

Maximum Permissible Exposure

FCC ID : NYOSYECNWPC1904
Equipment : Wireless Charging System
Brand Name : SEOYON ELECTRONICS CO., LTD.
Model Name : SYECNWPC1904
Applicant/ Manufacturer : SEOYON ELECTRONICS Co.,Ltd
100, Saneop-ro 156beon-gil, Gwonseon-gu,
Suwon-si, Gyeonggi-do, South Korea
Standard : 47 CFR Part 2.1091

The product was received on May 06, 2019, and testing was started from May 17, 2019 and completed on May 17, 2019. 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	10
Appendix A. Test Photos	A1
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: Jenny Yang

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 or LP0002 5.20				

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, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan 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	Andy	23.1~24.8°C / 60.9~62.1%	17/May/2019

1.4 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	DC Power Supply	GW	GPS-3030DD	-
2	WPC Load Fixture	-	-	-

Note: Support equipment No.2 was provided by customer.

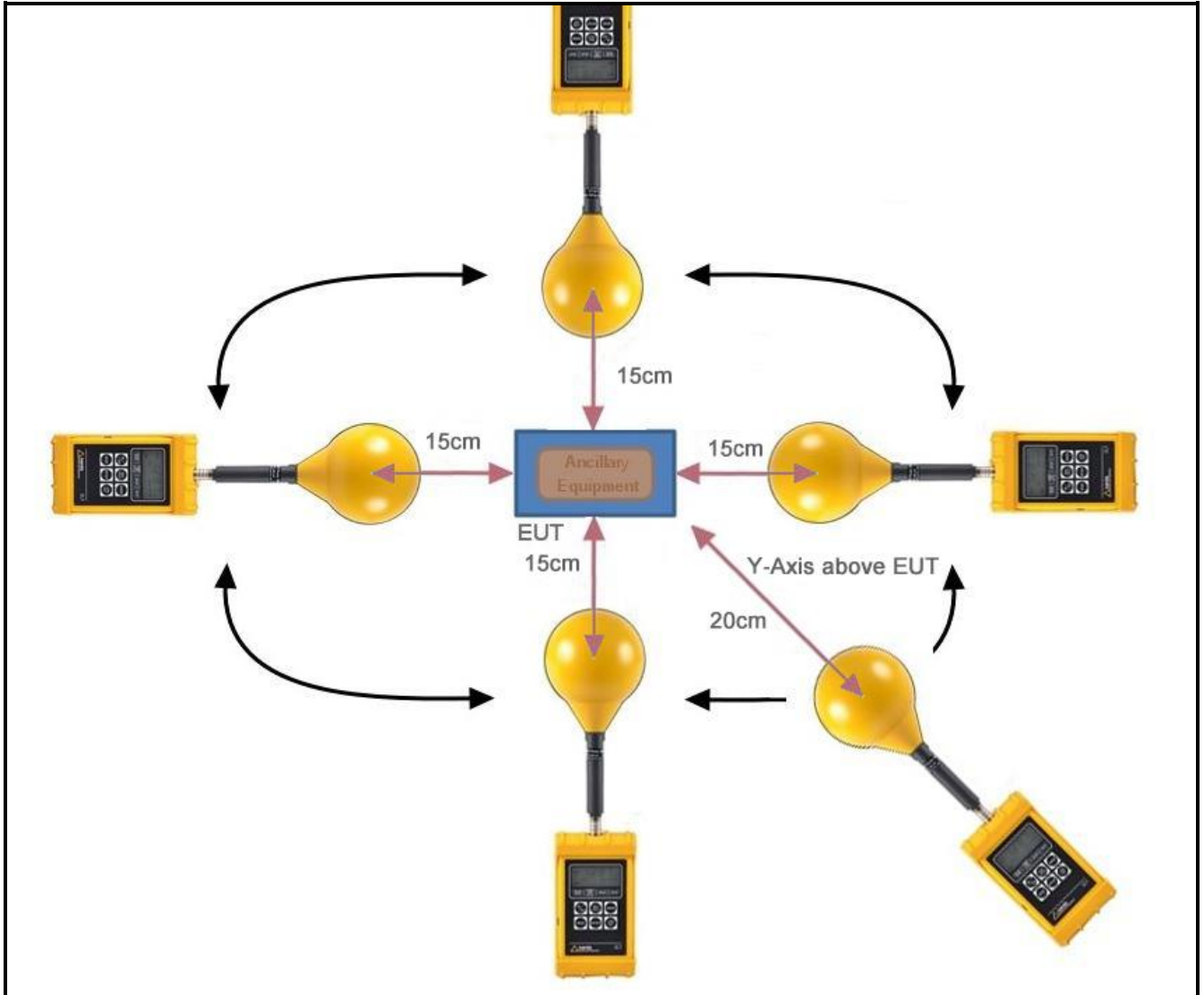
1.5 The Worst Condition

Ancillary Equipment	Charging Condition	Worst Charging Condition
Fixture Load	Charging Mode	Charging Mode

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 10cm 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
-	$E\text{-field} = Z_0 \times H\text{-field}$ $H\text{-field} = E\text{-field} \div Z_0$ 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

Maximum Permissible Exposure				
Charging Condition	Separation	Probe from EUT Side	E-field (V/m)	H-field (A/m)
Operating	15cm	Left	1.3	0.003
Operating	15cm	Right	0.99	0.003
Operating	15cm	Top	1.05	0.003
Operating	15cm	Bottom	0.67	0.002
Operating	20cm	Y-axis above EUT	2.44	0.007
Limit			614	1.63
Margin Limit (%)			0.40%	0.40%



2 Test Equipment and Calibration Data

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9kHz~40GHz	13/Mar/2019	12/Mar/2020
Loop Antenna	TESEQ	HLA 6120	31244	9kHz ~ 30MHz	15/Mar/2019	14/Mar/2020