Test Report

FCC Part15.249

Product Name	:	LED LAMP Remote control
Model No.	:	C601RCW
FCC ID	:	NIR-601RC
IC	:	9486A-601RC

Applicant	:	Shanghai Qiangling Electronic Co., Ltd.
Address	:	No.139 Wangdong South Road, Sijing, Songjiang, Shanghai

Date of Receipt	:	Mar. 24, 2014
Test Date	:	Mar. 24, 2014 ~May. 16, 2014
Issued Date	:	May. 29, 2014
Report No.	:	1430469R-RF-US-P06V01
Report Version	:	V2.1

Test Report Certification

Issued Date : May. 29, 2014
Report No. : 1430469R-RF-US-P06V01

QuieTek

Product Name	:	LED LAMP Remote control
Applicant	:	Shanghai Qiangling Electronic Co., Ltd.
Address	:	No.139 Wangdong South Road, Sijing, Songjiang, Shanghai
Manufacturer	:	1. Zhenjiang Qiangling Electronic Co.,Ltd. 2. WUXI WEIDA ELECTRONIC SCITECH CO., LTD.
Address	:	1. NO.200 Xuefu Road, Zhenjiang, Jiangsu, China 2. F3, building, A Electric Industrial Zone, Wuxi, Jiangsu, China 214135
Model No.	:	C601RCW
FCC ID	:	NIR-601RC
IC	:	9486A-601RC
Brand Name	:	TCP
EUT Voltage	:	DC: 3V
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2012 ANSI C63.4: 2009 ANSI C63.10:2009 Industry Canada RSS-Gen Issue 3/RSS-210 Issue 8
Test Result	:	Complied
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392

Documented By	:	Alice Ni
Reviewed By	:	Dream Cao
Approved By	:	Jeff Chen

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

LinKou Testing Laboratory :
No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
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TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

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1. General Information

1.1. EUT Description

Product Name	LED LAMP Remote control
Model No.	C601RCW
Working Voltage	DC: 3V
Frequency Range	2405~2480 MHz
Channel Number	16
Type of Modulation	GFSK
Date Rate	2bps
Channel Control	Auto
Antenna Type	PCB Antenna
Antenna Gain	3dBi

Channel List

Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
11	2405	12	2410	13	2415	14	2420
15	2425	16	2430	17	2435	18	2440
19	2445	20	2450	21	2455	22	2460
23	2465	24	2470	25	2475	26	2480

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit

Note:

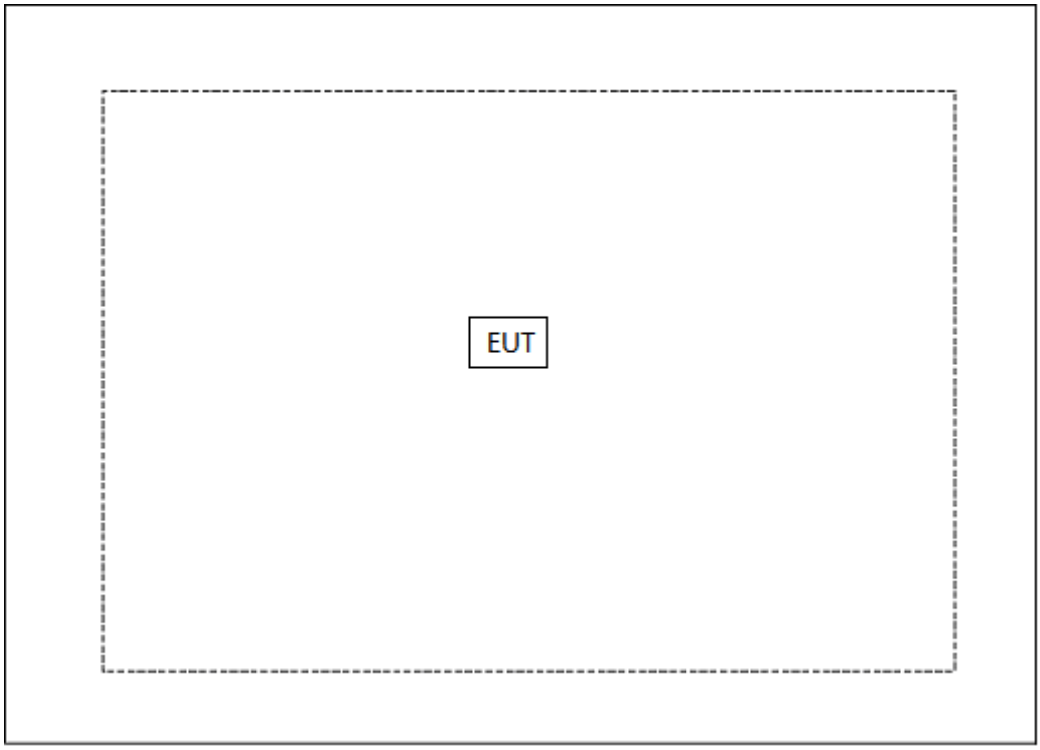
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

1.4. Configuration of Tested System

Connection Diagram		
		
Signal Cable Type		Signal cable Description
A	N/A	N/A

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Select the channel and start to test.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.207 RSS-Gen Issue 3 December 2010 Section 7.2.2	N/A	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.209 and 15.249 RSS-210 Issue 8 December 2010 Section 2.7 Table 2 and Table 3	Yes	No
Band-edge Compliance of RF Conducted Emissions	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.215(c)	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

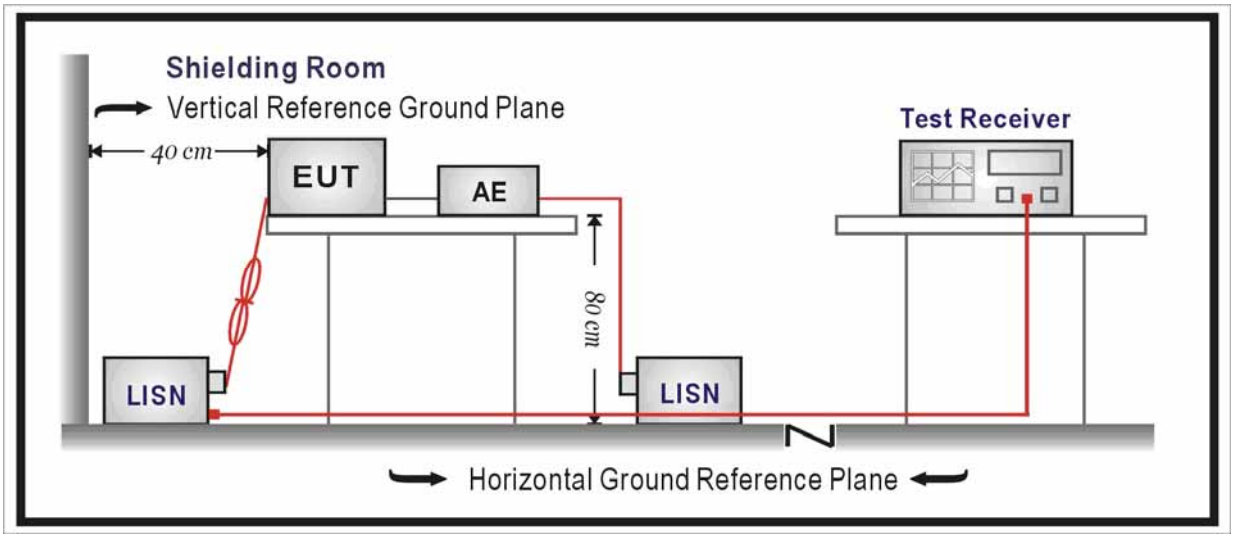
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100726	2015.03.28
Two-Line V-Network	R&S	ENV216	100043	2015.03.28
Two-Line V-Network	R&S	ENV216	100044	2014.09.16
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2014.03.01
50ohm Termination	SHX	TF2	07081401	2014.09.16
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2015.01.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Not applicable.

