RF Exposure Evaluation

of

E.U.T. ： Multi-Function charger
Model ： TW-201
FCC ID ： 2AM78-TW-201

for

APPLICANT : TA HSING ELECTRIC WIRE & CABLE CO LTD.
ADDRESS : NO. 23 CHENG-TIEN ROAD TU-CHENG NEW TAIPEI, 23674 TAIWAN

Prepared by

ELECTRONICS TESTING CENTER, TAIWAN
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Report Number : 17-07-RBF-013-02

TEST REPORT CERTIFICATION

Applicant : TA HSING ELECTRIC WIRE & CABLE CO LTD.
NO. 23 CHENG-TIEN ROAD TU-CHENG NEW TAIPEI, 23674
TAIWAN

Manufacturer : TA HSING ELECTRIC WIRE & CABLE CO LTD.
NO. 23 CHENG-TIEN ROAD TU-CHENG NEW TAIPEI, 23674
TAIWAN

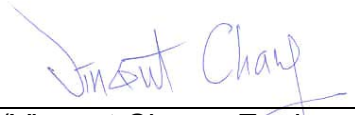
Description of EUT

a) Type of EUT : Multi-Function charger
b) Trade Name : TA HSING
c) Model No. : TW-201
e) Power Supply : AC 100V~125V/10A (Max.)50/60Hz

Regulation Applied : FCC Part 1 (Section 1.1307(b), 1.1310)
KDB680106 D01v02

Note: 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of ETC

Date Test Item Received : Jul. 12, 2017
Date Test Campaign Completed : Sep. 08, 2017
Date of Issue : Sep. 11, 2017

Test Engineer : 
(Vincent Chang, Engineer)

Approve & Authorized Signer : 
S. S. Liou, Section Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

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1 GENERAL INFORMATION

1.1 Product Information

Type of EUT:	Multi-Function charger
Description:	The product is the PTU(power transmitter unit) of a wireless charger
FCC ID:	2AM78-TW-201
Model:	TW-201
Power Supply:	AC 100V~125V/10A (Max.)50/60Hz
Frequency:	162 kHz
Antenna Type:	Inductive Loop Coil Antenna

1.2 Test Facility

Electronics Testing Center, Taiwan (Linkou Testing Lab)
No.34, Lin 5, Dingfu Vil., Linkou Dist., New Taipei City, Taiwan 24442, R.O.C.
FCC Designation Number: TW2628
Expiration date: Oct. 20, 2018.

2 Relative Requirement for Compliance

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following:

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0 ……	614	1.63	*(100)	6
3-30 ……	1842/f	4.89/f	*($900/f^2$)	6
30-300 ……	61.4	0.163	1.0	6
300-1500 ……...	…….	…….	f/300	6
1500-100,000 ……	…….	…….	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34 ……	614	1.63	*(100)	30
1.34-30 ……	824/f	2.19/f	*(180/f2)	30
30-300 ……	27.5	0.073	0.2	30
300-1500 ……...	…….	…….	f/1500	30
1500-100,000 ……	…….	…….	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

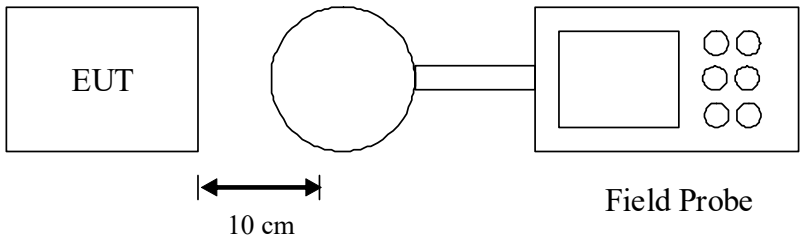
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

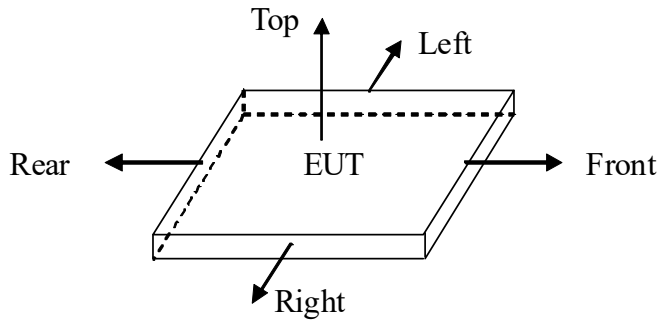
3 RF EXPOSURE MEASUREMENT

3.1 Test Setup

For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 10 cm.



