

RF Exposure Evaluation

FCC ID: 2AWU4-CL-250W

1. Client Information

Applicant	:	Shenzhen Cloudecho Audio Co.,Ltd
Address	:	Rm707, Biwan Building, Biwan Road, Baoan District, Shenzhen, P.R.China
Manufacturer	:	Shenzhen Cloudecho Audio Co.,Ltd
Address	:	Rm707, Biwan Building, Biwan Road, Baoan District, Shenzhen, P.R.China

2. General Description of EUT

EUT Name	:	Hi-Fi Wifi Stereo Audio Amplifier	
Models No.	:	CL-250W	
Model Difference	:	N/A	
Product Description	:	Operation Frequency:	2.4G: 802.11b/g/n(HT20): 2412MHz~2462MHz Bluetooth 5.0: 2402MHz~2480MHz 5G: U-NII-1: 5180MHz~5240MHz
	:	Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM) 802.11a: OFDM (QPSK, BPSK, 16QAM) 802.11ac: OFDM (QPSK, BPSK, 16QAM, 64QAM, 256QAM) BLE: GFSK
Power Supply	:	Adapter(3205000) Input: AC 100~240V, 50/60Hz 2.2A MAX Output: DC 32V, 5A.	
Software Version	:	V38	
Hardware Version	:	V1.0	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	The adapter and antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.the MPE report used the EUT(TBBJ-20200629-12-2#).	

Note: More test information about the EUT please refer the RF Test Report.

TB-RF-074-1.0

SAR Test Exclusion Calculations

1. FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

- (1) Clause 4.3: General SAR test reduction and exclusion guidance

- Sub clause 4.31: Standalone SAR test exclusion considerations

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance ≤ 5 mm are determined by:

- $$\frac{[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}]}{\leq 3.0 \text{ for 1-g SAR}}$$

- $$\frac{[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}]}{\leq 7.5.0 \text{ for 10-g SAR}}$$

2. Test Result

2.4GHz WLAN

Mode	Freq. (MHz)	Conducted Power(max) (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]	Power Density Limit (mW/ cm ²)	Result
802.11b	2412	15.54	2	20	0.01129	1.000	PASS
	2437	15.55	2	20	0.01132		
	2462	15.22	2	20	0.01049		
802.11g	2412	14.35	2	20	0.00859		
	2437	14.99	2	20	0.00995		
	2462	14.80	2	20	0.00952		
802.11n (HT20)	2412	13.13	2	20	0.00648		
	2437	13.78	2	20	0.00753		
	2462	13.00	2	20	0.00629		

2.4GHz Bluetooth

MODE	f (GHz)	Conducted Power(max) (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]	Power Density Limit (mW/ cm ²)	Result
BLE	2.402	-3.146	2	20	0.00015	1	PASS
	2.442	-2.726	2	20	0.00017		
	2.480	-2.806	2	20	0.00017		

2.4GHz Bluetooth

MODE	f (GHz)	Minimum Separation Distance (mm)	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]	Power Density Limit (mW/ cm ²)	Result
GFSK	2.402	2.576	2	20	0.00057	1	PASS
	2.441	2.958	2	20	0.00062		
	2.480	3.000	2	20	0.00063		
π/4-DQPSK	2.402	1.883	2	20	0.00049		
	2.441	2.410	2	20	0.00055		
	2.480	2.425	2	20	0.00055		
8-DPSK	2.402	2.094	2	20	0.00051		
	2.441	2.525	2	20	0.00056		
	2.480	2.501	2	20	0.00056		

5GHz WLAN

MODE	f (GHz)	Conducted Power(max) (dBm) [P]	ANT Gain(d Bi)	Distance (cm) [R]	Power Density (mW/ cm ²) [S]	Power Density Limit (mW/ cm ²)	Result
802.11a	5.180	12.28	2	20	0.00533	1.0	Pass
	5.200	12.15	2	20	0.00517		
	5.240	12.41	2	20	0.00549		
802.11n (HT20)	5.180	12.15	2	20	0.00517		
	5.200	12.84	2	20	0.00606		
	5.240	12.36	2	20	0.00543		
802.11ac (VHT20)	5.180	12.19	2	20	0.00522		
	5.200	12.18	2	20	0.00521		
	5.240	12.73	2	20	0.00591		
802.11n (HT40)	5.190	11.52	2	20	0.00563		
	5.230	11.86	2	20	0.00484		
802.11ac (VHT40)	5.190	11.67	2	20	0.00463		
	5.230	11.94	2	20	0.00493		
802.11ac (VHT80)	5.210	11.61	2	20	0.00457		

3. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

Maximum MPE ratio 2.4GWLAN	Limit	Results
0.01132	1.0	PASS

For 802.11b/g/n: 2412~2462 MHz

For BLE: 2402MHz~2480MHz

For U-NII-1: 5180MHz~5240MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.01132 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$. So, the device complies with the RF Exposure requirement.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.

-----END OF REPORT-----