



Explanatory Note to Decision 2015/012/R

Upset Prevention and Recovery Training (UPRT)

RELATED NPA/CRD: **N/A** — OPINION NO: **N/A** — RMT.0581 & RMT.0582 — 4.5.2015

EXECUTIVE SUMMARY

Mitigating Loss of Control In-flight (LOCI) is one of the Agency’s highest priorities and in light of recent accidents, the Executive Director of the Agency requested the focal point for the ongoing rulemaking task RMT.0581 & RMT.0582 — in consultation with the dedicated Rulemaking Group — to accelerate the processing of the task and to proceed with the publication of the final rulemaking material that was sufficiently mature at the earliest convenience. Consequently, the Agency reviewed the ongoing work and determined that a proposal for AMC/GM to Part-ORO would be most sensible considering the short time frame. Due to the importance of the issue, the Agency applied an ‘accelerated’ procedure, with a limited consultation process, to ensure the Decision could be published by 4 May 2015. The Decision addresses a safety and regulatory coordination issue related to the mitigation LOCI. The following items are linked to this Decision: various safety recommendations; European Aviation Safety Plan (EASp) safety actions; ICAO State Letters 009/2014 (Annex 6) and 029/2014 (PANS-TRG), and ICAO Doc 10011 ‘Manual on aeroplane UPRT’; and the FAA § 121.423 ‘Air Carrier Extended Envelope’ training, including the AC120-109 and AC120-111, provisions. This Decision introduces additional Acceptable Means of Compliance (AMC) and Guidance Material (GM) for flight crew upset prevention and recovery training (UPRT), with the specific objective to ensure that flight crew acquire the required competencies to prevent or recover from developing or developed upsets. Upset prevention training prepares flight crew to avoid incidents whereas upset recovery training prepares flight crew to prevent an accident once an upset condition has developed. This Decision contains two AMC and several GMs relating to ORO.FC.220 (conversion course), and ORO.FC.230 (recurrent training programme) pertaining to Commercial Air Transport (CAT) operators using ‘complex motor-powered aeroplanes’, in accordance with Regulation (EC) No 216/2008. By developing two AMCs; AMC1 for operators using aeroplanes with a maximum operational passenger seating configuration (MOPSC) of more than 19, and AMC2 with a MOPSC of 19 or less passengers, the Agency was able to apply a more risk-based and proportionate approach. A separate GM on ‘route and aerodrome knowledge’ is also included for all CAT operators to emphasise environmental hazards that may contribute to upset development. These changes are expected to increase safety, improve harmonisation, and ensure compliance with ICAO. The Agency also introduced a 12-month transition period, after publication, to provide an adequate timeframe to the affected stakeholders for implementing the provisions.

Applicability		Process map	
Affected regulations and decisions:	Annex I (Part-Definitions) and Annex III (Part-ORO) to Commission Regulation (EU) No 965/2012; ED Decision 2012/015/R and ED Decision 2014/017/R	Concept Paper:	Yes
Affected stakeholders:	Commercial Air Transport (CAT) operators; National Aviation Authorities (NAAs)	Rulemaking group:	Yes
Driver/origin:	Safety and regulatory harmonisation	Terms of Reference	20.8.2013
Reference:	Safety Recommendations: FRAN-2010-004, FRAN-2010-005, FRAN-2011-09, FRAN-2012-39, FRAN-2012-40, FRAN-2012-41, FRAN-2012-46, FRAN-2012-21, NETH-2010-007, SPAN-2011-018, SOUF-2010-009, FRAN-2013-041, NETH-2014-005; European Aviation Safety Plan (EASp) safety actions	RIA type:	Light
		Technical consultation during NPA drafting:	No
		Publication date of the NPA:	N/A
		Duration of NPA consultation:	N/A
		Review group:	No
		Focussed consultation:	N/A
		Publication date of the Opinion:	N/A



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1. Procedural information

1.1. The rule development procedure

The European Aviation Safety Agency (hereinafter referred to as the 'Agency') developed this Decision in line with Regulation (EC) No 216/2008¹ (hereinafter referred to as the 'Basic Regulation').

