

Test Report

Report No.: MTi230810014-03E3

Date of issue: 2023-11-06

Applicant: Dongguan World Precision Manufacture Co., Ltd.

Product: DCRF (Device Charge & Recognition Fixture)

Model(s): TE-072-A808-00000

FCC ID: 2BCL9-TE072A808

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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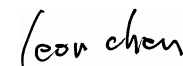
Test Result Certification	
Applicant:	Dongguan World Precision Manufacture Co., Ltd.
Address:	No. 6 Wanjiang Section, Gangkou Avenue, Wanjiang Subdistrict, Dongguan City, Guangdong Province, China.
Manufacturer:	Dongguan World Precision Manufacture Co., Ltd.
Address:	No. 6 Wanjiang Section, Gangkou Avenue, Wanjiang Subdistrict, Dongguan City, Guangdong Province, China.
Product description	
Product name:	DCRF (Device Charge & Recognition Fixture)
Trademark:	N/A
Model name:	TE-072-A808-00000
Series Model:	N/A
Standards:	FCC CFR 47 PART 1, § 1.1310
Test method:	KDB 680106 D01 Wireless Power Transfer v04 RF Exposure Procedures TCBC workshop October 2020
Date of Test	
Date of test:	2023-08-23 to 2023-11-06
Test result:	Pass

Test Engineer :



(Maleah Deng)

Reviewed By :



(Leon Chen)

Approved By :



(Tom Xue)

1 General Description

1.1 Description of the EUT

Product name:	DCRF (Device Charge & Recognition Fixture)
Model name:	TE-072-A808-00000
Series Model:	N/A
Model difference:	N/A
Electrical rating:	Input: AC 100-240V Wireless Output: 5W,7.5W
Accessories:	N/A
Hardware version:	V1.0
Software version:	V1.0
Test sample(s) number:	MTi230810014-03S1001
RF specification:	
Operation frequency:	Transmitter 1: 123.8KHz-146.7KHz Transmitter 2: 123.8KHz-146.7KHz Transmitter 3: 123.8KHz-146.7KHz Transmitter 4: 123.8KHz-146.7KHz Transmitter 5: 123.8KHz-146.7KHz Transmitter 6: 123.8KHz-146.7KHz
Modulation type:	ASK
Antenna type:	Coil Antenna

1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

No.	Emission test modes
Mode1	Wireless Output(5W(Coil 1))
Mode2	Wireless Output(7.5W(Coil 1))
Mode3	Wireless Output(5W(Coil 1)+5W(Coil 2))
Mode4	Wireless Output(5W(Coil 1)+7.5W(Coil 2))
Mode5	Wireless Output(5W(Coil 1)+5W(Coil 3))
Mode6	Wireless Output(5W(Coil 1)+7.5W(Coil 3))
Mode7	Wireless Output(5W(Coil 1)+5W(Coil 4))
Mode8	Wireless Output(5W(Coil 1)+7.5W(Coil 4))
Mode9	Wireless Output(5W(Coil 1)+5W(Coil 5))
Mode10	Wireless Output(5W(Coil 1)+7.5W(Coil 5))
Mode11	Wireless Output(5W(Coil 1)+5W(Coil 6))
Mode12	Wireless Output(5W(Coil 1)+7.5W(Coil 6))
Mode13	Wireless Output7.5W(Coil 1)+5W(Coil 2))
Mode14	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2))
Mode15	Wireless Output(7.5W(Coil 1)+5W(Coil 3))
Mode16	Wireless Output(7.5W(Coil 1)+7.5W(Coil 3))
Mode17	Wireless Output(7.5W(Coil 1)+5W(Coil 4))
Mode18	Wireless Output(7.5W(Coil 1)+7.5W(Coil 4))
Mode19	Wireless Output(7.5W(Coil 1)+5W(Coil 5))
Mode20	Wireless Output(7.5W(Coil 1)+7.5W(Coil 5))
Mode21	Wireless Output(7.5W(Coil 1)+5W(Coil 6))
Mode22	Wireless Output(7.5W(Coil 1)+7.5W(Coil 6))
Mode23	Wireless Output(5W(Coil 2))
Mode24	Wireless Output(7.5W(Coil 2))
Mode25	Wireless Output(5W(Coil 2)+5W(Coil 3))
Mode26	Wireless Output(5W(Coil 2)+7.5W(Coil 3))
Mode27	Wireless Output(5W(Coil 2)+5W(Coil 4))
Mode28	Wireless Output(5W(Coil 2)+7.5W(Coil 4))
Mode29	Wireless Output(5W(Coil 2)+5W(Coil 5))
Mode30	Wireless Output(5W(Coil 2)+7.5W(Coil 5))
Mode31	Wireless Output(5W(Coil 2)+5W(Coil 6))
Mode32	Wireless Output(5W(Coil 2)+7.5W(Coil 6))
Mode33	Wireless Output(7.5W(Coil 2)+5W(Coil 3))
Mode34	Wireless Output(7.5W(Coil 2)+7.5W(Coil 3))

