European Union Aviation Safety Agency

Enhanced fault detection and diagnosis for air data systems - Workshop 1

Hybrid event (partially online and partially on-site)

Organised by: EASA

Date:

10 Oct 2024

10/10/2024, 13:00 - 17:30 CET (UTC +1)

Location

EASA Headquarters

Konrad- Adenauer-Ufer 3
50668 Köln
Germany

More information:

- Directions to the Agency
- Corporate hotel rates in Cologne

Description

Looking back at aviation history, multiple factors such as e.g. improved training or Safety Management System implementation have brought continuous significant safety improvements. Innovative and advanced control also played a major role in enhancing the safety, especially thanks to technology like the digital Fly-By-Wire (FBW) systems first introduced in 1988 with the Airbus A320 Program. FBW technology provides more sophisticated control of the aircraft and flight envelope protection functions. However, some systems failures may lead among other things to unexpected behavior of these useful features which could lead, under some extremely unlikely combination of factors and / or circumstances, to more complex situations to manage from the control point of view. A particular failure class of interest is related to aircraft sensors prone to harsh environmental (e.g. probe contamination), operating (e.g. severe fuselage damage) or damage conditions (e.g. during maintenance) which could lead to simultaneous and potentially consistent multiple

erroneous measurements. The current certified system monitoring state of practice is mainly based on consistency tests, cross checks, or built-in-test of various sophistication, and inspection.

In this research project, the introduction of additional safety nets that are meant to catch complex failures upon occurrence is expected to enable the next step in aviation safety.

In summary, this project aims at developing new solutions to tackle the detection and isolation of multiple, simultaneous and consistent air data probe failures while relying on the understanding of the underlying failure modes and associated mechanisms.

More information about the project:
https://www.easa.europa.eu/en/research-projects/enhanced-fault-detection-and-diagnosis-solutions-air-data-systems

This project is funded from the European Union's Horizon Europe research and innovation programme.

Agenda

1. Project Introduction (EASA)
2. Project objectives, technical problem (Airbus)
3. Fault Scenarios to cover and Robustness Cases (Airbus)
4. Airbus Aircraft Model (Airbus)
5. Identification of potential solutions (TU Delft & DLR)
6. Example of a design solution (TU Delft & DLR)
7. Q&A

Agenda NADIR Workshop 1

Registration

Onsite participation:
Invitation only

Virtual participation:

Contact

For more information please contact helder.mendes [at] easa.europa.eu (helder[dot]mendes[at]easa[dot]europa[dot]eu)

helder.mendes [at] easa.europa.eu