RF Exposure Report

Report No.: AGC08218190701FE03

FCC ID	:	2ASFYMR04DHAMBL0000
PRODUCT DESIGNATION	:	R.A.T. AIR
BRAND NAME	:	MAD CATZ
MODEL NAME	:	R.A.T. AIR
APPLICANT	:	MAD CATZ GLOBAL LIMITED
DATE OF ISSUE	:	Aug. 07, 2019
STANDARD(S)	:	KDB 680106 D01 RF Exposure Wireless Charging App v03 and PAG Inquiry to FCC
REPORT VERSION	:	V1.0

*A*ttestation of *G*lobal Compliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 07, 2019	Valid	Initial release

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1. VERIFICATION OF CONFORMITY

Applicant	MAD CATZ GLOBAL LIMITED
Address	Office H on 22nd Floor, Kings Wing Plaza 2, No.1 on Kwan Street, Sha Tin, N.T., HK.Sha TinHong Kong
Manufacturer	Dexin Electronic Co., LTD
Address	No.2, Jianye Second, ShiTan Pu Industrial, Tangxia Town, Dongguan Guangdong, China
Factory	Dexin Electronic Co., LTD
Address	No.2, Jianye Second, ShiTan Pu Industrial, Tangxia Town, Dongguan Guangdong, China
Product Designation	R.A.T. AIR
Brand Name	MAD CATZ
Test Model	R.A.T. AIR
Date of test	Aug. 05, 2019 to Aug. 07, 2019
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-BR/RF (2013-03-01)

We hereby certify that:
The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in KDB 680106 D01.

Prepared By	Draven Li Draven Li (Project Engineer)	Aug. 07, 2019
Reviewed By	Max Zhang Max Zhang (Reviewer)	Aug. 07, 2019
Approved By	Forrest Lei Forrest Lei (Authorized Officer)	Aug. 07, 2019

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

Housing Type	Plastic and metal
Hardware Version	34
Software Version	1.0.2.10
Operation Frequency range	6.78MHz
Power Supply	DC 5V
Output Power	5W

3. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION	WORST
1	Charging mode	V
Note: V means EMI worst mode		

4. SYSTEM TEST CONFIGURATION

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	specification
Wireless Mouse	--	--	--	--	--

5. TEST FACILITY

Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

TEST EQUIPMENT LIST

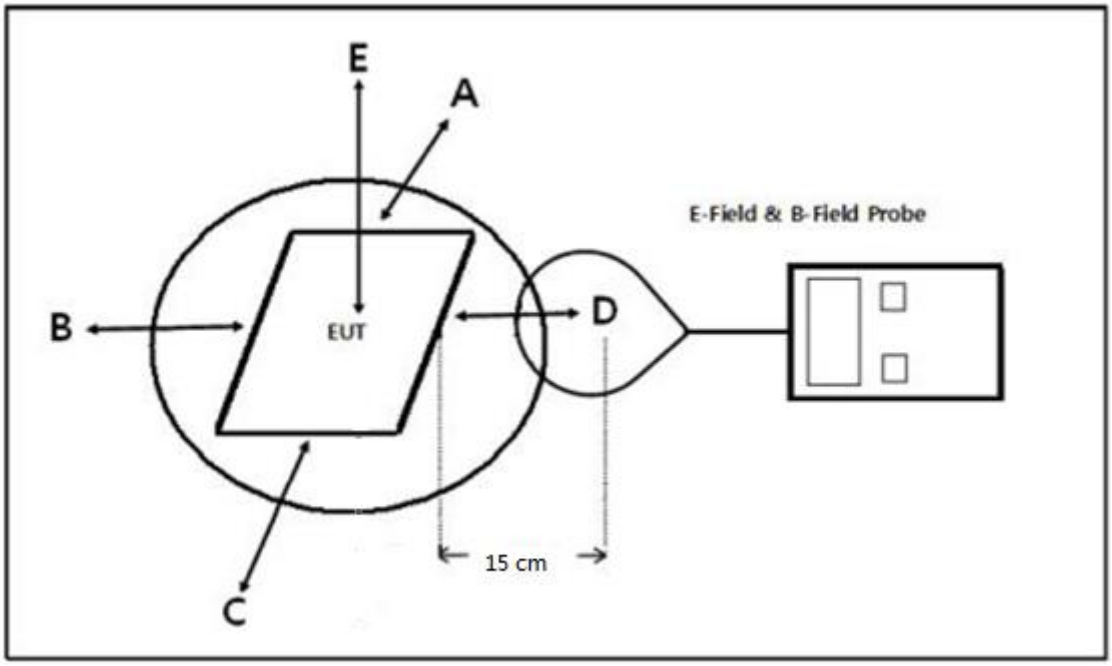
Description	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Broadband Field Meter	Narda Safety Test Solutions GmbH	NBM-550	J-0004	June 12, 2019	June 11, 2020
Probe	Narda Safety Test Solutions GmbH	EF-0691	H-0043	June 12, 2019	June 11, 2020

