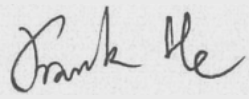
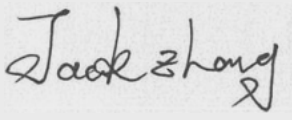
DEKRA Testing and Certification (Suzhou) Co., Ltd.
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098

Test report No:
20A0599R-RF-US-P06V02

FCC&ISED TEST REPORT

Product Name	LED LAMP
Trademark	GE
Model and /or type reference	CLEDA199LD1@
FCC ID	PUU-A19-DMSWII
IC	10798A-DMSWA19II
Applicant´s name / address	Savant Technologies LLC, dba GE Lighting, a Savant Company 1975 Noble Road Cleveland, OH 44112 United States Of America
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 KDB558074 D01v05r02 RSS-Gen Issue 5 / RSS-247 Issue 2
Verdict Summary	IN COMPLIANCE
Documented By (name / position & signature)	Kitty Li/Project Assistant 
Reviewed by (name / position & signature)	Frank He/ Technical Supervisor 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2020-12-01
Report template No	Template_FCC Part 15C-RF-V1.0

INDEX

page

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)	Oct. 22, 2020
Date (start test)	Oct. 28, 2020
Date (finish test)	Nov. 09, 2020

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
20A0599R-RF-US-P06V02	V1.0	Initial issue of report.	2020-11-10
20A0599R-RF-US-P06V02	V2.0	Chapter 4.2.4: Add the worst data of Radiated Emission above 18GHz.	2020-11-23
20A0599R-RF-US-P06V02	V2.1	Chapter 4.2.4: Add data of simultaneous transmit.	2020-12-01

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 FCC 15.247.
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 Informaion;
   - Chapter 1.3 Data Rate;
   - Chapter 1.4 Channel List;

USED EQUIPMENT

AC Power Line Conducted Emission / TR1(Chamber details)

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.20	2021.04.19
Two-Line V-Network	R&S	ENV216	101190	2019.12.28	2020.12.27
Two-Line V-Network	R&S	ENV216	101044	2019.12.28	2020.12.27
Current Probe	R&S	EZ-17	100678	2020.03.12	2021.04.11
50ohm Termination	SHX	TF2	07081402	2020.09.23	2021.09.22
50ohm Termination	SHX	TF2	07081403	2020.09.23	2021.09.22
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2020.08.13	2021.08.12
Coaxial Cable	Suhner	RG 223	TR1-C1	2020.08.13	2021.08.12
Coaxial Cable	Suhner	RG 223	TR1-C2	2020.08.13	2021.08.12
DEKRA test software	N/A	N/A	N/A	N/A	N/A

RF conducted test / TR8(Chamber details)

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
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2020.08.13	2021.08.12
DEKRA test software	N/A	N/A	N/A	N/A	N/A

Radiated Emission(30MHz-1GHz) / AC3(Chamber details)

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2020.03.03	2021.03.02
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2020.08.19	2021.08.18
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2020.08.13	2021.08.12
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2020.04.05	2021.04.04
DEKRA test software	N/A	N/A	N/A	N/A	N/A

Radiated Emission / AC5(1GHz-40GHz)(Chamber details)

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Receiver	Agilent	N9038A	MY51210196	2020.05.08	2021.05.07
DRG Horn	ETS-Lindgren	3117	00123988	2020.05.06	2021.05.05
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170D	750	2020.05.06	2021.05.05
Pre-Amplifier	Schwarzbeck	BBV 9721	9721-024	2020.01.22	2021.01.21
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2020.08.13	2021.08.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.05	2021.04.04
DEKRA test software	N/A	N/A	N/A	N/A	N/A

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%.

Test item	Uncertainty
AC Power Line Conducted Emission	± 2.92 dB
Peak Power Output	± 1.13 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 4.60 dB 200MHz~1GHz: 4.10 dB Vertical: 30MHz~200MHz: 4.80 dB 200MHz~1GHz: 4.10 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB Horizontal: 18GHz~40GHz: 4.70 dB Vertical: 18GHz~40GHz: 4.60 dB
RF antenna conducted test	± 1.13 dB
Radiated Emission Band Edge	± 5.00 dB
DTS Bandwidth	± 279 Hz
Occupied Bandwidth	± 279 Hz
Power Density	± 1.13 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name.....:	LED LAMP
Model No.....:	CLEDA199LD1@
Trademark.....:	GE
FCC ID.....:	PUU-A19-DMSWII
IC .....:	10798A-DMSWA19II
Manufacturer.....:	Xiamen Topstar lighting Co.,Ltd.
Manufacturer address.....:	676 Meixi Avenue,Tong'an District,Xiamen,China

Wireless specifiction .....:	WIFI	
Operating frequency range(s).....:	2400~2483.5MHz	
Type of modulation .....:	DSSS: BPSK,QPSK,CCK OFDM: BPSK, QPSK, 16QAM, 64QAM	
Number of channel .....:	802.11b/g/n(20MHz): 11 802.11n(40MHz): 7	
Device category .....:	☐	Fixed point-to-point
	☐	Emit multiple directional beams, simultaneously or sequentially
	☒	Other cases

Rated power supply.....:	Voltage and Frequency	
	☐	AC: 220 - 240 V, 50/60 Hz
	☒	AC: 100 - 240 V, 50/60 Hz
	☐	DC: 12 - 24 Vdc
	☐	Battery:
	☐	Battery: 3.7 V
Mounting position.....:	☐	Table top equipment
	☒	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Hand-held equipment
	☐	Other: ……

1.2 Antenna Information

Antenna model / type number.....:	N/A			
Antenna serial number.....:	N/A			
Antenna Delivery .....:	☒	1TX + 1RX		
	☐	2TX + 2RX		
	☐	Others:……		
Antenna technology.....:	☒	SISO		
	☐	MIMO	☐	Basic
			☐	CDD
			☐	Sectorized
			☐	Beam-forming
Antenna Type .....:	☐	External	☐	Dipole
			☐	Sectorized
	☒	Internal	☐	PIFA
			☒	PCB
			☐	Metal Antenna
Antenna Gain.....:	0 dBi			

1.3 Data Rate

IEEE 802.11b

Modulation	Data Rate(Mb/s)
DSSS	1
DSSS	2
CCK	5.5
CCK	11

Table 1 –TX Antenna number = 1

IEEE 802.11g

Modulation	Coding rate	Data Rate(Mb/s)
BPSK	1/2	6
BPSK	3/4	9
QPSK	1/2	12
QPSK	3/4	18
16-QAM	1/2	24
16-QAM	3/4	36
64-QAM	2/3	48
64-QAM	3/4	54

Table 1 – MCS parameters for TX Antenna number = 1

IEEE 802.11n

Spatial streames	MCS Index	Modulation	Coding rate	Data Rate(Mb/s)			
				20MHz		40MHz	
				800ns GI	400ns GI	800ns GI	400ns GI
1	0	BPSK	1/2	6.5	7.2	13.5	15.0
1	1	QPSK	1/2	13.0	14.4	27.0	30.0
1	2	QPSK	3/4	19.5	21.7	40.5	45.0
1	3	16-QAM	1/2	26.0	28.9	54.0	60.0
1	4	16-QAM	3/4	39.0	43.3	81.0	90.0
1	5	64-QAM	2/3	52.0	57.8	108.0	120.0
1	6	64-QAM	3/4	58.5	65.0	121.5	135.0
1	7	64-QAM	5/6	65.0	72.2	135.0	150.0
Note 1: Support of 400ns GI is optional on transmit and receive.							

Table 1 – MCS parameters for TX Antenna number = 1

1.4 Channel List

IEEE 802.11b/g & IEEE 802.11n(20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
001	2412 MHz	002	2417 MHz	003	2422 MHz	004	2427 MHz
005	2432 MHz	006	2437 MHz	007	2442 MHz	008	2447 MHz
009	2452 MHz	010	2457 MHz	011	2462 MHz	-	-

IEEE 802.11n(40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
003	2422 MHz	004	2427 MHz	005	2432 MHz	006	2437 MHz
007	2442 MHz	008	2447 MHz	009	2452 MHz	-	-

Note: The General Description of the Item, antenna information, Data Rate 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	Mode 1: Transmit by 802.11b
	Mode 2: Transmit by 802.11g
	Mode 3: Transmit by 802.11n(20MHz)
	Mode 4: Transmit by 802.11n(40MHz)
	Mode 5: Simultaneous transmit

2.2 Support / Auxiliary equipment / unit / Test software for the EUT

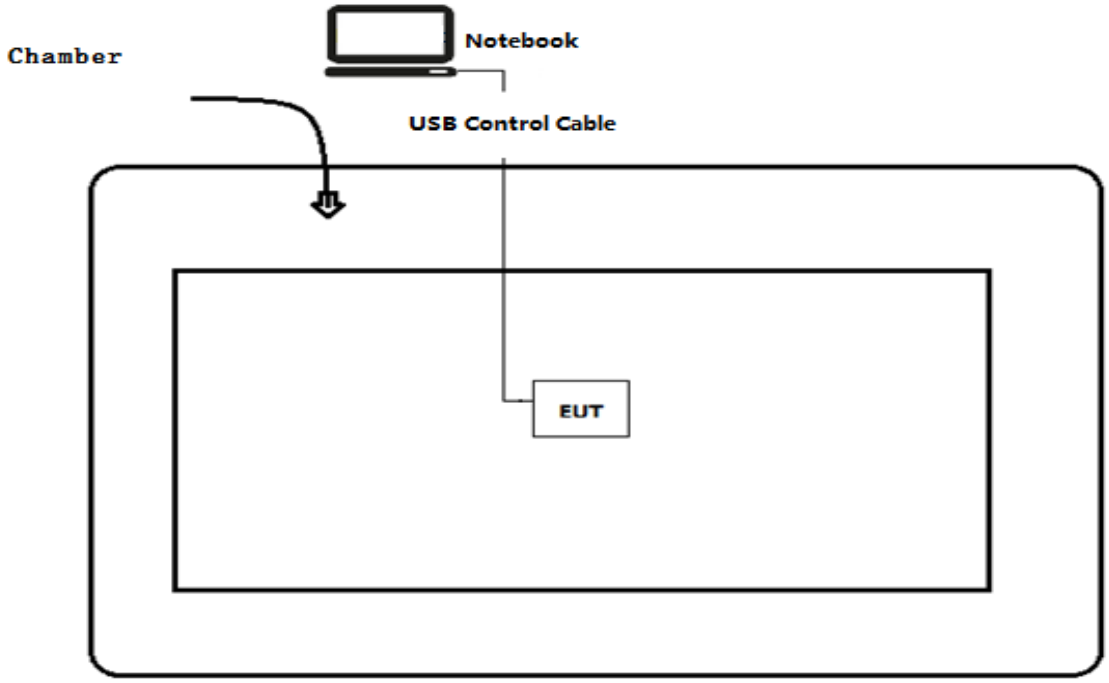
The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x220	Lenovo	Adapter
software	Type / Version	Manufacturer	Supplied by
Ameba series mptool	1v16	N/A	N/A

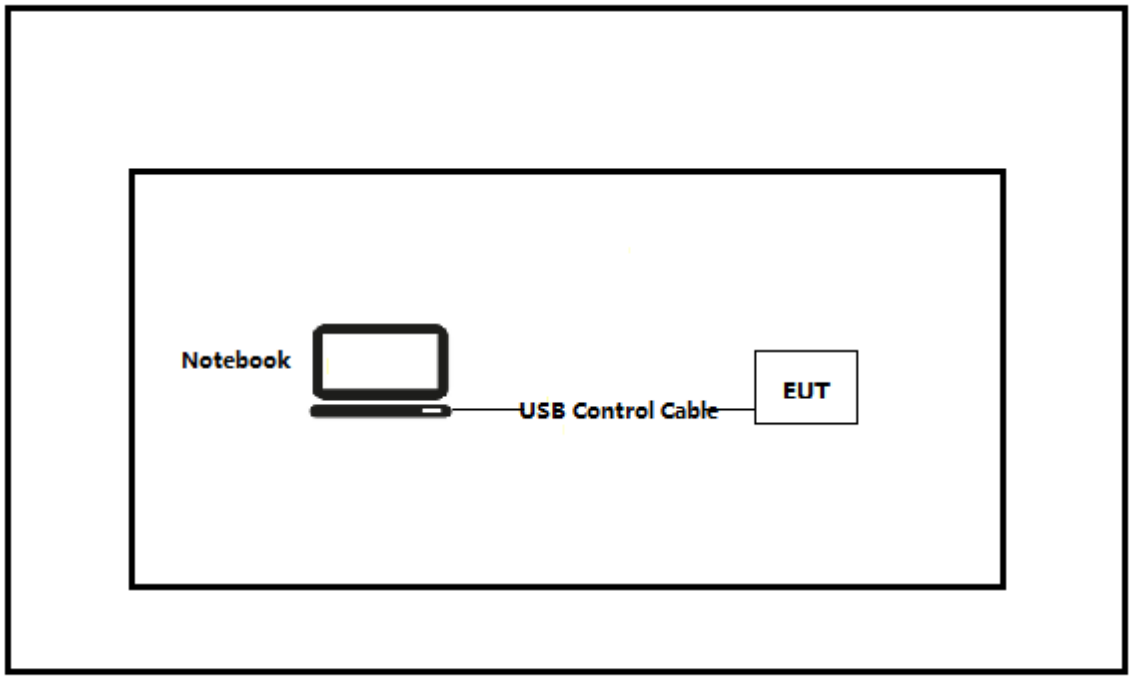
2.3 Test Configuration / Block diagram used for tests

The following test setup / configuration / block diagram has been used during the tests:

Test setup Diagram- Radiated Test



Test setup Diagram- Conducted test



2.4 Testing process

1	Setup the EUT as shown in Section 2.3.
2	Execute the Ameba series mptool 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	2020	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 558074 D01V05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247
RSS-Gen Issue 5 Amendment 1	2019	General Requirements for Compliance 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 Overview of results

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(d), 15.209	PASS	---
Emissions in non-restricted frequency bands	FCC 15.247(d)	PASS	---
Radiated Emission Band Edge	FCC 15.247(d), 15.209	PASS	---
Fundamental emission output power	FCC 15.247(b)(3)	PASS	---
DTS Bandwidth	FCC 15.247(a)(2)	PASS	---
Power Spectral Density	FCC 15.247(e)	PASS	---
Antenna Requirement	FCC 15.203	PASS	---

Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	RSS-Gen Issue 5 Section 8.8	PASS	---
Emissions in restricted frequency bands	RSS-Gen Issue 5 Section 8.9	PASS	---
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section A5.5	PASS	---
Radiated Emission Band Edge	RSS-247 Issue 2 Section A5.5	PASS	---
Occupied Bandwidth	RSS-Gen Issue 5 Section 6.6 RSS-247 Issue 2 Section A5.2(1)	PASS	---
Fundamental emission output power	RSS-247 Issue 2 Section A5.4(4)	PASS	---
Power Spectral Density	RSS-247 Issue 2 Section A5.2(2)	PASS	---
Antenna Requirement	RSS-Gen Issue 5 Section 8.3	PASS	---
Supplementary information:			

3.3 Test Facility

USA : FCC Designation Number: CN1199
Canada : CAB identifier Number: CN0040

4 TEST RESULTS

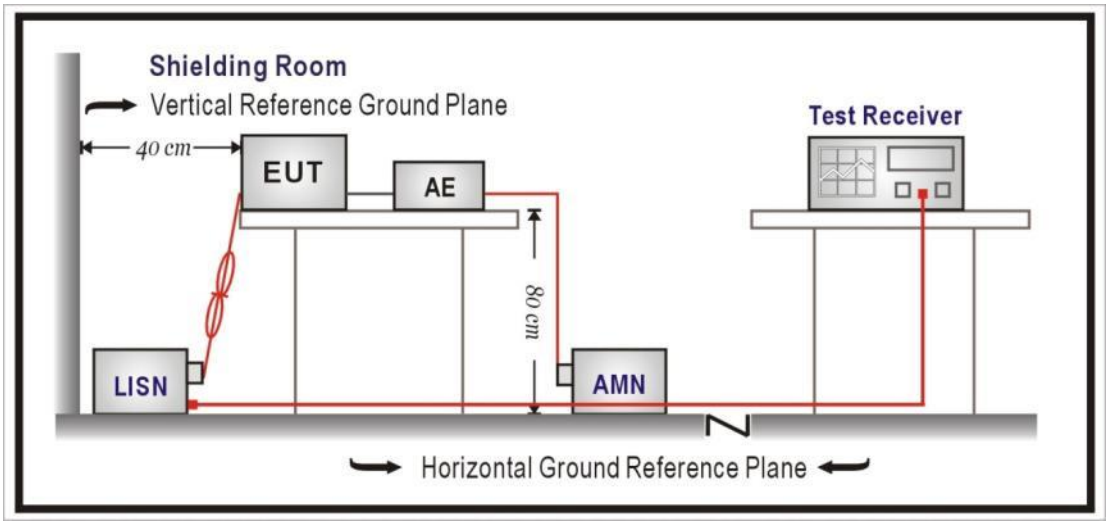
4.1 AC Power Line Conducted Emission	VERDICT: PASS

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.

4.1.2 Test Setup

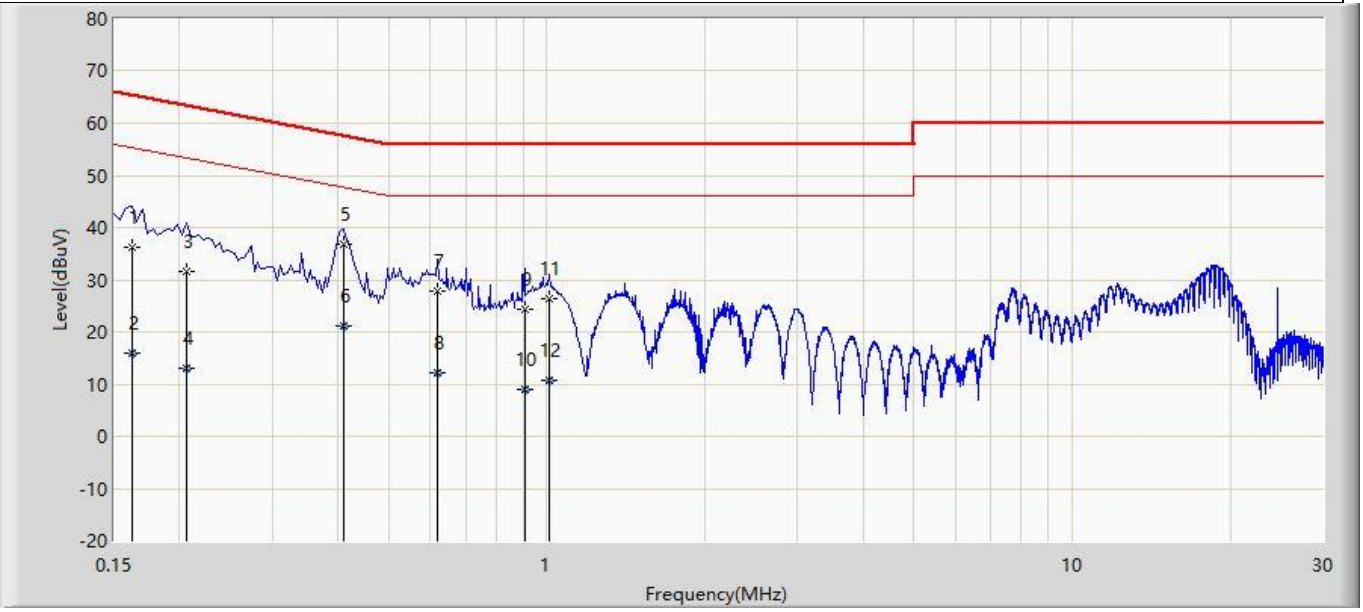


4.1.3 Test Procedure

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

4.1.4 Test Data

Engineer: Pawn	
Site: TR1	Time: 2020/11/03
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT:LED LAMP	Power: 120V/60Hz
Note: Mode 1	

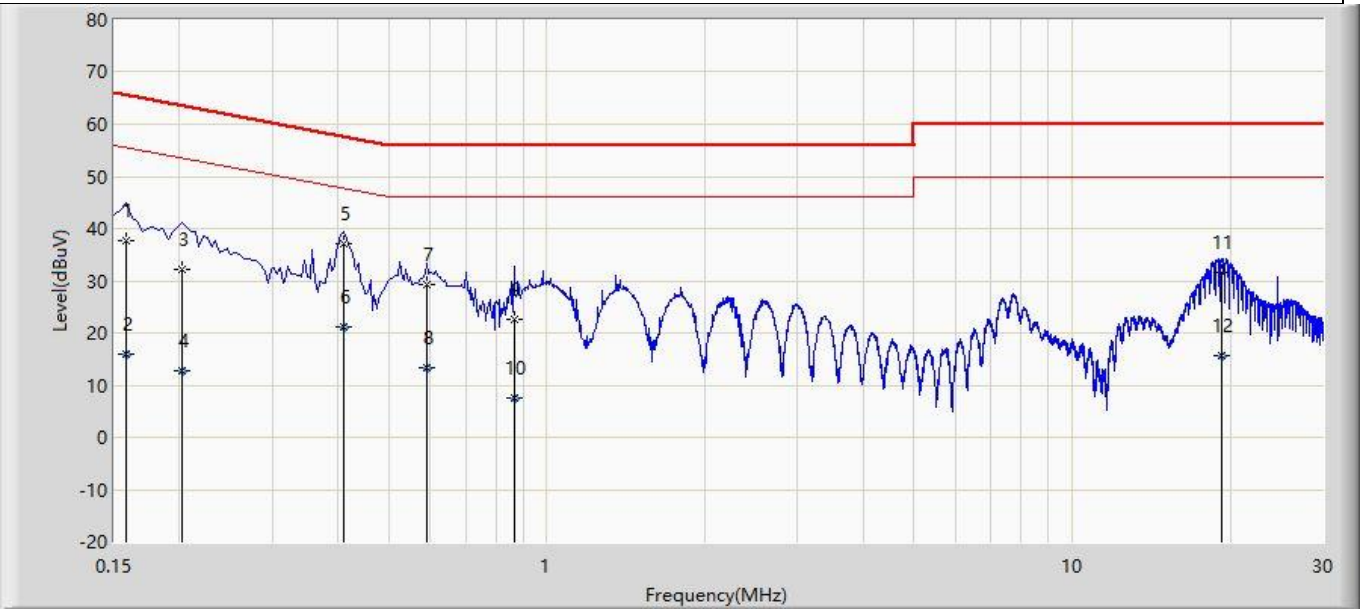


No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.162	36.154	26.518	-29.206	65.361	9.607	0.029	0.000	QP
2		0.162	16.001	6.365	-39.360	55.361	9.607	0.029	0.000	AV
3		0.206	31.520	21.891	-31.845	63.365	9.601	0.029	0.000	QP
4		0.206	13.046	3.417	-40.319	53.365	9.601	0.029	0.000	AV
5	*	0.410	36.823	27.184	-20.825	57.648	9.600	0.039	0.000	QP
6		0.410	21.084	11.445	-26.564	47.648	9.600	0.039	0.000	AV
7		0.618	27.897	18.250	-28.103	56.000	9.600	0.047	0.000	QP
8		0.618	12.259	2.611	-33.741	46.000	9.600	0.047	0.000	AV
9		0.906	24.251	14.588	-31.749	56.000	9.607	0.057	0.000	QP
10		0.906	9.046	-0.617	-36.954	46.000	9.607	0.057	0.000	AV
11		1.010	26.346	16.674	-29.654	56.000	9.610	0.062	0.000	QP
12		1.010	10.711	1.039	-35.289	46.000	9.610	0.062	0.000	AV

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp). Test Photograph

Engineer: Pawn	
Site: TR1	Time: 2020/11/03
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT:LED LAMP	Power: 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		0.158	37.753	28.132	-27.816	65.568	9.592	0.029	0.000	QP
2		0.158	15.965	6.344	-39.604	55.568	9.592	0.029	0.000	AV
3		0.202	32.196	22.569	-31.332	63.528	9.598	0.029	0.000	QP
4		0.202	12.840	3.213	-40.688	53.528	9.598	0.029	0.000	AV
5	*	0.410	36.995	27.363	-20.654	57.648	9.593	0.039	0.000	QP
6		0.410	21.249	11.618	-26.399	47.648	9.593	0.039	0.000	AV
7		0.590	29.201	19.565	-26.799	56.000	9.590	0.046	0.000	QP
8		0.590	13.409	3.773	-32.591	46.000	9.590	0.046	0.000	AV
9		0.866	22.580	12.936	-33.420	56.000	9.590	0.054	0.000	QP
10		0.866	7.588	-2.056	-38.412	46.000	9.590	0.054	0.000	AV
11		19.270	31.668	21.236	-28.332	60.000	10.148	0.283	0.000	QP
12		19.270	15.564	5.133	-34.436	50.000	10.148	0.283	0.000	AV

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp). Test Photograph.

4.2 Emissions in restricted frequency bands — VERDICT: PASS

4.2.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.205; 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	Above 38.6
13.36 – 13.41	--	--	--

Restricted Bands of operation for ISED

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	--	--

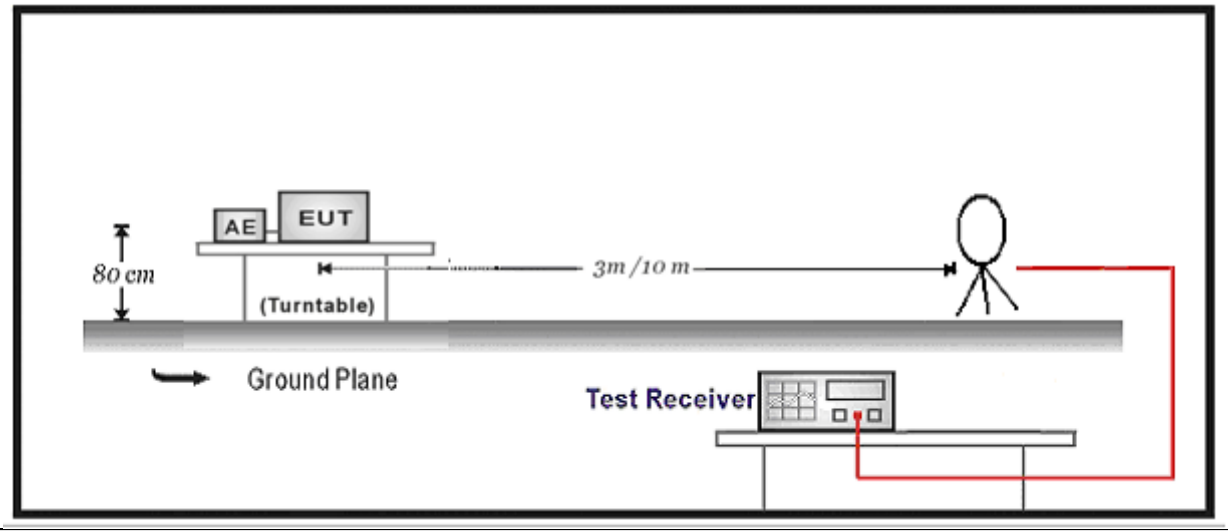
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)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

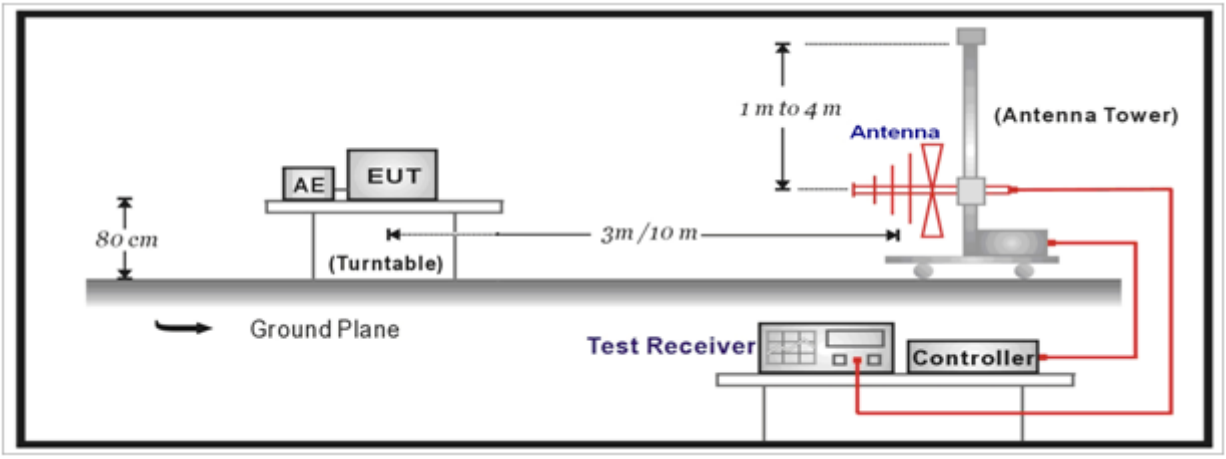
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated 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

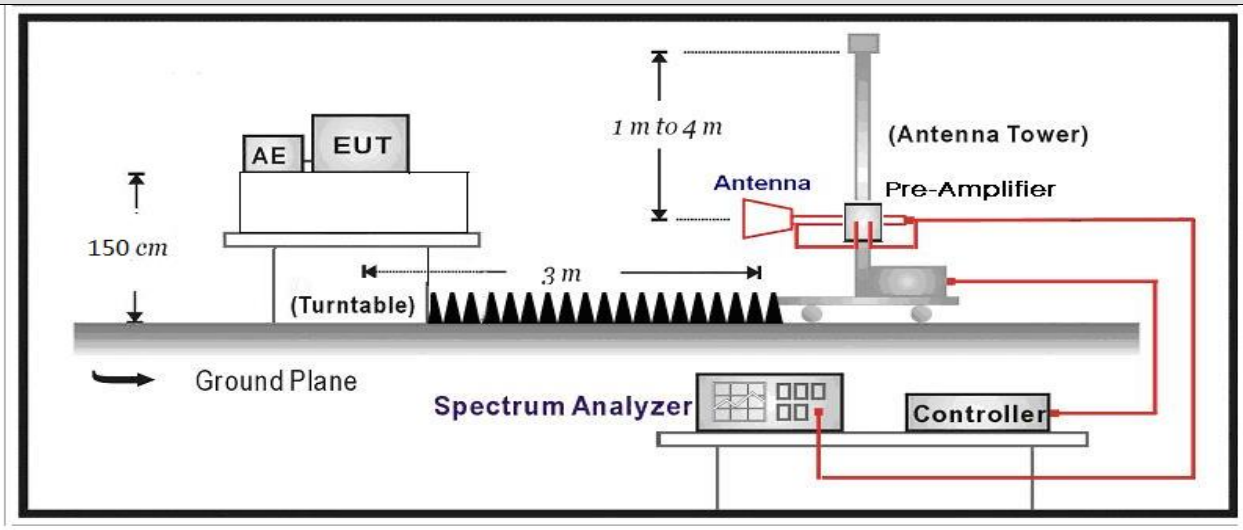
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

