RADIATED SPURIOUS EMISSIONS PORTIONS OF FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT FOR

SINGLE-BAND 1xRTT CDMA PHONE WITH BLUETOOTH

FCC MODEL NUMBER: K55-01

FCC ID: OVF- K5501

REPORT NUMBER: 10U13454-3, Revision A

ISSUE DATE: OCTOBER 26, 2010

Prepared for
KYOCERA COMMUNICATIONS, INC.
10300 CAMPUS POINT DRIVE
SAN DIEGO, CA 92121, U.S.A.

Prepared by
COMPLIANCE CERTIFICATION SERVICES (UL CCS)
47173 BENICIA STREET
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
---	10/19/2010	Initial Issue	T. Chan
A	10/26/2010	Revised antenna gain	A. Zaffar

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: KYOCERA COMMUNICATIONS, INC.
10300 CAMPUS POINT DRIVE
SAN DIEGO, CA 92121, U.S.A.

EUT DESCRIPTION: SINGLE-BAND 1XRTT CDMA PHONE WITH BLUETOOTH

MODEL: OVF-K5501

SERIAL NUMBER: IVQ80910M00125

DATE TESTED: OCTOBER 18 & 19, 2010

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

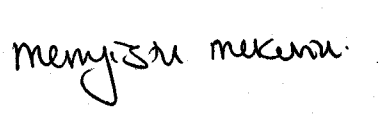
Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties 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:

THU CHAN
ENGINEERING MANAGER
UL CCS

Tested By:



MENGISTU MEKURIA
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, 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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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 Single-band CDMA Phone that is manufactured by Kyocera Communications, Inc.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antenna, with a maximum gain of 0.5dBi.

5.3. SOFTWARE AND FIRMWARE

The test utility software used during testing was BlueCore 6-ROM (CSR).

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 flap open X, Y, and Z-Positions, and the worst position among those with closed, headset and AC/DC adapter, after the investigations, the worst-position was turned out to be a Y-position flapped open without AC/DC adapter and headset.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC/DC Adapter	Kyocera	TXTVL10148	2143	DoC
Headset	Kyocera	N/A	2106	N/A

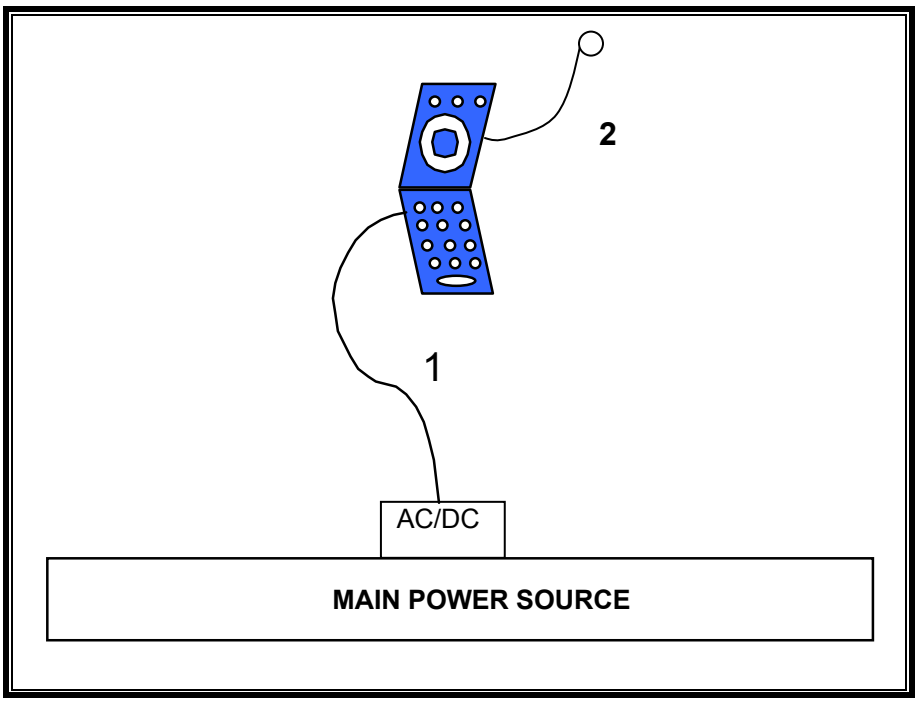
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC Input	1	Mini-USB	Un-Shielded	2.0 m	N/A
2	Audio	1	Mini-Jack	Un-Shielded	1.3m	Mic on the wire

TEST SETUP

The EUT is configured as stand alone unit for above 1GHz radiated emission and with AC/DC adapter and headset 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	C01179	08/18/11
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	C01052	07/14/11
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/11
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	10/29/10
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

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

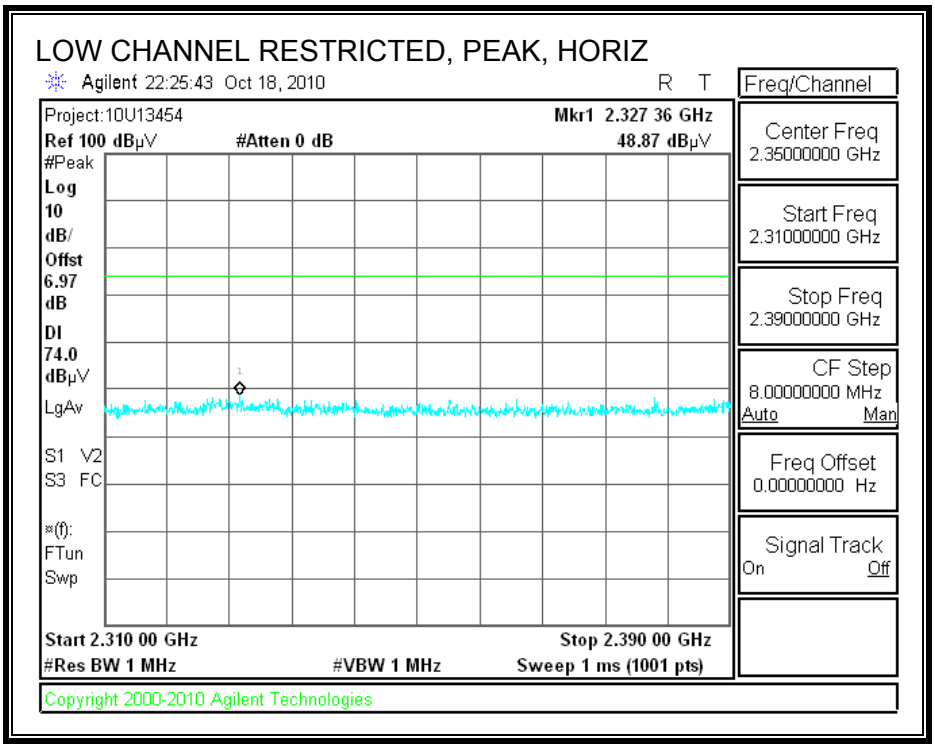
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

