



DSAT-300 EMI/RFI Test Report
DOC0593

Applies to:
108-300-01
108-300-02

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1 Purpose

The purpose of this test report is to verify that operation of the DSAT-300 does not interfere with basic aircraft systems and avionics.

As with any electronic equipment, portable or installed, it is ultimately up the user to ensure there is no interference with existing aircraft electronic systems.

This test (or equivalent) shall be completed with the DSAT-300 on board the aircraft.

Successful completion of this test is required to show compliance with FAA AC25-10 and:

1. FAR 23.1301 and 23.1431
2. FAR 27.1301
3. FAR 25.1301
4. FAR 29.1301, 29.1431

2 Procedure

Refer to the test grid on the following pages.

The tests are to be carried out by a qualified pilot, and witnessed by a Licensed AME. Both the pilot and AME (or A&P as applicable) should sign and date the report upon completion.

Tests must be long enough duration such that the DSAT-300 sends a position report during the test. Position reporting interval can be lowered to reduce test time. The optional PDA with STS software should also be tested if to be used as part of the DSAT system. The testers must confirm that the DSAT-300 is transmitting. Either an in-line wattmeter inserted in the Iridium[®] antenna line (for DSAT-300E), or SkyTrac Base stations monitoring the tests are acceptable methods of confirming transmission. With all avionics and the DSAT-300 powered on, engines running, AC and/or DC generators on-line (ground power disconnected) and all normal systems energized, complete the tests listed below. Monitor the headsets, and aircraft instruments and indicators.

During each test, record any observed interference and appropriate comments.

3 Aircraft and Unit Checklist

3.1 Test Report Information

Type of Test (eg. STC, LSTC, FAA 337, Functional Test)	
Dockets	

3.2 Aircraft

Aircraft Manufacturing Model	
Aircraft Serial Number	
Aircraft Registration	
Airframe	

3.3 DSAT-300I

DSAT-300 stationed with clear view to sky	
DSAT-300 Serial Number	
Power	Battery ESS NON-ESS Bus Name:
Circuit Breaker	Label: _____ Rating _____ Amperes _____

3.4 DSAT-300E

Fixed antenna installed at location	
Portable antennas installed at location	
DSAT-300 Serial Number	
Power	Battery ESS NON-ESS Bus Name:
Circuit Breaker	Label: _____ Rating _____ Amperes _____

3.5 Optional Components

Bluetooth Dongle Installed?	NO YES (if yes, fill in the remaining information otherwise skip)
Bluetooth Dongle Part Number	
Bluetooth Dongle Serial Number	
Associated PDA Model	
Associated PDA Part Number	
Associated PDA Serial number	

4 Test Results

4.1 Preliminary

Step	Detail	Data	OK	Comment
1	Date:			
2	Pilot:			
3	AME/A&P:			
4	All Avionics powered on including WX Radar – radar to STBY if safety situation requires			
5	Engines running and all normal flight systems operating. All generators operating and charging			
6	Complete the tests below.			

4.2 DSAT-300 with Optional Interface Functional Test

If section 3.5 was affirmative, arrangements should be made in advance for someone to monitor SkyTrac Base stations, and send and receive test messages via Bluetooth/Blackberry.

Step	Detail	Response	OK	Comment
1	Power on. (Refer to the DSAT-300 User's Guide DOC0594)	The PWR LED should be ON solid green. If any other LED turns on (amber), wait 2-5 minutes and verify that the amber LEDs turn back off.		
2	Activate DSAT-300 Emergency (Push button twice)	DSAT-300 EMER LED should turn amber (on). Confirm that Emergency mode is operating with ground station or SkyTrac.		
3	5 Switch off the DSAT-300 Emergency mode (Push button twice)	Emergency mode is disabled.		
4	DSAT-300 LED dimming	Confirm bright /dim function operates, and that the LEDs are visible in bright sunlight and dark cockpit conditions. For more information refer to the DSAT-300 User's Guide (DOC0594). •		
5	Text Message/E-mail (if applicable)	Send a text message, receive a text message via Bluetooth/Blackberry For more information, refer to the DSAT-300 User's Guide (DOC0594).		
6	Power off	After up to 3 to 5 minutes, the power LED shall extinguish		

5.1 Radio and Communications RFI (DSAT-300 system source)

In this set of tests, the DSAT-300 is the source, and radios and avionics are the victims.

Refer to DSAT-300 User's Guide (DOC0594) for additional information.

