On your side

TEST REPORT

FCC WPT Test for SLBWC120

Certification

APPLICANT
SLASH B SLASH Co., LTD.

REPORT NO.
HCT-SR-2307-FC001

DATE OF ISSUE
July 07, 2023

Tested by (signature)
Jung Hun Park

Technical Manager (signature)
Yun Jeang Heo

HCT CO., LTD.
BongJai Huh / CEO

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Additional Model
-

Applicant	**SLASH B SLASH Co., LTD.** 4F, 63-1, Geumjeong-ro, Geumjeong-gu, Busan, Republic of Korea
EUT Type Model Name	SLBS Edge Wireless Charger SLBWC120
FCC ID	2BBPASLBWC120
Frequency of Operation	127 kHz(Wireless Charger)
FCC Classification	Wireless Power Charger
FCC Rule Part(s)	FCC Part 1 SUBPART I FCC Part 2 SUBPART J KDB 680106 D01

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.
This test results were applied only to the test methods required by the standard.

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	July 07, 2023	Initial Release

Engineering Statement:
The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

If this report is required to confirmation of authenticity, please contact to www.hct.co.kr

CONTENTS

1. EUT DESCRIPTION

Model	SLBWC120
EUT Type	SLBS Edge Wireless Charger
Power Supply (Operating voltage)	DC 9.0 [V]
Travel Adapter Information (For Testing)	*PDO(Power Data Objective)* - *5V(3A), 9V(2.77A),11V(2.25A)* *PPS(Programmable Power Supply)* - *3.3-5.9V(3.0-3.3A), 3.3-11V(2.25A)*
Frequency of Operation	127 kHz (Wireless Power Charging)
Max. Transmit Power	15W
Date(s) of Tests	Jun 23, 2023

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

Requirement	Device
(1) Power transfer frequency is less than 1 MHz.	Yes. Operation Frequency is 127 kHz.
(2) Output power from each primary coil is less than or equal to 15 watts.	Yes. Maximum power is 15.0 Watts.
(3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and client 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 at 15 cm from the device are 9.88 % of the FCC H field limit.

3 DESCRUPTION OF TEST SETUP

TEST SETUP

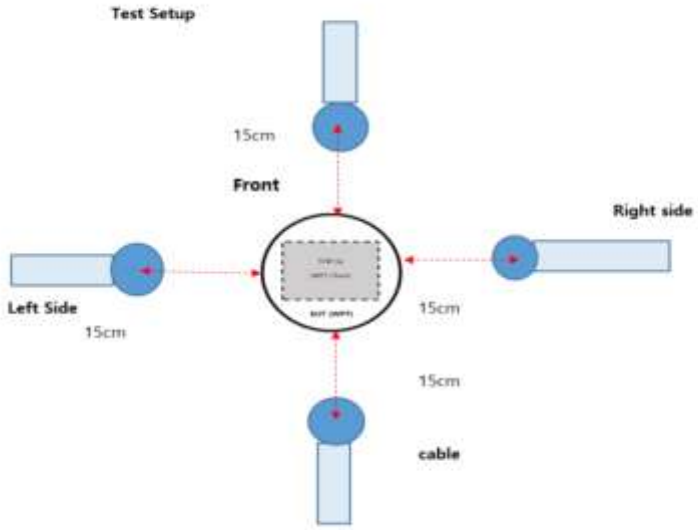
The following three modes are tested in test configuration;
All Position of client device were investigated and the worst position results are reported.

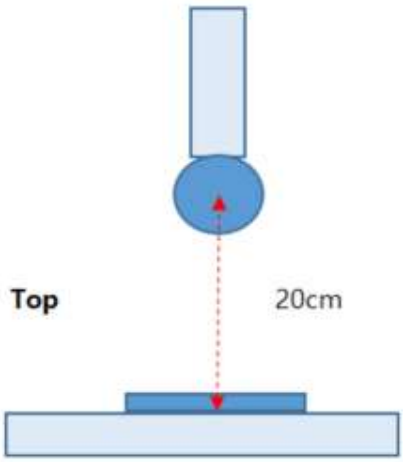
MEASUREMENT TEST SETUP

The measurement was taken using a probe place 15 cm from the edges of DUT or 20 cm above the DUT. Measurement were from the top and all sides of the DUT per KDB680106 D01 v03. Additionally, as the DUT to phone configuration could result with the DUT place either above or below the phone, measurements were performed 'below' the DUT by flipping the DUT/phone so that the DUT was uppermost.

The probe was moved along the edges or above the DUT to a position that showed the maximum field strength. This position was used for the reported result.

Measurement distance: From all sides and top of the primary client pair to the center of the Probe
Side : 15 cm / Top side :20cm





4. TEST AND MEASUREMENT EQUIPMENT

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

Manufacturer	Model name	Description	S/N	Calib. Date	Calib.Due
Narda	ELT-400	Exposure Level Tester	N-0538	08/05/2022	08/05/2023
Narda	ELT-400	B-Field Probe	C-0439	05/02/2023	05/02/2024

5. FCC RULES MAXIMUM PERMISSIBLE RE EXPOSURE

1.13010 The criteria listed in Table 1 shall be used to evaluate the envirimental impact of human exposure to radio-frequency(RF) ragiation as specified in 1.1307(b), except in the case of portable devices which shall ge evaluated according th 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.

