



TEST REPORT

1. Applicant	
Name	: Shinan Information Communication
Address	: 7-3, Dangsang-ro 148beon-gil, Gunpo-si, Gyeonggi-do, Korea
FCC ID	: 2AG84DOTWACBTX16001
2. Products	
Name	: Wireless charging battery pack
Model No.	: DOTWACBTX16001
Variant Model No.	: N/A
Manufacturer	Shinan Information Communication
Address	: 7-3, Dangsang-ro 148beon-gil, Gunpo-si, Gyeonggi-do, Korea
3. Test Standard	: KDB 680106 D01v02.
4. Test Result	: PASS
5. Dates of Test	: March 01, 2017 to March 10, 2017
6. Date of Issue	: March 14, 2017
7. Test Laboratory	: Standard Engineering Co. Ltd. FCC Designation Number : 624439

Tested by	Approved by
	
SoonHo, Kim / Test Engineer	SeongSeok, Seo / Compliance Engineer

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1. TABLE OF CONTENTS

1. Table of Contents.....	2
2. General Information.....	3
2.1 Client Information.....	3
2.2 General information description.....	3
2.3 Test frequency.....	3
2.4 Description of Support Units.....	3
2.5 Abnormalities from Standard Conditions.....	3
2.6 Deviation from Standards.....	3
2.7 Test Location.....	3
3. Equipment Used during Test.....	4
4. Environmental evaluation and exposure limit according to FCC CFR 47 Part 1.1307(b),	
4.1 Limits for Maximum Permissible Exposure (MPE).....	5
5.2. Test mode.....	5
4.3 Test mode.....	5
4.4 Test results.....	6
4.4.1 E-Field Strength at 10 cm from each edges the EUT (Pad type).....	6
4.4.2 H-Field Strength at 10 cm from each edges the EUT (Pad type).....	6
5. Equipment Approval Considerations.....	7
** APPENDIX.....	8



2. General Information

2.1. Client Information

Applicant	: Shinan Information Communication
Address of Applicant	: 7-3, Dangsan-ro 148beon-gil, Gunpo-si, Gyeonggi-do, Korea
Manufacturer	: Shinan Information Communication
Address of Manufacturer	: 7-3, Dangsan-ro 148beon-gil, Gunpo-si, Gyeonggi-do, Korea

2.2. General information description

Equipment under test	: Wireless charging battery pack
Model name	: DOTWACBTX16001
Serial number	: N/A
Frequency Range	: 111 KHz to 205 KHz
Antenna type	: Internal type(Coil antenna)
Power source	: 5V DC

2.3. Test frequency

Frequency (KHz)	:	Frequency Range
		111 KHz to 205 KHz

2.4. Description of Support Units

The EUT has been tested with simulate receiver, resistor and adapter provided by applicant.

Adapter details Model : A1357
 Input : AC 100-240 50/60 Hz 0.15A
 USB Output : DC 5.0V 2A
 Wireless Output : DC 5.0V 1A

2.5. Abnormalities from Standard Conditions

None.

2.6. Deviation from Standards

None.

2.7. Test Location

377-11, Sinjang-ri, Eumam-myeon, Seosan-si, ChoongNam 356-844, South Korea
(FCC Designation Number : 624439)

This test site is in compliance with ISO/IEC 17025 for general requirements for the competence of testing and calibration laboratories.



3. Equipment Used during Test

No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (MM-DD-YY)	Next Cal. Data (MM-DD-YY)
1	EMI Test Receiver	LIG	ER-265	L1009B016	03/02/2017	03/02/2018
2	EMI Test Receiver	Rhode & Schwarz	ESIB7	3311	09/02/2016	09/02/2017
2	Bi-log Antenna	Schwarzbeck	VULB9163	164	09/22/2016	09/22/2017
5	Loop Antenna	EMCO	6502	9206-2769	01/28/2016	01/28/2018
6	Spectrum Analyzer	Agilent	E4440A	US45303130	01/24/2017	01/24/2018
15	Power Meter	Agilent	E4418B	MY405111655	01/23/2017	01/23/2018
16	Power Sensor	HP	8485A	2347A02746	01/23/2017	01/23/2018
20	Signal Generator	HP	83630A	3420A00728	01/24/2017	01/24/2018
23	Pre Amplifier	Agilent	8449B	3008A02105	01/24/2017	01/24/2018
25	Signal Generator	Rhode & Schwarz	SML03	102330	01/23/2017	01/23/2018
26	POWER DIVIDER	Agilent	11636B	50309	01/23/2017	01/23/2018
27	Power Sensor	Agilent	8482B	3318A05111	01/23/2017	01/23/2018
29	DC Power Supply	HP	6032A	US35420383	01/23/2017	01/23/2018
32	Bandreject Filter	K&L Microwave	50140	555	01/23/2017	01/23/2018
33	Horn Antenna	SCHWARZBECK	BBHA9120A	346	02/05/2016	02/05/2018
34	DC Power Supply	Provice	PWS-5005D	205051	01/23/2017	01/23/2018
35	LISN	Rhode & Schwarz	ESH2-Z5	100204	11/10/2016	11/10/2017
36	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100137	11/10/2016	11/10/2017
37	DIGITAL MULTIMETER	DONG HWA	DM-1010	A323665	01/23/2017	01/23/2018
38	Electric Field Probe	Narda	EP-601	401WX00129	12/15/2016	12/15/2017

