

Maximum Permissible Exposure (Nerve Stimulation)

FCC ID : 2AVS4-FDT-EVB-WP300
Equipment : Wireless Power Reference Design
Brand Name : Fu Da Tong
Model Name : EVB-WP300
Applicant/
Manufacturer : Fu Da Tong Technology Co., Ltd
10F.-5, No.880, Zhongzheng Rd., Zhonghe Dist., New Taipei
City, Taiwan, R.O.C.
Standard : 47 CFR Part 2.1091

The product was received on Mar 29, 2019, and testing was started from Apr. 17, 2020 and completed on Apr. 24, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in KDB680106 D01 RF Exposure Wireless Charging Apps v03 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of United States government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

HISTORY OF THIS TEST REPORT	3
1 HUMAN EXPOSURE ASSESSMENT	5
1.1 Maximum Permissible Exposure	5
1.2 Testing Applied Standards	5
1.3 Testing Location Information	6
1.4 Support Equipment.....	6
1.5 The Worst Condition.....	7
2 TEST EQUIPMENT AND CALIBRATION DATA	11
APPENDIX A. TEST PHOTOS	
PHOTOGRAPHS OF EUT V01	



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.5	-	Maximum Permissible Exposure	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

None.

Reviewed by: Sam Tsai

Report Producer: Yunha Liou

1 Human Exposure Assessment

1.1 Maximum Permissible Exposure

1.1.1 Limit of Maximum Permissible Exposure

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	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
Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	F/1500	30
1500-100,000	-	-	1.0	30
Note 1: f = frequency in MHz ; *Plane-wave equivalent power density				
Note 2: For the applicable limit, see FCC 1.1310				

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 2.1091
- ♦ KDB680106 D01 RF Exposure Wireless Charging Apps v03

1.3 Testing Location Information

Testing Location				
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)		
		TEL : 886-3-327-3456 FAX : 886-3-327-0973		
Test site Designation No. TW1190 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Lego	24.2~25.3°C / 55~61%	17/Apr/2020~ 24/Apr/2020

1.4 Support Equipment

Support Equipment			
No.	Equipment	Brand Name	Model Name
1	30W RX Fixture	-	-
2	Adjustable Resistors	TOKE	SSR 400W75ΩK
3	AC Adapter	MEAN WELL	HRP-300-24

Note: No.1, 3 was provided by customer.

