



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

**CERTIFICATION TEST REPORT**

**FOR**

**WLAN MODULE**

**MODEL NUMBER: J27H023**

**FCC ID: MCLJ27H023  
IC: 2878D-J27H023**

**REPORT NUMBER: 11J13696-1, Revision A**

**ISSUE DATE: APRIL 14, 2011**

*Prepared for*  
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5F-1, 5 HSIN-AN ROAD  
HSINCHU SCIENCE-BASED INDUSTRIAL PARK  
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**NVLAP LAB CODE 200065-0**

Revision History

Rev.	Issue Date	Revisions	Revised By
--	04/11/11	Initial Issue	F. Ibrahim
A	04/14/11	Revised section 5.4 "Worst-case Configurations"	F. Ibrahim

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** HON HAI PRECISION IND. CO., LTD.  
5F-1, 5 HSIN-AN ROAD  
HSINCHU SCIENCE-BASED INDUSTRIAL PARK  
TAIWAN, R.O.C.

**EUT DESCRIPTION:** WLAN MODULE

**MODEL:** J27H023

**SERIAL NUMBER:** Radiated: EJF100030358 Foxconn Antenna Unit  
EJF100030372 Mitsumi Antenna Unit,  
Conducted: EJF100030013

**DATE TESTED:** MARCH 7-9 & APRIL 9, 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.

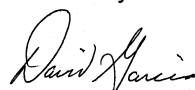
**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of 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:



FRANK IBRAHIM  
EMC SUPERVISOR  
UL CCS

Tested By:



DAVID GARCIA  
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:

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

### 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 EUT is a WLAN Module.

### 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)
2412 - 2472	802.11b	6.18	4.15
2412 - 2462	802.11g	10.16	10.38

The radio utilizes three different antennas as follow:

- 1) Mitsumi: DCA-P17 (PP2), Inverted F, -5.39 dBi.
- 2) Foxconn: 361.00194.005 Dipole, 1.15 dBi.
- 3) Foxconn: JSNT2502-15-00, Dipole, -5.1 dBi.

All tests were conducted using Mitsumi: DCA-P17 (PP2) and Foxconn: 361.00194.005.

### 5.3 SOFTWARE AND FIRMWARE

EUT Hardware version is 2.0.

Test Utility for RF:  
HOSTIO-ART ver. 1.8

Test Utility for EMC (link for both Game - Game / Game - AP):  
BASIC ver. 20100802.

## 5.4 WORST-CASE CONFIGURATIONS

The worst-case data rate for each mode is determined to be as follows, based on preliminary tests of the chipset utilized in this radio.

All final tests in the 802.11b mode were made at 1 Mb/s.  
All final tests in the 802.11g mode were made at 6 Mb/s.

For radiated emissions below 1 GHz the worst-case configuration is determined to be the mode and channel with the highest output power.

The EUT was investigated in three orthogonal orientations X,Y, and Z. Orientation Z was found to be worst-case orientation.

802.11b and 802.11 modes cover the same frequency range of 2412-2472 MHz, 802.11b output power is higher than 802.11 and 802.11 modulation type includes 802.11b modulation type, therefore, 802.11b was used as a representative mode for the two modes.

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## 5.5 DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop PC	HP	Pavillion dv1000	CNF63928VZ	DoC
AC Adapter	HP	380467-003	FX-0607269829	N/A
UIC-MIDI Interface	Kyoto Microcomputer Co.	Partner CTR	I0200120-UBA	N/A
EUT AC Adapter	Tabuchi	WAP-002(USA)	C3ET101	N/A

### I/O CABLES (ANTENNA PORT TEST CONFIGURATION)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	AC	Unshielded	1.8m	
2	DC	1	DC	Unshielded	1.8m	
3	USB	1	USB	Shielded	1.5m	
4	DC	1	Battery	Unshielded	1.5m	
5	AC	1	AC	Unshielded	1.5m	

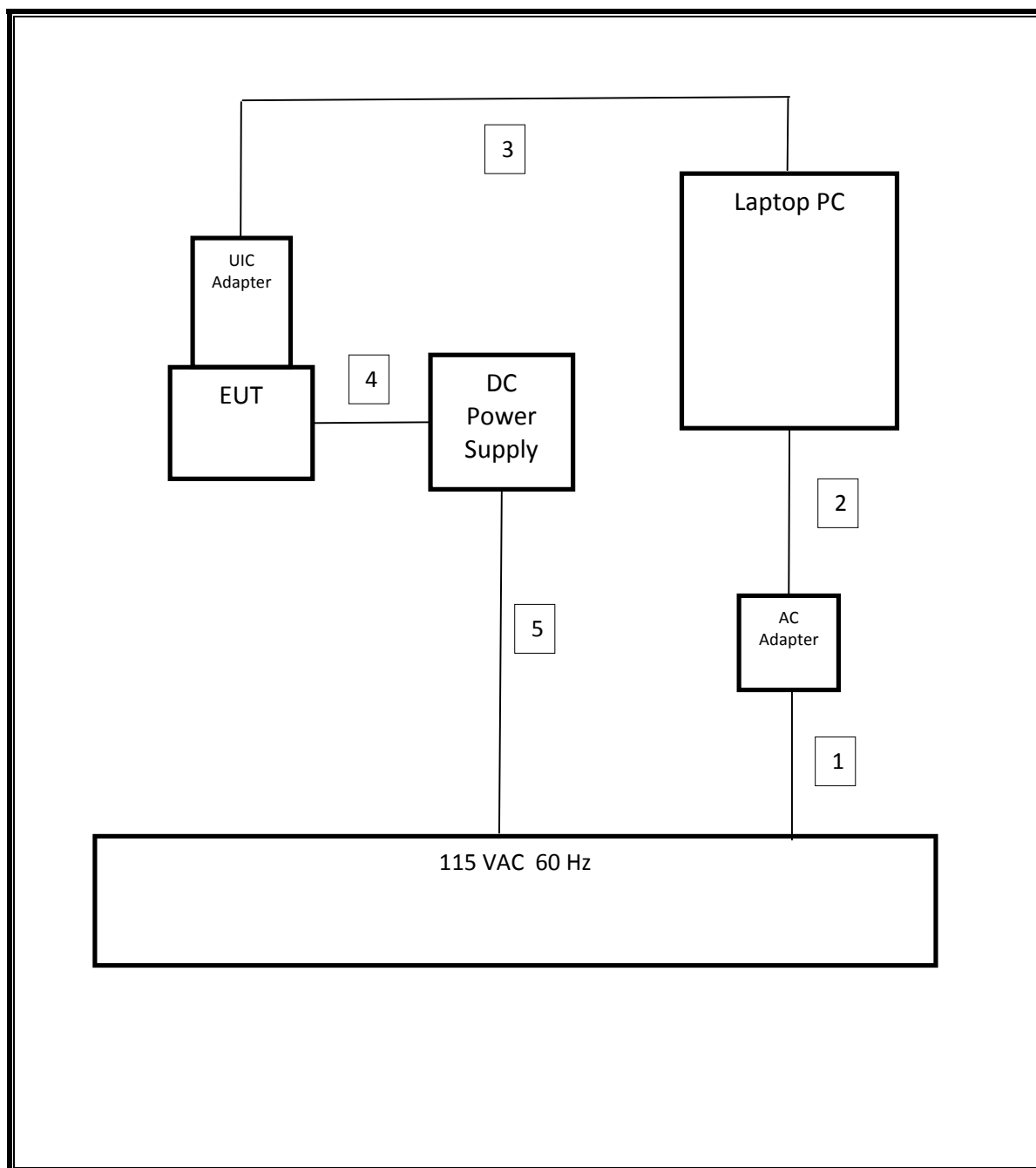
### I/O CABLES (RADIATED AND LINE CONDUCTED TEST CONFIGURATION)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	Unshielded	1.9m	

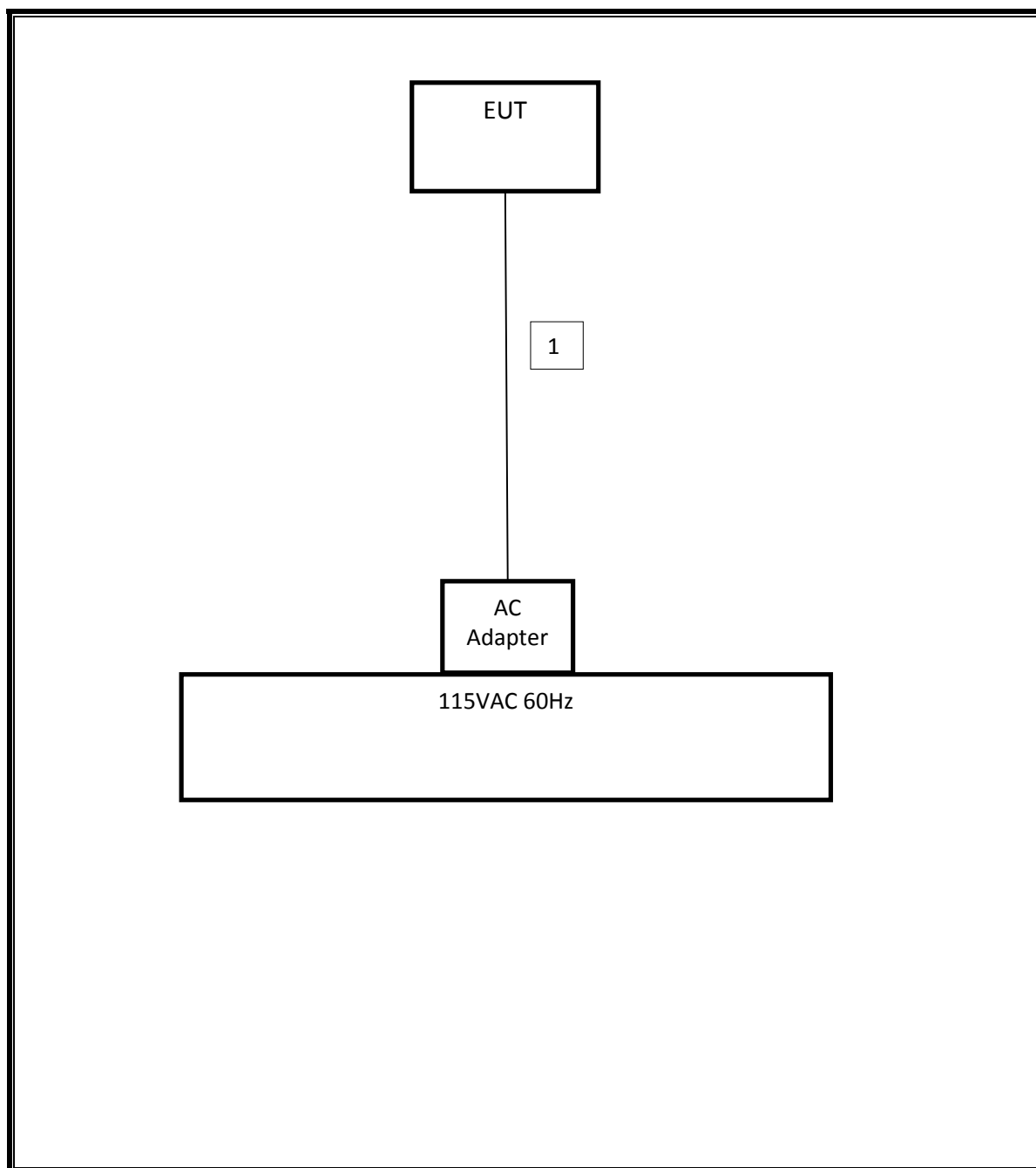
### TEST SETUP

The EUT is connected to a Jig card and host laptop computer via a USB cable during the tests. Test software exercised the radio card. The Jig card is removed after the setup.

**SETUP DIAGRAM FOR ANTENNA PORT TESTS**



**SETUP DIAGRAM FOR RADIATED EMISSIONS TESTS**



## 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 Date	Cal Due
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	1/19/2011	4/19/2012
Antenna, Bilog, 2 GHz	Sundt Sciences	JB1	C01011	7/12/2010	7/12/2011
Antenna, Horn, 18 GHz	EMCO	3115	C00945	6/29/2010	6/29/2011
Antenna, Horn 26 GHz	ARA	MMH-1826/B	C00589	6/26/2010	6/25/2011
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	1/27/2011	1/27/2012
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	7/14/2010	7/14/2011
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	8/6/2009	5/6/2011
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/2010	11/10/2011
Peak Power Meter	Boonton	4541	C01186	3/1/2010	3/1/2011
Peak Power Sensor	Boonton	57006	C01203	2/24/2010	2/24/2011

## 7 ANTENNA PORT TEST RESULTS

### 7.3 802.11b MODE IN THE 2.4 GHz BAND

#### 7.3.1 6 dB BANDWIDTH

##### LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

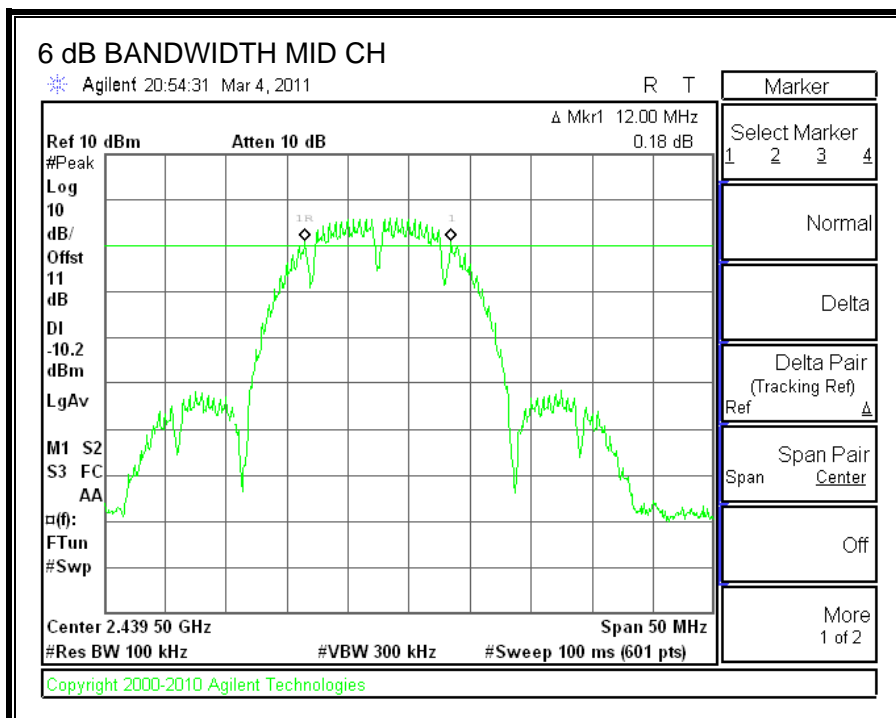
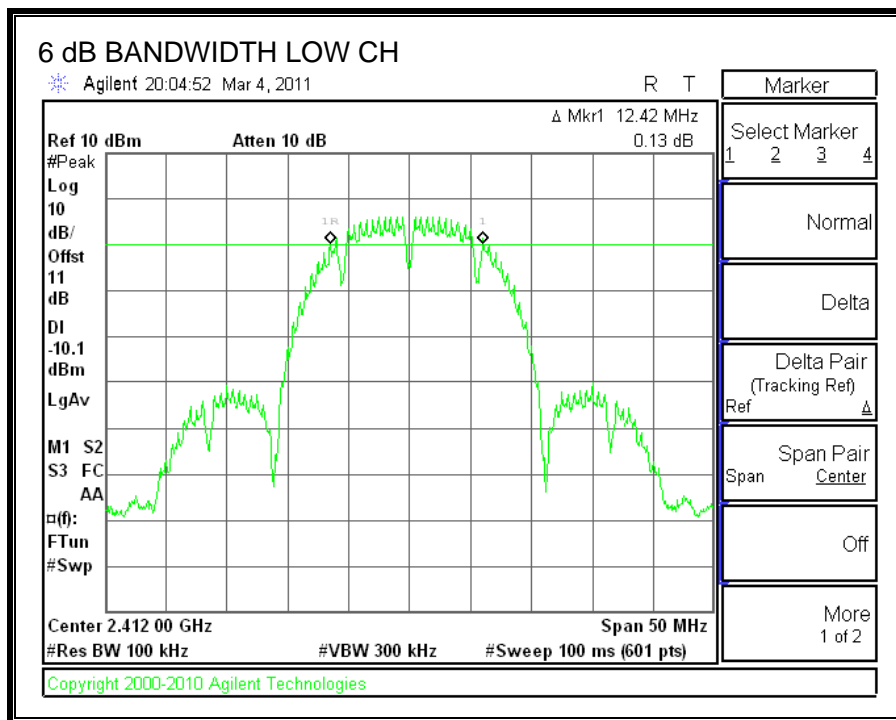
##### TEST PROCEDURE

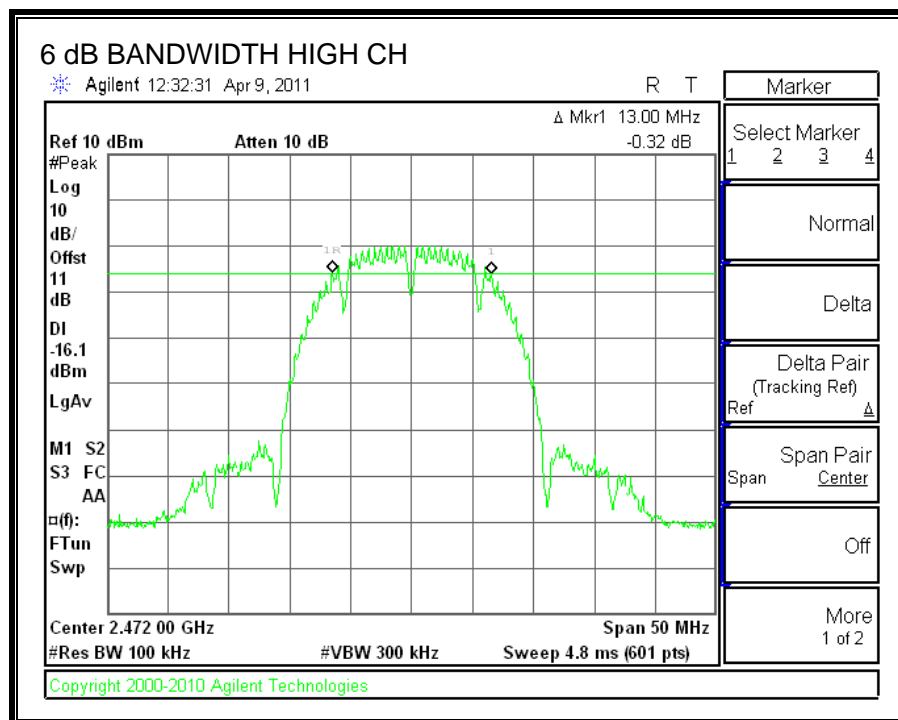
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

##### RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	12.42	0.5
Middle	2437	12.00	0.5
High	2472	13.00	0.5

## 6 dB BANDWIDTH





### 7.3.2 99% BANDWIDTH

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

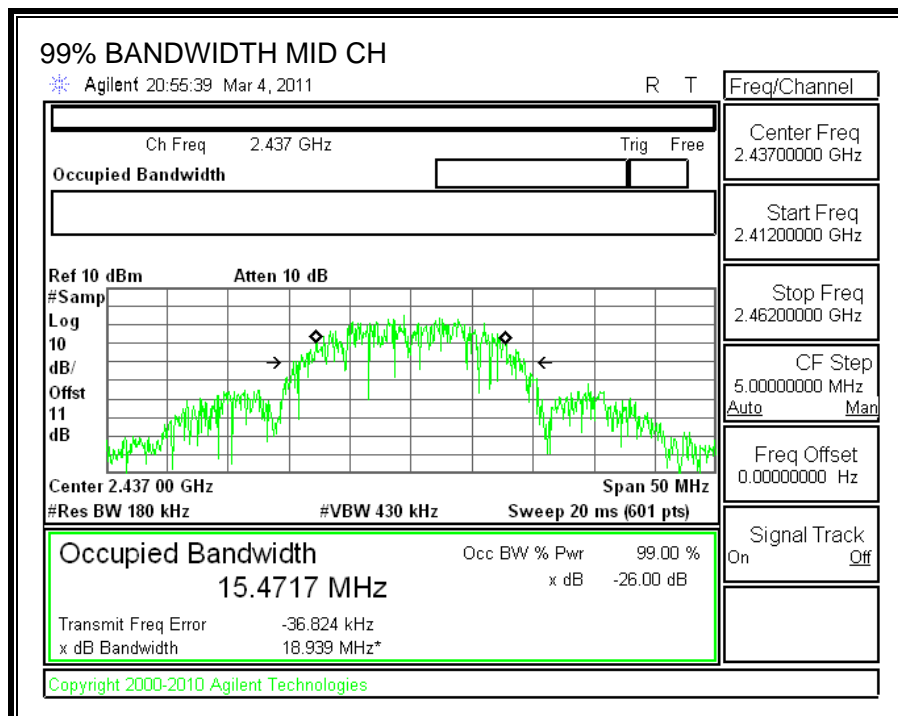
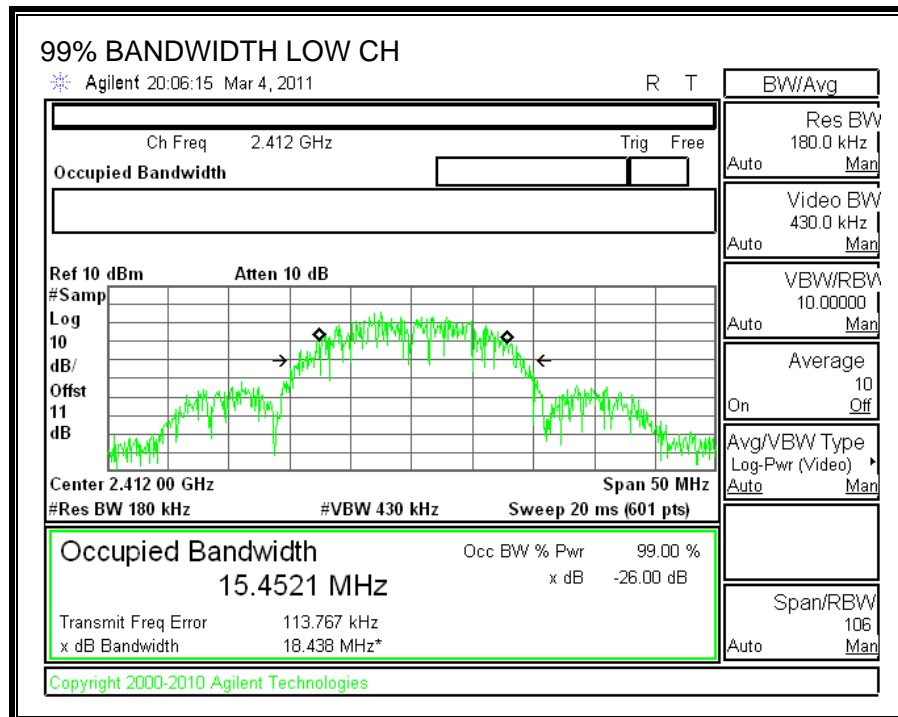
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

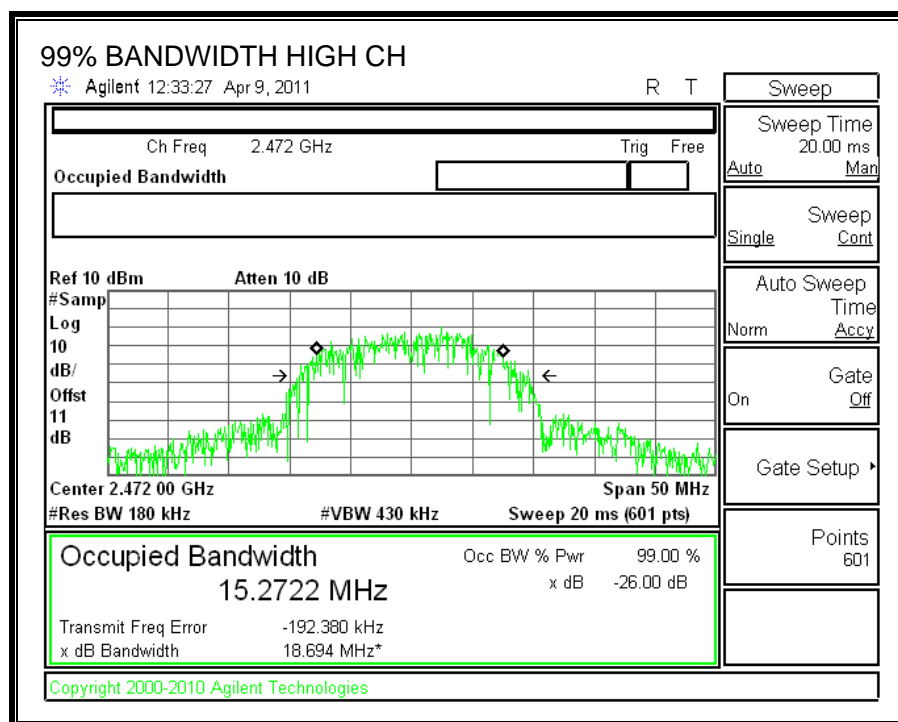
#### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.4521
Middle	2437	15.4717
High	2472	15.2722