The text of this Decision has been developed by the Agency and the RMT.0581 & 0582 'Loss of Control Prevention and Recovery Training (UPRT)' Rulemaking Group in response to the request of the Agency's Executive Director. Due to the importance of the issue, the Agency applied an 'accelerated' procedure, with a limited consultation, by consulting the proposal only with its Advisory Bodies² through CIRCABC³. Therefore, no public consultation of the proposal was conducted.

This Decision contains the Acceptable Means of Compliance (AMC) and Guidance Material (GM) developed by the Agency and the RMT.0581 & RMT.0582 Rulemaking Group experts.

1.2. Structure of the related documents

Chapter 1 contains the procedural information related to this Decision. Chapter 2 explains the background and technical content of this Decision. The text of the new AMC and GM is annexed to this Decision.

¹ Regulation (EC) No 216/2008 of the European Parliament and the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1).

² The EU/EASA Member States through the Rulemaking Advisory Group (RAG), the Thematic Advisory Groups (TAGs), the industry through the Safety Standards Consultative Committee (SSCC) as well as its sub-groups.

³ Communication and Information Resource Centre for Administrations, Businesses and Citizens (<https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>).



2. Explanatory Note

2.1. Overview of the issues and amendments

General

Mitigating Loss of Control In-flight (LOCI) is one of the Agency's highest priorities and in light of recent accidents, the Executive Director of the Agency requested the focal point of the ongoing rulemaking task RMT.0581 & RMT.0582 — in consultation with the dedicated Rulemaking Group — to accelerate the processing of the task deliverables and to proceed with the partial publication of the final rulemaking material that is sufficiently mature at the earliest convenience. Consequently, the Agency reviewed the on-going work and determined that an amendment to AMC/GM to Part-ORO would be sensible given the timeframe and that this amendment could be ready for publication using the Agency's 'accelerated' procedure by May 2015. The Agency introduced a 12-month transition period, after publication, to provide an adequate timeframe to the affected stakeholders for implementing the provisions.

The Agency and the RMT.0581 & RMT.0582 Rulemaking Group experts further discussed the content and developed the amendment for mitigating LOCI whilst taking into account the ICAO Annex 6 amendment 38 and PANS-TRG amendment 3 relating to UPRT, and ICAO Doc 10011 'Manual on aeroplane UPRT'. The proposal also takes into account the FAA § 121.423 'Air Carrier Extended Envelope' training, including the AC120-09 and AC120-111, provisions on this issue.

Upset Prevention and Recovery Training (UPRT)

The Annex II to this Decision contains AMC and GM relating to ORO.FC.220 (conversion course) and ORO.FC.230 (recurrent training programme) pertaining to Commercial Air Transport (CAT) operators using complex motor-powered aeroplanes, in accordance with Regulation (EC) No 216/2008 (the 'Basic Regulation'). After consultation and further expert group discussions, The Agency decided to develop two AMC to ensure the provisions are more risk based and proportional. AMC1 applies to CAT operators using complex motor-powered aeroplanes with a maximum operational passenger seating configuration (MOPSC) of more than 19, whereas AMC2 applies to operators with a MOPSC of 19 or less. A separate GM on 'route and aerodrome knowledge' is also included for all CAT operators.

GM1 to ORO.FC.220&230 clarifies the objective of the upset prevention and recovery training. Moreover, emphasis is placed on the need to integrate human factor aspects into the training, such as TEM and CRM principles, as well as the startle and surprise effect. Moreover, it re-emphasises the importance of the correct use of the FSTDs in the context of avoiding negative training and negative transfer of training. Negative training is training which unintentionally introduces incorrect information or invalid concepts, which could actually decrease rather than increase safety. Negative transfer of training is the inappropriate generalisation of knowledge or a skill to a situation or setting on the job that does not equal the training situation or setting. Lastly, reference is made to the various supporting documents, such as the ICAO Doc 10011 and the original equipment manufacturers (OEMs) Aeroplane Upset Recovery Training Aid (AURTA).