4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

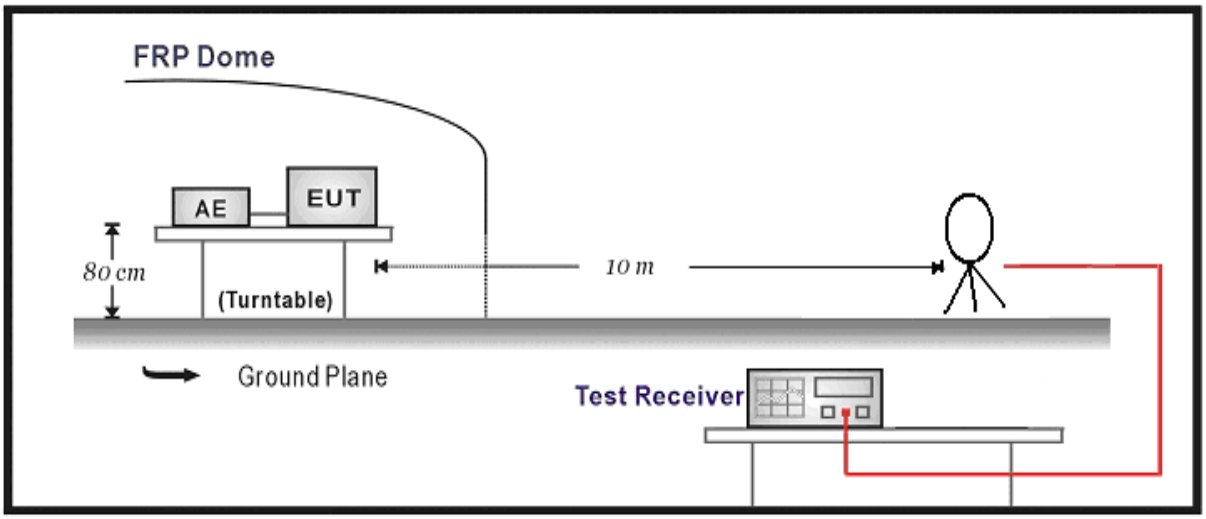
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2015.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2015.11.25
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2014.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2015.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2015.01.08

Radiated Emission / AC-5

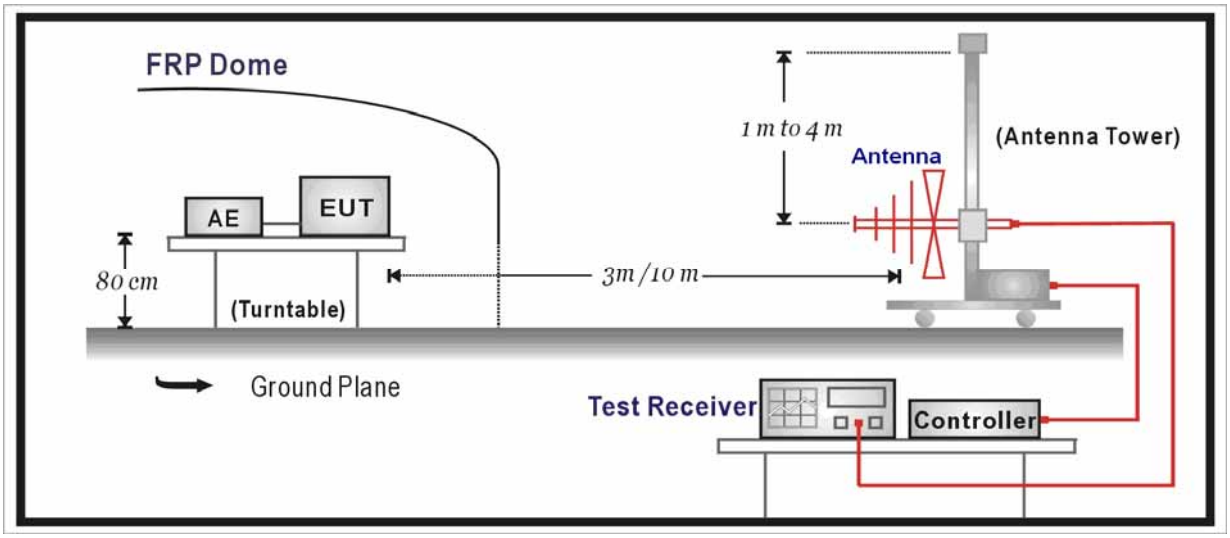
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2015.03.28
Preamplifier	QuieTek	AP-025C	CHM-0602008	2015.05.03
Preamplifier	Miteq	NSP1800-25	1364185	2015.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2015.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2014.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2015.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2015.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2015.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2015.01.08

4.2. Test Setup

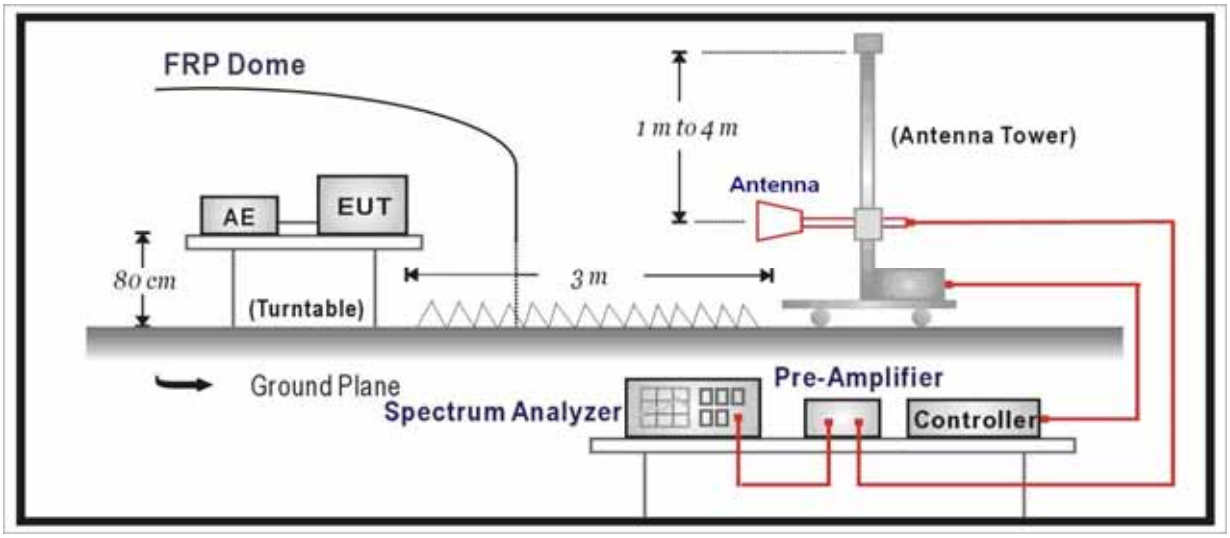
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (uV/m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-80	100**	3
80-216	150**	3
216-960	200**	3
Above 960	500	3

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m).

FCC Part 15 Subpart C Paragraph 15.249		
Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902-928(MHz)	50	500
2400-2483.5(MHz)	50	500
5725-5875(MHz)	50	500
24.0-24.25(GHz)	250	2500

- FCC Part 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 the general radiated emission limits in §15.209, whichever is the lesser attenuation.

4.4. Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 / ANSI C63.10: 2009 on radiated measurement.
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.
The frequency range from 30MHz to 10th harmonic is checked.
Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 60~10 degrees for H-plane and 90~10 degrees for E-plane.

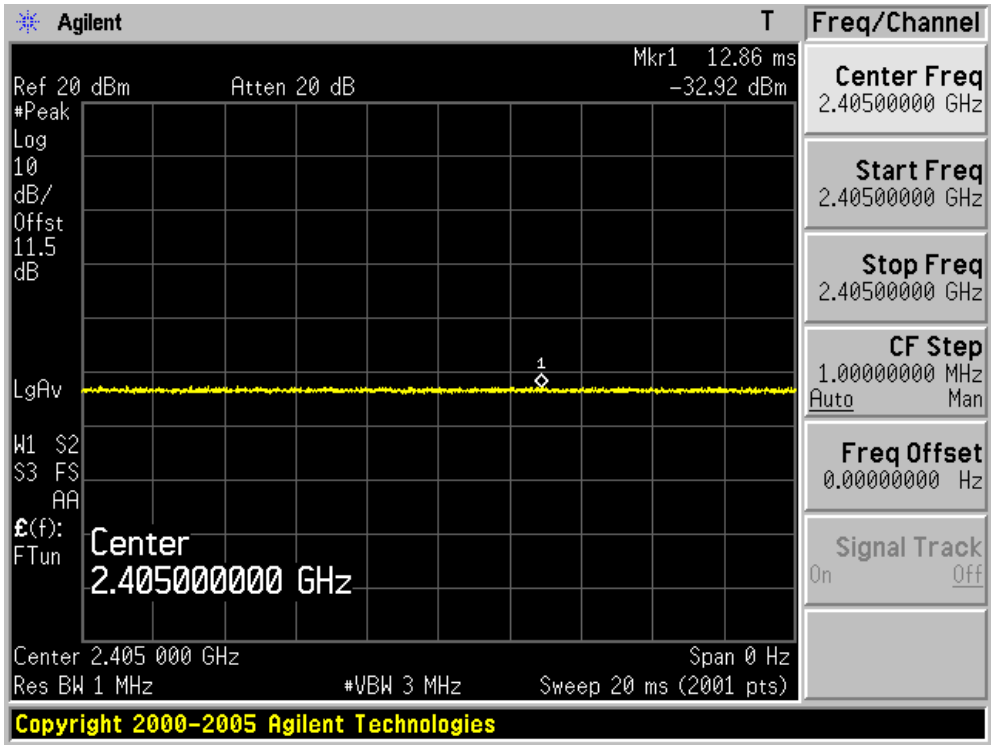
4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

