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Issued date : 2022/6/7  
FCC ID : 2A4GY-LB-TABLET01

# Maximum Permissible Exposure Report

**Product** : LITEBOXER TABLET  
**Model Name** : LB-TABLET01  
**FCC ID** : 2A4GY-LB-TABLET01  
**Test Regulation** : 47 CFR FCC Part 2.1091  
**Received Date** : 2022/4/13  
**Test Date** : 2022/4/14 ~ 2022/4/22  
**Issued Date** : 2022/6/7  
**Applicant** : Liteboxer Technologies, Inc  
52R Roland St, Boston, MA 02129, USA  
**Issued By** : Underwriters Laboratories Taiwan Co., Ltd.  
Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd.,  
Zhudong Township, Hsinchu County, Taiwan



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# REVISION HISTORY

**Original Test Report No.: 4790358903-US-R6-V0**

Rev.	Test report No.	Date	Page revised	Contents
Original	4790358903-US-R6-V0	2022/6/7	-	Initial issue



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## 1. Attestation of Test Results

**APPLICANT:** Liteboxer Technologies, Inc  
 52R Roland St, Boston, MA 02129, USA

**MANUFACTURER:** InnoComm Mobile Technology Corporation  
 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu 300092,  
 Taiwan

**EUT DESCRIPTION:** LITEBOXER TABLET

**BRAND:** LITEBOXER

**MODEL:** LB-TABLET01

**SAMPLE STAGE:** Design Verification Test sample

<b>APPLICABLE STANDARDS</b>	
<b>STANDARD</b>	<b>Test Results</b>
47 CFR FCC PART 2.1091	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:

Sally Lu Date : 2022/6/7  
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Approved and Authorized By:

Eric Lee Date : 2022/6/7  
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## 2. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with KDB 447498 D01 General RF Exposure Guidance v06 and KDB 447498 D04 Interim General RF Exposure Guidance v01.

## 3. Facilities and Accreditation

<b>Test Location</b>	Underwriters Laboratories Taiwan Co., Ltd.
<b>Address</b>	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
<b>Accreditation Certificate</b>	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398.

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## 4. Equipment Under Test

### 4.1. Description of EUT

<b>Product Name</b>	LITEBOXER TABLET	
<b>Brand Name</b>	LITEBOXER	
<b>Model Name</b>	LB-TABLET01	
<b>Operating Frequency</b>	Bluetooth EDR	2402MHz ~ 2480MHz
	Bluetooth LE	2402MHz ~ 2480MHz
	ANT+	2402MHz ~ 2480MHz
	WLAN	<b>2.4GHz:</b> 2412MHz ~ 2462MHz <b>5GHz:</b> 5180MHz ~ 5240MHz 5260MHz ~ 5320MHz 5500MHz ~ 5700MHz 5745MHz ~ 5825MHz
<b>Modulation</b>	Bluetooth EDR	GFSK, $\pi/4$ -DQPSK, 8DPSK
	Bluetooth LE	GFSK
	ANT+	GFSK
	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
<b>Number of Channel</b>	Bluetooth EDR	79
	Bluetooth LE	40
	ANT+	40

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<b>Number of Channel</b>	2.4G WLAN 2412 ~ 2462 MHz	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
	5G WLAN 5180 ~ 5240 MHz	4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20)
		2 for 802.11n (HT40), 802.11ac (VHT40)
		1 for 802.11ac (VHT80)
	5G WLAN 5260 ~ 5320 MHz	4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20)
		2 for 802.11n (HT40), 802.11ac (VHT40)
		1 for 802.11ac (VHT80)
	5G WLAN 5500 ~ 5700 MHz	11 for 802.11a, 802.11n (HT20), 802.11ac (VHT20)
		5 for 802.11n (HT40), 802.11ac (VHT40)
		2 for 802.11ac (VHT80)
	5G WLAN 5745 ~ 5825 MHz	5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20)
		2 for 802.11n (HT40), 802.11ac (VHT40)
1 for 802.11ac (VHT80)		
<b>Normal Voltage</b>	120Vac/ 60Hz	
<b>S/N</b>	VLB10B2329100044	
<b>Sample ID</b>	Conducted Test: 4848505 Radiated Test: 4848508	
<b>Software Version</b>	Android version 11	

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Note:

1. The EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx,Rx Function
802.11a	2TX,2RX
802.11b	2TX,2RX
802.11g	2TX,2RX
802.11n (HT20)	2TX,2RX
802.11n (HT40)	2TX,2RX
802.11ac (VHT20)	2TX,2RX
802.11ac (VHT40)	2TX,2RX
802.11ac (VHT80)	2TX,2RX

2. The EUT contains following accessory devices:

Product	Brand	Model	Description
AC Adapter	EDACPOWER ELEC	EA10731J-120	Input: 100-240Vac, 2A, 50-60Hz Output: 12V, 5A, 60W Length: 1.7m, with one core
Power cord	Xinbaihui	XBH-M31	1.6m

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

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## 4.2. Description of Available Antennas

### For Bluetooth

Ant. No.	Transmitter Circuit	Brand Name	Model Name	Ant. Type	Maximum Gain (dBi)
1	Chain (0)	InnoComm Mobile	N/A	PCB	4.93

### For WLAN

Ant. No.	Transmitter Circuit	Brand Name	Model Name	Ant. Type	Maximum Gain (dBi)
1	Chain (0)+(1)	InnoComm Mobile	N/A	PCB	2.4GHz: 3.3 5GHz: 3.53
2	Chain (0)+(1)	InnoComm Mobile	N/A	PCB	2.4GHz: 3.91 5GHz: 3.83

### For ANT+

Ant. No.	Transmitter Circuit	Brand Name	Model Name	Ant. Type	Maximum Gain (dBi)
1	Chain (0)	InnoComm Mobile	N/A	PCB	3.83

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual.

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## 5. Requirement

### Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
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

Note 1: f = frequency in MHz, \* means Plane-wave equivalent power density

Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Power Density (S) is calculated by the following formula:

$$S = (P * G) / 4\pi R^2$$

where: S = power density (in appropriate units, e.g. mW/ cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

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## 6. Radio Frequency Radiation Exposure Evaluation

### Bluetooth EDR

Evaluation Frequency (MHz)	Max. Average power (dBm)	Antenna Gain (dBi)	Max. EIRP (dBm)	Max. EIRP (mW)	Power density @ 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402 ~ 2480	4.43	4.93	9.36	8.630	0.00172	1

### Bluetooth LE

Evaluation Frequency (MHz)	Max. Average power (dBm)	Antenna Gain (dBi)	Max. EIRP (dBm)	Max. EIRP (mW)	Power density @ 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402 ~ 2480	4.48	4.93	9.41	8.730	0.00174	1

### ANT+

Evaluation Frequency (MHz)	Max. Average power (dBm)	Antenna Gain (dBi)	Max. EIRP (dBm)	Max. EIRP (mW)	Power density @ 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402 ~ 2480	6.00	3.83	9.83	9.616	0.00191	1

### WLAN 2.4GHz

Evaluation Frequency (MHz)	Max. Average power (dBm)	Directional Gain (dBi)	Max. EIRP (dBm)	Max. EIRP (mW)	Power density @ 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412 ~ 2462	21.38	6.62	28.00	630.957	0.12552	1

### WLAN 5GHz

Evaluation Frequency (MHz)	Max. Average power (dBm)	Directional Gain (dBi)	Max. EIRP (dBm)	Max. EIRP (mW)	Power density @ 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180 ~ 5240	19.37	6.69	26.06	403.645	0.08030	1
5260 ~ 5320	19.44	6.69	26.13	410.204	0.08161	1
5500 ~ 5700	19.33	6.69	26.02	399.945	0.07957	1
5745 ~ 5825	19.45	6.69	26.14	411.150	0.08180	1

Note:

1. Max. EIRP (dBm) = Max. Average power (dBm) + Antenna Gain (dBi)
2. Max. EIRP (mW) =  $10^{(\text{Max. EIRP (dBm)} / 10)}$
3. Power density (mW/cm<sup>2</sup>) = Max. EIRP (mW) / [  $4 \times \pi \times (\text{calculated distance})^2$  ], the calculated distance is 20 cm.

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**Conclusion:**

Both of the Bluetooth, ANT+ and WLAN 2.4GHz, Bluetooth, ANT+ and WLAN 5GHz can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$$\text{Situation is } (0.12552 / 1) + (0.00174 / 1) + (0.00012 / 1) = 0.12738$$

$$\text{Situation is } (0.0818 / 1) + (0.00174 / 1) + (0.00012 / 1) = 0.08366$$

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

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

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**END OF REPORT**

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