FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

Tri Band CDMA Mobile Phone with WiFi/Bluetooth

MODEL NUMBER: C5215

FCC ID: V65C5215

REPORT NUMBER: 13U14946-4

ISSUE DATE: 2013- 04-22

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

Prepared by
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1285 WALT WHITMAN RD.
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NVLAP LAB CODE 100255-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	2013-04-15	Initial Issue	Joseph Danisi
1	2013-04-22	Remove Industry Canada Rules	Joseph Danisi

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1285 WALT WHITMAN RD, MELVILLE, NY 11747, USA TEL: (631) 271-6200 FAX: (877) 854-3577

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: KYOCERA COMMUNICATONS, INC
8611 BALBOA AVENUE
SAN DIEGO, CA 92123, U.S.A

EUT DESCRIPTION: Tri Band CDMA Mobile Phone with WiFi/Bluetooth

MODEL: C5215

DATE TESTED: 2013-03-29 to 2013-04-04

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations of these calculations. The results show that the equipment 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 by the referenced documents. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC 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 By:

Name: Bob DeLisi
Title: WiSE Principal Engineer
UL LLC

Tested By:

Name: Joseph Danisi
Title: WiSE Project Lead
UL LLC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 1285 Walt Whitman Rd. Melville, NY 11747, USA.

UL Melville is accredited by NVLAP, Laboratory Code 100255-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/1002550.htm.

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	± 3.3 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.00 dB
Radiated Emissions, > 1GHz	±5.44, k=2

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 Tri Band CDMA Mobile Phone with Wi-Fi/Bluetooth phone that is manufactured by Kyocera. 802.11a/b/g/n transceiver. However, only the following was requested 802.11b/g/n HT20

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a dipole (internal) antenna, with a maximum gain of -1.0 dBi.

5.3. SOFTWARE AND FIRMWARE

The test utility software used during testing was FCC Test Application version 0.110CR

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

Worst-case data rates as provided by the client were:
Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20mode: MCS0

Radiated emissions for EUT with antenna was performed and passed; therefore, antenna port spurious was not performed.

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5.1. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

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

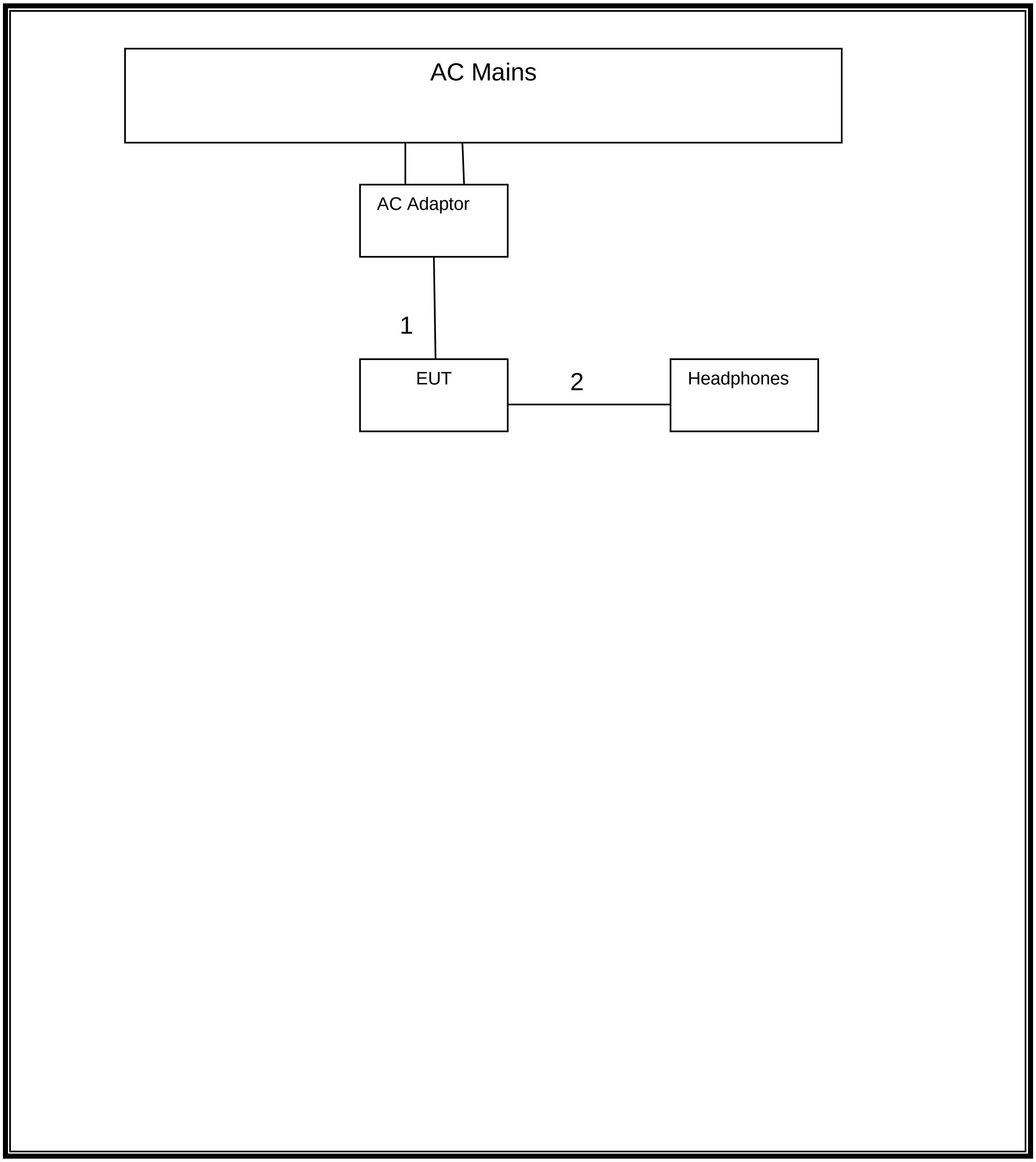
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identica Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	Mic	1	Earphone	Unsheilded	1.5m	N/A

