

**RTCA Special Committee 186, Working Group 5**

**ADS-B UAT MOPS (DO-282), Revision A**

**Meeting #19**

**Proposal to Revise the Test Procedure for  
Section 2.4.6.2.2**

**Presented by: Tom Mosher, Garmin AT**

<b>SUMMARY</b>
<b>This Working Paper suggests a modification to the Test Procedure of §2.4.6.2.2, which corresponds to the changes adopted for §2.2.6.2.2 during Meeting #18. The change will basically remove references to the absolute UTC timing and will combine steps 3 and 4.</b>

**1 PURPOSE AND SCOPE****2 Equipment Performance Requirements and Test Procedures****2.1 General Requirements****2.2 Equipment Performance – Standard Conditions****2.3 Equipment Performance – Environmental Conditions****2.4 Equipment Test Procedures****2.4.1****2.4.2****2.4.3****2.4.4****2.4.5****2.4.6****2.4.6.1****2.4.6.2****2.4.6.2.1****2.4.6.2.2 Verification of Relationship of the MSO to the Modulated Data (subparagraph 2.2.6.2.2)****Purpose/Introduction:**

This procedure verifies that the timing relationship between the Transmit MSO number and the data modulation complies with the requirements of subparagraph 2.2.6.2.2.

**Equipment Required:**

Supply the UUT with a pseudorandom stream of payload data.

Provide a 1 PPS second timing signal to act as a reference for that being used by the UUT.

Provide a Vector Signal Analyzer (VSA), per §2.4.2.1, configured per Table 2-71, excepting use of external trigger mode.

---

Provide a trigger timing delay generator connected between the timing reference source, and the VSA external trigger input. Timing delay range is from 194.000 milliseconds to 993.750 milliseconds.

Provide access to live GPS constellation signals or simulated signal source if necessary.

Step 1: Configure the UUT transmitter

Configure the UUT in a test mode that causes the Tx MSO to be selected in sequence from the following list: MSO = (752, 2352, 3951).

**Note:** *This sequence causes the UUT transmitter to transmit at the earliest, middle, and latest possible MSOs in the Air segment.*

Step 2: Trigger delay setup.

Set the trigger delay generator so that the 1 PPS timing source is delayed by 194.000 milliseconds for MSO 752, 594.000 milliseconds for MSO 2352, or 993.750 milliseconds for MSO 3951.

Step 3: Measure the Modulated Data Timing

On Trace A on the VSA, find the optimum sample point of the first bit of the 36-bit synchronization pattern. The time offset between the trigger point and this optimum sample point should meet the timing requirements of §2.2.6.2.2.a or b. as appropriate. (i.e. +/- 500 nanoseconds).

**Note:** *Measurement to other reference points within the modulation data stream may be used to verify the timing requirements. Apply time compensation as necessary from the measurement point to the optimum sample point of the first bit of the synchronization pattern.*