



**RADIATED SPURIOUS EMISSIONS PORTIONS OF
FCC CFR47 PART 15 SUBPART C
CERTIFICATION TEST REPORT
FOR
DUAL BAND CDMA MOBILE PHONE**

MODEL NUMBER: C5120

FCC ID: V65C5120

REPORT NUMBER: 11U13866-2

ISSUE DATE: JUNE 29, 2011

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

Prepared by
**COMPLIANCE CERTIFICATION SERVICES (UL CCS)
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	06/29/11	Initial Issue	T. Chan

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	5
4.1. <i>MEASURING INSTRUMENT CALIBRATION</i>	5
4.2. <i>SAMPLE CALCULATION</i>	5
4.3. <i>MEASUREMENT UNCERTAINTY</i>	5
5. EQUIPMENT UNDER TEST	6
5.1. <i>DESCRIPTION OF EUT</i>	6
5.2. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i>	6
5.3. <i>SOFTWARE AND FIRMWARE</i>	6
5.4. <i>WORST-CASE CONFIGURATION AND MODE</i>	6
5.5. <i>DESCRIPTION OF TEST SETUP</i>	7
6. TEST AND MEASUREMENT EQUIPMENT	9
7. RADIATED TEST RESULTS	10
7.1. <i>LIMITS AND PROCEDURE</i>	10
7.2. <i>TRANSMITTER ABOVE 1 GHz</i>	11
7.2.1. <i>BASIC DATA RATE GFSK MODULATION</i>	11
7.2.2. <i>ENHANCED DATA RATE 8PSK MODULATION</i>	20
7.3. <i>WORST-CASE BELOW 1 GHz</i>	29
8. AC POWER LINE CONDUCTED EMISSIONS	32
9. SETUP PHOTOS	36

1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: DUAL BAND CDMA MOBILE PHONE

MODEL: C5120

SERIAL NUMBER: 268435457816716265

DATE TESTED: JUNE 24 to 27, 2011

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

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
ENGINEERING MANAGER
UL CCS

DENNIS HUANG
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 and WLAN capable Dual-band CDMA slide Phone that is manufactured by Kyocera Corporation.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

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

5.3. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was FIRMWARE 0202

The test utility software used during testing was 0.801SP

5.4. WORST-CASE CONFIGURATION AND MODE

The worst-position was the EUT with highest emissions. To determine the worst-case, the EUT was investigated for X, Y, and Z-Positions, and the worst position among X, Y, and Z with the phone opened. After the investigation, the worst-position was turned out to be in the Y-position with the phone close and AC/DC adapter.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Kyocera Corp.	SCP-30ADT	SSW-2001	DoC

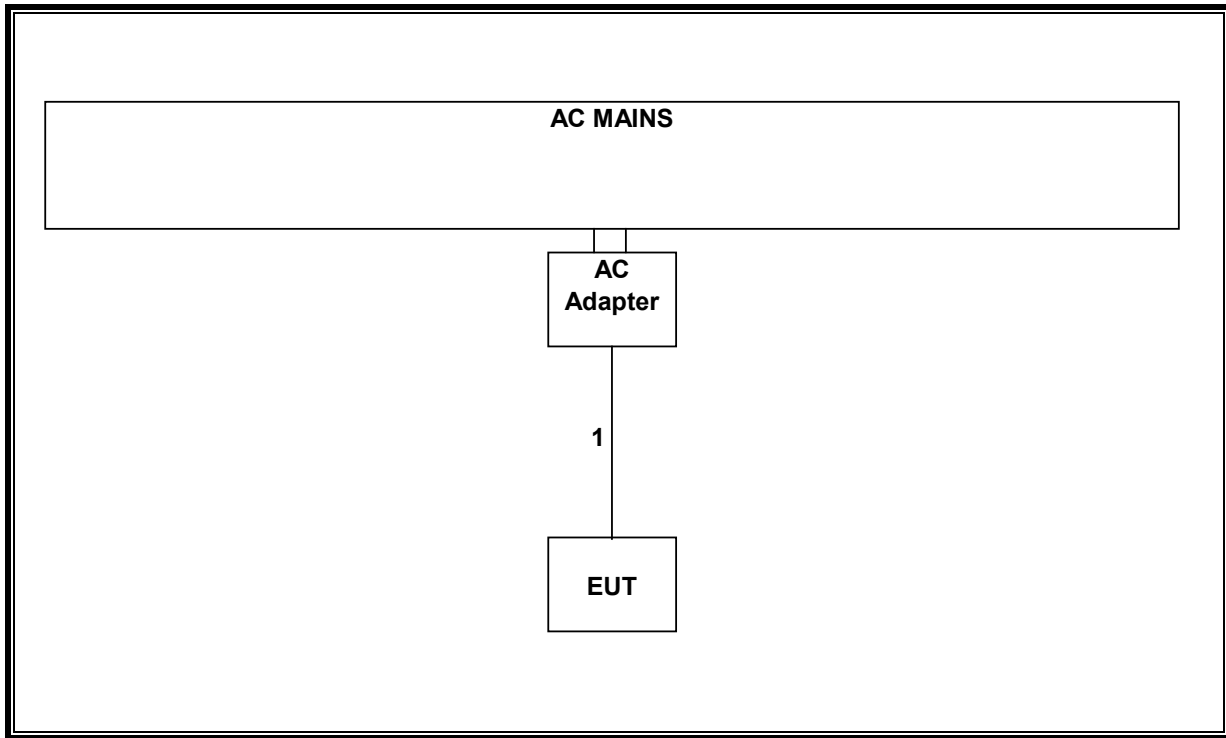
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC Power	1	Micro-USB	Shielded	1 m	

TEST SETUP

The EUT is configured as stand alone unit with AC/DC adapter for all 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	C01176	08/10/11
Antenna, Horn, 18 GHz	EMCO	3115	C00872	06/30/12
Pre-Amplifier	Agilent / HP	8449B	C00749	07/14/11
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01171	07/12/11
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	01/27/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/14/11
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRM50702	N02683	CNR
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	None	07/02/11
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/11

7. RADIATED TEST RESULTS

7.1. 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.

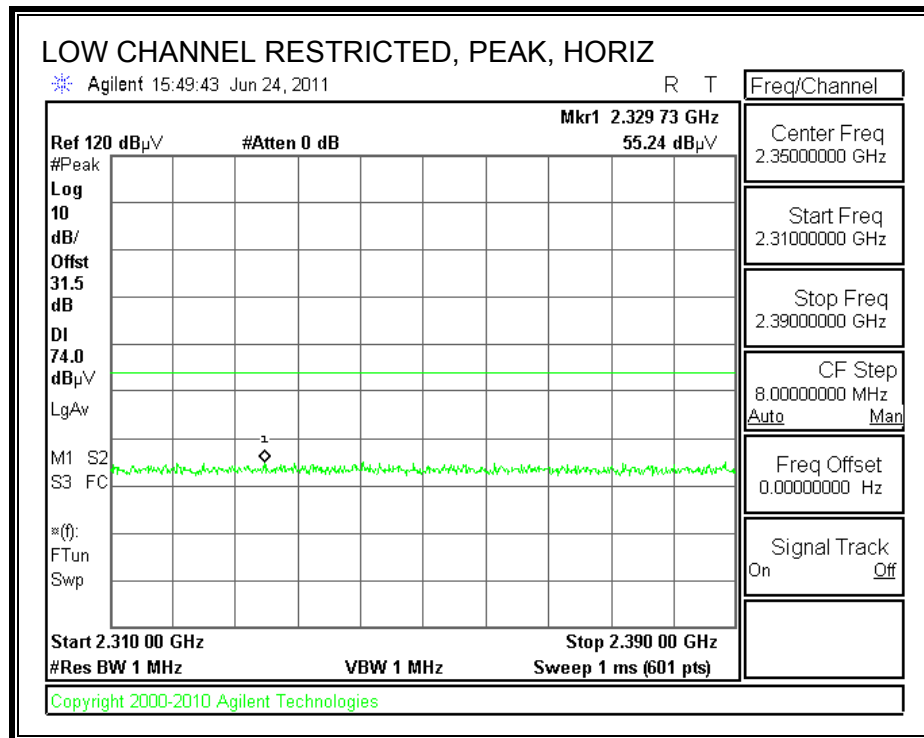
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

