



**FCC CFR47 PART 15 SUBPART C
CERTIFICATION TEST REPORT**

FOR

WIRELESS CHARGER

MODEL NUMBER: WCP-400

FCC ID: BEJWCP400

KDB 680106

FCC INQUIRY TRACKING NUMBER 440245

REPORT NUMBER: 12U14682-1

ISSUE DATE: OCTOBER 22, 2012

Prepared for

LG ELECTRONICS MOBILECOMM U.S.A., INC.

1000 SYLVAN AVENUE

ENGLEWOOD CLIFFS, NJ 07632

Prepared by

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	10/22/12	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
1000 SYLVAN AVENUE
ENGLEWOOD CLIFFS, NJ 07632

EUT DESCRIPTION: WIRELESS CHARGER

MODEL: WCP-400

SERIAL NUMBER: NA

DATE TESTED: OCTOBER 15-17, 2012

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Pass

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
WiSE OPERATIONS MANAGER
UL CCS

CHIN PANG
WiSE ENGINEER
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:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

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 Wireless charger intended for mobile device. The wireless charger is operated at 110 to 205 kHz transmit frequencies.

5.2. MAXIMUM FIELD STRENGTH

The transmitter has maximum peak radiated field strength as follows:

Frequency (kHz)	Field Strength (dBuV/m @ 300 m)	Field Strength (uV/m @ 300 m)
160	-3.07	0.702

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal loop antenna (Circular Coil).

5.4. WORST-CASE CONFIGURATION AND MODE

EUT Configuration	Description
Charging Mode at Worst case Configuration	EUT (WCP-400) with DONG DO AC Adapter @300/600/1000mA Load
	EUT (WCP-400) and LG-E960 @ <1% and 50% battery status, since charging is not operation when 100% fully charged status.
	EUT (WCP-400) with Ten Pao AC Adapter @1000mA Load

5.5. MODIFICATIONS

No modifications were made during testing.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

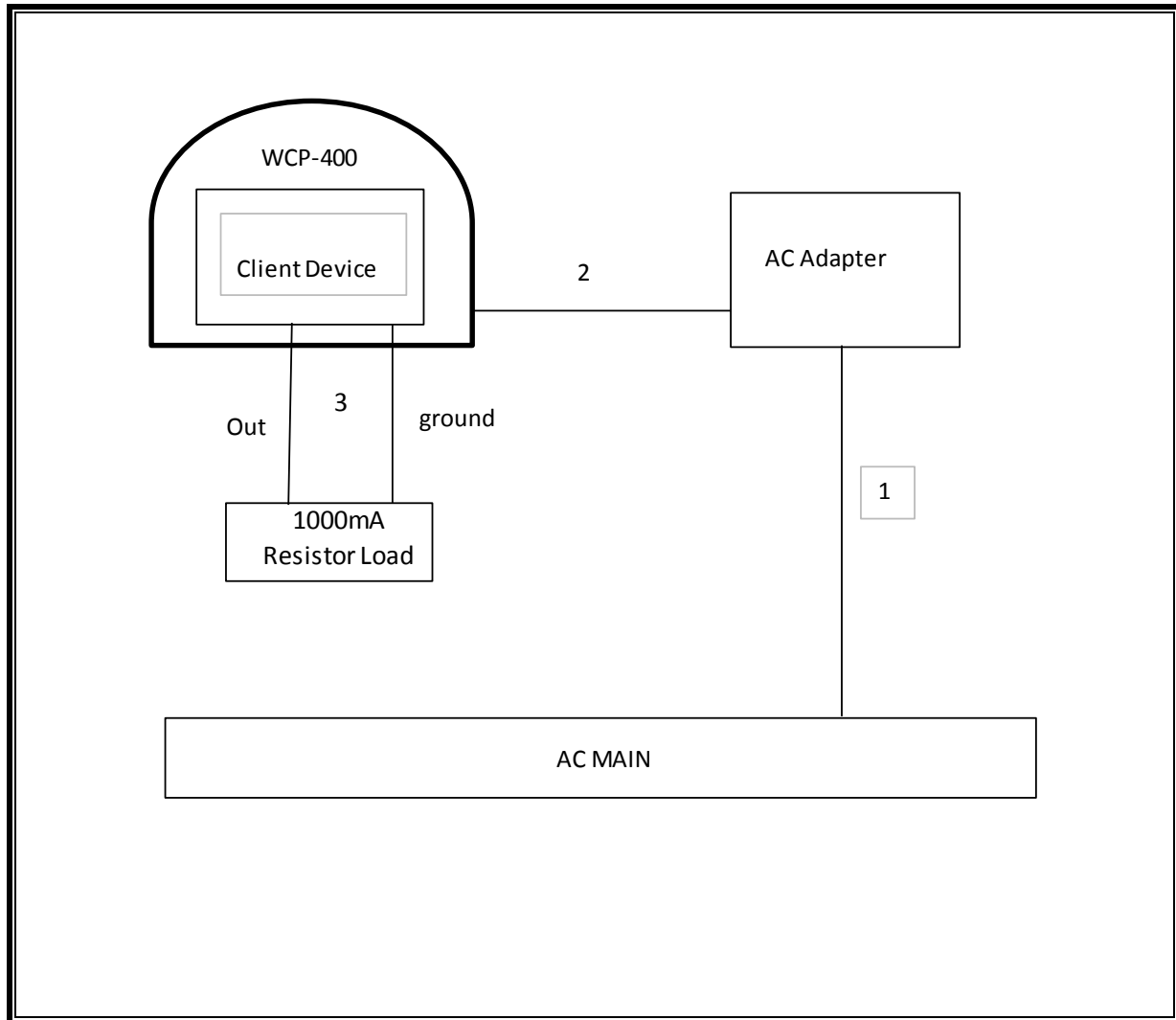
Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	TEN PAO	MCS-04WT	TA270000185	DoC
AC Adapter	DONG DO	MCS-04WD	DA26000074	DoC
Mobile Phone	LG-E960	LG-E960	0013CAE4DA0D1956	ZNFE960
Client Device, 300mA,600mA,1000mA Load	TI Instruments	bq51013EVM-725	HPA725 Rev A	NA

I/O CABLES

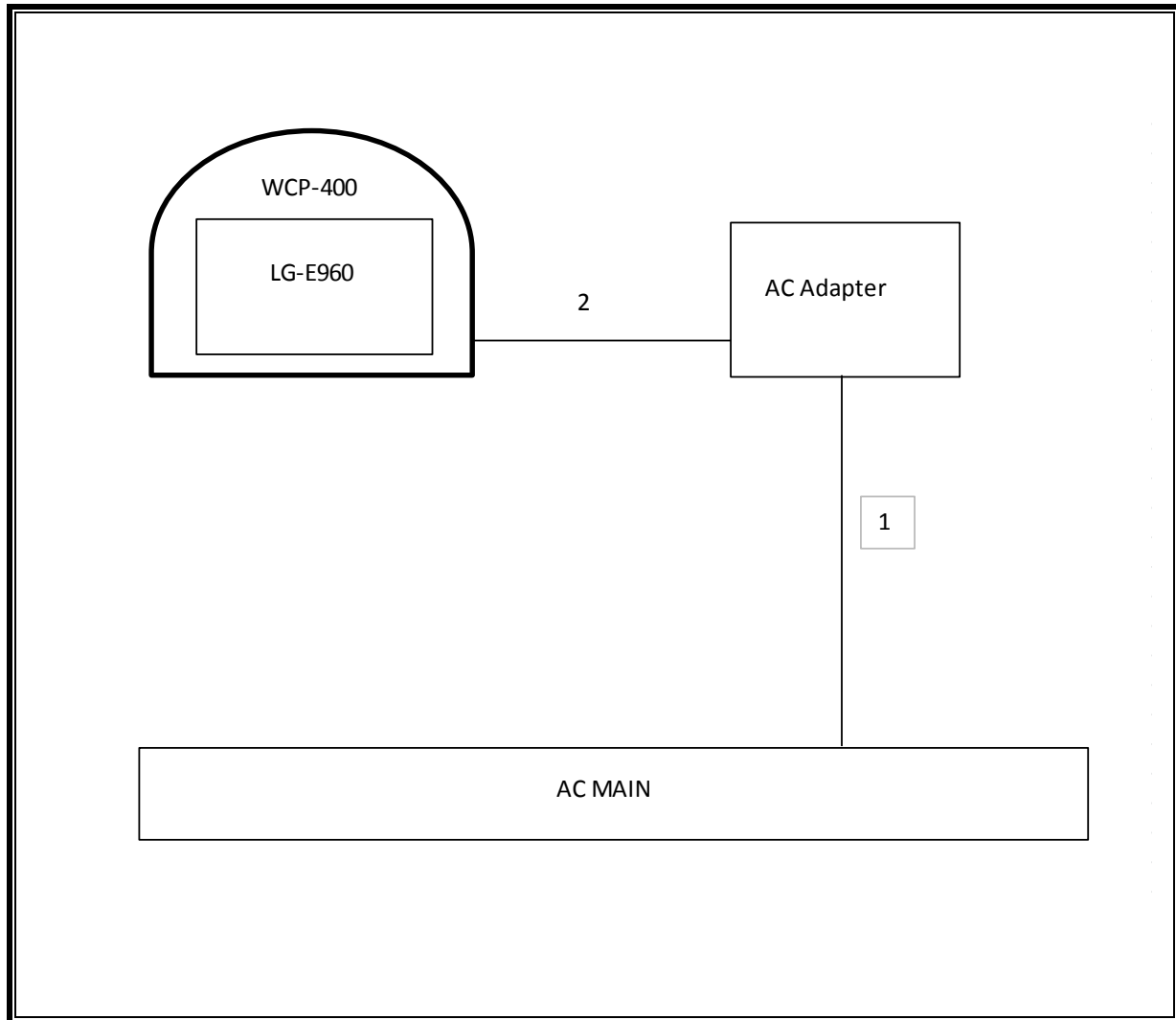
I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	US 115V	Un-shielded	2m	NA
2	DC	1	USB Cable	Un-shielded	1.2m	NA
3	Client Device, 300mA,600mA,1000 mA Load	1	Load	Un-shielded	0.10m	NA

