FCC 47 CFR MPE REPORT

Arovast Corporation

Classic 300S Ultrasonic Smart Humidifier

Model Number: Classic 300S

Additional Model: LUH-A601S-followed by three or four letters

FCC ID: 2ARBY-300S

Applicant:	Arovast Corporation
Address:	1775 FLIGHT WAY, SUITE 150 TUSTIN, CA 92782, USA
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2411090
Date of Test:	Oct. 26, 2024~ Nov. 07, 2024
Date of Report:	Nov. 11, 2024

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 $\mid E \mid^2$, $\mid H \mid^2$ 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 $\mid E \mid^2$, $\mid H \mid^2$ 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.o	30

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

1.2. MPE Calculation Method

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

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

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	6.94	4.943
	2440	6.53	4.498
	2480	7.01	5.023
BLE 2M	2402	7.37	5.458
	2440	6.63	4.603
	2480	7.10	5.129
IEEE 802.11b	2412	18.31	67.764
	2437	17.62	57.810
	2462	18.68	73.790
IEEE 802.11g	2412	18.99	79.250
	2437	18.79	75.683
	2462	19.41	87.297
IEEE 802.11n HT20	2412	17.60	57.544
	2437	17.14	51.761
	2462	17.85	60.954
IEEE 802.11n HT40	2422	17.12	51.523
	2437	16.85	48.417
	2452	16.90	48.978

3. Calculated Result and Limit

Mode	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm^2)	Limited of Power Density (S) (mW /cm^2)	Test Result
				(dBi)	(Linear)			
2.4G Band								
BLE 1M	7.01	7±1	8	3.37	2.173	0.00273	1	Complies
BLE 2M	7.37	7±1	8	3.37	2.173	0.00273	1	Complies
IEEE 802.11b	18.68	18±1	19	3.37	2.173	0.03433	1	Complies
IEEE 802.11g	19.41	19±1	20	3.37	2.173	0.04322	1	Complies
IEEE 802.11n HT20	17.85	17±1	18	3.37	2.173	0.02727	1	Complies
IEEE 802.11n HT40	17.12	17±1	18	3.37	2.173	0.02727	1	Complies

End of Test Report