

# ETSO Workshop 2022 - Industry session -

**20th – 21st September 2022**

**EASA Direktion  
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**Your safety is our mission.**

# Lesson learned from ETSO projects

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# Lesson learned from EASA ETSO Projects

- Collection of issues encountered during ETSO projects review, minor changes review, test witnessing, APDOA procedures review by ETSO PCM
  - Share and to create awareness
  - Avoid repetition
  - Expedite reviews
  - Suggest possible way forward

# Lesson learned from EASA ETSO Projects

- Inconsistency between project P/N and P/N as described in the APDOA procedures
  - During ETSO project work, often the P/N system as described in the Certification Program does not match with agreed P/N system within APDOA approved procedures
    - Different number of digits
    - Additional dash numbers
    - Alphanumeric digits used in lieu of expected numeric digits and vice versa

# Lesson learned from EASA ETSO Projects

- Inconsistency between project P/N and P/N as described in the APDOA procedures (cont.)
  - Evolutions/change of P/N systems shall be communicated to EASA via a significant change to the APDOA organization (submission of Form81)
  - Procedure shall include description of the new P/N system in detail
  - Reviewed and approved by DOA TL and ETSO PCM

# Lesson learned from EASA ETSO Projects

- Use of Amendment in “addition” to the equipment P/N to manage design changes
  - Amendment shall be part of the APDOA/DOA procedures and will be treated as a digit of the P/N
    - Which changes would be done within the Amendment
- EASA recommendation:
  - Use for changes without demonstration of compliance
  - Not to be used for continued airworthiness issue
  - Agree with DOA TL and PCM
- Amendment will be mentioned within the PN field on the ETSOA certificate

# Lesson learned from EASA ETSO Projects

- Minor changes and P/N “roll”
  - Changes to the design were introduced while the equipment P/N was not changed/updated
  - Changes implemented as ‘approved’ when not included in the Company APDOA Manual change procedure

# Lesson learned from EASA ETSO Projects

- Maturity of POA for ETSO project
  - According to ETSOA Holder obligations 21.A.602B/609(a)/619 shall demonstrate capabilities/manufacture according to Subpart G
    - *21.A.606 Requirements for the issuance of an ETSO authorisation*
    - *In order to be issued an ETSO authorisation, the applicant shall:*
    - *(a) demonstrate its capability in accordance with point 21.A.602B;*
  - Processes of APDOA approval and ETSOA project run in parallel and are coordinated internally within EASA
  - POA is under NAA oversight
  - During projects review for compliances demonstration via test, EASA has been checking POA status when manufacturing test articles
  - EASA has involved POA TL



# Lesson learned from EASA ETSO Projects

- Maturity of POA for ETSO for new Applicants
  - EASA would recommend to ensure a sufficient level of maturity of the POA approval prior than manufacturing and assembly of the test articles for compliance demonstration
  - EASA ETSO PCM may liaise with NAAs POA TL
  - Might lead to rejection of certification test result
  - Provide to EASA ETSO PCM evidences of POA approval process to build confidence and proceed with the ETSO project in an effective manner

# Lesson learned from EASA ETSO Projects

- Conformity of test articles, statement of conformity of the test set-up
  - Witnessing in presence or remotely in several number of cases the conformity of test article:
    - Disposition of non-conformities without sufficient/appropriate level of details defined at time of the test conduction with consequence additional discussions pre/post-test with result kept on-hold
    - Tooling part of test set-up in complex test set-up (representative portion of cabin items) not identified or not properly conformed, without a reference drawing, CoCs, not included in the test plan etc.

# Lessons learned on Certification Programme

- It should be clear on the selected certification basis , covering CS-ETSO subpart A and subpart B aspects.
- Deviations and limitations should be informed as soon as known, to ease the decision/coordination process.
  - Deviations are subject to EASA assessment and publication for comments. Acceptance of deviations is finally formal at time of certification.

# Lessons learned on Environmental qualification

Env. Qual.  
Test Plan +  
Procedures



Do not forget to monitor  
the article performance  
**as required** by the MOPS

## Subpart A - Environmental standards

Demonstration of compliance with EUROCAE/RTCA document ED-14/DO-160 D, E, F, G.

→ Environment classes and profiles, test procedures

## Subpart B – ETSO standard → MOPS

Demonstration of compliance with ETSO requirements before, during, after exposure to ED-14/ DO-160 environment profiles

→ Monitoring of article performance as required per the MOPS

# Lessons learned on OPRs & ETSO compliance

- Development assurance processes foresee the possibility to have some problem unresolved at time of certification...
- AMC OPR 20-189 requests classification for problems that affects functions MAJOR/ HAZARDOUS/CATASTROPHIC, etc...

but...

- For ETSO article, any OPR that relates to function(s) fulfilling some ETSO requirements might affect the ETSO compliance.
  - Non compliance to ETSO is not acceptable, unless covered by an accepted deviation.
  - PR process needs to be applied for any ETSO article, including those contributing to MINOR Failure condition.

# Lessons learned on OPR reporting

- OPRs need to be classified for their impact
- OPRs need to be clearly reported
  - Clear statement of the problem
    - What is the issue
  - Analysis of the impact on the function and describe for all stakeholders
  - Assessment on the ETSO compliance
  - Justification why it can be left opened...mitigation(s) exists
- ***Applicant should manage resolution of PRs during the certification process so as to close as much as possible the PRs before certification.***
  - ❖ any OPR will have then to be assessed at each installation and carried over in the aircraft manufacturer process flow...

Questions?  
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