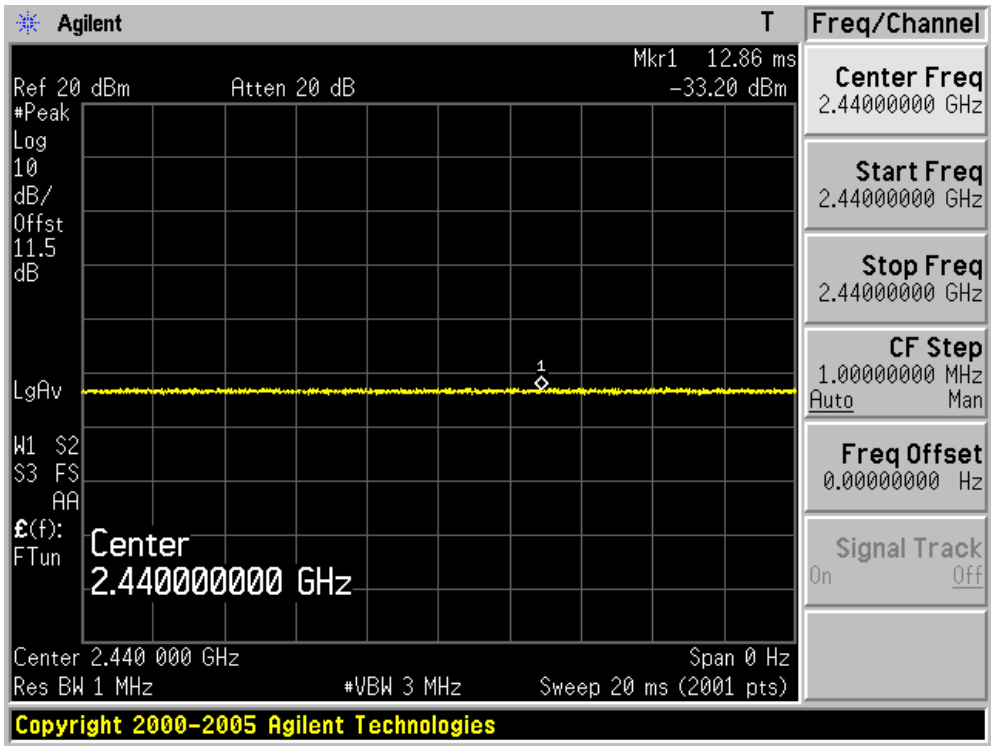
4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;
Average detector = Peak detector - 20*Log(1/Duty Cycle)

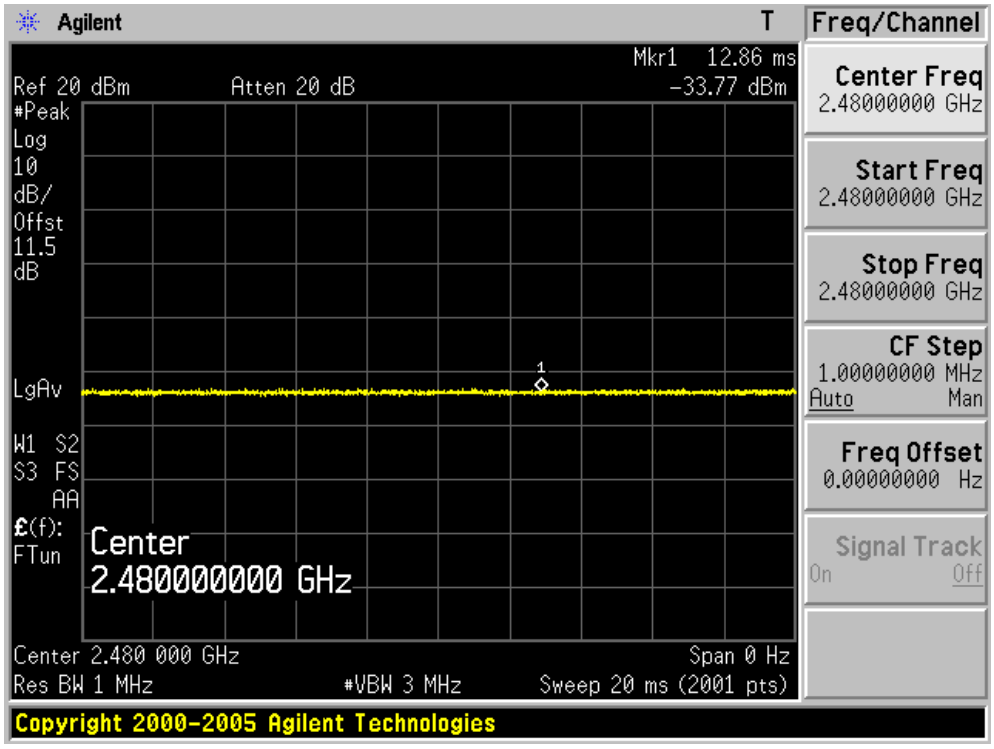
Channel 11 (2405MHz)



Channel 11 (2405MHz)



Channel 11 (2405MHz)



Note: The three plots of the three operating channels are showed above, obviously it's operating continuous, so we selected 99.9% duty factor for calculating.

Fundamental Radiated Emission

Product	:	LED LAMP Remote control
Test Item	:	Fundamental Radiated Emission
Test Site	:	AC-5
Test Mode	:	Mode 1: Transmit

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
2405	H	-53.5	37.8	91.3	114	-22.7	PK
	V	-53.9	37.0	90.9	114	-23.1	PK
2440	H	-54.4	38.4	92.8	114	-21.2	PK
	V	-53.0	37.4	90.4	114	-23.6	PK
2480	H	-55.1	38.1	93.2	114	-20.8	PK
	V	-53.1	37.2	90.3	114	-23.7	PK

Note: Measure Level = Reading Level + Factor.

Frequency (MHz)	Antenna	Peak Measure (dBuV/m)	Duty Cycle Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
2402	H	91.3	-0.08	91.2	94	-2.8	AV
	V	90.9	-0.08	90.8	94	-3.2	AV
2440	H	92.8	-0.08	92.7	94	-1.3	AV
	V	90.4	-0.08	90.3	94	-3.7	AV
2480	H	93.2	-0.08	93.1	94	-0.9	AV
	V	90.3	-0.08	90.2	94	-3.8	AV

Note:1. Measure Level = Peak Measure + Duty Cycle Correct Factor.

2. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

Harmonic Radiated Emission

Product	:	LED LAMP Remote control
Test Item	:	Harmonic Radiated Emission
Test Site	:	AC-5
Test Mode	:	Mode 1: Transmit at Low Channel

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
4808.0	H	39.7	3.6	43.3	74	-30.7	PK
4808.0	V	35.0	9.4	44.4	74	-29.6	PK
7213.5	H	53.7	5.7	59.4	74	-14.6	PK
7213.5	V	43.3	11.6	54.9	74	-19.1	PK

Note: Measure Level = Reading Level + Factor.

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
4808.0	H	33.5	6.7	40.2	54	-13.8	AV
4808.0	V	29.8	9.3	39.1	54	-14.9	AV
7213.5	H	43.2	5.7	48.9	54	-5.1	AV
7213.9	V	33.0	11.5	44.5	54	-9.5	AV

Note: Measure Level = Reading Level + Factor.

Product	:	LED LAMP Remote control
Test Item	:	Harmonic Radiated Emission
Test Site	:	AC-5
Test Mode	:	Mode 1: Transmit at Mid Channel

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
4876.0	H	34.3	9.8	44.1	74	-29.9	PK
4876.0	V	33.0	9.9	42.9	74	-31.1	PK
7315.5	H	45.9	11.7	57.6	74	-16.4	PK
7315.5	V	49.1	11.7	60.8	74	-13.2	PK

Note: Measure Level = Reading Level + Factor.

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
4876.0	H	26.4	9.8	36.2	54	-17.8	AV
4876.0	V	26.9	9.9	36.8	54	-17.2	AV
7318.9	H	35.0	11.7	46.7	54	-7.3	AV
7318.9	V	37.3	11.7	49.0	54	-5.0	AV

Note: Measure Level = Reading Level + Factor.