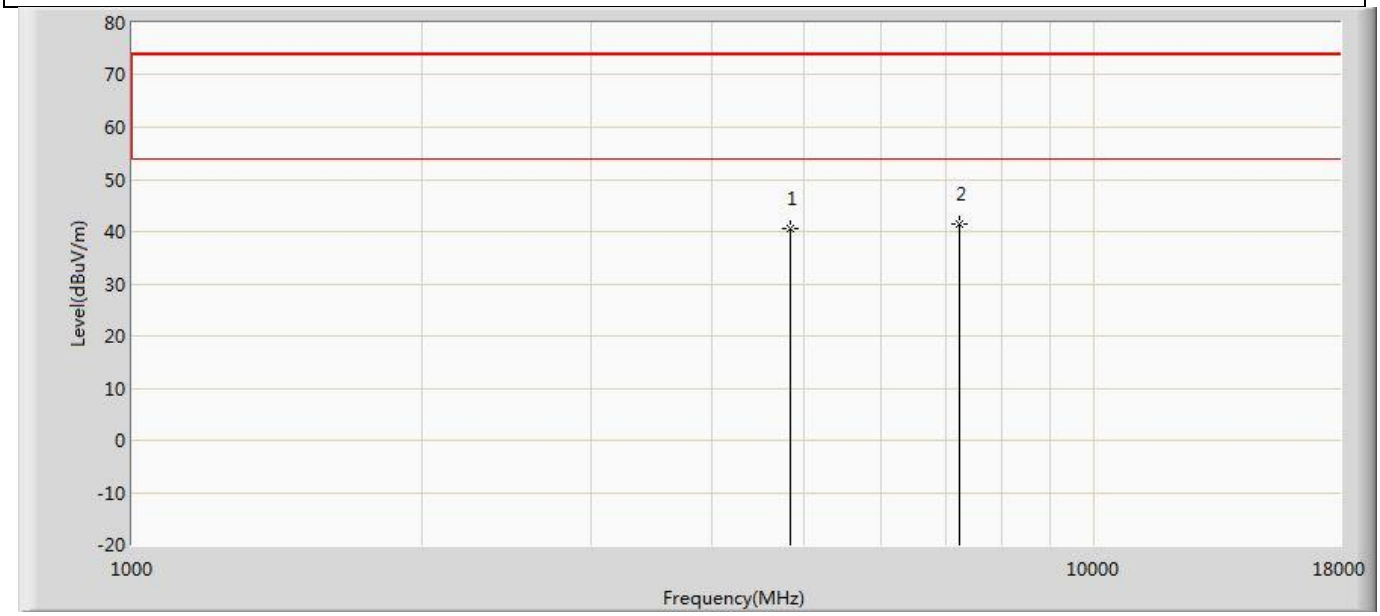


4.2.3 Test Procedure

	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	6.3	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
	☐ ANSI C63.10	11.12.2	Antenna-port conducted measurements
	☐ ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
	☐ ANSI C63.10	11.12.2.4	Peak power measurement procedure
	☐ ANSI C63.10	11.12.2.5	Average power measurement procedures
	☐ ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
	☐ ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
	☐ ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

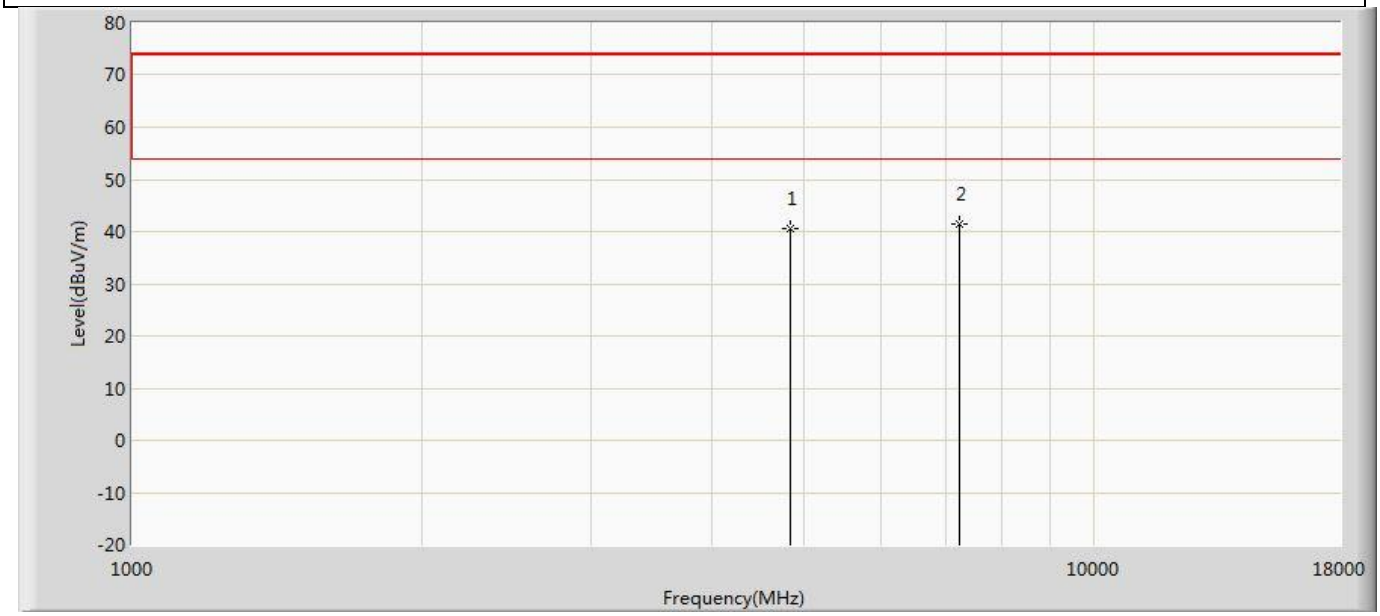
4.2.4 Test Data

Profile: 20A0599R	Page No.: 81
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 1:Transmit at 2412MHz by 802.11b	



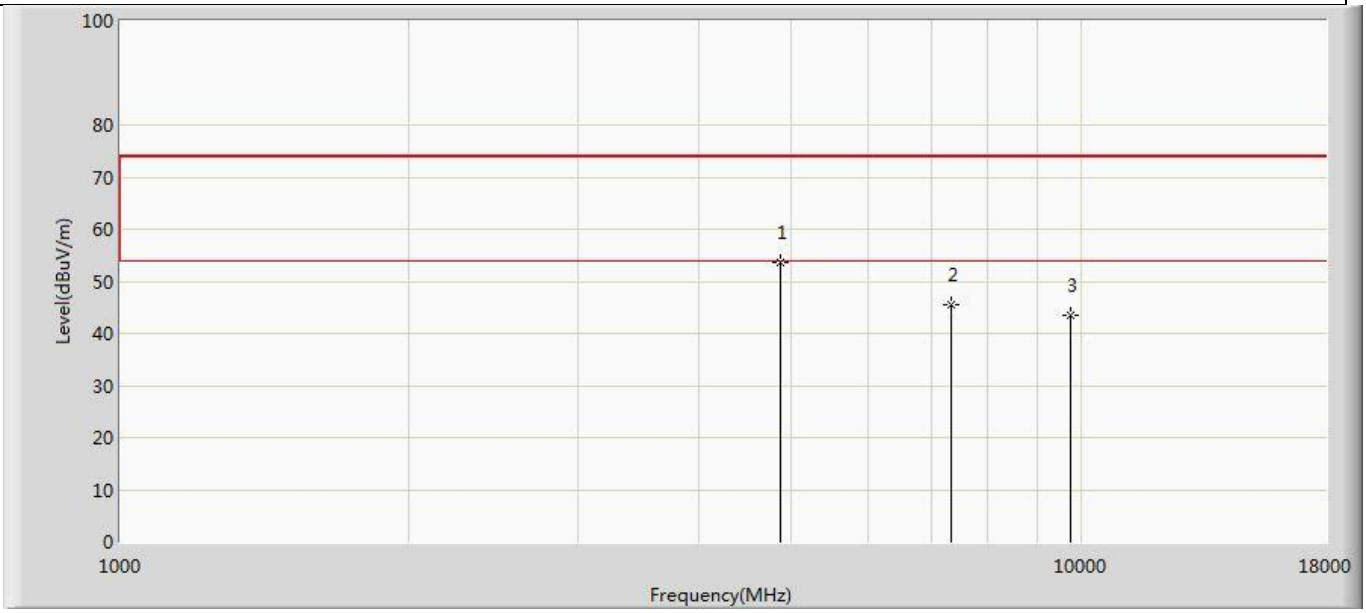
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	40.721	45.688	-33.279	74.000	-4.967	PK
2	*	7236.000	41.470	43.082	-32.530	74.000	-1.612	PK

Profile: 20A0599R	Page No.: 82
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 2412MHz by 802.11b	



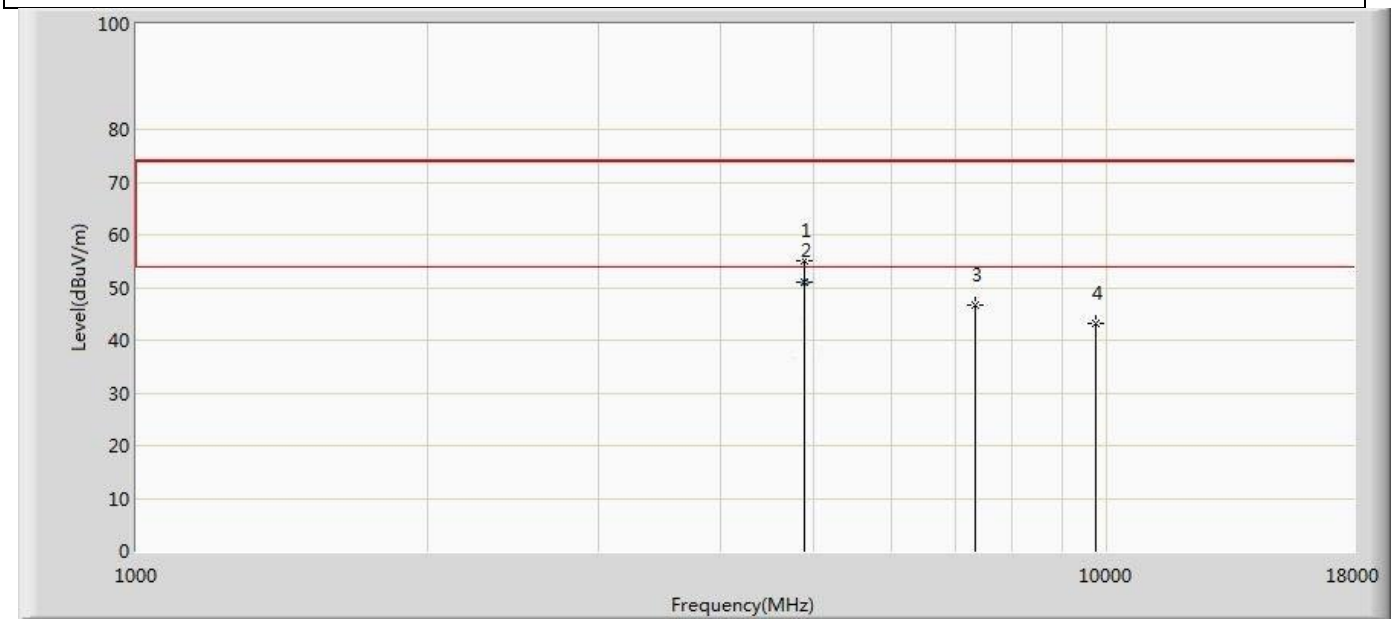
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	40.488	45.455	-33.512	74.000	-4.967	PK
2	*	7236.000	41.434	43.046	-32.566	74.000	-1.612	PK

Profile: 20A0599R	Page No.: 3
Engineer: Yingfei.wang	
Site: AC5	Time: 2020/11/05 - 19:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP	Power: Battery
Note: Mode 1：Transmit at 2437 MHz by 802.11b	



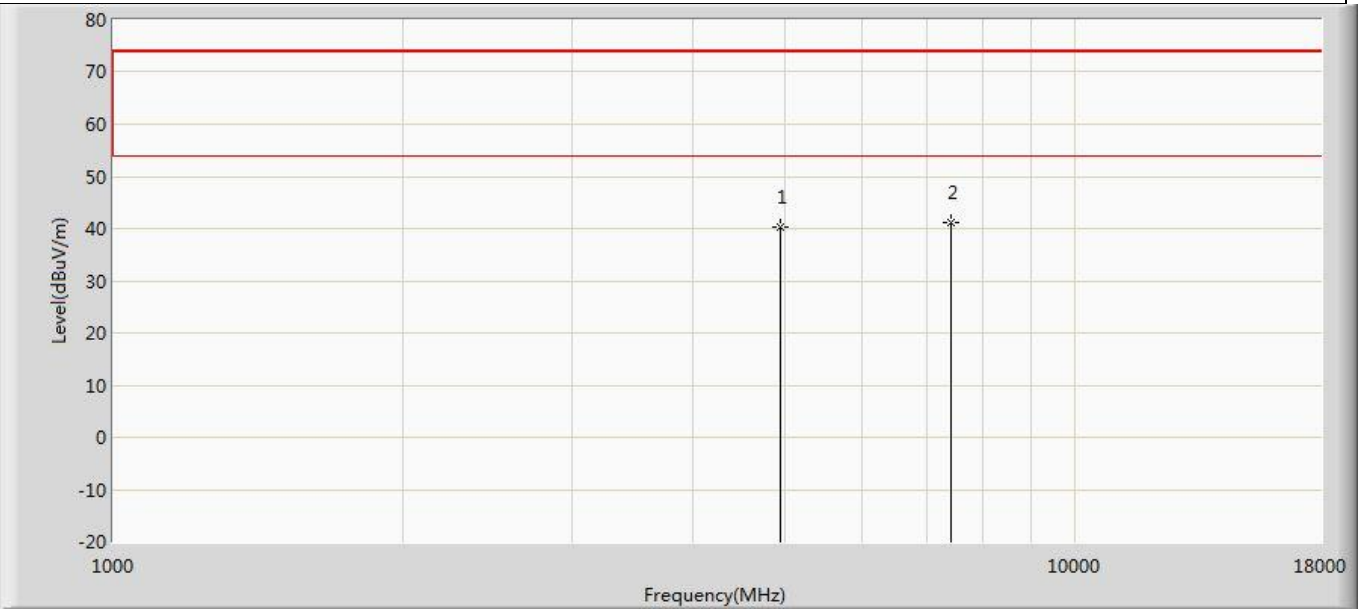
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4875.000	53.739	48.883	-20.261	74.000	4.856	PK
2		7323.000	45.572	37.476	-28.428	74.000	8.095	PK
3		9748.000	43.580	33.875	-30.420	74.000	9.705	PK

Profile: 20A0599R	Page No.: 4
Engineer: Yingfei.wang	
Site: AC5	Time: 2020/11/05 - 19:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED LAMP	Power: Battery
Note: Mode 1：Transmit at 2437 MHz by 802.11b	



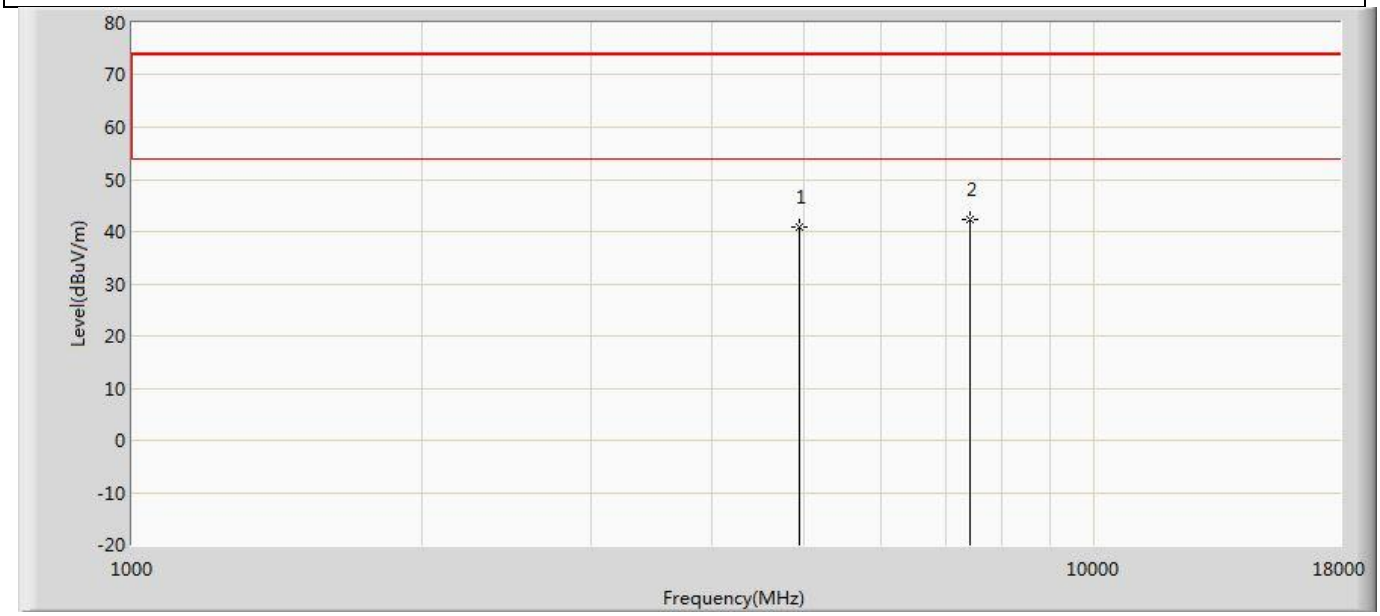
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4878.000	55.089	50.267	-18.911	74.000	4.822	PK
2	*	4878.000	50.844	46.022	-3.156	54.000	4.822	AV
3		7318.000	46.801	38.749	-27.199	74.000	8.052	PK
4		9748.000	43.286	33.581	-30.714	74.000	9.705	PK

Profile: 20A0599R	Page No.: 83
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 1:Transmit at 2462MHz by 802.11b	



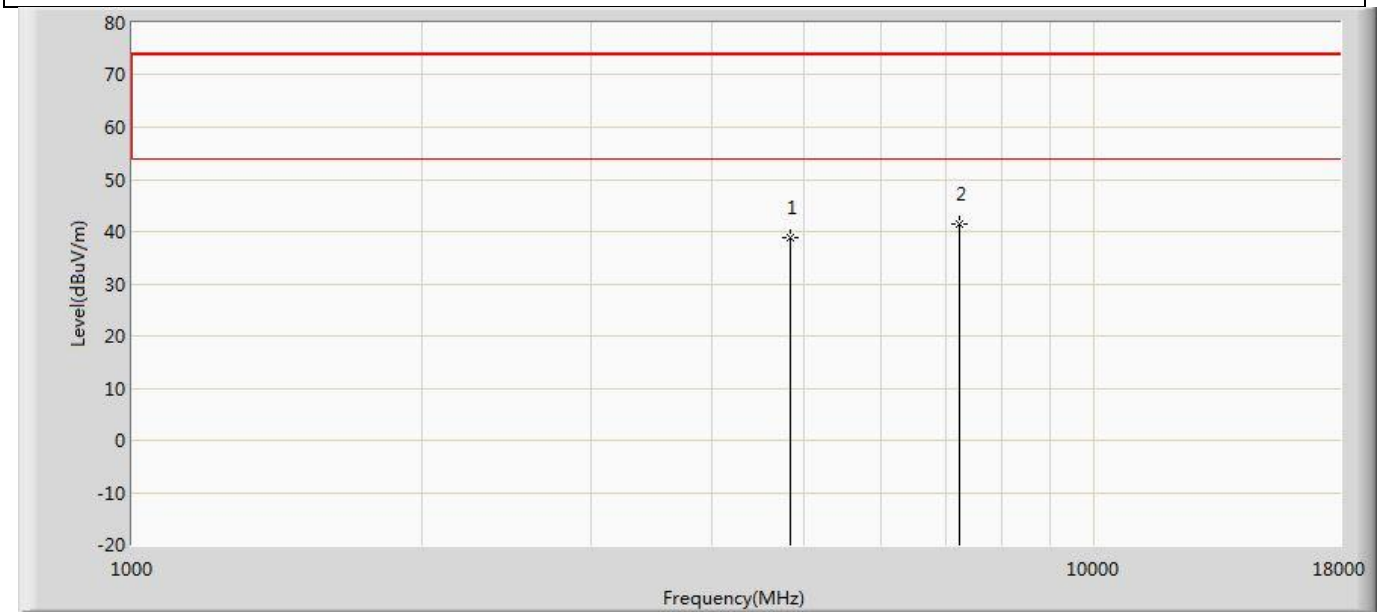
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	40.213	44.956	-33.787	74.000	-4.744	PK
2	*	7386.000	41.098	43.530	-32.902	74.000	-2.431	PK

Profile: 20A0599R	Page No.: 84
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 2462MHz by 802.11b	



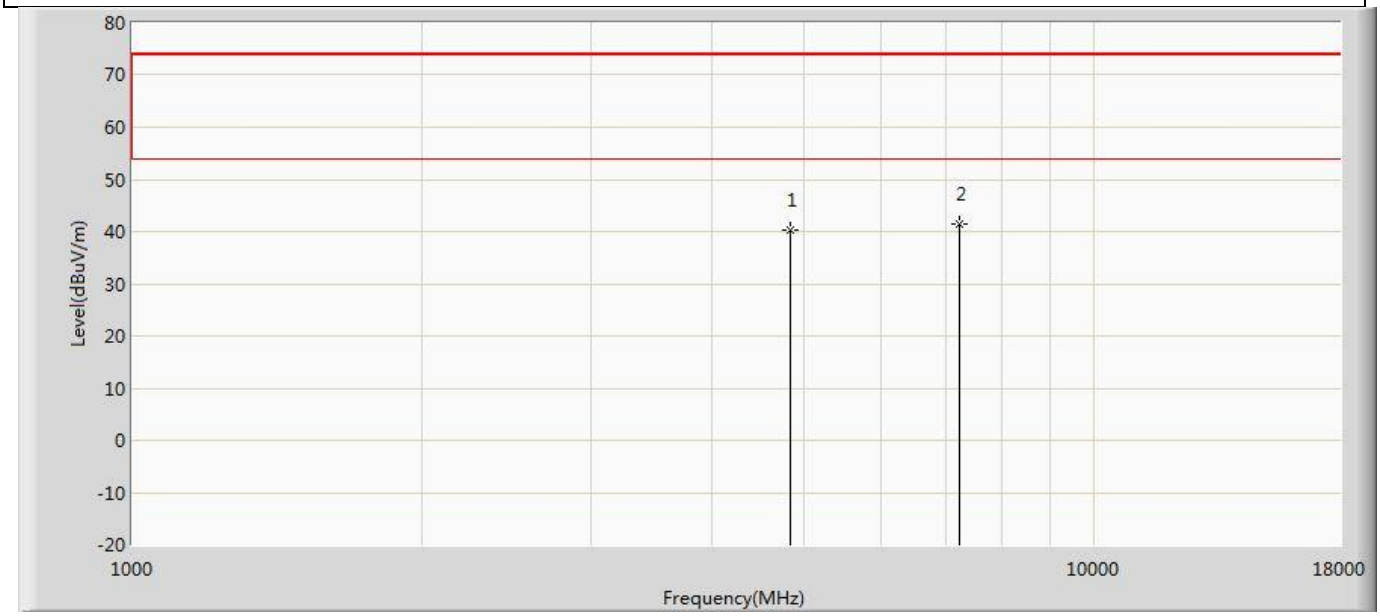
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	40.893	45.636	-33.107	74.000	-4.744	PK
2	*	7386.000	42.231	44.663	-31.769	74.000	-2.431	PK

Profile: 20A0599R	Page No.: 85
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 2412MHz by 802.11g	



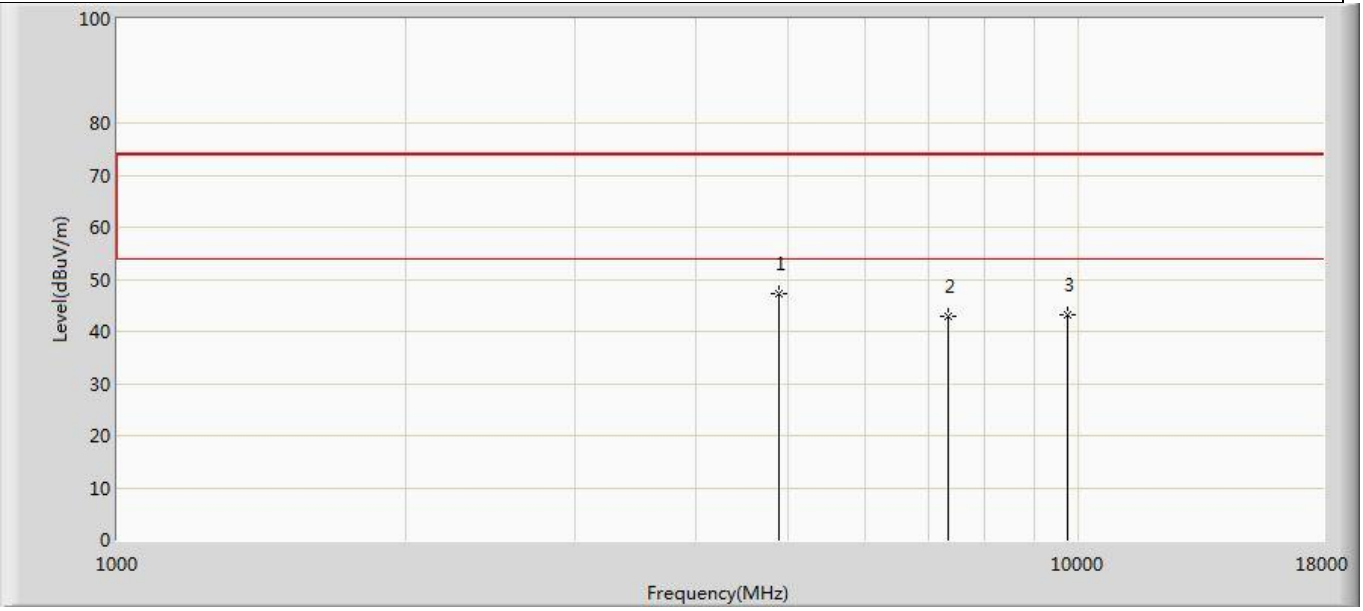
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	38.848	43.815	-35.152	74.000	-4.967	PK
2	*	7236.000	41.494	43.106	-32.506	74.000	-1.612	PK

Profile: 20A0599R	Page No.: 86
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 2412MHz by 802.11g	



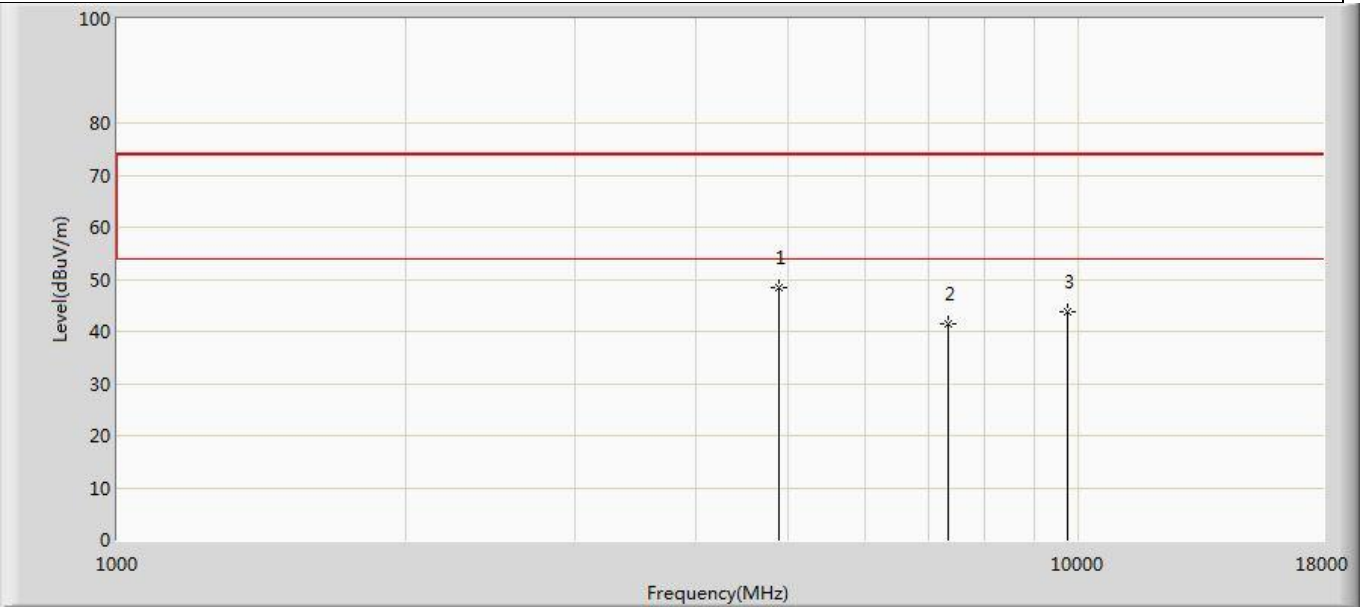
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	40.252	45.219	-33.748	74.000	-4.967	PK
2	*	7236.000	41.386	42.998	-32.614	74.000	-1.612	PK

Profile: 20A0599R	Page No.: 5
Engineer: Yingfei.wang	
Site: AC5	Time: 2020/11/11 - 09:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP	Power: Battery
Note: Mode 2：Transmit at 2437 MHz by 802.11g	



