RF Exposure Evaluation Report

APPLICANT	:	**Fibocom Wireless Inc.**
EQUIPMENT	:	**LTE Module**
BRAND NAME	:	**Fibocom**
MODEL NAME	:	**L860-GL-16**
FCC ID	:	**ZMOL860GL16**
STANDARD	:	**47 CFR Part 2.1091** **FCC KDB 447498 D01 v06**

The product evaluation date was started from Mar. 20, 2023 and completed on Mar. 20, 2023. We, Sporton International Inc. (Shenzhen), would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International Inc. (Shenzhen), the test report shall not be reproduced except in full.

Si Zhang

Approved by: Si Zhang

Sporton International Inc. (Shenzhen)
1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055
People's Republic of China

Table of Contents

1. ADMINISTRATION DATA 4
1.1. Testing Laboratory 4
2. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT) 5
3. MAXIMUM RF AVERAGE OUTPUT TUNE UP POWER AMONG PRODUCTION UNITS 6
4. RF EXPOSURE LIMIT INTRODUCTION 7
5. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION 8
5.1. Standalone Power Density Calculation 8

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA0O3022-26	Rev. 01	Initial issue of report.	Mar. 23, 2023

1. Administration Data

1.1. Testing Laboratory

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory			
Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	SAR01-SZ	CN1256	421272

Applicant	
Company Name	Fibocom Wireless Inc.
Address	1101,Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan,Shenzhen, China

Manufacturer	
Company Name	Fibocom Wireless Inc.
Address	1101,Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan,Shenzhen, China

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	LTE Module
Brand Name	Fibocom
Model Name	L860-GL-16
FCC ID	ZMOL860GL16
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV : 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 14 : 788 MHz ~ 798 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 25 : 1850 MHz ~ 1915 MHz LTE Band 26 : 814 MHz ~ 849 MHz LTE Band 30 : 2305 MHz ~ 2315 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz LTE Band 48 : 3550 MHz ~ 3700 MHz LTE Band 66 : 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink) LTE: QPSK, 16QAM, 64QAM
HW Version	V1.3
SW Version	18601.5001.00.01.02.05
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This device supports HPUE for LTE band 41 with class 2 power level, so HPUE has been performed standalone power density calculation.
3. This is a variant report for L860-GL-16.For model change note, Please refer to the L860-GL-16_ Class II Permissive Change letter exhibit submitted. Based on the similarity between previous and current project, the test result is not affected by the changes, all the test cases were leveraged from original report (Sporton Report Number FA0O3022-07).

Comments and Explanations:
1. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.
2. The maximum RF output tune up power, antenna gain and the safe distance used for evaluate RF exposure were declared by manufacturer.

3. Maximum RF average output tune up power among production units

<WCDMA>

Mode		Maximum Average power(dBm)
WCDMA	Band II	24.50
	Band IV	24.50
	Band V	24.50

<LTE>

Mode		Maximum Average power(dBm)
LTE	Band 2	24.00
	Band 4	24.00
	Band 5/5B	25.00
	Band 7/7C	24.00
	Band 12	25.00
	Band 13	25.00
	Band 14	25.00
	Band 17	25.00
	Band 25	24.00
	Band 26	25.00
	Band 30	23.00
	Band 38/38C	24.00
	Band 41/41C	24.00
	Band 41-HPUE	27.00
	Band 48	22.00
	Band66/66B/66C	24.00
	Band71	25.00

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

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/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

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
WCDMA Band 2	1852.4	4.0	24.50	28.500	707.946	0.141	1.000
WCDMA Band 4	1712.4	3.0	24.50	27.500	562.341	0.112	1.000
WCDMA Band 5	826.4	3.0	24.50	27.500	562.341	0.112	0.551
LTE Band 2	1850.7	4.0	24.00	28.000	630.957	0.126	1.000
LTE Band 4	1710.7	3.0	24.00	27.000	501.187	0.100	1.000
LTE Band 5/5B	824.7	3.0	25.00	28.000	630.957	0.126	0.550
LTE Band 7/7C	2502.5	4.0	24.00	28.000	630.957	0.126	1.000
LTE Band 12	699.7	3.0	25.00	28.000	630.957	0.126	0.466
LTE Band 13	779.5	3.0	25.00	28.000	630.957	0.126	0.520
LTE Band 14	790.5	3.0	25.00	28.000	630.957	0.126	0.527
LTE Band 17	706.5	3.0	25.00	28.000	630.957	0.126	0.471
LTE Band 25	1850.7	4.0	24.00	28.000	630.957	0.126	1.000
LTE Band 26	814.7	3.0	25.00	28.000	630.957	0.126	0.543
LTE Band 30	2307.5	1.0	23.00	24.000	251.189	0.050	1.000
LTE Band 38/38C	2572.5	4.0	24.00	28.000	630.957	0.126	1.000
LTE Band 41-HPUE	2498.5	4.0	27.00	31.000	1258.925	0.251	1.000
LTE Band 48	3552.5	1.0	22.00	23.000	199.526	0.040	1.000
LTE Band 66/66B/66C	1710.7	3.0	24.00	27.000	501.187	0.100	1.000
LTE Band 71	665.5	3.0	25.00	28.000	630.957	0.126	0.444

Note:
1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

------THE END------