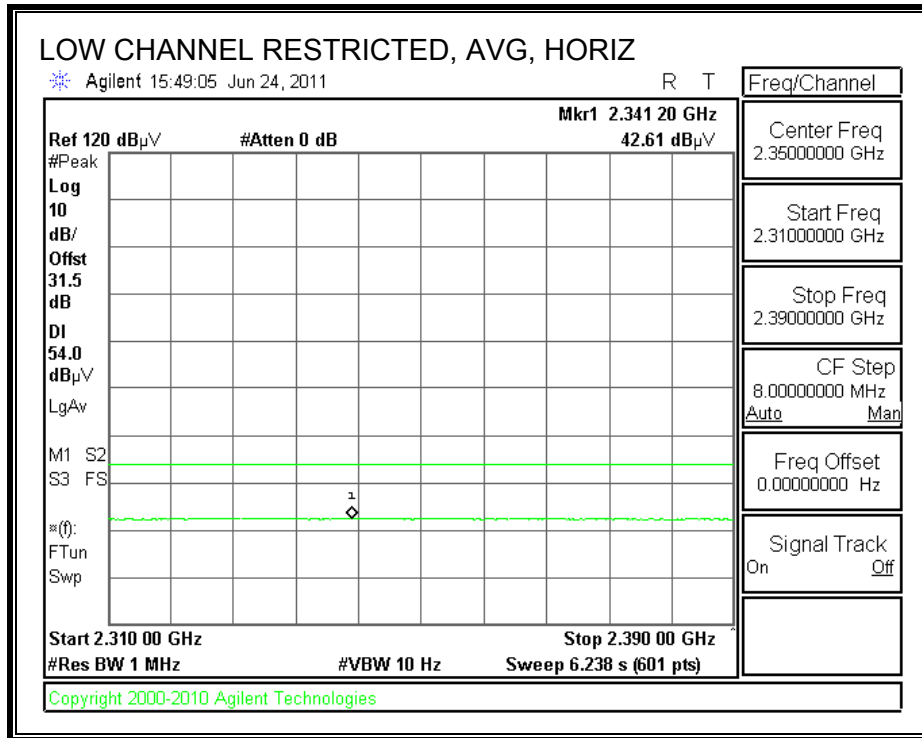
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

7.2. TRANSMITTER ABOVE 1 GHz

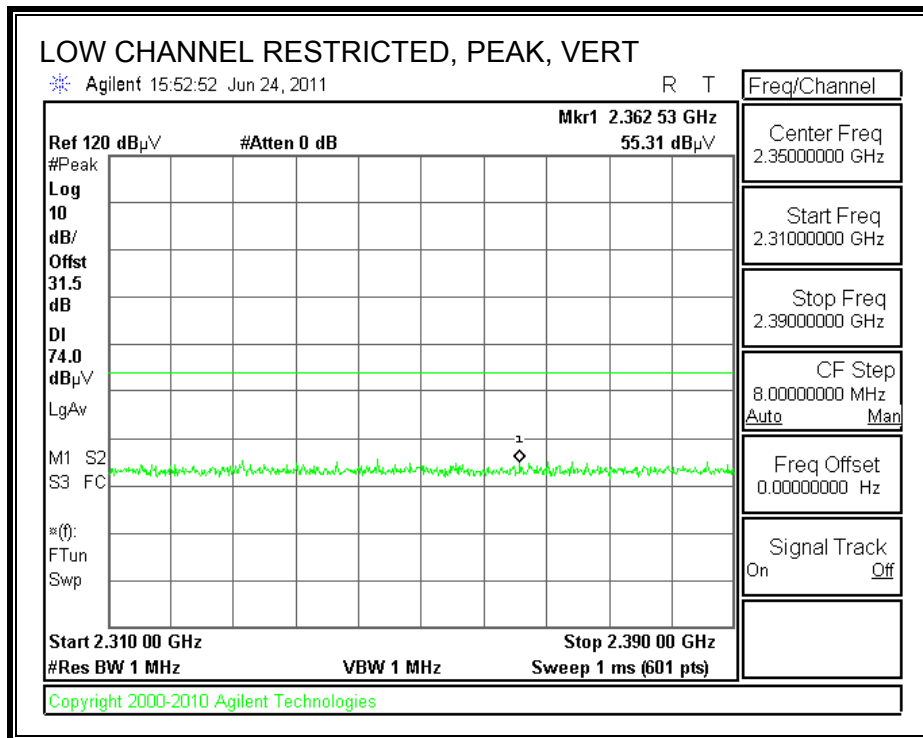
7.2.1. BASIC DATA RATE GFSK MODULATION

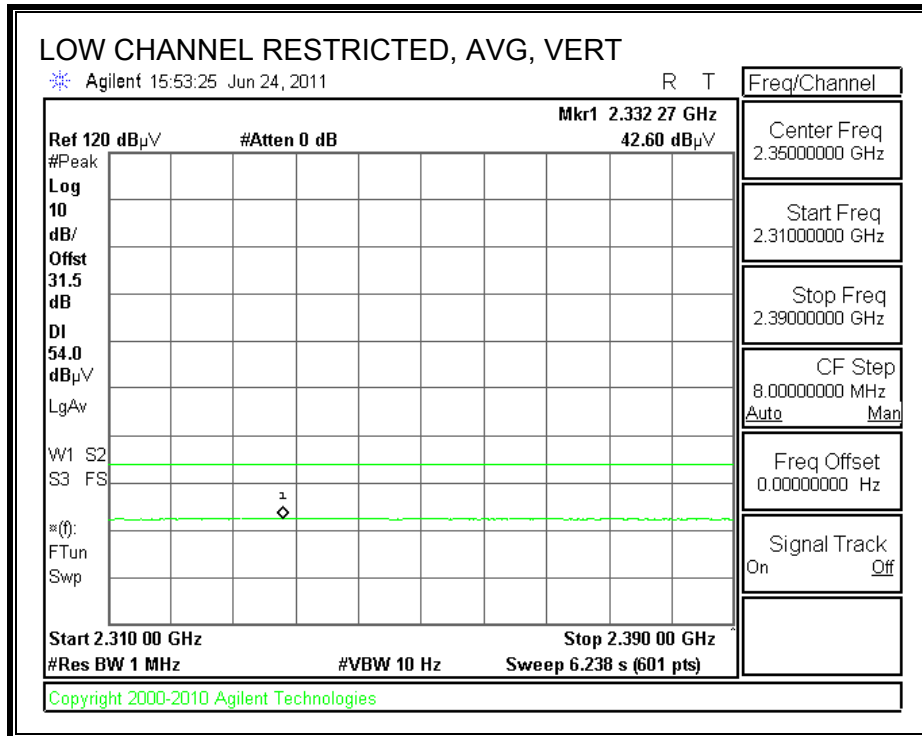
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



