

**ASAS MOPS Inputs  
for  
TIS-B/ADS-R Service Status**

Description	Para	Test Para	Action
Assumptions	1.5.1.7	N/A	Assumptions Re-Written
ASSAP Input	2.2.2.1.3	2.5.2.1.3	TIS-B/ADS-R Service Status added as an additional ASSAP input.
TIS-B/ADS-R Service Status Processing	2.2.6	2.5.6/2.5.7	
- Airborne	2.2.6.1	2.5.6.1/2.5.4.1	Requirements and Test Procedure for Airborne TIS-B/ADS-R Service Status
- Surface	2.2.6.2	2.5.6.2/2.5.4.2	Requirements and Test Procedure for Airborne TIS-B/ADS-R Service Status
CDTI Display	2.3.6.4.3	Paragraph Number TBD	Requirement to display Service Status
ASSA/FAROA Airport Selection	2.3.2.4.6	Paragraph Number TBD	Requirement for CDTI to output ASSA/FAROA airport selection to the ASSAP so the ASSAP can determine Service Status
Appendix H Rewrite			Update with Ops/Ground Concept

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**1.5.1.7 TIS-B/ADS-R Service Status [Rewrite Para]**

Requirements in this document for TIS-B and ADS-R Service Status assume that the ground station is providing a combined TIS-B/ADS-R Service Status message on both the UAT and 1090ES links in the format described in Appendix H. Appendix H also provides information and an example implementation for the TIS-B/ADS-R Service Status annunciation.

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**2.2.2.1.3 TIS-B/ADS-R Service Status Input Requirements [Add this Para]**

The ASSAP function shall receive the TIS-B/ADS-R Service Status message from the ADS-B/TIS-B Receiver when available.

**2.5.2.1.3 Verification of TIS-B/ADS-R Service Status Input [Add this TEST]**

Accomplish the test procedures in 2.5.6.1/2.5.7.1 to verify this requirement.

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**2.2.6 TIS-B/ADS-R Service Status [Add this Para]**

The ASSAP **shall** monitor the TIS-B/ADS-R Service Status message from the ADS-B/TIS-B receiver.

Note: Manufacturers may provide an installation method to disable TIS-B/ADS-R Service Status for aircraft operating in countries that do not provide TIS-B or ADS-R services.

Note: The ASSAP may monitor the accuracy and integrity metrics of each ADS-B, TIS-B, and ADS-R target received from the ADS-B/TIS-B receiver. If a target within 15nm and 3000 feet of ownship does not meet the applicable data quality requirements in Table 2.X the ASSAP may provide an indication to the CDTI that could be used to tell the operator that the traffic picture is incomplete.

**2.5.6/2.5.7 Verification of TIS-B/ADS-R Service Status [Add this TEST]**

Accomplish the test procedures in 2.5.6.1/2.5.7.1 to verify this requirement.

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### 2.2.6.1 Airborne TIS-B/ADS-R Service Status **[Add this Para]**

If a TIS-B/ADS-R Service Status message has been received within the previous 40 seconds with the ownship's 24-bit address and an in-service bit the ASSAP **shall** provide an indication to the CDTI that the aircraft is within TIS-B/ADS-R coverage. Otherwise the ASSAP **shall** indicate to the CDTI that the aircraft is not within TIS-B/ADS-R coverage or the traffic picture is incomplete.

Aircraft equipped with an operational ACAS system **shall** not display TIS-B/ADS-R Service Status for airborne applications. ACAS equipped aircraft display airborne TIS-B and ADS-R targets as ACAS targets if TIS-B or ADS-R is unavailable, and thus it would be misleading to provide the pilot with an indication that the traffic picture is incomplete. The ground system does not send TIS-B/ADS-R Service Status messages to aircraft that indicate that ACAS is installed and operating in a mode that can provide Resolution Advisories.

### 2.5.6.1/2.5.7.1 Verification of Airborne TIS-B/ADS-R Service Status **[Add this TEST]**

Step 1: Ensure no DF=18, CF=4 message is being received from the ADS-B/TIS-B receiver. Verify that the TIS-B/ADS-R service status indication on the CDTI indicates that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Step 2: Transmit a DF=18, CF=4, Airborne Type message that does not include the ownship 24-bit ICAO address. Verify that the TIS-B/ADS-R service status indication on the CDTI continues to indicate that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Step 3: Transmit a DF=18, CF=4, Airborne Type message that contains the ownship 24-bit ICAO address with an in-service bit at least every six seconds. Verify that the TIS-B/ADS-R service status indication on the CDTI changes to indicate that TIS-B/ADS-R service is available, or that the traffic picture is complete.

