



**RADIATED SPURIOUS EMISSIONS PORTIONS OF  
FCC CFR47 PART 15 SUBPART C REPORT  
FOR  
DUALBAND CDMA PHONE WITH BLUETOOTH + EDR AND WIFI**

**MODEL NUMBER: M9300**

**FCC ID: V65M9300**

**REPORT NUMBER: 10U13558-1**

**ISSUE DATE: DECEMBER 30, 2010**

*Prepared for*  
**KYOCERA COMMUNICATIONS, INC  
9520 TOWNE CENTER DRIVE  
SAN DIEGO, CA 92121**

*Prepared by*  
**COMPLIANCE CERTIFICATION SERVICES (UL CCS)  
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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>
---	12/30/10	Initial Issue	F. IBRAHIM



# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** KYOCERA COMMUNICATIONS, INC  
9520 TOWNE CENTER DRIVE  
SAN DIEGO, CA 92121

**EUT DESCRIPTION:** DUAL-BAND CDMA PHONE WITH BLUETOOTH + EDR AND  
WIFI

**MODEL:** M9300

**SERIAL NUMBER:** 9300B186

**DATE TESTED:** DECEMBER 18-19, 2010

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	PASS (Radiated Portion )

Compliance Certification Services, Inc. (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:



FRANK IBRAHIM  
EMC Supervisor  
UL CCS

OLIVER SU  
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, and FCC CFR 47 Part 15.

## 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 EUT is a Bluetooth featured Dual-band CDMA Phone with Bluetooth EDR and WiFi feature that is manufactured by KYOCERA Communications, Inc.

### **5.2. DESCRIPTION OF AVAILABLE ANTENNAS**

The radio utilizes an internal antenna, with a maximum gain of -1.0dBi.

### **5.3. SOFTWARE AND FIRMWARE**

The firmware installed in the EUT during testing was 1.0.10.0.

The test utility software used during testing was FCC\_tools.

### **5.4. WORST-CASE CONFIGURATION**

The EUT has been evaluated at X, Y, Z-axis, and AC/DC adapter. The highest measured output power was at X-Axis with AC/DC adapter.

Radiated Emissions and Power Line Conducted Emissions were performed with the EUT set to transmit at the channel with highest output power.

Worst-case data rates as provided by the client are 1Mbps for 11b and 6Mbps for 11g.

## 5.5. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC Adapter	Kyocera	SCP-23ADT	N/A	N/A
Earphone	CCS owned	N/A	N/A	N/A

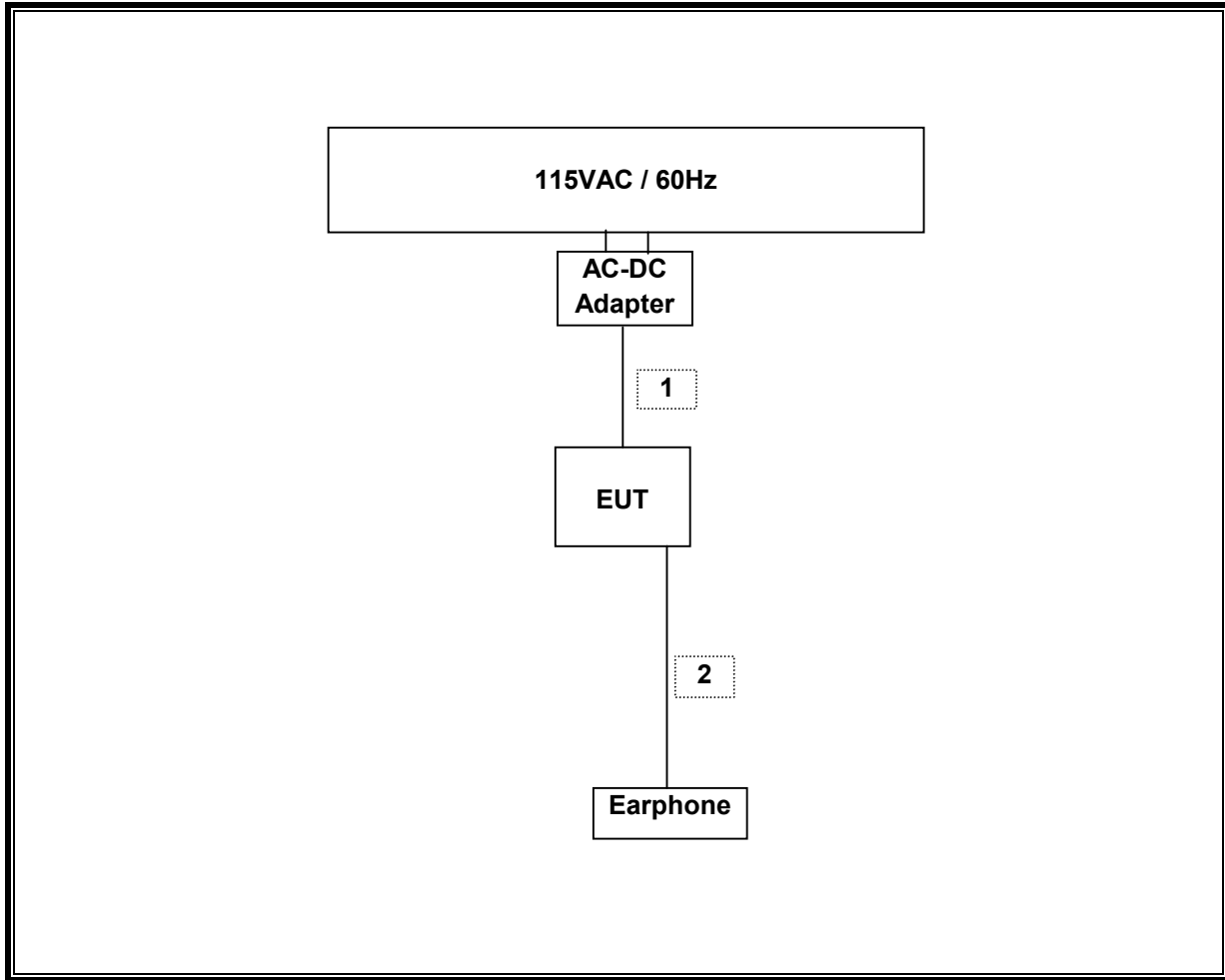
### I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC Input	1	Round	Un-Shielded	1	N/A
2	Phone Jack	2	Normal	Un-Shielded	1	N/A

### TEST SETUP

The EUT is configured as with AC/DC adapter for above 1GHz radiated emission and for below 1GHz radiated emissions and AC Line Conduction emission tests.

**SETUP DIAGRAM FOR 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 Due
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/30/11
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/06/11
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/14/11
Antenna, Horn, 18 GHz	EMCO	3115	C00783	06/29/11
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/12/11
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	05/06/11
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

## 7. RADIATED TEST RESULTS

### 7.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

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.

