Update of ORO.FC — evidence based training (EBT)

RELATED NPA/CRD 2018-07 — RMT.0599

EXECUTIVE SUMMARY

The European Aviation Safety Agency (EASA) identified the need to ensure that aviation personnel have the right competencies and training methods to cope with new challenges. (See the European Plan for Aviation Safety (EPAS) 2019-2023).

The objective of this Opinion is to update the flight crew training requirements to improve pilot competencies. The proposed requirements provide additional efficiency in the field of flight crew training and achieve a smooth transition to competency-based training.

The present EBT Opinion is part of a global safety initiative endorsed by ICAO whose objective is to determine the relevance of existing pilot training according to aircraft generation. EBT intends to improve safety and to enhance the capability of flight crews to operate the aircraft in all flight regimes and to be able to recognise and manage unexpected situations. The EBT concept is designed to maximise learning and minimise checking.

This Opinion is a second step in the European rulemaking actions to implement EBT. The first step was completed in 2015 with the publication of ED Decision 2015/027/R that provided guidance material to allow the implementation of a 'mixed EBT' which maintains the current operator proficiency check (OPC) and licence proficiency check (LPC). This Opinion proposes further changes to the Air OPS and Air Crew Regulations to allow authorities to approve the baseline EBT, which replaces OPC and LPC. This will allow a single philosophy of recurrent training within the airline. Further work is foreseen in the context of the activities of rulemaking task (RMT).0599 to allow expansion of EBT to the operator conversion course and initial type rating, as well as to other types of aircraft (e.g. helicopters and business jets).

The impact assessment (IA) shows that the implementation of EBT by the operator on a voluntary basis is the preferred option in regulating recurrent training and checking of flight crew. The IA illustrates that the proposed rules contribute to significant improvement in safety by strengthening the competencies of flight crews while providing a cost-efficient and socially acceptable framework.

Action area:	Human factors and competence of personnel		
Affected rules:	Part-DEF, Part-ARO and Part-ORO of the Air OPS Regulation, Part-FCL and Part-ARA of the Aircrew Regulation		
Affected stakeholders:	Member States, pilots, instructors, examiners, approved training organisations and operators		
Driver:	Safety	**Rulemaking group:**	Yes
Impact assessment:	Full	**Rulemaking Procedure:**	Standard

Table of contents

1. About this Opinion

1.1. How this Opinion was developed

The European Union Aviation Safety Agency (EASA) developed this Opinion in line with Regulation (EU) 2018/1139[1] (the 'Basic Regulation') and the Rulemaking Procedure[2].

This rulemaking activity is included in the European Plan for Aviation Safety (EPAS) 2019-2023 under rulemaking task (RMT).0599. The scope and timescales of the task were defined in the related ToR[3].

The *draft* text of this Opinion has been developed by EASA based on the input of Rulemaking Group (RMG) RMT.0599. This group is divided in the:

(a) Main Group[4], which ensures consistency across the different tasks of RMT.0599. It also deals with other updates of ORO.FC;

(b) Evidence-based training (EBT) subgroup[5], that is responsible for developing the EBT concept; and

(c) Helicopter subgroup[6] that is developing and updating the helicopter training requirements including EBT.

This Opinion is primarily based on the inputs provided by the EBT subgroup. Due to the novelty of the EBT concept, EASA also consulted the Main group RMT.0599 on a regular basis, organised a workshop[7] with the participation of industry representatives in February 2017 and performed four rounds of focused consultation with:

(1) the Netherlands Aerospace Centre (NLR)[8] with regard to instructor concordance and grading;

(2) the Spanish competent authority (AESA)[9] and Iberia group[10] for the implementation of the EBT programme;

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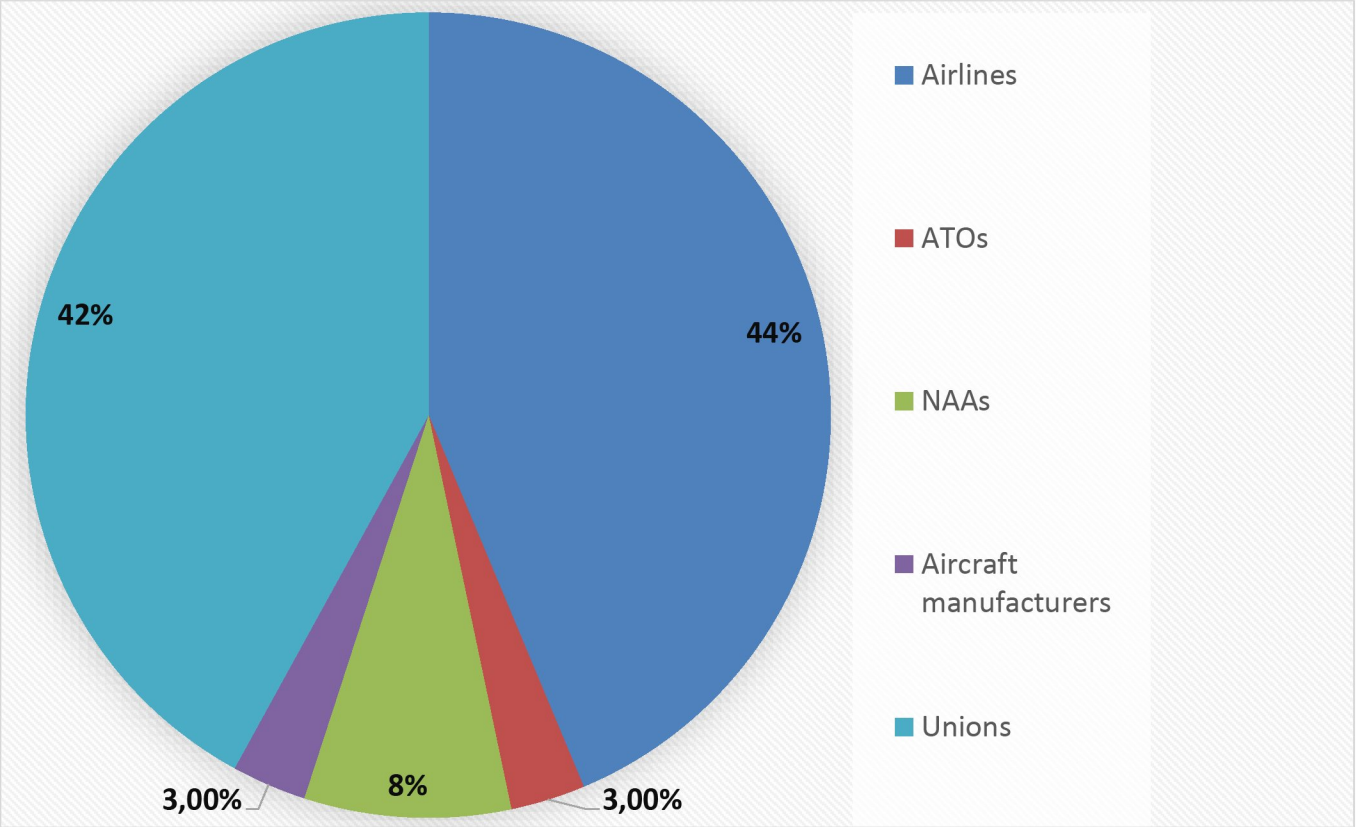
1. Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139).
2. EASA is bound to follow a structured rulemaking process as required by Article 115(1) of Regulation (EU) 2018/1139. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the 'Rulemaking Procedure'. See MB Decision No 18-2015 of 15 December 2015 replacing Decision 01/2012 concerning the procedure to be applied by EASA for the issuing of opinions, certification specifications and guidance material (http://www.easa.europa.eu/the-agency/management-board/decisions/easa-mb-decision-18-2015-rulemaking-procedure).
3. https://www.easa.europa.eu/sites/default/files/dfu/ToR%20%26%20Concept%20Paper%20RMT.0599%20Issue%201.pdf
4. Chaired by Yann Renier (IATA) and Phill Adrian (AIA). Members: Enrique Monzón (AESA España), Rogier Leeflang (IACA), Ståle Rosland (CAA Norway), David Lord (GAMMA). Project management Francisco Arenas Alvariño EASA.
5. Chaired by Phil Cullen (UK CAA). Secretariat Ascanio Russo EASA.
6. Chaired by Tim Rolfe (Heli-offshore).
7. 1st Workshop on the Implementation of the Evidence-based Training
8. Focal point: Frederik Mohrmann.
9. Focal point: Carlos Artiles and Enrique Monzón.
10. Focal point: Captain Ignacio Gallego Alemany and Jaime Salva Munar.

(3) the Italian competent authority (ENAC)[11] and Alitalia[12] with regard to equivalency of malfunctions; and

(4) CAA Denmark (Trafik)[13] and Thomas Cook Scandinavia[14] on the oversight and follow-up of the EBT programme.

All interested parties were consulted through NPA 2018-07[15]. 726 comments were received from interested parties, including industry, national aviation authorities (NAAs) and social partners.

Percentage (%) of comments received by each of the interested parties



EASA has addressed and responded to the comments received on the NPA. EASA reviewed the comments received during the public consultation and during the focused consultation with the support of Review Group (RG) RMT.0599. The comments received and EASA's responses to them are presented in Comment-Response Documents (CRDs) 2018-07(A) and 2018-07(B)[16], and they are also summarised under Section 2.4 below.

The *final* text of this Opinion and the draft regulations have been developed by EASA based on the input of the RMG RMT.0599 and the focused consultation. The draft rule text proposed by EASA is published on the EASA website[17].

11 Focal point Mario Tortorici and Sandro Apolloni.
12 Focal point: Massimo Giavalisco and Fabio Polloni.
13 Focal point Lise-Lotte Olsen Deigaard
14 Focal point: Henrik Lyngse
15 In accordance with Article 115 of Regulation (EU) 2018/1139 and Articles 6(3) and 7 of the Rulemaking Procedure.
16 http://easa.europa.eu/document-library/comment-response-documents
17 http://easa.europa.eu/document-library/opinions

1.2. The next steps

This Opinion contains the proposed amendments to Regulation (EU) No 965/2012[18] (the 'Air OPS Regulation') and to Regulation (EU) No 1178/2011[19] (the 'Aircrew Regulation') and their potential impacts. It is submitted to the European Commission, which will use it as a technical basis in order to prepare EU regulations.

The decisions that contain the related certification specifications (CSs), acceptable means of compliance (AMC) and guidance material (GM) will be published by EASA when the related regulations are adopted by the European Commission.

For information, EASA published the draft text for the related EASA decision that contains certification specifications (CS), acceptable means of compliance (AMC) and guidance material (GM).

Following the publication of the regulations, EASA foresees to support the implementation of the Regulation with the following actions:

— Operator conversion course (OCC) and type rating training for CAT. This activity will ensure a single philosophy of training in the operator. An NPA pertaining to this activity is scheduled to be published in the course of the third quarter of 2021.

— EBT for helicopters and non-commercial complex motor-powered aircraft (NCC). This activity will ensure a single philosophy of training across the industry. This may also allow training data exchange across the industry. An NPA pertaining to this activity is scheduled to be published in the course of the third quarter of 2021.

[18] Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1) (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R0965&rid=1).

[19] Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 311, 25.11.2011, p. 1) (https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1528301490110&uri=CELEX:32011R1178).

2. In summary — why and what

A further analysis of the rationale and objectives addressed by this proposal is provided in Notice of proposed Amendment 2018-07(A) Update of ORO.FC — evidence-based training subtask in the Impact Assessment chapter.

2.1. Why we need to change the rules — issue/rationale

The complexity of the aviation system is continuously increasing; also, new technologies are emerging rapidly on the aviation market. Therefore, it is of key importance for the aviation personnel to:

(a) have the right competencies through the adaptation of training methods in order to cope with new challenges. This is one of the most significant systemic issues in the EPAS[20], 2016-2020, 2017-2021, 2018-2022, and 2019-2023.

(b) take advantage of the safety-enhancing opportunities presented by new technologies. (EPAS 2018-2022 Chapter 5.2.2 Human factors and competence of personnel and EPAS 2019-2023 Chapter 3.1.1.2 Human factors and competence of personnel.

2.1.1. Why we need new rules on EBT in Europe

Aircraft design and reliability have improved steadily and significantly over time; yet, accidents still occur, even in cases when the aircraft and systems were operating without malfunction. It is impossible to foresee all plausible accident scenarios, especially in today's aviation system where its complexity and high reliability mean that the next accident may be something completely unexpected.

In addition to this, the wealth of accident and incident reports and the provision of flight data analysis offer the possibility to identify risks encountered in actual operations and therefore offer the industry with the opportunity to tailor training programmes in order to mitigate those risks that flight crew members face in operations.

EBT addresses both elements (prepare the pilot for the unexpected and mitigate operational risks) by moving from task-based training to prioritising the development and assessment of key competencies, leading to a better training outcome. The scenarios recommended in EBT are simply a vehicle and a means to assess and develop competence. Mastering a finite number of competencies should allow a pilot to manage situations in flight that are unforeseen by the aviation industry and for which the pilot has not been specifically trained.

(ICAO Doc 9995 AN/497 'Manual of Evidence-based Training' First edition - 2013 – Chapter Background).

2.1.2. Safety recommendations (SRs) — outcome of the EASA safety assessment

The following safety recommendations (SRs) addressed to EASA from aircraft accident investigation report(s) published by the designated safety investigation authority[21], have been considered during this RMT.

[20] https://www.easa.europa.eu/easa-and-you/safety-management/european-plan-aviation-safety

[21] Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (OJ L 295, 12.11.2010, p. 35) (http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1479716039678&uri=CELEX:32010R0996).

FRAN-2013-017	The French Accident Investigation Board recommends that EASA, in coordination with manufacturers, operators and major non-European aviation authorities ensure that go-around training integrates instruction explaining the methodology for monitoring primary flight parameters, in particular, pitch, thrust then speed.
Evaluation of the SR	This Opinion addresses the SR through the transposition of Appendices 2 to 6 to Doc 9995 where are all the following are required at a frequency of twice per year (frequency A): — the training topics: — monitoring, cross-checking, error management, mismanaged aircraft state; and — go-around management; and — the manoeuvres training on: — go-around, all engines operative; — go-around, all engines operative followed by a visual circuit, manually flown; and — go-around, all engines operative during flare/rejected landing.

FRAN-2013-018	The French Accident Investigation Board recommends that EASA, in cooperation with the national civil aviation authorities and major non-European aviation authorities, ensure that during recurrent periodic training, training organizations and operators give greater importance to the assessment and maintenance of the monitoring capabilities of public transport pilots.
Evaluation of the SR	This Opinion addresses the SR through the transposition of Appendices 2 to 6 to Doc 9995 where the training topic: 'Monitoring, cross-checking, error management, mismanaged aircraft state' is required at a frequency of twice per year (Frequency A).

