

**Minutes of Meeting 4 of SC-186 Working Group 3  
Development of MOPS for 1090 MHz ADS-B, Revision A**

The meeting was called to order by Dr Vince Orlando at 9am on 15 May 2001, at the MIT/Lincoln Laboratory Aviation Liaison Office in Washington DC. Dr. Orlando welcomed all attendees, and asked that each attendee introduce themselves and their organization. The attendees included:

Jerry Anderson, FAA – AIR-130	Bill Harman, MIT Lincoln Lab	Stuart Searight, FAA TC – ACT-350
Pio Blankas, Honeywell	Ron Jones, FAA ASD-140	Ron Staab, Trios Associates
Thinh Dinh, BAE Systems (FAA - ASD-140)	James Maynard, UPS Aviation Tech.	Rick Stead, ARINC
Gary Furr, Titan Corp. (FAA TC - ACT-350)	Vince Orlando, MIT Lincoln Lab	Gene Wong, FAA – AND-530
Bob Granville, Consultant	R.H. “Bob” Saffell, Rockwell Collins	

1. Following the introductions, the following known regrets to attendance were announced:
  - John Van Dongen, FAA-TC, ACT-350
  - Stacey Rowlan, L3 Communications
  - Greg Kuehl, UPS Airlines
  - Ken Staub of Trios Associates is being replaced on WG-3 by Ron Staab
  
2. Vince Orlando then reviewed the status of the SCRSP group (previously SICASP), indicating that the Manual on Mode-S Specific Services was turned into an Appendix to the SARPS. He can provide a hardcopy of this upon request. Vince then briefly discussed the TLAT Report which has been released and is available for download on the SafeFlight 21 web site, which is located at: <http://www.faa.gov/safeflight21>. Additionally, the report on the flight data tests taken at Frankfurt is also now available. The document is about 531 pages and can be obtained from the 1090 web site, which is located at: <http://adsb.tc.faa.gov> under the “ADS-B” link, along with the Working Papers, Agenda and Minutes of this Meeting #4.
  
3. Following the brief introduction of the Frankfurt Report by Vince Orlando, Bill Harman gave a presentation on the actual data gathered. The majority of Bill’s presentation is contained in Working Paper WP-4-12. Bill pointed out that good data was obtained from the British Airways regular commercial flights that were over flying the Frankfurt area daily during the flight tests.
  
4. The Working Group reviewed the Minutes of Meeting #3 from Phoenix, AZ. Vince Orlando commented on the last several sentences of Item #13 of those Minutes regarding the number of tests to be run. His memory was that the Working Group had agreed to a different number of tests. This point becomes irrelevant with the presentation of Working Papers at this Meeting, so the Minutes of Meeting #3 were accepted as written.
  
5. The Working Group reviewed the locations, dates and times of the next meetings which were scheduled and Gary Furr presented a handout which was drawn from all of the documents associated with the Travel Info section of the 1090 web site regarding the FAA Technical Center, at which the next meeting will be held. It was agreed to set the dates and locations of two additional meetings beyond those currently scheduled. A meeting was added on October 17 and 18 to be held at the MIT Lincoln Lab Liaison Office in Washington DC. Bob Saffell will also check to see if the Rockwell Collins office in Arlington VA might be available as an alternative meeting site for this meeting. The next meeting was tentatively set for December 4, 5 and 6, with a location to be determined. Vince Orlando agreed to accept **Action Item 4-1** to send a letter to Eurocae to determine their level of participation in the finalization of DO-260A and whether or not they have plans to publish a revision to ED-102 to keep in line with DO-260A. The following table indicates the agreed upon

meeting dates and places for proposed future meetings of Working Group #3 for the production of Revision A of the 1090 MHz MOPS (RTCA/DO-260).

