FCC PART 15.227

MEASUREMENT AND TEST REPORT

FOR

JUNENG ELECTRONICS TECHNOLOGY CO., LTD.

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

GuangDong, China

FCC ID: UM61832

Report Concerns: Original Report	**Equipment Type:** Optical Wireless Mouse
Model:	JM-183R
Report No.:	STR11048166I
Test Date:	2011-04-18 to 2011-04-27
Issue Date:	2011-04-28
Tested By:	Jason Chen / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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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-183R
Rated Voltage:	DC 3V Battery
Frequency Range:	27.045 MHz
Antenna Type:	Integral Antenna
Size:	8.6X4.5X3.0 cm
For more information refer to the circuit diagram form and the user's manual.	

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

1.2 Test Standards

The following report 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 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.

1.4 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.

- **CNAS Registration No.: L4062**
  Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 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.

1.6 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

1.7 EUT Cable List and Details

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

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 Integral 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 ±5.10 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.

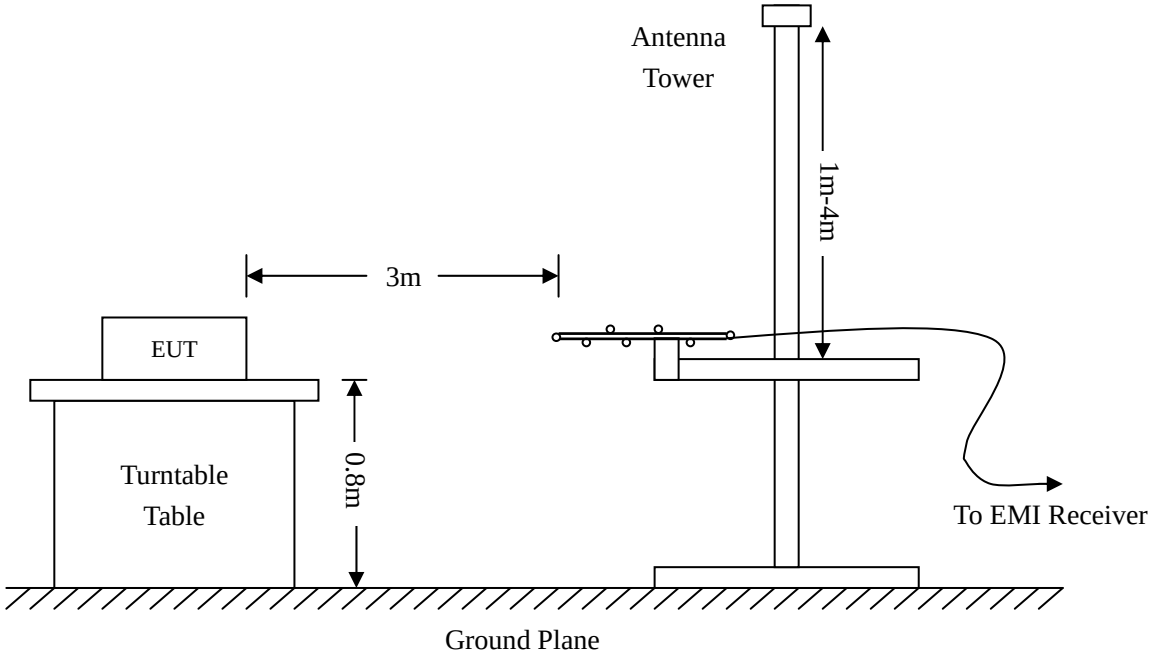
4.3 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2010-12-20	2011-12-19
EMI Test Receiver	R&S	ESVB	825471/005	2010-12-20	2011-12-19
Positioning Controller	C&C	CC-C-1F	N/A	2010-12-20	2011-12-19
RF Switch	EM	EMSW18	SW060023	2010-12-20	2011-12-19
Pre-amplifier	Agilent	8447F	3113A06717	2010-12-20	2011-12-19
Pre-amplifier	Compliance Direction	PAP-0118	24002	2010-12-20	2011-12-19
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2011-01-09	2012-01-08
Horn Antenna	ETS	3117	00086197	2011-01-09	2012-01-08
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2011-01-09	2012-01-08

