be used for certain training tasks, taking into consideration the information presented in the qualification certificate of the FSTD and in the equipment specifications list.

Additional information regarding the technical capability of an FSTD can be found in Subpart B of CS-FSTD.

(3) At TP level, the 'Flight Deck Layout and Structure' feature should have tactile hardware, unless the specific aircraft type is equipped with touchscreen devices for specific aircraft systems.

At T level, the 'Flight Deck Layout and Structure' feature may be a touchscreen representation, except when manual flying is required.

(4) In case of training tasks or subtasks that have an influence on or should be executed in conjunction with other training tasks, the FSTD Capability Signatures of such training tasks should be combined in the manner described in point (b)(3) of AMC5 ORA.ATO.125.

(5) For aeroplane training tasks included in Section 3.4 and Section 3.6 of the table in point (a)(2)(i), and for helicopter training tasks included in Section 3 and Section 4 of the table in point (a)(2)(ii), the fidelity level for the 'Aircraft Systems' feature indicates the minimum fidelity level for the relevant aircraft systems that should be required to perform the training task. Aircraft systems other than those relevant to perform such tasks may be at a different fidelity level, provided that this difference does not lead to have any negative training.

(6) At T level, the FCS for aeroplane training tasks included in Section 3.4 and Section 3.6 of the table in point (a)(2)(i) show a 'Representative' (R) fidelity for the 'Aircraft Systems' feature. In case an aircraft type shows significant differences between variants for certain aircraft systems, training providers should consider selecting a 'Specific' (S) fidelity level for the 'Aircraft Systems' feature.

(7) For aeroplane training tasks 3.6.7 and 3.6.8 of the table in point (a)(2)(i) and helicopters training tasks 4.6 and 4.9 of the table in point (a)(2)(ii), an FCS has not been determined. When designing a type rating training programme in accordance with AMC5 ORA.ATO.125, the suitability of the FSTD used for the training of such tasks should be assessed taking into consideration the specific training needs.

(8) Take-off and landing training tasks have, except for aeroplane training task 2.2 of the table in point (a)(2)(i), a 'Not Applicable' (N) fidelity level for the 'Navigation' feature, as take-offs and

landings are performed visually. However, in most cases, especially at TP level, such training tasks are followed by instrument departures or executed following an instrument arrival and approach procedure. In such cases, when combining different training tasks as per point (b)(5), the FCS for take-off and landing training tasks should be combined with those of the relevant instrument departure or instrument arrival and approach procedures, and the highest resulting fidelity level for the 'Navigation' feature should be taken.

(9) In general, motion and vibration cues should not be required for instrument flight procedures, as it is assumed that the scope of the training tasks is focused on the correct execution of the instrument flight procedures and not on the cues experienced by the flight crew. However, for specific training tasks which require dynamic manoeuvring and significant changes of aircraft attitude, such as, for aeroplanes, one engine simulated inoperative procedures, or circling and visual approaches, motion cues and, where needed, vibration cues, should be required.

Rationale

AMC3 to Appendix 9 introduces the training matrices in Regulation (EU) No 1178/2011 to enable the application of the 'task-to-tool' concept.

Point (a)(1) defines what is a training matrix and the meaning of 'training' (T) and 'training-to-proficiency' (TP).

Point (a)(2) explains that the appropriate training matrix for the relevant category of aircraft should be used during the design of the training programme.

Point (b) provides important training considerations that should be followed for the design of a type rating training course using a training matrix (see AMC5 ORA.ATO.125(b)).

Point (b)(1) explains that the training matrices are a way to comply with the provisions of Appendix 9, Section A, point 1 when used in accordance with AMC5 ORA.ATO.125, and the principles followed to determine the training matrices.

Point (b)(2) clarifies that in case of training for operations that requiring specific approval in accordance with Regulation (EU) 965/2012, the evaluation of the fidelity levels for assigned for certain training tasks should be evaluated. For example, in case of training for low visibility operations, according to the requirements of Subpart B of CS-FSTD, the 'Operating Sites And Terrain' feature should be at least at representative 'R' fidelity level.

Point (b)(3) provides information on the suitable technology for the 'Flight Deck Structure And Layout' feature, which depends on the minimum FCS considered (T or TP) and the nature of the training tasks.

Point (b)(4) explains that FCS of different training tasks should be combined when such training tasks have an influence on the others. The method is described in AMC5 ORA.ATO.125(b)(3).

Point (b)(5) explains that the fidelity level of the 'Aircraft Systems' feature for certain a training task should only be required for the relevant aircraft system(s) in the execution of such task. Other non-relevant systems for the execution of such training task may be at a different fidelity level.