<b>Dates/Time</b>	<b>Meeting Place</b>
Tuesday, July 10 at 9am through 5pm Thursday, July 11	Confirmed at FAA Technical Center, Atlantic City International Airport (Secure facility, prior registration is required, minimum 2 weeks prior) Email or call Gary Furr 609-485-4254 to verify attendance See the 1090 web site for detailed travel maps and lodging information
Tuesday, August 21 at 9am through 5pm, Thursday, Aug 22	Confirmed at Redmond Washington, hosted by Honeywell at the Honeywell Learning Center, 15001 NE 36 <sup>th</sup> Street, Redmond WA 98052 See the 1090 web site for travel maps and lodging information
Wednesday, October 17 at 9am through 5pm, Thursday, October 18	Tentatively set at MIT/Lincoln Laboratory Aviation Liaison Office But could be switched to the Rockwell Collins office in Arlington VA after research by Bob Saffell
Tuesday, December 4 at 9am through 5pm, Thursday, December 6	Meeting Site TBD, but could be in Paris at Eurocae Headquarters depending on the outcome of discussions concerning their ED-102.

6. The Working Group then reviewed the Action Item List as it has been updated for this meeting. Bob Saffell reported that he and Stacey Rowlan had been discussing Action Item 3-7 and that it was their conclusion that WG-3 should delete all references to range based decoding in Appendix A and other Sections of DO-260. Vince Orlando agreed to accept **Action Item 4-3** to review Appendix A and make recommendations on deletions, and Bob Saffell agreed to accept **Action Item 4-4** to review Sections 2.2, 2.3 and 2.4 for references to range based decoding.
7. Working Paper WP-4-01 was presented by Jim Maynard as a response to Action Item 3-1 in which he was asked to review DO-260 to see whether the Status Message is required to be transmitted by all 1090 MHz ADS-B transmitting equipment in all installations for all equipage classes. The Working Group basically agreed with Jim's recommendation that DO-260 should be explicit in stating that Class A1, A2 and A3 participants shall transmit the Aircraft Operational Status Message, but with further discussion, it was pointed out that Tables 2-3 and 2-4 already indicated that the Status Message was to be transmitted for some Classes. Upon review of Tables 2-3 and 2-4, the Working Group agreed that these tables should be updated to show that the Status Message should be transmitted for A0, A1, A2, A3 and B1 Airborne and Surface participants. For B2 and B3 participants, the Working Group agreed to add a "Note" to Table 2-4 to indicate that if the Message formats are ever changed for these categories in the future, that they would then be required to transmit the message containing the Version Number. Gary Furr agreed to accept **Action Item 4-5** to implement the agreed upon changes and present them to the Working Group for final review and approval.
8. In Meeting #3 in Phoenix, WG-3 agreed on a proposal by Greg Kuehl for squittering the TCAS RA broadcast, subject to confirmation of the requirements for this transmission. Vince Orlando presented Working Paper WP-4-03 as proposed changes to Appendix A to support the TCAS RA Broadcast. Real-time editorial changes were made to WP-4-03 by Vince, and the modified Working Paper will be re-posted on the 1090 web site as 1090-WP-4-03A. It was however, agreed that WG-3 does not understand how this will be used and would like to see this requirement not implemented in Revision A of the MASPS. Working Group 3 will prepare a statement, which will be presented as an attachment to the Issue Paper for this topic at the next MASPS meeting expressing our concern. Given this decision by WG-3, it was agreed that WP-4-06, which suggests changes to Sections 2.2 and 2.4 because of the TCAS RA change in Appendix A, be deferred until such time as the Ad Hoc

MASPS Working Group can determine whether this is a requirement that they want to address in the MASPS at this time.