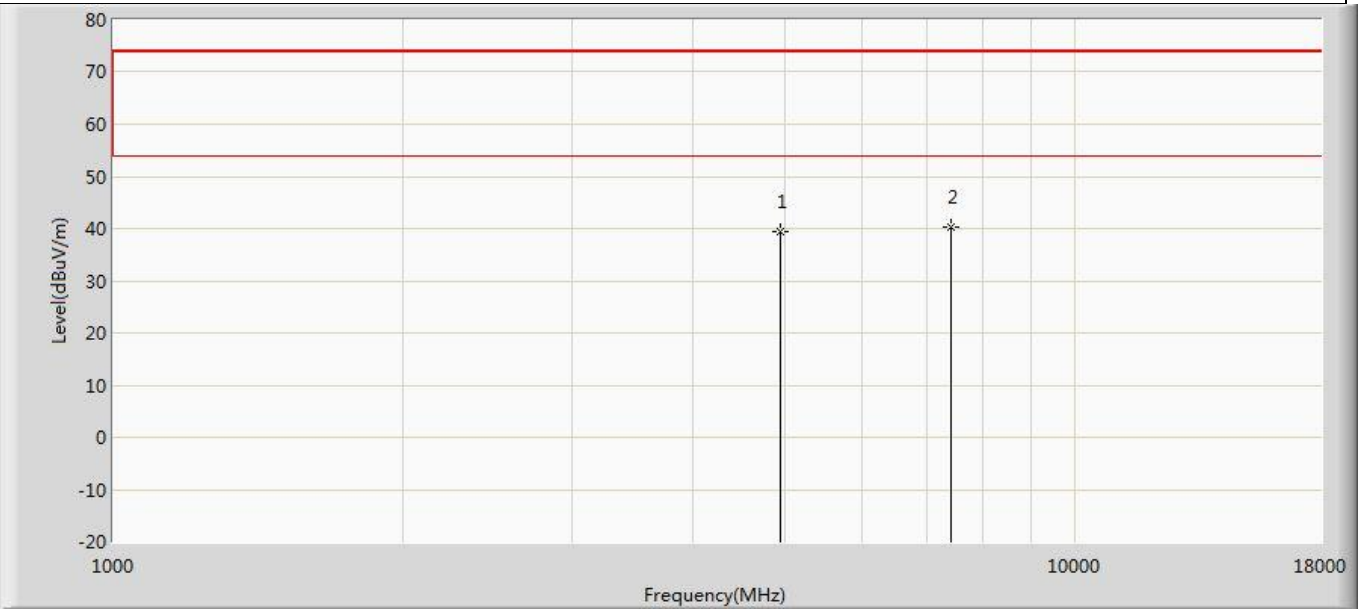
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4881.000	47.389	42.632	-26.611	74.000	4.757	PK
2		7319.000	42.755	34.694	-31.245	74.000	8.061	PK
3		9748.000	43.181	33.476	-30.819	74.000	9.705	PK

Profile: 20A0599R	Page No.: 6
Engineer: Yingfei.wang	
Site: AC5	Time: 2020/11/11 - 10:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED LAMP	Power: Battery
Note: Mode 2：Transmit at 2437 MHz by 802.11g	



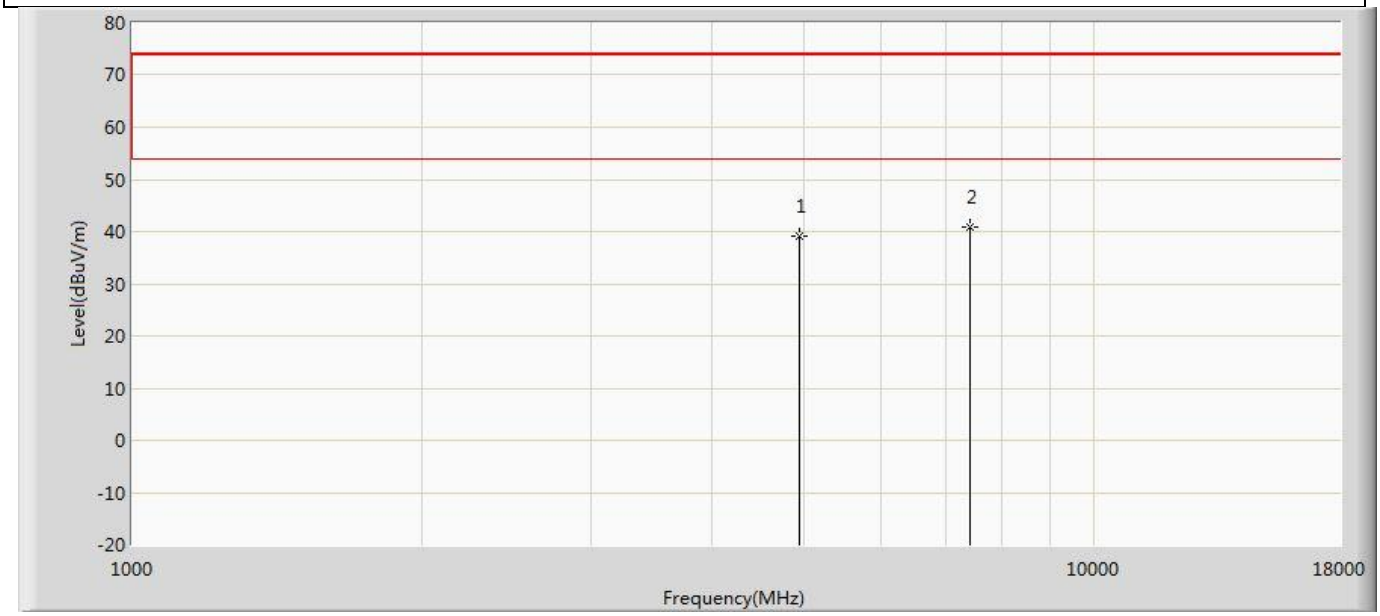
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4881.000	48.373	43.616	-25.627	74.000	4.757	PK
2		7319.000	41.475	33.414	-32.525	74.000	8.061	PK
3		9748.000	43.824	34.119	-30.176	74.000	9.705	PK

Profile: 20A0599R	Page No.: 87
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 2462MHz by 802.11g	



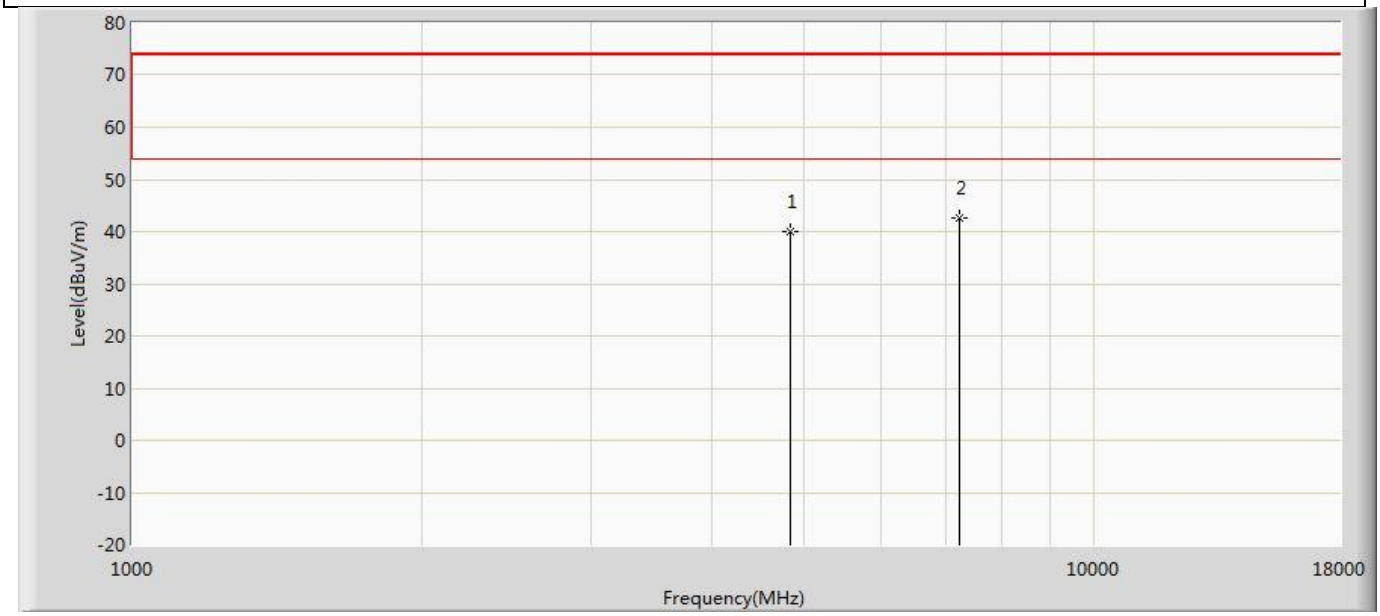
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	39.382	44.125	-34.618	74.000	-4.744	PK
2	*	7386.000	40.338	42.770	-33.662	74.000	-2.431	PK

Profile: 20A0599R	Page No.: 88
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 2462MHz by 802.11g	



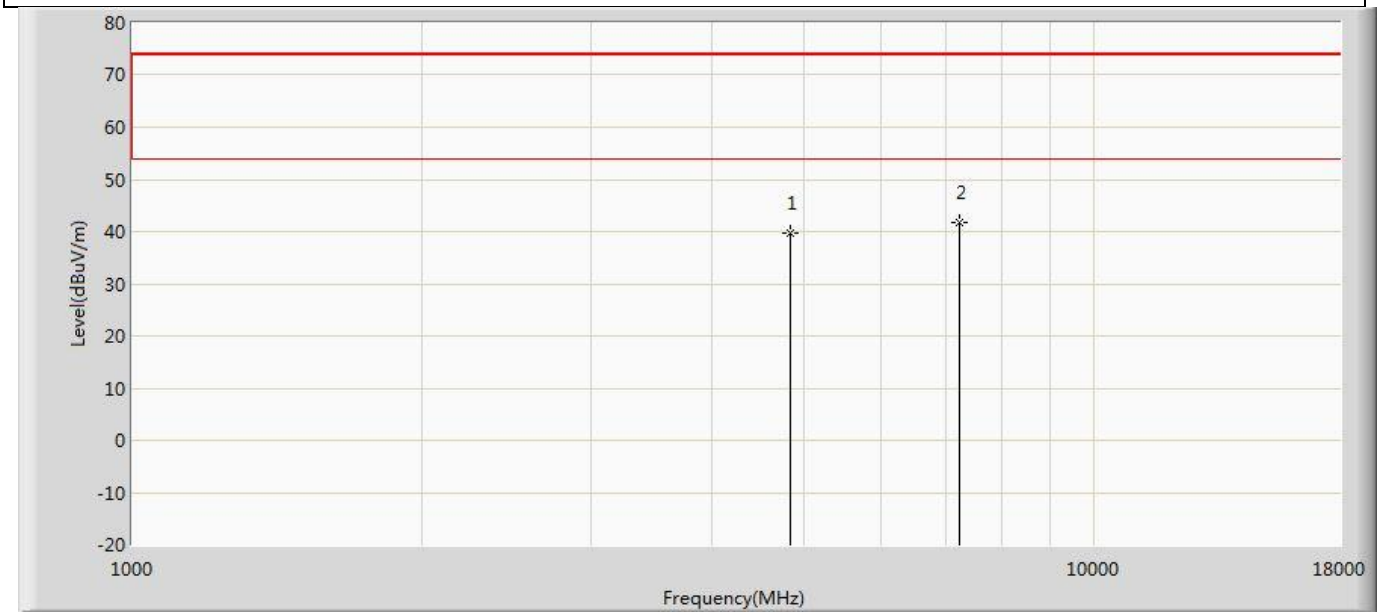
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	39.195	43.938	-34.805	74.000	-4.744	PK
2	*	7386.000	40.728	43.160	-33.272	74.000	-2.431	PK

Profile: 20A0599R	Page No.: 89
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 3:Transmit at 2412MHz by 802.11n(20MHz)	



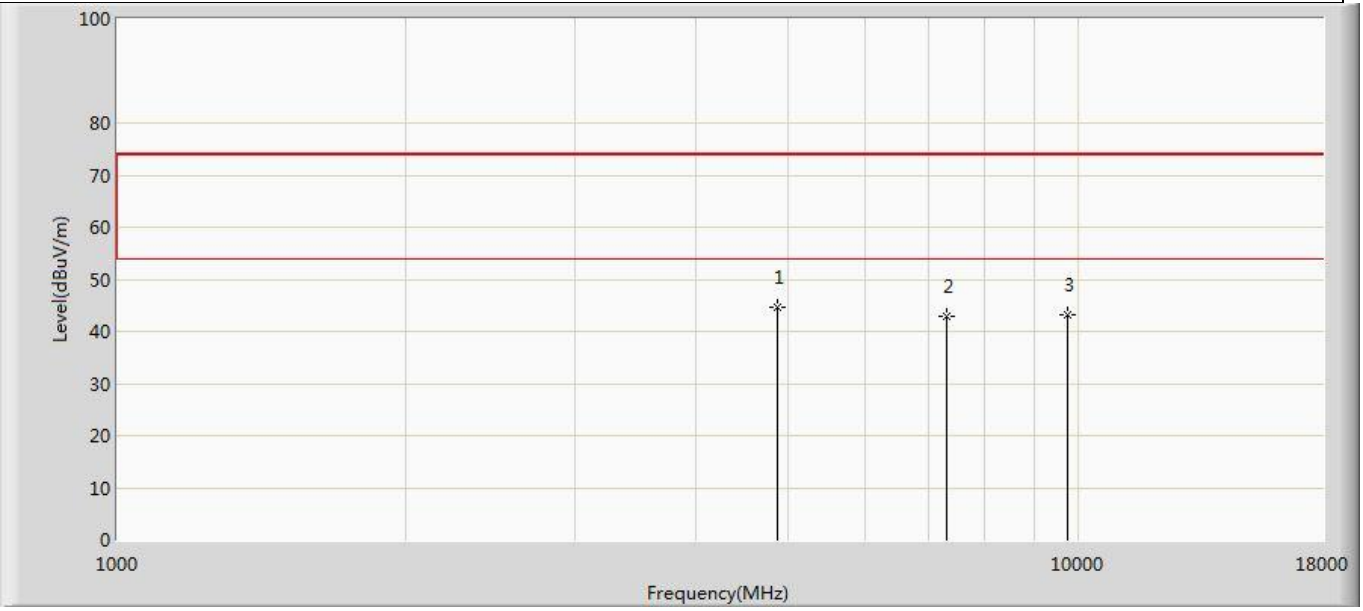
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	39.936	44.903	-34.064	74.000	-4.967	PK
2	*	7236.000	42.710	44.322	-31.290	74.000	-1.612	PK

Profile: 20A0599R	Page No.: 90
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:46
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 2412MHz by 802.11n(20MHz)	



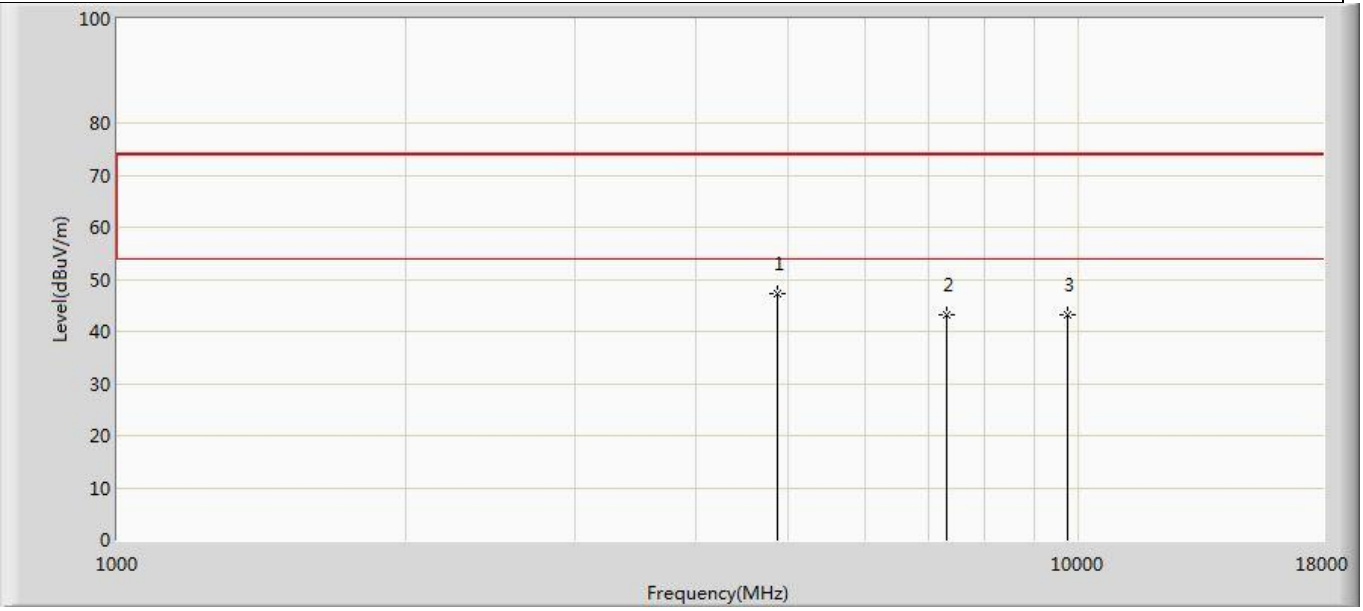
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	39.640	44.607	-34.360	74.000	-4.967	PK
2	*	7236.000	41.804	43.416	-32.196	74.000	-1.612	PK

Profile: 20A0599R	Page No.: 7
Engineer: Yingfei.wang	
Site: AC5	Time: 2020/11/11 - 10:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP	Power: Battery
Note: Mode 3：Transmit at 2437 MHz by 802.11n(20MHz)	



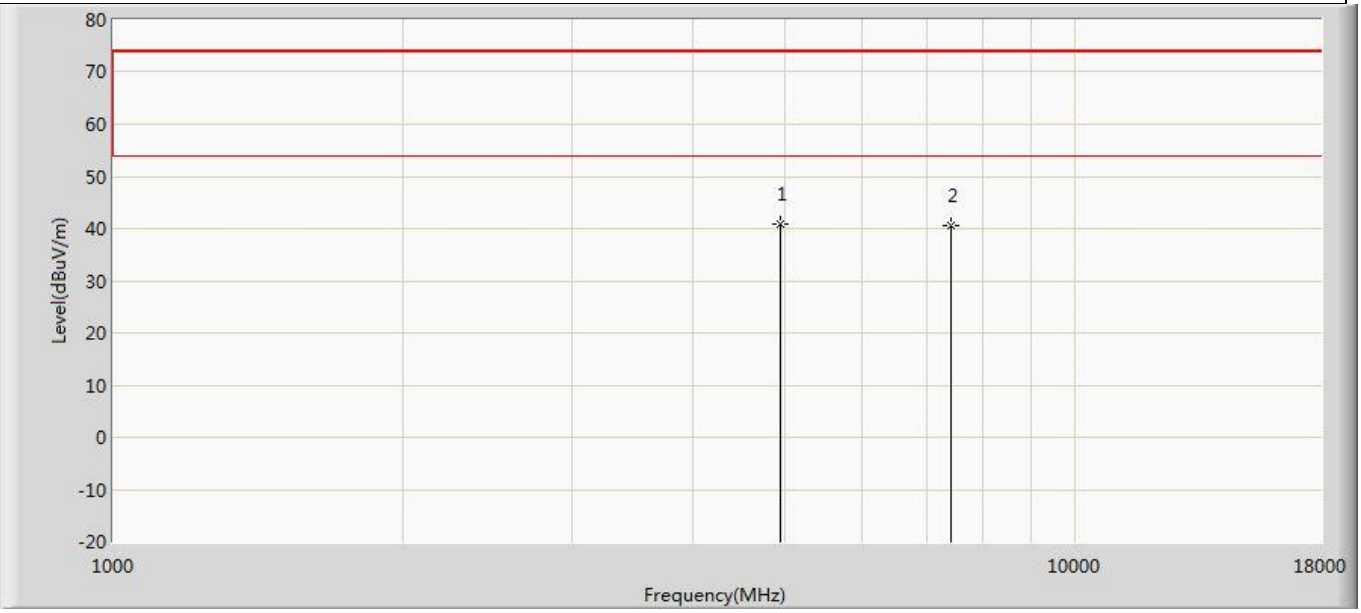
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4874.000	44.529	39.682	-29.471	74.000	4.846	PK
2		7311.000	42.859	34.868	-31.141	74.000	7.991	PK
3		9748.000	43.196	33.491	-30.804	74.000	9.705	PK

Profile: 20A0599R	Page No.: 8
Engineer: Yingfei.wang	
Site: AC5	Time: 2020/11/11 - 10:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED LAMP	Power: Battery
Note: Mode 3：Transmit at 2437 MHz by 802.11n(20MHz)	



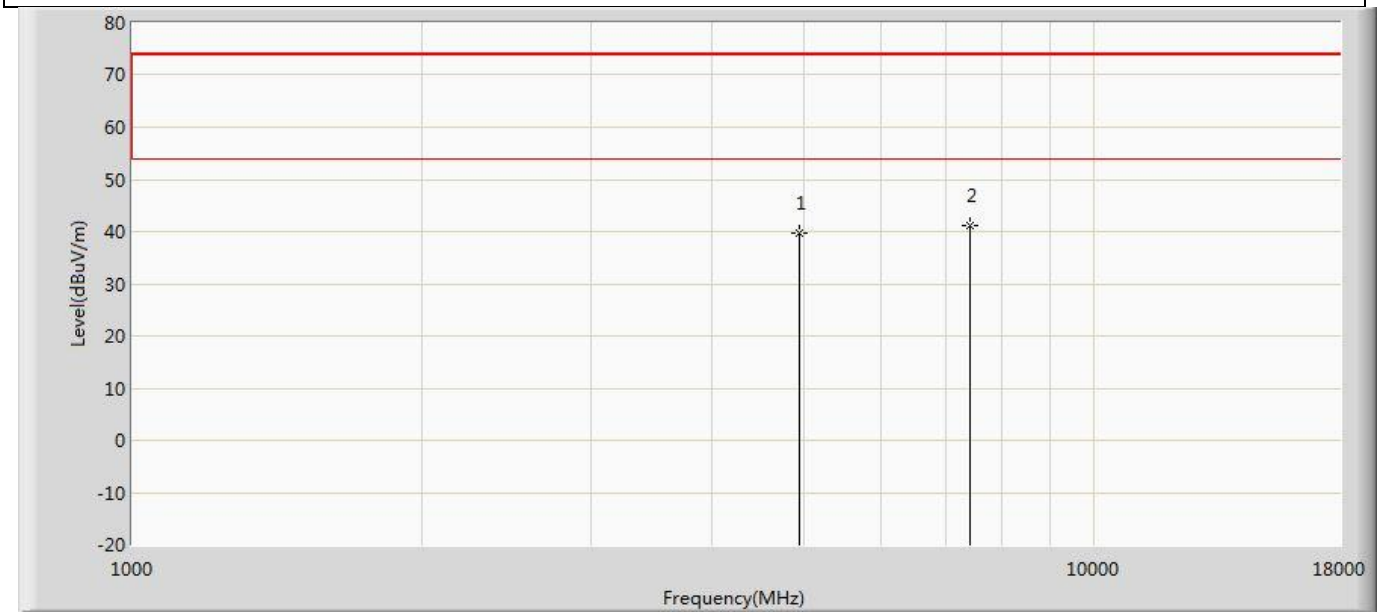
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4874.000	47.239	42.392	-26.761	74.000	4.846	PK
2		7311.000	43.157	35.166	-30.843	74.000	7.991	PK
3		9748.000	43.284	33.579	-30.716	74.000	9.705	PK

Profile: 20A0599R	Page No.: 91
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:47
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 2462MHz by 802.11n(20MHz)	



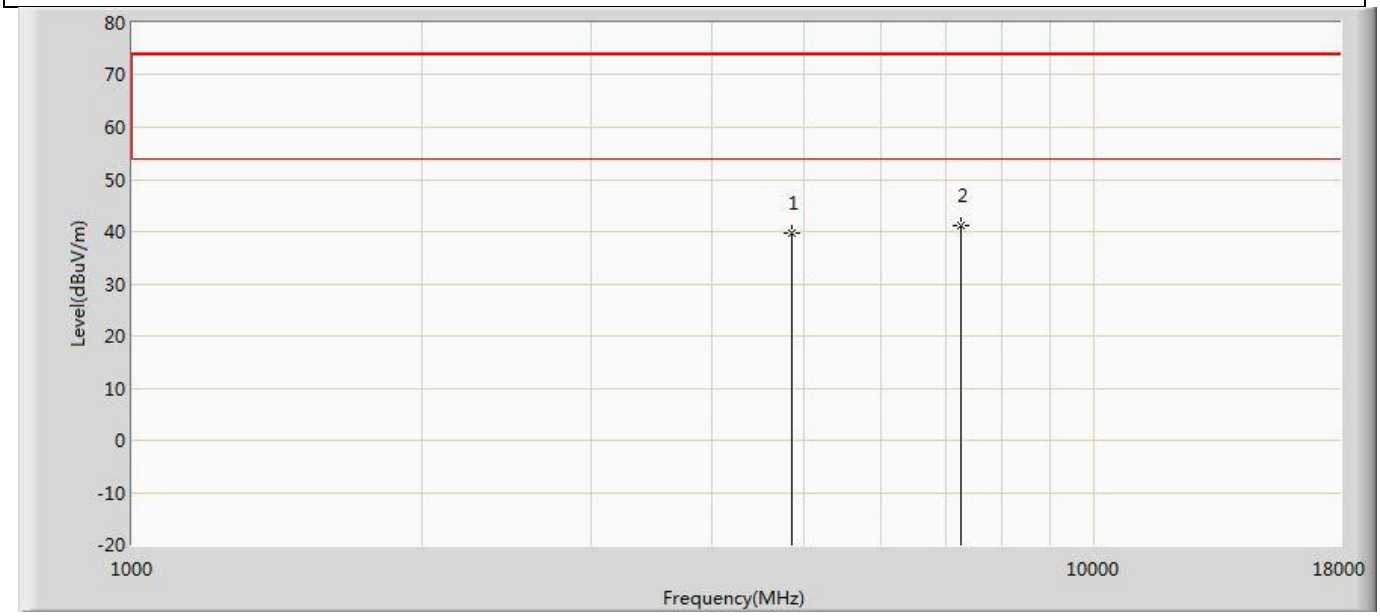
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4924.000	40.909	45.652	-33.091	74.000	-4.744	PK
2		7386.000	40.686	43.118	-33.314	74.000	-2.431	PK

Profile: 20A0599R	Page No.: 92
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:47
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 2462MHz by 802.11n(20MHz)	



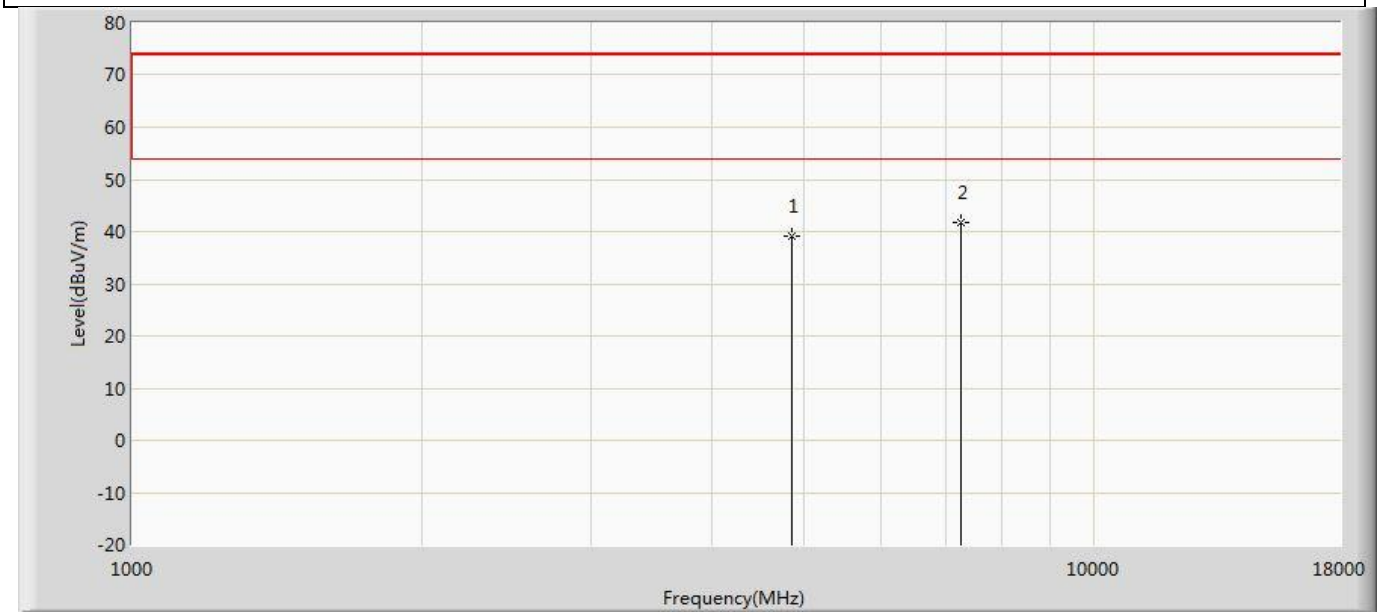
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	39.668	44.411	-34.332	74.000	-4.744	PK
2	*	7386.000	41.127	43.559	-32.873	74.000	-2.431	PK

Profile: 20A0599R	Page No.: 93
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:47
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 2422MHz by 802.11n(40MHz)	



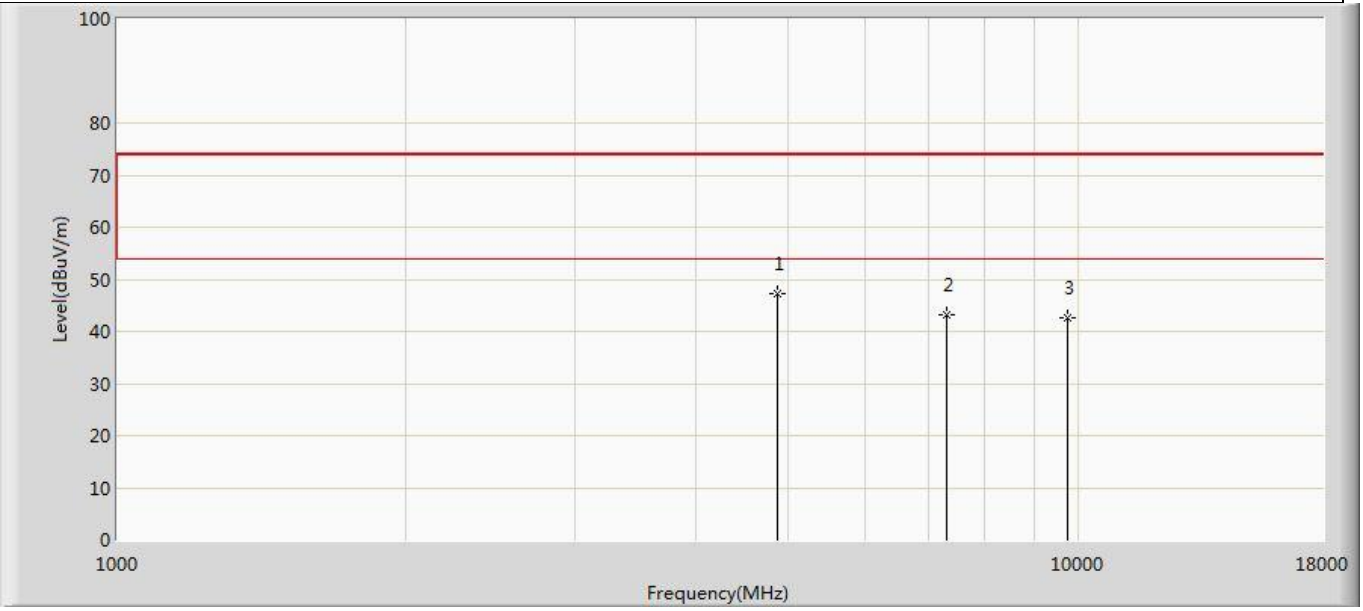
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4844.000	39.781	44.602	-34.219	74.000	-4.821	PK
2	*	7266.000	41.240	43.032	-32.760	74.000	-1.792	PK

