



**FCC CFR47 PART 15 SUBPART C  
INDUSTRY CANADA RSS-210 ISSUE 8**

**CERTIFICATION TEST REPORT**

**FOR**

**iPhone With GSM WCDMA 1xRTT/CDMA 1xEVDO Rev. A, Bluetooth EDR 2.1,  
Bluetooth 4.0 LE, and WiFi 802.11 bgn**

**MODEL NUMBER: A1387**

**FCC ID: BCG-E2430A  
IC: 579C-E2430A**

**REPORT NUMBER: 11U13896-4, Revision A**

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**NVLAP LAB CODE 200065-0**

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
---	08/25/11	Initial Issue	T. Chan
A	09/08/11	Revised EUT description	A. Zaffar

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** APPLE, INC.  
1 INFINITE LOOP  
CUPERTINO, CA, 95014, U.S.A.

**EUT DESCRIPTION:** iPhone With GSM WCDMA 1xRTT/CDMA 1xEVDO Rev. A,  
Bluetooth EDR 2.1, Bluetooth 4.0 LE, and WiFi 802.11 bgn

**MODEL:** A1387

**SAMPLE TESTED:** BOM #1(D0415), BOM#2 (D0485), BOM #3(D0930)

**SERIAL NUMBER:** C39G500HDRT3, C39G507FDRT1, C39G50APDRT1

**DATE TESTED:** JULY 04 - AUGUST 5, 2011

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

Tested By:



THU CHAN  
EMC SUPERVISOR  
UL CCS

CHIN PANG  
EMC ENGINEER  
UL CCS

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The Apple iPhone, Model A1387, is a mobile phone with multimedia functions (music, application support, and video), cellular GSM, WCDMA-HSDPA & HSUPA, CDMA -1xRTT, EV-DO Rev 0 & Rev A radio, IEEE 802.11b/g/n radio and Bluetooth radio. This device measures 115.6 mm (4.55 inches) tall x 59.3 mm (2.33 inches) and 9.36 mm (0.368 inches) thick and weighs 140 grams (4.9 oz.). The rechargeable battery is not user accessible.

### 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402-2480	BLE	10.20	10.47

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA integrated antennas, with the following peak gains in -1.5 dBi.

### 5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Broadcom Bluetooth.

The EUT software installed during testing was 9A287.

### 5.5. WORST-CASE CONFIGURATION AND MODE

For Radiated Emissions below 1 GHz and Power line Conducted Emissions, the channel with the highest conducted output power was selected.

The worst-case channel is determined as the channel with the highest output power.

EUT is a portable device that has three orientations; therefore X, Y and Z orientations have been investigated, and the worst case was found to be at X position.

The BOM Variant 1 was used to perform on full RF radiated and conducted tests as worst case by comparing the output power measurement; Both BOM Variant 2 and 3 were only to perform on RF conducted output power test.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST			
Description	Manufacturer	Model	Serial Number
AC Adaptor	Apple	A1344	N/A

### I/O CABLES (Conducted Setup)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	RF In/Out	1	Spectrum Analyzer	unshielded	0.10m	N/A
2	RF In/Out	1	Bluetooth Tester	unshielded	0.10m	N/A
3	Antenna	1	Power Splitter	unshielded	0.10m	N/A

### I/O CABLES (Radiated Setup)

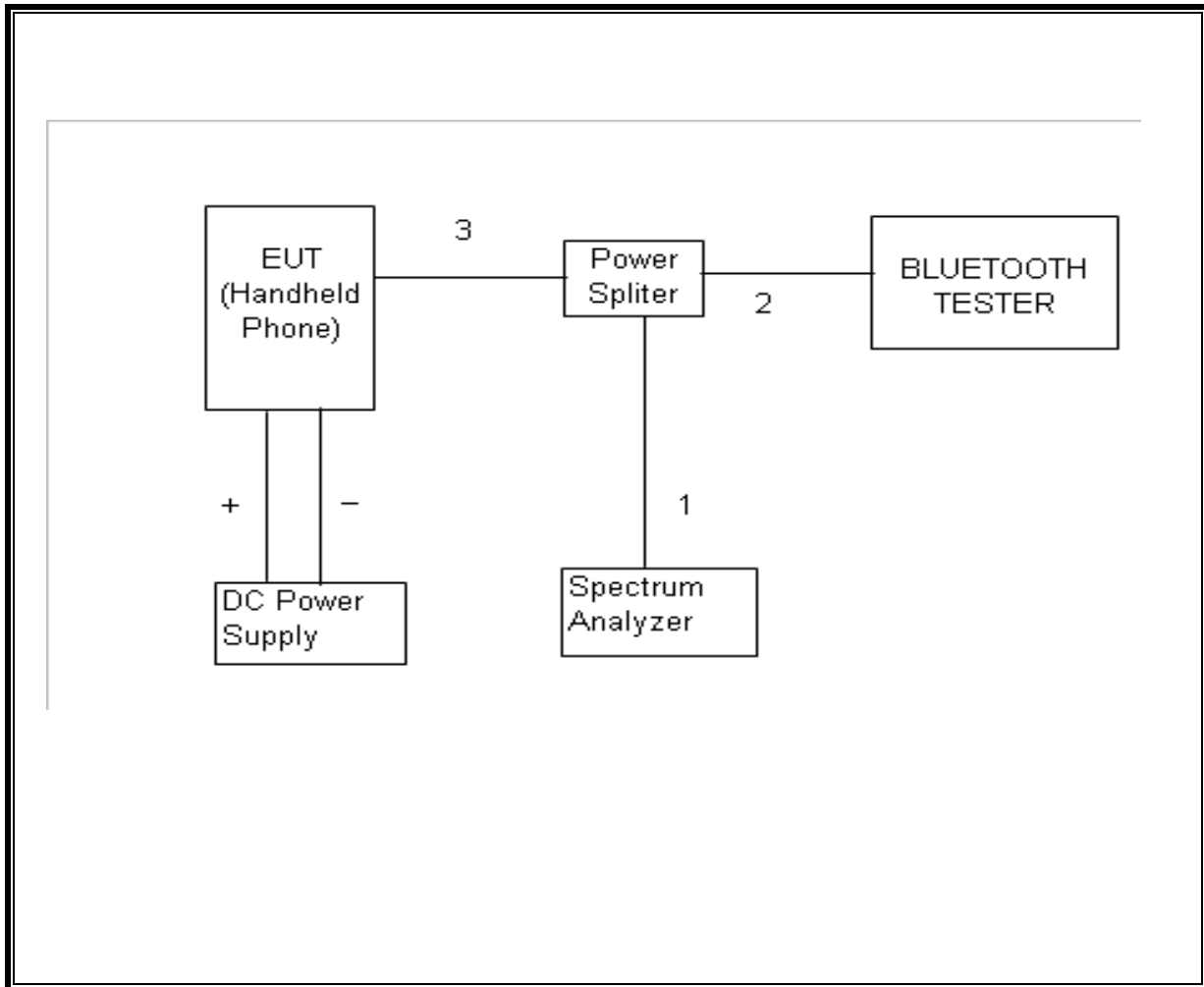
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	AC	unshielded	2m	N/A
2	DC	1	DC	unshielded	1m	N/A
3	Jack	1	Earphone	unshielded	0.5m	N/A
3	RF In/Out	1	Bluetooth Tester	unshielded	2m	N/A

### TEST SETUP

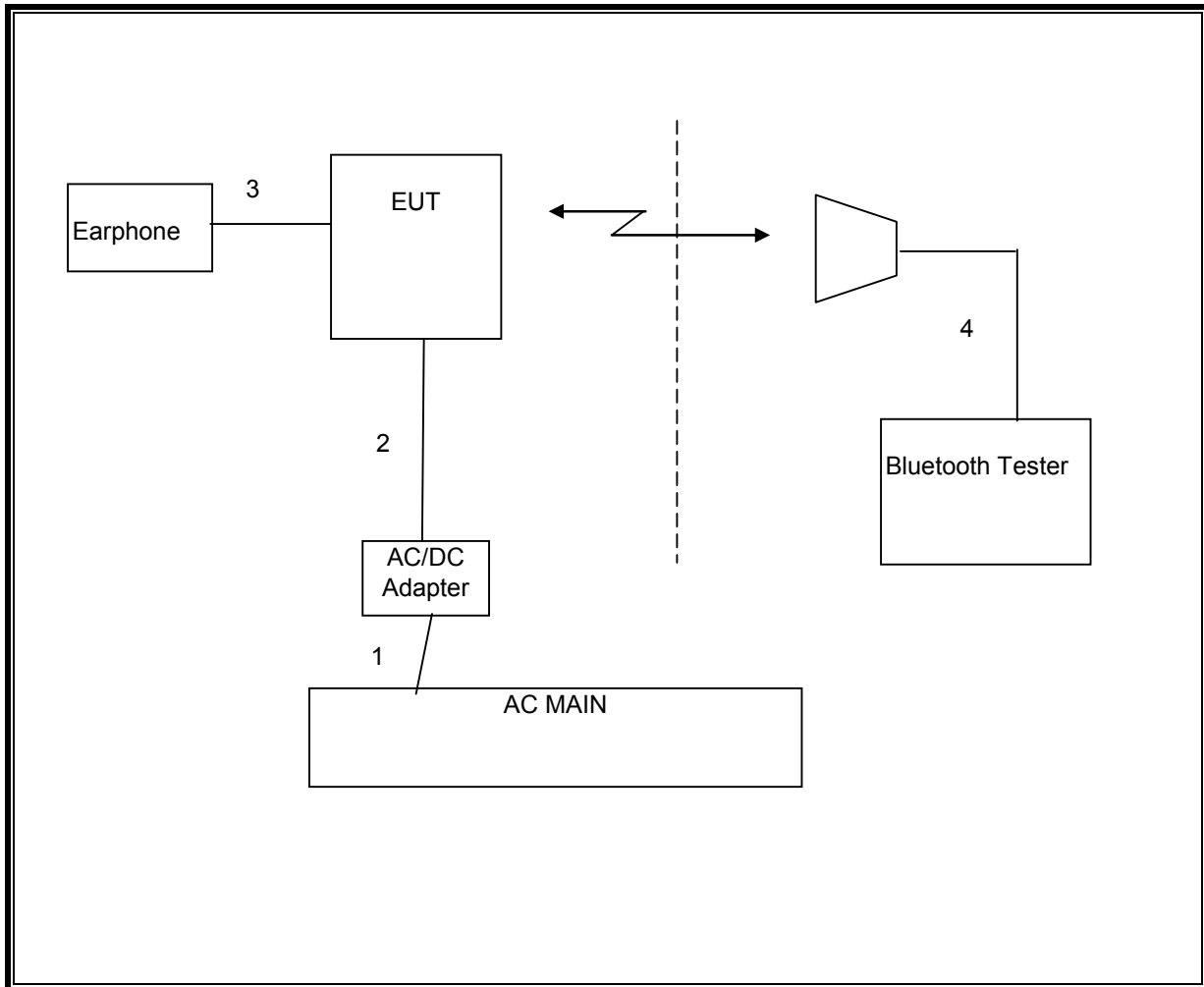
The EUT is a stand-alone device.