Mode35	Wireless Output(7.5W(Coil 2)+5W(Coil 4))
Mode36	Wireless Output(7.5W(Coil 2)+7.5W(Coil 4))
Mode37	Wireless Output(7.5W(Coil 2)+5W(Coil 5))
Mode38	Wireless Output(7.5W(Coil 2)+7.5W(Coil 5))
Mode39	Wireless Output(7.5W(Coil 2)+5W(Coil 6))
Mode40	Wireless Output(7.5W(Coil 2)+7.5W(Coil 6))
Mode41	Wireless Output(5W(Coil 3))
Mode42	Wireless Output(7.5W(Coil 3))
Mode43	Wireless Output(5W(Coil 3)+5W(Coil 4))
Mode44	Wireless Output(5W(Coil 3)+7.5W(Coil 4))
Mode45	Wireless Output(5W(Coil 3)+5W(Coil 5))
Mode46	Wireless Output(5W(Coil 3)+7.5W(Coil 5))
Mode47	Wireless Output(5W(Coil 3)+5W(Coil 6))
Mode48	Wireless Output(5W(Coil 3)+7.5W(Coil 6))
Mode49	Wireless Output(7.5W(Coil 3)+5W(Coil 4))
Mode50	Wireless Output(7.5W(Coil 3)+7.5W(Coil 4))
Mode51	Wireless Output(7.5W(Coil 3)+5W(Coil 5))
Mode52	Wireless Output(7.5W(Coil 3)+7.5W(Coil 5))
Mode53	Wireless Output(7.5W(Coil 3)+5W(Coil 6))
Mode54	Wireless Output(7.5W(Coil 3)+7.5W(Coil 6))
Mode55	Wireless Output(5W(Coil 4))
Mode56	Wireless Output(7.5W(Coil 4))
Mode57	Wireless Output(5W(Coil 4)+5W(Coil 5))
Mode58	Wireless Output(5W(Coil 4)+7.5W(Coil 5))
Mode59	Wireless Output(5W(Coil 4)+5W(Coil 6))
Mode60	Wireless Output(5W(Coil 4)+7.5W(Coil 6))
Mode61	Wireless Output(7.5W(Coil 4)+5W(Coil 5))
Mode62	Wireless Output(7.5W(Coil 4)+7.5W(Coil 5))
Mode63	Wireless Output(7.5W(Coil 4)+5W(Coil 6))
Mode64	Wireless Output(7.5W(Coil 4)+7.5W(Coil 6))
Mode65	Wireless Output(5W(Coil 5))
Mode66	Wireless Output(7.5W(Coil 5))
Mode67	Wireless Output(5W(Coil 5)+5W(Coil 6))
Mode68	Wireless Output(5W(Coil 5)+7.5W(Coil 6))
Mode69	Wireless Output(7.5W(Coil 5)+5W(Coil 6))
Mode70	Wireless Output(7.5W(Coil 5)+7.5W(Coil 6))
Mode71	Wireless Output(5W(Coil 6))