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:

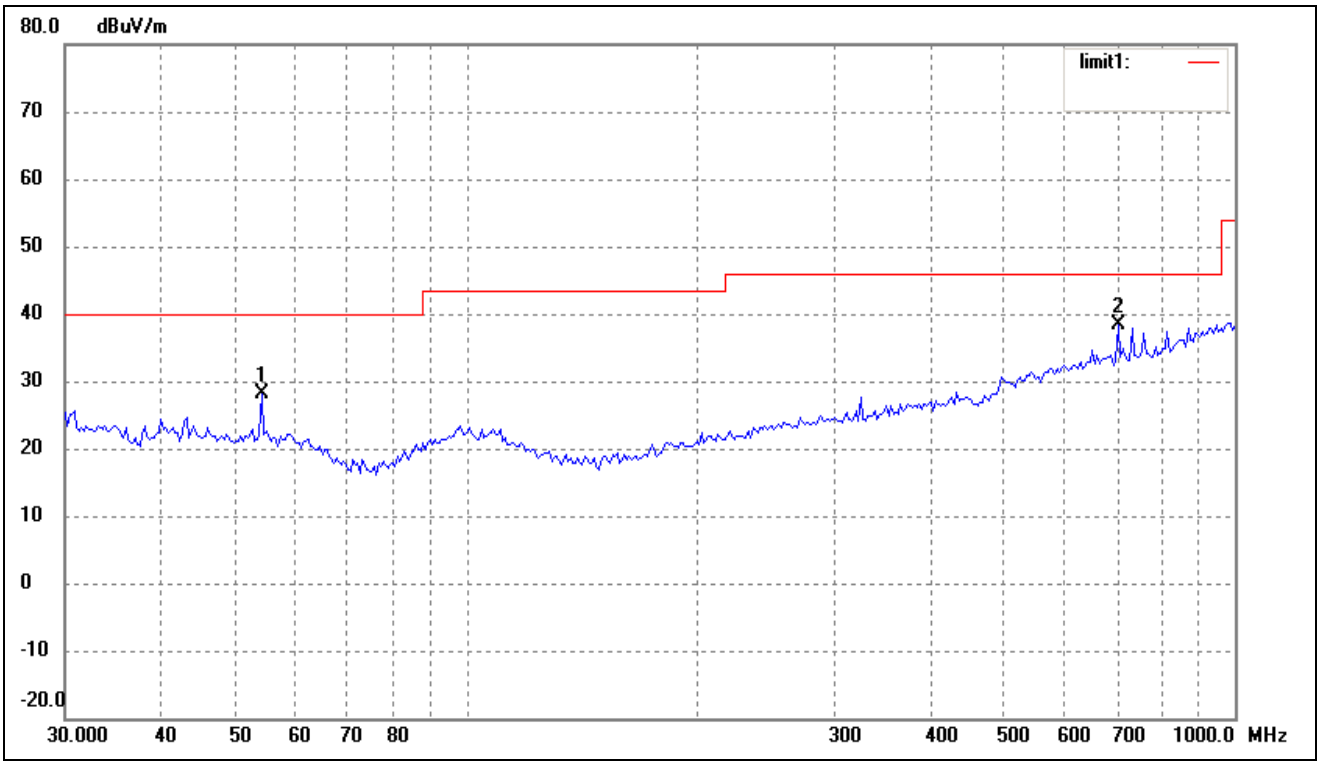
-4.24 dBμV at **54.0711 MHz** in the **Vertical** polarization, **25 MHz to 1 GHz, 3Meters**