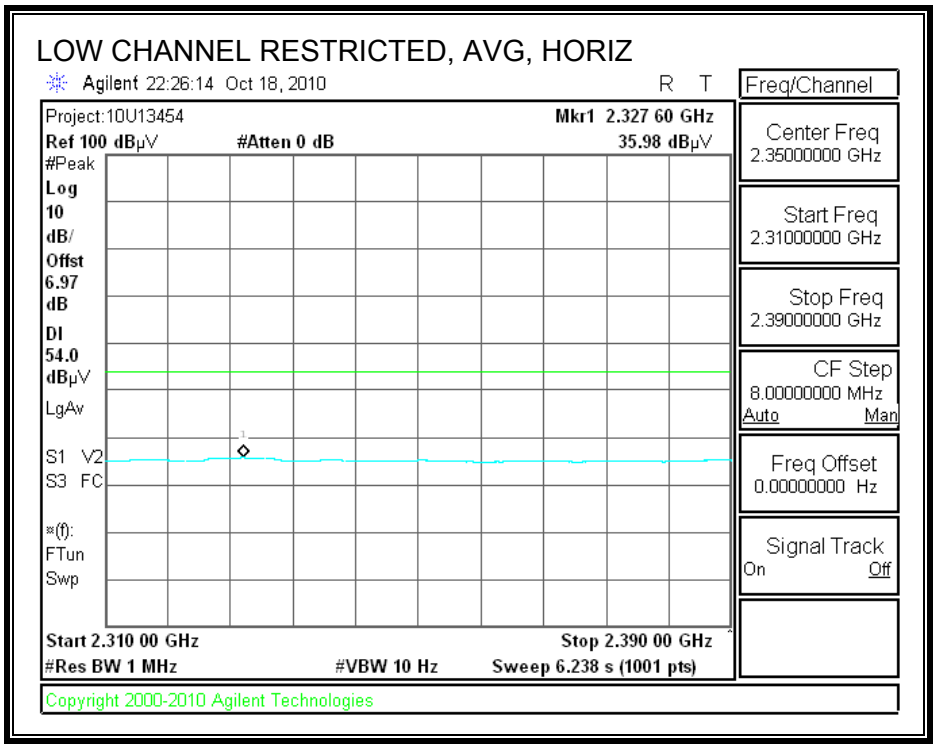
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

7.2. TRANSMITTER ABOVE 1 GHz

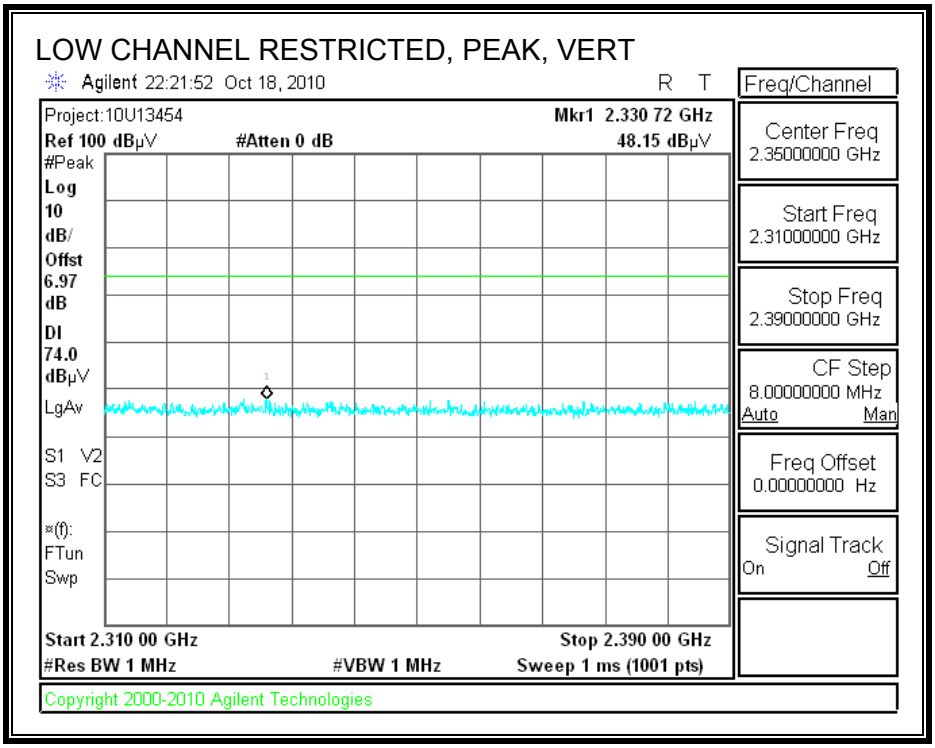
7.2.1. BASIC DATA RATE GFSK MODULATION

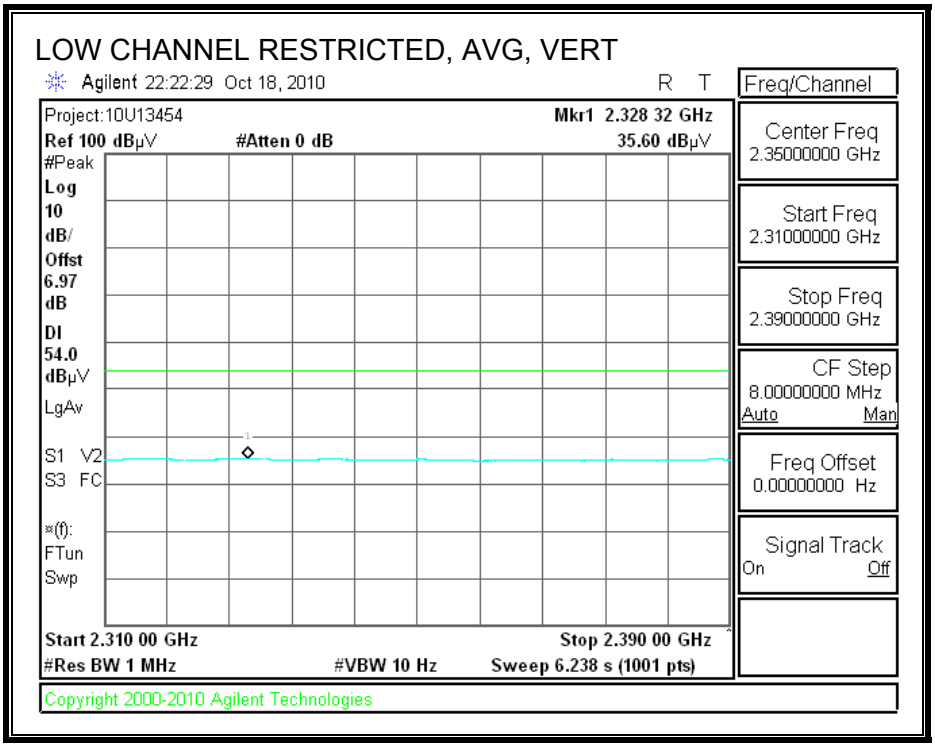
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