9. During Meeting #3, Greg Kuehl presented WP-3-04, which proposed changes to Section 3 based on the reporting of TCAS conditions. Comments were made in Meeting #3 and changes were suggested for WP-3-04. Greg Kuehl revised his proposed changes to Section 3 and presented these revisions as Working Paper WP-4-10. After review of WP-4-10, WG-3 agreed to all of the suggested changes except for those proposed in Section 3.5.3.2, entitled “ACAS Interface.” A decision on Greg’s proposed changes to Section 3.5.3.2 will be deferred until such time as the Ad Hoc MASPS Working Group can determine whether the TCAS RA is a requirement that they want to address in the MASPS at this time.
10. Gary Furr presented Working Paper WP-4-02 as a suggested placement for the paragraphs that will deal with Enhanced Reception Techniques requirements. The suggestion was to place these Enhanced Reception Techniques requirements into Section 2.2.4.4 and to move the current text of this section to a new section 2.2.4.5. This placement was agreed to by WG-3 and text will be agreed upon in the future for insertion into this paragraph.
11. At Meeting #3 in Phoenix, material was presented that provided a more detailed description of the Conservative Error Correction Technique. WG-3 concluded that the description of the Conservative Technique in Appendix I should be expanded to include this more detailed description. Vince Orlando presented Working paper WP-4-04 as his proposed changes to Appendix I to clarify the Conservative Error Correction Technique. The Working Group discussed several changes that needed to be made to WP-4-04 and Vince Orlando agreed to accept **Action Item 4-8** to make revisions to WP-4-04 and present the modifications at Meeting #5 in Atlantic City. Gary Furr also accepted **Action Item 4-7** to create and maintain a list of “Orphan” or “Un-resolved” Issues for insertion in the Minutes of this and future meetings. The issue of whether or not to write a requirement into Section 2.2 of DO-260A for using the “Conservative Error Correction Technique,” will be added to this newly created list.
12. A principal focus of Revision A to the 1090 MOPS is the addition of test procedures for the enhanced surveillance processing techniques. An approach to these test procedures has been discussed at previous meetings. Working paper WP-4-05 was presented by Vince Orlando as the 2<sup>nd</sup> draft of a set of proposed enhanced surveillance processing test procedures based on the test concept discussed at previous meetings of WG-3. During Meeting #3 in Phoenix, it was proposed that these tests would be run with the number of fruit set to zero (0), one (1) and five (5). Upon further reflection of this decision, WP-4-11 was presented by John Van Dongen to propose the additional testing of 2, 3 and 4 fruit. With discussion, the Working Group agreed that the test procedures should be modified to include tests for 0, 1, 2, 3, 4 and 5 fruit. It was further agreed that there would be no preamble test with Mode-S interference. The agreed upon powers were set at -12, -6, -3, 0, +3, +6 and +12dB. It was also agreed to set the fruit level to at least 12dB above the MTL.
13. Working Paper WP-4-13, the proposed Preamble Test for Enhanced Processing, was presented to the Working Group for review by Stacey Rowlan, even though he was not at this meeting. WG-3 reviewed the Working Paper in detail against the original test procedure in DO-260 subparagraph 2.4.4.3.4.7.1, which Stacey used as the starting point for the new Preamble Test presented in Working Paper WP-4-13. After discussion, the Working Group accepted this Test Procedure and Vince Orlando agreed to take the text of the Working Paper and insert it into the overall test procedures that he has been working on as were presented at this meeting in WP-4-05.
14. Bill Harman presented Working Paper WP-4-14 in support of Action Item 3-9 discussing the use of Dynamic MTL (DMTL) in preamble detection. Analysis by John Van Dongen has previously led to

a suggestion for the use of DMTL during preamble validation. This would be a change from the design as currently given in DO-260, Appendix I. At WG-3 Meeting #3, Bill Harman accepted Action Item 3-9 to discuss this proposal with Jeff Gertz, who was the originator of the enhanced reception techniques. Bill indicated that Jeff said that he had previously considered this issue and that he had concluded that reception would be better if DMTL were not used during the preamble validation step. Jeff believes that the avionics implementation would be more difficult using the proposed change. During discussion of this Working Paper, Bob Saffell pointed out that there was existing text in DO-260 that states a requirement for DMTL for both the TCAS based and stand alone implementations.. Bill Harman accepted **Action Item 4-10** to take a look at the DMTL issue and wording in Section 2.2.4.3.4.1 and Appendix I based on the discussion around Working Paper WP-4-14.