Note: *this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

Test Mode: Transmitting

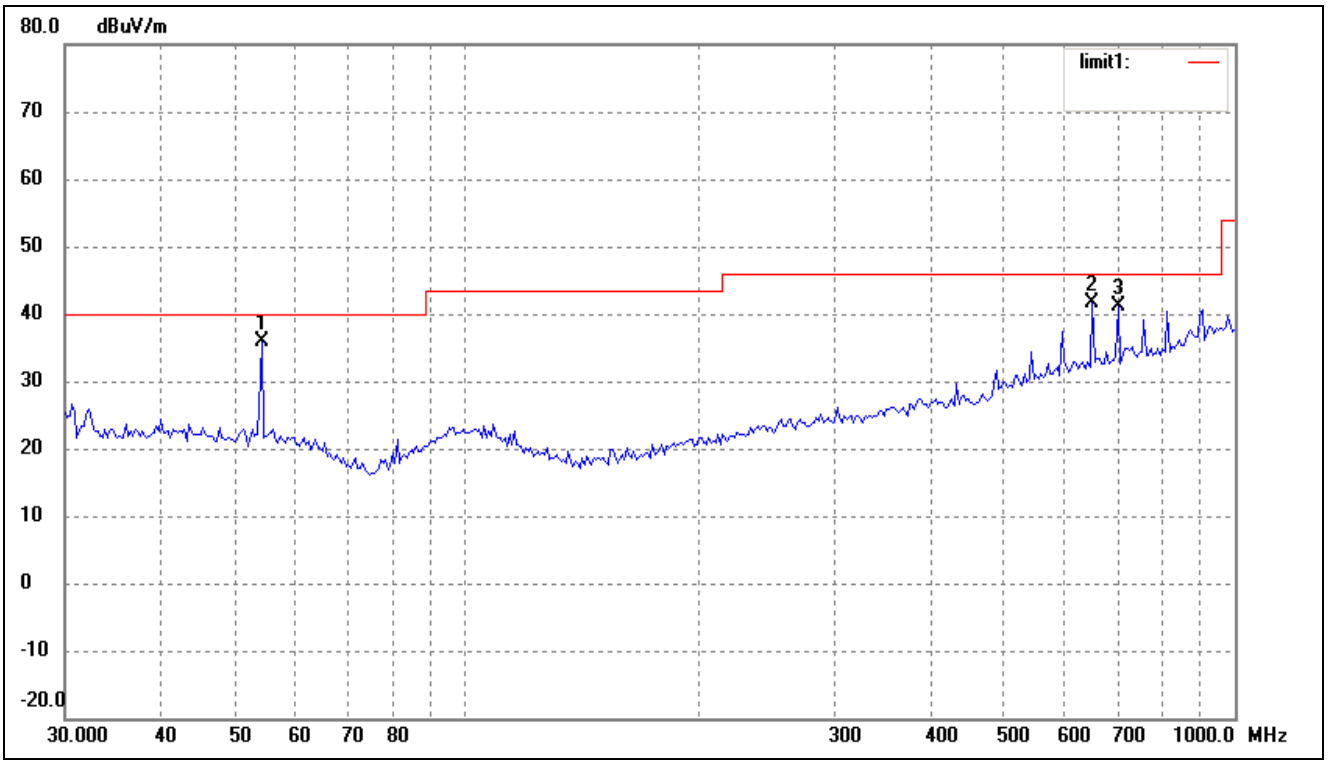
Plot of Radiation Emissions Test

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
Fundamental	27.045	46.38	6.91	53.29	100.00	-46.71	0	100	peak
Fundamental	27.045	38.90	6.91	45.81	80.00	-34.19	0	100	Ave
1	54.0711	20.35	7.80	28.15	40.00	-11.85	360	100	peak
2	704.2260	20.71	17.56	38.27	46.00	-7.73	360	100	peak

Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
Fundamental	27.045	41.26	6.92	48.18	100.00	-51.82	360	200	peak
Fundamental	27.045	33.60	6.91	40.51	80.00	-39.49	360	200	Ave
1	54.0711	27.96	7.80	35.76	40.00	-4.24	360	100	peak
2	651.9417	24.42	17.11	41.53	46.00	-4.47	0	100	peak
3	704.2261	23.67	17.56	41.23	46.00	-4.77	0	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

