Compliance Testing, LLC
Previously Flom Test Lab
EMI, EMC, RF Testing Experts Since 1963

toll-free: (866) 311-3268
fax: (480) 926-3598
http://www.ComplianceTesting.com
info@ComplianceTesting.com

Date:	December 23, 2010
Applicant:	Honeywell International, Inc. 15001 N. E. 36th Street Redmond, WA 98073
Attention of:	Langue Rodriguez, CNS COE Systems Engineer Ph: (602) 436-3511 Fax: (602) 436-0384 E-mail: langue.rodriguez@honeywell.com
Equipment:	RTA-50D
FCC ID:	AOIRTA-50D
FCC Rules:	Part 87

Enclosed please find your copy of the Engineering Test Report for which you are subject to the restrictions as listed on the attached summary.

This report may not be reproduced, except in full, without written permission from Compliance Testing, LLC.
Please retain a copy of this report for your archival purposes.

Once a Telecommunication Certification Body (TCB) issues a Grant the Federal Communication Commission (FCC) has 30 days to review the application and request added information. It is your decision whether or not to market the equipment subject to a possible recall before the end of the 30 days.

If your equipment is still retained by us, it will be returned to you 30 days after approval is achieved.

Our invoice for services has been directed to your Accounts Payable Department.

For any additional information please contact us.

Sincerely,

Compliance Testing

Compliance Testing, LLC
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Test Report

for

FCC ID: AOIRTA-50D

Model: RTA-50D

to

Federal Communications Commission

Rule Part(s) 87

Date of Report: December 23, 2010

On the Behalf of the Applicant:	Honeywell International, Inc.
At the Request of:	Honeywell International, Inc. 15001 N. E. 36th Street Redmond, WA 98073
Attention of:	Langue Rodriguez, CNS COE Systems Engineer Ph: (602) 436-3511 Fax: (602) 436-0384 E-mail: langue.rodriguez@honeywell.com

By
Compliance Testing, LLC
3356 N. San Marcos Place, Suite 107
Chandler, Arizona 85225-7176
(866) 311-3268 phone, (480) 926-3598 fax

Test Report Revision History

Revision	Date	Revised By	Reason for revision
1.0	December 23, 2010	J. Erhard	Original Document
2.0	January 14, 2011	Karen Springer	Edit Emission Type
3.0	May 10, 2011	J. Erhard	Revise necessary bandwidth calculations

Testimonial and Statement of Certification

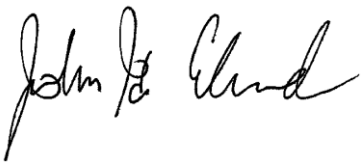
This is to Certify:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.

2. **That** the technical data supplied with the application was taken under my direction and supervision.

3. **That** the data was obtained on representative units, randomly selected.

4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data is true and correct.



Certifying Engineer: John Erhard: Engineering Manager

Table of Contents

Standard Test Conditions and Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI/C63.4-2009, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Environmental Conditions		
Temperature	**Humidity**	**Pressure**
78 degrees Fahrenheit	35%	30.05 inches of Mercury

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

A2LA

"A2LA has accredited Compliance Testing, LLC, in Chandler, AZ for technical competence in the field of Electrical testing. The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO 17025:2005 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Please refer to www.a2la.org for current scope of accreditation.

Certificate number: 2152.01

ACCREDITED
TESTING CERT# 2152.01

FCC OATS Reg. #933597

IC Reg. # 2044A-1

List of General Information Required for Certification

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and to Part 87

Sub-part 2.1033 (c)(1):

Name and Address of Applicant: Honeywell International, Inc.
15001 N. E. 36th Street
Redmond, WA 98073

Manufacturer: Honeywell International, Inc.
15001 N. E. 36th Street
Redmond, WA 98073

(c)(2): **FCC ID**: AOIRTA-50D

Model Number: RTA-50D

(c)(3): **Instruction Manual(s):**

Please see attached exhibits

(c)(4): **Type of Emission**: AM, 8PSK

(c)(5): **Frequency Range, MHz**: 118 - 137

(c)(6): **Power Rating, Watts**: 52.72

Switchable Variable **X** N/A

(c)(7): **Maximum Allowable Power, Watts**: 55

DUT Results: Passes **X** Fails _____

Subpart 2.1033 (continued)

(c)(8): Voltages & currents in all elements in final RF stage, including final transistor or solid-state device:

Collector Current, A =	7
Collector Voltage, Vdc =	28
Supply Voltage, Vdc =	28

(c)(9): **Tune-Up Procedure**:

Please see attached exhibits

(c)(10): **Circuit Diagram/Circuit Description**:
Including description of circuitry & devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation and limiting power.

Please see attached exhibits

(c)(11): **Label Information**:

Please see attached exhibits

(c)(12): **Photographs**:

Please see attached exhibits

(c)(13): **Digital Modulation Description**:

_X_ Attached Exhibits
___ N/A

(c)(14): **Test and Measurement Data**:

Follows

Test Results Summary

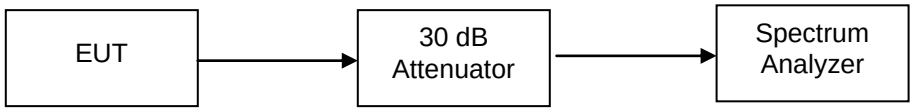
Specification	Test Name	Pass, Fail, N/A	Comments
87.131	Carrier Output Power (Conducted)	Pass	
87.139	Unwanted Emissions (Transmitter Conducted)	Pass	
2.1053	Field Strength of Spurious Radiation	Pass	
87.137 / 87.139	Emission Masks (Occupied Bandwidth)	Pass	
87.133	Frequency Stability (Temperature Variation)	Pass	
87.133	Frequency Stability (Voltage Variation)	Pass	

Name of Test: Carrier Output Power (Conducted)
Specification: 87.131 **Engineer:** J. Erhard
Test Equipment Utilized: i00191, i00290, HW1 **Test Date:** 12/22/2010

Measurement Procedure

The Equipment Under Test (EUT) was connected to a spectrum analyzer through a power attenuator. The RBW was set to 1 MHz with the VBW set 3 times the RBW. The peak readings were taken and the result was then compared to the limit.

Test Setup



Transmitter Peak Output Power

Tuned Frequency MHz	Measured Power dBm	Measured Power W	Limit W	Result
118.250	47.0	50.47	55	Pass
127.250	47.2	52.72	55	Pass
136.975	47.1	51.52	55	Pass

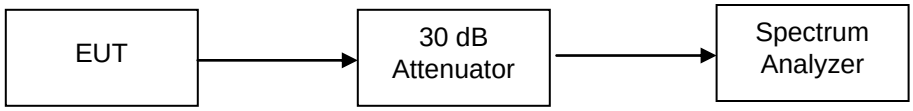
Name of Test: Conducted Spurious Emissions
Specification: 87.139
Test Equipment Utilized: i00191, i00290, HW1

Engineer: J. Erhard
Test Date: 12/22/2010

Measurement Procedure

The Equipment Under Test (EUT) was connected to a spectrum analyzer through a power attenuator. The RBW was set to 1 MHz with the VBW set 3 times the RBW. A tunable notch filter was utilized to ensure the fundamental transmitter did not put the spectrum analyzer into compression. The spurious emissions were measured and compared to the limit. The worst case emission for each tunable frequency is listed in the summary table.

