Cabin Safety Rulemaking Updates

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04.06.2017

STC WORKSHOP
June 4th/5th 2018

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Introduction

- Content:
  - Cabin safety related Certification Memoranda
  - Handling of limitations
  - Some news on additive manufacturing of cabin parts
  - Warm invitation to the side meeting

CMs published by Cabin Safety

- Where to find them:
  - https://www.easa.europa.eu/document-library/public-consultations/certification-memoranda
- List of published CMs:
  - EASA CM-CS-001 Use of Aircraft Materials Fire Test Handbook # DOT/FAA/AR-00/12
    - https://www.fire.tc.faa.gov/Handbook
  - EASA CM-CS-002 Access to and Opening of Type III and IV Exits on Aeroplanes with Passenger Seating Capacities of 19 or Fewer
  - EASA CM-CS-003 Installation of 'Cargo Seat Bags' on Passenger Seats
  - EASA CM-CS-004 Flammability Testing of Interior Materials
  - EASA CM-CS-005 Helicopter External Loads Personnel Carrying Device System

CMs issued by Cabin Safety

- List of published CMs:
  - EASA CM-CS-008 Large Aeroplane Evacuation Certification Specifications – Cabin Crew Members Assumed to be on Board

4.3 Maximum Passenger Capacity and associated Minimum Number of Cabin Crew :

The table below provides the certified Maximum Passenger Seating Capacities (MPS), the corresponding cabin configuration (exit arrangement and modification) and the associated Minimum Number of Cabin Crew members used to demonstrate

TCDS No.: EASA.A.004 AIRBUS A330 Page 32/47
Issue: 45 Date: 25 September 2017

compliance with the certification requirement:

Passenger Seating Capacity & Cabin Configuration		Cabin Crew
420	(4 Type A (modification 40161))	9
400	(4 Type A)	8
375	(A-A-I-A)	8

CMs in progress

- List of proposed CMs:
  - EASA CM-CS 007 Width of aisle public consultation is finished
  - EASA CM-CS 010 Incomplete Passenger Cabin in consultation since 24.5.2018
  - EASA CM-S 009 "Cabin interior abuse Loads" New Title: *Loading Conditions for Occupant Safety in Cabin Interiors*
    - finalized any day (in cooperation with Cabin Safety) consultation is finished

Under preparation:

- EASA CM-CS XXX "Guidance on smoke propagation and smoke penetration tests "
  - coming soon
- CM CS25-001 FAA SSD (new general CM) covering all panels

Summary of CMs in progress

- EASA CM-CS 007 Width of aisle

CS 25.815 Width of aisle
(See AMC 25.815)

The passenger aisle width at any point between seats must equal or exceed the values in the following table:

Passenger seating capacity	Minimum passenger aisle width (cm (inches))	
	Less than 64 cm (25 inches) from floor	64 cm (25 inches) and more from floor
10 or less	30 (12)*	38 (15)
11 to 19	30 (12)	51 (20)
20 or more	38 (15)	51 (20)

* A narrower width not less than 23 cm (9 inches) may be approved when substantiated by tests found necessary by the Agency.

Allowance to encroach into the minimum aisle width specified in CS 25.815 limited to:

- phases of flight other than TT&L.
- The following seat movable items (under the limitations specified in the CM):
  - deployable video monitors
  - tables
  - Armrests for disabled passengers

Summary of CMs in progress

- EASA CM-CS 010 Incomplete Passenger Cabin
  - Follow up on last year´s communication
  - Preferred method is still permit to fly
- Key points:
  - Missing safety for occupants
    - Limitation of no passengers
  - Missing smoke detection by passengers
    - Limitation of no luggage or cargo in the cabin
  - Impact on weight and balance

Summary of CMs in progress

- EASA CM-S 009 Loading Conditions for Occupant Safety in Cabin Interiors
  - The CM is a joint effort of the EASA Structures and Cabin Safety teams.
  - Consideration of the application of concentrated loads on cabin and cockpit features may be required to show compliance with certain CS-25 requirements (e.g. 25.601).
  - Identification of the features to be tested and of the test conditions is based on scenarios (e.g. emergency evacuation, turbulence) in which critical interaction between the feature and occupants may occur during flight.
  - TC holder specifications previously accepted by EASA remain acceptable.
  - The CM does not provide prescriptive guidance on concentrated load values/directions.