6. RADIO FREQUENCY (RF) EXPOSURE TEST

6.1. LIMITS

For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m.

6.2. TEST SETUP



Note: Position A: Front of EUT; Position B: Left of EUT; Position C: back of EUT; Position D: Right of EUT; Position E: Top of EUT(20 cm measure distance);

A non-standard setup was used for testing based on guidance from the FCC. The operational description contains additional information.

6.3. TEST PROCEDURE

The EUT was placed on a non-conductive table top and the ancillary equipment (e.g. mobile phone) was placed on the EUT for charging.

Maximum E-field and H-field measurements were tested 15cm from each side of the EUT. For top side the measure distance is 20cm.

Along the side of the EUT to center of E-field probe and H-field probe were positioned at the location to search maximum field strength.

PAG procedure:

FCC response on 07/16/2019

As indicated in FCC KDB Publication 680106 D01 Section 3 d), a combination of field measurements, simulation, and/or calculation may be necessary due to the portable nature of your device. Please perform measurements at 0, 5 cm, and 15 cm (20 cm for top) according to the provisions of FCC KDB Publication 680106 D01 and then respond to this inquiry.

FCC response on 07/31/2019

Thank you for the additional information. Due to the values of the measured E and H-fields being quite low when compared to their respective limits (<10% even at very close distances) the potential for RF Exposure is low. Therefore, there is no need for additional numerical simulation or calculations to demonstrate compliance. You may proceed.

FCC response on 08/02/2019

As I mentioned in the last FCC Response, you may proceed with the filing. Please be sure you follow the reporting requirements found in FCC KDB Publication 865664 D02. Finally, in the test setup section of the report please include the following statement: “A non-standard setup was used for testing based on guidance from the FCC. The operational description contains additional information.” Then add a statement in the operational description referencing this KDB Inquiry number (This is because the KDB Inquiry number is confidential, but the RF Exposure Report will be on public record).

6.4. TEST RESULT

Test condition: 0 cm

E-field strength test result:

Frequency Range	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Limit (V/m)
6.78MHz	45.65	52.21	45.53	53.45	32.36	614

H-field strength test result:

Frequency Range	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Limit (A/m)
6.78MHz	0.13	0.14	0.13	0.20	0.05	1.63

Test condition: 5cm

E-field strength test result:

Frequency Range	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Limit (V/m)
6.78MHz	13.26	12.25	13.14	20.21	11.34	614

H-field strength test result:

Frequency Range	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Limit (A/m)
6.78MHz	0.03	0.03	0.04	0.05	0.03	1.63

Test condition: 15cm

E-field strength test result:

Frequency Range	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Limit (V/m)
6.78MHz	3.46	3.86	4.12	4.25	2.16	614