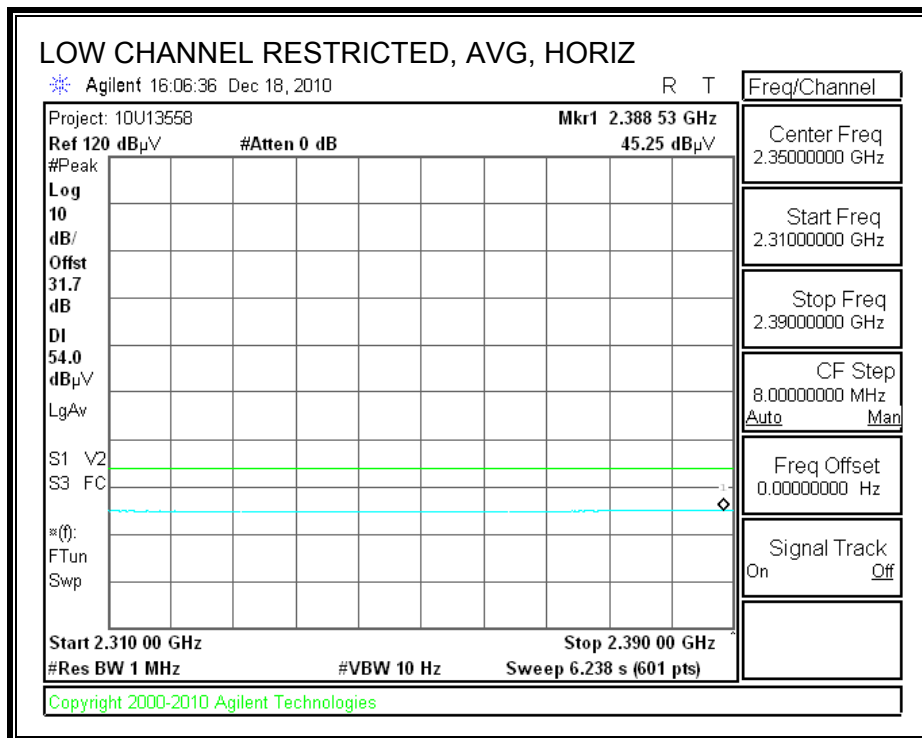
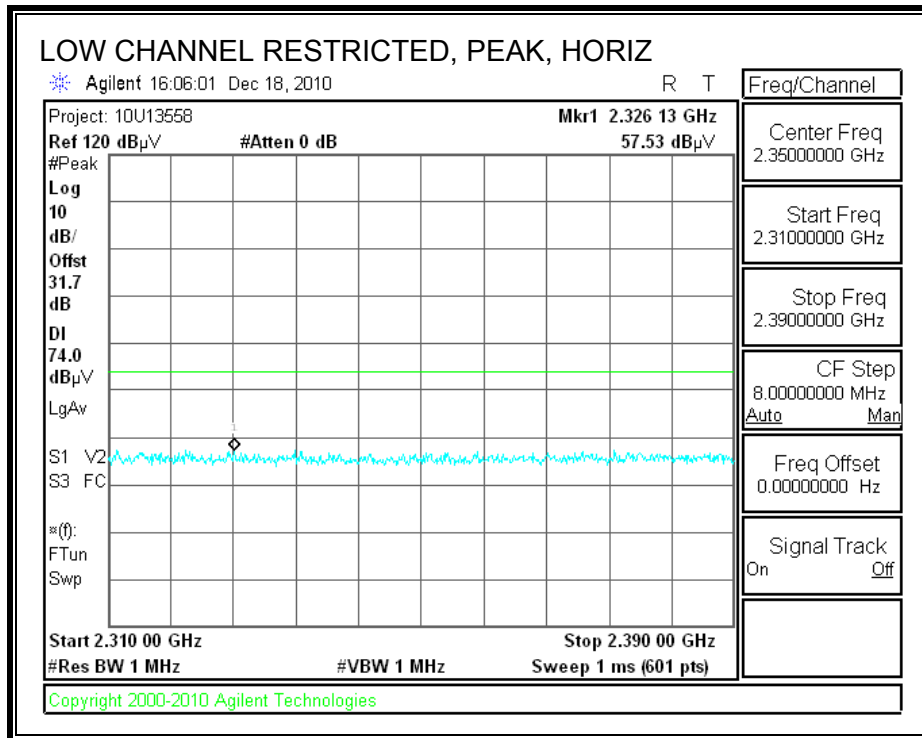
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

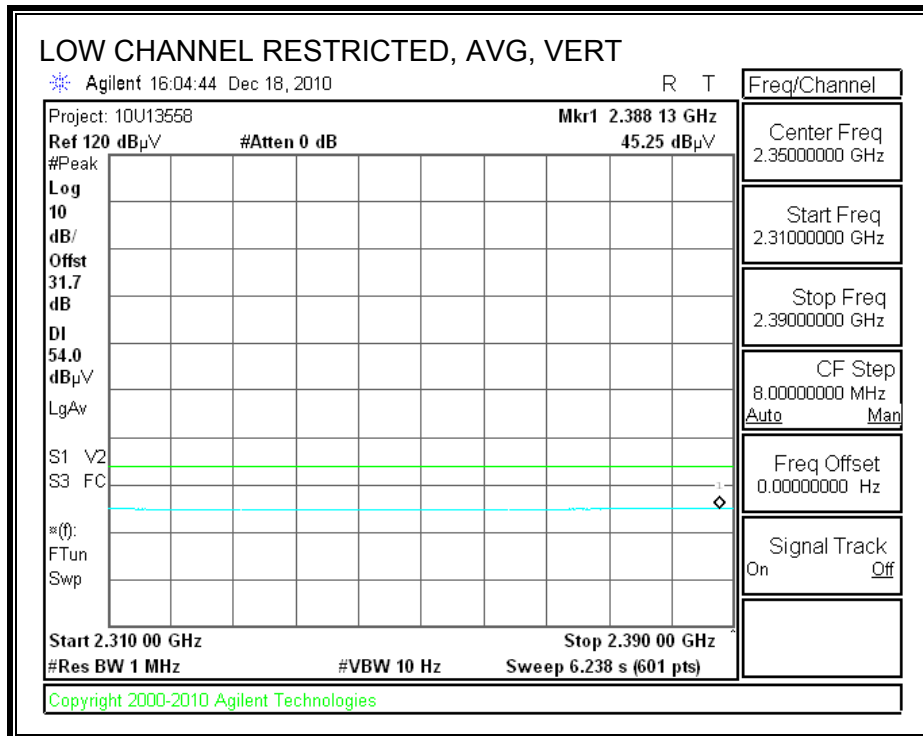
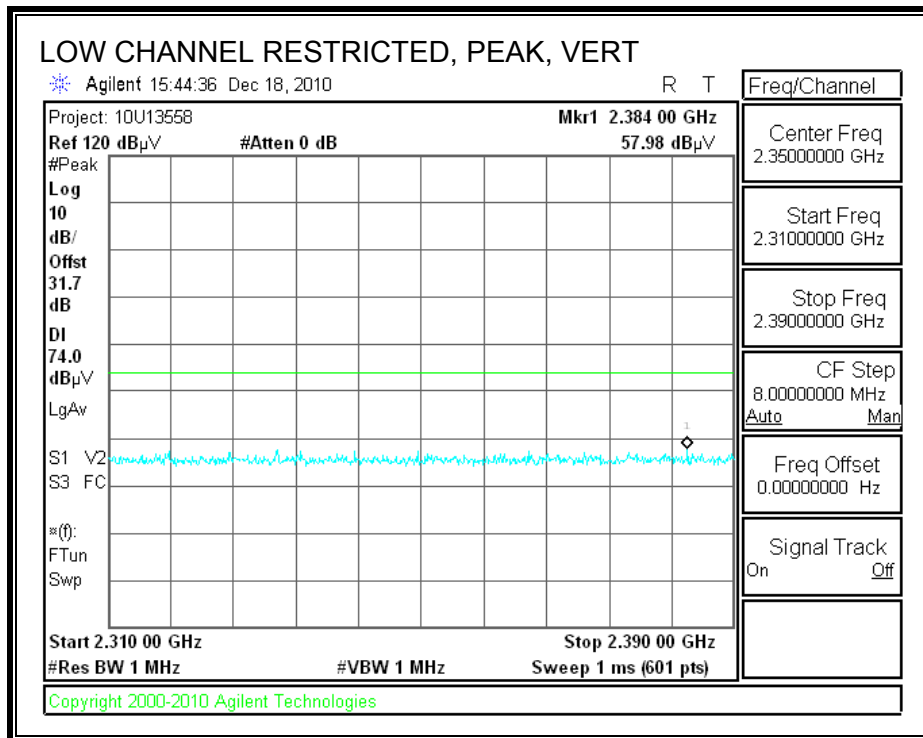
#### RESULTS

