

MPE TEST REPORT

Report No.: SHH22020028-01GE

Date: 2022-07-15

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Applicant : Anitoa Biotechnology (Hangzhou) Co.,Ltd.
Address of Applicant : Room 210,2F,Building 2,No.658 binan Road,Changhe Street,Binjiang District,Hangzhou City,Zhejiang Province

Product Name : Real-time Fluorescence Quantitative PCR Instrument
Model No. : MQ4164,MQ4041,MQ4042,MQ4043,MQ4044,MQ4081,MQ4082,MQ4083,MQ4084,MQ4161,MQ4162,MQ4163
Brand Name : anitoa
Sample No. : H22020028-01#01
FCC ID : 2A7M7MQ4


Standards : FCC Part 2.1091
OET Bulletin 65 Edition 97-01 June 2001

Date of Receipt : 2022-05-20
Date of Test : 2022-05-21 ~ 2022-07-15
Date of Issue : 2022-07-15

Remark:

This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

Prepared by:



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Approved by:



(Authorized signatory: Guoyou Chi)

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1 General Information

1.1 Testing Laboratory

Company Name	ICAS Testing Technology Services (Shanghai) Co., Ltd.
Address	No.1298 Pingan Rd, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

1.2 Environmental conditions

Temperature (°C)	18-25
Humidity (%RH)	40-65
Barometric Pressure (mbar)	960-1060
Ambient noise & Reflection (W/kg)	< 0.012

1.3 Details of Application

Company Name	Anitoa Biotechnology (Hangzhou) Co.,Ltd.
Address	Room 210,2F,Building 2,No.658 binan Road,Changhe Street,Binjiang District,Hangzhou City,Zhejiang Province
Contact Person	Xu.Bai
Telephone	13616528058
Email	xu.bai@artobio.cn
Manufacturer Company Name	Anitoa Biotechnology (Hangzhou) Co.,Ltd.
Address	Room 210,2F,Building 2,No.658 binan Road,Changhe Street,Binjiang District,Hangzhou City,Zhejiang Province
Factory Company Name	Anitoa Biotechnology (Hangzhou) Co.,Ltd.
Address	Room 210,2F,Building 2,No.658 binan Road,Changhe Street,Binjiang District,Hangzhou City,Zhejiang Province

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1.4 Details of EUT

Product Name	Real-time Fluorescence Quantitative PCR Instrument
Brand Name	anitoa
Test Model No.	MQ4164
Series Model No.	MQ4041,MQ4042,MQ4043,MQ4044,MQ4081,MQ4082,MQ4083,MQ4084, MQ4161,MQ4162,MQ4163
Difference Description	All the models are identical with the same schematics, PCB layout, structure, size and components, the difference are only quantities in fluorescence channel and check holes
FCC ID	2A7M7MQ4
Mode of Operation	WLAN 802.11a/b/g/n(HT20/40)/ac(HT20/40/80) Bluetooth BR/EDR/BLE
Frequency Range	2400MHz ~ 2483.5MHz; 5725MHz ~ 5850MHz
Modulation Type	DSSS, OFDM GFSK, $\pi/4$ -DQPSK, 8-DPSK
Antenna Type	Internal Antenna
Antenna Gain	Bluetooth BR/EDR/BLE: 2dBi WLAN 2.4GHz: 2dBi WLAN 5.8GHz: 3dBi

Note(s):

All applicable tests as described in test case and measurement sections were performed on model MQ4164.

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2 Maximum Permissible Exposure (MPE)

2.1 Limits

According to FCC Part 1.1307, 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 of the commission's guidelines.

TABLE 1—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

2.2 Assessment methods

Calculation Formula from FCC OET 65:

$$S = \frac{P * G}{4 * \pi * R^2}$$

Where:

S = Power Density (mW/cm²)

P = Input Power of the Antenna (mW)

G = Antenna Gain Relative to an Isotropic Antenna

R = Distance from the Antenna to the Point of Investigation (cm)

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2.3 Test Result

Operation Mode	Frequency Range (MHz)	Max Conducted Power (dBm)	Antenna Gain (dBi)	Max EIRP (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
WLAN 2.4GHz	2400 ~ 2483.5	18.00	2.00	100.00	0.0199	1.0
Bluetooth	2400 ~ 2483.5	11.04	2.00	20.14	0.0040	1.0
BLE	2400 ~ 2483.5	5.47	2.00	5.58	0.0011	1.0
WLAN 5.8GHz	5725 ~ 5850	12.85	3.00	38.46	0.0077	1.0

Note(s):

1. The device can not transmit with WIFI and BT simultaneously, so MPE is not evaluated in this configuration.
2. For 300 – 1,500MHz: Power Density limit is f/1500 mW/cm²
3. For 1,500 – 100,000MHz: Power Density limit is 1.0 mW/cm²

2.4 Conclusion

The Power Density at the position which is 20 cm far from the EUT is smaller than the General Population/Uncontrolled Exposure limit.

