

# TEST REPORT

of

FCC CFR 47 part1, 1.1307(b), 1.1310

FCC ID: A3LEPP4300

Equipment Under Test : WIRELESS CHARGER  
Model Name : EP-P4300  
Variant Model Name(s) : -  
Applicant : Samsung Electronics Co., Ltd.  
Manufacturer : Samsung Electronics Co., Ltd.  
Date of Receipt : 2020.11.04  
Date of Test(s) : 2020.11.27 ~ 2020.12.07  
Date of Issue : 2020.12.16

In the configuration tested, the EUT complied with the standards specified above. This test report does not assure KOLAS accreditation.

- 1) The results of this test report are effective only to the items tested.
- 2) The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received.
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**Tested by:**



Nancy Park

**Technical  
Manager:**



Hyunchoe You

**SGS Korea Co., Ltd. Gunpo Laboratory**



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## 1. General Information

### 1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

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Phone No. : +82 31 688 0901

Fax No. : +82 31 688 0921

### 1.2. Details of Applicant

Applicant : Samsung Electronics Co., Ltd.  
 Address : 19 Chapin Rd., Building D, Pine Brook, New Jersey, United States, 07058  
 Contact Person : Chun, Jenni  
 Phone No. : +1 973 808 6375

### 1.3. Details of Manufacturer

Company : Samsung Electronics Co., Ltd.  
 Address : Yen Phong 1 Industrial park, Yen Phong District Bac Ninh Province, VIETNAM

### 1.4. Description of EUT

<b>Kind of Product</b>	WIRELESS CHARGER
<b>Model Name</b>	EP-P4300
<b>Power Supply</b>	DC 9.0 V
<b>Operation Mode</b>	2 W, 4.5 W, 7.5 W, 9W
<b>Frequency Range</b>	Ant. 1: 126.2 ~ 129.2 kHz
	Ant. 2: 144.5 ~ 147.5 kHz
<b>Antenna Type</b>	Loop Coil Antenna
<b>H/W Version</b>	1.3
<b>S/W Version_MCU</b>	EP-P4300_20201125_17C0
<b>S/W Version_Tx IC</b>	P43_PRA_OFFI_1208

### 1.5. Declaration of Manufacturer

- The EUT has 2 Loop coil antennas.
- Antenna 2 can only operate 2 W with Smart Wearable Device.
- Antennas operating maximum at the same time are 2 antennas.

### 1.6. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval	Cal. Due
Electric and Magnetic field Probe analyzer	NARDA	EHP 200AC	170WX91017	Nov. 16, 2020	Annual	Nov. 16, 2021
Anechoic Chamber	SY Corporation	L x W x H (9.6 m x 6.4 m x 6.6 m)	N/A	N.C.R.	N/A	N.C.R.

#### ► Support Equipment

Description	Manufacturer	Model	FCC ID
Samsung Mobile Phone	Samsung Electronics Co., Ltd.	SM-G970	A3LSMG970U
Samsung Mobile Phone	Samsung Electronics Co., Ltd.	SM-G973U	A3LSMG973U
Bluetooth Headset	Samsung Electronics Co., Ltd.	SM-R170	A3LSMR170L, A3LSMR170R
Smart Wearable Device	Samsung Electronics Co., Ltd.	SM-R500	A3LSMR500
C type USB Cable	Samsung Electronics Co., Ltd.	EP-DG970BBE_1.5M	-
TRAVEL ADAPTER	DONGYANG E&P	EP-TA200	-

### 1.7. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL001432	2020.12.09	Initial
1	F690501-RF-RTL001432-1	2020.12.14	Added the information of H/W Version and S/W Version.
2	F690501-RF-RTL001432-2	2020.12.16	Added the test mode to indicate what kind of client device is used.

### 1.8. Worst Case of Test Configurations

In order to check all kinds of possible configurations, EUT was evaluated with appropriate client and under each charging condition as below table.