Upset prevention training elements

The upset prevention elements in AMC1 and AMC2 ORO.FC.220&230, provision (a), should consist of a combination of ground and FSTD/aeroplane training. Elements should be included in the conversion courses. Furthermore, all elements should be conducted over a period not exceeding 3 years during the recurrent training programme. Prior and after consultation, the Agency and the Rulemaking Group experts also considered whether the prevention elements and components should be placed at AMC level to ensure that an operator covers each item. Consequently, the Agency and the Rulemaking Group experts finally decided to list the elements in the AMC to ensure a consistent implementation by the operators and to provide competent authorities with a means to enforce them. Whereas all elements and respective components should be covered over a 3 year period, the operator or type conversion courses only need to include some elements, ideally based on the operator's identified risks. After consultation, the Agency and expert group re-considered requiring a specific number of elements to be included in the conversion courses, however this was considered as too prescriptive.

In GM2 ORO.FC.220&230 it is also specified that the applicable elements and components are to be prioritised based on the operator's identified risks. Furthermore, the GM specifies that the prevention elements should be covered by making use of manoeuvre- and scenario-based training, including re-emphasis on the need to integrate human factors. In addition, it is emphasised that flight crew should be made aware of the limitations of the FSTD in replicating physiological and psychological aspects.

As mentioned already, the elements and components, including the specifications for ground or FSTD training, are based on the ICAO Doc 10011 guidance. The Agency and the Rulemaking Group experts decided that it is important to remain as close as possible to the ICAO guidance in order to enable operators to easily identify and obtain further guidance in support of the required training course/programme development/amendments. The Agency and the Rulemaking Group experts did adjust some components to place more emphasis on items which are also related to the various safety recommendations addressed to the Agency, such as manual handling skills training and the 'immediate handling considerations and subsequent operational considerations' in the context of fly-by-wire protection degradations. The Agency and the Rulemaking Group experts anticipate that combinations of the elements and components could be addressed by one training scenario and that many of these elements are already being trained today by many operators. It is, therefore, unlikely that the requirement for covering the upset prevention items will lead to a significant training burden for most operators.

Upset recovery training exercises

The upset recovery training exercises in AMC1 and AMC2 ORO.FC.220&230, provision (b), should be conducted over a period not exceeding 3 years in an Full-Flight Simulator (FFS) qualified for the training task in order to achieve the training objective and avoid negative training and negative transfer of training. The Agency and group experts are aware that some operators do not have access to a FFS. These operators mostly have aeroplanes with MOPSC of 19 or less. Therefore, the Agency only requires, through AMC2 provision (b), the recovery training for these operators if an FFS is available.



In the context of the qualification to operate in either pilot's seat in ORO.FC.235 and the cruise relief pilot's qualification in ORO.FC.201, it was decided to further specify that this recovery training should be completed from each seat in which a pilot's duties require him/her to operate, thus illustrating the importance of this seat-specific training. In addition, the Agency and the Rulemaking Group experts considered whether recovery training should also be mandated for flight crew conducting the operator or type conversion course. After extensive discussions, the Agency concluded that it should not be mandated, but that the conversion training content should instead be decided on by an operator on the basis of the existing ORO.FC.220 provision. In any case, some exposure to the elements of upset prevention is mandated for the conversion course. The Agency also considered the possibility that a flight crew member may not be able to conduct the upset recovery training within the 3-year period due to e.g. long-term sickness, leave of absence. The Agency anticipates that many operators will ensure that such flight crew member, on their return, will be provided with the omitted recovery training exercises as appropriate during refresher training in the context of the Part-FCL FCL.060 recency requirement.

