



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

SZEMC-TRF-01 Rev. A/1

Report No.: SZCR240700284004

Page: 1 of 8

TEST REPORT

Application No: SZCR2407002840MO
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 RedCap Module
Model No.: FG132-NA
Trade Mark: Fibocom
FCC ID: ZMOFG132NA
Standards: FCC 47 CFR Part 2.1091
FCC KDB 447498 D01 v06
Date of Receipt: 2024/07/22
Date of Issue: 2024/08/26

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

Authorized Signature:

Keny Xu

EMC Laboratory Manager



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Shenzhen Branch EMC Laboratory

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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2024/08/26		Original

Authorized for issue by:		
		
		Donjon Huang/Project Engineer
		
		Eric Fu/Reviewer



Contents

1	Version	2
2	General Information	4
2.1	Client Information	4
2.2	Test Facility	4
2.3	General Description of EUT	5
3	RF Exposure Evaluation	6
3.1	RF Exposure Compliance Requirement	6



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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 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 RedCap Module			
Model No.:	FG132-NA			
Trade Mark:	Fibocom			
Hardware Version:	V1.0			
Software Version:	19003.1000.40.02.01.01			
Power Supply:	DC3.8V			
Antenna Type:	<input checked="" type="checkbox"/> External, <input type="checkbox"/> Integrated			
HPUE Power Class:	Class 2: LTE Band 38; LTE Band 41; LTE Band 42; LTE Band 43;			
Antenna Gain:	LTE Band 2:	2.85dBi (Ant0)	LTE Band 4:	2.98dBi (Ant0)
	LTE Band 5:	1.32dBi (Ant0)	LTE Band 7:	2.21dBi (Ant0)
	LTE Band 12:	1.61dBi (Ant0)	LTE Band 13:	1.83dBi (Ant0)
	LTE Band 14:	2.19dBi (Ant0)	LTE Band 17:	1.61dBi (Ant0)
	LTE Band 25:	2.85dBi (Ant0)	LTE Band 26:	1.32dBi (Ant0)
	LTE Band 30:	0.22dBi (Ant0)	LTE Band 38:	1.71dBi (Ant0)
	LTE Band 41:	2.21dBi (Ant0)	LTE Band 42:	-0.13dBi (Ant0)
	LTE Band 43:	-0.13dBi (Ant0)	LTE Band 48:	-0.13dBi (Ant0)
	LTE Band 66:	2.98dBi (Ant0)	LTE Band 71:	1.61dBi (Ant0)
	NR Band n2:	2.85dBi (Ant0)	NR Band n5:	1.32dBi (Ant0)
	NR Band n7:	2.21dBi (Ant0)	NR Band n12:	1.61dBi (Ant0)
	NR Band n13:	1.83dBi (Ant0)	NR Band n14:	2.19dBi (Ant0)
	NR Band n25:	2.85dBi (Ant0)	NR Band n26:	1.32dBi (Ant0)
	NR Band n30:	0.22dBi (Ant0)	NR Band n38:	1.71dBi (Ant0)
	NR Band n41:	2.21dBi (Ant0)	NR Band n48:	-0.13dBi (Ant0)
	NR Band n66:	2.98dBi (Ant0)	NR Band n70:	2.86dBi (Ant0)
	NR Band n71:	1.61dBi (Ant0)	NR Band n77:	2.95dBi (Ant0)
	NR Band n78:	-0.13dBi (Ant0)		
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.			
	Remark: 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/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.



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:

