



EASA

European Aviation Safety Agency

Introduction to RMT.0581 and UPRT

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Introduction to RMT.0581 and UPRT

➤ Aim:

- To incorporate ICAO SARPS and ICAO Doc 10011 guidance (developed by LOCART/ICATEE WG) into European rules and regulations
- To align (as much as possible) with “early adopters”
- To create a complete UPRT solution for a pilot career

➤ Group experts:

- Chaired by Philip Adrian (Boeing/MPS)
- Major OEMs
- IATA and individual Airlines
- ICATEE representation
- FAA (observer) and several EU NAAs
- Large and small training organizations
- UPRT specialists



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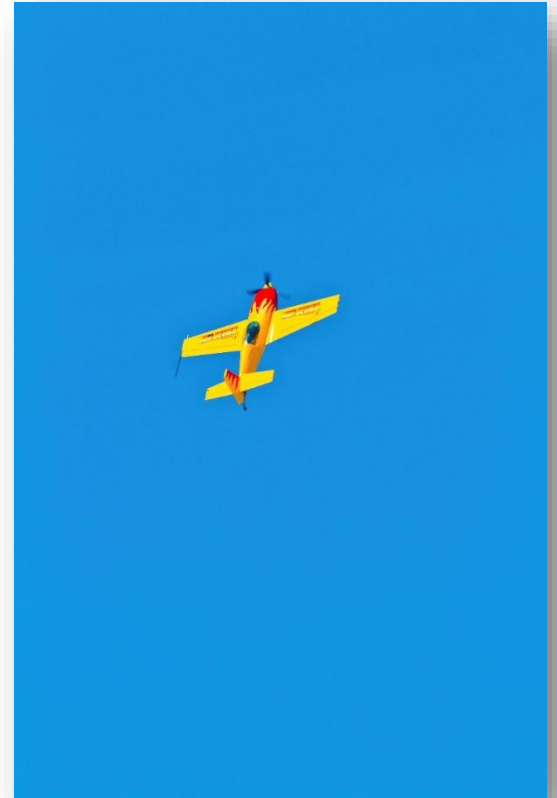


- The work of the RMT was split in 2 parts:
 - Accelerated Rulemaking based on EASA request to implement recurrent operator training requirements as early as possible, and;
 - Development of the Opinion 05/2017 to the European Commission, as well as development of supporting AMC/GM.
- Timeframe:
 - Task commenced in 2013
 - Accelerated rulemaking adopted in 2015, applicable May 2016
 - Opinion 05/2017 to European Commission in summer 2017
 - Expected publication (with 12 months transition) in January 2019
 - Further development of AMC and GM to conclude no later than January 2019



Introduction to RMT.0581 and UPRT

- Initial licensing training:
 - ,Basic' UPRT for CPL(A), MPL, ATP(A) courses
 - ,Advanced' UPRT included in MPL and ATP(A) courses
 - Instructor course for delivering ,Advanced' UPRT





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- “Tool” usage during initial licensing training:
 - On aeroplane UPRT training must be done within the SMS system of the ATO
 - Risk analysis must take in consideration possible student errors
 - Instructor training must address common errors and risks
 - FI hold the privilege for ‘basic’ UPRT
 - Specific Instructor course for privilege to deliver ‘advanced’ UPRT
 - Task to tool analysis will lead to the appropriately qualified aeroplane



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➤ Type rating training:

- Bridge course for single pilot class/types used in multi-pilot operations– includes UPRT, CRM, MCC.
- ,Advanced' UPRT pre-requisite for the issue of type ratings
- ,Type Specific' UPRT to be included in type rating courses
- TRI/SFI already hold the privilege
- ATO/AOC responsible to ensure that instructors are competent to deliver effective training on all parts of the course





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'UPSET PREVENTION AND RECOVERY TRAINING (UPRT)

