



**RADIATED EMISSIONS PORTION OF
FCC CFR47 PART 15 SUBPART C**

CERTIFICATION TEST REPORT

FOR

SINGLE BAND 1XRTT CDMA PHONE WITH BLUETOOTH

MODEL NUMBER: K53- 01

FCC ID: OVF- K5301

REPORT NUMBER: 09U12942-2

ISSUE DATE: DECEMBER 02, 2009

Prepared for
KYOCERA WIRELESS CORP.
10300 CAMPUS POINT DRIVE
SAN DIEGO, CA 92121

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

NVLAP[®]

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	12/02/09	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: KYOCERA WIRELESS CORP.
10300 CAMPUS POINT DRIVE
SAN DIEGO, CA 92121

EUT DESCRIPTION: SINGLE BAND 1XRTT CDMA PHONE WITH BLUETOOTH

MODEL NUMBER: K53-01

SERIAL NUMBER: FFS23000001469

DATE TESTED: NOVEMBER 23, 25 & 30, 2009

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

Compliance Certification Services, Inc. (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 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 CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by 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 CCS By:



THU CHAN
EMC MANAGER
COMPLIANCE CERTIFICATION SERVICES

Tested By:



OLIVER SU
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

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.

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 Single-Band CDMA Phone that manufactured by Kyocera Wireless Corporations.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antenna, with a maximum gain of .05dBi.

5.3. SOFTWARE AND FIRMWARE

Software: V2.1 + EDR.

5.4. WORST-CASE CONFIGURATION AND MODE

The worst-case is, EUT with highest emissions. To determine the worst-case, the EUT was investigated for X, Y, and Z positions, and the worst case among the above positions with AC/DC adapter. After the investigations, the worst-position was turned out to be Z position with an AC Adapter.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

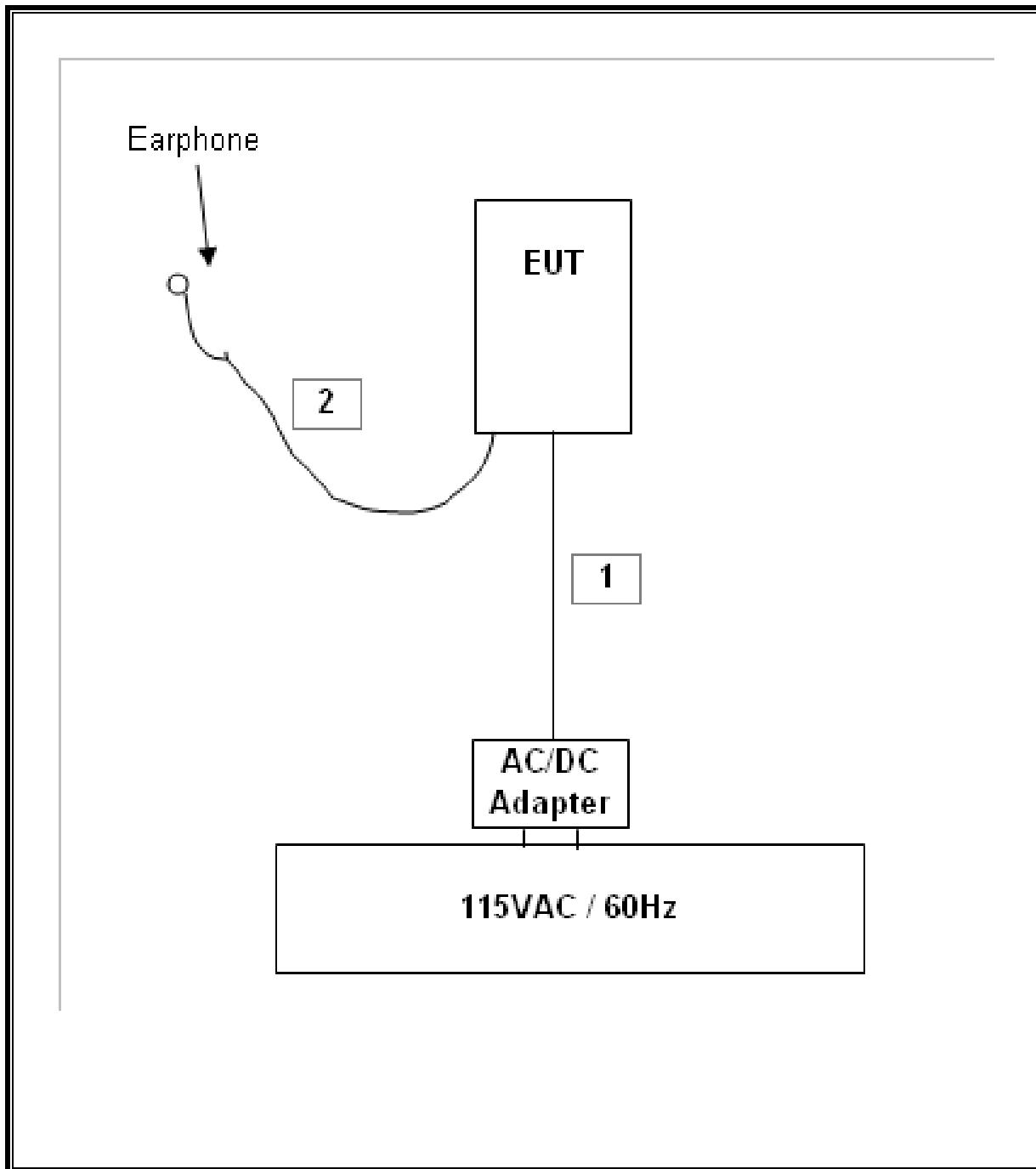
PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop PC	DELL	D620	CCS # C01095	E2KWM3945ABG
AC Adapter	DELL	LA65NS0-00	CN-ODF263-71615-720-2D21	N/A
Mouse	HP	5184-1244	LZE01650026	DOC
Earphone	KYOCERA	CE90-G2708-01	N/A	N/A

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC Input	1	Mini-USB	Un-Shielded	1.85 m	N/A
2	AUDIO	1	Mini-Jack	Un-Shielded	1.15 m	Volume Control on the Cable
3	USB	1	Mini-USB	Un-Shielded	2 m	N/A

TEST SETUP

The headset attached EUT is tested as stand-alone unit. The support laptop is used only to setup, charge channels and modulations, the EUT.

SETUP DIAGRAM FOR EMISSION TEST

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	
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	2/4/2009	02/04/10	
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00778	12/16/2008	12/16/09	
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01171	1/14/2009	01/14/10	
Antenna, Horn, 18 GHz	EMCO	3115	C00872	1/29/2009	01/29/10	
2.4 - 2.5 Reject Filter	Micro Tronics	BRC13192	N02683	N/A	N/A	
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	8/24/2009	08/24/10	
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/6/2009	11/06/10	
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	11/5/2009	11/06/10	
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	8/6/2009	05/06/11	

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.

