



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

TRI BAND CDMA PHONE WITH BLUETOOTH

MODEL NUMBER: K33Bi-04

FCC ID: OVF-K33BI04

REPORT NUMBER: 08U12064-2A

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

Prepared by
COMPLIANCE CERTIFICATION SERVICES
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>
--	09/09/08	Initial Issue	T. Chan
A	10/02/08	Revised antenna gain	A. Zaffar

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: Tri Band CDMA Phone with Bluetooth

MODEL: K33Bi-04

SERIAL NUMBER: 80638348

DATE TESTED: SEPTEMBER 08, 2008

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass (Radiated Only)

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. 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. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

THANH NGUYEN
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. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is Tri Band CDMA Phone with Bluetooth.

The radio module is manufactured by Kyocera Wireless Corp.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antenna, with a maximum gain of +2.4 dBi.

5.3. SOFTWARE AND FIRMWARE

The test utility software used during testing was StarGraphitePassThru, rev. 1.0.0.1 and CSR Blue Suite, rev. 1.19.

5.4. WORST-CASE CONFIGURATION AND MODE

The worst-mode is determined to be with the highest output power at GFSK modulation.

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 battery charger. After the investigations, the worst-position was turned out to be a Y-position with 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	TXTVL10127	NA	DoC
Earphone	Made in china	NA	NA	NA
Laptop	HP	Conpaq nx5000	CNU4180X4R	DoC
AC Adapter	HP	PPP009H	F3-0404082195D	N/A

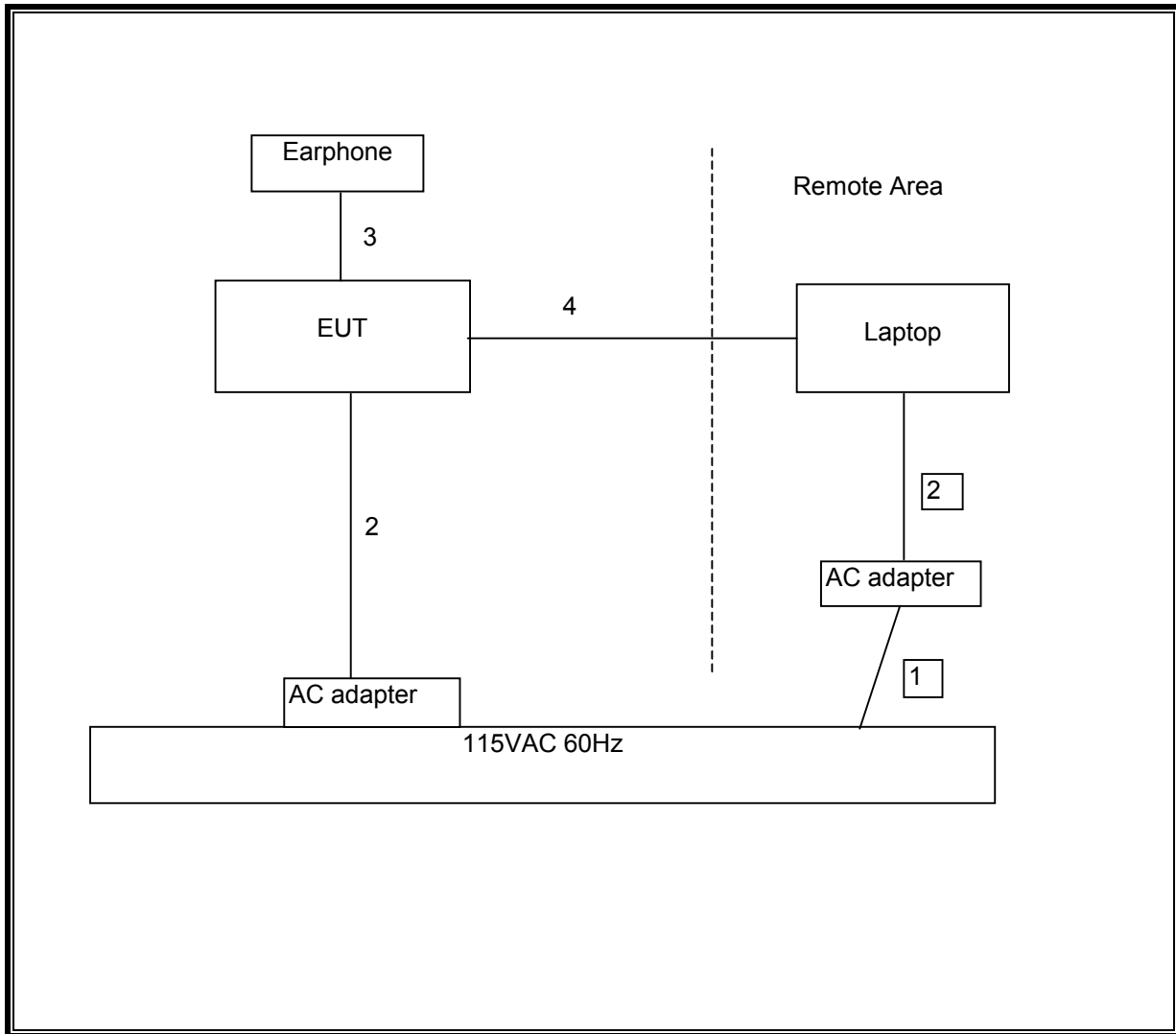
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	DC	Un-shielded	1.5m	NA
2	DC	2	DC	Un-shielded	1	NA
3	Jack	1	Earphone	Un-shielded	1	NA
4	USB	1	USB	Un-shielded	2m	Connected to Laptop

