RTCA Special Committee 186, Working Group 3

ADS-B 1090 MOPS, Revision B

Meeting #18

Consolidated List of Currently Known Proposed Changes to DO-260A

Presented by: Gary Furr

SUMMARY
This is a summary of all of the currently known proposed changes to the 1090 MOPS, Revision A document that was published in 2003. This list will continue to be maintained until another revision of the 1090 MOPS is published as a "Change Document" or as a "Revision B."

Changes proposed by WG-3 for possible changes to the 1090 MOPS in preparation for DO-260B

Section	DO-260A Page #	Date Accepted	Description
2.1.12.2 Table 2-6	28		Table 2-6 has the wrong entries in the "Operation" column. This error is also in DO-260 and was not changed by DO-260A. These table entries appear to have been copied from the airborne receiver table and are not appropriate for a ground receiver that is used to support ground surveillance related applications. For now I would suggest the Operation column entries be replaced for C1 and C2 with something generic such as "support cooperative ATC surveillance services" and for C3 "Supports private user operations planning and flight following."
2.2.3.2.1.2 Table 2-9 Table 2-10	39 thru 42		As initiated by the review of the UAT SARPS Technical Manual, and as documented in DO-242A Issue Paper 71, the errors in the determination and validation of the Air/Ground State were originally defined in DO-260 and were carried forward to the ADS-B MASPS (DO-242A), the UAT MOPS (DO-282), and the revised 1090 MHz ES MOPS (DO-260A). The RTCA SC-186 Plenary on 9/18/03 established an ad hoc working group to resolve the errors and to recommend language for the draft ASA MASPS (DO-289). Working Paper **1090-WP-18-03** details the text agreed to by that ad hoc working group, and which was additionally reviewed as Working Paper WG-B06-03, and agreed to by the Technical Subgroup of the ICAO ACP WG-B SCRSP for inclusion in the revision of the 1090 SARPS. <u>Proposed Resolution:</u> It is recommended that the text of WG-B06-03, as agreed to in the ASA MASPS, be adopted to replace the text and table content of the Air/Ground Determination and Validation sections in both DO-260 and DO-260A.

Section	DO-260A Page #	Date Accepted	Description
2.2.3.2.7.1.3.5	107		In the Target State and Status Message we need to add a "**shall**" statement to set the Vertical Mode Indicator to all zeros. We may also want to add a note to explain why this be being done. The note could read: "*Inconsistencies have been identified with how existing onboard data sources represent the data associated with the Vertical Mode Indicator (RTCA/DO-260A, §2.2.3.2.7.1.3.5) and Horizontal Mode Indicator (RTCA/DO-260A, §2.2.3.2.7.1.3.10) parameters. Until these inconsistencies are resolved through a future update to the MOPS (RTCA/DO-260A), these two parameters must be encoded as all zeros, indicating Unknown Mode or Information Unavailable.*"
2.2.3.2.7.1.3.10	109		In the Target State and Status Message we need to add a "**shall**" statement to set the Horizontal Mode Indicator to all zeros. We may also want to add a note to explain why this be being done. The note could read: "*Inconsistencies have been identified with how existing onboard data sources represent the data associated with the Vertical Mode Indicator (RTCA/DO-260A, §2.2.3.2.7.1.3.5) and Horizontal Mode Indicator (RTCA/DO-260A, §2.2.3.2.7.1.3.10) parameters. Until these inconsistencies are resolved through a future update to the MOPS (RTCA/DO-260A), these two parameters must be encoded as all zeros, indicating Unknown Mode or Information Unavailable.*"
2.2.3.2.7.2.11 Table 2-74	125		As a result of International review of several ADS-B standards documents, it has been agreed that the largest "Length" encoding should be 85 meters. It has been further agreed that the largest "Width" encoding should be 90 meters. Therefore, these values should be updated in Table 2-74.
2.2.17.4.6	260		In the TIS-B report assembly description of the MOPS (DO-260A, §2.2.17.4.6) modify the 1st paragraph of text to read: "As TIS-B Messages are received, the information is reported to applications. All received information elements, other than position, **shall** be reported directly, including all reserved fields for the TIS-B fine format messages (§2.2.17.3.1 to §2.2.17.3.4) and the entire message content of any received TIS-B management message (Table 2-106, CF Value =4). The reporting format is not specified in detail, except that the information content reported **shall** be the same as the information content received. The report **shall** be issued within 0.5 seconds of the message."

