



# Notice of Proposed Amendment 2023-03

in accordance with  
Article 6(1) of MB Decision No 01-2022

## Regular update of the air operations rules

### Extended diversion time operations (EDTO)

RMT.0392 (SUBTASK 1A)

#### EXECUTIVE SUMMARY

The objective of this Notice of Proposed Amendment (NPA) is to propose amendments to the requirements for operations with extended diversion time to adequate aerodromes, following an amendment of the related ICAO standards in 2012.

This NPA proposes to incorporate into the EU legal framework most of the related ICAO standards without introducing major changes to the already existing and robust extended range operations (ETOPS) rules for two-engined aeroplanes. This NPA also proposes some amendments to already existing ETOPS/EDTO regulatory provisions to improve clarity and consistency. In particular, it is proposed to transfer the OPS content of AMC 20-6 to new AMC & GM to Regulation (EU) No 965/2012. Furthermore, some amendments are proposed to increase harmonisation with the Federal Aviation Administration (FAA) provisions.

The proposed amendments are expected to maintain a high level of safety, ensure alignment with ICAO and improve harmonisation with other major regulators, with a limited impact on affected stakeholders.

|                               |                                                            |                          |     |
|-------------------------------|------------------------------------------------------------|--------------------------|-----|
| <b>Domain:</b>                | Air operations                                             |                          |     |
| <b>Related rules:</b>         | Regulation (EU) No 965/2012 and related AMC & GM; AMC 20-6 |                          |     |
| <b>Affected stakeholders:</b> | Aeroplane operators and NCAs                               |                          |     |
| <b>Driver:</b>                | Efficiency/proportionality                                 | <b>Rulemaking group:</b> | Yes |
| <b>Impact assessment:</b>     | Detailed                                                   |                          |     |

#### EASA rulemaking procedure milestones

| <b>Start</b><br>Terms of Reference | <b>Public consultation</b><br>NPA 2023-03 | <b>Proposal to the Commission</b><br>EASA Opinion | <b>Adoption by the Commission</b><br>Implementing act | <b>Decision</b><br>Acceptable Means of Compliance, Guidance Material |
|------------------------------------|-------------------------------------------|---------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------|
| 7.10.2020                          | 12.5.2023                                 | 2024                                              | 2025                                                  | 2025                                                                 |



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## 1. About this NPA

### 1.1 How this NPA was developed

The European Union Aviation Safety Agency (EASA) developed this NPA in line with Regulation (EU) 2018/1139<sup>1</sup> (the 'Basic Regulation') and the Rulemaking Procedure<sup>2</sup>. This Rulemaking Task (RMT).0392 is included in Volume II of the European Plan for Aviation Safety (EPAS) 2023-2025<sup>3</sup>. RMT.0392 is a rulemaking task the objective of which is to perform a regular update of the air operations rules to reflect technological and market developments, incorporate lessons learned from OPS standardisation inspections and transpose the latest amendments to ICAO Annex 6. It includes, in particular, extended diversion time operations (EDTO) in addition to other topics such as training of operations control personnel (flight operations officers/flight dispatchers) and the review of helicopter rules. This is identified in the latest EPAS as Subtask 1a. The scope and timescales of the task were defined in the related Terms of Reference (ToR)<sup>4</sup>.

EASA developed this NPA with the support of an expert group. The NPA is hereby submitted for consultation in accordance with Article 115 of the Basic Regulation, and Article 6(1) of the Rulemaking Procedure.

### 1.2 How to comment on this NPA

Please submit your comments using the automated **Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/><sup>5</sup>.

The deadline for submission of comments is **14 August 2023**.

### 1.3 The next steps

Following the public consultation, EASA will review all the comments received. Based on the comments received, EASA will revise, if necessary, the proposed amendments to Regulation (EU) No 965/2012<sup>6</sup> (the 'Air OPS Regulation') and issue an opinion. A summary of the comments received will

<sup>1</sup> 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>).

<sup>2</sup> 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 01-2022 of 2 May 2022 on the procedure to be applied by EASA for the issuing of opinions, certification specifications and other detailed specifications, acceptable means of compliance and guidance material ('Rulemaking Procedure'), and repealing Management Board Decision No 18-2015 (<https://www.easa.europa.eu/the-agency/management-board/decisions/easa-mb-decision-01-2022-rulemaking-procedure-repealing-mb>).

<sup>3</sup> <https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-epas-2023-2025>

<sup>4</sup> <https://www.easa.europa.eu/en/document-library/terms-of-reference-and-group-compositions/tor-rmt0392>

<sup>5</sup> In case of technical problems, please send an email to [crt@easa.europa.eu](mailto:crt@easa.europa.eu) with a short description.

<sup>6</sup> 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) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0965&qid=1680078326113>).

be provided in the explanatory note to the opinion. The opinion will be submitted to the European Commission, which will decide whether to amend the Air OPS Regulation based on the opinion.

If the European Commission decides to amend the Air OPS Regulation based on the opinion, EASA will issue a decision to amend the acceptable means of compliance (AMC) and guidance material (GM) to support the implementation of the amendments to the Regulation.



## 2. In summary — why and what

### 2.1 Why we need to amend the rules — issue/rationale

Amendment 36 to ICAO Annex 6 Part I, which has been applicable since 15 November 2012, extended the scope of the provisions dedicated to extended range operations. Before Amendment 36, ICAO Annex 6 Part I only addressed extended range operations of two-engined aeroplanes (ETOPS) beyond a threshold time determined by the competent authority and for which an approval by the competent authority was required. Amendment 36 to ICAO Annex 6 Part I introduced standards for operations beyond 60 minutes for all aeroplanes with turbine engines, and included aeroplanes with more than two engines within the scope of operations with extended diversion time, with a recommendation to set the threshold time for these aeroplanes at 180 minutes. To consider these changes, the ‘ETOPS’ acronym, which was explicitly referring to two-engined aeroplanes, was replaced by the more generic term ‘EDTO’, which refers to extended diversion time operations.

Amendment 36 to Annex 6 Part I also provided competent authorities with the possibility to follow a more flexible approach when establishing the threshold time for EDTO through a risk-based approach. In particular, it introduced the possibility to have a threshold time specific to each aircraft type, based on the aircraft certification basis and the reliability of the propulsion system, but also specific to each operator, based on its experience. Therefore, according to ICAO Doc 10085, this threshold may be specific to each aircraft and each operator, and not necessarily be a fixed determined value applicable to all operators.

Point CAT.OP.MPA.140 of the Air OPS Regulation sets the ETOPS threshold time for two-engined aeroplanes at 60 minutes flight time from an en-route alternate, except for two-engined aeroplanes with a maximum operational passenger seating configuration (MOPSC) of 19 or less, for which the threshold time is set to 180 minutes. For these aeroplanes, some specific criteria are established for operations with a diversion time beyond 120 minutes and up to 180 minutes, including an operational approval. However, there is currently no specific criterion for operations of these aeroplanes with a diversion time beyond 60 minutes.

In addition, aeroplanes with more than two engines are currently excluded from the ETOPS scope and are also not covered by any criteria in the case of operations with a diversion time beyond 60 minutes.

Therefore, the current EU regulatory framework is less prescriptive than the ICAO Annex 6 Part I standards, as the ETOPS scope is narrower, and specific criteria are only established for operations with a diversion time from 120 minutes to 180 minutes with two-engined aeroplanes with an MOPSC of 19 or less.

The terminology ‘ETOPS’ is used in numerous places in the Air OPS rules and should be replaced by the new terminology ‘EDTO’ for consistency. However, the term ETOPS is also in use in several other domains (aircrew, airworthiness) and might not be replaced by EDTO any time soon in all documents. Therefore, the equivalence between these two concepts, when needed, should be ensured.

Moreover, the existing equivalent regulatory provisions of the FAA (Advisory Circular AC 120-42B) diverge on some aspects from the current European regulatory framework. Some further harmonisation is therefore necessary when possible.



No exemptions in accordance with Article 70 ‘Safeguard provisions’, Article 71 ‘Flexibility provisions’ or Article 76 ‘Agency measures’ of Regulation (EU) 2018/1139 are pertinent to the scope of this sub-task of RMT.0392.

There have not been any alternative means of compliance (AltMoC) having an impact on the development of this RMT content.

This RMT does not directly address any issue from the relevant safety risk portfolio or any particular safety recommendations (SRs).

## 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 NPA will contribute to the achievement of the overall objectives by addressing the issues described in Section 2.1.

More specifically, with the regulatory material presented here EASA intends to achieve the following:

General objective:

Ensure that all operators, including the new ones, operate at the same level of safety in order to maintain the current track record of long-range operations based on best practices and lessons learned from previous experience in extended range operations with two-engined aeroplanes (ETOPS).

Specific objectives:

Ensure an appropriate transposition of the relevant ICAO Annex 6 Part I SARPs into the EU regulatory framework, notably the Air OPS Regulation;

Clarify the intent of the rules, as necessary, to the benefit of both air operators and regulators (cost-effectiveness of rules);

Ensure consistency of European rules on long-range operations across all aviation domains, where appropriate.

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

This NPA proposes to amend the Air OPS Regulation to incorporate Amendment 36 to ICAO Annex 6 Part I, except when it comes to aeroplanes with more than two engines.

Although the safety records of aeroplanes with more than two engines operated on routes with extended diversion times is good, ICAO included these aeroplanes within the scope of EDTO for consistency with two-engined aeroplanes and to further improve the safety of their operations. For these aeroplanes, ICAO recommends setting the EDTO threshold time to 180 minutes. Considering their average cruising speeds, this means that only a few routes in the south Pacific and south Atlantic regions would be within the scope of EDTO.

The below map represents in dark blue the area where it would not be possible to operate with a diversion time limited to 180 minutes and taking as a basis an average all-engines-operating (AEO) speed of 480 knots.







Maps generated by the Great Circle Mapper ([www.gcmap.com](http://www.gcmap.com)) — copyright © Karl L. Swartz

Taking into account:

- the estimated amount of EU operators conducting scheduled commercial air transport operations possibly affected by the introduction of aeroplanes with more than two engines within the scope of EDTO for diversion times exceeding 180 minutes (less than 5),
- the very limited potential routes affected (e.g. to/from South America to/from South Africa),
- the good safety records of such operations,
- the additional administrative burden for competent authorities to develop new approval procedures, provide more training to inspectors, with no increase in safety, and
- the fact that aeroplanes with more than two engines are progressively replaced by two-engined aeroplanes,

it is proposed not to transpose the ICAO provisions related to the inclusion of aeroplanes with more than two engines within the scope of EDTO. This proposal is further supported by the context of the pandemic and the willingness to reduce the burden on competent authorities and operators to implement new requirements. It should be noted as well that the FAA has not transposed yet these ICAO provisions and is not planning to introduce them soon. Refer to the Section 4.3 detailing the options identified.

No major changes are proposed as regards the already existing and robust extended range operations (ETOPS) rules for two-engined aeroplanes. This NPA proposes only some minor amendments to already existing ETOPS/EDTO regulatory provisions to improve clarity and consistency, and to replace the term 'ETOPS' with 'EDTO'. In particular, it is proposed to transfer the OPS content of AMC 20-6 to the new AMC & GM to the Air OPS Regulation.

In addition, the NPA includes new provisions applicable to all types of aeroplanes operated with diversion times beyond 60 minutes.

This NPA also proposes some amendments to increase harmonisation with the FAA. Further details on and a rationale behind each change proposed can be found in Chapter 3.

Regarding the need for transition measures, the proposed replacement of the term ‘ETOPS’ by ‘EDTO’ includes minor changes to the operations specifications form. EASA is considering proposing a transition measure to ensure that competent authorities do not need to reissue OPS SPECS due only to these changes to the form. In addition, the NPA also proposes some changes to the operations manual structure (OM B and C), with the addition of new sub-sections addressing EDTO-related content which was previously provided in AMC 20-6. EASA is considering proposing a transition measure to ensure that operators have adequate time to make the necessary amendments to their operations manuals.

## **2.4 What are the expected benefits and drawbacks of the proposal**

To address the issue identified in Section 2.1, rulemaking was necessary, since the current requirements in the Air OPS Regulation need to be amended to ensure consistency with ICAO standards.

The main benefits of the proposal are an increased harmonisation with the ICAO SARPs and with the FAA requirements, together with a safety improvement due to the introduction of new requirements for all operations with a diversion time beyond 60 minutes.

The positive effects of regulating the issue as proposed in this NPA outweigh its negative impacts. Namely, the anticipated positive safety, social and harmonisation impacts outweigh the moderate negative economic impact for operators.

When developing the regulatory material, EASA attempted to find the simplest, least costly way to regulate the issue to achieve the greatest possible benefits.

A detailed description of the options considered by EASA and the respective impacts can be found in Chapter 4.



### 3. Proposed amendments and rationale in detail

The text of the amendment is arranged to show deleted, new or amended, and unchanged text as follows:

deleted text is ~~struck through~~;

new or amended text is highlighted in **blue**;

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

Where necessary, the rationale is provided in blue italics.

#### 3.1 Draft regulation (draft EASA opinion)

##### 3.1.1 Regulation (EU) No 965/2012 — Cover Regulation

### Article 5 - Air operations

[...]

2. Operators shall comply with the relevant provisions of Annex V when operating:

[...]

- (c) two-engined aeroplanes used for extended ~~range~~ **diversion time** operations (~~ETOPS~~**EDTO**) in commercial air transport;

[...]

#### *Rationale*

*The change has been introduced to replace the previously used term 'ETOPS' by the new term 'EDTO'.*

##### 3.1.2 Annex I (Part-DEF)

## Annex I Definitions for terms used in Annexes II to VIII

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

[...]

- (8c) 'alternate aerodrome' means an adequate aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or land at the aerodrome of intended landing, where the necessary services and facilities are available, where aircraft performance requirements can be met, and which is operational at the expected time of use; 'alternate aerodrome' includes the following:

[...]

- (e) **'EDTO en-route alternate (ERA)' means, for the purposes of EDTO route planning, an en-route alternate which meets the applicable dispatch minima and which is selected by the operator for the planned EDTO flight;**

[...]



(42e) 'EDTO threshold distance' means the maximum distance to an en-route alternate along the route, derived from the threshold time and based on:

- (a) a selected one-engine-inoperative (OEI) speed for two-engined aeroplanes;
- (b) a selected all-engines-operating (AEO) speed for aeroplanes with more than two-engines.

(42f) 'EDTO threshold time' means the range, expressed in time to an en-route alternate, beyond which an EDTO operational approval is required;

[...]

(91b) 'operator approved diversion time' means, for the purposes of EDTO route planning, the longest diversion time to an EDTO en-route alternate, approved for the related operator, and which defines the boundaries of the EDTO area of operations in ISA/still air conditions;

[...]

### Rationale

The change has been introduced to add specific definitions related to EDTO that are used in implementing rules.