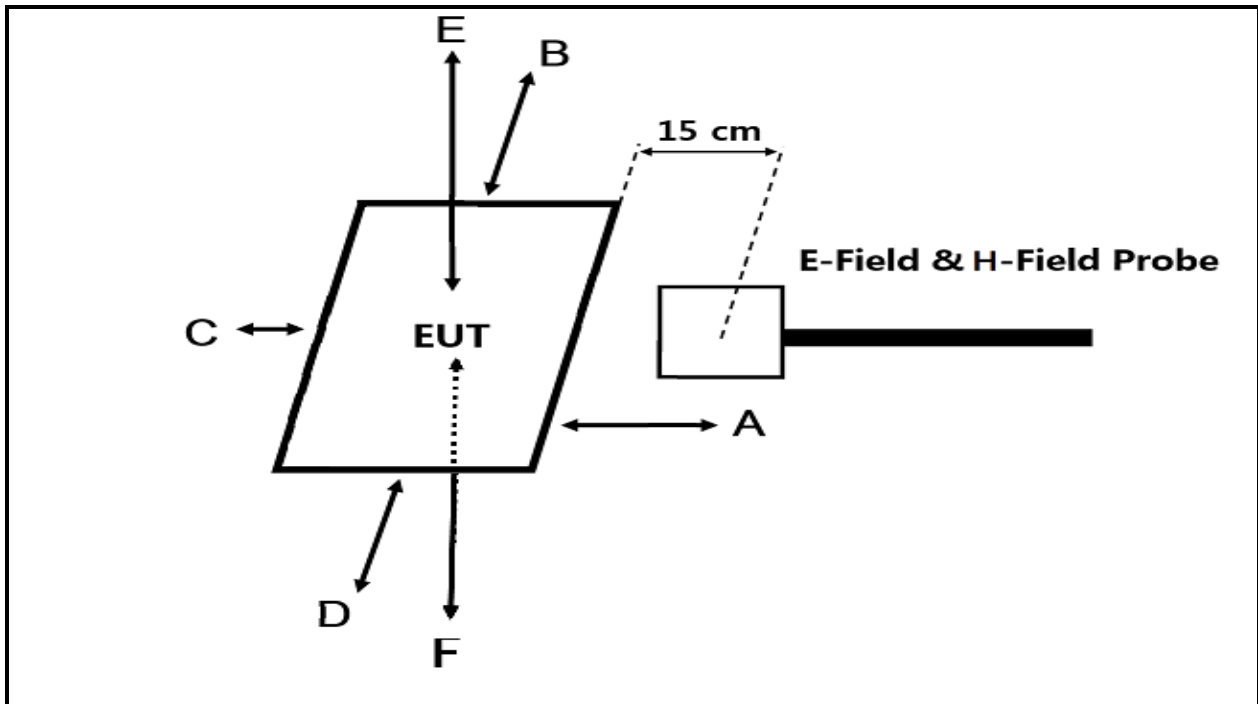
Charging mode with client device	Mode					Description
Model: SM-G970U FCC ID: A3LSMG970U	2 W	4.5 W	7.5 W	9 W	2 W & 9 W	1 % of battery 50 % of battery 99 % of battery
Model: SM-G973U FCC ID: A3LSMG973U	Ant. 1: 126.2 ~ 129.2 kHz	Ant. 1: 126.2 ~ 129.2 kHz	Ant. 1: 126.2 ~ 129.2 kHz	Ant. 1: 126.2 ~ 129.2 kHz	Ant. 1: 126.2 ~ 129.2 kHz	
Model: SM-R170 FCC ID: A3LSMR170L, A3LSMR170R	Ant. 2: 144.5 ~ 147.5 kHz	Ant. 2: 144.5 ~ 147.5 kHz	Ant. 2: 144.5 ~ 147.5 kHz	Ant. 2: 144.5 ~ 147.5 kHz	Ant. 2: 144.5 ~ 147.5 kHz	
Model: SM-R500 FCC ID: A3LSMR500	SM-R170, SM-R500	SM-G970U (Normal)	SM-G970U (Fast)	SM-G973U	SM-G973U, SM-R500	

**Note;**

- The 4.5 W and 7.5 W modes are controlled by the software on the client device.
- EUT was investigated with client device under normal charging condition as above then worst value was only reported.

