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NVLAP
NVLAP Lab code: 200068-0
ISO/IEC 17025:1999, ISO 9002:1994

FCC CERTIFICATION RADIO MEASUREMENT TECHNICAL REPORT

On Model Name: MULTI FUNCTION REMOTE LASER POINTER

Model Number : LR4

Trademark : INFINITER®

FCC ID : UMUS751433LR4

Prepared for Suzhou Optical Maser Technology Inc.

According to FCC Part 15 (2006), Subpart C

Test Report #:	*SUZ-0608-5596-FCC*
Prepared by:	*Chris Huang*
Reviewed by:	*Harry Zhao*
QC Manager:	*Paul Chen*

Test Report Released by: Paul J. Chen *2006, September 28*

Paul Chen *Date*

Test Location

Tests performed at EMC Compliance Management Group (China) in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.

Test Site Location: *ADT (Shanghai) Corporation*
2F C Building. No.1618 Yi_Shan Rd.
Shanghai, China 201103

Tel: *86-21-64659091*
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Registration Number: *245465*

Accreditation Bodies

EMC Compliance Management Group is a fully accredited Test Laboratory for ITE, ISM and Telecommunications Products.

In compliance with the site registration requirements of Section 2.948 of the FCC Rules to perform EMI measurements for the general public.

Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code # 200068-0.

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Opinions and Interpretations

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Statement of Measurement Uncertainty

The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.

Administrative Data

Test Sample : MULTI FUNCTION REMOTE LASER POINTER

Model Number : LR4

Trade Mark : INFINITER®

Date Tested : 2006, September 11

Applicant : Suzhou Optical Maser Technology Inc.
No.5 NEW&HI-TECH. EXPORT PROCESSING ZONE, SUZHOU CITY, JIANGSU, PRC

Telephone : 86-512-66724188

Fax : 86-512-66724288

Manufacturer : Suzhou Optical Maser Technology Inc.
No.5 NEW&HI-TECH. EXPORT PROCESSING ZONE, SUZHOU CITY, JIANGSU, PRC

EUT Description

Suzhou Optical Maser Technology Inc. Model numbers LR4 (referred to as the EUT in this test report) is a MULTI FUNCTION REMOTE LASER POINTER.

The EUT is consisted of a transmitter and a receiver. The transmitter is powered by one AAA battery and the receiver is powered by USB port of PC. When the receiver is plugged in one USB port of PC, and communicated with the transmitter, we can remote control the PC. EUT has four control functions including keyboard, mouse, media player, timmer.

EUT uses 2.4GHz band frequency, and has 16 channels. When the communication is set, transmitter will choose a channel (pesundo-random number list) to generate signal. Then it will keep working at this channel unless it is reset.
To set EUT to generate signal at specified channel, just insert an 1kohm or 4.7kohm resistor between CE pin of RF module and the ground. Then the EUT will be set into the test mode.
For test mode, it can generate signal in four channels: channel 1, channel 7, Channel 8 and channel 16.

Test Summary

The Electromagnetic Compatibility requirements for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

EMC Test Items *Reference FCC Part 15 (2006), Subpart C*			
Specification	***Description***	***Test Results***	***Remark***
FCC Part 15.203	*Antenna Requirement*	*Compliance*	*Integral Antenna*
FCC Part 15.205	*Restricted Band of Operation*	*Compliance*	*Attachment 1*
FCC Part 15.107	*Conducted Emission Limits for receiver*	*N/A*	*See Note #1*
FCC Part 15.209	*Radiated Emission Limits*	*Compliance*	*Attachment 1*
FCC Part 15.249 (a)	*Fundamental and Harmonics*	*Compliance*	*Attachment 2*
FCC Part 15.249 (d)	*Band Edge*	*Compliance*	*Attachment 3*

Note #1: The receiver is operating above 960MHz, so test of receiver is omitted.

Test Mode Justification

The test modes (Lie, Side, Stand) were done for testing.
Note: Lie mode means let EUT put flat;
Side mode means let EUT put side;
Stand mode means let EUT stand up.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

EUT Exercise Software

The EUT doesn't use software during test.

Equipment Modification

Any modifications installed previous to testing by Suzhou Optical Maser Technology Inc. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by EMC Compliance Management Group (China) test personnel.

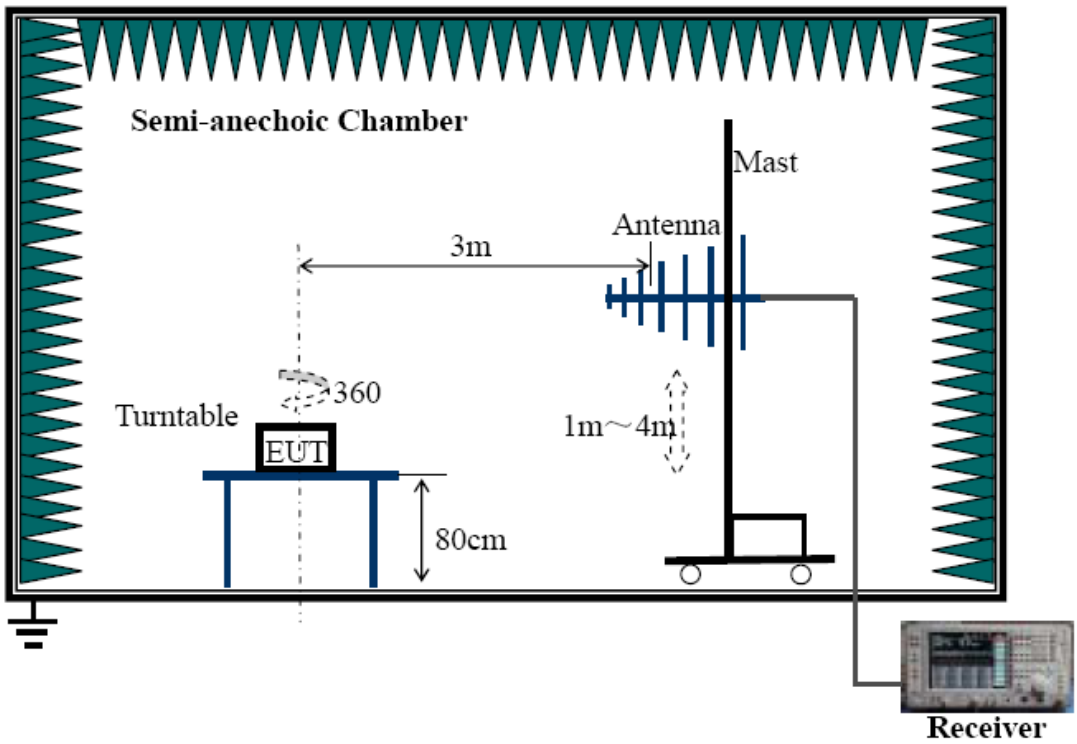
Test System Details

EUT	
Model Number:	LR4
Trademark:	INFINITER®
Serial Number:	Engineering Sample
Input Voltage:	120V~ 60Hz
Description:	MULTI FUNCTION REMOTE LASER POINTER
Manufacturer:	Suzhou Optical Maser Technology Inc.