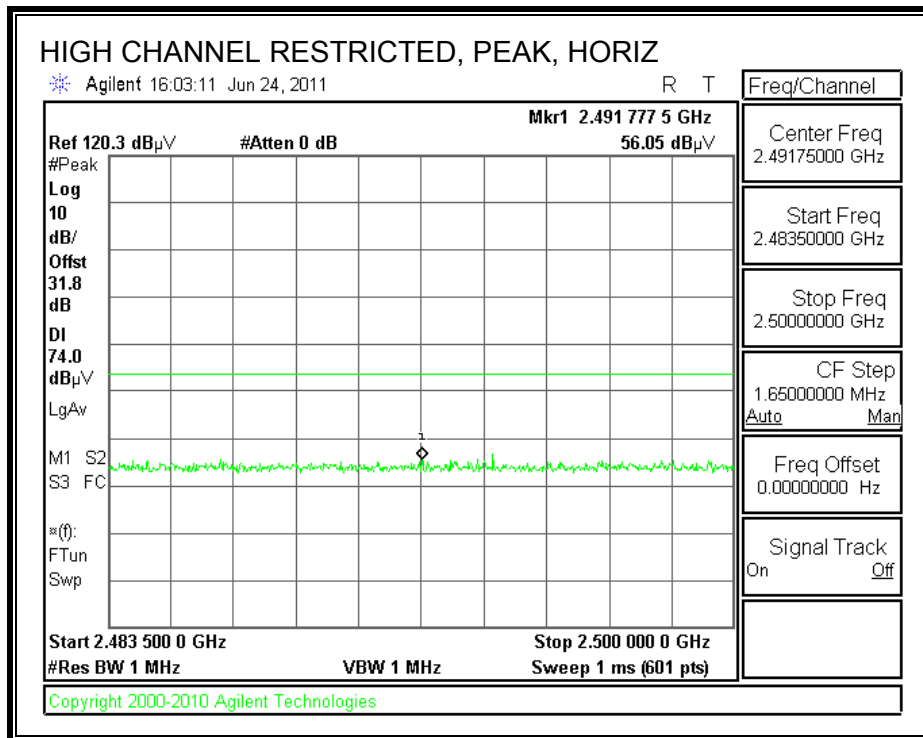


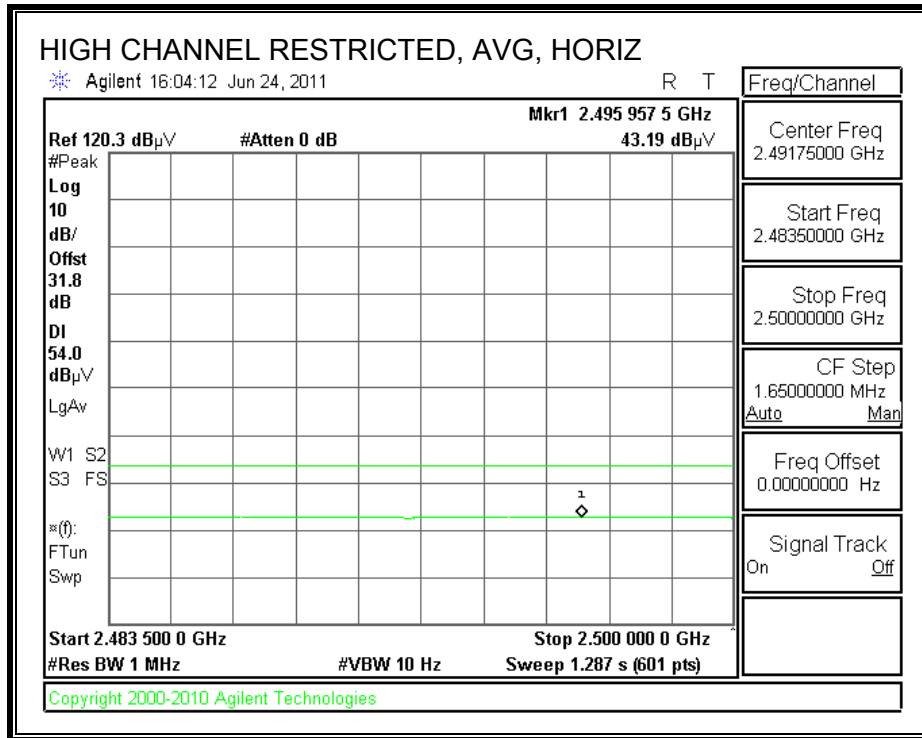
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