### 3.1.3 Annex II (Part-ARO)

## Appendix II to Annex II (Part-ARO)

| OPERATIONS SPECIFICATIONS<br>(subject to the approved conditions in the operations manual)         |                                |                                                        |                                               |         |
|----------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------|-----------------------------------------------|---------|
| Issuing authority contact details<br>Telephone <sup>(1)</sup> : _____; Fax: _____;<br>Email: _____ |                                |                                                        |                                               |         |
| AOC <sup>(2)</sup> :                                                                               | Operator name <sup>(3)</sup> : | Date <sup>(4)</sup> :                                  | Signature:                                    |         |
|                                                                                                    | Dba trading name               |                                                        |                                               |         |
| Operations specifications#:                                                                        |                                |                                                        |                                               |         |
| Aircraft model <sup>(5)</sup> :                                                                    |                                |                                                        |                                               |         |
| Registration marks <sup>(6)</sup> :                                                                |                                |                                                        |                                               |         |
| Types of operations: Commercial air transport                                                      |                                |                                                        |                                               |         |
| <input type="checkbox"/> Passengers                                                                | <input type="checkbox"/> Cargo | <input type="checkbox"/> Others <sup>(7)</sup> : _____ |                                               |         |
| Area of operation <sup>(8)</sup> :                                                                 |                                |                                                        |                                               |         |
| Special limitations <sup>(9)</sup> :                                                               |                                |                                                        |                                               |         |
| Specific approvals:                                                                                | Yes                            | No                                                     | Specification <sup>(10)</sup>                 | Remarks |
| Dangerous goods                                                                                    | <input type="checkbox"/>       | <input type="checkbox"/>                               |                                               |         |
| Low-visibility operations                                                                          |                                |                                                        |                                               |         |
| Take-off                                                                                           | <input type="checkbox"/>       | <input type="checkbox"/>                               | RVR <sup>(11)</sup> : ...m                    |         |
| Approach and landing                                                                               | <input type="checkbox"/>       | <input type="checkbox"/>                               | CAT <sup>(12)</sup> .... DA/H: ft, RVR ...m   |         |
| Operational credits                                                                                | <input type="checkbox"/>       | <input type="checkbox"/>                               | CAT <sup>(13)</sup> .... DA/H: ft, RVR ...m   |         |
| RVSM <sup>(14)</sup> <input type="checkbox"/> N/A                                                  | <input type="checkbox"/>       | <input type="checkbox"/>                               |                                               |         |
| <del>ETOPS</del> EDTO <sup>(15)</sup> <input type="checkbox"/> N/A                                 | <input type="checkbox"/>       | <input type="checkbox"/>                               | Maximum diversion time <sup>(16)</sup> : min. |         |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                          |                          |                 |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|-----------------|-----------------|
| Complex navigation specifications for PBN operations <sup>(17)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> | <input type="checkbox"/> |                 | <sup>(18)</sup> |
| Minimum navigation performance specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> | <input type="checkbox"/> |                 |                 |
| Operations of single-engined turbine aeroplanes at night or in IMC (SET-IMC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> | <input type="checkbox"/> | <sup>(19)</sup> |                 |
| Helicopter operations with the aid of night vision imaging systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> | <input type="checkbox"/> |                 |                 |
| Helicopter hoist operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> | <input type="checkbox"/> |                 |                 |
| Helicopter emergency medical service operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> |                 |                 |
| Helicopter offshore operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> | <input type="checkbox"/> |                 |                 |
| Cabin crew training <sup>(20)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> | <input type="checkbox"/> |                 |                 |
| Issue of CC attestation <sup>(21)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> | <input type="checkbox"/> |                 |                 |
| Use of type B EFB applications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> | <input type="checkbox"/> | <sup>(22)</sup> |                 |
| Continuing airworthiness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> | <input type="checkbox"/> | <sup>(23)</sup> |                 |
| Others <sup>(24)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                          |                          |                 |                 |
| <p>(1) Telephone contact details of the competent authority, including the country code. Email to be provided as well as fax if available.</p> <p>(2) Insertion of associated air operator certificate (AOC) number.</p> <p>(3) Insertion of the operator's registered name and the operator's trading name, if different. Insert 'Dba' before the trading name (for 'Doing business as').</p> <p>(4) Issue date of the operations specifications (dd-mm-yyyy) and signature of the competent authority representative.</p> <p>(5) Insertion of ICAO designation of the aircraft make, model and series, or master series, if a series has been designated (e.g. Boeing-737-3K2 or Boeing-777-232).</p> <p>(6) The registration marks are listed either in the operations specifications or in the operations manual. In the latter case, the related operations specifications must make a reference to the related page in the operations manual. In case not all specific approvals apply to the aircraft model, the registration marks of the aircraft may be entered in the remark column to the related specific approval.</p> <p>(7) Other type of transportation to be specified (e.g. emergency medical service).</p> <p>(8) Listing of geographical areas of authorised operation (by geographical coordinates or specific routes, flight information region, or national or regional boundaries).</p> <p>(9) Listing of applicable special limitations (e.g. VFR only, Day only, etc.).</p> <p>(10) List in this column the most permissive criteria for each approval or the approval type (with appropriate criteria).</p> <p>(11) Insertion of approved minimum take-off RVR in metres. One line per approval may be used if different approvals are granted.</p> <p>(12) Insertion of applicable precision approach category: CAT II or CAT III. Insertion of minimum RVR in meters and DH in feet. One line is used per listed approach category.</p> <p>(13) Insertion of applicable operational credit: SA CAT I, SA CAT II, EFVS, etc. Insertion of minimum RVR in metres and DH in feet. One line is used per listed operational credit.</p> <p>(14) The Not Applicable (N/A) box may be checked only if the aircraft maximum ceiling is below FL290.</p> <p>(15) Extended <del>range</del> <b>diversion time</b> operations (<del>ETOPS</del> <b>EDTO</b>) currently <del>apply</del> <b>applies</b> only to two-engined aircraft. Therefore, the not applicable (N/A) box may be checked if the <del>aeroplane</del> <b>aircraft</b> model has more than two engines.</p> |                          |                          |                 |                 |

- (16) The threshold distance may also be listed (in NM), as well as the engine type. In the case of an approved 15 % increase of the diversion time, either the routes or areas to which this extension applies, or a reference to the related page in the operations manual where these routes or areas are listed.
- (17) Performance-based navigation (PBN): one line is used for each complex PBN specific approval (e.g. RNP AR APCH), with appropriate limitations listed in the 'Specifications' or 'Remarks' columns, or in both. Procedure-specific approvals of specific RNP AR APCH procedures may be listed in the operations specifications or in the operations manual. In the latter case, the related operations specifications must have a reference to the related page in the operations manual.
- (18) Specify if the specific approval is limited to certain runway ends or aerodromes, or both.
- (19) Insertion of the particular airframe or engine combination.
- (20) Approval to conduct the training course and examination to be completed by applicants for a cabin crew attestation as specified in Annex V (Part-CC) to Regulation (EU) No 1178/2011.
- (21) Approval to issue cabin crew attestations as specified in Annex V (Part-CC) to Regulation (EU) No 1178/2011.
- (22) Insertion of the list of type B EFB applications together with the reference of the EFB hardware (for portable EFBs). This list is contained either in the operations specifications or in the operations manual. In the latter case, the related operations specifications must make a reference to the related page in the operations manual.
- (23) The name of the person or organisation responsible for ensuring that the continuing airworthiness of the aircraft is maintained and a reference to the Regulation that requires the work, i.e. Subpart G of Annex I (Part-M) to Regulation (EU) No 1321/2014.
- (23) Other approvals or data may be entered here, using one line (or one multi-line block) per authorisation (e.g. short landing operations, steep approach operations, reduced required landing distance, helicopter operations to or from a public interest site, helicopter operations over a hostile environment located outside a congested area, helicopter operations without a safe forced landing capability, operations with increased bank angles, maximum distance from an adequate aerodrome for two-engined aeroplanes without an **EDTO** ~~ETOPS~~ approval).
- EASA Form 139 Issue 7.8

### Rationale

The change has been introduced to:

- replace in the operations specifications template the previously used term 'ETOPS' by the new term 'EDTO'; and
- specify that an approved 15 % increase of the diversion time of an operator is to be reported on the operations specifications.

#### 3.1.4 Annex IV (Part-CAT)

**CAT.OP.MPA.140 Maximum distance from an adequate aerodrome for ~~two-engined~~ aeroplanes with two or more engines without an ~~ETOPS~~ **EDTO** operational approval**

- (a) Unless approved by the competent authority in accordance with Subpart F of Annex V (Part-SPA), the operator shall not operate a two-engined aeroplane over a route that contains a point



further from an adequate aerodrome, under standard conditions in still air, than the appropriate distance for the given type of aeroplane among the following:

- (1) for performance class A aeroplanes with a maximum operational passenger seating configuration (MOPSC) of 20 or more, the distance flown in 60 minutes at the **selected** one-engine-inoperative (OEI) ~~cruising~~ speed determined in accordance with point (b);
  - (2) for performance class A aeroplanes with an MOPSC of 19 or less, the distance flown in 120 minutes or, subject to approval by the competent authority, up to 180 minutes for turbojet aeroplanes, at the **selected** one-engine-inoperative OEI ~~cruising~~ speed determined in accordance with point (b);
  - (3) for performance class B or C aeroplanes, whichever is less:
    - (i) the distance flown in 120 minutes at the selected OEI ~~cruising~~ speed determined in accordance with point (b);
    - (ii) 300 NM.
- (b) The operator shall determine a speed for the calculation of the maximum distance to an adequate aerodrome for each ~~two-engine~~ aeroplane type or variant operated, not exceeding VMO (maximum operating speed) based upon the true airspeed that the aeroplane can maintain with one engine inoperative **for two-engine aeroplanes or with all engines operating (AEO) for aeroplanes with more than two engines.**
- (c) The operator shall include the following data, specific to each type or variant, in the operations manual:
- (1) **the selected AEO speed for aeroplanes with more than two engines and** the ~~determined~~ **selected** OEI ~~cruising~~ speed **for two-engine aeroplanes;** and
  - (2) the determined maximum distance from an adequate aerodrome.
- (d) To obtain the approval referred to in point (a)(2), the operator shall provide evidence that:
- (1) **training and** procedures have been established for flight **operations, including** planning and dispatch;
  - (2) specific maintenance instructions, procedures and training to ensure **that** the intended levels of continued airworthiness and reliability of the aeroplane including its engines have been established and included in the operator's aircraft maintenance programme in accordance with Annex I (Part-M) to Regulation (EU) No 1321/2014, including:
    - (i) an engine oil consumption programme;
    - (ii) an engine condition monitoring programme;-
    - (ii) a system for the reporting of engine events and the implementation of required corrective actions.
- (e) When conducting operations beyond 60 minutes with turbine-engined aeroplanes at the selected OEI speed for two-engine aeroplanes and at the selected AEO speed for aeroplanes with more than two engines from a point on a route to an en-route alternate without an EDTO operational approval, the operator shall:**

- (1) identify en-route alternates so that the applicable EDTO threshold distance is not exceeded;
- (2) provide the flight crew with the most up-to-date information on identified en-route alternates, including operational status and meteorological conditions;
- (3) ensure that, in the case of two-engined aeroplanes, the most up-to-date information provided to the flight crew indicates that conditions at the identified en-route alternates will be at or above the operator's established aerodrome operating minima for the operation at the estimated time of use;
- (4) reflect such operations in its:
  - (i) operational control procedures;
  - (ii) flight dispatch procedures;
  - (iii) operating procedures; and
  - (iv) training programmes.

### Rationale

The change has been introduced to:

- replace the previously used term 'ETOPS' by the new term 'EDTO';
- include aeroplanes with more than two engines within the scope of this implementing rule; no EDTO threshold applies for such aeroplanes; in addition, the speed to be used to calculate the EDTO threshold distance for such aeroplanes is defined;
- ensure a consistent use of the terms 'selected OEI/AEO speed', compared to the 'approved OEI/AEO speed' in the context of an EDTO operational approval; some additional guidance is provided in the proposed new GM2 SPA.EDTO.100(b).
- introduce new requirements for the operations of aeroplanes with two or more engines at diversion times exceeding 60 minutes, directly transposed from ICAO Annex 6 Part I standards.

## CAT.OP.MPA.182 Fuel/energy scheme – aerodrome selection policy – aeroplanes

[...]

- (c) The take-off alternate aerodrome shall be located within a distance from the departure aerodrome that minimises the risk of exposure to potential abnormal or emergency situations. In selecting the take-off alternate aerodrome, the operator shall consider at least the following:

[...]

- (4) approvals held (e.g. extended ~~range~~ diversion time operations with two-engined aeroplanes (~~ETOPS~~EDTO), low-visibility operation (LVO), etc.).

[...]





### Rationale

The change has been introduced to replace the previously used term 'ETOPS' by the new term 'EDTO'.

## CAT.POL.A.220 En-route – aeroplanes with three or more engines, two engines inoperative

- (a) An aeroplane that has three or more engines shall not be away from an aerodrome at which the requirements of points CAT.POL.A.230 or CAT.POL.A.235(a) for the expected landing mass are met accordingly, at any point along the intended track for more than 90 minutes, with all engines operating at cruising power or thrust, as appropriate, at standard temperature in still air, unless points (b) to (ef) of this point are complied with.

[...]

- (e) Fuel jettisoning shall be permitted to an extent consistent with reaching the aerodrome with the required fuel reserves in accordance with point CAT.OP.MPA.181 and CAT.OP.MPA.185 referred to in point (f), if a safe procedure is used.

~~(f) The expected mass of the aeroplane at the point where the two engines are assumed to fail shall not be less than that which would include sufficient fuel to proceed to an aerodrome where the landing is assumed to be made, and to arrive there at an altitude of at least 450 m (1 500 ft) directly over the landing area and thereafter to fly for 15 minutes at cruising power or thrust, as appropriate.~~

### Rationale

The change has been introduced to:

- avoid inconsistencies in the required fuel to the en-route alternate compared with CAT.OP.MPA.181/185 and/or the new AMC1 SPA.EDTO.115(b);
- harmonise with the equivalent implementing rule CAT.POL.A.215 dealing with the one-engine-inoperative scenario.

### 3.1.5 Annex V (Part-SPA)

## SUBPART F: EXTENDED RANGE DIVERSION TIME OPERATIONS WITH TWO ENGINED AEROPLANES (~~ETOPS~~EDTO)



**SPA. ~~ETOPS~~EDTO.100 ~~ETOPS~~EDTO operational approval**

- (a) In commercial air transport operations, two-engined aeroplanes shall only be operated beyond the threshold distance determined in accordance with CAT.OP.MPA.140 if the operator has been granted an ~~ETOPS~~EDTO operational approval by the competent authority.
- (b) The operator may apply for one of the following EDTO operational approval categories:
- (1) maximum diversion time of up to 90 minutes;
  - (2) maximum diversion time beyond 90 minutes and up to 180 minutes;
  - (3) maximum diversion time beyond 180 minutes.
- (c) To obtain an EDTO operational approval, the operator shall demonstrate to the competent authority compliance with the applicable requirements contained in this Subpart, considering the operational approval category that the operator is applying for, as well as the operator's prior in-service experience with the related aeroplane/engine combination or with EDTO, where relevant.

**Rationale**

*The change has been introduced to:*

- replace the previously used term 'ETOPS' by the new term 'EDTO';
- include a generic requirement to comply with SPA.EDTO so that new implementing rules per topic may be created to allow for a simpler structure of the regulatory provisions.

*In addition, new text is included to enhance clarity on the different categories of EDTO operational approval, considering the maximum diversion time applied for, as well as on the relevant criteria to determine the approval process to be used.*

**SPA. ~~ETOPS~~EDTO.105 ~~ETOPS-operational approval~~EDTO initial and continuing airworthiness requirements**

~~To obtain an ETOPS operational approval from the competent authority, the operator shall provide evidence that:~~ When conducting EDTO operations under this Subpart, the operator shall ensure that:

- (a) the aeroplane/engine combination holds an ETOPS or EDTO type design and reliability approval for the intended operation;
- ~~(b) a training programme for the flight crew members and all other operations personnel involved in these operations has been established and the flight crew members and all other operations personnel involved are suitably qualified to conduct the intended operation;~~
- ~~(c) the operator's organisation and experience are appropriate to support the intended operation;~~
- ~~(d) operating procedures have been established.~~
- (b) specific maintenance instructions and procedures to ensure that the intended levels of continued airworthiness and reliability of the aeroplane and its engines have been established

and included in the operator's aircraft maintenance programme in accordance with Annex I (Part-M) with Regulation (EU) No 1321/2014.

Notwithstanding (a), in the case of aeroplanes with a maximum diversion time of 120 minutes or 180 minutes, the operator may request to its competent authority a 15 % increase of its approved diversion time for specific routes or areas to be used on a flight-by-flight basis when EDTO en-route alternates are not available within the operator's approved diversion time, and provided that the operator demonstrates that the resulting routing does not reduce the overall safety of the operation, including the consideration of time-limited systems capability.

### Rationale

*The change has been introduced to:*

- *add the new term 'EDTO' together with the existing one 'ETOPS'. The two terms are kept in this specific paragraph related to aircraft certification since the term ETOPS has been used for the certification of most of the related two-engine aeroplanes;*
- *introduce a specific implementing rule dealing with type design requirements for the aeroplanes concerned, as well continuing airworthiness requirements to be met by an operator to be granted an EDTO operational approval;*
- *specify at implementing rule level the possibility for an operator to receive under specific conditions an approval for a 15 % increase of its approved diversion time, which would exceed the aeroplane maximum diversion time and therefore deviate from the requirement set in point (a).*

## SPA.EDTO.110 EDTO training requirements

The operator shall establish a dedicated training programme for the flight crew members and all other operations personnel involved in EDTO and ensure that such flight crew members and other operations personnel are suitably qualified and adequately briefed to conduct the intended operation.

The training programme for flight crew members shall include initial and recurrent training, consisting of theoretical and practical training covering normal, abnormal and contingency procedures.

The training programme for other operations personnel shall include initial and refresher theoretical training covering elements relevant for the performance of their duties.

