FCC PART 15.227

MEASUREMENT AND TEST REPORT

FOR

JUNENG ELETRONICS TECHNOLOGY CO., LTD.

Hua Qiang Road, Xin Cheng Zone, Shi Long Town, Dong Guan City,

Guangdong, China

FCC ID: UM63902

Report Concerns: Original Report	**Equipment Type:** Optical Wireless Mouse
Model:	JM-39R
Report No.:	STR10038026I
Test/Witness Engineer:	Seven Song
Test Date:	2010-03-06 to 2010-03-13
Issue Date:	2010-03-15
Prepared By:	**SEM.Test Compliance Service Co., Ltd.** 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101)
Approved & Authorized By:	Jandy So / PSQ Manager

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	JUNENG ELECTRONICS TECHNOLOGY CO., LTD.
Address of applicant:	Hua Qiang Road, Xin Cheng Zone, Shi Long Town, Dong Guan City, Guangdong, China
Manufacturer:	JUNENG ELECTRONICS TECHNOLOGY CO., LTD.
Address of manufacturer:	Hua Qiang Road, Xin Cheng Zone, Shi Long Town, Dong Guan City, Guangdong, China

General Description of E.U.T

Items	Description
EUT Description:	Optical Wireless Mouse
Trade Name:	/
Model No.:	JM-39R
Rated Voltage:	DC 3V Battery
Output Current:	30mA
Frequency Range:	27.045MHz
Antenna Type:	Integral Antenna
Size:	12.2X6.2X3.8 cm
For more information refer to the circuit diagram form and the user's manual.	

The test data gathered are from a production sample, provided by the manufacturer.

1.2 Test Standards

The following report of is prepared on behalf of the JUNENG ELECTRONICS TECHNOLOGY CO., LTD. in accordance with FCC Part 15, Subpart C, and section 15.203,15.205,15.209 and 15.227 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203,15.205,15.209 and 15.227 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission/immunity, should be checked to ensure compliance has been maintained.

1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard

for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

1.5 Test Facility

- **FCC – Registration No.: 994117**
  SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**
  The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

1.6 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components. The test software is started while the whole system is on.

1.7 Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number
ASUS	Notebook	XR50	/

1.8 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Cord/Without Cord
/	/	/	/

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	Compliant
§15.209	Radiated Emission Limit	Compliant
§15.227(a)	Field Strength	Compliant
§15.227(b)	Out of Band Emission	Compliant

3. §15.203 - ANTENNA REQUIREMENT

3.1 Standard Applicable

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

3.2 Test Result

This product has a permanent antenna, fulfill the requirement of this section.

4. §15.205, §15.209, §15.227- RADIATED EMISSION

4.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±4.0 dB.

4.2 Standard Applicable

According to §15.227(a), The field strength of any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

According to §15.227(b) The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in §15.209.

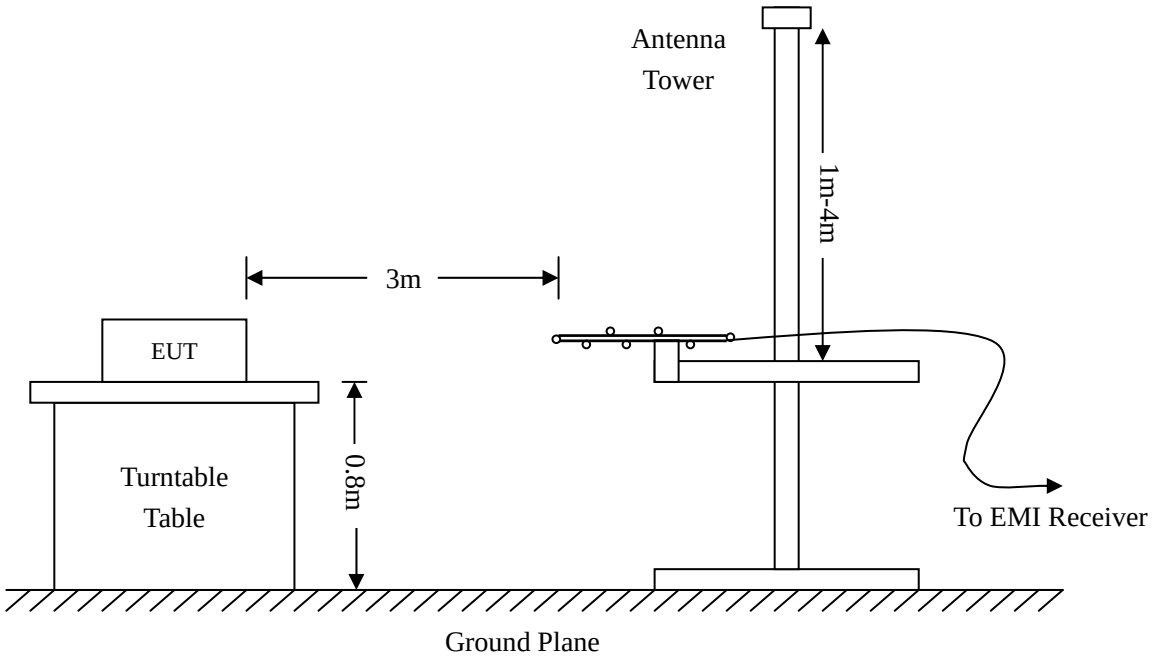
4.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2009-08-12	2010-08-11
Positioning Controller	C&C	CC-C-1F	N/A	2009-08-12	2010-08-11
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2009-07-21	2010-07-20
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2009-07-21	2010-07-20
Horn Antenna	SCHWARZBECK	BBHX 9120	9120-426	2009-07-21	2010-07-20
RF Switch	EM	EMSW18	SW060023	2009-08-12	2010-08-11
Amplifier	Agilent	8447F	3113A06717	2009-08-12	2010-08-11
Coaxial Cable	SCHWARZBECK	AK9513	9513-10	2009-08-12	2010-08-11
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	25498514	2009-08-12	2010-08-11

