DEKRA Testing and Certification (Suzhou) Co., Ltd.
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098

Test report No:
2120504R-RF-US-P06V02

FCC & ISED TEST REPORT

Product Name	LED lamp
Trademark	PHILIPS
Model and /or type reference	9290022267A
FCC ID	2AGBW9290022267AX
IC	20812-22267AX
Applicant´s name / address	Signify (China) Investment Co., Ltd Building no.9, Lane 888, Tianlin Road, Minhang District, Shanghai
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 KD558074 D01 15.247 Meas Guidance v05r02 RSS-Gen Issue 5 RSS-247 Issue 2
Verdict Summary	IN COMPLIANCE
Testedby (name / position & signature)	Scott Shen/Project Engineer Scott Shen
Approved by (name / position & signature)	Jack Zhang/Supervisor Jack zhang
Date of issue	2021-03-23
Report Version	V1.0
Report template No	Template_FCC 15.247-RF-V1.0

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.
In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Feb. 23, 2021
Date (start test)	Feb. 24, 2020
Date (finish test)	Mar. 15, 2021

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT : Equipment Under Test
QP : Quasi-Peak
CAV : CISPR Average
AV : Average
CDN : Coupling Decoupling Network
SAC : Semi-Anechoic Chamber
OATS : Open Area Test Site
BW : Bandwidth
AM : Amplitude Modulation
PM : Pulse Modulation
HCP : Horizontal Coupling Plane
VCP : Vertical Coupling Plane
U_N : Nominal voltage
*T*x : Transmitter
*R*x : Receiver
N/A : Not Applicable
N/M : Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2120504R-RF-US-P06V02	V1.0	Initial issue of report.	2021-03-23

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247, RSS-Gen Issue 5, RSS-247 Issue 2.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
   - Chapter 1.1 General Description of the Item(s);
   - Chapter 1.2 Antenna Information;
   - Chapter 1.3 Channel List.

USED EQUIPMENT

AC Power Line Conducted Emission / TR1

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.18	2021.04.17
Two-Line V-Network	R&S	ENV216	101044	2020.04.18	2021.04.17
50ohm Termination	SHX	TF2	7081402	2020.09.23	2021.09.22
50ohm Termination	SHX	TF2	7081403	2020.09.23	2021.09.22
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2020.08.23	2021.08.22
Dekra test software	Dekra	-	-	-	-

Emissions in non-restricted frequency bands/ Occupied Bandwidth/ Fundamental emission output power/ Power Spectral Density / TR8

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
4TX MIMO Power Sensor	Keysight	X8750A	MY59400102	2021.02.11	2022.02.10
Coaxial Cable	Woken	SFL402	F02-150410-044	2021.01.01	2021.12.31
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2020.08.13	2021.08.12

Radiated Emission(30MHz-1GHz) / AC2

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2020.12.06	2021.12.05
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2020.09.22	2021.09.21
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2020.04.05	2021.04.04
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2020.08.13	2021.08.12
Dekra test software	Dekra	-	-	-	-

Radiated Emission(1GHz-40GHz) / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
Amplifier	Keleto	LNPA	SK20190225	2020.09.25	2021.09.24
Preamplifier	EMCI	EMC184045SE	980263	2020.05.24	2021.05.23
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2020.08.06	2021.08.05
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.05	2021.04.04
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2020.04.18	2021.04.17
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2020.08.13	2021.08.12
Dekra test software	Dekra	-	-	-	-

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document.The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%The Uncertainties is complice with standard required as below.

Test item	Uncertainty
AC Power Line Conducted Emission	9kHz~150kHz: 2.80dB 150kHz~30MHz: 2.40dB
Peak Power Output	± 1.27 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 3.50 dB 300MHz~1GHz: 3.60 dB Vertical: 30MHz~200MHz: 3.60 dB 300MHz~1GHz: 3.50 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB
RF antenna conducted test	± 1.27dB
Radiated Emission Band Edge	± 3.9 dB
DTS Bandwidth	±150Hz
Occupied Bandwidth	±1kHz
Power Density	±1.27dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name ..... :	LED lamp
Model No. ..... :	9290022267A
FCC ID ..... :	2AGBW9290022267AX
IC ..... :	20812-22267AX
Manufacturter ..... :	Signify (China) Investment Co., Ltd
Manufacturer Address ..... :	Building no.9, Lane 888, Tianlin Road, Minhang District, Shanghai

Wireless specifiction..... :	Bluetooth 5.0					
Operating frequency range(s) ..... :	2400~2483.5MHz					
Type of Modulation..... :	GFSK					
PHYs ..... :	☒	LE 1M	☒	LE 2M	☒	LE Coded S=2/8
Data Rate ..... :	☒	1Mbit/s	☒	2Mbit/s	☒	500/125 Kbit/s
Number of channel..... :	40					

Rated power supply ..... :	Voltage and Frequency	
	☐	AC: 220 – 240 V, 50/60 Hz
	☒	AC: 110 – 130 Vac, 50/60 Hz
	☐	DC: 24 Vdc
	☐	Battery: ……
Mounting position ..... :	☐	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Head-mounted equipment
	☒	Other:

1.2 Antenna Information

Antenna model / type number ..... :	N/A			
Antenna serial number ..... :	N/A			
Antenna Delivery ..... :	☒	1TX + 1RX		
	☐	2TX + 2RX		
Antenna technology ..... :	☒	SISO		
	☐	MIMO	☐	CDD
			☐	Beam-forming
Antenna Type ..... :	☐	External	☐	Dipole
			☐	Sectorized
	☒	Internal	☐	PIFA
			☒	PCB
			☐	Metal Monopole Antenna
			☐	Others……..
Antenna Gain ..... :	-0.8 dBi			

1.3 Channel List

Bluetooth Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

Note: The general description of the Item(s), antenna information and channel list in clause 1 are provided and confirmed by the client.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

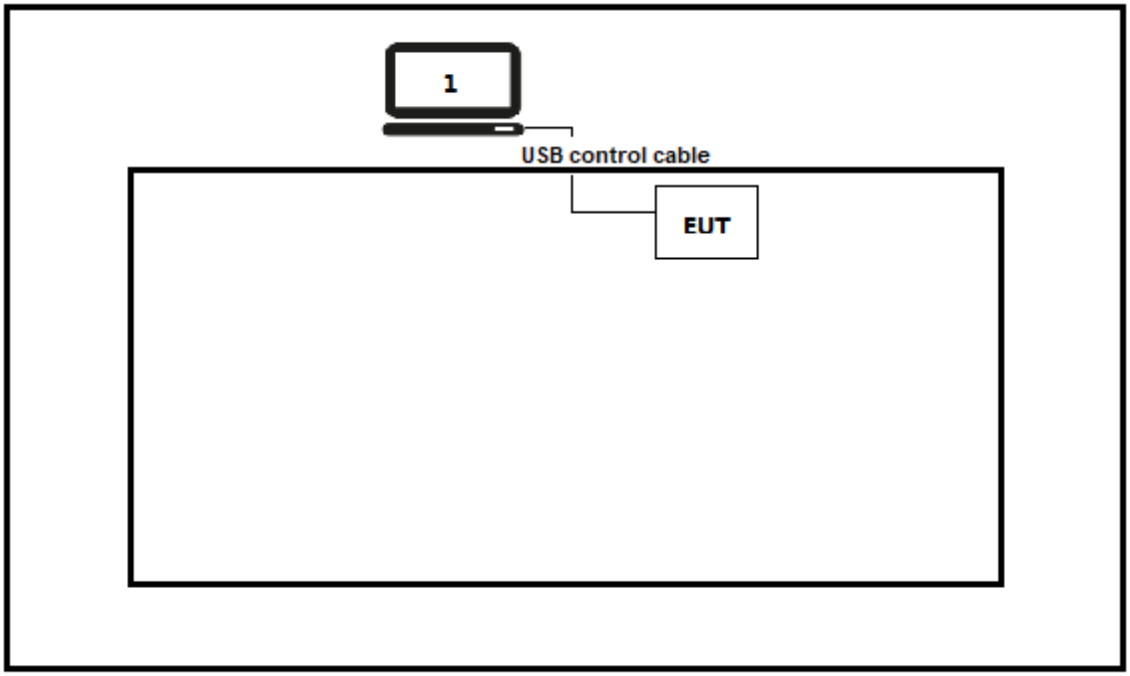
Test Mode For Bluetooth	Mode1: Transmit by LE_1Mbps
	Mode2: Transmit by LE_2Mbps
	Mode3: Transmit by LE_Coded S=2
	Mode4: Transmit by LE_Coded S=8

2.2 Auxiliary equipment / Test software for the EUT

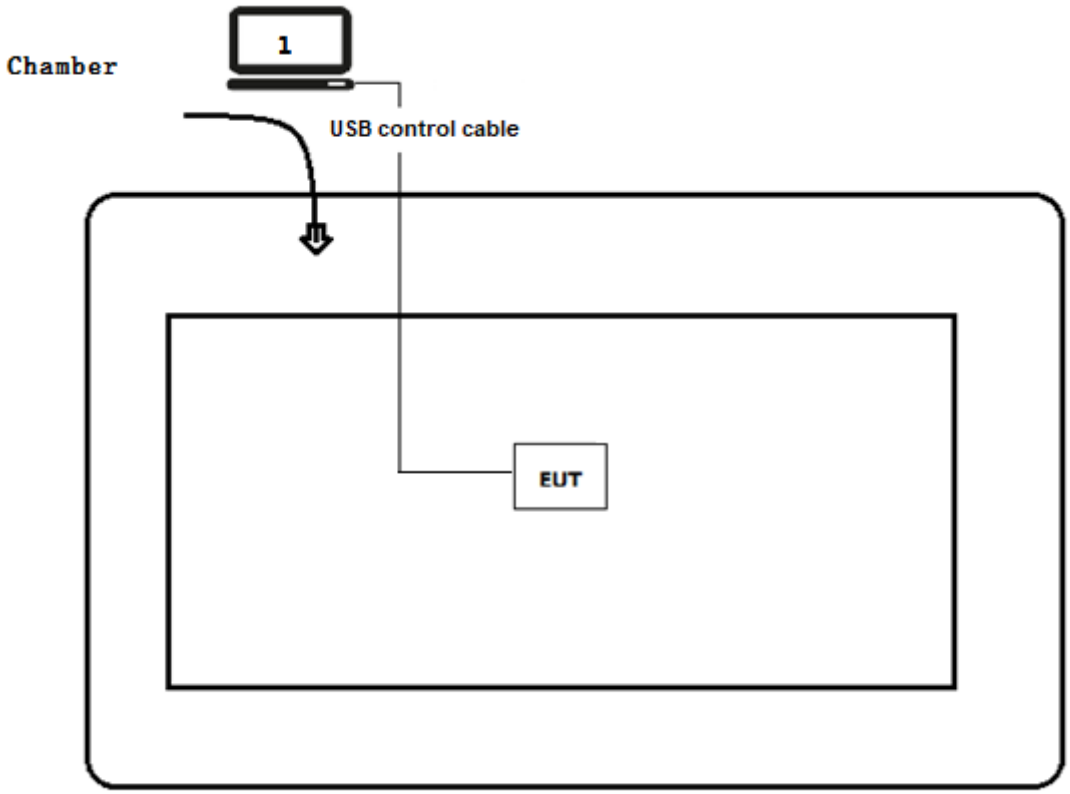
Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x220	Lenovo	Adapter
Software	Type / Version	Manufacturer	Supplied by
ApprobationTool	N/A	N/A	N/A

2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



2.4 Testing process

1	Setup the EUT as shown in Section 2.3.
2	Execute test software“ApprobationTool”on the notebook.
3	Configure the test mode, the test channel, and the data rate.
4	Verify that the EUT works properly.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2021	Operation within the bands902–928 MHz, 2400–2483.5 MHz, and5725–5850 MHz.
ANSI C63.10	2013	American National Standard ofProcedures for Compliance Testing ofUnlicensed Wireless Devices
KDB558074 D01 v05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247
RSS-Gen Issue 5 Amendment 2	2021	General Requirements forCompliance of Radio Apparatus
RSS-247 Issue 2	2017	Digital Transmission Systems (DTSs),Frequency Hopping Systems (FHSs)and Licence-Exempt Local Area Network(LE-LAN) Devices

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

(Please define the deviations from the standard(s) if applicable)

3.3 Overview of results

For FCC

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	FCC 15.207	PASS	---
Emissions in restricted frequency bands	FCC 15.247(b)(3)	PASS	---
Duty cycle	ANSI C63.10:2013	PASS	---
Emissions in non-restricted frequency bands	FCC 15.247(d), FCC 15.209	PASS	---
Radiated Emission Band Edge	FCC 15.247(d)	PASS	---
Fundamental emission output power	FCC 15.247(d), FCC 15.209	PASS	---
DTS Bandwidth	FCC 15.247(a)(2)	PASS	---
Power Spectral Density	FCC 15.247(e)	PASS	---
Antenna Requirement	FCC 15.203	PASS	---

For ISED

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	RSS-Gen Issue 5Section 8.8	PASS	---
Emissions in restricted frequency bands	RSS-Gen Issue 5 Section 8.9	PASS	---
Duty cycle	ANSI C63.10:2013	PASS	---
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section 5.5	PASS	---
Radiated Emission Band Edge	RSS-Gen Issue 5 Section 8.10	PASS	---
Fundamental emission output power	RSS-247 Issue 2 Section 5.4(d)	PASS	---
DTS Bandwidth	RSS-Gen Issue 5 Section 6.7	PASS	---
Power Spectral Density	RSS-247 Issue 2 Section 5.2(b)	PASS	---
Antenna Requirement	RSS-Gen Issue 5 Section 6.8	PASS	---

3.4 Test Facility

USA	**:**	**FCC Designation Number: CN1199**
CA	**:**	**ISED CAB identifier: CN0040**

4 TEST RESULTS

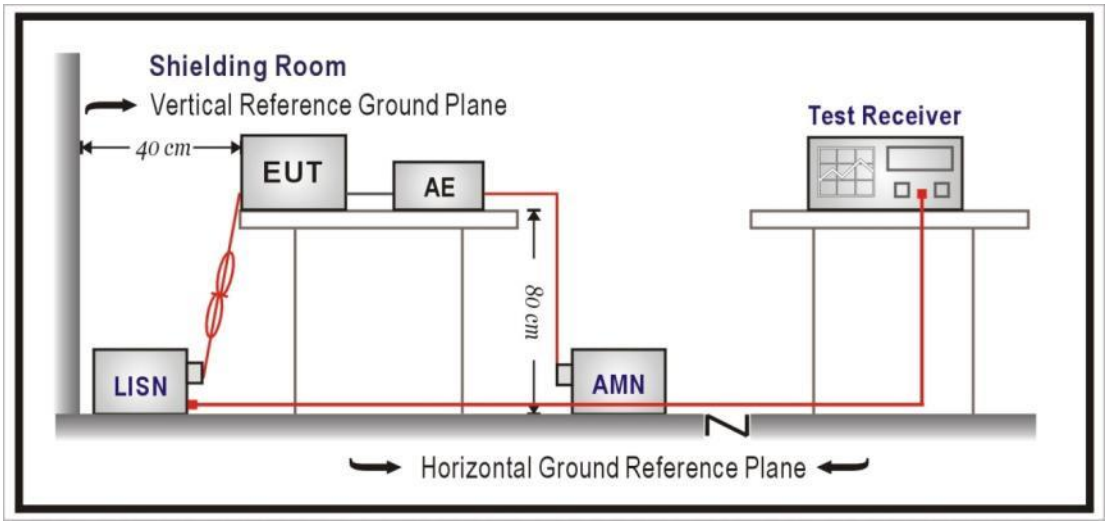
4.1 AC Power Line Conducted Emission	VERDICT: PASS

4.1.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207	
Frequency range [MHz]	Limit: QP [dB(μV)[1)]]	Limit: AV [dB(μV) [1)]]
0,15 - 0,50	66 – 56 [2)]	56 - 46 [2)]
0,50 - 5,0	56	46
5,0 - 30	60	50

[1)] At the transition frequency, the lower limit applies.
[2)] The limit decreases linearly with the logarithm of the frequency.
NOTE 1: The exclusion band for transmitters shall be considered for transmitters operating at frequencies below 30 MHz.
NOTE 2: Where the AC output port is directly connected (or via a circuit breaker) to the AC power input port of the EUT the AC power output port need not to be tested.

4.1.2 Test Setup

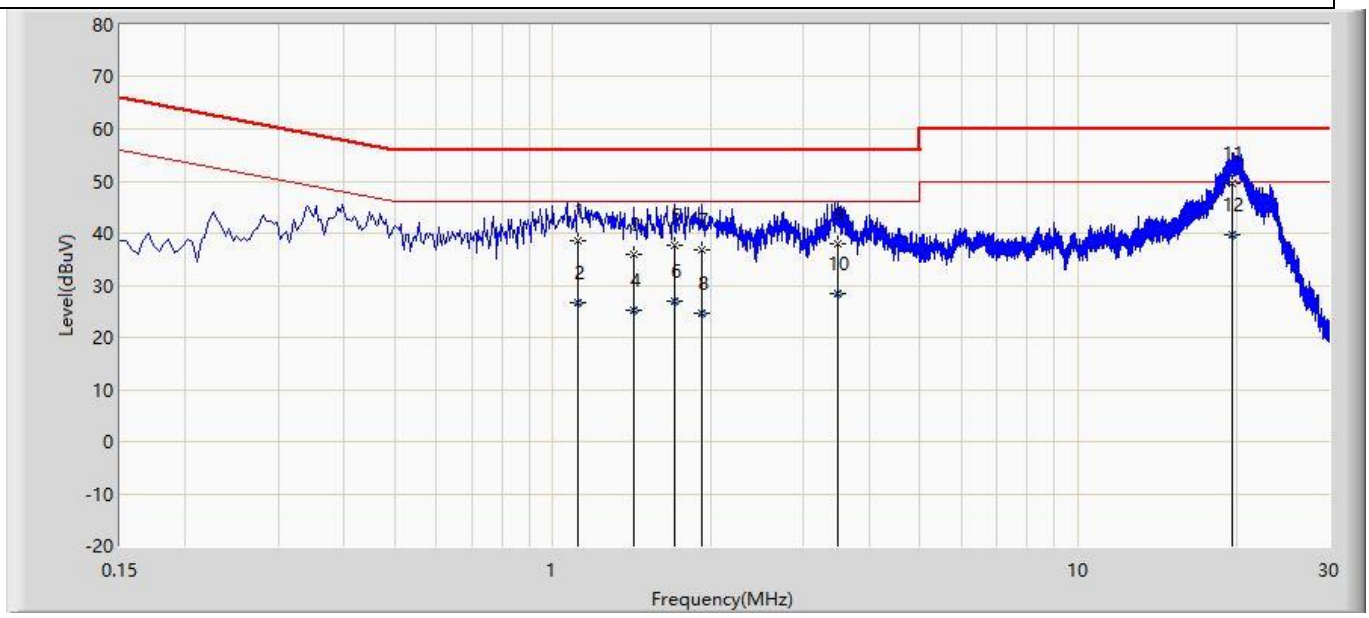


4.1.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensedwireless devices

4.1.4 Test Data

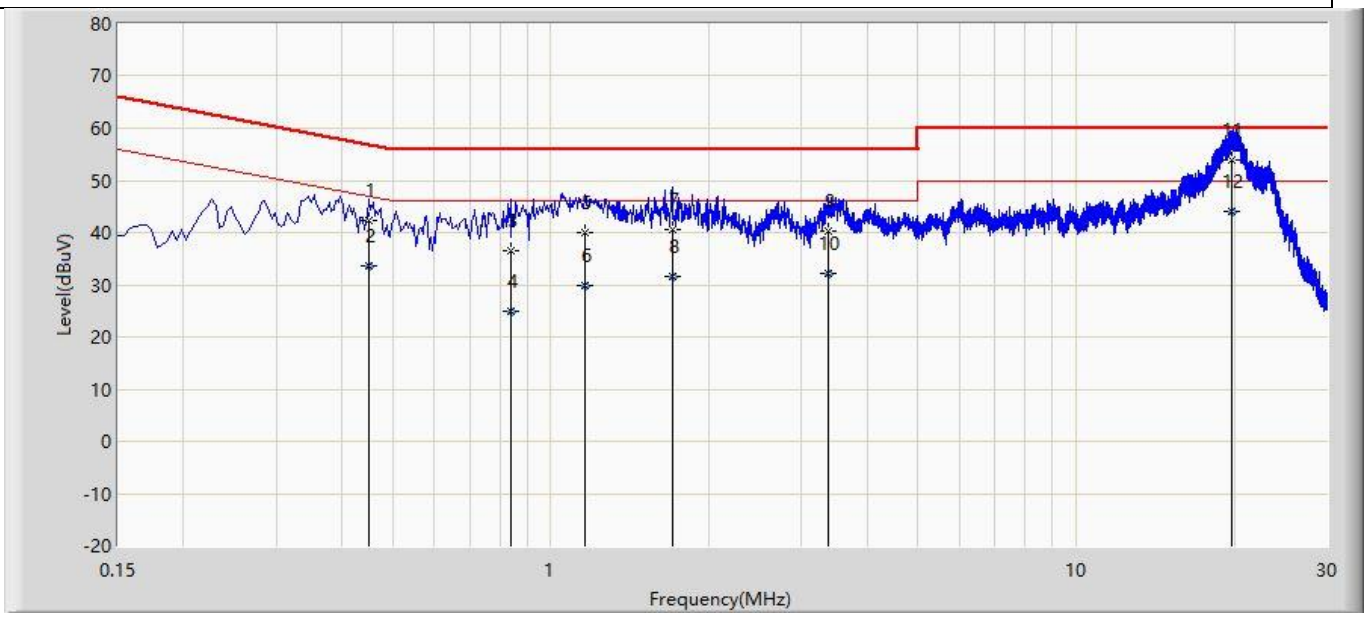
Profile: 2120504R	Page No.: 6
Engineer: Jun Xu	
Site: TR1	Time: 2021/03/04 - 12:11
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		1.114	38.419	28.471	-17.581	56.000	9.886	0.061	0.000	QP
2		1.114	26.707	16.760	-19.293	46.000	9.886	0.061	0.000	AV
3		1.430	36.085	26.137	-19.915	56.000	9.877	0.070	0.000	QP
4		1.430	25.358	15.410	-20.642	46.000	9.877	0.070	0.000	AV
5		1.706	37.735	27.787	-18.265	56.000	9.868	0.079	0.000	QP
6		1.706	26.835	16.888	-19.165	46.000	9.868	0.079	0.000	AV
7		1.922	36.814	26.869	-19.186	56.000	9.862	0.083	0.000	QP
8		1.922	24.534	14.589	-21.466	46.000	9.862	0.083	0.000	AV
9		3.478	37.955	27.952	-18.045	56.000	9.885	0.119	0.000	QP
10		3.478	28.358	18.354	-17.642	46.000	9.885	0.119	0.000	AV
11		19.614	49.686	39.102	-10.314	60.000	10.301	0.284	0.000	QP
12	*	19.614	39.688	29.103	-10.312	50.000	10.301	0.284	0.000	AV

Note:
1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Profile: 2120504R	Page No.: 7
Engineer: Jun Xu	
Site: TR1	Time: 2021/03/04 - 12:15
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.450	42.307	32.499	-14.568	56.875	9.768	0.040	0.000	QP
2		0.450	33.759	23.951	-13.116	46.875	9.768	0.040	0.000	AV
3		0.838	36.418	26.482	-19.582	56.000	9.883	0.053	0.000	QP
4		0.838	25.063	15.126	-20.937	46.000	9.883	0.053	0.000	AV
5		1.162	40.108	30.129	-15.892	56.000	9.916	0.062	0.000	QP
6		1.162	29.735	19.756	-16.265	46.000	9.916	0.062	0.000	AV
7		1.702	40.605	30.587	-15.395	56.000	9.938	0.079	0.000	QP
8		1.702	31.653	21.636	-14.347	46.000	9.938	0.079	0.000	AV
9		3.382	40.205	30.115	-15.795	56.000	9.973	0.117	0.000	QP
10		3.382	32.089	21.999	-13.911	46.000	9.973	0.117	0.000	AV
11	*	19.786	53.993	43.410	-6.007	60.000	10.297	0.285	0.000	QP
12		19.786	43.921	33.338	-6.079	50.000	10.297	0.285	0.000	AV

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4.2 Emissions in restricted frequency bands — VERDICT: PASS

4.2.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.209		
Restricted Bands of operation for FCC			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
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
8.81425 – 8.81475	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	
13.36 – 13.41			
Restricted Bands of operation for IC			
0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6
8.362 - 8.366	162.0125 - 167.17	3500 - 4400	
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150	
8.41425 - 8.41475	240 - 285	5350 - 5460	
12.29 - 12.293	322 - 335.4	7250 - 7750	
12.51975 - 12.52025	399.9 - 410	8025 - 8500	
12.57675 - 12.57725	608 - 614	--	

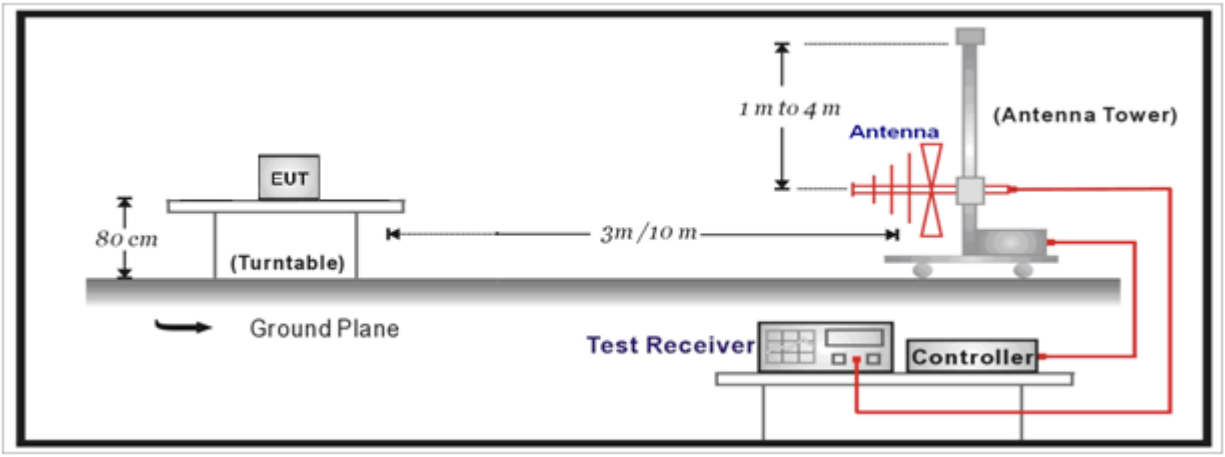
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 -88	100	40	3(Note 2)
88-216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

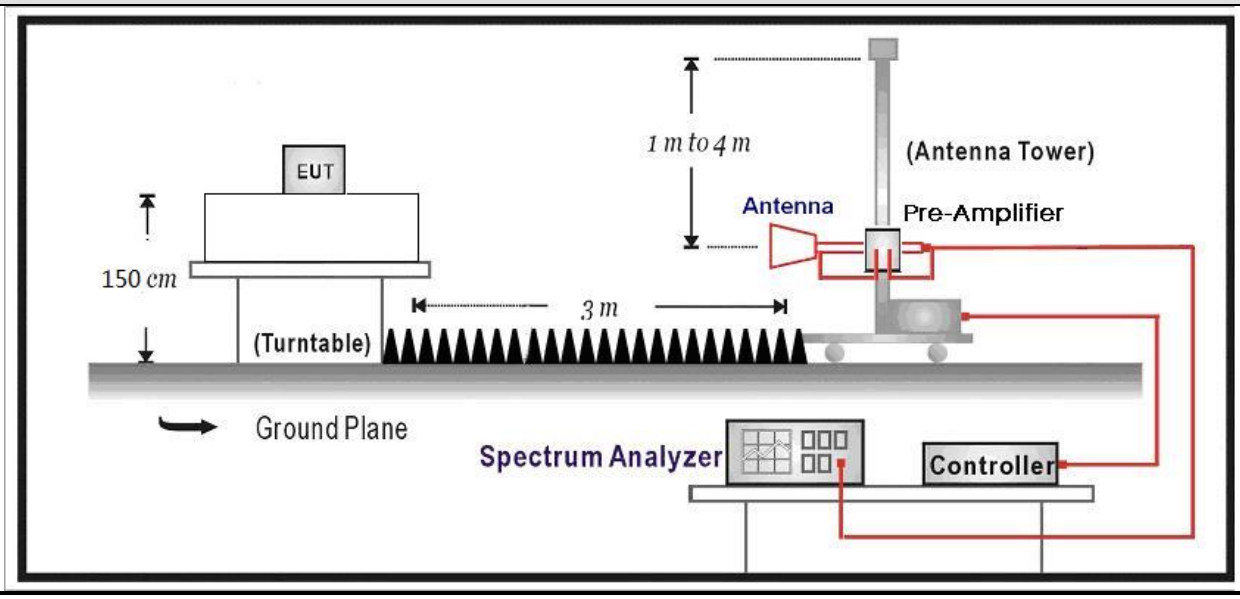
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.2.2 Test Setup

