



■Report No.: DDT-R21070529-2E14

■Issued Date: Sep. 06, 2021

RF EXPOSURE REPORT

FOR

Applicant	:	GP Electronics (HK) Limited.
Address	:	9/F, Building 12W, 12 Science Park West Avenue, Hong Kong Science Park, Pak Shek Kok, New Territories - Hong Kong
Equipment under Test	:	Wireless Speaker
Model No.	:	LSX II
HVIN	:	LSX II Primary
Trade Mark	:	KEF
FCC ID	:	UXD21001
IC	:	21561-21001
Manufacturer	:	GP Electronics (HK) Limited.
Address	:	9/F, Building 12W, 12 Science Park West Avenue, Hong Kong Science Park, Pak Shek Kok, New Territories - Hong Kong

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan
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REPORT

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TEST REPORT DECLARE

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Standard Used: KDB447498 D01 General RF Exposure Guidance v06

We Declare:

The equipment described above is assessed by Dongguan Dongdian Testing Service Co., Ltd and in the configuration assessed the equipment complied with the standards specified above. The assessed results are contained in this report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

Report No:	DDT-R21070529-2E14		
Date of Receipt:	Jul. 30, 2021	Date of Test:	Jul. 30, 2021 ~ Sep. 06, 2021

Prepared By:

Jacky Huang

Jacky Huang Engineer

Approved By:



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision history

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Sep. 06, 2021	

1. General information

1.1. Description of Equipment

EUT* Name	: Wireless Speaker
Model Number	: LSX II
HVIN	: LSX II Primary
EUT function description	: Please reference user manual of this device
Power supply	: 100-240V~, 50/60Hz
Radio Specification	: Bluetooth V4.2, IEEE802.11b/g/n, IEEE802.11a/n/ac, 2.4G SRD
Operation frequency	: Bluetooth: 2402MHz-2480MHz IEEE 802.11a: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz IEEE 802.11n HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5670MHz, 5755MHz-5755MHz IEEE 802.11ac HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz IEEE 802.11ac HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5670MHz, 5755MHz-5755MHz IEEE 802.11ac HT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5775MHz 2.4G SRD: 2406-2474 MHz
Modulation	: Bluetooth: GFSK, $\pi/4$ -DQPSK, 8DPSK IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) 2.4G SRD: 8FSK
Data rate	: Bluetooth: 1Mbps, 2Mbps, 3Mbps IEEE 802.11b: 1, 2, 5.5, 11 Mbps IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65 Mbps IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20: 14.4, 28.9, 43.3, 57.8, 86.7, 115.6, 130.0, 144.4 Mbps IEEE 802.11n HT40: 30, 60, 90, 120, 180, 240, 270, 300 Mbps IEEE 802.11ac HT20: 14.4, 28.8, 43.4, 57.8, 86.6, 115.6, 130, 144.4, 173.4 Mbps IEEE 802.11ac HT40: 30, 60, 90, 120, 180, 240, 270, 300, 360, 400 Mbps IEEE 802.11ac HT80: 65, 130, 195, 260, 390, 520, 585, 650, 780, 866.6 Mbps 2.4G SRD: 5 Mbps
Antenna Type	: Antenna 1: Dedicated FPCB antenna, 2.4G band maximum PK gain: 2.17 dBi, 5G band maximum PK gain: 3.26 dBi Antenna 2: Dedicated FPCB antenna, 2.4G band maximum PK gain: 2.17 dBi, 5G band maximum PK gain: 3.26 dBi 2.4G SRD: Dedicated FPCB antenna, maximum PK gain: 7.6 dBi (Tx) 2.4G SRD: Dedicated FPCB antenna, maximum PK gain: 7.5 dBi (Rx)
Serial Number	: N/A
Sample Type	: Series production

1.2. Assess laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2. RF Exposure evaluation

2.1. Requirement

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

(B) 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 ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2. Calculation Method

$$E(\text{V/m}) = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } S(\text{mW/cm}^2) = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (mW)

G = EUT Antenna numeric gain (numeric)=

d = Separation distance between radiator and human body (m)

The formula can be changed to

We can change the formula to:

$$S = \frac{30 \times P \times G}{377 \times d^2} \quad \text{or, } d = \sqrt{\frac{30 \times P \times G}{377 \times S}}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

2.3. Estimation Result

Mode	PK Output power (dBm)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm ²)	MPE Limit (mW/cm ²)
Bluetooth Max power	5.00	3.16	2.17	1.65	0.00136	1
BLE Max power	11.30	13.49	2.17	1.65	0.00443	1
2.4G WIFI Max power	16.40	43.65	2.17	1.65	0.01433	1
5G WIFI Max power	14.60	28.84	3.16	2.07	0.01188	1
2.4G SRD	-0.23	0.95	7.6	5.75	0.00109	1

Maximum Simultaneous transmission MPE Ratio for Bluetooth and 2.4G SRD

Maximum MPE ratio Bluetooth	Maximum MPE ratio 2.4GWLAN	ΣMPE ratios	Limit	Results
0.00136	0.00109	0.00245	1.000	Pass

Maximum Simultaneous transmission MPE Ratio for BLE and 2.4G SRD

Maximum MPE ratio BLE	Maximum MPE ratio 2.4GWLAN	ΣMPE ratios	Limit	Results
0.00443	0.00109	0.00552	1.000	Pass

Maximum Simultaneous transmission MPE Ratio for 2.4G SRD and 2.4G WLAN

Maximum MPE ratio 2.4G SRD	Maximum MPE ratio 5GWLAN	ΣMPE ratios	Limit	Results
0.00109	0.01433	0.01542	1.000	Pass

Maximum Simultaneous transmission MPE Ratio for 2.4G SRD and 5G WLAN

Maximum MPE ratio 2.4G SRD	Maximum MPE ratio 5GWLAN	ΣMPE ratios	Limit	Results
0.00109	0.01188	0.01297	1.000	Pass

Note: The estimation distance is 20cm, WIFI and Bluetooth are integrated in the same module, and SRD is another module. The WIFI(Bluetooth) module only supports SISO, and the two antennas have the same power.

Conclusion: Compliance with RF Exposure requirement since transmitter power is below FCC threshold.

END OF REPORT