



**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](mailto:info@ComplianceTesting.com)

**Date:** June 16, 2010

Federal Communications Commission  
Via: Electronic Filing

**Attention:** Authorization & Evaluation Division

**Applicant:** Technology Solutions (UK) Ltd

**Equipment:** 1116  
UHF RFID Reader

**FCC ID:** S6J-1116

**FCC Rules:** 15.247

On behalf of the Applicant, enclosed please find Engineering Test Report and all pertinent documentation, the whole for approval of the referenced equipment as shown.

We trust the same is in order. If you should need any further information, kindly contact the writer who is authorized to act as agent.



## List of Exhibits

(FCC Certification (Transmitters) - Revised 9/28/98)

**Applicant:** Technology Solutions (UK) Ltd

**FCC ID:** S6J-1116

### By Applicant:

1. Letter of Authorization
2. Identification Drawings
  - Id Label
  - Location Info
  - Attestation Statement (S)
  - Location of Compliance Statement
3. Documentation: 2.1033(B)
  - (3) User Manual (S)
  - (4) Operational Description
  - (5) Block Diagram
  - (5) Schematic Diagram
  - (7) External Photographs  
Internal Photographs  
Parts List  
Active Devices

### By Compliance Testing:

- A. Testimonial & Statement of Certification
- B. Statement of Qualifications



# 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

## Test Report

for

**FCC ID: S6J-1116**

**Model: 1116**

to

**Federal Communications Commission**

Rule Part(s) 15.247

**Date of Report:** June 16, 2010

**On the Behalf of the Applicant:** Technology Solutions (UK) Ltd  
Suite C,  
Loughborough Technology Centre,  
Epinal Way,  
Loughborough,  
Leicestershire,  
United Kingdom  
LE11 3GE

**Attention of:** Dr. David Evans, Managing Director  
Ph: +44 (0) 1509 238248  
Fax: +44 (0) 1509 220020  
E-mail: [david.evans@tsl.uk.com](mailto:david.evans@tsl.uk.com)



Compliance Testing, LLC

## Test Report Revision History

Revision	Date	Revised By	Reason for revision
1.0	5/16/2010	G. Corbin	Original Document
2.0	8/17/2010	G. Corbin	Added Channel Spacing, Revised DCCF and Conducted Emission Test Data



## 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 that reads "Greg Corbin".

Certifying Engineer:

Greg Corbin



**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.



## Table of Contents

<u>Rule</u>	<u>Description</u>	<u>Page</u>
	Test Report	2
2.1033(c)	General Information Required	3
	Standard Test Conditions and Engineering Practices	5
	Test Results Summary	6
15.247(b)	Peak Output Power	7
15.247(d)	Conducted Spurious Emissions	8
15.247(d),	Radiated Spurious Emissions	10
15.247(d),	Emissions At Band Edges	19
15.247(a)	Occupied Bandwidth	22
15.247(a)	Dwell Time	25
15.247(a)	Number of Hopping Channels	26
15.247(a)	Channel Spacing	27
15.207	A/C Powerline Conducted Emissions	28
RSS-GEN 6(b)	Receiver Spurious Emissions	30
	Test Equipment Utilized	32



*Required information per ISO 17025-2005, paragraph 5.10.2:*

a)

**Test Report**

b) Laboratory: **Compliance Testing**  
(FCC: 933597)  
(Canada: IC 2044A-1) **3356 N. San Marcos Place, Suite 107**  
**Chandler, AZ 85225**

c) Report Number: **d1060003**

d) Client: **Technology Solutions (UK) Ltd**

e) Identification: **1116**

Description: **UHF RFID Reader**

f) EUT Condition: **Not required unless specified in individual tests.**

g) Report Date: **June 16, 2010**

h, j, k): **As indicated in individual tests.**

i) Sampling method: **No sampling procedure used.**

l) Uncertainty: **In accordance with Compliance Testing internal quality manual.**

n) Results: **The results presented in this report relate only to the item tested.**

o) Reproduction: **This report must not be reproduced, except in full, without written permission from this laboratory.**



### List of General Information Required For Certification

Tested in Accordance with FCC Rules and Regulations, Volume II, Part 2 and to 15.247.

#### Sub-Part 2.1033

(c)(1):

**Name and Address of Applicant:** Technology Solutions (UK) Ltd

(c)(2): **FCC ID:** S6J -1116

**Model Number:** 1116

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

Please See Attached Exhibits

(c)(4): **Type of Emission:** 148KD2D

(c)(5): **FREQUENCY RANGE, MHz:** 902.75 – 927.25

(c)(6): **Power Rating, W:** 0.928

Switchable  Variable  N/A

(c)(7): **Maximum Power Rating, W:** 1

#### 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

**The unit was tested with an integrated antenna having a gain of 3 dBi.**



**Subpart 2.1033 (continued)**

**(c)(8): 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)(9): Label Information:**

Please See Attached Exhibits

**(c)(10): Photographs:**

Please See Attached Exhibits

**(c)(11): Digital Modulation Description:**

       Attached Exhibits  
X N/A

**(c)(12): Test and Measurement Data:**

Follows



Sub-part  
2.1033(b):

### 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 C63.4-2009, ANSI C63.10-2009, FCC DA 00-705, 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.

### A2LA

"A2LA has accredited Compliance Testing 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](http://www.a2la.org) for current scope of accreditation.

Certificate number: 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(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)	Occupied Bandwidth	Pass	
15.247(a)	Dwell Time	Pass	
15.247(a)	Number of Hopping Channels	Pass	
15.247(a)	Channel Spacing	Pass	
15.207	A/C Powerline Conducted Emissions	Pass	
RSS-GEN 6(b)	Receiver Spurious Emission	Pass	

**Accessories:**

Qty	Type	Make, Model	S/N
1	Handheld Mobile Computer	Symbol Technologies, MC7090	6153520800145
1	AC to DC Adapter	Motorola, EADP-16BB A	W9D0948106174

**Cables:**

Qty	Type	Length, m	Shield	Shielded Hood	Ferrite
1	ActiveSync and Charge cable	2	None	None	None



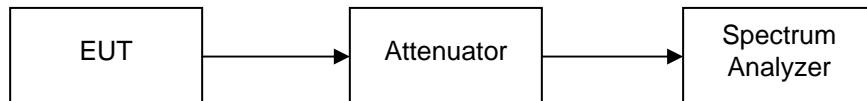
**Name of Test:** Peak Output Power  
**Specification:** 15.247(b)  
**Test Equipment Utilized:** i00331

**Engineer:** G. Corbin  
**Test Date:** 6/11/2010

### Test Procedure

The EUT was connected as shown in test setup. The attenuator and cable insertion loss was added to the spectrum analyzer as a reference level offset before peak readings were taken and the result was then compared to the limit.

### Test Setup



### Transmitter Peak Output Power

Tuned Frequency MHz	Recorded Measurement Watt	Specification Limit Watt	Result
902.75	0.803	1	Pass
915.25	0.928	1	Pass
927.25	0.809	1	Pass



**Name of Test:** Conducted Spurious Emissions  
**Specification:** 15.247(d)  
**Test Equipment Utilized:** i00331

**Engineer:** G. Corbin  
**Test Date:** 6/16/2010

### Test Procedure

The EUT was connected as shown in the test set-up to verify that the EUT met the requirements for conducted spurious emissions. The reference level was offset for filter and attenuator insertion loss and the resolution bandwidth set for 1 MHz. The frequency range from 30 MHz to the 10<sup>th</sup> harmonic of the fundamental transmitter was observed. Only detectable spurious emissions were recorded and plotted. The conducted peak output power is added to the recorded measurement to provide the corrected level dBc

Only the worst case is recorded in the Conducted Spurious Emissions Summary Test Table.

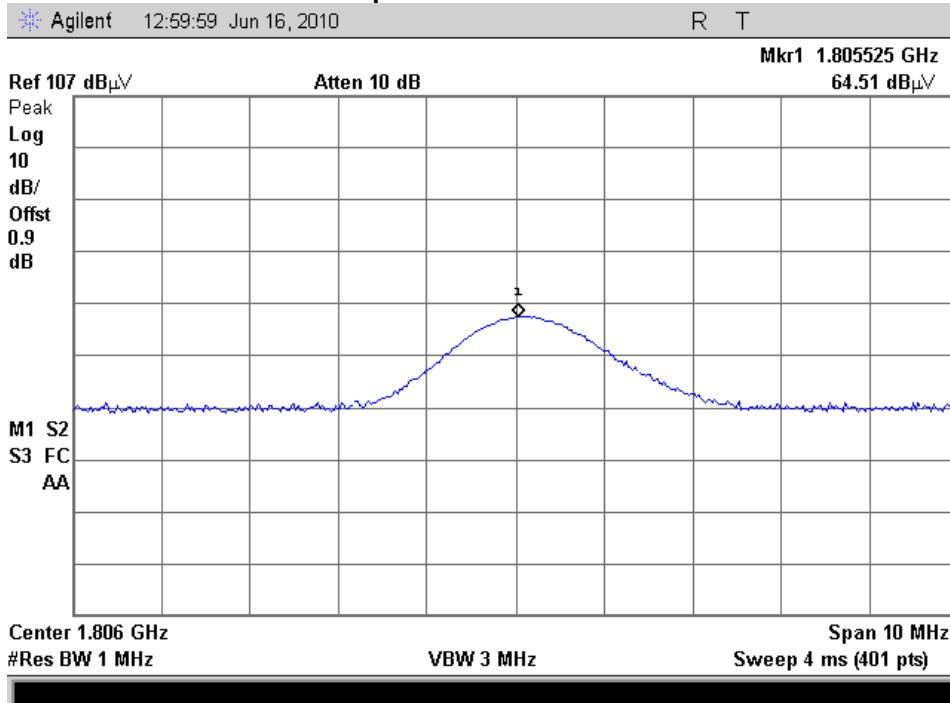
### Test Setup



### Conducted Spurious Emissions Summary Test Table

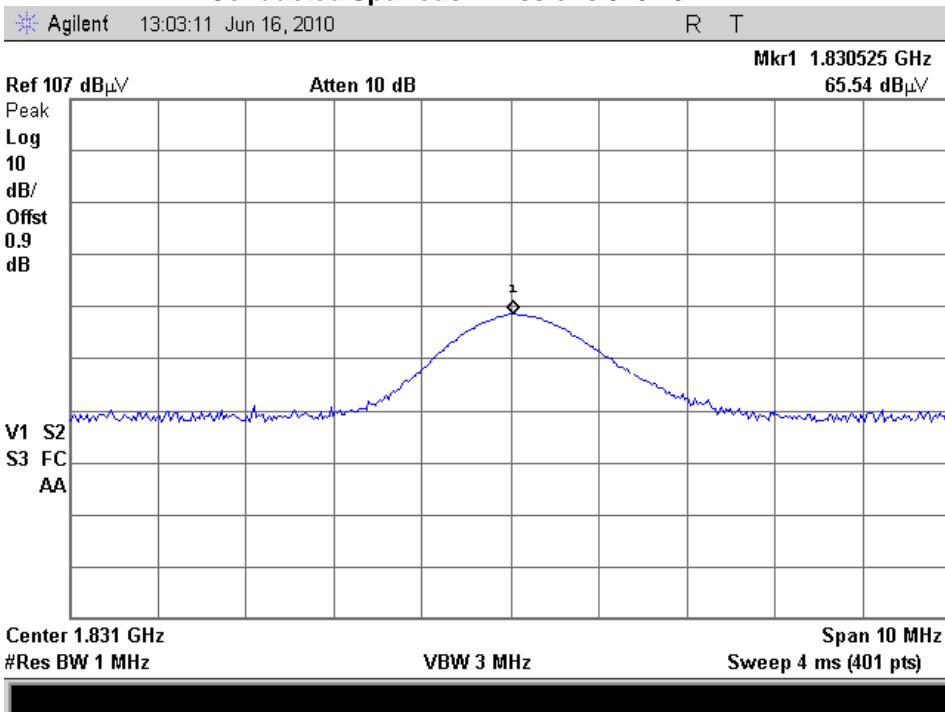
Tuned Frequency MHz	Emission Frequency MHz	Recorded Measurement dBuV	Peak Output Power dBuV	Corrected Measurement dBc	Specification Limit dBc	Result
902.75	1.8055	64.51	136.03	-71.52	-20	Pass
915.25	1.8305	64.54	136.66	-72.12	-20	Pass
927.25	1.85454	65.61	136.07	-70.46	-20	Pass