15. Ron Jones presented Working Paper WP-4-07 as the proposed new Appendix “M” to define extended range reception techniques. The purpose of this proposed new appendix is to provide a description of techniques for extending the air-to-air reception range of extended squitters. Two techniques are explored: (1) use of a directional antenna for 1090 MHz extended squitter reception; and (2) optimized 1090 MHz ADS-B reception extended by employing a variable bandwidth receiver to provide improved reception sensitivity under low-to-moderate 1090 MHz fruit conditions. During discussion there were several editorial changes made to the Working Paper. A copy of 1090-WP-4-07 with revisions will be posted on the 1090 web site as 1090-WP-4-07A. After discussion of the merits of the proposed Appendix, Bob Saffell accepted **Action Item 4-11** to add material on dynamic bandwidth control for the newly proposed Appendix M. Additionally, Bill Harman and Carl Jezierski will accept **Action Item 4-12** to pursue an available aircraft antenna with the desired characteristics (gain in the forward direction and vertical aperture). ( Updates of this proposed Appendix will be presented for review at future WG-3 meetings.
16. Vince Orlando presented Working Paper WP-4-08 as his proposed new material describing TIS-B formats and coding. Vince’s original intent was to add the TIS-B information into a new Appendix. However, since the TIS-B information has numerous references to Appendix A, in the original Working Paper WP-4-08, Vince proposed numbering the new Appendix as A1. After discussion, it was agreed that this approach would not be acceptable with RTCA and a new approach was adapted. It was agreed that all Appendix A sections published in DO-260 would have a one (1) inserted in front of the section number and that the TIS-B information would become section Appendix A.2. During discussion of WP-4-08 there were numerous editorial comments and reference corrections. Additionally, after the end of the meeting WP-4-08 was modified as per the agreement for section numbering. The copy of 1090-Wp-4-08 with revisions will be posted on the 1090 web site as 1090-WP-4-08A. Additionally, Vince will continue to add updates to this proposed section and it will be presented for review at future WG-3 meetings.
17. As part of the same change process, Vince Orlando prepared Working Paper WP-4-09 as updates to DO-260 sections A.7.3 and A.7.5 to accommodate the 12-bit CPR encoding for TIS-B. WP-4-09 was not formally reviewed during the meeting, but Vince requested that all WG-3 members review the proposed changes and comment to him directly, if necessary.
18. Please reference Item #8 of this Meeting Summary, wherein review of WP-4-03 was discussed. Upon further consideration of the TCAS-RA issue, a Working Paper was created during Meeting #4 and numbered 1090-WP-4-15 as a response to the Ad Hoc MASPS Issue Paper #12 to be delivered during the meeting of the Ad Hoc MASPS Working Group the week of May 21, 2001. Working Paper WP-4-15 lists the concerns of WG-3 regarding the ADS-B broadcast of RA information, and states why it is the recommendation of WG-3 not to implement this in Revision A of the ADS-B MASPS.

19. The following **Action Items** were identified at this, or previous, meetings of this Working Group. The asterisk (\*) beside a name or organization indicates that they are the lead for the resolution of that Action Item. Actions shown here are those Action Items that remain OPEN, and/or were just closed in this meeting as a result of Working Papers or other actions being reported on, in these Meeting Minutes.

