

**Minutes of Meeting #03 of RTCA SC-209 Working Group #1
For The Development & Maintenance of the Mode-S MOPS**

<http://adsb.tc.faa.gov/SC209.htm>

Meeting #3 of Working Group #1 of RTCA/SC-209 was called to order by Co-Chair Tom Pagano at 9:00am EDT, 2 October 2007, at the facilities of Engility Corporation in Washington DC. Mr. Pagano offered regrets from Robert Duffer of the FAA, and indicated that Richard Jennings would substitute as the Designated Federal Official for this meeting. Mr. Pagano then welcomed all attendees and asked that each attendee introduce themselves and their organization. The attendees for all or part of the meeting included the following:

Mark Annee, U.S. Navy	Pete Muraca, FAA Tech Center (phone)
Raymond Bayh, BAE Systems	Showkat Osman, Honeywell (phone)
John Berglund, U.S. Navy	Tom Pagano, FAA Tech Center – AJP-653
Robert Clarke, Alion Sciences	Robert Saffell, Rockwell Collins
Gary Furr, Engility Corp., FAATC–AJP-653	Charles Sloane, FAA AIR-130
Richard Jennings, FAA, AIR-130	Bill Thedford, Consultant, USAF
Andrew Leone, FAA Tech Center	Nolan Van Foeken, Garmin International (phone)
Robert Manning, DCS Corp. (phone)	Jeff Weeldreyer, L-3 / ACSS

1. Agenda Item #1

- 1.1 Robert Duffer, the Designated Federal Official, was unable to personally attend this meeting and was replaced for this meeting by Richard Jennings of AIR-130, who additionally welcomed all attendees and thanked them for their participation.
- 1.2 As host of the meeting, Gary Furr of Engility Corporation welcomed all attendees and gave a brief discussion on the facilities of the building and lunch options.

2. Agenda Item #2

- 2.1 With the proposed meeting Agenda displayed as Working Paper ModeS-WP03-01, Mr. Pagano asked if there were any suggested additions or changes to the Agenda for this meeting. Gary Furr pointed out that several additional Working Papers had been submitted since the revised Agenda was posted on the SC-209 web page for this meeting. There were also several Working Papers that were submitted during the meeting. The Agenda was revised and will be posted on the web page as ModeS-WP03-01R2. Mr. Pagano declared that the Agenda was accepted with these changes, and began to progress on the Agenda as offered to the Working Group.

3. Agenda Item #3

- 3.1 Mr. Pagano referred to Agenda Item #3 to discuss the Minutes of SC-209 Meeting #7, which was held at Eurocontrol Headquarters in Brussels as a Joint Session with Eurocae WG-49 on 20 – 24 August 2007, and presented to this meeting as Working Paper ModeS-WP03-02. Richard Jennings asked that the Minutes be opened and a statement revised as to the fact that he was substituting for Robert Duffer as opposed to replacing him as DFO. After that edit was performed, Tom Pagano asked that we discuss the item #9 dealing with the S1 P1 detection. It was stated that WG-49 did not cover this item during their recent meeting in Paris. Tom Pagano wanted to maintain a list during this SC-209 meeting of items that SC-209 would like for WG-49 to specifically discuss or resolve. Gary Furr will create and maintain that list during this meeting. The Minutes of SC-209 Meeting #7 were accepted as revised by the Working Group as presented in Working Paper ModeS-WP03-02.

4. Agenda Item #4

- 4.1 Mr. Pagano asked Bob Saffell to discuss the Status of Eurocae WG-49 after their meeting in Paris in September. Bob stepped through the draft minutes of the WG-49 meeting.
- 4.2 Initially, he focused on the discussions on Environmental Testing. It was agreed that we will further discuss the Environmental testing during this meeting.
- 4.3 Bob also focused on the agreement identified in Item #9 of the WG-49 draft minutes on the Reply Rate Capability. Roland Mallwitz took an action to draft a request to change the reply rate to 500 for the ICAO SARPs.
- 4.4 Bob also addressed a proposal by Roland Mallwitz to remove the definitions and text describing a Level 1 transponder from ED-73C. The initial feeling of the SC-209 Working Group was that Level 1 should be retained as there was concern that it may be a significant effort to rework the material. Further discussion was deemed appropriate before removing Level 1 from the MOPS.
- 4.5 As relates to Item #11 in the draft WG-49 minutes, it was agreed that SC-209 Working Group 1 will discuss the issue of quantization further during this meeting.