FRAN-2013-022	The French Accident Investigation Board recommends that EASA review regulatory requirements for initial and periodic training in order to ensure that go-arounds with all engines operating are performed sufficiently frequently during training.
Evaluation of the SR	This Opinion addresses the SR through the transposition of Appendices 2 to 6 to Doc 9995 where are all the following are required at a frequency of twice per year (frequency A): — the training topic 'Go-around management'; and — the manoeuvres training on: — go-around, all engines operative: high energy, initiation during the approach at 150 to 300 m (500 to 1 000 ft) below the missed approach level off altitude; — go-around, all engines operative followed by a visual circuit, manually flown; and

	— go-around, all engines operative: during flare/rejected landing.

FRAN-2013-033	The French Accident Investigation Board recommends that EASA, in cooperation with the national civil aviation authorities and major non-European aviation authorities, ensure that the risks associated with dispersion and/or channelized attention during the go-around, to the detriment of the primary flight parameters, be taught to crews.
Evaluation of the SR	This Opinion addresses the SR through the transposition of Appendices 2 to 6 to Doc 9995 where are all the following are required at a frequency of twice per year (frequency A): — the training topics: — monitoring, cross-checking, error management, mismanaged aircraft state; and — go-around management; and — the manoeuvres training on: — go-around, all engines operative: high energy, initiation during the approach at 150 to 300 m (500 to 1 000 ft) below the missed approach level off altitude; — go-around, all engines operative followed by a visual circuit, manually flown; and — go-around, all engines operative: during flare/rejected landing.

FRAN-2013-035	The French Accident Investigation Board recommends that EASA, in coordination with manufacturers, operators and major non-European aviation authorities, study whether to extend these measures to other procedures requiring high workload in a short time frame.
Evaluation of the SR	This Opinion addresses the SR through the transposition of Appendices 2 to 6 to Doc 9995 where training topic 'Competencies non-technical (CRM)' and 14 other example scenarios where the competency 'workload management' is trained, are required at a frequency of twice per year (Frequency A), (crew resource management (CRM) includes communication, leadership and teamwork, problem-solving and decision-making, situation awareness, and workload management).

FRAN-2014-005	The French Accident Investigation Board recommends that EASA, in coordination with national authorities, make changes to the training requirements for pilots so as to include periodic reminders on the effects of contaminants such as ice on stall and loss of control on take-off.
Evaluation of the SR	This Opinion addresses the SR through the transposition of Appendices 2 to 6 to Doc 9995 where training topic 'adverse weather' is addressed at a frequency of twice per year (Frequency A). Furthermore, for CAT, EASA is taking benefit of this recurrent training and checking scheme to mandate recurrent flight crew upset prevention and recovery training (UPRT)

	(see ED Decision 2015/012/R[22], published on 4 May 2015). The related AMC1 ORO.FC.220&230 identifies icing and contamination effects as key components of the upset prevention training programme, and recurrent training now covers all upset aspects over a period not exceeding 3 years. In EBT, these provisions still apply.

FRAN-2015-062	[unofficial translation]: EASA should define the terms on how an operator can set up a risk-based training as described in Doc 9995. [French] [original text] - L'AESA définisse les modalités permettant à un exploitant de mettre en oeuvre la formation basée sur les risques telle que précisée dans le doc OACI 9995 de l'OACI. [Recommandation 2015-062].
Evaluation of the SR	This Opinion addresses the SR through the transposition of Doc 9995. Furthermore, ED Decision 2015/027/R[23], published on 16 December 2015, enables the implementation of EBT according to the principles established in Doc 9995 taking into account the European Union regulatory framework.

FRAN-2015-063	[unofficial translation]: EASA promotes CAT operators to consider issues related to CRM and wind shear in the EBT scenario. [French] - L'AESA incite les exploitants de transport aérien commercial à prendre en compte des problématiques relatives au CRM et au cisaillement de vent dans la conception des scénarii EBT. [Recommandation 2015-063].
Evaluation of the SR	This Opinion addresses the SR through the transposition of Doc 9995. Furthermore, ED Decision 2015/027/R, published on 16 December 2015, contains new GM to support the implementation of EBT by operators, to be conducted in flight simulation training devices (FSTDs), according to the principles established in Doc 9995. The GM is associated with the existing points (a), b) and (f) of ORO.FC.230 'Recurrent training and checking' and ORO.FC.A.245 'Alternative training and qualification programme' (see Organisation Requirements for Operators - Flight Crew (ORO.FC) of the Air OPS Regulation. CRM and wind shear are specifically addressed in the recurrent assessment and training matrices in Doc 9995, to which the new GM refers.

2.1.3. ICAO amendments

Following the work initiated by the Flight Crew Licensing and Training Panel (FCLTP)[24], in 2006 ICAO published Doc 9868 'Procedures for Air Navigation Services — Training (PANS-TRG)' — a document that contains procedures for the development and implementation of a competency-based training programme to support the Annex 1[25] requirements. This was followed in 2013 by an amendment of the aforementioned document for the introduction of EBT, which was accompanied by Doc 9995. The intention was to provide guidance to civil aviation authorities (CAAs), operators and ATOs on the

22 https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015012r
23 https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015027r
24 Meeting held in Montreal, from 8 to 19 December 2003.
25 International Standards and Recommended Practices ICAO — Annex 1 to the Convention on International Civil Aviation — Personnel Licensing.

recurrent assessment and training of pilots referred to in ICAO Annex 6 'Operation of Aircraft' and ICAO Annex 1 'Personnel Licensing', 1.2.5 'Validity of licenses'. Finally, through Amendment 2 to Doc 9868 (also issued in 2013), procedures for EBT were introduced in order to provide a means of assessing and training key areas of flight crew performance in a recurrent training system. In addition, more detailed guidance on qualifications of the instructor was provided.

2.2. What we want to achieve — objectives

The overall objectives of the EASA system are defined in Article 1 of the Basic Regulation.

This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 2.1.

The objective of this Opinion is to update the flight crew training requirements in order to improve assessment and training of human factors; in particular, the personnel competence. At the same time, it provides additional efficiency in the field of flight crew training while achieving a smooth transition to competency-based training.

The specific objectives of this proposal are to:

(a) maintain the high aviation safety level by:

  (1) ensuring that the recurrent training and checking programmes are adequate to provide pilots with the necessary knowledge, skills and attitudes (KSA) to be competent in their job — under this objective, EASA proposes in this Opinion new provisions to implement EBT as a first step towards the full implementation of competency-based training across Subpart FC of Part-ORO; and

  (2) addressing the SRs outlined in Section 2.1.2 'Safety recommendations';

(b) remain in compliance with ICAO by ensuring that the European rules align with the latest amendments outlined in Section 2.1.3 'ICAO amendments', especially with regard to the EBT; and

(c) contribute to the production of efficient regulations by adapting the necessary training standards and rules to ensure that the level of safety can only be positively affected by:

  (1) introducing performance-based regulation principles;

  (2) ensuring consistency of training-related rules across the applicable parts of Annex III (Part-ORO) to the Air OPS Regulation and Annex I (Part-FCL) to the Aircrew Regulation; and

  (3) ensuring the correct balance between implementing rules (IRs) and CS, AMC & GM on the subject issue.

2.3. How we want to achieve it — overview of the proposals

ICAO Doc 9995 contains a complete competency framework ('core competencies') with competency descriptions and related behavioural indicators, encompassing what was previously known as both technical and non-technical knowledge, skills and attitudes (KSA). This way, the training content is aligned with the actual competencies necessary to operate safely, effectively and efficiently in a CAT environment.

Following this rationale, EASA decided to contribute to the development of regulations that ensure that pilot training and checking is adequate to provide a pilot with the necessary KSA to recognise and manage unexpected and unusual situations.

Traditional approaches to training development involve the decomposition of jobs into tasks. For each task, there is a related objective, an assessment and associated elements in a training plan. A limitation of this approach is that each task must be taught and assessed. In complex systems or when jobs evolve rapidly, it may not be possible to teach and assess each task. Moreover, learners may demonstrate the ability to perform tasks in isolation without being competent in their job.

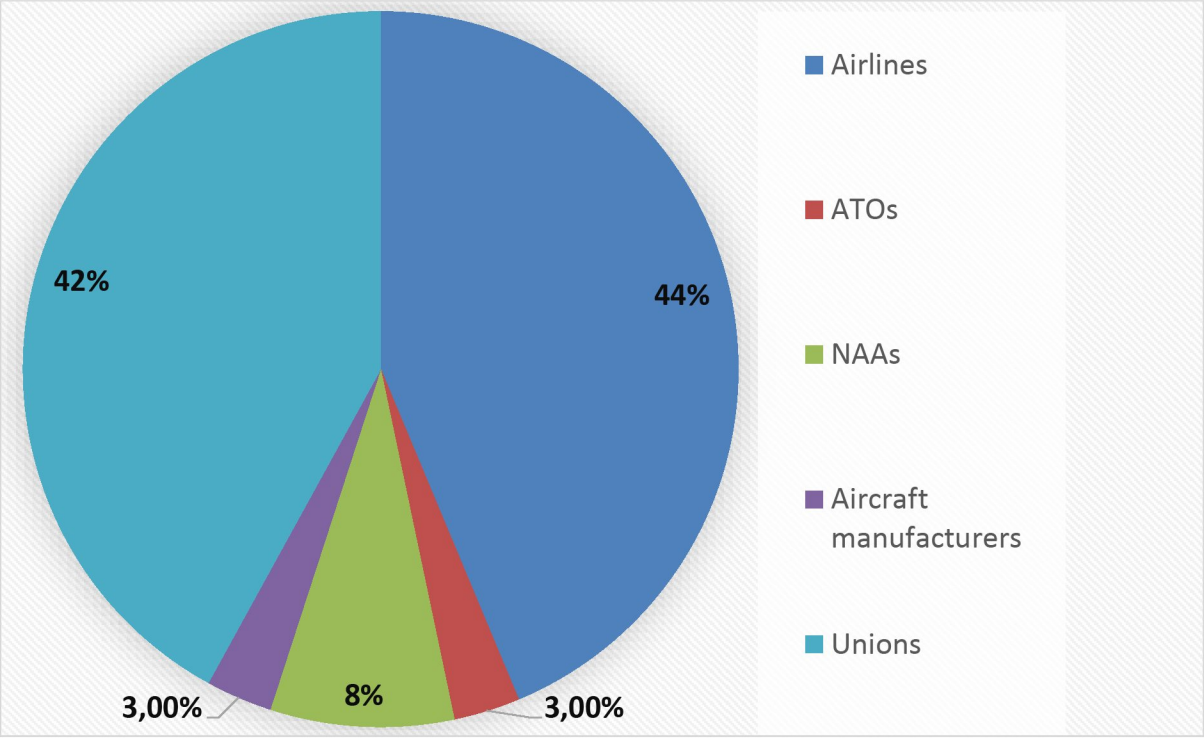
Competency-based assessment and training on the other hand are based on the concept that competencies are transferable[26]. In the design of a competency-based assessment and training programme, a limited number of competencies are defined and used across a variety of activities and contexts.

As new technologies emerge and the complexity of the aviation system increases, the existence of a competency framework is of key importance in order for pilots to be trained on a complete and relevant set of competencies. This competency framework should allow pilots to operate more safely, effectively and efficiently in a CAT environment. Furthermore, it should allow the training community to adapt their training methods in order to manage unexpected events through reactive analyses. In other words, mastering these competencies should allow the pilot to manage situations that are unforeseen by the industry and for which the pilot has not been specifically trained.

2.4. What are the stakeholders' views — outcome of the consultation

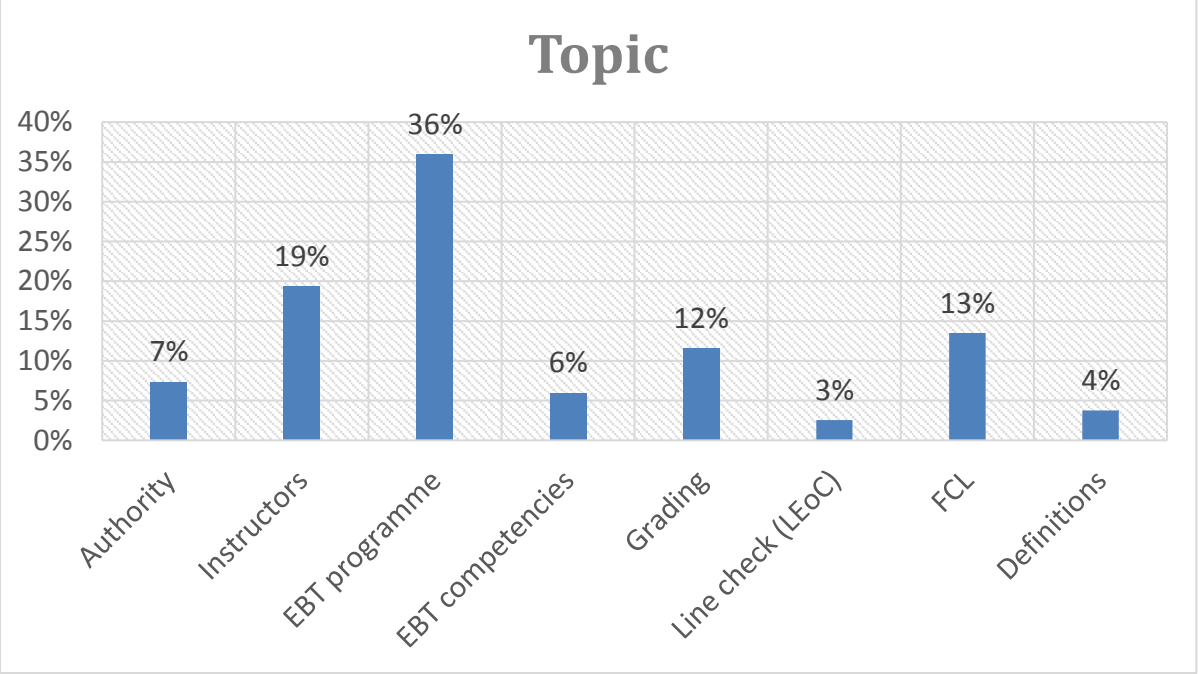
NPA 2018-07 received about 726 comments.