Operate the DSAT-300 for at least 10 minutes so that several position reports transmit cycles can be observed. Monitor transmission on a SkyTrac Base station, or an inline wattmeter (DSAT-300E only).

If PDA is used, establish connection via Bluetooth and monitor throughout the test. Add additional victim systems, as required, in the rows provided.

System	Monitor	Interference			Comment
		Yes	No	N / A	
Pilot ICS	Headset, volume set high				
Co-Pilot ICS					
3-rd Crew ICS					
Com 1	Headset, radio unquieted, volume set high				
Com 2					
Nav 1					
Nav 2					
HF					
ADF 1					
ADF 2					
FM 1					

System	Monitor	Interference			Comment
		Yes	No	N / A	
GPS	Select SV status page, check for signal degradation				
ATC	Ramp test with DSAT -300 operating				
DME					

5.2 Radio and Communications RFI (DSAT-300 system victim)

In this set of tests, the DSAT-300 is the victim, and radios transmitters are the source.

- The DSAT-300 shall sending position reports and throughout this test, an Iridium® connection shall be established at all times (check in SkyWeb and amber LED “SAT” has to be off).
- If a text message interface is available (Bluetooth/Blackberry), monitor the victim system while text messages are sent and received.

Add additional systems, as required, in the rows provided.

System	Monitor	Interference			Comment
		Yes	No	N / A	
Pilot ICS	Headset, volume set high				
Co-Pilot ICS					
3rd Crew ICS					
Com 1	Headset, radio unsquelched, volume set high				
Com 2					
HF					
FM1					
FM2					
DME					
ATC1					
ATC2					
WX Radar					
Radio Altimeter					
TCAS or TCAD					

5.3 Instruments and Indicating Systems

In this set of tests, the DSAT-300 is the source, and aircraft instrument systems are the victims. Watch for aircraft instrument and indicator transients while the DSAT-300 transmits.

- The DSAT-300 shall sending position reports and throughout this test, an Iridium® connection shall be established at all times (check in SkyWeb and amber LED “SAT” has to be off).
- If a text message interface is available (Bluetooth/Blackberry), monitor the victim system while text messages are sent and received.

Add additional systems, as required, in the rows provided.

System	Monitor	Interference			Comment
		Yes	No	N / A	
Wet Compass	Transient Deviation				
Fuel Gauges	Transient needle movement or failure to operate				
Pressure Gauges					
Temperature Gauges					
Giro Instruments					
Navigation Instruments					
Caution and Warning Lights					

5.4 Other Systems

Add additional systems, as required, in the rows provided.

System	Monitor	Interference			Comment
		Yes	No	N / A	
Autopilot / Flight Director	Transient, control jumps, etc.				
FADEC (On FADEC equipped aircraft)	<p>Engine operation and engine instruments.</p> <p><i>Commence the test with the DSAT-300 inoperative for at least 5 minutes. With engines running at ground idle – or higher speed as determined safe by the pilot in command, power on the DSAT-300 and monitor engine operations and engine instruments for at least 1 minute. If transients occur, re-execute the test to confirm interference originates from the DSAT-300.</i></p>				

5.5 DSAT-300 System as EMI victim

These tests confirm that power spikes induced in the aircraft electrical system do not affect the DSAT-300. In these tests, power cycle OFF-ON-OFF, or ON-OFF-ON all high current electrical loads listed in the left-hand column, and confirm that there is no interference with the DSAT-300 by monitoring the LED indicators on the front panel. Fill in each cell in the grid with:

P = Pass; F = Fail; N/A = Not Applicable

Add other high current loads installed, as required, in the left-hand column.

Source / Victims	Cycle No 1 Sys (✓/NA)	Cycle No 2 Sys (✓/NA)		ISAT-200 OK (P/F/NA)
Landing Lights				
Taxi Lights				
Search Lights				
Windshield Heat				
Heater, Air Conditioner Blower				
WX Radar				
Engine Inlet Anti Ice				
Bell mouth/Inlet Heat				
Propeller Heat				
Cycle DC Generator OFF/ON				
Cycle TR OFF/ON				
With TR ON, cycle AC GEN OFF/ON				
Cycle each Battery OFF/ON				

6 Certification

I hereby verify that EMI/RFI tests completed on _____ are accurately represented above.
(Date)

The test results are declared _____.
(PASS / FAIL)

(Pilot Signature/License) (Date) (AME/A&P Signature/License) (Date)