



**RADIATED SPURIOUS EMISSIONS PORTIONS OF
FCC CFR47 PART 15 SUBPART C
CERTIFICATION TEST REPORT**

FOR

SINGLE BAND CDMA PHONE WITH BLUETOOTH

MODEL NUMBER: K53-01

FCC ID: OVF-K5301

REPORT NUMBER: 11U13967- 3

ISSUE DATE: AUGUST 31, 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
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NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	08/31/11	Initial Issue	T. Chan

1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: SINGLE BAND CDMA PHONE WITH BLUETOOTH

MODEL: K53-01

SERIAL NUMBER: K1600000043119

DATE TESTED: AUGUST 30 -31, 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

STEVE AGUILAR
EMC TECHNICIAN
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 single band CDMA phone with Bluetooth, manufactured by Kyocera Communications, Inc.

5.2. SOFTWARE AND FIRMWARE

The test utility software applications used during testing was Graphite Bluetooth Pass-thru Connect BtCLiCtrl.

5.3. 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. After the investigation, the worst-position was turned out to be in the Z-position with the AC/DC adapter.

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC Adapter	Kyocera	SCP-31ADT	SSW 2001	N/A
Headset	N/A	N/A	N/A	N/A

I/O CABLES

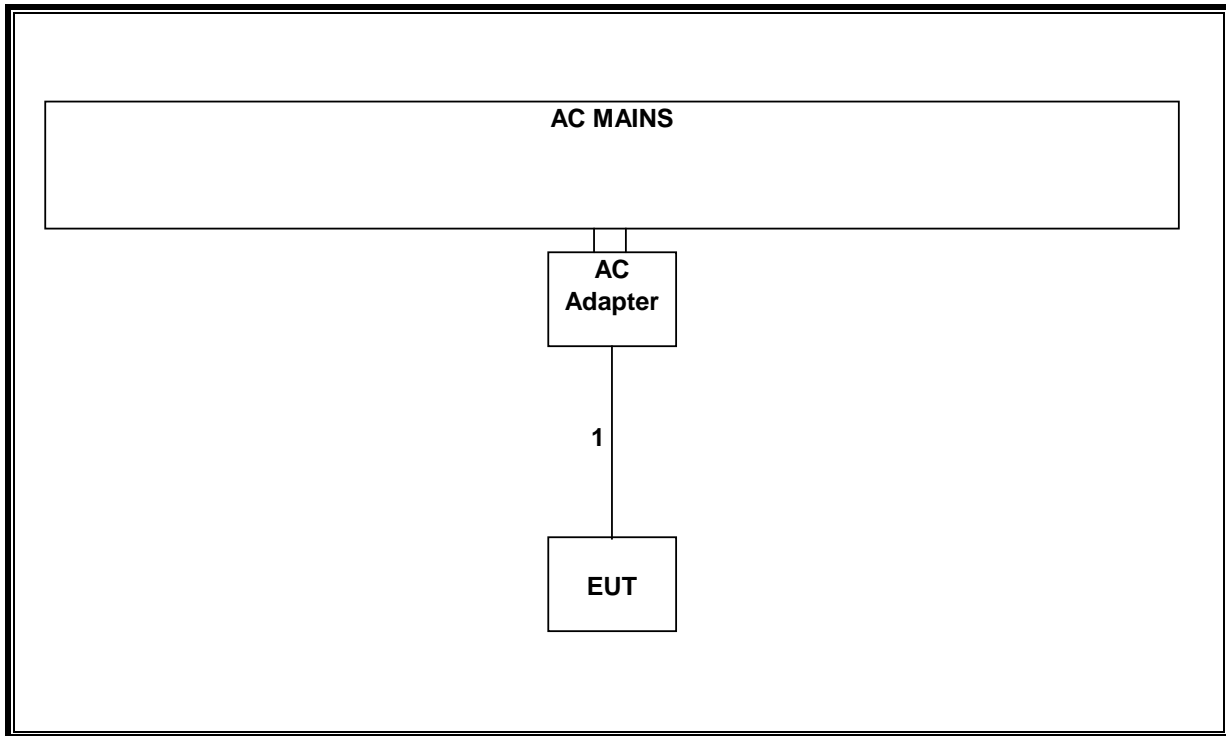
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	Un-shielded	1.5m	DCD-1214
2	Mic	1	Headset	Un-shielded	1m	NA

TEST SETUP

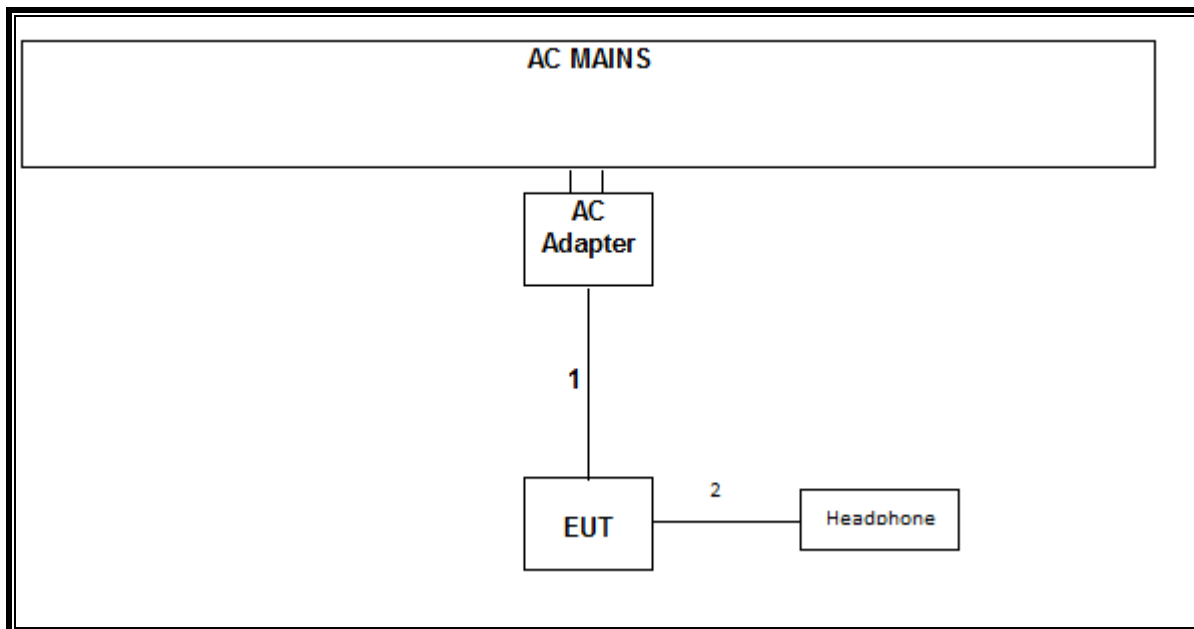
The EUT is configured as stand alone unit with AC/DC adapter for all tests.

SETUP DIAGRAM FOR TESTS

Testing above 1GHz



Testing below 1GHz



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	01/19/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	07/16/12
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/12
Preamplifier, 26.5 GHz	Preamplifier, 26.5 GHz	Agilent / HP	8449B	07/12/12
Preamplifier, 1300 MHz	Preamplifier, 1300 MHz	Agilent / HP	8447D	01/27/12
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRM50702	N02683	CNR
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	N/A	07/05/12

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.