The percentage (%) of comments received by each type of stakeholder was the following:



[26] See study MAN4GEN https://cordis.europa.eu/project/rcn/104513/factsheet/en

The percentage of comments by topic is presented below.



The percentage of comments per type of stakeholder is presented below.

Stakeholder		
Competent authorities (NAAs)		
Number of comments	**The topic of the comments**	**Position of the stakeholder**
NAAs made about 8 % to 9 % of all the comments on the NPA. The main contributors were the authorities of France, United Kingdom, the Czech Republic and the Netherlands. Other contributors were Finland, Sweden, Malta, and Germany.	The comments addressed Part-ORO (42 % of the comments), Part-FCL (22 % of the comments) and Part-ARO (22 % of the comments). An additional 9 % of the comments made by the Member States were generic and in support of the proposal. Finally, 3 % of the comments made by the authorities addressed the definitions proposed in the NPA.	- in favour of implementing EBT - no comments against the concept of revalidation in accordance with Part FCL FCL.740 and Appendix 10. However, one comment raises concerns about the delegation of signature in the licence revalidation allowed in EBT - in favour of providing more criteria or increasing the regulatory level in some provision (e.g. moving GM to AMC or moving AMC to IR - a few comments request to limit some of the flexibility allowed in the proposal (e.g. alternative competency frameworks, etc.)

Airlines		
Number of comments	**The topic of the comments**	**Position of the stakeholder**
44 % of all the comments made on the NPA. Except for one small/medium business jet operator, only major airlines commented on the NPA.	The majority of the comments are on Part-ORO. However, there were comments on Part-ARO (3 % of the airline comments), on Part-DEF (3 %) and on Part-FCL (13,5 %).	- in favour of implementing EBT - demanding more prescription or definitions in some requirements - demanding less prescription and more flexibility in some other provisions - the airlines have different positions with some of them requesting more flexibility while others are asking for a more prescriptive approach to avoid competitive disadvantages.

Approved training organisations (ATOs)		
Number of comments	**The topic of the comments**	**Position of the stakeholder**
About 3 % of all the comments on the NPA. Only the two biggest ATOs and simulator providers in the world made comments on the NPA. No comments received from medium or small ATOs.	The majority of the comments are on Part-ORO (about 85 % of all the comments they made). They also made comments on Part FCL (the remaining 15 %).	- in favour of implementing EBT - allow ATOs to train EBT under their privileges instead of under the operator's privileges. The proposal allows ATOs to train EBT under ORO.GEN.205 on contracting activities.

Employee associations		
Number of comments	**The topic of the comments**	**Position of the stakeholder**
This type of stakeholder made about 42 % of all the comments on the NPA. The comments were coordinated between the European Cockpit Association and the German and French unions and/or federation.	The majority of comments made by employee associations is on Part-ORO (67 % of the comments made by the unions). They also made comments on Part-FCL (about 18 % of the comments made by the unions). 8% of the comments made by this type of stakeholder are made on Part-ARO. 4 % of the comments are on the definitions.	- in favour of implementing EBT - however, they have serious concerns in regard to the use of instructors, the use of examiners and data protection.

Original aircraft manufacturers (OAMs)		
Number of comments	**The topic of the comments**	**Position of the stakeholder**
This type of stakeholder made about 3 % of all the comments on the NPA. Only one manufacturer-provided comments.	The majority of comments made by this stakeholder are made on Part-ORO. The other comments are on Part-ARO (22 % of the comments made by this stakeholder) and on the definitions (about 5 % of the comments made by this stakeholder)	- in favour of implementing EBT - generally speaking, this stakeholder requires more guidance on some of the provisions.

2.5. What are the expected benefits and drawbacks of the proposals

2.5.1. Expected benefits

Studies[27] show that the effective implementation of EBT should bring about a significant contribution to aviation safety by strengthening the competencies of flight crews and enabling them to handle abnormal and unexpected situations safely. It is expected that the safety benefit of EBT would be demonstrated over time by continually improving a system targeted at focused learning[28]. The implementation of the EBT programme would ensure a level of safety at least equivalent to that provided by compliance with the existing pilot training requirements of ORO.FC.230 of Annex III (Part-ORO) to the Air OPS Regulation and Appendix 9 to Annex I (Part-FCL) to the Aircrew Regulation. Safety benefits should be expected through a qualitative approach, using competencies to develop

[27] Man4Gen Study www.man4gen.eu; IATA, Data Report for Evidence-based Training, 2013; experience of operators that have implemented EBT

[28] IATA, Data Report for Evidence-based Training, 2013

resilience by exposure to varying and challenging situations. The overall result would be better training of the pilots involved and a lower flight-crew-related accident rate in the future.

The level of training of pilots and personnel dealing with pilot training within the air operator certificate (AOC) holders would be improved. The EBT concept is designed to maximise learning and minimise formal checking. Where checking is required, it should evolve towards measuring the process of managing situations rather than only the outcome of this process. This will lead to a substantial change towards more learning opportunities for pilots, by recognising the expectation that professionals should continuously strive to learn and develop their capabilities, rather than only being focused on demonstrating performance according to minimum regulatory standards. The pilots will be assessed and their licences will be revalidated based on evidence from clearly described EBT evaluation modules and development of competencies throughout the EBT programme. The data[29] shows that the remedial training for flight crew who fail in the LPCs and OPCs is reduced by half (50 %) after the implementation of EBT. Therefore, the proposal is expected to have a positive social impact on the stakeholders (pilots and organisations). Based on the improved skills and competencies, EBT might also have also a potentially positive effect on the flight crew career development.

There would be a positive social impact on the type rating instructors (TRIs) and type rating examiners (TREs) as well, because they will receive competency-based training to improve their knowledge and skills. The same applies for the competent authorities' instructors who would improve their knowledge by following EBT training and/or participating in all phases of the implementation of EBT by the operator and by overseeing the training of TRIs/TREs.

As regards the economic impacts, a full cost-benefit analysis was performed for two different cases: a medium/large operator (e.g. 1 000 pilots) and a small operator (e.g. 100 pilots). The objective was to understand the difference in the economic benefits and costs for the operator, depending on its size.

The implementation of EBT is expected to bring economic benefits as follows:

— Line check: 2 years after EBT implementation, an operator may be allowed to extend the line check, i.e. a pilot's line check requirement is reduced from 1 per year to 1 every 2 years. The benefit is that the operator is saving the costs it pays annually for the line check of all flight crew.

— Ground training: A pilot's safety equipment procedure (SEP) training requirement is reduced from 1 per year to 1 every 2 years. The benefit is saving the daily wage of the flight crew. In addition, less CRM training is expected due to the integration of non-technical competencies in the EBT programme (1 day per pilot/year to 1 day per pilot/3 years).

— Saving due to the decrease in the percentage of pilots who fail in OPC/LPC: Saving in daily wages of the flight crew for the time that they do not fly.

— Indirect saving (flexibility): A reduction in pilot workload is expected due to the flexibility to run simulator sessions outside the peak flying months. The benefit is assumed to be circa 1 % of the annual wage of a pilot saved, multiplied by the number of the pilots who would be available to fly instead of going to the simulator.

[29] Based on the feedback by operators who implemented full EBT worldwide, 2008-2015, EASA questionnaire 2016

The operator could reap these benefits on the basis of its performance in implementing EBT which would be overseen and granted by the competent authority.

Expected drawbacks

Despite the overall positive social impact on the affected stakeholders, some drawbacks regarding the work of the type rating examiners (TREs) could be expected. The workload and the volume and scope of the work performed by the TREs would be reduced as the revalidation of the licences will not be based on a single simulator session; it will be based on the evidence obtained through the EBT system. The reduced workload might affect negatively the current role, position and the number of examiners. Although the amount of training in EBT remains unchanged, the role of the trainer will be now performed under the privileges of the TRI certificate, instead of the TRE certificate.

In terms of the cost, the cost-benefit analysis described the following types of costs related to preparation, adoption and implementation of EBT (one-off and recurrent):

— Development of EBT competency framework and EBT programme (one-off);

— Training of the operator's training manager and instructors to deliver EBT (one-off);

— Purchase of IT assessment tool to support the implementation of EBT (one-off);

— Costs for maintaining licences for IT tool (recurrent);

— Update of the EBT training programme (recurrent); and

— Refresher training of the EBT instructors (recurrent).

As regards the competent authorities, the requirement for inspectors to be competent in the approval of and the oversight over EBT programmes would result in increased competent authority's workload in the short term (ca 200 hours one-off costs for initial training, approval of operator's training programme). They would be offset with normalisation of the workload in the consecutive years in EBT oversight (ca 50-70 hours recurrent costs per operator). In addition, the workload and the relative costs for the competent authority are expected to decrease with the time, as there might be a higher take-up of the EBT programmes by AOC holders. As EBT implementation supports performance- and risk-based oversight, the overall impact on the competent authority is considered very low negative in the first years and neutral in the consecutive years.

Overall conclusion

Table 1: Overview of economic impacts per type of operator

AOC (A) operator	*EBT benefits (annual)*[30] *EUR*	*EBT one-off costs*[31] *EUR*	*EBT recurrent costs (annual) EUR*	*Net benefit (benefits-recurrent costs) in EUR*	*Saving per pilot/ year EUR*	*Return of investment*
Medium/large d-sized (1 000 pilots)	ca 0.9 M	ca 1 M	ca 0.2 M	0.7 M	ca 700	≥ 3 years

30 It is assumed that the operator could reap the economic benefits 2 years after full implementation of the EBT.

31 Assuming that the operator would make these investment costs in the course of the 2 preparatory years (when the operator would run its traditional training and would make the EBT investment one-off costs).

Small (100 pilots)	ca 0.1 M	ca 0.2 M	ca 0.02 M	0.08 M	ca 800[32]	≥ 4 years

The cost-benefit analysis demonstrates that the EBT implementation in recurrent training and checking of flight crew in a medium/large operator is a cost-effective solution. The profitability indicators show a return of investment shortly after 3 years of EBT implementation, considering that the operator would receive full economic benefits based on its performance and the decision of the competent authority.

Similarly, to the medium/large operator, a small operator has the potential to reap net economic benefits from the EBT implementation. However, a small operator may encounter difficulties in deploying the EBT concept due to the need to make additional investment in data collection and analysis of existing threats and identification of potential weaknesses in the operator's operational safety. These costs are not quantified in the cost-benefit model due to lack of reliable data. Overall, small airlines could not have the available resources or expertise to develop EBT and hence the EBT concept might be difficult in the short term.

Therefore, the regulatory impact assessment recommends the implementation of EBT for recurrent training and checking on a voluntary basis by AOC holders. For the full impact assessment of alternative options, please refer to Chapter 3 'Impact assessment' in the NPA 2018-07(A).

2.6. How we monitor and evaluate the rules

It is recommended that the rules are subject to monitoring and, in case it is necessary, to an evaluation of their relevance, impact, effectiveness and efficiency. It is recommended that the following monitoring indicators are used to review the implementation of the new provisions.

Table 2: Proposed indicative list of indicators to monitor the results of the rules

Monitoring indicator	Description and rationale of the indicator	Data source	Indicative frequency of data collection
% of AOC(A) holders which implemented EBT in EASA MSs	The EBT concept would be implemented on voluntary basis and it is recommended to monitor how many AOC(A) holders would implement it.	Survey	2 years after rules are in place
No and trend in occurrences for commercial air transport airlines where training is a key enabler	The current RMT contributes to mitigating related safety issues, which play a role in improving safety across all aviation domains.	EASA Annual Safety Review ECCAIRS database	Annual

If an ex post evaluation is needed, it is recommended to be carried out indicatively 5 years after the rules are in place.

[32] The amount is a bit higher than for the medium/large operator because of the assumption that the small operator is with 100 pilots.

Cologne, dd month year

Patrick KY
Executive Director

3. Proposed amendments and rationale in detail

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

— deleted text is ~~struck through~~;

— new or amended text is highlighted in grey;

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

Due to the volume of the explanatory notes for the proposed rules and the novelty of the EBT concept, the structure of the Opinion is as follows:

— *Section 3.1. presents the set of implementing rules (IRs) as well as the rationale behind the proposed change. To differentiate them from the proposed rules, the font colour used for the explanatory notes is blue.*

— *Section 3.2. presents the associated AMC and GM as well as the rationale behind the proposed change. To differentiate them from the proposed rules, the font colour used for the explanatory notes is blue.*

Annex I (Definitions) to Regulation (EU) No 965/2012

Definitions for terms used in Annexes II to VIII

For the purpose of this Regulation, the following definitions shall apply:

[…]

(23a) 'competency' means a dimension of human performance that is used to reliably predict successful performance on the job. A competency is manifested and observed through behaviours that mobilise the relevant knowledge, skills and attitudes to carry out activities or tasks under specified conditions;

(23b) 'competency-based training' means assessment and training programmes that are characterised by a performance orientation, emphasis on standards of performance and their measurement and the development of training to the specified performance standards;

(23c) 'competency framework' means a complete set of identified competencies that are developed, trained and assessed in the operator's EBT programme utilising scenarios that are relevant to operations. The chosen competency framework should be wide enough to prepare the pilot for both known and unforeseen threats and errors;

(42a) 'EBT module' means a combination of sessions in a qualified flight simulation training device as part of the 3-year period of recurrent assessment and training;

(47a) 'enrolment' means the administrative action carried out by the operator where a pilot participates in the operator's EBT programme;

(47b) 'enrolled flight crew member'/'enrolled pilot' means the pilot that participates in the EBT recurrent training programme;

(47c) 'equivalency of approaches' (approach clustering) means all the approaches that place an additional demand on a proficient crew regardless of whether they are used or not in the EBT modules;

(47d) 'equivalency of malfunctions' (malfunction clustering) means all the malfunctions that put a significant demand on a proficient crew regardless whether they are used or not in the EBT modules;

(47e) 'evaluation phase (EVAL)' means one of the phases of an EBT module. The evaluation phase is a line-orientated flight scenario, representative of the operator's environment during which there are one or more occurrences to evaluate key elements of the defined competency framework. The root cause rather than the symptoms in any deficiency should be identified, in order to determine training needs;

(47f) 'evidence-based training (EBT)' means assessment and training based on operational data that is characterised by developing and assessing the overall capability of a pilot across a range of competencies (competency framework) rather than by measuring the performance in individual events or manoeuvres;

(69a) 'in-seat instruction (ISI)' means a technique used in the manoeuvres training phase or the scenario-based training phase, where the instructors can:

(a) provide simple instructions to one pilot; or

(b) perform predetermined exercises acting, in a pilot seat, as pilot flying (PF) or pilot monitoring (PM) for:

(1) the demonstration of techniques; and/or

(2) triggering the other pilot to intervene or interact.

