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RF Exposure Evaluation Report

Report No. :	CQASZ20200100044E-03
Applicant:	XIAMEN COMFORT SCIENCE & TECHNOLOGY GROUP CO., LTD.
Address of Applicant:	(5/F) NO.168, QIANPU ROAD, SIMING DISTRICT, XIAMEN, CHINA
Equipment Under Test (EUT):	
EUT Name:	Massage Chair
Model No.:	EC-806C, Osaki Pro Maestro 2.0
Test Model No.:	EC-806C
Brand Name:	N/A
FCC ID:	YMX-EC806C
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-01-10
Date of Test:	2020-01-10 to 2020-01-17
Date of Issue:	2020-01-17
Test Result :	**PASS***

***In the configuration tested, the EUT complied with the standards specified above**

Tested By: Tom Chen.

(Tom Chen)

Reviewed By: Aaron Ma

(Aaron Ma)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200100044E-03	Rev.01	Initial report	2020-01-17

2 Contents

3 General Information

3.1 Client Information

Applicant:	XIAMEN COMFORT SCIENCE & TECHNOLOGY GROUP CO., LTD.
Address of Applicant:	(5/F) NO.168, QIANPU ROAD, SIMING DISTRICT, XIAMEN, CHINA
Manufacturer:	XIAMEN HEALTHCARE ELECTRONIC CO.,LTD.
Address of Manufacturer:	65-66#, 62-63# BUILDING, SIMING ZONE, TONGAN INDUSTRIAL DISTRICT, XIAMEN CITY, FUJIAN PROVINCE, P.R. CHINA

3.2 General Description of EUT

Product Name:	Massage Chair
Model No.:	EC-806C, Osaki Pro Maestro 2.0
Test Model No.:	EC-806C
Trade Mark:	N/A
Hardware Version:	1.0
Software Version:	1.0
Bluetooth Version:	V4.0
Sample Type:	☐ Mobile ☐ Portable ☒ Fix Location
Power Supply:	AC120V 60Hz

3.3 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Software of EUT:	Blue test 3 (manufacturer declare)
Antenna Type:	Ceramic antenna
Antenna Gain:	2.5dBi

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	40
Test Software of EUT:	Blue test 3 (manufacturer declare)
Antenna Type:	Ceramic antenna
Antenna Gain:	2.5dBi

Model No.: EC-806C, Osaki Pro Maestro 2.0
Only the model EC-806C was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance, pack and model name.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.1.3 EUT RF Exposure

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.020	0±1	1	1.259
Middle(2441MHz)	0.600	1±1	2	1.585
Highest(2480MHz)	1.130	1±1	2	1.585
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.660	1.5±1	2.5	1.778
Middle(2441MHz)	2.190	2.5±1	3.5	2.239
Highest(2480MHz)	2.740	2.5±1	3.5	2.239
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.040	1.5±1	2.5	1.778
Middle(2441MHz)	2.570	2.5±1	3.5	2.239
Highest(2480MHz)	3.110	2.5±1	3.5	2.239

Worst case: 8DPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.040	1.5±1	2.5	1.778	0.55	3.0
Middle (2441MHz)	2.570	2.5±1	3.5	2.239	0.70	
Highest (2480MHz)	3.110	2.5±1	3.5	2.239	0.71	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200100044E-01

2) For BLE

Measurement Data

GFSK(1Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.67	-0.5±1	0.5	1.122
Middle(2440MHz)	-0.75	-0.5±1	0.5	1.122
Highest(2480MHz)	-0.77	-0.5±1	0.5	1.122

Worst case: GFSK(1Mbps)						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-0.67	-0.5±1	0.5	1.122	0.35	3.0
Middle (2440MHz)	-0.75	-0.5±1	0.5	1.122	0.35	
Highest (2480MHz)	-0.77	-0.5±1	0.5	1.122	0.35	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200100044E-02

BDR, EDR and BLE can not simultaneous transmitting at same time.