Support Equipment				
Description	**Model Number**	**Serial Number**	**Manufacturer**	**Power Cable Description (Meters)**
PC	Dimension 2400	292VL1X	Dell	1.5m unshielded
Monitor	170B5	BZ000422427245	Philips	1.5m unshielded
Keyboard	SK8115	E145614	Dell	N/A
Mouse	0517	X08-99491	Microsoft	N/A

Cable Description
None

Configuration of Tested System



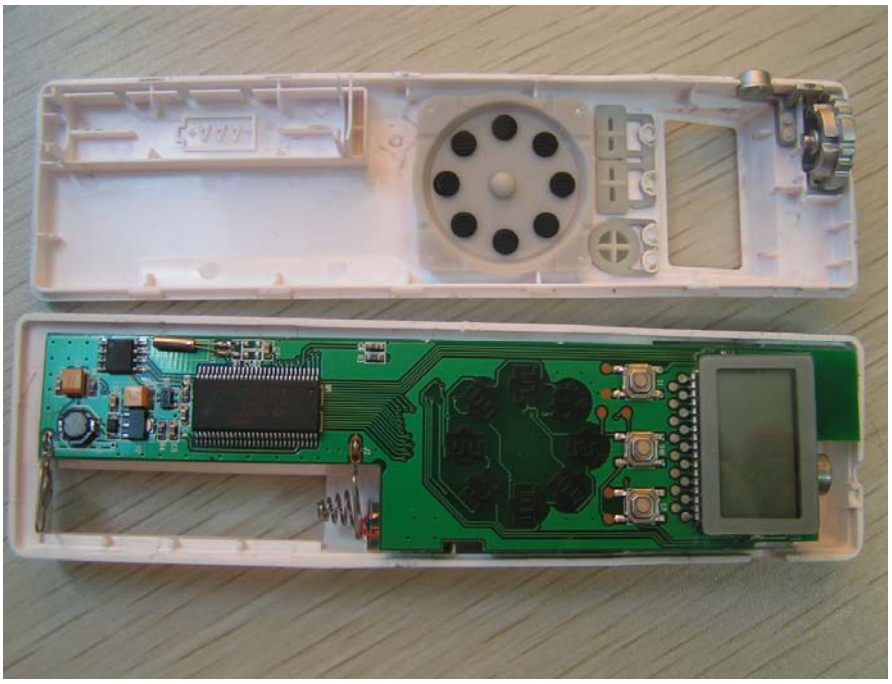
EUT Sample Photos of LR4

Front View

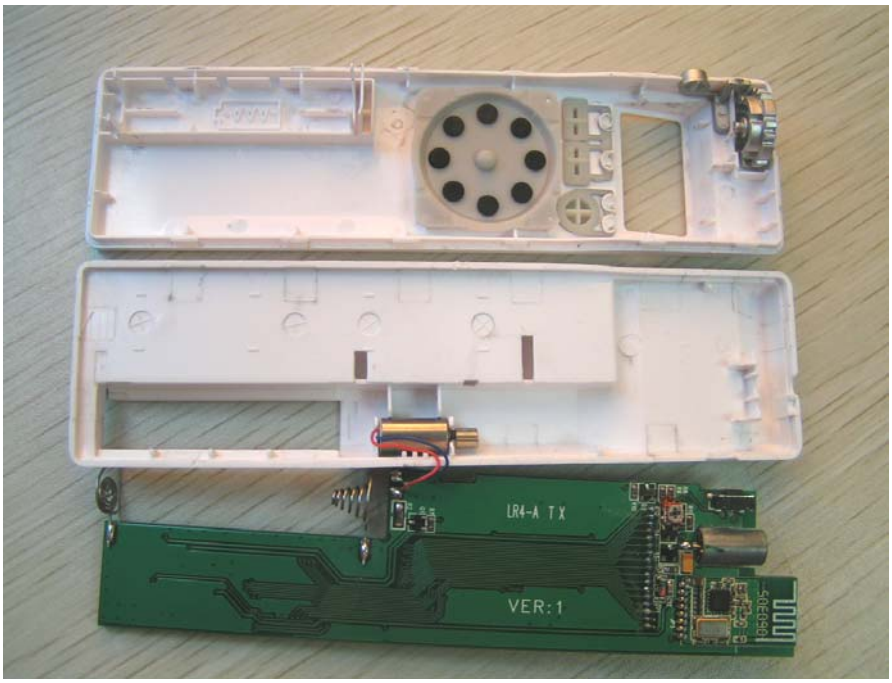
Rear View

Receiver Taken Out

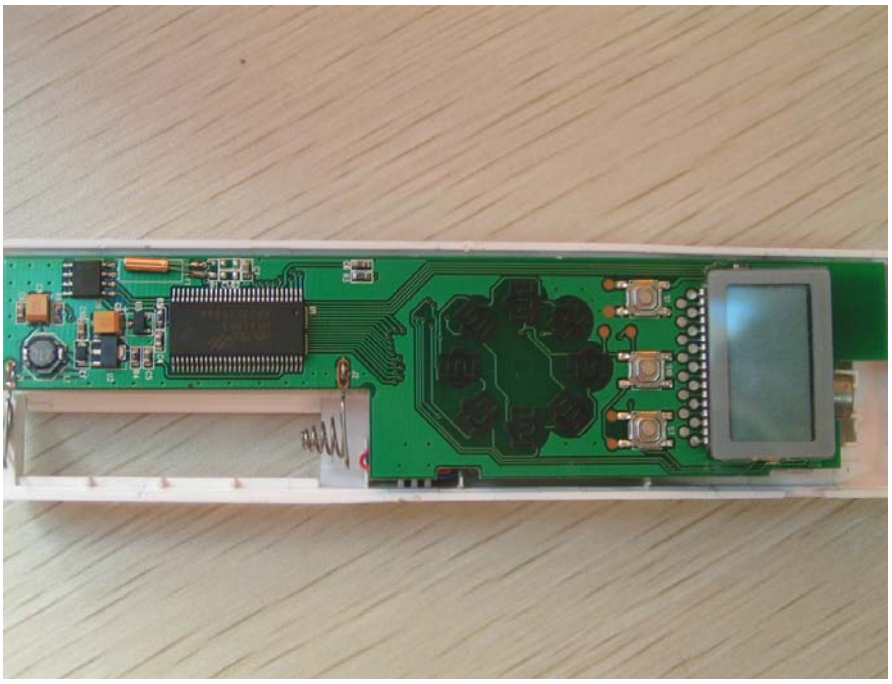
Battery Taken Out



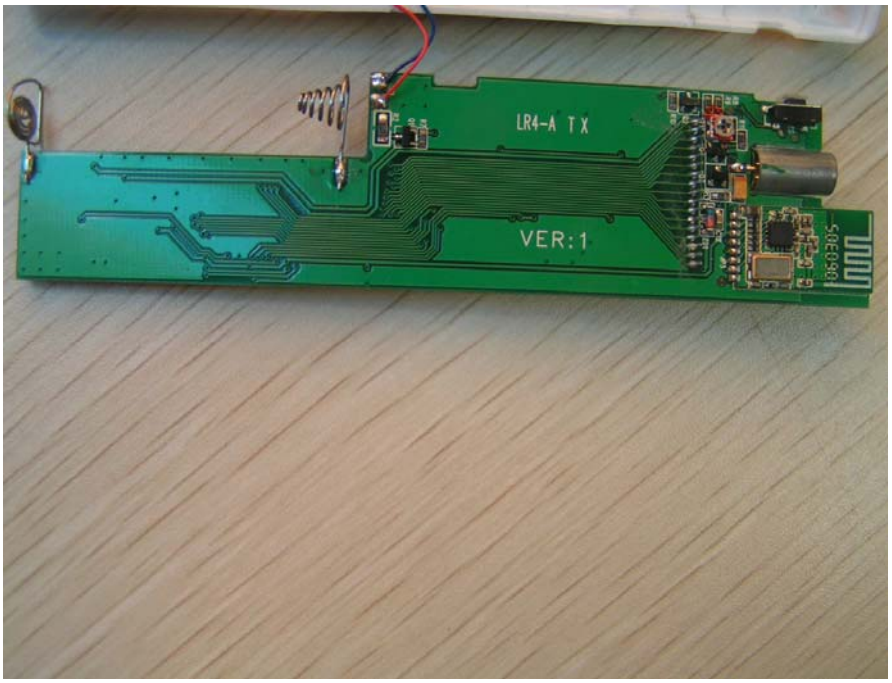
Uncovered View #1



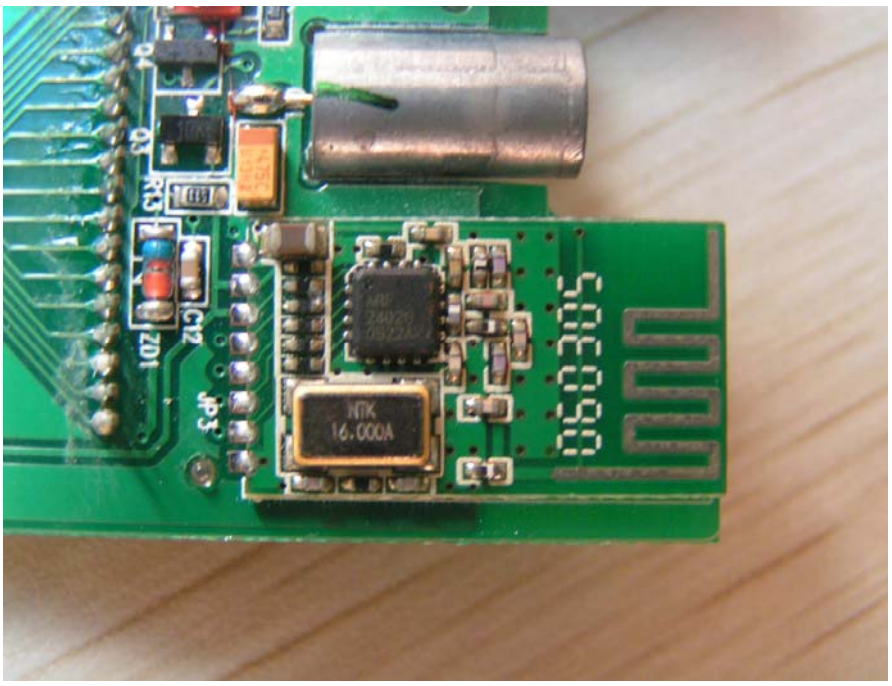
Uncovered View #2



Main Board Front View



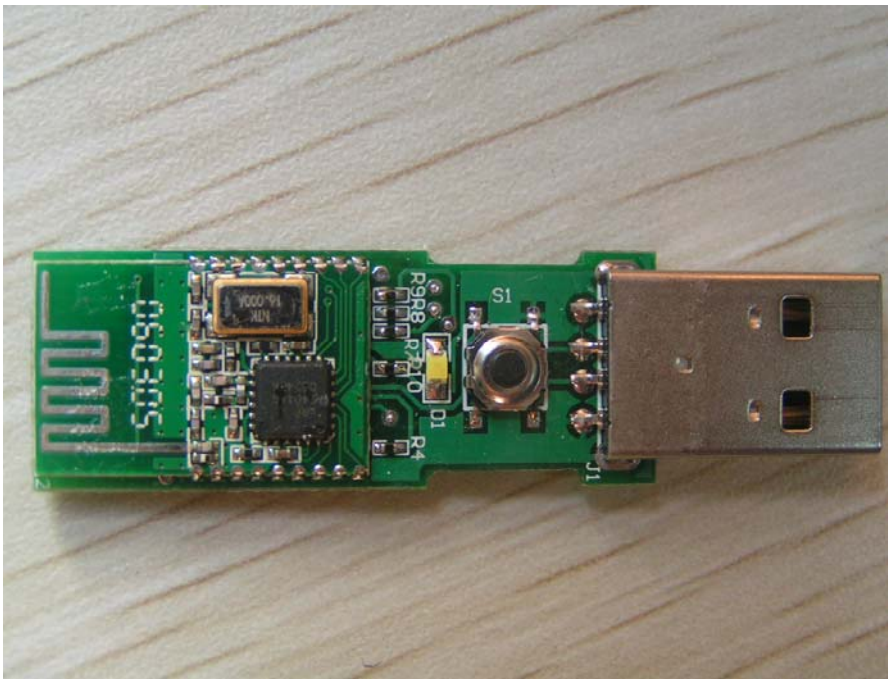
Main Board Rear View



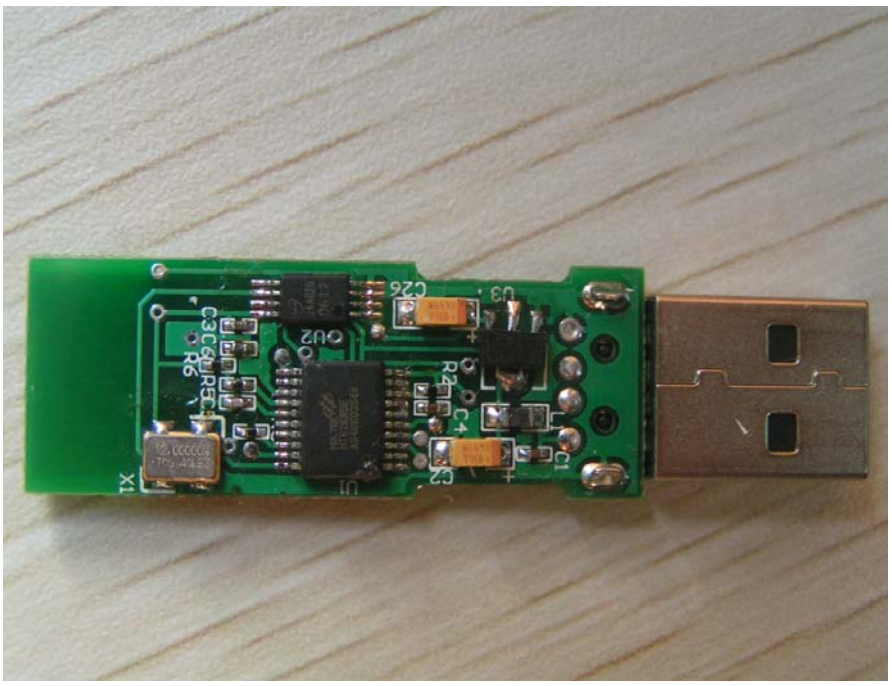
RF Board View

Receiver Uncovered View #1

Receiver Uncovered View #2



Receiver Board Front View



Receiver Board Rear View

ATTACHMENT 1 – RADIATED EMISSION TEST RESULTS

CLIENT:	Suzhou Optical Maser Technology Inc.	**TEST STANDARD:**	FCC Part 15.209 FCC Part 15.205
MODEL NUMBER:	LR4	**PRODUCT:**	MULTI FUNCTION REMOTE LASER POINTER
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	RF Equipment
TEMPERATURE:	21°C	**HUMIDITY:**	53%RH
ATM PRESSURE:	101.6 kPa	**GROUNDING:**	No Grounding
TESTED BY:	Diana Yang	**DATE OF TEST:**	2006, September 11

SETUP METHOD:	ANSI C63.4 : 2003
TEST PROCEDURE:	a. The EUT was placed on a rotatable table with 0.8 meters above ground. b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower. c. The antenna was varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna were set to make measurement. d. For each suspected emission the EUT was arranged to its worst case and then change the antenna tower height (from 1m to 4m) and turn table (from 0 degree to 360 degree) to find the maximum reading. e. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported. f. Broadband antenna (Calibrated antenna) was used as receiving antenna below 1000MHz. Horn antenna were used as receiving antenna above 1000MHz. g. The bandwidth is 120 kHz below 1000 MHz, and 1 MHz above 1000 MHz Explanation of the Correction Factor are given as follows: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain
TESTED RANGE:	30MHz to 24000MHz for the transmitter
TEST VOLTAGE:	1.5V DC for the transmitter and USB 5V for the receiver

CONTINUE ON THE NEXT PAGE…

TEST STATUS:	For transmitter, keep Tx in normal continuous transmission mode, modulated
RESULTS:	The EUT meets the requirements of field strength test. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.
M. UNCERTAINTY:	Freq. ±2x10-7 x Center Freq., Amp ±2.6 dB

For transmitter of LR4

Test Results (30MHz~1GHz)

Horizontal								
Signal	**Frequency (MHz)**	**Antenna Factor (dB/m)**	**Cable Factor (dB)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	168.22	9.4	1.3	9.20	43.5	-34.30	176	106
2	238.55	10.9	1.5	7.31	46.0	-38.69	66	356
3	427.70	15.9	2.0	12.39	46.0	-33.61	127	286
4	558.65	18.6	2.3	15.07	46.0	-30.93	48	262
5	706.58	18.8	3.0	17.62	46.0	-28.38	195	206
6	801.15	19.8	3.6	18.66	46.0	-27.34	117	178
Vertical								
Signal	**Frequency (MHz)**	**Antenna Factor (dB/m)**	**Cable Factor (dB)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	117.30	11.5	0.8	6.76	43.5	-36.74	341	101
2	321.11	13.6	1.6	9.61	46.0	-36.39	94	101
3	427.70	15.9	2.0	12.27	46.0	-33.73	33	101
4	565.92	18.6	2.3	14.82	46.0	-31.18	155	101
5	682.33	18.7	2.9	16.60	46.0	-29.40	277	101
6	825.40	20.0	3.6	17.91	46.0	-28.09	216	101
