April 10, 2003 WG4 Telecon

Participants:

Tom Foster (TRIOS)

Ann Drumm (MIT LL)

Steve Koczo (Rockwell Collins)

Joel Wichgers (Rockwell Collins)

Greg Stayton (ACSS)

Stuart Searight (FAA)

Michael Petri (FAA)

Jim Maynard (UPS-AT)

Andy Zeitlin (MITRE CAASD)

Jim Duke (ALPA)

Bob Manning (Pentagon)

Steve George (FAA)

Agenda:

Review of FAROA – Joel Wichgers

FAROA Review – Joel Wichgers

Joel started the review with an overview of the FAROA analysis work:

Joel noted that in his view, the ASSA and FAROA applications are not operational simultaneously, i.e., either ASSA is on or FAROA is on.

Jim M. raised the question why ASSA and FAROA applications could not be running simultaneously?

The question was raise of what are the functional differences between ASSA and FAROA? What makes these applications dissimilar / unique.

Greg has the same question. The goal should be to make these applications seamless, without pilot interactions being required.

It was noted that FAROA doesn't just include aircraft operating on the ground, but also includes the aircraft on final approach. Tom was concerned about this due to concern of adversely affecting the primary flight guidance information of the airborne aircraft while on final approach with FAROA CDTI information. The airborne aircraft display information is looked at more critically during final approach.

Dovetailing / transitioning of ASA applications via the CDTI (e.g., approach spacing to ASSA and / or FAROA). Has this been addressed adequately in our work (WG4 or

WG1). Tom - Reconfiguring the display after a Missed Approach is also an issue. Discussion item with WG1.

Tom - there will be a difference in the display criticality of a 'supplemental' display versus and that of a MFD/ND display.

Tom - We should state up front that FARAO uses of a supplemental display as an assumption and does not consider integration with a more critical display.

We should state up front a note about our application assumptions and display assumptions. Tom action - draft some text for such a note (for page 6 of the FAROA analysis document).

Tom – FAROA displays could be misused in low-visibility conditions. Does crew training adequately address this concern?

WG4 needs to discuss these issues concerning FAROA with WG1, to determine if there is an impact on ASA requirements:

- Have we considered the display criticality issue for the aircraft landing using a MFD/ND FAROA display?
- FAROA standalone application without ASSA – yes?
- ASSA standalone application without FAROA – no?
- Discuss the context switching between FAROA and ASSA.

Joel used the assumption that own aircraft position serves as the criteria that determine which application (ASSA or FAROA) will be active.

Jim M. – commented on the relevance of some of the vehicles listed as traffic to be concerned with (baggage trucks, etc).

Joel – some of the fine details of application context switching still needs resolution.

Joel action - develop / maintain a list of the finer details that he uncovers for inclusion in the FAROA appendix. These are captured as a reminder of issues that may need to be addressed in the future (MOPS, etc.), that may require further consideration and could have impact on requirements.

Some of the finer details of FAROA / ASSA CDTI could be addressed in the ASSAP/CDTI MOPS.

Tom - we should consider adding a note: Flight crew should not take action based on FAROA information.

We also should not analyze pilots perform the operation incorrectly (we should assume pilots perform to their training).

Discussion – why are we listing surface collision as an operational consequence. Why are we showing a hazard class of 4? Tom – we should show surface collisions as an operational consequence only when it can occur due to something caused by FAROA.

Steve G. – we should list root causes and their operational consequence. We shouldn't be overly preoccupied with failures during, e.g., the setup phase that lead to hazards in later phases. These should be addressed during the evaluation of the later phases.

Steve G. gave the example of 'application Setup' as being stationary (aircraft has no kinetic energy), while when 'crossing a runway' the aircraft has kinetic energy, implying a greater hazard threat for possible collisions. The group continued to discuss how the safety tables should / could be interpreted / developed. It was also noted that ACO is not used to seeing analyses being developed this way. It was also suggested that we should follow existing safety analysis standards. Steve K. noted that ASA breaks new ground and that existing methods do not fully address the issues related to the end-to-end ASA system safety analysis. Steve noted the ongoing discussions with AIR in resolving issues of concern and clarification on the WG4 ASA safety analyses.

Steve K. action – add to the April meeting agenda a brief overview of the latest status of the safety analysis discussion with certification; and how it may have an impact on the current application analyses.

Joel completed the overview.

Specific comments / discussions

Jim M. – Desired, degraded, unacceptable. Isn't there a way to show targets even for very poor accuracies, by providing an indication of the size of the error the traffic may be experiencing? Joel – at some point the information does become unacceptable and traffic should then be removed from the CDTI. The key is where does one set the threshold for when information is degraded or unacceptable. Jim M. – why not just show the NACp region on the display.

How do we select the proper performance threshold(s) between normal, degraded, and unacceptable. Jim M to write an issue paper for discussion with WG1.

Steve G. – question about traffic heading accuracy. How was it derived? Joel – used the same rationale as from the ASSA analysis (+/- 18 degrees). Again this is engineering judgment and is subject to discussion. Joel – a typical low-cost AHARS system is +/- 2 degrees. Jim M – couldn't one use +/- 45 degrees for unacceptable. Joel – he didn't select another number since we don't indicate the accuracy of the heading data received via ADS-B (i.e., there is no NAC for heading, just a 'valid' bit).

Tom F Q on SIL – SIL needs to be per flight hour. Joel will delete 'per operation' from Table (Figure 23).

Jim D. – what do you do for vehicles that drive on service roads that are below the runway (to avoid false threats)? Vehicles should not be broadcasting when they are no longer in the movement area to avoid this type of problem. This should be an operational requirement.

Jim D. – a lot of the hazard mitigations assume visual conditions. Does this mean that we cannot use it in reduced visibility conditions? Joel – on p. 7, he states environmental use assumptions. This is not the blind taxi application, but one should not be forced to shut off the FAROA system when some reduced visibility is experienced (visibility conditions 1 through 4). Pilots should not be maneuvering based on FAROA itself. This raises a

gray area that pilots may have had information to avoid a problem but didn’t use it to prevent it.

Is it okay to allow FAROA for visibility conditions 1 through 4?

Pilot could experiences additional workload if there is conflicting information from FAROA.

End of notes.