**99% BANDWIDTH**





### 7.3.3 OUTPUT POWER

#### LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

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

#### TEST PROCEDURE

Peak power is measured using a wide bandwidth Peak Power Meter.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

#### RESULTS

Channel	Frequency (MHz)	Power Meter Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	6.01	30	-23.99
Middle	2437	6.18	30	-23.82
High	2472	0.84	30	-29.16

### 7.3.4 AVERAGE POWER

#### LIMITS

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 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	5.81
Middle	2437	5.95
High	2472	-0.24

### 7.3.5 POWER SPECTRAL DENSITY

#### LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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.

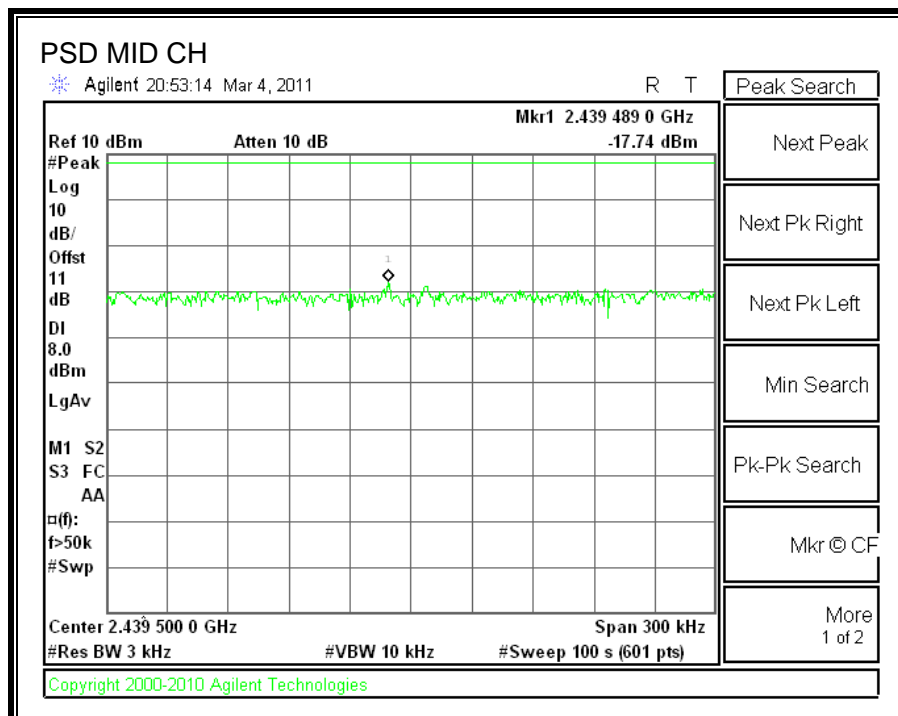
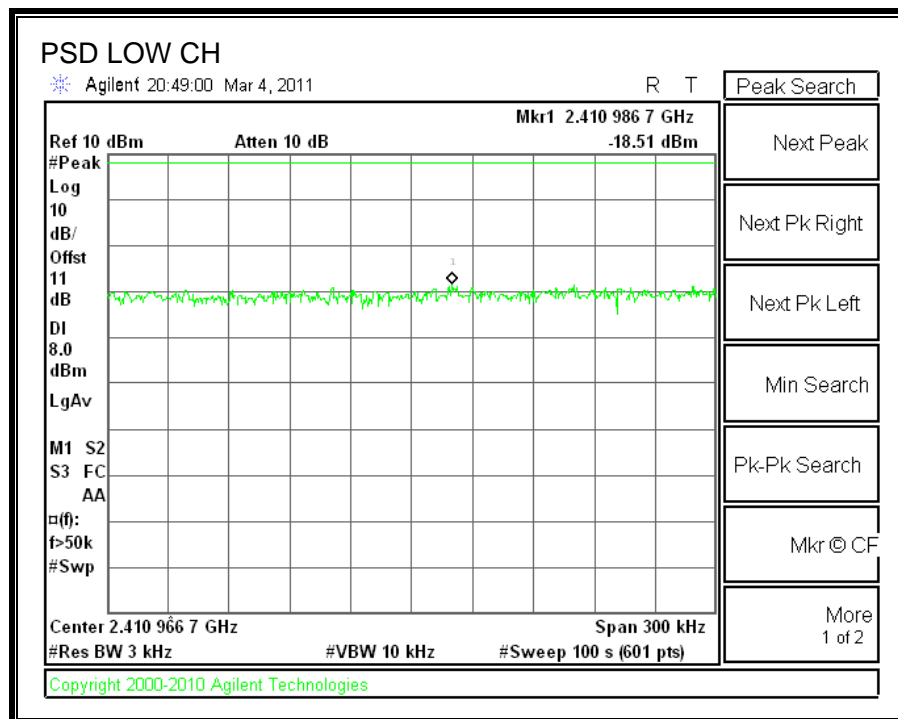
#### TEST PROCEDURE

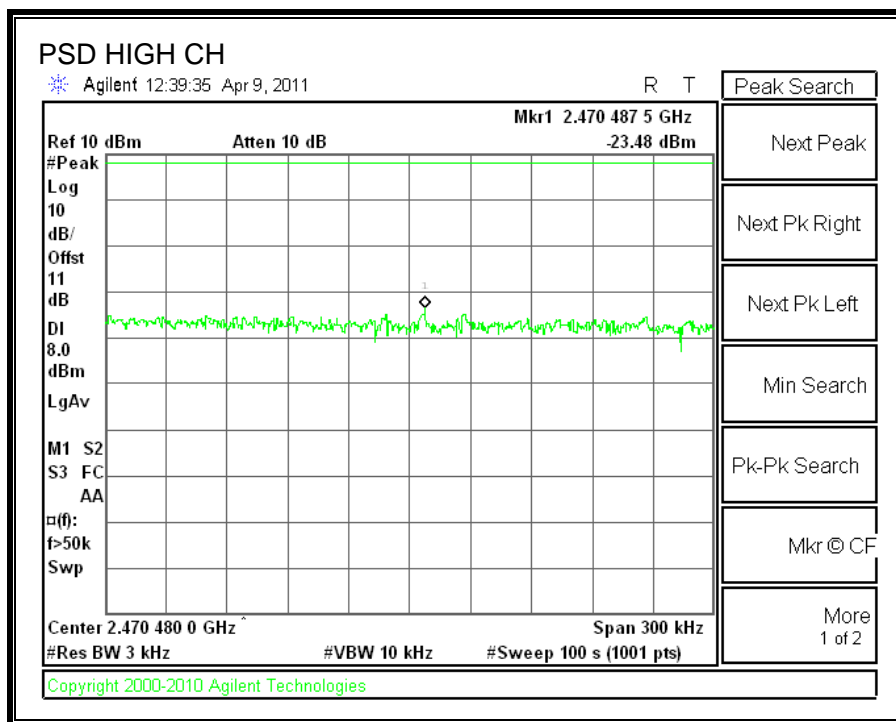
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

#### RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-18.51	8	-26.51
Middle	2437	-17.74	8	-25.74
High	2472	-23.48	8	-31.48

# POWER SPECTRAL DENSITY





### **7.3.6 CONDUCTED SPURIOUS EMISSIONS**

#### **LIMITS**

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

#### **TEST PROCEDURE**

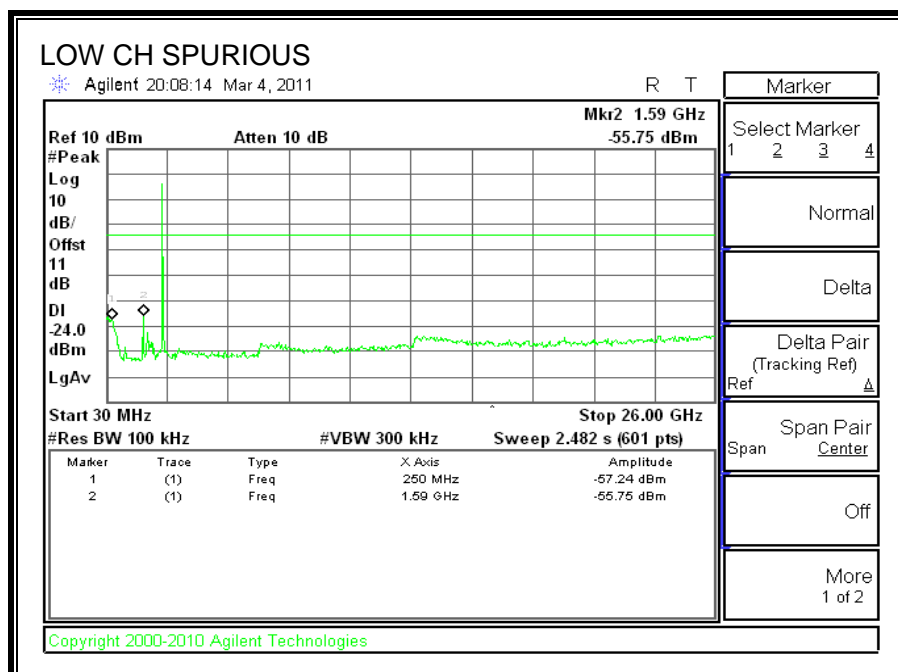
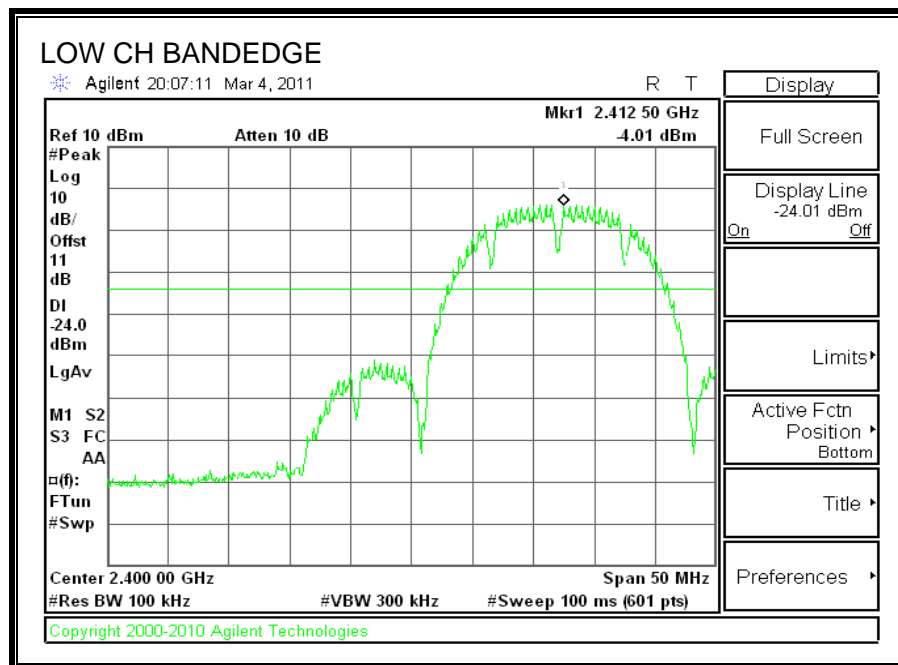
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

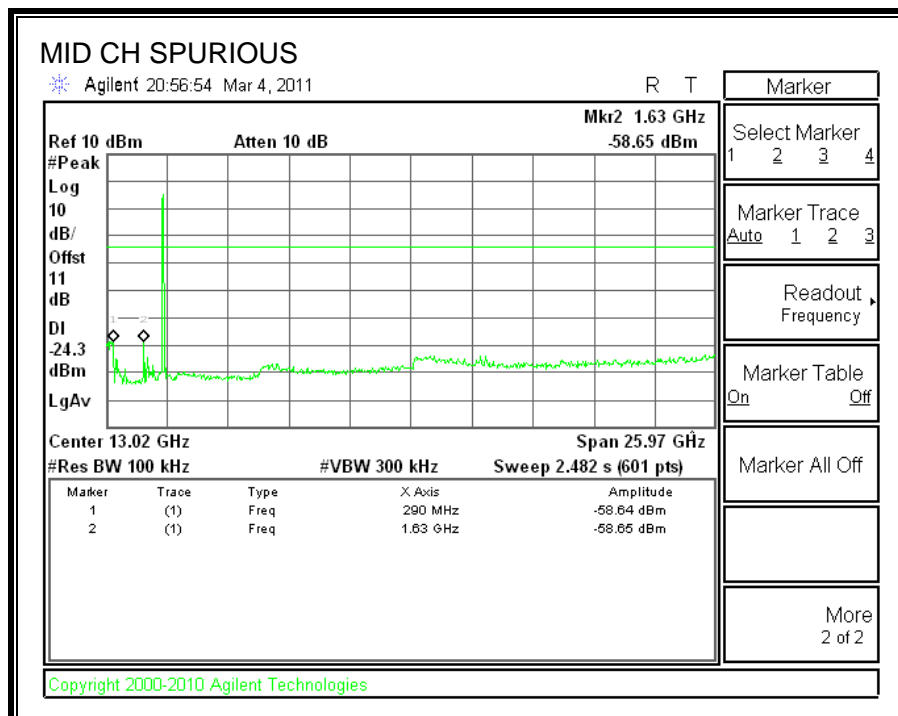
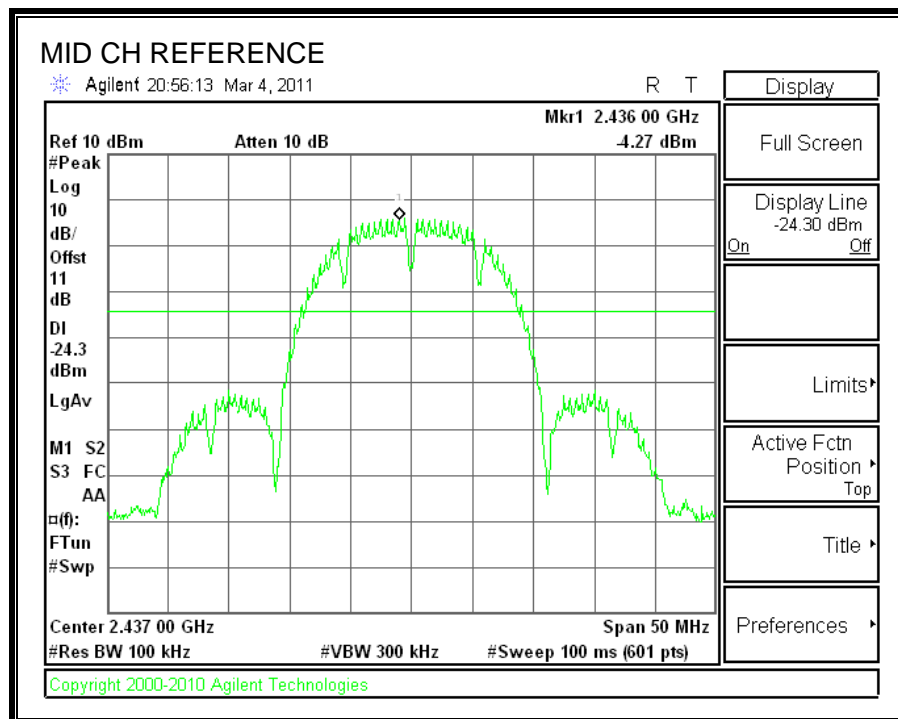


## RESULTS

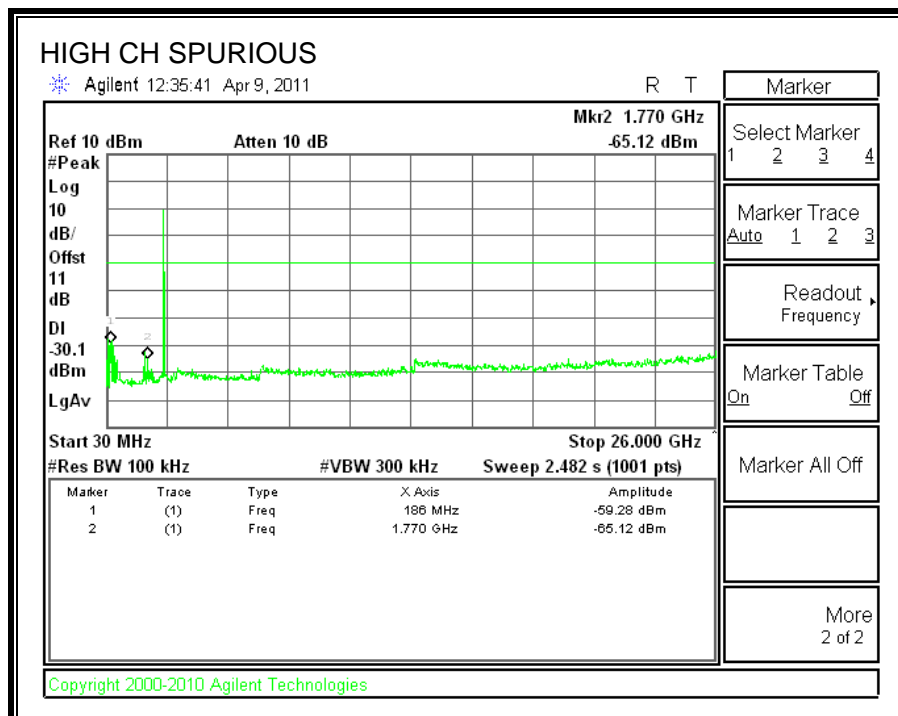
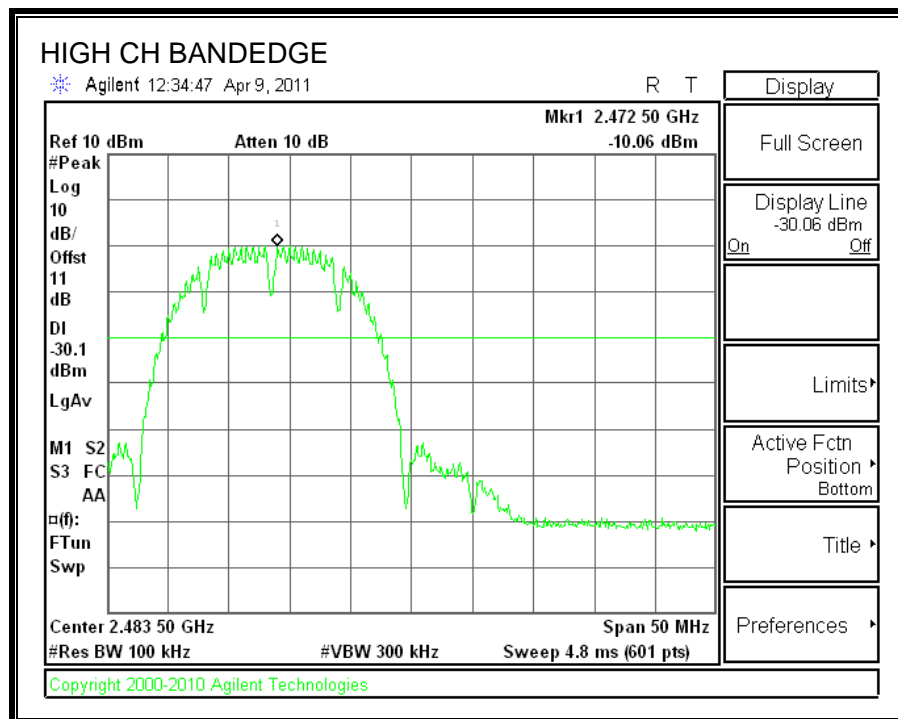
### SPURIOUS EMISSIONS, LOW CHANNEL



# SPURIOUS EMISSIONS, MID CHANNEL



# SPURIOUS EMISSIONS, HIGH CHANNEL



## **7.4 802.11g MODE IN THE 2.4 GHz BAND**

### **7.4.1 6 dB BANDWIDTH**

#### **LIMITS**

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

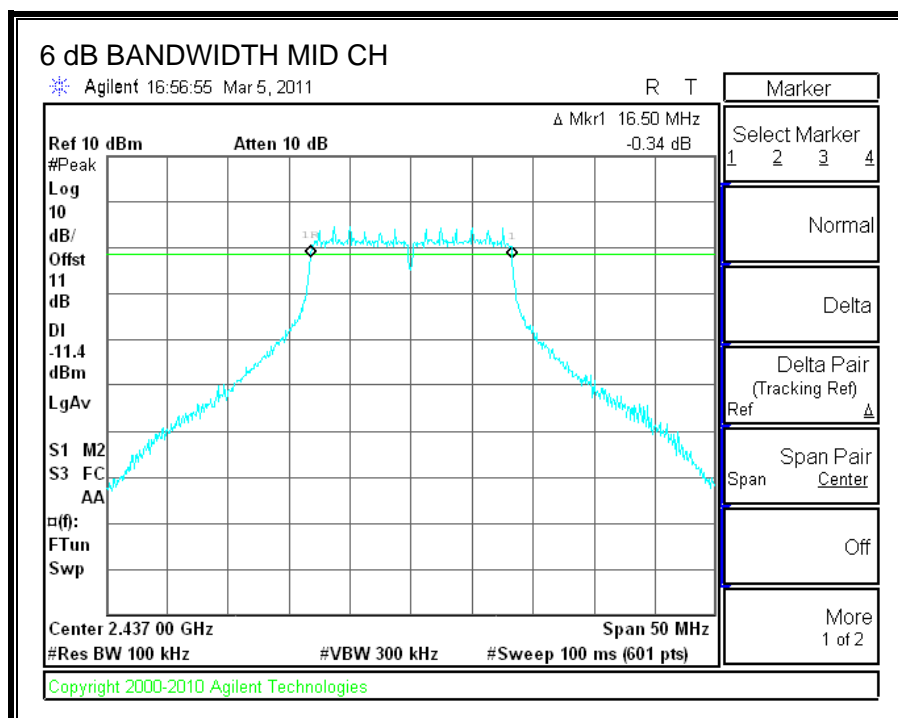
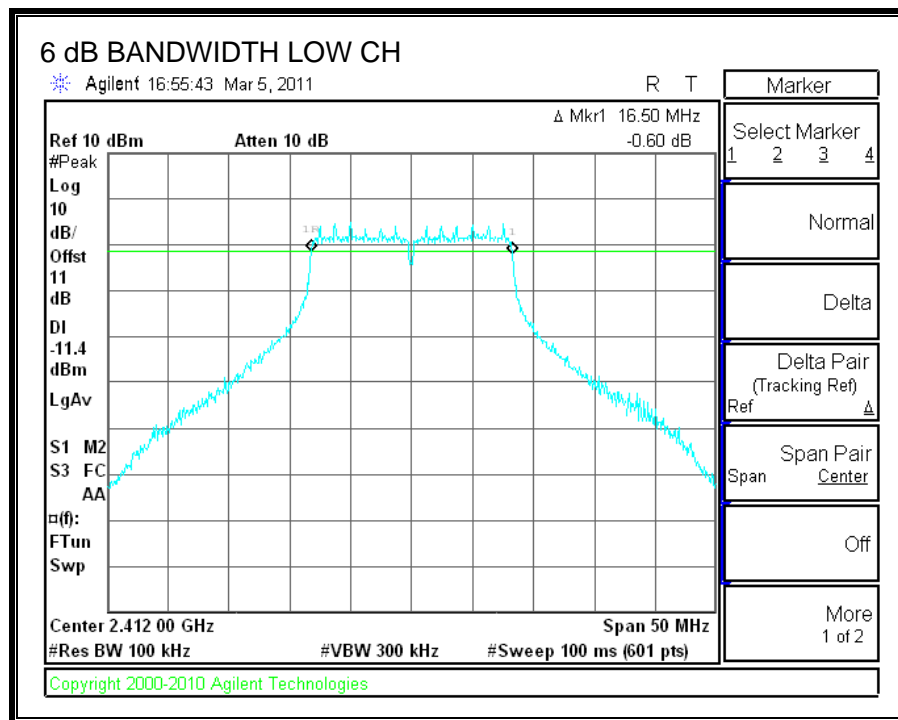
#### **TEST PROCEDURE**

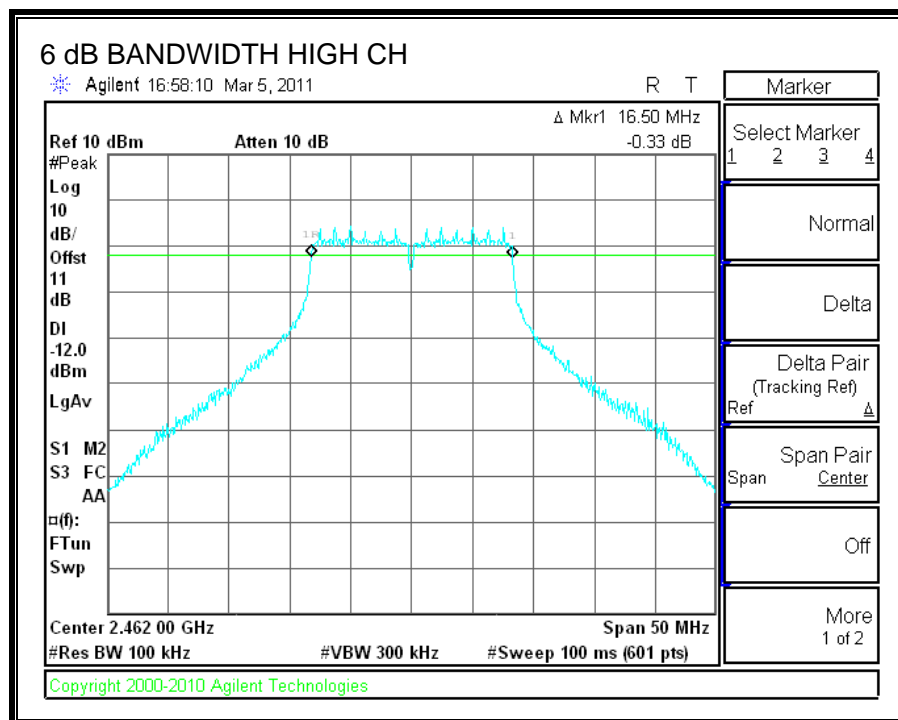
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

#### **RESULTS**

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>6 dB Bandwidth (MHz)</b>	<b>Minimum Limit (MHz)</b>
Low	2412	16.5	0.5
Middle	2437	16.5	0.5
High	2462	16.5	0.5

## 6 dB BANDWIDTH





## 7.4.2 99% BANDWIDTH

### LIMITS

None; for reporting purposes only.