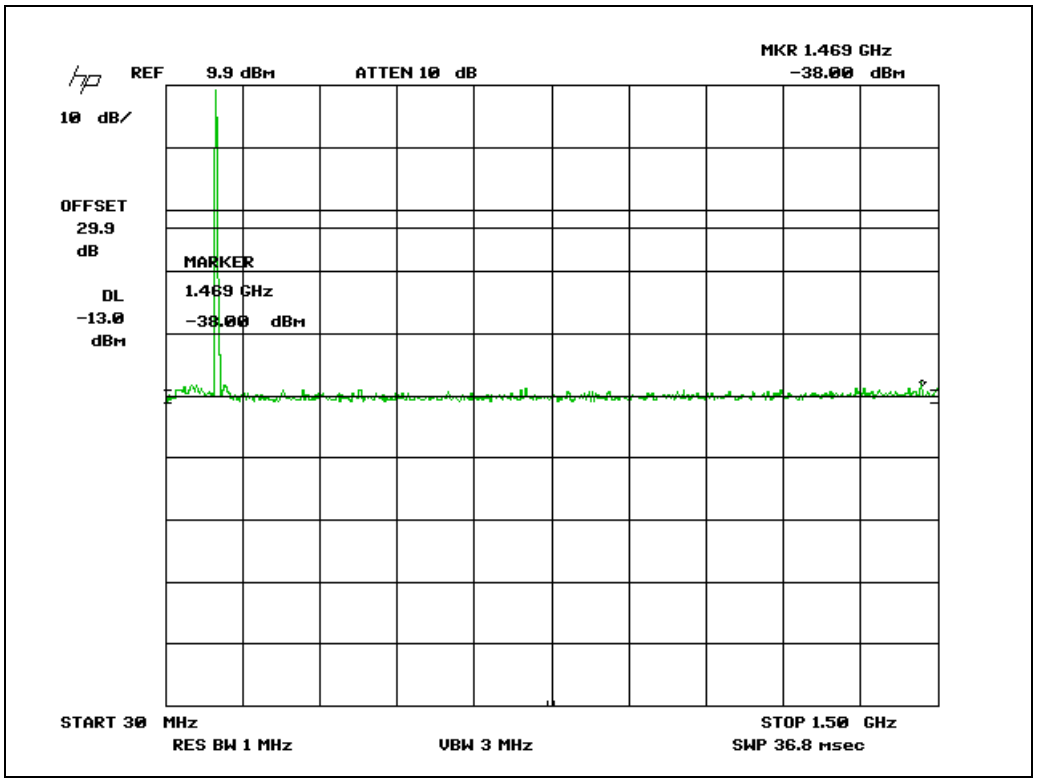
Test Setup



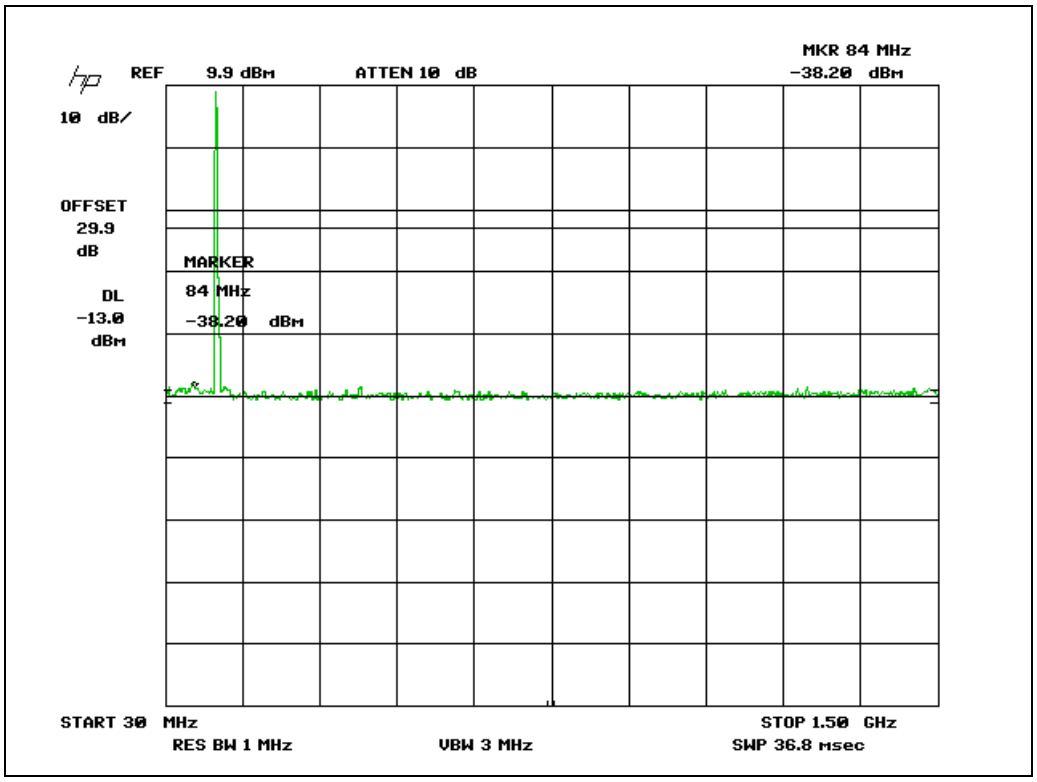
Conducted Spurious Emissions

Tuned Frequency MHz	Measured Power dBm	Limit dBm	Result
118.250	-38.00	-13	Pass
127.250	-38.20	-13	Pass
136.975	-35.10	-13	Pass

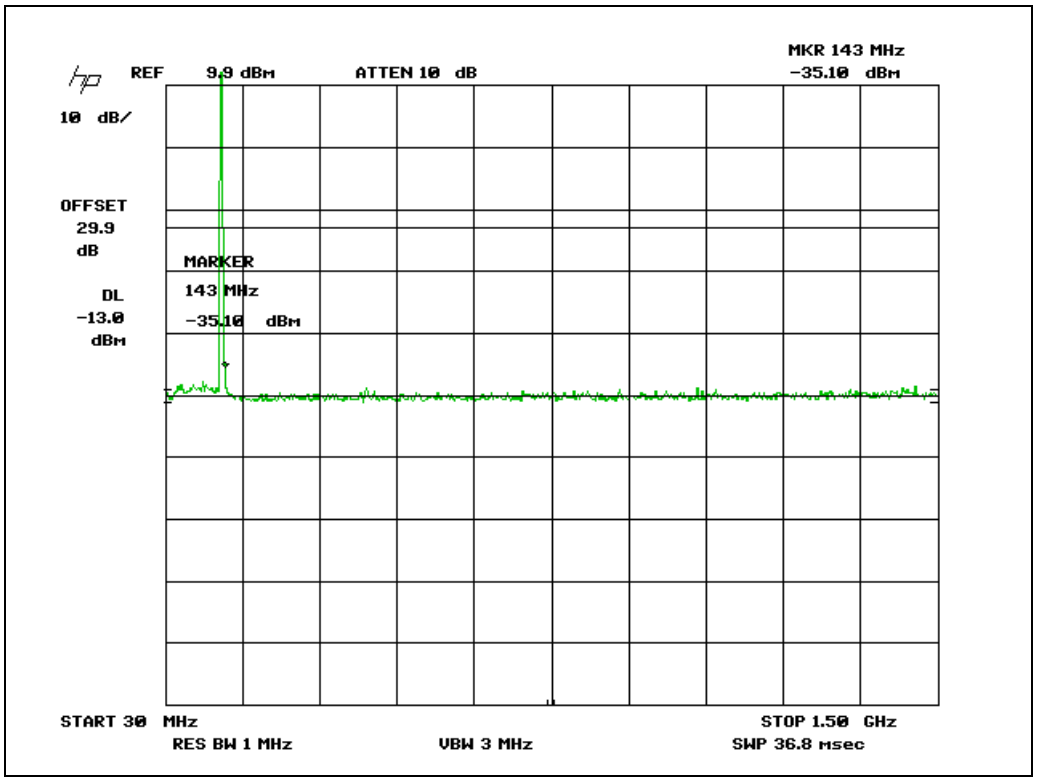
118.250 MHz Conducted Spurious Emissions