- (ac) It is of paramount importance that instructors have the specific competence to deliver UPRT during the type rating course, including the ability to demonstrate knowledge and understanding of the type-specific upset recovery procedures and recommendations developed by the Original Equipment Manufacturers (OEMs). Therefore, during the TRI training course the student instructor should:
- (1) be able to demonstrate the correct upset recovery techniques for the specific aeroplane type;
 - (2) understand the importance of applying type-specific OEMs procedures for recovery manoeuvres;
 - (3) be able to distinguish between the applicable SOPs and the OEMs recommendations (if available);
 - (4) understand the capabilities and limitations of the FSTD used for UPRT;
 - (5) be able to ensure that the training remains within the FSTD training envelope to avoid the risk of negative transfer of training;
 - (6) understand and be able to use the IOS of the FSTD in the context of effective UPRT delivery;
 - (7) understand and be able to use the FSTD instructor tools available for providing accurate feedback on pilot performance;
 - (8) understand the importance of adhering to the FSTD UPRT scenarios that have been validated by the training programme developer; and
 - (9) understand the missing critical human factor aspects due to the limitations of the FSTD and convey this to the student pilot(s) receiving the training.'



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► Type rating training:

- Contrary to “popular belief”, there is NO requirement for ‘full Stall’ or ‘post stall’ training during type rating training
 - The term “stall event” covers everything from approach to stall and beyond
 - **Primary focus is on understanding the type specific characteristics of the aeroplane during upset, including up to the stall, so that recovery from any such condition can be made at the first indication**





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- “Tool” usage during Type Rating Training
 - FSTD must be qualified for the task. For recovery, currently FFS is specified, but for prevention, any device that allows the tasks to be completed will suit the training
 - Instructor training must address common errors and risks, as well as limitations of the device used
 - Interface with RMT.0196 - CS-FSTD(A) Issue 2 to support UPRT:
 - Instructor Operating Station (IOS)
 - High altitude fidelity





Introduction to RMT.0581 and UPRT

the normal or utility category may also be suitable provided the exercises used during the training taking into account the capabilities of the aeroplane and are planned to remain within the normal training envelope for the aeroplane.

(f) Normal training envelope

The normal training envelope is the envelope within which all training exercises will be carried out. It should be specified by the ATO in terms of the range of attitudes, speed and g-loads that can be used for training, taking into account:

- (1) the training environment;
 - (2) the capabilities of the instructors; and
 - (3) in the case of training in FSTDs, the limitations of the FSTD (as per GM3 FCL.010 for the FSTD training envelope)
 - (4) in the case of training in aeroplanes, the capabilities and certification of the aircraft, while considering the limitations of the aircraft as specified by the aircraft manufacturer and the Aviation Safety Agency.
- from the normal training envelope for the aeroplane.
- a single cockpit

ED Decision No XXX

‘FSTD Training Envelope’ means the high and moderate confidence regions of the FSTD validation envelope.’;

GM4 FCL.010 Definitions



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'FSTD validation envelope' means the envelope following three subdivisions:

(a) Flight test validated region:

This is the region of the flight envelope which has been validated with flight test data, typically by comparing the performance of the FSTD against the flight test data through tests incorporated in the QTG and other flight test data utilised to further extend the model beyond the minimum requirements. Within this region, there is high confidence that the simulator responds similarly to the aircraft. Note that this region is not strictly limited to what has been tested in the QTG; as long as the aerodynamics mathematical model has been conformed to the flight test results, that portion of the mathematical model can be considered to be within the flight test validated region.

(b) Wind tunnel and/or analytical region:

This is the region of the flight envelope for which the FSTD has not been compared to flight test data, but for which there has been wind tunnel testing or the use of other reliable predictive methods (typically by the aircraft manufacturer) to define the aerodynamic model. Any extensions to the aerodynamic model that have been evaluated in accordance with the definition of an exemplar stall model (as described in the stall manoeuvre evaluation section) must be clearly indicated. Within this region, there is moderate confidence that the simulator will respond similarly to the aircraft.

(c) Extrapolated region:

This is the region extrapolated beyond the flight test validated and wind tunnel/analytical regions. The extrapolation may be a linear extrapolation, a holding of the last value before the extrapolation began, or some other set of values. Whether this extrapolated data is provided by the aircraft or simulator manufacturer, it is a "best guess" only. Within this region, there is low confidence that the simulator will respond similarly to the aircraft. Brief excursions into this region may still retain a moderate confidence level in FSTD fidelity; however, the instructor should be aware that the FSTD's response may deviate from the actual aircraft.

