



1 Cover Page

RF Exposure REPORT

Application No.: SHEM2101000793CR
FCC ID: 2AVEIJD-FZ103A1C1
Applicant: Suzhou Jernano Carbon Co.,Ltd.
Address of Applicant: NO.398 Ruoshui Road, Suzhou Industrial Park, Suzhou China 215123
Manufacturer: Suzhou Jernano Carbon Co.,Ltd.
Address of Manufacturer: NO.398 Ruoshui Road, Suzhou Industrial Park, Suzhou China 215123
Factory: Suzhou Jernano Carbon Co.,Ltd.
Address of Factory: NO.398 Ruoshui Road, Suzhou Industrial Park, Suzhou China 215123
Equipment Under Test (EUT):
EUT Name: Carbon Nanotube Heating Film
Model No.: JD - FZ103A1C1
Add Model No.: JD - FZ101A1C1, JD - FZ102A1C1, JD - FZ104A1C1
Standard(s) : FCC Rules 47 CFR §2.1093
KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2021-01-29
Date of Test: 2021-02-02 to 2021-02-25
Date of Issue: 2021-02-26

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

Parlan Zhan

Parlan Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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Revision Record			
Version	Description	Date	Remark
00	Original	2021-02-26	/

Authorized for issue by:			
			
		Micheal Niu / Project Engineer	
			
		Parlam Zhan / Reviewer	





2 Contents

	Page
1 COVER PAGE	1
2 CONTENTS	3
3 GENERAL INFORMATION	4
3.1 GENERAL DESCRIPTION OF E.U.T.	4
3.2 DETAILS OF E.U.T.	4
3.3 TEST LOCATION.....	5
3.4 TEST FACILITY.....	5
4 TEST STANDARDS AND LIMITS	6
4.1 FCC RADIOFREQUENCY RADIATION EXPOSURE LIMITS.....	6
5 MEASUREMENT AND CALCULATION.....	7
5.1 MAXIMUM TRANSMIT POWER	7
5.2 RF EXPOSURE CALCULATION.....	7



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3 General Information

3.1 General Description of E.U.T.

Power supply:	AC Adapter Input: 100-240V,50/60Hz,1.5A Output:20V,3.25A
Test voltage:	AC 120V/60Hz

3.2 Details of E.U.T.

BT:

Antenna Gain:	1dBi (Provided by the manufacturer)
Antenna Type:	PCB Antenna
Bluetooth Version:	BT 5.0 Dual mode
Channel Spacing:	1MHz
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels:	79
Operation Frequency:	2402MHz to 2480MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)

BLE:

Antenna Gain:	1dBi(Provided by the manufacturer)
Antenna Type:	PCB Antenna
Bluetooth Version:	BT 5.0 Dual mode
Data Rate:	1Mbps
Channel Spacing:	2MHz
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz



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3.3 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888

Fax: +86 512 5737 0818

No tests were sub-contracted.

3.4 Test Facility

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

• **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• **FCC (Designation Number: CN1172)**

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• **ISED (CAB identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

• **VCCI (Member No.: 1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1600, C-1707, T-1499, G-10216 respectively.



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4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max power of channel})/(\text{min test separation distance})]*[\sqrt{f}(\text{GHz})] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion. For 2.4G band device, the limit of worse case is

$$P_{\text{max}} \leq 3.0 * D_{\text{min}} / \sqrt{f} = 3.0 * 5 / \sqrt{2.480} = 9.525 \text{ mW}$$



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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM210100079301 & SHEM210100079302

Test Data:

For BT Classic mode

Test mode	Channel	Peak Power (dBm)	Peak Power (mW)
GFSK	2402	2.69	1.86
	2441	0.87	1.22
	2480	0.99	1.26
$\pi/4$ DQPSK	2402	4.78	3.01
	2441	2.91	1.95
	2480	3.12	2.05
8DPSK	2402	5.08	3.22
	2441	3.53	2.25
	2480	3.74	2.37

For BLE mode

Test mode	Channel	Peak Power (dBm)	Peak Power (mW)
GFSK	2402	2.35	1.72
	2440	0.57	1.14
	2480	0.97	1.25

5.2 RF Exposure Calculation

The Conducted Output Power is 3.22mW(5.08 dBm). The Maximum Conducted Output Power is 3.55mW (5.5 dBm)

According to the formula.

The Maximum Conducted Output Power = 3.55 mW < 9.525mW

So the SAR report is not required.

--End of the Report--



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