TEST SETUP

The EUT is connected to a laptop computer via a USB cable during the tests. Test software exercised the radio card

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
Antenna, Horn, 18 GHz	ETS	3117	C01022	04/15/09
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	10/13/09
Preamplifier, 1300 MHz	Agilent / HP	8447D	0	05/09/09
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	09/27/08
RF Filter Section, 2.9 GHz	Agilent / HP	85420E	C00958	06/12/09
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	01/27/09
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	09/15/09
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00996	09/11/08

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.

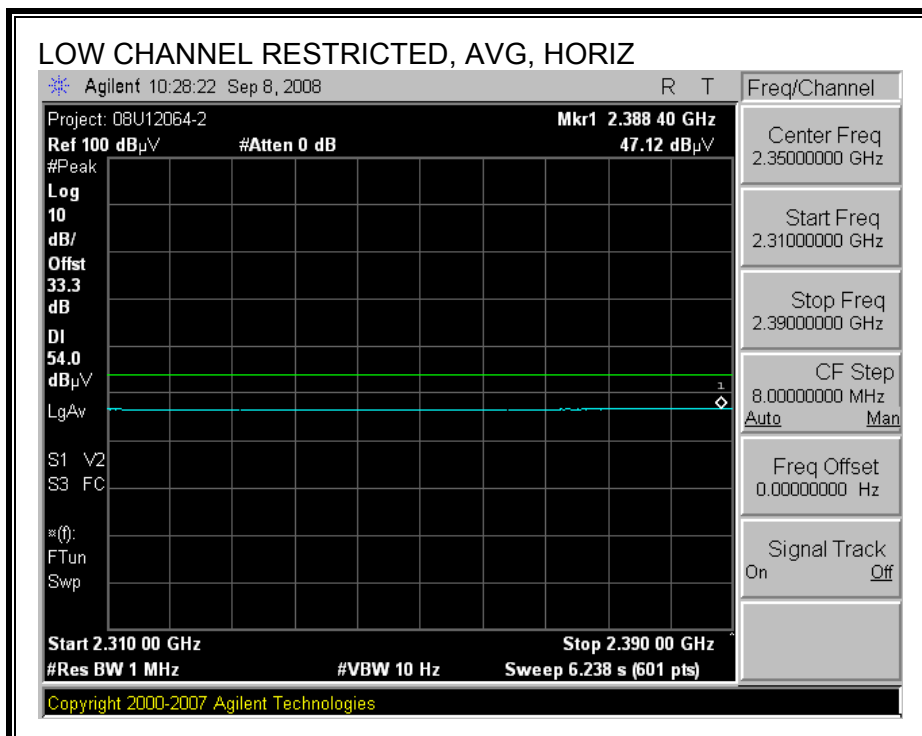
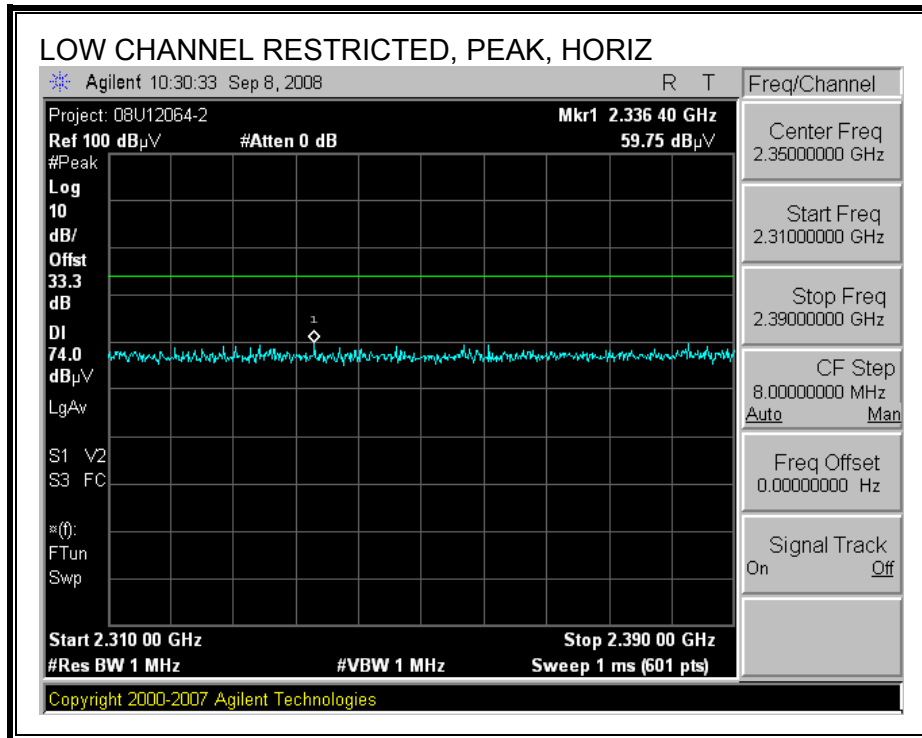
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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.

