



FCC RF EXPOSURE REPORT

CERTIFICATION TEST REPORT

For

SoundBar

MODEL NUMBER: HW-B4, HW-B4***** ("*" represents any alphanumeric character or blank)**

FCC ID: A3LHWB450

REPORT NUMBER: 4790214047.3-3

ISSUE DATE: January 11, 2022

Prepared for

**Samsung Electronics Co Ltd (FCC)
19 Chapin Rd., Building D Pine Brook New Jersey United States 07058**

Prepared by

**UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch
Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China**

Tel: +86 769 22038881

Fax: +86 769 33244054

Website: www.ul.com



Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	01/11/2021	Initial Issue	



TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. DESCRIPTION OF EUT	6
5. REQUIREMENT	7



1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Samsung Electronics Co Ltd
Address: 19 Chapin Rd., Building D Pine Brook New Jersey United States 07058

Manufacturer Information

Company Name: Samsung Electronics Co Ltd
Address: 19 Chapin Rd., Building D Pine Brook New Jersey United States 07058

EUT Information

EUT Name: SoundBar
Model: HW-B4**, HW-B4***** ("*" represents any alphanumeric character or blank)
Model Difference: Please refer to clause 5.1 DESCRIPTION OF EUT
Brand: SAMSUNG
Sample Received Date: December 3, 2021
Sample Status: Normal
Sample ID: 4462775
Date of Tested: December 7, 2021 ~ January 10, 2022

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47CFR§2.1091	PASS

Prepared By:

Denny Huang
Project Engineer

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo
Laboratory Manager



2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p>A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p>FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p>ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p>VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011</p>
---------------------------	---

Note: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China.



4. DESCRIPTION OF EUT

EUT Name	SoundBar	
Model:	HW-B4**, HW-B4***** ("*" represents any alphanumeric character or blank)	
Model difference	Their electrical circuit design, layout, components used and internal wiring are identical, Different model number and marketing purpose only. We select soundbar with model number "HW-B450" as the representative model for compliance test.	
BT Module Name	i1188-se	
Product Description (Bluetooth)	Operation Frequency	2402 MHz ~ 2480 MHz
	Modulation Type	Data Rate
	GFSK	1Mbps
	π/4-DQPSK	2Mbps
	8DPSK	3Mbps
Supply Voltage	AC 110 ~ 120 V, 50/60 Hz	



5. REQUIREMENT

LIMIT AND CALCULATION METHOD

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

RF EXPOSURE LIMIT

Frequency Range (MHz)	E-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 ²)*	30
30 -- 300	27.5	0.073	0.2	30
300 -- 1500	--	--	f/1500	30
1500 -- 100,000	--	--	1.0	30

CALCULATION METHOD

$$S = PG / 4\pi R^2$$

Where:

S=power density

P=power input to antenna

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

**CALCULATED RESULTS**

Operating Mode	Max. Tune up Power	Directional Gain		Power density	Limit
	(dBm)	(dBi)	(num)	(mW/ cm ²)	
BT	4	3.5	2.24	0.00112	1
Wireless 5.8 GHz	16	2.2	1.66	0.013144	1

Note: 1. BT + Wireless 5.8 GHz = 0.00112 + 0.013144 = 0.017804 (mW/cm²)

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

2. Wireless 5G power comes from report NK-16-R-146. (FCC ID: A3LWSM520V)
3. The Power comes from report operation description.
4. The minimum separation distance of the device is greater than 20 cm.
5. Calculate by WORST-CASE mode.

END OF REPORT