TEST SETUP

WCP-400 AND DONG DO / TEN PAO AC ADAPTER WITH 1000mA LOAD



**WCP-400 AND DONG DO / TEN PAO AC ADAPTER WITH LG-E960 <1% AND 50%
BATTERY STATUS**



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, Loop, 5 MHz	EMCO	6511	N02337	02/10/13
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/18/13
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/08/13
LISN, 30 MHz	FCC	3115	N02625	11/10/12

6. RADIATED EMISSION TEST RESULTS

6.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.209 (a)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960 MHz	500	3
Note: The lower limit shall apply at the transition frequency.		

TEST PROCEDURE

ANSI C63.4

The EUT is an intentional radiator is operated at 110 to 205 kHz transmit frequencies; therefore, the frequency range was investigated up to the 10th harmonic of 2.05MHz.

RESULTS

6.2. TX FUNDAMENTAL AND SPURIOUS EMISSIONS 0.15 TO 30 MHz

WCP-400 WITH DONG DO (@1000mA/ 600mA/ 300mA Load) / TEN PAO (@1000mA Load) AC ADAPTER

FCC Part 15, Subpart B & C 3 Meter Distance Measurement At Open Field

Company: LG
Project #: 12U14682
Model #: WCP-400
Tested By: Chin Pang
Configuration: WCP-400 with DONG DO (@1000mA/ 600mA/ 300mA Load) / TEN PAO (@1000mA Load) AC Adapter
Date: 10/16/12

Frequency (MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	AV Corrected Reading (dBuV/m)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	PK Margin (dB)	AV Margin (dB)	Notes
Loop Antenna Face On:												
0.16	67.84	66.23	62.80	10.7	-80.00	-3.07	-6.50	43.52	23.52	-46.6	-30.0	3m distance
0.315	50	48.65	45.15	10.7	-80.00	-20.65	-24.15	37.64	17.64	-58.3	-41.8	3m distance
Loop Antenna Face Off:												
0.16	61.2	59.60	56.2	10.7	-80.00	-9.70	-13.10	43.52	23.52	-53.2	-36.6	3m distance
0.315	53	51.15	47.7	10.7	-80.00	-18.15	-21.60	37.64	17.64	-55.8	-39.2	3m distance

Note: No more emissions were found up to 30MHz.

The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.

P.K. = Peak
Q.P. = Quasi Peak Readings
A.F. = Antenna factor

Frequency 9kHz -150kHz, RBW=>100Hz, VBW=3 times RBW
Frequency: 150kHz - 30MHz, RBW=>9kHz, VBW=3 times RBW

WCP-400 AND DONG DO/ TEN PAO AC ADAPTERS WITH LG-E960 AT <1% AND 50% OF BATTERY STATUS

FCC Part 15, Subpart B & C

3 Meter Distance Measurement At Open Field

Company: LG

Project #: 12U14682

Model #: WPC-400 and AC Adapters with LG-E960 (<1% and 50% Battery Status)

Tested By: Chin Pang

Date: 10/16/12

Frequency (MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	AV Corrected Reading (dBuV/m)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	PK Margin (dB)	AV Margin (dB)	Notes
Loop Antenna Face On:												
0.140	59.0	56.5	55.8	10.7	-80.00	-12.80	-13.50	44.68	24.68	-57.5	-38.2	3m distance
0.290	42.0	40.0	38.6	10.7	-80.00	-29.30	-30.70	38.36	18.36	-67.7	-49.1	3m distance
Loop Antenna Face Off:												
0.144	54.1	52.0	51.3	10.7	-80.00	-17.30	-18.00	44.44	24.44	-61.7	-42.4	3m distance
0.290	45.5	42.0	41.4	10.7	-80.00	-27.30	-27.90	38.36	18.36	-65.7	-46.3	3m distance

Note: No more emissions were found up to 30MHz.

The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.

P.K. = Peak

Q.P. = Quasi Peak Reading

A.F. = Antenna factor

Frequency 9kHz -150kHz, RBW=>100Hz, VBW=3 times RBW

Frequency: 150kHz - 30MHz, RBW=>9kHz, VBW=3 times RBW

7. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207 (a)

Frequency of emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50
* Decreases with the logarithm of the frequency.		