4. Environmental evaluation and exposure limit according to FCC CFR 47 Part 1.1307(b), 1.1310

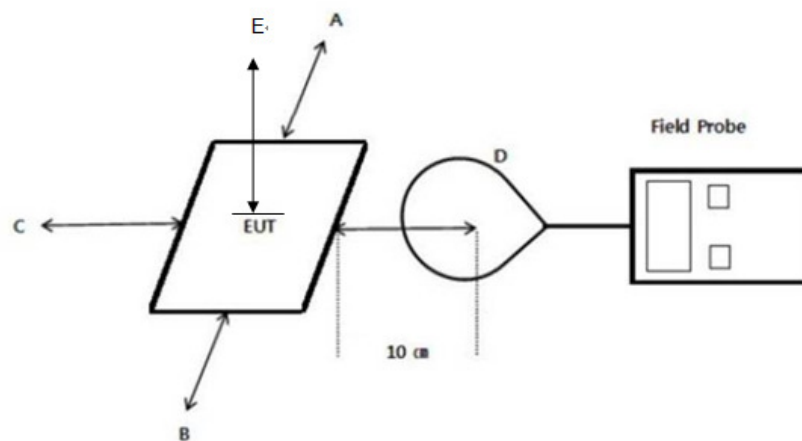
4.1. Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
(A) Limits for Occupational / Control Exposures				
0.3-3.0	614	1.63	*(100)	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30

4.2. Test mode

Mode	Description
Charging mode With load	Using Max load
	Using Mid load
	Using Min load
Standby mode	No load

4.3. Test mode



1. The test was performed on 360 degree turn table in anechoic chamber.
2. The probe was placed at distance 10 cm which is between the edge of the charger and the geometric centre of the probe.
3. The highest emission level was recorded and compared with limit as soon as measurement of each point; A, B, C, D, E were completed.
4. The EUT was measured according to the KDB 680106 D01v02.

4.4. Test results

4.4.1 E-Field Strength at 10 cm from each edges the EUT (Pad type)

Test Mode	Frequency Range (KHz)	Position A (V/m)	Position B (V/m)	Position C (V/m)	Position D (V/m)	Position E (V/m)	Limits (V/m)
Charging mode With load (Max)	111 KHz to 205 KHz	10.22	3.01	7.19	4.85	11.65	614
Charging mode With load (Mid)	111 KHz to 205 KHz	9.64	2.87	5.66	3.97	9.18	614
Charging mode With load (Min)	111 KHz to 205 KHz	7.54	2.54	3.79	3.21	7.55	614
Standby mode (Not charging)	111 KHz to 205 KHz	6.88	2.28	2.69	2.54	5.46	614

4.4.2 H-Field Strength at 10 cm from each edges the EUT (Pad type)

Test Mode	Frequency Range (KHz)	Position A (A/m)	Position B (A/m)	Position C (A/m)	Position D (A/m)	Position E (A/m)	Limits (A/m)
Charging mode With load (Max)	111 KHz to 205 KHz	0.327	0.068	0.448	0.104	0.110	1.63
Charging mode With load (Mid)	111 KHz to 205 KHz	0.249	0.067	0.319	0.085	0.091	1.63
Charging mode With load (Min)	111 KHz to 205 KHz	0.186	0.065	0.264	0.079	0.082	1.63
Standby mode (Not charging)	111 KHz to 205 KHz	0.141	0.064	0.047	0.061	0.073	1.63