Measurements should be made from all sides and the top of the primary/client pair, with the 10 cm measured from the center of the probe(s) to the edge of the device.



3.2 Measurement Procedure

1. The RF exposure test was performed in anechoic chamber.
2. The measurement probe was placed at a test distance of 10 cm from the edge of the device to the center of the probe.
3. A power receiver unit(PRU) with adjustable load was put on the power transfer zone of the device.
4. The E-field and B-field level of each measurement direction (front, rear, left, right and top) and different load (10%, 50% , 90%) was recorded.

3.3 Measuring Instrument

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2016/10/03	2017/10/02
Broadband Field Meter	NARDA	NBM-550	2017/01/12	2019/01/11
E-Field Probe	NARDA	EF 0391	2017/01/05	2019/01/04

3.4 Measurement Result

Test Date : Sep. 08, 2017 Temperature : 23 °C Humidity : 65 %

(a) 10% Load

E-Field Measurement 10cm					
EUT Side	Left	Right	Front	Rear	Top
Max E-field (V/m)	0.42	0.40	0.83	0.35	0.57
Limit 824/f (V/m)	121.50	121.50	121.50	121.50	121.50
Margin (V/m)	-121.08	-121.10	-120.67	-121.15	-120.93

H-Field Measurement 10cm					
EUT Side	Left	Right	Front	Rear	Top
Max H-field (A/m)	0.0012	0.0011	0.0018	0.0010	0.0150
Limit 2.19/f (A/m)	0.3230	0.3230	0.3230	0.3230	0.3230
Margin (A/m)	-0.3218	-0.3219	-0.3212	-0.3220	-0.3080

(b) 50% Load

E-Field Measurement 10cm					
EUT Side	Left	Right	Front	Rear	Top
Max E-field (V/m)	0.49	0.51	0.96	0.38	0.71
Limit 824/f (V/m)	121.50	121.50	121.50	121.50	121.50
Margin (V/m)	-121.01	-120.99	-120.54	-121.12	-120.79

H-Field Measurement 10cm					
EUT Side	Left	Right	Front	Rear	Top
Max H-field (A/m)	0.0014	0.0013	0.0020	0.0011	0.0170
Limit 2.19/f (A/m)	0.3230	0.3230	0.3230	0.3230	0.3230
Margin (A/m)	-0.3216	-0.3217	-0.3210	-0.3219	-0.3060

(c) 90% Load

E-Field Measurement 10cm					
EUT Side	Left	Right	Front	Rear	Top
Max E-field (V/m)	0.58	0.60	0.99	0.47	0.95
Limit 824/f (V/m)	121.50	121.50	121.50	121.50	121.50
Margin (V/m)	-120.92	-120.90	-120.51	-121.03	-120.55

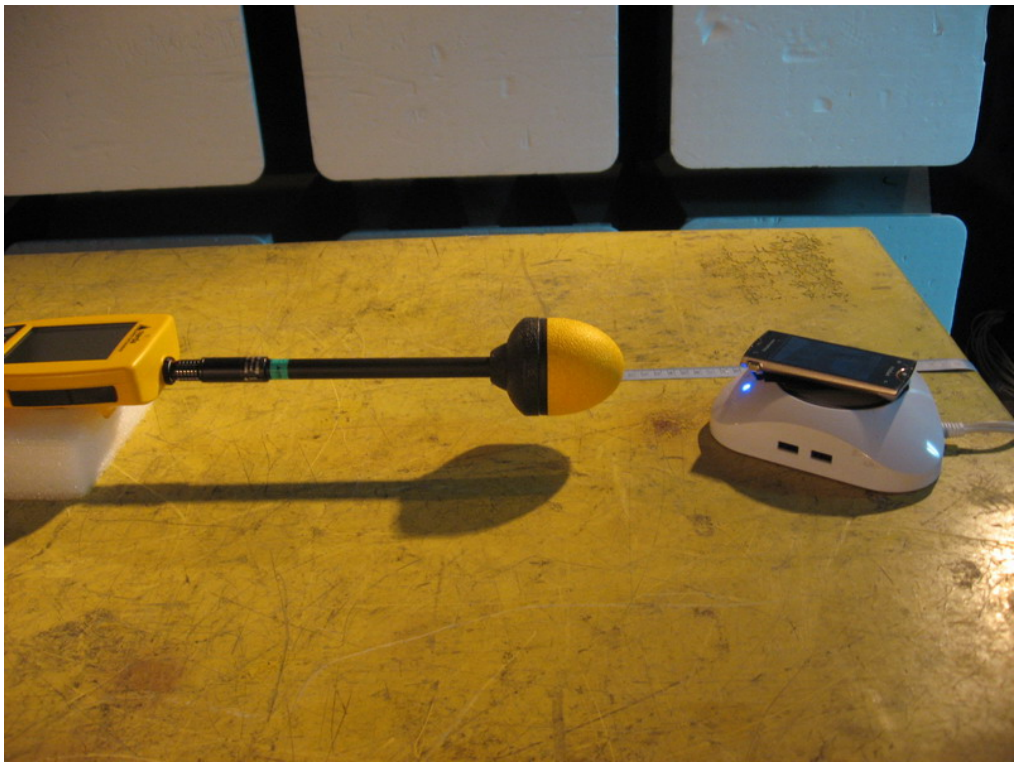
H-Field Measurement 10cm					
EUT Side	Left	Right	Front	Rear	Top
Max H-field (A/m)	0.0016	0.0016	0.0028	0.0014	0.0021
Limit 2.19/f (A/m)	0.3230	0.3230	0.3230	0.3230	0.3230
Margin (A/m)	-0.3214	-0.3214	-0.3202	-0.3216	-0.3209