TEST PROCEDURE

ANSI C63.4

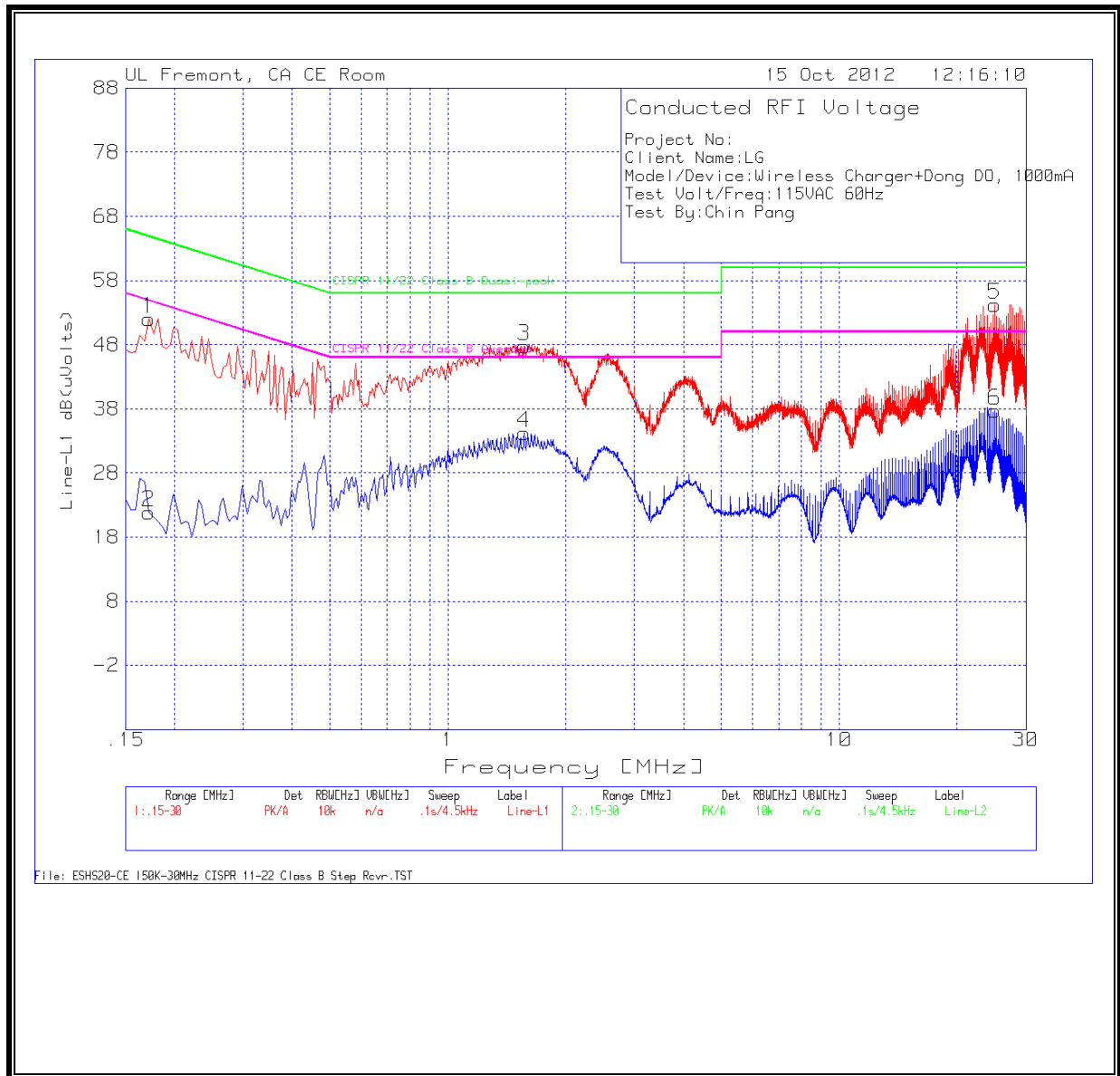
RESULTS

WCP-400 AND DONG DO AC ADAPTER WITH 1000mA LOAD

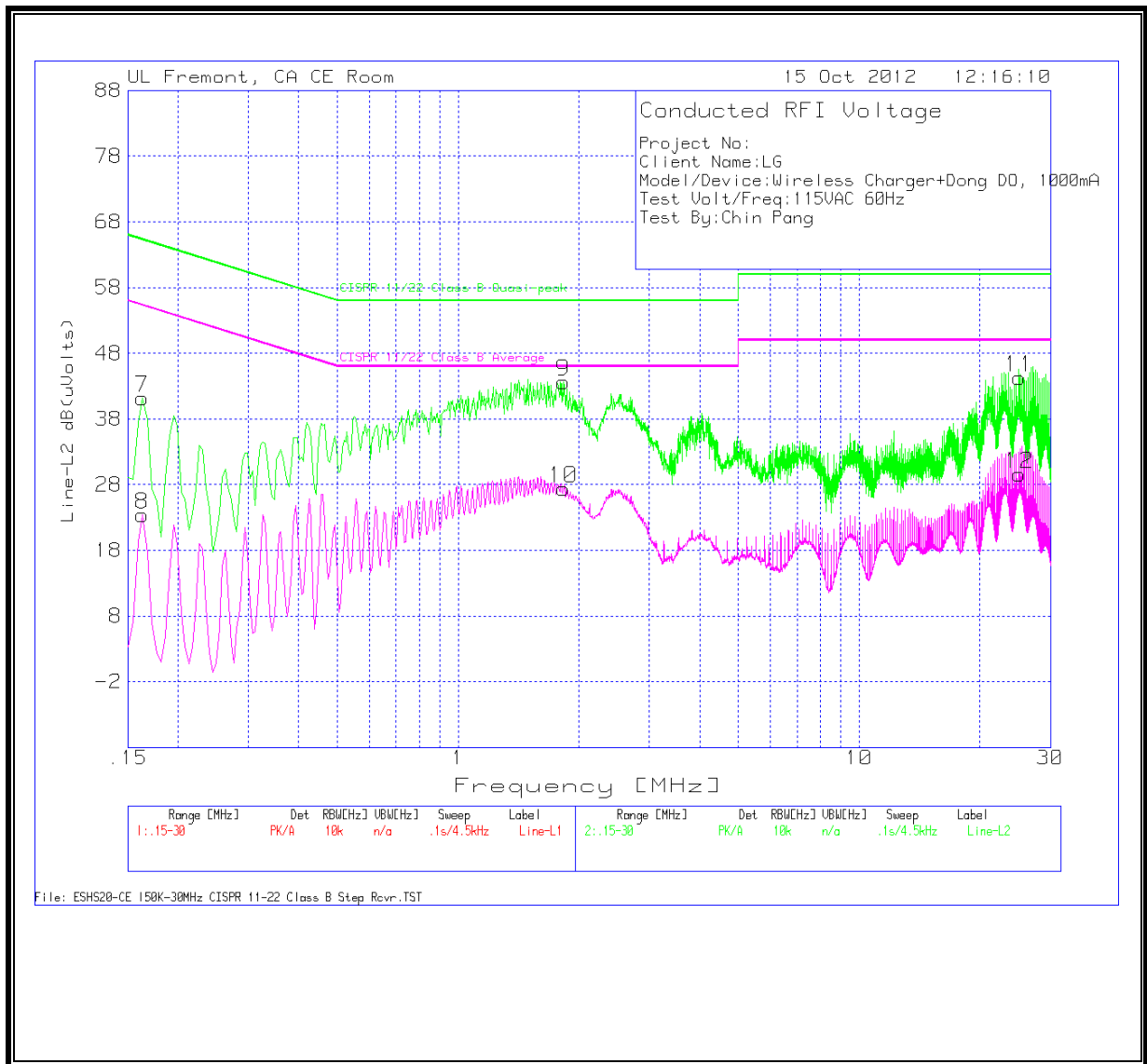
6 WORST EMISSIONS

Project No:12U14682									
Client Name:LG									
Model/Device:Wireless Charger+Dong DO, 1000mA load									
Test Volt/Freq:115VAC 60Hz									
Test By:Chin Pang									
Line-L1 .15 - 30MHz									
Test	Meter					CISPR 22 Class B		CISPR 22 Class B	
Frequency	Reading	Detector	T24 IL L1.T	LC Cables	dB(uVolts	Quasi-peak	Margin	Average	Margin
0.1725	51.94	PK	0.1	0	52.04	64.8	-12.76	-	-
0.1725	21.75	Av	0.1	0	21.85	-	-	54.8	-32.95
1.5675	47.59	PK	0.1	0.1	47.79	56	-8.21	-	-
1.5675	34.02	Av	0.1	0.1	34.22	-	-	46	-11.78
24.9945	53.56	PK	0.4	0.3	54.26	60	-5.74	-	-
24.9945	37.05	Av	0.4	0.3	37.75	-	-	50	-12.25
Line-L2 .15 - 30MHz									
Test	Meter					CISPR 22 Class B		CISPR 22 Class B	
Frequency	Reading	Detector	T24 IL L1.T	LC Cables	dB(uVolts	Quasi-peak	Margin	Average	Margin
0.1635	41.15	PK	0.1	0	41.25	65.3	-24.05	-	-
0.1635	23.3	Av	0.1	0	23.4	-	-	55.3	-31.9
1.833	43.49	PK	0.1	0.1	43.69	56	-12.31	-	-
1.833	27.24	Av	0.1	0.1	27.44	-	-	46	-18.56
25.0665	43.47	PK	0.5	0.3	44.27	60	-15.73	-	-
25.0665	28.76	Av	0.5	0.3	29.56	-	-	50	-20.44

