

**FIFTY-FIRST MEETING**

**SC-186**

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

**DATE:** April 16, 2010

**PLACE:** RTCA, Inc.  
1828 L Street, Suite 805  
Washington, DC 20036

The attendees included:

Co-Chairman SC-186

Vincent Capezzuto  
Rocky Stone

Federal Aviation Administration  
United Airlines

Secretary SC-186

Jonathan Hammer

MITRE Corporation/CAASD

Members (Present)

Douglas Arbuckle  
Larry Bachman (via telecom)  
Dave Barnard  
Gene Bollin (via telecom)  
Randall Bone  
John Brown (via telecom)  
Robert Bryner (via telecom)  
Tony Capozzi (via telecom)  
Sam Clark (via telecom)  
Robert Darby (via telecom)  
Jim Davis (via telecom)  
Randy DeAngleeis  
Jim Duke  
Kate Fraser (via telecom)  
Gary Furr  
Micharl Garcia  
David Gray  
Jens Hennig  
Edward Johnson

Federal Aviation Administration  
Regulus Group LLC  
ACSS  
SAIC  
The MITRE Corporation/CAASD  
The Boeing Company  
  
SAIC  
The Boeing Company  
Eurocontrol  
FreeFlight Systems  
Opustek International Corporation  
SAIC  
  
Engility Corporation  
ITT Corporation  
Federal Aviation Administration  
General Aviation Manufacturers  
Federal Aviation Administration

Jeff Johnson (via telecom)	Rockwell Collins, Inc.
Steve Koczo (via telecom)	Avidyne Corporation
Edward Lester	Federal Aviation Administration
Ian Levitt (via telecom)	Project Management Enterprises Inc.
George Ligler (via telecom)	Federal Aviation Administration
Gary Livack	
Bill Luetkemeyer (via telecom)	
Clark Lunsford	The MITRE Corporation/CAASD
Johan Martensson (via telecom)	EUROCONTROL
Roberta Massiah	Aurora Sciences LLC
Dean Miller (via telecom)	The Boeing Company
Susan Minton	Systems Enginuity
Peter Moertl	The MITRE Corporation/CAASD
Harold Moses	RTCA, Inc.
Lee Nguyen	Federal Aviation Administration
Behlul Poonawalla (via telecom)	
Sethu Rathinam	Rockwell Collins, Inc.
Mark Reed	Air Line Pilots Association
Kurt Schueler	Garmin
J. Stuart Searight	Federal Aviation Administration
Taji Shafaat	The Boeing Company
Randy Shimon (via telecom)	Wulfsberg Electronics
Paul Siegmund	Federal Aviation Administration
Han Sieker (via telecom)	
Andreas Sindlinger	Jeppesen
Charles Sloan (via telecom)	Federal Aviation Administration
Bernald Smith	Soaring Society of America & FAI
H. Peter Stassen (via telecom)	The MITRE Corporation/CAASD
Victor Steel (via telecom)	
Robert Strain	The MITRE Corporation/CAASD
Jorg Steinleitner (via telecon)	Eurocontrol
Christopher Swider	Federal Aviation Administration
Dick Temple	Federal Aviation Administration
Don Walker	Federal Aviation Administration
Joel Wichgers (via telecom)	Rockwell Collins, Inc.
Kevin Wilson	Honeywell International, Inc.
Pat Zelechowski	Federal Aviation Administration

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In accordance with the Federal Advisory Committee Act, Don Walker, Federal Aviation Administration (FAA), was the Designated Federal Official (DFO) for this meeting.

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**1. Review/Approval of the Fiftieth Meeting Summary, RTCA Paper No. 011-10/SC186-292.**

The meeting summary was accepted as written.

**2. WG4 report (Don Walker)**

Per plenary direction, WG4 met jointly with WG51 in Brussels. WG51 and WG4 agreed to produce a joint document ASAS MOPS, in which EVAcq/AIRB will be the minimum functionality, and the scope will be limited to EVAcq/AIRB, EVApp/VSA, ASSA/FAROA/SURF, ITP.

The working group plans to hold its next joint meeting June 17, 18

Don also reported that AIR is going to try to get a TSO out late this summer for the initial ASA applications per DO-317.

With regard to DO-317A, additional applications (IM, CD, SURF IA) are not on the current schedule.