(69b) 'instructor concordance' is the consistency or stability of scores between different EBT instructors. It gives a score (or scores) of how much homogeneity, or consensus, there is in the ratings given by instructors (raters).

(76a) 'manoeuvres training phase (MT)' means one of the phases of an EBT module. During this phase, according to aircraft generation, crews have time to practise and improve performance in largely psychomotor skill-based exercises by achieving a prescribed flight path or performing a prescribed event to a prescribed outcome. These exercises or events should place a significant demand on a proficient pilot. Flight path control may be accomplished by a variety of means including manual aircraft control and the use of auto flight systems.

(76b) 'mixed EBT programme' means that some portion of the operator's recurrent training and checking programme (ORO.FC.230) is dedicated to the application of EBT. This programme includes the licence proficiency check (Part-FCL Appendix 9).

(98a) 'proficient' means the demonstration of the necessary skills, knowledge and attitudes required to perform any defined tasks to the prescribed standard.

(104a) 'scenario-based training phase (SBT)' means one of the phases of an EBT module. This phase is designed to focus on the development of competencies, whilst the pilot is trained to mitigate the most critical risks identified for the aircraft generation. It should include the management of specific operator's threats and errors in a real-time line-orientated environment.

Explanatory note to Annex I (Definitions) to Regulation (EU) No965/2012

competency

The definition proposed is transposed from ICAO PANS-TRG Amendment 5.

competency-based training

The definition proposed is transposed from Doc 9995:

'**Competency-based training.** Training and assessment that are characterized by a performance orientation, emphasis on standards of performance and their measurement and the development of training to the specified performance standards.'

Competency-based training and EBT — use of the wording 'assessment and training'

The proposed provision uses the wording 'assessment and training' instead of 'training and assessment' because it reflects better the model used in EBT. Currently, EBT is used for airline pilots, who are current on type. Therefore, the phases of EBT focus first on assessment, to then develop the competencies in the subsequent phases (training).

The traditional use of the sentence 'training and assessment' is appropriate for initial type ratings and initial issues of licences where the pilots are not yet proficient, and they need to learn a new type rating. In these cases, the sequence of 'training' and then 'assessment' is appropriate.

competency framework

The term 'identified competencies' is used to refer to the competencies the operator must choose to develop a competency framework (e.g. the 9 competencies of EASA that include the 8 competencies of Doc 9995[33] plus 'Application of Knowledge'). These competencies are also called 'core competencies'.

'unforeseen threats and errors' is used to link it to resilience, as the concept of resilience is very important to aviation safety.

The definition is based on the Doc 9995 definition of 'core competencies':

'Core competencies. A group of related behaviours, based on job requirements, which describe how to effectively perform a job and what proficient performance looks like. They include the name of the competency, a description, and a list of behavioural indicators'.

competency

A competency is manifested and observed through behaviours that mobilise the relevant knowledge, skills and attitudes to carry out activities or tasks under specified conditions. Trainees successfully demonstrate competency by meeting the associated competency standard.

The definition proposed in the Opinion is created based on:

— Amendment 175 to ICAO Annex 1 'Personal licensing'; and

— Doc 9995.

The Doc 9995 references used were:

[33] ICAO Doc 9995 AN/497 'Manual of Evidence-based Training' first edition 2013.

— '7.8.5.1 To be competent in any job, a person requires a certain amount of knowledge, an adequate level of skills, and a particular set of attitudes'.

— '7.8.5.4 To be competent, a pilot requires capabilities across a range of knowledge, skills and attitudes (KSA)'.

evidence-based training

The definition is transposed from Doc 9995.

evaluation phase

The evaluation phase is the first assessment of competencies to identify individual training needs. On completion of the evaluation phase, any areas that do not meet the minimum competency standard will become the focus of the subsequent training.

equivalency of malfunctions

The definition has been created to clarify the rules of equivalency of malfunctions. It is a new definition, which is not included in Doc 9995 AN/497 'Manual of Evidence-based training' first edition 2013.

in-seat instruction

Effective monitoring and error detection are increasingly important when operating highly reliable, automated aircraft. Multiple data sources illustrate substantial rates of undetected error. Error management is reported as a very significant countermeasure in current operations with one accident study espousing that it is the most significant tool available to pilots for the prevention of accidents. Furthermore, multiple data sources show that there is a high level of intentional non-compliance and so any error management strategy must include greatly reducing its incidence. Error management skills are subject to decay. Error management currently does not form part of any strategy developed through the regulation of flight crew training; consequently, it is lacking in most training programmes. It is a key topic and needs to be incorporated into training strategies in order to raise flight crew situation awareness and further develop the professional capabilities of pilots.

When in training, flight crews are usually highly vigilant, and therefore the performance observed may not be representative of performance in normal routine operations. After extensive discussion, the worldwide international subject matter experts (SMEs) group that developed material for Doc 9995 concluded that an effective means to provide reliable exposure in FSTD training is to use a method called in-seat instruction (ISI). This is also an effective means to provide the recovery element of UPRT; data from LOC-I events regularly indicate a cognitive impairment of the pilot flying (PF) with the pilot monitoring (PM) often demonstrating a higher level of situational awareness (SA). When the PF does not immediately respond and act on monitoring calls, the PM takes control and recovers the aircraft. This approach is supported by both Airbus and Boeing in their guidance in recovery FSTD training, and has been integrated within the EBT programme.

Instructor concordance

The definition is transposed from the Doc 9995 definition of inter-rater reliability.

Inter-rater reliability is a term not easily translated into all the languages of the European Union; therefore, a synonym for inter-rater reliability was used: 'concordance'.

In statistics, inter-rater reliability, inter-rater agreement, or concordance, is the degree of agreement among raters.

manoeuvres training phase

This is not a real-time training but allows crews the time to practise and improve performance in largely psychomotor skill-based exercises. Repositioning of the flight simulation in order to focus training on the intended manoeuvres will be a commonly used FSTD feature for this phase.

mixed EBT programme

The definition proposed is inspired by ICAO Doc 9995 Chapter 4.2, paragraph 4.2.1, point (b).

'(b) Mixed implementation. Implementation of a mixed EBT programme means that some portion of a recurrent assessment and training is dedicated to the application of EBT. This is a means of achieving a phased implementation where, for example, the CAA regulations or rules permit such a programme as part of the operator's specific training and assessment, but preclude such a programme for the revalidation or renewal of pilot licences. This phased implementation recognizes the potential for such an EBT programme to be developed and implemented in advance of any future enabling regulatory changes, which may then permit total implementation.'

Scenario-based training phase

The definition for SBT was based on the following ideas:

— Wherever possible, consideration should be given towards variations in the types of scenario, times of occurrences and types of occurrences, so that the pilots do not become overly familiar with repetition of the same scenarios.

— Variations should be the focus of EBT programme design, but not left to the discretion of individual instructors in order to preserve programme integrity and fairness.

The definition was transposed from Doc 9995 Chapter 3.8:

'c) Scenario-based training phase. This phase forms the largest phase in the EBT programme, and is designed to focus on the development of competencies, whilst training to mitigate the most critical risks identified for the aircraft generation. The phase will include the management of specific threats and errors in a real-time line orientated environment. The scenarios will include critical external and environmental threats, in addition to building effective crew interaction to identify and correct manage errors. A portion of the phase will also be directed towards the management of critical system malfunctions. For this programme to be fully effective, it is important to recognise that these predetermined scenarios are simply a means to develop competency, and not an end or 'tick box' exercise in themselves'.

Annex II (Part-ARO) to Regulation (EU) No 965/2012

ARO.GEN.121 Certification specification

(a) The Agency shall develop Certification Specifications (CS) that are used to establish compliance with Regulation (EU) 2018/1139 and its delegated and implementing acts for:

(1) evidence-based training.

(b) Where an equivalent level of safety to that achieved by the application of the CS can be achieved by another specification, a special condition to the CS issued by the Agency may be used by the certified aircraft operator to establish compliance with the delegated and implementing acts. This special condition may be proposed by the operator or the authority.

(c) The competent authority shall establish a system to consistently evaluate if the special condition complies with Regulation (EU) 2018/1139 and its delegated and implementing acts.

(d) The competent authority shall evaluate all special conditions proposed by an organisation in accordance with ORO.GEN.121(b) by analysing the documentation provided and conducting an inspection of the organisation.

When the competent authority finds that the special condition is in compliance with the delegated and implementing acts, it shall notify the Agency without undue delay. The competent authority shall provide the Agency with a full description of the special condition, including copies of any revisions to procedures and documentation that may be relevant. It shall include an assessment demonstrating that the delegated and implementing acts are met.

(e) The Agency shall assess whether the conditions set out in point (b) above have been met and shall inform the competent authority after its assessment. Thereafter, the competent authority shall notify the applicant whether or not the special condition may be implemented and, if applicable, amend the approval, or certificate of the applicant accordingly.

Explanatory note to ARO.GEN.121

Considering:

— that there are already CS related to the domain of flight time limitation of the Air OPS Regulation;

— that EASA received a positive majority position during the AirOPS TeB of 22 and 23 May 2019 to create CS for other domains in the Air OPS Regulation (e.g. EBT) and only for safety-critical elements or provisions related to fast-changing technologies; and

— the Basic Regulation,

this Opinion proposes a new implementing rule to manage the necessary deviation from the CS, i.e. the so-called special conditions to the CS developed by EASA. The wording used is consistent with that used for the 'alternative means of compliance' under the current ARO.GEN.120. However, the competent authority may only notify the organisation that the special condition has been approved after having received a positive assessment from EASA.

The wording in point (e) is consistent with the wording used in Article 71 paragraph (2) of the Basic Regulation.

ARO.OPS.226 Approval and oversight of evidence-based training programmes

(a) Where a competent authority grants an approval for EBT programmes, inspectors must receive qualification and training in EBT principles, application, approval processes and continuing oversight.

(b) The competent authority shall assess and oversee the EBT programme, together with the processes that support the implementation of the EBT programme and its effectiveness.

(c) Before approving an EBT programme, the competent authority shall:

(1) ensure the resolution of level 1 findings in the areas that will support the application of the EBT programme;

(2) assess the capability of the operator to support the implementation of the EBT programme. The following elements shall be considered as a minimum:

(i) the maturity and capability of the management system;

(ii) the operator's EBT programme's suitability;

(iii) the adequacy of the operator's record-keeping system, in particular with regard to flight crew training, checking and qualifications records;

(iv) the suitability of the operator's grading and assessment scheme;

(v) competence (including experience) of the relevant personnel, fundamentally of the instructors, in the use of the processes and procedures that support the implementation of the EBT programme; and

(vi) the operator's implementation plan and a safety risk assessment supporting the EBT programme in order to demonstrate how an equivalent level of safety to that of the current training programme can be achieved.

(d) The competent authority shall amend or revoke the EBT programme if continuing compliance is not ensured.

Explanatory note to ARO.OPS.226

This provision contains the approval and oversight provisions to ensure a safe EBT programme. The provisions follow the concept already described in:

— point (a)(2) of ARO.GEN.200 regarding the training and qualification of the inspectors and in the associated AMC2 ARO.GEN.200(a)(2) point (a) as regards the initial training programme for the instructors, and AMC4 ARO.GEN.200(a)(2) (applicable from 30 March 2019) concerning inspector qualification for CAT operations.

The requirements of training in ARO.OPS.226 are further explained in AMC1 ARO.OPS.226(a).

— The new proposed rule ARO.OPS.225 published in NPA 2016-06 (A) on fuel schemes for the general structure of the rule.

ARO.OPS.226 point (c)(1)

Due to the complexity of the EBT programme and the necessary maturity that the operator needs to demonstrate to ensure a good implementation of EBT, EASA decided to require the resolution of level 1 findings before approving baseline EBT. This is in line with the proposal of the RMG which agreed with the text 'resolution of significant findings'.

ARO.GEN.350 provides a definition of level 1 finding.

ARO.GEN.350

(a) (…)

(b) A level 1 finding shall be issued by the competent authority when any significant non-compliance is detected with the applicable requirements of Regulation (EC) No 216/2008 and its Implementing Rules, with the organisation's procedures and manuals or with the terms of an approval, certificate, specialised operation authorisation or with the content of a declaration which lowers safety or seriously hazards flight safety. The level 1 findings shall include:

(1) failure to give the competent authority access to the facilities of the organisation in accordance with point ORO.GEN.140 of Annex III (Part-ORO) to this Regulation, or for balloons operators in accordance with points BOP.ADD.015 and BOP.ADD.035 of Annex II (Part-BOP) to Regulation (EU) 2018/395, during normal operating hours and after two written requests;

(2) obtaining or maintaining the validity of the organisation certificate or specialised operations authorisation by falsification of submitted documentary evidence;

(3) evidence of malpractice or fraudulent use of the organisation certificate or specialised operations authorisation; and

(4) the lack of an accountable manager.(…)

ARO.OPS.226 point (c)(2)(ii)

EBT programmes require extensive use of data and suitable records systems.

This is already required in the operator's requirements ORO.GEN.220 and ORO.MLR.115; therefore, it has probably been overseen in the past.

However, for the initial approval, the competent authority should verify that the operator is compliant as EBT will increase the workload and usability of the records system; therefore, it may be a first indication of an operator's maturity to implement EBT.

The wording used 'the adequacy of the operator's record-keeping system, in particular with regard to flight crew training, checking and qualifications records' refers to ORO.MLR.115 points (c) and (d) and the related AMC1 ORO.MLR.115, GM1 ORO.MLR.115(c), and GM1 ORO.MLR.115(d).

ARO.OPS.226 point (c)(2)(iii)

This provision allows the competent authority to access pilots grading results. This already applies today and EBT will not change the current situation. The competent authority is allowed to access the pilot records (ORO.GEN.140 access) to verify 'the suitability of the operator's grading and assessment scheme'.

Furthermore, the access to records and grading data for the verification of the grading system is also recognised at ICAO level (see Doc 9379 'Manual of Procedures for Establishment and Management of a State's Personnel Licensing System' (Part I: General principles and organization Chapter 2 - The Licensing Authority, paragraph 2.8 Record-keeping)).

ARO.OPS.226 point (d)

The periodic oversight plan follows the following principles:

— A performance-based safety objective is provided in the IR.

— A more detailed criterion is then provided in the associated AMC1 ARO.OPS.226(d) 'Approval and oversight of EBT programmes OVERSIGHT PLAN — PERIODIC ASSESSMENT TO VERIFY COMPLIANCE OF THE EBT PROGRAMME'

— Then, GM addressing an important criterion that competent authority should oversee is developed — GM1 to AMC1 ARO.OPS.226(d) 'EFFECTIVENESS OF THE OPERATOR'S EBT PROGRAMME'.