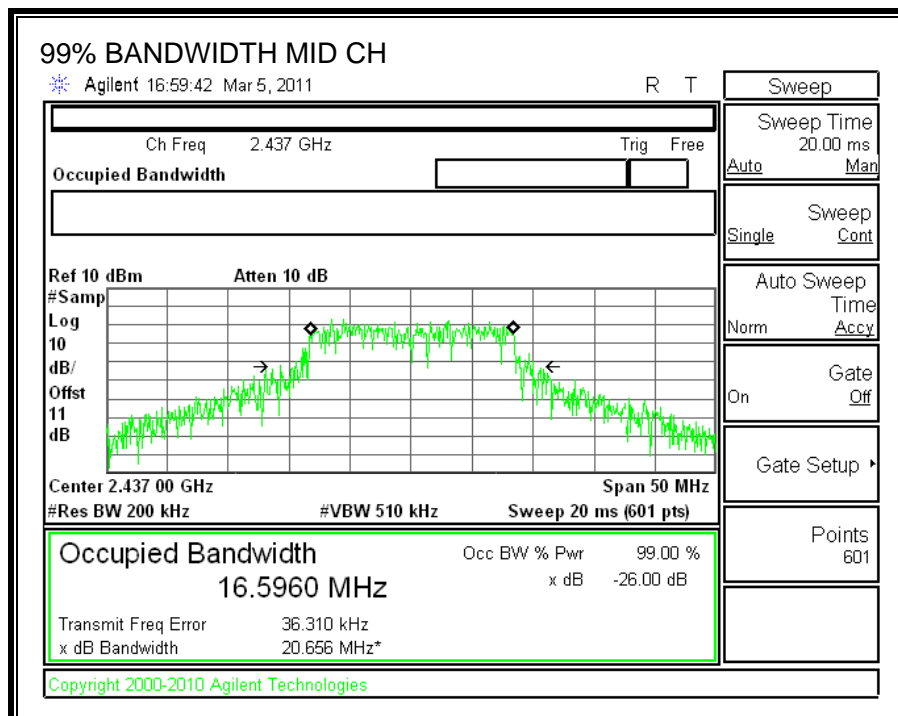
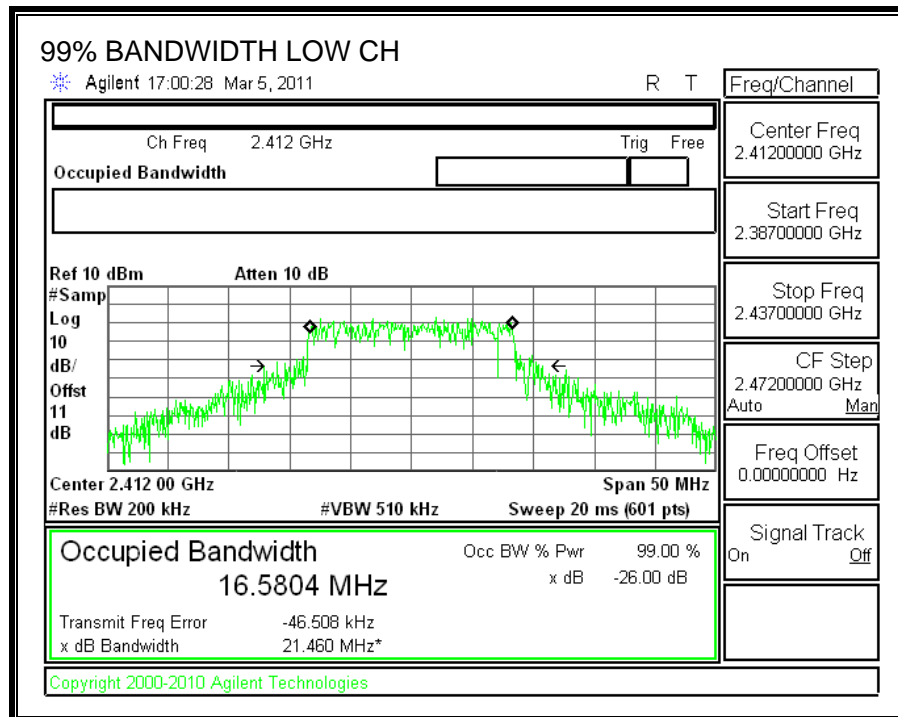
### TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

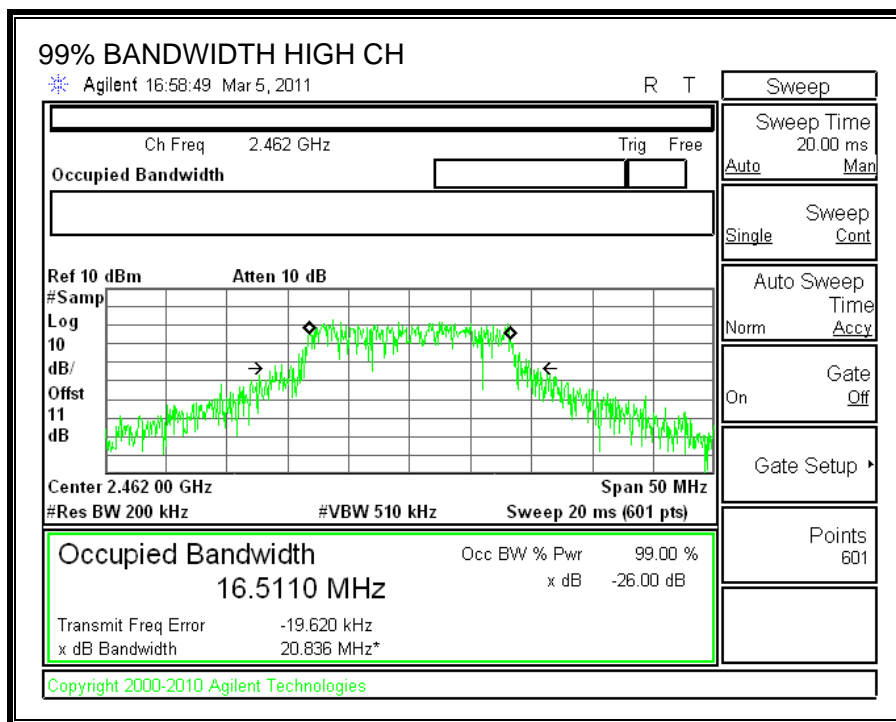
### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.5804
Middle	2437	16.5960
High	2462	16.5110

# **99% BANDWIDTH**







### 7.4.3 OUTPUT POWER

#### LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

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

#### TEST PROCEDURE

Peak power is measured using a wide bandwidth Peak Power Meter.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

#### RESULTS

Channel	Frequency (MHz)	Spectrum Analyzer Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	10.16	30	-19.84
Middle	2437	10.15	30	-19.85
High	2462	9.83	30	-20.17

#### 7.4.4 AVERAGE POWER

##### LIMITS

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 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	5.76
Middle	2437	5.74
High	2462	5.15

## 7.4.5 POWER SPECTRAL DENSITY

### LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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.

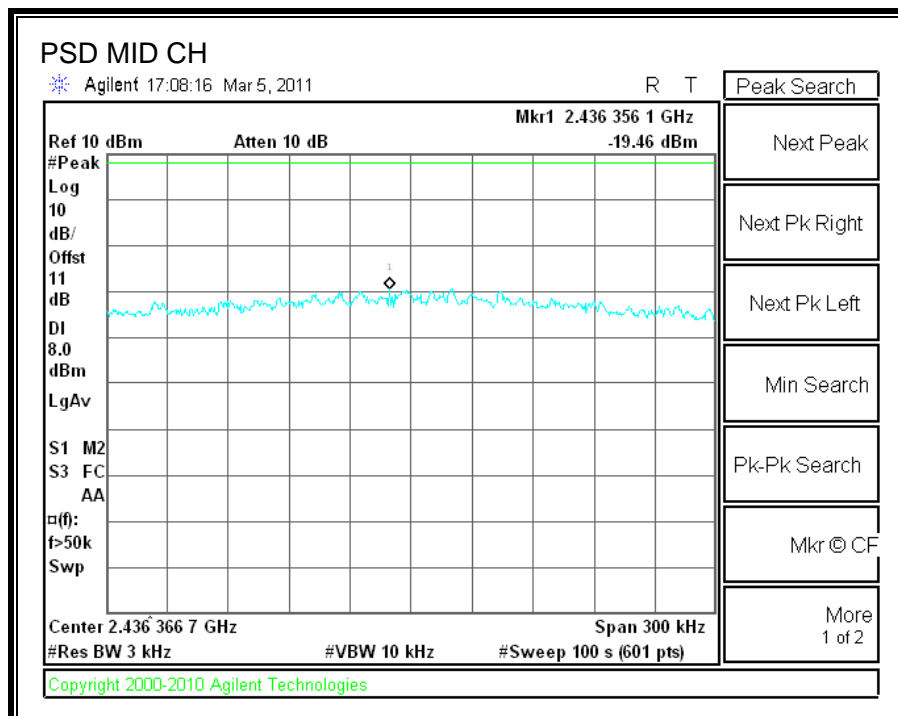
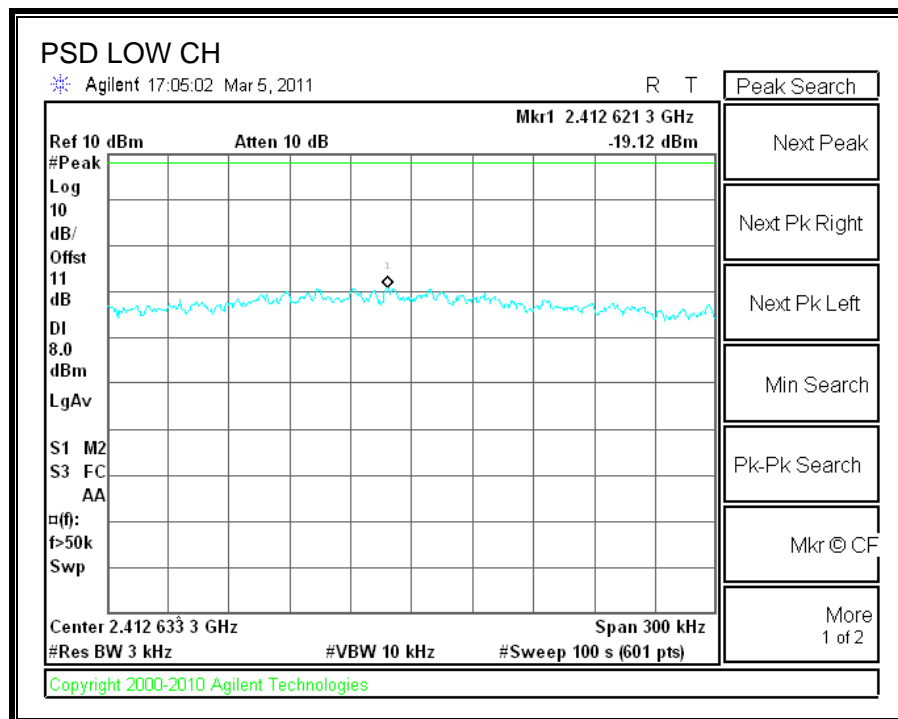
### TEST PROCEDURE

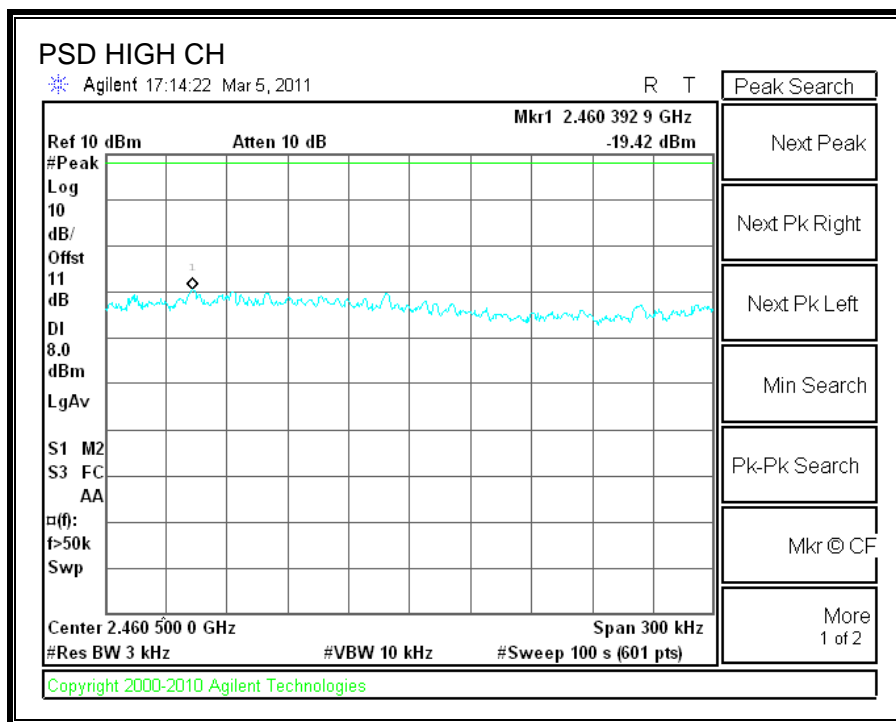
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

### RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-19.12	8	-27.12
Middle	2437	-19.46	8	-27.46
High	2462	-19.42	8	-27.42

**POWER SPECTRAL DENSITY**





## **7.4.6 CONDUCTED SPURIOUS EMISSIONS**

### **LIMITS**

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

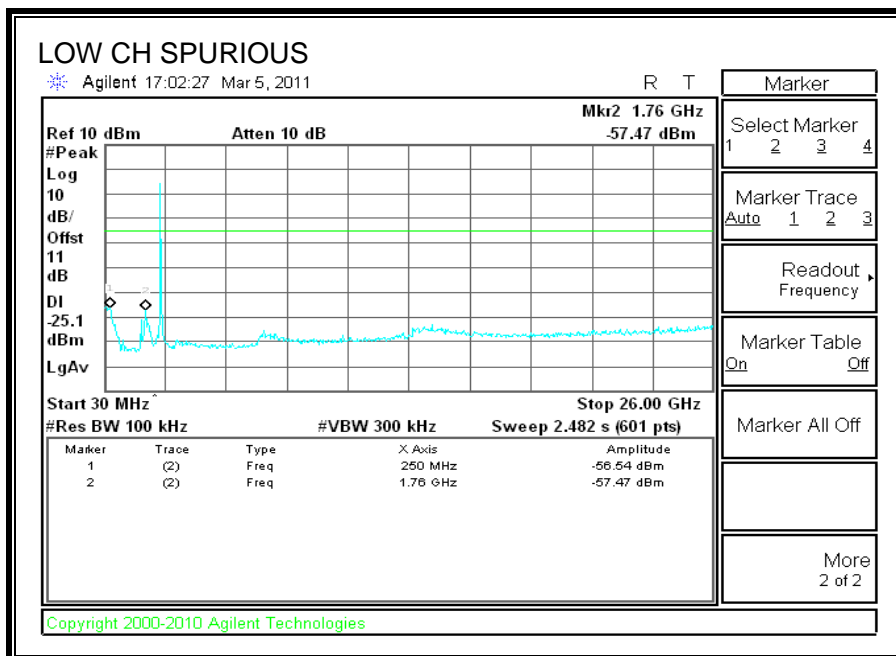
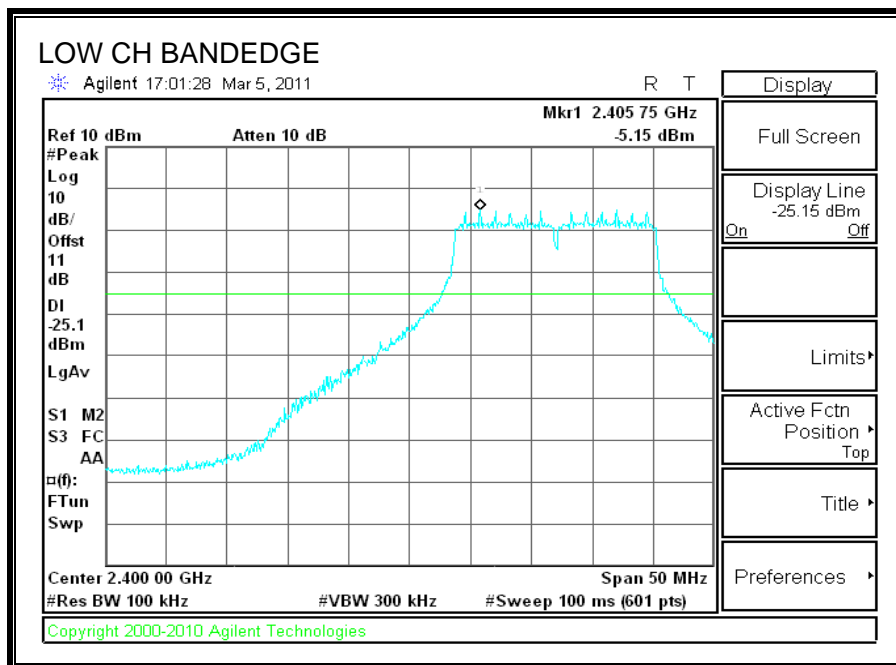
### **TEST PROCEDURE**

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.

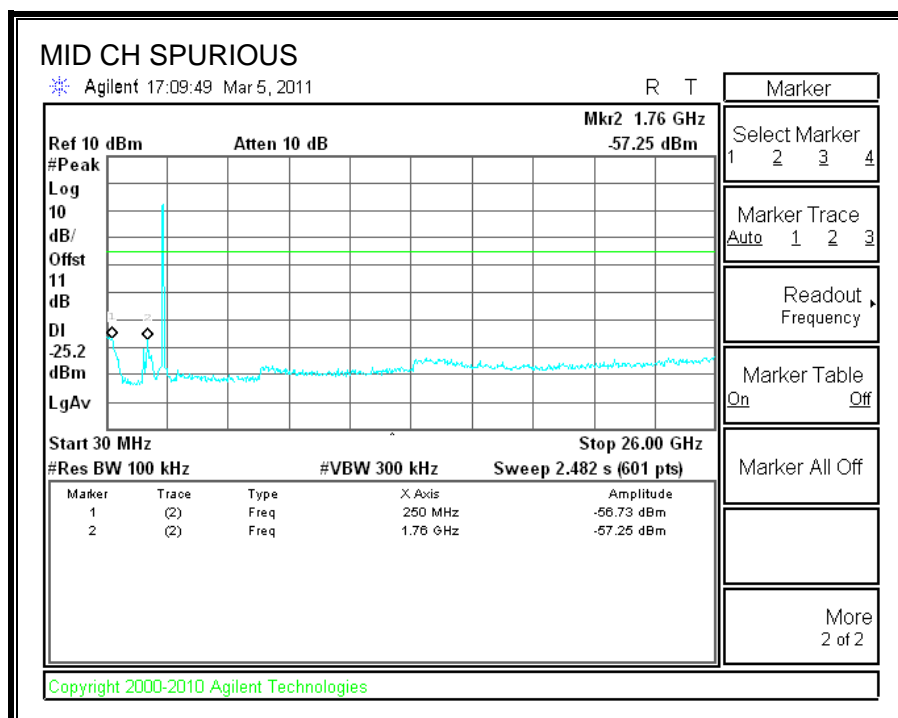
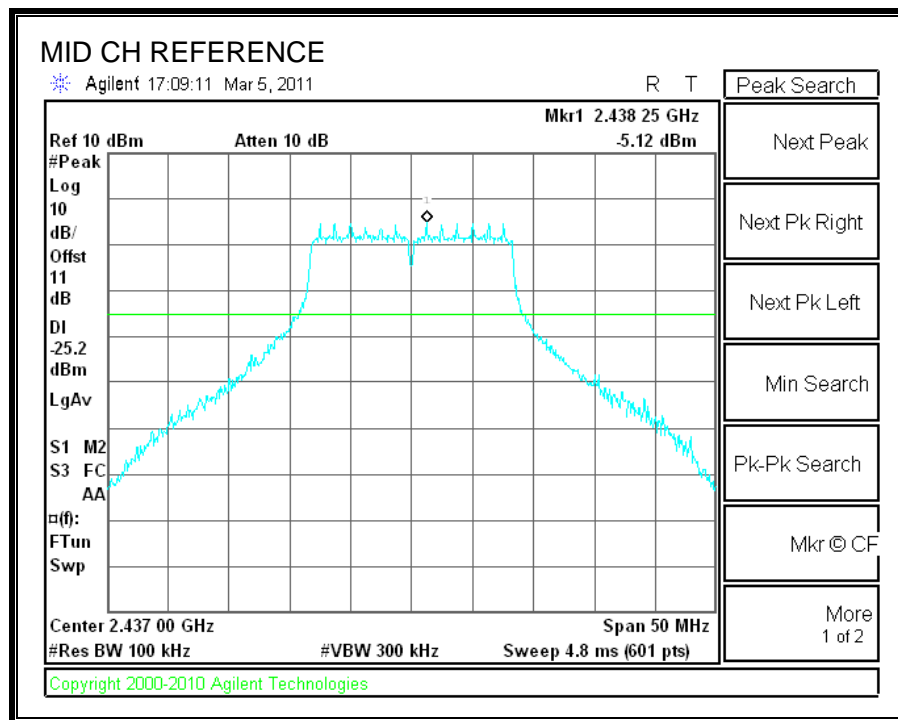
## RESULTS

### SPURIOUS EMISSIONS, LOW CHANNEL

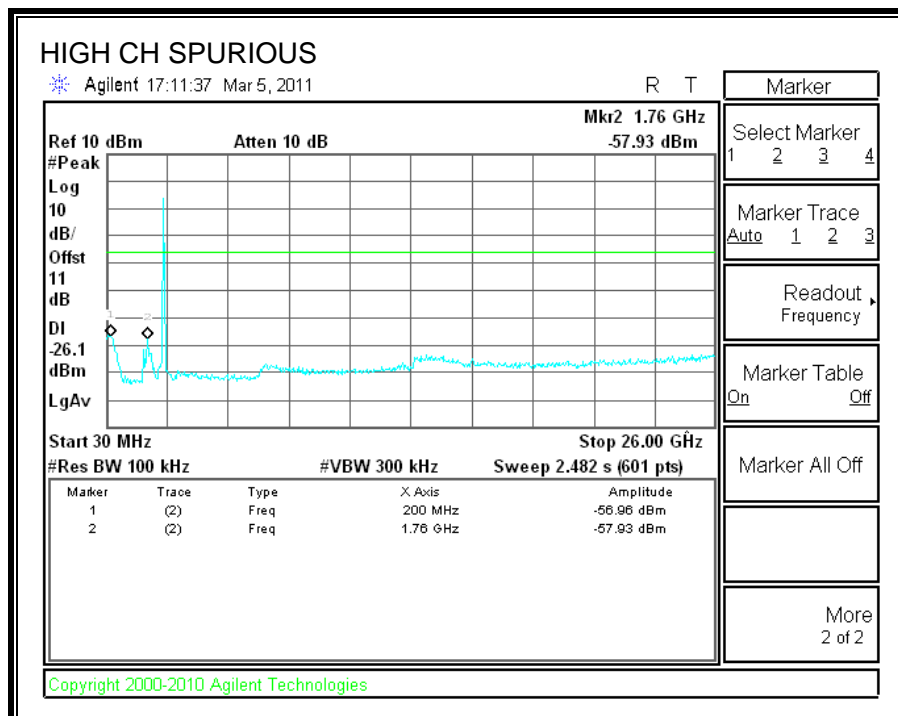
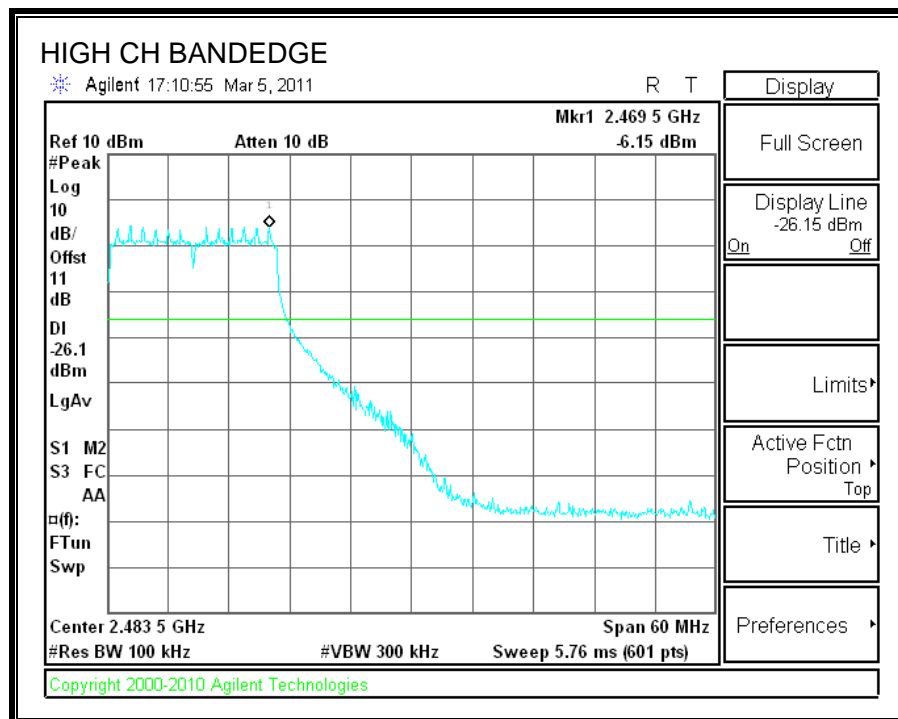




# **SPURIOUS EMISSIONS, MID CHANNEL**



# SPURIOUS EMISSIONS, HIGH CHANNEL



## 8 RADIATED TEST RESULTS

### 8.3 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.

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.

