MPE REPORT

FCC ID:2ARBY-CLASSIC-300S

Date of issue: Sept. 22, 2020

Report number:	MTi20082408-1E4
Sample description:	Smart Ultrasonic Top-Fill Cool Mist Humidifier
Model(s):	Classic 300S
Applicant:	Arovast corporation
Address:	1202 N Miller St, Suite A, Anaheim, CA 92806, USA
Date of test:	Sept. 01, 2020 to Sept. 10, 2020

Shenzhen Microtest Co., Ltd.

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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:	Shenzhen Naeol electronic manufacturing Co., LTD
Address:	B9&10 building, Bao'e industrial area, E'gongling community, Pinghu, Longgang district, Shenzhen
Product name:	Smart Ultrasonic Top-Fill Cool Mist Humidifier
Trademark:	LEVOIT
Model and/or type reference:	Classic 300S
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 Sept. 10, 2020

Reviewed by: Leo Su Sept. 22, 2020

Approved by: Tom Xue Sept. 22, 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	$*900/f^2$	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: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1415926

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

Pd 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

BT:

Operation frequency: 2402-2480MHz

Modulation type: GFSK, π/4-DQPSK, 8DPSK

BLE:

Operation frequency: 2402-2480MHz

Modulation type: GFSK

WIFI:

Operation Frequency: 802.11b/g/n HT20: 2412-2462MHz, 802.11n HT40: 2422-2452MHz,

Power density limited: 1mW/ cm^2

Antenna Type: PCB Antenna;
antenna gain: 3.77dBi

R=20cm

mW=10^(dBm/10)

antenna gain Numeric=10^(dBi/10)= 10^(3.77/10)=2.38

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	3.454	4±1	5	3.162	3.77	2.38	0.0015	1
2441		4.115	4±1	5	3.162	3.77	2.38	0.0015	1
2480		4.736	4±1	5	3.162	3.77	2.38	0.0015	1
2402	π/4-DQPSK	6.415	7±1	8	6.310	3.77	2.38	0.0030	1
2441		6.438	7±1	8	6.310	3.77	2.38	0.0030	1
2480		7.043	7±1	8	6.310	3.77	2.38	0.0030	1
2402	8DPSK	6.312	7±1	8	6.310	3.77	2.38	0.0030	1
2441		6.778	7±1	8	6.310	3.77	2.38	0.0030	1
2480		7.436	7±1	8	6.310	3.77	2.38	0.0030	1

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	0.861	1±1	2	1.585	3.77	2.38	0.0008	1
2440		1.568	1±1	2	1.585	3.77	2.38	0.0008	1
2480		1.874	1±1	2	1.585	3.77	2.38	0.0008	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)
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	18.94	18±1	19	79.432823	2.38	0.03761	1
2437		18.74	18±1	19	79.432823	2.38	0.03761	1
2462		18.95	18±1	19	79.432823	2.38	0.03761	1
2412	802.11g	17.61	17±1	18	63.095734	2.38	0.02987	1
2437		17.77	17±1	18	63.095734	2.38	0.02987	1
2462		17.92	17±1	18	63.095734	2.38	0.02987	1
2412	802.11nH20	17.61	17±1	18	63.095734	2.38	0.02987	1
2437		17.74	17±1	18	63.095734	2.38	0.02987	1
2462		17.88	17±1	18	63.095734	2.38	0.02987	1
2422	802.11nH40	17.84	17±1	18	63.095734	2.38	0.02987	1
2437		17.78	17±1	18	63.095734	2.38	0.02987	1
2452		17.99	17±1	18	63.095734	2.38	0.02987	1

Simultaneous transmit

BT+BLE+2.4GWiFi=0.0030+0.0008+0.03761=0.04141

Conclusion:

For the max result: 0.04141≤ 1.0 for 1g SAR, No SAR is required.

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