The provision is linked to another IR (ARO.GEN.350) that provides a reference when continuing compliance is not ensured.

'ARO.GEN.350

(1) In the case of level 1 findings the competent authority shall take immediate and appropriate action to prohibit or limit activities, and if appropriate, it shall take action to revoke the certificate, specialised operations authorisation or specific approval or to limit or suspend it in whole or in part, depending upon the extent of the level 1 finding, until successful corrective action has been taken by the organisation.'

The intent of this rule also includes the need for the competent authority to have periodic observations of the training session; however, this requirement was not included as AMC2 ARO.GEN.305(b) already provides for such requirement:

'AMC2 ARO.GEN.305(b) Oversight programme

PROCEDURES FOR OVERSIGHT OF OPERATIONS

(…)

(b) Audits and inspections, on a scale and frequency appropriate to the operation, should cover at least:

(1) infrastructure,

(2) manuals,

(3) training,

(…)

(c) The following types of inspections should be envisaged, as part of the oversight programme:

(1) flight inspection,

(2) ground inspection (e.g. documents and records),

(3) training inspection (e.g. ground, aircraft/FSTD,

(…)'

Point (b) normally means a documentation exercised, and point (c) normally means visit/inspection; therefore, observation of the training session.

ARO.OPS.226 point (e)

This provision reflects the intention of the ICAO Doc 9859 Section 7.2.3.

The EBT programme collects an increased amount of data. To ensure just culture and the necessary protection for pilots, the authority should promote an environment where data is used to drive improvement in the EBT programme.

***ARO.OPS.226 point(d)* wording 'EBT programme'**

The term 'EBT programme' referred to in the AMC is contained in ORO.FC.231 point (a) 'EBT programme'. While the table of assessment and training topics is a generic programme in an aircraft generation, the 'EBT programme' is specific to a particular operator and it encompasses all the requirements contained in ORO.FC.231 from point (a) to point (i).

The 'EBT programme' is an approved programme for CAT aircraft. The reason for this approval is the existing provision ORO.FC.145 point (c), thus 'EBT programme' encompasses an approved process by the competent authority.

Annex III (Part-ORO) to Regulation (EU) No 965/2012

ORO.GEN.121 Certification Specification.

(a) Special conditions to the certification specification (CS) adopted by the Agency may be used by an operator subject to certification to establish compliance with Regulation (EU) 2018/1139 and its delegated and implementing acts.

(b) When an operator subject to certification wishes to use a special condition, it shall, prior to implementing it, provide the competent authority with a full description of the special condition. The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating that the delegated and implementing acts are met and an equivalent level of safety to that achieved by the application of the CS is achieved.

The operator may implement this special condition to the CS subject to prior approval by the competent authority and upon receipt of the notification as prescribed in ARO.GEN.121.

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

(a) All the training, checking and assessment required in this Subpart shall be conducted:

(1) in accordance with the training programmes and syllabi established by the operator in the operations manual;

(2) by appropriately qualified personnel. In the case of flight and flight simulation training and checking, 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;

(3) in addition to the above, for an EBT programme, the personnel providing assessment and training shall:

(i) hold an Annex I (Part-FCL) instructor or examiner certificate; and

(ii) complete the operator's EBT instructor standardisation. This shall include an initial standardisation programme and recurrent standardisation programme.

Completion of the operator's EBT initial standardisation will qualify the instructor to perform practical assessment in competencies.

(iii) Notwithstanding ORO.FC.145 point (a)(2), the line evaluation of competence shall be conducted by a suitably qualified commander nominated by the operator standardised and trained in EBT concepts and the assessment of competencies.

(b) When establishing the training programmes and syllabi, the operator shall include the relevant elements defined in the mandatory part of the operational suitability data established in accordance with Regulation (EU) No 748/2012.

(c) In the case of CAT operations, training and checking programmes, including syllabi and use of individual flight simulation training devices (FSTDs), shall be approved by the competent authority.

(…)

Explanatory note to ORO.FC.145

ORO.FC.145(a)(3)

EBT is a paradigm shift and instructors play a key role in the delivery of the programme. The RMG found necessary to add an EBT course on top of the qualification required in the Aircrew Regulation.

Doc 9995 requires this training as well:

'6.3.2 Instructors should undergo suitable training in order to adapt to the needs of training within an EBT programme. Training should provide the framework for existing instructors to develop their competence to undertake EBT assessment and training'.

ORO.FC.145(a)(3) wording 'for an EBT programme'

This wording 'for an EBT programme' is used instead of 'operator holding an approval for EBT' or other wordings that could be possibly used in order to allow:

— contracted activities under ORO.GEN.205; and

— that other aspects of the training programme which are not linked to the EBT programme itself could be delivered by other personnel which are not EBT instructors.

ORO.FC.145(a)(3) wording 'hold an Annex I (Part-FCL) instructor or examiner certificate'

The proposed rule is restricting the possibility of instructors holding a certificate issued by a third country to become EBT instructors. By using the wording 'hold an Annex I (Part-FCL) instructor or examiner certificate', only instructors or examiners holding a certificate issued in accordance with the EU regulatory framework can deliver EBT. The reasons for such a provision according to the RMG are the following:

— The EBT programme based on competencies does not have the same prescriptive components as a task-based checking under Appendix 9 to Part-FCL. Therefore, the RMG, in an effort to ensure standardisation and integrity of the licence revalidation under EBT, wanted to put into place some level of control of instructor qualification.

— To ensure alignment between Part-ORO of the Air OPS Regulation and Part-FCL of the Aircrew Regulation, the requirement of FCL.900 point (c) must be reproduced in Part-ORO. Therefore, only holders of European instructors' certificates (with a European pilot licence or with a pilot

licence issued by a third country but subject to FCL.900 (c)) are allowed to provide training to European licence holders.

— The instructor qualification is anchored in Part-FCL and additional training is provided in Part-ORO. Therefore, the EBT system relies on the prerequisite of instructor qualification and standardisation in Part-FCL. Foreign certificates may or may not provide the same level of qualification and standardisation provided in Part-FCL, therefore EU instructor certificates were required.

— The level of complexity of the oversight will increase due to the different standards for instructor certificates in the non-EU countries. Furthermore, the national authority performs the oversight of the EBT programme, while EASA performs the oversight of the third-country ATOs. Allowing third-country instructors will overcomplicate the oversight for the national authority.

— Furthermore, the situation where an instructor holding a pilot licence issued by a third country provides training, only occurs when the operator has subcontracted its training to an ATO under ORO.GEN.205. In this situation, the efforts of standardisation are already big. Considering that a small number of non-standardised data introduced in the EBT system can have big implications in the results of the programme, then only Part-FCL certificate holders should be allowed to provide EBT as they are standardised in EBT by the ATO.

— The RMG was also concerned with the delivery of the EBT programme, as they believe that the quality of the delivery of the operator's EBT programme could be compromised; since Europe is the first region delivering full EBT, Part-FCL certified instructors may better guarantee the consistency and philosophy of EBT. This is particularly important as at a later stage, in the context of the activities of RMT.0599, initial type rating courses may be subject to EBT.

Note: Individual European certified trainers with a European pilot licence are allowed to provide EBT even if they are not the operator or ATO staff members. This is allowed under ORO.FC.205 on contracted activities.

ORO.FC.145 (a)(3) wording 'the operator's EBT instructor standardisation'

The wording used in the AMC1 ORO.FC.145(a)(2) for the instructor's standardisation is using 'EBT' for each of the two parts, 'EBT instructor training' and 'EBT assessment of competence', to ensure they are both specific for EBT. The use of 'EBT assessment of competence' is to ensure that the EBT instructor is allowed to revalidate the instructor certificate when the EBT assessment of competence and the assessment of competence for the revalidation of the instructor are combined. The RMG was reluctant to allow the EBT instructor to revalidate the EBT instructor certificate under an ATO not belonging to an airline, and therefore the requirements for the assessment are contained in the operators' requirements. Hence, the revalidation of the EBT instructor certificate requires an operator.

Following the concept already described in Subparts J and K of Part-FCL, the instructors should complete a course to become EBT instructors. This standardisation is composed of a training course and the assessment of competence, which follows the logic of Part-FCL. For example, FCL.930 'Training course', FCL.935 'Assessment of competence' and FCL.940.TRI TRI 'Revalidation and renewal' illustrate the situation for instructor courses and assessment:

'FCL.940.TRI TRI — Revalidation and renewal

(a) *Revalidation*

(1) Aeroplanes. For revalidation of a TRI(A) certificate, the applicant shall, within the last 12 months preceding the expiry date of the certificate, fulfil one of the following 3 requirements:

(i) conduct one of the following parts of a complete type rating training course: simulator session of at least 3hours or one air exercise of at least 1 hour comprising a minimum of 2 take-offs and landings;

(ii) receive instructor refresher training as a TRI at an ATO;

(iii) pass the assessment of competence in accordance with FCL.935.

[…]'

The RMG believes that it must be an operator EBT instructor training. Therefore, the instructor course is operator-specific. However, credits are foreseen in point (d) of AMC1 ORO.FC.145(a)(3) when an instructor has experience in EBT, allowing for a shorter training course.

ORO.FC.145 (a)(3)(ii)

The sentence 'completion of the operator's EBT standardisation will qualify the instructor to perform practical assessment in competencies' was introduced because in the Aircrew Regulation the instructors do not have the privilege to perform practical assessment in competencies. For example, the current FCL.905.TRI.TRI only provides a privilege to *'instruct for'*:

'FCL.905.TRI TRI — Privileges and conditions

The privileges of a TRI are to instruct for […]'

This provision introduces the link to Part-FCL for the EBT proficiency check in accordance with Appendix 10 (practical assessment of competencies), and the wording 'practical assessment in competencies' provides the link to Appendix 10 point 6 'The practical assessment in competencies must be conducted in accordance with the operator's EBT programme'.

The use of 'completion' means also that the instructor successfully passed the instructor standardisation. In ORO.FC.231 (a)(3)(i), this concept is already covered for the module; completion of an EBT module means to complete the programme (syllabi) and reach an acceptable level of performance. The same concept should be used for the instructor standardisation course: 1- the instructor has completed the syllabi for the EBT course, 2- an acceptable level of performance is reached (assessment of competence).

For info, ORO.FC.231(a)(3)(i)

(i) completes a minimum of 2 modules within the validity period of 12 months, separated by a period of not less than 3 months. The module is completed when: (…)

ORO.FC.145(a)(3)(ii) wording 'practical assessment in competencies'

This wording is a transposition of the ICAO wording 'practical assessment' contained in PANS-TRAINING paragraph 4.4.1.2.2.

Furthermore, practical assessment is defined in the new GM to definitions in Subpart ORO.FC.

ORO.FC.145(a)(3)(iii)

The use of a suitably qualified commander, as required in AMC1 ORO.FC.230 (3)(v), has been retained under EBT.

ORO.FC.231 Evidence-based training

(a) EBT PROGRAMME

(1) The operator may substitute the requirements of ORO.FC.230 by establishing, implementing and maintaining a suitable EBT programme approved by the competent authority.

(i) The operator shall demonstrate its capability to support the implementation and perform a safety risk assessment demonstrating how an equivalent level of safety is achieved.

(ii) To demonstrate compliance, the operator shall apply the applicable certification specifications adopted by the Agency.

(2) The operator's EBT programme shall:

(i) correspond to the size of the operator, and the nature and complexity of its activities, taking into account the hazards and associated risks inherent in those activities;

(ii) ensure pilot's competence by assessing and developing pilot's competencies required for a safe, effective and efficient operation of aircraft;

(iii) ensure each pilot is exposed to assessment and training topics described in ORO.FC.232;

(iv) include at least 6 modules distributed across a 3-year programme; each module shall consist of an evaluation phase, and a training phase.

(3) The operator shall ensure that each pilot enrolled in the EBT programme:

(i) completes a minimum of 2 modules within the validity period of the type rating, separated by a period of not less than 3 months. The module is completed when:

(A) the content of the EBT programme is completed for that module (exposure of the pilot to the training topics); and

(B) an acceptable level of performance in all observed competencies has been demonstrated;

(ii) completes line evaluation(s) of competence; and

(iii) completes ground training.

(4) The operator shall establish an instructor standardisation and concordance assurance programme.

(i) All instructors must be subject to this programme.

(ii) The operator shall use appropriate methods and metrics to assess concordance.

(iii) The operator shall demonstrate sufficient instructor concordance.

(5) The operator shall include contingency procedures for unforeseen circumstances that may affect the delivery of the modules. These procedures may include a different separation period between modules. The operator shall demonstrate the need for these procedures. These procedures shall ensure that a pilot does not continue line operations if the performance observed was below the minimum acceptable level.

(b) COMPETENCY FRAMEWORK

The operator shall use a competency framework for all aspects of assessment and training within an EBT programme. The competency framework shall:

(1) include the competencies' descriptions and their associated performance criteria;

(2) include observable behaviours required for safe, effective and efficient operations; and

(3) be comprehensive, accurate, and usable.

(c) TRAINING SYSTEM PERFORMANCE

(1) The EBT system performance shall be measured and evaluated through a feedback process in order to:

(i) validate and refine the operator's EBT programme; and

(ii) ascertain that the operator's EBT programme develops pilot competencies.

(2) The feedback process shall be included in the operator's management system.

(d) GRADING SYSTEM

(1) The operator shall use a grading system to assess the competencies of the pilot. The grading system shall ensure:

(i) sufficient level of detail to enable accurate and useful measurements of individual performance;

(ii) a performance scale for each competency, with a point on the scale which determines the minimum acceptable level to be achieved for the conduct of line operations; The operator shall develop procedures to address low performance of the pilot;

(iii) data integrity; and

(iv) data security.

(2) The operator shall verify at regular intervals the accuracy of the grading system against a criterion-referenced system.

(e) SUITABLE TRAINING DEVICES AND VOLUME TO COMPLETE THE OPERATOR'S EBT PROGRAMME

(1) Each EBT module shall be conducted in an FSTD with a qualification level adequate to

complete proficiency checks.

(2) The operator shall provide a sufficient volume of hours in the suitable training device for the pilot to complete the operator's EBT programme.

(f) EQUIVALENCY OF MALFUNCTIONS

(1) Each pilot shall receive assessment and training in the management of aircraft system malfunctions.

(2) Aircraft system malfunctions that place a significant demand on a proficient crew shall be organised by characteristics.