### Conducted Spurious Emissions 902.75 MHz

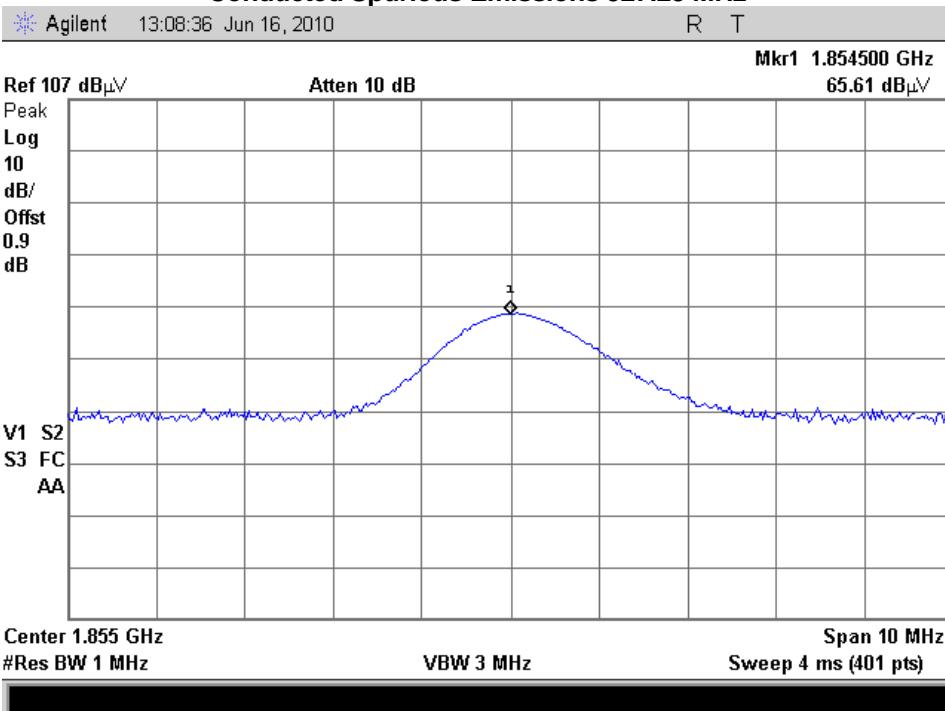




## Conducted Spurious Emissions 915.25 MHz



## Conducted Spurious Emissions 927.25 MHz





**Name of Test:** Radiated Spurious Emissions  
**Specification:** 15.247(d), 15.209(a), 15.205  
**Test Equipment Utilized:** i00028, i00033, i00103, i00267, i00331, i00364

**Engineer:** G. Corbin  
**Test Date:** 7/19/2010

### 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, band reject filter and cable correction factors were summed with the amplifier gain and input into the spectrum analyzer as an offset to ensure accurate readings. The spectrum for each tuned frequency was examined to the 10<sup>th</sup> harmonic.

The average value of the spurious emission was calculated by adding the Duty Cycle Correction Factor (DCCF) to the peak emission reading per C63.10 section 7.5 (The procedure for determining average value of pulsed emissions)

Duty Cycle Correction Factor (dB) =  $20\log(T1/T2)$

T1 = "On Time" for 1 pulse of a pulse train or 100 mS maximum

T2 = period of 1 complete pulse train or 100 mS maximum

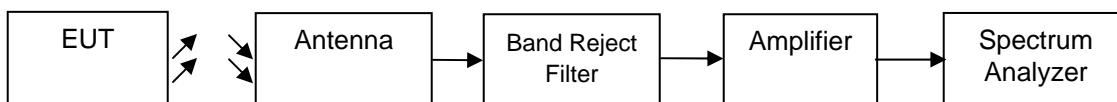
The customer supplied the pulse information to calculate the Duty Cycle Correction Factor. Since T2 was >100 mS, 100 mS was used in the calculation.

T1 = 16 mS

T2 = 150 mS actual, 100 mS used in calculation

DCCF (dB) =  $20\log(16\text{mS}/100\text{mS}) = -15.9 \text{ dB}$

### Test Setup



Detector Settings	RBW	VBW	Span
Peak	1 MHz	3 MHz	As Necessary

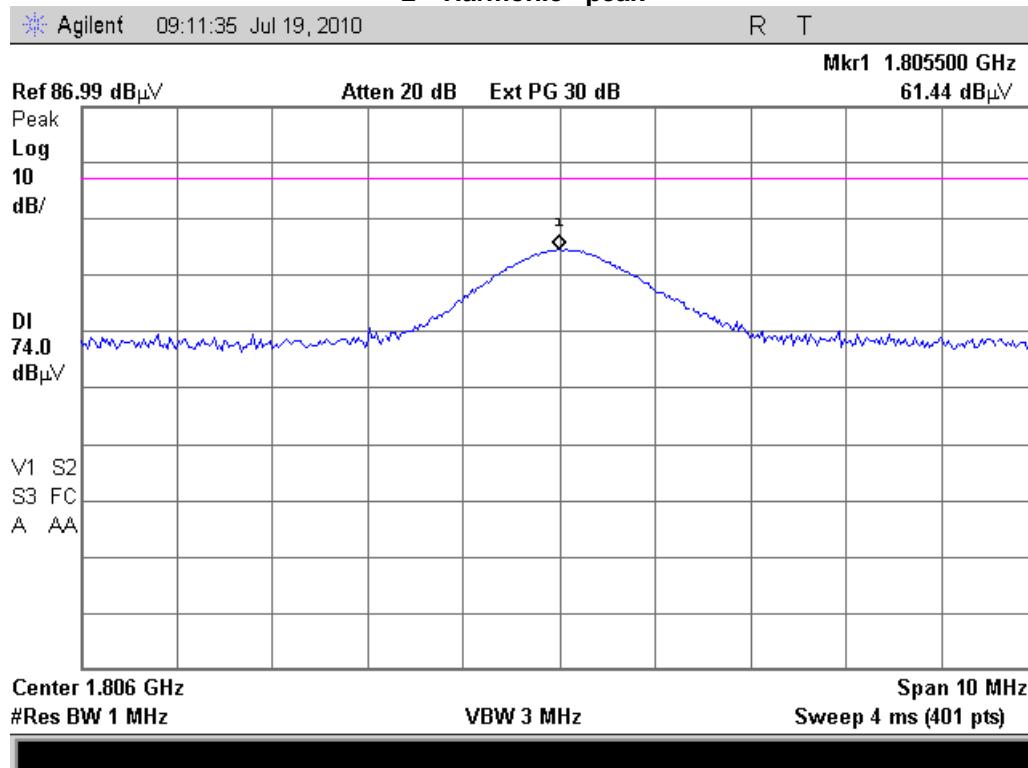
### Radiated Spurious Emissions

Tuned Freq (MHz)	Emission Freq (MHz)	Peak Level Measured (dBuV/m)	Peak Limit (dBuV/m)	DCCF (dB)	Average Level Calculated (dBuV/m)	Average Limit (dBuV/m)	Result
902.75	1805.5	61.4	74	-15.9	45.5	54	Pass
902.75	2708.2	65.1	74	-15.9	49.2	54	Pass
902.75	3611	67.6	74	-15.9	51.7	54	Pass
902.75	4513.7	52.2	74	-15.9	36.3	54	Pass
902.75	5416.5	54.1	74	-15.9	38.2	54	Pass
915.25	1830.5	66.5	74	-15.9	50.6	54	Pass
915.25	2745.7	65.6	74	-15.9	49.7	54	Pass
915.25	3661	63.8	74	-15.9	47.9	54	Pass
915.25	4576.2	55.4	74	-15.9	39.5	54	Pass
915.25	5491.5	49.1	74	-15.9	33.2	54	Pass
927.25	1854.5	62.3	74	-15.9	46.4	54	Pass
927.25	2781.7	62.8	74	-15.9	46.9	54	Pass
927.25	3709	55.4	74	-15.9	39.5	54	Pass
927.25	4636.2	57.1	74	-15.9	41.2	54	Pass
927.25	5563.5	50.3	74	-15.9	34.4	54	Pass

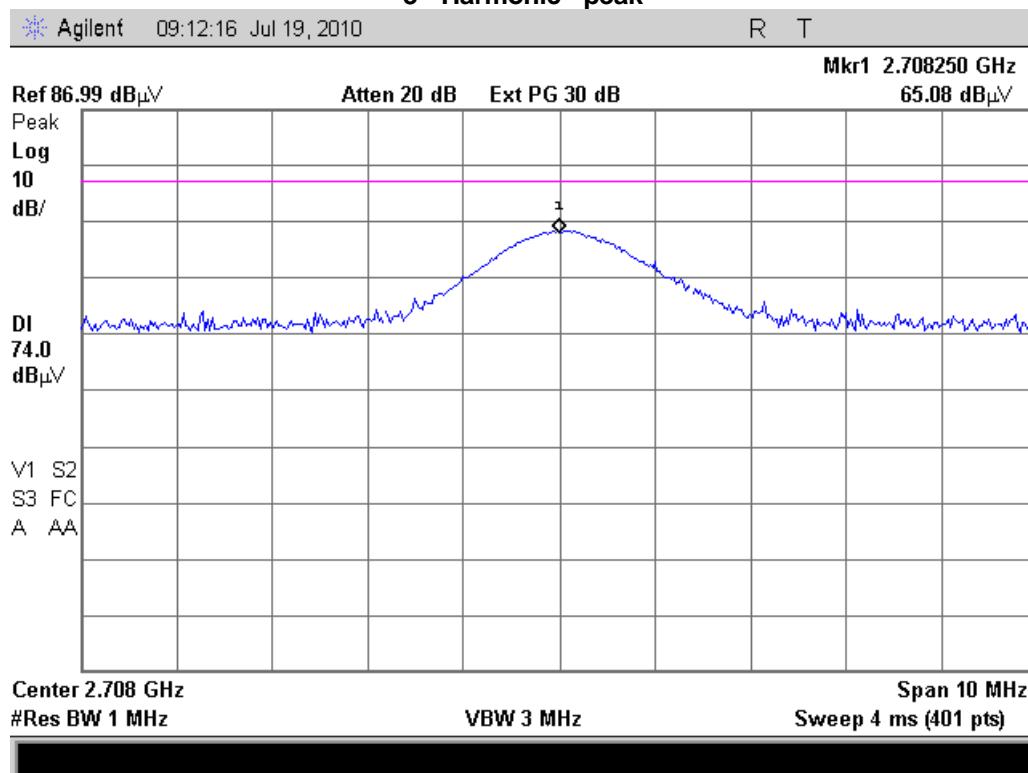
No other emissions were detectable. All emissions were greater than -20 dBc.



