

**Summary of Meeting #13 of RTCA SC-209 and EUROCAE WG-49
held as a Teleconference and WebEx Session
for the Maintenance of the ATCRBS and Mode S MOPS**
<http://adsb.tc.faa.gov/SC209.htm>

The meeting was called to order by RTCA SC-209 Co-Chair Thomas Pagano of the FAA ATO-P organization at about 9:15am, 9 December 2010. Mr. Pagano welcomed all attendees and Gary Furr made a roll call of all participants on the Teleconference and WebEx. The participants during part, or all, of the Teleconference included:

Barry Beasley, Aeroflex	Kevin Hallworth, EASA (WG-49)	Robert "Bob" Saffell, Rockwell Collins
Linda Berg, L-3 / ACSS	Tom Pagano, FAA ATO-P, AJP-653	Kurt Schueler, Garmin International
John Fisher, FAA AIR-130 (phone)	Eric Potier, Eurocontrol (WG-49)	Charles Sloane, FAA AIR-130
Gary Furr, Engility Corp, FAA ATO-P, AJP-653	Ken Reeves, L-3 / ACSS	Kevin Wilson, Honeywell International
Martin Gray, Trig Avionics (WG-49)	Pierre Ruault, Eurocontrol (WG-49)	

1. Tom Pagano began the meeting with **Agenda Item #1** by indicating the purpose of this Teleconference and WebEx session is to review and discuss the several Action Items that were assigned during Meeting #12 at EUROCAE near Paris.
2. Gary Furr displayed the proposed Meeting Agenda as it was presented in **Agenda Item #2** and [Working Paper SC209-WP13-01](#). The nine Working Papers that were available for review during this Teleconference were separated into basically three different groups. The first group addresses items that have come up since Meeting #12, as raised by manufacturers. The second group relates to the results of the Manufacturer IQ Tests, and the third group is the results of the other Action Items from Meeting #12.
3. Under **Agenda Item #3**, the Meeting did not discuss any issues related to the Summary of Meeting #12 that was presented in [Working Paper SC209-WP13-02](#).
4. Next, under **Agenda Item #4** the Joint Session began the review of Working Papers that were submitted as the result of Open Action Items, which were accepted during Meeting #12. Working Papers in Agenda Item #4 were taken in no particular order and were interleaved with Working Papers in Agenda Item #5. The presentation order of a given Working Paper was at the discretion of the Co-Chairs.
 - 4.1 The Teleconference Meeting reviewed Working Paper SC209-WP13-03 under Agenda Item 4a as a revised set of proposed changes to the non-selective lockout test procedures by Charles Sloane in response to Action Item 12-04. This Working Paper was a revision of SC209-WP12-25 and incorporated additional changes to the test procedures that were discussed briefly near the end of the EUROCAE Meeting #12. Charles stepped through the Working Paper and with discussion and additional comments, there were additional edits which produced [Working Paper SC209-WP13-](#)

- [03R1](#). The changes in this revision were accepted and Gary indicated that they will be incorporated into the respective change documents and into the draft MOPS documents.
- 4.2 The Teleconference Meeting reviewed [Working Paper SC209-WP13-06](#) under Agenda Item 4b as a set of test results of Garmin Mode S transponder acceptance of Mode S interrogations generated with an IQ modulator by Kurt Schueler in response to Action Item 12-02. Kurt briefly described the test set up and indicated that all of Garmin Mode S transponders passed the tests.
- 4.3 The Teleconference Meeting reviewed [Working Paper SC209-WP13-08](#) under Agenda Item 4c as a set of test results of Rockwell Collins Mode S transponder acceptance of Mode S interrogations generated with an IQ modulator by Bob Saffell in response to Action Item 12-02. Bob briefly described his test set up and indicated the minor issues with the testing of his TPR-720 unit. Rockwell Collins is in the process of obtaining an Aeroflex 45TS unit and will retest and report results during the Melbourne meeting in January. Otherwise, Bob reports that all other Rockwell Collins Mode S transponders passed the tests. During the discussion of these IQ tests, there was additional discussion of the Notes which were added as a results of Working Paper SC209-WP12-15R1. There was concern expressed that the notations in that revision of the Working Paper were not explicit enough to ensure that manufacturers would know in the future exactly what was agreed to. The Working Paper was opened and reviewed again with additional notations being added to indicate exactly which proposed changes were and were not to be implemented. This editing process produced [Working Paper SC209-WP12-15R2](#), which was reposted to the web page for Meeting #12 as the final edited version. The proposed changes in WP12-15R2 were edited into the change documents and into the draft MOPS documents.
- 4.4 The Teleconference Meeting reviewed Working Paper SC209-WP13-07 under Agenda Item 4d as a review of issues related to the “BDS Swap” problem reported in earlier Joint Sessions by Eric Potier. This Working Paper is in response to Action Item 12-03, and proposed changes to the MOPS documents to provide information in the UM field in order to indicate which Register content is downlinked in the MB field. This addition would allow detection and correction of BDS Swap by ground stations and would provide information to passive systems to decode DF20/21 that they may receive, and therefore would reduce the need for such systems to interrogate to get the information. During discussion of the Working Paper, there were agreed upon edits performed to the original Working Paper to produce [Working Paper SC209-WP13-07R1](#). There were concerns expressed during discussions that these proposed changes were not going to provide a solution to the identified problems for many years to come while Transponders in the field were being upgraded. There were also concerns expressed that this proposed solution required additional changes to the ICAO SARPs and that the ICAO ASP Technical Subgroup would not completely agree with these changes and that they might have to be taken out of the Transponder MOPS documents after the TSG meeting in February. Gary Furr was requested to send out an email to the ICAO ASP TSG distribution informing them of the proposed changes and asking for any comments. It was agreed that if significant comments came in from the TSG members prior to the time when Gary needed to implement the changes into the change documents and into the draft MOPS, that the implementation of these changes would be

suspended and further discussion would be held with TSG members over proposed solutions.

