

RF TEST REPORT

Test item : Wireless Charger
Model No. : WCP-310
Order No. : DEMC1402-00367
Date of receipt : 2014-02-03
Test duration : 2014-02-09 ~ 2014-03-17, 2014-05-09 ~ 2014-05-15
Date of issue : 2014-06-18
Use of report : FCC Original Grant

Applicant : LG Electronics USA.
1000 Sylvan Avenue Englewood Cliffs, New Jersey, United States

Test laboratory : Digital EMC Co., Ltd.
42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do,
Korea 449-935

Test specification : FCC Part 15 Subpart C
Test environment : See appended test report
Test result : ☒ Pass ☐ Fail

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DIGITAL EMC CO., LTD.

Tested by:

A blue ink signature, appearing to be "JaeJin Lee", written over a horizontal line.

Engineer
JaeJin Lee

Reviewed by:

A blue ink signature, appearing to be "Geunki Son", written over a horizontal line.

General Manager
Geunki Son

Test Report Version

Test Report No.	Date	Description
DRTFCC1406-0804	Jun. 18, 2014	Initial issue

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1. Equipment information

1.1 Equipment description

FCC Equipment Class	Part 15 Low Power Transmitter Below 1705 kHz (DCD)
Equipment type	Wireless Charger
Equipment model name	WCP-310
Equipment add model name	N/A
Equipment serial no.	Identical prototype
Frequency band	110 ~ 205kHz
Output power	Max : 5 W
Power	AC 120V 60Hz DC 12 V
Antenna type	Coil Antenna(single coil)

1.2 Support equipments

Equipment	Model No.	Serial No.	Manufacturer	Note
Wireless Charging Cover	N/A	N/A	LG	-
Mobile Phone	LG-VS980	N/A	LG	FCC ID : ZNFVS980
Travel Adapter	MCS-04KT	TA3Z0400165	Tan Pao Electronics Co., Ltd.	-
Cigarette Lighter Adapter	CLA-400	BB4CP001573	LG	-

Note: The above equipments were supported by manufacturer.

2. Information about test items

2.1 Test mode

This device has been tested with the below test modes and charging current conditions:

Charging Current	Support Equipment
300mA	Wireless Charging Cover
600mA	
1000mA(Max)	
@ < 1% battery status	Mobile Phone(M/N: LG-VS980)
@ 50% battery status	

2.2 Tested environment

Temperature	:	21 ~ 23 °C
Relative humidity content	:	35 ~ 40 % R.H.
Details of power supply	:	AC 120V 60Hz DC 12V

2.3 EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing
→ None

3. FACILITIES AND ACCREDITATIONS

3.1 FACILITIES

The semi anechoic chamber and conducted measurement facility used to collect the radiated and conducted test data are located at the 38, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 449-935. The site is constructed in conformance with the requirements.

- Semi anechoic chamber registration Number: 678747

3.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of antennas: loop, tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide horn. Spectrum analyzers with pre-selectors and peak, quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

4. Test Report

4.1 Summary of tests

FCC Part Section(s)	RSS Section(s)	Parameter	Limit	Test Condition	Status Note 1
Test Items					
2.1049	N/A	20 dB Bandwidth	N/A	Radiated	C
15.209	RSS-Gen [7.2.5]	Radiated Emission	FCC 15.209 limits		C ^{Note2}
15.207	RSS-Gen [7.2.4]	AC Conducted Emissions	FCC 15.207 limits	AC Line Conducted	C ^{Note3}
Note 1: C =Comply NC =Not Comply NT =Not Tested NA =Not Applicable Note 2: This test item was performed in each axis and the worst case data was reported. Note 3: The supply power of Cigarette Lighter Adapter is DC 12V from a Car Battery. Thus Travel Adapter has been used in the test.					

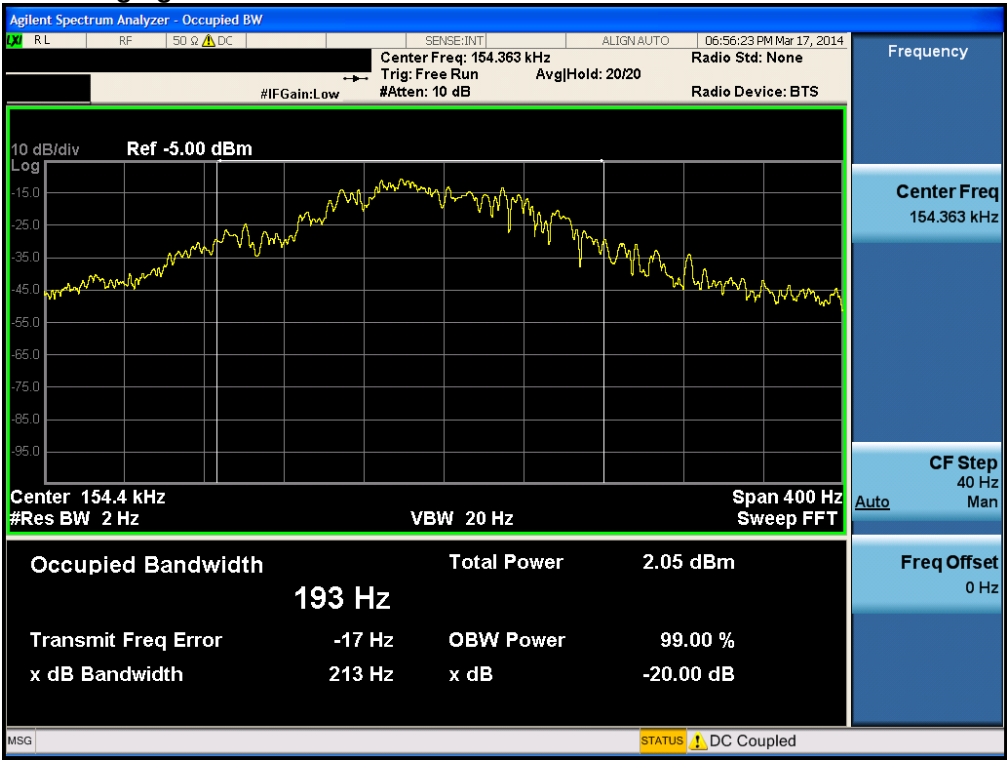
The sample was tested according to the following specification:
ANSI C-63.4 2009

4.2 Transmitter requirements

4.2.1 20dB Bandwidth

- **Procedure:**
The 20 dB bandwidth is measured with a spectrum analyzer connected via a receiving antenna placed near the EUT while the EUT is operating.