Don reported that the future plan will be to move forward with OPA/OSA process in parallel with MOPS. George Ligler suggested that, as this may be a change to already agreed processes as defined by the Ad-hoc group, SC186 needs to review the process that Don was proposing. After discussion it was agreed that an ad-hoc group will re-review SC186 processes as they relate to DO-317, DO-289, and OSED/OSA/OPA documents. This was further elaborated on under item 4 below.

**3. Review of EUROCAE WG-51 Activities (Michele Procoudine)**

- SG1 – 1090 MOPS
  - ED102A (equivalent to DO260B) published
  - SG1 idle
- SG2 – VDL4 MOPS
  - ED108B (update of ED108A to include RAD) published
  - SG2 idle
  - Public consultation of ED-129 (Technical Specification in form of a MOPS for ADS-B Ground Station) in September 2009. Commented received, processed and updated has been circulated [08/04/2010] to all commentators from public consultation, including SG4 responses to each comment and indication of the relevant changes made
- When agreement from all commentators is received, SG4 is ready to submit the updated ED-129 to WG51
- Approval by EUROCAE Council and publication is expected by summer 2010

#### **4. ASA MASPS Ad-hoc group (Stuart Searight)**

Stu brought forward a proposal from the WG6 ad-hoc group that ASA MASPS should be continued, that DO242 and DO-289 should be combined, and that, as a first step, the changes from the current link and platform MOPS should be up-leveled to the MASPS to bring the MASPS into conformance.

The plenary agreed that the ASA MASPS should be continued. There was also agreement that WG6 should be reconvened to combine DO-242 and 289, and to bring DO-289 up-to-date.

There was significant discussion, that followed from plenary item 2 above, as to the synchronization or parallelism that should be the working process for the committee SPRs, MASPS and MOPS. This spurred an action for the formation, or reformation, of the ad-hoc group to continue deliberations and propose a revision to the SC186 process paper back to plenary 52.

The ad-hoc group was identified as Jonathan Hammer, Stu Searight, George Ligler, Randy Bone, Dean Miller, Doug Arbuckle, and Jorg Steinleitner.

As far as EUROCAE involvement in the MASPS, Jorg Steinleitner proposed that SC-186 perform the initial steps of combining DO-242 and DO-289, as well as bringing the MASPS up to date. EUROCAE agreed to participate in the following MASPS revision.

Sethu Rathinam proposed that the plenary put out call to industry for participation in the ad-hoc group. The plenary rejected that proposal; however, Jonathan, Stu, and Dean accepted an action item to put out a call to industry to participate in WG6 and the development of the revised DO-289.

#### **5. RFG – Requirements Focus Group (Stuart Searight)**

##### **ASPA-IM**

ASPA-IM schedule has slipped, and is now targeting a November FRAC and a December plenary approval for IM. The working group intends to de-scope the OPA for some operations that are not considered near-term. Stu also recognized that the December schedule still has inherent risks, and another 1 cycle slip is a possibility. A program risk relative to IM was reviewed by the committee under plenary item 7 below.

##### **APT**

APT went through full review and comment cycle as a consolidated SPR document. Much of the OSA and OPA were leveraged from SURF and RAD. There will be a formal internal RFG review and comment process prior to June RFG meeting, and the document is on schedule for August FRAC and September SC186/WG51 approval.

**IPT**— An action was assigned to Ken Jones to draft changes to DO-312 for plenary review in September, in order to make sure that the IPT documentation is consistent with other approved documents.

**6. Consider for Approval – New Document – *Safety, Performance and Interoperability Requirements Document for ATSA-SURF Application*, RTCA Paper No. 018-10/SC186-293 (Stuart Searight)**

The committee resolved, in principle, all non-concurs, many of which revolved around the availability of targets given stringent requirements. The working group feels that they have a way forward that will also remove degraded mode.

A major issue was the requirement that NACp be  $\geq 9$ . There is, in principle, a way to demonstrate that NACp of 8 will be adequate.

While there are agreements in principle, the extent of the changes is significant enough that the WG feels that a re-FRAC of the document is advised. Stu proposed that the group provide resolved comments by May 15<sup>th</sup>, and that changes regarding NACp, NACv be integrated into document by June 4<sup>th</sup>.

The WG would re-FRAC the document, and re-release the document on June 7, with planned approval at September plenary. The plenary agreed with the plan outlined by Stu.

