



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

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(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea

Tel: +82-31-339-9970

Fax: +82-31-624-9501

www.e-ctk.com

RF EXPOSURE EVALUATION

Applicant	D&T Inc.
Applicant Address	26-121, Gajeongbuk-ro, Yuseong-gu, Daejeon, 34113, Korea
FCC ID	THCQWC-A800
Product Description	Wireless Charger
Basic model	QWC-A800
Variant Model name	-
Operating Frequency	110 kHz - 200 kHz
Antenna type	Coil Antenna
Type of Modulation	AM
Power Source	DC 5 V (Adapter & Micro 5pin)
RF Power setting	Referred the measuring instrument from manufacturer



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1. Introduction

This document is prepared to show compliance with the RF Exposure requirements as required in §1.1310 of the FCC Rules and Regulations. The limit for Maximum Permissible Exposure (MPE), specified in FCC §1.1310, is listed in Table 1. According to FCC §1.1310: the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b).

Table 1—Limits for Maximum Permissible Exposure (MPE)

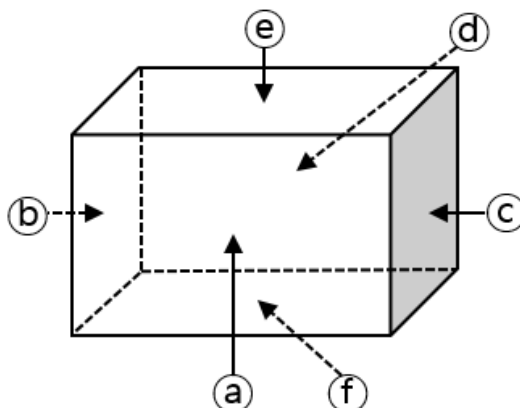
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			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.

Per the guidance of FCC Rule, Emissions between 9 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m.

2. Test Set-up

2.1 EUT Position



Note : (a) : Front, (b) : Left, (c) : Right, (d) : Rear, (e) : Top, (f) : Bottom

2.2 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.

EUT Mode	Description
Charging (Transmitting mode)	Less than 1 % of Battery
	Less than 50 % of Battery
	Less than 100 % of Battery

2.3 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.
AC/DC ADAPTER	RFTECH THAI NGUYEN CO.,LTD	EP-TA21KBK	R37K9D25VY5RT3
Mobile phone	SAMSUNG Electronics Co., Ltd.	SM-G955N (Galaxy S8+)	R39J40GS35

2.4 Measurement procedure

- a) The measurement was investigated between the edge of the charger and center of the field
- b) Maximum E-field and H-field measurements were made on each of six sides of the EUT that could come in contact with a user. six sides are defined as follows: Front (Ⓐ), Left(Ⓑ), Right(Ⓒ), Rear(Ⓓ), Top(Ⓔ) and Bottom(Ⓕ) Refer to the test set-up position section 2.1 above.
- c) According to the guidance of KDB 680106 D01 v03 test distance was 15 cm measured from the center of the probe(s) to the edge of the device
- d) Equipment approval considerations item 5.b) of KDB 680106 D01 v03
 - (1) Power transfer frequency is less than 1 MHz.
 - DC 5 V, 110 kHz ~ 200 kHz
 - (2) Output power from each primary coil is less than or equal to 15 watts.
 - DC 5 V : 5 W
 - (3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
 - The transfer system includes only single primary coils.
 - (4) Client device is placed directly in contact with the transmitter.
 - Client device is placed directly in contact with the transmitter.
 - (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
 - Not Applicable.
 - (6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.
 - Refer to following worst test result (For more detail, please refer to section 3)
 - 1) The worst E-Field Strength levels at 15 cm < 50 % of the MPE E-Field Strength limit 614 V/m.
 - 5 V Less than 1 % of Battery : 2.60 V/m < 307 V/m
 - 2) The worst H-Field Strength levels at 15 cm < 50 % of the MPE E-Field Strength limit 1.63 A/m.
 - 100 % full charging of Battery : 0.43 A/m < 0.815 A/m

3. Test Result

-Complied

The probe was positioned at the location where there is maximum field strength on each side of the EUT. The maximum E-field and H-field is reported below.

- 5 V Charging Mode (Less than 1 % of Battery)

E-field Measurements

Distance (cm)	Position ① (V/m)	Position ② (V/m)	Position ③ (V/m)	Position ④ (V/m)	Position ⑤ (V/m)	Position ⑥ (V/m)	Limit (V/m)
15	2.60	2.01	1.97	1.70	1.45	1.05	614.00

H-field Measurements

Distance (cm)	Position ① (A/m)	Position ② (A/m)	Position ③ (A/m)	Position ④ (A/m)	Position ⑤ (A/m)	Position ⑥ (A/m)	Limit (A/m)
15	0.20	0.20	0.20	0.20	0.20	0.39	1.63

- 5 V Charging Mode (Less than 50 % of Battery)

E-field Measurements

Distance (cm)	Position ① (V/m)	Position ② (V/m)	Position ③ (V/m)	Position ④ (V/m)	Position ⑤ (V/m)	Position ⑥ (V/m)	Limit (V/m)
15	2.34	1.50	1.57	1.08	1.66	0.99	614.00