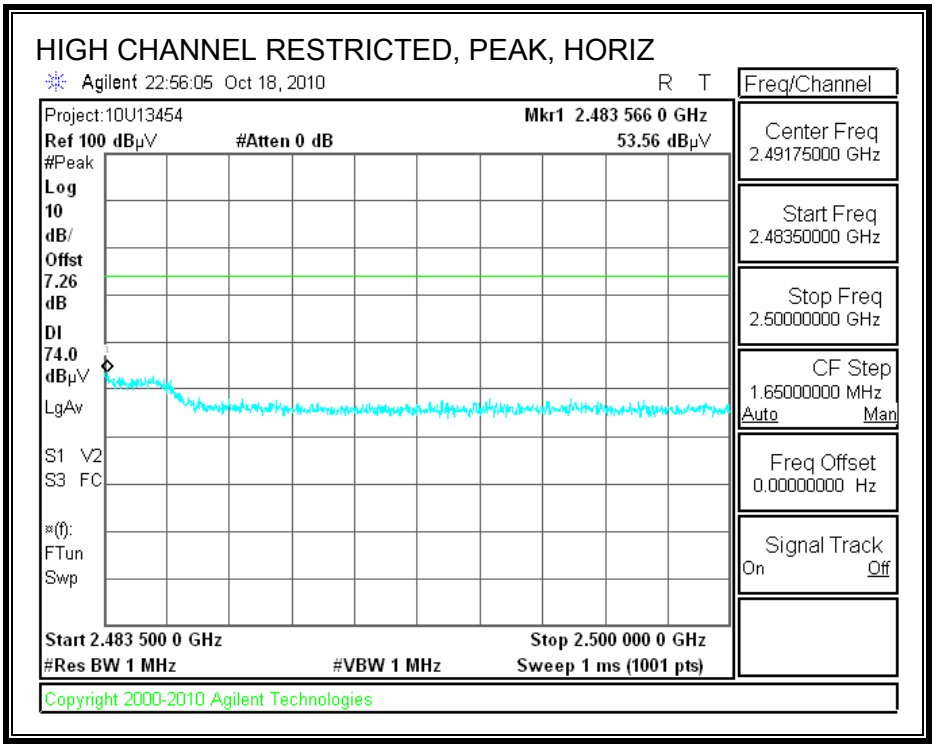


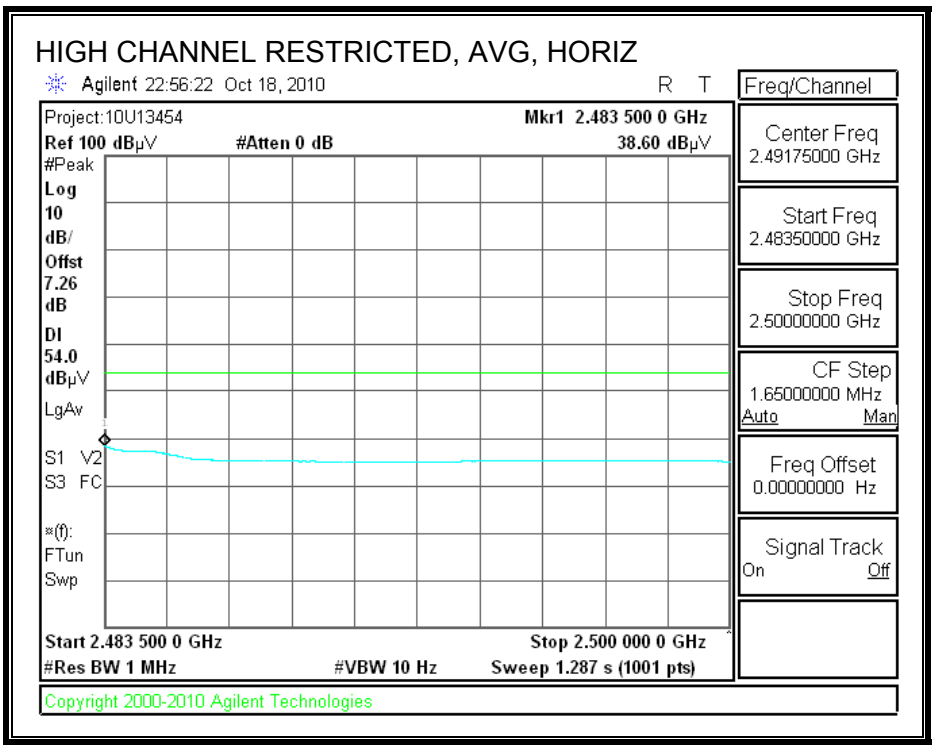
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



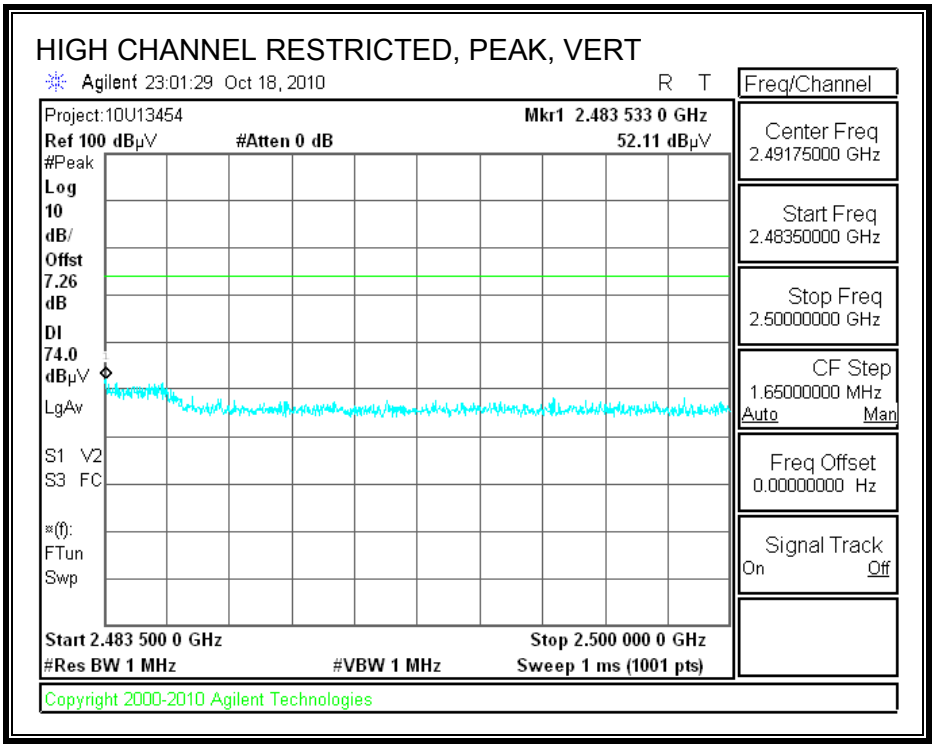


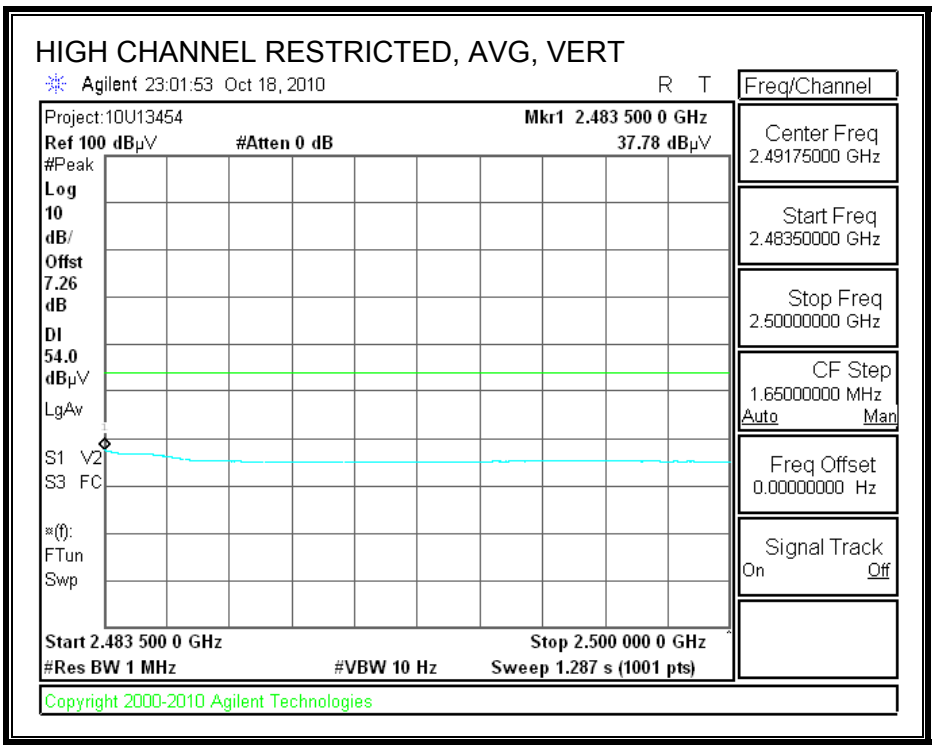
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: KYOCRA WIRELESS
Project #: 10U13454
Date: 10/19/2010
Test Engineer: MENGISTU MEKURIA
Configuration: EUT ALONE
Mode: TX, GFSK MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

