



Test report No:  
2231094R-RF-US-P06V01

## FCC & ISED TEST REPORT

Product Name	LED lamp
Trademark	PHILIPS
Model and /or type reference	9290031516, 9290031517, 9290031518, 9290031519, 9290031520
FCC ID	2AGBW9290031516X, 2AGBW9290031517X, 2AGBW9290031518X, 2AGBW9290031519X, 2AGBW9290031520X
IC	20812-31516X, 20812-31517X, 20812-31518X, 20812-31519X, 20812-31520X
Applicant's name / address	Signify (China) investment Co., Ltd Building No.9, Lane 888, Tianlin Road, Minhang district, 200233 Shanghai, China
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
Documented by (name / position & signature)	Tim Cao/Project Engineer 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2022-06-07
Report Version	V1.0
Report template No	Template_FCC Part 15C-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)	Mar. 31, 2022
Date (start test)	Apr. 01, 2022
Date (finish test)	Apr. 26, 2022

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
2231094R-RF-US-P06V01	V1.0	Initial issue of report.	2022-06-07

## 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 Informaion;
  - 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	2021.04.28	2022.04.27
Two-Line V-Network	R&S	ENV216	101044	2021.03.20	2022.03.19
Two-Line V-Network	R&S	ENV216	101044	2022.03.12	2023.03.11
50ohm Termination	SHX	TF2	7081402	2021.09.04	2022.09.03
50ohm Termination	SHX	TF2	7081403	2021.09.04	2022.09.03
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2021.07.09	2022.07.08
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	2021.07.11	2022.07.10
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2021.08.12	2022.08.11
Coaxial Cable	Woken	A50-SMAMSMAM-1m	20111443	2021.06.10	2022.06.09
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2021.07.09	2022.07.08
Dekra test software	Dekra	-	-	-	-

### Radiated Emission(30MHz-1GHz) / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100176	2021.08.15	2022.08.14
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9168	1231	2021.04.19	2022.04.18
Coaxial Cable	Huber+Suhner	RG 214	AC3-C	2021.03.31	2022.03.30
Coaxial Cable	Huber+Suhner	RG 214	AC3-C	2022.03.12	2023.03.11
Temperature/Humidity Meter	RTS	RTS-8S	AC3-TH	2021.11.23	2022.11.22
Dekra test software	Dekra	-	-	-	-

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

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
MXA Signal Analyzer	Keysight	N9020B	MY60112218	2022.01.09	2023.01.08
Amplifier	Keleto	LNPA	SK20190225	2021.09.26	2022.09.25
Pre-Amplifier	EMCI	EMC184045SE	980263	2021.05.22	2022.05.21
DRG Horn Antenna	ETS-Lindgren	3117	167055	2021.08.06	2022.08.05
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2021.04.19	2022.04.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2021.03.31	2022.03.30
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2022.03.12	2023.03.11
Coaxial Cable	ROSENBERGER	LA1-C011- 2000/3000	AC5-40G	2021.05.22	2022.05.21
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2021.11.23	2022.11.22
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% .

Test item	Uncertainty
AC Power Line Conducted Emission	9kHz~150kHz: 2.80dB 150kHz~30MHz: 2.40dB
Peak Power Output	$\pm 1.27$ 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	$\pm 1.27$ dB
Radiated Emission Band Edge	$\pm 3.9$ dB
DTS Bandwidth	$\pm 150$ Hz
Occupied Bandwidth	$\pm 1$ kHz
Power Density	$\pm 1.27$ dB

# 1 GENERAL INFORMATION

## 1.1 General Description of the Item(s)

Product Name..... :	LED lamp
Model No. .... :	9290031516, 9290031517, 9290031518, 9290031519, 9290031520
Trademark ..... :	PHILIPS
FCC ID ..... :	2AGBW9290031516X, 2AGBW9290031517X, 2AGBW9290031518X, 2AGBW9290031519X, 2AGBW9290031520X
IC..... :	20812-31516X, 20812-31517X, 20812-31518X, 20812-31519X, 20812-31520X
Manufacturer..... :	Signify (China) investment Co., Ltd
Manufacturer Address..... :	Building No.9, Lane 888, Tianlin Road, Minhang district, 200233 Shanghai, China
Model Difference(s)..... :	All models are identical except different model name and each models have two type of lamp chimney.

Wireless specification..... :	BLE 5.0
Operating frequency range(s)	2402~2480MHz
Type of Modulation..... :	GFSK
PHYS ..... :	<input checked="" type="checkbox"/> LE 1M <input checked="" type="checkbox"/> LE 2M <input checked="" type="checkbox"/> LE Coded S=2/8
Data Rate ..... :	<input checked="" type="checkbox"/> 1Mbit/s <input checked="" type="checkbox"/> 2Mbit/s <input checked="" type="checkbox"/> 500/125 Kbit/s
Number of channel..... :	40

Rated power supply .....	Voltage and Frequency	
	<input type="checkbox"/>	AC: 220 – 240 V, 50/60 Hz
	<input checked="" type="checkbox"/>	AC: 110 – 130 V, 50/60 Hz
	<input type="checkbox"/>	DC: .....
	<input type="checkbox"/>	Battery: .....
	<input type="checkbox"/>	PoE: .....
Mounting position..... :	<input type="checkbox"/>	Table top equipment
	<input checked="" type="checkbox"/>	Wall/Ceiling mounted equipment
	<input type="checkbox"/>	Floor standing equipment
	<input type="checkbox"/>	Hand-held equipment
	<input type="checkbox"/>	Other: .....

## 1.2 Antenna Information

Antenna model / type number.....:	N/A		
Antenna serial number .....	N/A		
Antenna Delivery .....	<input checked="" type="checkbox"/>	1TX + 1RX	
	<input type="checkbox"/>	2TX + 2RX	
	<input type="checkbox"/>	Others:.....	
Antenna technology.....:	<input checked="" type="checkbox"/>	SISO	
	<input type="checkbox"/>	MIMO	<input type="checkbox"/> CDD
			<input type="checkbox"/> Beam-forming
Antenna Type.....:	<input type="checkbox"/>	External	<input type="checkbox"/> Dipole
			<input type="checkbox"/> Sectorized
			<input type="checkbox"/> Ceramic Chip
	<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/> PIFA
			<input checked="" type="checkbox"/> PCB
			<input type="checkbox"/> Metal
			<input type="checkbox"/> Others.....
Antenna Gain.....:	0.32 dBi		

### 1.3 Channel List

Bluetooth Working Frequency of Each Channel: (For LE)							
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 , antenna information and Channel List for the EUT 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.

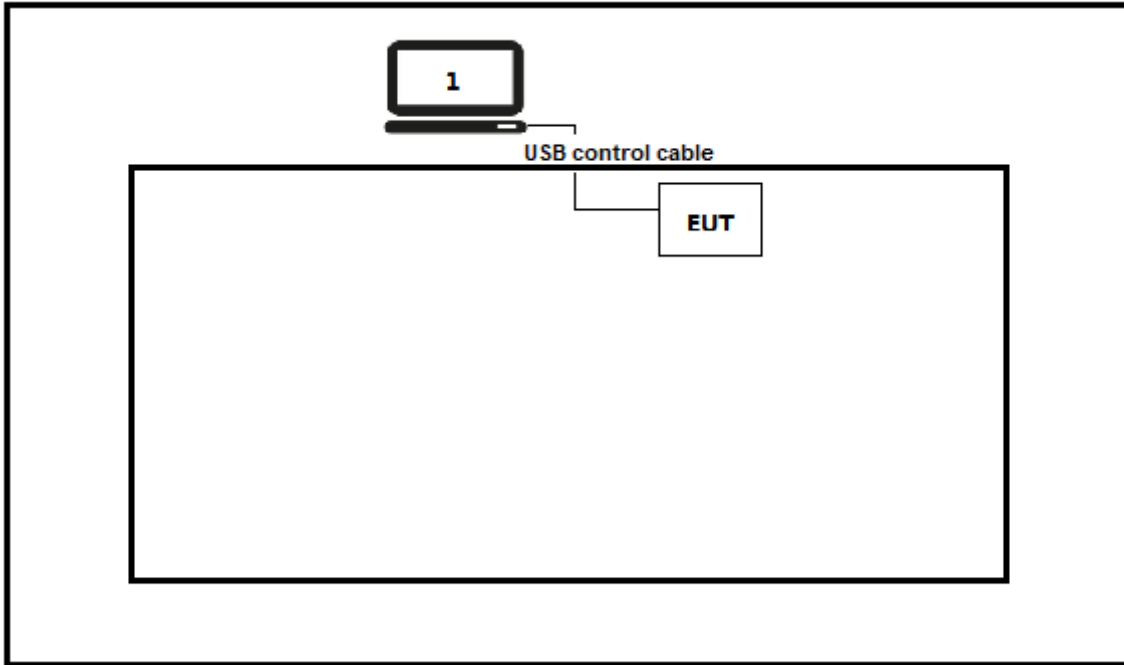
Test Mode For Bluetooth	Mode 1: Transmit by LE_1Mbps
	Mode 2: Transmit by LE_2Mbps
	Mode 3: Transmit by LE_Coded S=2
	Mode 4: Transmit by LE_Coded S=8

### 2.2 Auxiliary equipment / Test software for the EUT

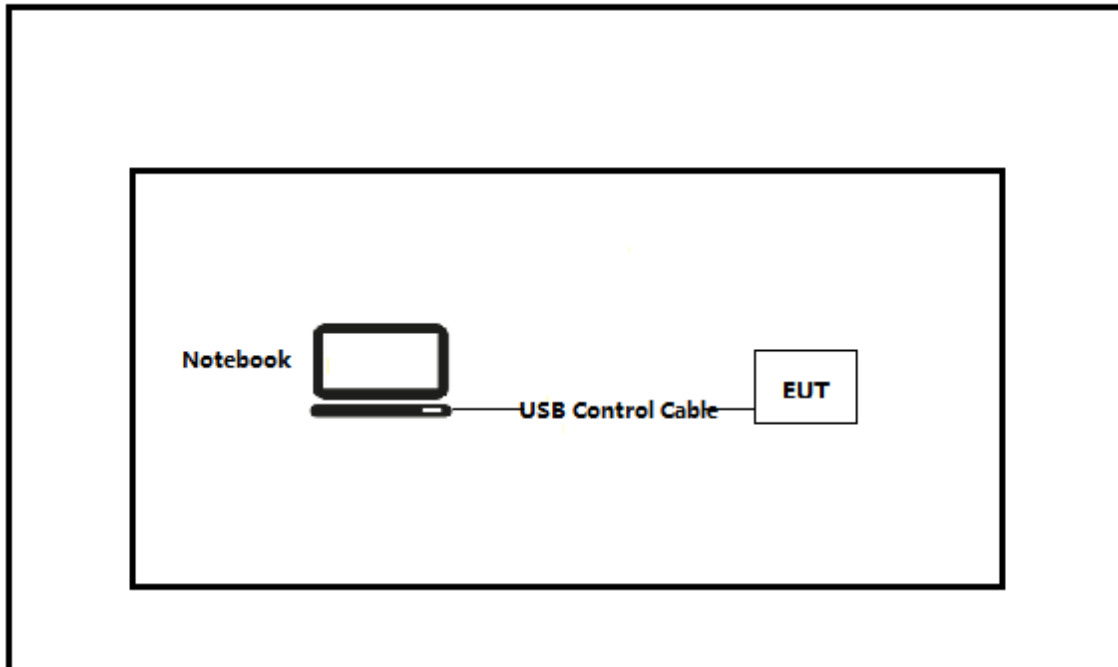
Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x220	Lenovo	Adapter
software	Type / Version	Manufacturer	Supplied by
Approbation Tool	V1.1.5.0	N/A	N/A

### 2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Conducted test



## 2.4 Testing process

1	Setup the EUT as shown in Section 2.3.
2	Execute the [Approbation Tool] 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	2022	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 D01 v05r02	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 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 5 Section 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	---

Note: We have evaluated both lamp chimney, only the worst data was shown in report.

### 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) <sup>1)</sup>	Limit: AV [dB(μV) <sup>1)</sup>
0,15 - 0,50	66 - 56 <sup>2)</sup>	56 - 46 <sup>2)</sup>
0,50 - 5,0	56	46
5,0 - 30	60	50

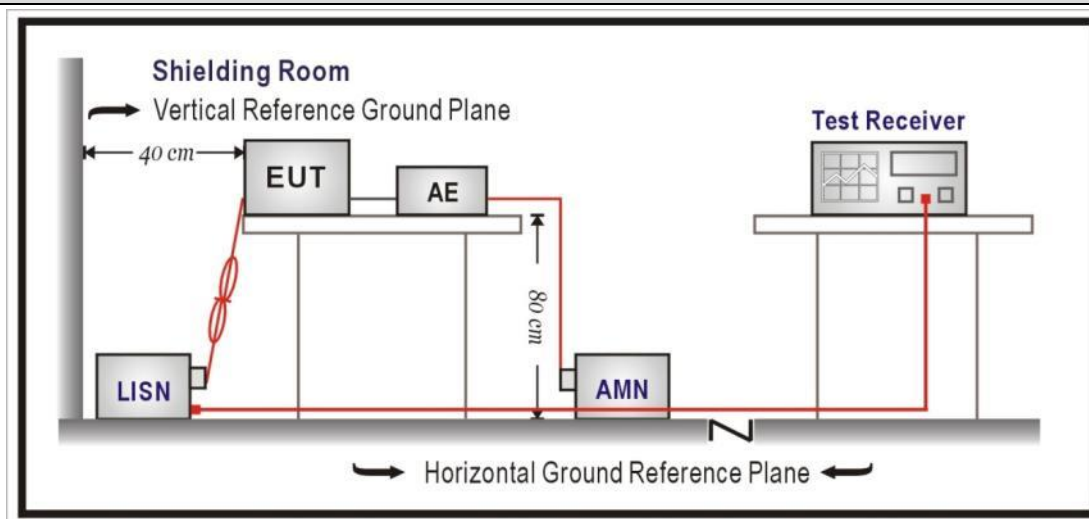
<sup>1)</sup> At the transition frequency, the lower limit applies.

<sup>2)</sup> 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

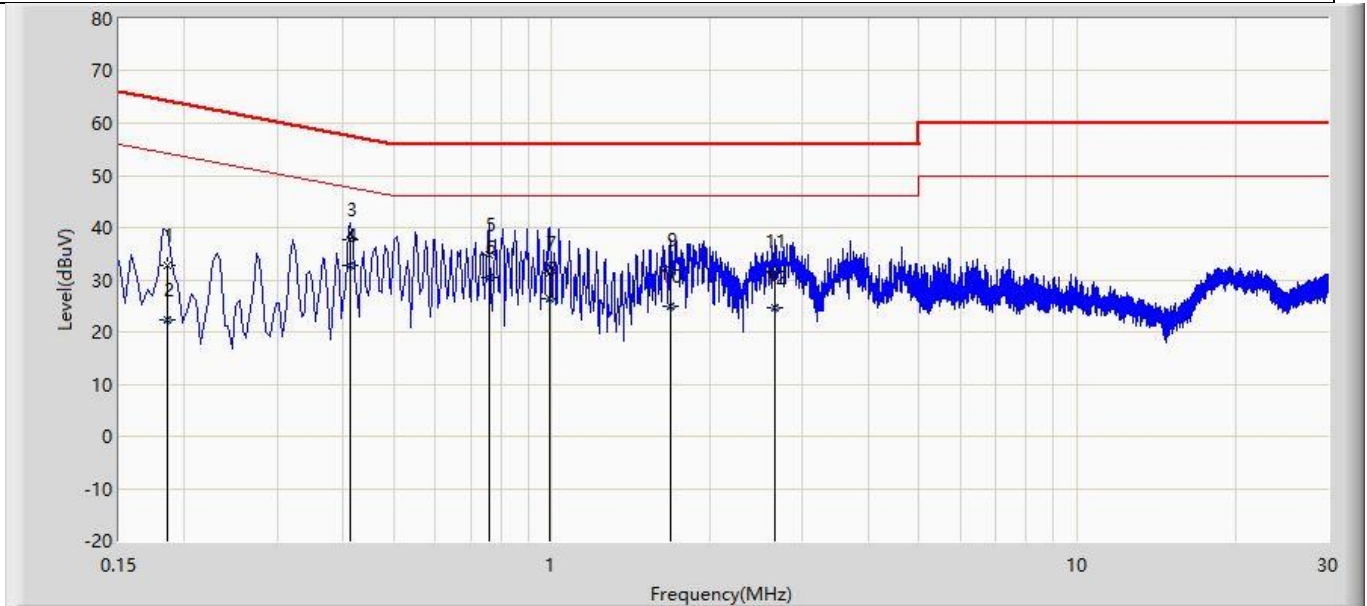


#### 4.1.3 Test Procedure

References Rule	Chapter	Item
<input checked="" type="checkbox"/> ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

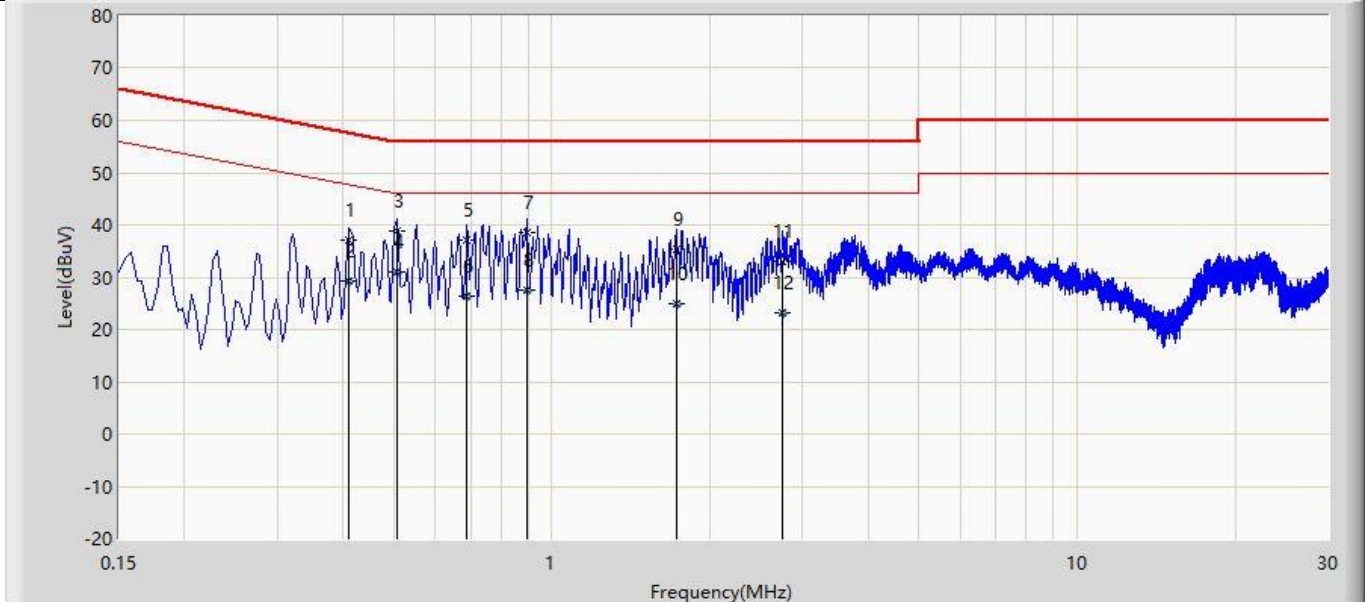
**4.1.4 Test Data**

Profile: 2231094R	Page No.: 1
Engineer: Neil	
Site: TR1	Time: 2022/4/23
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)	Factor (dB)	Type
1		0.186	32.613	22.855	-31.601	64.213	9.757	QP
2		0.186	22.304	12.546	-31.909	54.213	9.757	AV
3		0.414	37.686	27.865	-19.881	57.568	9.821	QP
4	*	0.414	32.750	22.929	-14.818	47.568	9.821	AV
5		0.758	34.903	25.020	-21.097	56.000	9.884	QP
6		0.758	30.410	20.526	-15.590	46.000	9.884	AV
7		0.990	31.268	21.321	-24.732	56.000	9.946	QP
8		0.990	26.322	16.376	-19.678	46.000	9.946	AV
9		1.678	31.759	21.813	-24.241	56.000	9.946	QP
10		1.678	25.005	15.059	-20.995	46.000	9.946	AV
11		2.662	31.686	21.713	-24.314	56.000	9.973	QP
12		2.662	24.659	14.686	-21.341	46.000	9.973	AV

Profile: 2231094R	Page No.: 2
Engineer: Neil	
Site: TR1	Time: 2022/4/23
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)	Factor (dB)	Type
1		0.410	37.005	27.216	-20.643	57.648	9.789	QP
2		0.410	29.368	19.578	-18.281	47.648	9.789	AV
3		0.506	38.915	29.081	-17.085	56.000	9.833	QP
4	*	0.506	30.906	21.073	-15.094	46.000	9.833	AV
5		0.690	37.166	27.261	-18.834	56.000	9.906	QP
6		0.690	26.424	16.519	-19.576	46.000	9.906	AV
7		0.894	38.509	28.562	-17.491	56.000	9.947	QP
8		0.894	27.603	17.656	-18.397	46.000	9.947	AV
9		1.722	35.309	25.291	-20.691	56.000	10.017	QP
10		1.722	24.961	14.944	-21.039	46.000	10.017	AV
11		2.754	32.987	22.919	-23.013	56.000	10.068	QP
12		2.754	23.044	12.976	-22.956	46.000	10.068	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 15.207

## Restricted Bands of operation

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	
8.81425 - 8.81475	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	--	

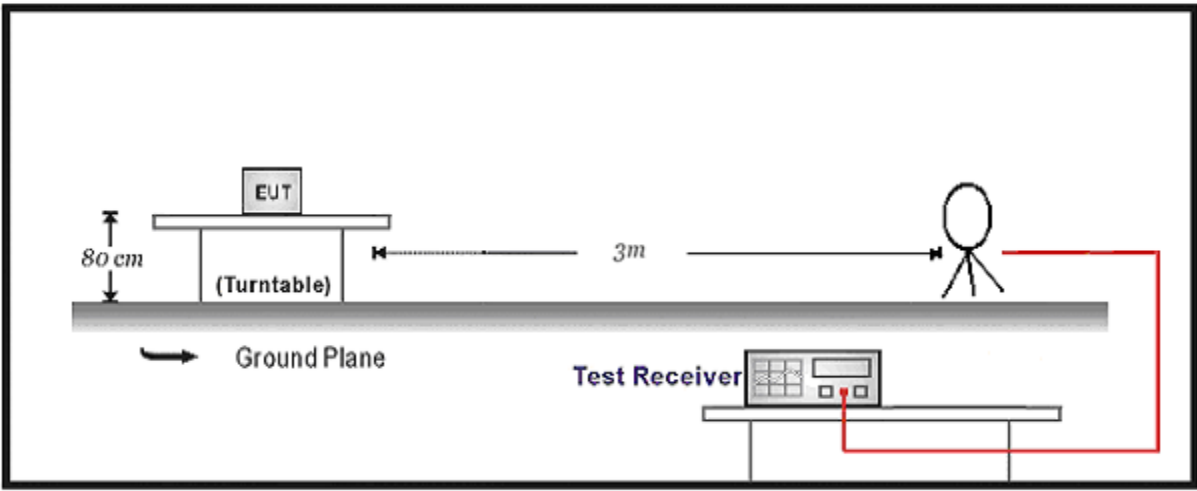
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength ( $\mu\text{V/m}$ )	Field strength ( $\text{dB}\mu\text{V/m}$ )	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	30 <sub>(Note 1)</sub>
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 <sub>(Note 1)</sub>
1.705 - 30	30	29.5	30 <sub>(Note 1)</sub>
30 - 88	100	40	3 <sub>(Note 2)</sub>
88 - 216	150	43.5	3 <sub>(Note 2)</sub>
216 - 960	200	46	3 <sub>(Note 2)</sub>
Above 960	500	54	3 <sub>(Note 2)</sub>

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).

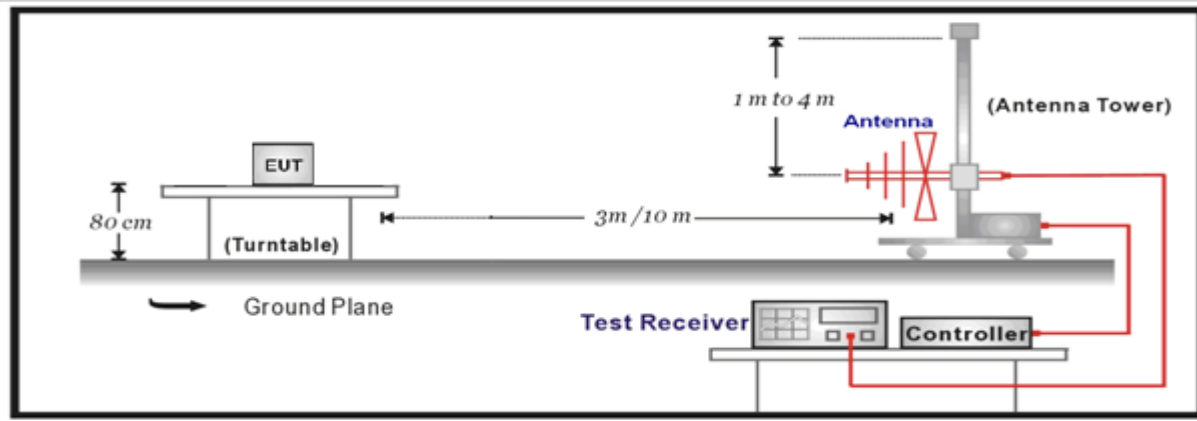
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated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

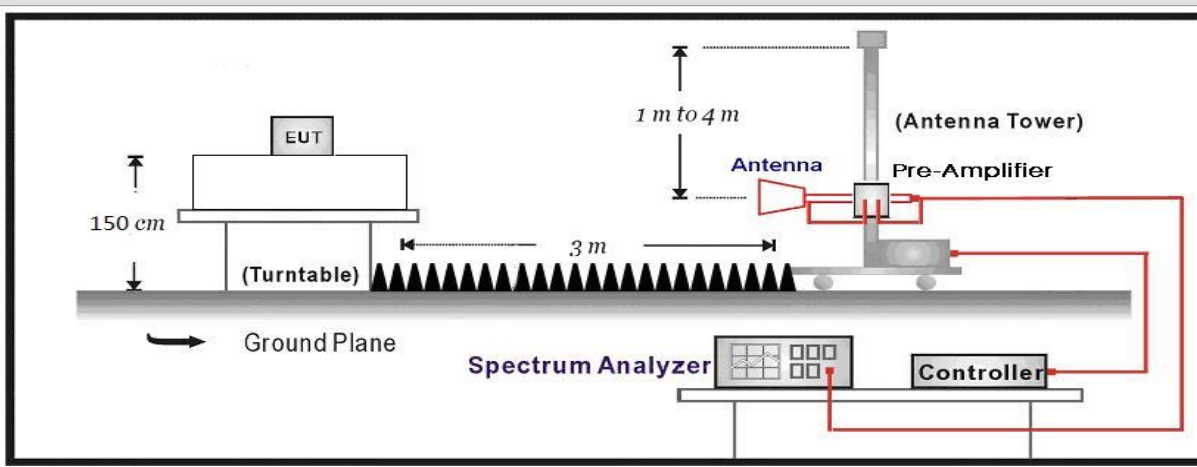
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

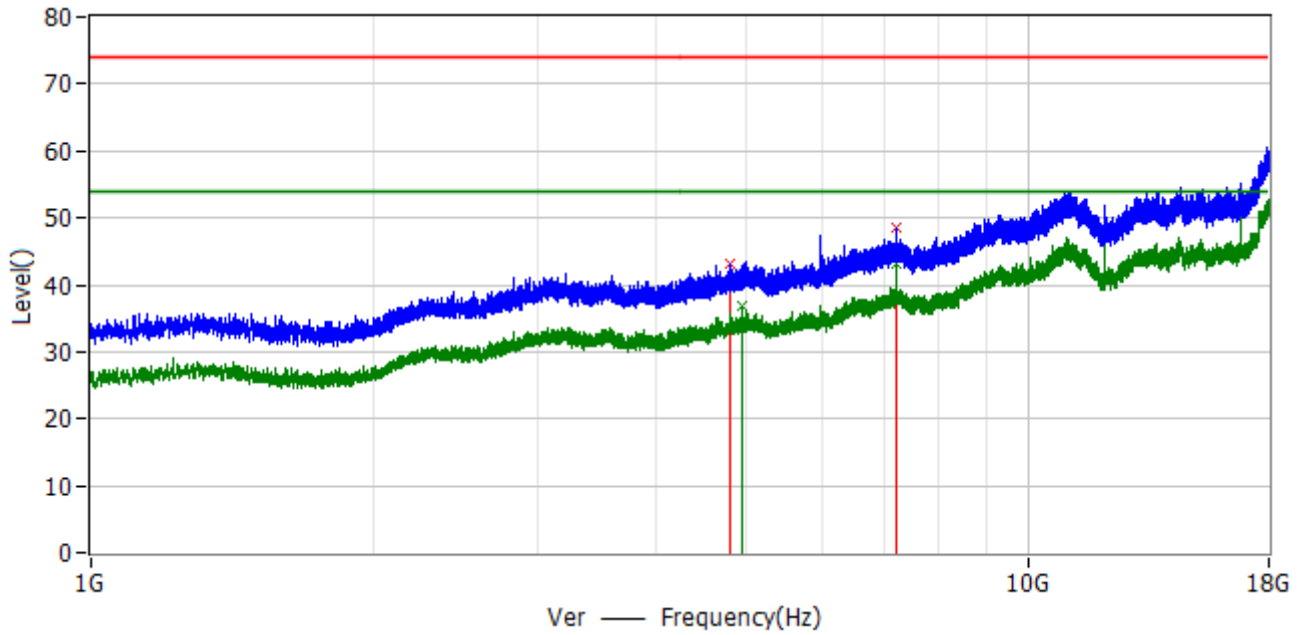




4.2.3 Test Procedure			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.12	Emissions in restricted frequency bands
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.1	Radiated emission measurements
	<input checked="" type="checkbox"/> ANSI C63.10	11.12.2.7	Radiated spurious emission test
	<input checked="" type="checkbox"/> ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	<input checked="" type="checkbox"/> ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	<input checked="" type="checkbox"/> ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