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.

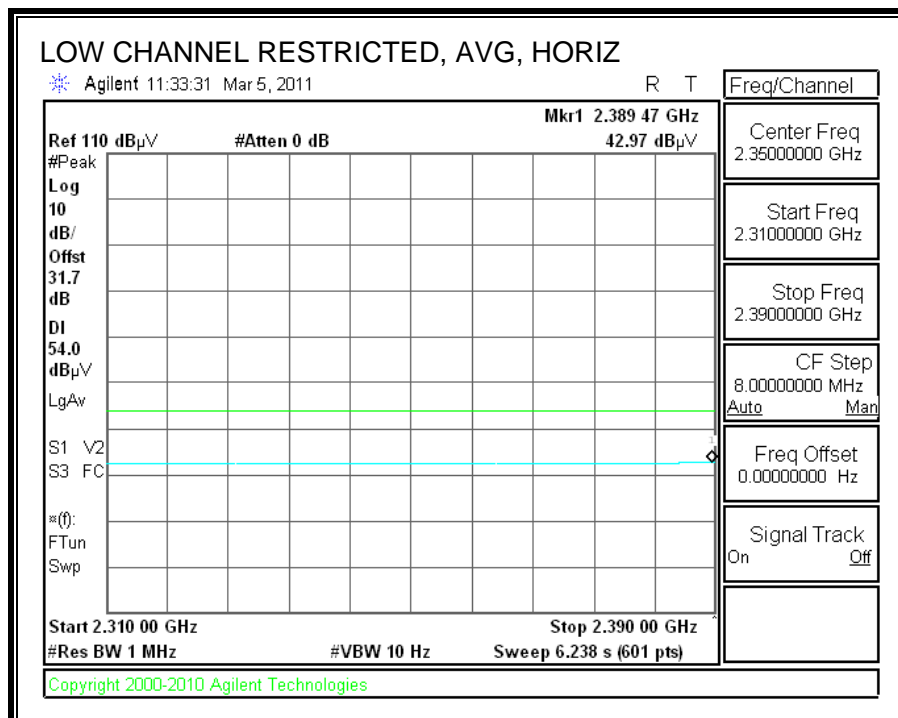
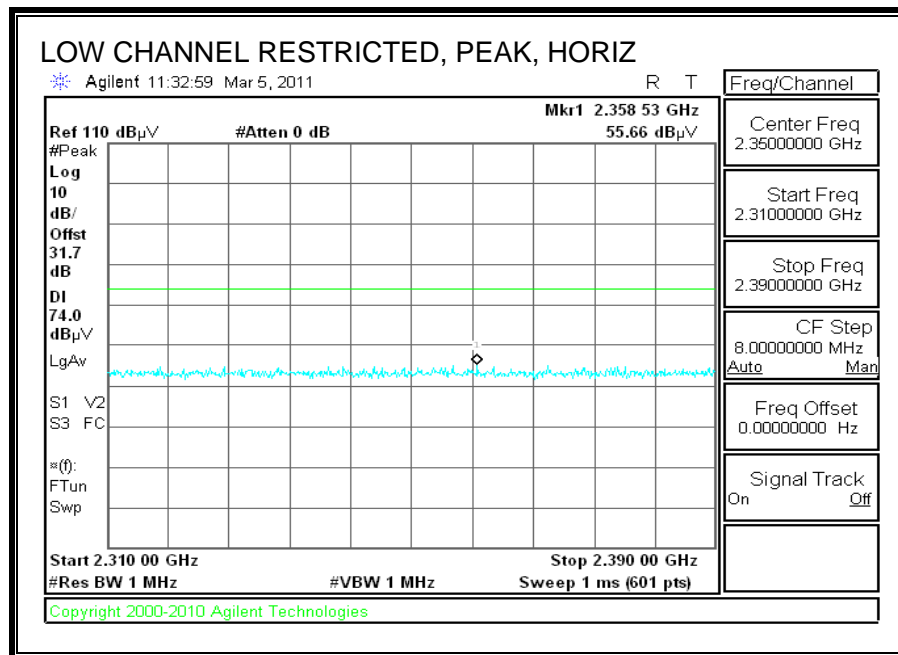
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

## 8.4 TRANSMITTER ABOVE 1 GHz

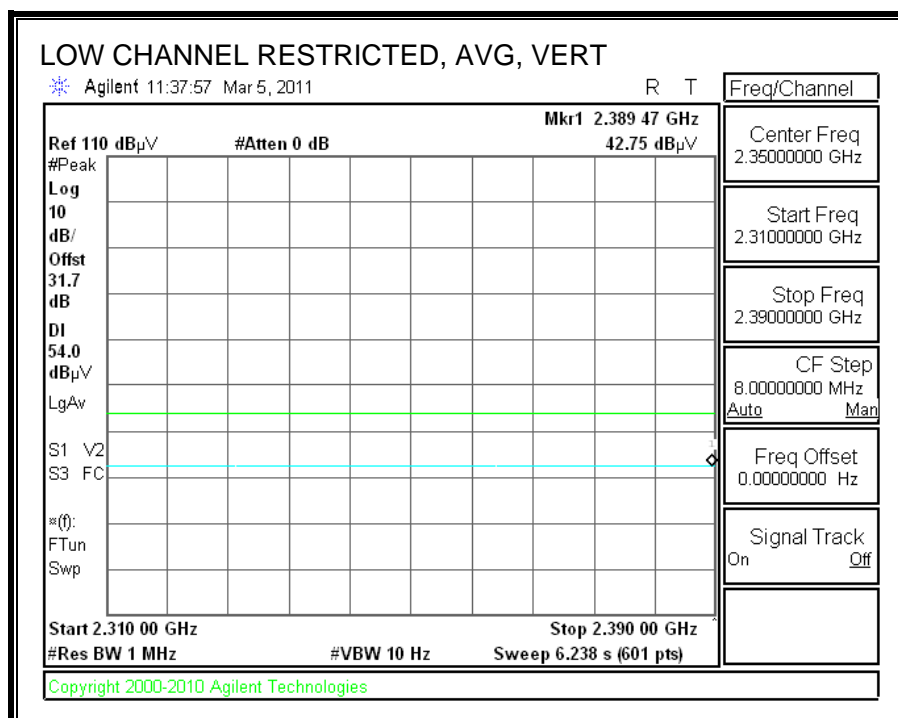
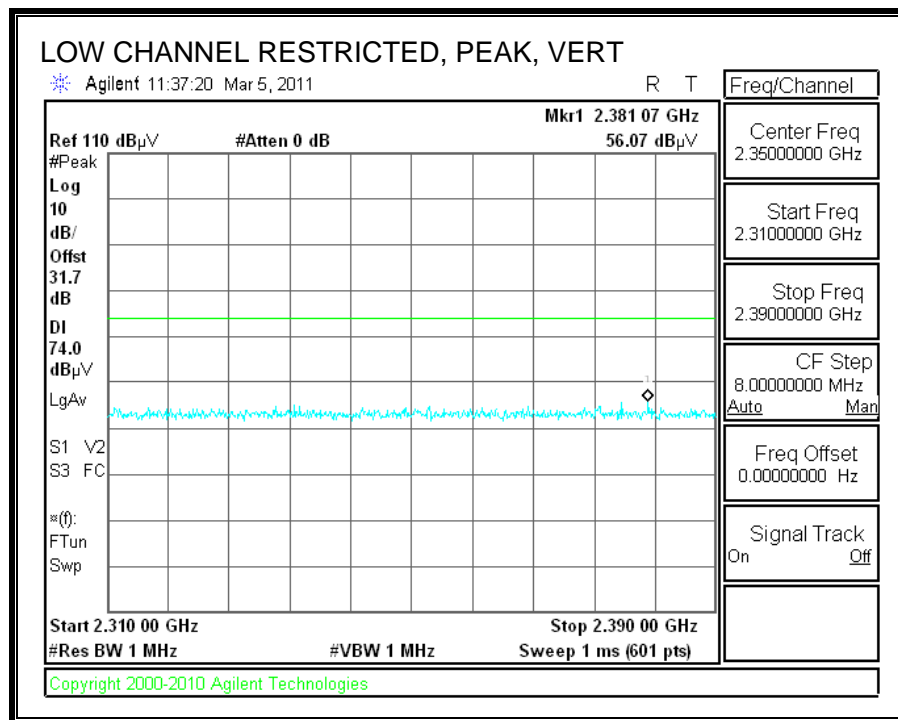
### 8.4.1 TX ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND

#### FOXCONN ANTENNA

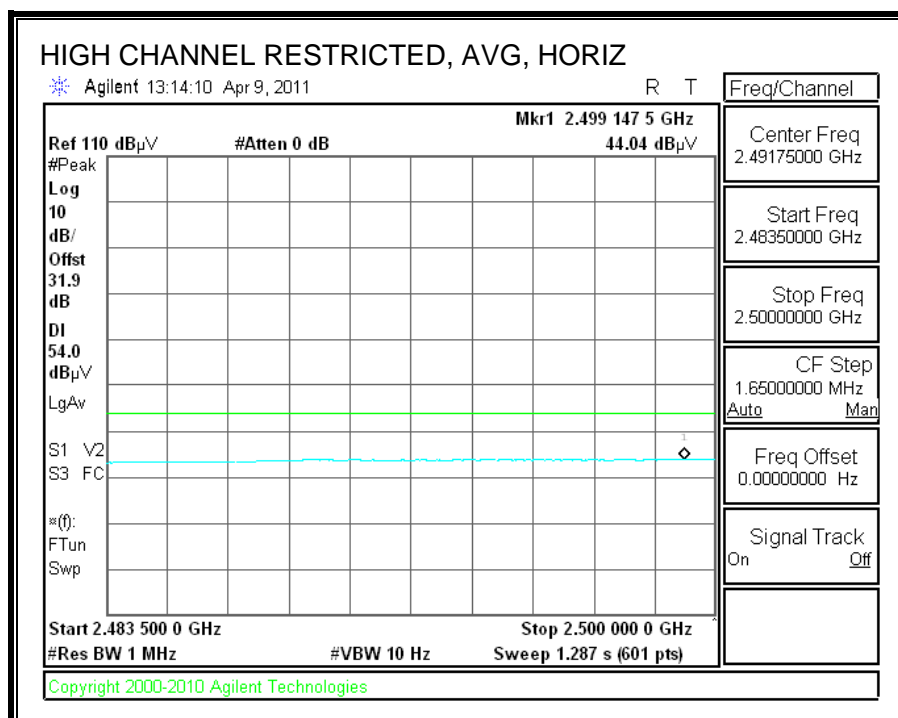
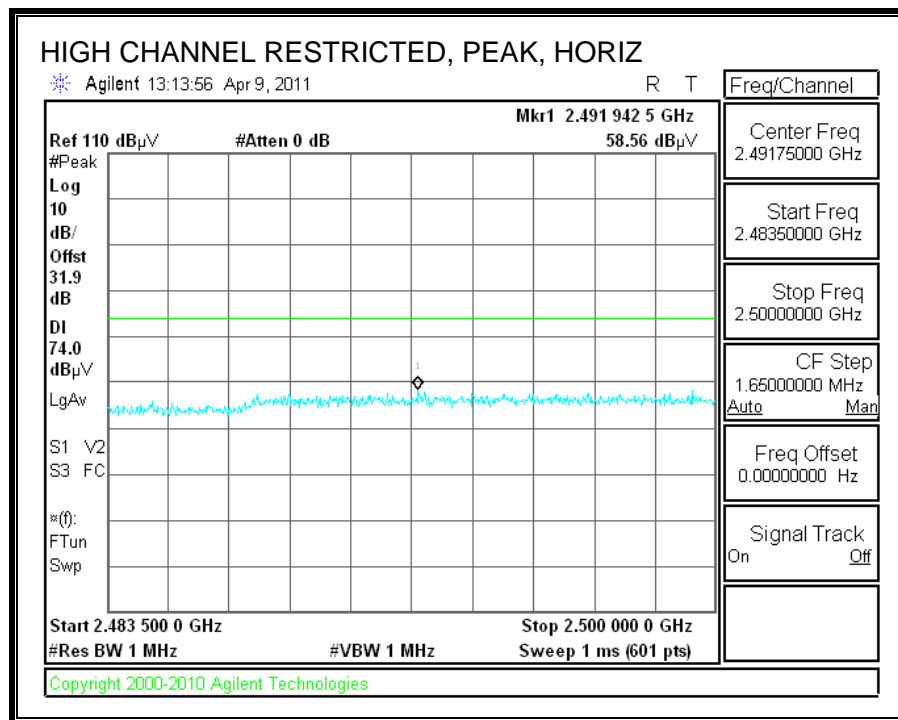
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



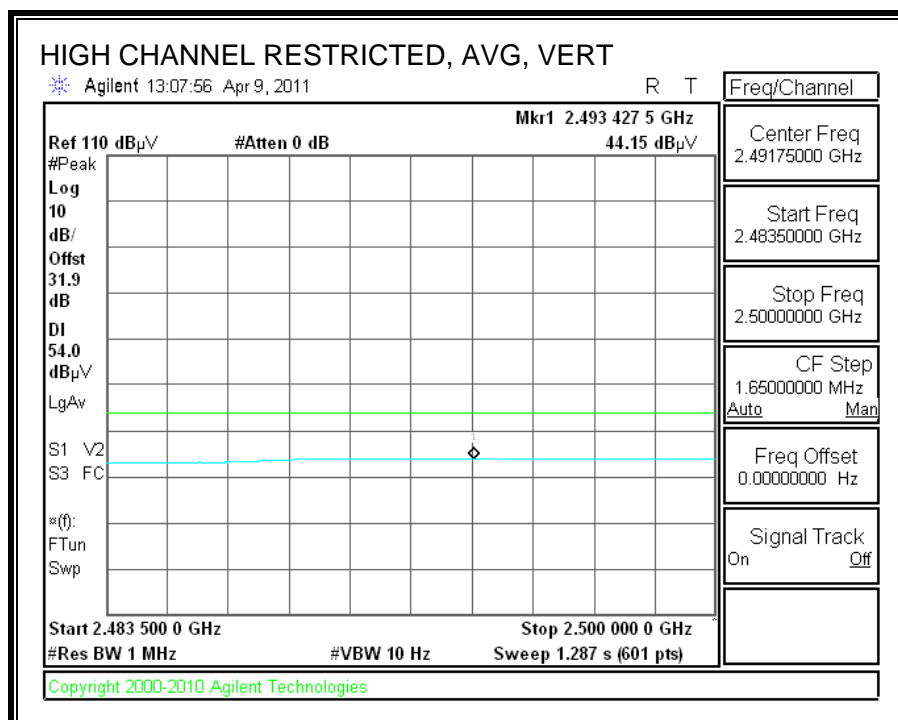
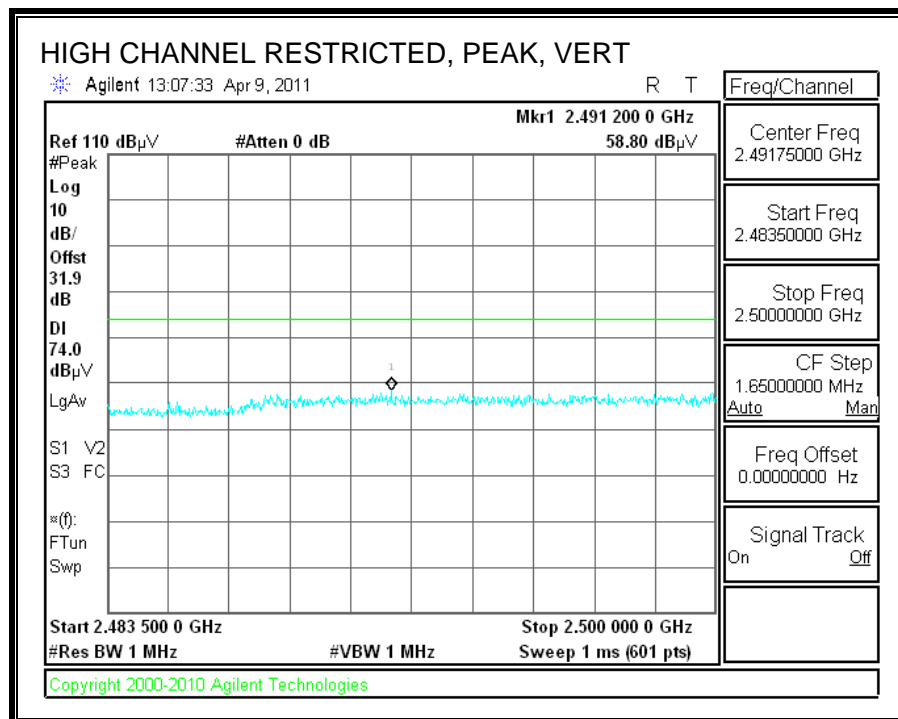
**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



**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: 03-05-11  
Project #: 11J13696  
Company: Hon Hai  
Test Target: FCC 15.247  
Mode Oper: TX, b mode  
EUT Configuration: EUT with Foxconn Antenna

f	Measurement Frequency	Amp	Preamplifier 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 GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/Q/P	Notes
<b>Low Ch, 2412MHz</b>													
4.824	3.0	41.1	32.8	5.8	-34.8	0.0	0.0	44.8	74.0	-29.2	H	P	
4.824	3.0	33.9	32.8	5.8	-34.8	0.0	0.0	37.6	54.0	-16.4	H	A	
4.824	3.0	39.8	32.8	5.8	-34.8	0.0	0.0	43.6	74.0	-30.4	V	P	
4.824	3.0	32.4	32.8	5.8	-34.8	0.0	0.0	36.1	54.0	-17.9	V	A	
<b>Mid Ch, 2437MHz</b>													
4.874	3.0	37.8	32.8	5.8	-34.9	0.0	0.0	41.5	74.0	-32.5	V	P	
4.874	3.0	25.7	32.8	5.8	-34.9	0.0	0.0	29.5	54.0	-24.5	V	A	
7.311	3.0	37.3	35.2	7.3	-34.7	0.0	0.0	45.1	74.0	-28.9	V	P	
7.311	3.0	24.9	35.2	7.3	-34.7	0.0	0.0	32.7	54.0	-21.3	V	A	
4.874	3.0	38.2	32.8	5.8	-34.9	0.0	0.0	41.9	74.0	-32.1	H	P	
4.874	3.0	25.9	32.8	5.8	-34.9	0.0	0.0	29.7	54.0	-24.3	H	A	
7.311	3.0	37.8	35.2	7.3	-34.7	0.0	0.0	45.6	74.0	-28.4	H	P	
7.311	3.0	24.9	35.2	7.3	-34.7	0.0	0.0	32.7	54.0	-21.3	H	A	
<b>High Ch, 2472MHz</b>													
4.944	3.0	37.3	33.2	5.9	-36.5	0.0	0.0	39.9	74.0	-34.1	V	P	
4.944	3.0	25.0	33.2	5.9	-36.5	0.0	0.0	27.6	54.0	-26.4	V	A	
7.416	3.0	36.6	35.5	7.3	-36.2	0.0	0.0	43.1	74.0	-30.9	V	P	
7.416	3.0	24.5	35.5	7.3	-36.2	0.0	0.0	31.1	54.0	-22.9	V	A	
4.944	3.0	37.5	33.2	5.9	-36.5	0.0	0.0	40.1	74.0	-33.9	H	P	
4.944	3.0	25.0	33.2	5.9	-36.5	0.0	0.0	27.6	54.0	-26.4	H	A	
7.416	3.0	37.4	35.5	7.3	-36.2	0.0	0.0	44.0	74.0	-30.0	H	P	
7.416	3.0	24.5	35.5	7.3	-36.2	0.0	0.0	31.1	54.0	-22.9	H	A	

