

RF Exposure Evaluation Report

Product Name	ASUS All-in-One PC/Zen AiO
Model No.	Z272S,Z272SDK,Z272SDT,Z272SD
FCC ID.	MSQ-Z272S

Applicant	ASUSTeK COMPUTER INC.
Address	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

Date of Receipt	Apr. 11, 2018
Date of Declaration	Aug. 02, 2018
Report No.	1860370R-RFUSP02V00

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

1. RF Exposure Evaluation

1.1. Test Equipment

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Radiation Meters	WG	EMR-20 / Y-0028	Oct., 2017

1.2. Limits

According to FCC 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)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control 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	6
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/F	2.19/F	*(180/F ²)	30
300-1500	27.5	0.073	0.2	30
300-1500	--	--	F/1500	30
1500-100,000	--	--	1	30

Note:

1. RF Exposure evaluation should be conducted assuming a separation distance of 10 cm
2. The EUT is including four models for different marketing requirement.

1.3. Test Procedure

The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils per the FCC 's request. (reference KDB 680106 D01 RF Exposure Wireless Charging Apps v03)

The temperature and related humidity: 18°C and 62% RH.

1.4. Test Result of RF Exposure Evaluation for WPT

<i>Items to be covered</i>	<i>Answer from applicant</i>
Power transfer frequency is less than 1 MHz.	Operation frequency range is 142.2 kHz.
Output power from each primary coil is less than or equal to 15 watts.	Output Power equal to 15 W.
The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.	Yes, allow coupling only between individual pairs of coils.
Client device is placed directly in contact with the transmitter.	Yes, meet the requirements.
Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes, meet the requirements.
The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	<p>*Electric Field Strength (V/m) @20cm = 3.12 V/m (< 307 V/m) MPE Limit (614 V/m) *50% =307 V/m</p> <p>*Magnetic Field Strength (A/m) @20cm =0.083 A/m (< 0.815 A/m) MPE Limit (1.63 A/m) *50%= 0.815 A/m</p>

Product : ASUS All-in-One PC/Zen AiO
 Test Item : RF Exposure Evaluation
 Test Site : No.3 OATS
 Test Date : 2018/07/23

For WLAN (8265NGW):

For 2.4GHz:

Operation Frequency Range	2412-2472MHz, 2422-2462MHz, 2402-2480MHz
Maximum Conducted output power	21.57dBm
Antenna gain	1.30dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1.435489433	0.0385

Power density is lower than the limit (1 mW/cm²).

For 5GHz:

Operation Frequency Range	5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz, 5190-5230MHz, 5270-5310MHz, 5510-5670MHz, 5755-5795MHz, 5720 MHz, 5710MHz, 5210-5290MHz, 5530-5690MHz, 5775MHz
Maximum Conducted output power	23.32dBm
Antenna gain	2.06dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
214.7830474	0.0687

Power density is lower than the limit (1 mW/cm²).

Product : ASUS All-in-One PC/Zen AiO
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 Test Site : No.3 OATS
 Test Date : 2018/07/23

For WLAN (9560NGW):

For 2.4GHz:

Operation Frequency Range	2412-2472MHz, 2422-2462MHz, 2402-2480MHz
Maximum Conducted output power	21.08dBm
Antenna gain	1.30dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
128.2330583	0.0344

Power density is lower than the limit (1 mW/cm²).

For 5GHz:

Operation Frequency Range	5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz, 5190-5230MHz, 5270-5310MHz, 5510-5670MHz, 5755-5795MHz, 5720 MHz, 5710MHz, 5210-5290MHz, 5530-5690MHz, 5775MHz
Maximum Conducted output power	23.89dBm
Antenna gain	2.06dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
244.9063242	0.0783

Power density is lower than the limit (1 mW/cm²).

Product : ASUS All-in-One PC/Zen AiO
 Test Item : RF Exposure Evaluation
 Test Site : No.7 Chamber
 Test Date : 2018/07/23

For Wireless Charge:

E-Field Emissions

Test Position	Frequency (MHz)	Measurement Level @15cm (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Side 1	0.142	1.020	614.0	307.0	PASS
Side 2	0.142	1.100	614.0	307.0	PASS
Side 3	0.142	0.990	614.0	307.0	PASS
Side 4	0.142	1.060	614.0	307.0	PASS

Test Position	Frequency (MHz)	Measurement Level @20cm (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Top	0.142	3.120	614.0	307.0	PASS
Bottom	0.142	0.830	614.0	307.0	PASS

H-Field Emissions

Test Position	Frequency (MHz)	Measurement Level @15cm (A/m)	Limit (A/m)	50% Limit (A/m)	Result
Side 1	0.142	0.028	1.63	0.815	PASS
Side 2	0.142	0.029	1.63	0.815	PASS
Side 3	0.142	0.027	1.63	0.815	PASS
Side 4	0.142	0.028	1.63	0.815	PASS

Test Position	Frequency (MHz)	Measurement Level @20cm (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Top	0.142	0.083	1.63	0.815	PASS
Bottom	0.142	0.025	1.63	0.815	PASS

Product : ASUS All-in-One PC/Zen AiO
 Test Item : RF Exposure Evaluation
 Test Site : No.7 Chamber
 Test Date : 2018/07/23

Simultaneous transmission (Worst-case table):

