



SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/0 Aug01,2022

Report No.: SZCR230600178003

Page: 1 of 7

RF Exposure Evaluation Report

Application No.: SZCR2306001780ME
Applicant: Shenzhen New Industries Biomedical Engineering Co., Ltd.
Address of Applicant: No.23, Jinxiu East Road, Pingshan District, 518122 Shenzhen, P.R.China
Manufacturer: Shenzhen New Industries Biomedical Engineering Co., Ltd.
Address of Manufacturer: No.23, Jinxiu East Road, Pingshan District, 518122 Shenzhen, P.R.China
Factory: Shenzhen New Industries Biomedical Engineering Co., Ltd.
Address of Factory: No.23, Jinxiu East Road, Pingshan District, 518122 Shenzhen, P.R.China

Equipment Under Test (EUT):
EUT Name: SNIBE-RFID Reader-M104
Model No.: SNIBE-M104
FCC ID: 2BCDJ-M104
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091

Date of Receipt: 2023-06-08
Date of Test: 2023-12-01 to 2023-12-08
Date of Issue: 2023-12-08

Test Result :	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager



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SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch EMC Test Laboratory

No.1 Workshop, W-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·广东·深圳市南山区科技园中区W-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com



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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2023-12-08		Original

Authorized for issue by:			
		<i>Edison Li</i>	
		Edison Li/Project Engineer	
		<i>Eric Fu</i>	
		Eric Fu/Reviewer	



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 中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com



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 中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

4 General Information

4.1 General Description of EUT

Power supply:	DC 3.3V
Nominal Frequency:	13.56MHz
Modulation Technique:	ASK
Antenna Type:	PCB Antenna(coil)

Remark:The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.3 Test Facility

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

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.



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5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: 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 part1.1307(b)

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 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

F= Frequency in MHz

Friis Formula

Friis transmission formula: $Pd = (Pout \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

Pd is the limit of MPE=824/f V/m . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



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4.1.3 EUT RF Exposure Evaluation

Mode	E-field strength(dBuV/m)	E-field strength(V/m)	E-field strength Limit(V/m)	Verdict
NFC	60.40	0.001047	60.77	Pass

Note: Refer to report No. SZCR230600178002 or EUT test Max Conducted Peak Output Power value.

The distancer (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement;

$$V/m = 10^{((dBuV/m) - 120) / 20}$$

- End of the Report -