Summary of Evaluation

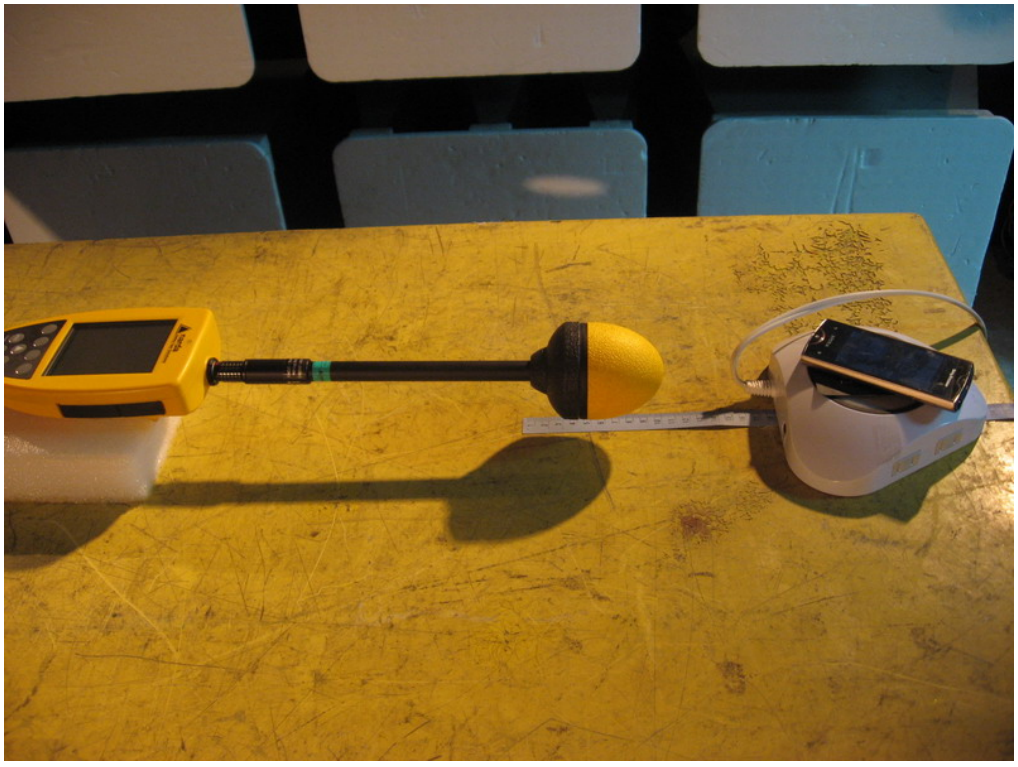
Test	Reference	Results
Measurement	FCC Part 1 (Section 1.1307(b), 1.1310) KDB680106 D01v02	**Pass**