**SETUP DIAGRAM FOR TESTS (CONDUCTED)**



**SETUP DIAGRAM FOR TESTS (RADIATED)**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01159	05/11/12
Antenna, Horn, 18 GHz	EMCO	3115	C00872	06/29/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	07/16/12
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/27/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/12/12
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	07/06/12
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/11
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRM50702	N02685	CNR
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	01/07/12
Peak Power Meter	Agilent / HP	E4416A	C00963	12/04/11
Bluetooth Tester	R&S	CBT	NA	05/01/12

## 7. ANTENNA PORT TEST RESULTS

### BOM VARIANT 1

#### 7.1. 6 dB BANDWIDTH

##### LIMITS

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

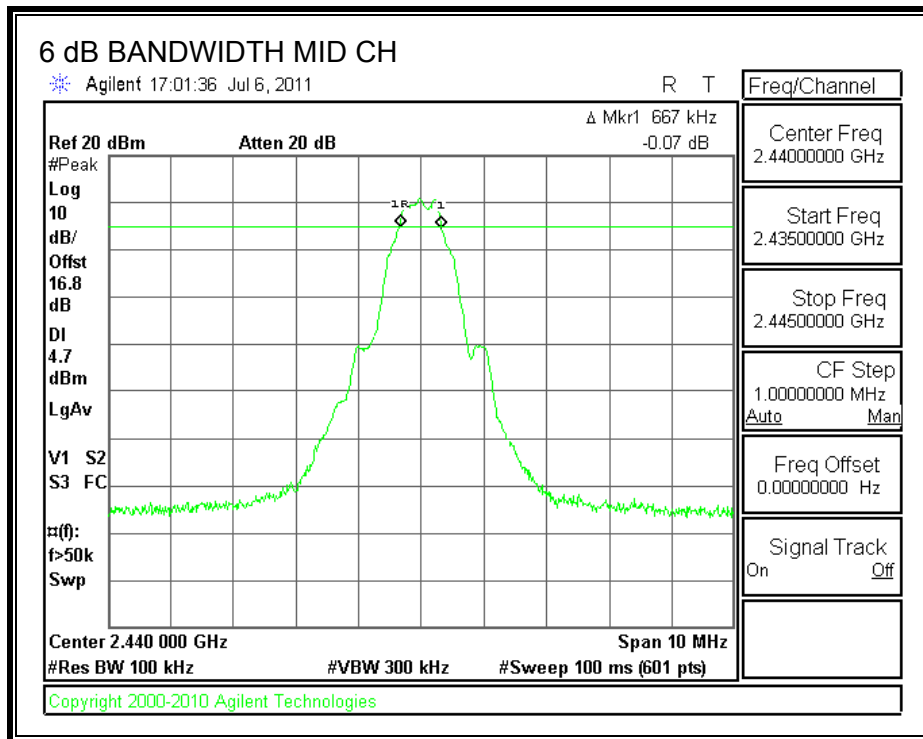
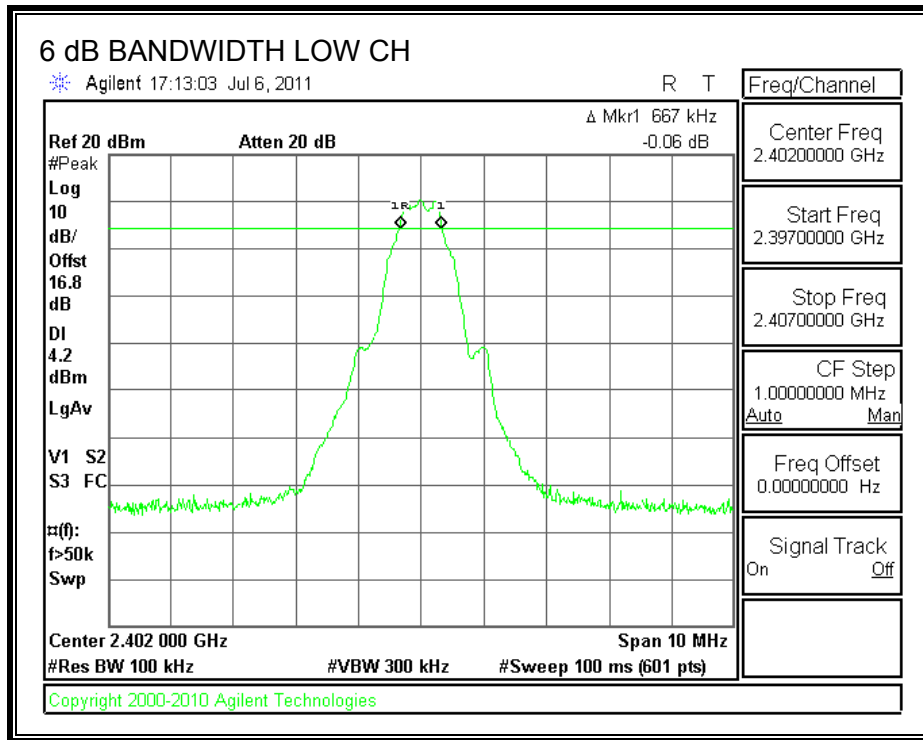
##### TEST PROCEDURE

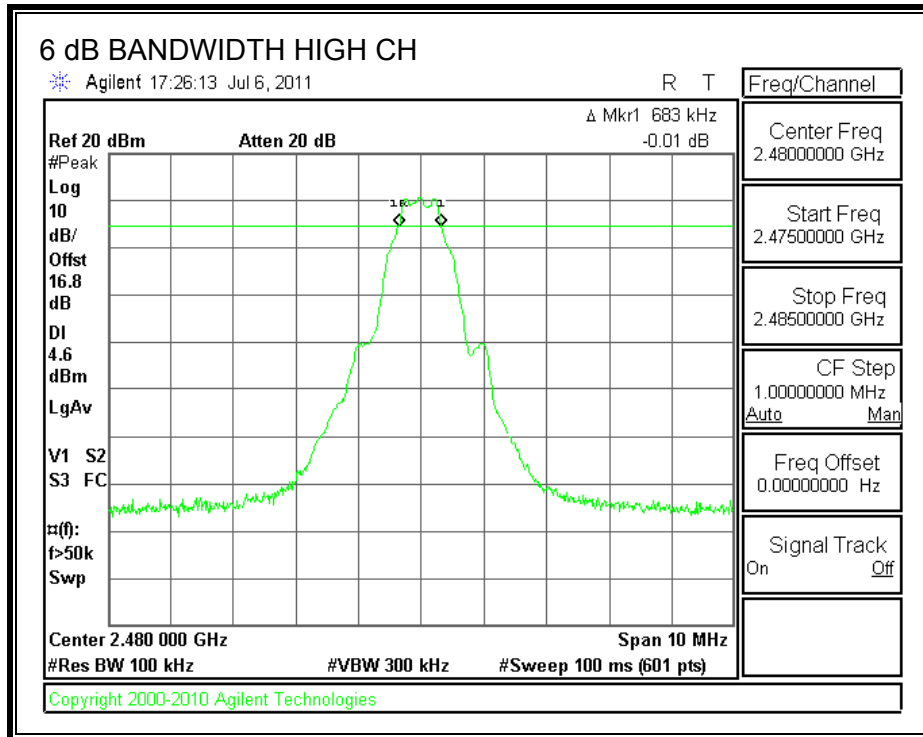
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

##### RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.667	0.5
Middle	2440	0.667	0.5
High	2480	0.683	0.5

**6 dB BANDWIDTH**





## 7.2. 99% BANDWIDTH

### LIMIT

None; for reporting purposes only.

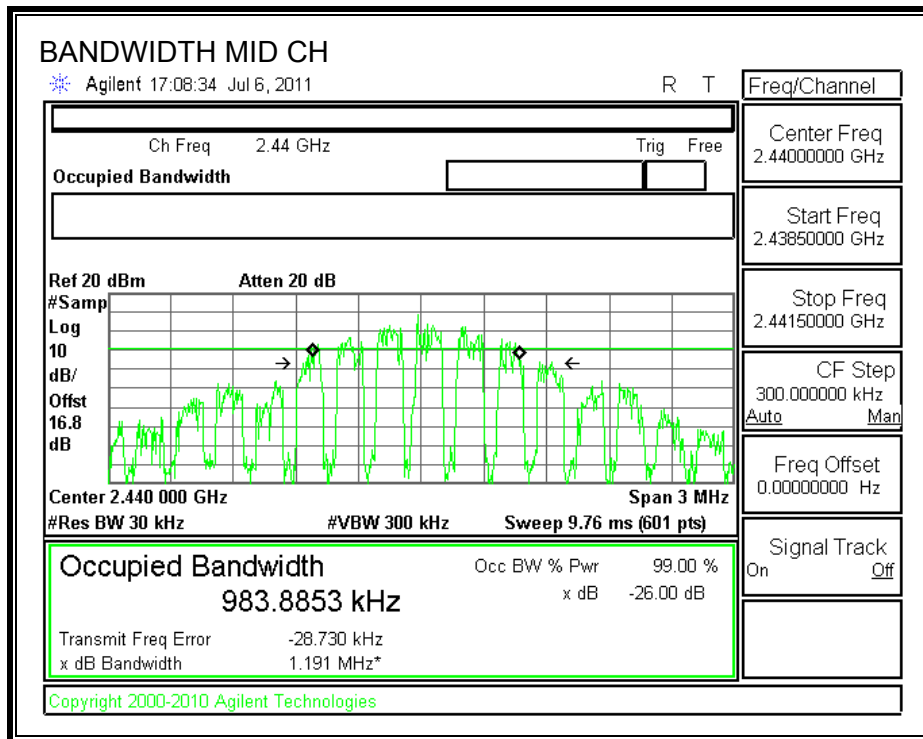
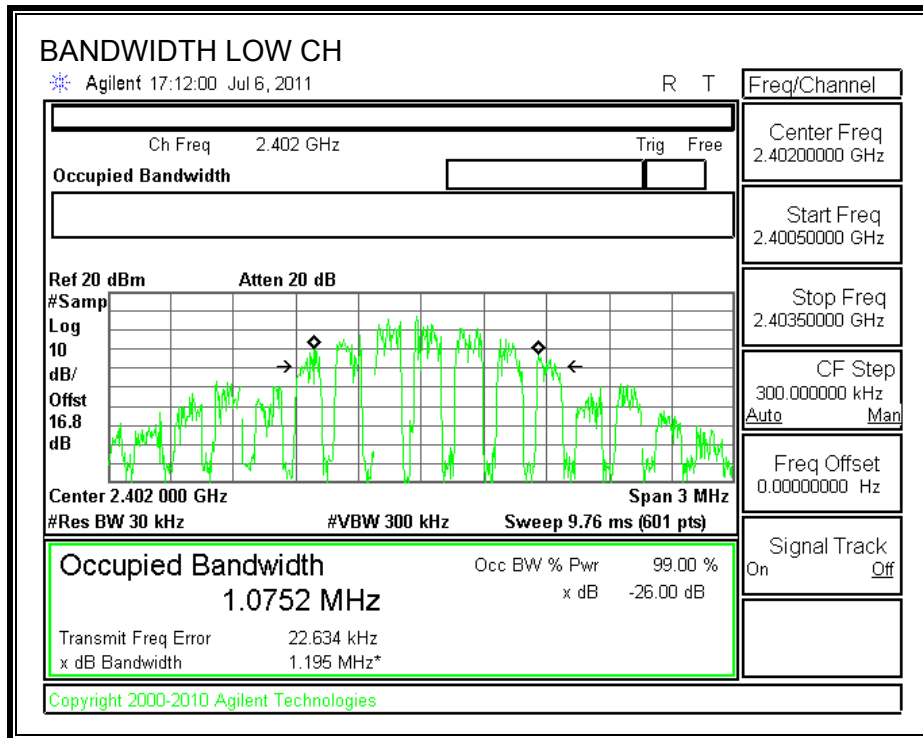
### TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to  $\geq 1\%$  of the 20 dB bandwidth. The VBW is set to  $\geq$  RBW. The sweep time is coupled.

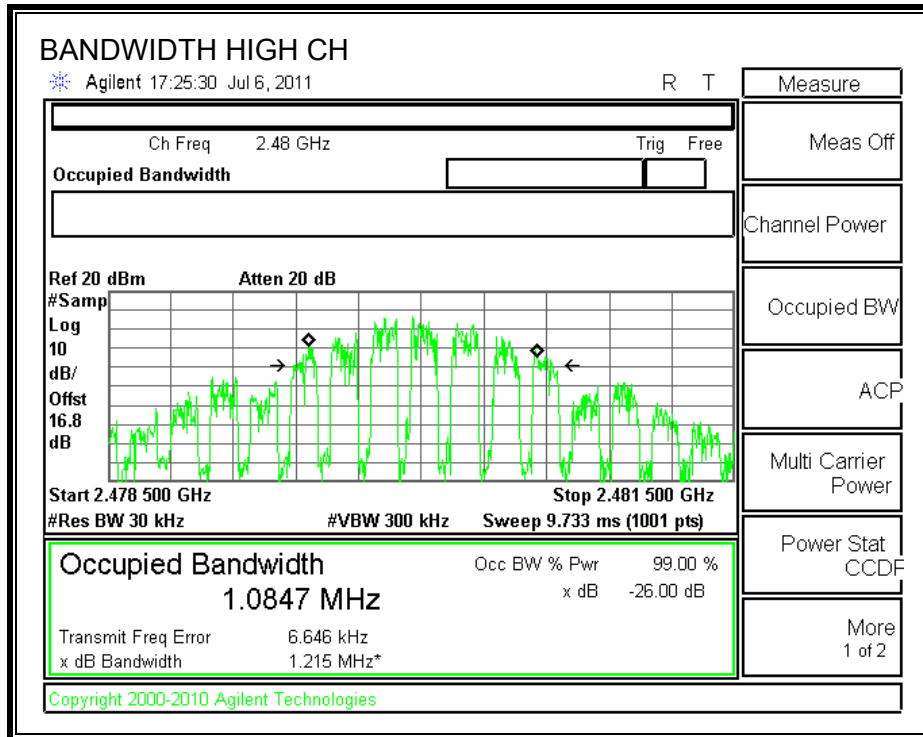
### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0752
Middle	2440	0.9839
High	2480	1.0847

**99% BANDWIDTH**







### 7.3. OUTPUT POWER

#### LIMIT

§15.247 (b) (1)

