DEKRA Testing and Certification (Suzhou) Co., Ltd.
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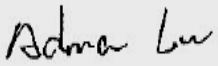
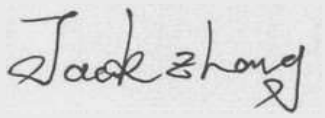
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098

Test report No:
2210426R-RF-US-P06V01

FCC&ISED TEST REPORT

Product Name	Connected Sleep & Wake-Up Light
Trademark	PHILIPS
Model and /or type reference	HF3670, HF3671, HF3672, HF3673, HF3674
HVIN	HF3670A, HF3671A, HF3672A, HF3673A, HF3674A
FCC ID	2APFC-HF367XA
IC	23842-HF367XA
Applicant´s name / address	Philips Consumer Lifestyle B.V. Tussendiepen 4, 9206 AD Drachten, The Netherlands
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)	Adma Lu/ Project Engineer 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2022-02-21
Report Version	V1.0
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.

GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Jan. 15, 2022
Date (start test)	Jan. 16, 2022
Date (finish test)	Feb. 13, 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
2210426R-RF-US-P06V01	V1.0	Initial issue of report.	2022-02-21

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247, RSS-Gen Issue 5, RSS-247 Issue 2.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
   - Chapter 1.1 General Description of the Item(s);
   - Chapter 1.2 Antenna Information;
   - Chapter 1.3 Data Rate;
   - Chapter 1.4 Channel List.
8. Note: This report is based on DEKRA report (Report NO.: 2130900R-RF-US-P06V01). The customer stated that the antenna information in the original report was incorrect, and the maximum gain of antenna should be 3.3dBi. PCB of power supply HF20 was updated and an alternative DC-DC (IC01) EC2330 was added. After evaluation, just Radiated Emission below 1GHz & AC Power Line Conducted Emission need to be re-tested. Compliance the Class II permissive change.

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
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	-	-	-	-
EMI Test Receiver	R&S	ESCI	100906	2021.04.28	2022.04.27

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	2021.03.20	2022.03.19
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2021.07.11	2022.07.10
4TX MIMO Power Sensor	Keysight	X8750A	MY59400102	2021.02.11	2022.02.10
Coaxial Cable	Woken	SFL402	F02-150410-044	2022.01.02	2023.01.01

Radiated Emission(30MHz-1GHz) / AC2

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100176	2021.08.15	2022.08.14
Loop Antenna	R&S	HFH2-Z2	833799/003	2021.03.04	2022.03.03
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2021.08.23	2022.08.22
Coaxial Cable	Huber+Suhner	RG 214	AC3-C	2021.03.31	2022.03.30
Temperature/Humidity Meter	RTS	RTS-8S	AC3-TH	2021.11.23	2022.11.22
Dekra test software	Dekra	-	-	-	-

Radiated Emissions (1GHz-40GHz)/ AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal analyzer	R&S	FSV	104212	2021.11.18	2022.11.17
Wideband Radio Communication Tester	R&S	CMW 500	1201.0002K50-158243-jb	2021.10.20	2022.10.19
ESG Vector Signal Generator	Agilent	E4438C	MY49070163	2021.07.11	2022.07.10
Preamplifier	EMCI	EMC184045SE	980263	2021.05.22	2021.05.21
Pre-Amplifier	EMCI	EMC184045SE	980263	2021.05.22	2022.05.21
DRG Horn Antenna	ETS-Lindgren	3117	167055	2020.08.06	2021.08.05
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2021.04.19	2023.04.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2021.03.31	2022.03.30
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2021.03.20	2022.03.19
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2021.07.09	2022.07.08
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	± 1.27 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 3.50 dB 300MHz~1GHz: 3.60 dB Vertical: 30MHz~200MHz: 3.60 dB 300MHz~1GHz: 3.50 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB
RF antenna conducted test	± 1.27dB
Radiated Emission Band Edge	± 3.9 dB
DTS Bandwidth	±150Hz
Occupied Bandwidth	±1kHz
Power Density	±1.27dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name/PMN .....:	Connected Sleep & Wake-Up Light
Model No.....:	HF3670, HF3671, HF3672, HF3673, HF3674
HVIN .....:	HF3670A, HF3671A, HF3672A, HF3673A, HF3674A
Trademark.....:	PHILIPS
FCC ID .....:	2APFC-HF367XA
IC .....:	23842-HF367XA
Manufacturer.....:	Philips Consumer Lifestyle B.V.
Manufacturer address .....:	Tussendiepen 4, 9206 AD Drachten, The Netherlands
EUT identification.....:	2210426R-1 is used for radiated test items

Note: Model HF3672 is choosen to perform test.

Wireless specification .....:	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

Rated power supply ..... :	Voltage and Frequency	
	☐	AC: 220 - 240 V, 50/60 Hz
	☒	100 - 240 Vac, 50/60 Hz for adapter 24 Vdc for Connected Sleep & Wake-Up Light
	☐	DC: 12 - 24 Vdc
	☐	Battery:
	☐	Battery: 3.7 V

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 .....:	Max. 3,3 dBi			

1.3 Data Rate

IEEE 802.11b

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

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

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.							

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(s), 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)

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
EspRFtestTool	N/A	N/A	N/A

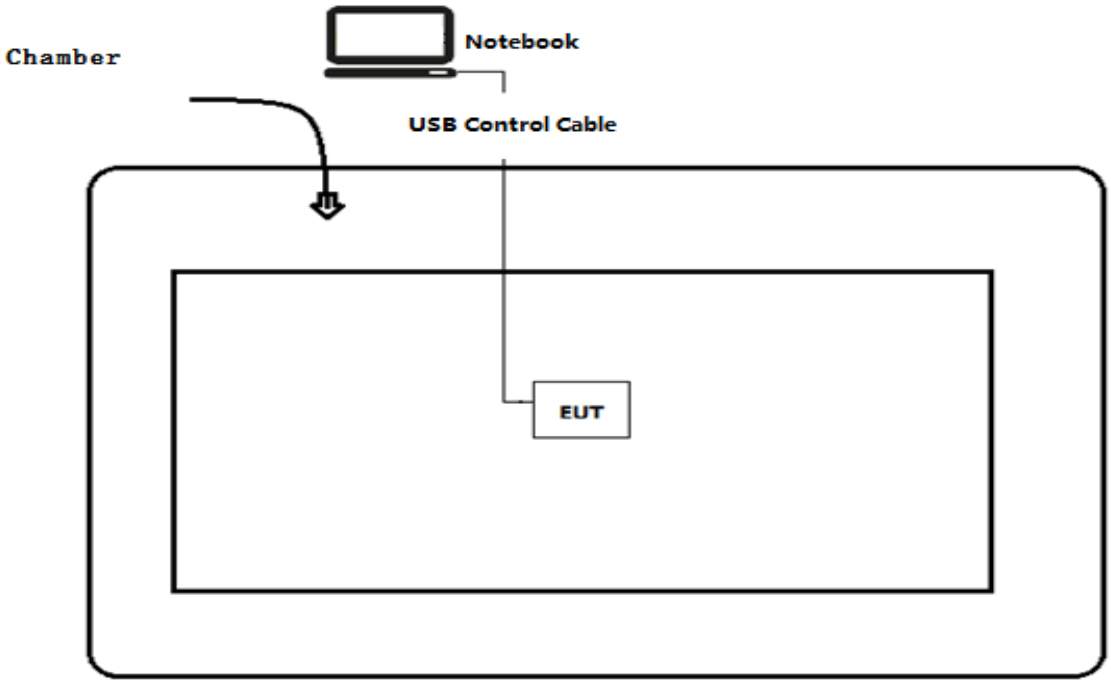
2.3 Power Index

Due to applicant have fixed the power setting in there software, for testing, we just used the default power.

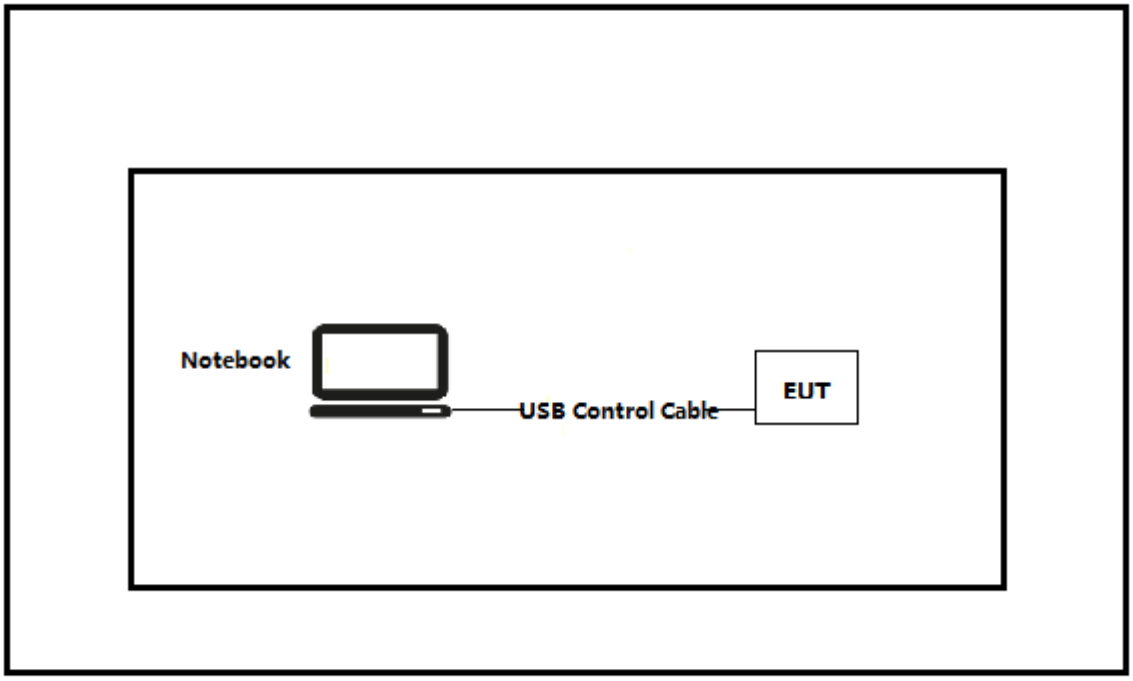
2.4 Test Configuration / Block diagram used for tests

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

Test setup Diagram- Radiated Test



Test setup Diagram- Conducted test



2.5 Testing process

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

3 VERDICT SUMMARY SECTION

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

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2021	Operation within the 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 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(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	---

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	---
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	---

3.4 Test Facility

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

4 TEST RESULTS

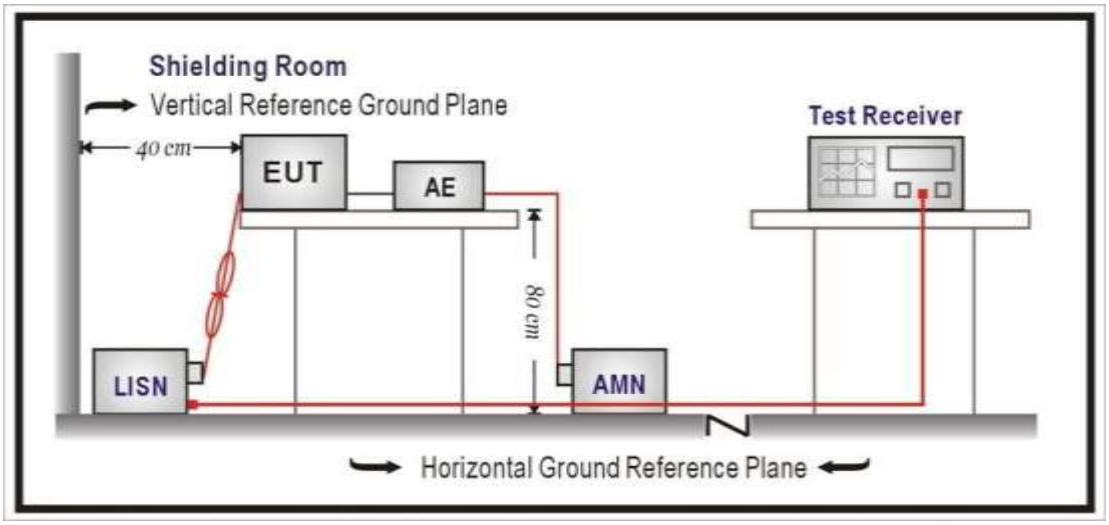
4.1 AC Power Line Conducted Emission	VERDICT: PASS

4.1.1 Limit

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

[1)] At the transition frequency, the lower limit applies.
[2)] The limit decreases linearly with the logarithm of the frequency.

4.1.2 Test Setup

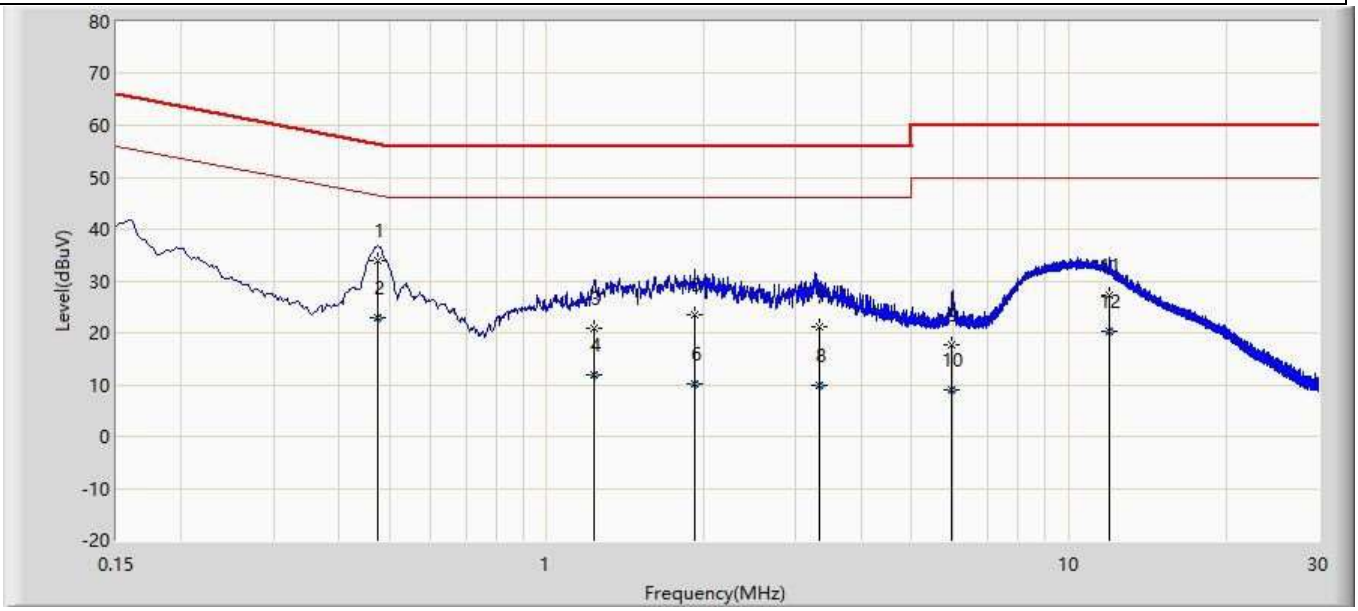


4.1.3 Test Procedure

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

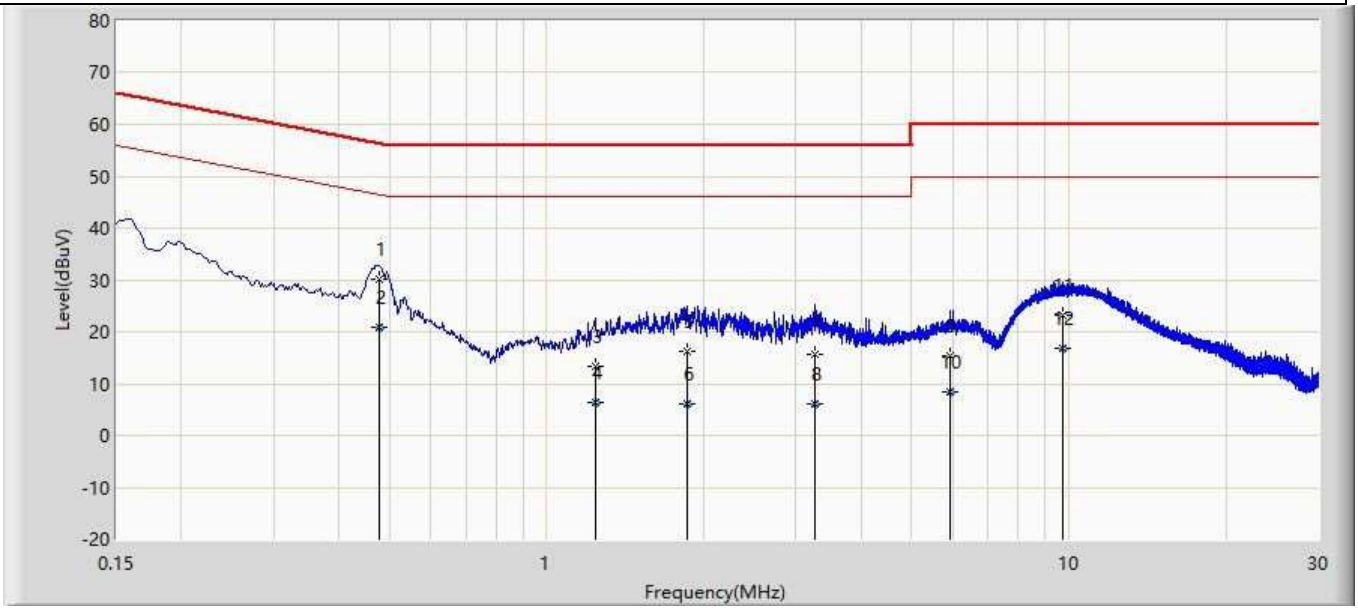
4.1.4 Test Data

Profile: 2210426R	Page No.: 26
Engineer: Juliuszhou	
Site: TR1	Time: 2022/02/12 - 21:37
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: PHILIPS	Power: AC 120V/60Hz
Note: Mode: N- Neutral	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.474	33.947	24.330	-22.497	56.444	9.617	QP
2		0.474	22.770	13.154	-23.674	46.444	9.617	AV
3		1.232	20.932	11.278	-35.068	56.000	9.654	QP
4		1.232	11.869	2.215	-34.131	46.000	9.654	AV
5		1.921	23.442	13.769	-32.558	56.000	9.673	QP
6		1.921	10.227	0.554	-35.773	46.000	9.673	AV
7		3.333	21.201	11.464	-34.799	56.000	9.737	QP
8		3.333	9.789	0.052	-36.211	46.000	9.737	AV
9		5.980	17.727	7.878	-42.273	60.000	9.850	QP
10		5.980	8.976	-0.874	-41.024	50.000	9.850	AV
11		11.987	27.203	17.136	-32.797	60.000	10.066	QP
12		11.987	20.202	10.135	-29.798	50.000	10.066	AV

Profile: 2210426R	Page No.: 31
Engineer: Juliuszhou	
Site: TR1	Time: 2022/02/12 - 21:44
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: PHILIPS	Power: AC 120V/60Hz
Note: Mode: N-line	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.478	30.148	20.531	-26.217	56.365	9.617	QP
2	*	0.478	20.965	11.348	-25.400	46.365	9.617	AV
3		1.239	13.397	3.742	-42.603	56.000	9.654	QP
4		1.239	6.354	-3.300	-39.646	46.000	9.654	AV
5		1.853	16.357	6.686	-39.643	56.000	9.671	QP
6		1.853	6.114	-3.557	-39.886	46.000	9.671	AV
7		3.257	15.648	5.910	-40.352	56.000	9.737	QP
8		3.257	6.017	-3.720	-39.983	46.000	9.737	AV
9		5.933	15.280	5.423	-44.720	60.000	9.858	QP
10		5.933	8.434	-1.423	-41.566	50.000	9.858	AV
11		9.758	23.246	13.244	-36.754	60.000	10.002	QP
12		9.758	16.780	6.778	-33.220	50.000	10.002	AV

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	--	--

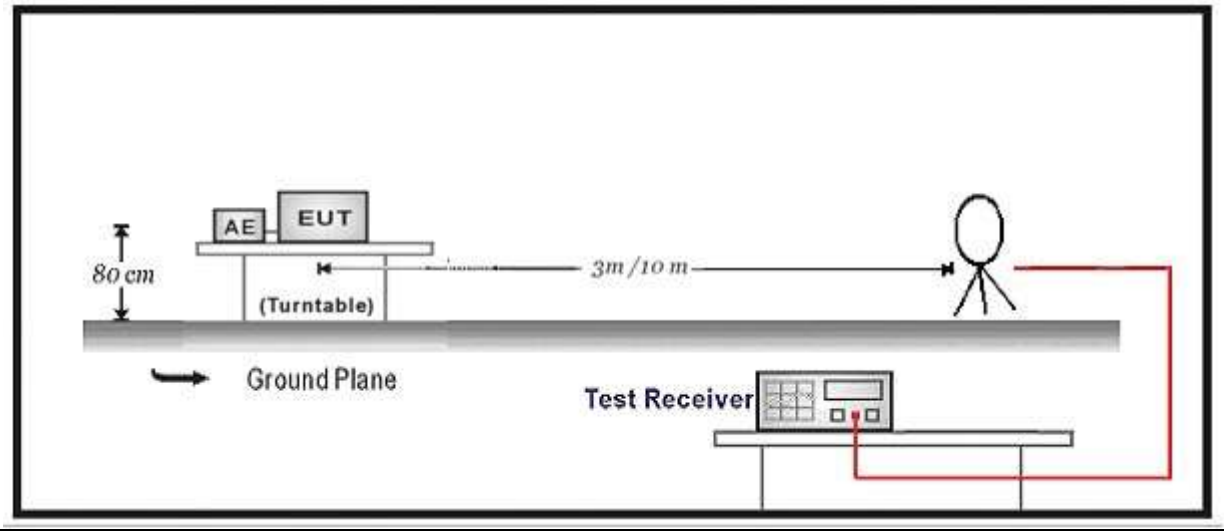
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)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

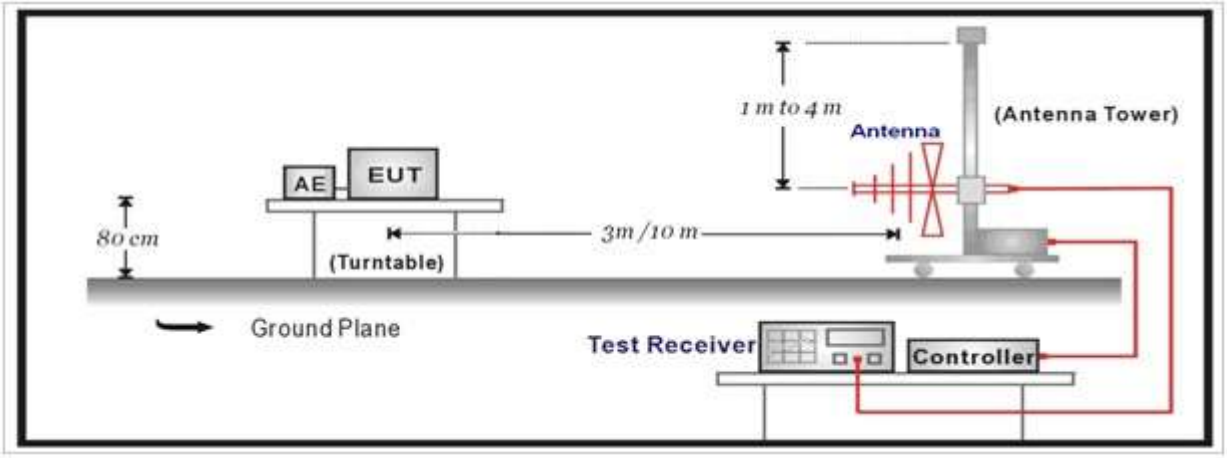
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated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