TEST SETUP

The EUT is set up to transmit continuously

SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Radiated Emissions					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
30-1000MHz					
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2013-01-29	2014-01-31
Log-P Antenna	Schaffner	UPA6109	44068	2013-04-03	2014-04-03
Bicon Antenna	Schaffner	VBA6106A	54	2013-04-03	2014-04-03
Bias Tee	Miteq	AM-1523-7687	44392	N/A	N/A
Bias Tee	Miteq	AM-1523-7687	44393	N/A	N/A
Preamp	Miteq	AM-3A-000110-7687	44391	N/A	N/A
Preamp	Miteq	AM-3A-000110-7687	44394	N/A	N/A
Switch Driver	HP	11713A	ME7A-627	N/A	N/A
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A
RF Switch Box	UL	1	44398	N/A	N/A
Measurement Software	UL	Version 9.5	44740	N/A	N/A
Multimeter	Fluke	83III	ME5B-305	N/A	N/A
Above 1GHz (Band Optimized System)					
EMI Receiver	Rohde & Schwarz	ESIB40	34968		
Horn Antenna (1-2 GHz)	ETS	3161-01 (26°)**	51442	2008-03-28	See * below
Horn Antenna (2-4 GHz)	ETS	3161-02 (22°)**	48107	2007-09-27	See * below
Horn Antenna (4-8 GHz)	ETS	3161-03 (22°)**	48106	2007-09-27	See * below
Horn Antenna (8-12 GHz)	ETS	3160-07 (26°)**	8933	2008-11-24	See * below
Horn Antenna (12-18 GHz)	ETS	3160-08 (26°)**	8932	2007-09-27	See * below
Horn Antenna (18-26.5 GHz)	ETS	3160-09 (27°)**	8947	2007-09-26	See * below
Horn Antenna (26.5-40 GHz)	ETS	3160-10 (27°)**	73004	2007-09-26	See * below
Signal Path Controller	HP	11713A	50250	N/A	N/A
Gain Controller	HP	11713A	50251	N/A	N/A
RF Switch / Preamp Fixture	UL	BOMS1	50249	N/A	N/A
System Controller	UL	BOMS2	50252	N/A	N/A
Measurement Software	UL	Version 9.5	44740	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2012-03-13	2014-03-13
Multimeter	Fluke	83V	43443	2013-01-28	2014-01-31

Radiated Emissions					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
* - Note: As allowed by the calibration standard ANSI C63.4 Section 4.4.2, standard gain horns need only a one-time calibration. Only if physical damage occurs will the horn antenna require re-calibration. Gain standard horn antennas (sometimes called standard gain horn antennas) need not be calibrated beyond that which is provided by the manufacturer unless they are damaged or deterioration is suspected, or they are used at a distance closer than $2D^2/\lambda$. Gain standard horn antennas have gains that are fixed by their dimensions and dimensional tolerances. ** - Number in parentheses denotes antenna beam width.					

Conducted Emissions					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
Conducted Emissions – GP 1					
EMI Receiver	Rohde & Schwarz	ESCI 7	75141	2013-01-30	2014-01-31
LISN	Solar	9252-50-R-24-BNC	ME5A-636	2013-02-01	2014-02-28
Switch Driver	HP	11713A	44397	N/A	N/A
RF Switch Box	UL	4	44404	N/A	N/A
Measurement Software	UL	Version 9.5	44736	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2012-03-13	2014-03-13
Multimeter	Fluke	83V	43443	2013-01-28	2014-01-31

7. MEASUREMENT METHODS

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

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8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

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.

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; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable 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.

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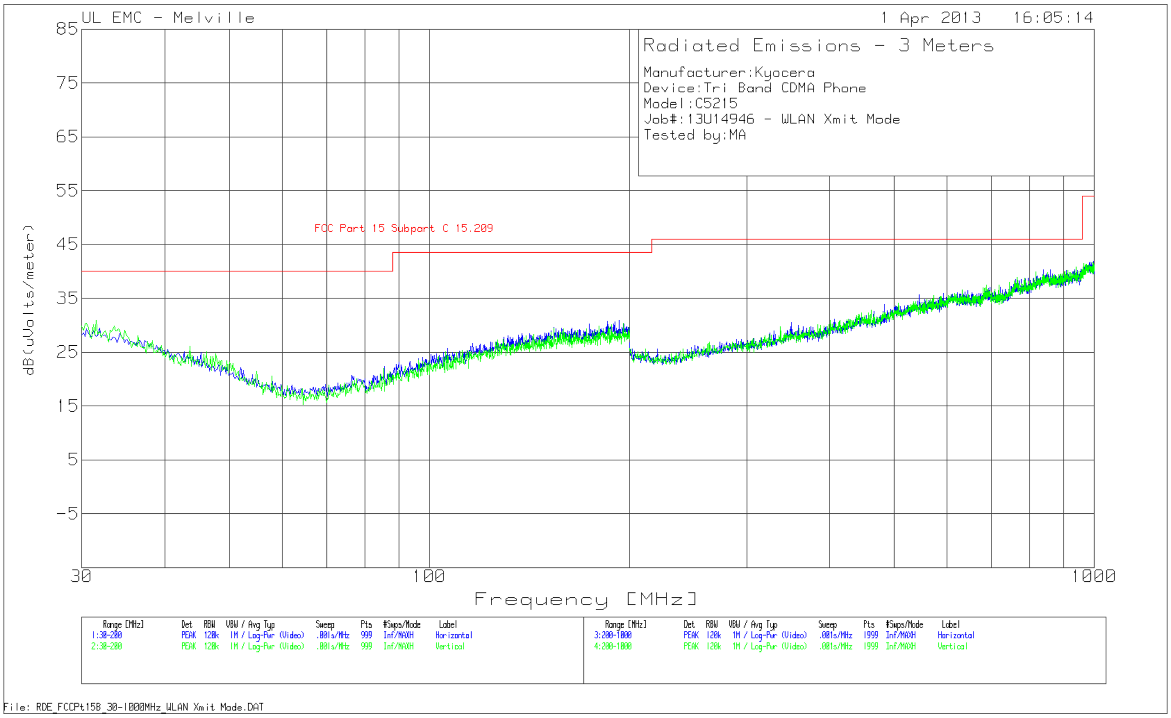
8.2 WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL AND VERTICAL)

HORIZONTAL AND VERTICAL PLOTS



HORIZONTAL AND VERTICAL DATA

Manufacturer: Kyocera

Device: Tri Band CDMA Phone

Model:C5215

Job#:13U14946 - WLAN Xmit Mode

Tested by: MA

Horizontal 30 - 200MHz

Marker No.	Test Frequency	Meter Reading	Detector	AF-43441 (dB/m)	GL-3M	dB(uVolts/meter)	FCC Part 15 Subpart C 15.209	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	45.3153	12.72	PK	12	0.2	24.92	40	-15.08	313	399	Horz
2	173.964	14.22	PK	15.3	0.7	30.22	43.5	-13.28	164	399	Horz

Vertical 30 - 200MHz

Marker No.	Test Frequency	Meter Reading	Detector	AF-43441	GL-3M	dB(uVolts/meter)	FCC Part 15 Subpart C 15.209	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
3	31.5315	13.57	PK	17.3	0	30.87	40	-9.13	341	100	Vert
4	43.6136	13.21	PK	12.7	0.2	26.11	40	-13.89	355	100	Vert

Horizontal 200 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	AF-44067	GL-3M	dB(uVolts/meter)	FCC Part 15 Subpart C 15.209	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
5	545.7729	15.47	PK	18.6	1.6	35.67	46	-10.33	254	100	Horz
6	689.4447	14.07	PK	20.9	1.9	36.87	46	-9.13	193	200	Horz

