

TEST REPORT

of

FCC CFR 47 part1, 1.1307(b), 1.1310

FCC ID: 2AFGCWC-MP03N

Equipment Under Test : WIRELESS CHARGER

Model Name : WC-MP03N

Variant Model Name(s) : -

Applicant : SL CORPORATION

Manufacturer : SL CORPORATION

Date of Receipt : 2025.08.26

Date of Test(s) : 2025.09.15 ~ 2025.10.29

Date of Issue : 2025.10.30

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

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- 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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We are responsible for all the information of this test report except for the data(※) provided by the customer.

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Report Number: F690501-RF-RTL006445

Page: 2 of 15

INDEX

Table of Contents

1. General Information -----	3
2. Electronic Field and Magnetic Field-----	6

1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

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- Designation number: KR0150

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1.2. Details of Applicant

Applicant : SL CORPORATION

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Contact Person : Jang, Un-Yong

Phone No. : +82 53 850 8765

1.3. Details of Manufacturer

Company : Same as applicant

Address : Same as applicant

1.4. Description of EUT

Kind of Product	WIRELESS CHARGER	
Model Name	WC-MP03N	
Serial Number	57LHTLQ2N1057DR000111	
Power Supply	DC 12 V	
Operation Mode	5 W, 10 W, 15W	
Frequency Range	5 W	126.7 kHz ~ 128.7 kHz
	10 W	126.7 kHz ~ 128.7 kHz
	15 W	126.7 kHz ~ 128.7 kHz
	Idle	126.7 kHz ~ 128.7 kHz
Antenna Type	Coil Antenna	
Antenna Part Number	N/A	
H/W Version	1.0	
S/W Version	25610	

1.5. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal. Due	Cal. Interval
Electric and Magnetic field Probe analyzer	NARDA	EHP 200AC	170WX91017	04/07/2026	Annual
DC Power Supply	Agilent	U8002A	MY53150029	12/10/2025	Annual
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	N/A	N.C.R.	N/A

► Support Equipment

Description	Manufacturer	Model	FCC ID
SAMSUNG Mobile Phone	Samsung Electronics Co., Ltd.	SM-S911N	A3LSMS911U
SAMSUNG Mobile Phone	Samsung Electronics Co., Ltd.	SM-N950U	A3LSMN950U
Lap top	Dell	Latitude 3510	-

1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 1 Subpart I		
Section	Test Item(s)	Result
1.1307(b) 1.1310(e)(1)	Electronic Field and Magnetic Field	Pass

1.7. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL006445	2025.10.30	Initial

1.8. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Electric Field	19.28 %
Magnetic Field	19.64 %

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95 % level of confidence.

1.9. 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	FCC ID			
SM-S911N	A3LSMS911U	15 W	126.7 kHz ~ 128.7 kHz	1 % of battery 50 % of battery 99 % of battery
SM-N950U	A3LSMN950U	5 W, 10W	126.7 kHz ~ 128.7 kHz	1 % of battery 50 % of battery 99 % of battery

Mode	Battery	Frequency (kHz)	E-field Strength (V/m)	H-field Strength (A/m)
5 W	1 %	126.7 ~ 128.7	<u>107.01</u>	<u>1.260</u>
	50 %		106.84	1.250
	99 %		106.59	1.240
10 W	1 %	126.7 ~ 128.7	<u>148.05</u>	<u>1.333</u>
	50 %		147.37	1.322
	99 %		147.27	1.312
15 W	1 %	126.7 ~ 128.7	<u>167.77</u>	<u>1.392</u>
	50 %		167.71	1.380
	99 %		166.21	1.368

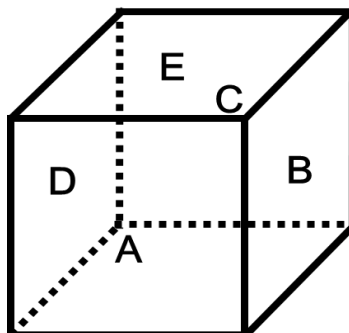
Note;

- EUT was investigated with client device under normal charging condition as above then worst value was only reported.

2. Electronic Field and Magnetic Field

2.1. Isotropic Probe Test Setup

The measurement probe (EHP-200AC) is a regular hexahedron and supports 3-axis isotropic probe.



