



GA1-2TP
REV: C
5/13/2012

EMI Test Procedure

LOG OF REVISIONS

REVISION LEVEL	DATE OF REVISION	PAGES	DESCRIPTION OF CHANGE	APPROVAL
-	8/08/1997	ALL	Initial Release	GLH
A	9/08/1997	2	Added "LIST OF REVISIONS" Page	GLH
B	10/16/1998	3, 4	Added coverage for FADEC aircraft under Scope. Revised procedure under Transponder test.	GLH
C	5/13/2012	ALL	Revised Scope to remove FADEC references; Revised FAR references to CFR; Updated checklist for "other" equipment; Updated format of document to current standards;	CLB

Scope

This document is a test plan to be used to establish that newly installed electrical equipment does not interfere with essential aircraft equipment in any way that would impair safety of flight of the aircraft. Satisfactory completion of this test plan confirms that the newly installed equipment satisfies the EMI requirements of the Federal Aviation Administration. This test plan is applicable to FAR part 29 Rotorcraft.

Applicable Documents

CFR 29.1309(c), 29.1351(b)(1), 29.1351(b)(2) and AC25-10 Paragraph 5, sections: (m)(4) & (n).

Witnessing of EMI Test

This test shall be witnessed by someone who is authorized by the FAA to return the aircraft to service. This would include an FAA licensed Avionics Technician, A&P Mechanic, Inspector of Airworthiness, or the Repair Station's Director of Maintenance. In addition, an FAA representative, such as a DAR or DER may witness the test.

Equipment Under Test

The newly installed Equipment Under Test (EUT) by this test plan shall be in proper working order throughout the test. If the EUT fails during this test, then this test shall be repeated with the EUT in proper working order.

Test Procedure

Testing shall normally be conducted with the aircraft running on the ground, or with battery or external ground power where appropriate. In the event that an aircraft system or component can only be evaluated for the effects of interference with the aircraft in flight, then the evaluation of that system or component shall be conducted with the aircraft in flight. Testing conducted with the aircraft in flight shall be performed with safety of flight in mind and with only necessary personnel on board.

Testing shall be conducted on the aircraft with all aircraft systems and equipment operating normally, and cycled as necessary to conduct the test. The EUT shall be operated normally. The EUT shall be cycled on and off. The EUT shall also be cycled through all of its operating modes.

Each aircraft system or component being evaluated for the effects of EMI will be observed as the EUT is cycled. A transient motion or flicker is acceptable provided no permanent deviation is established. There can be no stand-off conditions displayed on an instrument. In the case of audio equipment being evaluated for the effects of EMI, a change in the audio (such as background noise) that does not interfere with the intended purpose of the audio is acceptable.

For each aircraft system or component being evaluated for the effects of EMI, mark the item as PASS or FAIL based upon the outcome of this test procedure.

If an aircraft system or component being evaluated for the effects of EMI Fails this test procedure, then corrective action must be taken to reduce the interference to an acceptable level which allows the aircraft system or component being evaluated for the effects of EMI to PASS this test. When re-testing after corrective action, the only tests to be repeated are the tests that Failed previously. Items that previously Passed do not need to be re-tested, unless the method of corrective action results in changes to the EUT, which might cause the EUT to Fail previously Passed items. Mark the N/A ___ field on the re-test test plan for the items that previously Passed and are not being re-tested.

Items To Evaluate

The following is a list of aircraft systems or components that must be evaluated for the effects of EMI if they are installed and are to be used at the same time as the EUT. If the item listed below is not installed or otherwise not applicable, then mark the N/A ___ field.

