



Report No.: SEWM2207000119RG03

Rev.: 01

Page: 1 of 7

## TEST REPORT

**Application No.:** SEWM2207000119RG  
**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:** CAT-M module  
**Model No.:** FB520  
**Trade Mark:** Fibocom  
**FCC ID:** ZMOFB520  
**Standards:** 47 CFR Part 2.1091  
FCC KDB 447498 D01 v06  
**Date of Receipt:** 2022/07/14  
**Date of Issue:** 2022/08/15

<b>Test Result:</b>	<b>PASS*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Panta Sun

Panta Sun  
Wireless Laboratory Manager



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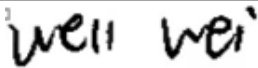
Report No.: SEWM2207000119RG03

Rev.: 01

Page: 2 of 7

## 1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2022/08/15		Original

Prepared By		 (Weller Liu) / Test Engineer
Checked By		 (Well Wei) / Reviewer



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Report No.: SEWM2207000119RG03  
Rev.: 01  
Page: 3 of 7

## 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
3.1.1	Limits .....	6
3.1.2	Test Procedure .....	7
3.1.3	EUT RF Exposure Evaluation .....	7



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Report No.: SEWM2207000119RG03

Rev.: 01

Page: 4 of 7

## 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. 6336.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• **FCC –Designation Number: CN1312**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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Report No.: SEWM2207000119RG03

Rev.: 01

Page: 5 of 7

## 2.3 General Description of EUT

EUT Description:	CAT-M module		
Model No.:	FB520		
Trade Mark:	Fibocom		
Hardware Version:	V1.4		
Software Version:	69400.1000.00.02.01.01		
Antenna Type:	External Antenna		
Antenna Gain*:	<input checked="" type="checkbox"/> Provided by client		
	GSM850:	3dBi	GSM1900: 3dBi
	LTE Cat-M1 Band 2:	3dBi	LTE Cat-M1 Band 4: 3dBi
	LTE Cat-M1 Band 5:	3dBi	LTE Cat-M1 Band 12: 3dBi
	LTE Cat-M1 Band 13:	3dBi	LTE Cat-M1 Band 14: 3dBi
	LTE Cat-M1 Band 25:	3dBi	LTE Cat-M1 Band 26: 3dBi
	LTE Cat-M1 Band 66:	3dBi	LTE Cat-M1 Band 85: 3dBi
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### 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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	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/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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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### 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:

This confirmed that the device comply with MPE limit.

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Max Conducted Average Output Power (dBm)	Output Power to Antenna (dBm)	EIRP(ERP) Limit (dBm)	Output Power to Antenna (mw)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Gain according to EIRP (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	conclusion
GSM850	824.2	3.00	34.50	37.50	38.45	339.6253	0.1348	0.5495	3.95	9.10	3.95	Pass
GSM1900	1850.2	3.00	30.00	33.00	33.00	120.5036	0.0478	1.0000	3.00	16.20	3.00	Pass
LTE Cat-M1 B2	1850.7	3.00	22.00	25.00	33.00	158.4893	0.0629	1.0000	11.00	15.01	11.00	Pass
LTE Cat-M1 B4	1710.7	3.00	22.00	25.00	30.00	158.4893	0.0629	1.0000	8.00	15.01	8.00	Pass
LTE Cat-M1 B5	824.7	3.00	22.00	25.00	38.45	158.4893	0.0629	0.5498	16.45	12.41	12.41	Pass
LTE Cat-M1 B12	699.7	3.00	22.00	25.00	34.77	158.4893	0.0629	0.4665	12.77	11.70	11.70	Pass
LTE Cat-M1 B13	779.5	3.00	22.00	25.00	34.77	158.4893	0.0629	0.5197	12.77	12.16	12.16	Pass
LTE Cat-M1 B14	790.5	3.00	22.00	25.00	34.77	158.4893	0.0629	0.5270	12.77	12.23	12.23	Pass
LTE Cat-M1 B25	1850.7	3.00	22.00	25.00	33.00	158.4893	0.0629	1.0000	11.00	15.01	11.00	Pass
LTE Cat-M1 B26 (814-824)	814.7	3.00	22.00	25.00	NA	158.4893	0.0629	0.5431	NA	12.36	12.36	Pass
LTE Cat-M1 B26 (824-849)	824.7	3.00	22.00	25.00	38.45	158.4893	0.0629	0.5498	16.45	12.41	12.41	Pass
LTE Cat-M1 B66	1710.7	3.00	22.00	25.00	30.00	158.4893	0.0629	1.0000	8.00	15.01	8.00	Pass
LTE Cat-M1 B85	700.5	3.00	22.00	25.00	34.77	158.4893	0.0629	0.4670	12.77	11.70	11.70	Pass

Remark: Frame-average power=Burst power+ Division Factors (-9.19)

---End of Report---



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