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Test Report

Prepared for: FLYHT Aerospace Solutions Ltd.

Model: AFIRS 228S Automated Flight Information Reporting System

Description: Dual Channel Iridium Satcom System that incorporates Iridium 9523 and 9602 Modems

Serial Number: 5012

FCC ID: Q639523
FCC ID: Q639602

To

FCC Part 25

Date of Issue: September 29, 2015

On the behalf of the applicant:	**FLYHT Aerospace Solutions Ltd.** **300E, 1144 – 29 Ave. NE** **Calgary, Alberta T2E 7P1**
Attention of:	**Derek Graham, Chief Technical Officer** **Ph: (403)291-7438** **E-Mail: dgraham@flyht.com**

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Project No: p1580009

Alex Macon
Project Test Engineer

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All results contained herein relate only to the sample tested

Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	9/3/15	Alex Macon	Original Document
2.0	9/23/15	Amanda Reed	Removed references to notch and high-pass filters on page 6. Updated contact information & address on cover page
3.0	9/29/15	Diana Williams	Added second FCC ID.

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ILAC / A2LA

Compliance Testing, LLC, has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009).

The tests results contained within this test report all fall within our scope of accreditation, unless noted in the table below.

Please refer to http://www.compliancetesting.com/labscope.html for current scope of accreditation.

Testing Certificate Number: **2152.01**

ilac-MRA

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FCC Site Reg. #349717

IC Site Reg. #2044A-2

Non-accredited tests contained in this report:

N/A

Standard Test Conditions and Engineering Practices

Unless otherwise indicated, the procedures contained in ANSI C63.4-2009 were observed during testing.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurement.

Unless otherwise indicated in the specific measurement results, the ambient temperature was maintained within the range of 10º to 40ºC (50º to 104ºF) and the relative humidity levels were in the range of 10% to 90%.

Environmental Conditions		
Temperature (°C)	**Humidity (%)**	**Pressure (mbar)**
23.2 – 25.1	32.4 – 41.2	967.5 – 971.2

Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2 and the following individual Parts: FCC Part 25 Satellite Communications.

Prior to testing the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.

EUT Description
Model: AFIRS 228S Automated Flight Information Reporting System
Description: Dual channel Iridium Satcom system that incorporates Iridium 9523 and 9602 modems.
SN: 5012
Firmware: N/A
Additional Information:
Dual channel Iridium satcom system used in aircrafts that incorporates Iridium 9523 and 9602 modems.
This report is intended to be a C2PC in order to remove the colocation restriction on this device.

EUT Operation during Tests
EUT is placed into a modulated transmit mode which the manufacturer supplied.
Both Modems were synced and transmitting at full power during testing.

Accessories: None

Cables: None

Modifications: None

Emissions Limitations for Mobile Earth Stations

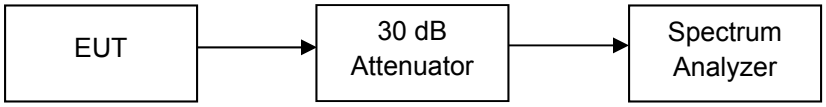
Engineer: Alex Macon

Test Date: 8/31/15

Test Procedure

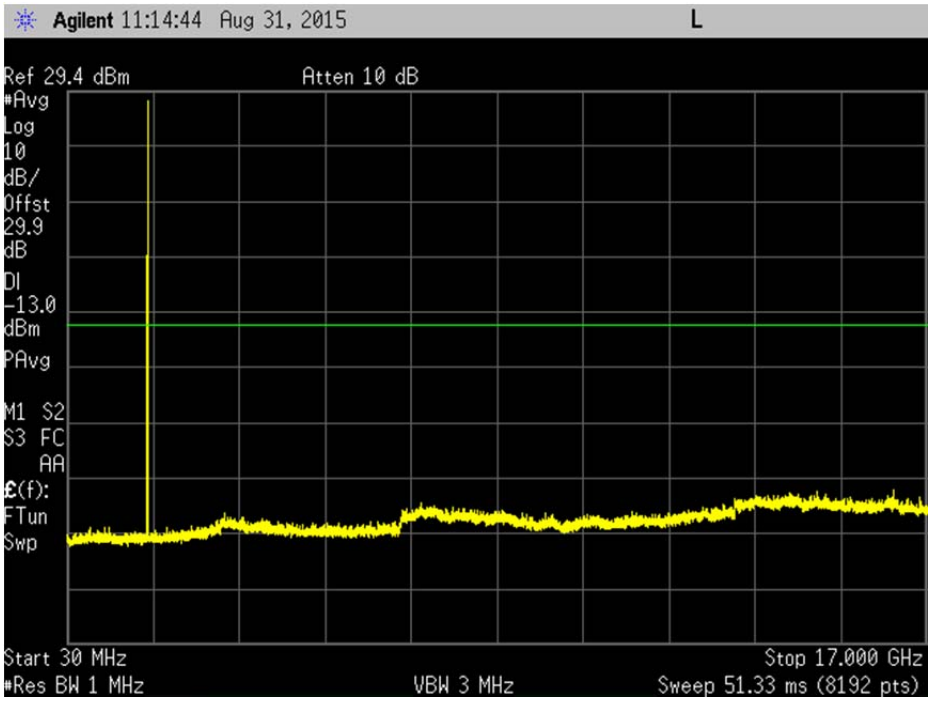
The EUT was connected directly to a spectrum analyzer and the conducted spurious emissions were measured to ensure that the EUT met the requirements specified. Only the worst case emission at each frequency was reported. These losses in addition to cable losses were input into the analyzer as a reference level offset to ensure accurate measurements were obtained. Section 25.202(f)(3)

