

MPE REPORT

FCC ID:2AWOC-GOC-BA440

Date of issue: June 28, 2020

Report number: MTi20022514-4E5

Sample description: GOC-BA440

Model(s): GOC-BA440

Applicant: Shenzhen Goodocom Information Technology Co., Ltd

Address: XiaGu F3, Meishenghuigu, No.83 Dabao Road, Xin'an Street,
33 District, Bao'an District, Shenzhen

Date of test: Mar. 19, 2020 to June 16, 2020

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



TEST RESULT CERTIFICATION	
Applicant's name:	Shenzhen Goodocom Information Technology Co., Ltd
Address:	XiaGu F3, Meishenghuigu, No.83 Dabao Road, Xin'an Street, 33 District, Bao'an District, Shenzhen
Manufacture's name:	Shenzhen Goodocom Information Technology Co., Ltd
Address:	XiaGu F3, Meishenghuigu, No.83 Dabao Road, Xin'an Street, 33 District, Bao'an District, Shenzhen
Product name:	GOC-BA440
Trademark:	N/A
Model and/or type reference:	GOC-BA440
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

June 16, 2020

Reviewed by:

Leo Su

June 28, 2020

Approved by:

Tom Xue

June 28, 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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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

R=20cm

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	7.129	7±1	8	6.310	2.50	1.78	0.0022	1
2441		7.106	7±1	8	6.310	2.50	1.78	0.0022	1
2480		6.579	7±1	8	6.310	2.50	1.78	0.0022	1
2402	π/4-DQPSK	3.46	3±1	4	2.512	2.50	1.78	0.0009	1
2441		3.436	3±1	4	2.512	2.50	1.78	0.0009	1
2480		3.066	3±1	4	2.512	2.50	1.78	0.0009	1
2402	8DPSK	3.822	3±1	4	2.512	2.50	1.78	0.0009	1
2441		3.724	3±1	4	2.512	2.50	1.78	0.0009	1
2480		3.316	3±1	4	2.512	2.50	1.78	0.0009	1

BLE

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	4.563	4±1	5	3.162	2.5	1.78	0.0011	1
2440		4.661	4±1	5	3.162	2.5	1.78	0.0011	1
2480		3.969	4±1	5	3.162	2.5	1.78	0.0011	1



2.4GWiFi

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	Ant A	Ant A	Numeric	Ant A	
2412	802.11b	14.51	14±1	15	31.622777	1.78	0.01120	1
2437		14.45	14±1	15	31.622777	1.78	0.01120	1
2462		14.26	14±1	15	31.622777	1.78	0.01120	1
2412	802.11g	14.52	14±1	15	31.622777	1.78	0.01120	1
2437		14.63	14±1	15	31.622777	1.78	0.01120	1
2462		14.18	14±1	15	31.622777	1.78	0.01120	1
2412	802.11n H20	14.02	14±1	15	31.622777	1.78	0.01120	1
2437		13.78	14±1	15	31.622777	1.78	0.01120	1
2462		13.87	14±1	15	31.622777	1.78	0.01120	1

5GWiFi

For U-NII-1

Transmit Frequency (GHz)	Mode	Measured Power (dBm)	Tune-up power (dBm)	Max tune-up		Antenna Gain Numeric	Result calculation	Exclusion thresholds
				power(dBm)	(mW)			
5.180	11a	13.98	14±1	15	31.622777	1.78	0.01120	1
5.200		14.30	14±1	15	31.622777	1.78	0.01120	1
5.240		14.45	14±1	15	31.622777	1.78	0.01120	1
5.180	11n (HT20)	13.63	14±1	15	31.622777	1.78	0.01120	1
5.200		13.93	14±1	15	31.622777	1.78	0.01120	1
5.240		14.39	14±1	15	31.622777	1.78	0.01120	1
5.190	11n (HT40)	12.63	13±1	14	25.118864	1.78	0.00890	1
5.230		13.06	13±1	14	25.118864	1.78	0.00890	1
5.180	11ac (HT20)	13.78	14±1	15	31.622777	1.78	0.01120	1
5.200		14.02	14±1	15	31.622777	1.78	0.01120	1
5.240		14.44	14±1	15	31.622777	1.78	0.01120	1
5.190	11ac (HT40)	12.66	13±1	14	25.118864	1.78	0.00890	1
5.230		13.28	13±1	14	25.118864	1.78	0.00890	1



5.210	11ac (HT80)	12.85	12±1	13	19.952623	1.78	0.00707	1
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For U-NII-3

Transmit Frequency (GHz)	Mode	Measured Power (dBm)	Tune- up power (dBm)	Max tune-up			Result	Exclusion thresholds
				power(dBm)	(mW)		calculation	
5.745	11a	12.18	12±1	13	19.952623	1.78	0.00707	1
5.785		11.78	12±1	13	19.952623	1.78	0.00707	1
5.825		12.28	12±1	13	19.952623	1.78	0.00707	1
5.745	11n (HT20)	12.16	12±1	13	19.952623	1.78	0.00707	1
5.785		11.48	12±1	13	19.952623	1.78	0.00707	1
5.825		11.92	12±1	13	19.952623	1.78	0.00707	1
5.755	11n (HT40)	11.12	11±1	12	15.848932	1.78	0.00561	1
5.795		10.72	11±1	12	15.848932	1.78	0.00561	1
5.745	11ac (HT20)	12.02	12±1	13	19.952623	1.78	0.00707	1
5.785		11.44	12±1	13	19.952623	1.78	0.00707	1
5.825		11.85	12±1	13	19.952623	1.78	0.00707	1
5.755	11ac (HT40)	10.94	10±1	11	12.589254	1.78	0.00446	1
5.795		10.54	10±1	11	12.589254	1.78	0.00446	1
5.775	11ac (HT80)	10.81	10±1	11	12.589254	1.78	0.00446	1

Simultaneous transmit:

BT+ 2.4GWiFi =0.0022+0.01120=0.0134 mW/cm2

BT+ 5GWiFi =0.0022+0.01120=0.0134 mW/cm2

Conclusion:

For the max result: $0.0134 \leq 1.0$ for 1g SAR, No SAR is required.

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