Note: All readings are quasi-peak unless stated otherwise, using a QP bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.								

Test Results (1GHz~24GHz)

Horizontal									
Signal	**Frequency (MHz)**	**Antenna Factor (dB/m)**	**Cable Factor (dB)**	**Corrected AV Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Corrected PK Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**
1	1456.37	26.7	4.1	31.5	54.0	-22.5	41.2	74.0	-32.8
2	2904.65	29.4	6.0	32.8	54.0	-21.2	43.7	74.0	-30.3
3	12089.11	38.4	9.9	36.7	54.0	-17.3	44.7	74.0	-29.3
Vertical									
Signal	**Frequency (MHz)**	**Antenna Factor (dB/m)**	**Cable Factor (dB)**	**Corrected AV Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Corrected PK Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**
1	1454.85	26.6	4.1	33.8	54.0	-20.2	42.5	74.0	-31.5
2	2904.65	29.4	6.0	40.1	54.0	-13.9	47.9	74.0	-26.1
3	12089.11	38.4	9.9	40.8	54.0	-13.2	48.7	74.0	-25.3

Note: All readings are average and peak unless stated otherwise, using a bandwidth of 1000kHz, with a 30 ms sweep time. A video filter was not used.

Restricted bands:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2] Above 38.6

Antenna Horizontal								
Signal	**Frequency (MHz)**	**Corrected PK Level (dBuV)**	**Limits PK (dBuV)**	**Margin PK (dB)**	**Frequency (MHz)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB)**
1	2390	33.5	74.0	-40.5	2390	30.6	54.0	-23.4
2	2483.5	35.7	74.0	-38.3	2483.5	31.1	54.0	-22.9
Antenna Vertical								
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits PK (dBuV)**	**Margin AV (dB)**	**Frequency (MHz)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB)**
1	2390	34.2	74.0	-39.8	2390	31.2	54.0	-22.8
2	2483.5	35.7	74.0	-38.3	2483.5	31.5	54.0	-22.5

