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FCC EVALUATION REPORT FOR CERTIFICATION

Project No. : NK-24-R-585**Dates of receipt :** December 30, 2024**Applicant :** Samsung Electronics Co., Ltd.**Dates of Issue :** February 17, 2025

129, Samsung-ro, Yeongtong-gu, Suwon-si,

Test Site :

Gyeonggi-do, 16677 Korea, Republic of

Nemko Korea Co., Ltd.

FCC ID :**A3LCC90F001213****Applicant :****Samsung Electronics Co., Ltd.****Brand Name :****SAMSUNG****Model:****CC90F001213****Additional Model(s):****-****EUT Type:****Wireless Charger****Classification:****FCC Part 15****Low Power Transmitter Below 1705 kHz****Date of Test:****January 8, 2025****Applied Standard:****FCC Part 1 Subpart I****FCC Part 2 Subpart J**

The device bearing the brand name and model specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. The client should not use it to claim product endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.

I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. This report is not related to KS Q ISO/IEC 17025 and KOLAS accreditation.



Tested By : Hyeonseung Lee

Test Engineer

Reviewed By : Hoonpyo Lee

Technical Manager

Revision History

Rev.	Issue Date	Revisions	Revised By
00	February 17, 2025	Initial issue	Hyeonseung Lee

TABLE OF CONTENTS

1. INTRODUCTION.....	4
1.1 Test facility	4
1.2 Accreditation and listing	4
2. EUT INFORMATION & TEST CONDITIONS	5
2.1 EUT Information	5
2.2 Operation During Test.....	6
2.3 Support Equipment	7
2.4 Setup Drawing.....	7
3. TEST METHODOLOGY.....	8
4. DESCRIPTION OF TESTS.....	9
4.1 Maximum Permissible RF Exposure	9
5. TEST DATA	10
5.1 Maximum Permissible RF Exposure	10
6. TEST EQUIPMENT	13

1. INTRODUCTION

1.1 Test facility

The measurement procedure described in American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4-2014), the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013) was used in determining radiated and conducted emissions emanating.

These measurement tests were conducted at **Nemko Korea Co., Ltd.**

The site address 165-51, Yurim-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, 17042, Rep. of Korea.

1.2 Accreditation and listing

Accreditation type		Accreditation number
	CAB Accreditation for DOC	Designation No. KR0026
	KOLAS Accredited Lab. (Korea Laboratory Accreditation Scheme)	Registration No. KT155
	Canada IC Registered site	Site No. 29506
	VCCI registration site(RE/CE/Telecom CE)	Member No. 2118
	EMC CBTL	TL124
	KCC(RRL)Designated Lab.	Registration No. KR0026

2. EUT INFORMATION & TEST CONDITIONS

2.1 EUT Information

2.1.1 Specifications

EUT Type	Wireless Charger
Model Name	CC90F001213
Frequency of Operation	145 kHz
Modulation type	ASK
Antenna Specification	Internal type
EUT Rated Voltage	DC 5 V
Test Voltage	DC 5 V (USB-C Adaptor : AC 120 V, 60 Hz)
Remarks	-

2.2 Operation During Test

During the test, the Assist Sensor was charged on the EUT to ensure continuous measurement of the wireless charging signal.

2.2.1 Worst-case Configuration and Mode

The EUT was tested in mobile mode in the following configurations:

Test Configuration	Test Frequency	Description
1	145 kHz	DUT is powered by switching power adaptor. No WPT client used. (Stand-by mode)
2	145 kHz	DUT is powered by switching power adaptor. Direct contact during charging between the EUT and Assist Sensor

Note 1. EUT is only used for wireless charging of Assist Sensor manufactured by Samsung Electronics Corporation.

