# TEST REPORT

| | |
|---|---|
| **Application No.:** | SZCR2407002912MO |
| **Applicant:** | Fibocom Wireless Inc. |
| **Address of Applicant:** | 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan,,Shenzhen, China |
| **Manufacturer:** | Fibocom Wireless Inc. |
| **Address of Manufacturer:** | 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan,,Shenzhen, China |
| **EUT Description:** | 5G Module |
| **Model No.:** | FG131-NA |
| **Trade Mark:** | Fibocom |
| **FCC ID:** | ZMOFG131NA |
| **Standards:** | FCC 47 CFR Part 2.1091<br>FCC KDB 447498 D01 v06 |
| **Date of Receipt:** | 2024/07/25 |
| **Date of Issue:** | 2024/08/16 |
| **Test Result:** | **PASS*** |

* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager



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# 1 Version

| Revision Record | | | | |
|---|---|---|---|---|
| **Version** | **Chapter** | **Date** | **Modifier** | **Remark** |
| 01 | | 2024/08/16 | | Original |

| | | |
|---|---|---|
| **Authorized for issue by:** | | |
| | | Donjon Huang<br>**Donjon Huang/Project Engineer** |
| | | Eric Fu<br>**Eric Fu/Reviewer** |

# Contents

# 2 General Information

## 2.1 Client Information

| | |
|---|---|
| Applicant: | Fibocom Wireless Inc. |
| Address of Applicant: | 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan,,Shenzhen, China |
| Manufacturer: | Fibocom Wireless Inc. |
| Address of Manufacturer: | 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan,,Shenzhen, China |

## 2.2 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 (Member No. 1937)**

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. Shenzhen EMC laboratory 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: CN1336**

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

Designation Number: CN1336. Test Firm Registration Number: 787754.

- **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.

## 2.3 General Description of EUT

| | | | | |
|---|---|---|---|---|
| EUT Description: | 5G Module | | | |
| Model No.: | FG131-NA | | | |
| Trade Mark: | Fibocom | | | |
| Hardware Version: | V1.1 | | | |
| Software Version: | 89170.1000.00.01.04.04 | | | |
| Power Supply: | 3.8V | | | |
| Antenna Type: | ☒ External, ☐ Integrated | | | |
| Antenna Gain: | LTE Band 2: | 2.85dBi | LTE Band 4: | 2.98dBi |
| | LTE Band 5: | 1.32dBi | LTE Band 7: | 2.21dBi |
| | LTE Band 12: | 1.61dBi | LTE Band 13: | 1.83dBi |
| | LTE Band 14: | 2.19dBi | LTE Band 17: | 1.61dBi |
| | LTE Band 25: | 2.88dBi | LTE Band 26: | 1.32dBi |
| | LTE Band 30: | -2.22dBi | LTE Band 38: | 1.71dBi |
| | LTE Band 41: | 2.21dBi | LTE Band 42: | -4.13dBi |
| | LTE Band 43: | -4.13dBi | LTE Band 48: | -4.13dBi |
| | LTE Band 66: | 2.98dBi | LTE Band 71: | 1.61dBi |
| | NR Band n2: | 2.85dBi | NR Band n5: | 1.32dBi |
| | NR Band n7: | 2.21dBi | NR Band n12: | 1.61dBi |
| | NR Band n13: | 1.83dBi | NR Band n14: | 2.19dBi |
| | NR Band n25: | 2.85dBi | NR Band n26: | 1.32dBi |
| | NR Band n30: | -2.22dBi | NR Band n38: | 1.71dBi |
| | NR Band n41: | 2.21dBi | NR Band n48: | -4.13dBi |
| | NR Band n66: | 2.98dBi | NR Band n70: | 2.86dBi |
| | NR Band n71: | 1.61dBi | NR Band n77: | -4.13dBi |
| | NR Band n78: | -4.13dBi | | |
| | Note:<br>The antenna gain are derived from the gain information report provided by the manufacturer. | | | |
| Remark:<br>As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information. | | | | |

# 3 RF Exposure Evaluation

## 3.1 RF Exposure Compliance Requirement

### 3.1.1 Limits

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm2) | 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/f2) | 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/f2) | 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
RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4* Pi * R^2)$

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 id the limit of MPE, 1 mW/cm2. 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.

