



Evidence-based and competency-based training

The following proposal is intended as an indication of the progress of the RMT.0599 task related to Evidence-based Training for recurrent training and checking. The proposal is a consolidated list of only implementing rule (IR) and acceptable means of compliance (AMC) material under development. It is intended as a first draft for information and focussed consultation. A final proposal will be submitted for the normal comment process in due course, including associated Guidance Material (GM) and Explanatory Notes (EN). The document has not been proof read.

This draft NPA affects regulation (EU) 965/2012 and regulation 1178/2011

Following ED Decision 2014/017/R

Definitions

Work in progress

ORO.FC.231

- (a) The EBT programme shall assess and develop the competencies required by flight crew members for safe, effective and efficient operations, through exposure to training topics derived from a large-scale analysis of operational data. The programme shall be delivered by instructors trained and qualified to ensure the effectiveness of learning.
 - (1) The operator approved to conduct EBT shall substitute the following training and checking requirements with an Evidence-based Training programme:
 - i. SPA.LVO.120 on flight crew recurrent assessment and training
 - ii. SPA.RVSM.105 (c)
 - iii. AMC1.SPA.PBN.105 (b) paragraph (g)
 - iv. ORO.FC.230 except AMC1.ORO.FC.230 (a) (1) and (2)
 - v. ORO.FC.215
- (b) Each enrolled flight crew member shall undertake training according to the assessment and training topics in the Baseline Programme, at the defined frequency according to aircraft generation.

AMC1 ORO.FC.231 (b) Evidence-based Training

- (a) The Baseline Programme consists of assessment and training topics distributed across a 3-year cycle.
- (b) The operator approved for EBT should design and develop scenario elements relevant to operations for each training topic.
- (c) Scenario elements should be mapped to competencies





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- (c) The EBT programme comprises modules divided into 3 phases, and conducted in the following sequence:

- (1) Evaluation Phase, comprising line orientated flight scenario/s for the purpose of the:
 - i. assessment of competencies through observed behaviours.
 - ii. identification of individual training needs.
- (2) Manoeuvres Training Phase, to maintain proficiency in the conduct of certain defined manoeuvres.
- (3) Scenario-based Training Phase, comprising line orientated flight scenario/s and In-Seat Instruction to develop competencies and address individual training needs identified during the Evaluation Phase.

Note. This sequence can only be varied in exceptional and unforeseen circumstances, the details of which shall be defined as part of the operator approval.

AMC1 ORO.FC.231 (c) Evidence-based Training

EBT MODULE PHASES

- (a) Evaluation Phase, for which each scenario should be realistic and representative of the operator's environment, comprises line-oriented flight scenario/s during which there are one or more scenario elements for evaluating one or more competencies. The root cause rather than the symptoms in any deficiency should be identified.
 - (b) Manoeuvres Training Phase, comprising practise and development of application of procedures and flight path management competencies. This is not part of the line-oriented flight scenario training.
 - (c) Scenario-based Training Phase, during which one or more training topics should be introduced. The content of this phase should be adapted to develop specific competencies identified during the evaluation phase.
 - (d) In-Seat Instruction, which forms part of the Scenario-based Training Phase, and should be focussed on the development of performance in the detection of errors and effective monitoring, including where applicable elements of Upset Recovery Training.
- (d) Each EBT module shall be conducted in a suitable FSTD
- (e) Each flight crew member shall receive training in the management of malfunctions:
- (1) Aircraft system malfunctions that place a significant demand on a proficient crew shall be organised by reference to the following characteristics and underlying elements of performance required to manage them:
 - i. Immediacy
 - ii. Complexity
 - iii. Degradation of aircraft control
 - iv. Loss of instrumentation
 - v. Management of consequences

Note: A malfunction may contain more than one characteristic.





