



Regular update of CS-ETSO and ETSO for Electrical Hoist Equipment

CS-ETSO Amendment 17

RELATED NPA/CRD: 2021-07 — RMT.0457 AND 2021-10 — RMT.0709

EXECUTIVE SUMMARY

The objective of this Decision is:

- to significantly reduce the risk of catastrophic accidents during human external cargo operations using rotorcraft
- to significantly reduce safety issues linked to offshore operations and address four safety recommendations issued by the UK Accident Investigation Branch (AAIB) following helicopter accidents.
- to offer more possibilities for EU applicants to obtain ETSO authorisations as well as to align CS-ETSO with European operational requirements. These amendments are expected to ensure a level playing field for European manufacturers and will increase the cost-effectiveness of compliance demonstrations;

To this aim the Decision:

- mitigates the risks linked to the failures of electrical rotorcraft hoists during hoisting operations.
- introduces new ETSOs which are not part of the FAA TSOs series including 'Electronic light bag (EFB) software application approval' and 'Helicopter terrain awareness and warning systems advanced features';
- introduces new standards for parts which are to the extent possible, technically equivalent to the FAA TSOs including "Aircraft Portable Megaphones"; and
- reviews and aligns identified ETSOs to harmonise with the corresponding FAA TSOs.

Domain:	European Technical Standard Order Authorisations		
Related rules:	CS-ETSO		
Affected stakeholders:	Design and production organisations		
Driver:	Efficiency/proportionality for RMT.0457;	Rulemaking group:	No
	Safety for RMT.0709.		
Impact assessment:	No for RMT.0457;		
	Yes for RMT.0709		

EASA rulemaking procedure milestones

Start Terms of Reference	Public Consultation	Decision Certification Specifications, Acceptable Means of Compliance, Guidance Material
RMT.0457 — 23.07.2020	15.04.2021	
RMT.0709 — 30.10.2020	13.8.2021	6.9.2022



Table of contents

1. About this Decision	3
2. In summary — why and what	4
2.1. Why we need to amend the CSs— issue/rationale.....	4
2.2. What we want to achieve — objectives.....	4
2.3. How we want to achieve it — overview of CS ETSO Amendment 17	4
2.4. What are the stakeholders’ views — outcome of the consultation	6
2.5. What are the benefits and drawbacks of the amendments	8
3. How we monitor and evaluate the amended CSs.....	9
4. References.....	10
4.1. Related EU regulations	10
4.2. Related EASA decisions	10
4.3. Other reference documents.....	10



1. About this Decision

The European Union Aviation Safety Agency (EASA) developed Decision 2022/018/R in line with Regulation (EU) 2018/1139¹ (the 'Basic Regulation') and the Rulemaking Procedure².

Rulemaking Tasks (RMT).0457 and (RMT).0709 are included in the European Plan for Aviation Safety (EPAS) for [2022-2026](#)³. The scope and timescales of the tasks were defined in the related Terms of Reference (ToRs) for RMT.0457 and RMT.0709.

EASA developed the draft text of this Decision. All the interested parties were consulted through Notice of Proposed Amendment (NPA) [2021-07](#)⁴ and [2021-10](#)⁵.

For NPA 2021-07 comments (91) were received from interested parties, including industry (84 %) and national aviation authorities (NAAs) (16 %). For NPA 2021-10, comments (163) were received from industry (73 %) and national aviation authorities and partner authorities (23 %).

EASA reviewed the comments received during the public consultation. The comments received and EASA's responses to them are presented in Comment-Response Document (CRD) 2021-07 and 2021-10⁶.

EASA developed the final text of this Decision with the certification specifications (CSs) in consideration of the comments received and published the Decision on the Official Publication⁷ of EASA.

The major milestones of this RMT are presented on the cover page.

¹ Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139>).

² EASA is bound to follow a structured rulemaking process as required by Article 115(1) of Regulation (EU) 2018/1139. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the 'Rulemaking Procedure'. See MB Decision No 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>)

³ <https://www.easa.europa.eu/document-library/general-publications/european-plan-aviation-safety-2022-2026>

⁴ In accordance with Article 6(2) and (3) the Rulemaking Procedure.

