

**Summary of Meeting #6, of RTCA SC-186,  
ASAS MOPS developed by Working Group 4/B**  
<http://adsb.tc.faa.gov/WG4.htm>

Meeting #6 of Working Group 4/B (for an explanation of the name change – see item 2 below), which is developing standards for Aircraft Separation Assistance Systems (ASAS) was held 1-4 November 2004 at the offices of RTCA, Inc. in Washington, DC. The CDTI, ASSAP, and STP sub-groups met separately on November 1, 2, and 3 in the AM. All three groups came together and met on the PM session on November 3. The attendees during the joint WG4/B session included:

Larry Bachman – JHU/APL	Gary Livack – FAA	Sethu Rathinam – Rockwell
Randy Bone - MITRE	Bob Lochrick - ALPA	Paul Samanant – Honeywell
Mike Castle – JHU/APL	Sheila Mariano – FAA	Stuart Searight - FAA
Tom Foster - Trios	Bob Manning – L3 Comm.	Taji Shafaat - Boeing
Jonathan Hammer – MITRE	Chris Moody – MITRE	Greg Stayton - ACSS
John Helleberg - MITRE	John Morgan – Honeywell	Tom Teetor – Defense Concept Assoc.
Glen Hislop – BAE Systems	Mike Palmer – NASA Langley	Don Walker - Honeywell
Terry Holland – BAH	Bruce Paul – Mulkerin Assoc.	Tony Warren - Boeing
Stan Jones - Mitre	Michael Petri – FAA	Joel Wichgers - Rockwell
Dave Kingstone – BAE Systems	Ed Rafecz – ALPA	Gene Wong - Trios

1. After discussing the agenda, each subgroup gave a brief report on the status of its work.
  - a. STP group Tom Foster talked about the amount of work to be done regarding many issues. STP must address how to delays and the timing of information will be compensated. Also, there is a need to address non-GNSS sensors and issues about these. STP is planning on writing several appendices to the ASAS MOPS to guide implementers. Tom made an open request for any persons who wanted to pitch in and help the STP group.
  - b. CDTI group Sethu Rathinam started off by mentioning the telecon this group had two weeks ago to wrap up the questions that the STP group had asked. Consensus was reached and there are no outstanding issues with this set of questions. In previous day and a half, in addition to other business, the CDTI group had reviewed Randy Bone's presentation of the set of applications considered for this document.
  - c. ASSAP group Jonathan Hammer started by talking about the work being done for the tracking and correlation functions in the ASSAP group. He also mentioned that some further analysis of the CD application was being conducted to determine the processing needed for that application on ASSAP. Finally, he mentioned a proposal that has come up from Greg Stayton and Paul Samanant to use an Arinc 429 digital time mark to deliver TOA for reference. Jonathan asked three questions to the group:
    - i. [to STP group] "Are you considering non-radar airspace application in [the STP sections of ASAS MOPS] as a source of availability [requirements] ?"

There was a lot of discussion about what availability actually is (R3.77 levies an availability requirement on STP and ADS-B/TIS-B transmit subsystems in DO-289, although Joel Wichgers stated that availability is not a requirement, but continuity and integrity risks are. Stan Jones defined availability as a mean time between failures).

- ii. A detailed question about what applications that the flight crew input to ASSAP "selected target" should be required for in Table 3-18 of DO-289 – CDTI mentioned they had also seen this mistake and that it is correctly handled in Table 3-19.
- iii. [to CDTI group] "For the CDTI interface data that is supplied to the ASSAP function, is there any reason to require a delay less than 0.5 second before data is received by ASSAP? (figuring total time delay to display response to crew input of ~1 second seems "ok") "

The group felt that 0.5 seconds was too long for this latency requirement. John Morgan mentioned that the usual turnaround from flight crew input to response on the display was 150-200 ms. The group agreed that the latencies for each part of this chain needs to be understood. Mike Petri took an action to put together end-to-end delay for the entire Human-CDTI-ASSAP functional chain.