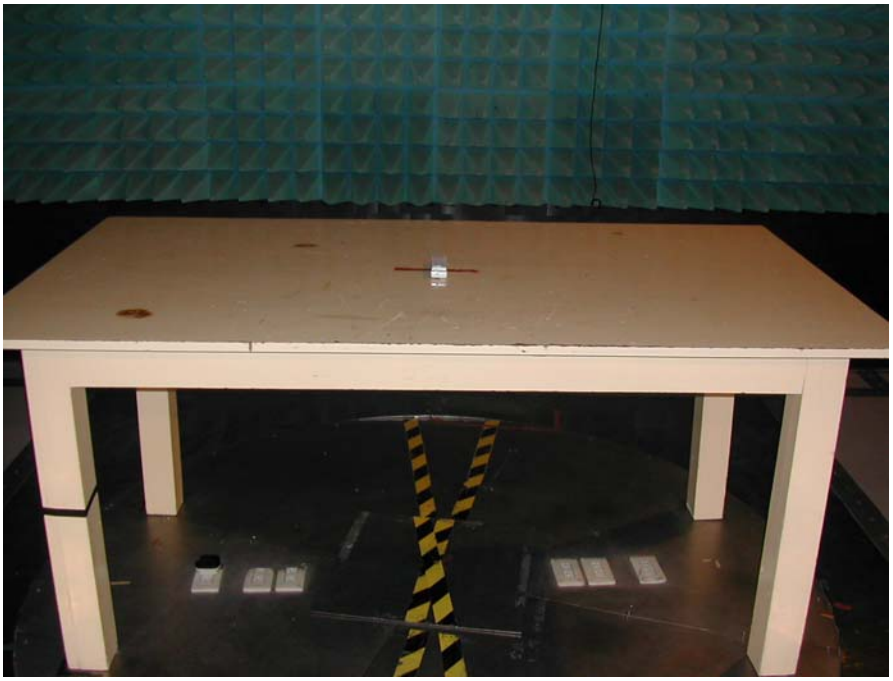
Note: The peak readings are using a resolution bandwidth of 1MHz and video bandwidth of 1MHz; the average readings are using a resolution bandwidth of 1MHz and video bandwidth of 10Hz.

Test Equipment	Model	Manufacturer	Serial No.	Last Cal.	Cal. Due Date
Trilog Broadband Antenna	VULB 9168	Schwarzbeck	9168-159	09/26/05	09/25/06
Double Ridged Broadband Horn Antenna	BBHA9120D	Schwarzbeck	9120D-398	02/19/06	02/18/07
Spectrum Analyzer	E4403B	Agilent	MY41440678	01/12/06	01/13/07
Spectrum Analyzer	E4440A	Agilent	US45303119	03/20/06	03/19/07
Preamplifier	HP 8447D-CFG001	Agilent	2944A10643	01/25/06	01/26/07
Preamplifier	HP8449B-FG	Agilent	3008A01966	01/25/06	01/26/07
Receiver	ESCS30	R&S	100296	06/18/06	06/19/07
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST)					

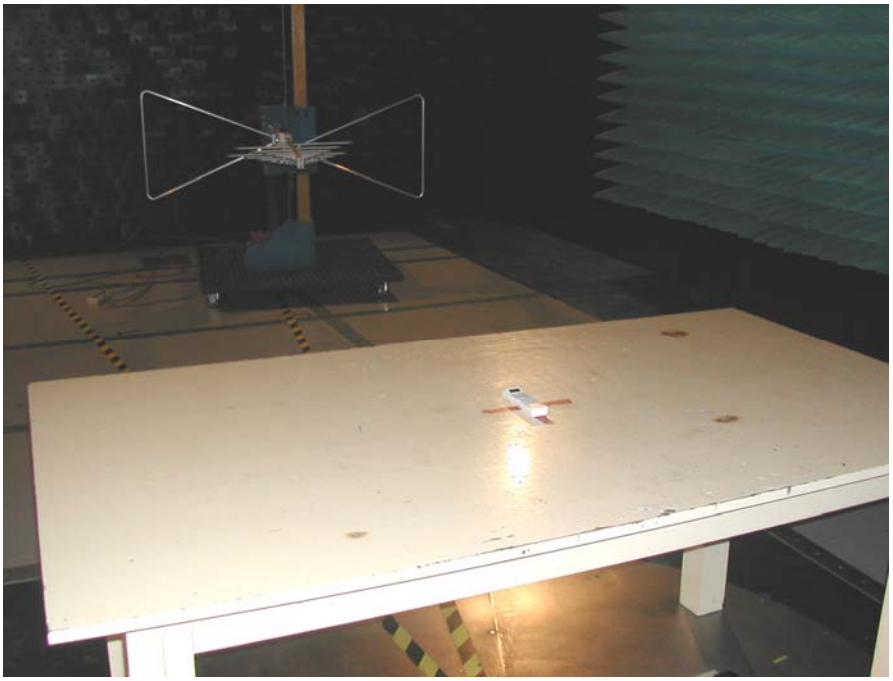
SIGNED BY:  **REVIEWED BY:** 

ENGINEER **SENIOR ENGINEER**

For transmitter of LR4



Radiated Emissions Test Set-up Front View



Radiated Emissions Test Set-up Rear View

ATTACHMENT 2 – FUNDAMENTAL AND HARMONIC FIELD STRENGTH TEST RESULTS

CLIENT:	Suzhou Optical Maser Technology Inc.	**TEST STANDARD:**	FCC Part 15.249 (a)
MODEL NUMBER:	LR4	**PRODUCT:**	MULTI FUNCTION REMOTE LASER POINTER
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	RF Equipment
TEMPERATURE:	21°C	**HUMIDITY:**	53%RH
ATM PRESSURE:	101.6 kPa	**GROUNDING:**	No Grounding
TESTED BY:	Diana Yang	**DATE OF TEST:**	2006, September 11

SETUP METHOD:	ANSI C63.4 : 2003
TEST PROCEDURE:	a. The EUT was placed on a rotatable table with 0.8 meters above ground. b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower. c. The antenna was varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna were set to make measurement. d. For each suspected emission the EUT was arranged to its worst case and then change the antenna tower height (from 1m to 4m) and turn table (from 0 degree to 360 degree) to find the maximum reading. e. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported. f. Broadband antenna (Calibrated antenna) was used as receiving antenna below 1000MHz. Horn antenna were used as receiving antenna above 1000MHz. g. The bandwidth is 120 kHz below 1000 MHz, and 1 MHz above 1000 MHz Explanation of the Correction Factor are given as follows: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain FCC 15.249 limit 15.249 (a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

	Fundamental Frequency	Field Strength of Fundamental (milivolts/meter)	Field Strength of Harmonics (microvolts/meter)
	902-928MHz	50	500
	2400-2483.5MHz	50	500
	5725-5875MHz	50	500
	24.0-24.25GHz	250	2500
TESTED RANGE:	2400MHz to 24000MHz for the transmitter		
TEST VOLTAGE:	1.5V DC for the transmitter		
TEST STATUS:	Set transmitter to generate signal at low, middle and high channels continually, and set transmitter in lying, side and standing mode		
RESULTS:	The EUT meets the requirements of the fundamental and harmonic field strength. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.		
M. UNCERTAINTY:	Freq. ±2x10-7 x Center Freq., Amp ±2.6 dB		

Peak Field Strength=Peak Read Level + Factor

Factor = Antenna Factor + Cable Loss - Preamp Factor

Average Field Strength=Peak Field Strength - Duty Cycle Correction Factor

Duty Cycle Correction Factor is calculated by averaging the sum of the pulse train. Correction factor is measured as follows:

Keep the EUT in continuous transmission mode (modulated), and set the spectrum to the fundamental frequency and set the span width to 0 Hz. Then connect a storage oscilloscope to the video output of the spectrum that is used to detect the pulse train. Adjust the oscilloscope settings to observe the pulse train and determine the number and width of the pulses, as well as the period of the train.

