



**EMI/RFI Test Report**  
**EMI/RFI Tests for ISAT-100 / DSAT-200 Systems**  
**Applies to: \_\_\_\_\_ (STC, LSTC, FAA 337, Functional Test)**

**DOC: \_\_\_\_\_**

Template Document Number: DOC0302  
**Template Revision: 01-002**

**DATE: \_\_\_\_\_**

Project Title: **EMI/RFI Tests for ISAT / DSAT Systems**  
Client Program: **ISAT / DSAT System**  
Airframe: \_\_\_\_\_  
Dockets: \_\_\_\_\_

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**EMI/RFI Test Report for ISAT, DSAT, DVI, CDP and CDU**

**Revision Status**

The revision status is shown at the top of each page. Vertical bars in the margins indicate revisions.

Rev	Date	Description	By
01-000	Jan 30, 2008	Initial Release	MM
01-001	Mar.28, 2008	Added DSAT- Testing Procedures	
01-002	Dec. 18, 2009	ECO 240	TR

**Effective Pages**

Pages	Revision		Pages	Revision
1	Updated address format, updated logo			
ALL	Added DSAT Name			
ALL	Added DSAT Testing Procedures			

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**EMI/RFI Test Report for ISAT, DSAT, DVI, CDP and CDU**
**1 PURPOSE**

The purpose of this test report is to verify that operation of the ISAT / DSAT does not interfere with basic aircraft systems and avionics. This test (or equivalent) shall be completed after each ISAT / DSAT systems installation.

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.

The ISAT / DSAT should be configured to transmit at its maximum rate during these tests.

The use of a PDA and SkyTrac ITrax software during these tests is optional for the ISAT install. The testers must confirm that the ISAT / DSAT are transmitting. Either an in-line wattmeter inserted in the Iridium antenna line, or SkyTrac Base stations monitoring the tests are acceptable methods of confirming transmission. With all avionics and the ISAT / DSAT 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 INSTALLATION****3.1 Aircraft**

Aircraft Manufacturing Model	
Aircraft Serial Number	
Aircraft Registration	

**3.2 ISAT Installation**

ISAT-100 installed at location	
Antenna installed at location	
ISAT Part Number	
ISAT Serial Number	
ISAT Mod Status	
Powered by DC BUS	ESS      NON ESS BUS Name:
Circuit Breaker	Label: _____ Rating _____ Amperes _____

**EMI/RFI Test Report for ISAT, DSAT, DVI, CDP and CDU****3.3 DSAT-200 Installation**

DSAT-200 at location			
Fixed Antenna installed at location			
Portable Antennas installed at location			
DSAT Part Number			
DSAT Serial Number			
DSAT Mod Status			
Power	Batt	ESS	NON ESS BUS Name:
Circuit Breaker	Label: _____	Rating _____	Amperes _____

**3.4 Optional Components (ISAT only)**

CDU-100 Installed?	NO YES Location:
CDU-100 Serial Number	
CDU-100 Mod Status	
DVI-200 Installed?	NO YES Location:
DVI-100 Serial Number	
DVI-100 Mod Status	
DVI-250 Installed?	NO YES Location:
DVI-250 Serial Number	
DVI-250 Mod Status	
CDP-250 Installed?	NO YES Location:
CDP-250 Serial Number	
CDP-250 Mod Status	

Note: Installation of both a CDP-250 and a DVI-250 is considered a CDU-250 installation.

**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:			

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## 4.2 ISAT-100 with Optional Interface Functional Test

In this section, the tests requiring a PDA are optional. Arrangements should be made in advance for someone to send and receive sat-phone calls, and send and receive test messages – if those features are installed.

Step	Detail	Data	OK	Comment
1	Power on (for ISAT-100 refer to 4.9.1 of the installation manual)	ISAT LED lamps illuminate  1. PWR 2. CHG 3. BAT 4. MDM 5. GPS		
2	DVI-250 (if installed)	DVI-250 Annunciators illuminate briefly. (refer to DVI-250 Operators Guide section 3.1 if necessary.)  1. SEND Annunciator 2. MSG Annunciator 3. DATA DELAY Annunciator		
3	CDP-250 (if installed)	CDP-250 displays the firmware revisions of:  • ISAT • CDP-250.		
4	Activate ISAT Emergency	ISAT EMER switch is on the instrument panel or on the DVI (if installed), or use the menu on the CDP-250 (if installed).  Switch on for between 2 and 5 minutes. Ground station or SkyTrac to confirm that Emergency mode is operating.  If CDP-250 is installed, it will display the emergency message.		
5	Switch off the ISAT Emergency Switch	Emergency mode is disabled.		
6	DVI-250 annunciator dimming (if installed)	Adjust DVI brightness from bright to dim and back to bright. Confirm that the display is readable in bright sunlight and dark cockpit conditions. (ref 3.9.1.1 of the DVI-250 User Guide)		
7	CDP-250 display dimming (if installed)	Confirm bright /dim function operates, and that the display is readable in bright sunlight and dark cockpit conditions. (ref. CDU-250 Users Guide section 3.2.4.3 or CDP-250 Standalone Users Guide)		
8	Sat phone (if installed)	Establish a SATPHONE call. (for DVI-250 installation refer to 3.3 of the DVI-250 User Guide) (for CDU-250 installation refer to the CDU-250 User's		

