



Compliance Testing, LLC

Previously Flom Test Lab

RF, EMC and Safety Testing Experts Since 1963

toll-free: (866) 311-3268

fax: (480) 926-3598

<http://www.ComplianceTesting.com>

info@ComplianceTesting.com

Date: December 17, 2010

Applicant: Bug Labs, Inc
598 Broadway
4th Floor
New York, NY 10012

Attention of: Matt Peddicord, Director of Operations
Ph: (212) 792-6357
Fax: (212) 792-6358
E-mail: matt.peddicord@buglabs.net

Equipment: BUG Y.T.

FCC ID: W3J-BUGYT

FCC Rules: 15.247

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



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Test Report

for

FCC ID: W3J-BUGYT

Model: BUG Y.T.

to

Federal Communications Commission

Rule Part(s) 15.247

Date of Report: December 17, 2010

On the Behalf of the Applicant:

Bug Labs, Inc
598 Broadway
4th Floor
New York, NY 10012

Attention of:

Matt Peddicord, Director of Operations
Ph: (212) 792-6357
Fax: (212) 792-6358
E-mail: matt.peddicord@buglabs.net

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 17, 2010	J. Erhard	Original Document
2.0	January 13, 2011	K. Springer	Revised Model Info per Customer request
3.0	January 21, 2011	J. Erhard	Edit Frequency list on OCC BW tables



The applicant has been cautioned as to the following:

15.21 Information to User

The user's manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) Special Accessories

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.



Testimonial and Statement of Certification

This is to certify that:

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.

A handwritten signature in black ink, appearing to read "John Erhard".

John Erhard: Engineering Manager

Certifying Engineer:



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List of General Information Required For Certification

In Accordance with FCC Rules and Regulations, Volume II, Part 2 and to 15.247

Sub-Part 2.1033

(b)(1):

Name and Address of Applicant:

Bug Labs, Inc.
598 Broadway 4th Floor
New York, NY 10012

(b)(2):

FCC ID:

W3J-BUGYT

Model Number:

BUG Y.T.

(b)(3):

Instruction Manual(s):

Please See Exhibits

(b)(4):

Theory of Operation:

Please See Exhibits

(b)(5):

Block Diagram:

Please See Exhibits

(b)(6):

Test Report:

Contained Herein

(b)(7):

Test Setup Photos:

Please See Exhibits

15.203: Antenna Requirement:

- ☒ The antenna is permanently attached to the EUT
- ☐ The antenna uses a unique coupling
- ☐ The EUT must be professionally installed
- ☐ The antenna requirement does not apply



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: 15.247 Operation within bands 902-928, 2400-2483.5, 5725-5850 MHz

Standard Test Conditions and Engineering Practices

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

In accordance with ANSI C63.10-2009 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.

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

Environmental Conditions		
Temperature	Humidity	Pressure
78 degrees Fahrenheit	25%	30.5 inches of mercury



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



TESTING CERT# 2152.01

FCC OATS Reg. #933597

IC O.A.T.S. Number: 2044A-1

**Test Results Summary**

Specification	Test Name	Pass, Fail, N/A	Comments
15.247(a)	Number of Hopping Channels	Pass	FHSS Only
15.247(a)	Channel Spacing	Pass	FHSS Only
15.247(a)	Dwell Time	Pass	FHSS Only
15.247(b)	Peak Output Power	Pass	
15.247(d)	Conducted Spurious Emissions	Pass	
15.247(d), 15.209(a), 15.205	Radiated Spurious Emissions	Pass	
15.247(d), 15.209(a), 15.205	Emissions At Band Edges	Pass	
15.247(a)(2)	Occupied Bandwidth	Pass	
15.247(e)	Transmitter Power Spectral Density	Pass	DTS Only
15.207	A/C Powerline Conducted Emissions	Pass	
RSS-GEN6(b)	Receiver Spurious Emissions	Pass	



Name of Test: Number of Hopping Channels
Specification: 15.247(a)
Test Equipment Utilized: i00379

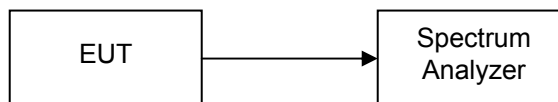
Engineer: J. Erhard
Test Date: 12/15/2010

Test Procedure

The EUT was connected directly to a spectrum analyzer and the total number of hopping channels was measured. A marker was placed at 2390 MHz as a reference and two plots were captured allowing the total number of channels to be counted.

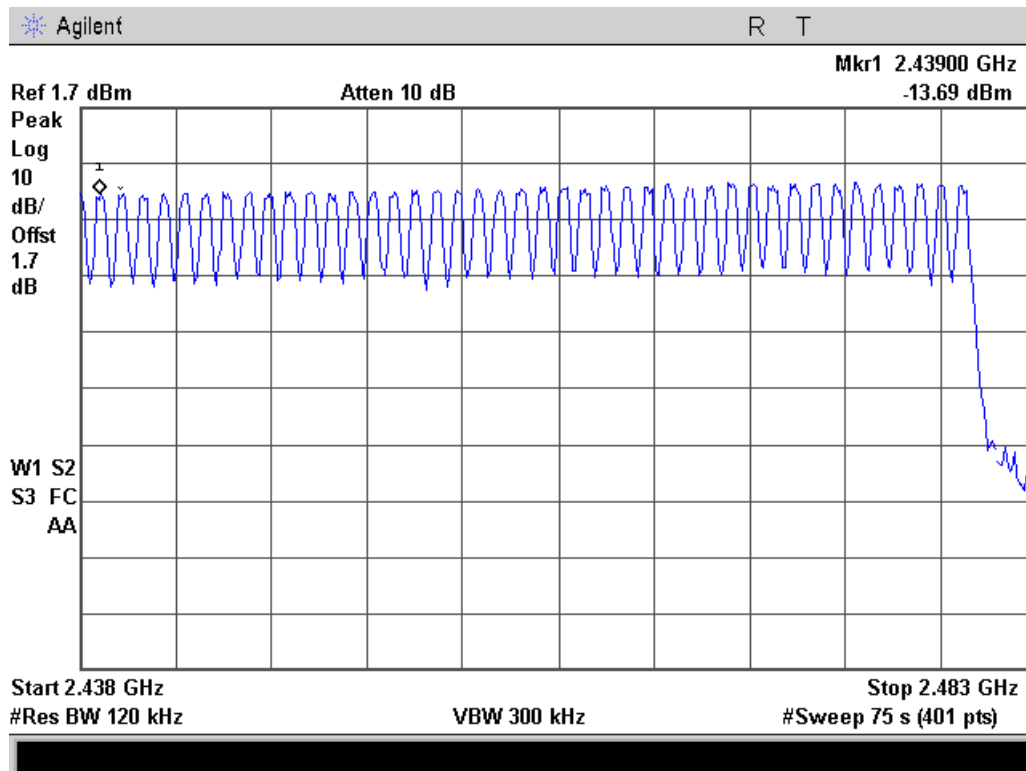
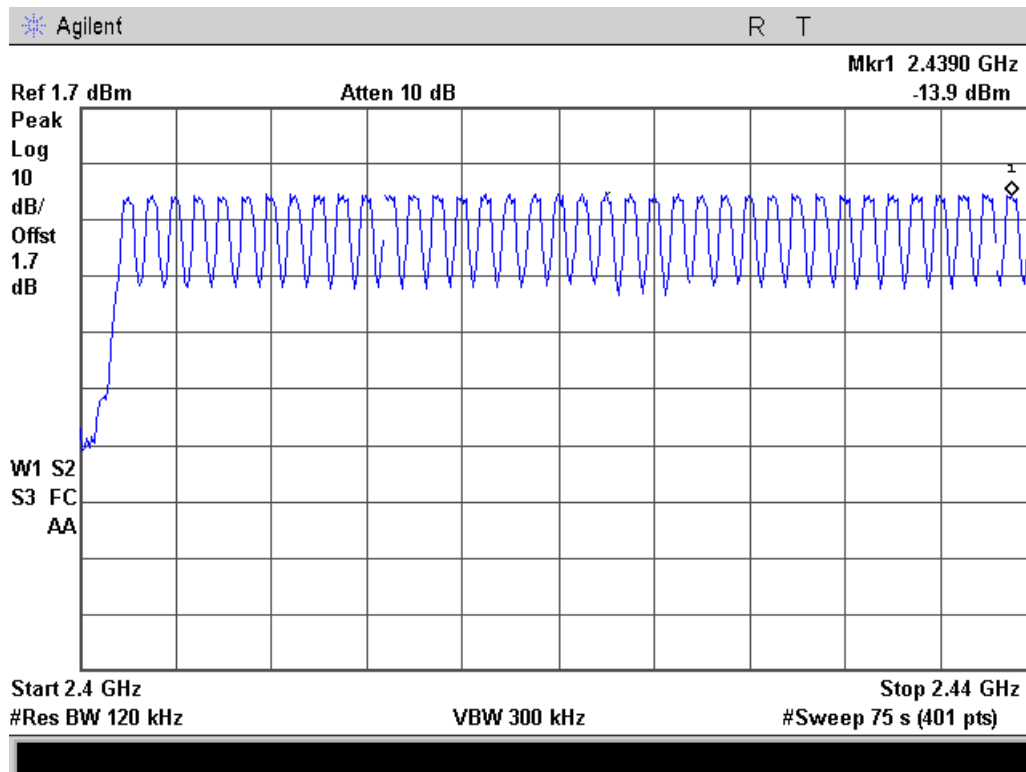
Total channel count - 79

Test Setup





Channel Spacing Test Results





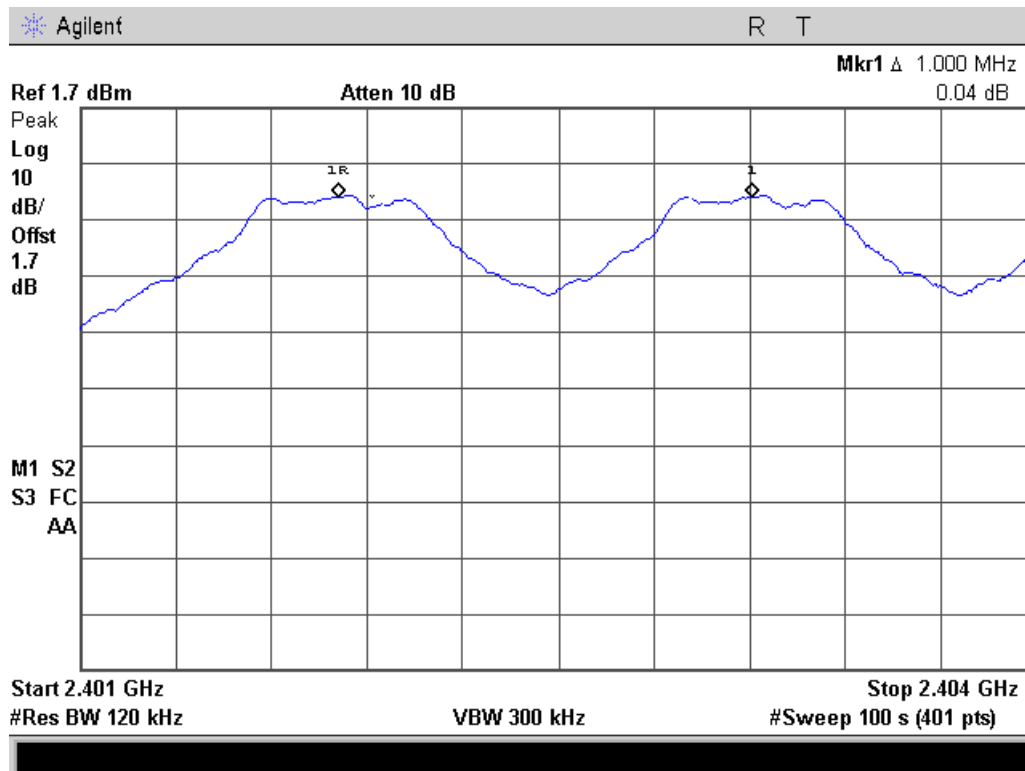
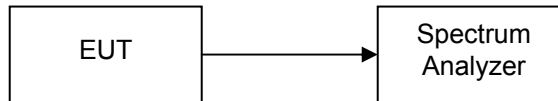
Name of Test: Channel Spacing
Specification: 15.247(a)
Test Equipment Utilized: i00379

Engineer: J. Erhard
Test Date: 12/15/2010

Test Procedure

The EUT was connected directly to a spectrum analyzer and the channel spacing was measured.

Test Setup





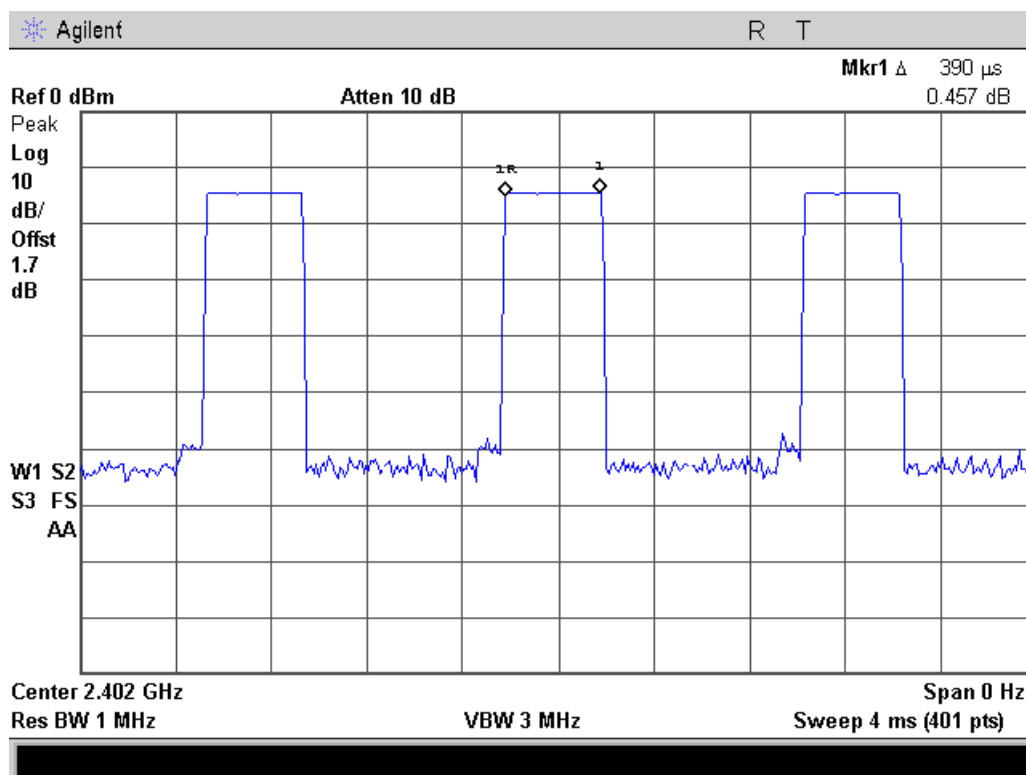
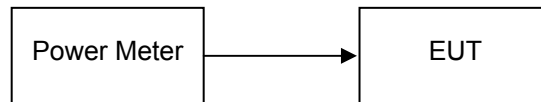
Name of Test: Dwell Time
Specification: 15.247(a)
Test Equipment Utilized: i00379

Engineer: J. Erhard
Test Date: 12/14/2010

Test Procedure

The EUT was connected directly to a spectrum analyzer and the dwell time was measured.