Step 4: Stop including the ownship 24-bit ICAO address but continue transmitting the DF=18, CF=4, Airborne Type message. Verify that within 40 seconds that the CDTI indicates that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Step 5: Repeat Step 3. After step 3 verification stop transmitting the DF=18, CF=4, Airborne Type message completely. Verify that within 40 seconds that the CDTI indicates that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Step 6: Repeat Step 3. After step 3 verification transmit the DF=18, CF=4, Airborne Type message that contains the ownship 24-bit ICAO address with an out-of-service bit one time. Continue the DF=18, CF=4 message every six seconds without the ownship 24-bit ICAO address. Verify that within 5 seconds that the CDTI indicates that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Note: Aircraft with an installed and operable ACAS do not need to accomplish this test.

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### 2.2.6.2 Surface TIS-B/ADS-R Service Status [\[Add this Para\]](#)

If a TIS-B/ADS-R Service Status message has been received within the previous 40 seconds with the applicable three letter airport identifier the ASSAP **shall** provide an indication to the CDTI that the applicable surface service volume is within TIS-B/ADS-R coverage. Otherwise the ASSAP **shall** indicate to the CDTI that the applicable surface service volume is not within TIS-B/ADS-R coverage. The applicable surface service volume is chosen by the operator through the CDTI.

### 2.5.6.2/2.5.7.2 Verification of Surface TIS-B/ADS-R Service Status [\[Add this TEST\]](#)

Step 1: On the CDTI, select the ASSA or FAROA application.

Step 2: On the CDTI, select the ASSA or FAROA airport from within the airport database

Step 3: Ensure no DF=18, CF=4 message is being received from the ADS-B/TIS-B receiver. Verify that the TIS-B/ADS-R service status indication displayed on the ASSA or FAROA application display of the CDTI indicates that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Step 4: Transmit a DF=18, CF=4, Surface Type message that does not include the applicable 3-letter airport identifier. Verify that the TIS-B/ADS-R service status indication displayed on the ASSA or FAROA application display of the CDTI continues to indicate that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Step 5: Transmit a DF=18, CF=4, Surface Type message that contains the applicable 3-letter airport identifier with an in-service bit at least every six seconds. Verify that the TIS-B/ADS-R service status indication displayed on the ASSA or FAROA application display of the CDTI changes to indicate that TIS-B/ADS-R service is available, or that the traffic picture is complete.

Step 6: Stop including the applicable 3-letter airport identifier, but continue transmitting the DF=18, CF=4, Surface Type message. Verify that within 40 seconds the TIS-B/ADS-R service status indication displayed on the ASSA or FAROA application display of the CDTI indicates that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Step 7: Repeat Step 5. After step 5 verification stop transmitting the DF=18, CF=4, Surface Type message completely. Verify that within 40 seconds the TIS-B/ADS-R service status indication displayed on the ASSA or FAROA application display of the CDTI indicates that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Step 8: Repeat Step 5. After step 5 verification transmit the DF=18, CF=4, Surface Type message that contains the applicable 3-letter airport identifier with an out-of-service bit one time. Continue the DF=18, CF=4 Surface Type message every six seconds without the applicable 3-letter airport identifier. Verify that within 5 seconds the TIS-B/ADS-R service status indication displayed on the ASSA or FAROA application display of the CDTI indicates that TIS-B/ADS-R service is not available, or that the traffic picture is incomplete.

Note: Aircraft with an installed and operable ACAS must accomplish this test.

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**2.3.6.4.3 TIS-B/ADS-R Service Status [Add this Para]**

The CDTI **shall** display TIS-B/ADS-R Service Status received from ASSAP.

TIS-B/ADS-R Service Status **shall** be displayed in a manner consistent with the overall flight deck design philosophy. An example is included in Appendix H.

**TEST Verification of TIS-B/ADS-R Service Status [Add this TEST]**

Accomplish the test procedures in 2.5.6.1/2.5.7.1 to verify this requirement.

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**2.3.2.4.6 ASSA/FAROA Airport Selection [Add this Para]**

The CDTI **shall** output the airport selected for an ASSA or FAROA application to the ASSAP. The ASSAP uses this information to determine TIS-B/ADS-R service status for the selected airport.

**TEST Verification of ASSA/FAROA Airport Selection [Add this TEST]**

Step 1: On the CDTI, select the ASSA or FAROA application.

Step 2: On the CDTI, select the ASSA or FAROA airport from within the airport database

Step 3: Verify that the CDTI outputs the selected airport's three letter identifier to the ASSAP.

Note: Accomplishing the verification procedure in paragraph 2.5.6.2/2.5.7.2 is also an acceptable verification.

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