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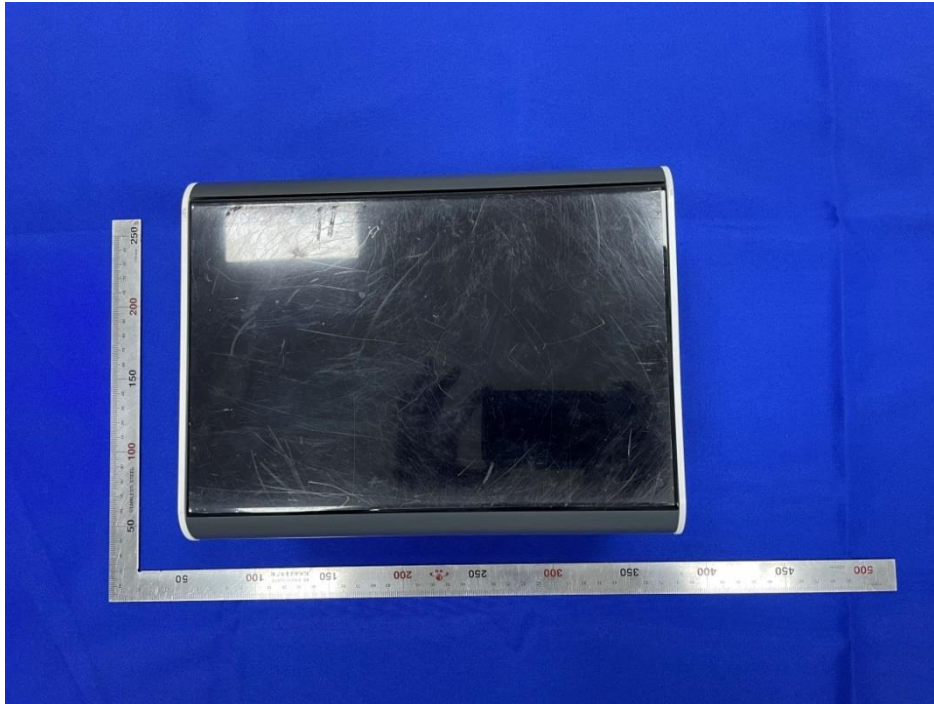
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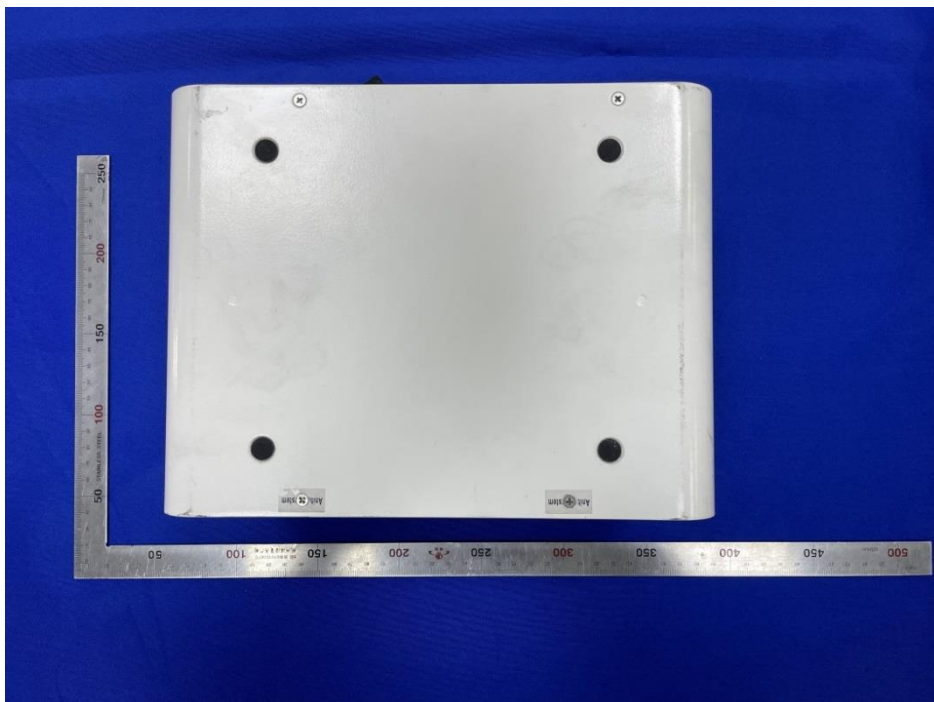
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3 Appendixes

3.1 Sample Photograph



Front of the sample



Rear of the sample

End of the report