### Rationale

*The change has been introduced to include a specific implementing rule related to EDTO training.*



## ~~SPA.ETOPS.115 ETOPS en-route alternate aerodrome planning minima~~

- (a) ~~The operator shall only select an aerodrome as an ETOPS en-route alternate aerodrome when the appropriate weather reports or forecasts, or any combination thereof, indicate that, between the anticipated time of landing until one hour after the latest possible time of landing, conditions will exist at or above the planning minima calculated by adding the additional limits of Table 1.~~
- (b) ~~The operator shall include in the operations manual the method for determining the operating minima at the planned ETOPS en-route alternate aerodrome.~~

~~Table 1~~

~~Planning minima for the ETOPS en-route alternate aerodrome~~

| <del>Type of approach</del>                                             | <del>Planning minima</del>                                   |
|-------------------------------------------------------------------------|--------------------------------------------------------------|
| <del>Precision approach</del>                                           | <del>DA/H + 200 ft<br/>RVR/VIS + 800 m<sup>(+)</sup></del>   |
| <del>Non-precision approach or<br/>Circling approach</del>              | <del>MDA/H + 400 ft<sup>(+)</sup><br/>RVR/VIS + 1500 m</del> |
| <del>(+) VIS: visibility; MDA/H: minimum descent altitude/height.</del> |                                                              |

### *Rationale*

*SPA.ETOPS.115 'en-route alternate aerodrome planning minima' is replaced with SPA.EDTO.115 'Operating procedures', with a new content — see next implementing rule proposal.*

## SPA.EDTO.115 Operating procedures

The operator shall ensure that its intended EDTO operations are adequately covered in its operating procedures established under this Regulation specifying:

- (a) the equipment to be carried, including its operating limitations and appropriate entries in the minimum equipment list (MEL);
- (b) the flight planning, including fuel supply, the consideration of time-limited systems capability and the EDTO en-route alternates selection;
- (c) the normal, abnormal and contingency procedures; and
- (d) the monitoring and incident reporting.

### *Rationale*

*The change has been introduced to include a specific implementing rule related to procedures and provide details on the procedures and documentation to be established.*

*The content of the proposed to be deleted SPA.ETOPS.115 has been transferred into the new SPA.EDTO.120 containing all the requirements related to EDTO ERA.*



## SPA. ~~ETOPS.110~~ EDTO.120 ~~ETOPS~~ EDTO en-route alternate

- ~~(a) An ETOPS en-route alternate aerodrome shall be considered adequate, if, at the expected time of use, the aerodrome is available and equipped with necessary ancillary services such as air traffic services (ATS), sufficient lighting, communications, weather reporting, navigation aids and emergency services and has at least one instrument approach procedure available.~~
- (a)** Prior to conducting an ~~ETOPS~~ EDTO flight, the operator shall ensure that ~~an ETOPS~~ EDTO en-route alternates ~~aerodrome~~ **are** available **along the planned EDTO route**, within either the operator's approved diversion time, or a diversion time based on the ~~MEL-generated serviceability~~ EDTO status of the aeroplane, whichever is shorter.
- (b)** The operator shall only select an aerodrome as an EDTO en-route alternate if:
- (1)** at the expected time of use, the aerodrome is available and equipped with necessary ancillary services such as air traffic services (ATS), sufficient lighting, communications, weather reporting, navigation aids and emergency services, and has at least one instrument approach procedure available; and
  - (2)** the aerodrome meets the applicable EDTO en-route alternate flight dispatch minima established in accordance with CAT.OP.MPA.182; if the operator has been granted an approval for an individual fuel scheme covering dispatch minima in accordance with CAT.OP.MPA.180, it shall implement the requirements of CAT.OP.MPA.180(d) for its EDTO operations before applying these minima to the EDTO ERA.
- (c)** The operator shall specify any required ~~ETOPS~~ EDTO en-route alternate **(s)** ~~aerodrome(s)~~ in the operational flight plan and ATS flight plan.
- (d)** In the specific case of an operator approved for CAT II and/or CAT III operations, the increments defined in CAT.OP.MPA.182 may be used for CAT II and/or CAT III minima provided that:
- (1)** the operator demonstrates that the specific aeroplane type can maintain the capability to safely conduct and complete the CAT II/III approach and landing, in accordance with EASA CS-AWO, having encountered failure conditions in the airframe and/or propulsion systems associated with an inoperative engine that would result in the need for a diversion to the en-route alternate; and
  - (2)** systems to support one-engine inoperative CAT II or III capability are serviceable if required to take advantage of CAT II or III landing minima at the planning stage.

### Rationale

The change has been introduced to:

- replace the previously used term 'ETOPS' by the new term 'EDTO';
- combine the two previous implementing rules related to EDTO ERA selection and EDTO ERA dispatch minima;
- clarify that an EDTO ERA has to be adequate and meet the applicable dispatch minima to be selected;



- align the type of approaches with the ICAO new classification of approaches;
- introduce considerations for operators approved for CAT II and CAT III.

### 3.2 Draft acceptable means of compliance and guidance material (draft EASA decision)

#### 3.2.1 AMC & GM to Part-DEF

## GM1 Annex I Definitions

### DEFINITIONS FOR TERMS USED IN ACCEPTABLE MEANS OF COMPLIANCE AND GUIDANCE MATERIAL

For the purpose of Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 965/2012, the following definitions should apply:

[...]

‘aeroplane maximum diversion time’ means, for the purpose of EDTO, the maximum certified diversion time value (e.g. 120 min) or category (e.g. beyond 180 min) of a two-engined aeroplane;

‘EDTO area of operations’ means, for the purposes of EDTO route planning, the area based on the operator’s approved diversion time and calculated under standard conditions in still air, at the approved one-engine-inoperative (OEI) speed for two-engined aeroplanes;

‘in-flight shut down (IFSD) rate’ means, for the purpose of EDTO, a reliability figure calculated by dividing the chargeable number of in-flight shutdowns by the total engine operating hours accrued during the same period. It is usually computed over a 12-month rolling average basis for the respective aeroplane/engine combination (AEC). It may be computed for the worldwide fleet of the AEC concerned (this is the rate monitored by the state of design to assess the EDTO capability of a given AEC) or by the operator for its fleet of AEC concerned.

#### Rationale

*The change has been introduced to introduce specific definitions related to EDTO for terms which are used at AMC or GM level.*

## GM2 Annex I Definitions

### ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in the Annexes to this Regulation:

[...]

AEC aeroplane/engine combination

[...]

EDTO extended diversion time operations

[...]

## GM36 Annex I Definitions

### EDTO/ETOPS

ICAO Annex 6 Part I replaced in 2012 the set of ETOPS Standards by EDTO Standards, primarily to address operations with longer diversion times for aeroplanes with two turbine engines, mainly based on the propulsion reliability and overall operational safety of current ETOPS two-engined aeroplanes, and also to address operations of aeroplanes with more than two engines on routes with extended diversion times. The EDTO provisions were built on the best practices and lessons learned from ETOPS and do not differ from the basic principles of ETOPS.

The main reason for the change in terminology from ETOPS to EDTO stems from the need to accurately reflect the scope and applicability of the new Standards. Nevertheless, this name change is not intended to mandate a similar and concurrent name change in the aeroplane documentation concerned.

This is in line with the note introduced in the EDTO Standards of Annex 6, which clarifies that the term 'ETOPS' may still be used instead of 'EDTO', as long as the concepts are correctly embodied in the documentation concerned. As ETOPS and EDTO are built on the same concepts, it means that, when an EDTO type design and reliability approval is required, it is acceptable to perform EDTO flights with an aeroplane that is certified for ETOPS. In other words, the EDTO operational approval of an operator of ETOPS-certified aeroplanes does not require that these aeroplanes are re-certified for EDTO, nor that the aeroplane documentation is updated to refer to EDTO instead of ETOPS.

Following this change, the term 'EDTO' has replaced 'ETOPS' in Regulation (EU) No 965/2012. However, the use of 'ETOPS' may not have been updated in other regulations and documentation (e.g. manufacturer documentation), and should be considered as equivalent to EDTO.

### Rationale

*The change has been introduced to provide some background information related to the use of the two terms (EDTO and ETOPS) and emphasise the equivalence between the two.*

### 3.2.2 AMC & GM to Part-ARO

## GM3 ARO.GEN.200(a)(2) Management system

### SPECIFIC FLIGHT OPERATIONS INSPECTOR QUALIFICATION

[...]

- (b) The following factors should be considered with regard to knowledge of the route and area:

[...]

- (3) Navigational procedures, including PBN requirements, ~~ETOPS~~ and requirements on operations with ~~extended~~ diversion time ~~beyond 60 minutes~~, ~~requirements~~ including ~~EDTO~~;

[...]



## Rationale

The change has been introduced to:

- replace the previously used term ‘ETOPS’ by the new term ‘EDTO’;
- include operations with diversion time exceeding 60 minutes in the specific factors to be considered with regard to the knowledge of the route and area.

## AMC6 ARO.OPS.200 Specific approval procedure

### PROCEDURES FOR THE APPROVAL OF EXTENDED DIVERSION TIME OPERATIONS (EDTO)

#### (a) General

(1) When verifying compliance with the applicable requirements of Subpart F of Annex V (SPA.EDTO), the competent authority should verify that:

- (i) the aeroplane type holds a valid EDTO or ETOPS type design and reliability approval;
- (ii) a system is implemented to configure, maintain and dispatch an EDTO aeroplane in accordance with an approved EDTO maintenance, reliability and training programme. In particular, this system should ensure that the aeroplane is not dispatched on EDTO routes with diversion times that are beyond its EDTO capability as defined in the applicable EDTO configuration and maintenance requirements of the EDTO configuration, maintenance and procedures (CMP) document;
- (iii) the EDTO maintenance checks, servicing and programmes are properly conducted;
- (iv) the EDTO operational limitations (e.g. the applicable time limitations of the relevant time-limited systems (TLSs) of the aeroplane) are adequately considered and that the EDTO flight preparation and in-flight procedures are properly conducted.

(2) The scope and thoroughness of the verification of compliance should be linked with:

- (i) the operator’s experience with EDTO, long-range operations, the area of operation, the aircraft type, the engines, etc.;
- (ii) the approval process selected; and
- (iii) the intended EDTO operations (i.e. area of operations, list of alternate aerodromes, diversion time requested).

(3) EDTO operational approval process

- (i) When processing an operator’s application for an EDTO operational approval, the competent authority should assess the operator’s overall safety record, past performance, flight crew training and experience, and maintenance programme.

- (ii) Assessment of the operator’s propulsion system reliability

Following the accumulation of adequate operating experience by the world fleet of the specified aeroplane/engine combination and the establishment of an IFSD



rate objective in accordance with Appendix 1 to AMC 20-6 for use in ensuring the propulsion system reliability necessary for extended range operations, an assessment should be made of the applicant's ability to achieve and maintain this level of propulsion system reliability.

This assessment should include trend comparisons of the operator's data with other operators (if available), as well as the world fleet average values, and the application of a qualitative judgement that considers all the relevant factors. The operator's past record of propulsion system reliability with related types of power units should also be reviewed, as well as its record of achieved systems reliability with the aeroplane/engine combination for which an approval to conduct EDTO is being sought.

Note: Where statistical assessment alone may not be applicable, e.g. when the fleet size is small, the applicant's experience should be reviewed on a case-by-case basis.

(iii) Validation of the operator's EDTO continuing airworthiness and operations capability

The observation of at least one validation flight should be included in the activities to validate the operator's EDTO capability.

(iv) Issuance of EDTO operational approval

The EDTO operational approval issued by the competent authority should include:

- (A) the related aeroplane/engine combination,
- (B) the aeroplanes within the scope of the approval (registrations and serial numbers),
- (C) the authorised area of operations,
- (D) the operator's approved diversion time and the related OEI speed selected.

While an EDTO operational approval is possible at entry into service under the accelerated EDTO operational approval process, the competent authority may consider granting an EDTO operational approval of up to 90 minutes under the 'in-service EDTO operational approval' process for operators with minimal or no in-service experience with the aeroplane/engine combination. This determination should be based on factors such as:

- (A) the proposed area of operations,
- (B) the operator's demonstrated ability to successfully introduce aeroplanes into operations, and
- (C) the quality of the proposed continuing airworthiness and operations programmes.

In the case of the in-service approval process, the operator's initial approved diversion time may later be progressively increased by the competent authority,



after the operator applies for it, as it gains experience on the particular aeroplane/engine combination. The factors to consider may include:

- (D) duration of experience,
- (E) total number of flights,
- (F) the operator's diversion events,
- (G) record of the aeroplane/engine combination with other operators,
- (H) quality of operator's programmes, and
- (I) route structure.

- (v) 15 % diversion time increase to operator's approved diversion time for aeroplanes with 120-180 minutes maximum diversion time

When an operator applies for such increase for specific routes or areas for use on an exceptional basis, the competent authority may have to assess the TLS(s) and demonstrated reliability of the aeroplane concerned if its certified EDTO capability is less than the contemplated increased operator's approved diversion time. The increased diversion time approved should be reflected in the operator's operations specifications.

#### (4) Continued surveillance:

The fleet-average IFSD rate for the specified aeroplane/engine combination will continue to be monitored in accordance with Appendices 1 and 3 to AMC 20-6. As with all other operations, the competent authority should also monitor all aspects of the EDTO operations that it has approved to ensure that the levels of reliability achieved remain at the necessary levels as provided in Appendix 1 to AMC 20-6, and that the operation continues to be conducted safely. If an acceptable level of reliability is not maintained, if significant adverse trends exist, or if significant deficiencies are detected in the type design or the conduct of the EDTO operation, then the competent authority should:

- (i) initiate a special evaluation,
- (ii) impose operational restrictions if necessary, and
- (iii) stipulate corrective action(s) for the operator to take to resolve the problems in a timely manner.

The competent authority should alert the certifying authority when a special evaluation is initiated and make provisions for their participation.

#### (b) Continuity of the EDTO operational approval

If an air operator ceases actual EDTO operations for a period exceeding 12 months, the competent authority should assess again the operator's compliance with the EDTO requirements before the operator resumes its EDTO operations.

If the operator maintains simulated EDTO processes, procedures and training as prescribed in its approved procedures, the competent authority may not need to re-assess compliance with the EDTO requirements.



### Rationale

The change has been introduced to introduce a specific AMC detailing the EDTO operational approval process to be followed from a competent authority perspective.

#### 3.2.3 AMC & GM to Part-ORO

### GM1 ORO.GEN.130(b) Changes related to an AOC holder

#### CHANGES REQUIRING PRIOR APPROVAL

The following GM is a non-exhaustive checklist of items that require prior approval from the competent authority as specified in the applicable Implementing Rules:

[...]

- (r) maximum distance from an adequate aerodrome ~~for two-engined aeroplanes~~ without an extended **diversion time** ~~range~~ operations **(EDTO)** ~~approval for~~ **with** two-engined aeroplanes ~~(ETOPS) approval:~~

- (1) air operations with two-engined performance class A aeroplanes with a maximum operational passenger seating configuration (MOPSC) of 19 or less ~~and a maximum take-off mass less than 45 360 kg~~, over a route that contains a point further than 120 minutes from an adequate aerodrome, under standard conditions in still air;

[...]

### Rationale

The change has been introduced to replace the term 'ETOPS' by EDTO and to correct the scope of items requiring prior approval in the case of EDTO without an EDTO operational approval.

### GM2 ORO.GEN.200(a)(3) Management system

#### RISK MANAGEMENT OF FLIGHT OPERATIONS WITH KNOWN OR FORECAST VOLCANIC ASH CONTAMINATION

[...]

- (c) Volcanic activity information and operator's potential response

[...]

- (3) ~~On-going~~ **Ongoing** eruption

[...]

For the purpose of flight planning, the operator should treat the horizontal and vertical limits of the temporary danger area (TDA) or airspace forecast to be contaminated by volcanic ash as applicable, to be overflowed as it would mountainous terrain, modified in accordance with its safety risk assessment. The operator should take account of the risk of cabin depressurisation or engine failure resulting in the inability to maintain level flight above a volcanic cloud, especially when conducting **EDTO** ~~ETOPS~~ operations. Additionally,

minimum equipment list (MEL) provisions should be considered in consultation with the TCHs.

[...]

#### Rationale

*The change has been introduced to replace the term 'ETOPS' by 'EDTO'.*

## GM1 ORO.AOC.125(a)(2) Non-commercial operations of an AOC holder with aircraft listed on an AOC

### EXAMPLES OF DIFFERENT OPERATING PROCEDURES APPLIED TO NON-COMMERCIAL OPERATIONS

[...]

