

RF EXPOSURE REPORT

Product: LTE module

Model Name: L830-EB-11

FCC ID: ZMOL830EB11

Applicant: Fibocom Wireless Inc.

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Nanshan, Shenzhen, China

Manufacturer: Fibocom Wireless Inc.

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Report No.: SA170816W008

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Test Date: Aug. 17, 2017 ~ Aug. 29, 2017

Issued Date: Aug. 30, 2017

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Test Report No.: SA170816W008

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA170816W008	Original release	Aug. 30, 2017

1 CERTIFICATION

PRODUCT: LTE module
BRAND NAME: Fibocom
MODEL NAME: L830-EB-11
APPLICANT: Fibocom Wireless Inc.
TESTED: Aug. 17, 2017 ~ Aug. 29, 2017
TEST SAMPLE: Identical Prototype
STANDARDS: **FCC Part 2 (Section 2.1091)**
FCC OET Bulletin 65, Supplement C (01-01)
KDB 447498 D01 General RF Exposure Guidance v06
IEEE C95.1

The above equipment has been tested by **BV 7Layers Communications Technology (Shenzhen) Co. Ltd** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Yuqiang Yin, **DATE:** Aug. 30, 2017
(Yuqiang Yin/ Engineer)

APPROVED BY : Bill Yao, **DATE:** Aug. 30, 2017
(Bill Yao / Manager)

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	LTE module	
MODEL NAME	L830-EB-11	
NOMINAL VOLTAGE	DC 3.3V	
OPERATING TEMPERATURE RANGE	-10 ~ 55°C	
MODULATION TYPE	LTE	QPSK/16QAM
OPERATING FREQUENCY	LTE	2502.5MHz ~ 2567.5MHz (FOR LTE Band7)
ANTENNA TYPE	External Antenna	
ANTENNA GAIN	5dBi for LTE Band 7	
HW VERSION	V1.0.1	
SW VERSION	18300.1008.00.01.01.05_R01	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

3 RF EXPOSURE

3.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE (MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY (mW/cm ²)	AVERAGE TIME (minutes)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

3.2 MPE CALCULATION FORMULA

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

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

3.3 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Approval**.

**3.4 CONDUCTED POWER****LTE BAND 7**

LTE Band 7							
BW	Modulation	RB Size	RB Offset	Low CH 20775	Mid CH 21100	High CH 21425	MPR
				Frequency 2502.5 MHz	Frequency 2535 MHz	Frequency 2567.5 MHz	
5 MHz	QPSK	1	0	21.82	22.10	22.32	0
		1	12	21.56	21.84	22.06	0
		1	24	21.55	21.83	22.05	0
		12	0	20.98	21.26	21.48	1
		12	6	20.93	21.21	21.43	1
		12	13	20.87	21.15	21.37	1
		25	0	20.95	21.23	21.45	1
	16QAM	1	0	20.77	21.05	21.27	1
		1	12	20.73	21.01	21.23	1
		1	24	20.66	20.94	21.16	1
		12	0	20.10	20.38	20.60	2
		12	6	20.06	20.34	20.56	2
		12	13	20.00	20.28	20.50	2
		25	0	20.05	20.33	20.55	2
BW	Modulation	RB Size	RB Offset	Low CH 20800	Mid CH 21100	High CH 21400	MPR
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz	
10 MHz	QPSK	1	0	21.86	22.14	22.36	0
		1	24	21.60	21.88	22.10	0
		1	49	21.59	21.87	22.09	0
		25	0	21.02	21.30	21.52	1
		25	12	20.97	21.25	21.47	1
		25	25	20.91	21.19	21.41	1
		50	0	20.99	21.27	21.49	1
	16QAM	1	0	20.81	21.09	21.31	1
		1	24	20.77	21.05	21.27	1
		1	49	20.70	20.98	21.20	1
		25	0	20.14	20.42	20.64	2
		25	12	20.10	20.38	20.60	2
		25	25	20.04	20.32	20.54	2
		50	0	20.09	20.37	20.59	2

BW	Modulation	RB Size	RB Offset	Low CH 20825	Mid CH 21100	High CH 21375	MPR
				Frequency 2507.5 MHz	Frequency 2535 MHz	Frequency 2562.5 MHz	
15 MHz	QPSK	1	0	21.92	22.20	22.42	0
		1	37	21.66	21.94	22.16	0
		1	74	21.65	21.93	22.15	0
		36	0	21.08	21.36	21.58	1
		36	19	21.03	21.31	21.53	1
		36	39	20.97	21.25	21.47	1
		75	0	21.05	21.33	21.55	1
	16QAM	1	0	20.87	21.15	21.37	1
		1	37	20.83	21.11	21.33	1
		1	74	20.76	21.04	21.26	1
		36	0	20.20	20.48	20.70	2
		36	19	20.16	20.44	20.66	2
		36	39	20.10	20.38	20.60	2
		75	0	20.15	20.43	20.65	2
BW	Modulation	RB Size	RB Offset	Low CH 20850	Mid CH 21100	High CH 21350	MPR
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz	
20 MHz	QPSK	1	0	21.95	22.23	22.45	0
		1	50	21.69	21.97	22.19	0
		1	99	21.68	21.96	22.18	0
		50	0	21.11	21.39	21.61	1
		50	25	21.06	21.34	21.56	1
		50	50	21.00	21.28	21.50	1
		100	0	21.08	21.36	21.58	1
	16QAM	1	0	20.90	21.18	21.40	1
		1	50	20.86	21.14	21.36	1
		1	99	20.79	21.07	21.29	1
		50	0	20.23	20.51	20.73	2
		50	25	20.19	20.47	20.69	2
		50	50	20.13	20.41	20.63	2
		100	0	20.18	20.46	20.68	2

3.5 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

LTE

Band	Frequency (MHz)	Operating Mode	Antenna Gain (dBi)	Tune-up Power (dBm)	E.I.R.P Power (mW)	Power Density (mW/cm ²)	limit (mW/cm ²)	PASS / FAIL
Band 7	2560	QPSK	5	24.0	794.328	0.158	1.00	PASS