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- (2) At least one malfunction for each characteristic shall be included at the frequency determined by the Baseline Programme. Characteristics of Degraded Control and Loss of Instrumentation require exposure in the role of pilot flying.
- (3) Demonstrated competency in the management of one malfunction is considered equivalent to demonstrated competency in the management of other malfunctions with the same characteristics.





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AMC1 ORO.FC.231 (e) Equivalency of malfunctions

MALFUNCTION EQUIVALENCY PROCESS

An operator should:

- (1) List all aircraft system malfunctions available in the FSTD.
 - (2) Analyse and retain in the list only those malfunctions which place a significant demand on a proficient crew; and
 - (3) Organise the malfunctions retained according to the 5 characteristics in isolation from environmental or operational context.
 - (4) Malfunctions which do not place a significant demand on a proficient crew or do not form part of the approved EBT programme should be reviewed as part of the appropriate procedural knowledge training, and may be conducted in a suitable environment (classroom, CBT, flight procedures training device, etc.), as an additional component of EBT.
- (f) The EBT programme shall be established in a way that flight crew members receive regular training in the conduct of approaches:
- (1) Approaches requiring specific approval shall be included at the frequency determined by the Baseline Programme during the Manoeuvres Training phase.
 - (2) At least one approach for each characteristic shall be included at the frequency determined by the Baseline Programme during the Evaluation or Scenario Based Training phases.

AMC1 ORO.FC.231 (f) (2) Approach training

APPROACH TRAINING DESIGN

An operator should:

- (1) Incorporate approaches listed in Manoeuvres Training Phase Section 1 of the Baseline Programme.
 - (2) Identify and incorporate approaches listed in Manoeuvres Training Phase Section 2 of the Baseline Programme for which a specific approval is held.
 - (3) Identify and incorporate within the Evaluation and Scenario based Training phases approaches with the following characteristics:
 - i. Non-standard vertical path
 - ii. Non-standard lateral path
 - iii. Manoeuvring in the visual segment
 - iv. Levels of automation
 - v. Reduced approach/runway lighting or guidance
- (g) The operator shall use a competency framework for all aspects of assessment and training within an approved EBT programme.
- (1) The competency framework shall include all observable behavioural indicators required for safe effective and efficient operations.
 - (2) The competency framework shall be comprehensive, accurate, and usable.





AMC1 ORO.FC.231 (g) Competency framework

The competency framework should include at least the following elements:

- (1) Competencies
- (2) Associated behavioural indicators

The following is an example of a competency framework:

Application of Procedures

- Identifies the source of operating instructions
- Follows SOPs unless a higher degree of safety dictates an appropriate deviation
- Identifies and follows all operating instructions in a timely manner
- Correctly operates aircraft systems and associated equipment
- Complies with applicable regulations.
- Applies relevant procedural knowledge

Communication

- Ensures the recipient is ready and able to receive the information
- Selects appropriately what, when, how and with whom to communicate
- Conveys messages clearly, accurately and concisely
- Confirms that the recipient correctly understands important information
- Listens actively and demonstrates understanding when receiving information
- Asks relevant and effective questions
- Adheres to standard radiotelephone phraseology and procedures
- Accurately reads and interprets required company and flight documentation
- Accurately reads, interprets, constructs and responds to datalink messages in English
- Completes accurate reports as required by operating procedures
- Correctly interprets non-verbal communication
- Uses eye contact, body movement and gestures that are consistent with and support verbal messages

Flight Path Management –Automation

- Controls the aircraft using automation with accuracy and smoothness as appropriate to the situation
- Detects deviations from the desired aircraft trajectory and takes appropriate action
- Contains the aircraft within the normal flight envelope
- Manages the flight path to achieve optimum operational performance
- Maintains the desired flight path during flight using automation whilst managing other tasks and distractions
- Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload
- Effectively monitors automation, including engagement and automatic mode transition