Test Setup





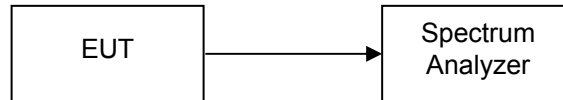
Name of Test: Peak Output Power
Specification: 15.247(b)
Test Equipment Utilized: i00379

Engineer: J. Erhard
Test Date: 12/10/2010

Test Procedure

The EUT was connected directly to a power meter input.
The peak readings were taken and the result was then compared to the limit.

Test Setup



DTS Transmitter Peak Output Power

Tuned Frequency MHz	Recorded Measurement dBm	Recorded Measurement Watts	Specification Limit	Result
2412	-7.14	0.00019	1 W	Pass
2437	-8.29	0.00015	1 W	Pass
2462	-7.67	0.00017	1 W	Pass

FHSS Transmitter Peak Output Power

Tuned Frequency MHz	Recorded Measurement dBm	Recorded Measurement Watts	Specification Limit	Result
2402	-15.94	0.000025	1 W	Pass
2439	-15.92	0.000026	1 W	Pass
2480	-14.51	0.000035	1 W	Pass



Name of Test: Conducted Spurious Emissions
Specification: 15.247(d)
Test Equipment Utilized: i00379

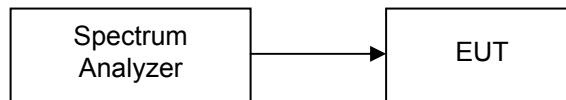
Engineer: J. Erhard
Test Date: 12/14/2010

Test Procedure

The EUT was connected directly to a spectrum analyzer to verify that the EUT met the requirements for spurious emissions. The frequency range from 30 MHz to the 10th harmonic of the fundamental transmitter was observed. Only detectable spurious emissions were recorded and plotted.

Only the worst case for each frequency and transmission type is recorded in the Conducted Spurious Emissions Summary Test Table.

Test Setup



DTS Conducted Spurious Emissions Summary Test Table

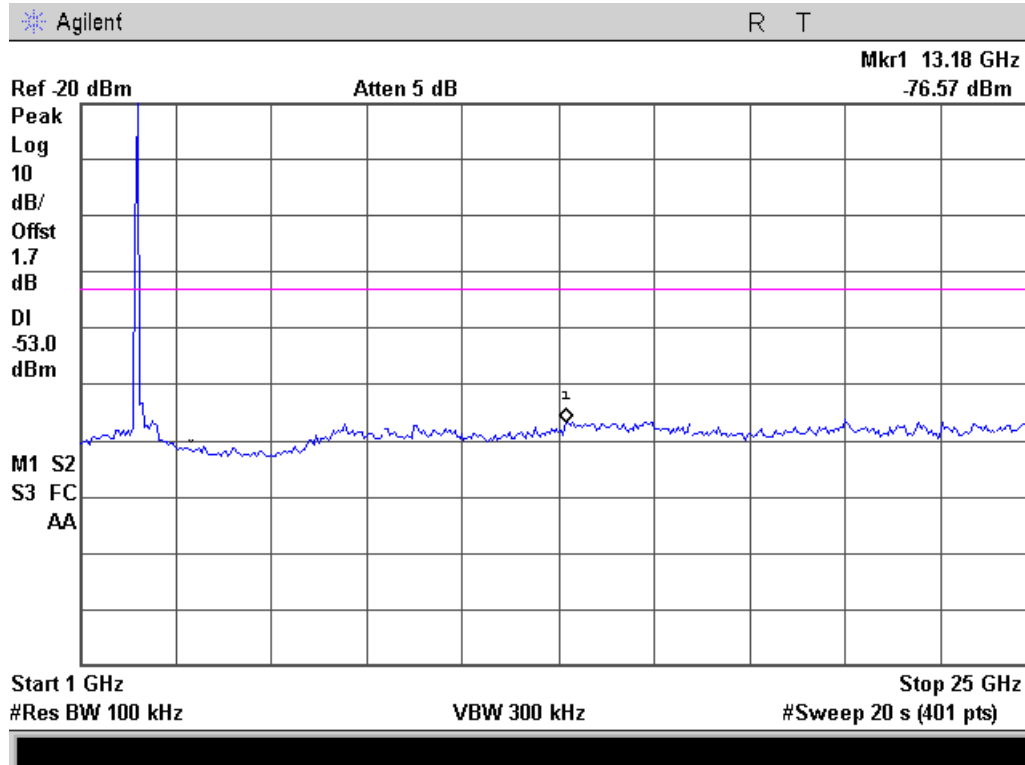
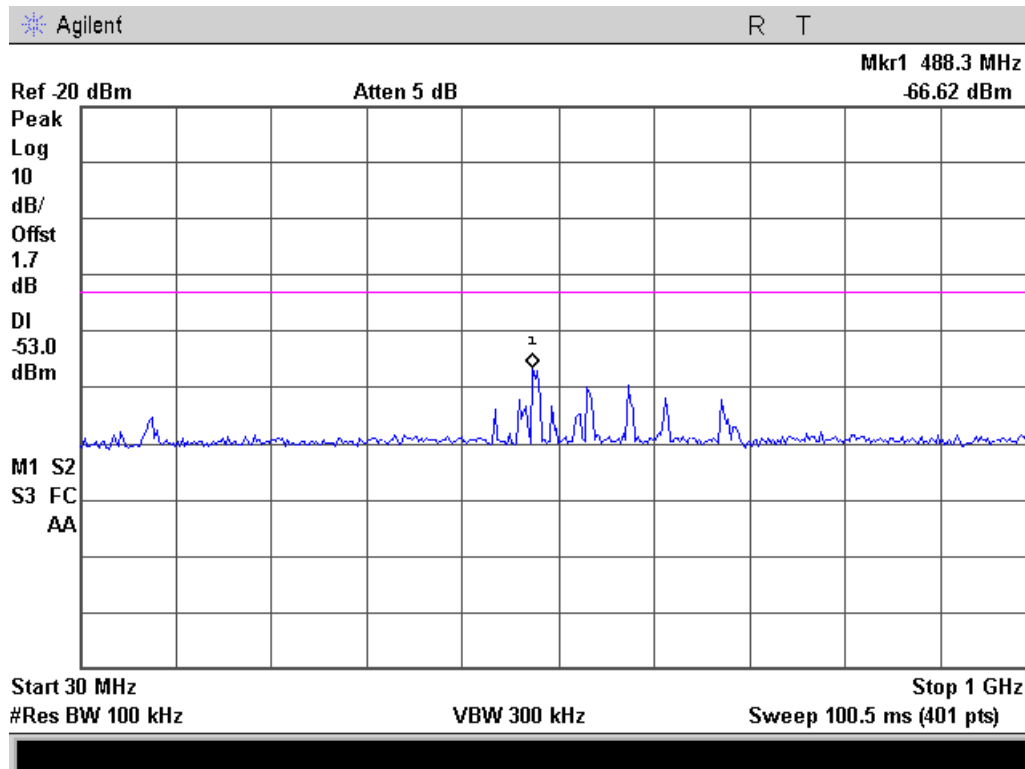
Tuned Frequency MHz	Emission Frequency MHz	Recorded Measurement dBm	Result
2412	488.3	-66.62	Pass
2437	488.3	-66.57	Pass
2462	493.2	-68.23	Pass

FHSS Conducted Spurious Emissions Summary Test Table

Tuned Frequency MHz	Emission Frequency MHz	Recorded Measurement dBm	Result
2402	490.8	-65.60	Pass
2439	493.2	-66.14	Pass
2480	490.8	-66.74	Pass

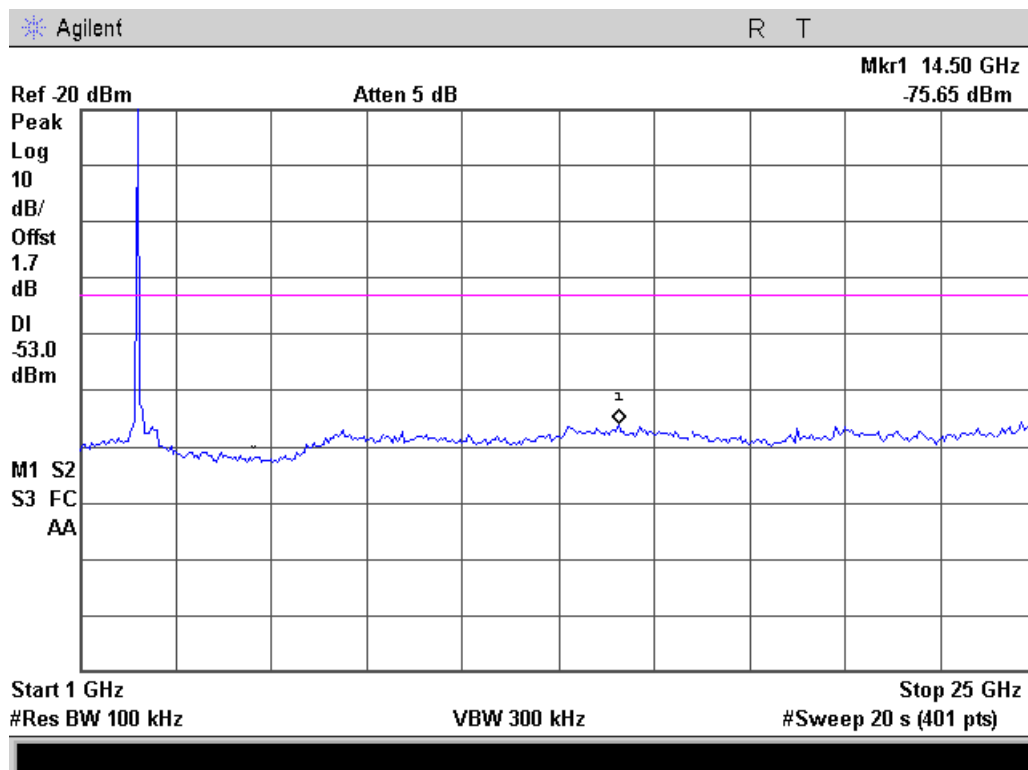
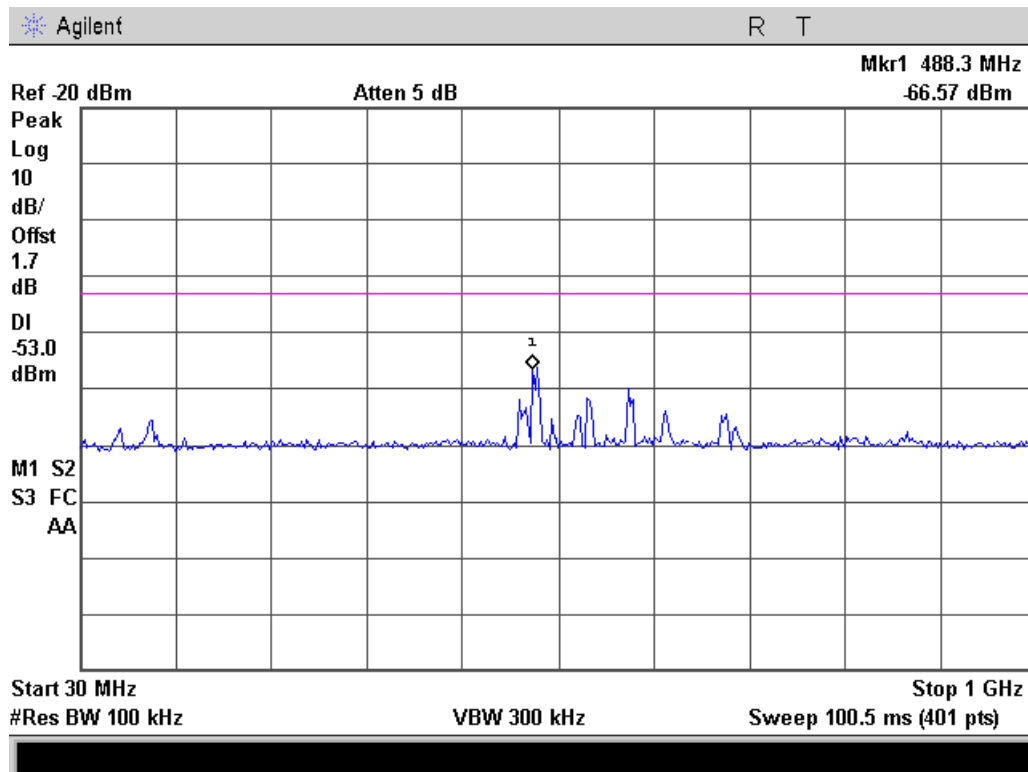


DTS Conducted Spurious Emissions 2412 MHz



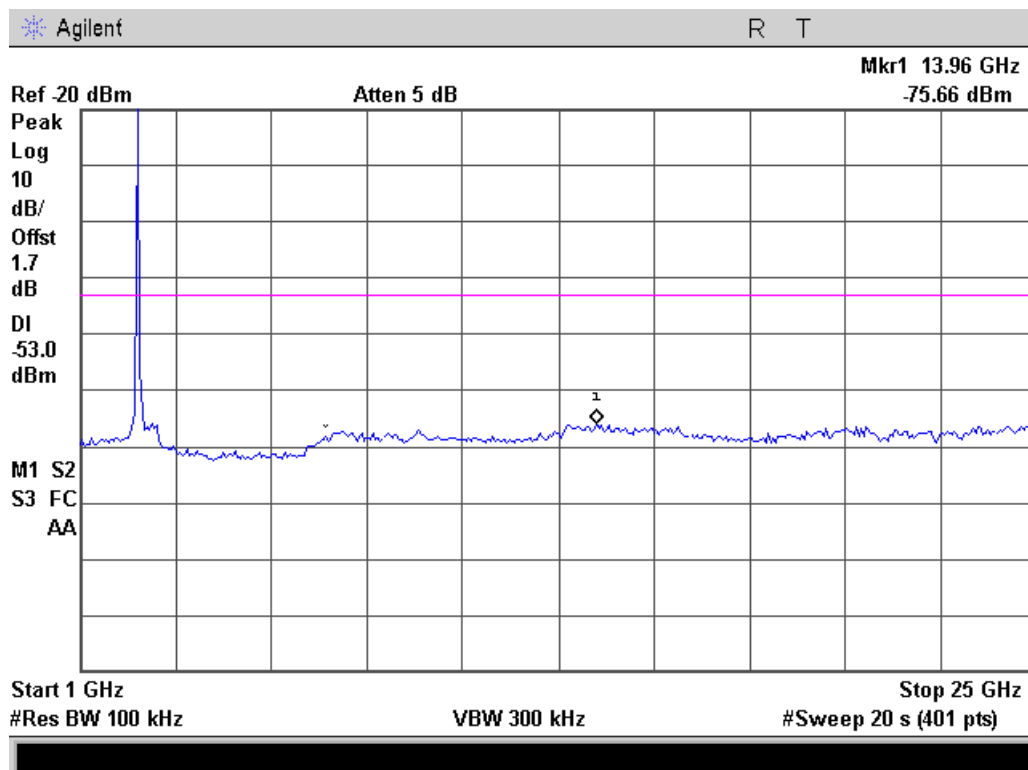
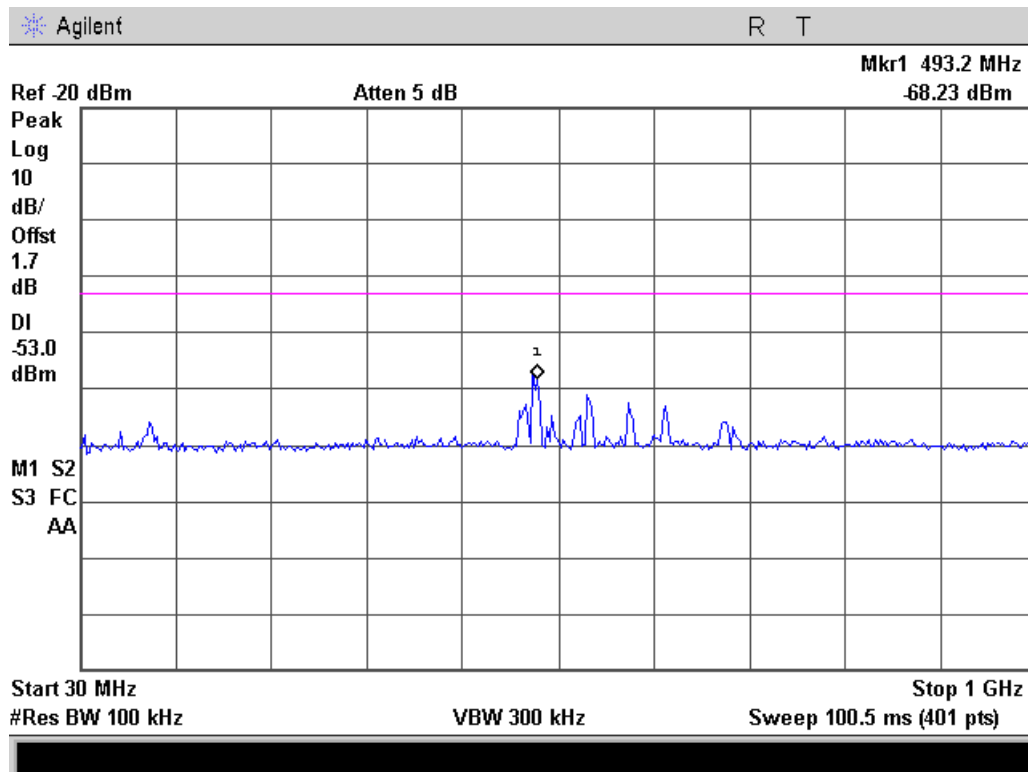