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

4.4 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 15.227(a) and FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading – Corr. Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

4.6 Environmental Conditions

Temperature:	26° C
Relative Humidity:	52%
ATM Pressure:	1022 mbar

4.7 Summary of Test Results/Plots

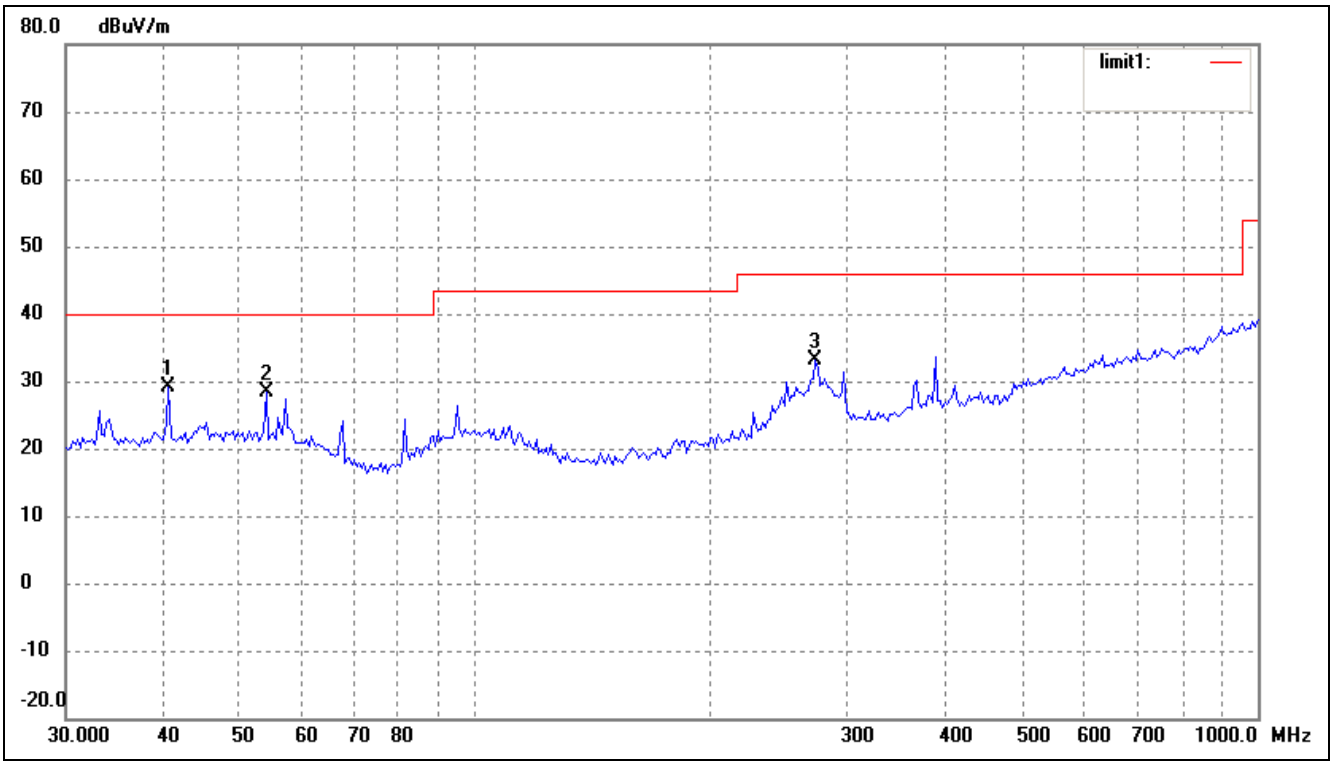
According to the data below, the FCC Part 15.205, 15.209 and 15.227 standards, and had the worst margin of:

-6.85 dBμV at **40.5837 MHz** in the **Vertical** polarization, **30 MHz to 1 GHz, 3Meters**

Test Mode: Transmitting

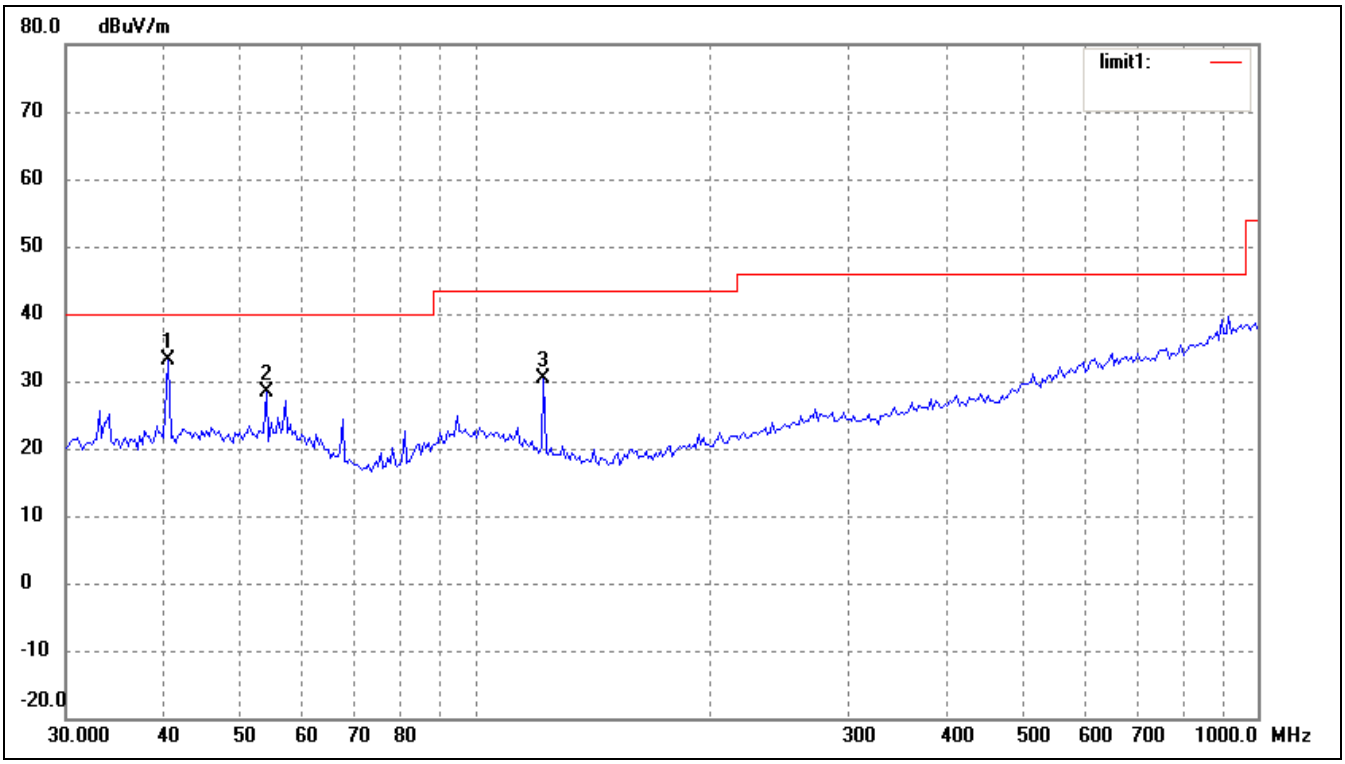
Plot of Radiation Emissions Test

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
Fundamental	27.0450	43.56	6.85	50.41	100.00	-49.59	360	100	peak
Fundamental	27.0450	43.36	6.85	50.21	80.00	-29.79	360	100	Ave
1	40.5837	20.94	8.15	29.09	40.00	-10.91	213	100	peak
2	54.1349	20.68	7.80	28.48	40.00	-11.52	175	100	peak
3	272.5246	23.91	9.31	33.22	46.00	-12.78	36	100	peak

Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
Fundamental	27.0450	55.31	6.85	62.16	100.00	-37.84	64	100	peak
Fundamental	27.0450	55.21	6.85	62.06	80.00	-17.94	64	100	Ave
1	40.5837	25.00	8.15	33.15	40.00	-6.85	229	100	peak
2	54.1349	20.47	7.80	28.27	40.00	-11.73	104	100	peak
3	122.3189	24.79	5.63	30.42	43.50	-13.08	26	100	peak

5. §15.227(b) OUT OF BAND EMISSIONS

5.1 Standard Applicable

According to FCC 15.227 (b) The field strength of any emissions which appear outside of 26.96MHz to 27.28MHz shall not exceed the general radiated emission limits in §15.209.

5.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2009-08-12	2010-08-11
Positioning Controller	C&C	CC-C-1F	N/A	2009-08-12	2010-08-11
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2009-07-21	2010-07-20
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EMI Test Receiver	ROHDE&SCHWARZ	ESPI	25498514	2009-08-12	2010-08-11

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

5.3 Test Procedure

As the radiation test, set the RBW=10kHz VBW=30kHz, observed the outside band of 26.96MHz to 27.28MHz, than mark the higher-level emission for comparing with the FCC rules.

5.4 Environmental Conditions

Temperature:	26° C
Relative Humidity:	52%
ATM Pressure:	1022 mbar

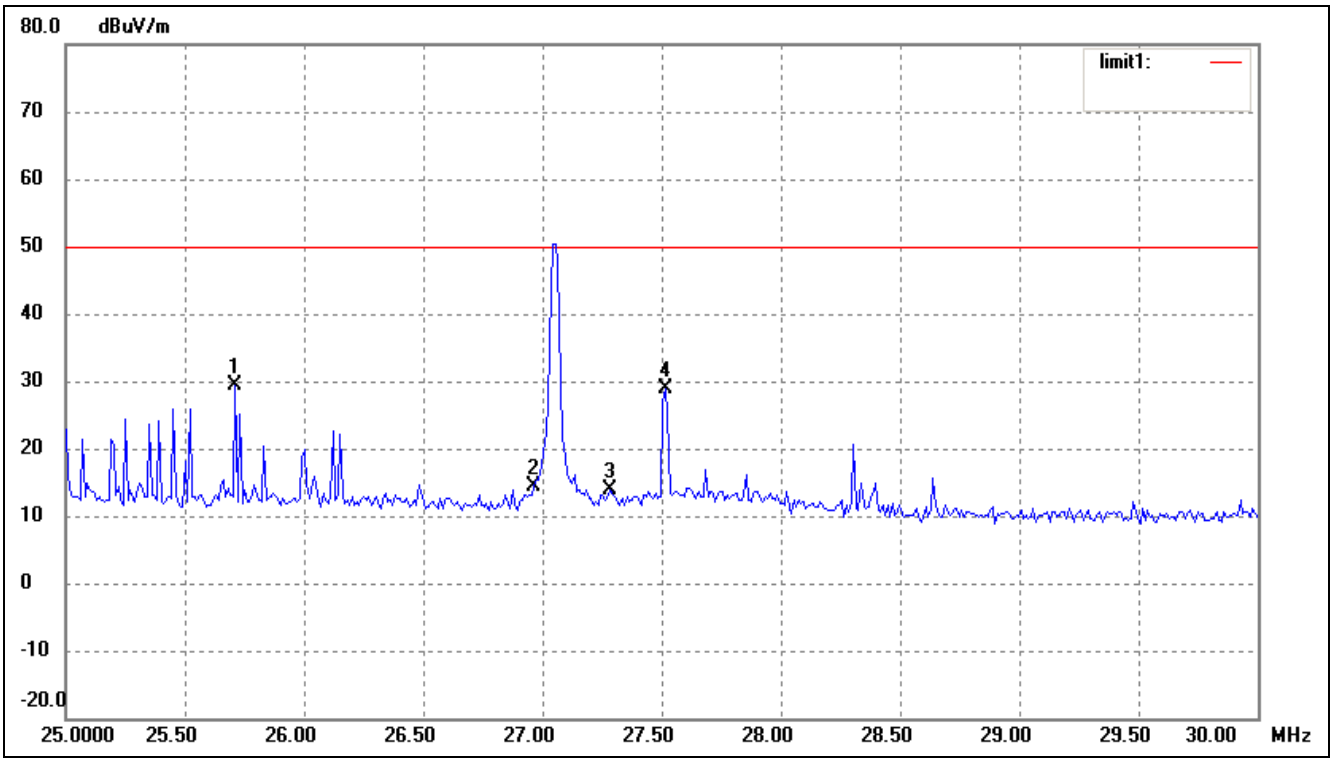
5.5 Summary of Test Results/Plots

Frequency MHz	Emission dBμV/m	Limit dBμV/m
25.7100	29.31	50
27.5150	28.80	50
26.9600	23.10	50
27.5150	34.89	50