Test Setup

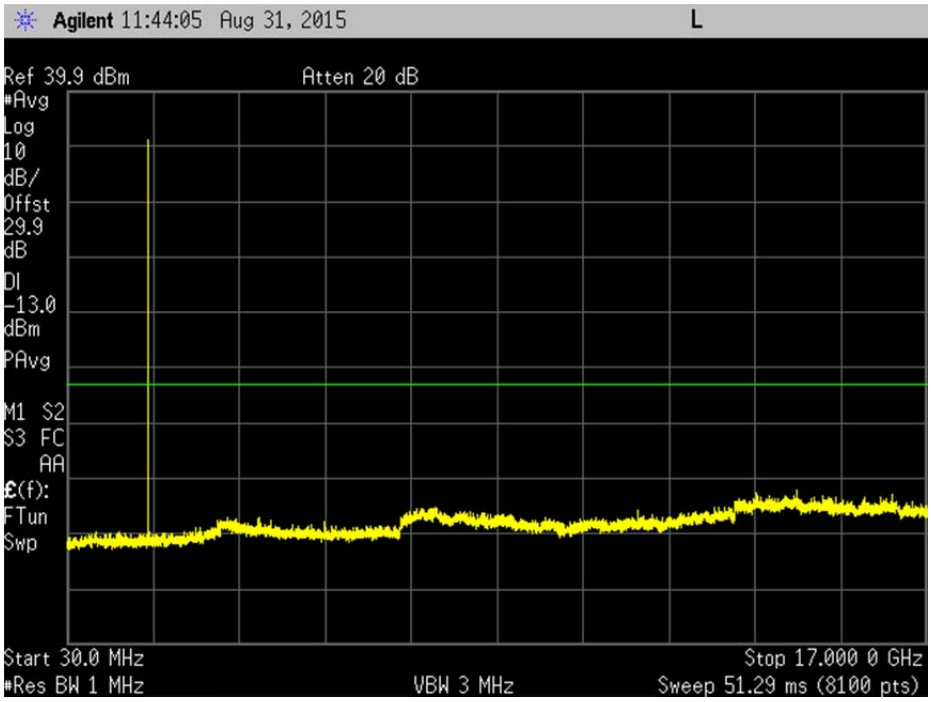


Tuned Frequency (MHz)	Result	Comments
1616.02	Pass	See Plots
1620.98	Pass	See Plots
1625.98	Pass	See Plots

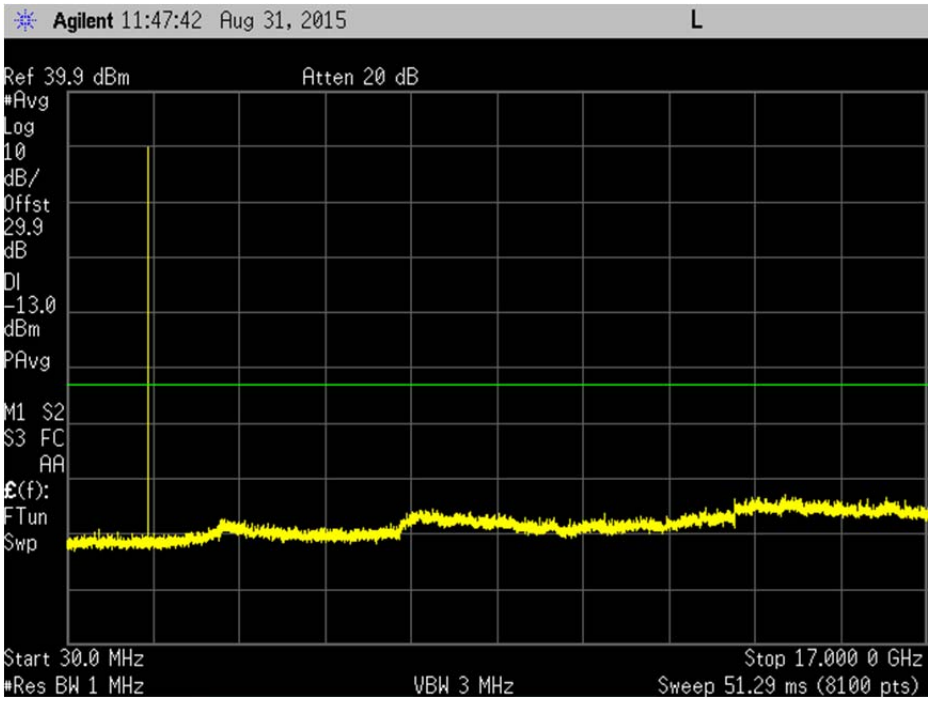
Emissions Limitations Plot 1616.02 and 1616.31 MHz