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

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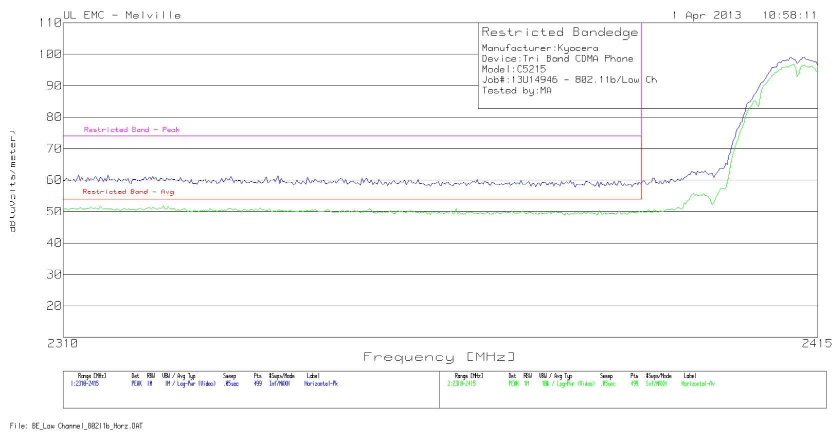
8.3 TRANSMITTER ABOVE 1 GHz

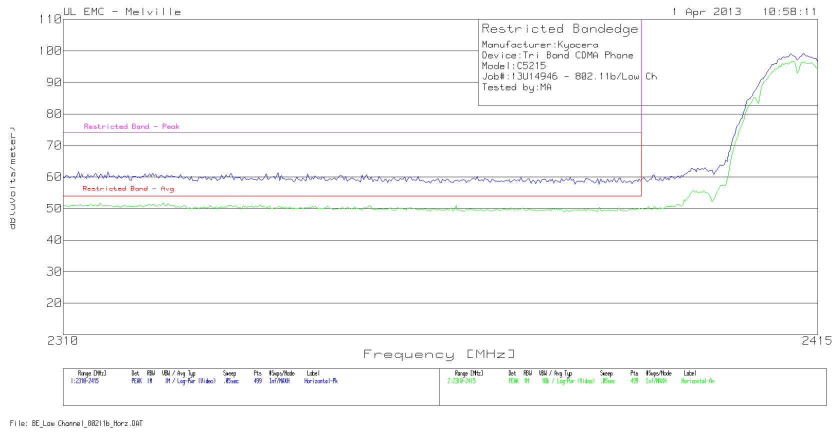
8.3.1 TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

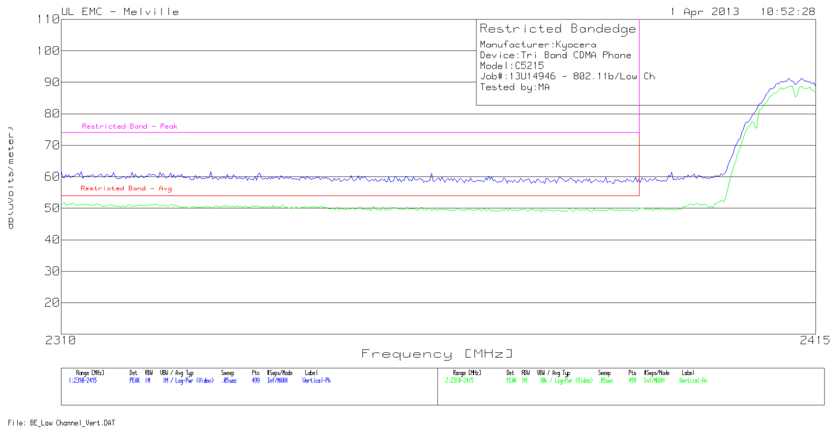
LOW CHANNEL RESTRICTED, PEAK, HORIZ



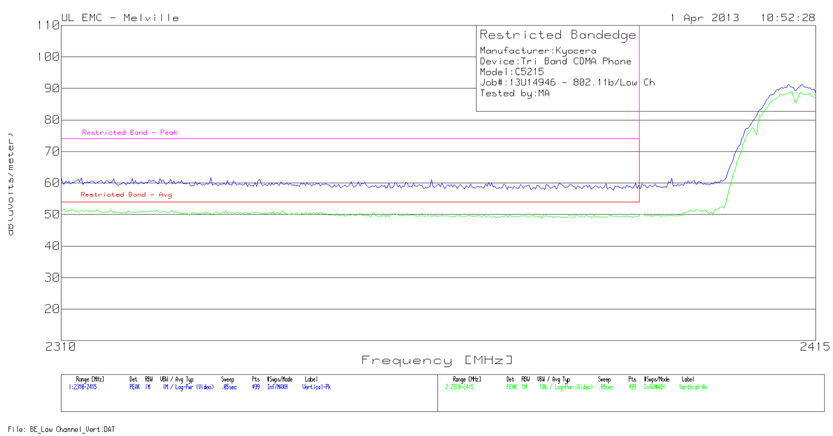
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT

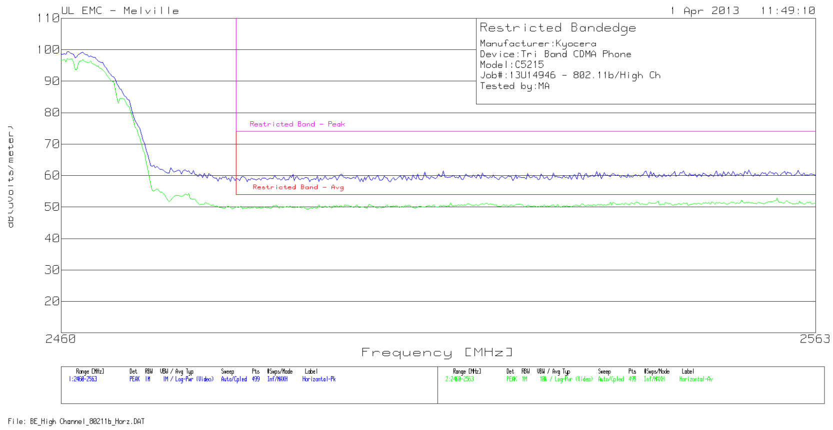


LOW CHANNEL RESTRICTED, AVERAGE, VERT

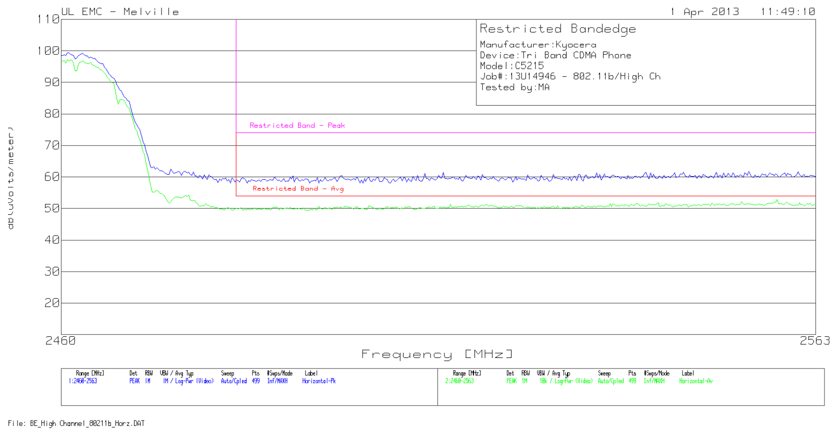


AUTHORIZED BANDEDGE (HIGH CHANNEL)

