SAR Evaluation Report

Application No.:	SZEM1912021389CR
Applicant:	Harman International Industries, Inc.
Address of Applicant:	8500 Balboa Boulevard, Northridge, California, 91329, United States
Manufacturer:	Harman International Industries, Inc.
Address of Manufacturer:	8500 Balboa Boulevard, Northridge, California, 91329, United States
Factory:	Please refer to section 4.1
Address of Factory:	Please refer to section 4.1
Equipment Under Test (EUT):	
EUT Name:	Bluetooth Clock Radio Speaker
Model No.:	HORIZON 2
Trade mark:	JBL
FCC ID:	APIHORIZON2
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2019-12-18
Date of Test:	2020-01-05 to 2020-04-05
Date of Issue:	2020-04-09
Test Result :	**Pass***

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

Keny Xu
EMC Laboratory Manager

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center, EMC Laboratory.

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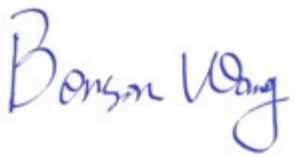
2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2020-04-09		Original

Authorized for issue by:				
				
		Benson Wang /Project Engineer		
		Eric Fu /Reviewer		

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4 General Information

4.1 General Description of EUT

Power Supply:	Powered by Adapter Adapter model: F13V-2.2C-DC-N Input: AC100-240V 50/60Hz 0.8AMax output: 13VDC 2.2A 28.6W
Cable:	FM antenna: 104cm unshielded DC cable of adapter: 152cm unshielded
Bluetooth Version:	V4.2 Classic
Operation Frequency:	2402MHz to 2480MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Antenna Type:	Integral Antenna
Antenna Gain:	2.28dBi

Factory:	1. Shenzhen 3Nod Digital Technology Co., Ltd. 2. Guangxi 3Nod Digital Technology Co., Ltd. 3. ZHILIANG PRECISION(VIETNAM) COMPANY LIMITED
Address of Factory:	1. 4/F., and Section A, 1/F., Workshop 15, Zhongfu Road, Tangxiayong Community, Songgang Neighbourhood, Bao'an, Shenzhen, Guangdong, China 2. The B02 Plant Building of 3Nod Smart Industrial Park in Bei Hai Industrial Park, East of Jilin Road, North of Longtoujiang Reservoir, Beihai, Guangxi, China 3. Lot CN-10, Van Trung Industrial Zone, Van Trung Commune, Viet Yen District, Bac Giang Province, Vietnam

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4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057
Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594
No tests were sub-contracted.

4.3 Test Facility

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

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

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

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center, EMC Laboratory

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5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation[17]

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

5.1.3 EUT RF Exposure

The normal conducted tune up output power is 1.1dBm (tolerance: +/- 2dB)

The Max. power (including tune-up tolerance) is 3.1 dBm on the highest channel 2.48 GHz (*)

3.10 dBm logarithmic terms convert to numeric result is nearly 2.04 mW

According to the formula. calculate the test exclusion thresholds:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

$$General\ RF\ Exposure = (2.04\ mW / 5\ mm) \times \sqrt{2.48\ GHz} = 0.64 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

(1) < (2)

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM191202138901

- End of the Report -

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No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

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