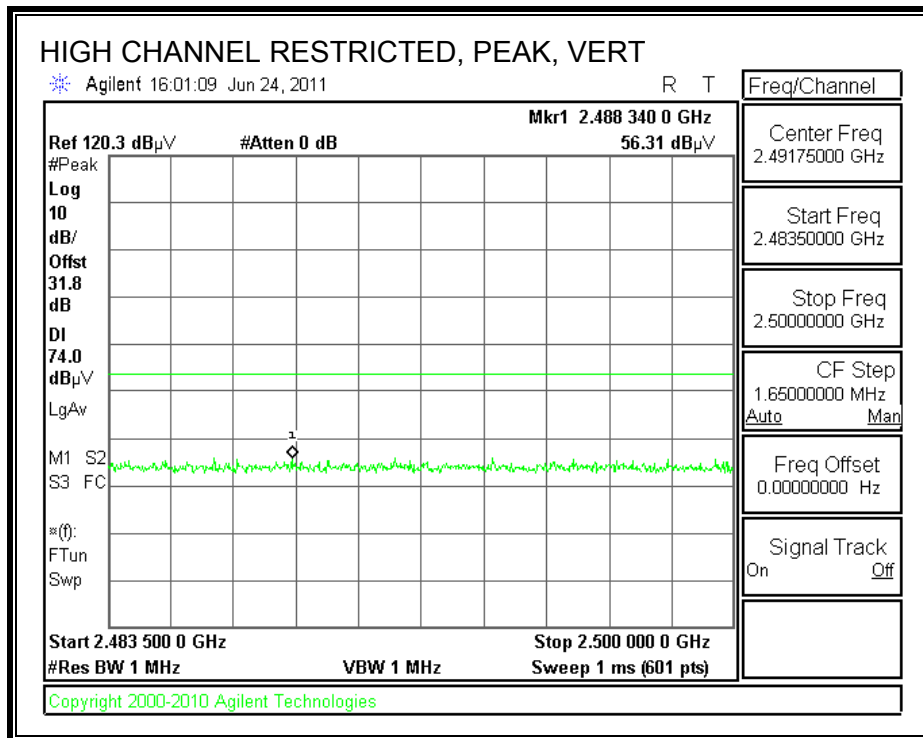


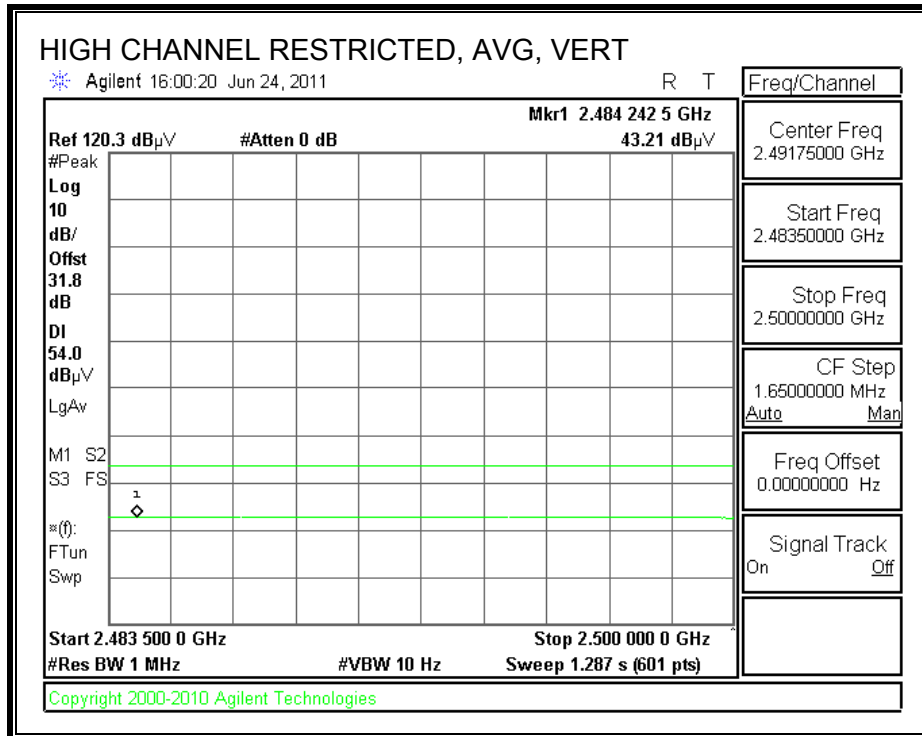
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: KYOCRA WIRELESS
 Project #: 11U13866
 Date: 06/24/2011
 Test Engineer: DENNIS HUANG
 Configuration: EUT WITH AC ADAPTER Y AXIS
 Mode: TX, GFSK

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

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	20' cable 22807500		R_001	Average Measurements RBW=1MHz ; VBW=10Hz

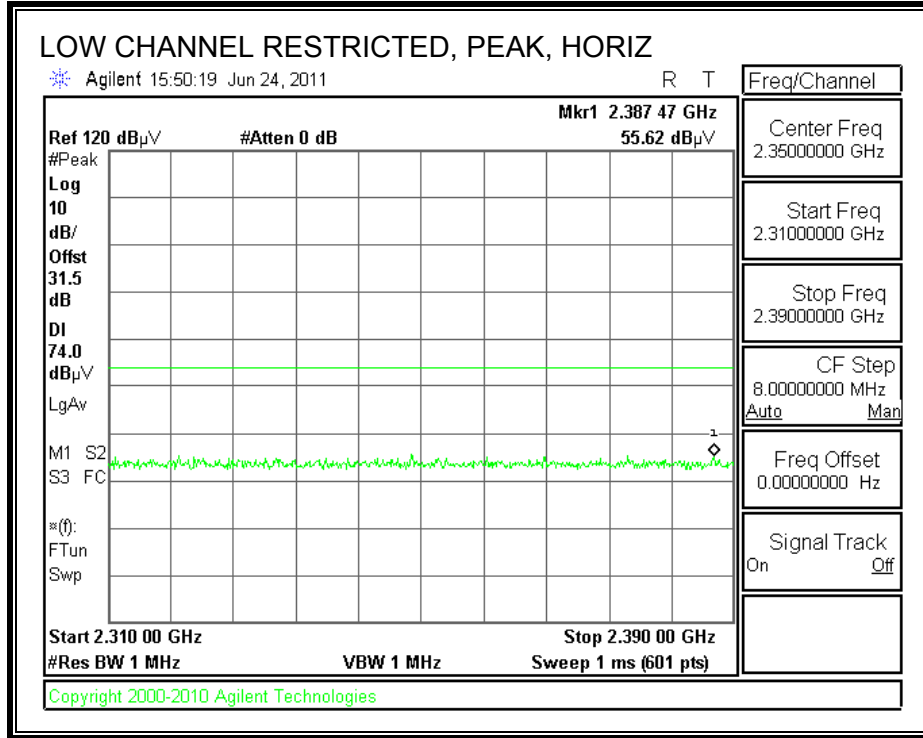
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel (2402MHz)															
4.804	3.0	36.4	24.0	32.7	5.8	-34.8	0.0	0.0	40.0	27.6	74	54	-34.0	-26.4	V
4.804	3.0	35.2	24.1	32.7	5.8	-34.8	0.0	0.0	38.8	27.7	74	54	-35.2	-26.3	H
Mid Channel (2441MHz)															
4.882	3.0	35.9	23.8	32.7	5.8	-34.8	0.0	0.0	39.6	27.6	74	54	-34.4	-26.4	V
4.882	3.0	36.1	23.8	32.7	5.8	-34.8	0.0	0.0	39.8	27.5	74	54	-34.2	-26.5	H
High Channel (2480MHz)															
4.960	3.0	36.1	23.9	32.8	5.9	-34.8	0.0	0.0	40.0	27.7	74	54	-34.0	-26.3	V
4.960	3.0	35.2	23.9	32.8	5.9	-34.8	0.0	0.0	39.1	27.7	74	54	-34.9	-26.3	H

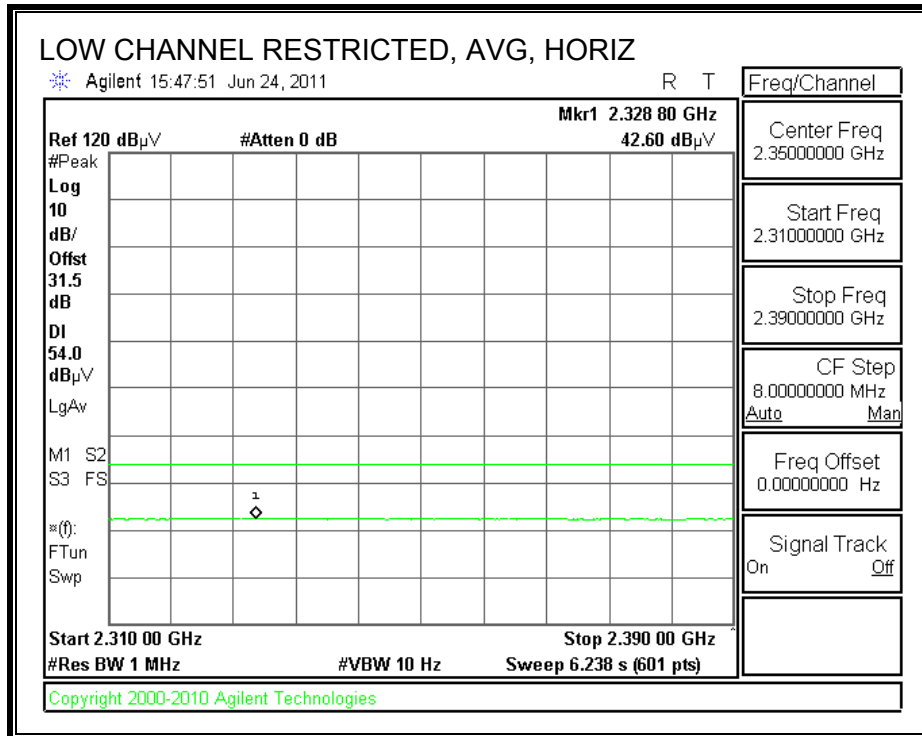
No other emissions were found below 20dB from the system noise.