- (f) Non-EDTO~~ETOPS~~/EDTO~~ETOPS~~

EDTO~~ETOPS~~ are applicable to CAT operations only and thus a flight operated according to Part-NCC/Part-NCO may be performed without the EDTO~~ETOPS~~ restrictions.

[...]

#### Rationale

*The change has been introduced to replace the term 'ETOPS' by 'EDTO'.*

## AMC3 ORO.MLR.100 Operations manual – general

### CONTENTS – CAT OPERATIONS

- (a) The OM should contain at least the following information, where applicable, as relevant for the area and type of operation:

A GENERAL/BASIC

[...]

- 8.5 Extended-~~range~~ diversion time operations with two-engined aeroplanes (EDTO~~ETOPS~~). A description of the EDTO~~ETOPS~~ operational procedures. (Refer to SPA.EDTO~~EASA-AMC-20-6~~)

(a) Brief description of EDTO,

(b) Definitions,

(c) Operator approved diversion time(s),

(d) List of aeroplanes within the scope of the EDTO operational approval,

(e) Flight crew procedures,

(i) Dispatch,

(ii) Re-routing or diversion-making,



## (iii) En-route monitoring.

[...]

## B AIRCRAFT OPERATING MATTERS — TYPE RELATED

[...]

## 4.3 EDTO additional performance data for aeroplanes. Additional performance data, where applicable, including the following:

(a) Detailed one-engine-inoperative (OEI) performance data including fuel flow for standard and non-standard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering:

(i) drift down (includes net performance);

(ii) cruise (altitude coverage including depressurised altitude);

(iii) holding;

(iv) altitude capability (includes net performance);

(v) missed approach.

(b) Details of any other conditions relevant to EDTO that can cause significant deterioration of performance, such as ice accumulation on the unprotected surfaces of the aeroplane, ram air turbine (RAT) deployment, thrust reverser deployment, etc.

## 5 FLIGHT PLANNING

5.1 Data and instructions necessary for pre-flight and in-flight planning including, for aeroplanes, factors such as speed schedules and power settings. Where applicable, procedures for engine(s)-out operations, ~~EDTO~~~~ETOPS~~ (particularly the established one-engine-inoperative (OEI) ~~cruise~~ speed, and maximum distance to an adequate aerodrome determined in accordance with Annex IV (Part-CAT)) and flights to isolated aerodromes should be included.

[...]

5.3 When applicable, for aeroplanes, performance data for ~~EDTO~~~~ETOPS~~ critical fuel reserve and area of operation, including sufficient data to support the critical fuel reserve and area of operation calculation based on approved aircraft performance data. The following data should be included:

[...]

(c) details of any other conditions relevant to ~~EDTO~~~~ETOPS~~ operations which can cause significant deterioration of performance, such as ice accumulation on the unprotected surfaces of the aircraft, ram air turbine (RAT) deployment, thrust-reverser deployment, etc.; and



- (d) the altitudes, airspeeds, thrust settings, and fuel flow used in establishing the **EDTO**~~ETOPS~~ area of operations for each ~~airframe~~**aeroplane**/engine combination should be used in showing the corresponding terrain and obstruction clearances in accordance with Annex IV (Part-CAT).

[...]

#### 9 MINIMUM EQUIPMENT LIST (MEL)

The MEL for each aircraft type or variant operated and the type(s)/area(s) of operation. The MEL should also include the dispatch conditions associated with operations required for a specific approval (e.g. RNAV, RNP, RVSM, **EDTO**~~ETOPS~~). Consideration should be given to using the ATA number system when allocating chapters and numbers.

[...]

#### C ROUTE/ROLE/AREA AND AERODROME/OPERATING SITE INSTRUCTIONS AND INFORMATION

[...]

##### (3) Information related to EDTO

- (a) EDTO routes and associated maximum diversion time or distance, including routes or areas subject to a 15 % increase of the operator approved diversion time in accordance with SPA.EDTO.105(b);
- (b) EDTO en-route alternates;
- (c) Meteorological facilities and availability of information for in-flight monitoring;
- (d) Low altitude cruise information, minimum diversion altitude, minimum oxygen requirements and any additional oxygen required on specified routes if MSA restrictions apply;
- (e) Aerodrome characteristics (landing distance available, RFFS category and landing aids available) and weather minima for aerodromes that are designated as possible alternates.

[...]

#### Rationale

*The change has been introduced to:*

- *replace the previously used term 'ETOPS' by the new term 'EDTO';*
- *provide details on the data/procedures to be included in the different parts of the operations manual for an operator approved for EDTO.*



## GM1 ORO.MLR.105(d)(3) Minimum equipment list

### SCOPE OF THE MEL

(a) Examples of special approvals in accordance with Part-SPA may be:

- (1) RVSM,
- (2) **EDTO**~~ETOPS~~,
- (3) LVO.

[...]

### Rationale

*The change has been introduced to replace the term 'ETOPS' by 'EDTO'.*

## AMC1 ORO.FC.140(a) Operation on more than one type or variant

### GENERAL

[...]

(c) ODRs methodology

[...]

(3) The ODR tables should be presented as follows:

| GENERAL OPERATOR DIFFERENCES REQUIREMENTS TABLE |                                                 |             |             |                   |     |   |   |   |                       |            |
|-------------------------------------------------|-------------------------------------------------|-------------|-------------|-------------------|-----|---|---|---|-----------------------|------------|
| DIFFERENCE AIRCRAFT:<br>BASE AIRCRAFT:          |                                                 |             |             | COMPLIANCE METHOD |     |   |   |   |                       |            |
|                                                 |                                                 |             |             | TRAINING          |     |   |   |   | CHECKING/<br>CURRENCY |            |
| General                                         | Differences                                     | Flt<br>char | Proc<br>chg | A                 | B   | C | D | E | FLT<br>CHK            | REC<br>EXP |
| GENERAL                                         | Range<br><b>EDTO</b> <del>ETOPS</del> certified | No          | Yes         |                   | CBT |   |   |   |                       |            |
| DIMENSIONS                                      | Configuration per AFM, FCOM                     | Yes         | No          |                   | CBT |   |   |   |                       |            |

[...]

### Rationale

*The change has been introduced to replace the term 'ETOPS' by 'EDTO'.*

## AMC1 ORO.FC.220 Operator conversion training and checking

### OPERATOR CONVERSION TRAINING SYLLABUS

[...]

(d) Flight training

- (1) Flight training should be conducted to familiarise the flight crew member thoroughly with all aspects of limitations and normal, abnormal and emergency procedures associated with the aircraft and should be carried out by suitably qualified class and type rating instructors and/or examiners. For specific operations, such as steep approaches,



**EDTO**~~ETOPS~~, or operations based on QFE, additional training should be carried out, based on any additional elements of training defined for the aircraft type in the operational suitability data in accordance with Commission Regulation (EU) No 748/2012, where they exist.

[...]

#### Rationale

*The change has been introduced to replace the term 'ETOPS' by 'EDTO'.*

### AMC1 ORO.CC.200(c) Senior cabin crew member

#### TRAINING PROGRAMME

The senior cabin crew member training course should at least cover the following elements:

- (a) Pre-flight briefing:
  - (1) operating as a crew;
  - (2) allocation of cabin crew stations and responsibilities; and
  - (3) consideration of the particular flight, aircraft type, equipment, area and type of operation, including extended **diversion time**~~range~~ operations ~~with two-engine aeroplanes~~ (**EDTO**~~ETOPS~~) and special categories of passengers with emphasis on passengers with disabilities or reduced mobility, infants and stretcher cases.

[...]

#### Rationale

*The change has been introduced to replace the term 'ETOPS' by 'EDTO'.*

#### 3.2.4 AMC & GM to Part-CAT

### GM1 CAT.OP.MPA.140 Maximum distance from an adequate aerodrome for aeroplanes with two or more engines without an EDTO operational approval

#### OEI SPEED FOR TWO-ENGINED AEROPLANES

The selected OEI speed for two-engined aeroplanes is intended to be used solely for establishing the maximum distance from an adequate aerodrome.

Additional guidance for the selection of the all-engines-operating (AEO) speed for aeroplanes with more than two engines and for the determination of the OEI speed for two-engined aeroplanes can be found in ICAO Doc 10085.



### Rationale

The change has been introduced to replace the existing GM1 CAT.OP.MPA.140(c) clarifying the intended use of the selected OEI speed for two-engined aeroplanes (which is proposed to be deleted) and to provide guidance for the selection of the AEO speed for aeroplanes with more than two engines by referring to the related ICAO Doc 10085.

## AMC1 CAT.OP.MPA.140(d) Maximum distance from an adequate aerodrome for aeroplanes with two or more engines ~~two-engined aeroplanes~~ without an ~~EDTO~~ ~~ETOPS~~ operational approval

OPERATION OF NON-~~EDTO~~ ~~ETOPS~~-COMPLIANT TWIN TURBO-JET AEROPLANES WITH AN MOPSC OF 19 OR LESS BETWEEN 120 AND 180 MINUTES FROM AN ADEQUATE AERODROME

[...]

### (d) Maintenance

- (1) The operator's oil-consumption-monitoring programme should be based on engine manufacturer's recommendations, if available, and track oil consumption trends. The monitoring should be continuous ~~to~~ ~~and~~ take account of the oil added ~~and allow the calculation of the consumption rate of the previous leg.~~

[...]

### (f) Pre-departure check

A pre-departure check, additional to the pre-flight inspection required by Part-M and designed to verify the status of the aeroplane's significant systems, should be conducted. Adequate status monitoring information on ~~relevant~~ ~~all~~ significant systems should be available to the flight crew to conduct the pre-departure check. The content of the pre-departure check should be described in the OM. The operator should ensure that flight crew members are fully trained and competent to conduct a pre-departure check of the aeroplane. The operator's required training programme should cover all relevant tasks, with particular emphasis on checking required fluid levels.

### (g) MEL

The operator should establish in its MEL the minimum equipment that has to be serviceable for non-~~ETOPS~~ ~~EDTO~~ operations between 120 and 180 minutes. The operator should ensure that the MEL takes into account all items specified by the manufacturer relevant to this type of operations.

### (h) Dispatch/flight planning rules

[...]

- (4) ERA aerodrome(s): the operator should ensure that ERA aerodromes are available for the intended route, within the distance flown in 180 minutes based upon the OEI ~~cruising~~ speed, which is a speed within the certified limits of the aeroplane, selected by the operator and approved by the competent authority, confirming that, based on the available

meteorological information, the weather conditions at ERA aerodromes are at or above the applicable minima for the applicable period of time, in accordance with CAT.OP.MPA.185<sup>2</sup>.

### Rationale

The change has been introduced to:

- replace the previously used term ‘ETOPS’ by the new term ‘EDTO’;
- introduce minor wording modifications for clarification;
- provide the reference to the correct implementing rule (CAT.OP.MPA.182).

### ~~GM1 CAT.OP.MPA.140(c) Maximum distance from an adequate aerodrome for two-engined aeroplanes without an ETOPS approval~~ ~~ONE ENGINE INOPERATIVE (OEI) CRUISING SPEED~~

~~The OEI cruising speed is intended to be used solely for establishing the maximum distance from an adequate aerodrome.~~

### Rationale

This GM has been replaced by the new GM1 CAT.OP.MPA.140.

### GM1 CAT.OP.MPA.140(d) Maximum distance from an adequate aerodrome for aeroplanes with two or more engines ~~two-engined aeroplanes~~ without an ~~ETOPS~~ EDTO approval

#### SIGNIFICANT SYSTEMS

##### (a) Definition:

Significant systems to be checked are ~~the aeroplane propulsion system and~~ any aeroplane systems whose failure could adversely affect the safety of a non-~~EDTO~~ ~~ETOPS diversion~~ flight, or whose functioning is **specifically** important to continued safe flight and landing during an aeroplane diversion.

##### (b) When defining the pre-departure check, the operator should give consideration, at least, to the following systems:

[...]

(15) propulsion system fire detection and suppression;

~~(16) emergency equipment (e.g. ELT, hand fire extinguisher, etc.);~~

### Rationale

The change has been introduced to:

- replace the previously used term ‘ETOPS’ by the new term ‘EDTO’;

- amend the list of systems the operator may consider during the pre-departure check, by removing the emergency equipment, which is already adequately covered by other checks.

## AMC1 CAT.OP.MPA.175(a) Flight preparation

### OPERATIONAL FLIGHT PLAN — COMPLEX MOTOR-POWERED AIRCRAFT

- (a) The operational flight plan used and the entries made during flight should contain the following items:

[...]

- (11) type of operation (**EDTO**~~ETOPS~~, VFR, ferry flight, etc.);

[...]

#### **Rationale**

*The change has been introduced to replace the previously used term 'ETOPS' by the new term 'EDTO'.*



## AMC3 CAT.OP.MPA.182 Fuel/energy scheme — aerodrome selection policy — aeroplanes

### BASIC FUEL SCHEME — AERODROME FORECAST METEOROLOGICAL CONDITIONS

Table 1 — Aerodrome forecasts (TAFs) and landing forecasts (TRENDS) to be used for pre-flight planning

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                         |                                                                              |                                                         |                                                                                                                                |                                                                                                                             |                          |                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------|
| <b>(a) APPLICATION OF INITIAL PART OF TAF</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                         |                                                                              |                                                         |                                                                                                                                |                                                                                                                             |                          |                                                                                                 |
| <p>(1) <b>Application period:</b> from the start of the TAF validity period up to the time of applicability of the first subsequent 'FM...*' or 'BECMG', or if no 'FM...' or 'BECMG' is given, to the end of the validity period of the TAF.</p> <p>(2) <b>Application of forecast:</b> the forecast of the prevailing weather conditions in the initial part of the TAF should be fully applied, with the exception of <b>mean wind</b> and <b>gusts</b> that should be applied in accordance with the policy under column 'BECMG AT and FM...' in the table below. However, this may be temporarily superseded by a 'TEMPO' or 'PROB XX', if applicable according to the table below.</p> |                                                         |                                                                              |                                                         |                                                                                                                                |                                                                                                                             |                          |                                                                                                 |
| <b>(b) APPLICATION OF FORECAST FOLLOWING CHANGE INDICATION IN THE TAF AND TREND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                         |                                                                              |                                                         |                                                                                                                                |                                                                                                                             |                          |                                                                                                 |
| <b>TAF or TREND</b> for<br>AERODROME<br>PLANNED AS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FM... (alone) and<br><b>BECMG AT:</b>                   | <b>BECMG (alone), BECMG FM,<br/>BECMG TL, BECMG FM...TL</b> , in case<br>of: |                                                         | <b>TEMPO (alone), TEMPO FM, TEMPO FM...TL, PROB30/40</b> (alone) **                                                            |                                                                                                                             | <b>PROB TEMPO</b>        |                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Deterioration<br/>and<br/>Improvement</b>            | <b>Deterioration</b>                                                         | <b>Improvement</b>                                      | <b>Deterioration</b>                                                                                                           |                                                                                                                             | <b>Improvement</b>       | <b>Deterioration<br/>and<br/>Improvement</b>                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                         |                                                                              |                                                         | <b>Transient/Shower<br/>Conditions</b><br>in connection with short-<br>lived weather phenomena,<br>e.g. thunderstorms, showers | <b>Persistent Conditions</b><br>in connection with e.g.<br>haze, mist, fog,<br>dust/sandstorm,<br>continuous precipitations | In any case              |                                                                                                 |
| <b>DESTINATION</b><br>at ESTIMATED<br>TIME OF ARRIVAL<br>(ETA) ± 1 HR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Applicable from<br>the <b>start of<br/>change</b>       | Applicable from<br>the <b>start of<br/>change</b>                            | Applicable from<br><b>the end of<br/>change</b>         | Not applicable                                                                                                                 | Applicable                                                                                                                  | Should be<br>disregarded | Deterioration<br>may be<br>disregarded.<br>Improvement<br>should be<br>disregarded<br>including |
| <b>TAKE – OFF<br/>ALTERNATE</b><br>at ETA ± 1 HR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Mean wind</b><br>should be within<br>required limits | <b>Mean wind</b><br>should be within<br>required limits                      | <b>Mean wind</b><br>should be within<br>required limits | <b>Mean wind and gusts</b><br>exceeding required limits<br>may be disregarded                                                  | <b>Mean wind</b> should be<br>within required limits                                                                        |                          |                                                                                                 |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |                                                                 |                                                                 |                                                                 |                                                                 |  |                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|--|----------------------|
| <b>DESTINATION<br/>ALTERNATE</b><br>at ETA ± 1 HR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Gusts</b> exceeding crosswind limits should be fully applied | <b>Gusts</b> exceeding crosswind limits should be fully applied | <b>Gusts</b> exceeding crosswind limits should be fully applied |                                                                 | <b>Gusts</b> exceeding crosswind limits should be fully applied |  | mean wind and gusts. |
| <b>FUEL ERA</b><br>at ETA ± 1 HR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                 |                                                                 |                                                                 |                                                                 |                                                                 |  |                      |
| <b>EDTO<del>ETOPS</del> ERA</b><br>From earliest ETA to <b>latest</b> ETA + 1 HR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Applicable from the <b>start</b> of change                      | Applicable from the <b>start</b> of change                      | Applicable from the <b>end</b> of change                        | <b>Applicable if below applicable landing minima</b>            | <b>Applicable if below applicable landing minima</b>            |  |                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Mean wind</b> should be within required limits               | <b>Mean wind</b> should be within required limits               | <b>Mean wind</b> should be within required limits               | <b>Mean wind</b> should be within required limits               | <b>Mean wind</b> should be within required limits               |  |                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Gusts</b> exceeding crosswind limits should be fully applied | <b>Gusts</b> exceeding crosswind limits should be fully applied | <b>Gusts</b> exceeding crosswind limits should be fully applied | <b>Gusts</b> exceeding crosswind limits should be fully applied | <b>Gusts</b> exceeding crosswind limits should be fully applied |  |                      |
| <p>* The space following 'FM' should always include a time group e.g. 'FM1030'.</p> <p>Note 1: 'required limits' are those contained in the OM.</p> <p>Note 2: if promulgated aerodrome forecasts do not comply with the provisions of ICAO Annex 3, operators should ensure that guidance on the application of these reports is provided.</p> <p>Note 3: for the definitions of the meteorological terms used in this table, see ICAO Annex 3.</p> <p>* The space following 'FM' should always include a time group e.g. 'FM1030'.</p> <p><b>** In the case of an EDTO ERA, only PROB 40 needs to be considered.</b></p> |                                                                 |                                                                 |                                                                 |                                                                 |                                                                 |  |                      |

### Rationale

The change has been introduced to:

- replace the previously used term 'ETOPS' by the new term 'EDTO'; and
- align the applicable time window to be considered with the existing provisions of AMC 20-6 that are proposed to be deleted.