LINE 1 RESULTS



LINE 2 RESULTS

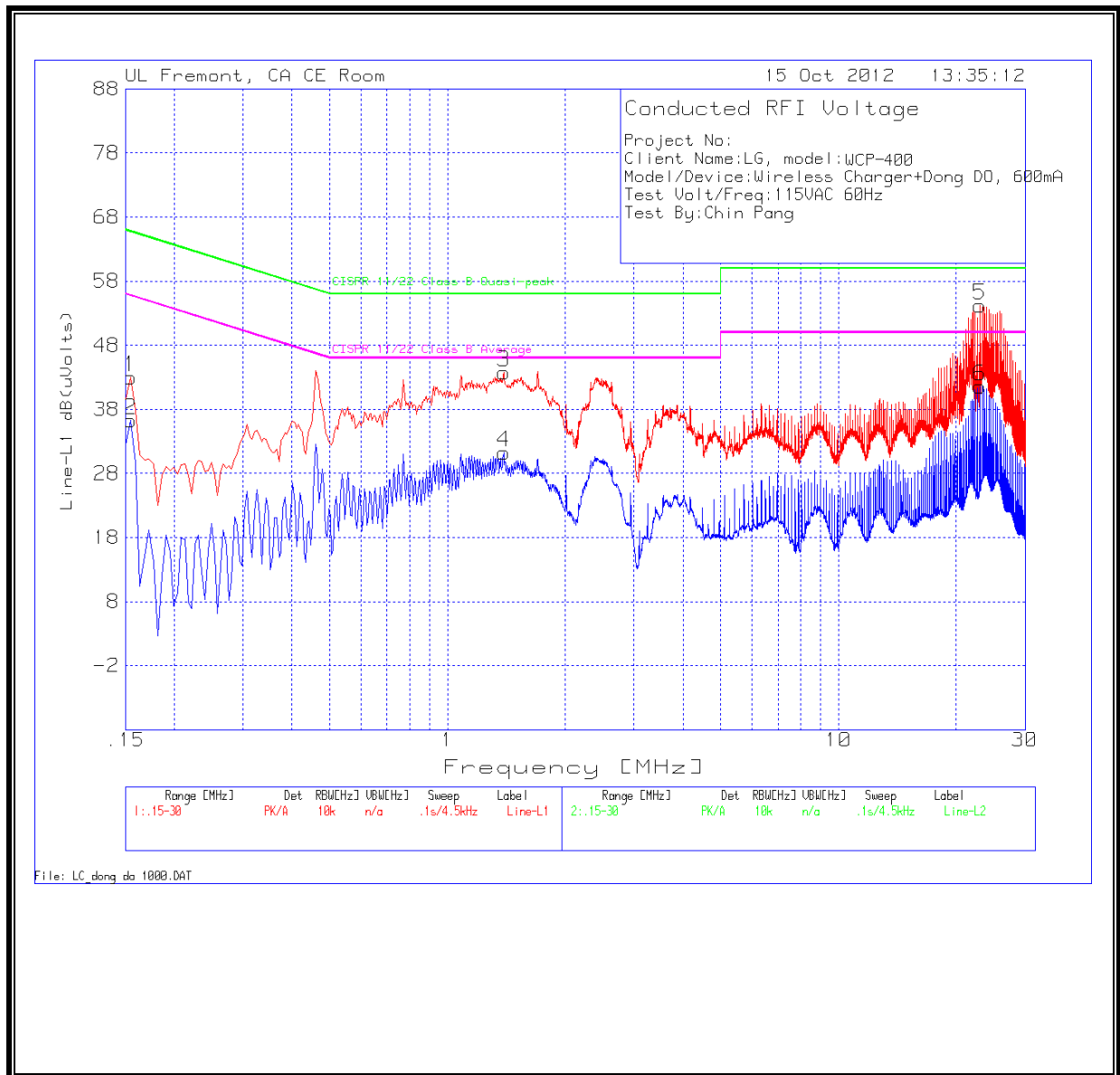


WCP-400 AND DONG DO AC ADAPTER WITH 600mA LOAD

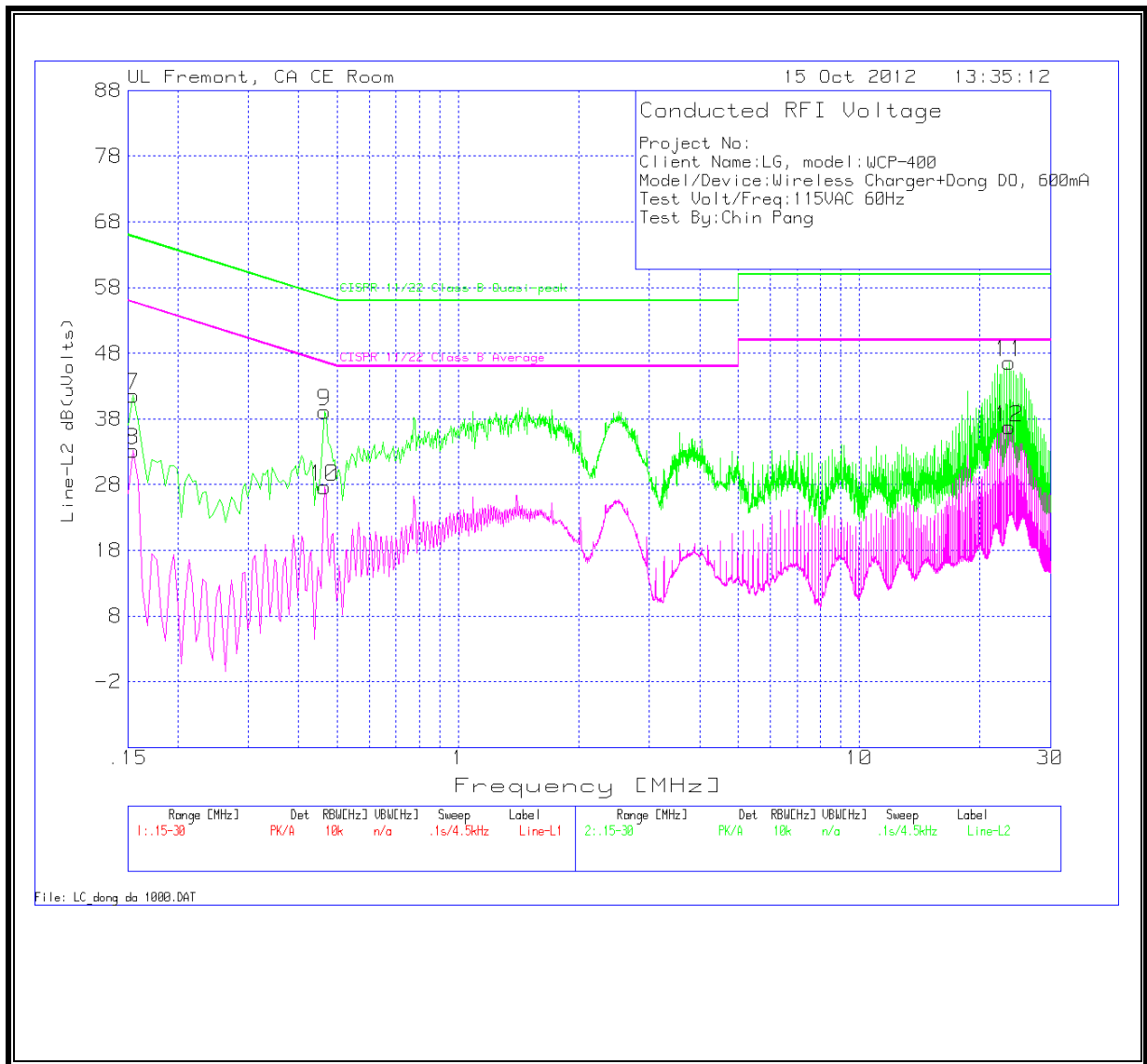
6 WORST EMISSIONS

Project No:									
Client Name:LG, Model:WCP-400									
Model/Device:Wireless Charger+Dong DO, 600mA									
Test Volt/Freq:115VAC 60Hz									
Test By:Chin Pang									
Line-L1 .15 - 30MHz									
Test						CISPR 22 Class		CISPR 22 Class	
Frequency	Meter Reading	Detector	T24 IL L1.T	LC Cables	dB(uVolts	B Quasi-peak	Margin	B Average	Margin
0.1545	42.89	PK	0.1	0	42.99	65.8	-22.81	-	-
0.1545	36.25	Av	0.1	0	36.35	-	-	55.8	-19.45
1.392	43.58	PK	0.1	0.1	43.78	56	-12.22	-	-
1.392	31.04	Av	0.1	0.1	31.24	-	-	46	-14.76
22.992	53.67	PK	0.4	0.2	54.27	60	-5.73	-	-
22.992	40.98	Av	0.4	0.2	41.58	-	-	50	-8.42
Line-L2 .15 - 30MHz									
Test						CISPR 22 Class		CISPR 22 Class	
Frequency	Meter Reading	Detector	T24 IL L1.T	LC Cables	dB(uVolts	B Quasi-peak	Margin	B Average	Margin
0.1545	41.45	PK	0.1	0	41.55	65.8	-24.25	-	-
0.1545	33.15	Av	0.1	0	33.25	-	-	55.8	-22.55
0.465	39.07	PK	0.1	0	39.17	56.6	-17.43	-	-
0.465	27.62	Av	0.1	0	27.72	-	-	46.6	-18.88
23.631	45.96	PK	0.4	0.2	46.56	60	-13.44	-	-
23.631	36.15	Av	0.4	0.2	36.75	-	-	50	-13.25