5. Equipment Approval Considerations.

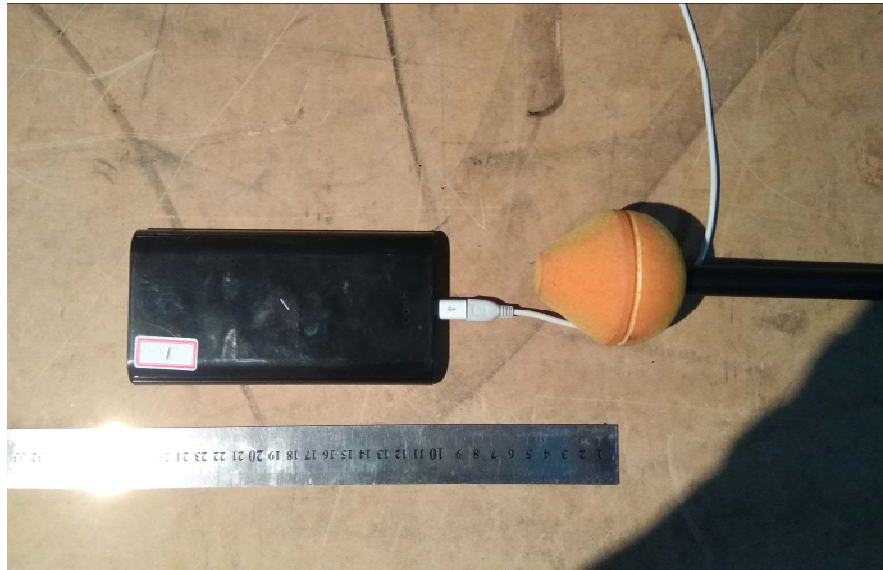
The EUT does comply with item 5.2 of KDB 680106 D01v02.

- a) Power transfer frequency is less than 1 MHz.
 - The device operates in the frequency range from 111 kHz to 205 kHz.
- b) Output power from each primary coil is less than 5 watts.
 - DC 5 V (Travel adapter output) → output power from each primary coil must be less than 5 watts.
- c) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
 - The DUT(Device Under Test) are consist of one charging coil use. So the DUT can detect and allow coupling only between TX and RX Coil.
- d) Client device is inserted in or placed directly in contact with the transmitter.
 - Client device is placed directly in contact with the transmitter.
- e) The maximum coupling surface area of the transmit (charging) device:
 - The EUT coupling surface area : $17.5 \text{ cm(W)} \times 7.5 \text{ cm(D)} = 123.75 \text{ cm}^2$,
 $60 \text{ cm}^2 < 123.75 \text{ cm}^2 < 400 \text{ cm}^2$
- f) Aggregate leakage fields at 10 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30 % of the MPE limit.
 - Refer to following test results. The EUT field strength levels < 30 % of the MPE limit 1.63 A/m
0.345A/m (Max.) < 0.489 A/m

APPENDIX

1. EUT photo

Standby Mode, Position A,B,C and D



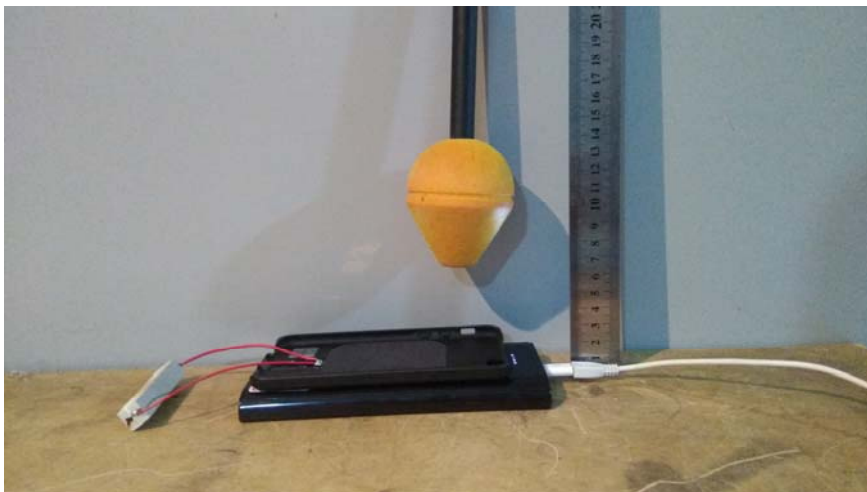
Charging Mode with load, Position A,B,C and D



Standby Mode, position E



Charging Mode with load, position E



--End of Report--