

RF Exposure Evaluation Report

Product Name	ORB X
Model No.	IXS-OX1
FCC ID	2AR8X-ORBX

Applicant	Cooler Master Technology Inc.
Address	7F., No. 398, Xinhua 1st Rd., Neihu Dist., Taipei City, 114065 Taiwan (R.O.C.)

Date of Receipt	Jul. 19, 2022
Date of Declaration	Sep. 14, 2022
Report No.	2270501R-RFUSMPEV01-A
Report Version	V1.0



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.

This report must not be used to claim product endorsement by TAF or any agency of the government.

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

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.

Issued Date: Sep. 14, 2022

Report No.: 2270501R-RFUSMPEV01-A



Product Name	ORB X	
Applicant	Cooler Master Technology Inc.	
Address	7F., No. 398, Xinhu 1st Rd., Neihu Dist., Taipei City, 114065 Taiwan (R.O.C.)	
Manufacturer	WEE CHIN ELECTRIC MACHINERY INC.	
Model No.	IXS-OX1	
FCC ID	2AR8X-ORBX	
EUT Rated Voltage	AC 100-240V, 50-60Hz	
EUT Test Voltage	DC 12V	
Trade Name	Cooler Master	
Applicable Standard	KDB 447498 D01 v06	<input checked="" type="checkbox"/> For Field Strength Test
Test Result	Complied	

Documented By

:

Jinn Chen

(Supervisor / Jinn Chen)

Tested By

:

Ivan Chuang

(Senior Engineer / Ivan Chuang)

Approved By

:

Alan Chen

(Senior Engineer / Alan Chen)

Revision History

Report No.	Version	Description	Issued Date
2270501R-RFUSMPEV01-A	V1.0	Initial issue of report.	Sep. 14, 2022

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	ORB X
Trade Name	Cooler Master
Model No.	IXS-OX1
FCC ID	2AR8X-ORBX
Frequency Range	127.5kHz \pm 1.2kHz
Type of antenna	Coil Antenna

2. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Radiated Emission	Temperature (°C)	10~40 °C	22.8 °C
	Humidity (%RH)	10~90 %	57.4 %

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/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.

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°C and 62% RH.

3.5. 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 127.75kHz.
Output power from each primary coil is less than or equal to 15 watts.	Output Power equal to 15W.
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 =0.71 V/m (< 307 V/m) MPE Limit (614 V/m) *50% =307 V/m</p> <p>*Magnetic Field Strength (A/m) @15cm =0.040 A/m (< 0.815 A/m) MPE Limit (1.63 A/m) *50%= 0.815 A/m</p>

Product : ORB X
 Test Item : RF Exposure Evaluation
 Test Site : HY-CB03
 Test Date : 2022/08/30

E-Field Emissions

Test Position	Frequency (MHz)	Measurement Level @15cm (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Side 1	0.12800	0.490	614.0	307.0	PASS
Side 2	0.12800	0.480	614.0	307.0	PASS
Side 3	0.12800	0.460	614.0	307.0	PASS
Side 4	0.12800	0.460	614.0	307.0	PASS

Test Position	Frequency (MHz)	Measurement Level @20cm (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Top	0.12800	0.710	614.0	307.0	PASS
Bottom	0.12800	0.470	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	0.12800	0.040	1.63	0.815	PASS
Side 2	0.12800	0.020	1.63	0.815	PASS
Side 3	0.12800	0.008	1.63	0.815	PASS
Side 4	0.12800	0.006	1.63	0.815	PASS

Test Position	Frequency (MHz)	Measurement Level @20cm (A/m)	Limit (A/m)	50% Limit (A/m)	Result
Top	0.12800	0.030	1.63	0.815	PASS
Bottom	0.12800	0.020	1.63	0.815	PASS