

RF EXPOSURE REPORT

OF

Applicant: Quanta Computer Inc.
No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City
33377, Taiwan (R.O.C)

Product Name: All-in-One PC

Brand Name: HP

Model No.: TPC-Q065-32

Model Difference: N/A

Report Number: E2/2019/80075

FCC ID HFSQTA-NZF

FCC Rule Part Part 2.1091

Issue Date: Oct. 07, 2019

Date of Test: Aug. 14, 2019 ~ Sep. 12, 2019

Date of EUT Received: Aug. 14, 2019

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. The test data, data evaluation in this report is in compliance with FCC Rules Part 2.

The test results of this report relate only to the tested sample identified in this report.

Tested By:

Tom, Huang

Tom Huang / Engineer**Approved By:**

John Teh

John Yeh / Asst. Manager

Testing Laboratory

0513

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Revision History

Revision	Description	Issue Date	Remark
Rev.00	Original.	Sep. 24, 2019	Revised By: Yuri Tsai
Rev.01	Updated product name	Oct. 07, 2019	Revised By: Yuri Tsai

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1 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 Standard Applicable

According to KDB 680106 D01 RF Exposure Wireless Charging App v03

RF exposure potential to users and bystanders is expected to vary according to factors inherent to the design of individual systems, which generally requires different evaluation considerations to show compliance.

When exposure concerns arise; for example, due to evolving products and operations, RF exposure evaluation may be requested under the provisions of Sections 1.1307 (c) and (d) to determine compliance. Because of significant variations in design and operating characteristics, the procedures required to evaluate RF exposure compliance for wireless power transfer are considered according to the exposure potentials of individual implementations

The RF exposure requirements must be determined in conjunction with the device operating characteristics, according to the mobile and portable exposure requirements in Sections 2.1091 and 2.1093 of the rules. SAR and MPE limits do not cover the frequency range for wireless power transfer applications which operate below 100 kHz and 300 kHz respectively; therefore, RF exposure compliance needs to be determined with respect to Sections 1.1307 (c) and (d) of the FCC rules.

1.2 Limits for Maximum Permissible Exposure (MPE)

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. A KDB inquiry is required to determine the applicable exposure limits below 100 kHz.

TABLE 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)
(A) 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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

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1.3 The Worst Charging Condition:

Ancillary Equipment	Charging Condition	Verdict
Load	Full Loading	PASS
Load	99% Loading	PASS
Load	90% Loading	PASS
Load	50% Loading	PASS
Load	10% Loading	PASS
Load	1% Loading	PASS
Note: For Wireless Power Consortium Qi specification, a lower operating frequency or high duty cycle result in the transfer of a higher amount of power and charging current.		

1.4 Measurement Procedure:

For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 10cm, 15 cm and 20 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 10cm, 15 cm and 20 cm measured from the center of the probe(s) to the edge of the device.

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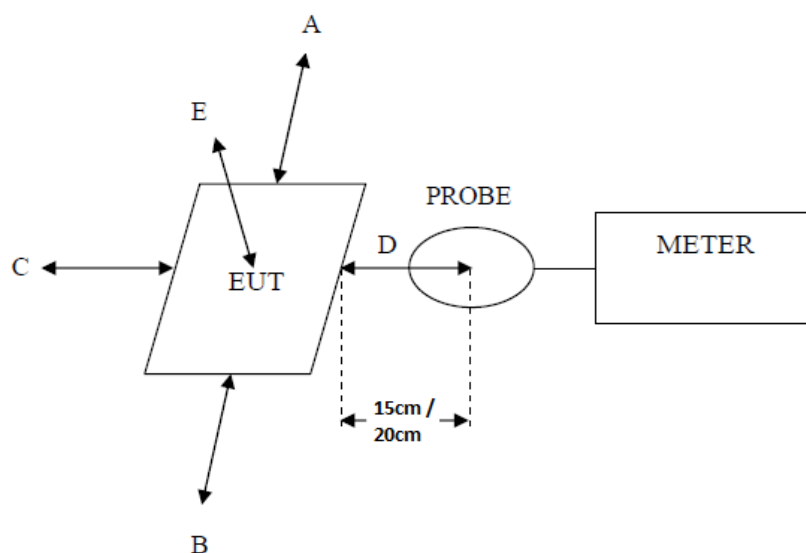
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1.5 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Broadband Field Merer	CMV	NBM-550	F-0375	08/13/2019	08/12/2020

1.6 Test Set-up:



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1.7 Maximum Permissible Exposure (MPE) Evaluation:

Full Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	0.95	0.034
Back	10 cm	0.93	0.028
Left	10 cm	6.11	0.193
Right	10 cm	5.54	0.184
Top	10 cm	0.83	0.0038
Bottom	10 cm	0.75	0.0035
Limit		614	0.815

99% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	1.2	0.0021
Back	10 cm	1.11	0.0015
Left	10 cm	6.81	0.0199
Right	10 cm	6.13	0.0191
Top	10 cm	1.56	0.0027
Bottom	10 cm	1.43	0.0019
Limit		614	0.815

90% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	1.13	0.0022
Back	10 cm	1.1	0.0019
Left	10 cm	6.06	0.0193
Right	10 cm	5.94	0.0188
Top	10 cm	1.47	0.0029
Bottom	10 cm	1.32	0.0021
Limit		614	0.815

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50% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	2.1	0.0033
Back	10 cm	2.6	0.0073
Left	10 cm	5.32	0.0137
Right	10 cm	4.33	0.0127
Top	10 cm	1.01	0.0022
Bottom	10 cm	0.84	0.0021
Limit		614	0.815

10% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	1.44	0.0024
Back	10 cm	1.51	0.0077
Left	10 cm	4.91	0.0129
Right	10 cm	5.11	0.13
Top	10 cm	1.45	0.0055
Bottom	10 cm	1.03	0.0045
Limit		614	0.815

1% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	1.51	0.0021
Back	10 cm	1.55	0.0073
Left	10 cm	4.67	0.013
Right	10 cm	4.83	0.138
Top	10 cm	1.54	0.0061
Bottom	10 cm	1.09	0.0053
Limit		614	0.815

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Full Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	0.71	0.019
Back	15 cm	0.54	0.017
Left	15 cm	4.74	0.0133
Right	15 cm	5.03	0.0145
Top	15 cm	0.45	0.0023
Bottom	15 cm	0.43	0.0021
Limit		614	0.815

99% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	1.14	0.0019
Back	15 cm	1.01	0.0014
Left	15 cm	6.54	0.0209
Right	15 cm	6.09	0.0211
Top	15 cm	1.43	0.0023
Bottom	15 cm	1.26	0.0017
Limit		614	0.815

90% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	1.07	0.0014
Back	15 cm	0.94	0.0012
Left	15 cm	4.43	0.0115
Right	15 cm	4.39	0.01
Top	15 cm	0.72	0.0011
Bottom	15 cm	0.66	0.0013
Limit		614	0.815

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50% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	0.45	0.0014
Back	15 cm	0.84	0.0024
Left	15 cm	3.07	0.0084
Right	15 cm	3.95	0.0083
Top	15 cm	0.47	0.0011
Bottom	15 cm	0.44	0.0011
Limit		614	0.815

10% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	0.87	0.0017
Back	15 cm	0.88	0.003
Left	15 cm	4.13	0.0112
Right	15 cm	4.91	0.015
Top	15 cm	0.47	0.0022
Bottom	15 cm	0.44	0.0014
Limit		614	0.815

1% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	0.88	0.0016
Back	15 cm	0.91	0.002
Left	15 cm	4.23	0.111
Right	15 cm	4.83	0.013
Top	15 cm	0.43	0.0019
Bottom	15 cm	0.44	0.0013
Limit		614	0.815

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Full Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.4	0.0007
Back	20 cm	0.38	0.0006
Left	20 cm	1.28	0.0031
Right	20 cm	1.23	0.0029
Top	20 cm	0.41	0.0011
Bottom	20 cm	0.39	0.0008
Limit		614	0.815

99% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.65	0.0007
Back	20 cm	0.49	0.0004
Left	20 cm	1.63	0.0031
Right	20 cm	1.56	0.0024
Top	20 cm	0.46	0.0008
Bottom	20 cm	0.44	0.0005
Limit		614	0.815

90% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.67	0.0006
Back	20 cm	0.57	0.0003
Left	20 cm	1.51	0.0026
Right	20 cm	1.43	0.0023
Top	20 cm	0.48	0.0009
Bottom	20 cm	0.43	0.0006
Limit		614	0.815

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50% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.2	0.0009
Back	20 cm	0.7	0.0011
Left	20 cm	0.98	0.0027
Right	20 cm	1	0.0038
Top	20 cm	0.4	0.001
Bottom	20 cm	0.36	0.002
Limit		614	0.815

10% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.22	0.0007
Back	20 cm	0.75	0.0012
Left	20 cm	1.56	0.0041
Right	20 cm	1.01	0.0023
Top	20 cm	0.33	0.009
Bottom	20 cm	0.31	0.003
Limit		614	0.815

1% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.19	0.0009
Back	20 cm	0.81	0.0011
Left	20 cm	1.23	0.0039
Right	20 cm	0.95	0.0033
Top	20 cm	0.31	0.004
Bottom	20 cm	0.29	0.005
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