30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

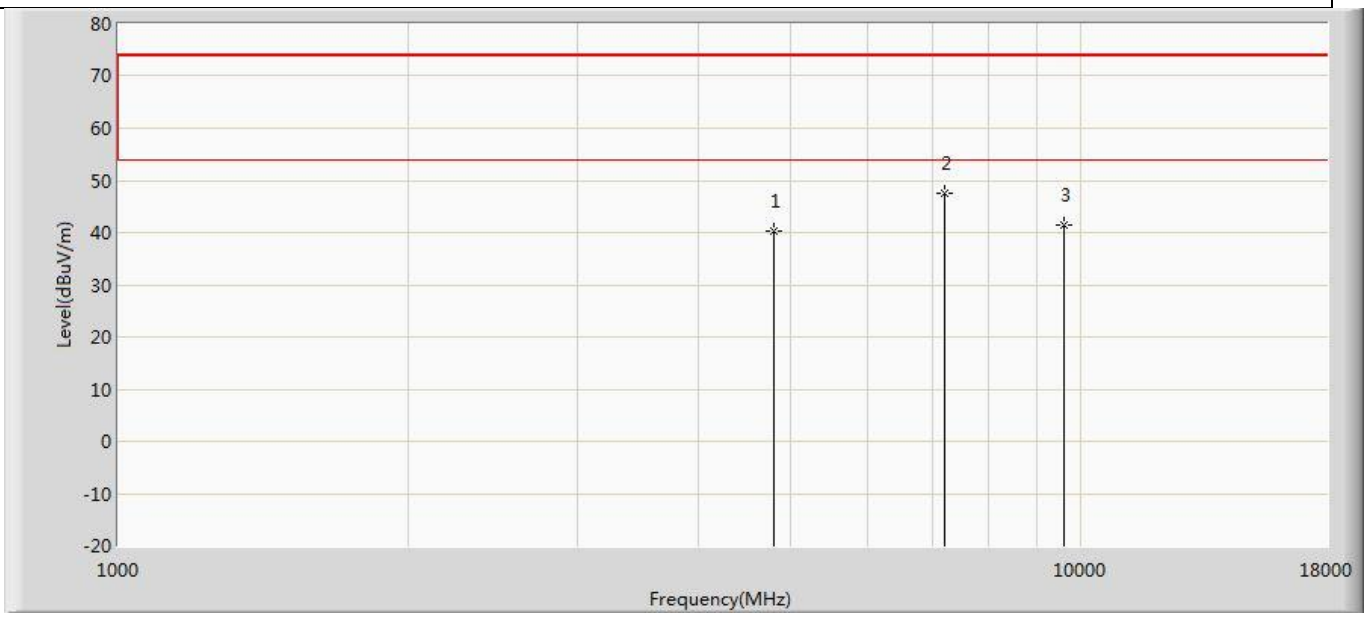


4.2.3 Test Procedure

	References Rule			Chapter	Description
☒	ANSI C63.10			11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10		11.12.1	Radiated emission measurements
	☒	ANSI C63.10		11.12.2.7	Radiated spurious emission test
		☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
		☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
		☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

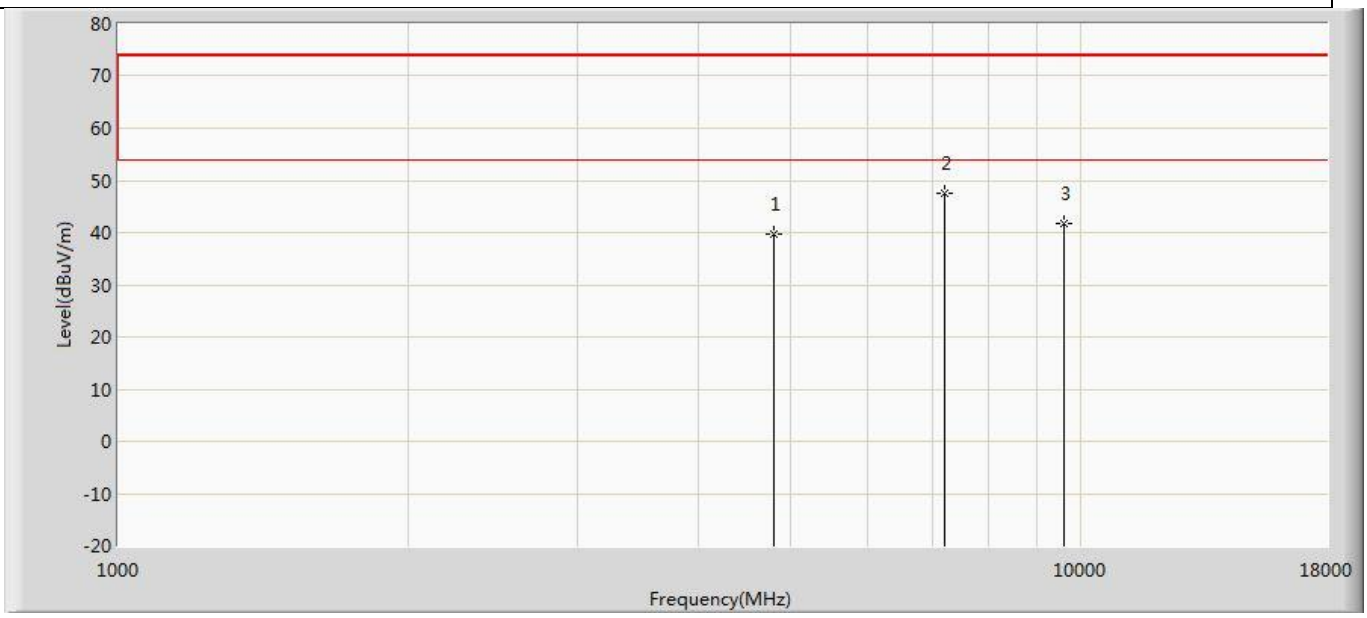
4.2.4 Test Data

Profile: 2120504R	Page No.: 37
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



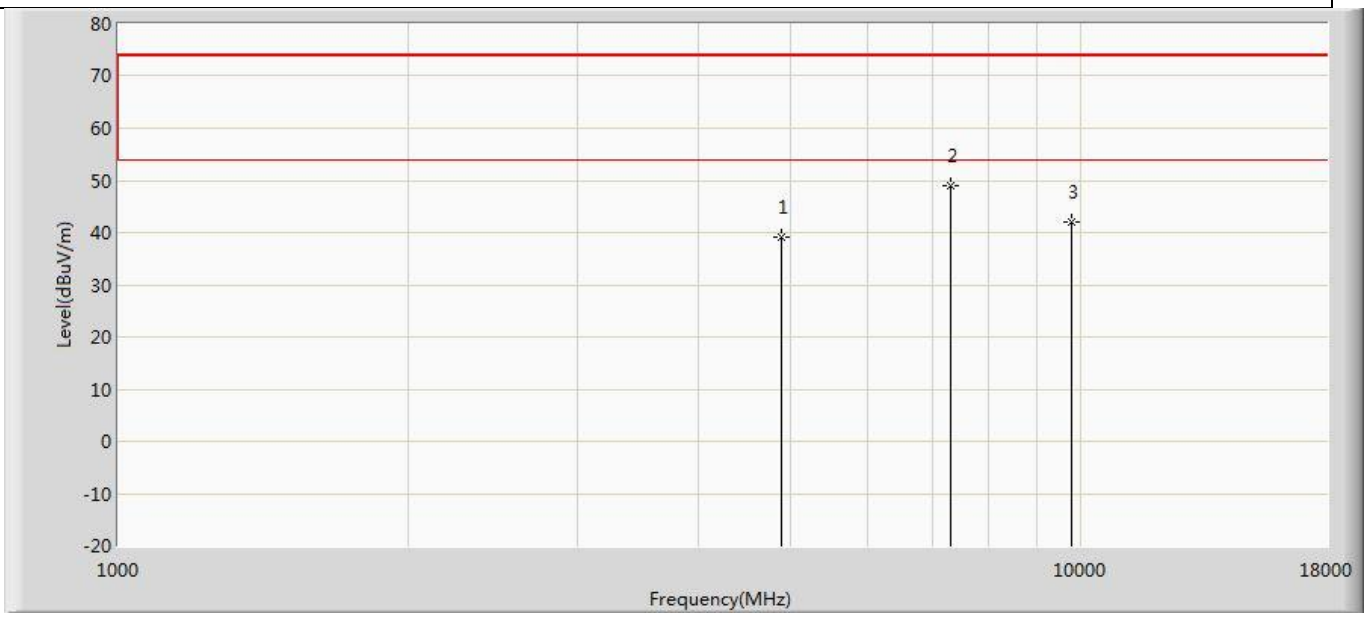
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.259	46.340	-33.741	74.000	-6.081	PK
2	*	7206.000	47.666	50.537	-26.334	74.000	-2.871	PK
3		9608.000	41.400	42.828	-32.600	74.000	-1.427	PK

Profile: 2120504R	Page No.: 38
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



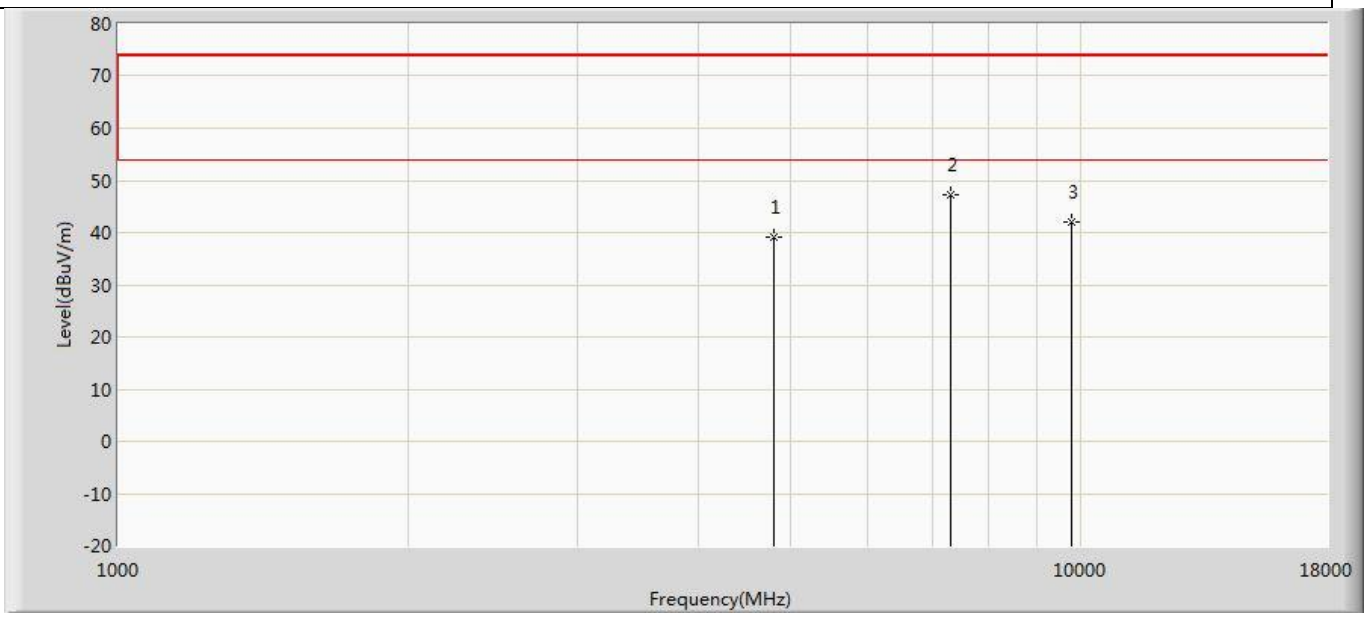
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.841	45.922	-34.159	74.000	-6.081	PK
2	*	7206.000	47.568	50.439	-26.432	74.000	-2.871	PK
3		9608.000	41.767	43.195	-32.233	74.000	-1.427	PK

Profile: 2120504R	Page No.: 45
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2440MHz	



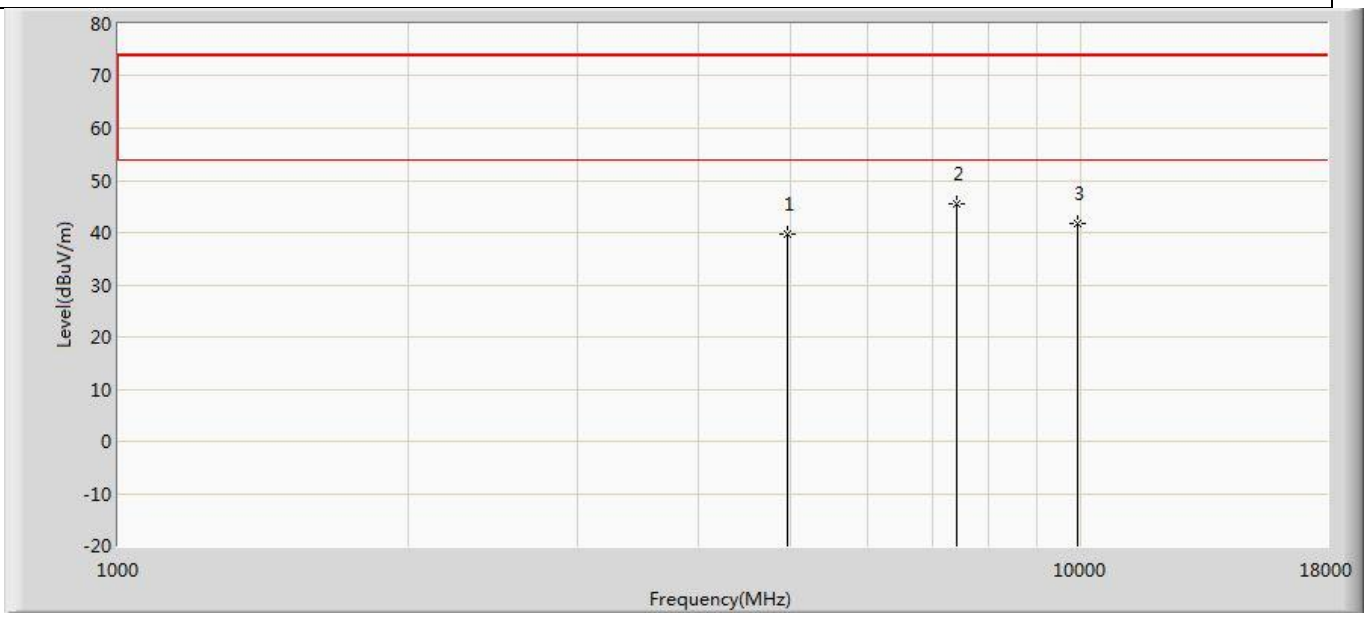
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	39.119	44.992	-34.881	74.000	-5.873	PK
2	*	7320.000	49.013	52.077	-24.987	74.000	-3.064	PK
3		9760.000	42.014	43.062	-31.986	74.000	-1.048	PK

Profile: 2120504R	Page No.: 46
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2440MHz	



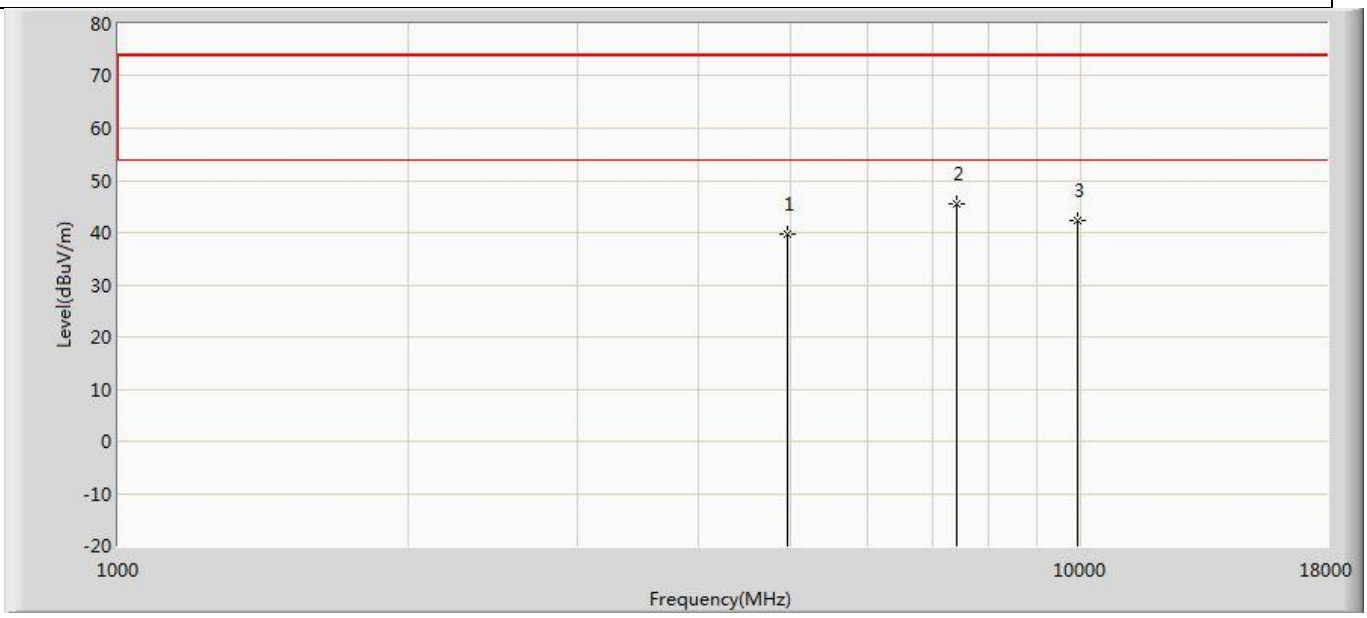
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4800.000	39.199	45.216	-34.801	74.000	-6.018	PK
2	*	7320.000	47.220	50.284	-26.780	74.000	-3.064	PK
3		9760.000	41.988	43.036	-32.012	74.000	-1.048	PK

Profile: 2120504R	Page No.: 53
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



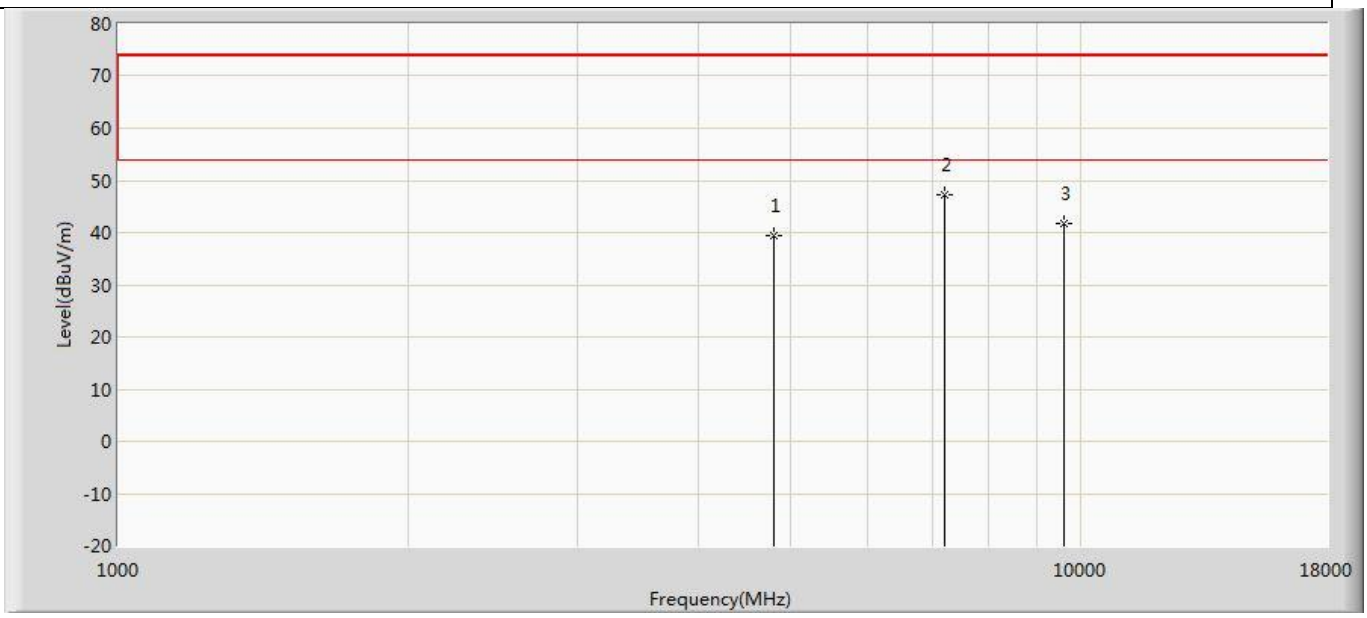
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.690	45.426	-34.310	74.000	-5.737	PK
2	*	7440.000	45.604	48.577	-28.396	74.000	-2.973	PK
3		9920.000	41.646	42.063	-32.354	74.000	-0.418	PK

Profile: 2120504R	Page No.: 54
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



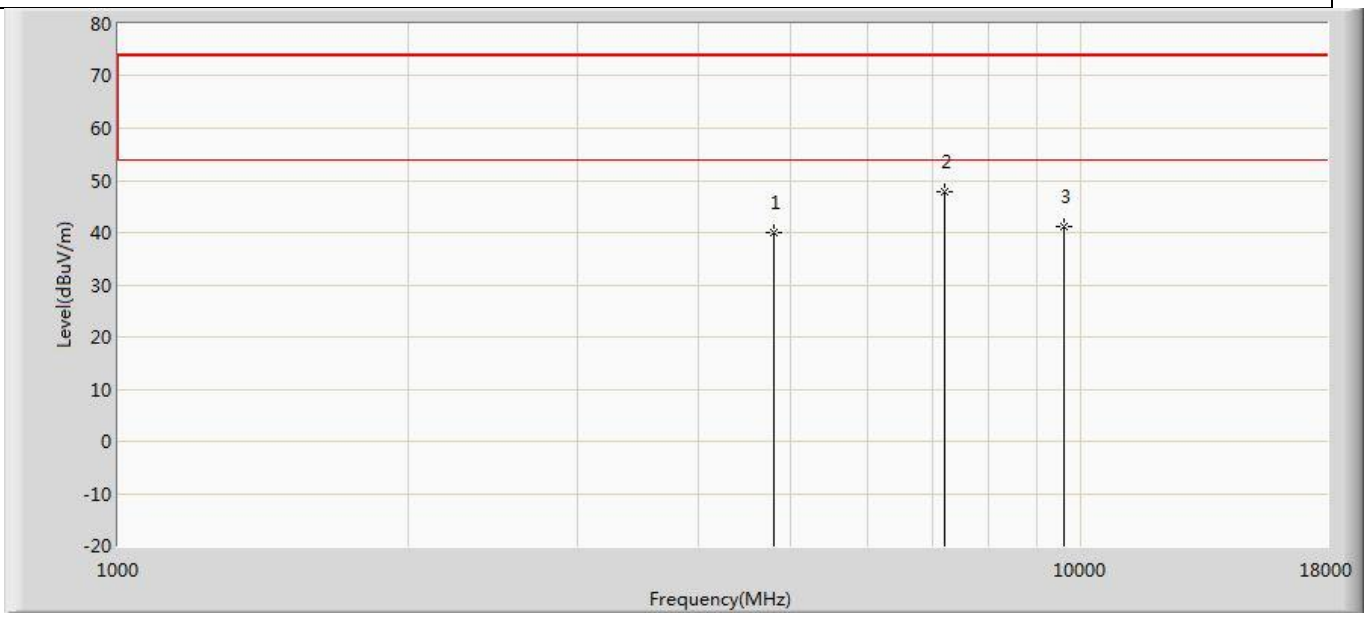
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.758	45.494	-34.242	74.000	-5.737	PK
2	*	7440.000	45.604	48.577	-28.396	74.000	-2.973	PK
3		9920.000	42.402	42.819	-31.598	74.000	-0.418	PK

Profile: 2120504R	Page No.: 39
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz	



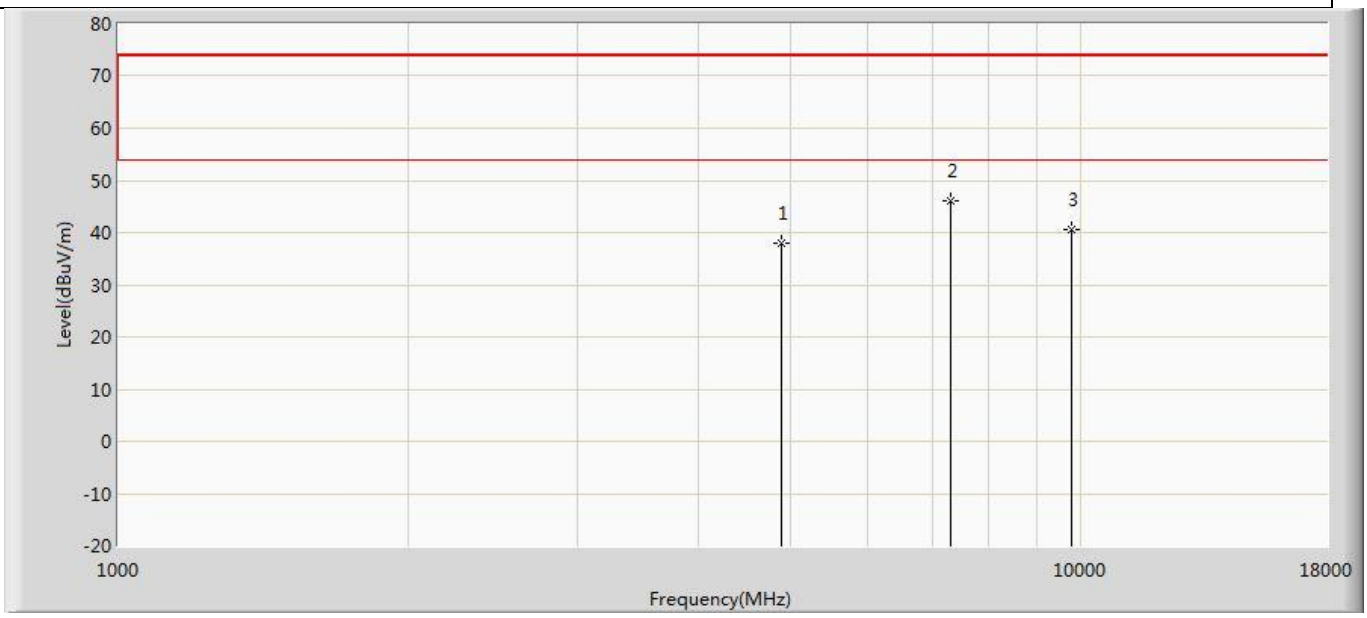
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.288	45.369	-34.712	74.000	-6.081	PK
2	*	7206.000	47.292	50.163	-26.708	74.000	-2.871	PK
3		9608.000	41.724	43.152	-32.276	74.000	-1.427	PK

Profile: 2120504R	Page No.: 40
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz	



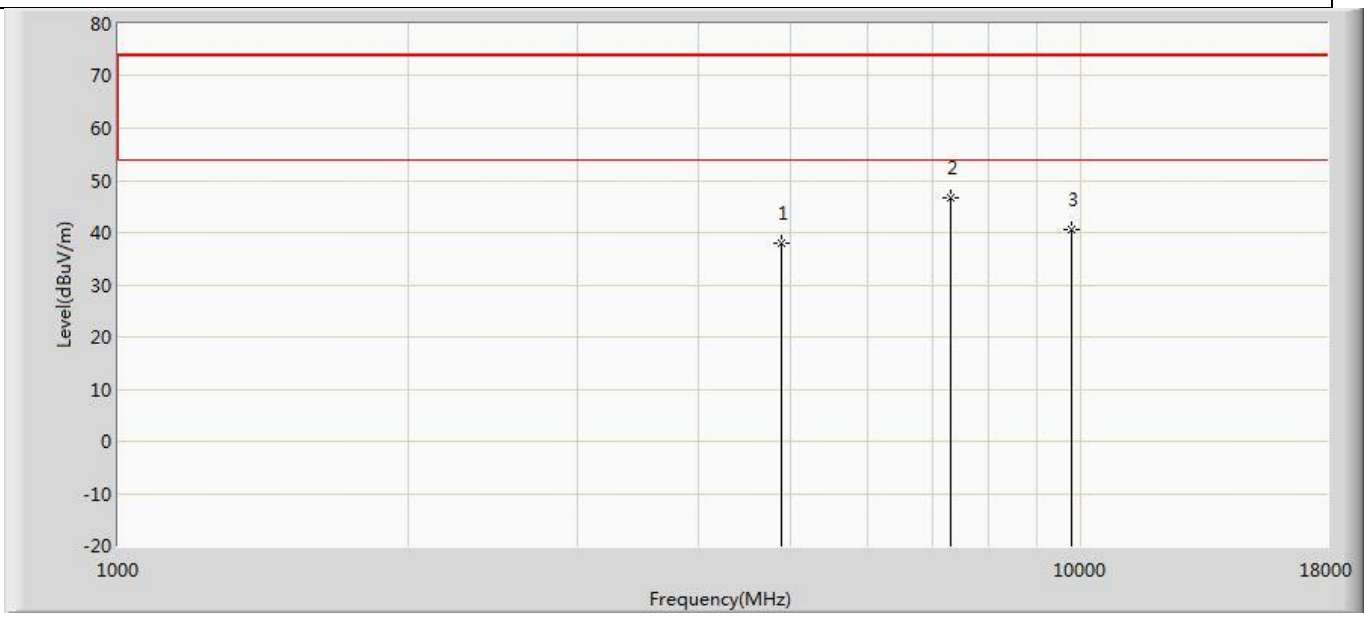
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.009	46.090	-33.991	74.000	-6.081	PK
2	*	7206.000	47.697	50.568	-26.303	74.000	-2.871	PK
3		9608.000	41.300	42.728	-32.700	74.000	-1.427	PK