DTS Conducted Spurious Emissions 2437 MHz



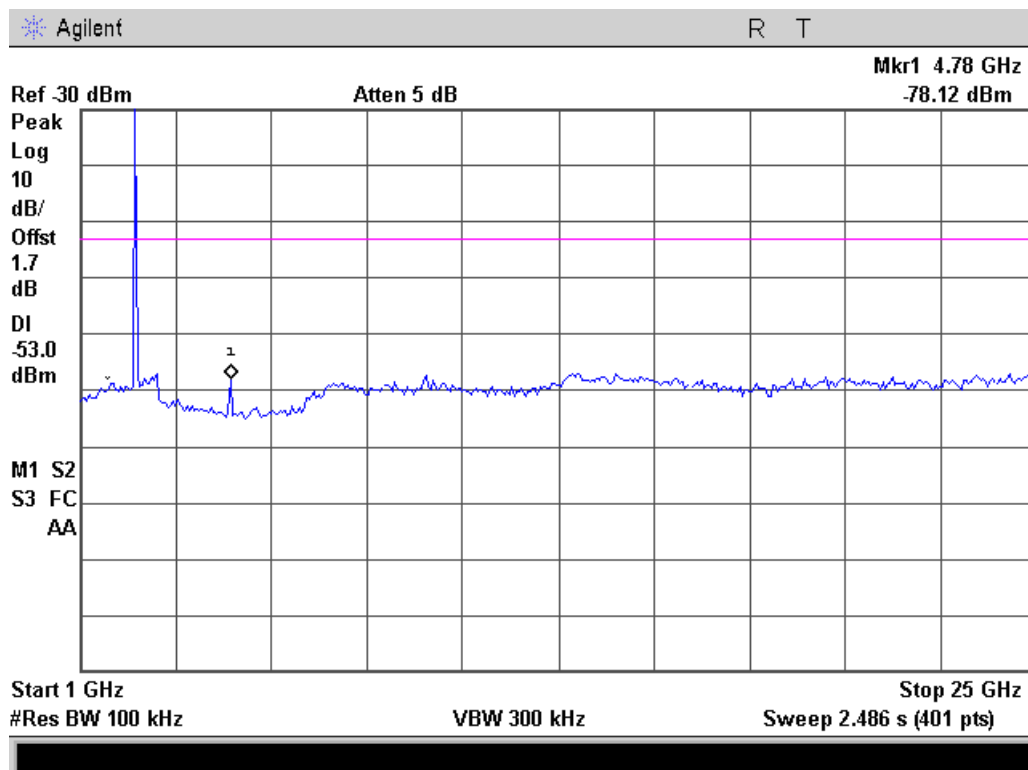
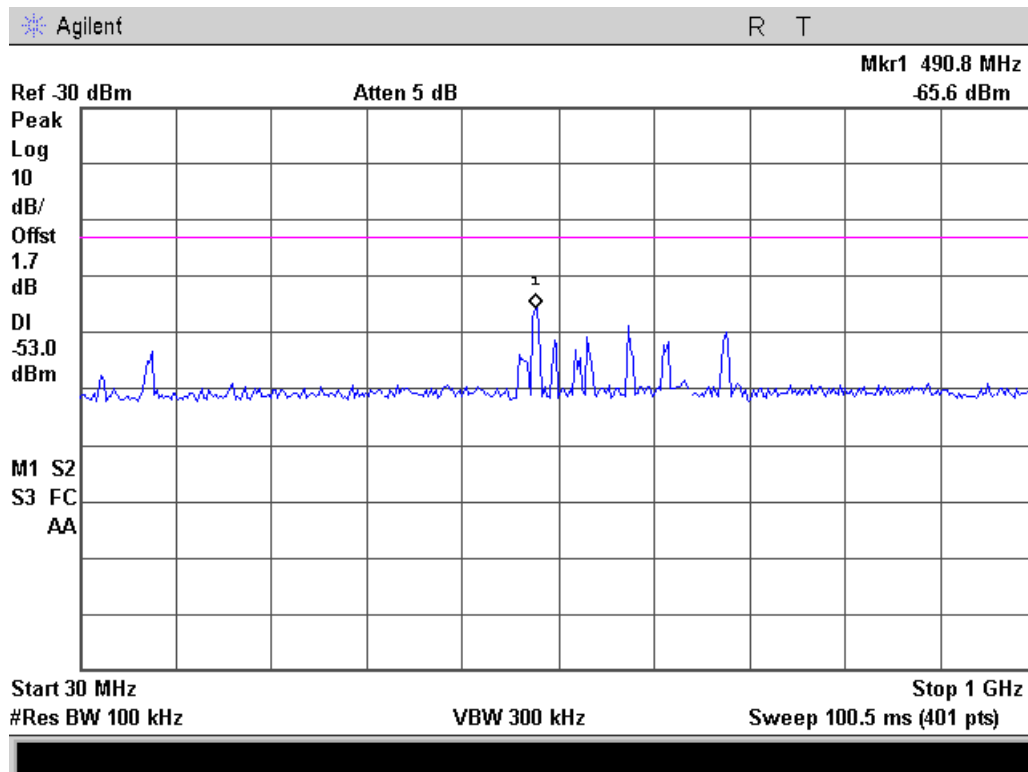


DTS Conducted Spurious Emissions 2462 MHz



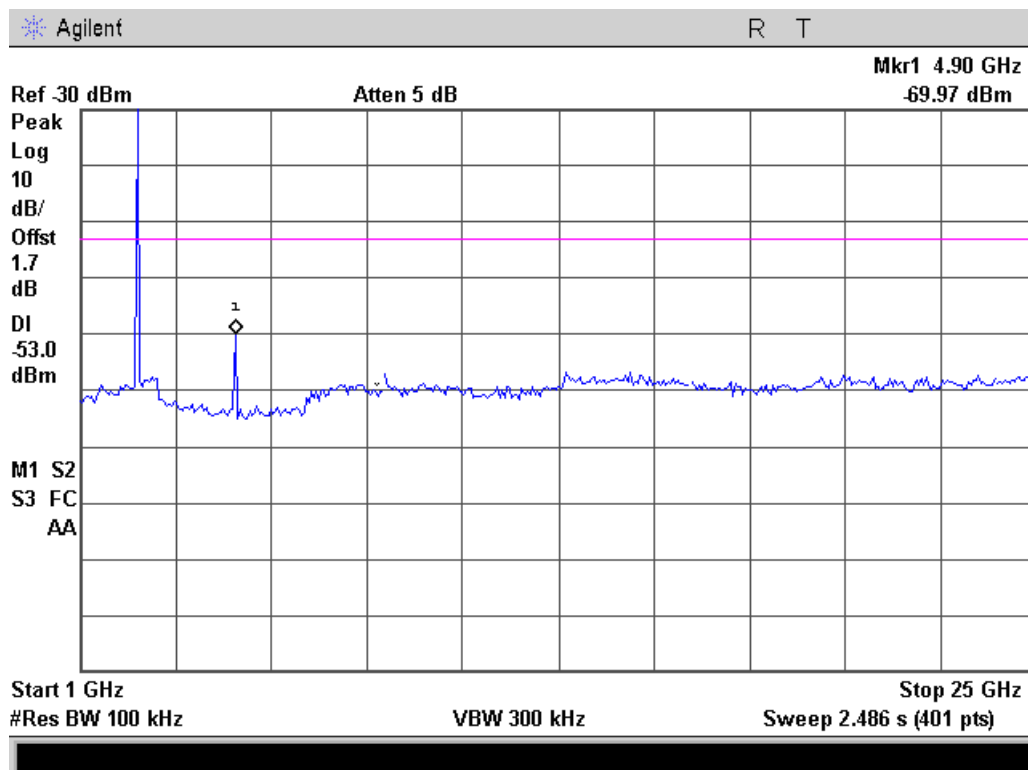
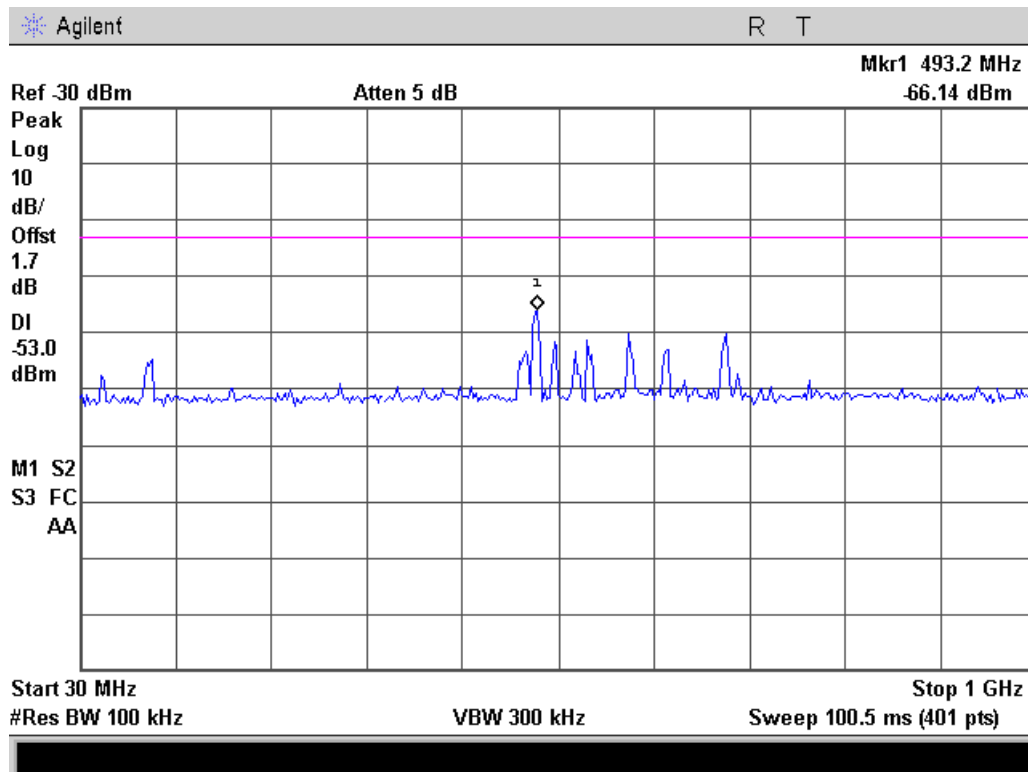


FHSS Conducted Spurious Emissions 2402 MHz



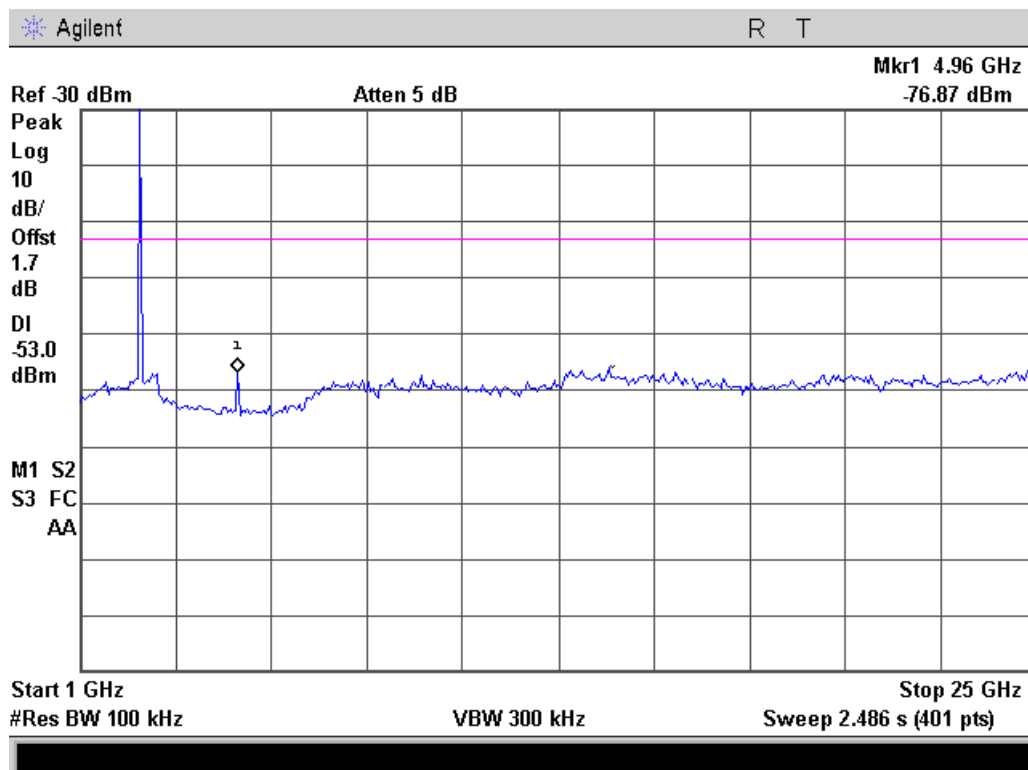
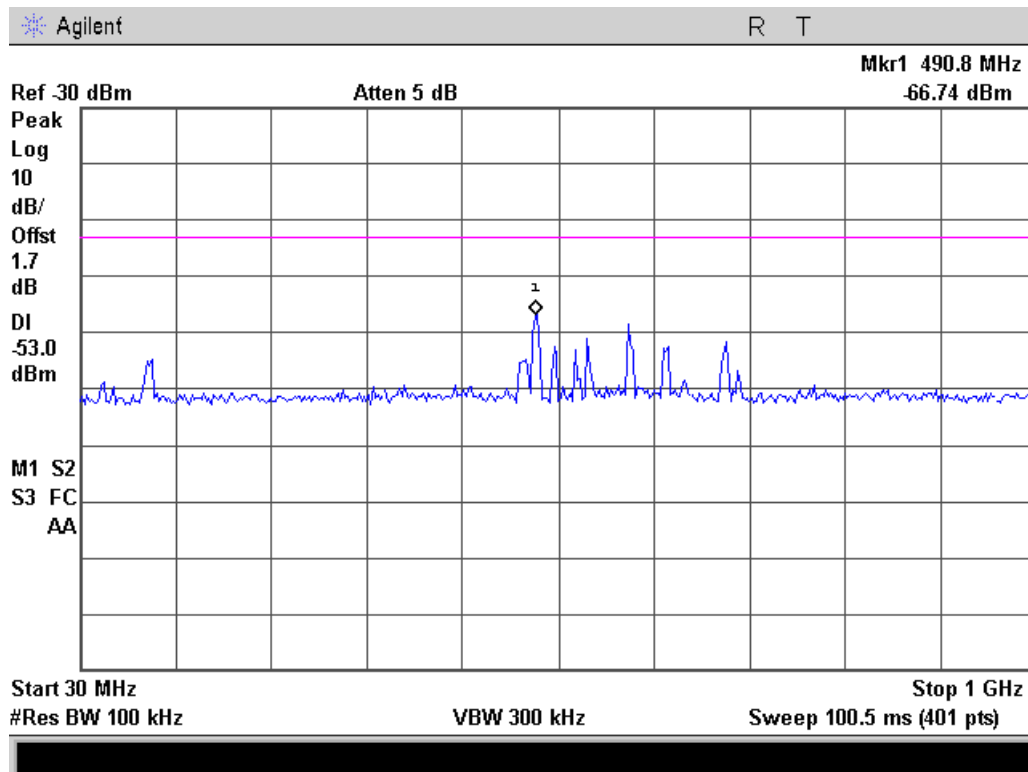


