

**RTCA Special Committee 186, Working Group 3**

**ADS-B 1090 MOPS, Revision A**

**Meeting #14**

**Proposal to Require Support for Receiving and  
Processing of Version 0 ADS-B 1090 MHz Messages  
In Version 1 Receivers**

**Presented by Ron Jones, FAA ASD-140**

**SUMMARY**

The following changes are proposed in order to require support for Version 0 message reception and use for the purpose of ADS-B Report Generation. This material supplements the proposals of Working Paper 1090-WP-14-03 associated with the proposed new Appendix N, which details Backward Compatibility.

**Paragraph 2.2.6.1** (ADS-B Message Reception Function Requirements)

Add a new item c) under paragraph 2.2.6.1 as shown below:

- c) The ADS-B Message Reception Function **shall** receive and decode ADS-B messages that are transmitted in Version One (1) message formats as defined by §2.2.3.2 and its subparagraphs, and also Airborne Position, Surface Position, Airborne Velocity, Aircraft Status, and Aircraft Operational Status, Identification and Type Messages that are transmitted in Version Zero (0) message formats as defined by Appendix N.2 and its subparagraphs.

**Paragraph 2.2.8.1** (ADS-B State Vector Report Characteristics)

Insert a new second paragraph as follows:

The Report Assembly Function **shall** be compatible with the current and prior versions of the relevant 1090 MHz ADS-B Messages (e.g., Airborne Position, Surface Position, Airborne Velocity) that are used as the basis for generating State Vector Reports. The relevant Version One (1) messages are identified below and the relevant Version Zero (0) messages, conformant to DO-260, and their required use for ADS-B State Vector Report generation are defined in Appendix N, Section N.3.

**Paragraph 2.2.8.2** (ADS-B Mode Status Report Characteristics)

Insert a new second paragraph as follows:

The Report Assembly Function **shall** be compatible with the current and prior versions of the relevant 1090 MHz ADS-B Messages (e.g., Operational Status, Airborne Position, Surface Position, Airborne Velocity, Aircraft Status and Aircraft Identification) that are used as the basis for generating Mode Status Reports. The relevant Version One (1) messages are identified below and the relevant Version Zero (0) messages, conformant to DO-260, and their required use for ADS-B Mode Status Report generation are defined in Appendix N, Section N.4.

**Paragraph 2.2.8.3.1 (ADS-B Target State Report Characteristics)**

Insert a new 2<sup>nd</sup> paragraph and Note as follows:

The Report Assembly Function **shall** be compatible with the current version of the relevant 1090 MHz ADS-B Messages (e.g., Target State and Status) that are used to as the basis to generate Target State Reports. The relevant Version One (1) messages are identified below.

Note: Version 0 messages cannot be used as the basis for Target State Reports, because there are no Version 0 messages that contain the necessary data elements.

**Paragraph 2.2.8.3.2 (Air Referenced Velocity (ARV) Report)**

Break the current first paragraph text after the first sentence and insert the following new text as a second paragraph. The remaining text of the current first paragraph, (ie., “If data is not available.....”) would then become the third paragraph.

The Report Assembly Function **shall** be compatible with the current and prior versions of the relevant 1090 MHz ADS-B messages (e.g., Airborne Velocity) that are used to as the basis to generate Air Referenced Velocity Reports. The relevant Version 1 messages are identified below and the relevant Version Zero (0) messages, conformant to DO-260, and their required use for Air Referenced Velocity Report generation are defined in Appendix N, section N.5.

**Paragraph 2.2.9.1 (ADS-B Receiver Reporting Requirements for Class A Equipage) – Add a new second paragraph:**

The Report Assembly Function **shall** maintain backward compatibility with prior versions of the relevant 1090 MHz ADS-B messages (i.e., Airborne Position, Surface Position, Airborne Velocity, Aircraft Status, and Aircraft Operational Status, Identification and Type) that are used as the basis for generating State Vector, Air Referenced Velocity and Mode Status Reports. The relevant Version Zero (0) message formats, conformant to DO-260, and their required use for ADS-B report generation are defined in Appendix N.

**Paragraph 2.2.9.1.3** (ADS-B Target State Reports for Class A Equipage) – Add new third paragraph and a Note:

- c. Target State Reports for newly acquired target aircraft shall not be provided until or unless an Aircraft Operational Status Message (§2.2.3.2.7.2) has been received from the target aircraft indicating an ADS-B Version Number of other than Zero (0).

*Note: Version Zero (0) messages that convey trajectory intent information using message Type Code 29 (see Appendix N) are not to be used by 1090 MHz ADS-B receiving systems conformant to this MOPS for the purpose of report generation. Therefore a positive determination that the applicable Version Number is other than Zero (0) for a received message with a Type Code of 29 is necessary in order to avoid errors in the reporting of the aircraft target state.*