Point (b)(6) explains that the fidelity for the 'Aircraft Systems' feature at T level should be increased in the case of variants of an aeroplane type which show significant differences. Indeed, according to the requirements of CS-FSTD and to the information provided in GM2 to Appendix 9, a representative 'R' fidelity level refers to an aircraft type, while a specific 'S' fidelity level refers to an aircraft type and variant.

The suitability of an FSTD should be ensured in accordance with the provisions of point ORA.ATO.135 in case of training tasks for which an FCS has not been assigned (point(b)(7)).

The FCS of take-off and landing training tasks, when executed in combination with an instrument departure, arrival or approach, should be combined with the FCS of such training tasks and have a fidelity level different from 'N' for the 'Navigation' feature (point(b)(8)).

Point (b)(9) explains the reason why motion and vibration cues are not required for the majority of training tasks and the cases in which such cues should be required.

GM1 to Appendix 9 Training, skill test and proficiency check for MPL, ATPL, type and class ratings, and proficiency check for IRs

RMT.0196

TYPE SPECIFIC UPRT AND GO-AROUND TRAINING IN FSTD

[…]

(b) Stall event recovery in FSTD (Appendix 9, Section B(5) exercise 7.2.1; Section B(6) exercise 3.7.1)

(1) It is of utmost importance that stall event recovery training takes into account the capabilities of the FFS used. To deliver stall event recovery training, the FFS should be qualified against the relevant UPRT elements of CS-FSTD(A) Issue 2 or CS-FSTD. Stall event recovery training should include training up to the stall (approach-to-stall). Post-stall training may be delivered provided the device has been qualified against the relevant optional elements of CS-FSTD(A) Issue 2 or CS-FSTD and the operator demonstrates that negative training or negative transfer of training is avoided. A 'stall event' is defined as an occurrence whereby the aeroplane experiences one or more conditions associated with an approach to-stall or a post stall.

[…]

[…]

Rationale

Since only the new CS-FSTD will be applicable for newly qualified FSTDs, the proposal to amend GM1 to Appendix 9 specifies that, depending on the qualification basis of the FSTD, the relevant applicable UPRT elements may either be in CS-FSTD(A) Issue 2 or in CS-FSTD.

GM2 to Appendix 9 Training, skill test and proficiency check for MPL, ATPL, type and class ratings, and proficiency check for IRs

RMT.0196

FSTD FEATURES AND FIDELITY LEVELS

(a) This guidance material provides information on the FSTD Simulation Features and fidelity levels that form an FSTD Capability Signature (FCS), as described in Appendix 9 to Annex I (Part-FCL).

(b) 'FSTD simulation features' means the domain of simulation which, when used together with the fidelity levels, create an FSTD Capability Signature (FCS). The fourteen features are categorised in three groups.

(1) Aircraft simulation comprising the following simulation features:

1. Flight Deck Layout And Structure
2. Flight Controls Forces & Hardware
3. Flight Controls Systems Operation
4. Aircraft Systems
5. Performance & Handling - On Ground
6. Performance & Handling - In Ground Effect
7. Performance & Handling - Out of Ground Effect

(2) Cueing simulation comprising the following simulation features:

8. Sound Cues
9. Vibration Cues
10. Motion Cues
11. Visual Display Cues

(3) Environment simulation comprising the following simulation features:

12. Navigation
13. Atmosphere And Weather
14. Operating Sites And Terrain

(c) An FCS feature required to support any given training task can be assigned one of the four following feature fidelity levels as summarised below:

(1) Specific (S)
Feature that replicates a particular variant of an aircraft type and/or operating environment.
(2) Representative (R)
Feature with the characteristics of an aircraft type and/or operating environment.
(3) Generic (G)
Feature with the characteristics of an aircraft class or group and/or operating environment.
(4) Not Applicable (N)
Feature that is not required or reserved for future use.

(d) These 4 fidelity levels can then be summarised for each of the feature categories as described in the following.

(1) S = Specific: The highest level of required fidelity for an FSTD feature.

(i) Aircraft Simulation
Replicates the specific aircraft type appearance, tactile feel, performance and handling qualities in all phases of flight. The simulation is based on type specific aircraft data. Validated objectively by comparing the device performance and handling qualities against flight test based validation data for the specific aircraft type.

(ii) Cueing Simulation
Replicates the specific aircraft type sound, motion/vibration cueing, real-world visual environment and perspective cues, to the maximum extent possible within current physical simulation limitations. Validated objectively by comparing the device cueing characteristics against flight test based validation data for the specific aircraft type.

(iii) Environment Simulation
Replicates the complete real-world environment to support the simulation and training, as required to meet training objectives, for any specific location.