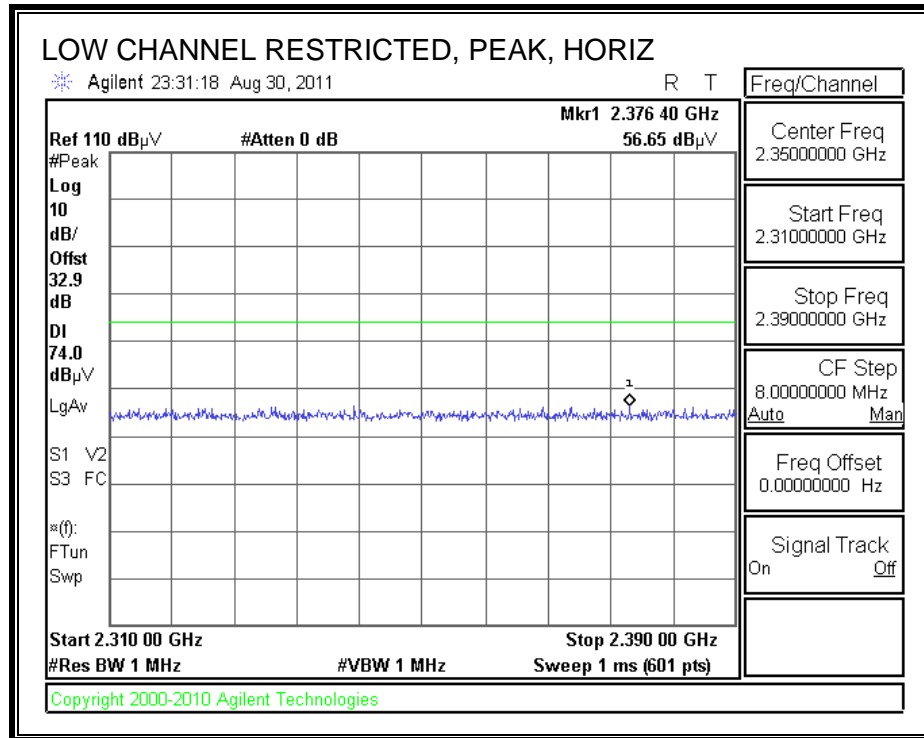
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

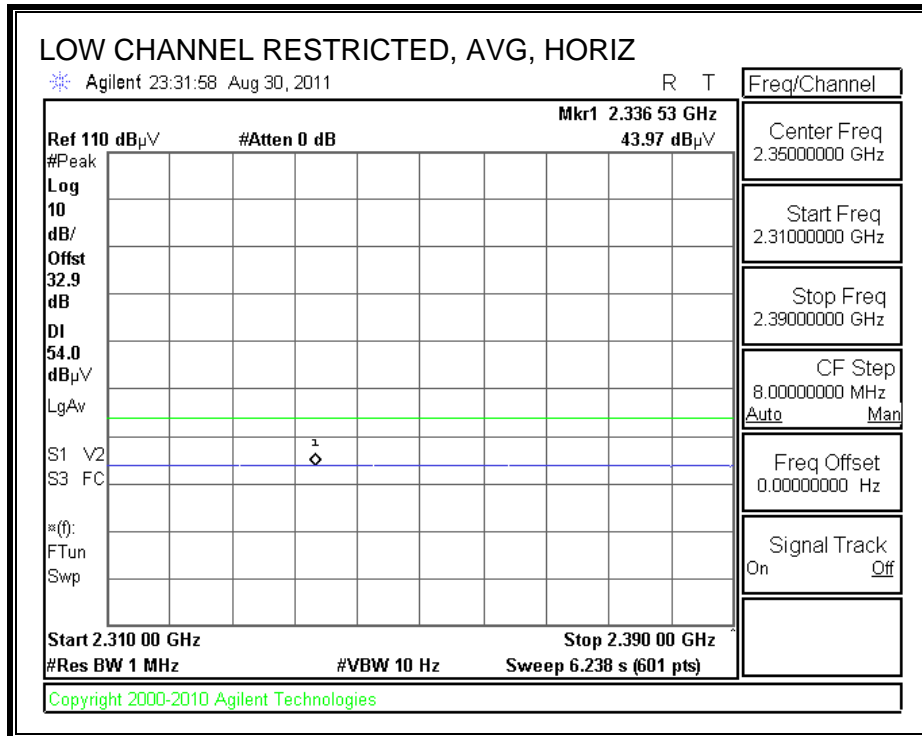
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

7.2. TRANSMITTER ABOVE 1 GHz

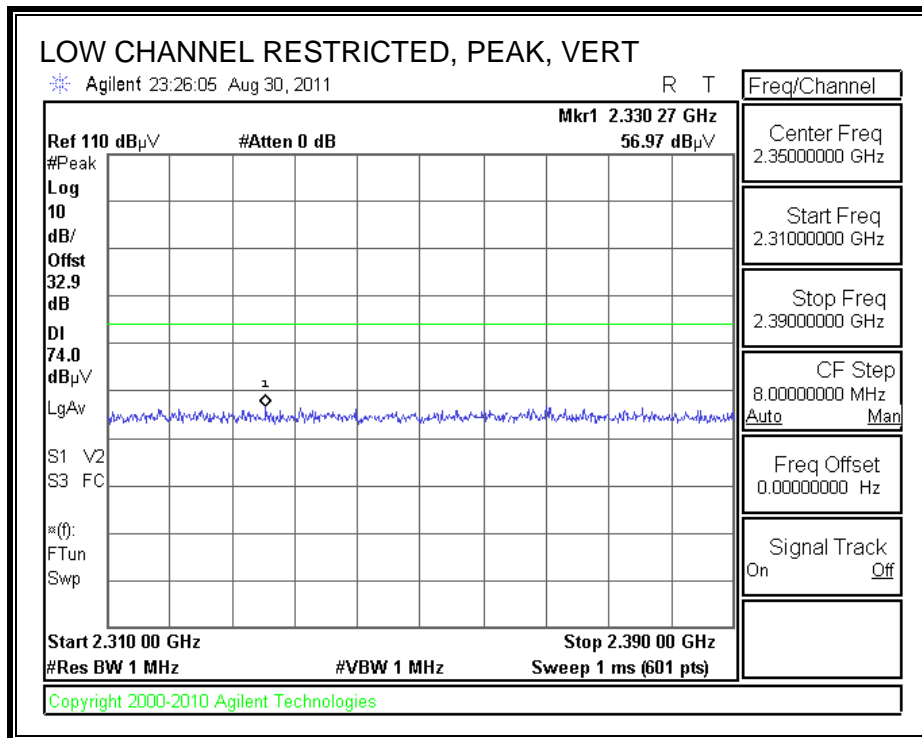
7.2.1. BASIC DATA RATE GFSK MODULATION

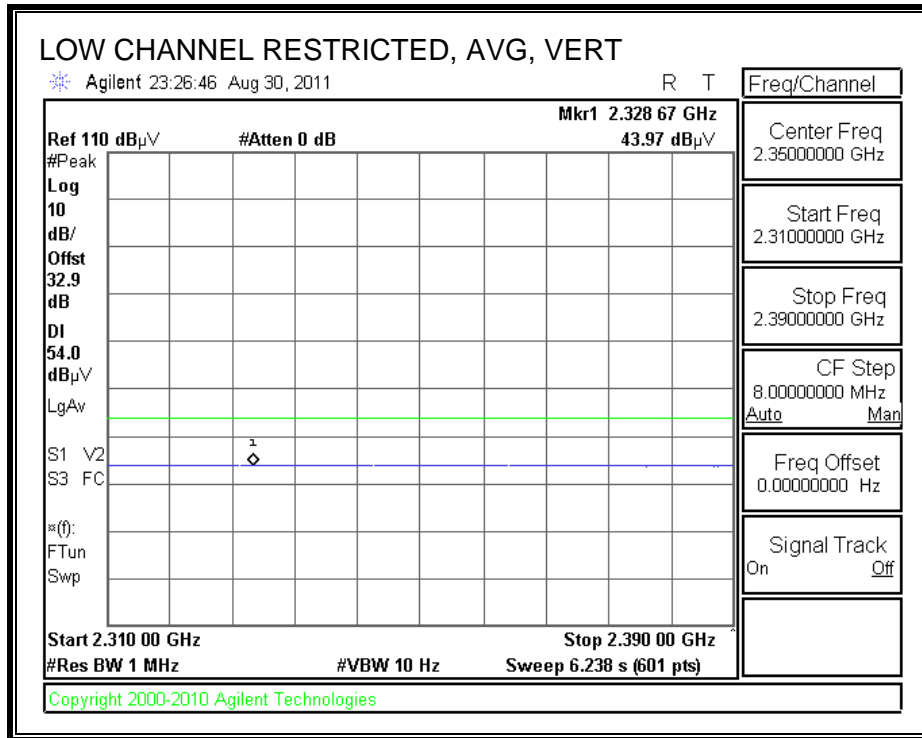
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



