EASA
European Aviation Safety Agency

# Product Certification and Design Organisation Approval Workshop

## 22nd -23rd November 2016

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# DOA Terms of Approval


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**23rd November 2016**

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# DOA Terms of Approval – Table of content

- Objective
- Concepts
- DOA Terms of Approval content
- DOA Terms of Approval tool
- Next steps

# DOA Terms of Approval – EASA Working Group

- 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:
    - High involvement of EASA Experts, PCMs and DOA Team Leaders.
  - Timeframe:
    - Implementation has started in November 2016
      - DOAs under Initial Investigation: within 3 months
      - DOAs under Surveillance: within 18 months

# DOA Terms of Approval – Concepts

- The **scope of work** is related to those aspects of a product (e.g. LA, GA, Rotorcraft, etc.) where a DOA can perform design activity (e.g. TC, changes, repairs, flight condition privilege, permit to fly privilege).
- These aspects might be defined in two levels (only for non-TCH case).
  - **Scope** is the highest level to be defined in the Terms of Approval
    - Flight
    - Structures
    - Cabin
    - Avionics
    - Electrical systems
    - Hydro-mechanical systems
    - Environmental control systems
    - Rotor drive systems
    - Powerplant and fuel systems
    - Propulsion
  - **Areas** within each scope might need to be identified
    - [Flight]:
      - Flight performance
    - [Structures]:
      - Fuselage
      - Wings,
      - Landing gears, etc.
    - [Cabin]:
      - Cabin interiors
      - Electrical cabin systems
      - Cargo compartments, etc.
    - [Avionics]:
      - Auto Flight systems
      - Communication systems, etc.

# DOA Terms of Approval – Concepts

- The **technical disciplines** are those technical fields where the DOA must have sufficient competence in order to be able to perform design activities for the scope of work. These are defined per EASA panels. E.g.:
  - Flight disciplines:
    - Flight Test
    - Handling Qualities & Performance
    - Cockpit Avionics Integration aspects
    - Flight Manual
    - Human Factors
  - Structures disciplines:
    - Loads
    - Static strength
    - Fatigue and damage tolerance
    - Materials & Manufacturing
    - Aeroelasticity, Vibration and Buffeting
    - Crashworthiness
    - Rapid decompression
    - Impact conditions
  - Cabin Safety disciplines:
    - Occupant crashworthiness/restraint
    - Fire Protection - pressurised areas
    - Occupant evacuation
    - Cargo restraint
    - Security aspects
    - Human External Cargo Restraint
    - Standard cabin interior items
    - Rotorcraft Ditching
    - Special Interior Features
  - MMEL
    - Impact assessment / Engineering judgement
    - Detailed Safety Analysis
    - Flight Crew aspects (workload, etc.)