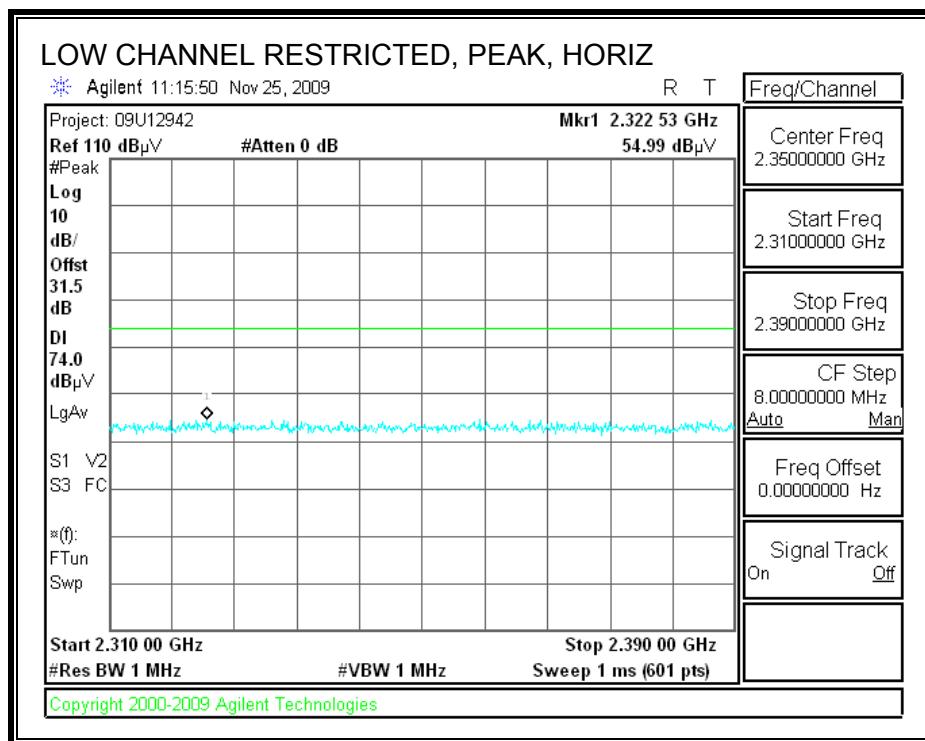
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

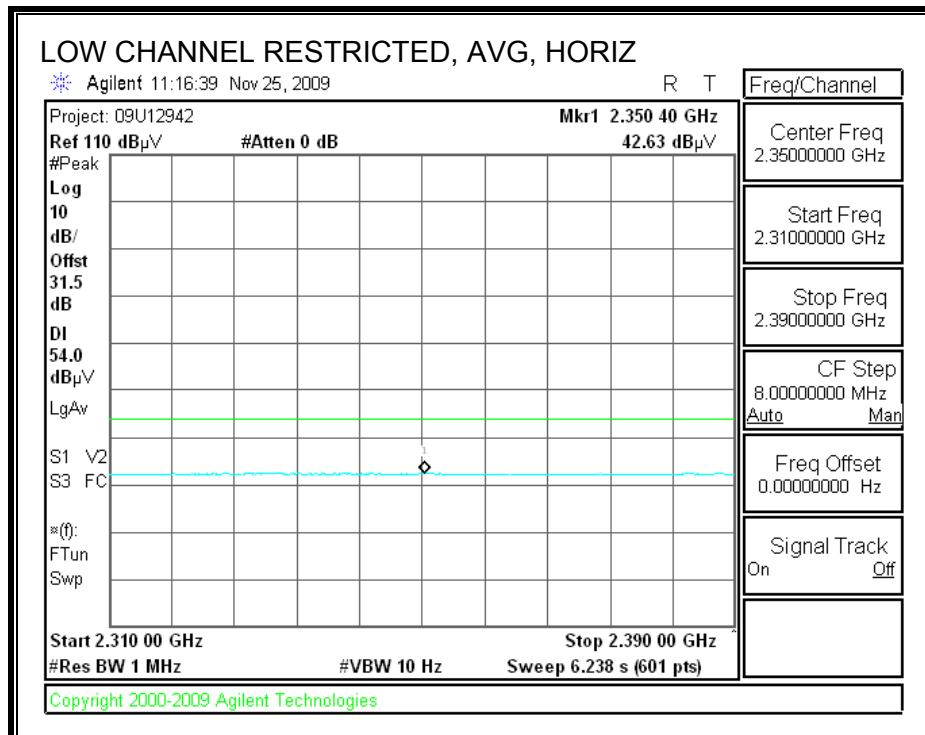
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