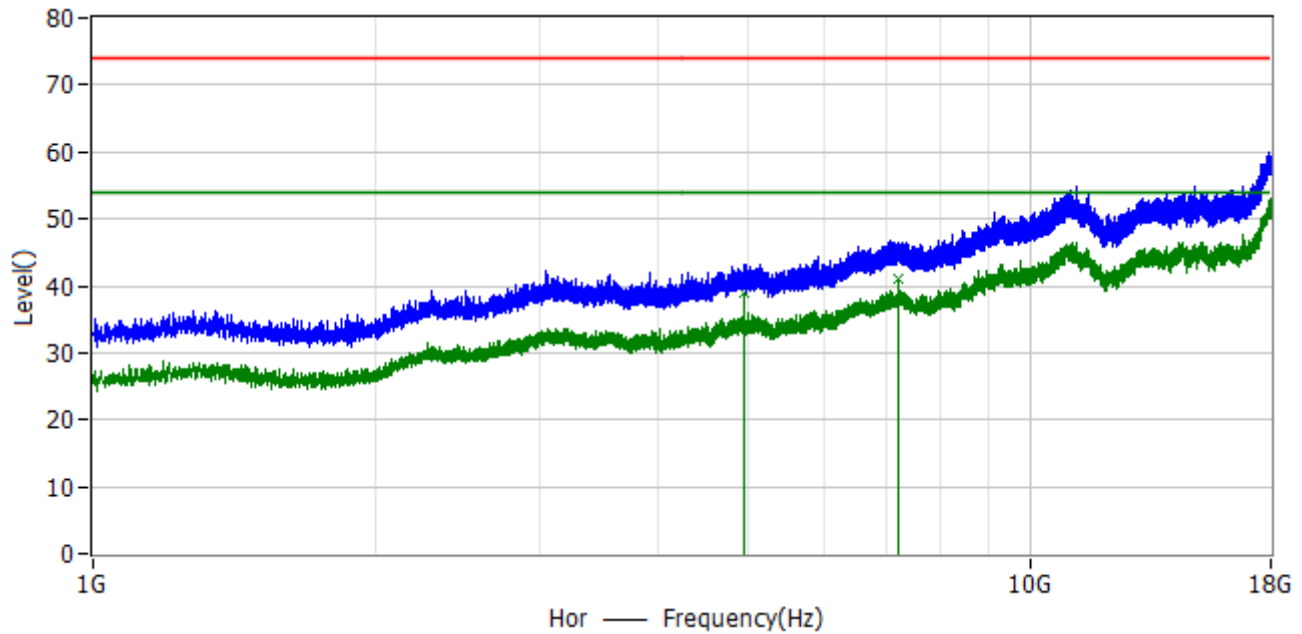
**4.2.4 Test Data**

Profile: 2231094R	Page No.: 37
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by LE_1Mbps	



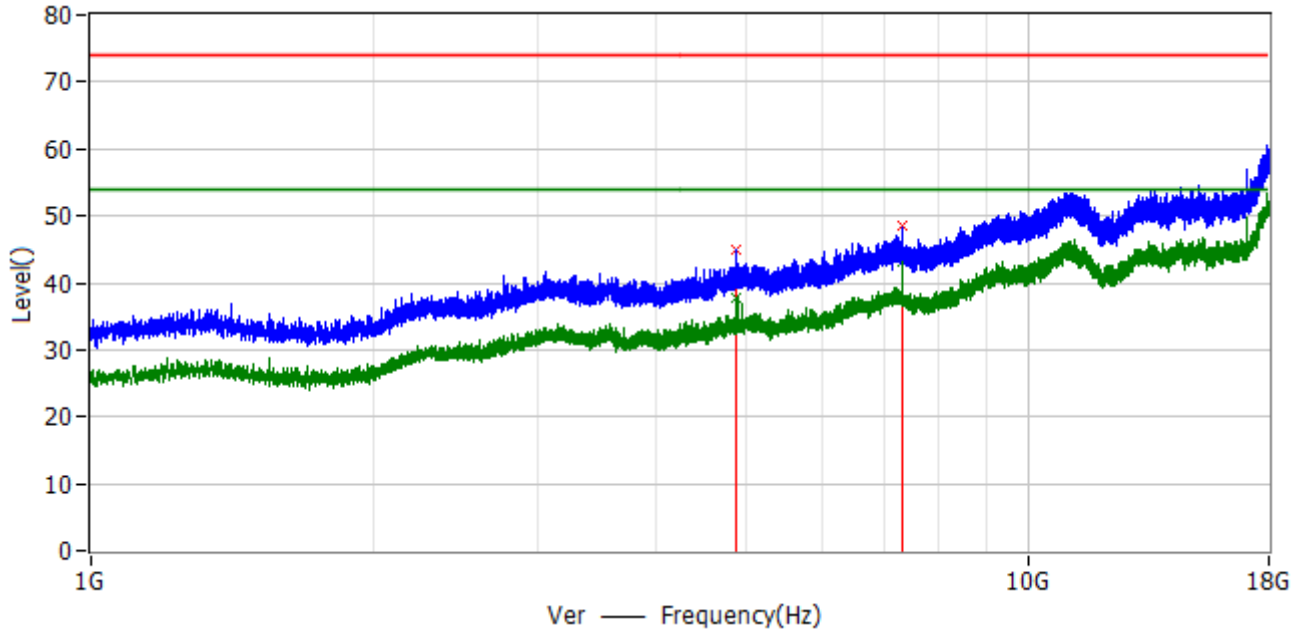
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.804 GHz	74.0	43.1	-30.9	-8.4	PK	Ver
2*	7.206 GHz	74.0	48.6	-25.4	-3.1	PK	Ver
3*	4.951 GHz	54.0	36.9	-17.1	-7.9	AV	Ver
4*	7.206 GHz	54.0	43.1	-10.9	-3.1	AV	Ver

Profile: 2231094R	Page No.: 38
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by LE_1Mbps	



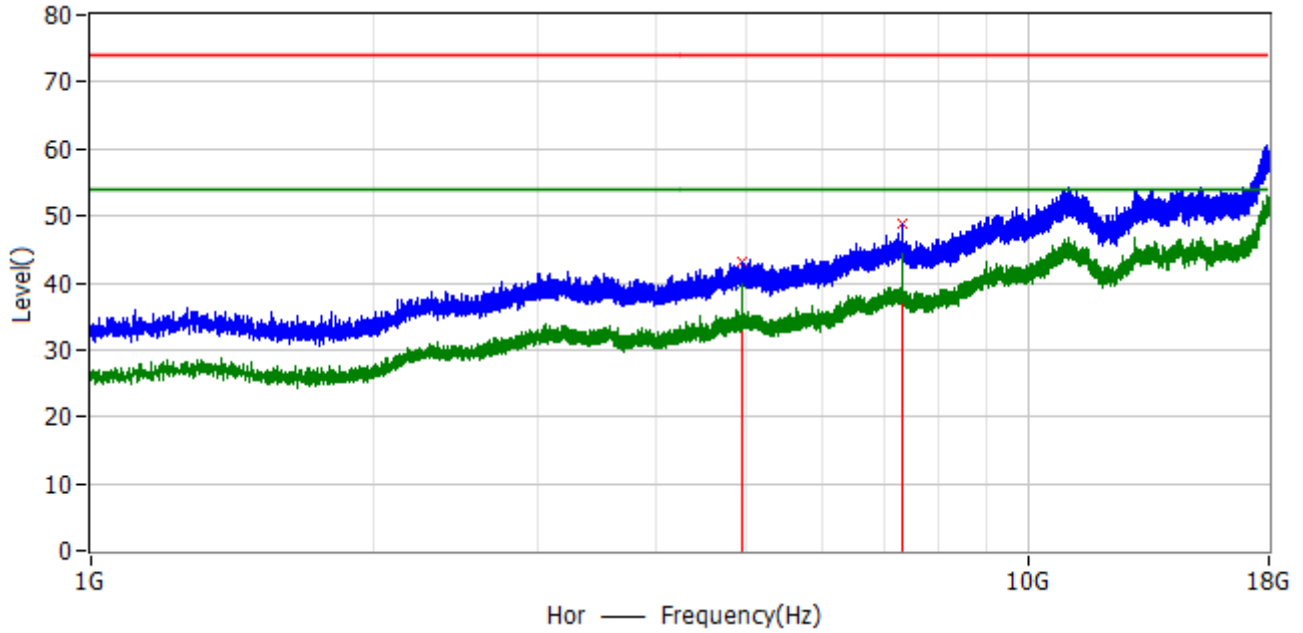
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	54.0	38.9	-15.1	-7.9	AV	Hor
2*	7.207 GHz	54.0	41.1	-12.9	-3.1	AV	Hor

Profile: 2231094R	Page No.: 39
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2440MHz by LE_1Mbps	



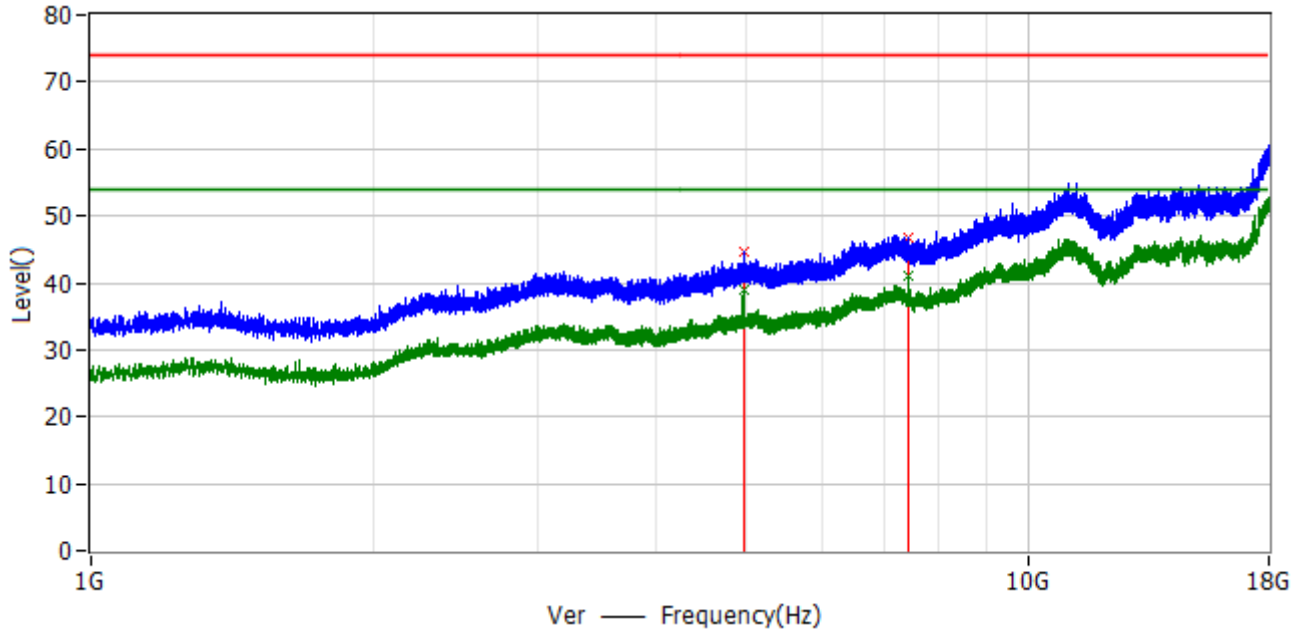
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.880 GHz	74.0	44.9	-29.1	-8.2	PK	Ver
2*	7.321 GHz	74.0	48.4	-25.6	-3.1	PK	Ver
3*	4.880 GHz	54.0	37.7	-16.3	-8.2	AV	Ver
4*	7.321 GHz	54.0	43.2	-10.8	-3.1	AV	Ver

Profile: 2231094R	Page No.: 40
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11 - 21:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2440MHz by LE_1Mbps	



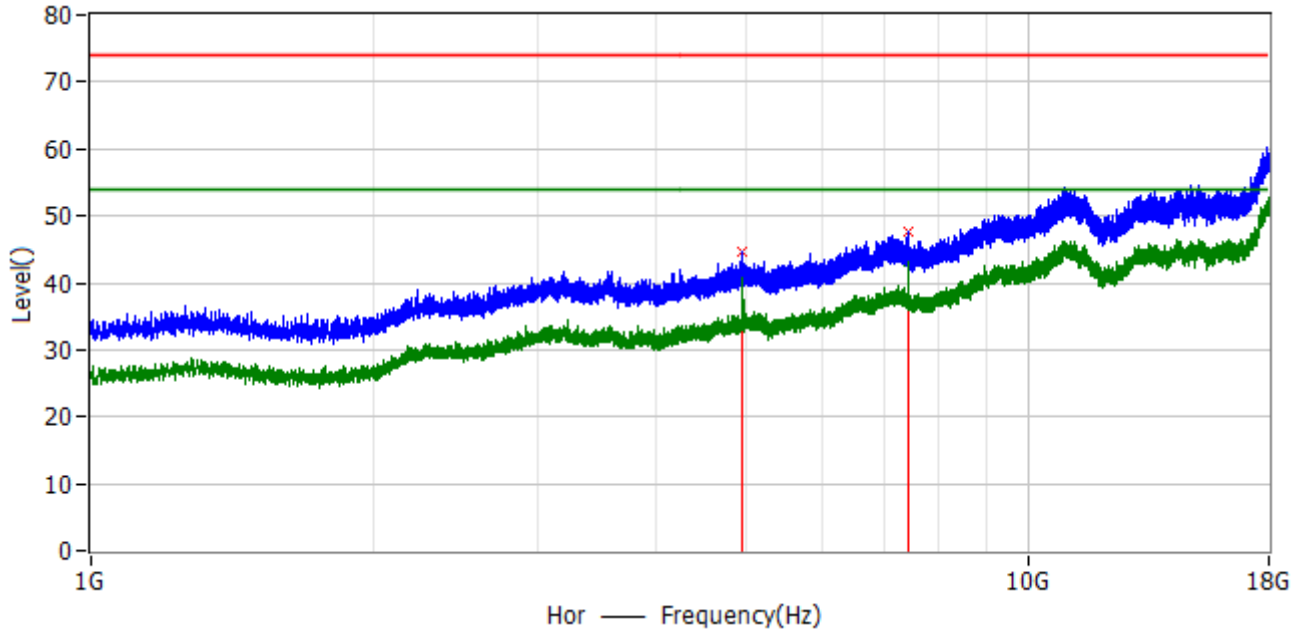
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	43.1	-30.9	-7.9	PK	Hor
2*	7.319 GHz	74.0	48.8	-25.2	-3.1	PK	Hor
3*	4.951 GHz	54.0	39.9	-14.1	-7.9	AV	Hor
4*	7.320 GHz	54.0	44.4	-9.6	-3.1	AV	Hor

Profile: 2231094R	Page No.: 41
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by LE_1Mbps	



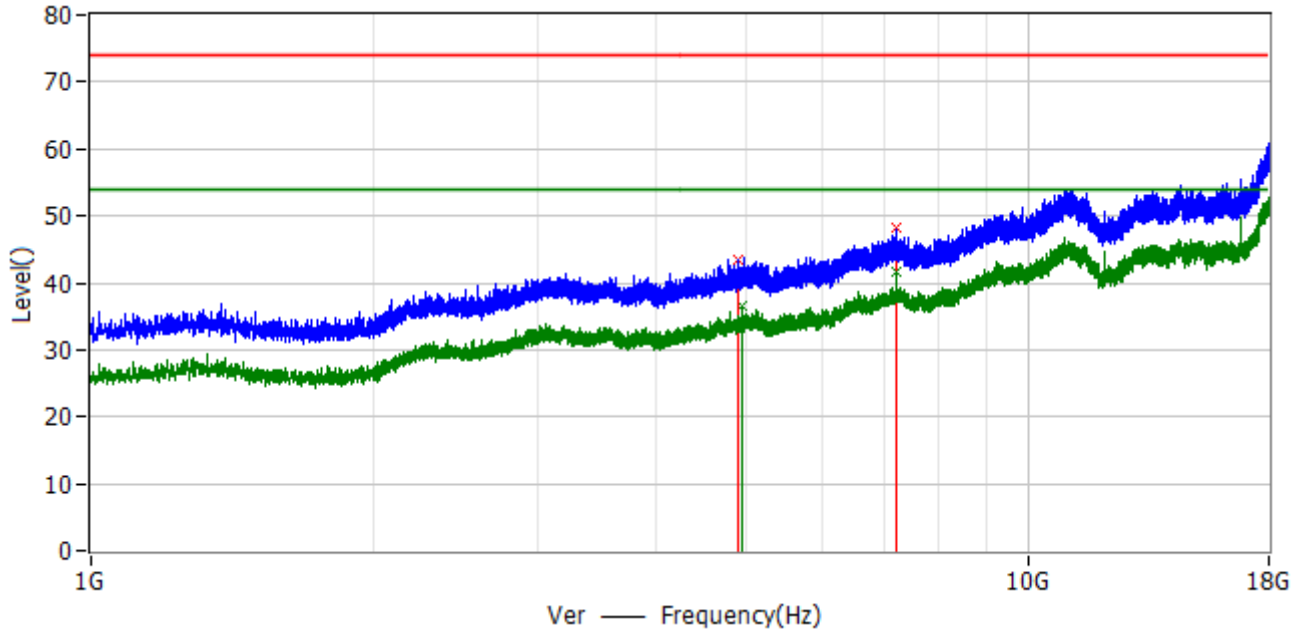
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.961 GHz	74.0	44.6	-29.4	-7.9	PK	Ver
2*	7.439 GHz	74.0	46.8	-27.2	-3.1	PK	Ver
3*	4.960 GHz	54.0	38.9	-15.1	-7.9	AV	Ver
4*	7.440 GHz	54.0	41.0	-13.0	-3.1	AV	Ver

Profile: 2231094R	Page No.: 42
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by LE_1Mbps	



No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	44.7	-29.3	-7.9	PK	Hor
2*	7.440 GHz	74.0	47.6	-26.4	-3.1	PK	Hor
3*	4.951 GHz	54.0	40.8	-13.2	-7.9	AV	Hor
4*	7.441 GHz	54.0	43.1	-10.9	-3.1	AV	Hor

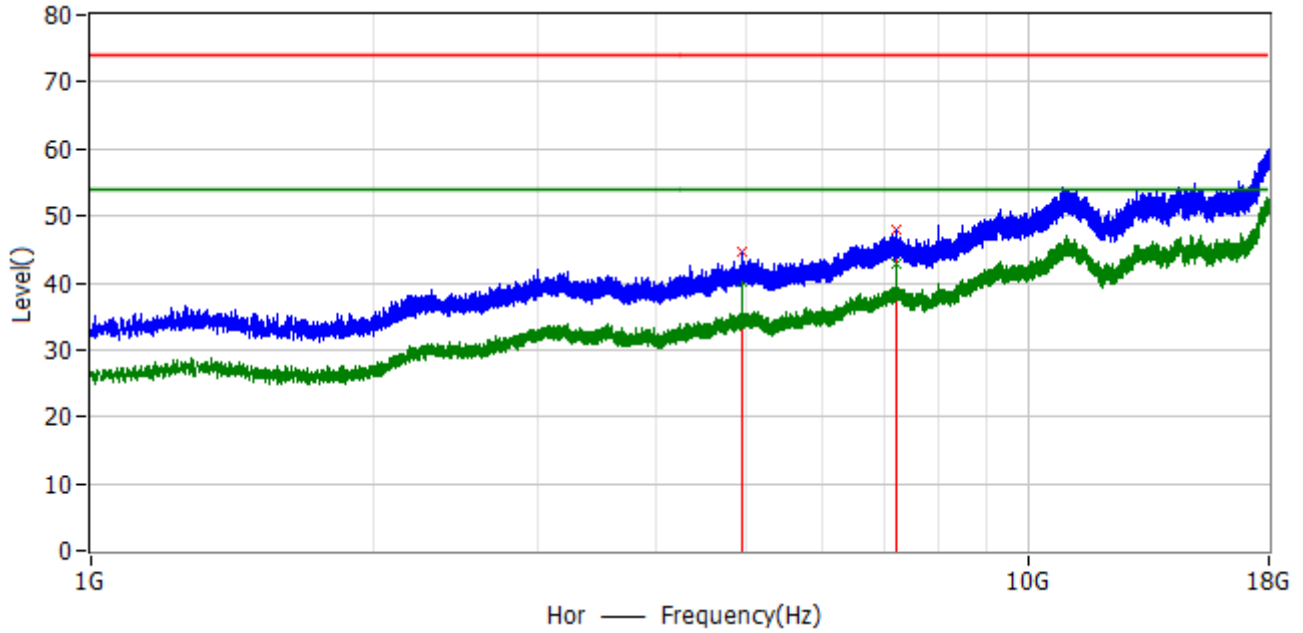
Profile: 2231094R	Page No.: 43
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by LE_2Mbps	



No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.903 GHz	74.0	43.4	-30.6	-8.1	PK	Ver
2*	7.204 GHz	74.0	48.1	-25.9	-3.1	PK	Ver
3*	4.951 GHz	54.0	36.6	-17.4	-7.9	AV	Ver
4*	7.208 GHz	54.0	41.6	-12.4	-3.1	AV	Ver

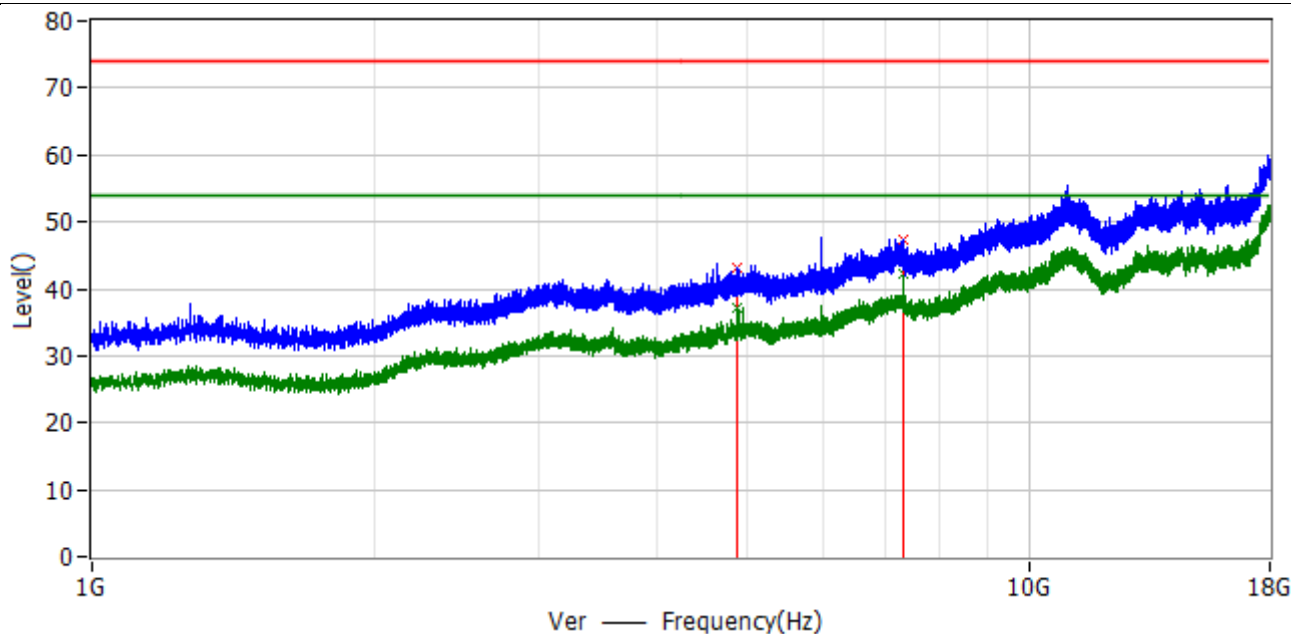


Profile: 2231094R	Page No.: 44
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by LE_2Mbps	



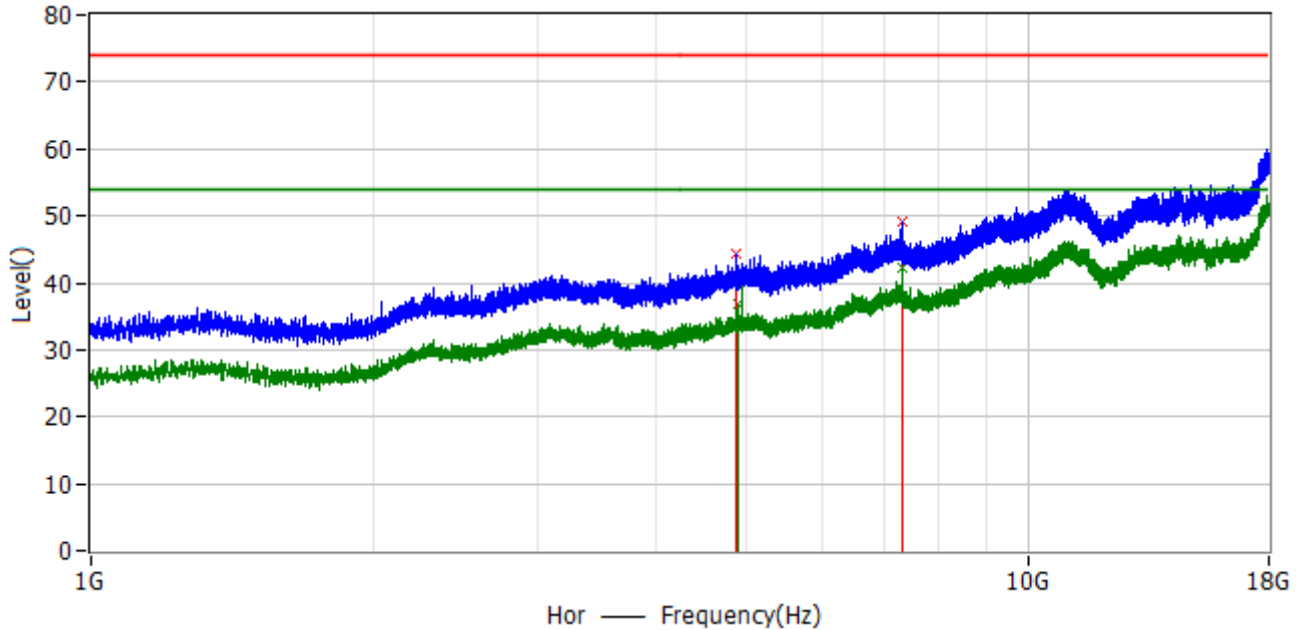
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	44.6	-29.4	-7.9	PK	Hor
2*	7.207 GHz	74.0	48.0	-26.0	-3.1	PK	Hor
3*	4.951 GHz	54.0	40.1	-13.9	-7.9	PK	Hor
4*	7.208 GHz	54.0	42.9	-11.1	-3.1	AV	Hor

Profile: 2231094R	Page No.: 45
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2440MHz by LE_2Mbps	



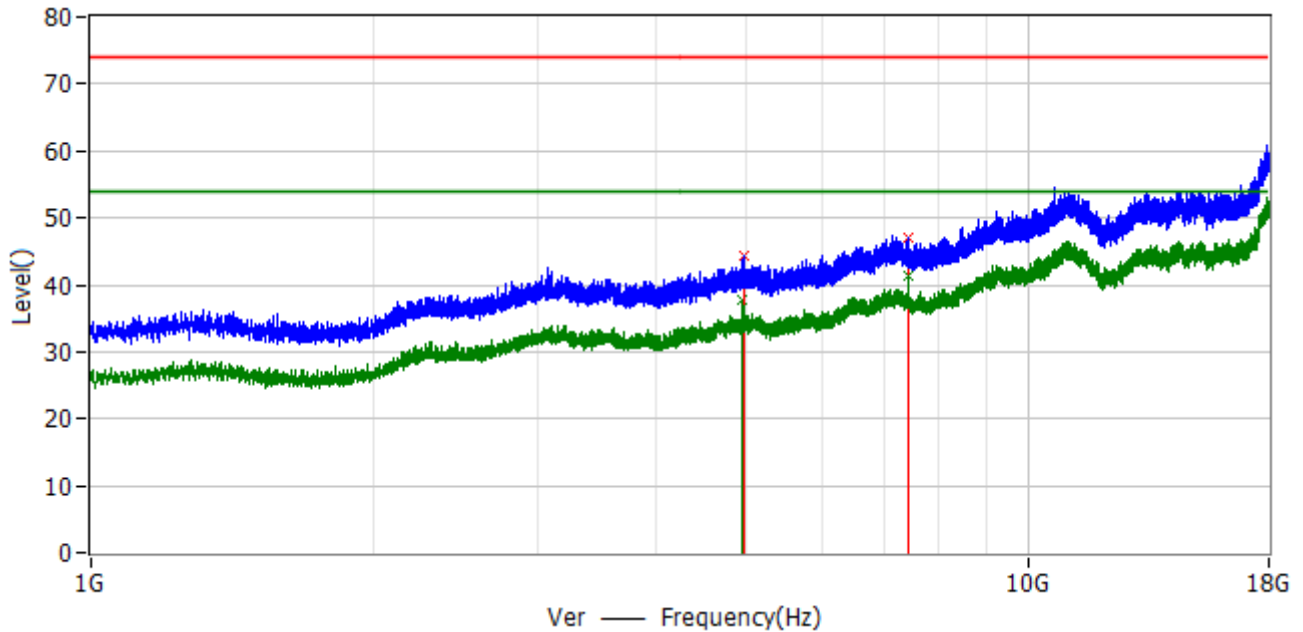
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.880 GHz	74.0	43.1	-30.9	-8.2	PK	Ver
2*	7.319 GHz	74.0	47.4	-26.6	-3.1	PK	Ver
3*	4.879 GHz	54.0	37.1	-16.9	-8.2	AV	Ver
4*	7.319 GHz	54.0	42.1	-11.9	-3.1	AV	Ver

Profile: 2231094R	Page No.: 46
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2440MHz by LE_2Mbps	



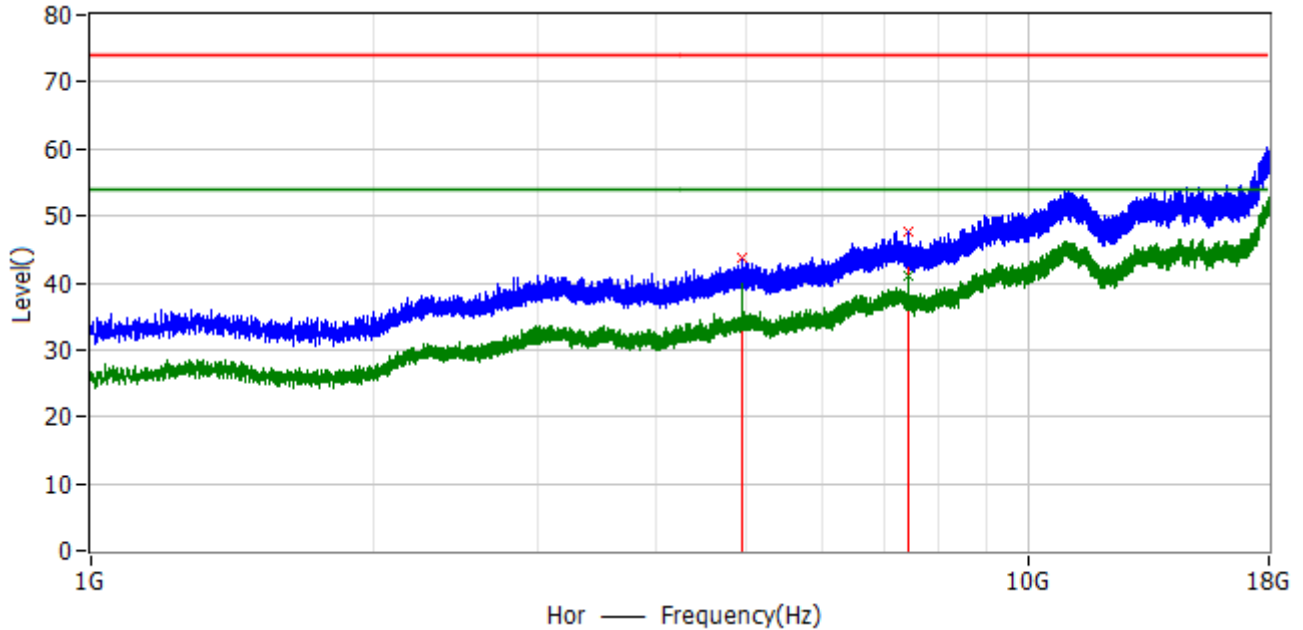
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.880 GHz	74.0	44.3	-29.7	-8.2	PK	Hor
2*	7.322 GHz	74.0	49.1	-24.9	-3.1	PK	Hor
3*	4.881 GHz	54.0	36.8	-17.2	-8.2	AV	Hor
4*	7.322 GHz	54.0	42.3	-11.7	-3.1	AV	Hor