Rev. 07.22.09

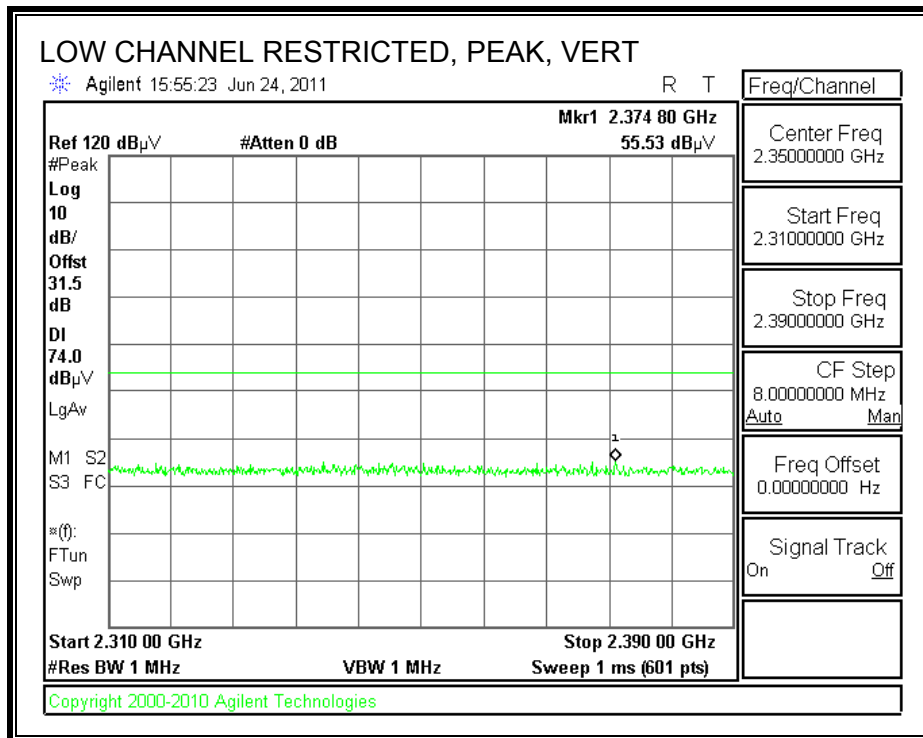
7.2.2. ENHANCED DATA RATE 8PSK MODULATION

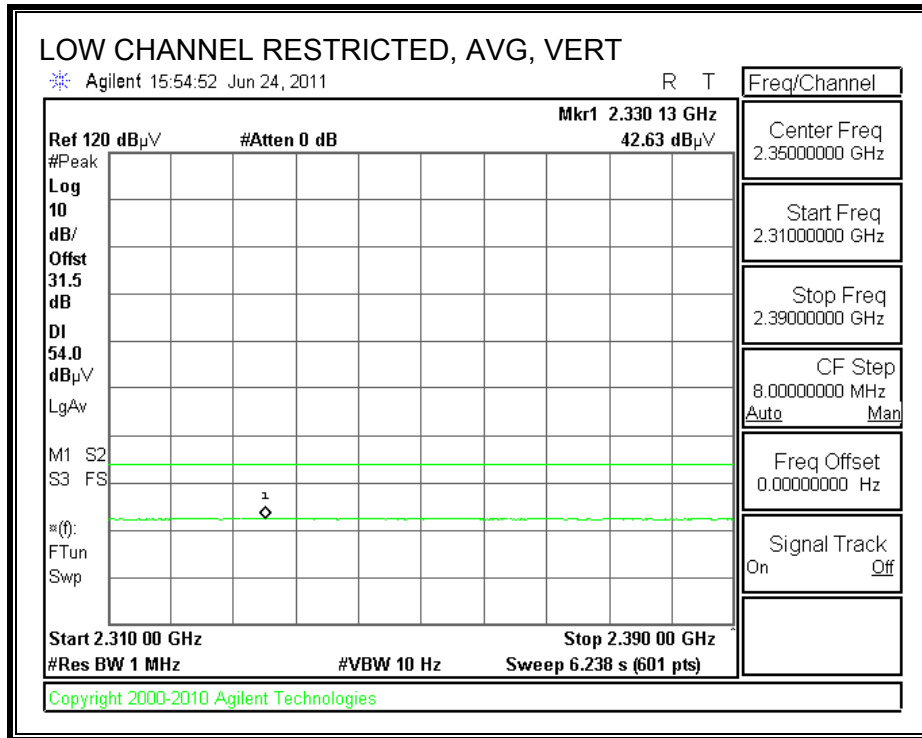
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