FHSS Conducted Spurious Emissions 2439 MHz





FHSS Conducted Spurious Emissions 2480 MHz





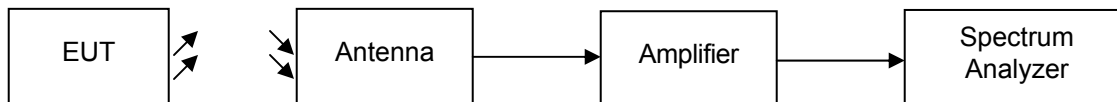
Name of Test: Radiated Spurious Emissions
Specification: 15.247(d), 15.209(a), 15.205
Test Equipment Utilized: i00028, i00103, i00379

Engineer: J. Erhard
Test Date: 12/1/2010

Test Procedure

The EUT was tested in a semi-anechoic chamber set 3m from the receiving antenna. A spectrum analyzer was used to verify that the EUT met the requirements for Radiated Spurious Emissions. The antenna correction factors, cable loss, and the amplifier gain were input into the spectrum analyzer as correction factors to ensure accurate readings. The spectrum for each tuned frequency was examined to the 10th harmonic.

Test Setup



Detector Settings	RBW	VBW
Peak	1 MHz	3 MHz
Average	1 MHz	3 MHz

DTS Radiated Spurious Emissions

Tuned Freq (MHz)	Emission Freq (MHz)	Peak Monitored Level (dBuV/m)	Peak Limit (dBuV/m)	Average Monitored Level (dBuV/m)	Average Limit (dBuV/m)	Result
2412	4828	52.74	74.0	41.16	54.0	Pass
2412	7236	55.24	74.0	44.87	54.0	Pass
2412	9648	60.74	74.0	50.21	54.0	Pass
2437	4874	51.06	74.0	41.02	54.0	Pass
2437	4311	63.62	74.0	44.50	54.0	Pass
2437	9748	61.20	74.0	50.42	54.0	Pass
2462	4924	49.87	74.0	40.41	54.0	Pass
2462	7386	54.16	74.0	45.36	54.0	Pass
2462	9848	59.38	74.0	50.68	54.0	Pass

FHSS Radiated Spurious Emissions

Tuned Freq (MHz)	Emission Freq (MHz)	Peak Monitored Level (dBuV/m)	Peak Limit (dBuV/m)	Average Monitored Level (dBuV/m)	Average Limit (dBuV/m)	Result
2402	4804	50.0	74.0	43.49	54.0	Pass
2402	7206	53.28	74.0	46.23	54.0	Pass
2402	9608	60.09	74.0	50.08	54.0	Pass
2439	4878	46.89	74.0	40.53	54.0	Pass
2439	7317	48.75	74.0	45.77	54.0	Pass
2439	9756	57.67	74.0	51.66	54.0	Pass
2480	4960	42.26	74.0	41.28	54.0	Pass
2480	7440	49.89	74.0	46.29	54.0	Pass
2480	9920	58.48	74.0	49.22	54.0	Pass

No other emissions were detectable.



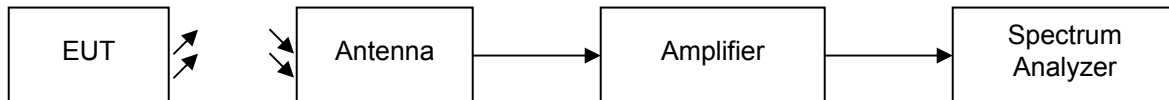
Name of Test: Emissions At Band Edges
Specification: 15.247(d), 15.209(a), 15.205
Test Equipment Utilized: i00028, i00103, i00379

Engineer: J. Erhard
Test Date: 11/21/2010

Test Procedure

The EUT was tested in a semi-anechoic chamber set 3m from the receiving transducer. A spectrum analyzer was used to verify that the EUT met the requirements for band edge with both peak and average measurements. The antenna correction factors, cable loss, and the amplifier gain were input into the spectrum analyzer as correction factors to ensure accurate readings.

Test Setup



DTS Band Edge Emissions Summary

Tuned Freq (MHz)	Emission Freq (MHz)	Monitored Level (dBc)	Detector	Limit	Result
2412	2400	-41.51	Peak	-20 dBc	Pass
2462	2483.5	-39.99	Peak	-20 dBc	Pass

DTS Restricted Band Emissions Summary

Tuned Freq (MHz)	Emission Freq (MHz)	Monitored Level (dBuV/m)	Detector	Limit (dBuV/m)	Result
2412	2375.825	46.05	Peak	74	Pass
2412	2363.225	38.74	Average	54	Pass
2462	2507.750	50.61	Peak	74	Pass
2462	2522.250	43.03	Average	54	Pass

FHSS Band Edge Emissions Summary

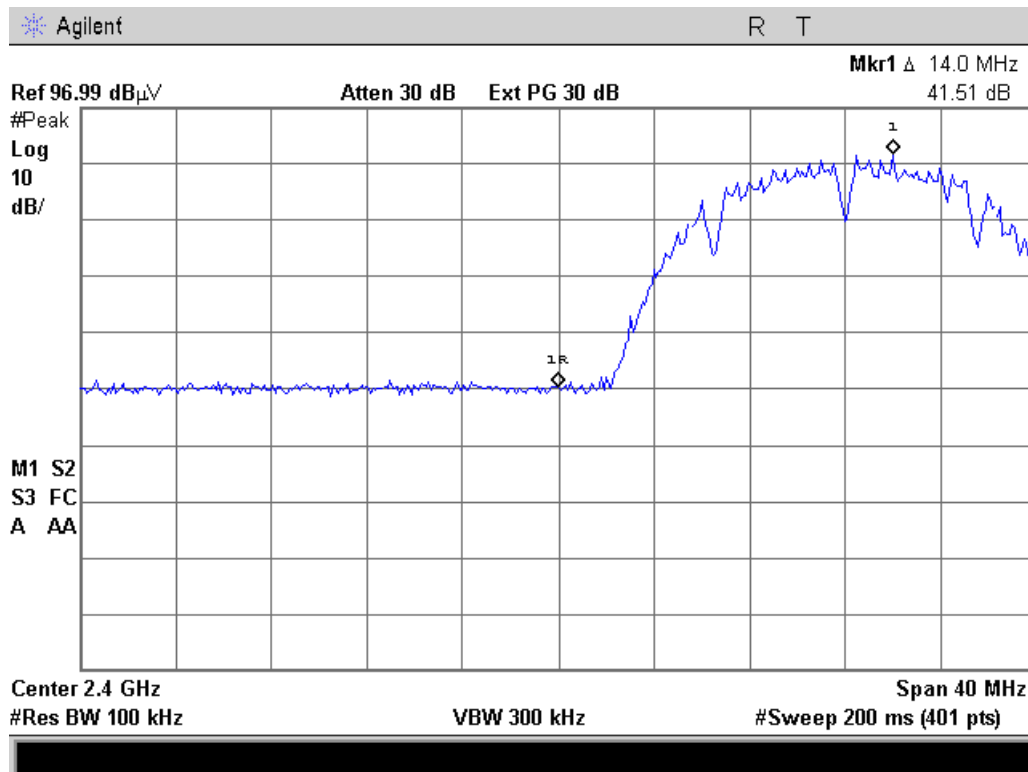
Tuned Freq (MHz)	Emission Freq (MHz)	Monitored Level (dBc)	Detector	Limit	Result
2402	2400	-41.06	Peak	-20 dBc	Pass
2480	2483.5	-43.35	Peak	-20 dBc	Pass

FHSS Restricted Band Emissions Summary

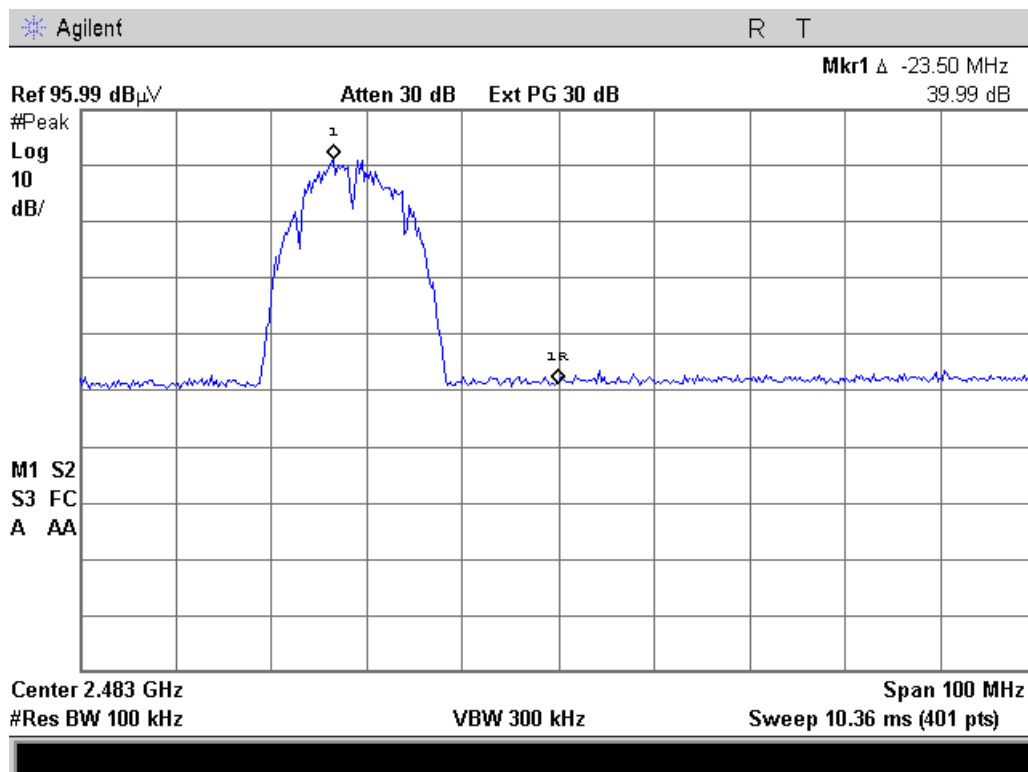
Tuned Freq (MHz)	Emission Freq (MHz)	Monitored Level (dBuV/m)	Detector	Limit (dBuV/m)	Result
2402	2340.725	45.15	Peak	74	Pass
2402	2376.275	37.31	Average	54	Pass
2480	2501.180	54.90	Peak	74	Pass
2480	2483.500	48.83	Average	54	Pass



DTS Band Edge 2400 MHz

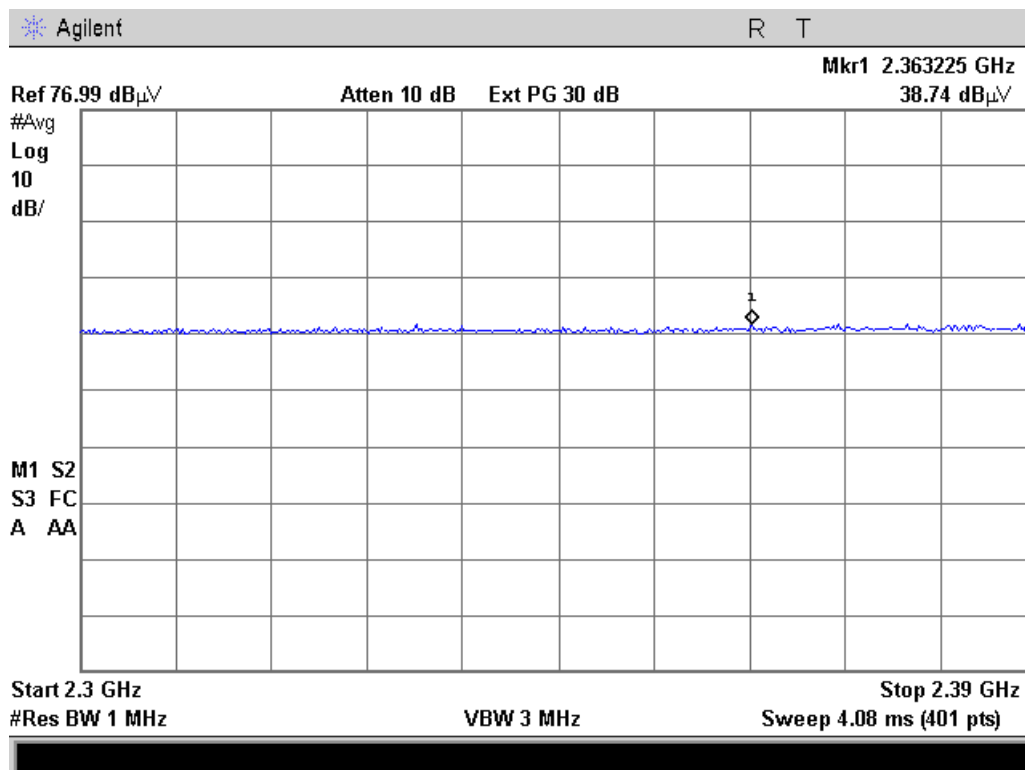
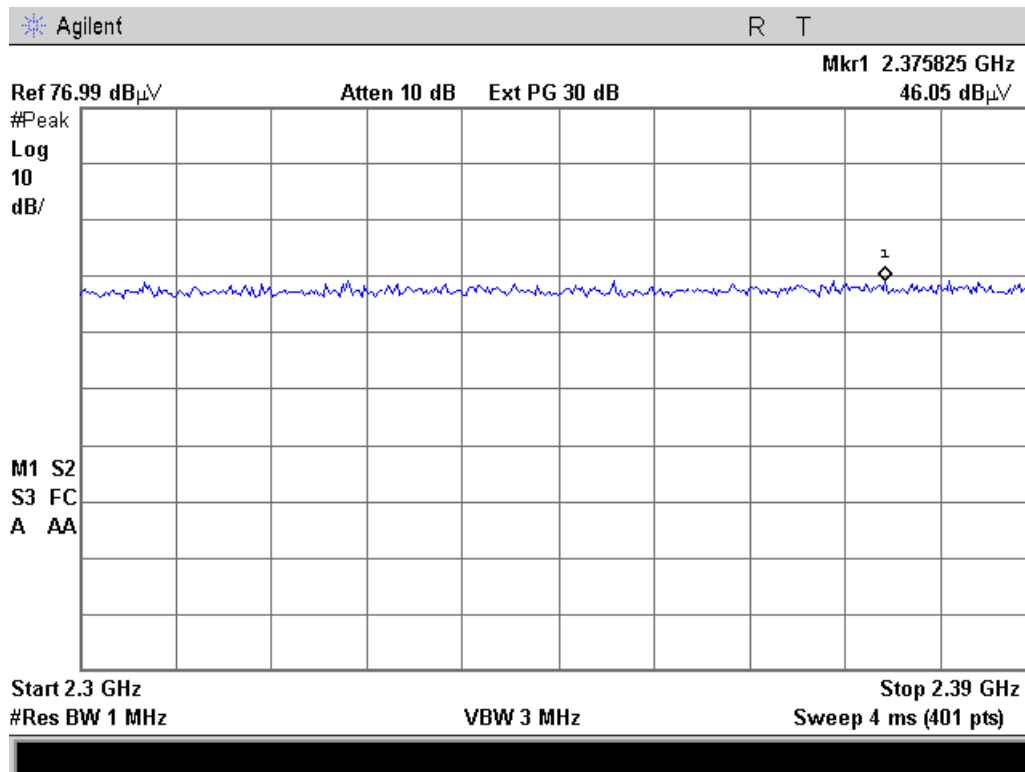