Product	:	LED LAMP Remote control
Test Item	:	Harmonic Radiated Emission
Test Site	:	AC-5
Test Mode	:	Mode 1: Transmit at High Channel

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
4961.0	H	33.5	10.0	43.5	74	-30.5	PK
4961.0	V	33.8	10.2	44.0	74	-30.0	PK
7434.5	H	46.0	11.9	57.9	74	-16.1	PK
7434.5	V	51.0	11.9	62.9	74	-11.1	PK

Note: Measure Level = Reading Level + Factor.

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
4961.0	H	25.9	9.9	35.8	54	-18.2	AV
4961.0	V	25.8	10.1	35.9	54	-18.1	AV
7438.9	H	35.3	11.8	47.1	54	-6.9	AV
7438.8	V	38.9	11.9	50.8	54	-3.2	AV

Note: Measure Level = Reading Level + Factor.

General Radiated Emission

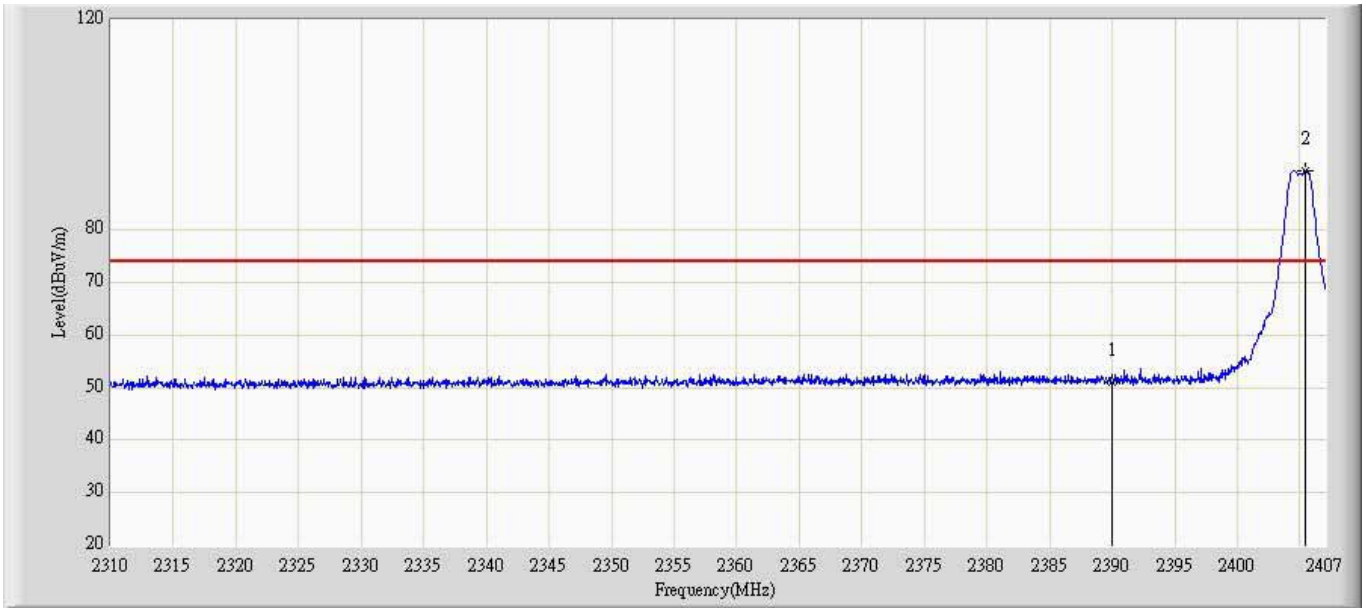
Product	:	LED LAMP Remote control
Test Item	:	General Radiated Emission
Test Mode	:	Mode 1: Transmit

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
154.6	H	8.6	16.7	25.3	43.5	-18.2	QP
172.5	V	5.8	15.7	21.5	43.5	-22.0	QP
193.2	H	6.2	15.8	22.0	43.5	-21.5	QP
195.4	V	5.9	16.2	22.1	43.5	-21.4	QP
4961.0	H	33.5	10.0	43.5	74	-30.5	PK
4961.0	V	33.8	10.2	44.0	74	-30.0	PK
7434.5	H	46.0	11.9	57.9	74	-16.1	PK
7434.5	V	51.0	11.9	62.9	74	-11.1	PK

Note:

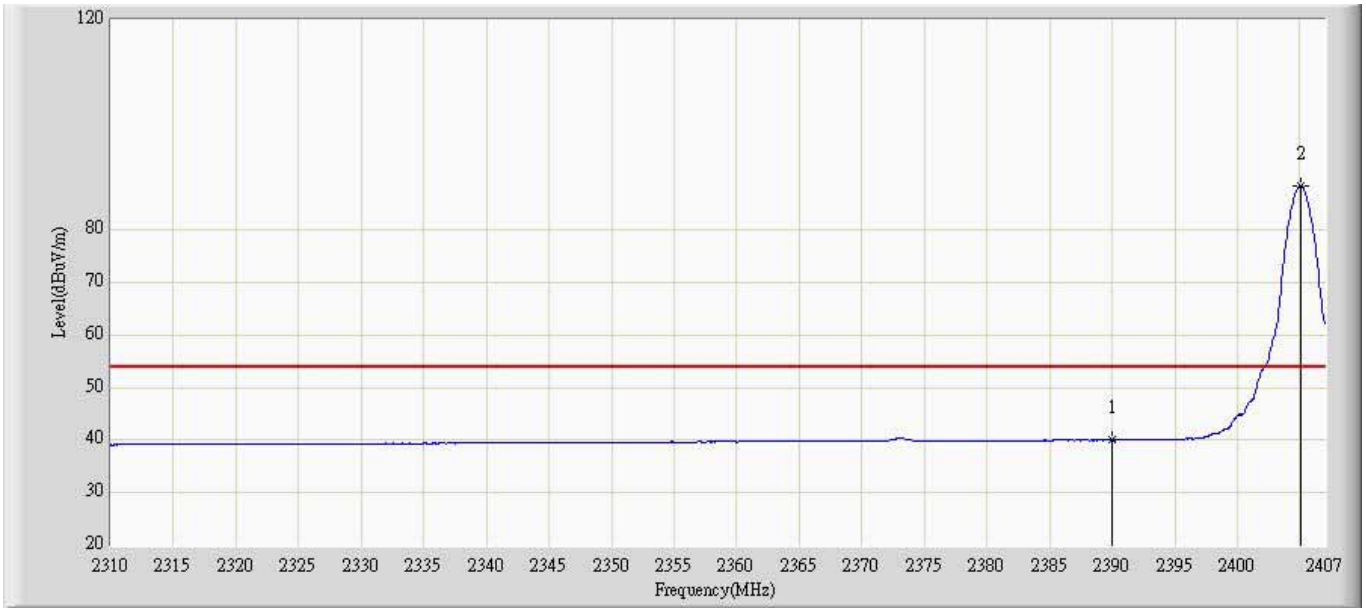
1. Measure Level = Reading Level + Factor.
2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

Engineer: Jack	
Site: AC5	Time: 2014/05/14 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP Remote control	Power: By Battery
Note: Mode 1: Transmit at channel 2402MHz	



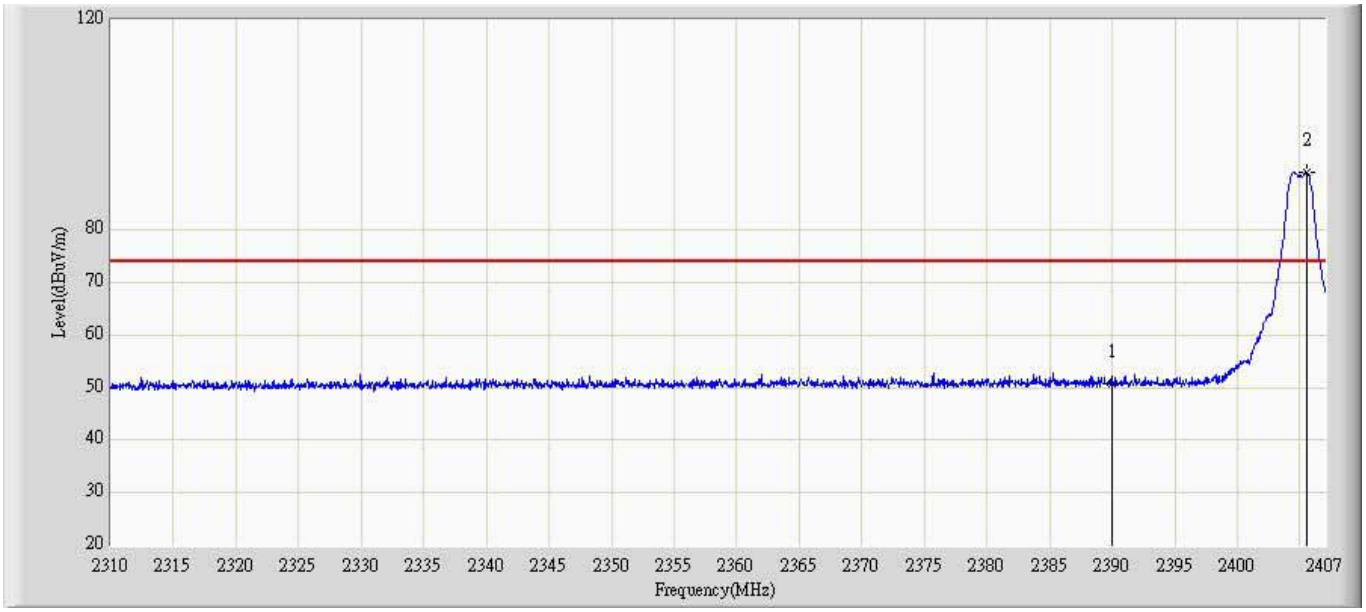
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	50.941	12.688	-23.059	74.000	38.253	PK
2		*	2405.448	91.320	52.929	N/A	N/A	38.392	PK