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

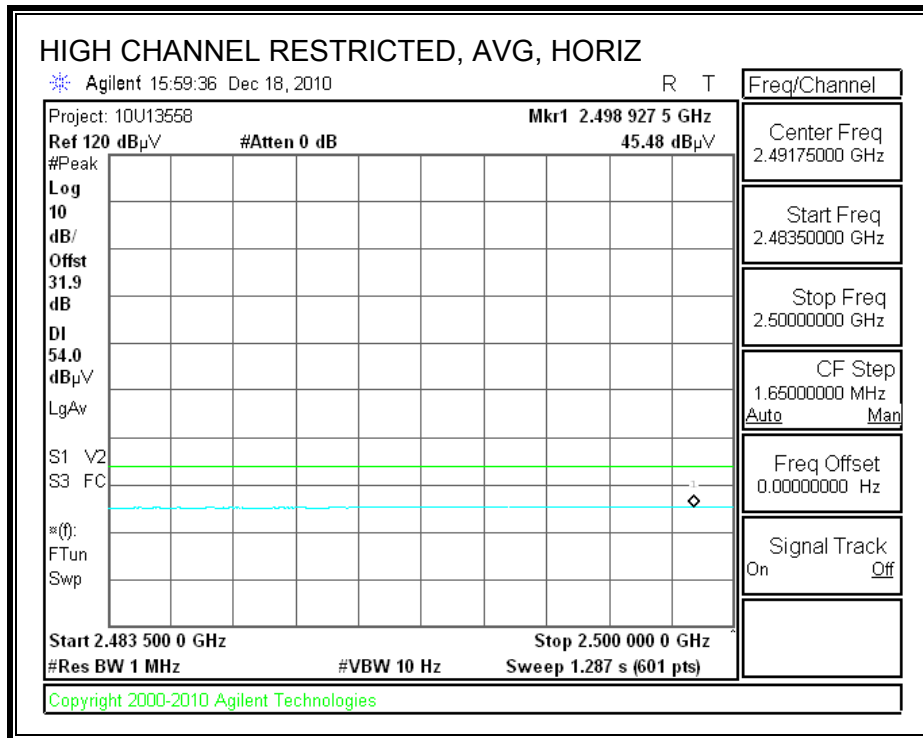
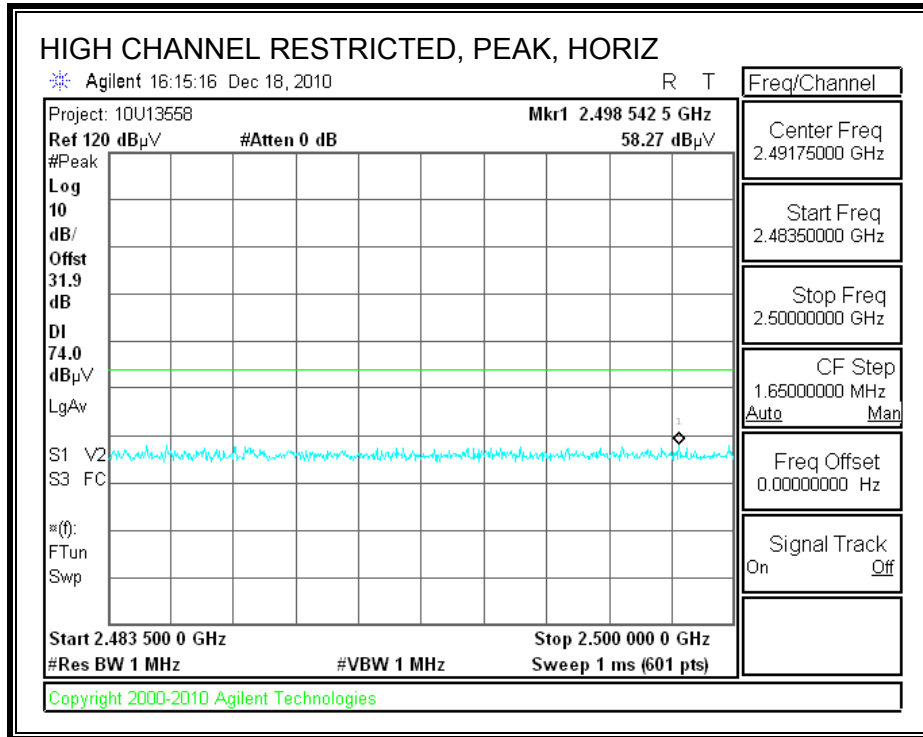
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



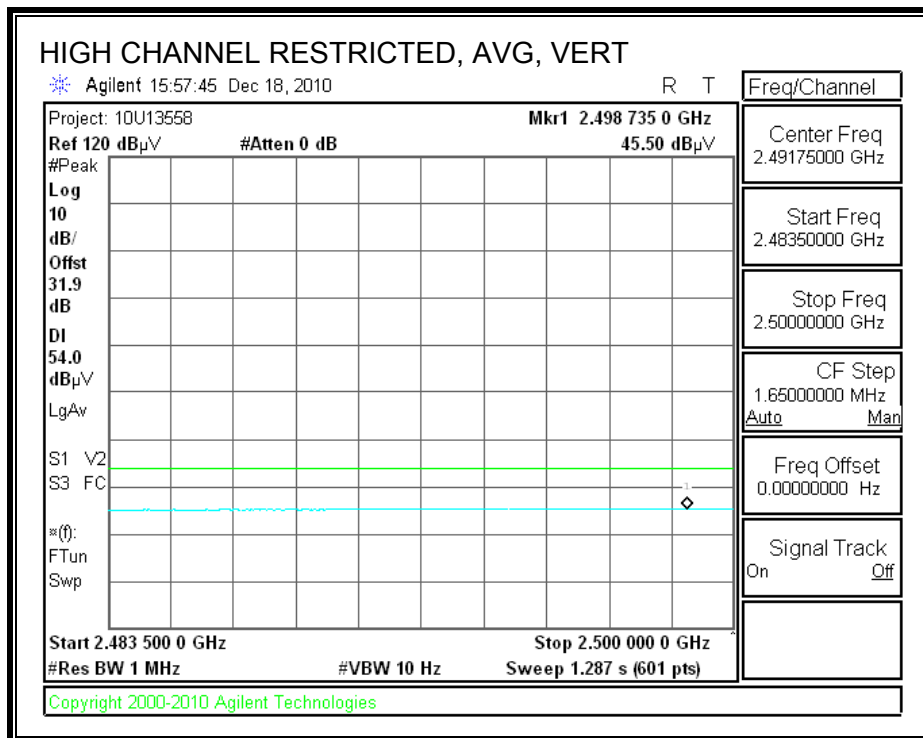
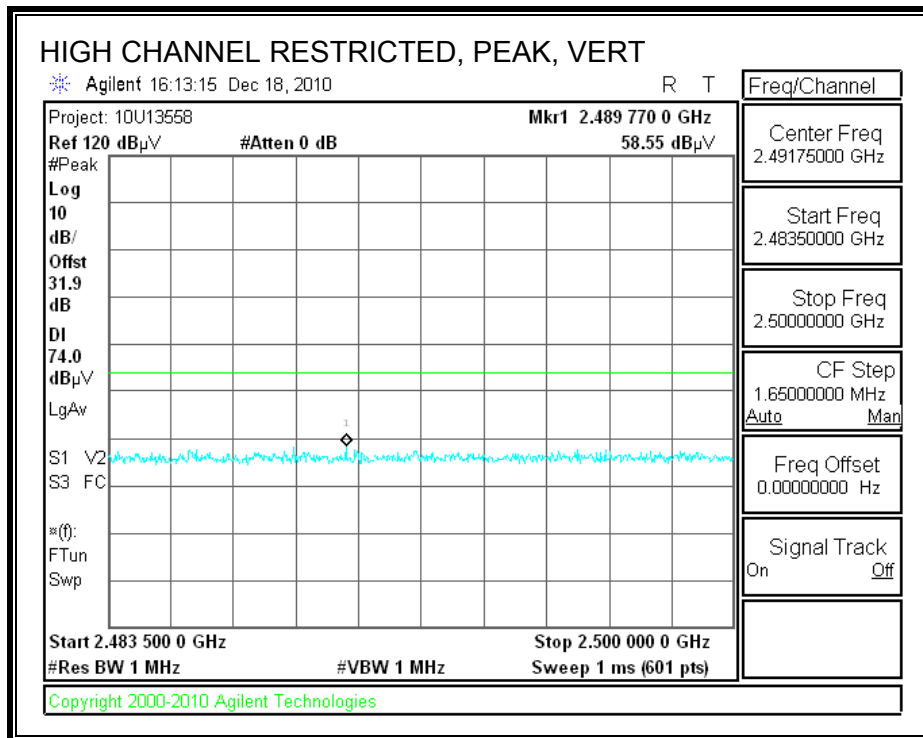
**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



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



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



Where is the harmonics data for 11b?