3.5 Photos of Radiation Measuring Setup

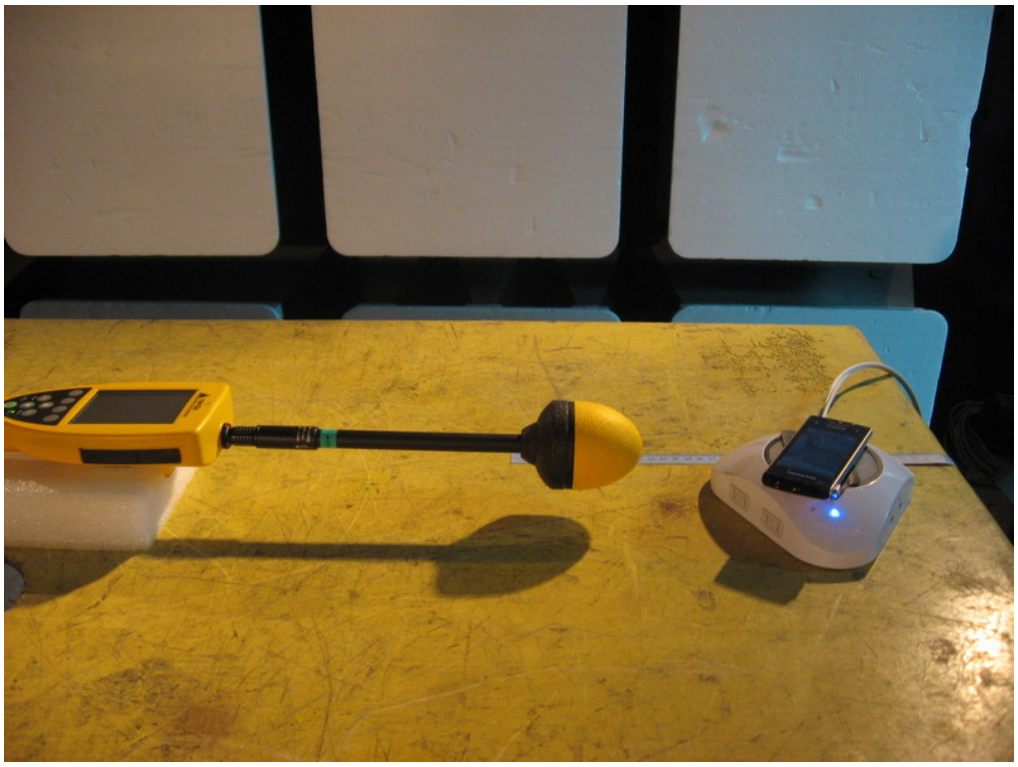
(a) Front



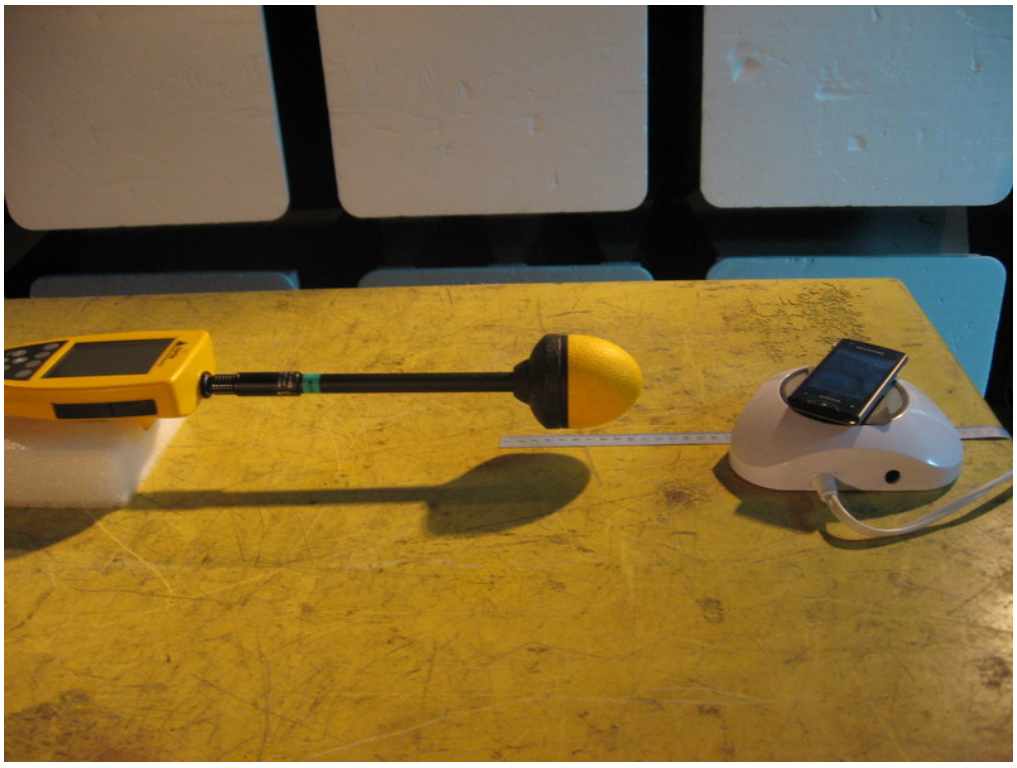
(b) Rear



(c) Right



(d) Left



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