Engineer: Jack	
Site: AC5	Time: 2014/05/14 - 10:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP Remote control	Power: By Battery
Note: Mode 1: Transmit at channel 2402MHz	



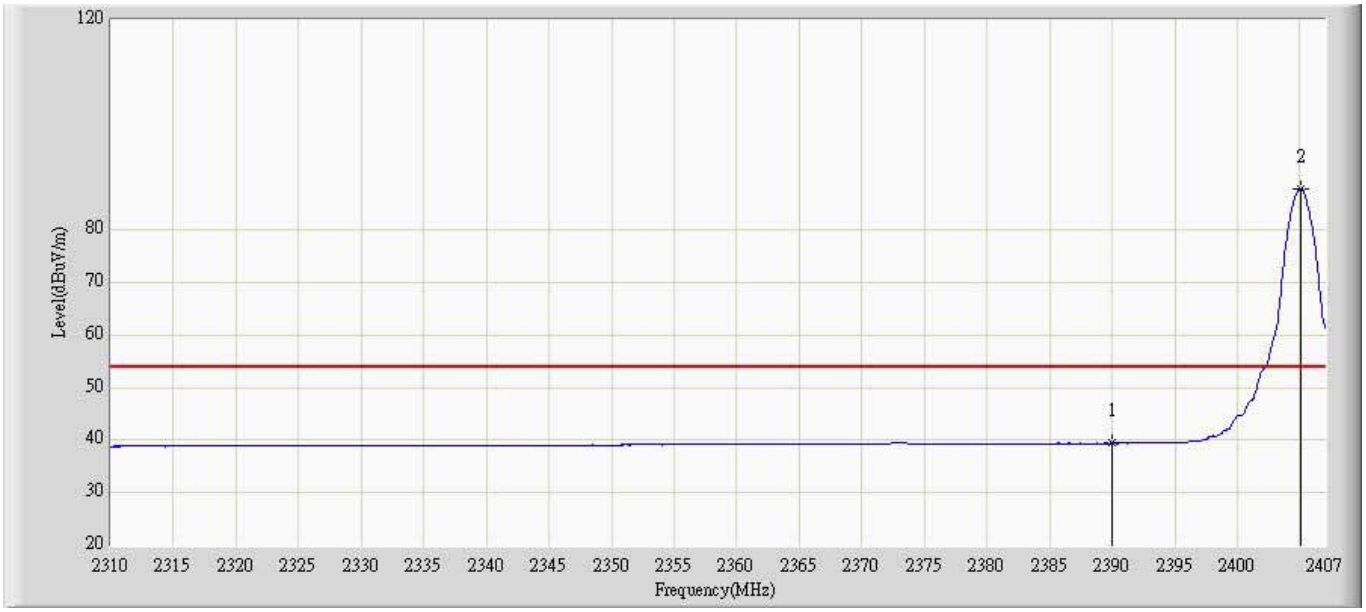
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	39.992	1.739	-14.008	54.000	38.253	AV
2		*	2405.011	88.500	50.113	N/A	N/A	38.387	AV

Engineer: Jack	
Site: AC5	Time: 2014/05/14 - 10:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: LED LAMP Remote control	Power: By Battery
Note: Mode 1: Transmit at channel 2402MHz	



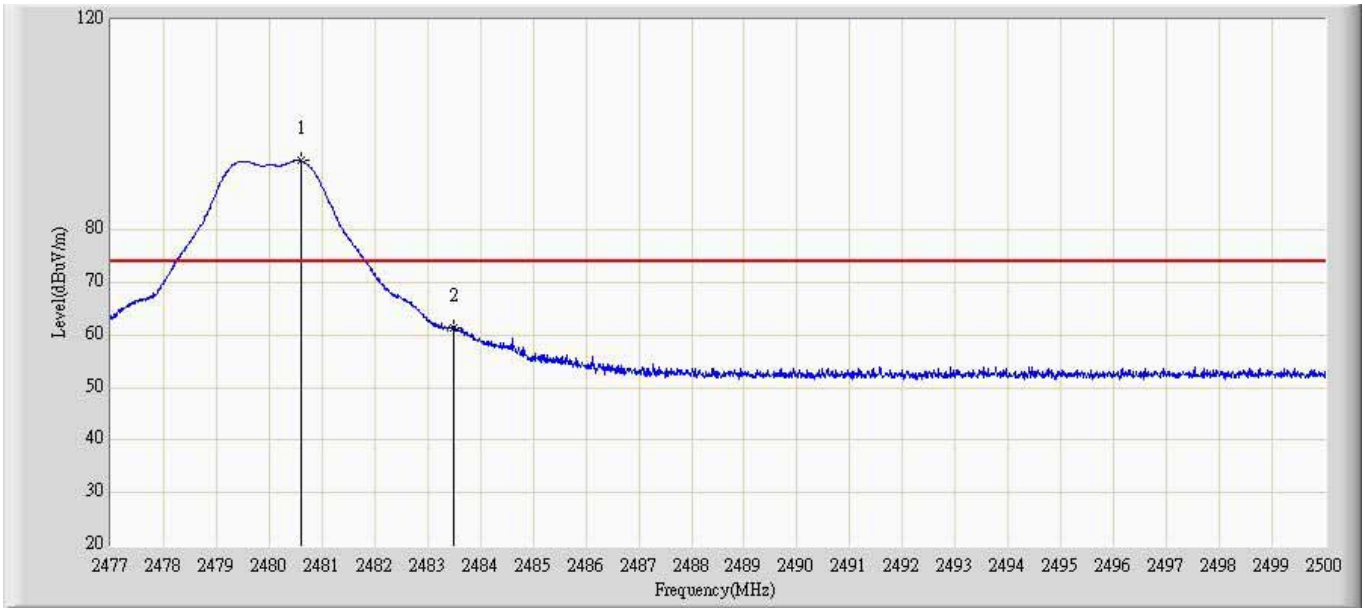
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	50.784	13.191	-23.216	74.000	37.593	PK
2		*	2405.594	90.879	53.209	N/A	N/A	37.670	PK

Engineer: Jack	
Site: AC5	Time: 2014/05/14 - 10:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: LED LAMP Remote control	Power: By Battery
Note: Mode 1: Transmit at channel 2402MHz	