127.250 MHz Conducted Spurious Emissions



136-975 MHz Conducted Spurious Emissions

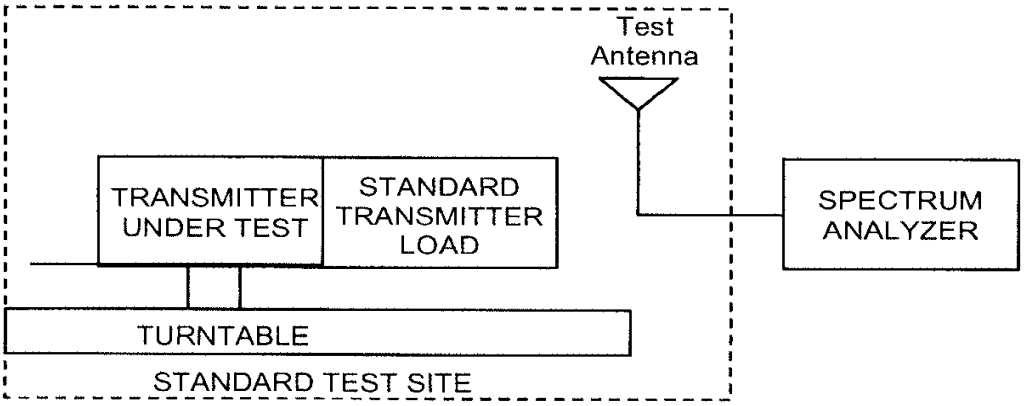


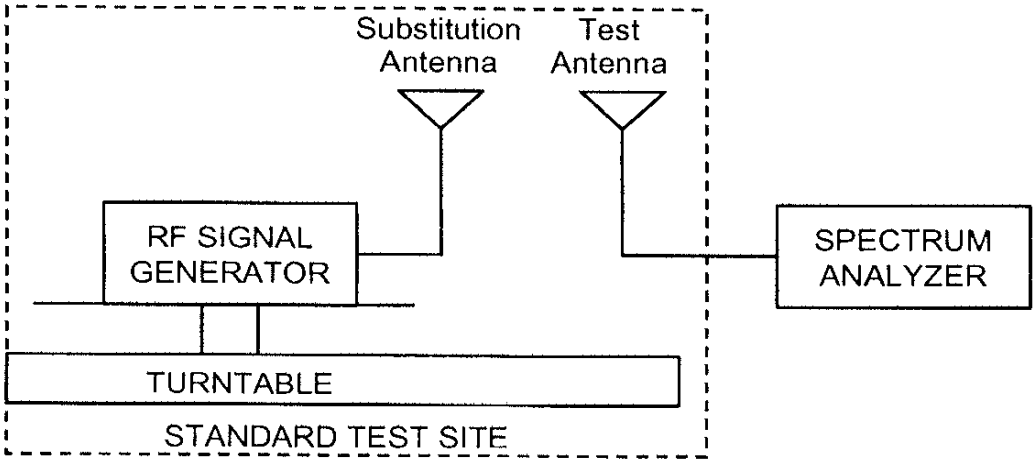
Name of Test: Field Strength of Spurious Radiation
Specification: 2.1053 **Engineer:** J. Erhard
Test Equipment Utilized: i00033, i00103, i00134, i00267, i00191 **Test Date:** 12/27/2010

Test Procedure

1. The test equipment was connected as illustrated
2. The spectrum analyzer parameters were set to the following:
    a. Resolution Bandwidth 100 kHz (<1 GHZ), 1 MHZ (> 1GHz).
    b. Video Bandwidth ≥ 3 times Resolution Bandwidth, or 30 kHz
    c. Sweep = auto
    d. Detector Mode = Peak
3. The EUT was placed on the turntable and connected to a non-radiating load.
4. For each frequency the spurious emissions were measured and recorded in the summary tables.
5. For each spurious emission the antenna was raised 1 m to 4 m and the EUT was rotated 360 degrees to obtain a maximum reading.
6. Remove the transmitter and replace it with a substitution antenna and a signal generator.
7. The signal level of the signal generator output was adjusted until the previously recorded maximum reading for this set of conditions is obtained.
8. Steps 6 and 7 were repeated for each spurious emission detected.
9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna.
10. The levels recorded in step 9 are absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:

Test Setup


Test
Antenna
TRANSMITTER
UNDER TEST
STANDARD
TRANSMITTER
LOAD
SPECTRUM
ANALYZER
TURNTABLE
STANDARD TEST SITE


Substitution
Antenna
Test
Antenna
RF SIGNAL
GENERATOR
SPECTRUM
ANALYZER
TURNTABLE
STANDARD TEST SITE

118.250 MHz Radiated Spurious Emissions

Emission Frequency MHz	Measured Level dBm	Correction Factor dB	Corrected Value dBm	Limit dBm	Result
256.50	-87.3	14.2	-73.1	-13	Pass
354.75	-82.6	17.1	-65.5	-13	Pass
773.00	-84.6	20.2	-64.4	-13	Pass

127.250 MHz Radiated Spurious Emissions

Emission Frequency MHz	Measured Level dBm	Correction Factor dB	Corrected Value dBm	Limit dBm	Result
254.50	-91	15.1	-75.9	-13	Pass
381.75	-85.2	17.8	-67.4	-13	Pass
636.25	-87.4	22.9	-64.5	-13	Pass

136.975 MHz Radiated Spurious Emissions

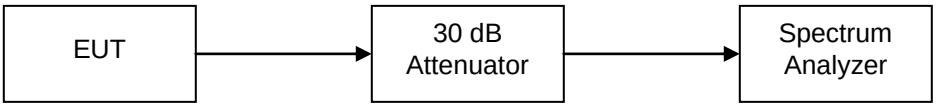
Emission Frequency MHz	Measured Level dBm	Correction Factor dB	Corrected Value dBm	Limit dBm	Result
273.950	-79.6	15.4	-64.2	-13	Pass
410.925	-91.3	19.4	-71.9	-13	Pass
821.850	-89.4	24.5	-64.9	-13	Pass

No other emissions were detected.

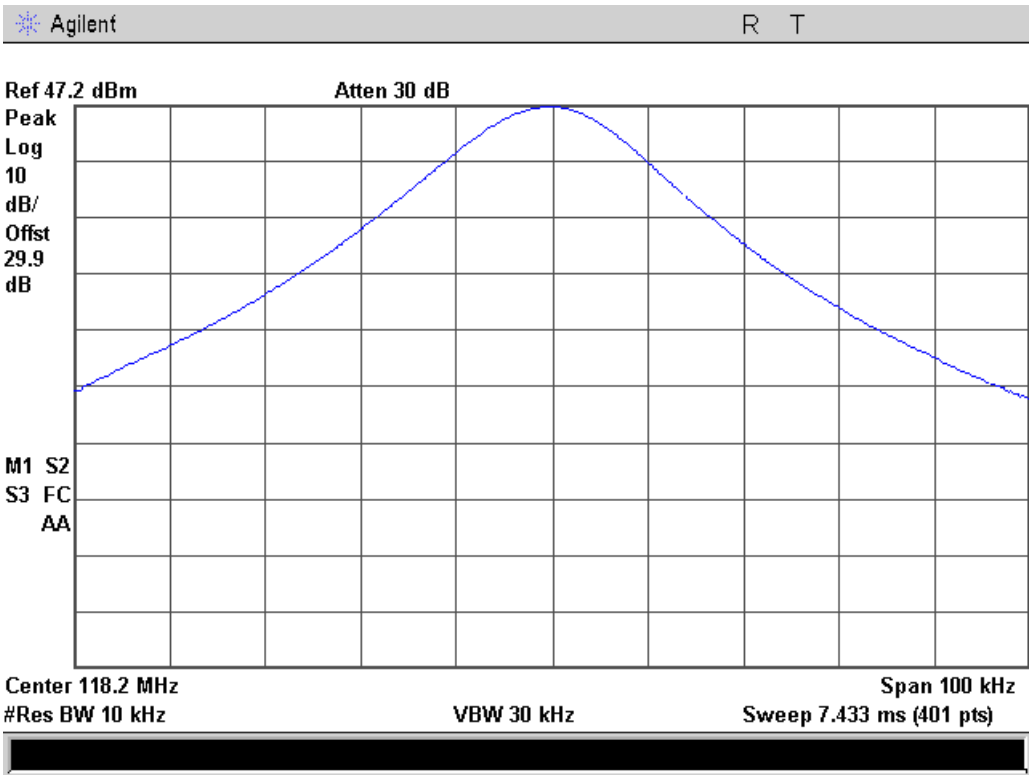
Name of Test: Emission Masks (Occupied Bandwidth)
Specification: 87.139 **Engineer:** J. Erhard
Test Equipment Utilized: i00191, i00379, HW1 **Test Date:** 12/23/2010

The EUT was connected directly to a spectrum analyzer through a power attenuator to verify that the EUT meets the required emissions mask. A reference level plot is provided to verify that the peak power was established prior to testing the mask. The attenuator and cable loss were summed and put into the spectrum analyzer as a reference offset to ensure accurate measurements.