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/cm ²)	Limit (mW/cm ²)	Gain according to EIRP(ERP) (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	conclusion
LTE Band 2	1850.7	2.85	25.00	27.85	33.00	0.1213	1.0000	8.00	12.01	8.00	Pass
LTE Band 4	1710.7	2.98	25.00	27.98	30.00	0.1249	1.0000	5.00	12.01	5.00	Pass
LTE Band 5	824.7	1.32	25.00	24.17	38.45	0.0853	0.5498	15.60	9.41	9.41	Pass
LTE Band 7	2502.5	2.21	25.00	27.21	33.00	0.1046	1.0000	8.00	12.01	8.00	Pass
LTE Band 12	699.7	1.61	25.00	24.46	34.77	0.0911	0.4665	11.92	8.70	8.70	Pass
LTE Band 13	779.5	1.83	25.00	24.68	34.77	0.0959	0.5197	11.92	9.16	9.16	Pass
LTE Band 14	790.5	2.19	25.00	25.04	34.77	0.1042	0.5270	11.92	9.23	9.23	Pass
LTE Band 17	706.5	1.61	25.00	24.46	34.77	0.0911	0.4710	11.92	8.74	8.74	Pass
LTE Band 25	1850.7	2.85	25.00	27.85	33.00	0.1213	1.0000	8.00	12.01	8.00	Pass
LTE Band 26(814-824)	814.7	1.32	25.00	24.17	NA	0.0853	0.5431	NA	9.36	9.36	Pass
LTE Band 26(824-849)	824.7	1.32	25.00	24.17	38.45	0.0853	0.5498	15.60	9.41	9.41	Pass
LTE Band 30	2307.5	0.22	23.00	23.22	23.98	0.0418	1.0000	0.98	14.01	0.98	Pass
LTE Band 38	2572.5	1.71	25.00	26.71	33.00	0.0933	1.0000	8.00	12.01	8.00	Pass
LTE Band 38(HPUE)	2572.5	1.71	28.00	29.71	33.00	0.1861	1.0000	5.00	9.01	5.00	Pass
LTE Band 41	2498.5	2.21	25.00	27.21	33.00	0.1046	1.0000	8.00	12.01	8.00	Pass
LTE Band 41(HPUE)	2498.5	2.21	28.00	30.21	33.00	0.2088	1.0000	5.00	9.01	5.00	Pass
LTE Band 42(3450-3550)	3452.5	-0.13	25.00	24.87	30.00	0.0611	1.0000	5.00	12.01	5.00	Pass
LTE Band 42(3450-3550)(HPUE)	3452.5	-0.13	28.00	27.87	30.00	0.1218	1.0000	2.00	9.01	2.00	Pass
LTE Band 42(3550-3600)	3552.5	-0.13	25.00	24.87	30.00	0.0611	1.0000	5.00	12.01	5.00	Pass
LTE Band 42(3550-3600)(HPUE)	3552.5	-0.13	28.00	27.87	30.00	0.1218	1.0000	2.00	9.01	2.00	Pass
LTE Band 43(3600-3700)	3602.3	-0.13	25.00	24.87	30.00	0.0611	1.0000	5.00	12.01	5.00	Pass
LTE Band 43(3600-3700)(HPUE)	3602.3	-0.13	28.00	27.87	30.00	0.1218	1.0000	2.00	9.01	2.00	Pass
LTE Band 43(3700-3800)	3702.5	-0.13	25.00	24.87	30.00	0.0611	1.0000	5.00	12.01	5.00	Pass
LTE Band 43(3700-3800)(HPUE)	3702.5	-0.13	28.00	27.87	30.00	0.1218	1.0000	2.00	9.01	2.00	Pass
LTE Band 48	3552.5	-0.13	23.00	22.87	23.00	0.0385	1.0000	0.00	14.01	0.00	Pass
LTE Band 66	1710.7	2.98	25.00	27.98	30.00	0.1249	1.0000	5.00	12.01	5.00	Pass
LTE Band 71	665.5	1.61	25.00	24.46	34.77	0.0911	0.4437	11.92	8.48	8.48	Pass

This confirmed that the device comply with MPE limit.



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SZEMC-TRF-01 Rev. A/1

Report No.: SZCR240700284004

Page: 8 of 8

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/cm ²)	Limit (mW/cm ²)	Gain according to EIRP(ERP) (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	conclusion
NR Band n2	1852.5	2.85	25.00	27.85	33.00	0.1213	1.0000	8.00	12.01	8.00	Pass
NR Band n5	826.5	1.32	25.00	24.17	38.45	0.0853	0.5510	15.60	9.42	9.42	Pass
NR Band n7	2502.5	2.21	25.00	27.21	33.00	0.1046	1.0000	8.00	12.01	8.00	Pass
NR Band n12	701.5	1.61	25.00	24.46	34.77	0.0911	0.4677	11.92	8.71	8.71	Pass
NR Band n13	779.5	1.83	25.00	24.68	34.77	0.0959	0.5197	11.92	9.16	9.16	Pass
NR Band n14	790.5	2.19	25.00	25.04	34.77	0.1042	0.5270	11.92	9.23	9.23	Pass
NR Band n25	1852.5	2.85	25.00	27.85	33.00	0.1213	1.0000	8.00	12.01	8.00	Pass
NR Band n26(814-824)	816.5	1.32	25.00	24.17	NA	0.0853	0.5443	NA	9.37	9.37	Pass
NR Band n26(824-849)	826.5	1.32	25.00	24.17	38.45	0.0853	0.5510	15.60	9.42	9.42	Pass
NR Band n30	2307.5	0.22	23.00	23.22	23.98	0.0418	1.0000	0.98	14.01	0.98	Pass
NR Band n38	2575.0	1.71	25.00	26.71	33.00	0.0933	1.0000	8.00	12.01	8.00	Pass
NR Band n41	2501.0	2.21	25.00	27.21	33.00	0.1046	1.0000	8.00	12.01	8.00	Pass
NR Band n48	3555.0	-0.13	23.00	22.87	23.00	0.0385	1.0000	0.00	14.01	0.00	Pass
NR Band n66	1712.5	2.98	25.00	27.98	30.00	0.1249	1.0000	5.00	12.01	5.00	Pass
NR Band n70	1697.5	2.86	25.00	27.86	30.00	0.1215	1.0000	5.00	12.01	5.00	Pass
NR Band n71	665.5	1.61	25.00	24.46	34.77	0.0911	0.4437	11.92	8.48	8.48	Pass
NR Band n77(3450-3550)	3455.0	2.95	25.00	27.95	30.00	0.1241	1.0000	5.00	12.01	5.00	Pass
NR Band n77(3700-3980)	3705.0	2.95	25.00	27.95	30.00	0.1241	1.0000	5.00	12.01	5.00	Pass
NR Band n78(3450-3550)	3455.0	-0.13	25.00	24.87	30.00	0.0611	1.0000	5.00	12.01	5.00	Pass
NR Band n78(3700-3800)	3705.0	-0.13	25.00	24.87	30.00	0.0611	1.0000	5.00	12.01	5.00	Pass

---End of Report---



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