FCC 47 CFR MPE REPORT

Arovast Corporation

Smart Pet Feeder

Model Number: PPF-R361S-WUS

Additional Model: PPF-R361S-Followed by up to 4 characters

FCC ID: 2ARBY-R361S

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 $\lvert E \rvert^2$, $\lvert H \rvert^2$ 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 $\lvert E \rvert^2$, $\lvert H \rvert^2$ 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	9.12	8.166
	2440	9.17	8.260
	2480	9.32	8.551
BLE 2M	2402	9.33	8.570
	2440	9.86	9.683
	2480	9.74	9.419
IEEE 802.11b	2412	18.80	75.858
	2437	18.58	72.111
	2462	18.54	71.450
IEEE 802.11g	2412	19.49	88.920
	2437	19.45	88.105
	2462	19.54	89.950
IEEE 802.11n HT20	2412	18.42	69.502
	2437	18.35	68.391
	2462	18.36	68.549
IEEE 802.11n HT40	2422	17.67	58.479
	2437	17.57	57.148
	2452	17.63	57.943

3. Calculated Result and Limit

Mode	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain (dBi)	Antenna gain (Linear)	Power Density (S) (mW/cm^2)	Limited of Power Density (S) (mW/cm^2)	Test Result
2.4G Band								
BLE 1M	9.32	9±1	10	3.37	2.173	0.00432	1	Complies
BLE 2M	9.86	9±1	10	3.37	2.173	0.00432	1	Complies
IEEE 802.11b	18.80	18±1	19	3.37	2.173	0.03433	1	Complies
IEEE 802.11g	19.54	19±1	20	3.37	2.173	0.04322	1	Complies
IEEE 802.11n HT20	18.42	18±1	19	3.37	2.173	0.03433	1	Complies
IEEE 802.11n HT40	17.67	17±1	18	3.37	2.173	0.02727	1	Complies

End of Test Report