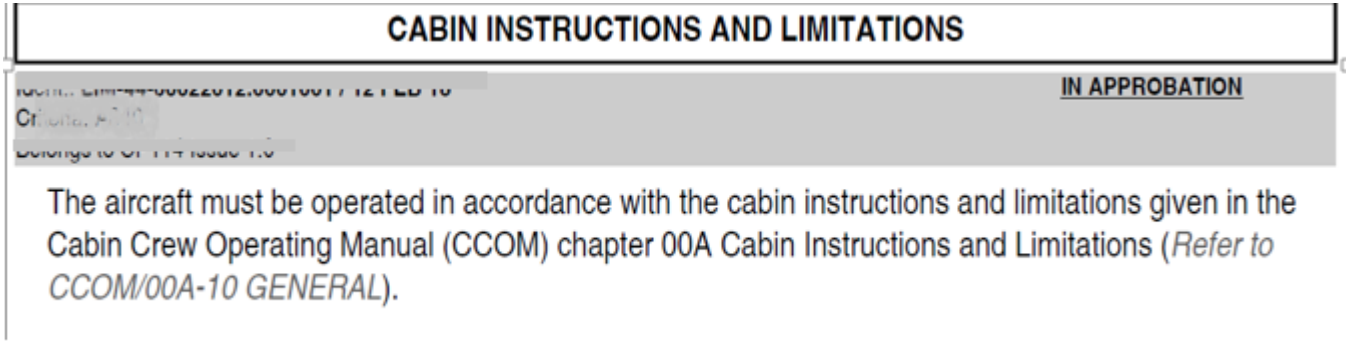
Summary of CMs in progress

- EASA CM-CS XXX Guidance on smoke propagation and smoke penetration tests
- The purpose of this CM is to provide specific clarification and additional guidance regarding certification testing (alternative to smoke penetration tests) to be conducted to evaluate the entry of hazardous quantities of smoke into compartments occupied by the crew or passengers as a result of an in-flight fire.
- FAA AC 25-9A is the reference for smoke penetration tests. Smoke penetration tests are successful only if:
  - the compartment is provided with effective isolation means (e.g. smoke barriers, airtight liners)
  - the ventilation system available in the compartment may be isolated upon detection of a fire event.
- In compartments (e.g. equipment bays, Class A cargo compartments, lavatories, crew rest compartments, remote areas of the cabin, etc.) not equipped with isolation features, smoke propagation tests can be conducted instead of smoke penetration tests.
- Smoke propagation test conditions should be discussed and agreed with EASA. The amount of smoke (higher than in smoke detection tests) and the emission time should be established considering the applicable emergency procedures.

Handling Limitations

(Dirty Harry says) ***A man´s GOT to know his limitations***

- **Sources for example:**
  - **TCDS**
  - **AFM: specific direct entry**
    - **Or:**



CABIN INSTRUCTIONS AND LIMITATIONS

IN APPROBATION

The aircraft must be operated in accordance with the cabin instructions and limitations given in the Cabin Crew Operating Manual (CCOM) chapter 00A Cabin Instructions and Limitations (*Refer to CCOM/00A-10 GENERAL*).

  - **Part26/CS26**
  - **Maybe others..**

How to handle Additive Manufacturing (AM)

- Compliance to the usual material, manufacturing and DOA requirements.
  - Details are provided in EASA CM-S-008
- Classification of change including AM should be based on Part 21 criteria and considering:
  - the novelty of the design
  - the complexity of the part
    - Simple part made with solid material => possible minor
  - the criticality
    - No load carrying, decorative only => possible minor
  - The post AM treatments
    - Finishing, painting, machining,….
  - CAW, aging…

How to handle Additive Manufacturing (AM)

- The use of AM may require changes to the Design Assurance System (called in Part 21 ”Significant Change”)
  - Description/procedure how to define AM design data.
  - DO/PO arrangement defining data transfer, the AM machine, the software revision, …
  - Establish CVE competence
  - Check existing procedures for applicability

Note In particular, if the DOA has to develop procedures (not yet existing) for AM material and manufacture process qualification in order to define respective specifications as part of the Type Design and show compliance with CS xx.603 & xx.605 than this should probably lead to a Significant Change (to be discussed with the DOA Team Leader)

EASA
European Aviation Safety Agency

Thank you.

Questions ?

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