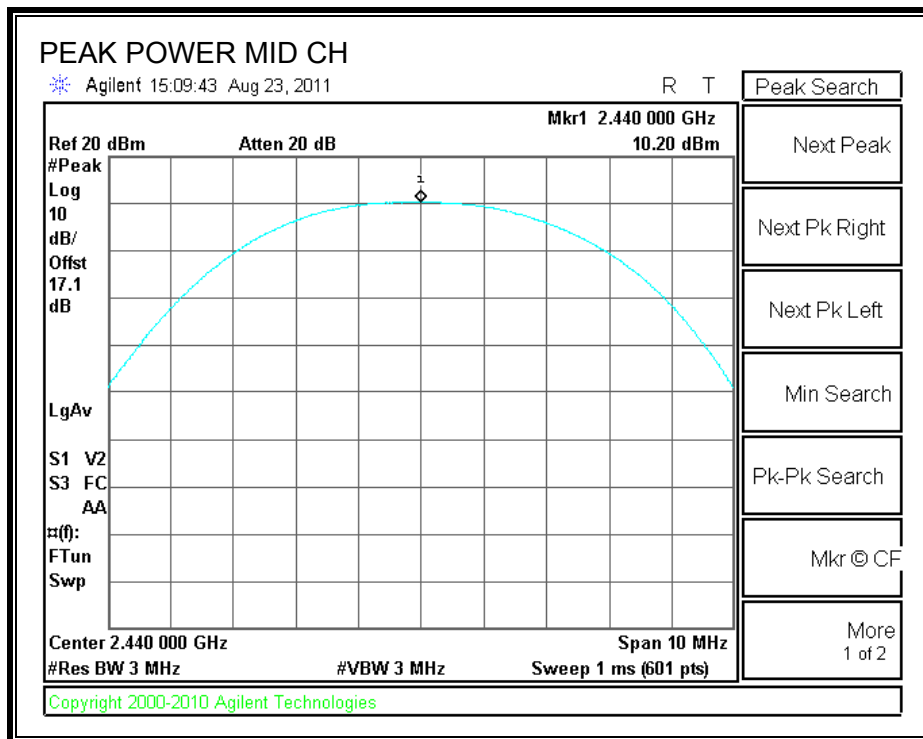
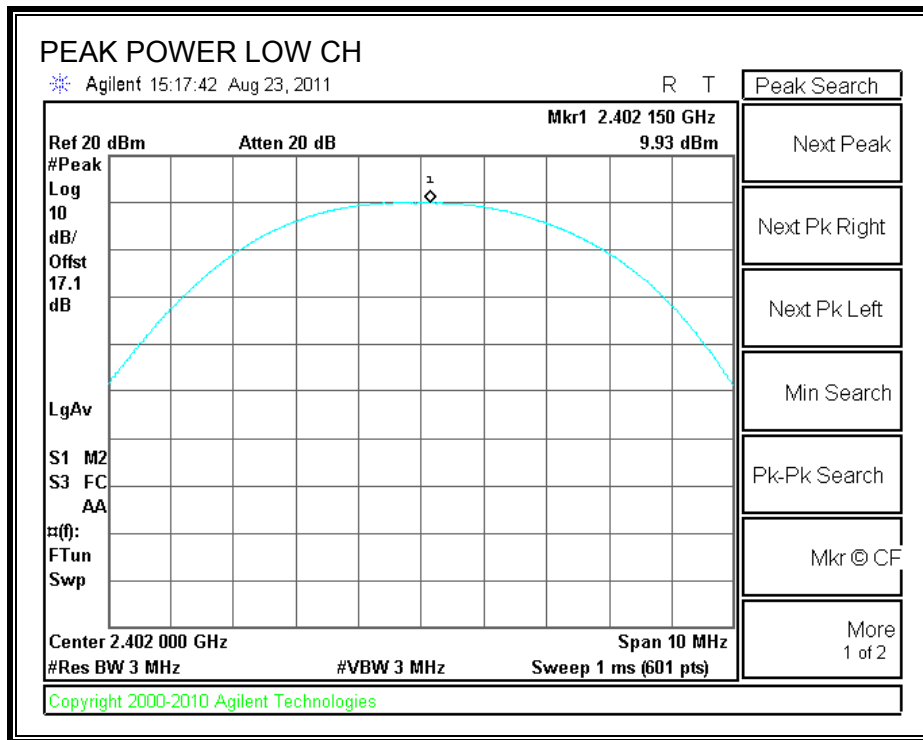
The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

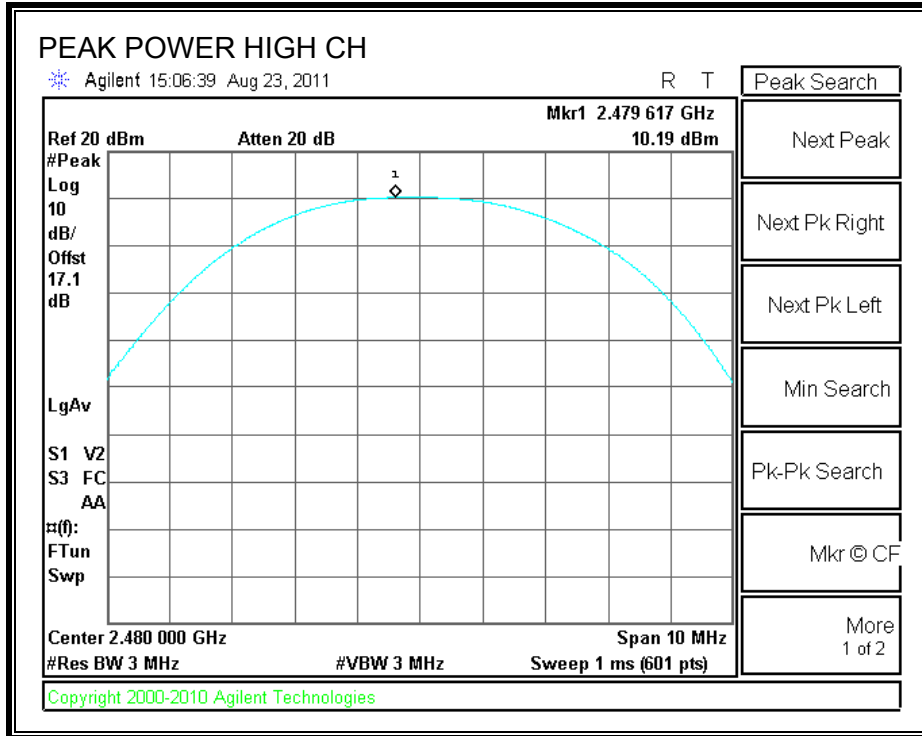
#### TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, and the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

#### RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.93	30	-20.07
Middle	2440	10.20	30	-19.80
High	2480	10.19	30	-19.81





## 7.4. AVERAGE POWER

### LIMIT

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	9.40
Middle	2441	9.90
High	2480	9.90

## 7.5. POWER SPECTRAL DENSITY

### LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

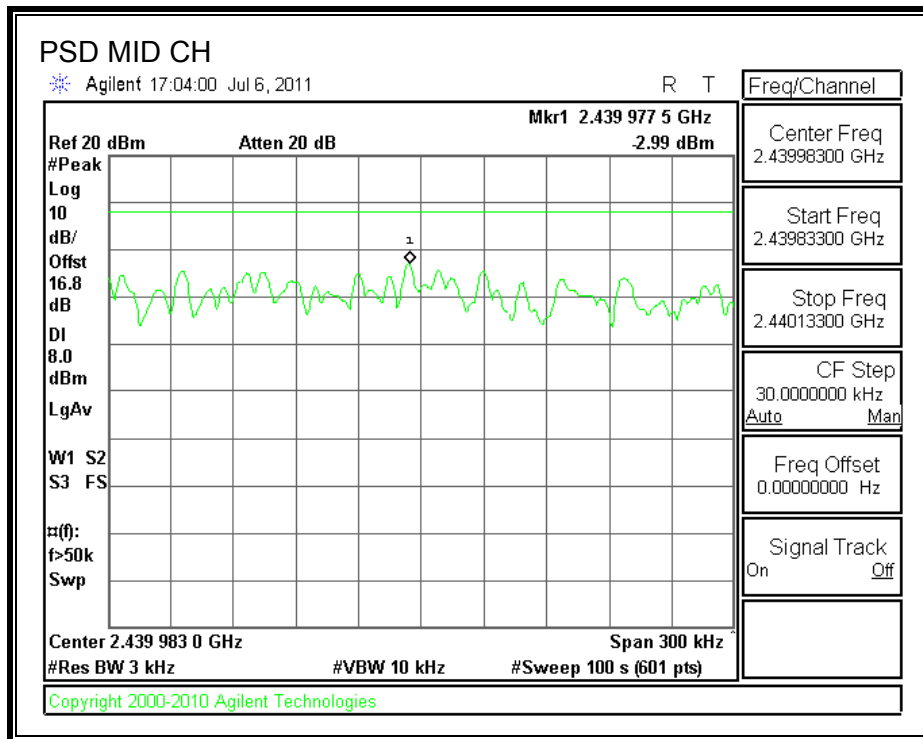
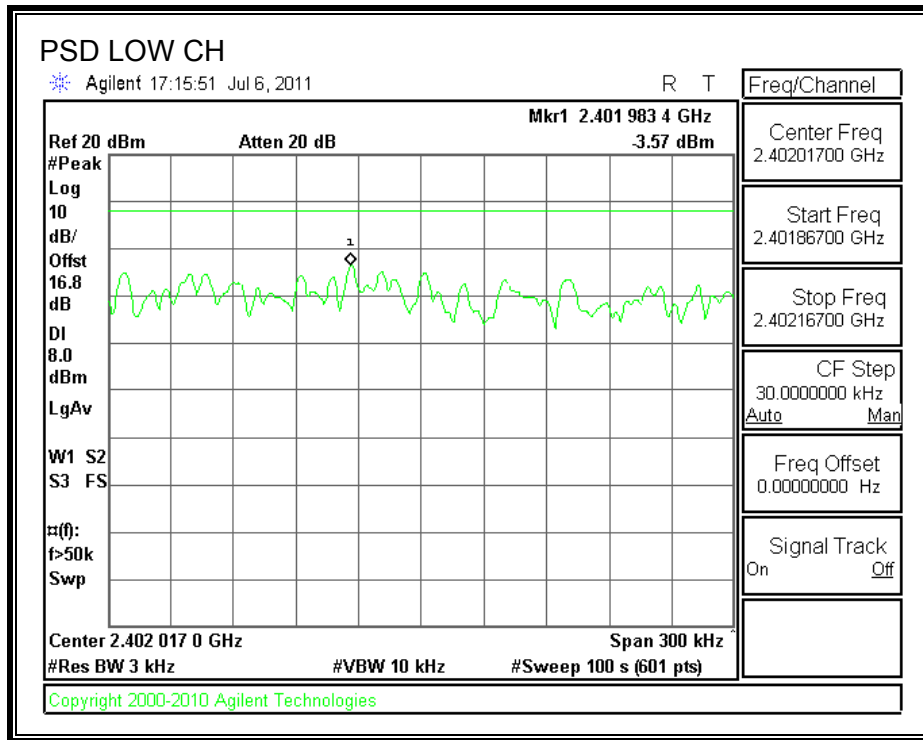
### TEST PROCEDURE

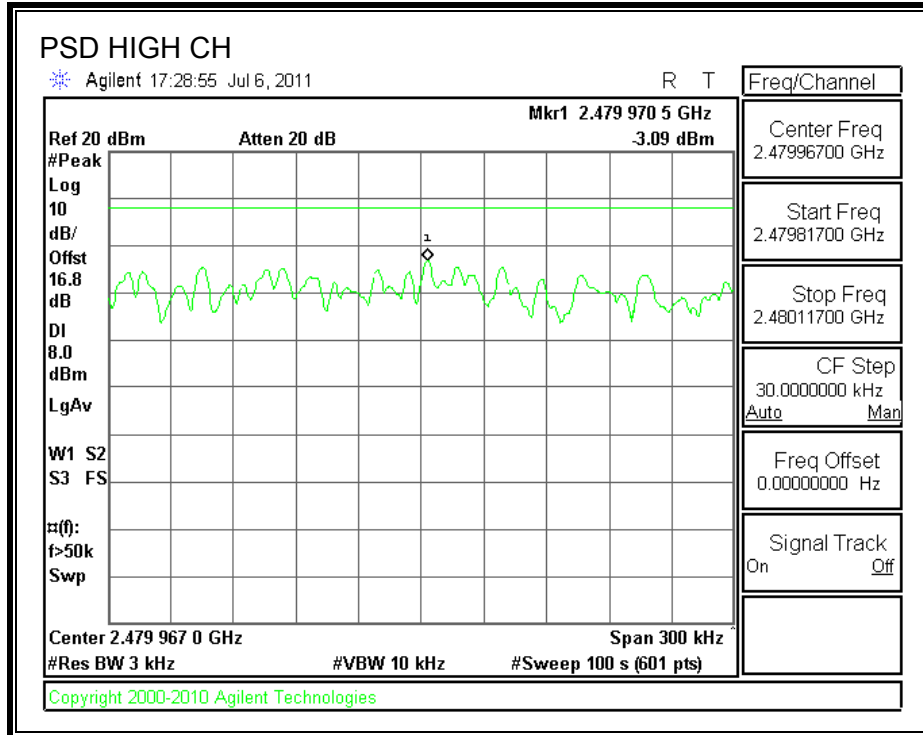
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

### RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-3.57	8	-11.57
Middle	2440	-2.99	8	-10.99
High	2480	-3.09	8	-11.09

**POWER SPECTRAL DENSITY**







## **7.6. CONDUCTED SPURIOUS EMISSIONS**

### **LIMITS**

FCC §15.247 (d)

Limit = -20 dBc

### **TEST PROCEDURE**

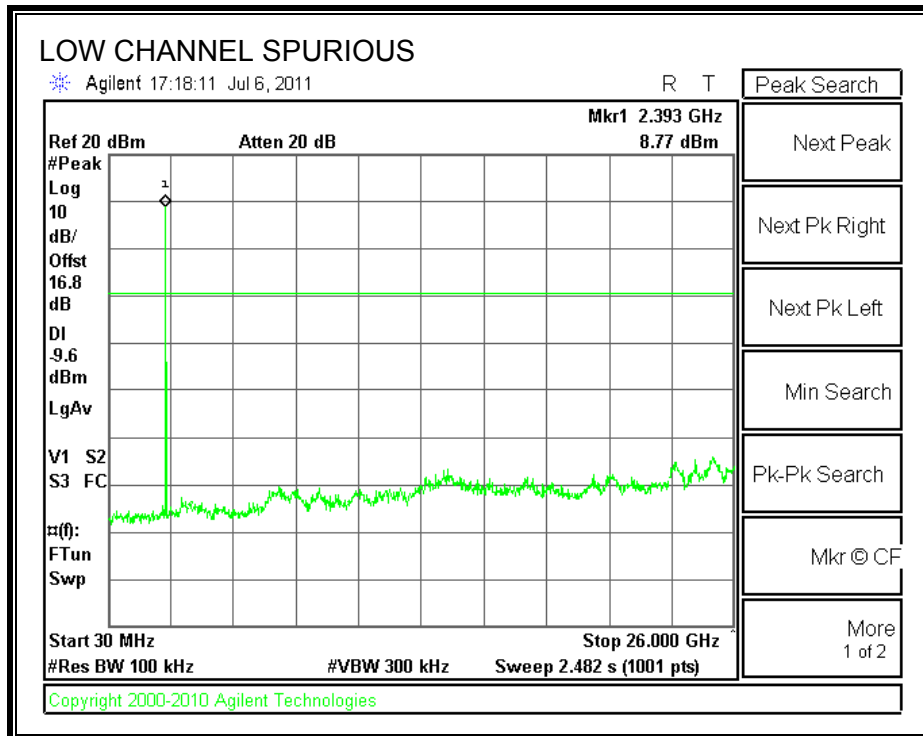
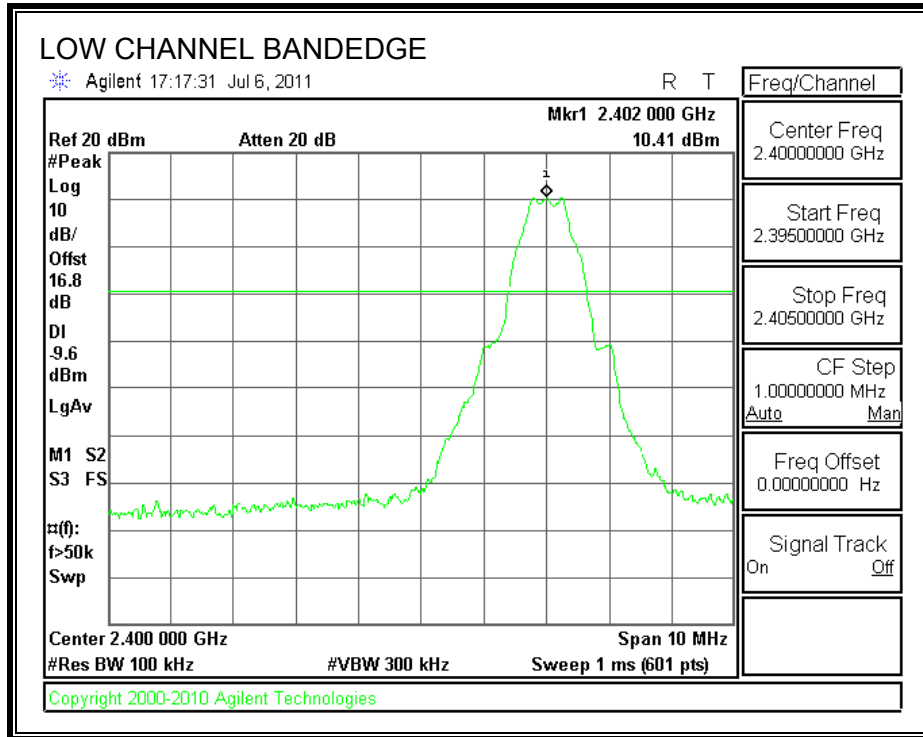
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

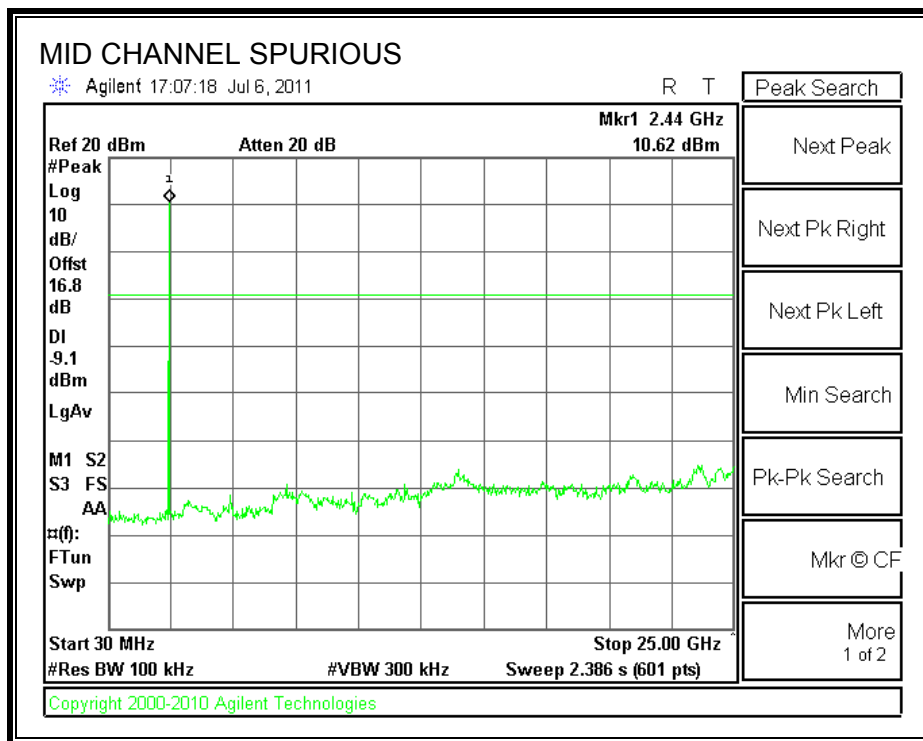
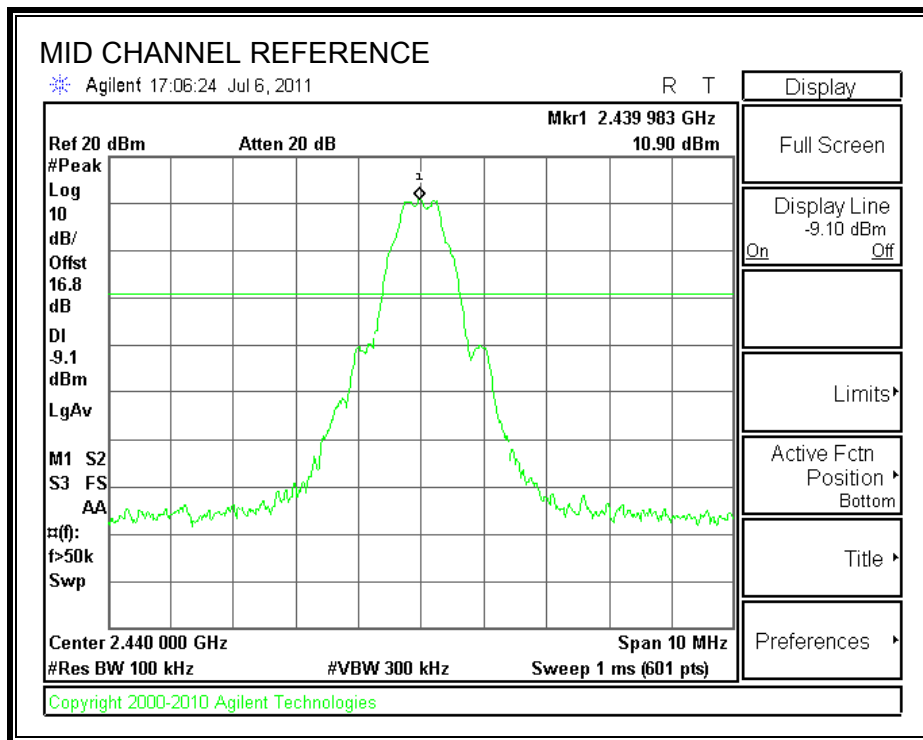
The band edges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

### **RESULTS**

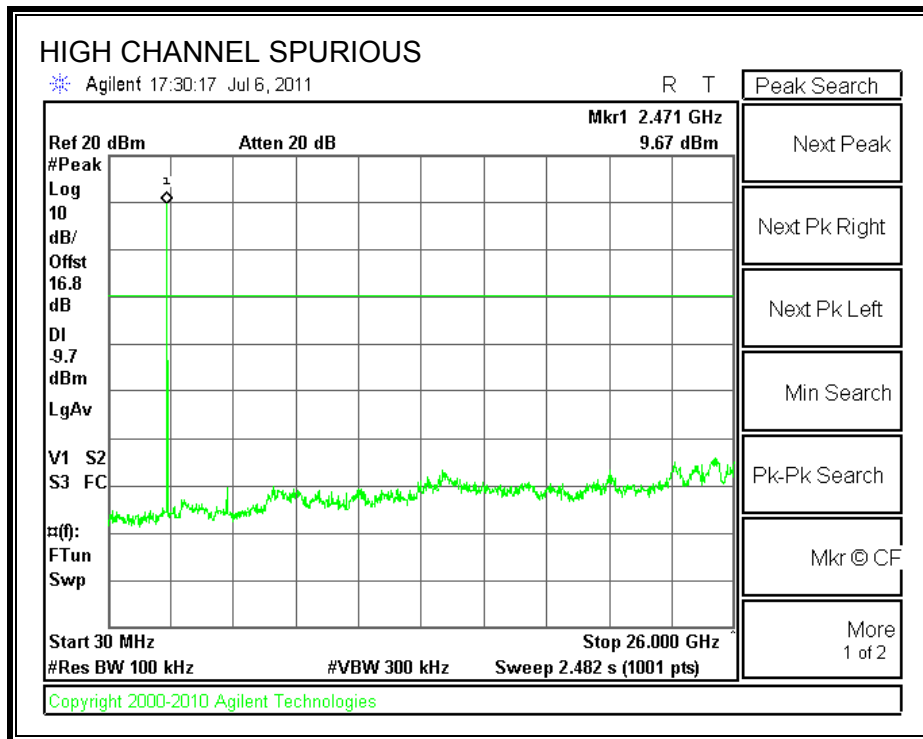
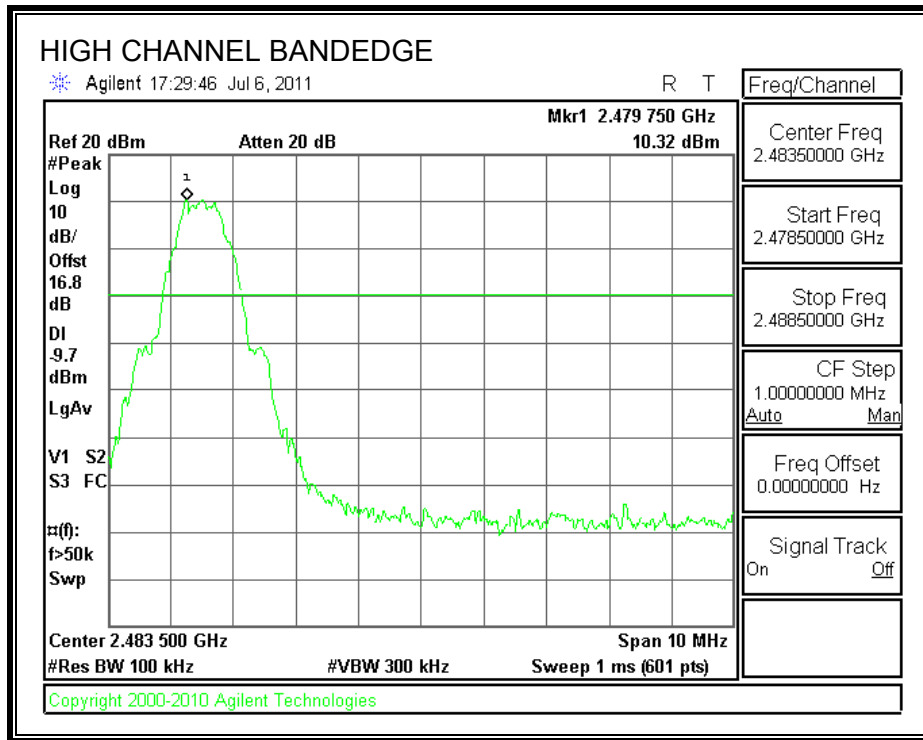
**SPURIOUS EMISSIONS, LOW CHANNEL**



