

RF Exposure evaluation report

Applicant:	Case-Mate, Inc.
Address of Applicant:	7000 CENTRAL PARKWAY, SUITE 7000, ATLANTA, GA, 30328, USA
Manufacturer:	1.PYS High-Tech Co., Ltd 2.PYS VIETNAM TECHNOLOGY COMPANY LIMITED
Address of Manufacturer:	1.1F~12F, Block 9, Lianhua Industrial Zone, Longhua, Shenzhen, Guangdong 518109 CHINA 2.CN-06, ThuanThanh II industrial zone, Mao Dien commune, ThuanThanh district, BacNinh, Vietnam
Product name:	Wireless charger
Model:	CQ049650-02, FL048274, CQ049722, CQ049724
Rating(s):	Input: 5Vdc, 3A; 9Vdc, 2.2A; 12Vdc, 1.7A Output: 15W Max.
Trademark:	FUEL
Standards:	FCC Part 1(1.1310) and Part 2(2.1091), KDB 680106 D01 RF Exposure Wireless Charging
FCC ID:	2AAC4CQ049650
Data of Receipt:	2022-08-06
Date of Test:	2022-08-06~2022-09-26
Date of Issue:	2022-09-26
Test Result	Pass*

* In the configuration tested, the test item complied with the standards specified above.

Authorized for issue by:

Test by:

Reviewed by:

Sep. 26, 2022 Chivas Tsang

Sep. 26, 2022

Victor Meng

Project Engineer

Project Manager

Date

Name/Position

Signature

Date

Name/Position

Signature



Chivas

Victor

Possible test case verdicts:

test case does not apply to the test object... : N/A

test object does meet the requirement..... : P (Pass)

test object does not meet the requirement... : F (Fail)

Testing Laboratory information:

Testing Laboratory Name : ITL Co., Ltd

Address..... : No. 8 Jinqianling Street 5, Huangjiang Town, Dongguan,
Guangdong, 523757 P.R.C.

Testing location : Same as above

Tel : 0086-769-39001678

Fax : 0086-20-62824387

E-mail : itl@i-testlab.com

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report would be invalid test report without all the signatures of testing technician and approver.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

General product information:

All models identical to each other except the model name.

All tests were performed on the model CQ049650-02 as representative.

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2 General Information

2.1 Client Information

Applicant: Case-Mate, Inc.
Address of Applicant: 7000 CENTRAL PARKWAY, SUITE 7000, ATLANTA, GA, 30328, USA

2.2 General Description of E.U.T.

Name: Wireless charger
Model No.: CQ049650-02
Trade Mark: FUEL
Operating Frequency: 115-205KHz
Type of Modulation: ASK
Antenna Reference: Coil Antenna with 0dBi peak Gain
Function: Wireless charger

2.3 Details of E.U.T.

EUT Power Supply: 120Vac, 60Hz (For adapter)
Test mode: Mode 1: base station in stand-by, idle mode
Mode 2: Communication and charging

2.4 Description of Support Units

The EUT has been tested as an independent unit for fixed frequency by testing lab.

2.5 Test Location

All tests were performed at:

ITL Co., Ltd

No. 8 Jinqianling Street 5, Huangjiang Town, Dongguan, Guangdong, 523757 P.R.C.

0086-769-39001678

itl@i-testlab.com

No tests were sub-contracted.

2.6 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

2.7 Abnormalities from Standard Conditions

None.

2.8 Other Information Requested by the Customer

None.

2.9 Test Facility

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

- CNAS Lab code:L9342
- FCC Designation No.:CN5035
- IC Registration NO.: 12593A
- NVLAP LAB CODE: 600199-0

3 Instruments Used during Test

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Exposure Level Tester	narda	ELT-400	N-0231	2022.04.21	2023.04.21
Magnetic field probe 100cm2	narda	ELT probe 100cm2	M0675	2022.04.21	2023.04.21

