

RF Exposure Evaluation Report

Product : Non-invasive Ventilator
Trade mark : N/A
Model/Type reference : LeRes-B,R100,LeRes-S,R200,LeRes-B1,R101,LeRes-S1,R201,LeRes-C,R10,LeRes-A,R20,LeRes-C1,R11,LeRes-A1,R21
Serial Number : N/A
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Date of Issue : Feb. 25, 2022
Test Standards : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Test result : PASS

Prepared for:

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2 Version

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4 General Information

4.1 Client Information

Applicant:	Shenzhen Viatom Technology Co., Ltd.
Address of Applicant:	4E, 3#, Tingwei Industrial Park,Honglang North 2nd Road, Baoan District, Shenzhen, China
Manufacturer:	Shenzhen Viatom Technology Co., Ltd.
Address of Manufacturer:	501, Building B, Ganghongji High-tech Intelligent Industrial Park, No.1008 Songbai Road, Xili Street, Nanshan District, 518055 Shenzhen, China
Factory:	Shenzhen Viatom Technology Co., Ltd.
Address of Factory:	501, Building B, Ganghongji High-tech Intelligent Industrial Park, No.1008 Songbai Road, Xili Street, Nanshan District, 518055 Shenzhen, China

4.2 General Description of EUT

Product Name:	Non-invasive Ventilator
Mode No.:	LeRes-B,R100,LeRes-S,R200,LeRes-B1,R101,LeRes-S1,R201,LeRes-C,R10,LeRes-A, R20,LeRes-C1,R11,LeRes-A1,R21
Test Mode No.:	LeRes-S1
Trade mark:	N/A

4.3 Product Specification subjective to this standard

Frequency Range:	BLE : 2402-2480MHz 2.4GHz Wi-Fi: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz
Modulation Type: (Bluetooth):	GFSK
Modulation Type: (Wi-Fi):	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20): OFDM (BPSK, QPSK, 16QAM, 64QAM)
Test Power Grade:	Default
Test Software of EUT:	BLE : NRFgo 2.4GHz Wi-Fi: EspRFTTestTool
Antenna Type (Bluetooth):	Chip Antenna
Antenna Gain (Bluetooth):	3.53dBi

Antenna Type (Wi-Fi):	PCB Antenna		
Antenna Gain (Wi-Fi):	2dBi		
Function (Wi-Fi):	☒ SISO ☐ 2x2 MIMO ☐ 3x3 MIMO ☐ 4x4MIMO		
Power Supply:	Adapter:	Model:MDA90B-220S24-18 Input:100-240V~50/60Hz 2.2A Max Output:24V --- 3.75A	
Max Conducted Peak Output Power:	BLE: 0.73dBm, 2.4G WIFI:10.85dBm.		
	The Max Conducted Peak Output Power data refer to the report EED32N81058701, EED32N81058702.		
Sample Received Date:	Oct. 21, 2021		
Sample tested Date:	Oct. 21, 2021 to Jan. 09, 2022		
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.: LeRes-B,R100,LeRes-S,R200,LeRes-B1,R101,LeRes-S1,R201,LeRes-C,R10,LeRes-A, R20,LeRes-C1,R11,LeRes-A1,R21. Only the model LeRes-S1 was tested, the differences between each model are modes of Operation and turbo. However, the WIFI module, Bluetooth module, the rest circuit principle, the internal structure, the PCB Layout, and safety key parts are the same, which doesn' t affect the EMC and RF test.			

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 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

5.2 Maximum Permissible Exposure

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

BLE:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
0	2402	1.183	2.254	20	0.0005	1

2.4G WIFI:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
11	2462	12.162	1.585	20	0.0038	1

For BT and WIFI

BT and WIFI can not transmit simultaneously.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N81058701 for EUT external and internal photos.

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 CTI, this report can't be reproduced except in full.

*** End of Report ***