

RF EXPOSURE REPORT



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-Q086-24
Model Difference: N/A
Report Number: E2/2021/50024
FCC ID HFSQTA-N1CP
Issue Date: June 30, 2021
Date of Test: May 12, 2021 ~ May 31, 2021
Date of EUT Received: May 12, 2021

Test By

Henry Chiang

Approved By

John Yeh

We hereby certify that:

The above equipment was verified by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §2.1091.

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

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Revision History

Report Number	Revision	Description	Issue Date	Revised By
E2/2021/50024	00	Original.	June 30, 2021	Susan Lin

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	All-in-One PC
Brand Name:	HP
Model No.:	TPC-Q086-24
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	8CC1160DBW
Power Supply:	19.5Vdc from AC/DC Adapter

1.2 Test Facility

Laboratory		Test Site Address	FCC Designation number
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	<input type="checkbox"/>	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	TW0027
	<input checked="" type="checkbox"/>	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	TW0028

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2 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 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.

2.2 Limits for Maximum Permissive 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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2.3 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.

2.4 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. 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 proper distances measured from the center of the probe(s) to the edge of the device as per KDB 680106 D01.

2.5 Measurement Equipment Used:

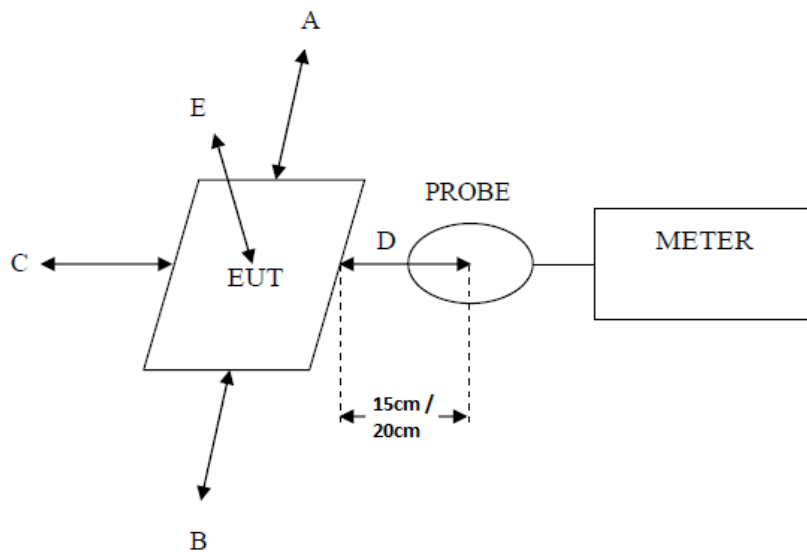
Conducted Emission Test Site: Conducted B					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EM RADIATION METER	Wandel&Goltermann	EMR-30	M-0006	2020/10/08	2021/10/07

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2.6 Test Set-up:



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2.7 Maximum Permissible Exposure (MPE) Evaluation:

Full Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	0.51	0.0015
Back	10 cm	0.52	0.0011
Left	10 cm	0.58	0.0019
Right	10 cm	0.66	0.0018
Top	10 cm	0.74	0.0031
Bottom	10 cm	0.51	0.0012
Limit		614	0.815

99% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	0.53	0.0016
Back	10 cm	0.51	0.0013
Left	10 cm	0.58	0.0017
Right	10 cm	0.64	0.0018
Top	10 cm	0.73	0.0029
Bottom	10 cm	0.50	0.0013
Limit		614	0.815

90% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	0.53	0.0017
Back	10 cm	0.51	0.0009
Left	10 cm	0.57	0.0018
Right	10 cm	0.66	0.0020
Top	10 cm	0.73	0.0029
Bottom	10 cm	0.50	0.0014
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	0.51	0.0017
Back	10 cm	0.51	0.0011
Left	10 cm	0.58	0.0021
Right	10 cm	0.65	0.0020
Top	10 cm	0.73	0.0028
Bottom	10 cm	0.50	0.0011
Limit		614	0.815

10% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	0.51	0.0016
Back	10 cm	0.50	0.0011
Left	10 cm	0.57	0.0018
Right	10 cm	0.67	0.0021
Top	10 cm	0.75	0.0031
Bottom	10 cm	0.51	0.0012
Limit		614	0.815

1% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	10 cm	0.50	0.0017
Back	10 cm	0.52	0.0012
Left	10 cm	0.59	0.0019
Right	10 cm	0.65	0.0020
Top	10 cm	0.74	0.0029
Bottom	10 cm	0.52	0.0015
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	0.48	0.0013
Back	15 cm	0.50	0.0010
Left	15 cm	0.48	0.0015
Right	15 cm	0.63	0.0019
Top	15 cm	0.65	0.0024
Bottom	15 cm	0.40	0.0012
Limit		614	0.815

99% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	0.49	0.0015
Back	15 cm	0.50	0.0012
Left	15 cm	0.47	0.0016
Right	15 cm	0.63	0.0019
Top	15 cm	0.66	0.0027
Bottom	15 cm	0.43	0.0014
Limit		614	0.815

90% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	0.49	0.0013
Back	15 cm	0.49	0.0011
Left	15 cm	0.48	0.0016
Right	15 cm	0.63	0.0019
Top	15 cm	0.63	0.0027
Bottom	15 cm	0.41	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	0.48	0.0011
Back	15 cm	0.48	0.0011
Left	15 cm	0.46	0.0015
Right	15 cm	0.62	0.0020
Top	15 cm	0.64	0.0027
Bottom	15 cm	0.42	0.0015
Limit		614	0.815

10% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	0.46	0.0013
Back	15 cm	0.48	0.0011
Left	15 cm	0.49	0.0016
Right	15 cm	0.62	0.0016
Top	15 cm	0.65	0.0027
Bottom	15 cm	0.41	0.0012
Limit		614	0.815

1% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	15 cm	0.47	0.0014
Back	15 cm	0.49	0.0010
Left	15 cm	0.46	0.0020
Right	15 cm	0.62	0.0016
Top	15 cm	0.67	0.0023
Bottom	15 cm	0.43	0.0012
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	0.46	0.0008
Back	20 cm	0.45	0.0011
Left	20 cm	0.41	0.0016
Right	20 cm	0.51	0.0016
Top	20 cm	0.50	0.0021
Bottom	20 cm	0.33	0.0009
Limit		614	0.815

99% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.45	0.0014
Back	20 cm	0.44	0.0009
Left	20 cm	0.42	0.0012
Right	20 cm	0.51	0.0018
Top	20 cm	0.50	0.0023
Bottom	20 cm	0.32	0.0012
Limit		614	0.815

90% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.45	0.0010
Back	20 cm	0.46	0.0011
Left	20 cm	0.45	0.0014
Right	20 cm	0.49	0.0014
Top	20 cm	0.51	0.0021
Bottom	20 cm	0.31	0.0012
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	0.45	0.0013
Back	20 cm	0.44	0.0010
Left	20 cm	0.43	0.0015
Right	20 cm	0.47	0.0016
Top	20 cm	0.50	0.0021
Bottom	20 cm	0.35	0.0010
Limit		614	0.815

10% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.43	0.0014
Back	20 cm	0.44	0.0011
Left	20 cm	0.41	0.0014
Right	20 cm	0.51	0.0016
Top	20 cm	0.51	0.0018
Bottom	20 cm	0.33	0.0011
Limit		614	0.815

1% Loading

Maximum Permissible Exposure			
Probe from EUT Side	Test Distance	V/m	A/m
Front	20 cm	0.47	0.0013
Back	20 cm	0.47	0.0008
Left	20 cm	0.45	0.0012
Right	20 cm	0.50	0.0016
Top	20 cm	0.52	0.0022
Bottom	20 cm	0.34	0.0008
Limit		614	0.815

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