⁵ <https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2021-10>

⁶ <https://www.easa.europa.eu/document-library/comment-response-documents>

⁷ <https://www.easa.europa.eu/official-publication>



2. In summary — why and what

2.1. Why we need to amend the CSs— issue/rationale

Aircraft experience and scientific and technical progress need to be reflected in existing or new ETSOs. ETSOs are defined in Article 1(2)(g) of Regulation (EU) No 748/2012 as detailed airworthiness specifications issued by EASA to ensure compliance with the requirements of that Regulation as a minimum performance standard for specified articles (i.e. parts as defined by Article 3(4) of the Basic Regulation; see Article 1(2)(f) of Regulation (EU) No 748/2012).

For OEMs, the introduction of new and updated ETSOs alleviates the certification process at aircraft level since they facilitate the compliance demonstration to existing certification specifications provisions. In this respect, the availability of new standards can be used to reduce the certification effort.

The introduction of new ETSOs also addresses safety recommendations received by EASA and aims to reduce or eliminate safety issues linked to operations.

The harmonisation of ETSOs with the corresponding FAA TSO also brings benefits to industry, improves safety and efficiency.

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 Decision will contribute to achieving the overall objectives by addressing the rationale described in Section 2.1.

The amendments are expected to; facilitate compliance demonstration by offering more possibilities for EU applicants to obtain ETSO authorisations, ensure a level playing field for European manufacturers and increase the cost-effectiveness of compliance demonstrations.

Among others, from the safety perspective, the new ETSO for rotorcraft hoists (ETSO-2C208) is expected to significantly reduce the risk of catastrophic accidents during human external cargo operations using rotorcraft and the new ETSO for helicopter terrain awareness and warning system (ETSO-2C522) is expected to significantly reduce safety issues linked to offshore operations and address four safety recommendations issued by the UK Accident Investigation Branch (AAIB) following helicopter accidents.

2.3. How we want to achieve it — overview of CS ETSO Amendment 17

To achieve the above objectives, this Decision will:

- introduce new ETSOs , which do not yet exist in the FAA TSO series;
- introduce new ETSOs which are, to the extent possible, technically similar to the corresponding FAA TSOs or based upon industry standards;
- review ETSOs in order to harmonise them with the corresponding FAA TSOs.

The main amendments introduced by this Decision are summarised below

— New ETSOs which are not part of the FAA TSO series:

- ETSO-2C522: HELICOPTER TERRAIN AWARENESS AND WARNING SYSTEM (HTAWS) ADVANCED FEATURES

The standard addresses four Safety recommendations and introduces new features as a response to UK AAIB initiative described in [UK CAA CAP 1519](#). Furthermore, the



ETSO refers to the EUROCAE standard ED-285. It is intended to supplement the Helicopter TAWS ETSO-C194 by adding a series of alerting modes tailored for helicopter offshore operations. It provides an improved level of safety compared to the classical alerting modes based on terrain databases and on forward-looking algorithms, which are generally not effective due to the flight profiles utilised and the prevailing obstacles encountered in the environment of offshore operations.

- ETSO ETSO-2C208 ELECTRICAL HOIST EQUIPMENT (FOR ROTORCRAFT).

A new ETSO has been created that allows the approval of electric hoist equipment for installation in rotorcraft. This ETSO provides the additional requirements and changes to SAE Aerospace Standard (AS) 6342, Minimum Operation Performance Standard for Helicopter Hoist Systems, dated December 2020.

- ETSO-2C521: ELECTRONIC FLIGHT BAG (EFB) SOFTWARE APPLICATIONS APPROVAL

This ETSO references the new ED-273 EFB standard drafted by EUROCAE and published in August 2021. The Air Operations Regulation already contains provisions to take credit from approvals on the basis of this new ETSO and obtained on a voluntary basis.

