

RF EXPOURE EVALUATION REPORT

Application No.: GZCR2104020065AT
Applicant: Harman International Industries, Incorporated
Address of Applicant: 8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES
Manufacturer: Harman International Industries, Incorporated
Address of Manufacturer: 8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES
Factory: Zhong Shan City Richsound Electronic Industrial Ltd.
Address of Factory: No.16, East Shagang Road, Gangkou, Zhongshan, Guangdong, China.
Equipment Under Test (EUT):
EUT Name: Soundbar with Wireless Subwoofer and Virtual Atmos
Model No.: CINEMA SB190
Trade Mark: JBL
Standard(s) : KDB447498 D01 v06
Date of Receipt: 2021-04-02
Date of Evaluation: 2021-05-12
Date of Issue: 2021-05-14

Evaluation Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Kobe Jian
EMC Laboratory Manager



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<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2021-05-14		Original

Authorized for issue by:			
Evaluated By			
	Curry Wu	Project Engineer	
Reviewed By			
	Ricky Liu	Reviewer	



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3 General Information

3.1 Details of E.U.T.

Power supply: AC 100-240V 50/60Hz for soundbar
 AC 100-240V 50/60Hz for subwoofer
 DC 3V = size 'AAA' battery for IR remote controller

Cable(s): about 1.5m x 2 wires AC mains cable for soundbar & subwoofer
 about 1.5m length HDMI cable

For BT

Operation Frequency: 2402MHz to 2480MHz
 Modulation Type: GFSK, π/4DQPSK
 Channel Spacing: 1MHz
 Number of Channels: 79
 Antenna Type: PCB Antenna
 Adaptive Type: Adaptive Frequency Hopping using LBT based DAA
 Antenna Gain: 3.35 dBi declared by manufacture
 Bluetooth Version: 4.2 for classic only
 Testing Software: FCC assist 2.4.exe
 Software Version: SV01
 Hardware Version: CSM1_V2.1
 Sample NO.: RS0174DL0000162
 Power Setting: 10 can not changed by user

For 2.4GHz

Operating Frequency: 2404.5MHz-2479.5MHz
 Channel number: 16
 Channel Spacing: 5 MHz
 Modulation Type: FSK
 Sample Type: Portable production
 Antenna Type: Integral
 Antenna Gain: 2.28 dBi declared by manufacture
 Power Setting: Default

3.2 Test Location

All tests were performed at:
 SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
 198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
 Guangzhou, China 510663
 Tel: +86 20 82155555 Fax: +86 20 82075059



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3.3 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

3.4 Deviation from Standards

None

3.5 Abnormalities from Standard Conditions

None



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4 Technical Requirements Specification

4.1 General Description of Applied Standards

4.2 RF Exposure Evaluation

4.2.1 Limit & Test Method

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 ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) 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 ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30
f = frequency in MHz				
* = Plane-wave equivalent power density				

According to IEEE C95.3:2002 section 5.5.1.1, The power density S at a point on the axis at a distance d from a transmitting antenna is given by the Friis free-space transmission formula

$$S = \frac{PG}{4\pi d^2}$$

S = power density (mW/cm²)
P = the net power delivered to the antenna (mW)
G = gain of the antenna in linear scale
d = distance between observation point and center of the radiator (cm)



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4.2.2 Test Data and Test Result

Normal use condition
 for Distance between antenna and body: 20cm declared by applicant

BT Antenna Gain: 3.35 dBi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2402	2.163	-2.98	0.504	0.00022	1	Complies
2441	2.163	-2.49	0.564	0.00024	1	Complies
2480	2.163	-2.15	0.610	0.00026	1	Complies

2.4GHz self defined Antenna Gain: 2.28 dBi

Frequency (MHz)	E-field (dBuV/m @3m)	E-field* (dBuV/m @20cm)	E.I.R.P** (mW)
2404.5	61.90	108.94	0.066
2444.5	64.29	111.33	0.114
2479.5	67.87	114.91	0.261

*: E-field (dBuV/m @20cm)= E-field (dBuV/m @3m)+40log(3/0.2)

**: E.I.R.P (W) = (E*d)²/(30*G)

Frequency (MHz)	Antenna Gain (Numeric)	EIRP (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2404.5	1.69	0.066	0.00002	1	Complies
2444.5	1.69	0.114	0.00004	1	Complies
2479.5	1.69	0.261	0.00009	1	Complies

So SAR report is not required.



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5 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for GZCR2104020065AT

- End of the Report -



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