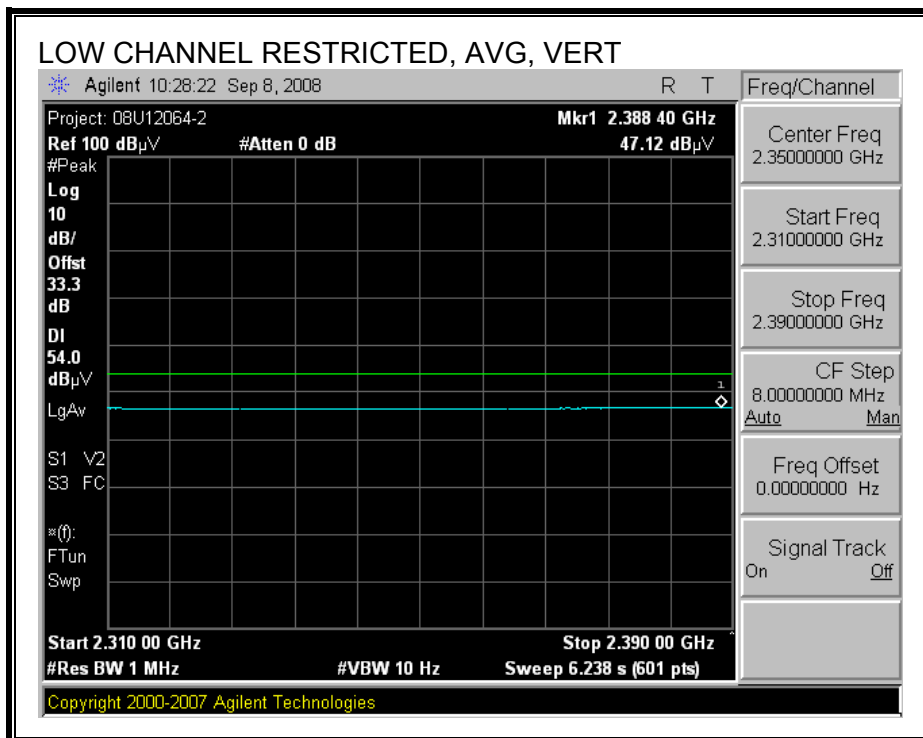
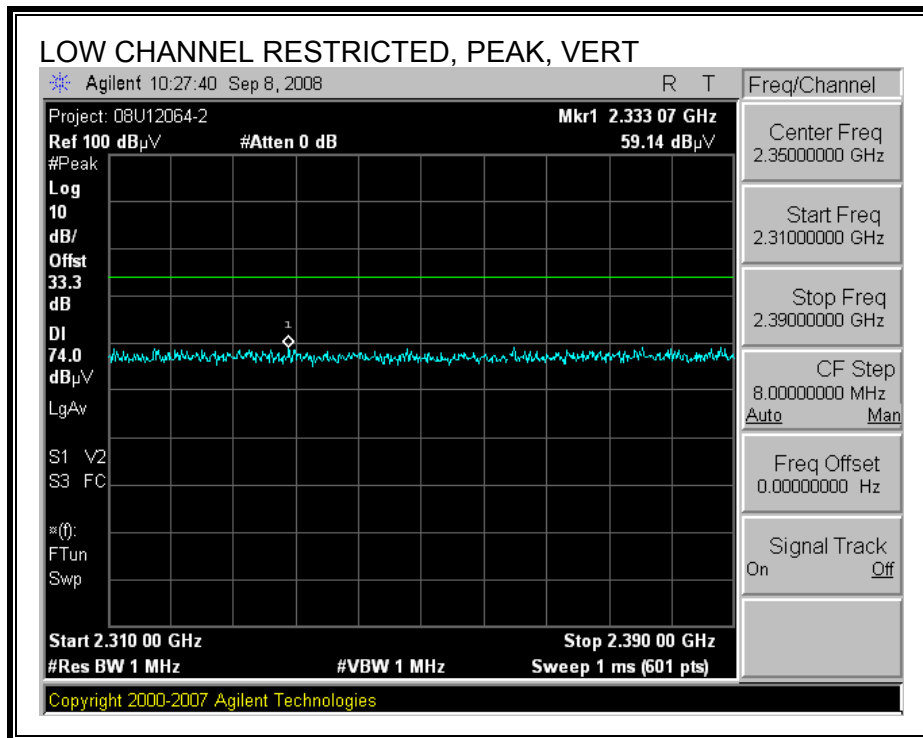
7.2. TRANSMITTER ABOVE 1 GHz