- **Measurement Data: Charging Current 1000 mA**



4.2.2 Radiated Emissions

- Limit: FCC Part 15.209(a) & RSS-GEN, section 7.2.5

Frequency [MHz]	Field Strength [uV/m]	Measurement Distance [Meters]
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

- Procedure: ANSI C63.4 2009

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. In order to find out the highest emission, the relative positions of this EUT was rotated through three orthogonal axes.
5. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
6. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- Measurement Data: **Comply** (refer to the next page)

- Measurement Data: Travel AdapterMeasurement Distance : **3 Meters**

Charging Current	Note.1	Freq. [MHz]	Det. Mode	ANT Pol.	Reading [dBuV]	T.F [dB/m]	D.C.F.	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
300mA	F	0.155	PK	N/A	56.20	17.90	80	-5.90	23.80	29.70
	S	0.776	PK	N/A	24.90	18.10	40	3.00	29.81	26.81
	S	31.250	QP	V	28.10	-3.50	0	24.60	40.00	15.40
	S	41.700	QP	H	30.90	-7.40	0	23.50	40.00	16.50
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
600mA	F	0.155	PK	N/A	56.10	17.90	80	-6.00	23.80	29.80
	S	0.781	PK	N/A	24.70	18.10	40	2.80	29.75	26.95
	S	32.310	QP	V	29.60	-4.00	0	25.60	40.00	14.40
	S	41.240	QP	H	31.70	-7.50	0	24.20	40.00	15.80
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
1000mA	F	0.155	PK	N/A	55.80	17.90	80	-6.30	23.80	30.10
	S	0.776	PK	N/A	23.80	18.10	40	1.90	29.81	27.91
	S	1.091	PK	N/A	19.60	18.20	40	-2.20	26.85	29.05
	S	30.022	QP	V	27.60	-2.70	0	24.90	40.00	15.10
	S	43.215	QP	H	30.50	-7.10	0	23.40	40.00	16.60
	S	98.280	QP	H	35.10	-9.70	0	25.40	43.50	18.10
@ < 1% battery status	F	0.155	PK	N/A	53.90	17.90	80	-8.20	23.80	32.00
	S	0.776	PK	N/A	19.80	18.10	40	-2.10	29.81	31.91
	S	30.050	QP	H	21.50	-2.80	0	18.70	40.00	21.30
	S	46.270	QP	V	22.10	-8.00	0	14.10	40.00	25.90
	S	98.100	QP	H	24.70	-9.70	0	15.00	43.50	28.50
	-	-	-	-	-	-	-	-	-	-
@ 50% battery status	F	0.155	PK	N/A	53.20	17.90	80	-8.90	23.80	32.70
	S	0.766	PK	N/A	20.20	18.10	40	-1.70	29.92	31.62
	S	30.120	QP	H	22.40	-2.80	0	19.60	40.00	20.40
	S	99.625	QP	H	26.40	-9.40	0	17.00	43.50	26.50
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Note 1. The worst case data were reported.

And no other spurious and harmonic emissions were reported greater than listed emissions above table.

Note 2. "F" = Fundamental / "S" = Spurious / "*" = Noise Floor**Note 3.** All measurements were recorded using a spectrum analyzer employing a peak detector for below 30MHz and a Quasi-peak detector for above 30MHz.**Note 4.** Distance Correction Factor(D.C.F.)For 300m: $40 \cdot \log(300/3) = 80 \text{ dB}$ & For 30m: $40 \cdot \log(30/3) = 40 \text{ dB}$ **Note 5.** Sample calculation

T.F = AF + CL - AG / Field Strength = Reading + T.F - D.C.F.

Margin = Limit - Field Strength

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

D.C.F = Distance Correction Factor

- Measurement Data: Cigarette Lighter AdapterMeasurement Distance : **3 Meters**

Charging Current	Note.1	Freq. [MHz]	Det. Mode	ANT Pol.	Reading [dBuV]	T.F [dB/m]	D.C.F.	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
300mA	F	0.155	PK	N/A	65.70	11.50	80	-2.80	23.80	26.60
	S	0.771	PK	N/A	35.30	10.90	40	6.20	29.86	23.66
	S	1.081	PK	N/A	30.60	10.90	40	1.50	26.93	25.43
	S	36.900	QP	V	35.20	-7.20	0	28.00	40.00	12.00
	S	48.400	QP	V	30.20	-11.40	0	18.80	40.00	21.20
	-	-	-	-	-	-	-	-	-	-
600mA	F	0.155	PK	N/A	63.80	11.50	80	-4.70	23.80	28.50
	S	0.785	PK	N/A	34.60	10.90	40	5.50	29.71	24.21
	S	1.101	PK	N/A	31.00	10.90	40	1.90	26.77	24.87
	S	35.240	QP	V	33.80	-6.50	0	27.30	40.00	12.70
	S	53.260	QP	V	29.10	-14.00	0	15.10	40.00	24.90
	-	-	-	-	-	-	-	-	-	-
1000mA	F	0.155	PK	N/A	65.00	11.50	80	-3.50	23.80	27.30
	S	0.781	PK	N/A	35.50	10.90	40	6.40	29.75	23.35
	S	32.780	QP	V	35.60	-5.30	0	30.30	40.00	9.70
	S	54.370	QP	V	30.20	-14.40	0	15.80	40.00	24.20
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
@ < 1% battery status	F	0.155	PK	N/A	63.10	11.50	80	-5.40	23.80	29.20
	S	0.785	PK	N/A	34.70	10.90	40	5.60	29.71	24.11
	S	1.396	PK	N/A	29.70	10.80	40	0.50	24.71	24.21
	S	36.460	QP	V	33.50	-7.00	0	26.50	40.00	13.50
	S	169.680	QP	V	25.30	-11.10	0	14.20	43.50	29.30
	-	-	-	-	-	-	-	-	-	-
@ 50% battery status	F	0.160	PK	N/A	62.40	11.50	80	-6.10	23.52	29.62
	S	0.800	PK	N/A	33.80	10.90	40	4.70	29.54	24.84
	S	1.120	PK	N/A	30.90	10.90	40	1.80	26.62	24.82
	S	35.200	QP	V	25.30	-6.50	0	18.80	40.00	21.20
	S	55.600	QP	V	27.00	-14.70	0	12.30	40.00	27.70
	-	-	-	-	-	-	-	-	-	-

Note 1. The worst case data were reported.

