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RF Exposure Evaluation Report

Report No. : CQASZ20190700587E-02
Applicant: DongGuan Dahui intelligent technology CO., LTD
Address of Applicant: No.6, LiHui Road, YuLiangWei Village, QingXi Town, DongGuan City, GuangDong Province, China

Equipment Under Test (EUT):

EUT Name: Relieve Fatigue Massage Machine
All Mode No.: HK11, HK12, HK13, HK14, HK15, DZ11
Test Mode No.(EUT): HK11
Brand Name: AcuuM
FCC ID: 2ATYN-HK11
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06

Date of Receipt: 2019-07-12
Date of Test: 2019-07-12 to 2019-07-22
Date of Issue: 2019-07-22
Test Result : PASS*

Tested By:

Tom Chen

(Tom Chen)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai

(Jack Ai)



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

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190700587E-02	Rev.01	Initial report	2019-07-22

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3 General Information

3.1 Client Information

Applicant:	DongGuan Dahui intelligent technology CO., LTD
Address of Applicant:	No.6, LiHui Road, YuLiangWei Village, QingXi Town, DongGuan City, Guangdong Province, China
Manufacturer:	DongGuan Dahui intelligent technology CO., LTD
Address of Manufacturer:	No.6, LiHui Road, YuLiangWei Village, QingXi Town, DongGuan City, Guangdong Province, China

3.2 General Description of EUT

Product Name:	Relieve Fatigue Massage Machine
All Model No.:	HK11, HK12, HK13, HK14, HK15, DZ11
Test Model No.:	HK11
Trade Mark:	AcuuM
Hardware Version:	V2.0
Software Version:	V1.5
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	40
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Test Software of EUT:	nRFgo Studio (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
EUT Power Supply:	lithium battery:DC3.7V, Charge by USB

Model No.: HK11, HK12, HK13, HK14, HK15, DZ11

Only the model HK11 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:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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

For BLE

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-6.03	-6±1	-5	0.316
Middle(2440MHz)	-6.52	-6±1	-5	0.316
Highest(2480MHz)	-6.87	-6±1	-5	0.316

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-6.03	-6±1	-5	0.316	0.10	3.0
Middle (2440MHz)	-6.52	-6±1	-5	0.316	0.10	
Highest (2480MHz)	-6.87	-6±1	-5	0.316	0.10	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190600587E-01.