Mode72	Wireless Output(7.5W(Coil 6))
Mode73	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 3))
Mode74	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 3))
Mode75	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 4))
Mode76	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 4))
Mode77	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 5))
Mode78	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 5))
Mode79	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 6))
Mode80	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 6))
Mode81	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 3))
Mode82	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 3))
Mode83	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 4))
Mode84	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 4))
Mode85	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 5))
Mode86	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 5))
Mode87	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 6))
Mode88	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 6))
Mode89	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3))
Mode90	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3))
Mode91	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 4))
Mode92	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 4))
Mode93	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 5))
Mode94	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 5))
Mode95	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 6))
Mode96	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 6))
Mode97	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3))
Mode98	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3))
Mode99	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 4))
Mode100	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 4))
Mode101	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 5))
Mode102	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 5))
Mode103	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 6))
Mode104	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 6))
Mode105	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3))
Mode106	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3))
Mode107	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 4))
Mode108	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 4))

Mode109	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 5))
Mode110	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 5))
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Mode113	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3))
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Mode122	Wireless Output(5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4))
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Mode132	Wireless Output(7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 6))
Mode133	Wireless Output(5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5))
Mode134	Wireless Output(5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5))
Mode135	Wireless Output(5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 6))
Mode136	Wireless Output(5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 6))
Mode137	Wireless Output(7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5))
Mode138	Wireless Output(7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5))
Mode139	Wireless Output(7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 6))
Mode140	Wireless Output(7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 6))
Mode141	Wireless Output(5W(Coil 4)+7.5W(Coil 5)+7.5W(Coil 6))
Mode142	Wireless Output(5W(Coil 4)+7.5W(Coil 5)+7.5W(Coil 6))
Mode143	Wireless Output(7.5W(Coil 4)+7.5W(Coil 5)+7.5W(Coil 6))
Mode144	Wireless Output(7.5W(Coil 4)+7.5W(Coil 5)+7.5W(Coil 6))
Mode145	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+5W(Coil 4))

Mode146	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+5W(Coil 5))
Mode147	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+5W(Coil 6))
Mode148	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+5W(Coil 4))
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Mode156	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3)+5W(Coil 6))
Mode157	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 4))
Mode158	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 5))
Mode159	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 6))
Mode160	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 4))
Mode161	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 5))
Mode162	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 6))
Mode163	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4))
Mode164	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 5))
Mode165	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 6))
Mode166	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4))
Mode167	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 5))
Mode168	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 6))
Mode169	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+5W(Coil 4)+5W(Coil 5))
Mode170	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+5W(Coil 4)+5W(Coil 6))
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Mode172	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+5W(Coil 4)+5W(Coil 6))
Mode173	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3)+5W(Coil 4)+5W(Coil 5))
Mode174	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3)+5W(Coil 4)+5W(Coil 6))
Mode175	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3)+5W(Coil 4)+5W(Coil 5))
Mode176	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3)+5W(Coil 4)+5W(Coil 6))
Mode177	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 4)+5W(Coil 5))
Mode178	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 4)+5W(Coil 6))
Mode179	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 4)+5W(Coil 5))
Mode180	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+5W(Coil 4)+5W(Coil 6))
Mode181	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+5W(Coil 5))
Mode182	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+5W(Coil 6))

Mode183	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+5W(Coil 5))
Mode184	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+ 5W(Coil 6))
Mode185	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5))
Mode186	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 6))
Mode187	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5))
Mode188	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 6))
Mode189	Wireless Output(5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+ 5W(Coil 4)+5W(Coil 5)+5W(Coil 6))
Mode190	Wireless Output(7.5W(Coil 1)+5W(Coil 2)+5W(Coil 3)+ 5W(Coil 4)+5W(Coil 5)+5W(Coil 6))
Mode191	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3)+ 5W(Coil 4)+5W(Coil 5)+5W(Coil 6))
Mode192	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+5W(Coil 3)+ 5W(Coil 4)+5W(Coil 5)+5W(Coil 6))
Mode193	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+ 5W(Coil 4)+5W(Coil 5)+5W(Coil 6))
Mode194	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+ 5W(Coil 4)+5W(Coil 5)+5W(Coil 6))
Mode195	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+5W(Coil 5)+5W(Coil 6))
Mode196	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+5W(Coil 5)+5W(Coil 6))
Mode197	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5)+5W(Coil 6))
Mode198	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5)+5W(Coil 6))
Mode199	Wireless Output(5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5)+7.5W(Coil 6))
Mode 200	Wireless Output(7.5W(Coil 1)+7.5W(Coil 2)+7.5W(Coil 3)+7.5W(Coil 4)+7.5W(Coil 5)+7.5W(Coil 6))
Mode201	Stand by
The test data only show worst test mode: Mode 200	