Profile: 2120504R	Page No.: 47
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2440MHz	



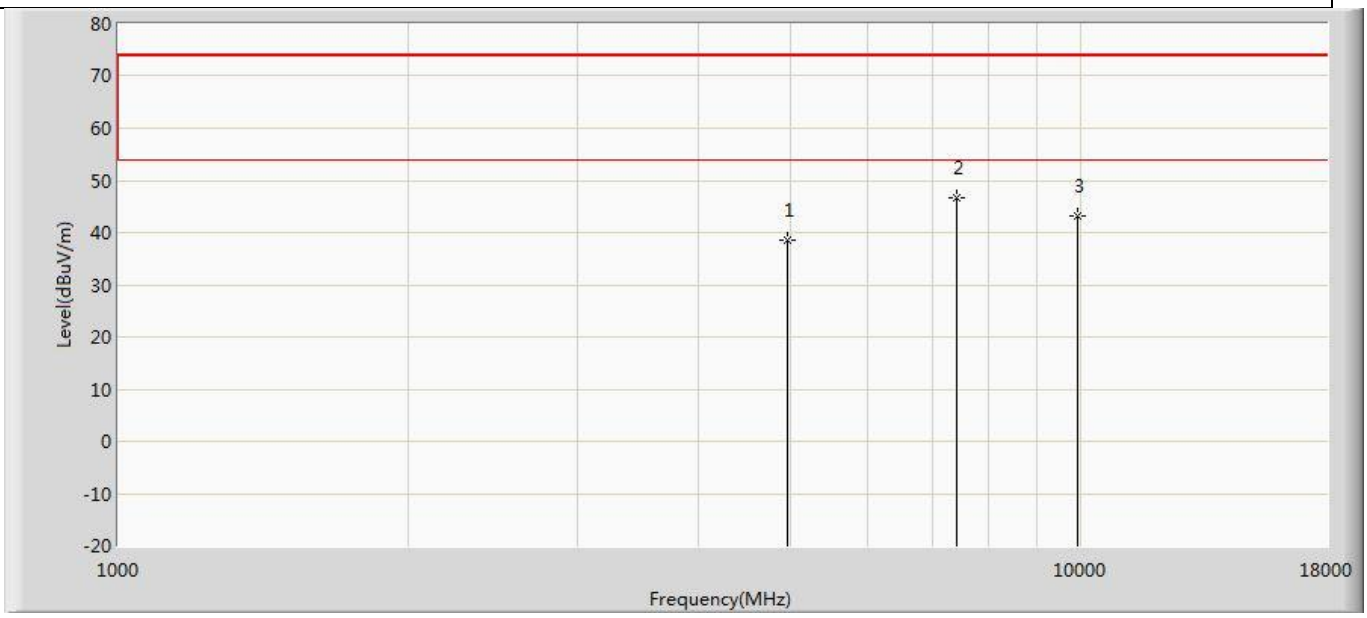
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	38.091	43.964	-35.909	74.000	-5.873	PK
2	*	7320.000	46.045	49.109	-27.955	74.000	-3.064	PK
3		9760.000	40.596	41.644	-33.404	74.000	-1.048	PK

Profile: 2120504R	Page No.: 48
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2440MHz	



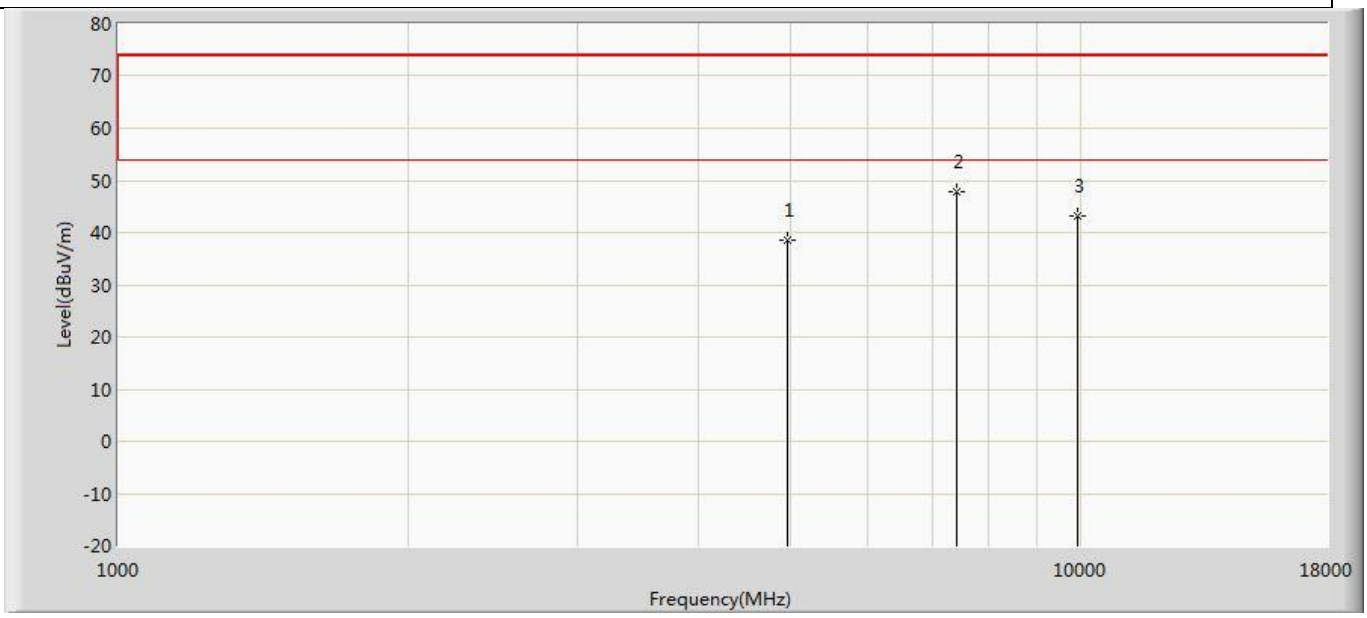
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	37.979	43.852	-36.021	74.000	-5.873	PK
2	*	7320.000	46.577	49.641	-27.423	74.000	-3.064	PK
3		9760.000	40.669	41.717	-33.331	74.000	-1.048	PK

Profile: 2120504R	Page No.: 55
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz	



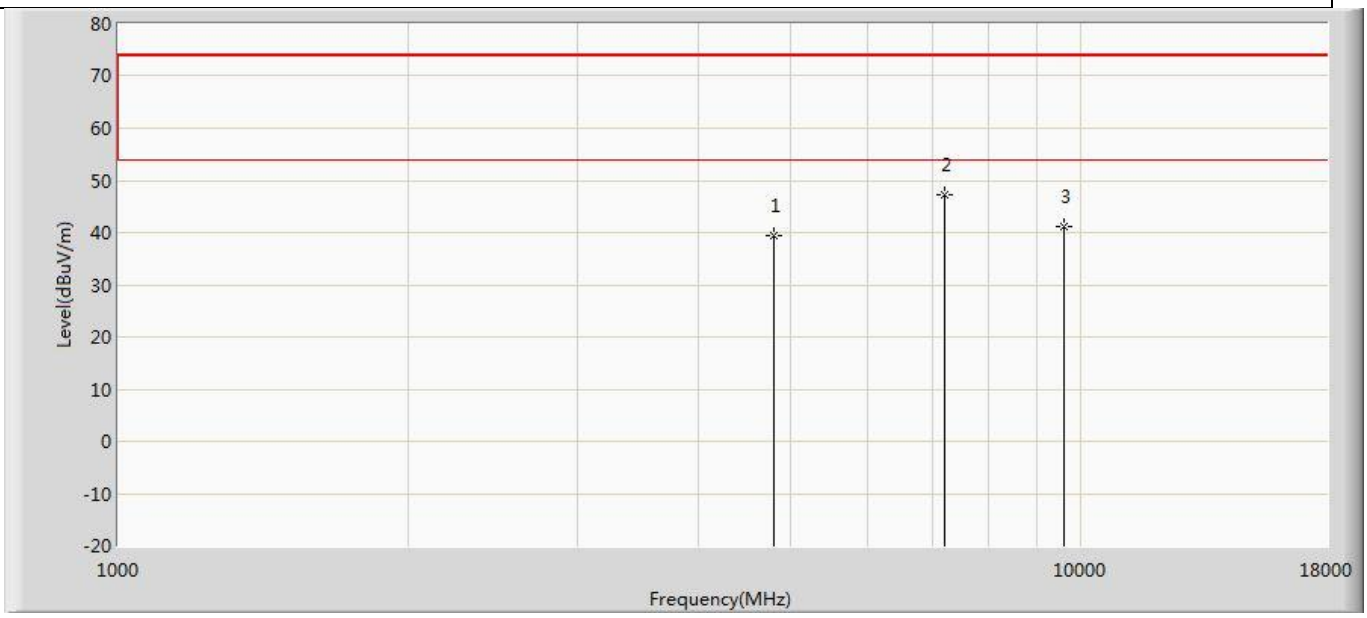
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	38.560	44.296	-35.440	74.000	-5.737	PK
2	*	7440.000	46.713	49.686	-27.287	74.000	-2.973	PK
3		9920.000	43.093	43.510	-30.907	74.000	-0.418	PK

Profile: 2120504R	Page No.: 56
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz	



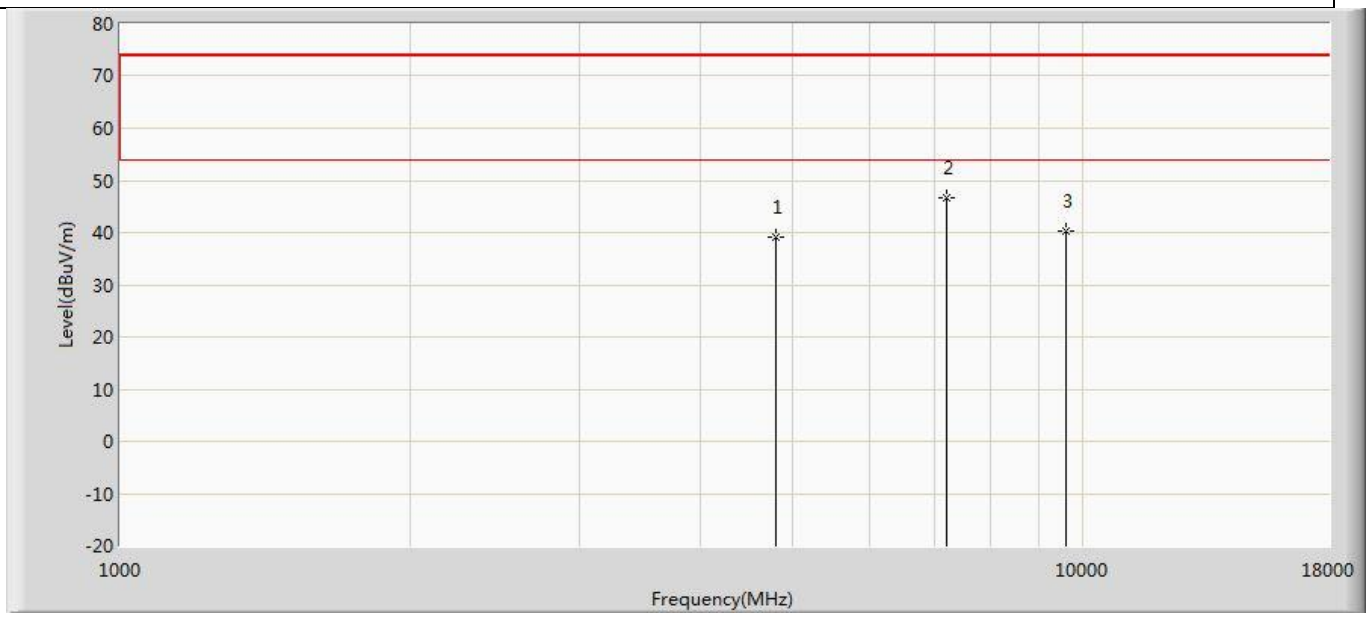
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	38.560	44.296	-35.440	74.000	-5.737	PK
2	*	7440.000	47.852	50.825	-26.148	74.000	-2.973	PK
3		9920.000	43.297	43.714	-30.703	74.000	-0.418	PK

Profile: 2120504R	Page No.: 43
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz	



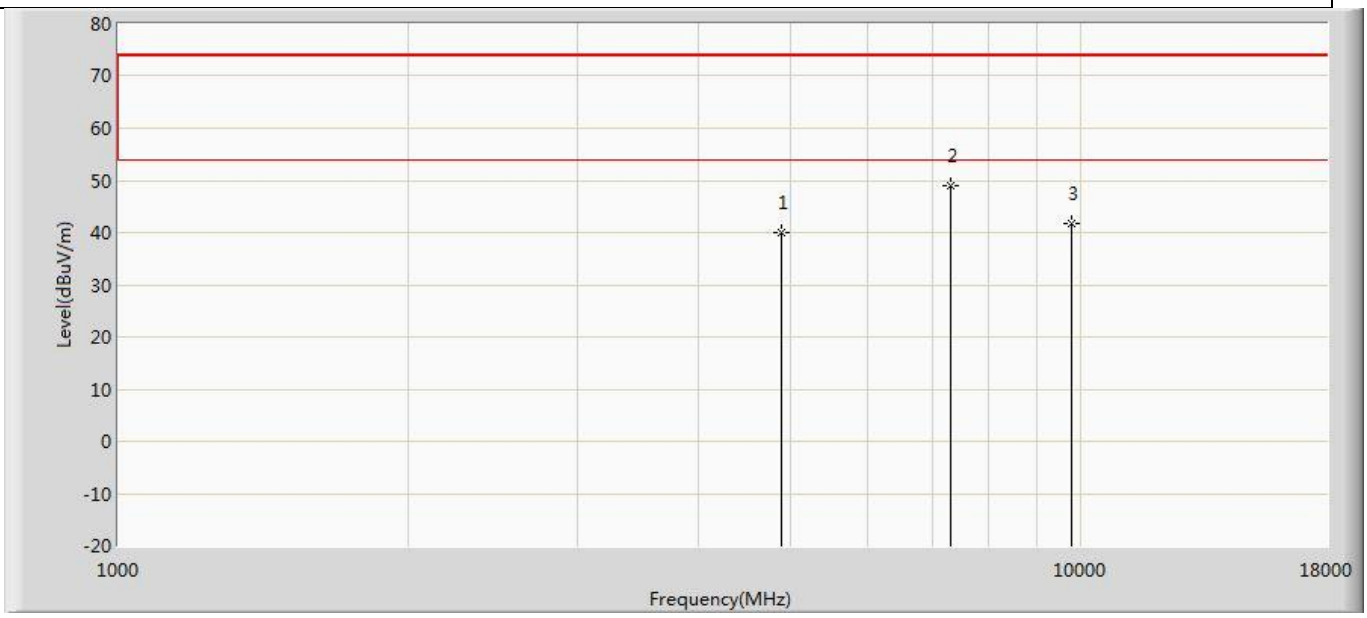
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.402	45.483	-34.598	74.000	-6.081	PK
2	*	7206.000	47.350	50.221	-26.650	74.000	-2.871	PK
3		9608.000	41.152	42.580	-32.848	74.000	-1.427	PK

Profile: 2120504R	Page No.: 44
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz	



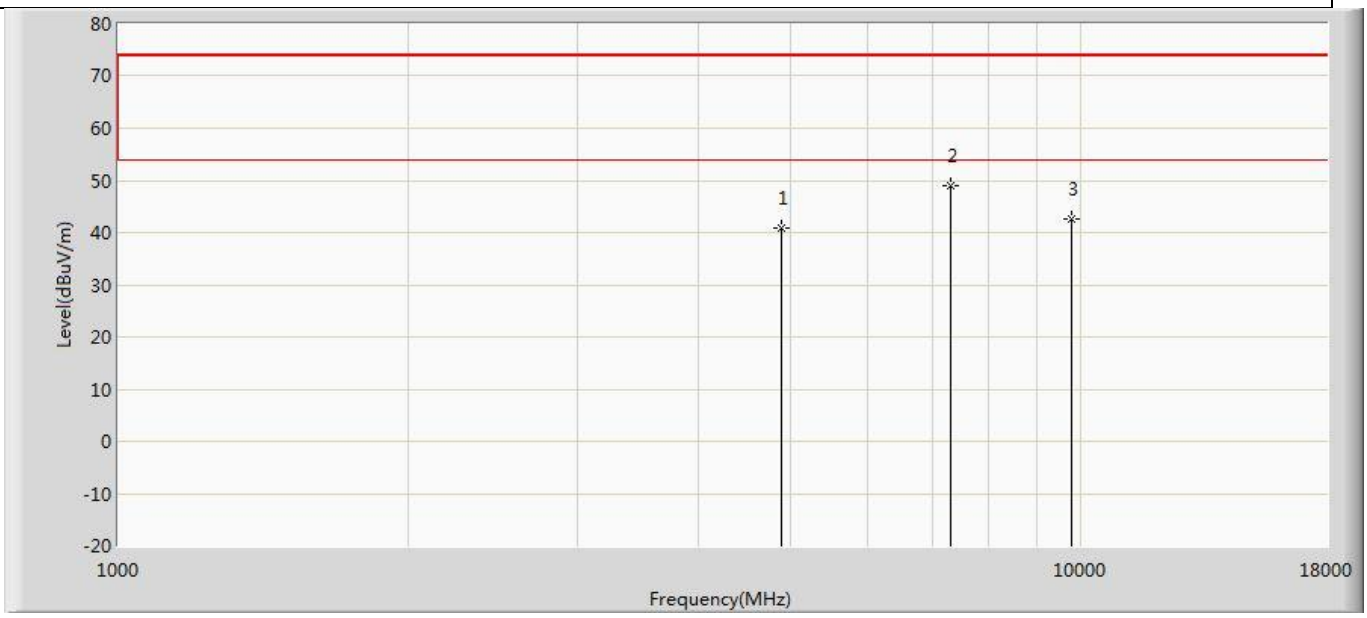
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.060	45.141	-34.940	74.000	-6.081	PK
2	*	7206.000	46.532	49.403	-27.468	74.000	-2.871	PK
3		9608.000	40.419	41.847	-33.581	74.000	-1.427	PK

Profile: 2120504R	Page No.: 51
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2440MHz	



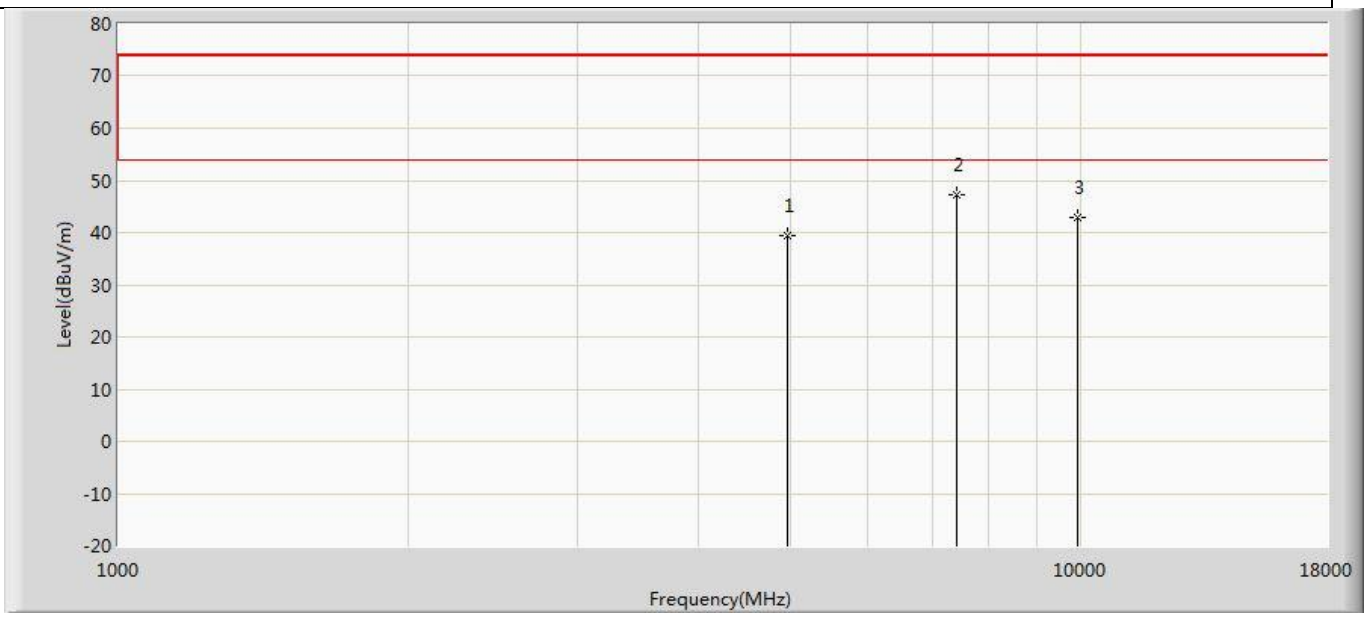
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	39.909	45.782	-34.091	74.000	-5.873	PK
2	*	7320.000	49.049	52.113	-24.951	74.000	-3.064	PK
3		9760.000	41.707	42.755	-32.293	74.000	-1.048	PK

Profile: 2120504R	Page No.: 52
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2440MHz	



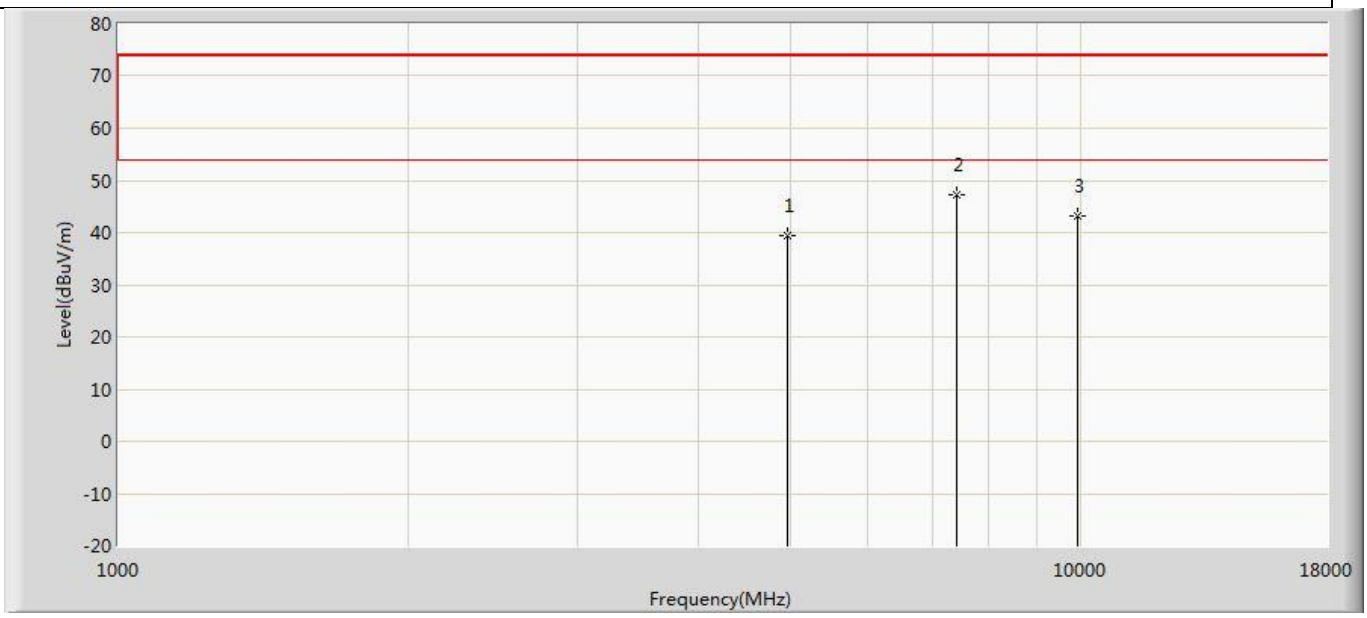
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	40.729	46.602	-33.271	74.000	-5.873	PK
2	*	7320.000	49.049	52.113	-24.951	74.000	-3.064	PK
3		9760.000	42.529	43.577	-31.471	74.000	-1.048	PK

Profile: 2120504R	Page No.: 59
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz	



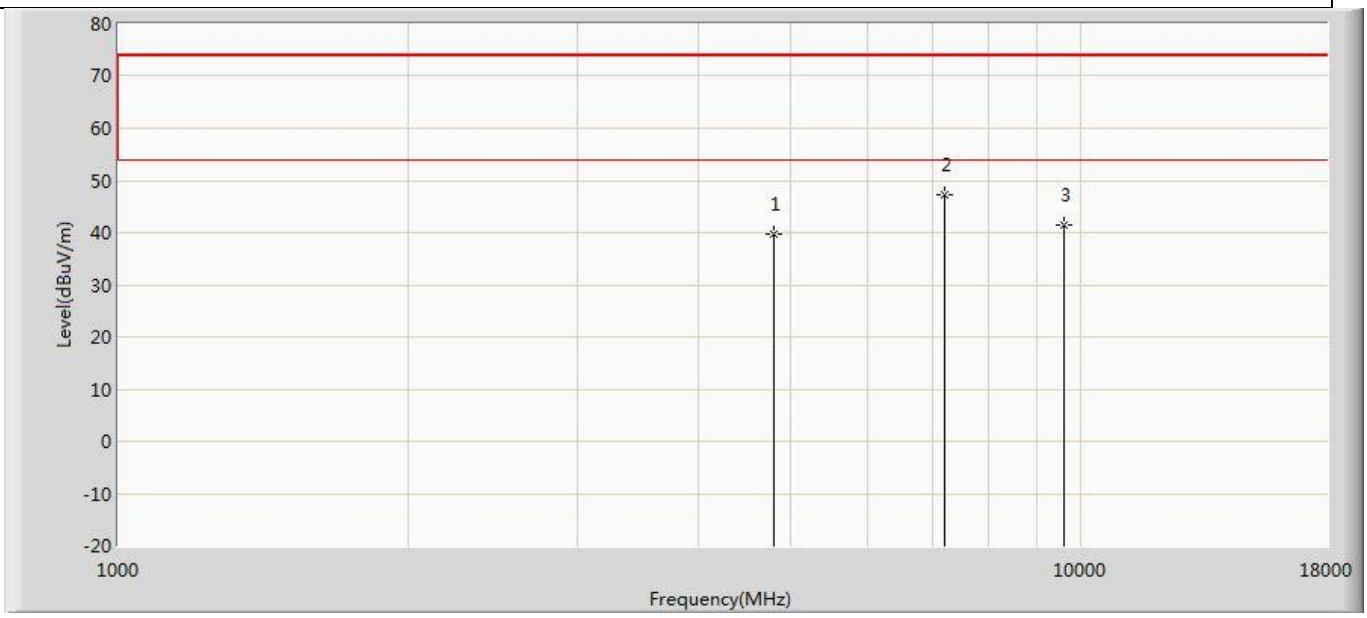
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.352	45.088	-34.648	74.000	-5.737	PK
2	*	7440.000	47.287	50.260	-26.713	74.000	-2.973	PK
3		9920.000	42.942	43.359	-31.058	74.000	-0.418	PK

Profile: 2120504R	Page No.: 60
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz	



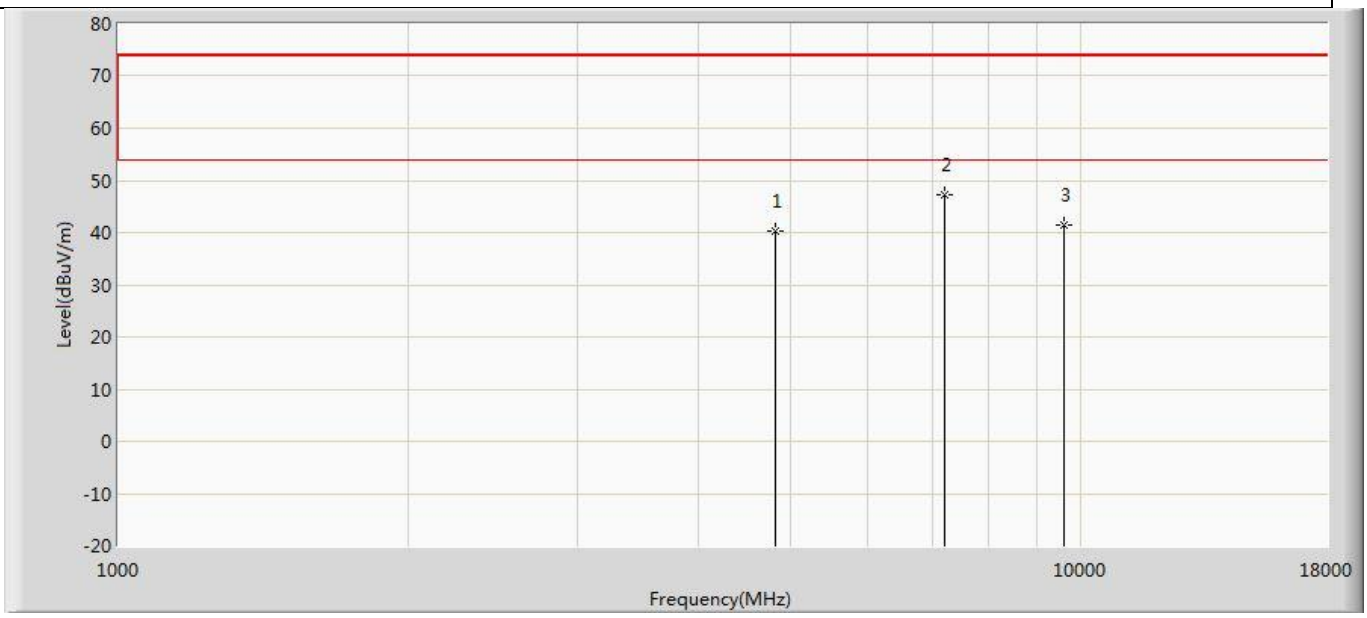
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.352	45.088	-34.648	74.000	-5.737	PK
2	*	7440.000	47.287	50.260	-26.713	74.000	-2.973	PK
3		9920.000	43.060	43.477	-30.940	74.000	-0.418	PK