**Tuned Frequency = 902.75 MHz**  
**2<sup>nd</sup> Harmonic - peak**

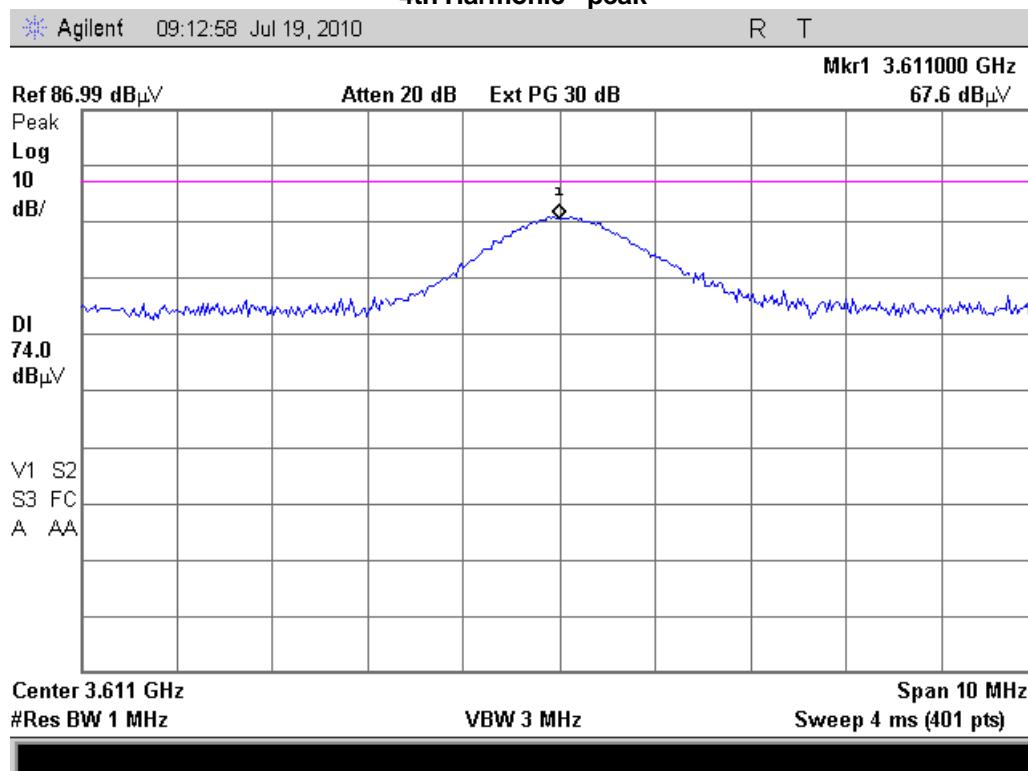


**Tuned Frequency = 902.75 MHz**  
**3<sup>rd</sup> Harmonic - peak**

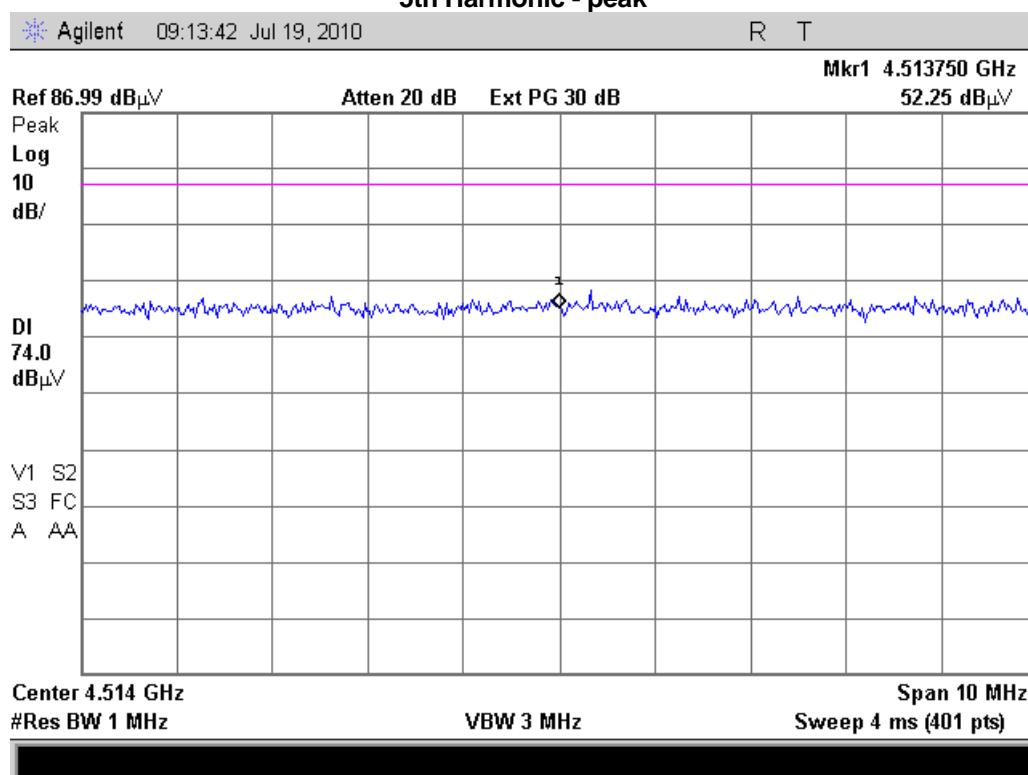




**Tuned Frequency = 902.75 MHz**  
**4th Harmonic - peak**

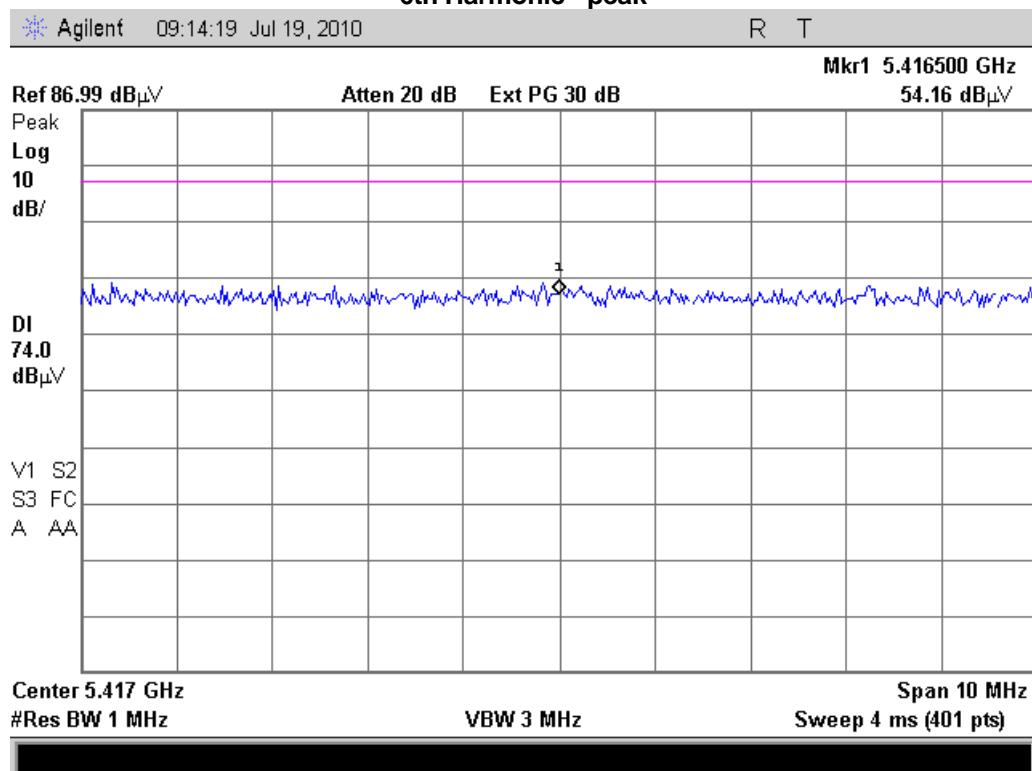


**Tuned Frequency = 902.75 MHz**  
**5th Harmonic - peak**

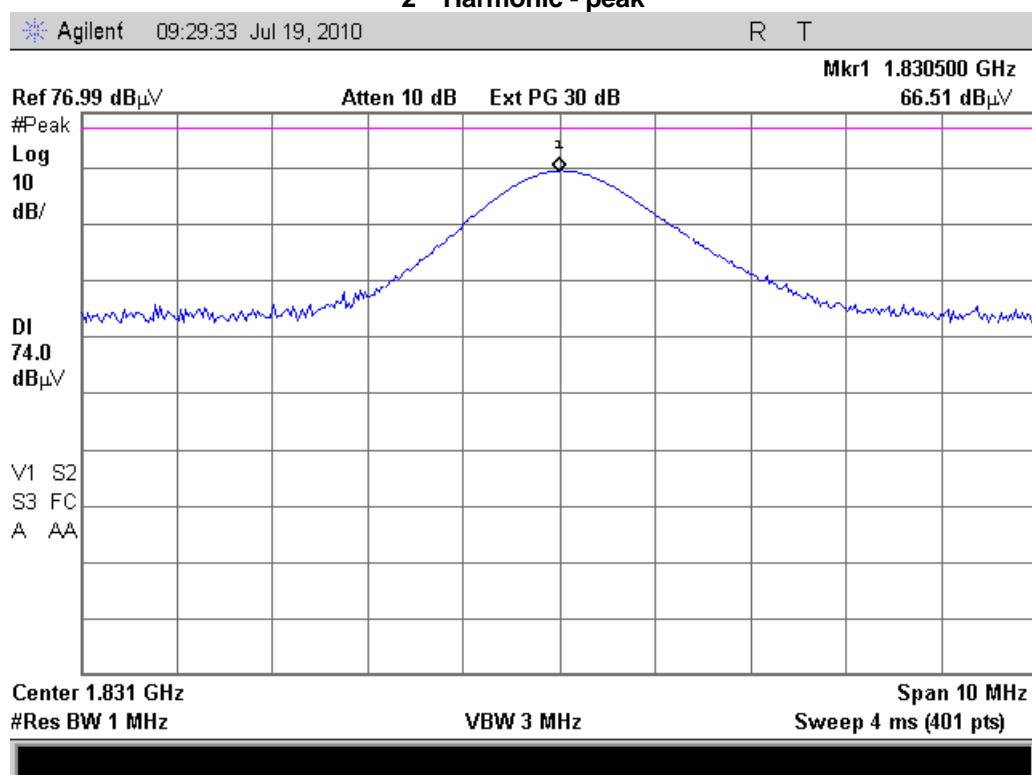




**Tuned Frequency = 902.75 MHz**  
**6th Harmonic - peak**

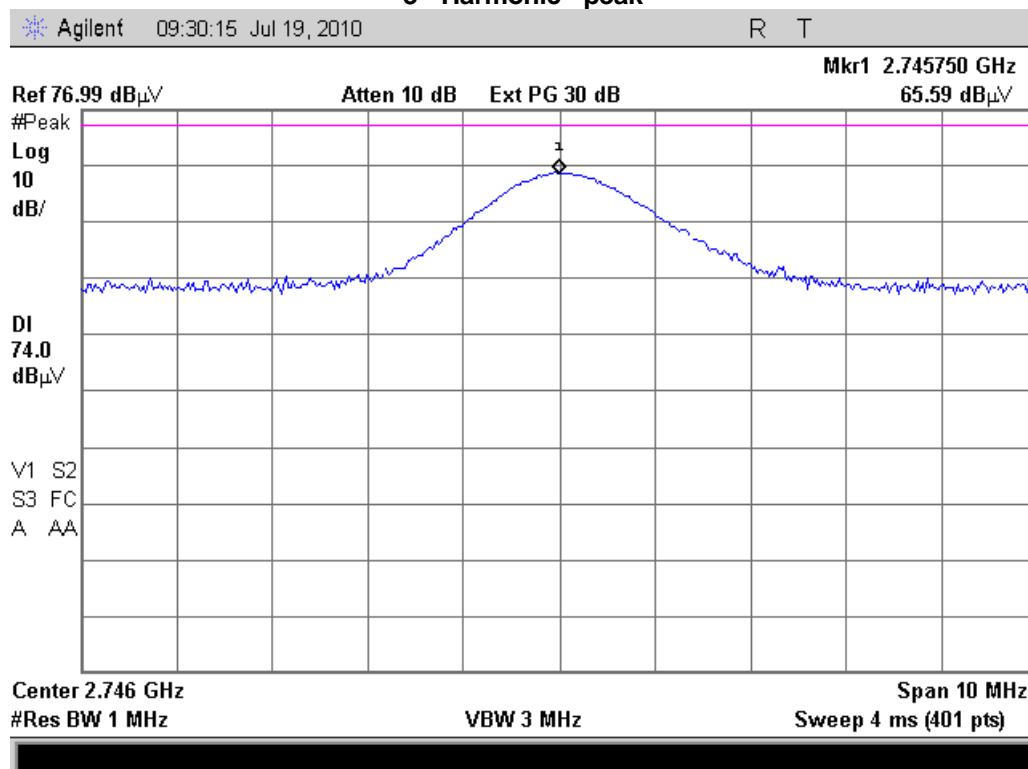


**Tuned Frequency = 915.25 MHz**  
**2<sup>nd</sup> Harmonic - peak**

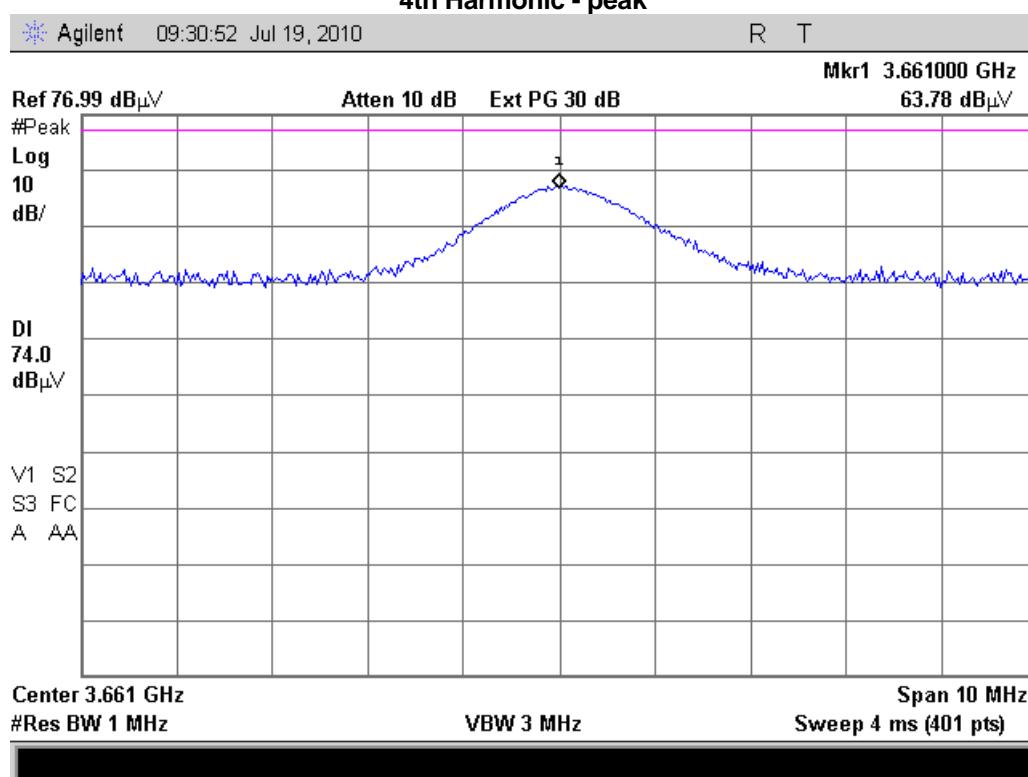




**Tuned Frequency = 915.25 MHz**  
**3<sup>rd</sup> Harmonic - peak**

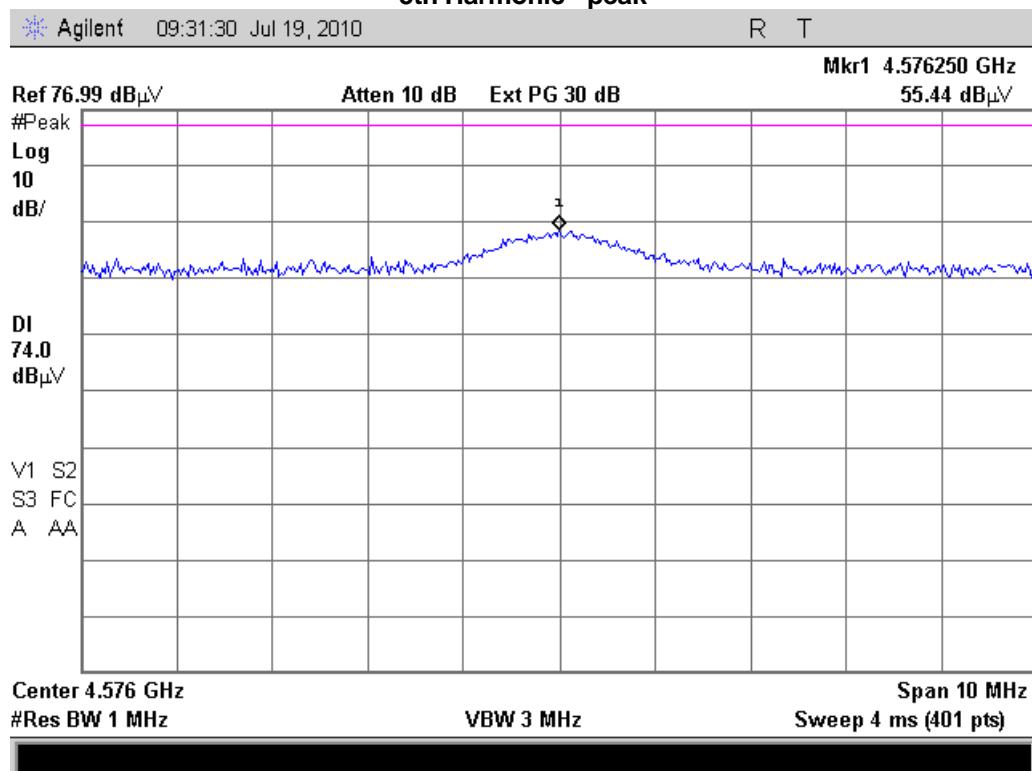


**Tuned Frequency = 915.25 MHz**  
**4<sup>th</sup> Harmonic - peak**

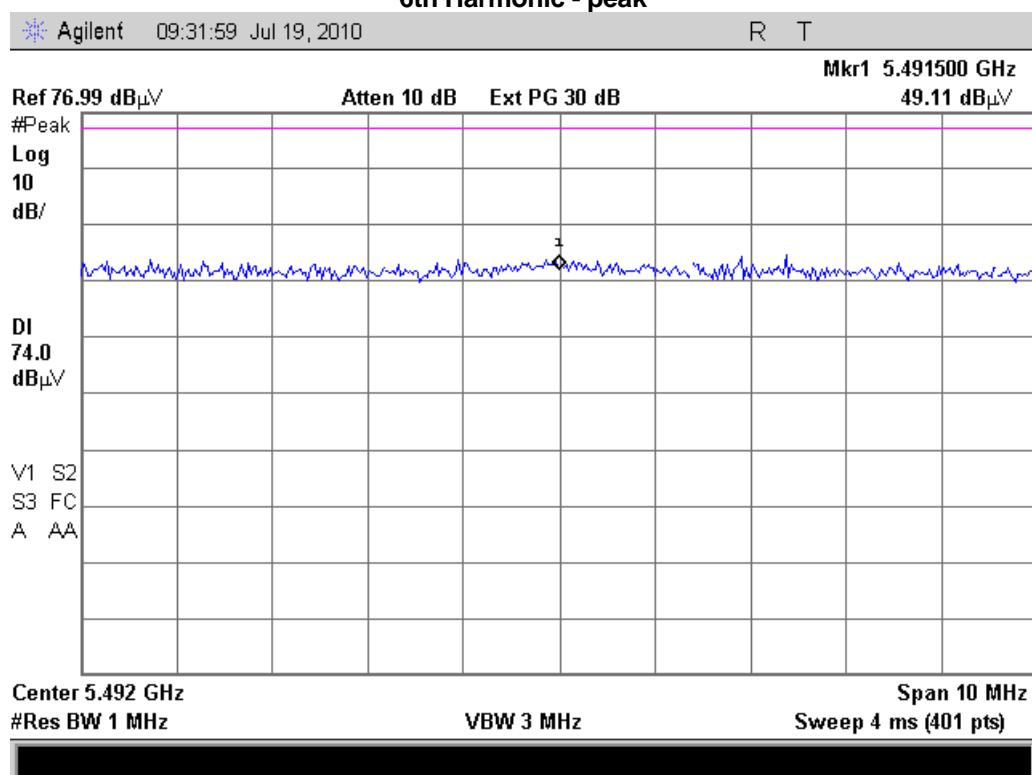