DTS Band Edge 2483.5 MHz



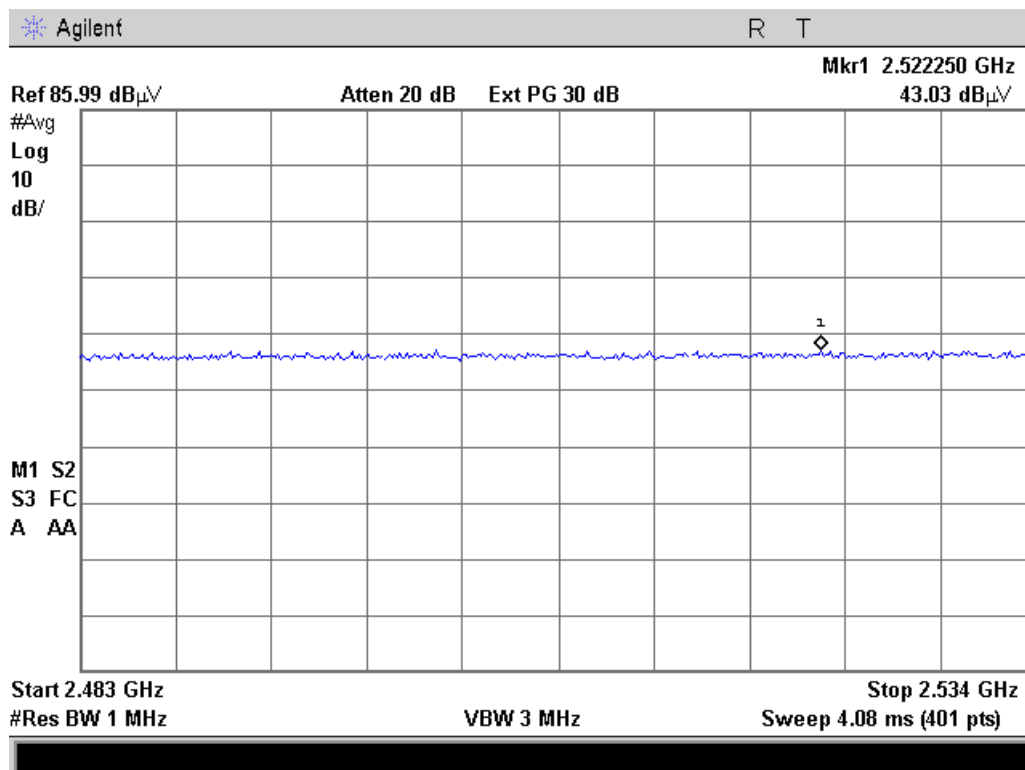
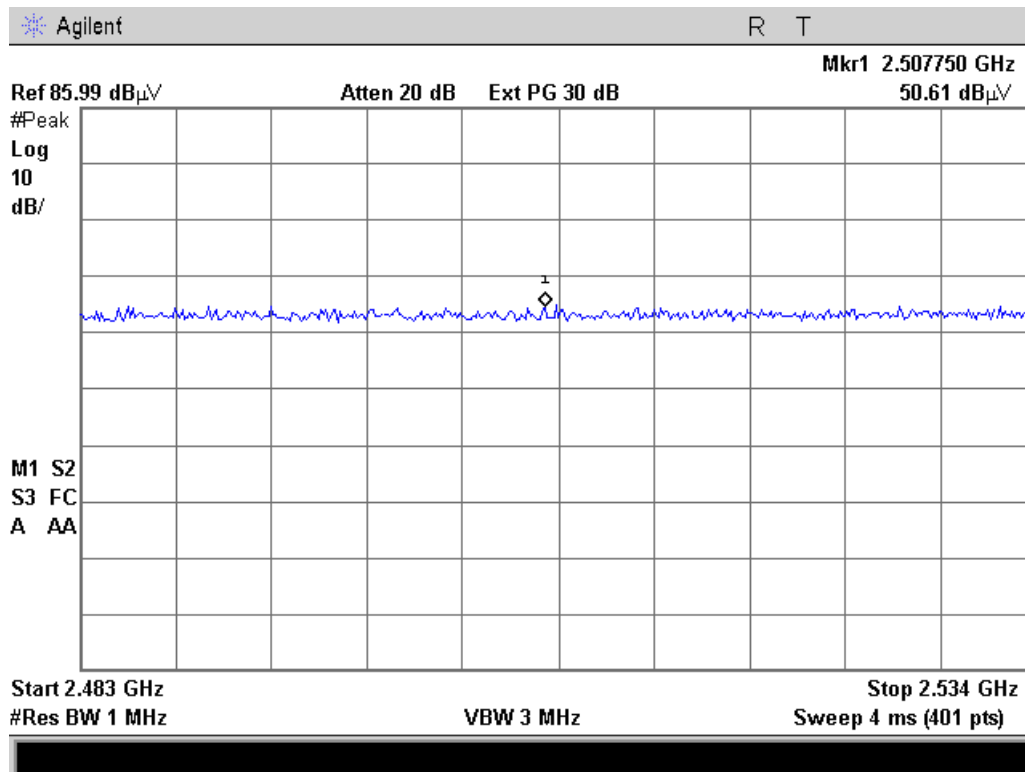


DTS Restricted Band 2390 MHz



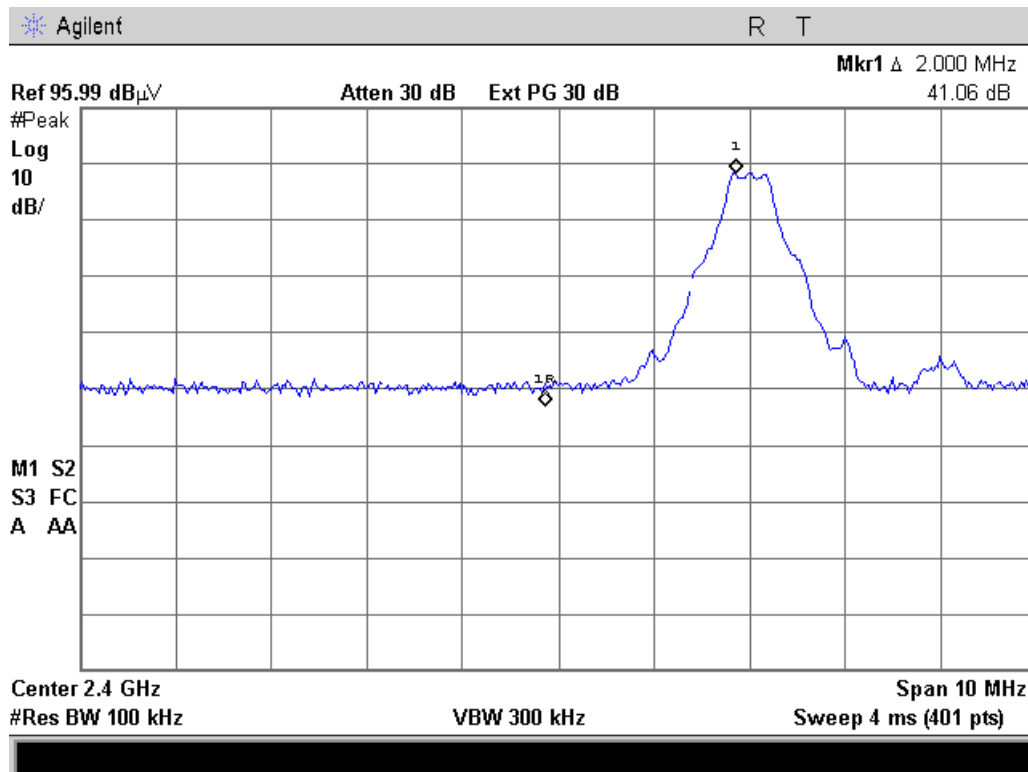


DTS Restricted Band 2483.5 MHz

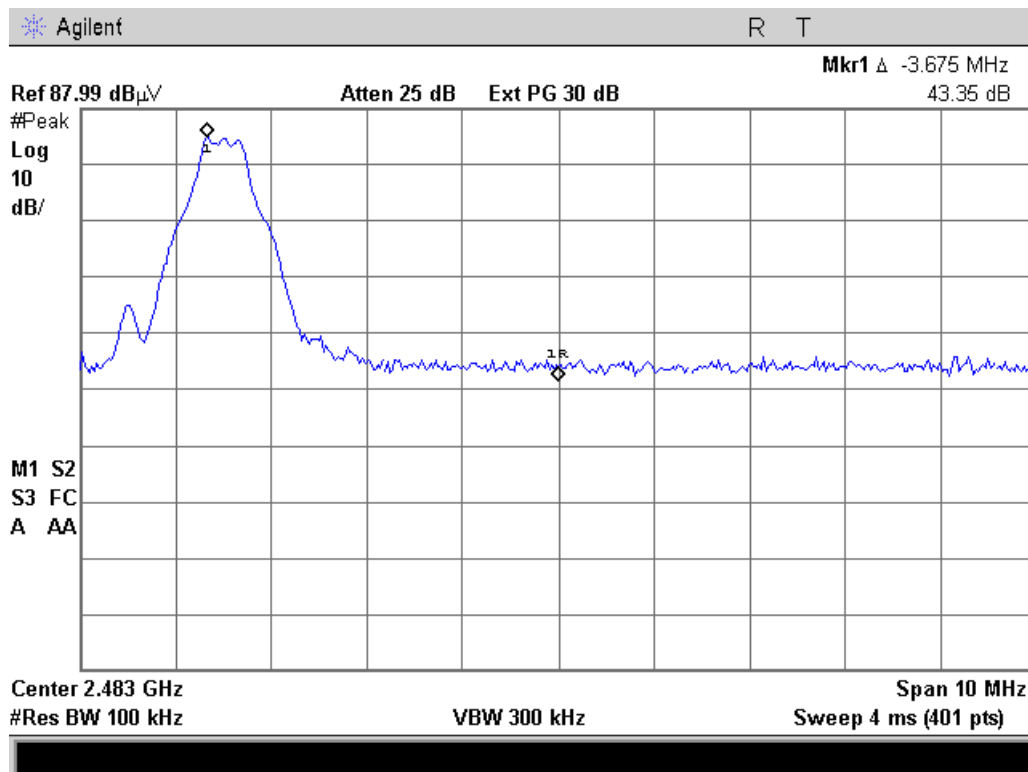




FHSS Band Edge 2400 MHz

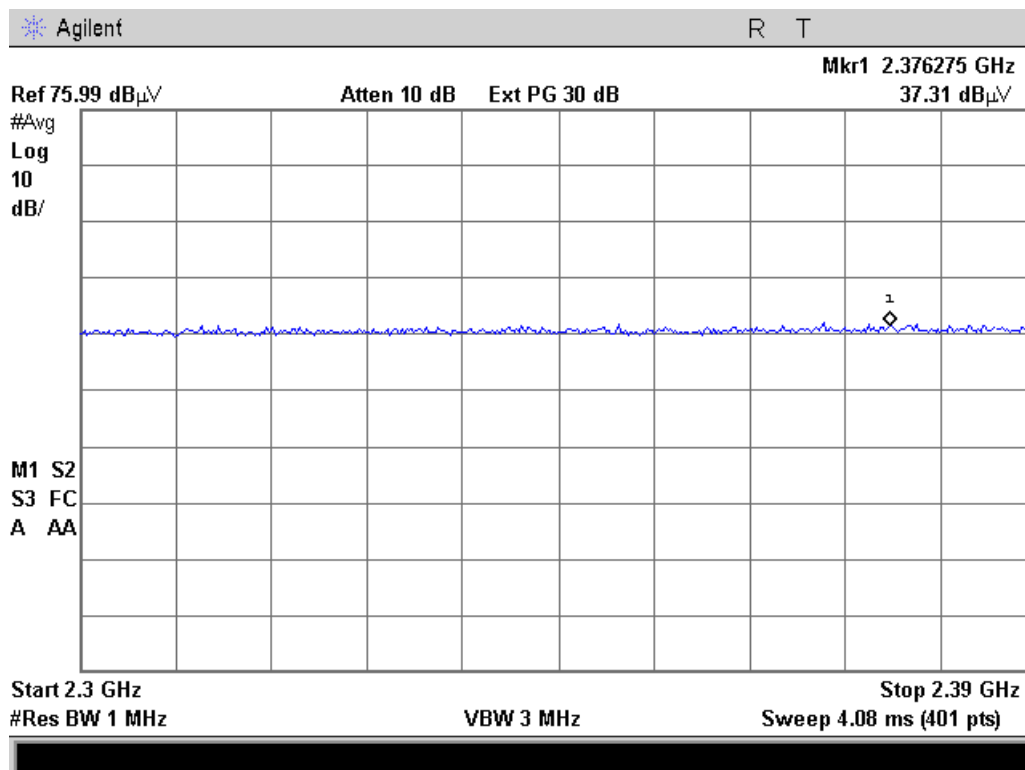
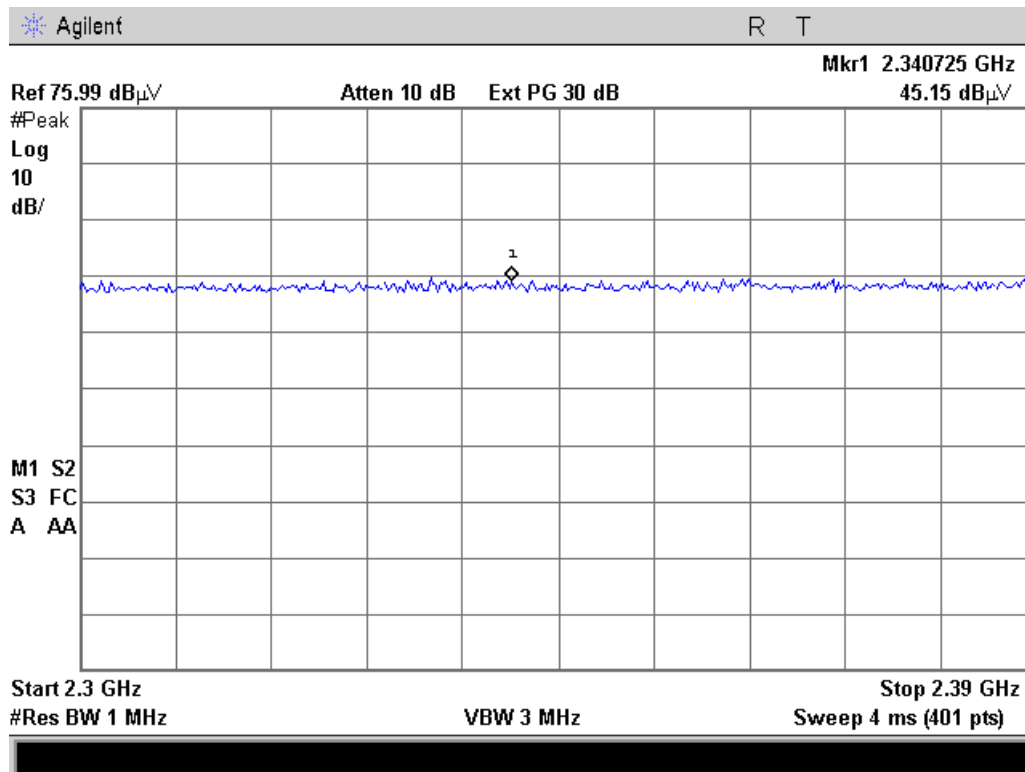


