

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Design Pool Limited
FCC ID:	X3QJUMPSP01

1.2 EUT INFORMATION

Product Name:	Wireless Charger
Model No.:	JUMP
Trade Mark:	N/A
DUT Stage:	<i>Identical Prototype</i>
Operating Frequency Range:	117KHz -166KHz
Antenna Type:	Coil antenna
Power Supply	DC3.7V
Sample Received Date:	June 2, 2019
Sample Tested Date:	June 2, 2019 to April 11, 2020

1.3 TEST LABORATORY INFORMATION

Test Lab:	Shenzhen UnionTrust Quality and Technology Co., Ltd.
Address:	Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China 518109
Telephone / Fax:	Telephone: +86 (0) 755 2823 0888 / Fax: +86 (0) 755 2823 0886
A2LA-Lab Certificate No:	4312.01
	Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.
FCC Accredited Lab:	Designation Number: CN1194
	Test Firm Registration Number: 259480

1.4 OTHER INFORMATION

Support Equipment

Description	Manufacturer	Model No.	Input/ Output
Mobile phone	XIAOMI	MIX 3	N/A

2. EQUIPMENT LIST

Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm dd, yyyy)	Cal. Due date (mm dd, yyyy)
☒	Broadband Field meter	STT	SEM-600	D-1044	May 28, 2019	May 27, 2020
☒	Probe	STT	LF-04	I-1044	May 28, 2019	May 27, 2020
☒	Probe holder	STT	TR-01	N/A	N/A	N/A
☒	Optical fiber line	STT	L=5M	N/A	N/A	N/A

3. MPE EVALUATION

3.1 TEST REQUIREMENT FOR EVALUATION

The EUT is a portable WPT product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards and requirement:

- 1) KDB 680106 D01 Rf Exposure Wireless Charging App V03 (April 9, 2018)
- 2) Test measurement is according to Portable WPT Application of RF Exposure Procedure – TCB Workshop (November 2019)

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

3.2.1.1 Error! Reference source not found.

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	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

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/cm ²)	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 ²	30
30-300	27.5	0.073	0.2	30
300-1,500	/	/	f/1500	30
1,500-100,000	/	/	1.0	30

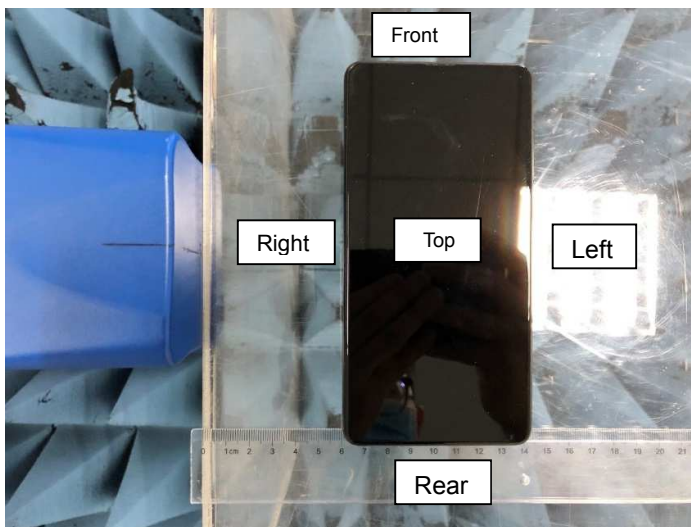
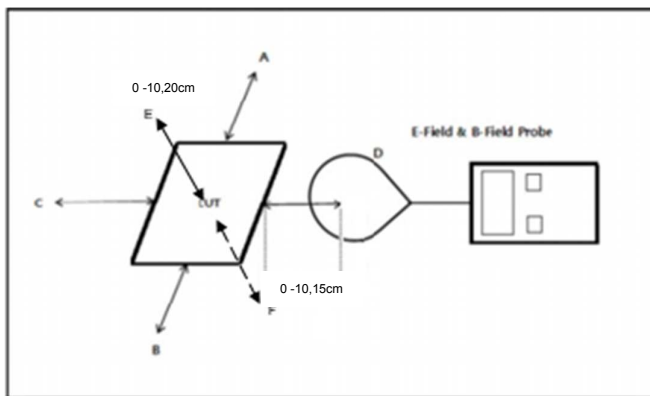
Note: f = frequency in MHz: * = Plane-wave equivalents power density.

3.2.2 Test Procedure

Enabled the EUT to transmit and receive data continue

- The field strength of both E-field and H-field was measured at 0cm, 2cm, 4cm, 6cm, 8cm, 10cm and 15 cm surrounding the device and 0cm, 2cm, 4cm, 6cm, 8cm, 10cm and 20 cm above the top surface using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.
- The RF power density was measured with the battery at 3 different charge conditions: battery at less than 1 % , battery at 50% charger, battery at 99% charger,.
- The field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.
- This device uses a wireless charging circuit for power transfer operating at the frequency of 117-166 kHz. Thus, the 300 kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

3.2.3 Test setup



Note

- The RF exposure test is performed in the shield room
- The test distance is between the edge of the charger and the geometric center of probe
- The aggregate at 15 cm surrounding the device and 20 cm above the top surface from transmitting coils are demonstrated
- Additional test distance at 0cm, 2cm, 4cm, 6cm, 8cm, & 10cm which according to TCB workshop November 2019 on page 13.
- Test Position: Right, Left, Front, Rear, Top, Bottom.