LINE 1 RESULTS



LINE 2 RESULTS

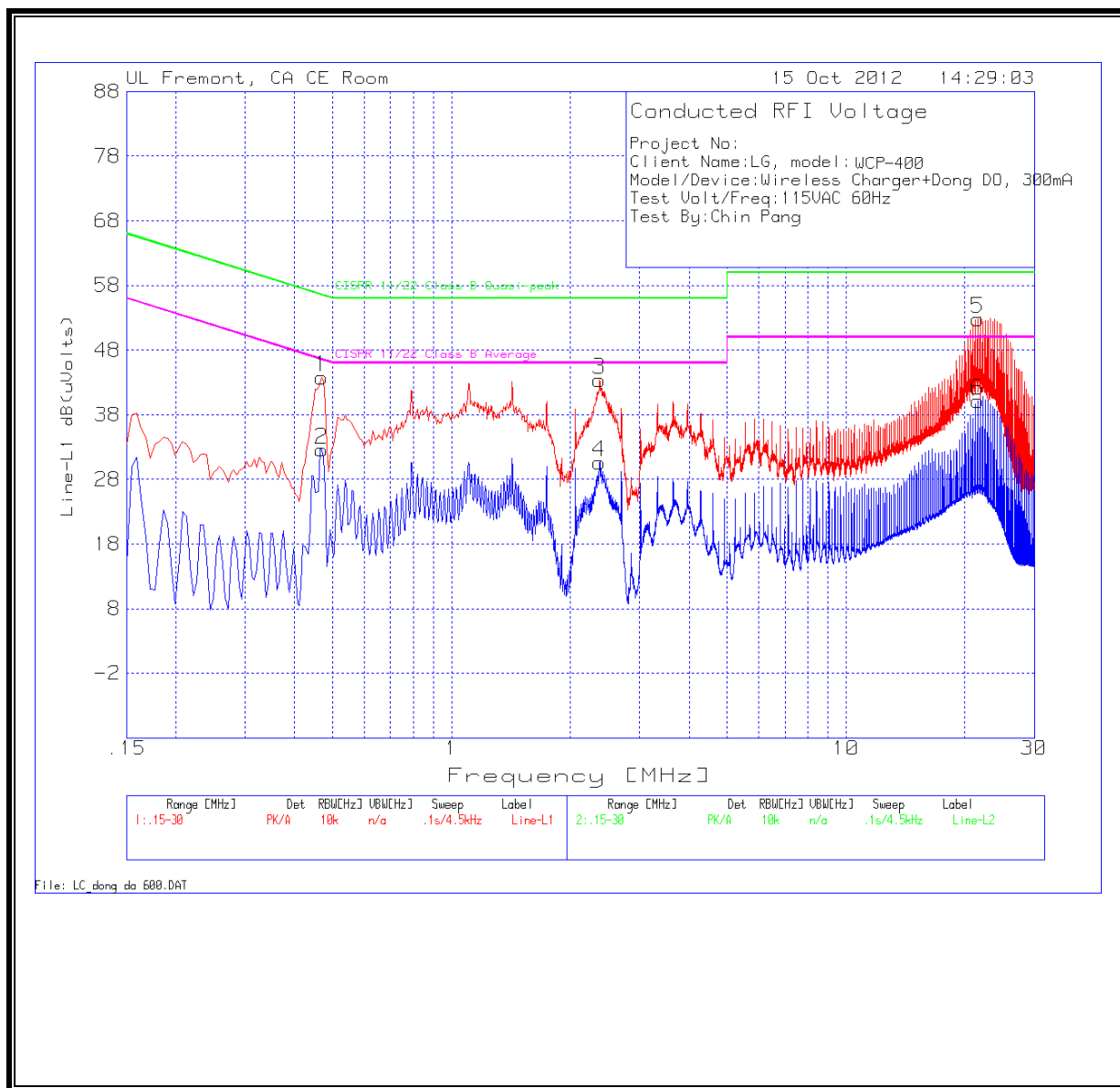


WCP-400 AND DONG DO AC ADAPTER WITH 300mA LOAD

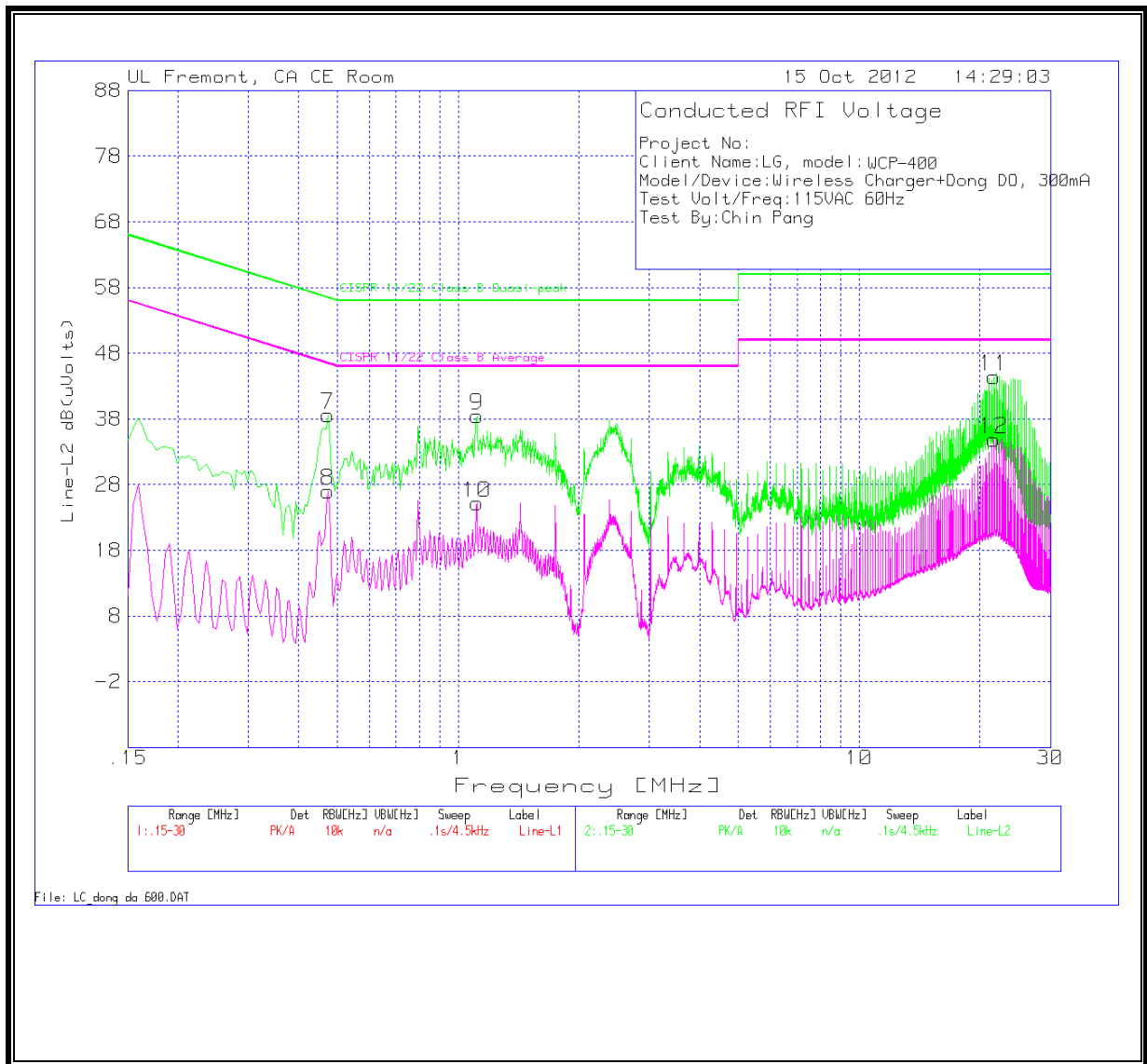
6 WORST EMISSIONS

Project No:									
Client Name:LG, Model:WCP-400									
Model/Device:Wireless Charger+Dong DO, 300mA									
Test Volt/Freq:115VAC 60Hz									
Test By:Chin Pang									
Line-L1 .15 - 30MHz									
Test						CISPR 22 Class		CISPR 22 Class	
Frequency	Meter Res	Detector	T24 IL L1.T	LC Cables	dB(uVolts	B Quasi-peak	Margin	B Average	Margin
0.4695	43.63	PK	0.1	0	43.73	56.5	-12.77	-	-
0.4695	32.52	Av	0.1	0	32.62	-	-	46.5	-13.88
2.373	43.18	PK	0.1	0.1	43.38	56	-12.62	-	-
2.373	30.48	Av	0.1	0.1	30.68	-	-	46	-15.32
21.606	52.33	PK	0.3	0.2	52.83	60	-7.17	-	-
21.606	39.61	Av	0.3	0.2	40.11	-	-	50	-9.89
Line-L2 .15 - 30MHz									
Test Frequency	Meter Res	Detector	T24 IL L2.T	LC Cables	dB(uVolts	CISPR 11/22 Class	Margin	CISPR 11/22 Class	Margin
0.474	38.51	PK	0.1	0	38.61	56.4	-17.79	-	-
0.474	26.93	Av	0.1	0	27.03	-	-	46.4	-19.37
1.113	38.42	PK	0.1	0	38.52	56	-17.48	-	-
1.113	25.05	Av	0.1	0	25.15	-	-	46	-20.85
21.6645	43.93	PK	0.3	0.2	44.43	60	-15.57	-	-
21.6645	34.35	Av	0.3	0.2	34.85	-	-	50	-15.15