**SPURIOUS EMISSIONS, MID CHANNEL**



**SPURIOUS EMISSIONS, HIGH CHANNEL**



## **BOM VARIANT 2**

### **7.7. OUTPUT POWER**

#### **LIMIT**

§15.247 (b) (1)

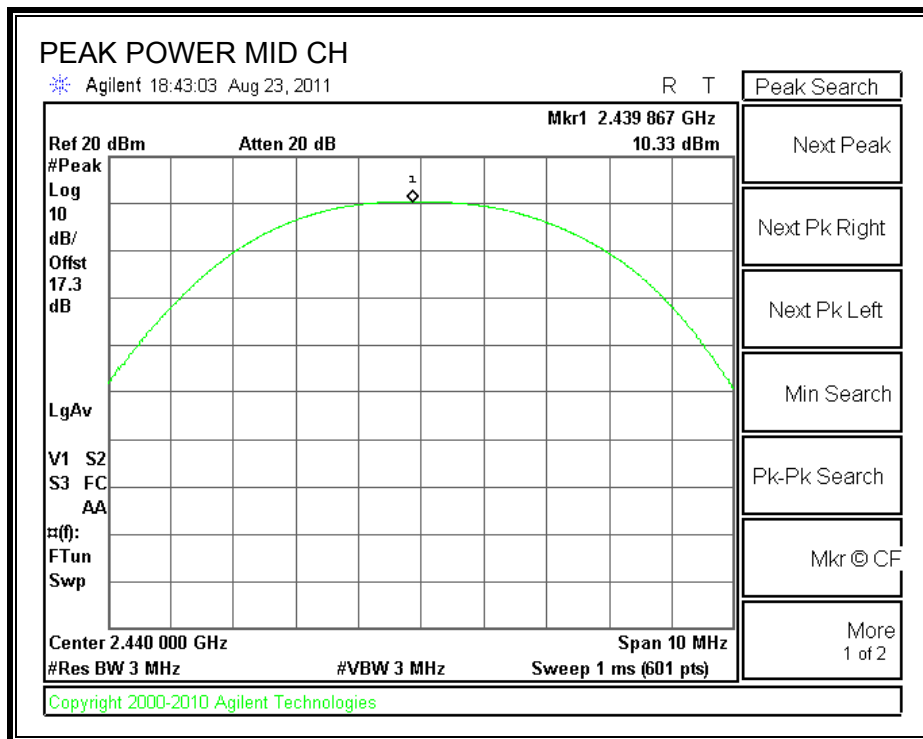
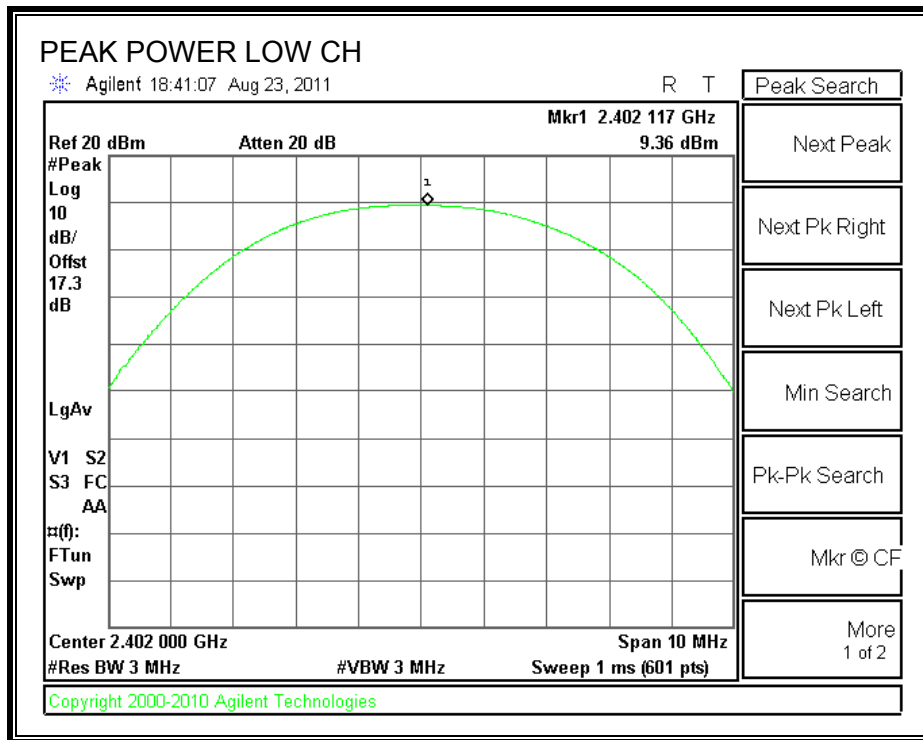
The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

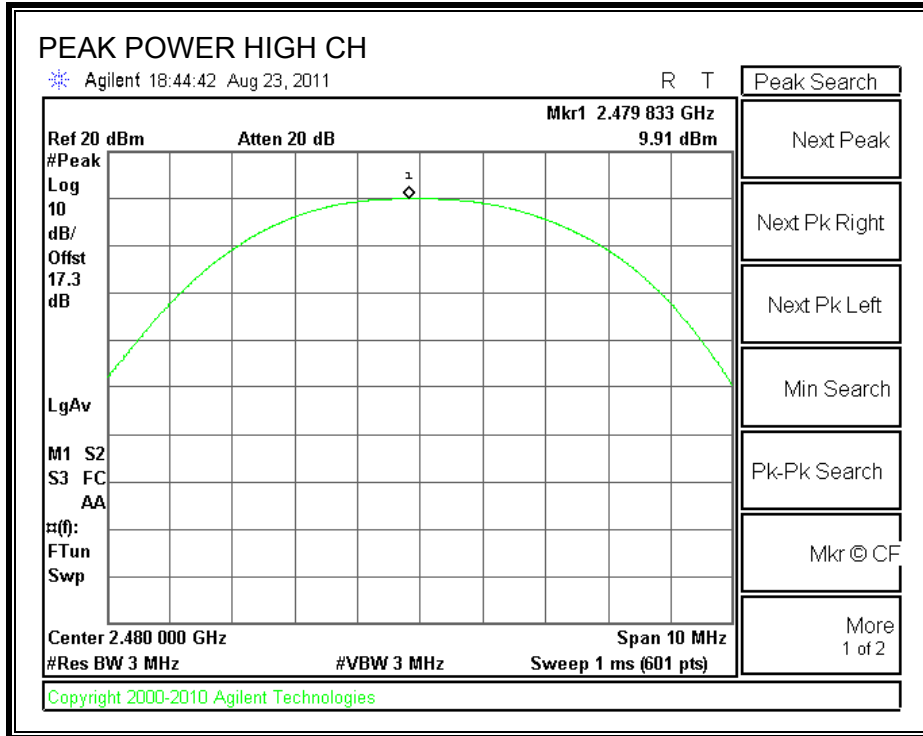
#### **TEST PROCEDURE**

The transmitter output is connected to a spectrum analyzer, and the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

#### **RESULTS**

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Output Power (dBm)</b>	<b>Limit (dBm)</b>	<b>Margin (dB)</b>
Low	2402	9.36	30	-20.64
Middle	2440	10.33	30	-19.67
High	2480	9.91	30	-20.09





## 7.8. AVERAGE POWER

### LIMIT

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	8.70
Middle	2441	9.40
High	2480	9.10



### **BOM VARIANT 3**

#### **7.9. OUTPUT POWER**

##### **LIMIT**

§15.247 (b) (1)

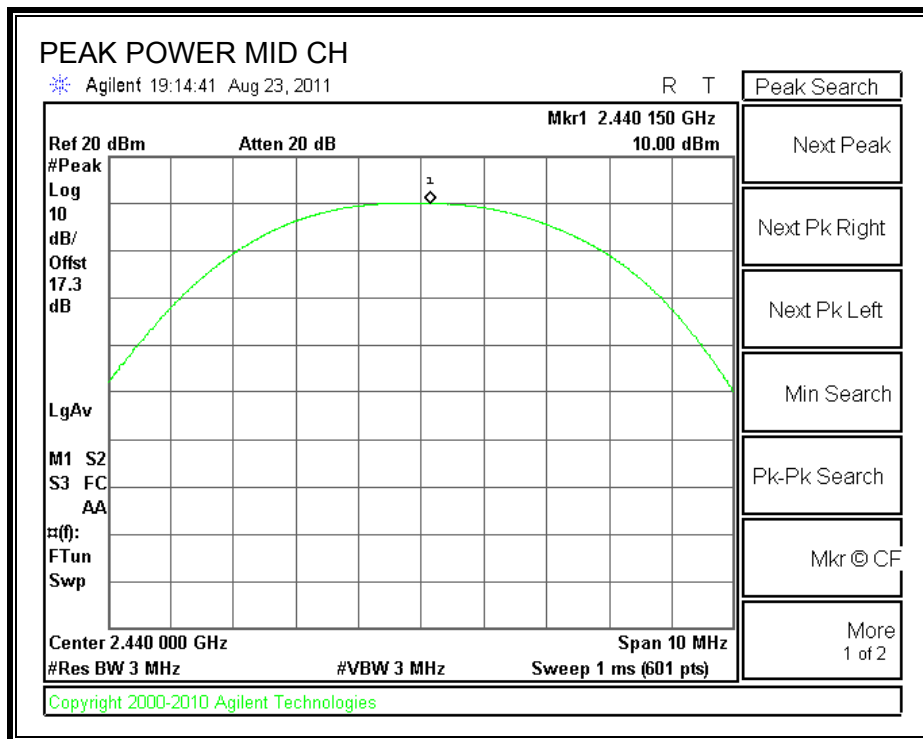
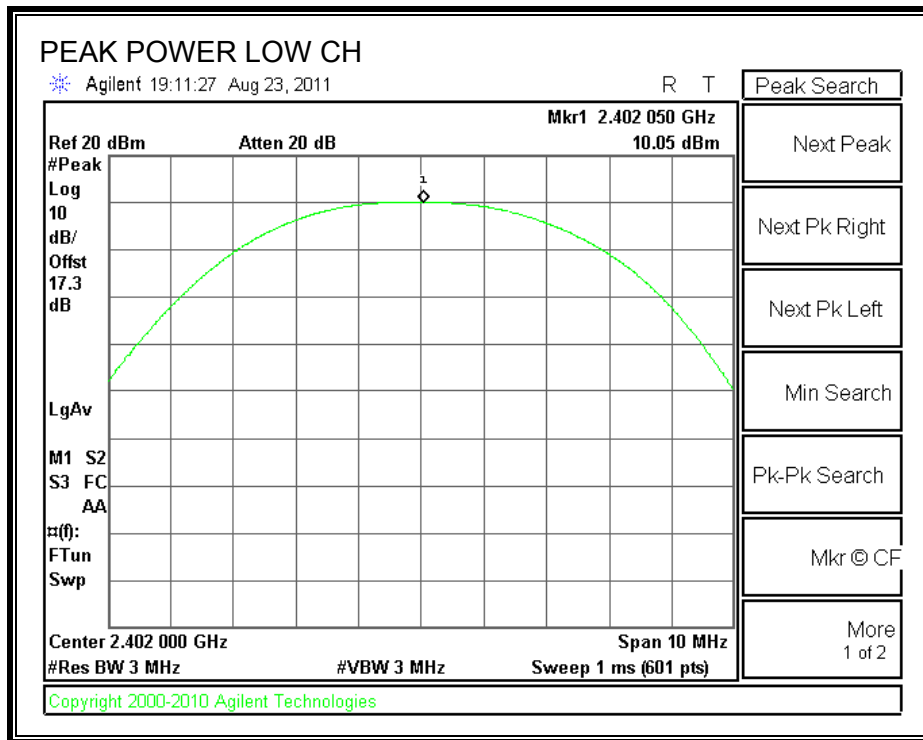
The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

