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RF EXPOSURE REPORT

Report Reference No.: **CTL1803123051-MPE**

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Address: Floor 1-A, Baisha Technology Park, No. 3011, Shahe Road, Nanshan, Shenzhen 518055 China.

Applicant's name: **TELEPHONE EST (HK) CO., LTD**

Address: Room 709, 7F, FuLi tianhe commercial building, Linhe East Road and tianhe district, Guangzhou, China

Test specification:

Standard: **FCC CFR 47 part1, 1.1307(b), 1.1310**

TRF Originator: Shenzhen CTL Testing Technology Co., Ltd.

Master TRF: Dated 2011-01

Test item description: wireless charger

FCC ID: 2ACE5-TWC01

Trade Mark: N/A

Model/Type reference: TSTWPC018

Transmit Frequency: 128.9KHz

Antenna type: Loop antenna

Date of Receipt: Mar. 14, 2018

Date of Test Date: Mar. 14, 2018–Mar. 30, 2018

Data of Issue: Mar. 30, 2018

Result: **Pass**

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TEST REPORT

Test Report No. :	CTL1803123051-MPE	Mar. 30, 2018
		Date of issue

Equipment under Test : wireless charger

Type / Model(s) : TSTWPC018

Applicant : **TELEPHONE EST (HK) CO., LTD**

Address : Room709,7F, FuLi tianhe commercial building,Linhe East Road and tianhe district, Guangzhou, China

Manufacturer : **TELEPHONE EST (HK) CO., LTD**

Address : Room709,7F, FuLi tianhe commercial building,Linhe East Road and tianhe district, Guangzhou, China

Test Result	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. SUMMARY

1.1. EUT configuration

Kind of Product	Wireless Charger
Model Name	TSTWPC018
Frequency Range	128.9KHz
Antenna Type	Loop antenna
FCC ID	2ACE5-TWC01

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 (2013) and CISPR Publication 22.

2.2. Test Facility

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

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 399832

Shenzhen CTL Testing Technology Co., Ltd. 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 our files. Registration 399832, December 08, 2017.

2.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

2.4. Statement of the measurement uncertainty

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

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-5}$
total RF power, conducted	$\pm 1,5$ dB
RF power density, conducted	± 3 dB
spurious emissions, conducted	± 3 dB
all emissions, radiated	± 6 dB
temperature	$\pm 1^{\circ}\text{C}$
humidity	± 5 %
DC and low frequency voltages	± 3 %

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

According KDB680106 D01v02: RF Exposure Wireless Charging Apps v02

3.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

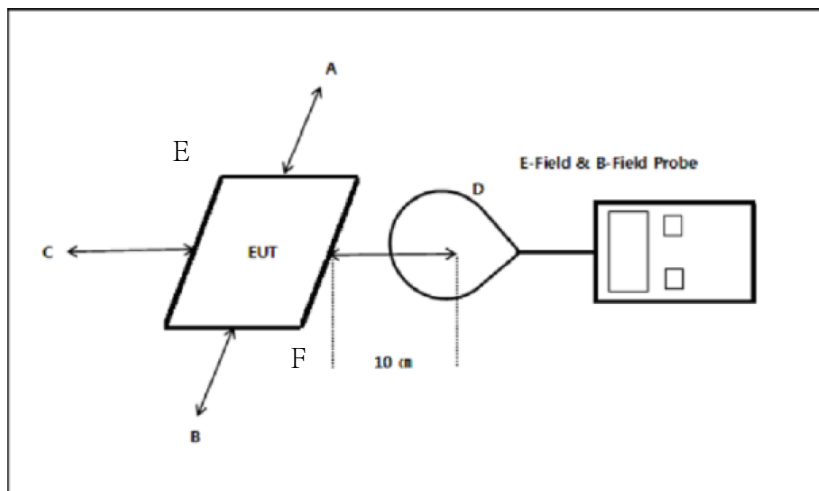
Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

4. Test Result

4.1. Test Setup



Note: A, B, C, D, E, F for six surfaces of the product.

4.2. Test Equipment

Equipment	Manufacturer	Model	Serial no.	Calibrated date	Calibrated until
E-Field Probe	CHROMA	MFM 2000	CR18G46Y	2017.6.1	2018.5.31
H-Field Probe	CHROMA	MFM 2000	CR18G46Y	2017.6.1	2018.5.31

4.3. Measurement Procedure

- The RF exposure test was performed on 360 degree turn table in anechoic chamber.
- The measurement probe was placed at test distance (10cm) which is between the edge of the charger and the geometric centre of probe.
- The turn table was rotated 360 degree to search of highest strength.
- The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
- The EUT were measured according to the dictates of KDB 680106D01v02.

4.4. Equipment Approval Considerations

The EUT does comply with item 5.2 of KDB 680106 D01v02

- Power transfer frequency is less than 1MHz.
Yes; the device operate in the frequency range from 110 KHz to 205 KHz
- Output power from each primary coil is less than 5 watts
Yes; the maximum field strength of fundamental: 72.27 dBuV/m at 3 meter. The EIRP calculation is reference to KDB789033.
 $EIRP [dBm] = E [dBuV/m] + 20 \log (d [metres]) - 104.77 [dB]$, $d=3m$
 $72.27 \text{ dBuV/m} - 95.2 = -22.93 \text{ dBm EIRP}$
The output power from primary coil is 0.00509mW
- The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that able to detect and allow coupling only between individual pair of coils.
Yes; the transfer system includes only single primary and secondary coils.
- Client device is inserted in or placed directly in contact with the transmitter.
Yes; Client device is placed directly in contact with the transmitter.
- The maximum coupling surface area of the transmit (charging) device:
Yes; The EUT coupling surface area was $60 \text{ cm}^2 < 78.5 \text{ cm}^2 < 400 \text{ cm}^2$
- Aggregate leakage fields at 10cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.
The EUT E and H field strength levels $< 30\% \times \text{MPE limit}$. Please refer to below E and H field Strength test results.

4.5. E and H field Strength

Test mode for wireless charger: Normal Operation (Charging mode)

E-Filed Strength at 10 cm from the edges surrounding the EUT

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Limits (V/m)
0.1289	1.48	0.856	0.741	0.994	1.24	1.15	614.0

H-Filed Strength at 10 cm from the edges surrounding the EUT

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Limits (A/m)
0.1289	0.135	0.142	0.140	0.165	0.132	0.166	1.63

Test mode for wireless charger: Normal Operation (No load mode)

E-Filed Strength at 10 cm from the edges surrounding the EUT

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Limits (V/m)
0.1289	0.337	0.241	0.159	0.281	0.225	0.172	614.0

H-Filed Strength at 10 cm from the edges surrounding the EUT

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Test Position F	Limits (A/m)
0.1289	0.043	0.037	0.030	0.042	0.032	0.027	1.63

Test Setup Photo





.....End of Report.....