**HARMONICS AND SPURIOUS EMISSIONS**

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

Company: Kyocera  
 Project #: 10U13558  
 Date: 19-Dec-10  
 Test Engineer: Gerard Paul  
 Configuration: X Plane with power  
 Mode: Wifi b/g

**Test Equipment:**

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005			FCC 15.209

Hi Frequency Cables

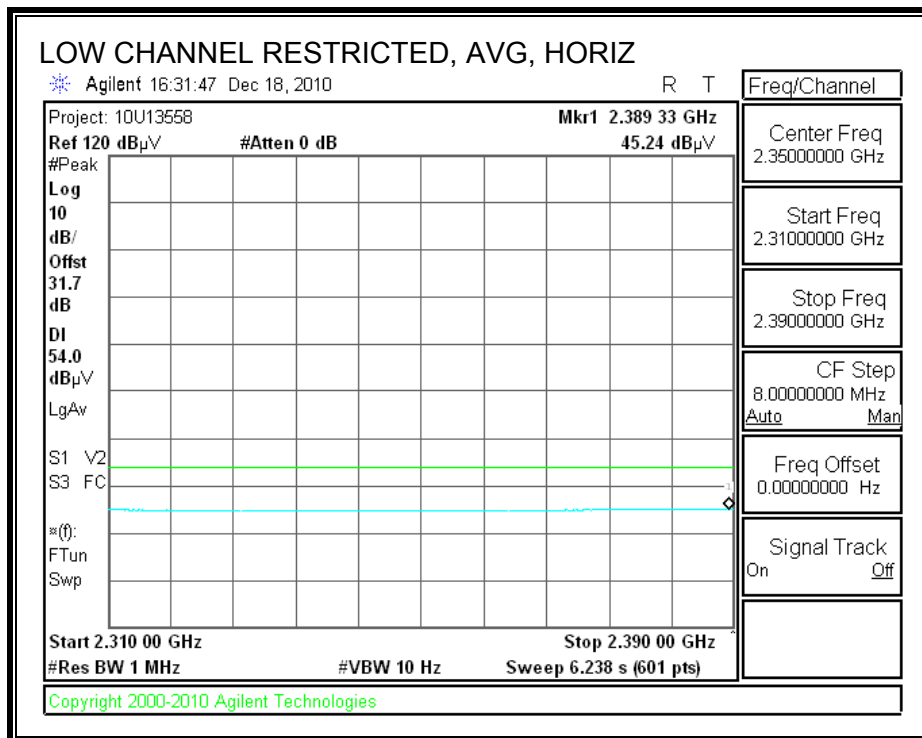
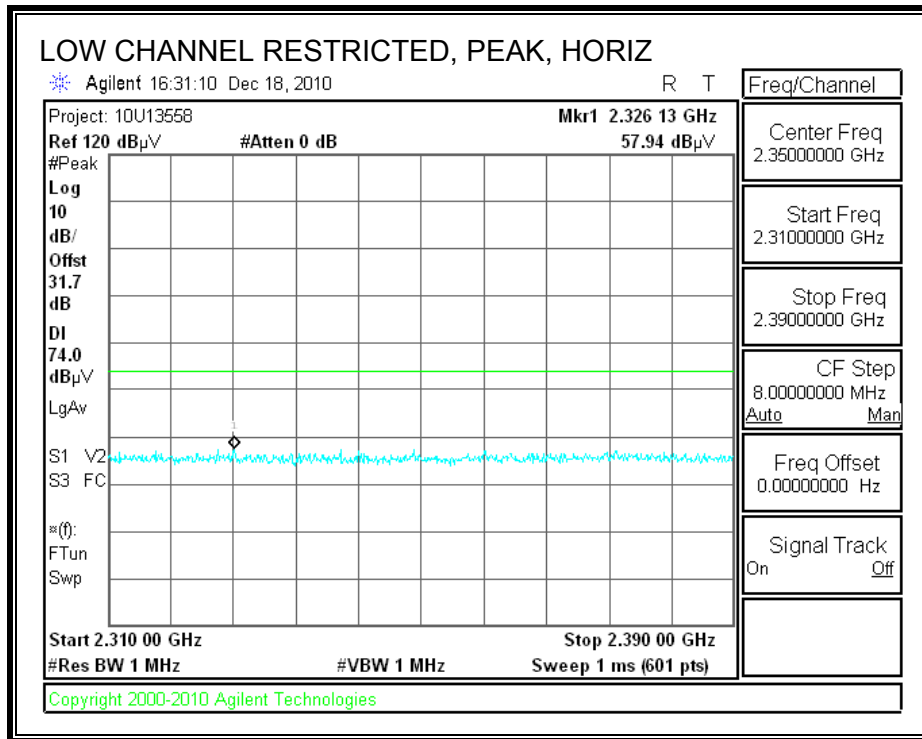
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600			R_001	Average Measurements RBW=1MHz, VBW=10Hz

f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Ftr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
<b>b low channel</b>															
4.288	3.0	39.7		32.3	1.9	-34.8	0.0	0.0	39.2	-0.5	74	54	-34.8	-54.5	V
7.239	3.0	38.4		35.1	2.6	-34.7	0.0	0.0	41.4	3.0	74	54	-32.6	-51.0	V
4.288	3.0	37.7		32.3	1.9	-34.8	0.0	0.0	37.2	-0.5	74	54	-36.8	-54.5	H
7.239	3.0	39.0		35.1	2.6	-34.7	0.0	0.0	42.0	3.0	74	54	-32.0	-51.0	H
<b>b mid channel</b>															
4.877	3.0	38.1		32.8	2.0	-34.9	0.0	0.0	38.1	0.0	74	54	-35.9	-54.0	V
7.316	3.0	39.0		35.2	2.6	-34.7	0.0	0.0	42.1	3.1	74	54	-31.9	-50.9	V
4.877	3.0	38.0		32.8	2.0	-34.9	0.0	0.0	38.0	0.0	74	54	-36.0	-54.0	H
7.316	3.0	38.7		35.2	2.6	-34.7	0.0	0.0	41.8	3.1	74	54	-32.2	-50.9	H
<b>b high channel</b>															
4.927	3.0	39.7		32.8	2.1	-34.9	0.0	0.0	39.7	0.0	74	54	-34.3	-54.0	V
7.389	3.0	38.8		35.3	2.6	-34.6	0.0	0.0	42.1	3.3	74	54	-31.9	-50.7	V
4.927	3.0	39.4		32.8	2.1	-34.9	0.0	0.0	39.4	0.0	74	54	-34.6	-54.0	H
7.389	3.0	39.2		35.3	2.6	-34.6	0.0	0.0	42.5	3.3	74	54	-31.5	-50.7	H

