

2.4.10.2 Verification of the Report Assembly Initialization State (subparagraph 2.2.10.2)

Appropriate test procedures for verifying that the Report Assembly Function correctly enters the “Initialization State” are provided in subparagraph 2.4.10.1.3.

2.4.10.3 Verification of the Report Assembly Acquisition State (subparagraph 2.2.10.3)

No specific test procedure is required to validate subparagraph 2.2.10.3

2.4.10.3.1 Verification of the Report Assembly Acquisition State --- Airborne Participant (subparagraph 2.2.10.3.1)

Purpose/Introduction

Upon receipt of an “*even*” and an “*odd*” encoded Airborne Position Message from a given Participant within a ten second period, the Report Assembly Function shall:

- a. Perform a successful Globally Unambiguous CPR decode of the Participant Position in accordance with section A.7.7 of Appendix A,
- b. Set the Report Mode to “Acquisition” for the given Airborne Participant in the State Vector Report (see section 2.2.8.1) in accordance with section 2.2.8.1.28,
- c. Structure all possible fields of the State Vector Report for the given Airborne Participant in accordance with section 2.2.8.1 (all subsections inclusive),
- d. Deliver the first structured State Vector Report for the given Airborne Participant to the Report Output Storage Buffer for subsequent access by the Application Interface on demand,
- e. Continue to maintain the integrity of the State Vector Report for the given Airborne Participant in the Report Output Storage Buffer for at least 200 seconds unless replaced by an updated State Vector Report or otherwise specified in the following sections, the conditions of the following subparagraphs shall apply:
- f. If a new Position Message is not received within a ~~25-120~~ second period, then the Globally Unambiguous CPR decode performed in step a. shall be considered to be invalid, and the Report Assembly Function shall return to the Initialization State. (In order to proceed to the Track State for this Airborne Participant, the Globally Unambiguous CPR decode will need to be repeated.)

Note: *This action effectively represents a return to the Initialization State with the exception that the return is to step a. above, and the report is retained as per step e. The purpose of this action is to minimize the need to perform the Globally Unambiguous CPR decode since it is not necessary when position messages have been received within the reasonable time limit of ~~25-120~~ seconds. This action is illustrated in Figure 2-16b.*

- g. If no new messages have been received from a given Airborne Participant for at least 200 seconds, then all reports relevant to the Participant Address shall be deleted from the Report Output Storage Buffer.

Measurement Procedure:

Step 1: Globally Unambiguous CPR Decode

It is not the purpose of this Test procedure to re-test the individual elements of this requirement such as Globally Unambiguous CPR Decode and State Vector Report generation. These elements are tested elsewhere in these procedures.

Therefore, using the Airborne scenario and simulation set up in Step 1 of subparagraph 2.4.10.1.3 above, verify that for each Participant for which an “**even**” and an “**odd**” pair of encoded Airborne Position Messages is received within a ten (10) second period that the Report Assembly Function correctly performs a successful Globally Unambiguous CPR Decode in accordance with Section A.7.7 of Appendix A.

Step 2: Report Mode set to Acquisition

Verify that for each Participant in the Airborne scenario and simulation set up in Step 1 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Airborne Position Message was received within a ten (10) second period that the Report Assembly Function correctly sets the Report Mode to “Acquisition” in the State Vector Report in accordance with the formatting specified in subparagraph 2.2.8.1.28.

Step 3: State Vector Report Creation

Verify that for each Participant in the Airborne scenario and simulation set up in Step 1 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Airborne Position Message was received within a ten (10) second period that the Report Assembly Function correctly structures all possible fields of the State Vector Report for the given Airborne Participant in accordance with subparagraph 2.2.8.1 (all subsections inclusive).

Step 4: Report Output Storage Buffer Initialization

Verify that for each Participant in the Airborne scenario and simulation set up in Step 1 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Airborne Position Message was received within a ten (10) second period that the Report Assembly Function correctly delivers the first structured State Vector Report for the given Airborne Participant to the Report Output Storage Buffer for subsequent access by the Application Interface, within 500 milliseconds of receipt of the second Airborne Position Message of the “**even**” and “**odd**” pair for the given Airborne Participant.

