

RF EXPOSURE Test Report

Report No. : MTi250508012-0104E4
Date of Issue : 2025-07-04
Applicant : Changsha Hotone Audio Co., LTD
Product : Effects Processor
Model(s) : NC-200
FCC ID : 2AHJSNC-200

Shenzhen Microtest Co., Ltd.

TEST REPORT

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Test Result Certification		
Applicant	Changsha Hotone Audio Co., LTD	
Applicant Address	Room 201, East Block, Hunan University Science Park, No.186, Guyuan Rd. Yue Lu District, Changsha, China.	
Manufacturer	Changsha Hotone Audio Co., LTD	
Manufacturer Address	Room 201, East Block, Hunan University Science Park, No.186, Guyuan Rd. Yue Lu District, Changsha, China.	
Product description		
Product name	Effects Processor	
Trademark	HOTONE	
Model name	NC-200	
Series Model(s)	N/A	
Standards	47 CFR Part 2.1091	
Test method	KDB 447498 D01 v06	
Testing Information		
Date of test	2025-06-23 to 2025-07-01	
Test Result	Pass	
Prepared by:	Yanice.Xie	<i>Yanice Xie</i>
Reviewed by:	David Lee	<i>David. Lee</i>
Approved by:	Lewis Lian	<i>Lewis Lian</i>

1 RF EXPOSURE EVALUATION

According to FCC 1.1310: 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 §1.1307(b)

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

MPE Calculation Method

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 = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm (20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

2 Measurement Result

BT&BLE&2.4G WiFi:

BT Operation Frequency: 2402-2480MHz,
 BLE Operation Frequency: 2402-2480MHz,
 2.4G WiFi Operation Frequency: 2412-2462MHz
 Power density limited: 1mW/ cm²
 Antenna Type: FPC Antenna
 Antenna gain: 2.41 dBi
 $R=20\text{cm}$
 $mW=10^{(dBm/10)}$
 Antenna gain Numeric= $10^{(dBi/10)}=10^{(2.41/10)}=1.74$

BT:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
		(dBm)		tune-up power (dBm)	(mW)	Gain (dBi)	Numeric		
2402	GFSK-1M	0.40	1±1	2	1.585	2.41	1.74	0.0005	1
2441		0.96	1±1	2	1.585	2.41	1.74	0.0005	1
2480		0.96	1±1	2	1.585	2.41	1.74	0.0005	1
2402	π/4-DQPSK	2.49	3±1	4	2.512	2.41	1.74	0.0009	1
2441		3.21	3±1	4	2.512	2.41	1.74	0.0009	1
2480		3.12	3±1	4	2.512	2.41	1.74	0.0009	1
2402	8DPSK	2.88	3±1	4	2.512	2.41	1.74	0.0009	1
2441		3.55	3±1	4	2.512	2.41	1.74	0.0009	1
2480		3.66	3±1	4	2.512	2.41	1.74	0.0009	1

BLE:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
		(dBm)		tune-up power (dBm)	(mW)	Gain (dBi)	Numeric		
2402	GFSK	0.20	1±1	2	1.585	2.41	1.74	0.0005	1
2440		0.79	1±1	2	1.585	2.41	1.74	0.0005	1
2480		0.89	1±1	2	1.585	2.41	1.74	0.0005	1

2.4G WIFI:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna		Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain		Power density (mW/cm ²)	(mW/c m ²)
				(dBm)	(mW)	(dBi)	Numeric		
2412	802.11b	14.58	15±1	16	39.811	2.41	1.74	0.01380	1
2437		15.13	15±1	16	39.811	2.41	1.74	0.01380	1
2462		15.06	15±1	16	39.811	2.41	1.74	0.01380	1
2412	802.11g	13.63	14±1	15	31.623	2.41	1.74	0.01096	1
2437		14.12	14±1	15	31.623	2.41	1.74	0.01096	1
2462		13.96	15±1	16	39.811	2.41	1.74	0.01380	1
2412	802.11n H20	14.70	14±1	15	31.623	2.41	1.74	0.01096	1
2437		14.47	14±1	15	31.623	2.41	1.74	0.01096	1
2462		14.15	15±1	16	39.811	2.41	1.74	0.01380	1
2422	802.11n H40	13.02	14±1	15	31.623	2.41	1.74	0.01096	1
2437		14.50	14±1	15	31.623	2.41	1.74	0.01096	1
2452		14.22	15±1	16	39.811	2.41	1.74	0.01380	1

Conclusion:

Simultaneous transmit:

BT+2.4G WiFi=0.0009+0.01380=0.0147

BLE+2.4G WiFi=0.0005+0.01380=0.0143

For the max result: 0.0147≤ 1.0 test exclusion threshold, No SAR is required.

Statement

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***** END OF REPORT *****