SIXTY THIRD PLENARY MEETING

SC-186

AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST (ADS-B) JOINT WITH EUROCAE WG-51

DATE: June 12, 2015
PLACE: University of Salzburg
              Erzabt-Klotz-Strasse 1, 5020 Salzburg, Austria

The attendees included:

SC-186 Co-Chairmen   SC-186 Secretary
Rocky Stone   United Airlines, Inc.   Stuart Searight   FAA
Jessie Turner   Boeing

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	Labardini, Eric	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	Levitt, Ian	Federal Aviation Administration
5	Brown, John	The Boeing Company	MacWilliams, Kara	The MITRE Corporation
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	SAIC	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
13	Flores-Kriegsfeld, Julie	Federal Aviation Administration	Petricel, Bogdan	EUROCONTROL
14	Furr, Gary	Regulus Group	Plummer, Steve	Federal Aviation Administration
15	Garcia, Michael	Aireon, LLC	Priess, Stephanie	The MITRE Corporation
16	Gray, David	Federal Aviation Administration	Procoudine-Gorsky, Michel	Thales Group
17	Grove, Robert	Garmin Ltd.	Reed, Mark	Air Line Pilots Association
18	Haissig, Christine	Honeywell International, Inc.	Shafaat, Taji	The Boeing Company
19	Hiale, Mathieu	Airbus	Stassen, Hans	The MITRE Corporation
20	Hicok, Dan	Regulus Group	Steinleitner, Jorg	EUROCONTROL
21	Hilb, Bob	Consultant	Strain, Rob	The MITRE Corporation
22	Jacobson, Randy	Rockwell Collins, Inc.	Suarez, Brandon	General Atomics Aeronautical Systems, Inc.
23	Javed, Usmaan	Federal Aviation Administration	Vallauri, Eric	Egis Avia
24	Jester-ten Veen, Nienke	The MITRE Corporation	Von Hoene, Paul	Federal Aviation Administration
25	Jones, Ken	NASA	Watson, Gary	L-3 Communications
26	Kenney, Larry	Raytheon	Weitz, Lesley	The MITRE Corporation
27	Kirk, Jamie	Systems Enginuity, Inc.	Zarick, Tom	National Air Traffic Controllers Association
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** 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 welcomed everyone and noted the significance of this meeting and importance of finalizing the initial MOPS & SPR for Flight-deck Interval Management (FIM). Rocky also noted that this was a joint Plenary session with EUROCAE WG-51.
   - Don Walker was introduced as the SC-186 Designated Federal Official, and Don then read the DFO Public Meeting Announcement. Hal Moses, RTCA Program Director then reminded everyone of the RTCA Proprietary Policy, which has been posted on the RTCA Workspace and as WP02 for this meeting.

2. Review of Meeting Agenda.
   - The agenda was reviewed and approved with the addition of one extra briefing from the FAA on future plans for ADS-B In application development.

3. Review/Approval of the 62nd Meeting Summary, RTCA Paper No. RTCA Paper No. 169-14/SC186-335
   - The minutes from the 62nd meeting, held January 23, 2015 were approved without comment.

4. Surveillance Broadcast Services (SBS) Program Status (*SC186-P063-WP09-FAA_SBS_SC-186_Plenary_Brief-2015-0612.pdf*)
   - Doug Arbuckle presented the status brief for the FAA SBS Program Office. Doug announced that David Gray has been named as the permanent SBS Program Manager, and expressed David's regrets for not being able to attend the meeting. The briefing included statistics on ADS-B integration into all automation platforms, broken out by en route, terminal, surface, and oceanic domains. While displaying a picture of all of the ground stations installed in the lower 48 states, Doug talked about the current effort to install ground stations in Mexico which will help give controllers surveillance as aircraft transition into US airspace, and combined with additional ADS-B stations installed by Mexico, will provide complete high-altitude coverage throughout the Gulf of Mexico. Doug then showed the FY15 Business Plan goals for SBS before going through the programmatic look at the Interval Management, US Airways Flight Demo, and ITP projects. The briefing concluded with an overview of FY15 planned SBS activities. While on the Interval Management slide #6, Robert Grove (Garmin) indicated that they don't understand how IM and Time of Arrival (TOA) will fit together, who will use it, and how it will be used. Don Walker stated that Doug Arbuckle had agreed to take this on within the ATO and will provide an update by Nov/Dec.