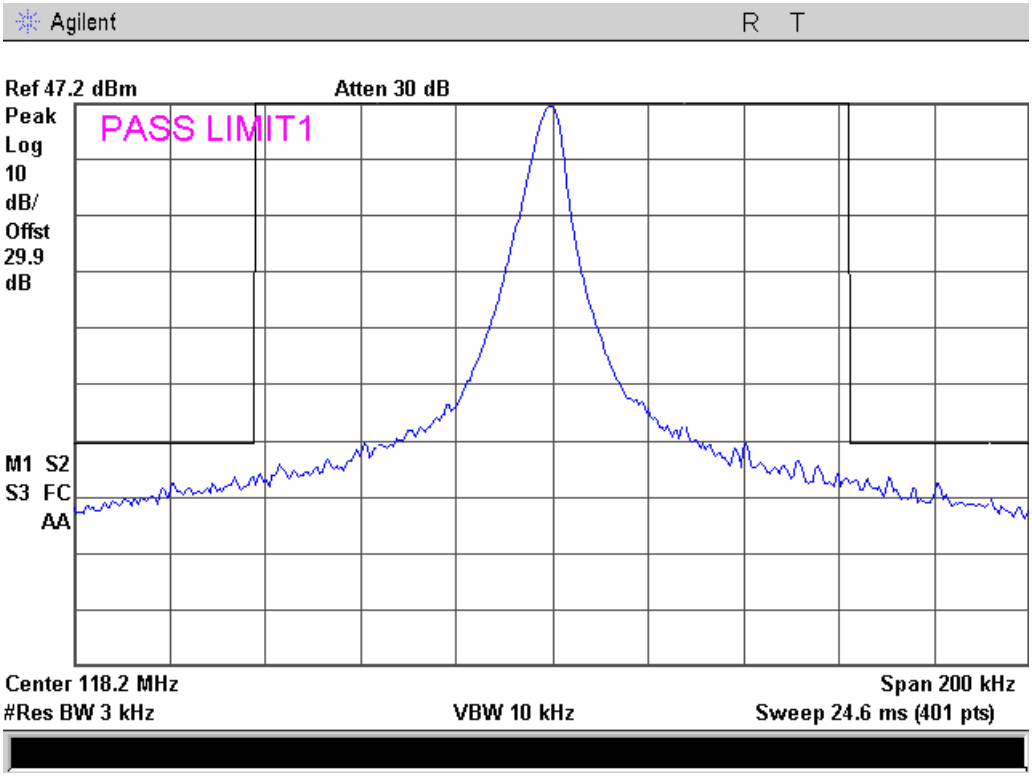
Test Setup



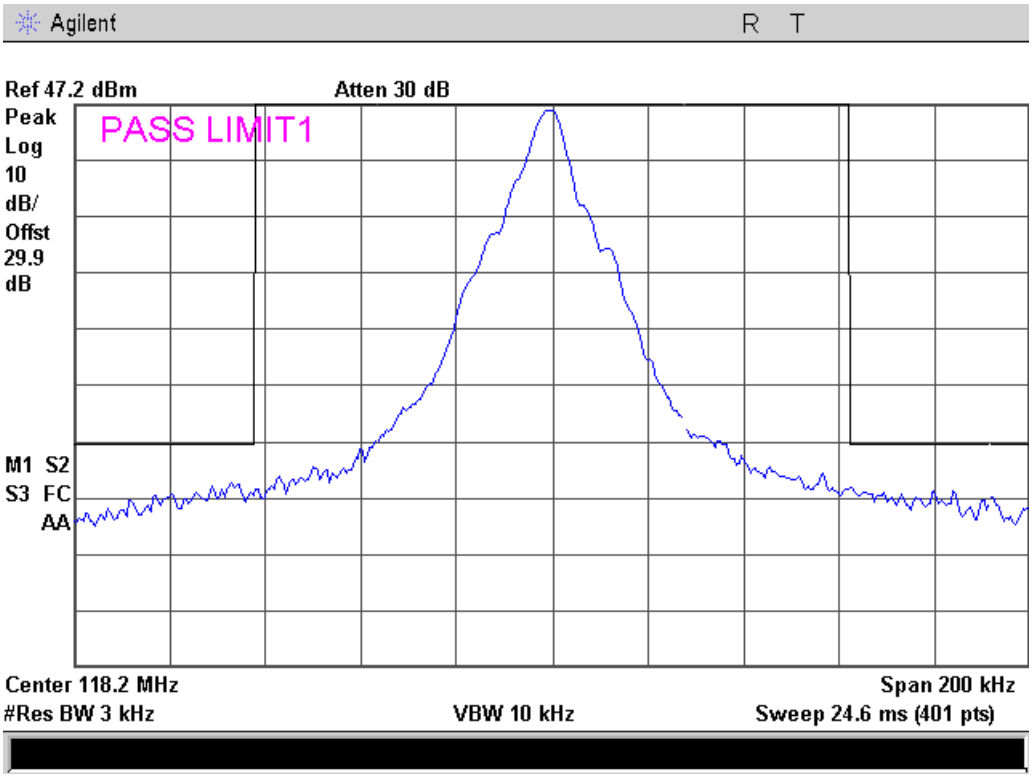
118.250 MHz Reference



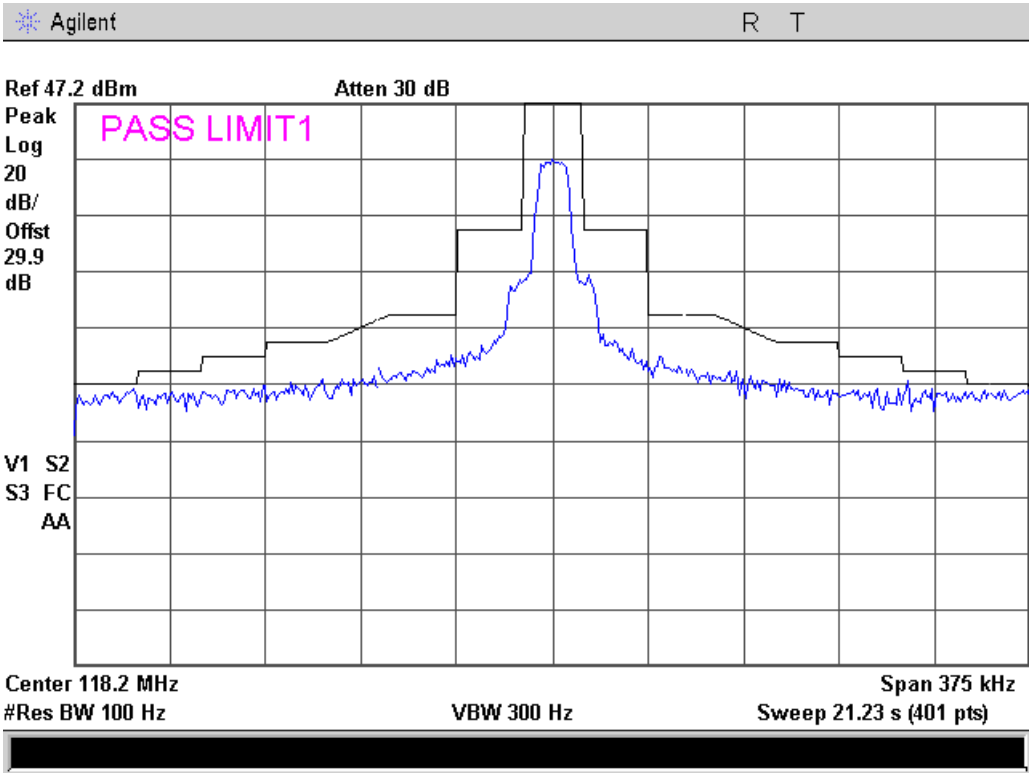
118.250 7K00A3E MHz Mask D



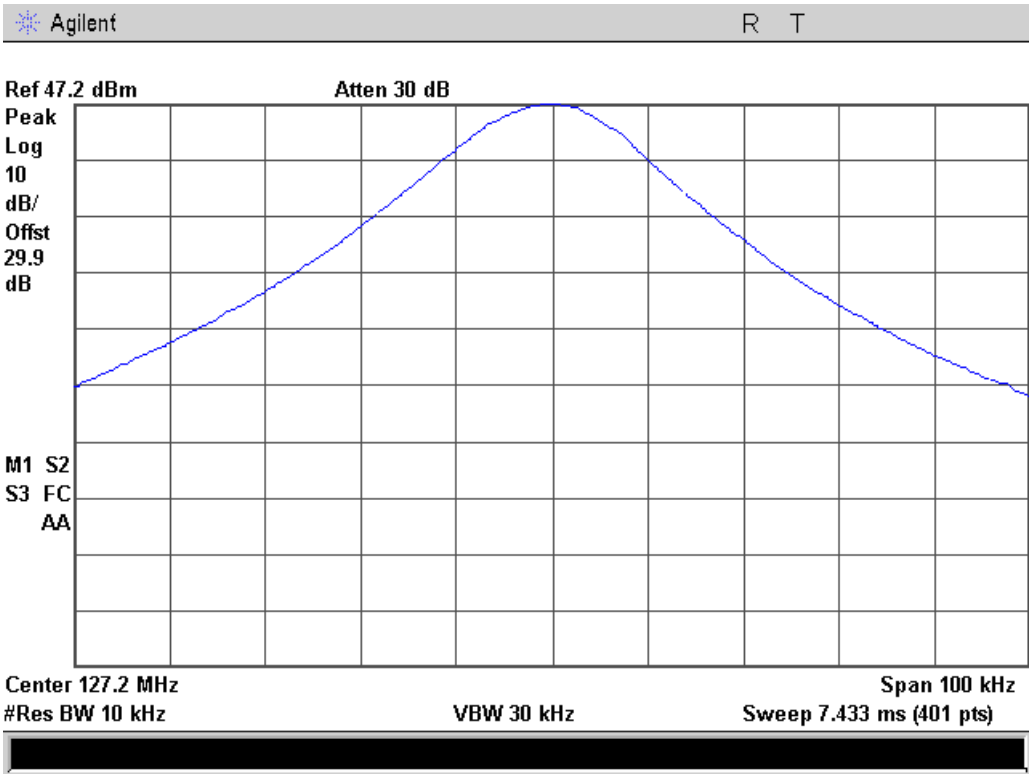
118.250 7K00A9W MHz Mask D