Test Result: Pass

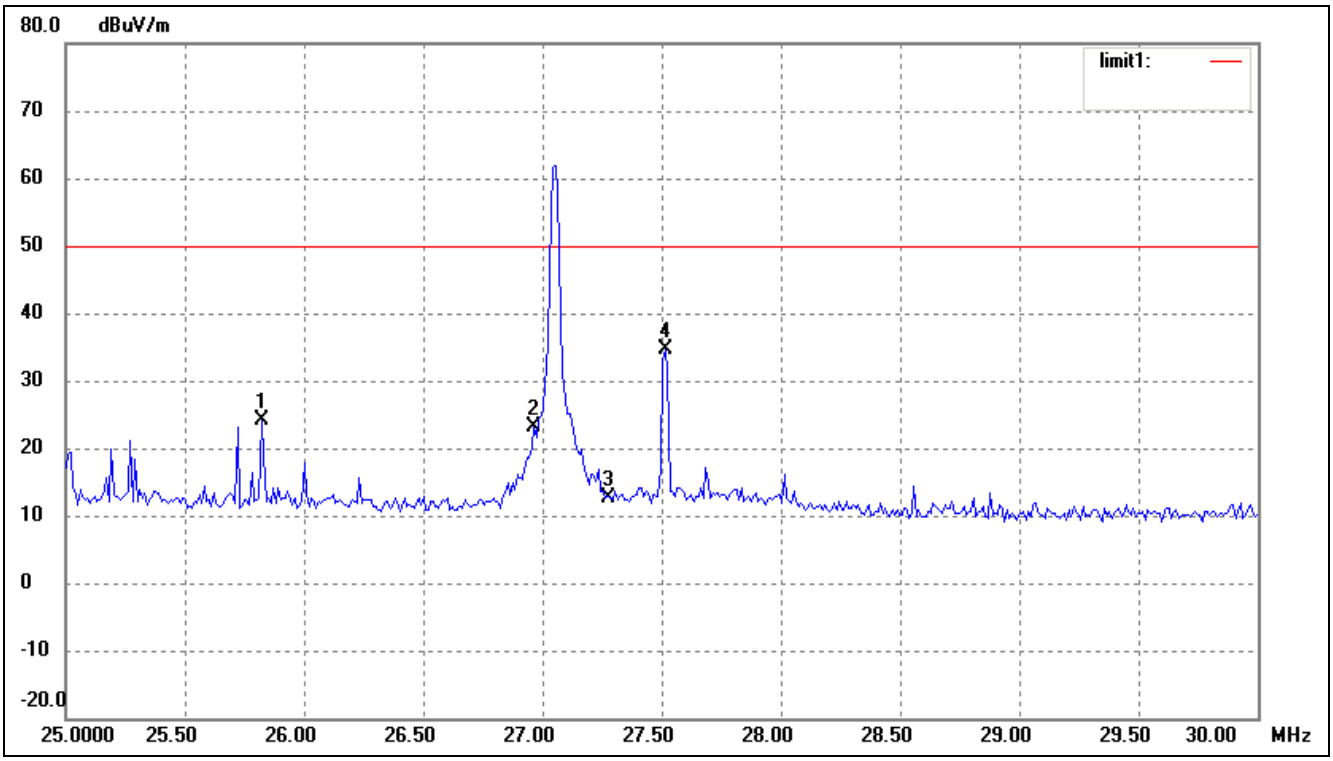
Refer to the attached plots.

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	25.7114	21.42	7.89	29.31	50.00	-20.69	132	100	peak
2	26.9600	7.47	6.94	14.41	50.00	-35.59	329	100	peak
3	27.2800	6.97	6.90	13.87	50.00	-36.13	360	100	peak
4	27.5150	21.91	6.89	28.80	50.00	-21.20	104	100	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	25.8216	16.32	7.81	24.13	50.00	-25.87	225	100	peak
2	26.9600	16.16	6.94	23.10	50.00	-26.90	193	100	peak
3	27.2800	5.80	6.90	12.70	50.00	-37.30	73	100	peak
4	27.5150	27.70	6.89	34.59	50.00	-15.41	18	100	peak

******* END OF REPORT *******