(2) R = Representative: The intermediate level of required fidelity for an FSTD feature.

(i) Aircraft Simulation

Similar to, or represents, an aeroplane type or helicopter type for appearance, tactile feel, performance and handling qualities in all phases of flight. It should be based on one aircraft type. Validated objectively by comparing the device against data for the aircraft for correct trend and magnitude. May be complemented by subjective tuning or development.

(ii) Cueing Simulation

Aircraft sound, motion/vibration cueing, real-world visual environment and perspective cues that are similar to the aircraft. Validated by initially subjectively tuning the device cues to establish a baseline for recurrent evaluation.

(iii) Environment Simulation

Simulation of the real-world environment focused on the requirements of the training objectives.

(3) G = Generic: The lowest level of required fidelity for an FSTD feature.

(i) Aircraft Simulation

Appearance, tactile feel, performance and handling qualities in all phases of flight that are characteristic of an aeroplane class or helicopter group. May be based on multiple data sources of different aircraft within an aeroplane class or helicopter group. Subjective evaluation against available data to show that it is within correct trend and magnitude of the aircraft or its class/group to establish a baseline for recurrent evaluation.

(ii) Cueing Simulation

Simple modelling of key basic cueing features. Where cueing is present, it demonstrates the generic characteristics of an aeroplane class or helicopter group. Generic visual environment with perspective sufficient to support basic instrument flying and transition to visual from straight-in instrument approaches.

(iii) Environment Simulation

Simple modelling of key basic environment features.

(4) N = Not Applicable: The FSTD feature is not required to be simulated.

(i) All

Features are not evaluated. If a feature is installed, but is not required, it shall not be distracting or detract from the other features for the intended use of the device.

(e) Further information regarding the description of the features and fidelity levels can be found in Subpart B of CS-FSTD.

Rationale

The new GM2 to Appendix 9 provides guidance regarding the features and the fidelity levels that constitute the FSTD Capability Signature of an FSTD. This is essential information for the user of the training matrices to understand the composition of the matrices and the relation between the training tasks, the FSTD features and the required fidelity levels for both training (T) and training-to-proficiency (TP) levels of a task. Furthermore, this information is important to understand the meaning of the FSTD Capability Signature reported on the qualification certificate of an FSTD and to properly use the device in training.

ANNEX VII (PART-ORA) OF REGULATION (EU) NO 1178/2011

AMC2 ORA.ATO.125 Training programme

RMT.0196

TYPE RATING COURSES – AEROPLANES

[…]

FLIGHT TRAINING

(j) Flight simulation training devices (FSTDs)

A type rating course for a multi-pilot aeroplane should include FSTD training.

The amount of training required when using FSTDs will depend on the complexity of the aeroplane concerned, and to some extent on the previous experience of the pilot. Except for those courses giving credit for previous experience (c.2.), a minimum of 32 hours of FSTD training should be programmed for a crew of a multi-pilot aeroplane. ~~of which~~ With the exception of training programmes for multi-pilot aeroplanes designed in accordance with AMC5 ORA.ATO.125, at least 16 hours of those 32 hours of FSTD training should be in an FFS operating as a crew.

Such FFS time may be reduced if other qualified FSTDs used during the flight training programme accurately replicate the cockpit environment, operation and aeroplane response~~.~~ and are fitted with ~~Such FSTDs may typically include flight management computer (FMC) training devices using~~ hardware and computer programmes identical to those of the aeroplane.

[…]

Rationale

The proposal to amend AMC2 ORA.ATO.125 consists in the alleviation from the requirement to complete a minimum of 16 hours on an FFS. Training programmes designed in accordance with AMC5 ORA.ATO.125 may have less than 16 hours of time spent on an FSTD whose FCS is equivalent to that of an FFS, as defined in the equivalence table of point FCL.036(a)(1). However, the requirement to have a minimum of 16 hours in an FFS is maintained for training programmes making use of legacy FSTDs.

The last sentence is amended as, in accordance with definition (20) of Article 2 and with the provisions of Article 10b of Regulation (EU) No 1178/2011, FMC training devices shall be considered OTDs, not FSTDs.

AMC3 ORA.ATO.125 Training programme

RMT.0196

TYPE RATING COURSES – HELICOPTERS

[…]

(c) Training in helicopter and FSTDs

The training programme should specify the amounts of flight training in the helicopter type and in FSTDs (FFSs, flight training devices (FTDs)~~, or other training devices (OTDs)~~). Where a suitable FFS is geographically remote from the normal training base, the competent authority may agree to some additional training being included in the programme at a remote facility.

