TXS Industrial Design Inc., dba Brandstand Products

TEST REPORT

SCOPE OF WORK
EMC TESTING–BPEDOP

REPORT NUMBER
200521101GZU-003

ISSUE DATE **[REVISED DATE]**

21-March-2022 [----------]

PAGES
8

DOCUMENT CONTROL NUMBER

Room 02, & 101/E201/E301/
E401/E501/E601/E701/E801 of
Room 01 1-8/F., No. 7-2. Caipin
Road, Science City, GETDD,
Guangzhou, Guangdong, China
Telephone: +86 20 8213 9688
Facsimile: +86 20 3205 7538
www.intertek.com.cn

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Applicant Name & Address	:	TXS Industrial Design Inc., dba Brandstand Products 3301 Matrix Drive #200, Richardson, Texas, USA
Manufacturing Site	:	Same as applicant
Intertek Report No:		200521101GZU-003
FCC ID:		2AFT4-BPEDOP

Test standards

47 CFR PART 1, Subpart I, Section 1.1310
KDB 680106 D01 RF Exposure Wireless Charging App v03r01

Sample Description

Product	:	Cubieduo+
Model No.	:	BPEDOP
Electrical Rating	:	Input:125V AC 1.0A 60Hz Powered USB output: 5V 2.4A shared Wireless charging output: MAX 10W
Serial No.		Not Labeled
Date Received	:	21 May 2020
Date Test Conducted	:	01 March 2022-15 March 2022

Prepared and Checked By

Elena Lei

Engineer

Approved By:

Dean Liu

Project Engineer

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1.0 TEST RESULT SUMMARY

Classification of EUT: Class B

Test Item	Standard	Result
EMF	47 CFR PART 1, Subpart I, Section 1.1310	PASS

Remark:
When determining the test results, measurement uncertainty of tests has been considered.

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2.0 General Description

2.1 Product Description

Operating Frequency	111-148KHz
Type of Modulation:	MSK
Antenna Type	Inductive loop coil antenna
Antenna gain:	0 dBi as declared by applicant
Power Supply:	Input:125V AC 1.0A 60Hz Powered USB output: 5V 2400mA shared Wireless charging output: Up to 10W
Power cord:	wires unscreened cable

2.2 Test Facility

Room102/104, No 203, KeZhu Road, Science City, GETDD Guangzhou, China

A2LA Certificate Number 0078.10
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch is accredited by A2LA and Listed in FCC website. FCC accredited test labs may perform both Certification testing under Parts 15 and 18 and Declaration of Conformity testing.

2.3 EUT Exercising Software

N/A

2.4 Special Accessories

N/A

2.5 Equipment Modification

Any modifications installed previous to testing by TXS Industrial Design Inc., dba Brandstand Products will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.

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2.6 Support Equipment List and Description

This product was tested with corresponding support equipment as below:
Support Equipment

Description	Manufacturer	Model No.	SN/Version	Supplied by
NoteBook	HP	Compaq 6710b	SN:CNU8240LF9	Intertek
Control board	WIK	CNMDIP34	Version:3434	WIK
1st cement resistor	-	2Ω,50W	-	Intertek
2nd cement resistor	-	2Ω,50W	-	Intertek
WPT client	TXS Industrial Design	5W,7.5W,10W	113K/146K	Customer

Cable

Description	Model No.	Connector type	Cable length/type	Supplied by
Antenna cable	RF-01	SMA	0.2 m(shielded)	Intertek
USB extension cord	USB-01	USB	1.0 m(unshielded)	WIK
1st cement resistor cord	C-01	USB	0.3 m(unshielded)	Intertek
2nd cement resistor cord	C-02	USB	0.3 m(unshielded)	Intertek

Remark: WPT client was one of typical client devices, it's selected such that the EUT was fully exercised at maximum power from its transmitter. It will not be sold together.

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above evaluated respectively

Pretest mode	Description	
Standby Mode	kept transmitting continuously	
Charging Mode	CH: Low	WPT client is charging at 1% battery power, 50% and 99% battery power respectively, keep transmitting continuously
	CH: Middle	
	CH: High	

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3.0 EMF TEST

3.1 Standard Requirement

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 limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.1m normally can be maintained between the user and the device.

(a) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm²)	Averaging Times |E|², |H|² or S (minutes)
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
1500-100000	--	--	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm²)	Averaging Times |E|², |H|² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	F/1500	30
1500-100000	--	--	1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

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3.2 Test Data

Input Voltage: 120V/60Hz
Ambient Condition: 24℃, 50%RH

Test distance: 15 cm surrounding the device, and 20 cm away from the surface from the coil.

H-Filed Strength:

Test Position	Probe Measure Result (A/m)			50% Limit (A/m)	Limit (A/m)
	Mobile in 1% battery power	Mobile in 50% battery power	Mobile in 99% battery power		
Side 1	0.043	0.034	0.035	0.815	1.63
Side 2	0.037	0.039	0.034	0.815	1.63
Side 3	0.032	0.039	0.036	0.815	1.63
Side 4	0.029	0.033	0.035	0.815	1.63
Top	0.048	0.046	0.045	0.815	1.63

MPE ratio:
0.048(**A/m**)/0.815(**A/m**) = 0.0589

The EUT is composite device with Bluetooth and WPT function, Bluetooth function MPE ratio is 0.0004, the test data please refer to FCC ID: 2AFT4-BPEDOP, 200521101GZU MPE report.

Sum of the MPE ratio for all simultaneously transmitting antennas:
0.0004+0.0589= 0.0593 < 1

4.0 Test Equipment List

Equip. No.	Equipment	Model	Manufacturer	Cal. date	Due date
EM007-03	Exposure Level Tester	ELT-400	NARDA	01/03/2022	28/02/2023

**********End of the test report**********