FCC Part 1 Subpart I
FCC Part 2 Subpart J

CERTIFICATION TEST REPORT

FOR

WIRELESS CHARGER

MODEL NUMBER: EP-OR500

FCC ID: A3LEPOR500

REPORT NUMBER: 4788842808-S1V2

ISSUE DATE: 1/15/2019

Prepared for
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ACCREDITED
Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	1/7/2019	Initial Issue	Eunji Choi
V2	1/15/2019	Revised Sec.4.3, Sec.4.4, Sec.7.1.2, Sec.7.2.1 and Sec.8	Eunji Choi

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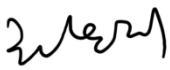
1. Attestation of Test Results

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.
FCC ID	A3LEPOR500
Model Number	EP-OR500
Serial Number	RF7HC1KGZMLCIS
Applicable Standards	FCC PART 1 SUBPART I FCC PART 2 SUBPART J KDB 680106 D01
Date Tested	1/7/2019 and 1/15/2019
Test Results	Complies

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released By:	Prepared By:
	
Justin Park Lead Test Engineer UL Korea, Ltd. Suwon Laboratory	Eunji Choi Associate Test Engineer UL Korea, Ltd. Suwon Laboratory

2. TEST METHODOLOGY

All calculations were made in accordance with FCC OET Bulletin 65 Edition 97-01 and IC Safety Code 6.

3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at

Suwon
Shield Room

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.
The full scope of accreditation can be viewed at http://www.iasonline.org/PDF/TL/TL-637.pdf.

4. EQUIPMENT UNDER TEST

4.1. DESCRIPTION OF EUT

The EUT is a magnetic charging device which has a single inductive charging coil to charge Watch. The charging frequency is between 110 kHz to 190 kHz, and the maximum power consumption is 5W.

4.2. WORST-CASE CONFIGURATION

Config	Mode	Description
1	Standby	EUT Alone powered by Travel adapter
2	Operating	EUT and Watch powered by Travel adapter

Note: EUT was tested as standby and operation modes.

4.3. KDB 680106 D01 v03 SECTION 5.b) EQUIPMENT APPROVAL CONSIDERATIONS

Requirement	Device
(1) Power transfer frequency is less than 1 MHz	Yes. Operating Frequency is between 110kHz to 190 kHz.
(2) Output power from each primary coil is less than or equal to 15 watts.	Yes. Maximum power is 5 Watts.
(3) 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.	Yes.
(4) Client device is placed directly in contact with the transmitter.	Yes.
(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes.
(6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes. The aggregate field are 3.74 % of the FCC H field limit.

4.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

SUPPORT EQUIPMENT & PERIPHERALS LIST				
Description	Manufacturer	Model	Serial Numver	FCC ID
Watch	Samsung Electronics Co., Ltd.	SM-R500	R3AKC0086EY	A3LSMR500
Travel Adapter	Samsung Electronics Co., Ltd.	EP-TA50KWK	DK5K820VS/A-E	-

I/O CABLES

[Configuration 1]

I/O Cable List						
Cable No.	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC Power	1	Power	Unshielded	-	From Travel Adapter to AC Main

[Configuration 2]

I/O Cable List						
Cable No.	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC Power	1	Power	Unshielded	-	From Travel Adapter to AC Main
2	Wireless	1	Wireless	-	-	From EUT to Wearable Device

TEST SETUP

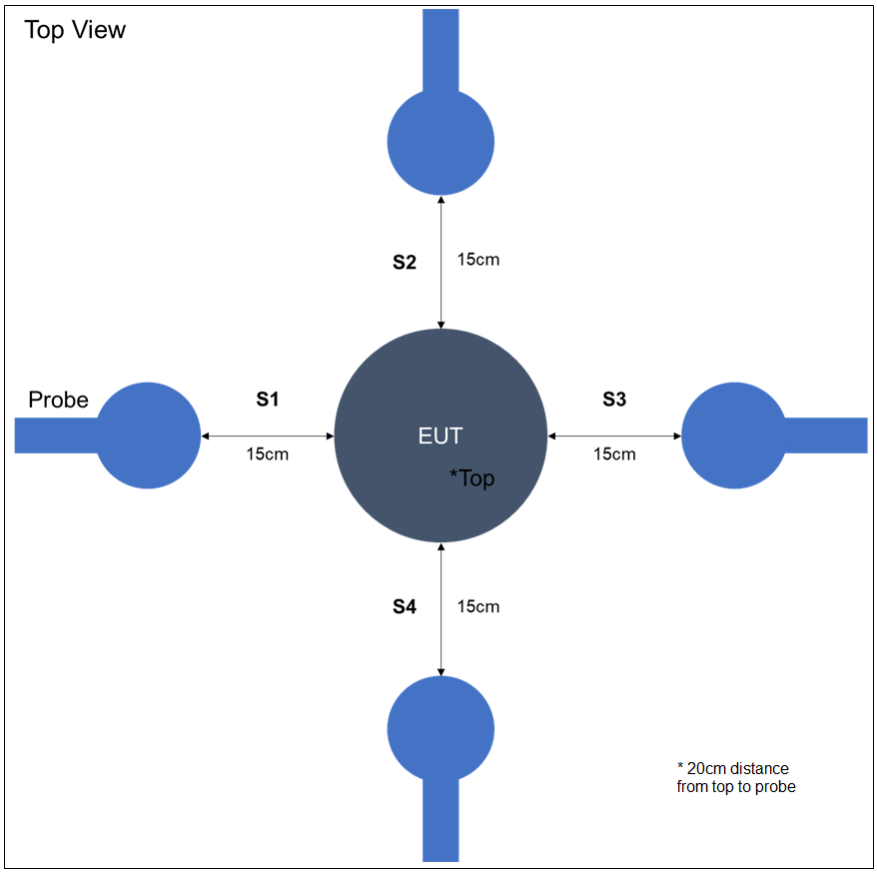
The following two configurations are tested;