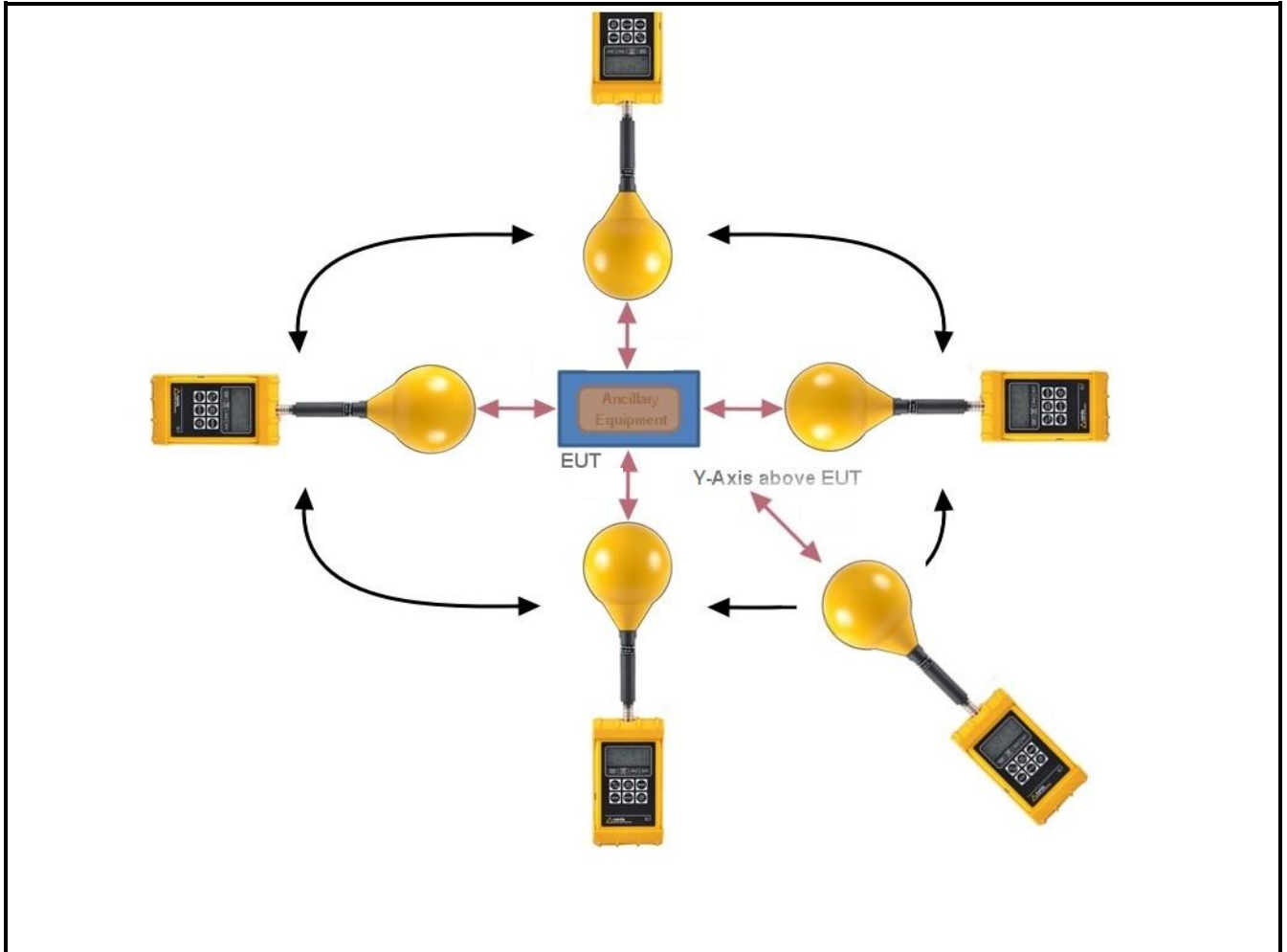
1.5 The Worst Condition

Mode	Ancillary Equipment	Charging Condition	Worst Charging Condition
1	Load 30W	Device: 30W operating (to find the worst side) at 0 cm	Top side
2	Load 30W	Device: 0~15 cm to testing at each 2cm on the top side	0 cm
3	Load 10%, 50%, 90%, 100%	Charging 3W, 15W, 27W, 30W	30W
4	Load 30W	Cable: above side on the cable	EUT

1.5.1 Test Method

Test Method	
☒	Performed aggregate both leakage E-field and H-field at surrounding the device from all simultaneous transmitting coils.
☒	During testing, the EUT was placed on a non-conductive table top and the ancillary equipment (e.g., mobile phone) was placed on the EUT for charging. Maximum E-field and H-field measurements were tested 0~15cm from each side of the EUT. Along the side of the EUT to center of E-field probe and H-field probe were positioned at the location to search maximum field strength.
☒	E-field transfer to H-field
-	$\text{E-field} = Z_0 \times \text{H-field}$ $\text{H-field} = \text{E-field} \div Z_0$ Where Z_0 = Free Space Impedance = 377Ω

1.5.2 Test Setup



Note1 : find worst position for each axis.

Note2 : This shall be measured as the distance from the edge of the device to the center of the measurement probe.

1.5.3 Result of Maximum Permissible Exposure

Mode 1

To find the worst side				
Maximum Permissible Exposure				
Charging Condition	Separation	Probe from EUT Side	E-field (V/m)	H-field Limit (A/m)
Operating mode Load 30 W	0cm	Left	2.35	0.006
	0cm	Right	10.21	0.027
	0cm	Top	22.05	0.059
	0cm	Bottom	5.02	0.013
	0cm	Y-axis above EUT	11.90	0.032
Limit			614.00	1.63
Margin Limit (%)			3.59%	3.61%

Mode 2

To find the distance				
Maximum Permissible Exposure				
Charging Condition	Separation	Probe from EUT Side	E-field (V/m)	H-field Limit (A/m)
Operating mode Load 30 W	0cm	Top	22.05	0.059
	2cm	Top	10.02	0.027
	4cm	Top	7.42	0.020
	6cm	Top	6.08	0.016
	8cm	Top	4.83	0.013
	10cm	Top	4.28	0.011
	12cm	Top	3.96	0.011
	14cm	Top	3.66	0.010
	15cm	Top	3.42	0.009
Limit			614.00	1.63
Margin Limit (%)			3.59%	3.61%

Mode 3

Tested in different loading				
Maximum Permissible Exposure				
Charging Condition	Separation	Probe from EUT Side	E-field (V/m)	H-field Limit (A/m)
Load 27 W 90%	0cm	Top	19.27	0.051
Load 15 W 50%	0cm	Top	18.38	0.049
Load 6 W 20% *	0cm	Top	17.47	0.047
Limit			614.00	1.63
Margin Limit (%)			3.14%	3.15%
Note *: the EUT only can be set the lowest loading until 20%.				

Mode 4

Maximum Permissible Exposure result from cable				
Charging Condition	Separation	Probe on the cable	E-field (V/m)	H-field Limit (A/m)
Operating mode	0cm	above	18.97	0.051
Limit			614.00	1.63
Margin Limit (%)			3.09%	3.10%

2 Test Equipment and Calibration Data

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
B-Field Probe	Narda Safety Test Solutions GmbH	B-Field Probe 100 cm ²	M-0652	50Hz ~ 400kHz	20/Jul/2018	19/Jul/2020
Exposure Level Tester	Narda Safety Test Solutions GmbH	ELT-400	N-0210	100kHz ~ 3MHz	20/Jul/2018	19/Jul/2020
Probe EF	Narda Safety Test Solutions GmbH	0391 E-Field	D-0667	0.1MHz ~ 3GHz	20/Jul/2018	19/Jul/2020
Broadband Field Meter	Narda Safety Test Solutions GmbH	NBM-550	E-0847	0.1MHz ~ 3GHz	20/Jul/2018	19/Jul/2020