7.2.1. BASIC DATA RATE GFSK MODULATION

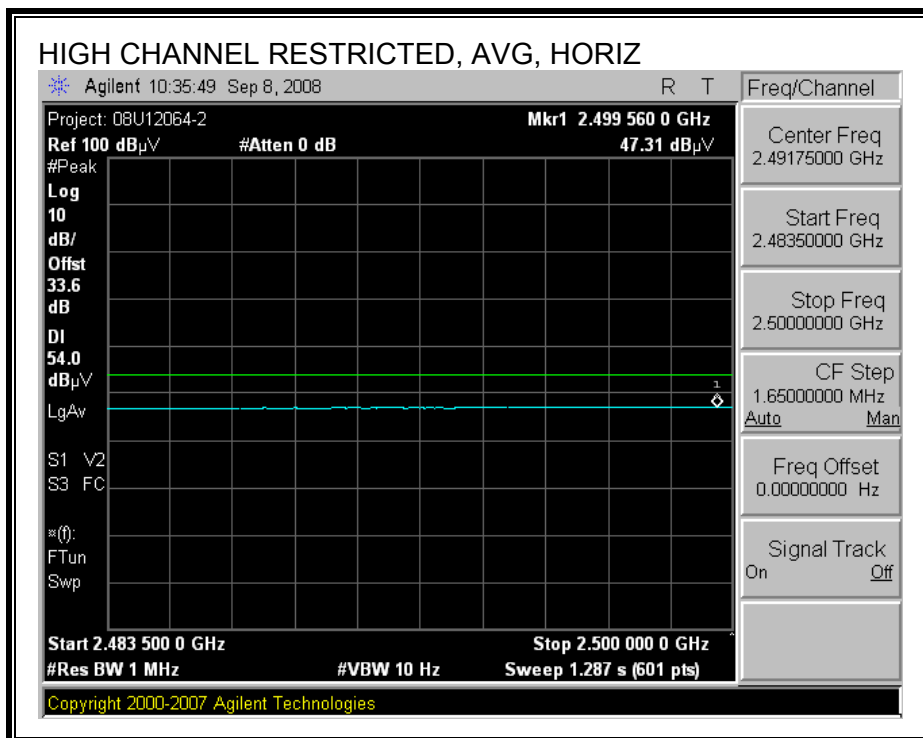
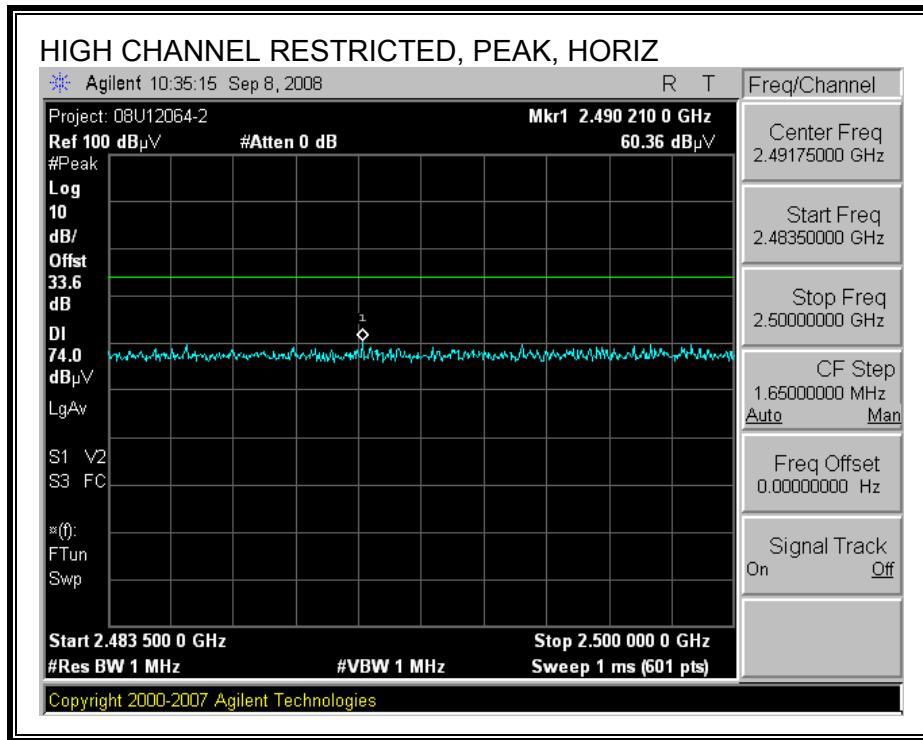
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



