

SC186 Working Group 4 Teleconference 10/30/01

Participants:

Ganghuai Wang (MITRE CAASD)
Jonathan Hammer (MITRE CAASD)
Bill Lee (Boeing)
Steve Koczo (Rockwell Collins)
Martin Eby (Source Systems)
Lee Etnyre (UPSAT)
David Spencer (MIT LL)
Jerry Anderson (FAA / Certification)
Pio Blankas (Honeywell)
Jerry McCartor (FAA/AFS-420)

1. WG4 Action item review

The WG4 action item list was reviewed and updated. Some pertinent items resulting from this discussion were:

- Steve Koczo and Jonathan Hammer agreed to review ASA Chapter 1 at their next planning meeting for the “end-to-end vision.”
- Jonathan agreed to contact Andy Zeitlin regarding finding an op-link panel point of contact.
- The subgroup to discuss a list of operational consequences will have a teleconference on 11/7 at 1 pm eastern time.
- Gerry McCartor will contact Greg Stayton to discuss coordination of the operational concept description for CSPA.
- Jonathan will ask for clarification on WG2-WG4 issue 1.
- Dave Spencer will try to coordinate a telecon for the glossary subgroup.

2. WG4 Web site

Jonathan announced a new web site for WG4, provided by the FAA technical center and administered by Stu Searight. The URL for the web site is: <http://adsb.tc.faa.gov>.

1. Protocol / plans for presenting progress for future agendas

Steve Koczo discussed our plans for future teleconferences and meetings to report work progress. We would like to see presentations that capture modules of information that have been developed under the contract efforts that will allow WG4 to review and respond. Our hope is that future teleconferences and meetings will be forums to share work progress, techniques, etc., and to receive feedback from the working group.

We wish to review phase diagrams first. The group agreed to have preliminary phase diagrams prepared for review for the November 14 teleconference.

2. ACM requirements analysis discussion

(See attached paper “ Eby CD&R Task Update 20011002v1.ppt”).

Martin Eby briefed the group on his plans for the ACM probe analysis. The CD&R probe analysis will focus on 1) the safety study (integrity and continuity; phase diagrams, safety tables and fault trees as deliverables) and 2) quantitative analysis to determine Required Surveillance Performance (RSP). The analyses will be driven by ACM ops concept for autonomous operations. Martin will focus on the RSP analysis using Monte Carlo simulation to perform sensitivity analyses on the key parameters. A key metric of the analysis will be the horizontal miss distance, i.e., Closest Point of Approach (CPA) as a function of parameter sensitivity and alerting thresholds.

There has been agreement to defer anything related to TCPs for the initial analysis.

There was some discussion on the modeling of turbulence for its effects on ADS-B state vectors. Jonathan suggested that a more complete model might include other effects as well that result in total system error. Jonathan suggested considering Tony Warren’s process noise model as a baseline. Martin agreed to give Tony’s model consideration.

Dave Spencer suggested using some real-world data to help in the turbulence / process noise modeling efforts. Dave offered data that Lincoln Labs has with some high altitude en route traffic from Frankfort. Gerry McCartor also offered data that AFS-400 from their TERPS studies. Martin / Steve will follow-up on these offers.

3. Discussion of SCRSP Paper & Flimsy: "The Purpose of ACAS and Interaction with Other Systems or Applications"

Reference files: “Flimsy 3 Final.doc, WP A2-41 intended purpose of ACAS.doc.”

The subject papers were discussed. WG4 did not have any significant comments concerning WPA 2/ A2-41. Concerning the paper labeled “Flimsy 3, Revised” there were several questions and comments:

1. Paragraph 4.1:
 - a. second bullet, second sentence, is this intended to say: “Invoking ACAS traffic and resolution advisories as a mitigation to achieve the TLS has been rejected several times by several International Civil Aviation Organization (ICAO) Panels”?
 - b. WG4 felt that another bullet might be added relating to “applications with close spacing where ACAS is turned off and the application is responsible for achieving the necessary TLS,” as it was unclear whether this issue is covered by the first bullet.

- c. Recognizing the ICAO position, there no consensus within WG4 whether ACAS should or should not be considered as a part of the safety analysis. This may be considered later as the ASA analyses proceed.
2. Paragraph 4.2:
 - a. WG4 agrees with the first bullet.
 - b. 2nd bullet: WG4 was confused by the language, and disagreed with what we understood the paragraph to mean. This paragraph seems to suggest that ASAS is responsible for ACAS failures that would have occurred if the ASAS system was not present.
3. WG4 felt that the paragraphs referred to above could be restated more simply as two requirements:
 - a. Loss of ACAS data or hazardously misleading ACAS data should be analyzed
 - b. The client system (i.e., the ASAS application) should not affect ACAS.

Finally WG4 recognized and appreciates that the SCRSP positions on the interaction of ACAS and ASAS have evolved significantly. WG4 feels that we should continue to move forward in the analysis process and examine system requirements without ACAS as a mitigation as a baseline. Depending on the outcome of the analysis, the inclusion of ACAS as a mitigation may not be required.