Profile: 2120504R	Page No.: 41
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2402MHz	



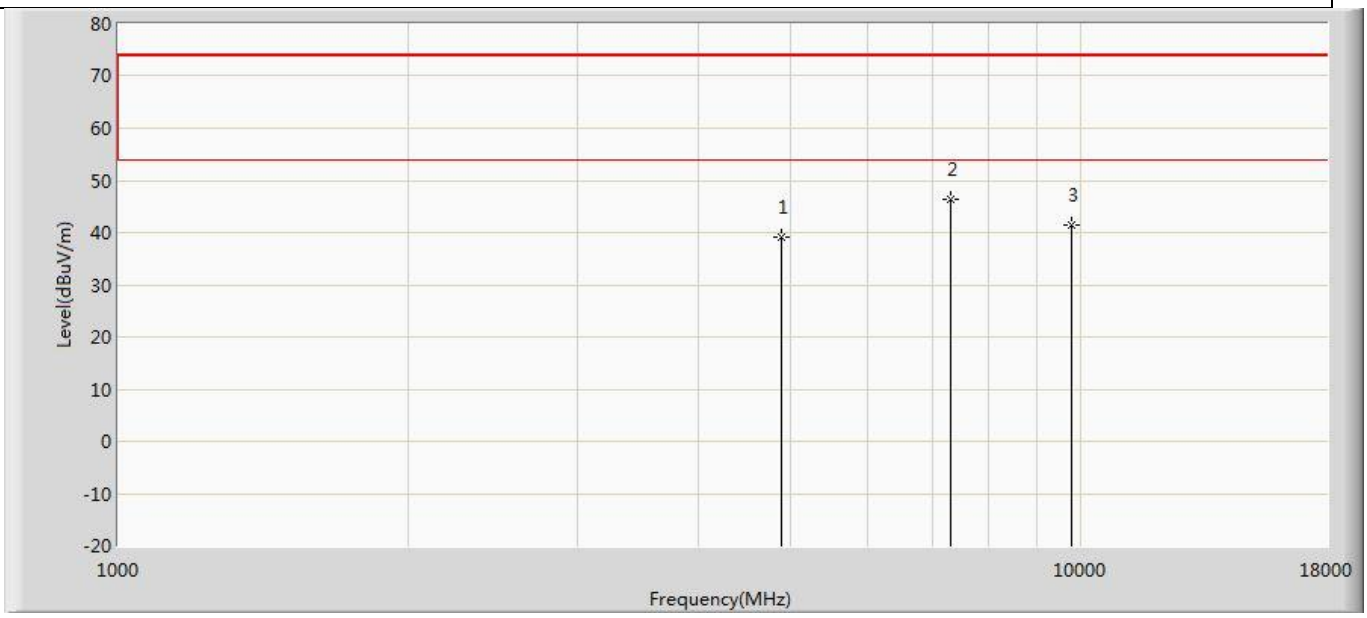
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.659	45.740	-34.341	74.000	-6.081	PK
2	*	7206.000	47.247	50.118	-26.753	74.000	-2.871	PK
3		9608.000	41.552	42.980	-32.448	74.000	-1.427	PK

Profile: 2120504R	Page No.: 42
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2402MHz	



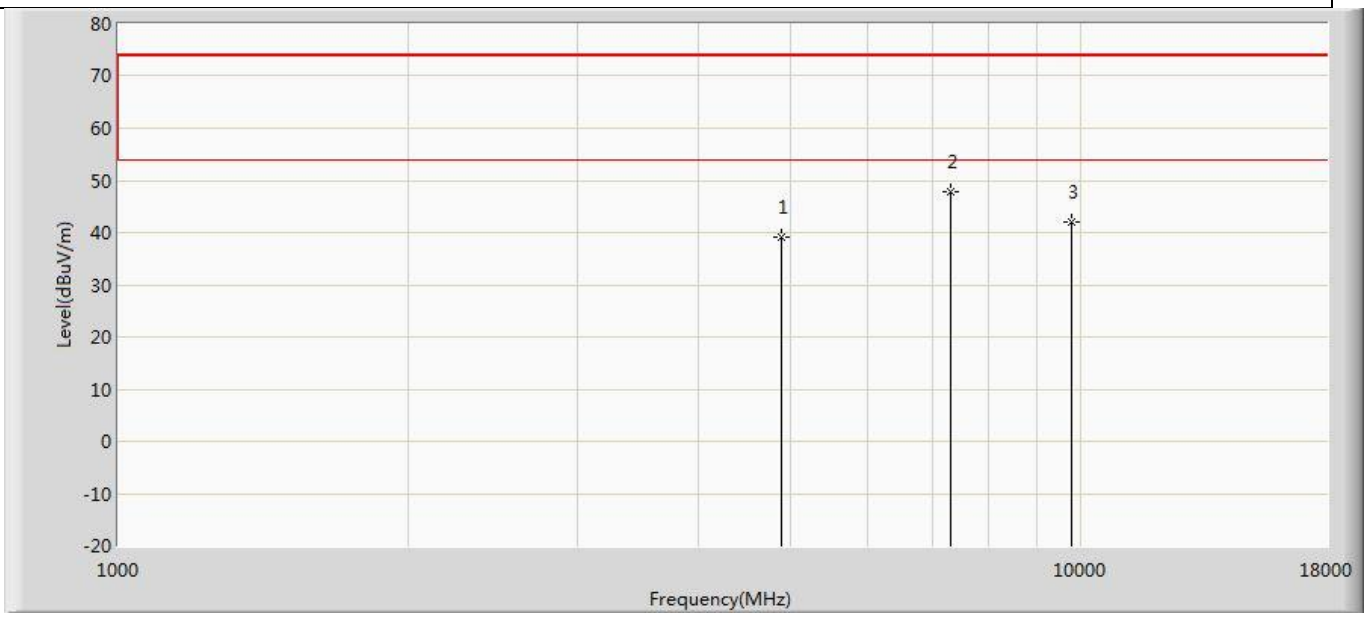
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4808.000	40.234	46.378	-33.766	74.000	-6.145	PK
2	*	7206.000	47.289	50.160	-26.711	74.000	-2.871	PK
3		9608.000	41.534	42.962	-32.466	74.000	-1.427	PK

Profile: 2120504R	Page No.: 49
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2440MHz	



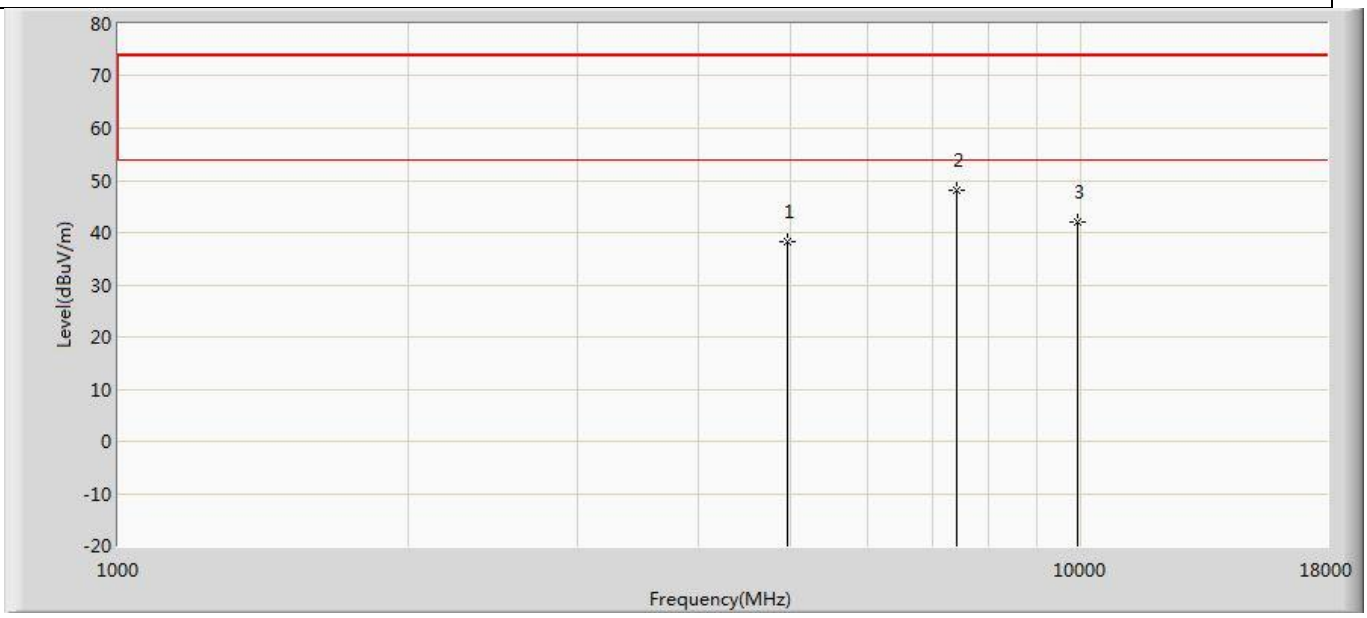
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	39.025	44.898	-34.975	74.000	-5.873	PK
2	*	7320.000	46.415	49.479	-27.585	74.000	-3.064	PK
3		9760.000	41.382	42.430	-32.618	74.000	-1.048	PK

Profile: 2120504R	Page No.: 50
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2440MHz	



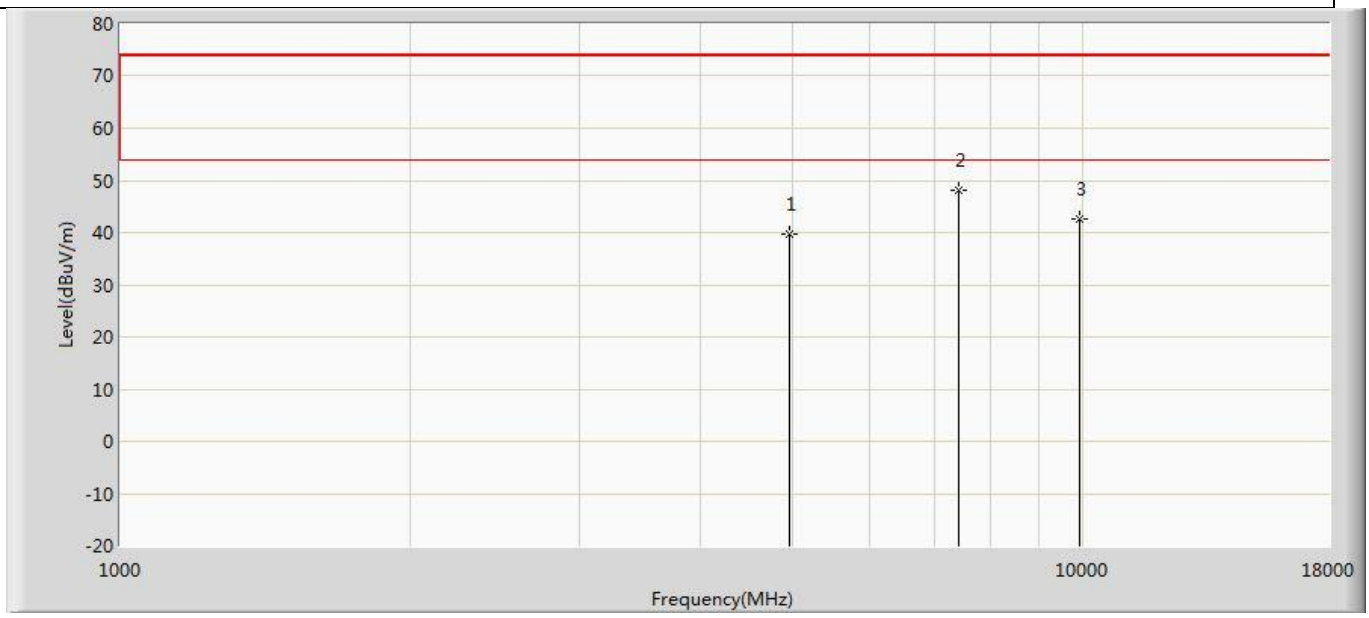
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	39.157	45.030	-34.843	74.000	-5.873	PK
2	*	7320.000	47.728	50.792	-26.272	74.000	-3.064	PK
3		9760.000	41.968	43.016	-32.032	74.000	-1.048	PK

Profile: 2120504R	Page No.: 57
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	38.288	44.024	-35.712	74.000	-5.737	PK
2	*	7440.000	48.085	51.058	-25.915	74.000	-2.973	PK
3		9920.000	42.046	42.463	-31.954	74.000	-0.418	PK

Profile: 2120504R	Page No.: 58
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/06 - 20:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz	

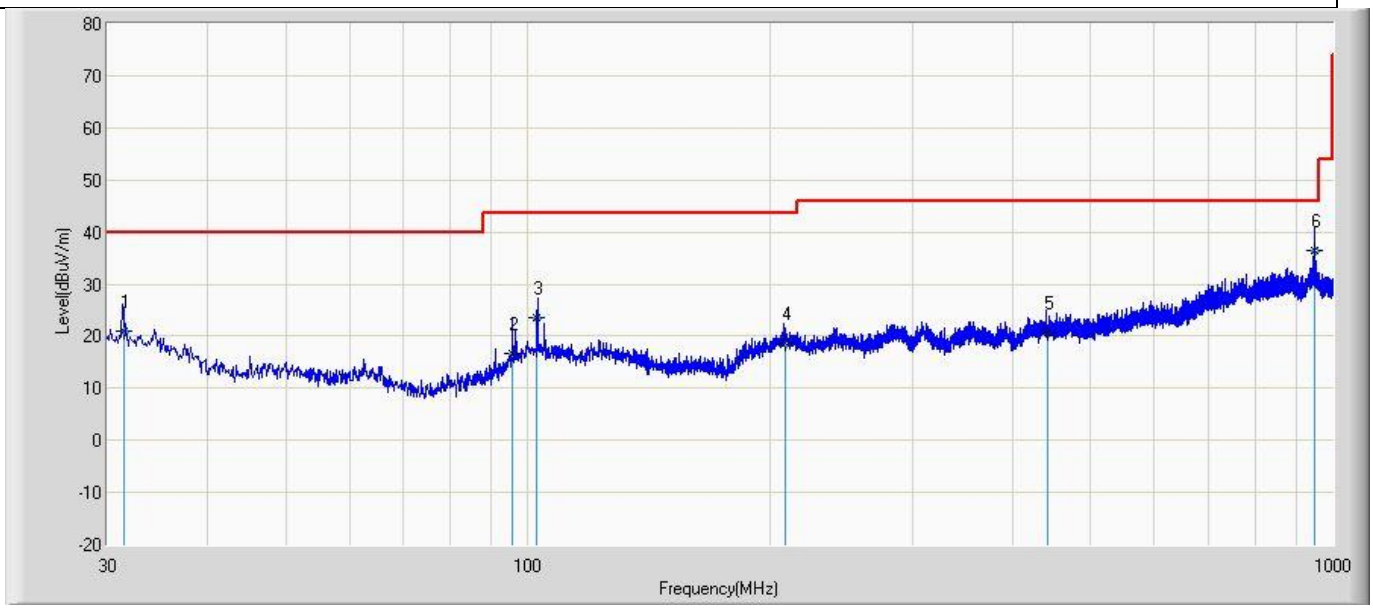


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.722	45.458	-34.278	74.000	-5.737	PK
2	*	7440.000	48.085	51.058	-25.915	74.000	-2.973	PK
3		9920.000	42.744	43.161	-31.256	74.000	-0.418	PK

Note:
1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. As the radiated emission was performed, so conducted emission was not tested.

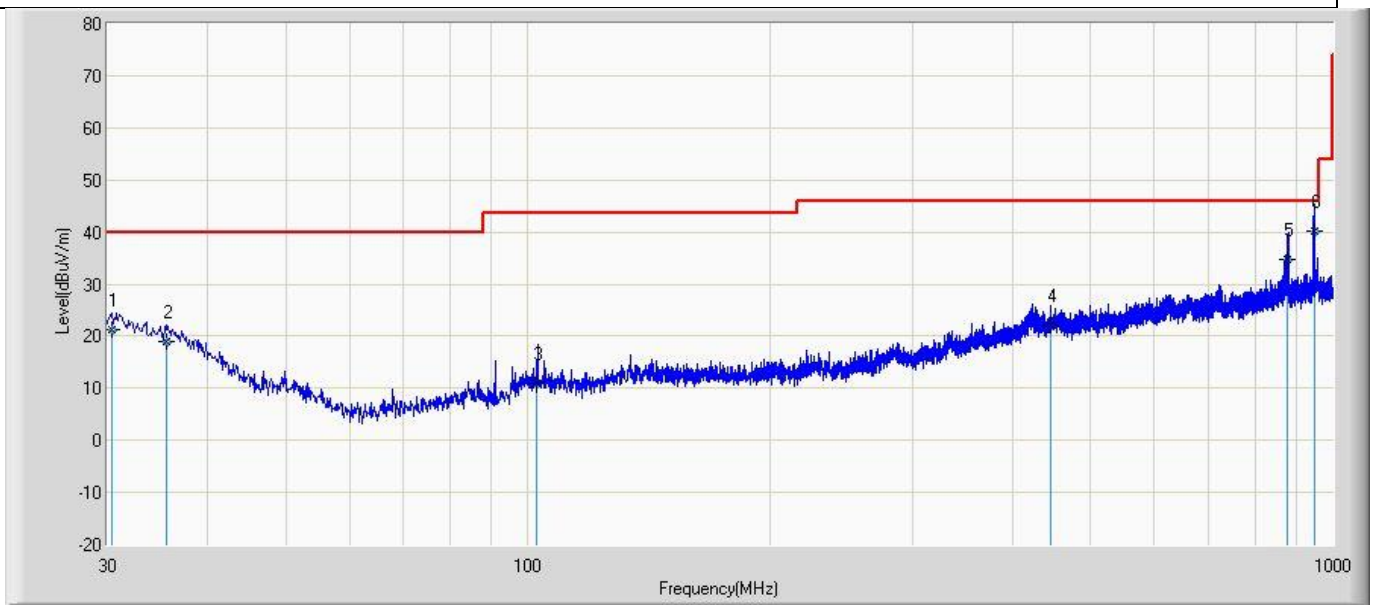
The worst case of Radiated Emission below 1GHz:

Profile: 2120504R	Page No.: 3
Engineer: Jun Xu	
Site: AC3	Time: 2021/03/08 - 20:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		31.442	20.967	-2.550	-19.033	40.000	23.517	125	73	QP
2		95.520	16.682	-3.520	-26.818	43.500	20.202	100	55	QP
3		102.552	23.506	1.520	-19.994	43.500	21.986	150	98	QP
4		208.663	18.687	-4.520	-24.813	43.500	23.207	150	245	QP
5		441.522	20.610	-4.500	-25.390	46.000	25.110	150	298	QP
6	*	948.522	36.459	1.520	-9.541	46.000	34.938	150	32	QP

Profile: 2120504R	Page No.: 4
Engineer: Jun Xu	
Site: AC3	Time: 2021/03/08 - 20:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT:LED lamp	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		30.452	21.164	-6.422	-18.836	40.000	27.585	150	86	QP
2		35.522	19.050	-6.522	-20.950	40.000	25.571	150	77	QP
3		102.522	10.963	-5.520	-32.537	43.500	16.484	150	32	QP
4		446.522	22.092	-4.550	-23.908	46.000	26.643	150	23	QP
5		879.522	34.693	3.550	-11.307	46.000	31.143	150	342	QP
6	*	948.520	40.154	7.550	-5.846	46.000	32.604	150	25	QP

4.3 Emissions in non-restricted frequency band	VERDICT: PASS

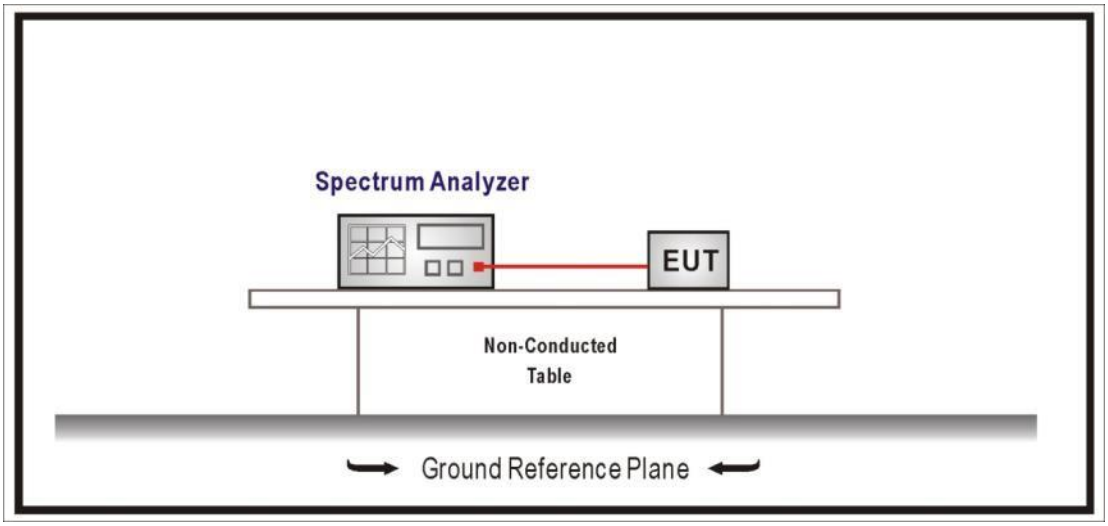
4.3.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(d)
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30dBc(Note1)
RF Output power(PK detector)	20dBc(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

4.3.2 Test Setup

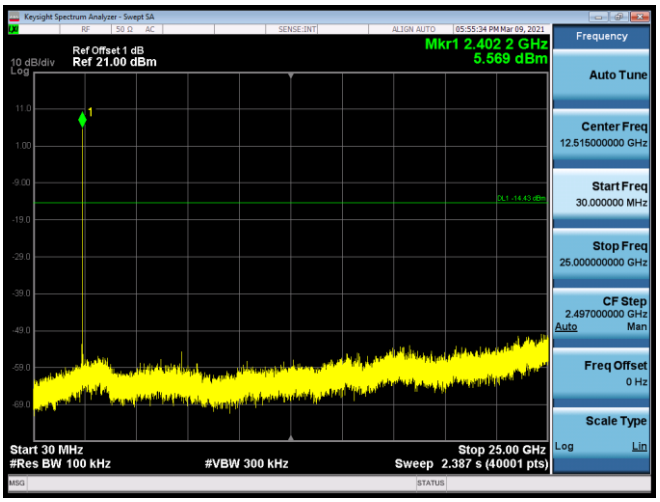


4.3.3 Test Procedure

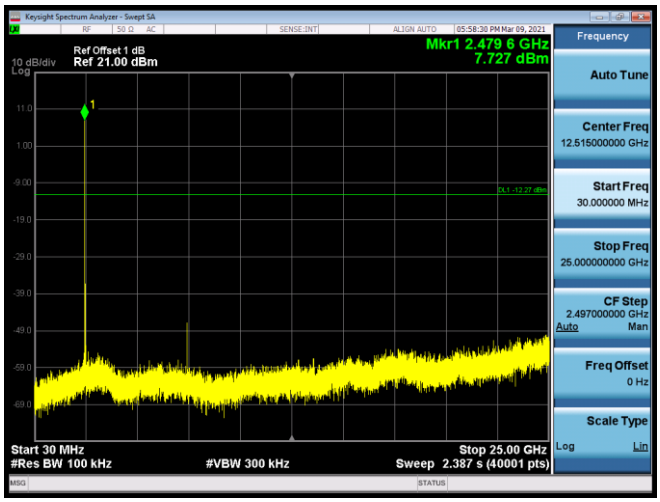
References Rule			Chapter	Description
☒	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	☒	ANSI C63.10	11.11.1	General
	☒	ANSI C63.10	11.11.2	Reference level measurement
	☒	ANSI C63.10	11.11.3	Emission level measurement

4.3.4 Test Data

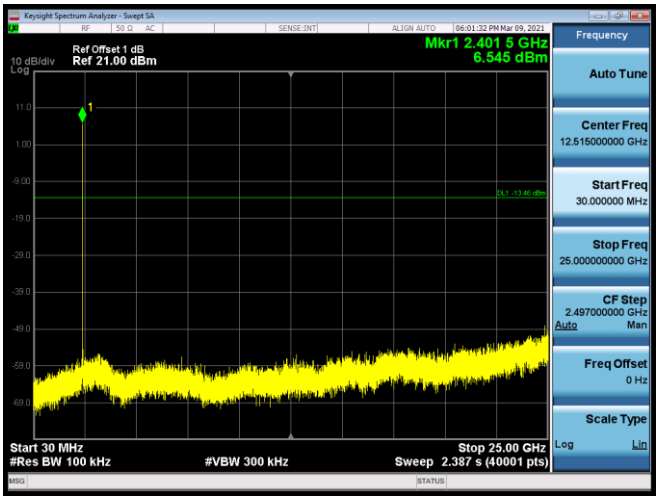
Mode 1 CH00 (2402MHz)



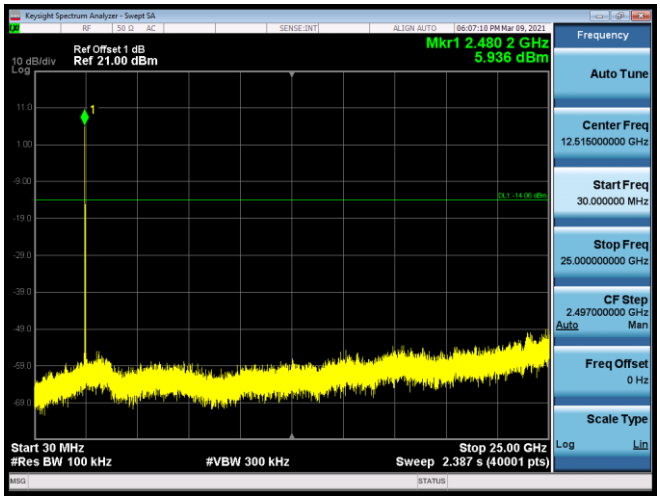
Mode 1 CH39 (2480MHz)



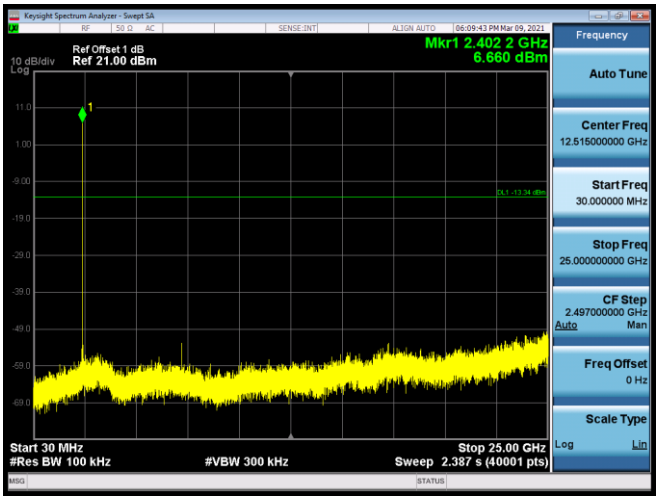
Mode 2 CH00 (2402MHz)



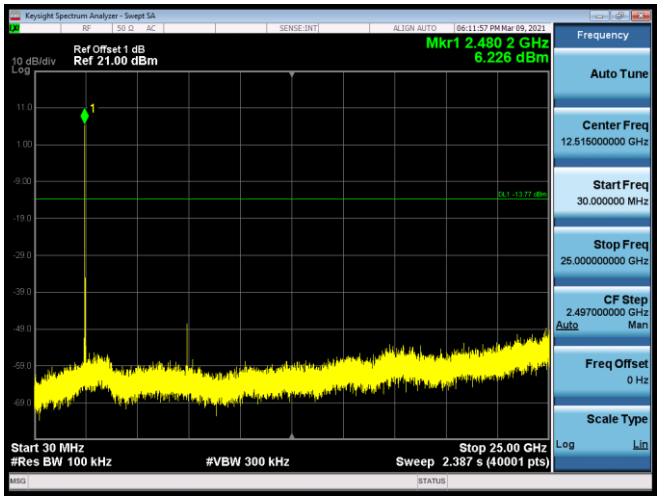
Mode 2 CH39 (2480MHz)



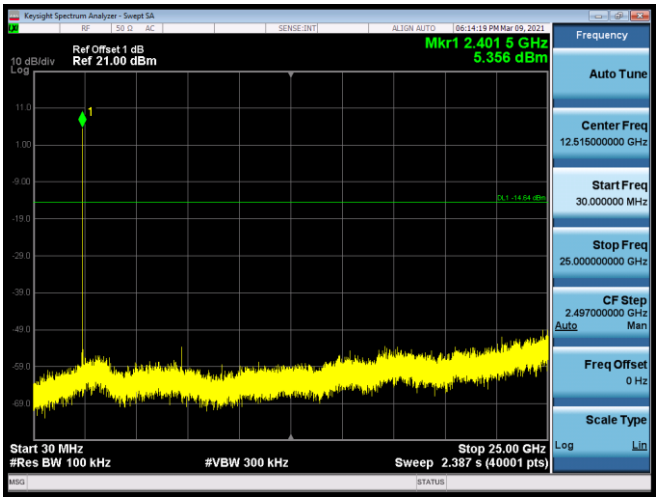
Mode 3 CH00 (2402MHz)



