

RF EXPOSURE REPORT

Test item : Wireless Charging Pad
Model No. : WCP-700
Order No. : 1101-00048
Date of receipt : 2011-01-12
Test date : 2011-05-24
Date of issue : 2011-05-24
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:



Engineer
S.K. RYU

Witnessed by:

N/A

Reviewed by:



Manager
W.J. Lee

CONTENTS

1. Equipment information..... 3

 1.1 Equipment description 3

 1.2 Ancillary equipment 3

2. Information about test items..... 4

 2.1 Operating mode 4

 2.2 Test Configuration..... 4

 2.3 Auxiliary equipment 5

 2.4 Tested environment 5

3. E and H field strength 6

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-700
Equipment add model name	N/A
Equipment serial no.	Identical prototype
Frequency range	110 ~ 205 kHz
Charging power range	0 ~5 W
Device type of WPC protocol ^{Note 1}	A1 Device
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 at a time with the specific location of the EUT.
So this device is a A1 device of the WPC protocol

Note 2: Description of communication mode,

- Analog ping mode

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

The EUT can know the presence of client device on the EUT through monitoring its primary coil current.

- Digital communication mode

After finding client device, EUT 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 the EUT then this communication is stopped at once and the transmitting power signal of the EUT is immediately stopped and the EUT goes to IDLE MODE. The power signal of the EUT 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	WCA-D01WT	TA0Z0000034	LG Electronics	-
-	-	-	-	-

2. Information about test items

2.1 Operating mode

Mode 1	Charging and communication mode
---------------	--

Note: Based on the part 15 test results, the emissions of the analog ping mode are very lower than the charging and communication mode.

So RF exposure test is performed only with the charging and communication mode.

2.2 Test Configuration

This device has been tested with the 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 Jig board with rectangular coil.

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

Note 1: There are 2 types of the test Jigs. The circuit of two Jigs (TM-A and B) is just same. Only different thing is the coil location on the Jig board.

TM-A has the coil on the rear side of the PCB.

TM-B has the coil on the front side of the PCB.

These two versions of test Jigs are for simulating actual client device's coil locations.

Note 2: The Jig board and load resistor shall be placed on the EUT's chargeable area especially center or near surrounding center.

So the Jig board is placed on the center and 4 positions of near surrounding center where can be charged. Above "X" means position of the Jig board 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.

2.3 Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
Jig Board with rectangular coil	FULTON	N/A	LG Electronics Inc.	REV09

Note: This Jig board with the rectangular coil was supported by manufacturer for simulating a client device and the load conditions. And they declared that the Jig board will be installed in mobile phones for charging the phone

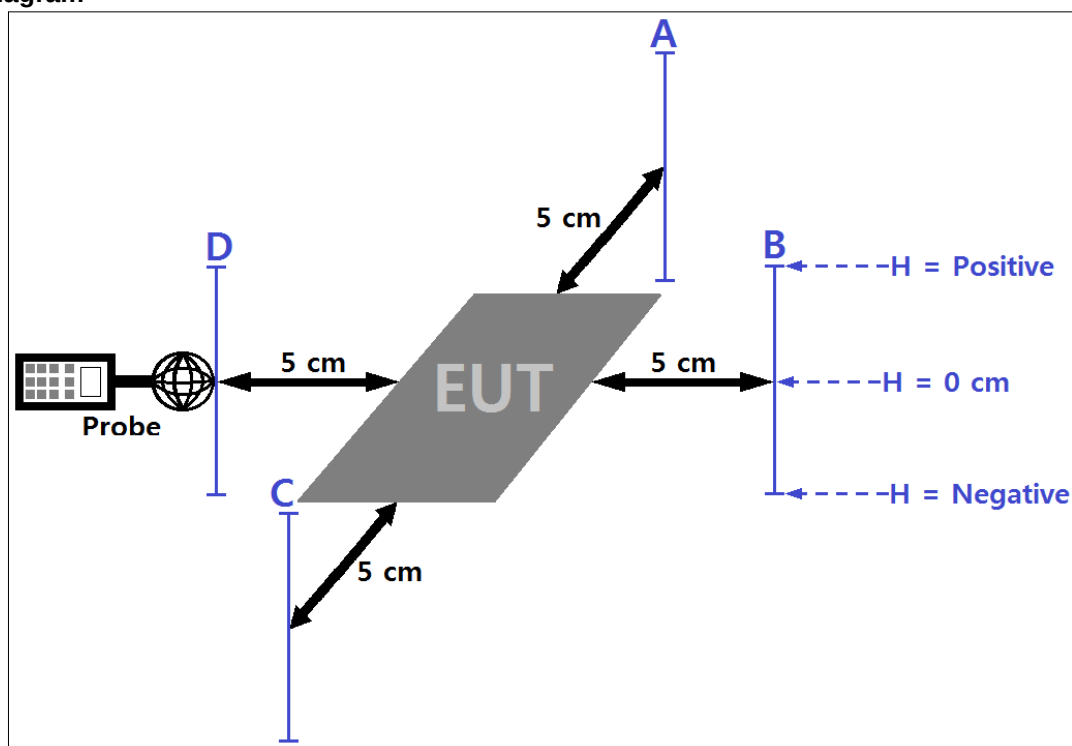
2.4 Tested environment

Temperature	:	23 °C
Relative humidity content	:	38 % 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.