5. Agenda Item #5

- 5.1 The Working Group continued with the Agenda by going on to Agenda Item #5a with a presentation of Working Paper ModeS-WP03-03 by Richard Jennings for the proposed changes to DO-181D for Transponder Labeling which was previously discussed briefly during the Joint Session in Brussels. There was discussion on the table of label options in section 1.4.5, the Working Group agreed that the label indicator for “Surveillance Identifier Code (SI)” should not be eliminated. It was added back into the revision of the Working Paper, noted as ModeS-WP03-03R1. The issue of a minimum power level for A3 class equipment being 200 watts in Change 1 to DO-260A was brought up and discussed, and it was agreed that the 200 watts was for Extended Squitter only and if

you have a label for 1090ES, then you don't also need to designate the 200 watts. Otherwise, the revised ModeS-WP03-03R1 was accepted by the Working Group for inclusion into the draft of DO-181D. Just after Meeting #3, Richard Jennings was able to discuss this Working Paper with Kevin Hallworth of EASA. There were several changes to this Working Paper based on their common agreements during that conversation. The code for TCAS Compatibility was changed to "a" and references to the power levels were identified by the use of "Class 1" or "Class 2" indications. These agreements are reflected in revision ModeS-WP03-03R2 which will be posted to the web page and implemented into the draft of DO-181D.

- 5.2 The Working Group continued with the review of Agenda Item #5b with a presentation of Working Paper ModeS-WP03-10 by Richard Jennings for proposed changes to DO-181D for changes in the "Operations of Controls" section to resolve issues that had been discussed in the Joint Session in Brussels dealing with the NTSB Recommendations. After some minor editorial changes, the Working Group accepted the revisions to the Working Paper that are captured in ModeS-WP03-10R1 for inclusion into the draft of DO-181D.
- 5.3 The Working Group began review of Agenda Item #5c with a presentation of Working Paper ModeS-WP03-04 by Gary Furr, which is an update to Working Paper SC209-WP07-09. The Working Paper ModeS-WP03-04 is a more in-depth review of specific changes that need to be made to each of the Figures in either DO-181D or ED-73C in order to make a single set of Figures that will be correct for both documents. There were some minor editorial changes agreed to and made to ModeS-WP03-04R1 during the meeting. Later the Working Group reviewed an email from John Van Dongen, which was then designated as Working Paper ModeS-WP03-11, and will be posted on the Meeting #3 web page. It was agreed that the proposed changes to Figure 2-19 outlined in detail in ModeS-WP03-11 are correct, and that those changes will be folded into Working Paper ModeS-WP03-04R1 in order to provide an input to the WG-49 November meeting. Gary Furr will update ModeS-WP03-04R1 by adding more Figures to better describe the proposed changes before submitting it to WG-49 for review during the November meeting in Cologne.
- 5.4 The Working Group began review of Agenda Item #5d with a presentation of Working Paper ModeS-WP03-05 by Tom Pagano, which is an update to Working Paper SC209-WP07-05R1, that was originally presented during the Joint Session in Brussels, but was only briefly discussed, and required more in-depth analysis of each proposed CP. In this Working Paper, Tom took each of the SARPs CPs and analyzed whether or not he believed that any actual change to the draft of DO-181D was required. The tables of SARPs CPs was reproduced in ModeS-WP03-05 and following those tables, Tom details whether a change is required and, if so, the actual proposed change. As each change was reviewed, there were several minor corrections to references, and some edits to the proposed changes as they were discussed and agreed to by the Working Group. These changes were captured in Working Paper ModeS-WP03-05R1. It was agreed by the Working Group that the changes in S/20 would be referred to Vince Orlando and Eric Potier for appropriate changes to the SARPs.

- 5.5 The Working Group began review of Agenda Item #5f with a presentation of Working Paper ModeS-WP03-07 by Bob Saffell as the proposals for harmonization of the environmental test procedure sections of both DO-181D and ED-73C. Bob explained how the tables in this Working Paper were developed and updated during the recent WG-49 meeting in Paris. The Working Group stepped through this Working Paper noting those situations where WG-49 agreed to change ED-73C, and discussions were held on those issues where there needs to be a change to DO-181D. A revision of the Working Paper was created as ModeS-WP03-07R1 to take note of Working Group agreed changes to DO-181D.
 - 5.6 The Working Group began review of Agenda Item #5j with a presentation of Working Paper ModeS-WP03-13 by Bob Saffell. SC-209 does not agree with the recommendation in the Working Paper. Tom Pagano will write a response to Eric Potier.
 - 5.7 The Working Group began review of Agenda Item #5g with a presentation of Working Paper ModeS-WP03-08 by Bob Saffell. After a brief review and discussion, it was understood that a companion copy of DO-181D which appeared to show movement of sections of ELS/EHS was not to be considered. Therefore, it was agreed that Bob Saffell would review each of the proposed edits of the ELS/EHS sections and prepare a consolidated Working Paper for review by WG-49 during their November meeting.
6. Agenda Item #6
 - 6.1 The Working Group continued with Agenda Item #6, starting with the review of Working Paper WP ASP03-24 from Shigeru Ozeki of the ICAO ASP Aircraft Surveillance Subgroup. ASP03-24 calls for a modification of the definition of the ACAS bits in Register 10₁₆ as had previously been discussed by the ICAO ASP Technical Subgroup (TSG), RTCA SC-209 and Eurocae WG-49, and as proposed to AEEC for the inclusion in the 735B draft. The Working Group then also reviewed a draft of a Working Paper that has been drafted as a response to ASP03-24 by the Chair of the ICAO TSG. It is the position of RTCA SC-209 that the proposal in ASP03-24 not be approved, and that the changes that are already being published in 735B, DO-181D, ED-73C and ICAO Doc 9871 continue to be adapted. A Working Paper will be drafted for presentation by Tom Pagano during the Montreal ICAO ASP Working Group meeting 15 – 19 October 2007 to agree with the ICAO ASP TSG response, and to recommend that the proposed changes in WP ASP-03-24 not be adapted.
7. Agenda Item #7
 - 7.1 The Working Group continued with the Agenda by going on to Agenda Item #7 starting with the review of Working Paper ModeS-WP03-09 by Andy Leone. This Working Paper was a consolidation of the reformatted Appendix B and C as had been agreed to during the Joint Session in Brussels. The Working Group stepped through the Appendices with Andy pointing out how the documents were created, and cut and pasted, to produce the Working Paper that is being presented. It was agreed that the FAA Technical Center personnel would accept an Action Item to write test procedures to go into DO-181D for the extraction of GICB Registers for ADS-B.

