

FCC 47 CFR MPE REPORT

Arovast Corporation

Air Fryer

Model Number: CAF-LI401S

FCC ID: 2ARBY-CAF-LI401S

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)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
GFSK	2402	12.20	16.596	12 ± 1	2.38	1.730
	2441	11.30	13.490	11 ± 1	2.38	1.730
	2480	10.48	11.169	10 ± 1	2.38	1.730
8-DPSK	2402	14.89	30.832	14 ± 1	2.38	1.730
	2441	13.96	24.889	13 ± 1	2.38	1.730
	2480	13.15	20.654	13 ± 1	2.38	1.730
BLE	2402	12.05	16.032	12 ± 1	2.38	1.730
	2440	11.13	12.972	11 ± 1	2.38	1.730
	2480	10.23	10.544	10 ± 1	2.38	1.730
IEEE 802.11b	2412	26.26	422.669	26 ± 1	2.38	1.730
	2437	25.19	330.370	25 ± 1	2.38	1.730
	2462	24.32	270.396	24 ± 1	2.38	1.730
IEEE 802.11g	2412	26.40	436.516	26 ± 1	2.38	1.730
	2437	25.37	344.350	25 ± 1	2.38	1.730
	2462	24.37	273.527	24 ± 1	2.38	1.730
IEEE 802.11n HT20	2412	26.73	470.977	26 ± 1	2.38	1.730
	2437	25.77	377.572	25 ± 1	2.38	1.730
	2462	24.42	276.694	24 ± 1	2.38	1.730
IEEE 802.11n HT40	2422	26.67	464.515	26 ± 1	2.38	1.730
	2437	26.11	408.319	26 ± 1	2.38	1.730
	2452	25.44	349.945	25 ± 1	2.38	1.730

3. Calculated Result and Limit

Mode	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	13	2.38	1.730	0.00687	1	Complies
8-DPSK	15	2.38	1.730	0.01088	1	Complies
BLE	13	2.38	1.730	0.00687	1	Complies
IEEE 802.11b	27	2.38	1.730	0.17247	1	Complies
IEEE 802.11g	27	2.38	1.730	0.17247	1	Complies
IEEE 802.11n HT20	27	2.38	1.730	0.17247	1	Complies
IEEE 802.11n HT40	27	2.38	1.730	0.17247	1	Complies

End of Test Report