

RF EXPOSURE REPORT

Test item : Wireless Charging Pad
Model No. : WCP-500
Order No. : DEMC1207-01102
Date of receipt : 2012-07-10
Test date : 2012-08-16 ~ 2012-08-24
Date of issue : 2012-12-10
Use of report : FCC Original Grant

Applicant : LG Electronics USA.
1000 Sylvan Avenue Englewood Cliffs, NJ 07632

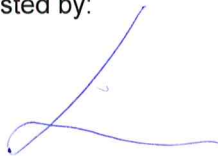
Test laboratory : Digital EMC Co., Ltd.
683-3, Yubang-Dong, Cheoin-Gu, Yongin-Si, Kyunggi-Do, 449-080, Korea

FCC Rule Part : FCC Part 1.1307 (c) and (d)

Test environment : See appended test report

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:

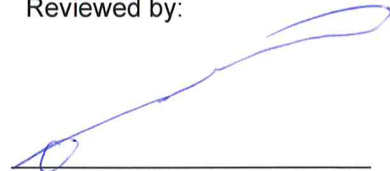


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Witnessed by:

N/A

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Test Report Version

Test Report No.	Date	Description
DRTFCC1209-0453	Sep. 05, 2012	Final version for approval
DRTFCC1209-0453(1)	Dec. 10, 2012	Additional description of operating and detector mode

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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 Charging Pad
Equipment model name	WCP-500
Equipment add model name	N/A
Equipment serial no.	Identical prototype
Frequency range	110 ~ 200 kHz
Charging power range	0 ~5 W
Protocol ^{Note 1}	WPC protocol(A1 type)
Communication mode ^{Note 2}	Analog ping mode, Digital communication mode
Power	AC-DC Adaptor: AC 120 V 60 Hz
Antenna type	Internal Loop Antenna(Circular coil)

Note 1: This device can charge only one client device on the specific location at a time.

So this device is a A1 device of the WPC protocol

Note 2: Description of communication mode,

- Analog/Digital ping mode

In order to find a client device, this device applies a short pulse to its primary coil regularly.

This device can know the presence of client device on this device through monitoring its primary coil current.

- Digital communication mode

After finding client device, this device initiates power signal and then receives data PACKETS from the client device according to the WPC protocol.

If the client device is removed on the top of this device then this communication is stopped at once and the transmitting power signal of this device is immediately stopped and this device goes to IDLE MODE.

The power signal of this device shall be used for both communicating data packets from the client device and charging.

1.2 Ancillary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
Adapter	PSTA-D01WT	TA250000013	LG Electronics	-
-	-	-	-	-

2. Information about test items

2.1 Operating mode

Operating Mode 1	Charging and communication mode Continuously transmission mode
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Note: Based on the part 15 test results, the emissions of the analog ping mode are lower than the charging and communication mode. So RF exposure test is performed only with the charging and communication mode.

2.2 Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
Client Device (rectangular coil)	WCC-920-REV03	N/A	LG Electronics Inc.	-

Note: This client device was supported by manufacturer.

And they declared that the client device will be installed in mobile phones for charging the phone.

2.3 Test Configuration

This device has been tested with various resistors to simulate the various load conditions of the client device. The charging current was controlled from 0 mA (Min) to 1000 mA (MAX) by 100 mA step using the resistors and two types of client device with rectangular coil.

Charging current	TM-X Series
0mA	TM-X-0
100mA	TM-X-1
200mA	TM-X-2
300mA	TM-X-3
400mA	TM-X-4
500mA	TM-X-5
600mA	TM-X-6
700mA	TMX-7
800mA	TM-X-8
900mA	TM-X-9
1000mA	TM-X-10

Note 1: The client device and load resistor shall be placed on the EUT's chargeable area especially center or near surrounding center. so the client device is placed on the center and 4 positions of near surrounding center where can be charged.

Above "X" means position of the client device on the EUT's chargeable area as below.

C : Center of the Charging area

/

T : Top Side of the Charging area

B : Bottom Side of the Charging area

/

R : Right Side of the Charging area

L : Left Side of the Charging area

Refer to test setup photo for more details.