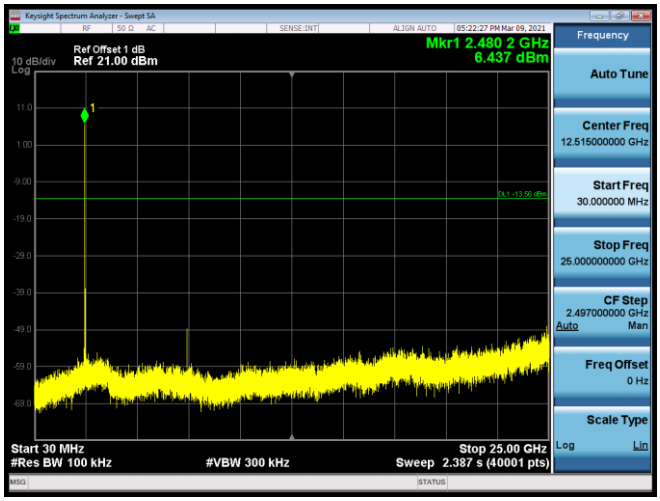
Mode 3 CH39 (2480MHz)



Mode 4 CH00 (2402MHz)



Mode 4 CH39 (2480MHz)

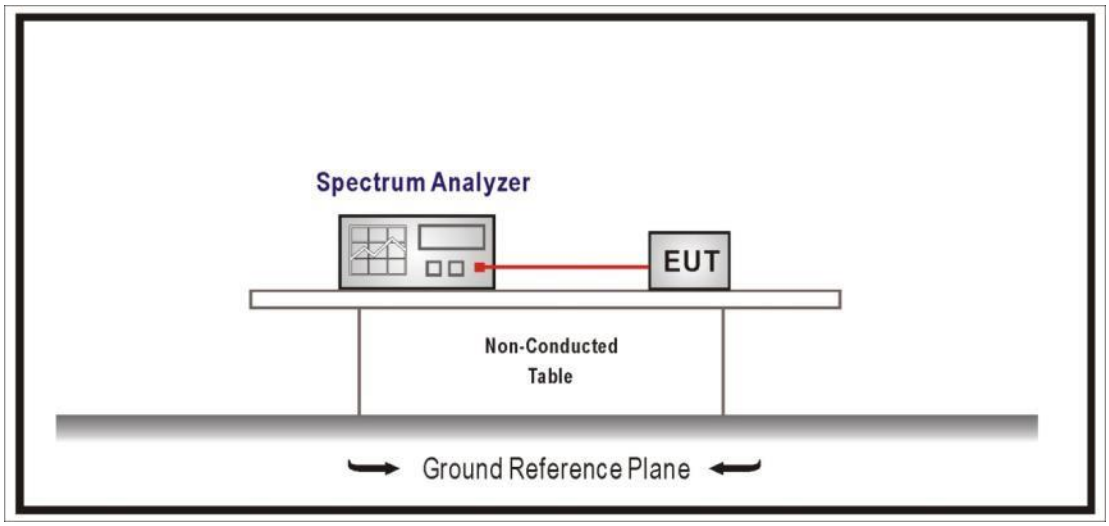


4.4 Duty cycle	VERDICT: PASS

4.4.1 Limit

N/A

4.4.2 Test Setup



4.4.3 Test Procedure

References Rule		Chapter	Description
☒	ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

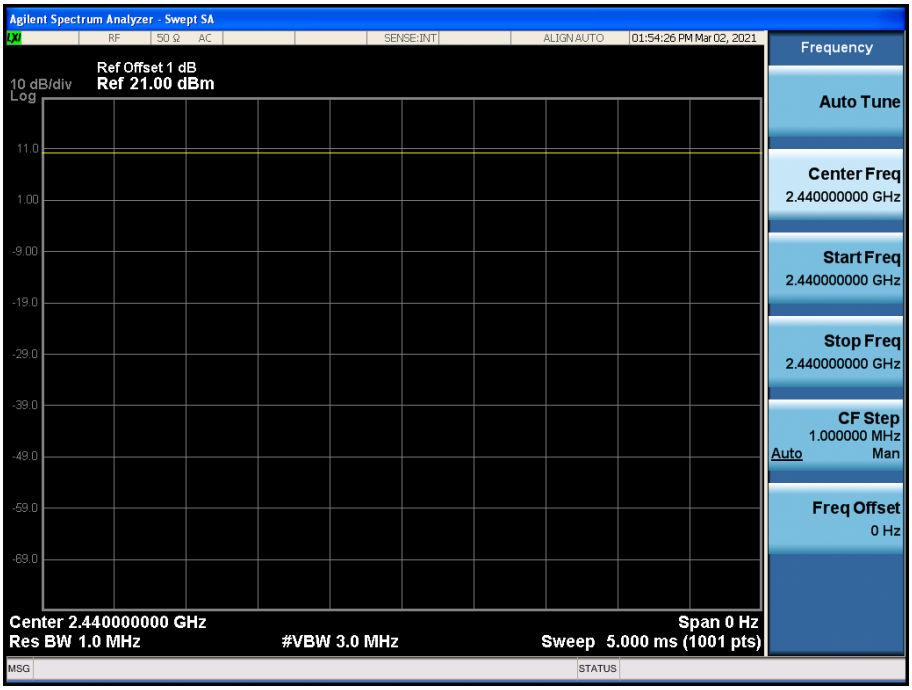
4.4.4 Test Data

Test Mode	Tx On (us)	Tx Off (us)	VBW (kHz)	Tx On + Tx Off (us)	Duty Cycle (%)
Mode 1	--	--	--	--	100
Mode 2	--	--	--	--	100
Mode 3	--	--	--	--	100
Mode 4	--	--	--	--	100

Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ⩾ 1/T will be used.

Mode 1 CH19 2440MHz



4.5 Radiated Emission Band Edge — VERDICT: PASS

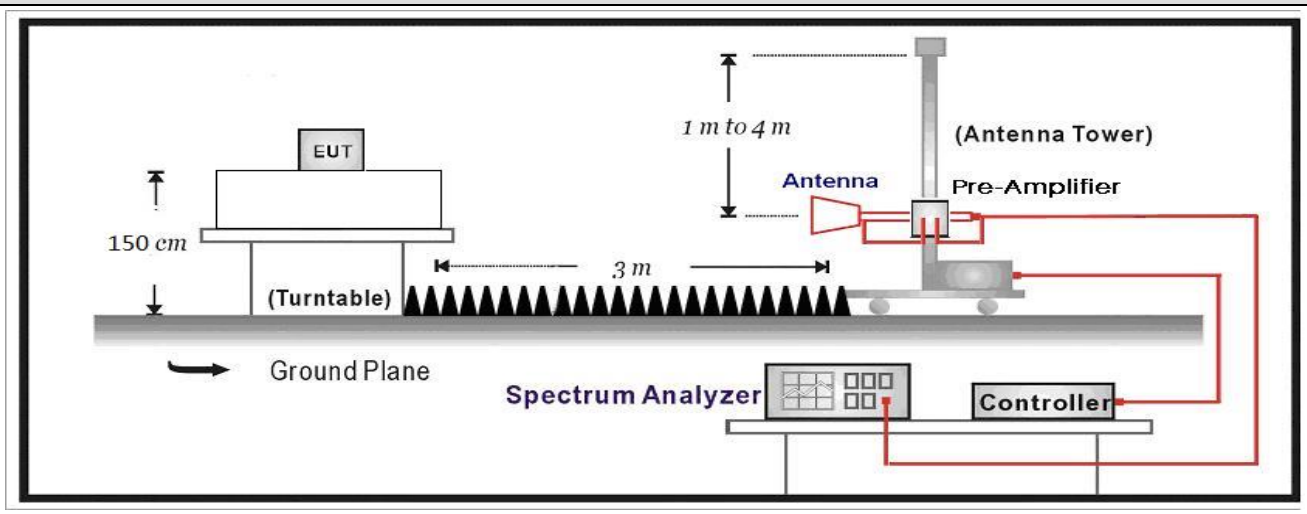
4.5.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(d) ,15.209			
Frequency bands (MHz)	Detector	Limit (dBµV/m)	RBW (MHz)	Distance (m)
2310-2390 2483.5-2500	PK	74	1	3
	AV	54	1	3

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

4.5.2 Test Setup

Above 1GHz Test Setup:

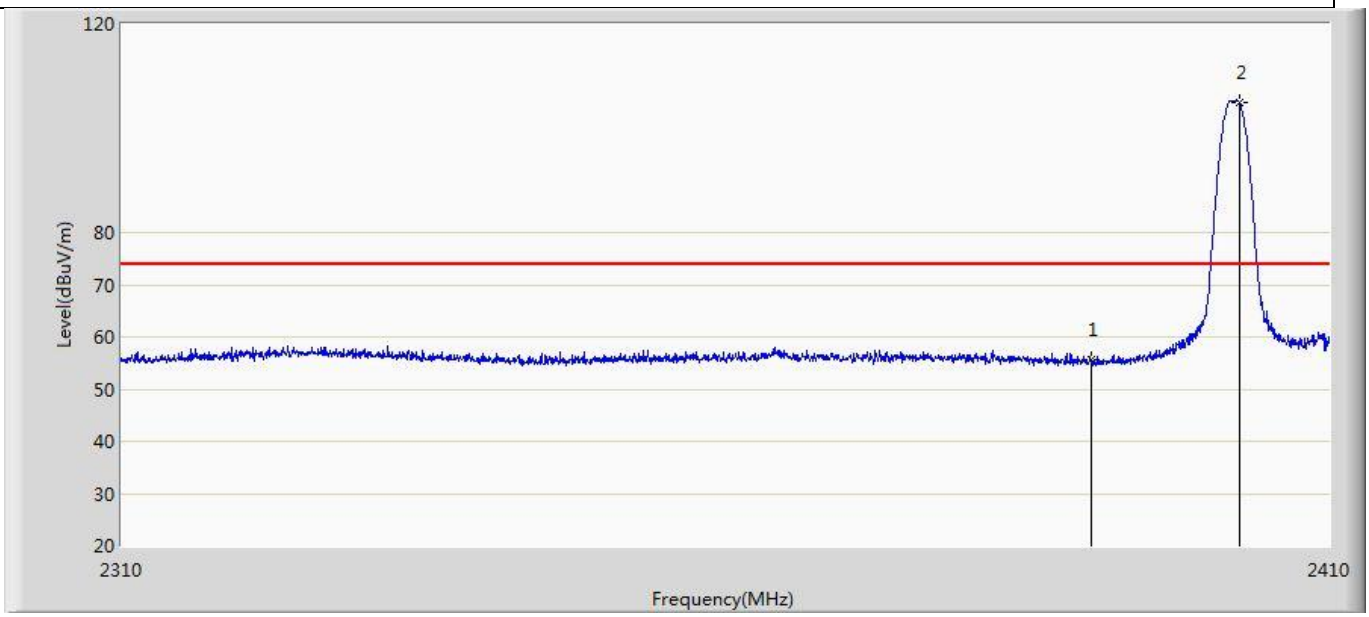


4.5.3 Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.10	6.10	Band-edge testing
	☒ ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	☐ ANSI C63.10	6.10.6	Marker-delta method
☒	ANSI C63.10	11.12	Emissions in restricted frequency bands
	☒ ANSI C63.10	11.12.1	Radiated emission measurements
	☒ ANSI C63.10	11.12.2.7	Radiated spurious emission test
☐	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

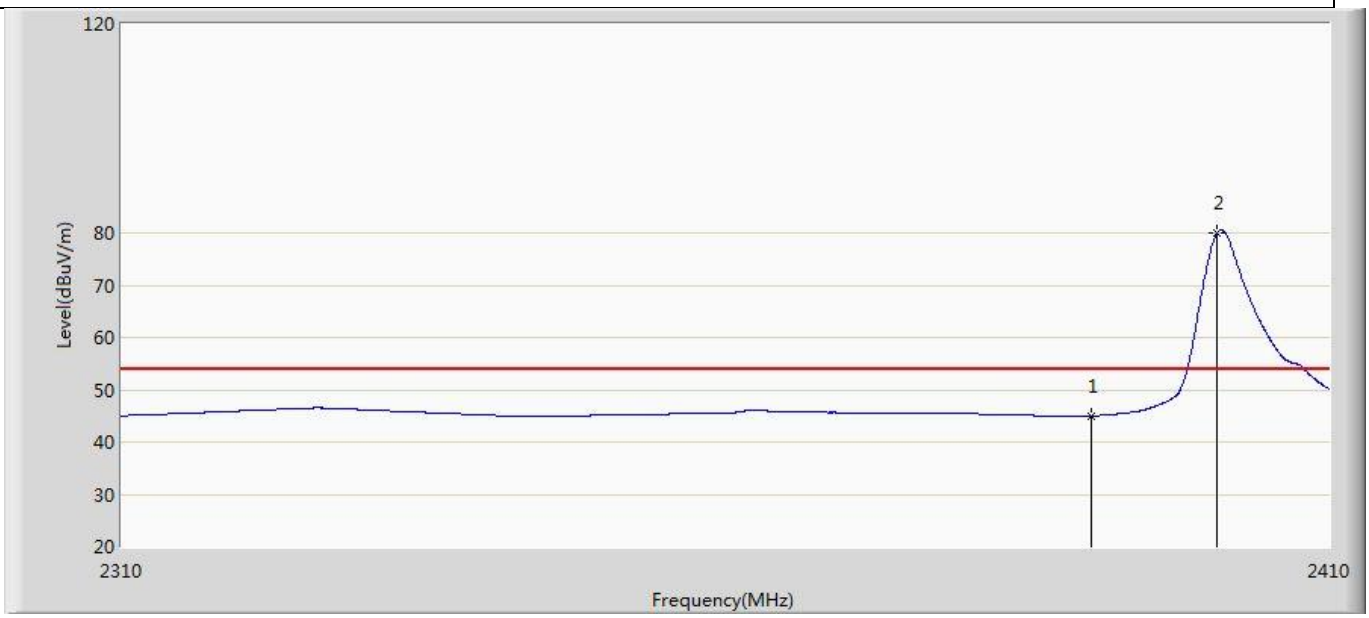
4.5.4 Test Data

Profile: 2120504R	Page No.: 37
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



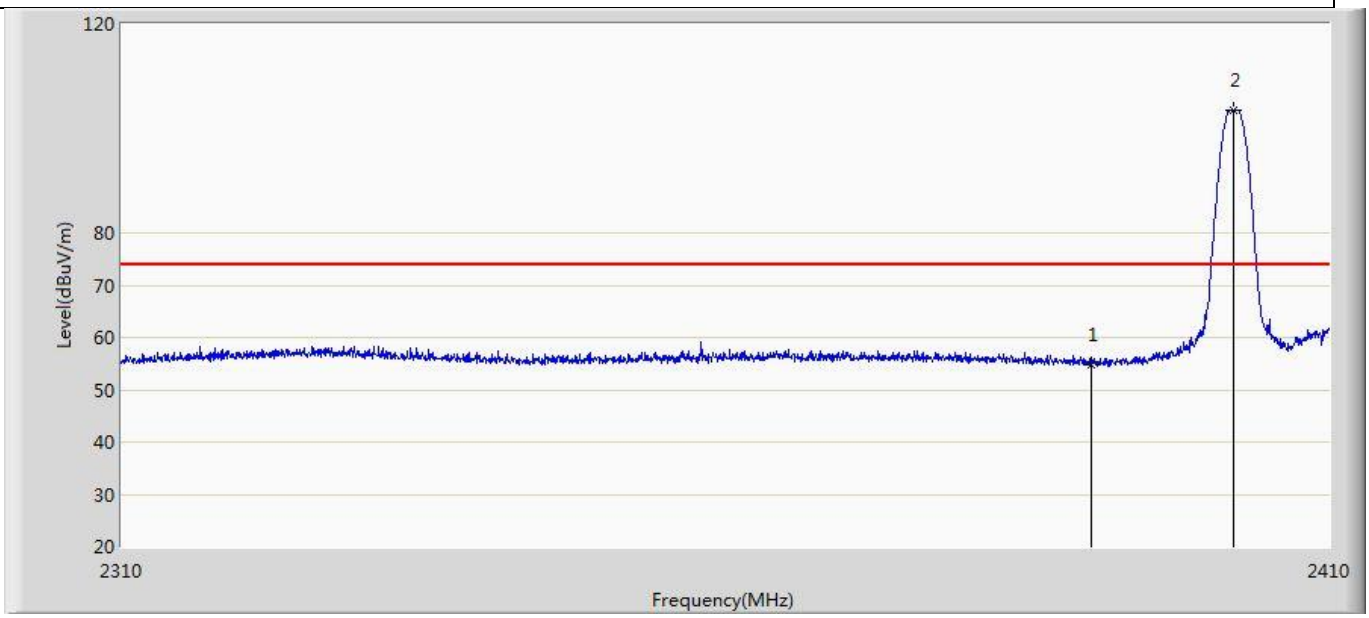
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.728	19.984	-18.272	74.000	35.745	PK
2	*	2402.450	104.868	68.767	30.868	74.000	36.101	PK

Profile: 2120504R	Page No.: 38
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



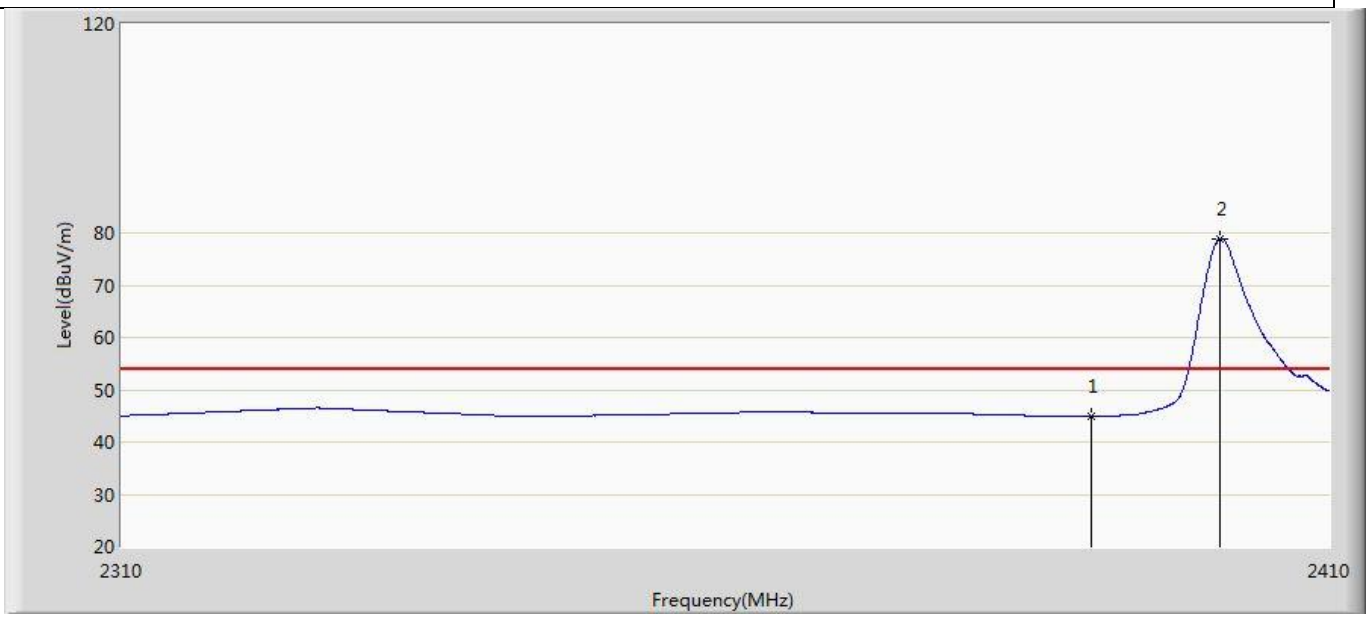
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.007	9.263	-8.993	54.000	35.745	AV
2	*	2400.550	79.918	43.958	25.918	54.000	35.961	AV

Profile: 2120504R	Page No.: 39
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



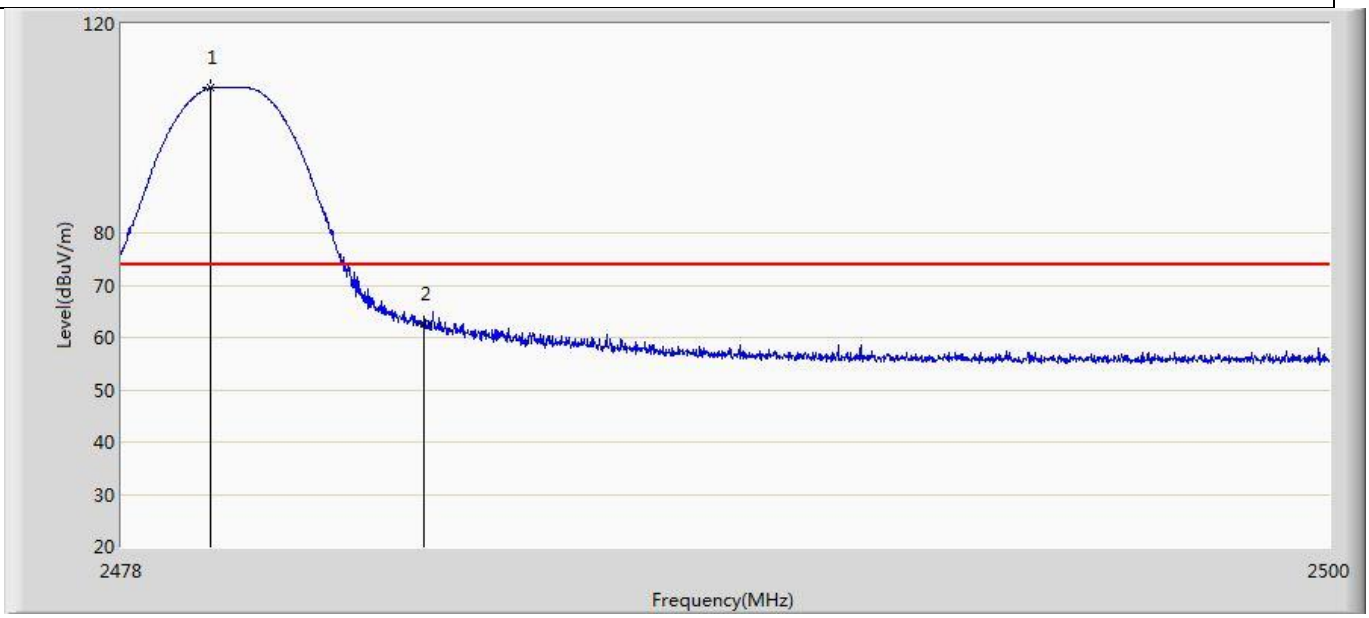
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	54.658	18.914	-19.342	74.000	35.745	PK
2	*	2401.950	103.410	67.346	29.410	74.000	36.064	PK

Profile: 2120504R	Page No.: 40
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz	



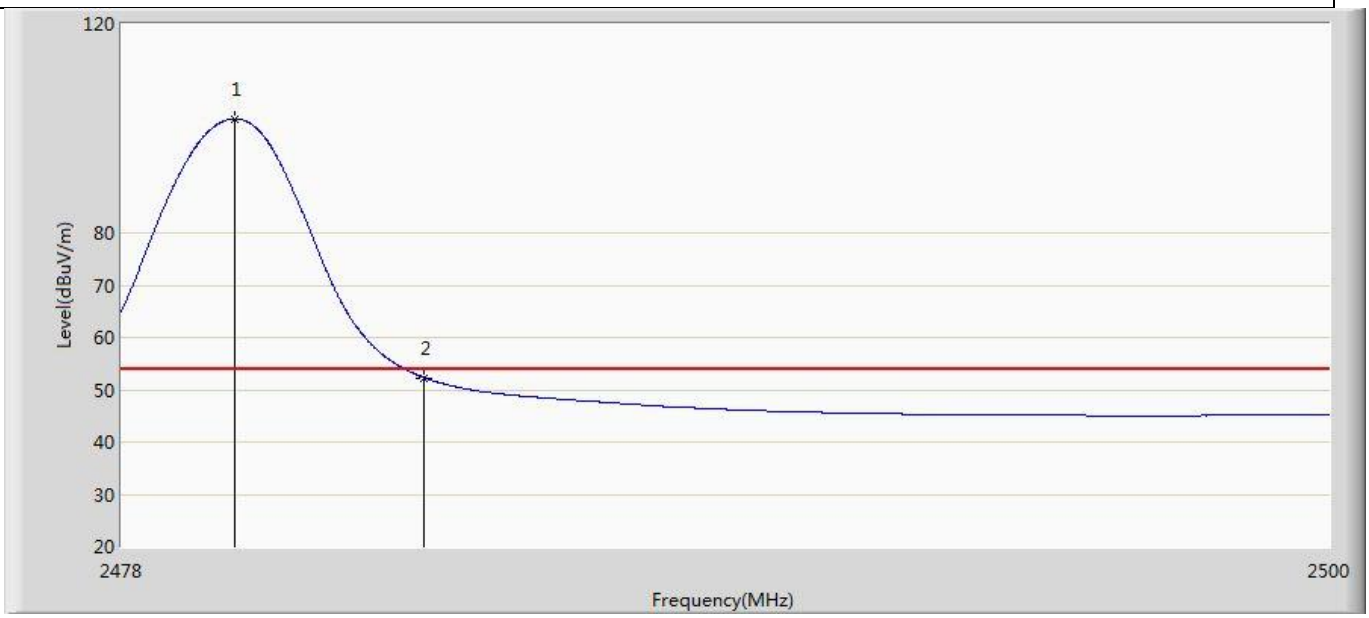
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.838	9.094	-9.162	54.000	35.745	AV
2	*	2400.850	78.875	42.892	24.875	54.000	35.983	AV

Profile: 2120504R	Page No.: 21
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



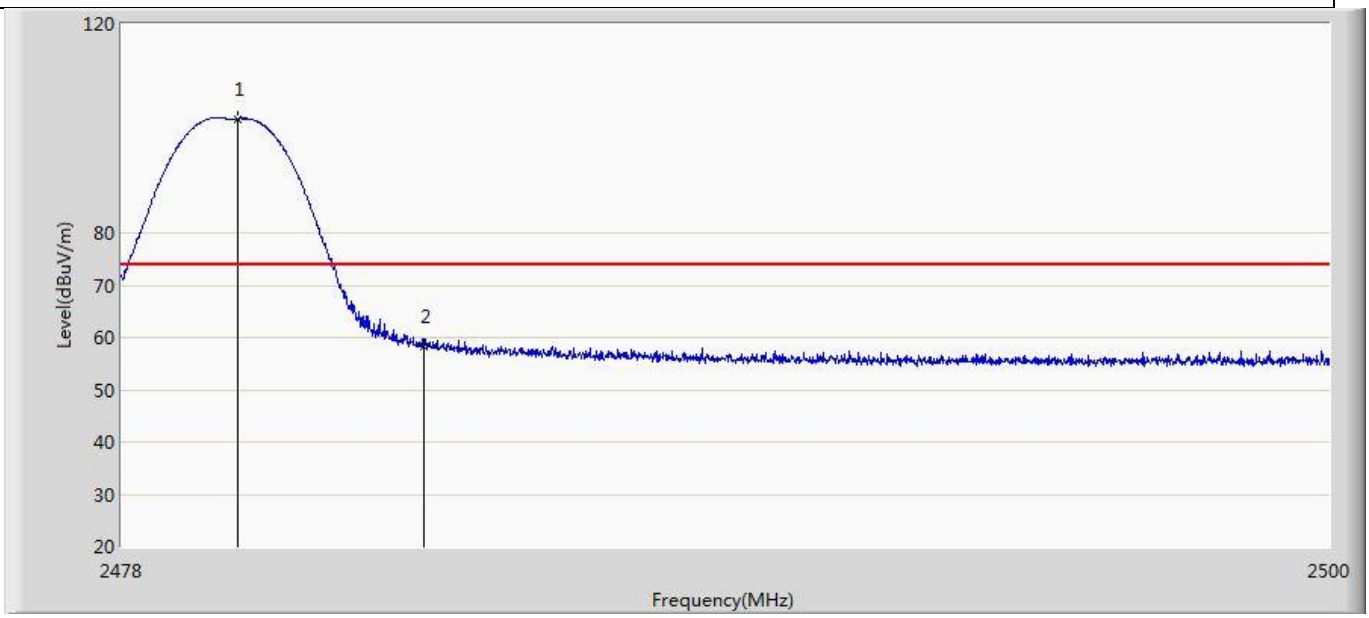
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.628	107.745	70.901	33.745	74.000	36.844	PK
2		2483.500	62.744	26.045	-11.256	74.000	36.699	PK

Profile: 2120504R	Page No.: 22
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