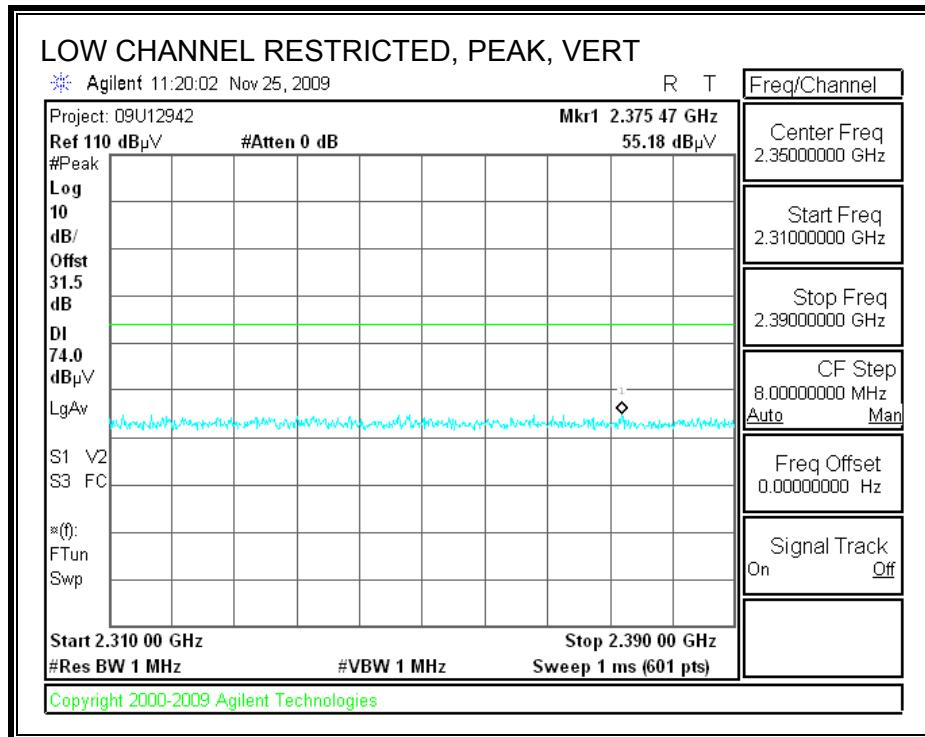
7.2. TRANSMITTER ABOVE 1 GHz

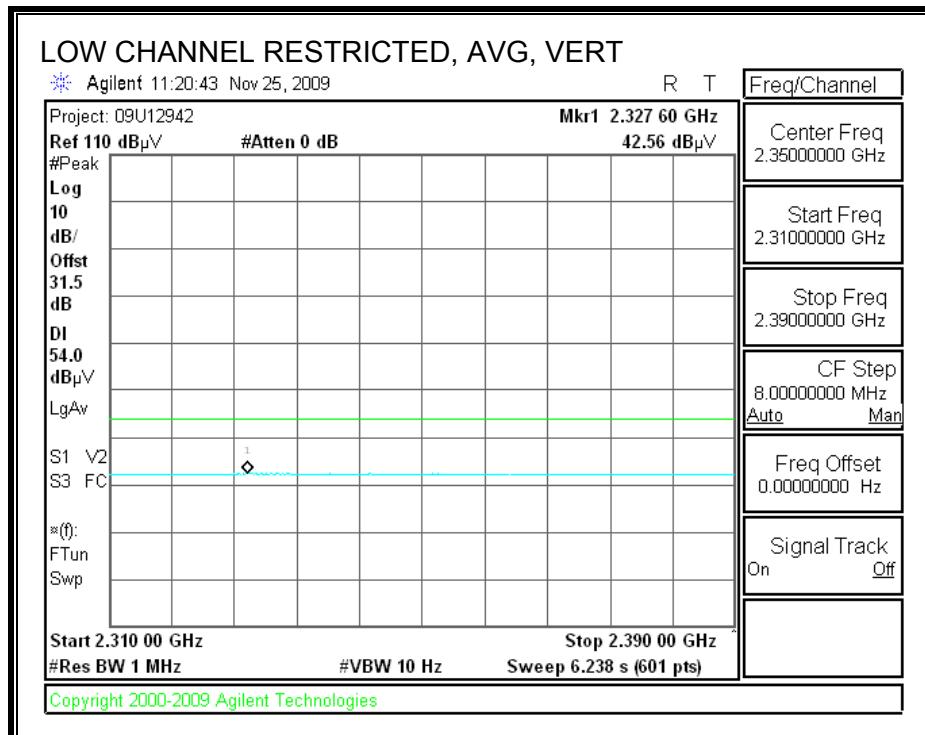
7.2.1. BASIC DATA RATE GFSK MODULATION

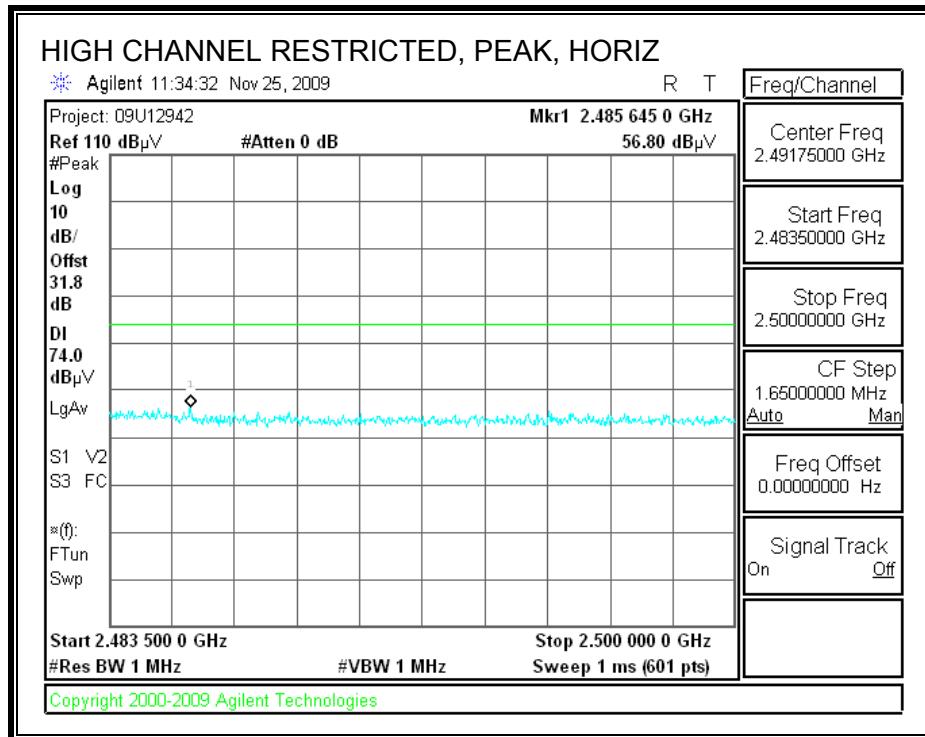
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