LINE 1 RESULTS



LINE 2 RESULTS

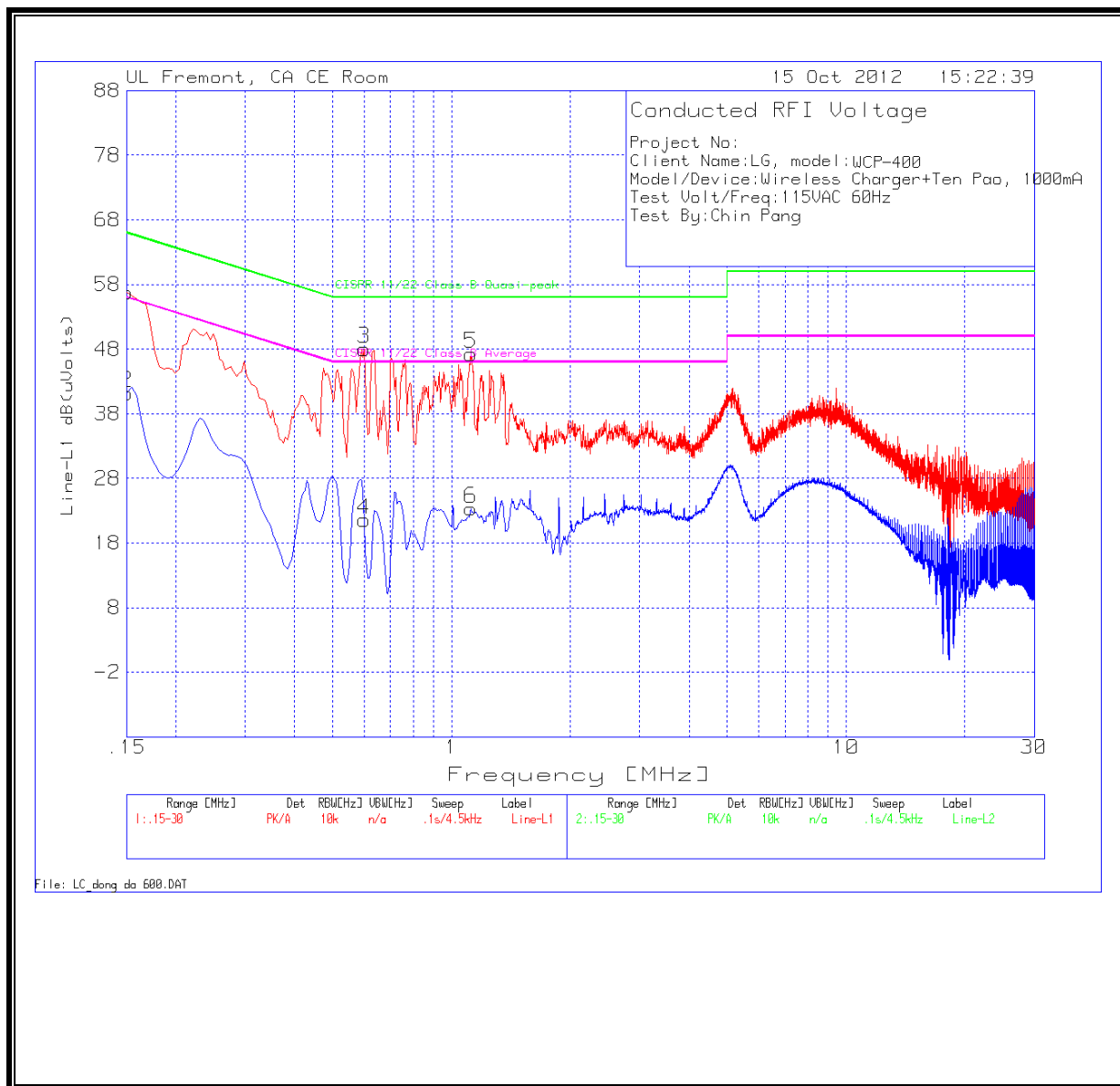


WCP-400 AND TEN PAO AC ADAPTER WITH 1000mA LOAD

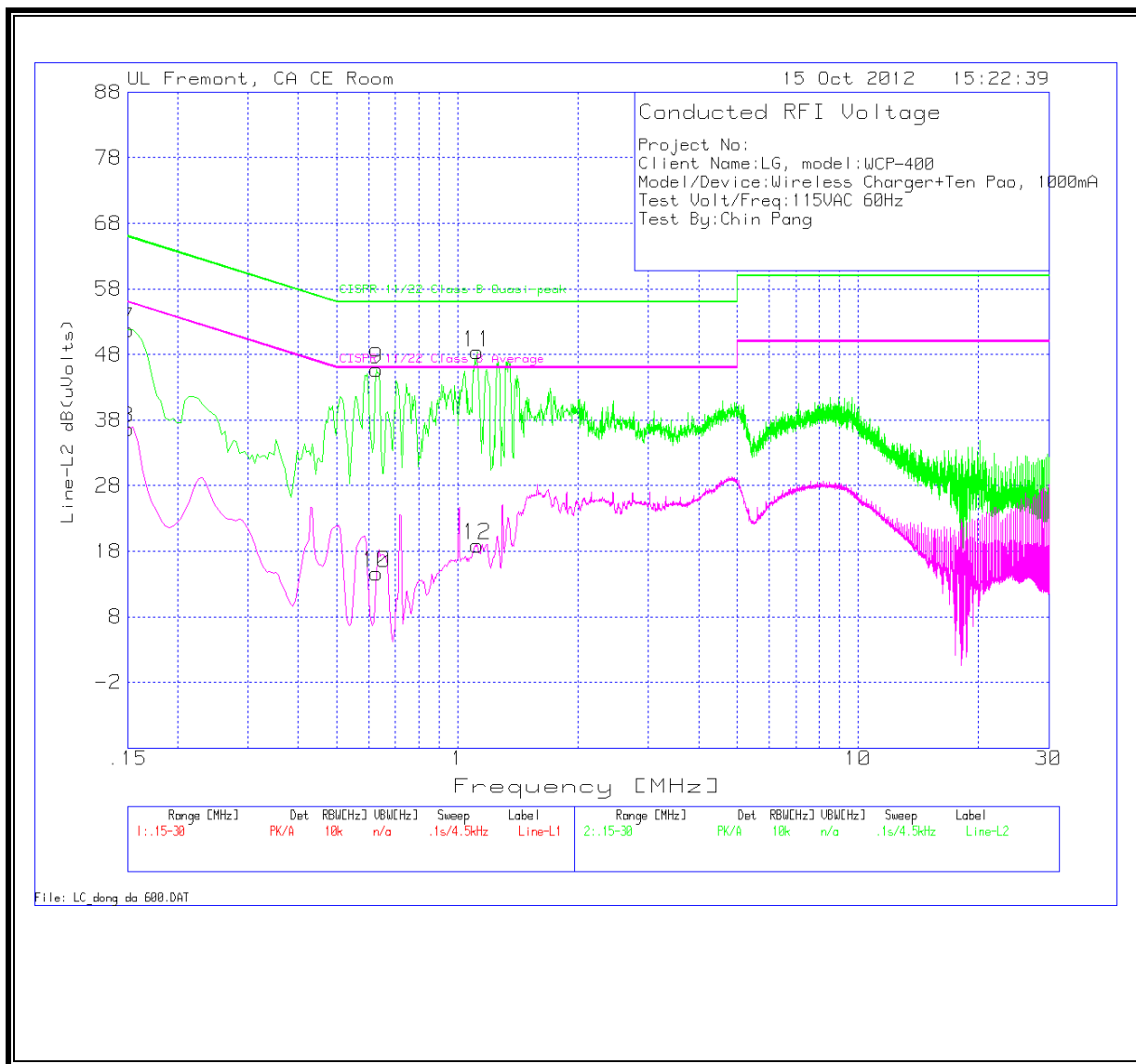
6 WORST EMISSIONS

Project No:									
Client Name:LG, Model:WCP-400									
Model/Device:Wireless Charger+Ten Pao, 1000ma									
Test Volt/Freq:115VAC 60Hz									
Test By:Chin Pang									
Line-L1 .15 - 30MHz									
Test									
Frequency	Meter Res	Detector	T24 IL L1.T	LC Cables	dB(uVolts	CISPR 22 Class B		CISPR 22 Class B	
						Quasi-peak	Margin	Average	Margin
0.15	56.64	PK	0.1	0	56.74	66	-9.26	-	-
0.15	41.11	Av	0.1	0	41.21	-	-	56	-14.79
0.6	47.95	PK	0.1	0	48.05	56	-7.95	-	-
0.6	21.44	Av	0.1	0	21.54	-	-	46	-24.46
1.122	47.17	PK	0.1	0	47.27	56	-8.73	-	-
1.122	23.24	Av	0.1	0	23.34	-	-	46	-22.66
Line-L2 .15 - 30MHz									
Test									
Frequency	Meter Res	Detector	T24 IL L1.T	LC Cables	dB(uVolts	CISPR 22 Class B		CISPR 22 Class B	
						Quasi-peak	Margin	Average	Margin
0.15	51.68	PK	0.1	0	51.78	66	-14.22	-	-
0.15	36.57	Av	0.1	0	36.67	-	-	56	-19.33
0.627	45.63	PK	0.1	0	45.73	56	-10.27	-	-
0.627	14.52	Av	0.1	0	14.62	-	-	46	-31.38
1.122	48.15	PK	0.1	0.1	48.35	56	-7.65	-	-
1.122	18.69	Av	0.1	0.1	18.89	-	-	46	-27.11