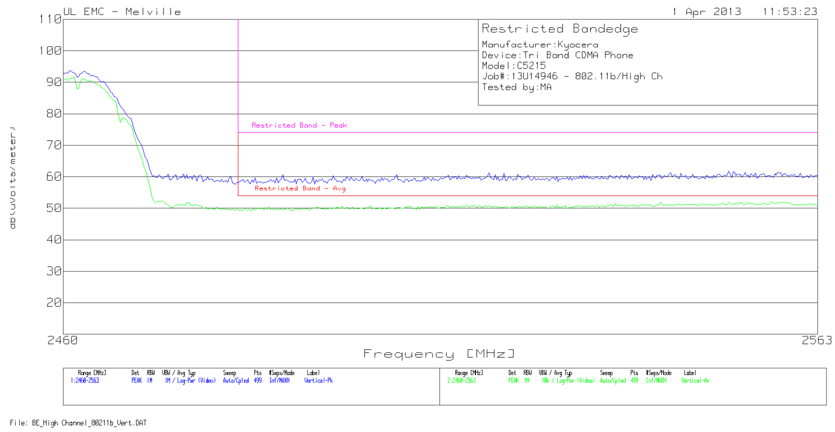
HIGH CHANNEL BANDEDGE, PEAK, HORIZ



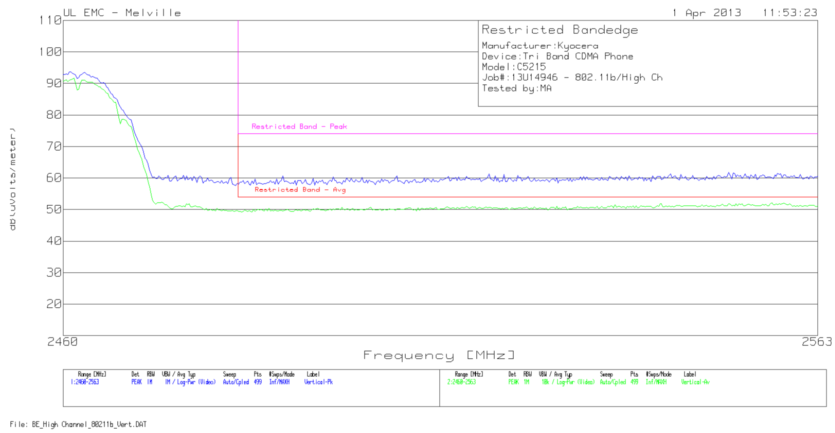
HIGH CHANNEL BANDEDGE, AVERAGE, HORIZ



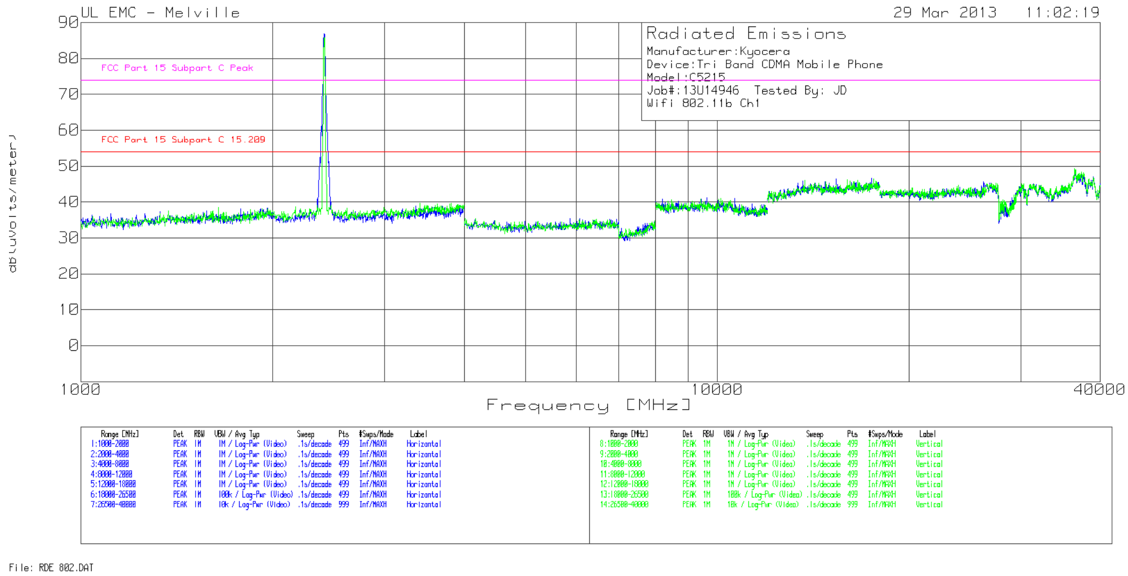
HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

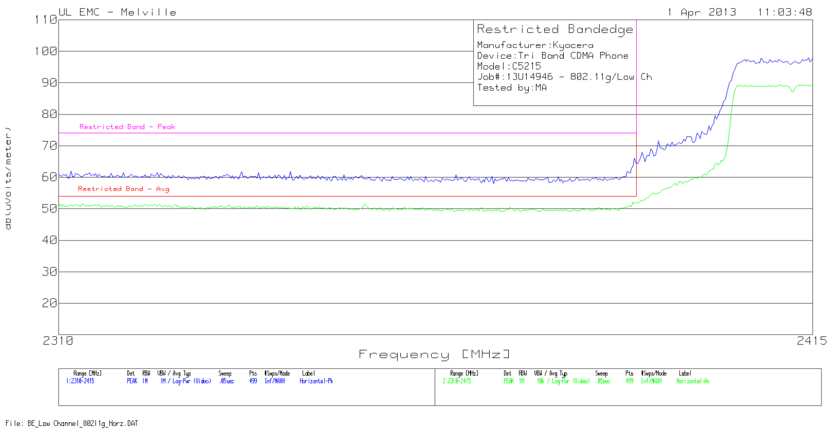


Note: No emission was detected within 6dB of the limit

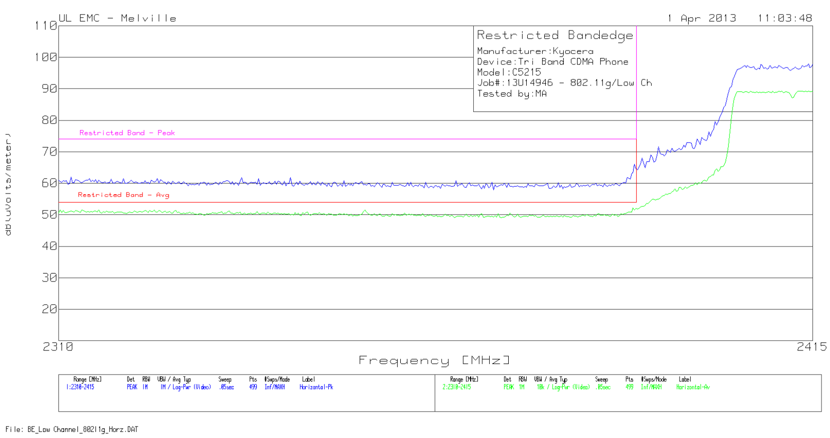
8.4 TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