FHSS Band Edge 2483.5 MHz



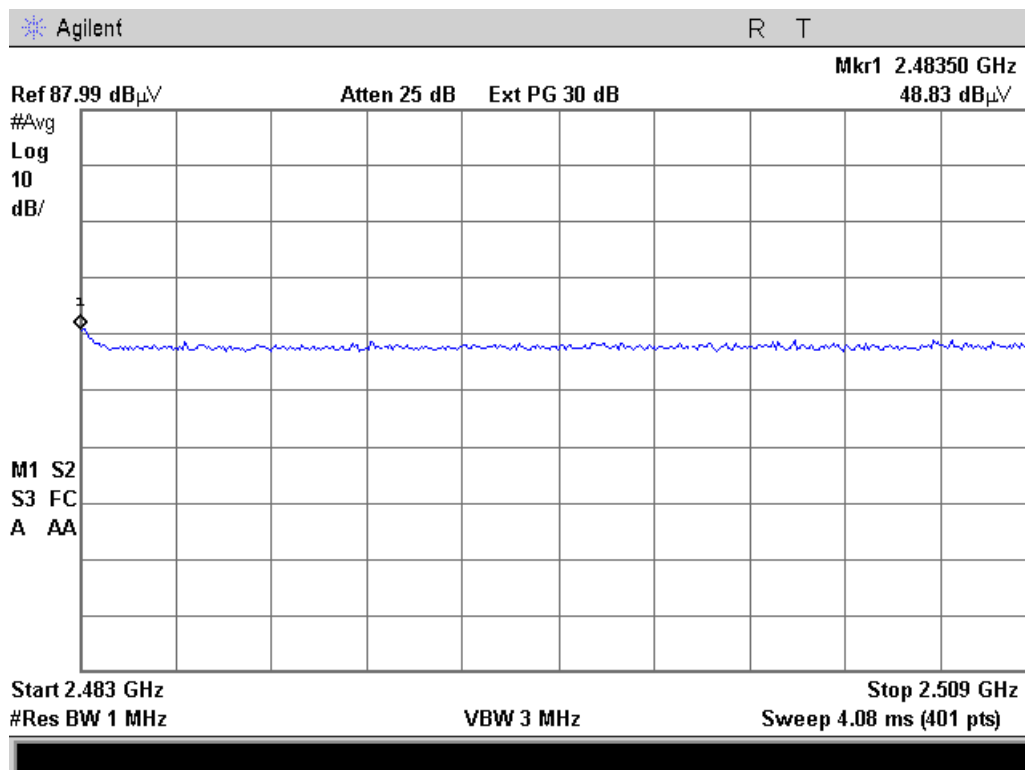
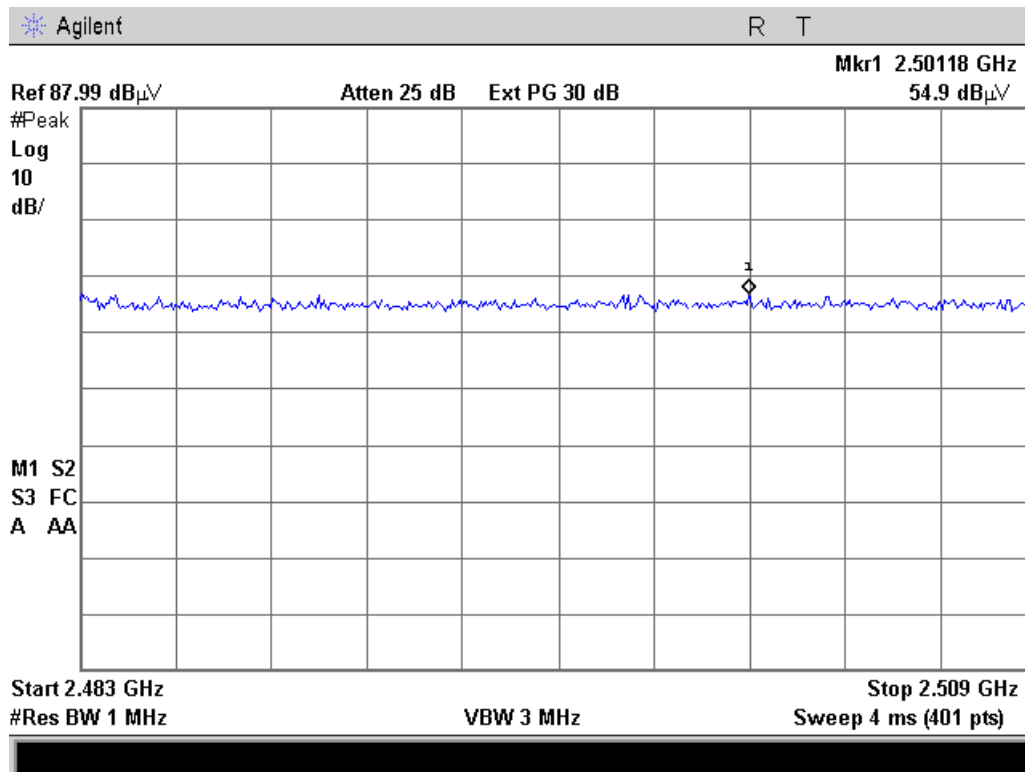


FHSS Restricted Band 2390 MHz





FHSS Restricted Band 2483.5 MHz





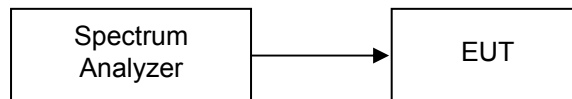
Name of Test: Occupied Bandwidth
Specification: 15.247(a)(2)
Test Equipment Utilized: i00379

Engineer: J. Erhard
Test Date: 12/1/2010

Test Procedure

The EUT was connected directly to a spectrum analyzer. The Span was set wide enough to capture the entire transmit spectrum and the resolution bandwidth was set to at least 1% of the span. The analyzer was set to max hold and when the entire spectrum was captured the 6dB and 99% bandwidths were measured to verify the bandwidth met the specification.

Test Setup



DTS Occupied Bandwidth Summary

Frequency MHz	Recorded Measurement	Specification Limit	Result
2412	9.0 MHz	≥ 500 KHz	Pass
2437	9.75 MHz	≥ 500 KHz	Pass
2462	9.0 MHz	≥ 500 KHz	Pass

DTS 99% Bandwidth Summary

Frequency MHz	Recorded Measurement	Result
2412	15.75 MHz	Pass
2437	15.75 MHz	Pass
2462	15.625 MHz	Pass

FHSS Occupied Bandwidth Summary

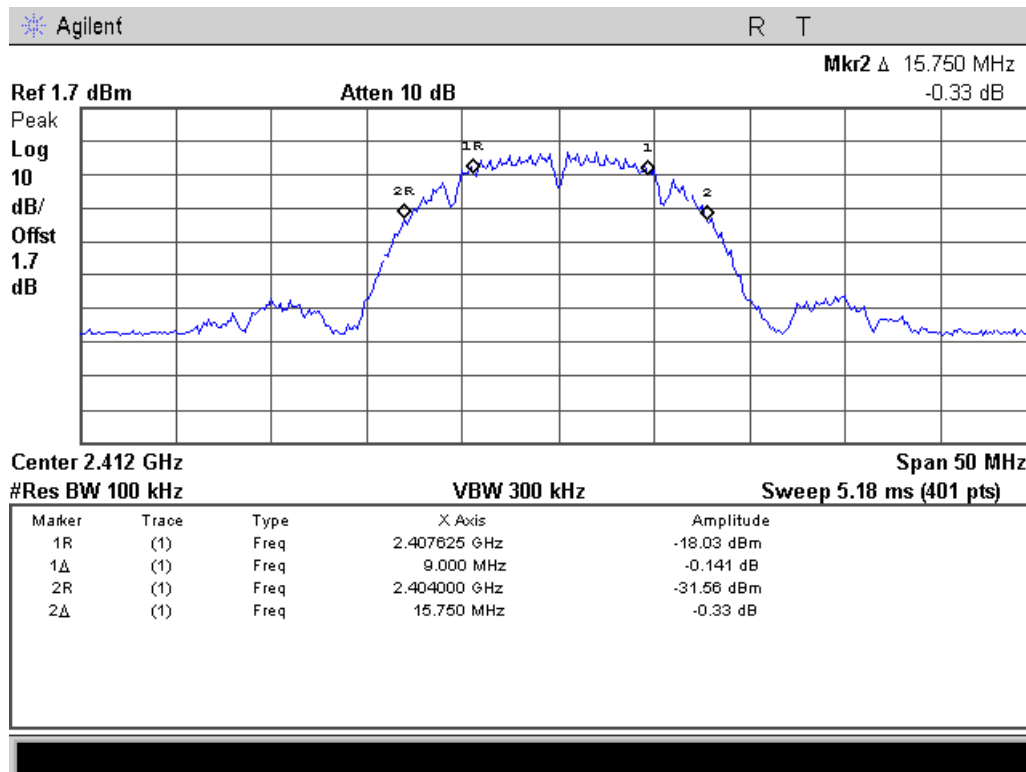
Frequency MHz	Recorded Measurement	Specification Limit	Result
2402	550 KHz	≥ 500 KHz	Pass
2439	550 KHz	≥ 500 KHz	Pass
2480	550 KHz	≥ 500 KHz	Pass

FHSS 99% Bandwidth Summary

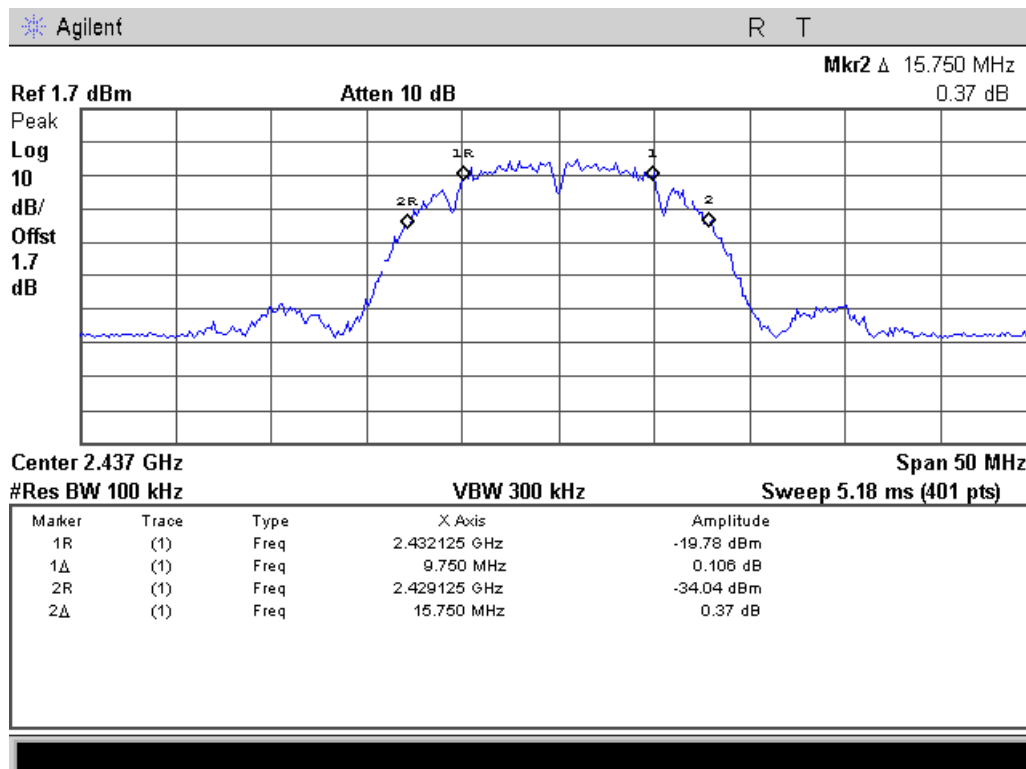
Frequency MHz	Recorded Measurement	Result
2402	1.25 MHz	Pass
2439	1.2 MHz	Pass
2480	1.25 MHz	Pass