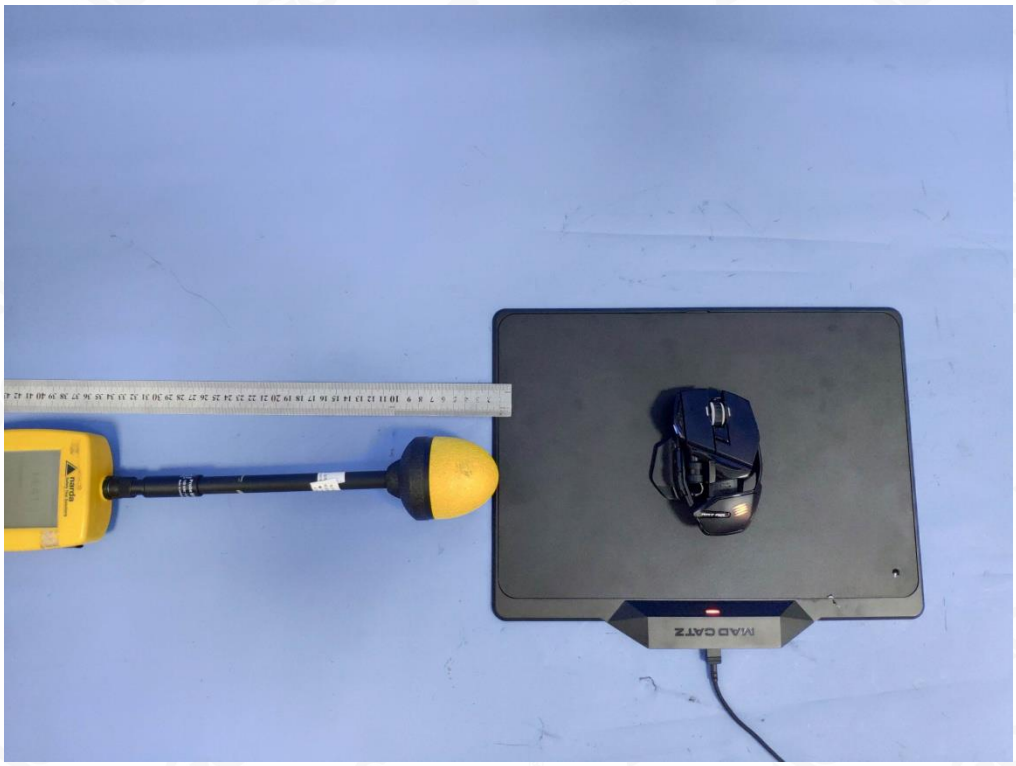
H-field strength test result:

Frequency Range	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Limit (A/m)
6.78MHz	0.01	0.01	0.01	0.02	0.01	1.63

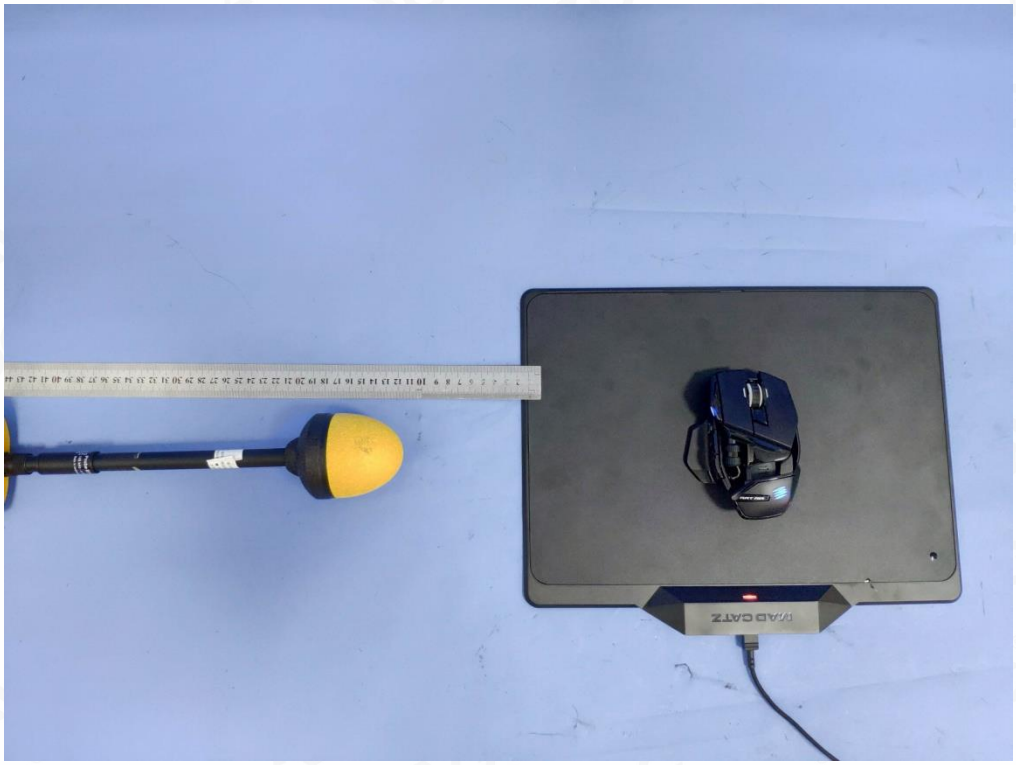
PHOTOGRAPHS OF TEST SETUP

center of the probe away the coil is 0 cm(Top is 5 cm)

center of the probe away the coil is 5 cm(Top is 10 cm)



center of the probe away the coil is 15 cm(Top is 20 cm)



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