RF Exposure Evaluation Report

Applicant:	Shenzhen Aratek Biometrics Technology Co., Ltd.
Address of Applicant:	2F, T2-A Building, ShenZhen Software Park, South Area, Hi-Tech Park, Shenzhen, Guangdong, China
Equipment Under Test (EUT)	
Product Name:	BA8200-T, BA8200
Model No.:	BA8200-T, BA8200
FCC ID:	2AGUJBA8200
Applicable standards:	FCC CFR Title 47 Part 2 Subpart J Section 2.1091
Date of sample receipt:	15 Jun., 2020
Date of Test:	16 Jun., to 08 Sep., 2020
Date of report issue:	09 Sep., 2020
Test Result:	PASS*

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*09 Sep., 2020*	*Original*

Tested by: Yaro Wu ***Date:*** *09 Sep., 2020*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *09 Sep., 2020*

Project Engineer

3 Contents

Page

4 General Information

4.1 Client Information

Applicant:	Shenzhen Aratek Biometrics Technology Co., Ltd.
Address:	2F, T2-A Building, ShenZhen Software Park, South Area, Hi-Tech Park, Shenzhen, Guangdong, China
Manufacturer/Factory:	Aratek Biometrics Technology Co., Ltd.
Address:	2F, T2-A Building, ShenZhen Software Park, South Area, Hi-Tech Park, Shenzhen, Guangdong, China

4.2 General Description of E.U.T.

Product Name:	BA8200-T, BA8200
Model No.:	BA8200-T, BA8200
Operation Frequency:	2.4G Wi-Fi: 2412MHz~2472MHz Bluetooth/ BLE: 2402MHz~2480MHz
Modulation technology:	802.11b: DSSS, 802.11g/n: OFDM Bluetooth BDR /BLE: GFSK, Bluetooth EDR: π/4-DQPSK, 8DPSK
Antenna Type:	Internal Antenna
Antenna gain:	BT/ BLE: 2.91 dBi; Wi-Fi: 2.91 dBi
Remark:	The No.: BA8200-T and BA8200 were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference that BA8200 only has facial recognition and RFID. However, BA8200-T contains facial recognition, fingerprint module, RFID and temperature module

Item	Model Number	Camera	Fingerprint	RFID	Temperature module
1	BA8200	1080P Dual HDR Camera with fill light, 105dB wide dynamic	None	ISO14443 A/B, MIFARE	None
2	BA8200-T	1080P Dual HDR Camera with fill light, 105dB wide dynamic	Optical Press	ISO14443 A/B, MIFARE	Infrared Temp Module

We pre-scanned the BA8200-T and BA8200, and found that the BA8200-T is in worse condition, so the report only reflects the worse mode data

Test Sample Condition:	The test samples were provided in good working order with no visible defects.

4.3 Operating Modes

Operating mode	Detail description
BLE mode	Keep the EUT in continuously transmitting in BLE mode
BT mode	Keep the EUT in continuously transmitting in BT mode
2.4G WIFI mode	Keep the EUT in continuously transmitting in 2.4G WIFI mode

4.4 Additions to, deviations, or exclusions from the method

No

4.5 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

4.6 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5 Technical Requirements Specification in FCC CFR Title 47 Part 2.1091

5.1 Limits

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)

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 Exposures				
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
300–1500			f/300	6
1500–100,000			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
300–1500			f/1500	30
1500–100,000			1.0	30

5.2 Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

5.3 Result

Frequency (MHz)	Maximum Output power (dBm)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm^2)	Limits for General Population/ Uncontrolled Exposure (mW/cm^2)
2.4G Wi-Fi							
2412	14.25	26.61	2.91	1.95	20.00	0.0103	1.0
BT							
2441	3.95	2.48	2.91	1.95	20.00	0.0010	1.0
BLE							
2402	3.80	2.40	2.91	1.95	20.00	0.0009	1.0

Note: Just the worst case mode was shown in report.

5.4 Conclusion

The device is exempt from the RF exposure evaluation.

------End of report------