A: Front of measurement probe

B: Right of measurement probe

C: Rear of measurement probe

D: Left of measurement probe

E: Top of measurement probe

*Bottom of measurement probe is not used to measure RF exposure condition owing to connection with a stick.

- measurement isotropic probe was investigated by rotating the probe through various angles for one of the EUT's sides as below.

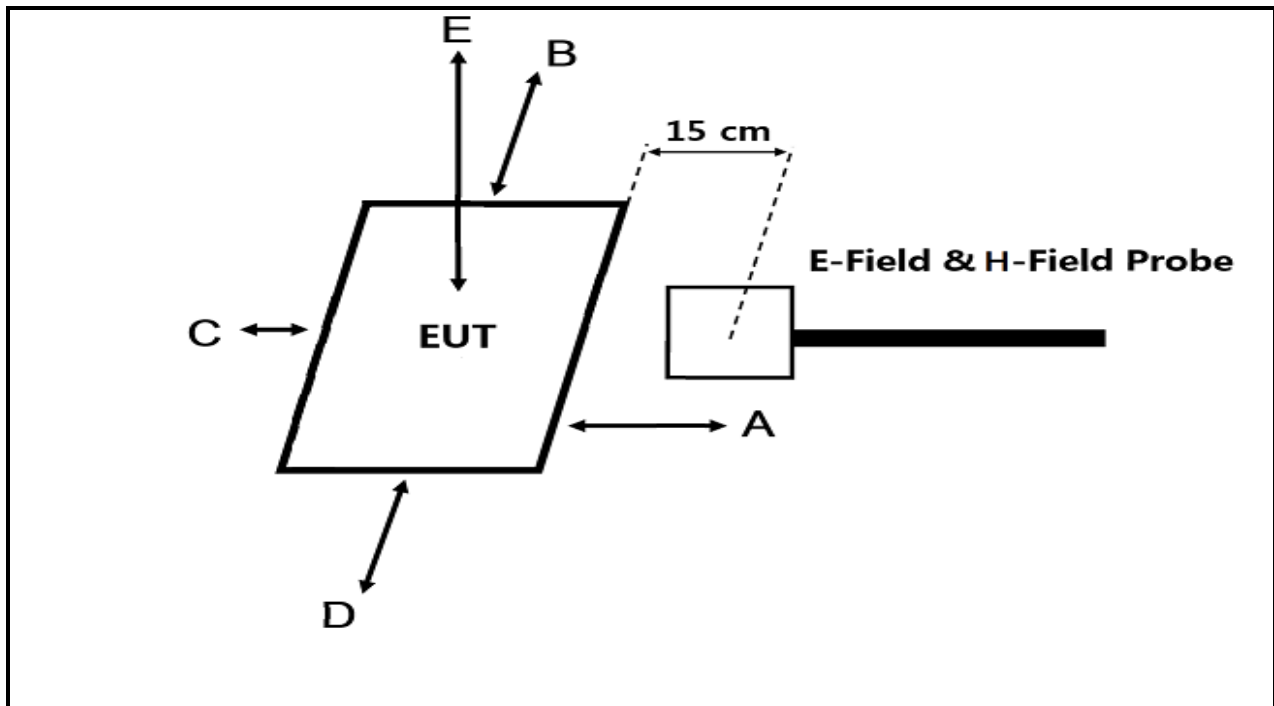
Measurement Point	A	B	C	D	E
Direction	Front	Right	Rear	Left	Top
Measurement Point	A to B	B to C	C to D	D to A	N/A
Direction	Front to Right	Right to Rear	Rear to Left	Left to Front	-
Measurement Point	A to E	B to E	C to E	D to E	N/A
Direction	Front to Top	Right to Top	Rear to Top	Left to Top	-

- When the worst angle among all angles was found, RF exposure measurement should be adjusted from worst angle.

- Worst Case

Mode	Condition	Isotropic Probe position
5W	E-Field	Side D
	H-Field	Side E
10W	E-Field	Side D
	H-Field	Side E
15W	E-Field	Side D
	H-Field	Side E

2.2. EUT Test Setup



2.3. Measurement procedure

- The RF exposure test was performed in anechoic chamber.
- The measurement probe was placed at test distance (4, 6, 8, 10, 15 cm) which is between the edge of the charger and the geometric center of probe.
- Measurement was performed on each side of the EUT as described above picture (A, B, C, D, E).
- The EUT was measured according to the dictates of KDB 680106 D01 RF Exposure Wireless Charging Apps v04.

