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**FEDERAL COMMUNICATIONS COMMISSION**  
Registration number: 556682

Report No.: SZEMO071203744RFF  
Page: 1 of 9  
FCC ID: VXGLM820WC

# TEST REPORT

**Application No. :** SZEMO071203744RF  
**Applicant:** LANTIAN ELECTRONICS (SHENZHEN) CO., LIMITED  
**FCC ID:** VXGLM820WC  
**Fundamental Frequency :** 27.042MHz  
**Equipment Under Test (EUT):**  
EUT Name: Wireless Mouse  
Model No.: LM-820WC  
**Standards:** FCC PART 15, SUBPART C : 2007  
Section 15.227  
**Date of Receipt:** 20 December 2007  
**Date of Test:** 21 to 26 December 2007  
**Date of Issue:** 29 December 2007

<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:

Robinson Lo  
Laboratory Manager

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## 2 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Radiated Emission (30MHz to 1000MHz)	FCC PART 15 :2007	Section 15.227	PASS
Occupied Bandwidth	FCC PART 15 :2007	Section 15.215	PASS

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

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## **4 General Information**

### **4.1 Client Information**

Applicant Name: LANTIAN ELECTRONICS (SHENZHEN) CO., LIMITED  
Applicant Address: Building A2, Area 4,, Fuqiao Industrial Park, Qiaotou Village, Fuyong Town, Bao'an Zone, Shenzhen, China

### **4.2 Details of E.U.T.**

EUT Name: Wireless Mouse  
Item No.: LM-820WC  
Power Supply: 2.4V DC (2x1.2V "AAA" Size Batteries) for Tx.  
Power Cord: N/A-

### **4.3 Description of Support Units**

The EUT was tested as an independent unit: 27MHz radio transmitter.

### **4.4 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198 Kezhu Road, Science Town Economic & Technology Development District Guangzhou, China 510663

Tel: +86 20 8215 5555 Fax: +86 20 8207 5059

### **4.5 Other Information Requested by the Customer**

None.

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## 5 Test Results

### 5.1 Test Instruments

R&TTE RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2008
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2007	11-12-2008
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	01-06-2007	31-05-2008
5	Coaxial cable	SGS	N/A	SEL0027	20-10-2007	19-10-2008
6	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2007	11-08-2008
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	27-06-2007	26-06-2008
8	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	15-06-2007	14-06-2008

### 5.2 E.U.T. Operation

Input voltage: 3.0V DC (2x1.5V "AAA" Size Batteries) for Tx.  
Operating Environment:  
Temperature: 26.0 °C  
Humidity: 51% RH  
Atmospheric Pressure: 1004mbar  
EUT Operation: Test the EUT in transmitting mode.

### 5.3 Test Procedure & Measurement Data

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### 5.3.1 Radiated Emissions

<b>Test Requirement:</b>	FCC Part15 C Section 15.227
<b>Test Method:</b>	ANSI C63.4
<b>Test Date:</b>	26 December 2007
<b>Measurement Distance:</b>	3m (Semi-Anechoic Chamber)
<b>Requirements:</b>	Carrier frequency will not exceed 80dBuV/m AT 3m. Out of band emissions shall not exceed: 40.0 dBμV/m between 30MHz & 88MHz 43.5 dBμV/m between 88MHz & 216MHz 46.0 dBμV/m between 216MHz & 960MHz 54.0 dBμV/m above 960MHz
<b>Detector:</b>	Peak Scan (9kHz resolution bandwidth for 9kHz to 30MHz; 120kHz resolution bandwidth for 30MHz to 1000MHz)

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**27.042MHz Mode.**

Test Procedure: For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.4 section 8.2.1. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

**Horizontal.**

Test Frequency (MHz)	Peak (dB $\mu$ V/m)			Limits (dB $\mu$ V/m)	Margin (dB)		
	X	Y	Z		X	Y	Z
27.042	48.9	43.4	48.2	100.0	51.1	56.6	51.8

Test Frequency (MHz)	Average (dB $\mu$ V/m)			Limits (dB $\mu$ V/m)	Margin (dB)		
	X	Y	Z		X	Y	Z
27.042	44.7	39.1	44.1	80.0	35.3	40.9	35.9

**Vertical.**

Test Frequency (MHz)	Peak (dB $\mu$ V/m)			Limits (dB $\mu$ V/m)	Margin (dB)		
	X	Y	Z		X	Y	Z
27.042	43.1	39.2	43.0	100.0	56.9	60.8	57.0

Test Frequency (MHz)	Average (dB $\mu$ V/m)			Limits (dB $\mu$ V/m)	Margin (dB)		
	X	Y	Z		X	Y	Z
27.042	39.1	35.7	38.4	80.0	40.9	44.3	41.6

Y: EUT as per photograph in section 5.3.3 of this report.