Configuration	Mode	Descriptions
1	Standby	EUT Alone powered by Travel adapter.
2	Operating (Watch, <10% Power Charging)	EUT and Watch powered by Travel adapter.
	Operating (Watch, ~50% Power Charging) Note: For the configuration 2 operating with Watch, battery level of the Watch was at a state of 40 - 50%.	EUT and Watch powered by Travel adapter.
	Operating (Watch, >90% Power Charging)	EUT and Watch powered by Travel adapter.

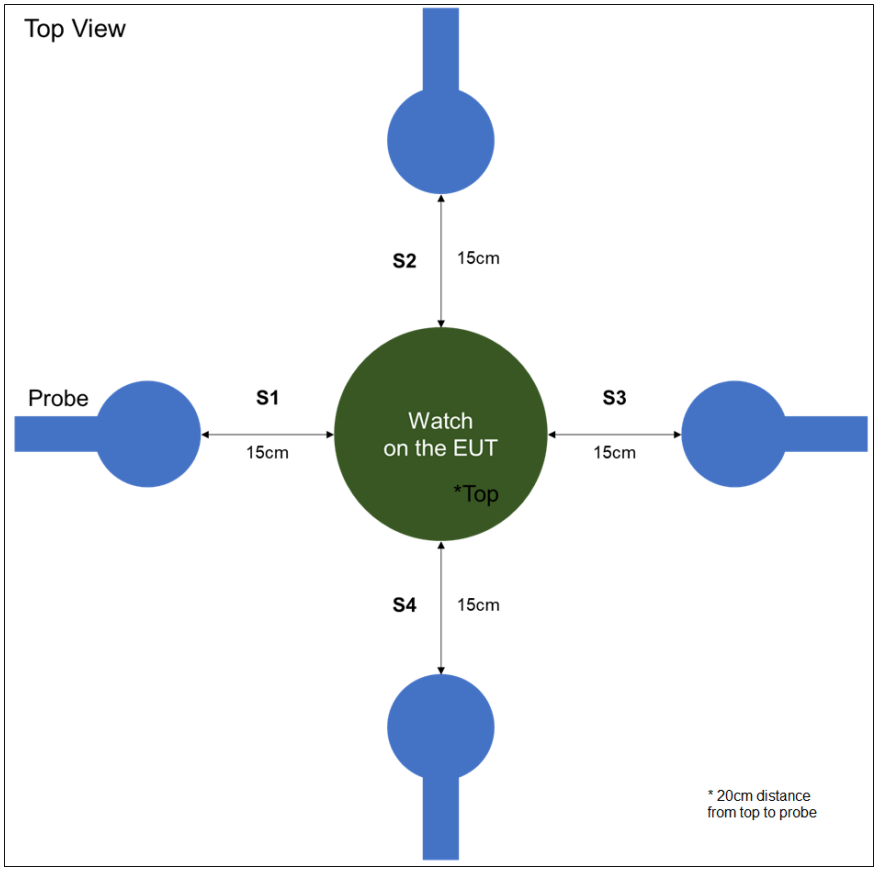
MEASUREMENT SETUP

The measurement was taken using a probe placed 15 cm surrounding the device and 20 cm above the top surface of the EUT. Measurements were taken the top and all sides of the EUT per KDB680106 D01 v03.

CONFIGURATION 1 – Standby, EUT alone



CONFIGURATION 2 – Operating, EUT and Watch



5. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was used for the tests documented in this report;

Test Equipment List					
Description	Manufacturer	Model	Serial Numver	Cal Date	Cal Due
Electric and Magnetic Field Probe	Narda	EHP-200A	170WX80301	12-14-2018	12-14-2019

6. DUTY CYCLE

LIMITS

None; for reporting purposes only.