Engine Temperature Indicator	N/A ___	Pass ___	Fail ___
Engine RPM Indicator	N/A ___	Pass ___	Fail ___
Engine Torque Indicator	N/A ___	Pass ___	Fail ___
Engine Fuel Control	N/A ___	Pass ___	Fail ___
Engine Oil Pressure Indicator	N/A ___	Pass ___	Fail ___
Engine Oil Temperature Indicator	N/A ___	Pass ___	Fail ___
Rotor RPM Indicator	N/A ___	Pass ___	Fail ___
Fuel Quantity Indicator	N/A ___	Pass ___	Fail ___
Fuel Pressure Indicator	N/A ___	Pass ___	Fail ___
Generator Voltage Indicator	N/A ___	Pass ___	Fail ___
Battery Voltage Indicator	N/A ___	Pass ___	Fail ___
Directional Gyro / Heading Indicator	N/A ___	Pass ___	Fail ___
Attitude Indicator	N/A ___	Pass ___	Fail ___
Turn and Bank Indicator	N/A ___	Pass ___	Fail ___
Annunciator Indicators	N/A ___	Pass ___	Fail ___
Flight Time Hour Meter	N/A ___	Pass ___	Fail ___
Warning Horn	N/A ___	Pass ___	Fail ___
Outside Air Temperature Indicator	N/A ___	Pass ___	Fail ___

Transponder N/A ___ Pass ___ Fail ___

Set controls to mode C code 1200, or other code assigned by ATC. Cycle EUT and confirm proper data transmitted, either by use of transponder ground test equipment, or by confirmation from ATC of proper reception of correct data. Check for proper operation of reply light.

VOR N/A ___ Pass ___ Fail ___

Set Voice/Ident to Voice. Check frequencies for audible interference sounds. Set local VOR frequency for full needle displacement. Adjust course select knob for gradual reduction of needle displacement to half, fourth, and zero. Note stability at each displacement and that zero can be achieved without a standoff.

DME N/A ___ Pass ___ Fail ___

Perform self test with EUT cycled. Note that no skips in miles display occurs. Observe that mile indications do not drift and there is no audible interference in Ident tone.

Magnetic Compass N/A ___ Pass ___ Fail ___

Swing compass and adjust with EUT operating normally. If EUT causes erratic operation of magnetic compass, then mark compass as Fail.

VHF Communications System N/A ___ Pass ___ Fail ___

Tune each comm receiver to a low, middle, and high frequency within its frequency range. Listen for audio interference. Transmit on low, middle, and high frequencies. Listen on an external receiver for audio interference.

GPS Navigation Receiver N/A ___ Pass ___ Fail ___

Check for proper operation. Observe signal to noise ratio readings to determine if reception is interfered with.

Crew Interphone System N/A ___ Pass ___ Fail ___

Check for normal operation of the interphone system. Listen for excessive background noise.

ADF N/A ___ Pass ___ Fail ___

Check for needle offset. Listen for audio interference.

Glide Slope/LOC N/A ___ Pass ___ Fail ___

Check for needle offset. Perform test using TAC/30b or equivalent ground test equipment, or during flight while established on an ILS glide slope.

Radio Altimeter N/A ___ Pass ___ Fail ___

Perform test with appropriate ground test equipment, or check reading in flight.

The space below is provided to include additional systems or devices not listed previously. These would include any Transceivers, Nav Aids, Radar, or Auto Pilot systems. Use the Manufacturers test procedures for each component listed with the EUT operating normally.

Other Equipment: _____ N/A ___ Pass ___ Fail ___

Describe test: _____

Other Equipment: _____ N/A ___ Pass ___ Fail ___

Describe test: _____

Other Equipment: _____ N/A ___ Pass ___ Fail ___

Describe test: _____

Other Equipment: _____ N/A __ Pass __ Fail __

Describe test: _____

Other Equipment: _____ N/A __ Pass __ Fail __

Describe test: _____

Other Equipment: _____ N/A __ Pass __ Fail __

Describe test: _____

Other Equipment: _____ N/A __ Pass __ Fail __

Describe test: _____

Other Equipment: _____ N/A __ Pass __ Fail __

Describe test: _____

Other Equipment: _____ N/A __ Pass __ Fail __

Describe test: _____

Other Equipment: _____ N/A __ Pass __ Fail __

Describe test: _____

Other Equipment: _____ N/A __ Pass __ Fail __

Describe test: _____

Aircraft Tested:

Model _____, Registration _____, Serial Number _____

Location of Test _____, Date _____

Equipment Under Test:

List: MODEL, PART NUMBER, SERIAL NUMBER

Test performed by _____
Name Credentials

Test witnessed by _____
Name Credentials

I hereby certify that I have witnessed the above documented test and that the results documented above reflect my observations.

Signature

Date