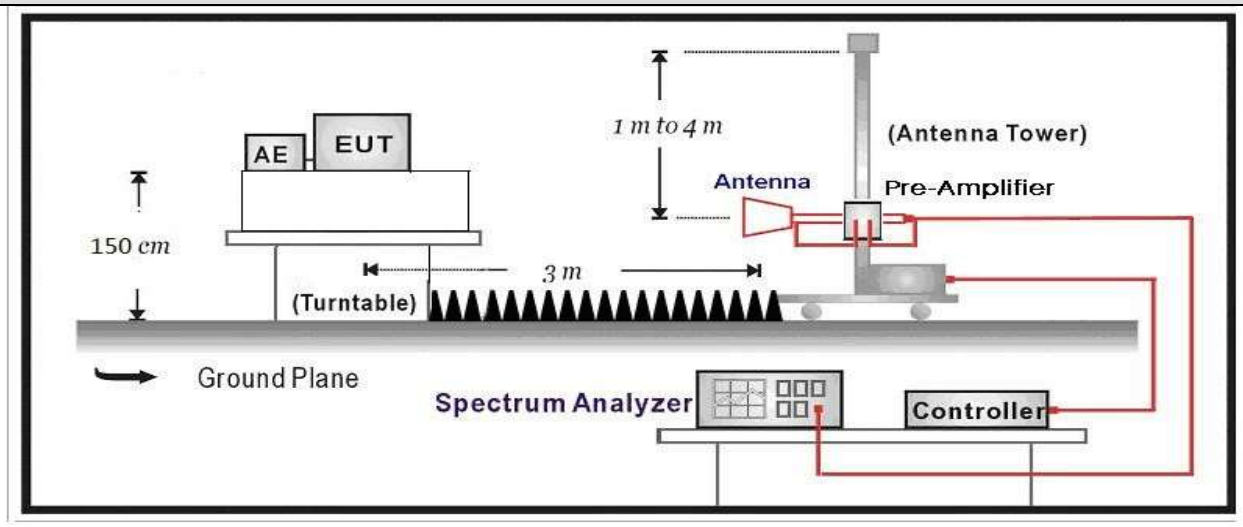
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

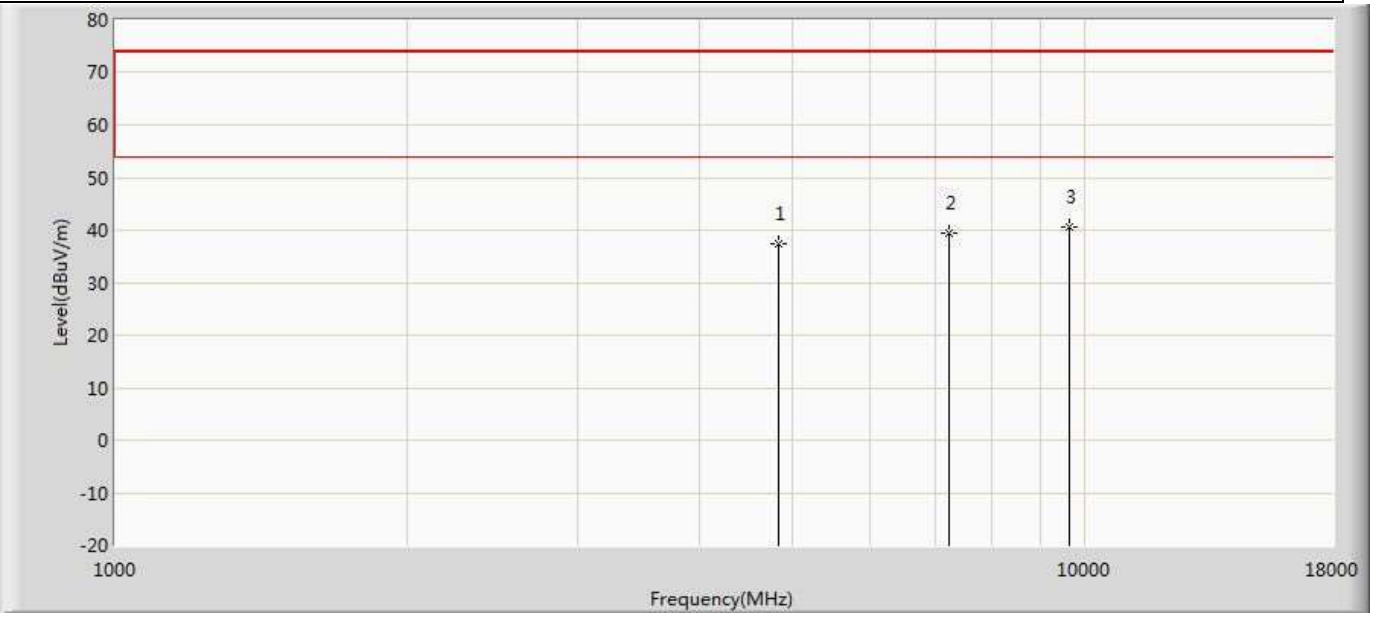


4.2.3 Test Procedure

	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

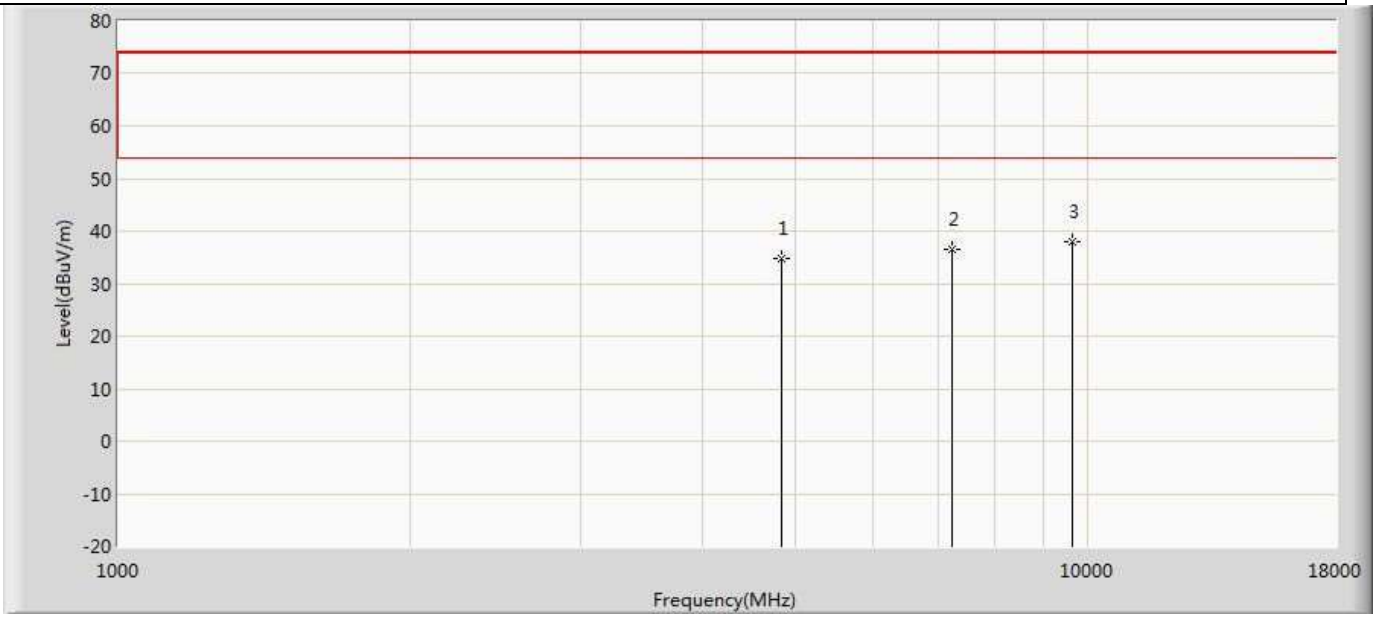
4.2.4 Test Data

Profile: 2210426R	Page No.: 25
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 11b	



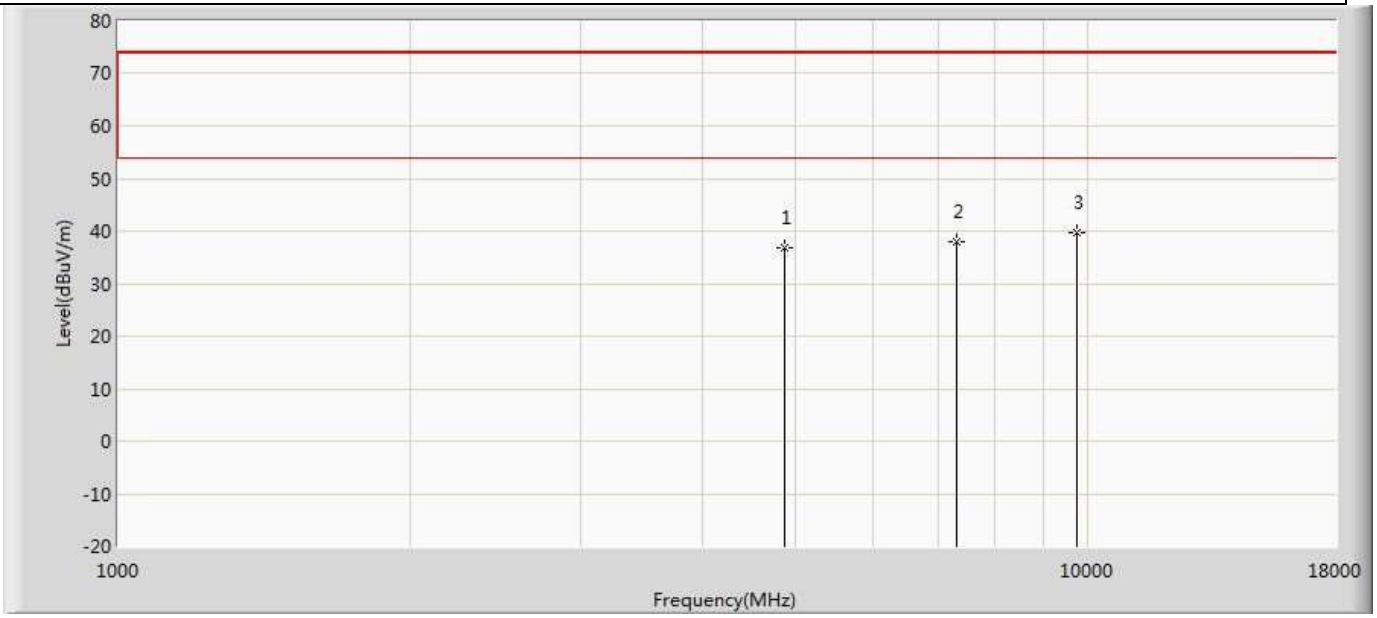
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	37.344	44.448	-36.656	74.000	-7.104	PK
2		7236.000	39.307	42.131	-34.693	74.000	-2.824	PK
3	*	9648.000	40.438	40.495	-33.562	74.000	-0.057	PK

Profile: 2210426R	Page No.: 26
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 11b	



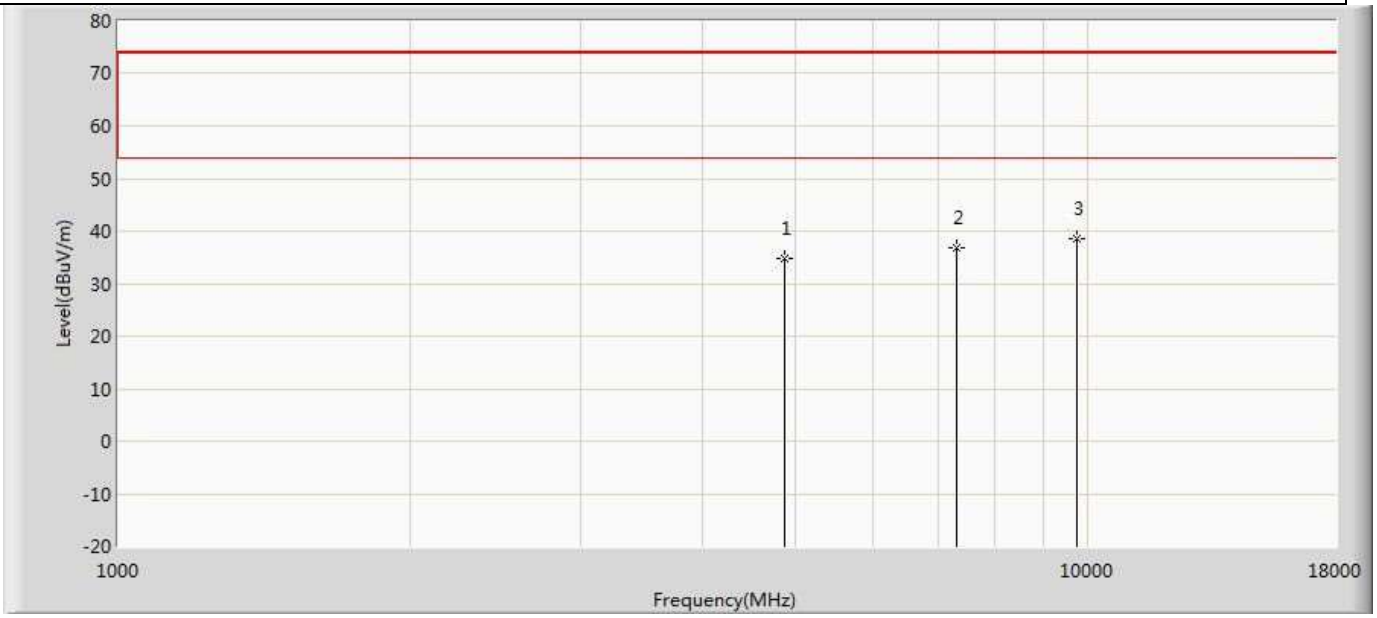
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	34.868	41.972	-39.132	74.000	-7.104	PK
2		7236.000	36.386	39.210	-37.614	74.000	-2.824	PK
3	*	9648.000	38.051	38.108	-35.949	74.000	-0.057	PK

Profile: 2210426R	Page No.: 27
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2437MHz by 11b	



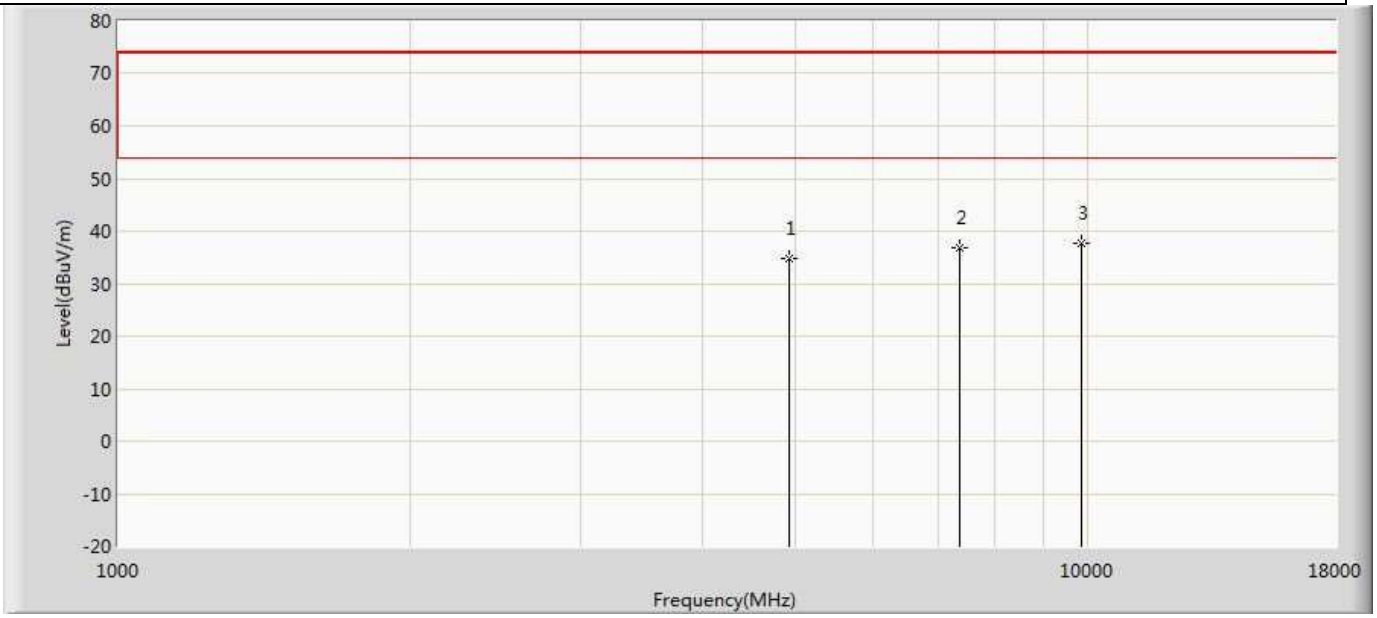
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	36.719	43.650	-37.281	74.000	-6.931	PK
2		7331.000	37.999	40.811	-36.001	74.000	-2.811	PK
3	*	9748.000	39.706	39.517	-34.294	74.000	0.189	PK

Profile: 2210426R	Page No.: 28
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2437MHz by 11b	



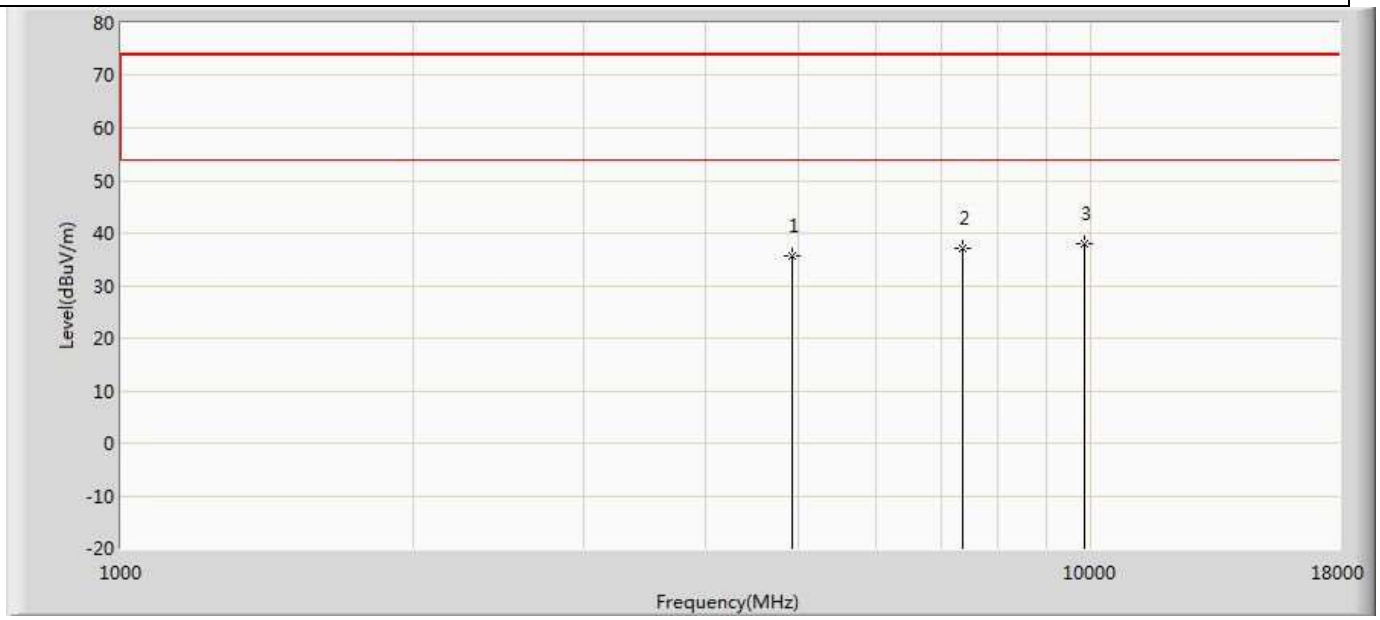
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	34.682	41.613	-39.318	74.000	-6.931	PK
2		7311.000	36.740	39.592	-37.260	74.000	-2.853	PK
3	*	9748.000	38.599	38.410	-35.401	74.000	0.189	PK

Profile: 2210426R	Page No.: 29
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 11b	



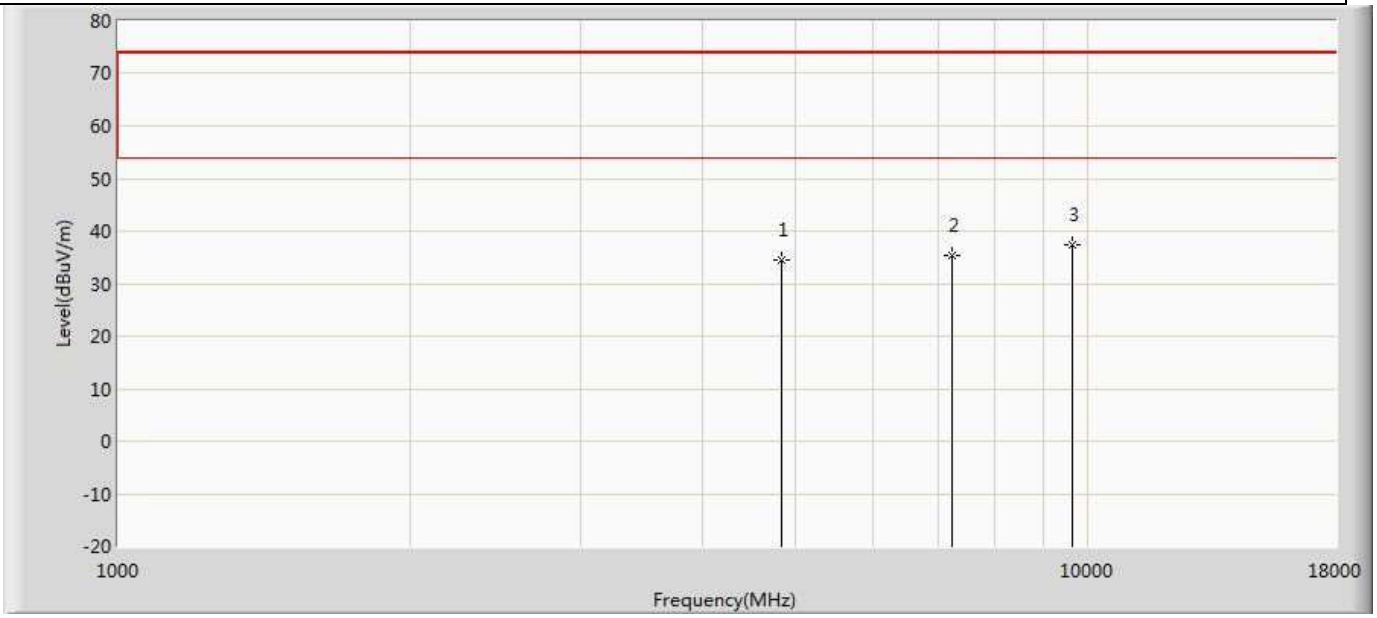
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	34.796	41.676	-39.204	74.000	-6.881	PK
2		7386.000	36.687	39.423	-37.313	74.000	-2.737	PK
3	*	9848.000	37.583	37.964	-36.417	74.000	-0.380	PK

Profile: 2210426R	Page No.: 30
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 11b	