### 3.1.2 Test Procedure

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

### 3.1.3 EUT RF Exposure Evaluation

Output Power Into Antenna & RF Exposure Evaluation Distance:
This confirmed that the device comply with MPE limit.

| Operating Band | Frequency (MHz) | Antenna Gain (dBi) | Max Conducted Power (dBm) | EIRP(ERP) (dBm) | EIRP(ERP) Limit (dBm) | Power Density at R = 20 cm (mW/cm2) | Limit (mW/cm2) | Gain according to EIRP(ERP) (dBi) | Gain according to Pd (dBi) | Max Gain Allowed (dBi) | conclusion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LTE Band 2 | 1850.7 | 2.85 | 25.50 | 28.35 | 33.00 | 0.1361 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| LTE Band 4 | 1710.7 | 2.98 | 25.50 | 28.48 | 30.00 | 0.1402 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| LTE Band 5 | 824.7 | 1.32 | 25.50 | 24.67 | 38.45 | 0.0957 | 0.5498 | 15.10 | 8.91 | 8.91 | Pass |
| LTE Band 7 | 2502.5 | 2.21 | 25.50 | 27.71 | 33.00 | 0.1174 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| LTE Band 12 | 699.7 | 1.61 | 25.50 | 24.96 | 34.77 | 0.1023 | 0.4665 | 11.42 | 8.20 | 8.20 | Pass |
| LTE Band 13 | 779.5 | 1.83 | 25.50 | 25.18 | 34.77 | 0.1076 | 0.5197 | 11.42 | 8.66 | 8.66 | Pass |
| LTE Band 14 | 790.5 | 2.19 | 25.50 | 25.54 | 34.77 | 0.1169 | 0.5270 | 11.42 | 8.73 | 8.73 | Pass |
| LTE Band 17 | 706.5 | 1.61 | 25.50 | 24.96 | 34.77 | 0.1023 | 0.4710 | 11.42 | 8.24 | 8.24 | Pass |
| LTE Band 25 | 1850.7 | 2.88 | 25.50 | 28.38 | 33.00 | 0.1370 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| LTE Band 26(814-824) | 814.7 | 1.32 | 25.50 | 24.67 | NA | 0.0957 | 0.5431 | NA | 8.86 | 8.86 | Pass |
| LTE Band 26(824-849) | 824.7 | 1.32 | 25.50 | 24.67 | 38.45 | 0.0957 | 0.5498 | 15.10 | 8.91 | 8.91 | Pass |
| LTE Band 30 | 2307.5 | -2.22 | 25.50 | 23.28 | 23.98 | 0.0423 | 1.0000 | -1.52 | 11.51 | -1.52 | Pass |
| LTE Band 38 | 2572.5 | 1.71 | 25.50 | 27.21 | 33.00 | 0.1046 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| LTE Band 41 | 2498.5 | 2.21 | 25.50 | 27.71 | 33.00 | 0.1174 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| LTE Band 41(PC2) | 2498.5 | 2.21 | 28.50 | 30.71 | 33.00 | 0.2343 | 1.0000 | 4.50 | 8.51 | 4.50 | Pass |
| LTE Band 42(3450-3550) | 3452.5 | -4.13 | 25.50 | 21.37 | 30.00 | 0.0273 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| LTE Band 42(3550-3600)(Part96) | 3552.5 | -4.13 | 25.50 | 21.37 | 30.00 | 0.0273 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| LTE Band 43(3700-3800) | 3702.5 | -4.13 | 25.50 | 21.37 | 30.00 | 0.0273 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| LTE Band 43(3600-3700)(Part96) | 3602.3 | -4.13 | 25.50 | 21.37 | 30.00 | 0.0273 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| LTE Band 48 | 3552.5 | -4.13 | 25.50 | 21.37 | 23.00 | 0.0273 | 1.0000 | -2.50 | 11.51 | -2.50 | Pass |
| LTE Band 66 | 1710.7 | 2.98 | 25.50 | 28.48 | 30.00 | 0.1402 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| LTE Band 71 | 665.5 | 1.61 | 25.50 | 24.96 | 34.77 | 0.1023 | 0.4437 | 11.42 | 7.98 | 7.98 | Pass |