8. Agenda Item #8

- 8.1 The list of open Action Items was reviewed by the Working Group during the meeting and the summary of Action Items that remained open, or were newly recorded as being assigned and accepted during this Meeting follows:

Action Number	Open Action Item Descriptions	Assigned to	Status
1-3	Coordinate with Stuart Searight to make sure that all of the TCAS issues are accounted for.	Tom Pagano Gary Furr	Ongoing
7-1	Contact European manufacturers to ask about the side lobe suppression issue of one percent in DO-181C versus ten percent in ED-73C. Can they meet the 1%.	Kevin Hallworth	
7-2	Contact European manufacturers to ask whether they provide mutual suppression according to the newly added request in DO-181D, 2.2.11.b.	Kevin Hallworth	
7-3	Rewrite 2.5.4.19 to be consistent with changes made to the Data Link Capability Reporting in 2.2.19.1.13. Also check 2.6.2.3.	Bob Saffell	In Process
7-4	Discuss the issue of "Validation of declared on-the-ground status" with ICAO ASP during the October meeting in Montreal.	Roland Mallwitz	
7-5	Review the environmental sections for Fixed and Variable Direct Data (2.3.2.11.1 & 2.3.2.11.2) to see if referencing 2.6 is appropriate.	Bob Saffell	In process
7-6	Review all of ELS and EHS test procedures to see what should be specific to environmental tests.	Bob Saffell	In process
7-7	Write a test procedure in Procedure #20 for testing 2.2.13.3.1.f.	Tom Pagano	For WG1-Mtg 4
7-8	Check §2.4.2.12.3 Step 1 where there is an exclusion for UF=0, 11, 16 and 24, to see if the exclusion applies to all of the steps in that test procedure.	Tom Pagano	For WG1-Mtg 4
7-11	Incorporate the requirements and test procedures for TCAS DO-185B.	Bob Saffell	
7-16	Review WG49N11-09a for all test procedures.	Eric Potier Showkat Osman	In Process WG49N13-xx
7-18	Review of ELS/EHS Requirements and Test Procedures in general for harmonization between ED-73C and DO-181D.	Bob Saffell Eric Potier	In Process
WG1-3-1	Write test procedures to go into DO-181D for the extraction of GICB Registers for ADS-B.	Tom Pagano	

9. The Dates and locations of future SC-209 and WG-49 meetings were discussed under Agenda Item #9. The next Working Group #1 meeting will be at RTCA on 4 – 6 December 2007. The SC-209 meeting that was agreed to be held in Melbourne the week of 11 February 2008 was agreed to be four (4) days. Bob Saffell agreed to host the meeting at the Crowne Plaza Melbourne Oceanfront. Bob indicated that we need a headcount by late December for the Melbourne meeting because there is a requirement from the hotel for a specific number of rooms.

Organization	Dates	Place
WG-49	6 – 8 November 07	Cologne
SC-209 WG-1	4 – 6 December 07	RTCA, Washington DC
WG-49	15 – 17 January 08	Eurocae, Paris
SC-209 WG-1	11 – 14 February 08	Crowne Plaza, Melbourne, Florida

10. The **Working Papers** for all SC-209 Meetings, as well as the Meeting Agendas, Meeting Minutes, Meeting Schedules and proposed modifications to the ATCRBS and Mode-S MOPS will be posted on the web site maintained by Gary Furr at the FAA William J Hughes Technical Center, located at: <http://adsb.tc.faa.gov/SC209.htm>

As reported in the Meeting Summary of Eurocae WG-49, Meeting #6, members of SC-209 may access the WG-49 workspace through the Eurocae web site located at: <http://www.eurocae.org/> Login: WG49 and password: MODE-S

Also, the workspace of Eurocae WG-51 can be accessed by SC-209 members through the same Eurocae web site with: Login: WG51 and password: ADSB