Technology	Power Density @ 20cm (mW/cm ²)	MPE Limit (mW/cm ²)	MPE Ratio
WLAN (8265NGW)	0.0687	1	0.0687
WLAN (9560NGW)	0.0783	1	0.0783

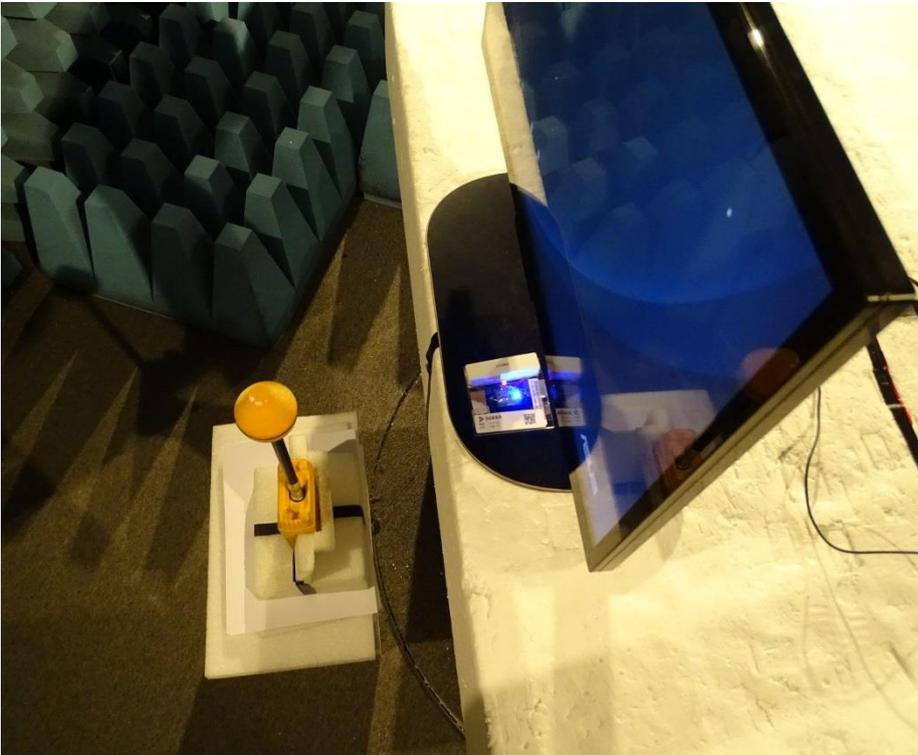
Technology	Measurement Level @20cm (V/m)	MPE Limit (V/m)	MPE Ratio
WPT	3.120	614	0.005

WLAN Card	WLAN Ratio	WPT Ratio	WLAN+ WPT
8265NGW	0.0687	0.005	0.0737
9560NGW	0.0783	0.005	0.0833

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on calculated or measured field strengths or power density, is ≤ 1.0 .

1.5. EUT Test Setup Photographs

Side 1



Side 2



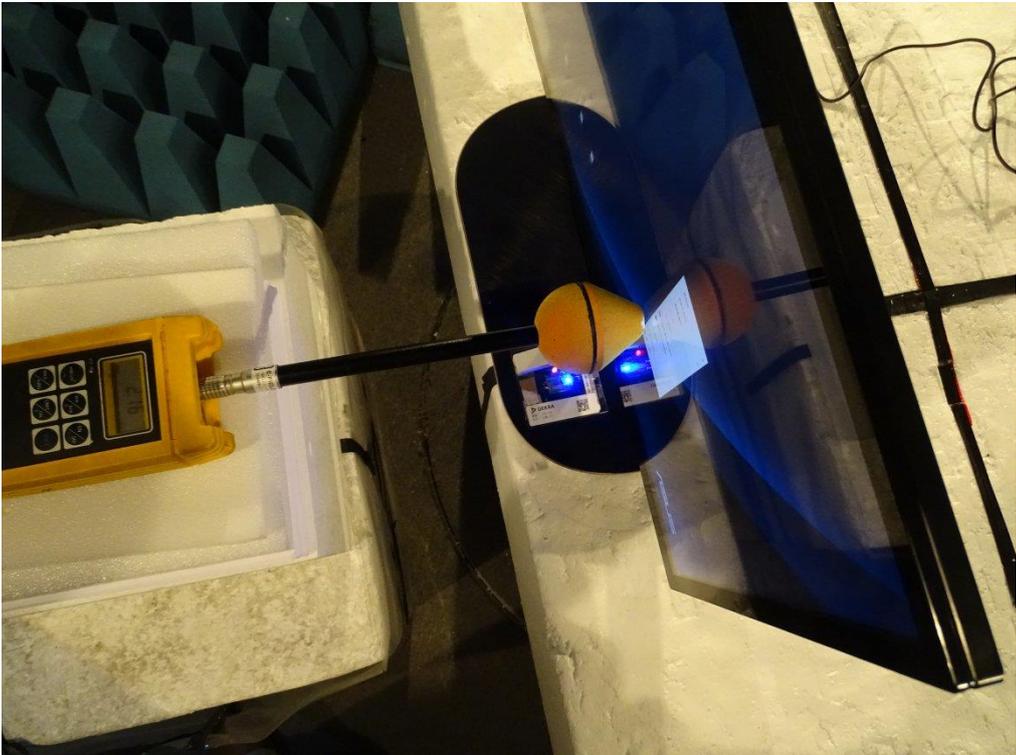
Side 3



Side 4



Top



Bottom