In GM3 ORO.FC.220&230, the exercises pertaining to recovery from developed upsets are further specified. The GM reiterates the need to integrate human factors and make flight crews aware of the limitations of the FFS in replicating physiological and psychological aspects. Moreover, it specifies that the recovery exercises should be conducted by making use of manoeuvre-based training only. In contrast to scenario-based training, manoeuvre based recovery training exercises assume that prevention has failed and an upset condition exists. The upset condition is developed by the instructor with the aim for the flight crew to recover. The Agency and the Rulemaking Group experts also believe that more emphasis needs to be placed on the stall event part of the recovery training, especially at high altitude. The wording 'stall event' was introduced to cater for the capability of current and grandfathered FFS and for potential future FFS fidelity enhancements. In this context, the Agency highlights that the FAA, based on a political directive given by the Congress, is required to implement 'full stall' training in FFS in the context of upset recovery training. No such direction exists at European Union level, and the Rulemaking Group experts do not agree on the benefits of 'full stall' training for flight crew. Moreover, some experts have indicated that currently industry is not ready for such a radical change to simulator capabilities mainly because the necessary aeroplane specific post stall data needed is not readily available at this stage. Consequently, stall event recovery exercises in current or grandfathered FFS should be conducted as approach-to-stall exercises only. However, the Agency and the group of experts will consider including proposed amendments to CS-SIMD through RMT.0581 & 0582 NPA in the context of enhancing FFS data packages to enable full stall training. Furthermore, the Agency will continue to monitor the outcome of the on-going FAA activities, the upcoming amendment to ICAO Doc 9625 relating to FSTD standards, and any recommendations given by the Rulemaking Group experts at the completion of task RMT.0581 & 0582. The results and recommendations may be considered for the launch of another RMT on updating CS-FSTD(A) which aims to incorporate respective parts of the latest version of ICAO Doc 9625 into the EU provisions in the near future.

Moreover, the Agency introduced the stall event recovery, 'nose high' and 'nose low' recovery templates. The stall event recovery template may only be used if no OEM stall recovery procedures exist and the respective OEM has been consulted. The 'nose high' and 'nose low' recovery templates have been developed by the OEMs recently and are considered to be OEM recommendations.



However, prior to using these templates operators should always verify with their respective OEM and establish whether any OEM procedure exist for these manoeuvres.

Use of an FFS qualified for the training task

As mentioned, the Agency, in consultation with the Rulemaking Group experts, proposes to mandate the use of an FFS qualified for the conduct of manoeuvre-based exercises regarding recovery from developed upsets. The guidance material specifies that a level 'C' or 'D' FFS is deemed to be qualified in this context. This requirement is needed to ensure that the FFS provides the necessary fidelity and correctly replicates the aeroplane's handling characteristics to avoid negative training and negative transfer of training. It should be emphasised that current or grandfathered level C and D FFS may perform the recovery exercises, such as the approach-to stall. Full aerodynamic stall or other exercises outside the validated training envelope (VTE) should **not** be conducted.

Although the large majority of CAT operators already use level 'C' or 'D' FFS for recurrent training, the Agency recognised that some operators may not have access to a level C or D FFS. Therefore, the Agency also included guidance for qualifying a level B FFS for the recovery training task if equivalency to at least level 'C' for the specific features needed for the recovery training task can be demonstrated. The responsibility for this demonstration will rest with the operator. In addition, as already mentioned, the Agency developed AMC2 for operators with MOPSC of 19 or less, requiring recovery training only if an FFS is available. For operators with MOPSC of more than 19, AMC1 requires recovery training in an FFS without providing further alleviations other than alternative means of compliance (altMoC) with a demonstration of an equivalent level of safety.

In GM4 ORO.FC.220&230, the required FFS qualification is further clarified. Operators are reminded that FFS must be approved by the competent authority in accordance with ORO.FC.145(c). After consultation, the Agency included further guidance on the minimum standards, objective, function and subjective tests required during a special evaluation to demonstrate that the level B FFS is qualified for the training task. In addition, once an FFS is deemed to be qualified this should be indicated as an additional capability on the certificate by the competent authority.