Rev. 07.22.09

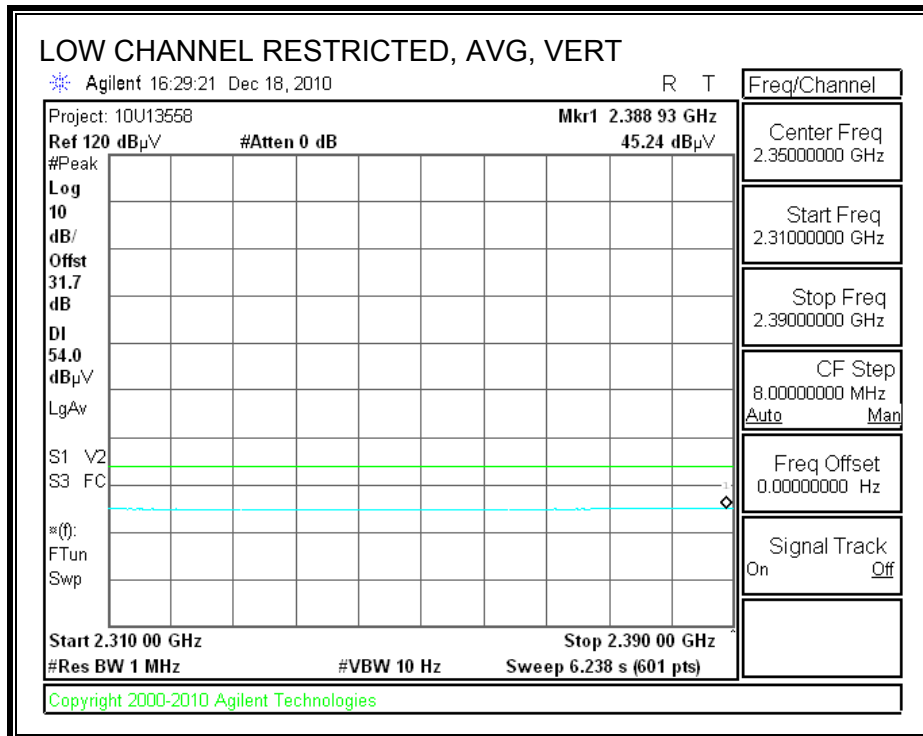
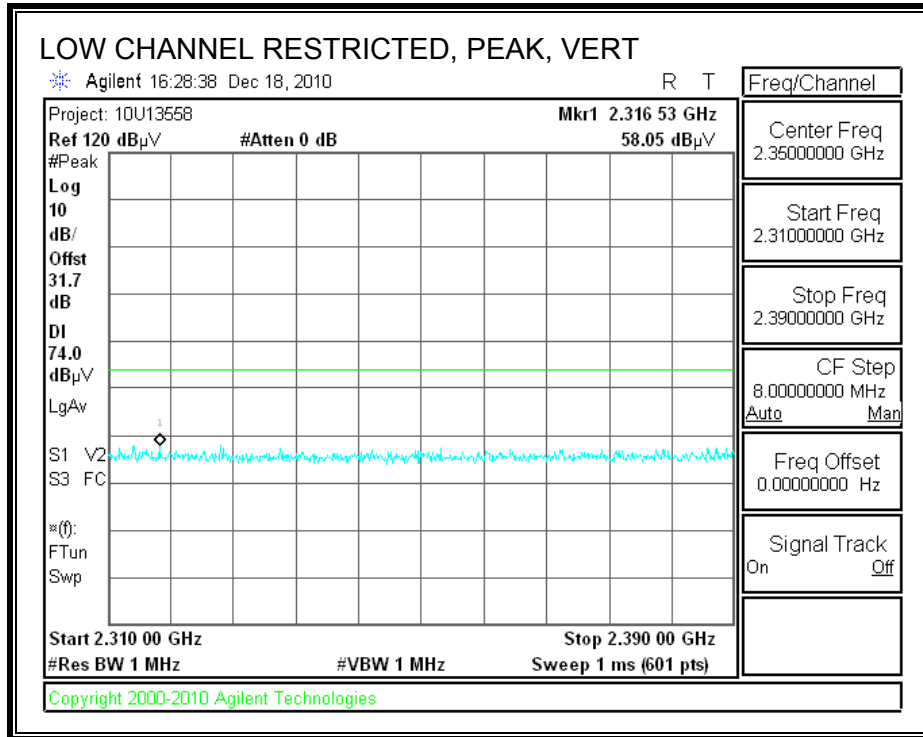
### 7.1.2. TX ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND

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

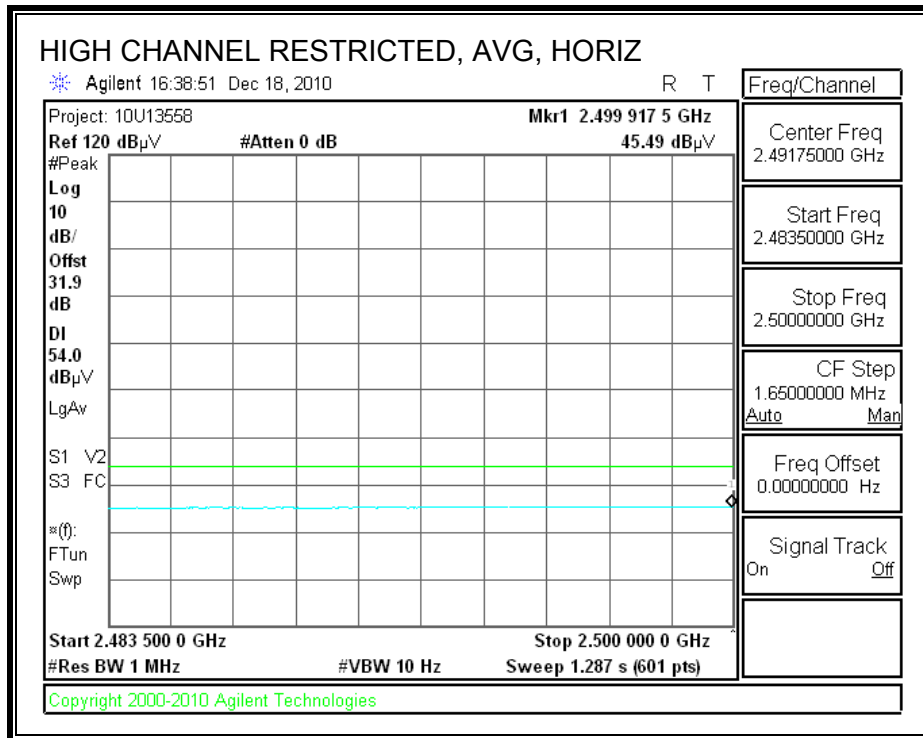
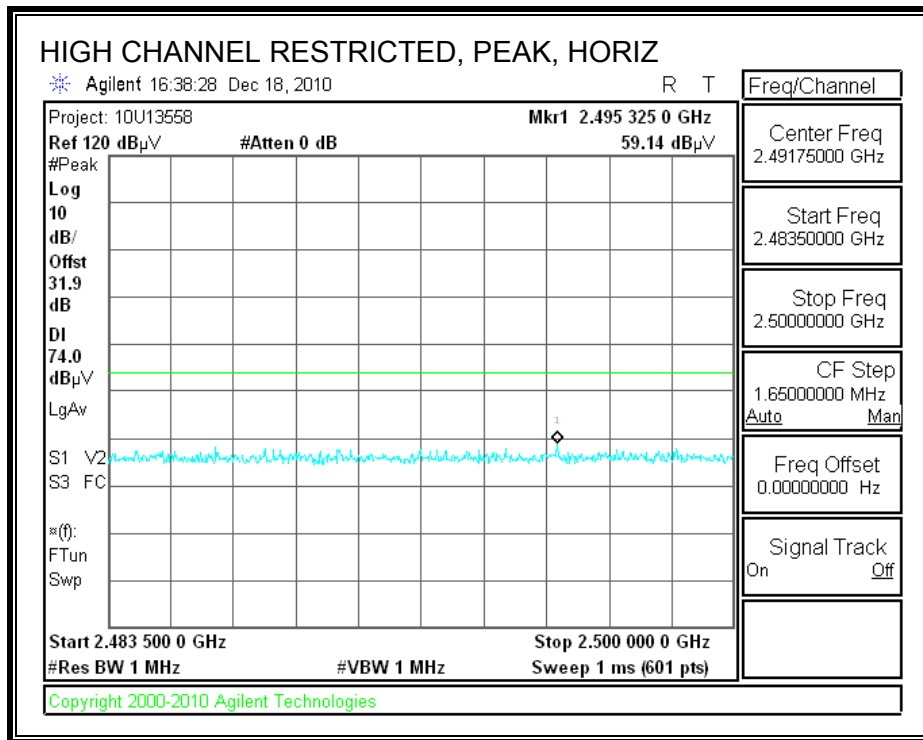