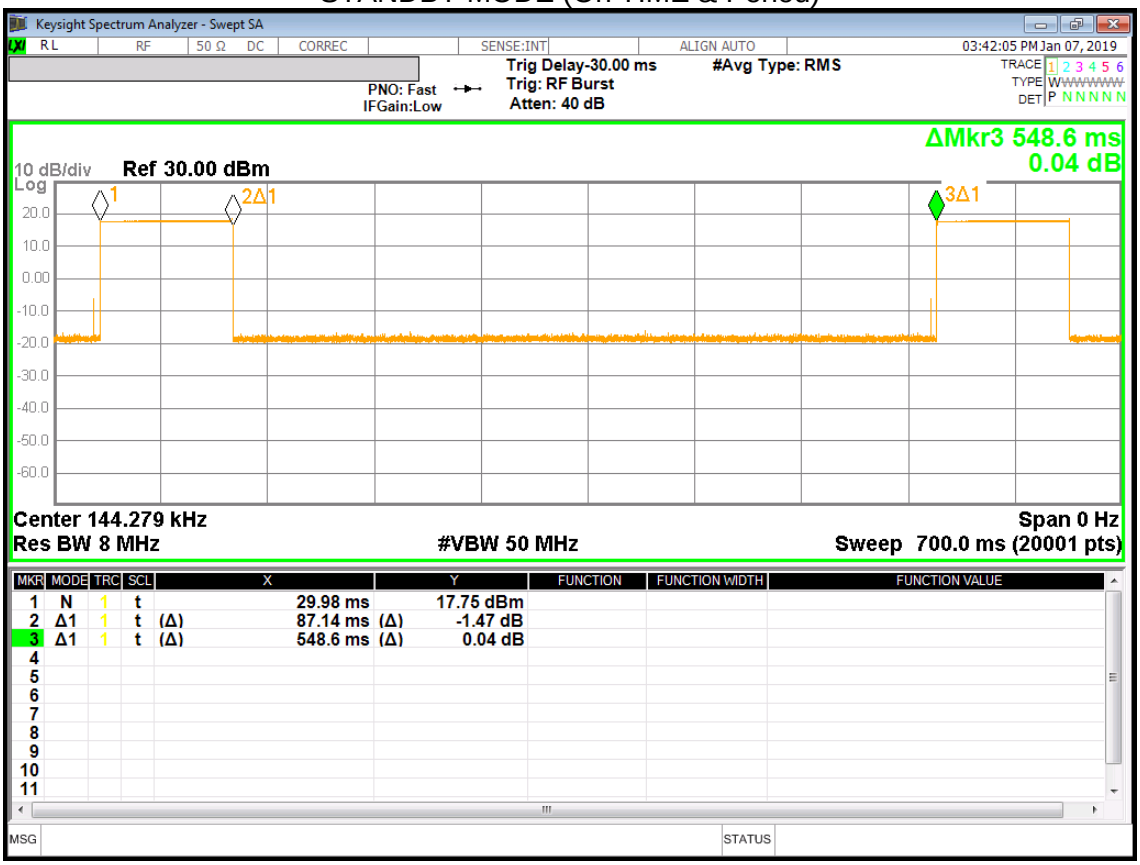
PROCEDURE

Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
Standby (Config 1)	87.14	548.60	0.16	15.88%	7.99
Operating (Config 2)	100.00	100.00	1.00	100.00%	0.00

STANDBY MODE (On TIME & Period)



OPERATING MODE (Config 2, with Watch)

7. MAXIMUM PERMISSIBLE RF EXPOSURE

7.1. FCC LIMITS AND SUMMARY

7.1.1. FCC LIMITS

§ 1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental 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 § 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^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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
(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/f^2)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
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.

7.1.2. FCC SUMMARY OF RESULTS

Magnetic Field Limit		
FCC RF Exposure Limit	Max. A/m RMS (A/m)	Percentage (%)
1.63	0.06	3.74%

Note:
Above Result is the worst case of all test positions.

7.2. TEST RESULTS

7.2.1. FCC RF EXPOSURE

E-FIELD AND H-FIEND MEASUREMENTS

Note: Peak measurements were performed. RMS values were calculated from the peak measurement. Please refer to the formula for calculating the RMS values: [Field Strength x √Duty Cycle].

Configuration	Test Mode	Measuring Distance (cm)	Location	Magnetic Field Limit (A/m)	Magnetic Field Reading (A/m)		
				FCC	Peak	Dyty Cycle %	RMS
1	Standby	**15 cm** surrounding the device (S1 - S4) and **20 cm** above the top surface of the EUT	S1	1.63	0.052	15.88	0.021
			S2		0.053		0.021
			S3		0.053		0.021
			S4		0.053		0.021
			Top		0.154		**0.061**
2	Operating Real Product (Power <10% Charging)		S1		0.053	100	0.053
			S2		0.053		0.053
			S3		0.051		0.051
			S4		0.053		0.053
			Top		0.053		0.053
	Operating Real Product (Power 40% - 50% Charging)		S1		0.054	100	0.054
			S2		0.051		0.051
			S3		0.053		0.053
			S4		0.058		0.058
			Top		0.051		0.051
	Operating Real Product (Power >90% Charging)		S1		0.053	100	0.053
			S2		0.053		0.053
			S3		0.052		0.052
			S4		0.053		0.053
			Top		0.051		0.051