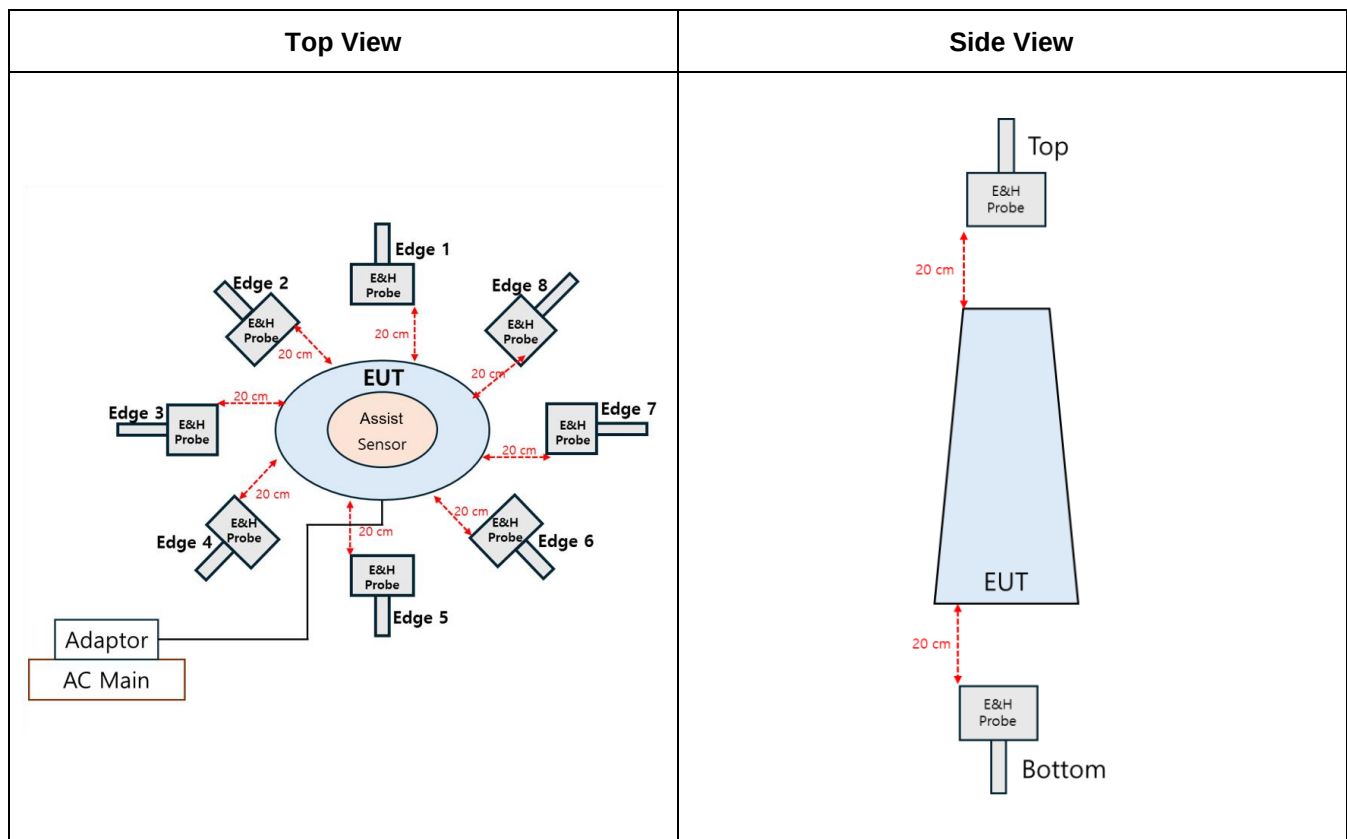
2.2.1 KDB 680106 D01 SECTION 5 EQUIPMENT APPROVAL CONSIDERATIONS

Requirement	Device
(1) The power transfer frequency is below 1 MHz.	Yes. The operating frequency is 145 kHz.
(2) The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts	Yes. The maximum power is 5 W.
(3) A client device providing the maximum permitted load is placed in physical contact with the transmitter (i.e., the surfaces of the transmitter and client device enclosures need to be in physical contact)	Yes. The client device is placed directly in contact with the transmitter.
(4) Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).	Yes. EUT is mobile only
(5) The E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit, per KDB 447498, Table 1. These measurements shall be taken along the principal axes of the device, with one axis oriented along the direction of the estimated maximum field strength, and for three points per axis or until a 1/d (inverse distance from the emitter structure) field strength decay is observed. Symmetry considerations may be used for test reduction purposes. The device shall be operated in documented worst-case compliance scenarios (i.e., the ones that lead to the maximum field components), and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.	Yes. The EUT's field strength levels are less than 50% of the MPE limit.
(6) For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating structures operating at maximum power at the same time, as per design conditions. If the design allows one or more radiating structures to be powered at a higher level while other radiating structures are not powered, then those cases must be tested as well. For instance, a device may use three RF coils powered at 5 W, or one coil powered at 15 W: in this case, both scenarios shall be tested.	Yes. The transfer system includes only single primary and secondary coils.

2.3 Support Equipment

EUT	Samsung Electronics Co., Ltd. Model : CC90F001213	S/N: N/A Identical Proto-type
TRAVEL ADAPTER	LG Electronics Inc. Model : MCS-04KD	S/N : N/A
Assist Sensor	Samsung Electronics Co., Ltd. Model : CC90F001113	S/N: N/A Identical Proto-type

2.4 Setup Drawing



Note 1. Measurements were taken using a probe placed 20 cm around the device.