X: As Y, but rotate EUT by 90° clockwise.

Z: As X, but rotate EUT by 90° vertically.

**Other emissions**

Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receiver was scanned from 30MHz to 1000MHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. The worst case emissions were reported.

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An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities

Test the EUT in transmitting mode.

Horizontal.

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
55.225	0.80	7.78	28.08	43.00	23.50	40.00	-16.50
81.550	1.10	7.89	27.99	39.12	20.12	40.00	-19.88
133.225	1.29	7.84	27.58	52.28	33.83	43.50	-9.67
143.950	1.31	8.48	27.49	45.32	27.62	43.50	-15.88
160.525	1.34	9.59	27.38	42.12	25.67	43.50	-17.83

Vertical.

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamplifier Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
55.225	0.80	7.56	28.08	54.79	35.07	40.00	-4.93
81.550	1.10	7.89	27.99	45.41	26.41	40.00	-13.59
114.700	1.24	8.27	27.74	47.40	29.17	43.50	-14.33
143.950	1.31	8.48	27.49	40.65	22.95	43.50	-20.55
260.950	1.73	12.53	26.87	43.25	30.64	46.00	-15.36

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

**Test Results: The unit does meet the FCC Part 15 C Section 15.227 requirements.**

### 5.3.2 Occupied Bandwidth

Test Requirement: FCC Part 15 C Section 15.215 (C) and Section 15.227.

Test Method: ANSI C63.4

Operation within the band 26.960 – 27.280 MHz .

Test Date: 21 December 2007

**26.960–27.280MHz Mode.**

Requirements: Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission

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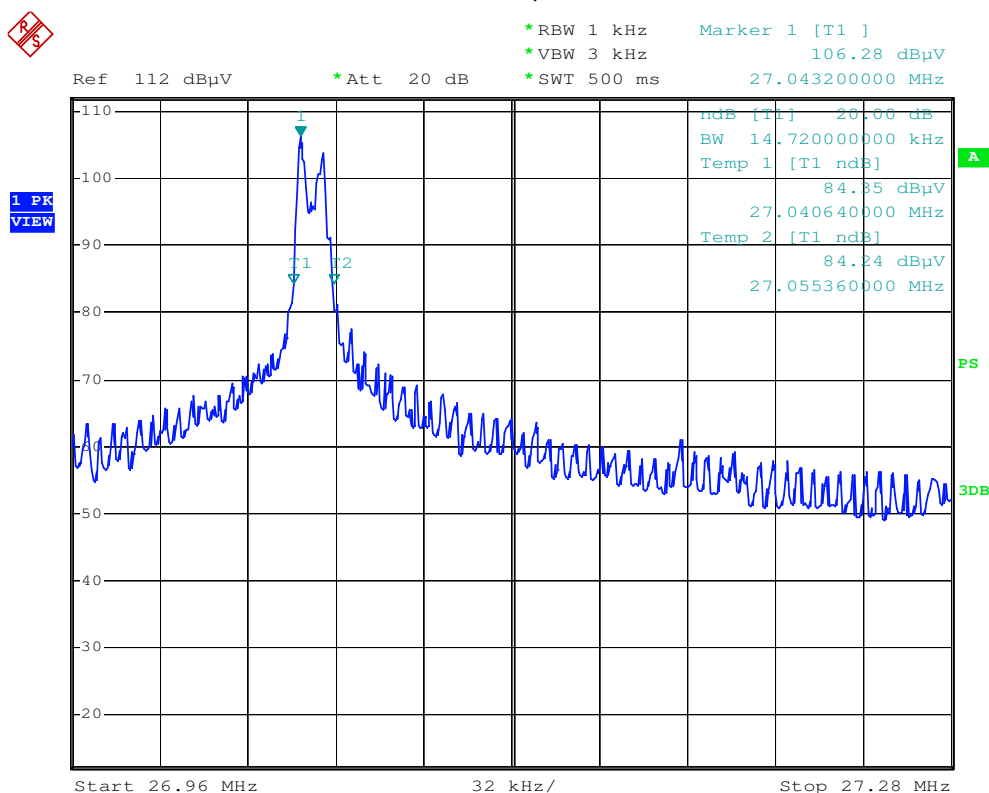
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is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the 20 dB bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Method of measurement:

The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector. The vertical Scale is set to 10dB per division. The horizontal scale is set to 32KHz per division.



Date: 21.DEC.2007 15:04:47

The results: The unit does meet the FCC Part 15 C Section 15.215 requirements

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