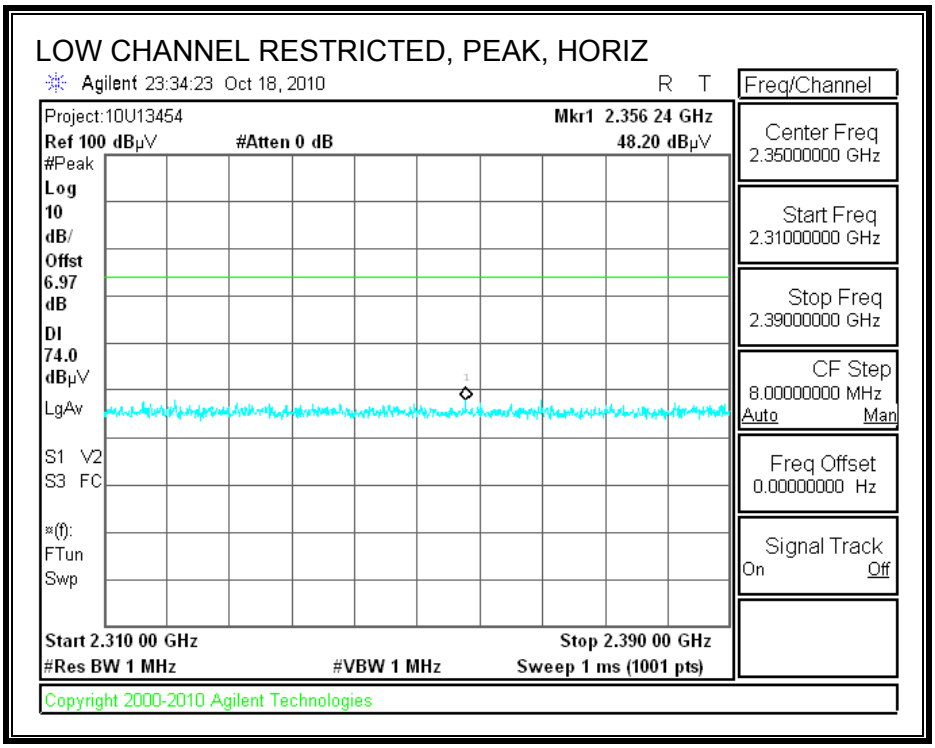
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel (2402 MHz)															
3.897	3.0	52.5	51.0	32.0	5.1	-36.7	0.0	0.0	52.9	51.4	74	54	-21.1	-2.6	V
4.804	3.0	50.7	33.2	33.0	5.8	-36.5	0.0	0.0	53.1	35.5	74	54	-20.9	-18.5	V
3.865	3.0	50.0	48.4	32.0	5.1	-36.7	0.0	0.0	50.3	48.7	74	54	-23.7	-5.3	H
4.804	3.0	48.2	32.2	33.0	5.8	-36.5	0.0	0.0	50.6	34.5	74	54	-23.4	-19.5	H
Mid Channel (2441 MHz)															
4.882	3.0	50.9	33.0	33.1	5.8	-36.5	0.0	0.0	53.4	35.5	74	54	-20.6	-18.5	V
7.323	3.0	44.8	27.8	35.3	7.3	-36.2	0.0	0.0	51.1	34.2	74	54	-22.9	-19.8	V
4.882	3.0	48.0	32.0	33.1	5.8	-36.5	0.0	0.0	50.5	34.5	74	54	-23.5	-19.5	H
7.323	3.0	43.0	26.4	35.3	7.3	-36.2	0.0	0.0	49.4	32.7	74	54	-24.6	-21.3	H
Hi Channel (2480 MHz)															
4.960	3.0	52.0	33.3	33.2	5.9	-36.5	0.0	0.0	54.6	35.9	74	54	-19.4	-18.1	V
7.440	3.0	44.0	27.0	35.5	7.3	-36.2	0.0	0.0	50.7	33.6	74	54	-23.3	-20.4	V
4.960	3.0	49.0	32.2	33.2	5.9	-36.5	0.0	0.0	51.6	34.8	74	54	-22.4	-19.2	H
7.440	3.0	40.8	25.7	35.5	7.3	-36.2	0.0	0.0	47.4	32.3	74	54	-26.6	-21.7	H

