



**EASA**  
European Aviation Safety Agency

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# Part 21 Subparts O and Q Clarifications

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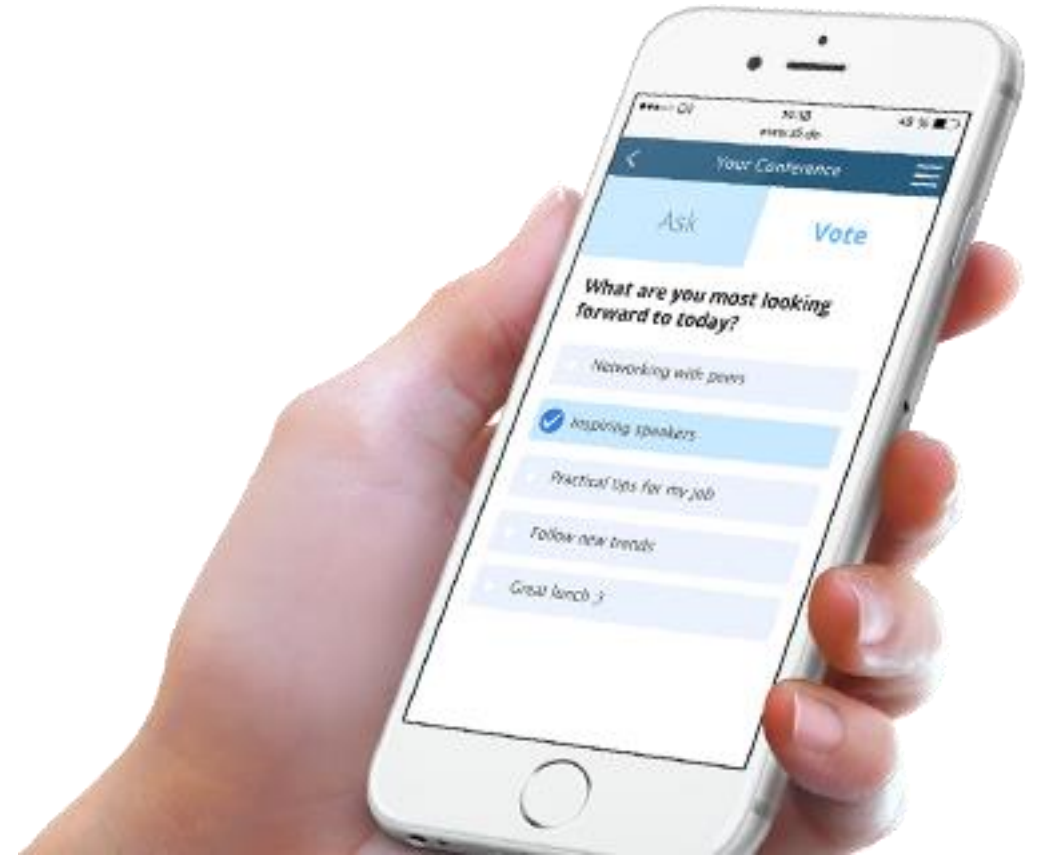
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# Introduction

- Objective: clarify a few aspects of Part 21 subpart O and Q
- Sli.do session





# Question

➤ What is an ETSO holder required to report?



# What is an ETSO holder required to report?

- Occurrences (21.A.3A (b) 1.)
  - The holder of a (...) ETSO authorisation (...) shall report to the Agency any failure, malfunction, defect or other occurrence of which it is aware related to a product, part, or appliance covered by the (...) ETSO authorisation(...), and which has resulted in or may result in an unsafe condition.
  
- Minor changes (21.A.611 (a))



# Question

➤ « My equipment is DAL D, I do not need to report an occurrence. »

True or false?

Why?



# My equipment is DAL D, I may need to report an occurrence!

## ➤ AMC 21.A.3B(b) Unsafe condition

An unsafe condition exists if there is factual evidence (from service experience, analysis or tests) that:

- (a) An event may occur that would result in fatalities, usually with the loss of the aircraft, or reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:
  - (i) A large reduction in safety margins or functional capabilities, or
  - (ii) Physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely, or
  - (iii) Serious or fatal injury to one or more occupantsunless it is shown that the probability of such an event is within the limit defined by the applicable certification specifications, or
- (b) There is an unacceptable risk of serious or fatal injury to persons other than occupants, or
- (c) Design features intended to minimise the effects of survivable accidents are not performing their intended function.



# My equipment is DAL D, I may need to report an occurrence!

## ➤ AMC 21.A.3B(b) Unsafe condition

**Note 2:** An unsafe condition may exist even though applicable airworthiness requirements are complied with.



# Question

- I am building an ILS receiver (ETSO-2C36f).

Development to Airborne Electronic Hardware guidance does not apply.

True or false?

Why?

ETSO-2C36f

Date: 24.10.03

Subject: AIRBORNE ILS LOCALIZER RECEIVING EQUIPMENT OPERATING WITHIN THE RADIO FREQUENCY RANGE 108-112 MEGAHERTZ

**1 - Applicability**

This ETSO gives the requirements which airborne ILS localizer receiving equipment operating within 108-112 MHz that are manufactured on or after the date of this ETSO must meet in order to be identified with applicable ETSO marking.

**2 - Procedures**

**2.1 - General**

Applicable procedures are detailed in CS-ETSO Subpart A.

**2.2 - Specific**

None.

**3 - Technical Conditions**

**3.1 - Basic**

**3.1.1 - Minimum Performance Standard**

Standards set forth in EUROCAE documents ED-46B dated September 1995 with amendment 1 dated 2 July 1997.

**3.1.2 - Environmental Standard**

See CS-ETSO Subpart A paragraph 2.1

**3.1.3 - Computer Software**

See CS-ETSO Subpart A paragraph 2.2

**3.2 - Specific**

None

**4 - Marking**

**4.1 - General**

Marking is detailed in CS-ETSO Subpart A paragraph 1.2.

**4.2- Specific**

None.

**5 - Availability of Referenced Document**

See CS-TSO Subpart A paragraph 3.





# AEH applies as soon as there is AEH...

## ➤ 21.A.606 (b) Applicable ETSO

- Unless explicitly excluded by the ETSO standard, CS-ETSO subpart A applies
- The applicable Subpart A is the latest one at the time of application.

## ➤ Subpart A

- 1.1 Part 21 subpart O
- 1.2 Part 21 subpart Q
- 2.1 Environmental
- 2.2 Software
- 2.3 Airborne Electronic Hardware
- 2.4 Failure Condition
- 2.5 ETSO article using ETSO-2C153



# Question

- I want to load a new software executable to my equipment, but this adds a new ETSO standard and change the part number. Then I need to change the label/markings on each unit in the field. This is really cumbersome.
- How to solve this?



# Part marking (1/2)

- 21.A.807 (b) and AC 21-46A
  - The Agency endorses AC 21-46A §4.2.4 on Electronic part marking
    - “readily accessible without the use of special tools or equipment”
      - Laptop, USB connection, ... are acceptable
    - “must be verifiable on board the aircraft, when the aircraft is on the ground at any geographic location”
  - And §5.4.1
    - "mark the primary (E)TSO number on the nameplate"
    - The marking should point to the IM or DDP for the missing (E)TSO numbers



## Part marking (2/2)

- Minimum physical marking
  - main ETSO standard(s)
  - P/N
    - at least the Hardware or the equipment level
  - name of the company and address
  - serial number
  - specific marking as applicable
    - e.g. ETSO-C123c «FLIGHT RECORDER DO NOT OPEN»



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**Thank you for your attention!**

Any questions?

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