## AMC2 CAT.IDE.A.345 Communication and navigation equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks

### ACCEPTABLE NUMBER AND TYPE OF COMMUNICATION AND NAVIGATION EQUIPMENT

[...]

- (c) The operator conducting extended **range diversion time** operations (**EDTO**) ~~with two-engined aeroplanes (ETOPS)~~ should ensure that the **related criteria of SPA.EDTO on aeroplanes** have a communication means **are met**. ~~capable of communicating with an appropriate ground station at normal and planned contingency altitudes. For ETOPS routes where voice communication facilities are available, voice communications should be provided. For all ETOPS operations beyond 180 minutes, reliable communication technology, either voice-based or data link, should be installed. Where voice communication facilities are not available and where voice communication is not possible or is of poor quality, communications using alternative systems should be ensured.~~

[...]

#### Rationale

*The change has been introduced to:*

- *replace the previously used term 'ETOPS' by the new term 'EDTO';*
- *remove some considerations which are already addressed in SPA.EDTO to avoid a duplication of provisions.*

### 3.2.5 AMC & GM to Part-SPA

## AMC1 SPA.EDTO.100(c) EDTO operational approval

### EDTO OPERATIONAL APPROVAL METHODS

- (a) Depending on the amount of prior in-service experience of the operator with the candidate aeroplane/engine combination, one of the following two approval methods should be used:
- (1) 'Accelerated EDTO operational approval', for which limited or no prior in-service experience with the candidate aeroplane/engine combination is necessary. With this method, the operator needs to build a programme of process validation to address the lack of direct experience (with EDTOs and/or with the candidate aeroplane).
  - (2) 'In-service EDTO operational approval', which is based on a prerequisite amount of prior in-service experience with the candidate aeroplane/engine combination.
- (b) Both EDTO operational approval processes should include the following phases:
- (1) Application phase;
  - (2) Validation of the operator's EDTO processes;



The intent of this validation phase is to demonstrate that the related EDTO processes are in place and produce the expected results.

(3) Assessment of the operator's propulsion system reliability

The intent of this phase is to demonstrate the operator's ability to achieve and maintain the level of propulsion system reliability established in accordance with Appendix 1 to AMC 20-6.

(4) Validation of the operator's capability

The intent of this phase, which includes validation flights, is to ensure that the established EDTO flight operations and maintenance processes and procedures can support the planned operations.

### Rationale

*This AMC has been introduced to provide a general description of the two applicable EDTO operational approval processes based on the content transferred from AMC 20-6.*

## AMC2 SPA.EDTO.100(c) EDTO operational approval

### EDTO OPERATIONAL APPROVAL PROCESSES

#### (a) Eligibility

(1) The following operators are eligible for the in-service EDTO operational approval process:

(i) Operators of performance class A aeroplanes with a maximum operational passenger seating configuration (MOPSC) of 19 or less, with at least 6 consecutive months of experience in operations with a diversion time between 120 and 180 minutes under CAT.OP.MPA.140(d) with the related aeroplane/engine combination.

(ii) Operators of other two-engined aeroplanes, with:

- at least 12 consecutive months of in-service experience without EDTO with the considered aeroplane/engine combination. In this case, the operator may apply for a diversion time of 120 minutes maximum; or
- at least twelve consecutive months of in-service EDTO experience with diversion time of up to 120 minutes and with the considered aeroplane/engine combination; in this case, the operator may apply for a diversion time of 180 minutes maximum; or
- at least 6 consecutive months of in-service EDTO experience with a diversion time of 120 minutes or above; in this case, the operator may apply for diversion time beyond 180 minutes; or
- no or minimal in-service experience without EDTO with the considered aeroplane/engine combination. In this case, the operator may apply for a diversion time of 90 minutes maximum based on the in-service approval process. The operator should demonstrate that the reduction of the

validation of its EDTO processes that would be required through the accelerated approval process is adequately compensated by the combined consideration of the following factors: the proposed EDTO area of operations, the operator's ability to successfully introduce aeroplanes into operations and the quality of the proposed continuing airworthiness and operations programmes.

In all other cases where the operator has accumulated less than the above-mentioned minimum experience, the accelerated EDTO operational approval process is to be followed.

(2) Under the accelerated EDTO operational approval process, the operator may apply for any diversion time. In addition, an operator may start EDTO at entry into service with the related aeroplane/engine combination. However, the following conditions should be fulfilled:

- (i) the aeroplanes operated are already configured in accordance with the configuration, maintenance and procedures (CMP) document;
- (ii) the personnel involved in continuing airworthiness and operations processes have previous EDTO experience (e.g. from a previous operator) or a third-party organisation has been contracted to support the operator; and
- (iii) data necessary for the validation of the operator's capability in continuing airworthiness processes has already been accumulated by the operator, or external data is available when these processes are managed by a third-party air operator approved for EDTO under Part-SPA.

**(b) Application phase**

An operator applying for an EDTO operational approval should submit its application to its competent authority at least 6 months before the proposed start of EDTO operations in the case of the accelerated EDTO operational approval process, and at least 2 months before the proposed start of EDTO operations in the case of the in-service EDTO operational approval process.

The application should include:

- (1) the planned start of the EDTO operations (new operations or operations with an increased diversion time);
- (2) the planned routes and the EDTO diversion time necessary to support those routes;
- (3) the aeroplanes concerned (model(s) and MSNs);
- (4) EDTO type design and reliability approval of the aeroplane model concerned;
- (5) conformity of the candidate aeroplanes, including auxiliary power unit (APU) and engines, to the applicable EDTO configuration requirements listed in the EDTO CMP document;
- (6) the proposed OEI speed for two-engined aeroplanes, which may be area-specific depending upon anticipated aeroplane loading and likely fuel penalties associated with the planned procedures;





(7) except for operators already approved for EDTO with the considered aeroplane type, a description of the resources allocated to each EDTO process to initiate and sustain EDTO in a manner that demonstrates commitment by management and all personnel involved in EDTO continuing airworthiness and operational processes;

(8) except for operators already approved for EDTO with the considered aeroplane type, a description of the operator's EDTO operational processes, including:

(i) operational limitations;

(ii) flight preparation;

(iii) in-flight procedures.

The operator should submit the relevant part of its operations manual as part of its application;

(9) except for operators already approved for EDTO with the considered aeroplane type, a description of the operator's EDTO continuing airworthiness processes (as per AMC 20-6 Appendix 3), including but not limited to the following:

(i) maintenance programme;

(ii) EDTO reliability monitoring and reporting programme;

(iii) oil consumption monitoring programme;

(iv) engine condition monitoring;

(v) propulsion system monitoring programme;

(vi) EDTO parts control programme;

(10) flight crew and ground staff EDTO initial and recurrent training programmes, except for operators already approved for EDTO with the considered aeroplane type;

(11) proposed review gates in the case of accelerated EDTO operational approval process.

Review gates are milestones of the approval process proposed by the operator to demonstrate compliance with the applicable EDTO requirements. The review gate process should start 6 months before the planned start of EDTO. It should cover all processes required to be validated and any additional operator-specific training and procedures relevant to EDTO. Each review gate should be defined in terms of the process elements to be validated.

It should include in particular the plan for the training of flight crew, flight dispatch and continuing airworthiness personnel.

The final review gate should be the EDTO validation flight(s) as described in point (d);

(12) if applicable, information on how the operator addresses new technology and significant differences in EDTO-significant systems (e.g. engines, electrical, hydraulic, pneumatic, etc.), compared to the aeroplanes currently operated and the aeroplanes for which the operator is seeking EDTO operational approval using the accelerated approval process;

- (13) the source documentation, if the operator uses training programmes, maintenance and/or operational procedures relevant to EDTO for the aeroplane for which the operator is seeking accelerated EDTO operational approval from another source (e.g. from a manufacturer or another organisation);

The operator should highlight the changes it has made to these procedures and provide the rationale behind such changes;

- (14) details of any EDTO support programme from the aeroplane/engine combination or engine (S)TC holder, other operators or any third-country authority or other competent authority;

- (15) approvals held by the contracted organisation(s) together with the control procedures of the contractor(s), if the operator uses a contracted maintenance and/or a flight dispatch organisation.

(c) Validation of the operator's EDTO processes

The extent of validation needs depends on the operator's experience with the related aeroplane type and with EDTO.

In case of the accelerated EDTO process applied to an operator with no prior experience with the aeroplane type and no EDTO experience, all processes should be validated.

For all processes to be validated, the operator should demonstrate that the process is in place and functions as intended. This may be accomplished by providing data, documentation and analysis results and/or by demonstrating in practice that the process works and consistently provides the intended results. The operator should also demonstrate that a feedback loop exists to facilitate the surveillance of the process, based on in-service experience.

If an operator is currently approved for conducting EDTO with a different engine and/or aeroplane/engine combination, it may be able to document proven EDTO processes. In this case, only minimal further validation may be necessary. The operator should demonstrate that processes are in place to assure equivalent results on the engine and/or aeroplane/engine combination being proposed for accelerated EDTO operational approval.

(1) Reduction in the validation requirements of EDTO processes

The following elements will be useful or beneficial in justifying a reduction by the competent authority in the validation requirements of EDTO processes:

- (i) Experience with other aeroplanes and/or engines;
- (ii) Previous EDTO experience;
- (iii) Experience with long-range or extended over-water operations;
- (iii) Any experience gained by flight crews, continuing airworthiness personnel and flight dispatch personnel, while working with other EDTO-approved operators, particularly when such experience is with the same aeroplane or aeroplane/engine combination.

The process validation may be done on the aeroplane/engine combination that will be used or on a different aeroplane type than that for which approval is being sought.

**(2) Validation of the EDTO processes on a different aeroplane type**

A process may be validated by demonstrating that it produces equivalent results on a different aeroplane type or aeroplane/engine combination. In this case, the validation programme should address the following:

- (i) The operator should demonstrate that the EDTO validation programme can be executed in a safe manner;
- (ii) The operator should establish policy guidance to personnel involved in the EDTO process validation programme, clearly stating that EDTO process validation exercises should not adversely impact the safety of actual operations, especially during periods of abnormal, emergency, or high cockpit-workload operations. It should emphasise that during periods of abnormal or emergency operation or high cockpit workload, EDTO process validation exercises should be terminated;
- (iii) The validation scenario should be of sufficient frequency and operational exposure to validate maintenance and operational support systems that are not validated by other means;
- (iv) A means should be established to monitor and report performance with respect to accomplishment of tasks associated with EDTO process elements. Any recommended changes resulting from the validation programme to EDTO continuing airworthiness and/or operational process elements should be defined.

**(3) Methodology for the validation**

The following information should be submitted to the competent authority prior to the start of the validation process:

- (i) Validation periods, including start dates and proposed completion dates;
- (ii) List of aeroplanes to be used in the validation, including registration numbers, manufacturer and serial number and model of the aeroplane and engines;
- (iii) Description of the areas of operation (if relevant to validation) proposed for validation and actual operations;
- (iv) List of selected EDTO validation routes. The routes should be representative of the planned routes submitted in the initial application and of sufficient duration to allow the validation of the related processes.

The operator should provide periodic process validation reports to the competent authority. This may be addressed during the planned review gates.

The operator should compile results of EDTO process validation. In particular, the operator should:

- (i) document how each element of the EDTO process was utilised during the validation;
- (ii) document any shortcomings with the process elements and measures in place to address such shortcomings; and

- (iii) document any changes to EDTO processes, which were required after an in-flight shut down (IFSD), unscheduled engine removals, or any other significant operational events.

(d) Assessment of the operator's propulsion system reliability

The operator should provide all available reliability data that may be used to assess its ability to achieve and maintain the level of propulsion system reliability established in accordance with Appendix 1 to AMC 20-6.

The operator should provide a report covering the total experience of the operator with the considered aeroplane type, if applicable, and including:

- (1) the operator's current IFSD rate, if applicable;
- (2) the worldwide fleet average IFSD rate for the family of the aeroplane/engine combination concerned;
- (3) the list of all engine-related events, including the outcome of the analysis conducted and the actions taken.

(e) Validation of the operator's capability

The operator should demonstrate that the EDTO continuing airworthiness processes (for two-engined aeroplanes only) and the EDTO flight dispatch and release practices are properly conducted.

In addition, operational validation flight(s) should be conducted to demonstrate that the required EDTO flight operations and maintenance processes and procedures are capable of supporting the planned operations. The validation flight(s) should be performed on route(s) that the operator plans to operate, or on representative routes.

The content of validation flights should be established by the operator based on its previous experience and submitted to the competent authority in advance. No abnormal or emergency operations (e.g. OEI diversion) should be simulated during a validation flight.

The validation flight(s) should typically be performed on non-revenue flights without passengers. However, depending on the scope of the EDTO operational approval and the operator's experience with the related area of operations, aeroplane type, contemplated diversion time, etc., a validation flight may be performed during the first EDTO revenue flight or replaced by a flight on an approved simulator.

### Rationale

*The proposed AMC provides detailed criteria for the two applicable EDTO operational approval processes based on the transferred content of AMC 20-6. To provide clarity, the descriptions for the two processes have been merged and the specificities of each process described in each step.*



**GM1 SPA.EDTO.100(b) EDTO operational approval****15% INCREASE TO A MAXIMUM DIVERSION TIME OF UP TO 180 MINUTES**

A 15 % extension of the diversion time in accordance with SPA.EDTO.105(c) is still included in the operational approval category with a maximum diversion time of up to 180 minutes, and the requirements applicable to the operational approval category beyond 180 minutes do not apply.

**Rationale**

The new GM has been introduced to provide clarity on the scope of one of the EDTO operational approval categories.

**GM2 SPA.EDTO.100(b) EDTO operational approval****REFERENCE SPEEDS**

As part of its EDTO application, the operator may propose an OEI speed, which is different from the speed selected to determine the threshold distance as required in CAT.OP.MPA.140(c).

For an operator holding an EDTO operational approval, the OEI approved speed always refers to the speed that is used to determine the EDTO area of operations.

The possible use of different reference speeds is summarised in the following table:

Table 1: EDTO cruise speeds

|                           | EDTO<br>threshold<br>distance | EDTO<br>maximum<br>diversion<br>distance | Critical fuel – all<br>engine<br>depressurisation | Critical fuel –<br>engine<br>inoperative<br>depressurisation | Critical fuel –<br>engine failure<br>only |
|---------------------------|-------------------------------|------------------------------------------|---------------------------------------------------|--------------------------------------------------------------|-------------------------------------------|
| Two-engined<br>aeroplanes | Any selected<br>OEI speed     | Approved OEI<br>speed                    | Any selected<br>AEO speed                         | Approved OEI<br>speed                                        | Approved OEI<br>speed                     |

**Rationale**

The new GM has been introduced to provide information about the possibility to have two different OEI speeds and their acceptable use.