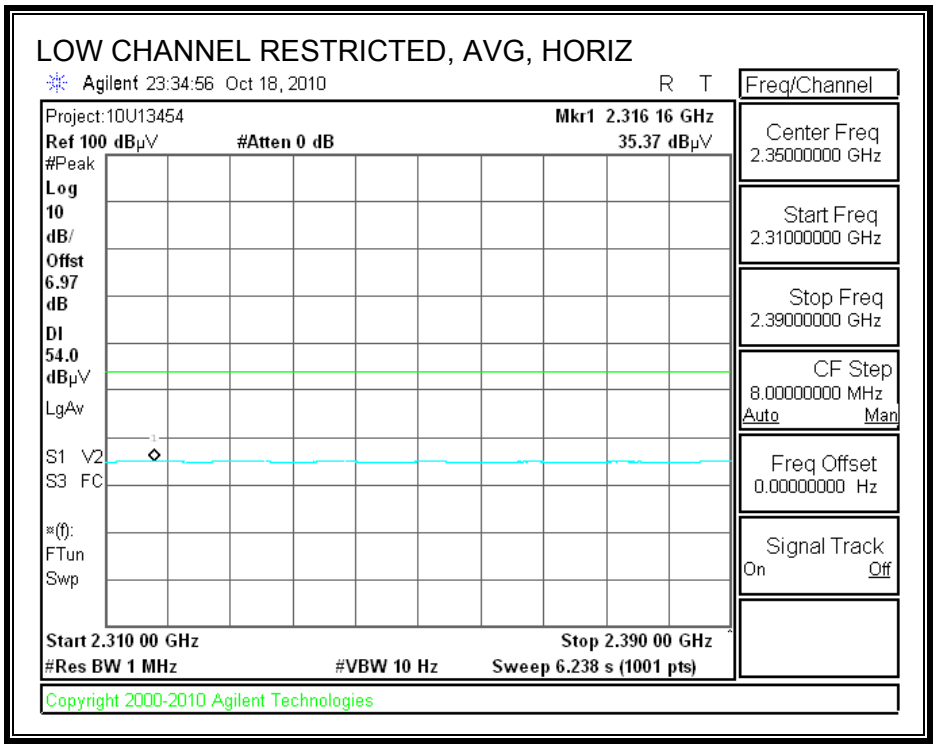
Rev. 07.22.09

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		

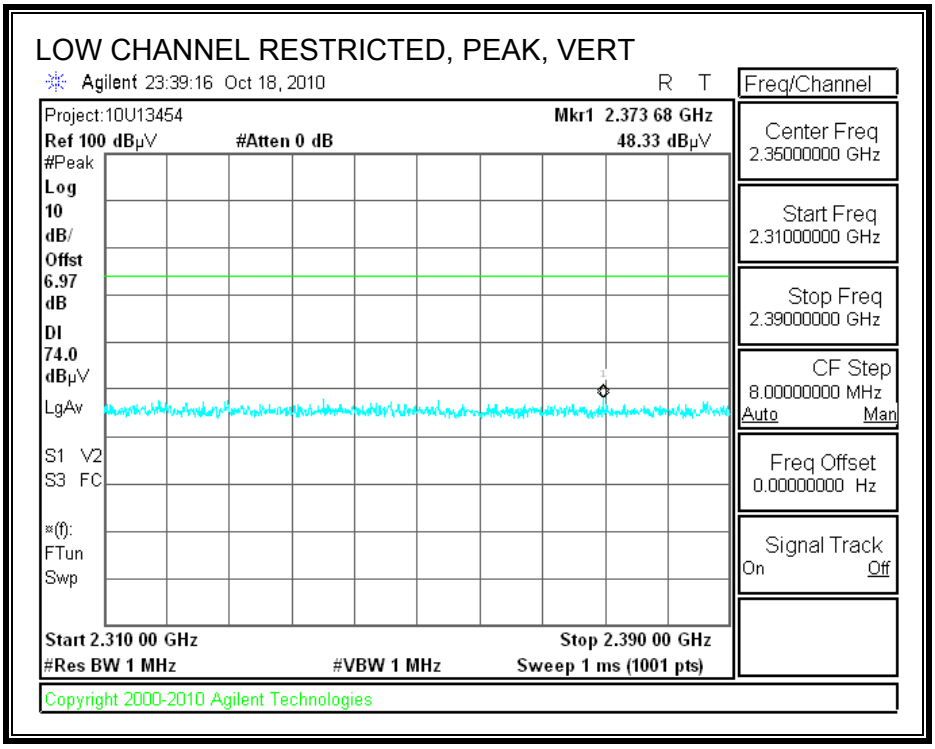
7.2.2. ENHANCED DATA RATE 8PSK MODULATION

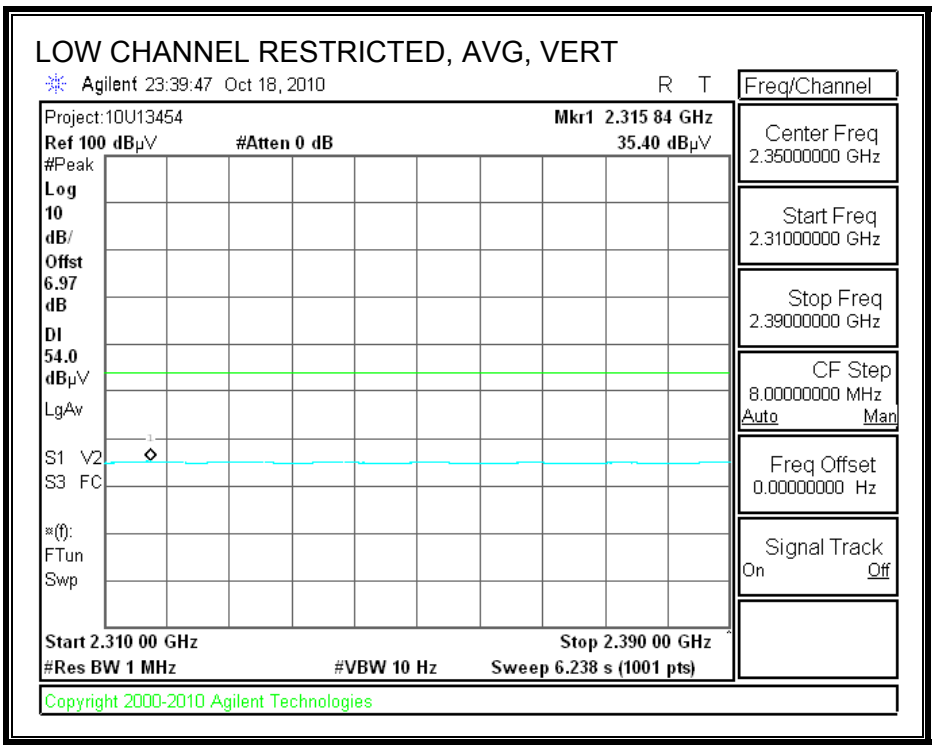
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