**Tuned Frequency = 915.25 MHz**  
**5th Harmonic - peak**

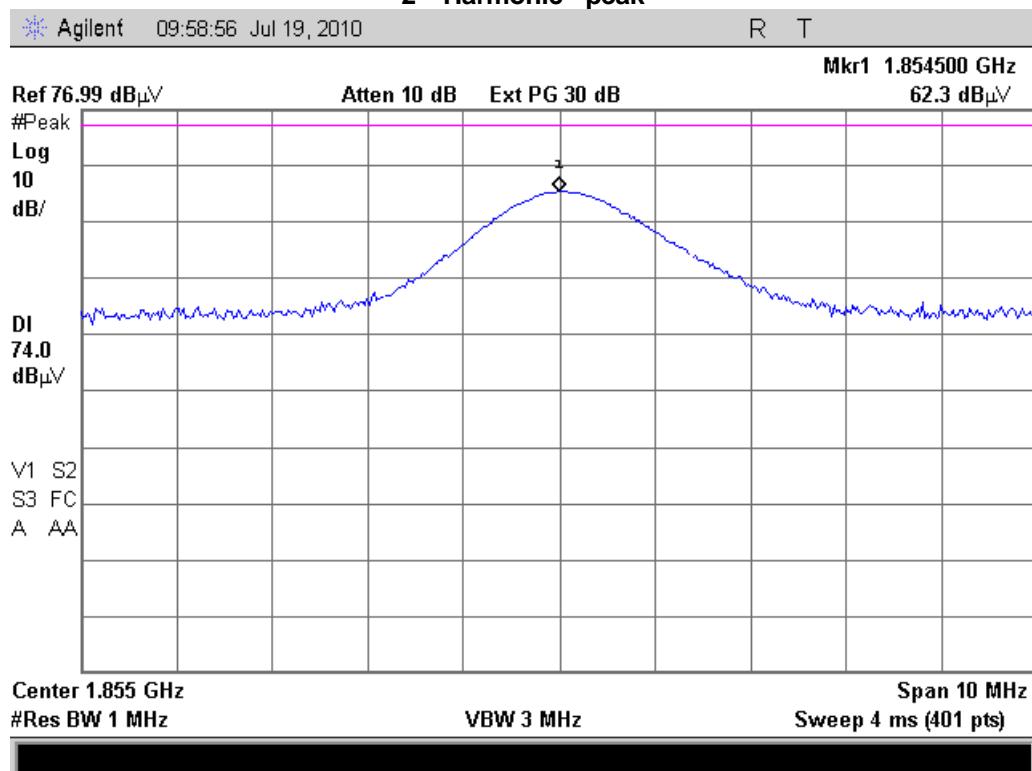


**Tuned Frequency = 915.25 MHz**  
**6th Harmonic - peak**

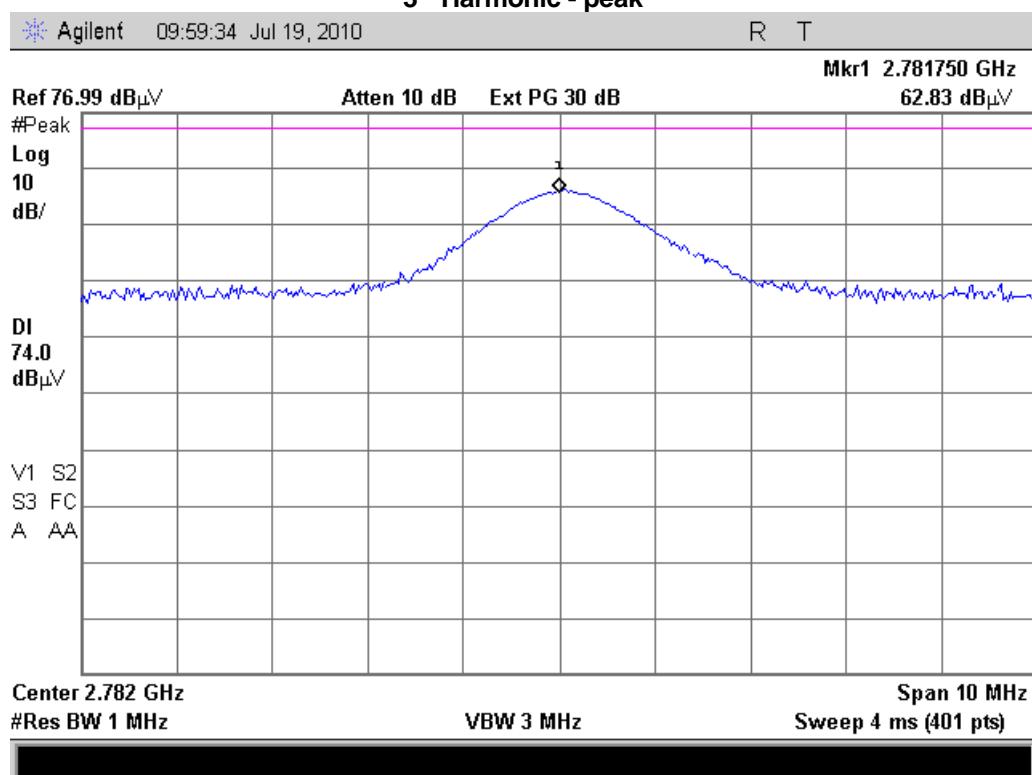




**Tuned Frequency = 927.25 MHz**  
**2<sup>nd</sup> Harmonic - peak**

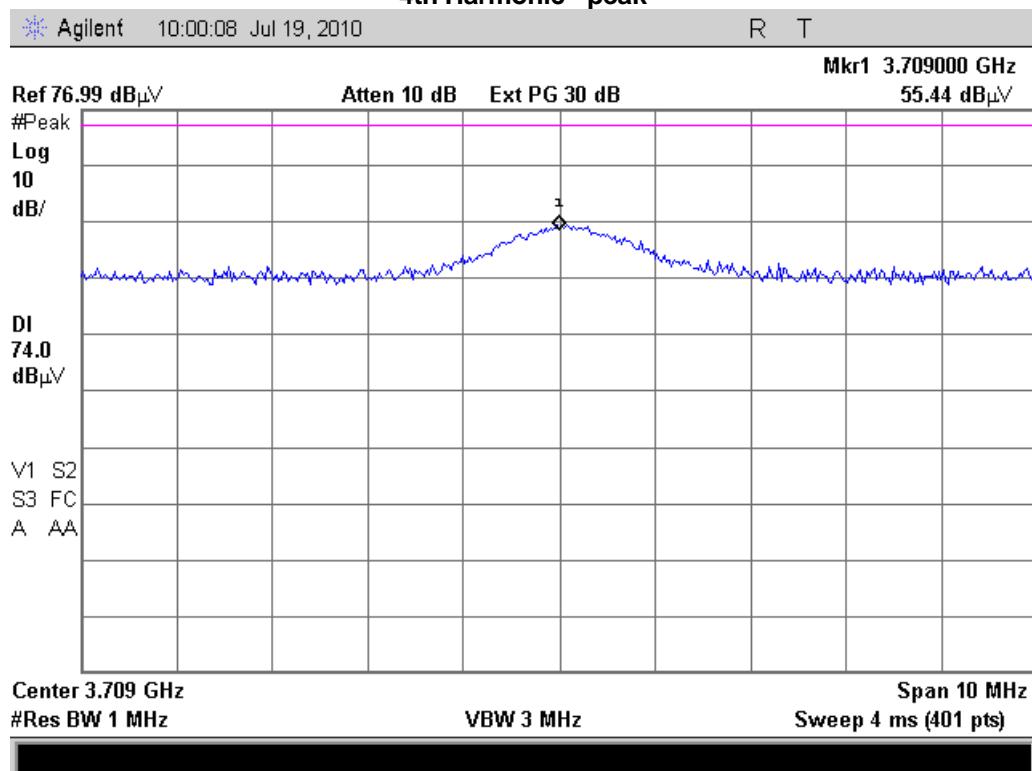


**Tuned Frequency = 927.25 MHz**  
**3<sup>rd</sup> Harmonic - peak**

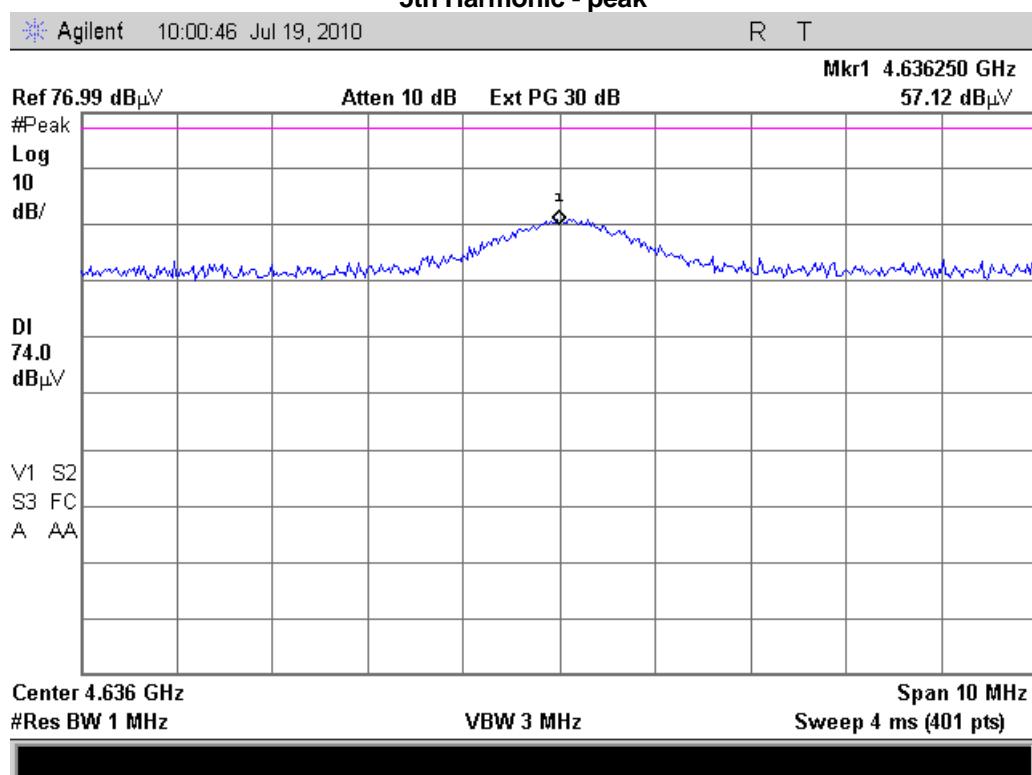




**Tuned Frequency = 927.25 MHz**  
**4th Harmonic - peak**

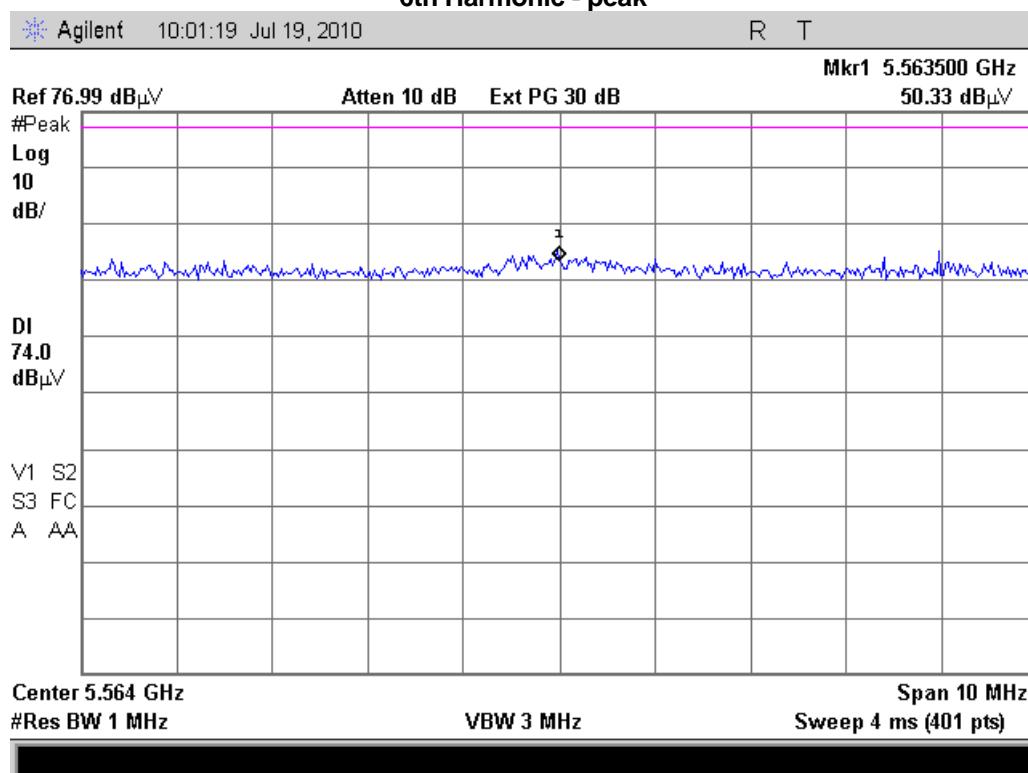


**Tuned Frequency = 927.25 MHz**  
**5th Harmonic - peak**





**Tuned Frequency = 927.25 MHz**  
**6th Harmonic - peak**





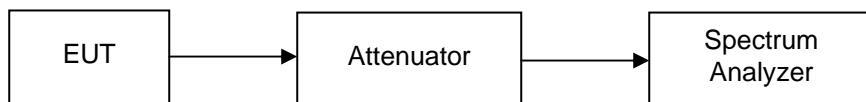
**Name of Test:** Emissions At Band Edges  
**Specification:** 15.247(d), 15.209(a), 15.205  
**Test Equipment Utilized:** i00331

**Engineer:** G. Corbin  
**Test Date:** 6/16/2010

### Test Procedure

Band Edge