Profile: 20A0599R	Page No.: 94
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:47
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 2422MHz by 802.11n(40MHz)	



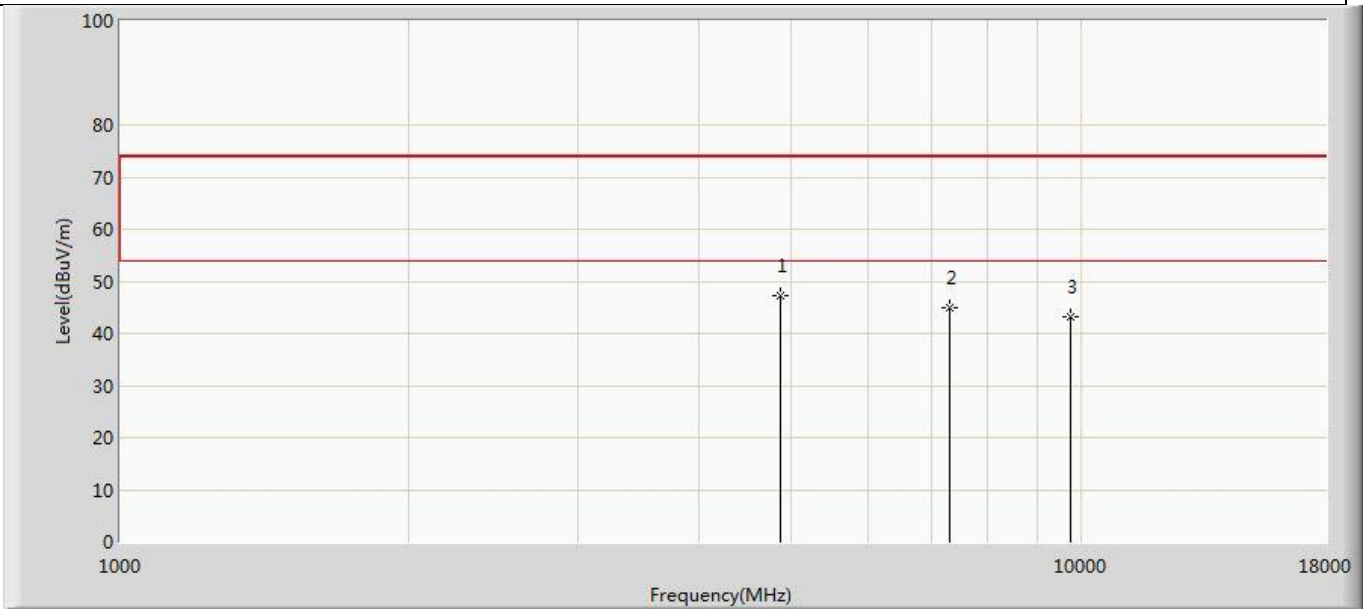
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4844.000	39.176	43.997	-34.824	74.000	-4.821	PK
2	*	7266.000	41.752	43.544	-32.248	74.000	-1.792	PK

Profile: 20A0599R	Page No.: 9
Engineer: Yingfei.wang	
Site: AC5	Time: 2020/11/11 - 10:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP	Power: Battery
Note: Mode 4：Transmit at 2437 MHz by 802.11n(40MHz)	



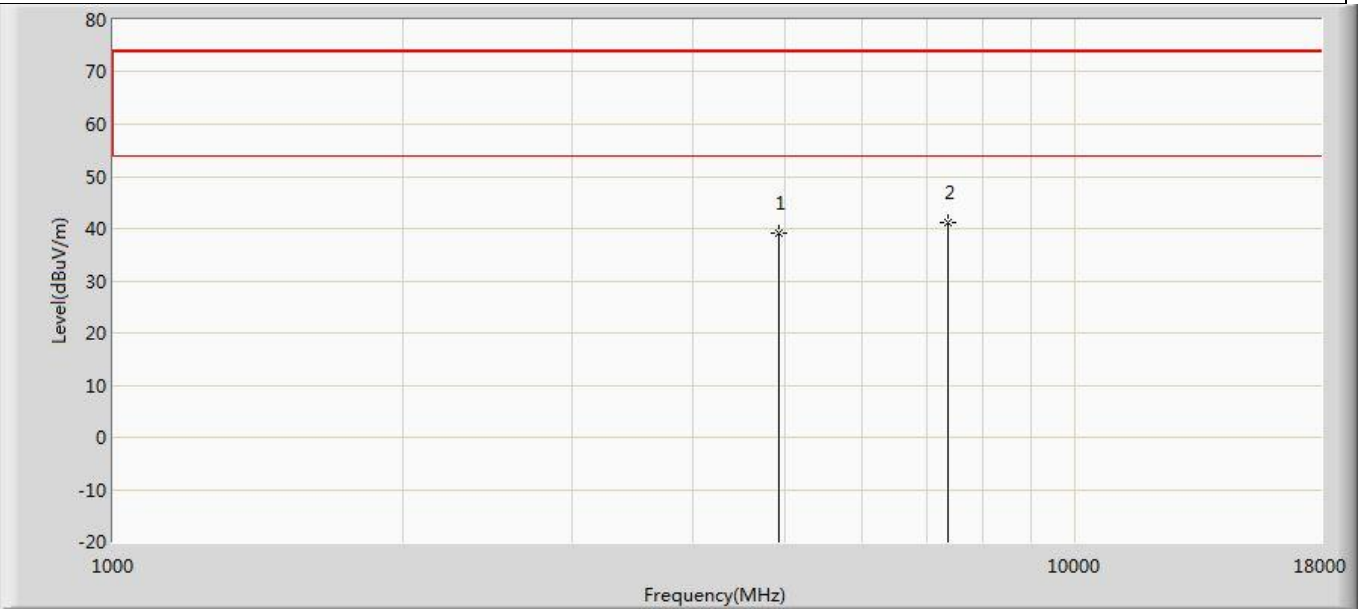
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4874.000	47.269	42.422	-26.731	74.000	4.846	PK
2		7311.000	43.199	35.208	-30.801	74.000	7.991	PK
3		9748.000	42.637	32.932	-31.363	74.000	9.705	PK

Profile: 20A0599R	Page No.: 10
Engineer: Yingfei.wang	
Site: AC5	Time: 2020/11/11 - 10:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED LAMP	Power: Battery
Note: Mode 4：Transmit at 2437 MHz by 802.11n(40MHz)	



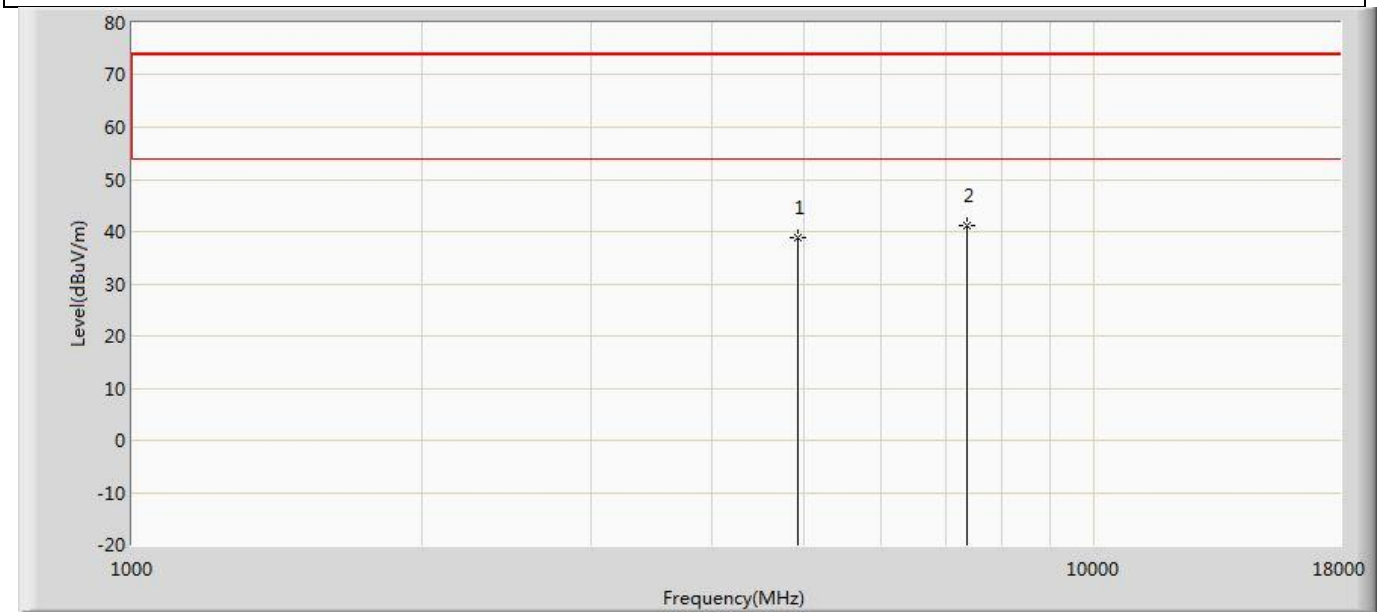
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4874.000	47.351	42.504	-26.649	74.000	4.846	PK
2		7311.000	44.892	36.901	-29.108	74.000	7.991	PK
3		9748.000	43.285	33.580	-30.715	74.000	9.705	PK

Profile: 20A0599R	Page No.: 95
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:47
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 2452MHz by 802.11n(40MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4904.000	39.091	43.742	-34.909	74.000	-4.651	PK
2	*	7356.000	41.214	43.121	-32.786	74.000	-1.907	PK

Profile: 20A0599R	Page No.: 96
Engineer: Neil	
Site: AC5	Time: 2020/11/05 - 11:47
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 2452MHz by 802.11n(40MHz)	

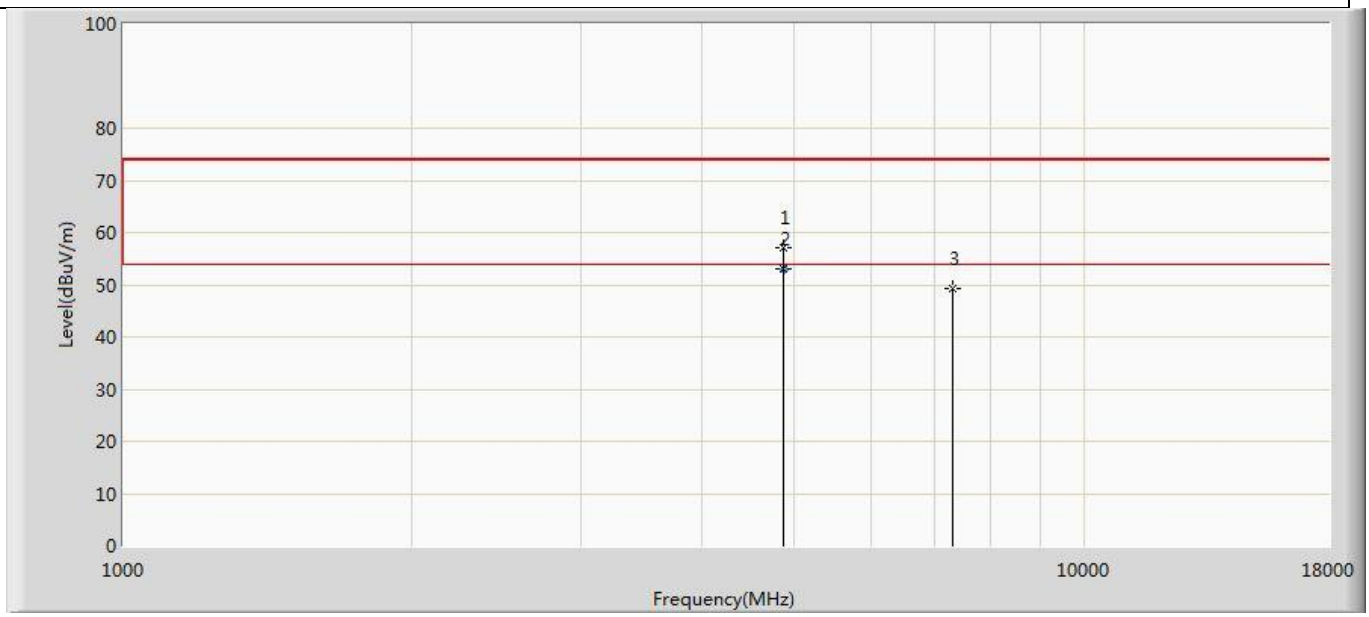


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4904.000	38.883	43.534	-35.117	74.000	-4.651	PK
2	*	7356.000	41.295	43.202	-32.705	74.000	-1.907	PK

Remark	1. " * ", means this data is the worst emission level. 2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp). 3. The test frequency range, 9kHz~30MHz worst case are at least 6dB below the limits, therefore no data appear in the report. 4. 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.

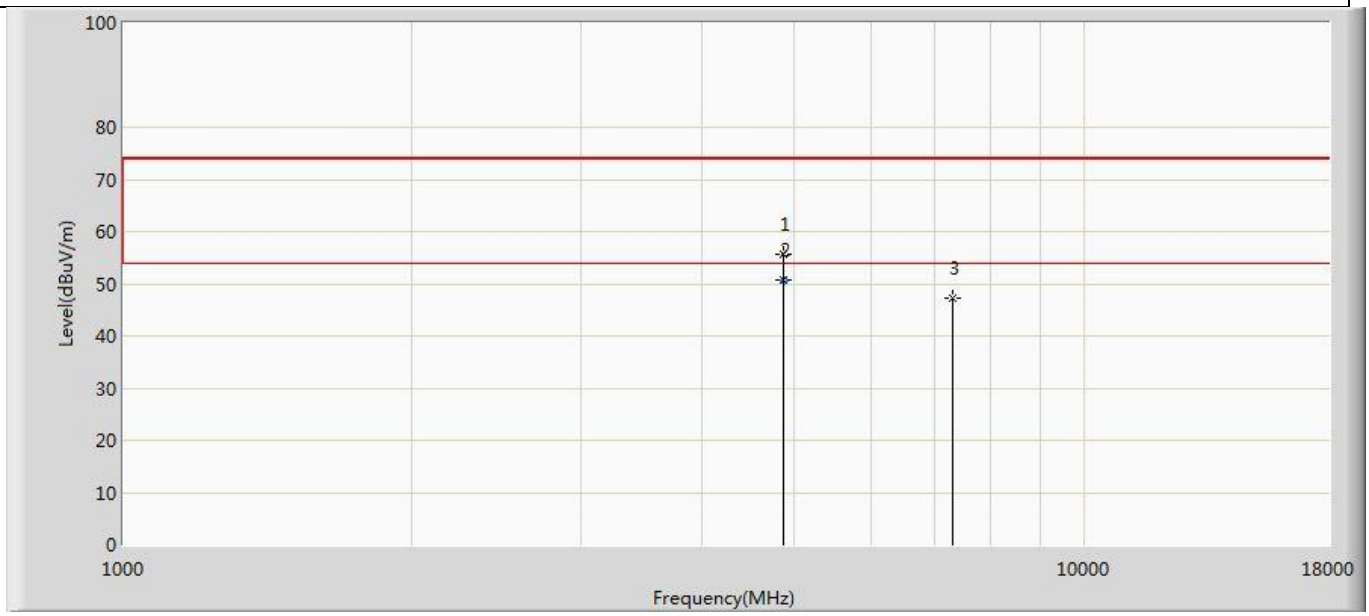
The worst case of simultaneous transmit:

Profile: 20A0599R	Page No.: 7
Engineer: Pawn	
Site: AC5	Time: 2020/11/06 - 14:25
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 5: Simultaneous transmit at 2432MHz by 802.11b and 2432MHz by LE_1Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4864.000	57.233	62.820	-16.767	74.000	-5.587	PK
2	*	4864.000	53.002	58.589	-0.998	54.000	-5.587	AV
3		7296.000	49.391	51.258	-24.609	74.000	-1.867	PK

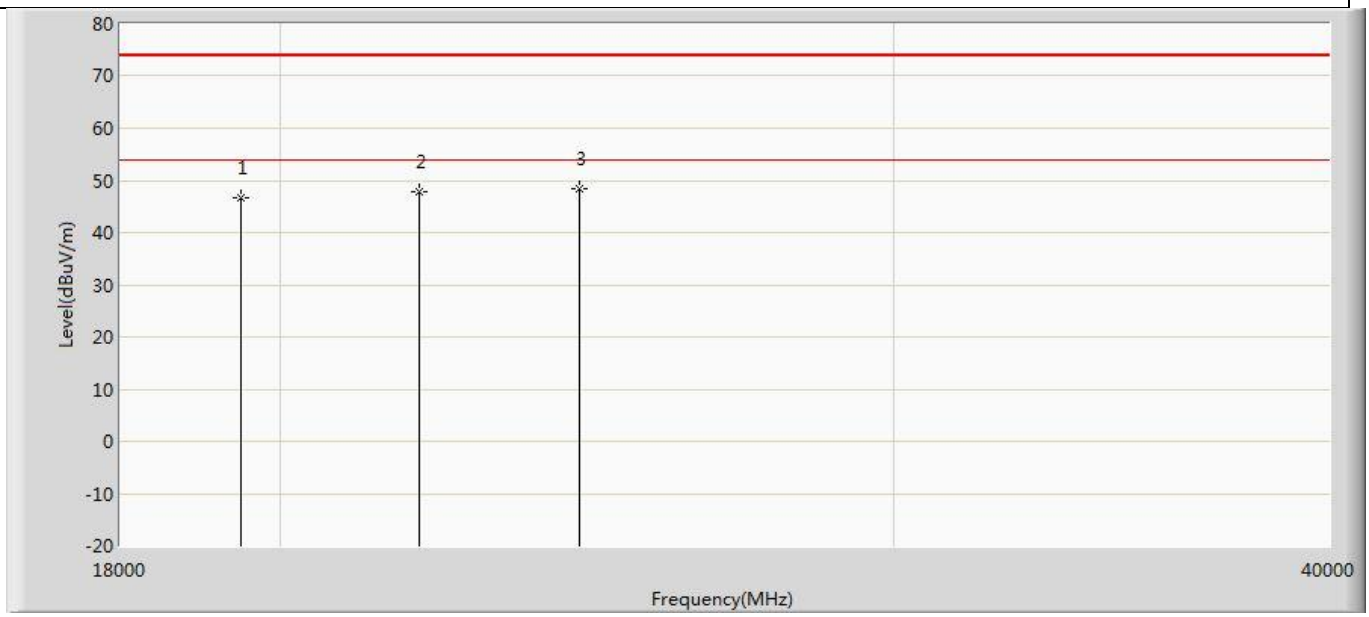
Profile: 20A0599R	Page No.: 8
Engineer: Pawn	
Site: AC5	Time: 2020/11/06 - 14:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED LAMP	Power: AC 120V/60Hz
Note: Mode 5: Simultaneous transmit at 2432MHz by 802.11b and 2432MHz by LE_1Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4864.000	55.765	61.352	-18.235	74.000	-5.587	PK
2	*	4864.000	50.622	56.209	-3.378	54.000	-5.587	AV
3		7296.000	47.228	49.095	-26.772	74.000	-1.867	PK

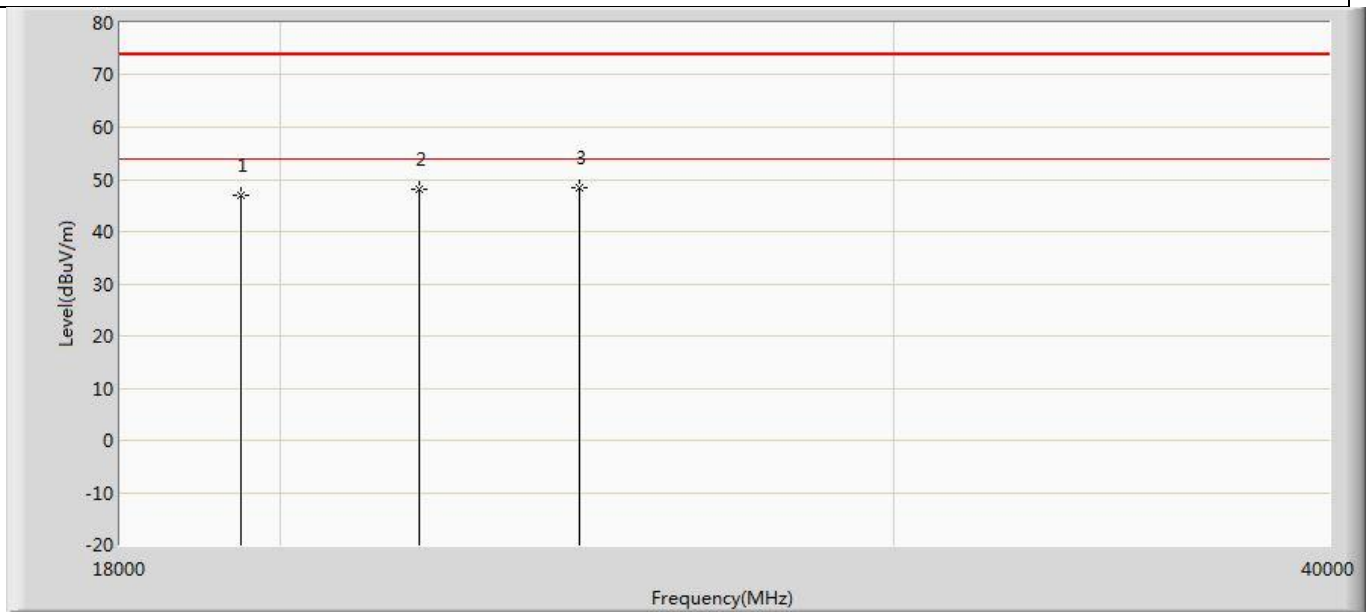
The worst case of Radiated Emission above 18GHz:

Profile: 20A0599R	Page No.: 102
Engineer: Lynee	
Site: AC5	Time: 2020/11/05 - 16:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9170_294(18-40GHz)	Polarity: Horizontal
EUT: LED LAMP	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2437MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		19496.000	46.573	52.357	-27.427	74.000	-5.784	PK
2		21933.000	47.695	51.392	-26.305	74.000	-3.697	PK
3	*	24370.000	48.463	50.627	-25.537	74.000	-2.164	PK

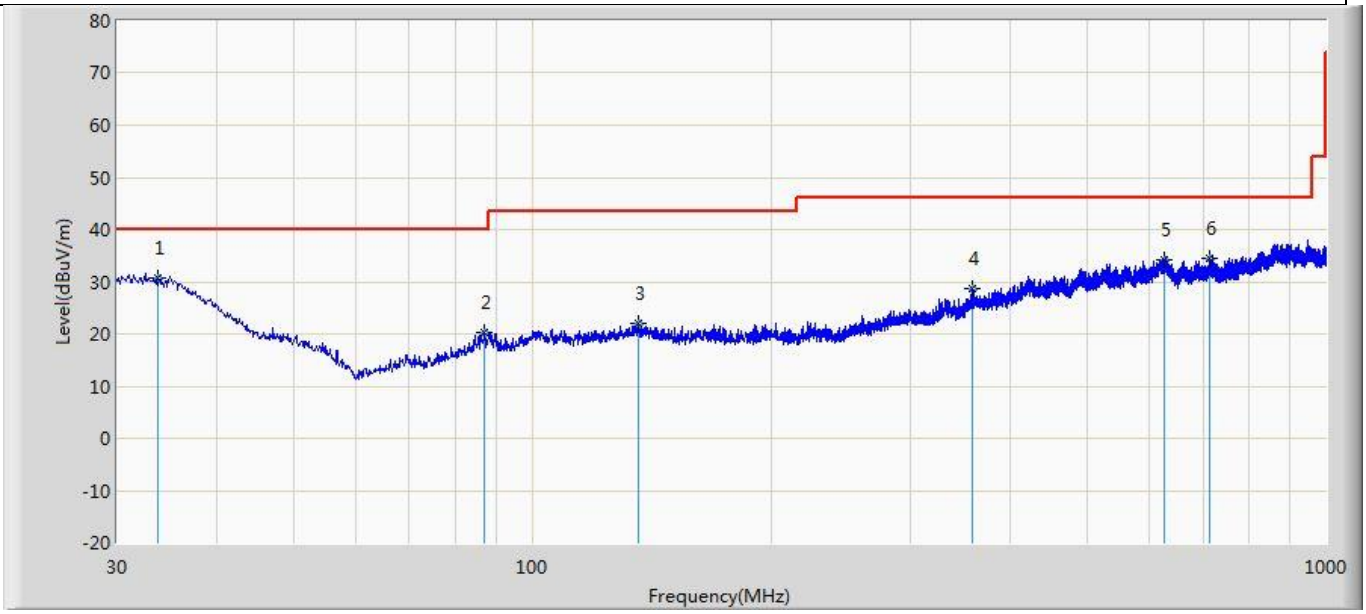
Profile: 20A0599R	Page No.: 103
Engineer: Lynee	
Site: AC5	Time: 2020/11/05 - 16:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9170_294(18-40GHz)	Polarity: Vertical
EUT: LED LAMP	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2437MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		19496.000	46.938	52.722	-27.062	74.000	-5.784	PK
2		21933.000	48.226	51.923	-25.774	74.000	-3.697	PK
3	*	24370.000	48.465	50.629	-25.535	74.000	-2.164	PK

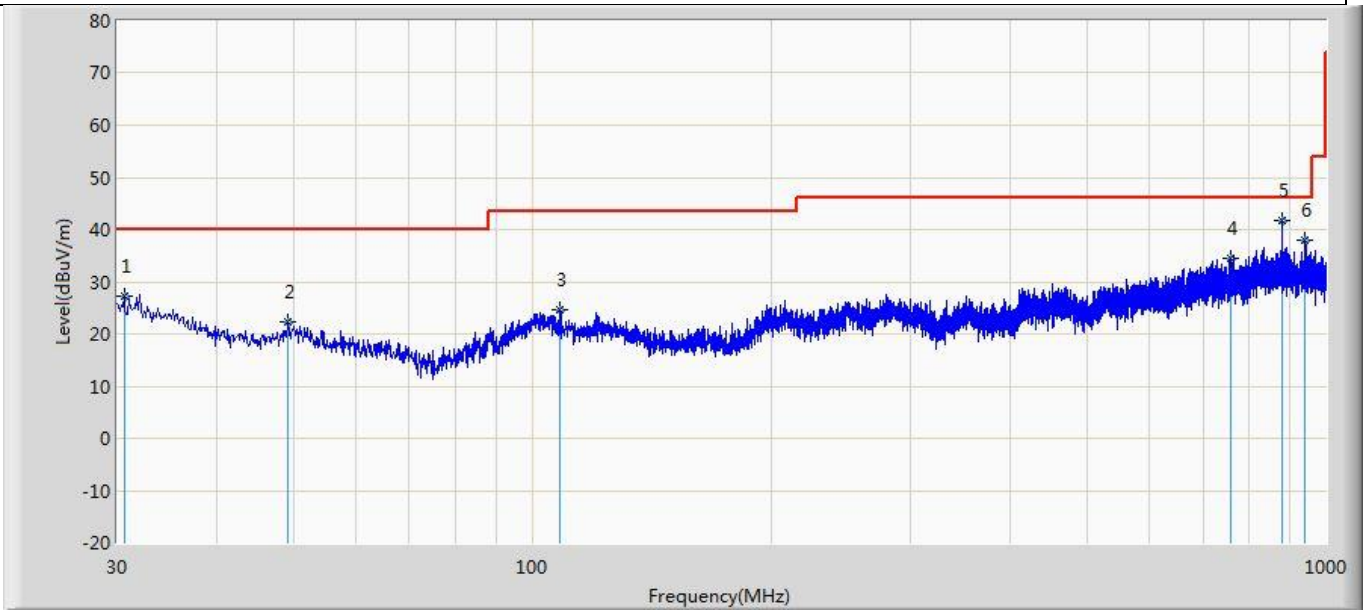
The worst case of Radiated Emission below 1GHz:

Profile: 20A0599R	Page No.: 1
Engineer: Pawn	
Site: AC2	Time: 2020/11/02 - 19:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT:LED LAMP	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	33.759	30.608	3.576	-9.392	40.000	27.032	QP
2		87.109	20.145	6.093	-19.855	40.000	14.052	QP
3		136.336	22.150	4.489	-21.350	43.500	17.661	QP
4		359.194	28.656	4.458	-17.344	46.000	24.198	QP
5		624.731	34.292	3.730	-11.708	46.000	30.562	QP
6		712.880	34.618	4.947	-11.382	46.000	29.671	QP

Profile: 20A0599R	Page No.: 2
Engineer: Pawn	
Site: AC2	Time: 2020/11/02 - 19:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT:LED LAMP	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		30.606	27.314	3.476	-12.686	40.000	23.838	QP
2		49.279	22.273	2.940	-17.727	40.000	19.333	QP
3		108.570	24.579	3.268	-18.921	43.500	21.311	QP
4		758.713	34.563	3.406	-11.437	46.000	31.157	QP
5	*	879.963	41.805	8.515	-4.195	46.000	33.290	QP
6		941.800	38.031	4.617	-7.969	46.000	33.414	QP

