

SIXTY - FIFTH MEETING

SC-186

AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST (ADS-B)

DATE: March 11, 2016
TIME: 9:00 a.m. – 1:00 p.m.
PLACE: RTCA Conference Rooms,
1150 18th Street, NW, Suite 910,
Washington, D.C. 20036

The attendees included:

SC-186 Co-Chairmen

Rocky Stone United Airlines, Inc.
Jessie Turner Boeing

SC-186 Secretary

Stuart Searight FAA

SC-186 Designated Federal Official

Don Walker FAA

Members (Present in the room and on the Teleconference/WebEx)

	Name	Company/Agency	Name	Company/Agency
1	Arbuckle, Doug	Federal Aviation Administration		
2	Barmore, Bryan	NASA	Lascara, Brock	The MITRE Corporation
3	Bone, Randy	The MITRE Corporation	Leone, Andrew	Federal Aviation Administration
4	Borgyos, Andy	GE Aviation	Lovelace, Dan	Regulus Group
5	Brown, John	The Boeing Company		
6	Comstock, Gregory	Aurora Sciences LLC	Martensson, Johan	EUROCONTROL
7	de Gelder, Nico	National Aerospace Laboratory NLR	Morgan, John	Honeywell International, Inc.
8	Duffer, Robert	Federal Aviation Administration	Moses, Harold	RTCA, Inc.
9	Duke, Jim	ALPA	Mustach, Thomas	Federal Aviation Administration
10	Elliott, Dave	The MITRE Corporation	Nunez, Olivia	SESAR Joint Undertaking
11	Engel, Alexander	EUROCAE	Penhallegon, William	The MITRE Corporation
12	Ferrara, John	John Ferrara Consulting	Perez, Brenda	Regulus Group
	Field, Jack			
13	Fisher, John	Federal Aviation Administration	Petricel, Bogdan	EUROCONTROL
14	Flores-Kriegsfeld, Julie	Federal Aviation Administration	Plummer, Steve	Federal Aviation Administration
15			Priess, Stephanie	The MITRE Corporation
16	Garcia, Michael	Aireon, LLC	Procoudine-Gorsky, Michel	Thales Group
	Gaul, Bob			
	Gonda, John			
17			Reed, Mark	Air Line Pilots Association
18	Grove, Robert	Garmin Ltd.	Shafaat, Taji	The Boeing Company
19	Haissig, Christine	Christine Haissig Consulting LLC	Stassen, H Peter	The MITRE Corporation
	Hall, Bill			
	Hening, Jans			
20	Hiale, Mathieu	Airbus	Steinleitner, Jorg	EUROCONTROL
21			Strain, Rob	The MITRE Corporation
22	Hilb, Bob	Consultant	Suarez, Brandon	General Atomics Aeronautical Systems, Inc.
	Jackson, Mike			
23	Jacobson, Randy	Rockwell Collins, Inc.	Vallauri, Eric	Egis Avia
24	Javed, Usmaan	Federal Aviation Administration	Von Hoene, Paul	Federal Aviation Administration
25			Watson, Gary	L-3 Communications
26	Jones, Ken	NASA	Weitz, Lesley	The MITRE Corporation
27	Kennedy, Larry	Raytheon		FAA
28	Kirk, Jamie	Systems Enginuity, Inc.		
	Koch, Michael	NASA		

**** Note: All files named in conjunction with Agenda items can be downloaded ****
from the RTCA SC-186 Workspace at <http://workspace.rtca.org/kws>

1. Chairman's Introductory Remarks.

- Rocky convened the meeting by welcoming all in attendance. Rocky noted that this was a quick status check on the work being done within Working Groups 3 and 4. Jessie noted that Al Secen is standing in as the RTCA program director for SC-186 since the retirement of Hal Moses. Jessie thanked Hal for his years of dedication and service to SC-186 and all the committees he supported.

2. Review of Meeting Agenda.

- Rocky reviewed the agenda. Jessie noted the request to add a briefing about the MOA between the FAA and Aireon for working on Spaced-based ADS- which will be covered under new business.