measurements were performed using the procedure outlined in C63.10-2009, section 7.7.9 (Band-edge measurements for RF conducted emissions). This procedure allows for the Band edge to be measured conducted, with and without the frequency hopping enabled. The attenuator and cable insertion loss was added to the spectrum analyzer as a reference level offset.

### Test Setup



### Band Edge Emissions Summary without Frequency Hopping enabled

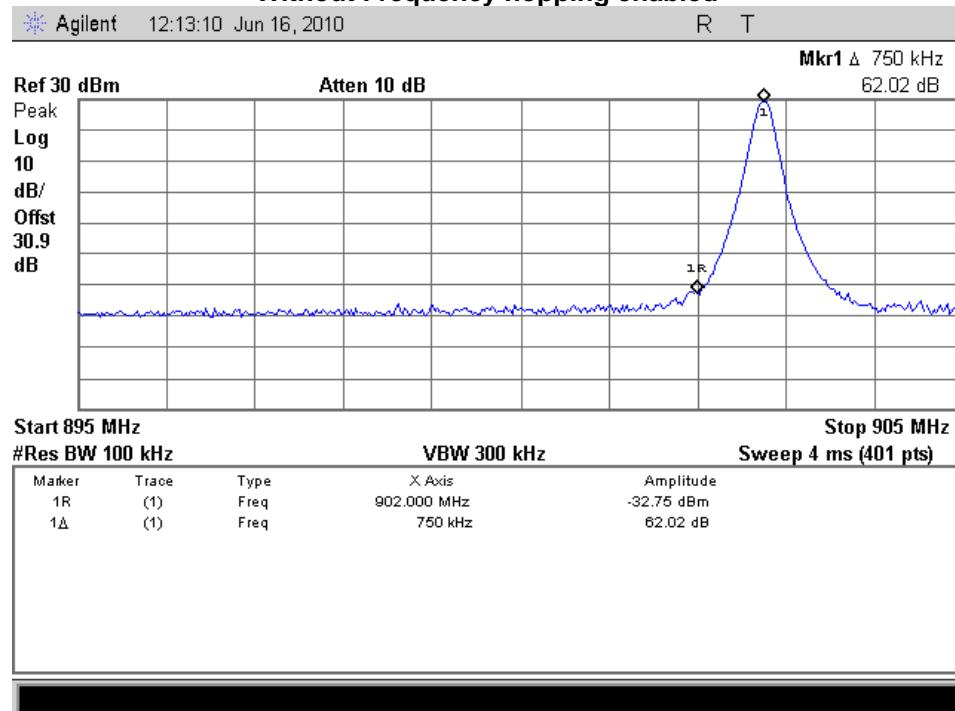
Tuned Freq (MHz)	Emission Freq (MHz)	Monitored Level (dBc)	Detector	Limit (dBc)	Result
902.75	902.00	-62.0	Peak	-20	Pass
927.25	928.00	-59.9	Peak	-20	Pass

### Band Edge Emissions Summary with Frequency Hopping enabled

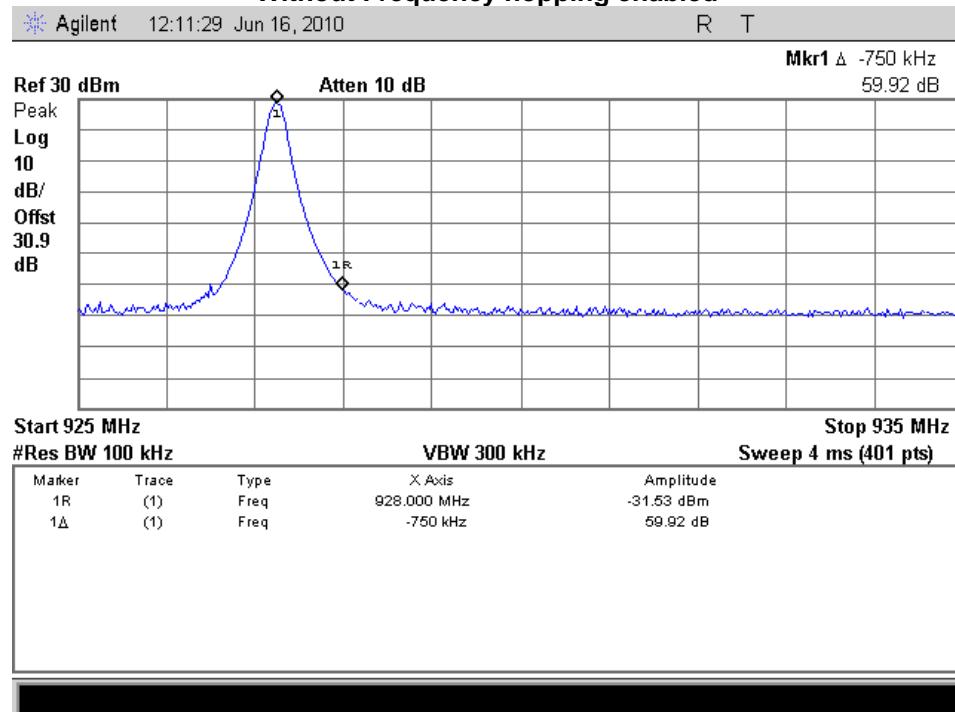
Tuned Freq (MHz)	Emission Freq (MHz)	Monitored Level (dBc)	Detector	Limit (dBc)	Result
902.75	902.00	-61.9	Peak	-20	Pass
927.25	928.00	-60.3	Peak	-20	Pass



