ADS-B Operational Safety Assessment

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Description & Steps

- OSA is a method of deriving safety requirements early in the life cycle of a system
  - Operational Services and Environment Description (OSED) defines the system
  - Functional analysis determines what the system does
  - Functional failures are evaluated as hazards
  - The severity is determined
    - severity → top level safety requirements
  - Requirements are then allocated between ground and air systems

What it is not

- OSA is not a risk assessment

  "Since risk is not evaluated in this process, neither the authors nor the readers can make conclusions, one way or another, regarding the safety of ADS-B." (ADS-B OSA Report)

- Simply stated: OSA is a tool for developing requirements; it tells us where we should be, but not where we are in risk. That is left to follow on analyses.

Assumptions & Results

- Some of the assumptions:
  - Full deployment in the NAS
  - Partial equipage
  - TIS-B
- Results:
  - Approximately 27 hazards were examined
  - Approximately 121 candidate requirements were developed (52 Allocated)
    - For details refer to the ADS-B OSA report

Future Steps

- Ongoing:
  - Expand OSA for individual SafeFlight21 enhancements
  - Two Comparative Safety Assessments (CSA)
    - ADS-B in future NAS
    - Conflict detection and resolution
  - Preliminary Hazard Analysis
- Planned
  - Validate (and later verify) the candidate requirements
  - ADS-B System Safety Program Plan
  - System engineering

References

- Operational Safety Assessment (OSA) is defined and discussed in:
  - RTCA/DO-264
  - FAA System Safety Handbook
  - And the FAA NAS Modernization System Safety Management Program http://fast.faa.gov/toolsets/index2.htm#System Safety Management