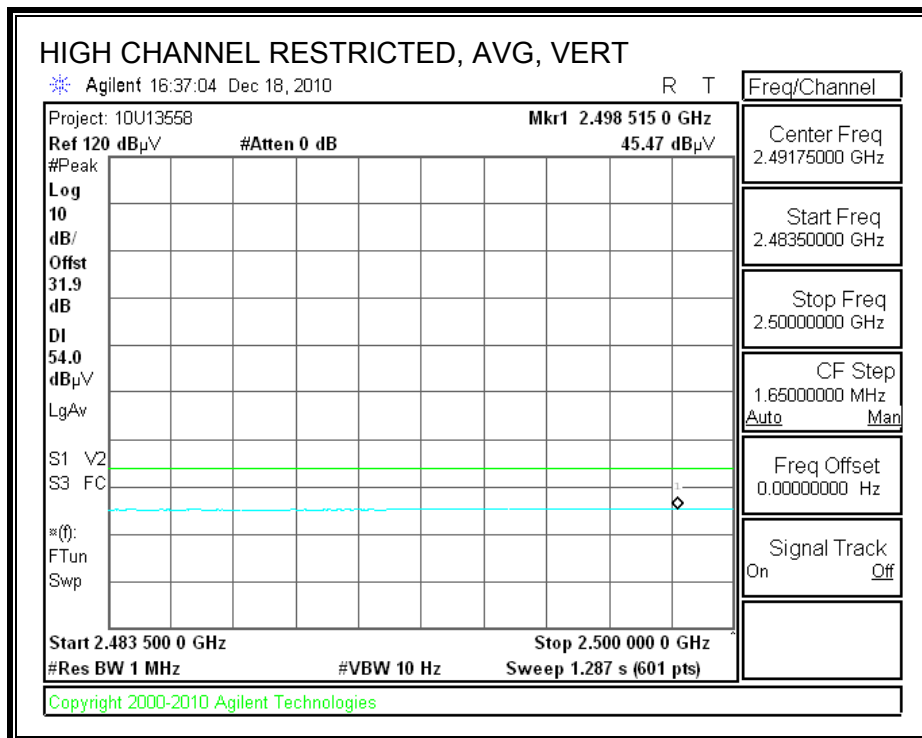
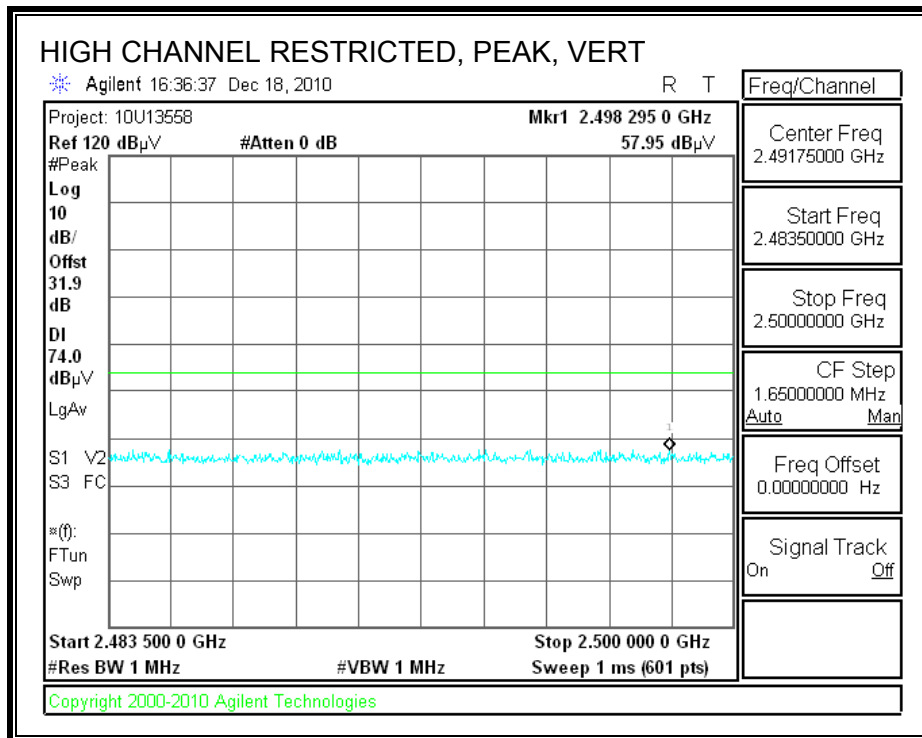
**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