Flight Path Management – Manual Control

- Controls the aircraft manually with accuracy and smoothness as appropriate to the situation
- Detects deviations from the desired aircraft trajectory and takes appropriate action
- Contains the aircraft within the normal flight envelope
- Controls the aircraft safely using only the relationship between aircraft attitude, speed and thrust
- Manages the flight path to achieve optimum operational performance
- Maintains the desired flight path during manual flight whilst managing other tasks and distractions
- Selects appropriate level and mode of flight guidance systems in a timely manner considering phase of flight and workload
- Effectively monitors flight guidance systems including engagement and automatic mode transitions

Knowledge

- Demonstrates practical and applicable knowledge of limitations and systems and their interaction
- Demonstrates required knowledge of published operating instructions
- Demonstrates knowledge of the physical environment, the air traffic environment including routings, weather, airports and the operational infrastructure.
- Demonstrates appropriate knowledge of applicable legislation
- Knows where to source required information
- Demonstrates a positive interest in acquiring knowledge
- Is able to apply knowledge effectively

Leadership and Teamwork

- Understands and agrees with the crew's roles and objectives.
- Creates an atmosphere of open communication and encourages team participation
- Uses initiative and gives directions when required
- Admits mistakes and takes responsibility
- Anticipates and responds appropriately to other crew members' needs
- Carries out instructions when directed
- Communicates relevant concerns and intentions
- Gives and receives feedback constructively
- Confidently intervenes when important for safety
- Demonstrates empathy and shows respect and tolerance for other people¹
- Engages others in planning and allocates activities fairly and appropriately according to abilities
- Addresses and resolves conflicts and disagreements in a constructive manner
- Projects self-control in all situation

¹ This behavioural indicator should only be used in the context of debriefing after an EBT session and not be recorded.





Problem Solving and Decision-Making

- Seeks accurate and adequate information from appropriate sources
- Identifies and verifies what and why things have gone wrong
- Employ(s) proper problem-solving strategies
- Perseveres in working through problems without reducing safety
- Uses appropriate and timely decision-making processes
- Sets priorities appropriately
- Identifies and considers options effectively.
- Monitors, reviews, and adapts decisions as required
- Identifies and manages risks effectively
- Improvises when faced with unforeseeable circumstances to achieve the safest outcome

Situation Awareness

- Identifies and assesses accurately the state of the aircraft and its systems
- Identifies and assesses accurately the aircraft's vertical and lateral position, and its anticipated flight path.
- Identifies and assesses accurately the general environment as it may affect the operation
- Keeps track of time and fuel
- Maintains awareness of the people involved in or affected by the operation and their capacity to perform as expected
- Anticipates accurately what could happen, plans and stays ahead of the situation
- Develops effective contingency plans based upon potential threats
- Identifies and manages threats to the safety of the aircraft and people.
- Recognizes and effectively responds to indications of reduced situation awareness.

Workload Management

- Maintains self-control in all situations
- Plans, prioritizes and schedules tasks effectively
- Manages time efficiently when carrying out tasks
- Offers and accepts assistance, delegates when necessary and asks for help early
- Reviews, monitors and cross-checks actions conscientiously
- Verifies that tasks are completed to the expected outcome
- Manages and recovers from interruptions, distractions, variations and failures effectively

(h) The operator shall use a grading system:

- (1) defined with a sufficient level of detail to enable accurate and relevant measurements of individual performance.
- (2) which includes a scale of performance for each competency within the competency framework, with a point on the scale which determines the minimum acceptable performance to be achieved for the conduct of line operations.





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(i) The operator shall:

- (1) Ensure that each flight crew member completes all modules of the operators approved EBT programme defined over a 3-year cycle relevant to the type or variant of aircraft on which they operate.
- (2) In unforeseen circumstances, make provision for flight crew members unable to comply with (1) including:
 - i. Provision for the completion of one module, which includes additional training as necessary.
- (3) Ensure the flight crew member who has not demonstrated an acceptable level of performance in any competency at the completion of a module shall not return to line operations until all competencies have been demonstrated to an acceptable level.