2. Randy and Jonathan proposed reorganizing SC-186 so that each working group was focused on a single document, and that the committee does away with the numbering system. In SC-186 plenary the following day, SC-186 agreed with aligning the working groups with specific documents, but kept a modified numbering system. The details of this system should be available in the SC-186 plenary minutes; however, the current incarnation of WG4 that is focused on the ASAS MOPS is renamed to WG-4/B.
3. Paul Samanant went over his paper discussing the calculation of vertical rate for the STP and ASSAP functions. Paul felt that in the Redmond meeting, the group had agreed that the rate should be calculated using a Barometric frame of reference, and his paper discussed how this might be done. After a great deal of discussion, the group decided that Paul, Tony Warren, and Tom Foster would take an action to frame the issue on vertical rate: decide what issues need to be resolved and to propose solutions to these issues.
4. The issue of configuration management of the ASAS documents was raised, especially with respect to how the integration would take place and who would be in charge of the master document. All the sub-groups felt that currently the work can continue independently, since the material is still at a stage where no integration is required. As the work proceeds, this issue will be taken up again. Mike Petri volunteered to integrate the pieces of the document as they are completed.

5. Tony Warren asked about the scope of the ASAS MOPS. He was wondering if the group was only considering making ASAS compatible with current link MOPS documents and current fielded equipment, or if the group was working towards implementing the requirements from DO-289 (specifically meeting ACL and TQL requirements). Stu mentioned that the plenary had given specific guidance on the scope of the first MOPS as a "fast-track" item to be focused on enabling currently fielded ADS-B equipment to operate, and so new requirements or items not currently supported in fielded equipment will not be considered.

The following day, the SC-186 plenary amended this guidance so that the STP group should consider ground based applications in their initial document, to make sure that STP provides guidance on the current MOPS parameters (NIC / NAC / SIL / etc.) with enough precision to support the 5 initial ASA application & basic air-ground applications. That is, make sure STP does not artificially cap allowed quality parameters too low for use in air-ground operations. This was deemed acceptable because of the assumption that for air-air or air-ground communications (i.e. not TIS-B), the other attributes for TQL (latency, continuity, etc.) will be acceptable if minimum NIC and NAC are met. SC-186 appointed Randy Bone (and John Marksteiner, who was not present) to assist in interfacing with STP in defining what requirements the ground based applications might involve.

6. The group discussed future meeting times. The meeting planned for 7-9 December at NASA Ames was cancelled, and the following four dates were proposed:

<b>Future Meeting Dates/Times</b>	<b>Meeting Place</b>
25-27 January, 2005	NASA Ames (likely, but tentative location) (fallback is ACSS in Phoenix)
29-31 March, 2005 (tentative)	RTCA in Washington, DC
17-19 May, 2005 (tentative)	Denver   Chicago (W of Mississippi R.) (tentative)
19-21 July, 2005 (tentative)	Seattle (tentative)

Additionally, Jonathan mentioned a possible teleconference to deal with all the items on the WG-4/B agenda that were not covered during the meeting. These involved:

1. Review issue paper topics and assign them to sub-groups or individuals for proposed resolution
2. Impact on ASSA & FAROA applications when limiting NIC and NAC to 8
3. Requirements for ASSAP to assume NIC/NAC =8 when 9 or higher is received
4. Scaling Navigation errors

7. Action Items shown here are those whose status changed or were assigned during the meeting:

No.	Action Item	Assigned to	Date Assigned	Status
17	Put together end-to-end delays for the Human-CDTI-ASSAP interactions to help define requirements for each piece	Petri	11-3-04	
18	Frame the Vertical Rate Issue (decide what issues need to be resolved in deriving vertical rate and propose solutions )	Samanant, Warren, Foster	11-3-04	
19	Distribute Microsoft Word Document Template that conforms to RTCA styles	Searight	11-3-04	
20	Go through application analyses and see how limiting NIC & NAC to < 9 affects currently defined applications	ASSAP & STP sub-groups	11-3-04	