

# EASA

## **TERMS OF REFERENCE**

**TOR Nr:** 25.056(a)

**Issue:** 2

**Date:** 19.11.2007

**Regulatory reference:** Part-21, CS-25,

**Reference documents:** Regulatory Impact Assessment June 2004, FAA NPRM 2005/22997 and associated docket, EASA NPA 22.2005, EASA policy statement D 2005/CPRO/

**1. Subject:** Fuel tank flammability reduction

**2. Problem / Statement of issue and justification; reason for regulatory evolution (regulatory tasks):**

There have been five key accidents since the 1960 involving fuel tank explosions. Two are due to lightning strikes (B 707 in Elkton (USA) in 1963 and B 747 in Madrid (Spain) in 1976). Three were due to other causes (B 737 in Manilla (Philippines) in 1990, B 747 in New-York (USA) in 1996 and B 737 in Bangkok (Thailand) in 2001).

A balanced approach has been agreed to address the issue of fuel tank explosions. This approach contains two ingredients:

- Ignition prevention
- Flammability reduction.

An intense cooperation (either through ARAC Working groups or through direct contacts) has occurred between EASA (JAA in the past), FAA, Transport Canada and CTA Brazil on the issue of fuel tank explosions. This task 25.056 has been identified as a subject of common interest with FAA.

From an EASA perspective the issue of ignition prevention has been now addressed by the amendment 1 to CS-25, the NPA 22.2005 (Fuel tank safety: incorporation of the CDCCL concept into acceptable means of compliance for Part-M, Part-145 and Part-66), the policy statement D 2005/CPRO/ (EASA policy statement on the process for developing instructions for maintenance and inspection of fuel tank system ignition source prevention) and the associated set of Airworthiness directives.

The purpose of this task is to address the second ingredient of the balanced approach taking into account all the work that has already been done.

The rulemaking framework for issues such as fuel tank safety, aging aircraft can be summed-up as follows (See attachment 1 for more details):

- Amendment to certification specifications to improve the standards for fuel tank safety. This will address the case of future TC and future amendments to TC/ future STC in accordance with the changed product rule.
- Requirements on existing design approval holders (e.g. TC, STC holders) to review their existing designs to show compliance with the amended certification specification
- Requirements on operators to introduce modifications in individual aircraft and maintenance programmes resulting from the design review.
- Requirements to install certain systems in production aircraft and possibly to aircraft in service

The rulemaking framework will be further developed by the group working on task 21.039. (See attachment 1 for more details)

FAA has issued a proposed NPRM that includes a revision to Part 25 for new type designs as well as production and retrofit incorporation of means to address fuel tank flammability. Harmonization of the

proposed fuel tank safety requirements is a goal of the FAA and EASA. EASA received an RIA that recommended production incorporation of flammability reduction means, but did not recommend retrofit. Since the original RIA was published significant new information is now available. This includes information presented in the FAA docket file such as the Sandia evaluation of the effectiveness of SFAR 88 ignition prevention means as well as the regulatory evaluation that estimates the cost of incorporating flammability reduction means as proposed in the NPRM. FRM technology has matured to the point where 4airplanes equipped with flammability reduction means are now being delivered and are currently flying in-service.

The rulemaking task has been divided into two elements: This task that covers the review of the RIA and task25.056 (b) that covers the production cut-in and the modification to CS-25.

These events should allow development of a revised RIA that would provide EASA with improved information to make a more informed decision of what rulemaking action they should take, with the ultimate goal of achieving harmonization of the requirements.

To assist in that work, the Agency also feels necessary that independent study aimed at assessing the need for retrofit be conducted

To achieve this, it seems necessary to conduct a European independent study aimed at assessing the need for retrofit. It will also provide information independent from the one received from FAA. A study on effectiveness of ignition prevention has already been commissioned by FAA (Sandia report) and is available in the docket of the NPRM 2005-22997. The Agency has reviewed the study and is of the opinion that it is not decisive. The European Industry has therefore requested that an independent study be done.

The study was launched in March 2007 and the final report was available early October.

**3. Objective:** develop the necessary NPA and technical elements to address fuel tank flammability reduction.

**4. Specific tasks and interface issues (Deliverables):**

1. Revising the 2004 RIA cost and benefits information in consideration of the revised information in the FAA NPRM docket file, as well as validated cost data that is available from FRM equipment suppliers as well as OEM.
2. Considering the result of the independent study aimed at assessing the need for retrofit.
3. Evaluating the need to change the conclusion of the June 2004 RIA (which is still the present position of EASA) to only require production cut-in and recommend scope for EASA action. A sensitivity analysis should be performed.
4. Identifying any other alternatives, such as use of ground conditioned air sources or risk analysis conducted by operators, which would provide flammability reduction needed to address both the average and warm day risk.

**5. Working Methods** (in addition to the applicable EASA procedures):

Group

Maintain appropriate contacts with the group working on task 21.039

**6. Time scale, milestones:**

Work starts December 2007

Deliverables for task 1, 2 and 3: April 2008

Deliverable for task 4: June 2008

**Outline of the EASA rulemaking framework for fuel tank safety issues.**

- ▶ **Amendment to certification specifications to improve the standards for fuel tank safety issues:**
  - ✦ **This is already addressed by our existing framework**
  
- ▶ **Design Approval Holder rules and incorporation of new systems in production aircraft and possibly in aircraft in service:**
  - ✦ **Long term: included in the proposed revision of 1592/2002 to extend EASA scope**
    - Proposed revision to article 5 would include in the TC: Syllabus for Maintenance certifying staff type rating, syllabus of pilot type rating, MMEL, additional airworthiness specifications for a given type of operations
    - Task 21.039 of rulemaking inventory: Elaboration and adoption in the Community framework, of additional airworthiness specifications for a given type of aircraft and type of operation
    - NPA scheduled 3 quarter 2007
  
- ▶ **Design Approval Holder rules:**
  - ✦ **In the meantime:**
    - Use of letters or Airworthiness Directives to request 'reviews' by Design Approval Holders.
  
- ▶ **Maintenance rules:**
  - ✦ **General: Shared responsibility**
    - In the EU system, the responsibility is shared between the operators, the maintenance organisations and the design organisations.
    - The safeguards are already built into the European structure and it is not planned to redistribute the responsibilities.
  - ✦ **Maintenance programmes**
    - Part-M M.A.302 requires maintenance programmes to be based on data produced by TC holders, STC holders or organisations required to by Part-21.
    - Anything else requires the approval by the competent authority. In the case of ALLs this is EASA.
  - ✦ **Maintenance Data**
    - Part-145 145.A.45 requires AMOs to hold and use current maintenance data.
    - The maintenance instructions can only be modified with the approval of the competent authority.
  - ✦ **Maintenance Training**
    - Part-145 145.A.30(e) and Part-M M.A.706 require personnel to be competent and this competence to be evaluated in view of their tasks.
    - This is part of the organisation's expositions that is approved by the competent authority.
  - ✦ **Control of aircraft configuration**
    - Part-M M.A.301 requires operators to control the configuration of their aircraft and to have an embodiment policy for non mandatory modifications and for repairs
    - Furthermore, M.A.304 requires modifications and repairs to be accomplished in compliance with Part-21. The resulting maintenance data will then become maintenance data that needs approval to be changed.
  - ✦ **Maintenance rules: conclusion**
    - **There is no need to create new operational rules like in the US.**
    - **Development of AMC should be enough.**