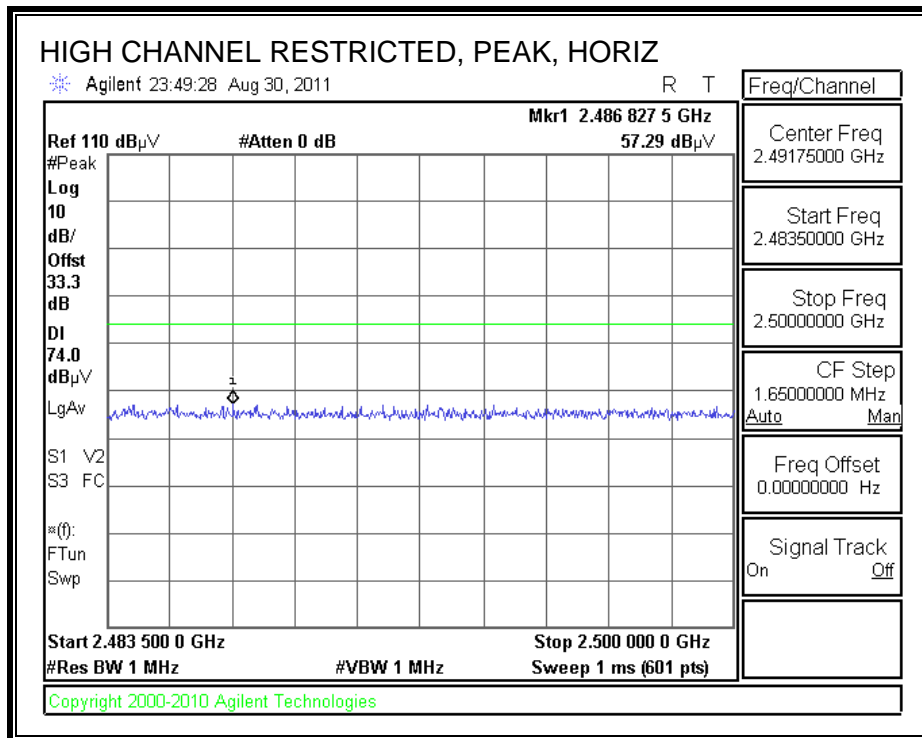


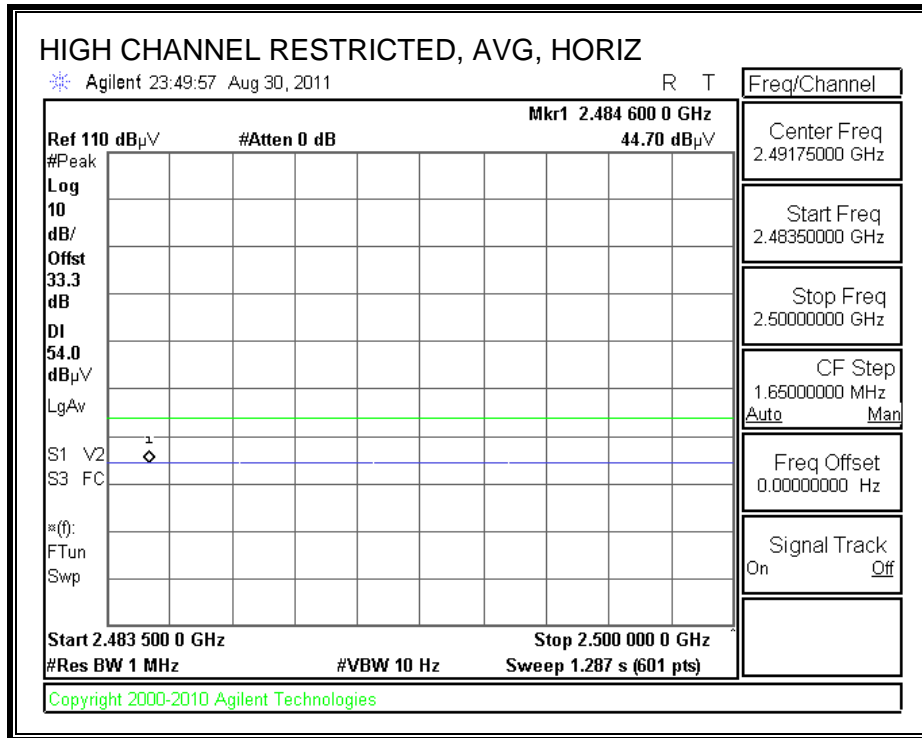
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