- Measurement data: refer to the next page

- Test equipment list

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	S/N
☒	Magnetic field meter	NARDA	ELT-400	10/10/13	K-0041
☒	B-Field Probe	NARDA	2300/90.10	10/10/13	K-0047
☒	Electric Magnetic field Analyzer	NARDA	EHP-200	10/09/02	010WJ61113

Measurement data

1. E field test results with TM-A Jig

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-A-C-0	0	1.20	1.57	1.24	1.37
	TM-A-C-1	0	1.23	1.66	1.25	1.41
	TM-A-C-2	0	1.18	1.53	1.21	1.38
	TM-A-C-3	0	1.10	1.34	1.10	1.29
	TM-A-C-4	0	1.13	1.37	1.11	1.27
	TM-A-C-5	0	1.11	1.38	1.10	1.23
	TM-A-C-6	0	1.16	1.42	1.11	1.27
	TM-A-C-7	0	1.14	1.47	1.15	1.28
	TM-A-C-8	0	1.17	1.49	1.13	1.31
	TM-A-C-9	0	1.20	1.52	1.16	1.31
	TM-A-C-10	0	1.20	1.57	1.18	1.32
2	TM-A-T-1	0	-	2.53	-	-
	TM-A-B-1	0	-	2.71	-	-
	TM-A-R-1	0	-	2.34	-	-
	TM-A-L-1	0	-	2.45	-	-
3	TM-A-B-1	+10.0	-	3.93	-	-
	TM-A-B-1	-3.5	-	2.84	-	-

Note 1: The test step 2 were repeated at the worst case configuration of step 1 with additional 4 Jig board 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 with TM-A Jig

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-A-C-0	0	0.20	0.22	0.21	0.22
	TM-A-C-1	0	0.20	0.24	0.21	0.23
	TM-A-C-2	0	0.19	0.22	0.21	0.22
	TM-A-C-3	0	0.19	0.21	0.19	0.20
	TM-A-C-4	0	0.19	0.21	0.19	0.21
	TM-A-C-5	0	0.19	0.20	0.19	0.20
	TM-A-C-6	0	0.19	0.20	0.19	0.20
	TM-A-C-7	0	0.19	0.21	0.19	0.21
	TM-A-C-8	0	0.19	0.21	0.19	0.21
	TM-A-C-9	0	0.19	0.21	0.20	0.21
	TM-A-C-10	0	0.19	0.21	0.20	0.21
2	TM-A-T-1	0	-	0.41	-	-
	TM-A-B-1	0	-	0.55	-	-
	TM-A-R-1	0	-	0.52	-	-
	TM-A-L-1	0	-	0.54	-	-
3	TM-A-B-1	+6.0	-	0.55	-	-
	TM-A-B-1	-4.5	-	0.62	-	-

Note 1: The test step 2 were repeated at the worst case configuration of step 1 with additional 4 Jig board 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.

Measurement data

3. E field test results with TM-B Jig

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-B-C-0	0	1.52	2.49	2.19	2.30
	TM-B-C-1	0	1.53	2.60	2.34	2.40
	TM-B-C-2	0	1.48	2.47	2.16	2.43
	TM-B-C-3	0	1.37	2.17	1.94	2.00
	TM-B-C-4	0	1.27	2.04	1.84	1.93
	TM-B-C-5	0	1.35	2.11	1.88	1.99
	TM-B-C-6	0	1.31	2.13	1.95	2.03
	TM-B-C-7	0	1.27	2.12	1.92	2.10
	TM-B-C-8	0	1.34	2.15	1.98	2.08
	TM-B-C-9	0	1.36	2.18	2.04	2.15
	TM-B-C-10	0	1.35	2.24	2.04	2.18
2	TM-B-T-1	0	-	3.47	-	-
	TM-B-B-1	0	-	4.05	-	-
	TM-B-R-1	0	-	3.46	-	-
	TM-B-L-1	0	-	3.51	-	-
3	TM-B-B-1	+6.0	-	4.13	-	-
	TM-B-B-1	-3.5	-	3.69	-	-

Note 1: The test step 2 were repeated at the worst case configuration of step 1 with additional 4 Jig board 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.

4. H field test results with TM-B Jig

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-B-C-0	0	0.26	0.42	0.32	0.39
	TM-B-C-1	0	0.28	0.45	0.34	0.42
	TM-B-C-2	0	0.26	0.42	0.28	0.39
	TM-B-C-3	0	0.24	0.36	0.28	0.34
	TM-B-C-4	0	0.23	0.34	0.27	0.32
	TM-B-C-5	0	0.24	0.34	0.27	0.33
	TM-B-C-6	0	0.24	0.35	0.27	0.33
	TM-B-C-7	0	0.24	0.35	0.28	0.34
	TM-B-C-8	0	0.24	0.36	0.28	0.34
	TM-B-C-9	0	0.24	0.37	0.29	0.34
	TM-B-C-10	0	0.25	0.38	0.29	0.35
2	TM-B-T-1	0	-	0.49	-	-
	TM-B-B-1	0	-	0.60	-	-
	TM-B-R-1	0	-	0.48	-	-
	TM-B-L-1	0	-	0.54	-	-
3	TM-B-B-1	+6.6	-	0.62	-	-
	TM-B-B-1	-6.0	-	0.70	-	-

Note 1: The test step 2 were repeated at the worst case configuration of step 1 with additional 4 Jig board 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.