H-field Measurements

Distance (cm)	Position ① (A/m)	Position ② (A/m)	Position ③ (A/m)	Position ④ (A/m)	Position ⑤ (A/m)	Position ⑥ (A/m)	Limit (A/m)
15	0.20	0.20	0.21	0.23	0.28	0.39	1.63

- 5 V Charging Mode (100 % full charging of Battery)

E-field Measurements

Distance (cm)	Position ① (V/m)	Position ② (V/m)	Position ③ (V/m)	Position ④ (V/m)	Position ⑤ (V/m)	Position ⑥ (V/m)	Limit (V/m)
15	2.53	1.44	1.08	1.55	1.38	1.29	614.00

H-field Measurements

Distance (cm)	Position ① (A/m)	Position ② (A/m)	Position ③ (A/m)	Position ④ (A/m)	Position ⑤ (A/m)	Position ⑥ (A/m)	Limit (A/m)
15	0.20	0.20	0.20	0.27	0.28	0.43	1.63

4. Test Setup Photos



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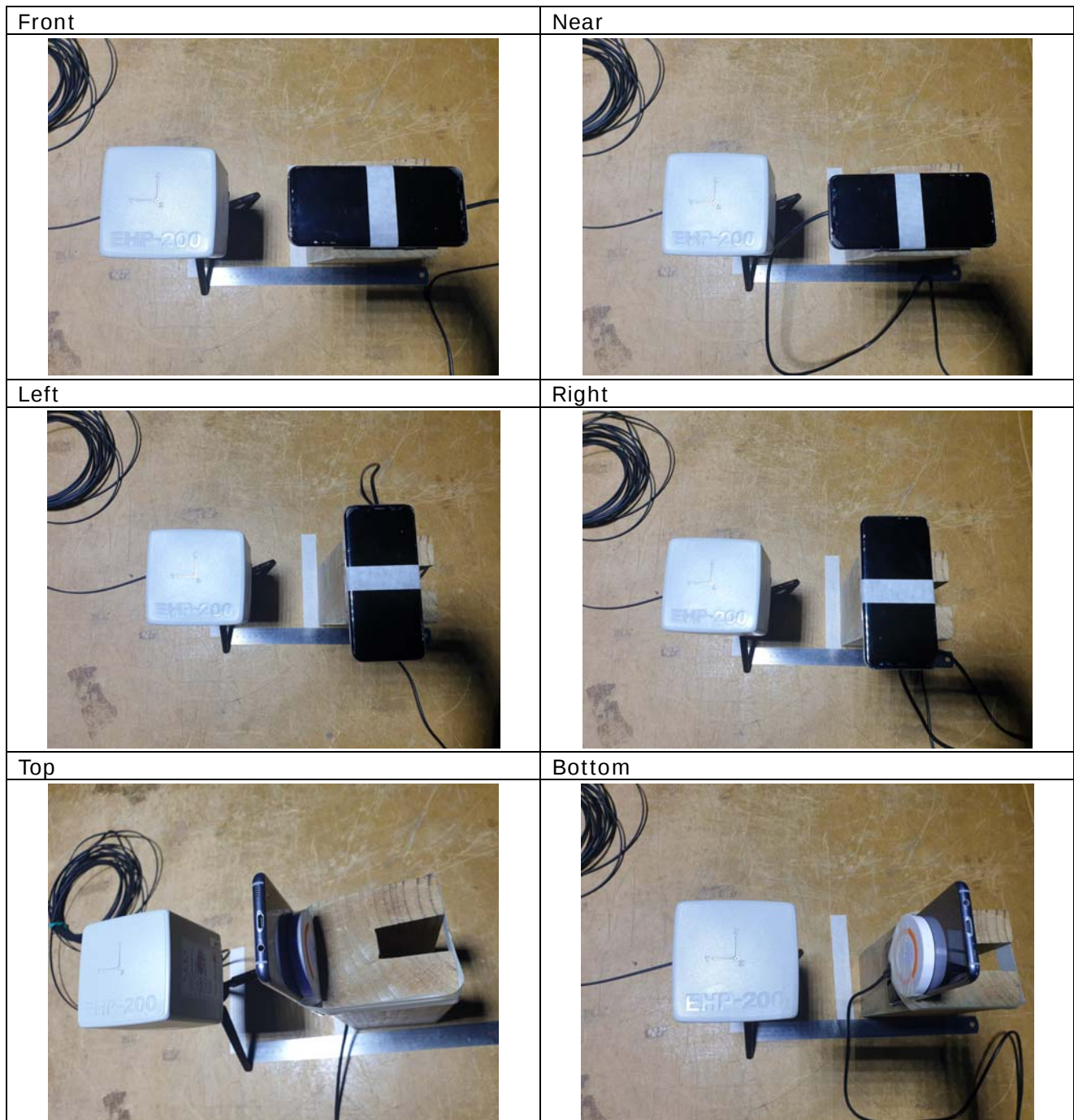
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5. APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Electric and Magnetic Field Analyzer	Narda S.T.S	EHP-200AC	170WX91010	2020-10-19	2021-10-19