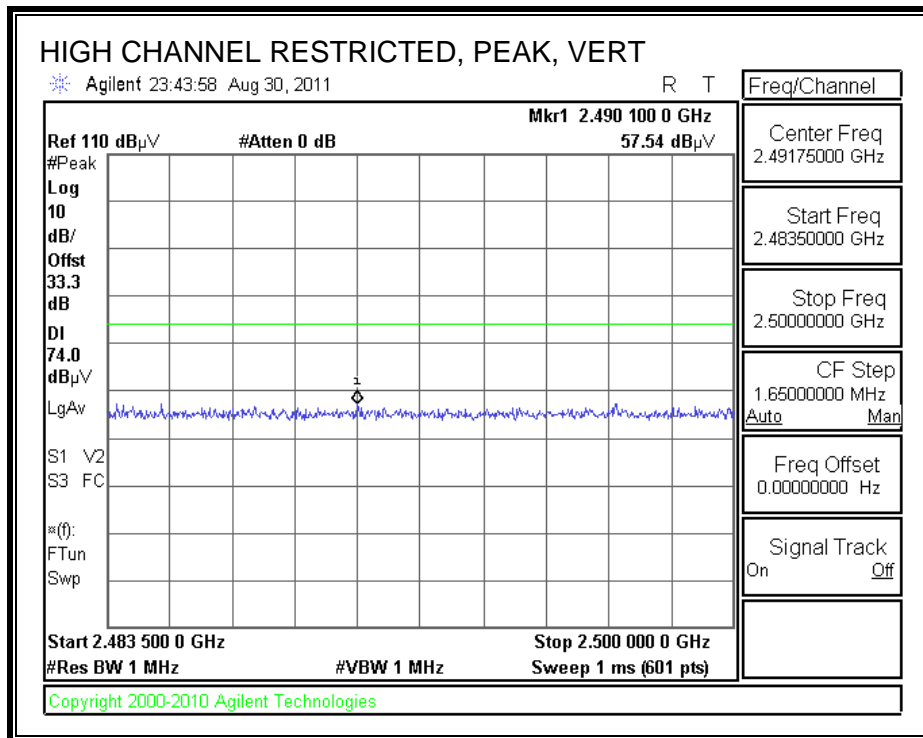


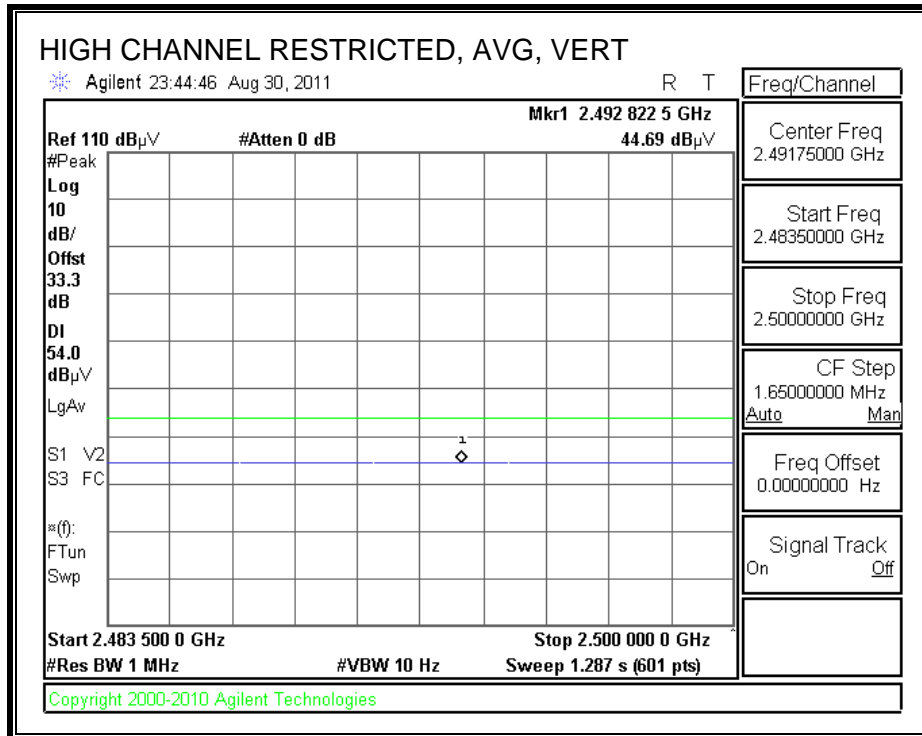
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

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

Company: Kyocera
Project #: 11U13967
Date: Aug 31,2011
Test Engineer: Steve Aguilar
Configuration: EUT in Z axis with adapter
Mode: Bluetooth TX mode: GFSK

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 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	Peak Measurements RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	Average Measurements RBW=1MHz ; VBW=10Hz

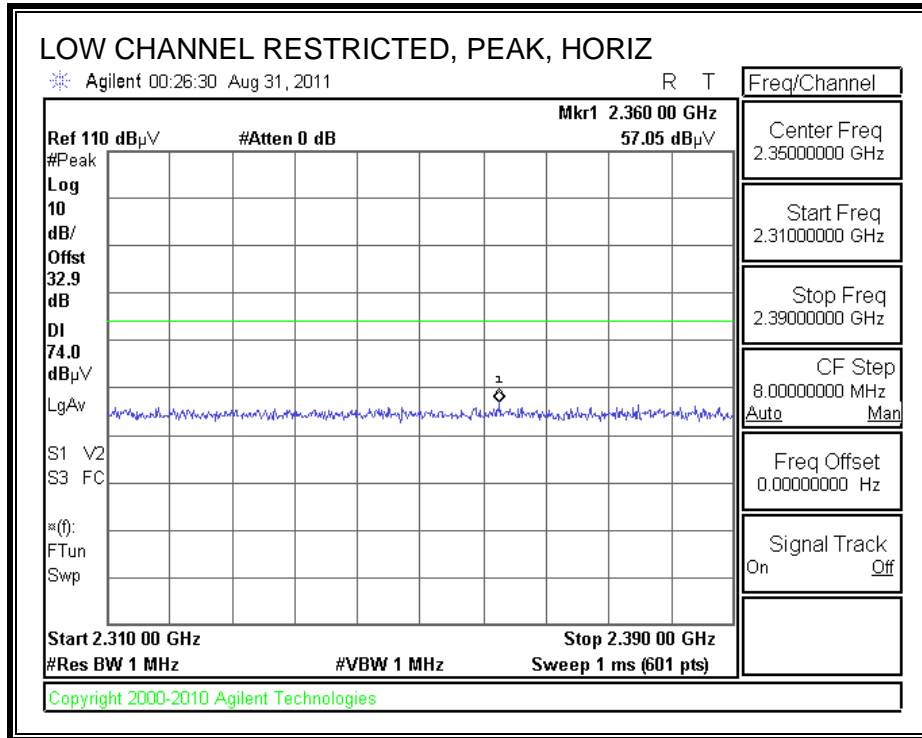
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel (2402MHz)															
4.804	3.0	37.8	25.7	34.6	6.2	-35.5	0.0	0.0	43.1	31.0	74	54	-30.9	-23.0	V
4.804	3.0	37.9	25.7	34.6	6.2	-35.5	0.0	0.0	43.2	31.0	74	54	-30.8	-23.0	H
Mid Channel (2441MHz)															
4.882	3.0	37.5	25.3	34.7	6.2	-35.5	0.0	0.0	43.0	30.7	74	54	-31.0	-23.3	V
4.882	3.0	37.6	25.2	34.7	6.2	-35.5	0.0	0.0	43.1	30.7	74	54	-30.9	-23.3	H
High Channel (2480MHz)															
4.960	3.0	37.6	25.4	34.8	6.3	-35.5	0.0	0.0	43.3	31.0	74	54	-30.7	-23.0	V
4.960	3.0	37.8	25.3	34.8	6.3	-35.5	0.0	0.0	43.4	31.0	74	54	-30.6	-23.0	H

