Surveillance Avionics Monitoring

Surveillance/MICA Workshop

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Centre of Expertise and Cooperation

- We are a Centre of expertise supporting
  - operational people across 41 States
  - any operators flying in the network

- Cooperation with aircraft, radars, avionics manufacturers
  - Investigation with avionics/radars manufacturers for resolution of reported avionics/radars anomalies
  - Flight tests for Certification of aircraft

- Cooperation with EASA
  - Monitoring/Statistics on Mode S and ADS-B avionics - Compliance with SPI-IR and ICAO Annex 10

- Report to ICAO, EUROCAE for amending ANNEX 10/Docs/ED
  - WG49 transponder MOPS and WG102 Surveillance Performance
  - Some transponder issues are due to transponder MOPS : feedback from real experience + xpdr tests => update standards

Our objective

- To ensure that aircraft are correctly detected
  - by radars seen on Controllers working position
  - by ACAS that operate on board aircraft

- Technical monitoring for
  - Good operation of aircraft avionics
  - Optimal use of the RF band for Surveillance

1030 Mhz & 1090 Mhz

- Tools to listen and analyse what is transmitted:
  - Air to Ground
    - Surveillance data recording at the output of surveillance systems (ADS-B, WAM, Mode S and Mode A/C radars)
    - Surveillance data process with BDAMS tool to detect surveillance issues
      - Loss of detection, incorrect aircraft parameter…
  - Ground to Air and Air to Air (1030/1090 MHz RF receiver and recorder on board of calibration aircraft)

In case of an anomaly detected

- SAFPA Mantis bug tracker : Surveillance Avionics Functional Performance Analyses Issues Centralised DB + ABC-List (Commercial in confidence)
- We report back
  - To transponder manufacturers
  - To aircraft manufacturers
  - To aircraft operator (airlines, GA, MIL)
  - To EASA

- Determining the cause of an anomaly is very challenging
  - vast range of Stakeholders,
  - Huge variety of possible issues

- Investigations to identify the cause of issues and resolve them

“Serving all customers for 20 years”

- Issue linked to
  - just one specific aircraft
  - to a design problem for a whole family of aircraft
    - Several months/years of effort to have all aircraft retrofitted
- Airlines greatly appreciate our expertise
  - May require to visit aircraft
    - To perform an investigation
    - To carry ramp test, aircraft buses recording
- Capability
  - to test transponders in EEC lab
  - Investigate with avionics/radars manufacturers for resolution of reported avionics/radars anomalies
  - Monitor Mode S and ADS-B avionics
  - Flight tests for Certification of aircraft

Creative Bridges

Technical monitoring

Reporting to airlines & manufacturers

Resolving issues

- Standardisation bodies (ICAO, EUROCAE, RTCA)
  - To provide WP, change proposal to support WG,
  - To ensure global interoperability
  - and systems performance

- EASA
  - To provide technical support,
  - Constantly exchanging information
  - To enforce the rules, relies on our inputs

And how does the future look…

- High level of expertise
  - → Pass and preserve this skill
- Stay up to date with latest avionics
  - → Participation in Standardisation is essential

- Difficult for ANSPs and Regulators to have a system view
- We have the global view of the “surveillance chain”
  - → Maintain and reinforce creative bridges with standardisation bodies and CA
- *Our boss: “The team is contributing to the efficient and safe operation of the network using recognised and highly valued experience”*

Questions ?

- Thanks
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