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



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

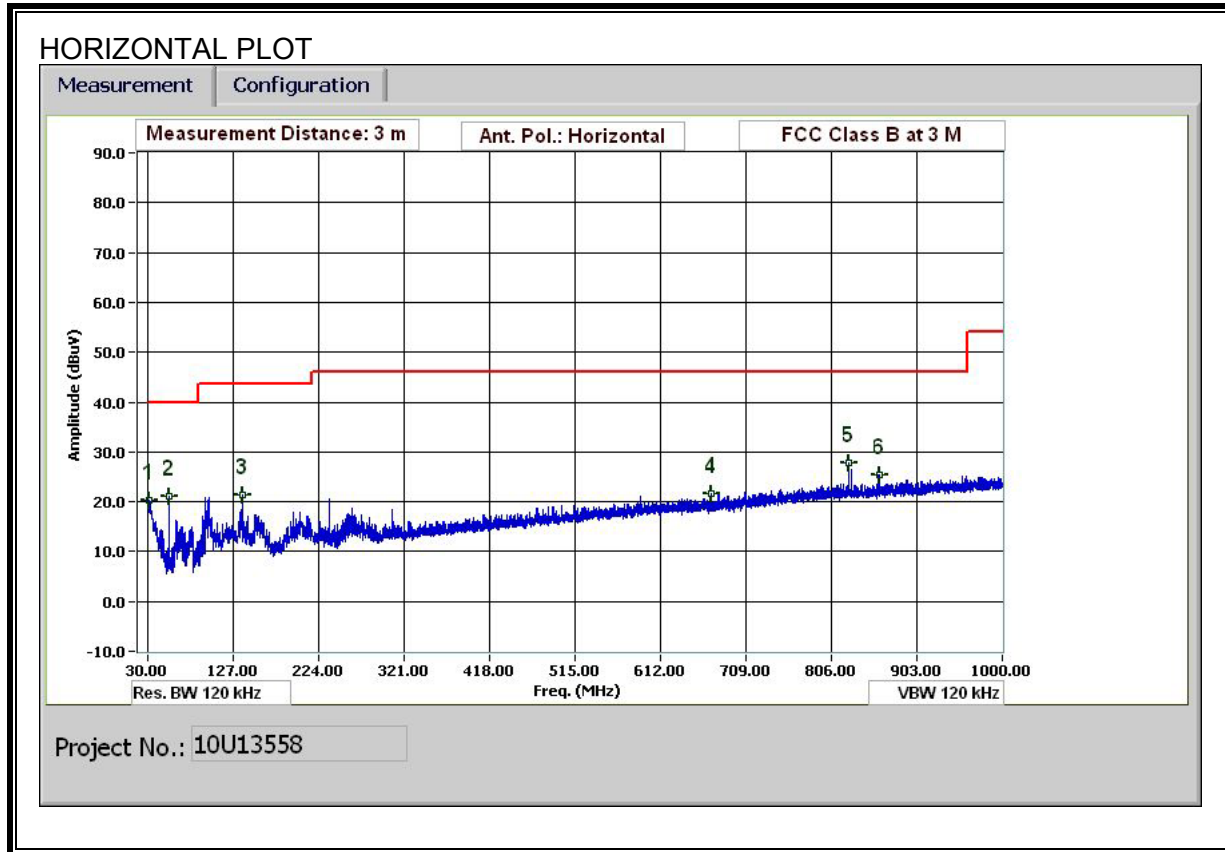


**HARMONICS AND SPURIOUS EMISSIONS**

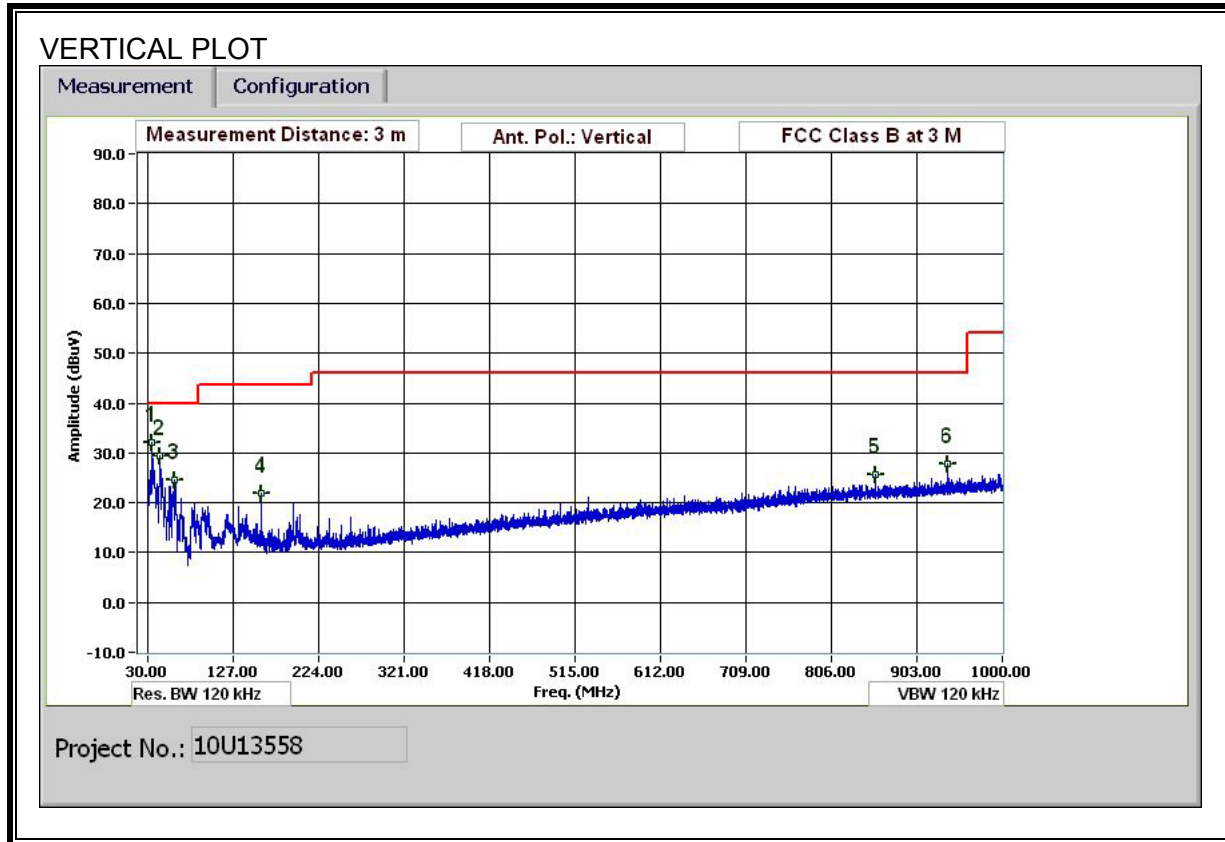
High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Oliver Su											
Date:		12/29/10											
Project #:		10U13558											
Company:		Kyocera											
Test Target:		FCC 15.247											
Mode Operation:		WLAN, G mode, TX, X position (worst case)											
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	38.7	32.8	5.8	-34.8	0.0	0.0	42.4	74.0	-31.6	V	P	
4.824	3.0	26.1	32.8	5.8	-34.8	0.0	0.0	29.8	54.0	-24.2	V	A	
4.824	3.0	38.6	32.8	5.8	-34.8	0.0	0.0	42.3	74.0	-31.7	H	P	
4.824	3.0	26.1	32.8	5.8	-34.8	0.0	0.0	29.8	54.0	-24.2	H	A	
<b>Mid Ch, 2437MHz</b>													
4.874	3.0	38.6	32.8	5.8	-34.9	0.0	0.0	42.4	74.0	-31.6	V	P	
4.874	3.0	25.9	32.8	5.8	-34.9	0.0	0.0	29.7	54.0	-24.3	V	A	
7.311	3.0	37.7	35.2	7.3	-34.7	0.0	0.0	45.5	74.0	-28.5	V	P	
7.311	3.0	25.1	35.2	7.3	-34.7	0.0	0.0	32.9	54.0	-21.1	V	A	
4.874	3.0	38.4	32.8	5.8	-34.9	0.0	0.0	42.2	74.0	-31.8	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	37.5	35.2	7.3	-34.7	0.0	0.0	45.3	74.0	-28.7	H	P	
7.311	3.0	25.0	35.2	7.3	-34.7	0.0	0.0	32.8	54.0	-21.2	H	A	
<b>High Ch, 2462MHz</b>													
4.924	3.0	38.5	32.8	5.9	-34.9	0.0	0.0	42.3	74.0	-31.7	V	P	
4.924	3.0	25.9	32.8	5.9	-34.9	0.0	0.0	29.8	54.0	-24.2	V	A	
7.386	3.0	37.3	35.3	7.3	-34.6	0.0	0.0	45.3	74.0	-28.7	V	P	
7.386	3.0	25.1	35.3	7.3	-34.6	0.0	0.0	33.0	54.0	-21.0	V	A	
4.924	3.0	38.0	32.8	5.9	-34.9	0.0	0.0	41.8	74.0	-32.2	H	P	
4.924	3.0	25.9	32.8	5.9	-34.9	0.0	0.0	29.8	54.0	-24.2	H	A	
7.386	3.0	38.1	35.3	7.3	-34.6	0.0	0.0	46.0	74.0	-28.0	H	P	
7.386	3.0	25.0	35.3	7.3	-34.6	0.0	0.0	33.0	54.0	-21.0	H	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

## 7.2. 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)**



### HORIZONTAL AND VERTICAL DATA

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

**Test Engr:** Oliver Su  
**Date:** 12/29/10  
**Project #:** 10U13558  
**Company:** Kyocera  
**Test Target:** FCC 15.247  
**Mode Oper:** WLAN, TX, X Position (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	Notes
34.56	3.0	42.9	18.3	0.5	29.7	0.0	0.0	32.0	40.0	-8.0	V	P	
43.921	3.0	46.7	11.7	0.6	29.6	0.0	0.0	29.3	40.0	-10.7	V	P	
60.841	3.0	45.7	7.9	0.7	29.6	0.0	0.0	24.7	40.0	-15.3	V	P	
159.005	3.0	39.2	11.0	1.1	29.3	0.0	0.0	22.0	43.5	-21.5	V	P	
856.594	3.0	30.2	21.3	2.9	28.8	0.0	0.0	25.6	46.0	-20.4	V	P	
938.197	3.0	31.3	21.9	3.1	28.5	0.0	0.0	27.8	46.0	-18.2	V	P	
31.92	3.0	30.0	19.5	0.5	29.7	0.0	0.0	20.3	40.0	-19.7	H	P	
54.961	3.0	42.1	7.9	0.6	29.6	0.0	0.0	21.0	40.0	-19.0	H	P	
138.124	3.0	36.3	13.3	1.1	29.4	0.0	0.0	21.3	43.5	-22.2	H	P	
669.026	3.0	29.7	18.9	2.5	29.6	0.0	0.0	21.5	46.0	-24.5	H	P	
825.993	3.0	32.7	21.1	2.9	29.0	0.0	0.0	27.7	46.0	-18.3	H	P	
859.834	3.0	29.9	21.3	2.9	28.8	0.0	0.0	25.3	46.0	-20.7	H	P	

