

FCC 47 CFR MPE REPORT

AUDIO PRO AB

WIRELESS MULTIROOM LOUDSPEAKER

Model Number: A36, A26

FCC ID: 2AGNC-A36

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Maximum Permissible Exposure

1、Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

(a)、Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E 2 , H 2 or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-10000			5	6

(b)、Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E 2 , H 2 or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-10000			1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

2、MPE Calculation Method

$$E \text{ (V/m)} = (30 \cdot P \cdot G)^{0.5} / d \quad \text{Power Density: } P_d \text{ (W/m}^2\text{)} = E^2 / 377$$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$P_d = (30 \cdot P \cdot G) / (377 \cdot d^2)$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

3、Conducted Power Result

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
GFSK	2402	2.31	1.702	2 ± 1	0	1
	2441	4.71	2.958	4 ± 1	0	1
	2480	6.12	4.093	6 ± 1	0	1
8-DPSK	2402	0.49	1.119	0 ± 1	0	1
	2441	3.56	2.270	3 ± 1	0	1
	2480	5.06	3.206	5 ± 1	0	1
BLE	2402	3.68	2.333	3 ± 1	0	1
	2440	5.19	3.304	5 ± 1	0	1
	2480	6.72	4.699	6 ± 1	0	1
IEEE 802.11b_ANT1	2412	17.68	58.614	17 ± 1	0	1
	2437	17.93	62.087	17 ± 1	0	1
	2462	17.64	58.076	17 ± 1	0	1
IEEE 802.11g_ANT1	2412	22.07	161.065	22 ± 1	0	1
	2437	21.73	148.936	21 ± 1	0	1
	2462	21.22	132.434	21 ± 1	0	1
IEEE 802.11n HT20_ANT1	2412	21.84	152.757	21 ± 1	0	1
	2437	21.46	139.959	21 ± 1	0	1
	2462	22.04	159.956	22 ± 1	0	1
IEEE 802.11n HT40_ANT1	2422	21.18	131.220	21 ± 1	0	1
	2437	20.78	119.674	20 ± 1	0	1
	2452	20.59	114.551	20 ± 1	0	1
IEEE 802.11b_ANT2	2412	17.72	59.156	17 ± 1	0	1
	2437	17.94	62.230	17 ± 1	0	1
	2462	17.47	55.847	17 ± 1	0	1
IEEE 802.11g_ANT2	2412	21.89	154.525	21 ± 1	0	1
	2437	22.01	158.855	22 ± 1	0	1
	2462	21.71	148.252	21 ± 1	0	1
IEEE 802.11n HT20_ANT2	2412	22.07	161.065	22 ± 1	0	1
	2437	22.28	169.044	22 ± 1	0	1
	2462	22.04	159.956	22 ± 1	0	1
IEEE 802.11n HT40_ANT2	2422	21.39	137.721	21 ± 1	0	1
	2437	21.43	138.995	21 ± 1	0	1
	2452	21.30	134.896	21 ± 1	0	1

4、Calculated Result and Limit

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW /cm2)	Limited of Power Density (S) (mW /cm2)	Test Result
		(dBi)	(Linear)			
2.4G Band						
GFSK	7	0	1	0.00139	1	Compiles
8-DPSK	6	0	1	0.00119	1	Compiles
BLE	7	0	1	0.00139	1	Compiles
IEEE 802.11b_ANT1	18	0	1	0.00358	1	Compiles
IEEE 802.11g_ANT1	23	0	1	0.00458	1	Compiles
IEEE 802.11n HT20_ANT1	23	0	1	0.00458	1	Compiles
IEEE 802.11n HT40_ANT1	22	0	1	0.00438	1	Compiles
IEEE 802.11b_ANT2	18	0	1	0.00358	1	Compiles
IEEE 802.11g_ANT2	23	0	1	0.00458	1	Compiles
IEEE 802.11n HT20_ANT2	23	0	1	0.00458	1	Compiles
IEEE 802.11n HT40_ANT2	22	0	1	0.00438	1	Compiles

4.1 Antenna 1+2

Mode	Power Density (S) (mW/cm ²) Antenna 1	Power Density (S) (mW/cm ²) Antenna 2	Power Density (S) (mW/cm ²) Total	Limited of Power Density (S) (mW/cm ²)	Test Result
2.4G Band					
IEEE 802.11n HT20	0.00458	0.00458	0.00916	1	Compiles
IEEE 802.11n HT40	0.00438	0.00438	0.00876	1	Compiles