LINE 1 RESULTS



LINE 2 RESULTS

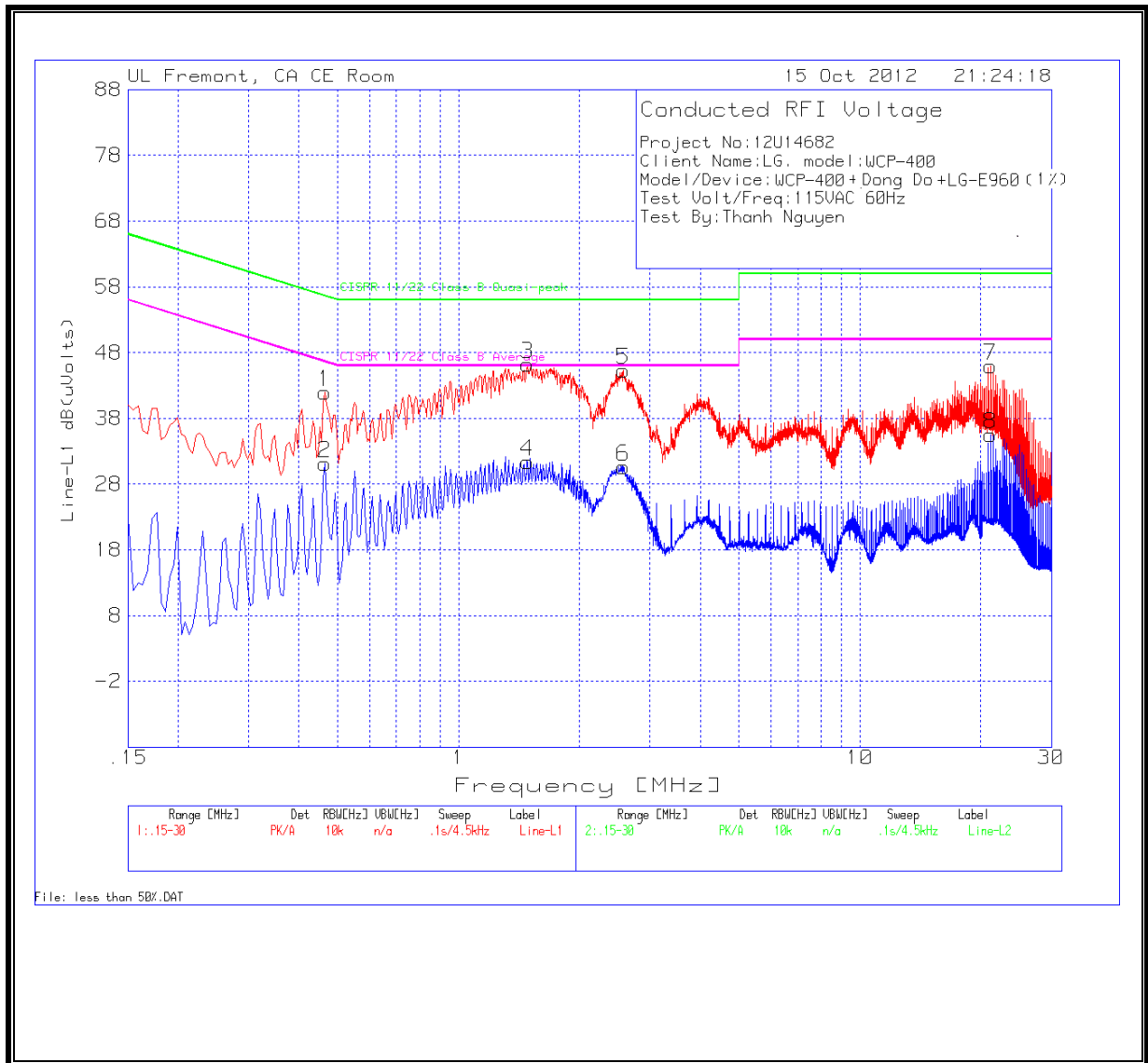


WCP-400 AND DONG DO AC ADAPTER WITH LG-E960 AT <1% BATTERY STATUS

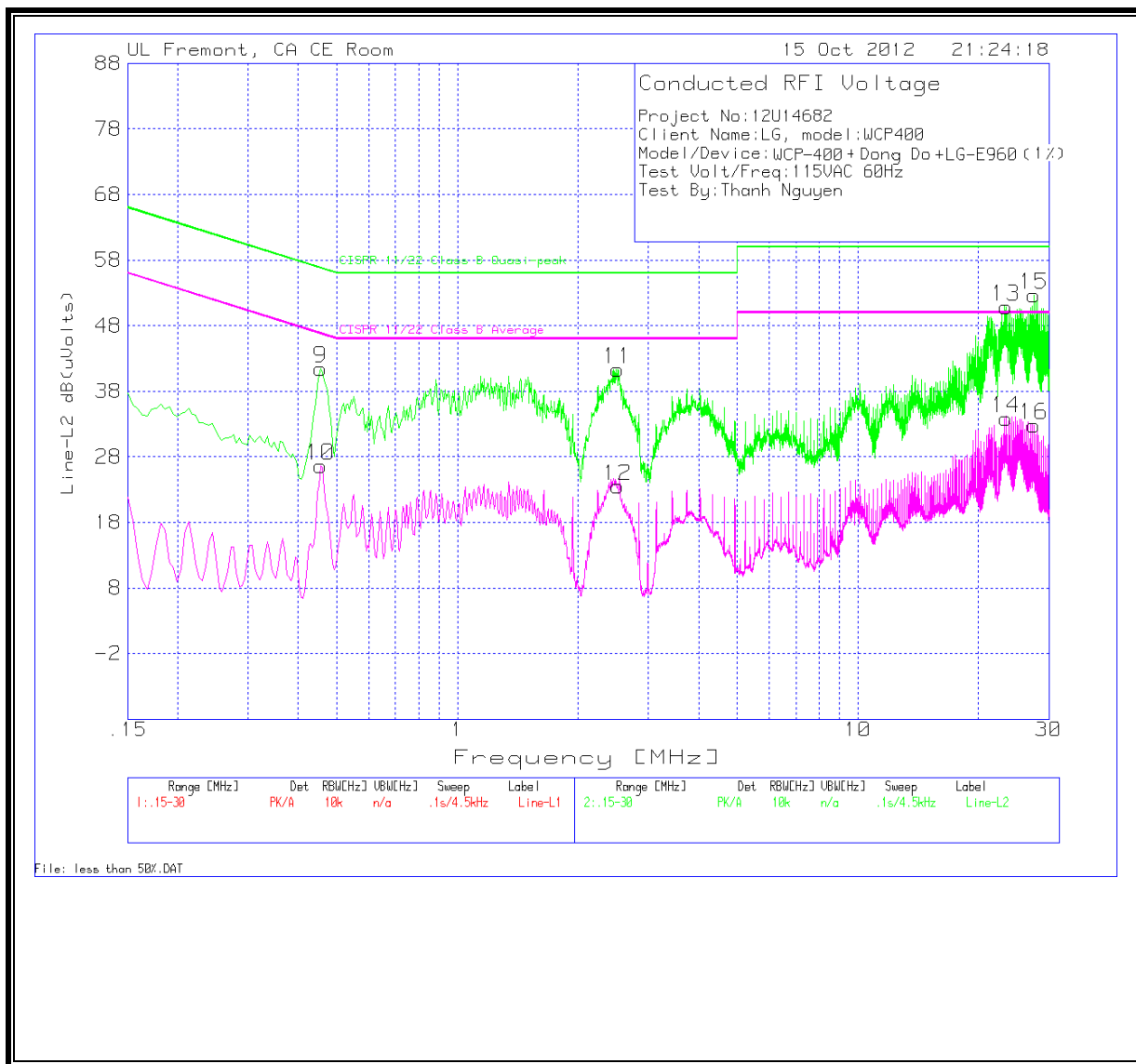
6 WORST EMISSIONS

Project No:12U14682									
Client Name:LG, model:WCP-400									
Model/Device:WCP-400+Dong Do with LG-E960 (<1% battery status)									
Test Volt/Freq:115VAC 60Hz									
Test By:Thanh Nguyen									
Line-L1 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVols)	CISPR 22 Class B Quasi-peak	Margin	CISPR 22 Class B Average	Margin
0.465	41.9	PK	0.1	0	42	56.6	-14.6	-	-
0.465	31.04	Av	0.1	0	31.14	-	-	46.6	-15.46
1.4865	46.05	PK	0.1	0.1	46.25	56	-9.75	-	-
1.4865	31.2	Av	0.1	0.1	31.4	-	-	46	-14.6
2.5755	45.09	PK	0.1	0.1	45.29	56	-10.71	-	-
2.5755	30.43	Av	0.1	0.1	30.63	-	-	46	-15.37
21.1425	45.52	PK	0.3	0.2	46.02	60	-13.98	-	-
21.1425	34.98	Av	0.3	0.2	35.48	-	-	50	-14.52
Line-L2 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVols)	CISPR 22 Class B Quasi-peak	Margin	CISPR 22 Class B Average	Margin
0.456	41.35	PK	0.1	0	41.45	56.8	-15.35	-	-
0.456	26.55	Av	0.1	0	26.65	-	-	46.8	-20.15
2.517	41.13	PK	0.1	0.1	41.33	56	-14.67	-	-
2.517	23.28	Av	0.1	0.1	23.48	-	-	46	-22.52
23.4735	50.31	PK	0.4	0.2	50.91	60	-9.09	-	-
23.4735	33.27	Av	0.4	0.2	33.87	-	-	50	-16.13
27.465	51.89	PK	0.5	0.3	52.69	60	-7.31	-	-
27.465	32.07	Av	0.5	0.3	32.87	-	-	50	-17.13