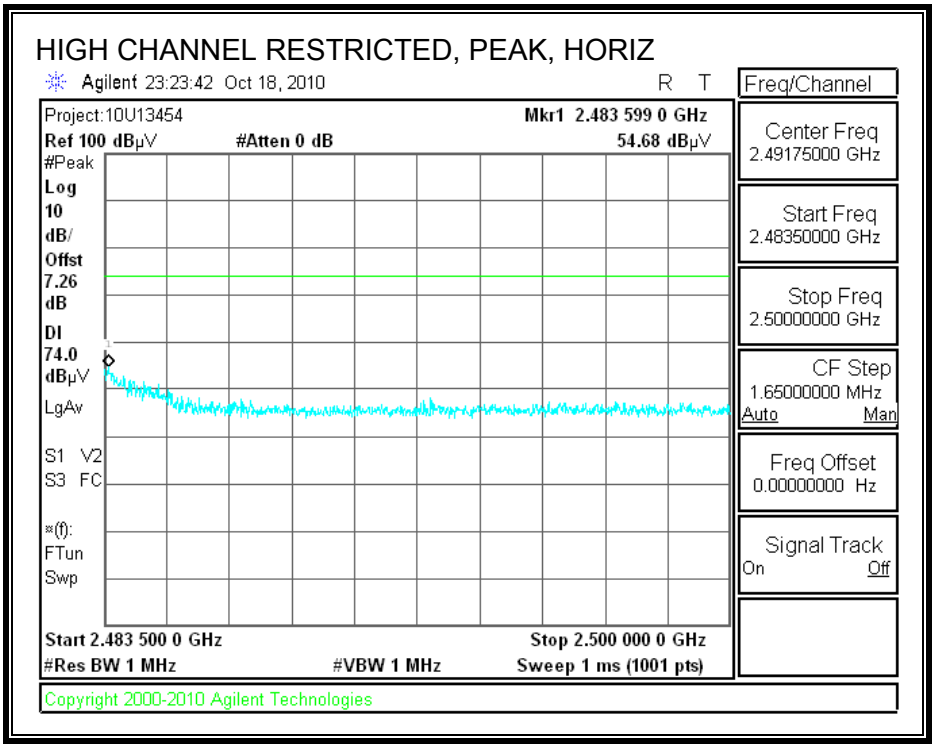


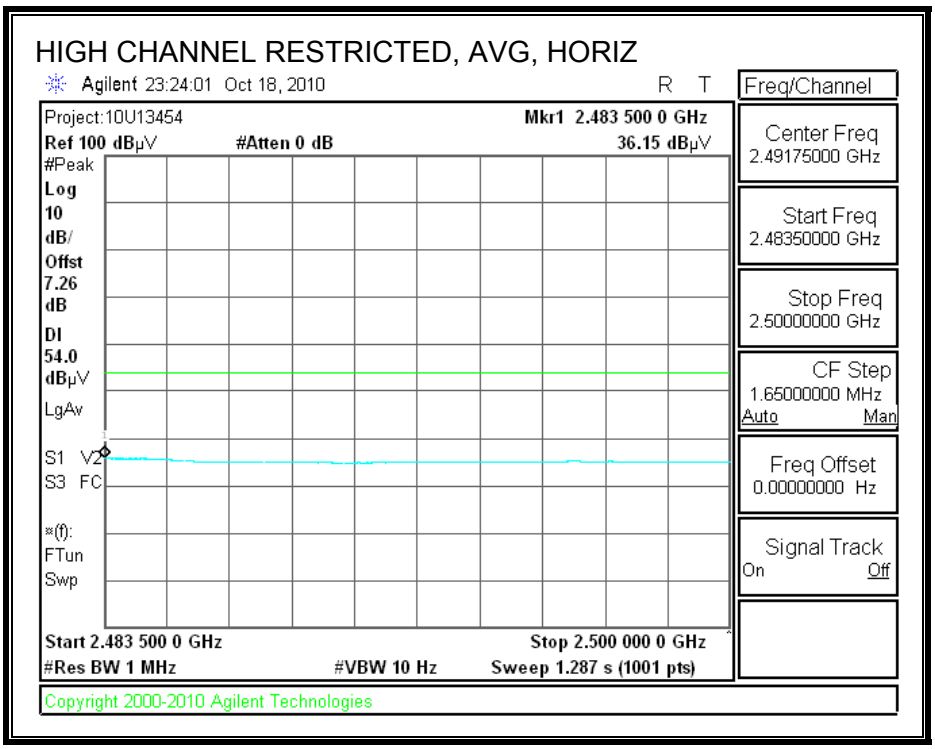
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



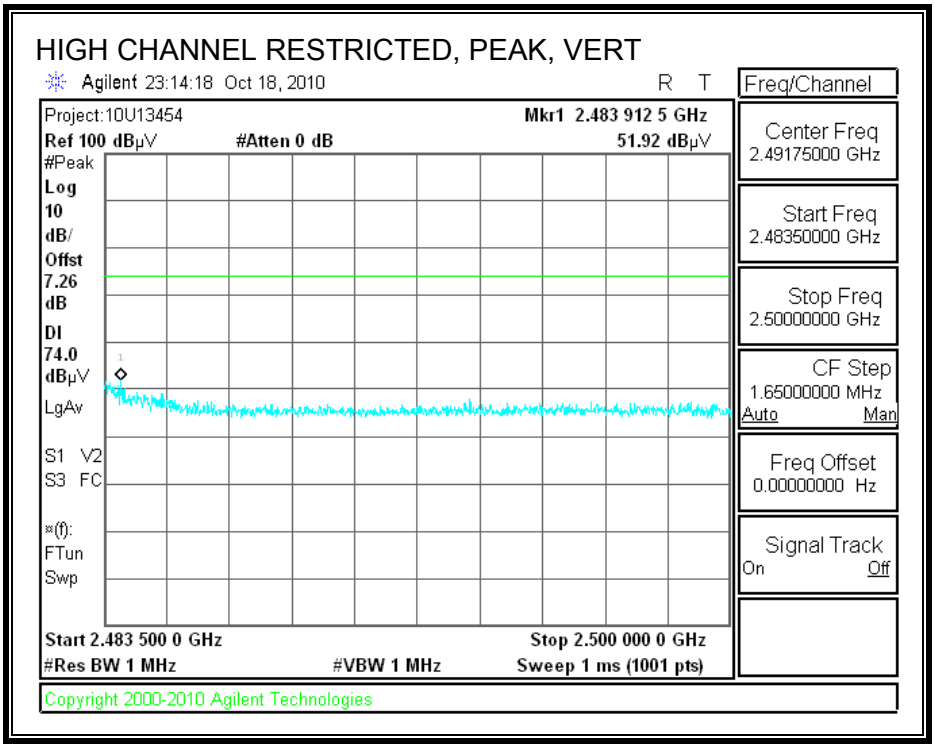


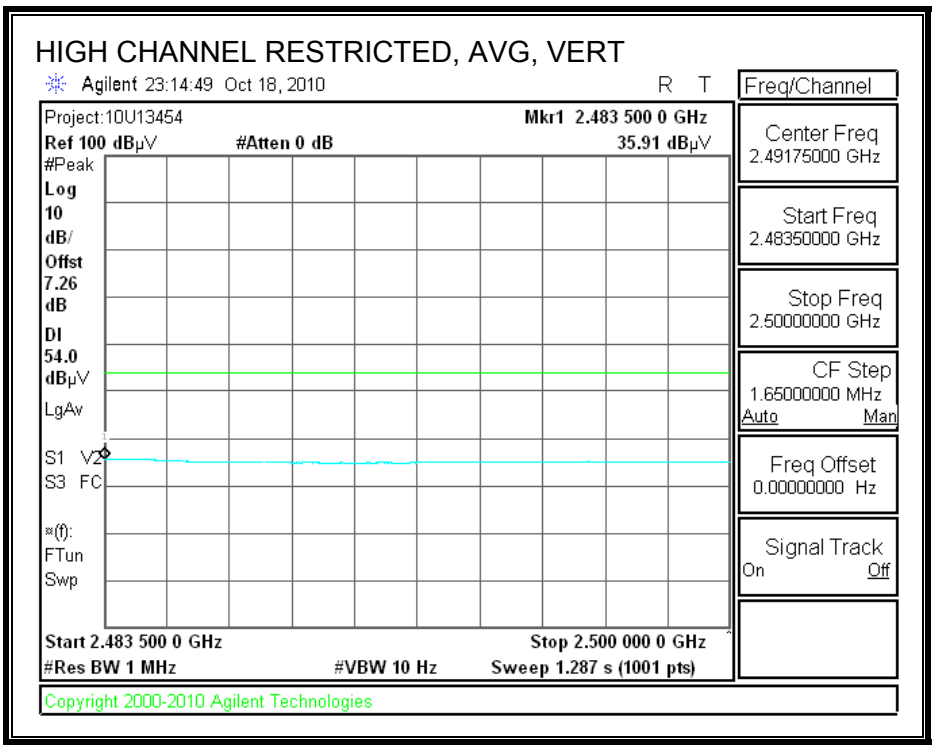
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: KYOCRA WIRELESS
Project #: 10U13454
Date: 10/19/2010
Test Engineer: MENGISTU MEKURIA
Configuration: EUT ALONE
Mode: TX, 8PSK MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

