

**SIXTY - SEVENTH MEETING**

**SC-186**

**AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST (ADS-B)**

**DATE:** July 28, 2017 and August 22, 2017 (Virtual)  
**TIME:** 9:00 a.m. – 1:00 p.m. (PST) and 12:00pm – 1:00 pm (EDT)  
**PLACE:** FAA SeaTac, and Virtual  
2440 S 166th St  
SeaTac, WA 98158

The attendees included:

**SC-186 Co-Chairmen**

Rocky Stone            United Airlines, Inc.  
Jessie Turner           Boeing

**SC-186 Secretary**

Michael Garcia           Aireon

**SC-186 Designated Federal Official**

Gregg Nesemeier      FAA

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

| <b>Name</b>          | <b>Company/Agency</b>           | <b>Name</b>        | <b>Company/Agency</b>           |
|----------------------|---------------------------------|--------------------|---------------------------------|
| Arbuckle, Doug       | Federal Aviation Administration | Narkawicz, Anthony | NASA                            |
| Bellman, Miles       | Volpe                           | Pagano, Tom        | FAA                             |
| Benner, Bill         | FAA                             | Penhallegon, Bill  | MITRE                           |
| Berckefeldt, Richard | Honeywell                       | Priess, Steph      | MITRE                           |
| Brandeo, Ruy         | Honeywell                       | Ross, Joseph       | FAA                             |
| Calhoun, Sean        | Cal Analytics                   | Sanderson, Brian   |                                 |
| Colbert, Dennis      | Arcon                           | Santiago, Confesor | NASA                            |
| Comstock, Gregory    | Aurora Sciences LLC             | Savage, Jim        | Federal Aviation Administration |
| Connolly, Jack       | NASA                            | Searight, Stuart   | Federal Aviation Administration |
| Duke, Jim            | ALPA                            | Secen, Al          | RTCA                            |
| Edwards, MAT         | MIT                             | Shafaat, Taji      | Boeing                          |
| Eng, Daniel          | NASA                            | Smearcheck, Sam    | Cal Analytics                   |

|                    |                                    |                 |                                 |
|--------------------|------------------------------------|-----------------|---------------------------------|
| Field, Jack        | MITRE                              | Steiner, Tim    | Federal Aviation Administration |
| Garcia, Michael    | Aireon, LLC                        | Suarez, Brandon | GA-ASI                          |
| Gadoy, Jose        | ARINC                              | Thurling, Andy  | AVINC                           |
| Gaul, Bob          | Garmin                             | Turner, Jessie  | Boeing                          |
| Grebe, Tim         | GA-ASI                             | Torres, Celso   |                                 |
| Guendel, Randal    | MIT                                | Trujillo, Anna  | NASA                            |
| Hassig, Christine  | Christine Haissig Consulting (FAA) | Walker, Don     | Federal Aviation Administration |
| Hennig, Jens       | GAMA                               | Warren, Jeremy  | BAH                             |
| Hirt, Ruth         | FAA                                | Weitz, Lesley   | MITRE                           |
| Hochwarth, Joachim | GE Aviation                        |                 |                                 |
| Kay, Jacob         | Bihrlle                            |                 |                                 |
| Kenney, Larry      | Raytheon                           |                 |                                 |
| King, Lance        | NGC                                |                 |                                 |
| Kotula, Joe        | FAA                                |                 |                                 |
| Lascara, Brock     | MITRE                              |                 |                                 |
| Lester, Ted        | MITRE                              |                 |                                 |
| Liang, Corry       |                                    |                 |                                 |
| Lombard, Kolie     | FAA                                |                 |                                 |
| Lovelace, Dan      | Federal Aviation Administration    |                 |                                 |
| Manberg, Chuck     | ACSS                               |                 |                                 |
| Mark, Eltzafan     | FAA                                |                 |                                 |
| Mariano, Sheila    | FAA                                |                 |                                 |
| Matuson, Michael   | RDRTEC                             |                 |                                 |
| McCullen, Robert   | ACSS                               |                 |                                 |
| Murphy, Jim        | 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 July 28, 2017 meeting by welcoming all in attendance. Rocky noted that this is a pre-plenary meeting due to RTCA's difficulty with getting material published to the Federal Register. Official plenary is planned to be on Aug 22<sup>nd</sup> as a virtual plenary where the only agenda items are to formally approve: (1) the Plenary #66 Meeting Summary and (2) the Terms of Reference (TOR) Rev. 18 changes. [Note: The virtual plenary was held on Aug. 22, 2017].
2. Review of Meeting Agenda.
  - Rocky reviewed the agenda for informational briefings.
3. Review/Approval of the Sixty-Sixth Meeting Summary
  - The minutes from the November 4, 2016 plenary (#66) were posted and Rocky requested that the participants review them at their earliest convenience.
  - The minutes were approved during the Aug 22<sup>nd</sup> virtual plenary.
4. FAA Surveillance and Broadcast Services (SBS) Program – Status. (*SBS Status SC-186 Pre-Plenary Brief 20170728 final.pdf*)