6. Measurement RESULTS

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 value: [Field Strength * √Duty Cycle]

15 W (9V)			
Configuration	Distance(cm)	Measure Data[A/m]	H-Field Limit[A/m]
Top	20	**0.4159**	1.63
Cable	15	0.4008	
Left side	15	0.3841	
Right Side	15	0.4095	
Front side	15	0.3865	

7. FCC SUMMARY OF RESULTS

H-Field Limit		
FCC RF Exposure	**Maximum meas data (A/m)**	**Percentage(%)**
1.63	0.4159	25.52

H-Field test result was less than 50% of MPE limit

Annex A. Probe calibration

교 정 성 적 서
CALIBRATION CERTIFICATE

경기도 이천시 마장면 서이천로 578번길 74
TEL : 031-645-6900, FAX : 031-645-6969

성적서발급번호(Certificate No) : IC-2023-037058
교 정 번 호(Calibration No) : C-2023-042454

1. 의뢰자 (Client)
- 기관명 (Name) : (주)에이치시티
- 주소 (Address) : 경기도 이천시 마장면 서이천로 578번길 74

2. 측정기 (Calibration Subject) ◇ 등록번호 : 455851
- 기기명 (Description) : EXPOSURE LEVEL TESTER
- 제작회사 및 형식(Manufacturer and Model Name) : NARDA / ELT-400
- 기기번호 (Serial Number) : N-0538

3. 교정일자 (Date of Calibration) : 2023.05.02 차기교정예정일자 : 2024.05.02 (The due date of next Calibration)

4. 교정환경 (Environment)
- 온도(Temperature) : (23.0 ± 0.3) ℃ - 습도(Humidity) : (46 ± 3) % R.H.
- 교정장소 (Location) : 고정표준실(Permanent Calibration Lab)
(주소: 경기도 이천시 마장면 서이천로 578번길 74)

5. 측정표준의 소급성 (Traceability) ◇Field code : 40702(MAGENETIC FIELD PROBE)

교정방법 및 소급성 서술 (Calibration method and/or brief description)

상기 기기는 프로브 류의 교정절차(HCT-CS-311-40702)에 따라 국가측정표준기관으로부터 측정의 소급성이 확보된 아래의 표준장비를 이용하여 교정 되었음.

교정에 사용한 표준장비 명세 (List of used standards/specifications)

기기명 (Description)	제작회사 / 형식 (Manufacturer and Model Name)	기기번호 (Serial Number)	차기교정예정일자 (The due date of next Calibration)	교정기관 (Calibration laboratory)
ELECTRIC AND MAGNETIC FIELD ANALYZER	NARDA/EHP50F	510WY90181	2023/10/26	NARDA
EXPOSURE LEVEL TESTER	NARDA/ELT-400	N-0538	2023/11/08	(주)에이치시티
WAVEFORM GENERATOR	KEYSIGHT/33500B	MY58001651	2024/01/02	(주)에이치시티
AC CURRENT SHUNT	RARA/PRV/PRH300	NONE	2026/01/02	(주)에이치시티
DIGITAL MULTIMETER	KEYSIGHT/34465A	MY59008356	2024/01/02	(주)에이치시티
SIGNAL GENERATOR	AGILENT/8648C	3847A05157	2023/06/29	(주)에이치시티
EPM-P SERIES POWER METER	AGILENT/E4417A	GB41291278	2023/08/01	(주)에이치시티
E-SERIES AVG POWER SENSOR	KEYSIGHT/E9304A	MY57160006	2023/08/17	(주)에이치시티
E-SERIES AVG POWER SENSOR	KEYSIGHT/E9304A	MY57160003	2023/08/17	(주)에이치시티
DIRECTIONAL COUPLER	AMPLIFIER RESEARCH/DC2500AM1	0349383	2023/08/17	(주)에이치시티

6. 교정결과 (Calibration result) : 교정결과 참조 (Refer to attachment)

7. 측정불확도 (Measurement uncertainty) : 교정결과 참조 (Refer to attachment)
신뢰수준 약 95 %, k = 2 (Confidence level about 95 %, k = 2)

확 인 (affirmation)	작성자 (Measurements performed by)	승인자 (Approved by)
	성명 (Name) 왕희준 (서명)	직위 (Title) 기술책임자(Technical Cal. Manager) 성명 (Name) 김광철 (서명)

위 성적서는 국제시험기관인정협력체(International Laboratory Accreditation Cooperation) 상호인정협정(Mutual Recognition Arrangement)에 서명한 한국인정기구(KOLAS)로부터 공인 받은 분야의 교정결과입니다.

2023. 05. 02

한국인정기구 인정
Accredited by KOLAS, Republic of KOREA

㈜에이치시티 대표이사
President, HCT Co., Ltd.

