

# RF EXPOSURE EVALUATION REPORT

**Application No.:** FYCR2203000031AT  
**Applicant:** Huizhou Oppen Electronic Technology Co., Ltd  
**Address of Applicant:** Floor 7, 8 and 9 of building 1,2 and 3, No.19 binhe Avenue, Lilin Town, Zhongkai Hightech Zone, Huizhou, GuangDong, China  
**Manufacturer:** SAKAR INTERNATIONAL INC.  
**Address of Manufacturer:** 195 Carter Drive Edison, NJ 08817 USA  
**Factory:** Huizhou Oppen Electronic Technology Co., Ltd  
**Address of Factory:** Floor 7, 8 and 9 of building 1,2 and 3, No.19 binhe Avenue, Lilin Town, Zhongkai Hightech Zone, Huizhou, GuangDong, China

**Equipment Under Test (EUT):**  
**EUT Name:** Shockwave 200 Wireless Party Speaker  
**Model No.:** IMT7100  
**Trade Mark:** ALTEC LANSING  
**FCC ID:** 2A523S225  
**Standard(s) :** 47 CFR Part 1.1307  
47 CFR Part 1.1310  
47 CFR Part 2.1091

**Date of Receipt:** 2022-03-22  
**Date of Evaluation:** 2022-03-22 to 2022-04-20  
**Date of Issue:** 2022-04-24

**Evaluation Result:**

**Pass\***

\* In the configuration evaluated, the EUT complied with the standards specified above.

Kidd Yang  
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2022-04-24		Original

<b>Authorized for issue by:</b>			
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		<b>Winkey Wang/Reviewer</b>	



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## 2 Contents

	Page
1 Cover Page .....	1
2 Contents .....	3
3 General Information.....	4
3.1 Details of E.U.T. ....	4
3.2 Test Location.....	5
3.3 Test Facility .....	5
3.4 Deviation from Standards.....	5
3.5 Abnormalities from Standard Conditions .....	5
4 Radio Spectrum Technical Requirement .....	6
4.1 RF Exposure Compliance Requirement .....	6
4.1.1 Limits.....	6
4.1.2 Test Procedure .....	6
4.1.3 EUT RF Exposure Evaluation.....	7
5 EUT Constructional Details (EUT Photos) .....	8



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### 3 General Information

#### 3.1 Details of E.U.T.

Power supply:	DC 14.8V by rechargeable Lithium Battery. Adapter model: AD0301-1901500UB Input: AC 100-240V 50/60Hz 0.8A Output: DC 19V 1.5A.
Cable(s):	Aux in Cable: 100cm, unshielded
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.2
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi



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### 3.2 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc. Shenzhen branch.

Fuyong lab. Xinlong TechnoPark, Fengtang Road, Fuyong Subdistrict, Bao'an, Shenzhen, China

Tel: +86 755 8866 3988 Fax: +86 755 2671 0594

No tests were sub-contracted.

### 3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 6606.01)**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6606.01.

- **FCC –Designation Number: CN1322**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch has been recognized as an accredited testing laboratory.

Designation Number: CN1322. Test Firm Registration Number: 718073

- **Innovation, Science and Economic Development Canada**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0129.

IC#: 28189.

### 3.4 Deviation from Standards

None

### 3.5 Abnormalities from Standard Conditions

None



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## 4 Radio Spectrum Technical Requirement

### 4.1 RF Exposure Compliance Requirement

#### 4.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

**TABLE 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> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
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

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

#### 4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



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**4.1.3 EUT RF Exposure Evaluation**

**For BT:**

Antenna Gain: 0dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
2480	9.92	9.82	0.0033	1.0	PASS

Note: Refer to report No. FYCR220300003102 for EUT test Max Conducted Peak Output Power Value.

The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.



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## 5 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for FYCR2203000031AT

- End of the Report -



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