


RF EXPOSURE EVALUATION REPORT

Application No.: GZCR2208001022HS
Applicant: Xiamen Intretech Inc.
Address of Applicant: No. 100, Dongfu West Road, Haicang District, Xiamen, Fujian, China
Manufacturer: Xiamen Intretech Inc.
Address of Manufacturer: No. 100, Dongfu West Road, Haicang District, Xiamen, Fujian, China
Factory: Xiamen Intretech Inc.
Address of Factory: No. 100, Dongfu West Road, Haicang District, Xiamen, Fujian, China
Equipment Under Test (EUT):
EUT Name: NC° Thermometer (Gen3)
Model No.: NCTG3
Standard(s) : 47 CFR Part 1.1310
47 CFR Part 2.1093
Date of Receipt: 2022-08-15
Date of Evaluation: 2022-09-30 to 2022-09-30
Date of Issue: 2022-10-20

Evaluation Result:	Pass*
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* In the configuration evaluated, the EUT complied with the standards specified above.



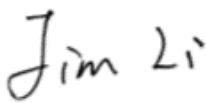
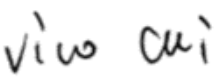
Kobe Jian
EMC Laboratory Manager



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Revision Record			
Version	Report No.	Date	Remark
01	GZCR220800102204	2022-10-20	Original

Authorized for issue by			
			
		<hr/> Jim Li/Project Engineer	
			
		<hr/> Vico Cui/Reviewer	



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2 Evaluation Summary

Item	Standard	Method	Requirement	Result
RF Exposure	47 CFR Part 2.1093	47 CFR Part 2.1093	47 CFR Part 1.1310	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.



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4 General Information

4.1 Details of E.U.T.

Power supply: DC 3V = Size "CR2032" Lithium battery x1
Cable(s): N/A
For BT
Operation Frequency: 2402MHz to 2480MHz
Bluetooth Version: V5.0 LE
Modulation Type: GFSK
Number of Channels: 40
Channel Spacing: 2MHz
Antenna Type: PCB Antenna
Antenna Gain: -6.91 dBi.
For NFC
Operation Frequency: 13.56MHz
Modulation Type: ASK
Antenna Type: Coil Antenna
Antenna Gain: N/A

4.2 Evaluating Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



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4.3 Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.4 Deviation from Standards

None

4.5 Abnormalities from Standard Conditions

None



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5 Technical Requirements Specification

5.1 RF Exposure Evaluation

5.1.1 Limit & Test Method

According to §1.1310, the limit for general population/uncontrolled exposures:

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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. * = Plane-wave equivalent power density.

Note: Limit for 13.56MHz is 60.77 V/m

According to §2.1093, the limit for Radiofrequency radiation exposure evaluation: portable devices.

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and *f* is in GHz, *d* is the separation distance (cm), and *ERP*_{20cm} is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.



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5.1.2 Conclusion

Normal use condition for Distance between antenna and body:	<=5 mm
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Test Mode	Frequency (MHz)	EIRP/ E-field strength	P/E-field strength	Pth/E-field strength
BLE_1M	2402	-3.80 dBm	0.417 mW	2.79 mW **
	2440	-3.90 dBm	0.407 mW	2.75 mW **
	2480	-4.28 dBm	0.373 mW	2.72 mW **
NFC	13.56	23.44 dBuV/m@10m	59.437 V/m@0.005m*	60.77 V/m

*: E-field (dBuV/m @0.005m) = E-field (dBuV/m @10m) + 40log(10/0.005)=155.48 dBuV/m @0.005m

E-field (V/m)= 10^[E-field (dBuV/m) /20] × 10⁻⁶=59.437 V/m@0.005m*

** Refer to formula B.1 & B.2

For example:

Where:

f = 2.480 GHz

d = 0.5 cm

ERP_{20cm} = 3060

x = -log₁₀(60/ERP_{20cm} *√f)

= -log₁₀(60/3060 *√2.48)

= -log₁₀(0.01245)

= 1.9047

So, P_{th} = ERP_{20cm} * (d/20 cm)^x

= 3060 * (0.5/20)^{1.9047}

= 3060 * (0.025)^{1.9047}

= 3060 * 0.00089

= 2.72

Since NFC 13.56MHz and BT module can't be transmitted simultaneously, there is no need to calculate the maximum rate.

According to the KDB447498 D01 section 2.2 determine the device is exclusion from SAR test.

Note: Refer to report No. GZCR220800102202 & GZCR220800102203 for EUT test Max EIRP value and E-field.



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6 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2208001022HS

- End of the Report -



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