**Band Edge 902.75 MHz**  
**Without Frequency hopping enabled**

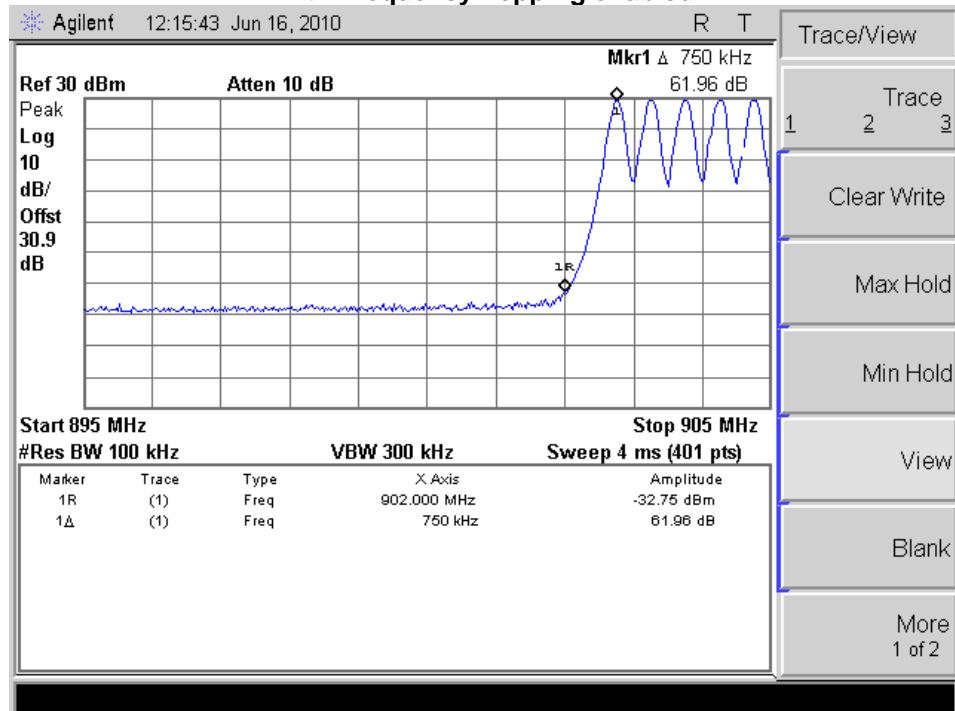


**Band Edge 927.25 MHz**  
**Without Frequency hopping enabled**

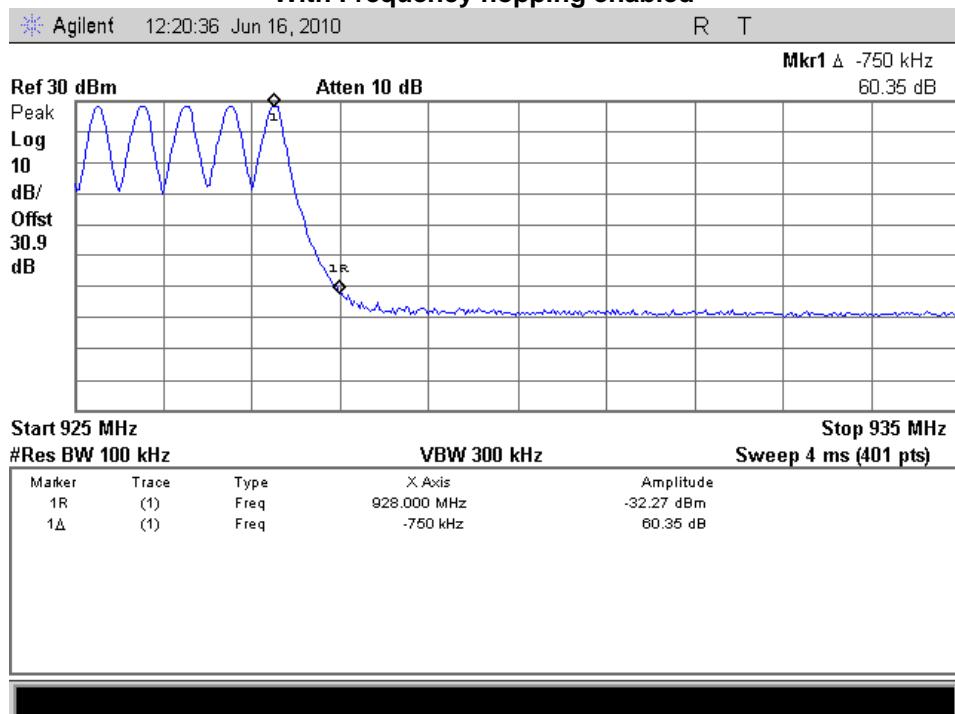




**Band Edge 902.75 MHz  
With Frequency hopping enabled**



**Band Edge 927.25 MHz  
With Frequency hopping enabled**





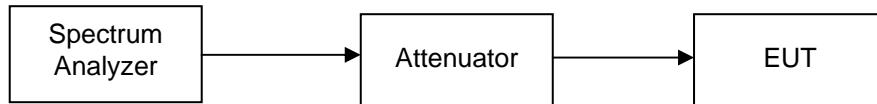
**Name of Test:** Occupied Bandwidth  
**Specification:** 15.247(a)  
**Test Equipment Utilized:** i00331

**Engineer:** G. Corbin  
**Test Date:** 7/20/2010

### Test Procedure

The EUT was connected directly to a spectrum analyzer. The cable and attenuator insertion loss was entered into the spectrum analyzer as a reference level offset. The Span was set wide enough to capture the entire transmit spectrum. The RBW was set to  $\geq 1\%$  of the necessary BW. The analyzer was set to max hold and when the entire spectrum was captured the 20dB and 99% bandwidths were measured using the Occupied Bandwidth tool on the spectrum analyzer to verify the bandwidth met the specification.

### Test Setup



#### 20 dB Bandwidth Summary

Frequency MHz	Recorded Measurement	Specification Limit	Result
902.75	137.414 kHz	500 kHz	Pass
915.25	147.950 kHz	500 kHz	Pass
927.25	145.212 kHz	500 kHz	Pass

#### 99% Bandwidth Summary

Frequency MHz	Recorded Measurement	Result
902.75	116.3803 kHz	Pass
915.25	124.8070 kHz	Pass
927.25	121.8475 kHz	Pass

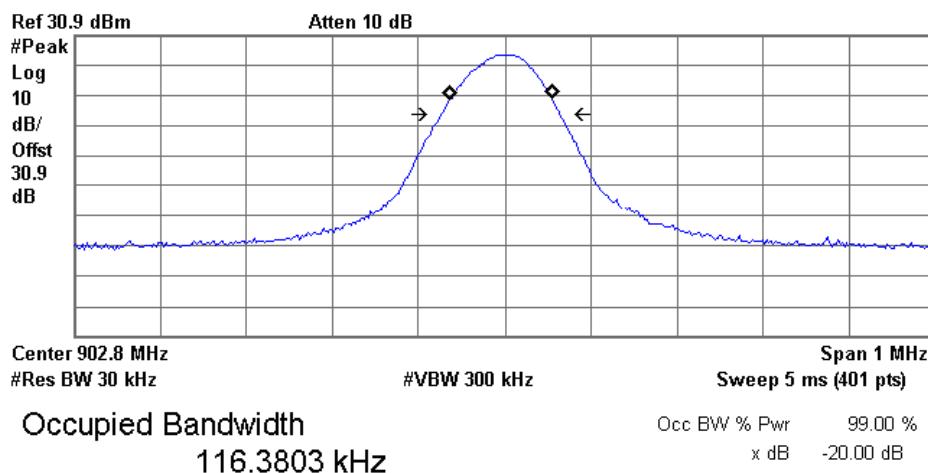


**Occupied Bandwidth**  
**Tuned Frequency = 902.75 MHz**

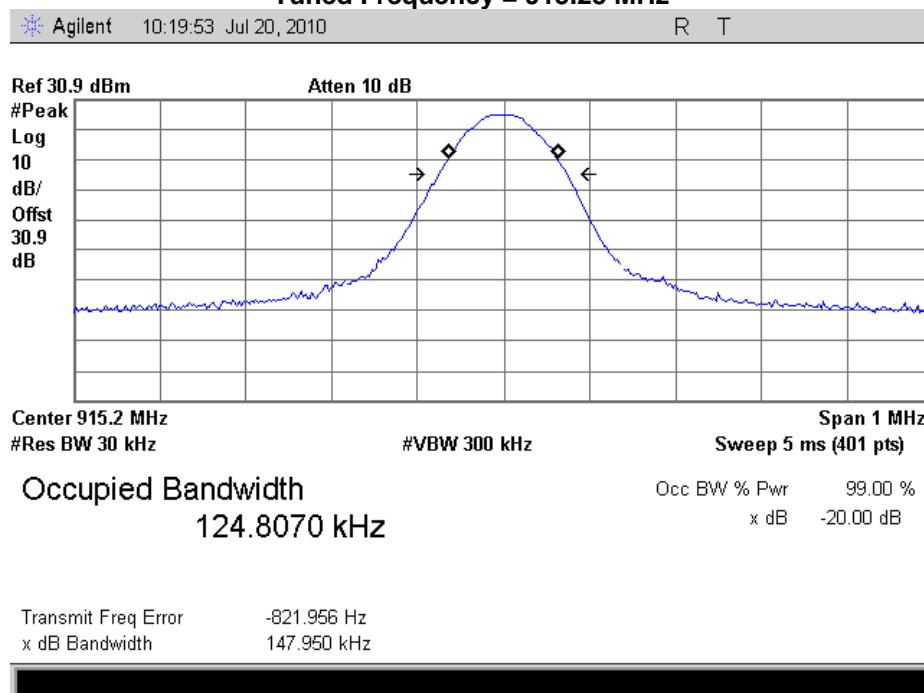
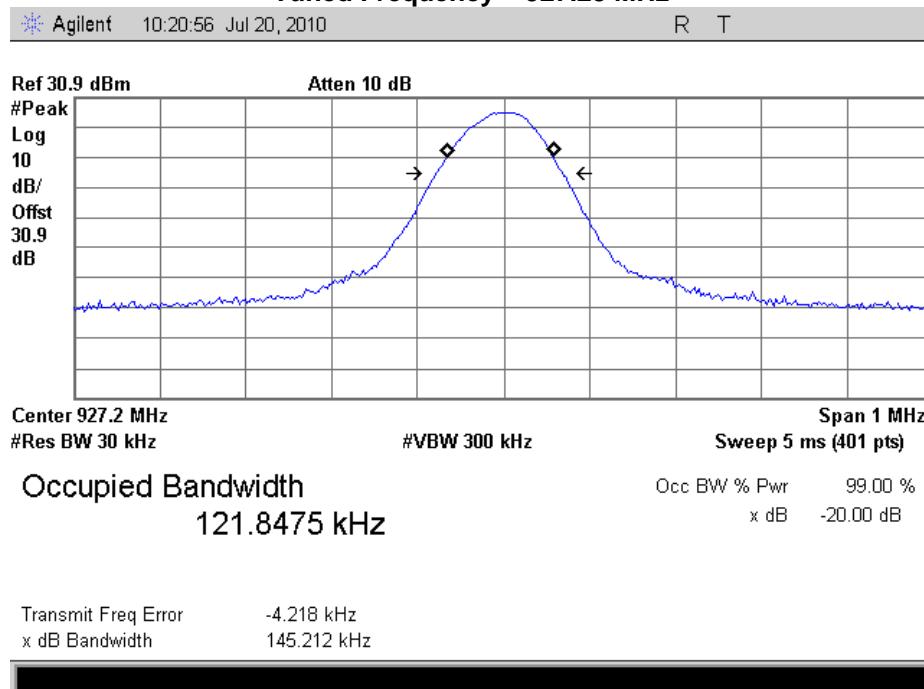
Agilent