[…]

Rationale

The proposal to amend AMC3 ORA.ATO.125 consists in removing the reference to OTDs. Indeed, according to the definition of FSTD contained in Article 2 of Regulation (EU) No 1178/2011, OTDs are not FSTDs. The use of OTDs for type rating training may be permitted in accordance with the amended provisions of Appendix 9, Section A, point 1g.

AMC5 ORA.ATO.125 Training programme

RMT.0196

TYPE RATING TRAINING PROGRAMME DESIGNED USING A TRANING MATRIX

(a) A training programme that uses a training matrix should:

(1) be designed following instructional system design (ISD) methodology;
(2) be designed in a such way that every applicable training task is completed at TP level;
(3) only include FSTDs that have an FCS in their qualification certificate.
Other training devices (OTDs) may be used in accordance with the provisions of Appendix 9, Section A, point 1, provided that negative training is avoided.

(b) Such training programme should include all the following elements:

(1) the set of training tasks and training subtasks which compose a training module, duly encompassing the training considerations regarding the dependencies among training tasks, as specified in point (b) of AMC3 to Appendix 9 to Annex I (Part-FCL);
(2) for each training module, the indication of the associated FCS for both training (T) or training to proficiency (TP);
(3) the minimum FCS required for each module, determined by taking, for each training task and training level, the highest fidelity level for each feature;
(4) the FCS of the training devices referred to in point (a)(3) which should, for each feature, meet or exceed the fidelity levels determined in point (b)(3).

Rationale

The new AMC5 ORA.ATO.125 proposes the requirements and the steps to follow to design a type rating training programme using a training matrix.

The key principles are the following.

1) The training course design should be based on instructional system design methodology, which is described in GM2 ORA.ATO.125 (point (a)(1)).
2) Every training task should be completed at TP level and all the relevant elements of a training task should be covered in the training programme (point (a)(2)).
3) The training devices used for the training course should either have an FCS in the qualification certificate (point (a)(3)).

The training programme should present a set of elements, namely:

- the training modules, which include the set of training tasks (and subtasks) which are conceived to be trained together, which should take account of the training considerations point (b) of AMC3 to Appendix 9, with special regard to the considerations related to the combination of training tasks (point (b)(1));
- the indication of the training level(training (T) or training to proficiency (TP)) for each module (point (b)(2)), which is necessary for an adequate design of the training course and essential for the determination of the minimum FCS required for the training module (point (b)(3));
- the FCS of the training devices used for the training course, which needs to meet or exceed the minimum FCS determined in the process described up to point (b)(3).

GM2 ORA.ATO.125 Training programme

RMT.0196

INSTRUCTIONAL SYSTEM DESIGN

(a) General

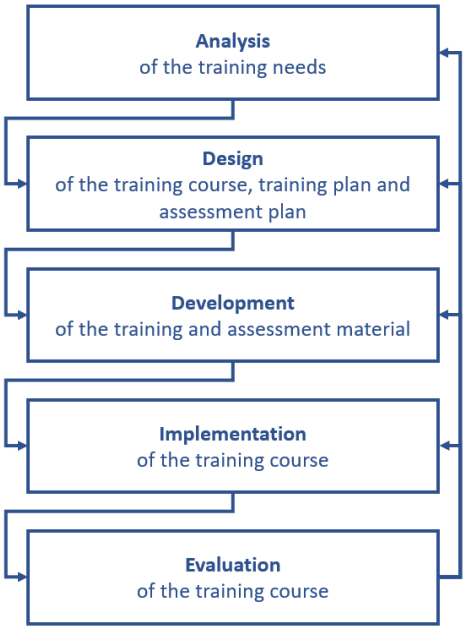
Instructional system design (ISD) is a methodology which provides a systematic and iterative process for course design. It is based on educational needs and applies to both task-based and competency-based training courses.
Guidelines on instructional system design can be found in “ICAO Doc 9868 – PANS Training”.

(b) ADDIE model

While there are several ISD models in use, the “Analyse, Design, Develop, Implement and Evaluate (ADDIE)” – framework is generic to all.

The ADDIE model consists of five workflows:

(1) Analysis of the training needs;
(2) Design of the training course, training plan and assessment plan;
(3) Development of the training course and assessment material;
(4) Implementation of the training course;
(5) Evaluation of the training course.



(c) ADDIE model workflows

(1) Analysis of the training needs

Training organisations should perform a thorough analysis of the training needs of student pilots to determine the training specifications, taking into consideration:

(i) the purpose of the training;
(ii) the level of knowledge and skills that student pilots have at the beginning of the course and the level of proficiency in the execution of the training tasks that they are required to have at the end of the training course;
(iii) the tasks associated with the with the purpose of the training;
(iv) the operational requirements, such as normal, abnormal and emergency operational procedures and the operational environment;
(v) the technical requirements, such as specific operational systems or equipment required to achieve the purpose of the training;
(vi) the applicable regulatory requirements;
(vii) any organisational requirements, such as the availability or accessibility of FSTDs and the use of different training bases.