Committee members are strongly encouraged to focus their review on the material that has been changed from the first FRAC.

The document is considered a success in that the WG is moving forward through some difficult issues.

**7. FAA Surveillance and Broadcast Services (SBS) Program – Status (Vinny Capezzuto)**

Vinny reported that the IOCs are proceeding, and the SRMD and separation standards are being worked. The final rule is moving forward – OMB passed back the proposed rule with comments, and FAA is submitting responses to OMB's comments. FAA is working with OMB to deal with their questions. FAA is also trying to stay on schedule with the IOCs in order to make sure that IOCs don't hold up the rule.

95 radios are operational, i.e., transmitting and receiving.

Louisville: There have been some issues with trackers, complicating the IOC in Louisville. The tracker issues relate in particular to fusion, and FAA is targeting mid-May for resolution and an operating fusion.

Gulf: IOT&E identified 3 medium hazards, one of which was MSAW alerts for helicopters landing on platforms. The helicopters are equipping early (with 260A). 39 helicopters have been equipped. 260A is being permitted to be displayed to controller for these particular helicopters, since the installations are being carefully monitored by FAA, and it is desired to start accruing benefits early.

The helicopters are saving 14 NM of distance flown and 96 lbs of fuel per trip, saving 20,000 lbs of fuel per month.

Philadelphia: achieved IOC and turned on essential services; the office is working on solving some STARS software anomalies.

Juneau: is set for the end of April. FAA will accommodate specific aircraft on a "list" which have implemented 282A under the FAA program. All 282 equipped aircraft will be shown on the controller's displays, but would not get IFR services except for those on the "list."

The first production site for SBS services will be New York, scheduled for fall 2011. NY was chosen as the first production site because of the pressing need for improved surveillance and consequent services in the area.

Vinny asked the committee to rate two new program risks: Risk 98, and 99.

Program Risk 98, ADS-B drop outs for surface operations was rated by the plenary. The risk is related to the data dropouts that were observed in Philadelphia and Seattle during SURF IA demonstrations. The consequence was rated at 4 (significant), and the likelihood rating was C (medium).

Program Risk 99, ASPA-IM schedule was also rated. The IM schedule was rated with the new December date being the baseline. In terms of consequences it was noted that MOUs have been signed with United, Continental, and UPS, however, the critical path would not be effected with up to a 3 month additional slip in the schedule.

The likelihood was rated as (3), moderate, and the impact was rated as: C, moderate, as the program critical path will not be affected with up to a 3 month additional slip. The risk statement will be modified to reflect December as the baseline schedule.

Vinny also discussed the management of the ITT ICD: should this be managed by RTCA or FAA? Pros and cons were discussed:

Management by FAA: pro – can be easily managed, more rapid turnaround. Con – difficulty in access by avionics vendors.

RTCA – cons: RTCA process (lengthy) ; Pro: wider community awareness and distribution. Everyone benefits from discussion and answers to questions, RTCA can put the documents up on website.

There was no conclusion on which way was preferred, and an action item was taken by Vinny and Sethu Rathinam, to be resolved by next plenary, to propose a process diagram and recommendation for ICD process.

Comment from Dean Miller: Dean raised a concern about the DO-260B rule from FAA and Europe being harmonized.

**8. Date, Place and Time of Next Meeting.**

Date / Time / Location	Agenda	Comments
September 17, EUROCONTROL, Brussels, BE	ATSA SURF and Surf IA	Joint with EUROCAE WG51
December 10, RTCA, Washington, DC	Interval Management	Joint with EUROCAE

**9. Working Group Reports.**

- **WG-1 – Operations and Implementation (Bone)**

Jim Duke will be stepping down as SURF IA co-chair; there is a need for an industry co-chair to replace Jim; Randy is asking for volunteers. Mark Reed (ALPA) said that ALPA is are looking at potential volunteers.

Jim Duke will continue to participate but is being heavily tasked by SBS with other work.

**Surf IA (Peter Moertl)**

Two Surf IA demonstrations have been completed. The conclusion is that Surf IA is feasible. The group is looking at line of site issues causing data dropouts, as well as other data dropouts, as outlined in SBS program risk 98 (see plenary item 7).

Concerns were expressed by ALPA (Mark Reed) regarding requirements for FAROA; ALPA has a strong desire to include taxiways as a minimum requirement. Mark suggested that the requirements specify ASSA to be available, and only where ASSA is not available, allow FAROA. Peter: Requirement right now is that equipment be able to function with either type of database.