Profile: 2231094R	Page No.: 47
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by LE_2Mbps	



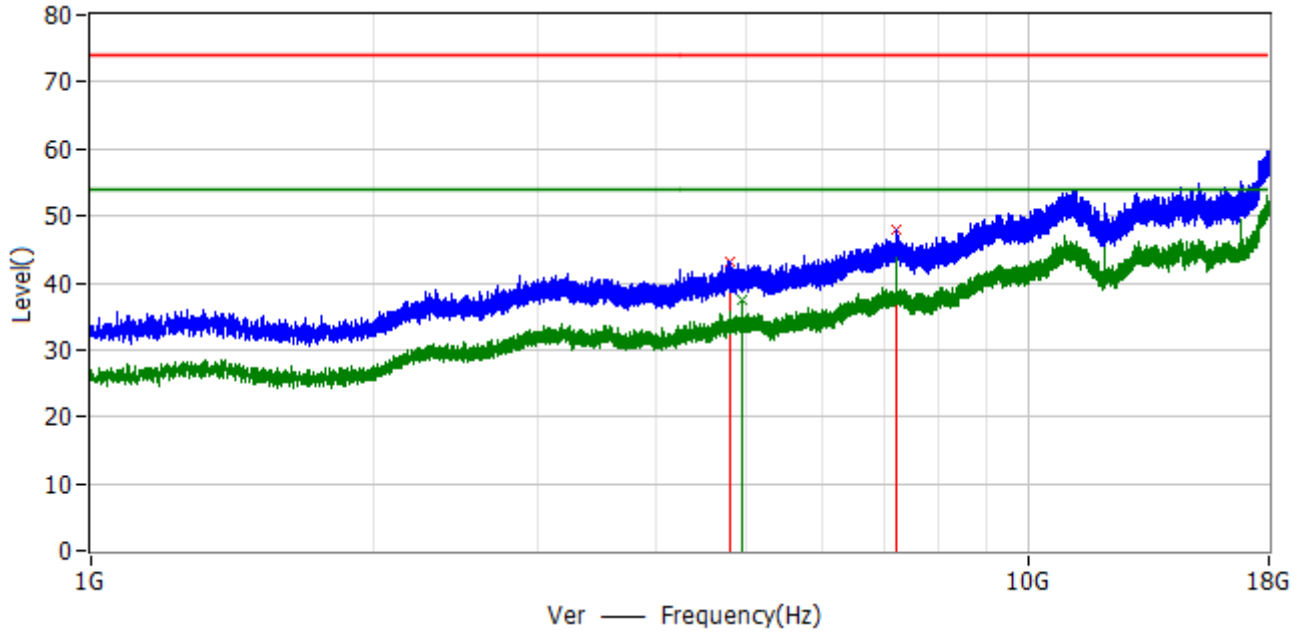
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.961 GHz	74.0	44.2	-29.8	-7.9	PK	Ver
2*	7.441 GHz	74.0	47.0	-27.0	-3.1	PK	Ver
3*	4.951 GHz	54.0	37.9	-16.1	-7.9	AV	Ver
4*	7.439 GHz	54.0	41.4	-12.6	-3.1	AV	Ver

Profile: 2231094R	Page No.: 48
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by LE_2Mbps	



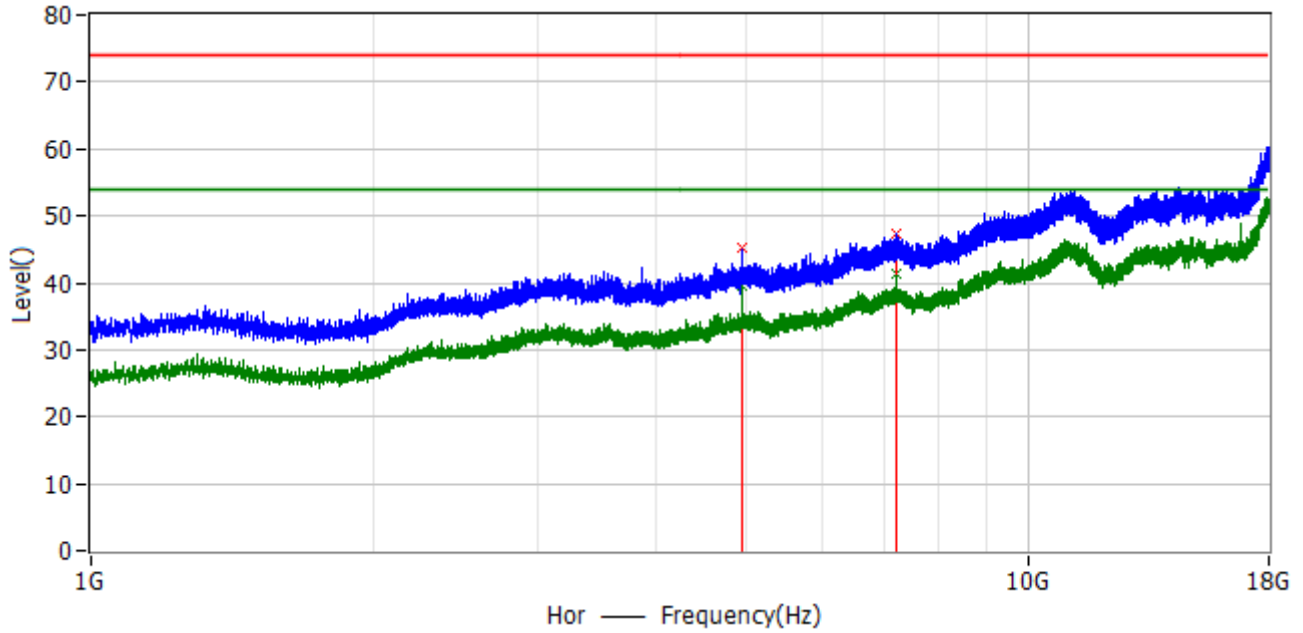
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	43.6	-30.4	-7.9	PK	Hor
2*	7.441 GHz	74.0	47.5	-26.5	-3.1	PK	Hor
3*	4.951 GHz	54.0	39.8	-14.2	-7.9	AV	Hor
4*	7.442 GHz	54.0	41.1	-12.9	-3.1	AV	Hor

Profile: 2231094R	Page No.: 49
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by Coded S=2	



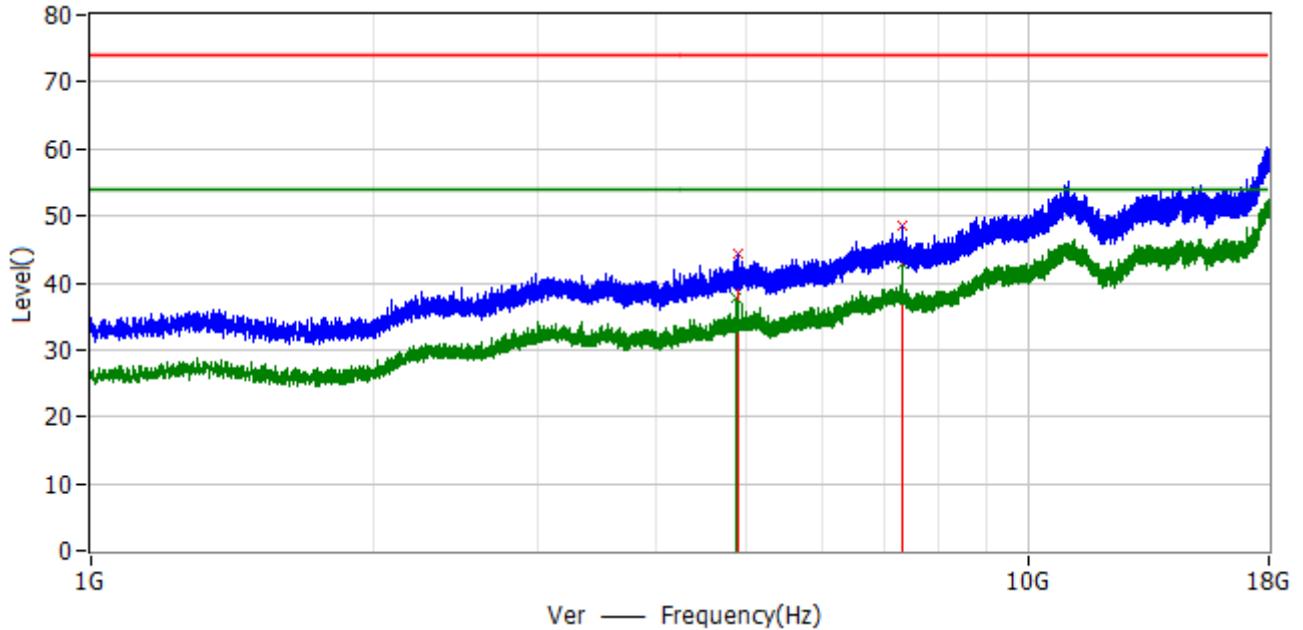
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.803 GHz	74.0	43.0	-31.0	-8.4	PK	Ver
2*	7.207 GHz	74.0	47.9	-26.1	-3.1	PK	Ver
3*	4.951 GHz	54.0	37.4	-16.6	-7.9	AV	Ver
4*	7.207 GHz	54.0	43.8	-10.2	-3.1	AV	Ver

Profile: 2231094R	Page No.: 50
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by Coded S=2	



No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	45.1	-28.9	-7.9	PK	Hor
2*	7.206 GHz	74.0	47.4	-26.6	-3.1	PK	Hor
3*	4.951 GHz	54.0	39.5	-14.5	-7.9	AV	Hor
4*	7.206 GHz	54.0	41.2	-12.8	-3.1	AV	Hor

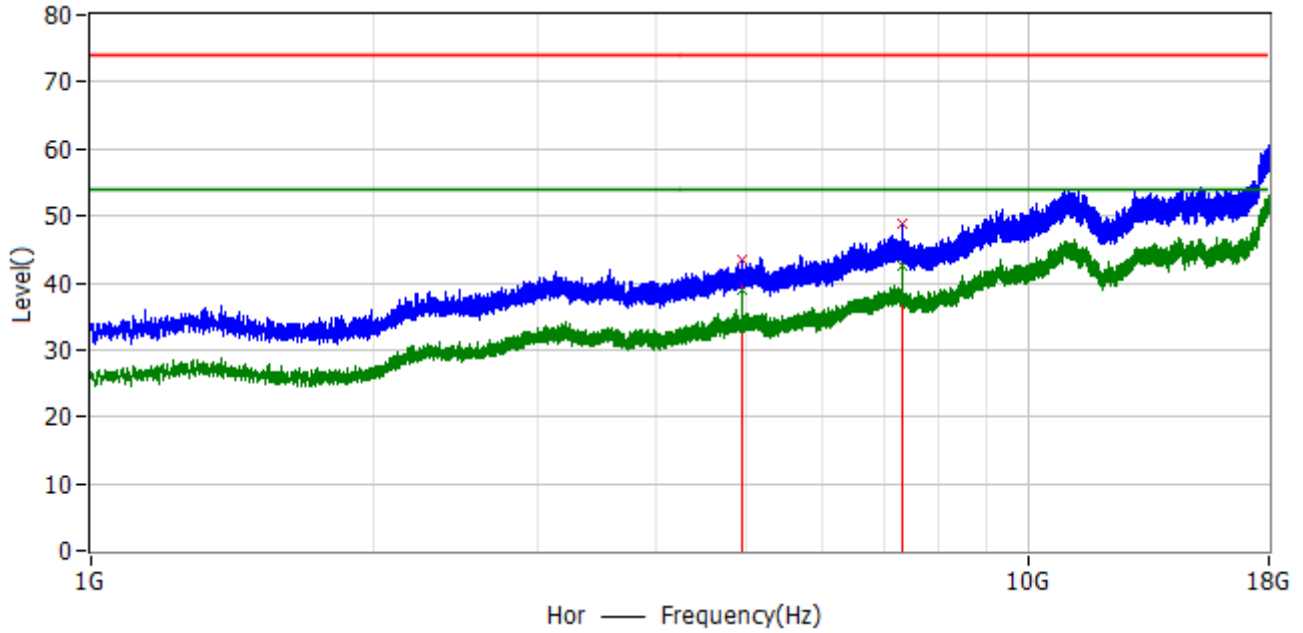
Profile: 2231094R	Page No.: 51
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2440MHz by Coded S=2	



No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.881 GHz	74.0	44.3	-29.7	-8.2	PK	Ver
2*	7.321 GHz	74.0	48.5	-25.5	-3.1	PK	Ver
3*	4.880 GHz	54.0	37.7	-16.3	-8.2	AV	Ver
4*	7.321 GHz	54.0	42.7	-11.3	-3.1	AV	Ver

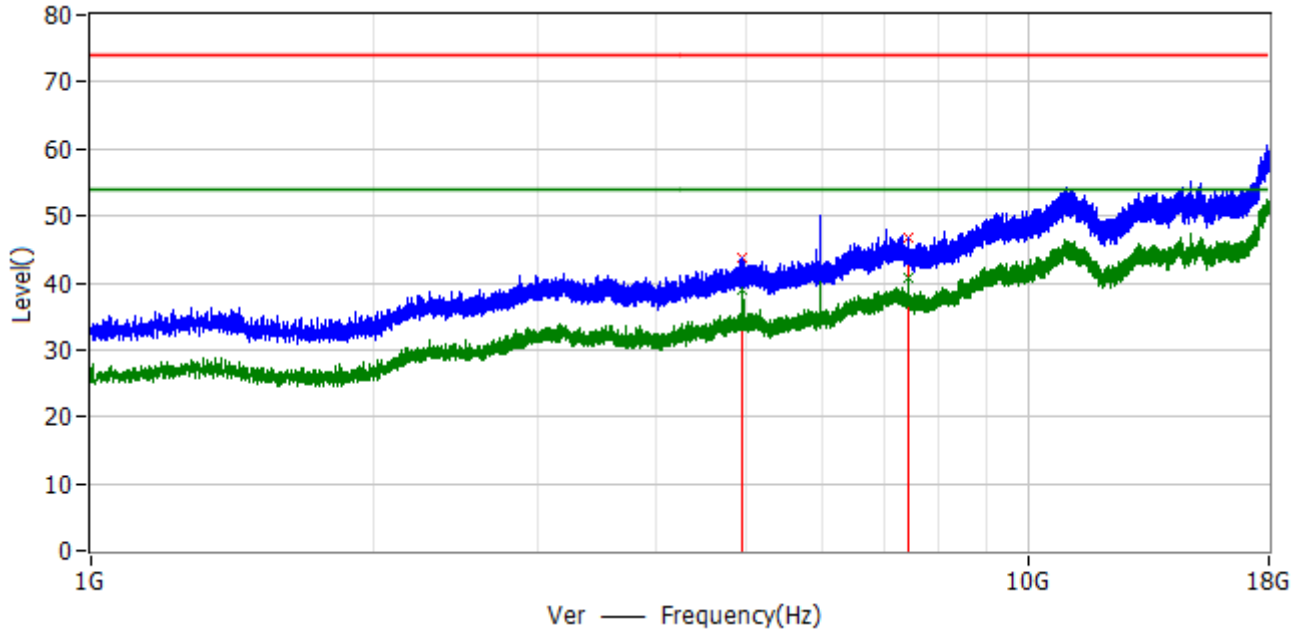


Profile: 2231094R	Page No.: 52
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2440MHz by Coded S=2	



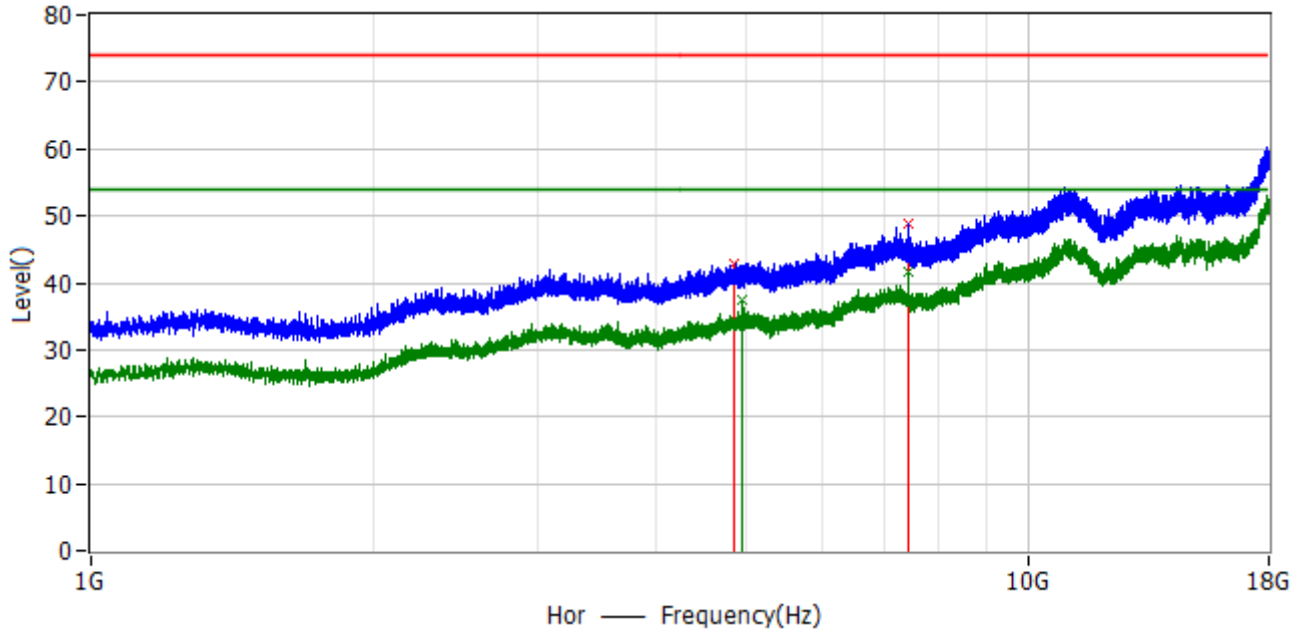
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	43.3	-30.7	-7.9	PK	Hor
2*	7.321 GHz	74.0	48.7	-25.3	-3.1	PK	Hor
3*	4.951 GHz	54.0	39.1	-14.9	-7.9	AV	Hor
4*	7.320 GHz	54.0	42.6	-11.4	-3.1	AV	Hor

Profile: 2231094R	Page No.: 53
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by Coded S=2	



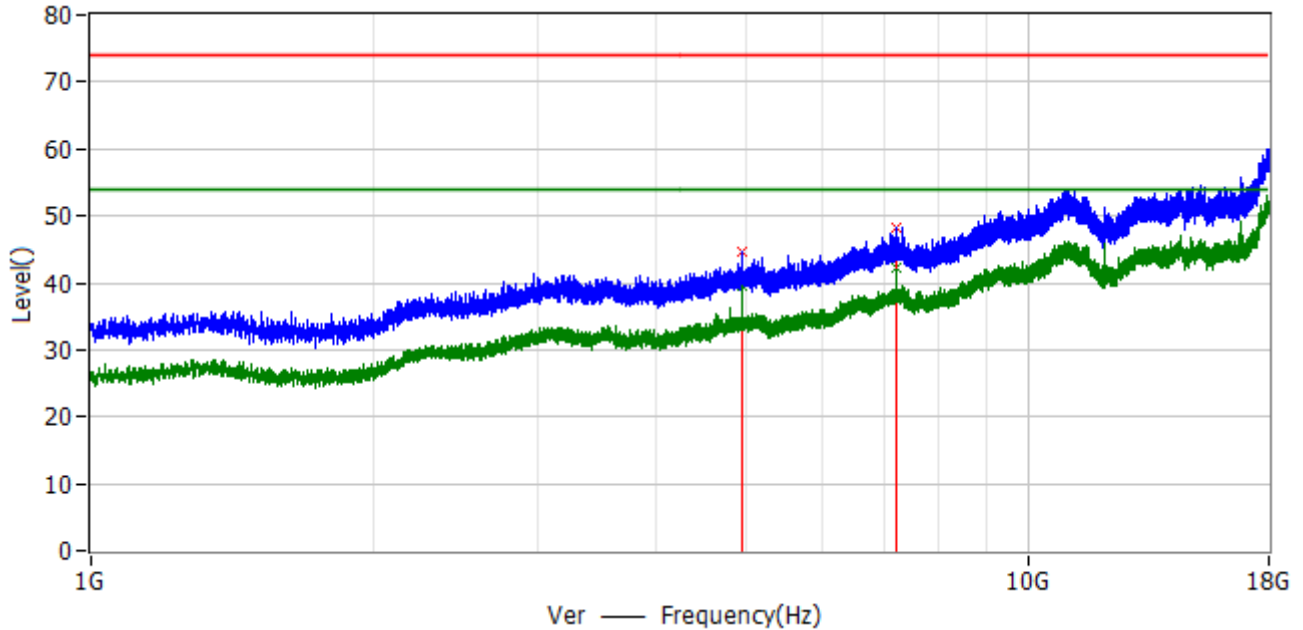
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	43.7	-30.3	-7.9	PK	Ver
2*	7.441 GHz	74.0	46.8	-27.2	-3.1	PK	Ver
3*	4.951 GHz	54.0	39.1	-14.9	-7.9	AV	Ver
4*	7.440 GHz	54.0	40.7	-13.3	-3.1	AV	Ver

Profile: 2231094R	Page No.: 54
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by Coded S=2	



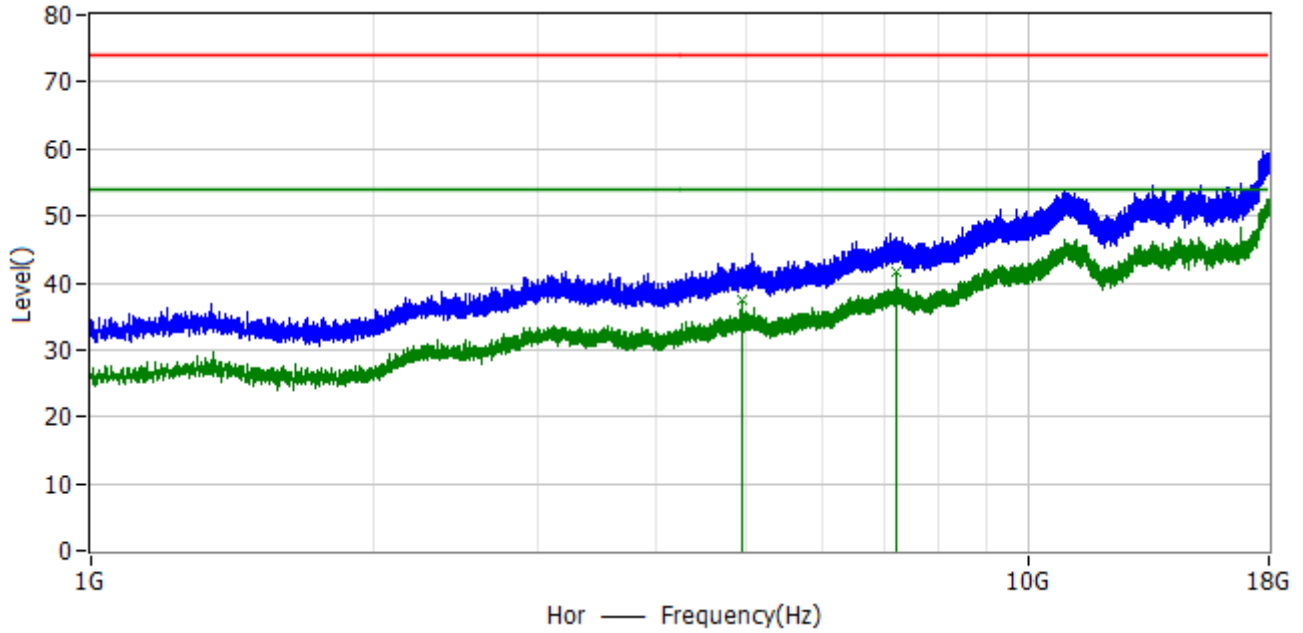
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.857 GHz	74.0	42.7	-31.3	-8.3	PK	Hor
2*	7.441 GHz	74.0	48.8	-25.2	-3.1	PK	Hor
3*	4.951 GHz	54.0	37.5	-16.5	-7.9	AV	Hor
4*	7.441 GHz	54.0	41.6	-12.4	-3.1	AV	Hor

Profile: 2231094R	Page No.: 55
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2402MHz by Coded S=8	



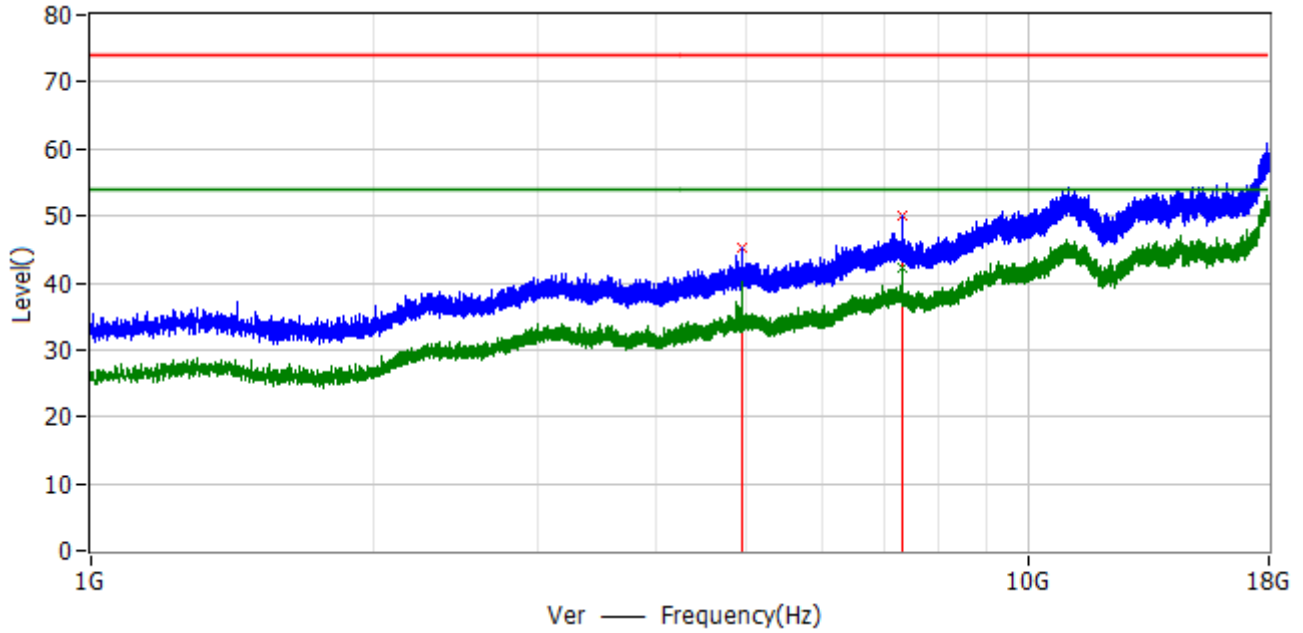
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	44.6	-29.4	-7.9	PK	Ver
2*	7.207 GHz	74.0	48.3	-25.7	-3.1	PK	Ver
3*	4.951 GHz	54.0	39.5	-14.5	-7.9	AV	Ver
4*	7.206 GHz	54.0	42.1	-11.9	-3.1	AV	Ver

Profile: 2231094R	Page No.: 56
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2402MHz by Coded S=8	



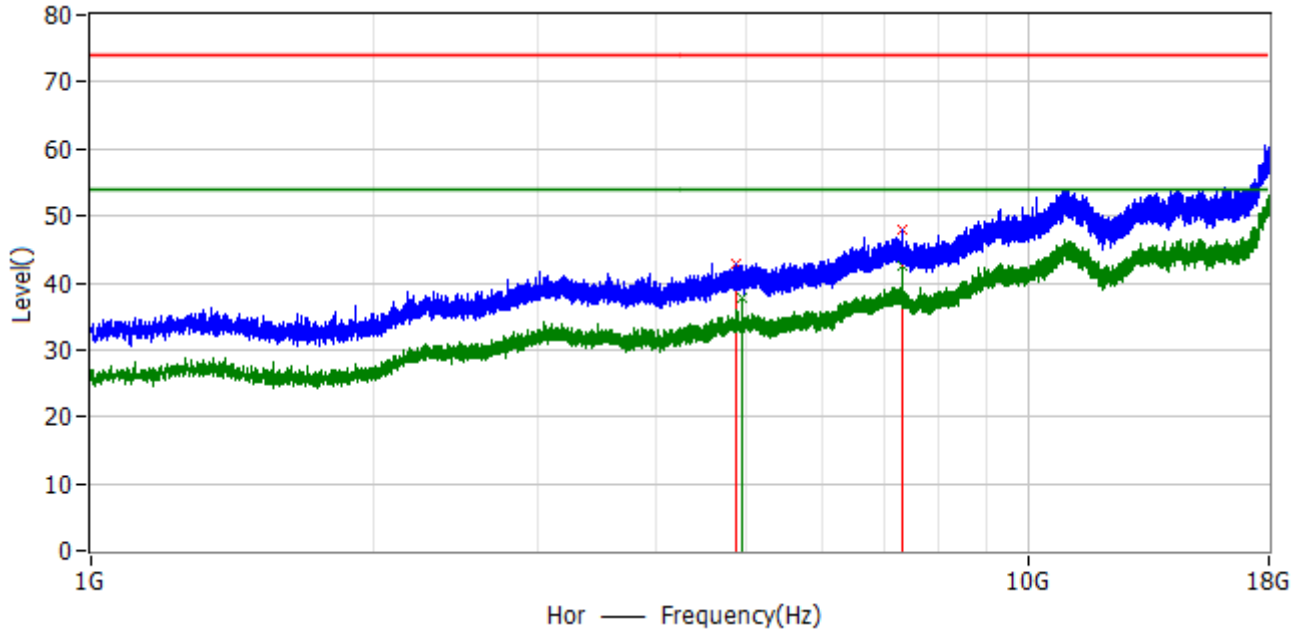
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	54.0	37.4	-16.6	-7.9	AV	Hor
2*	7.206 GHz	54.0	41.5	-12.5	-3.1	AV	Hor

Profile: 2231094R	Page No.: 57
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2440MHz by Coded S=8	



