

## RF Exposure Report

**Report No.:** SABHAT-WTW-P21030696 R1

**FCC ID:** R68OQ660US

**Test Model:** Open-Q 660 uSOM

**Received Date:** Mar. 18, 2021

**Date of Evaluation:** Jul. 29, 2021

**Issued Date:** Nov. 08, 2021

**Applicant:** Lantronix, Inc.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

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**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City  
33383, Taiwan

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
SABHAT-WTW-P21030696	Original Release	Sep. 10, 2021
SABHAT-WTW-P21030696 R1	Revise Applicant	Nov. 08, 2021

## 1 Certificate of Conformity

**Product:** Open-Q 660 uSOM

**Brand:** Lantronix

**Test Model:** Open-Q 660 uSOM

**Sample Status:** Engineering Sample

**Applicant:** Lantronix, Inc.

**Date of Evaluation:** Jul. 29, 2021

**Standards:** FCC Part 2 (Section 2.1091)

**References Test Guidance:** KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

*Lena Wang*  
**Prepared by :** \_\_\_\_\_, **Date:** Nov. 08, 2021  
Lena Wang / Specialist

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**Approved by :** \_\_\_\_\_, **Date:** Nov. 08, 2021  
Dylan Chiou / Senior Engineer

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 21cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Average Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
<b>WLAN</b>					
<b>CDD Mode</b>					
2412-2462	26.82	6.33	21	0.373	1
5180-5240	16.72	9.12	21	0.069	1
5260-5320	16.87	9.12	21	0.072	1
5500-5720	23.38	9.12	21	0.321	1
5745-5825	26.14	9.12	21	0.606	1
<b>Beamforming Mode</b>					
2412-2462	24.69	6.33	21	0.228	1
5180-5240	13.77	9.12	21	0.035	1
5260-5320	16.87	9.12	21	0.072	1
5500-5720	20.78	9.12	21	0.176	1
5745-5825	26.14	9.12	21	0.606	1
<b>BT EDR</b>					
2402-2480	12.51	3.32	21	0.007	1
<b>BT LE</b>					
2402-2480	11.41	3.32	21	0.005	1

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Note:

1. Directional gain:

2.4GHz Band:  $=3.32\text{dBi} + 10\log(2) = 6.33\text{dBi}$

5GHz: Directional Gain =  $6.11\text{dBi} + 10\log(2) = 9.12\text{dBi}$

BT antenna gain: 3.32dBi

2. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

**Conclusion:**

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

The simultaneous operation mode was determined by client.

1. WLAN 2.4G+ 5GHz =  $0.373/1+0.606/1=0.979$
2. WLAN 2.4G+ BT =  $0.373/1+0.007/1=0.380$
3. WLAN 5G+ BT =  $0.606/1+0.007/1=0.613$

Therefore the maximum calculations of above situations are less than the "1" limit.

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