

**Minutes of Meeting #22 held as a Teleconference of RTCA SC-186 Working Group 3  
for the Maintenance of the ADS-B 1090 MHz Extended Squitter MOPS  
Held 18 September 2006 at 1:00pm EDT  
<http://adsb.tc.faa.gov/WG3.htm>**

The Teleconference was called to order by Working Group Co-Chair Thomas Pagano of the FAA Technical Center at about 1:05pm, 18 September 2006. Mr. Pagano welcomed all attendees and asked that each attendee introduce themselves and their organization. The participants during all or part of the Teleconference included:

Robert Duffer, FAA Certification	Pat Maggard, Honeywell	Bob Semar, United Airlines
Gary Furr, L-3/Titan, FAA TC	James Maynard, Garmin AT	Ronald Staab, SAIC
Bob Grappel, MIT Lincoln Lab	Tom Pagano, FAA Tech Center	Ed Valovage, Sensis Corp
Bill Harman, MIT Lincoln Lab	Bob Saffell, Rockwell Collins	
Ronnie Jones, FAA	Stuart Searight, FAA Tech Center	

1. Tom Pagano began the Teleconference by discussing the reasons behind the need to attach an Appendix to the proposed draft of the TSO C166A. Basically, during the development of the specifications for the FAA Surveillance and Broadcast Services Ground Stations, that Specification Team has agreed that there was a need to comply with the TIS-B MASPS and use a TIS-B Management Message to alert aircraft that they were in the TIS-B coverage volume of a particular ground station. Although the MOPS had provisions for the TIS-B Management Message to be forwarded and output by the 1090ES receiver function, it was deemed necessary to clarify that certain ADS-B Message fields are used differently by the TIS-B Management Message and are required to be output when processing TIS-B Management Messages. Also, it was necessary to remove the references in the 1090ES MOPS to the TIS-B Management Messages as being “reserved.” The other set of changes that appear in the proposed Appendix to TSO C166A have to do with the problem that was discovered with the Locally Unambiguous CPR Decode. During testing of potential situations which could include duplicate address processing, it was discovered that there was a need to place a reasonableness test on the CPR local decode.
2. Dr. Bill Harman questioned the process of arriving at the place where there was a draft Appendix with proposed changes to the MOPS. Tom Pagano explained that there had been several levels of review on both of the major proposed sets of changes. The FAA Surveillance and Broadcast Services Specification Team (SBSST) has reviewed the proposed changes to the TIS-B Management Messages during several of their recent meetings, as well as having many discussions on the problems caused by the CPR local decodes and duplicate addresses. The ICAO Aeronautical Surveillance Panel (ASP) and their Technical Subgroup (TSG) have also discussed and reviewed the basic changes for the TIS-B Management Messages, as well as the CPR local decode issue and the resolution of adding a reasonableness test. Materials have been proposed for both issues to be incorporated into a revision of the 1090ES SARPs Technical Manual, Doc 9871.
3. Next, several WG-3 members joined in asking a question related to whether or not it might be possible to trigger the problem seen with the local CPR decode with a simple change in NIC or NAC values, or a potential change in navigation source on the aircraft. After some

discussion, the Working Group came to an agreement that this would not be a potential problem.

4. The Working Group began a review of each of the four comments that had been sent in and collected into the set of consolidated comments that would be designated as Working Paper 1090-WP22-02.

For comment #1, it was agreed that no change would be made to the draft Appendix because the changes in the Appendix were related to the 1090ES MOPS which is by definition a “minimum” requirement. Manufacturers are free to exceed the minimum requirement that is specified in the MOPS.

For comment #2, it was agreed that this was a typographical error that would be corrected.

The question that was expressed in comment #3 was discussed briefly, but since Bob Burns was not on the teleconference, it was agreed that Tom Pagano and Gary Furr would discuss this issue with Bob and would make any changes that might become necessary, should the discussion lead to that decision. **This discussion happened on 19 September at the FAA Technical Center**, and in fact, it was decided to add an extra step into the test procedure in change (1.20) to ensure that the timer that governs the reasonableness test would not be reset to zero (0) if a Position Message fails the reasonableness test. If this timer were to be reset to zero after a Position Message fails the reasonableness test, the track position might never again be updated.

Stuart Searight was called upon to give the background and reasoning for his comment #4 on the desire of the TCAS Program Office and ATO-P to have the definition and formats of the proposed TCAS RA 1090 Extended Squitter Message entered into this Appendix as a MOPS change. After lengthy discussion, it was agreed that if this proposed TCAS RA Message was to be included in the Appendix, that it would delay the publishing of TSO C166A by at least three (3) months, based on the need to carefully define those places in the 1090ES MOPS where changes would have to be made. It was estimated by Gary Furr that there were at least 28 separate places where changes or additions would have to be made to the 1090ES MOPS in order to include this TCAS RA Message. It was decided that Rob Duffer would discuss this issue with Steve Van Trees and that WG-3 would await their decision to go forward with the proposed change, or to publish TSO C166A without the change and to wait until work begins on DO-260B to include the change. **Late breaking news** indicates that this was a topic of discussion during the meeting of the RTCA Program Management Committee (PMC) on 19 September and that as a result of that discussion, George Ligler was asked to head an RTCA ad hoc committee to review the relationship between TCAS and ADS-B and make a recommendation to the PMC during their December 2006 meeting on the implementation of this TCAS RA Message and any other recommendations they may deem necessary.

5. Ron Staab then briefly discussed a comment that he had to include a definition for “maximum operating range” as it is included in the proposed change 1.1. This comment became comment #5 in the consolidated set. After some discussion, it was agreed that a new change would be entered into the proposed Appendix to add a definition for “maximum operating range” to be “*the maximum range at which it is expected that the ADS-B Airborne System will provide the performance necessary to meet the ADS-B MASPS (RTCA/DO-242A) requirements.*”
6. Ron Jones then reminded Gary Furr that he had sent an email indicating that a change needed to be made to change (1.14) to clarify the content of the 88-bit field to include the DF, CF, AA and ME fields. Gary agreed that this should have been added to the consolidated set of comments and this then became comment #6, and a change was made to the proposed Appendix.
7. An email was received during the teleconference from Dr. Vincent Orlando with respect to an agreement that had been made during a meeting of the SBSST wherein Bob Grappel had suggested that in the reasonableness test that had been defined for the Globally Unambiguous CPR Decode in Change 1 to DO-260A, that the reference to matching latitude and longitude values “identically” should be changed to state that they should match “within one LSB.” The Working Group agreed that this was a good comment and it became comment #7 and was implemented into the Appendix.
8. The **Working Papers** for all WG-3 Meetings, as well as the Meeting Agendas, Meeting Minutes, Meeting Schedules and proposed modifications to both DO-260 and DO-260A will be posted on the ADS-B 1090 MHz web site maintained at the FAA William J Hughes Technical Center, located at:  
<http://adsb.tc.faa.gov/WG3.htm>