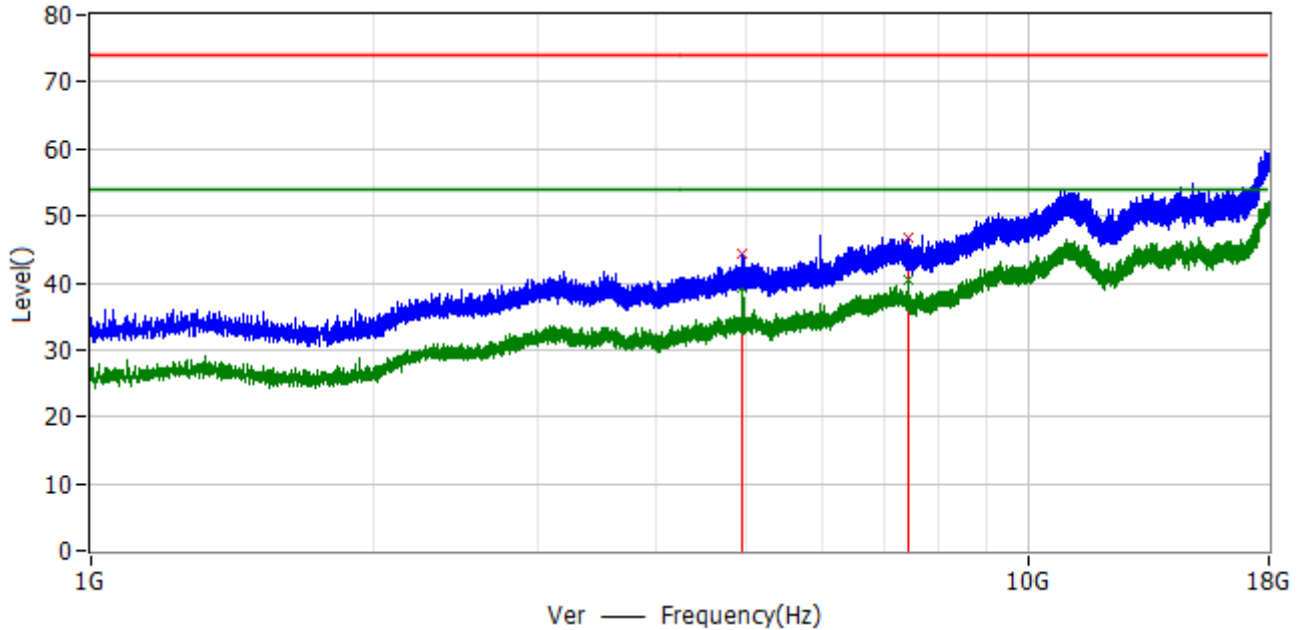
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.951 GHz	74.0	45.2	-28.8	-7.9	PK	Ver
2*	7.321 GHz	74.0	50.0	-24.0	-3.1	PK	Ver
3*	4.951 GHz	54.0	40.2	-13.8	-7.9	AV	Ver
4*	7.321 GHz	54.0	42.1	-11.9	-3.1	AV	Ver

Profile: 2231094R	Page No.: 58
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2440MHz by Coded S=8	



No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.868 GHz	74.0	42.9	-31.1	-8.2	PK	Hor
2*	7.319 GHz	74.0	47.8	-26.2	-3.1	PK	Hor
3*	4.951 GHz	54.0	37.7	-16.3	-7.9	AV	Hor
4*	7.319 GHz	54.0	42.4	-11.6	-3.1	AV	Hor

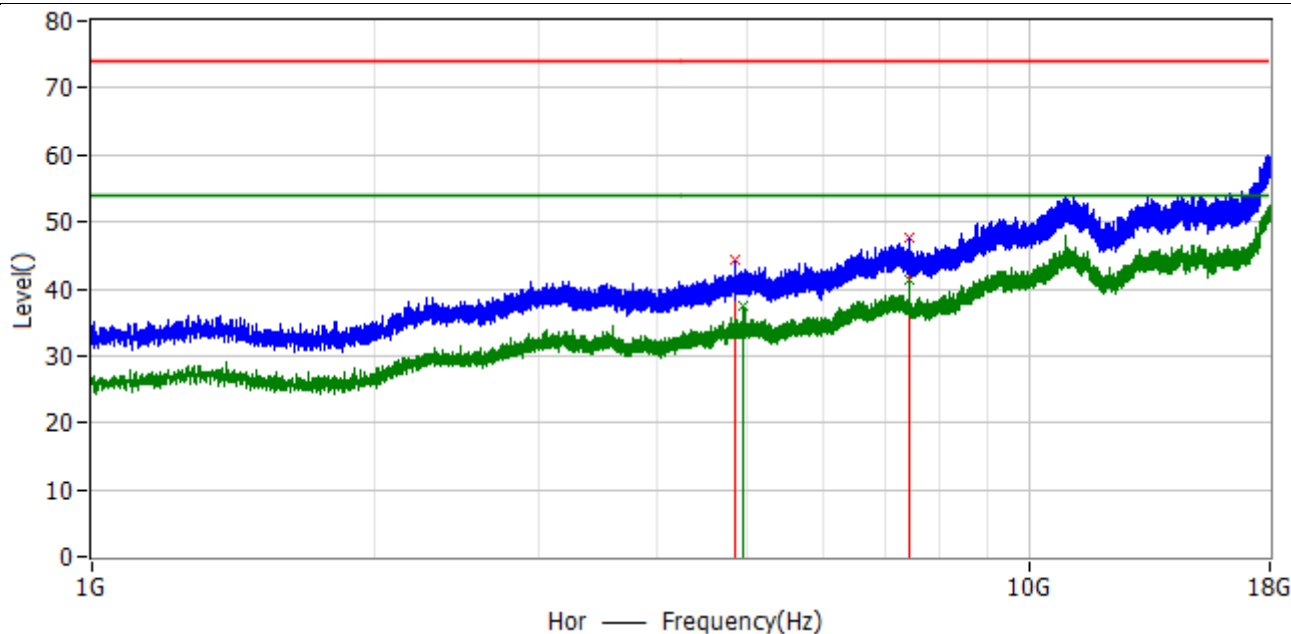
Profile: 2231094R	Page No.: 59
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz by Coded S=8	



No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.950 GHz	74.0	44.4	-29.6	-7.9	PK	Ver
2*	7.428 GHz	74.0	46.7	-27.3	-3.1	PK	Ver
3*	4.951 GHz	54.0	39.2	-14.8	-7.9	AV	Ver
4*	7.440 GHz	54.0	40.5	-13.5	-3.1	AV	Ver



Profile: 2231094R	Page No.: 60
Engineer: Tony	
Site: EPINTEK	Time: 2022/04/11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz by Coded S=8	



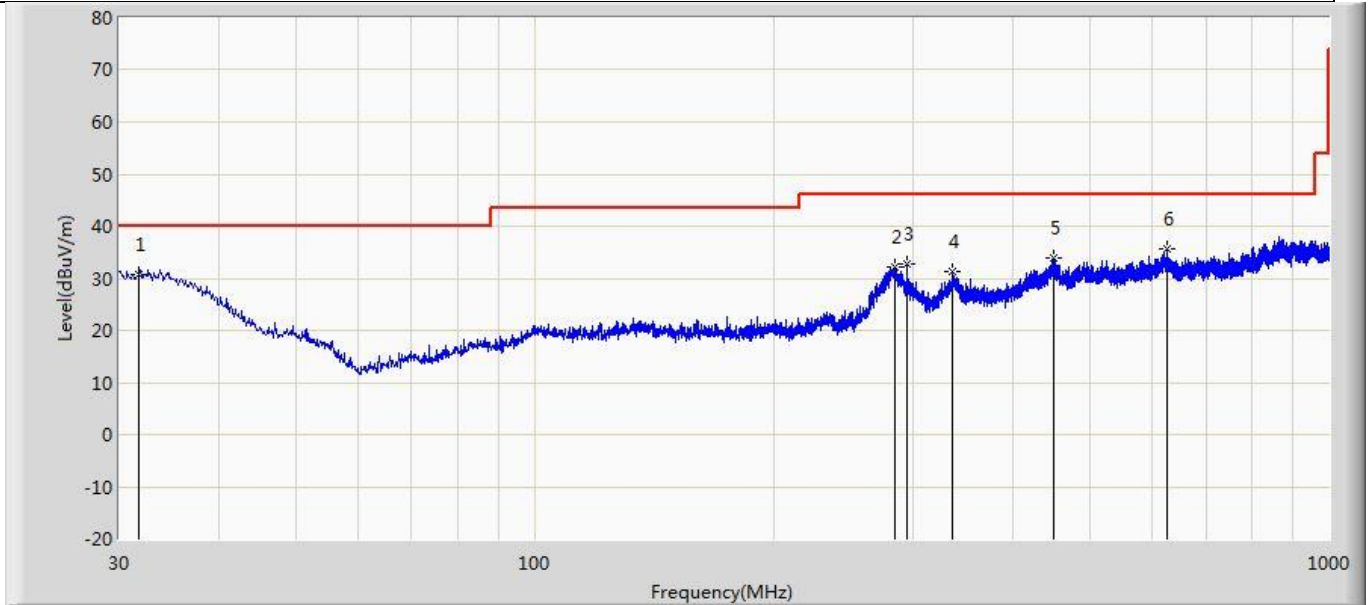
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.838 GHz	74.0	44.2	-29.8	-8.3	PK	Hor
2*	7.440 GHz	74.0	47.6	-26.4	-3.1	PK	Hor
3*	4.951 GHz	54.0	37.4	-16.6	-7.9	AV	Hor
4*	7.441 GHz	54.0	41.2	-12.8	-3.1	AV	Hor

Note:

1. The test frequency range, 9kHz~30MHz and Above 18GHz worst case are at least 6dB below the limits, therefore no data appear in the report.

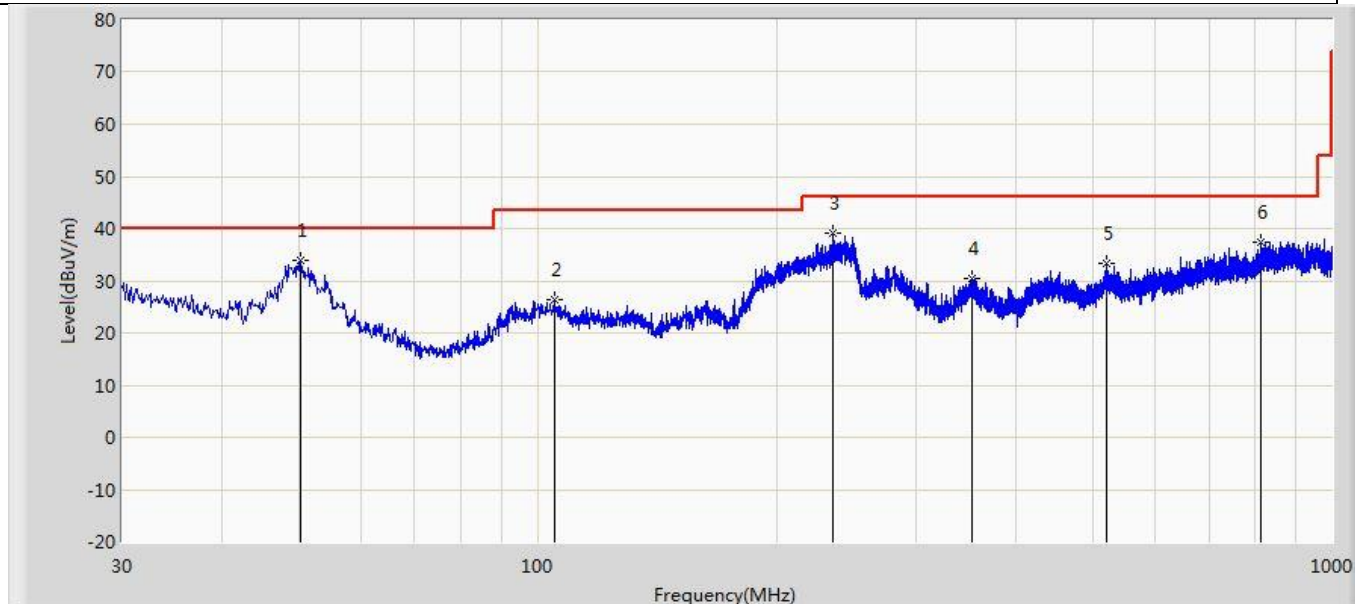
**The worst case of Radiated Emission below 1GHz:**

Profile: 2231094R	Page No.: 1
Engineer: Carlos. Shen	
Site: AC2	Time: 2022/04/21 - 09:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by LE_1Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	31.698	30.856	3.719	-9.144	40.000	27.137	PK
2		284.019	32.153	11.817	-13.847	46.000	20.336	PK
3		294.689	32.871	12.356	-13.129	46.000	20.515	PK
4		336.035	31.244	8.450	-14.756	46.000	22.794	PK
5		450.616	33.824	6.799	-12.176	46.000	27.025	PK
6		624.731	35.593	4.934	-10.407	46.000	30.659	PK

Profile: 2231094R	Page No.: 2
Engineer: Carlos. Shen	
Site: AC2	Time: 2022/04/21 - 19:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by LE_1Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	50.370	33.823	14.363	-6.177	40.000	19.460	PK
2		104.933	26.453	4.190	-17.047	43.500	22.263	PK
3		235.761	39.194	16.374	-6.806	46.000	22.819	PK
4		351.919	30.501	5.467	-15.499	46.000	25.035	PK
5		521.305	33.238	6.622	-12.762	46.000	26.616	PK
6		814.972	37.345	4.454	-8.655	46.000	32.891	PK

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).

<b>4.3 Emissions in non-restricted frequency band</b>	<b>VERDICT: PASS</b>
---	----------------------

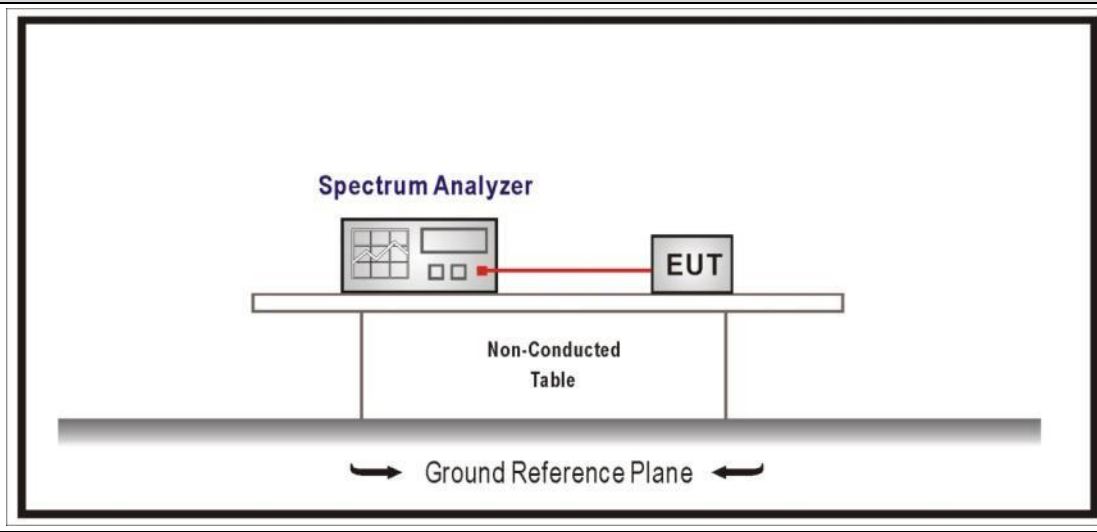
**4.3.1 Limit**

<b>Standard</b>	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**

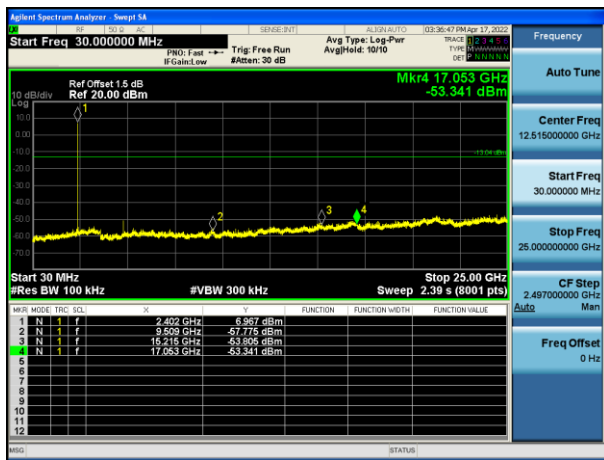


**4.3.3 Test Procedure**

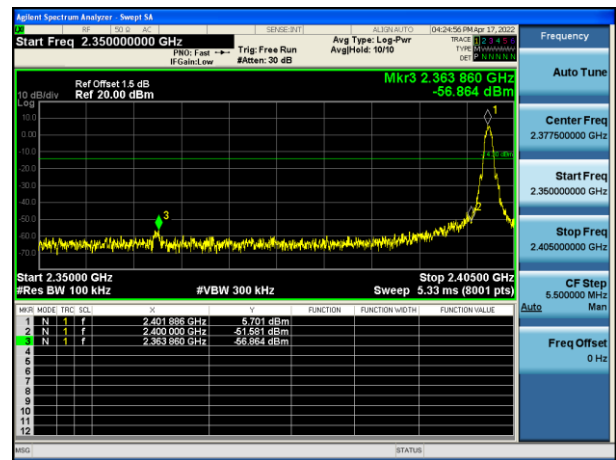
References Rule	Chapter	Description
<input checked="" type="checkbox"/> ANSI C63.10	11.11	Emissions in non-restricted frequency bands
<input checked="" type="checkbox"/> ANSI C63.10	11.11.1	General
<input checked="" type="checkbox"/> ANSI C63.10	11.11.2	Reference level measurement
<input checked="" type="checkbox"/> ANSI C63.10	11.11.3	Emission level measurement

### 4.3.4 Test Data

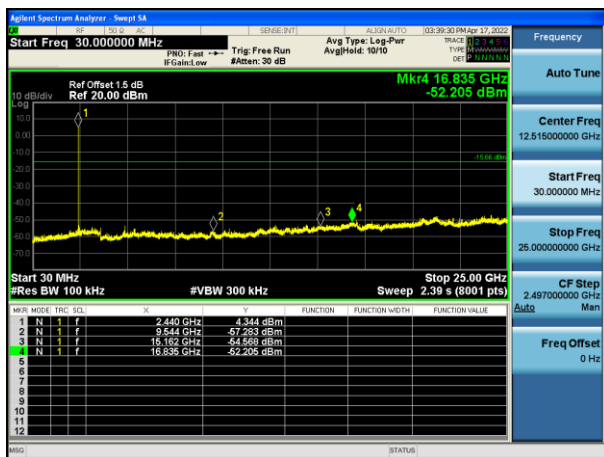
Mode 1 CH00 (2402MHz)



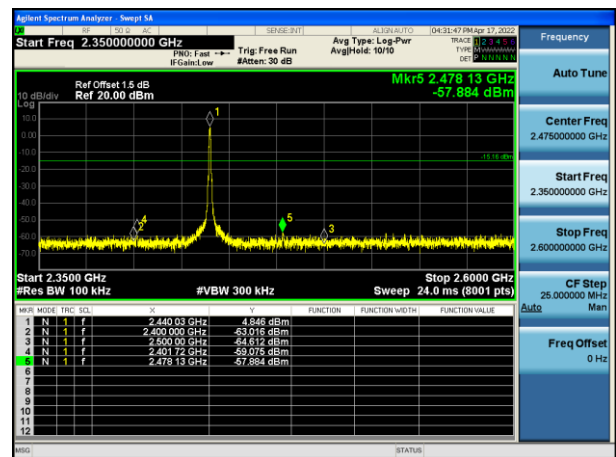
Mode 1 CH00 (2402MHz)



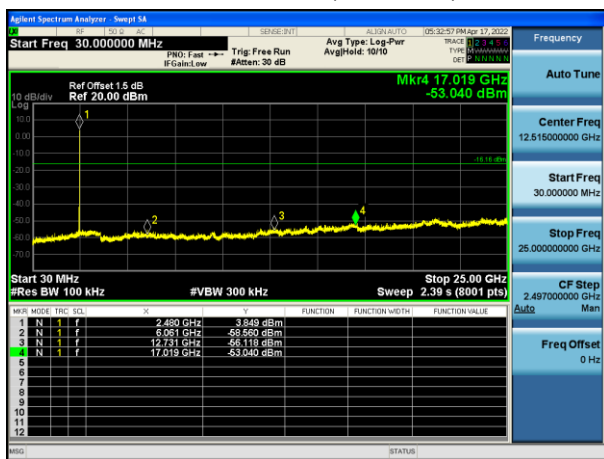
Mode 1 CH19 (2440MHz)



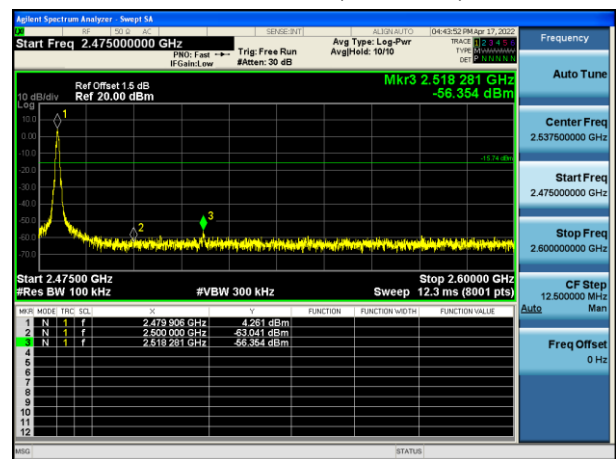
Mode 1 CH19 (2440MHz)



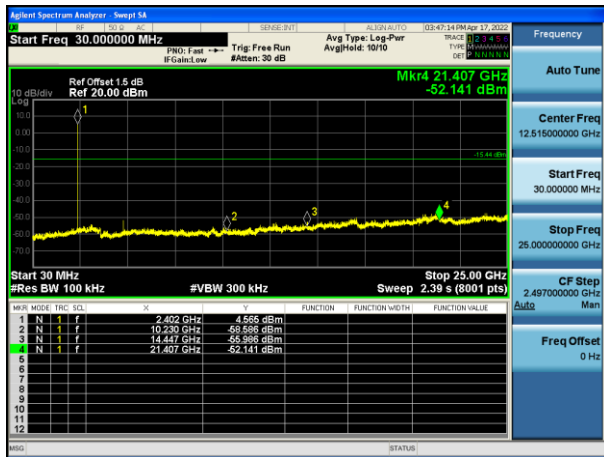
Mode 1 CH39 (2480MHz)



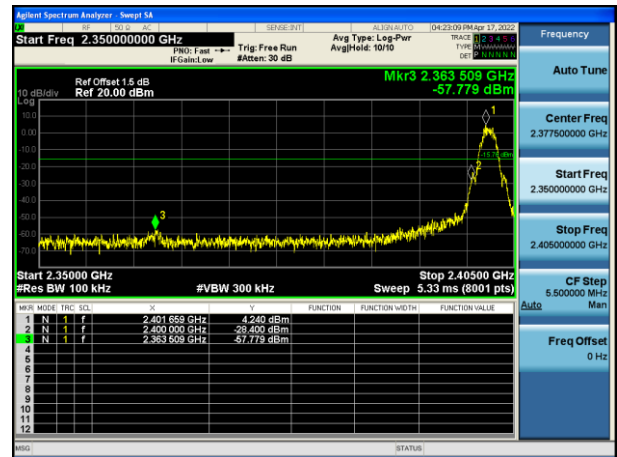
Mode 1 CH39 (2480MHz)



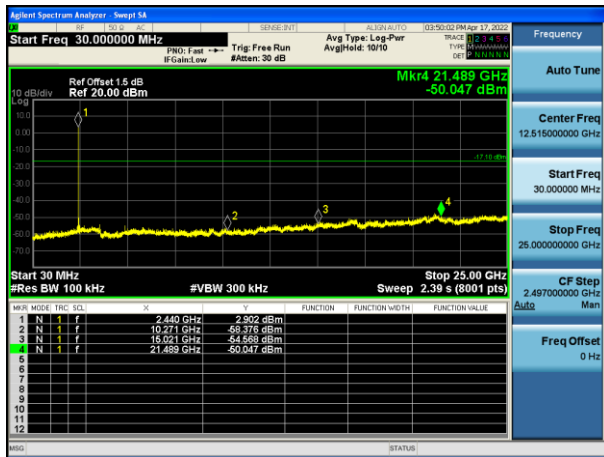
Mode 2 CH00 (2402MHz)



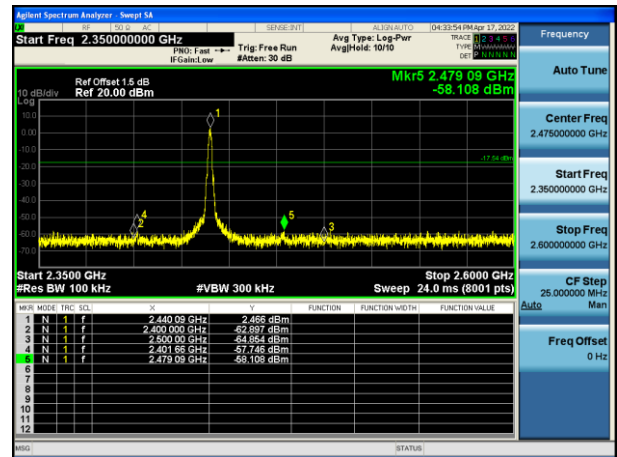
Mode 2 CH00 (2402MHz)



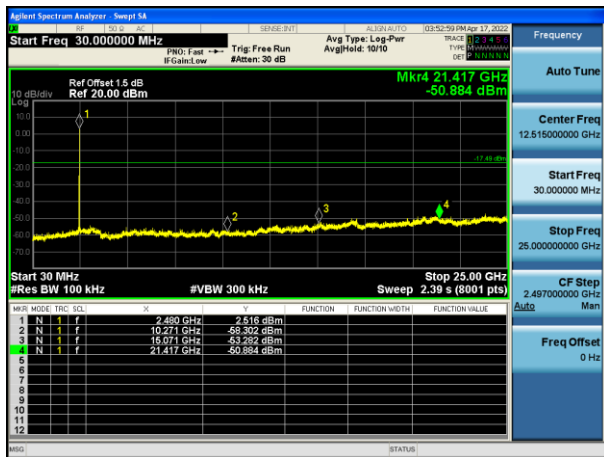
Mode 2 CH19 (2440MHz)



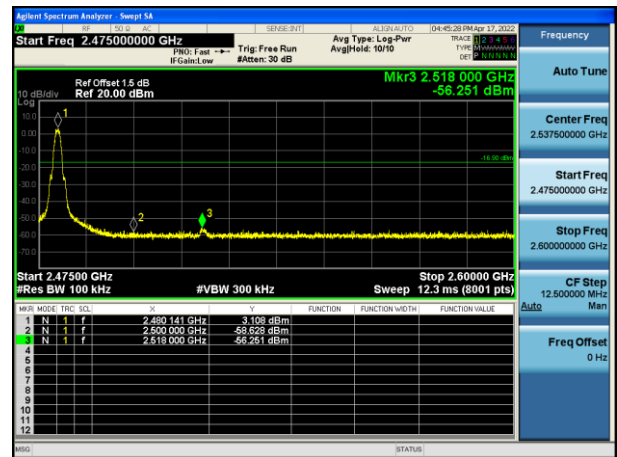
Mode 2 CH19 (2440MHz)



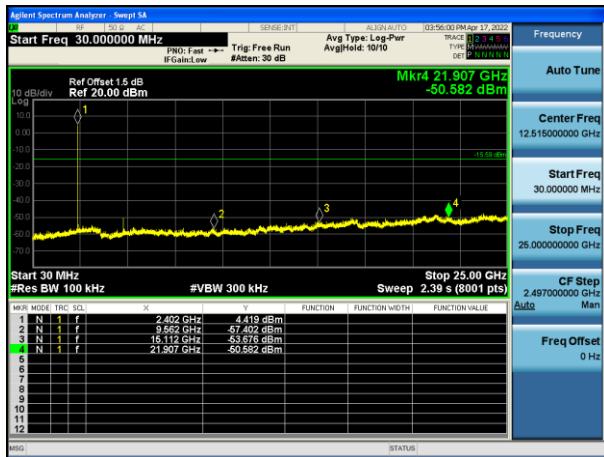
Mode 2 CH39 (2480MHz)



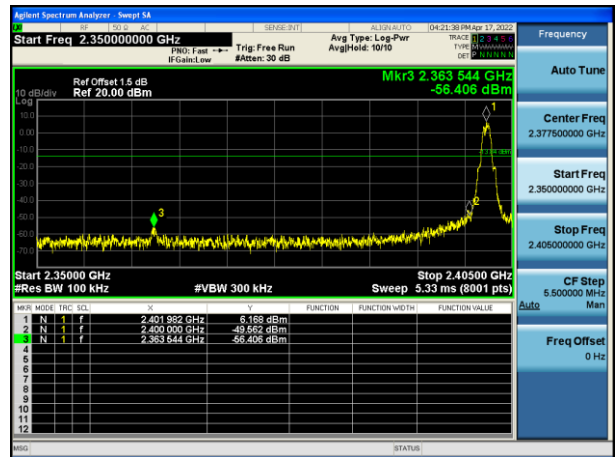
Mode 2 CH39 (2480MHz)



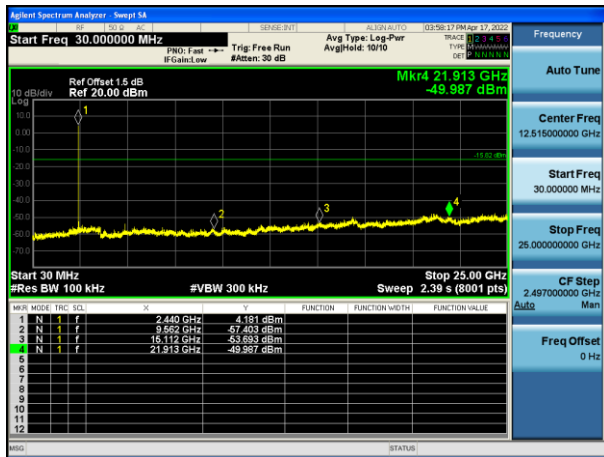
Mode 3 CH00 (2402MHz)



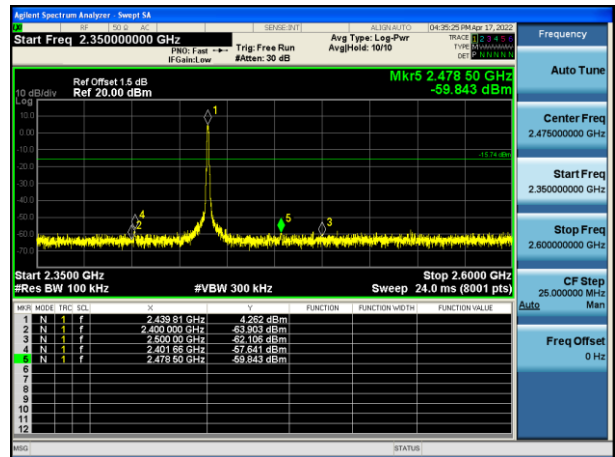
Mode 3 CH00 (2402MHz)