Note;

- Because of measurement probe antenna size, minimum distance between charger and probe is 4 cm for E-Field and H-Field.
- Probe has 4 cm radius enclosure but each sensing element is located 8 mm from the other edge. Therefore, actual distance in measurement at 4 cm is 8 mm.
- The EUT installed to the vehicle was charged from the top, so it was measured from 4 sides except the bottom.
- The power supply section is located on the C side.
- According to the manufacturer's declaration, the minimum installation distances are 95 mm on side A, 39 mm on sides B and D, and 60 mm on side C. Therefore, considering the minimum installation environment and the probe's sensing element, the evaluation were carried out at 87 mm, 31 mm and 52 mm respectively.

2.4. 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 to § 1.1310(e)(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)	Average Time (minutes)
(i) Limits for Occupational /Control 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
300-1 500	-	-	f/300	<6
1 500-100 000	-	-	5	<6
(ii) Limits for General Population/Uncontrolled Exposures				
<u>0.3-1.34</u>	<u>614</u>	<u>1.63</u>	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<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.

2.5. E and H field strength

Ambient temperature : (23 ± 1) °C

Relative humidity : 47 %

2.5.1. E-Field Strength at from the edges surrounding the EUT

Test Condition: 5 W Operating mode with client device

Frequency (kHz)	Distance (cm)	EUT Sides	Distance (cm)	EUT Sides		Distance (cm)	EUT Sides	Distance (cm)	EUT Sides
		A (V/m)		B (V/m)	D (V/m)		C (V/m)		E (V/m)
126.7 ~ 128.7	15	7.694	15	2.211	3.041	15	4.808	15	4.777
	13.5	12.987	10	9.180	8.819	10	29.073	10	18.315
	-	-	8	15.344	14.365	-	-	8	33.018
	-	-	7.9	15.703	15.301	-	-	6	63.020
	-	-	-	-	-	-	-	Contact	<u>107.010</u>

Test Condition: 10 W Operating mode with client device

Frequency (kHz)	Distance (cm)	EUT Sides	Distance (cm)	EUT Sides		Distance (cm)	EUT Sides	Distance (cm)	EUT Sides
		A (V/m)		B (V/m)	D (V/m)		C (V/m)		E (V/m)
126.7 ~ 128.7	15	10.102	15	4.376	4.082	15	7.275	15	6.063
	13.5	17.018	10	11.908	12.492	10	36.063	10	22.601
	-	-	8	19.487	20.497	-	-	8	37.522
	-	-	7.9	20.038	20.829	-	-	6	69.741
	-	-	-	-	-	-	-	Contact	<u>148.050</u>

Test Condition: 15 W Operating mode with client device

Frequency (kHz)	Distance (cm)	EUT Sides	Distance (cm)	EUT Sides		Distance (cm)	EUT Sides	Distance (cm)	EUT Sides
		A (V/m)		B (V/m)	D (V/m)		C (V/m)		E (V/m)
126.7 ~ 128.7	15	7.886	15	4.387	4.141	15	7.361	15	6.794
	13.5	12.301	10	13.370	11.843	10	35.337	10	25.028
	-	-	8	21.063	20.654	-	-	8	43.112
	-	-	7.9	21.643	20.992	-	-	6	82.670
	-	-	-	-	-	-	-	Contact	<u>167.770</u>

Test Condition: Idle

Frequency (kHz)	Distance (cm)	EUT Sides	Distance (cm)	EUT Sides		Distance (cm)	EUT Sides	Distance (cm)	EUT Sides
		A (V/m)		B (V/m)	D (V/m)		C (V/m)		E (V/m)
126.7 ~ 128.7	15	0.371	15	0.391	0.381	15	0.373	15	0.373
	13.5	0.381	10	0.381	0.389	10	0.391	10	0.381
	-	-	8	0.371	0.381	-	-	8	1.693
	-	-	7.9	0.629	2.300	-	-	6	47.610
	-	-	-	-	-	-	-	Contact	<u>99.734</u>

