



EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

Design Organisation Approval (Part 21 DOA) Implementation workshop with industry

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

Your safety is our mission.



EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

Design Assurance System Accountability for Designs and Tasks performed by Partners or Subcontractors

Best practices in control of subcontractors' work

Ciro PIRONE
DOATL

30th November 2011 - DOA Implementation workshop

Your safety is our mission.
easa.europa.eu



Content

- Part 21 requirements
- Identification of the work being subcontracted
- Definition of the work being subcontracted
- Selection of subcontractor capable to perform a defined work
- Control of work and surveillance of subcontractors' procedures and resources



Part 21 requirements

- Part 21A.239(c)
 - The DO shall specify the manner in which the Design Assurance System accounts for the acceptability of
 - the parts or appliances designed or
 - the tasks performed
 - by partners or subcontractor according to methods which are the subject of written procedures.



Part 21 requirements

➤ Part 21A.243(b)

- Where any parts or appliances or any changes to the products are designed by subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by 21A.239(b), and
- shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those subcontractors, as necessary to establish this statement.



Identification of the work being subcontracted



Identification of the work being subcontracted

- The DOA holder (DOAH) should firstly identify if Part 21A.239(c) is applicable: determine if there is “work” carried out by partners or subcontractors.
- Any designing of parts or appliances or any execution of other DO related tasks performed by persons not directly employed by the DOA holder (DOAH) is considered as work being subcontracted.



Identification of the work being subcontracted

- Examples of DO related tasks which are often subcontracted are:
 - Laboratory testing (21A.33)
 - Flight testing (21A.35) and associated control of a/c configuration
 - Classification of changes and approval of minor changes at product level affecting an equipment (21A.263(c)(1)&(2))
 - Drafting drawings (21A.31)
 - Stress Analysis (21A.20)
 - Records keeping (21A.55, 21A.105)



Identification of the work being subcontracted

- The subcontractors (organisation or person) performing the “work” should be identified in sufficient detail
- First level of subcontractors should be identified by the DOA holder in the handbook or in a cross-referenced procedure/tool/database.
- Eventual subcontractors below the first level are identified either by the DOAH or by the contracting subcontractor following same criteria or any other one acceptable to the DOAH



Identification of the work being subcontracted

- Minimum identification should be:
 - The name of the organisation or person and its contact details
 - References to purchase orders/contracts (legal liason) and when pertinent to interface documents which should contain a detailed description of the of work to be performed (e.g. Scope of Work, Statement of Work, Procurement Technical Specification).
 - Subcontractors carrying out also the independent checking function must be explicitly identified as such and sufficient description of their organisation and design activities must be documented in the DOAH handbook or cross referenced procedure (21A.243(b)).



Definition of the work being subcontracted



Definition of the work being subcontracted

- The description of the work (e.g. purchase technical specification, statement of work) might contain technical requirements, and also process requirements depending on its extent.
 - The **technical requirements** are related to the product, part, or equipment to be designed or to the task to be executed
 - If necessary, also direct references to airworthiness specifications might be present
 - The **process requirements** are related to the necessary working arrangements to be put in place for adequate coordination, and to the agreed procedures to be used by the subcontractor.



Definition of the work being subcontracted

- The necessity and content of the working arrangements depends on the nature/characteristics of the work being subcontracted.
- Working arrangements typically contain:
 - Focal points and contact details
 - Means of communications
 - Information, data and resources to be provided to the subcontractor as „input“
 - Deliverables to be produced by the subcontractor as “outputs”
 - Formats of digital data to be exchanged
 - The level of involvement of the DOA holder and of the subcontractor in the document approval work flow



Definition of the work being subcontracted

- Working arrangements typically contain (cont.):
 - Planning and progress reporting provisions (e.g. Design reviews, design verifications)
 - Records keeping provisions
 - Identification of testing facilities
 - Provisions for granting access to data and facilities
 - Authorised signatories (when not directly identified in the agreed procedures used by the subcontractor)



Definition of the work being subcontracted

- For example subcontracting the drafting of drawings requires a minimum of working arrangements on subjects like:
 - the software tool/digital format to be used
 - the indication of the focal points on both sides DOAH/Subcontractor for the exchange of information
 - technical input data and output deliverables
 - time line/schedule
- There could be cases where a simple contract might contain all the necessary arrangements for the execution of the work.