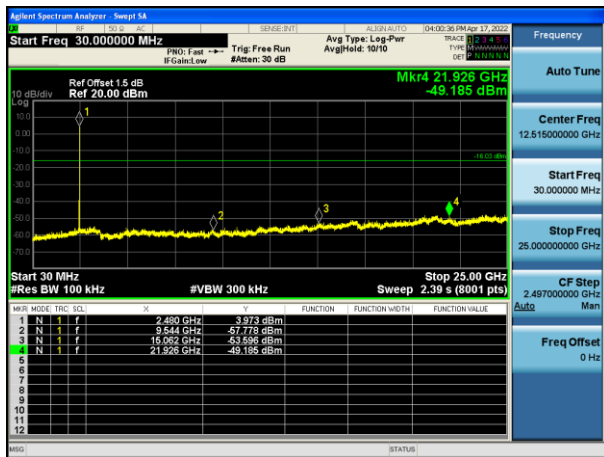
Mode 3 CH19 (2440MHz)



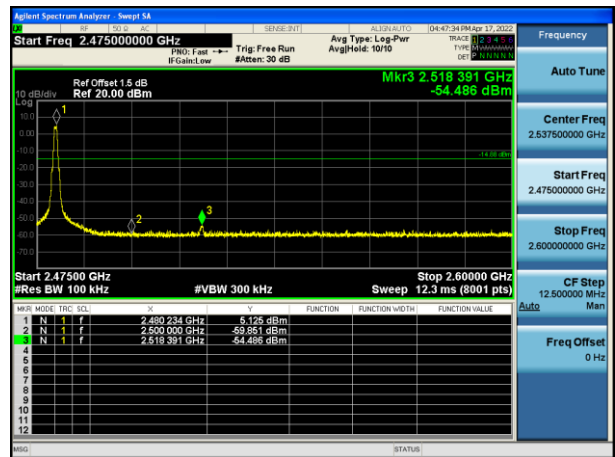
Mode 3 CH19 (2440MHz)



Mode 3 CH39 (2480MHz)



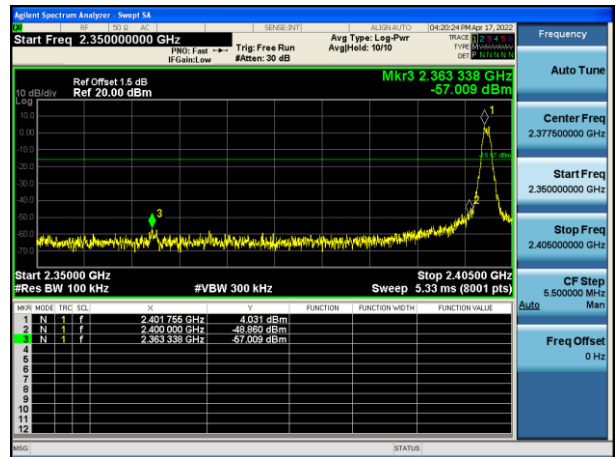
Mode 3 CH39 (2480MHz)



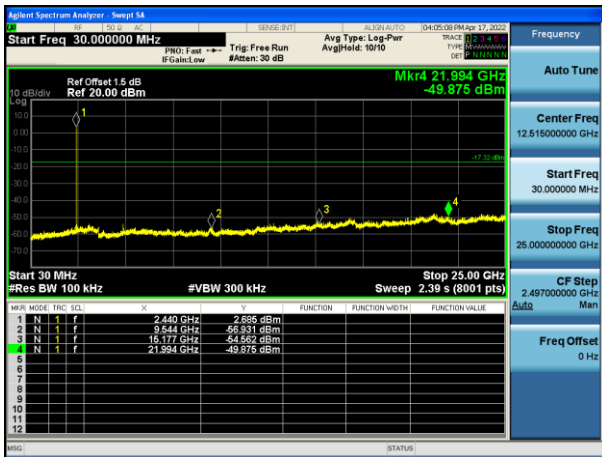
Mode 4 CH00 (2402MHz)



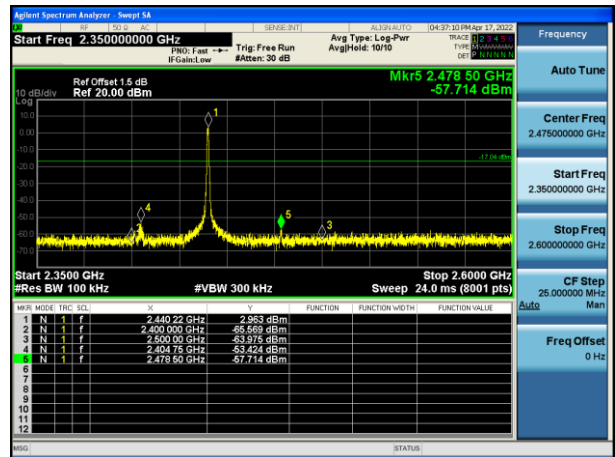
Mode 4 CH00 (2402MHz)



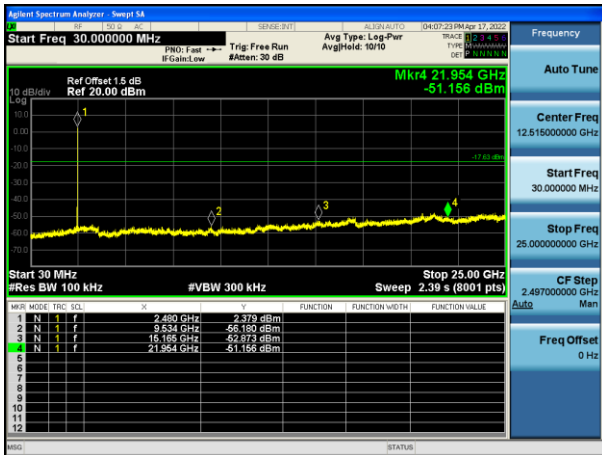
Mode 4 CH19 (2440MHz)



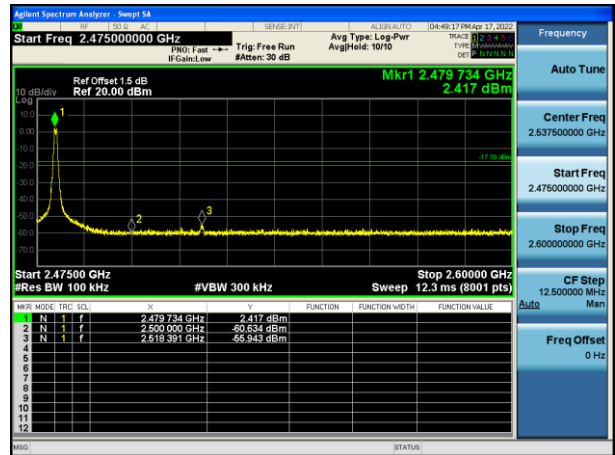
Mode 4 CH19 (2440MHz)



Mode 4 CH39 (2480MHz)



Mode 4 CH39 (2480MHz)

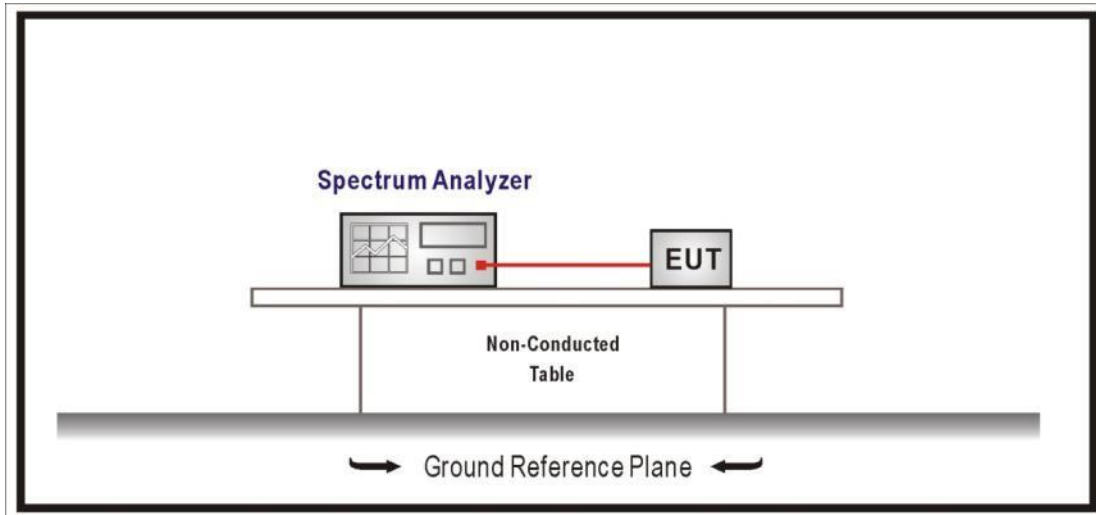




<b>4.4 Duty cycle</b>	<b>VERDICT: PASS</b>
-----------------------	----------------------

<b>4.4.1 Limit</b>
N/A

**4.4.2 Test Setup**



**4.4.3 Test Procedure**

References Rule	Chapter	Description
<input checked="" type="checkbox"/> ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

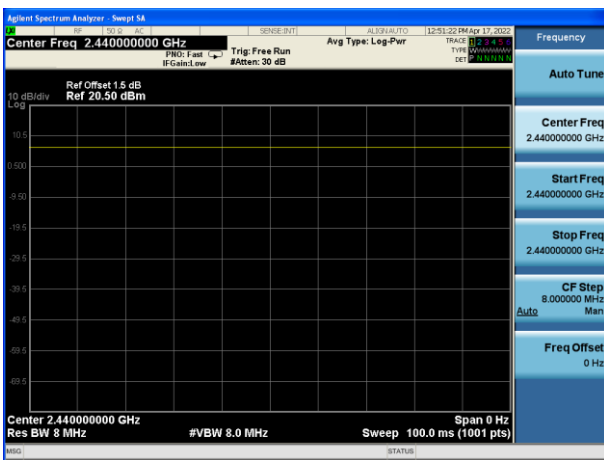
### 4.4.4 Test Data

Test Mode	Tx On (ms)	Duty Cycle	VBW (kHz)	Detect
Mode 1	--	100%	3000	RMS
Mode 2	--	100%	3000	RMS
Mode 3	--	100%	3000	RMS
Mode 4	--	100%	3000	RMS

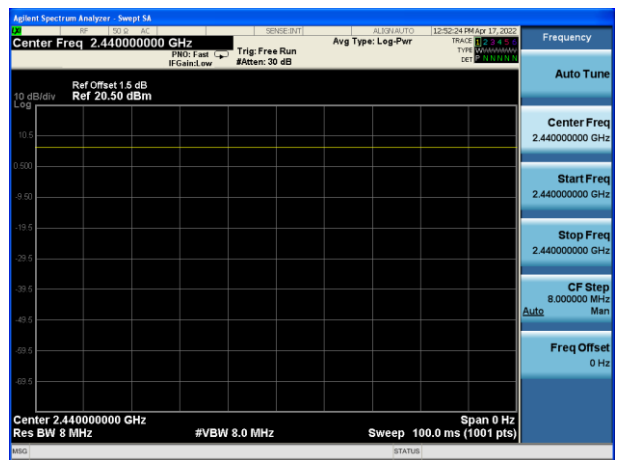
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control Level for the tested mode of operation.

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

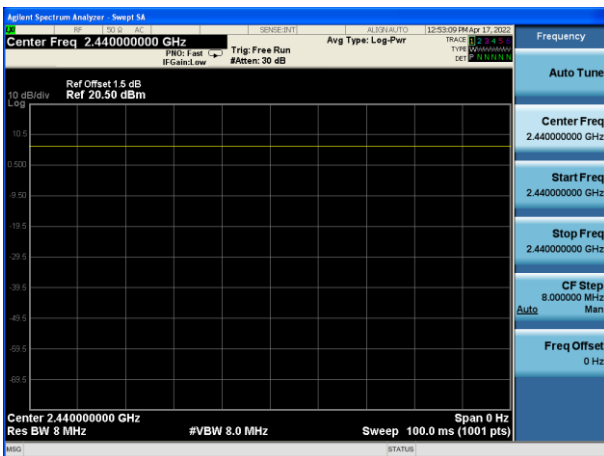
Mode 1 CH19 2440MHz



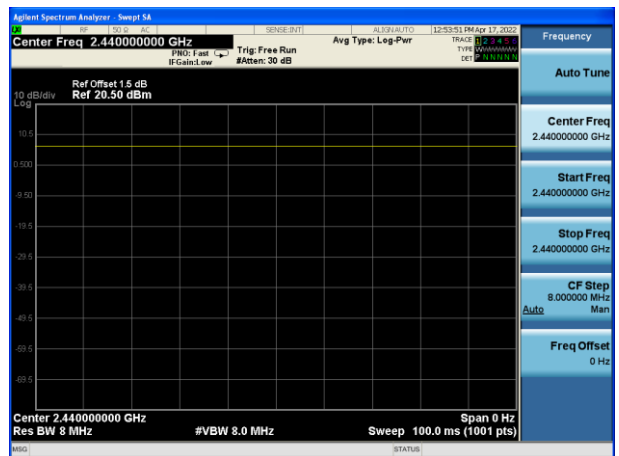
Mode 2 CH19 2440MHz



Mode 3 CH19 2440MHz



Mode 4 CH19 2440MHz



**4.5 Radiated Emission Band Edge**

**VERDICT: PASS**

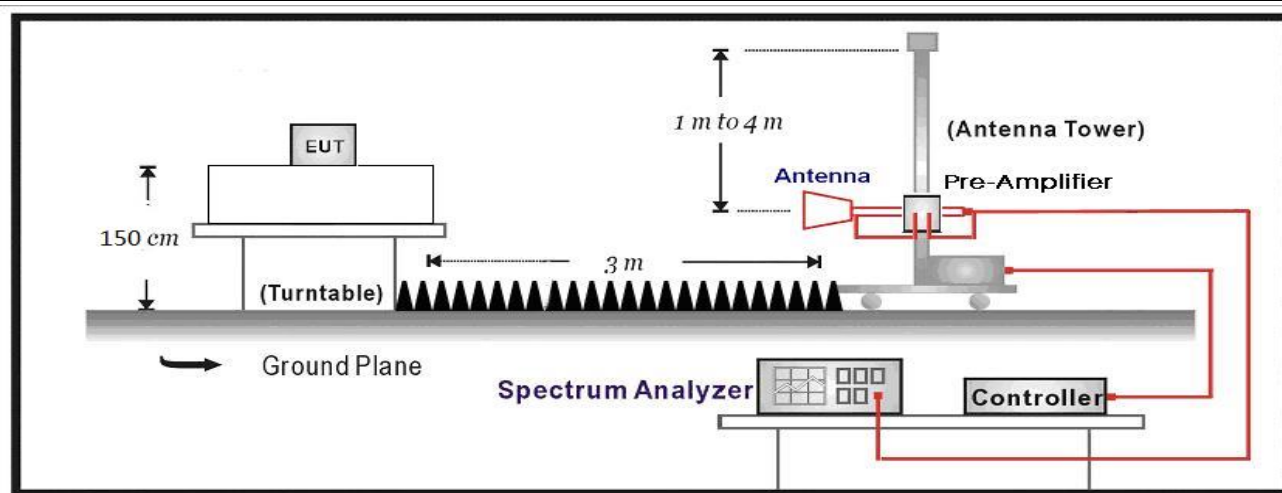
**4.5.1 Limit**

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

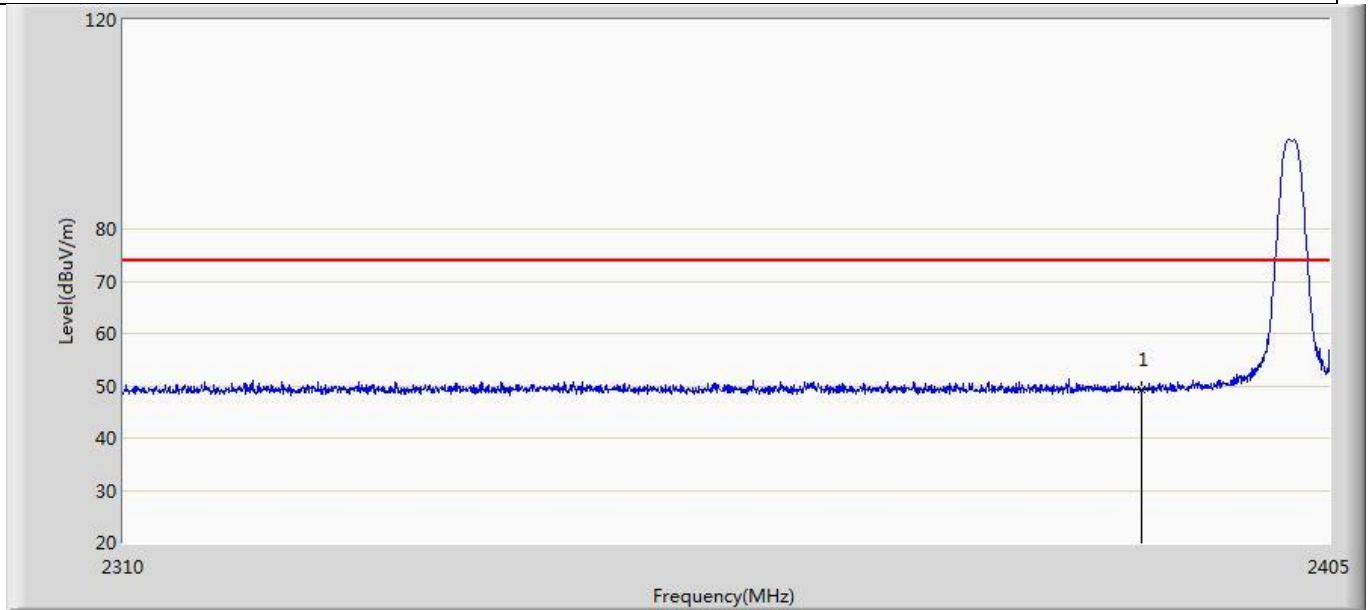


**4.5.3 Test Procedure**

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

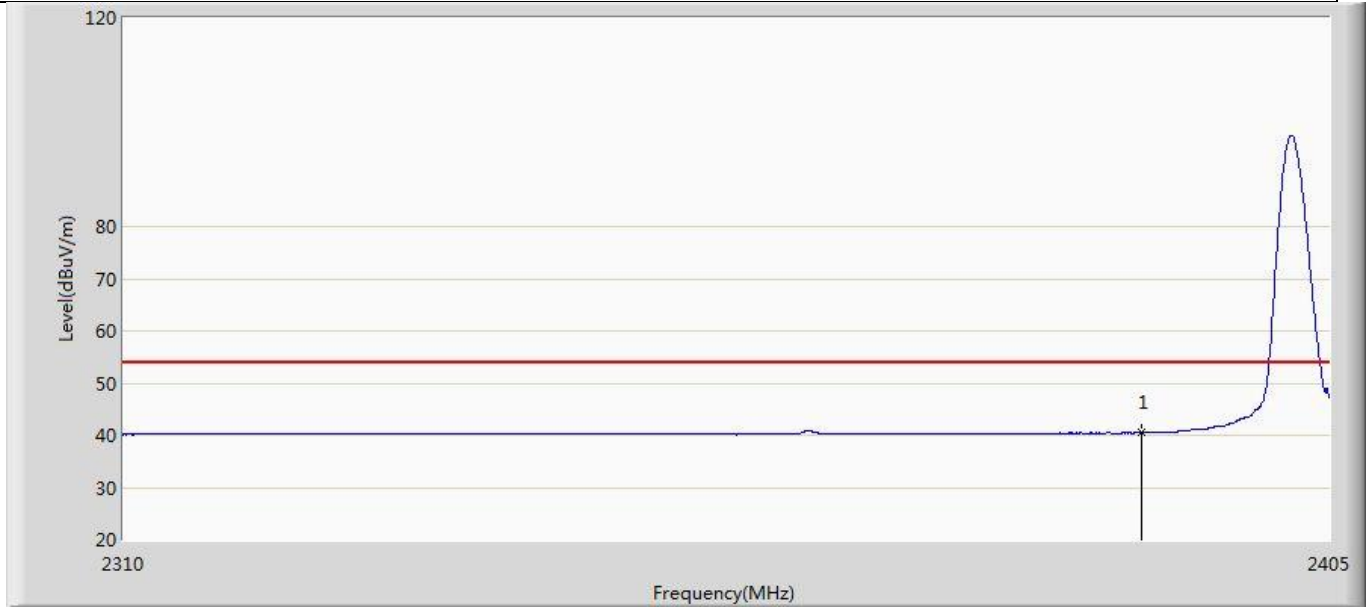
**4.5.4 Test Data**

Profile: 2231094R	Page No.: 2
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:38
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 by LE_1Mbps	



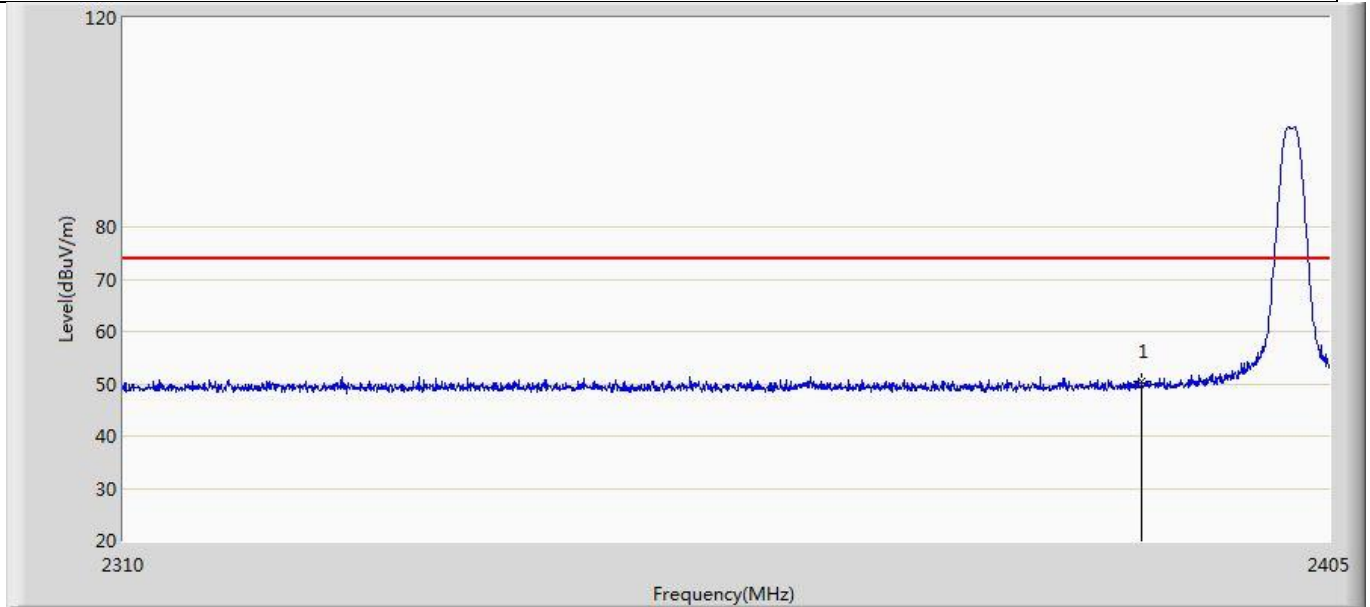
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	49.251	13.153	-24.749	74.000	36.098	PK

Profile: 2231094R	Page No.: 1
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12 - 00:39
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 by LE_1Mbps	



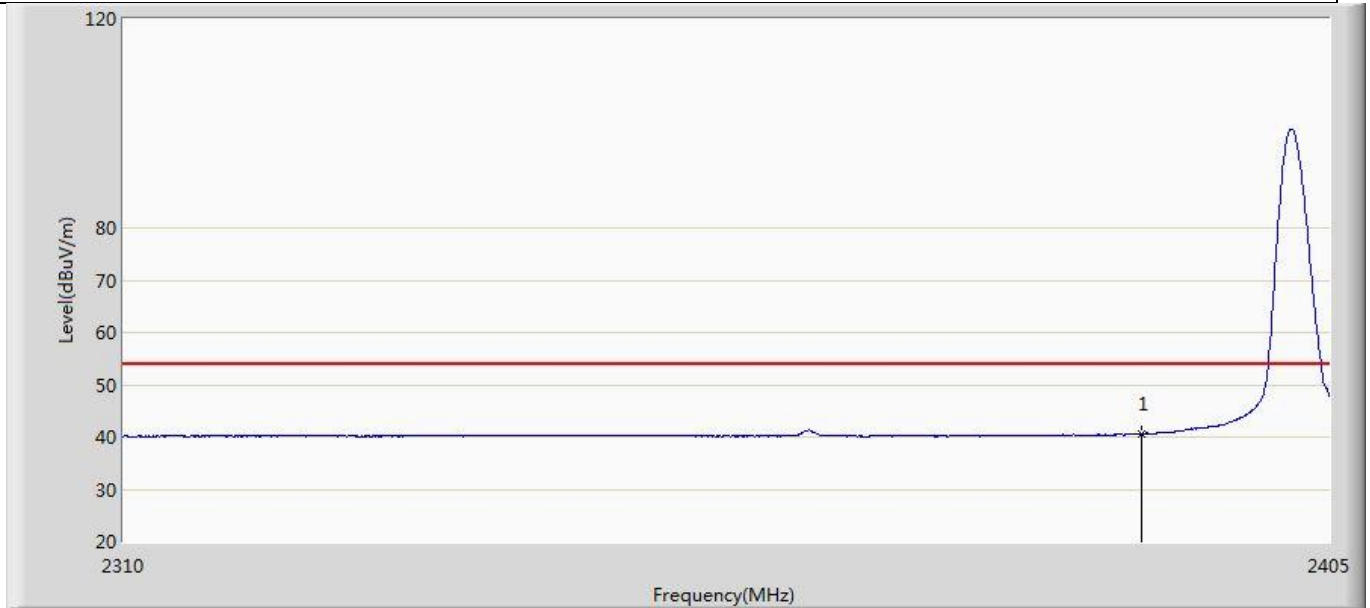
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	40.523	4.425	-13.477	54.000	36.098	AV

Profile: 2231094R	Page No.: 4
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:43
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 by LE_1Mbps	



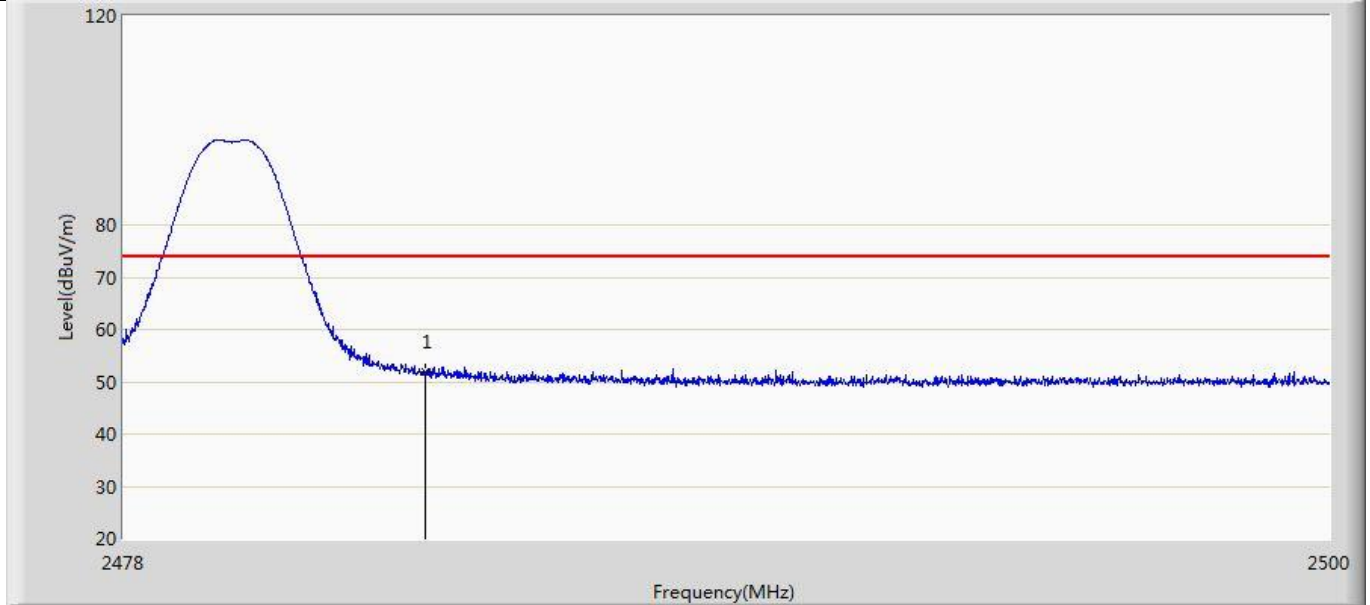
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	50.433	14.335	-23.567	74.000	36.098	PK

Profile: 2231094R	Page No.: 3
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:39
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 by LE_1Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	40.567	4.469	-13.433	54.000	36.098	AV

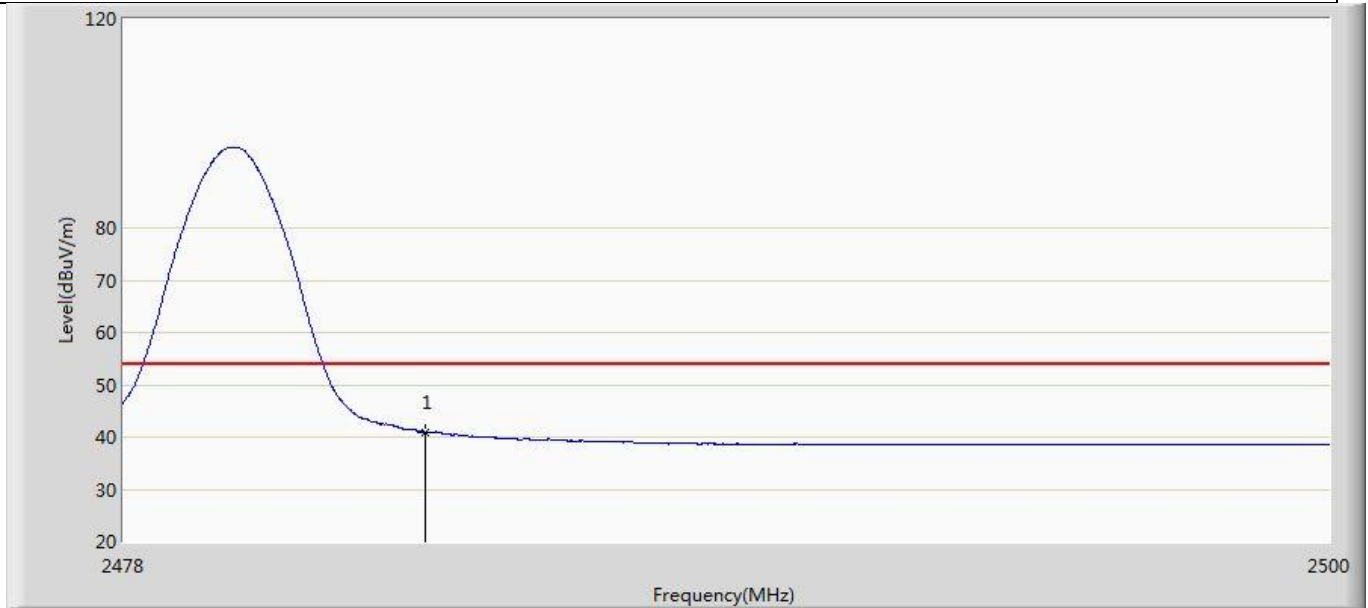
Profile: 2231094R	Page No.: 6
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by LE_1Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	51.800	15.580	-22.200	74.000	36.220	PK