1.3 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support equipment list			
Description	Model	Serial No.	Manufacturer
Mobile phone	iPhone 12	/	APPLE
Mobile phone	iPhone 12	/	APPLE
Mobile phone	iPhone 12	/	APPLE
Mobile phone	iPhone 12	/	APPLE
Mobile phone	iPhone 12	/	APPLE
Mobile phone	iPhone 12	/	APPLE

Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Measurement uncertainty

Parameter	Expanded Uncertainty
Magnetic field measurement (9kHz~30MHz)	$\pm 18.6\%$
Electric field measurements (9kHz~30MHz)	$\pm 18.6\%$

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

3 Test facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573

4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
MTi-E115	Electric and Magnetic Field Probe – Analyzer	Narda	EHP-200A	101166	2022/08/14	2023/08/15
MTi-E115	Electric and Magnetic Field Probe – Analyzer	Narda	EHP-200A	101166	2023/08/15	2026/08/14

5 Test result

5.1.1 Requirement

§1.1310: 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), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

Table 1 to §1.1310(e)(1) - 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)
(i) Limits for Occupational/Controlled Exposure				
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
1500-100000			5	<6
(ii) 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
1500-100000			1.0	<30

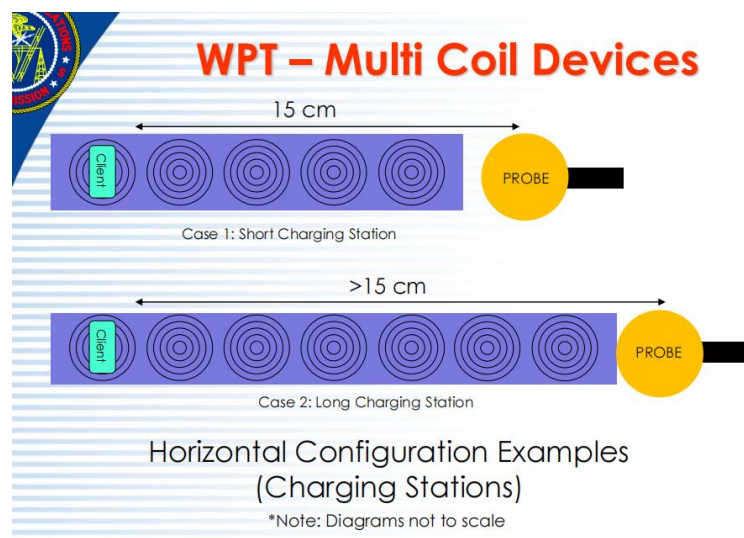
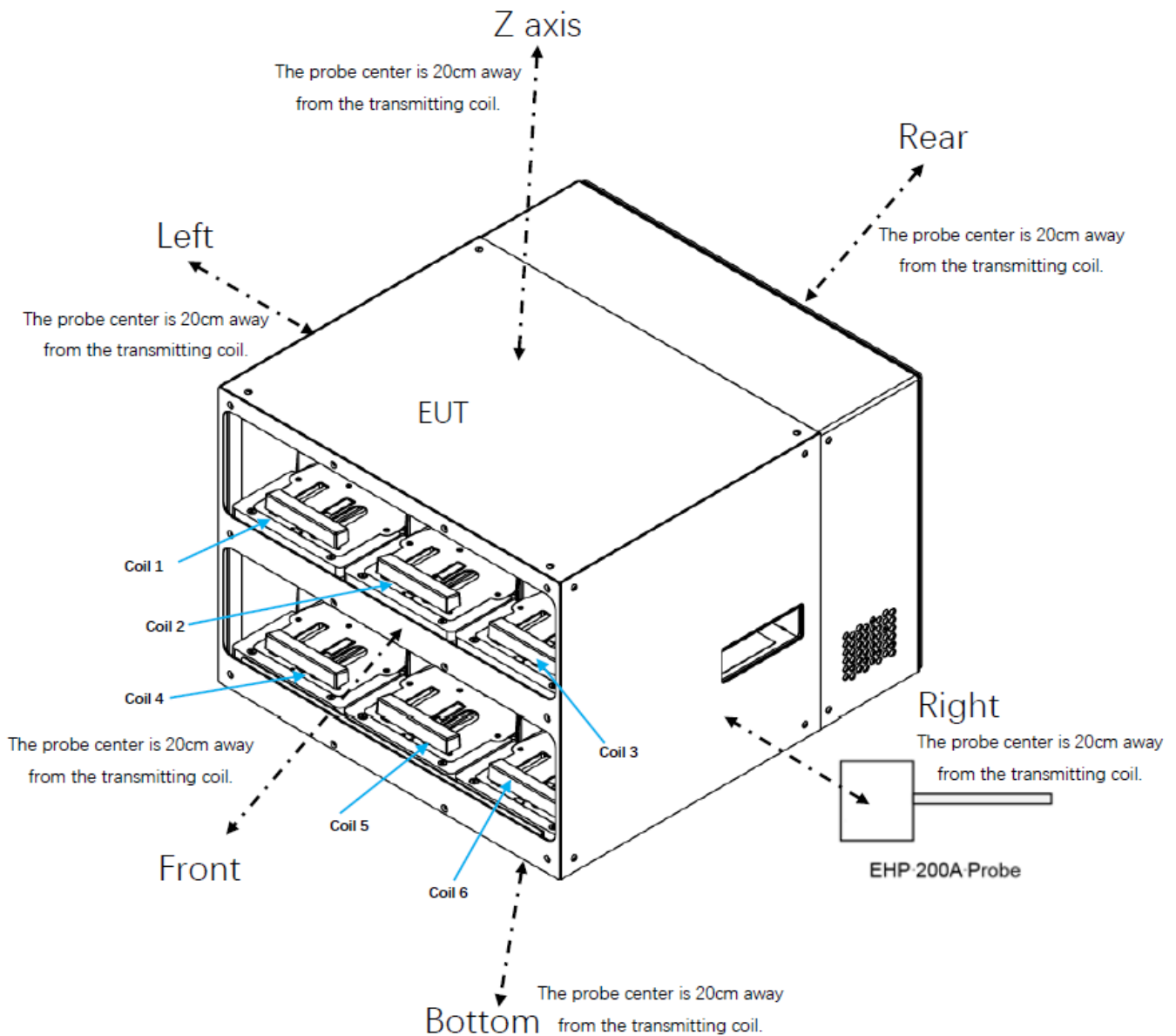
f = frequency in MHz