Emissions Limitations Plot 1620.68 and 1620.98 MHz



Emissions Limitations Plot 1625.68 and 1625.98 MHz



Emissions Limits for Mobile Earth Stations

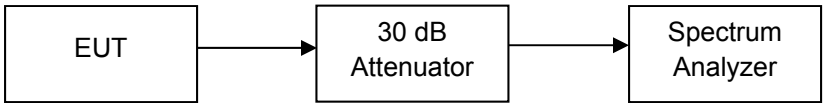
Engineer: Alex Macon

Test Date: 8/31/15

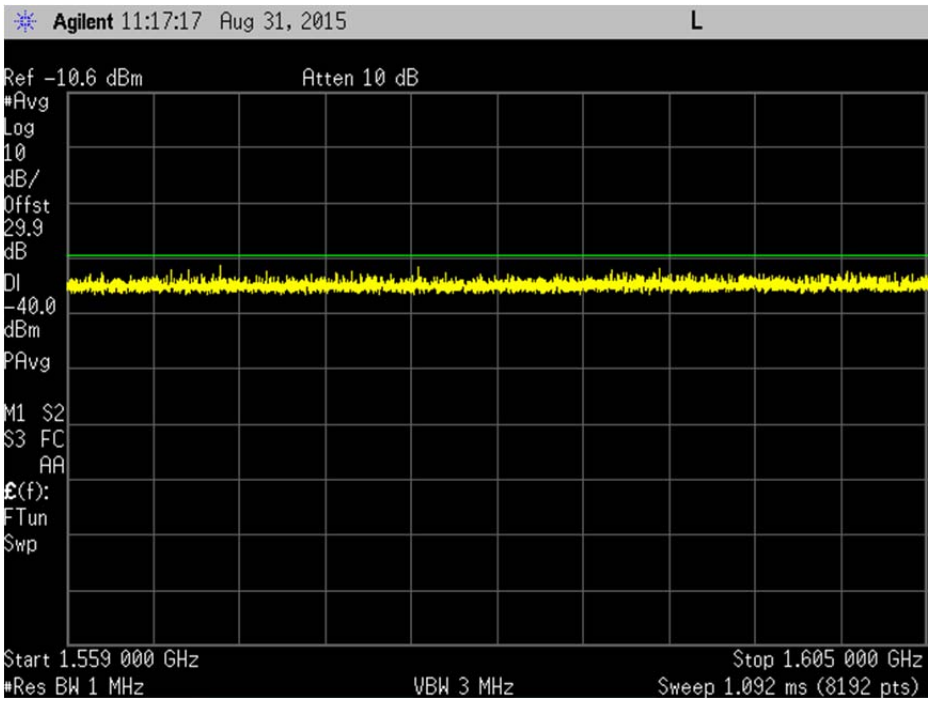
Test Procedure

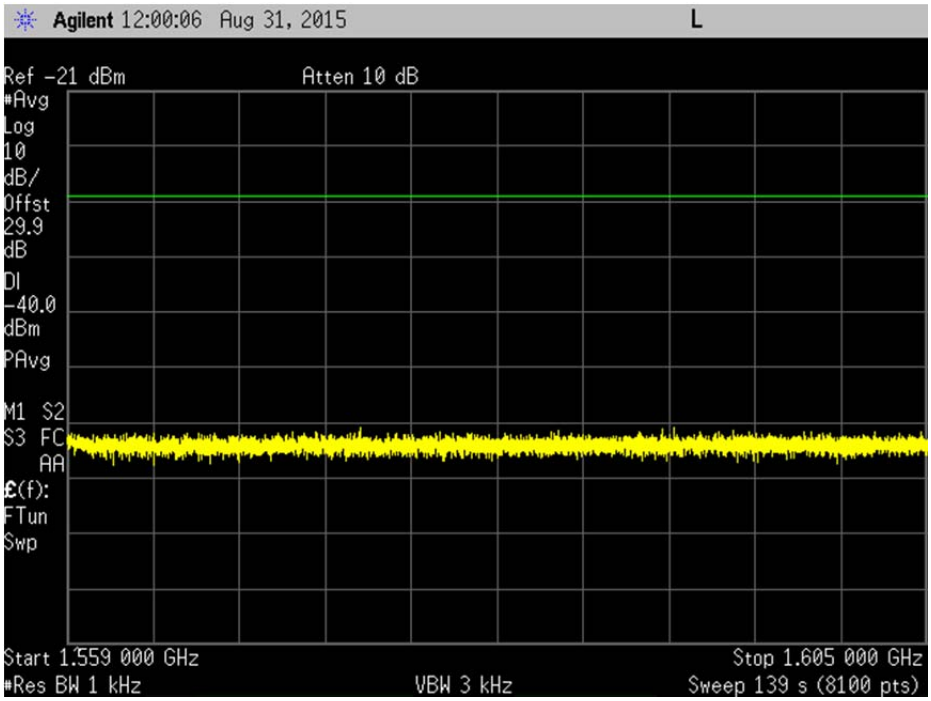
The EUT was connected directly to a spectrum analyzer to verify that the EUT met the requirements for emission limits. Attenuator, cable losses and antenna gain were input into the analyzer as a reference level offset and a correction factor to ensure accurate measurements were obtained.