2.5.2. H-Field Strength at from the edges surrounding the EUT

Test Condition: 5 W Operating mode with client device

Frequency (kHz)	Distance (cm)	EUT Sides	Distance (cm)	EUT Sides		Distance (cm)	EUT Sides	Distance (cm)	EUT Sides
		A (A/m)		B (A/m)	D (A/m)		C (A/m)		E (A/m)
126.7 ~ 128.7	15	0.154	15	0.154	0.157	15	0.174	15	0.173
	13.5	0.286	10	0.157	0.154	10	0.632	10	0.348
	-	-	8	0.172	0.324	-	-	8	0.552
	-	-	7.9	0.291	0.341	-	-	6	1.048
	-	-	-	-	-	-	-	Contact	<u>1.260</u>

Test Condition: 10 W Operating mode with client device

Frequency (kHz)	Distance (cm)	EUT Sides	Distance (cm)	EUT Sides		Distance (cm)	EUT Sides	Distance (cm)	EUT Sides
		A (A/m)		B (A/m)	D (A/m)		C (A/m)		E (A/m)
126.7 ~ 128.7	15	0.249	15	0.157	0.161	15	0.224	15	0.255
	13.5	0.502	10	0.166	0.320	10	0.860	10	0.521
	-	-	8	0.325	0.672	-	-	8	0.734
	-	-	7.9	0.383	0.695	-	-	6	1.296
	-	-	-	-	-	-	-	Contact	<u>1.333</u>

Test Condition: 15 W Operating mode with client device

Frequency (kHz)	Distance (cm)	EUT Sides	Distance (cm)	EUT Sides		Distance (cm)	EUT Sides	Distance (cm)	EUT Sides
		A (A/m)		B (A/m)	D (A/m)		C (A/m)		E (A/m)
126.7 ~ 128.7	15	0.863	15	0.178	0.193	15	0.857	15	0.300
	13.5	1.299	10	0.330	0.511	10	1.308	10	0.645
	-	-	8	0.558	1.095	-	-	8	0.954
	-	-	7.9	0.617	1.150	-	-	6	1.189
	-	-	-	-	-	-	-	Contact	<u>1.392</u>

Test Condition: Idle

Frequency (kHz)	Distance (cm)	EUT Sides	Distance (cm)	EUT Sides		Distance (cm)	EUT Sides	Distance (cm)	EUT Sides
		A (A/m)		B (A/m)	D (A/m)		C (A/m)		E (A/m)
126.7 ~ 128.7	15	0.157	15	0.154	0.153	15	0.150	15	0.150
	13.5	0.154	10	0.157	0.152	10	0.156	10	0.157
	-	-	8	0.160	0.157	-	-	8	0.242
	-	-	7.9	0.157	0.335	-	-	6	0.413
	-	-	-	-	-	-	-	Contact	<u>0.696</u>

2.6. H-Field Strength Calculation of the EUT

2.6.1. Calculation of μ_r (relative permeability)

According to the self-inductance formula, μ_r (relative permeability) can be obtained.

$$x = \sqrt{1 + \left(\frac{d}{2l}\right)^2}$$

$$L = 2l \left[\ln \left\{ \left(\frac{2l}{d} \right) (1 + x) \right\} - x + \frac{\mu_r}{4} + \frac{d}{2l} \right]$$

$$\mu_r = 4 \left[\frac{L}{2l} - \ln \left\{ \left(\frac{2l}{d} \right) (1 + x) \right\} + x - \frac{d}{2l} \right]$$

Where;

L: self inductance [nH], Qi specification of WIRELESS POWER CONSORTIUM

d: diameter of the wire [cm]

l: length of the wire in [cm]

μ_r : relative permeability

L [nH]	d [cm]	l [cm]	μ_r
11 500	0.115	153	120.01

2.6.2. Calculation of theoretical H-field strength with Biot-Savart's law

According to Biot-Savart law, the value of the B-field at the distance z from the coil is expressed as follows.

$$B_z = \frac{\mu_0 I R^2}{2(R^2 + z^2)^{3/2}}$$

Convert the value of the B-field to the H-field.

$$B_z = \mu_0 \times H_z,$$

$$H_z = \frac{I R^2}{2(R^2 + z^2)^{3/2}}$$

Considering the number of turns and relative permeability of coil, it is expressed as follows.