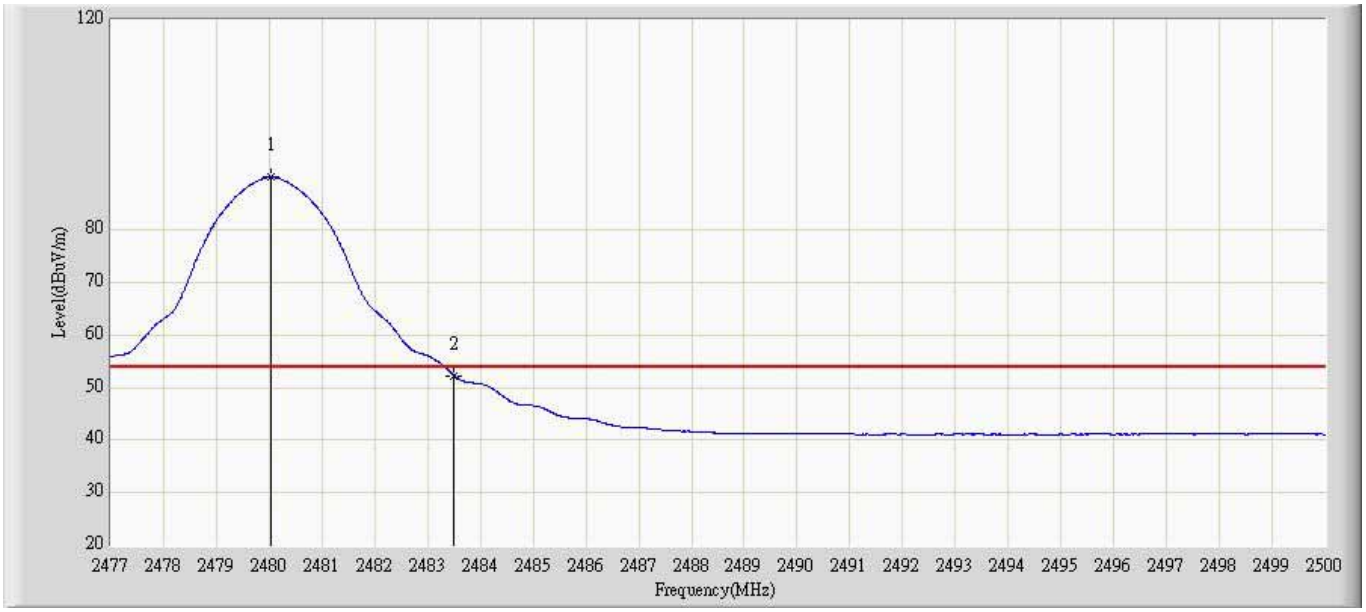
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	39.422	1.829	-14.578	54.000	37.593	AV
2		*	2405.011	87.926	50.259	N/A	N/A	37.667	AV

Engineer: Jack	
Site: AC5	Time: 2014/05/14 - 10:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP Remote control	Power: By Battery
Note: Mode 1: Transmit at channel 2480MHz	



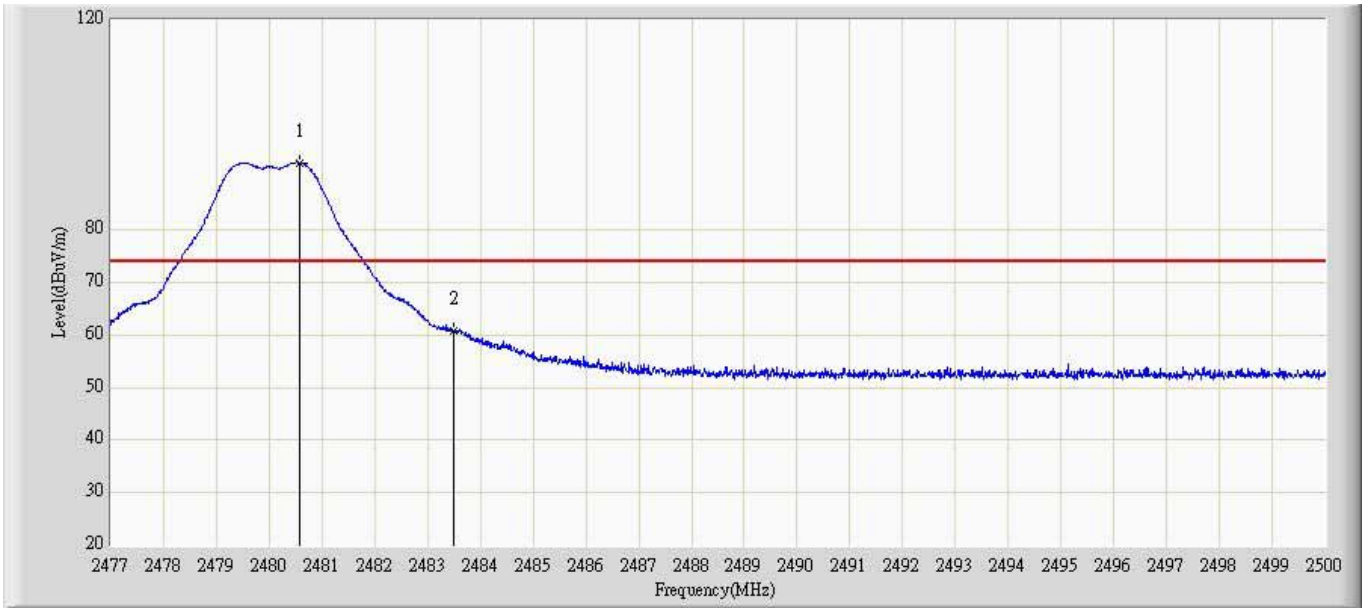
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.600	93.156	54.097	N/A	N/A	39.059	PK
2			2483.500	61.377	22.292	-12.623	74.000	39.084	PK

Engineer: Jack	
Site: AC5	Time: 2014/05/14 - 11:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP Remote control	Power: By Battery
Note: Mode 1: Transmit at channel 2480MHz	



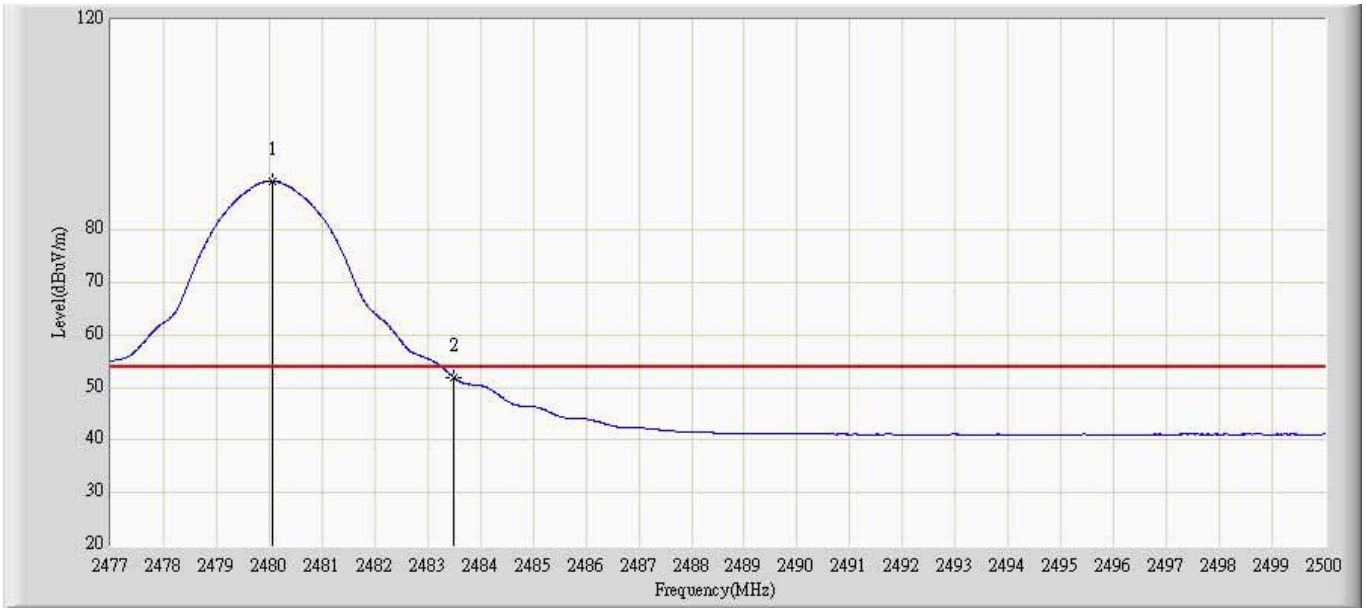
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.024	90.034	50.980	N/A	N/A	39.054	AV
2			2483.500	52.322	13.237	-1.678	54.000	39.084	AV

Engineer: Jack	
Site: AC5	Time: 2014/05/14 - 10:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: LED LAMP Remote control	Power: By Battery
Note: Mode 1: Transmit at channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.565	92.828	53.769	N/A	N/A	39.059	PK
2			2483.500	60.831	21.746	-13.169	74.000	39.084	PK

Engineer: Jack	
Site: AC5	Time: 2014/05/14 - 10:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: LED LAMP Remote control	Power: By Battery
Note: Mode 1: Transmit at channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.059	89.350	50.296	N/A	N/A	39.054	AV
2			2483.500	51.865	12.780	-2.135	54.000	39.084	AV