Peak Measurements
RBW=VBW=1MHz
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 (2402 MHz)															
3.897	3.0	52.5	51.0	32.0	5.1	-36.7	0.0	0.0	52.9	51.4	74	54	-21.1	-2.6	V
4.804	3.0	46.8	34.8	33.0	5.8	-36.5	0.0	0.0	49.1	37.2	74	54	-24.9	-16.8	V
3.865	3.0	50.0	48.4	32.0	5.1	-36.7	0.0	0.0	50.3	48.7	74	54	-23.7	-5.3	H
4.804	3.0	48.4	34.6	33.0	5.8	-36.5	0.0	0.0	50.8	36.9	74	54	-23.2	-17.1	H
Mid Channel (2441 MHz)															
4.882	3.0	46.9	35.0	33.1	5.8	-36.5	0.0	0.0	49.3	37.4	74	54	-24.7	-16.6	V
7.323	3.0	43.9	27.9	35.3	7.3	-36.2	0.0	0.0	50.2	34.3	74	54	-23.8	-19.7	V
4.882	3.0	45.4	33.6	33.1	5.8	-36.5	0.0	0.0	47.9	36.0	74	54	-26.1	-18.0	H
7.323	3.0	42.3	27.4	35.3	7.3	-36.2	0.0	0.0	48.6	33.8	74	54	-25.4	-20.2	H
Hi Channel (2480 MHz)															
4.960	3.0	47.9	34.7	33.2	5.9	-36.5	0.0	0.0	50.5	37.3	74	54	-23.5	-16.7	V
7.440	3.0	43.0	27.3	35.5	7.3	-36.2	0.0	0.0	49.6	33.9	74	54	-24.4	-20.1	V
4.960	3.0	45.6	33.0	33.2	5.9	-36.5	0.0	0.0	48.2	35.7	74	54	-25.8	-18.3	H
7.440	3.0	39.1	25.5	35.5	7.3	-36.2	0.0	0.0	45.7	32.1	74	54	-28.3	-21.9	H

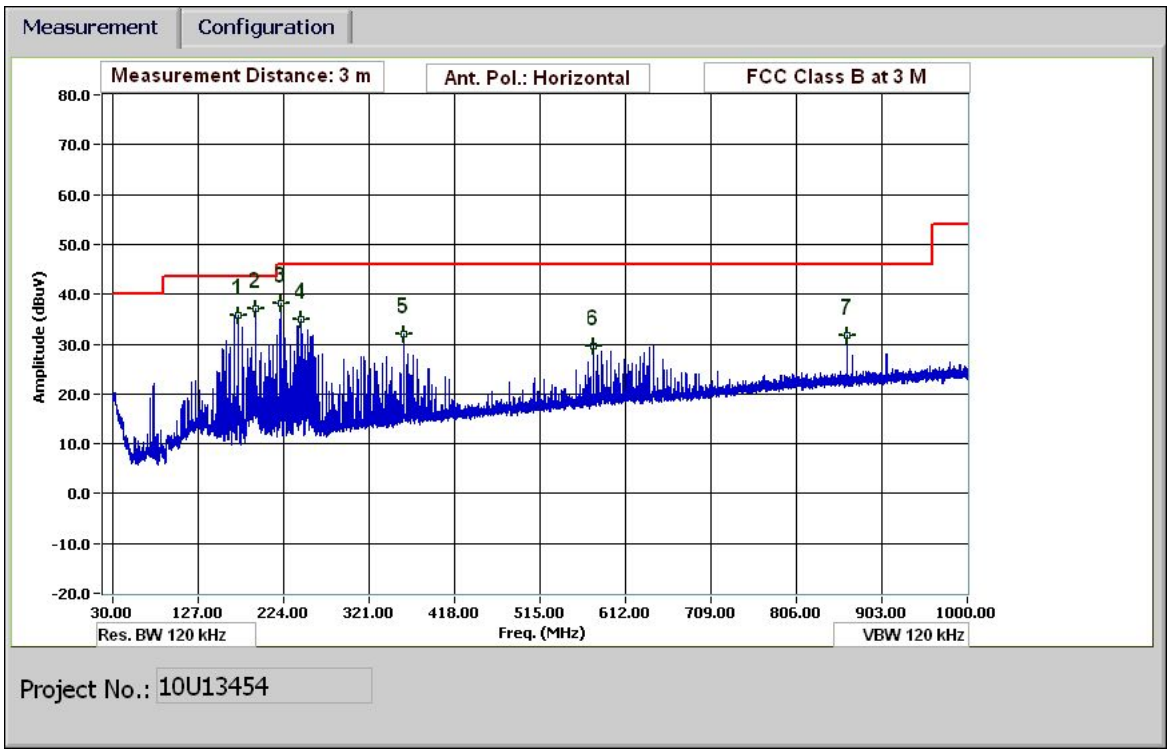
Rev. 07.22.09

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		

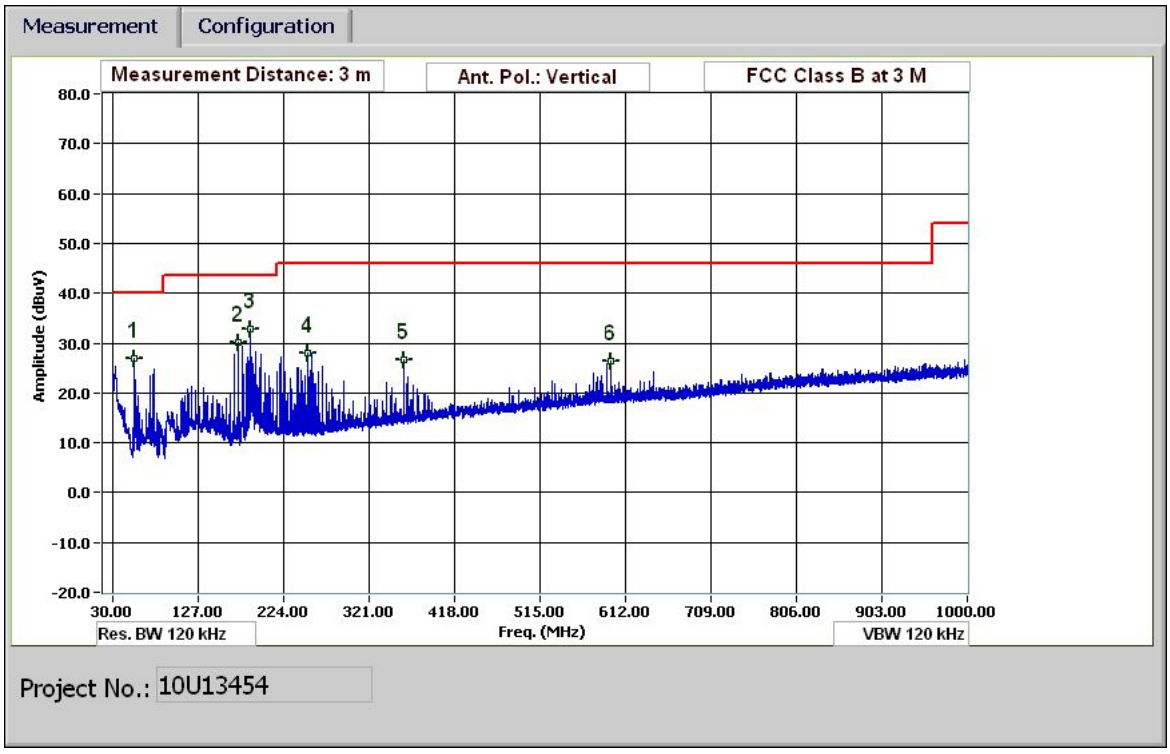
7.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