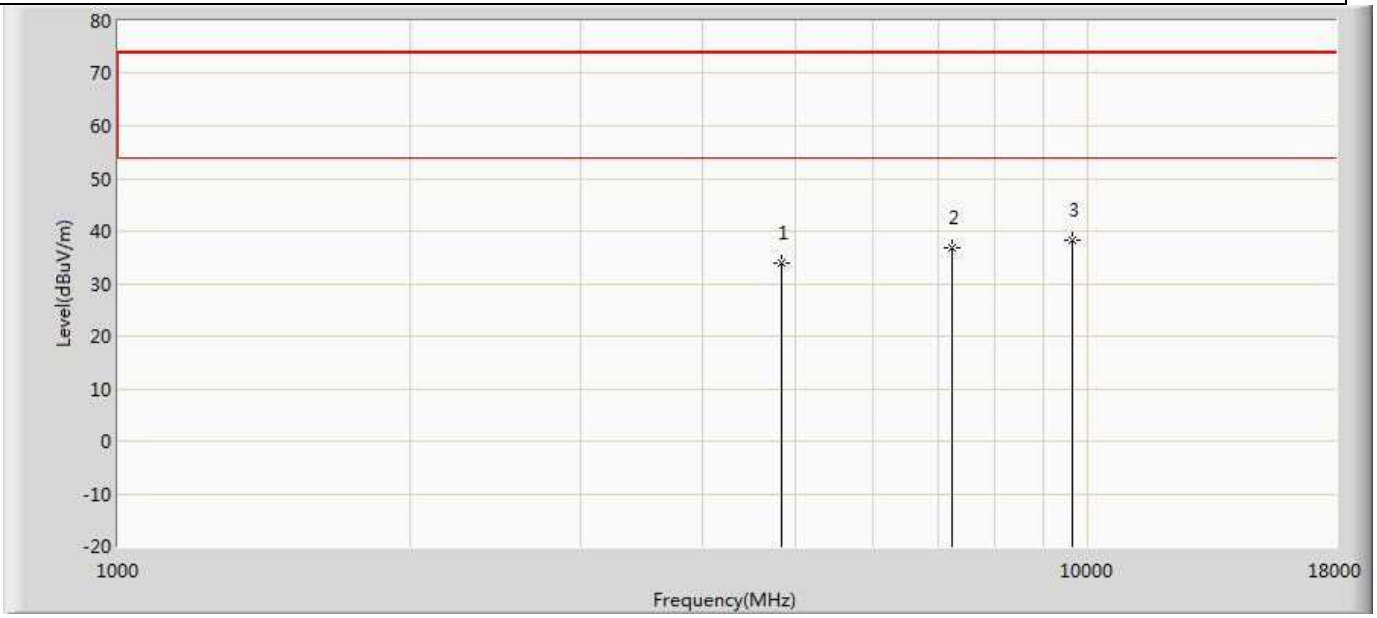
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	35.565	42.445	-38.435	74.000	-6.881	PK
2		7386.000	37.229	39.965	-36.771	74.000	-2.737	PK
3	*	9848.000	37.970	38.351	-36.030	74.000	-0.380	PK

Profile: 2210426R	Page No.: 31
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 11g	



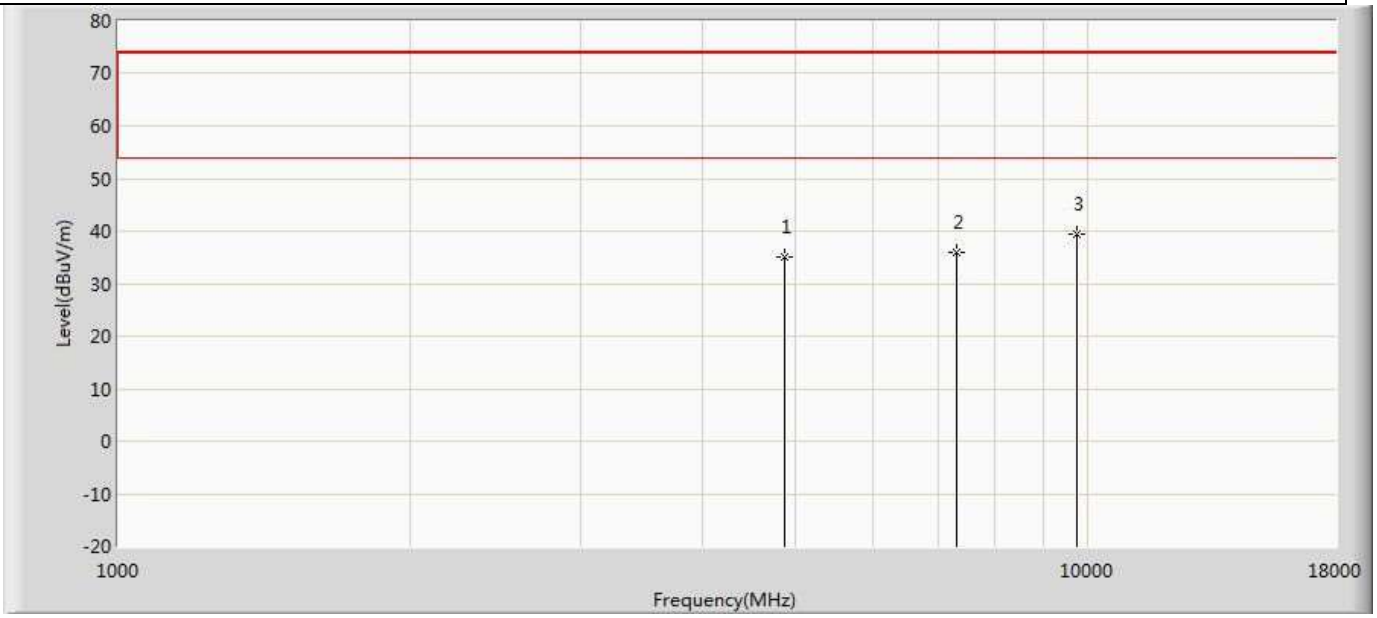
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	34.510	41.614	-39.490	74.000	-7.104	PK
2		7236.000	35.227	38.051	-38.773	74.000	-2.824	PK
3	*	9648.000	37.289	37.346	-36.711	74.000	-0.057	PK

Profile: 2210426R	Page No.: 32
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 11g	



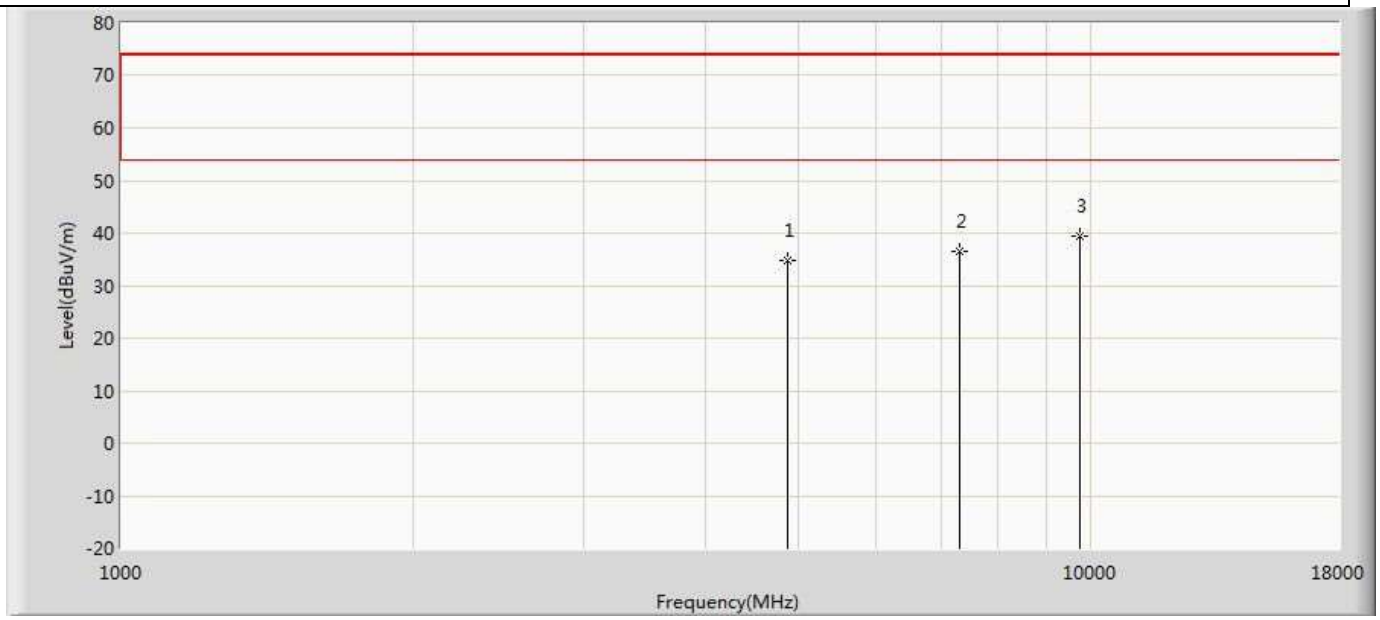
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	33.853	40.957	-40.147	74.000	-7.104	PK
2		7236.000	36.780	39.604	-37.220	74.000	-2.824	PK
3	*	9648.000	38.287	38.344	-35.713	74.000	-0.057	PK

Profile: 2210426R	Page No.: 33
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2437MHz by 11g	



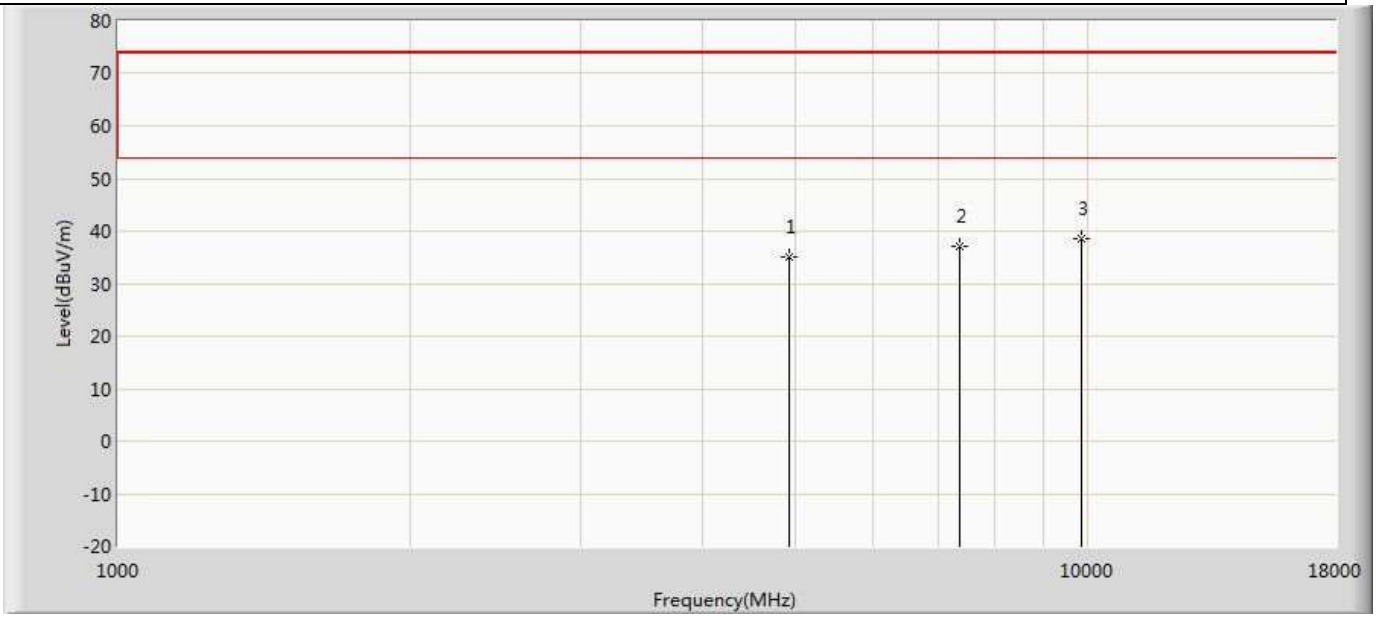
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	35.027	41.958	-38.973	74.000	-6.931	PK
2		7311.000	35.880	38.732	-38.120	74.000	-2.853	PK
3	*	9748.000	39.279	39.090	-34.721	74.000	0.189	PK

Profile: 2210426R	Page No.: 34
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2437MHz by 11g	



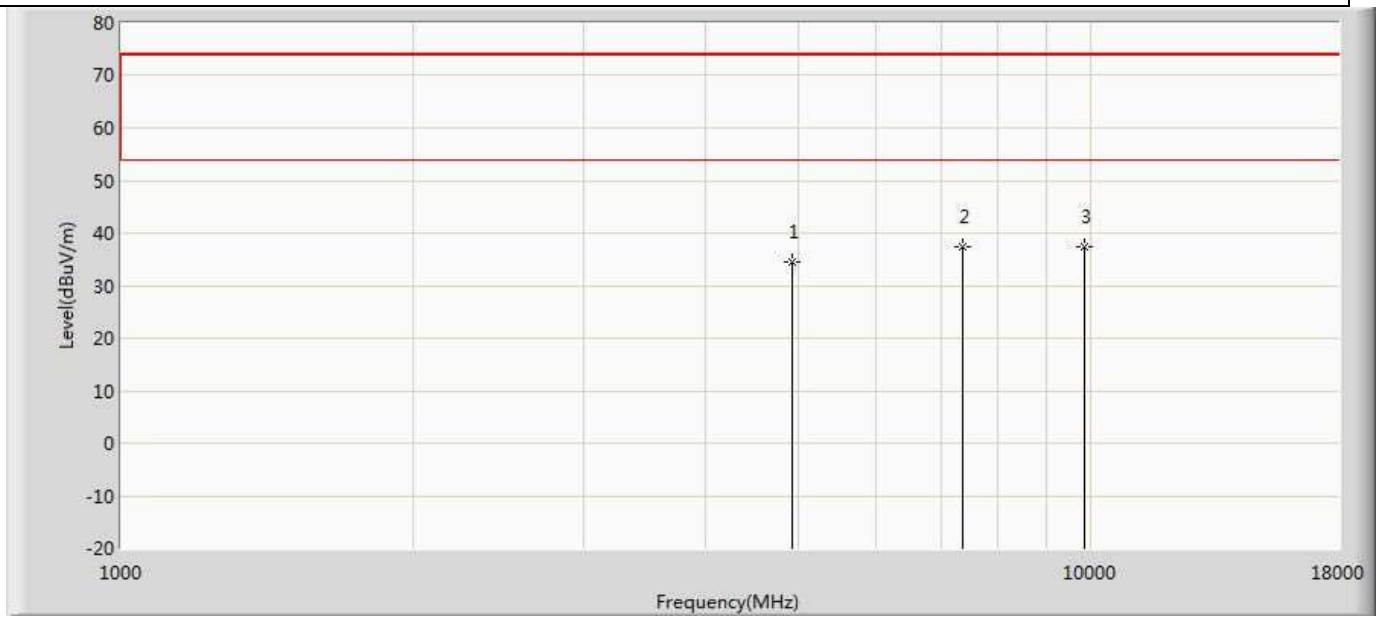
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	34.736	41.667	-39.264	74.000	-6.931	PK
2		7311.000	36.484	39.336	-37.516	74.000	-2.853	PK
3	*	9748.000	39.317	39.128	-34.683	74.000	0.189	PK

Profile: 2210426R	Page No.: 35
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 11g	



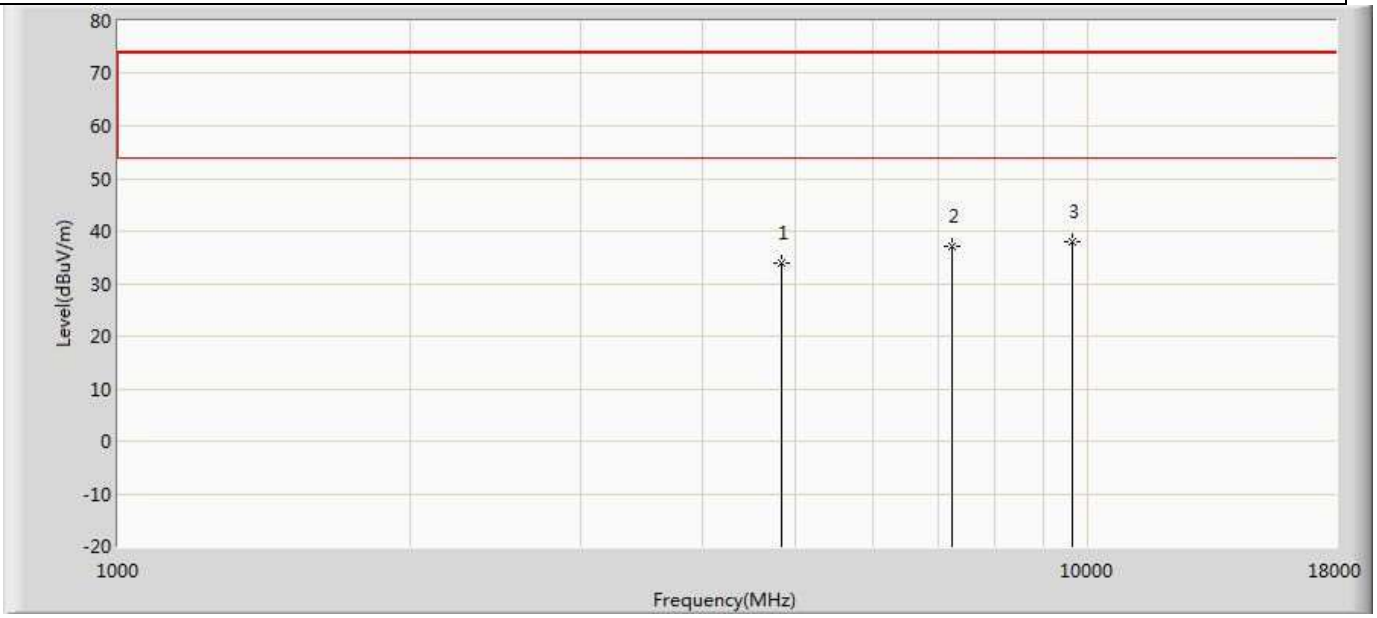
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	35.101	41.981	-38.899	74.000	-6.881	PK
2		7386.000	37.241	39.977	-36.759	74.000	-2.737	PK
3	*	9848.000	38.648	39.029	-35.352	74.000	-0.380	PK

Profile: 2210426R	Page No.: 36
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 11g	



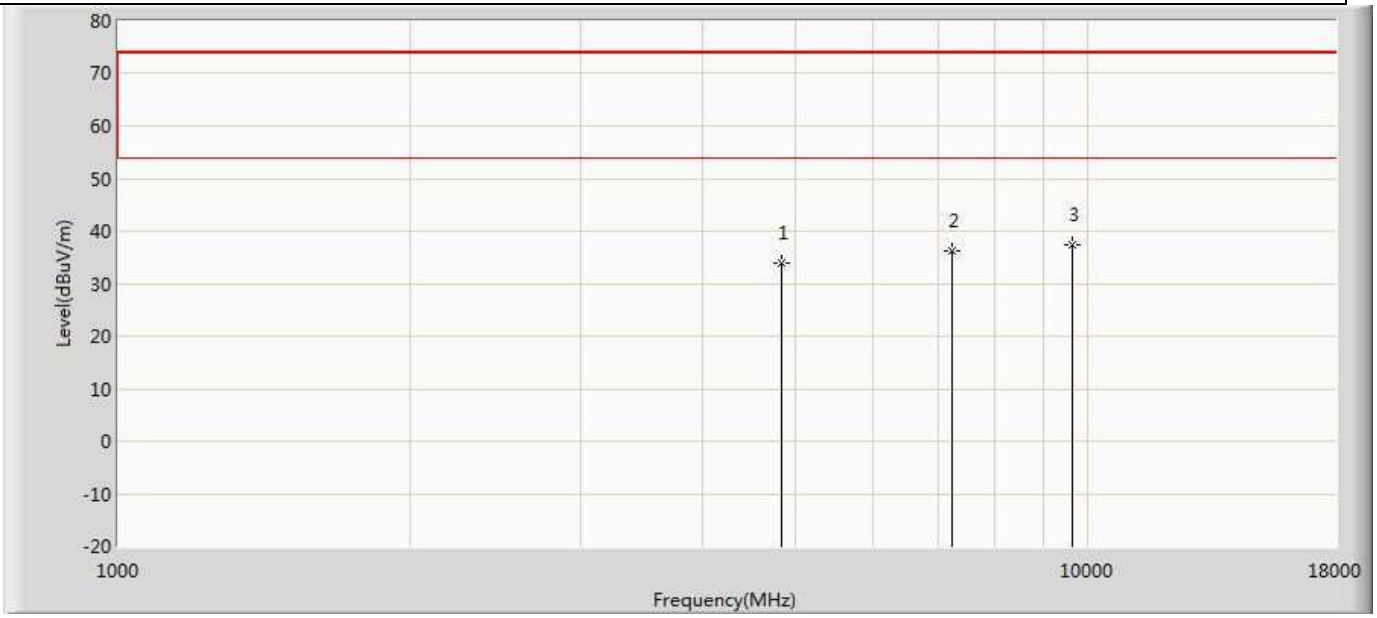
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	34.581	41.461	-39.419	74.000	-6.881	PK
2		7386.000	37.372	40.108	-36.628	74.000	-2.737	PK
3	*	9848.000	37.520	37.901	-36.480	74.000	-0.380	PK

Profile: 2210426R	Page No.: 37
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 11n(20MHz)	



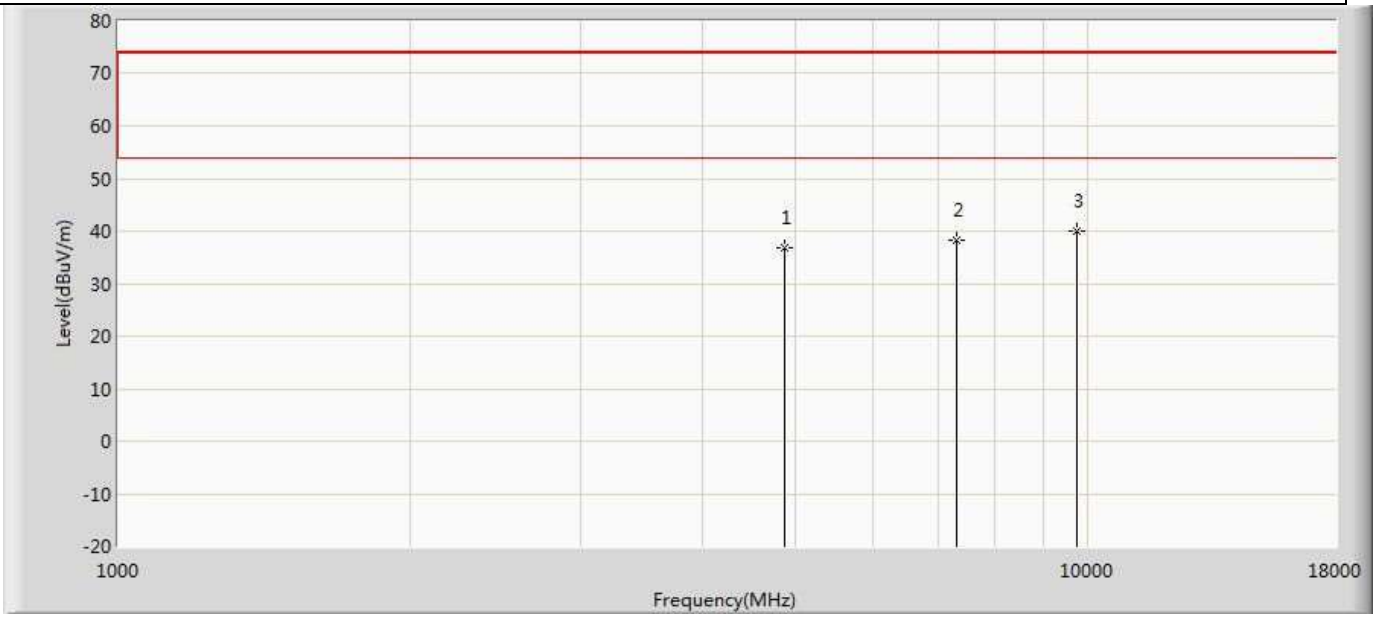
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	33.864	40.968	-40.136	74.000	-7.104	PK
2		7236.000	37.169	39.993	-36.831	74.000	-2.824	PK
3	*	9648.000	37.955	38.012	-36.045	74.000	-0.057	PK

Profile: 2210426R	Page No.: 38
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 11n(20MHz)	



