

MPE REPORT

FCC ID:2ARBY-CLASSIC-200S

Date of issue: Aug. 21, 2020

Report number:	MTi20072103-1E4
Sample description:	Smart Ultrasonic Cool Mist Humidifier
Model(s):	Classic 200S
Applicant:	Arovast corporation
Address:	1202 N Miller St, Suite A, Anaheim, CA 92806, USA
Date of test:	July 28, 2020 to Aug. 21, 2020

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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TEST RESULT CERTIFICATION	
Applicant's name:	Arovast corporation
Address:	1202 N Miller St, Suite A, Anaheim, CA 92806, USA
Manufacture's name:	XIAMEN AIRPPLE ELECTRONIC INDUSTRY CO., LTD.
Address:	No. 35 Xiang Yue Road, Torch Hi-tech Industrial Zone, Xiang An, Xiamen, Fujian, 361101
Product name:	Smart Ultrasonic Cool Mist Humidifier
Trademark:	LEVOIT
Model and/or type reference:	Classic 200S
Serial model:	N/A
RF exposure procedures:	KDB 447498 D01 v06

This device described above has been tested by Shenzhen Microtest Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by:

Demi Mu

Aug. 21, 2020

Reviewed by:

Leo Su

Aug. 21, 2020

Approved by:

Tom Xue

Aug. 21, 2020



RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*300/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

WIFI:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

802.11n HT40: 2422-2452MHz,

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna;

Antenna gain: 3.4dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(3.4/10)}=2.19$

BT:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	3.591	3±1	4	2.512	3.40	2.19	0.0011	1
2441		3.414	3±1	4	2.512	3.40	2.19	0.0011	1
2480		3.830	3±1	4	2.512	3.40	2.19	0.0011	1
2402	π/4-DQPSK	0.323	0±1	1	1.259	3.40	2.19	0.0005	1
2441		-0.183	0±1	1	1.259	3.40	2.19	0.0005	1
2480		0.240	0±1	1	1.259	3.40	2.19	0.0005	1
2402	8DPSK	-2.035	-2±1	-1	0.794	3.40	2.19	0.0003	1
2441		-2.733	-2±1	-1	0.794	3.40	2.19	0.0003	1
2480		-2.047	-2±1	-1	0.794	3.40	2.19	0.0003	1

BLE:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	3.292	3±1	4	2.512	3.4	2.19	0.0011	1
2440		3.083	3±1	4	2.512	3.4	2.19	0.0011	1
2480		3.624	3±1	4	2.512	3.4	2.19	0.0011	1



Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm2)	(mW/cm2)
		Ant A	Ant A	(dBm)	(mW)	Numeric		
2412	802.11b	15.92	16±1	17	50.119	2.19	0.02184	1
2437		16.03	16±1	17	50.119	2.19	0.02184	1
2462		15.98	16±1	17	50.119	2.19	0.02184	1
2412	802.11g	14.11	14±1	15	31.623	2.19	0.01378	1
2437		14.17	14±1	15	31.623	2.19	0.01378	1
2462		13.9	14±1	15	31.623	2.19	0.01378	1
2412	802.11n H20	14.29	14±1	15	31.623	2.19	0.01378	1
2437		14.15	14±1	15	31.623	2.19	0.01378	1
2462		14.11	14±1	15	31.623	2.19	0.01378	1
2422	802.11n H40	13.87	14±1	15	31.623	2.19	0.01378	1
2437		14.04	14±1	15	31.623	2.19	0.01378	1
2452		13.98	14±1	15	31.623	2.19	0.01378	1

Simultaneous transmit:

$$BT + BLE + 2.4GWiFi = 0.0011 + 0.0011 + 0.02184 = 0.02404 \text{ mW/cm}^2$$

Conclusion:

For the max result: $0.02404 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----