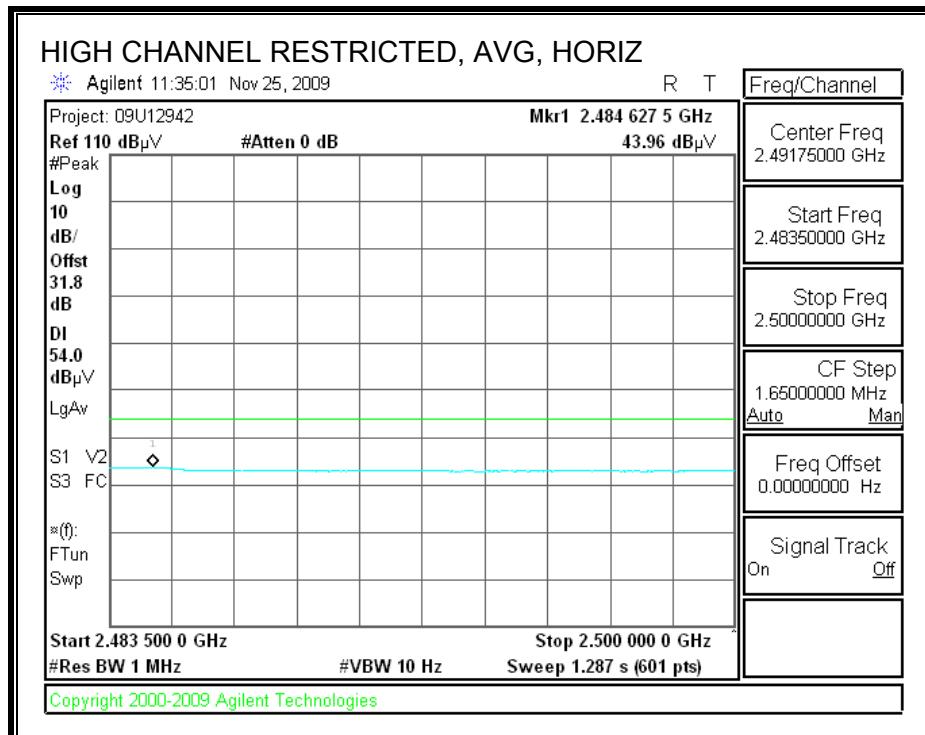


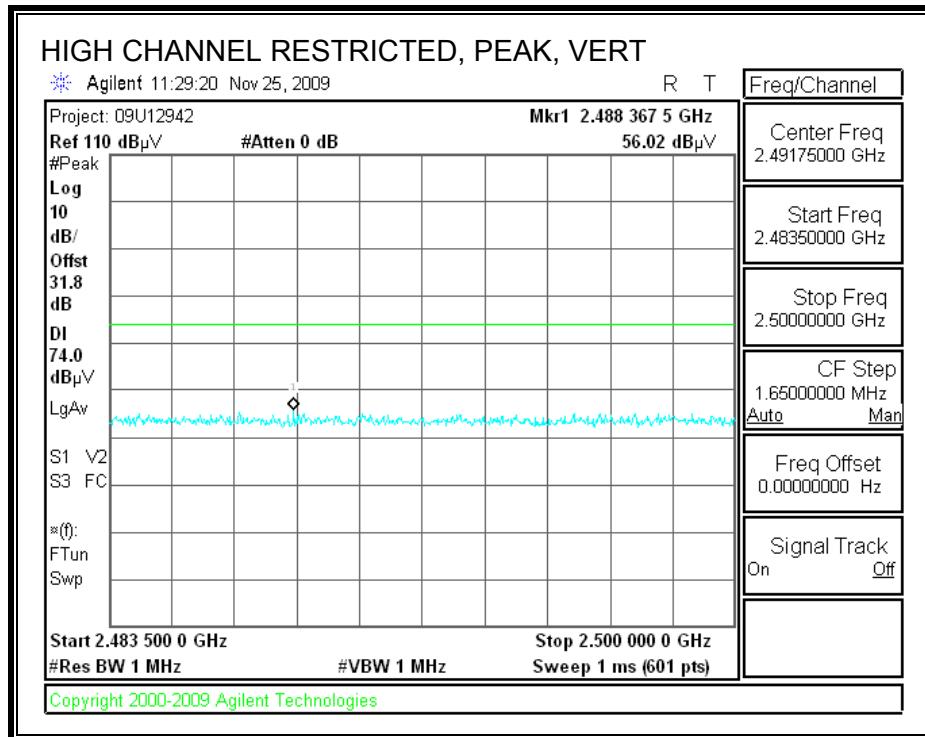


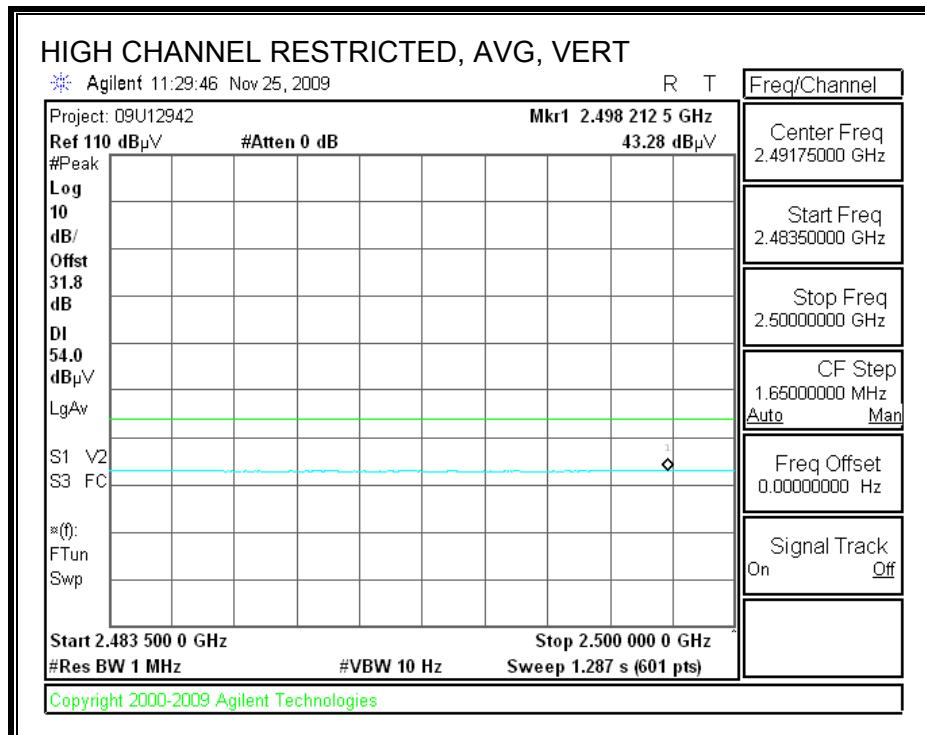
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS**High Frequency Measurement**
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
 Date: 11/25/09
 Project #: 09U12942
 Company: Kyocera Wireless
 EUT Description: Single Band 1xRTT CDMA Phone with Bluetooth
 EUT M/N: K53-01
 Test Target: FCC 15.247
 Mode Oper: Bluetooth GFSK

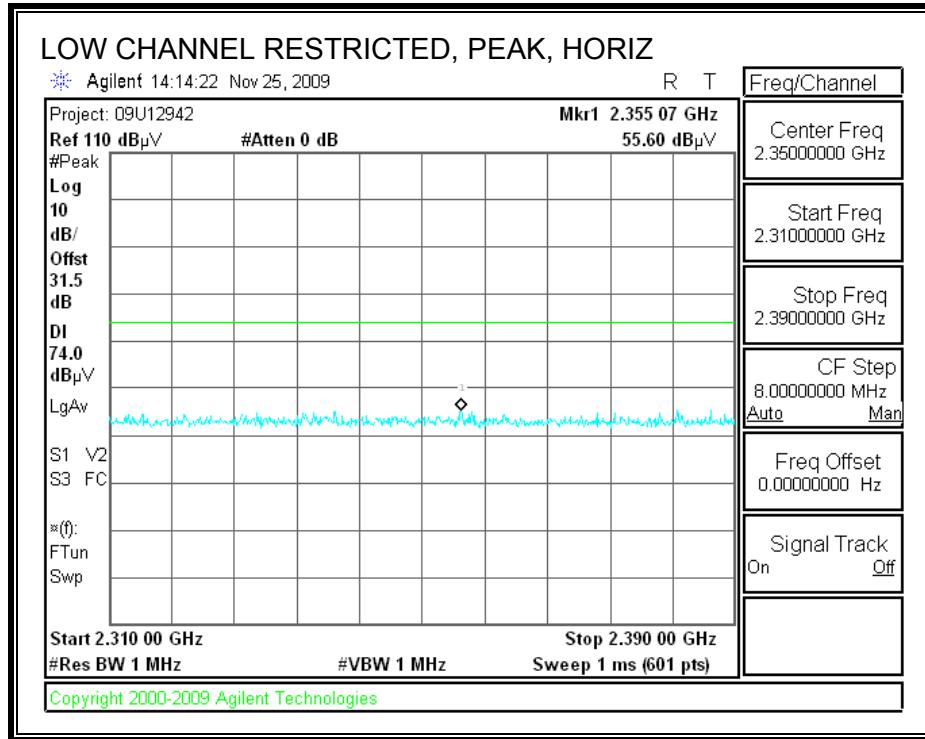
f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit		
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit		
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit		
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin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

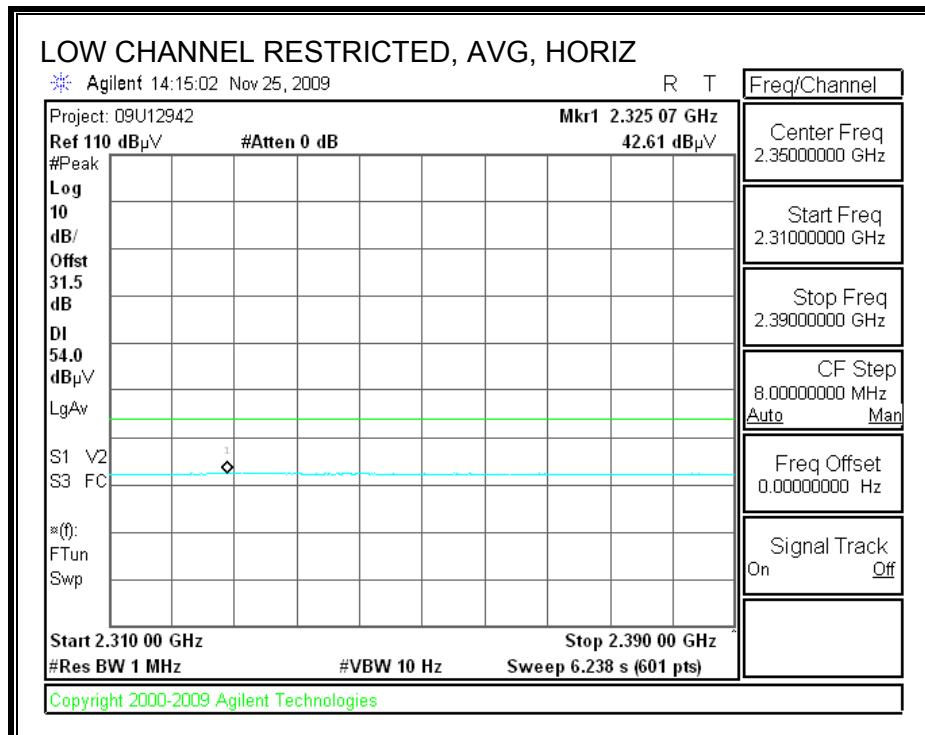
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2402MHz															
4.804	3.0	37.3	32.7	5.8	-34.8	0.0	0.0	40.9	74.0	-33.1	V	P	103.0	29.0	
4.804	3.0	24.7	32.7	5.8	-34.8	0.0	0.0	28.3	54.0	-25.7	V	A	103.0	29.0	
4.804	3.0	36.0	32.7	5.8	-34.8	0.0	0.0	39.6	74.0	-34.4	H	P	100.0	321.0	
4.804	3.0	23.3	32.7	5.8	-34.8	0.0	0.0	26.9	54.0	-27.1	H	A	100.0	321.0	
Mid Ch. 2441 MHz															
4.882	3.0	33.1	32.7	5.8	-34.8	0.0	0.0	36.8	74.0	-37.2	H	P	101.0	335.0	
4.882	3.0	22.0	32.7	5.8	-34.8	0.0	0.0	25.7	54.0	-28.3	H	A	101.0	335.0	
4.882	3.0	34.0	32.7	5.8	-34.8	0.0	0.0	37.7	74.0	-36.3	V	P	100.0	28.0	
4.882	3.0	22.4	32.7	5.8	-34.8	0.0	0.0	26.1	54.0	-27.9	V	A	100.0	28.0	
7.323	3.0	32.9	35.5	7.3	-34.1	0.0	0.0	41.5	74.0	-32.5	V	P	100.0	316.0	
7.323	3.0	20.8	35.5	7.3	-34.1	0.0	0.0	29.5	54.0	-24.5	V	A	100.0	316.0	
7.323	3.0	36.1	35.5	7.3	-34.1	0.0	0.0	44.8	74.0	-29.2	H	P	100.0	360.0	
7.323	3.0	22.1	35.5	7.3	-34.1	0.0	0.0	30.7	54.0	-23.3	H	A	100.0	360.0	
High Ch. 2480 MHz															
4.960	3.0	33.4	32.8	5.9	-34.8	0.0	0.0	37.3	74.0	-36.7	H	P	100.0	341.0	
4.960	3.0	21.4	32.8	5.9	-34.8	0.0	0.0	25.3	54.0	-28.7	H	A	100.0	341.0	
4.960	3.0	33.4	32.8	5.9	-34.8	0.0	0.0	37.3	74.0	-36.7	V	P	100.0	312.0	
4.960	3.0	21.6	32.8	5.9	-34.8	0.0	0.0	25.5	54.0	-28.5	V	A	100.0	312.0	
7.440	3.0	33.0	35.6	7.3	-34.1	0.0	0.0	41.9	74.0	-32.1	V	P	100.0	348.0	
7.440	3.0	21.1	35.6	7.3	-34.1	0.0	0.0	30.0	54.0	-24.0	V	A	100.0	348.0	
7.440	3.0	40.9	35.6	7.3	-34.1	0.0	0.0	49.8	74.0	-24.2	H	P	100.0	325.0	
7.440	3.0	23.7	35.6	7.3	-34.1	0.0	0.0	32.6	54.0	-21.4	H	A	100.0	325.0	

