Part 21
Design Organisation Approval (DOA)
Implementation Workshop

Industry

29-30 November 2011
RHEIN/RUHR/ERFT Conference Rooms,
Hermann Pünder Straße 1
Köln - Germany

Your safety is our mission.
Investigation and Surveillance of Organisations performing Software and Airborne Electronic Hardware activities

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- Background

- DO Working Group No. S21/2010-01

- DOA Working Instruction
  - Status
  - Case 1: Development of SW/CEH
  - Case 2: Integration of equipment containing SW/CEH
Context:

- Always more complex design in the Large Aircrafts and Engines fields.
- Constant increase of use of “glass cockpit” in General Aviation airplanes.

Potential risk:

- Not sufficient control in the development or in the installation of Software (SW) and Airborne Electronic Hardware (AEH).
Two main questions raised:

1. Are Design Organisations capable and sufficiently aware of the SW and/or AEH related requirements when exercising their DOA privileges?

2. Are DOA Team Leaders capable and sufficiently aware when assessing Design Organisations:
   » developing SW and/or AEH,
   » or installing equipment containing SW and/or AEH?
 Subject:
   - Assessment of DOA in the field of software and complex electronic hardware.

 Objectives:
   - Define a work instruction for the initial investigation and continued surveillance of DOA capability in the field of software and airborne electronic hardware, to ensure consistent and harmonized approach.
   - Define a way to perform an initial assessment of existing DOAs in order to update, if necessary, the surveillance plan with this topic.
DOA internal Work Instruction is approved.

Initial assessment has started. DOAs will be approached by the DOA Team Leaders to obtain related information:
- Procedures
- Design Changes (statistical data).
In the case of DO developing SW/CEH, several subjects will be reviewed, for instance:

1. Organisational structure, including subcontractors, and definition of responsibilities
2. Related procedures and resources
3. Development, Certification and Quality processes
   • Requirement management, safety assessment, tools, configuration management, ...
4. SW/CEH CVE function
5. Change process
   • Classification criteria, ...
6. Occurrence Reporting
   • Open problem reports, ...
Following the initial assessment, specific procedures reviews, sampling or audits may be organised.

This assessment could result in:
- update to existing procedures,
- additional training to CVEs and/or SW Quality Assurance staff,
- modifications of the Terms of Approval, for instance by the introduction of limitations.

An example of limitation could be:

“The development of software is limited to
- Software Level D or E.”
In the case of DO installing ETSO articles, procedures related to system integration issues will be reviewed, e.g.:

1. The determination of the level of the SW/AEH contained in the ETSO equipment being installed, as part of the showing of compliance with CS-xx.1309.
2. The verification that the Development Assurance Level of the ETSO article declared in the DDP is in line with the level of the SW/AEH (determined as per point 1).
3. The assessment of the agreed deviations as a result of the ETSO qualification.
In the case of DO installing non-ETSO articles, procedures related to system integration issues will be reviewed, e.g.:

1. The determination of the level of the SW/AEH contained in the non-ETSO equipment being installed by the Design Organisation, as part of the showing of compliance with CS-xx.1309.

2. The endorsement by a SW/AEH CVE of the CS-xx.1309 compliance documents to be provided by the equipment supplier and proving that the SW/AEH was developed according to the level of the SW/AEH determined as per point 1.
> Following the initial assessment, specific procedures reviews, sampling or audits may be organised.

> This assessment could result in actions for the DO holder, for instance:
  > update to existing procedures,
  > additional training to CVEs.
Thank you!

Any Questions?

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