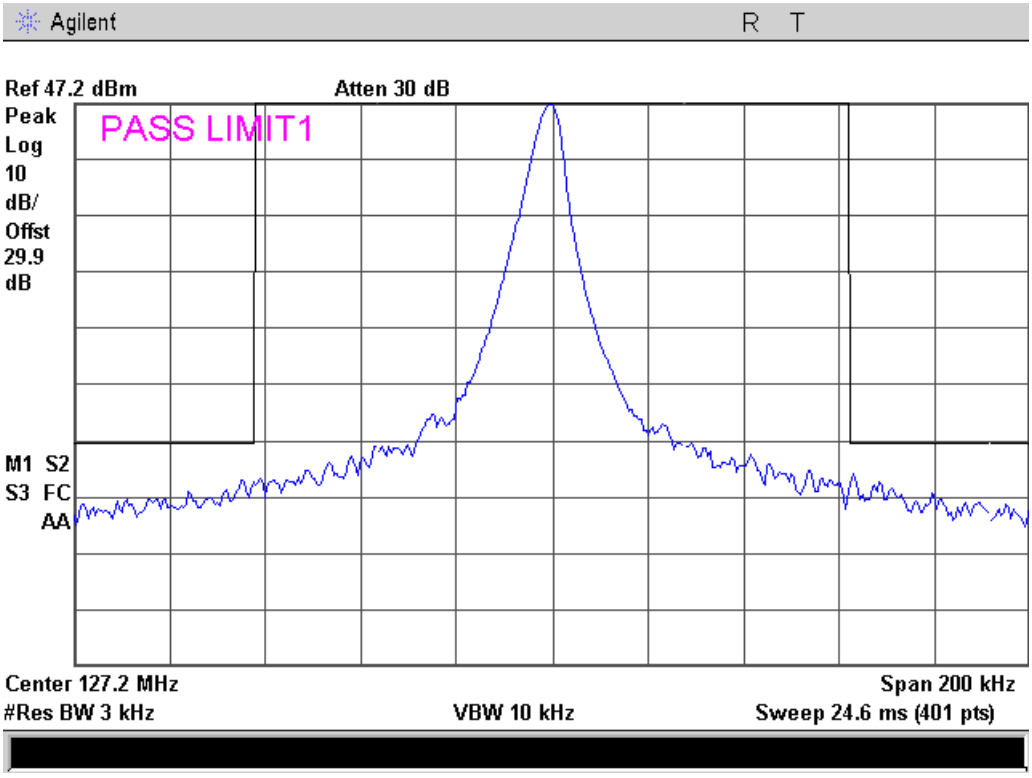
118.250 14K0G1D MHz Mask K



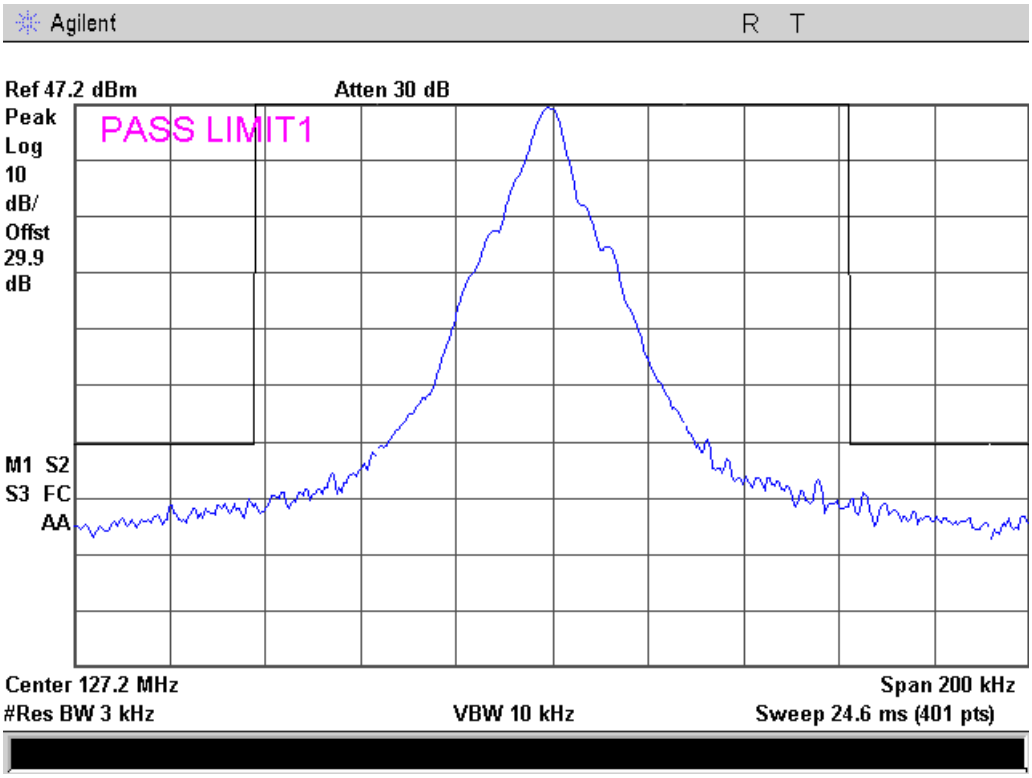
127.250 MHz Reference



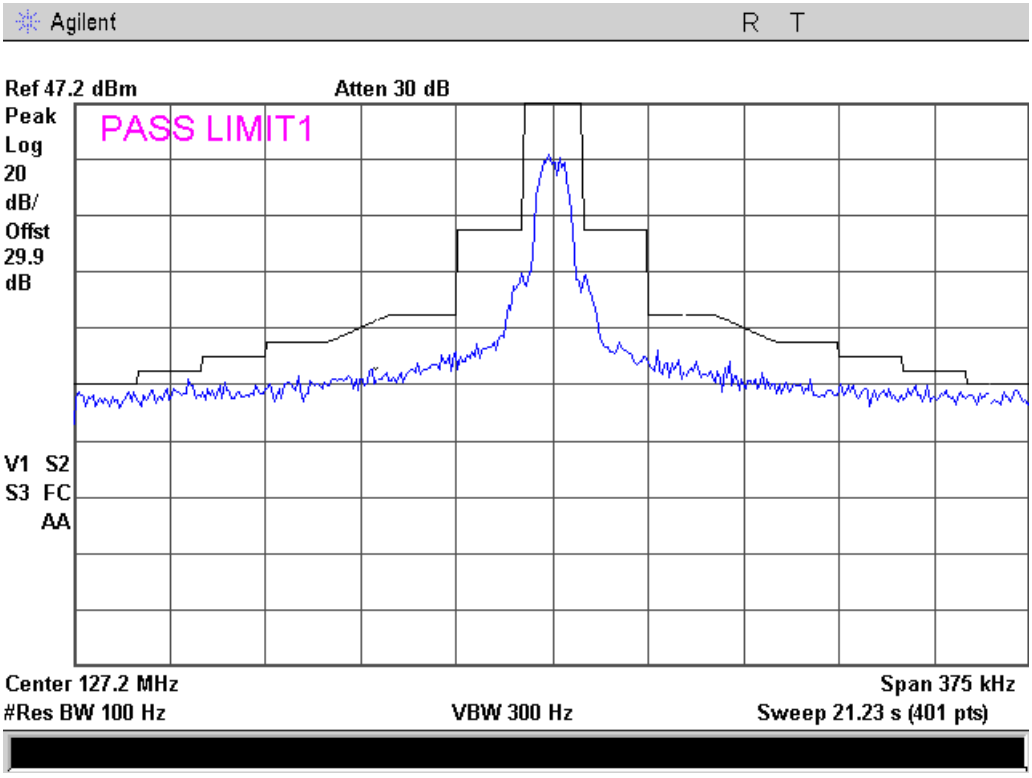
127.250 7K00A3E MHz Mask D



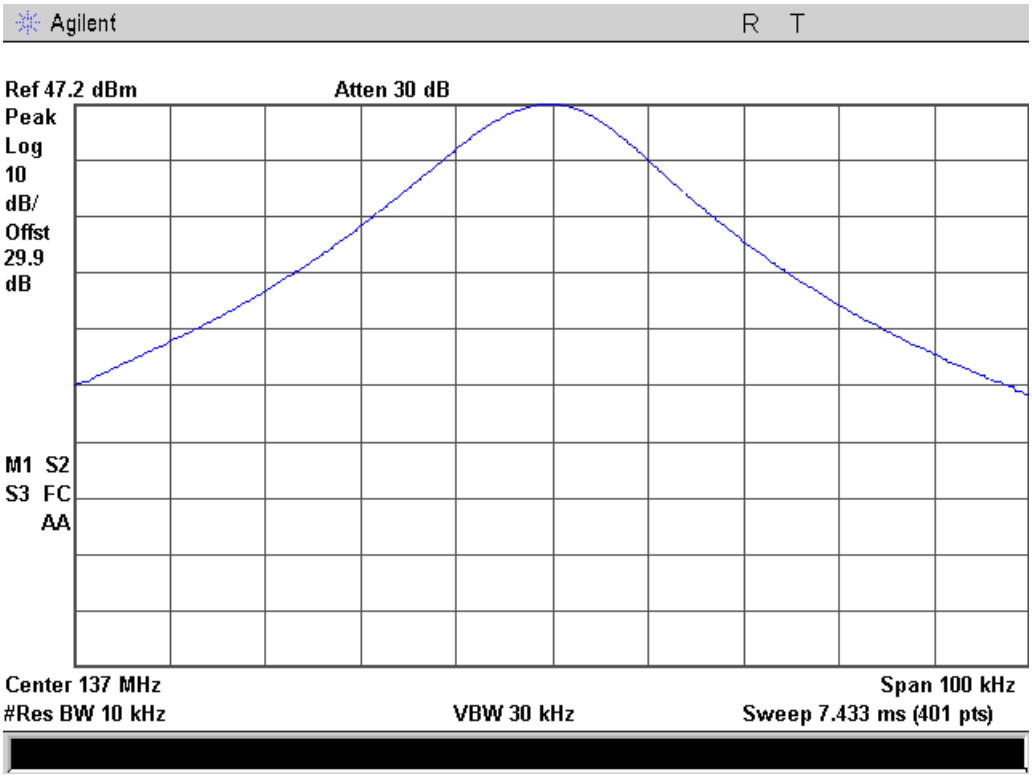