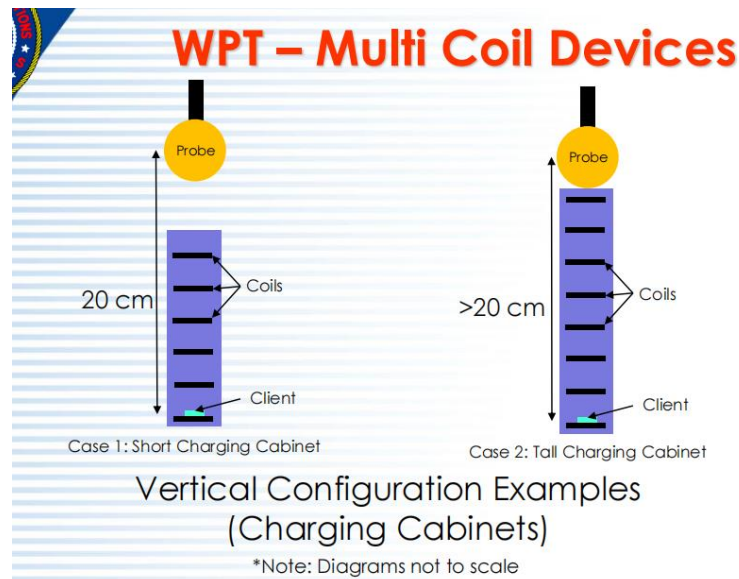
* = Plane-wave equivalent power density

Note 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

Note 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

5.2 Test setup





5.3 Test Procedures

- a. The RF exposure test was performed in anechoic chamber.
- b. For very long or tall devices, when measuring the middle or end coil configurations, some surfaces or edges may be very far away from the transmitting coil. For those far away edges or surfaces, measure with the center of the probe 20 cm away from the edge of the transmitting coil, respectively. If the edge or surface is greater than 20 cm away from the edge of the transmitting coil, respectively, measure with the probe touching that edge or surface.
- c. The highest emission level was recorded and compared with the limit.
- d. The EUT was measured according to the dictates of KDB 680106 D01 Wireless Power Transfer v04 and RF Exposure Procedures TCBC workshop October 2020.
- e. The measurement methodology is as follows: Fully load the host with identical clients, one per each coil. Measure H-Field at 20 cm from the edges and from the top surface; the bottom does not face the user, so no need to measure the bottom. Place the client on coil 1 closest to the end of the device and measure the H-field at 20 cm from the edge and upper surface of the device. Coil 4 repeats the measurement method of coil 1. Place the client on coil 3 at the other end of the device and measure the H-field 20 cm away from the edge and upper surface of the device. Coil 6 repeats the measurement method of coil 3. Place a client on coil 2 near the middle of the device and measure the H-field 20 cm from the edge and upper surface. Repeat the measurement method for coil 2; coil 5 repeats the measurement method for coil 2.

5.4 Equipment Approval Considerations

Requirement	Device
1. The power transfer frequency is below 1 MHz.	Yes. The operating frequencies are: 123.8KHz-146.7KHz
2. The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.	Yes. The maximum output power is: 7.5W
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)	No. The client device isn't placed directly in contact with the transmitter. the transmitter coil to receiver coil separation is between 10mm and 17mm, however, the client is sealed in a box and the box is in contact with the charging cabinet surface.
4. Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).	Yes. Mobile exposure conditions only.
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.	Yes. See the test result in item 5.5.
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.	Yes. The EUT has six radiating structure and all scenarios have been tested.

5.5 Test results

WPT:

Test condition 1: Mode 2 operating mode with client device (1 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.9022	614	0.18%	0.3254	1.63	28.09%
Left	0.8701			0.1329		
Right	0.4242			0.2086		
Front	1.1105			0.4578		
Rear	0.4225			0.0517		

Test condition 2: Mode 2 operating mode with client device (50 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	0.8903	614	0.18%	0.3224	1.63	28.50%
Left	0.8628			0.1422		
Right	0.4051			0.2046		
Front	1.1272			0.4645		
Rear	0.4208			0.0457		

Test condition 3: Mode 2 operating mode with client device (99 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.8973	614	0.18%	0.3242	1.63	27.76%
Left	0.8588			0.1326		
Right	0.4173			0.2072		
Front	1.1055			0.4525		
Rear	0.4046			0.05		

Test condition 1: Mode 24 operating mode with client device (1 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.1367	614	0.21%	0.3046	1.63	23.02%
Left	0.3769			0.0789		
Right	0.8284			0.0488		
Front	1.3127			0.3753		
Rear	0.4020			0.0505		

Test condition 2: Mode 24 operating mode with client device (50 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	1.1513	614	0.22%	0.3058	1.63	23.13%
Left	0.3687			0.0716		
Right	0.8474			0.049		
Front	1.3202			0.3771		
Rear	0.4099			0.0589		

