



EASA
European Aviation Safety Agency

Part 21
Design Organisation Approval
(DOA)
Implementation
&
Product Certification Workshop
- Industry Session -

18-19 November 2015
“RHEINSAAL” HYATT Conference Room
Hyatt Regency Hotel
Cologne, Germany

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TE.GEN.00409-001



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DOA Terms of Approval

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Development of improved TOA content

➤ Agenda

- EASA Working Group
- Concept
- Definitions and tools
- Examples
- Next steps



Development of improved TOA content

➤ EASA WG No. CT.6/2015-01

➤ Objective:

- **Improved Terms of Approval (TOA) content** allowing for a better definition of the design activities for which a Design Organisation Approval has been granted.
- **Harmonisation** of TOAs across all DOAs.

➤ Participation:

- EASA Senior Experts, PCMs and DOA Team Leaders, with test cases created with the support of industry.

➤ Timeframe:

- Implementation expected to start in first quarter 2016



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➤ Concept:

- The DOA ToA will define the **Scope of work, Privileges and General Limitations**.
- The **Scope of work** will detail, in an appendix and in a structured way, the following information for each **Product**:
 - **Type of design work** [TC, changes, repairs, flight conditions...]
 - **List of products**
 - **Areas and subareas** [harmonised and related to the product]
 - **Limitations** [related to technical disciplines and per Area]
- All the information will be defined within a **specific tool**.



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➤ Definition of **Areas**

- An **Area** is related to a physical system or a characteristic of a product.
- For example, for Large Aircraft, the following ones are identified:

Large Aircraft:

- Cabin
- Avionics
- Structures
- Electrical Systems
- Hydro-Mechanical Systems
- Environmental Control Systems
- Powerplant and Fuel Systems
- Flight



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➤ Definition of **Subareas**

➤ Related **Subareas** are second level grouping within an **Area**.

➤ For example, for Cabin and Avionics, the following ones are identified:

CABIN:

- Cabin Interiors
- Electrical Cabin systems
- Flight Deck
- Cargo Compartments

AVIONICS:

- Auto Flight systems
- Communication Systems
- Navigation Systems
- Environment Surveillance Systems
- Display Systems
- Recording Systems
- Integrated Modular Avionics



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➤ Definition of **Disciplines**

- For each **Subarea** there are associated airworthiness requirements, for which the DOA needs to have competence. These are grouped in **Disciplines**.
- For example, for Navigation Systems, within Avionics, there might be a need to demonstrate competences in the following **Disciplines** (and associated **sub-disciplines**):

Navigation Systems:

- Human Factors discipl.
- Safety Assessment discipl.
- Development Assurance discipl.
- Avionics disciplines
- Electrical disciplines



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➤ Definition of **Limitations**

- Possible **Limitations** will be based on **Disciplines**
- When a DOA does not have technical competence in a particular discipline/sub-discipline associated to an **Area**, then two cases are possible:
 1. the **Area** is not included in the DOA Certificate
 2. the **Scope of work** will be limited and the DOA Certificate will include the particular **Limitation**.



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➤ Definitions in the DOA handbook

➤ The DOA handbook will need to clearly define:

- **Areas/subareas with details/descriptions**

e.g. [CABIN] Cabin Interiors:

- Seat installation (static/dynamic), Emergency equipment/rafts, Placards and marking, Galleys, Lavatories, etc.

- **Disciplines/sub-disciplines**

e.g. [CABIN] Cabin Interiors:

- Safety Assessment; Cabin Safety [Crashworthiness, Fire protection, Occupant evacuation,...]; ECS [Water and waste]; Electrical [EWIS, Lighting,...]; ICA; etc.

- **Limitations**



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➤ DOA ToA Tool

- A tool is developed for the definition of all the information required to be included in the DOA ToA Certificate
- This tool will be used for both internal and external communication during DOA investigations (both initial and for significant changes).
- It provides guidance on **Areas/subareas** related to each **Product** and corresponding technical **Disciplines/subdisciplines** where the DOA holder would need to demonstrate competences.
- Possible **Limitations** to each **Area** are also identified.



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➤ Example: Appendix to DOA ToA certificate

Large and small aeroplanes

Type of design work	List of Products	Areas	Limitations
Minor changes STC Minor repairs Flight conditions	All	Cabin <ul style="list-style-type: none">- Cabin interiors- Electrical Cabin systems	- No limitations
		Avionics <ul style="list-style-type: none">- Communication Systems- Navigation Systems- Environment Surveillance Systems- Display Systems- Recording Systems	- Development Assurance (SW/AEH) excluded for IDAL A, B, C, D
		Structures <ul style="list-style-type: none">- Secondary Structures	<ul style="list-style-type: none">- Decompression discipline excluded- Aeroelasticity discipline excluded- Composite material excluded
		Electrical systems <ul style="list-style-type: none">- Lighting systems- WLAN systems	- No limitations



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➤ Next steps

- Final definition of methodology and incorporation in EASA internal working procedures
- Final definition of DOA ToA tool
- Communication with DOAs
- Implementation to new investigations
- Implementation to existing DOAs



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