# DOA Terms of Approval – Concepts

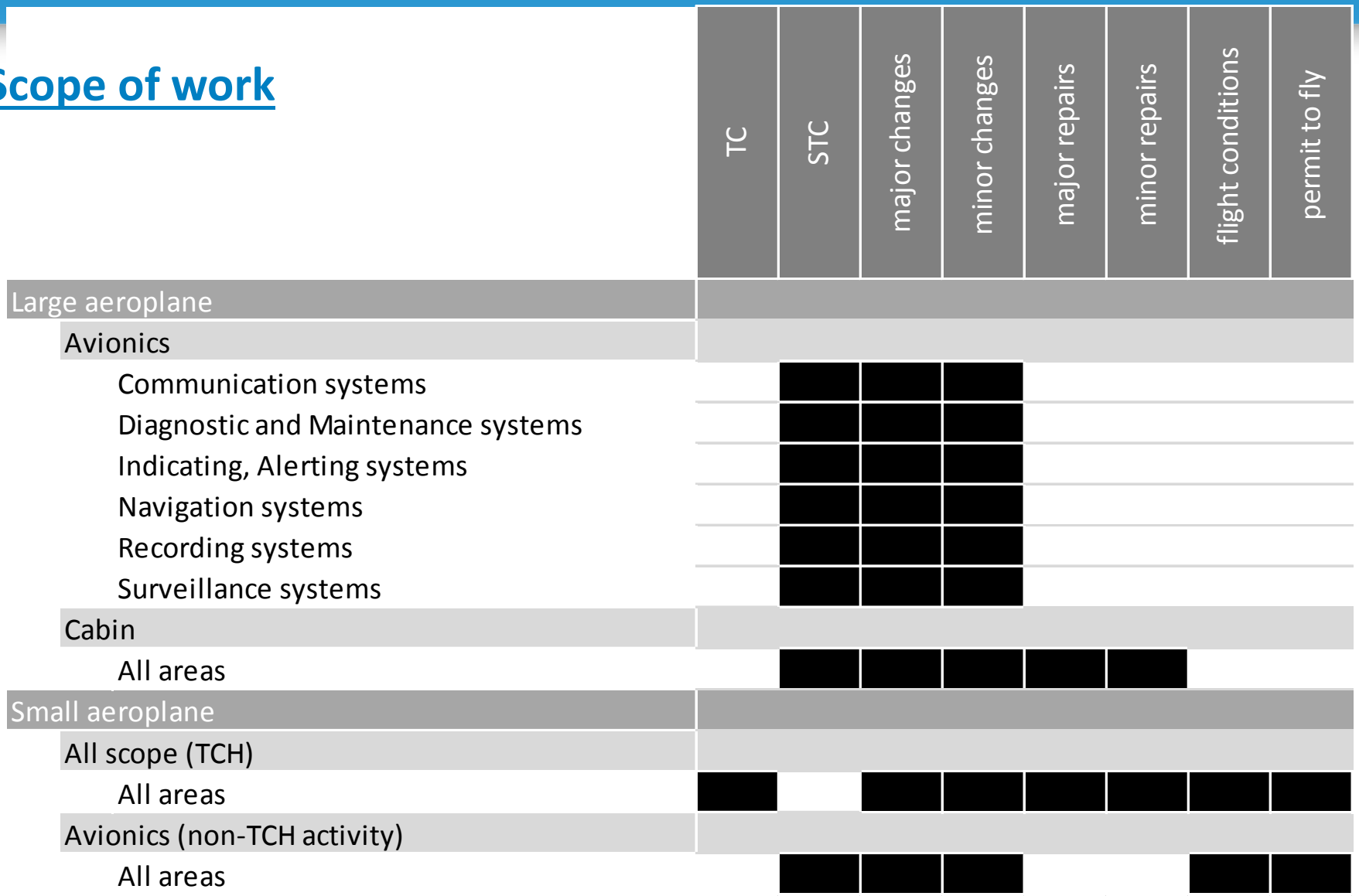
- **Limitations** might be needed to further define the scope of approval. These normally are based on technical disciplines. E.g.:
  - **Scope: Cabin**
    - **[Structures]:** Primary structure is excluded
    - **[Cabin Safety]:** Seat installation requiring new demonstration of compliance to CS-xx.562 "Emergency landing dynamic conditions" is excluded
    - **[Flight]:** Design activities requiring flight testing are excluded
    - **[OSD]:** Changes affecting OSD are excluded
  - **Scope: Avionics**
    - **[Development Assurance]:** Development of AEH with IDAL A, B and C is excluded
    - **[Avionics]:** Design activities on systems with catastrophic/hazardous failure conditions are excluded
    - **[Flight]:** Design activities requiring flight testing are excluded
    - **[OSD]:** Development of Operational Suitability Data excludes the OSD constituents MMEL, FCD, CCD, MCSD and SIMD

# DOA Terms of Approval – Content

- The DOA Terms of Approval will include:
  1. **Scope of work**
     - It will refer to an annex A, which will include:
       - **Scope of work**
         - Product/Scope/Area
         - Type of design work (TC, STC, minor changes, etc.)
       - **List of types**
       - **Limitations**
  2. **Privileges**
     - As per 21.A.263
  3. **Obligations**
     - As per 21.A.265

# DOA Terms of Approval – Content (example)

## Scope of work



# DOA Terms of Approval – Content (example)

## List of products and types

| Product | Design Activity | Types |
|---|---|---|
| Small aeroplane | TC | GA-Type-01<br>GA-Type-02 |