## 2. Test Result

### 2.1. Test Setup



### 2.2. Measurement procedure

- a) The RF exposure test was performed in anechoic chamber.
- b) The measurement probe was placed at test distance (15 cm) which is between the edge of the charger and the geometric center of probe.
- c) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E, F) were completed.
- d) The EUT was measured according to the dictates of KDB 680106 D01 RF Exposure Wireless Charging Apps v03.

**2.3. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310.**

§1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

**TABLE 1 - LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
(A) Limits for Occupational /Control Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1 500			f/300	6
1 500-100 000			5	6
(B) Limits for General Population / Uncontrol Exposures				
<b><u>0.3-1.34</u></b>	<b><u>614</u></b>	<b><u>1.63</u></b>	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1 500			f/1 500	30
1 500-100 000			1.0	30

f = frequency in MHz

\* = Plane wave equivalent power density

## 2.4. E and H field strength

Ambient temperature : (23 ± 1) °C  
 Relative humidity : 47 % R.H.

### 2.4.1. E-Field Strength at from the edges surrounding the EUT

**Test Condition: 2 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Antenna	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Probe Position F (V/m)	Limits (V/m)
126.2 ~ 129.2	1	0.352	0.359	0.409	0.371	0.379	0.411	614
144.5 ~ 147.5	2	0.377	0.457	0.430	0.466	0.479	0.444	614

**Test Condition: 4.5 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Antenna	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Probe Position F (V/m)	Limits (V/m)
126.2 ~ 129.2	1	0.662	0.662	0.553	0.402	0.528	0.474	614

**Test Condition: 7.5 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Antenna	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Probe Position F (V/m)	Limits (V/m)
126.2 ~ 129.2	1	1.120	1.267	0.841	0.393	0.816	0.629	614

**Test Condition: 9 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Antenna	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Probe Position F (V/m)	Limits (V/m)
126.2 ~ 129.2	1	0.982	1.189	0.815	0.470	0.947	0.573	614

**Test Condition: 2 W & 9 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Probe Position F (V/m)	Limits (V/m)
Ant. 1: 126.2 ~ 129.2 & Ant. 2: 144.5 ~ 147.5	0.861	1.037	0.582	0.514	<u>1.714</u>	0.671	614



### 2.4.2. H-Field Strength at from the edges surrounding the EUT

**Test Condition: 2 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Antenna	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Probe Position F (A/m)	Limits (A/m)
126.2 ~ 129.2	1	0.139	0.146	0.142	0.145	0.210	0.151	1.63
144.5 ~ 147.5	2	0.145	0.140	0.139	0.143	0.144	0.144	1.63

**Test Condition: 4.5 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Antenna	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Probe Position F (A/m)	Limits (A/m)
126.2 ~ 129.2	1	0.144	0.143	0.143	0.142	0.143	0.142	1.63

**Test Condition: 7.5 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Antenna	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Probe Position F (A/m)	Limits (A/m)
126.2 ~ 129.2	1	0.221	0.143	0.139	0.146	0.140	0.142	1.63

**Test Condition: 9 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Antenna	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Probe Position F (A/m)	Limits (A/m)
126.2 ~ 129.2	1	0.139	0.142	0.159	0.141	0.143	0.138	1.63

**Test Condition: 2 W & 9 W Operating mode with client device (1 % battery status of client device)**

Frequency Range (kHz)	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Probe Position F (A/m)	Limits (A/m)
Ant. 1: 126.2 ~ 129.2 & Ant. 2: 144.5 ~ 147.5	0.159	0.159	0.159	0.156	<u>0.222</u>	0.159	1.63

**- End of the Test Report -**