*Duty cycle = 440uS*18/100mS=7.9%*

So the Duty Cycle Correction Factor= 20|log7.9%|=22.05dB

(See the plot in next page)

Duty Cycle Test

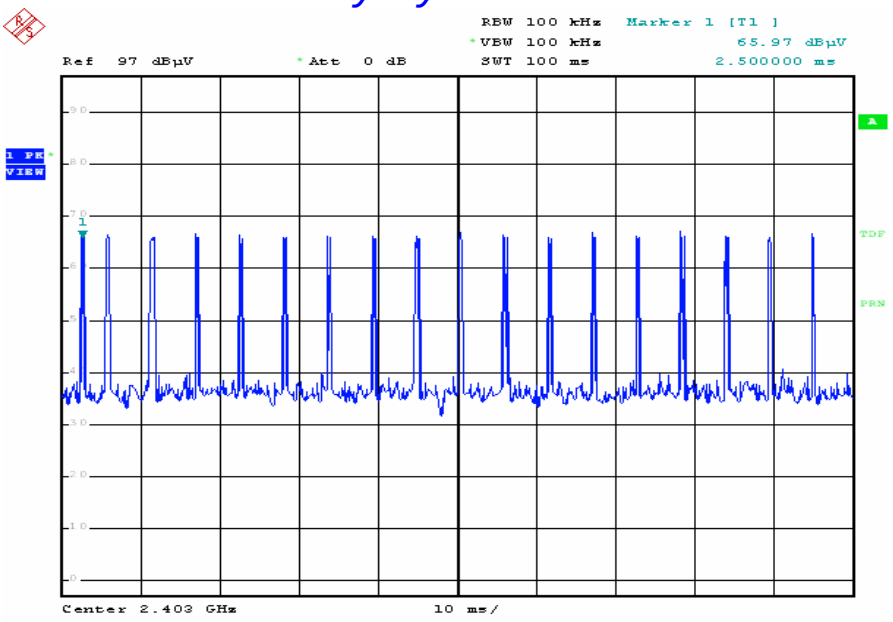


Figure #1

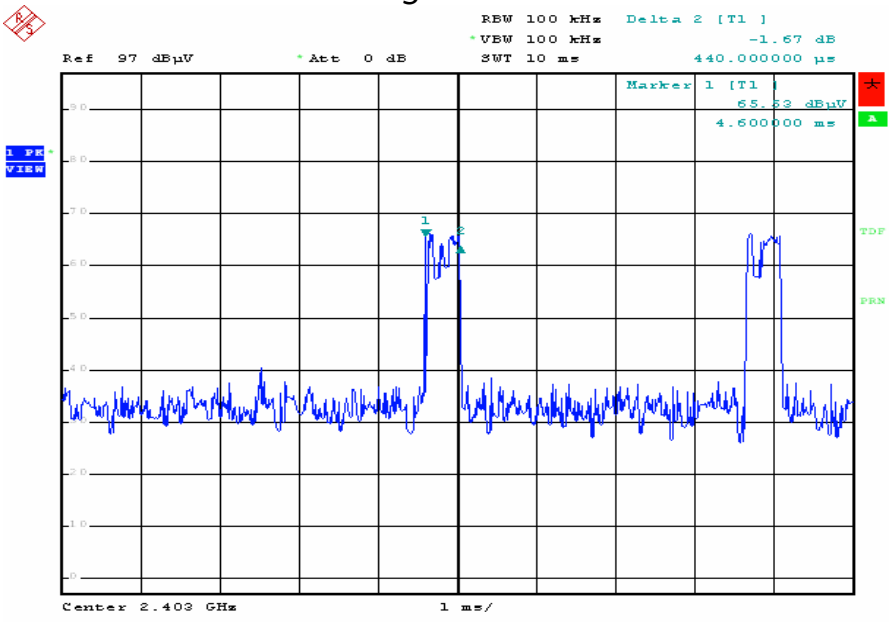


Figure #2

For transmitter of LR4
For Channel 1 (2403MHz) Lie mode
Test Results (2.4GHz~24GHz)

Horizontal								
Signal	**Frequency (MHz)**	**Factor (dB)**	**Corrected PK Level (dBuV/m)**	**3 Meter PK Limits (dB uV/m)**	**Margin (dB)**	**Corrected AV Level (dBuV/m)**	**3 Meter AV Limits (dBuV/m)**	**Margin (dB)**
1	2403	35.22	85.61	114.00	-28.39	63.56	94.00	-30.44
2	4806	41.14	55.90	74.00	-18.10	33.85	54.00	-20.15
3	7209	48.79	58.30	74.00	-15.70	36.25	54.00	-17.75
4	9612	52.28	60.85	74.00	-13.15	38.80	54.00	-15.20
5	12015	53.61	64.35	74.00	-9.65	42.30	54.00	-11.70
HIGHER HARMONICS		--	<60	74.00	>14.00	<38	54.00	>16.00
Vertical								
Signal	**Frequency (MHz)**	**Factor (dB)**	**Corrected PK Level (dBuV/m)**	**3 Meter PK Limits (dB uV/m)**	**Margin (dB)**	**Corrected AV Level (dBuV/m)**	**3 Meter AV Limits (dBuV/m)**	**Margin (dB)**
1	2403	35.22	89.50	114.00	-24.50	67.45	94.00	-26.55
2	4806	41.14	55.07	74.00	-18.93	33.02	54.00	-20.98
3	7209	48.79	57.64	74.00	-16.36	35.59	54.00	-18.41
4	9612	52.28	59.56	74.00	-14.44	37.51	54.00	-16.49
5	12015	53.61	62.05	74.00	-11.95	40.00	54.00	-14.00
HIGHER HARMONICS		--	<60	74.00	>14.00	<38	54.00	>16.00
Note: All readings are peak and average unless stated otherwise, using a bandwidth of 1000kHz, with a 30 ms sweep time. A video filter was not used.								