Step 5: Maintenance of Report Output Storage Buffer

Verify that for each Participant in the Airborne scenario and simulation set up in Step 1 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1

above that an “**even**” and an “**odd**” encoded Airborne Position Message was received within a ten (10) second period that the Report Assembly Function correctly maintains the integrity of the State Vector Report for the given Airborne Participant in the Report Output Storage Buffer for at least 200 seconds unless:

- a. replaced by an updated State Vector Report, or
- b. no new messages have been received from a given Airborne Participant for a period of 100 +/- 5 seconds, in which case, verify that all reports relevant to the Airborne Participant Address have been deleted from the Report Output Storage Buffer.

Step 6: New Globally Unambiguous CPR Decode

Verify that for each Participant in the Airborne scenario and simulation set up in Step 1 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Airborne Position Message was received within a ten (10) second period that the Report Assembly Function correctly maintains the integrity of the State Vector Report for the given Airborne Participant in the Report Output Storage Buffer for at least 200 seconds unless a new Airborne Position Message is received within a ~~25-120~~ second period for the given Airborne Participant.

Verify that when a new Airborne Position Message is received for a given Airborne Participant within a ~~25-120~~ second period, that the Report Assembly Function performs a new Globally Unambiguous CPR Decode as specified in Step 1 above and verify that the new information is correctly updated in the State Vector Report and the Report Output Storage Buffer for the given Airborne Participant.

Verify that when no new Airborne Position Message is received for a given Airborne Participant within a ~~25-120~~ second period, that the Report Assembly Function correctly sets the Report Mode to “Initialization” (No Report Generation Capability mode) in the State Vector Report in accordance with the formatting in subparagraph 2.2.8.1.28.

Step 7: Purge Participant from the Report Output Storage Buffer

Verify that for each Participant in the Airborne scenario and simulation set up in Step 1 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Airborne Position Message was received within a ten (10) second period that the Report Assembly Function correctly maintains the integrity of the State Vector Report for the given Airborne Participant in the Report Output Storage Buffer for at least 200 seconds unless replaced by an updated State Vector Report for the given Airborne Participant

Verify that when no new Messages of any type have been received from a given Airborne Participant for at least 200 seconds, that the Report Assembly

Function correctly deletes all reports relevant to the given Airborne Participant Address from the Report Output Storage Buffer.

2.4.10.3.1.1 Verification of the Latency, Report Assembly Acquisition State --- Airborne Participant (subparagraph 2.2.10.3.1.1)

Purpose/Introduction:

Step “d” in subparagraph 2.2.10.3.1 shall be completed within 500 milliseconds of receipt of the second Airborne Position Message of the “**even**” and “**odd**” pair.

Measurement Procedure:

Appropriate test procedures for the verification of this requirement are provided in subparagraph 2.4.10.3.1, Step 4.

2.4.10.3.2 Verification of the Report Assembly Acquisition State --- Surface Participant (subparagraph 2.2.10.3.2)

Purpose/Introduction

Upon receipt of an “**even**” and an “**odd**” encoded Surface Position Message from a given Participant within a ten second period, the Report Assembly Function shall:

- a. Perform a successful Locally Unambiguous CPR decode of the Participant Position in accordance with section A.7.6 of Appendix A,
- b. Set the Report Mode to “Track” for the given Surface Participant in the State Vector Report (see section 2.2.8.1) in accordance with section 2.2.8.1.28,
- c. Structure all possible fields of the State Vector Report for the given Surface Participant in accordance with section 2.2.8.1 (all subsections inclusive),
- d. Deliver the first structured State Vector Report for the given Surface Participant to the Report Output Storage Buffer for subsequent access by the Application Interface on demand,
- e. Continue to maintain the integrity of the State Vector Report for the given Surface Participant in the Report Output Storage Buffer for at least 200 seconds unless replaced by an updated State Vector Report or otherwise specified in the following sections, and the conditions of the following subparagraphs shall apply:
- f. If a new Position Message is not received within a ~~25-120~~ second period, then the Locally Unambiguous CPR decode performed in step a. shall be considered to be invalid. In order to proceed from the Acquisition State to the Track State, the Locally Unambiguous CPR decode must be repeated.