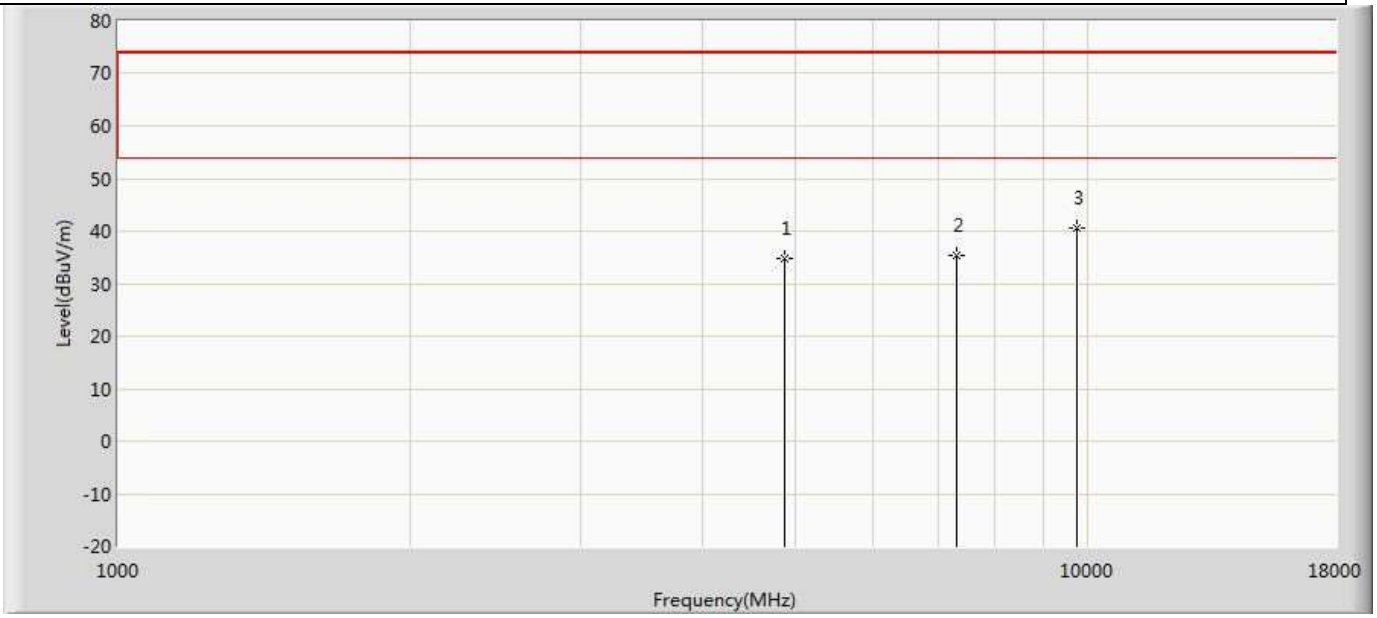
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	33.924	41.028	-40.076	74.000	-7.104	PK
2		7236.000	36.294	39.118	-37.706	74.000	-2.824	PK
3	*	9648.000	37.330	37.387	-36.670	74.000	-0.057	PK

Profile: 2210426R	Page No.: 39
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2437MHz by 11n(20MHz)	



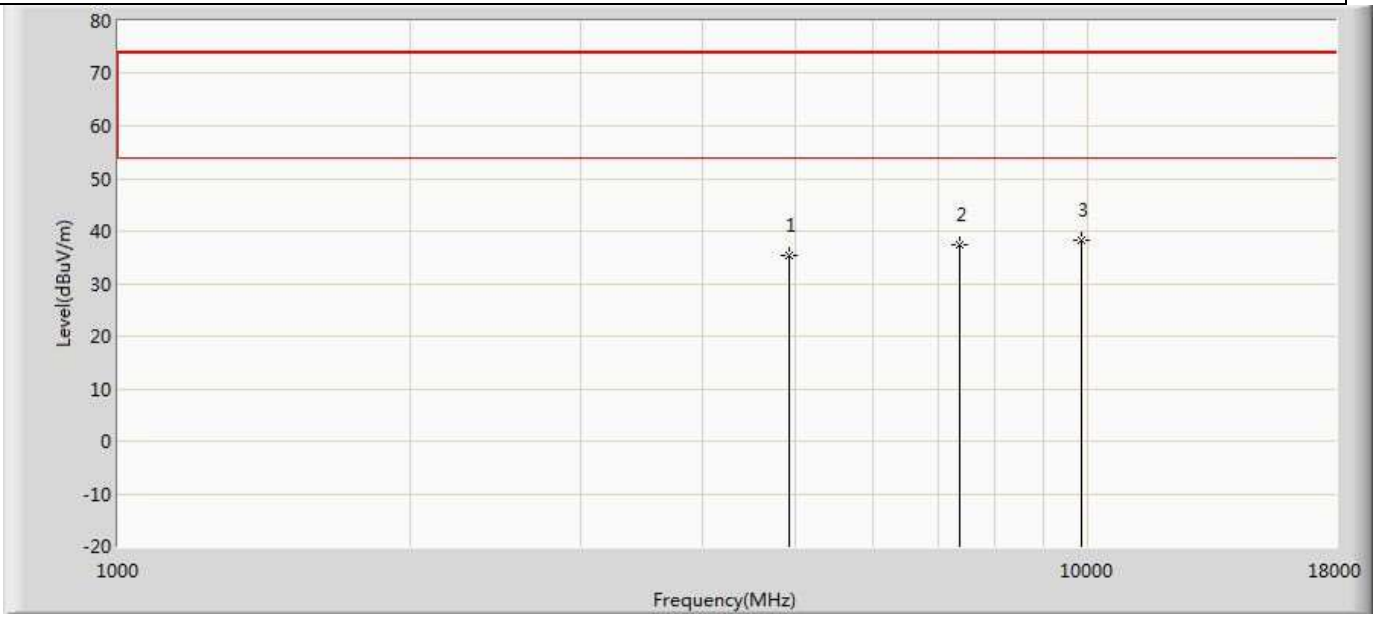
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	36.949	43.880	-37.051	74.000	-6.931	PK
2		7311.000	38.370	41.222	-35.630	74.000	-2.853	PK
3	*	9748.000	40.082	39.893	-33.918	74.000	0.189	PK

Profile: 2210426R	Page No.: 40
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2437MHz by 11n(20MHz)	



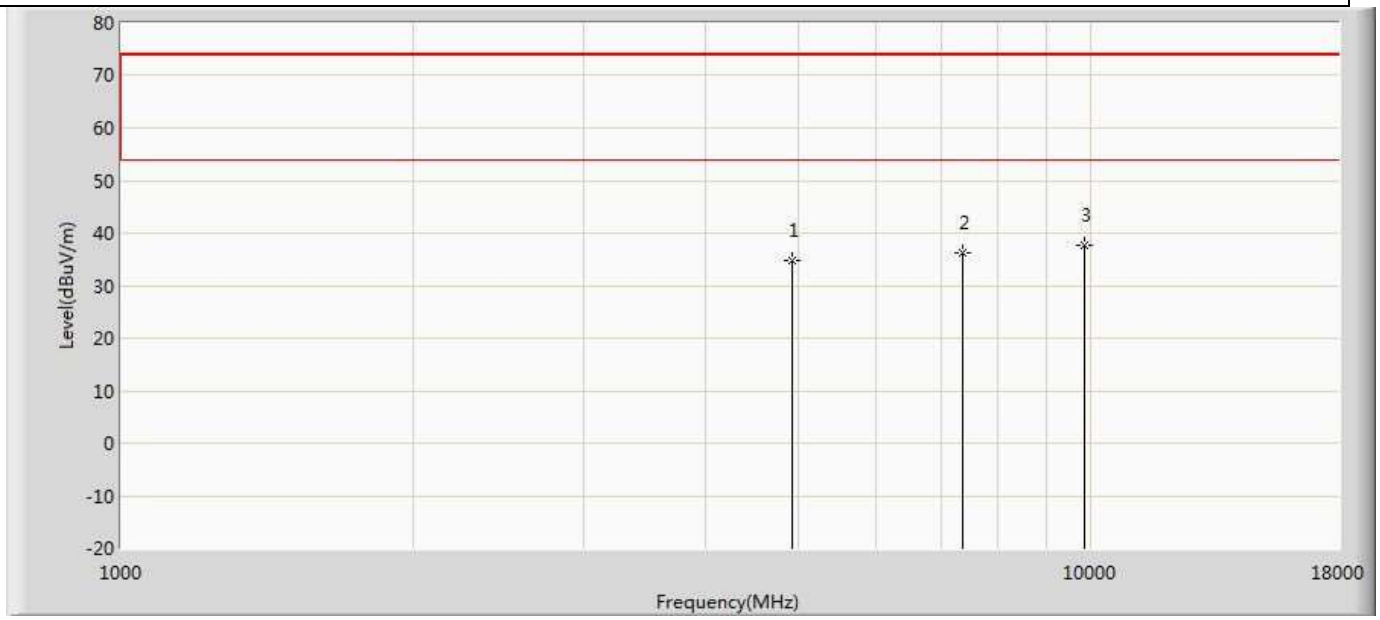
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	34.856	41.787	-39.144	74.000	-6.931	PK
2		7311.000	35.483	38.335	-38.517	74.000	-2.853	PK
3	*	9748.000	40.445	40.256	-33.555	74.000	0.189	PK

Profile: 2210426R	Page No.: 41
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 11n(20MHz)	



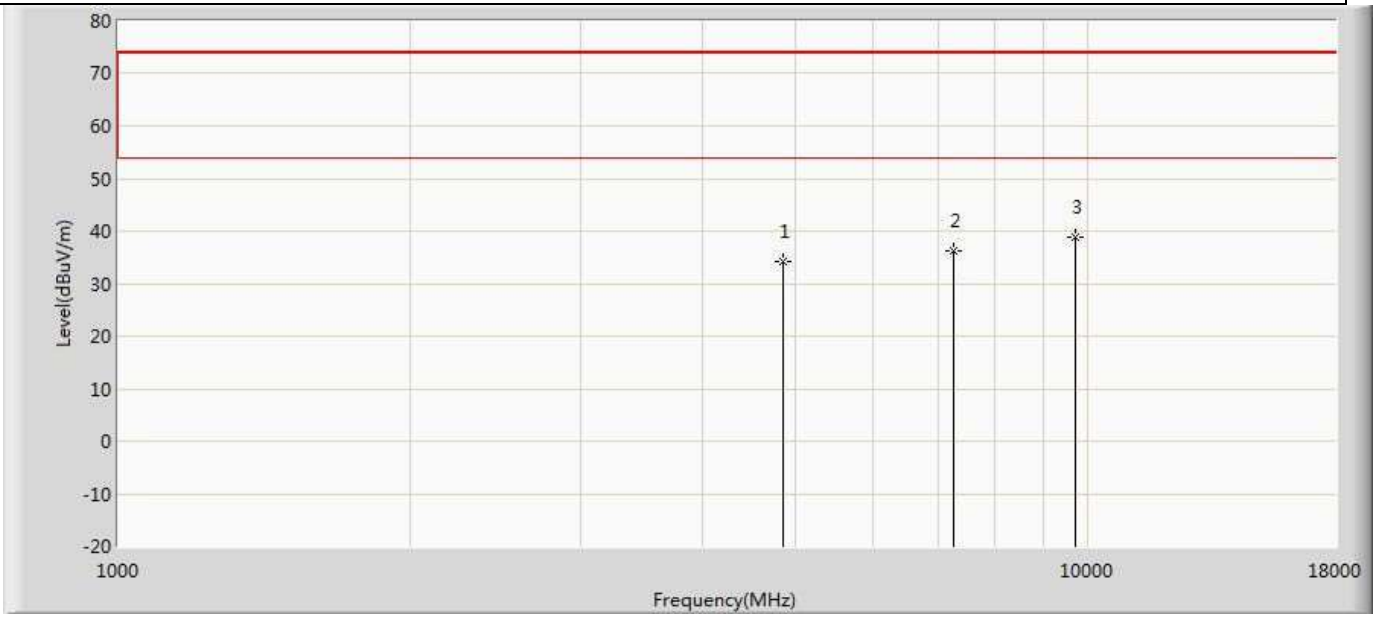
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	35.260	42.140	-38.740	74.000	-6.881	PK
2		7386.000	37.334	40.070	-36.666	74.000	-2.737	PK
3	*	9848.000	38.364	38.745	-35.636	74.000	-0.380	PK

Profile: 2210426R	Page No.: 42
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 11n(20MHz)	



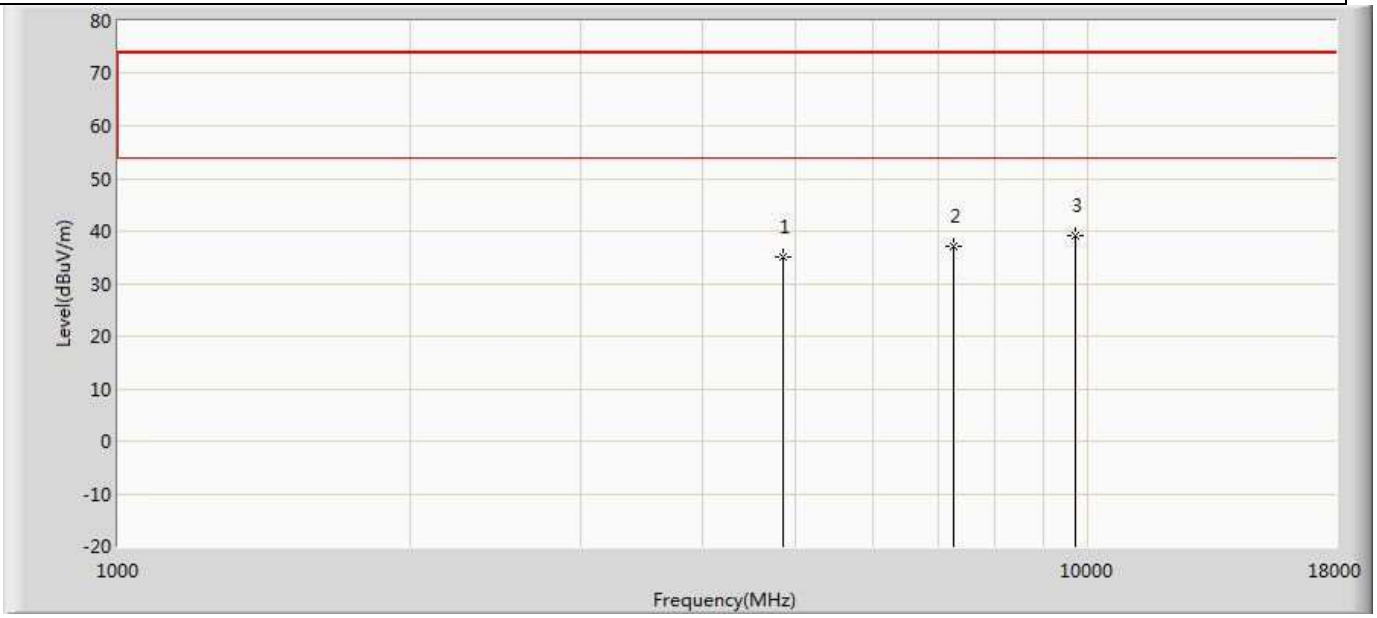
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	34.764	41.644	-39.236	74.000	-6.881	PK
2		7386.000	36.359	39.095	-37.641	74.000	-2.737	PK
3	*	9848.000	37.587	37.968	-36.413	74.000	-0.380	PK

Profile: 2210426R	Page No.: 43
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 11n(40MHz)	



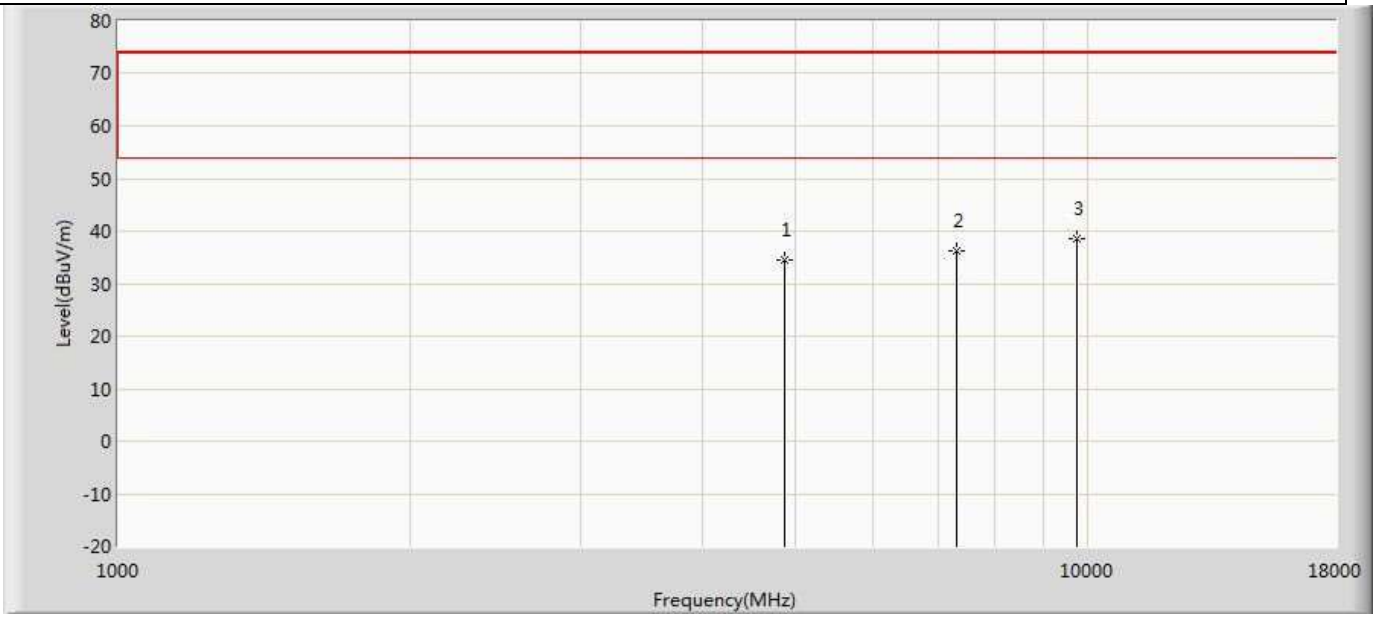
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4844.000	34.321	41.445	-39.679	74.000	-7.124	PK
2		7266.000	36.330	39.210	-37.670	74.000	-2.879	PK
3	*	9688.000	38.921	38.222	-35.079	74.000	0.700	PK

Profile: 2210426R	Page No.: 44
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 11n(40MHz)	



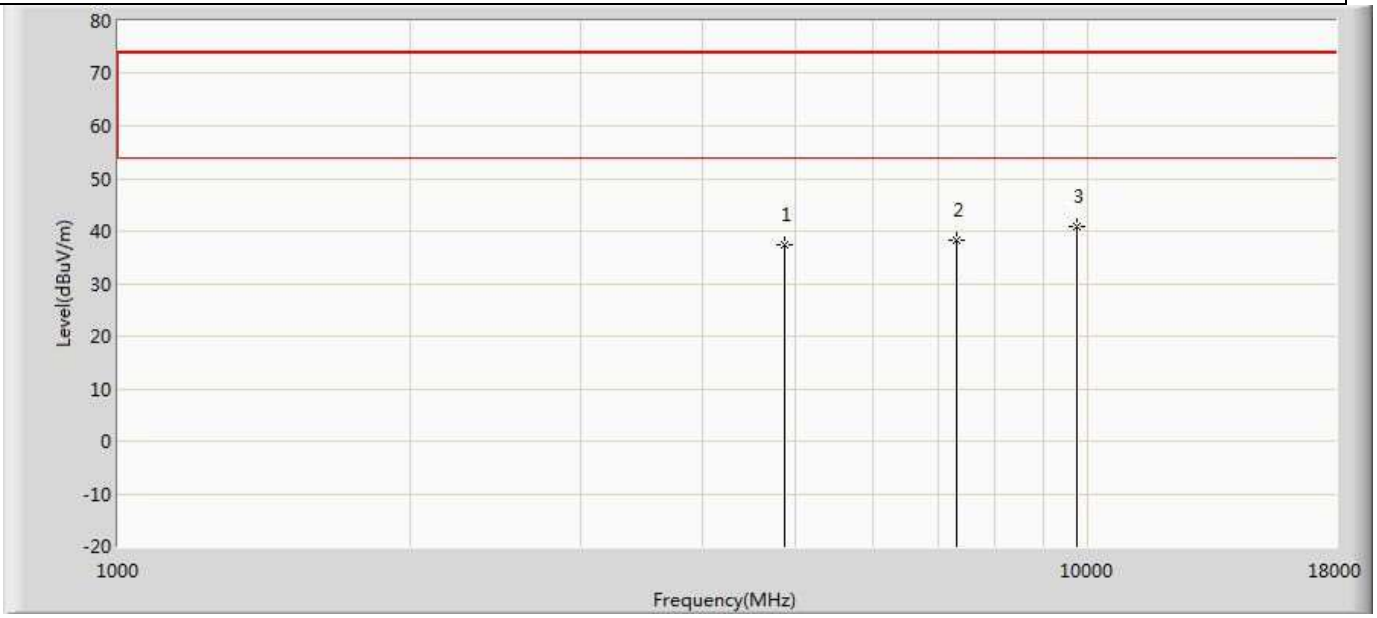
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4844.000	35.207	42.331	-38.793	74.000	-7.124	PK
2		7266.000	37.138	40.018	-36.862	74.000	-2.879	PK
3	*	9688.000	39.136	38.437	-34.864	74.000	0.700	PK

Profile: 2210426R	Page No.: 45
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2437MHz by 11n(40MHz)	



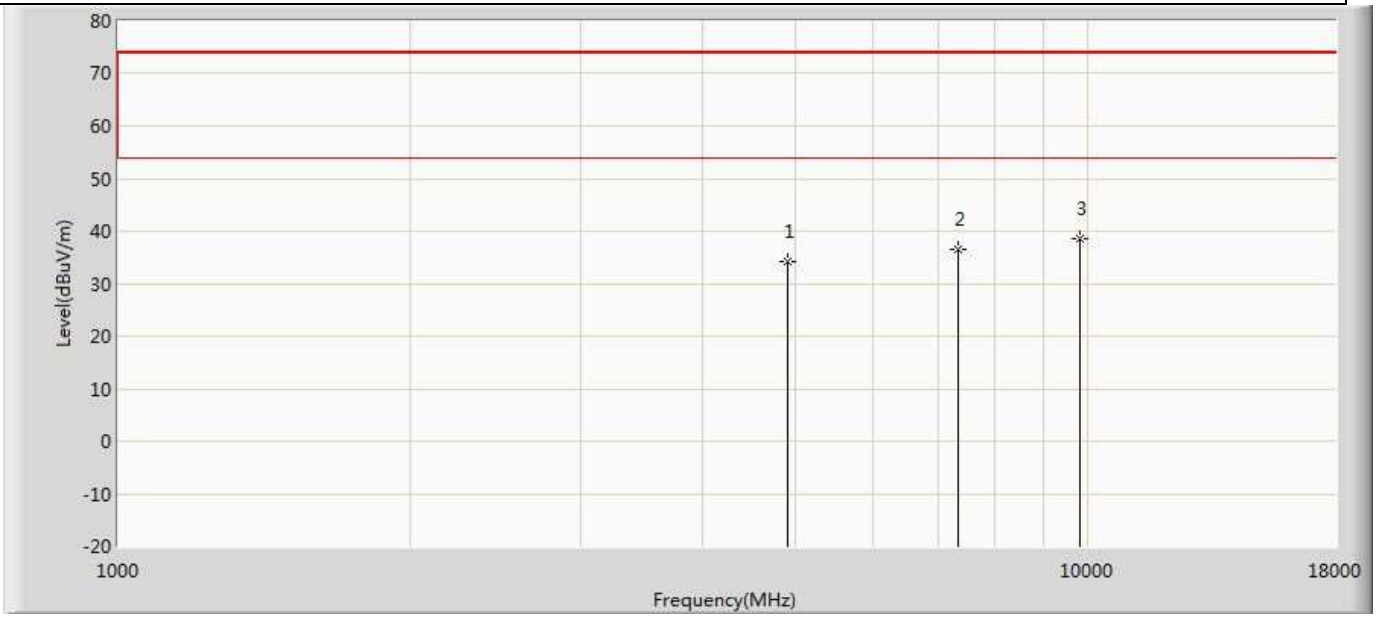
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	34.586	41.517	-39.414	74.000	-6.931	PK
2		7311.000	36.212	39.064	-37.788	74.000	-2.853	PK
3	*	9748.000	38.593	38.404	-35.407	74.000	0.189	PK