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

4.3 Emissions in non-restricted frequency band	VERDICT: PASS

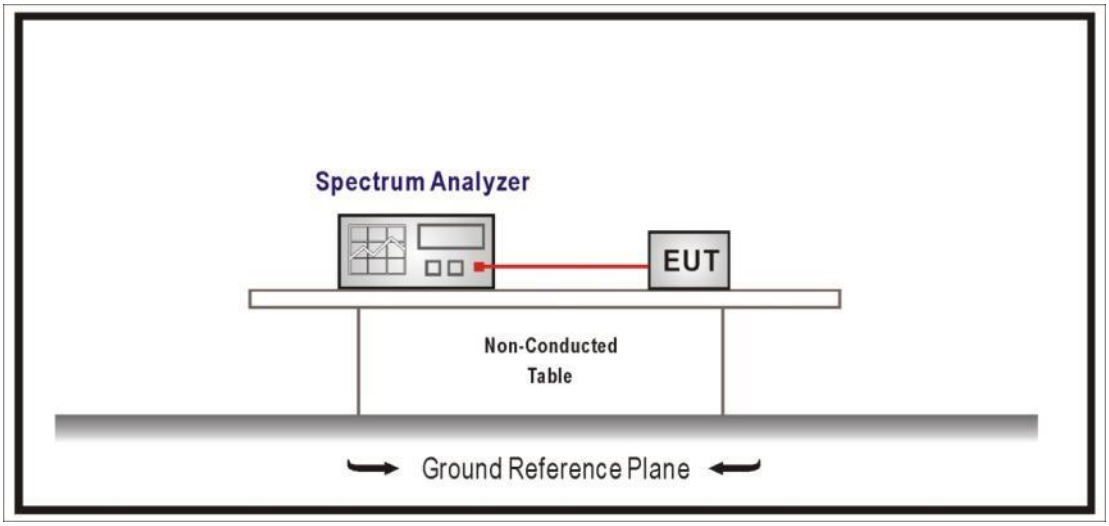
4.3.1 Limit

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

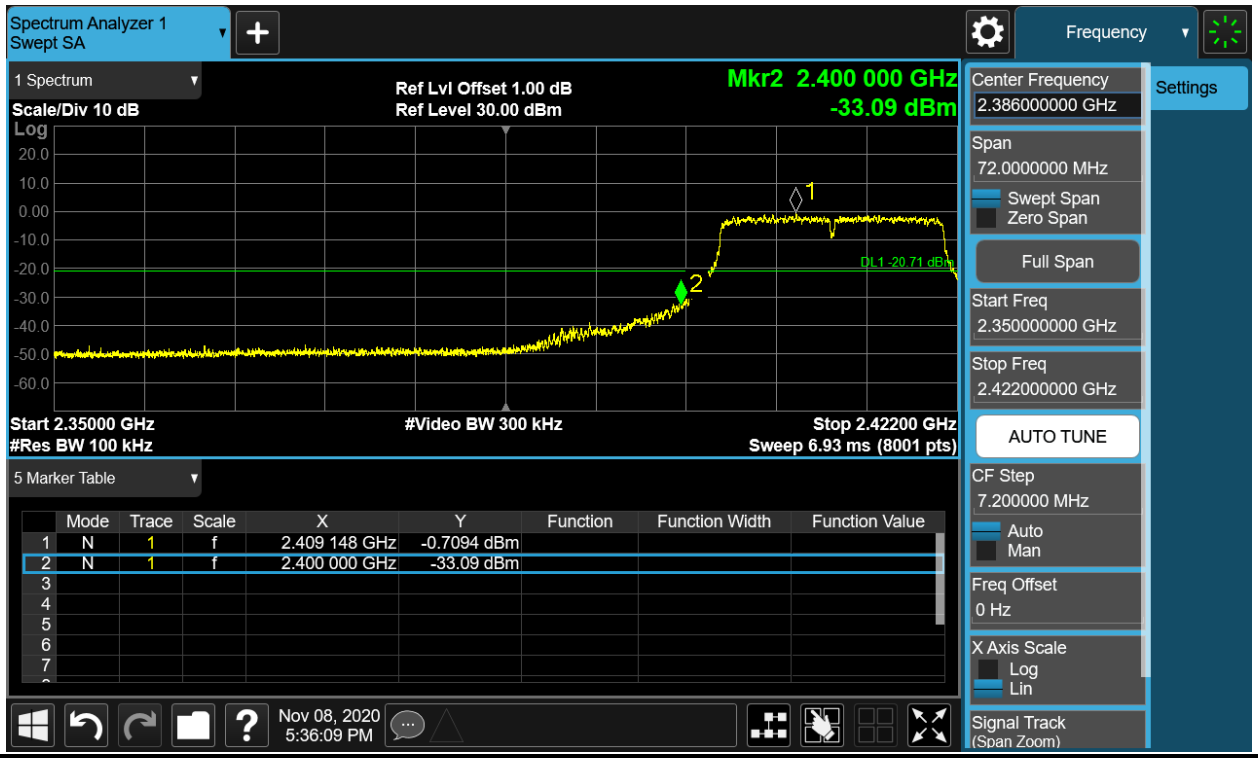
References Rule			Chapter	Description
☒	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	☒	ANSI C63.10	11.11.1	General
	☒	ANSI C63.10	11.11.2	Reference level measurement
	☒	ANSI C63.10	11.11.3	Emission level measurement

4.3.4 Test Data

Mode	Channel	Test Frequency (MHz)	Maximum In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	1	2412	7.501	2400.000	-31.09	38.591	≥20	Pass
	11	2462	7.489	2540.116	-44.81	52.299	≥20	Pass
2	1	2412	-1.160	2400.000	-34.85	33.690	≥20	Pass
	11	2462	-0.949	2500.000	-48.21	47.261	≥20	Pass
3	1	2412	-0.709	2400.000	-33.09	32.381	≥20	Pass
	11	2462	-0.388	2500.000	-47.69	47.302	≥20	Pass
4	3	2422	-4.883	2393.447	-41.11	36.227	≥20	Pass
	9	2452	-6.095	2500.000	-48.76	42.665	≥20	Pass

Note: The worst case of emissions in non-restricted frequency bands as below:

Mode 3 CH01(2412MHz)



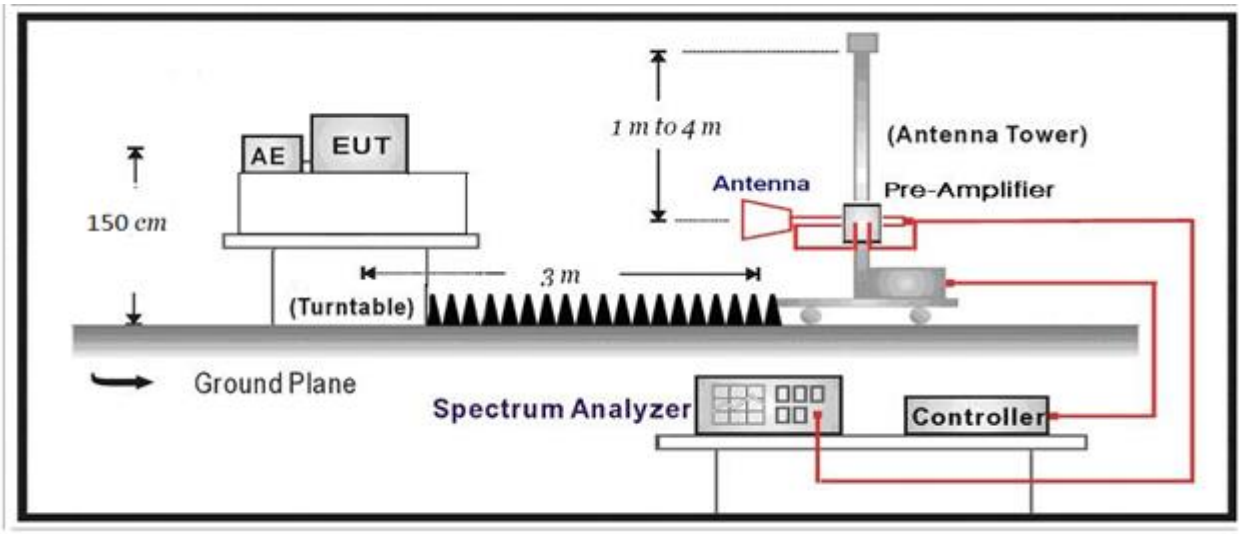
4.4 Radiated Emission Band Edge	VERDICT: PASS

4.4.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(d) , 15.205, 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.				

4.4.2 Test Setup

Above 1GHz Test Setup:



4.4.3 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	6.3	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
	☐ ANSI C63.10	11.12.2	Antenna-port conducted measurements
	☐ ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
	☐ ANSI C63.10	11.12.2.4	Peak power measurement procedure
	☐ ANSI C63.10	11.12.2.5	Average power measurement procedures
	☐ ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
	☐ ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
	☐ ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

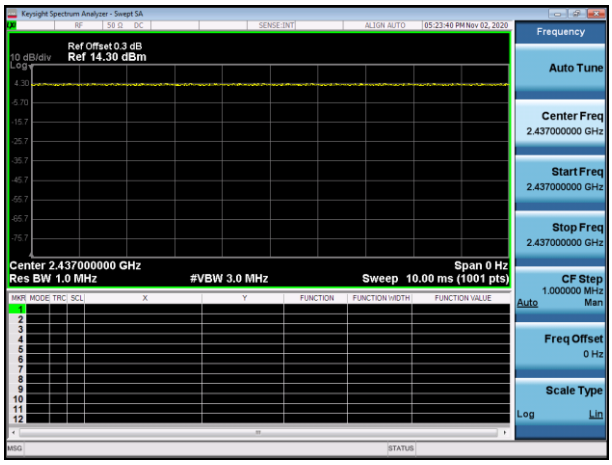
4.4.4 Test Data

Test Mode	Tx On (ms)	VBW (kHz)	Tx On + Tx Off (ms)	Duty Cycle
1	--	0.01	--	100%
2	--	0.01	--	100%
3	--	0.01	--	100%
4	--	0.01	--	100%

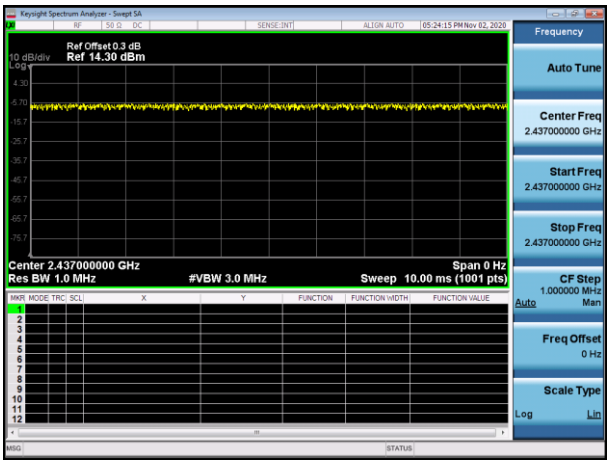
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

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.

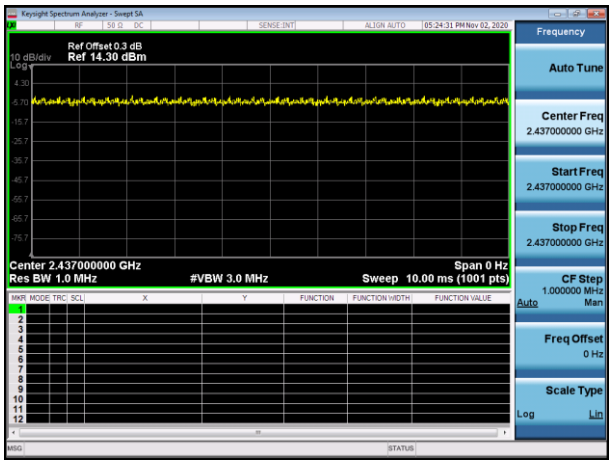
802.11b



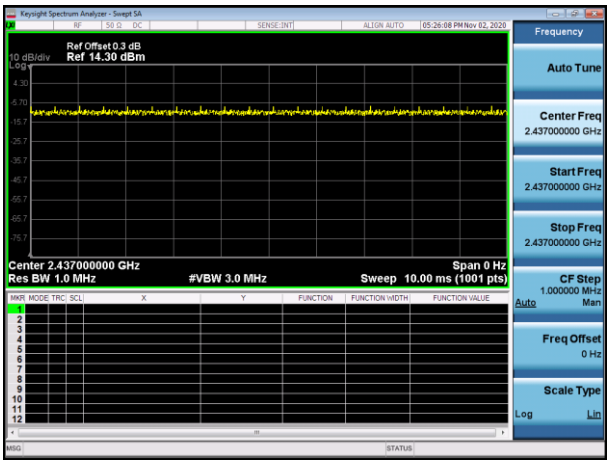
802.11g



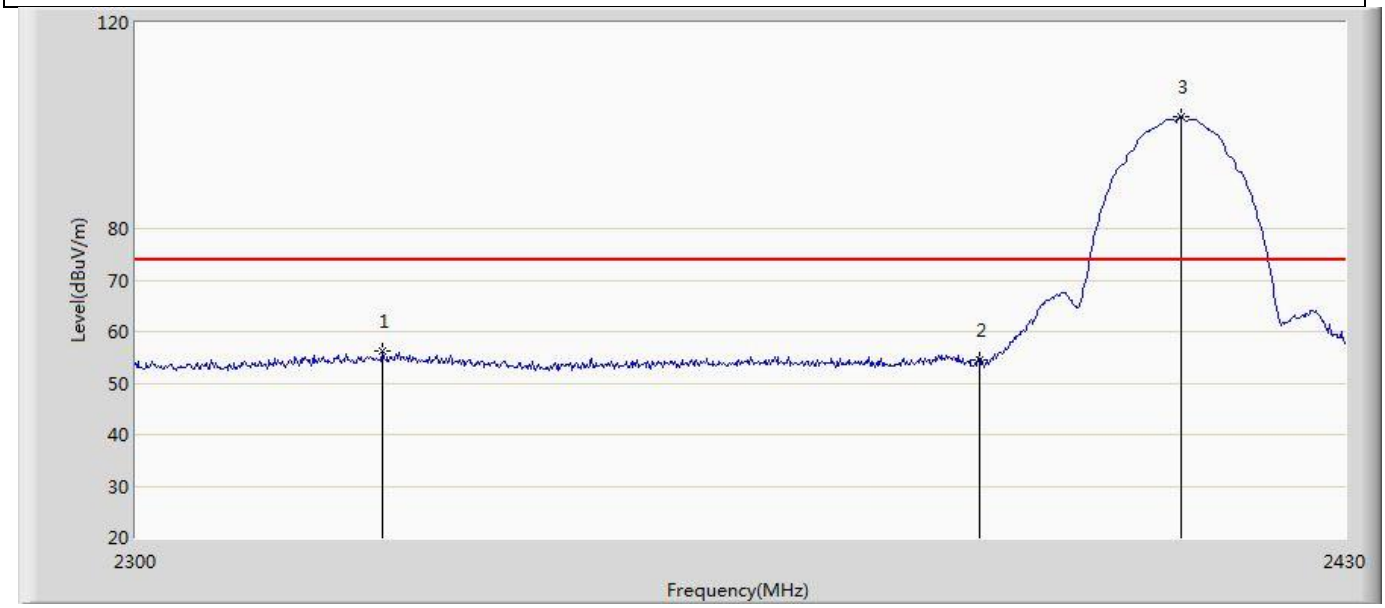
802.11n(20MHz)



802.11n(40MHz)

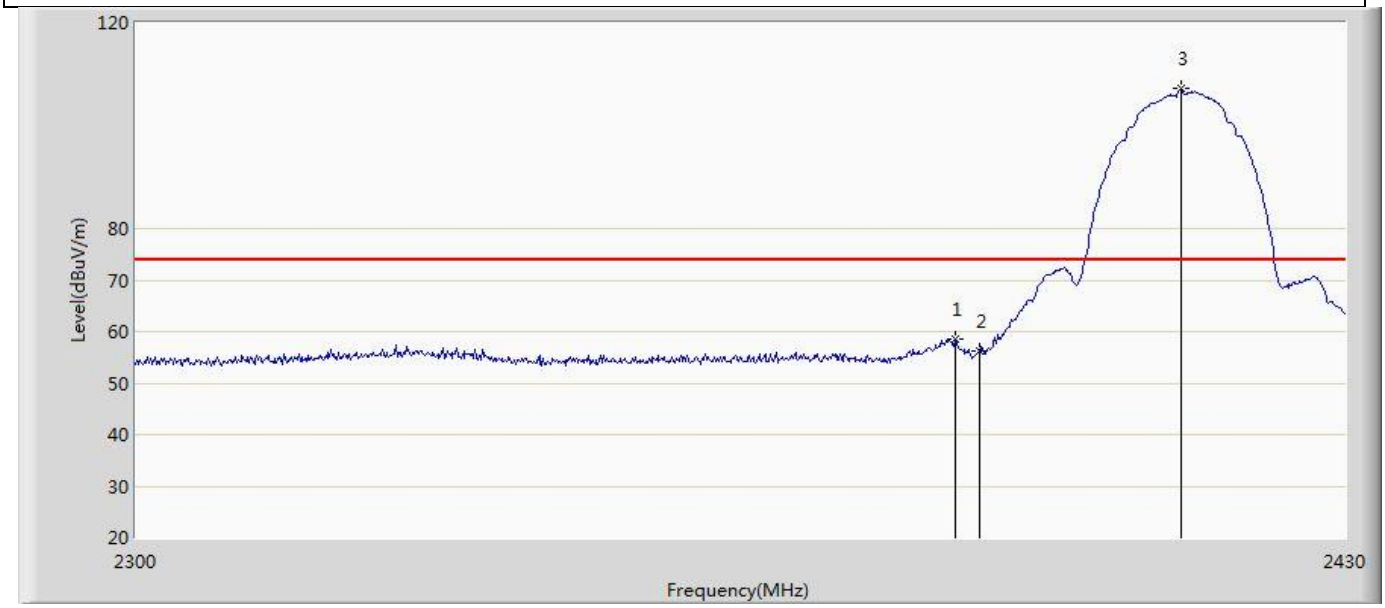


Profile:20A0599R	Page No.: 88
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED LAMP	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b	



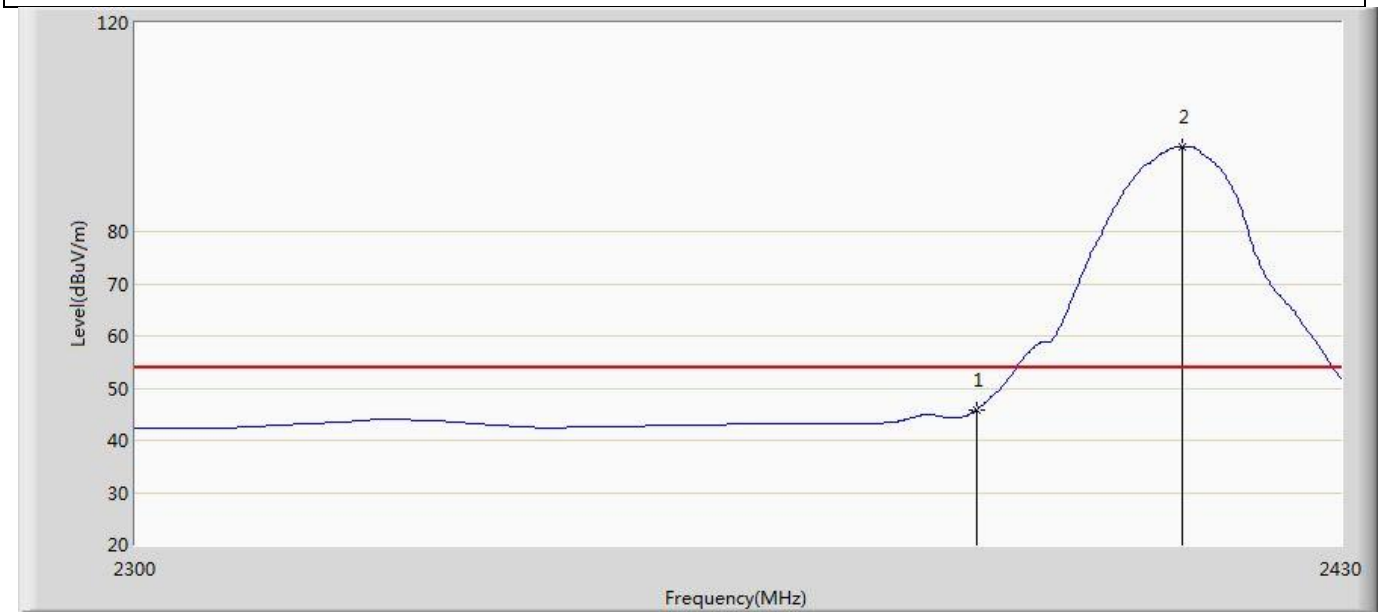
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2326.000	56.247	18.572	-17.753	74.000	37.675	PK
2		2390.000	54.393	18.649	-19.607	74.000	35.745	PK
3	*	2412.060	101.842	65.120	N/A	N/A	36.723	PK

Profile:20A0599R	Page No.: 89
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:43
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 2412MHz by 802.11b	



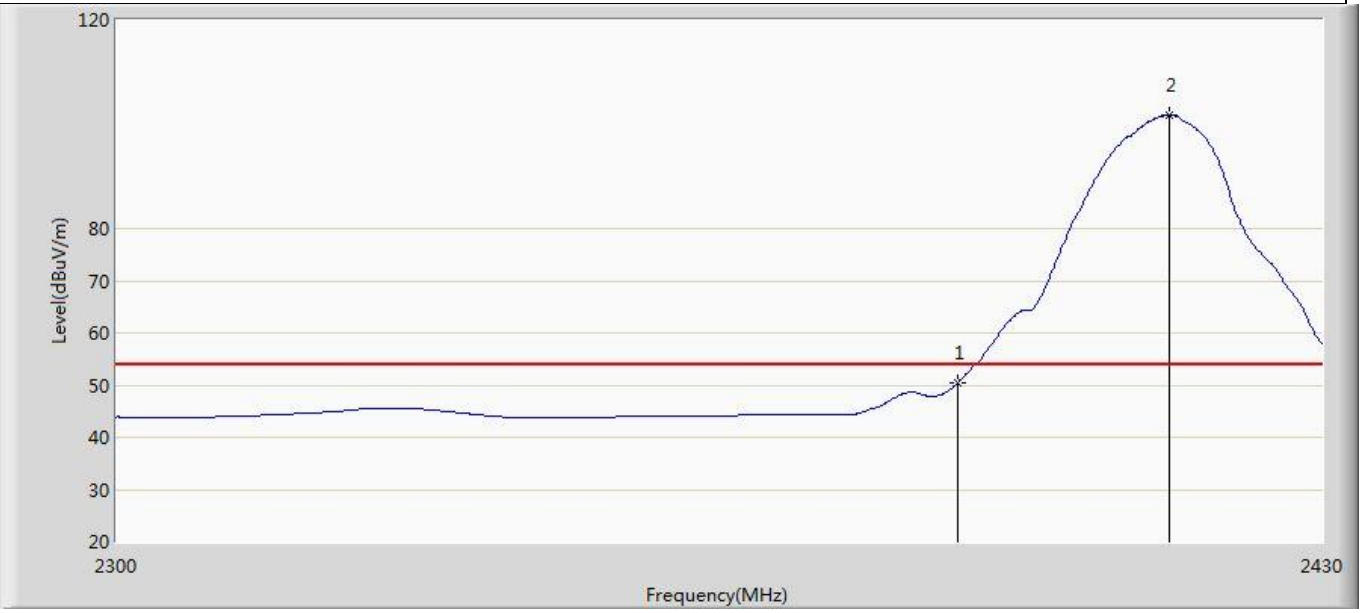
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2387.360	58.513	22.592	-15.487	74.000	35.921	PK
2		2390.000	56.247	20.503	-17.753	74.000	35.745	PK
3	*	2411.930	107.259	70.536	N/A	N/A	36.724	PK

Profile:20A0599R	Page No.: 87
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:37
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 2412MHz by 802.11b	



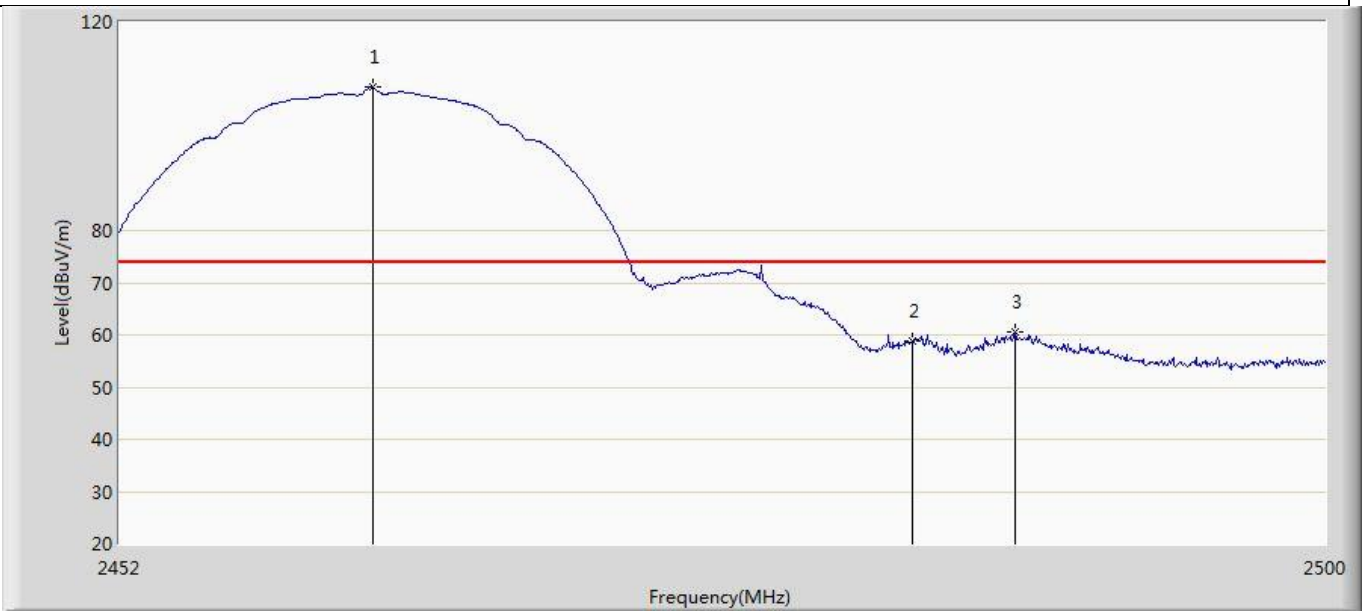
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.928	10.184	-8.072	54.000	35.745	AV
2	*	2412.450	96.337	59.619	N/A	N/A	36.718	AV

Profile:20A0599R	Page No.: 90
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:45
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 2412MHz by 802.11b	



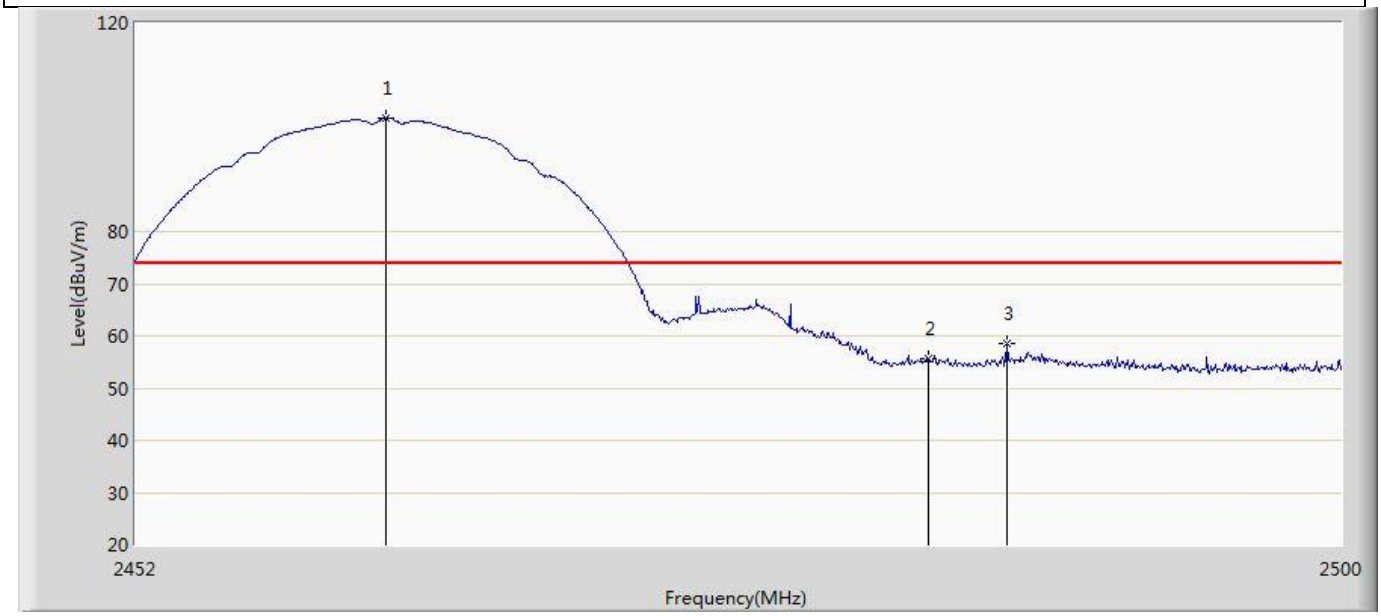
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.500	14.756	-3.500	54.000	35.745	AV
2	*	2413.230	101.658	64.947	N/A	N/A	36.711	AV

Profile:20A0599R	Page No.: 84
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:28
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 1:Transmit at 2462MHz by 802.11b	