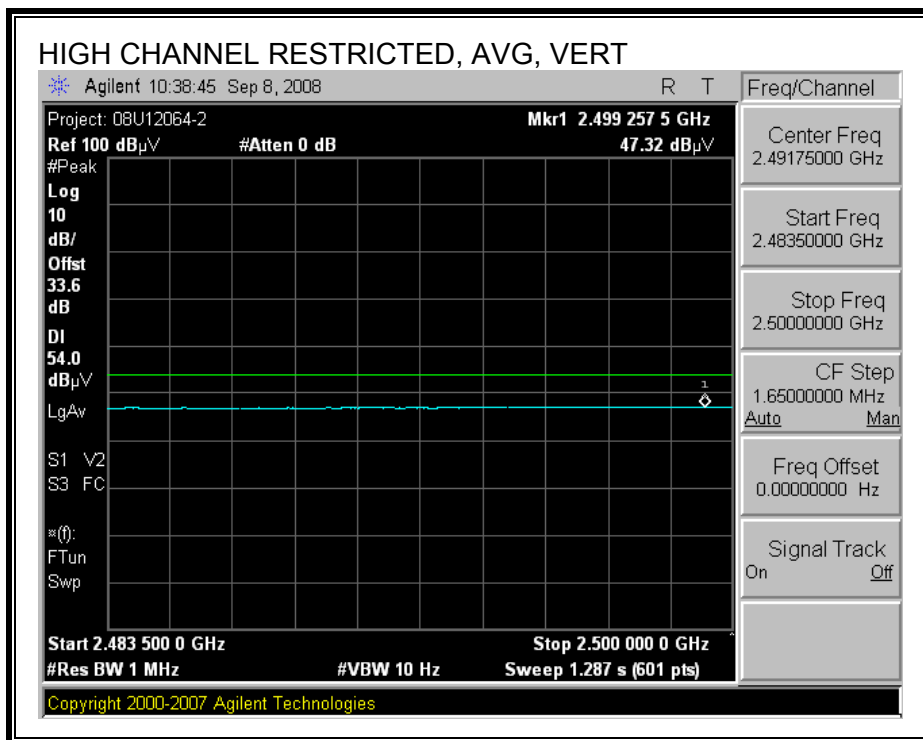
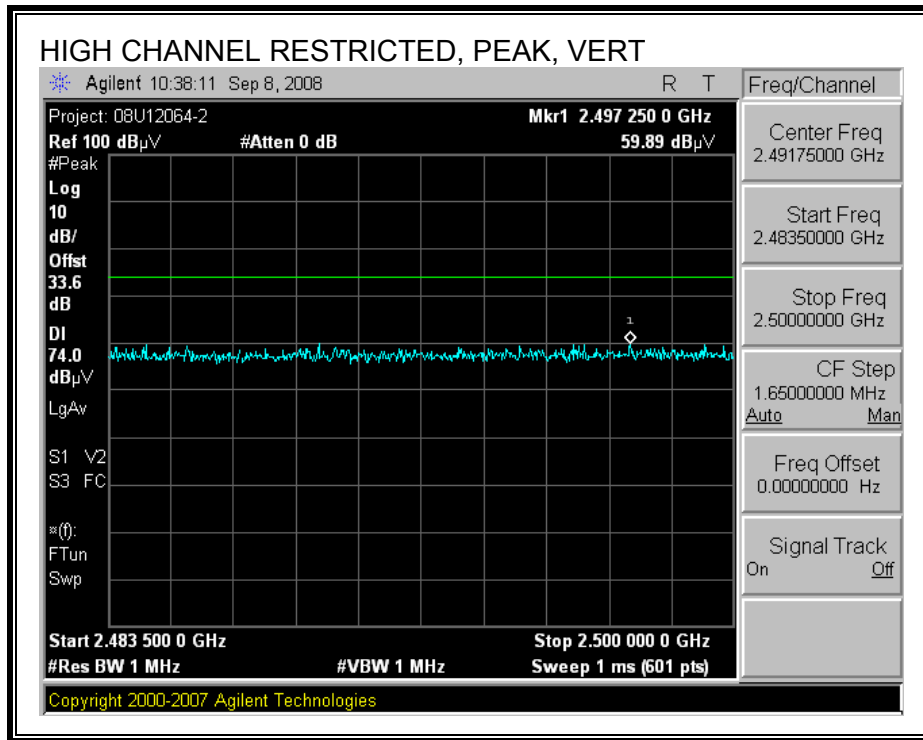
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANEDGE (HIGH CHANNEL, VERTICAL)