(2) Design of the training course, training plan and assessment plan

Starting from the training considerations, the training programme, training plan and the assessment plans should be designed.

(i) Training programme design

The training programme design should include the following elements:
(A) the training modules, which include the training tasks and subtasks to be trained together;
(B) for each training module, the expected proficiency level that student pilots should have at the beginning and at the end of each training module, and definition of the operative environments under which each training element of a training module has to be executed;
(C) the sequence of the training modules, ensuring that training proficiency is gradually achieved by transitioning from simple to more complex tasks under progressively more demanding operative conditions;
(D) the performance standard associated to each module or set of modules, whose achievement should be demonstrated by successfully passing an assessment to reach a training milestone.

(ii) Training plan

The training plan should provide the details of the following elements;
(A) the composition and the structure of the training programme;
(B) the training syllabus;
(C) the training milestones;
(D) the course schedule.

(iii) Assessment plan

Assessment plans should be designed to evaluate and grade the performance of a pilot at well-defined points of a training course, normally at the completion of a training module or set of modules, with the aim of ensuring that the required performance standard has been achieved.

The assessment plans should include the following elements:

(A) the objective of the assessment;

(B) the performance standard, the performance criteria and the conditions under which the assessment has to be performed;

(C) the details of the tools used to collect evidence of the performance of a student pilot;

(D) the pass mark for the each assessment;

(E) the number of observations required to assess that a performance standard has been achieved.

(3) Development of the training course and assessment material

The training and assessment materials should be developed based on the content of the training and assessment plans. They may include exercise briefings, practical exercises, presentations, video clips, examination and assessment tools.

(4) Implementation of the training course

The training course should be delivered according to the training plan. The performance of student pilots during the training should be monitored to verify whether to proper standards are met. Feedback on the performance should be continuously provided and, wherever deficiencies are found, adequate remediation should be given in a timely manner.

The assessments should be carried out according to the assessment plan. Each assessment should rely on the following principles.

(i) Validity

All the performance criteria associated to every training task have been evaluated and there is evidence that the performance standard has been achieved.

(ii) Reliability

All the assessors should reach the same or similar conclusions when evaluating and grading the performance of a pilot.

(iii) Repeatability

An adequate number of observations should be taken when deciding whether a performance standard has been achieved.

(5) Evaluation of the training course

The effectiveness of the training course should be continuously evaluated to determine whether improvements are needed, taking into consideration the results of the course, the feedback from student pilots and from instructors and assessors.

Rationale

GM2 ORA.ATO.125 proposes the guidelines for instructional system design (ISD) methodology. ISD is a very important concept for the design of training courses in general and absolutely fundamental in the context of the ‘task-to-tool’ training paradigm, as the choice of the suitable training devices to be used in a training course depends on the training programme design.

Some basic information on ISD guidelines is already present in GM5 ORA.ATO.230(a) to support the design and implementation of Area 100 KSA for ATPL and CPL theoretical knowledge instruction training courses. The use of ISD is also required for APS MCC training courses, as per AMC2 FCL.735.A.

Given the importance of ISD in the context of RMT.0196 and, in the future, in the context of RMT.0194 for the introduction of competency-based training and assessment (CBTA) courses in Regulation (EU) No 1178/2011, this new guidance material is proposed in Section I – General of Subpart ATO of Annex VII (Part-ORA).

ISD guidelines are drafted based on Attachment C to Chapter 2 of ICAO Doc 9868 (PANS-Training), having considered that the nature of such attachment is the description of the design principles for CBTA courses. Therefore, the content has been adequately adjusted to make the principles applicable to any task-based or competency-based training courses. Indeed, the section where the adapted competency model is mentioned in the ICAO document has not been included in the context of RMT.0196, as it only pertinent to the scope of RMT.0194.

In point (b), the workflows of ADDIE model are introduced.

In point (c), a detailed explanation of the workflows of ADDIE model is provided.

Point (c)(1) describes the elements that should be analysed during the 'Analysis of the training needs' workflow.

Point (c)(2) describes the elements that should be considered in the training course design, namely:

- the training programme design;
- the training plan, which includes the elements of the training programme;
- the assessment plans.

Point (c)(3) provides examples of the material that may be used for the implementation and assessments of the training course.

