

RF Exposure Report

Report No.: SABHAT-WTW-P20110381

FCC ID: R68OQ865S

Test Model: Open-Q 865XR SOM

Received Date: Nov. 12, 2020

Test Date: Nov. 30 ~ Dec. 16, 2020

Issued Date: Jan. 04, 2021

Applicant: Lantronix

Address: 7535 Irvine Center Drive, Suite 100, Irvine, CA 92618 USA

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

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

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

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



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specifically mentioned, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 RF Exposure	5
2.1 Limits for Maximum Permissible Exposure (MPE).....	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
3 Calculation Result of Maximum Conducted Power	6

Release Control Record

Issue No.	Description	Date Issued
SABHAT-WTW-P20110381	Original release	Jan. 04, 2021

1 Certificate of Conformity

Product: Open-Q 865 SOM

Brand: Lantronix

Test Model: Open-Q 865XR SOM

Sample Status: Engineering sample

Applicant: Lantronix

Test Date: Nov. 30 ~ Dec. 16, 2020

Standards: FCC Part 2 (Section 2.1091)

References Test KDB 447498 D01 General RF Exposure Guidance v06

Guidance: IEEE C95.3 -2002

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.

Prepared by : Polly Chen , **Date:** Jan. 04, 2021
Polly Chen / Specialist

Approved by : Bruce Chen , **Date:** Jan. 04, 2021
Bruce Chen / Senior Project 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 ²)	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/cm²

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 20cm 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 ²)	Limit (mW/cm ²)
WLAN					
CDD Mode					
2412-2462	25.93	6.33	20	0.335	1
5180-5240	16.82	9.12	20	0.078	1
5260-5320	16.06	9.12	20	0.066	1
5500-5720	23.83	9.12	20	0.392	1
5745-5825	24.17	9.12	20	0.424	1
Beamforming Mode					
2412-2462	25.34	6.33	20	0.292	1
5180-5240	13.82	9.12	20	0.039	1
5260-5320	13.05	9.12	20	0.033	1
5500-5720	20.83	9.12	20	0.197	1
5745-5825	24.17	9.12	20	0.424	1
BT EDR					
2402-2480	16.63	3.32	20	0.020	1
BT LE					
2402-2480	15.70	3.32	20	0.016	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: =3.32dBi + 10log(2)= 6.33dBi

5GHz: Directional Gain = 6.11dBi + 10log(2)=9.12dBi

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 = $0.335/1+0.424/1=0.759$
2. WLAN 2.4G+ BT = $0.335/1+0.020/1=0.355$
3. WLAN 5G+ BT = $0.424/1+0.020/1=0.444$

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

---END---