## Limitations

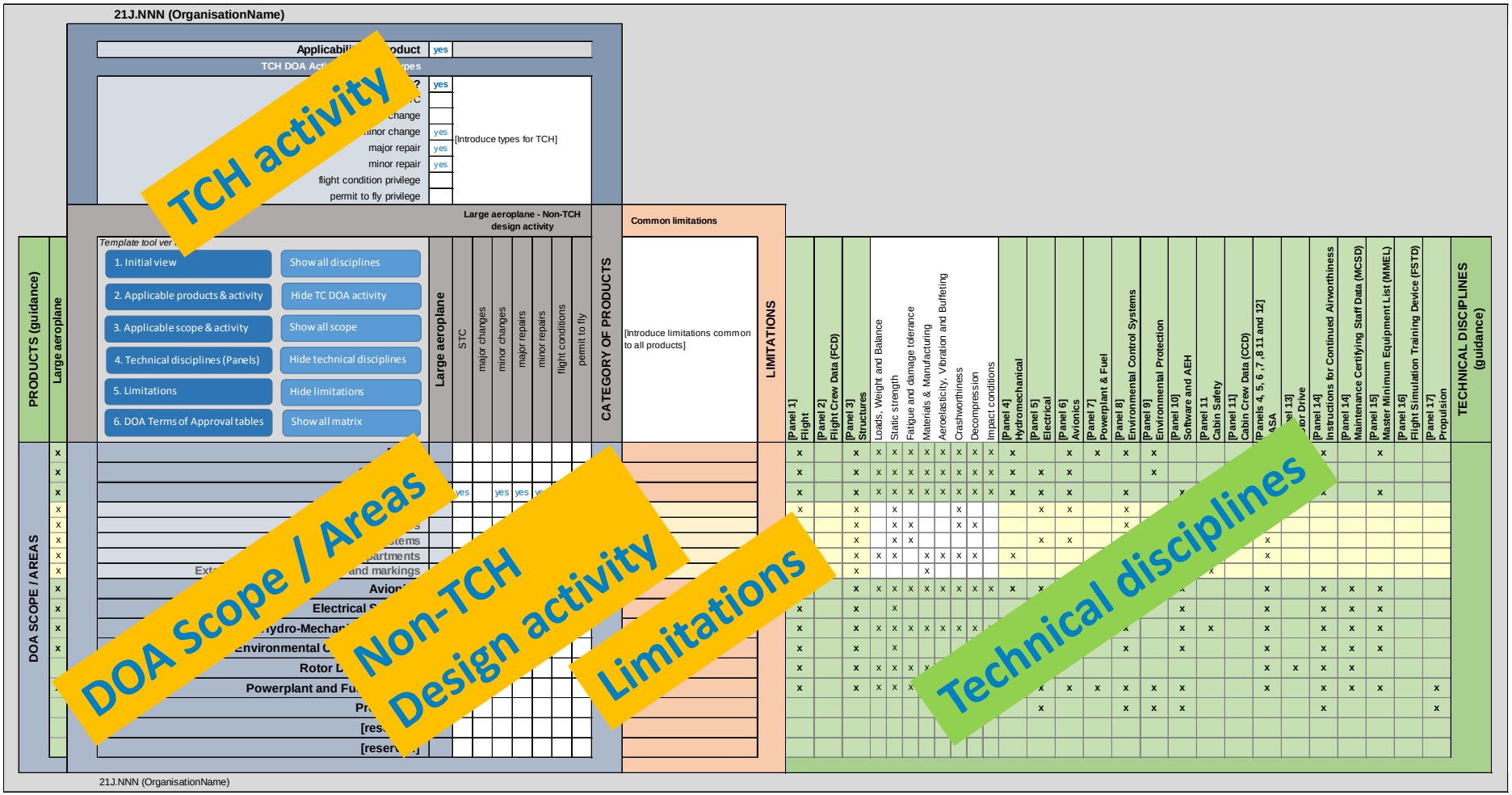
| Common Limitations |
|---|
| [Development Assurance] Development of SW and AEH with IDAL A, B and C is excluded |

| Product | Product Limitations |
|---|---|
| Large aeroplane | [Flight] Design activities requiring flight testing are excluded<br>[Structures] Primary structure is excluded |
| Small aeroplane | None |

# DOA Terms of Approval – DOA ToA tool

- DOA ToA Tool:
  - A tool has been developed for the **identification** of the information required to be included in the DOA Terms of Approval.
  - This tool is used for both internal and external **communication** during DOA investigations and surveillance.
  - It also provides **guidance** on areas related to each product and corresponding technical disciplines where the DOA holder would need to demonstrate competences.

# DOA Terms of Approval – DOA ToA tool



# DOA Terms of Approval – Next steps

- Next steps
  - Communication with DOAs
  - Implementation to new investigations
  - Implementation to existing DOAs

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# Thank you!

# Questions?

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