(3) Each pilot shall be exposed to at least one malfunction for each characteristic at the frequency determined by the table of assessment and training topics.

(4) Demonstrated proficiency in the management of one malfunction is considered equivalent to demonstrated proficiency in the management of other malfunctions with the same characteristics.

(g) EQUIVALENCY OF APPROACHES RELEVANT TO OPERATIONS

(1) The operator shall ensure that each pilot receives regular training in the conduct of approach types and approach methods relevant to operations.

(2) This training shall include approaches that place an additional demand on a proficient crew;

(3) This training shall include the approaches requiring specific approval.

(h) LINE EVALUATION OF COMPETENCE

(1) Each pilot shall periodically undertake a line evaluation of competence in an aircraft to demonstrate the safe, effective and efficient conduct of normal line operations described in the operations manual.

(2) The validity period of a line evaluation of competence shall be 12 months. The validity period shall be counted from the end of the month when the line evaluation of competence was undertaken. When the line evaluation of competence is undertaken within the last 6 months of the validity period, the new validity period shall be counted from the original expiry date.

(3) The operator approved for EBT may, with the approval of the competent authority, extend the validity of the line evaluation of competence to:

(i) 2 years; or

(ii) 3 years, subject to a feedback process for the monitoring of line operations.

(4) For successful completion of the line evaluation of competence, the pilot shall demonstrate that each competency is at or above the minimum acceptable level of performance.

(i) GROUND TRAINING

(1) Every 12 calendar months, each pilot shall undergo a:

(i) technical ground training; and

(ii) assessment and training on the location and use of all emergency and safety equipment carried on the aircraft.

(2) The operator may, with the approval of the competent authority, extend the period of assessment and training on the location and use of all emergency and safety equipment carried on the aircraft to 24 months.

Explanatory note to ORO.FC.231

The EBT programme and philosophy are intended to be applied as the means of assessing and training key areas of flight crew performance in a recurrent training system. This is referred to in ICAO Annex 6, Operation of Aircraft, Part I, International commercial Air Transport — Aeroplanes, SARP 9.3, Flight crew member training programmes, and 9.4.4, Pilot proficiency checks. In addition, it is also referred to in ICAO Annex 1, Personnel Licensing, 1.2.5, Validity of licenses.

The EBT programme considers the differences between aeroplane generations by tailoring the recurrent training programme to the aeroplane generation. The paradigm shift proposed under the EBT programme is not simply to replace a set of critical events with a new set, but to use the events as a vehicle for assessing and developing crew performance across a range of competencies. In addition, EBT refocuses the instructor population onto analysis of the root causes to correct inappropriate actions, rather than simply asking a flight crew member to repeat a manoeuvre with no real understanding as to why it was not successfully flown in the first instance. Finally, it is acknowledged that in today's high-fidelity simulator environment, very sophisticated training tools exist that are often not used effectively, as regulation focuses much more on checking. EBT seeks to redress the imbalance between training and checking. It recognises that an assessment of competence is necessary, but once completed, pilots learn more effectively when being trained by competent instructors to perform tasks and manage events measured according to a given set of observable behaviours (OBs), while not under test conditions.

The data analyses undertaken to support the EBT programme illustrate inadequacies in the perpetuation of historical airline flight training regimes and identify areas in which major change is necessary. They strongly support the implementation of such change in both the regulation and development of recurrent airline pilot assessment and training. Finally, they identify the areas for improvement, providing the prioritisation of relevant training topics to guide in the construction of suitable EBT programmes.

ORO.FC.231 point (a) wording 'a suitable EBT programme'

AMC10 ORO.FC.231(a) provides a more detailed presentation of the suitability of an operator's EBT programme.

The term 'EBT programme' referred to in the AMC is contained in ORO.FC.231 point (a) 'EBT programme'. While the table of assessment and training topics is a generic programme in an aircraft generation, the 'EBT programme' is specific to a particular operator and it encompasses all the requirements contained in ORO.FC.231 from point (a) to point (i).

The 'EBT programme' is an approved programme for CAT aircraft. The reason for this approval is the existing provision ORO.FC.145 point (c), thus 'EBT programme' encompasses an approved process by the competent authority.

ORO.FC.231 point (a)(1) wording 'demonstrate its capability to support the implementation'

The EBT training programme is intended to be implemented by phases, from a legacy training or other alternate training programmes such as ATQP (alternative training and qualification programme) to a full EBT programme in accordance with ORO.FC.231.

Mixed EBT or ATQPs are intended to provide (or have provided) enough experience for an operator to be ready to implement an EBT programme in accordance with ORO.FC.231.

Also, this period should provide the competent authority with enough information on the resources needed to perform oversight of operators implementing an EBT programme in accordance with ORO.FC.231.

This assures a robust and standardised EBT implementation in accordance with ORO.FC.231 across the spectrum of airlines with different levels of experience in and resources for this kind of programmes.

ORO.FC.231 point (a)(1) wording 'equivalent level of safety'

The wording was transposed from ATQP (ORO.FC.A.245). The equivalent level of safety is used in other provisions across the Air OPS Regulation (e.g. minimum cabin crew, alternative means of compliance, etc).

ORO.FC.231 point (a)(1)(ii) wording

The wording used creates the necessary link for the CS issued for EBT.

ORO.FC.231 point (a)(2) wording 'to assessment and training topics derived from a large-scale analysis of operational data'

The assessment and training topics are included in the 'table of assessment and training topics' (e.g. Appendix 2 to ICAO Doc 9995). The table defines also the frequency of training those topics. The programme is described at AMC level. This means that alternative means of compliance (AltMoC) can be also used to demonstrate compliance with the IR (in accordance with ORO.GEN.120 of the Air OPS Regulation). However, in order to seek for an approval, the operator should demonstrate that this change of the programme is subject to a proper study of the operational risks. Such a large study was conducted by a collaborative group (industry and the regulator) in the IATA data report for EBT. If operators would like to modify the 'table of assessment and training topics', a similar work must be carried out.

ORO.FC.231point (a)(2) wording "3 year period"

'3-year *period*' instead of '3-year *cycle*' as provided in Doc 9995 is used because:

1- The European rules generally use *'period'* instead of cycle (see Part-ORO)

2- This Opinion proposes the definition of 'cycle' that expresses the notion of a one-year period. Therefore, if '3-year cycle' is used, it may be confusing.

ORO.FC.231 point (a)(2)(iii)(A) 'evaluation'

The evaluation phase should consist of a line-orientated flight scenario during which there are one or more occurrences for evaluating one or more key elements of the required competencies. The root cause/contributing factor should be identified rather than the symptoms of any deficiency.

This is not intended to be a comprehensive assessment of all areas of competency, nor a demonstration of all critical flight manoeuvres.

During the evaluation phase, for any competency observed below minimum:

– specific training needs should be determined; and

– the subsequent SBT phase includes remediation and the flight crew member is not released to line flying until an acceptable level of performance is reached.

ORO.FC.231 point (a)(2)(iii)(B) 'training phase'

The intent of the regulator is to complete the training phase after the evaluation phase, while the phases included in the training phase (MT and SBT) can be performed in any order.

(A) an evaluation phase, comprising a line-orientated flight scenario (or scenarios) to assess competencies and identify individual training needs; and

(B) a training phase, comprising:

- manoeuvres training phase, comprising training to proficiency in certain defined manoeuvres; and
- scenario-based training phase, comprising line-orientated flight scenario(s) to develop competencies and address individual training needs.

ORO.FC.231 point (a)(2)(iii)(C)

'(C) The training phase shall be conducted timely after the evaluation phase'

Following the reasoning explained in the point above, the intent of this provision is to clarify the need to perform the training phase after the evaluation phase. In addition, the word 'timely' is introduced to stress the need to define a time frame in which the training will be provided. This time frame must be reasonable and depend on many factors (including crew individual needs and operator needs).

ORO.FC.231 point (a)(3) wording 'type rating'

Although the proposal published in the NPA stated 12 months, the RMG decided to change and use the wording of 'type rating' for consistency reasons between the Air OPS Regulation and the Aircrew Regulation. This wording ensures two modules in a 12-month period and ensures the validity is up to the end of the month. Therefore, the intention of the RMG is to ensure 2 modules a year (each module composed of 2 simulator sessions).

ORO.FC.231 point (a)(3) wording 'by a period of not less than 3 months'

The RMG discussed ICAO Annex 6 Part I Chapter 9 SARP 9.4.4 'Pilot proficiency checks' where 2 checks a year are required, performed at least 4 months apart:

'9.4.4 Pilot proficiency checks

9.4.4.1 The operator shall ensure that piloting technique and the ability to execute emergency procedures is checked in such a way as to demonstrate the pilot's competence on each type or variant

of a type of aeroplane. Where the operation may be conducted under instrument flight rules, the operator shall ensure that the pilot's competence to comply with such rules is demonstrated to either a check pilot of the operator or to a representative of the State of the Operator. Such checks shall be performed twice within any period of one year. Any two such checks which are similar and which occur within a period of four consecutive months shall not alone satisfy this requirement.'

The RMG considered that these checks are not similar, as they are not repetitive training tasks or events, but evaluations in different scenarios. Therefore, a 3-month period is consistent with the European regulatory framework where the OPC in ATQP (ORO.FC.A.245) has a validity period of 6 months with the possibility to do it 3 months in advance.

Furthermore, according to ICAO Doc 9995, this document is a means of compliance with the Annex 6 SARP 9.4.4.

'This manual is intended to provide guidance to Civil Aviation Authorities, operators and approved training organizations in the recurrent assessment and training of pilots referred to in Annex 6 to the Convention on International Civil Aviation, Operation of Aircraft, Part I, International Commercial Air Transport — Aeroplanes, paragraphs 9.3, Flight crew member training programmes, and 9.4.4, Pilot proficiency checks.'

ORO.FC.231 point (a)(4) 'instructor concordance'

It is imperative that instructor concordance is regulated as a core aspect of an EBT programme, and should be held to high standards, as it is one of the most critical drivers of data quality in an EBT programme. Concordance should be required to prevent drift in instructor quality and ensure concordance over time, especially in the non-technical competencies.

ORO.FC.231 point (a)(5) wording 'line operations'

The use of the term 'line operations' allows for training flights. At the same time, it restricts line flying when a minimum performance is not achieved. EBT is an FSTD programme; therefore, the recommendation is to provide such remedial training in the FSTD. However, the operator is allowed to conduct training flights and the pilot should be permitted to be trained in flight, assuming the minimum performance for line operations was achieved, for example when a pilot obtains a grade two in APK. This is especially relevant in small aircraft models, and although most of those models are not yet permitted in EBT, EASA has plans to incorporate them in the future.

The term 'line operations' is used in the Air OPS Regulation and although no definition is provided, its meaning is obvious. However, readers are invited to comment if a definition may be necessary.

ORO.FC.231 point (a)(5)

If a low performance is observed and there is no immediate opportunity for remedial training (e.g. unforeseen circumstances, sessions separated by several days apart with flight duty in the middle, etc.), the pilot should be removed from line operations until an acceptable level of performance can be achieved.

ORO.FC.231(b)

Why is there a need to require a competency framework?

Mastering a finite number of competencies should allow a pilot to manage situations in flight. The main benefit of a competency-based approach to training is its potential to encourage and enable

individual aviation professionals to reach their highest level of operational capability while ensuring a basic level of competence as a minimum standard.

Legacy training and checking, and alternative training and qualification programme (ATQP) vs EBT.

The major difference between ATQP and EBT model lies in its approach in identifying the knowledge, skills and attitudes (KSA) for the successful performance in the job. ATQP and traditional training (Appendix 9) focus on a task-based approach of the pilot role by identifying the job-related tasks (and subtasks), which are then used to identify a list of KSA required for successful pilot performance. On the other side, the EBT approach starts with the performance indicators/observable behaviours of exemplary pilots to define an official list of Observable behaviours (see list of OBs in the EBT competency framework) to then group them in competencies (see list of the EASA EBT competency framework – 9 competencies). Through this process, the 9 EBT competencies are related to effective or superior performance. Therefore, the question is not which KSA are required to perform the tasks of an airline pilot (ATQP approach) but which KSA do superior performers airline pilots possess and use? (EBT approach)

PRINCIPLES OF A COMPETENCY FRAMEWORK

— The purpose of competency-based assessment and training is to assess and train the capacity of an individual to perform at the standard expected in an organisational workplace.

— There is an explicit link between competencies and training, required performance on the job, and assessment.

— Competencies are formulated in a way that ensures they can be developed, observed and assessed consistently in a wide variety of work contexts for a given aviation profession or role.

— Each stakeholder in the process including the trainee, instructor, training organisation, operator and regulator has a common understanding of the competency requirements.

— Clear performance criteria are established for assessing competence.

— Evidence of competent performance is valid and reliable.

— Instructors' and assessors' judgments are calibrated to achieve a high degree of inter-rater reliability.

— Assessment of competencies is based on multiple observations across multiple contexts.

— A relevant competency framework is clearly defined for a particular role.

— To be considered competent, an individual demonstrates an integrated performance of all the required competencies to a specified standard.

ASSUMPTIONS

— All tasks performed by aviation professionals require the application of a relevant set of competencies.

— Aviation professionals apply the same set of competencies in a given role throughout their career but with different degrees of performance.

ORO.FC.231(c)

This requirement is transposed from Doc 9995 paragraphs 3.6.6 and 3.6.7 with the necessary amendments into the European regulatory system.

'3.6.6 Quality management. The training system performance should be measured and evaluated in respect of the organizational objectives. Monitoring should include a feedback system to identify trends and ensure corrective action where necessary. The quality system of the operator or training organization, as defined in Doc 9841, the Manual on the Approval of Training Organizations, should monitor alignment with the EBT assessment and training guidelines recommended in this manual.

3.6.7 Feedback system. For the purpose of collecting data from an EBT programme, and making adjustments and continuous improvement to the training system, an operator should implement a performance feedback system utilising defined metrics (see paragraph 5.3)'.

ORO.FC.231(c) point (1)(ii)

The requirement is transposed from ICAO Doc 9995 paragraph 3.6.6 '(…) should monitor alignment with the EBT assessment and training guidelines recommended in this manual.(…)'. The interpretation of this paragraph was the following: as one of the main objectives of the EBT programme is to develop pilot competencies, the sentence in 3.6.6 was transformed to 'develops pilot competencies'.

