

Minutes for 3-7-02 WG4 Telecon

Participants

Ganghuai Wang (CAASD)
Steve Koczo (Collins)
Dave Spencer (MIT LL)
Gerry McCartor (FAA)
Shahar Ladecky (ATSI/FAA AFS-42)
Randy Bone (CAASD)
Michael Petri (FAA WJHTC)
Joel Wichgers (Collins)
Pio Blankas (Honeywell)
Jonathan Hammer (CAASD)

Agenda

- 1) Discussion of Schedule
- 2) Discussion of ASSA Application – Joel Wichgers

Discussion

Schedule

Jonathan Hammer kicked off the telecon by reviewing the WG4 schedule and WG4 application task matrix. He noted that we are slipping behind in our schedule to complete the requirements synthesis for the ASA applications being worked (phase diagrams, safety tables, fault trees, and quantitative requirements analyses). Jonathan noted that the June ASA MASPS completion date is at risk. Dave Spencer noted that no one has reviewed each others applications work in detail and that we will need a couple of feedback loops to assure consistency and completeness of the analyses. Those working specific application analyses agreed to bring completed appendices for each of the applications to the April 8-11 meeting for detailed review.

ASSA Application Discussion

Joel Wichgers presented his work on the ASSA application. He provided a number of inputs: 1) taxi operational flow diagram, 2) state diagram, 3) safety table and 4) failure mode and effects (FMEA) table.

The taxi operational flow diagram identifies the phases associated with taxiing and identifies the roles of both ATC and the flight crew. Joel depicted the taxi phases for both a) taxiing without ASSA capability and b) taxiing with ASSA capability in order to identify the differences and to allow a safety assessment of ASSA. These diagrams were used in the generation of the safety tables. Joel also depicted an ASSA state diagram that illustrated the processing states associated with ASSA (identify traffic of interest, monitor traffic, identify / maintain position situation awareness, and assess traffic and position situation / take action). With this diagram, Joel captures the multi-tasking environment of flight crew actions in the taxi environment. Joel proceeded to describe some examples in the ASSA safety tables and then presented the FMEA table which addresses failures associated with ASSA CDTI display elements.

Feedback on the discussions are summarized:

Randy Bone – should consider the potential use of call signs in ASSA.

Jonathan liked the way that Joel looked at the problem. Likes the parallel presentation of flight crew activities depicted in the ASSA state diagram. Jonathan expressed some concern that the phase diagram is not conforming to our “dual” state chart, which focuses on specific actions and communications by the flight crew. Joel indicated that he would look at how the diagram could be redrawn to be more consistent with the “dual” state method that WG4 has adopted. Regardless, Joel noted that the safety table was derived from the flight crew tasks identified in the taxi operational flow diagram and not the state diagram.

Concerning the FMEA table, Joel included failure mode F4, which was titled “degraded information displayed with warning indication”. The concept of display of “degraded data” raised a fair amount of discussion. For example, assume that traffic data that was good previously has now degraded (e.g., NIC containment no longer assured), is it still useful to display this traffic with an indication of degraded NIC, or should the traffic no longer be displayed? The basic issue concerns the limits to minimum data quality that is useable for ASSA CDTI. Jonathan indicated that this answer should fall out the normal requirements analysis and should also show up in the state diagrams. It was noted that we will need to have a hard set of rules on what to do as data quality degrades. Randy raised the issue of “where is that line that we cross” concerning the quality of data. Dave Spencer provide another example of degraded data for the EVA application; traffic shows at 2 mile range, but has large NIC > 2 miles and one cannot guarantee 2 mile separation.

Randy took the action to resolve this question of where to delineate the use of degraded data, which is application dependent (i.e., when data is not accurate enough to continue with high certainty). Randy noted that this is especially critical for surface applications / taxiways, where close spacings exist.

Jonathan noted that the analyses should address 1) what data is good enough for normal operations, 2) what are the limits on data quality that can lead to hazards, and 3) define the in between case of data quality (between normal ops and when hazards occur), i.e., the limits of allowable degradation in data.

This concludes the minutes for the March 7 telecon.