



RF Exposure Evaluation Report

Application No.: AR/2021/40009
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.: FG360-NA
Trade Mark: Fibocom
FCC ID: ZMOFG360NA
Standards: 47 CFR Part 2.1091
FCC KDB 447498 D01 v06
Date of Receipt: 2021/5/7
Date of Test: 2021/5/7 to 2021/6/7
Date of Issue: 2021/6/7

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

Authorized Signature:

Derek Yang
Wireless Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch (FCC Laboratory)

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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021/6/7		Original

Authorized for issue by:		
Prepared By		Dee.Zheng (Dee Zheng) / Engineer
Checked By		Jim Huang (Jim Huang) / Reviewer





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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 Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
Post code:	518057

2.3 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.



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2.4 General Description of EUT

EUT Description::	5G module
Model No.:	FG360-NA
Trade Mark:	Fibocom
Hardware Version:	V1.0
Software Version:	81103.7000.30.02.01.09
Sample Type:	☐ Portable Device, ☒ Module
Antenna Type:	☒ External, ☐ Integrated
Antenna Gain:	WCDMA Band II:2.63dBi; WCDMA Band IV:2.86dBi; WCDMA Band V:1.32dBi; LTE Band 2:2.63dBi; LTE Band 4:2.86dBi; LTE Band 5:1.32dBi; LTE Band 7: 1.52dBi; LTE Band 12:1.61dBi; LTE Band 13:1.94dBi; LTE Band 14:2.19dBi; LTE Band 17:1.58dBi; LTE Band 25:1.93dBi; LTE Band 26:1.32dBi; LTE Band 30:0.22dBi; LTE Band 41:1.52dBi; LTE Band 48:-0.13dBi; LTE Band 66:3.76dBi; LTE Band 71:1.39dBi; LTE CA_41C:1.52dBi; N2:1.93dBi (Ant0); 1.93dBi (Ant1); 1.93dBi (Ant2); 1.93dBi (Ant3); 1.93dBi (Ant4); N25: 1.93dBi (Ant0); 1.93dBi (Ant1); 1.93dBi (Ant2); 1.93dBi (Ant3); 1.93dBi (Ant4); N41: 2.45dBi (Ant0); 2.45dBi (Ant1); 2.45dBi (Ant2); 2.45dBi (Ant3); 2.45dBi (Ant4); N66: 3.76dBi (Ant0); 3.76dBi (Ant1); 3.76dBi (Ant2); 3.76dBi (Ant3); 3.76dBi (Ant4); N71: 1.39dBi (Ant0); 1.39dBi (Ant1); 1.39dBi (Ant2); 1.39dBi (Ant3); 1.39dBi (Ant4);



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/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
 *=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: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is 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.



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Shenzhen Branch, Testing Center, FCC Laboratory

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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

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.0 / 2.0 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Max Conducted Average Power (dBm)	Output Power to Antenna (dBm)	ERP (ERP) Limit (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Gain according to ERP (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	conclusion
WCDMA B2	1852.4	2.63	25.00	27.63	33.00	316.2278	0.1153	1.0000	8.00	12.01	8.00	Pass
WCDMA B4	1712.4	2.86	25.00	27.86	30.00	316.2278	0.1215	1.0000	5.00	12.01	5.00	Pass
WCDMA B5	826.4	1.32	25.00	24.17	38.45	316.2278	0.0853	0.5509	15.60	9.41	9.41	Pass
LTE B2	1880	2.63	25.00	27.63	33.00	316.2278	0.1153	1.0000	8.00	12.01	8.00	Pass
LTE B4	1710.7	2.86	25.00	27.86	30.00	316.2278	0.1215	1.0000	5.00	12.01	5.00	Pass
LTE B5	824.70	1.32	25.00	24.17	38.45	316.2278	0.0853	0.5498	15.60	9.41	9.41	Pass
LTE B7	2502.50	1.52	25.00	26.52	33.00	316.2278	0.0893	1.0000	8.00	12.01	8.00	Pass
LTE B12	699.70	1.61	25.00	24.46	34.77	316.2278	0.0911	0.4665	11.92	8.70	8.70	Pass
LTE B13	779.50	1.94	25.00	24.79	34.77	316.2278	0.0863	0.5197	11.92	9.16	9.16	Pass
LTE B14	790.5	2.19	25.00	25.04	34.77	316.2278	0.1042	0.5270	11.92	9.23	9.23	Pass
LTE B17	706.5	1.58	25.00	24.43	34.77	316.2278	0.0905	0.4710	11.92	8.74	8.74	Pass
LTE B25	1850.7	1.93	25.00	26.93	33.00	316.2278	0.0981	1.0000	8.00	12.01	8.00	Pass
LTE B26(824-849)	824.7	1.32	25.00	24.17	38.45	316.2278	0.0853	0.5498	15.60	9.41	9.41	Pass
LTE B30	2307.5	0.22	23.50	23.72	24.00	223.8721	0.0469	1.0000	0.50	13.51	0.50	Pass
LTE B41	2498.5	1.52	27.50	29.02	33.00	562.3413	0.1588	1.0000	5.50	9.51	5.50	Pass
LTE CA 41C	2498.5	1.52	24.50	26.02	33.00	281.8383	0.0796	1.0000	8.50	12.51	8.50	Pass
LTE B41 UL MIMO	2498.5	1.52	26.00	27.52	33.00	398.1072	0.1124	1.0000	7.00	11.01	7.00	Pass
LTE B48	3552.5	-0.13	22.50	22.37	23.00	177.8279	0.0343	1.0000	0.50	14.51	0.50	Pass
LTE B66	1710.7	3.76	24.50	28.26	30.00	281.8383	0.1333	1.0000	5.50	12.51	5.50	Pass
LTE B71	665.5	1.32	25.00	24.17	34.77	316.2278	0.0853	0.4437	11.92	8.48	8.48	Pass
NR Band N2	1880	1.93	25.00	26.93	33.00	316.2278	0.0881	1.0000	8.00	12.01	8.00	Pass
NR Band N25	1850.7	1.93	25.00	26.93	33.00	316.2278	0.0981	1.0000	8.00	12.01	8.00	Pass
NR Band N41	2498.5	2.45	27.50	29.95	33.00	562.3413	0.1967	1.0000	5.50	9.51	5.50	Pass
NR Band N66	1710.7	3.76	25.00	28.76	30.00	316.2278	0.1495	1.0000	5.00	12.01	5.00	Pass
NR Band N71	665.5	1.39	25.00	28.76	34.77	316.2278	0.1495	1.0000	9.77	12.01	9.77	Pass

Due to the EUT support NR interband CA N41A-N71A,N25A-N71A,N25A-N41A,N41A-N66A,N66A-N71A
LTE interband CA 2A-12A,12A-66A

Both LTE and NR band can transmit simultaneously, the formula of the calculated the MPE is:

CPD1/ LPD1+ CPD2/ LPD2+.....etc.<1

CPD=Calculation power density

LPD= Limit of power density

Therefore, the worst-case situation is 0.1954+0.1333=0.3287,which is less than “1”, this confirmed that the device comply with MPE limit.

The End