Profile: 2210426R	Page No.: 46
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2437MHz by 11n(40MHz)	



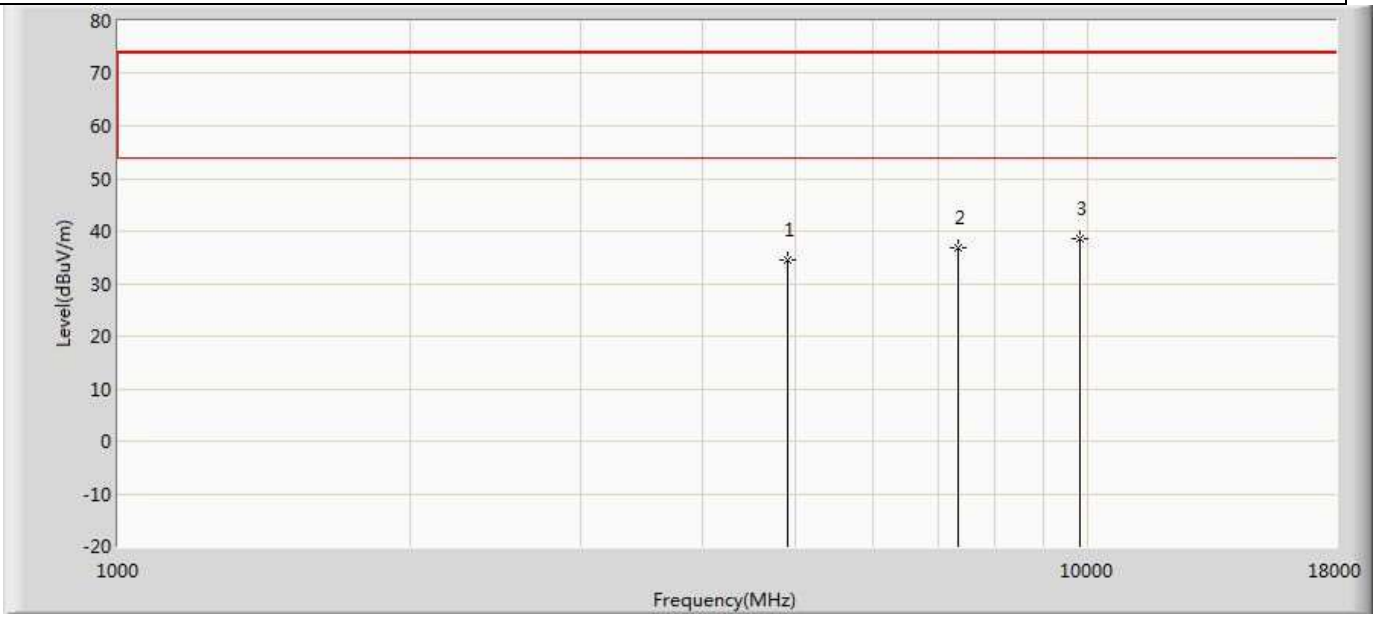
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	37.396	44.327	-36.604	74.000	-6.931	PK
2		7311.000	38.321	41.173	-35.679	74.000	-2.853	PK
3	*	9748.000	40.898	40.709	-33.102	74.000	0.189	PK

Profile: 2210426R	Page No.: 47
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 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	34.301	41.113	-39.699	74.000	-6.812	PK
2		7356.000	36.526	39.500	-37.474	74.000	-2.974	PK
3	*	9808.000	38.656	38.445	-35.344	74.000	0.211	PK

Profile: 2210426R	Page No.: 48
Engineer: Julius Zhou	
Site: AC5	Time: 2021/03/27 - 15:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 11n(40MHz)	

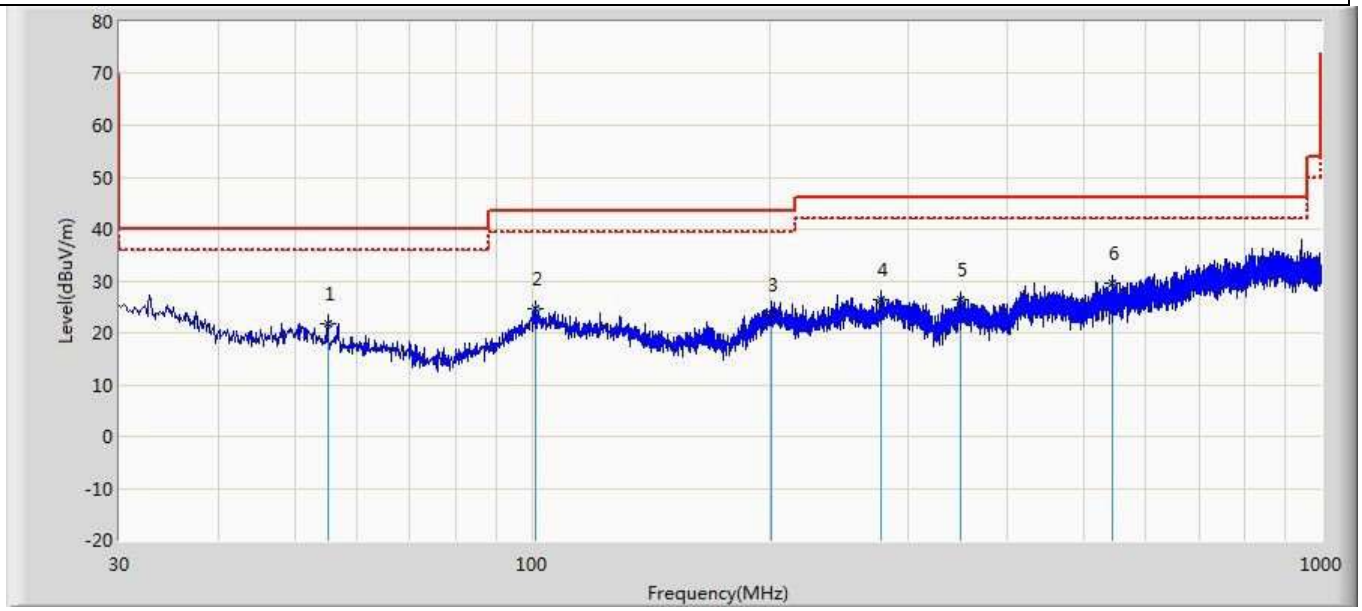


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4904.000	34.447	41.259	-39.553	74.000	-6.812	PK
2		7356.000	36.735	39.709	-37.265	74.000	-2.974	PK
3	*	9808.000	38.624	38.413	-35.376	74.000	0.211	PK

Note:
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 and Above 18GHz 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 of peak is lower than average limit, then average measurement needn't be performed.

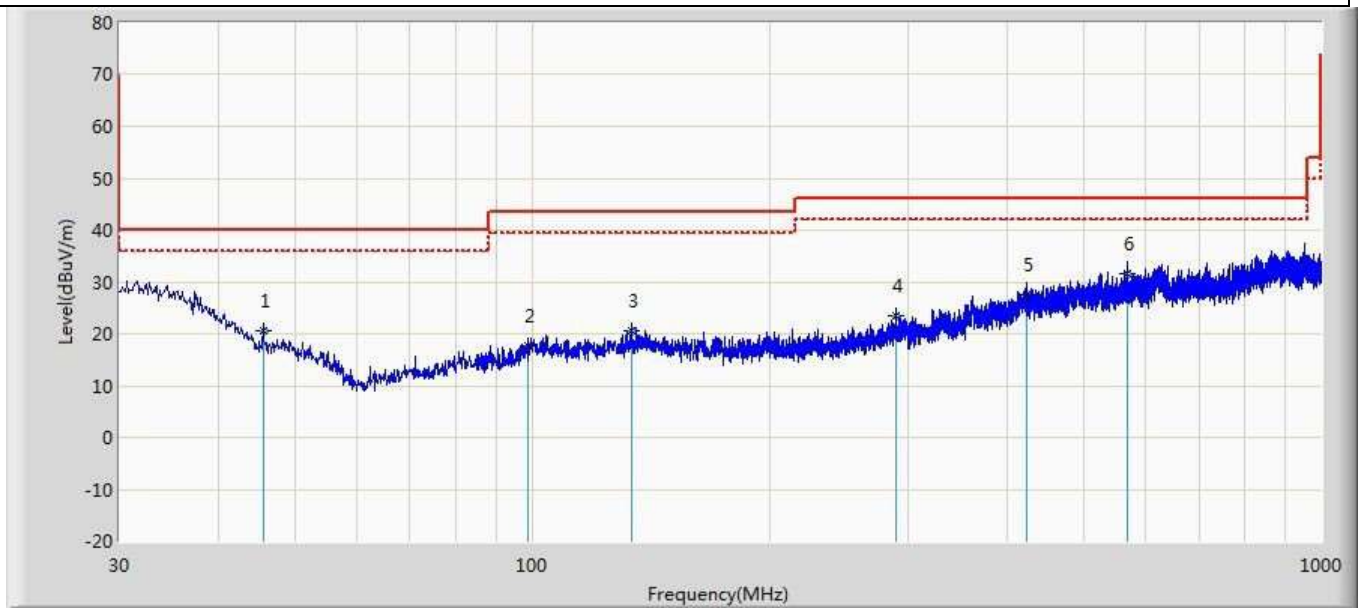
The worst case of Radiated Emission below 1GHz:

Profile: 2210426R	Page No.: 3
Engineer: Fox	
Site: AC2	Time: 2022/02/12- 20:37
Limit: FCC_Part15.209_RE(3m)	Margin: 4
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		55.099	21.648	4.240	-18.352	40.000	17.408	QP
2		101.174	24.649	2.654	-18.851	43.500	21.995	QP
3		200.841	23.469	0.031	-20.031	43.500	23.438	QP
4		276.744	26.498	2.183	-19.502	46.000	24.315	QP
5		348.645	26.498	1.894	-19.502	46.000	24.603	QP
6	*	543.979	29.485	2.666	-16.515	46.000	26.819	QP

Profile: 2210426R	Page No.: 4
Engineer: Fox	
Site: AC2	Time: 2022/02/12 - 20:41
Limit: FCC_Part15.209_RE(3m)	Margin: 4
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		45.641	20.468	3.774	-19.532	40.000	16.694	QP
2		98.628	17.689	1.166	-25.811	43.500	16.523	QP
3		133.548	20.468	2.780	-23.032	43.500	17.688	QP
4		289.475	23.468	2.892	-22.532	46.000	20.575	QP
5		423.941	27.468	0.254	-18.532	46.000	27.213	QP
6	*	567.259	31.467	2.985	-14.533	46.000	28.482	QP

4.3 Emissions in non-restricted frequency band	VERDICT: PASS

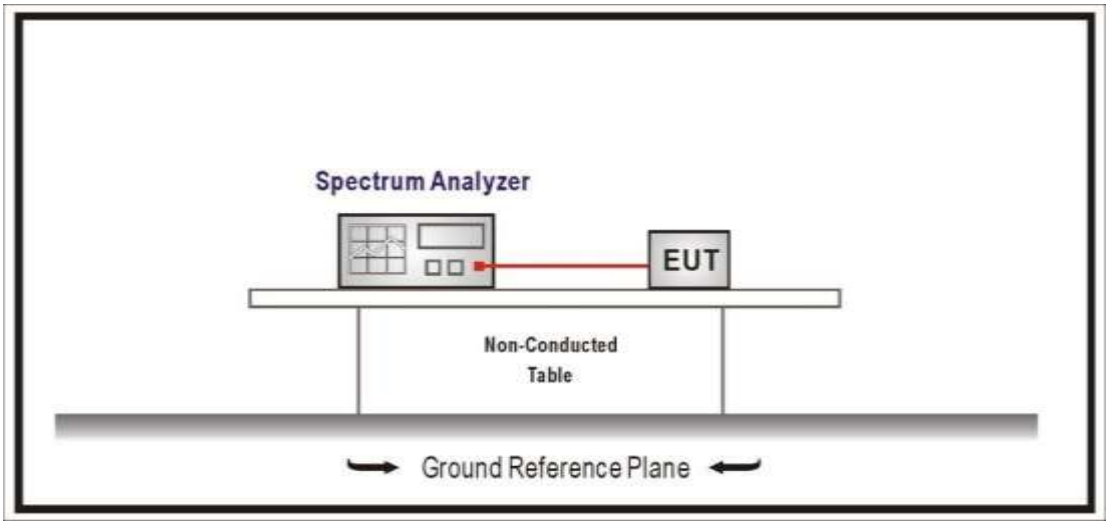
4.3.1 Limit

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

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

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

4.3.2 Test Setup



4.3.3 Test Procedure

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

4.3.4 Test Data

Mode	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	10.425	2400.000	-38.33	48.755	≥20	Pass
	11	2462	9.6	2500.000	-51.569	61.169	≥20	Pass
2	1	2412	2.498	2400.000	-35.975	38.473	≥20	Pass
	11	2462	1.769	2500.000	-51.87	53.639	≥20	Pass
3	1	2412	2.608	2400.000	-35.975	38.583	≥20	Pass
	11	2462	1.793	2500.000	-53.438	55.231	≥20	Pass
4	3	2422	2.048	2400.000	-30.748	32.796	≥20	Pass
	9	2452	-3.256	2500.000	-48.666	45.41	≥20	Pass

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

Mode 4 CH03(2422MHz)

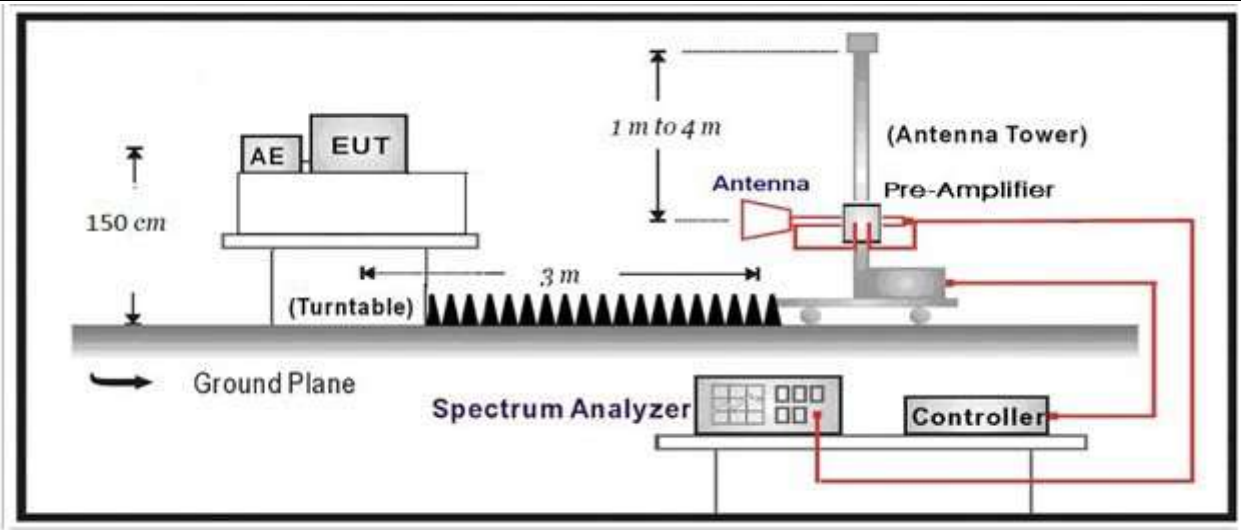
4.4 Radiated Emission Band Edge — VERDICT: PASS

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

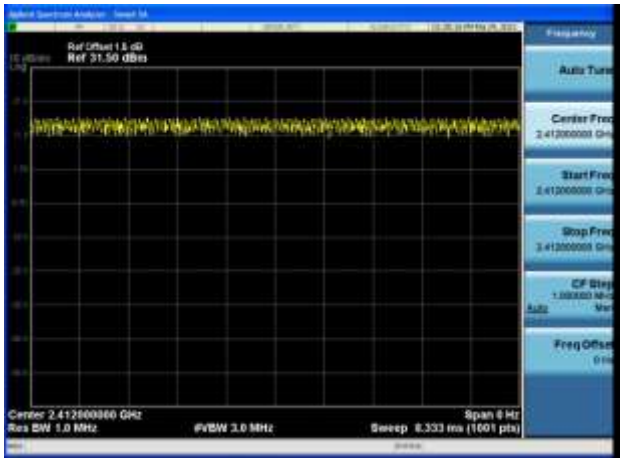
4.4.4 Test Data

Test Mode	Tx On (ms)	VBW (Hz)	Tx On + Tx Off (ms)	Duty Cycle (%)
1	--	10	--	100
2	--	10	--	100
3	--	10	--	100
4	--	10	--	100

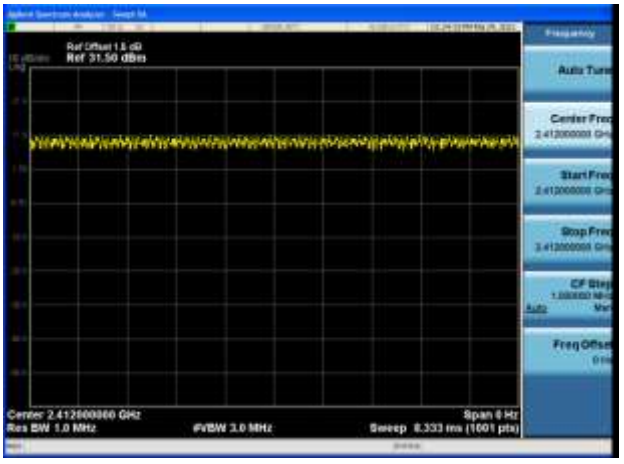
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

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.

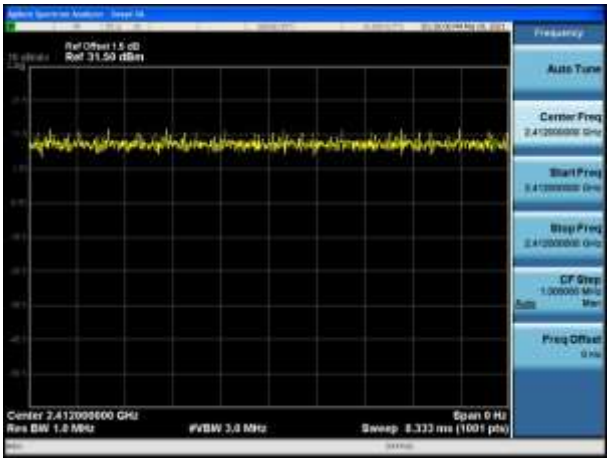
802.11b



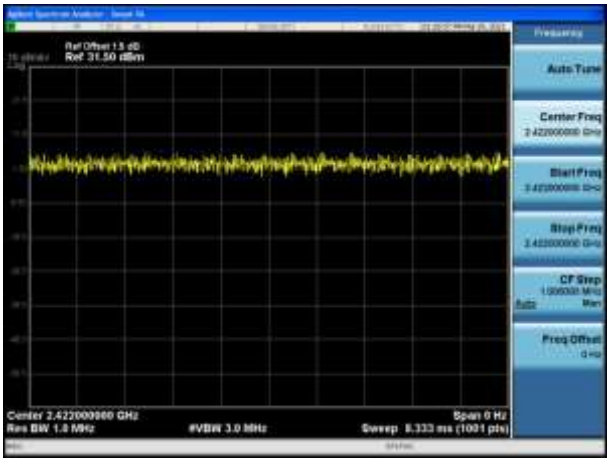
802.11g



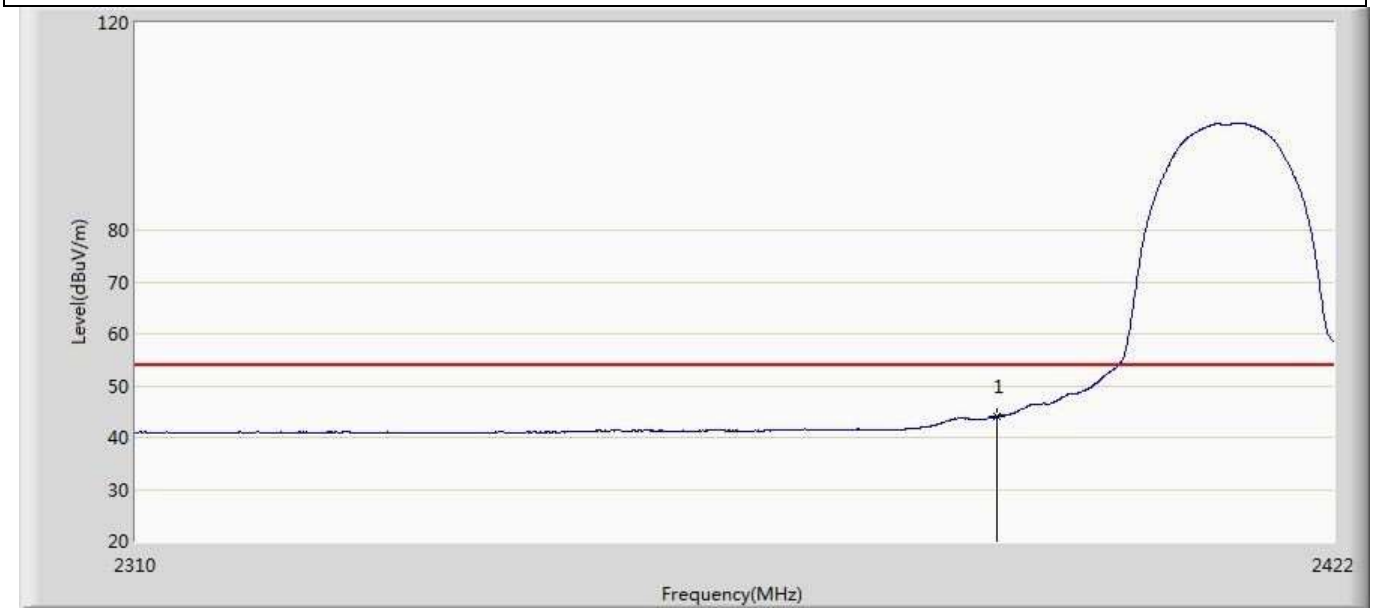
802.11n(20MHz)



802.11n(40MHz)