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2010-12-20	2011-12-19
EMI Test Receiver	R&S	ESVB	825471/005	2010-12-20	2011-12-19
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Horn Antenna	ETS	3117	00086197	2011-01-09	2012-01-08
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2011-01-09	2012-01-08

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

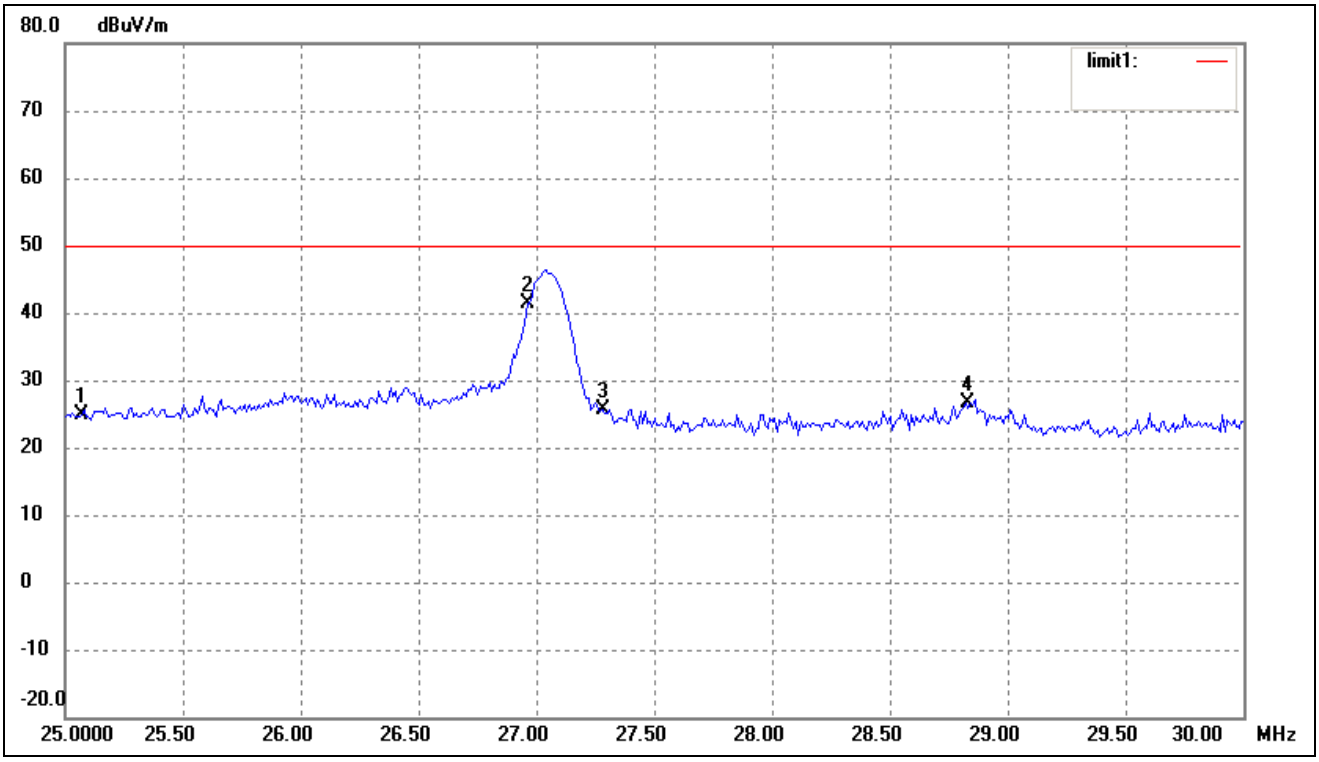
5.5 Summary of Test Results/Plots

Frequency MHz	Emission dBμV/m	Limit dBμV/m
25.0700	24.93	50
26.9600	41.32	50
27.2800	25.71	50
28.8300	26.59	50
25.0700	24.11	50
26.9600	36.48	50
27.2800	27.09	50
28.2300	25.62	50