Note: *This action effectively represents a return to the Initialization State with the exception that the return is to step a. above, and the report is retained as per step e. The purpose of this action is to minimize the need to perform the*

Locally Unambiguous CPR decode since it is not necessary when position messages have been received within the reasonable time limit of ~~25~~120 seconds. This action is illustrated in Figure 2-16b.

- g. If no new messages have been received from a given Surface Participant for at least 200 seconds, then all reports relevant to the Participant Address shall be deleted from the Report Output Storage Buffer.

Measurement Procedure:

Step 1: Locally Unambiguous CPR Decode

It is not the purpose of this Test procedure to re-test the individual elements of this requirement such as Locally Unambiguous CPR Decode and State Vector Report generation. These elements are tested elsewhere in these procedures.

Therefore, using the Surface scenario and simulation set up in Step 2 of subparagraph 2.4.10.1.3 above, verify that for each Participant for which an “**even**” and an “**odd**” pair of encoded Surface Position Messages is received within a ten (10) second period that the Report Assembly Function correctly performs a successful Locally Unambiguous CPR Decode in accordance with Section A.7.6 of Appendix A.

Step 2: Report Mode set to Track

Verify that for each Participant in the Surface scenario and simulation set up in Step 2 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Surface Position Message was received within a ten (10) second period that the Report Assembly Function correctly sets the Report Mode to “Track” in the State Vector Report in accordance with the formatting specified in subparagraph 2.2.8.1.28.

Step 3: State Vector Report Creation

Verify that for each Participant in the Surface scenario and simulation set up in Step 2 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Surface Position Message was received within a ten (10) second period that the Report Assembly Function correctly structures all possible fields of the State Vector Report for the given Surface Participant in accordance with subparagraph 2.2.8.1 (all subsections inclusive).

Step 4: Report Output Storage Buffer Initialization

Verify that for each Participant in the Surface scenario and simulation set up in Step 2 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Airborne Position Message was received within a ten (10) second period that the Report Assembly Function correctly delivers the first structured State Vector Report for the given Surface Participant to the Report Output Storage Buffer for subsequent access by the

Application Interface, within 500 milliseconds of receipt of the second Surface Position Message of the “**even**” and “**odd**” pair for the given Surface Participant.

Step 5: Maintenance of Report Output Storage Buffer

Verify that for each Participant in the Surface scenario and simulation set up in Step 2 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Surface Position Message was received within a ten (10) second period that the Report Assembly Function correctly maintains the integrity of the State Vector Report for the given Surface Participant in the Report Output Storage Buffer for at least 200 seconds unless:

- a. Replaced by an updated State Vector Report, or
- b. No new messages have been received from a given Surface Participant for a period of 100 +/- 5 seconds, in which case, verify that all reports relevant to the Surface Participant Address have been deleted from the Report Output Storage Buffer.

Step 6: New Locally Unambiguous CPR Decode

Verify that for each Participant in the Surface scenario and simulation set up in Step 2 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Surface Position Message was received within a ten (10) second period that the Report Assembly Function correctly maintains the integrity of the State Vector Report for the given Surface Participant in the Report Output Storage Buffer for at least 200 seconds unless a new Surface Position Message is received within a ~~25-120~~ second period for the given Surface Participant.

Verify that when no new Surface Position Message is received for a given Surface Participant within a ~~25-120~~ second period, that the Report Assembly Function performs a new Locally Unambiguous CPR Decode as specified in Step 1 above and verify that the new information is correctly updated in the State Vector Report and the Report Output Storage Buffer for the given Surface Participant.

Step 7: Purge Participant from the Report Output Storage Buffer

Verify that for each Participant in the Surface scenario and simulation set up in Step 2 of subparagraph 2.4.10.1.3 above, where you have verified in Step 1 above that an “**even**” and an “**odd**” encoded Surface Position Message was received within a ten (10) second period that the Report Assembly Function correctly maintains the integrity of the State Vector Report for the given Surface Participant in the Report Output Storage Buffer for at least 200 seconds unless replaced by an updated State Vector Report for the given Surface Participant