



FCC 47 CFR MPE REPORT

Arovast Corporation

Superior 6000S Smart Evaporative Humidifier

Model Number: LEH-S602S-WUS

Addition Model: LEH-S602S-XXXX

(X=A~Z, 0~9 or blank, represents different appearance and sales area)

FCC ID: 2ARBY-LEHS602S

Applicant:	Arovast Corporation
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Maximum Permissible Exposure

1. Applicable Standards

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.

1.1. Limits for Maximum Permissible Exposure (MPE)

(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

1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

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

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

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

2. Conducted Power Result

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)
BLE 1M	2402	0.29	1.069
	2440	4.68	2.938
	2480	8.35	6.839
BLE 2M	2402	0.30	1.072
	2440	4.94	3.119
	2480	8.79	7.568
IEEE 802.11b	2412	15.68	36.983
	2437	14.85	30.549
	2462	15.55	35.892
IEEE 802.11g	2412	15.91	38.994
	2437	15.49	35.400
	2462	15.94	39.264
IEEE 802.11n HT20	2412	14.35	27.227
	2437	14.46	27.925
	2462	14.84	30.479
IEEE 802.11n HT40	2422	14.32	27.040
	2437	14.22	26.424
	2452	14.17	26.122

3. Calculated Result and Limit

Mode	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm2)	Limited of Power Density (S) (mW /cm2)	Test Result
				(dBi)	(Linear)			
2.4G Band								
BLE 1M	8.35	8±1	9	3.37	2.173	0.00343	1	Complies
BLE 2M	8.79	8±1	9	3.37	2.173	0.00343	1	Complies
IEEE 802.11b	15.68	15±1	16	3.37	2.173	0.01721	1	Complies
IEEE 802.11g	15.94	15±1	16	3.37	2.173	0.01721	1	Complies
IEEE 802.11n HT20	14.84	14±1	15	3.37	2.173	0.01367	1	Complies
IEEE 802.11n HT40	14.32	14±1	15	3.37	2.173	0.01367	1	Complies

End of Test Report