10:18:41 Jul 20, 2010

R T



Transmit Freq Error      -4.158 kHz  
x dB Bandwidth      137.414 kHz

**Occupied Bandwidth****Tuned Frequency = 915.25 MHz****Occupied Bandwidth**  
**Tuned Frequency = 927.25 MHz**

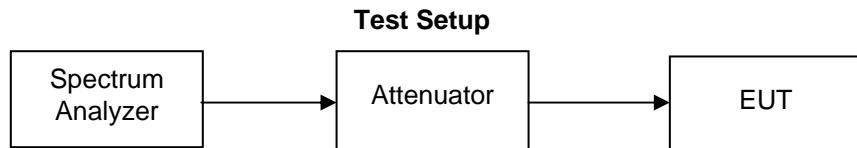


**Name of Test:** Dwell Time  
**Specification:** 15.247(a)  
**Test Equipment Utilized:** i00331

**Engineer:** G. Corbin  
**Test Date:** 6/10/2010

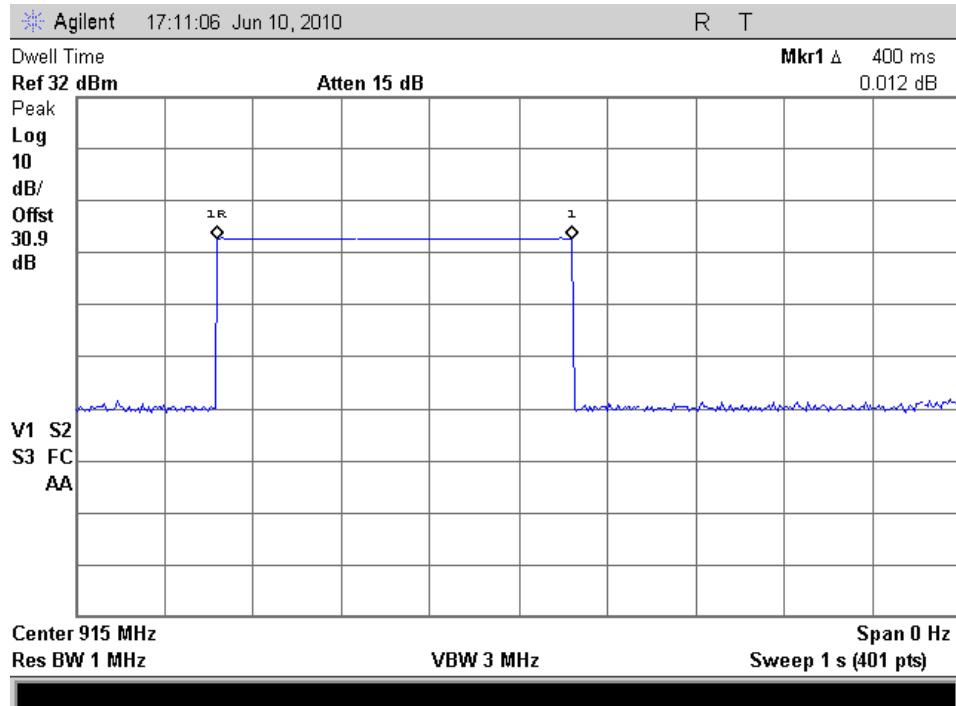
### Test Procedure

The EUT was connected directly to a spectrum analyzer. The EUT was set to hopping mode with the spectrum analyzer set to 0 span. A single transmission was captured and the dwell time was verified.



Tuned Frequency MHz	Dwell Time mS	Limit ms	Result
915.25	400	400	Pass

### Dwell Time





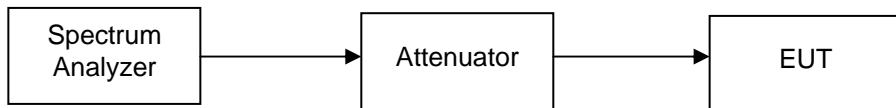
**Name of Test:** Number of Hopping Channels  
**Specification:** 15.247(a)  
**Test Equipment Utilized:** i00331

**Engineer:** G. Corbin  
**Test Date:** 6/10/2010

### Test Procedure

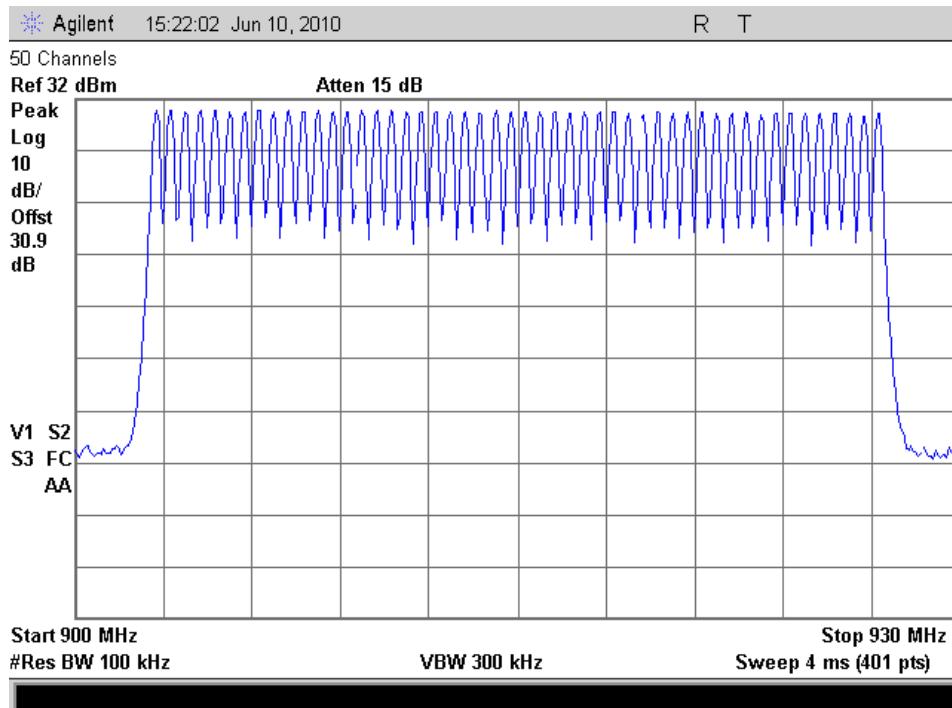
The EUT was connected directly to a spectrum analyzer. The Span was set to the specified band end points. The EUT was then set to operate in hopping mode. The MAX HOLD function of the spectrum analyzer was utilized to verify the number of hopping channels.

### Test Setup



Tuned Frequency MHz	Number of Hopping Channels	Limit minimum	Result
902 - 928	50	50	Pass

### Number of Hopping Channels





**Name of Test:** Channel Spacing  
**Specification:** 15.247(a)  
**Test Equipment Utilized:** i00331

**Engineer:** G. Corbin  
**Test Date:** 6/10/2010

### Test Procedure

The measurement was recorded per the test method listed in C63.10 section 7.7.2

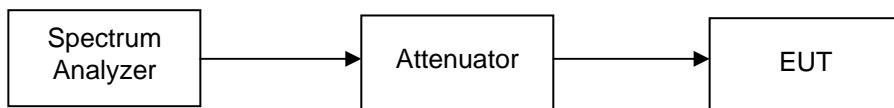
The EUT was set to operate in hopping mode. The MAX HOLD function of the spectrum analyzer was utilized to capture two adjacent hopping channels.

#### Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

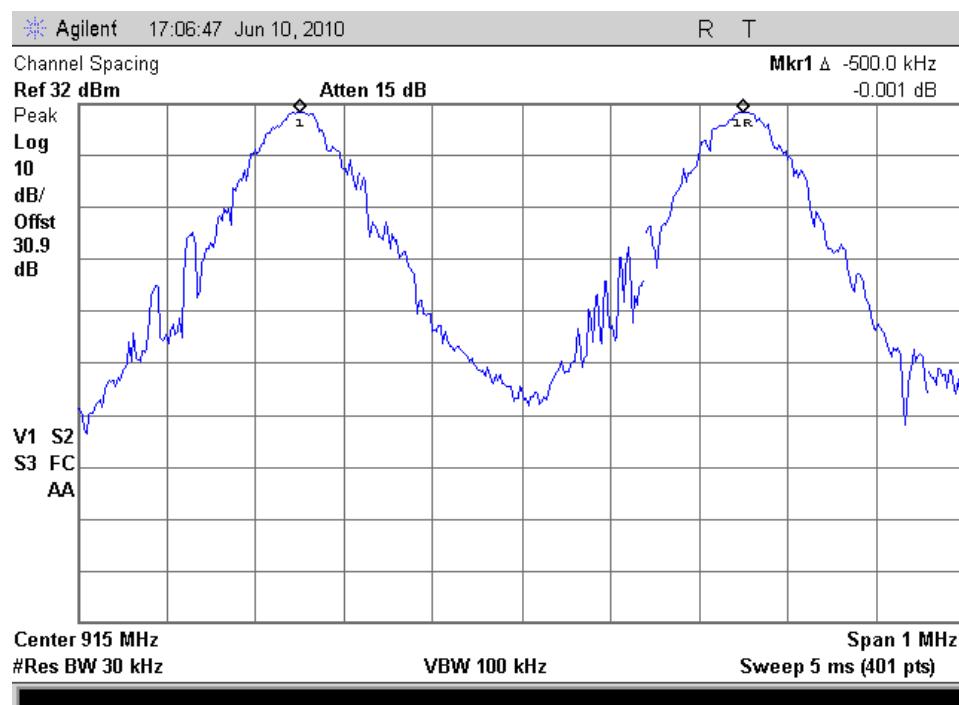
20 dB BW = 147.95 KHz

#### Test Setup



Channel Spacing	20 dB Bandwidth	Limit As a minimum – 25 KHz or 20 dB BW of the hopping channel whichever is greater.	Result
500 kHz	147.95 kHz	147.95 kHz minimum	Pass

#### Channel Spacing





Name of Test: A/C Powerline Conducted Emissions  
Specification: 15.207  
Test Equipment Utilized: i00033, i00270

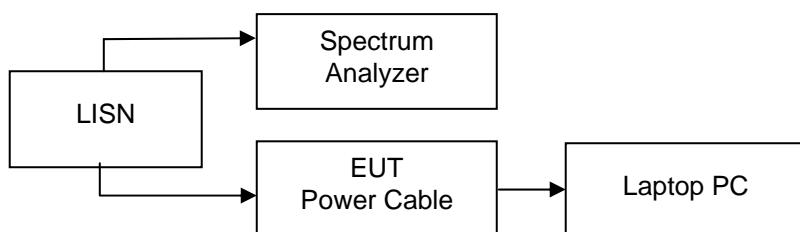
Engineer: G. Corbin  
Test Date: 6/15/2010

### 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.

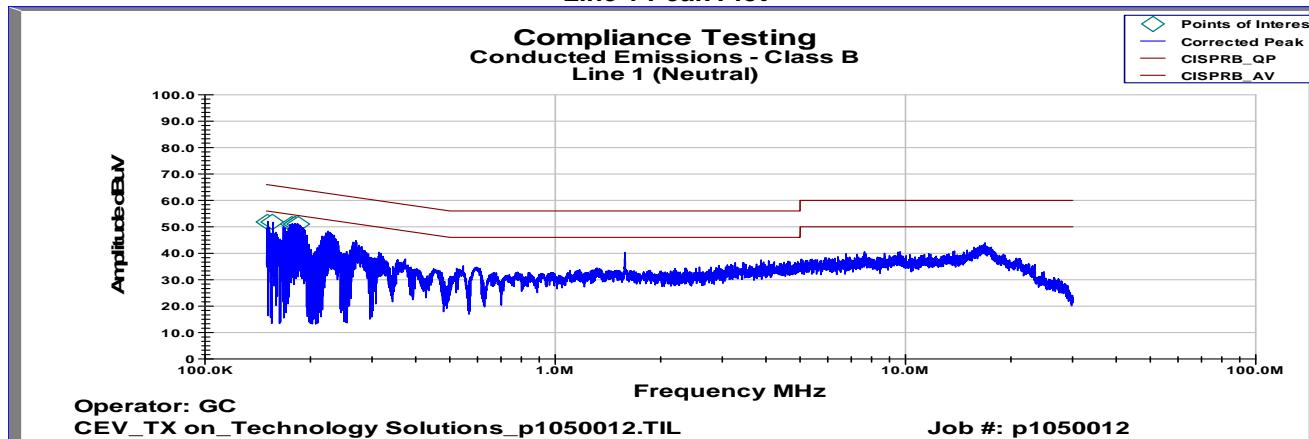
The Conducted Emissions data was recorded with the transmitter turned on. The EUT is connected to a pc via a USB cable when using the activesync function to transfer data from the portable computer to another pc.