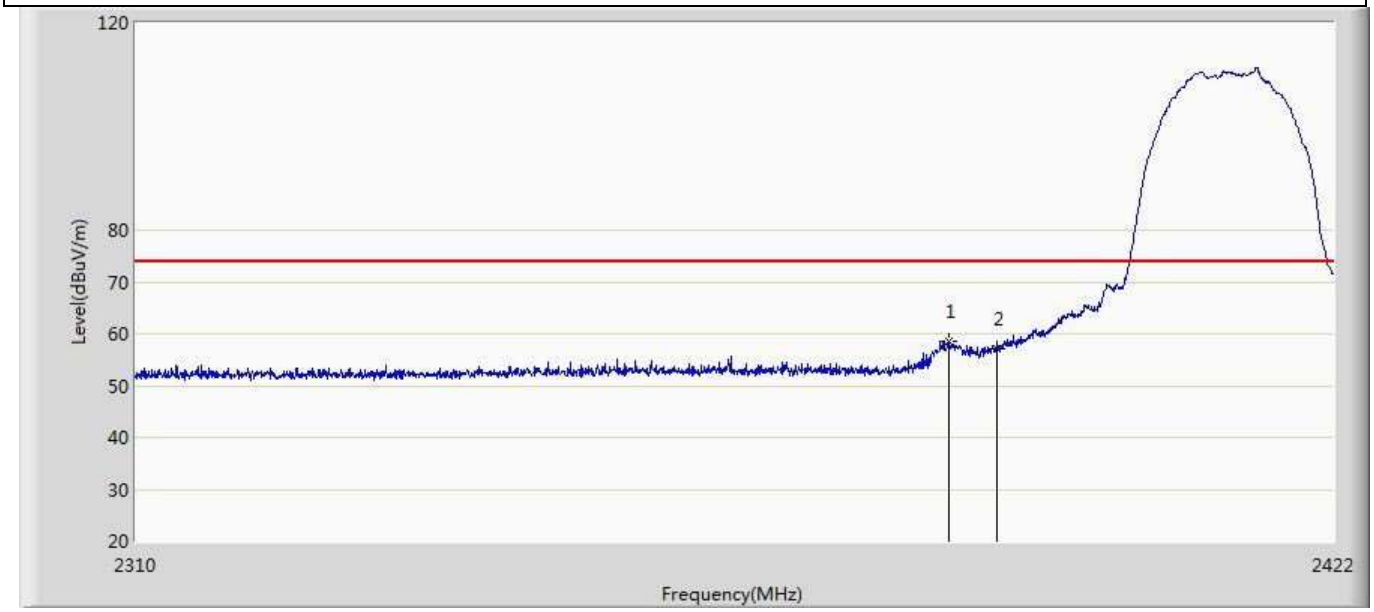


Profile: 2210426R	Page No.: 3
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 14:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	44.092	8.635	-9.908	54.000	35.458	AV

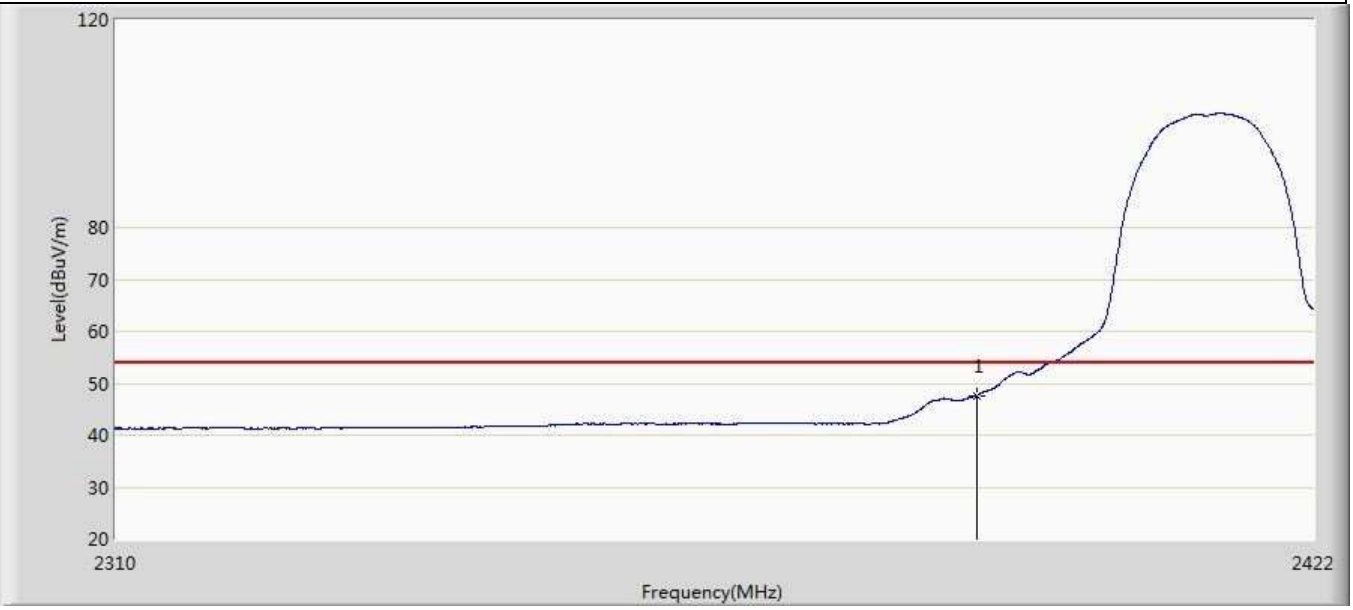
Profile: 2210426R	Page No.: 4
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 14:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2385.544	58.469	23.014	-15.531	74.000	35.454	PK
2		2390.000	57.133	21.676	-16.867	74.000	35.458	PK

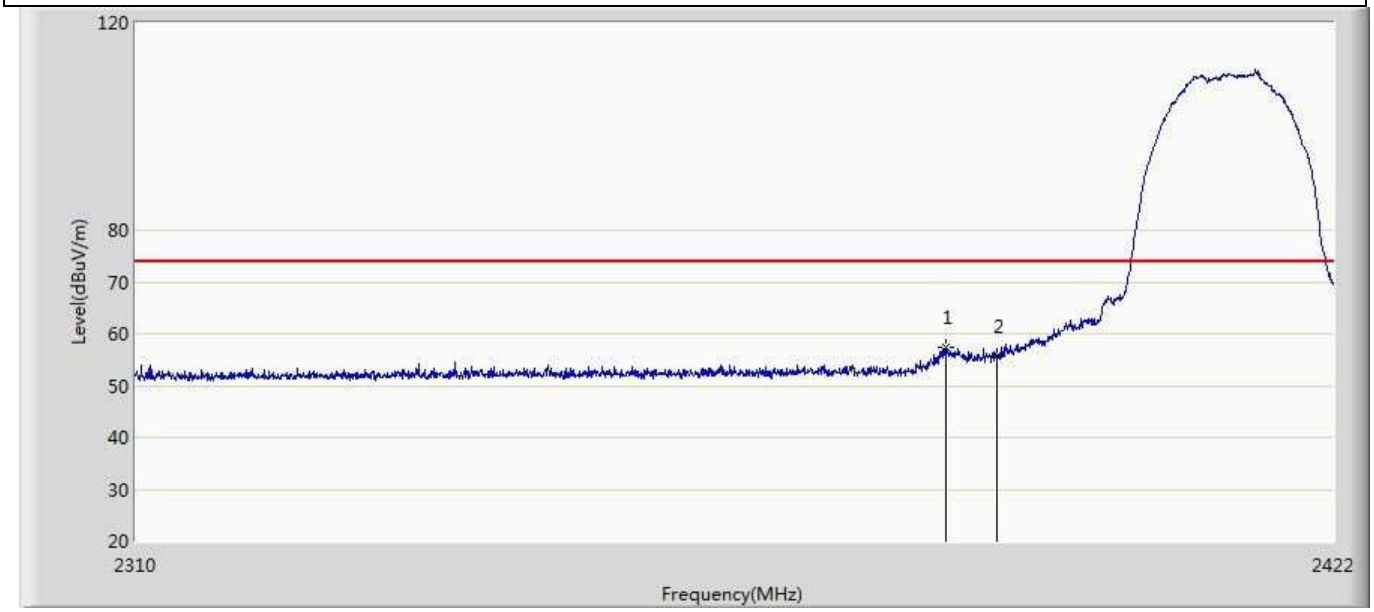
Profile: 2210426R	Page No.: 1
Engineer: YULIU	
Site: AC5	Time: 2019/11/13 - 23:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0

Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b	



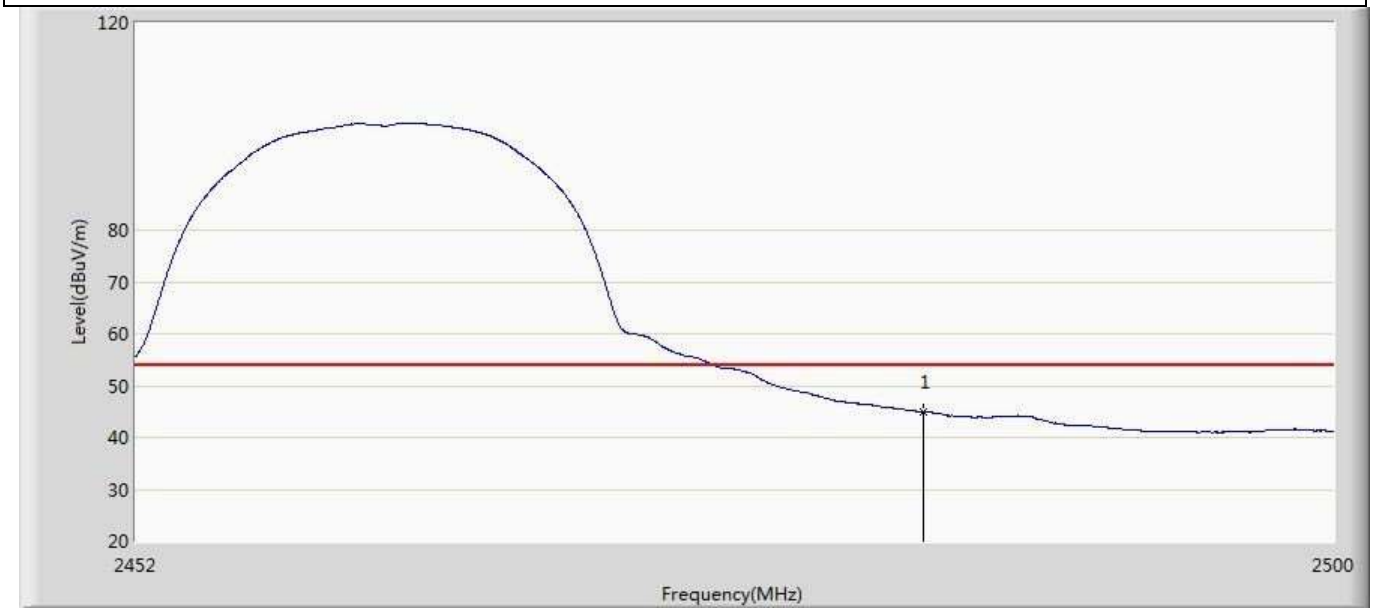
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	47.550	12.093	-6.450	54.000	35.458	AV

Profile: 2210426R	Page No.: 2
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 14:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b	



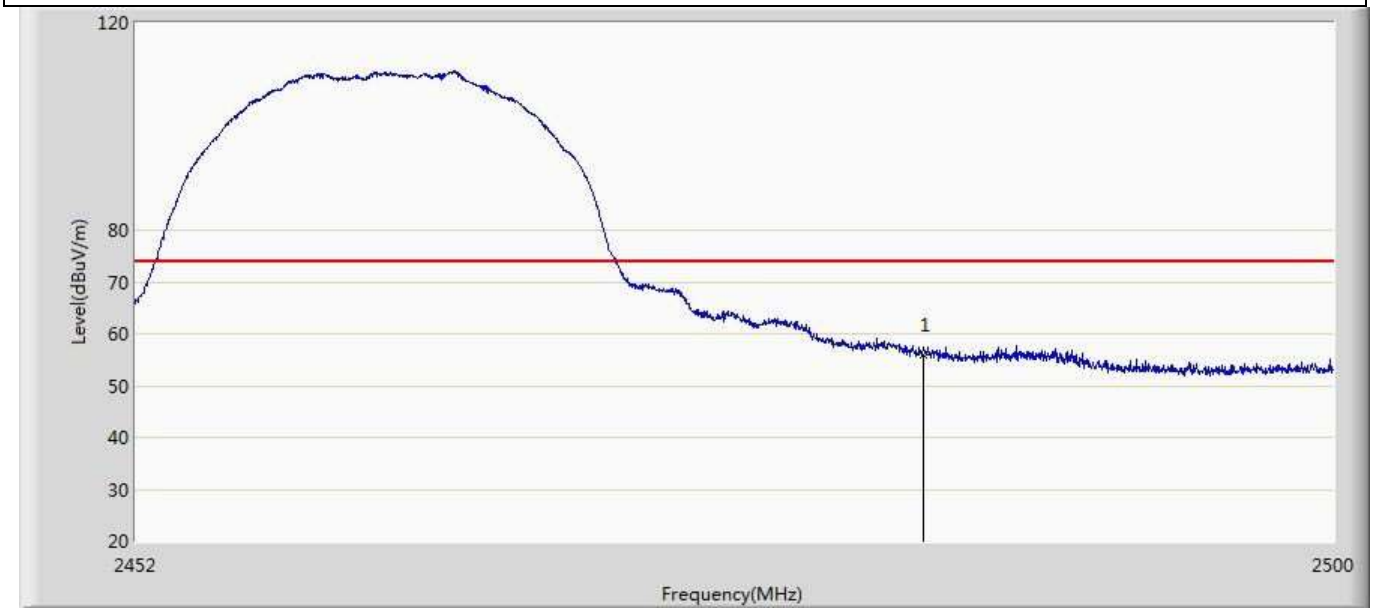
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2385.152	57.300	21.845	-16.700	74.000	35.455	PK
2		2390.000	55.774	20.317	-18.226	74.000	35.458	PK

Profile: 2210426R	Page No.: 5
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 14:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b	



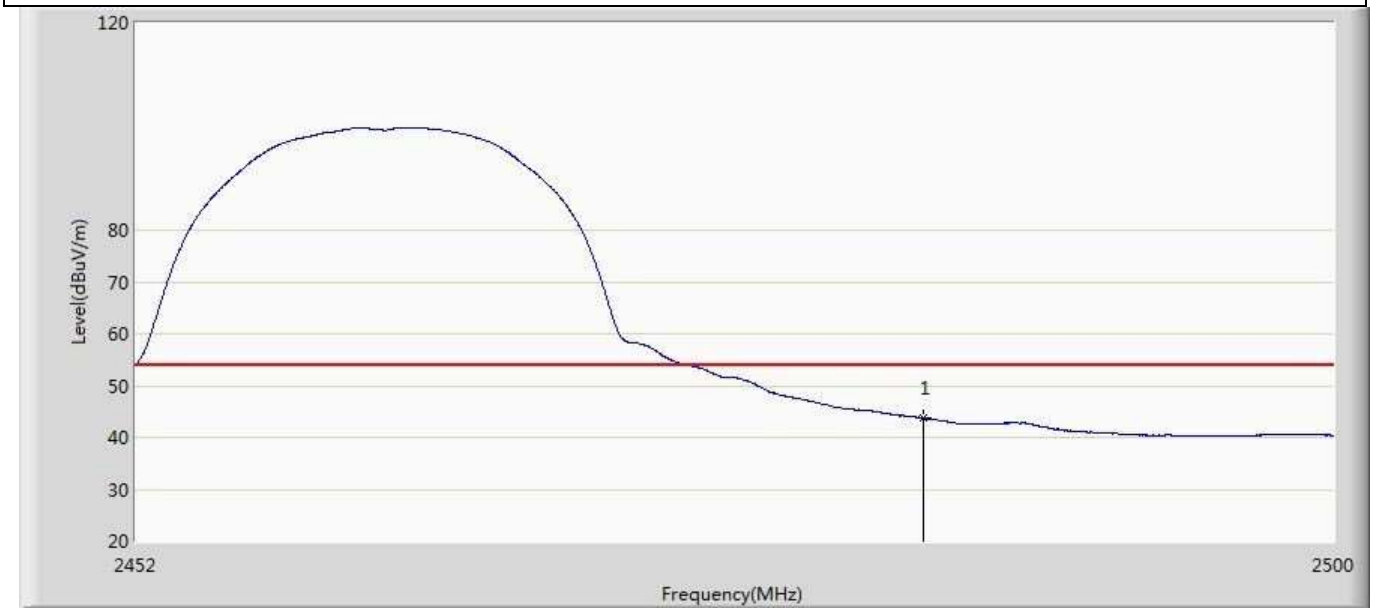
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	44.945	9.427	-9.055	54.000	35.517	AV

Profile: 2210426R	Page No.: 6
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 14:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b	



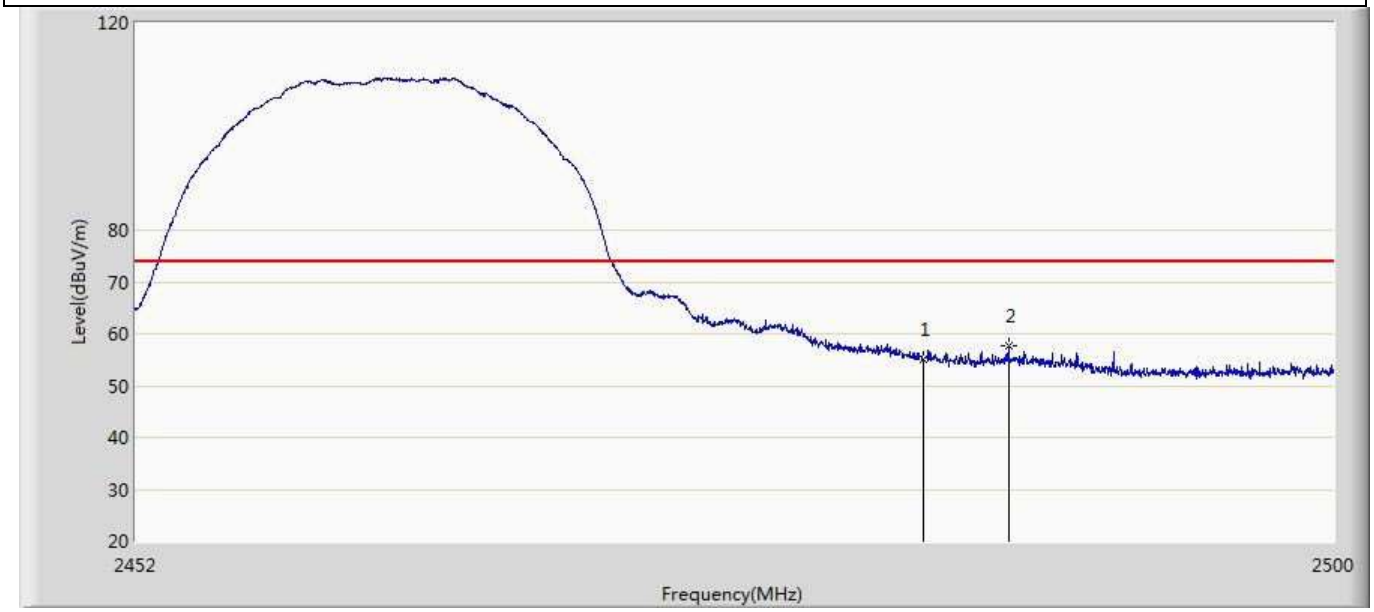
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	55.967	20.449	-18.033	74.000	35.517	PK

Profile: 2210426R	Page No.: 7
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 14:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b	



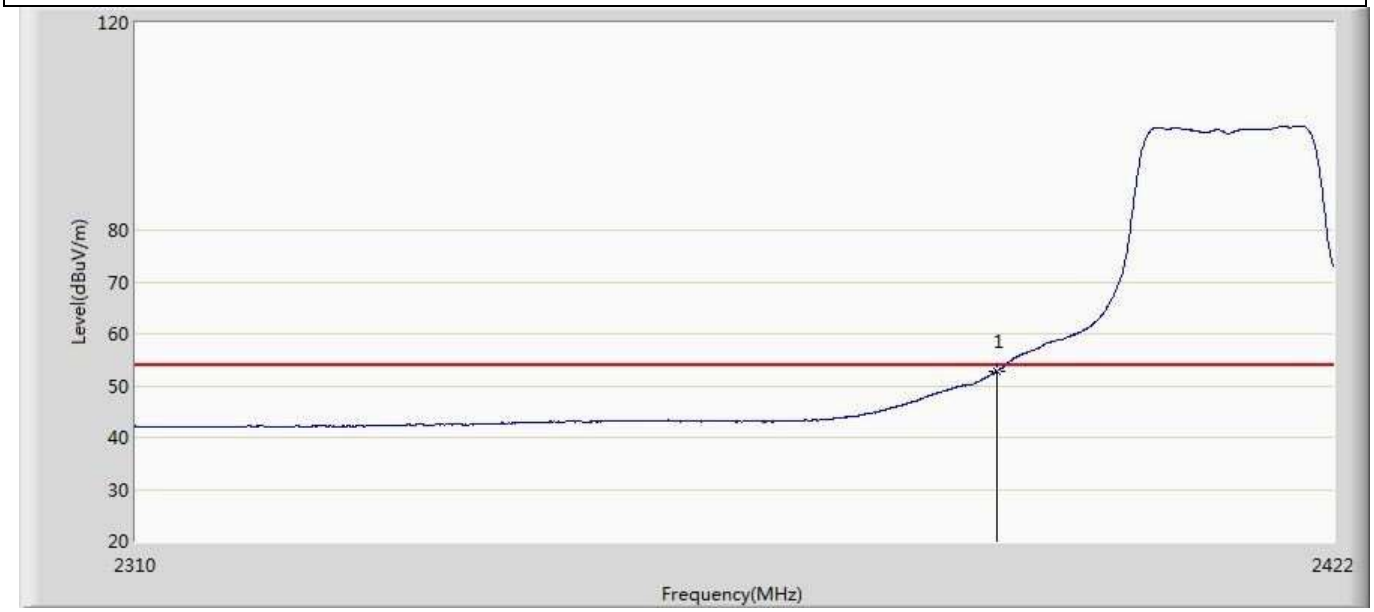
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	43.667	8.149	-10.333	54.000	35.517	AV

Profile: 2210426R	Page No.: 8
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 14:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b	



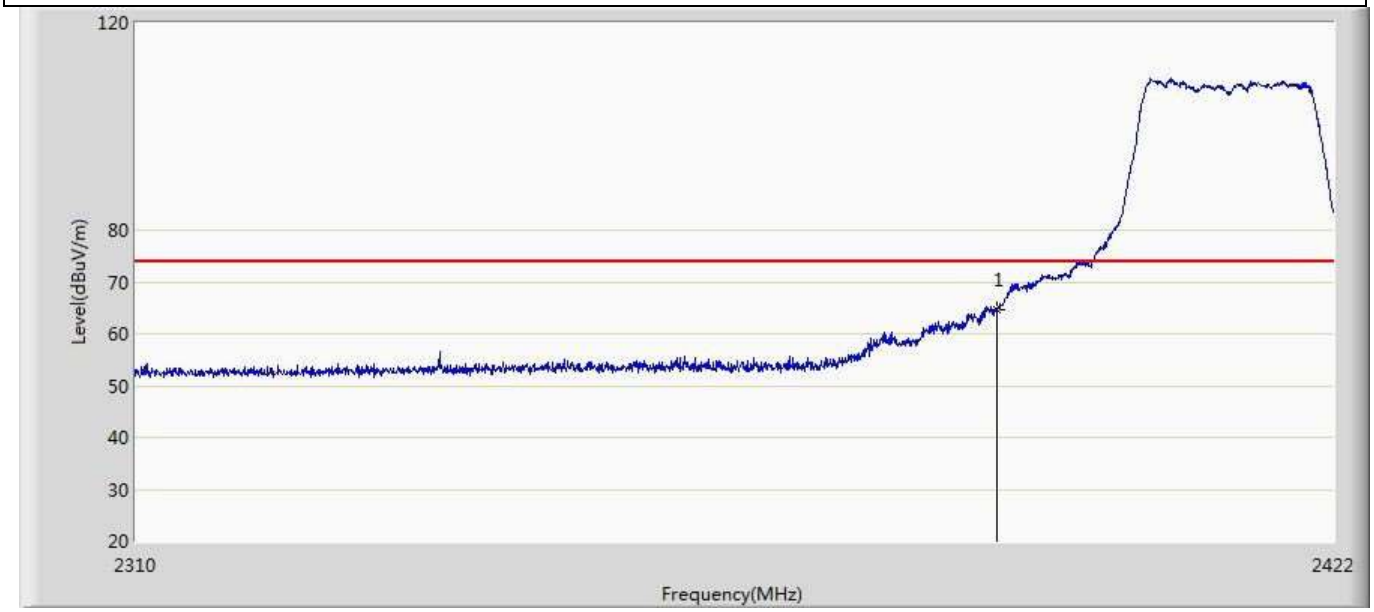
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	55.112	19.594	-18.888	74.000	35.517	PK
2	*	2486.896	57.709	22.172	-16.291	74.000	35.537	PK