For transmitter of LR4
For Channel 7 (2434MHz) Side mode
Test Results (2.4GHz~24GHz)

Horizontal								
Signal	**Frequency (MHz)**	**Factor (dB)**	**Corrected PK Level (dBuV/m)**	**3 Meter PK Limits (dB uV/m)**	**Margin (dB)**	**Corrected AV Level (dBuV/m)**	**3 Meter AV Limits (dBuV/m)**	**Margin (dB)**
1	2434	35.26	92.37	114.00	-21.63	70.32	94.00	-23.68
2	4868	41.36	52.57	74.00	-21.43	30.52	54.00	-23.48
3	7302	48.98	57.98	74.00	-16.02	35.93	54.00	-18.07
4	9736	52.43	58.82	74.00	-15.18	36.77	54.00	-17.23
5	12170	53.54	61.65	74.00	-12.35	39.6	54.00	-14.4
HIGHER HARMONICS		--	<60	74.00	>14.00	<38	54.00	>16.00
Vertical								
Signal	**Frequency (MHz)**	**Factor (dB)**	**Corrected PK Level (dBuV/m)**	**3 Meter PK Limits (dB uV/m)**	**Margin (dB)**	**Corrected AV Level (dBuV/m)**	**3 Meter AV Limits (dBuV/m)**	**Margin (dB)**
1	2434	35.26	89.46	114.00	-24.54	67.41	94.00	-26.59
2	4868	41.36	57.53	74.00	-16.47	35.48	54.00	-18.52
3	7302	48.98	58.87	74.00	-15.13	36.82	54.00	-17.18
4	9736	52.43	58.31	74.00	-15.69	36.26	54.00	-17.74
5	12170	53.54	61.56	74.00	-12.44	39.51	54.00	-14.49
HIGHER HARMONICS		--	<60	74.00	>14.00	<38	54.00	>16.00
Note: All readings are peak and average unless stated otherwise, using a bandwidth of 1000kHz, with a 30 ms sweep time. A video filter was not used.								

For transmitter of LR4
For Channel 16 (2474MHz) Standing mode
Test Results (2.4GHz~24GHz)

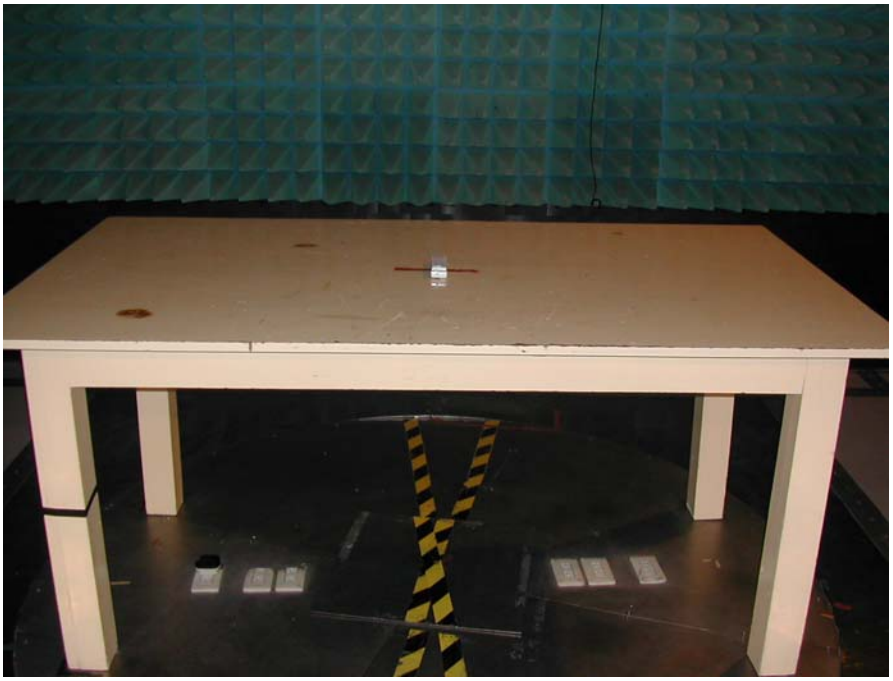
Horizontal								
Signal	**Frequency (MHz)**	**Factor (dB)**	**Corrected PK Level (dBuV/m)**	**3 Meter PK Limits (dB uV/m)**	**Margin (dB)**	**Corrected AV Level (dBuV/m)**	**3 Meter AV Limits (dBuV/m)**	**Margin (dB)**
1	2474	35.30	91.50	114.00	-22.50	77.04	94.00	-16.96
2	4938	41.60	54.71	74.00	-19.29	40.65	54.00	-13.35
3	7422	49.23	56.91	74.00	-17.09	42.95	54.00	-11.05
4	9896	52.47	59.89	74.00	-14.11	44.17	54.00	-9.83
5	12370	53.45	61.79	74.00	-12.21	44.79	54.00	-9.21
HIGHER HARMONICS		--	<60	74.00	>14.00	<38	54.00	>16.00
Vertical								
Signal	**Frequency (MHz)**	**Factor (dB)**	**Corrected PK Level (dBuV/m)**	**3 Meter PK Limits (dB uV/m)**	**Margin (dB)**	**Corrected AV Level (dBuV/m)**	**3 Meter AV Limits (dBuV/m)**	**Margin (dB)**
1	2474	35.30	90.96	114.00	-23.04	68.91	94.00	-25.09
2	4938	41.60	56.96	74.00	-17.04	34.91	54.00	-19.09
3	7422	49.23	57.77	74.00	-16.23	35.72	54.00	-18.28
4	9896	52.47	60.22	74.00	-13.78	38.17	54.00	-15.83
5	12370	53.45	62.29	74.00	-11.71	40.24	54.00	-13.76
HIGHER HARMONICS		--	<60	74.00	>14.00	<38	54.00	>16.00
Note: All readings are peak and average unless stated otherwise, using a bandwidth of 1000kHz, with a 30 ms sweep time. A video filter was not used.								

Test Equipment	Model	Manufacturer	Serial No.	Last Cal.	Cal. Due Date
Double Ridged Broadband Horn Antenna	BBHA9120D	Schwarzbeck	9120D-398	02/19/06	02/18/07
Spectrum Analyzer	E4403B	Agilent	MY41440678	01/12/06	01/13/07
Spectrum Analyzer	FSP30	R&S	1093.4495.30	03/20/06	03/19/07
Preamplifier	HP8449B-FG	Agilent	3008A01966	01/25/06	01/26/07
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST)					

SIGNED BY: Diana Yang _____ **REVIEWED BY:** _____

ENGINEER **SENIOR ENGINEER**

For transmitter of LR4



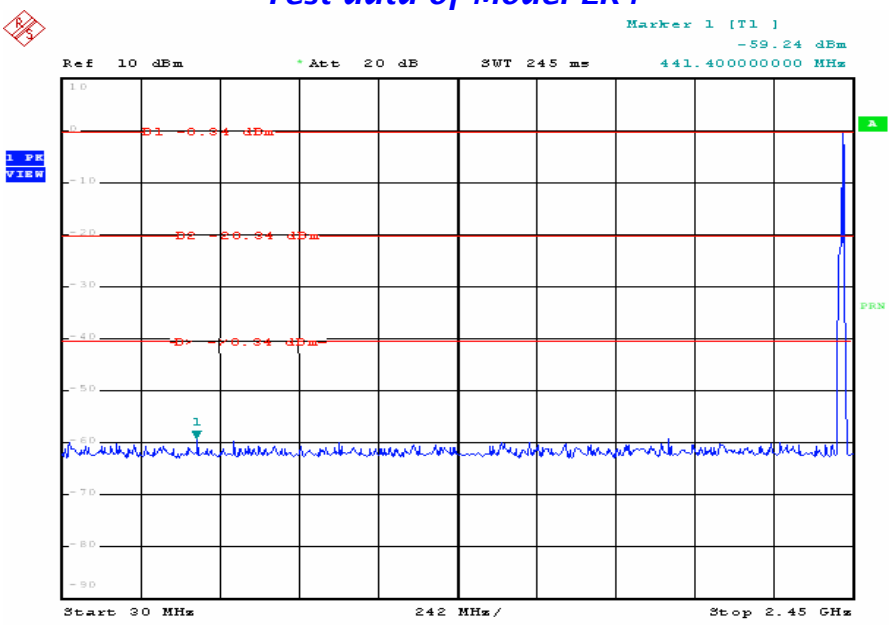
Fundamental & Harmonics Strength Test Set-up Front View