Test Setup

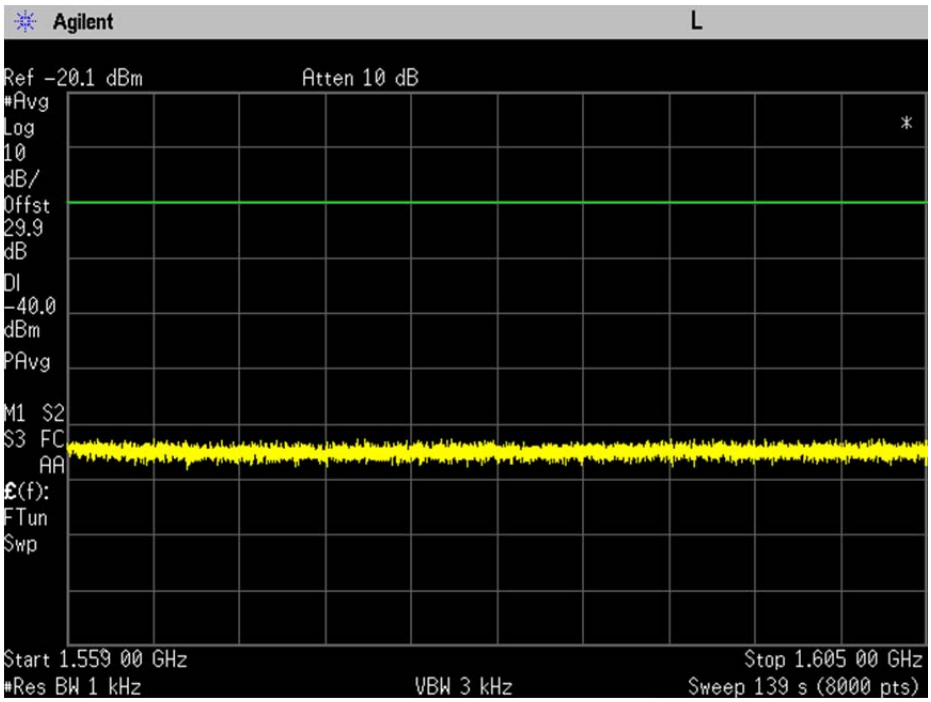


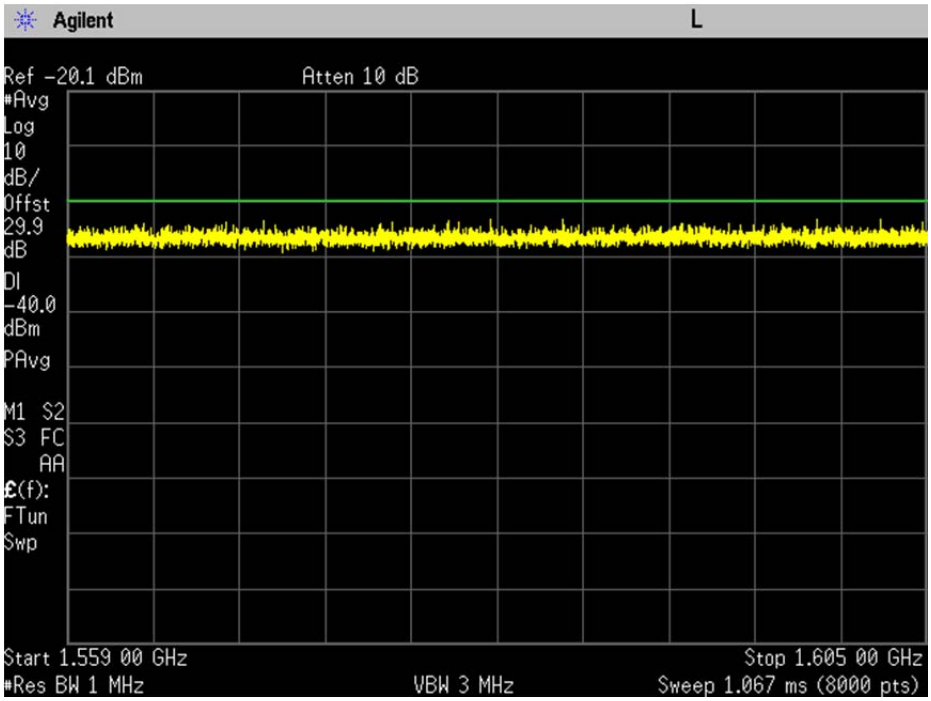
25.216(c) low channels



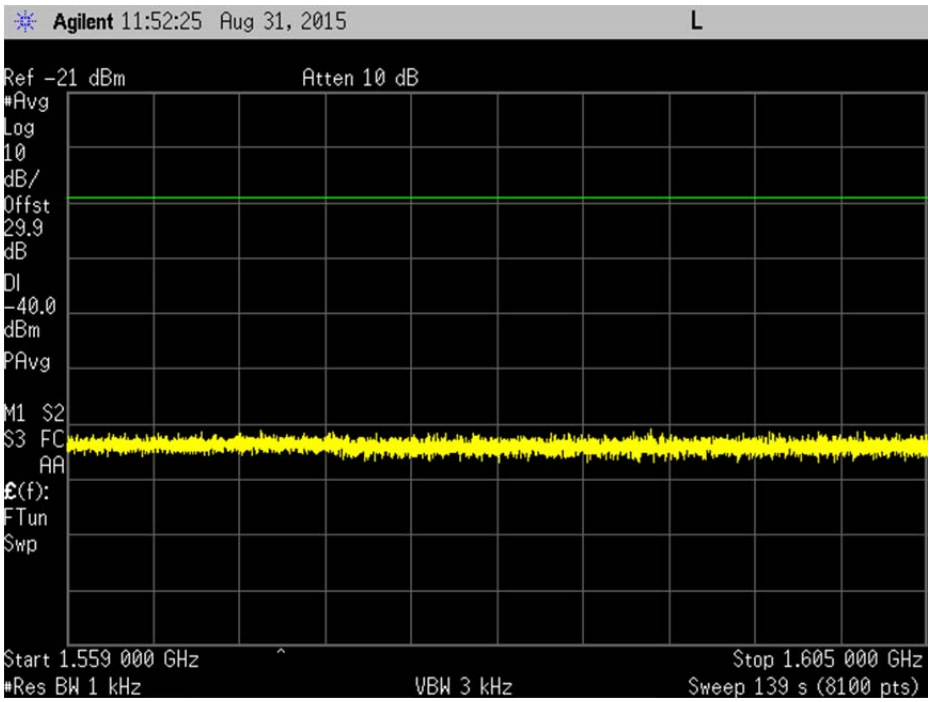


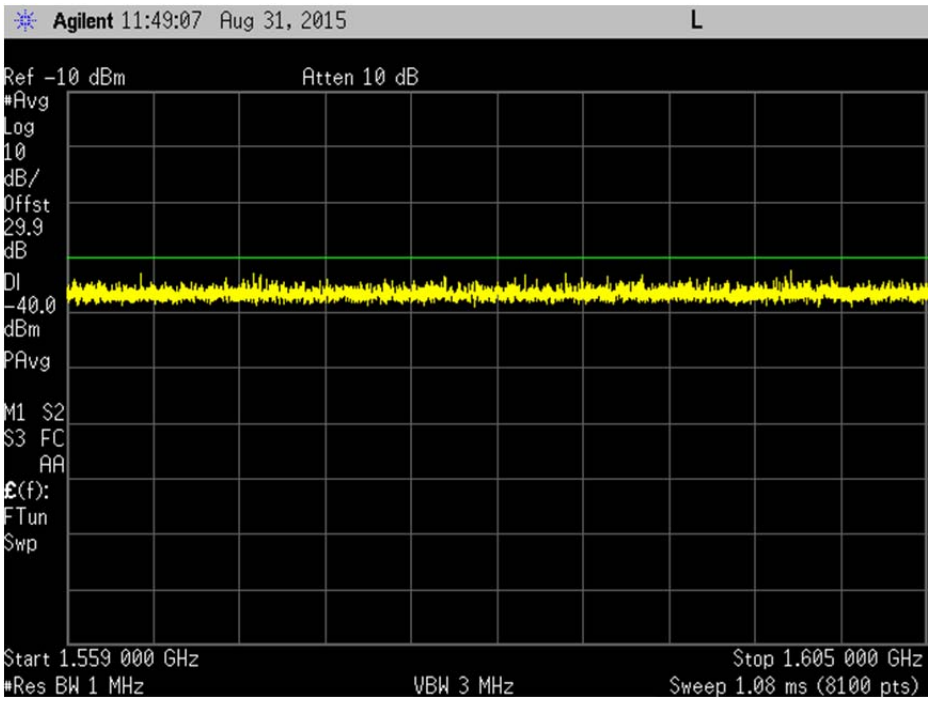
25.216(c) mid channels



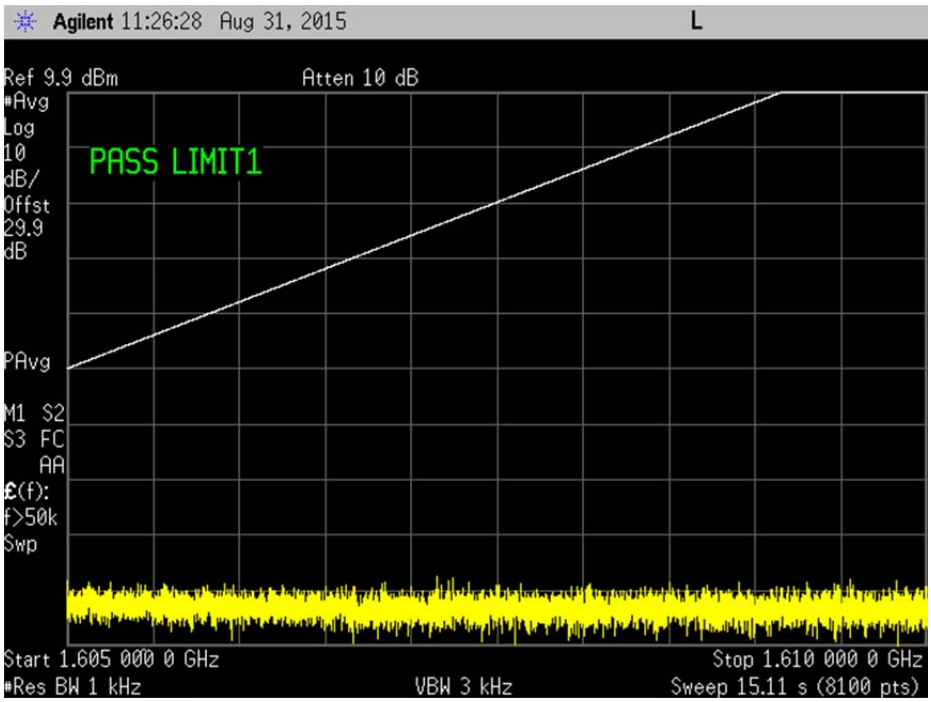