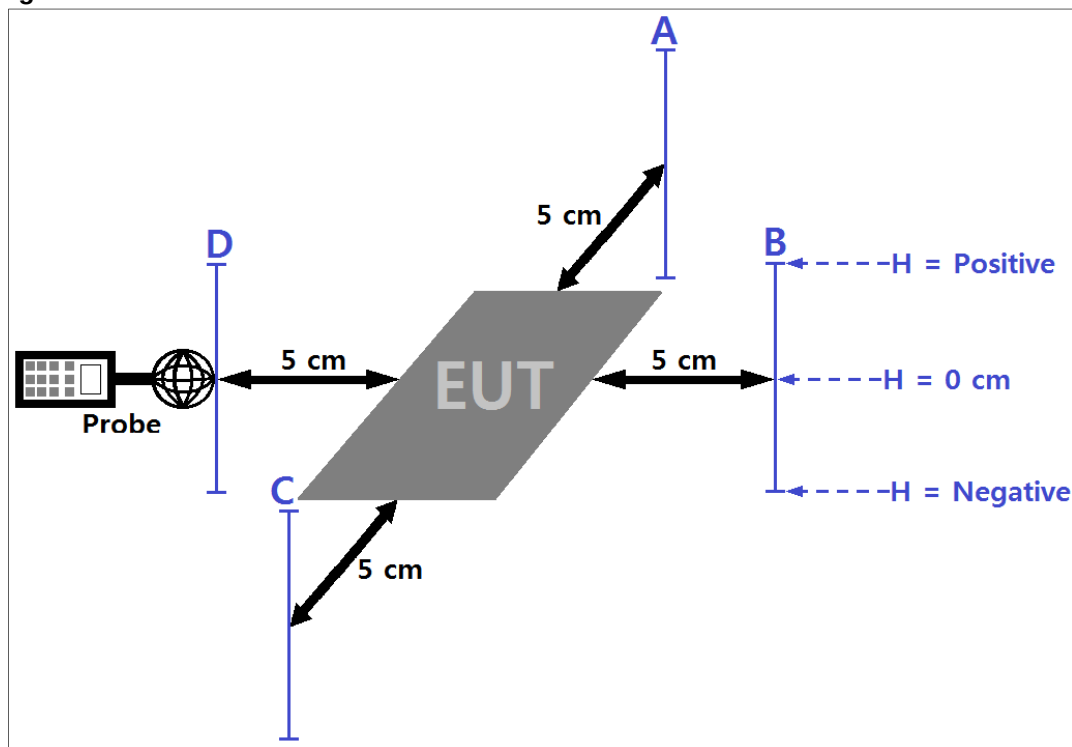
2.4 Tested environment

Temperature	: 22 ~ 23 °C
Relative humidity content	: 46 ~ 48 % R.H.
Details of power supply	: AC 120V 60Hz

3. E and H field strength

For RF exposure purposes, the E and H field strengths are measured separately with E and H probes and meters at different locations surrounding the test setup.

- Test setup diagram



Note 1: Measurement distance = 5 cm

Note 2: Test were performed above A, B, C, D probe positions.

Note 3: The probe height(H) is varied to maximize the emission.

Note 4: Detector mode of probe = Peak for E-field measurement
RMS for H-Field measurement

- **Measurement data:** refer to the next page

- Test equipment list

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next. Cal. Date (yy/mm/dd)	S/N
☒	Exposure level meter	NARDA	ELT-400	12/01/30	13/01/30	J-0015
☒	Magnetic Field Meter	Holaday Industries	HI-3627	11/02/14	13/02/14	00023776

Measurement data**1. E field test results**

Test Step	Test configuration	Probe Height (cm)	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)
1	TM-C-0	0	0.32	0.37	0.27	0.34
	TM-C-1	0	0.37	0.42	0.27	0.34
	TM-C-2	0	0.38	0.37	0.25	0.40
	TM-C-3	0	0.35	0.34	0.25	0.35
	TM-C-4	0	0.34	0.40	0.24	0.31
	TM-C-5	0	0.32	0.34	0.27	0.36
	TM-C-6	0	0.31	0.31	0.32	0.35
	TM-C-7	0	0.34	0.37	0.32	0.40
	TM-C-8	0	0.35	0.40	0.29	0.42
	TM-C-9	0	0.38	0.45	0.34	0.37
	<u>TM-C-10</u>	<u>0</u>	<u>0.39</u>	<u>0.49</u>	<u>0.41</u>	<u>0.45</u>
2	<u>TM-T-10</u>	0	-	<u>0.69</u>	-	
	TM-B-10	0	-	0.51	-	
	TM-R-10	0	-	0.62	-	
	TM-L-10	0	-	0.67	-	
3	TM-T-10	+0.5	-	0.70	-	
	<u>TM-T-10</u>	-2.0	-	<u>0.71</u>	-	

Note 1: The test step 2 were repeated at the worst case configuration of step 1 with additional 4 client device positions.

Note 2: The test step 3 were repeated at the worst case configuration of step 2 with varying the antenna height to maximize the emission.

2. H field test results

Test Step	Test configuration	Probe Height (cm)	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)
1	TM-C-0	0	0.024	0.056	0.040	0.064
	<u>TM-C-1</u>	<u>0</u>	<u>0.048</u>	<u>0.112</u>	<u>0.080</u>	<u>0.104</u>
	TM-C-2	0	0.048	0.096	0.064	0.096
	TM-C-3	0	0.024	0.048	0.032	0.064
	TM-C-4	0	0.016	0.048	0.032	0.056
	TM-C-5	0	0.024	0.048	0.040	0.064
	TM-C-6	0	0.024	0.056	0.040	0.064
	TM-C-7	0	0.032	0.064	0.048	0.072
	TM-C-8	0	0.032	0.064	0.048	0.080
	TM-C-9	0	0.032	0.072	0.048	0.080
	TM-C-10	0	0.040	0.080	0.056	0.088
2	TM-T-1	0	-	0.304	-	-
	TM-B-1	0	-	0.304	-	-
	TM-R-1	0	-	<u>0.464</u>	-	-
	TM-L-1	0	-	0.288	-	-
3	TM-R-1	+3.0	-	<u>0.512</u>	-	-
	TM-R-1	-0.5	-	0.480	-	-

Note 1: The test step 2 were repeated at the worst case configuration of step 1 with additional 4 client device positions.

Note 2: The test step 3 were repeated at the worst case configuration of step 2 with varying the antenna height to maximize the emission.