

RF Exposure Evaluation

Applicant: Dongguan Leaper Electronic Technology CO.,LTD

Address of Applicant: NO.22 ,Xinbao second Street,Dalang new town, Dongguan City, China

Manufacturer/Factory: Dongguan Leaper Electronic Technology CO.,LTD

Address of Manufacturer/Factory: NO.22 ,Xinbao second Street,Dalang new town, Dongguan City, China

Equipment Under Test (EUT)

Product Name: WIRELESS CHARGER

Model No.: AB0283

Test sample(s) ID: GTSL202106000188-1

Sample(s) Status: Engineer sample

Modulation type: MSK

Antenna Type: Inductive loop coil Antenna

Antenna gain: 0dBi

Power supply: USB Input:5V2A,9V1.5A
Wireless Output:5W,7.5W,10W

FCC ID: 2AZ4X-AB0283

Applicable standards: KDB 680106 D01 RF Exposure Wireless Charging Apps v03r01

Date of sample receipt: 2021-05-20

Date of Test: 2021-05-20~2021-06-17

Date of report issued: 2021-06-18

1 Measuring Standard

KDB 680106 D01 RF Exposure Wireless Charging Apps v03r01

2 Requirements

According to the item 5 of KDB 680106 D01v03r01:

Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF exposure evaluation.

(1) Power transfer frequency is less than 1MHz.

The device operate in the frequency range 110KHz~205KHz.

(2) Output power from each primary coil is less than or equal to 15 watts.

The maximum output power for each primary coil is 10W.

(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 1 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).

Mobile exposure conditions only.

(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.

The EUT 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.

Remark: Meet all the above requirements.

Limits

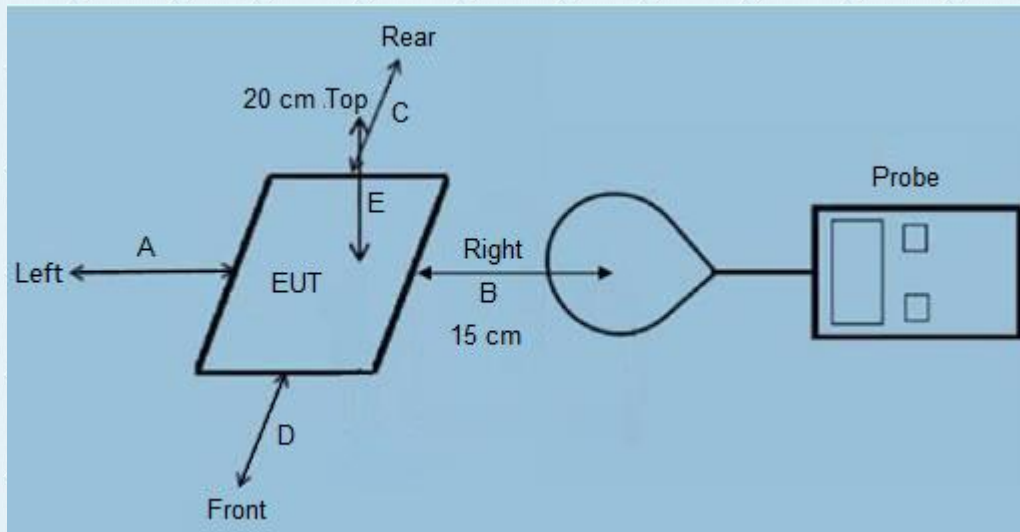
The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

F=frequency in MHz
 E=Plane-wave equivalent power density
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

3 Test Setup



4 Test Procedure

- 1) The RF exposure test was performed in anechoic chamber.
- 2) The measurement probe was placed at test distance (15 cm from all sides and 20 cm from the top) which is between the edge of the charger and the geometric center of probe.
- 3) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
- 4) The EUT was measured according to the dictates of KDB 680106 D01v03.

Remark: The EUT's test position A, B, C, D and E is valid for the E and H field measurements.