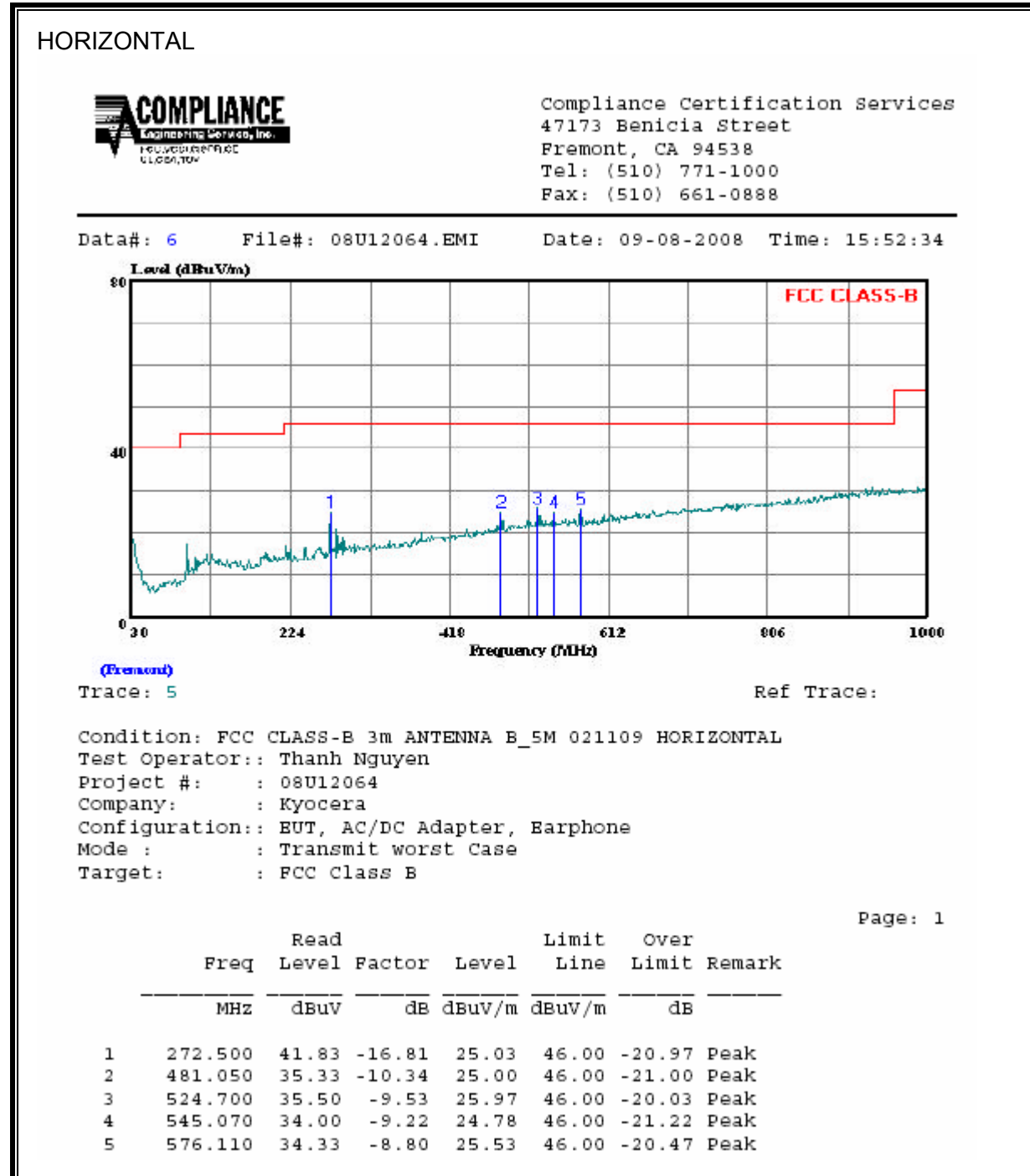


HARMONICS AND SPURIOUS EMISSIONS

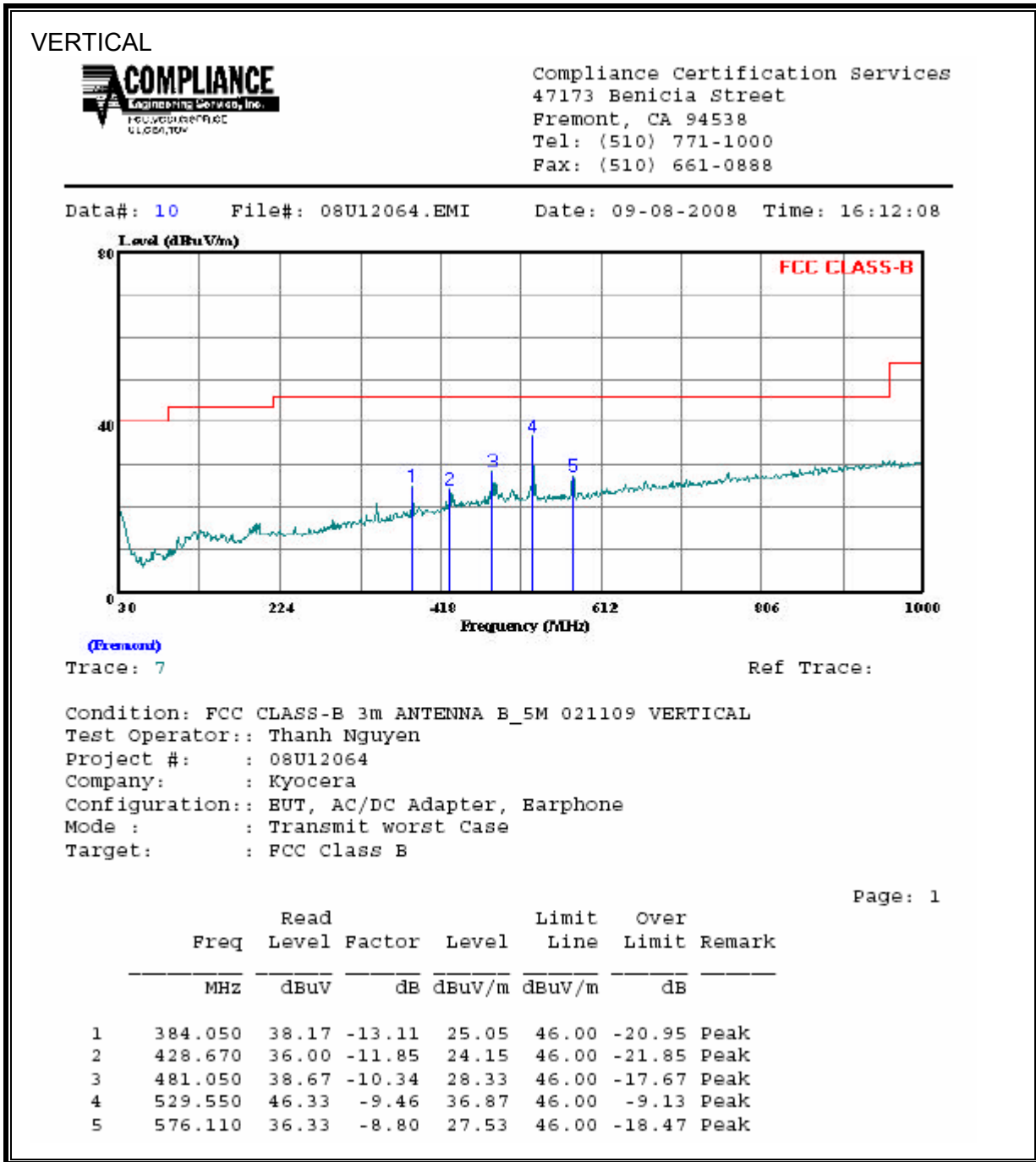
High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company:		Kyocera														
Project #:		08U12064														
Date:		9/8/2008														
Test Engineer:		Thanh Nguyen														
Configuration:		EUT only														
Mode:		Tx (worst case)														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T119; S/N: 29301 @3m			T144 Miteq 3008A00931									FCC 15.209				
Hi Frequency Cables																
2 foot cable			3 foot cable			12 foot cable			HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz			
						B-5m Chamber			HPF_4.0GHz							
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, 2402 MHz																
4.804	3.0	36.67	24.58	33.5	7.1	-36.5	0.0	0.6	41.4	29.3	74	54	-32.6	-24.7	V	
4.804	3.0	37.36	24.70	33.5	7.1	-36.5	0.0	0.6	42.1	29.4	74	54	-31.9	-24.6	H	
MID CHANNEL, 2441 MHz																
4.882	3.0	38.30	24.46	33.6	7.2	-36.5	0.0	0.6	43.2	29.4	74	54	-30.8	-24.6	V	
4.882	3.0	36.53	24.77	33.6	7.2	-36.5	0.0	0.6	41.5	29.7	74	54	-32.5	-24.3	H	
HIGH CHANNEL, 2480 MHz																
4.960	3.0	37.68	25.41	33.7	7.2	-36.5	0.0	0.6	42.8	30.6	74	54	-31.2	-23.4	V	
4.960	3.0	35.14	25.24	33.7	7.2	-36.5	0.0	0.6	40.3	30.4	74	54	-33.7	-23.6	H	
Rev. 4.12.7																
No other emissions were detected above system noise floor																
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)



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.