ORO.FC.231(c) point (2)

ORO.GEN.200 Management system

(a) The operator shall establish, implement and maintain a management system that includes:

(1) (…)

(4) maintaining personnel trained and competent to perform their tasks;

ORO.FC.231(d)

The paradigm shift from legacy training and checking programmes is a move away from assessment against the execution of predefined manoeuvres and tasks, based on the quality of execution. Remediation in these cases often leads to simple task repetition without an understanding of the underlying causes of ineffective performance.

To be consistent with the central philosophy of EBT, the assessment should be completed at key points during the module, and the performance should be evaluated against each of the defined competencies, using the most relevant OBs to the performance observed. The instructor should take an overview of everything observed during the phase, and using a methodology similar to that published, award grades in each competency only.

The grading system should be used for crew assessment, in addition to providing quantifiable data for the measurement of the training system performance. It can range from a simple 'acceptable/unacceptable' grading performance system to a gradual relative measurement system.

ORO.FC.231(d) wording 'a grading system to assess'

The intent of the grading system 'to assess' is provided in the IR following the performance-based regulation model, where the objective is allocated in the rule.

The provision is transposed from Doc 9995 paragraph 3.6.3:

'3.6.3 Assessment and grading system. A full description of the competencies is provided in Appendix 1 to Part II. It is essential to note that an operator intending to use this framework should in addition develop a clear assessment and grading system for expected crew performance. Competencies are a fundamental component of the grading system. It is not the intention of this document to fully describe a grading system, but a grading system should be used for crew assessment, in addition to providing quantifiable data for the measurement of the training system performance. It can range from a simple 'acceptable/unacceptable' grading performance system to a graduated relative measurement system.'

ORO.FC.231(d) point (1)(iii)

Data integrity is the maintenance of, and the assurance of the accuracy and consistency of, data over its entire life-cycle and is a critical aspect of the design, implementation and usage of any system which stores, processes, or retrieves data.

Any unintended changes to data as the result of a storage, retrieval or processing operation, including malicious intent, unexpected hardware failure, and human error, is failure of data integrity.

ORO.FC.231(d) point (2)

Why do we need a verification of the grading system?

The EBT grading system provides a norm-referenced system, although it contains some characteristics of a criterion-referenced system.

Glasser (1963) formalised the concept of criterion-referenced testing (CRT). The development of a CRT entails, firstly, a statement of behavioural objectives and then a systematic generation of test items designed to unambiguously ascertain to what degree these objectives have been met. Standards of performance are set using minimal levels of competence before the test is applied.

These characteristics are difficult to achieve in the EBT system for certain OBs and grading, especially as regards non-technical skills, associated OBs and their grading. For example, a grade 3 ('The pilot communicated adequately, by regularly demonstrating most of the OBs when required, which resulted in a safe operation') in communication will require that all OBs are clearly and unambiguously defined. As an example, the OB 'Uses eye contact, body movement and gestures that are consistent with and support verbal messages' would require further criteria in the context of a particular scenario to reach the 'unambiguously ascertain to what degree the objective has been met' explained by Glasser (1963). These criteria could be: at least 20 seconds of eye contact along with a body movement of three gestures (e.g. indicating with the arm the side of the aircraft affected) that support the verbal message of the explanation of an engine problem to the cabin crew.

Today, the revalidation of licences is based on a criterion-referenced system for the conduct of the training, tests and checks of Appendix 9 with regard to technical competencies (see FLIGHT TEST TOLERANCE, Appendix 9 to Part-FCL of the Aircrew Regulation. For the non-technical competencies, a norm-referenced system may be provided (see ORO.FC.115 &215 of the Air OPS Regulation).

Today, the European aviation system uses a criterion-referenced system for revalidation of pilot licences to ensure a level playing field (that is the aim in accordance with Article 1 of the Basic Regulation). EBT proposes a norm-referenced system. In order to combine both methods, a feedback process is proposed. This process is recommended in different scientific works. From all the scientific works, the RMG provided a reference to the book 'Criterion-referenced and norm-referenced

assessments: compatibility and complementarity' author: Beatrice Lok, Carmel McNaught & Kenneth Young.

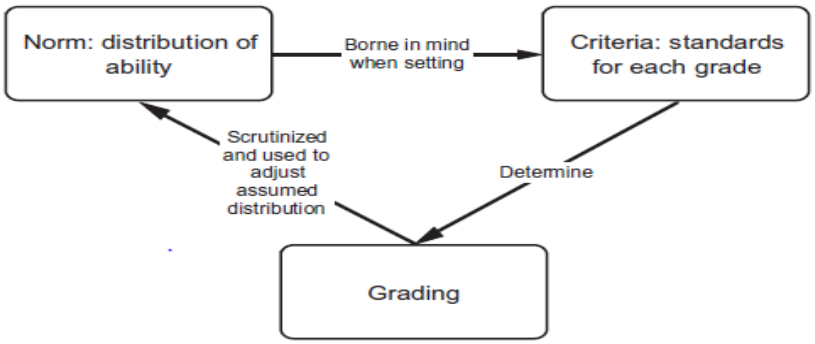
An extract is provided to support the need for the verification of the grading system in EBT. The book proposed a yearly verification of the grading system; however, the RMG opposed this proposal and instead EASA proposed a one-time feedback every three years.

'Feedback process:

There is no need to choose between norm referencing and criterion referencing. They are both present.

- Not only are they both present, but with the caveat about minor adjustments from year to year, they are consistent. Thus, it is possible both to define rubrics (criterion referencing) and to prescribe grade-distribution guidelines (norm referencing), provided the latter contains a degree of flexibility.
- The presence of norm referencing and criterion referencing in a loop enables the generation of both useful feedback to learners and useful summative information to external stakeholders.
- The use of criteria allows meaningful reference to higher-order learning outcomes. While these are inevitably ambiguous and even unknown to external stakeholders, the simultaneous use of norm referencing *allows the* interpretation of these criteria to be supported by norm comparisons, and to guard against grade inflation.
- Since these steps are all in a loop, there is no need to argue which one comes first.
- The entire approach is coherent with modern quality-assurance and fitness-for purpose concepts.'

Assessment & Evaluation in Higher Education



Feedback loop.

ORO.FC.231(e) point (1)

EASA is currently updating the requirements for FSTD through RMT.0196 'Update of flight simulation training device requirements'. More information about this RMT is available under https://www.easa.europa.eu/document-library/rulemaking-subjects/update-flight-simulation-training-devices-requirements.

Currently, Appendix 9 to Part-FCL of the Aircrew Regulation requires the FSTD used to revalidate a type rating in the context of CAT to meet the standard required for 'training to proficiency'. There was

a consensus in the RMG to provide a similar requirement for the EBT programmes. The actual drafting of the text for this provision was agreed with EASA FSTD experts and members of RMG RMT.0196. RMG RMT.0599 did not have experts in this subject and therefore the text was simply accepted with no further discussion.

The reasoning behind the text proposed is related to the EASA certificate awarded to each FSTD. Each certificate (see EASA form 145 in Appendix IV to Annex VI (Part-ARA) to the Aircrew Regulation) contains a table in paragraph 'L' named 'Guidance information for training, testing and checking considerations'. The line 'Proficiency check YES/NO' covers this item.

Below are some of the considerations of the RMG for the actual and future development of FSTDs to maximise effectiveness when used as part of an EBT programme:

(a) Environmental effects:

(1) Weather

(2) Real-time full environment simulation without limitations and demand on the instructor to code effects, layers of clouds, etc. repetitively during a session

(3) Enhancement of the availability of cumulonimbus and storms with a strong correlation to motion cues

(4) Availability of multiple storms and cummulunimbus to create a more realistic and challenging weather profile

(5) Greater variation in precipitation effects

(6) Better-modelled ground effects; especially, variations in friction caused by water, snow and ice

(7) ATC

(8) To maximise realism and the benefits of EBT, the air traffic control (ATC) environment needs simulation with context-specific ATC interactions. Creating a normal, dynamic and distracting ATC environment is challenging for an instructor to achieve and is a diversion from the instructor's primary task of observing flight crew members.

(b) Aircraft effects

(c) Greater accuracy in modelled engine malfunctions based on engine original equipment manufacturer (OEM) data with motion and sound effects that are more realistic.

Finer adjustments when creating sensed and non-sensed malfunctions, so that the instructor can create realistic distractions that may not result in a complete failure of the system. For example, slow leaks of fluids able to be stopped and contained, variations in temperatures and pressures, intermittent cautions based on a condition being sensed momentarily, and then restored.

Currently, EASA is working on a process to allow blended learning (ABLE) to support FSTD training. This will optimise the use of available FSTD time.

When this process is in place as an approved AMC, the requirement for FSTD training may be replaced by requirements for training in any combination of devices supporting the specific tasks.

ORO.FC.231(h) wording 'competence'

The heading of the rule is 'line evaluation of competence'. The word 'competence' was selected instead of 'competency', because the RMG wanted to reflect that an assessment of the competencies must be made and the pilot has to reach a certain level of performance: 'competence'.

ORO.FC.231(h)(1)

The safety objective is stated in the IR. The sentence 'undertake a line evaluation in an aircraft in flight to ensure safe, effective and efficient conduct' was transposed from Doc 9995, FOREWORD and in Part I, paragraph 1.6:

'The aim of this programme is to develop and evaluate the identified competencies required to operate safely, effectively and efficiently in a commercial air transport environment'

'Normal line operations' is used because ORO.FC.230 point (c)(1) uses the same wording: *'(1) Each flight crew member shall complete a line check on the aircraft to demonstrate competence in carrying out normal line operations described in the operations manual.'* The provision of the line evaluation of competence intends to have the same scope as currently have the line check. Obviously, this implies to successfully demonstrate competence in the management of any abnormal or emergency that may occur during the flight. Therefore, the use of 'normal operation' is not referring to the malfunctions; it is referring to a normal flight (not test flight, not maintenance flight, etc.)

ORO.FC.231(h)(1) wording 'aircraft in flight'

The wording 'aircraft in flight' is used in this IR to remove any ambiguity as to where the line evaluation may be undertaken. The RMG noted that in GM1 ORO.FC.230 point (c) there is a mention of 'line check and proficiency training and checking' in an FSTD. This will not be transferred into GM1 ORO.FC.231.

ORO.FC.231(h)(2) wording 'period of validity'

The wording for 'period of validity' is similar to that used in ORO.FC.245 (d).

The validity window has been increased to 6 months; this is also in line with other periods of validity that exist in Part-FCL (e.g. revalidation of a rating).

ORO.FC.231(h)(3)(i)

The intent of this rule is to continue to permit those operators who had been conducting ATQPs for more than 24 months and can, therefore, continue to apply a 24-month line evaluation (check under ATQP) periodicity when they transition to an EBT programme. It is worthy of note that this does not apply under the mixed EBT implementation phase. ORO.FC.230 & 245 remain applicable.

Under this IR, it is left to the discretion of the competent authority whether it will grant a 24-month validity period for line checks to those operators who had not previously conducted an ATQP. However, the competent authority shall ensure that the operator is fully conversant with a competency-based evaluation system prior to applying this rule. Further guidance will be issued in a safety promotion document – EASA EBT manual.

The reason behind allowing extensions of validity periods in the line evaluation of competence (line check) is the following:

— Legacy training requires 1 line check per year.

— ATQP provides an alleviation of 1 line check every 2 years because it requires a line-orientated evaluation per year. That means that 2 line orienteted evaluations (LOEs) substitute 1 line check.

— EBT provides more opportunities than the ATQP for LOE, because in the evaluation and in the scenario-based training both scenarios are line-orientated flights and required twice per year (EBT requires 2 modules a year).

ORO.FC.231(i)(1)

The provision was drafted as follows:

The RMG:

(a) transposed the existing ORO.FC.230 of the Air OPS Regulation:

'(…)

(d) Emergency and safety equipment training and checking

Each flight crew member shall complete training and checking on the location and use of all emergency and safety equipment carried. The validity period of an emergency and safety equipment check shall be 12 calendar months.

(…)

(f) Each flight crew member shall undergo ground training and flight training in an FSTD or an aircraft, or a combination of FSTD and aircraft training, at least every 12 calendar months. (…)'

(b) combined the 2 points.

(c) removed the word 'check' because in EBT the concept of checking is removed. Also, in the industry, training and checking are combined; therefore, the text is intended to reflect the industry's practice.

(d) finalised the provision by adjusting the text to the EBT regulation.

ORO.FC.231 (i)(2)

The provision is transposed from ORO.FC.A.245 of the Air OPS Regulation and reworded as appropriate. The alleviation is consistent with the existing alleviation provided for the ATQP.

ORO.FC.232 EBT programme assessment and training topics

(a) The operator shall ensure that each pilot is exposed to the assessment and training topics.
(b) The assessment and training topics shall:
  (1) derived from a large-scale analysis of operational data,
  (2) be distributed across a 3-year period at a defined frequency,
  (3) be relevant to the type or variant of aircraft on which they operate.
(c) Only aircraft types for which the assessment and training topics are developed shall apply EBT.

Annex I (Part-FCL) to Regulation (EU) No 1178/2011

Concept of revalidation within an EBT programme

Background of licence revalidation:

— The current revalidation process has four components:

(a) the applicant;

(b) the examiner;

(c) the technical assessment carried out in the simulator or the aircraft; and

(d) the administrative procedure that includes the completion of Appendix 9, and the rest of administrative procedures in Part-FCL FCL.1030 points (b), (c) and (d) that include the licence endorsements.

This process is carried out by the same person (examiner) who performs the technical assessment and the administrative procedure, at the same 'location' (simulator or aircraft) and at the same time (the date and time of the proficiency check).

Note: Although most of the LPCs are carried out by a single examiner, the possibility of having several examiners for the same check already exists.

— The EBT philosophy should provide a different approach, where training is maximised and therefore checks disappear (assessment is introduced) and the pilot is trained in NON-jeopardy environment. Furthermore, the continuous training evidence of the pilot (data) should provide a better assessment of the competence of the pilot. Therefore:

(a) the EBT technical assessment has several events (simulator sessions) instead of one;

(b) there are several assessors of pilot performance (EBT instructors) instead of just one (examiner); however, the nominated person for crew training is an examiner designated to provide a final assessment of the data collected; and

(c) the administrative procedure should be maintained; however, due to the several people being involved in the technical assessment, the administrative procedures involve the nominated person for crew training who carries the responsibility of the licence revalidation and a designated person who will endorse the licence.