And no other spurious and harmonic emissions were reported greater than listed emissions above table.

Note 2. "F" = Fundamental / "S" = Spurious / "*" = Noise Floor**Note 3.** All measurements were recorded using a spectrum analyzer employing a peak detector for below 30MHz and a Quasi-peak detector for above 30MHz.**Note 4.** Distance Correction Factor(D.C.F.)For 300m: $40 \times \log(300/3) = 80 \text{ dB}$ & For 30m: $40 \times \log(30/3) = 40 \text{ dB}$ **Note 5.** Sample calculation

T.F = AF + CL - AG / Field Strength = Reading + T.F - D.C.F.

Margin = Limit - Field Strength

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

D.C.F = Distance Correction Factor

4.2.3 AC Line Conducted Emissions

- Minimum Standard: FCC Part 15.207 & RSS-GEN Issue 3, section 7.2.4

Frequency Range (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

- Procedure: ANSI C63.4 2009

1. The test procedure is performed in a 6.5 m × 3.5 m × 3.5 m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

- Measurement Data: Comply (refer to the next page)

- Measurement Data(Graph): 300mA

Results of Conducted Emission

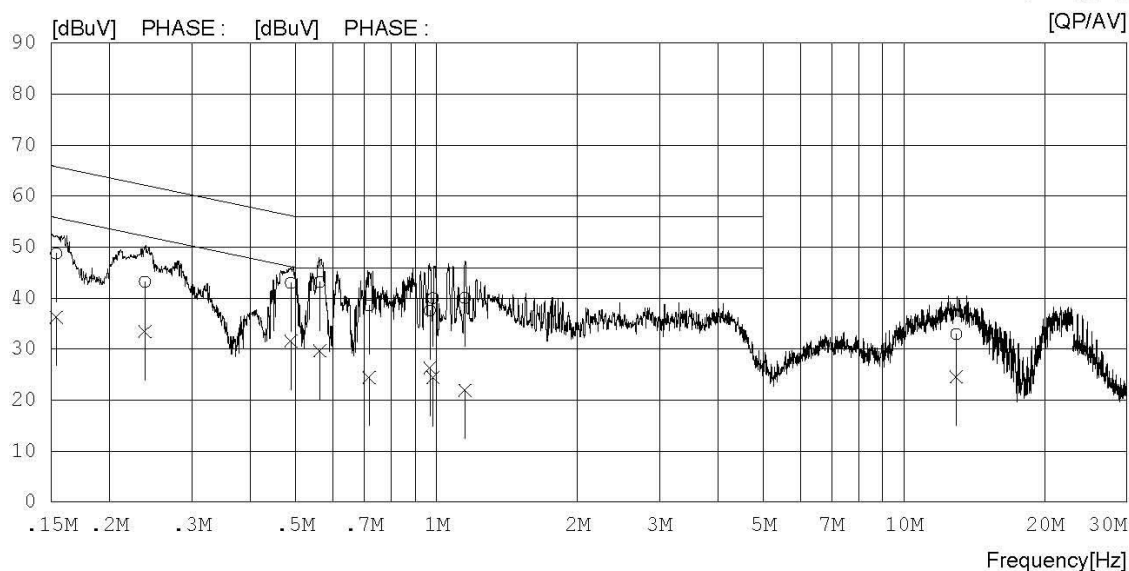
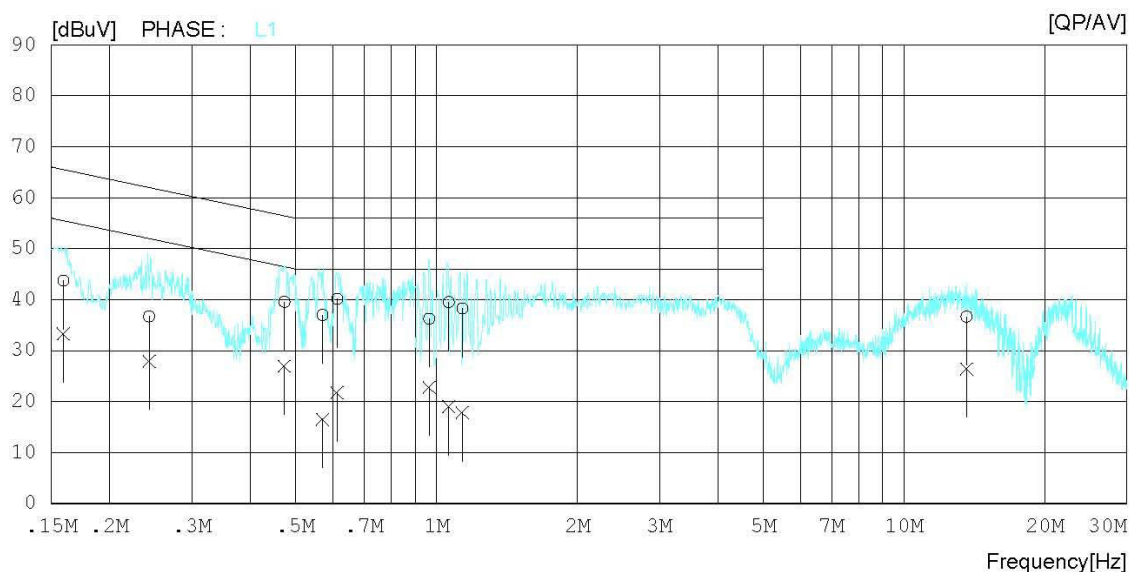
Digital EMC
Date : 2014-03-17

Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 °C 40 % R.H.
Operator : J.J.LEE

Memo : 300mA

LIMIT : FCC P15.207 QP
FCC P15.207 AV



- Measurement Data(List): 300mA**Results of Conducted Emission**Digital EMC
Date : 2014-03-17Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 'C 40 % R.H.
Operator : J.J.LEE