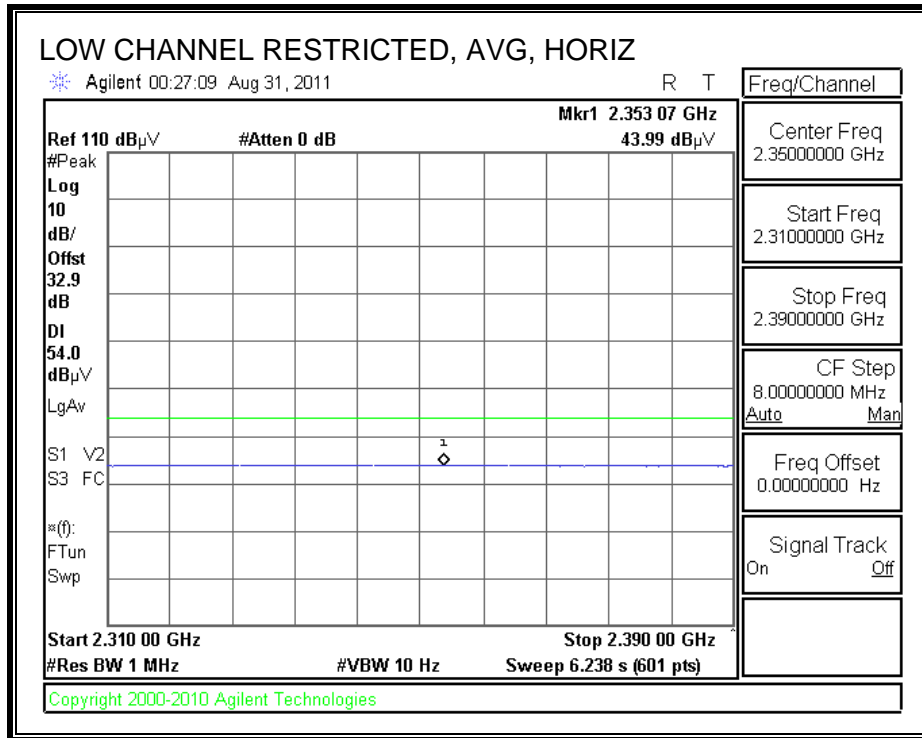
Rev. 07.08.11

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

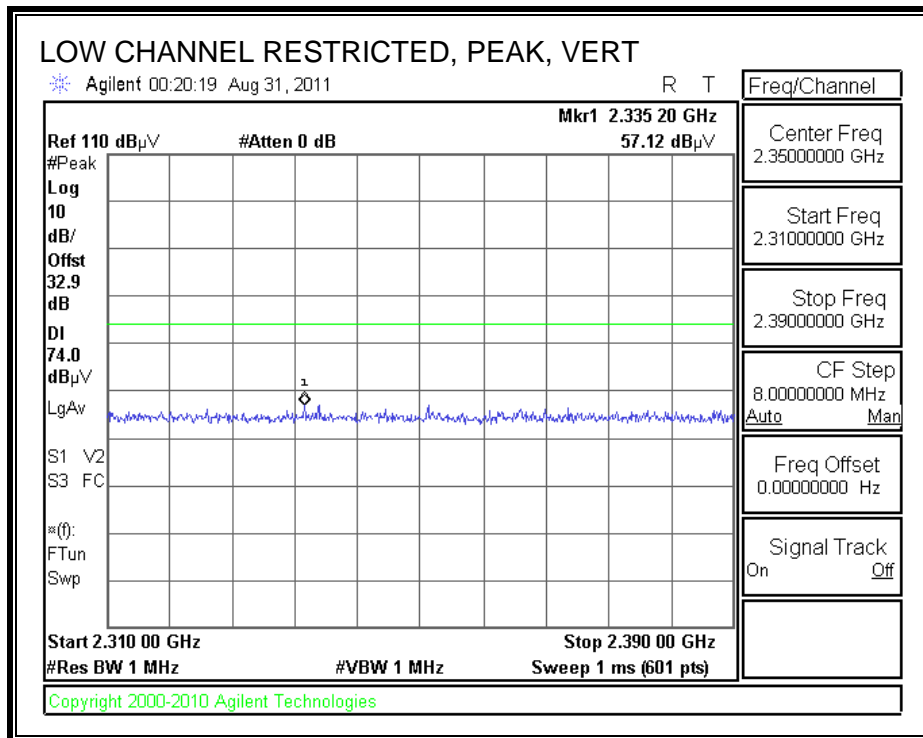
7.2.2. ENHANCED DATA RATE 8PSK MODULATION

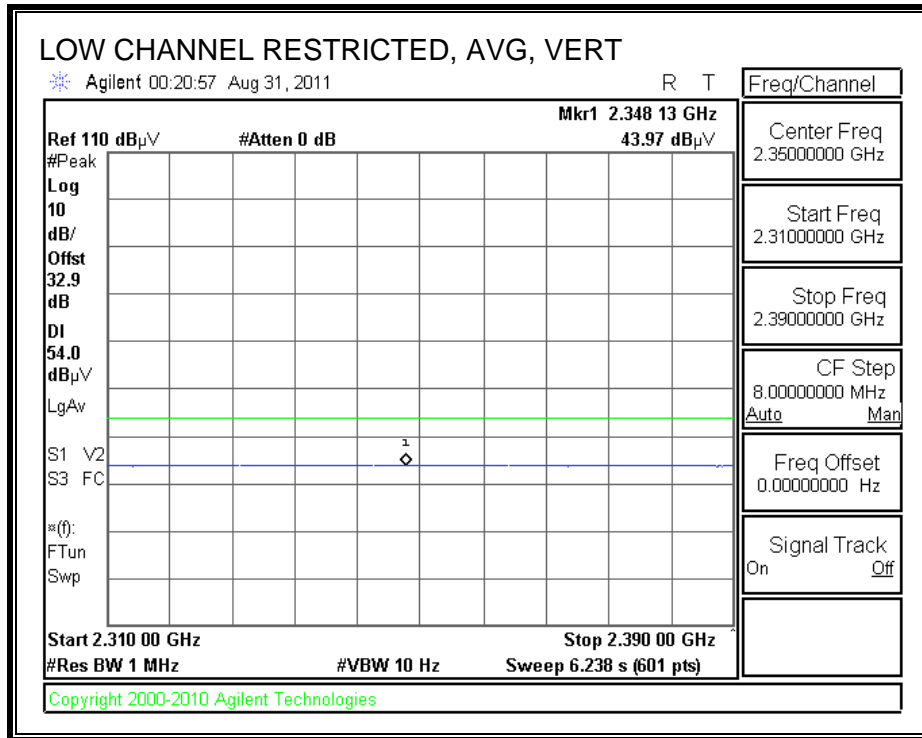
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