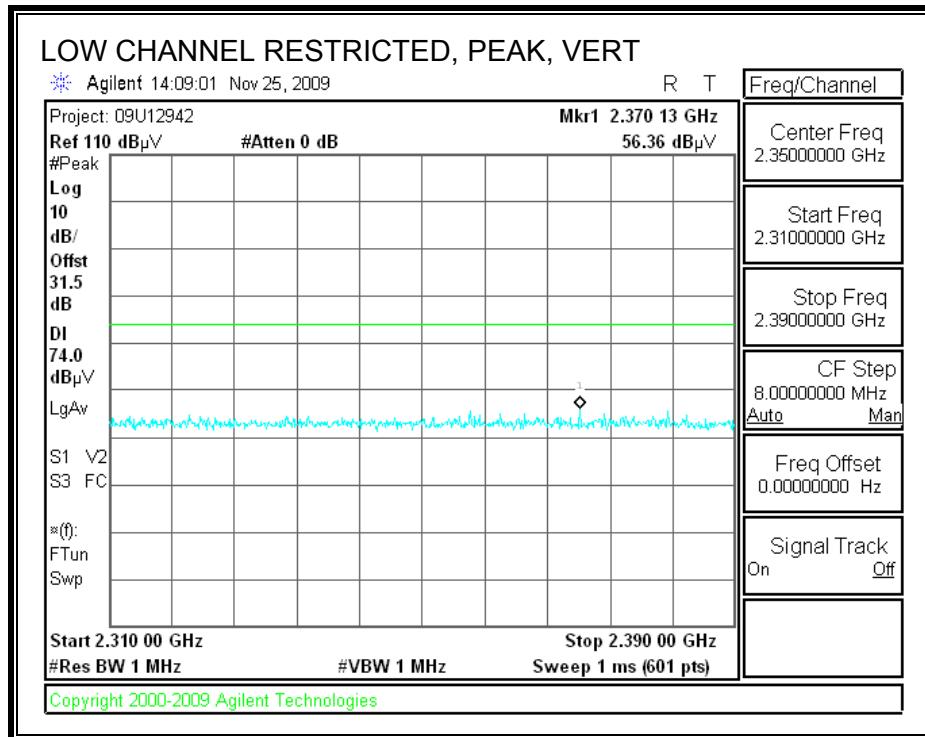
Note: No other emissions were detected above the system noise floor.

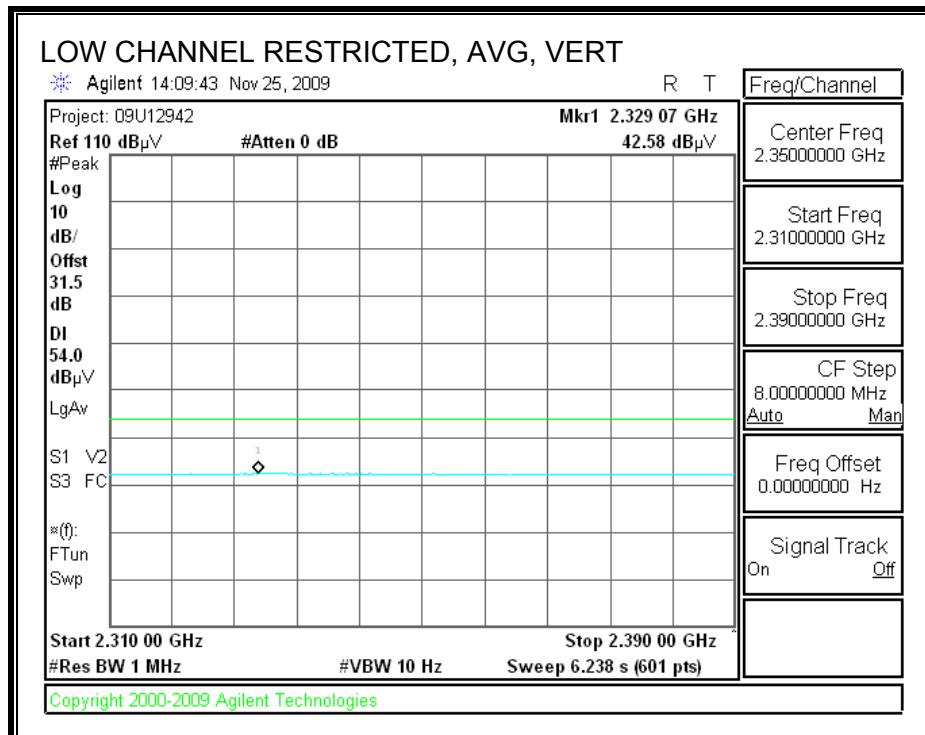
7.2.2. ENHANCED DATA RATE 8PSK MODULATION

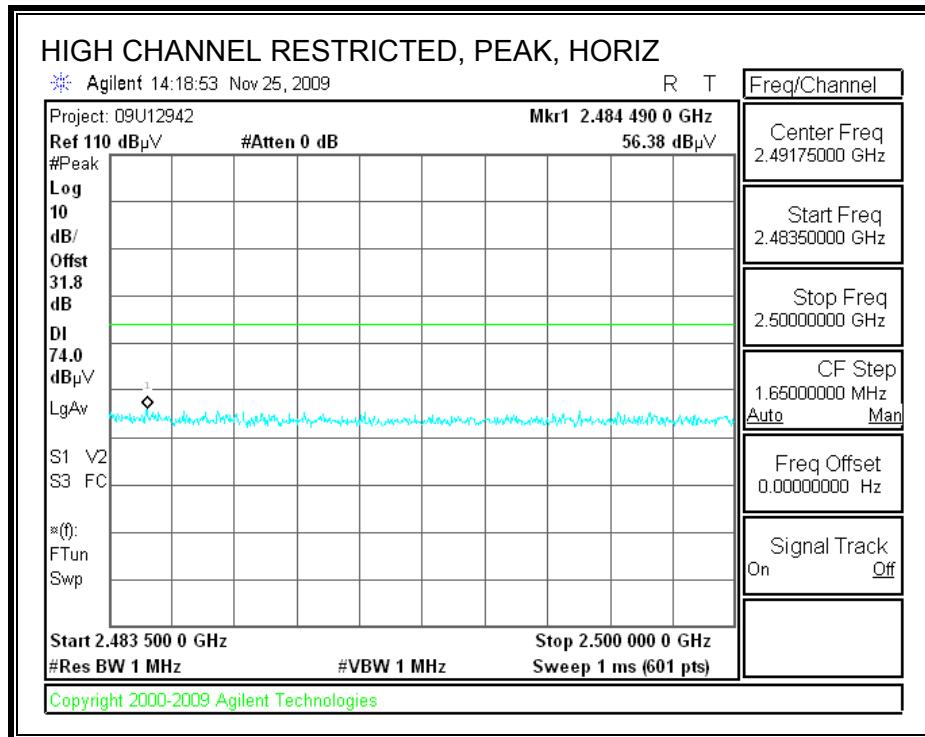
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

