

2.4.3.3.2.6.1 Verification of ADS-B Aircraft Trajectory Intent Message Broadcast Rates (subparagraph 2.2.3.3.2.6.1)

Equipment Required:

Provide a Method of loading valid data for ADS-B broadcast messages into the ADS-B equipment under test.

Provide a method of detecting the RF pulses of the ADS-B Broadcast Message for display on an oscilloscope.

Measurement Procedure:

Step 1: Initialization (subparagraph 2.2.3.3.2.6.1.a and b)

Ensure that no Trajectory Intent data is available. Verify that no Trajectory intent message is output for a period of 20 seconds. Inject the appropriate valid ADS-B Trajectory Intent data and verify that the ADS-B Trajectory Intent message is broadcast at intervals that are distributed over the range of 1.6 to 1.8 seconds as specified in subparagraph 2.2.3.3.2.6.1.b for as long and data is available.

Repeat the procedure for each Trajectory Intent message independently as necessary.

Step 2: Data Ceases to be Updated (Subparagraph 2.2.3.3.2.11)

Establish the broadcast of the ADS-B Trajectory Intent message as in Step 1 above. Then stop the input of data for the ADS-B Trajectory Intent message.

Verify that the ADS-B Trajectory Intent message continues to be broadcast with the same data that existed prior to stopping the data input for up to 60 +/- 1 second after stopping the data input.

Verify that the ADS-B Trajectory Intent message is no longer broadcast 60 +/- 1 seconds after stopping the data input.

Repeat the procedure for each Trajectory Intent message independently as necessary.

Step 3: Termination of Aircraft Trajectory Intent Message(s) while transmitting high-rate Aircraft Operational Status Messages (subparagraph 2.2.3.3.2.6.1.c)

Establish the broadcast of the ADS-B Trajectory Intent Message as in Step 1 above. Alter input data to cause the Aircraft Operational Status Message to be broadcast at the high-rate as defined in subparagraph 2.2.3.3.2.6.3.b. Verify that the Aircraft Trajectory Intent Message is not being transmitted during the period of high-rate transmission of the Aircraft Operational Status Message.

2.4.3.3.2.6.2 Verification of ADS-B Aircraft Operational Coordination Message Broadcast Rates (subparagraph 2.2.3.3.2.6.2)

Equipment Required:

Provide a method of loading valid data for ADS-B broadcast messages into the ADS-B equipment under test.

Provide a method of detecting the RF pulses of the ADS-B Broadcast Message for display on an oscilloscope.

Measurement Procedure:

Step 1: Initialization (subparagraph 2.2.3.3.2.6.2.a and b)

Ensure that no Aircraft Operational Coordination data is available. Verify that no Operational Coordination message is output for a period of 20 seconds. Inject the appropriate valid ADS-B Operational Coordination data. Verify that the ADS-B Aircraft Operational Coordination message is broadcast at intervals that are distributed over the range of 1.9 to 2.1 seconds as specified in subparagraph 2.2.3.3.2.6.2.b for a period of 30 +/- 1 seconds.

Step 2: Steady State (Subparagraph 2.2.3.3.2.6.2.c)

Initialize the equipment as in Step 1 above and when a time of 19 seconds has elapsed, verify that the ADS-B Aircraft Operational Coordination message is broadcast at intervals that are distributed over the range of 4.8 to 5.2 seconds as specified in subparagraph 2.2.3.3.2.6.1.c.

Step 3: Changed Data (subparagraph 2.2.3.3.2.6.2.b)

With the equipment in the steady state as in Step 2 above, change the Operational Coordination data. Verify that the ADS-B Aircraft Operational Coordination message is broadcast at intervals that are distributed over the range of 1.9 to 2.1 seconds as specified in subparagraph 2.2.3.3.2.6.2.b for a period of 30 +/- 1 seconds. Also verify that the steady state ADS-B Aircraft Operational Coordination message is broadcast at random intervals that are uniformly distributed over the range of 4.8 to 5.2 seconds as specified in subparagraph 2.2.3.3.2.6.2.c, 31 seconds after the data change. Repeat Step 3 ten times verifying correct operation for each change of data.

Step 4: Data Ceases to be Updated (Subparagraph 2.2.3.3.2.11)

Establish the broadcast of the ADS-B Operational Coordination message as in Step 1 above. Then stop the input of data for the ADS-B Operational Coordination message.

Verify that the ADS-B Operational Coordination message continues to be broadcast with the same data that existed prior to stopping the data input for up to 60 +/- 1 second after stopping the data input.

Verify that the ADS-B Operational Coordination message is no longer broadcast 60 +/- 1 seconds after stopping the data input.

2.4.3.3.2.6.3 Verification of ADS-B Aircraft Operational Status Message Broadcast Rates (subparagraph 2.2.3.3.2.6.3)

Equipment Required:

Provide a method of loading valid data for ADS-B broadcast messages into the ADS-B equipment under test.

Provide a method of detecting the RF pulses of the ADS-B Broadcast Message for display on an oscilloscope.

Measurement Procedure:

Step 1: Initialization (subparagraph 2.2.3.3.2.6.3.a and b)

~~Ensure that no Aircraft Operational Status data is available. Verify that no Aircraft Operational Status message is output for a period of 20 seconds. Inject the appropriate valid Configure the ADS-B Transmitting System to transmit ADS-B Aircraft Operational Status Messages, data. Verify that the ADS-B Aircraft Operational Status message is broadcast at intervals that are distributed over the range of 1.6 to 1.8 seconds as specified in subparagraph 2.2.3.3.2.6.3.b a. for a period of 30 +/- 1 seconds.~~

Step 2: High-Rate Transmission (subparagraph 2.2.3.3.2.6.3.b)

~~Establish the broadcast of the ADS-B Aircraft Operational Status Message as in Step 1 above. Alter input data to cause the Aircraft Operational Status Message to be broadcast at the high-rate as defined in subparagraph 2.2.3.3.2.6.3.b. Verify that the Aircraft Operational Status Message is broadcast at random intervals that are uniformly distributed over the range of 0.5 to 0.7 seconds relative to the previous Aircraft Operational Status Message, for a period of 18 seconds, +/- 1 second. During this period, verify that the Aircraft Trajectory Intent Message is not being transmitted.~~

Step 3: Data Ceases to be Updated (Subparagraph 2.2.3.3.2.11)

Establish the broadcast of the ADS-B Operational Status message as in Step 1 above. Then stop the input of data for the ADS-B Operational Status message.

Verify that the ADS-B Operational Status message ~~is no longer broadcast 60 +/- 1 seconds after stopping the data input.~~ continues to be broadcast at intervals that are distributed over the range of 1.6 to 1.8 seconds as specified in subparagraph 2.2.3.3.2.6.3.a.