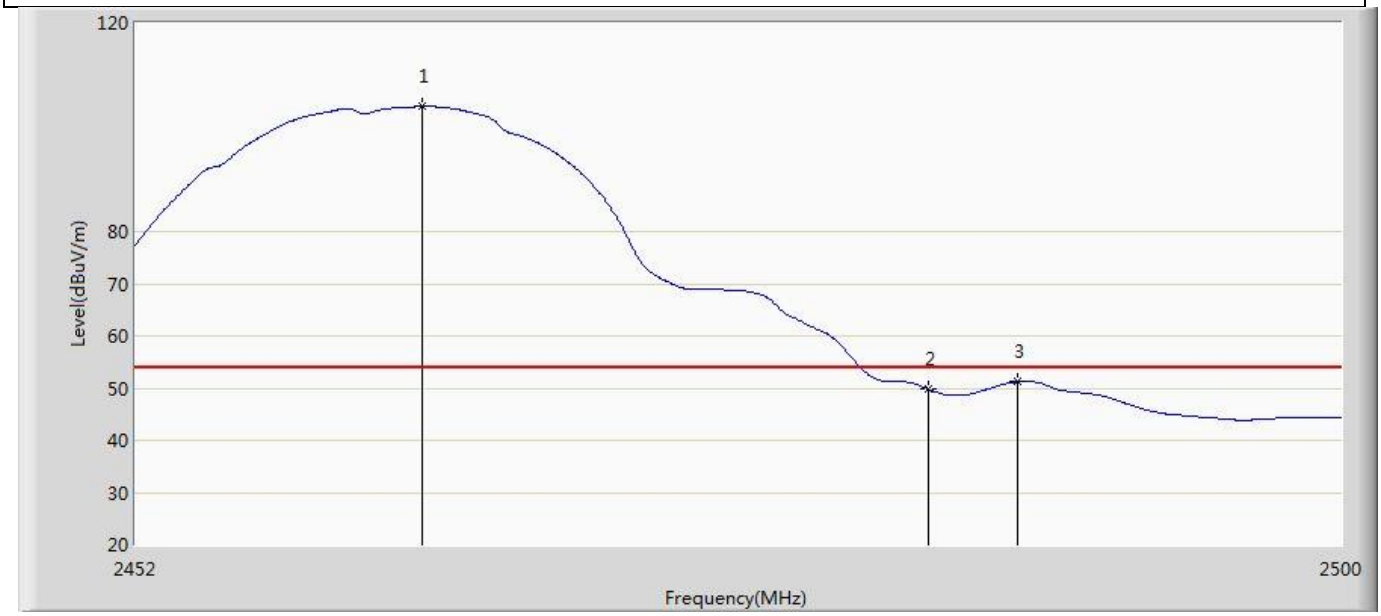
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.032	107.440	70.601	N/A	N/A	36.839	PK
2		2483.500	58.725	22.026	-15.275	74.000	36.699	PK
3		2487.568	60.528	23.980	-13.472	74.000	36.548	PK

Profile:20A0599R	Page No.: 85
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:30
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 2462MHz by 802.11b	



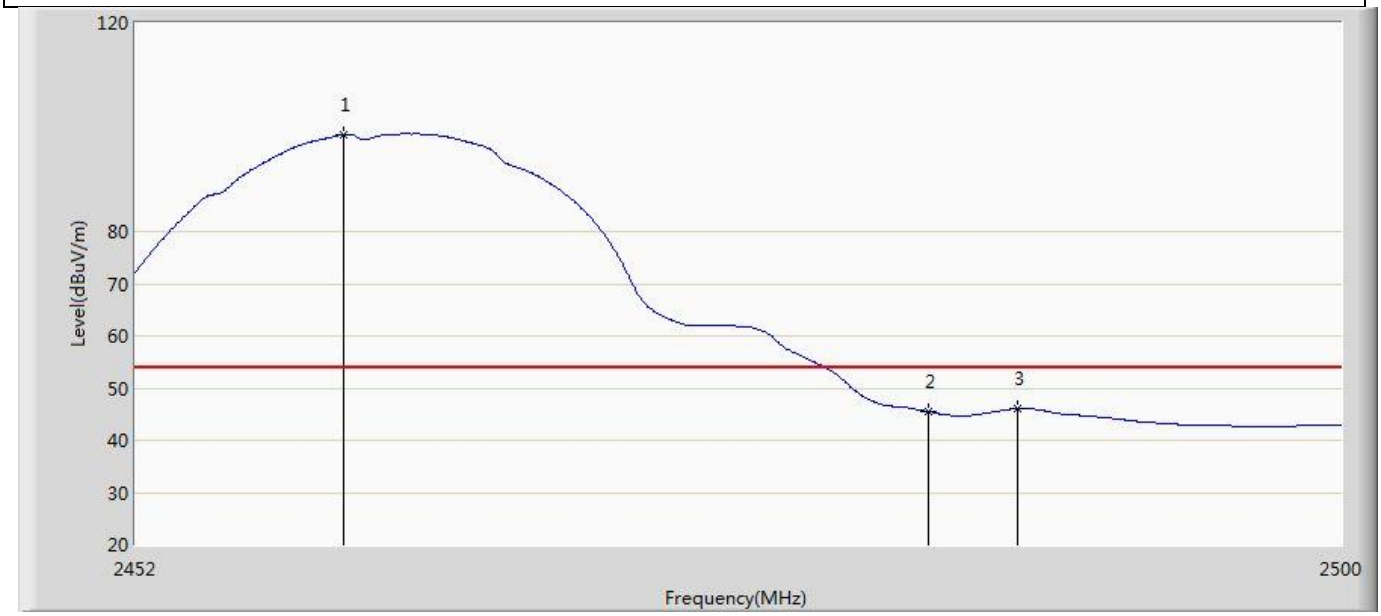
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.936	101.865	65.026	N/A	N/A	36.838	PK
2		2483.500	55.520	18.821	-18.480	74.000	36.699	PK
3		2486.608	58.577	21.993	-15.423	74.000	36.583	PK

Profile:20A0599R	Page No.: 83
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:18
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 2462MHz by 802.11b	



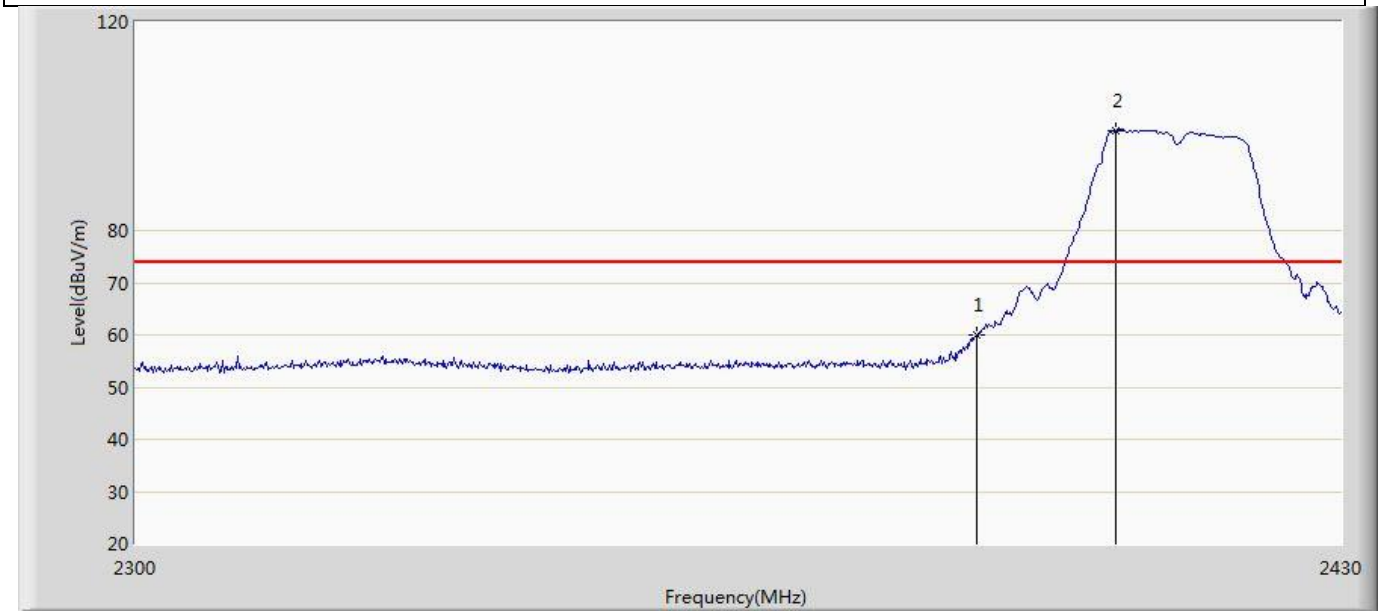
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.328	103.925	67.084	N/A	N/A	36.841	AV
2		2483.500	49.768	13.069	-4.232	54.000	36.699	AV
3		2487.040	51.234	14.666	-2.766	54.000	36.567	AV

Profile:20A0599R	Page No.: 86
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:34
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 2462MHz by 802.11b	



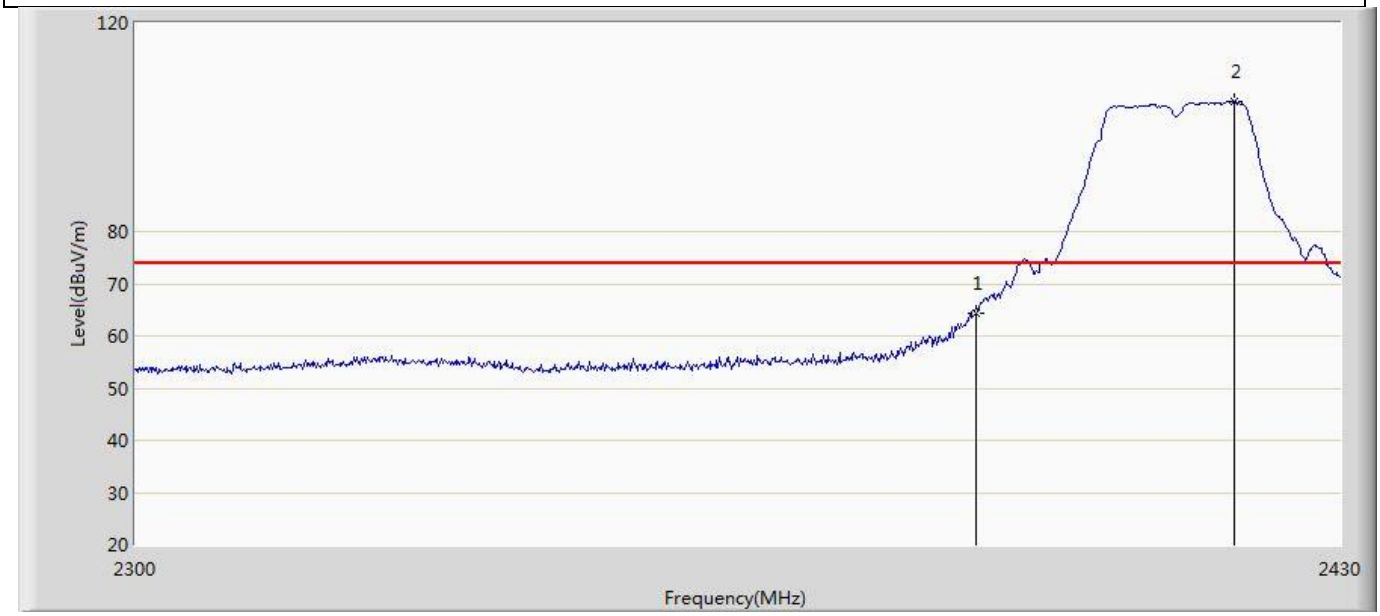
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.256	98.596	61.764	N/A	N/A	36.833	AV
2		2483.500	45.438	8.739	-8.562	54.000	36.699	AV
3		2487.040	46.050	9.482	-7.950	54.000	36.567	AV

Profile:20A0599R	Page No.: 96
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:02
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 2412MHz by 802.11g	



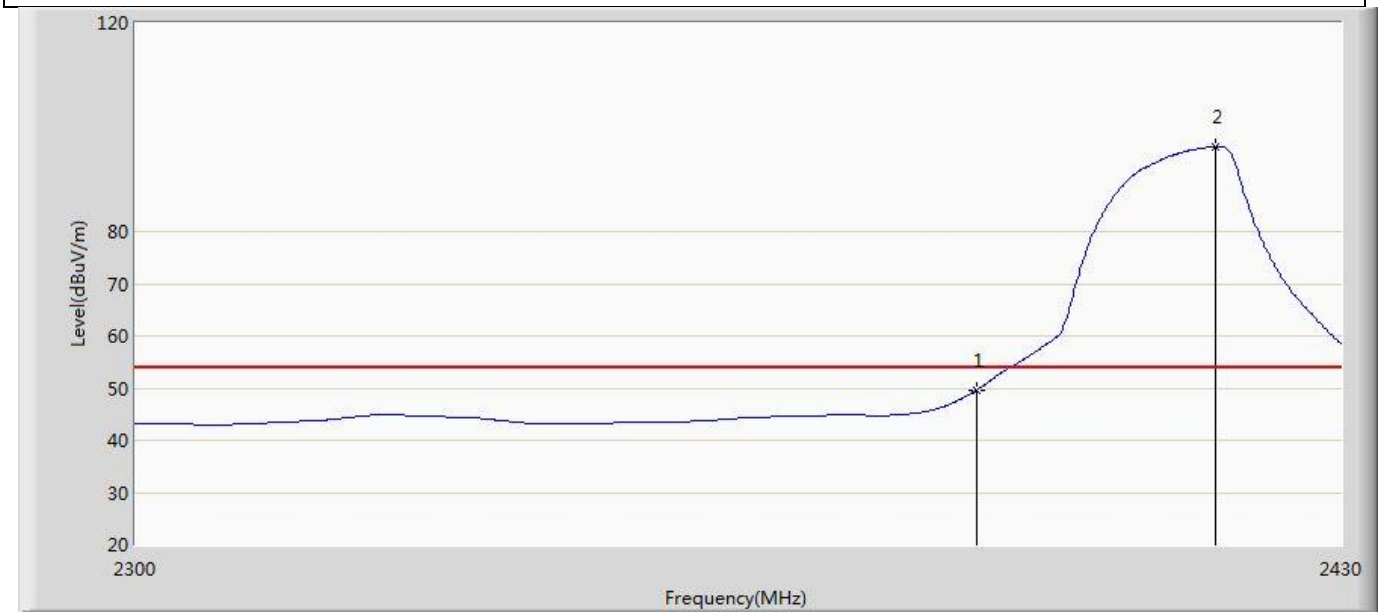
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	59.986	24.242	-14.014	74.000	35.745	PK
2	*	2405.170	99.162	62.860	N/A	N/A	36.302	PK

Profile:20A0599R	Page No.: 97
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:06
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 2:Transmit at 2412MHz by 802.11g	



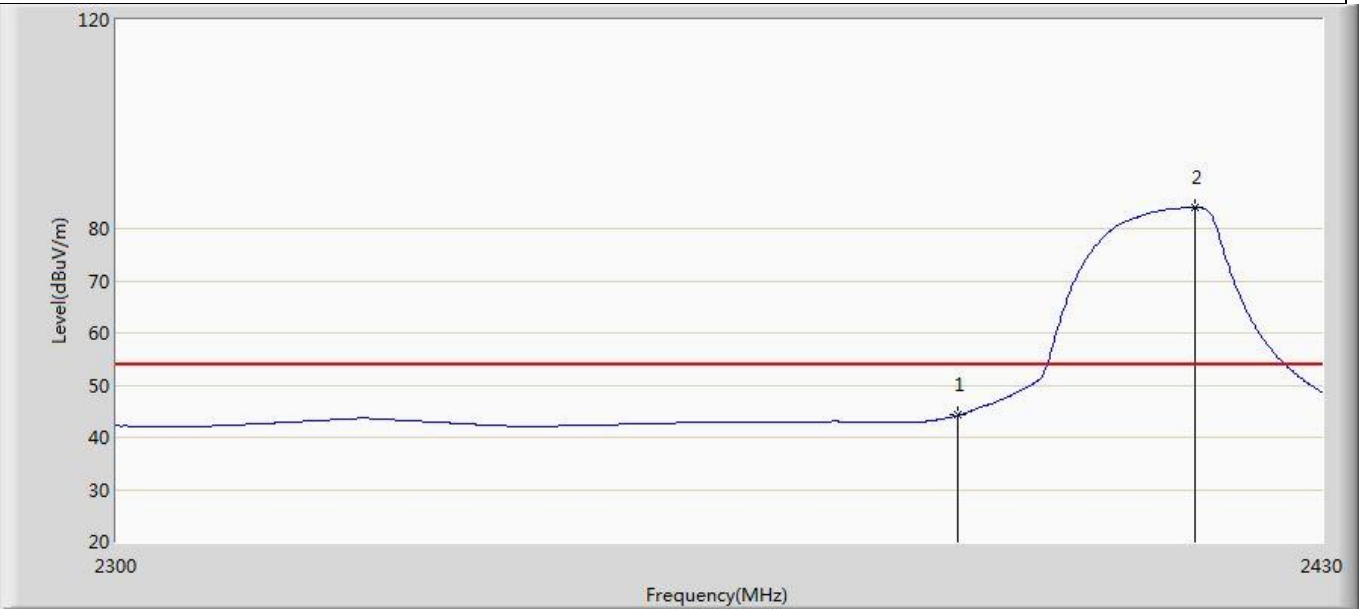
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	64.478	28.734	-9.522	74.000	35.745	PK
2	*	2418.300	104.943	68.280	30.943	74.000	36.663	PK

Profile:20A0599R	Page No.: 98
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:09
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 2412MHz by 802.11g	



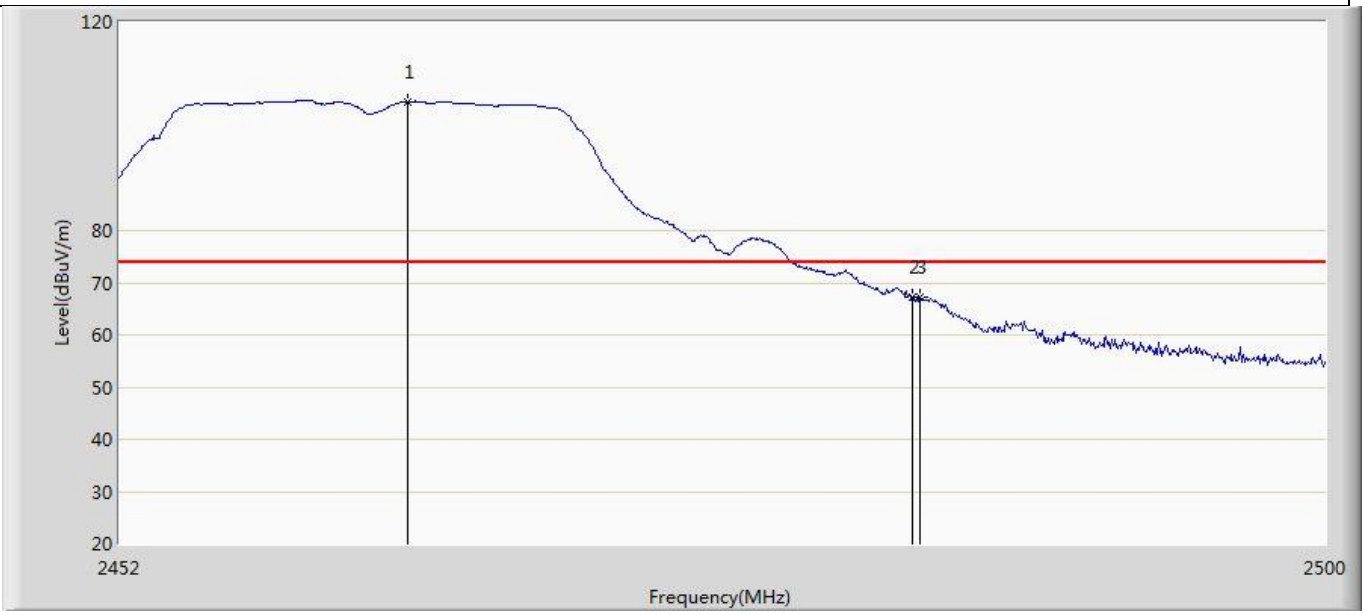
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.702	13.958	-4.298	54.000	35.745	AV
2	*	2416.220	96.274	59.592	N/A	N/A	36.683	AV

Profile:20A0599R	Page No.: 95
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:00
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 2412MHz by 802.11g	



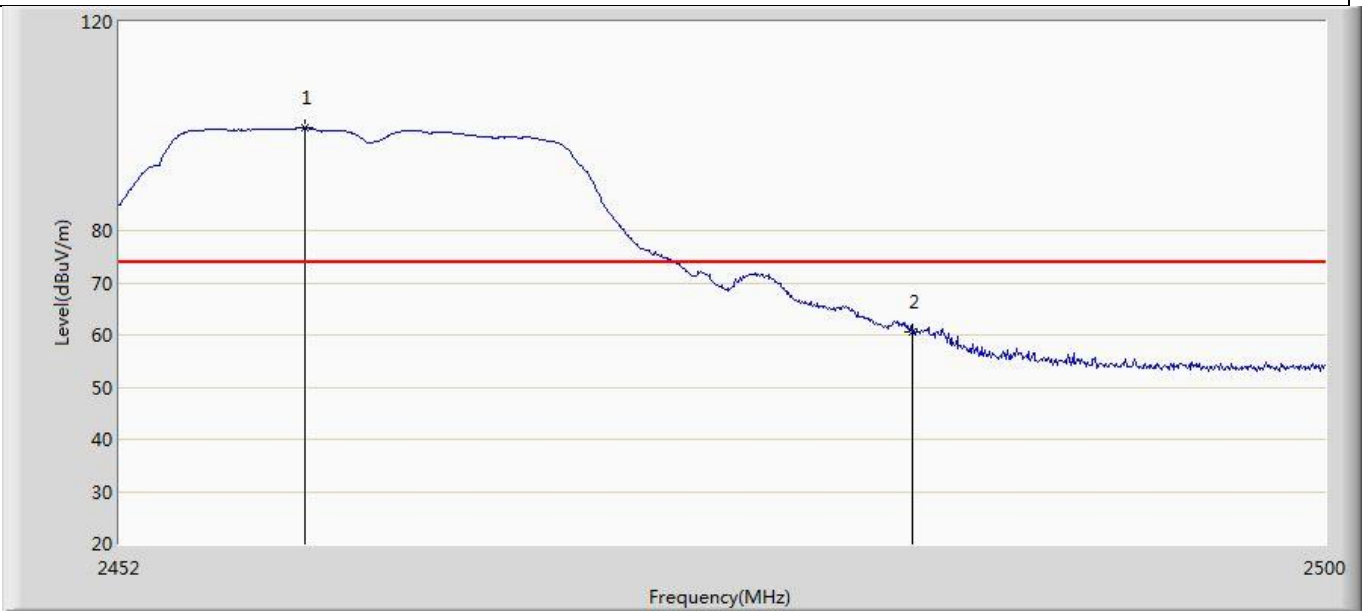
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.212	8.468	-9.788	54.000	35.745	AV
2	*	2415.960	83.976	47.291	N/A	N/A	36.685	AV

Profile:20A0599R	Page No.: 92
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:53
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 2462MHz by 802.11g	



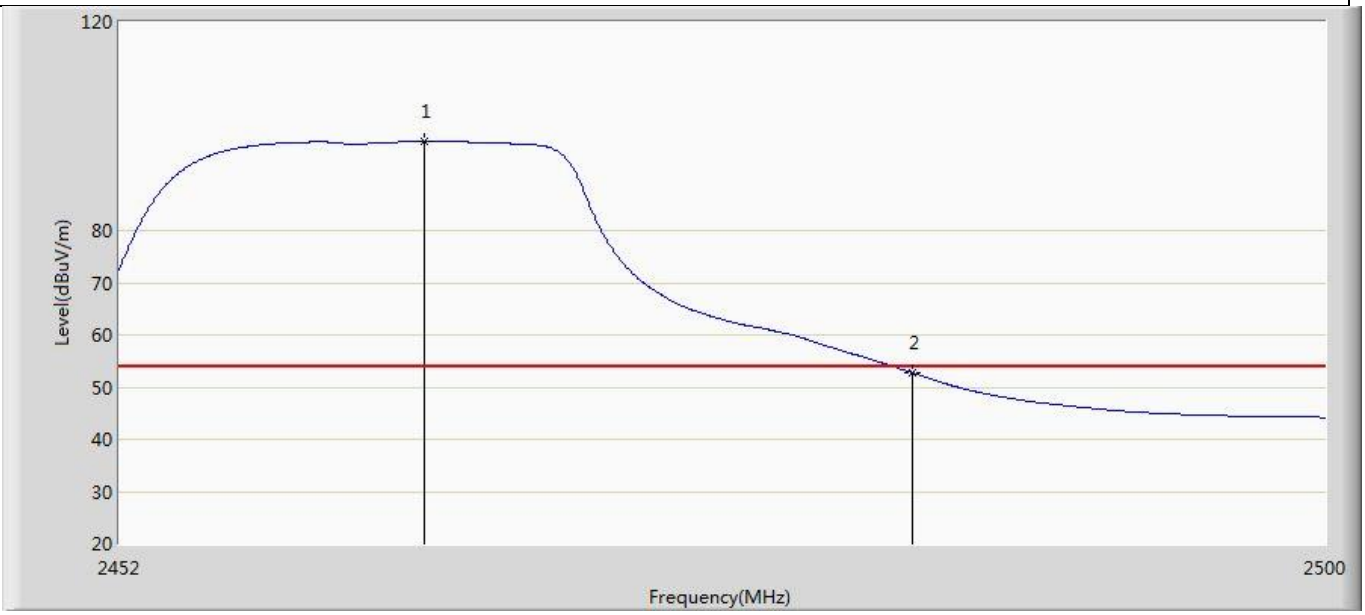
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.376	104.697	67.856	N/A	N/A	36.841	PK
2		2483.500	67.286	30.587	-6.714	74.000	36.699	PK
3		2483.776	67.155	30.466	-6.845	74.000	36.689	PK

Profile:20A0599R	Page No.: 93
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:55
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 2:Transmit at 2462MHz by 802.11g	



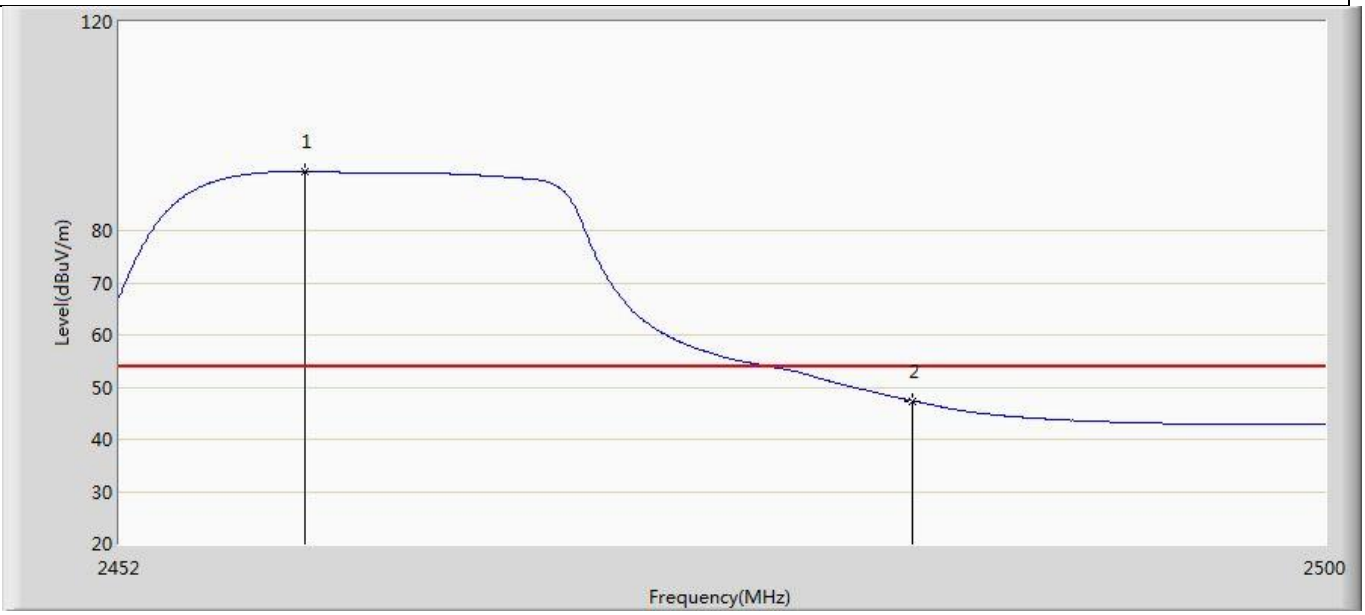
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2459.344	99.660	62.831	N/A	N/A	36.829	PK
2		2483.500	60.687	23.988	-13.313	74.000	36.699	PK

Profile:20A0599R	Page No.: 91
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:48
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 2462MHz by 802.11g	



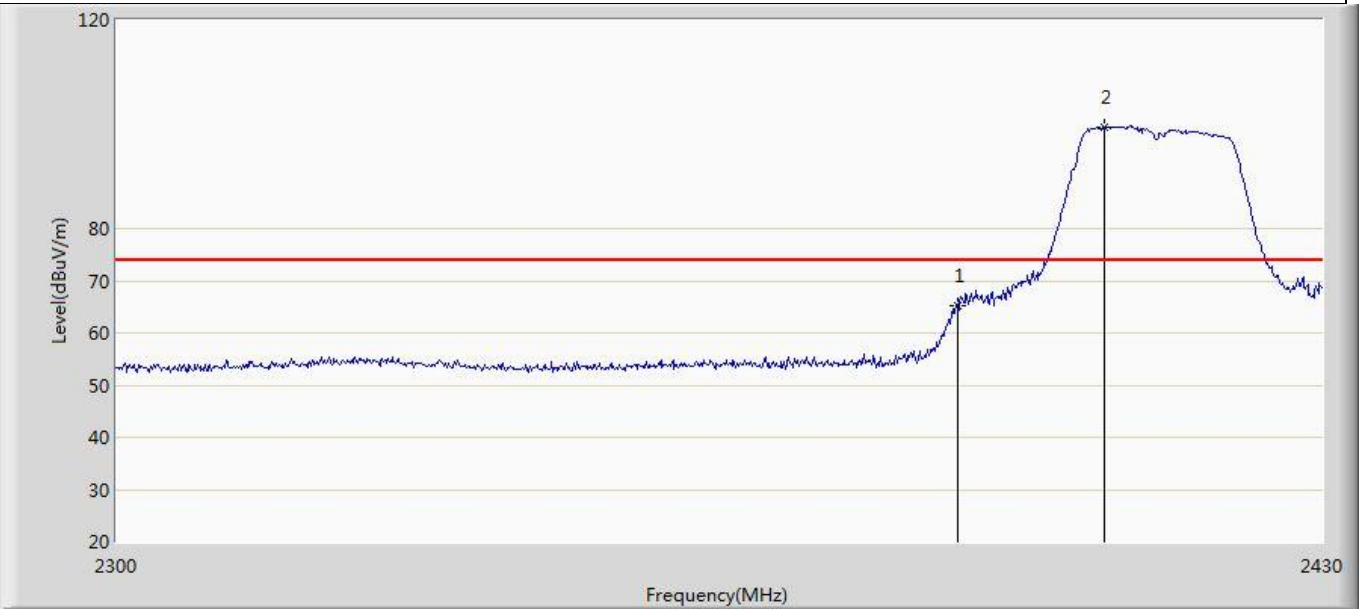
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.048	97.007	60.165	N/A	N/A	36.842	AV
2		2483.500	52.722	16.023	-1.278	54.000	36.699	AV