Memo : 300mA

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15914	33.4	23.0	10.3	43.7	33.3	65.5	55.5	21.8	22.2	L1
2	0.24275	26.4	17.6	10.3	36.7	27.9	62.0	52.0	25.3	24.1	L1
3	0.47279	29.4	16.7	10.2	39.6	26.9	56.5	46.5	16.9	19.6	L1
4	0.57061	26.8	6.3	10.2	37.0	16.5	56.0	46.0	19.0	29.5	L1
5	0.61321	30.0	11.5	10.2	40.2	21.7	56.0	46.0	15.8	24.3	L1
6	0.96428	26.1	12.6	10.2	36.3	22.8	56.0	46.0	19.7	23.2	L1
7	1.06250	29.3	8.8	10.2	39.5	19.0	56.0	46.0	16.5	27.0	L1
8	1.13600	28.1	7.6	10.2	38.3	17.8	56.0	46.0	17.7	28.2	L1
9	13.61550	26.0	15.7	10.7	36.7	26.4	60.0	50.0	23.3	23.6	L1
10	0.15363	38.4	26.0	10.3	48.7	36.3	65.8	55.8	17.1	19.5	N
11	0.23773	32.9	23.1	10.3	43.2	33.4	62.2	52.2	19.0	18.8	N
12	0.48790	32.8	21.4	10.2	43.0	31.6	56.2	46.2	13.2	14.6	N
13	0.56258	33.0	19.5	10.2	43.2	29.7	56.0	46.0	12.8	16.3	N
14	0.71690	28.4	14.3	10.2	38.6	24.5	56.0	46.0	17.4	21.5	N
15	0.96758	27.4	16.2	10.2	37.6	26.4	56.0	46.0	18.4	19.6	N
16	0.98350	29.8	14.2	10.2	40.0	24.4	56.0	46.0	16.0	21.6	N
17	1.15000	29.9	11.7	10.2	40.1	21.9	56.0	46.0	15.9	24.1	N
18	12.93000	22.3	13.9	10.7	33.0	24.6	60.0	50.0	27.0	25.4	N

- Measurement Data(Graph): 600mA

Results of Conducted Emission

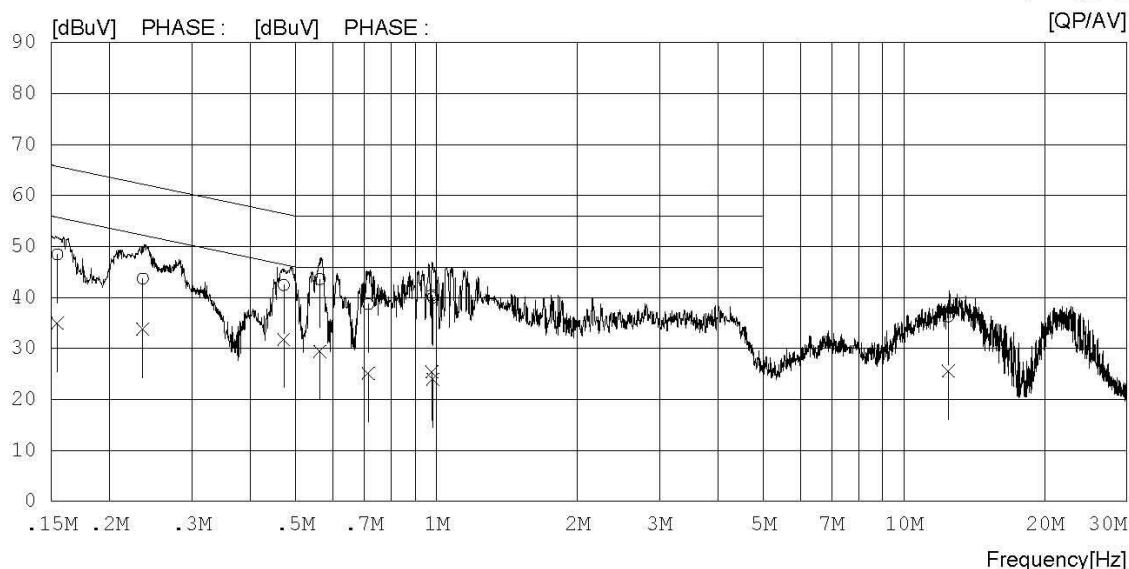
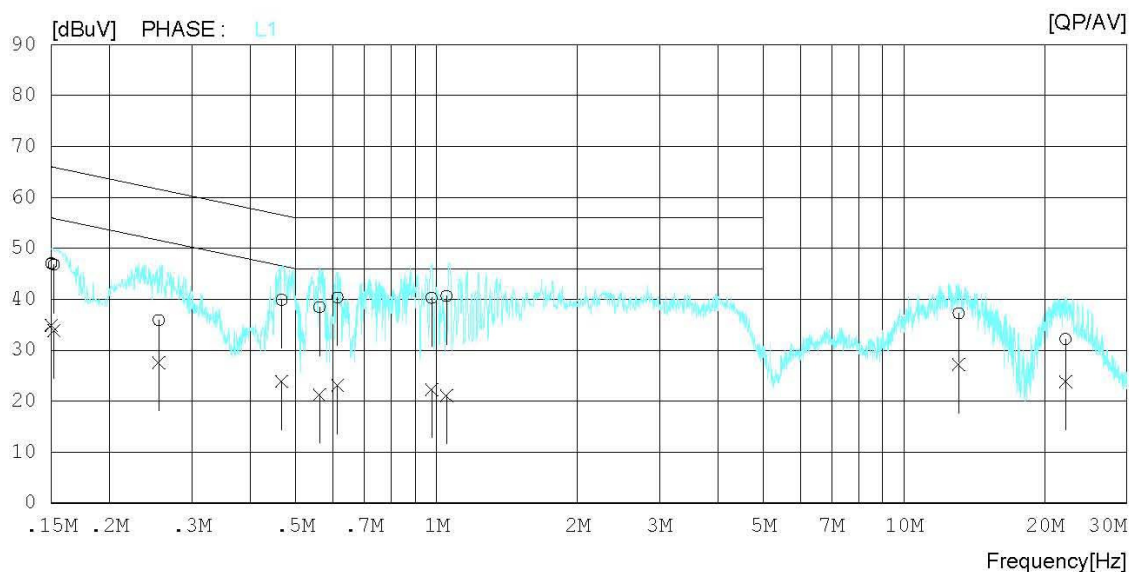
Digital EMC
Date : 2014-03-17

Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 °C 40 % R.H.
Operator : J.J.LEE

Memo : 600mA

LIMIT : FCC P15.207 QP
FCC P15.207 AV



- Measurement Data(List): 600mA**Results of Conducted Emission**Digital EMC
Date : 2014-03-17Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 'C 40 % R.H.
Operator : J.J.LEE

Memo : 600mA

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15001	36.7	24.6	10.3	47.0	34.9	66.0	56.0	19.0	21.1	L1
2	0.15000	36.8	24.6	10.3	47.1	34.9	66.0	56.0	18.9	21.1	L1
3	0.15201	36.5	23.6	10.3	46.8	33.9	65.9	55.9	19.1	22.0	L1
4	0.25449	25.6	17.3	10.3	35.9	27.6	61.6	51.6	25.7	24.0	L1
5	0.46653	29.7	13.7	10.2	39.9	23.9	56.6	46.6	16.7	22.7	L1
6	0.56184	28.2	11.1	10.2	38.4	21.3	56.0	46.0	17.6	24.7	L1
7	0.61411	30.2	12.9	10.2	40.4	23.1	56.0	46.0	15.6	22.9	L1
8	0.97613	30.1	12.1	10.2	40.3	22.3	56.0	46.0	15.7	23.7	L1
9	1.05050	30.4	10.9	10.2	40.6	21.1	56.0	46.0	15.4	24.9	L1
10	13.09250	26.5	16.5	10.7	37.2	27.2	60.0	50.0	22.8	22.8	L1
11	22.15650	21.4	13.1	10.8	32.2	23.9	60.0	50.0	27.8	26.1	L1
12	0.15450	38.2	24.7	10.3	48.5	35.0	65.8	55.8	17.3	20.8	N
13	0.23531	33.4	23.5	10.3	43.7	33.8	62.3	52.3	18.6	18.5	N
14	0.47094	32.2	21.6	10.2	42.4	31.8	56.5	46.5	14.1	14.7	N
15	0.56279	33.4	19.2	10.2	43.6	29.4	56.0	46.0	12.4	16.6	N
16	0.71424	28.5	14.9	10.2	38.7	25.1	56.0	46.0	17.3	20.9	N
17	0.97689	30.3	15.2	10.2	40.5	25.4	56.0	46.0	15.5	20.6	N
18	0.98350	29.8	13.8	10.2	40.0	24.0	56.0	46.0	16.0	22.0	N
19	12.45300	25.7	15.0	10.6	36.3	25.6	60.0	50.0	23.7	24.4	N

- Measurement Data(Graph): 1000mA

Results of Conducted Emission

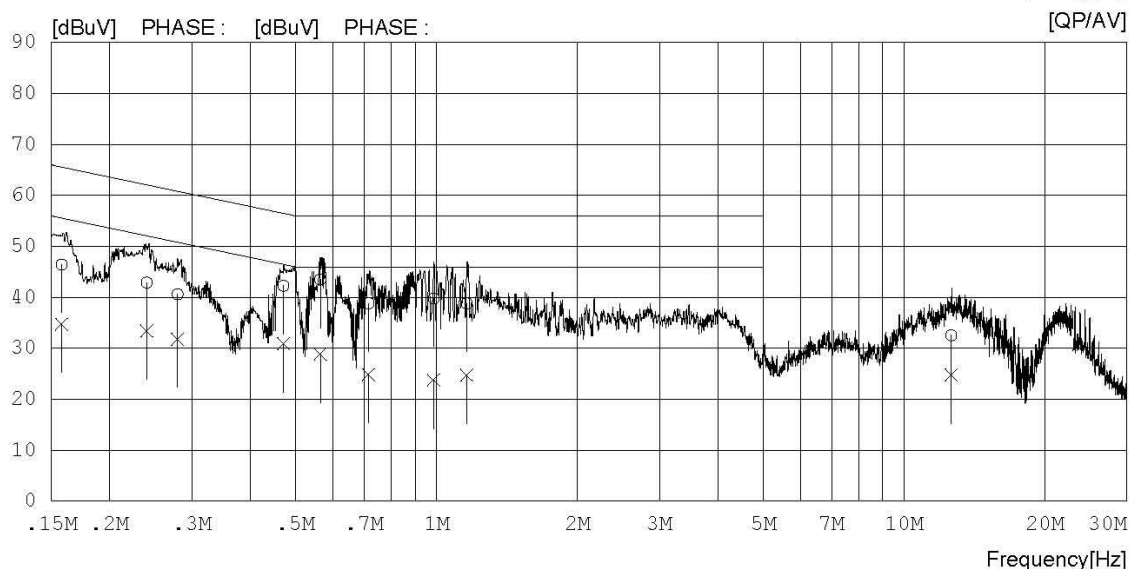
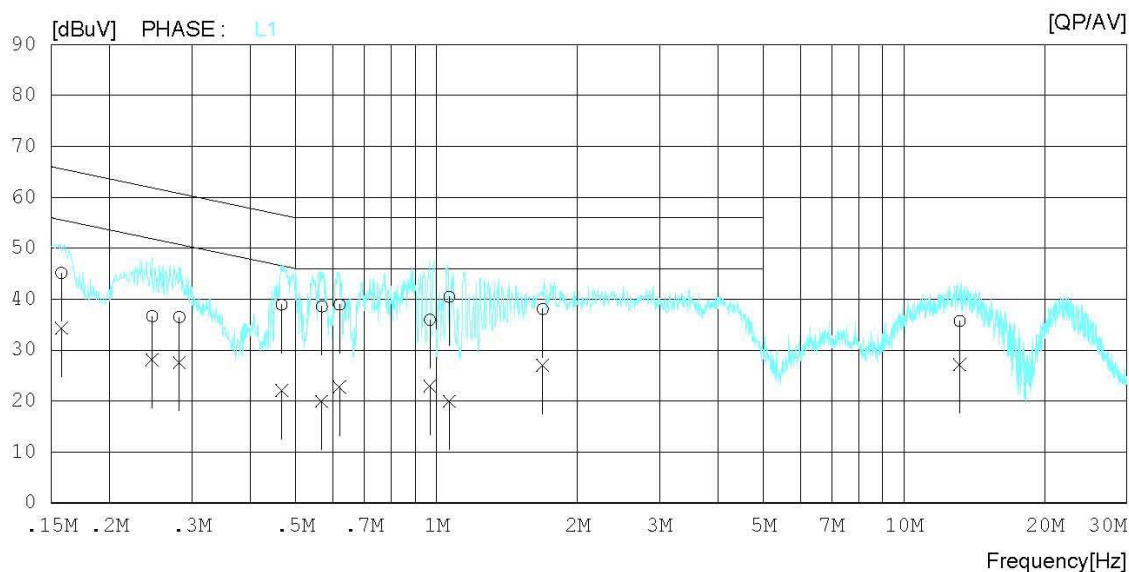
Digital EMC
Date : 2014-03-17

Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 °C 40 % R.H.
Operator : J.J.LEE

Memo : 1000mA

LIMIT : FCC P15.207 QP
FCC P15.207 AV



- Measurement Data(List): 1000mA**Results of Conducted Emission**Digital EMC
Date : 2014-03-17Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 °C 40 % R.H.
Operator : J.J.LEE

Memo : 1000mA

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15763	34.8	24.0	10.3	45.1	34.3	65.6	55.6	20.5	21.3	L1
2	0.24653	26.4	17.8	10.3	36.7	28.1	61.9	51.9	25.2	23.8	L1
3	0.28183	26.2	17.3	10.3	36.5	27.6	60.8	50.8	24.3	23.2	L1
4	0.46658	28.7	11.9	10.2	38.9	22.1	56.6	46.6	17.7	24.5	L1
5	0.56841	28.4	9.8	10.2	38.6	20.0	56.0	46.0	17.4	26.0	L1
6	0.62016	28.7	12.5	10.2	38.9	22.7	56.0	46.0	17.1	23.3	L1
7	0.96793	25.7	12.7	10.2	35.9	22.9	56.0	46.0	20.1	23.1	L1
8	1.06500	30.2	9.8	10.2	40.4	20.0	56.0	46.0	15.6	26.0	L1
9	1.68800	27.9	16.8	10.2	38.1	27.0	56.0	46.0	17.9	19.0	L1
10	13.15600	25.0	16.5	10.7	35.7	27.2	60.0	50.0	24.3	22.8	L1
11	0.15778	36.1	24.4	10.3	46.4	34.7	65.6	55.6	19.2	20.9	N
12	0.23981	32.6	23.1	10.3	42.9	33.4	62.1	52.1	19.2	18.7	N
13	0.27940	30.3	21.5	10.3	40.6	31.8	60.8	50.8	20.2	19.0	N
14	0.47054	32.0	20.7	10.2	42.2	30.9	56.5	46.5	14.3	15.6	N
15	0.56418	33.3	18.6	10.2	43.5	28.8	56.0	46.0	12.5	17.2	N
16	0.71590	28.6	14.7	10.2	38.8	24.9	56.0	46.0	17.2	21.1	N
17	0.98615	29.6	13.6	10.2	39.8	23.8	56.0	46.0	16.2	22.2	N
18	1.16100	28.6	14.5	10.2	38.8	24.7	56.0	46.0	17.2	21.3	N
19	12.62000	21.8	14.1	10.7	32.5	24.8	60.0	50.0	27.5	25.2	N

- Measurement Data(Graph): @ < 1% battery status

Results of Conducted Emission

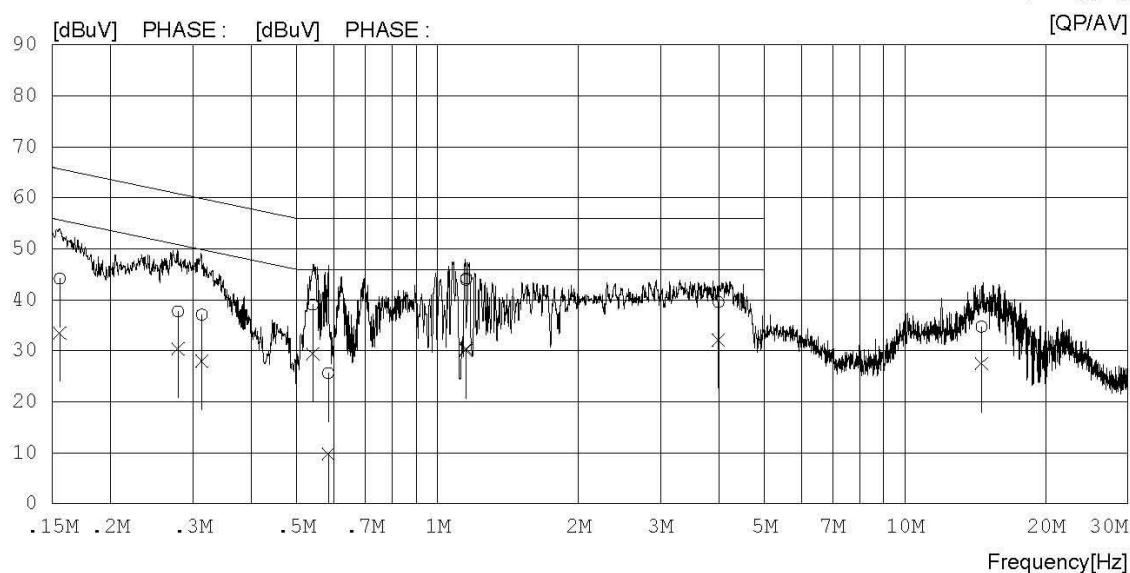
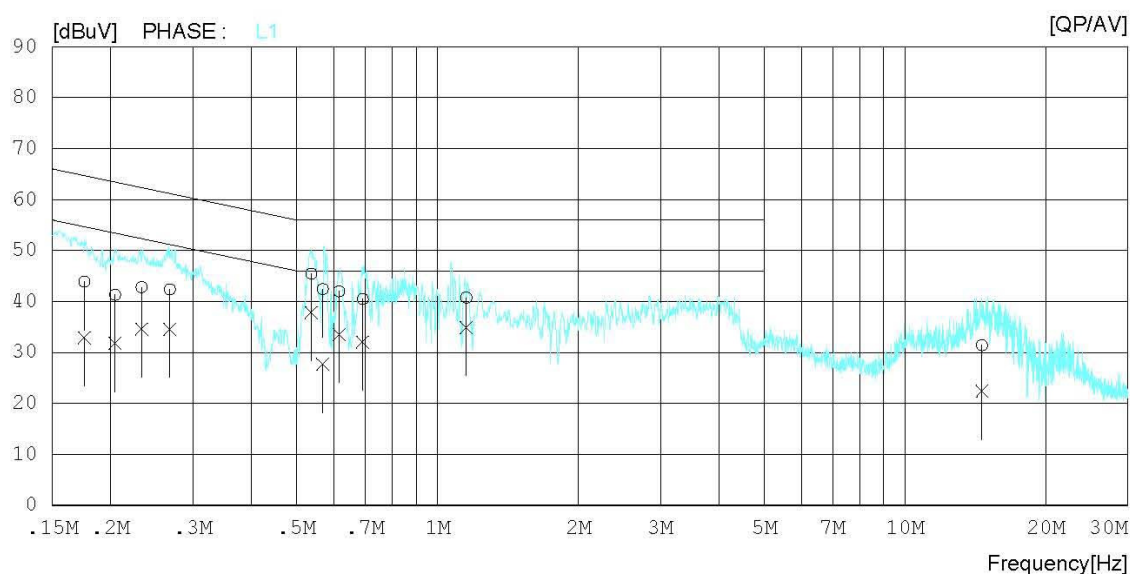
Digital EMC
Date : 2014-03-17

Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 °C 40 % R.H.
Operator : J.J.LEE

Memo : Battery < 1%

LIMIT : FCC P15.207 QP
FCC P15.207 AV



- Measurement Data(List): @ < 1% battery status**Results of Conducted Emission**Digital EMC
Date : 2014-03-17Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 'C 40 % R.H.
Operator : J.J.LEE

Memo : Battery < 1%

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.17554	33.5	22.5	10.4	43.9	32.9	64.7	54.7	20.8	21.8	L1
2	0.20425	30.9	21.4	10.4	41.3	31.8	63.4	53.4	22.1	21.6	L1
3	0.23270	32.5	24.3	10.3	42.8	34.6	62.4	52.4	19.6	17.8	L1
4	0.26763	32.1	24.3	10.3	42.4	34.6	61.2	51.2	18.8	16.6	L1
5	0.53728	35.3	27.7	10.2	45.5	37.9	56.0	46.0	10.5	8.1	L1
6	0.56861	32.2	17.5	10.2	42.4	27.7	56.0	46.0	13.6	18.3	L1
7	0.61638	31.8	23.3	10.2	42.0	33.5	56.0	46.0	14.0	12.5	L1
8	0.69233	30.3	21.8	10.2	40.5	32.0	56.0	46.0	15.5	14.0	L1
9	1.15250	30.5	24.7	10.2	40.7	34.9	56.0	46.0	15.3	11.1	L1
10	14.61600	20.7	11.7	10.7	31.4	22.4	60.0	50.0	28.6	27.6	L1
11	0.15554	33.9	23.2	10.3	44.2	33.5	65.7	55.7	21.5	22.2	N
12	0.27835	27.4	20.1	10.3	37.7	30.4	60.9	50.9	23.2	20.5	N
13	0.31340	26.8	17.7	10.3	37.1	28.0	59.9	49.9	22.8	21.9	N
14	0.54061	28.8	19.2	10.2	39.0	29.4	56.0	46.0	17.0	16.6	N
15	0.58344	15.4	-0.5	10.2	25.6	9.7	56.0	46.0	30.4	36.3	N
16	1.15150	33.8	19.9	10.2	44.0	30.1	56.0	46.0	12.0	15.9	N
17	1.15250	34.0	20.2	10.2	44.2	30.4	56.0	46.0	11.8	15.6	N
18	3.99150	29.2	21.8	10.3	39.5	32.1	56.0	46.0	16.5	13.9	N
19	14.58700	24.1	16.8	10.7	34.8	27.5	60.0	50.0	25.2	22.5	N