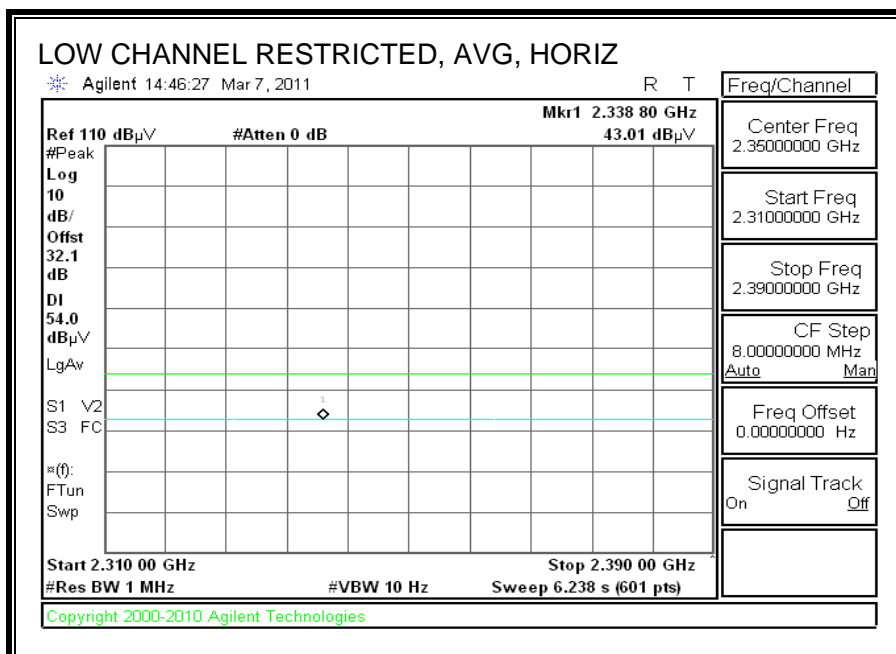
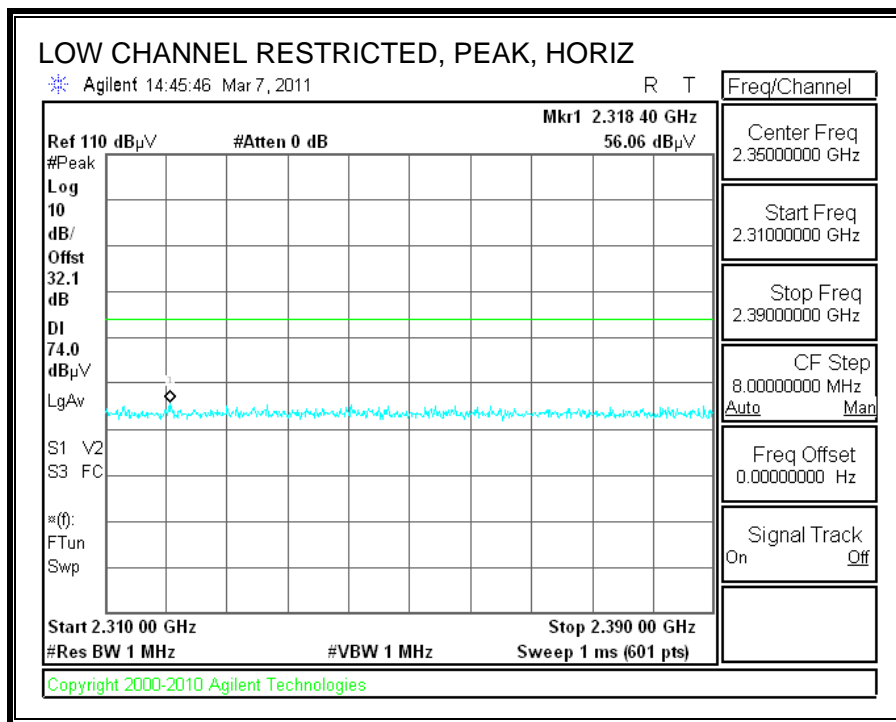
Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

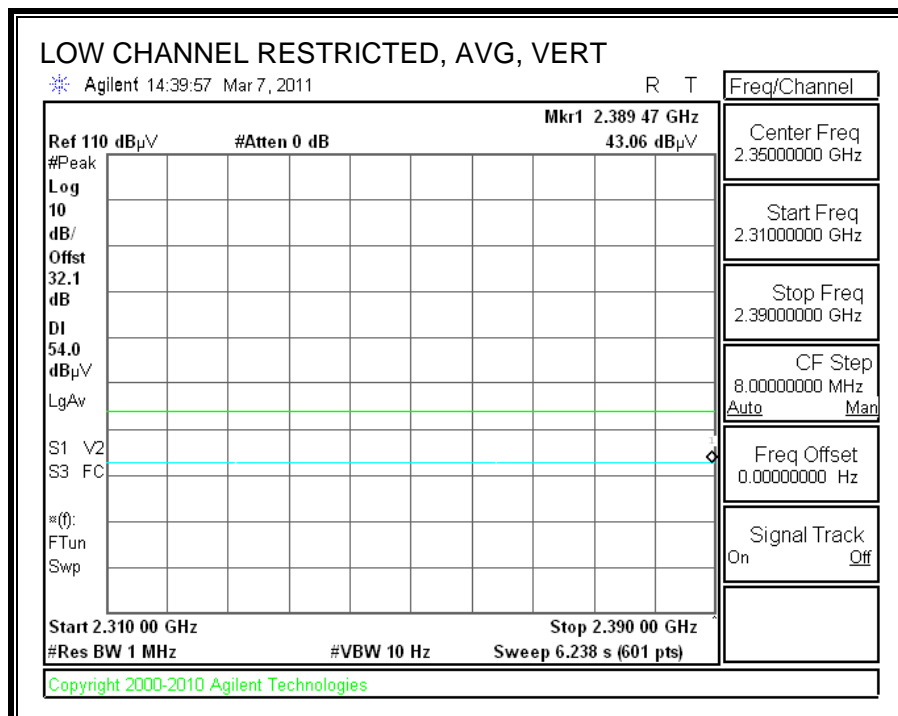
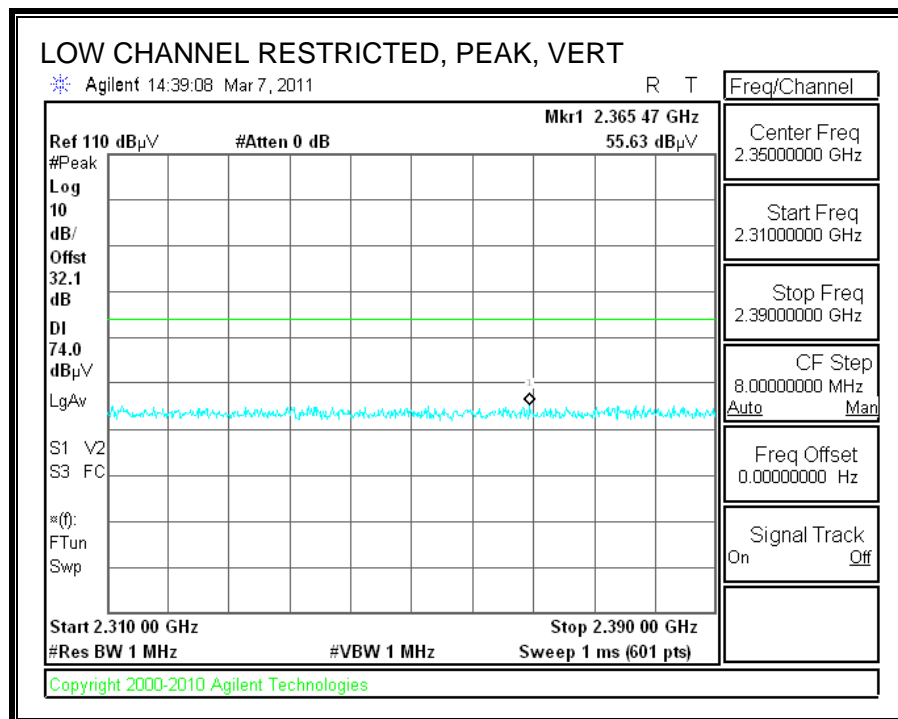


**MITSUMI ANTENNA**

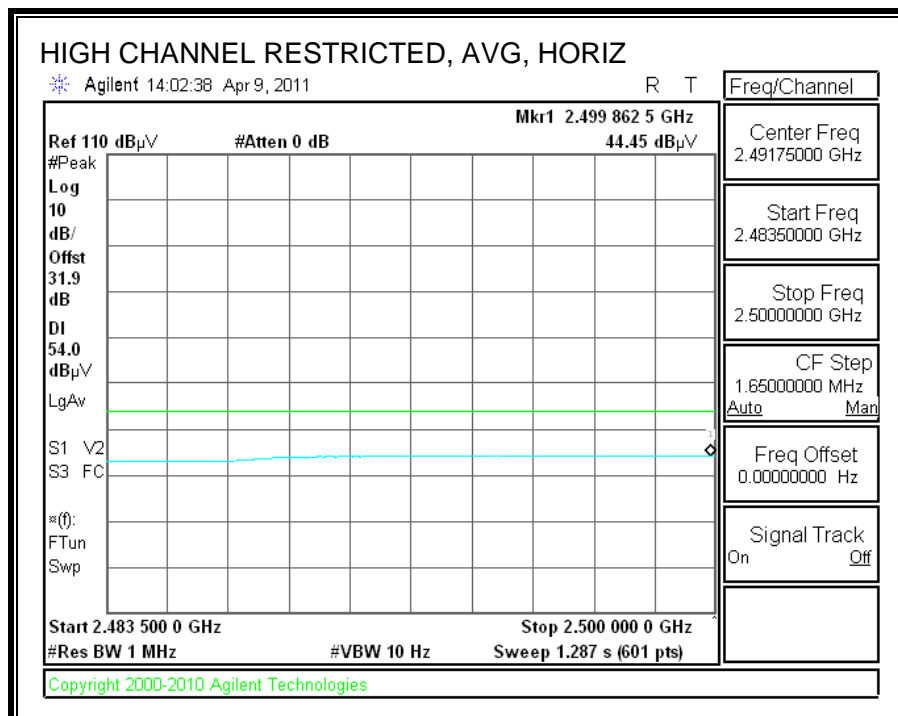
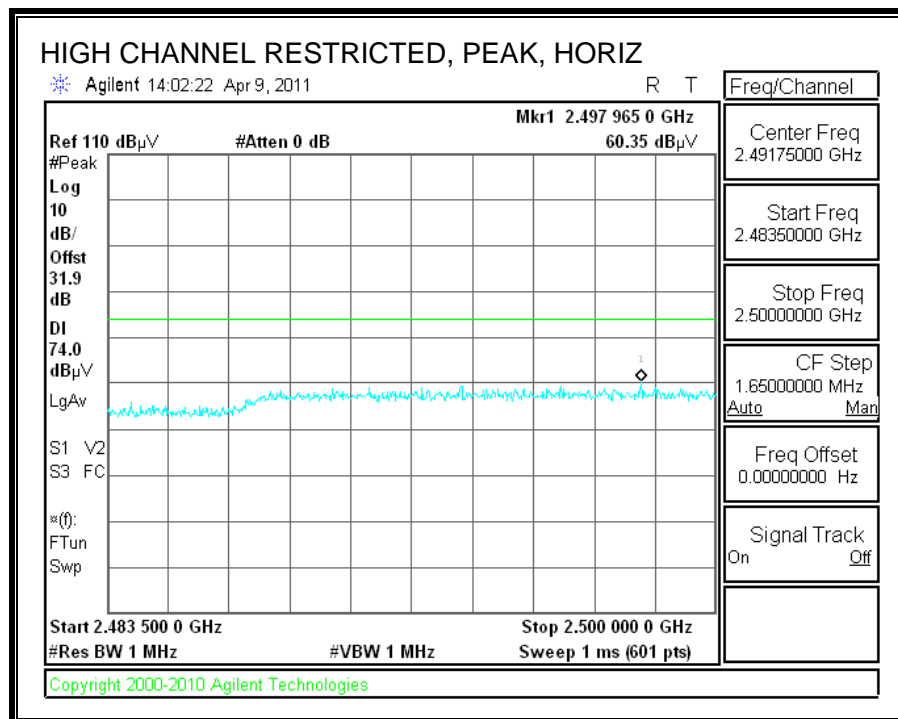
**RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**



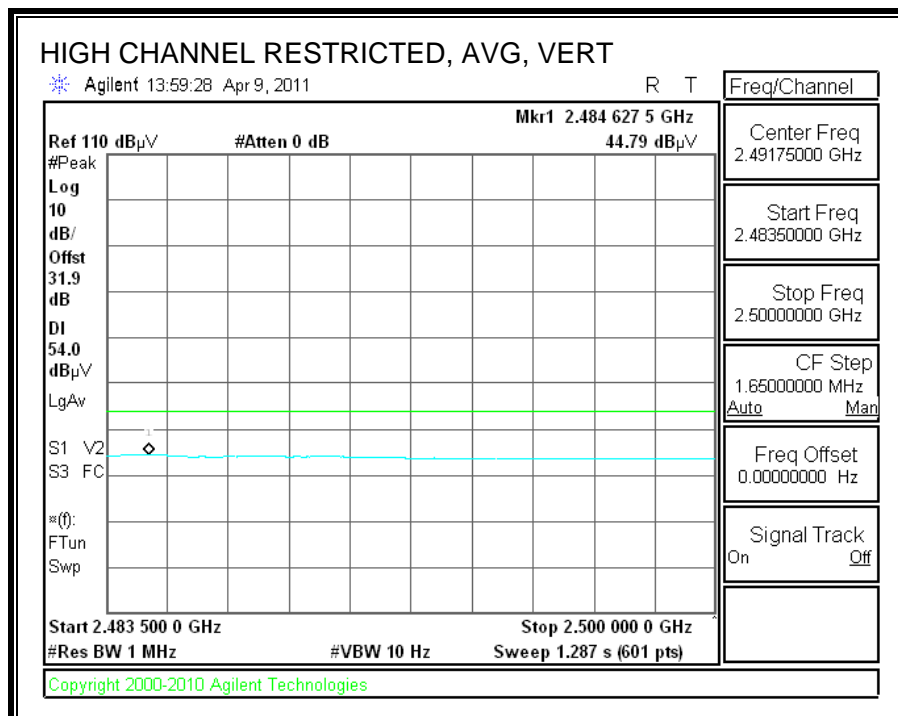
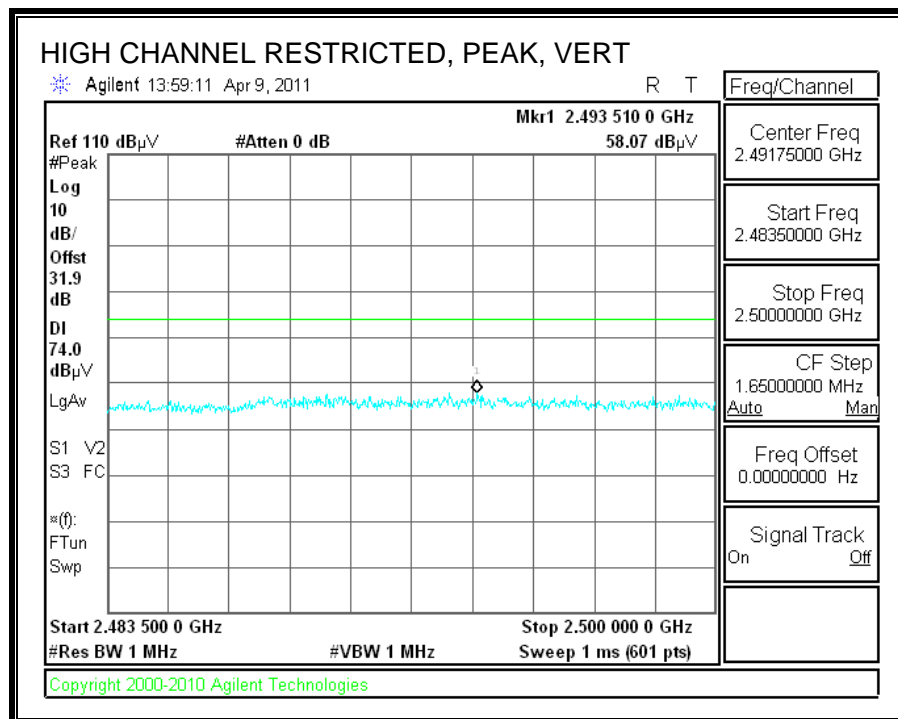
**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



**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: David Garcia  
Date: 03-07-11  
Project #: 11J13696  
Company: Hon Hai  
Test Target: FCC 15.205  
Mode Oper: Tx, b mode  
EUT with Mitsumi Antenna

f	Measurement Frequency	Amp	Preamplifier 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 GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fldr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Channel: 2412 MHz													
4.824	3.0	47.3	32.8	5.8	-34.8	0.0	0.5	51.5	74.0	-22.5	H	P	
4.824	3.0	45.0	32.8	5.8	-34.8	0.0	0.5	49.3	54.0	-4.7	H	A	
4.824	3.0	44.3	32.8	5.8	-34.8	0.0	0.5	48.6	74.0	-25.4	V	P	
4.824	3.0	40.6	32.8	5.8	-34.8	0.0	0.5	44.9	54.0	-9.1	V	A	
Mid Channel: 2437 MHz													
4.874	3.0	44.4	32.8	5.8	-34.9	0.0	0.5	48.7	74.0	-25.3	H	P	
4.874	3.0	40.3	32.8	5.8	-34.9	0.0	0.5	44.7	54.0	-9.3	H	A	
7.311	3.0	36.6	35.2	7.3	-34.7	0.0	0.5	44.9	74.0	-29.1	H	P	
7.311	3.0	24.6	35.2	7.3	-34.7	0.0	0.5	32.9	54.0	-21.1	H	A	
4.874	3.0	42.4	32.8	5.8	-34.9	0.0	0.5	46.7	74.0	-27.3	V	P	
4.874	3.0	37.9	32.8	5.8	-34.9	0.0	0.5	42.2	54.0	-11.8	V	A	
7.311	3.0	37.0	35.2	7.3	-34.7	0.0	0.5	45.3	74.0	-28.7	V	P	
7.311	3.0	24.7	35.2	7.3	-34.7	0.0	0.5	33.0	54.0	-21.0	V	A	
High Channel: 2472													
4.944	3.0	36.9	33.2	5.9	-36.5	0.0	0.0	39.5	74.0	-34.5	H	P	
4.944	3.0	24.9	33.2	5.9	-36.5	0.0	0.0	27.5	54.0	-26.5	H	A	
7.416	3.0	36.2	35.5	7.3	-36.2	0.0	0.0	42.8	74.0	-31.2	H	P	
7.416	3.0	24.4	35.5	7.3	-36.2	0.0	0.0	31.0	54.0	-23.0	H	A	
4.944	3.0	36.9	33.2	5.9	-36.5	0.0	0.0	39.5	74.0	-34.5	V	P	
4.944	3.0	24.9	33.2	5.9	-36.5	0.0	0.0	27.5	54.0	-26.5	V	A	
7.416	3.0	36.4	35.5	7.3	-36.2	0.0	0.0	43.0	74.0	-31.0	V	P	
7.416	3.0	24.4	35.5	7.3	-36.2	0.0	0.0	31.0	54.0	-23.0	V	A	

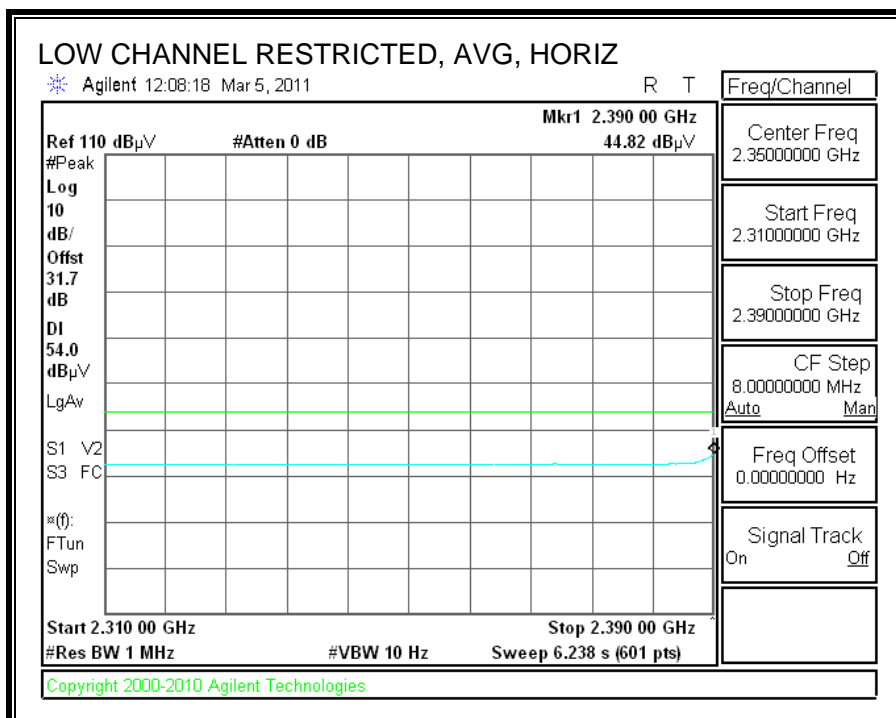
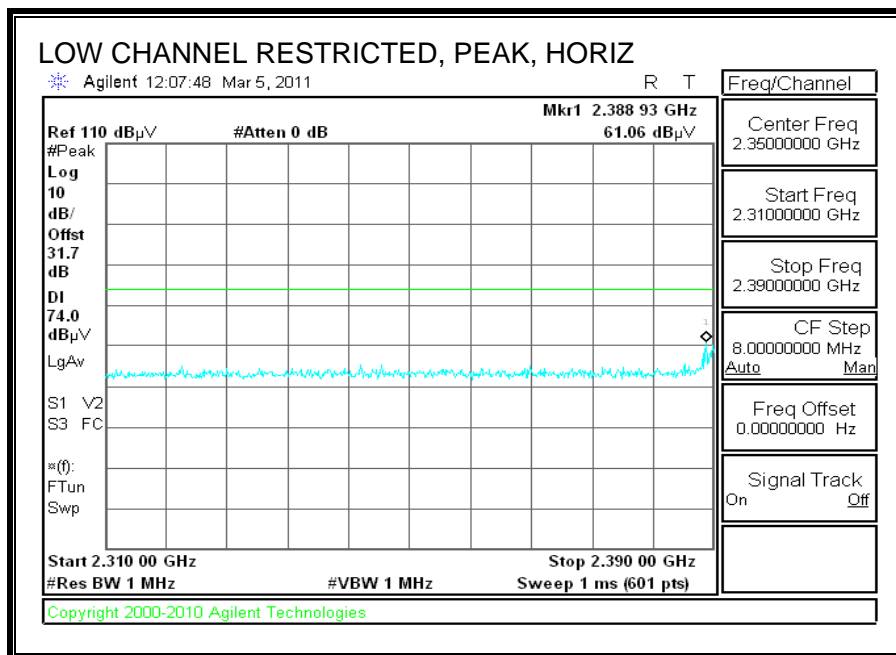
Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

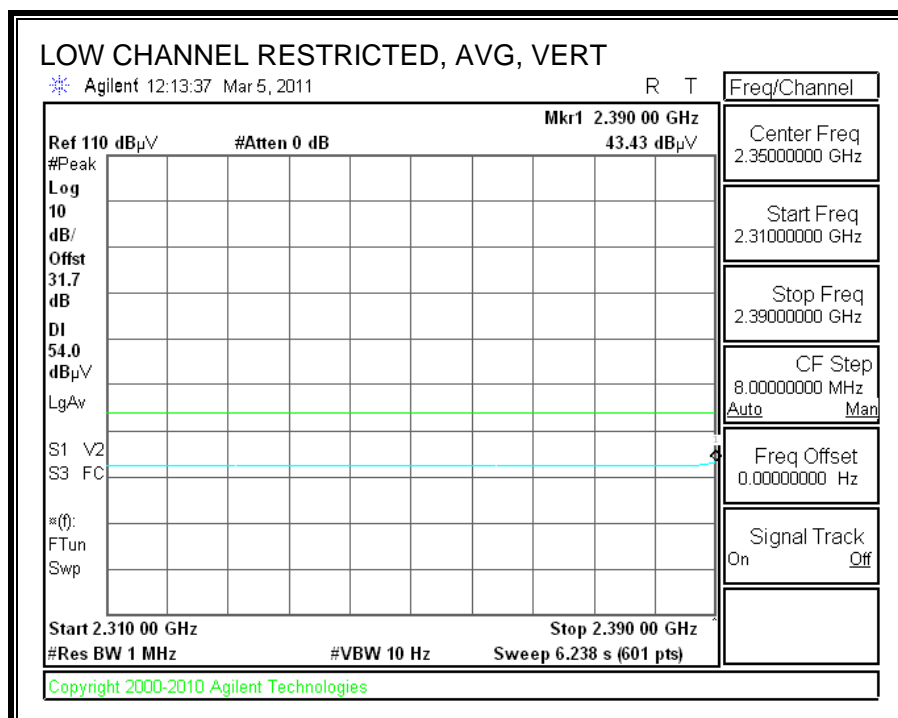
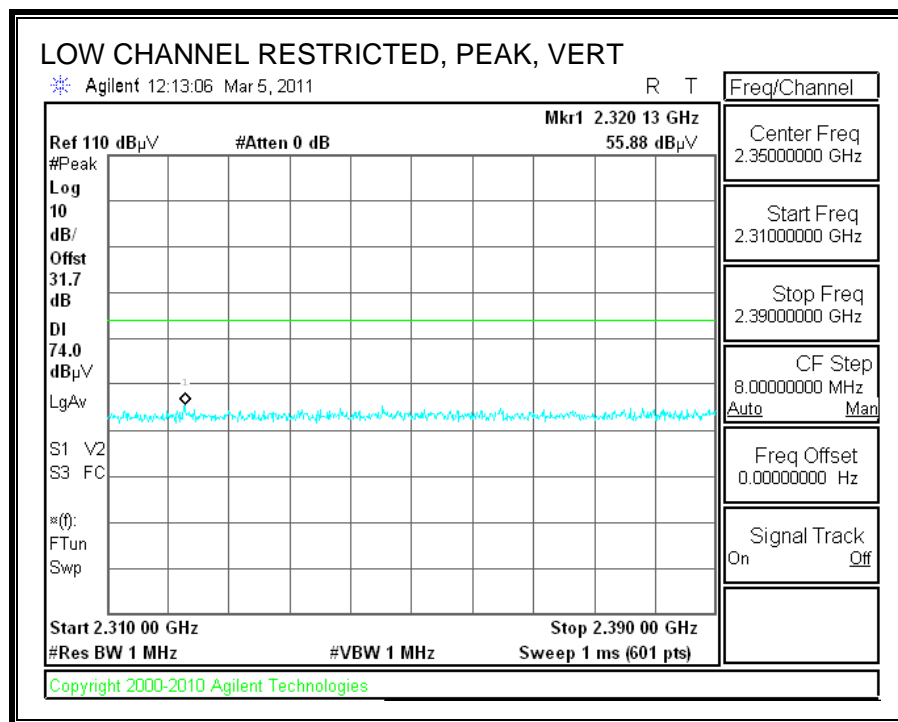
## 8.4.2 TX ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND

### FOXCONN ANTENNA

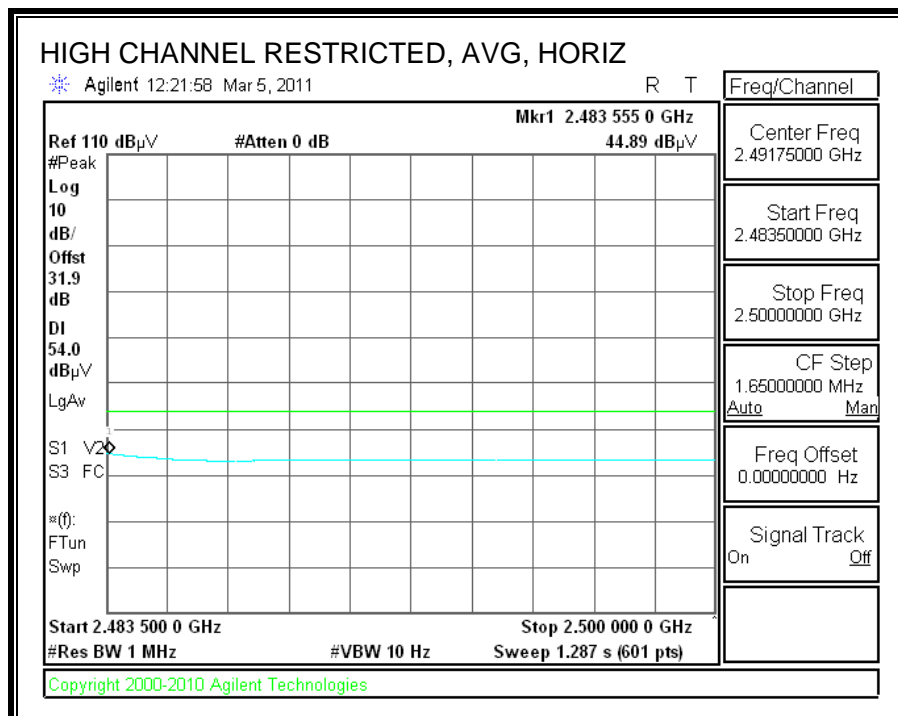
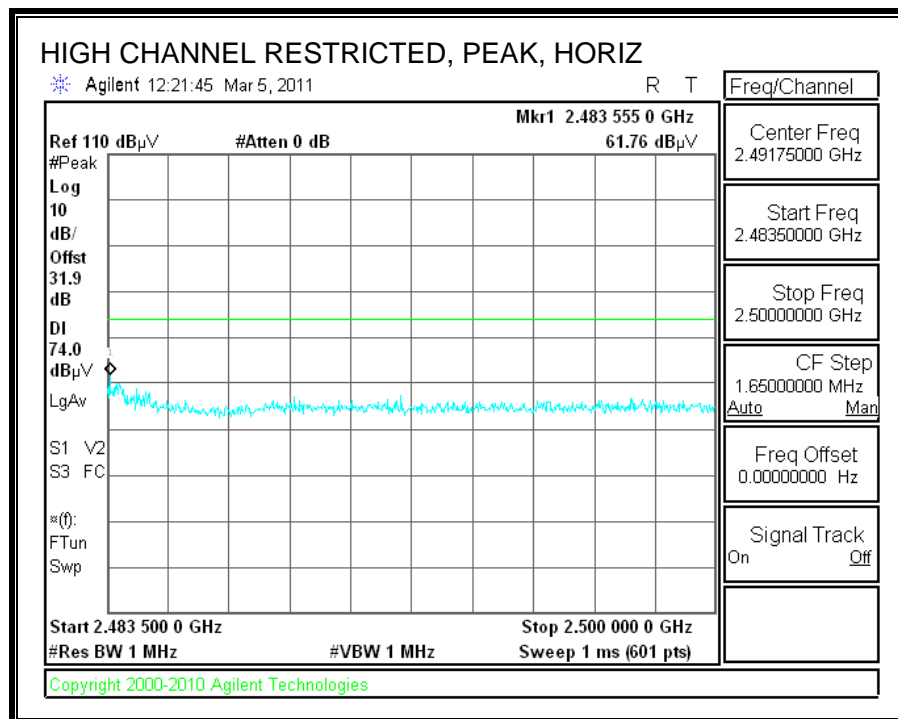
### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



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

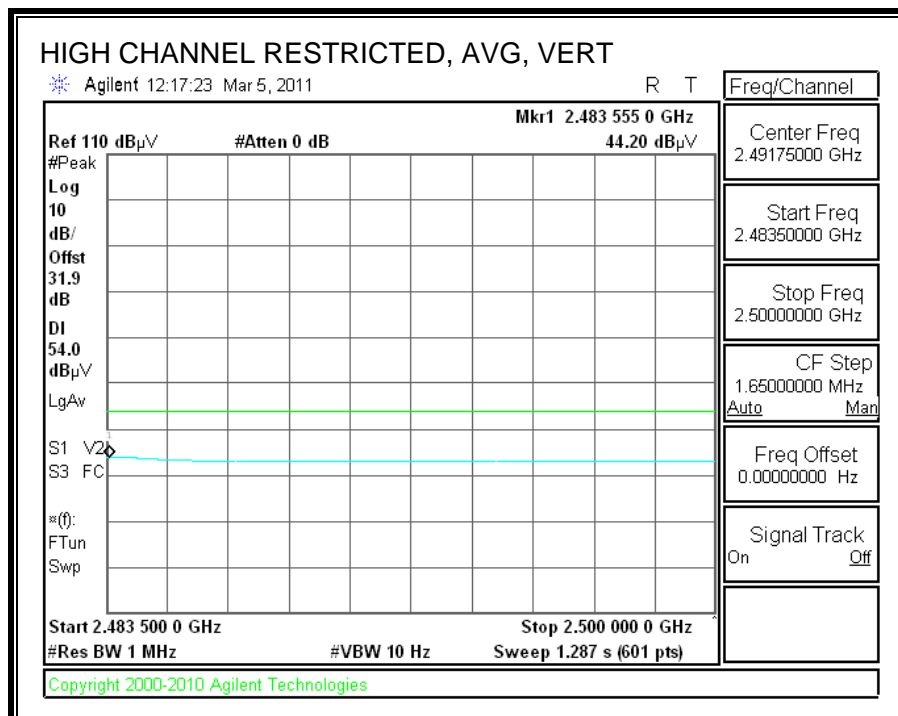
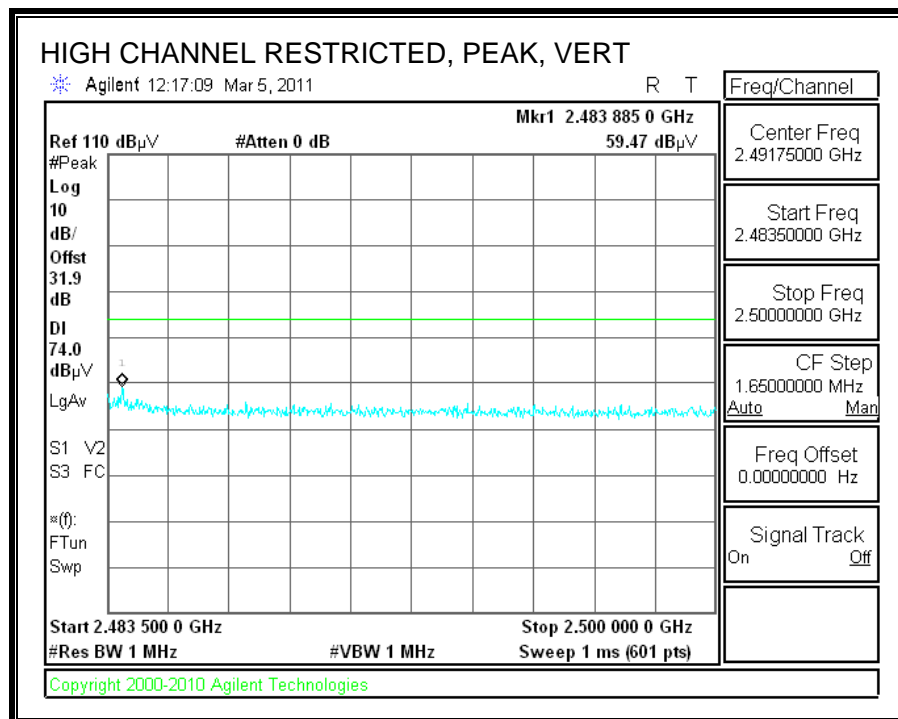


**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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

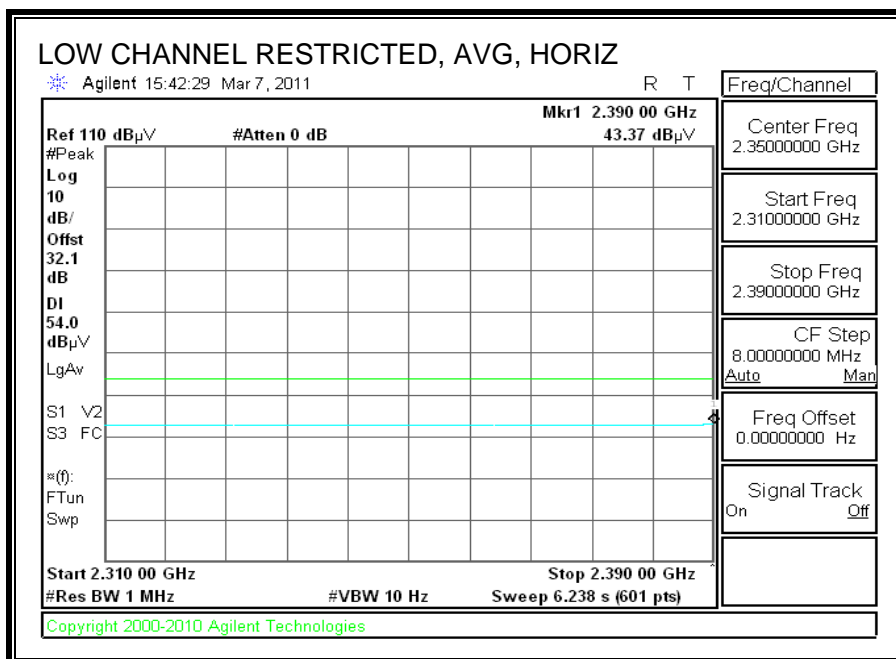
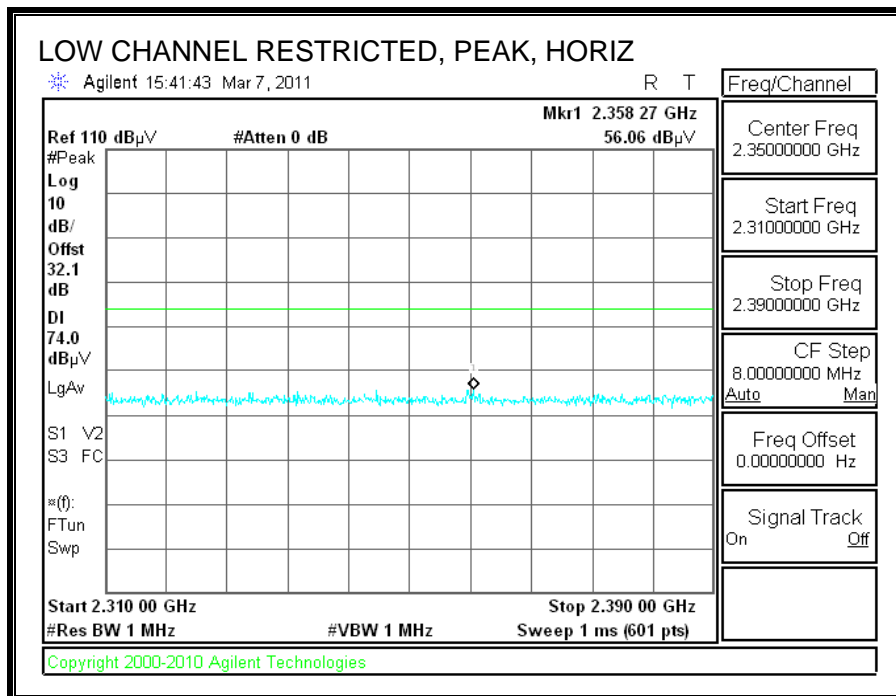


## HARMONICS AND SPURIOUS EMISSIONS

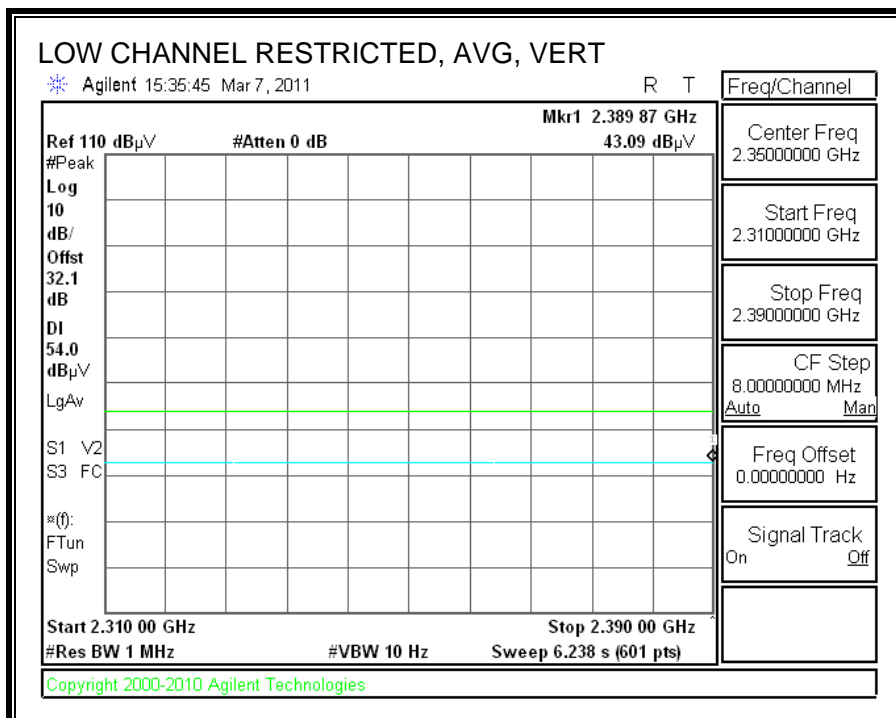
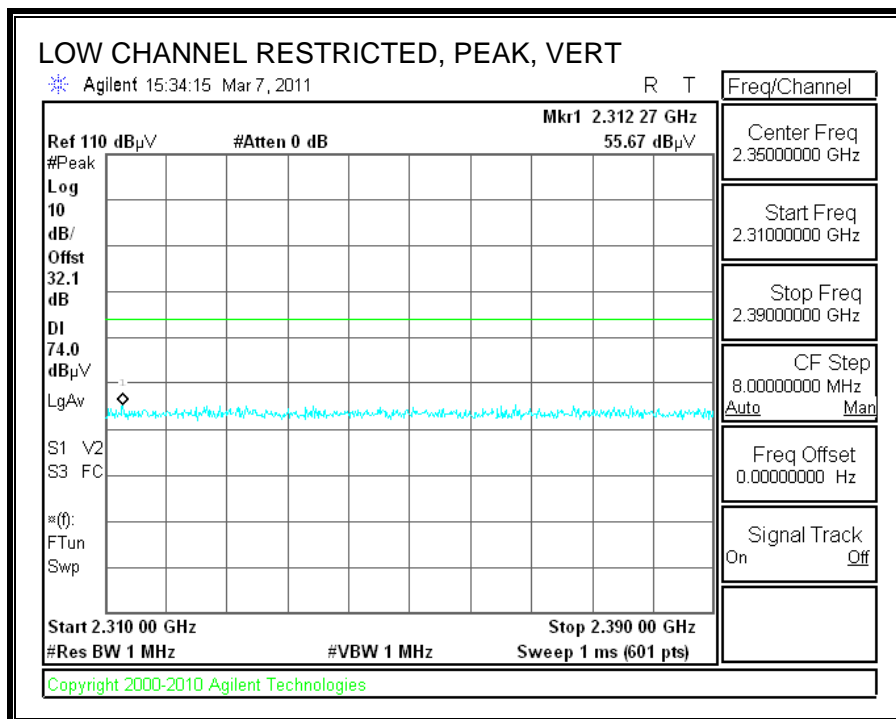
<b>High Frequency Measurement</b> <b>Compliance Certification Services, Fremont 5m Chamber</b>													
Test Engr:		Chin Pang											
Date:		03/05/11											
Project #:		11J13696											
Company:		Hon Hai											
Test Target:		FCC 15.247											
Mode Oper:		TX, g mode											
EUT Configuration:		EUT with Foxconn Antenna											
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 GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
<b>Low Ch, 2412MHz</b>													
4.824	3.0	38.2	32.8	5.8	-34.8	0.0	0.0	41.9	74.0	-32.1	H	P	
4.824	3.0	25.8	32.8	5.8	-34.8	0.0	0.0	29.5	54.0	-24.5	H	A	
4.824	3.0	37.8	32.8	5.8	-34.8	0.0	0.0	41.5	74.0	-32.5	V	P	
4.824	3.0	25.8	32.8	5.8	-34.8	0.0	0.0	29.5	54.0	-24.5	V	A	
<b>Mid Ch, 2437MHz</b>													
4.874	3.0	38.8	32.8	5.8	-34.9	0.0	0.0	42.6	74.0	-31.4	H	P	
4.874	3.0	25.7	32.8	5.8	-34.9	0.0	0.0	29.5	54.0	-24.5	H	A	
7.311	3.0	36.8	35.2	7.3	-34.7	0.0	0.0	44.6	74.0	-29.4	H	P	
7.311	3.0	24.8	35.2	7.3	-34.7	0.0	0.0	32.6	54.0	-21.4	H	A	
4.874	3.0	36.4	32.8	5.8	-34.9	0.0	0.0	40.2	74.0	-33.8	V	A	
4.874	3.0	25.4	32.8	5.8	-34.9	0.0	0.0	29.2	54.0	-24.8	V	A	
7.311	3.0	36.7	35.2	7.3	-34.7	0.0	0.0	44.5	74.0	-29.5	V	P	
7.311	3.0	24.8	35.2	7.3	-34.7	0.0	0.0	32.6	54.0	-21.4	V	A	
<b>High Ch, 2462MHz</b>													
4.924	3.0	37.3	32.8	5.9	-34.9	0.0	0.0	41.2	74.0	-32.8	H	P	
4.924	3.0	25.6	32.8	5.9	-34.9	0.0	0.0	29.5	54.0	-24.5	H	A	
7.386	3.0	37.0	35.3	7.3	-34.6	0.0	0.0	45.0	74.0	-29.0	H	P	
7.386	3.0	24.6	35.3	7.3	-34.6	0.0	0.0	32.5	54.0	-21.5	H	A	
4.924	3.0	37.9	32.8	5.9	-34.9	0.0	0.0	41.8	74.0	-32.2	V	P	
4.924	3.0	25.6	32.8	5.9	-34.9	0.0	0.0	29.4	54.0	-24.6	V	A	
7.386	3.0	37.4	35.3	7.3	-34.6	0.0	0.0	45.4	74.0	-28.6	V	P	
7.386	3.0	24.5	35.3	7.3	-34.6	0.0	0.0	32.5	54.0	-21.5	V	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

**MITSUMI ANTENNA**

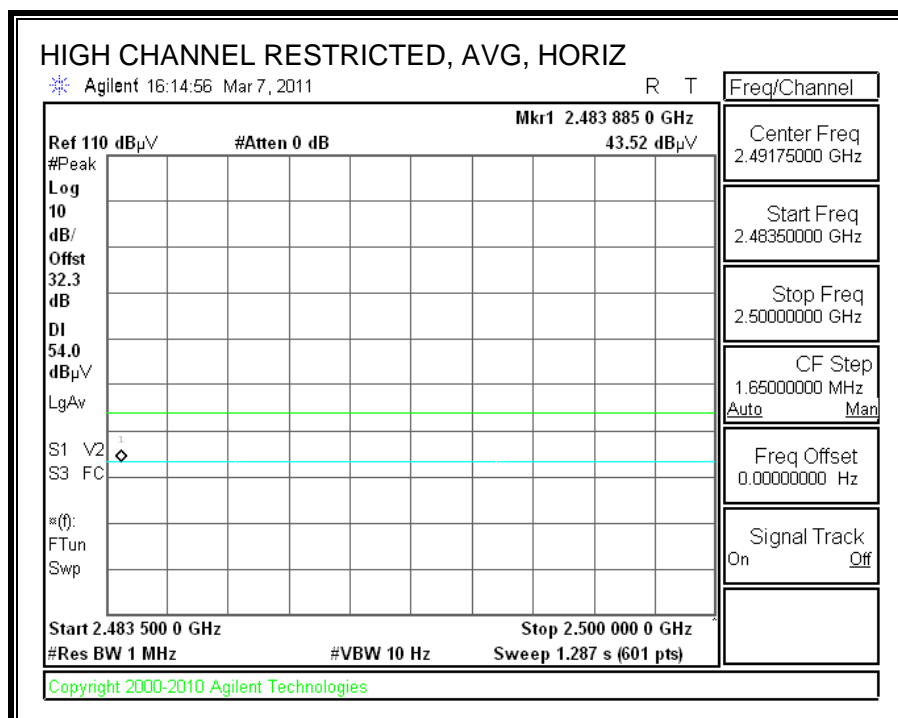
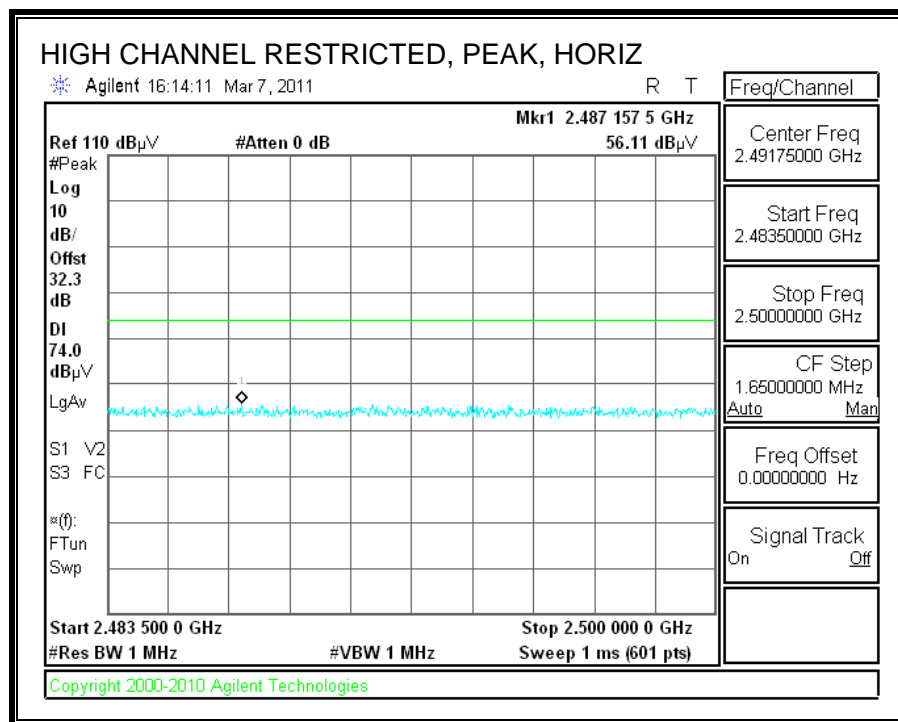
**RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**