Personnel providing FSTD training

In AMC1 and AMC2 ORO.FC.220&230, provision (c), the Agency and the Rulemaking Group experts strongly emphasise the need for operators to ensure that their FSTD instructors are competent to deliver upset prevention and recovery training, and understand the capabilities and limitations of the FSTD used. Whilst the Agency recognises that FSTD instructors, such as synthetic flight instructors (SFIs) and type rating instructors (TRIs), are fully qualified in accordance with Annex I (Part-FCL) to Commission Regulation (EU) No 1178/2011, it is of utmost importance that these instructors are provided with additional training (where necessary) prior to conducting UPRT, especially in the context of preventing negative training and negative transfer of training, as failure to do so could decrease rather than increase safety.

In GM5 ORO.FC.220&230, additional instructor training guidance is provided to operators to ensure its instructors are standardised and properly trained prior to conducting UPRT in an FSTD.

It should also be emphasised that NAA inspectors should familiarise themselves with these instructor provisions, as well as the other provisions related to UPRT to ensure effective oversight can be performed.



Note: The Agency and the Rulemaking Group experts are currently drafting an amendment to the instructor FSTD qualification requirements in Part-FCL and will consider the provision contained in this Decision to ensure harmonisation/consistency between Part-FCL and Part-ORO as much as practical. Any proposed amendments related to Part-FCL are envisaged to be published with the NPA for RMT.0581 & RMT.0582 in summer 2015.

Route and aerodrome knowledge

A new GM to ORO.FC.105 has been developed to emphasise that the pilot-in-command/commander's knowledge of the route to be flown should include an understanding of environmental phenomena with the potential to induce an upset. Three recent 'loss of control' aeroplane accidents appear to have been connected with convective cloud in the Inter Tropical Convergence Zone (ITCZ) and thus the GM emphasises the need for understanding climatology relevant to the route of operation and relevant mitigating procedures. Many responsible operators will already include these hazards in their route competency training, however by including this in GM more emphasis is placed on the potential hazards and should ensure all CAT operators consider the importance of the relevant hazards to their operation.

UPRT Definitions

Annex I to this Decision contains a new GM11 Annex I Definitions (Part-Definitions) with the relevant UPRT definitions, in support of the AMC1 and AMC2 ORO.FC.220&230 provisions and implementation. The definitions are mainly based on the definitions in ICAO Doc 10011.

2.2. Objectives

The overall objectives of the EASA system are defined in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Chapter 2. The overall objective of this proposal is, therefore, to ensure that CAT operator flight crew training will provide flight crew with the knowledge, skills and attitude in order to competently prevent and, if necessary, recover from developing or developed aeroplane upsets.

The specific objectives are:

- To ensure the transposition of the UPRT-related ICAO Annex 6 amendments into the European Union requirements for UPRT training programmes for Commercial Air Transport (CAT) operators using complex motor-powered aeroplanes.
- To include in recurrent training programmes theoretical and practical training that contains:
 - training in flight mechanics;
 - training in all applicable flight control laws of the aeroplane type and the operational consequences resulting from law degradations;
 - training in all the relevant specificities of the specific aeroplane type;
 - recovery exercises from impending stall situations during the take-off and approach phases;
 - manual aeroplane handling exercises and techniques during stall prevention and stall event recovery scenarios, including exercises at high altitude;
 - exposure to scenarios that contain startle/surprise effects;



- more emphasis on manual aeroplane handling skills;
- training and practical knowledge of the conduct required during a go-around at low speed with pitch trim in an unusual nose-up position; and
- training in the potential degradation of situational awareness (basic pilot skills) and flight path management due to increased flight crew reliance on aircraft automation.