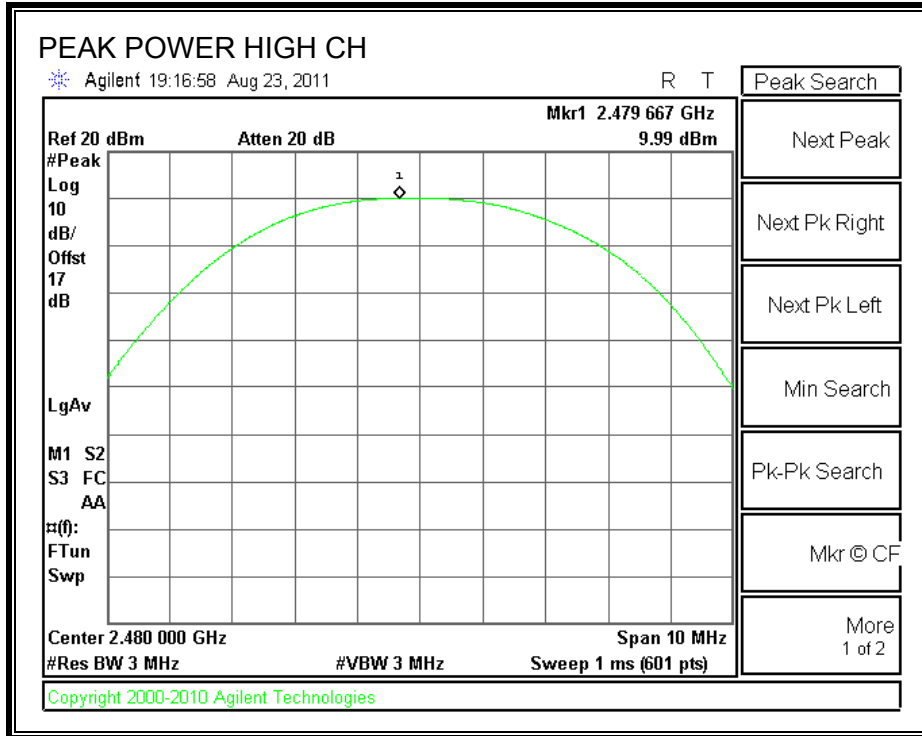
##### **TEST PROCEDURE**

The transmitter output is connected to a spectrum analyzer, and the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

##### **RESULTS**

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Output Power (dBm)</b>	<b>Limit (dBm)</b>	<b>Margin (dB)</b>
Low	2402	10.05	30	-19.95
Middle	2440	10.00	30	-20.00
High	2480	9.99	30	-20.01





## 7.10. AVERAGE POWER

### LIMIT

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	9.40
Middle	2441	9.40
High	2480	9.50

## 8. RADIATED TEST RESULTS

### 8.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

#### TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

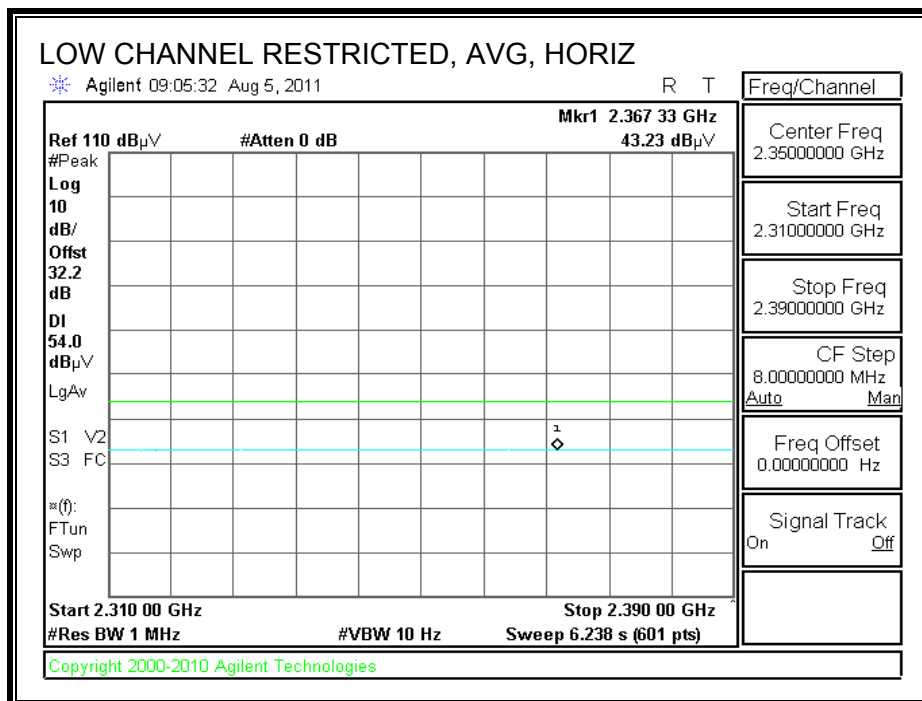
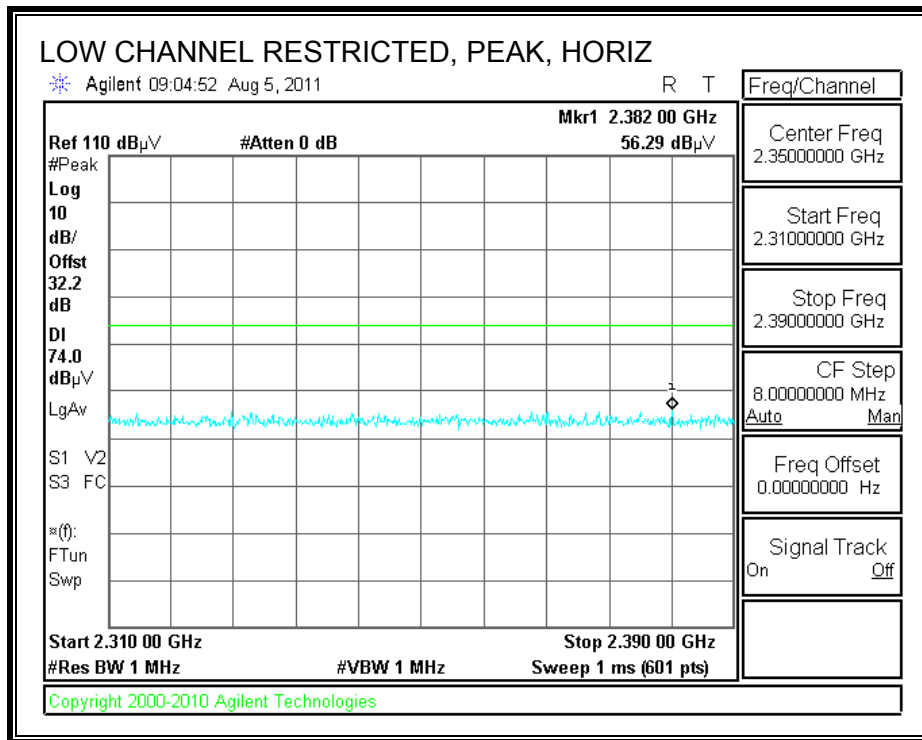
For 2.4 GHz band, the spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

For 5.8 GHz band, the spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

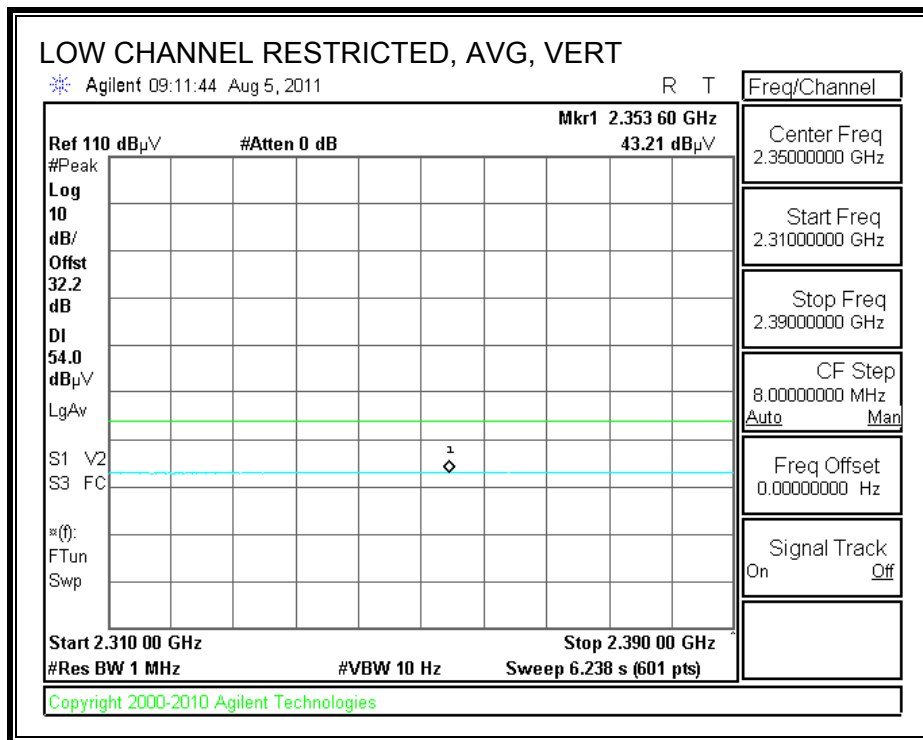
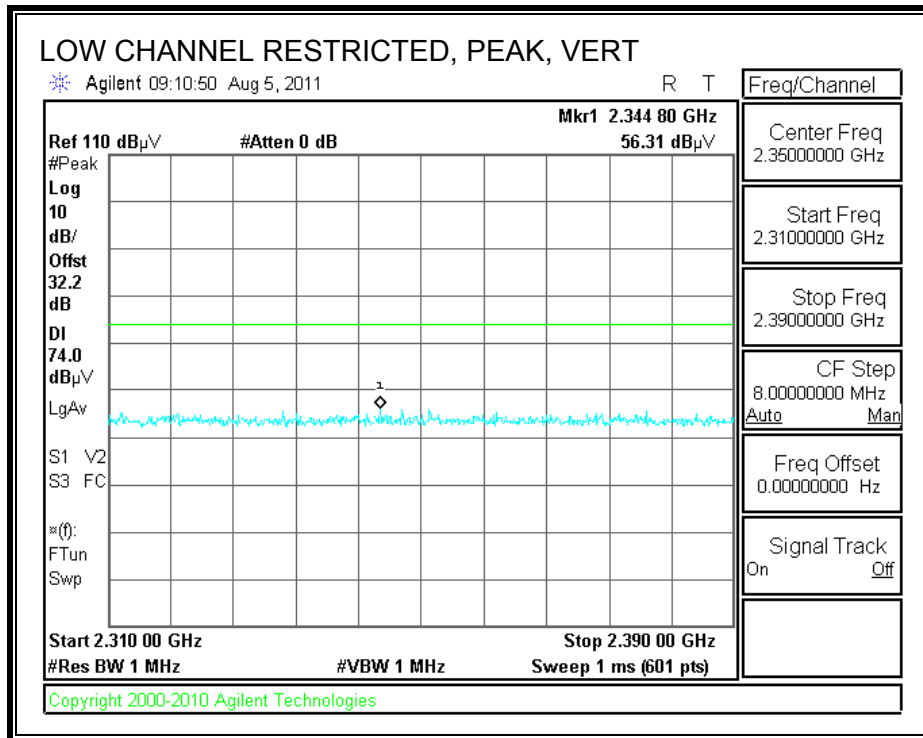
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