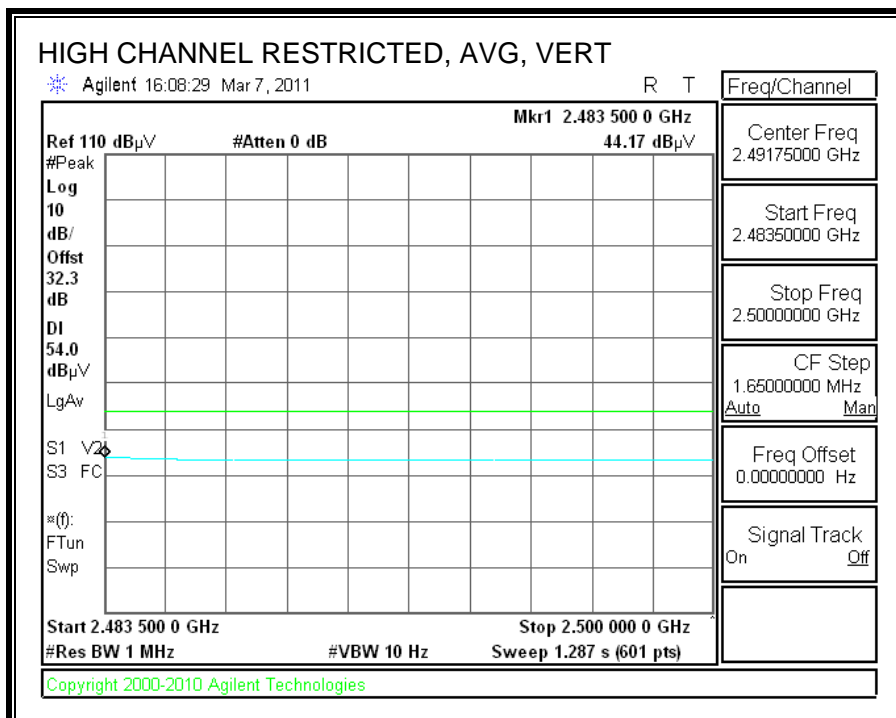
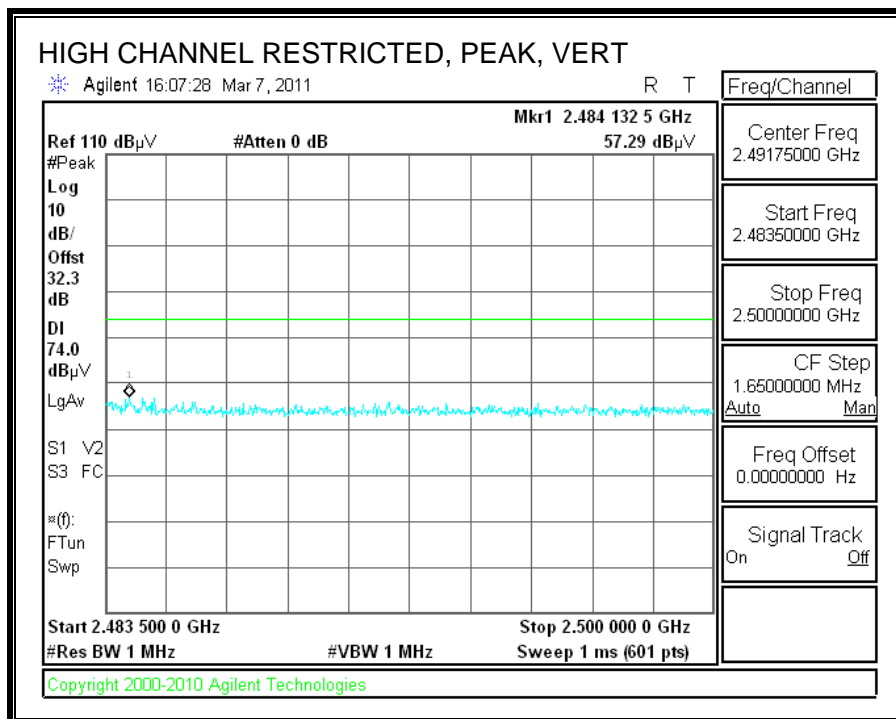
**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



**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:		David Garcia													
Date:		03/08/11													
Project #:		11J13696													
Company:		Hon Hai													
Test Target:		FCC 15.205													
Mode Oper:		Tx, g mode													
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 GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Channel: 2412 MHz															
4.824	3.0	43.2	33.0	5.8	-36.5	0.0	0.5	46.0	74.0	-28.0	H	P	143.1	217.4	
4.824	3.0	30.1	33.0	5.8	-36.5	0.0	0.5	33.0	54.0	-21.0	H	A	143.1	217.4	
4.824	3.0	40.0	33.0	5.8	-36.5	0.0	0.5	42.9	74.0	-31.1	V	P	113.6	175.6	
4.824	3.0	28.2	33.0	5.8	-36.5	0.0	0.5	31.1	54.0	-22.9	V	A	113.6	175.6	
Mid Channel: 2437 MHz															
4.874	3.0	40.7	33.1	5.8	-36.5	0.0	0.5	43.7	74.0	-30.3	H	P	100.3	233.7	
4.874	3.0	28.2	33.1	5.8	-36.5	0.0	0.5	31.2	54.0	-22.8	H	A	100.3	233.7	
7.311	3.0	37.8	35.3	7.3	-36.2	0.0	0.5	44.6	74.0	-29.4	H	P	171.2	120.5	
7.311	3.0	24.9	35.3	7.3	-36.2	0.0	0.5	31.8	54.0	-22.2	H	A	171.2	120.5	
4.874	3.0	40.8	33.1	5.8	-36.5	0.0	0.5	43.8	74.0	-30.2	V	P	100.7	143.3	
4.874	3.0	27.4	33.1	5.8	-36.5	0.0	0.5	30.4	54.0	-23.6	V	A	100.7	143.3	
7.311	3.0	37.9	35.3	7.3	-36.2	0.0	0.5	44.8	74.0	-29.2	V	P	104.2	251.0	
7.311	3.0	24.9	35.3	7.3	-36.2	0.0	0.5	31.8	54.0	-22.2	V	A	104.2	251.0	
High Channel: 2462 MHz															
4.924	3.0	40.1	33.1	5.9	-36.5	0.0	0.5	43.2	74.0	-30.8	H	P	100.0	219.5	
4.924	3.0	28.0	33.1	5.9	-36.5	0.0	0.5	31.1	54.0	-22.9	H	A	100.0	219.5	
7.386	3.0	37.9	35.4	7.3	-36.2	0.0	0.5	44.9	74.0	-29.1	H	P	163.6	55.4	
7.386	3.0	24.7	35.4	7.3	-36.2	0.0	0.5	31.7	54.0	-22.3	H	A	163.6	55.4	
4.924	3.0	40.6	33.1	5.9	-36.5	0.0	0.5	43.7	74.0	-30.3	V	P	128.1	240.3	
4.924	3.0	27.9	33.1	5.9	-36.5	0.0	0.5	31.0	54.0	-23.0	V	A	128.1	240.3	
7.386	3.0	37.7	35.4	7.3	-36.2	0.0	0.5	44.7	74.0	-29.3	V	P	101.8	261.9	
7.386	3.0	24.8	35.4	7.3	-36.2	0.0	0.5	31.8	54.0	-22.2	V	A	101.8	261.9	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

## 8.5 RECEIVER ABOVE 1 GHz

### 8.5.1 RX ABOVE 1 GHz FOR 20 MHz BANDWIDTH IN THE 2.4 GHz BAND

#### FOXCONN ANTENNA

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company:		Hon Hai													
Project #:		11J13696													
Date:		3/8/2011													
Test Engineer:		David Garcia													
Configuration:		EUT w/AC adapter, headset and Foxconn antenna													
Mode:		Receive													
<b>Test Equipment:</b>															
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit			
T73; S/N: 6717 @3m			T144 Miteq 3008A00931									RX RSS 210			
Hi Frequency Cables															
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			
3' cable 22807700			12' cable 22807600			20' cable 22807500									
<b>Peak Measurements</b> RBW=VBW=1MHz <b>Average Measurements</b> RBW=1MHz ; VBW=10Hz															
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)
1.073	3.0	47.3	39.6	24.1	2.5	-39.4	0.0	0.0	34.5	26.7	74	54	-39.5	-27.3	H
1.208	3.0	52.9	49.7	24.6	2.6	-39.2	0.0	0.0	40.9	37.6	74	54	-33.1	-16.4	H
1.475	3.0	48.3	42.3	25.5	2.9	-38.8	0.0	0.0	37.9	31.9	74	54	-36.1	-22.1	H
1.743	3.0	49.0	44.2	26.3	3.2	-38.4	0.0	0.0	40.1	35.3	74	54	-33.9	-18.7	H
1.073	3.0	42.3	34.2	24.1	2.5	-39.4	0.0	0.0	29.5	21.4	74	54	-44.5	-32.6	V
1.206	3.0	49.3	43.5	24.5	2.6	-39.2	0.0	0.0	37.3	31.5	74	54	-36.7	-22.5	V
1.475	3.0	44.9	35.3	25.4	2.9	-38.8	0.0	0.0	34.4	24.8	74	54	-39.6	-29.2	V
1.743	3.0	51.9	47.4	26.4	3.2	-38.4	0.0	0.0	43.0	38.5	74	54	-31.0	-15.5	V
2.011	3.0	48.7	42.5	27.2	3.5	-38.0	0.0	0.0	41.3	35.2	74	54	-32.7	-18.8	V
No other emissions were detected above system noise floor.															
Rev: 07.22.09															
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											



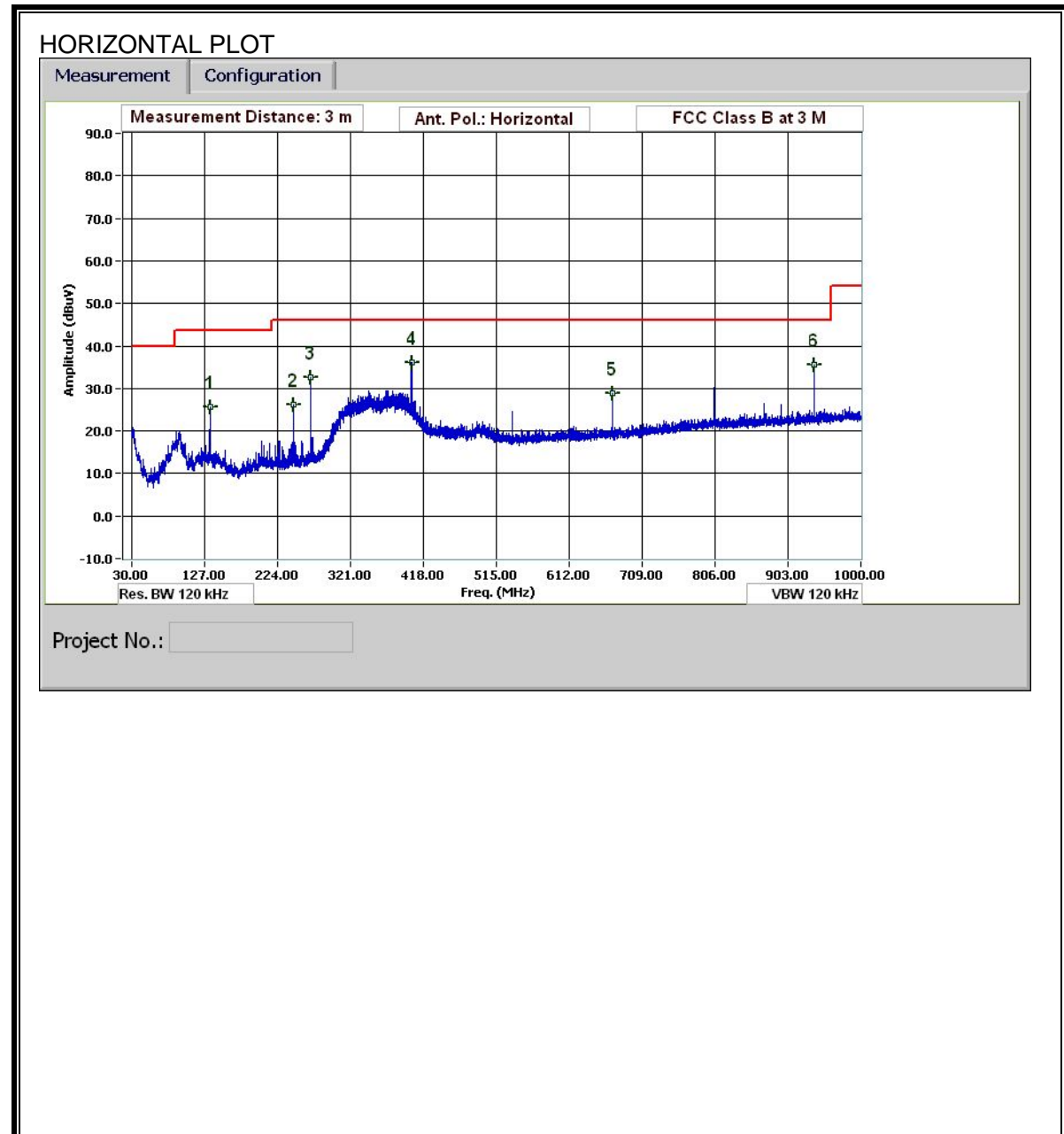
**MITSUMI ANTENNA**

High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber																	
<b>Company:</b>		Hon Hai															
<b>Project #:</b>		11J13696															
<b>Date:</b>		3/8/2011															
<b>Test Engineer:</b>		David Garcia															
<b>Configuration:</b>		EUT w/AC adapter, headset and Mitsumi antenna															
<b>Mode:</b>		Receive															
<b>Test Equipment:</b>																	
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz				Limit	
T73; S/N: 6717 @3m				T144 Miteq 3008A00931												RX RSS 210	
Hi Frequency Cables																	
3' cable 22807700				12' cable 22807600				20' cable 22807500				HPF		Reject Filter		<b>Peak Measurements</b> RBW=VBW=1MHz <b>Average Measurements</b> RBW=1MHz ; VBW=10Hz	
3' cable 22807700				12' cable 22807600				20' cable 22807500									
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
1.073	3.0	49.8	36.8	24.1	2.5	-39.4	0.0	0.0	37.0	23.9	74	54	-37.0	-30.1	H		
1.117	3.0	48.8	33.4	24.2	2.5	-39.3	0.0	0.0	36.3	20.8	74	54	-37.7	-33.2	H		
1.207	3.0	48.0	40.6	24.6	2.6	-39.2	0.0	0.0	36.0	28.6	74	54	-38.0	-25.4	H		
1.790	3.0	49.0	32.4	26.5	3.2	-38.4	0.0	0.0	40.4	23.8	74	54	-33.6	-30.2	H		
1.073	3.0	50.9	42.3	24.1	2.5	-39.4	0.0	0.0	38.1	29.5	74	54	-35.9	-24.5	V		
1.117	3.0	54.3	34.7	24.2	2.5	-39.3	0.0	0.0	41.7	22.1	74	54	-32.3	-31.9	V		
1.207	3.0	50.7	46.4	24.6	2.6	-39.2	0.0	0.0	38.7	34.3	74	54	-35.3	-19.7	V		
1.427	3.0	51.5	34.4	25.3	2.9	-38.9	0.0	0.0	40.8	23.6	74	54	-33.2	-30.4	V		
No other emissions were detected above system noise floor.																	
Rev. 07.22.09																	
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												

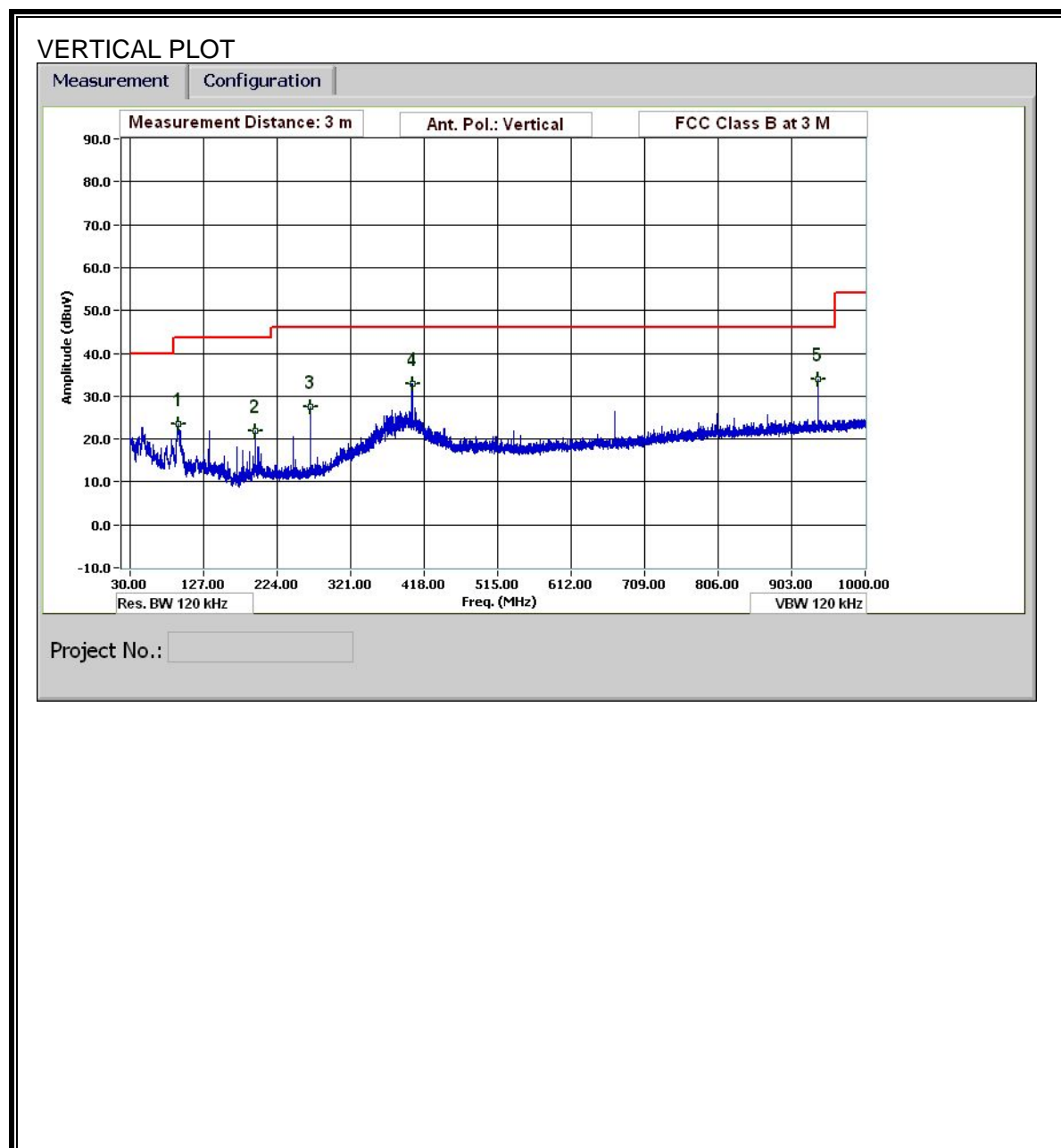
## 8.6 WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

### FOXCONN ANTENNA

### SPURIOUS EMISSIONS 30 TO 1000 MHz (HORIZONTAL)



**SPURIOUS EMISSIONS 30 TO 1000 MHz (VERTICAL)**



## HORIZONTAL AND VERTICAL DATA

### 30-1000MHz Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang  
Date: 03/05/11  
Project #: 11J13696  
Company: Hon Hai  
Test Target: FCC 15C  
Mode Oper: TX ( Worst Case)  
EUT with Foxconn Antenna

f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		
Read	Analyzer Reading	Filter	Filter Insert Loss		
AF	Antenna Factor	Corr.	Calculated Field Strength		
CL	Cable Loss	Limit	Field Strength Limit		

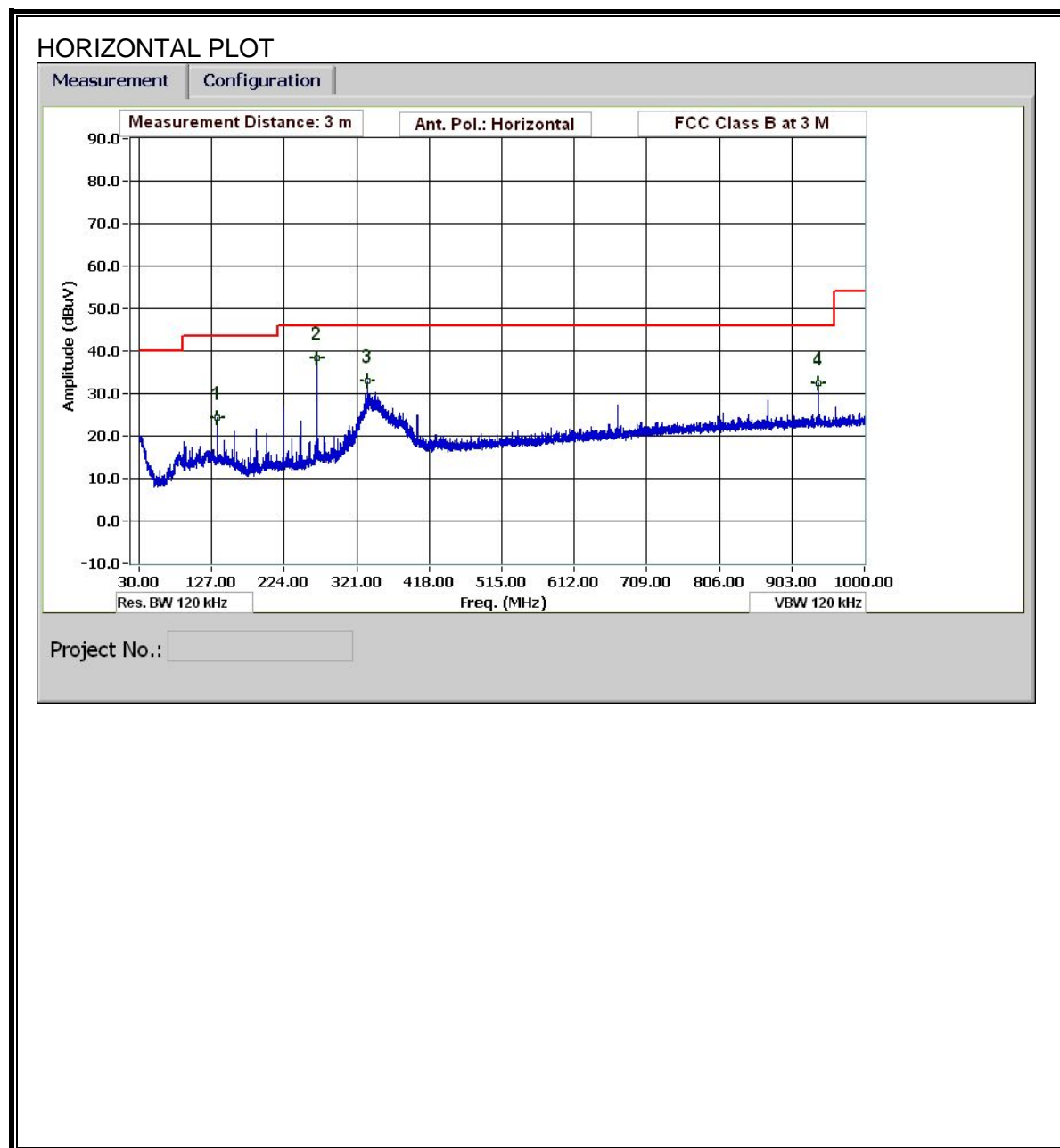
f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Pad dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
horiz													
134.044	3.0	40.4	13.5	1.0	29.4	0.0	0.0	28.5	43.5	-18.0	H	P	
245.769	3.0	41.8	11.8	1.4	28.8	0.0	0.0	26.2	46.0	-19.8	H	P	
268.09	3.0	47.6	12.3	1.5	28.8	0.0	0.0	32.6	46.0	-13.4	H	P	
402.135	3.0	48.3	15.1	1.9	29.3	0.0	0.0	36.0	46.0	-10.0	H	P	
670.226	3.0	36.9	18.9	2.5	29.6	0.0	0.0	28.8	46.0	-17.2	H	P	
938.317	3.0	39.0	21.9	3.1	28.5	0.0	0.0	35.5	46.0	-10.5	H	P	
93.243	3.0	43.7	8.3	0.9	29.6	0.0	0.0	23.4	43.5	-20.1	V	P	
195.367	3.0	37.8	11.6	1.3	28.9	0.0	0.0	21.8	43.5	-21.7	V	P	
268.09	3.0	42.5	12.3	1.5	28.8	0.0	0.0	27.6	46.0	-18.4	V	P	
402.135	3.0	45.3	15.1	1.9	29.3	0.0	0.0	33.0	46.0	-13.0	V	P	
938.317	3.0	37.6	21.9	3.1	28.5	0.0	0.0	34.1	46.0	-11.9	V	P	

Rev. 1.27.09

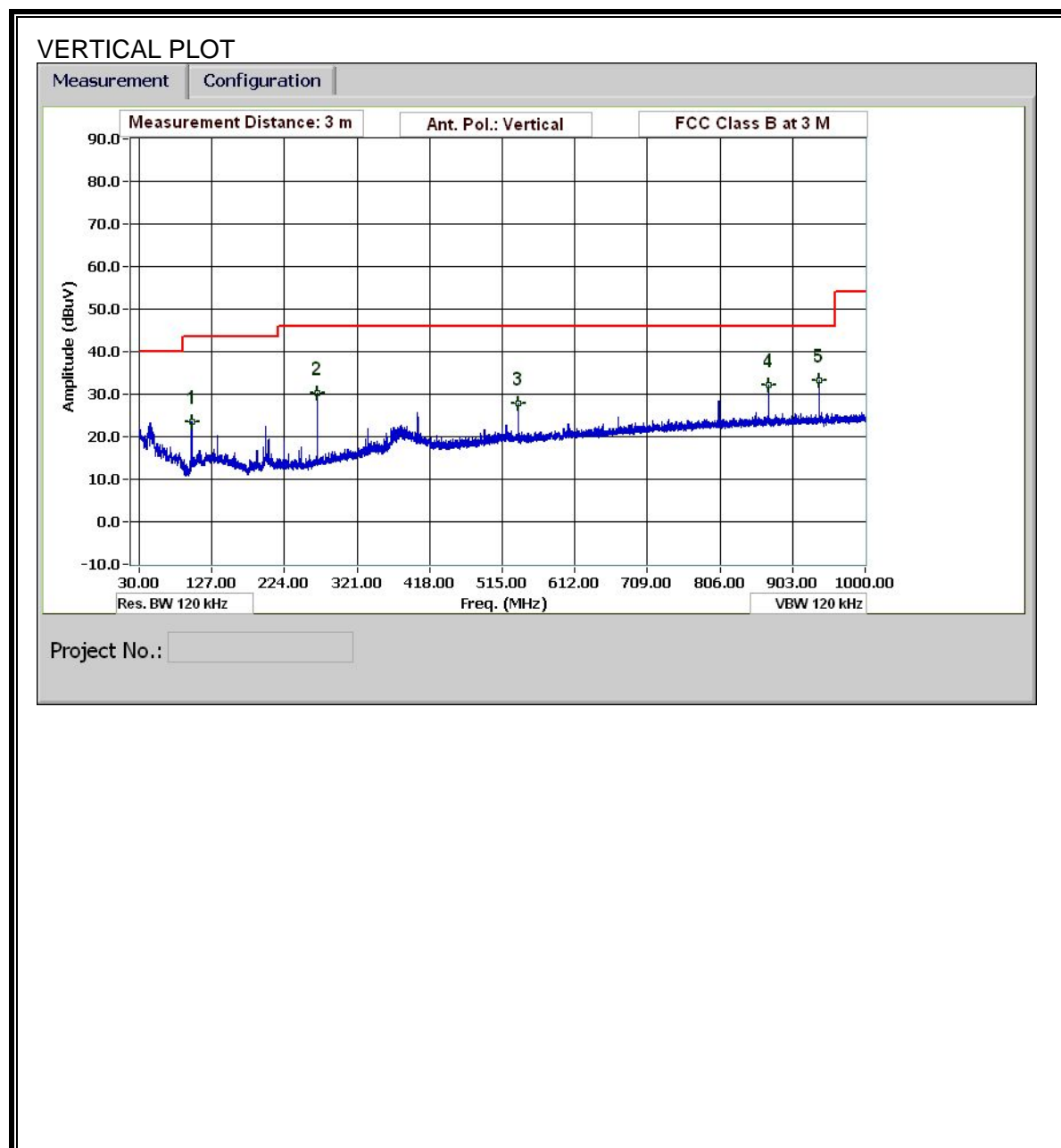
Note: No other emissions were detected above the system noise floor.