127.250 7K00A9W MHz Mask D



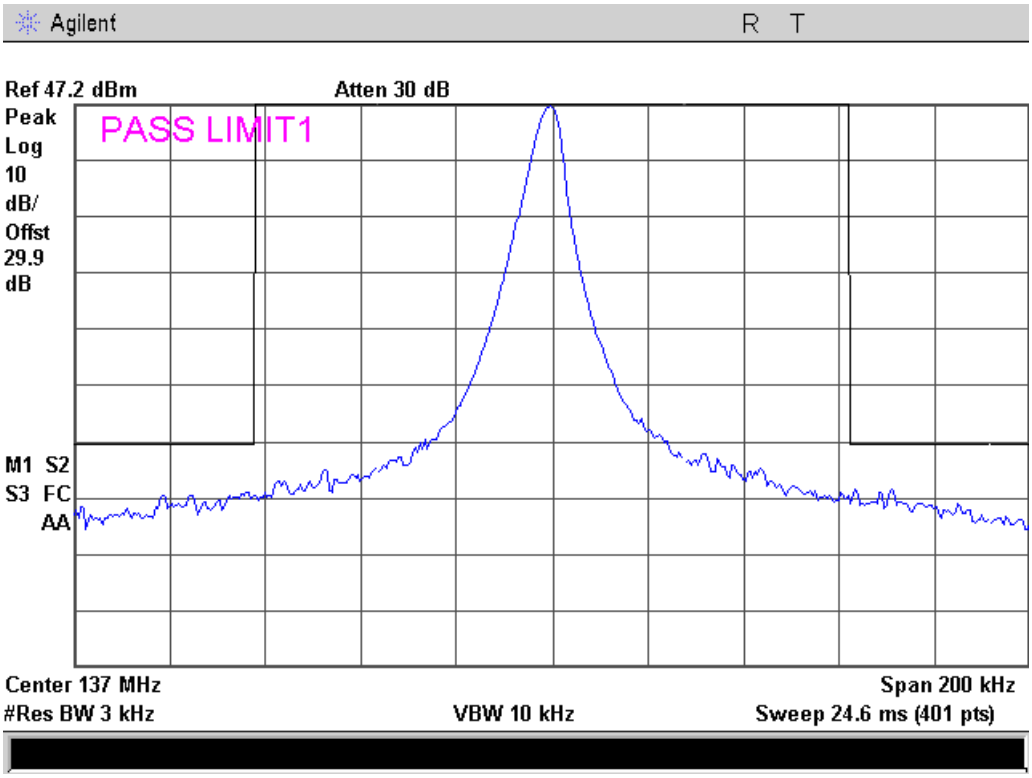
127.250 14K0G1D MHz Mask K



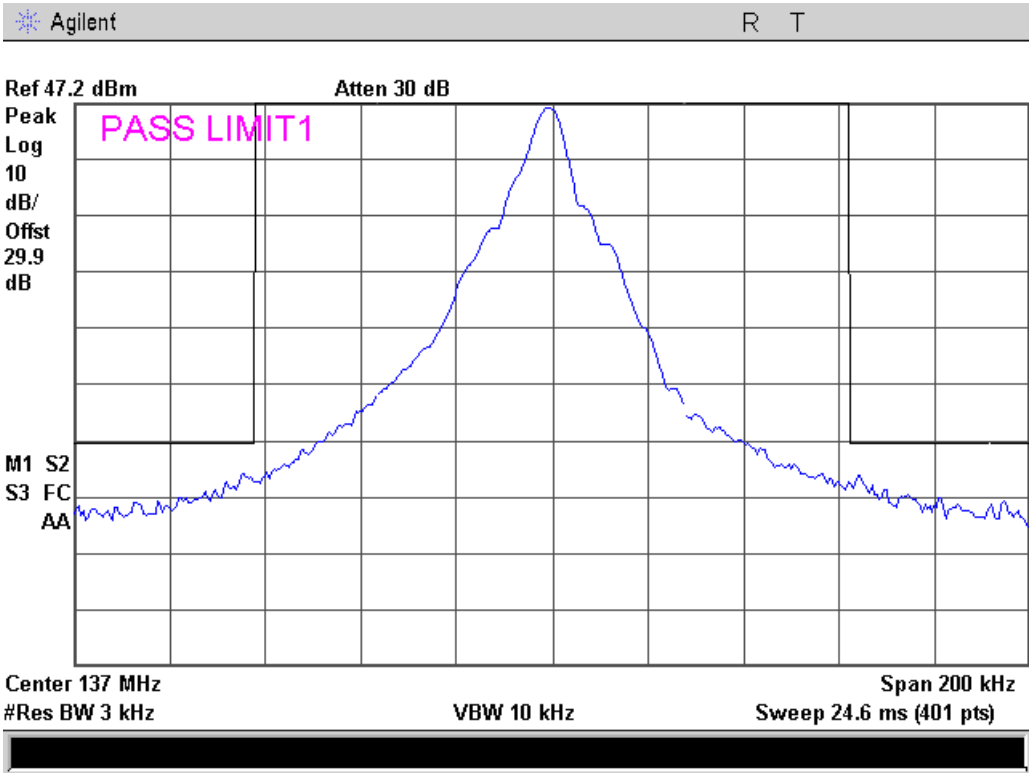
136.975 MHz Reference



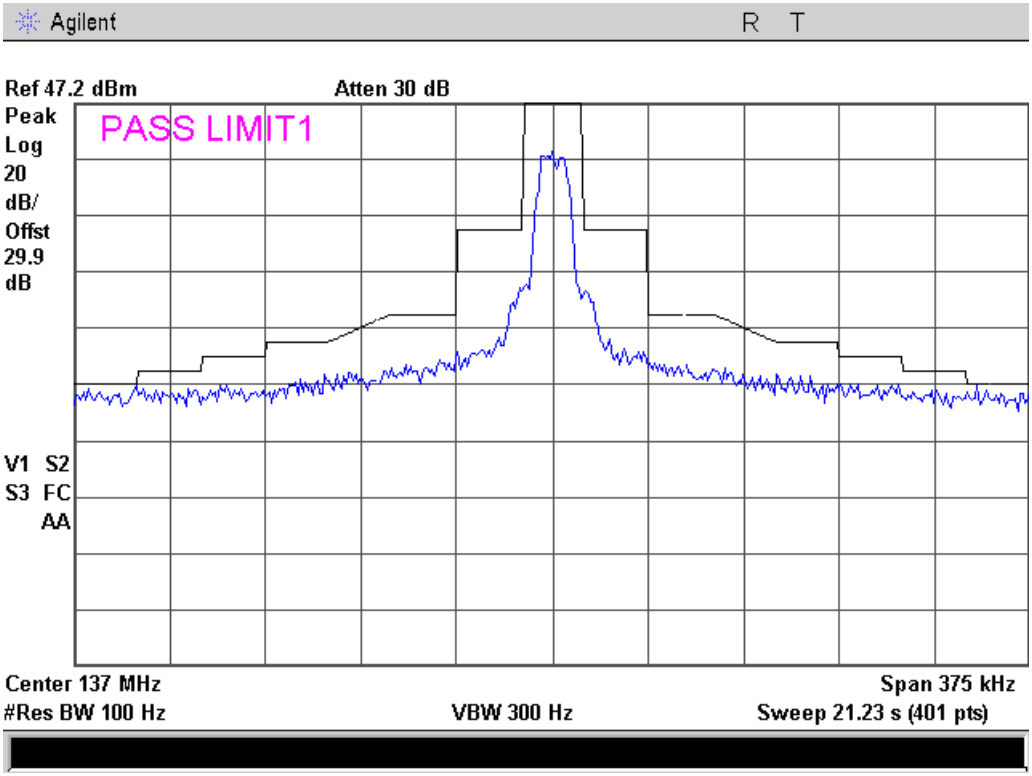
136.975 7K00A3E MHz Mask D



136.975 7K00A9W MHz Mask D



136.975 14K0G1D MHz Mask K

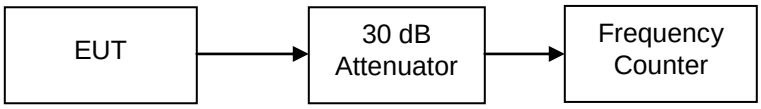


Name of Test: Frequency Stability (Temperature Variation)
Specification: 87.133 **Engineer:** J. Erhard
Test Equipment Utilized: i00019, i00191, i00287, i00320, HW1 **Test Date:** 12/23/2010