$$H_z = \frac{I R^2}{2(R^2 + z^2)^{3/2}} \times \frac{N}{\mu_r}$$

Where;

I: the maximum current to the EUT during charging can be obtained from the power supply equipment [A]

R: the radial of EUT' coil antenna [m]

z: the distance from the coil antenna to the point to be measured [m]

N: the number of turns in the coil

μ_r : relative permeability

Test Condition	I [A]	R [m]	μ_r	N	z [m]	Actual measuring distance ³⁾ [m]	Theoretical H-field value [A/m]
5 W	1	0.027	120.01	12	0.0186 ¹⁾	0.008	1.034
					0.0106 ²⁾	0	1.493
10 W	1	0.027	120.01	12	0.0186 ¹⁾	0.008	1.034
					0.0106 ²⁾	0	1.493
15 W	1	0.027	120.01	12	0.0176 ¹⁾	0.008	1.089
					0.0096 ²⁾	0	1.549

Note;

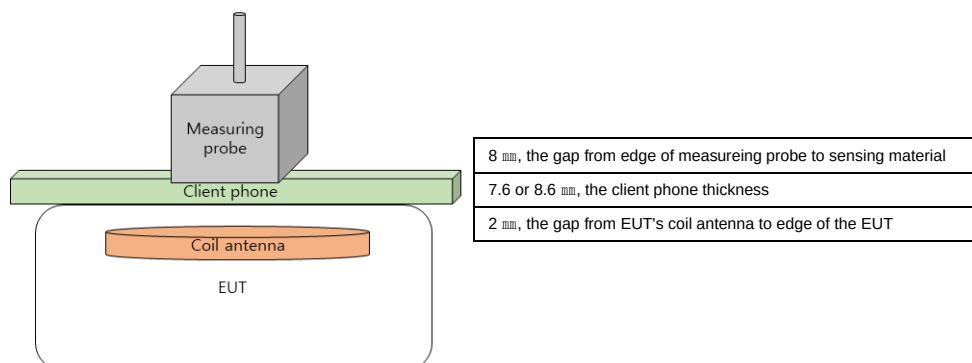
1) Distance z is from the EUT's coil antenna to the measurement point and includes all of the following.

- 2 mm, the gap from EUT's coil antenna to edge of the EUT
- 8 mm, the gap from edge of measuring probe to sensing elements of measuring probe
- 8.6 mm, the client phone(SM-N950U) thickness
- 7.6 mm, the client phone(SM-S911N) thickness

2) Distance z is from the EUT's coil antenna to the measurement point and includes all of the following.

- 2 mm, the gap from EUT's coil antenna to edge of the EUT
- 8.6 mm, the client phone(SM-N950U) thickness
- 7.6 mm, the client phone(SM-S911N) thickness

3) In the actual measurement, it means the distance between the EUT and the sensing elements of the probe.



2.6.3. The validation of H-field strength

Frequency (kHz)	Test Condition	Distance (cm)	Theoretical H-field value [A/m]	30 % tolerance of theoretical H-field value [A/m]		EUT Sides E [A/m]	Limits [A/m]
				Min.	Max	Measured value	
126.7 ~ 128.7	5 W (1 % battery status of client device)	Contact ¹⁾	1.034	0.724	1.344	1.260	1.63
126.7 ~ 128.7	10 W (1 % battery status of client device)	Contact ¹⁾	1.034	0.724	1.344	1.333	
126.7 ~ 128.7	15 W (1 % battery status of client device)	Contact ¹⁾	1.089	0.762	1.416	1.392	

Note;

- 1) Probe has 4 mm radius enclosure but each sensing element is located 8 mm from the probe edge.
Therefore, actual distance in measurement is 8 mm.

2.6.4. The estimation of H-field strength

Frequency (kHz)	Test Condition	Distance (cm)	EUT Sides E	Limits [A/m]
			Theoretical H-field value [A/m]	
126.7 ~ 128.7	5 W (1 % battery status of client device)	0	1.493	1.63
126.7 ~ 128.7	10 W (1 % battery status of client device)	0	1.493	
126.7 ~ 128.7	15 W (1 % battery status of client device)	0	1.549	

Estimation formula and theoretical value have 30% agreement with actual measurement. Estimation for 0 mm field strength with validated formula complies limit.

- End of the Test Report -