3. Review/Approval of the Sixty-fourth Meeting Summary
 - The minutes from the October 30, 2015 plenary were approved without comment.
4. FAA Surveillance and Broadcast Services (SBS) Program – Status. (*SBS SC-186 Plenary Brief 2016-03-11d.pdf*)
 - Doug Arbuckle presented the SBS Status brief on behalf of David Gray.
 - During the review of the ADS-B Gulf expansion, Doug noted upcoming discussions about possibly placing an ADS-B ground station in Cuba. A new item included in the SBS brief was the description of ASSC, which will function somewhat like ADSE-X by providing enhanced surveillance and ATC conflict alerting for airport surfaces using MLAT and ADS-B.
 - ITP: Ken noted that even without doing ITP procedures, feedback from flight crews is that the situation awareness provided by the CDTI/ITP Equipment is extremely beneficial. Both the enhanced situation awareness and conducting ITP flight level changes result in reduced fuel burn during those flights.
 - Interval Management: Doug reported that due to budget cuts affecting the IM project within the FAA, the SBS Program is rethinking its strategy on how to approach final investment decisions, flight trials, and other necessary steps to implement IM-S AA&C. Doug assured the committee that the funding was still in place to complete the V2 MOPS. Doug noted these FAA budget decisions are consistent with the NAC’s emphasis on FAA priorities, which to date have not included the FAA’s pursuit of Interval Management. Doug further noted that if committee members were troubled by these developments, they should work within their respective organizations to engage their NAC representatives.
 - Current ADS-B Equipage: Equipage data indicates that equipage is not happening at a rate that will lead to total equipage by 2020 for both GA and Air transport. FAA and the Equip2020 efforts are continuing to look at how to improve the equipage rate. FAA leadership is clearly stating that the ADS-B mandate will be enforced on 1-Jan-2020.
5. WG-3 – Extended Squitter MOPS / SC-209 Transponder MOPS revisions (*SC-186 WG3 Status Brief 2016-03-11.pdf*)
 - On behalf of Tom Pagano, Don Walker presented the brief on the initial meetings of WG3 and SC-209 to revise the extended squitter and transponder MOPS. Don noted these were joint meetings with EUROCAE WGs 49 & 51 and that meetings will alternate between the US and Europe. Among the topics that will be considered for the MOPS updates: Identified editorial changes, proposals coming from ICAO, Enhanced Reception Techniques, Receiver Improvements, Phase modulation, Transponder Changes to support ACAS X, recommendations from the 1090MHz Spectrum Analysis work, clarifying DF19 is only for military use in the US, and clarifying the use of some intent information. For a complete list of topics, please see the briefing.
6. WG-4 – Application Technical Requirements (*RTCA SC-186 WG4 Status 2016-03-11.pdf*)
 - A-IM: Status: Don started the brief by stating the group focused on finalizing the scope of the advanced IM MOPS. Greg Comstock quickly presented a recap of the meetings

held earlier in the week. Bill Penhallegon then reviewed the key scope questions addressed by WG4 and the final decisions made during the week. Key decisions included continuing to support Paired Approach and Dependent Staggered Approaches (DSA) with 1 target, but to not keep DSA with 2 targets; Dependent Converging and Crossing Runway operations and Pair-wise Trajectory Management (PTM) operations will also be kept. It was agreed that IM Departure Operations (DO) will not be included in the final V2 MOPS.

