RF Exposure Evaluation Report

Product Name	Thin Client
Model No.	Chromebox 5
FCC ID	MSQ-CN67QI15

Applicant	ASUSTeK Computer, Inc
Address	1F, No. 15, Lide Rd, Beitou, Taipei, 112 Taiwan

Date of Receipt	Nov. 08, 2022
Date of Declaration	Apr. 06, 2023
Report No.	22B0348R-RFUSV17S-B
Report Version	V1.0

Testing Laboratory
3023

Product Name	Thin Client	
Applicant	ASUSTeK Computer, Inc	
Address	1F, No. 15, Lide Rd, Beitou, Taipei, 112 Taiwan	
Manufacturer	ASUSTeK COMPUTER INC.	
Model No.	Chromebox 5	
FCC ID	MSQ-CN67QI15	
EUT Rated Voltage	AC 100-240V / 50-60Hz	
EUT Test Voltage	AC 120V / 60Hz	
Trade Name	ASUS	
Applicable Standard	KDB 447498 D01 v06	☒ For Field Strength Test
Test Result	Complied	

Documented By : Ida Tung

(Project Specialist / Ida Tung)

Tested By : Jack Hsu

(Senior Engineer / Jack Hsu)

Approved By : Tim Sung

(Manager / Tim Sung)

Revision History

Report No.	Version	Description	Issued Date
22B0348R-RFUSV17S-B	V1.0	Initial issue of report.	Apr. 06, 2023

1. General Information

1.1. EUT Description

Product Name	Thin Client
Trade Name	ASUS
Model No.	Chromebox 5
FCC ID	MSQ-CN67QI15

Note: For more detailed information please refer to report No.: 22B0348R-RFUSV06S-A.

2. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Radiated Emission	Temperature (°C)	10~40 ℃	20.5 ℃
	Humidity (%RH)	10~90 %	58.3 %

USA	:	FCC Registration Number: TW0033
Canada	:	CAB Identifier Number: TW3023 / Company Number: 26930
Site Description	:	Accredited by TAF Accredited Number: 3023
Test Laboratory	:	DEKRA Testing and Certification Co., Ltd
Address	:	No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan
Performed Location	:	No. 26, Huaya 1st Rd., Guishan Dist.,Taoyuan City 333411, Taiwan, R.O.C.
Phone Number	:	+886-3-275-7255
Fax Number	:	+886-3-327-8031
Email Address	:	info.tw@dekra.com
Website	:	http://www.dekra.com.tw

3. RF Exposure Evaluation

3.1. Test Equipment

Equipment		Manufacturer	Model No./Serial No.	Specification	Cal. Date
X	EM Field Meter	Wavecontrol	SMP2 / 18SN0746	1 Hz - 60 GHz	2021.06.17
X	Isotropic EM Field Probe	Wavecontrol	WP400-3 / 18WP120014	1 Hz - 400 kHz	2021.06.17
X	Isotropic EM Field Probe	Wavecontrol	WP400 / 18WP100392	1 Hz - 400 kHz	2021.06.17
X	Isotropic EM Field Probe	Wavecontrol	WPF8 / 18WP040835	100 kHz - 8 GHz	2021.06.17

Note: All equipments are calibrated every three year.

3.2. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.
Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	**Uncertainty**
E-Field Emissions	±1.31 dB
H-Field Emissions	±1.30 dB

3.3. 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/F2)	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/F2)	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.

3.4. 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 v03r01)

The temperature and related humidity: 18 ℃ and 62 % RH.

3.5. Test Result of RF Exposure Evaluation for WPT

Items to be covered	***Answer from applicant***
Power transfer frequency is less than 1 MHz.	Operation frequency range is 127.75 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.	*Electric Field Strength (V/m) @15 cm =1.110 V/m (< 307 V/m) MPE Limit (614 V/m) *50 % =307 V/m *Magnetic Field Strength (A/m) @15 cm =0.030 A/m (< 0.815 A/m) MPE Limit (1.63 A/m) *50 %= 0.815 A/m

Product : Thin Client
Test Item : RF Exposure Evaluation
Test Site : HY-CB03
Test Date : 2023/02/20

E-Field Emissions

Test Position	Frequency (MHz)	Measurement Level @15 cm (V/m)	Limit (V/m)	50 % Limit (V/m)	Result
Side 1	0.14500	0.200	614.0	307.0	PASS
Side 2	0.14500	0.240	614.0	307.0	PASS
Side 3	0.14500	0.180	614.0	307.0	PASS
Side 4	0.14500	0.260	614.0	307.0	PASS

Test Position	Frequency (MHz)	Measurement Level @20 cm (V/m)	Limit (V/m)	50 % Limit (V/m)	Result
Top	0.14500	0.620	614.0	307.0	PASS
Bottom	0.14500	0.070	614.0	307.0	PASS

H-Field Emissions

Test Position	Frequency (MHz)	Measurement Level @15 cm (A/m)	Limit (A/m)	50 % Limit (A/m)	Result
Side 1	0.14500	0.020	1.63	0.815	PASS
Side 2	0.14500	0.020	1.63	0.815	PASS
Side 3	0.14500	0.020	1.63	0.815	PASS
Side 4	0.14500	0.020	1.63	0.815	PASS

Test Position	Frequency (MHz)	Measurement Level @20 cm (A/m)	Limit (A/m)	50 % Limit (A/m)	Result
Top	0.14500	0.040	1.63	0.815	PASS
Bottom	0.14500	0.020	1.63	0.815	PASS