| Operating Band | Frequency (MHz) | Antenna Gain (dBi) | Max Conducted Power (dBm) | EIRP(ERP) (dBm) | EIRP(ERP) Limit (dBm) | Power Density at R = 20 cm (mW/cm2) | Limit (mW/cm2) | Gain according to EIRP(ERP) (dBi) | Gain according to Pd (dBi) | Max Gain Allowed (dBi) | conclusion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NR Band n2 | 1852.5 | 2.85 | 25.50 | 28.35 | 33.00 | 0.1361 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| NR Band n5 | 826.5 | 1.32 | 25.50 | 24.67 | 38.45 | 0.0957 | 0.5510 | 15.10 | 8.92 | 8.92 | Pass |
| NR Band n7 | 2502.5 | 2.21 | 25.50 | 27.71 | 33.00 | 0.1174 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| NR Band n12 | 701.5 | 1.61 | 25.50 | 24.96 | 34.77 | 0.1023 | 0.4677 | 11.42 | 8.21 | 8.21 | Pass |
| NR Band n13 | 779.5 | 1.83 | 25.50 | 25.18 | 34.77 | 0.1076 | 0.5197 | 11.42 | 8.66 | 8.66 | Pass |
| NR Band n14 | 790.5 | 2.19 | 25.50 | 25.54 | 34.77 | 0.1169 | 0.5270 | 11.42 | 8.73 | 8.73 | Pass |
| NR Band n25 | 1852.5 | 2.85 | 25.50 | 28.35 | 33.00 | 0.1361 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| NR Band n26(814-824) | 816.5 | 1.32 | 25.50 | 24.67 | NA | 0.0957 | 0.5443 | NA | 8.87 | 8.87 | Pass |
| NR Band n26(824-849) | 826.5 | 1.32 | 25.50 | 24.67 | 38.45 | 0.0957 | 0.5510 | 15.10 | 8.92 | 8.92 | Pass |
| NR Band n30 | 2307.5 | -2.22 | 25.50 | 23.28 | 23.98 | 0.0423 | 1.0000 | -1.52 | 11.51 | -1.52 | Pass |
| NR Band n38 | 2575.0 | 1.71 | 25.50 | 27.21 | 33.00 | 0.1046 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| NR Band n41 | 2501.0 | 2.21 | 25.50 | 27.71 | 33.00 | 0.1174 | 1.0000 | 7.50 | 11.51 | 7.50 | Pass |
| NR Band n48 | 3555.0 | -4.13 | 25.50 | 21.37 | 23.00 | 0.0273 | 1.0000 | -2.50 | 11.51 | -2.50 | Pass |
| NR Band n66 | 1712.5 | 2.98 | 25.50 | 28.48 | 30.00 | 0.1402 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| NR Band n70 | 1697.5 | 2.86 | 25.50 | 28.36 | 30.00 | 0.1364 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| NR Band n71 | 665.5 | 1.61 | 25.50 | 24.96 | 34.77 | 0.1023 | 0.4437 | 11.42 | 7.98 | 7.98 | Pass |
| NR Band n77(3450-3550) | 3455.0 | -4.13 | 25.50 | 21.37 | 30.00 | 0.0273 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| NR Band n77(3700-3980) | 3705.0 | -4.13 | 25.50 | 21.37 | 30.00 | 0.0273 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| NR Band n78(3450-3550) | 3455.0 | -4.13 | 25.50 | 21.37 | 30.00 | 0.0273 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |
| NR Band n78(3700-3800) | 3705.0 | -4.13 | 25.50 | 21.37 | 30.00 | 0.0273 | 1.0000 | 4.50 | 11.51 | 4.50 | Pass |

---End of Report---


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