Test condition 3: Mode 24 operating mode with client device (99 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.1179	614	0.21%	0.2997	1.63	22.45%
Left	0.3677			0.0788		
Right	0.822			0.0433		
Front	1.2935			0.366		
Rear	0.388			0.0426		

Test condition 1: Mode 42 operating mode with client device (1 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.9413	614	0.22%	0.2681	1.63	31.08%
Left	0.8943			0.3417		
Right	0.7461			0.1318		
Front	1.3421			0.5066		
Rear	0.3707			0.0501		

Test condition 2: Mode 42 operating mode with client device (50 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	0.9288	614	0.22%	0.2752	1.63	31.62%
Left	0.8792			0.337		
Right	0.7585			0.1342		
Front	1.3468			0.5154		
Rear	0.3521			0.0579		

Test condition 3: Mode 42 operating mode with client device (99 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.9256	614	0.22%	0.2632	1.63	30.50%
Left	0.8884			0.333		
Right	0.7458			0.1245		
Front	1.3382			0.4972		
Rear	0.3616			0.0496		

Test condition 1: Mode 56 operating mode with client device (1 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.5097	614	0.16%	0.1685	1.63	22.40%
Left	0.6072			0.0949		
Right	0.5121			0.0834		
Front	0.9557			0.3652		
Rear	0.5433			0.0513		

Test condition 2: Mode 56 operating mode with client device (50 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	0.5156	614	0.16%	0.1784	1.63	22.90%
Left	0.6124			0.093		
Right	0.5008			0.0815		
Front	0.9701			0.3733		
Rear	0.547			0.0551		

Test condition 3: Mode 56 operating mode with client device (99 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.5068	614	0.15%	0.1601	1.63	21.99%
Left	0.5964			0.0941		
Right	0.5066			0.0783		
Front	0.9461			0.3584		
Rear	0.5389			0.0487		

Test condition 1: Mode 66 operating mode with client device (1 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.9200	614	0.42%	0.0616	1.63	25.09%
Left	2.5852			0.2232		
Right	0.8074			0.2858		
Front	1.0463			0.4089		
Rear	0.4510			0.0513		

Test condition 2: Mode 66 operating mode with client device (50 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	0.9174	614	0.42%	0.0552	1.63	25.65%
Left	2.6042			0.2299		
Right	0.7899			0.29		
Front	1.0331			0.4181		
Rear	0.4592			0.0572		

Test condition 3: Mode 66 operating mode with client device (99 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.9031	614	0.42%	0.0546	1.63	24.88%
Left	2.569			0.2221		
Right	0.7927			0.2816		
Front	1.04			0.4056		
Rear	0.4434			0.0478		

Test condition 1: Mode 72 operating mode with client device (1 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.9130	614	0.32%	0.2954	1.63	22.42%
Left	1.9741			0.3354		
Right	0.4104			0.0570		
Front	1.1433			0.3654		
Rear	0.4726			0.0505		

Test condition 2: Mode 72 operating mode with client device (50 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	0.9253	614	0.32%	0.2908	1.63	22.45%
Left	1.9806			0.3425		
Right	0.4059			0.0526		
Front	1.1354			0.3659		
Rear	0.4925			0.0413		

Test condition 3: Mode 72 operating mode with client device (99 % battery status of client device)

Probe Position	E –field (V/m)			H–field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.9099	614	0.32%	0.2933	1.63	21.97%
Left	1.959			0.3284		
Right	0.4101			0.0498		
Front	1.1393			0.3581		
Rear	0.4606			0.0449		

Test condition 1: Mode 200 operating mode with client device (1 % battery status of client device)

