

RF Exposure Evaluation Report

Product : AI Backbone Protection Mattress
Trade mark : N/A
Model/Type reference : M1, M1 PRO, M1 Advanced,
M1 Premium, M1 signature,
MT1, MT1 PRO, MT1 Advanced,
MT1 Premium, MT1 signature
Serial Number : N/A
Report Number : EED32P81803302
FCC ID : 2ATZRM1SER
Date of Issue : Jan. 18, 2023
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

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2 Version

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4 General Information

4.1 Client Information

Applicant:	QuantMed LifeTech (Shenzhen) Co., Ltd.
Address of Applicant:	1F, Huigu, Meisheng Chuanggu Science and Technology Park, Longchang Road, Baoan District, Shenzhen
Manufacturer:	QuantMed LifeTech (Shenzhen) Co., Ltd.
Address of Manufacturer:	1F, Huigu, Meisheng Chuanggu Science and Technology Park, Longchang Road, Baoan District, Shenzhen

4.2 General Description of EUT

Product Name:	AI Backbone Protection Mattress
Model No.(EUT):	M1, M1 PRO, M1 Advanced, M1 Premium, M1 signature, MT1, MT1 PRO, MT1 Advanced, MT1 Premium, MT1 signature
Test Model No.:	M1
Trade Mark:	N/A

4.3 Product Specification subjective to this standard

Frequency Range:	2402MHz~2480MHz	
Modulation Type:	GFSK	
Test Power Grade:	Default	
Test Software of EUT:	nRF_DTM.exe	
Antenna Type:	PCB Antenna	
Antenna Gain:	2dBi	
Power Supply:	Switching Adapter:	Input:100-240V~50/60Hz,1.5A Output:12.0V,5.0A,60.0W
Sample Received Date:	Nov. 10, 2023	
Sample tested Date:	Nov. 10, 2023 to Nov. 21, 2023	

Remark:

Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Model No.: M1, M1 PRO, M1 Advanced, M1 Premium, M1 signature, MT1, MT1 PRO, MT1 Advanced, MT1 Premium, MT1 signature

Only the model M1 was tested. Their electrical circuit design, layout, components used and internal wiring are identical. Only the Mattress size and color, software data are different:

M1: Full-Cal size white mattress, Basic software program for one person.

M1 PRO: Full-Cal King size blue mattress, Advanced software program for one person.

M1 Advanced: Queen-Cal King size white mattress, Basic software program for two people.

M1 Premium: Queen-Cal King size blue mattress, Advanced software program for two people.

M1 signature: Queen-Cal King size black mattress, Customized software program for two people.

MT1: Small Single-Twin XL size white mattress, Basic software program for children.

MT1 PRO: Small Single-Twin XL size blue mattress, Advanced software program for children.

MT1 Advanced: Twin-Queen size white mattress, Basic software program for teenagers.

M1 Premium: Twin-Queen size blue mattress, Advanced spine program for teenagers.

MT1 signature: Twin-Queen size black mattress, Customized software program for teenagers.

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure Evaluation**For Stand alone:****For BLE**

Frequency (MHz)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Limit (mW)	Result
2402	-0.85	2	1.15	-1	0.794	2.788	PASS

Note:

① EIRP=conducted power+antenna gain;

② ERP=EIRP-2.15

③ The test data refer to the report of No. EED32P81803301 and only the worst case data was recorded in the report.

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***** End of Report *****