Point (c)(4) provides information regarding the elements for the implementation of the training course. Particularly important are three main principles for assessment: validity, reliability and repeatability of the observations of instructors and assessors to determine the achievement of the training milestones and associated standards.

Finally, point (c)(5) underlines that importance of the evaluation of the training course for the purpose of continuous course improvement.

~~GM5 ORA.ATO.230(a) Training manual and operations manual~~

RMT.0196

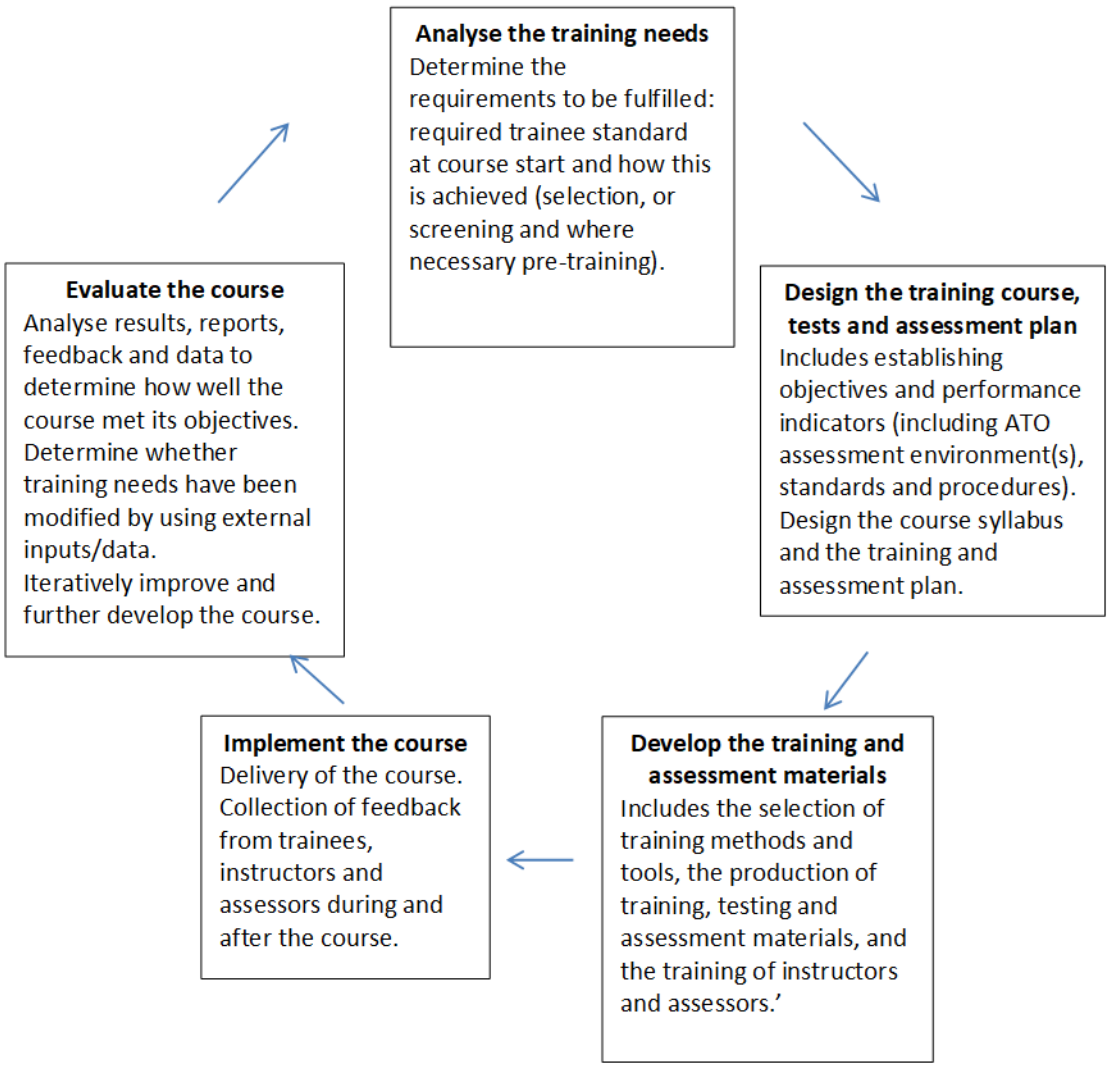
~~**INSTRUCTIONAL SYSTEMS DESIGN**~~

~~(a) The instructional systems design (ISD) provides a systematic and iterative process for course design based on educational best practices. There are several effective ISD models in use today, with the analyse, design, develop, implement and evaluate (ADDIE) framework being generic to all.~~

~~The purpose of using ISD to design training courses is to facilitate the students' efficient and effective acquisition of knowledge and skills based on current training needs.~~

~~(b) To provide evidence of the effective use of the ISD methodology in the design and continued development of their course(s), an ATO may use documentation and records that relate to the ISD phases.~~

~~(d) ADDIE model example. The 'analysis', 'design', 'development', 'implementation' and 'evaluation' phases of the ADDIE model are shown below with brief phase descriptions.~~



Rationale

GM5 ORA.ATO.230(a) was introduced with ED Decision 2018/001/R to support the implementation of Area 100 KSA in the context of ab-initio training.