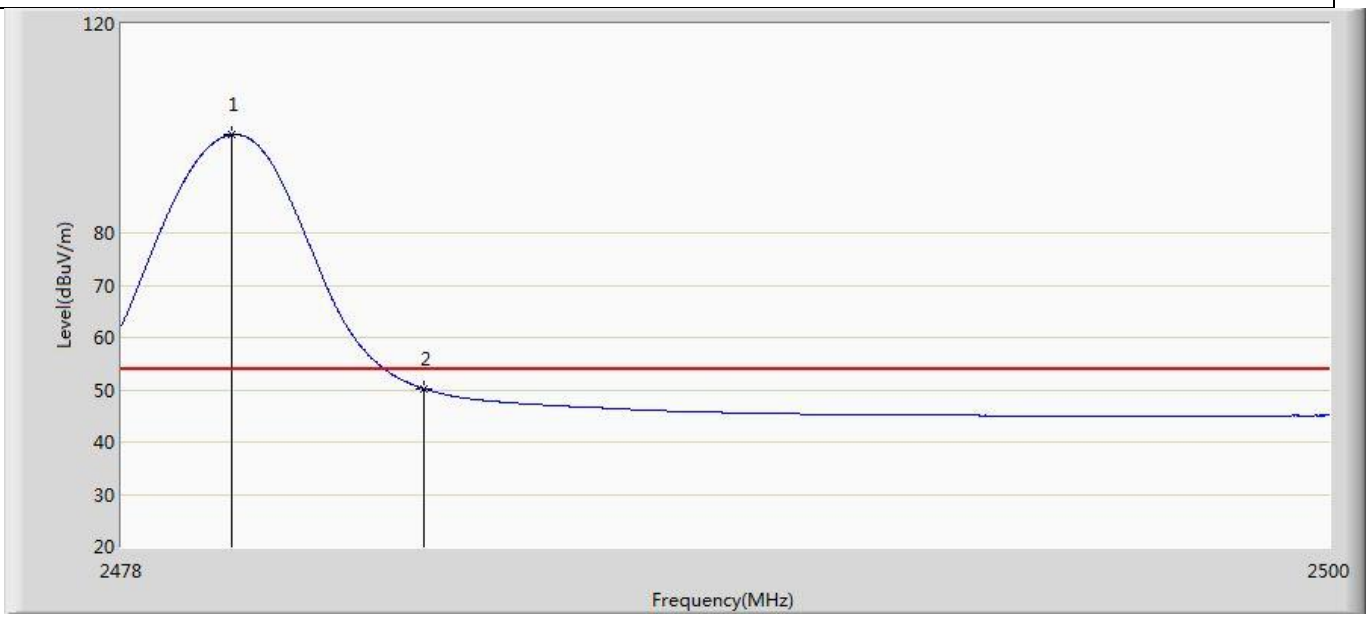
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	101.839	65.011	47.839	54.000	36.828	AV
2		2483.500	52.293	15.594	-1.707	54.000	36.699	AV

Profile: 2120504R	Page No.: 23
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



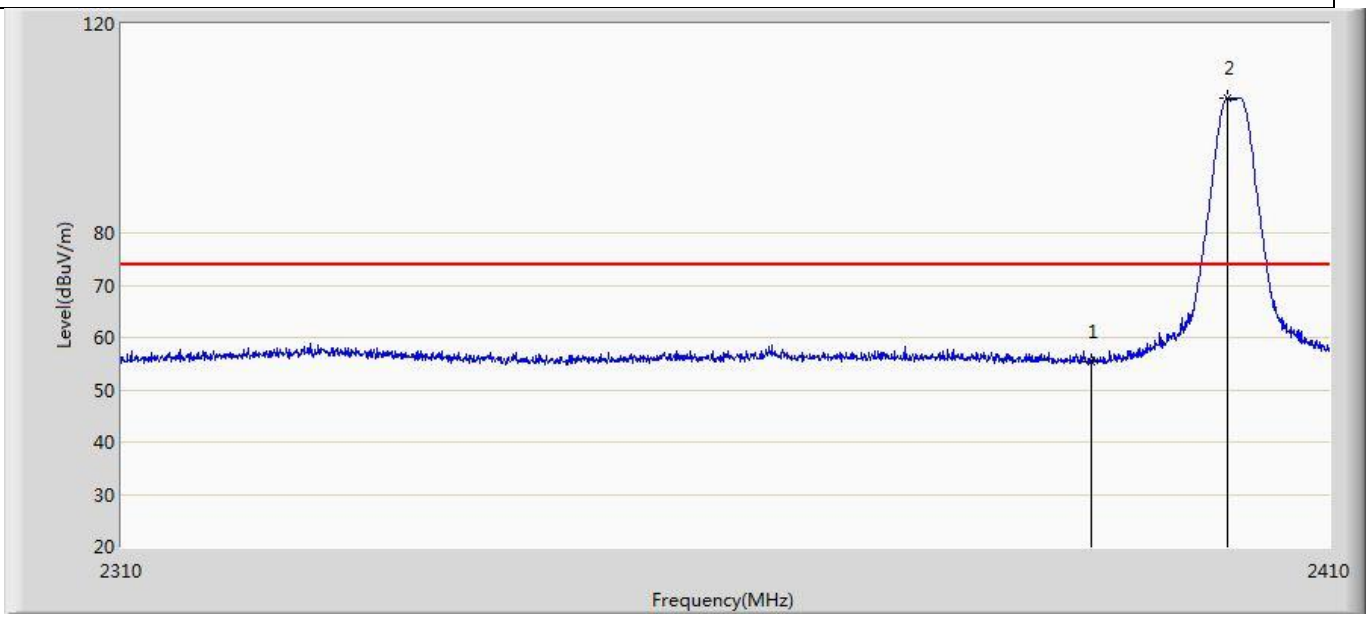
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	101.863	65.037	27.863	74.000	36.826	PK
2		2483.500	58.387	21.688	-15.613	74.000	36.699	PK

Profile: 2120504R	Page No.: 24
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz	



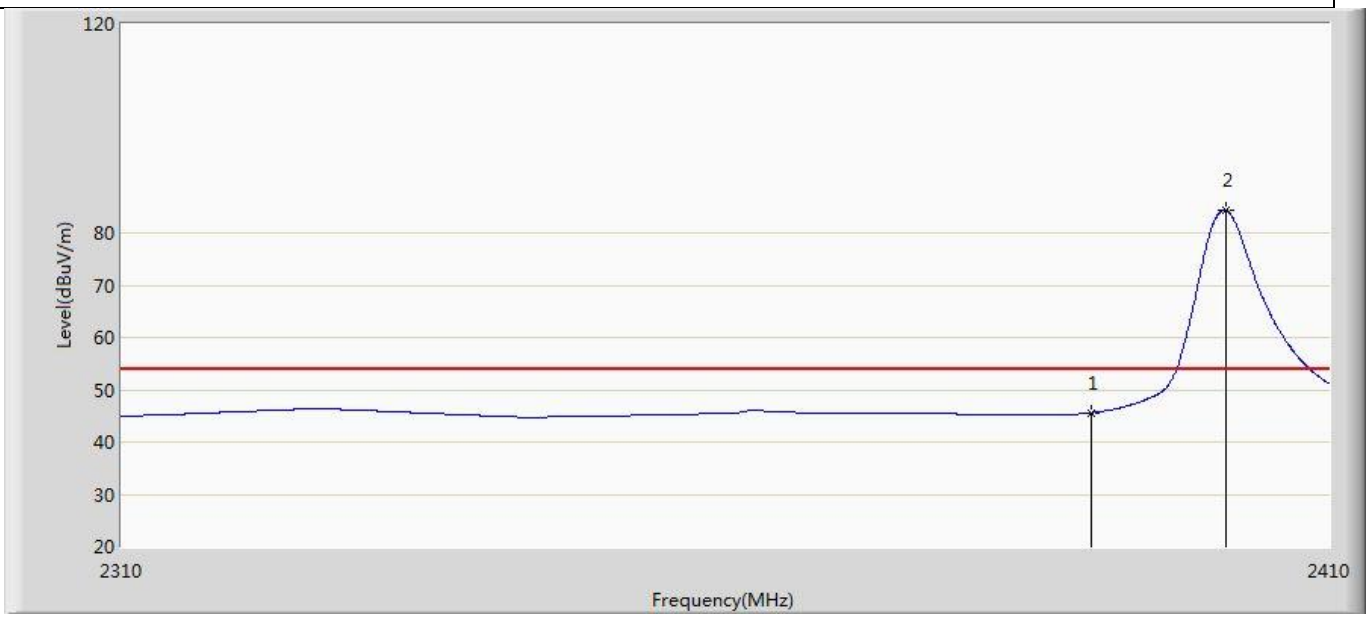
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	98.807	61.978	44.807	54.000	36.830	AV
2		2483.500	50.184	13.485	-3.816	54.000	36.699	AV

Profile: 2120504R	Page No.: 9
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz	



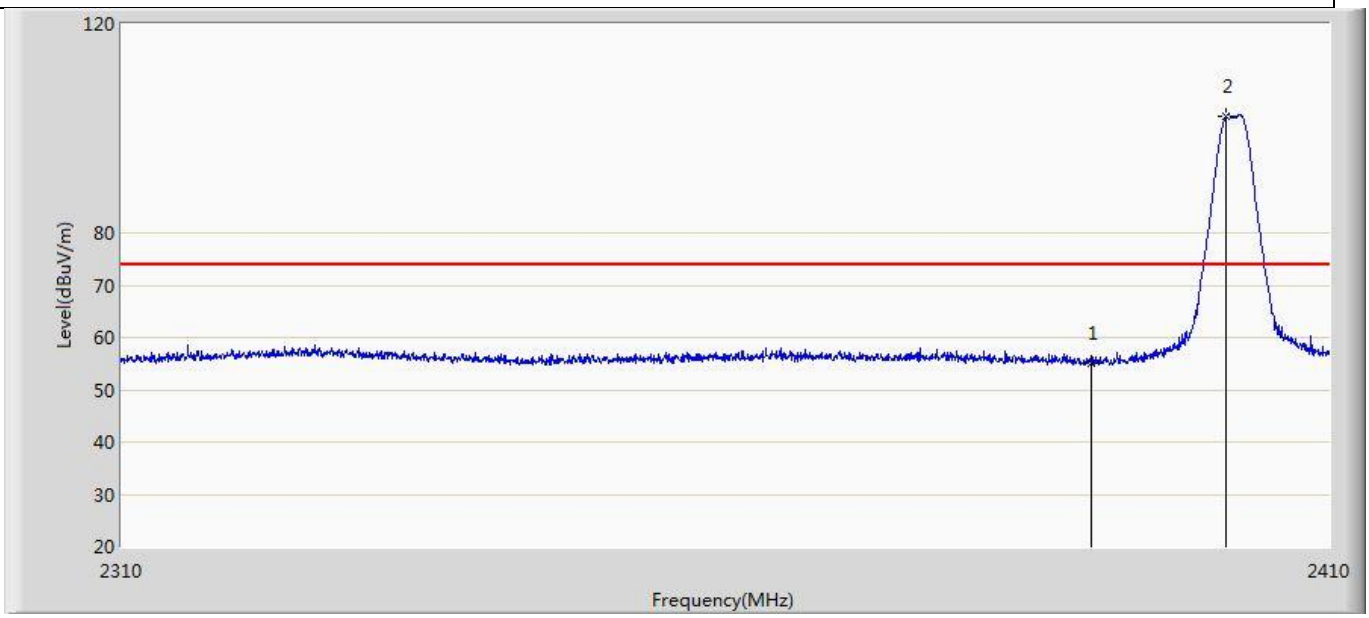
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.488	19.744	-18.512	74.000	35.745	PK
2	*	2401.400	105.877	69.854	31.877	74.000	36.023	PK

Profile: 2120504R	Page No.: 10
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz	



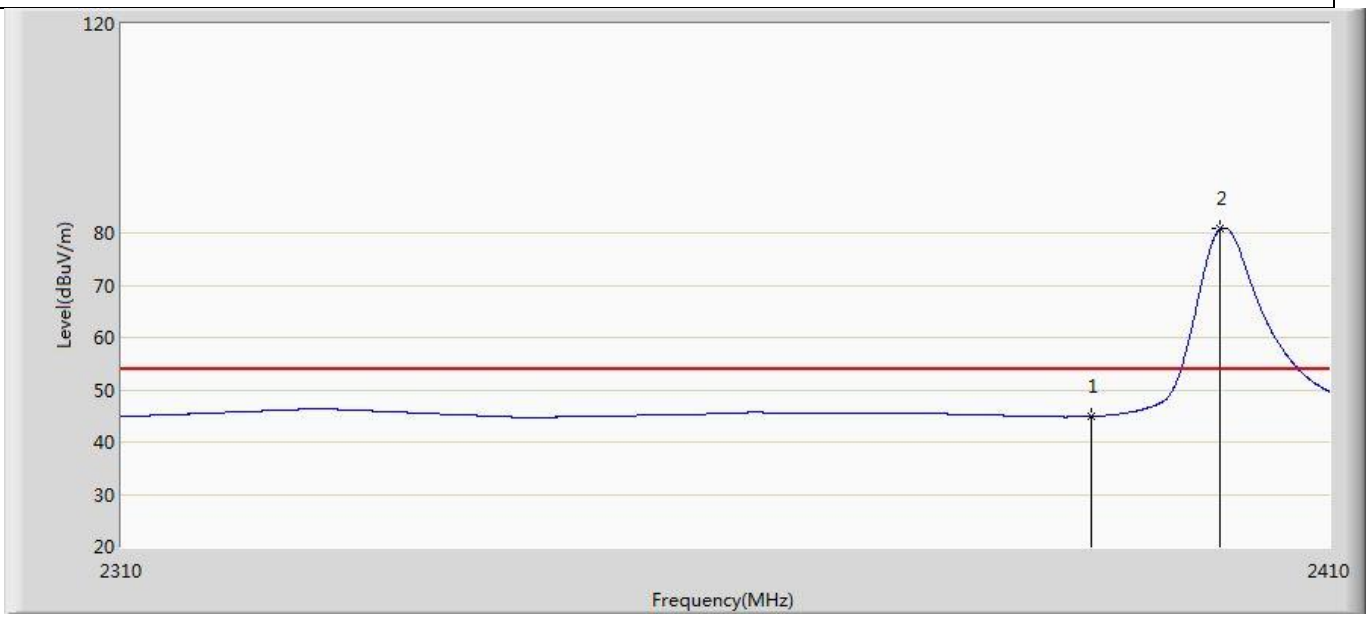
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.597	9.853	-8.403	54.000	35.745	AV
2	*	2401.350	84.293	48.273	30.293	54.000	36.019	AV

Profile: 2120504R	Page No.: 11
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz	



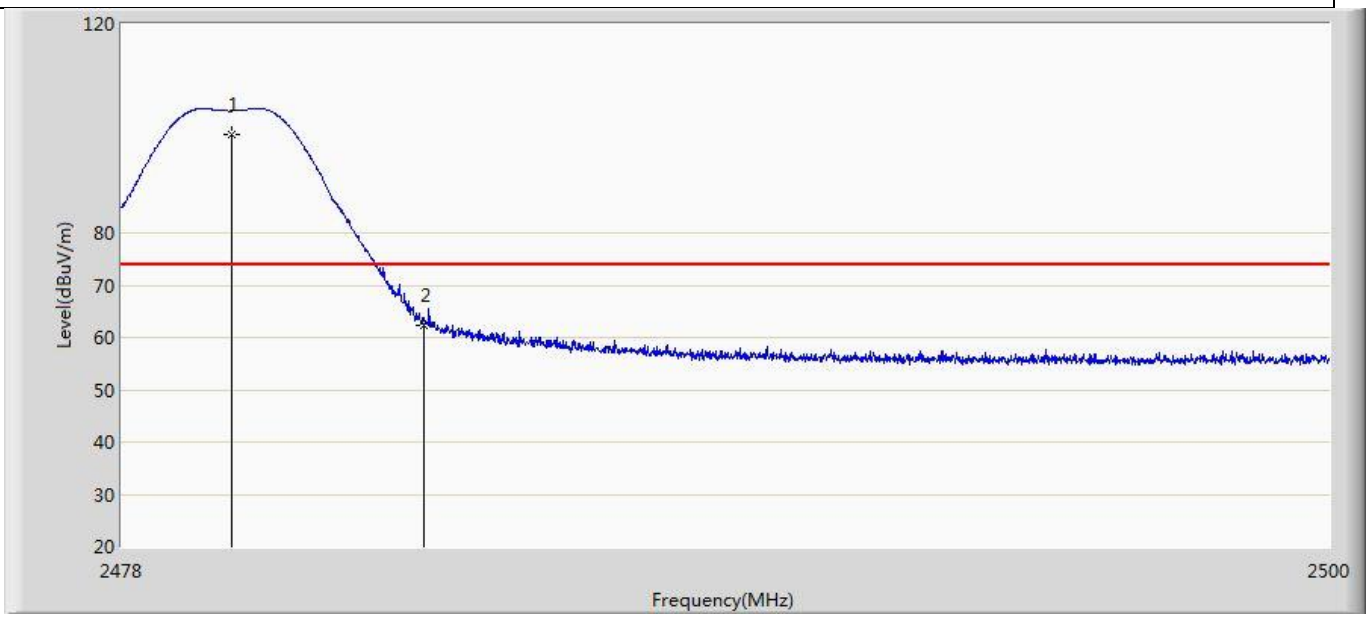
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.201	19.457	-18.799	74.000	35.745	PK
2	*	2401.350	102.459	66.439	28.459	74.000	36.019	PK

Profile: 2120504R	Page No.: 12
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz	



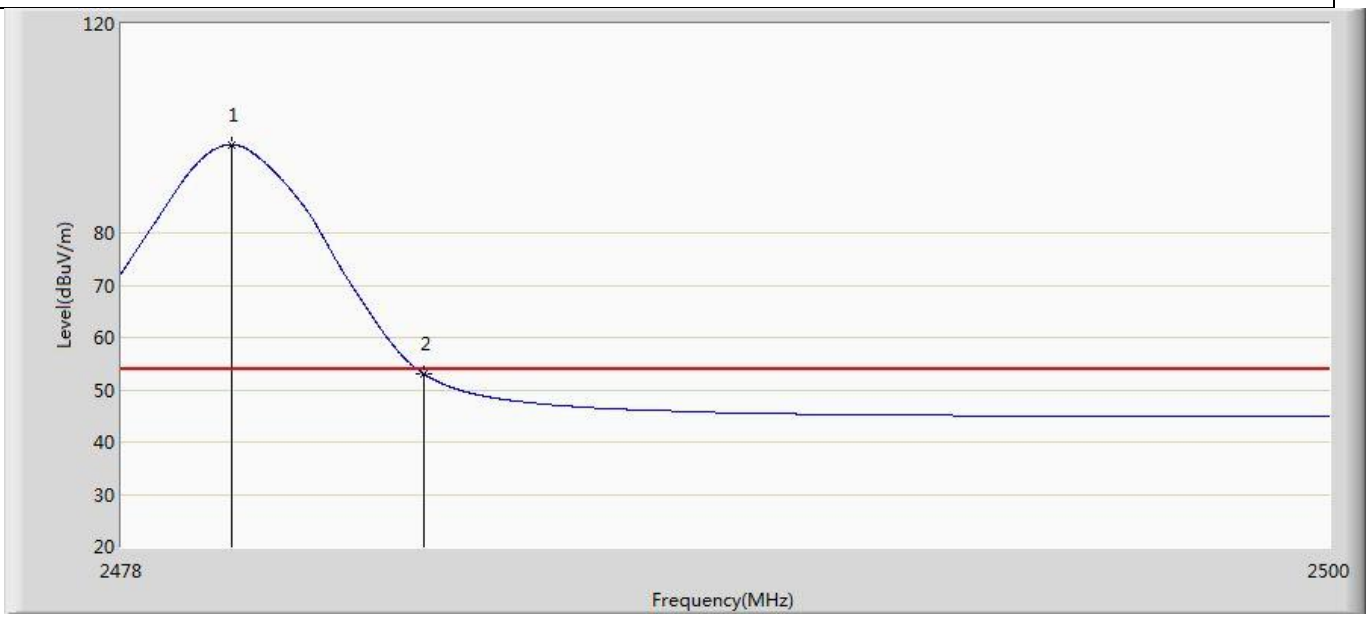
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.926	9.182	-9.074	54.000	35.745	AV
2	*	2400.850	80.741	44.758	26.741	54.000	35.983	AV

Profile: 2120504R	Page No.: 25
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz	



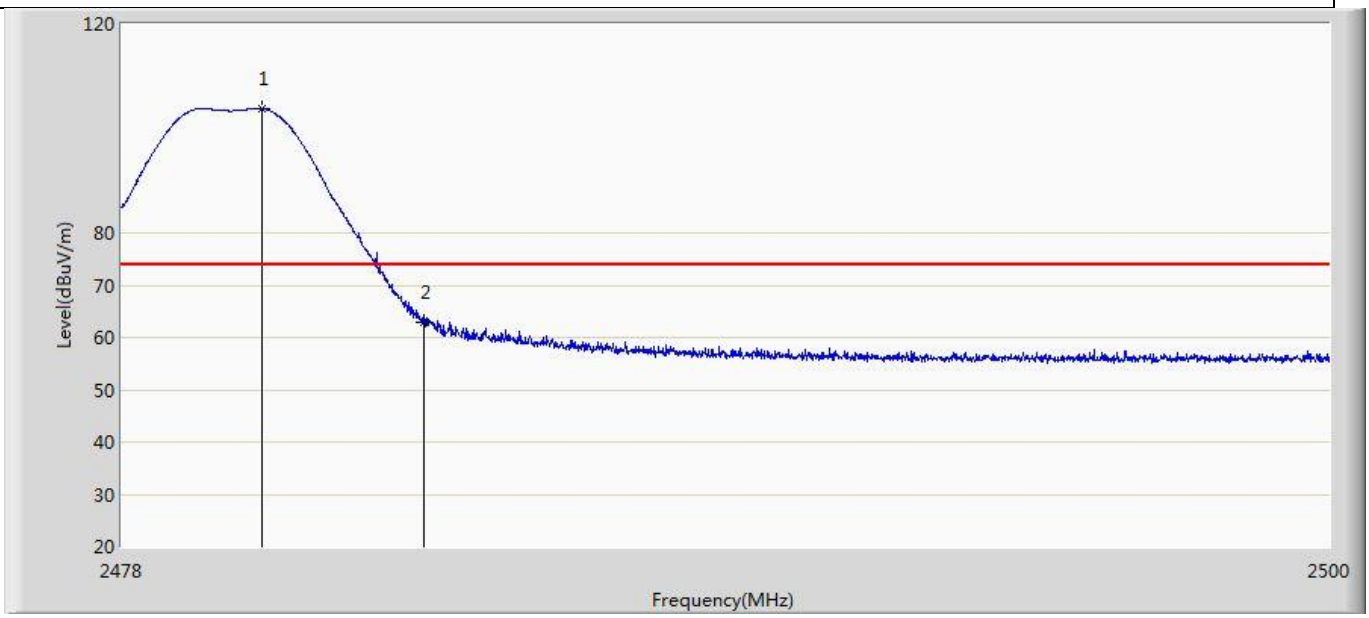
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	98.807	61.978	24.807	74.000	36.830	PK
2		2483.500	62.275	25.576	-11.725	74.000	36.699	PK

Profile: 2120504R	Page No.: 26
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz	



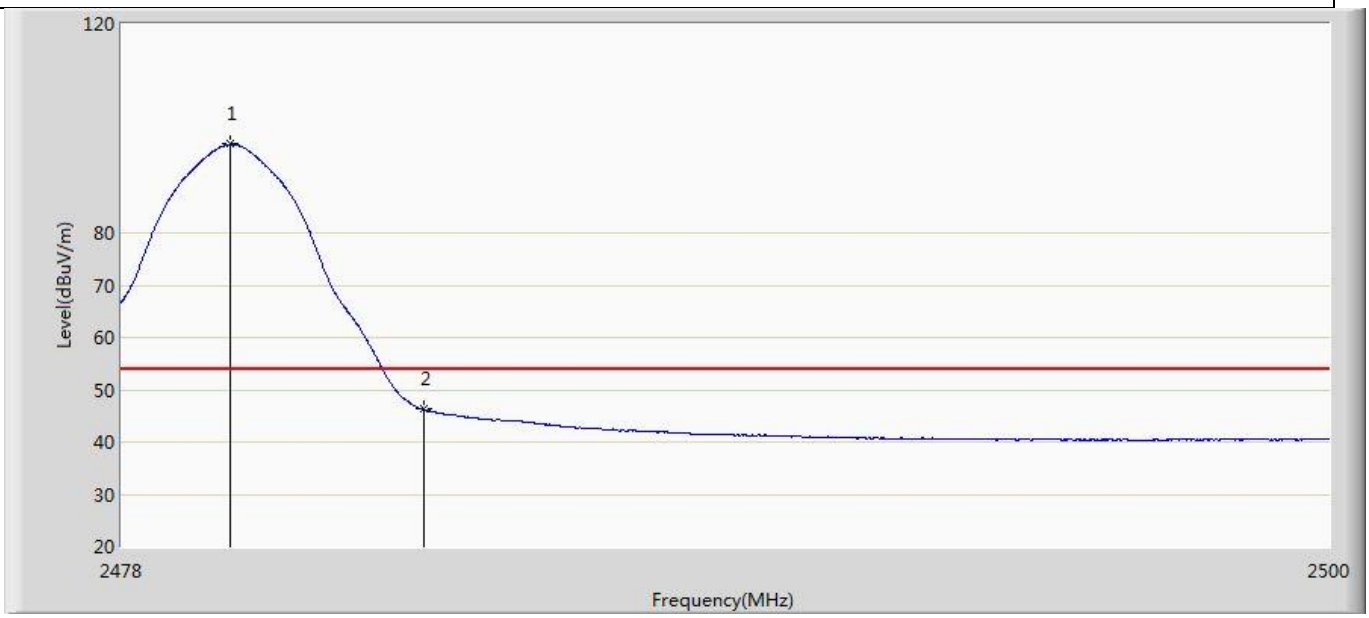
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	96.883	60.054	42.883	54.000	36.830	AV
2		2483.500	52.986	16.287	-1.014	54.000	36.699	AV

Profile: 2120504R	Page No.: 27
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz	



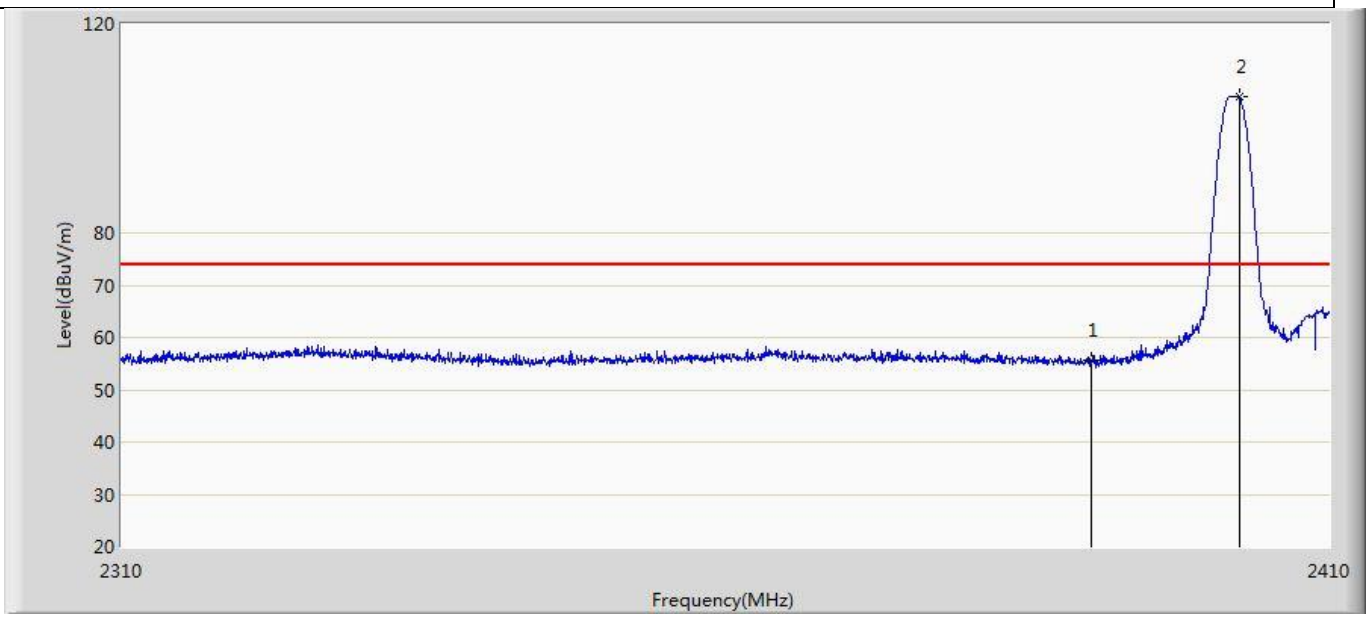
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.563	103.758	66.949	29.758	74.000	36.808	PK
2		2483.500	63.028	26.329	-10.972	74.000	36.699	PK

Profile: 2120504R	Page No.: 28
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz	