- Measurement Data(Graph): @ 50% battery status

Results of Conducted Emission

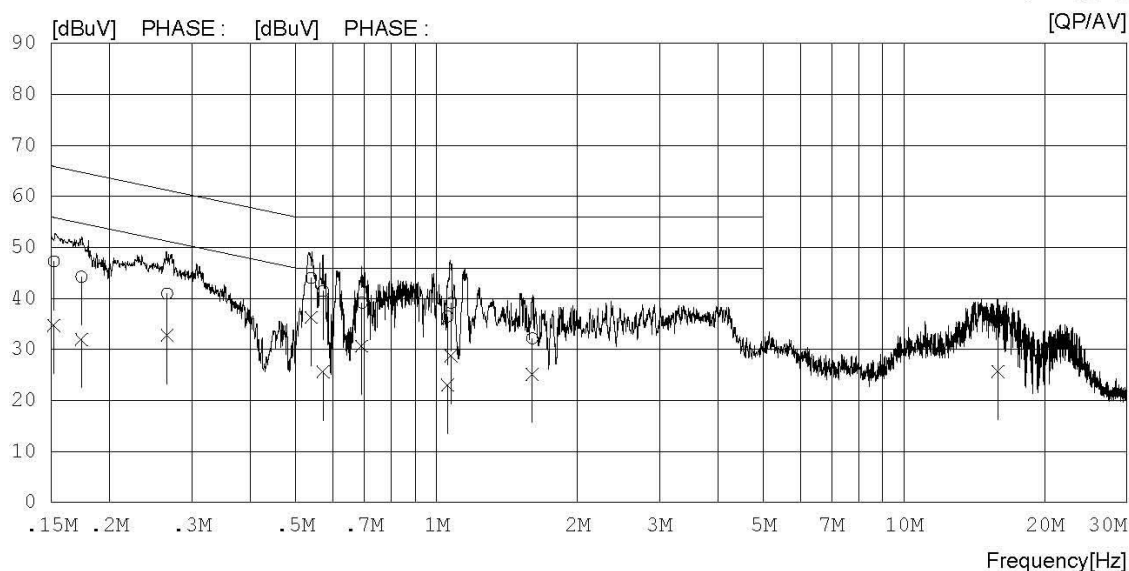
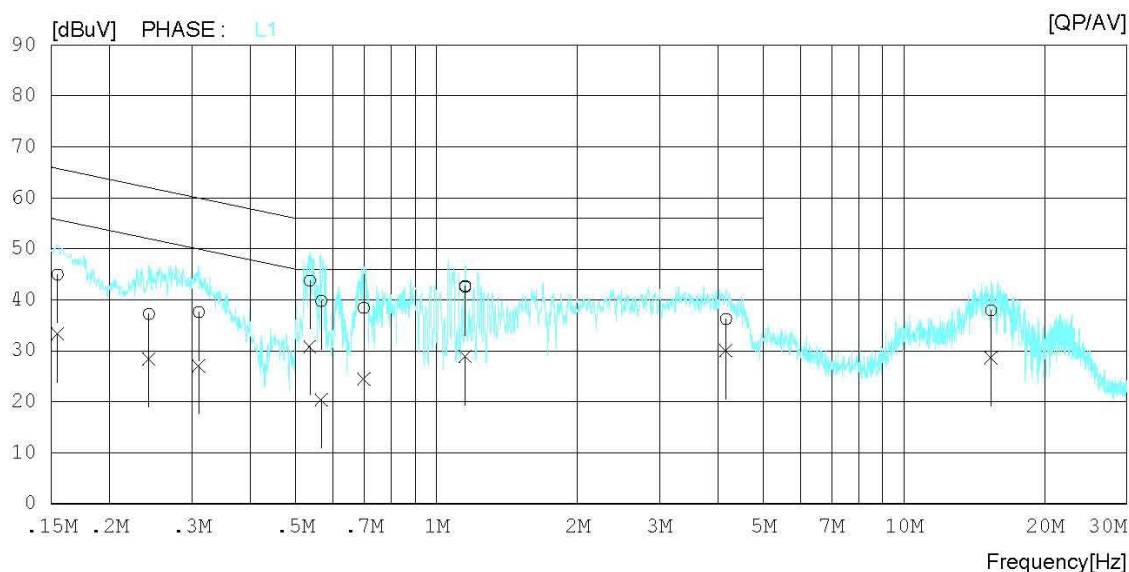
Digital EMC
Date : 2014-03-17

Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 °C 40 % R.H.
Operator : J.J.LEE

Memo : Battery = 50%

LIMIT : FCC P15.207 QP
FCC P15.207 AV



- Measurement Data(List): @ 50% battery status**Results of Conducted Emission**Digital EMC
Date : 2014-03-17Model No. : WCP-310
Type :
Serial No. : Identical prototype
Test Condition :Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 'C 40 % R.H.
Operator : J.J.LEE

Memo : Battery = 50%

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15460	34.6	23.1	10.3	44.9	33.4	65.7	55.7	20.8	22.3	L1
2	0.24246	26.9	18.1	10.3	37.2	28.4	62.0	52.0	24.8	23.6	L1
3	0.30993	27.3	16.8	10.3	37.6	27.1	60.0	50.0	22.4	22.9	L1
4	0.53561	33.6	20.7	10.2	43.8	30.9	56.0	46.0	12.2	15.1	L1
5	0.56669	29.5	10.3	10.2	39.7	20.5	56.0	46.0	16.3	25.5	L1
6	0.69889	28.2	14.2	10.2	38.4	24.4	56.0	46.0	17.6	21.6	L1
7	1.15200	32.3	18.7	10.2	42.5	28.9	56.0	46.0	13.5	17.1	L1
8	1.15200	32.5	18.7	10.2	42.7	28.9	56.0	46.0	13.3	17.1	L1
9	4.16450	25.9	19.7	10.3	36.2	30.0	56.0	46.0	19.8	16.0	L1
10	15.35600	27.2	17.9	10.7	37.9	28.6	60.0	50.0	22.1	21.4	L1
11	0.15196	37.0	24.4	10.3	47.3	34.7	65.9	55.9	18.6	21.2	N
12	0.17383	33.9	21.6	10.4	44.3	32.0	64.8	54.8	20.5	22.8	N
13	0.26540	30.6	22.4	10.3	40.9	32.7	61.3	51.3	20.4	18.6	N
14	0.53904	33.8	26.1	10.2	44.0	36.3	56.0	46.0	12.0	9.7	N
15	0.57188	31.2	15.4	10.2	41.4	25.6	56.0	46.0	14.6	20.4	N
16	0.69239	29.0	20.4	10.2	39.2	30.6	56.0	46.0	16.8	15.4	N
17	1.05600	26.3	12.9	10.2	36.5	23.1	56.0	46.0	19.5	22.9	N
18	1.07600	28.9	18.5	10.2	39.1	28.7	56.0	46.0	16.9	17.3	N
19	1.60250	22.0	14.9	10.2	32.2	25.1	56.0	46.0	23.8	20.9	N
20	15.88450	24.8	15.0	10.7	35.5	25.7	60.0	50.0	24.5	24.3	N

APPENDIX I

TEST EQUIPMENT FOR TESTS

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent	N9020A	13/03/28	14/03/28	MY50510026
			14/03/28	15/03/28	
Loop Antenna	Schwarzbeck	FMZB1513	12/09/24	14/09/24	1513-128
			14/04/29	16/04/29	
Loop Antenna	ETS	6502	12/12/11	14/12/11	3471
BILOG ANTENNA	SCHAFFNER	CBL6112B	12/11/06	14/11/06	2737
Thermohygrometer	BODYCOM	BJ5478	14/01/15	15/01/15	090205-4
Vector Signal Generator	Rohde Schwarz	SMJ100A	14/01/07	15/01/07	100148
Amplifier (22dB)	H.P	8447E	14/01/08	15/01/08	2945A02865
EMI TEST RECEIVER	R&S	ESU	14/01/08	15/01/08	100014
EMI TEST RECEIVER	R&S	ESCI	14/02/27	15/02/27	100910
CVCF	EM TEST	NETWAVE 60-400	13/05/27	14/05/27	P1311115470
			14/05/26	15/05/26	
LISN	SCHWARZBECK	NNLK8121	13/08/12	14/08/12	NNLK8121-580
PULSE LIMITER	R&S	ESH3-Z2	14/01/08	15/01/08	101334