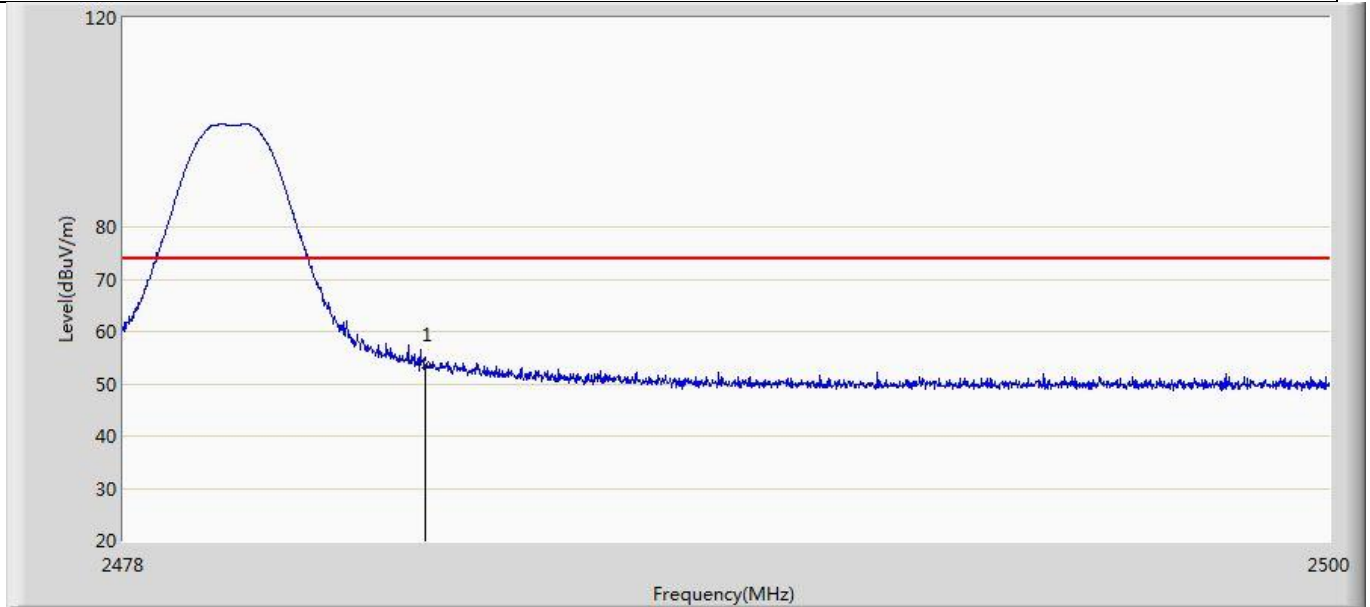


Profile: 2231094R	Page No.: 5
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by LE_1Mbps	



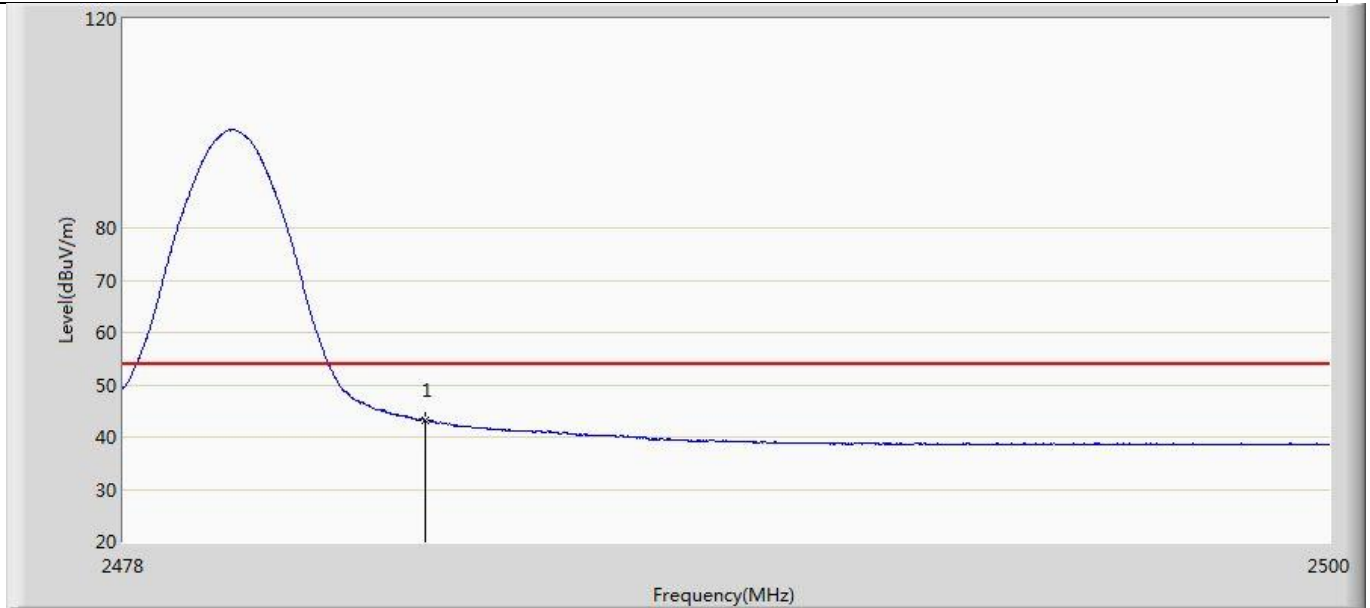
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	40.878	4.658	-13.122	54.000	36.220	AV

Profile: 2231094R	Page No.: 8
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:52
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 by LE_1Mbps	



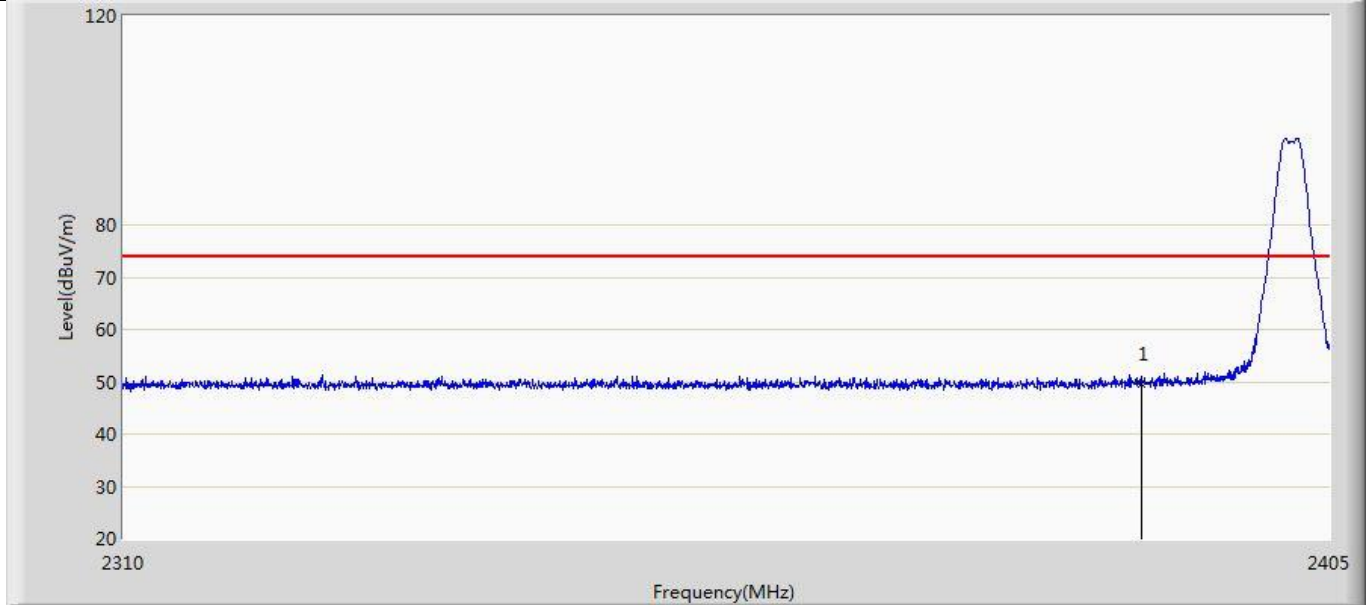
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	53.656	17.436	-20.344	74.000	36.220	PK

Profile: 2231094R	Page No.: 7
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:49
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 by LE_1Mbps	



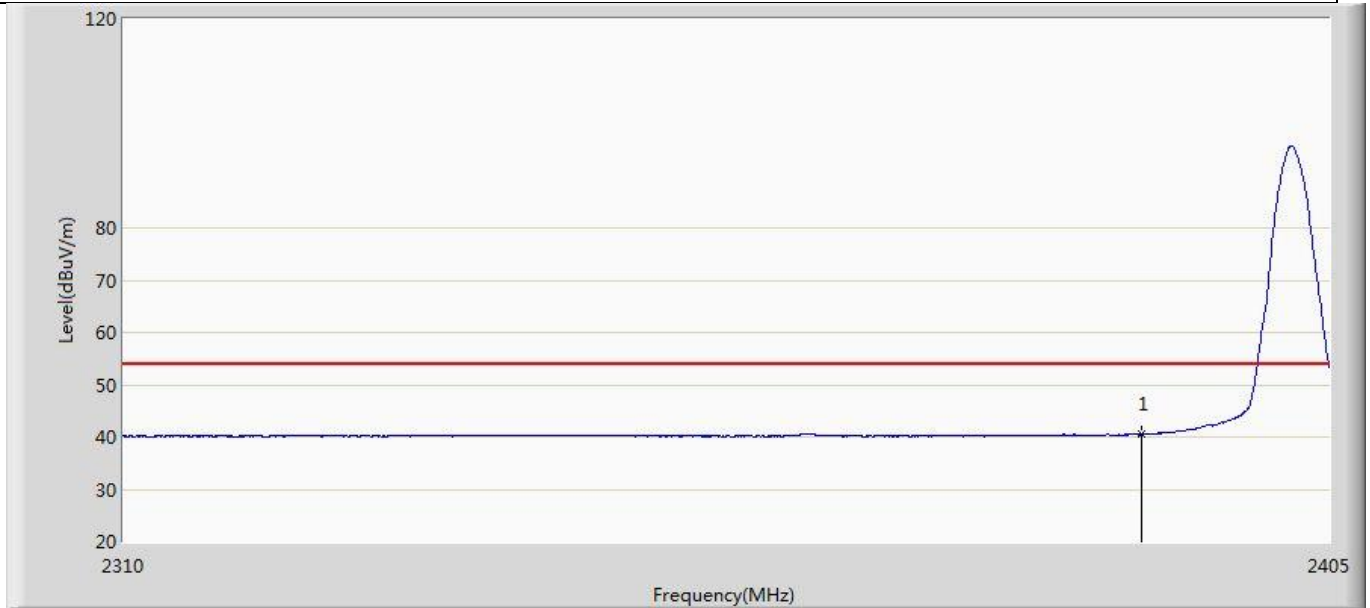
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	43.067	6.847	-10.933	54.000	36.220	AV

Profile: 2231094R	Page No.: 10
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:57
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 by LE_2Mbps	



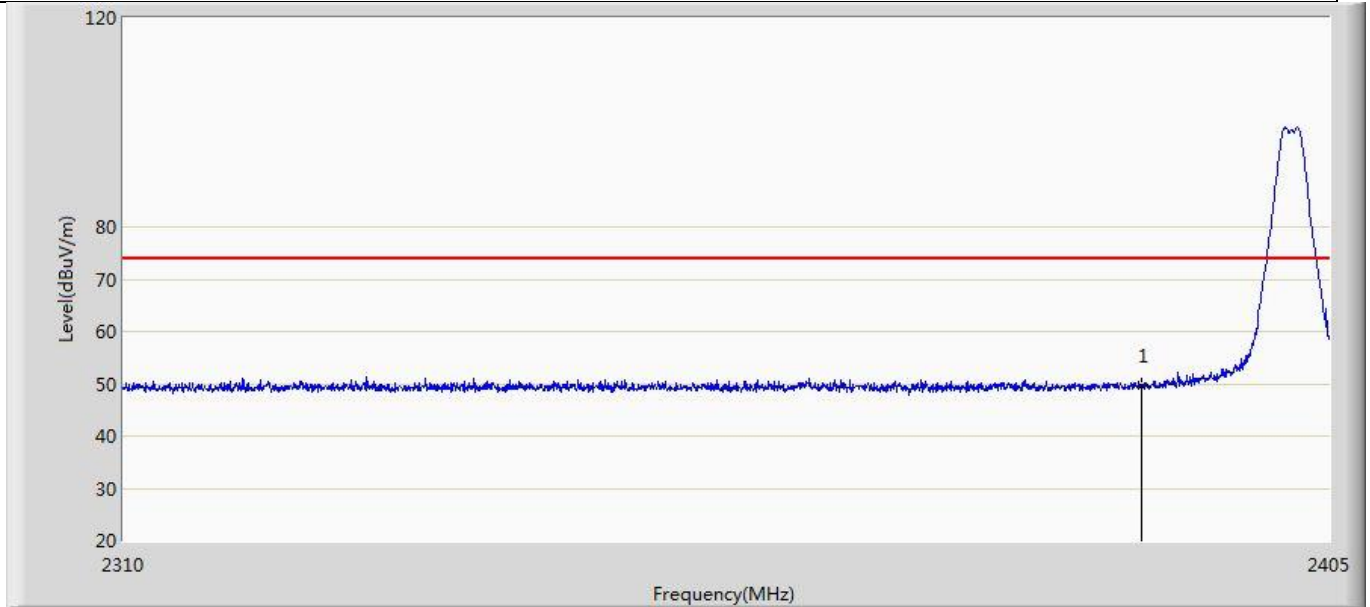
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	49.460	13.362	-24.540	74.000	36.098	PK

Profile: 2231094R	Page No.: 9
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 19:54
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 by LE_2Mbps	



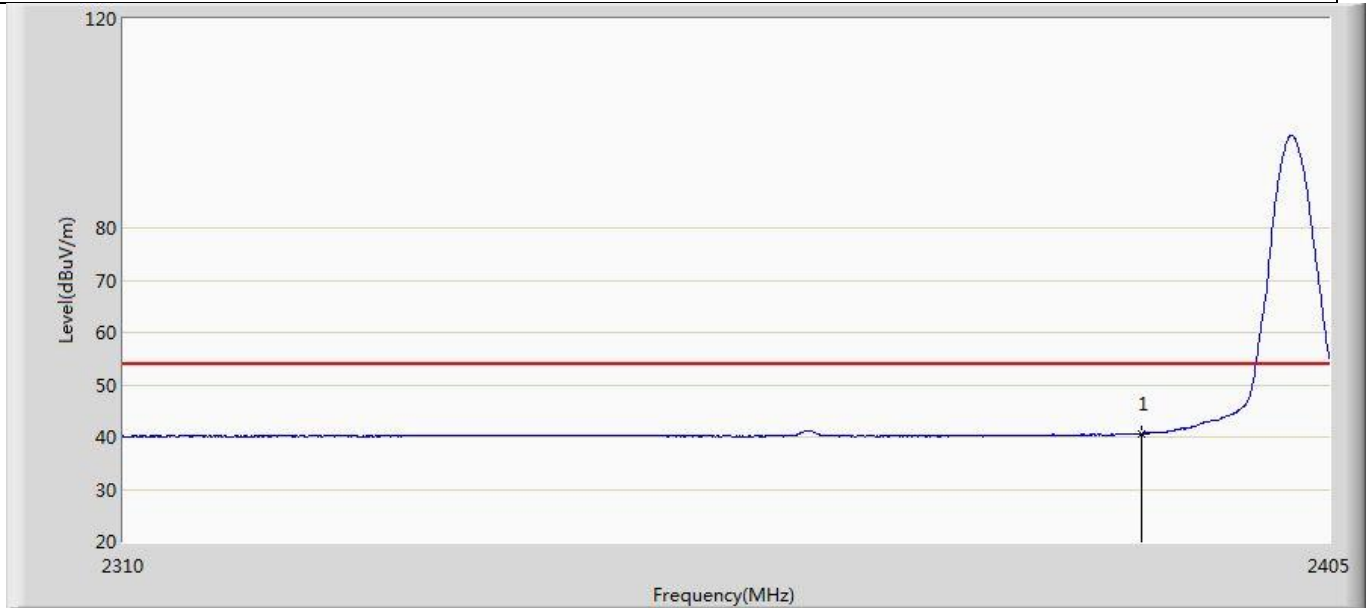
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	40.483	4.385	-13.517	54.000	36.098	AV

Profile: 2231094R	Page No.: 12
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:12
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 2:Transmit at 2402MHz by LE_2Mbps	



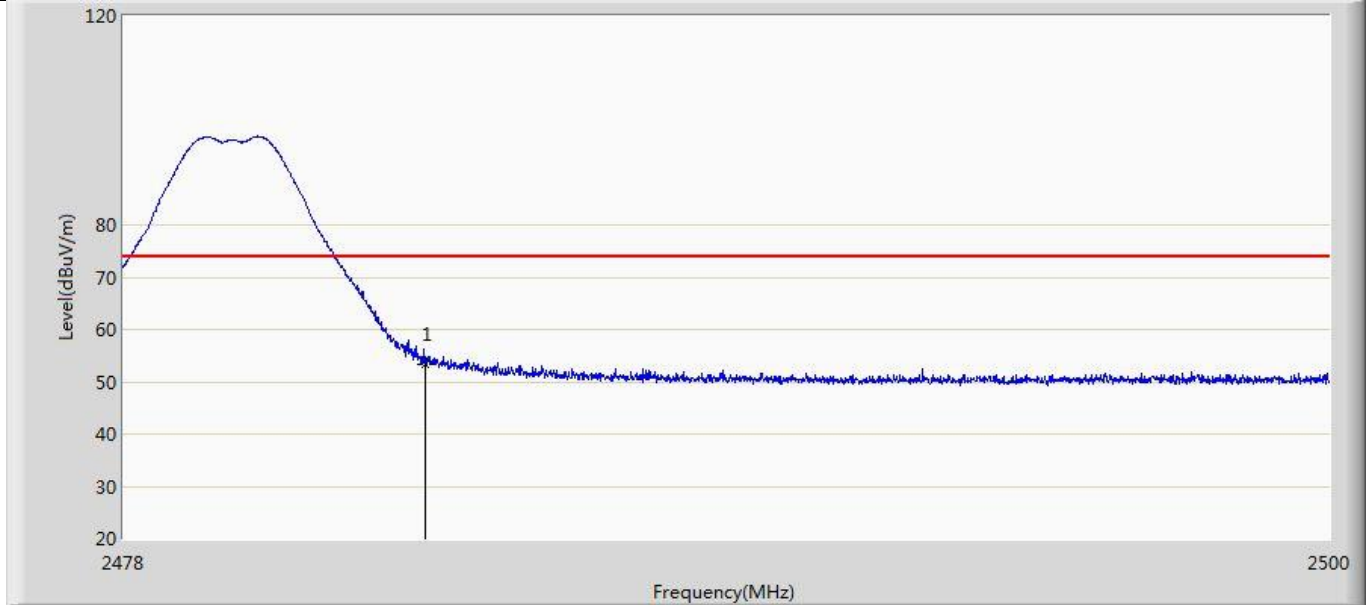
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	49.669	13.571	-24.331	74.000	36.098	PK

Profile: 2231094R	Page No.: 11
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:11
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 2:Transmit at 2402MHz by LE_2Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	40.694	4.596	-13.306	54.000	36.098	AV

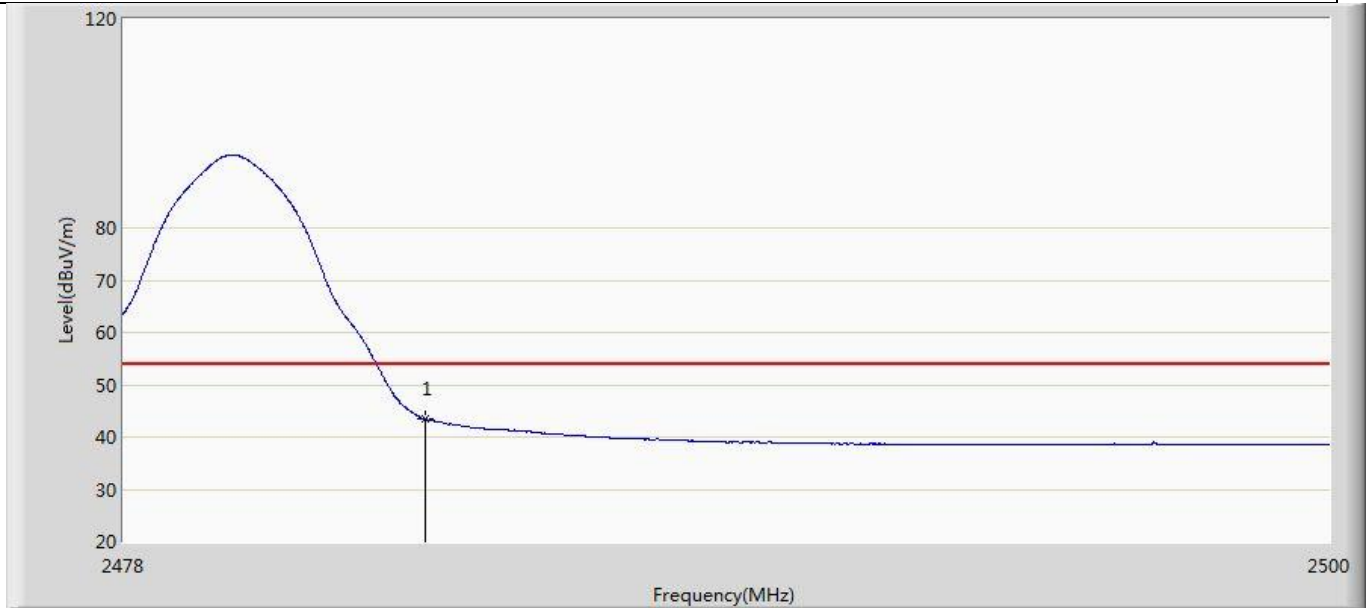
Profile: 2231094R	Page No.: 14
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by LE_2Mbps	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	53.443	17.223	-20.557	74.000	36.220	PK

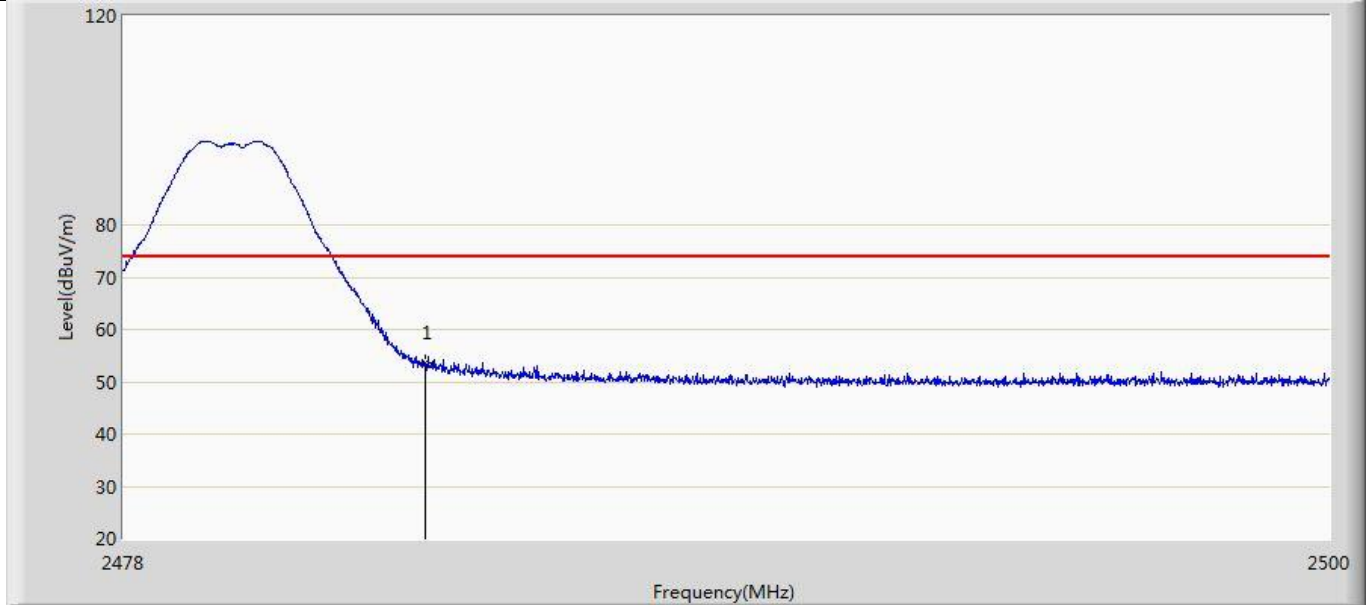


Profile: 2231094R	Page No.: 13
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by LE_2Mbps	



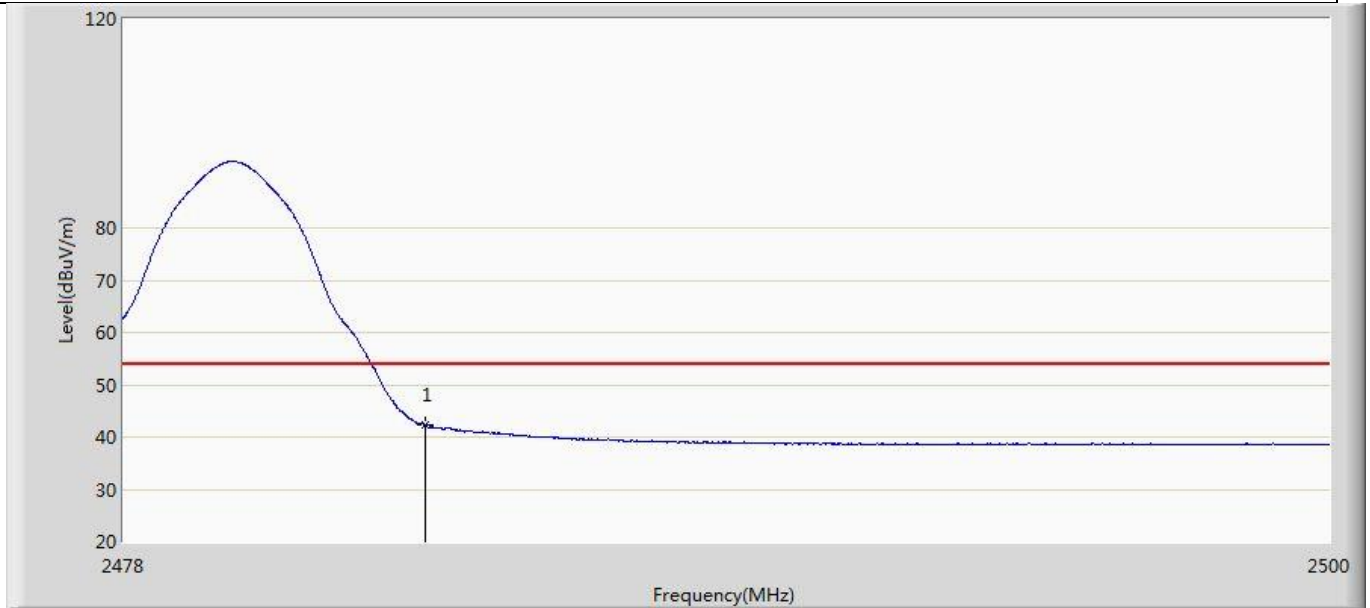
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	43.454	7.234	-10.546	54.000	36.220	AV

Profile: 2231094R	Page No.: 16
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:18
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 by LE_2Mbps	



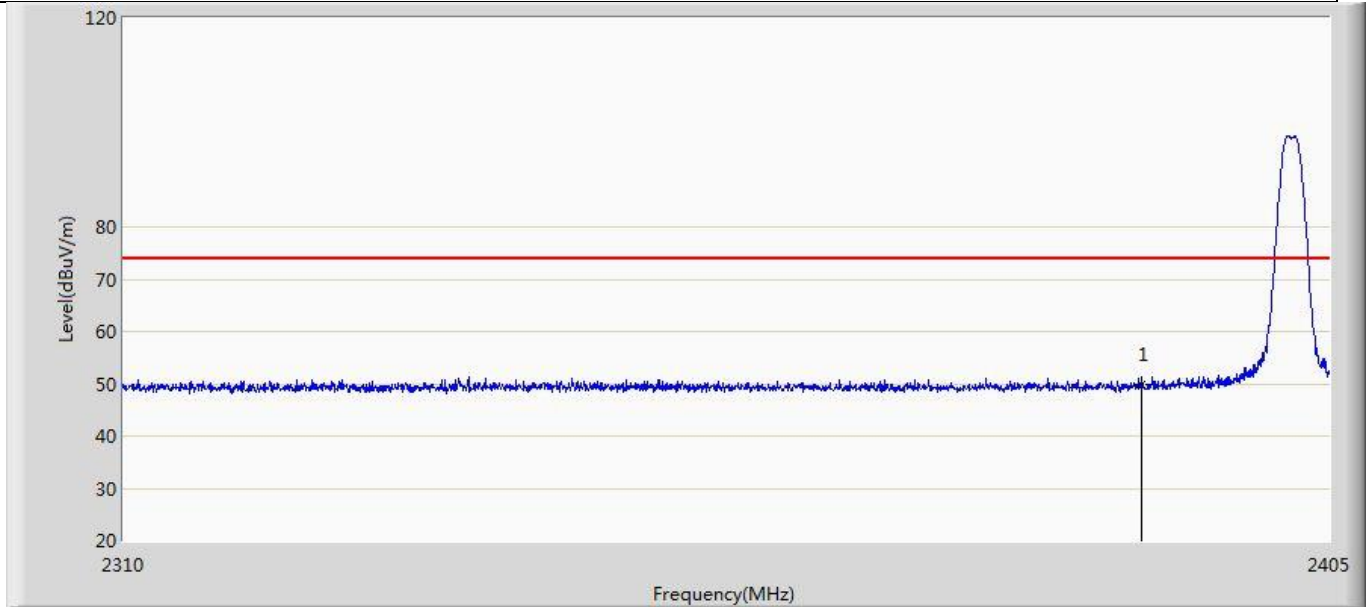
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	53.658	17.438	-20.342	74.000	36.220	PK

Profile: 2231094R	Page No.: 15
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:17
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 2:Transmit at 2480MHz by LE_2Mbps	