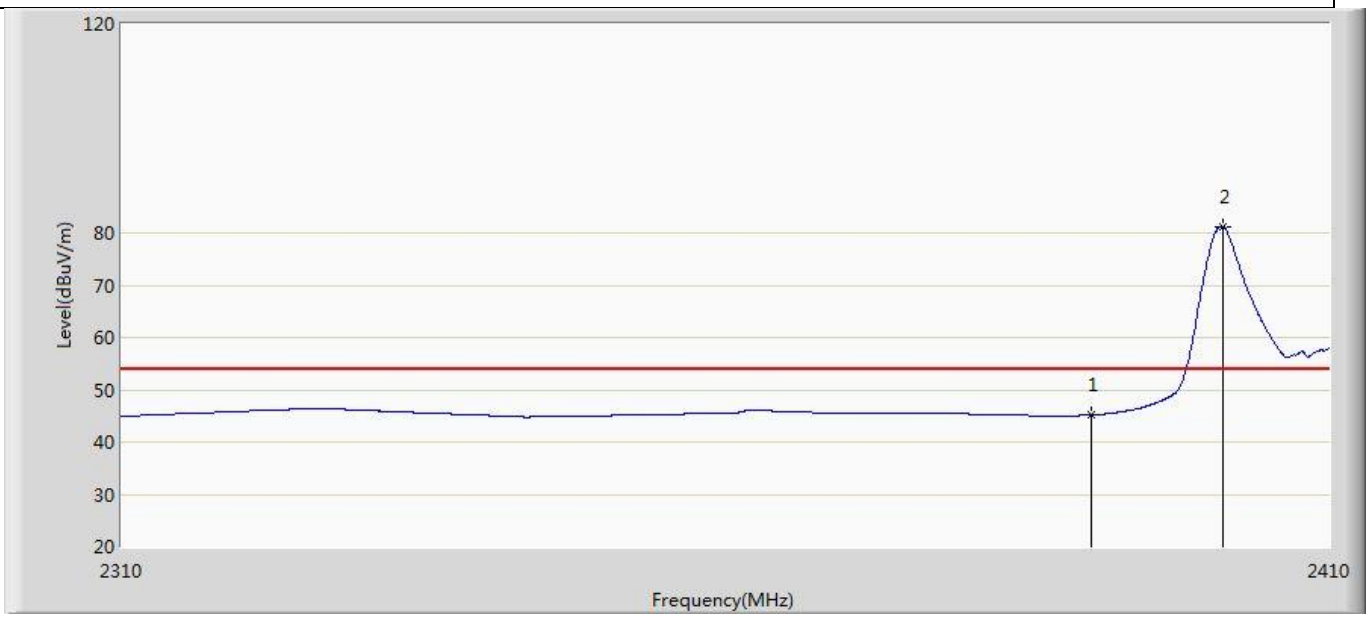
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	96.967	60.136	42.967	54.000	36.831	AV
2		2483.500	46.232	9.533	-7.768	54.000	36.699	AV

Profile: 2120504R	Page No.: 17
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz	



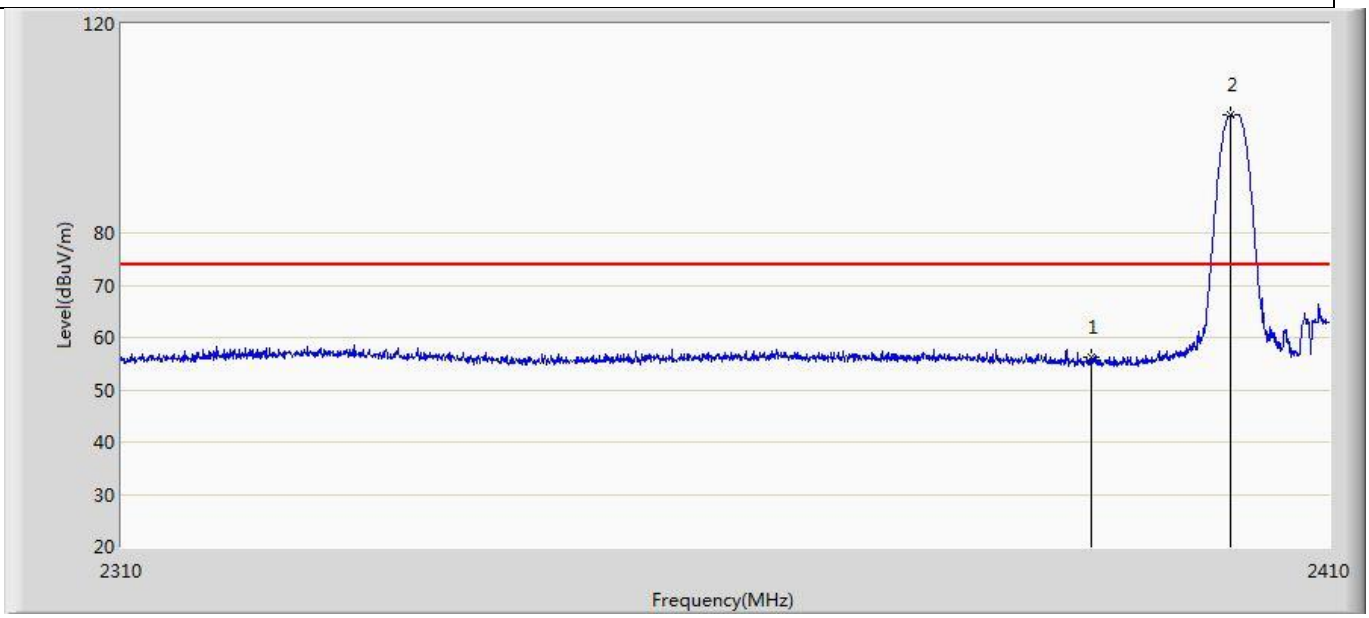
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.708	19.964	-18.292	74.000	35.745	PK
2	*	2402.450	105.962	69.861	31.962	74.000	36.101	PK

Profile: 2120504R	Page No.: 18
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz	



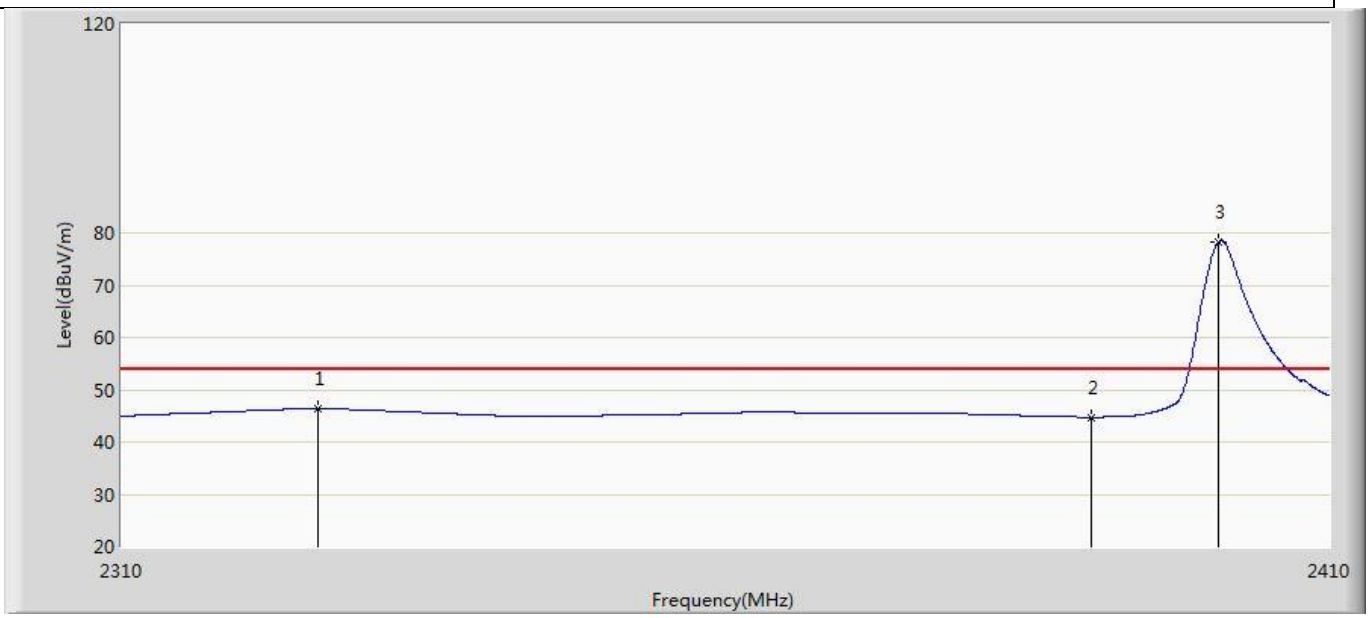
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.177	9.433	-8.823	54.000	35.745	AV
2	*	2401.000	81.248	45.254	27.248	54.000	35.994	AV

Profile: 2120504R	Page No.: 19
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz	



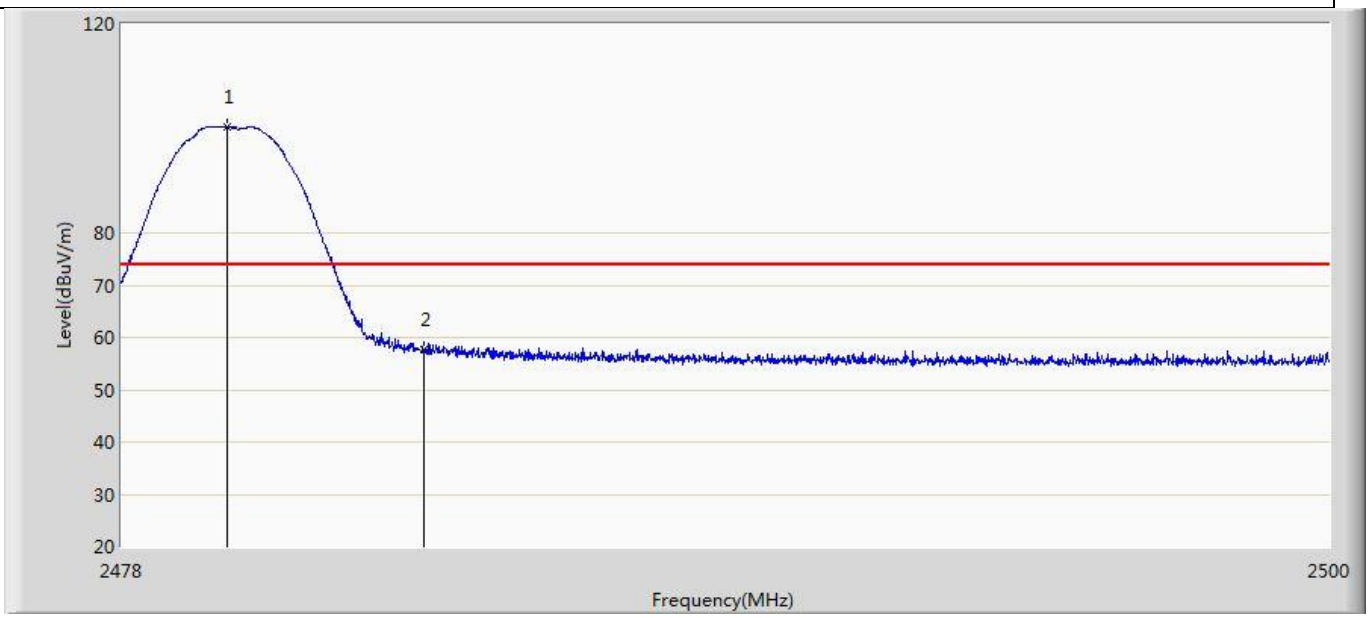
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	56.193	20.449	-17.807	74.000	35.745	PK
2	*	2401.650	102.493	66.451	28.493	74.000	36.041	PK

Profile: 2120504R	Page No.: 20
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz	



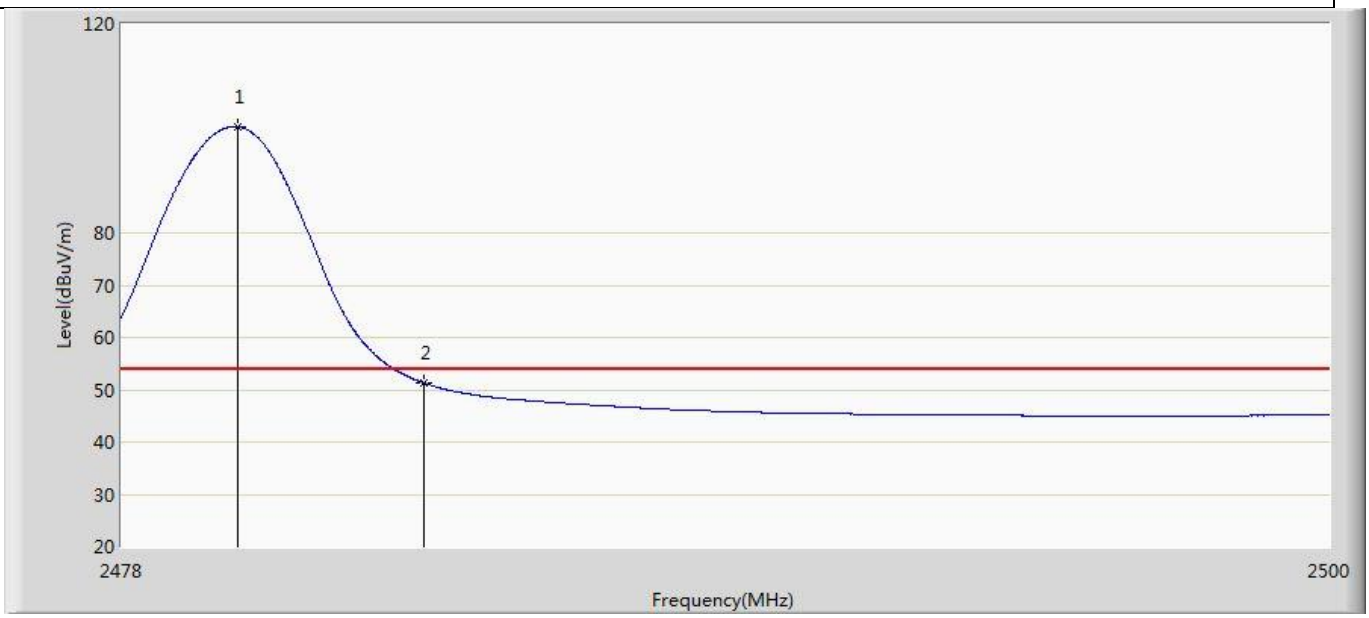
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2325.950	46.499	8.828	-7.501	54.000	37.671	AV
2		2390.000	44.757	9.013	-9.243	54.000	35.745	AV
3	*	2400.700	78.244	42.272	24.244	54.000	35.972	AV

Profile: 2120504R	Page No.: 33
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz	



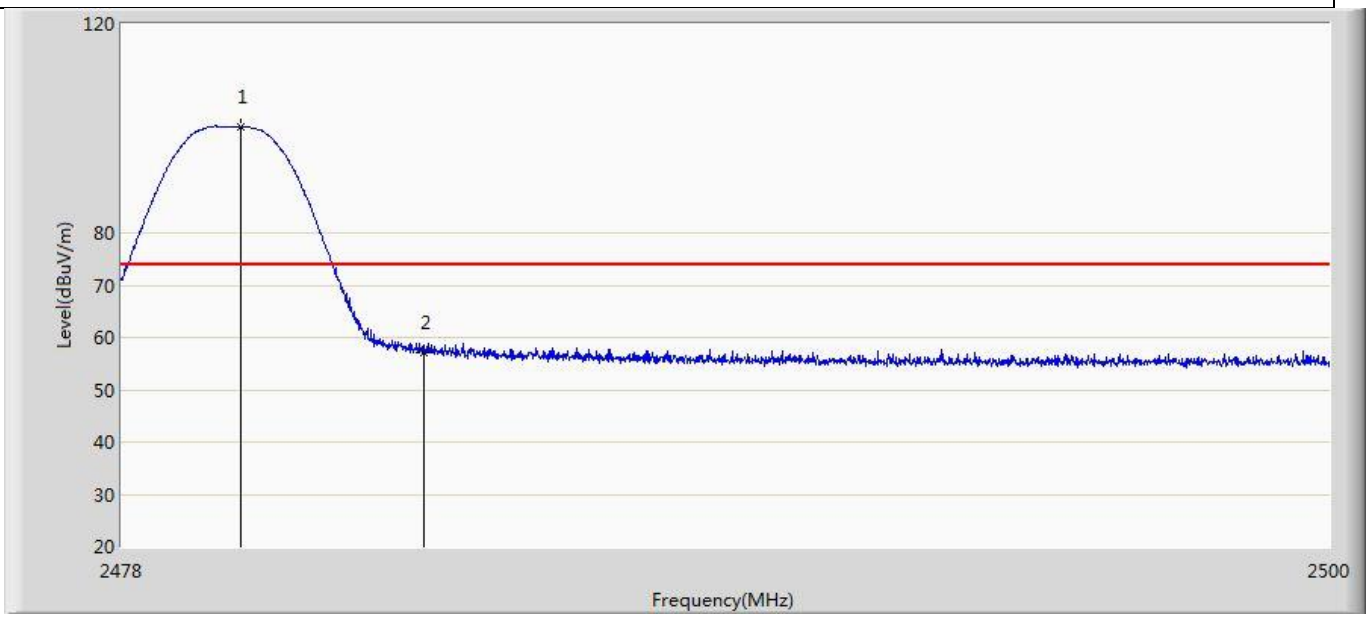
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.914	100.199	63.366	26.199	74.000	36.833	PK
2		2483.500	57.544	20.845	-16.456	74.000	36.699	PK

Profile: 2120504R	Page No.: 34
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz	



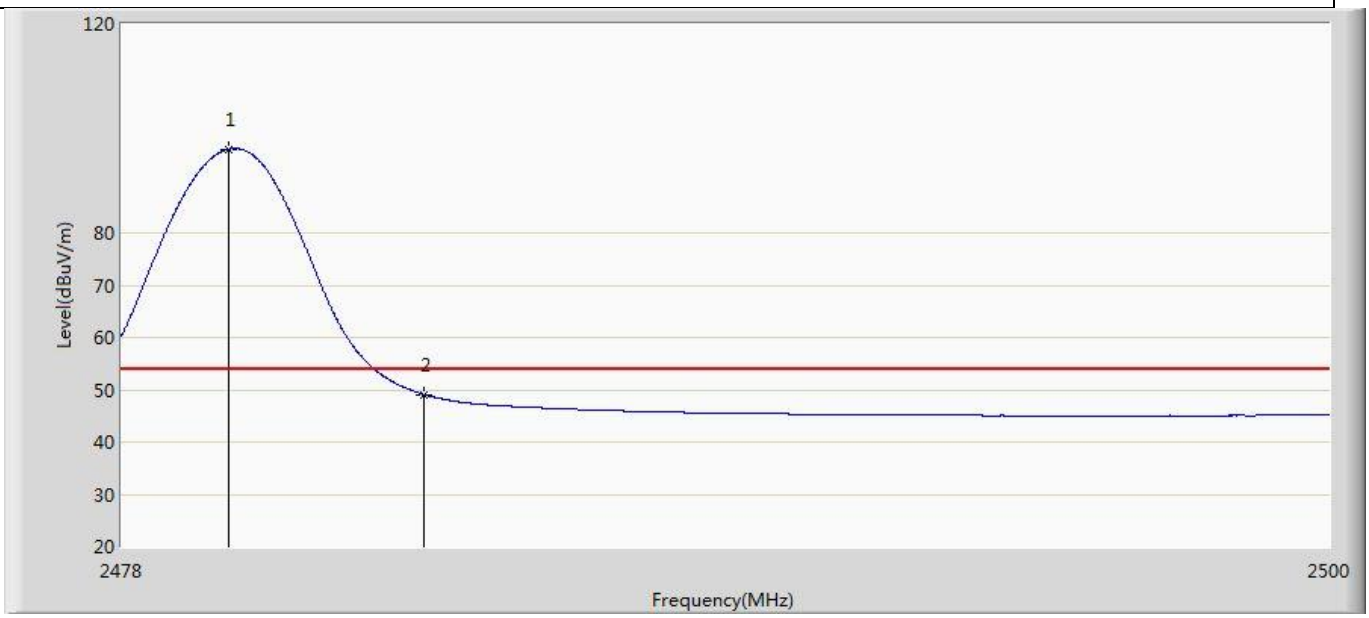
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	100.276	63.450	46.276	54.000	36.826	AV
2		2483.500	51.257	14.558	-2.743	54.000	36.699	AV

Profile: 2120504R	Page No.: 35
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz	



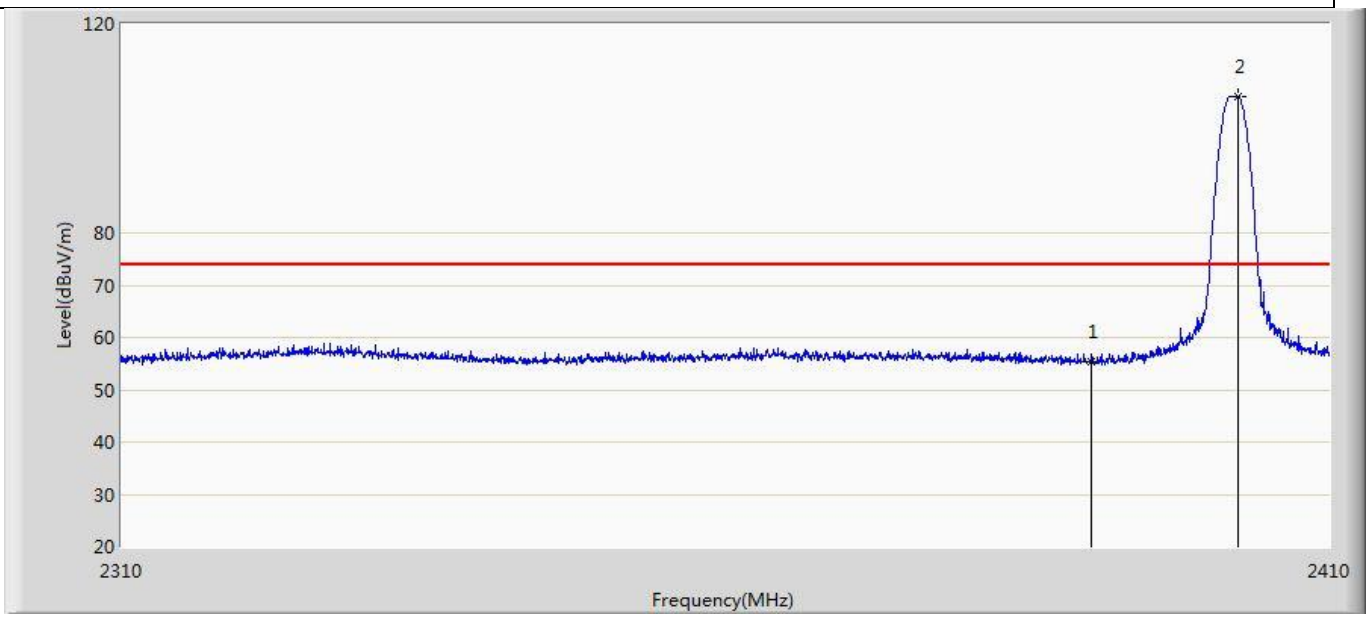
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.178	100.351	63.528	26.351	74.000	36.824	PK
2		2483.500	56.972	20.273	-17.028	74.000	36.699	PK

Profile: 2120504R	Page No.: 36
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz	



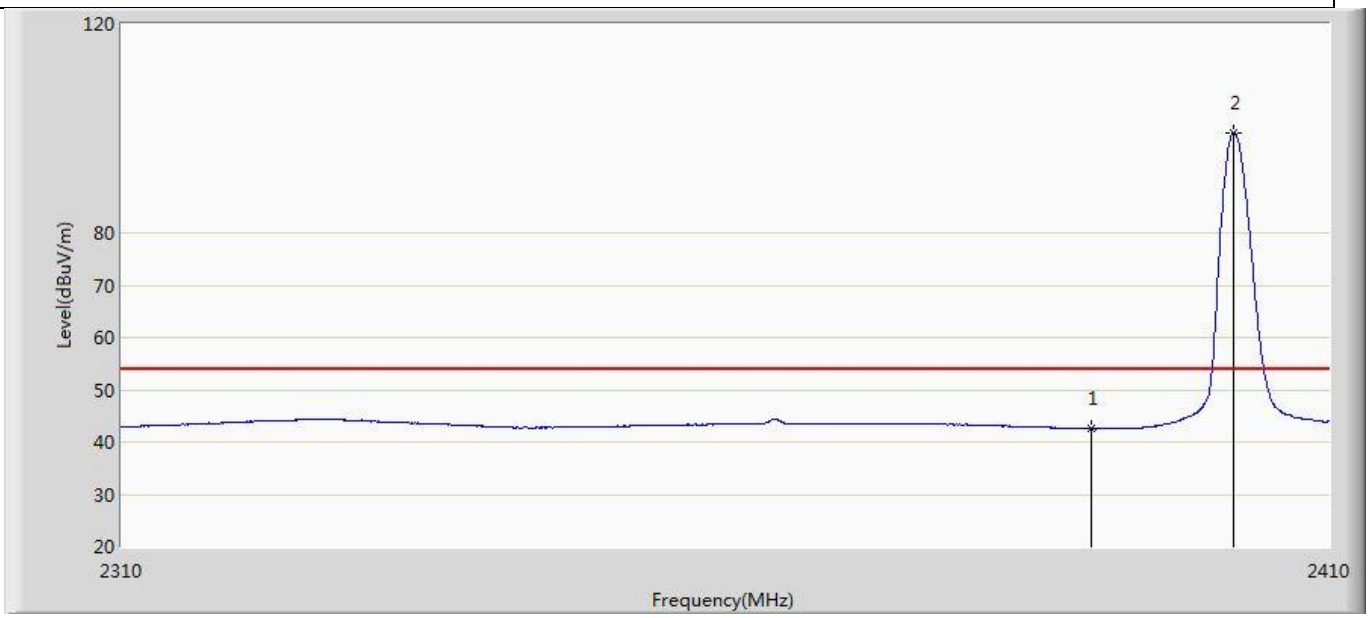
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.947	96.034	59.202	42.034	54.000	36.832	AV
2		2483.500	49.062	12.363	-4.938	54.000	36.699	AV

Profile: 2120504R	Page No.: 13
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2402MHz	



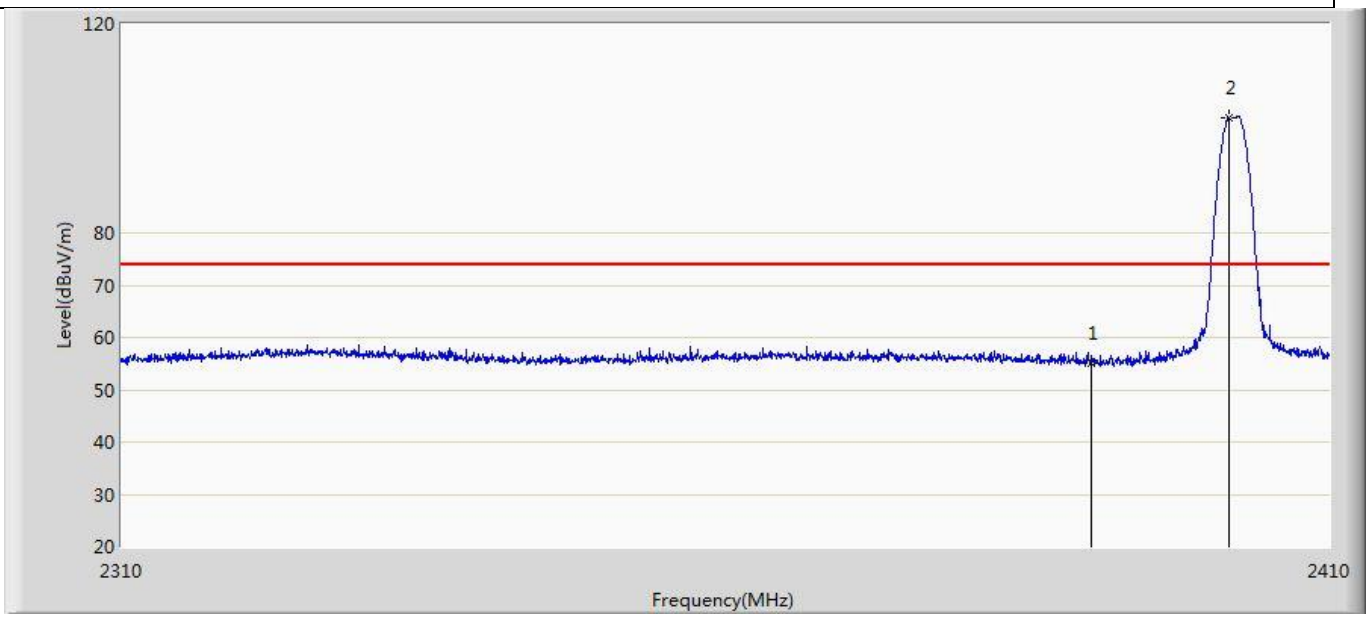
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.470	19.726	-18.530	74.000	35.745	PK
2	*	2402.300	106.092	70.002	32.092	74.000	36.090	PK

Profile: 2120504R	Page No.: 14
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2402MHz	