Test Result: Pass

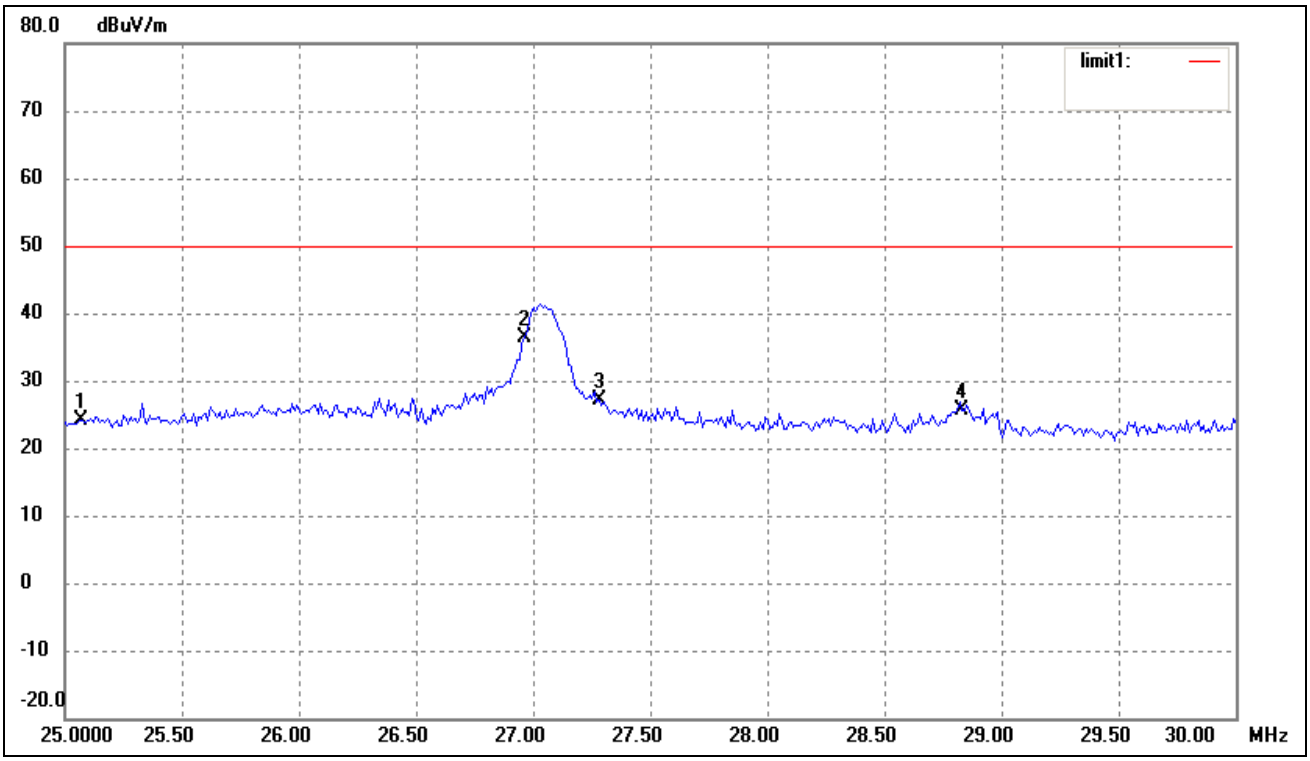
Refer to the attached plots.

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	25.0700	16.55	8.38	24.93	50.00	-25.07	360	200	peak
2	26.9600	34.38	6.94	41.32	50.00	-8.68	106	200	peak
3	27.2800	18.81	6.90	25.71	50.00	-24.29	223	100	peak
4	28.8300	19.77	6.82	26.59	50.00	-23.41	102	100	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	25.0700	15.73	8.38	24.11	50.00	-25.89	203	150	peak
2	26.9600	29.54	6.94	36.48	50.00	-13.52	29	125	peak
3	27.2800	20.19	6.90	27.09	50.00	-22.91	331	100	peak
4	28.8300	18.80	6.82	25.62	50.00	-24.38	124	100	peak

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