5. Band-edge Compliance of RF Conducted Emissions

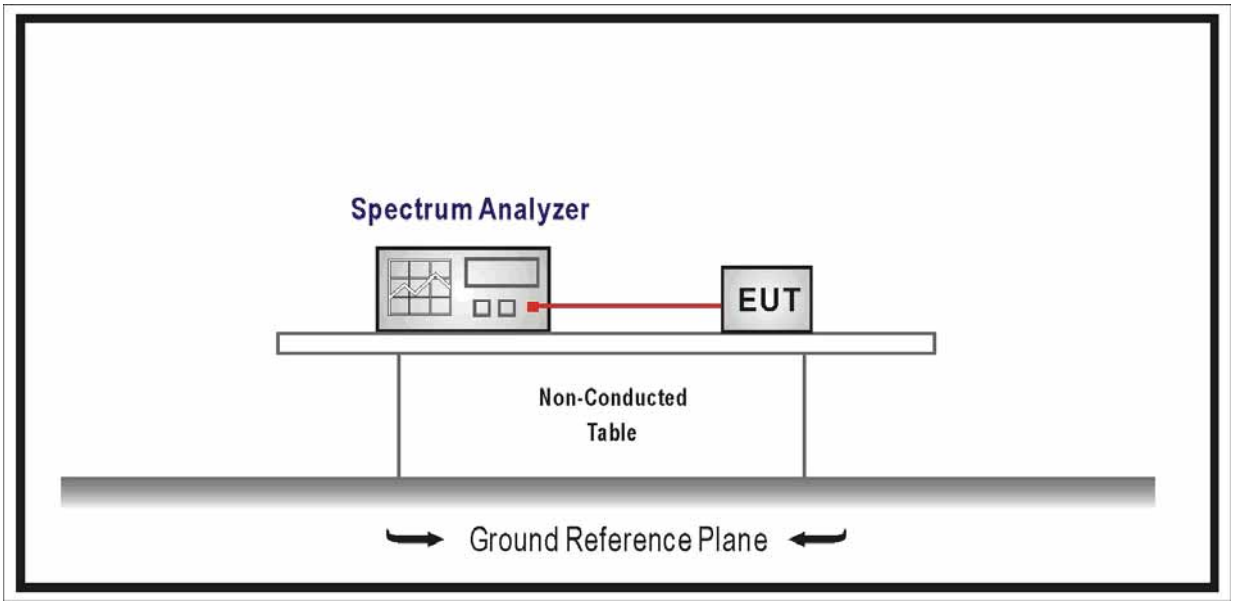
5.1. Test Equipment

Band-edge Compliance of RF Conducted Emissions / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2015.01.07
Temperature/Humidity Meter	Zhicheng	ZC1-2	TR8-TH	2015.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup



5.3. Limit

- FCC Part 15.215 (c), 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 FCC part 15, must be designed to ensure that 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.4. Test Procedure

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation.
RBW ≧ 1% of the span
VBW ≧ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation prouduct outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section.
Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

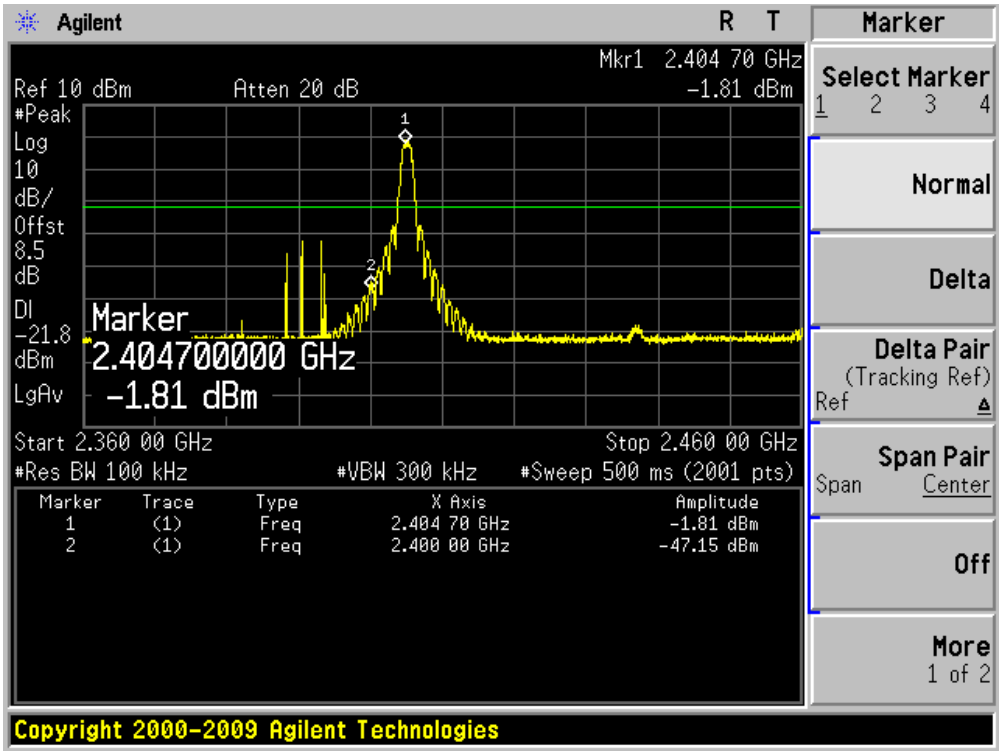
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

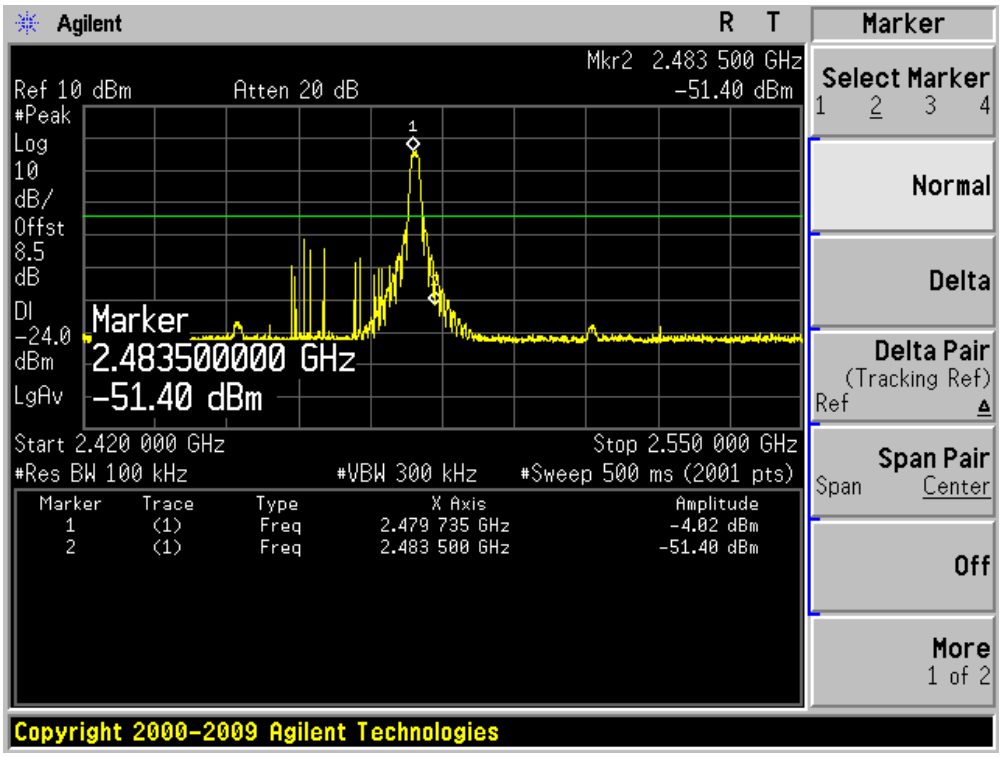
5.6. Test Result

Product	:	LED LAMP Remote control
Test Item	:	Band-edge Compliance of RF Conducted Emissions for FCC Part15.215
Test Mode	:	Mode 1: Transmit

Channel 11 (2405MHz)



Channel 26 (2463MHz)



6. Occupied Bandwidth

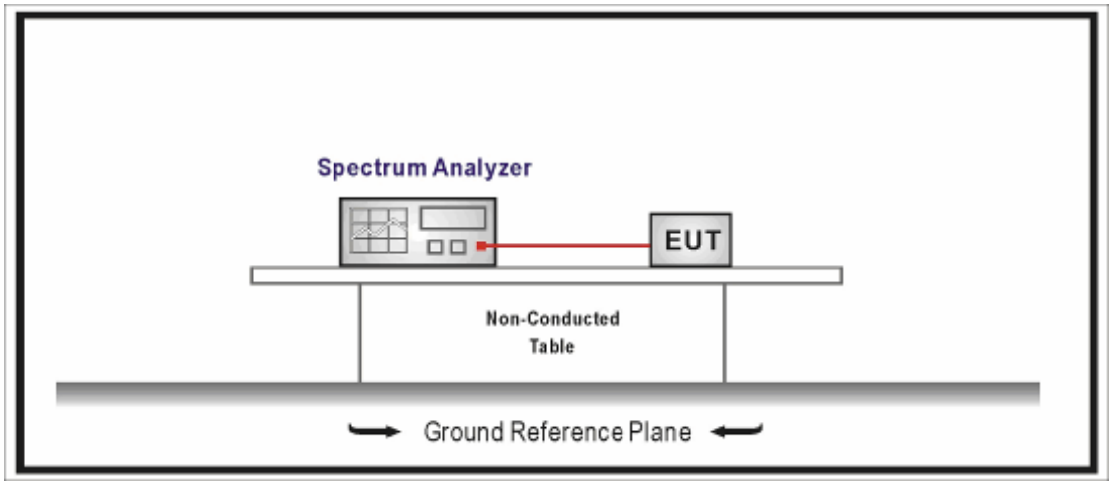
6.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2015.01.07
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

6.2. Test Setup



6.3. Limit

The minimum 99% bandwidth shall be at least 500 kHz.