<b>Action Number</b>	<b>Action Description</b>	<b>Assigned to</b>	<b>Status</b>
1-1	Review the test procedures in DO-181B and DO-260 with respect to “FS” and “VS” and make a recommendation for changes to either document.	Tom Pagano	Will be deferred to later meeting
1-7	Compare performance of their non real-time test sets.	MIT/FAATC	Deferred to later meeting
2-9	How do you implement the Brute Force technique?	Stacey Rowlan (*) Bob Saffell	
2-16	Draft a candidate SVID Management Message for service volume coverage.	Jim Maynard	
2-17	Review the NL equation at A.7.2.d and possibly reword for latitudes at 87.	Jim Maynard	
3-1	Check DO-260 to understand if the Status Message is a requirement for all installations for all equipage classes.	Jim Maynard	Addressed by WP-4-01 <b>CLOSED</b>
3-2	Report on all of the necessary changes to DO-260 to fully incorporate the changes suggested by WP-3-01, with the proposed Version Number Subfield.	Gary Furr	
3-3	Propose changes to Appendix A to incorporate the TCAS RA Broadcast on 1090 MHz.	Vince Orlando	Addressed by WP-4-03 <b>CLOSED</b>
3-4	Add material to Appendix I to more fully explain the Conservative Error correction technique.	Vince Orlando	Addressed by WP-4-04 <b>CLOSED</b>
3-5	Research places in DO-260 where references exist for using a 1090 non-transponder device, together with a Mode-S device. Proposed text to prohibit that operational configuration.	Greg Kuehl (*) Vince Orlando	
3-6	Prepare revisions to WP-3-04 as discussed during Meeting #3.	Greg Kuehl	Addressed by WP-4-10 <b>CLOSED</b>
3-7	Check with Bob Saffell on the approach to be used for extended coast time relative to the range method.	Stacey Rowlan	Agreed to eliminate range based decoding <b>CLOSED</b>
3-8	Examine the conditions for declaring the preamble in reference to lead edge position.	John Van Dongen	
3-9	Look into the use of DMTL in preamble validation	Bill Harman	Addressed by WP-4-14 <b>CLOSED</b>
3-10	Put together all of the text for Appendix A for TIS-B	Vince Orlando	Addressed by WP-4-08 WP-4-09 <b>CLOSED</b>

Action Number	Action Description	Assigned to	Status
3-11	Update on FIS-B encoding	Vince Orlando	
3-12	Write a preamble detection test	Stacey Rowlan	Addressed by WP-4-13 <b>CLOSED</b>
3-13	Revise WP-3-06 (Draft Test Procedures for Enhanced Surveillance)	Vince Orlando Bill Harman	Addressed by WP-4-05 <b>CLOSED</b>
3-14	Consider the need to run cases with 2, 3 and 4 fruit, since we are already running tests with 0, 1 and 5	Bill Harman John Van Dongen	Addressed by WP-4-11 <b>CLOSED</b>
3-15	Review sections 2.2 and 2.4 to determine where to place paragraph requirements for enhanced processing, TIS-B and FIS-B	Gary Furr Stuart Searight John Van Dongen Bob Saffell	Addressed by WP-4-02 <b>CLOSED</b>
3-16	Show how the newly proposed MASPS requirements outlined in WP-3-12 for NIC/NAC can be incorporated into DO-260A	James Maynard	
4-1	Send letter to Eurocae regarding their participation in DO-260A	Vince Orlando	Done 5/18/01 <b>CLOSED</b>
4-2	Send hardcopies of the Manual on Mode-S Specific Services (Appendix 1 to Vol. 4, Chapter 5) and known changes to the SARPS to all manufacturers.	Vince Orlando	Done 5/18/01 <b>CLOSED</b>
4-3	Recommend an update to Appendix A to eliminate range based decoding references and requirements.	Vince Orlando	
4-4	Recommend updates to Sections 2.2 and 2.4 to eliminate range based decoding references and requirements.	Bob Saffell	
4-5	Implement the changes recommended by Jim Maynard in 1090-WP-4-01 and discussions of the Working Group in Tables 2-3 and 2-4.	Gary Furr	
4-6	Verify surveillance status coding in DO-260 Table 2-12, against the SARPS	Vince Orlando	Done 5/18/01 <b>CLOSED</b>
4-7	Create and maintain an Orphans Issues List for future insertion into Meeting Minutes	Gary Furr	
4-8	Revise 1090-WP-4-04 as specified during Meeting #4 with respect to not using Sliding Window Technique and setting a requirement for using Conservative Technique and present at Meeting #5	Vince Orlando	
4-9	Revise 1090-WP-4-05 as specified during Meeting #4 and present at Meeting #5	Vince Orlando	
4-10	Take a look at DMTL issue and wording in Section 2.2.4.3.4.1, and Appendix I, based on the discussion around Working Paper WP-4-14	Bill Harman	
4-11	Add material on dynamic bandwidth control for the proposed Appendix M	Bob Saffell	
4-12	Pursue available antenna that provide additional gain in the forward direction and vertical aperture.	Bill Harman Carl Jezierski	
4-13	Obtain the latest TIS-B MASPS document for distribution to WG-3 members prior to Meeting #5	Stuart Searight	

