

## 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 <sup>2</sup> )	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 <sup>2</sup> )	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

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

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

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

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