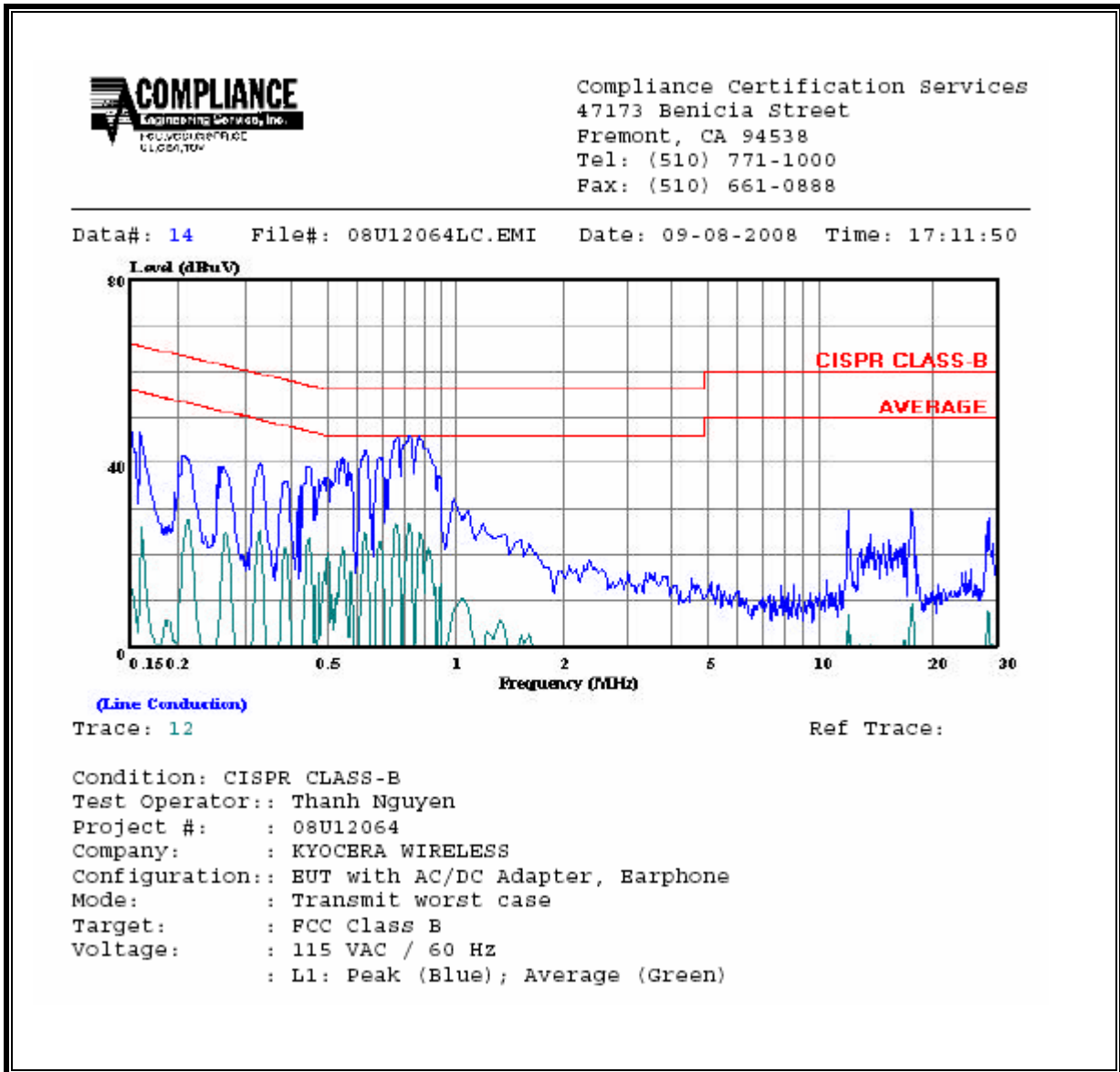
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Class (dB)	Limit QP	EN B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.15	46.81	--	26.01	0.00	65.89	55.89	-19.08	-29.88	L1
0.16	46.62	--	27.71	0.00	65.52	55.52	-18.90	-27.81	L1
0.86	45.95	--	27.00	0.00	56.00	46.00	-10.05	-19.00	L1
0.19	44.04	--	35.47	0.00	64.26	54.26	-20.22	-18.79	L2
0.74	43.80	--	32.70	0.00	56.00	46.00	-12.20	-13.30	L2
0.89	44.19	--	29.91	0.00	56.00	46.00	-11.81	-16.09	L2
6 Worst Data									

LINE 1 RESULTS



LINE 2 RESULTS