2.3. Summary of the Regulatory Impact Assessment (RIA)

As a result of the issues and objectives identified in the sections above, the following options were identified and assessed:

- a. Option 0: Baseline option (no regulatory change; risks remain as described in the issues analysis)
- b. Option 1: Rulemaking for upset prevention and recovery training provisions for CAT operators using complex motor-powered aeroplanes, by adding two similar AMC, split between aeroplanes with a maximum operational passenger operating capacity (MOPSC) of more than 19, and 19 or less, and respective GM, as appropriate

The most important criteria to assess the options of this RMT are:

- safety;
- economic;
- proportionality;
- harmonisation.

Option 0

If there is no regulatory change; the safety risks remain as described in the issues analysis. Option 0 has no cost impact.

Option 1

For operators who have partially or not yet implemented the training improvements contained in the AMC/GM of Option 1, the following impacts are foreseen:

Safety impact

Option 1 will lead to a reduction of the safety risks, as it addresses various safety recommendations related to recent accidents and incidents attributed to LOCI, including more emphasis on the retention of manual handling skills. However, it is not possible at this stage to quantify the reduction in safety risks.

Economic impact

Option 1 introduces additional ground training and flight training AMC/GM requirements, requiring modifications to existing operator's conversion courses and recurrent training programmes.

Pilot training syllabi and simulator instructor training

CAT operators using complex motor-powered aeroplanes will have to amend their training syllabi to include the upset prevention and recovery training provisions and provide additional training to their training personnel, in particular FSTD instructors.

The economic costs for operators are considered cost-effective. The foreseen changes are accommodated through the usual update process of training courses/programmes. The



course/programme re-approval costs may be (partially) covered by the yearly air operators' certificate (AOC) fee. The Agency and the group of experts, do not believe that these requirements will lead to significant additional training requirements for pilots. Some UPRT elements/exercises are already integrated into existing training programmes/courses today, and the remaining elements and exercises should be integrated in the same way spread over 3 years. Operators are also free to integrate more than one element into a training session. Therefore, whether or not additional training is required depends mostly on the way operators design their training programmes/courses.

The additional instructor training may take several days and is likely to involve ground and flight training in an FFS at an estimated one-off total cost of EUR 2 500 per FSTD instructor. There are approximately 50 000 flight crew members in the EU⁴ and it is roughly estimated that there are 10 active⁵ FSTD instructors for every 100 flight crew members, which makes a total of 5 000 active FSTD instructors. The total one-off cost impact is estimated at EUR 12.5 million.

Full Flight Simulator

The AMC1 and AMC2 in Option 1 also requires operators to use an FFS qualified for the conduct of the upset recovery training task, with the exception for operators using aeroplanes with MOPSC of 19 or less if no FFS is available. The FFS should be qualified for the task to avoid negative transfer of training⁶. A large majority of operators will have access to a level 'C' or 'D'⁷ FFS which are deemed to be qualified and consequently no additional cost will be faced.

For a minority of operators, the Agency recognises that an operator may have a level B FFS which may become capable for use for the upset recovery training. A level B FFS may only be used by an operator if it can demonstrate to the competent authority equivalency, for the specific features needed for the training task, to at least a level C FFS. This demonstration implies additional costs to the operator due to the necessary conduct of 'special evaluations' at an estimated one-off cost of up to EUR 3 500 per level B FFS. This cost impact is considered cost-effective.

Proportionality impact

The Option 1 applies to CAT operators using complex motor-powered aeroplanes and holding an AOC. Whereas ICAO Annex 6 UPRT provisions apply to all CAT operators, the Agency decided to use a more risk-based approach by focussing the regulatory impact on airlines and large business aeroplane operators, meaning operators with an AOC and relatively large passenger numbers and/or high flight frequency. By introducing an additional AMC2 for operators using aeroplanes with MOPSC of 19 or less, the Agency was able to provide alleviation to operators that have no access to an FFS qualified for the recovery training task, such as in the case of a Metroliner or Learjet 55, from conducting the recovery training exercises. **Note:** The Agency and the Rulemaking Group experts are still considering whether the UPRT provisions should be extended to all CAT operators. In this context, any proposed amendments are envisaged to be published with the NPA for RMT.0581 & RMT.0582 in summer 2015..