Probe Position	Separation	Probe from EUT Side	E -field (V/m)	H-field (A/m)	E -field (V/m) Spatial Averaging	H-field (A/m) Spatial Averaging
Z axis	20cm	1	1.0283	0.1932	1.067	0.161
	20cm	2	1.1325	0.1985		
	20cm	3	1.1988	0.2270		
Left	15cm	4	0.9899	0.1131		
	15cm	5	0.9850	0.1558		
Right	15cm	6	0.8584	0.0806		
	15cm	7	0.5255	0.0951		
Front	15cm	8	1.3760	0.3667		
	15cm	9	2.1438	0.1980		
	15cm	10	1.8361	0.2637		
	15cm	11	1.7242	0.4009		
	15cm	12	2.2151	0.3174		
	15cm	13	0.8510	0.1469		
Rear	15cm	14	0.5255	0.0513		
	15cm	15	0.5426	0.0488		
	15cm	16	0.5867	0.0501		
	15cm	17	0.7164	0.0482		
	15cm	18	0.4901	0.0513		
	15cm	19	0.5390	0.0502		
Limit					614	1.63
Margin Limit (%)					0.17%	9.87%

Test condition 2: Mode 200 operating mode with client device (50 % battery status of client device)

Probe Position	Separation	Probe from EUT Side	E -field (V/m)	H-field (A/m)	E -field (V/m) Spatial Averaging	H-field (A/m) Spatial Averaging
Z axis	20cm	1	1.0411	0.187	1.066	0.16
	20cm	2	1.1386	0.1914		
	20cm	3	1.1828	0.2326		
Left	15cm	4	0.9952	0.1185		
	15cm	5	0.9863	0.1483		
Right	15cm	6	0.8477	0.0799		
	15cm	7	0.5222	0.0906		
Front	15cm	8	1.3686	0.3736		
	15cm	9	2.1439	0.1884		
	15cm	10	1.828	0.2714		
	15cm	11	1.732	0.3927		
	15cm	12	2.2214	0.3208		
	15cm	13	0.8402	0.1553		
Rear	15cm	14	0.5385	0.0516		
	15cm	15	0.5587	0.056		
	15cm	16	0.5916	0.0413		
	15cm	17	0.7173	0.053		
	15cm	18	0.4767	0.0462		
	15cm	19	0.5294	0.0466		
Limit					614	1.63
Margin Limit (%)					0.17%	9.83%

Test condition 3: Mode 200 operating mode with client device (99 % battery status of client device)

Probe Position	Separation	Probe from EUT Side	E -field (V/m)	H-field (A/m)	E -field (V/m) Spatial Averaging	H-field (A/m) Spatial Averaging
Z axis	20cm	1	1.0117	0.1872	1.058	0.157
	20cm	2	1.1138	0.1947		
	20cm	3	1.1894	0.2241		
Left	15cm	4	0.9873	0.1116		
	15cm	5	0.9816	0.1491		
Right	15cm	6	0.8572	0.073		
	15cm	7	0.513	0.0886		
Front	15cm	8	1.3699	0.3644		
	15cm	9	2.1403	0.1927		
	15cm	10	1.8206	0.2628		
	15cm	11	1.7152	0.4001		
	15cm	12	2.2098	0.31		
	15cm	13	0.8367	0.1404		
Rear	15cm	14	0.5072	0.0441		
	15cm	15	0.5424	0.0459		
	15cm	16	0.5831	0.0491		
	15cm	17	0.6971	0.0453		
	15cm	18	0.4843	0.0502		
	15cm	19	0.536	0.0491		
Limit					614	1.63
Margin Limit (%)					0.17%	9.63%

NFC:

§1.1310: 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)

Transmit Frequency (MHz)	Max Output power (dBuV/m)	Measured Power (dBm)	Tune-up power (dBm)	Max tune-up	Max tune-up	Result	*Limit Power density (mW/cm2)
				power(dBm)	power(mw)		
13.56	47.73	-47.47	(-47)±1	-46	0.00002512	0.0000000036	4.89

Note: The limit of Power density for frequency range 3MHz-30MHz is $(900/f^2)$. f: 13.56MHz

Conclusion:

For the max result(WPT+NFC): $0.316196319+0.000000004=0.316196323 \leq 1$

Photographs of the Test Setup

See the Appendix - Test Setup Photos.

Photographs of the EUT

See the Appendix - EUT Photos.

----End of Report----