Profile:20A0599R	Page No.: 94
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 16:58
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 2462MHz by 802.11g	



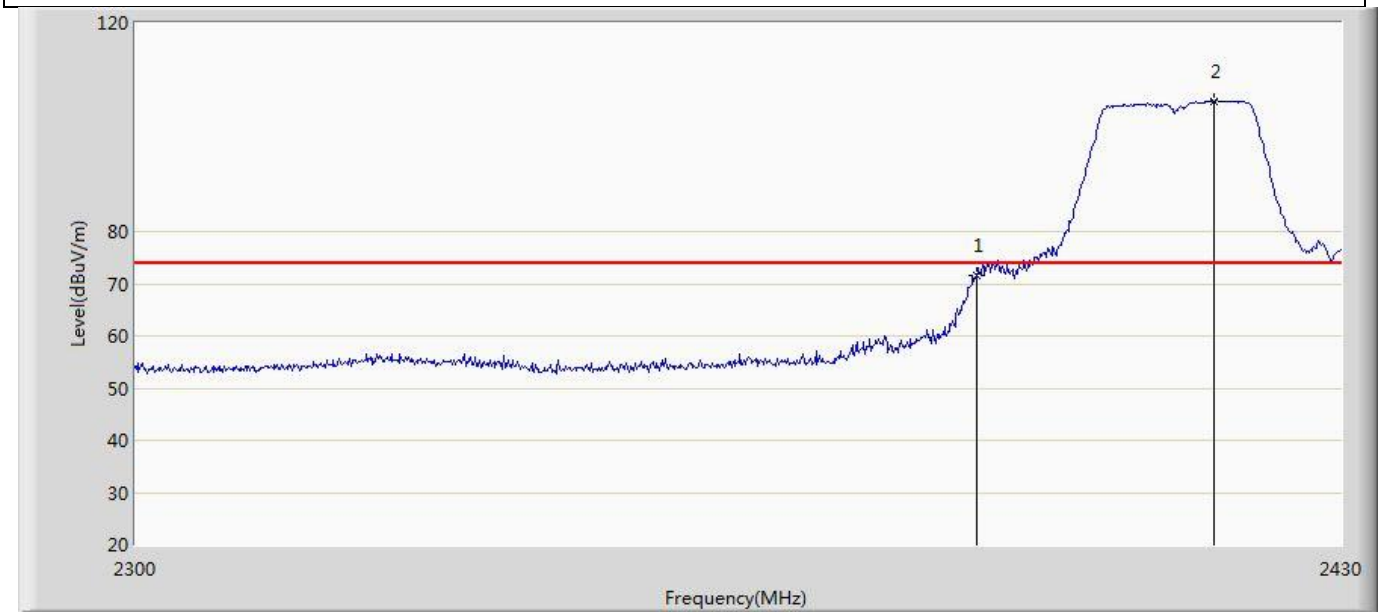
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2459.344	91.441	54.612	N/A	N/A	36.829	AV
2		2483.500	47.348	10.649	-6.652	54.000	36.699	AV

Profile:20A0599R	Page No.: 104
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:30
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 2412MHz by 802.11n(20MHz)	



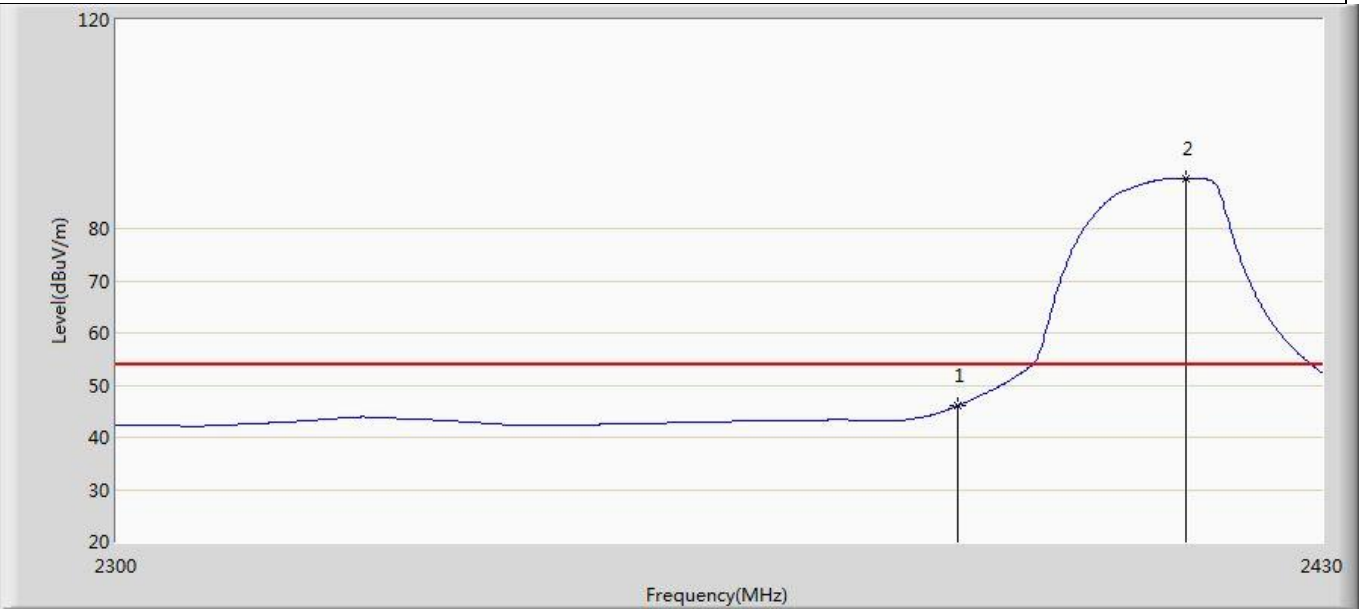
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	65.132	29.388	-8.868	74.000	35.745	PK
2	*	2405.950	99.427	63.068	N/A	N/A	36.359	PK

Profile:20A0599R	Page No.: 105
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:32
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 2412MHz by 802.11n(20MHz)	



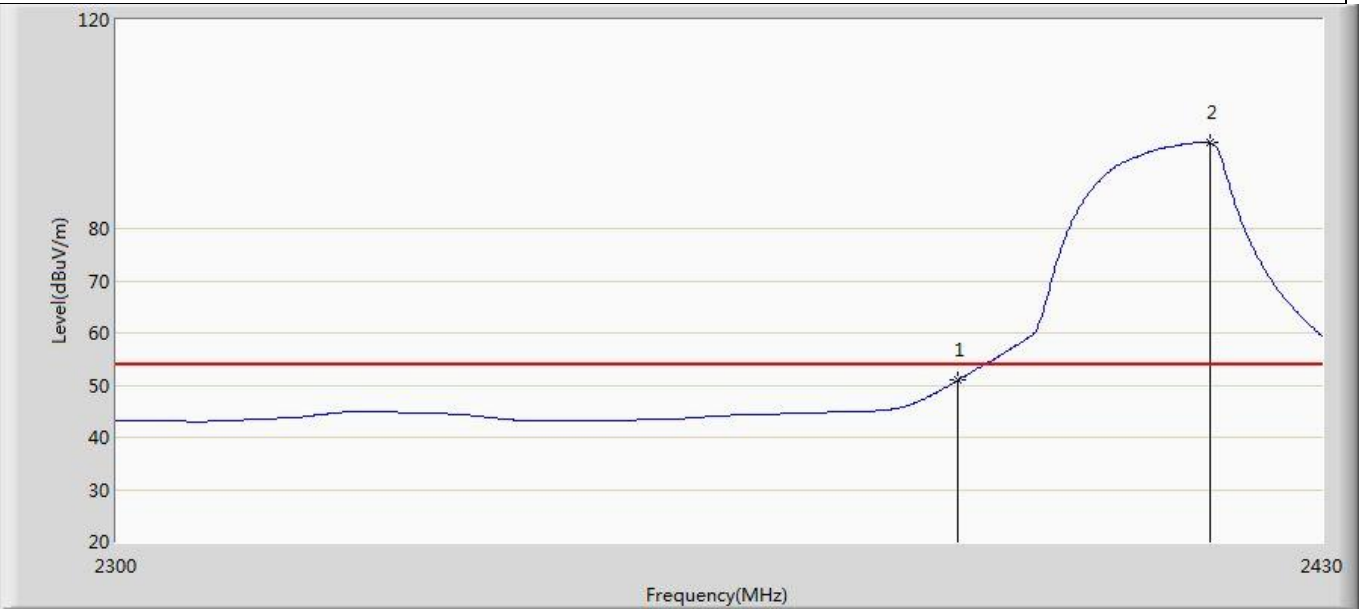
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	71.662	35.918	-2.338	74.000	35.745	PK
2	*	2415.960	104.956	68.271	N/A	N/A	36.685	PK

Profile:20A0599R	Page No.: 103
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:28
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 2412MHz by 802.11n(20MHz)	



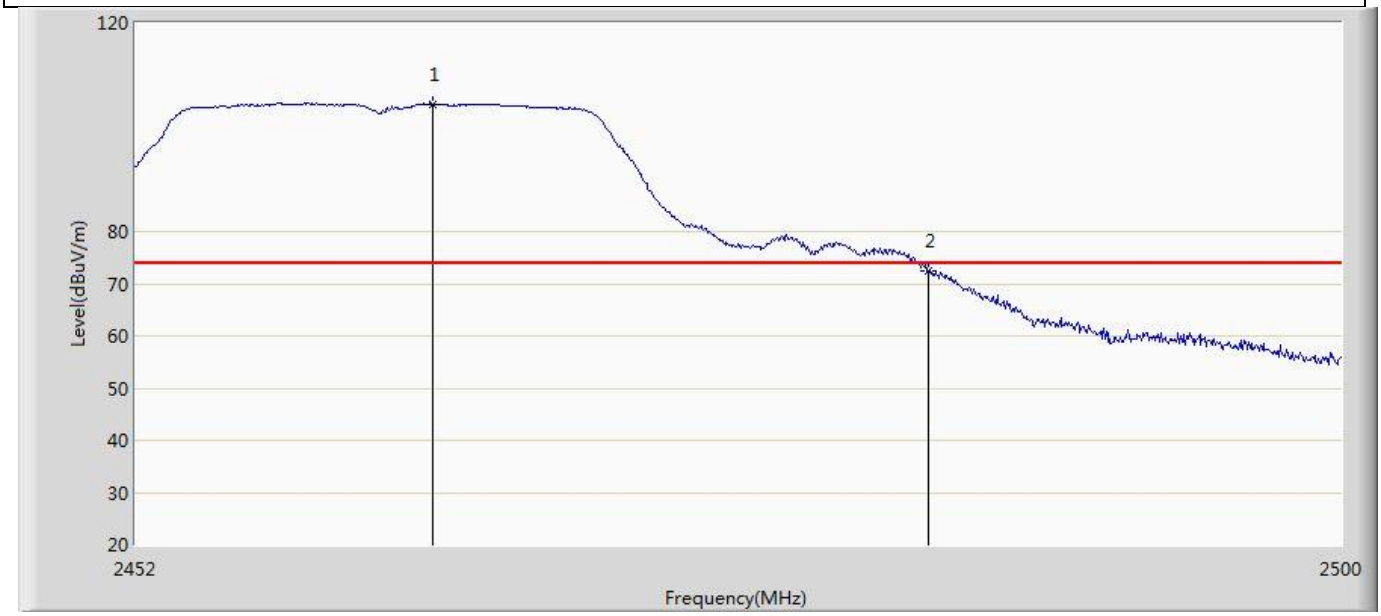
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	46.081	10.337	-7.919	54.000	35.745	AV
2	*	2414.920	89.681	52.986	N/A	N/A	36.694	AV

Profile:20A0599R	Page No.: 106
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:34
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 2412MHz by 802.11n(20MHz)	



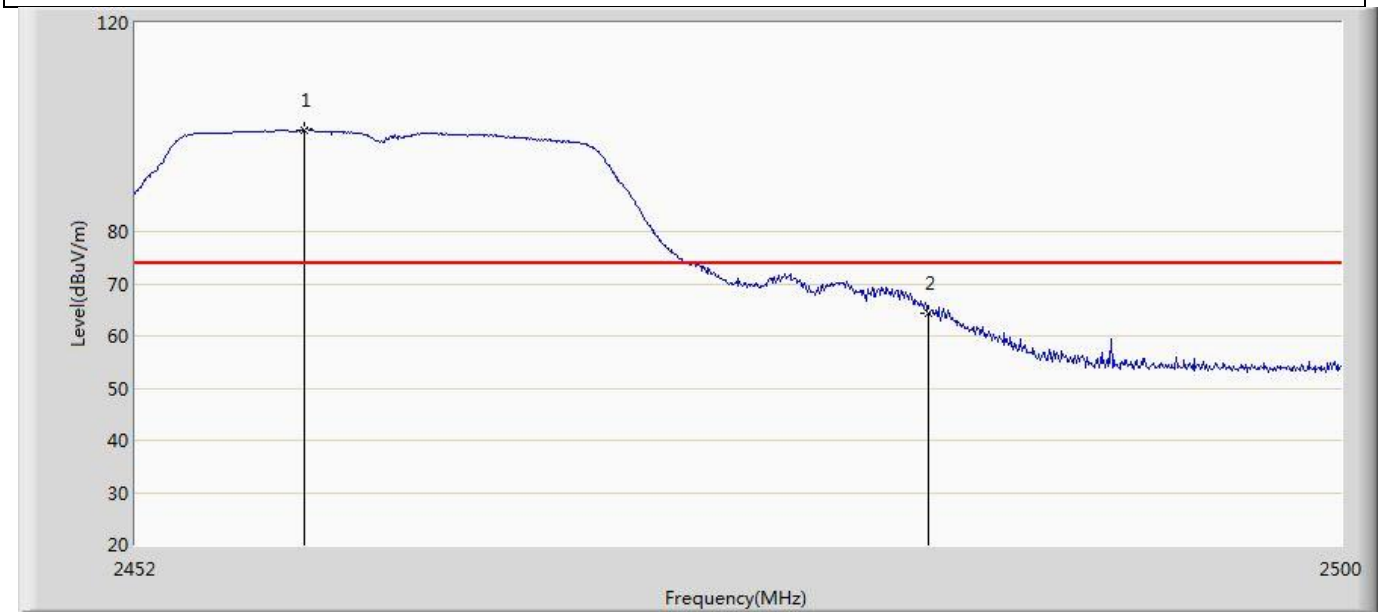
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.990	15.246	-3.010	54.000	35.745	AV
2	*	2417.650	96.382	59.713	N/A	N/A	36.669	AV

Profile:20A0599R	Page No.: 100
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:20
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 2462MHz by 802.11n(20MHz)	



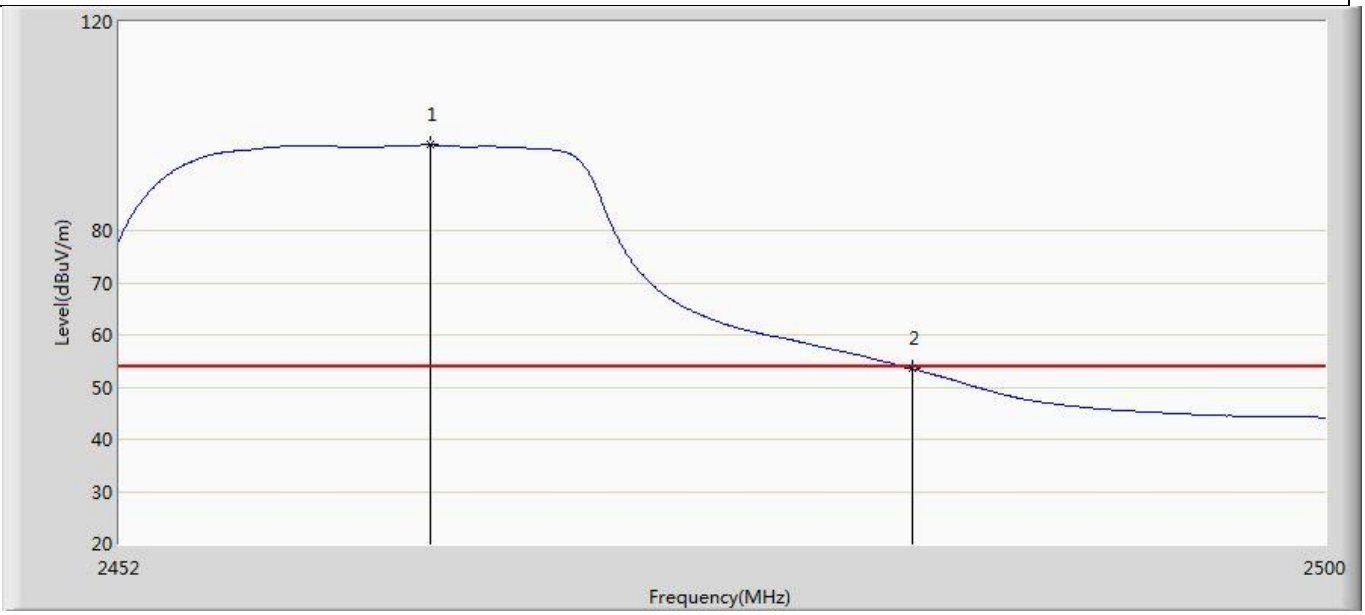
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.760	104.475	67.633	N/A	N/A	36.841	PK
2		2483.500	72.341	35.642	-1.659	74.000	36.699	PK

Profile:20A0599R	Page No.: 101
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:22
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 2462MHz by 802.11n(20MHz)	



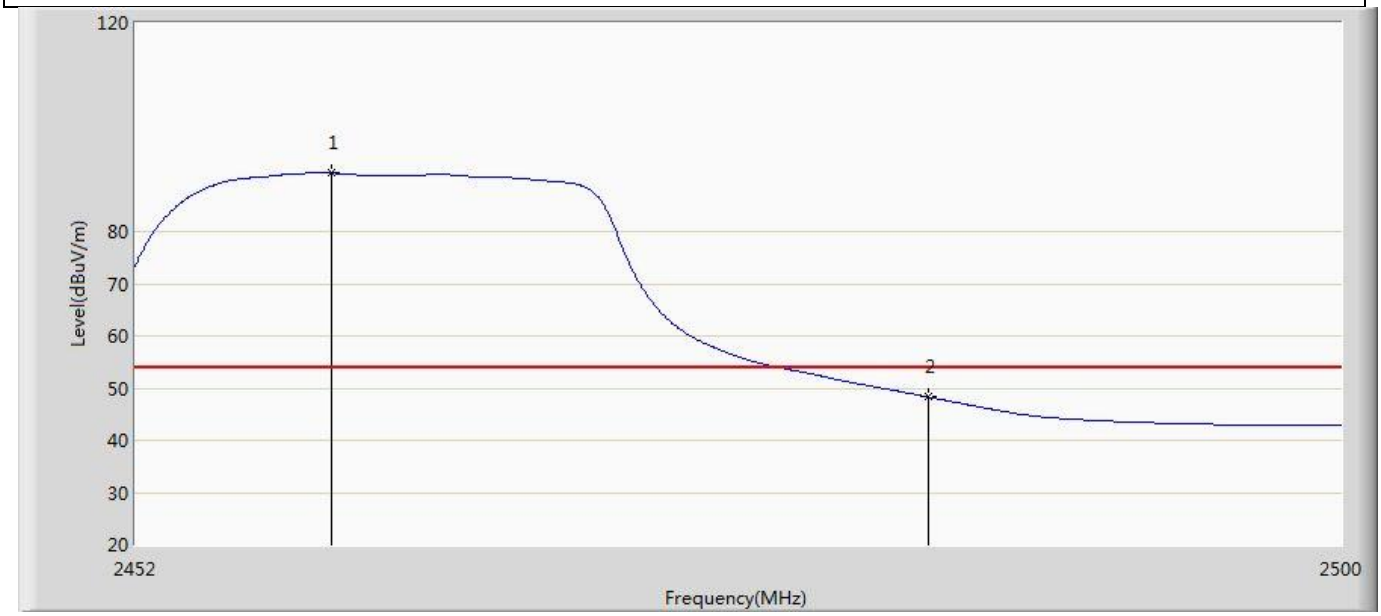
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.672	99.416	62.589	N/A	N/A	36.826	PK
2		2483.500	64.350	27.651	-9.650	74.000	36.699	PK

Profile:20A0599R	Page No.: 99
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:12
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 2462MHz by 802.11n(20MHz)	



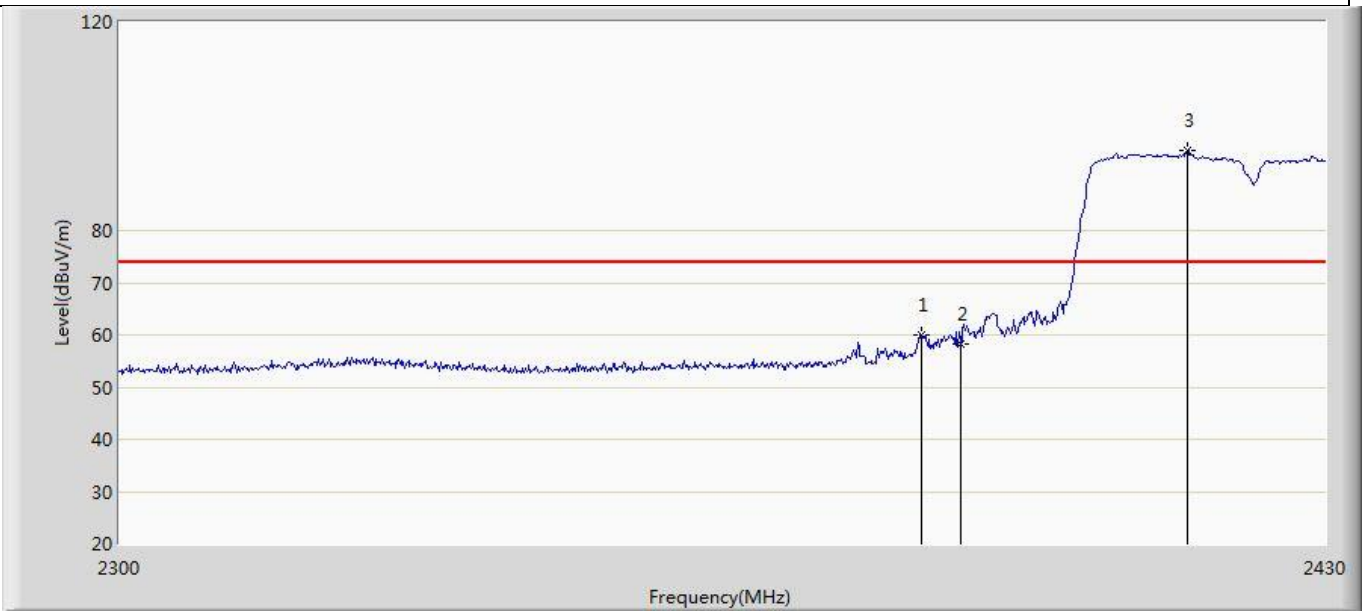
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.288	96.407	59.564	N/A	N/A	36.843	AV
2		2483.500	53.504	16.805	-0.496	54.000	36.699	AV

Profile:20A0599R	Page No.: 102
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:25
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 2462MHz by 802.11n(20MHz)	



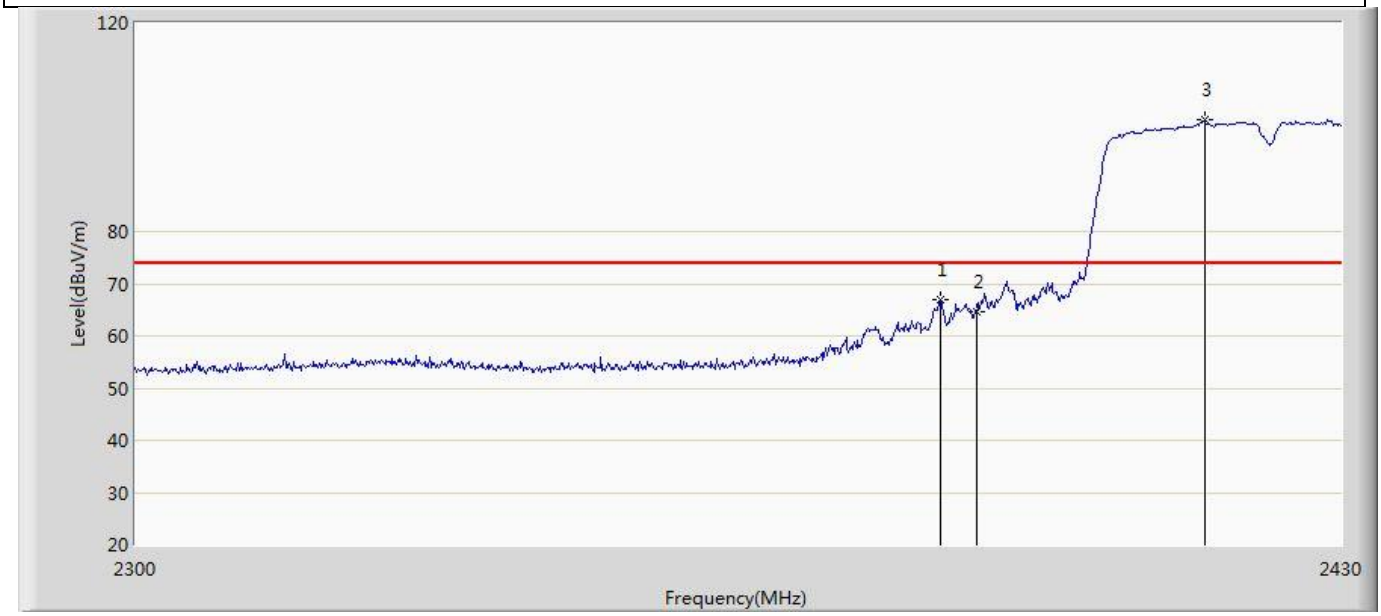
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2459.728	91.211	54.381	N/A	N/A	36.831	AV
2		2483.500	48.263	11.564	-5.737	54.000	36.699	AV

Profile:20A0599R	Page No.: 112
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 18:06
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 2422MHz by 802.11n(40MHz)	



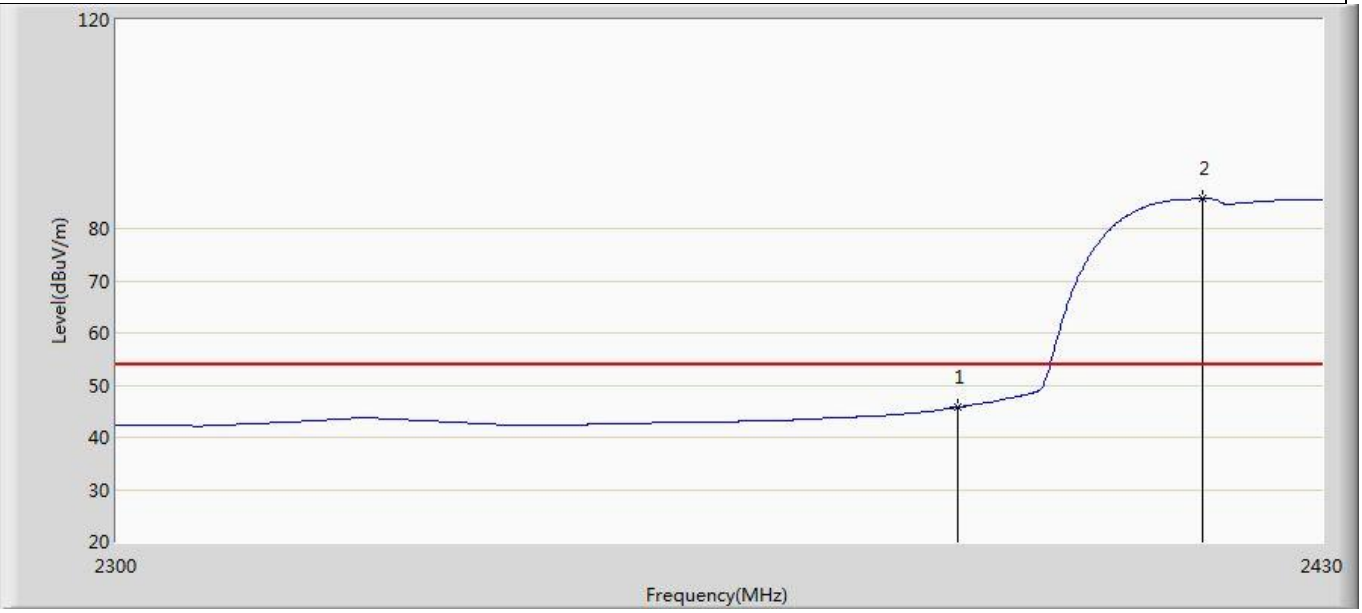
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2385.670	60.102	24.068	-13.898	74.000	36.033	PK
2		2390.000	58.367	22.623	-15.633	74.000	35.745	PK
3	*	2414.790	95.354	58.658	N/A	N/A	36.696	PK

Profile:20A0599R	Page No.: 113
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 18:08
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 2422MHz by 802.11n(40MHz)	



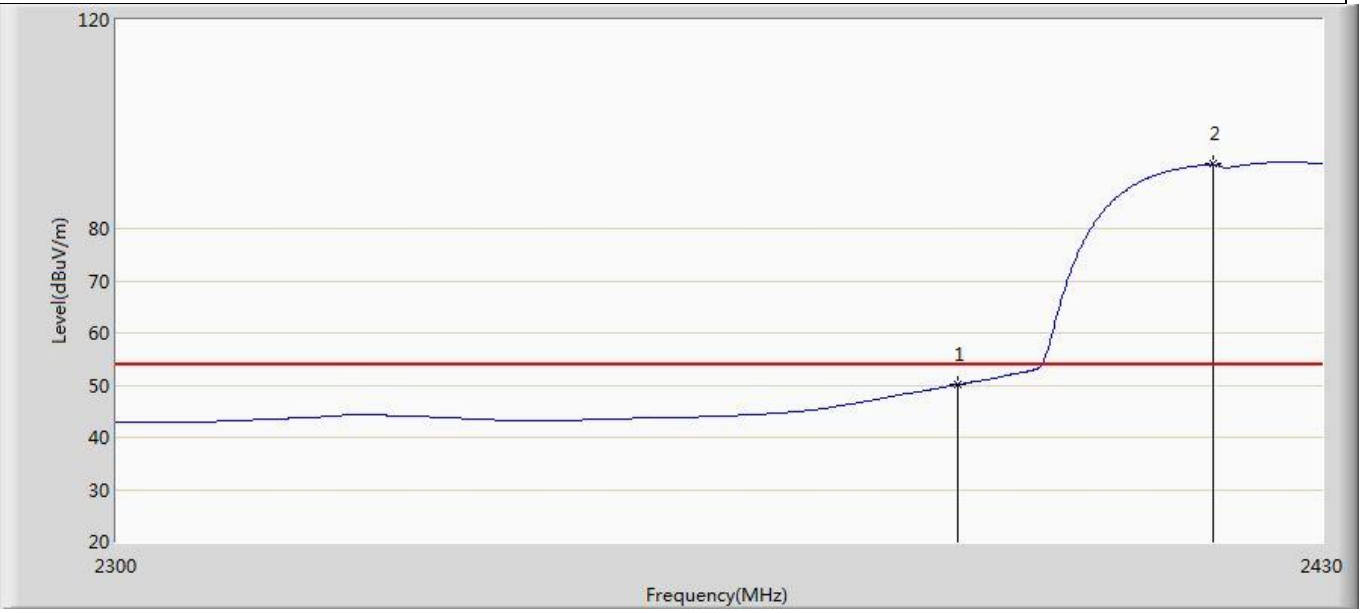
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2386.060	66.829	30.821	-7.171	74.000	36.007	PK
2		2390.000	64.780	29.036	-9.220	74.000	35.745	PK
3	*	2414.920	101.363	64.668	N/A	N/A	36.694	PK