⁴ Source 'Study on the effects of the implementation of the EU aviation common market on employment and working conditions in the Air Transport Sector over the period 1997/2010', table 4.5

⁵ 'Active' means instructors providing FSTD training on behalf of an operator.

⁶ Negative transfer of training is the inappropriate generalisation of knowledge or a skill to a situation or setting on the job that does not equal the training situation or setting

⁷ Type of FFS qualified for the conduct of recovery training



Harmonisation

The Option 1 leads to harmonisation with the latest amendments to ICAO Annex 6 on UPRT, and to a certain extend with the FAA § 121.423 ‘Extended Envelope’ training, including AC120-109 and AC120-111, provisions.

Conclusion: Option 1 is the preferred option and has, therefore, been selected. It provides safe, cost-effective and proportionate requirements.



2.4. Overview of the amendments

This Decision contains the following amendments:

- a) 'AMC1 ORO.FC.220&230 Command course & Operator conversion training and checking & Recurrent training and checking' has been added.
- b) AMC2 ORO.FC.220&230 Command course & Operator conversion training and checking & Recurrent training and checking' has been added.
- c) 'GM1 ORO.FC.220&230 Command course & Operator conversion training and checking & Recurrent training and checking' has been added.
- d) 'GM2 ORO.FC.220&230 Command course & Operator conversion training and checking & Recurrent training and checking' has been added.
- e) 'GM3 ORO.FC.220&230 Command course & Operator conversion training and checking & Recurrent training and checking' has been added.
- f) 'GM4 ORO.FC.220&230 Command course & Operator conversion training and checking & Recurrent training and checking' has been added.
- g) 'GM5 ORO.FC.220&230 Command course & Operator conversion training and checking & Recurrent training and checking' has been added.
- h) 'GM1 ORO.FC.105 (b)(2) Route and Aerodrome knowledge' has been added.
- i) 'GM11 Annex I Definitions' has been added.



3. References

3.1. Related regulations

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)

3.2. Affected decisions

- Decision 2014/017/R of the Executive Director of the European Aviation Safety Agency of 24 April 2014 on Acceptable Means of Compliance and Guidance Material to Part-ORO (OPS — Annex III)
- Decision 2012/015/R of the Executive Director of the European Aviation Safety Agency of 24 October 2012 on Guidance Material to Part-Definitions (OPS — Annex I)

3.3. Reference documents

- ICAO Annexes 1 (Personnel Licensing) and 6 (Operation of Aircraft) to the Chicago Convention on International Civil Aviation, signed at Chicago on 7 December 1944
- ICAO Doc 10011 'Manual on Aeroplane Upset Prevention and Recovery Training', first edition, 2014
- ICAO Doc 9625 'Manual on Criteria for the Qualification of Flight Simulation Training Devices', third edition, 2009.
- FAA §121.423 'Extended Envelope Training'
- Loss of Control Avoidance and Recovery Training (LOCART) FAA Aviation Rulemaking committee (ARC) 208 final report
- International Committee for Aviation Training in Extended Envelopes (ICATEE) final report
- FAA Aeronautical Circular (AC) 120-109 'Stall and Stick Pusher Training'
- FAA AC 120-111 'Upset Prevention and Recovery Training'
- EASA Safety Information Bulletin (SIB) 2013-02 'Stall and Stick Pusher Training'
- EASA SIB 2013-05 'Manual Flight Training and Operations'
- EASA SIB 2014-09 'Aeroplane Go-Around Training'
- Aircraft Upset Recovery Training Aid (AURTA), Revision 2
- UK CAA Paper 2013/02 'Monitoring Matter'
- Flight Safety Foundation Publication – A Practical Guide for Improving Flight Path Monitoring