**GM1 SPA.ETOPS.105 ETOPS operational approval****AMC 20-6**

AMC 20-6 provides further criteria for the operational approval of ETOPS.

**Rationale**

This GM has been deleted as all OPS elements of AMC 20-6 have been transferred to AMC to SPA.EDTO.

**AMC1 SPA.EDTO.105(b) EDTO initial and continuing airworthiness****CONTINUING AIRWORTHINESS CRITERIA**

Specific continuing airworthiness criteria for EDTO, ensuring compliance with Regulation (EU) No 1321/2014, are included in AMC 20-6.

**Rationale**

As continuing airworthiness provisions are temporarily remaining in AMC 20-6, a reference at AMC level needed to be created.

**AMC1 SPA.EDTO.105(c) EDTO initial and continuing airworthiness****15 % INCREASE OF THE OPERATOR APPROVED DIVERSION TIME**

To demonstrate that the resulting routing does not reduce the overall safety of the operation, including the consideration of time-limited systems capability, an operator requesting a 15 % increase of their approved diversion time should:

- (a) demonstrate that the increased diversion time sought does not exceed:
  - (1) 115 % of the aeroplane maximum diversion time; and
  - (2) the capabilities of the EDTO time-limited systems, minus 15 minutes;
- (b) demonstrate that the aeroplane fuel carriage supports the increased diversion time sought;
- (d) develop an appropriate MEL related to the diversion time sought.

**Rationale**

This new AMC has been introduced to provide means to comply with the requirement to demonstrate that the overall safety of the operation is not reduced in case of a 15% increase of the operator approved diversion time. The proposed content is stemming from AMC 20-6.

**GM1 SPA.EDTO.105(c) EDTO initial and continuing airworthiness****15 % INCREASE OF THE OPERATOR APPROVED DIVERSION TIME**

The following are considered relevant reasons that may prevent the availability of EDTO ERA within the operator's approved diversion time:

- (a) political or military concerns;
- (b) volcanic activity;
- (c) temporary airport conditions;
- (d) aerodrome weather conditions below dispatch minima
- (e) other weather-related events.

**Rationale**

This new GM has been introduced to provide guidance on the acceptable reasons that may be used by an operator to justify the non-availability of EDTO ERAs.

**AMC1 SPA.EDTO.110 EDTO training****EDTO TRAINING**

(a) The syllabus for EDTO initial and recurrent training for flight crew should include the following items:

(1) Introduction to EDTO requirements

- (i) Brief overview of the history of EDTO;
- (ii) SPA.EDTO content;
- (iii) Definitions;
- (iii) Approved one-engine-inoperative (OEI) speed;
- (iv) EDTO type design approval — a brief synopsis;
- (v) Aeroplane maximum diversion times and time-limited systems capability;
- (vi) Operator's approved diversion time;
- (vii) Routes and aerodromes intended to be used in the EDTO area of operations;
- (viii) EDTO operational approval;
- (ix) EDTO area and routes;
- (x) EDTO en-route alternates including all available let-down aids;
- (xi) Navigation systems accuracy, limitations and operating procedures;
- (xii) Meteorological facilities and availability of information;
- (xiii) In-flight monitoring procedures;
- (xiv) Operational flight plan;
- (xv) Orientation charts, including low-level planning charts and flight progress charts usage (including position plotting);
- (xvi) Equal time point;
- (xvii) Critical fuel.

(2) EDTO normal procedures

- (i) Flight planning and dispatch
  - (A) EDTO fuel requirements
  - (B) Route alternate selection — weather minima
  - (C) Minimum equipment list — EDTO-specific
  - (D) EDTO service check and tech log
  - (E) Pre-flight FMS set-up
- (ii) Flight performance progress monitoring
  - (A) Flight management, navigation and communication systems



- (B) Aeroplane system monitoring
- (C) Weather monitoring
- (D) In-flight fuel management — to include independent cross checking of fuel quantity, tracking of actual versus planned fuel burn and minimum en-route fuel policy

(3) EDTO abnormal and contingency procedures

- (i) Diversion procedures and diversion decision-making
- (ii) Navigation and communication systems, including appropriate flight management devices in degraded modes
- (iii) Fuel management with degraded systems
- (iv) Initial and recurrent training which emphasises abnormal and emergency procedures to be followed in the event of foreseeable failures for each area of operation, including:
  - (A) procedures for single and multiple failures in flight affecting EDTO sector entry and diversion decisions. If standby sources of electrical power significantly degrade the cockpit instrumentation to the pilots, then training for approaches with the standby generator as the sole power source should be conducted during initial and recurrent training;
  - (B) operational restrictions associated with these system failures including any applicable MEL considerations.

(4) EDTO practical training

Practical training should consist of line flying under supervision (LIFUS).

During the introduction into service of a new EDTO type, or conversion of pilots not previously EDTO-qualified where EDTO operational approval is sought, a minimum of two EDTO sectors should be completed including an EDTO line check.

Alternatively, the practical training may consist of a line-oriented flight training (LOFT) exercise conducted in a flight simulator to demonstrate both normal and abnormal EDTO procedures.

In both cases, the practical training should cover at least the following:

- (i) Pre-flight briefing
- (ii) EDTO flight release
- (iii) Cockpit preparation
- (iv) En-route (normal)
  - (A) Entering EDTO sector
  - (B) En-route monitoring procedures
  - (C) FMS procedures (as applicable)



- (D) Navigation and communication
- (v) En-route (non-normal)
  - (A) Contingency procedures
  - (B) Selected non-normal conditions and checklists
  - (C) Diversion decision-making
  - (D) FMS procedures (as applicable)
  - (E) En-route diversion
- (vi) Post-flight procedures
- (b) The operator should ensure that flight crew members are not assigned to operate EDTO routes for which they have not been briefed.
- (c) The operator should define an initial and refresher training programme for operations personnel other than flight crew involved in EDTO (e.g. operational control personnel), covering the following items:
  - (1) EDTO regulations/operations approval
  - (2) Aeroplane performance/diversion procedures
  - (3) Area of operation
  - (4) Fuel requirements
  - (5) Dispatch considerations MEL, CDL, weather minima, and alternate aerodromes
  - (6) Documentation

#### Rationale

*This new AMC is a direct transposition of the AMC 20-6 provisions on training.*

### AMC1 SPA.EDTO.115(a) Operating procedures

#### MINIMUM EQUIPMENT LIST

- (a) The operator's MEL should be developed/revised to address the equipment provisions for EDTO.
- (b) The operator's MEL should also consider the specificities of the EDTO area of operation:
  - (1) the operator's approved diversion time;
  - (2) the availability of EDTO en-route alternates, and available facilities and equipment;
  - (3) the navigation and communication means; and
  - (4) the prevailing meteorological conditions.
- (c) All restrictions that are specific to EDTO should be clearly identified in the operator's MEL, such as restrictions related to:



- (1) the operator's approved diversion time. This includes restrictions related to the number of items of equipment or systems required to be operative at dispatch for a flight with a given diversion time;
  - (2) the capability of the time-limited systems. This includes restrictions related to the serviceability of components or equipment of the EDTO time-limited systems, which may reduce the time capability of the system when they are degraded or inoperative (e.g. the cargo fire suppression system);
  - (3) the applicable weather minima. It includes restrictions related to components or equipment necessary in the conduct of satellite-based or ground-based instrument approaches, which will affect the selection of EDTO alternate aerodromes.
- (d) In the specific case of EDTO operational approvals of up to 90 minutes, the MEL restrictions for 120-minute EDTO should be used unless there are specific restrictions for 90 minutes or less.

#### **Rationale**

*This new AMC has been introduced to provide some specific criteria related to the MEL in the context of EDTOs. It is based on provisions from ICAO Doc 10085.*

## **GM1 SPA.EDTO.115(a) Operating procedures**

### **MINIMUM EQUIPMENT LIST**

Systems and equipment that should be considered in the context of EDTO, include, but are not limited to, the following:

- (a) electrical;
- (b) hydraulic;
- (c) pneumatic;
- (d) flight instrumentation, including warning and caution systems;
- (e) fuel;
- (f) flight control;
- (g) ice protection;
- (h) engine start and ignition;
- (i) propulsion system instruments;
- (j) navigation and communications, including any route-specific long-range navigation and communication equipment;
- (k) auxiliary power unit;
- (l) air conditioning and pressurisation;
- (m) cargo fire suppression;
- (n) engine fire protection;
- (o) emergency equipment;



- (p) systems and equipment required for engine condition monitoring.

#### Rationale

*This new GM is a direct transposition of the AMC 20-6 guidance on the equipment considered to have a fundamental influence on safety in the context of EDTO.*

## AMC1 SPA.EDTO.115(b) Operating procedures

### FUEL SUPPLY

#### (a) General

To release an aeroplane for an EDTO flight, the operator should ensure that it carries sufficient fuel and oil to meet the applicable operational requirements and any additional fuel that may be determined in accordance with the EDTO critical fuel scenario.

#### (b) Operations manual

The operator should ensure that the operations manual contains sufficient data to support the critical fuel reserve and area of operations calculation.

#### (c) EDTO critical fuel reserve

The operator should determine the EDTO critical fuel reserve, which is the fuel necessary to fly to the most critical point (at normal cruise speed and altitude, taking into account the anticipated meteorological conditions for the flight) and execute a diversion to an EDTO en-route alternate under the conditions outlined in the critical fuel scenario described below.

The EDTO critical fuel reserve should be compared to the normal applicable operational requirements for the flight, which should be in all cases complied with. If it is determined by this comparison that the fuel to complete the EDTO critical fuel scenario exceeds the fuel that would be on board at the most critical point, as determined by applicable operational requirements, additional fuel should be included to the extent necessary to safely complete the EDTO critical fuel scenario. When considering the potential diversion distance flown, account should be taken of the anticipated routing and approach procedures, in particular any constraints caused by airspace restrictions or terrain.

#### (d) EDTO critical fuel scenario

The operator should ensure compliance with this scenario when calculating the EDTO critical fuel reserves necessary.

Note 1: If an APU is one of the required power sources, then its fuel consumption should be accounted for during the appropriate phases of flight.

Note 2: Additional fuel consumptions due to any MEL or CDL items should be accounted for during the appropriate phases of flight, when applicable.

Note 3: Advantage may be taken of drift down computed at the applicable speed

The aeroplane should carry sufficient fuel taking into account the forecast wind and weather to fly to an EDTO route alternate assuming the greater of the following scenarios:

(1) All-engine depressurisation

Rapid decompression at the most critical point followed by descent to 10 000 ft or a higher altitude if sufficient oxygen is provided in accordance with the applicable operational requirements.

(2) One-engine inoperative depressurisation

Flight at the approved OEI speed, assuming a rapid decompression and a simultaneous engine failure at the most critical point followed by descent to 10 000 ft or a higher altitude if sufficient oxygen is provided in accordance with the applicable operational requirements.

(3) Engine failure only (two-engined aeroplanes only)

Flight at the approved OEI speed assuming an engine failure at the most critical point followed by descent to the one-engine-inoperative cruise altitude.

The fuel computation should consider a 15-minute hold at 1 500 ft above field elevation upon reaching the alternate and then an instrument approach and landing.

An additional 5 % wind speed factor (i.e. an increment to headwind or a decrement to tailwind) on the actual forecast wind should be used to calculate fuel in the greater of (1), (2) or (3) above to account for any potential errors in wind forecasting. If an operator does not use the actual forecast wind based on wind model acceptable to the competent authority, an increment of fuel representing 5 % of the fuel required to fly to an EDTO route alternate assuming the greater of scenarios (1), (2) or (3) above, should be added as reserve fuel to allow for errors in wind data.

A wind aloft forecasting distributed worldwide by the World Area Forecast System (WAFS) is an example of a wind model acceptable to the competent authority.

(e) Icing

The amount of fuel calculated in accordance with the EDTO critical fuel scenario should be corrected taking into account the greater of:

- (1) the effect of airframe icing during 10 % of the time during which icing is forecast, including ice accumulation on unprotected surfaces, and the fuel used by engine and wing anti-ice during this period;
- (2) fuel for engine anti-ice, and if appropriate wing anti-ice, for the entire time during which icing is forecast.

Note: Unless a reliable icing forecast is available, icing may be presumed to occur when the total air temperature (TAT) at the approved OEI speed is less than +10°C, or if the outside air temperature is between 0°C and -20°C with a relative humidity (RH) of 55 % or greater.

- (f) The operator should establish a programme to monitor aeroplane in-service deterioration in cruise fuel burn performance and include in the fuel supply calculations sufficient fuel to compensate for any such deterioration. If there is no data available for such a programme, the amount of fuel calculated in accordance with the EDTO critical fuel scenario should be increased by 5 % to account for deterioration in cruise fuel burn performance.

**(g) Auxiliary power unit (APU)**

If the APU is a required power source for the EDTO critical fuel diversion scenarios, the additional fuel consumption required to operate the APU should be included in the relevant diversion scenarios.

**Rationale**

*This new AMC is directly transposed from the AMC 20-6 provisions on fuel supply.*

**AMC2 SPA.EDTO.115(b) Operating procedures****FLIGHT PLANNING AND DISPATCH****(a) Alternate aerodrome selection**

The operator should describe the process for the selection of EDTO en-route aerodromes in its operations manual.

**(b) Information on other aerodromes**

In addition to the selected EDTO en-route alternates, the operator should provide flight crew with information on adequate aerodromes on the route to be flown which are not forecast to meet the EDTO en-route alternate weather minima. Before commencing a flight, the flight crew should receive information relevant to be used when executing a diversion. Such information should cover aerodrome facilities and other appropriate planning data concerning those aerodromes.

**(c) EDTO area of operations**

The EDTO area of operations is established during the flight preparation process based on the designated EDTO en-route alternates and the maximum diversion distance corresponding to the operator's approved diversion time and speed.

Credit for the drift down may be taken when establishing the EDTO area of operations.

The operator should identify, for each individual EDTO flight, the EDTO entry and exit points for all EDTO sectors and also the corresponding EDTO equal time points (ETPs).

**(d) Operational flight plan**

The type of operation (i.e. EDTO, including the diversion time used to establish the plan), the EDTO entry point(s), the EDTO exit point(s), and the EDTO ETP(s) should be listed on the operational flight plan.

**(e) Dispatch****(1) Minimum equipment requirements pertaining to EDTO**

The flight crew should review technical logs and forms to determine the condition of equipment required for EDTO and ensure that maintenance action has been performed to correct defects to the required equipment.

**(2) EDTO en-route alternates**

The expected meteorological conditions at the selected EDTO ERA should be assessed in accordance with the applicable EDTO ERA dispatch minima.

(3) Communication and navigation facilities

To release an aeroplane for an EDTO flight, the operator should ensure that:

- (i) communication facilities are available to provide, under normal conditions of propagation at all planned altitudes of the intended flight and the diversion scenarios, reliable two-way voice and/or data link communications;
- (ii) visual and non-visual aids are available at the specified alternates for the anticipated types of approaches and operating minima.

(4) Communication equipment

For all routes where voice communication facilities are available, the communication equipment should include at least one voice-based system. Where voice communication facilities are not available and where voice communication is not possible or is of poor quality, communications using alternative systems should be ensured.

(5) Consideration of time-limited systems (TLS) capability

The operator should ensure at flight planning stage that any diversion to an EDTO en-route alternate will not exceed:

- (i) the time capability specified in the AFM (or other relevant aeroplane manufacturer documentation) minus 15 minutes for the aeroplane's cargo fire suppression system, considering a diversion at the all-engines-operating (AEO) speed;
- (ii) the time capability specified in the AFM for the aeroplane's most limiting TLS (other than cargo fire suppression), if any, minus 15 minutes, considering a diversion at the approved OEI speed.