Profile:20A0599R	Page No.: 111
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 18:03
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 4:Transmit at 2422MHz by 802.11n(40MHz)	



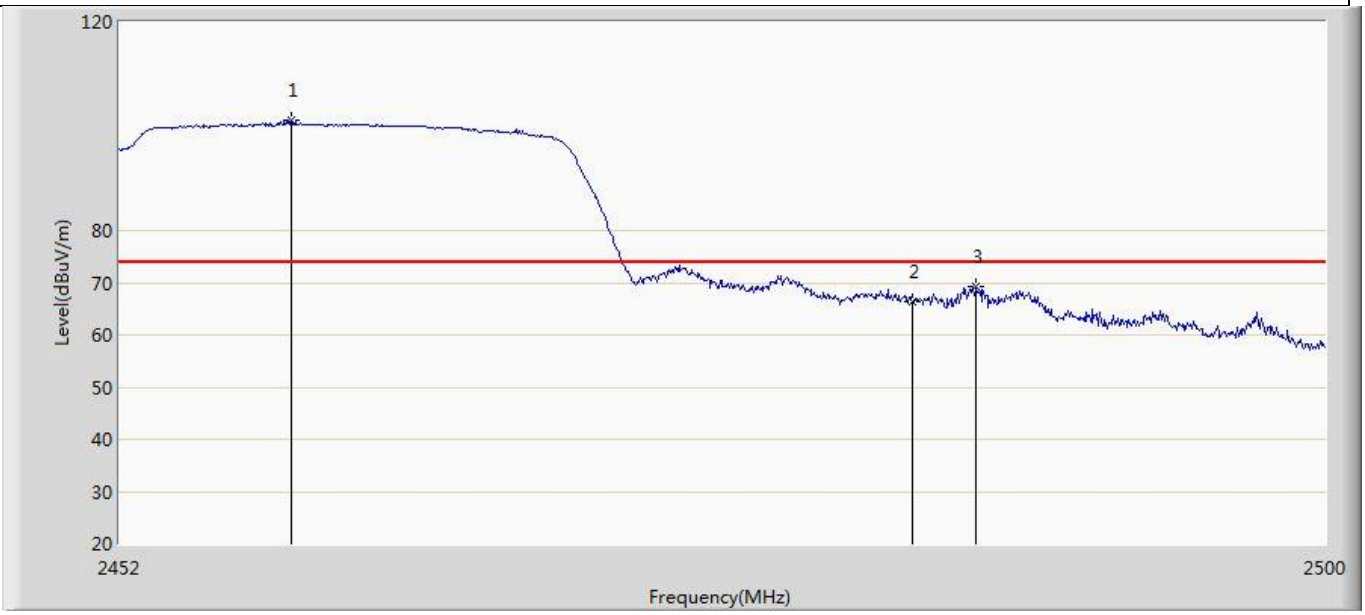
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.782	10.038	-8.218	54.000	35.745	AV
2	*	2416.870	85.683	49.007	N/A	N/A	36.677	AV

Profile:20A0599R	Page No.: 114
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 18:11
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 2422MHz by 802.11n(40MHz)	



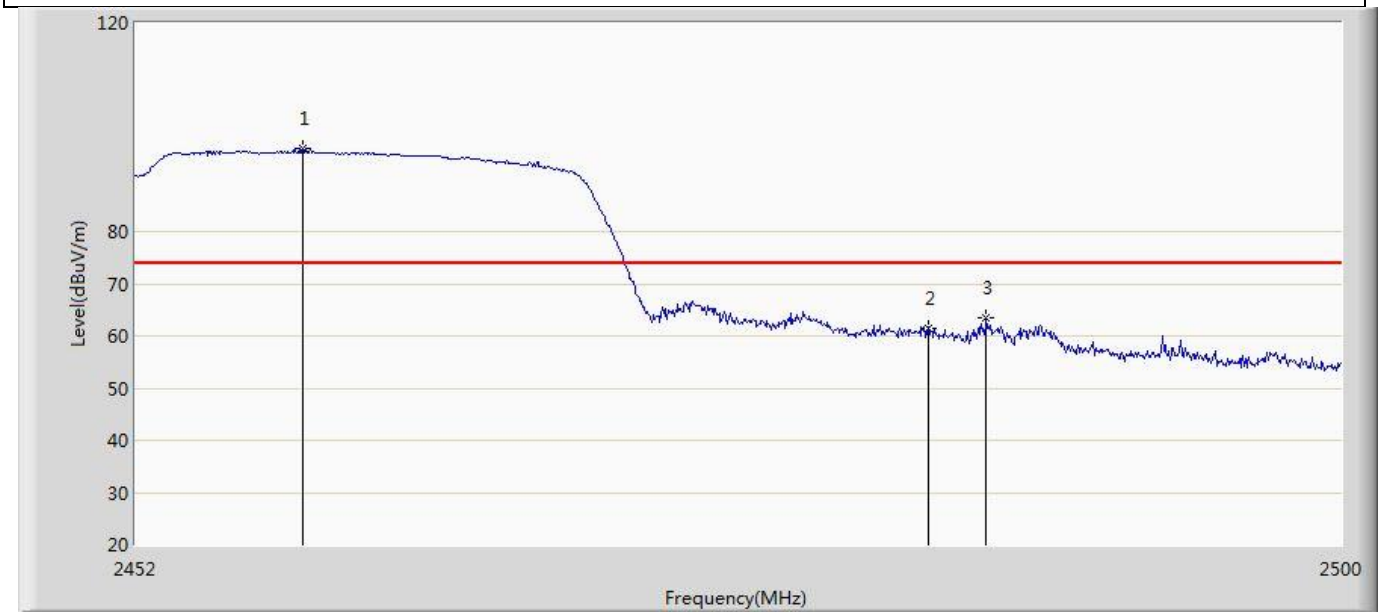
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.142	14.398	-3.858	54.000	35.745	AV
2	*	2417.910	92.326	55.660	N/A	N/A	36.666	AV

Profile:20A0599R	Page No.: 108
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:53
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 2452MHz by 802.11n(40MHz)	



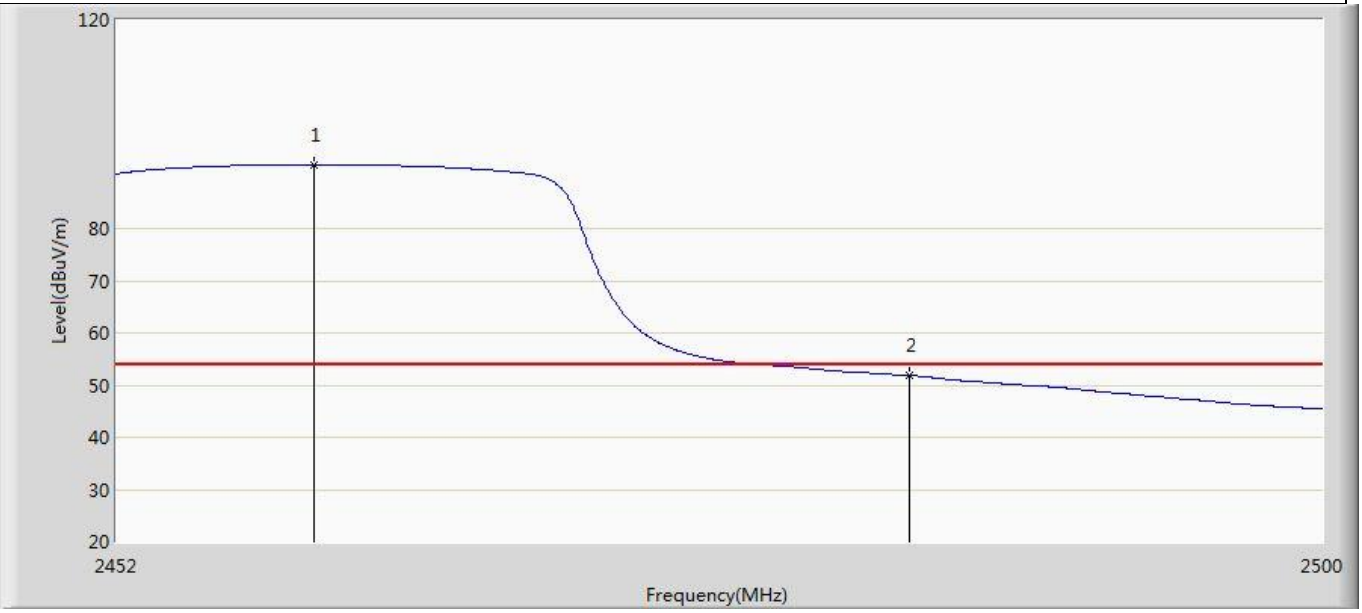
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.816	101.106	64.279	N/A	N/A	36.827	PK
2		2483.500	66.453	29.754	-7.547	74.000	36.699	PK
3		2486.032	69.258	32.653	-4.742	74.000	36.606	PK

Profile:20A0599R	Page No.: 109
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:56
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 2452MHz by 802.11n(40MHz)	



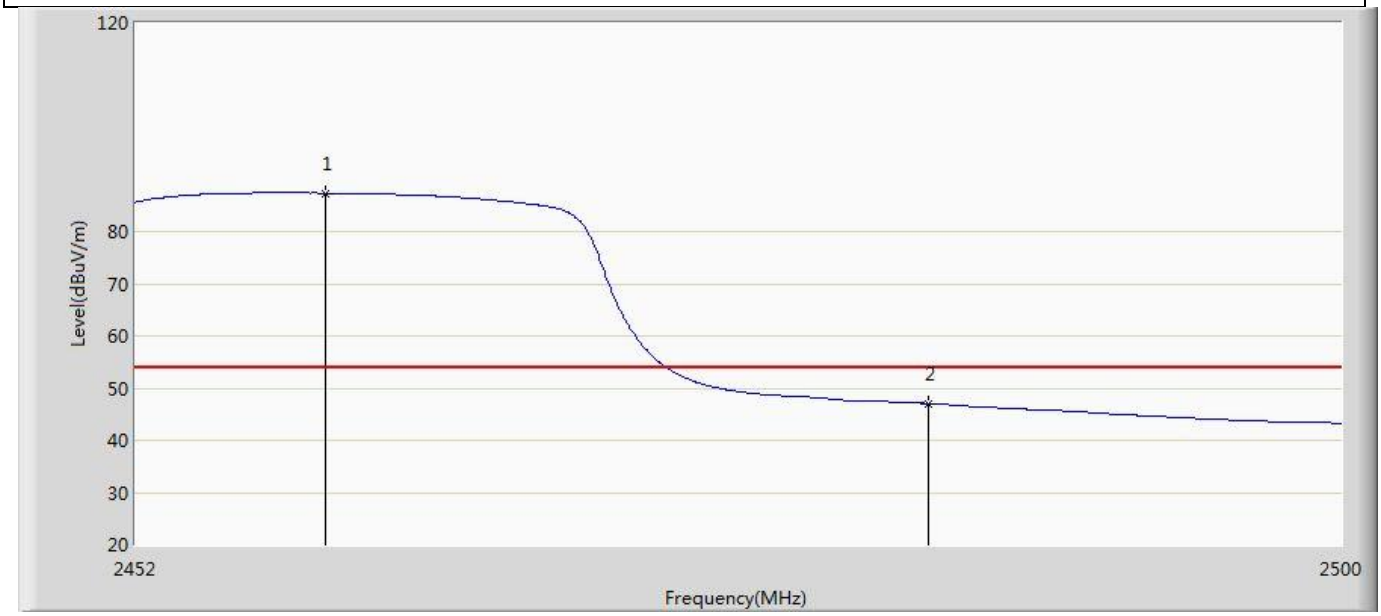
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.624	95.999	59.173	N/A	N/A	36.826	PK
2		2483.500	61.407	24.708	-12.593	74.000	36.699	PK
3		2485.792	63.357	26.743	-10.643	74.000	36.614	PK

Profile:20A0599R	Page No.: 107
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:36
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 2452MHz by 802.11n(40MHz)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2459.824	92.214	55.383	N/A	N/A	36.831	AV
2		2483.500	51.838	15.139	-2.162	54.000	36.699	AV

Profile:20A0599R	Page No.: 110
Engineer: Tongben	
Site: AC5	Time: 2020/11/08 - 17:59
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 2452MHz by 802.11n(40MHz)	



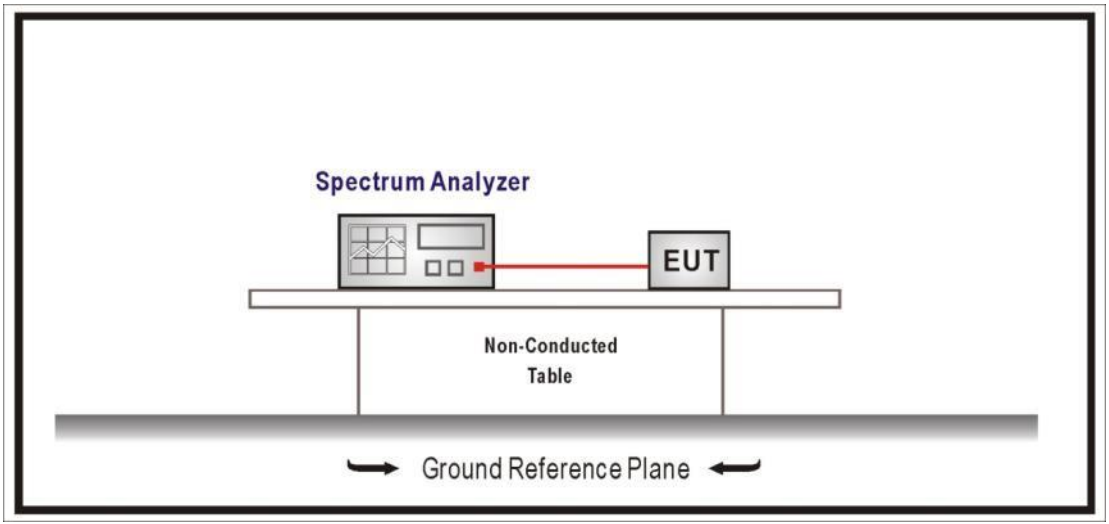
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2459.488	87.381	50.551	N/A	N/A	36.830	AV
2		2483.500	47.051	10.352	-6.949	54.000	36.699	AV

Remark	1. " * ", means this data is the worst emission level. 2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4.5 DTS Bandwidth	VERDICT: PASS

4.5.1 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	
Standard	ANSI C63.10 Paragraph 6.7
The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs. The occupied bandwidth should within the required frequency range.	

4.5.2 Test Setup



4.5.3 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
☒	ANSI C63.10		6.9	Occupied bandwidth
	☐	ANSI C63.10	6.9.2	relative measurement procedure
	☒	ANSI C63.10	6.9.3	power bandwidth (99%) measurement procedure

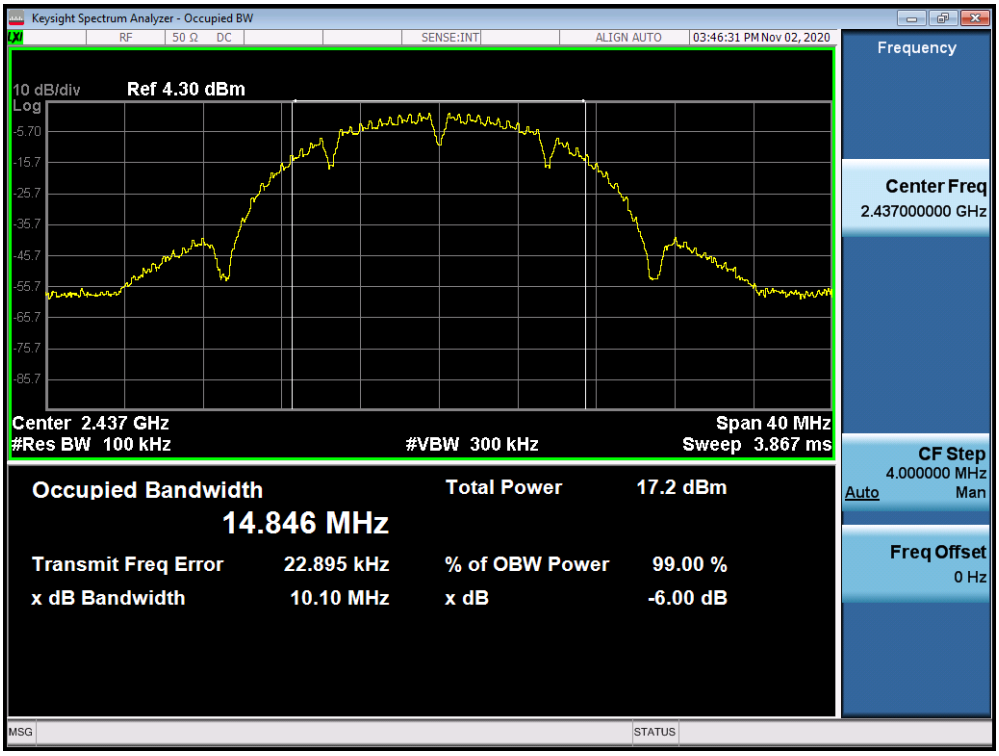
4.5.4 Test Data

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
1	1	2412	10.10	≥500	Pass
	6	2437	10.10	≥500	Pass
	11	2462	10.10	≥500	Pass
2	1	2412	16.55	≥500	Pass
	6	2437	16.58	≥500	Pass
	11	2462	16.56	≥500	Pass
3	1	2412	17.71	≥500	Pass
	6	2437	17.73	≥500	Pass
	11	2462	17.72	≥500	Pass
4	3	2422	36.40	≥500	Pass
	6	2437	36.40	≥500	Pass
	9	2452	36.38	≥500	Pass

Note : The worst case of Occupied Bandwidth as below in next page:

6dB Occupied Bandwidth

Mode 1 CH06 (2437MHz)

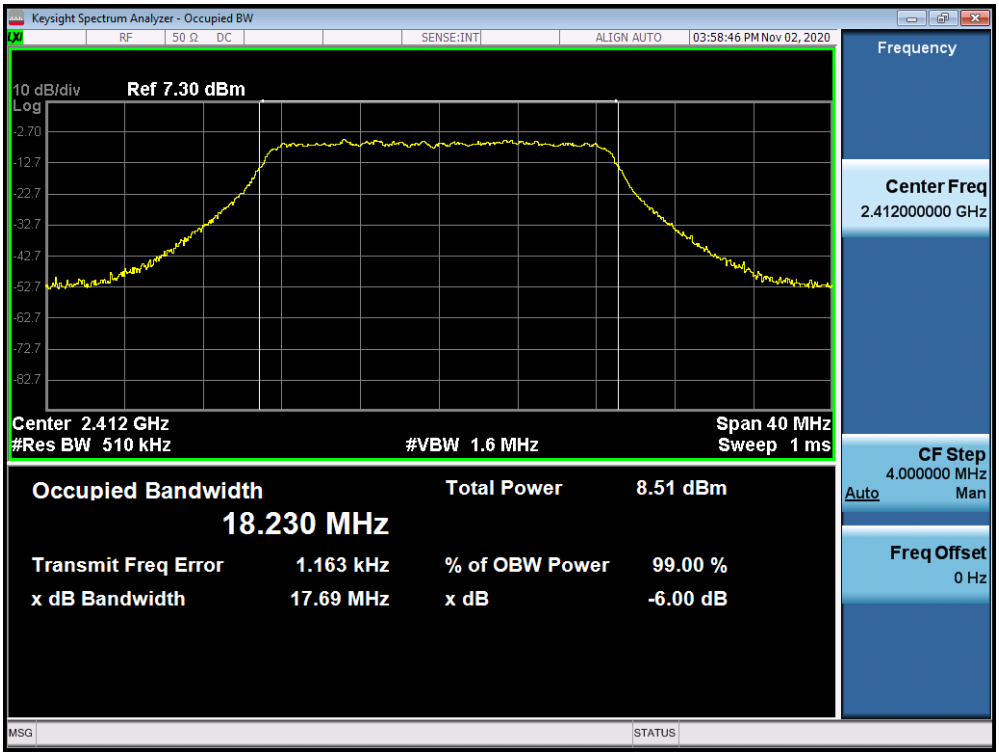


Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
1	1	2412	14.847	Within frequency range	Pass
	6	2437	14.845	Within frequency range	Pass
	11	2462	14.844	Within frequency range	Pass
2	1	2412	17.333	Within frequency range	Pass
	6	2437	17.308	Within frequency range	Pass
	11	2462	17.335	Within frequency range	Pass
3	1	2412	18.230	Within frequency range	Pass
	6	2437	18.209	Within frequency range	Pass
	11	2462	18.244	Within frequency range	Pass
4	3	2422	35.805	Within frequency range	Pass
	6	2437	35.812	Within frequency range	Pass
	9	2452	35.800	Within frequency range	Pass

Note : The worst case of Occupied Bandwidth as below in next page:

99% Occupied Bandwidth

Mode 3 CH01 (2412MHz)



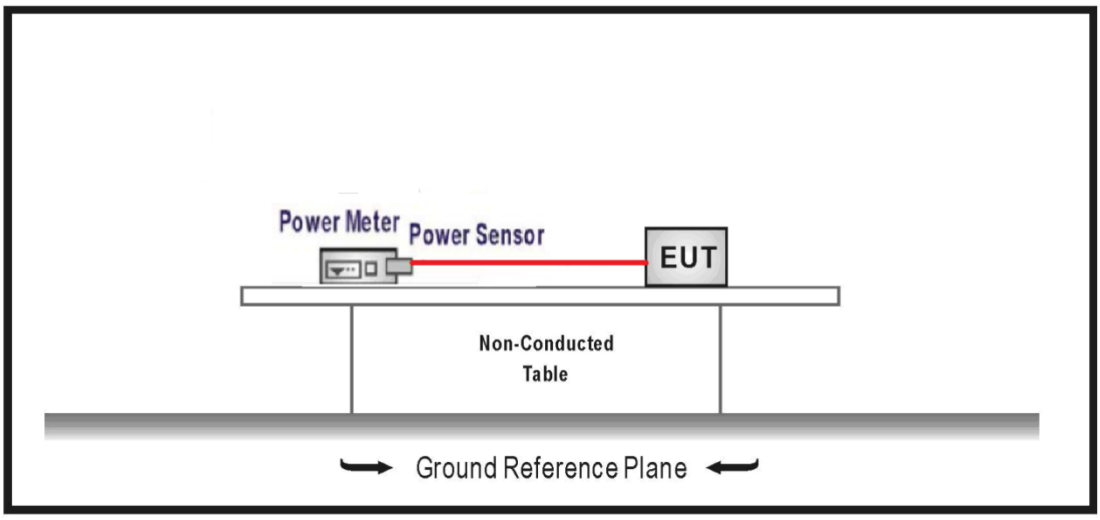
4.6 Fundamental emission output power	VERDICT: PASS

4.6.1 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 .

4.6.2 Test Setup



4.6.3 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

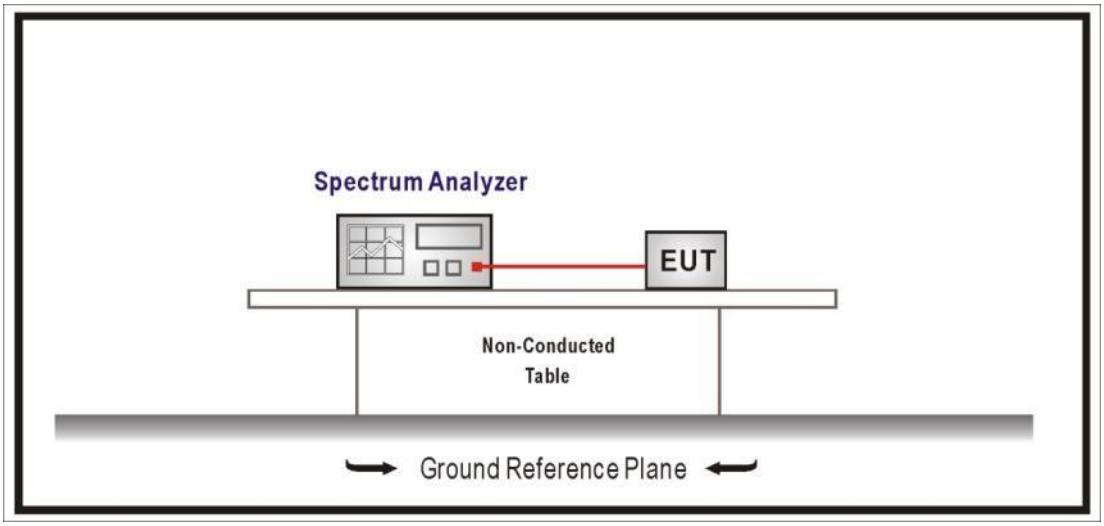
4.6.4 Test Data

Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Conducted Limit (dBm)	Result
1	1	2412	21.16	30.00	Pass
	6	2437	21.28	30.00	Pass
	11	2462	21.47	30.00	Pass
2	1	2412	21.14	30.00	Pass
	6	2437	21.21	30.00	Pass
	11	2462	21.35	30.00	Pass
3	1	2412	21.18	30.00	Pass
	6	2437	21.31	30.00	Pass
	11	2462	21.65	30.00	Pass
4	3	2422	19.90	30.00	Pass
	6	2437	19.89	30.00	Pass
	9	2452	20.06	30.00	Pass

4.7 Power Density	VERDICT: PASS

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

4.7.2 Test Setup



4.7.3 Test Procedure

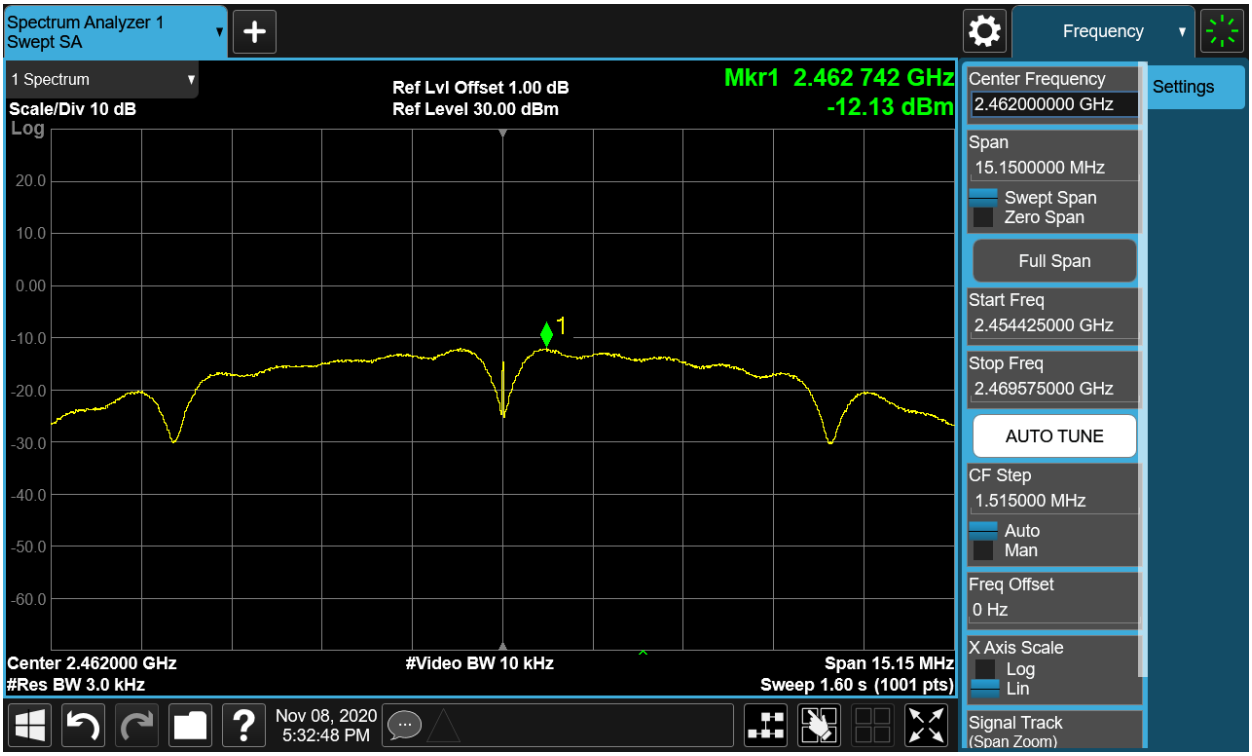
	References Rule		Chapter	Description
☒	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	☐	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	☒	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle≥98%)
	☒	ANSI C63.10	11.10.5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

4.7.4 Test Data

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	1	2412	-12.83	≤8	Pass
	6	2437	-12.20	≤8	Pass
	11	2462	-12.13	≤8	Pass
2	1	2412	-14.89	≤8	Pass
	6	2437	-14.54	≤8	Pass
	11	2462	-14.26	≤8	Pass
3	1	2412	-14.73	≤8	Pass
	6	2437	-14.54	≤8	Pass
	11	2462	-14.23	≤8	Pass
4	3	2422	-14.84	≤8	Pass
	6	2437	-14.68	≤8	Pass
	9	2452	-14.41	≤8	Pass

Remark 1: The worst case of PSD as below:

Mode 1 / CH11 / 2462MHz



4.8 Antenna Requirement	VERDICT: PASS

4.8.1 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.	

4.8.2 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.	

4.9 Test setup photo and EUT Photo	VERDICT: PASS

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

The End