For the sake of completeness, due to the relevance of instructional system design in the context of the introduction of the task-to-tool concept and, in the future, of competency-based training and assessment (CBTA) in Regulation (EU) No 1178/2011, general and comprehensive guidelines for instructional system design are proposed to be included as GM2 ORA.ATO.125 in Section I – General of Subpart ATO of Annex VII (Part-ORA), thus making this GM redundant.

No specific references to GM5 ORA.ATO.230(a) are currently present in the Regulation.

ANNEX III (PART-ORO) OF REGULATION (EU) NO 965/2012

ORO.FC.145 Provision of training, checking and assessment

RMT.0196

[…]

(c) In the case of CAT operations, training and checking programmes, including syllabi and the use of the means to deliver the programme such as individual flight simulation training devices (FSTDs) and other training solutions, shall be approved by the competent authority.

(d) Use of FSTD ~~The FSTD used to meet the requirements of this Subpart shall be~~

(1) The operator shall use a suitable FSTD, that complies with all the following requirements:

(i) is qualified in accordance with Regulation (EU) No 1178/2011; ~~and it shall~~

(ii) replicates the aircraft used by the operator, as far as practicable;

(iii) is used for a particular exercise only if the FSTD possesses the features and related fidelity levels to simulate the relevant aircraft in that exercise to the extent which is necessary for the flight crew member to develop or maintain competence for a safe, effective and efficient operation of aircraft.

(2) The operator shall verify the suitability of an FSTD for the intended use on the basis of the FSTD qualification certificate and the equipment specification list.

(3) When the requirements of this Regulation refer to particular FSTD types and levels, the operator may use FSTDs in accordance with point FCL.036 of Annex I (Part-FCL) to Commission Regulation (EU) No 1178/2011.

(4) Differences between the FSTD and the aircraft shall be described and addressed through a briefing or training, as appropriate.

[...]

Rationale

The new point FCL.036 of Part-FCL outlines the usability of FSTDs having an FCS, in the context of Part-FCL requirements that still refer to particular FSTD types and levels. The arrangements of point FCL.036 should also apply in the context of requirements of Regulation (EU) no 965/2012 that contains such FSTD references. Hence, a reference to point FCL.036 is proposed to be added to point ORO.FC.145(d). The proposed new point ORO.FC.145(d)(i)(iii) enables the use of the FCS framework in the Air Operations Regulation. The word “competence” is used to refer to point ORO.FC.130. Finally, in point (d)(2), it is proposed to add a reference/link between the FSTD qualification certificate and the equipment specification list (ESL), which supports the assessment of the suitability of the FSTD for the intended use.
The intention of new proposed point (d)(1)(iii) is ensuring that operators use an FSTD that is appropriate for the items (exercise / manoeuvre) to be covered in accordance with the relevant training and checking programme or syllabi.

AMC1 ORO.FC.145(d) Provision of training, checking and assessment

RMT.0196

FSTD USED TO MEET THE REQUIREMENTS OF THIS REGULATION - AEROPLANES

(a) When the provisions of this Regulation require a suitable FSTD for the completion of a certain item of a training and checking programme or syllabus, the FSTD used should have a fidelity

level (FCS) which is equal to or higher than the equivalent determined in point FCL.036(a)(1) in Regulation (EU) 1178/2011 for the same training item.

(b) Notwithstanding AMC1 ORO.FC.140(a), when Part-FCL does not offer an FCS for a particular item, the operator should use an FFS level C or D, or an FSTD with a FCS which is at least equal to an FFS level C or D, as determined in point FCL.036(a).

FULL FLIGHT SIMULATORS (FFS)

~~(b)~~(c) The operator should classify any differences between the aircraft and FFS in accordance with the Air Transport Association (ATA) chapters as follows:

Compliance Levels

~~(a)~~(1) Level A differences:

~~(1)~~(i) no influence on flight characteristics;

~~(2)~~(ii) no influence on procedures (normal and/or abnormal);

~~(3)~~(iii) differences in presentation; and

~~(4)~~(iv) differences in operation. Method: self-instruction via the operations manual or flight crew information.