Note 2. Edge 1 is where the EUT's 'SAMSUNG' phrase is written.

3. TEST METHODOLOGY

1. FCC CFR 47 Part 1.1310, Part 2.1091, Part2.1093.
2. KDB 447498 D01 General RF Exposure Guidance v06.
3. KDB 447498 D03 Supplement C Cross-Reference v01.
4. KDB 680106 D01 Wireless Power Transfer v04.

4. DESCRIPTION OF TESTS

4.1 Maximum Permissible RF Exposure

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 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)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
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 Exposure				
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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density

According to KDB 680106 D01 Wireless Power Transfer v04, Section 3.2 Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of section 1.1310.

(Electric field strength: 614 V/m, Magnetic field strength: 1.63 A/m)

5. TEST DATA

5.1 Maximum Permissible RF Exposure

E-Field & H-Field 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 $\sqrt{\text{Duty Cycle}}$].

Additional test was performed in each Test mode by moving the probe surrounding the device to find the maximum exposure.

Test Result of Test Configuration 1: WPT on Stand-by

Frequency (kHz)	Position	Test Distance (cm)	Client Battery State	Measured Electric Field (V/m)	Electric Field Limit (V/m)	Measured Magnetic Field (A/m)	Magnetic Field Limit (A/m)
145	Top	20	-	0.340	614	0.174	1.63
	Bottom	20	-	0.309	614	0.156	1.63
	Edge 1	20	-	0.313	614	0.158	1.63
	Edge 2	20	-	0.307	614	0.156	1.63
	Edge 3	20	-	0.304	614	0.157	1.63
	Edge 4	20	-	0.303	614	0.156	1.63
	Edge 5	20		0.311	614	0.155	1.63
	Edge 6	20		0.303	614	0.155	1.63
	Edge 7	20		0.300	614	0.159	1.63
	Edge 8	20		0.308	614	0.156	1.63

Test Result of Test Configuration 2: Operating mode with Client device(Assist Sensor)

Frequency (kHz)	Position	Test Distance (cm)	Client Battery State	Measured Electric Field (V/m)	Electric Field Limit (V/m)	Measured Magnetic Field (A/m)	Magnetic Field Limit (A/m)
145	Top	20	< 15 %	0.515	614	0.303	1.63
	Bottom	20	< 15 %	0.366	614	0.154	1.63
	Edge 1	20	= 50 %	0.303	614	0.156	1.63
	Edge 2	20	= 50 %	0.307	614	0.157	1.63
	Edge 3	20	= 50 %	0.311	614	0.158	1.63
	Edge 4	20	= 50 %	0.304	614	0.156	1.63
	Edge 5	20	= 50 %	0.332	614	0.154	1.63
	Edge 6	20	= 50 %	0.306	614	0.158	1.63
	Edge 7	20	= 50 %	0.309	614	0.157	1.63
	Edge 8	20	= 50 %	0.308	614	0.156	1.63
	Front	20	= 50 %	0.530	614	0.331	1.63
	Rear	20	= 50 %	0.373	614	0.159	1.63
	Front	20	> 85 %	0.508	614	0.324	1.63
	Rear	20	> 85 %	0.382	614	0.155	1.63

Test Summary of Results

Electric Field Limit			Magnetic Field Limit		
Maximum Measured Data (V/m)	RF Exposure (V/m)	Percentage (%)	Maximum Measured Data (A/m)	RF Exposure (A/m)	Percentage (%)
0.530	614	0.09	0.331	1.63	20.31
Conclusion: E-Field & H-Field result are less than 50% of the MPE Limit.					

6. TEST EQUIPMENT

No.	Instrument	Manufacture	Model	Serial No.	Calibration Date	Next Calibration Date
1	DIGITAL MULTIMETER	EZ DIGITAL	DM-334	2111395	2024-10-08	2025-10-08
2	Humidity Temperature Recorder	Lutron	MHB-382SD	AK.26553	2024-10-16	2025-10-16
3	Electric and Magnetic Field Probe	Narda	EHP-200AC	180ZX00639	2024-10-23	2025-10-23
4	AC POWER SUPPLY	GW Instek	APS-7200	GES181345	2024-03-28	2025-03-28
No.	Test program	Manufacture	Program Name	Version	Calibration Date	Next Calibration Date
1	EHP200	narda	EHP200-TS	1.94	N/A	N/A

END REPORT