(f) Specific considerations for approvals beyond 180 minutes

- (1) Operators should minimise the diversion time along the preferred track. Increases in diversion time, for example by disregarding EDTO adequate aerodromes along the route, should only be planned in the interest of the overall safety of the operation.
- (2) In view of the long diversion time involved, the operator should conduct the verification that the time capabilities of the TLS would not be exceeded during any diversion to an EDTO ERA as specified in point (e)(5) above considering for the given day the forecast conditions, such as prevailing winds, temperature and applicable diversion procedures.
- (3) The following systems are required to be operative for dispatch for EDTO flights with diversion times beyond 180 minutes:
  - (i) two reliable communication system(s), either voice-based or data link;
  - (ii) the following additional equipment:
    - (A) fuel quantity indicating system (FQIS);
    - (B) APU (including electrical and pneumatic supply to its designed capability), if necessary to comply with EDTO requirements;



(C) automatic engine or propeller control system.

(4) Operators should use any or all of the following forms of communications to ensure communications capability when operating EDTO beyond 180 minutes:

(i) HF,

(ii) Data link,

(iii) Satellite-based communications.

#### Rationale

*This new AMC provides criteria for the flight planning and dispatch process. It is based mostly on the transposed related content of AMC 20-6, adapted to consider the recently adopted new standard 4.7.2.3 of ICAO Annex 6.*

## GM1 SPA.EDTO.115(b) Operating procedures

### TIME-LIMITED SYSTEMS (TLS) CONSIDERATIONS

(a) There are two kinds of TLS:

(1) the systems limited by their capacity, e.g. the cargo fire extinguishers, which per design cease to function once exhausted; and

(2) the systems for which time capability is determined by their endurance or reliability.

(b) Diversion time to ERA calculation

In the case of EDTO up to 180 minutes, a margin of 15 minutes (ISA, still air) is deemed to be sufficient to account for operational variances such as winds over the diversion. This is why the verification that the diversion times to ERAs do not exceed the capability of the TLS(s) may be performed considering ISA and still air conditions.

However, for EDTOs beyond 180 minutes, maximum diversion time, wind effects for these higher diversion times can be more significant and therefore the 15-minute margin may not be sufficient in all cases. This is the reason why the verification that the diversion times to ERAs need to be performed considering the actual forecast wind and temperature.

In both cases, the speed to be considered for the verification that the capability of the TLSs would not be exceeded, should be:

(1) a selected AEO speed for the cargo fire suppression system;

(2) the approved OEI speed for the TLS other than cargo fire suppression system, if any.

Regarding the verification that the time capability of the cargo fire suppression system would not be exceeded, it is considered, based on the review of the rates of cargo fire occurrences and of the engine failures, that the probability of a simultaneous failure would be extremely improbable. This is the reason why the diversion time to EDTO ERAs should be calculated using the selected AEO speed.

(c) Aeroplanes ETOPS certified after 2009 or EDTO certified



For these aeroplanes, the time capability of the cargo fire suppression and of the other most limiting TLSs, identified during the ETOPS/EDTO type design, and reliability approval of the aeroplane are listed in the AFM and/or the ETOPS/EDTO CMP document.

Consequently, the verification that the diversion times to ERAs do not exceed the relevant capability of both the cargo fire suppression system and of the TLSs other than the cargo fire suppression system with a 15-minute margin, is applicable and should be performed as detailed in point (b) above.

(d) Aeroplanes certified under the initial ETOPS principles

When the ETOPS rules were first published in 1985, it was required to consider only the time capability of the cargo fire suppression system. Under the new ETOPS requirements introduced in 2009 and EDTO, the aircraft manufacturer should also identify the capability of the other most limiting EDTO significant system. The corresponding limitations are to be identified in the relevant aeroplane documentation (e.g. in the EDTO CMP document, as well as in the AFM).

Consequently, in the case of aeroplanes engaged in EDTO certified under the initial rules, the verification that the diversion times to ERAs do not exceed the capability of the TLSs other than cargo fire suppression system with a 15-minute margin, is not applicable.

### Rationale

*This new GM has been introduced to provide guidance regarding the consideration of time-limited systems. It addresses:*

- *the relationship between TLS capability and the approved diversion time; and*
- *the specific case of aeroplanes certified under the initial ETOPS rules and those certified after 2009.*

## AMC1 SPA.EDTO.115(c) Operating procedures

### PROCEDURES

(a) In-flight replanning

An aeroplane, whether or not dispatched as an EDTO flight, may not re-route post dispatch without meeting the applicable requirements of CAT.OP.MPA.181 and the operator having ensured with the use of an established procedure that dispatch criteria have been met.

In this context, a re-route is any change to the route requiring a change to the ATS flight plan (e.g. new destination, change of flight status EDTO/non-EDTO, change of EDTO alternate).

The operator should have a system in place to facilitate such re-routes.

(b) Post-dispatch weather minima

Post dispatch and when no in-flight replanning has taken place, the weather conditions at the EDTO en-route alternates should be equal to or better than the normal landing minima for the available instrument approach.





**(c) Delayed dispatch**

If the dispatch of a flight is delayed by more than 1 hour, the operator should monitor the weather forecasts and airport status at the nominated EDTO en-route alternates to ensure that they stay within the specified planning minima requirements until dispatch.

**(d) Diversion decision-making**

The operator should establish procedures for flight crew, outlining the criteria that indicate when a diversion or change of routing is recommended whilst conducting an EDTO flight. For an EDTO flight, in the event of the shutdown of an engine, these procedures should include the shutdown of an engine, fly to and land at the nearest available aerodrome where a safe landing can be made.

Factors to be considered when deciding upon the appropriate course of action and suitability of an aerodrome for diversion may include but are not limited to:

- (1) Aircraft configuration/mass/systems status;
- (2) Wind and meteorological conditions en route at the diversion altitude;
- (3) Minimum altitudes en route to the diversion aerodrome;
- (4) Fuel required for the diversion;
- (5) Aerodrome condition, terrain, weather and wind;
- (6) Runways available and runway surface condition;
- (7) Approach aids and lighting;
- (8) RFFS capability at the diversion aerodrome;
- (9) Facilities for aircraft occupants — disembarkation & shelter;
- (10) Medical facilities;
- (11) Pilot's familiarity with the aerodrome;
- (12) Information about the aerodrome available to the flight crew.

Contingency procedures should not be interpreted in any way that prejudices the final authority and responsibility of the pilot-in-command for the safe operation of the aeroplane.

**(e) Flight monitoring**

During the flight, the operator should ensure that the flight crew remain informed of any relevant safety information that may affect the safety of the flight, including any significant changes in conditions at designated EDTO en-route alternates.

Prior to the EDTO entry point, the flight crew should evaluate the forecast weather, established aeroplane status, fuel remaining, and where possible field conditions and aerodrome services and facilities at designated EDTO en-route alternates. If any conditions are identified which could preclude safe approach and landing on a designated EDTO en-route alternate (such as forecast weather at an EDTO ERA below the landing minima), then the flight crew should take appropriate action, such as re-routing or selection of the nearest EDTO alternate aerodrome.

meeting the landing minima requirements, to remain within the operator's approved diversion time from an EDTO en-route alternate with forecast weather to be at or above landing minima.

The operator should develop appropriate en-route procedures for flight crews to track actual versus planned fuel burn and appropriate contingency procedures in the event that the fuel state of the aeroplane becomes unacceptable to complete the intended flight.

In addition, the operator should develop a minimum en-route fuel policy to be used by the flight crew as the basis to determine whether the fuel remaining on the aeroplane is sufficient to complete the flight.

Once the flight has entered the EDTO area of operation, if the forecast for any of the designated EDTO alternate aerodromes is revised to below the landing limits or the EDTO alternate aerodrome becomes inadequate, the EDTO flight may continue at the commander's discretion.

#### **Rationale**

*This new AMC is a direct transposition of most of the AMC 20-6 provisions on the EDTO procedures to be defined by the operator. The note related to the RFFS category was considered unnecessary and has not been transposed.*

## **GM1 SPA.EDTO.115(c) Operating procedures**

### **IN-FLIGHT FUEL MONITORING**

As with any flight, it is important for the flight crew to monitor and maintain awareness of the fuel state of the aeroplane. This is potentially even more important for an EDTO flight, given the potential for a long diversion to the nearest EDTO alternate aerodromes.

The EDTO critical fuel calculation discussed in AMC1 SPA.EDTO.115(b) – Fuel Supply is intended to ensure that the planned fuel load is sufficient to support an en-route diversion from the most critical point in the event of an engine failure, a depressurisation, or both, with appropriate planning allowances. This does not preclude the importance of en-route fuel progress monitoring, which is complementary to the flight preparation process.

The EDTO critical fuel calculation is strictly a flight preparation consideration and does not apply once en route, as operational variances such as more adverse winds than forecast may result in actual fuel burns which differ from the assumptions used to determine the EDTO critical fuel in the operational flight plan.

It is therefore not necessary for the calculated EDTO critical fuel to be on board when passing the EDTO equal time points (ETPs), including the critical point, provided the operator's minimum en-route fuel policy is complied with.

#### **Rationale**

*This new GM is a direct transposition of the AMC 20-6 provisions on fuel supply.*

## AMC1 SPA.EDTO.120 EDTO en-route alternate

### EDTO ERA

The operator should identify EDTO en-route alternates to which an aeroplane may proceed if a diversion becomes necessary while en route, where the necessary services and facilities are available, where aircraft performance requirements can be met, and which are expected to be operational if required. Take-off and/or destination aerodromes may also be designated as EDTO en-route alternates.

The selected EDTO en-route alternates should be identified and listed in the flight planning documentation for all cases where the planned route to be flown contains an EDTO point.

To select an aerodrome as an EDTO en-route alternate, the following criteria should be met:

(a) The operator's general criteria for the determination of the adequacy of the aerodromes are met, and in particular:

(1) The landing distances required as specified in the AFM for the altitude of the aerodrome, for the runway expected to be used, taking into account wind conditions, runway surface conditions, and aeroplane handling characteristics, permit the aeroplane to be stopped within the landing distance available as declared by the aerodrome authorities and computed in accordance with the applicable operational requirements.

For aeroplanes equipped with fuel jettison systems, the possibility to dump fuel can be considered to reduce the expected landing mass provided that the operator can demonstrate that flight crews are properly trained and that diversion fuel requirements are still complied with.

(2) The aerodrome services and facilities are adequate to permit an instrument approach procedure to the runway expected to be used while complying with the applicable aerodrome operating minima.

(b) For the time window considered, the appropriate weather reports or forecasts, or any combination thereof, indicate that conditions will exist at or above the applicable EDTO planning minima. In addition, for the same period, the forecast crosswind component plus any gusts should be within the operating limits and within the operator's maximum crosswind limitations taking into account the runway condition (dry, wet or contaminated) plus any reduced visibility limits.

Conditional forecast elements need not be considered, except that a PROB 40 or TEMPO condition below the lowest applicable operating minima should be taken into account.

Note: The time window is the period during which a designated EDTO en-route alternate should be assessed for EDTO dispatch purposes to have the necessary conditions to allow a safe approach and landing in the event of an en-route EDTO diversion. The applicable time window should consider the earliest to latest expected arrival times for each EDTO en-route alternate based on the planned departure time. The time window for a given EDTO en-route alternate is typically determined based on a diversion from the first and last EDTO ETPs for this alternate. As specified in AMC3 CAT.OP.MPA.182, the time window should include an additional margin of 1 hour after the latest arrival time.



The earliest to latest estimated arrival times may consider different diversion flight profiles, for example, high-speed versus low-speed cruise, or may be standardised on a specific EDTO diversion flight profile, such as an engine failure or decompression, depending on operational flight planning system implementation. Additional guidance for the determination of the time windows may be found in ICAO Doc 10085.

### Rationale

*This new AMC, related to the selection of EDTO ERA, is based on content transposed from AMC 20-6 with some additional considerations based on ICAO Doc 10085.*

## GM2 SPA.EDTO.120(b)(1) EDTO en-route alternate

### RFFS LEVEL AT EDTO ERA

In accordance with AMC1 CAT.OP.MPA.107 and as part of its management system, the operator should assess the level of RFFS protection available at the aerodrome intended to be specified in the operational flight plan to ensure that an acceptable level of protection is available for the intended operation.

However, in the specific case of EDTO ERA, the operator is recommended to select aerodromes with a published RFFS category of at least ICAO category 4, available at 30-minute notice.

### Rationale

*This new GM has been introduced to provide guidance related to the consideration of the RFFS level at EDTO ERA. It relies on the already applicable considerations contained in AMC1 CAT.OP.MPA.107, with some additional recommendations.*

## GM3 SPA.EDTO.120(b)(2) EDTO en-route alternate

### EDTO ERA DISPATCH MINIMA

- (a) In principle the operator's EDTO ERA dispatch minima should be at least as conservative as the dispatch minima used for other types of operations. In particular, if an operator uses several variations to its basic fuel scheme related to dispatch minima for different operations, it is expected that the most conservative dispatch minima are used for EDTO.
- (b) The method for determining the aerodrome operating minima for the EDTO ERA should be contained in the operations manual as required in CAT.OP.MPA.110.

### Rationale

*This new GM has been introduced to provide clarifications related to the use, in the context of EDTO, of basic fuel schemes with variations or individual fuel schemes addressing operating minima. Furthermore, it clarifies that in the context of EDTO, the flight planning minima should be part of the overall method for determining the aerodrome operating minima.*

### 3.2.6 AMC 20-6

## AMC 20-6B Extended Range Operation with Two-Engine Aeroplanes ETOPS Certification ~~and Operation~~

- (1) Chapter III 'Operational approval considerations' is proposed to be deleted in its entirety.
- (2) Appendices 3, 4, 5, 6 and 7 are proposed to be deleted.
- (3) Appendix 8 is renumbered as Appendix 3.

### *Rationale*

*The content of AMC 20-6 related to the operations domain is proposed to be deleted and transferred to AMC to the Air OPS Regulation.*



## 4. Impact assessment (IA)

### 4.1 What is the issue?

#### 4.1.1 Description of the issue

See Section 2.1 regarding the description of the issue.

#### 4.1.2 Who is affected?

The proposed RMT would affect the following stakeholders:

- air operators of aeroplanes with two or more turbine engines conducting CAT operations;
- service providers providing services such as flight planning as regards compliance with the new rules and update of their systems and working tools. The impact on this category of stakeholders is considered to be overall minor as the new proposed requirements are very similar to the existing ones for ETOPS and will require limited changes to their processes;
- the competent authorities responsible for the approval of EDTO and for the oversight of the above-mentioned air operators. Some additional oversight activities will be necessary for the new proposed requirements applicable to all CAT operations with diversion times beyond 60 minutes; however, the extent of the changes is not considered to represent a significant increase of the necessary oversight activities.

It is therefore considered that only the impacts on operators of aeroplanes with two or more turbine engines conducting CAT operations may be significant. In addition, since the different proposals will affect different types of operators, it is necessary to evaluate the exposure per category of operators.

#### 4.1.3 How could the issue/problem evolve?

The amended ICAO SARPs have been developed based on best practices and lessons learned from extended range operations by aeroplanes with two turbine engines (ETOPS) to ensure that all operators and new entrants operate at the same level of safety to maintain the current track record of long-range operations.

No degradation of safety is expected for the existing operators within the scope of this sub-task of RMT.0392.

### 4.2 What we want to achieve — objectives

The objectives of this NPA are set out in Section 2.2.

### 4.3 How it could be achieved — options

Considering the issues described in Section 2.1 and the objectives of the rulemaking task, the following main topics have been identified:

Introduction of flexibility for the determination of the EDTO threshold. As suggested in ICAO Annex 6 and ICAO Doc 10085, regulators may opt to introduce flexibility in the establishment of the threshold times at which the EDTO provisions would apply. It could be based on the specific type of the aeroplane and the operator's experience, for example. The introduction of flexibility in the determination of the EDTO threshold would affect all operators of two-engined aeroplanes currently

approved for ETOPS; a quick survey among EU Members States allowed to identify that around 65 operators in Europe are approved for ETOPS currently.

The number of operators impacted by this change is expected to be of medium range.

Introduction of specific requirements applicable to all aeroplanes in the case of operations with diversion times beyond 60 minutes. Currently, there are no specific requirements for operators of two-engined aeroplanes with an MOPSC of 19 or less, as well as for operators of aeroplanes with more than two engines engaged in operations with diversion time exceeding 60 minutes. The introduction of specific requirements for all operations with a diversion time exceeding 60 minutes would affect a very large number of operators. It would affect all business jet operators, which currently operate with diversion times between 60 minutes and 120 minutes as allowed by CAT.OP.MPA.140(a)(2) for performance class A aeroplanes with an MOPSC of 19 or less. It would also affect operators of two-engined cargo aeroplanes and all operators of aeroplanes with more than two engines and operated on long-haul routes.