3.3 TEST DATA

H-Field Strength at 0cm surrounding the EUT

Frequency	EUT Operation Mode	Probe position Front (A/m)	Probe position Rear (A/m)	Probe position Left (A/m)	Probe position Right (A/m)	Probe position Top (A/m)	Probe position Bottom (A/m)	Limit (A/m)
117KHz - 166KHz	1% battery level	0.2134	0.1233	0.5673	0.4572	0.8654	1.1123	1.63
117KHz - 166KHz	50% battery level	0.1499	0.1055	0.4557	0.3258	0.7825	1.0312	1.63
117KHz - 166KHz	99% battery level	0.1389	0.1022	0.4123	0.3045	0.7347	1.0031	1.63

H-Field Strength at 2cm surrounding the EUT

Frequency	EUT Operation Mode	Probe position Front (A/m)	Probe position Rear (A/m)	Probe position Left (A/m)	Probe position Right (A/m)	Probe position Top (A/m)	Probe position Bottom (A/m)	Limit (A/m)
117KHz - 166KHz	1% battery level	0.1035	0.1278	0.3481	0.3165	0.5467	0.5984	1.63
117KHz - 166KHz	50% battery level	0.0972	0.0868	0.2618	0.2084	0.4525	0.5549	1.63
117KHz - 166KHz	99% battery level	0.0784	0.0678	0.2004	0.1988	0.4218	0.5231	1.63

H-Field Strength at 4cm surrounding the EUT

Frequency	EUT Operatio n Mode	Probe position Front (A/m)	Probe position Rear (A/m)	Probe position Left (A/m)	Probe position Right (A/m)	Probe position Top (A/m)	Probe position Bottom (A/m)	Limit (A/m)
117KHz - 166KHz	1% battery level	0.0897	0.0987	0.2346	0.2213	0.3867	0.3674	1.63
117KHz - 166KHz	50% battery level	0.0758	0.0792	0.1583	0.1404	0.3324	0.3147	1.63
117KHz - 166KHz	99% battery level	0.0578	0.0612	0.1342	0.1267	0.3022	0.2989	1.63

H-Field Strength at 6cm surrounding the EUT

Frequency	EUT Operatio n Mode	Probe position Front (A/m)	Probe position Rear (A/m)	Probe position Left (A/m)	Probe position Right (A/m)	Probe position Top (A/m)	Probe position Bottom (A/m)	Limit (A/m)
117KHz - 166KHz	1% battery level	0.0876	0.0865	0.1256	0.1034	0.2334	0.2467	1.63
117KHz - 166KHz	50% battery level	0.0557	0.0571	0.1003	0.0938	0.2202	0.2342	1.63
117KHz - 166KHz	99% battery level	0.0543	0.0518	0.0987	0.0879	0.2043	0.2165	1.63

H-Field Strength at 8cm surrounding the EUT

Frequency	EUT Operatio n Mode	Probe position Front (A/m)	Probe position Rear (A/m)	Probe position Left (A/m)	Probe position Right (A/m)	Probe position Top (A/m)	Probe position Bottom (A/m)	Limit (A/m)
117KHz - 166KHz	1% battery level	0.0652	0.0567	0.0732	0.0856	0.02045	0.2124	1.63
117KHz - 166KHz	50% battery level	0.0435	0.0455	0.0697	0.0668	0.1578	0.1776	1.63
117KHz - 166KHz	99% battery level	0.00432	0.0422	0.0589	0.0642	0.1436	0.1545	1.63

H-Field Strength at 10cm surrounding the EUT

Frequency	EUT Operatio n Mode	Probe position Front (A/m)	Probe position Rear (A/m)	Probe position Left (A/m)	Probe position Right (A/m)	Probe position Top (A/m)	Probe position Bottom (A/m)	Limit (A/m)
117KHz - 166KHz	1% battery level	0.0432	0.0389	0.05012	0.0589	0.01438	0.1422	1.63
117KHz - 166KHz	50% battery level	0.0322	0.0365	0.0482	0.0527	0.1175	0.1288	1.63
117KHz - 166KHz	99% battery level	0.031	0.0345	0.0443	0.0453	0.1156	0.1067	1.63

H-Field Strength at 15cm surrounding the EUT (Except Probe position Top test distance is 20cm)