DTS Bandwidth 2412 MHz

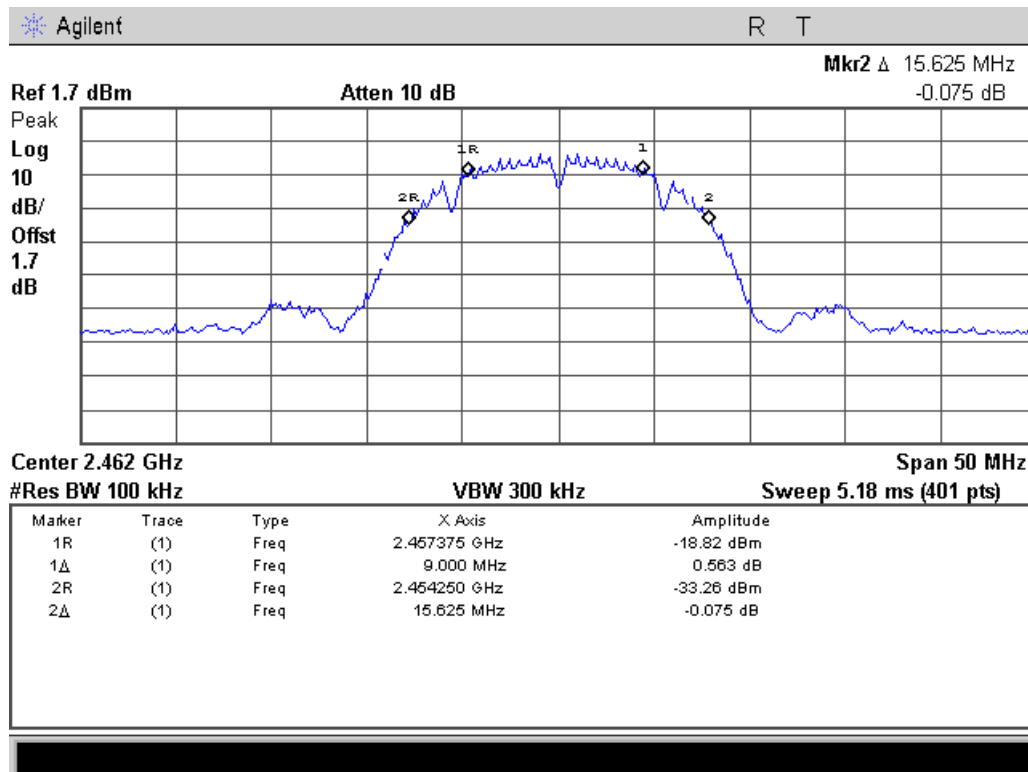


DTS Bandwidth 2437 MHz

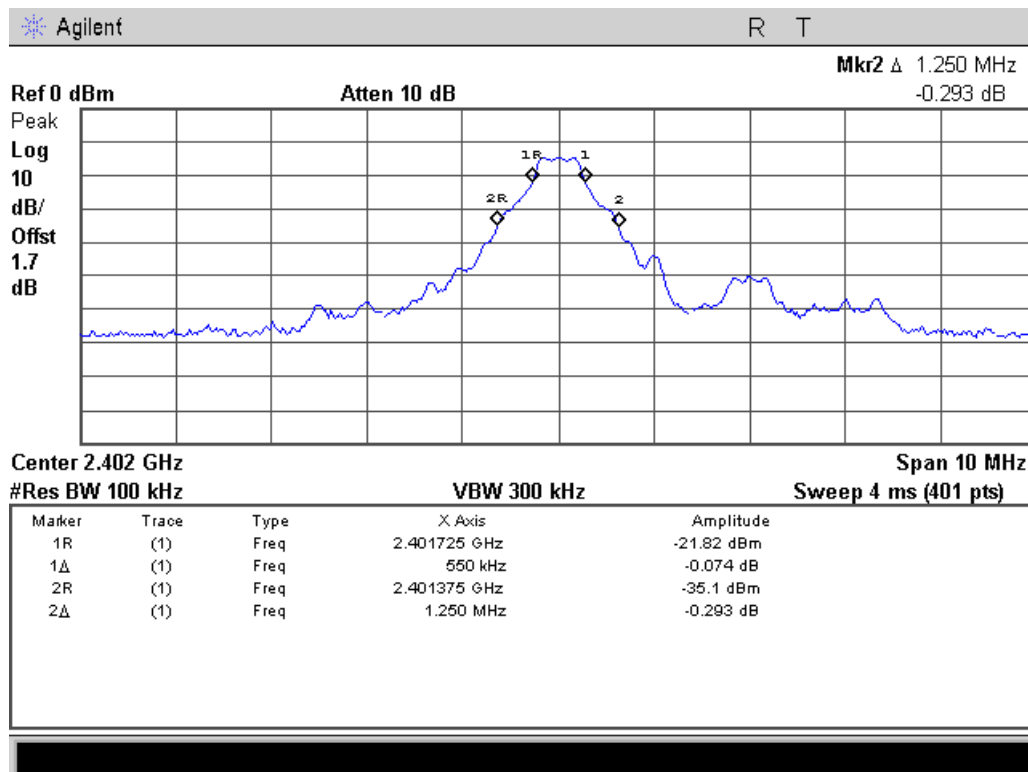




DTS Bandwidth 2462 MHz

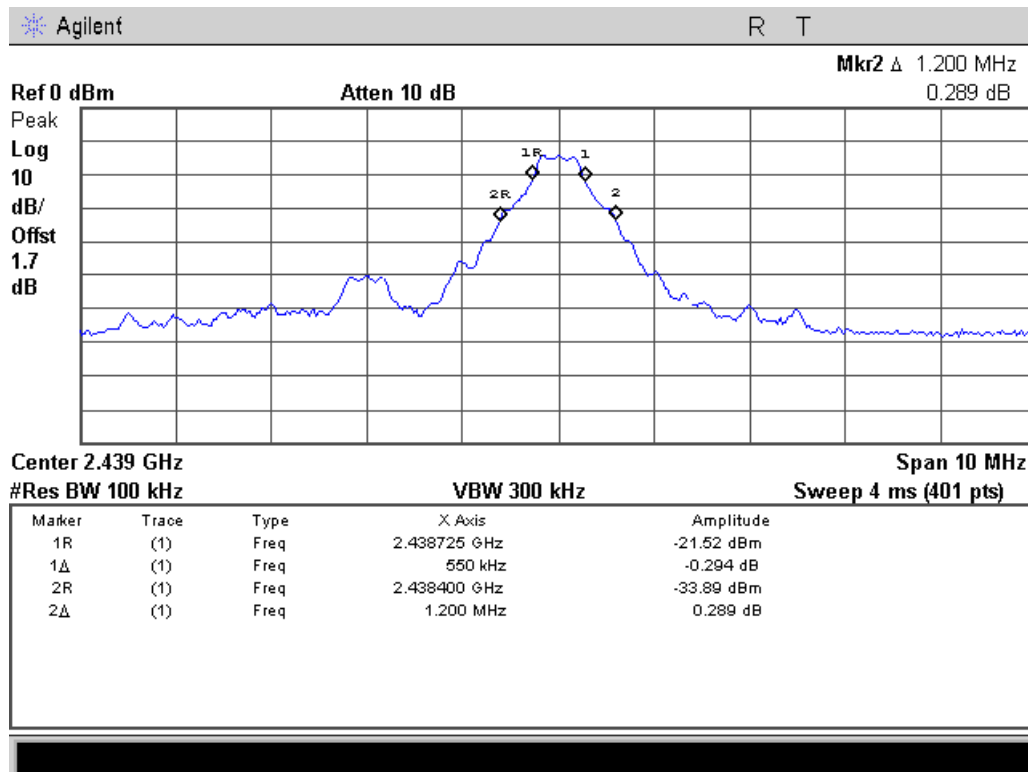


FHSS Bandwidth 2402 MHz

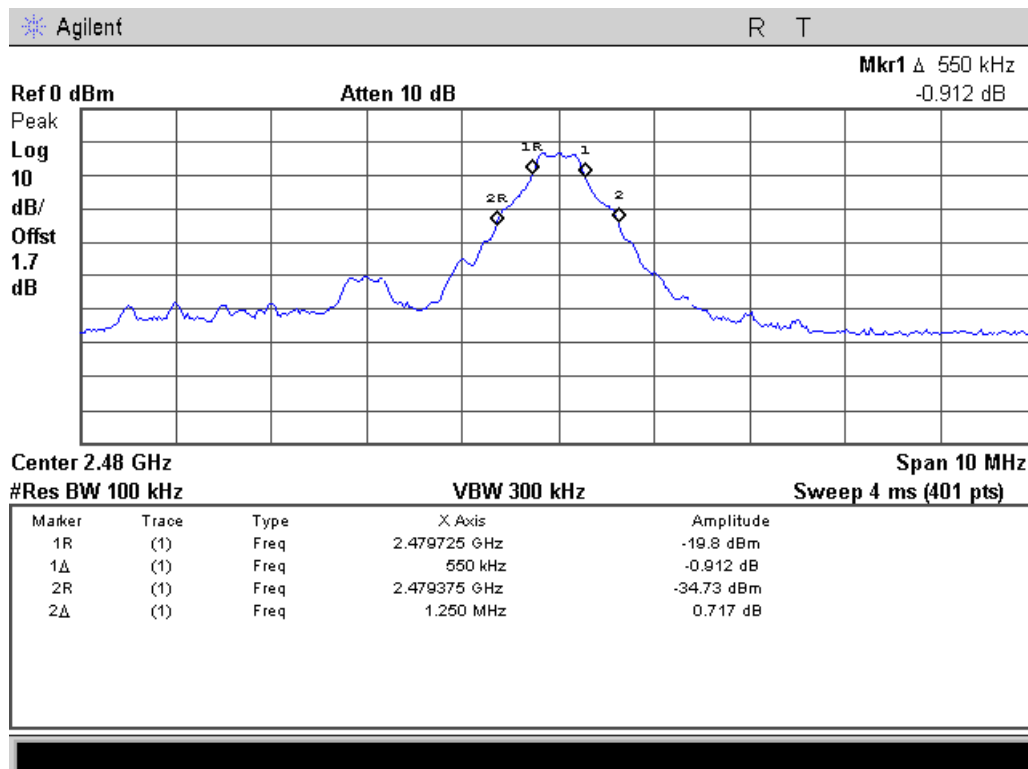




FHSS Bandwidth 2439 MHz



FHSS Bandwidth 2480 MHz





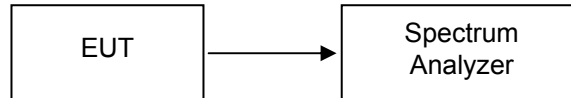
Name of Test: Transmitter Power Spectral Density (PSD)
Specification: 15.247(e)
Test Equipment Utilized: i00379

Engineer: J. Erhard
Test Date: 12/10/2010

Test Procedure

The EUT was connected directly to a spectrum analyzer. The Span was set to 1.5 MHz and the resolution bandwidth was set to 3 KHz. The analyzer was set for a sweep time of 500 seconds. When the entire spectrum was captured the marker peak function of the analyzer was utilized to verify the PSD met the specification.

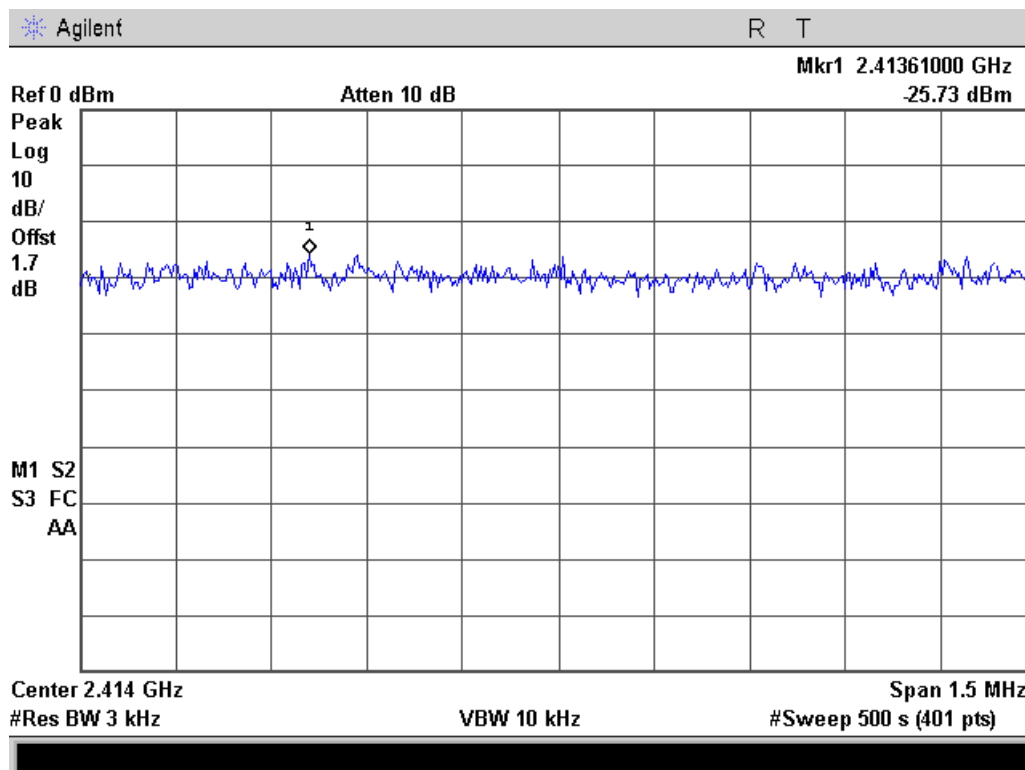
Test Setup



DTS PSD Summary

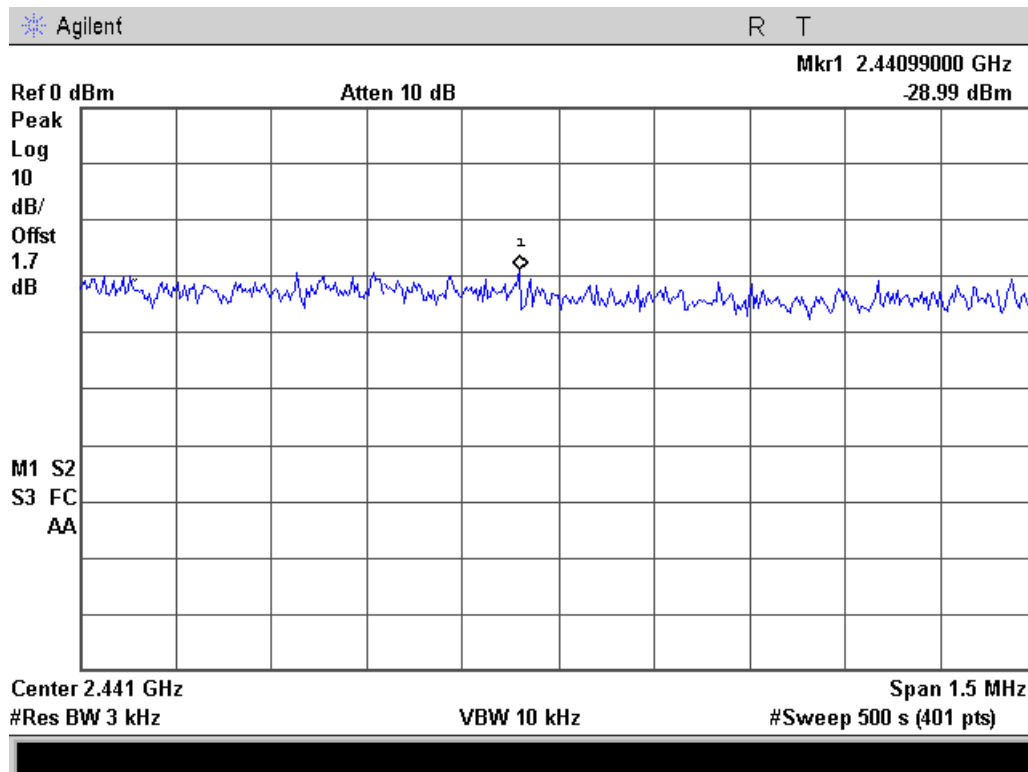
Frequency MHz	Recorded Measurement	Specification Limit	Result
2412	-25.73 dBm	8 dBm	Pass
2437	-28.99 dBm	8 dBm	Pass
2462	-27.41 dBm	8 dBm	Pass