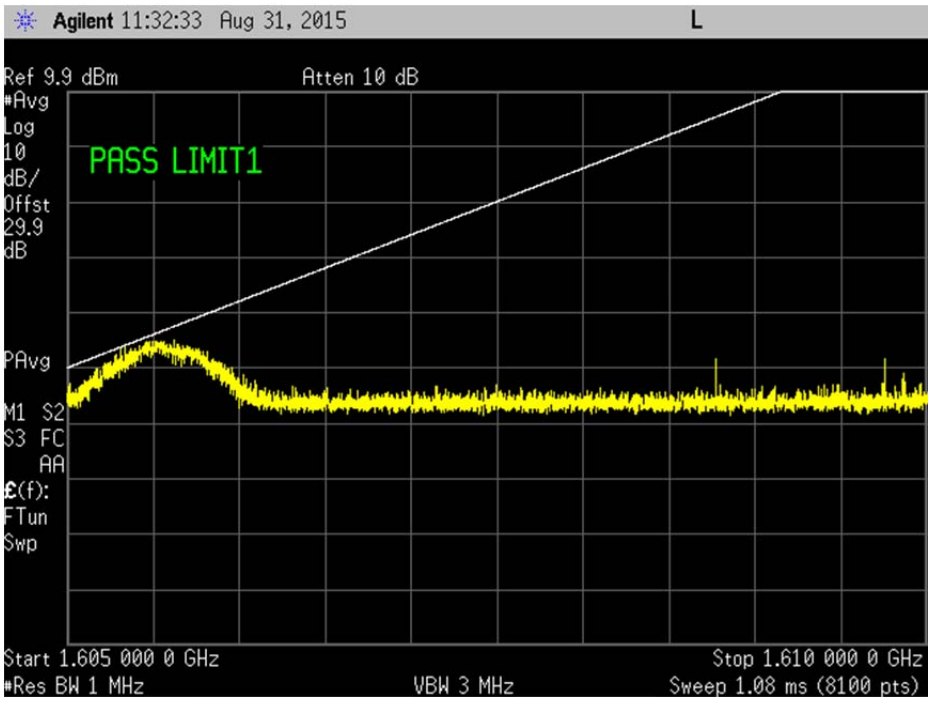
25.216(c) mid channels



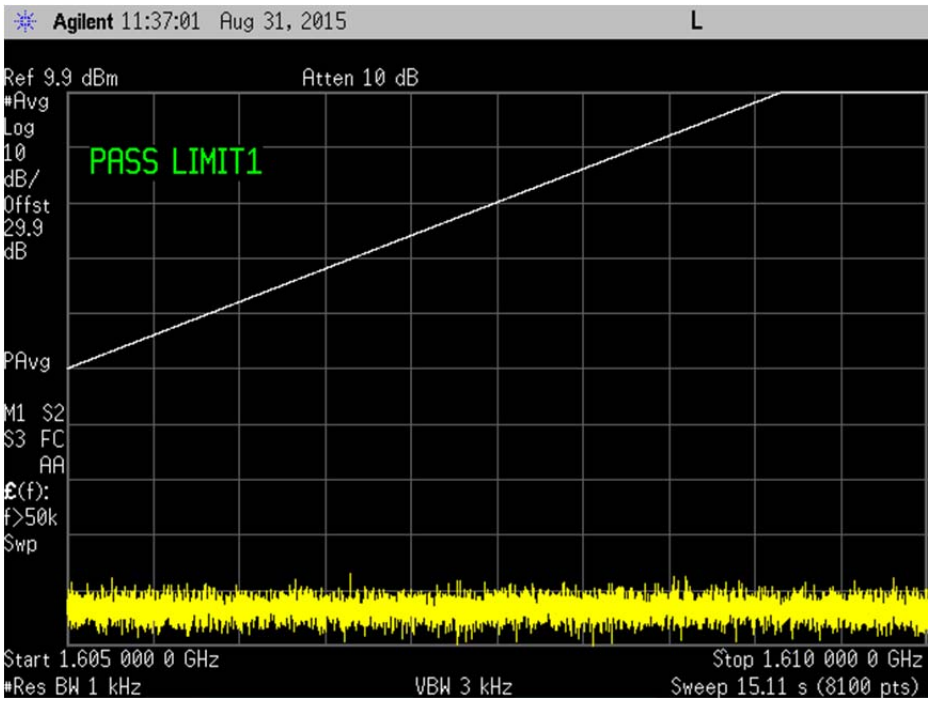


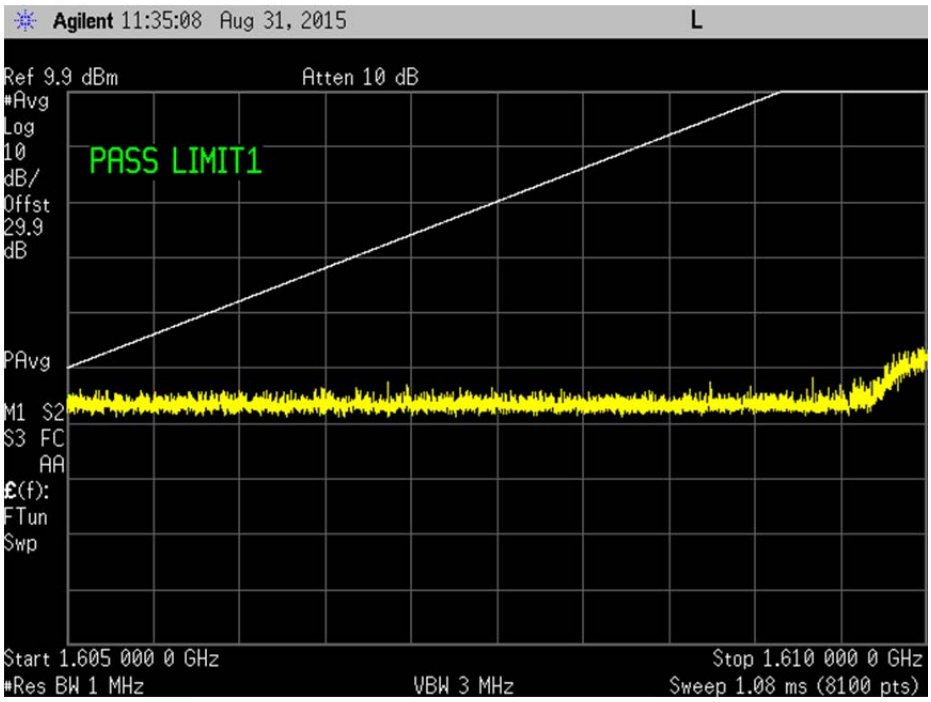
25.216(g) Low channels



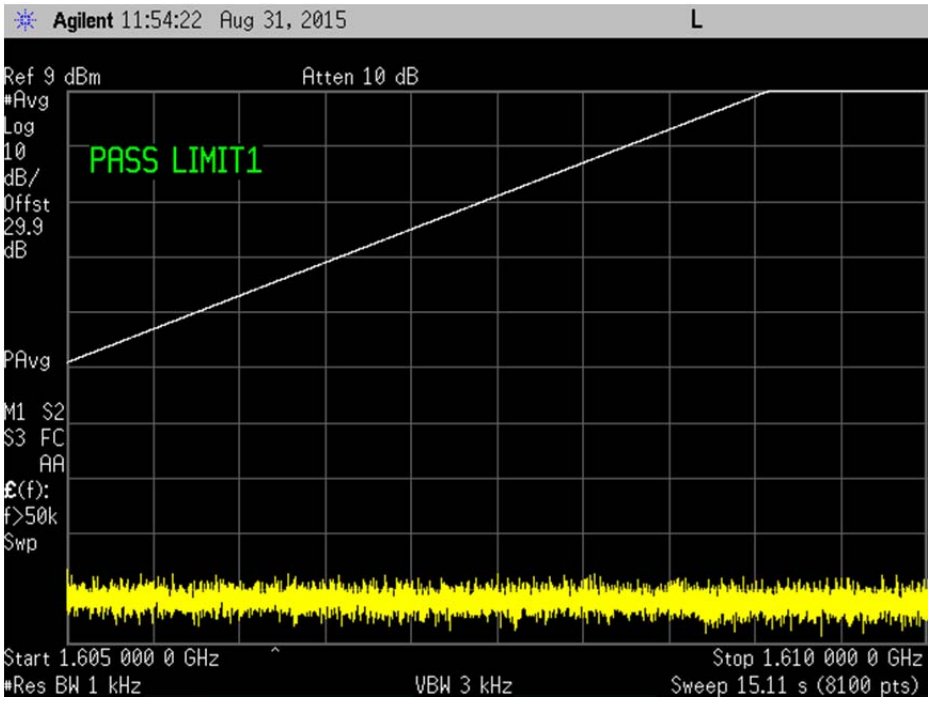


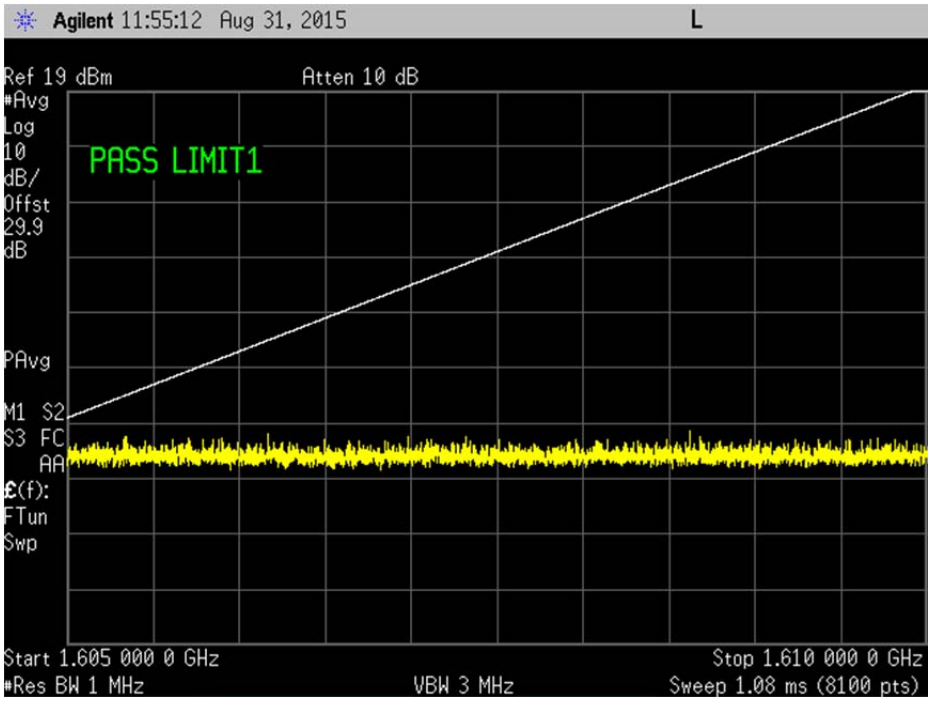