Frequency	EUT Operation Mode	Probe position Front (A/m)	Probe position Rear (A/m)	Probe position Left (A/m)	Probe position Right (A/m)	Probe position Top (A/m)	Probe position Bottom (A/m)	Limit (A/m)
117KHz - 166KHz	1% battery level	0.0212	0.024	0.0289	0.029	0.0353	0.0612	1.63
117KHz - 166KHz	50% battery level	0.0207	0.0231	0.0278	0.0284	0.0323	0.0585	1.63
117KHz - 166KHz	99% battery level	0.0202	0.0217	0.254	0.0264	0.0321	0.0574	1.63

E-Field Strength at 0cm surrounding the EUT

Frequency	EUT Operation Mode	Probe position Front(V/m)	Probe position Rear(V/m)	Probe position Left(V/m)	Probe position Right(V/m)	Probe position Top(V/m)	Probe position Bottom(V/m)	Limit(V/m)
117KHz -166KHz	1% battery level	1.32	1.65	4.33	6.21	7.15	9.87	614
117KHz -166KHz	50% battery level	1.23	1.52	4.14	5.8	6.95	9.66	614
117KHz - 166KHz	99% battery level	1.22	1.44	3.97	5.72	6.89	9.62	614

E-Field Strength at 2cm surrounding the EUT

Frequency	EUT Operation Mode	Probe position Front(V/m)	Probe position Rear(V/m)	Probe position Left(V/m)	Probe position Right(V/m)	Probe position Top(V/m)	Probe position Bottom(V/m)	Limit(V/m)
117KHz -166KHz	1% battery level	0.93	1.05	2.54	3.45	4.22	3.85	614
117KHz -166KHz	50% battery level	0.85	0.97	2.34	3.21	3.99	3.72	614
117KHz - 166KHz	99% battery level	0.83	0.89	2.12	3.15	3.89	3.68	614

E-Field Strength at 4cm surrounding the EUT

Frequency	EUT Operation Mode	Probe position Front(V/m)	Probe position Rear(V/m)	Probe position Left(V/m)	Probe position Right(V/m)	Probe position Top(V/m)	Probe position Bottom(V/m)	Limit(V/m)
117KHz -166KHz	1% battery level	0.62	0.73	1.33	1.89	2.65	2.43	614
117KHz -166KHz	50% battery level	0.54	0.61	1.03	1.75	2.51	2.28	614
117KHz - 166KHz	99% battery level	0.52	0.58	1.01	1.69	2.49	2.14	614

E-Field Strength at 6cm surrounding the EUT

Frequency	EUT Operation Mode	Probe position Front(V/m)	Probe position Rear(V/m)	Probe position Left(V/m)	Probe position Right(V/m)	Probe position Top(V/m)	Probe position Bottom(V/m)	Limit(V/m)
117KHz -166KHz	1% battery level	0.43	0.44	0.76	1.32	1.67	1.66	614
117KHz -166KHz	50% battery level	0.35	0.38	0.63	1.08	1.58	1.53	614
117KHz - 166KHz	99% battery level	0.33	0.31	0.61	1.01	1.52	1.47	614

E-Field Strength at 8cm surrounding the EUT

Frequency	EUT Operation Mode	Probe position Front(V/m)	Probe position Rear(V/m)	Probe position Left(V/m)	Probe position Right(V/m)	Probe position Top(V/m)	Probe position Bottom(V/m)	Limit(V/m)
117KHz -166KHz	1% battery level	0.44	0.3	0.51	0.72	1.24	1.28	614
117KHz -166KHz	50% battery level	0.34	0.28	0.46	0.68	1.18	1.21	614
117KHz - 166KHz	99% battery level	0.31	0.26	0.41	0.63	1.11	1.16	614

E-Field Strength at 10cm surrounding the EUT

Frequency	EUT Operation Mode	Probe position Front(V/m)	Probe position Rear(V/m)	Probe position Left(V/m)	Probe position Right(V/m)	Probe position Top(V/m)	Probe position Bottom(V/m)	Limit(V/m)
117KHz -166KHz	1% battery level	0.32	0.34	0.42	0.63	0.84	1.04	614
117KHz -166KHz	50% battery level	0.26	0.16	0.25	0.51	0.79	0.95	614
117KHz - 166KHz	99% battery level	0.22	0.13	0.21	0.45	0.71	0.91	614

E-Field Strength at 15cm surrounding the EUT (Except Probe position Top test distance is 20cm)

Frequency	EUT Operation Mode	Probe position Front(V/m)	Probe position Rear(V/m)	Probe position Left(V/m)	Probe position Right(V/m)	Probe position Top(V/m)	Probe position Bottom(V/m)	Limit(V/m)
117KHz -166KHz	1% battery level	0.33	0.23	0.24	0.31	0.22	0.59	614
117KHz -166KHz	50% battery level	0.11	0.13	0.12	0.24	0.18	0.52	614
117KHz - 166KHz	99% battery level	0.11	0.12	0.11	0.22	0.16	0.49	614

Result: Complied

E-Field and H-Field Test Setup Photos:



Test Distance:0cm



Test Distance:2cm



Test Distance:4cm



Test Distance:6cm



Test Distance:8cm



Test Distance:10cm



Test Distance:15cm

*** End of Report ***