Action Number	Action Description	Assigned to	Status
4-14	Send email to Gary or Stuart concerning FAA and Industry meetings in June and July on ADS-B	Ron Jones	
4-15	Determine the limits of GPS UTC time accuracy when received from different GPS satellites	Vince Orlando Bill Harman	
4-16	Is getting accurate enough UTC time for range validation achievable in low cost GPS receivers?	James Maynard	

20. The **Working Papers** shown in the following table are specifically for the Meeting being reported in these Meeting Minutes. Working Papers for all WG-3 Meetings, as well as the Meeting Agendas, Meeting Minutes, Meeting Schedules and modifications to DO-260 for the production of Revision A, will be posted on the ADS-B 1090 MHz web site located at: <http://adsb.tc.faa.gov>

### SC-186 Working Group 3 – 1090 MOPS, Rev A – Working Papers

Working Paper	Size	Description	Introduced At:
1090-WP-4-01	12KB	Study of DO-260 to see whether the Status Message is required to be transmitted by all 1090 MHz ADS-B transmitting equipment in all installations, for all equipment classes, presented by James Maynard, in support of Action Item 3-1	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-02	9KB	Suggestions for placement of Requirements for Enhanced Reception Techniques, TIS-B and FIS-B, presented by Gary Furr, in support of Action Item 3-15	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-03A	19KB	Proposed change material for Appendix A for the 1090 MHz ADS-B TCAS RA Broadcast, presented by Vince Orlando in support of Action Item 3-3	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-04	17KB	Proposed change material for Appendix I to clarify Conservative Error Correction, presented by Vince Orlando in support of Action Item 3-4	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-05	35KB	Second draft of the proposed Testing Procedures for Enhanced Surveillance Processing, presented by Vince Orlando in support of Action Item 3-13	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-06	36KB	Proposed Changes to DO-242A based on acceptance of Working Papers 1090-WP-3-02 and 1090-WP-4-03, presented by Gary Furr	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-07A	27KB	First draft of proposed Appendix M to define Extended Range Reception Techniques, presented by Ron Jones, in response to Action Item 2-4	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-08A	57KB	First Draft of new section Appendix A.2 to accommodate TIS-B, presented by Vince Orlando in response to Action Item 3-10	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-09	46KB	Proposed changes to Appendix A, existing subparagraphs A.7.3 and A.7.5, to accommodate the 12-bit CPR encoding for TIS-B, presented by Vince Orlando in response to Action Item 3-10	Meeting 4, 05/15/2001 MIT-LL Liaison – DC

Working Paper	Size	Description	Introduced At:
1090-WP-4-10	24KB	Changes made to 1090-WP-3-04 regarding the TCAS RA and changes to Section 3 as a result of discussions at Meeting #3, presented by Greg Kuehl in response to Action Item 3-6	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-11	10KB	Consideration of the need to run cases with 2, 3 and 4 fruit in addition to 0, 1 and 5 fruit during the Enhanced Surveillance Processing Test Procedures, presented by John Van Dongen in response to Action Item 3-14	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-12	218KB	Summary of the Final Report on the 1090 Measurements in Frankfurt, presented by Bill Harman	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-13	34KB	Alternate Tests for Preamble Pulse Tolerance Enhancement (alternate tests for 2.4.4.3.4.7.1), presented by Stacey Rowlan in support of Action Item 3-12	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-14	12KB	Summary of the look into the use of DMTL in preamble validation, presented by Bill Harman in support of Action Item 3-9	Meeting 4, 05/15/2001 MIT-LL Liaison – DC
1090-WP-4-15	11KB	WG-3 concerns regarding ADS-B MASPS Issue Paper 12 requesting TCAS RA information be broadcast in ADS-B On-Condition Messages	Meeting 4, 05/15/2001 MIT-LL Liaison – DC