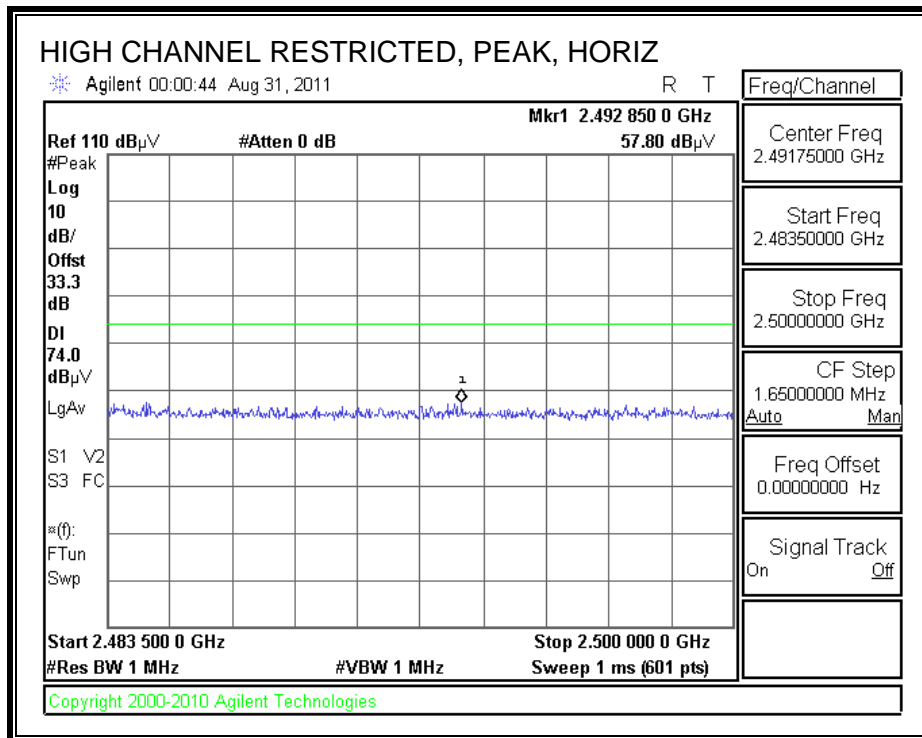


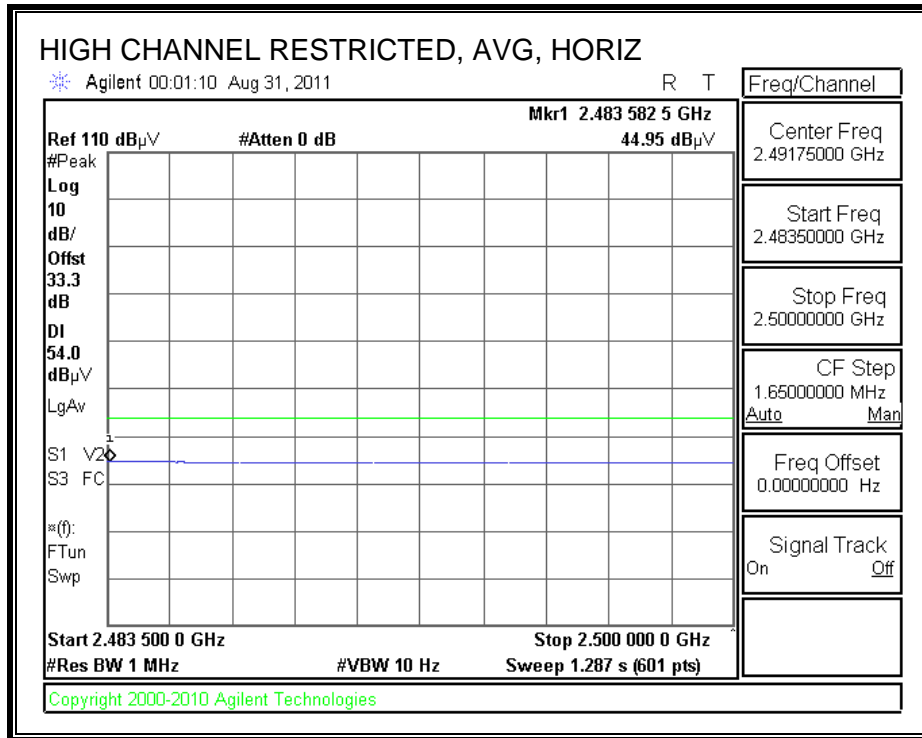
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



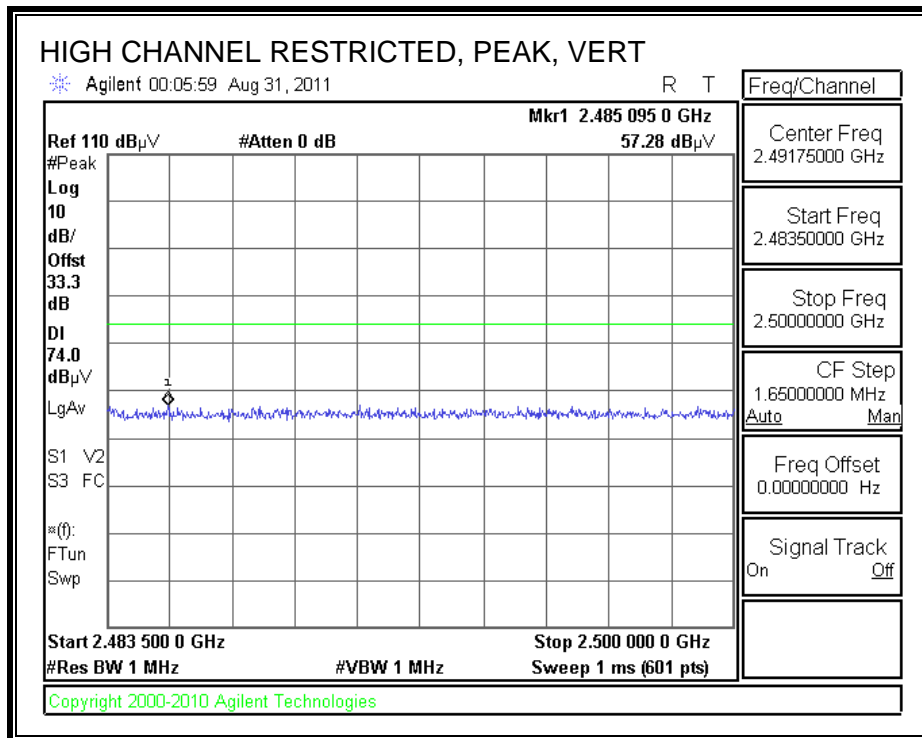


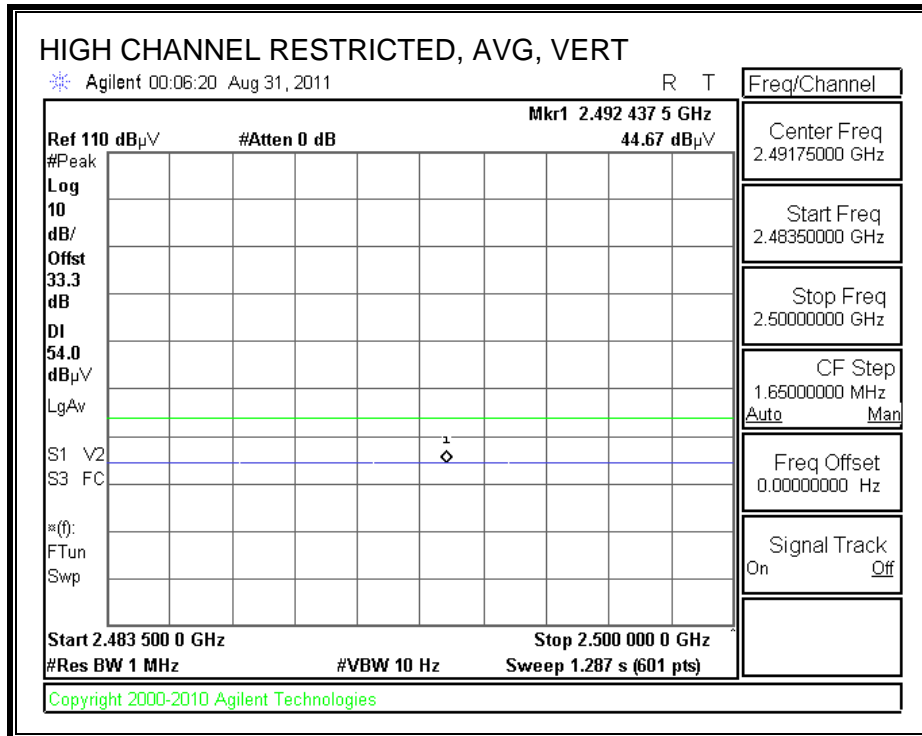
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