5 Test Instruments list

Test Equipment	Manufacturer	Model No.	SN.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
Electric and Magnetic Field Analyzer	Narda	EHP-200A	GTS614	2020.11.16	2021.11.15
Magnetic field probe 100cm2	Narda	ELT probe 100cm2	M0675	June. 25 2020	June. 24 2021

6 Test Support Equipment list

Equipment	Manufacturer	Model No.	SN.	Remark
Adapter	Salcom	V2323	N/A	N/A
Mobile phone	Huawei	Mate 30	N/A	N/A
Mobile phone	Apple	iphone X	N/A	N/A

7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **FCC —Registration No.: 381383 FCC Designation Number:CN5029**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

• **IC —Registration No.: 9079A ISED Cab Identifier:CN0091**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A

• **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

8 Test Result

H-Filed Strength at 15 cm from the edges surrounding the EUT (A/m)

Test Mode	Unit	Charging Battery Level	Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	50% Limits (A/m)	Limits (A/m)
Mate 30	uT	1%	0.110-0.205	0.35	0.31	0.29	0.22	0.33	--	--
	A/m			0.26	0.20	0.23	0.13	0.23	0.815	1.63
	uT	50%	0.110-0.205	0.26	0.24	0.33	0.18	0.28	--	--
	A/m			0.20	0.20	0.25	0.16	0.21	0.815	1.63
	uT	99%	0.110-0.205	0.24	0.35	0.27	0.16	0.34	--	--
	A/m			0.12	0.21	0.20	0.12	0.24	0.815	1.63
iPhone X	uT	1%	0.110-0.205	0.27	0.26	0.27	0.19	0.25	--	--
	A/m			0.14	0.14	0.17	0.17	0.16	0.815	1.63
	uT	50%	0.110-0.205	0.25	0.18	0.21	0.18	0.22	--	--
	A/m			0.15	0.18	0.17	0.14	0.16	0.815	1.63
	uT	99%	0.110-0.205	0.12	0.12	0.18	0.15	0.20	--	--
	A/m			0.13	0.13	0.13	0.12	0.15	0.815	1.63

Note:A/m=uT/1.25

H-Filed Strength at 20 cm from the top of the EUT (A/m)

Test Mode	Unit	Charging Battery Level	Frequency Range (MHz)	Test Position E	50% Limits (A/m)	Limits (A/m)
Mate 30	uT	1%	0.110-0.205	0.24	--	--
	A/m			0.12	0.815	1.63
	uT	50%	0.110-0.205	0.18	--	--
	A/m			0.15	0.815	1.63
	uT	99%	0.110-0.205	0.17	--	--
	A/m			0.13	0.815	1.63
iphone X	uT	1%	0.110-0.205	0.22	--	--
	A/m			0.12	0.815	1.63
	uT	50%	0.110-0.205	0.18	--	--
	A/m			0.17	0.815	1.63
	uT	99%	0.110-0.205	0.13	--	--
	A/m			0.16	0.815	1.63

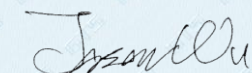
Note: A/m = uT / 1.25

E-Filed Strength at 15 cm from the edges surrounding the EUT (V/m)

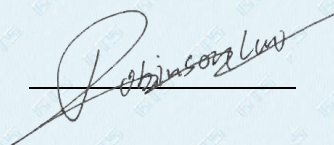
Test Mode	Unit	Charging Battery Level	Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	50% Limits (V/m)	Limits (V/m)
Mate 30	V/m	1%	0.110-0.205	90.77	86.69	97.45	54.85	89.63	307.0	614.0
	V/m	50%		78.75	73.96	89.63	49.37	85.52	307.0	614.0
	V/m	99%	0.110-0.205	63.51	97.72	82.44	37.43	94.73	307.0	614.0
iphone X	V/m	1%		68.72	64.66	71.78	56.73	67.64	307.0	614.0
	V/m	50%	0.110-0.205	61.59	57.87	60.32	49.26	60.36	307.0	614.0
	V/m	99%		49.43	52.54	52.55	41.35	61.77	307.0	614.0

Note: V/m = A/m * 377

Test Engineer:



Reviewer:



9 Test Set-up Photo