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Step	Detail	Data	OK	Comment
8	(Continued) Sat phone (if installed)	guide, section 3.2.2) (For CDP-250 refer to the CDP-250 Standalone User's guide)(for CDU-100, and DVI-250 refers to applicable user guides)  If installed, confirm that the buzzer activates to indicate an incoming call, and deactivates when the call is answered.		
9	Text Message/E-mail (if installed)	Send a text message, receive a text message. (Refer to CDU-250 user's manual, section 3.2.1)		
10	Power off	ISAT LED lamps extinguish immediately:  1. PWR 2. CHG After up to 3 to 5 minutes, the following lamps extinguish:  1. BAT 2. MDM 3. GPS		

**4.3 DSAT-200 Functional Test**

Step	Detail	Data	OK	Comment
1	Power on	Press the POSN/PWR button and hold for 5 seconds.  The PWR LED will turn on.		
2	Activate DSAT Emergency	Press the MENU/EMERG button and hold for 5 seconds to enable Emergency  Switch on for between 2 and 5 minutes. Ground station or SkyTrac to confirm that Emergency mode is operating.		
3	Disable DSAT Emergency	Press the MENU/EMERG button and hold for 5 seconds to disable Emergency  Emergency mode is disabled.		
4	LCD Panel Brightness	Adjust brightness from bright to dim and back to bright.  Confirm that the display is readable in bright sunlight and dark cockpit conditions. (ref Appendix 1 of User Guide)		
5	Text Message	Send a test message (ref Appendix 2 of User Guide)		
6	Power off	Press the POSN/PWR button and hold for 5 seconds.  The PWR LED will turn off.		

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**4.4 Radio and Communications RFI (ISAT/ DSAT system source)**

In this set of tests, the DSAT or the ISAT and its components are the source, and radios and avionics are the victims.

Refer to the ISAT-100 installation manual section 4.8.2 or the DSAT-200 Installation Manual for additional information.

If the CDP-250 or DVI-250 interfaces are installed, turn the brightness of the displays and backlighting to maximum.

Operate the ISAT / DSAT 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.

If an audio or DVI interface is installed, establish a call and monitor throughout the test. Add additional victim systems in 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 unsquelched, 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 ISAT operating				
DME					



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**4.5 Radio and Communications RFI (ISAT/ DSAT system victim)**

This test is applicable when the audio interface is installed.

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

- If sat-phone capability is installed, then throughout this test, an Iridium call shall be in progress.
- If a text message interface is installed, monitor the victim system while text messages are sent and received.

Add additional systems in 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 unsquelched, volume set high				
Com 2	“				
HF	“				
FM1	“				
FM2	“				
DME					
ATC1					
ATC2					
WX Radar					
Radio Altimeter					
TCAS or TCAD					

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**4.6 Instruments and Indicating Systems**

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

If the CDP-250 or DVI-250 interfaces are installed, turn the brightness of the displays and backlighting to maximum.

Add additional systems in rows provided.

- If sat-phone capability is installed, then throughout this test, an Iridium call shall be in progress.
- If a text message interface is installed, monitor the victim system while text messages are sent and received.

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	“				

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**4.7 Other Systems**

Add other systems in row provided.

SYSTEM	MONITOR	INTERFERENCE			Comment
		YES	NO	N / A	
Autopilot / Flight Director	Transient, control jumps, etc.				
FADEC (On FADEC equipped aircraft)	Engine operation and engine instruments. <i>(Commence the test with the ISAT/ DSAT inoperative for at least 5 minutes, (i.e. CB pulled) With engines running at ground idle – or higher speed as determined safe by the pilot in command, push in the ISAT CB or turn on the DSAT 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 ISAT / DSAT)</i>				

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**4.8 ISAT / DSAT System as EMI victim**

These tests confirm that power spikes induced in the aircraft electrical system do not affect the ISAT / DSAT. In these tests, power cycle OFF-ON-OFF, or ON-OFF-ON all high current electrical loads listed in the LH column, and confirm that there is no interference with the ISAT-100 by monitoring the LED indicators on the remote unit and the front panel indicators on the cockpit interfaces. Fill in each cell in the Grid with

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

Add other high current loads installed if not listed in the LH column.

Source / Victims	Cycle No 1 Sys (✓/NA)	Cycle No 2 Sys (✓/NA)		ISAT-100 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				

**5 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)