FCC 47 CFR MPE REPORT

Arovast corporation

True HEPA Air Purifier

Model Number: Core 200S

Additional Model: LAP-C201S-AUSR, LAP-C201S-XXXY
“-”Followed by three or four characters, differentiated by color and model number

FCC ID: 2ARBY-CORE-200SB

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.o	30

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

1.2. MPE Calculation Method

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

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)
GFSK	2402	2.19	1.656
	2441	5.63	3.656
	2480	8.29	6.745
π/4-DQPSK	2402	4.31	2.698
	2441	7.81	6.039
	2480	10.45	11.092
8-DPSK	2402	4.69	2.944
	2441	8.33	6.808
	2480	10.85	12.162
BLE 1M	2402	2.26	1.683
	2440	5.87	3.864
	2480	8.18	6.577
IEEE 802.11b	2412	15.34	34.198
	2437	17.52	56.494
	2462	21.00	125.893
IEEE 802.11g	2412	14.66	29.242
	2437	17.05	50.699
	2462	20.49	111.944
IEEE 802.11n HT20	2412	14.66	29.242
	2437	17.04	50.582
	2462	20.51	112.460
IEEE 802.11n HT40	2422	15.03	31.842
	2437	16.72	46.989
	2452	18.59	72.277

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								
GFSK	8.29	8±1	9	3.76	2.377	0.0038	1	Complies
π/4-DQPSK	10.45	10±1	11	3.76	2.377	0.0060	1	Complies
8-DPSK	10.85	10±1	11	3.76	2.377	0.0060	1	Complies
BLE 1M	8.18	8±1	9	3.76	2.377	0.0038	1	Complies
IEEE 802.11b	21.00	21±1	22	3.76	2.377	0.0749	1	Complies
IEEE 802.11g	20.49	20±1	21	3.76	2.377	0.0595	1	Complies
IEEE 802.11n HT20	20.51	20±1	21	3.76	2.377	0.0595	1	Complies
IEEE 802.11n HT40	18.59	18±1	19	3.76	2.377	0.0376	1	Complies

End of Test Report