4 RF Exposure Evaluation

4.1 RF Exposure Compliance Requirement

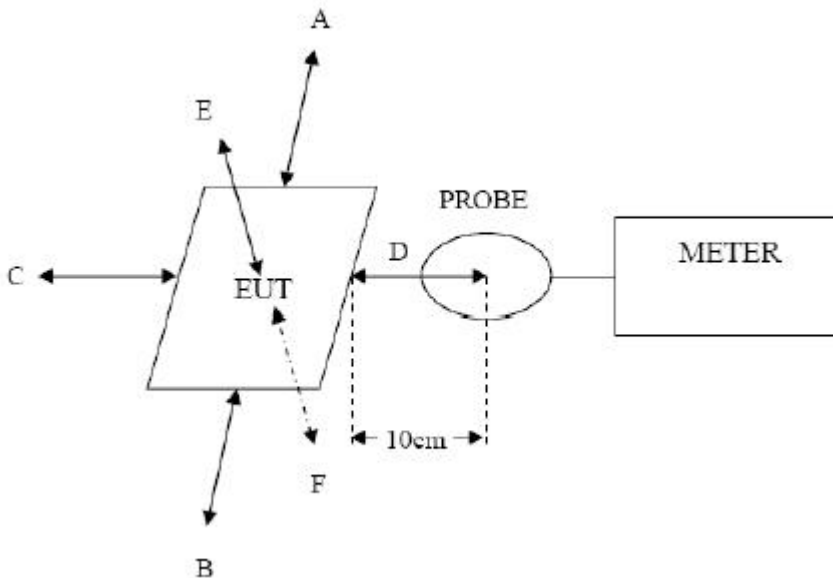
3.1.1 Standard Requirement

FCC Part 1(1.1310) and Part 2(2.1091), KDB 680106 D01 RF Exposure Wireless Charging App v03r01

Test configuration

- 1, The field strength of both E-field and H-field was measured at 10cm using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.
- 2, The RF power density was measured at Under maximum load test
- 3, Maximum E-field and H-field measurements were made 10cm from each side of the EUT. Along the side of the EUT and still 10cm away from the edge of the EUT, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.
- 4, This device uses a wireless charging circuit for power transfer operating at the frequency of 100 –205kHz. Thus, the 300kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

Test Setup



Limits

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).				

3.1.2 EUT RF Exposure

This device has been tested the worst status of full load and the device has been tested with mobile Wireless Charging load at zero charge, intermediate charge, and full charge.

Note: The output power of Max load is 15W, Mid load power is 10W, and Min load power is 5W.

Mode: Max load

E-Filed Strength at 10cm from the edges surrounding the EUT (V/m)

Frequency Range (MHz)	Test Position 1	Test Position 2	Test Position 3	Test Position 4	Test Position 5	Test Position 6	Limits Test (V/m)
0.142	0.89	1.15	1.12	0.86	1.31	0.80	614

H-Filed Strength at 10cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Test Position 1	Test Position 2	Test Position 3	Test Position 4	Test Position 5	Test Position 6	Limits Test (A/m)
0.142	0.58	0.53	0.52	0.56	0.71	0.56	1.63

Mode: Mid load

E-Filed Strength at 10cm from the edges surrounding the EUT (V/m)

Frequency Range (MHz)	Test Position 1	Test Position 2	Test Position 3	Test Position 4	Test Position 5	Test Position 6	Limits Test (V/m)
0.142	0.71	0.87	0.91	0.83	0.93	0.77	614

H-Filed Strength at 10cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Test Position 1	Test Position 2	Test Position 3	Test Position 4	Test Position 5	Test Position 6	Limits Test (A/m)
0.142	0.48	0.47	0.45	0.51	0.47	0.53	1.63

Mode: Min load

E-Filed Strength at 10cm from the edges surrounding the EUT (V/m)

Frequency Range (MHz)	Test Position 1	Test Position 2	Test Position 3	Test Position 4	Test Position 5	Test Position 6	Limits Test (V/m)
0.142	0.58	0.67	0.71	0.63	0.78	0.61	614

H-Filed Strength at 10cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Test Position 1	Test Position 2	Test Position 3	Test Position 4	Test Position 5	Test Position 6	Limits Test (A/m)
0.142	0.38	0.41	0.43	0.41	0.39	0.43	1.63

Manufacturer declares that this product is not to be used as a portable device.

Conclusion

Requirement of KDB 680106 D01	Yes/No	Description
Power transfer frequency is less than 1MHz	Yes	The device operate in the frequency range 115kHz - 205KHz
Output power from each primary coil is less than or equal to 15 watts	Yes	The maximum output power of the primary coil is 15W.
The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time	Yes	The transfer system includes single coil that is able to detect receiver device.
Client device is placed directly in contact with the transmitter.	Yes	Client device is placed directly in contact with the transmitter.
Mobile exposure conditions only(portable exposure conditions are not covered by this exclusion).	Yes	Mobile exposure conditions only
The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit	Yes	The EUT H-filed strengths at 15 cm surrounding the device and 20cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit

Photographs of test set-up



-- End --