6.4. Test Procedure

The EUT was tested according to RSS-Gen Issue 3 for compliance.
The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual.

6.5. Uncertainty

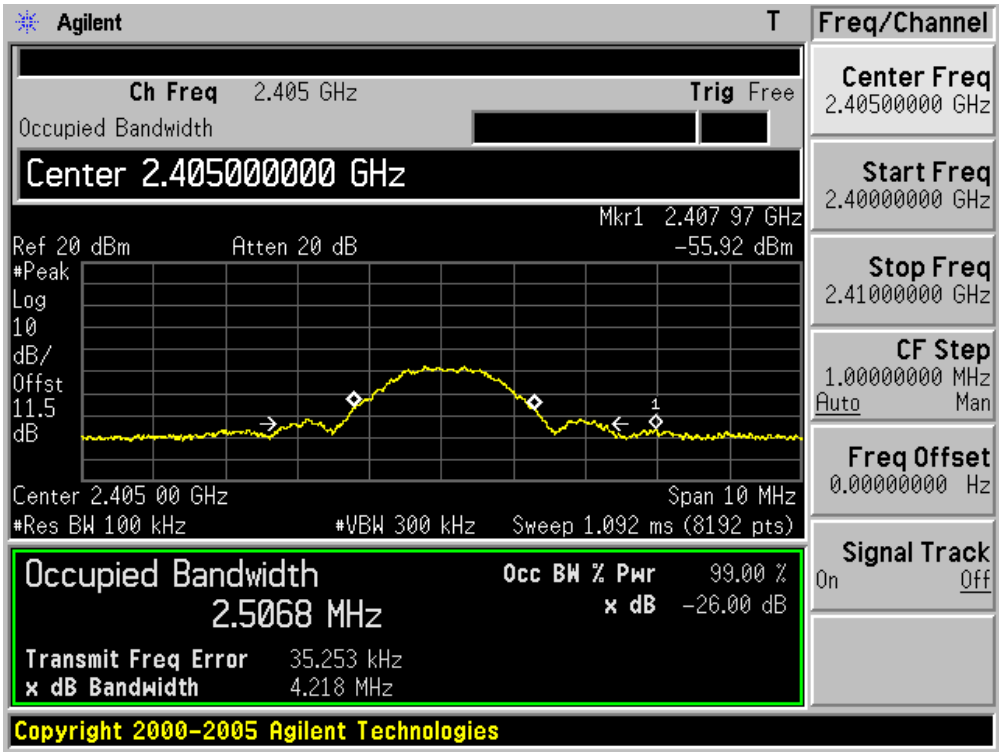
The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

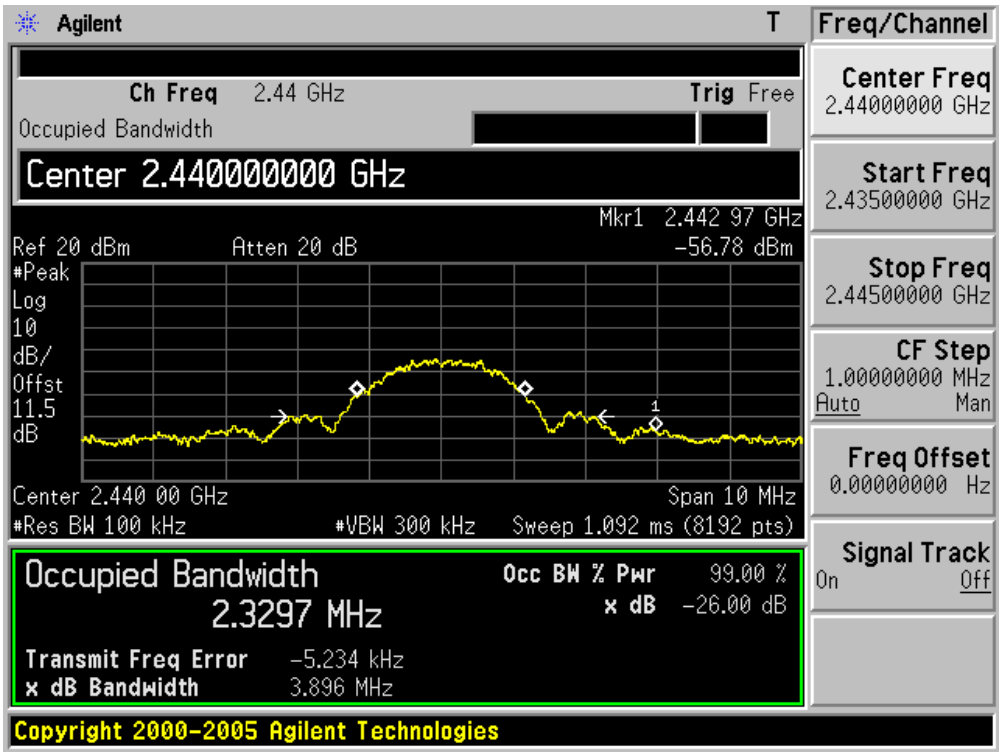
Product	:	LED LAMP Remote control
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Transmit at Low, Mid and High channels

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
11	2405	2506.8	500	Pass
18	2440	2329.7	500	Pass
25	2480	2524.1	500	Pass

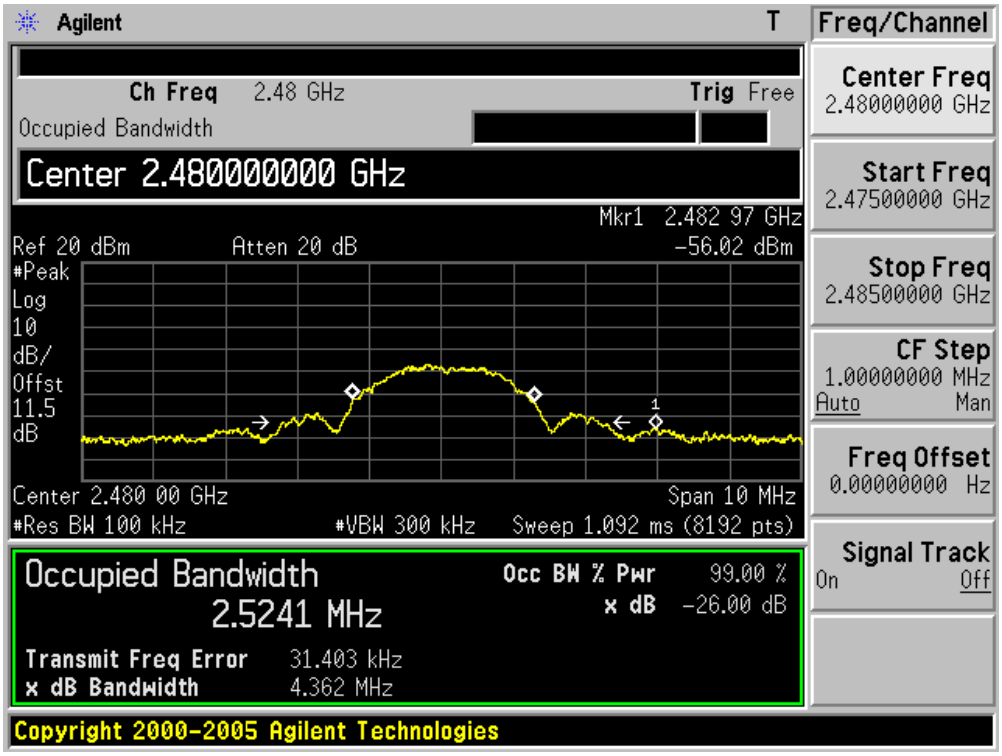
Channel 11 (2405MHz)



Channel 18 (2440MHz)



Channel 25 (2480MHz)



The End