Profile: 2210426R	Page No.: 9
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g	



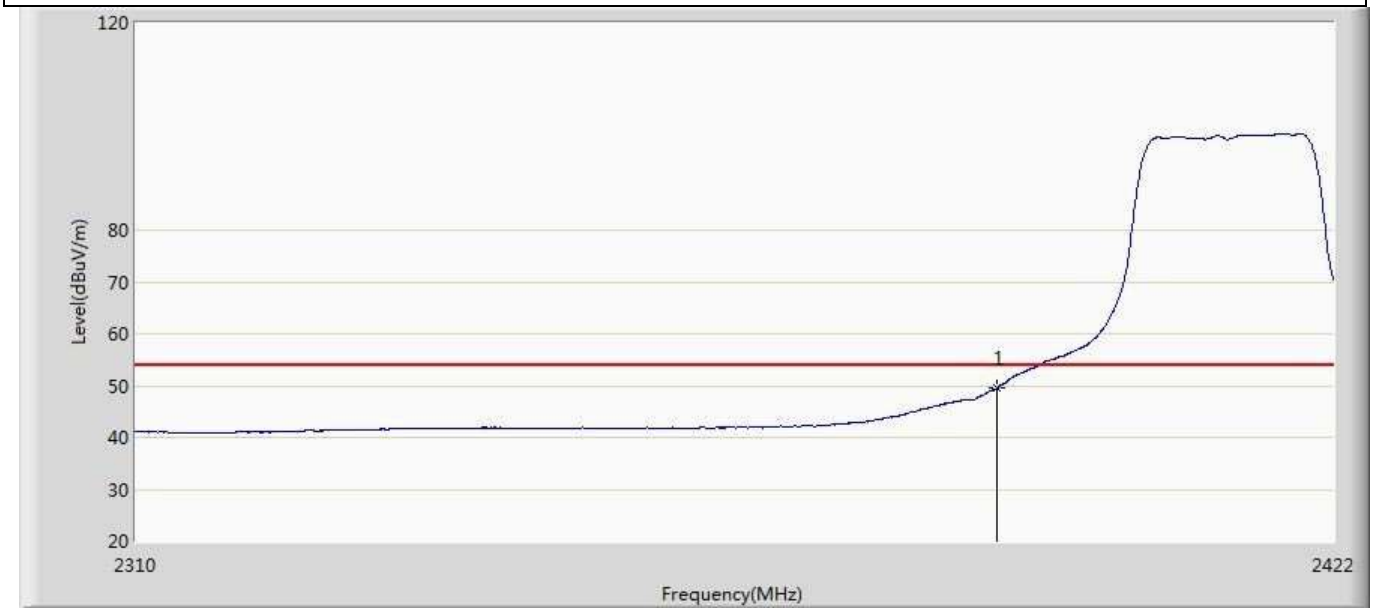
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	52.754	17.297	-1.246	54.000	35.458	AV

Profile: 2210426R	Page No.: 10
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g	



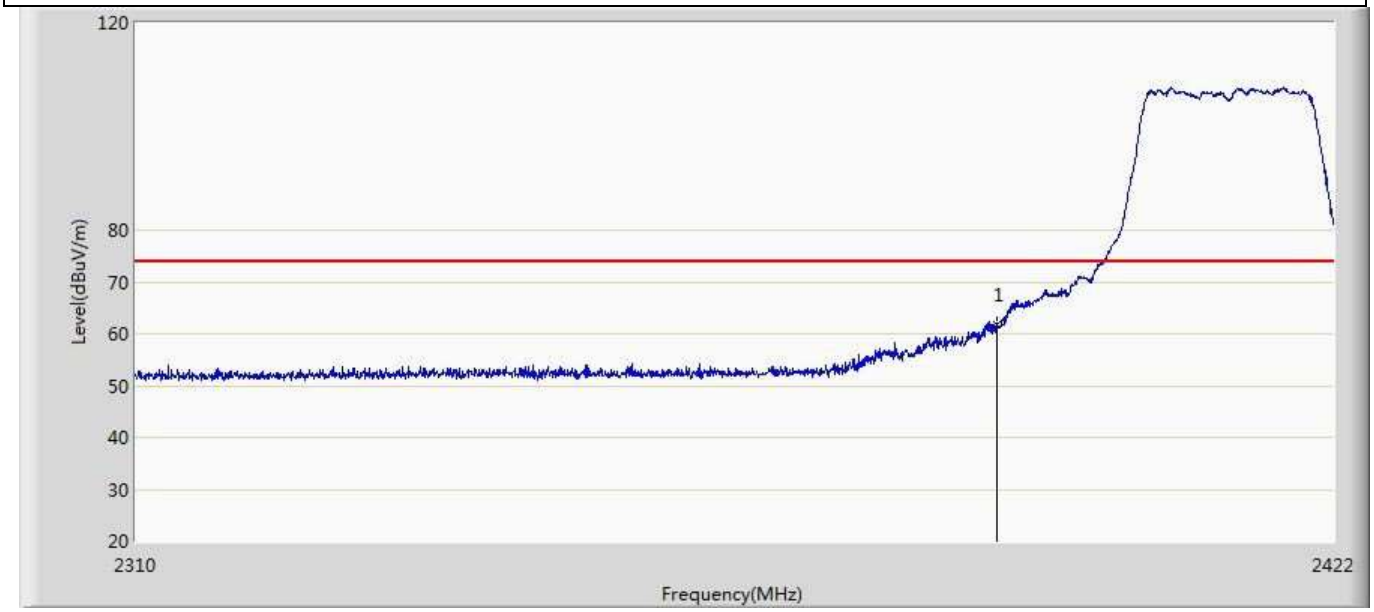
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	64.644	29.187	-9.356	74.000	35.458	PK

Profile: 2210426R	Page No.: 11
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g	



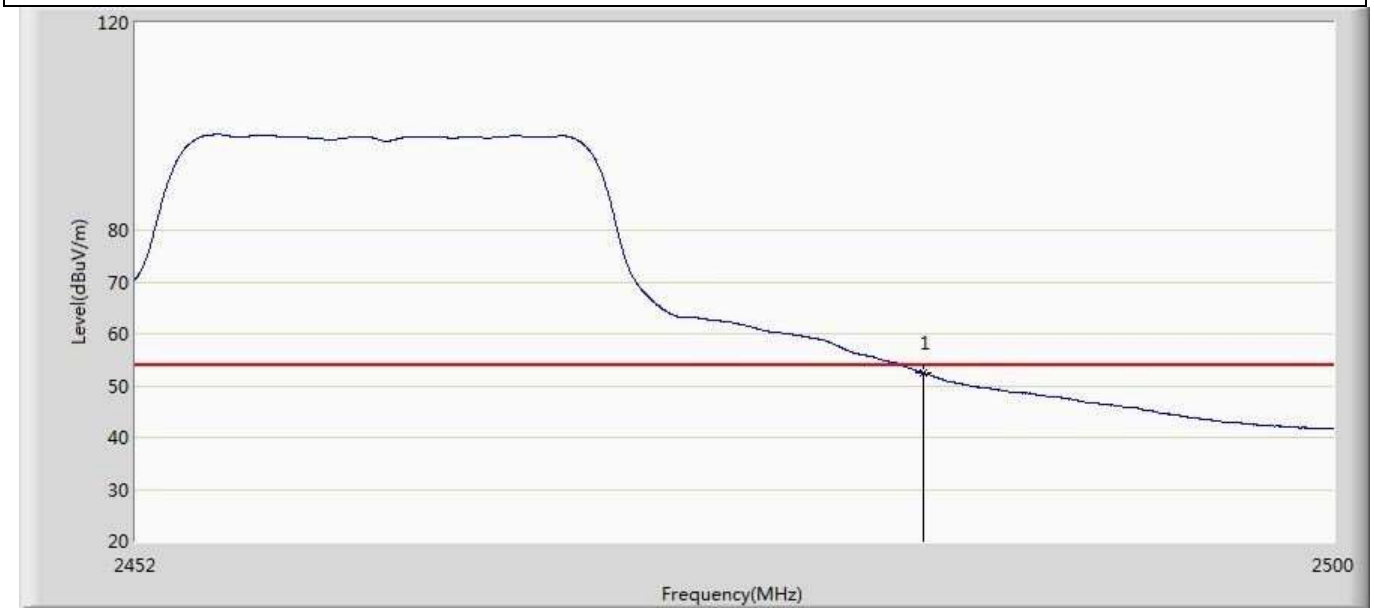
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	49.497	14.040	-4.503	54.000	35.458	AV

Profile: 2210426R	Page No.: 12
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g	



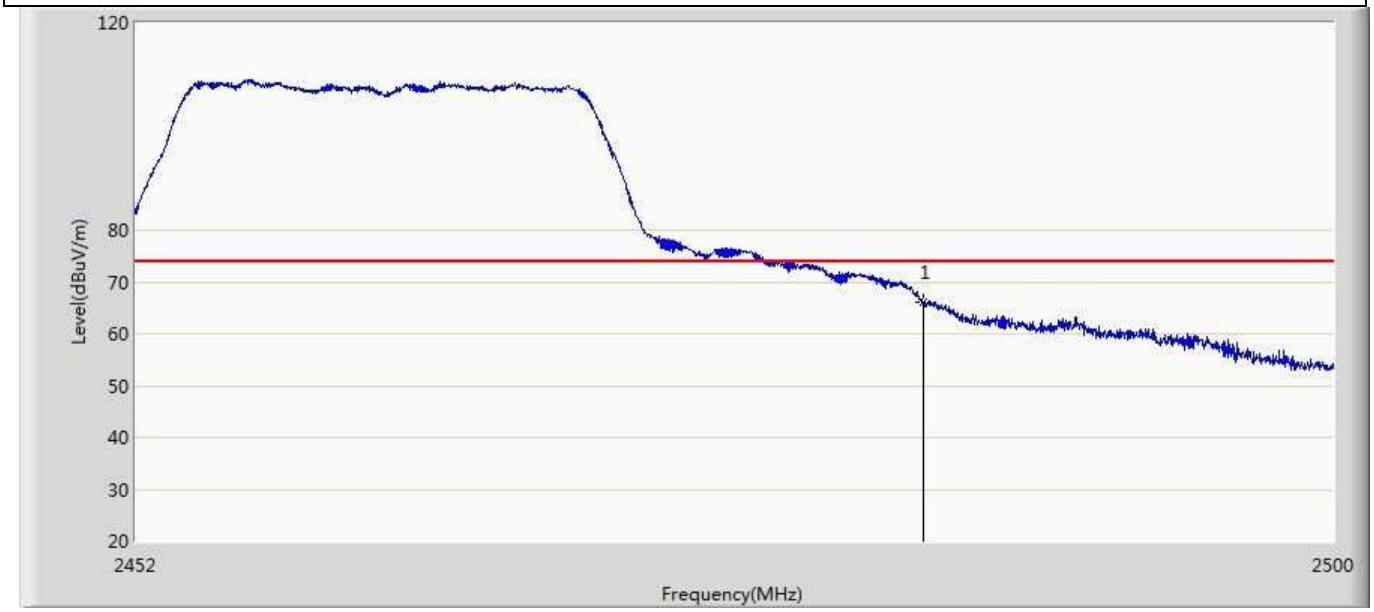
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	61.744	26.287	-12.256	74.000	35.458	PK

Profile: 2210426R	Page No.: 13
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 802.11g	



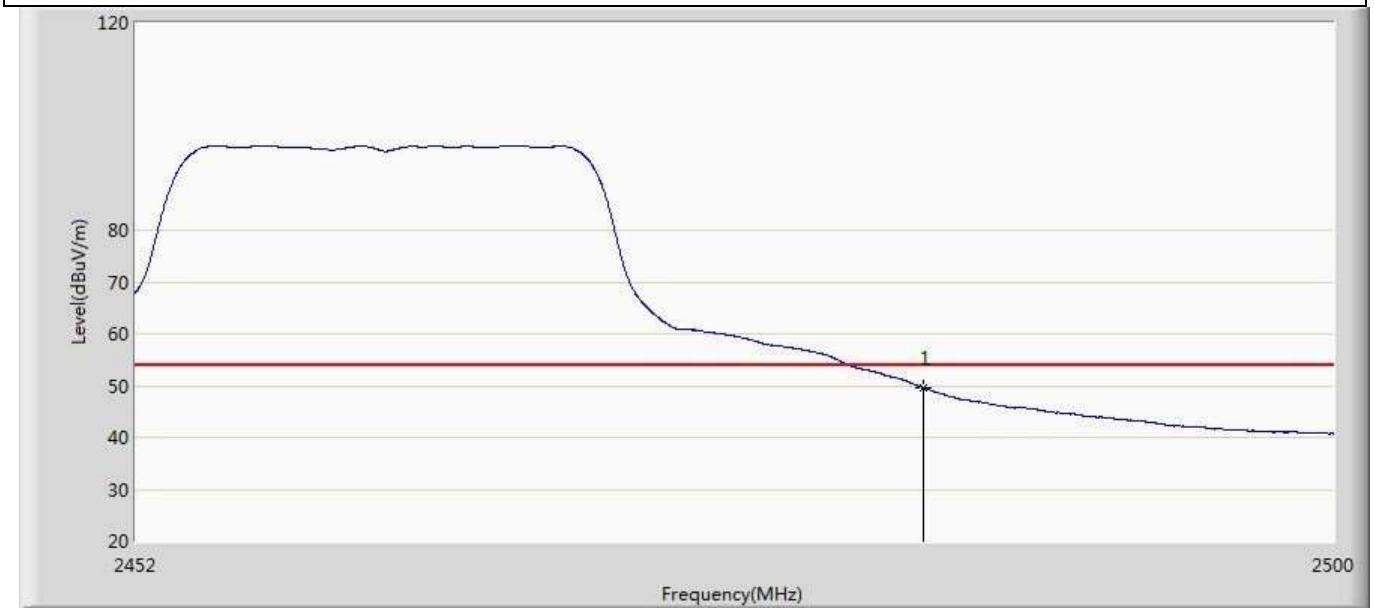
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	52.392	16.874	-1.608	54.000	35.517	AV

Profile: 2210426R	Page No.: 14
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 802.11g	



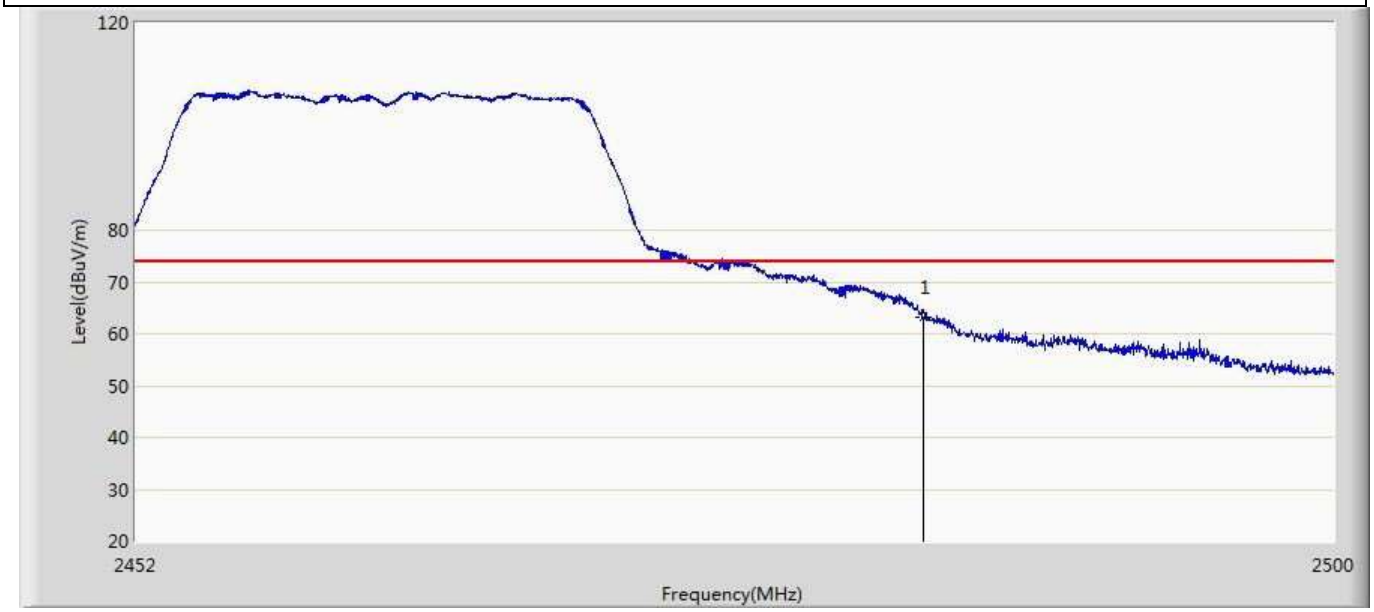
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	65.964	30.446	-8.036	74.000	35.517	PK

Profile: 2210426R	Page No.: 15
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 802.11g	



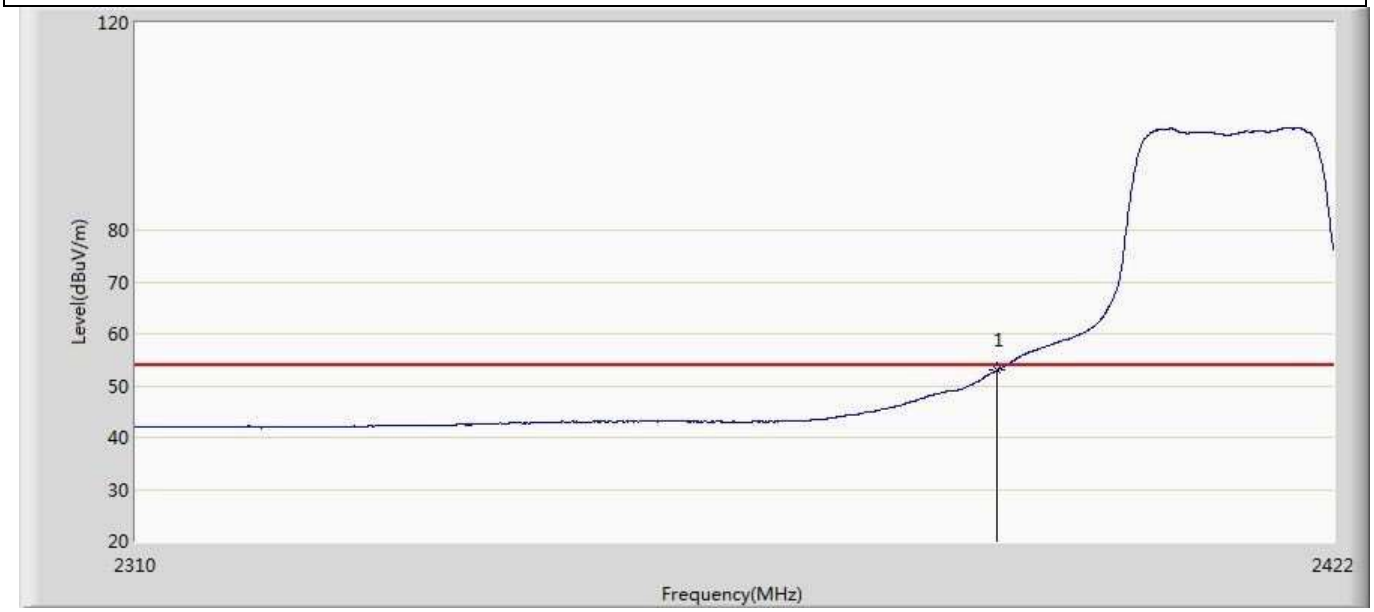
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	49.604	14.086	-4.396	54.000	35.517	AV

Profile: 2210426R	Page No.: 16
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 802.11g	



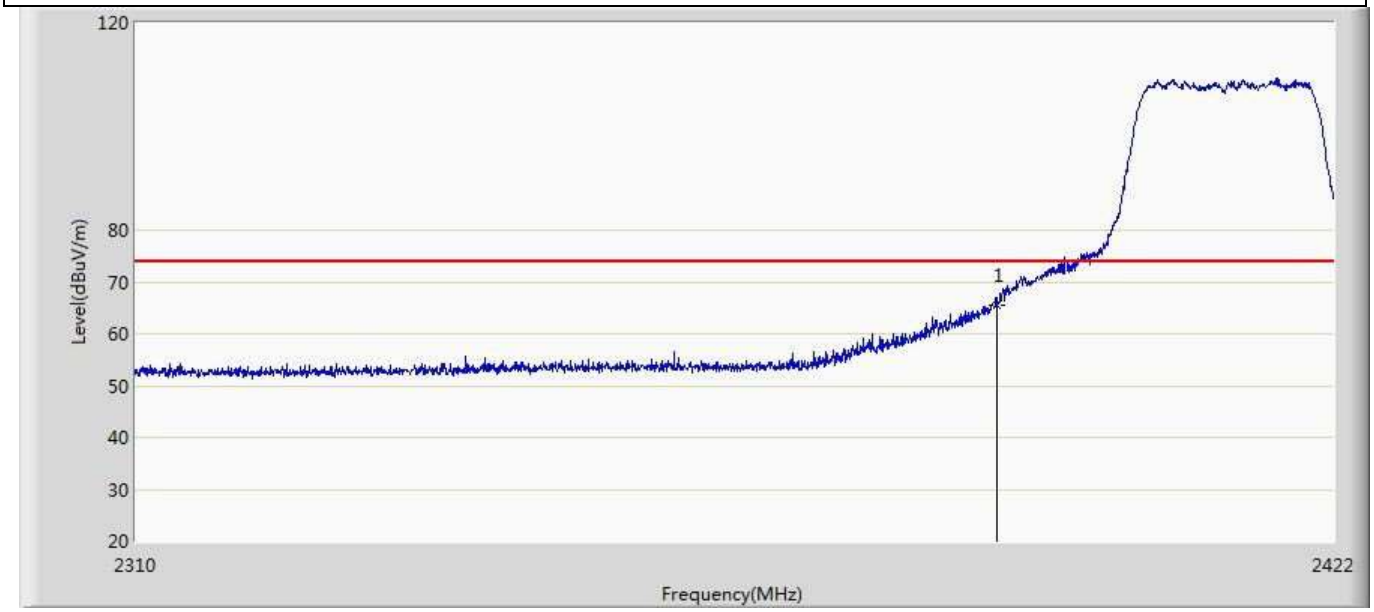
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	63.098	27.580	-10.902	74.000	35.517	PK

Profile: 2210426R	Page No.: 17
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n(20MHz)	