- ETSO-2C520: 406 Mhz SATELLITE PERSONAL LOCATOR BEACON

The new ETSO standard provides optional means for the manufacturers to get beacons approved and therefore facilitates the implementation and verification of the Regulation for Air Operations. This ETSO is fully based on the Radio Technical Commission for Maritime Services standard easing the task for manufacturers.

These new ETSOs provide the requirements for parts that are designed on or after the date of this amendment that must be met in order to be identified with the applicable ETSO marking.

In order to ensure business continuity, it is worth highlighting that an EDD provision has been introduced establishing a transition period of six months during which the applicant has the flexibility to apply using either the previous CS-ETSO amendment or the new one.

— **New ETSO which is, to the extent possible, technically similar to the corresponding FAA TSO:**

- ETSO-C137a: AIRCRAFT PORTABLE MEGAPHONES

The ETSO requires megaphones designed and manufactured on or after the date of this ETSO to meet the SAE International Aerospace Standard 'Design and Performance criteria for Transport Aircraft Portable Megaphones'.

— **For harmonisation purposes, review of ETSOs with the corresponding FAA TSOs.**

Eleven ETSOs (below with updated references) have been reviewed and aligned with the latest FAA standard's requirements.

- ETSO-C55aA1- Fuel and Oil Quantity Instruments
- ETSO-C63f - Airborne Weather Radar Equipment
- ETSO-C96c - Anticollision Light Systems



- ETSO-C106a - Air Data Computer
- ETSO-C119e - Airborne Collision Avoidance System II (ACAS II) Version 7.1 with Hybrid Surveillance
- ETSO-C127c - Rotorcraft, Transport Aeroplane, and Small Aeroplane Seating Systems
- ETSO-C139aA1- Aircraft Audio Systems and Equipment
- ETSO-C157c - Flight Information Services-Broadcast (FIS-B) Equipment
- ETSO-C161b - Ground-Based Augmentation System Positioning and Navigation Equipment
- ETSO-C162b - Ground-Based Augmentation System Very High Frequency Data Broadcast Equipment
- ETSO-C178a - Aircraft Circuit Breakers

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

RMT.0457 Regular update

The commentators were in general supportive of the proposed amendments to CS-ETSO. From the 65 comments received, 23 were accepted, 5 partially accepted, 18 not accepted, 19 were noted.

The subject where Industry expressed most comments (11) was on Appendix ETSO-C127c- 'Rotorcraft, Transport aeroplane, and small aeroplane seating systems'. These comments were in particular linked to the evaluation of the performance of seating systems for which the inclusion of more specific guidance was requested. In second position, EASA also received comments (7) linked to ETSO-2C521 – 'Electronic Flight Bag (EFB) Software Application'. While addressing these comments EASA took the opportunity to clarify that using the new ETSO-2C521 is not an obligation and is done on a voluntary basis (e.g. by EFB application developers). The final responsibility for EFB use authorisation remains with operators and their competent authority. An ETSOA, if it is obtained, is only intended to facilitate such an authorisation.

Furthermore, the nature of the comments received ranged from specific technical comments to observations aimed to improve the wording. In some cases, commentators focused on the differences between the proposed ETSOs and the corresponding FAA TSO. The majority of these differences have been corrected taking into consideration the comments received.

Lastly, the wording proposed through NPA 2021-07 has also been improved.

Full details are provided in **CRD 2021-07**.

RMT.0709 Rotorcraft Hoists

For NPA 2021-10, comments (163) were received from industry (73 %) and national aviation authorities and partner authorities (23 %). The comments that were received varied in nature but they have been summarised below:

- General support was received from the National Aviation Authorities of EASA Member States;
- Concerns were expressed that the benefits of an Overload Protection Device (OLPD) may not be achieved with a design that was compliant with the new ETSO;