25.216(g) Mid channels





25.216(g) High channels





Test Equipment Utilized

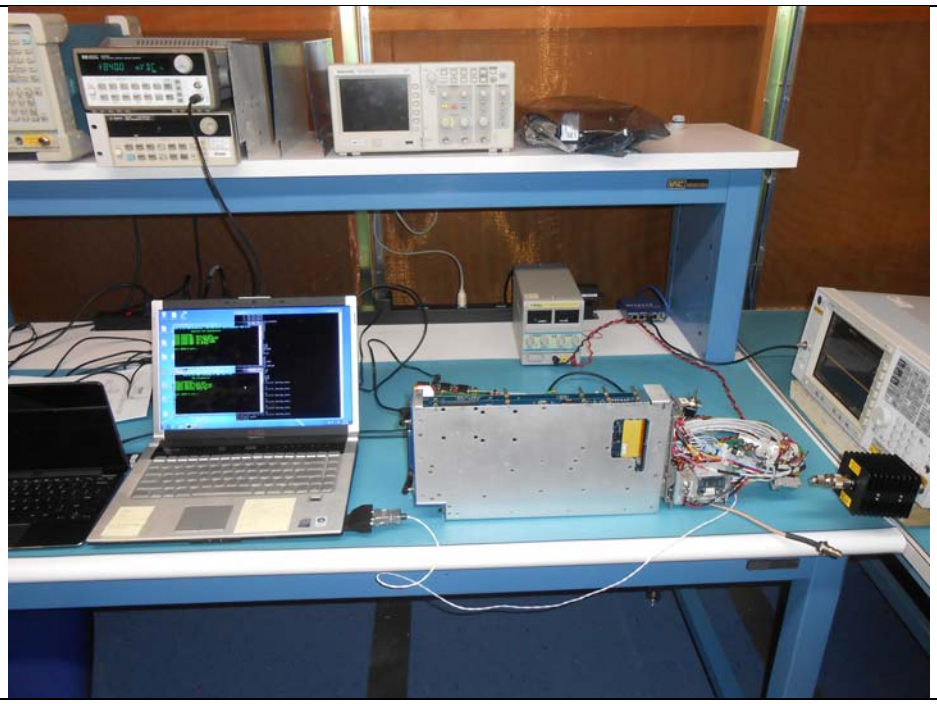
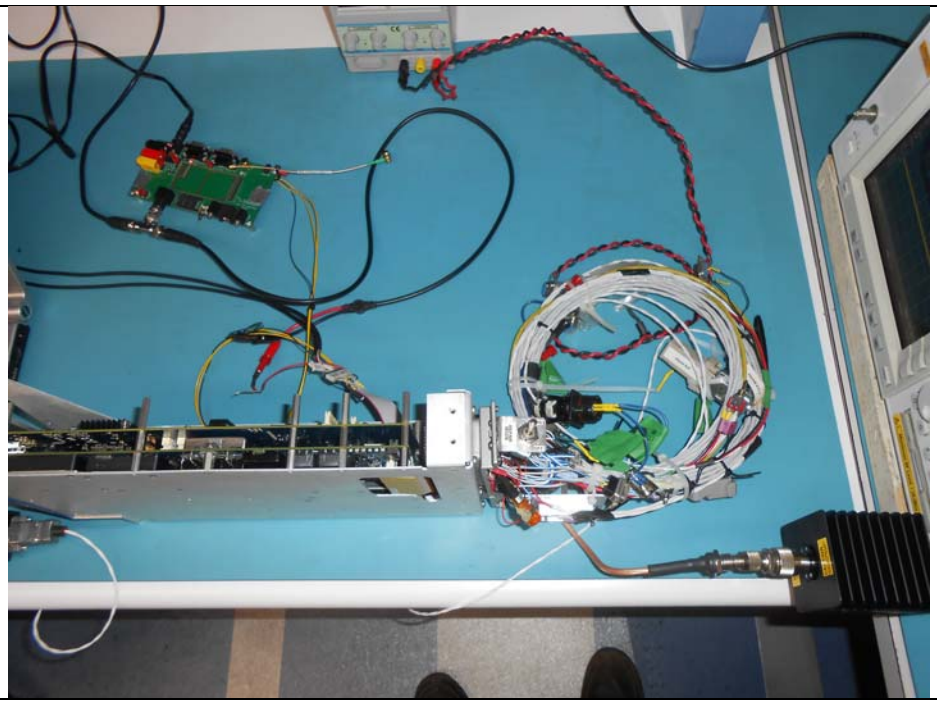
Description	Manufacturer	Model #	CT Asset #	Last Cal Date	Cal Due Date
Function Generator	HP	33120A	i00118	Verified on: 8/31/15	
Humidity / Temp Meter	Newport	IBTHX-W-5	i00282	4/1/15	4/1/16
Voltmeter	Fluke	87III	i00319	2/20/15	2/20/16
Power Supply	Yihua	PS 3010D	i00409	Verified on:8/31/15	
Spectrum Analyzer	Agilent	E4448A	S/N:MY46180566	12/1/2014	12/1/2016

In addition to the above listed equipment standard RF connectors and cables were utilized in the testing of the described equipment. Prior to testing these components were tested to verify proper operation.

END OF TEST REPORT

Test Setup Photos
FCC ID: Q639523

RF Conducted #1



RF Conducted #2