Rev. 1.27.09

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

## 8. 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

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

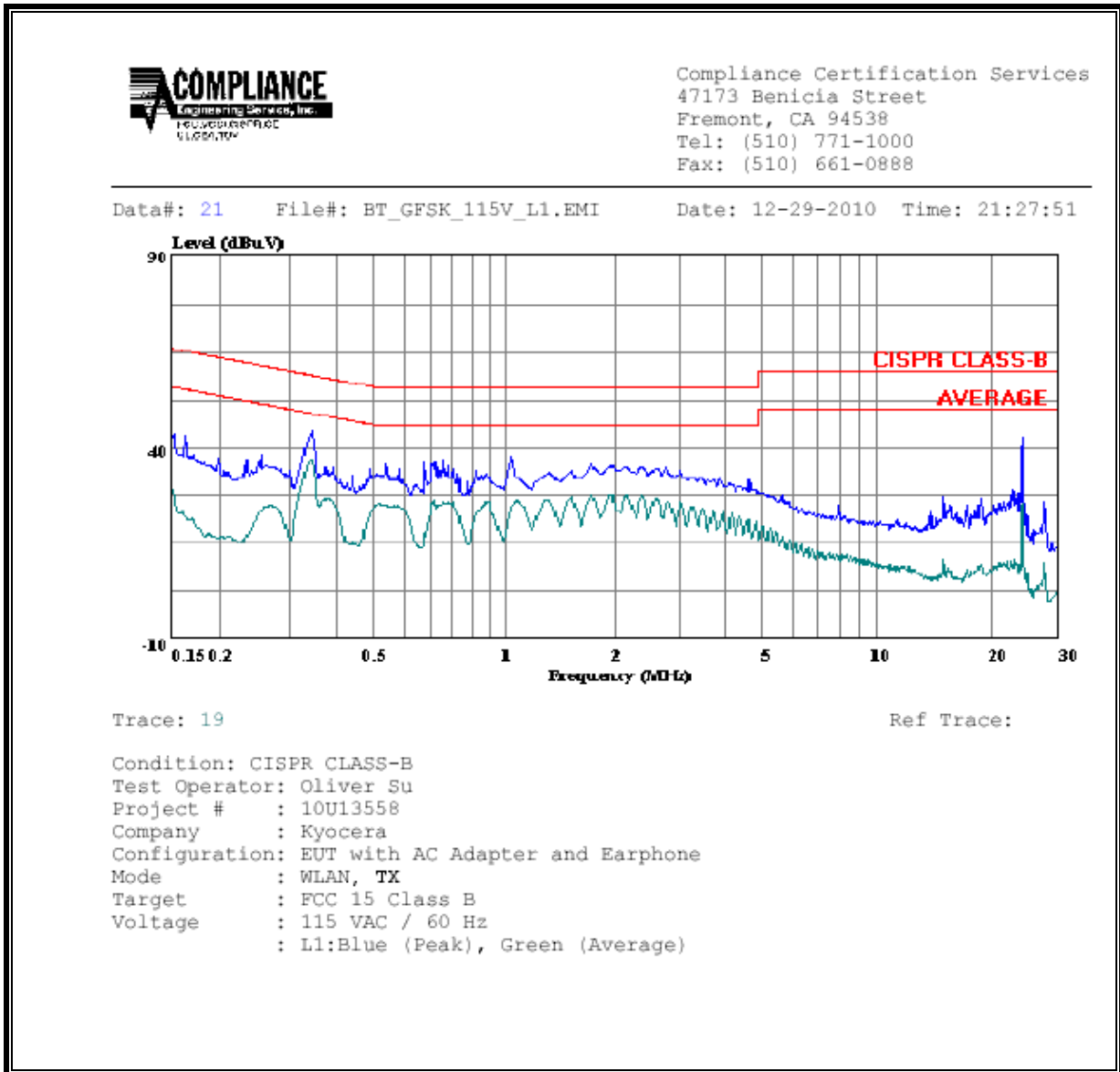
### RESULTS



**6 WORST EMISSIONS**

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Class (dB)	Limit QP	FCC B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.35	44.76	--	36.37	0.00	59.06	49.06	-14.30	-12.69	L1
0.15	43.64	--	27.51	0.00	65.89	55.89	-22.25	-28.38	L1
24.01	42.77	--	29.16	0.00	60.00	50.00	-17.23	-20.84	L1
0.35	40.93	--	31.34	0.00	59.06	49.06	-18.13	-17.72	L2
2.62	39.21	--	20.27	0.00	56.00	46.00	-16.79	-25.73	L2
24.01	41.79	--	24.37	0.00	60.00	50.00	-18.21	-25.63	L2
6 Worst Data									

**LINE 1 RESULTS**

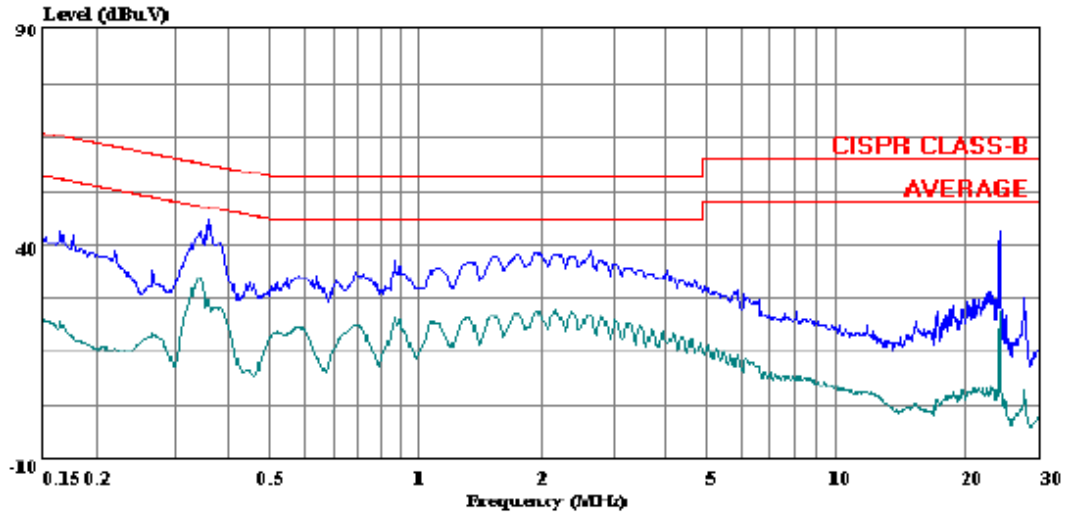


**LINE 2 RESULTS**



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

Data#: 14 File#: BT\_GFSK\_115V\_L1.EMI Date: 12-29-2010 Time: 21:13:34



Trace: 12

Ref Trace:

Condition: CISPR CLASS-B  
Test Operator: Oliver Su  
Project # : 10U13558  
Company : Kyocera  
Configuration: EUT with AC Adapter and Earphone  
Mode : BT, GFSK  
Target : FCC 15 Class B  
Voltage : 115 VAC / 60 Hz  
: L2:Blue (Peak), Green (Average)