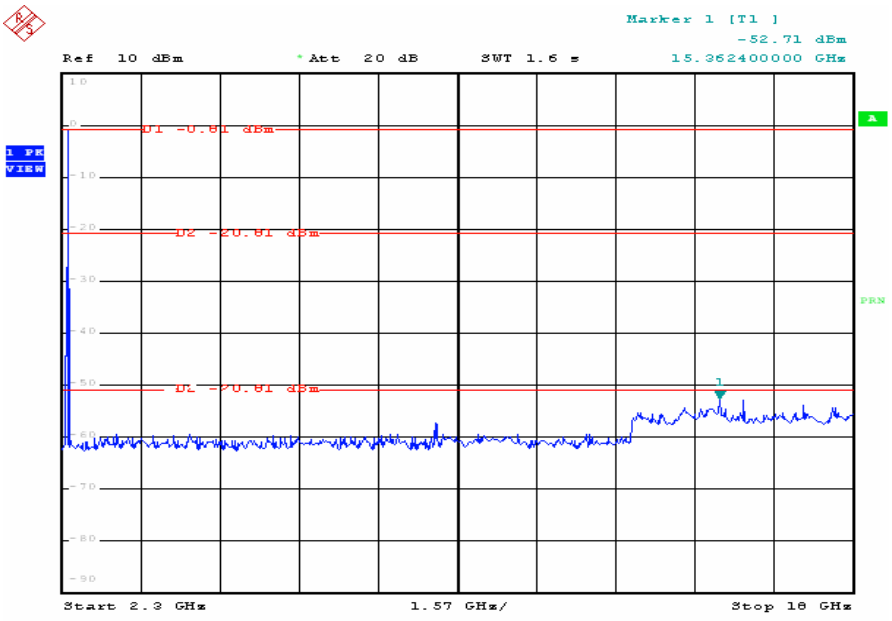
ATTACHMENT 3 – Band Edge Test

CLIENT:	Suzhou Optical Maser Technology Inc.	**TEST STANDARD:**	FCC Part 15.247 (d)
MODEL NUMBER:	LR4	**PRODUCT:**	MULTI FUNCTION REMOTE LASER POINTER
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	RF Equipment
TEMPERATURE:	21°C	**HUMIDITY:**	53%RH
ATM PRESSURE:	101.6 kPa	**GROUNDING:**	No Grounding
TESTED BY:	Shi Xiting	**DATE OF TEST:**	2006, September 11

SETUP METHOD:	ANSI C63.4 - 2003
BANDEDGE REQUIREMENT:	FCC 15.249 (d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to general radiated emission limits in Section 15.209, which is the lesser attenuation.
TEST PROCEDURE:	Set the spectrum as follow: Span=wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation. RBW=100kHz; VBW≧RBW; Sweep=Auto; Detector=Peak; Trace=Maxhold; Allow the trace to stabilize and use the search peak function to set the marker to the peak of the useful emission, then use delta-mark function to mark the maximum emission outside of the band, record the delta level to see if it's more than 50dB.
TEST VOLTAGE:	1.5V DC for the transmitter
TEST STATUS:	Channel 1 for low and Channel 16 for high
RESULTS:	The EUT meets band edge requirement. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.
M. UNCERTAINTY:	Freq. $\pm 2x10^{-7}$ x Center Freq., Amp ± 2.6 dB

Test data of Model LR4





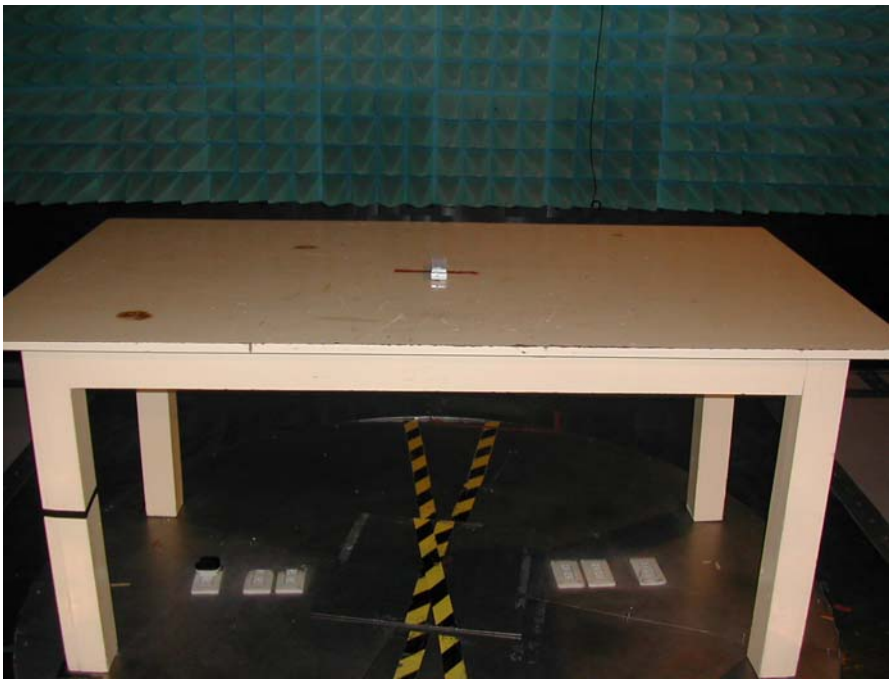
Band edge test data

Test Equipment	Model	Manufacturer	Serial No.	Last Cal.	Cal. Due Date
Double Ridged Broadband Horn Antenna	BBHA9120D	Schwarzbeck	9120D-398	02/19/06	02/18/07
Spectrum Analyzer	E4403B	Agilent	MY41440678	01/12/06	01/13/07
Spectrum Analyzer	FSP30	R&S	1093.4495.30	03/20/06	03/19/07
Preamplifier	HP8449B-FG	Agilent	3008A01966	01/25/06	01/26/07
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST)					

SIGNED BY: Diana Yang _____ **REVIEWED BY:** _____

ENGINEER **SENIOR ENGINEER**

Model LR4



Band Edge Test Set-up Front View