



RF Exposure Report

FCC ID: 2AR2STAB8907RE

Applicant: MMD Hong Kong Holding Limited

Address: Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Manufacturer: MMD Hong Kong Holding Limited

Address: Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Product(s): Soundbar speaker

Brand(s): PHILIPS or 

Test Model(s): TAB8907

Series Model(s): See section 2.1

Test Date: Apr. 06, 2022 ~ Apr. 25, 2022

Issued Date: May 11, 2022

Issued By: Hwa-Hsing (Dongguan) Testing Co., Ltd.

Address: No.101, Bld N1, Yuyuan 2Rd, Yuyuan Industrial Park, HuangJiang Town, Dongguan, China

Test Firm Registration No.: 915896

Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D01 General RF Exposure Guidance v06
IEEE C95.1

The above equipment has been tested by **Hwa-Hsing (Dongguan) Testing Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :




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Reviewed by :



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Release control record

Issue No.	Reason for change	Date issued
220218KH02-1-SE-US-01	Original Release	May 11, 2022



1 General Information

1.1 General Description of EUT

Product(s)	Soundbar speaker
Test Model(s)	TAB8907
Sample No.	HS220312-02-04; HS220311-02-05
Series Model(s)	TAB8907RE, TAB8907/10, TAB8907RE/10, TAB8907/37, TAB8907RE/37, TAB8907/98, TAB8907RE/98 TAB8907xx/yy(x=A-Z or blank, yy=00-99 or blank for country code)
Status of EUT	Engineering Prototype
Power Supply Rating	100-240V~, 50/60Hz, 45W
Modulation Type	Wi-Fi: CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM Bluetooth: GFSK, $\pi/4$ DQPSK, 8DPSK,
Modulation Technology	Wi-Fi 2.4GHz: DSSS; OFDM Wi-Fi 5GHz: OFDM Bluetooth: FHSS& DTS
Transfer Rate	Wi-Fi 2.4GHz: 802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps Wi-Fi 5GHz: 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps Bluetooth: 1Mbps/2 Mbps/3 Mbps
Operating Frequency	Wi-Fi 2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 2412 ~ 2472MHz 802.11n (HT40): 2422 ~ 2462MHz Wi-Fi 5GHz: 5180MHz ~ 5240MHz; 5260MHz ~ 5320MHz; 5500MHz ~ 5700MHz; 5745MHz ~ 5825MHz Bluetooth: 2402MHz ~ 2480 MHz
Output Power(AVG)	Wi-Fi 5GHz: 15.86dBm for 5470 ~ 5725MHz 14.41dBm for 5725 ~ 5850MHz Wi-Fi 2.4GHz: 18.109dBm Bluetooth: 0.652dBm
Antenna Type	FPC Antenna
Antenna Gain	Wi-Fi 2.4GHz: 2.48dBi Wi-Fi 5G: 1.88dBi for 5150 ~ 5250MHz; 2.28dBi for 5250 ~ 5350MHz 2.43dBi for 5470 ~ 5725MHz; 2.19dBi for 5725 ~ 5850MHz Bluetooth: 2.49dBi
Antenna Connector	N/A
Accessory Device	N/A
Cable Supplied	AC Lines: 150cm

Note:

1. Please refer to the EUT photo document (Reference No.: 220218KH02-1-01&-02) for detailed product photo.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.
3. Model difference: These models are only different for model name for trade purpose.
4. These models have been testing and submitted at the same time with the FCC ID: 2AR2STAB8507RE, and these models all only difference for the AC power board, so this report evaluates AC-conducted emission & Radiated emission below 1GHz and copy the RF data from the 220218KH01-1-SE-US-01 report



2 RF exposure limit

Limits for maximum permissible exposure (MPE)

Limits for general population / uncontrolled exposure				
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Average time (minutes)
300-1500	F/1500	30
1500-100,000	1.0	30

Note: F = Frequency in MHz

2.1 MPE calculation formula

$$Pd = (Pout * G) / (4 * pi * r^2)$$

Where:

Pd = power density in mW/cm²

Pout = 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

Classification:

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.



3 Calculation result of maximum conducted power

The antennas provided to the EUT, please refer to the following table:

Function	Frequency Band	Antenna Gain (dBi)	Antenna Type	Transmit and Receive Chain	Maximum AVG Power(dBm)
Bluetooth	2400~2483.5MHz	2.49	FPC	1TX,1RX	0.652
WiFi 2.4GHz	2400~2483.5MHz	2.48	FPC	1TX,1RX	18.109
WiFi 5GHz	5470 ~ 5725MHz	2.43	FPC	1TX,1RX	15.86
WiFi 5GHz	5725 ~ 5850MHz	2.19	FPC	1TX,1RX	14.41

Function	Max power (mW)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm ²)	Limit (mW/cm ²)
Bluetooth	1.162	2.49	20	0.00041	1.0
WiFi 2.4GHz	64.699	2.48	20	0.022784	1.0
WiFi 5.1~5.7GHz	38.548	2.43	20	0.013419	1.0
WiFi 5.8GHz	27.605	2.19	20	0.009093	1.0

Note: The above wireless function can not be transmission simultaneous.

Conclusion:

Therefore, the worst-case situation is 0.022784 mW/cm², which is less than “1”. This confirmed that the device compliance with FCC 1.1310 MPE limit.



Appendix – Information on the Testing Laboratories

We, [Hwa-Hsing \(Dongguan\) Co., Ltd.](#), A global provider of TESTING and CERTIFICATION services for consumer products, electronic products and wireless information technology products. Adhering to the core values “HONEST and TRUSTWORTHY, OBJECTIVE and IMPARTIALITY, RIGOROUS and AFFICIENT”, commitment to provide professional, perfect and efficient comprehensive ONE-STOP solution of TESTING and CERTIFICATION services for Manufacturers, Buyers, Traders, Brands, Retailers. Assist client to better manage risk, protect their brands, reduce costs and cut time to over 150 markets in global. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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