21. As per Action Item 4-7, a review of DO-260 was accomplished and the following table of open, or unresolved, issues has been generated, along with two issues defined during Meeting #4. WG-3 members should review this list and ensure that there are not other issues known to them that should be on this list. This list will be review at each future meeting for addition or deletion of items.

### Un-resolved Issues or Questions not tracked specifically by Action Items

Issue #	Issue/Question Description	Raised by	Date Raised	Status
1	DO-260 Table 2-11 in Section 2.2.3.2.3.1, NUC <sub>P</sub> code for Type Code=22 is still shown as <b>TBD</b>	Gary Furr	17 May 01	
2	DO-260 Table 2-30 in Section 2.2.3.2.6.1.13, “Turn Indicator” coding is still <b>TBD</b> and the implementer is directed to set the code to ZERO until further notice. If this requirement is deleted, then sections 2.2.3.2.6.2.13, 2.2.3.2.6.3.13, 2.2.3.2.6.4.13, 2.2.5.1.10, 2.2.5.1.15 and 2.2.8.1.19 must also be addressed, along with all of their section 2.4 mates. Also Appendix F, MASPS Ref #R.2.26.	Gary Furr	17 May 01	

Issue #	Issue/Question Description	Raised by	Date Raised	Status
3	DO-260 Table 2-43 in Section 2.2.3.2.7.1.4, the “TCP/TCP+1 Data Valid Subfield” was declared not to be useful during the June 2000 Plenary and the field was declared to be “reserved” and set to ZERO in the initial version of the MOPS. Section 2.4.3.2.7.1.4 only tests for the case where the code is set to ZERO. Until this field has validity, no TCP data will be considered valid! All sections relating to TCP/TCP+1 were left as written in the initial DO-260.	Gary Furr	17 May 01	
4	Sections 2.2.3.2.7.3.3.1 through 2.2.3.2.7.3.4.4 defining both the “Capability Classes” and the “Operational Mode” of the Aircraft Operational Status Message, including Tables 2-54 through 2-61 are full of <b>TBDs</b> . Also affects Appendix F, MASPS Ref R2.31 and R2.32.		17 May 01	
5	DO-260 Table 2-67 in Section 2.2.8.1.5, the “NUC <sub>p</sub> Coding Requirements” contains numerous <b>TBDs</b> .	Gary Furr	17 May 01	
6	DO-260 Table A-2 in Section A.4.1, NUC <sub>p</sub> code for Type Code=22 is still shown as <b>TBD</b>	Gary Furr	17 May 01	
7	DO-260 Section A.4.9.4 was never altered after the June 2000 Plenary which declared the “TCP Data Valid” subfield to be ‘reserved’ and hard wired to ZERO in the initial DO-260.	Gary Furr	17 May 01	
8	Sections A.4.11.3 through A.4.11.10 defining the CC_4, CC_3, CC_2, CC_1, OM_4, OM_3, OM_2 and OM_1 Operational Capabilities and Statuses are full of <b>TBDs</b>	Gary Furr	17 May 01	
9	Appendix F, Ref. #R2.38, the effective coverage of the ground receiver is still <b>TBD</b> .	Gary Furr	17 May 01	
10	Implementation of the Working Papers WP-4-03 and WP-4-06 for TCAS RA, are pending a decision by the Ad Hoc MASPS Working Group on the requirement.	WG-3	16 May 01	
11	Address the issue of whether or not to write a requirement into Section 2.2 of DO-260A for using the “Conservative Error Correction Technique.”	WG-3	15 May 01	