

## RF Exposure Report

**Report No.:** MFBHAT-WTW-P21060603

**FCC ID:** R68E213W

**Test Model:** E213F102S

**Received Date:** Oct. 14, 2021

**Date of Evaluation:** Jul. 04, 2022

**Issued Date:** Sep. 30, 2022

**Applicant:** Lantronix

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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
MFBHAT-WTW-P21060603	Original Release	Sep. 30, 2022

## 1 Certificate of Conformity

**Product:** E210 Series

**Brand:** LANTRONIX

**Test Model:** E213F102S

**Sample Status:** Identical Prototype

**Applicant:** Lantronix

**Date of Evaluation:** Jul. 04, 2022

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

**Standards:** 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.

**Prepared by :** Vera Huang , **Date:** Sep. 30, 2022  
Vera Huang / Specialist

**Approved by :** Jeremy Lin , **Date:** Sep. 30, 2022  
Jeremy Lin / 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 <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz; \*Plane-wave equivalent power density

### 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 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 3 Calculation Result of Maximum Conducted Power

Band	Max AV Power (dBm)	Duty Cycle	Time-Average Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
GPRS 850	33.5	25%	27.48	1	20	0.140	0.55
GPRS 1900	30.5	25%	24.48	3	20	0.111	1.00
LTE B2	24.5	100%	24.5	6	20	0.223	1.00
LTE B4	24.5	100%	24.5	6	20	0.223	1.00
LTE B5	24.5	100%	24.5	4	20	0.141	0.55
LTE B12	24.5	100%	24.5	3	20	0.112	0.46
LTE B13	24.5	100%	24.5	3	20	0.112	0.52
LTE B25	24.5	100%	24.5	6	20	0.223	1.00
LTE B26	24.5	100%	24.5	4	20	0.141	0.54

Band	Max AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN 2.4G	17.32	3.32	20	0.023	1

Note:

1. The maximum source-based time-averaged power was used for GPRS, and that it supports up to 2 - Slot, maximum duty cycle 25%.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. The EUT contains certified WWAN module with FCC ID: R68E213.
4. Refer to SIERRA module report (model: HL7802) for conducted power.
5. Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

#### 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.

$$WWAN + WLAN = 0.141/0.54 + 0.023/1 = 0.284$$

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

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