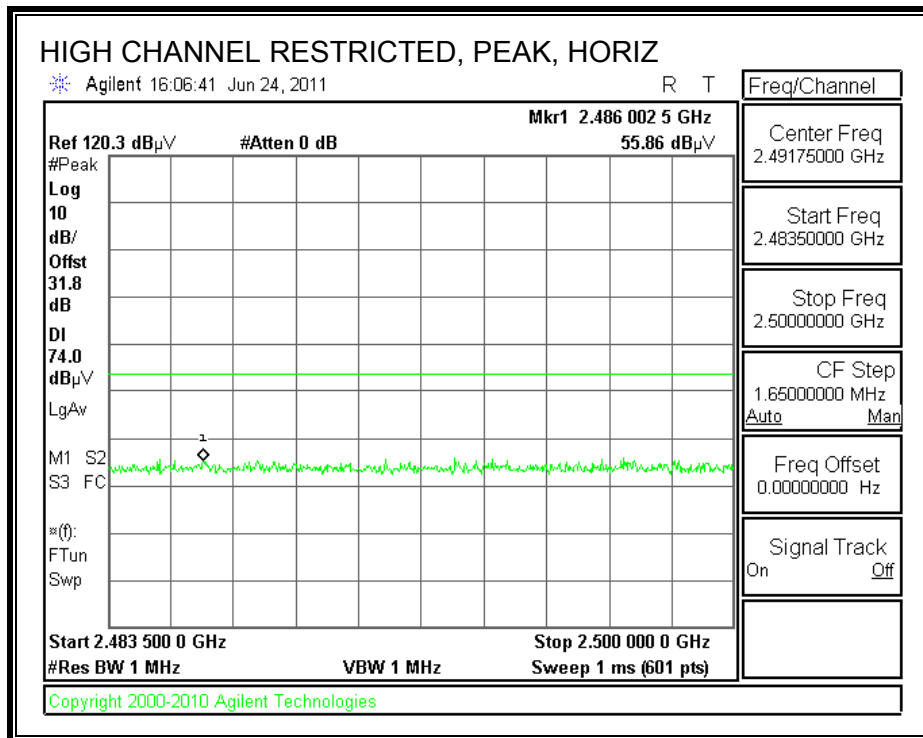


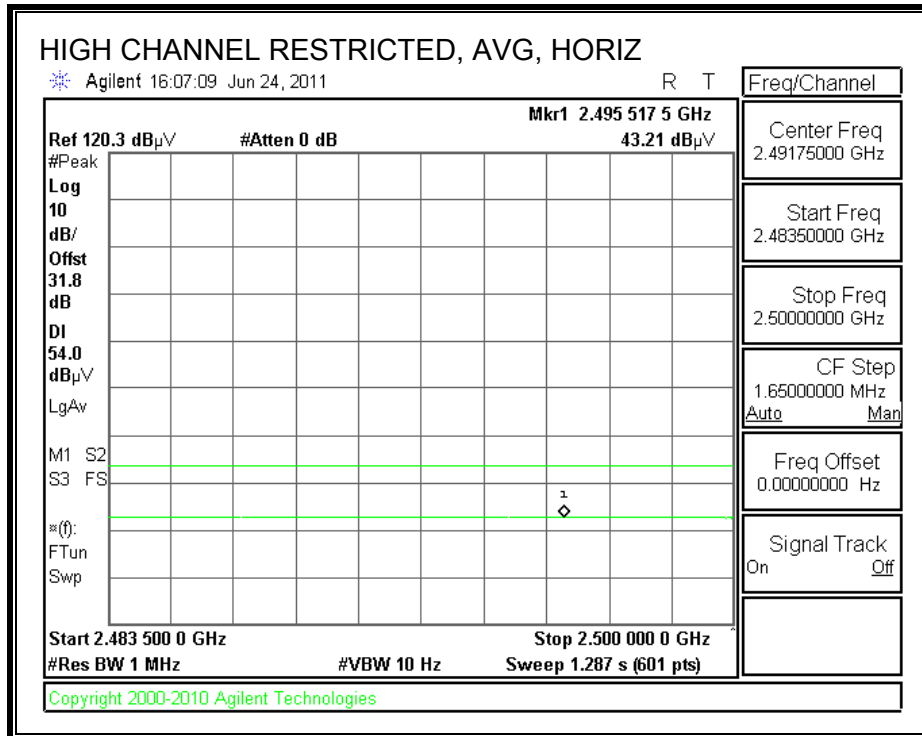
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



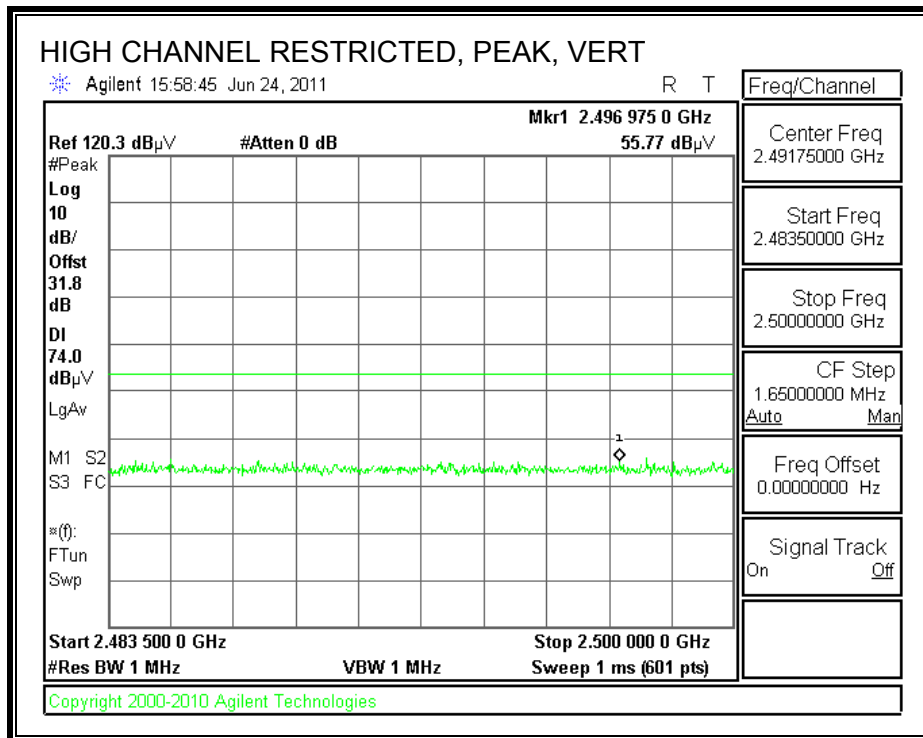


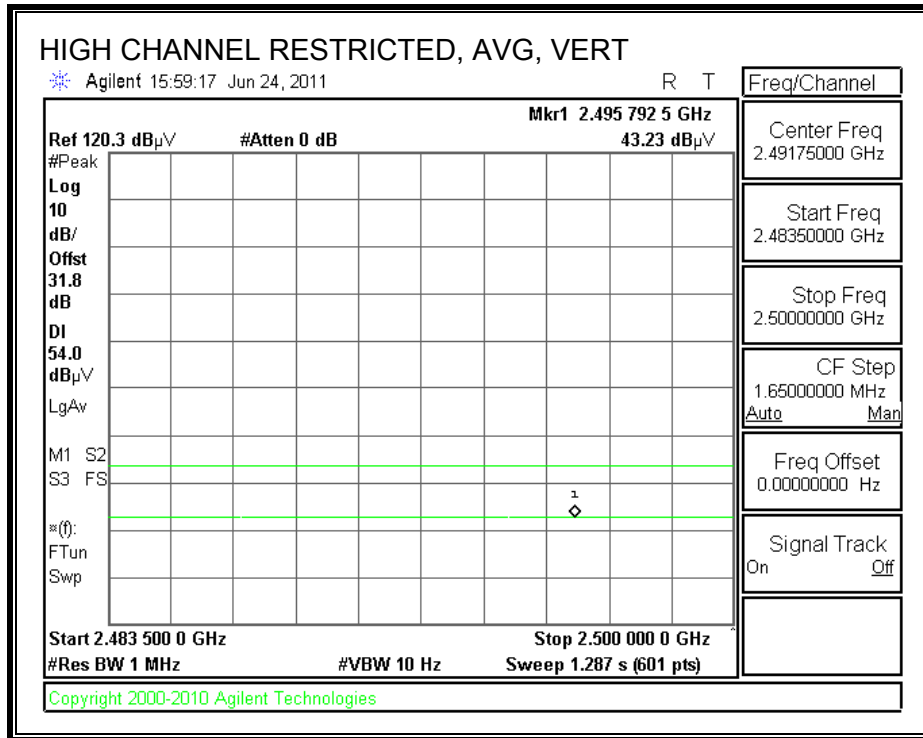
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: KYOCRA WIRELESS
 Project #: 11U13866
 Date: 06/24/2011
 Test Engineer: DENNIS HUANG
 Configuration: EUT WITH AC ADAPTER Y AXIS
 Mode: TX, Enhanced 8PSK

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

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	20' cable 22807500		R_001	Average Measurements RBW=1MHz ; VBW=10Hz

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)
Low Channel (2402MHz)															
4.804	3.0	36.1	24.1	32.7	5.8	-34.8	0.0	0.0	39.7	27.7	74	54	-34.3	-26.3	V
4.804	3.0	35.0	24.2	32.7	5.8	-34.8	0.0	0.0	38.6	27.8	74	54	-35.4	-26.2	H
Mid Channel (2441MHz)															
4.882	3.0	36.9	24.0	32.7	5.8	-34.8	0.0	0.0	40.7	27.7	74	54	-33.3	-26.3	V
4.882	3.0	35.9	23.9	32.7	5.8	-34.8	0.0	0.0	39.6	27.6	74	54	-34.4	-26.4	H
High Channel (2480MHz)															
4.960	3.0	36.4	24.1	32.8	5.9	-34.8	0.0	0.0	40.2	27.9	74	54	-33.8	-26.1	V
4.960	3.0	35.2	24.0	32.8	5.9	-34.8	0.0	0.0	39.1	27.8	74	54	-34.9	-26.2	H