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

Test Engr: Mengistu Mekuria
Date: 10/18/10
Project #: 10U13454
Company: Kyocera Wireless Inc.
Test Target: FCC Class B
Mode Oper: TX Mode (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
172.446	3.0	53.8	10.0	1.2	29.2	0.0	0.0	35.7	43.5	-7.8	H	P	
192.007	3.0	53.5	11.4	1.2	29.0	0.0	0.0	37.1	43.5	-6.4	H	P	
220.448	3.0	53.7	11.9	1.3	28.9	0.0	0.0	38.1	46.0	-7.9	H	P	
244.329	3.0	50.4	11.8	1.4	28.8	0.0	0.0	34.8	46.0	-11.2	H	P	
360.014	3.0	45.0	14.3	1.8	29.1	0.0	0.0	32.1	46.0	-13.9	H	P	
576.023	3.0	39.0	17.9	2.3	29.7	0.0	0.0	29.6	46.0	-16.4	H	P	
864.034	3.0	36.3	21.3	2.9	28.8	0.0	0.0	31.8	46.0	-14.3	H	P	
54.961	3.0	48.0	7.9	0.6	29.6	0.0	0.0	26.9	40.0	-13.1	V	P	
172.446	3.0	48.3	10.0	1.2	29.2	0.0	0.0	30.3	43.5	-13.2	V	P	
186.006	3.0	49.4	11.1	1.2	29.0	0.0	0.0	32.7	43.5	-10.8	V	P	
250.929	3.0	43.4	11.8	1.4	28.8	0.0	0.0	27.9	46.0	-18.1	V	P	
360.014	3.0	39.6	14.3	1.8	29.1	0.0	0.0	26.6	46.0	-19.4	V	P	
595.583	3.0	35.4	18.2	2.4	29.6	0.0	0.0	26.3	46.0	-19.7	V	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

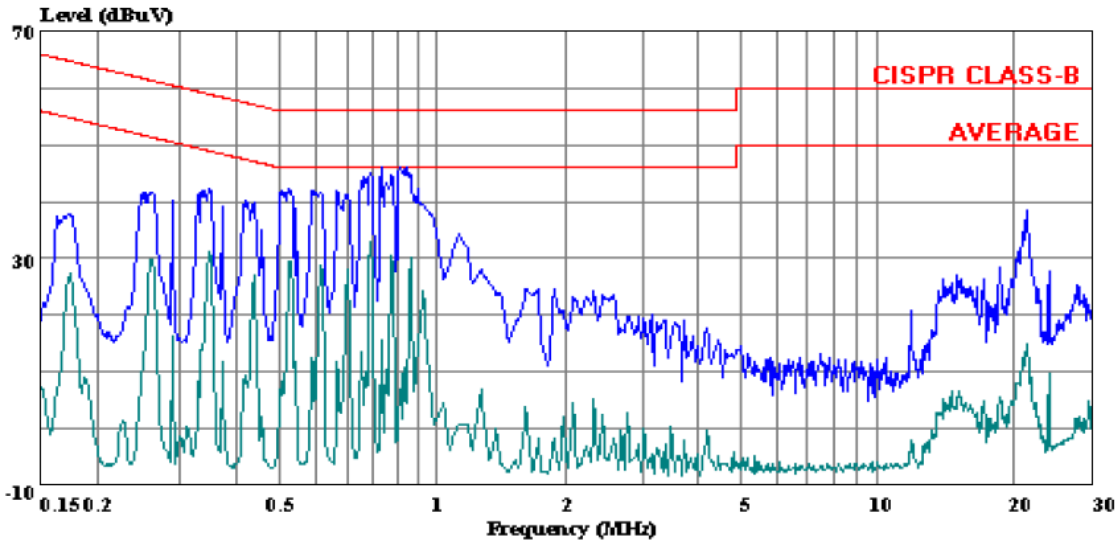
6 WORST EMISSIONS (EUT WITH AC ADAPTER)

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.35	42.17	--	31.10	0.00	58.96	48.96	-16.79	-17.86	L1
0.79	45.02	--	33.06	0.00	56.00	46.00	-10.98	-12.94	L1
0.88	44.64	--	30.65	0.00	56.00	46.00	-11.36	-15.35	L1
0.35	46.09	--	39.67	0.00	59.01	49.01	-12.92	-9.34	L2
0.52	46.93	--	39.49	0.00	56.00	46.00	-9.07	-6.51	L2
0.79	49.30	--	39.94	0.00	56.00	46.00	-6.70	-6.06	L2
6 Worst Data									

LINE 1 RESULTS

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

Data#: 7 File#: 10U13454_LC.EMI Date: 10-19-2010 Time: 21:35:12



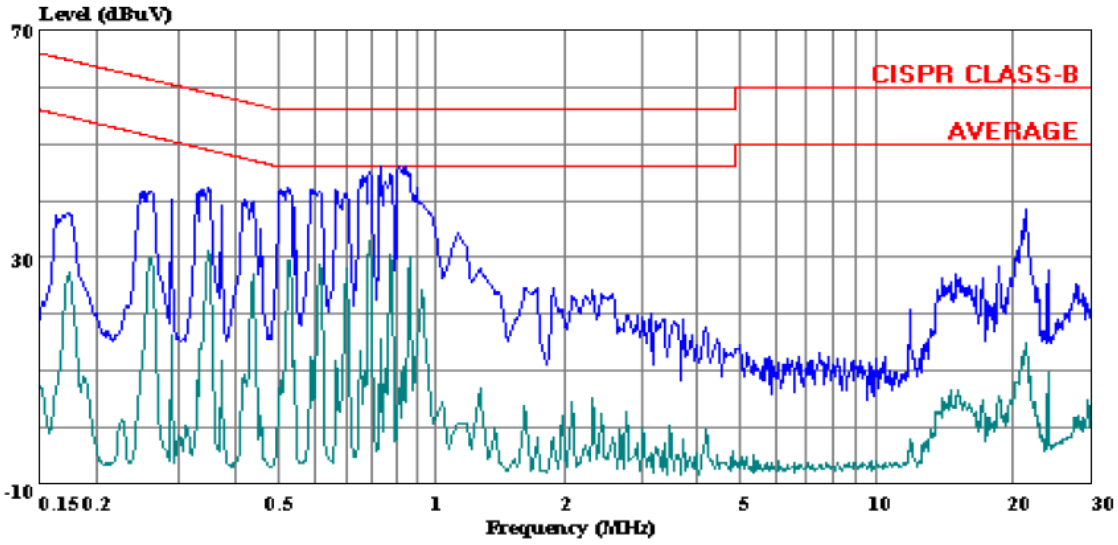
Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Mengistu Mekuria
Project # : 10U13454
Company : Kyocera Wireless Inc
Configuration: EUT with AC Adapter
Mode : TX Mode (Worst-Case)
Target : FCC Class B
Voltage : 115VAC / 60Hz
: L1: (Peak: Blue, Average: Green)

LINE 2 RESULTS

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

Data#: 7 File#: 10U13454_LC.EMI Date: 10-19-2010 Time: 21:35:12



Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Mengistu Mekuria
Project # : 10U13454
Company : Kyocera Wireless Inc
Configuration: EUT with AC Adapter
Mode : TX Mode (Worst-Case)
Target : FCC Class B
Voltage : 115VAC / 60Hz
: L1: (Peak: Blue, Average: Green)