## 8.2. TRANSMITTER ABOVE 1 GHz

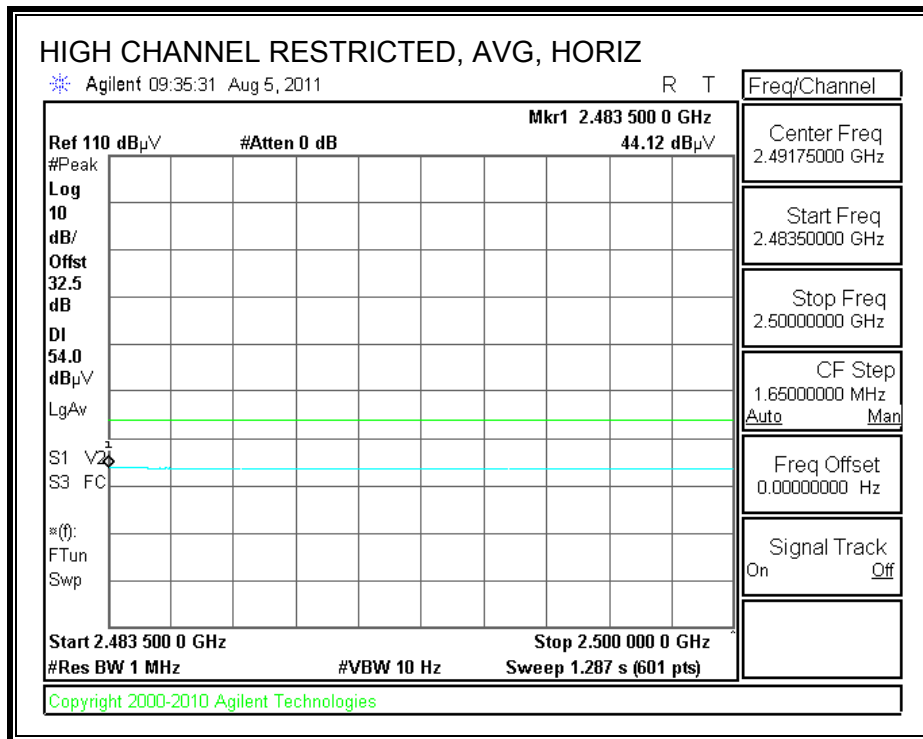
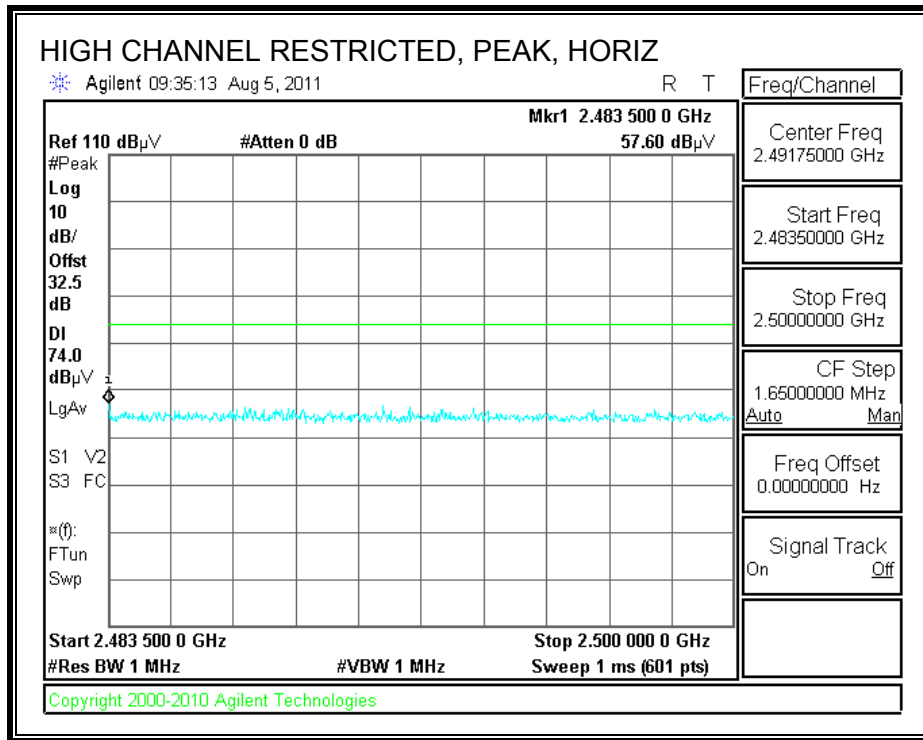
### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

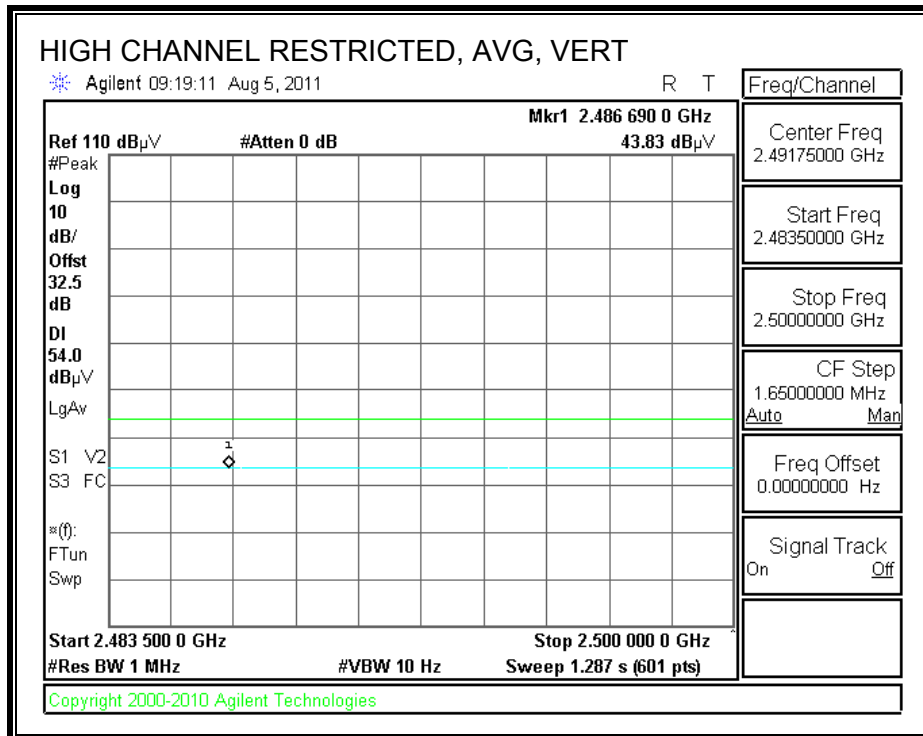
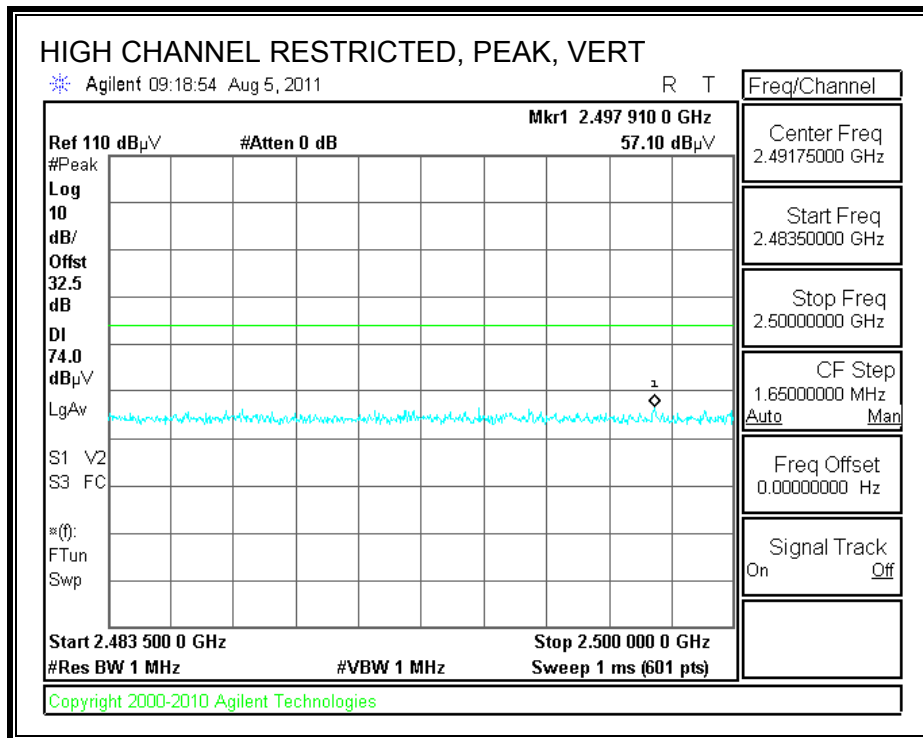


**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





**RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**



**HARMONICS AND SPURIOUS EMISSIONS**

High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		08/05/11											
Project #:		11U13896											
Company:		Apple											
Test Target:		FCC 15.247											
Mode Oper:		TX, BLE											
f	Measurement Frequency			Amp	Preamp Gain			Average Field Strength Limit					
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Peak Field Strength Limit					
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Margin vs. Average Limit					
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Margin vs. Peak Limit					
CL	Cable Loss			HPF	High Pass Filter								
f	Dist	Read	AF	CL	Amp	D Corr	Filtr	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
<b>low ch, 2402MHz</b>													
4.804	3.0	47.2	33.1	6.3	-34.8	0.0	0.0	51.8	74.0	-22.2	V	P	
4.804	3.0	36.2	33.1	6.3	-34.8	0.0	0.0	40.8	54.0	-13.2	V	A	
4.804	3.0	48.5	33.1	6.3	-34.8	0.0	0.0	53.1	74.0	-20.9	H	P	
4.804	3.0	37.1	33.1	6.3	-34.8	0.0	0.0	41.7	54.0	-12.3	H	A	
<b>Mid Ch, 2440MHz</b>													
4.880	3.0	45.6	33.2	6.3	-34.8	0.0	0.0	50.4	74.0	-23.6	V	P	
4.880	3.0	35.0	33.2	6.3	-34.8	0.0	0.0	39.7	54.0	-14.3	V	A	
7.320	3.0	37.4	36.2	8.5	-34.9	0.0	0.0	47.2	74.0	-26.8	V	P	
7.320	3.0	24.6	36.2	8.5	-34.9	0.0	0.0	34.4	54.0	-19.6	V	A	
4.880	3.0	45.1	33.2	6.3	-34.8	0.0	0.0	49.9	74.0	-24.1	H	P	
4.880	3.0	34.5	33.2	6.3	-34.8	0.0	0.0	39.2	54.0	-14.8	H	A	
7.320	3.0	37.9	36.2	8.5	-34.9	0.0	0.0	47.6	74.0	-26.4	H	P	
7.320	3.0	25.2	36.2	8.5	-34.9	0.0	0.0	35.0	54.0	-19.0	H	A	
<b>High Ch, 2480MHz</b>													
4.960	3.0	46.0	33.3	6.4	-34.8	0.0	0.0	50.9	74.0	-23.1	V	P	
4.960	3.0	35.2	33.3	6.4	-34.8	0.0	0.0	40.1	54.0	-13.9	V	A	
7.440	3.0	38.1	36.4	8.5	-34.9	0.0	0.0	48.1	74.0	-25.9	V	P	
7.440	3.0	24.7	36.4	8.5	-34.9	0.0	0.0	34.7	54.0	-19.3	V	A	
4.960	3.0	44.4	33.3	6.4	-34.8	0.0	0.0	49.3	74.0	-24.7	H	P	
4.960	3.0	33.7	33.3	6.4	-34.8	0.0	0.0	38.6	54.0	-15.4	H	A	
7.440	3.0	37.2	36.4	8.5	-34.9	0.0	0.0	47.2	74.0	-26.8	H	P	
7.440	3.0	24.9	36.4	8.5	-34.9	0.0	0.0	34.8	54.0	-19.2	H	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

### 8.3. RECEIVER ABOVE 1 GHz

**High Frequency Measurement**  
 Compliance Certification Services, Fremont 5m Chamber-B

**Company:** Apple  
**Project #:** 11U13896  
**Date:** 8/5/2011  
**Test Engineer:** Chin Pang  
**Configuration:** EUT with AC Adapter and Earphone  
**Mode:** RX mode, BLE

**Test Equipment:**

<b>Horn 1-18GHz</b>	<b>Pre-amplifier 1-26GHz</b>	<b>Pre-amplifier 26-40GHz</b>	<b>Horn &gt; 18GHz</b>	<b>Limit</b>
T59; S/N: 3245 @3m	T145 Agilent 3008A0056			RX RSS 210

Hi Frequency Cables

<b>3' cable 22807700</b>	<b>12' cable 22807600</b>	<b>20' cable 22807500</b>	<b>HPF</b>	<b>Reject Filter</b>	Peak Measurement RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500			Average Measurement RBW=1MHz ; VBW=1MHz