Definition of the work being subcontracted

- The agreed procedures which a subcontractor shall use in the execution of the assigned tasks depend on the subcontracted scope of work and might be for:
 - The establishment of compliance documentation, including independent checking function, where applicable
 - The classification and approval of changes/repairs, If DOA privileges are exercised
 - The configuration control
 - The approval of production deviations, if the subcontractor is also the manufacturer of a part/appliance
 - The internal coordination of design activities



Definition of the work being subcontracted

- The agreed procedures which a subcontractor shall use in the execution of the assigned tasks depend on the subcontracted scope of work and might be for:
 - The internal monitoring system, if the DOAH ISM is not directly monitoring adherence to the agreed subcontractor's procedures
 - The control of work carried out by sub-tiers
 - The execution of (laboratory, ground, or flight) testing



Selection of subcontractor capable to perform a defined work



Selection of subcontractor capable to perform a defined work

- The DOAH procedures should describe the process and tools in use to assess and select an acceptable organisation or person for the execution of a defined work.
- The extent of the assessment depends on the complexity of the work and the level of involvement of the DOAH in the control of the work.



Selection of subcontractor capable to perform a defined work

- When relevant, the DOAH procedures should contain criteria for determining the acceptability of:
 - Subcontractor accommodation, facilities and equipments (see Part 21A.245a)
 - Sufficient experience and numbers of the subcontractor technical staff (see Part 21A.245a)
 - the local provisions for internal coordination of the design activities (see Part 21A.245b)
- for the execution of a defined / kind of work.



Selection of subcontractor capable to perform a defined work

- When subcontractors' procedures are to be used for the execution of a defined work, the DOAH assessment should determine :
 - either compliance of such procedures with applicable Part 21 requirements
 - or equivalence with its own DOAH procedure (which are compliant with Part 21).



Control of work and surveillance of subcontractors` procedures and resources



Control of work and surveillance of subcontractors' procedures and resources

- The control of the **specific technical work** carried out by the subcontractor should be ensured in accordance with the working arrangements established for adequate coordination.



Control of work and surveillance of subcontractors' procedures and resources

- A subcontractor performing DO related work becomes part of the DAS of the DOAH, and is subject to the independent system monitoring as per Part 21A.239(a)(3).
- The ISM function (of the DOAH or of the subcontractor when this task is part of the assigned subcontracted work) should be tasked to determine the compliance of subcontractors' work to the agreed procedures and to the established working arrangements.



Control of work and surveillance of subcontractors' procedures and resources

- If the ISM function is carried out by the subcontractor under **an agreed procedure**, the DOAH ISM is still tasked to:
 - verify compliance of the subcontractor with such agreed *local* ISM procedure
 - ensure subcontractor is closing the corrective actions when deficiencies are identified
 - report to the HDO the overall performance as per 21A.239(a)(3) of the subcontractor.



Additional provisions



Additional provisions

- ▶ DOAH should ensure subcontractor procedures/working arrangements contain adequate provisions (proportionate to the scope of work) to notify significant changes as per 21A.247 and GM 21A.247 which need approval of the Agency.



Additional provisions

- ▶ When the subcontractor is using the same procedures, accommodation, facilities and equipment of the DOAH, it is still necessary to verify:
 - ▶ the competences of the subcontractor personnel are at the same level of the ones required for internal staff or anyhow sufficient for the scope of work.
 - ▶ The legal liaison/framework (e.g. contract with signatures of the individuals actually working inside the DOAH) ensures the subcontractor will work under agreed procedures, and will take liabilities, where relevant, of the authorisations received by the DOAH (e.g. 21A.239(b) independent checking function)



EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT



Questions?

or

Comments?



Your safety is our mission.
easa.europa.eu