5. European Activities (*SC186-P063-WP10-EUROCAE_WG51_Information*)
   - On behalf of WG-51 Chair, Michel Procoudine, Jörg Steinleitner of Eurocontrol, provided a brief overview of current EUROCAE activities. Current focus outside of the joint work with SC-186 includes Technical Specifications for 1090 MHz ES ground systems, and for Wide Area Multilateration. Other activities include the commencement of development of a specification for independent non-cooperative surveillance systems, and a Generic Surveillance (GEN-SUR) SPR standard. Don Walker asked if this work is mature enough to start putting requirements together, and Jörg answered that it was good timing, but that the requirements would be at a high level.
   - In response to a question from Rocky, Jörg did explain that as things currently stand within SESAR and European industry, it remains questionable if advanced Interval Management (A-IM) MOPS will be developed jointly between RTCA and EUROCAE.

6. WG-4 – Application Technical Requirements (*SC186-P063-WP11-RTCA_SC186_WG4_-_EUROCAE_WG51_SG3_Status_JUN2015*) – Don Walker presented a recap of the week's WG4/SG3 meetings and the work toward resolving all of the FRAC/OC comments received on the FIM SPR and MOPS. Don thanked Ian and the FIM core team for all of their hard work leading up to the meeting and during the week.
   - Document Approval: <u>Revision A for Safety, Performance, and Interoperability Requirements (SPR) for ASPA-FIM (ED-195A/DO-328A)</u> (*RTCA Paper # 059-15/SC-186-340*)
     - After a quick look at the statistics of the FRAC/OC comments received against the revision to the FIM SPR documents, approval was requested for the proposed FIM SPR revisions. The FIM SPR revisions were approved to be forwarded to the RTCA PMC and EUROCAE Council.
   - Document Approval: <u>MOPS for Flight Deck Interval Management (FIM)</u> (*RTCA Paper # 057-15/SC-186-338, EUROCAE ED-236*)
     - Don then moved on to the FRAC/OC of the FIM MOPS. Don noted the amount of comments received, and stressed that while extensive changes were made in response to the comments, very few actual requirements were substantively changed. Don did report, however, that there are still some outstanding issues that need to be resolved. Among the open items are the legal/licensing aspects of using BADA data and MITRE software as part of the MOPS testing, and some remaining work on MOPS test scenarios. Don then presented the plan forward and corresponding schedule to address these issues. The plan to complete the work on the legal and licensing aspects of using the test software and completion of the test vectors was agreed to by the committees. The document was then approved, contingent on everyone's satisfaction with the planned work leading up to delivery of the document to RTCA for the September PMC meeting not later than August 7.
     - Jessie Turner asked if there would be any additional reviews before sending the document to the PMC. Don explained the review process as set out by the schedule of teleconferences and document update distributions to WG4/SG3

between the Plenary and August 7.

- o Robert Grove stated that he was aware that FIM Version 1 was just for test and evaluation, but wanted to know when there would be a MOPS available to which equipment could be built. Don indicated that in order for FIM to be useful, there needs to be ATC automation available, and a decision needs to be made as to how best to build tools to resolve capacity issues in the airspace. Don indicated that the community needs to look at those issues and determine how FIM will work best with those ground tools. Don stated that we are not yet certain whether FIM version 1 will be good enough to build equipment to. Don wants to do more research on this, but once it is determined, a TSO could be generated very quickly if needed. Robert indicated that Garmin would like to see a roadmap from the FAA for this.

- Advanced Interval Management (A-IM) Development Status
  - o Don briefly discussed the plans to have some down-time for the core FIM team after submission of the MOPS to the PMC before picking up work on the A-IM MOPS material. However, work is still continuing on the operational side with the production of an Ops Concept document, and a WG-4 meeting for A-IM is now planned for October 27-29, 2015 at RTCA in Washington.

7. Coordination with SC-214/WG-78 for ADS-B Application Data Link Rqts–Status.
   - Randy Bone gave a quick verbal-only overview of the on-going work of CPDLC messages being developed to support Interval Management in coordination with SC-214/WG-78. Randy indicates that there has already been a first pass at these published in 2014 and that the team is currently updating these messages based on the FRAC FIM MOPS and the currently known items for Advanced FIM.