**MITSUMI ANTENNA**

**SPURIOUS EMISSIONS 30 TO 1000 MHz (HORIZONTAL)**



**SPURIOUS EMISSIONS 30 TO 1000 MHz (VERTICAL)**



## HORIZONTAL AND VERTICAL DATA

30-1000MHz Frequency Measurement  
Compliance Certification Services, Fremont 5m Chamber

Test Engr: David Garcia  
Date: 03/08/11  
Project #: 11J13696  
Company: Hon Hai  
Test Target: FCC Class B  
Mode Oper: Tx Worst Case

f Measurement Frequency Amp Preamp Gain Margin Margin vs. Limit  
Dist Distance to Antenna D Corr Distance Correct to 3 meters  
Read Analyzer Reading Filter Filter Insert Loss  
AF Antenna Factor Corr. Calculated Field Strength  
CL Cable Loss Limit Field Strength Limit

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Pad dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant. High cm	Table Angle Degree	Notes
134.044	3.0	38.2	13.4	1.1	28.3	0.0	0.0	24.4	43.5	-19.1	H	P	100.0	0 - 360	Prescan
268.09	3.0	52.8	12.4	1.4	28.2	0.0	0.0	38.4	46.0	-7.6	H	P	100.0	0 - 360	Prescan
335.173	3.0	45.6	13.9	1.6	28.1	0.0	0.0	33.0	46.0	-13.0	H	P	100.0	0 - 360	Prescan
938.317	3.0	35.2	22.1	2.9	27.8	0.0	0.0	32.3	46.0	-13.7	H	P	100.0	0 - 360	Prescan
99.843	3.0	41.0	9.9	0.9	28.3	0.0	0.0	23.5	43.5	-20.0	V	P	100.0	0 - 360	Prescan
268.09	3.0	44.6	12.4	1.4	28.2	0.0	0.0	30.2	46.0	-15.8	V	P	100.0	0 - 360	Prescan
536.181	3.0	36.0	17.3	2.1	27.7	0.0	0.0	27.7	46.0	-18.3	V	P	100.0	0 - 360	Prescan
871.355	3.0	35.4	21.6	2.8	27.7	0.0	0.0	32.0	46.0	-14.0	V	P	100.0	0 - 360	Prescan
938.437	3.0	36.0	22.1	2.9	27.8	0.0	0.0	33.1	46.0	-12.9	V	P	100.0	0 - 360	Prescan

Rev. 1.27.09

Note: No other emissions were detected above the system noise floor.

## 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



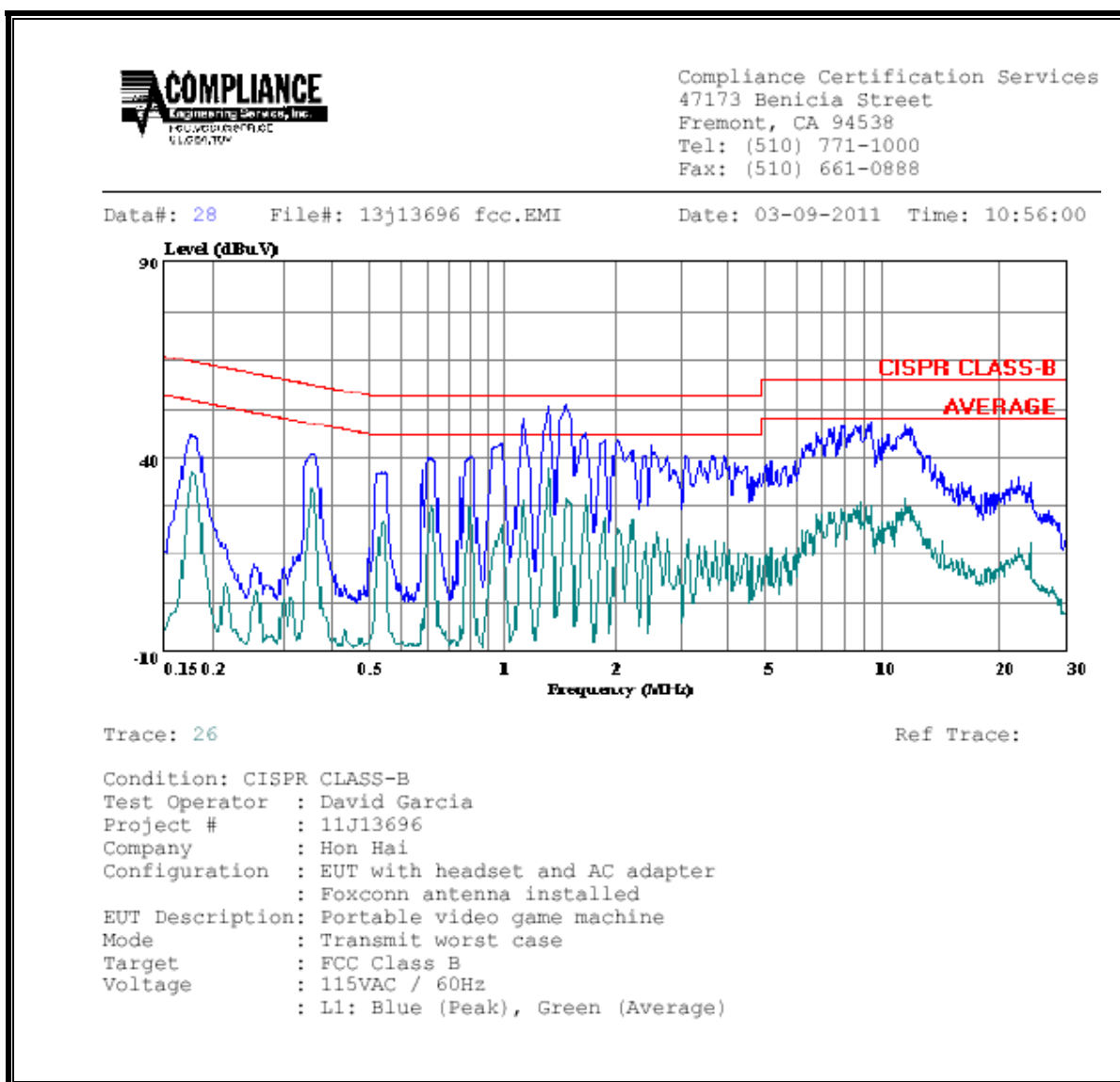
## RESULTS

### FOXCONN ANTENNA

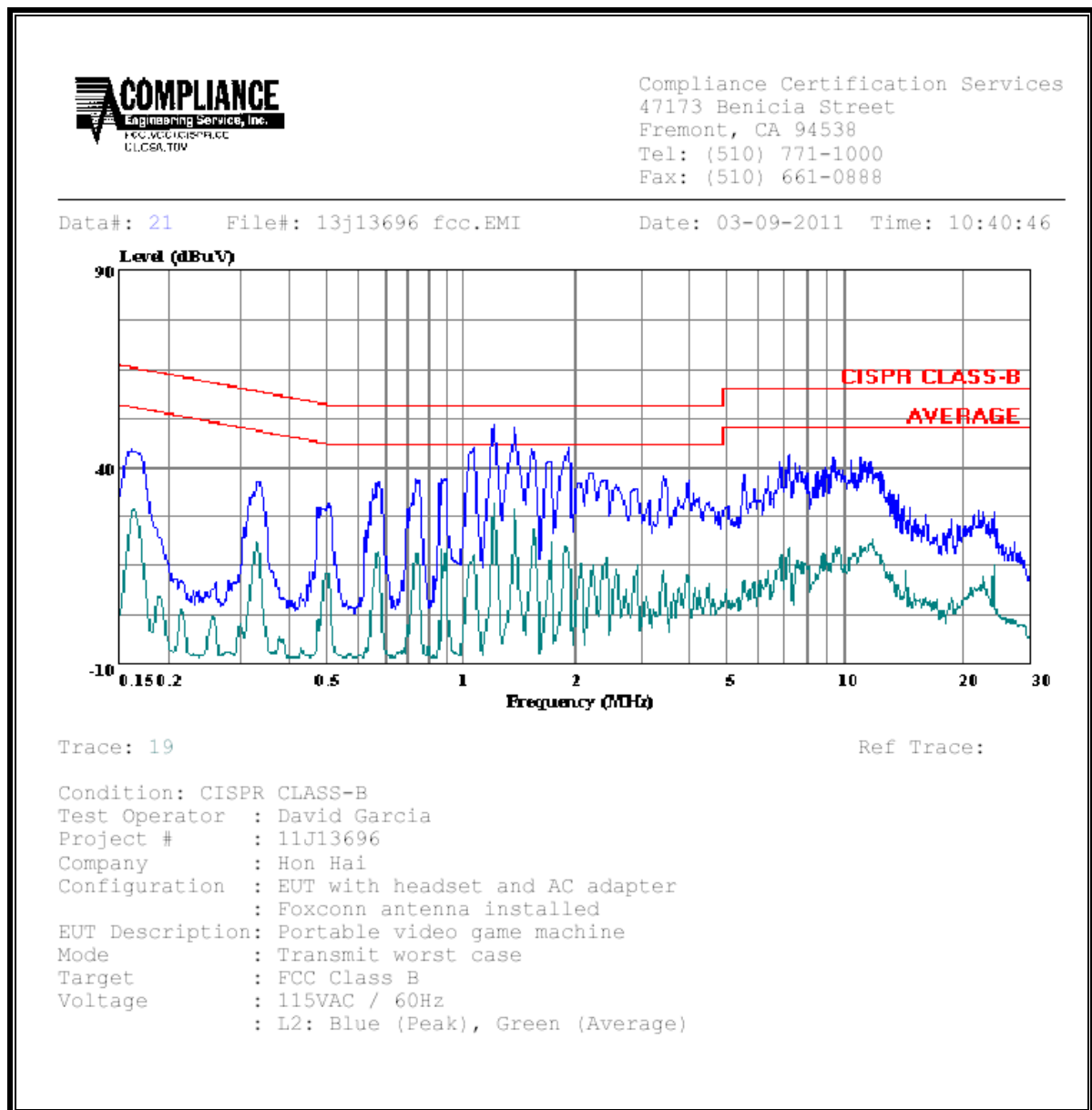
#### 6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
1.23	50.25	--	29.05	0.00	56.00	46.00	-5.75	-16.95	L1
1.43	53.41	--	37.13	0.00	56.00	46.00	-2.59	-8.87	L1
1.58	53.73	--	29.25	0.00	56.00	46.00	-2.27	-16.75	L1
1.32	51.07	--	30.82	0.00	56.00	46.00	-4.93	-15.18	L2
1.49	50.01	--	29.23	0.00	56.00	46.00	-5.99	-16.77	L2
2.04	44.99	--	20.06	0.00	56.00	46.00	-11.01	-25.94	L2
6 Worst Data									

## LINE 1 RESULTS



## LINE 2 RESULTS

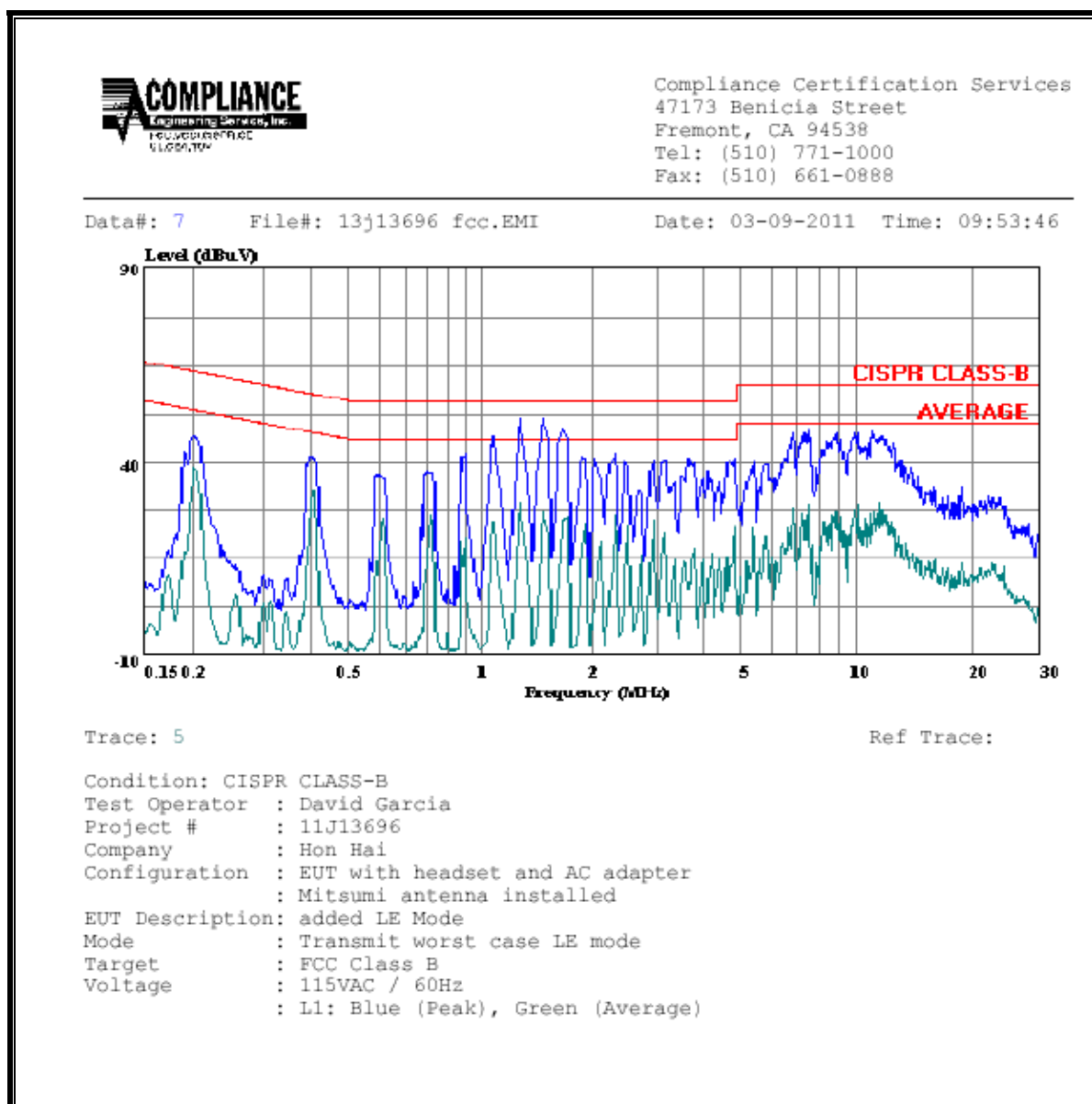


**MITSUMI ANTENNA**

**6 WORST EMISSIONS**

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
1.37	51.66	--	29.45	0.00	56.00	46.00	-4.34	-16.55	L1
1.58	51.28	--	27.10	0.00	56.00	46.00	-4.72	-18.90	L1
1.78	48.67	--	25.95	0.00	56.00	46.00	-7.33	-20.05	L1
1.37	45.71	--	17.49	0.00	56.00	46.00	-10.29	-28.51	L2
1.64	48.31	--	21.24	0.00	56.00	46.00	-7.69	-24.76	L2
1.84	46.06	--	18.64	0.00	56.00	46.00	-9.94	-27.36	L2
6 Worst Data									

## LINE 1 RESULTS

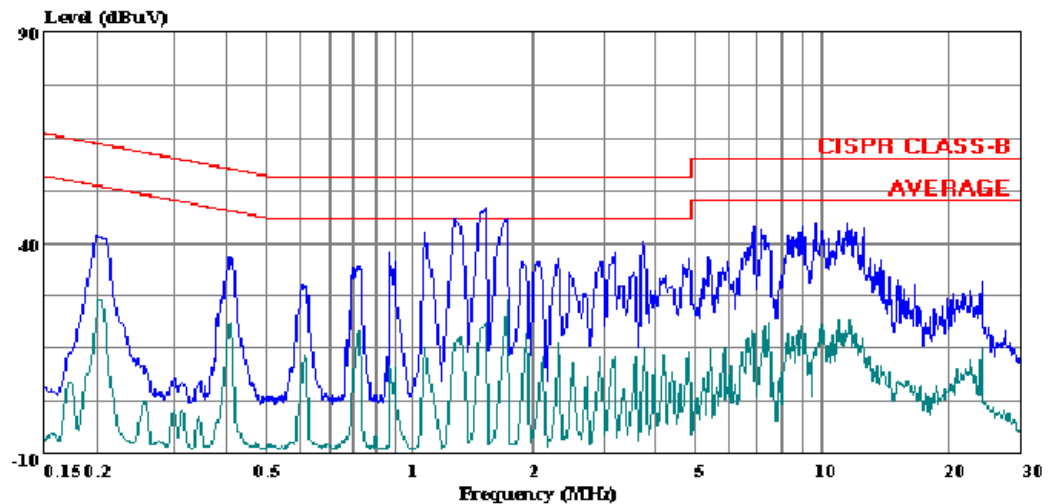


**LINE 2 RESULTS**



Compliance Certification Services  
47173 Benicia Street  
Fremont, CA 94538  
Tel: (510) 771-1000  
Fax: (510) 661-0888

Data#: 14 File#: 13j13696 fcc.EMI Date: 03-09-2011 Time: 10:14:23



Trace: 12

Ref Trace:

Condition: CISPR CLASS-B  
Test Operator : David Garcia  
Project # : 11J13696  
Company : Hon Hai  
Configuration : EUT with headset and AC adapter  
Mitsumi antenna installed  
EUT Description: Portable video game machine  
Mode : Transmit worst case  
Target : FCC Class B  
Voltage : 115VAC / 60Hz  
L2: Blue (Peak), Green (Average)

## 10 MAXIMUM PERMISSIBLE EXPOSURE

### FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f <sup>2</sup> )	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

## IC RULES

IC Safety Code 6, Section 2.2.1 (a) A person other than an RF and microwave exposed worker shall not be exposed to electromagnetic radiation in a frequency band listed in Column 1 of Table 5, if the field strength exceeds the value given in Column 2 or 3 of Table 5, when averaged spatially and over time, or if the power density exceeds the value given in Column 4 of Table 5, when averaged spatially and over time.

**Table 5**  
**Exposure Limits for Persons Not Classed As RF and Microwave Exposed Workers (Including the General Public)**

1 Frequency (MHz)	2 Electric Field Strength; rms (V/m)	3 Magnetic Field Strength; rms (A/m)	4 Power Density (W/m <sup>2</sup> )	5 Averaging Time (min)
0.003–1	280	2.19		6
1–10	$280/f$	$2.19/f$		6
10–30	28	$2.19/f$		6
30–300	28	0.073	2*	6
300–1 500	$1.585f^{0.5}$	$0.0042f^{0.5}$	$f/150$	6
1 500–15 000	61.4	0.163	10	6
15 000–150 000	61.4	0.163	10	$616\,000/f^{1.2}$
150 000–300 000	$0.158f^{0.5}$	$4.21 \times 10^{-4}f^{0.5}$	$6.67 \times 10^{-5}f$	$616\,000/f^{1.2}$

\* Power density limit is applicable at frequencies greater than 100 MHz.

- Notes:**
1. Frequency,  $f$ , is in MHz.
  2. A power density of  $10\text{ W/m}^2$  is equivalent to  $1\text{ mW/cm}^2$ .
  3. A magnetic field strength of  $1\text{ A/m}$  corresponds to  $1.257\text{ microtesla } (\mu\text{T})$  or  $12.57\text{ milligauss (mG)}$ .



## **EQUATIONS**

Power density is given by:

$$S = \text{EIRP} / (4 * \pi * D^2)$$

where

S = Power density in W/m<sup>2</sup>

EIRP = Equivalent Isotropic Radiated Power in W

D = Separation distance in m

Power density in units of W/m<sup>2</sup> is converted to units of mW/cm<sup>2</sup> by dividing by 10.

Distance is given by:

$$D = \text{SQRT} (\text{EIRP} / (4 * \pi * S))$$

where

D = Separation distance in m

EIRP = Equivalent Isotropic Radiated Power in W

S = Power density in W/m<sup>2</sup>

For multiple colocated transmitters operating simultaneously in frequency bands where the limit is identical, the total power density is calculated using the total EIRP obtained by summing the Power \* Gain product (in linear units) of each transmitter.

$$\text{Total EIRP} = (P_1 * G_1) + (P_2 * G_2) + \dots + (P_n * G_n)$$

where

P<sub>x</sub> = Power of transmitter x

G<sub>x</sub> = Numeric gain of antenna x

In the table(s) below, Power and Gain are entered in units of dBm and dBi respectively and conversions to linear forms are used for the calculations.

## **LIMITS**

From FCC §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm<sup>2</sup>

From IC Safety Code 6, Section 2.2 Table 5 Column 4, S = 10 W/m<sup>2</sup>

## **RESULTS**

(MPE distance equals 20 cm)

Band	Mode	Separation Distance (m)	Output AV Power (dBm)	Antenna Gain (dBi)	IC Power Density (W/m <sup>2</sup> )	FCC Power Density (mW/cm <sup>2</sup> )
2.4 GHz	WLAN	0.20	5.95	1.15	0.01	0.001