'Load factor' means the ratio of a specified load to the weight of the aeroplane, the former being



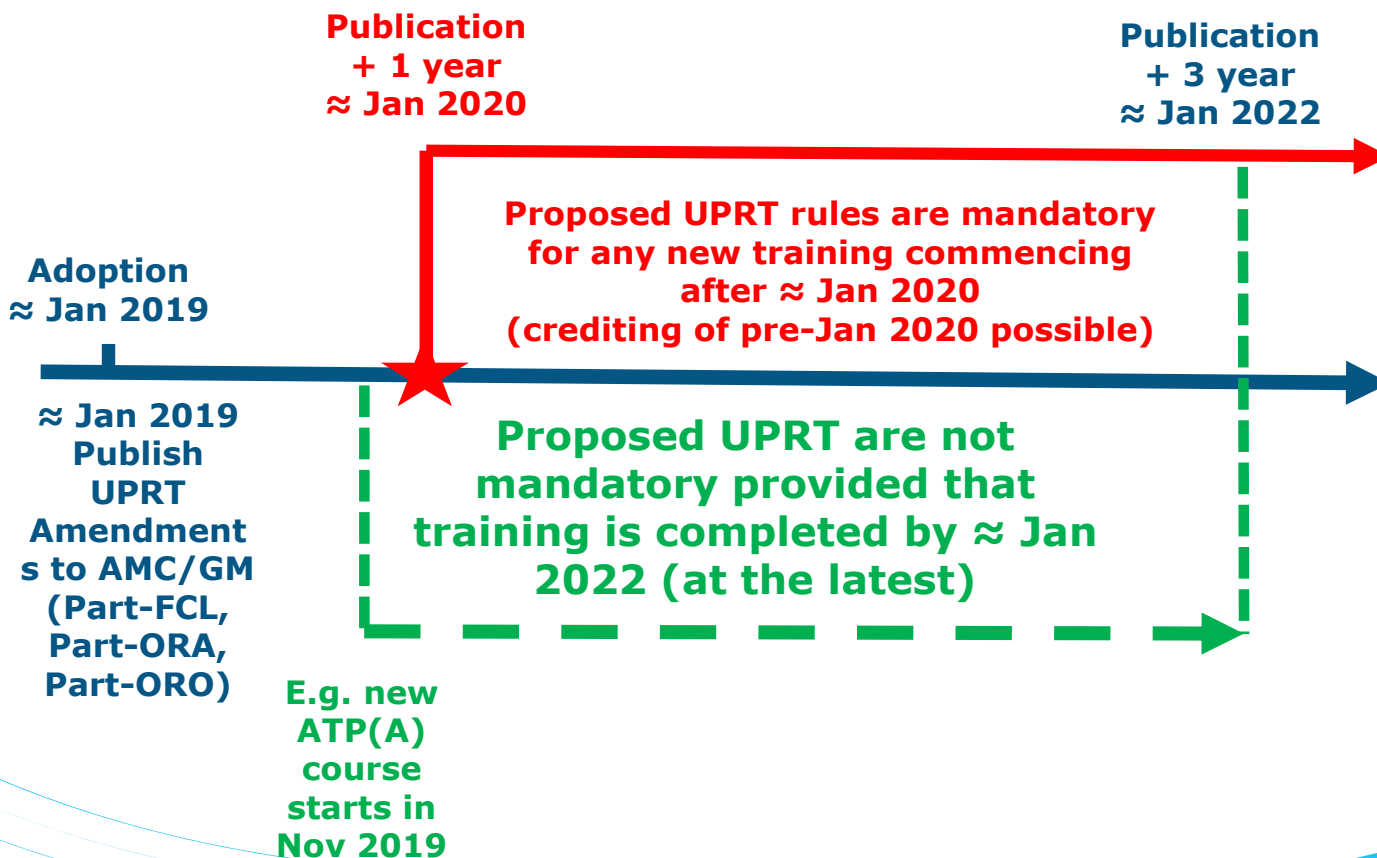
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Timing – entry into force & deferred application





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**Publication
+ 1 year
≈ Jan 2020**

**Publication
+ 3 year
≈ Jan 2022**

**Proposed UPRT rules are mandatory
for all new training commencing**

- ! CS-FSTD(A) issue 2 (high altitude approach to stall QTG, IOS features) becomes applicable
- ! To deliver FCL and ORO.FC UPRT -> FSTD must be qualified against CS-FSTD(A) issue 2 UPRT elements

Nov 2019

with ECQB AMC/GM



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