- Requests were received to recognise the SAE standard AS 6342 in its entirety without any changes (as proposed by the draft ETSO);
- Concerns were expressed about a potential lack of harmonisation with other partner certification authorities;
- Some commenters felt that the ETSO requirements would lead to an overly complex hoist design;
- Requests were received to justify the dataset that was used in the safety assessment of the regulatory impact assessment as some commenters were of the opinion that the number and nature of the occurrences should not be attributed to the design of the hoist;
- Comments were received that asked for clarifications on the terminology (including requests for definitions) that was used and the intent of some of the ETSO requirements;
- Challenges were received on some of the assumptions that were contained in the regulatory impact assessment including the process that was used;
- Requests were received to modify some ETSO requirements to improve their comprehension and logic or to align closer with the SAE standard;
- Requests were received to change the title of the ETSO to clarify that the ETSO was applicable to 'electrical hoists' only;
- Clarifications were requested on the boundary of the ETSO and in particular the meaning of the term 'hoist equipment'.

Some of the comments contained multiple sub-comments or sub-elements and these were addressed individually. It should be noted that some comments were either repeated or were found to be similar in nature.

Of the comments received:

- 23 % were 'accepted' and the text of ETSO was amended in accordance with the suggested change in the comment;
- 17 % were 'partially accepted' and the text of the ESTO was amended due to the comment received but not fully in-line with the proposed change but meeting the intent or where a minor element could not be fully accepted;
- 23 % of comments were 'noted' where statements of facts were given by the commenter or no proposed change was provided or where support for the ETSO was given;
- 37 % of comments were 'not accepted' where following an assessment of the proposed change or statement it:
 - did not align with EASA's technical assessment and interpretation of the requirements for rotorcraft hoists; or
 - could not be technically justified for inclusion in the text of the ETSO; or
 - was not considered to be valid or relevant to text of the ETSO.

Full details of the comments and the responses from EASA are provided in **CRD 2021-10**.



2.5. What are the benefits and drawbacks of the amendments

Amendment 17 of CS-ETSO, will mitigate safety risks related to rotorcraft hoist and offshore operations and introduce new and reviewed requirements linked to technology advancements in order to ensure that parts used on aircraft correspond to the latest and safest standards available.

This revision is expected to bring economic benefits to Industry. The changes included in Amendment 17, will facilitate compliance with CS ETSO requirements.

RMT.0457 Regular update

The main expected benefits are:

- For helicopter terrain awareness and warning system advance features - the elimination or reduction of the safety issues related to alerting modes in the environment of offshore operations.
- EFB applications approval – creation of a path for EASA approval of EFB software applications, using the latest practices as described in ED-273 to facilitate operational authorisations of EFBs at operator level.
- 406 Mhz satellite personal locator beacon - defining a minimum performance for this type of beacon which can equip aircraft to meet some requirements of the regulation for air operations ((EU) 965/2012).

No specific drawbacks have been identified during the revision.

RMT.0709 Rotorcraft Hoists

A full regulatory impact assessment (RIA) was conducted to support the introduction of this ETSO and can be found in the NPA⁸ for RMT.0709. The comments that were received did not result in the need to reconsider the selected option from the RIA. However, a summary of the benefits and drawbacks can be found below:

The expected benefits are:

- the elimination or reduction of the safety issues related to rotorcraft hoists;
- an overall improvement in the safety of rotorcraft hoisting operations.

The expected drawbacks are:

- the additional costs for the design and certification of rotorcraft hoists;
- the technical challenges of complying with the design objectives.

⁸ <https://www.easa.europa.eu/downloads/130724/en>

3. How we monitor and evaluate the amended CSs

In the context of this RMT, no specific monitoring action is recommended. EASA will use the feedback gathered from certification projects in the next few years to assess the benefits gained through the revision of amendment 17 of CS-ETSO as well as the possible need for improvements.

Furthermore, the effectiveness of the proposed amendments to CS-ETSO to include new dedicated specifications will be monitored as part of the standard process of monitoring the occurrences reported to EASA.



4. References

4.1. Related EU regulations

N/a.

4.2. Related EASA decisions

Decision No. 2003/10/RM of the Executive Director of the Agency of 24 October 2003 on certification specifications, including airworthiness codes and acceptable means of compliance, for European Technical Standard Orders ('CS-ETSO')

4.3. Other reference documents

N/a.