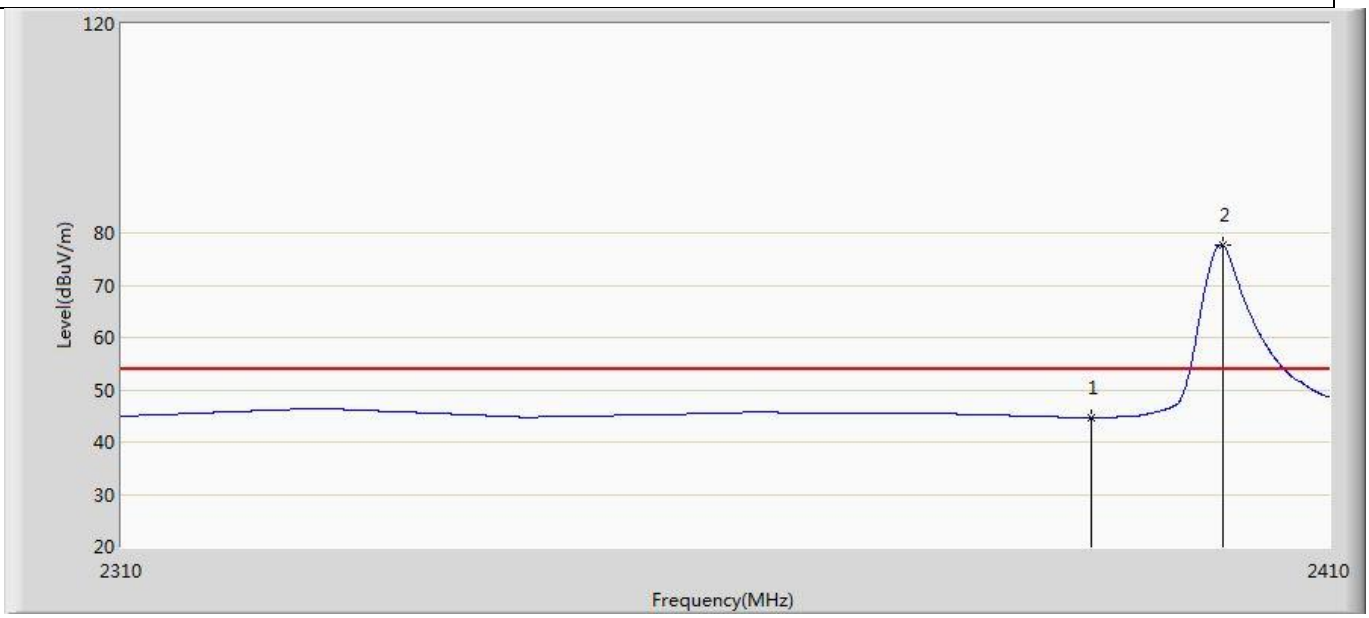
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	42.520	6.776	-11.480	54.000	35.745	AV
2	*	2401.950	99.250	63.186	45.250	54.000	36.064	AV

Profile: 2120504R	Page No.: 15
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2402MHz	



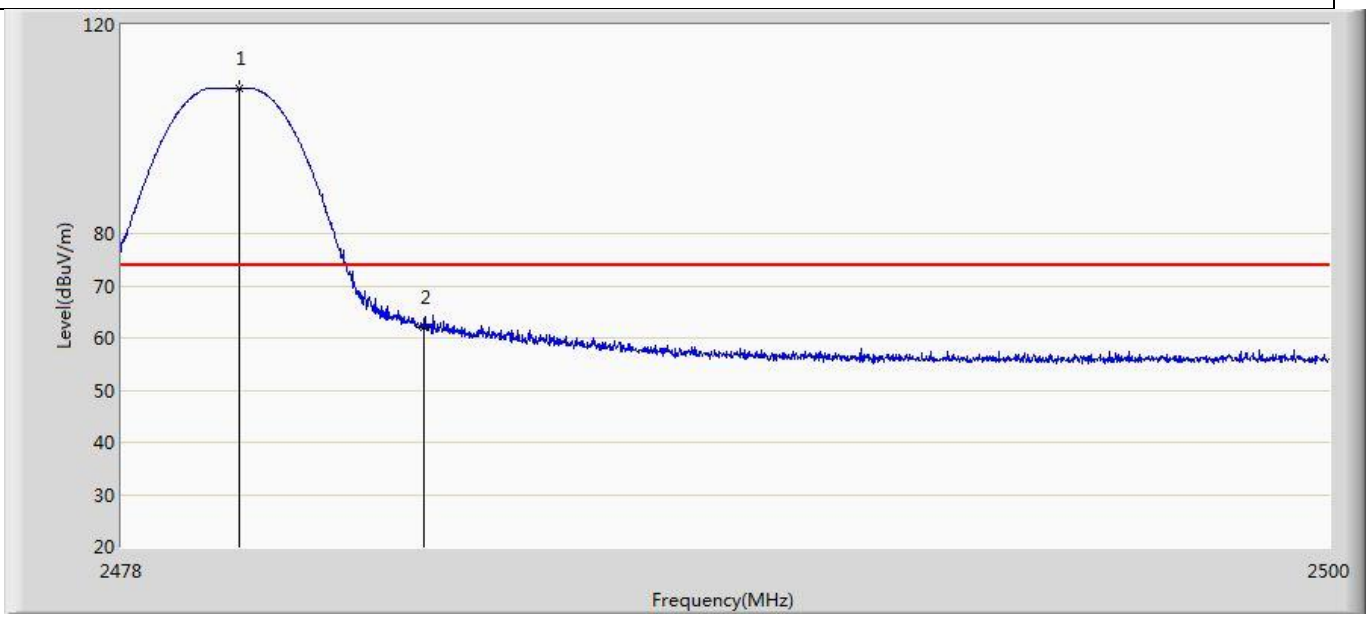
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	54.977	19.233	-19.023	74.000	35.745	PK
2	*	2401.600	102.151	66.113	28.151	74.000	36.038	PK

Profile: 2120504R	Page No.: 16
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2402MHz	



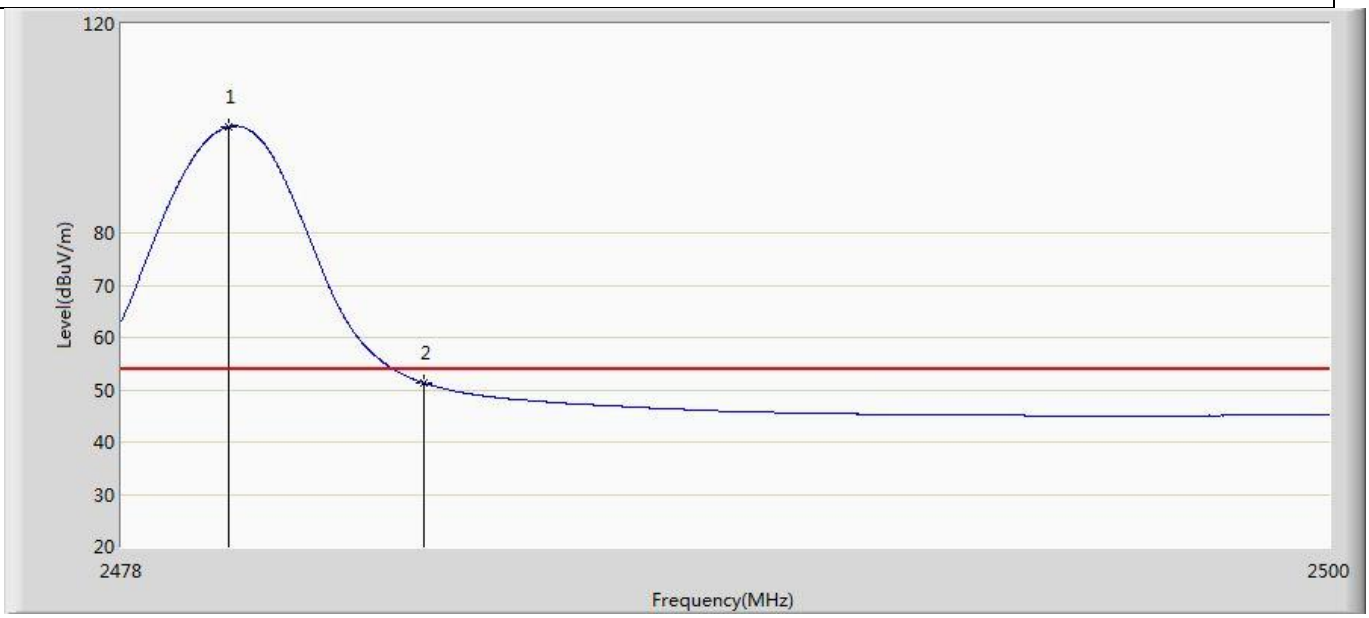
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.681	8.937	-9.319	54.000	35.745	AV
2	*	2401.000	77.719	41.725	23.719	54.000	35.994	AV

Profile: 2120504R	Page No.: 29
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz	



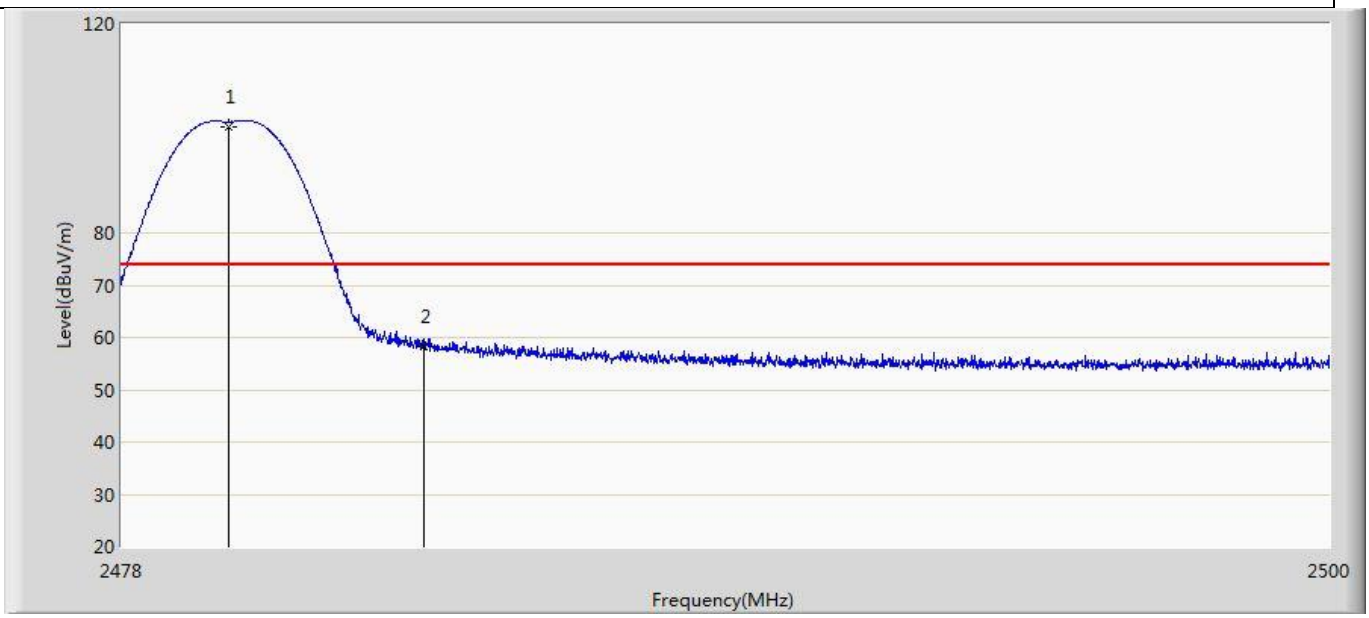
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.145	107.842	71.018	33.842	74.000	36.825	PK
2		2483.500	61.968	25.269	-12.032	74.000	36.699	PK

Profile: 2120504R	Page No.: 30
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 20:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz	



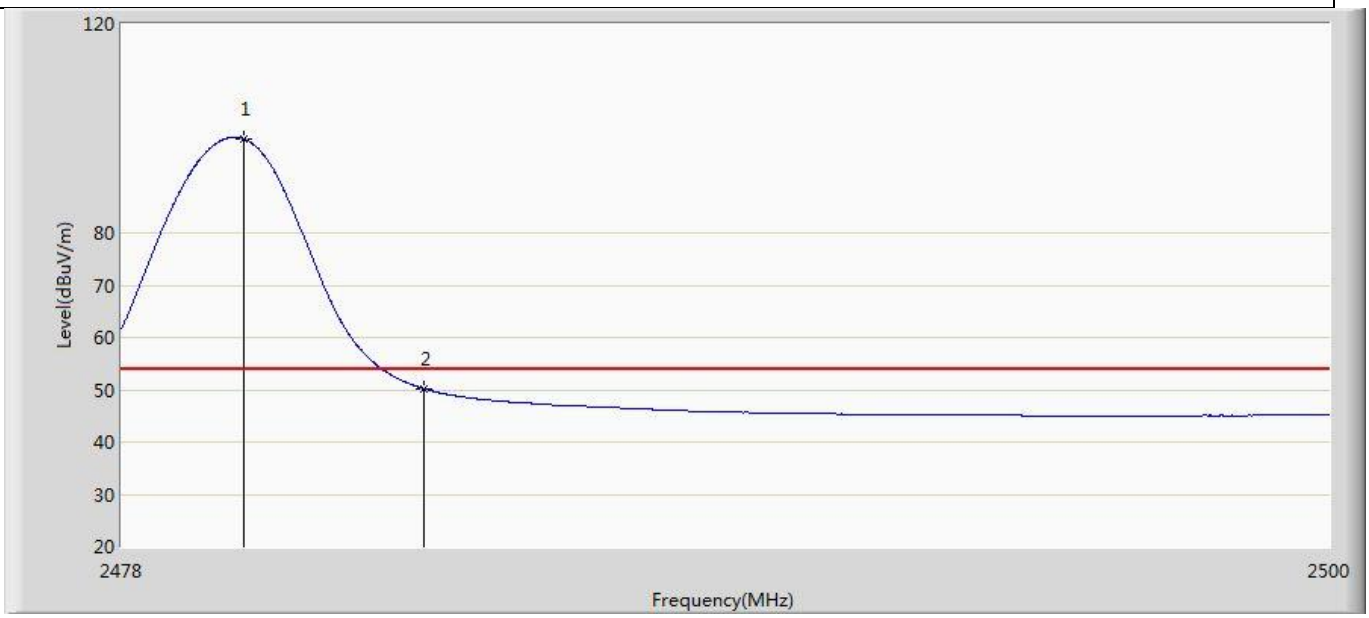
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.936	100.311	63.479	46.311	54.000	36.833	AV
2		2483.500	51.271	14.572	-2.729	54.000	36.699	AV

Profile: 2120504R	Page No.: 31
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.936	100.311	63.479	26.311	74.000	36.833	PK
2		2483.500	58.320	21.621	-15.680	74.000	36.699	PK

Profile: 2120504R	Page No.: 32
Engineer: Jun Xu	
Site: AC5	Time: 2021/03/05 - 21:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz	

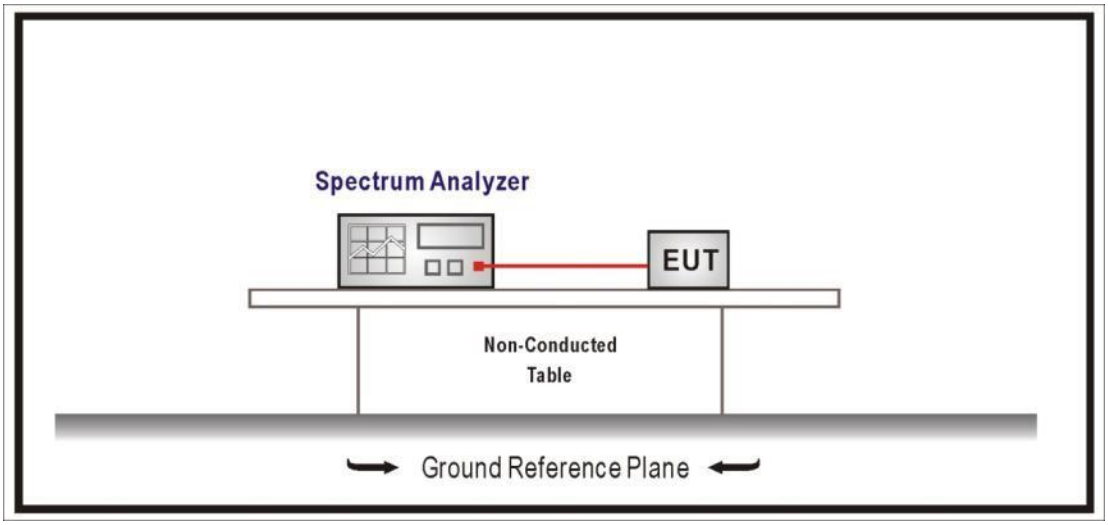


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.222	98.008	61.186	44.008	54.000	36.822	AV
2		2483.500	50.181	13.482	-3.819	54.000	36.699	AV

4.6 DTS Bandwidth	VERDICT: PASS

4.6.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(2)
Systems using digital modulation techniques operate in the2400-2483.5 MHz .The minimum 6 dB bandwidth shall be at least 500 kHz	

4.6.2 Test Setup



4.6.3 Test Procedure

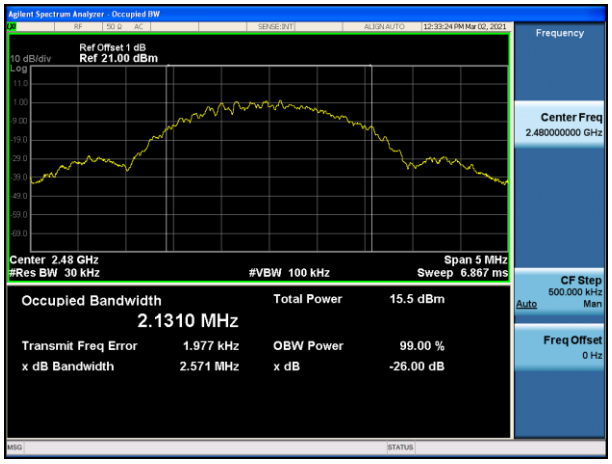
	Reference Rule		Chapter	Description
☒	ANSI C63.10		11.8	DTS bandwidth
	☐	ANSI C63.10	11.8.1	Option 1
	☒	ANSI C63.10	11.8.2	Option 2

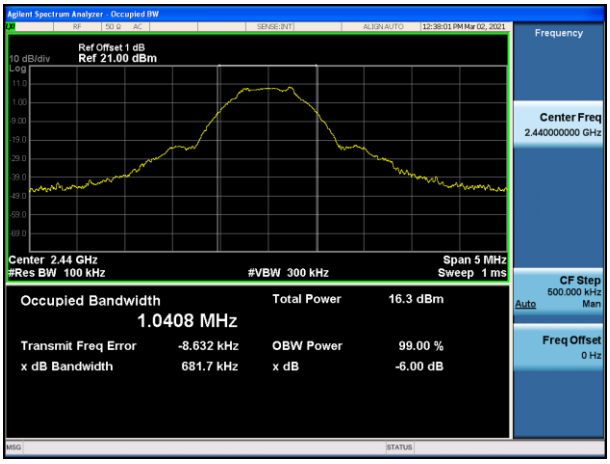
4.6.4 Test Data

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	1042.2	699.1	>500	Pass
	19	2440	1043.1	681.7	>500	Pass
	39	2480	1042.0	682.2	>500	Pass
2	00	2402	2118.1	1349	>500	Pass
	19	2440	2121.7	1349	>500	Pass
	39	2480	2131.0	1344	>500	Pass
3	00	2402	1091.6	776.6	>500	Pass
	19	2440	1090.0	776.8	>500	Pass
	39	2480	1089.7	775.3	>500	Pass
4	00	2402	1126.2	748.2	>500	Pass
	19	2440	1122.0	747.4	>500	Pass
	39	2480	1121.9	746.8	>500	Pass

Note : The worst case of Occupied Bandwidth as below:

99% Occupied Bandwidth	6dB Occupied Bandwidth
Mode 2 CH39 (2480MHz)	Mode 1 CH19(2440MHz)

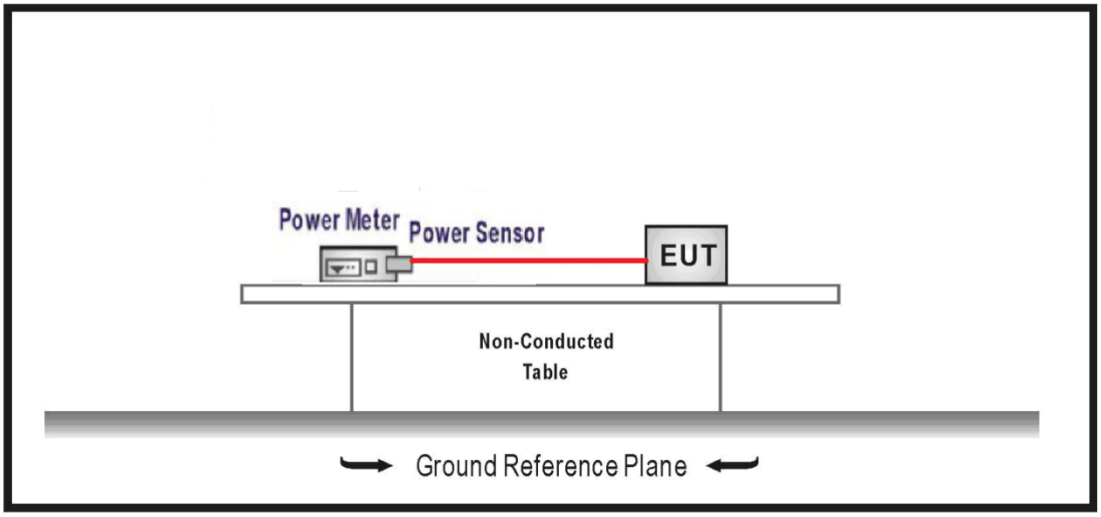




4.7 Fundamental emission output power	VERDICT: PASS

4.7.1 Limit			
Standard		FCC Part 15 Subpart C Paragraph 15.247 (b)(3)	
☒	GTX＜6dBi		Pout≤30dBm
☐	GTX ＞6dBi		
	☐	Non-Fix point-point	Pout≤30-(GTX -6)
	☐	Fix point-point	Pout≤30-[(GTX-6)]/3
	☐	Point-to-multipoint	Pout≤30-(GTX-6)
	☐	Overlap Beams	Pout≤30-[(GTX-6)]/3
	☐	Aggregate power transmitted simultaneously on all beams	Pout≤30-[(GTX-6)]/3
	☐	single directional beam	Pout≤30-[(GTX-6)]/3+8dB
Note 1 : GTX directional gain of transmitting antennas. Note 2 : Pout is maximum peak conducted output power .			

4.7.2 Test Setup



4.7.3 Test Procedure

	References Rule			Chapter	Description
☒	ANSI C63.10			11.9	Fundamental emission output power
	☒	ANSI C63.10		11.9.1	Maximum peak conducted output power
		☐	ANSI C63.10	11.9.1.1	RBW ≥ DTS bandwidth
		☐	ANSI C63.10	11.9.1.2	Integrated band power method
		☒	ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method
	☐	ANSI C63.10		11.9.2	Maximum conducted (average) output power
		☐	ANSI C63.10	11.9.2.2	Measurement using a spectrum analyzer (SA)
			☐ ANSI C63.10	11.9.2.2.2	Method AVGSA-1(Duty cycle⩾98%)
			☐ ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle⩾98%)
			☐ ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle⩽98%)
			☐ ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle⩽98%)
			☐ ANSI C63.10	11.9.2.2.4	Method AVGSA-3
			☐ ANSI C63.10	11.9.2.2.5	Method AVGSA-3A
		☐	ANSI C63.10	11.9.2.3	Measurement using a power meter (PM)
			☐ ANSI C63.10	11.9.2.3.1	Method AVGPM
			☐ ANSI C63.10	11.9.2.3.2	Method AVGPM-G

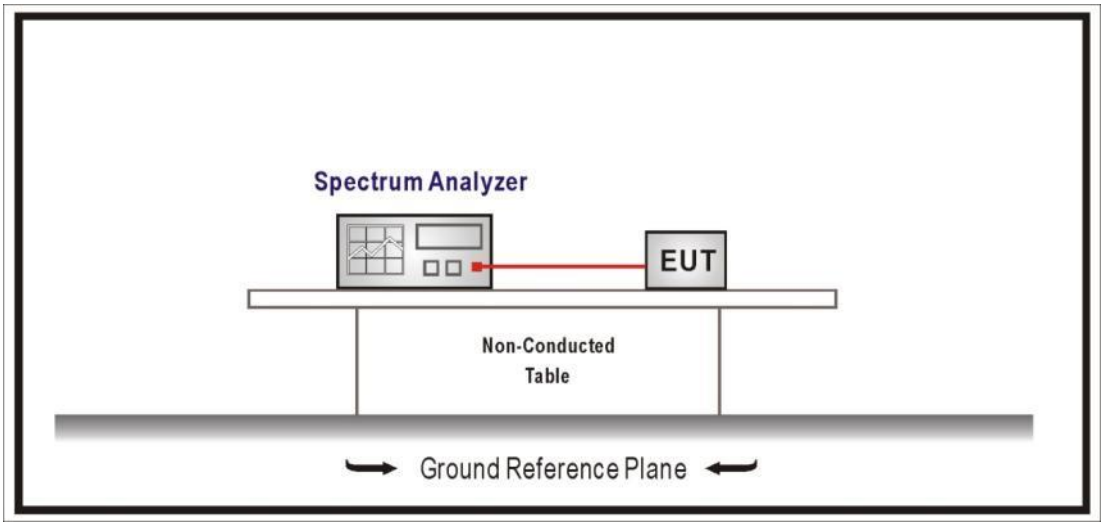
4.7.4 Test Data

Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)	Conducted Power Limit (dBm)	EIRP Limit (dBm)	Result
Mode 1	00	2402	10.50	9.7	≤30	≤36	Pass
	19	2440	10.49	9.69	≤30	≤36	Pass
	39	2480	10.14	9.34	≤30	≤36	Pass
Mode 2	00	2402	10.73	9.93	≤30	≤36	Pass
	19	2440	10.64	9.84	≤30	≤36	Pass
	39	2480	10.32	9.52	≤30	≤36	Pass
Mode 3	00	2402	10.88	10.08	≤30	≤36	Pass
	19	2440	10.77	9.97	≤30	≤36	Pass
	39	2480	10.45	9.65	≤30	≤36	Pass
Mode 4	00	2402	10.87	10.07	≤30	≤36	Pass
	19	2440	10.77	9.97	≤30	≤36	Pass
	39	2480	10.45	9.65	≤30	≤36	Pass

4.8 Power Density	VERDICT: PASS

4.8.1 Limit:	
Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
Power Spectral Density≤8dBm/3kHz	

4.8.2 Test Setup



4.8.3 Test Procedure

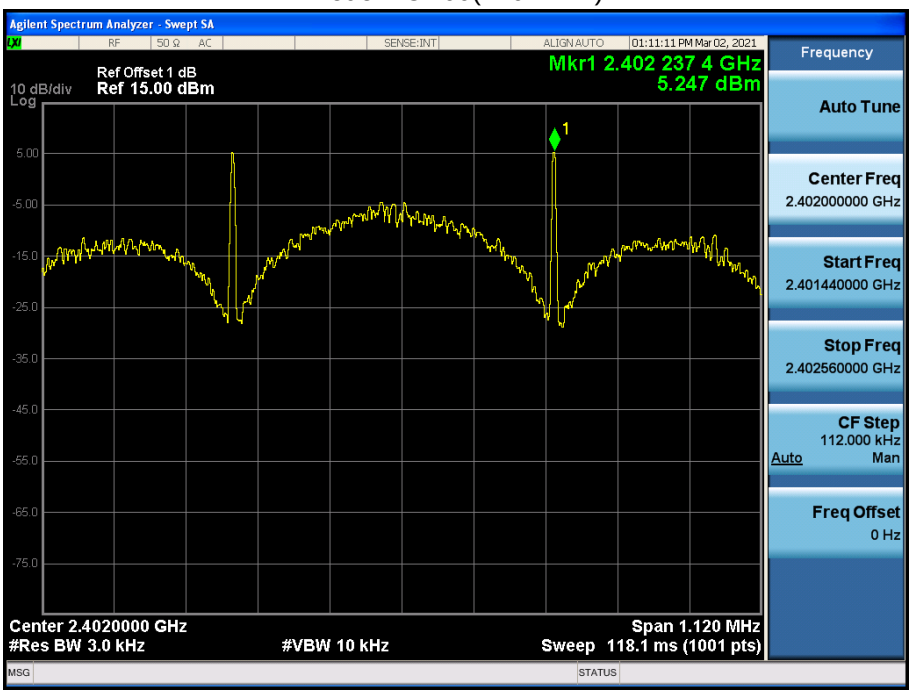
	References Rule		Chapter	Description
☒	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	☒	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	☐	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle<98%)
	☐	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle<98%)
	☐	ANSI C63.10	11.10.7	Method AVGPSD-3
	☐	ANSI C63.10	11.10.8	Method AVGPSD-3A

4.8.4 Test Data

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Mode 1	00	2402	-4.964	≤8	Pass
	19	2440	-4.855	≤8	Pass
	39	2480	-5.219	≤8	Pass
Mode 2	00	2402	-7.220	≤8	Pass
	19	2440	-7.337	≤8	Pass
	39	2480	-7.633	≤8	Pass
Mode 3	00	2402	-6.814	≤8	Pass
	19	2440	-6.848	≤8	Pass
	39	2480	-7.045	≤8	Pass
Mode 4	00	2402	5.247	≤8	Pass
	19	2440	5.103	≤8	Pass
	39	2480	4.817	≤8	Pass

Note : The worst case of PSD as below:

Mode 4 CH00(2402MHz)



4.9 Antenna Requirement	VERDICT: PASS

4.9.1 Limit:	
Standard	FCC Part 15 Subpart C Paragraph 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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.	

4.9.2 Antenna Connector Construction:	
☒	The use of a permanently attached antenna
☐	The antenna use of a unique coupling to the intentional radiator
☐	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document “Internal Photograph” to show the antenna connector.	

5 TEST SETUP PHOTO AND EUT PHOTO

Remark: The test setup photo and EUT Photo please see appendix.

The End