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F-02P-02-008 (Rev.02)

교 정 결 과
CALIBRATION RESULT

성적서발급번호(Certificate No) : IC-2023-037058
교 정 번 호(Calibration No) : C-2023-042454

1. Field Linearity

- Calibration Frequency : 50 Hz

Measurement Range	Reference Value (μT)	Indicated Value (μT)	K
320 μT	300.0	300.9	1.00
	200.0	200.2	1.00
	100.0	100.3	1.00
32 μT	30.00	30.15	1.00
	20.00	20.12	0.99
	10.00	10.02	1.00

- Calibration Frequency : 60 Hz

Measurement Range	Reference Value (μT)	Indicated Value (μT)	K
320 μT	300.0	300.7	1.00
	200.0	200.2	1.00
	100.0	100.2	1.00
32 μT	30.00	30.10	1.00
	20.00	20.08	1.00
	10.00	10.01	1.00

※ 상기 Field Linearity 측정결과에 대한 측정불확도는 0.4×10^{-1} 임. (신뢰수준 약 95 %, $k = 2$)

F-02P-02-008 (Rev.02)

교 정 결 과

CALIBRATION RESULT

성적서발급번호(Certificate No) : IC-2023-037058
교 정 번 호(Calibration No) : C-2023-042454

2. Frequency Response

- Frequency : 10 Hz ~ 5 kHz, Measurement Range : 320 μT

Frequency (kHz)	Reference Value (μT)	Indicated Value (μT)	K
0.01	50.00	50.91	0.98
0.03	50.00	50.76	0.99
0.05	50.00	50.55	0.99
0.06	50.00	50.30	0.99
0.1	50.00	50.08	1.00
0.3	50.00	49.92	1.00
0.5	50.00	49.83	1.00
1	50.00	49.64	1.01
3	50.00	49.45	1.01
5	50.00	49.70	1.01

- Frequency : 5 kHz ~ 400 kHz, Measurement Range : 32 μT

Frequency (kHz)	Reference Value (μT)	Indicated Value (μT)	K
5	1.50	1.51	0.99
10	1.50	1.51	0.99
30	1.50	1.50	1.00
50	1.50	1.50	1.00
100	1.50	1.49	1.01
200	1.50	1.47	1.02
300	1.50	1.43	1.05
400	1.50	1.30	1.15

※ 상기 Frequency Response 측정결과에 대한 측정불확도는 0.6×10^{-3} 임. (신뢰수준 약 95 %, $k = 2$)

※ 보정인자 (K)

$$\text{Correction Factor } (K) = \frac{\text{Reference Value}}{\text{Indicated Value}}$$

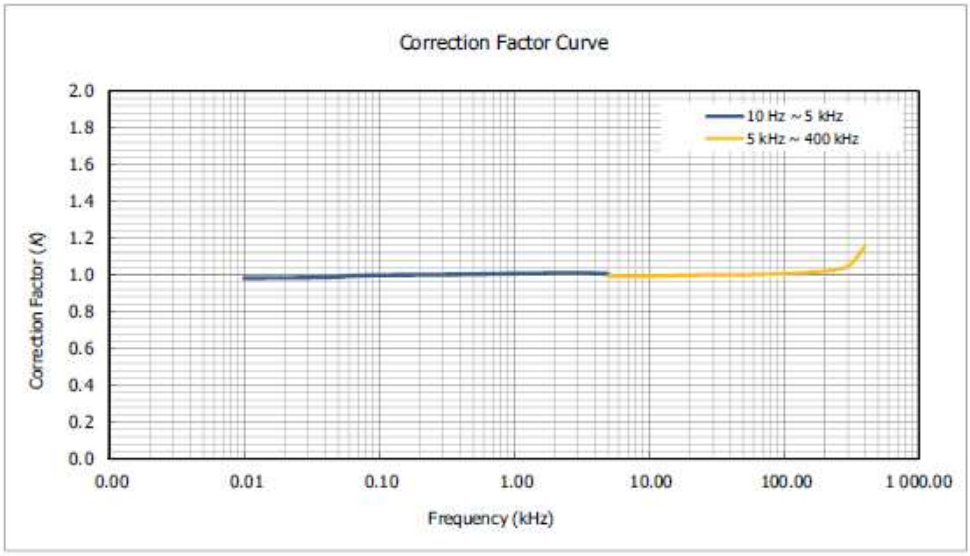
F-02P-02-008 (Rev.02)

교 정 결 과

CALIBRATION RESULT

성적서발급번호(Certificate No) : IC-2023-037058
교 정 번 호(Calibration No) : C-2023-042454

3. Correction Factor Graph (Frequency Response)



※ Used probe No. : C-0439
※ Low cut : 10 Hz
※ Detect : RMS
※ 1 T = 1 × 10^4 G

끝.

F-02P-02-008 (Rev.02)

Annex B. Setup Photos.

Please refer to test DUT Ant. Information & setup photo file no. as follows:

No.	Description
0	HCT-SR-2307-FC001-P