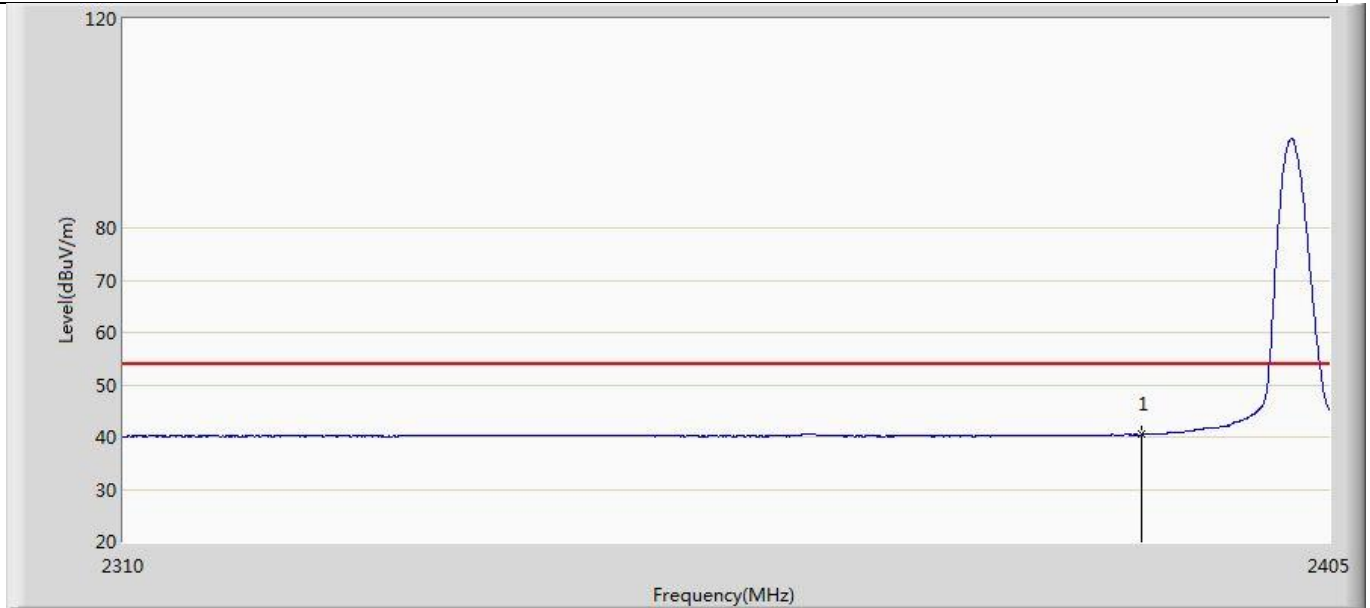
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	42.375	6.155	-11.625	54.000	36.220	AV

Profile: 2231094R	Page No.: 18
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:22
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 by LE_Coded S=2	



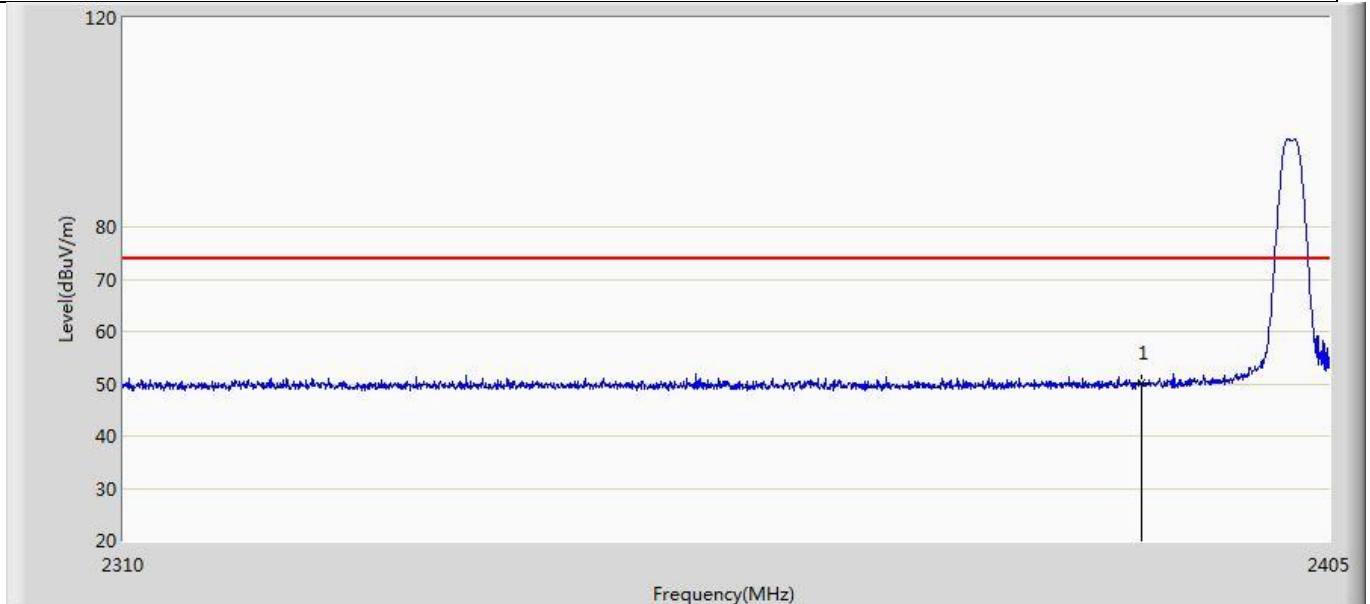
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	49.727	13.629	-24.273	74.000	36.098	PK

Profile: 2231094R	Page No.: 17
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:20
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 2402MHz by LE_Coded S=2	



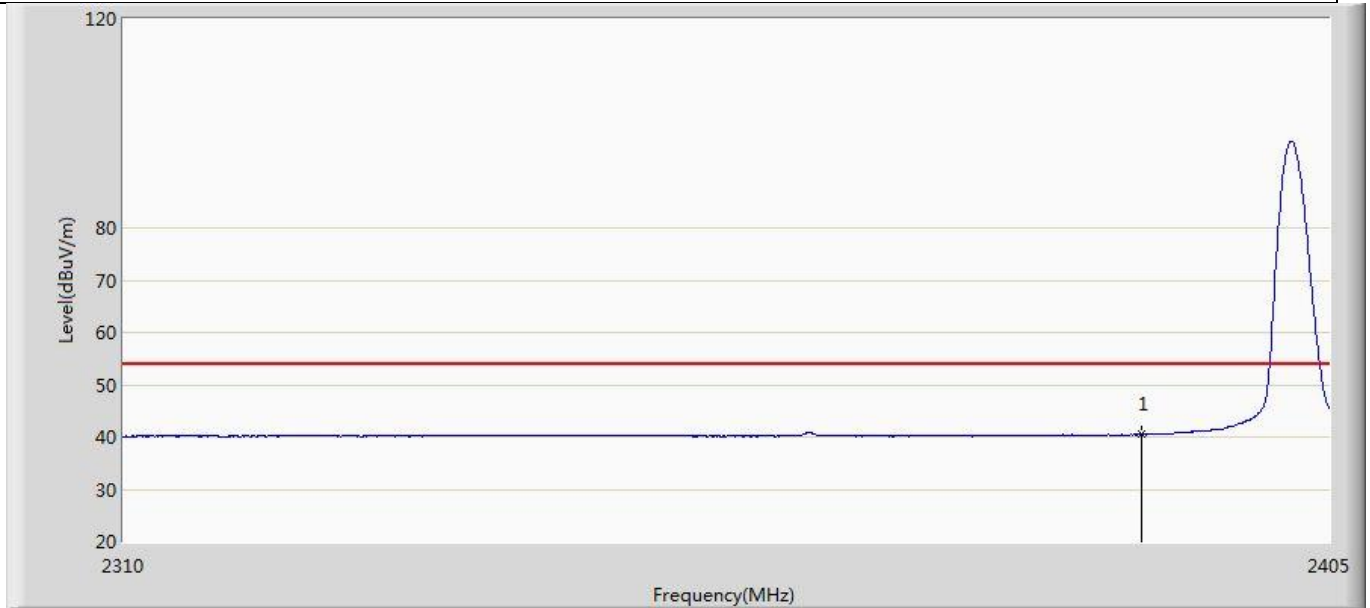
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	40.450	4.352	-13.550	54.000	36.098	AV

Profile: 2231094R	Page No.: 20
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:24
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 3:Transmit at 2402MHz by LE_Coded S=2	



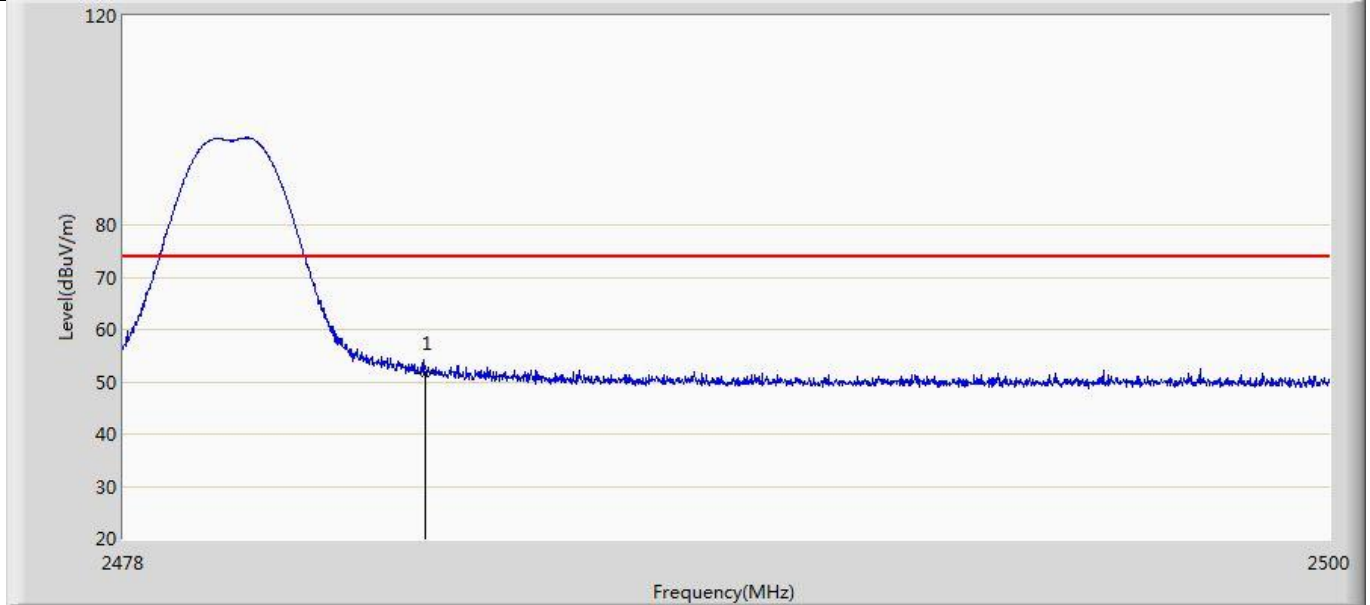
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	50.048	13.950	-23.952	74.000	36.098	PK

Profile: 2231094R	Page No.: 19
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:23
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 by LE_Coded S=2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	40.484	4.386	-13.516	54.000	36.098	AV

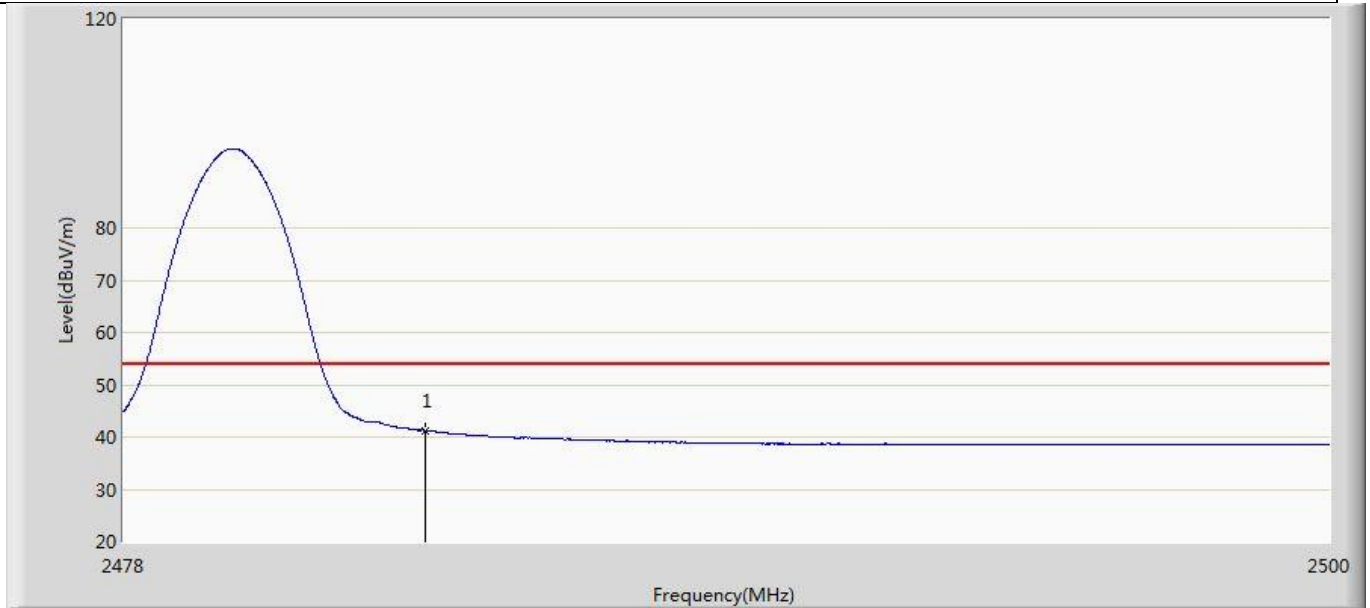
Profile: 2231094R	Page No.: 22
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by LE_Coded S=2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	51.671	15.451	-22.329	74.000	36.220	PK

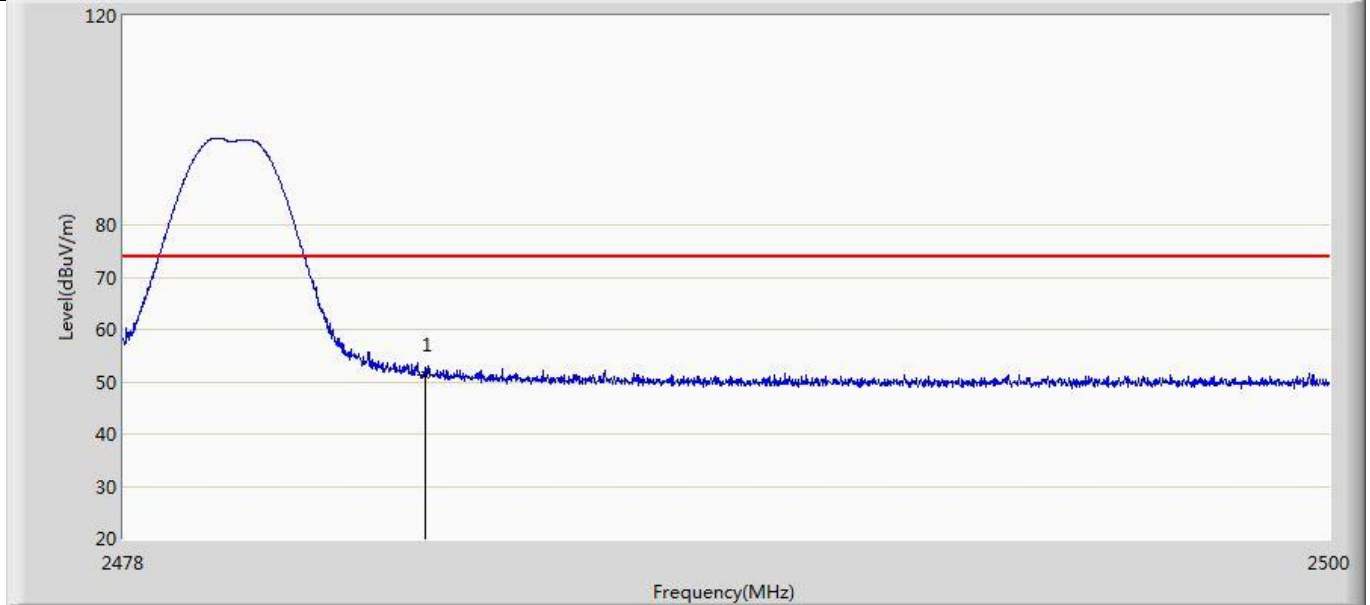


Profile: 2231094R	Page No.: 21
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by LE_Coded S=2	



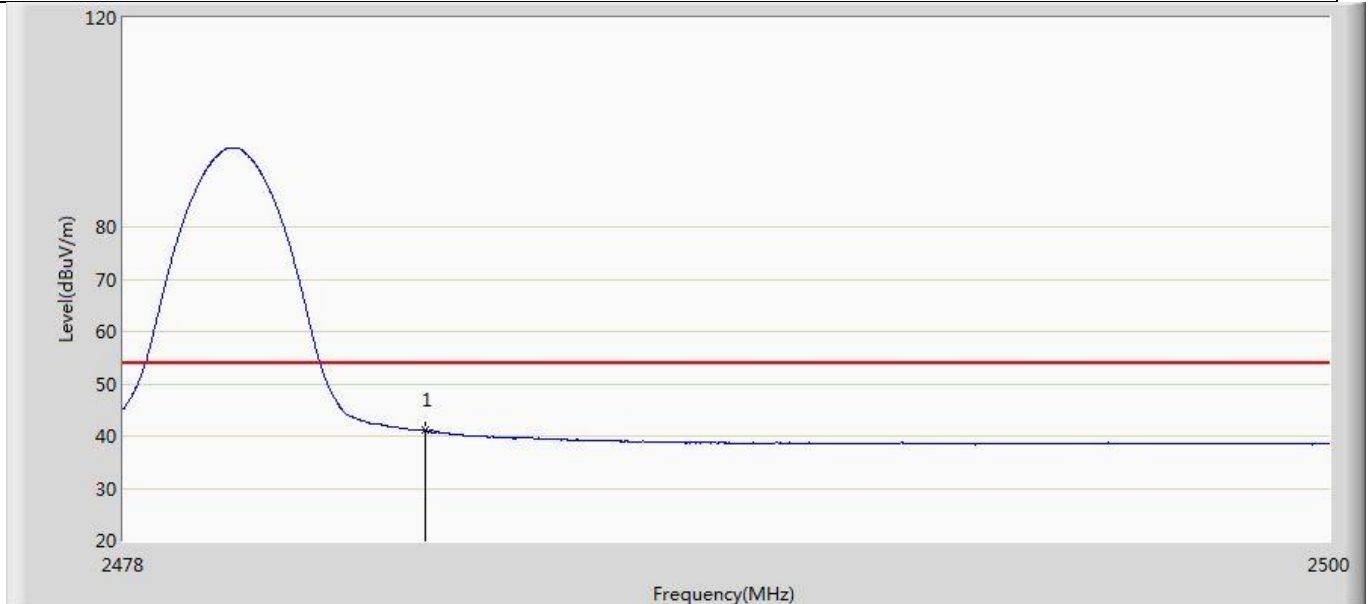
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	41.213	4.993	-12.787	54.000	36.220	AV

Profile: 2231094R	Page No.: 24
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:30
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 2480MHz by LE_Coded S=2	



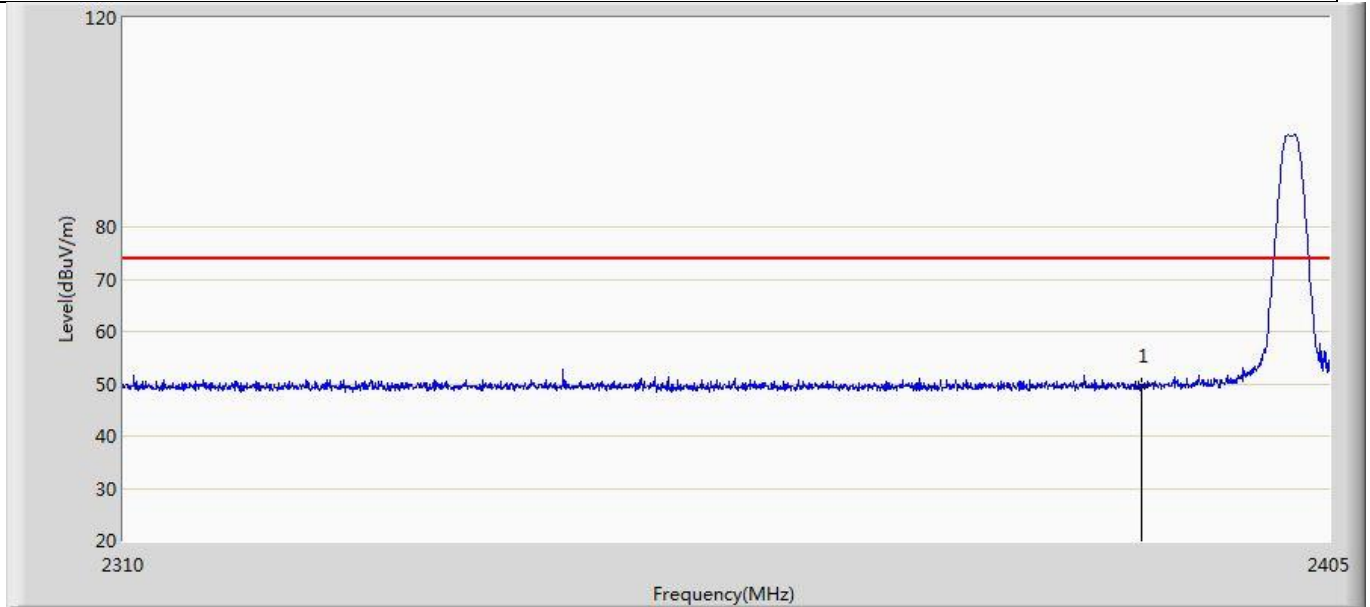
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	51.239	15.019	-22.761	74.000	36.220	PK

Profile: 2231094R	Page No.: 23
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:28
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 by LE_Coded S=2	



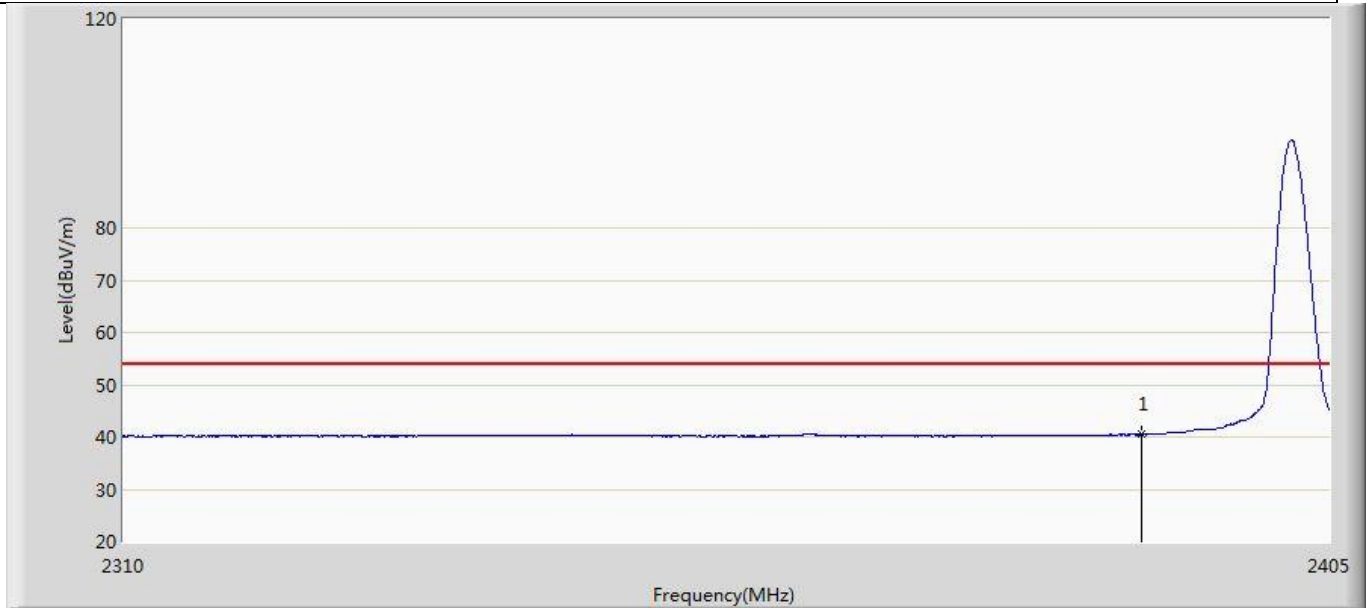
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	41.112	4.892	-12.888	54.000	36.220	AV

Profile: 2231094R	Page No.: 26
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 23:02
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 2402MHz by LE_Coded S=8	



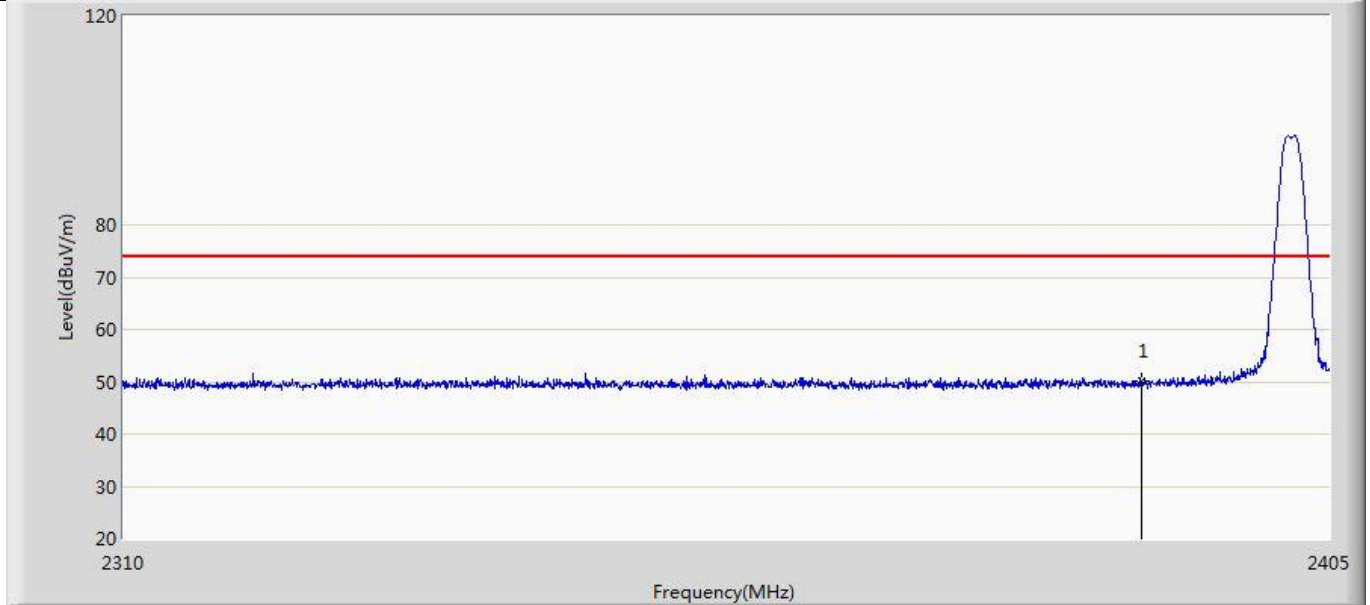
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	49.526	13.428	-24.474	74.000	36.098	PK

Profile: 2231094R	Page No.: 25
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 22:31
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 by LE_Coded S=8	



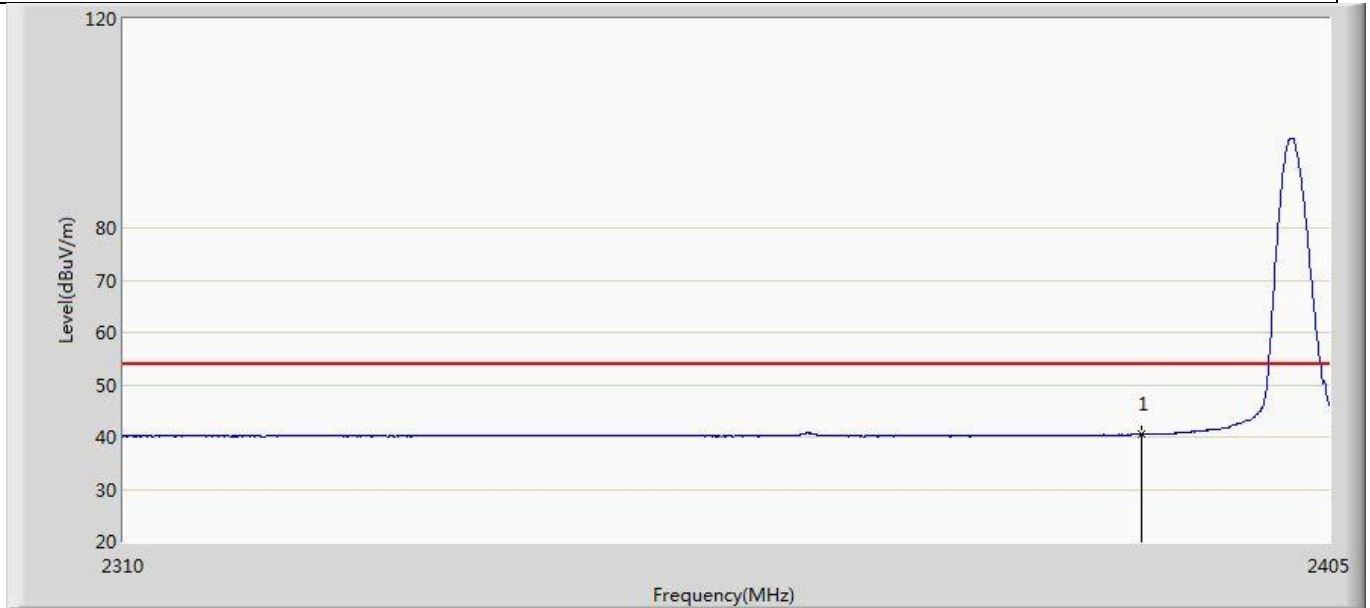
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	40.532	4.434	-13.468	54.000	36.098	AV

Profile: 2231094R	Page No.: 28
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 23:04
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 4:Transmit at 2402MHz by LE_Coded S=8	



