RF Exposure Evaluation

FCC ID: 2BCVO-TP-C25

1. Client Information

Applicant	:	Guangdong Pisen Electronics Co.,Ltd.
Address	:	Building 5, 1st Floor, No. 9, Qinfu 1st Street, Liuyue Nan Community, Henggang Town, Longgang District, Shenzhen City, China
Manufacturer	:	Guangdong Pisen Electronics Co.,Ltd.
Address	:	Building 5, 1st Floor, No. 9, Qinfu 1st Street, Liuyue Nan Community, Henggang Town, Longgang District, Shenzhen City, China

2. General Description of EUT

EUT Name	:	PISEN 45W GaN Desktop MagStation Charger	
Model(s)	:	TP-C25	
Model Difference	:	----	
Product Description	:	Operation Frequency:	110~150KHz
		Modulation Type:	ASK
		Antenna:	Coil Antenna
Power Supply	:	Input: AC 100-240V, 50/60Hz 1.0A (Max) Output: USB-C1/C2: 5V⎓3A, 9V⎓3A, 12V⎓3A, 15V⎓3A, 20V⎓2.25A, 3.3V-20V⎓2.25A 45W (Max) Phone magnetic wireless charging / wireless charging: 5W/7.5W/ 10W/15W (Max) USB-C1+USB-C2: 20W (5V⎓3A, 9V⎓2.22A, 12V⎓1.67A) +20W (5V⎓3A, 9V⎓2.22A, 12V⎓1.67A) 40W MAX USB-C1 /USB-C2+Phone magnetic wireless charging/ wireless charging:20W (5V⎓3A, 9V⎓2.22A, 12V⎓1.67A) + 15W 35W(Max) USB-C1 /USB-C2+Phone magnetic wireless charging +wireless charging: 20W (5V⎓3A, 9V⎓2.22A, 12V⎓1.67A) +10W+5W 35W (Max) USB-C1 +USB-C2+Phone magnetic wireless charging +wireless charging: 20W (5V⎓3A, 9V⎓2.22A, 12V⎓1.67A)	

1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Tel: +86 75526509301 Fax: +86 75526509195

		+5V⎓2A, +5W+5W 40W MAX
Software Version	:	XE3ID
Hardware Version	:	TP-C25
Connecting I/O Port(S)	:	Please refer to the User's Manual

Note: More test information about the EUT please refer the RF Test Report.

RF Exposure Considerations

1. Measuring Standard

KDB 680106 D01 RF Exposure Wireless Charging App v04.

2. Requirements

According to the item 5.2 of KDB 680106 D01v04:
Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF exposure evaluation:

(1) The power transfer frequency is below 1 MHz.

(2) The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.

(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)

(4) Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).

(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.

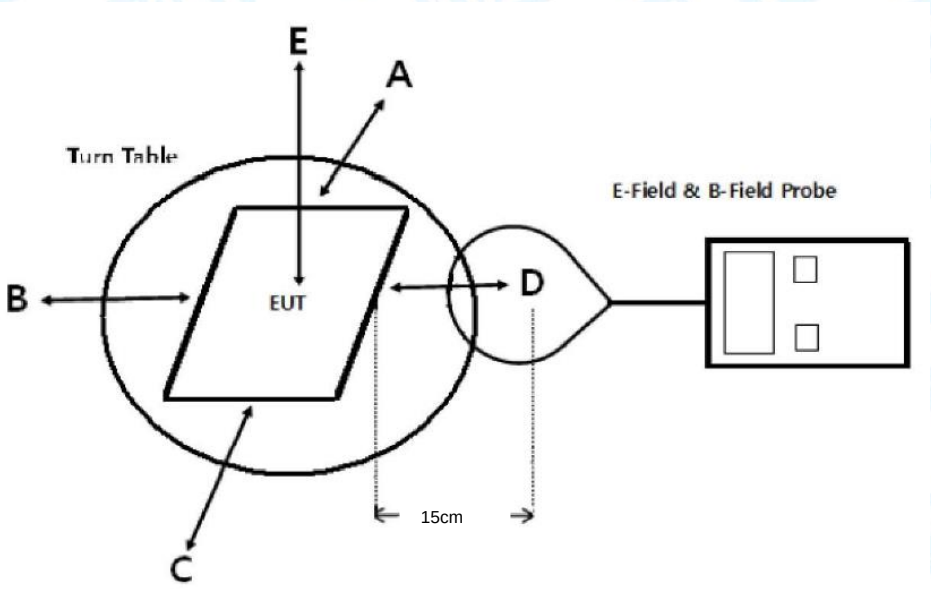
(6) For systems with more than one radiating structure, the conditions specified in (5) must be met when
the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating
structures operating at maximum power at the same time, as per design conditions. If the design 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.

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
*=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



Note: The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface.

4.Test Procedure

1) The RF exposure test was performed in anechoic chamber.
2) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface.
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 D01 v04.

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

5. Test Equipment List

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Magnetic field meter	NARDA	ELT-400	EE030	Sep. 08, 2023	Sep. 07, 2024

6. Deviation From Test Standard

No deviation

7. Mode of operation during the test / Test peripherals used

Test Modes:		
TM1	AC/DC Adapter + EUT + Mobile Phone (Battery Status: <1%)	record
TM2	AC/DC Adapter + EUT + Mobile Phone (Battery Status: <50%)	record
TM3	AC/DC Adapter + EUT + Mobile Phone (Battery Status: <99%)	record

8. Test Result

E-Filed Strength at 15 cm from the edges surrounding the EUT and 15 cm above the top surface

Charging Battery Level	Frequency Range (MHz)	Measured E-Field Strength Values (V/m) Test Position A	B	C	D	E	E-Field Strength 50% Limits (V/m)	E-Field Strength Limits (V/m)
1%	0.145	42.602	43.354	61.453	43.731	47.131	307.0	614.0
50%	0.145	46.744	42.973	49.372	47.123	42.972	307.0	614.0
99%	0.145	61.074	49.384	42.968	34.674	41.842	307.0	614.0

Note: V/m= A/m *377

H-Filed Strength at 15 cm from the edges surrounding the EUT and 15 cm above the top surface

Charging Battery Level	unit	Frequency Range (MHz)	Measured H-Field Strength Values (A/m) Test Position A	B	C	D	E	H-Field Strength 50% Limits (A/m)	H-Field Strength Limits (A/m)
1%	uT	0.145	0.1417	0.1438	0.2034	0.143	0.1562	--	--
1%	A/m	0.145	0.112	0.115	0.167	0.117	0.126	0.815	1.63
50%	uT	0.145	0.153	0.1424	0.1637	0.1562	0.1424	--	--
50%	A/m	0.145	0.124	0.114	0.133	0.125	0.112	0.815	1.63
99%	uT	0.145	0.2024	0.1633	0.1424	0.1151	0.1387	--	--
99%	A/m	0.145	0.163	0.131	0.114	0.091	0.111	0.815	1.63

H-Field Strength at 20cm from the top surface of the EUT

Charging Battery Level	Unit	Frequency Range (MHz)	Measured H-Field Strength Values (A/m) Test Position E	FCC H-Field Strength 50% Limits (A/m)	FCC H-Field Strength Limits (A/m)
1%	uT	0.145	0.1337	--	--
1%	A/m	0.145	0.103	0.815	1.63
50%	uT	0.145	0.1224	--	--
50%	A/m	0.145	0.095	0.815	1.63
99%	uT	0.145	0.1375	--	--
99%	A/m	0.145	0.13	0.815	1.63

Note: A/m=uT/1.25

9. Test Set-up Photo

Test Set-up Photo


-----END OF REPORT-----