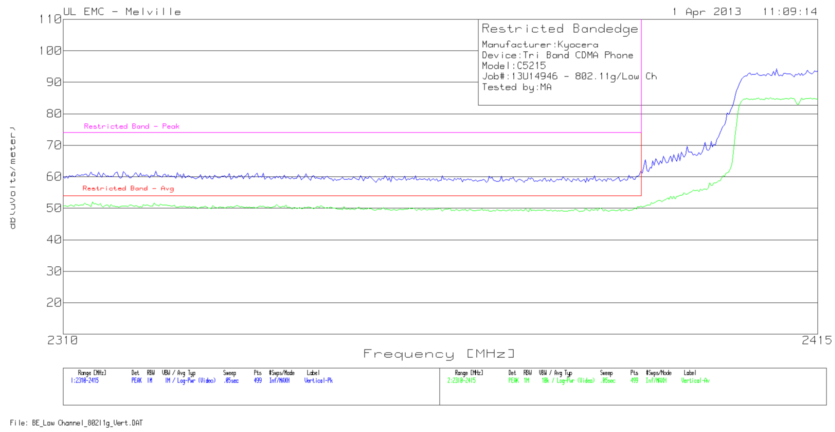
LOW CHANNEL RESTRICTED, PEAK, HORIZ



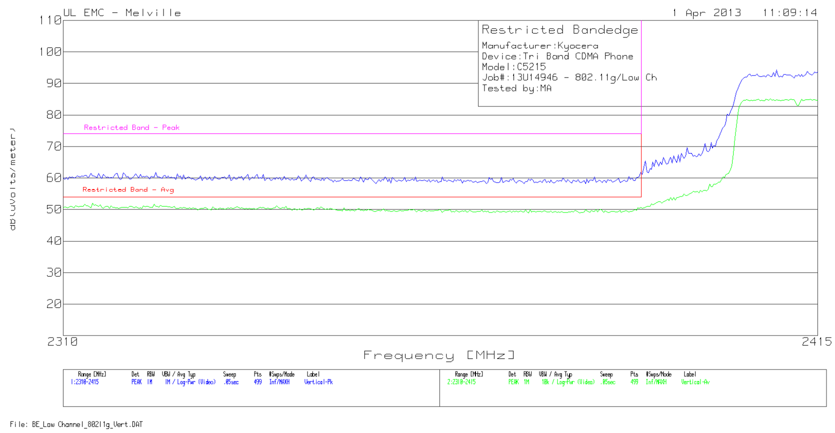
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT

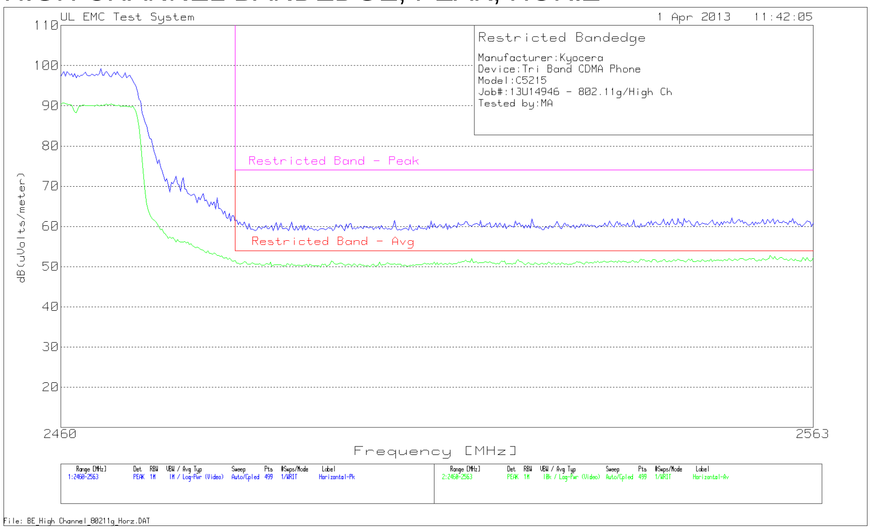


LOW CHANNEL RESTRICTED, AVERAGE, VERT



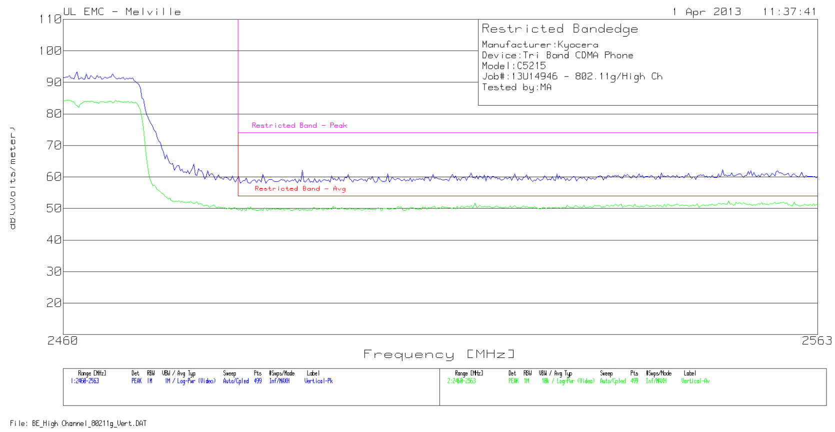
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, PEAK, HORIZ

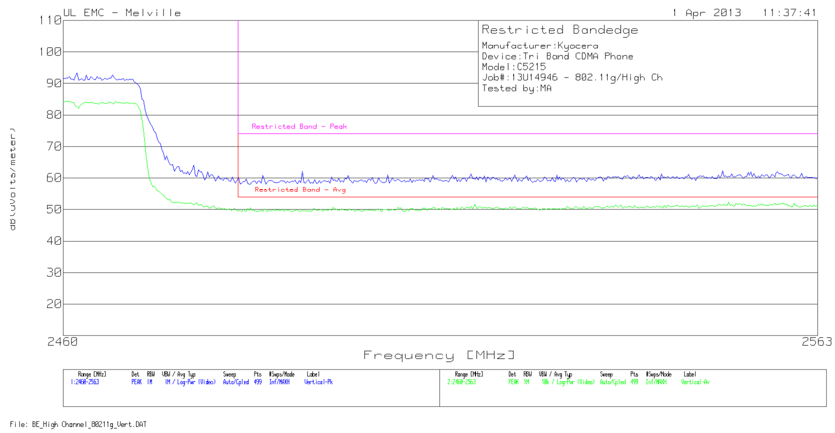


HIGH CHANNEL BANDEDGE, AVERAGE, HORIZ

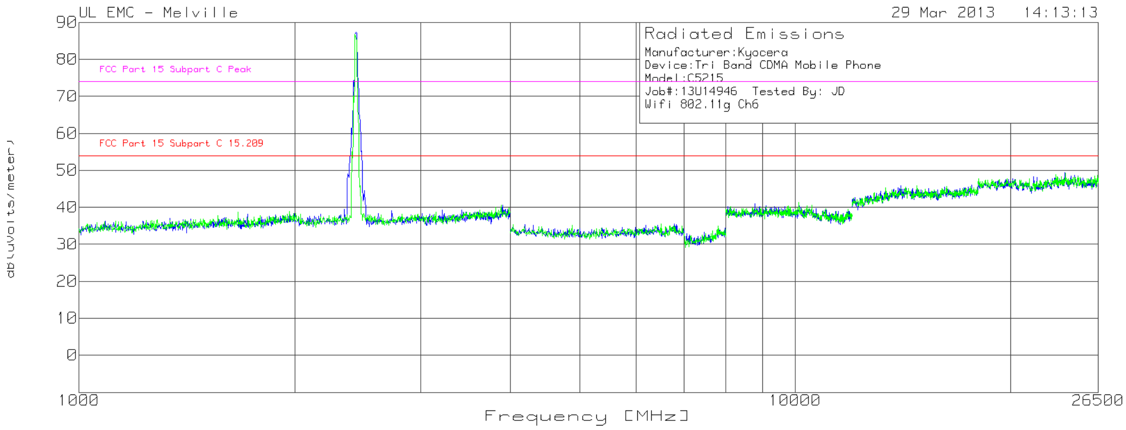
HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS