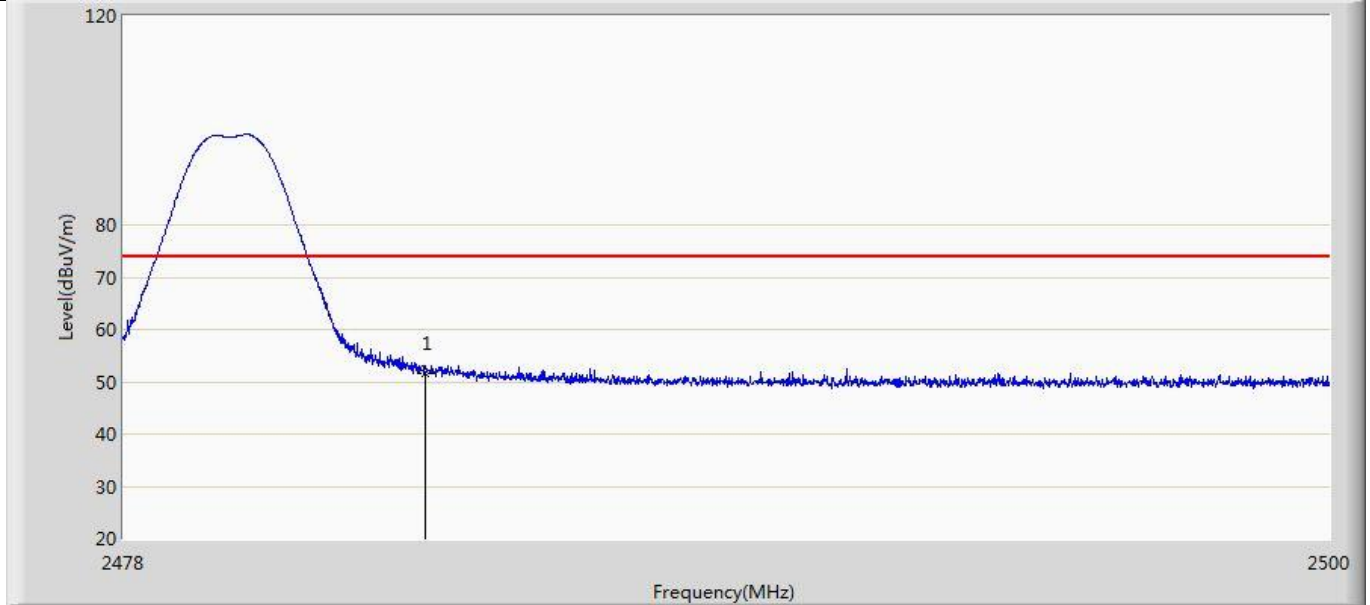
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	50.054	13.956	-23.946	74.000	36.098	PK

Profile: 2231094R	Page No.: 27
Engineer: Carlos. Shen	
Site: AC5	Time: 2020/04/12- 23:03
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 2402MHz by LE_Coded S=8	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	40.459	4.361	-13.541	54.000	36.098	AV

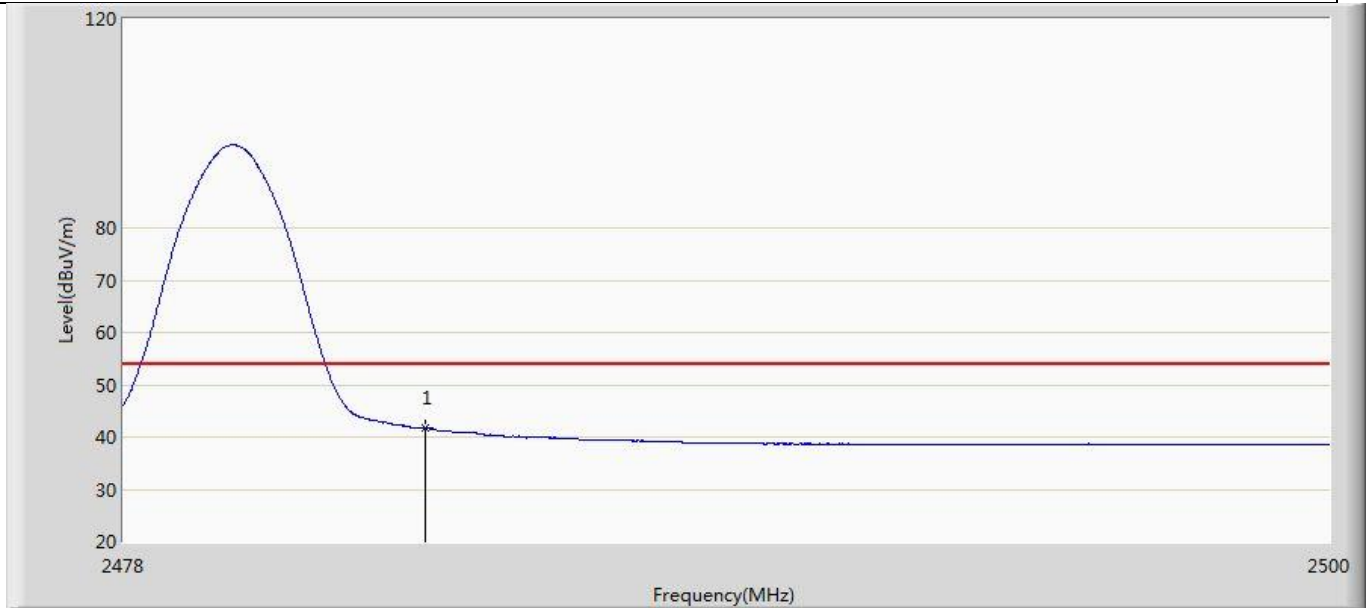
Profile: 2231094R	Page No.: 30
Engineer: Carlos. Shen	
Site: AC5	Time: 2022/01/24 - 20:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz by LE_Coded S=8	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	51.668	15.448	-22.332	74.000	36.220	PK

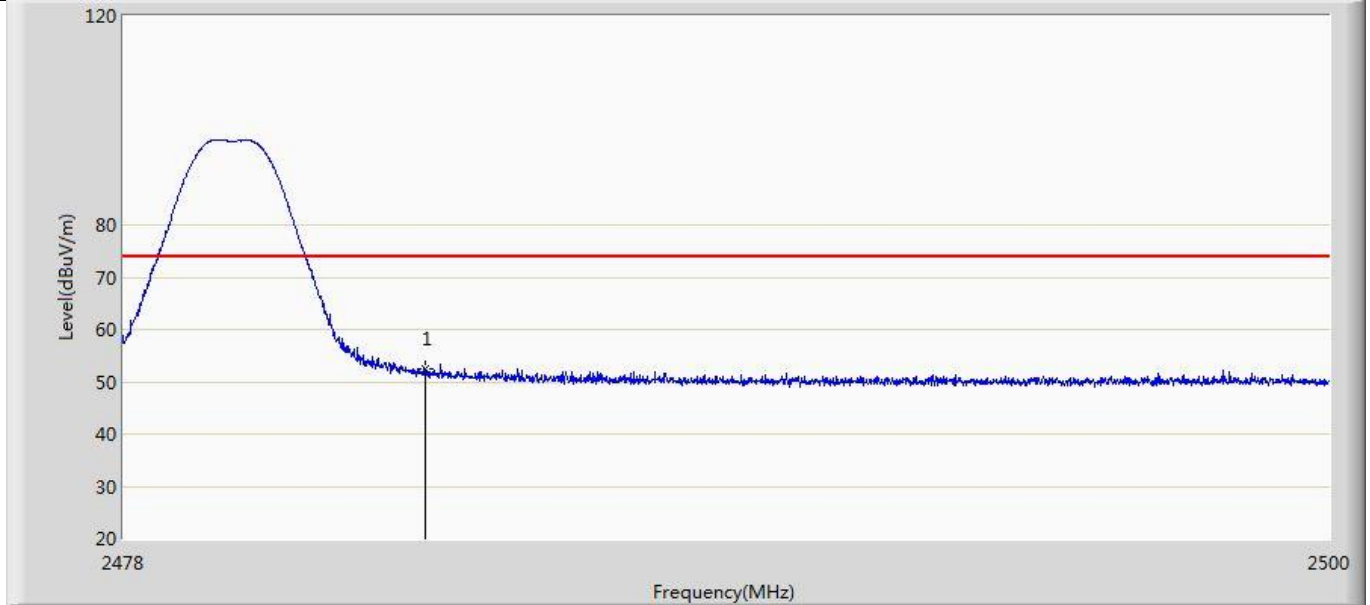


Profile: 2231094R	Page No.: 29
Engineer: Carlos. Shen	
Site: AC5	Time: 2022/01/24 - 20:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2480MHz by LE_Coded S=8	



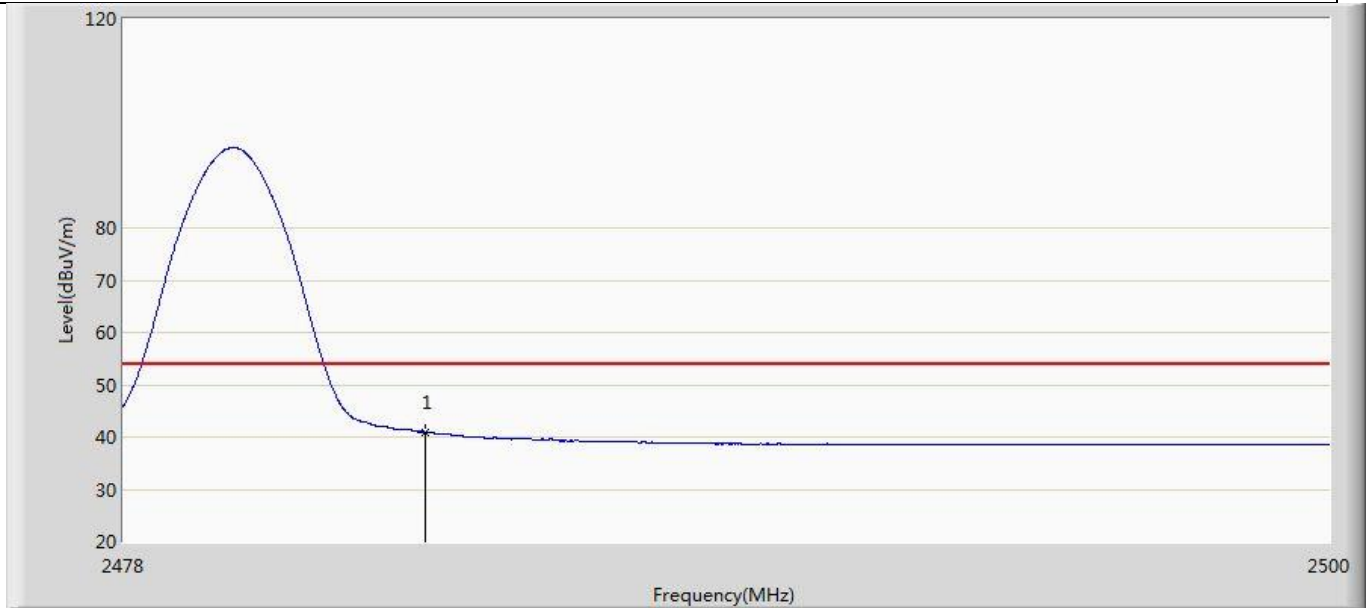
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	41.608	5.388	-12.392	54.000	36.220	AV

Profile: 2231094R	Page No.: 32
Engineer: Carlos. Shen	
Site: AC5	Time: 2022/01/24 - 20:39
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 by LE_Coded S=8	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	52.329	16.109	-21.671	74.000	36.220	PK

Profile: 2231094R	Page No.: 31
Engineer: Carlos. Shen	
Site: AC5	Time: 2022/01/24 - 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 4:Transmit at 2480MHz by LE_Coded S=8	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	40.940	4.720	-13.060	54.000	36.220	AV

Note:

1. Measured Level = Reading Level + Factor.
2. As the radiated emission was performed, so conducted emission was not tested.

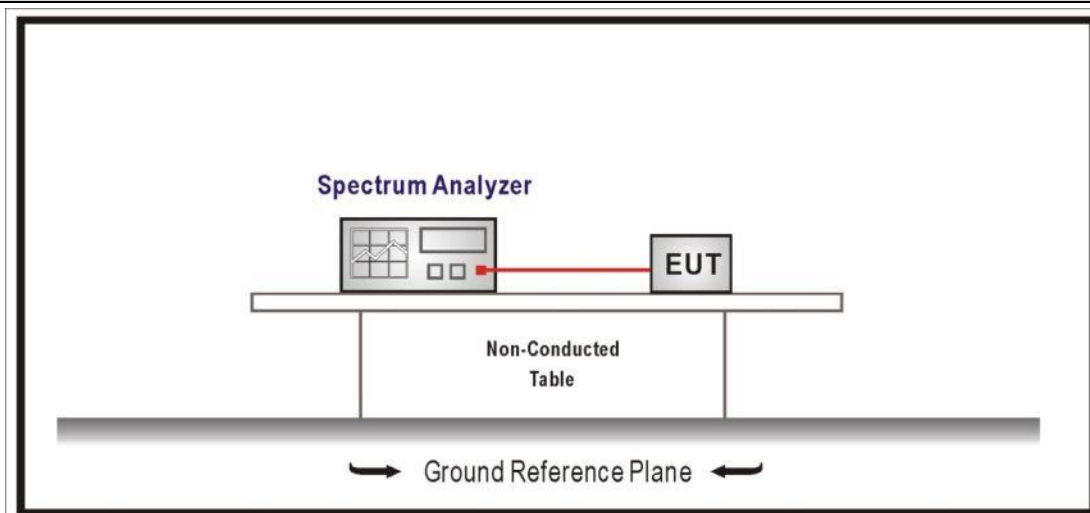
<b>4.6 DTS Bandwidth</b>	<b>VERDICT: PASS</b>
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**4.6.1 Limit**

<b>Standard</b>	FCC Part 15 Subpart C Paragraph 15.247 (a)(2)
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Systems using digital modulation techniques operate in the 2400-2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz

**4.6.2 Test Setup**



**4.6.3 Test Procedure**

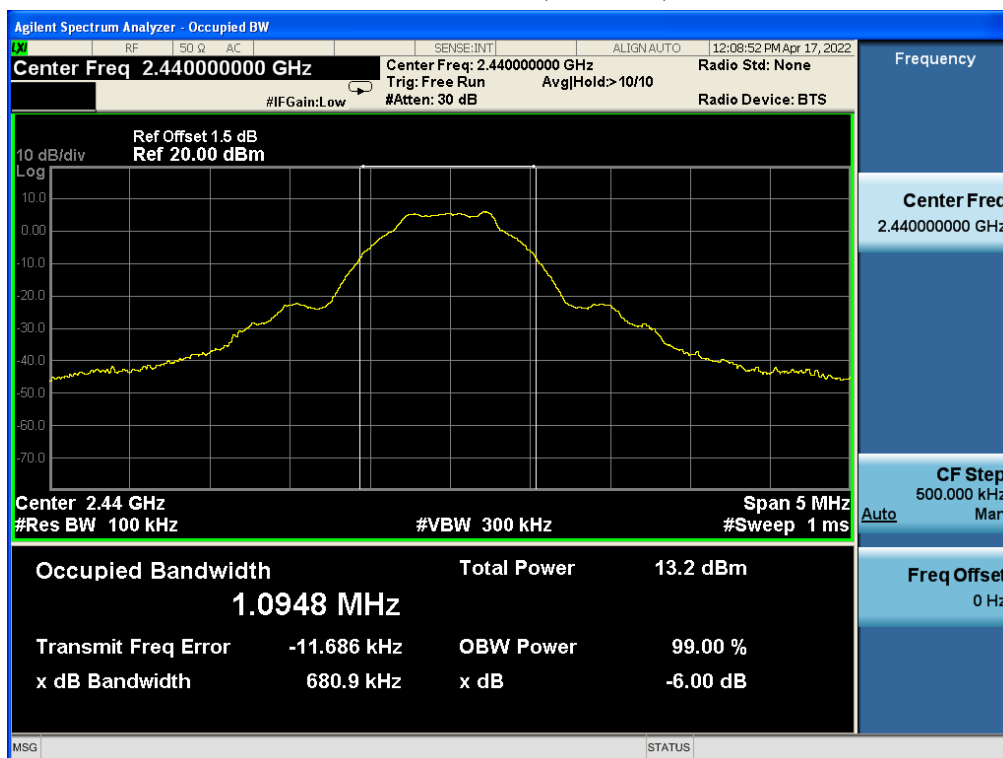
	Reference Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.8	DTS bandwidth
<input type="checkbox"/>	ANSI C63.10	11.8.1	Option 1
<input checked="" type="checkbox"/>	ANSI C63.10	11.8.2	Option 2

#### 4.6.4 Test Data

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	696.4	>500	Pass
	19	2440	680.9	>500	Pass
	39	2480	690.8	>500	Pass
2	00	2402	1391.0	>500	Pass
	19	2440	1389.0	>500	Pass
	39	2480	1387.0	>500	Pass
3	00	2402	792.9	>500	Pass
	19	2440	783.7	>500	Pass
	39	2480	783.3	>500	Pass
4	00	2402	734.3	>500	Pass
	19	2440	735.0	>500	Pass
	39	2480	734.6	>500	Pass

Note : The worst case of Occupied Bandwidth as below:

6dB Occupied Bandwidth  
Mode 1 / CH19 (2440MHz)

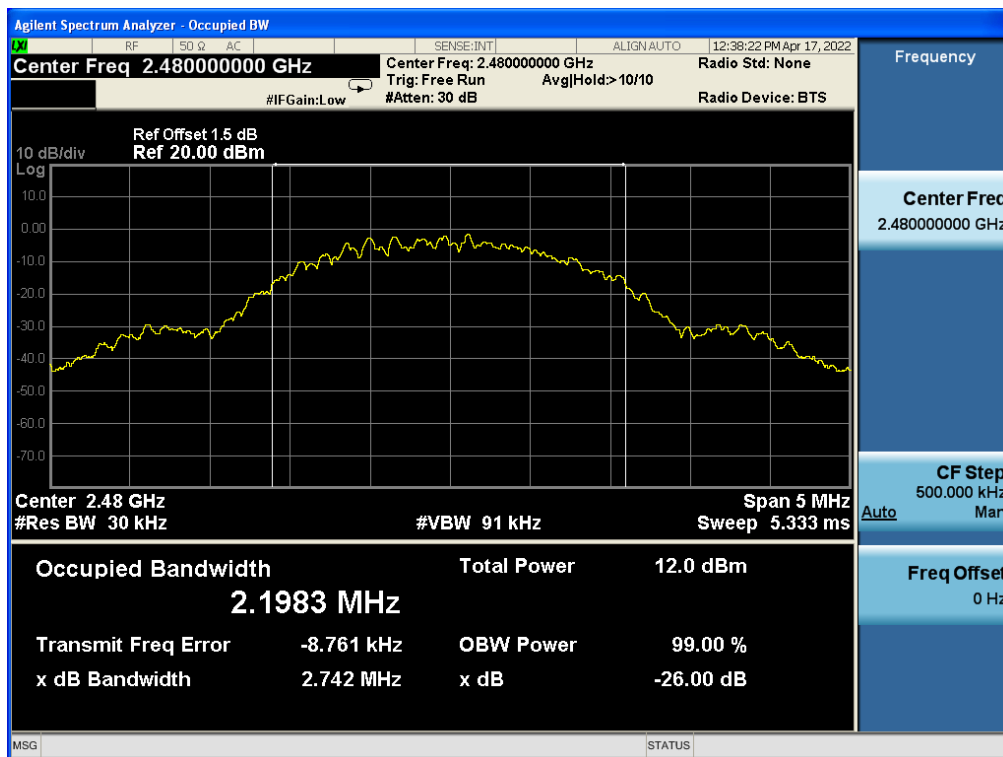


Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	Limit	Result
1	00	2402	1083.9	N/A	Pass
	19	2440	1081.9	N/A	Pass
	39	2480	1084.0	N/A	Pass
2	00	2402	2190.8	N/A	Pass
	19	2440	2192.6	N/A	Pass
	39	2480	2198.3	N/A	Pass
3	00	2402	1147.2	N/A	Pass
	19	2440	1143.8	N/A	Pass
	39	2480	1139.6	N/A	Pass
4	00	2402	1154.2	N/A	Pass
	19	2440	1150.4	N/A	Pass
	39	2480	1146.6	N/A	Pass

Note : The worst case of Occupied Bandwidth as below:

99% Occupied Bandwidth

Mode 2 / CH39 (2480MHz)



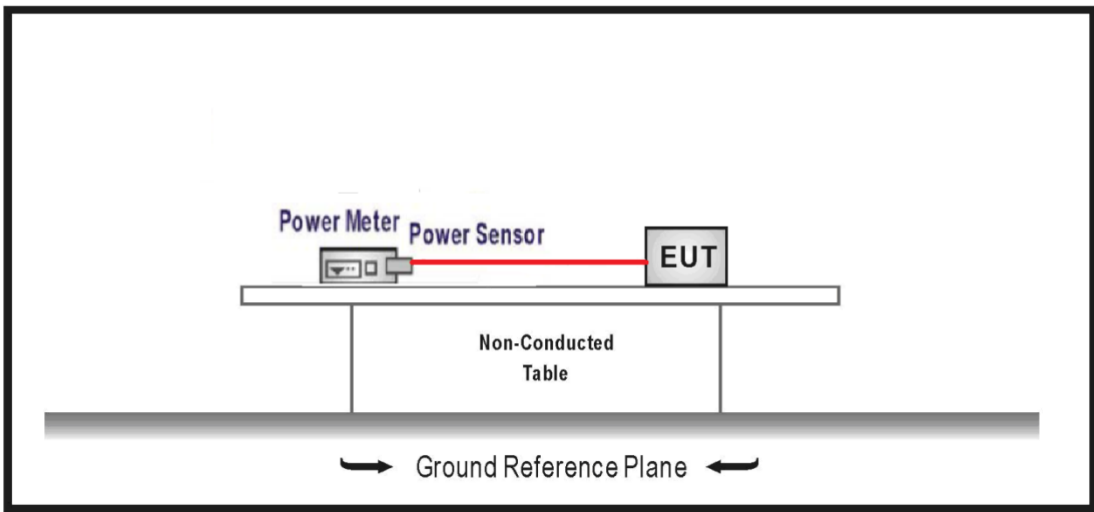
<b>4.7 Fundamental emission output power</b>	<b>VERDICT: PASS</b>
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**4.7.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)	
<input checked="" type="checkbox"/> GTX < 6dBi	Pout ≤ 30dBm	
<input type="checkbox"/> GTX > 6dBi		
<input type="checkbox"/> Non-Fix point-point	Pout ≤ 30 - (GTX - 6)	
<input type="checkbox"/> Fix point-point	Pout ≤ 30 - [(GTX - 6)]/3	
<input type="checkbox"/> Point-to-multipoint	Pout ≤ 30 - (GTX - 6)	
<input type="checkbox"/> Overlap Beams	Pout ≤ 30 - [(GTX - 6)]/3	
<input type="checkbox"/> Aggregate power transmitted simultaneously on all beams	Pout ≤ 30 - [(GTX - 6)]/3	
<input type="checkbox"/> 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
<input checked="" type="checkbox"/>	ANSI C63.10		11.9	Fundamental emission output power
	<input checked="" type="checkbox"/>	ANSI C63.10	11.9.1	Maximum peak conducted output power
	<input type="checkbox"/>	ANSI C63.10	11.9.1.1	RBW ≥ DTS bandwidth
	<input type="checkbox"/>	ANSI C63.10	11.9.1.2	Integrated band power method
	<input type="checkbox"/>	ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method
	<input type="checkbox"/>	ANSI C63.10	11.9.2	Maximum conducted (average) output power
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2	Measurement using a spectrum analyzer (SA)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.2	Method AVGSA-1(Duty cycle ≥98%)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle ≥98%)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle ≤98%)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle ≤98%)
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-3
	<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-3A
	<input checked="" type="checkbox"/>	ANSI C63.10	11.9.2.3	Measurement using a power meter (PM)
	<input checked="" type="checkbox"/>	ANSI C63.10	11.9.2.3.1	Method AVGPM
	<input type="checkbox"/>	ANSI C63.10	11.9.2.3.2	Method AVGPM-G



4.7.4 Test Data					
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	Result
Mode 1	00	2402	7.53	≤30	Pass
	19	2440	6.94	≤30	Pass
	39	2480	5.81	≤30	Pass
Mode 2	00	2402	7.52	≤30	Pass
	19	2440	6.93	≤30	Pass
	39	2480	5.80	≤30	Pass
Mode 3	00	2402	7.53	≤30	Pass
	19	2440	6.93	≤30	Pass
	39	2480	5.80	≤30	Pass
Mode 4	00	2402	7.53	≤30	Pass
	19	2440	6.63	≤30	Pass
	39	2480	5.80	≤30	Pass

**4.8 Power Density**

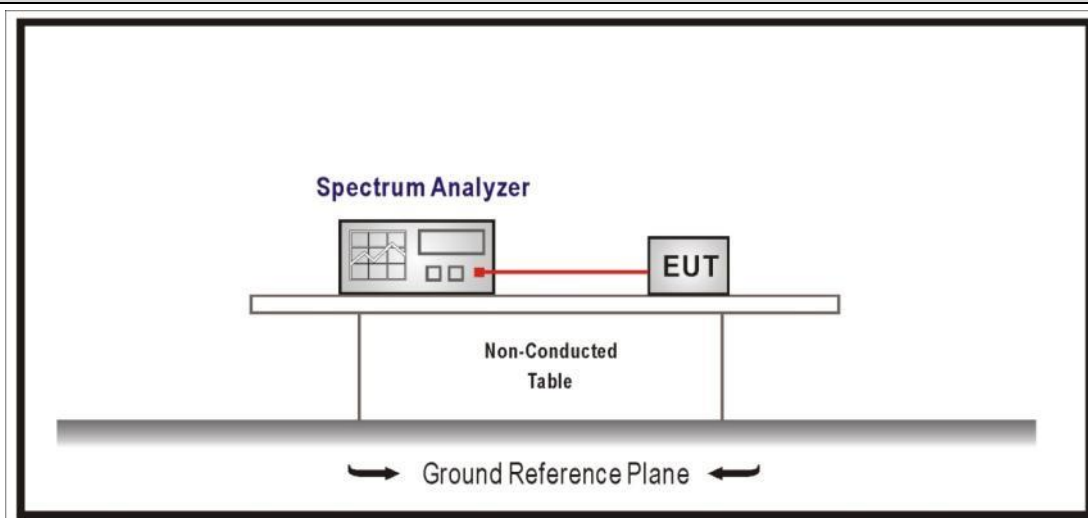
**VERDICT: PASS**

**4.8.1 Limit:**

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

**4.8.2 Test Setup**



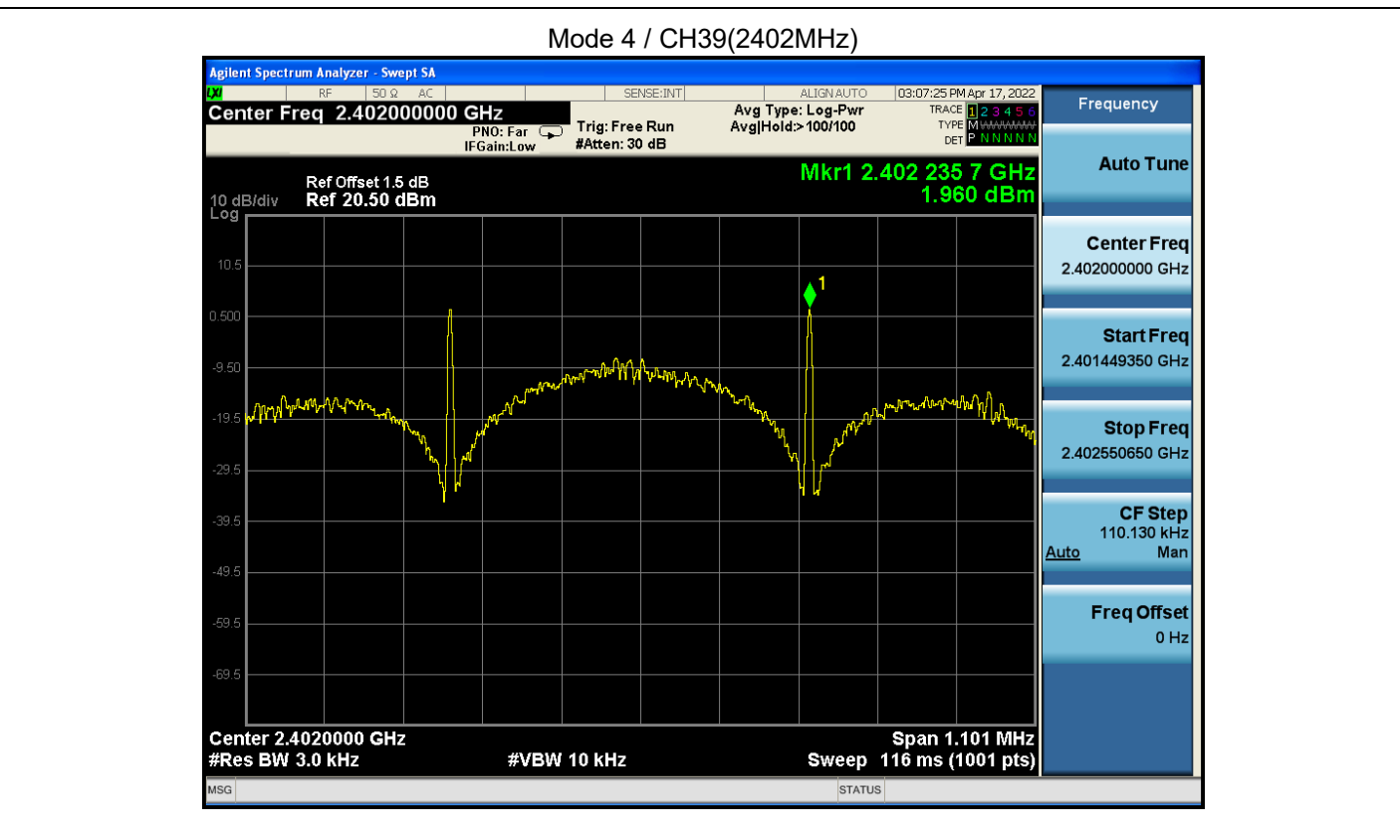
**4.8.3 Test Procedure**

	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	11.10	Maximum power spectral density level in the fundamental emission
	<input checked="" type="checkbox"/> ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	<input type="checkbox"/> ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle ≥ 98%)
	<input type="checkbox"/> ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle ≥ 98%)
	<input type="checkbox"/> ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle < 98%)
	<input type="checkbox"/> ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle < 98%)
	<input type="checkbox"/> ANSI C63.10	11.10.7	Method AVGPSD-3
	<input type="checkbox"/> 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	-7.631	≤8	Pass
	19	2440	-8.507	≤8	Pass
	39	2480	-9.332	≤8	Pass
Mode 2	00	2402	-10.461	≤8	Pass
	19	2440	-11.362	≤8	Pass
	39	2480	-12.225	≤8	Pass
Mode 3	00	2402	-10.077	≤8	Pass
	19	2440	-11.022	≤8	Pass
	39	2480	-11.850	≤8	Pass
Mode 4	00	2402	1.960	≤8	Pass
	19	2440	1.012	≤8	Pass
	39	2480	0.099	≤8	Pass

Note : The worst case of PSD as below:



**4.9 Antenna Requirement**

**VERDICT: PASS**

**4.9.1 Limit:**

<b>Standard</b>	FCC Part 15 Subpart C Paragraph 15.203
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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:**

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | The use of a permanently attached antenna                        |
| <input type="checkbox"/>            | The antenna use of a unique coupling to the intentional radiator |
| <input type="checkbox"/>            | The use of a nonstandard antenna jack or electrical connector    |

Please refer to the attached document "Internal Photograph" to show the antenna connector.

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## 5 TEST SETUP PHOTO AND EUT PHOTO

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

\_\_\_\_\_ The End \_\_\_\_\_

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