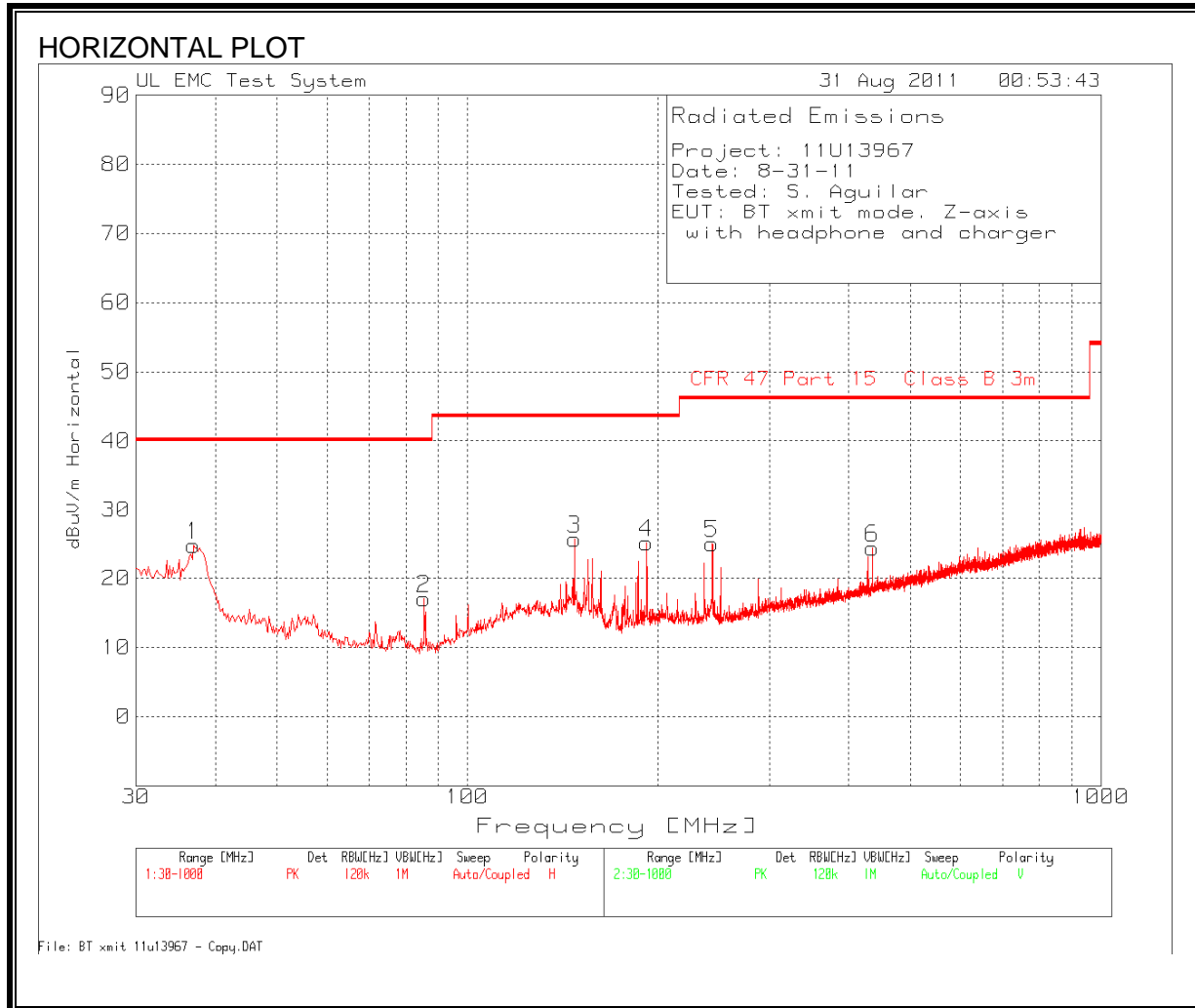


HARMONICS AND SPURIOUS EMISSIONS

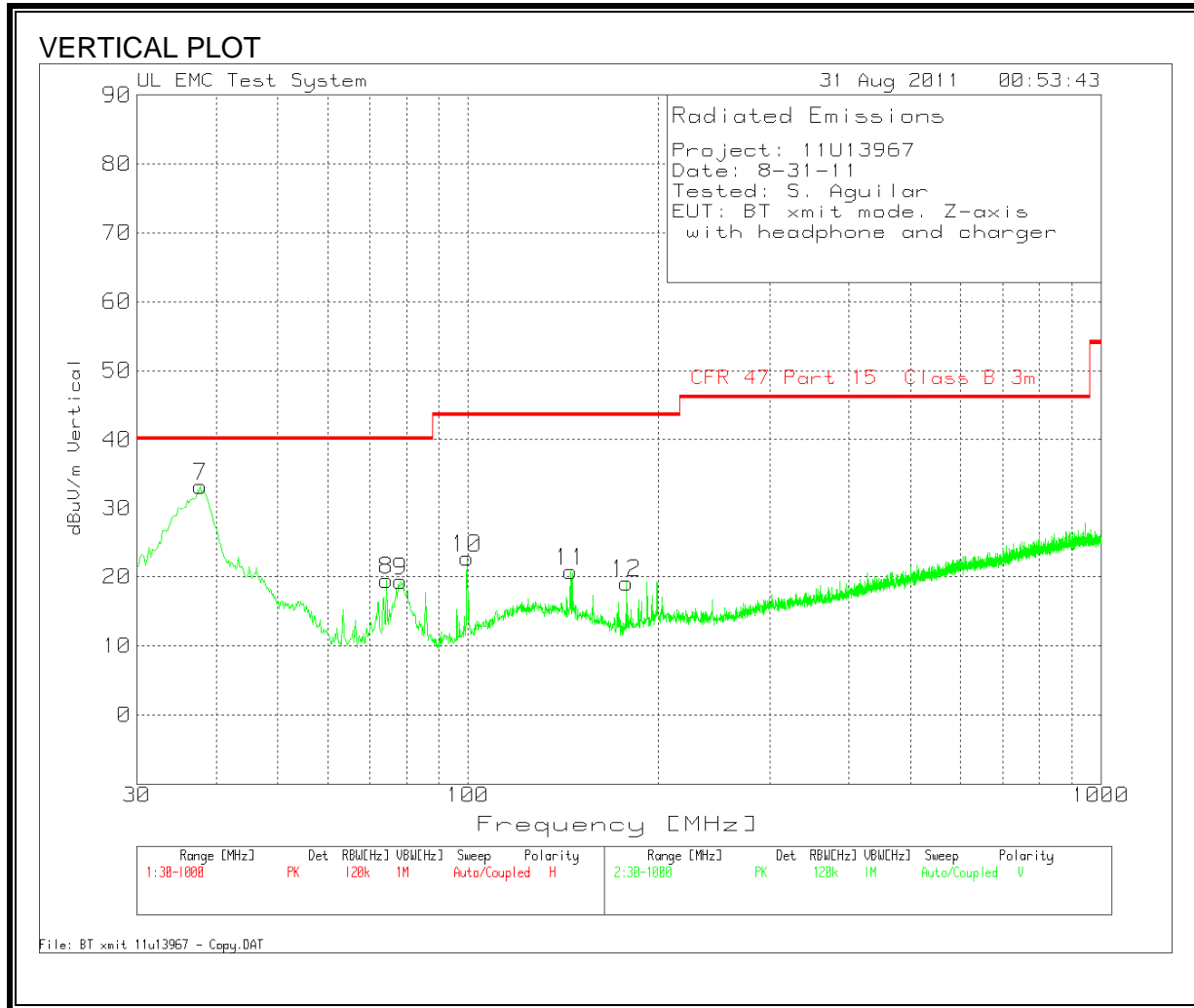
High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber-A																	
Company:		Kyocera															
Project #:		11U13967															
Date:		Aug 31,2011															
Test Engineer:		Steve Aguilar															
Configuration:		EUT in Z axis with adapter															
Mode:		Bluetooth TX mode: 8PSK															
Test Equipment:																	
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 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		Peak Measurements			
3' cable 22807700			12' cable 22807600			20' cable 22807500						R_001		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	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	38.9	25.8	34.6	6.2	-35.5	0.0	0.0	44.2	31.1	74	54	-29.8	-22.9	V		
4.804	3.0	37.7	25.8	34.6	6.2	-35.5	0.0	0.0	43.0	31.1	74	54	-31.0	-22.9	H		
Mid Channel (2441MHz)																	
4.882	3.0	37.6	25.3	34.7	6.2	-35.5	0.0	0.0	43.0	30.8	74	54	-31.0	-23.2	V		
4.882	3.0	38.1	25.3	34.7	6.2	-35.5	0.0	0.0	43.5	30.7	74	54	-30.5	-23.3	H		
High Channel (2480MHz)																	
4.960	3.0	38.0	25.4	34.8	6.3	-35.5	0.0	0.0	43.7	31.0	74	54	-30.3	-23.0	V		
4.960	3.0	37.6	25.3	34.8	6.3	-35.5	0.0	0.0	43.3	31.0	74	54	-30.7	-23.0	H		
Rev. 07.08.11																	
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit				
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit				
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit				
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit				
CL	Cable Loss					HPF	High Pass Filter										