AMC 1 ORO.FC.231 (i)

(a) Unforeseen circumstances should be restricted to those related to medical sick leave and fitness of the flight crew member.

(j) Each flight crew member shall:

- (1) Complete a line check every year in accordance with ORO.FC.230(c) or
- (2) Complete a line evaluation of competency on the aircraft:
 - i. For flight crew members, having completed two complete EBT modules every year in the preceding XX calendar months, the validity period of the line evaluation of competency during line operations shall be XX calendar months.
 - ii. For flight crew members, having completed less than two complete EBT modules every year, the validity period of the line evaluation of competency during line operations shall be YY calendar months.
 - iii. When a line evaluation of competency is undertaken within a 12-month period immediately prior to expiry of the previous Line Evaluation of Competency, the new period of validity should be counted from the previous expiry date.
 - iv. Evaluation of competencies during line operations shall be conducted by a commander suitably qualified as an EBT instructor





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AMC1 ORO.FC.231 (j) Line Evaluation of Competency

- (a) The route selected should be representative of normal operations. When weather conditions preclude a manual landing, an automatic landing is acceptable. The competencies of a commander, or any pilot who may be required to relieve the commander, should also be evaluated.
 - (b) When pilots are assigned duties as pilot flying and pilot monitoring, competencies should be evaluated in both functions.
 - (c) The person conducting the evaluation during Line Operations should occupy an observer's seat where installed. The evaluation should solely be based on observations made during the initial briefing, cabin briefing, flight crew compartment briefing and those phases where he/she occupies the observer's seat. For aeroplanes, in the case of long haul operations where additional operating flight crew are carried, the person may fulfil the function of a cruise relief pilot and should not occupy either pilot's seat during take-off, departure, initial cruise, descent, approach and landing.
 - (d) Where a pilot is required to operate as pilot flying and pilot monitoring, his/her competencies should be evaluated on one flight sector as pilot flying and on another flight sector as pilot monitoring. However, where the operator's procedures require integrated flight preparation, integrated cockpit initialisation and that each pilot performs both flying and monitoring duties on the same sector, then the evaluation of competencies may be performed on a single flight sector.
- (k) The operator shall develop and include in the operations manual contingency procedures for unforeseen factors which may affect the delivery of the EBT program.

FCL. 740 Validity and renewal of class and type ratings – aeroplanes

- (b) Renewal. If a class or type rating has expired, the applicant shall:
- (2) Pass a proficiency check in accordance with Appendix 9 of this part, or
 - (3) for applicants enrolled in an EBT programme, complete a module of the operator approved EBT programme.

FCL. 740.A Revalidation of type ratings – aeroplanes

- (d) Revalidation of multi-engine type ratings for applicants enrolled in an EBT programme. The applicant shall:
- (1) complete at least one module of the EBT programme.
 - (2) be exempted from the requirements of (a) and (c)
- (e) Applicants who fail to demonstrate an acceptable level of competency and are no longer enrolled in the EBT programme shall not exercise the privileges of that type rating.

FCL.1005.TRE

Add para:

- (6) Revalidation of multi-engine type ratings for applicants enrolled within an approved EBT programme.





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FCL.1005.SFE

Add para:

- (7) Revalidation of multi-engine type ratings for applicants enrolled within an approved EBT programme that the SFE complies with the requirements in FCL.101.IRE for the applicable aircraft category

ORO.FC.145 Provision of training

- (a) All the training required in this Subpart shall be conducted:
- (1) by appropriately qualified personnel. In the case of flight and flight simulation assessment and training, the personnel providing the training and conducting the checks shall be qualified in accordance with Annex I (Part-FCL) to Regulation (EU) No 1178/2011.
 - (2) by appropriately qualified personnel conducting training. In the case of flight simulation training for an operator holding an approval for EBT, the personnel providing the training shall additionally be qualified through an EBT instructor training course followed by an assessment of competency in the conduct of EBT.

AMC1.ORO.FC.145 (a)

Work in progress