Don Walker: The ALPA concern maybe more a policy issue than a MOPS issue. Don took action to include guidance / requirements related to different type classes and airports in an advisory circular. This was agreeable to Mark / ALPA; the goal is for the guidance to be ready at the same time as the MOPS.

The plenary decided to proceed with both FAROA and ASSA as minimum requirements in the specification; FAA will handle as policy. ALPA Agreed to put this aside based on Don's action item.

Peter proposed a revised schedule for FRAC of SURF IA, to take place at the September plenary. The plenary approved the schedule change.

### **Wake SG (Clark Lunsford)**

Clark briefed the groups work and status. Clark also proposed terms of reference, which were agreed as follows. The group will

- Establish the Operational Service and Environment Definition (OSED) for providing meteorological data over 1090ES and UAT ADS-B links (as described in DO-260B and DO-282B provisioning appendices).
- The data service will be provided for all regions of flight (e.g., airport, terminal, en route, oceanic, and remote area airspace) and for all type of operations (e.g., arrival, departure, cruise).
- Identify the pacing applications that require these data and drive the link bandwidth requirements. Bound by 1090ES bandwidth and data processing constraints. These data may be applied to ground and aircraft-based applications as well as meteorological data collection.
- Minimal changes to aircraft buses for data. Standardization activities may be required in order to provide a few of the data elements, such as weight. New sensors will not be required. Data will be obtained from existing-technology onboard sensors.
- Additional sensors to provide specific data (e.g., humidity) are allowed, but are not required. Investigation of potential methods of assessing and indicating the quality of data being reported may be required.
- Identify future applications that could be enabled with a higher capacity data link, that are not currently possible within the limited link budget available with 1090ES.
- The current subgroup activity is not developing an SPR at this time (OPA, OSA, and INTEROP), but participation from groups that develop these documents will be requested to ensure the OSED will provide what is needed for those future activities.
- Investigate developing a standardized method of computing Eddy Dissipation Rate (EDR).
- Identify method(s) to standardize aircraft weight and configuration data reported over the ADS-B data link.

- WG-3 – 1090 MHz MOPS, WG-5 UAT MOPS (Gary Furr)

Both DO-282B and DO-260B will be approved by the respective ICAO panels and will be available on the panel websites. Final ICAO approvals are pending for November of 2012.

- WG-6 – ADS-B MASPS (see ad-hoc group report)

**10. ADS-B IM Coordination with SC-214 for Data Link Requirements – Discussion – ISRA Review/Approval (Bone)**

SC186 met with the ICC and developed an ISRA. The plenary reviewed the ISRA as proposed by Randy and the approved it.

**11. Revised Terms of Reference (TOR) – Discussion – Review/Approval (Jonathan Hammer)**

Jonathan reviewed PMC feedback on SC186 proposed terms of reference. The PMC wanted to know if SC186 was continuing to work ground applications. The plenary reviewed the TOR language with respect to ground applications and agreed that the language was accurate as written.

The PMC also wanted to assure coordination with SC206 and 214 with respect to wake applications. Per PMC direction, the ICC will meet with respect to SC186/206/214 coordination on wake.

Other comments from the PMC were with respect to changes in MASPS and MOPS that were discussed earlier in the plenary. Jonathan agreed to coordinate the revised language with respect to combining MASPS with Hal and Rocky. The revised TORs will be presented again the June PMC meeting.

**12. New Business.**

**ITT ICD (Michael Garcia)**

Michael reviewed the highlights of the ICD. There will be a 30 day comment period, to be followed by a telecon 5/25 at 2pm EDT to resolve comments.

**13. Other Business.**

**14. Review Action Items/Work Programs.**

**Update on Glider Project (Rob Strain )**

Rob briefed the plenary on glider project. There is an agreement between SBS, AOPA, MITRE, MIT, SSA to develop a Conops, demo plan, and flight demonstration within the next several months.

All other action items were reviewed, and the plenary was adjourned.

**15. Meeting Adjourned.**

-S -

Jonathan Hammer  
Secretary, SC-186

**CERTIFIED** as a true and  
accurate summary of the meeting.

- S -

Vincent Capezutto  
Co-Chair, SC-186

- S -

Rocky Stone  
Co-Chair, SC-186