



# FCC 47 CFR MPE REPORT

Arovast corporation

True HEPA Smart Air Purifier

Model Number: LAP-C601S-WUS

Additional Model: LAP-C601S-XXX(X may be A~Z)

FCC ID: 2ARBY-CORE600S

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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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   <sup>2</sup> ,   H   <sup>2</sup> 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,  $d=0.2\text{m}$ , 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)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
GFSK	2402	7.23	5.284	7±1	1.66	1.466
	2441	7.11	5.140	7±1	1.66	1.466
	2480	7.50	5.623	7±1	1.66	1.466
8-DPSK	2402	10.05	10.116	10±1	1.66	1.466
	2441	10.21	10.495	10±1	1.66	1.466
	2480	9.79	9.528	9±1	1.66	1.466
BLE GFSK 1M	2402	7.68	5.861	7±1	1.66	1.466
	2440	7.51	5.636	7±1	1.66	1.466
	2480	7.46	5.572	7±1	1.66	1.466
IEEE 802.11b	2412	15.82	38.194	15±1	1.66	1.466
	2437	18.31	67.764	18±1	1.66	1.466
	2462	22.25	167.880	22±1	1.66	1.466
IEEE 802.11g	2412	15.31	33.963	15±1	1.66	1.466
	2437	17.87	61.235	17±1	1.66	1.466
	2462	21.87	153.815	21±1	1.66	1.466
IEEE 802.11n HT20	2412	15.49	35.400	15±1	1.66	1.466
	2437	18.04	63.680	18±1	1.66	1.466
	2462	22.01	158.855	22±1	1.66	1.466
IEEE 802.11n HT40	2422	16.84	48.306	16±1	1.66	1.466
	2437	18.63	72.946	18±1	1.66	1.466
	2452	20.96	124.738	20±1	1.66	1.466

### 3. 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	8	1.66	1.466	0.00184	1	Complies
8-DPSK	11	1.66	1.466	0.00367	1	Complies
BLE GFSK	8	1.66	1.466	0.00184	1	Complies
IEEE 802.11b	23	1.66	1.466	0.05817	1	Complies
IEEE 802.11g	22	1.66	1.466	0.04621	1	Complies
IEEE 802.11n HT20	23	1.66	1.466	0.05817	1	Complies
IEEE 802.11n HT40	21	1.66	1.466	0.03671	1	Complies

**End of Test Report**