7. SC-214/WG-78 Status of final release of CPDLC messages for IM AACD and PTM (*IM Data Comm update 2016-03-11.pdf*)
 - Randy Bone presented an update on the efforts within SC-214/WG-78 to incorporate CPDLC messages supporting Advanced Interval Management. Randy explained that the FRAC of the MOPS was completed and all comments on the IM messages were resolved. The MOPS is to be presented to the PMC on March 17 and published soon afterwards. A validation phase will then commence with a possible update (if needed) occurring in approximately three years' time. Randy quickly presented the messages developed and key information included in them. Randy gave an overview of how the IM messages are loaded, both on the flight deck for downlink and from ATC uplinked to the IM aircraft.
8. Wake / MET Data: SC-206 Status / Tiger Team Deliverable
 - Rocky gave a quick update on the Weather downlink MASPS being developed within SC-206.
9. ADS-B Implementation
 - Status of 1090MHz Spectrum Study – (*1090 Spectrum Alternatives Analysis - SC186 2016-03-11.pdf*) Jim Baird presented an overview brief on the work he is leading to determine the most effective means to mitigate future impacts of 1090MHz congestion on affected systems. Phase 2 is scheduled to be completed in April, 2016. It will only address 1090MHz interference issues, and not the 1030MHz frequency or transponder occupancy issues, as those two topics will be addressed in a follow-on study. Jim explained the interference model developed by Mitre and the assumptions included, as well as the proposed mitigations to be included in the report. Mitigations included extended Mode S lockout, using passive acquisition, the use of Wide Area Multilateration in place of terminal SSRs, and the increased use of Hybrid Surveillance for TCAS units in both forward-fit and retro-fit scenarios. Jim then provided a detailed listing of the limitations and caveats of the analysis, and then concluded with an overview of the preliminary findings.
 - ADS-B Equipage Update: *This topic was addressed in the SBS Program brief under Agenda item #4.*
 - Avionics Issues Update: (*SC-186 ADS-B Performance and Compliance Brief 2016-03-11.pdf*) Doug Arbuckle expressed regrets from Jim Marks, FAA Flight Standards, for not being able to attend the meeting. Jim promises to come to the next SC-186 plenary to provide a more detailed discussion on the compliance monitor and its finding. In Jim's absence, Doug went through the material provided including an overview of the Compliance Monitor functions and some of the post-installation performance issues

identified. For details, please refer to the briefing on the RTCA workspace.

- FAA Broadcast Services (TIS-B, FIS-B, ADS-R) Issues Update: (SBS Service Status SC-186 2016-03-11.pdf) Andy Leone presented an update from his last briefing to the committee in June, 2015 regarding known issues with the TIS-B, FIS-B, and ADS-R uplink services. Andy explained the changes made to ensure that DO-317A ADS-N IN avionics are provided information on non-performing ADS-B Emitters via TIS-B. Andy also reported two upcoming changes to the FIS-B Service: 1) Harris will be switching to its own weather service (Harris Weather Data Service) around April 2016; and 2) FAA is working with Harris to provide five new weather products by the end of 2016. Those products will be Lightning Strikes, Turbulence, Icing, Cloud Tops, and One Minute AWOS
- Equip 2020 Status: *This topic was addressed in the SBS Program brief under Agenda item #4.*
- AC 90-114A Change 1- Update Overview: (AFS-430 RTCA SC-186 Plenary 3-11-16.pdf) Paul Von Hoene, AFS-430 presented an update on the updates on the technical Amendment to the ADS-B Out Rule; AC 90-114A Change 1; Exemption 12555; and efforts related to Equip2020 Outreach.

10. Date, Place and Time of Next Meeting.

- The next plenary session for SC-186 will be held Friday November 4th in conjunction with planned Working Group 4 meeting. Location is tentatively planned for Chicago, Illinois.

11. Other Business.

- Julie Flores-Kriegsfeld, FAA/SBS, and Michael Garcia, Aireon, presented an overview of the Memorandum of Agreement between the FAA and Aireon to work on Space-Based ADS-B. (*FAA - Aireon Program Status for RTCA 2016-03-11.pdf*) Julie showed the congressional language provided funding and direction, and then presented a project overview, the plans to get to investment decisions, and planned next steps within FAA. Mike then presented an overview of the work completed and planned by Aireon with respect to building the payloads, planned launches, and other agreements reached with major ANSPs.

12. Review Action Items/Work Programs.

- Stuart reported no official actions were assigned during the meeting and there were no open issues for the committee.

13. Adjourn Plenary.

- Rocky thanked everyone for their participation and adjourned the meeting.