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

Project: 11U13967
 Date: 8-31-11
 Tested: S. Aguilar
 EUT: BT xmit mode. Z-axis
 with headphone and charger

Range 130 - 1000MHz

Test Frequency	Meter Reading	Detector	Cable [dB]	PreAmp [dB]	Bilog [dB]	dBuV/m	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
36.9784	36.01	PK	0.7	-28.3	16.3	24.71	40	-15.29	200	Horz
85.4396	36.83	PK	1	-28.2	7.4	17.03	40	-22.97	300	Horz
147.6639	39.65	PK	1.3	-28.1	12.8	25.65	43.5	-17.85	300	Horz
191.8605	40.27	PK	1.5	-28.1	11.5	25.17	43.5	-18.33	101	Horz
243.6171	39.59	PK	1.7	-28.1	11.8	24.99	46	-21.01	101	Horz
435.7174	34.24	PK	2.3	-27.8	15.6	24.34	46	-21.66	200	Horz

Range 230 - 1000MHz

Test Frequency	Meter Reading	Detector	Cable [dB]	PreAmp [dB]	Bilog [dB]	dBuV/m	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
37.7538	45.17	PK	0.7	-28.3	15.7	33.27	40	-6.73	100	Vert
74.3905	39.07	PK	0.9	-28.2	7.7	19.47	40	-20.53	200	Vert
78.2674	39.23	PK	0.9	-28.2	7.4	19.33	40	-20.67	100	Vert
99.7842	39.93	PK	1.1	-28.2	9.9	22.73	43.5	-20.77	200	Vert
145.1439	34.69	PK	1.3	-28.1	12.9	20.79	43.5	-22.71	200	Vert
178.0975	34.85	PK	1.4	-28.1	10.9	19.05	43.5	-24.45	100	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.

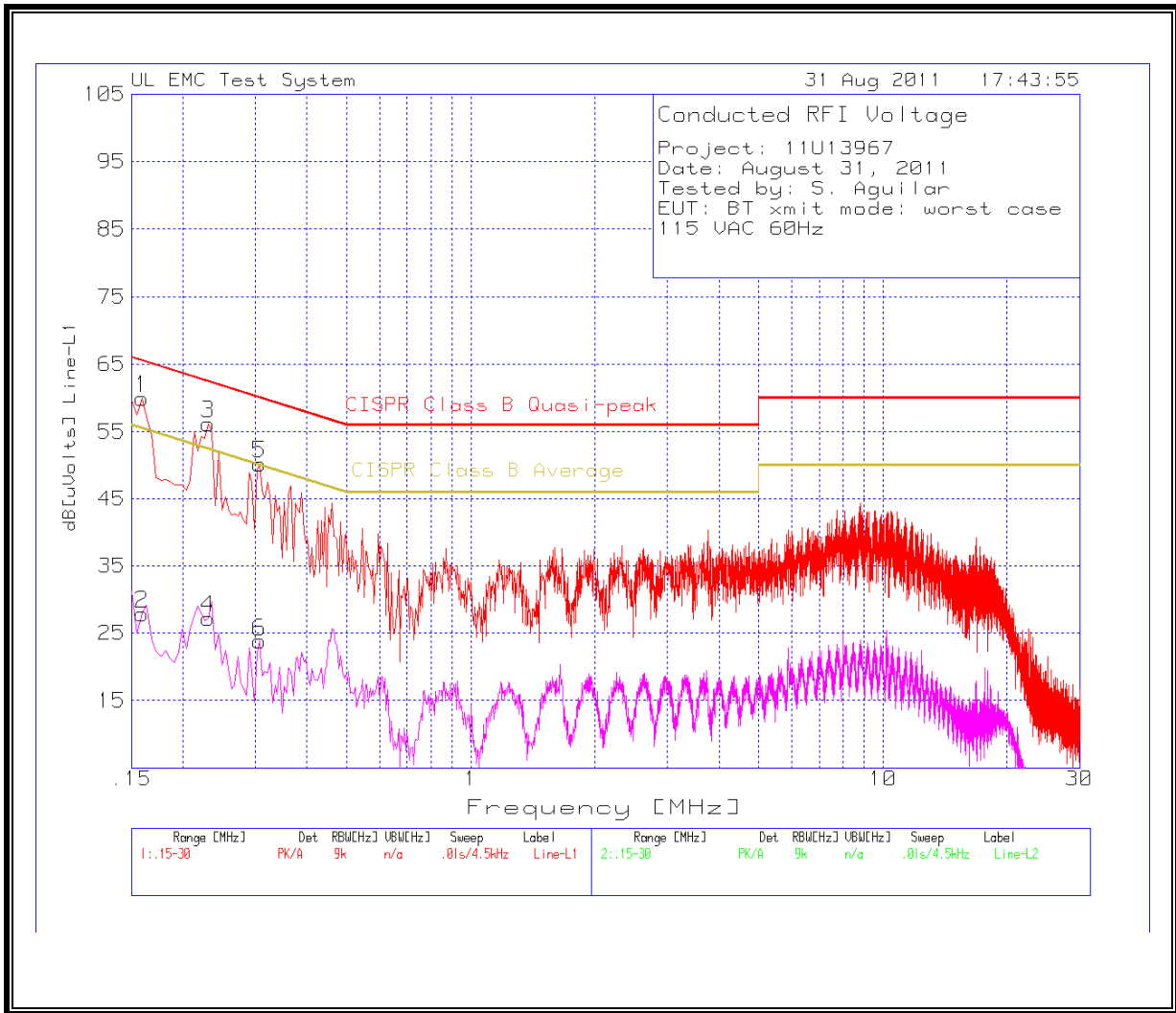
Line conducted data is recorded for both NEUTRAL and LINE.

RESULTS

WORST CASE EMISSIONS

Project: 11U13967							
Date: August 31, 2011							
Tested by: S. Aguilar							
EUT: BT xmit mode: worst case							
115 VAC 60Hz							
Line-L1 .15 - 30MHz							
Test Frequency	Meter Reading	Detector	dB[uVolts]	CISPR Class B Quasi-peak	Margin	CISPR Class B Average	Margin
0.159	59.92	PK	59.92	65.5	-5.58	--	--
0.231	56.19	PK	56.19	62.4	-6.21	--	--
0.3075	50.2	PK	50.2	60	-9.8	--	--
0.159	27.81	Av	27.81	--	--	55.5	-27.69
0.231	27.19	Av	27.19	--	--	52.4	-25.21
0.3075	23.78	Av	23.78	--	--	50	-26.22
Line-L2 .15 - 30MHz							
Test Frequency	Meter Reading	Detector	dB[uVolts]	CISPR Class B Quasi-peak	Margin	CISPR Class B Average	Margin
0.1545	57.45	PK	57.45	65.8	-8.35	--	--
0.2355	55.5	PK	55.5	62.3	-6.8	--	--
0.303	51.12	PK	51.12	60.2	-9.08	--	--
0.1545	25.44	Av	25.44	--	--	55.8	-30.36
0.2355	27.22	Av	27.22	--	--	52.3	-25.08
0.303	18.94	Av	18.94	--	--	50.2	-31.26
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							
Text File: 11U13967 LC.TXT							

LINE 1 RESULTS



LINE 2 RESULTS