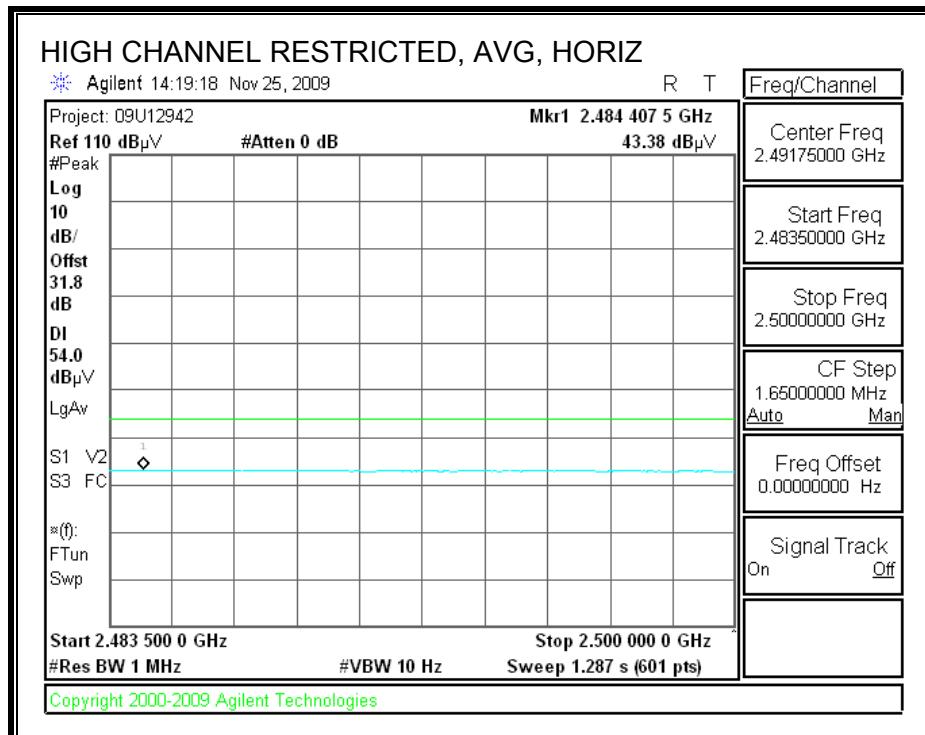


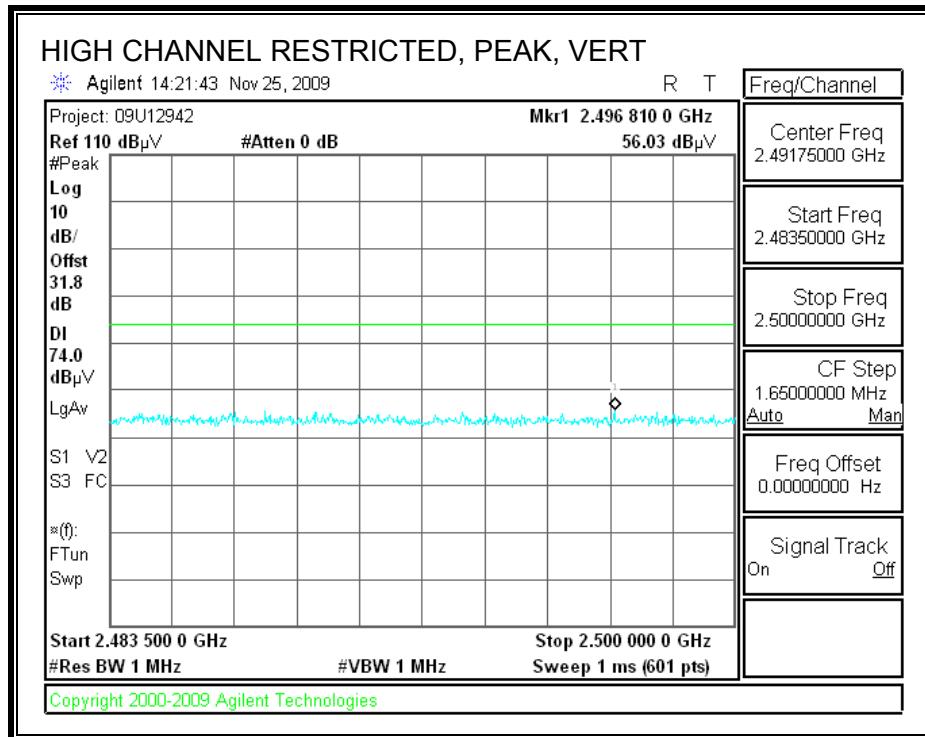


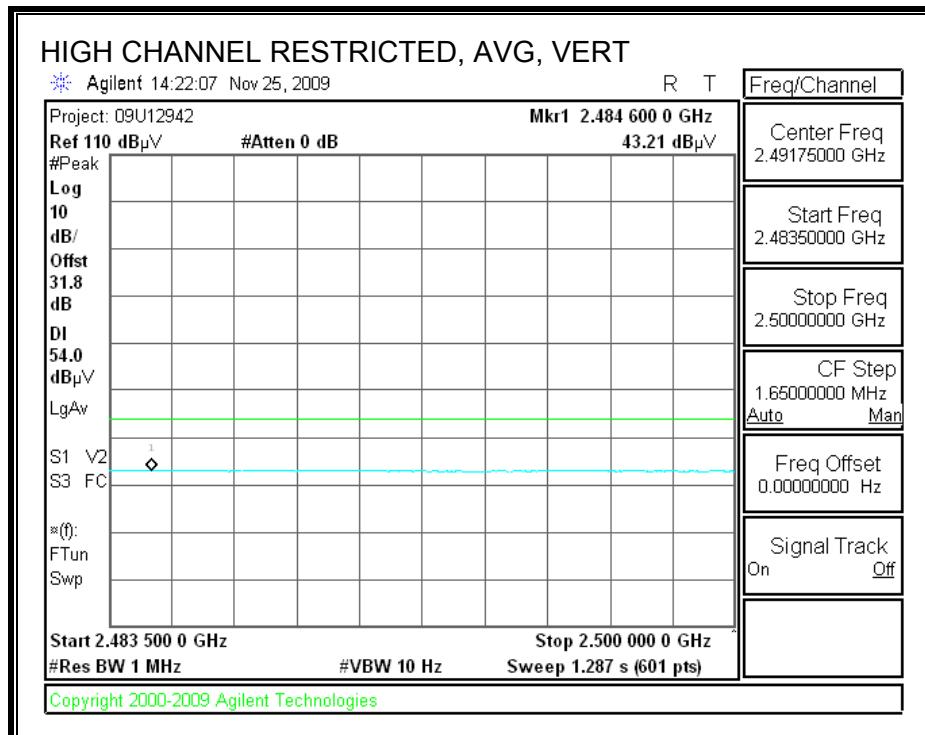
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS**High Frequency Measurement**
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
 Date: 12/01/09
 Project #: 09U12942
 Company: Kyocera Wireless
 EUT Description: Single Band 1xRTT CDMA Phone with Bluetooth
 EUT M/N: K53-01
 Test Target: FCC 15.247
 Mode Oper: Bluetooth 8PSK