- Doug Arbuckle presented the SBS Status brief.
- Anchorage and Oakland have been approved for ITP and are using those procedures in oceanic airspace. ZNY will implement it in August of 2017.
- Airport Surface Surveillance Capability (ASSC) deployment is ongoing to expand SBS services on the airport surface
- FAA's remaining Avionics Upgrades projects are working to complete the upgrades of 110 Boeing 737NG aircraft and 315 Capstone aircraft in Alaska by the end of 2017
- Rule compliant equipage for GA appears to be significantly behind the estimated rate (to get to 100k or 160k by 2020)
- Rule compliant equipage for Air Transport also seems to be behind the estimated rate
- No Services Aircraft List is being introduced to prevent non-compliant ADS-B aircraft from being delivered to ATC. A service bulletin has been issued for Boeing 787 aircraft to correct a non-compliant position reporting issue.
- GA rebate program projected rates for rebate delivery seem to be well behind the desired rate
- Due to FAA budget cuts, the A-IM Initial Investment Decision (IID) has been indefinitely deferred (along with several other projects). A-IM funding is planned for FY18, FY19, FY20, with a focus on finishing the avionics standards development (DO-361A and DO-328B)

5. WG-3 – Extended Squitter MOPS / SC-209 Transponder MOPS revisions (*SC186 WG3 Status Brief - 2017 07 28 – final.pdf*)

- Tim Steiner presented the brief on the meetings of WG3 and SC-209 to revise the extended squitter and transponder MOPS.
- There have been two face-to-face meetings and one WebEx since the last plenary
- Coordination has been established in support of ACAS-X developments (SC-147)
- Several topics relative to additions/changes to DO-260C were reviewed at a high level
- The next face-to-face meeting is 10/23-10/27/2017 at the Boeing facility in Seattle, Washington
- Expecting to complete revision to MOPS in 2019

6. WG-4 – Application Technical Requirements (*RTCA SC186 WG4 Status JUL2017.pdf*)

A-IM Status:

- Lesley Weitz presented the brief on the meetings of WG4. Lesley will be a new co-chair of WG4.
- FIM MOPS v2 (DO-361A) is in work with Paired Approach, Dependent Staggered Arrivals, and Dependent Converging and Crossing Runways
- Investigating integration with DataComm and ATS Winds service as well as partial clearances and IM clearance transitioning
- Released SPR (DO-328 Draft v0.8) on RTCA Workspace
- Kicked off CDTI requirements working group

- Held OSA workshops on DSA and DCCR scenario hazards
- Kicked off ATD-1 Data Analysis Working Group to support SC-186
  - Presented new ADS-B data elements for IM to SC-186 WG3
- Updated avionics standards work plan
- Review and Comment on new MOPS material with a target draft MOPS release by the end of September
- Expecting to complete revision to MOPS in 2019 (see backup slides in presentation for full schedule)

#### 7. SC-186 Terms of Reference

- Jessie showed the proposed Rev 18 of the Terms of Reference for SC-186 with tracked changes
- The leadership and deliverables have been updated
- Doug Arbuckle pointed out that DO-282C is currently not being worked on and he recommended to remove it from the Product list. Jim Duke pointed out that DO-282C may need to be identified as a separate product (from DO-260C with its own dates) that may need some updates based on the work happening in WG-3.
- Currently SC-186 is meeting jointly with EUROCAE as the Combined Surveillance Committee (working on DO-260C and the associated revision to the Mode S transponder MOPS), but not jointly on A-IM. Does SC-186 want to formally request EUROCAE engagement on DO-361A and DO-328B? It was agreed that the PMC should make this request to EUROCAE
- TOR Rev. 18 was approved at the Aug. 22, 2017 virtual meeting with anticipated changes (to split DO-260C and DO-282C into separate products in the deliverables table) discussed during the meeting. These changes will be made prior to submitting to the Program Management Committee (PMC) for approval.

#### 8. Process for introducing new items into ADS-B standards

- Postponed until next plenary to get input from Rocky

#### 9. New Business

- None

#### 10. Other Business.

- Update on Aireon Activities (*2017-07-28 RTCA Mtg - Aireon Briefing - v2.pdf*)
  - Mike G. gave an update of the Aireon System status including coverage from the first launch
  - Satellite launch status was reviewed as well as progress with respect to provisioning data to the FAA SBS system.
- Date, Place and Time of Next Meeting.
  - The next face-to-face plenary session for SC-186 is March 23, 2018, location at RTCA HQ in DC.

#### 11. Review Action Items/Work Programs.

- Chuck Manberg has an action to update ACSS that there's about a 6 month window to resolve the IP issues surrounding adding the Phase Modulation technique to DO-260C
- Rocky to provide a presentation on the process to introduce new items into the ADS-B standards by the next plenary.
- Jessie to split the DO-260C and DO-282C products in the table in the TOR document prior to submitting to PMC.
- Al Secen will prepare a request letter to the PMC to formally request EUROCAE's participation in RTCA's SC-186 WG-4 (from EUROCAE's WG-51).
- Closed Action Items from previous plenary:
  - ~~Rocky has an action to update the SC 206 ISRA to update it with the SC 209 comments, distribute it to SC 186, open the comment period, and then it will be officially approval after the commenting period.~~
  - ~~Mike G. to bring updates on launch/operational schedule to the next plenary meeting~~
  - ~~WG3 and WG4 chairs to send estimated completion dates to Rocky for their respective documents by the end of Feb 2017.~~
  - ~~Rocky and Jessie to schedule and share the date of the next SC 186 plenary by Mar 2017~~
  - ~~Jessie to clarify with Al on the exact Rev number for the TOR and other changes in preparation for PMC~~

12. Adjourn Plenary.

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