~~(b)~~(2) Level B differences:

~~(1)~~(i) no influence on flight characteristics;

~~(2)~~(ii) influence on procedures (normal and/or abnormal); and

~~(3)~~(iii) possible differences in presentation and operation.

Method: flight crew information, computer-based training, system device training or special instruction by instructor.

~~(c)~~(3) Level C differences:

~~(1)~~(i) influence on flight characteristics;

~~(2)~~(ii) influence on procedures (normal and/or abnormal); and

~~(3)~~(iii) eventually differences in presentation and operation.

Method: special instruction by instructor, a selected partial training on another FSTD or aircraft or a waiver because of previous experience, special instruction or training programme.

~~(d)~~(4) Level D differences:

~~(1)~~(i) influence on flight characteristics; and/or

~~(2)~~(ii) influence on procedures (normal and/or abnormal); and/or

~~(3)~~(iii) differences in presentation and/or operation; and

~~(4)~~(iv) FSTD is level D qualified and is used for zero flight-time training (ZFTT).

Method: a specified partial training on another FSTD or aircraft or a waiver because of previous experience, special instruction or training programme.

Rationale

The intention of the new proposed point (a) is to support the use of the minimum fidelity level provided in Part-FCL. In Regulation (EU) 1178/2011 (the Aircrew Regulation), a list of items (manoeuvres/exercises) with their corresponding minimum fidelity level is provided. In the Air OPS Regulation, however, the exercise of identifying the minimum fidelity level for all the items has not taken place. Thus, EASA proposes a cross-reference to the Aircrew Regulation, making use of the work already performed in the Aircrew Regulation. For those manoeuvres not covered in the Aircrew Regulation, the proposed point (b) provides an acceptable means of compliance.

The wording 'item' is used (instead of other possibilities such as 'exercise' or 'manoeuvre') because it is already used in AMC1 ORO.FC.145(a) TRAINING AND CHECKING PROGRAMMES AND SYLLABI, which is a fundamental part of the whole structure of ORO.FC. Point (a) of the AMC reads: '(a) Training and checking programmes and syllabi should include as a minimum: (…)(2) a list of the items covered;'.

Additionally, in Appendix 9, Part FCL Regulation (EU) 1178/2011, 'item' is used instead of 'manoeuvre' or any other form to express the same concept.

The intention of using 'item' (alone) and not 'training item' or 'checking item' ', assessment item', and any other form that would specify more the scope of the wording is that EASA intends to cover all training, checking and assessment items. Furthermore, after an analysis of the regulation, the wording 'training item' is not used in subpart ORO.FC and it is only used in the Air OPS regulation 19 times, mainly in the GPWS and ACAS requirements. 'Checking item' or 'assessment item' is not used in the Air OPS Regulation.

Although it was evaluated, the use of the word 'exercise' was discarded. The wording 'exercise' is frequently used in the Regulation to describe the 'exercise' that will be conducted in the actual FSTD, or aircraft, usually with an instructor or examiner observing, and it is referring to the actual manoeuvre(s), while 'item' is used in the context of regulatory compliance, which is a more appropriate context for this provision.

The intent of the new proposed point (b) is to fill the gap for items not addressed in Part-FCL. This provision is introduced to ensure that a minimum fidelity is always used to conduct training and checking with aeroplanes. That means using either an FFS C or D or an FSTD with an FCS signature equivalent to FFS C or D. . In other words, there are two options when the qualification is not defined in Part FCL:

- To use FFS C or D or
- To use an FCS signature equivalent to FFS C or D.

The proposed exclusion of AMC1 ORO.FC.140(a) means that in the case of this AMC different (lower) specific FSTD levels may be used. See example below:
'AMC1 ORO.FC.140(a) Operation on more than one type or variant
(…)
Footnote (1): — Aeroplane: FTD level 2, or FFS, or aeroplane.'

AMC1 ORO.FC.145(a) Provision of training, checking and assessment

RMT.0196

TRAINING AND CHECKING PROGRAMMES AND SYLLABI

[…]
(b) Further details on the training and checking programmes and syllabi should be included in the operations manual depending on the complexity of the operations (e.g., further contextualisation of the training programme, details of the airport in which some items will be covered, time allocation to brief and debrief, whether the item to be trained is a legal requirement or an operator (e.g., SMS) item, etc.).

Rationale

This is an editorial amendment to clarify the intent of this provision. EASA has received feedback that some operators understood that additional items in the training programme could only be introduced if there was an SMS input. This clarification should allow the operator to introduce other items in the training programme, such as items related to best practices in the industry or items related to a qualification standard, for example, in the context of IOSA, etc.