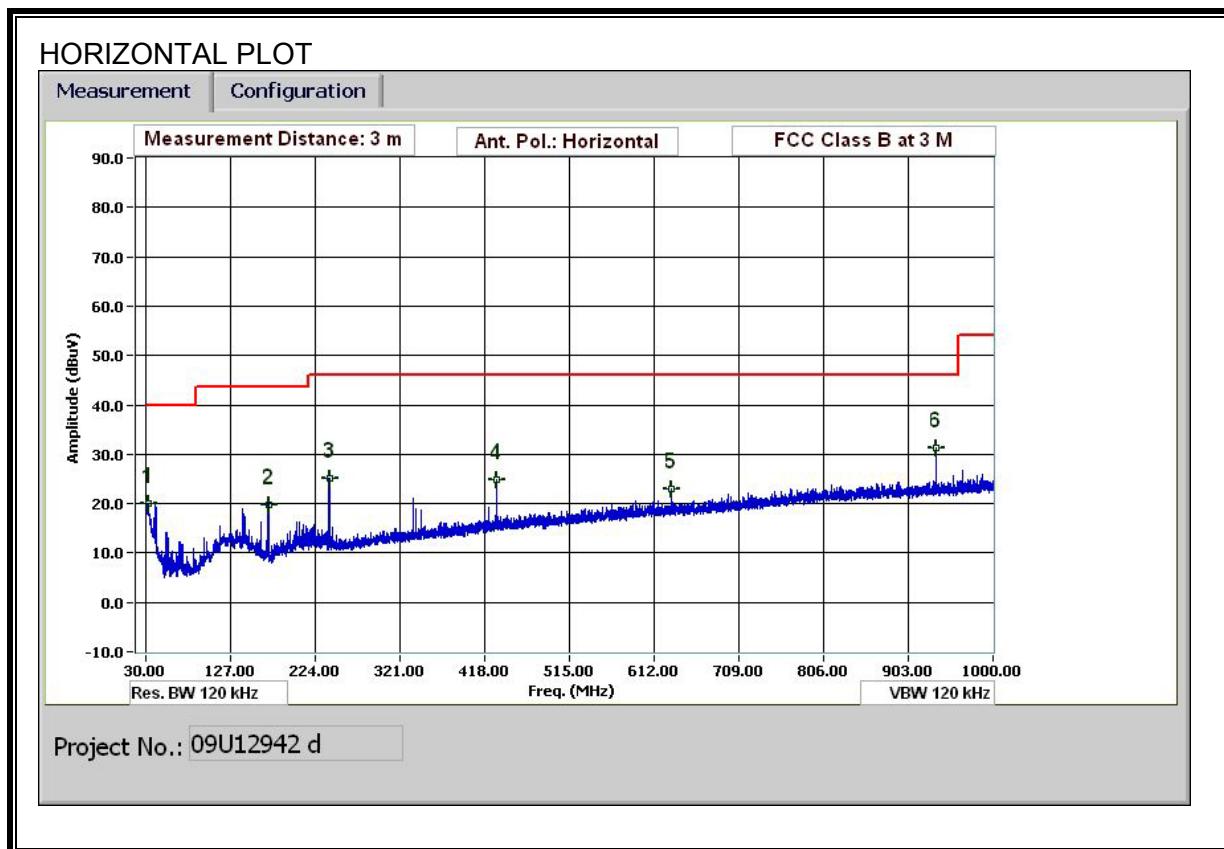
f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit			
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit			
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit			
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin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

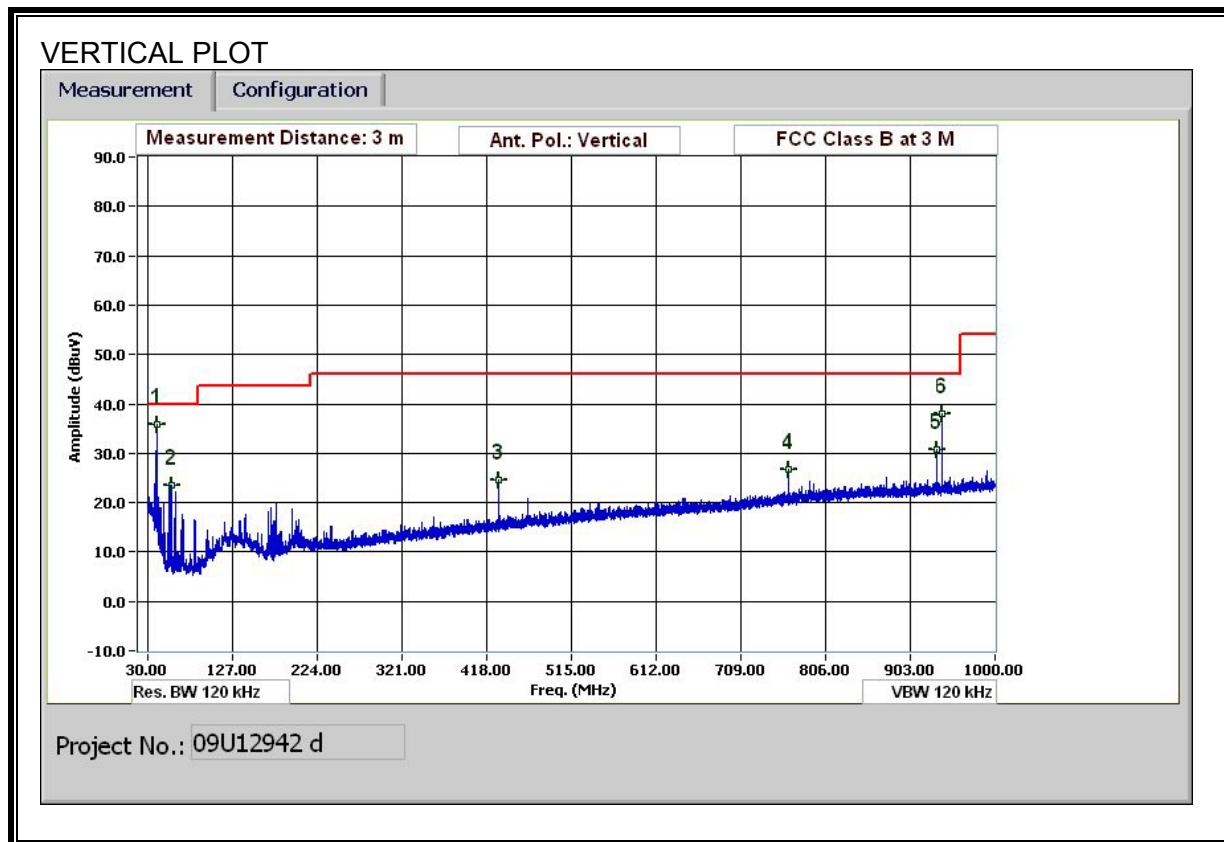
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2402 MHz															
4.804	3.0	34.1	32.7	5.8	-34.8	0.0	0.0	37.7	74.0	-36.3	V	P	100.0	43.0	
4.804	3.0	22.0	32.7	5.8	-34.8	0.0	0.0	25.6	54.0	-28.4	V	A	100.0	43.0	
4.804	3.0	34.5	32.7	5.8	-34.8	0.0	0.0	38.1	74.0	-35.9	H	P	100.0	338.0	
4.804	3.0	21.9	32.7	5.8	-34.8	0.0	0.0	25.5	54.0	-28.5	H	A	100.0	338.0	
Mid Ch. 2441 MHz															
4.882	3.0	33.7	32.7	5.8	-34.8	0.0	0.0	37.5	74.0	-36.5	H	P	100.0	246.0	
4.882	3.0	21.6	32.7	5.8	-34.8	0.0	0.0	25.3	54.0	-28.7	H	A	100.0	246.0	
4.882	3.0	34.2	32.7	5.8	-34.8	0.0	0.0	37.9	74.0	-36.1	V	P	102.0	282.0	
4.882	3.0	21.5	32.7	5.8	-34.8	0.0	0.0	25.2	54.0	-28.8	V	A	102.0	282.0	
7.323	3.0	34.5	35.5	7.3	-34.1	0.0	0.0	43.2	74.0	-30.8	V	P	102.0	349.0	
7.323	3.0	20.8	35.5	7.3	-34.1	0.0	0.0	29.5	54.0	-24.5	V	A	102.0	349.0	
7.323	3.0	32.8	35.5	7.3	-34.1	0.0	0.0	41.4	74.0	-32.6	H	P	110.0	151.0	
7.323	3.0	20.6	35.5	7.3	-34.1	0.0	0.0	29.2	54.0	-24.8	H	A	110.0	151.0	
High Ch. 2480 MHz															
4.960	3.0	33.5	32.8	5.9	-34.8	0.0	0.0	37.4	74.0	-36.6	H	P	100.0	230.0	
4.960	3.0	21.4	32.8	5.9	-34.8	0.0	0.0	25.3	54.0	-28.7	H	A	100.0	230.0	
4.960	3.0	33.4	32.8	5.9	-34.8	0.0	0.0	37.3	74.0	-36.7	V	P	113.0	132.0	
4.960	3.0	21.3	32.8	5.9	-34.8	0.0	0.0	25.1	54.0	-28.9	V	A	113.0	132.0	
7.440	3.0	32.9	35.6	7.3	-34.1	0.0	0.0	41.8	74.0	-32.2	V	P	122.0	232.0	
7.440	3.0	20.2	35.6	7.3	-34.1	0.0	0.0	29.1	54.0	-24.9	V	A	122.0	232.0	
7.440	3.0	33.1	35.6	7.3	-34.1	0.0	0.0	42.0	74.0	-32.0	H	P	100.0	344.0	
7.440	3.0	20.5	35.6	7.3	-34.1	0.0	0.0	29.4	54.0	-24.6	H	A	100.0	344.0	