LINE 1 RESULTS



LINE 2 RESULTS

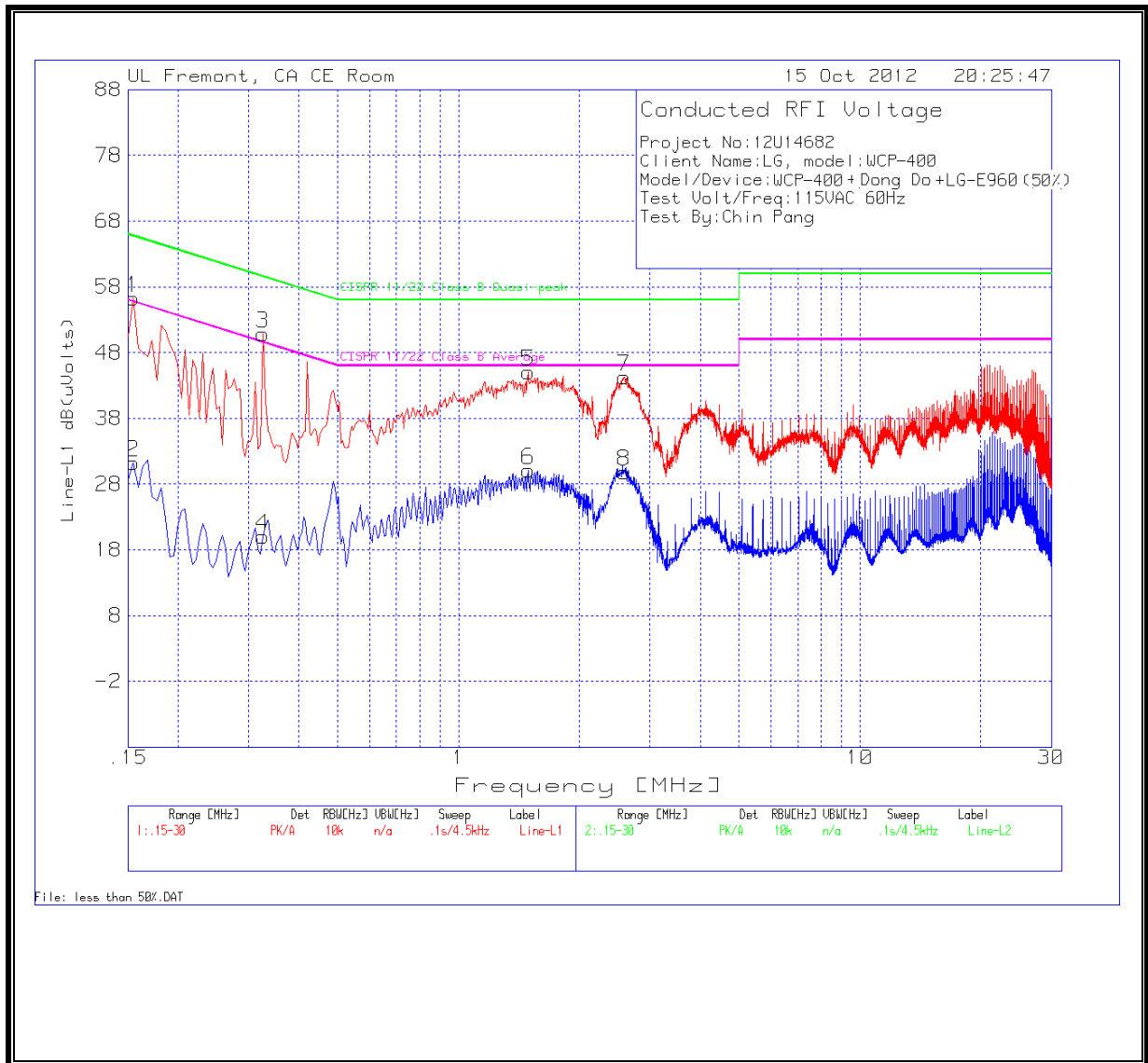


WCP-400 AND DONG DO AC ADAPTER WITH LG-E960 AT 50% BATTERY STATUS

6 WORST EMISSIONS

Project No:12U14682									
Client Name:LG, model:WCP-400									
Model/Device:WCP-400+Dong Do with LG-E960 at battery 50% battery status									
Test Volt/Freq:115VAC 60Hz									
Test By:Chin Pang									
Line-L1 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CISPR 22 Class B Quasi-peak	Margin	CISPR 22 Class B Average	Margin
0.1545	56.16	PK	0.1	0	56.26	65.8	-9.54	-	-
0.1545	31.2	Av	0.1	0	31.3	-	-	55.8	-24.5
0.3255	50.73	PK	0.1	0	50.83	59.6	-8.77	-	-
0.3255	19.96	Av	0.1	0	20.06	-	-	49.6	-29.54
1.491	44.84	PK	0.1	0.1	45.04	56	-10.96	-	-
1.491	29.9	Av	0.1	0.1	30.1	-	-	46	-15.9
2.589	44.07	PK	0.1	0.1	44.27	56	-11.73	-	-
2.589	29.67	Av	0.1	0.1	29.87	-	-	46	-16.13
Line-L2 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CISPR 22 Class B Quasi-peak	Margin	CISPR 22 Class B Average	Margin
1.473	43.58	PK	0.1	0.1	43.78	56	-12.22	-	-
1.473	27.2	Av	0.1	0.1	27.4	-	-	46	-18.6
1.473	43.58	PK	0.1	0.1	43.78	56	-12.22	-	-
1.473	27.2	Av	0.1	0.1	27.4	-	-	46	-18.6
21.084	51.14	PK	0.3	0.2	51.64	60	-8.36	-	-
21.084	35.26	Av	0.3	0.2	35.76	-	-	50	-14.24
26.5965	52.39	PK	0.5	0.3	53.19	60	-6.81	-	-
26.5965	33.8	Av	0.5	0.3	34.6	-	-	50	-15.4

LINE 1 RESULTS



LINE 2 RESULTS