### Test Setup

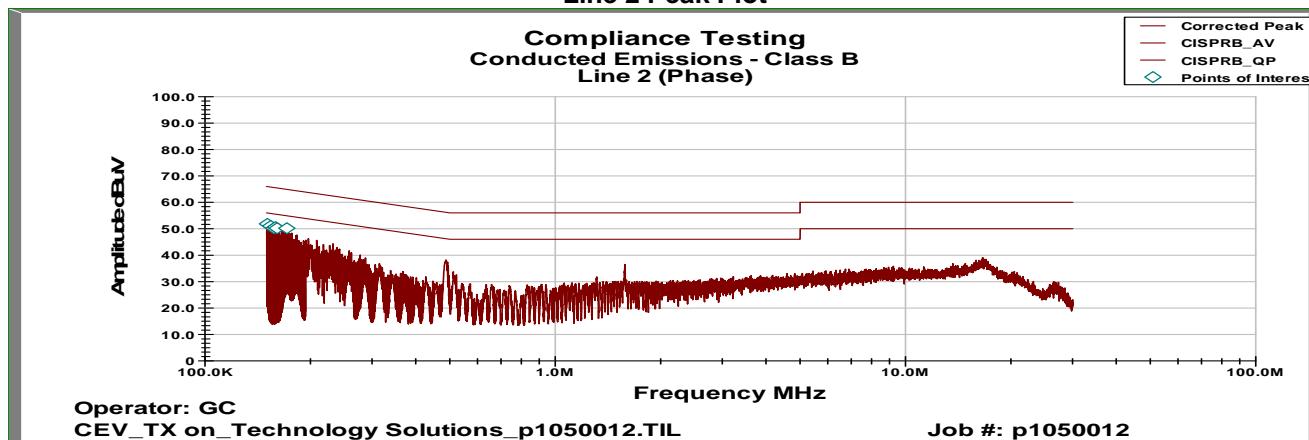


### Conducted Emissions Test Results

#### Line 1 Peak Plot



#### Line 2 Peak Plot



**Line 1 Neutral AVG Detector**

Frequency	Measured Data (dBuV)	LISN Corr Fact (dB)	Cable Loss (dB)	Attenuator (dB)	L1 Final Data (dBuV)	CISPR/FCC Limit (dBuV)	AVG Margin (dB)
185.4 KHz	20.62	0.20	0.004	10.000	30.824	54.989	-24.165
178.74 KHz	23.49	0.20	0.011	10.000	33.701	55.179	-21.478
174.36 KHz	20.77	0.20	0.016	10.000	30.986	55.304	-24.318
174.28 KHz	20.38	0.20	0.015	10.000	30.599	55.306	-24.708
150.44 KHz	14.80	0.30	0.041	10.000	25.133	55.988	-30.855
150.17 KHz	14.74	0.30	0.042	10.000	25.084	55.995	-30.911

**Line 2 Phase AVG Detector**

Frequency	Measured Data (dBuV)	LISN Corr Fact (dB)	Cable Loss (dB)	Attenuator (dB)	L2 Final Data (dBuV)	CISPR/FCC Limit (dBuV)	AVG Margin (dB)
155.02 KHz	6.92	0.25	0.039	10.000	17.212	55.856	-38.645
152.5 KHz	9.08	0.28	0.042	10.000	19.393	55.929	-36.535
150.97 KHz	11.52	0.29	0.040	10.000	21.850	55.972	-34.122
150.8 KHz	12.34	0.29	0.041	10.000	22.676	55.977	-33.301
150.16 KHz	12.67	0.30	0.043	10.000	23.011	55.995	-32.984
150.05 KHz	13.46	0.30	0.043	10.000	23.800	55.998	-32.199

**Line 1 Neutral QP Detector**

Frequency	Measured Data (dBuV)	LISN Corr Fact (dB)	Cable Loss (dB)	Attenuator (dB)	L1 Final Data (dBuV)	CISPR/FCC Limit (dBuV)	QP Margin (dB)
185.4 KHz	37.430	0.200	0.004	10.000	47.634	64.989	-17.355
178.74 KHz	38.160	0.200	0.011	10.000	48.371	65.179	-16.808
174.36 KHz	37.070	0.200	0.016	10.000	47.286	65.304	-18.018
174.28 KHz	36.920	0.200	0.015	10.000	47.135	65.306	-18.171
150.44 KHz	35.580	0.296	0.041	10.000	45.916	65.988	-20.071
150.17 KHz	34.380	0.298	0.042	10.000	44.720	65.995	-21.275

**Line 2 Phase QP Detector**

Frequency	Measured Data (dBuV)	LISN Corr Fact (dB)	Cable Loss (dB)	Attenuator (dB)	L2 Final Data (dBuV)	CISPR/FCC Limit (dBuV)	QP Margin (dB)
155.02 KHz	32.07	0.25	0.039	10.000	42.359	65.856	-23.498
152.5 KHz	32.94	0.28	0.042	10.000	43.257	65.929	-22.672
150.97 KHz	33.17	0.29	0.040	10.000	43.500	65.972	-22.472
150.8 KHz	32.76	0.29	0.041	10.000	43.093	65.977	-22.884
150.16 KHz	33.77	0.30	0.043	10.000	44.111	65.995	-21.884
150.05 KHz	33.44	0.30	0.043	10.000	43.783	65.998	-22.216



**Name of Test:** Receiver Spurious Emissions  
**Specification:** RSS-GEN 6(b)  
**Test Equipment Utilized:** i00331

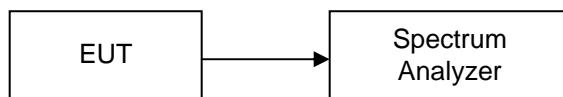
**Engineer:** G. Corbin  
**Test Date:** 6/11/2010

### Test Procedure

The EUT was connected directly to a spectrum analyzer. The receiver spurious emissions were measured in accordance to RSS-GEN.

RSS-GEN requires the measurement bandwidth to be 4 kHz. The spectrum analyzer resolution BW is 3 kHz. A bandwidth correction factor of 1.25 dB was added to the reference level offset to correct for the measurement bandwidth.

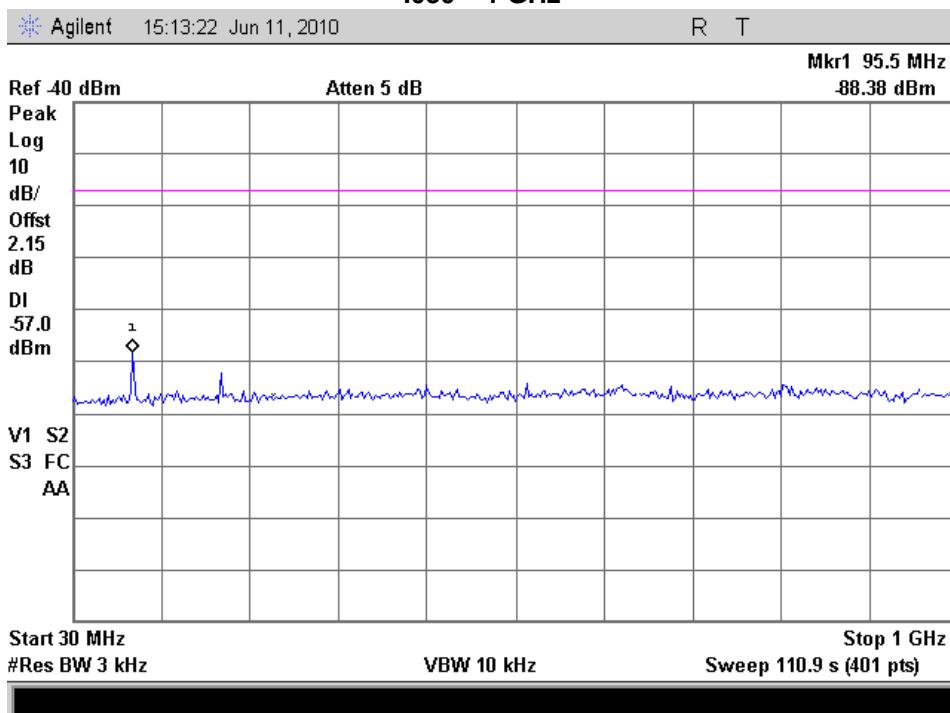
### Test Setup



### Receiver Spurious Emissions Summary

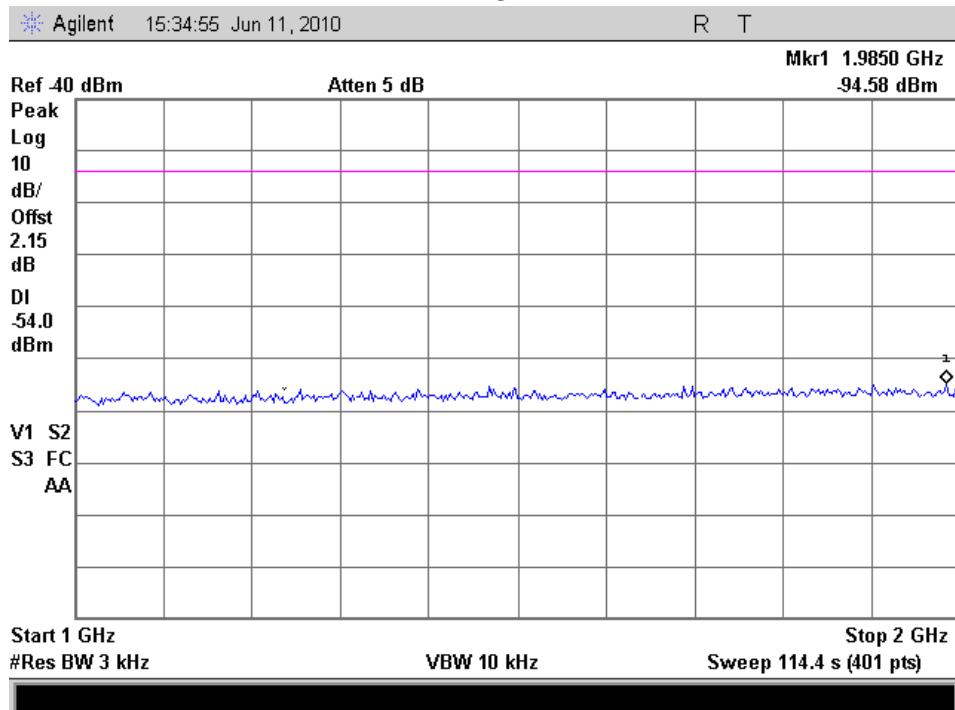
Frequency GHz	Recorded Measurement dBm	Specification Limit dBm	Result
.030 – 1	-88.3	-57	Pass
1 – 3	-92.8	-53	Pass

### Receiver Spurious Emissions .030 – 1 GHz

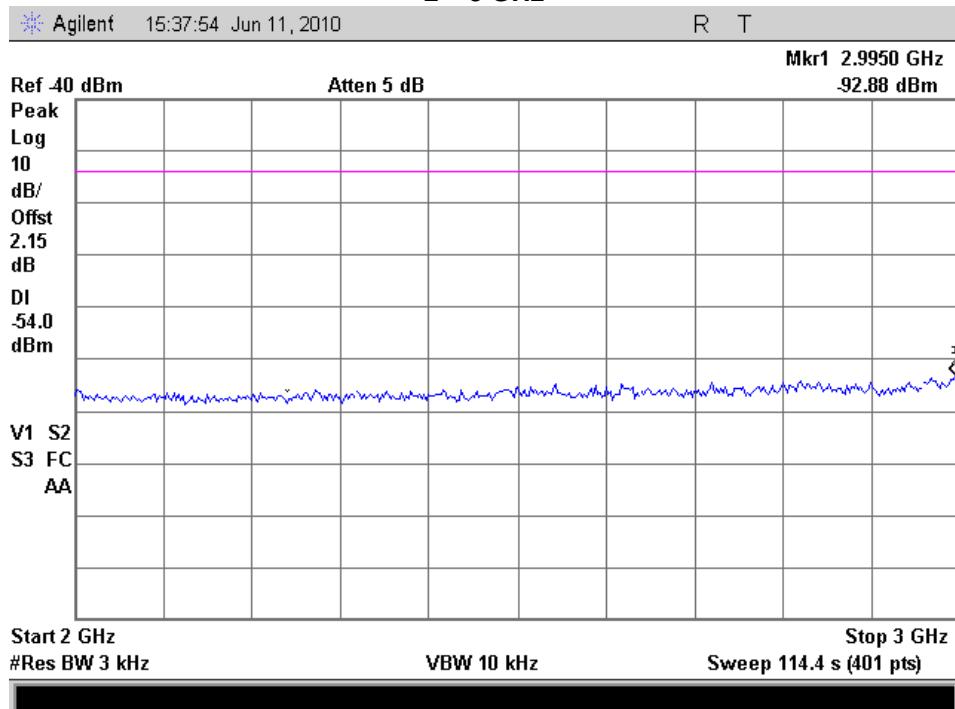




## 1 – 2 GHz



## 2 – 3 GHz





### Test Equipment Utilized

Description	MFG	Model Number	CT Asset Number	Last Cal Date	Cal Due Date
Preamplifier	HP	8449A	i00028	6/29/2009	**6/29/2010
EMI Receiver	HP	8546A	i00033	11/04/2009	11/04/2010
Horn Antenna	EMCO	3115	i00103	11/25/2008	11/25/2010
Bi-Log Antenna	Schaffner	CBL611C	i00267	11/21/2009	11/21/2011
LISN	FCC	FCC-LISN-50-32-2-01	i00270	9/17/2008	9/17/2010
Spectrum Analyzer	Agilent	E4407B	i00331	11/03/2009	11/03/2010
Tunable Notch Filter	Eagle	TNF-240MFMF	i00364	Verify	When used

\*\*Calibration has been extended for 30 days.

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