RF EXPOSURE

Test Report

Report No.	:	**MTi250121022-0106E3**
Date of Issue	:	**2025-04-02**
Applicant	:	**Changsha Hotone Audio Co., LTD**
Product	:	**Multi-Effects Processor**
Model(s)	:	**GP-5, GP-yzzzz(y: any number, z: any capital letter or number, could be omitted)**
FCC ID	:	**2AHJS-GP5**

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 101, Building #1, No. 20, Qingshan Road, Dongfanghong Street, Yuelu District, Changsha City, Hunan Province, China	
Product description		
Product name	Multi-Effects Processor	
Trademark	Valeton	
Model name	GP-5	
Series Model(s)	GP-yzzzz(y: any number, z: any capital letter or number, could be omitted)	
Standards	47 CFR Part 2.1091	
Test method	KDB 447498 D01 v06	
Testing Information		
Date of test	2025-03-10 to 2025-03-31	
Test Result	Pass	
Prepared by	Yanice.Xie	Yanice Xie
Reviewed by	David Lee	David. Lee
Approved by	Lewis Lian	Lewis Lian

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: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm^2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1415926

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

Pd the limit of MPE, $1mW/cm^2$. 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:
Operation Frequency: 2402-2480MHz,
Power density limited: 1mW/ cm2
Antenna Type: PCB Antenna
Antenna gain: 3.37dBi
R=20cm
mW=10^(dBm/10)
Antenna gain Numeric=10^(dBi/10)= 10^(3.37/10)=2.17

BT :

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Antenna Gain (dBi)	Antenna Gain Numeric	Evaluation result (mW/cm²)	Power density Limits (mW/cm²)
2402	GFSK	2.63	2±1	3	1.995	3.37	2.17	0.0009	1
2441		1.01	1±1	2	1.585	3.37	2.17	0.0007	1
2480		-2.02	(-2)±1	-1	0.794	3.37	2.17	0.0003	1
2402	π/4-DQPSK	2.64	2±1	3	1.995	3.37	2.17	0.0009	1
2441		0.95	0±1	1	1.259	3.37	2.17	0.0005	1
2480		-2.03	(-2)±1	-1	0.794	3.37	2.17	0.0003	1
2402	8DPSK	2.88	2±1	3	1.995	3.37	2.17	0.0009	1
2441		1.12	1±1	2	1.585	3.37	2.17	0.0007	1
2480		-1.89	(-1)±1	0	1.000	3.37	2.17	0.0004	1

BLE :

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Antenna Gain (dBi)	Antenna Gain Numeric	Evaluation result (mW/cm²)	Power density Limits (mW/cm²)
2402	GFSK	1.88	1±1	2	1.585	3.37	2.17	0.0007	1
2440		0.46	0±1	1	1.259	3.37	2.17	0.0005	1
2480		-2.97	(-2)±1	-1	0.794	3.37	2.17	0.0003	1

Conclusion:

For the max result: 0.0009≤ 1.0 test exclusion threshold, No SAR is required.

Statement

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2. The test results of this report are only responsible for the samples submitted.Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
4. This report is invalid if transferred, altered or tampered with in any form without authorization.
5. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

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