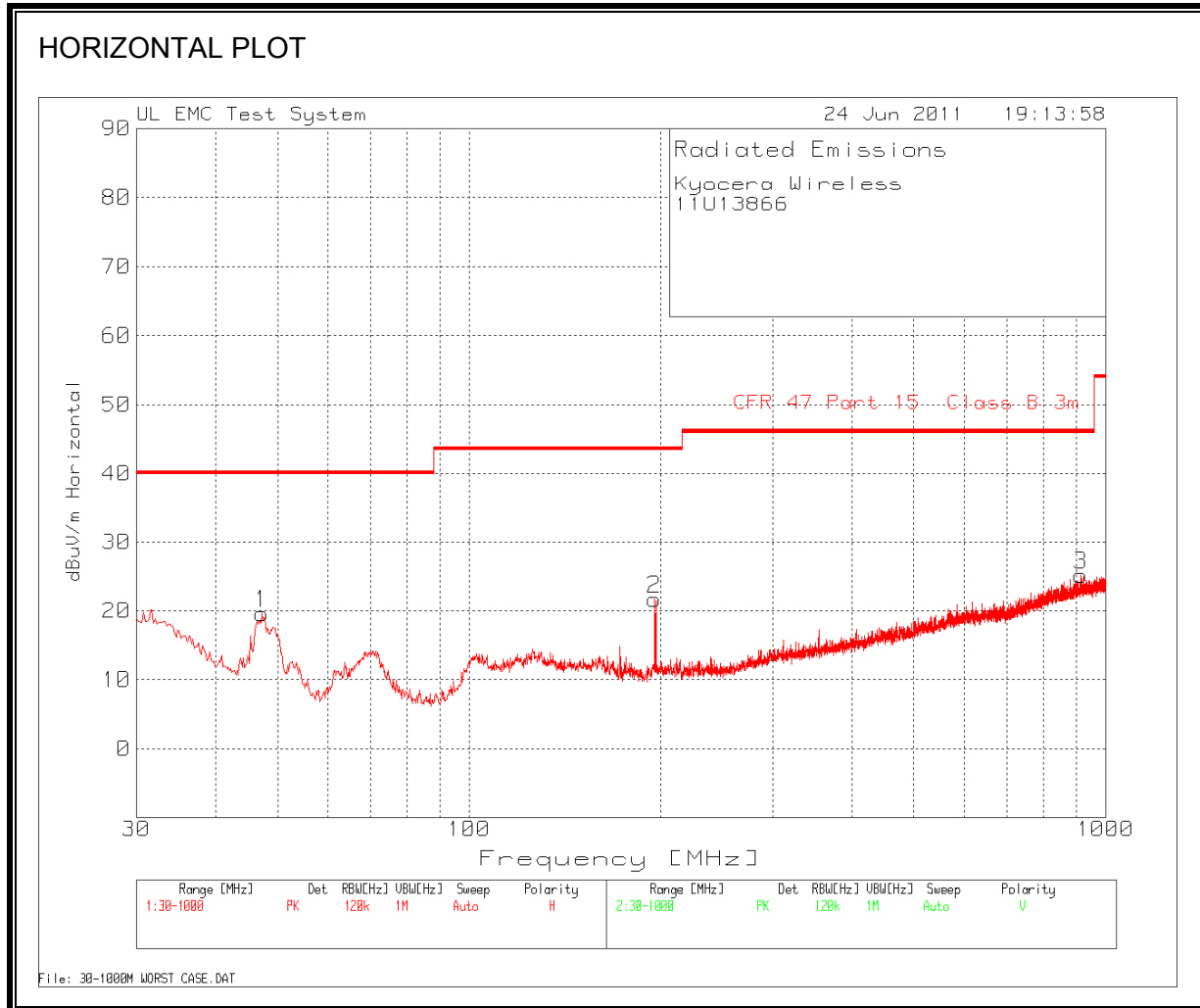
No other emissions were found below 20dB from the system noise.

Rev. 07.22.09

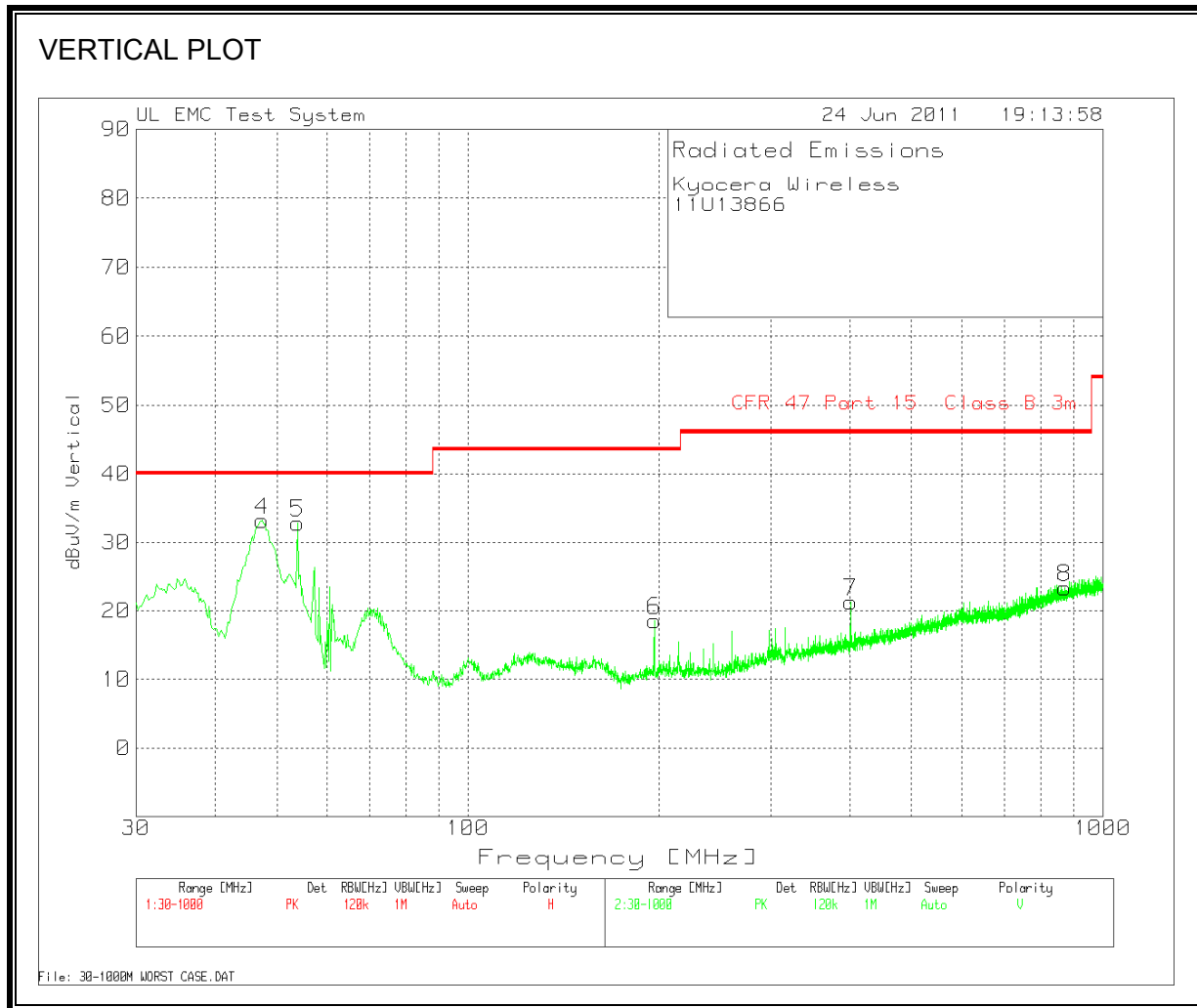
f Measurement Frequency	Amp Preamp Gain	Avg Lim Average Field Strength Limit
Dist Distance to Antenna	D Corr Distance Correct to 3 meters	Pk Lim Peak Field Strength Limit
Read Analyzer Reading	Avg Average Field Strength @ 3 m	Avg Mar Margin vs. Average Limit
AF Antenna Factor	Peak Calculated Peak Field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