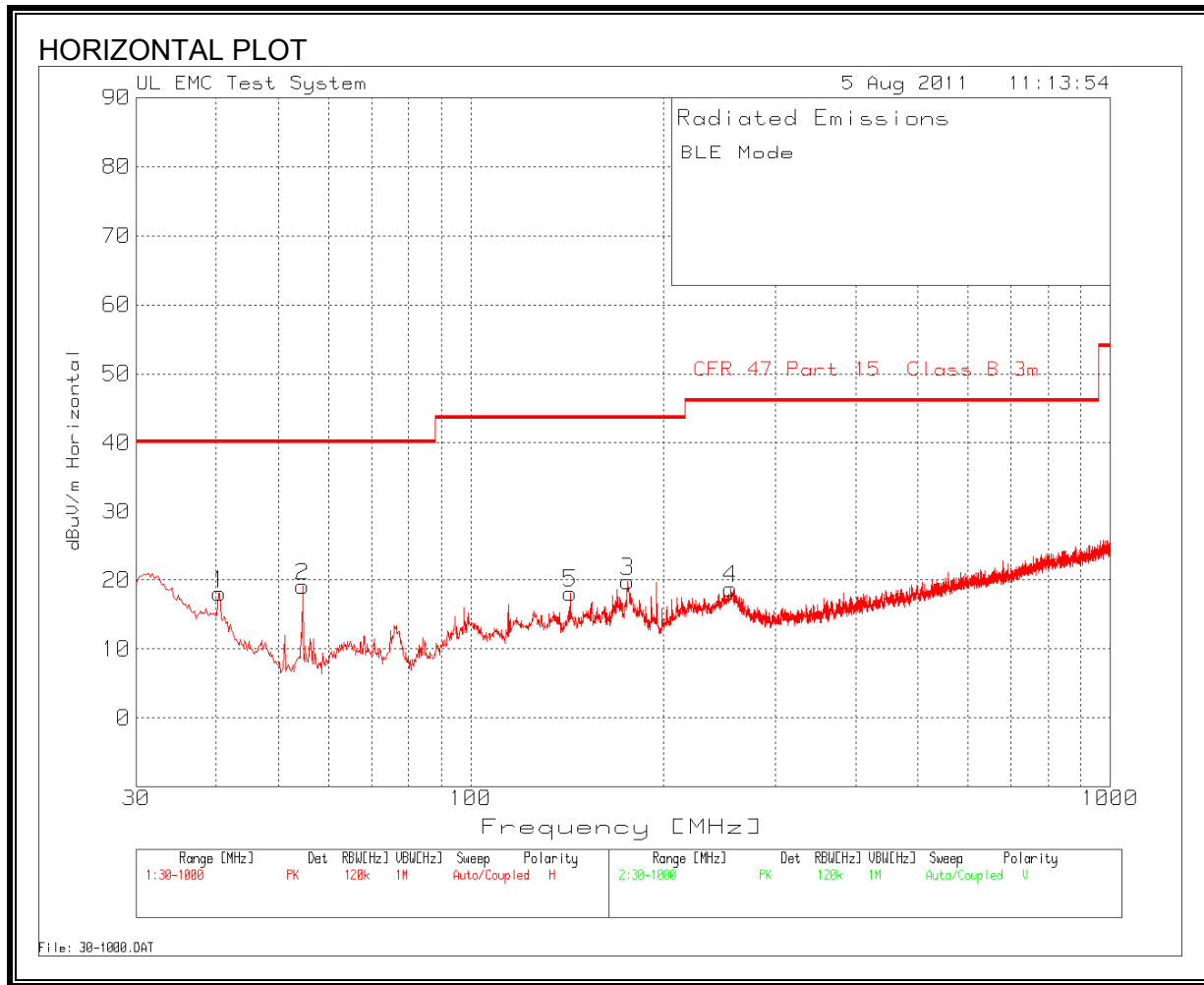
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
3.487	3.0	43.0	30.4	31.4	5.3	-35.0	0.0	0.0	44.6	32.0	74	54	-29.4	-22.0	H
3.973	3.0	45.0	36.0	32.1	5.7	-34.9	0.0	0.0	47.9	38.9	74	54	-26.1	-15.1	H
3.507	3.0	43.2	31.0	31.4	5.3	-35.0	0.0	0.0	44.8	32.6	74	54	-29.2	-21.4	V
3.960	3.0	52.3	39.5	32.1	5.7	-34.9	0.0	0.0	55.2	42.4	74	54	-18.8	-11.6	V

Rev. 07.08.11

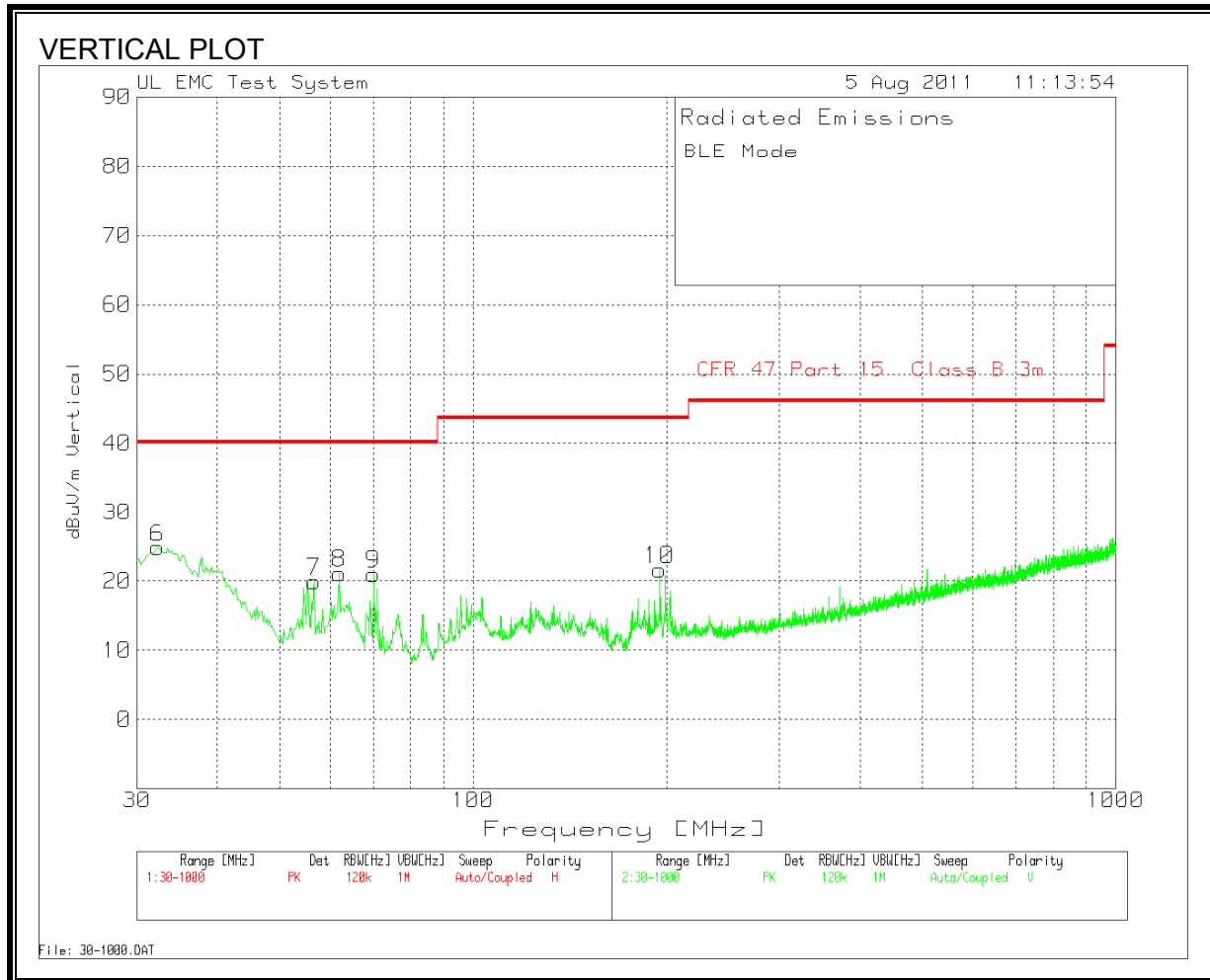
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

### 8.4. WORST-CASE BELOW 1 GHz

#### SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)**



Range 1 30 - 1000MHz									
Frequency	Reading	Detector	Cable.[dB]	PreAmp.[dB]	Bilog Factors[dBuV/m]	Part 15B 3m	Margin	Polarity	
40.4676	32.74	PK	0.9	-29.4	13.8	18.04	40	-21.96	Horz
54.6183	39.49	PK	1.1	-29.4	7.9	19.09	40	-20.91	Horz
175.9652	36.85	PK	1.8	-29	10.1	19.75	43.5	-23.75	Horz
255.054	33.34	PK	2.2	-28.7	11.9	18.74	46	-27.26	Horz
143.0116	32.59	PK	1.7	-29.2	13	18.09	43.5	-25.41	Horz
Range 2 30 - 1000MHz									
Frequency	Reading	Detector	Cable.[dB]	PreAmp.[dB]	Bilog Factors[dBuV/m]	Part 15B 3m	Margin	Polarity	
32.3261	34.1	PK	0.9	-29.5	19.3	24.8	40	-15.2	Vert
56.5568	40.31	PK	1.1	-29.4	7.9	19.91	40	-20.09	Vert
61.9844	41.39	PK	1.2	-29.4	7.9	21.09	40	-18.91	Vert
69.9321	40.9	PK	1.2	-29.4	8.3	21	40	-19	Vert
195.1559	37.02	PK	1.9	-28.9	11.6	21.62	43.5	-21.88	Vert

## 9. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

### TEST PROCEDURE

ANSI C63.4

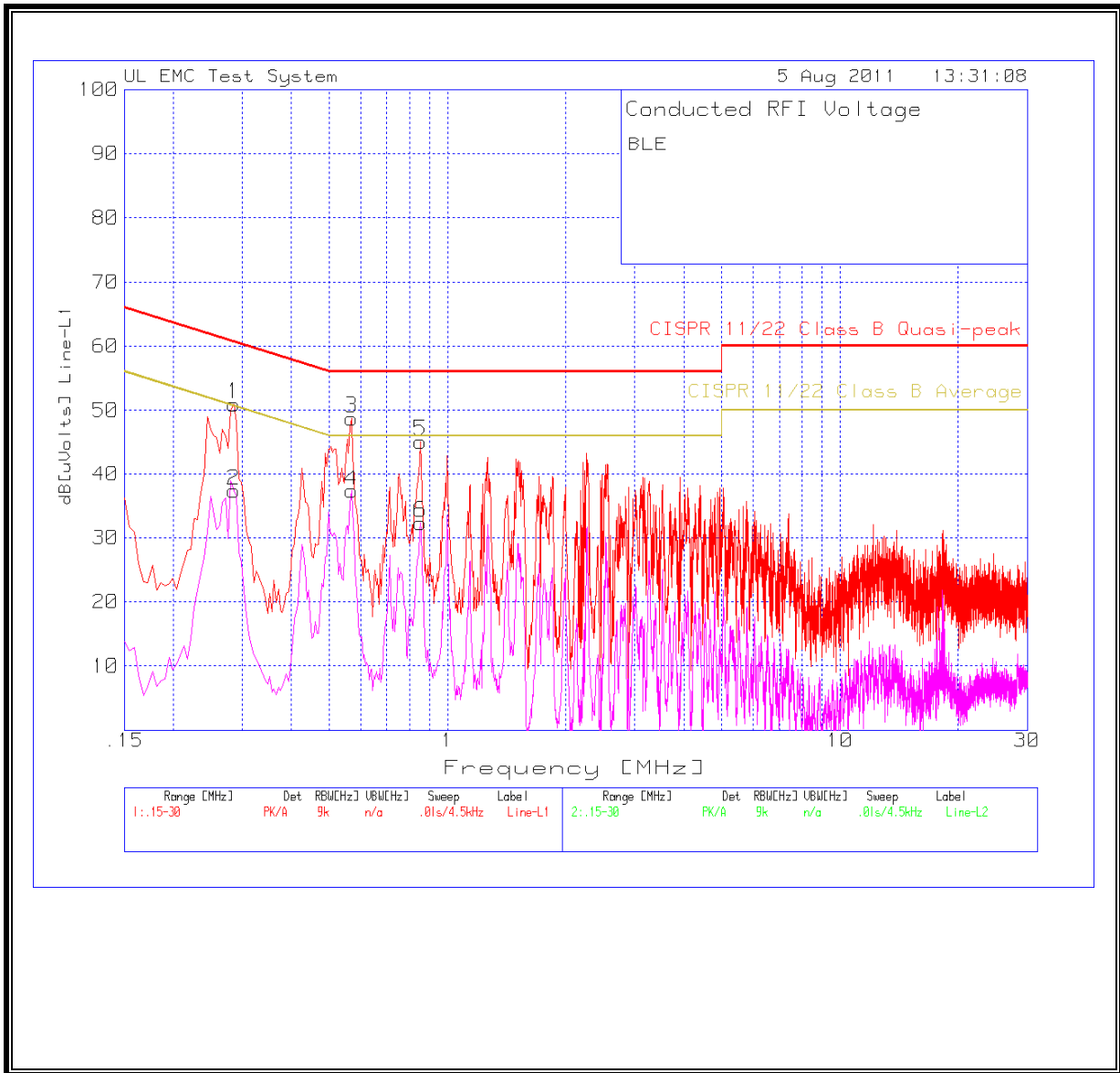
**RESULTS**

**6 WORST EMISSIONS**

Line-L1 .15 - 30MHz									
Frequency	Reading	Detector	LISN [dB]	Cable [dB]	dB[uVolts]	CISPRB Qp	Margin	CISPR B Avg	Margin
0.285	51	PK	0	0	51	60.7	-9.7	50.7	0.3
0.285	37.34	Av	0	0	37.34	-	-	50.7	-13.36
0.5685	48.74	PK	0	0	48.74	56	-7.26	46	2.74
0.5685	37.29	Av	0	0	37.29	-	-	46	-8.71
0.852	45.09	PK	0	0	45.09	56	-10.91	46	-0.91
0.852	32.3	Av	0	0	32.3	-	-	46	-13.7
Line-L2 .15 - 30MHz									
Frequency	Reading	Detector	LISN [dB]	Cable [dB]	dB[uVolts]	CISPRB Qp	Margin	CISPR B Avg	Margin
0.249	47.31	PK	0	0	47.31	61.8	-14.49	51.8	-4.49
0.249	34.47	Av	0	0	34.47	-	-	51.8	-17.33
0.5685	46.09	PK	0	0	46.09	56	-9.91	46	0.09
0.5685	38.81	Av	0	0	38.81	-	-	46	-7.19
0.8565	41.77	PK	0	0	41.77	56	-14.23	46	-4.23
0.8565	33.5	Av	0	0	33.5	-	-	46	-12.5



**LINE 1 RESULTS**



**LINE 2 RESULTS**