The number of operators affected is difficult to be estimated. The current fleet of business jet aeroplanes operated in commercial air transport under the European regulatory framework, and which could be affected by the new provisions due to their operational capabilities is evaluated estimated to be around 1 900 aircraft. It is expected that most of these aircraft and consequently their respective operators might be affected. While no precise number of operators is available, an estimation of maximum 200 European operators which could be affected is considered appropriate.

In addition, the number of operators of aeroplanes with more than two engines is estimated to be around 27 in Europe. It is expected that all these operators will be affected by the related proposals.

Regarding the number of cargo operators with two-engined aeroplanes, it is considered that most of them have been already approved for ETOPS and therefore no impact is expected.

Overall, the number of operators affected by this change is expected to be quite high.

Modernisation of the current regulatory provisions. The latest applicable version of AMC 20-6, which contains most of the criteria applicable to EDTO in the area of operations, was published in 2010, before the Air OPS Regulation was published. These provisions need to be reviewed to ensure their consistency with the Air OPS Regulation and the associated AMC and GM. In addition, the proposal includes improvements based on the experience accumulated. However, no major change to the ETOPS/EDTO concept is introduced, and therefore only minimal impacts are expected.

Transfer of the OPS content of AMC 20-6 into AMC and GM to the Air OPS Regulation. The transfer of the OPS content of AMC 20-6 into AMC and GM to the Air OPS Regulation does not introduce any major changes to its content; only from a re-organisation issue and the correction of minor inconsistencies. Therefore, no impacts are expected.

A preliminary assessment considering the complexity and potential impact of each of these topics led EASA to conclude that a more detailed assessment of the impacts is only necessary in the case of the introduction of flexibility for the determination of the EDTO threshold and of specific requirements applicable to all aeroplanes in the case of operations with diversion times beyond 60 minutes.

These issues have been then combined in options mostly from a consistency perspective, as some combinations are unrealistic or inappropriate. This resulted in the selection of three options which are presented in Table 1 below.

**Table 1: Selected policy options**

| <b>Option No</b> | <b>Short title</b>                               | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                           |
|------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0                | No policy change                                 | No change to the current rules: <ol style="list-style-type: none"> <li>1. The ETOPS/EDTO scope and requirements remain unchanged;</li> <li>2. No specific requirements created for operations with diversion times exceeding 60 minutes.</li> </ol>                                                                                                                          |
| 1                | Requirements DT>60 min.                          | <ol style="list-style-type: none"> <li>1. No change to the requirements for two-engined aeroplanes with an MOPSC of 20 and more;</li> <li>2. Addition of new requirements for operations with diversion times exceeding 60 minutes.</li> </ol>                                                                                                                               |
| 2                | Requirements DT>60 min + flexible EDTO threshold | <ol style="list-style-type: none"> <li>1. No change to the requirements for two-engined aeroplanes with an MOPSC of 20 and more;</li> <li>2. Addition of new requirements for operations with diversion times exceeding 60 minutes;</li> <li>3. introduction of flexibility for the determination of the EDTO threshold for all aeroplanes within the EDTO scope.</li> </ol> |

The ‘No policy change’ option (Option 0) is considered as the reference (baseline) scenario.

Option 1 includes the definition of requirements applicable to all aeroplane operations with a diversion time exceeding 60 minutes. It will apply to:

- all performance class A aeroplanes with an MOPSC of 19 or less, when operated with a diversion time of up to 120 minutes, since 120-180 minutes diversion time operations are already covered by non-ETOPS requirements and operations with diversion times beyond 180 minutes are already within the scope of ETOPS; and
- all aeroplanes with more than two engines.

Option 2 consists basically of Option 1 plus the introduction of provisions allowing the selection of an EDTO threshold times different from the standard ones, which could be based on the aircraft type and the experience of the operator.

The three selected options do not include changes to the provisions for two-engined aeroplanes with an MOPSC of 20 and more, as no significant change is expected to be introduced due to the fact that the EDTO and ETOPS principles are identical.

#### 4.4 What are the impacts

The analysis of all possible impacts resulting from implementing the considered options on all sectors/stakeholders concerned have been assessed using the criteria contained in the following table:



**Table 2: Scoring of impacts**

| Positive impact | Score                     | Negative impact | Score                     |
|-----------------|---------------------------|-----------------|---------------------------|
| + 10            | Very high positive impact | - 10            | Very high negative impact |
| + 7             | High positive impact      | - 7             | High negative impact      |
| + 5             | Medium positive impact    | - 5             | Medium negative impact    |
| + 3             | Low positive impact       | - 3             | Low negative impact       |
| + 1             | Very low positive impact  | - 1             | Very low negative impact  |
| 0               | Neutral/insignificant     | 0               | Neutral/insignificant     |

**4.4.1 Safety impact****Table 3: Safety impact**

|                      | <i>Option 0 'No change'</i>                                                                                                      | <i>Option 1 'Requirements DT&gt;60 min'</i>                                                                                                                                                                                                                                                                                                                                   | <i>Option 2 'Requirements DT&gt;60 min + flexible EDTO threshold'</i>                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Safety impact</b> | <p><b>0</b></p> <p>As safety is not one of the drivers of the task, no expected degradation of safety over time is expected.</p> | <p><b>+5</b></p> <p>The addition of rules for diversion times exceeding 60 minutes, which would apply to aeroplanes with an MOPSC&lt;20 (up to a diversion time of 120 minutes, for which an approval is required) and aeroplanes with more than two engines is considered to provide a medium positive safety impact, as there are currently no specific considerations.</p> | <p><b>+2</b></p> <p>Since Option 2 includes Option 1, it is considered to have the same impact on safety for the common part (+5). However, the introduction of flexibility for the determination of the EDTO threshold based on the aeroplane type and/or operator experience is expected to have a low negative impact (-3), due to potential implementation and harmonisation issues between competent authorities in Europe. This leads to an overall score of +2</p> |

## 4.4.2 Environmental impact

Table 4: Environmental impact

|                             | <i>Option 0 'No change'</i>                                                                                                            | <i>Option 1 'Requirements<br/>DT&gt;60 min'</i>                                                                                                                      | <i>Option 2 'Requirements<br/>DT&gt;60 min + flexible EDTO<br/>threshold'</i>                                                                                        |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environmental impact</b> | <p><b>0</b></p> <p>No environmental impact is expected for Option 0, as no change to the current operations over time is expected.</p> | <p><b>0</b></p> <p>No environmental impact is expected. The new requirements are not expected to prevent or even make long operations more difficult to operate.</p> | <p><b>0</b></p> <p>Same rationale as for Option 1. The introduction of flexibility in the determination of the EDTO threshold is not expected to have an impact.</p> |

## 4.4.3 Social impact

Table 5: Social impact

|                      | <i>Option 0 'No change'</i>                                              | <i>Option 1 'Requirements<br/>DT&gt;60 min'</i>                                                                                                                                                                                                                             | <i>Option 2 'Requirements<br/>DT&gt;60 min + flexible EDTO<br/>threshold'</i>                                                                                                 |
|----------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Social impact</b> | <p><b>0</b></p> <p>No impact is expected as no change is introduced.</p> | <p><b>+1</b></p> <p>A very low positive impact is expected since additional requirements will be introduced for operations with diversion times exceeding 60 minutes. Consequently, additional training may need to be provided to flight dispatchers and flight crews.</p> | <p><b>+1</b></p> <p>Same rationale as for Option 1. The introduction of flexibility in the determination of the EDTO threshold is not expected to have any social impact.</p> |

## 4.4.4 Economic impact

Table 6: Economic impact

|                        | <i>Option 0 'No change'</i>                                                      | <i>Option 1 'Requirements<br/>DT&gt;60 min'</i>                                                                                                                                                                                                                              | <i>Option 2 'Requirements<br/>DT&gt;60 min + flexible EDTO<br/>threshold'</i>                                                                                                                                                                    |
|------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Economic impact</b> | <p><b>0</b></p> <p>No economic impact is expected for this option over time.</p> | <p><b>-1</b></p> <p>A very low economic impact (-1) is expected since new requirements for operations with diversion times beyond 60 minutes will be added, including for operators of aeroplanes with more than two engines and aeroplanes with an MOPSC of 19 or less.</p> | <p><b>-3</b></p> <p>Option 2 is expected to have a low negative impact (-2) on level playing field, as the flexibility provided is expected to result in a lack of harmonised implementation. Consequently, the resulting economic impact is</p> |

|  |  |                                                                                                                                                                                                    |                              |
|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|  |  | However, the additional requirements are considered to be easy to implement without adding any undue economic burden to these operators. The resulting impact is expected to be very low negative. | expected to be low negative. |
|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|

#### 4.4.5 ICAO and third-country references relevant to the content of this RMT

Table 7: ICAO and third-country references harmonisation impact

|                                   | <i>Option 0 'No change'</i>                                                                  | <i>Option 1 'Requirements DT&gt;60 min'</i>                                                                                                                                                                                                                                                                                                                                                                      | <i>Option 2 'Requirements DT&gt;60 min + flexible EDTO threshold'</i>                                                                                                                                                             |
|-----------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ICAO and third-country references | <p><b>0</b></p> <p>No change to the current harmonisation status with the ICAO standards</p> | <p><b>+5</b></p> <p>From a harmonisation perspective, the impact is considered to be medium positive (+5), as the EU regulatory framework will be mostly aligned with the ICAO standards under this option. The overall harmonisation level with the FAA regulatory provisions in this area will be enhanced as well. Considering these two aspects, the resulting impact is expected to be medium positive.</p> | <p><b>+3</b></p> <p>Option 2 is expected to have overall the same impacts as Option 1, except that the introduction of a flexible EDTO threshold would contribute to a misalignment as the FAA does not use such possibility.</p> |

#### 4.4.6 General Aviation and proportionality issues

Table 8: Impact on GA and proportionality

|                                             | <i>Option 0 'No change'</i>                                                                                                                                                                                                                                                                                                           | <i>Option 1 'Requirements DT&gt;60 min'</i> | <i>Option 2 'Requirements DT&gt;60 min + flexible EDTO threshold'</i> |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------|
| General aviation and proportionality issues | <p><b>0</b></p> <p>None of the options is expected to have an impact of general aviation, which is outside the scope of the rulemaking task, and as well on proportionality issues since the new requirements which would be applicable to operations with diversion times exceeding 60 minutes are considered easy to implement.</p> |                                             |                                                                       |

## 4.5 Conclusion

### 4.5.1 Comparison of the options

**Table 9: Comparison of options**

| <b>Criteria</b>                                                       | <b>Option 0 'No change'</b> | <b>Option 1 'Requirements DT&gt;60 min' to aeroplanes with an MOPSC&lt;20 (up to a diversion time of 120 minutes, for which an approval is required) and aeroplanes with more than two engines</b> | <b>Option 2 'Requirements DT&gt;60 min + flexible EDTO threshold'</b>                                                                                                                                                     |
|-----------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety                                                                | 0                           | +5<br>Medium positive safety impact, as there are currently no specific considerations for operations with a diversion time beyond 60 minutes.                                                     | +2<br>Very low positive safety impact: it includes the benefits of Option 1 but the introduction of flexibility has a low negative impact.                                                                                |
| Environmental                                                         | 0                           | 0                                                                                                                                                                                                  | 0                                                                                                                                                                                                                         |
| Social                                                                | 0                           | +1<br>Very low positive social impact: Additional training of flight dispatchers and flight crews                                                                                                  | +1<br>Very low positive social impact: Same as for Option 1                                                                                                                                                               |
| Economic                                                              | 0                           | -1<br>Very low negative economic impact: The additional requirements are considered to be easy to implement.                                                                                       | -3<br>Low negative economic impact: Same as for Option 1 and some additional low negative impact on level playing field because as the flexibility provided is expected to result in a lack of harmonised implementation. |
| ICAO and third-country references relevant to the content of this RMT | 0                           | +5<br>Medium positive impact: Mostly aligned with the ICAO and increased harmonisation with the FAA                                                                                                | +3<br>Low positive impact: Same as for Option 1 but the flexibility creates a misalignment with the FAA.                                                                                                                  |
| GA and proportionality                                                | 0                           | 0                                                                                                                                                                                                  | 0                                                                                                                                                                                                                         |
| <b>Total</b>                                                          | <b>0</b>                    | <b>+10</b>                                                                                                                                                                                         | <b>+3</b>                                                                                                                                                                                                                 |

Option 1 is the option with the higher positive score due to its positive impact on the one hand on safety due to the introduction of new requirements for all operations with a diversion time beyond 60 minutes and on the other hand on harmonisation as it improves the alignment with ICAO standards. Furthermore, only limited economic impacts on operators, outweighed by the positive safety and harmonisation impacts, have been identified.

Based on the above assessment of impacts, Option 1 is considered to be the most appropriate option and has been selected as a basis for this NPA.

#### **4.6 Monitoring and evaluation**

No specific monitoring and evaluation of the new rules are envisaged since the main driver of this subtask of RMT.0392 is harmonisation with ICAO and level playing field. Furthermore, the current ETOPS concept and related requirements have been implemented by operators for more than 30 years and have proven to provide for an adequate level of safety.



## 5. Proposed actions to support implementation

Considering that this subtask of RMT.0392 does not introduce any major changes to the current ETOPS/EDTO concept, which is well known by operators and competent authorities, no specific action to support the implementation is envisaged at this stage.

As for any change to the regulatory framework, a general focused communication will be prepared for Advisory Bodies (OPS.TeB/FS.TEC) ahead of the applicability of the new requirements.



## 6. References

### 6.1 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 (EU) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1)

### 6.2 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 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 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 2014/015/R of the Executive Director of the Agency of 24 April 2014 adopting Acceptable Means of Compliance and Guidance Material to Part-CAT of Regulation (EU) No 965/2012 and repealing Decision 2012/018/R of the Executive Director of the Agency of 24 October 2012 ‘AMC and GM to Part-CAT — Issue 2’
- Decision N° 2012/019/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 ‘Acceptable Means of Compliance and Guidance Material to Part-SPA’
- Decision No. 2003/12/RM of the Executive Director of the Agency of 5 November 2003 on general acceptable means of compliance for airworthiness of products, parts and appliances (AMC-20)

### 6.3 Other reference documents

- ICAO Annex 6 (Part I) to the Convention on International Civil Aviation ‘Operation of Aircraft’, 12th Edition, July 2022
- ICAO Annex 3 to the Convention on International Civil Aviation ‘Meteorological Service for International Air Navigation’, 12th Edition, July 2018
- ICAO Doc 10085 ‘Extended diversion time operations (EDTO) manual’, first edition 2017



- FAA AC 120-42B 'Extended operations (ETOPS and polar operations)'





## 7. Quality of the NPA

To continuously improve the quality of its documents, EASA welcomes your feedback on the quality of this NPA with regard to the following aspects:

### 7.1. The regulatory proposal is of technically good/high quality

*Please choose one of the options below and place it as a comment in CRT; if you disagree or strongly disagree, please provide a brief justification.*

Fully agree / Agree / Neutral / Disagree / Strongly disagree

### 7.2. The text is clear, readable and understandable

*Please choose one of the options below and place it as a comment in CRT; if you disagree or strongly disagree, please provide a brief justification.*

Fully agree / Agree / Neutral / Disagree / Strongly disagree

### 7.3. The regulatory proposal is well substantiated

*Please choose one of the options below and place it as a comment in CRT; if you disagree or strongly disagree, please provide a brief justification.*

Fully agree / Agree / Neutral / Disagree / Strongly disagree

### 7.4. The regulatory proposal is fit for purpose (capable of achieving the objectives set)

*Please choose one of the options below and place it as a comment in CRT; if you disagree or strongly disagree, please provide a brief justification.*

Fully agree / Agree / Neutral / Disagree / Strongly disagree

### 7.5. The impact assessment (IA), as well as its qualitative and quantitative data, is of high quality

*Please choose one of the options below and place it as a comment in CRT; if you disagree or strongly disagree, please provide a brief justification.*

Fully agree / Agree / Neutral / Disagree / Strongly disagree

### 7.6. The regulatory proposal applies the 'better regulation' principles<sup>[1]</sup>

*Please choose one of the options below and place it as a comment in CRT; if you disagree or strongly disagree, please provide a brief justification.*

Fully agree / Agree / Neutral / Disagree / Strongly disagree

### 7.7. Any other comments on the quality of this NPA (please specify)

*Note:* Your comments on Chapter 7 will be considered for internal quality assurance and management purposes only and will not be published in the related CRD.

<sup>[1]</sup> For information and guidance, see:

- [https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how\\_en](https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en)
- [https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox\\_en](https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en)
- [https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox/better-regulation-toolbox\\_en](https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox/better-regulation-toolbox_en)