PSD 2412 MHz

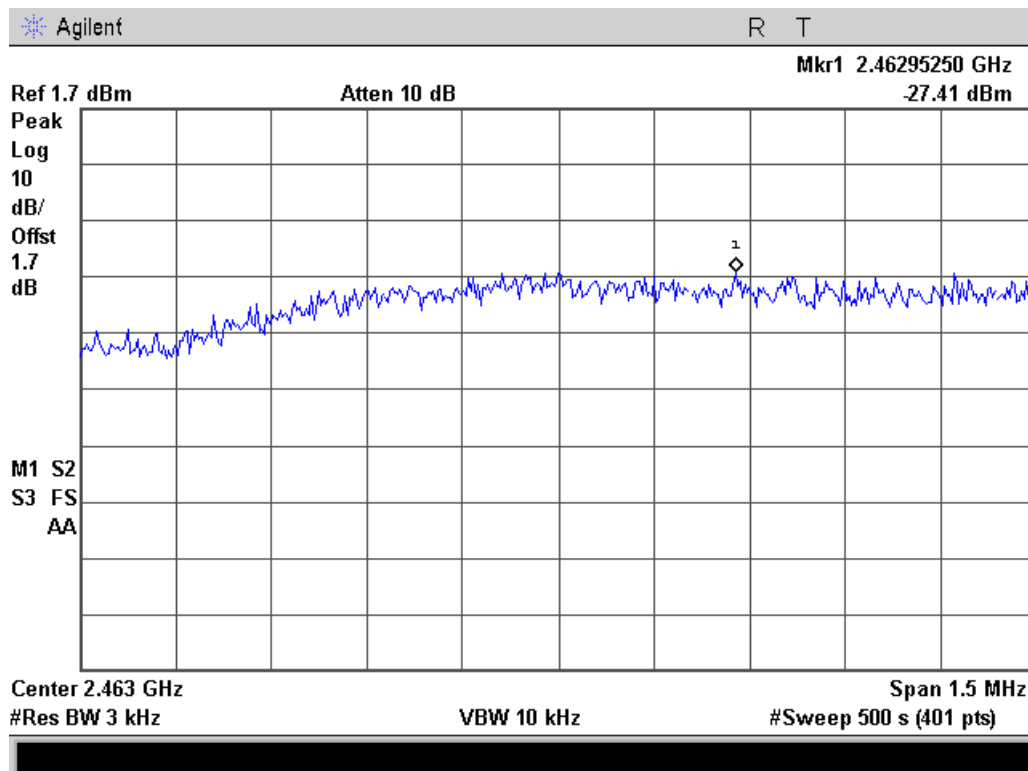




PSD 2437 MHz



PSD 2462 MHz





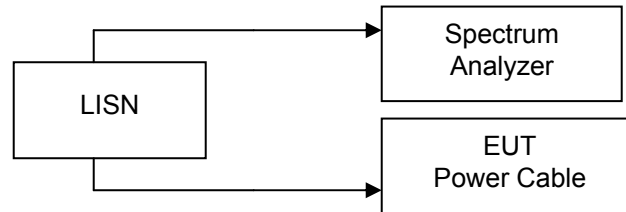
Name of Test: A/C Powerline Conducted Emissions
Specification: 15.207
Test Equipment Utilized: i00270, i00379

Engineer: J. Erhard
Test Date: 12/16/2010

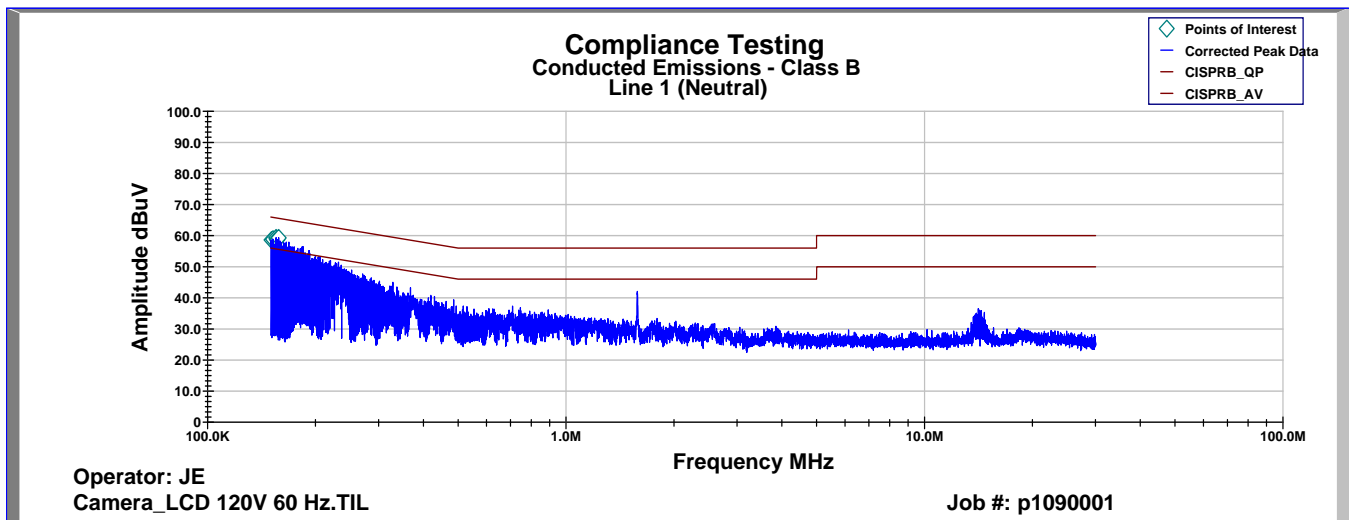
Test Procedure

The EUT power cable connected to a LISN and the monitored output of the LISN was connected directly to a spectrum analyzer. The conducted emissions from 150 kHz to 30 MHz were monitored and compared to the specification limits. The average measurements were the worst-case and are recorded in the tables below.

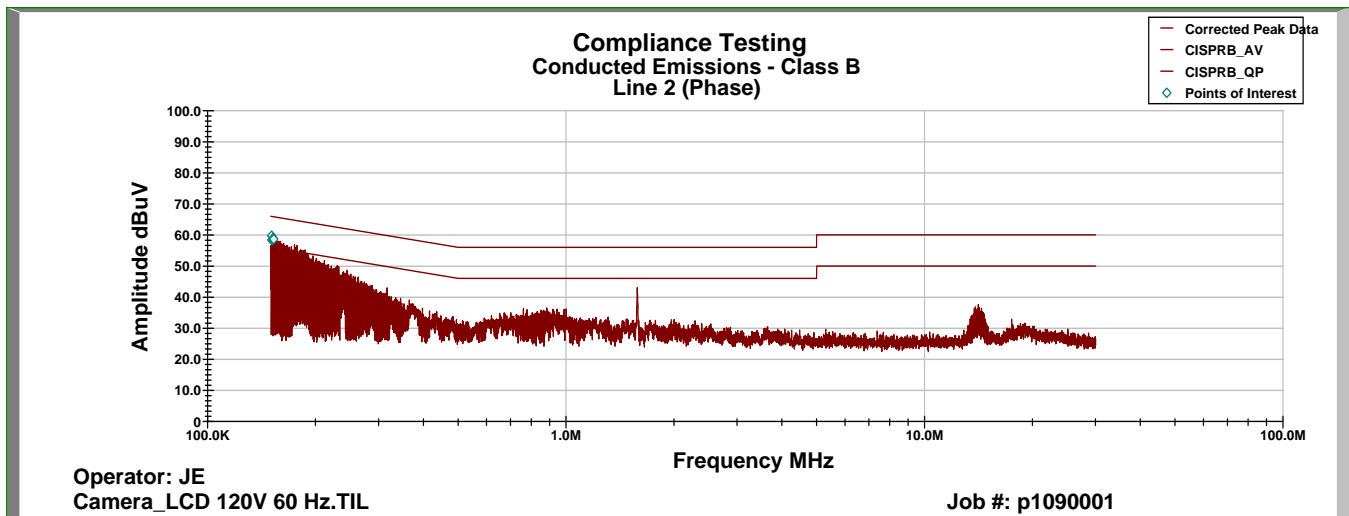
Test Setup



Line 1



Line 2



**Line 1 Average Test Results**

Emission Frequency	Monitored Level (dBuV/m)	LISN Factor (dB)	Attenuation (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Result
156.57 KHz	23.89	0.268	10	34.167	55.812	Pass
153.4 KHz	25.45	0.308	10	35.749	55.903	Pass
150.83 KHz	28.18	0.332	10	38.517	55.976	Pass
150.74 KHz	28.02	0.329	10	38.354	55.979	Pass
150.16 KHz	28.95	0.343	10	39.292	55.995	Pass
150.07 KHz	29.14	0.343	10	39.479	55.998	Pass

Line 2 Average Test Results

Emission Frequency	Monitored Level (dBuV/m)	LISN Factor (dB)	Attenuation (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Result
154.95 KHz	24.36	0.287	10	35	55.859	Pass
153.21 KHz	24.76	0.309	10	35	55.908	Pass
152.67 KHz	25.64	0.31	10	36	55.924	Pass
151.16 KHz	27.78	0.332	10	38	55.967	Pass
150.15 KHz	28.53	0.343	10	39	55.996	Pass
150.14 KHz	28.11	0.343	10	38	55.996	Pass

Line 1 Quasi-peak Test Results

Emission Frequency	Monitored Level (dBuV/m)	LISN Factor (dB)	Attenuation (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Result
156.57 KHz	40.82	0.272	10	51.09	66	Pass
153.4 KHz	41.24	0.304	10	51.55	66	Pass
150.83 KHz	41.74	0.334	10	52.08	66	Pass
150.74 KHz	41.69	0.332	10	52.02	66	Pass
150.16 KHz	41.87	0.341	10	52.21	66	Pass
150.07 KHz	41.92	0.342	10	52.26	66	Pass

Line 2 Quasi-peak Test Results

Emission Frequency	Monitored Level (dBuV/m)	LISN Factor (dB)	Attenuation (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Result
154.95 KHz	40.53	0.287	10	50.82	65.86	Pass
153.21 KHz	40.82	0.309	10	51.12	65.91	Pass
152.67 KHz	40.78	0.31	10	51.1	65.92	Pass
151.16 KHz	41.01	0.332	10	51.34	65.97	Pass
150.15 KHz	41.32	0.343	10	51.66	66	Pass
150.14 KHz	41.27	0.343	10	51.61	66	Pass



Name of Test: Receiver Spurious Emissions
Specification: RSS-GEN 6(b)
Test Equipment Utilized: i00379

Engineer: J. Erhard
Test Date: 12/10/2010

Test Procedure

The EUT was connected directly to a spectrum analyzer. The receiver spurious emissions were measured from 30 MHz to greater than 3 times the highest tunable frequency.

Test Setup

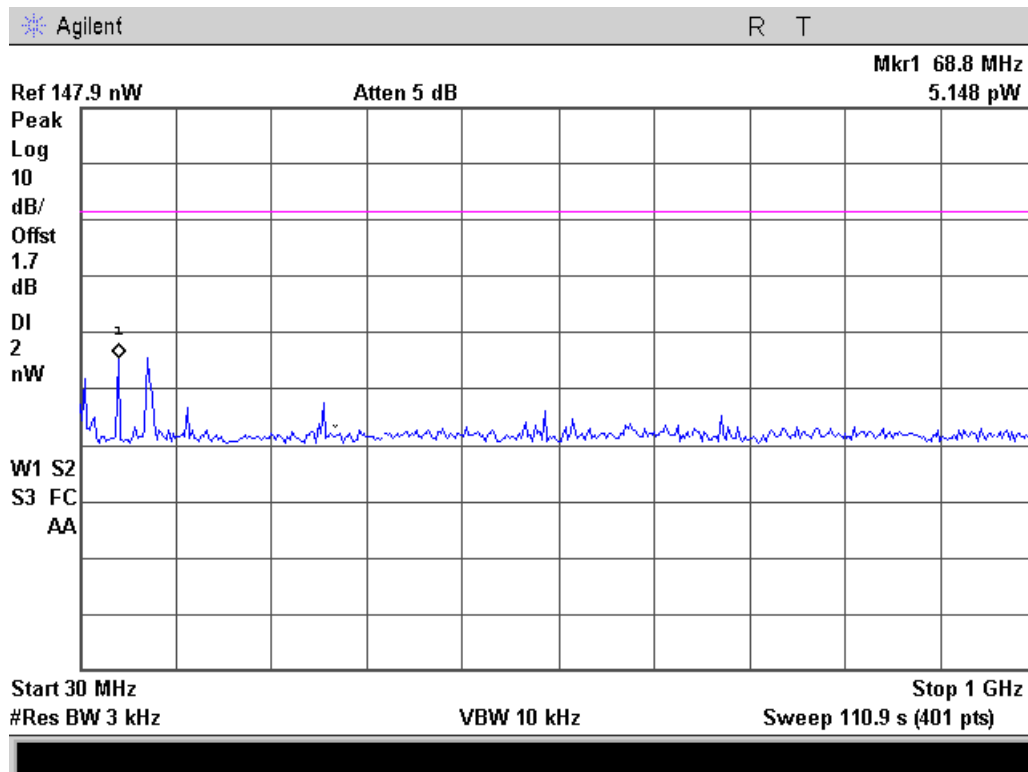


Receiver Spurious Emissions Summary

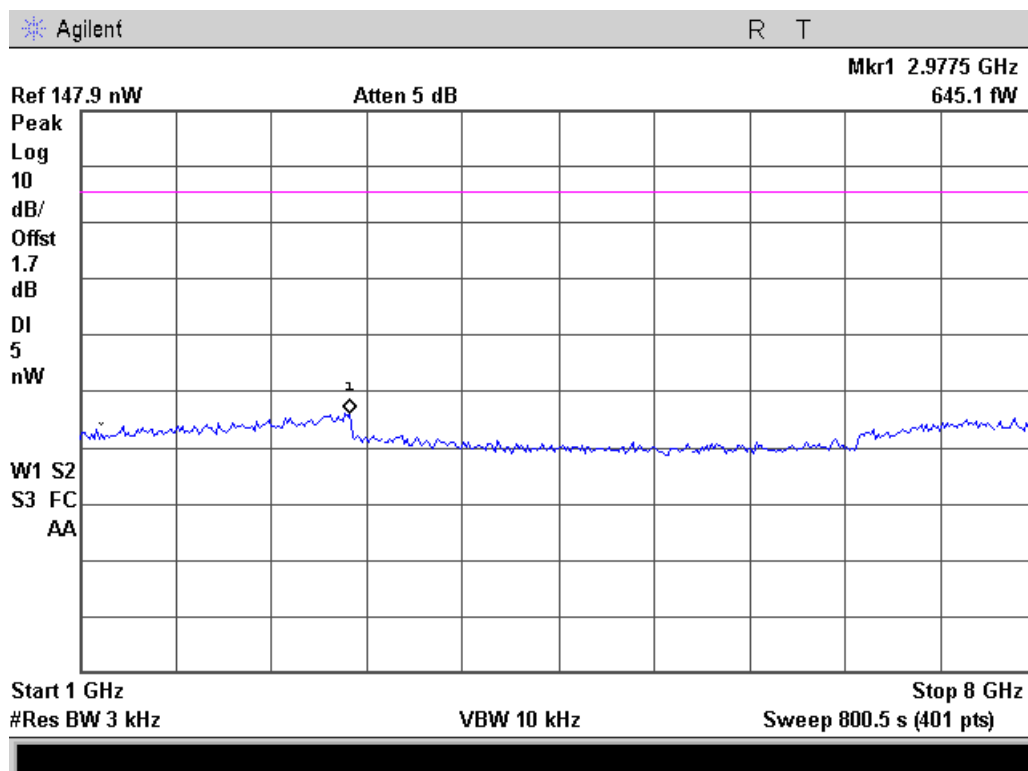
Frequency Range MHz	Recorded Measurement	Specification Limit	Result
30 - 1000	5.148 pW	2 nW	Pass
1000 - 8000	645.1 fW	5 nW	Pass



Receiver Spurious Emissions 30 MHz – 1 GHz



Receiver Spurious Emissions 1 GHz – 8 GHz





Test Equipment Utilized

Description	MFG	Model Number	CT Asset No.	Last Cal Date	Cal Due Date
RF Pre-Amplifier	HP	8449A	i00028	9/17/2010	9/17/2011
Horn Antenna	EMCO	3115	i00103	11/5/2010	11/5/2012
LISN	FCC	FCC-LISN-50-32-2-01	i00270	9/30/2010	9/30/2012
EMC Analyzer	Agilent	E7405A	i00379	11/22/2010	11/22/2011

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