7.3. 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

Horizontal 30 - 1000MHz

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Transducer Factor [dB]	Gain/Loss Factor [dB]	Corrected Reading (dBuV/m)	FCC Class B 3m Limit	Margin	Height [cm]	Polarity
47.2522	36.32	PK	0.8	-17.5	19.62	40	-20.38	101	Horz
195.5436	36.41	PK	1.4	-16.1	21.71	43.5	-21.79	251	Horz
913.3513	27.33	PK	3.2	-5.4	25.13	46	-20.87	251	Horz

Vertical 30 - 1000MHz

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Transducer Factor [dB]	Gain/Loss Factor [dB]	Corrected Reading (dBuV/m)	FCC Class B 3m Limit	Margin	Height [cm]	Polarity
47.446	50.04	PK	0.8	-17.6	33.24	40	-6.76	101	Vert
53.8429	51.57	PK	0.8	-19.4	32.97	40	-7.03	101	Vert
196.5128	33.15	PK	1.4	-16	18.55	43.5	-24.95	101	Vert
400.4377	32.1	PK	2.1	-12.9	21.3	46	-24.7	176	Vert
871.287	26.39	PK	3.1	-6.1	23.39	46	-22.61	101	Vert

PK - Peak detector
 QP - Quasi-Peak detector
 LnAv - Linear Average detector
 LgAv - Log Average detector
 Av - Average detector
 CAV - CISPR Average detector
 RMS - RMS detection
 CRMS - CISPR RMS detection

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.

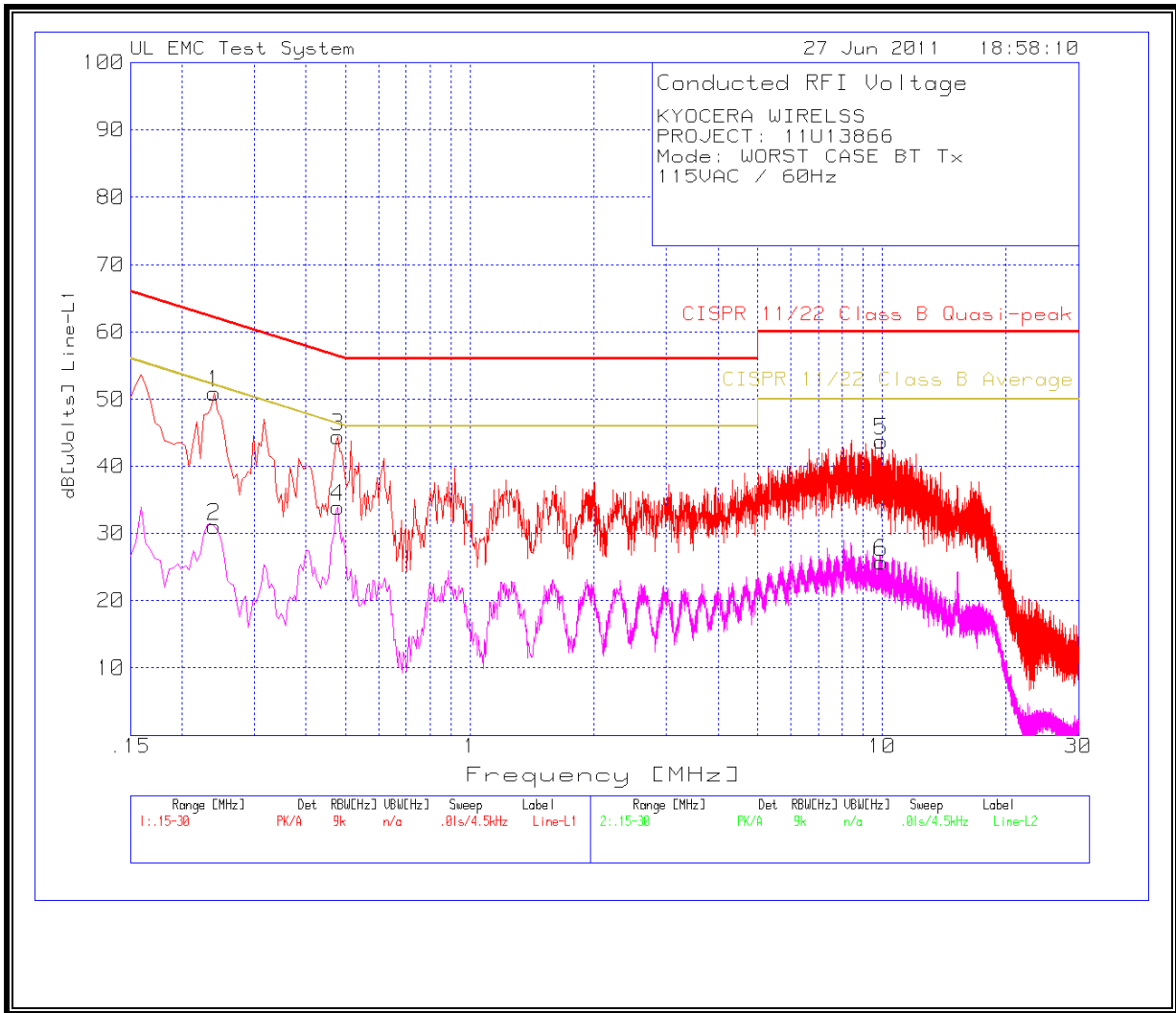
Line conducted data is recorded for both NEUTRAL and LINE.

RESULTS

WORST CASE EMISSIONS

KYOCERA WIRELESS									
PROJECT: 11U13866									
Mode: WORST CASE BT Tx									
115VAC / 60Hz									
Line-L1 0.15 - 30MHz									
Test Freq. (MHz)	Meter Reading	Detector	LISN [dB]	Conducted Emission Cable [dB]	Corrected Reading (dBuV)	Class B Quasi-peak Limit	Quasi- Peak Margin	Class B Average Limit	Margin
0.24	50.96	PK	0	0	50.96	62.1	-11.14	52.1	-1.14
0.24	31	Av	0	0	31	-	-	52.1	-21.1
0.4785	44.47	PK	0	0	44.47	56.4	-11.93	46.4	-1.93
0.4785	33.86	Av	0	0	33.86	-	-	46.4	-12.54
9.933	43.78	PK	0	0	43.78	60	-16.22	50	-6.22
9.933	25.73	Av	0	0	25.73	-	-	50	-24.27
Line-L2 0.15 - 30MHz									
Test Freq. (MHz)	Meter Reading	Detector	LISN [dB]	Conducted Emission Cable [dB]	Corrected Reading (dBuV)	Class B Quasi-peak Limit	Quasi- Peak Margin	Class B Average Limit	Margin
0.159	53.46	PK	0	0	53.46	65.5	-12.04	55.5	-2.04
0.159	26.66	Av	0	0	26.66	-	-	55.5	-28.84
0.2355	48.88	PK	0	0	48.88	62.3	-13.42	52.3	-3.42
0.2355	30.11	Av	0	0	30.11	-	-	52.3	-22.19
10.3425	37.43	PK	0	0	37.43	60	-22.57	50	-12.57
10.3425	19.93	Av	0	0	19.93	-	-	50	-30.07
PK - Peak detector QP - Quasi-Peak detector LnAv - Linear Average detector LgAv - Log Average detector Av - Average detector CAV - CISPR Average detector RMS - RMS detection									

LINE 1 RESULTS



LINE 2 RESULTS

