

# Aircraft Manufacturer and Data Provider – General perspective

Information Session CS-FSTD(A) Issue 2

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# Background/History of Regulation Updates

## OEM Perspective

- OEMs have been making model updates and supplying additional data to comply with new requirements
  - 2015 – ICAO 9625 4th Edition
  - 2016 – FAA, 14 CFR Part 60 Change 2
  - 2018 – EASA, CS-FSTD(A) Issue 2
    - Supports optional full stall training
- Flight Simulation Training Device (FSTD) regulations support the flight crew training requirements
  - The FAA's November 2013 release of Part 121, subparts N & O, set a March 2019 deadline of compliance in which all initial training shall include Extended Envelope and Adverse Weather Event Training Tasks
  - The EASA Flight Crew Licensing (FCL) training requirements have been updated and an Opinion was submitted to the European Commission (Decision expected in the coming months)

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# What is New in CS-FSTD(A) Issue 2?

- Similar requirements to FAA Part 60 Change 2 related to UPRT, Stall, Icing
- New requirements relative to Issue 1:
  - Instructor Operation Station (IOS) enhancements for Upset Prevention and Recovery Training (UPRT)
  - Fidelity improvements for approach to stall/stall and icing
  - New QTG tests (2a10, 2c8, 3g5, 2i) for full stall training and recovery training and icing
  - Additional Statements of Compliance

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# What is New in CS-FSTD(A) Issue 2?

- New AMCs:
  - AMC9: what did not fit in the FSTD standards table and FSTD validation tests table
  - AMC10: high AOA, SME assessment, SOC's for new FSTDs
  - AMC11: high AOA specifics for previously qualified FSTDs
  - AMC12 (+GM): UPRT information, definition of the validation envelopes, IOS feedback tools
  - AMC13: Icing related information

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# SME Pilot Evaluation for Stall Characteristics

For those FSTDs that are to be qualified for full stall training tasks:

- s.3 “An additional SOC has also to include a verification that the FSTD has been evaluated by a subject-matter expert pilot...” (+ details in AMC10, see below)
- Two methods for SME Pilot assessment
  - 1) SME pilot evaluation for each FSTD when it is initially qualified for stall training task
  - 2) SOC from the airplane manufacturer/data provider confirming SME pilot assessment on engineering/development simulator when additional objective data are provided
- AMC10 FSTD(A).300 Guidance on high angle of attack/stall model evaluation
- SOC (subject-matter expert (SME) pilot’s evaluation)

*The operator must provide an SOC confirming that the simulation stall model has been subjectively evaluated by an SME pilot knowledgeable of the aeroplane’s stall characteristics [...] This SOC will only be required at the time the FSTD is initially qualified for stall training tasks as long as the FSTD’s stall model remains unmodified compared to what was originally evaluated and qualified. **Where an FSTD shares common aerodynamic and flight control models** with those of an engineering or development simulator, the competent authority will accept an SOC from the aeroplane manufacturer or data provider confirming that the **stall characteristics have been subjectively assessed by an SME pilot on the engineering/development simulator.***

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# A Few Naive Questions...

- How does this aircraft type behave in a stall?

–Deterrent buffet?

☐

Yes

☐

No

☐

Maybe

☐

I don't know

–G-break?

☐

Yes

☐

No

☐

Maybe

☐

I don't know

–Uncommanded roll acceleration?

☐

Yes

☐

No

☐

Maybe

☐

I don't know

- Ice weight?

☐

400 kg

☐

4 tons

☐

I don't know

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# Always Bear in Mind

- Though some aircraft types may look similar, their stall characteristics may differ (or not):
  - Progression of cues can be different
  - Configuration and flight regime dependences can be different
  - System functionality and effects can be different
  - Airplane certification requirements can be different (e.g. conventional versus FBW stall protected airplanes)
- Do not transfer your knowledge from one aircraft type to the next
- Do not play: assess the device as a training tool, it has limitations in modeling and validity, not as a sophisticated game
- Be aware that most data used for stall characteristics comes from flight tests that are performed with specific procedures. Hence, try to understand these flight conditions and procedures.
- Be humble: when in doubt, ask questions, if necessary to the aircraft manufacturer / data provider (there may be supporting documentation / information available)
- Standardized FSTD qualifications, led with a consistent approach, are important to OEMs

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