Range [MHz]	Det	RBW	VBW / Avg Typ	Sweep	Pts	#Sups/Mode	Label
1:1000-2000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Horizontal
2:2000-4000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Horizontal
3:4000-8000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Horizontal
4:8000-12000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Horizontal
5:12000-18000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Horizontal
6:18000-26500	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Horizontal

Range [MHz]	Det	RBW	VBW / Avg Typ	Sweep	Pts	#Sups/Mode	Label
7:1000-2000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Vertical
8:2000-4000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Vertical
9:4000-8000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Vertical
10:8000-12000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Vertical
11:12000-18000	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Vertical
12:18000-26500	PEAK	1M	1M / Log-Pwr (Video)	.1s/decade	499	Inf/MAXH	Vertical

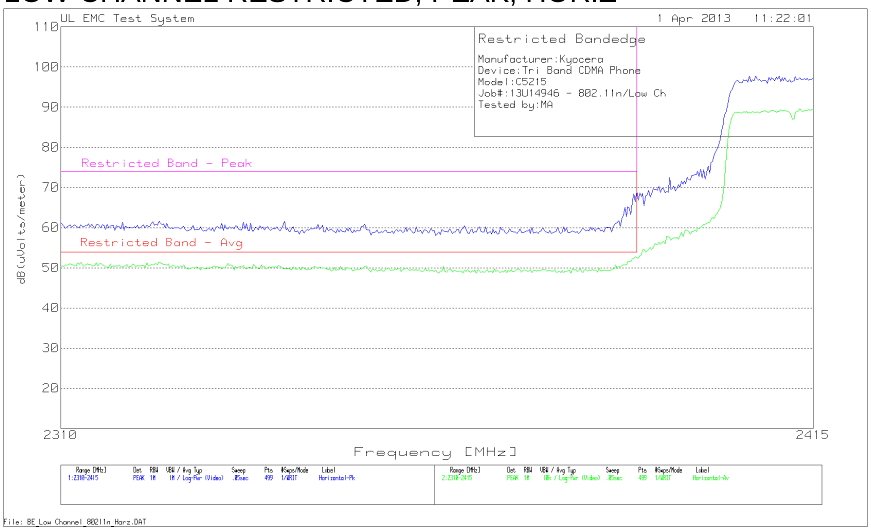
File: RDE 802_11g ch 6.DAT

Note: No emission was detected within 6dB of the limit

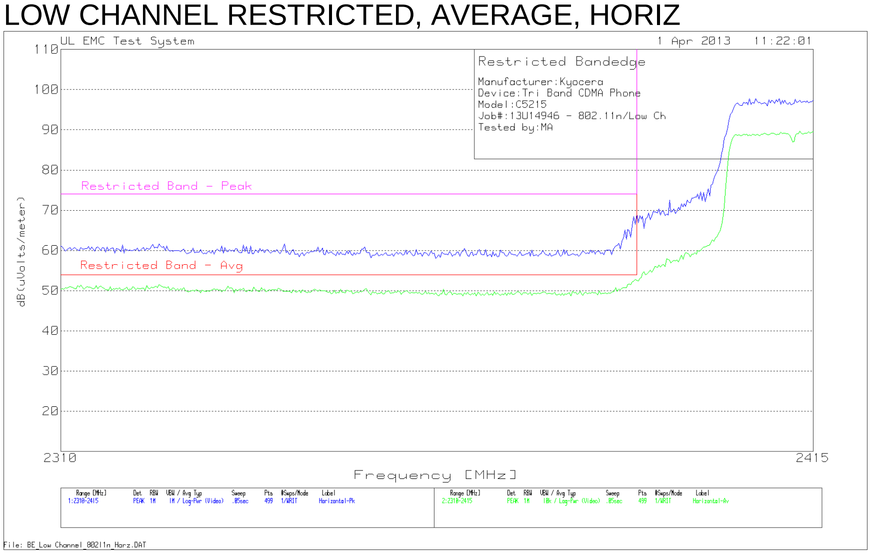
8.4.1 TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

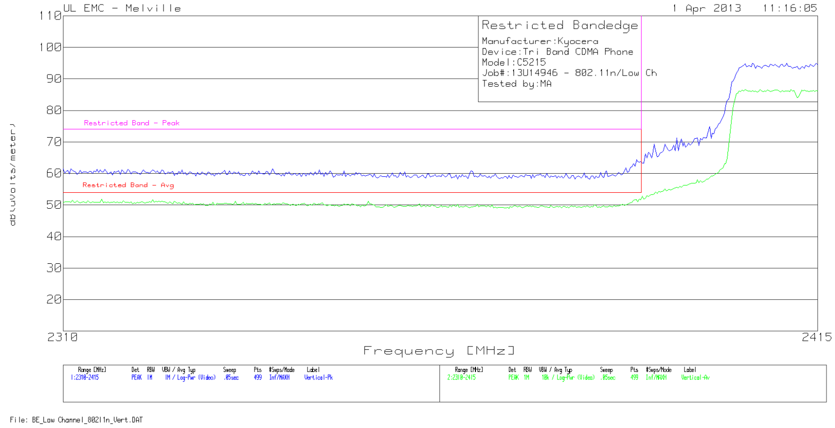
LOW CHANNEL RESTRICTED, PEAK, HORIZ



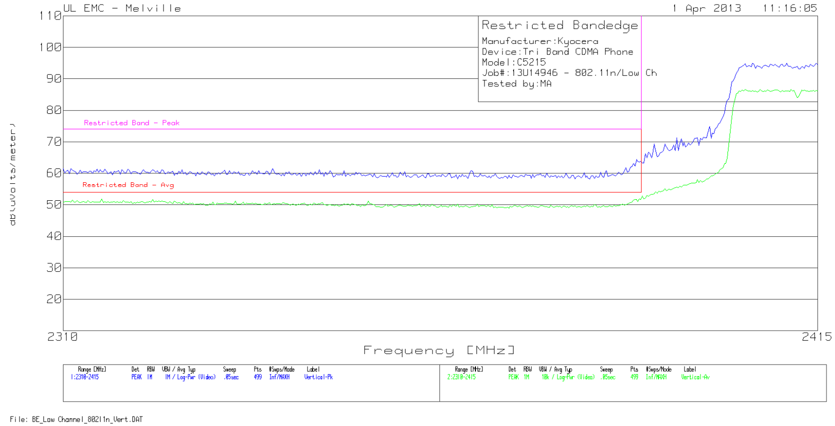
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT

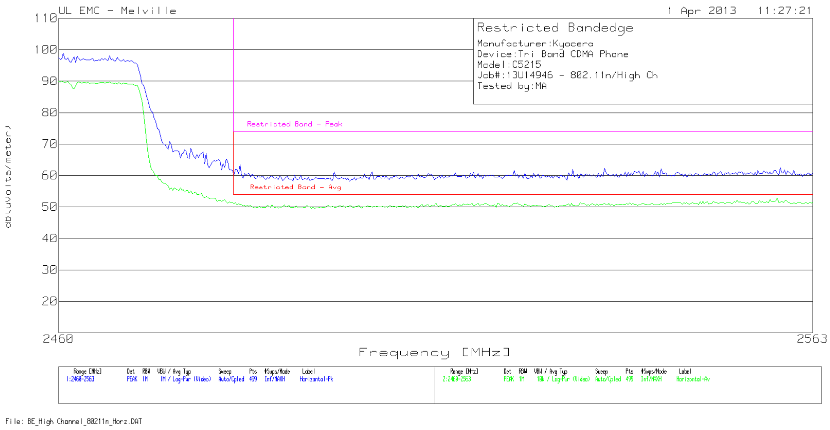


LOW CHANNEL RESTRICTED, AVERAGE, VERT

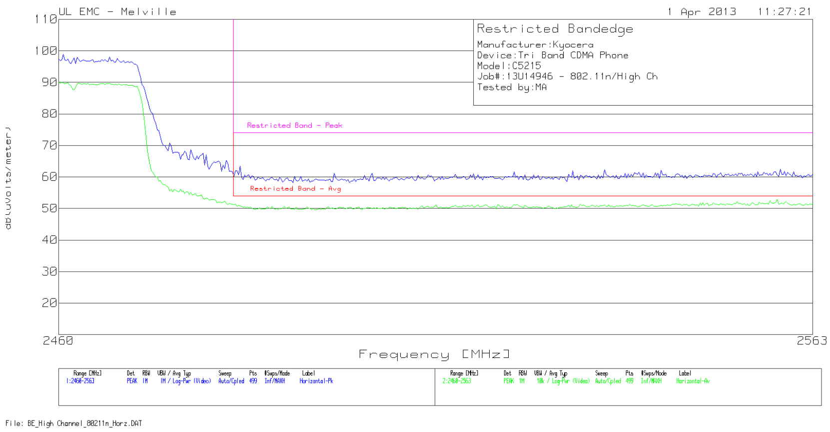


AUTHORIZED BANDEDGE (HIGH CHANNEL)

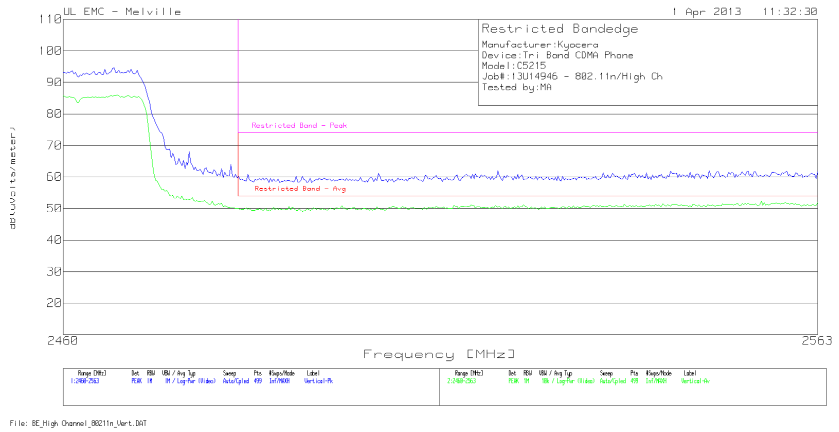
HIGH CHANNEL BANDEDGE, PEAK, HORIZ



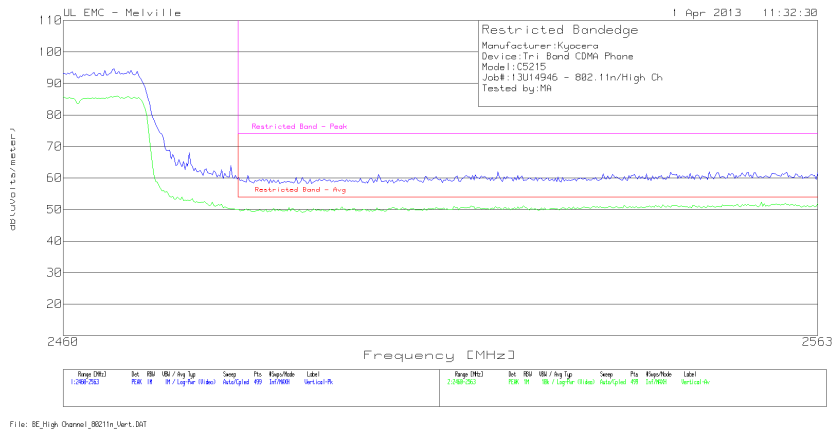
HIGH CHANNEL BANDEDGE, AVERAGE, HORIZ



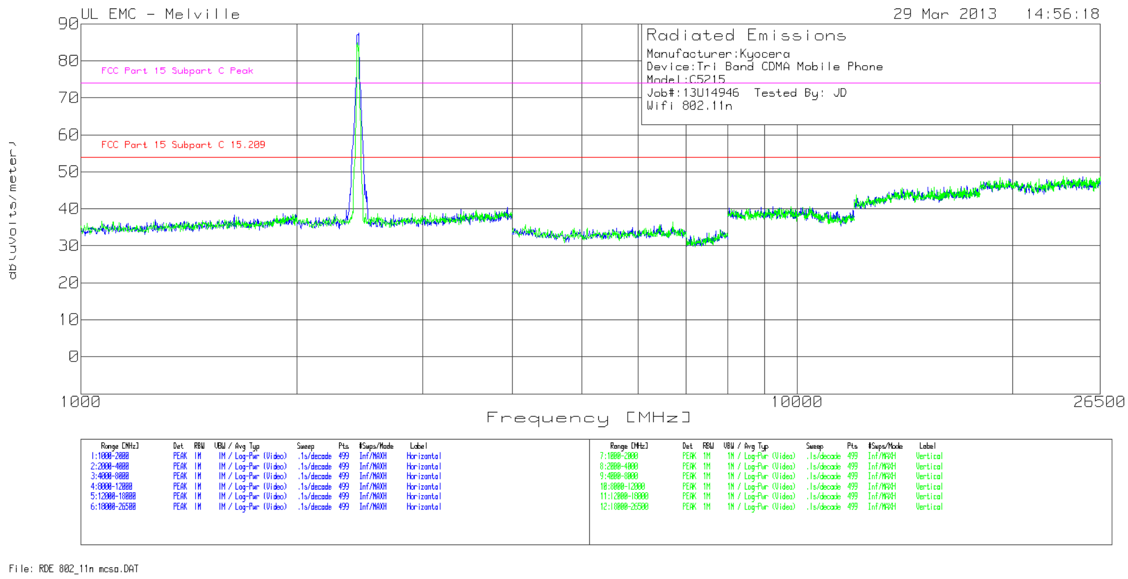
HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS



Note: No emission was detected within 6dB of the limit

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

Passed

6 WORST EMISSIONS

Manufacturer: Kyocera

Device: Tri Band CDMA Mobile Phone

Model:C5215

Job Number:13U14946

Tested By: RM

Line - L1 .15 - 30MHz

Marker No.	Test Frequency	Meter Reading	Detector	5A636 L1 (dB)	(dB(uVolts))	CISPR22 Class B QPk	Margin	CISPR22 Class B Avg	Margin
1	0.159	37.32	PK	10	47.32	65.5	-18.18	55.5	-8.18
2	0.159	17.61	Av	10	27.61	65.5	-37.89	55.5	-27.89
3	0.2175	35.33	PK	10	45.33	62.9	-17.57	52.9	-7.57
4	0.2175	13.13	Av	10	23.13	62.9	-39.77	52.9	-29.77
5	0.294	31.84	PK	10	41.84	60.4	-18.56	50.4	-8.56
6	0.294	11.13	Av	10	21.13	60.4	-39.27	50.4	-29.27
7	1.923	30.22	PK	10.1	40.32	56	-15.68	46	-5.68
8	1.923	14.72	Av	10.1	24.82	56	-31.18	46	-21.18
9	9.2355	22.16	PK	10.5	32.66	60	-27.34	50	-17.34
10	9.2355	4.36	Av	10.5	14.86	60	-45.14	50	-35.14
11	23.748	19.21	PK	11.5	30.71	60	-29.29	50	-19.29
12	23.748	3.77	Av	11.5	15.27	60	-44.73	50	-34.73

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

Manufacturer: Kyocera

Device: Tri Band CDMA Mobile Phone

Model:C5215

Job Number:13U14946

Tested By: RM

Neutral .15 - 30MHz

Marker No.	Test Frequency	Meter Reading	Detector	5A636 L4Neut (dB)	(dB(uVolts))	CISPR22 Class B QPk	Margin	CISPR22 Class B Avg	Margin
13	0.1635	38.91	PK	10	48.91	65.3	-16.39	55.3	-6.39
14	0.1635	18.98	Av	10	28.98	65.3	-36.32	55.3	-26.32
15	0.303	33.03	PK	10	43.03	60.2	-17.17	50.2	-7.17
16	0.303	11.39	Av	10	21.39	60.2	-38.81	50.2	-28.81
17	0.3975	23.53	PK	10	33.53	57.9	-24.37	47.9	-14.37
18	0.3975	10.27	Av	10	20.27	57.9	-37.63	47.9	-27.63
19	2.031	17.82	PK	10.1	27.92	56	-28.08	46	-18.08
20	2.031	2.04	Av	10.1	12.14	56	-43.86	46	-33.86
21	4.074	19.05	PK	10.2	29.25	56	-26.75	46	-16.75
22	4.074	3.12	Av	10.2	13.32	56	-42.68	46	-32.68
23	25.764	15.22	PK	11.8	27.02	60	-32.98	50	-22.98
24	25.764	-1.98	Av	11.8	9.82	60	-50.18	50	-40.18

PK - Peak detector

QP - Quasi-Peak detector

LnAv - Linear Average detector

LgAv - Log Average detector

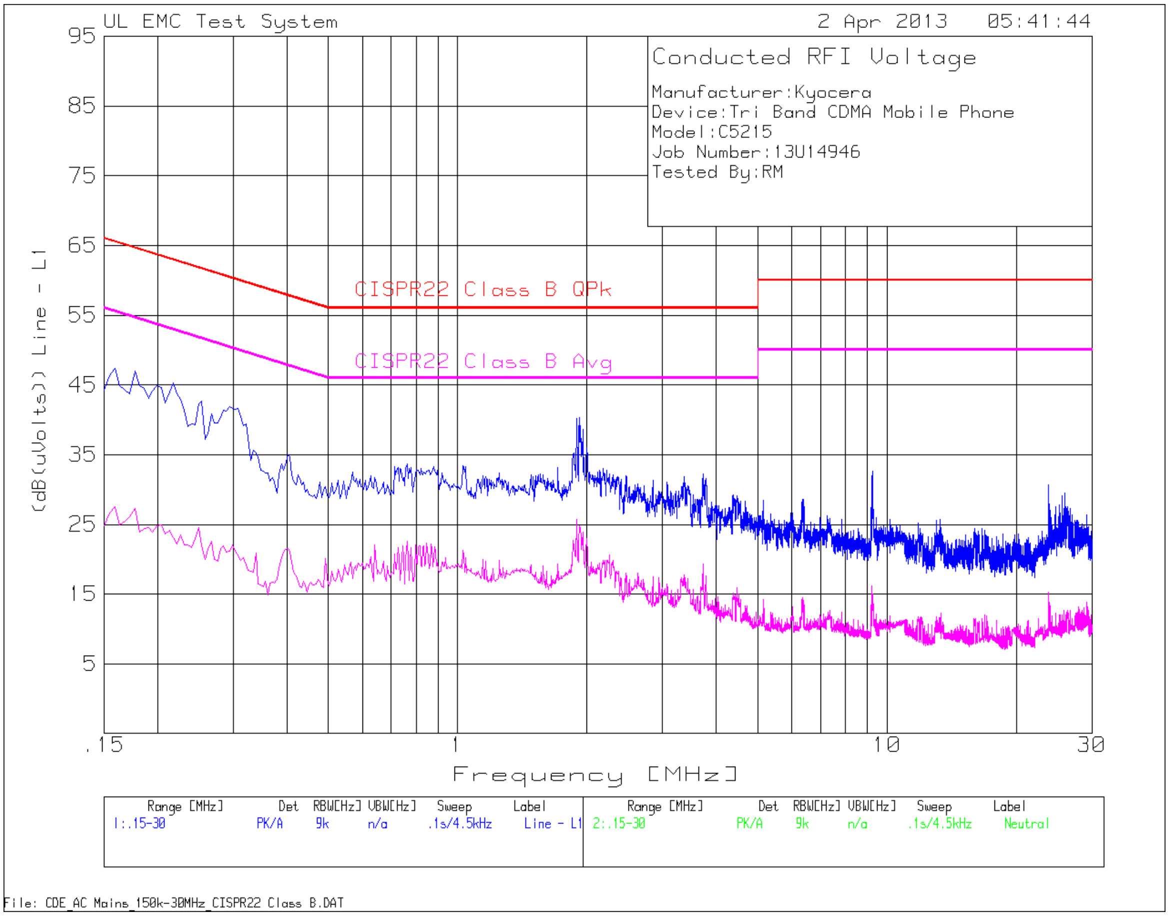
Av - Average detector

CAV - CISPR Average detector

RMS - RMS detection

CRMS - CISPR RMS detection

LINE 1 RESULTS



LINE 2 RESULTS