Section	DO-260A Page #	Date Accepted	Description
2.4.3.2.1.2.1	319 through 321		As initiated by the review of the UAT SARPS Technical Manual, and as documented in DO-242A Issue Paper 71, the errors in the determination and validation of the Air/Ground State were originally defined in DO-260 and were carried forward to the ADS-B MASPS (DO-242A), the UAT MOPS (DO-282), and the revised 1090 MHz ES MOPS (DO-260A). The RTCA SC-186 Plenary on 9/18/03 established an ad hoc working group to resolve the errors and to recommend language for the draft ASA MASPS (DO-289). Working Paper **1090-WP-18-03** details the text agreed to by that ad hoc working group, and which was additionally reviewed as Working Paper WG-B06-03, and agreed to by the Technical Subgroup of the ICAO ACP WG-B SCRSP for inclusion in the revision of the 1090 SARPS. Proposed Resolution: With the adaptation of the text of WG-B06-03, as agreed to in the ASA MASPS, the test procedures for air/ground determination and validation in both DO-260 and DO-260A must be revised.
2.4.3.2.1.2.2 Table 2-124 Table 2-125	321 through 324		As initiated by the review of the UAT SARPS Technical Manual, and as documented in DO-242A Issue Paper 71, the errors in the determination and validation of the Air/Ground State were originally defined in DO-260 and were carried forward to the ADS-B MASPS (DO-242A), the UAT MOPS (DO-282), and the revised 1090 MHz ES MOPS (DO-260A). The RTCA SC-186 Plenary on 9/18/03 established an ad hoc working group to resolve the errors and to recommend language for the draft ASA MASPS (DO-289). Working Paper **1090-WP-18-03** details the text agreed to by that ad hoc working group, and which was additionally reviewed as Working Paper WG-B06-03, and agreed to by the Technical Subgroup of the ICAO ACP WG-B SCRSP for inclusion in the revision of the 1090 SARPS. Proposed Resolution: With the adaptation of the text of WG-B06-03, as agreed to in the ASA MASPS, the test procedures for air/ground determination and validation in both DO-260 and DO-260A must be revised.
2.4.3.2.7.1.3.5	444		In the Target State and Status Message we need to add a "**shall**" statement to set the Vertical Mode Indicator to all zeroes. Proposed Resolution: With the implementation of the new requirement to set the Vertical Mode Indicator to ZERO, a new step will be required in the Test Procedure.

Section	DO-260A Page #	Date Accepted	Description
2.4.3.2.7.1.3.10	449		In the Target State and Status Message we need to add a "**shall**" statement to set the Horizontal Mode Indicator to all zeroes. Proposed Resolution: With the implementation of the new requirement to set the Horizontal Mode Indicator to ZERO, a new step will be required in the Test Procedure.
2.4.17.4.6	737		In the TIS-B report assembly description of the MOPS modify the 1st paragraph of text to read: "As TIS-B Messages are received, the information is reported to applications. All received information elements, other than position, **shall** be reported directly, including all reserved fields for the TIS-B fine format messages (§2.2.17.3.1 to §2.2.17.3.4) and the entire message content of any received TIS-B management message (Table 2-106, CF Value =4). The reporting format is not specified in detail, except that the information content reported **shall** be the same as the information content received. The report **shall** be issued within 0.5 seconds of the message." Proposed Resolution: As a result of the above addition, review the test procedure for revision.
A.1.4.9.6	A-25		To be consistent with the change proposed in §2.2.3.2.7.1.3.5 to add a requirement that the Vertical Mode Indicator be set to all zeros, a statement should be placed in A.1.4.9.6 reflecting that same requirement.
A.1.4.9.11	A-27		To be consistent with the change proposed in §2.2.3.2.7.1.3.10 to add a requirement that the Horizontal Mode Indicator be set to all zeros, a statement should be placed in A.1.4.9.11 reflecting that same requirement.
A.1.4.10	A-31		In the first line of the first paragraph, the Register for the Aircraft Operational Status Message is incorrectly stated as 63 {HEX} and should be corrected to be "Register 65 {HEX}."
A.1.4.10.11 Table A-26	A-36		As a result of International review of several ADS-B standards documents, it has been agreed that the largest "Length" encoding should be 85 meters. It has been further agreed that the largest "Width" encoding should be 90 meters. Therefore, these values should be updated in Table A-26.

Section	DO-260A Page #	Date Accepted	Description
A.1.7.2 Step #1	A-45		The term "TIS-B encoding" used in §A.1.7.2 step #1 and in §A.1.7.3 step #b is vague. It should be clarified that the "TIS-B encoding" in which *Nb* = 12 is to be used only for the TIS-B Coarse Airborne Position Message of Figure A-17 and not for the TIS-B Fine Airborne Position Message (Figure A-12) or the TIS-B Fine Surface Position Message (Figure A-13).
A.1.7.3 Step #b	A-47		The term "TIS-B encoding" used in §A.1.7.2 step #1 and in §A.1.7.3 step #b is vague. It should be clarified that the "TIS-B encoding" in which *Nb* = 12 is to be used only for the TIS-B Coarse Airborne Position Message of Figure A-17 and not for the TIS-B Fine Airborne Position Message (Figure A-12) or the TIS-B Fine Surface Position Message (Figure A-13).
A.1.7.3 Step #b	A-47		The factor *k* used in §A.1.7.3 step #b to describe the "TIS-B encoding" is unnecessary, as this factor should always be unity. (This is under review by James Maynard and may be withdrawn.)
A.1.8	A-63		The Register for the Aircraft Operational Status Message is incorrectly stated as BDS 6,3 and should be corrected to be "BDS 6,5."
Appendix O Table O-3	O-6		In Appendix O, Table O-3 the top level heading for the columns at the far right of the table should be "Trajectory Change Message SUBTYPEs"