

RF Exposure Evaluation Report

Report Reference No......: **MTEB23030161-H**

FCC ID.....: **2BAM6-WL8012T**

Compiled by

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Date of issue.....: **March 20,2023**

Representative Laboratory Name .: **Shenzhen Most Technology Service Co., Ltd.**

Address: No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,
Nanshan, Shenzhen, Guangdong, China.

Applicant's name.....: **Minor Decliner LLC**

Address: 761 Moorings Circle , Stevensville MD 21666

Test specification/ Standard: **47 CFR Part 1.1307;47 CFR Part 1.1310**
KDB447498D01 General RF Exposure Guidance v06

TRF Originator.....: Shenzhen Most Technology Service Co., Ltd.

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Test item description: **ADVERTISING PLAYER**

Trade Mark: MinorDecliner

Manufacturer: SHENZHEN HOPESTAR SCI-TECH CO., LIMITED

Model/Type reference.....: WL8012T

Listed Models: WL8022T,WL1012T,WF1022T,WF8382T,WA1032T,WA1042T,WL
1032T,WF1412T,WF1566T,WF1522T,WF2152T,WF2402T,WF270
2T,WF3202T,WF4302T,WF5502T,WH1332T,WH1012T,WA1562T

Modulation Type: GFSK/CCK/DSSS/ OFDM

Operation Frequency.....: GFSK: From 2402 - 2480MHz
CCK/DSSS/ OFDM :From 2412 - 2462MHz

Rating: Input: 100-240V~50/60Hz 0.6A Max
Output: 12V=0.6A Max

Hardware version: R79-V3.1

Software version: ZX-WL8012T-R79V3.1-8-SQ-GG-D1.1-20221229

Result.....: **PASS**

TEST REPORT

Equipment under Test : ADVERTISING PLAYER

Model /Type : WL8012T

Listed Models : WL8022T,WL1012T,WF1022T,WF8382T,WA1032T,WA1042T,WL1032T,WF1412T,WF1566T,WF1522T,WF2152T,WF2402T,WF2702T,WF3202T,WF4302T,WF5502T,WH1332T,WH1012T,WA1562T

Remark : Only the model name is different and the size is different, everything else is the same.

Applicant : Minor Decliner LLC

Address : 761 Moorings Circle , Stevensville MD 21666

Manufacturer : SHENZHEN HOPESTAR SCI-TECH CO., LIMITED

Address : Room 602, 6th floor, E building of Yuanfen Industrial Park, Dalang Street, Longhua Area, Shenzhen

Test Result:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2023.03.20	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 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.

2.1.2 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 ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	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
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

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

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². 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.

2.1.3 EUT RF Exposure

Antenna Gain: 3.99dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.4 in linear scale. Output Power Into Antenna & RF Exposure Evaluation Distance:

WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	13.33	13.33 ± 1	14.33
Middle(2437MHz)	14.25	14.25 ± 1	14.25
Highest(2462MHz)	13.37	13.37 ± 1	14.37

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	12.89	12.89 ± 1	13.89
Middle(2437MHz)	13.54	13.54 ± 1	14.54
Highest(2462MHz)	14.11	14.11 ± 1	15.11

802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	14.13	14.13 ± 1	15.13
Middle(2437MHz)	13.39	13.39 ± 1	14.39
Highest(2462MHz)	13.52	13.52 ± 1	14.52

WIFI

Worst case: 802.11n(HT20)						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2412 MHz)	15.13	32.58	3.99	0.016	1.0	Pass

Note: 1) Refer to report **MTEB23030161-R2** for EUT test Max Conducted average Output Power value.Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (32.58 \cdot 2.5) / (4 \cdot 3.1416 \cdot 20^2) = 0.016$

Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

BLE

Antenna Gain: 3.99dBi

GFSK				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.376	-1.376 ± 1	-0.376	0.91
Middle(2440MHz)	-1.032	-0.032 ± 1	-0.032	0.99
Highest(2480MHz)	-1.001	-1.001 ± 1	-0.001	1.0

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2440MHz)	-0.001	1.0	3.99	0.0004	1.0	Pass

Note: 1) Refer to report **MTEB23030161-R1** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (1.0 \cdot 2.5) / (4 \cdot 3.1416 \cdot 20^2) = 0.0004$

Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

.....THE END OF REPORT.....