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

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)

VERTICAL & HORIZONTAL DATA

30-1000MHz Frequency Measurement Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Oliver Su											
Date:		11/30/09											
Project #:		09U12942											
Company:		Kyocera											
EUT Description:		ETU stand-alone											
EUT M/N:		KS3-01											
Test Target:		FCC15 Class B											
Mode Oper:		Bluetooth, continuous Transmitting											
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							
Vertical													
40.440	3.0	51.1	13.8	0.6	29.6	0.0	0.0	35.8	40.0	-4.2	V	P	
56.641	3.0	44.7	7.9	0.6	29.6	0.0	0.0	23.6	40.0	-16.4	V	P	
432.017	3.0	36.4	15.6	2.0	29.4	0.0	0.0	24.5	46.0	-21.5	V	P	
763.710	3.0	33.0	20.4	2.7	29.3	0.0	0.0	26.8	46.0	-19.2	V	P	
933.877	3.0	34.3	21.9	3.1	28.5	0.0	0.0	30.7	46.0	-15.3	V	P	
939.638	3.0	41.4	21.9	3.1	28.5	0.0	0.0	38.0	46.0	-8.0	V	P	
Horizontal													
32.400	3.0	29.9	19.2	0.5	29.7	0.0	0.0	20.0	40.0	-20.0	H	P	
170.286	3.0	37.7	10.2	1.2	29.3	0.0	0.0	19.8	43.5	-23.7	H	P	
240.009	3.0	40.6	11.8	1.4	28.8	0.0	0.0	25.0	46.0	-21.0	H	P	
432.017	3.0	36.7	15.6	2.0	29.4	0.0	0.0	24.8	46.0	-21.2	H	P	
631.585	3.0	31.7	18.6	2.5	29.6	0.0	0.0	23.1	46.0	-22.9	H	P	
935.197	3.0	34.9	21.9	3.1	28.5	0.0	0.0	31.4	46.0	-14.6	H	P	

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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.

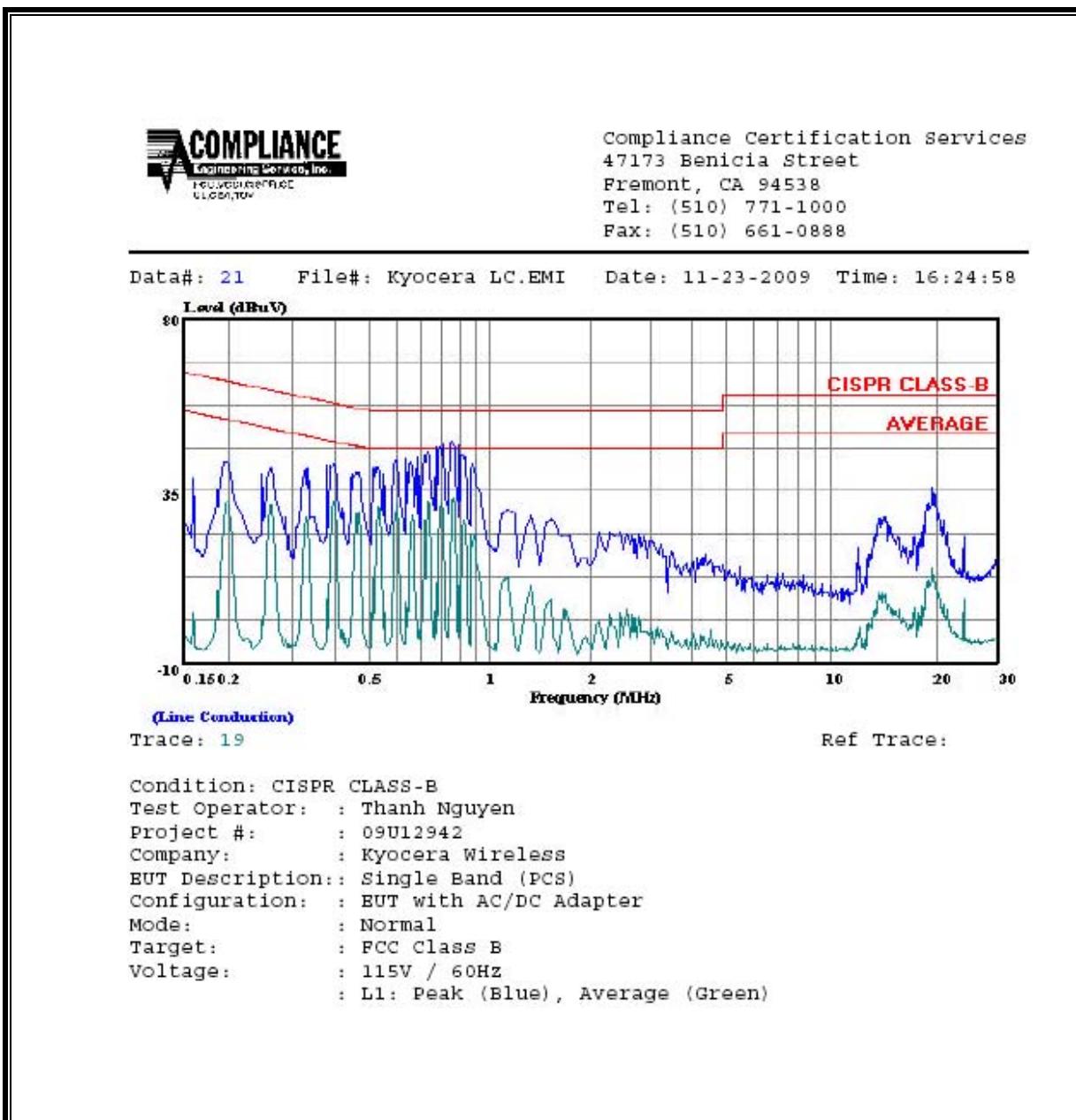
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Closs (dB)	Limit QP	EN_B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.20	42.56	--	32.24	0.00	63.69	53.69	-21.13	-21.45	L1
0.86	47.73	--	33.12	0.00	56.00	46.00	-8.27	-12.88	L1
19.43	35.40	--	14.60	0.00	60.00	50.00	-24.60	-35.40	L1
0.40	45.48	--	39.32	0.00	57.90	47.90	-12.42	-8.58	L2
0.86	51.06	--	39.81	0.00	56.00	46.00	-4.94	-6.19	L2
19.43	38.88	--	19.54	0.00	60.00	50.00	-21.12	-30.46	L2
6 Worst Data									

LINE 1 RESULTS

LINE 2 RESULTS