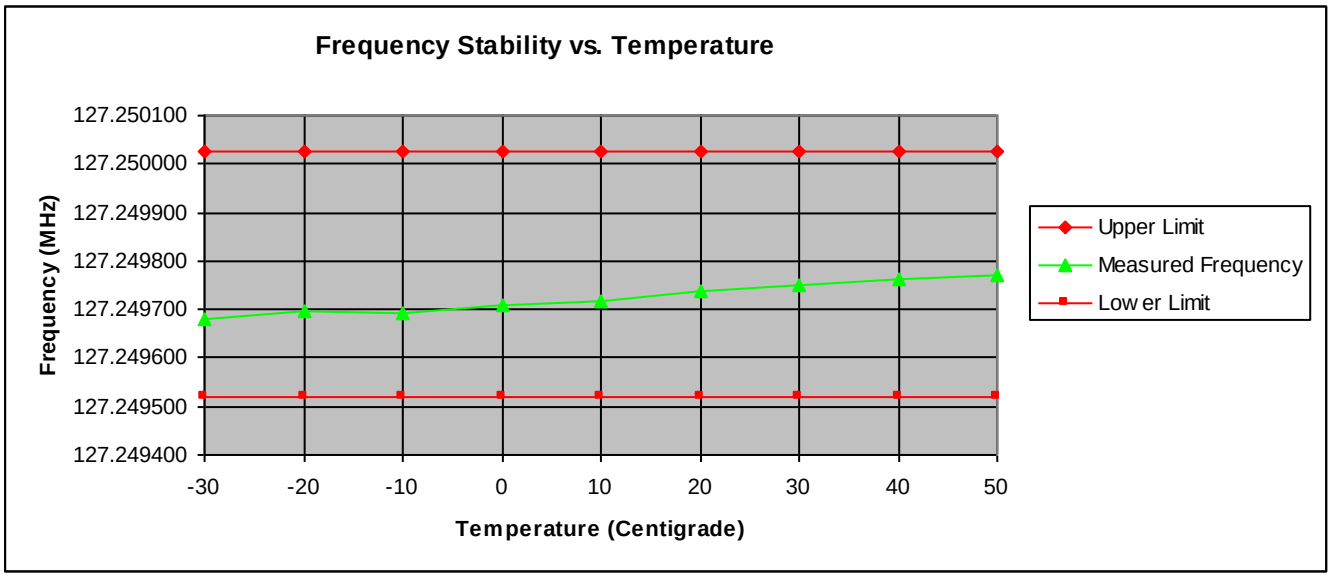
Measurement Procedure

The EUT was placed in an environmental test chamber and the RF output was connected through a power attenuator to a frequency counter. The temperature was varied from -30ºC to 50ºC in 10ºC increments. After a sufficient time for temperature stabilization the RF output frequency was measured.

Measurement Setup



Measurement Results

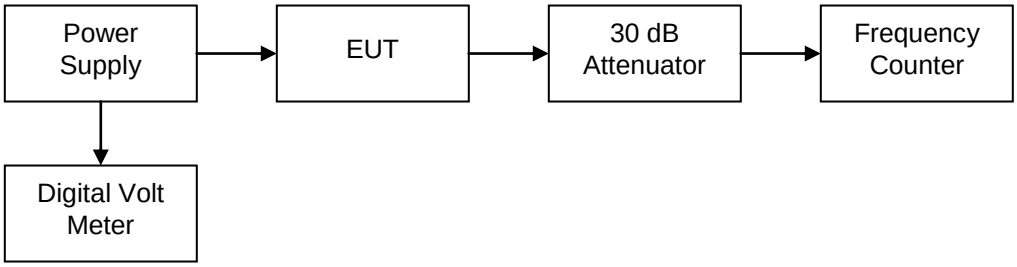


Name of Test: Frequency Stability (Voltage Variation)
Specification: 87.133 **Engineer:** J. Erhard
Test Equipment Utilized: i00019, i00191, i00287, i00320, HW1 **Test Date:** 12/23/2010

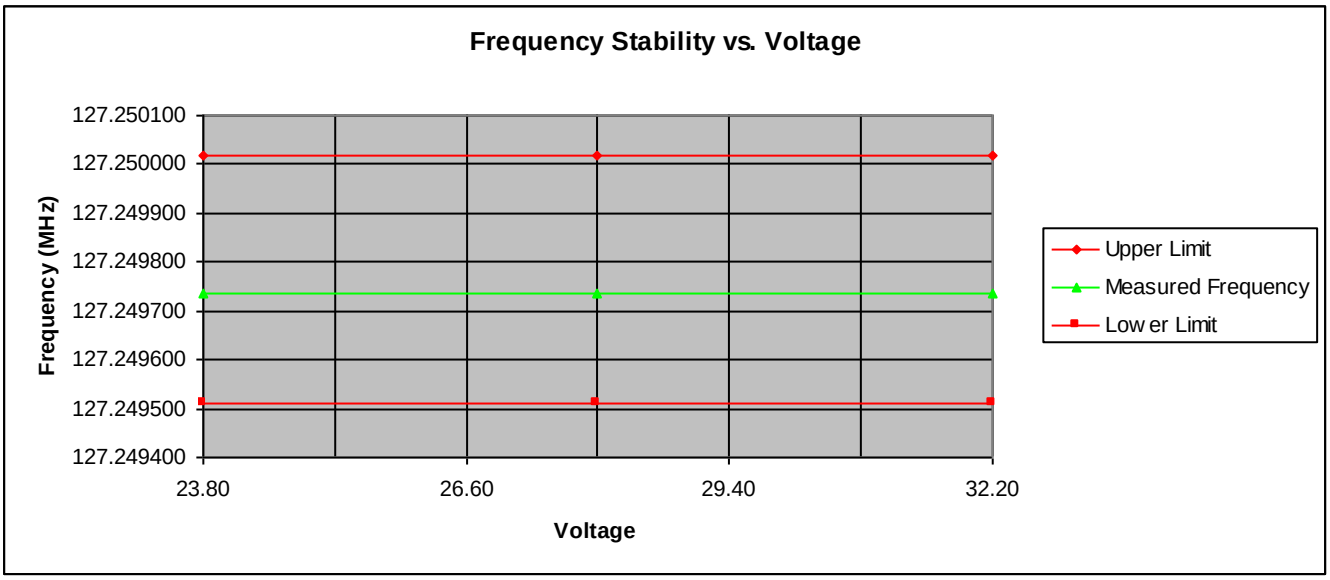
Measurement Procedure

The EUT was placed in an environmental test chamber and the RF output was connected through a power attenuator to a frequency counter. At 20ºC the power supply voltage was varied from 85% to 115% of the nominal value and the RF output was measured.

Measurement Setup



Measurement Results



Name of Test: Necessary Bandwidth and Emission Bandwidth
Specification: 2.202(g) **Engineer:** J. Erhard

AM Single Sideband

Modulation = **6K00A3E**

Necessary Bandwidth Calculation:

Maximum Modulation (M), kHz	=	3
Necessary Bandwidth (B_N), kHz	=	2M
	=	6

AM Single Sideband

Modulation = **5K6A3E**

Necessary Bandwidth Calculation:

Maximum Modulation (M), kHz	=	2.8
Necessary Bandwidth (B_N), kHz	=	2M
	=	5.6

AM Composite Emissions

Modulation = **13K0A9W**

Necessary Bandwidth Calculation:

Maximum Modulation (M), kHz	=	5
Maximum Deviation (D), kHz	=	1.5
Constant Factor (K)	=	1
Necessary Bandwidth (B_N), kHz	=	(2xM)+(2xDxK)
	=	13

8PSK Composite Emissions

Modulation = **14K0G1D**

Necessary Bandwidth Calculation:

Data Rate (R)	=	11.86
Necessary Bandwidth (B_N), kHz	=	R(1.18)
	=	14

Test Equipment Utilized

Asset#	Manufacturer	Model	Description	Last Calibration	Calibration Due
i00019	HP	5344B	Frequency Counter	2/15/2010	2/15/2011
i00033	HP	8546A	Spectrum Analyzer	12/3/2010	12/3/2011
i00103	EMCO	3115	Horn Antenna	11/15/2010	11/15/2012
i00134	Termaline	8201	Non-radiating Load	NCR	NCR
i00191	HP	6673A	Power Supply	NCR	NCR
i00267	Schaffner	CBL6111C	Bilog Antenna	11/21/2009	11/21/2011
i00287	Tenney	Benchmaster	Temperature Test Chamber	NCR	NCR
i00290	HP	8566B	Spectrum Analyzer	9/15/2010	9/15/2011
i00320	Fluke	75III	DMM	2/16/2010	2/16/2011
i00343	Fluke	Hydra	Data Logger	11/18/2010	11/18/2011
i00379	Agilent	E7405A	Spectrum Analyzer	11/22/2010	11/22/2011
HW1	JFW	50-FHE-030-200	Power Attenuator	NCR	NCR

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