5. Under **Agenda Item #5**, the Meeting discussed the additional Working Papers that made proposals on issues related to proposed changes to DO-181D and ED-73C. Working Papers in Agenda Item #5 were taken in no particular order and were interleaved with Working Papers in Agenda Item #4. The summaries below simply represent the summaries at the time of presentation.
 - 5.1 The Teleconference Meeting reviewed [Working Paper SC209-WP13-04](#) under Agenda Item 5a as a set of changes proposed by Bob Saffell to bring to light separate errors in both MOPS documents with respect to the requirements and test procedures for receiver dynamic range. Bob indicates that in DO-181D the requirements in §2.2.2.4.f were missing, but the test procedures in §2.4.2.1 Step 3 were correct. Alternately, in ED-73C, the requirements in §3.2.4.f were correct, but the test procedures in §5.4.1.2.c Step 3 were incorrect. Martin Gray raised a question as to whether the original requirement was correct with the MTL +3 dB, and as the documents were reviewed, the actual definition of MTL in Appendix A of ED-73C was found to be in error. It was agreed that the proposed changes in the Working Paper would be implemented as specified and that further editing would be done on the definition of MTL as Gary resolved a common Appendix A for both documents going forward.
 - 5.2 The Teleconference Meeting continued with the review of [Working Paper SC209-WP13-05](#) under Agenda Item 5b as a set of changes proposed by Bob Saffell as a result of a question raised by Kevin Wilson of Honeywell as he reviewed the ELS and EHS test procedure sections. Bob indicated that changes are necessary in the ELS and EHS test procedures in order to allow for the maximum time of 60 seconds for a change in BDS 1,7 to be reflected into BDS 1,0. Although the Working Paper was large, the proposed changes were identical in numerous sections of the MOPS documents. After a brief discussion, the proposed changes were accepted and Gary Furr agreed to implement them into the change documents and into the draft MOPS documents.
 - 5.3 The Teleconference Meeting continued with the review of Working Paper SC209-WP13-09 under Agenda Item 5c as a proposal by Eric Potier for adding a Note into the MOPS documents to warn manufacturers that the P_{4LONG} may be eliminated in future versions of the MOPS documents. The Note was reviewed and there was minor editing performed to produce [Working Paper SC209-WP13-09R1](#). It was agreed that the proposed changes were accepted and Gary Furr agreed to implement them into the change documents and into the draft MOPS documents. During implementation of the Note into the draft MOPS documents, it was also recognized that the text of the respective requirements documents did not match. It was agreed to harmonize the text of DO-181E with that of ED-73E for the requirements text.

6. Under **Agenda Item #6**, there was no official presentation of the draft Transponder MOPS documents. However, during discussions on most of the Working Papers during the Teleconference, the draft documents were opened and being reviewed and discussed.
7. Under **Agenda Item #7**, the Meeting discussed the schedule required for having the documents ready for RTCA PMC and EUROCAE Council approval in March 2011. The documents should be out for Final Review and Comment (FRAC) and Wider Consultation (WC) by 14 December 2010. The comment period should end by 14 January 2011. The comments will be reviewed and resolved during Joint Session in Melbourne Florida the week of the 24 January 2011. The Final versions of both documents should be ready before mid February for approval by the RTCA PMC during their meeting on 17 March, and by the EUROCAE Council as scheduled in March 2011.

Meeting #	Dates/Time	Meeting Location
14	24 – 28 January 2011	Melbourne Florida hosted by Rockwell Collins

8. The following is a summary of all of the Open Action Items accepted during Meeting #12.

Action Number	Open Action Item Descriptions	Assigned to	Status
12-02	Take the test established in Working Paper SC209-WP12-24R1 and test their transponders and report back to the Joint Session ASAP, but not later than close of business 6 December in prep for a Joint Session Teleconference on 9 December 2010.	Manufacturers	See WP13-06 WP13-08
12-03	Review the possible solutions to the BDS Register Swap and propose requirements and test procedures. Get a working paper to Gary not later than close of business 6 December in prep for a Joint Session Teleconference on 9 December 2010.	Eric Potier	See WP13-07R1
12-04	Take Working Paper SC209-WP12-25 and review it for better language and get it to Gary not later than close of business 6 December in prep for a Joint Session Teleconference on 9 December 2010.	Charles Sloane Don Walker	See WP13-03R1

9. The **Working Papers** for all SC-209 Meetings, as well as the Meeting Agendas, Meeting Minutes, and Meeting Schedules are posted on the ADS-B web site maintained at the FAA William J Hughes Technical Center, located at: <http://adsb.tc.faa.gov/SC209.htm>