Concept of licence revalidation in the context of an operator's EBT programme

The revalidation process proposed has the following components:

(a) the applicant;

(b) the people involved in the revalidation of the pilot licence:

(1) the nominated person for crew training (or the deputy(ies)) who is an examiner responsible for the operator's EBT programme, (ensuring that the manoeuvres assessed are of a good training value and that the applicant completed those manoeuvres). The nominated person will be mostly responsible for the completion of Appendix 10. This person (or the deputy(ies)) also has the overall picture of the pilot training data for the period of validity (as shown by the evidence provided by the EBT programme);

(2) the designated person who has the signature delegation from the nominated person to endorse the licence and complete Appendix 10; and

(3) the EBT instructors who delivered each of the technical assessments that provide data to the EBT grading system and the training system performance;

(c) the several technical assessments carried out in the simulators which provide the necessary evidence to ensure the pilot has an acceptable level of performance; and

(d) the administrative procedure which includes the completion of Appendix 10 and the rest of administrative procedures provided in FCL.1030.

FCL.015 Application and issue, revalidation and renewal of licences, ratings and certificates

(a) An application for the issue, revalidation or renewal of pilot licences and associated ratings and certificates shall be submitted to the competent authority in a form and manner established by this authority. The application shall be accompanied by evidence that the applicant complies with the requirements for the issue, revalidation or renewal of the licence or certificate as well as associated ratings or endorsements, established in this Part and Part-Medical.

(b) Any limitation or extension of the privileges granted by a licence, rating or certificate shall be endorsed in the licence or certificate by the competent authority.

(c) A person shall not hold at any time more than one licence per category of aircraft issued in accordance with this Part.

(d) An application for the issue of a licence for another category of aircraft, or for the issue of further ratings or certificates, as well as an amendment, revalidation or renewal of those licences, ratings or certificates shall be submitted to the competent authority which initially issued the pilot licence, except when the pilot has requested a change of competent authority and a transfer of his licensing and medical records to that authority.

(e) Training activities delivered in FSTDs or in aircraft in accordance with Annex III (Part-ORO) to Regulation (EU) No 965/2012 shall be taken into account for experience requirements and revalidation established in this Annex (Part-FCL).

FCL.625 IR — Validity, revalidation and renewal

(a) […]

(b) […]

(c) Renewal. If an IR has expired, in order to renew their privileges applicants shall:

(1) go through refresher training at an ATO, or an AOC approved for such refresher, to reach the level of proficiency needed to pass the instrument element of the skill test in accordance with Appendix 9 to this Part; and

(2) complete a proficiency check in accordance with Appendix 9 or Appendix 10 to this Part, in the relevant aircraft category.

(d) […]

FCL.625.A IR(A) — Revalidation

(a) Revalidation. Applicants for the revalidation of an IR(A):

(1) when combined with the revalidation of a class or type rating, shall pass a proficiency check in accordance with Appendix 9 or Appendix 10 to this Part; […]

FCL.740 — Validity and renewal of class and type ratings

(a) […]

(b) Renewal. If a class or type rating has expired, the applicant shall:

(1) take refresher training at an ATO, or an AOC approved for such refresher, when necessary to reach the level of proficiency necessary to safely operate the relevant class or type of aircraft; and

(2) pass a proficiency check in accordance with Appendix 9 or Appendix 10 to this Part. […]

FCL.740.A — Revalidation of class and type ratings — aeroplanes

(a) Revalidation of multi-engine class ratings and type ratings. For revalidation of multi-engine class ratings and type ratings, the applicant shall:

(1) pass a proficiency check in accordance with Appendix 9 or Appendix 10 to this Part in the relevant class or type of aeroplane or an FSTD representing that class or type, within the 3 months immediately preceding the expiry date of the rating; […]

FCL.905.TRI TRI — Privileges and conditions

(a) The privileges of a TRI are to instruct for:

~~(a)~~ (1) the revalidation and renewal of an EIR or an IR, provided the TRI holds a valid IR;

[…]

~~(f)~~ (6) in the case of the TRI for powered-lift aircraft:

~~(1)~~ (i) the issue, revalidation and renewal of powered-lift type ratings;

~~(2)~~ (ii) MCC training.

(b) After completion of the operator's EBT instructor standardisation in accordance with Annex III (Part-ORO) to Regulation (EU) No 965/2012, the TRI is granted the additional privilege to conduct practical assessment in competencies. Notwithstanding FCL.015, this privilege may not be endorsed on the TRI certificate.

FCL.905.SFI SFI — Privileges and conditions

(a) The privileges of an SFI are to carry out synthetic flight instruction, within the relevant aircraft category, for:

~~(a)~~(1) the issue, revalidation and renewal of an IR, provided that ~~he/she~~ he or she holds or has held an IR in the relevant aircraft category and has completed an IRI training course; and

~~(b)~~(2) in the case of SFI for single-pilot aeroplanes:

~~(1)~~(i) the issue, revalidation and renewal of type ratings for single-pilot high performance complex aeroplanes, when the applicant seeks privileges to operate in single-pilot operations.

[…]

~~(d)~~(4) in the case of SFI for helicopters:

~~(1)~~ (i) the issue, revalidation and renewal of helicopter type ratings;

~~(2)~~ (ii) MCC training, when the SFI has privileges to instruct for multi-pilot helicopters.

(b) After completion of the operator's EBT instructor standardisation in accordance with Annex III (Part-ORO) to Regulation (EU) No 965/2012, the SFI is granted the additional privilege to conduct practical assessment in competencies. Notwithstanding FCL.015, this privilege is not endorsed on the TRI certificate.

FCL.1025 Validity, revalidation and renewal of examiner certificates

(a) Validity. An examiner certificate shall be valid for 3 years.

(b) Revalidation. An examiner certificate shall be revalidated when the holder has, during the validity period of the certificate:

(1) conducted at least 2 skill tests, proficiency checks or assessments of competence every year; […]

Appendix 10 to Annex I (Part-FCL) to Regulation (EU) No 1178/2011

Appendix 10 — Proficiency check type ratings, and proficiency check for IRs when combined with type rating — Practical assessment in competencies

A — General

1. The practical assessment in competencies within an EBT programme is equivalent to a proficiency check.

2. Appendix 10 only applies to:

(a) an operator with an EBT programme in accordance with ORO.FC.231 that:

(1) has an experience of at least 3 years conducting a mixed EBT programme; and

(2) for each of the type ratings for which Appendix 10 is applicable, there is a current type rating examiner that shall be the nominated person for crew training (or the deputy(ies)); and

(b) an ATO on behalf of the operator that complies with paragraph (2)(a) above, under ORO.GEN.205 'Contracted activities'.

3. The nominated person (or the deputy(ies)) for crew training must verify that the applicant complies with all the qualification, training and experience requirements in this Part for the revalidation of the rating for which the proficiency check is taken.

4. Applicants using Appendix 10 shall:

(a) be an enrolled pilot in the operator's EBT programme; and

(b) within the period of validity, complete the operator's EBT programme.

5. The revalidation or renewal in accordance with Appendix 10 shall comprise:

(a) continuous practical assessment in competencies within an EBT programme;

(b) demonstration of an acceptable level of performance in all competencies; and

(c) the administrative action of licence revalidation.

(1) The nominated person for crew training (or the deputy(ies)) shall endorse the applicant's licence or certificate with the new expiry date of the rating, if specifically authorised for that purpose by the competent authority responsible for the applicant's licence. Delegation of the nominated person's for crew training (or the deputy(ies)) signature in order for the applicant's licence to be signed, may be possible only if the operator has an approved procedure for such case.

(2) The nominated person for crew training (or the deputy(ies)) shall ensure that the requirements in FCL.1030 'Conduct of skill tests, proficiency checks and assessments of competence' are met.

B — CONDUCT OF PRACTICAL ASSESSMENT IN COMPETENCIES

6. The practical assessment in competencies must be conducted in accordance with the operator's EBT programme.

7. Applicants who fail to demonstrate an acceptable level of competence and are de-enrolled from the operator's EBT programme shall not exercise the privileges of that type rating.

Appendix 10

Under the existing Part-FCL Appendix 9, proficiency check has two components:

1. the technical assessment in the FSTD or aircraft; and
2. the administrative action.

This is based on a single event taking place.

Unlike that, the EBT philosophy dictates that a candidate is continuously assessed throughout the programme. This is achieved through a practical assessment in competencies within each module. Appendix 10 is therefore created to cater to the needs (multiple events are taking place) of licence revalidation within an EBT programme.

The completion of Appendix 10 proficiency check is based on multiple data obtained through the EBT programme regarding an enrolled flight crew member. It is therefore not based on a single event. Instead, Appendix 10 requires a continuous assessment and training of the pilot where each competency is demonstrated at or above the minimum acceptable level of performance. This may take place in a simulated environment.

Appendix 10 paragraphs 1 and 5

A practical assessment in competencies within an EBT programme is equivalent to a proficiency check. However, to legally complete a proficiency check and revalidate the pilot's licence, paragraph 5 details the requirements, including several practical assessments in competencies.

Appendix 10 paragraph 2 point (a)(2)

This provision intends to ensure that for each type where the EBT programme is applied, there is a nominated person for crew training (or the deputy(ies)) that ensures the relevance of the EBT system. For airlines with several types, it is intended that there is a deputy for each fleet (type) that is responsible for the correct delivery of the EBT programme and for ensuring the EBT system is properly working.

Appendix 10 paragraphs 4 point (b)

Safety promotion material — completion of the operator's EBT programme

EASA has planned safety promotion task (SPT).012 to support the implementation of EBT. The following material was developed:

SPT.012 — safety promotion task 012 — safety material for EBT — COMPLETION OF THE OPERATOR'S EBT PROGRAMME WITHIN THE PERIOD OF VALIDITY (SEE FCL.1030 (b)(3)(ii) AND APPENDIX 10 PARAGRAPH 4(b).

APPLICANTS USING APPENDIX 10 SHALL, WITHIN THE PERIOD OF VALIDITY, COMPLETE THE OPERATOR'S EBT PROGRAMME

(a) The applicant completes the operator's EBT programme applicable to his/her period of validity. Normally, the rating validity is 1 year; therefore, it refers to the modules and training planned for that period of time.

(b) When the applicant is enrolled part-way through the period of validity of the rating (e.g. when pilots join a new airline, or they change aircraft types), the applicant is only required to complete the elements of the operator's EBT programme for the remaining period of validity.

To 'complete the operator's EBT programme' means to complete the EBT modules and any other additional training (ground, FSTD, airplane) or evaluation in the programme (e.g. line evaluation of competence, etc.). However, only the modules will be considered for the purpose of the PRACTICAL ASSESSMENT IN COMPETENCIES to revalidate the licence in accordance with Appendix 10.

Appendix 10 paragraph 5 point (c)(1) — Delegation of signature

It should be noted that the intent of the RMG and EASA for the delegation of signature proposed in this Opinion, is that the accountability remains with the nominated person for crew training and it is not transferred to the person actually signing the licence. The delegation of the signature should not put any responsibility to the person that actually doing this act. The responsibility remains with the nominated person (or the deputy(ies)).

Appendix 10 paragraph 5 point (c)(1) — 'specifically authorised for that purpose by the competent authority responsible for the applicant's licence'

The provision was transposed from FCL.1030 'Conduct of skill test, proficiency checks and assessments of competence' point (b)(2).

ARA.FCL.200 Procedure for issue, revalidation or renewal of a licence, rating or certificate

(a) Issue of licences and ratings. The competent authority shall issue a pilot licence and associated ratings, using the form as established in Appendix I to this Part.

If a pilot intends to fly outside Union territory on an aircraft registered in a Member State other than the Member State that issued the flight crew licence, the competent authority shall:

(1) add the following remark on the flight crew licence under item XIII: "This licence is automatically validated as per the ICAO attachment to this licence"; and

(2) make the ICAO attachment available to the pilot in print or electronic format.

(b) Issue of instructor and examiner certificates. The competent authority shall issue an instructor or examiner certificate as:

(1) an endorsement of the relevant privileges in the pilot licence as established in Appendix I to this Part; or

(2) a separate document, in a form and manner specified by the competent authority.

(c) Endorsement of licence by examiners.

(1) Before specifically authorising certain examiners to revalidate or renew ratings or certificates, the competent authority shall develop appropriate procedures.

(2) These appropriate procedures may include endorsement of licence under an EBT programme. In this case, signature delegation for endorsement of licence may be allowed.

(d) Endorsement of licence by instructors. Before specifically authorising certain instructors to revalidate a single-engine piston or TMG class rating, the competent authority shall develop appropriate procedures.

4. References

4.1. Affected regulations

— Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 311, 25.11.2011, p. 1)

— Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1)

4.2. Related decisions

— Decision N° 2012/015/Directorate R of the Executive Director of the Agency of 24th October 2012 on Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council 'Guidance Material to Annex I – Definitions'

— Decision 2014/025/R of the Executive Director of the Agency of 28 July 2014 adopting Acceptable Means of Compliance and Guidance Material to Part-ARO of Commission Regulation (EU) No 965/2012 and repealing Decision 2014/014/R of the Executive Director of the Agency of 24 April 2014 'AMC and GM to Part-ARO — Issue 3'

— Decision 2014/017/R of the Executive Director of the Agency of 24 April 2014 adopting Acceptable Means of Compliance and Guidance Material to Part-ORO of Commission Regulation (EU) No 965/2012 and repealing Decision 2012/017/R of the Executive Director of the Agency of 24 October 2012 'AMC and GM to Part-ORO — Issue 2'

— Decision N° 2012/006/Directorate R of the Executive Director of the Agency of 19th April 2012 on Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council 'Acceptable Means of Compliance and Guidance Material to Part-ARA'

— Decision N° 2011/016/R of the Executive Director of the European Aviation Safety Agency of 15 December 2011 on Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council 'Acceptable Means of Compliance and Guidance Material to Part-FCL'

4.3. Other reference documents

— Decision No 2015/027/R of the Executive Director of the European Aviation Safety Agency of 16 December 2015 on guidance material to Part-ORO of Regulation (EU) No 965/2012 on the

implementation of evidence-based training (EBT) within the European regulatory framework (Mixed EBT)

— ICAO Annex 1 to the Convention on International Civil Aviation 'Personnel Licensing', 11th Edition, July 2011

— ICAO Annex 6 to the Convention on International Civil Aviation 'Operation of Aircraft', 10th Edition, July 2016

— ICAO Doc 9868 'Procedures for air navigation services Training' Second Edition, 2016

— ICAO Doc 9995 AN/497 'Manual of Evidence-based Training' First edition - 2013

— ICAO Doc 10011 AN/506 'Manual on aeroplane upset prevention and recovery training' First edition – 2014

— ICAO Doc 9841 AN/456 'Manual on the Approval of Training Organizations' Second edition – 2012

— ICAO Doc 9379 AN/916 'Manual of Procedures for Establishment and Management of a State's Personnel Licensing System'