

MPE REPORT

FCC ID: 2ARBY-CORE400S

Date of issue: Jan. 07, 2021

Report number:	MTi201225003-03E4
Sample description:	Air Purifier
Model(s):	Core 400S
Applicant:	Arovast Corporation
Address:	1202 N Miller St. Suite A, Anaheim, CA 92806, USA
Date of test:	Dec. 28, 2020 to Jan. 07, 2021

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 Vork Health Industry Co., Ltd.
Address:	102#&202#, Xianghong Road 16th, Torch Hi-tech Industrial Area, Xiang'an, Xiamen, China
Product name:	Air Purifier
Trademark:	LEVOIT
Model and/or type reference:	Core 400S
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:

Danny Xu

Jan. 07, 2021

Reviewed by:

Leo Su

Jan. 07, 2021

Approved by:

Tom Xue

Jan. 07, 2021



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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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

BT: Operation Frequency: GFSK, $\pi/4$ -DQPSK, 8DPSK: 2402-2480MHz

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

BLE: Operation Frequency: GFSK: 2402-2480MHz

Power density limited: $1\text{mW}/\text{cm}^2$

Antenna Type: PCB Antenna;

Antenna gain: 2.04dBi

R=20cm

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

antenna gain Numeric= $10^{(\text{dBi}/10)}=10^{(2.04/10)}=1.60$

BT:

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	6.233	6±1	7	5.012	2.04	1.60	0.0016	1
2441		6.108	6±1	7	5.012	2.04	1.60	0.0016	1
2480		5.021	6±1	7	5.012	2.04	1.60	0.0016	1
2402	π/4-DQPSK	8.694	8±1	9	7.943	2.04	1.60	0.0025	1
2441		8.398	8±1	9	7.943	2.04	1.60	0.0025	1
2480		7.403	8±1	9	7.943	2.04	1.60	0.0025	1
2402	8DPSK	9.014	9±1	10	10	2.04	1.60	0.0032	1
2441		8.893	9±1	10	10	2.04	1.60	0.0032	1
2480		8.627	9±1	10	10	2.04	1.60	0.0032	1



WIFI:

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/cm ²)	(mW/cm ²)
		Ant A	Ant A	(dBm)	(mW)	Numeric		
2412	802.11b	14.92	15±1	16	39.810717	1.6	0.01267	1
2437		15.67	15±1	16	39.810717	1.6	0.01267	1
2462		15.18	15±1	16	39.810717	1.6	0.01267	1
2412	802.11g	17.26	17±1	18	63.095734	1.6	0.02008	1
2437		17.50	17±1	18	63.095734	1.6	0.02008	1
2462		16.78	17±1	18	63.095734	1.6	0.02008	1
2412	802.11n H20	16.30	17±1	18	63.095734	1.6	0.02008	1
2437		16.58	17±1	18	63.095734	1.6	0.02008	1
2462		16.76	17±1	18	63.095734	1.6	0.02008	1
2422	802.11n H40	16.47	17±1	18	63.095734	1.6	0.02008	1
2437		16.40	17±1	18	63.095734	1.6	0.02008	1
2452		16.30	17±1	18	63.095734	1.6	0.02008	1



BLE:

Channel Freq. (MHz)	modulation n	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain			
				(dBm)	(dBm)	(mW)	(dBi)	Numeric	(mW/cm2)
2402	GFSK	3.150	4±1	5	3.162	2.04	1.60	0.0010	1
2440		3.916	4±1	5	3.162	2.04	1.60	0.0010	1
2480		3.797	4±1	5	3.162	2.04	1.60	0.0010	1

Simultaneous transmit

BT+2.4GWiFi +BLE=0.0032+0.02008+0.0010=0.02428

Conclusion:

For the max result: $0.02428 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----