8. FAA information briefings
   - There was no briefing offered for the agenda item on Equip 2020, as Doug mentioned that there were no significant changes to the briefing that he gave during the January 2015 Plenary. Doug offered to answer any questions, but there were none from the floor or teleconference line.
   - Planned TIS-B Service Changes Update: (*SC186-P063-WP05-TIS-B_briefing_final*) Doug presented planned changes to the TIS-B service and stated that the FAA's announcement on the planned changes to the TIS-B service is also posted on the RTCA workspace (*SC186-P063-WP04-TIS-B_service_change_summary_final1.pdf*). Doug then walked through some of the issues, concerns, and remedies. Items within the FAA plan include: modifications to TIS-B target status logic to uplink ADS-B emitters not qualifying for display on TSO-C195() ADS-B-In systems as TIS-B targets; and modifications to the TIS-B Client Status logic to only allow ADS-B Out aircraft that are transmitting ADS-B data of sufficient quality (meeting or exceeding the ADS-B quality requirements of TSO-C199) to be clients of the system. Modifying the TIS-B target status will happen by the end of 2015 and the modifications to the TIS-B client status will not happen until on or after 1/4/2016.

- Identified TIS-B Open Issues: (*SC186-P063-WP08-TIS-B_Service_Status_Update-2015-0612.pdf*). Andy Leone presented some issues identified in the current service. Among the issues discussed were TIS-B Track Swaps; requests from pilots to lower the surveillance floor from 1000 ft above airports to 500 ft; the ground network failing to choose radio to uplink to a client when multiple radios are within line-of-sight, but when all have weak/poor connections to the aircraft; and some dual equipage installations not being considered as TIS-B client. Andy then discussed a few issues that have raised questions from users, but are indeed excepted behavior. These items were changing SIL values for aircraft approaching ASD-X airports, and varying NAC_V values. Robert Grove asked whether the TIS-B Service would be turned off after 2020, and Doug Arbuckle answered that he was not sure whether it would be turned off or not, depending on costs, especially with the benefits seen for the surface TIS-B.
- Summary of Avionics Monitoring results: (*SC186-P063-WP03-Avionics_Monitoring*). Doug Arbuckle walked through the FAA SBS Program Office briefing on collected data of ADS-B equipage and observed installation problems. Among the problems discussed: due to incorrect installation, some systems are not reporting Barometric Altitude; the improper use of default ICAO addresses; instances of the three letter prefix being dropped from Flight IDs; and some UAT systems are not reporting valid Mode 3/A codes. Doug then shared current statistics on equipage levels within the US.
- FAA Plans for future ADS-B-In Development (*SC186-P063-WP07-ADS-B_In_Briefing_RTCA-EUROCAE-2015-0612*). Lastly, Doug presented a briefing to review FAA activities on developing ADS-B-In applications. Doug began by showing the recommendations from the ADS-B-In Aviation Rulemaking Committee (ARC) and how the FAA – and the work of SC-186/WG-51 – has addressed those to date. Doug then explained the nomenclature being used within FAA for the family of applications that fall within the Interval Management family, including IM-S Approach/Arrival & Cruise (AA&C) and Advanced IM (A-IM, which includes, Paired Approach and Pairwise Trajectory Management). Doug concluded with an overview of the capabilities planned for the automation systems required to support IM-S AA&C operations.

9. Date, Place and Time of Next Meeting.
   - It was agreed by the meeting that the next plenary will be **Friday, October 30th at RTCA starting at 9:00am EDT**, which will occur after 3 days of WG4 meetings.

10. New Business.
    - None

11. Other Business.
    - Aireon Status Update : (*SC186-P063-WP06-Aireon_RTCA_Presentation-v2-2015-0612*). Mike Garcia presented an overview of Aireon's plans and schedules for spaced-based ADS-B services.

12. Review Action Items/Work Programs.
- Stuart reported that there were no official actions assigned during the meeting with the exception of the WG4/SG3 plans for completing the FIM MOPS.

13. Adjourn Plenary.
- Rocky adjourned the meeting at a few minutes after 5:00pm in Salzburg.