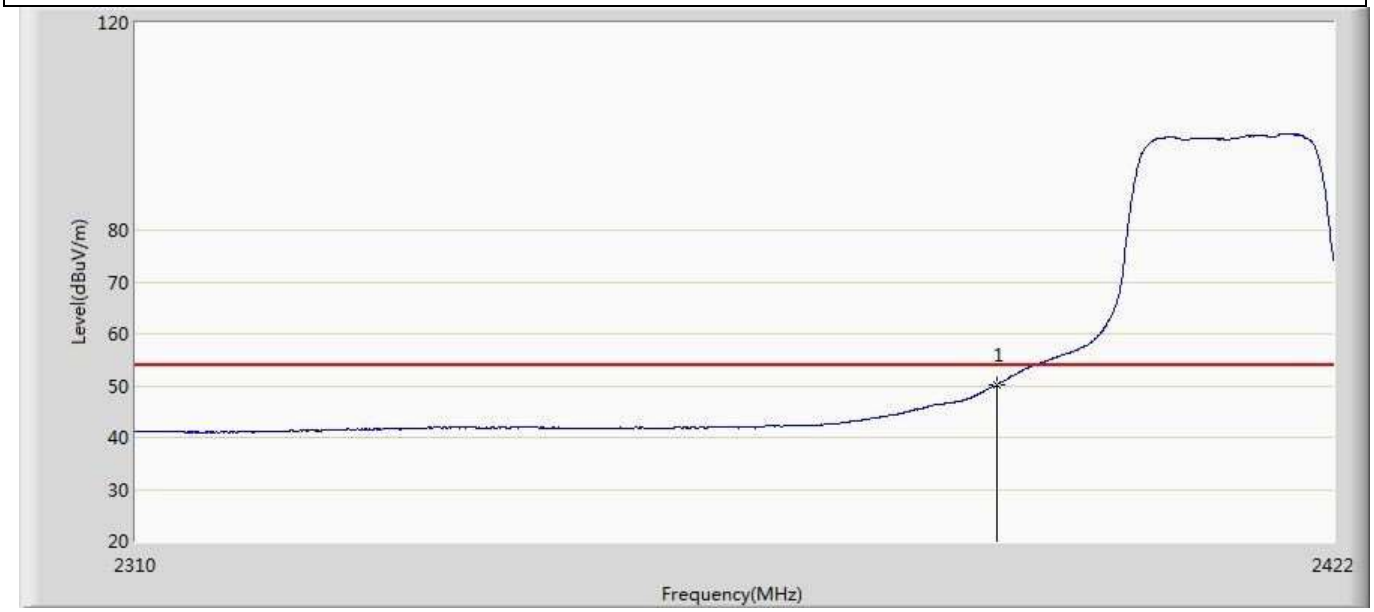
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	52.901	17.444	-1.099	54.000	35.458	AV

Profile: 2210426R	Page No.: 18
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n(20MHz)	



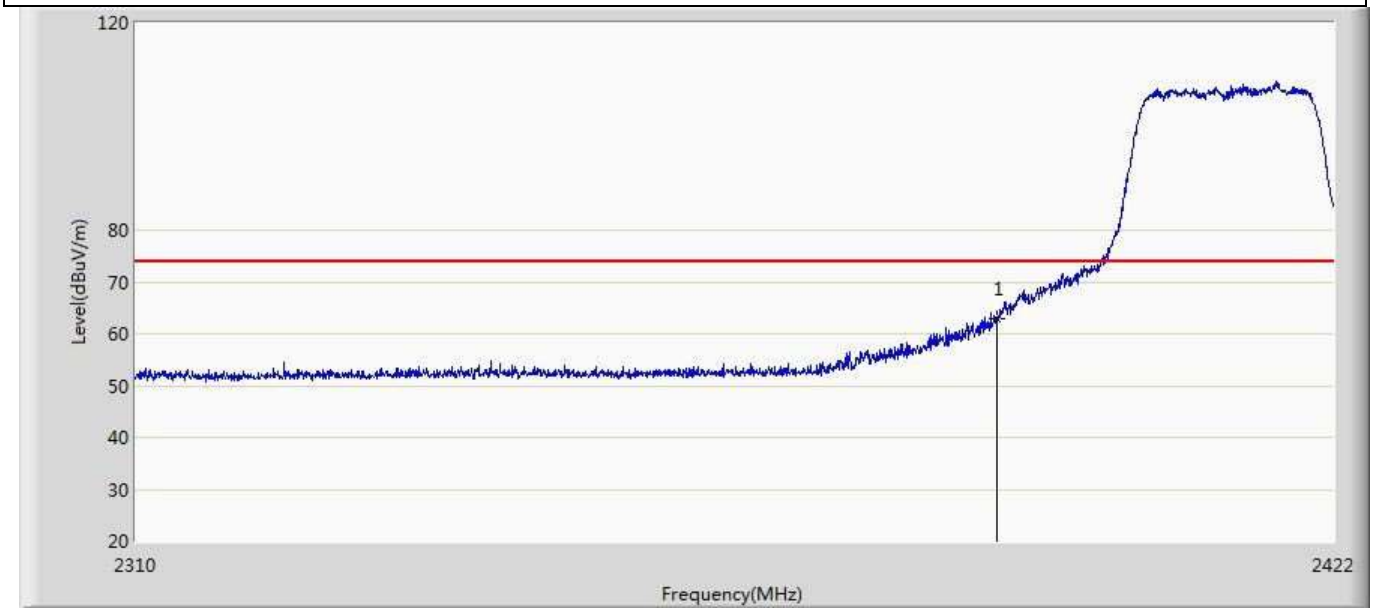
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	65.587	30.130	-8.413	74.000	35.458	PK

Profile: 2210426R	Page No.: 19
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n(20MHz)	



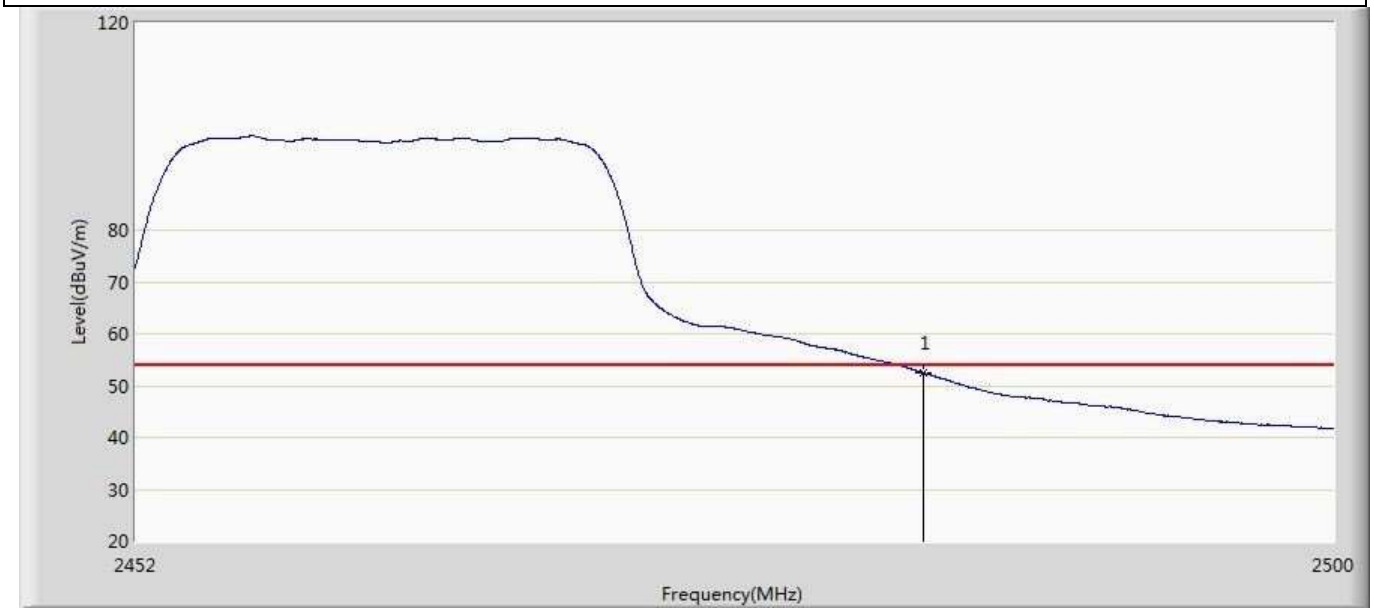
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	50.110	14.653	-3.890	54.000	35.458	AV

Profile: 2210426R	Page No.: 20
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n(20MHz)	



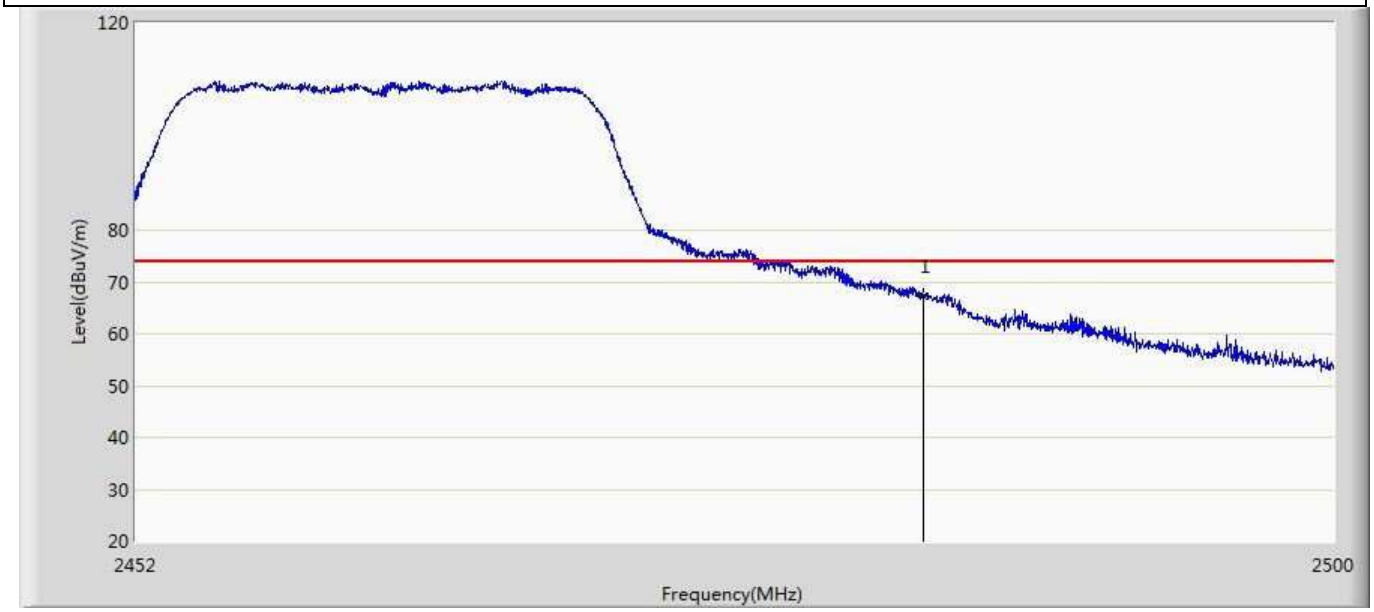
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	62.798	27.341	-11.202	74.000	35.458	PK

Profile: 2210426R	Page No.: 21
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n(20MHz)	



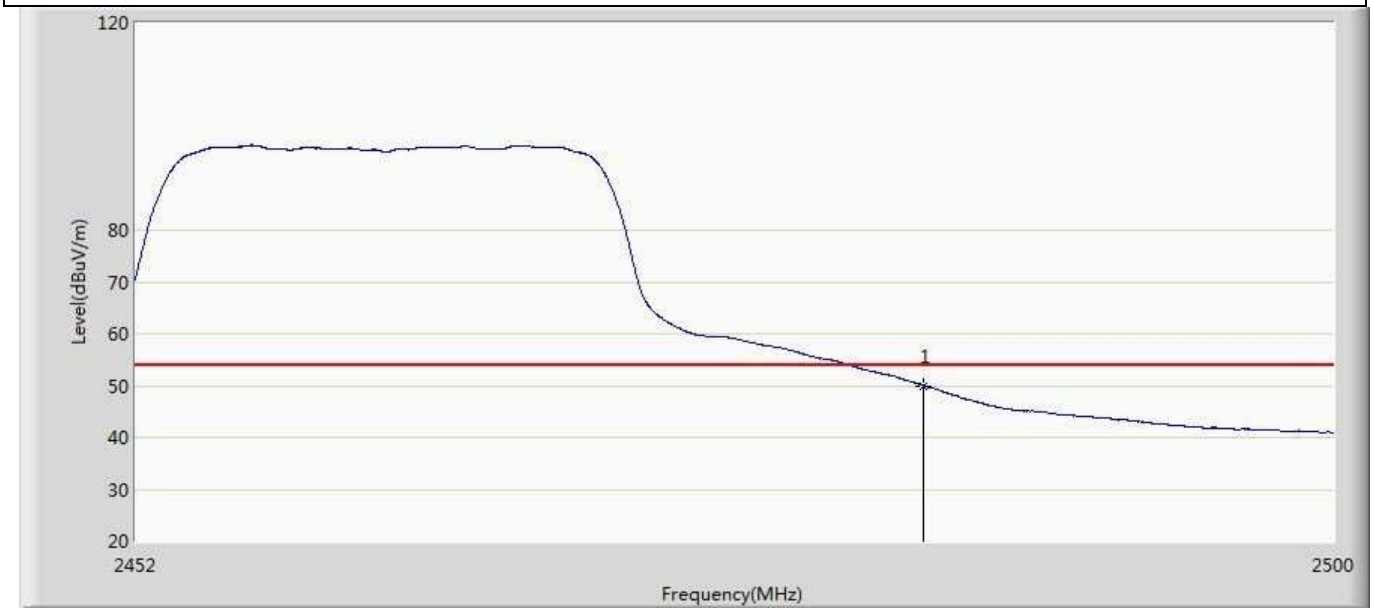
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	52.394	16.876	-1.606	54.000	35.517	AV

Profile: 2210426R	Page No.: 22
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n(20MHz)	



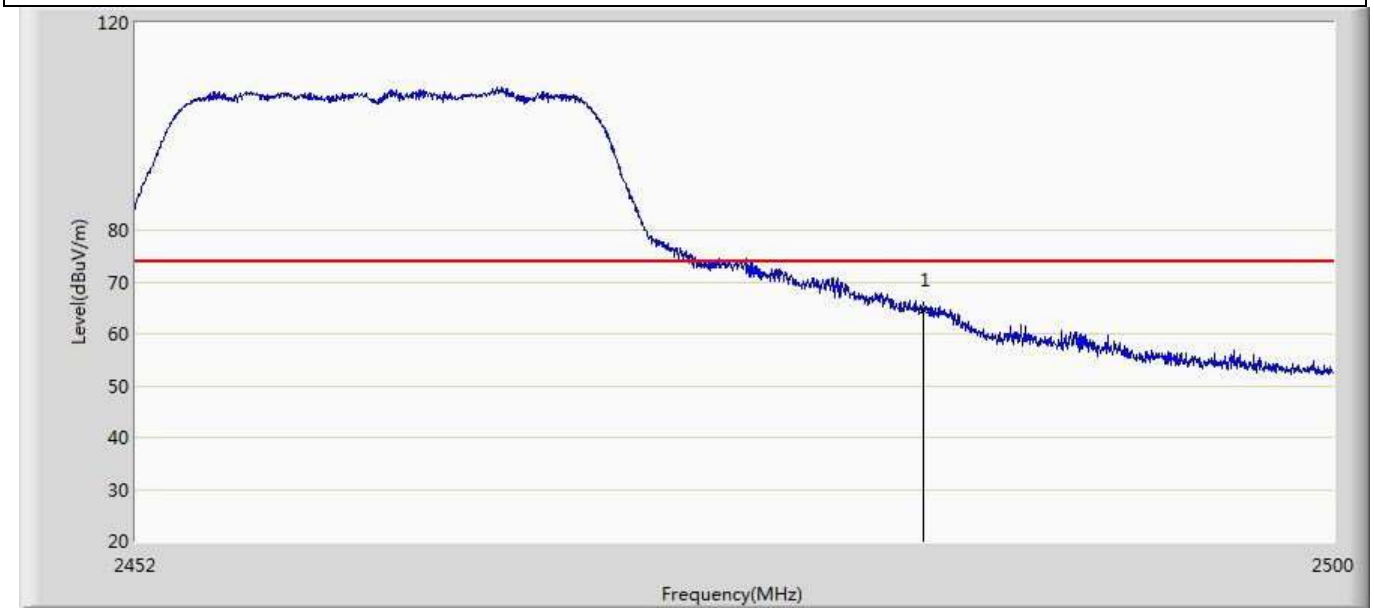
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	67.187	31.669	-6.813	74.000	35.517	PK

Profile: 2210426R	Page No.: 23
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n(20MHz)	



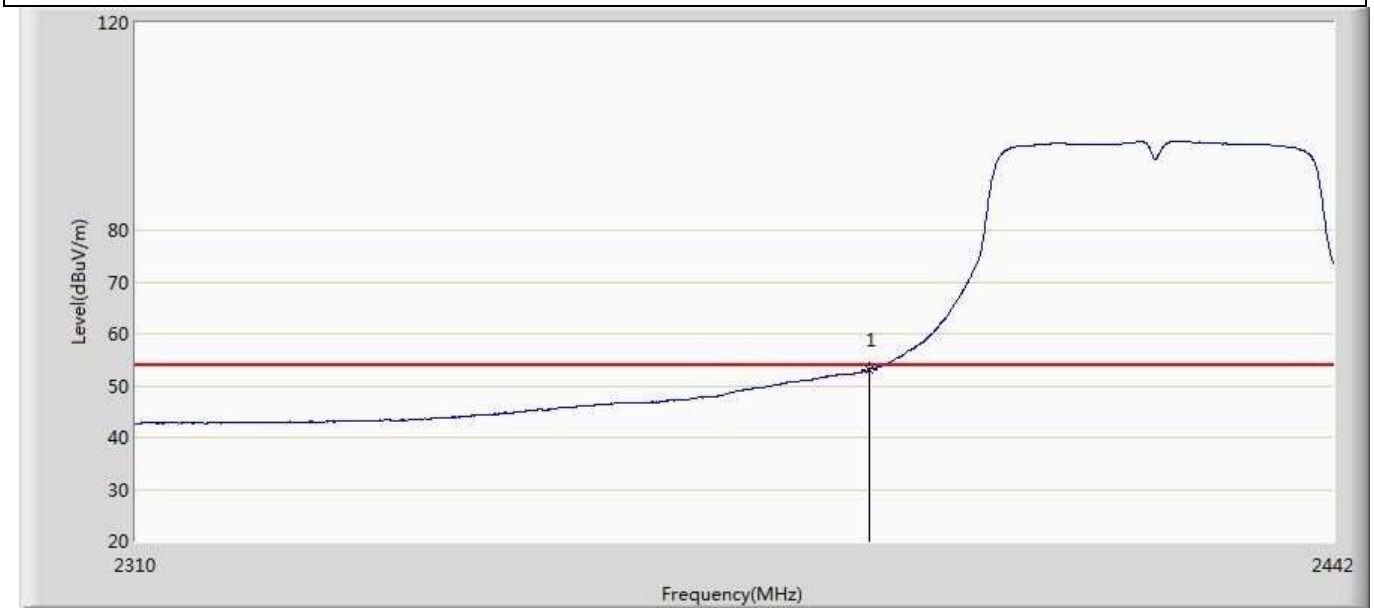
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	50.000	14.482	-4.000	54.000	35.517	AV

Profile: 2210426R	Page No.: 24
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n(20MHz)	



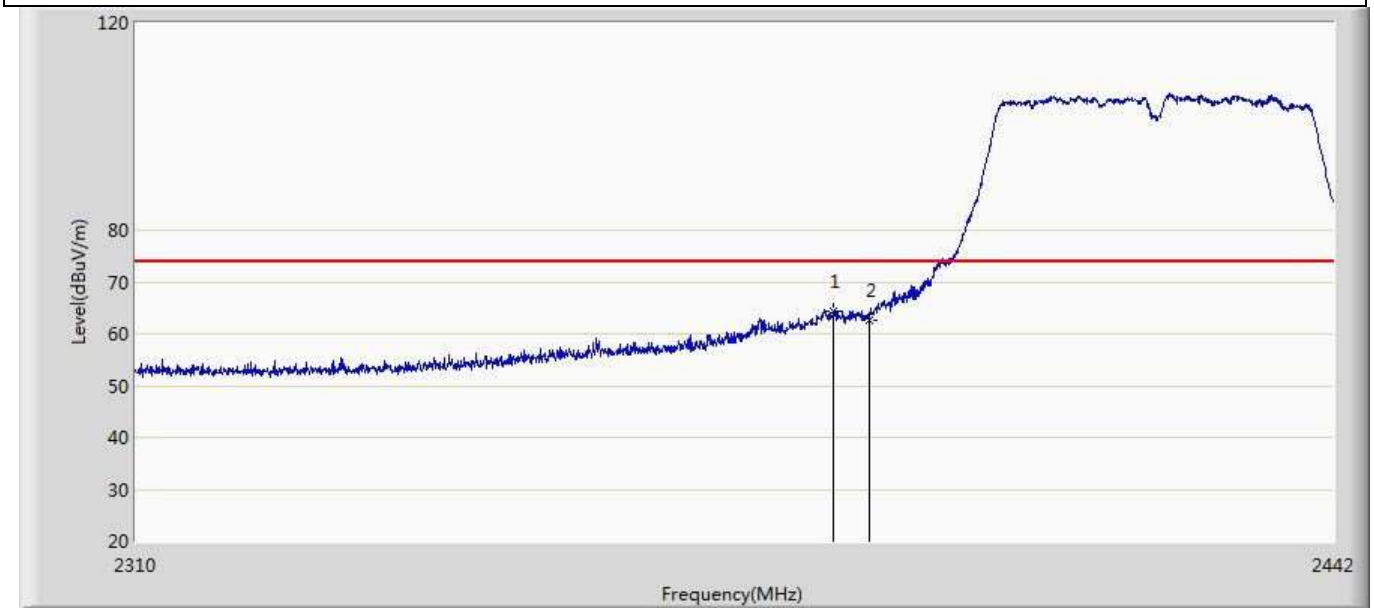
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	64.779	29.261	-9.221	74.000	35.517	PK

Profile: 2210426R	Page No.: 25
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n(40MHz)	



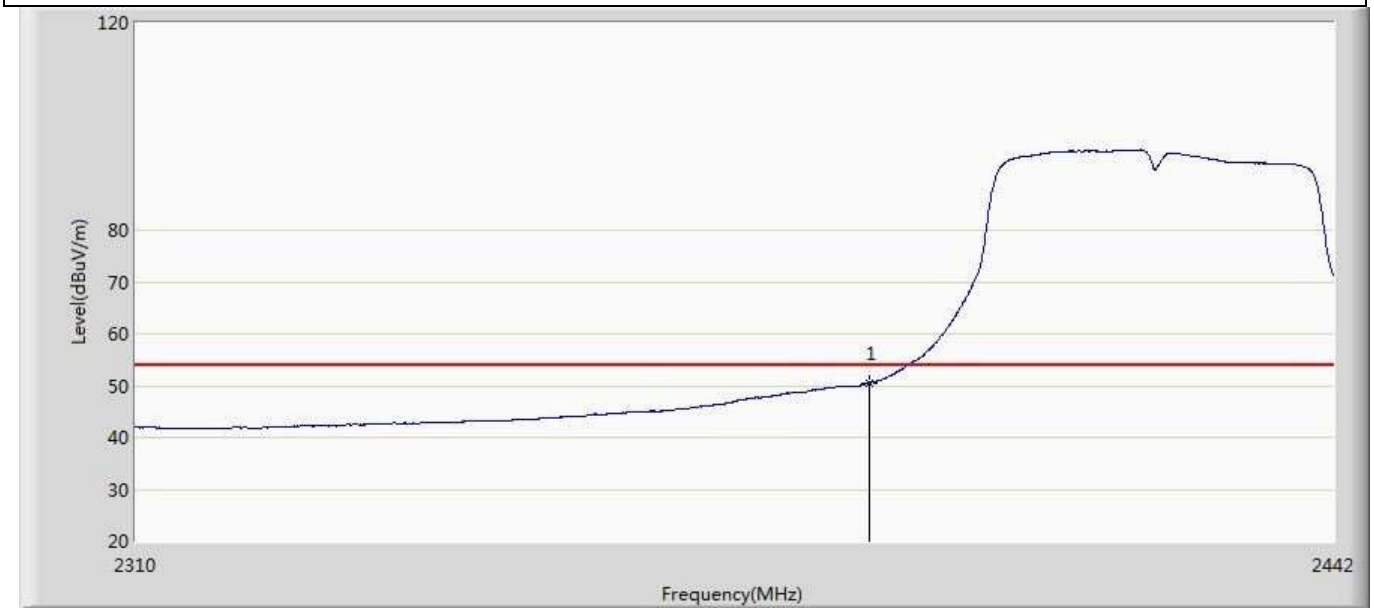
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	53.139	17.682	-0.861	54.000	35.458	AV

Profile: 2210426R	Page No.: 26
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n(40MHz)	



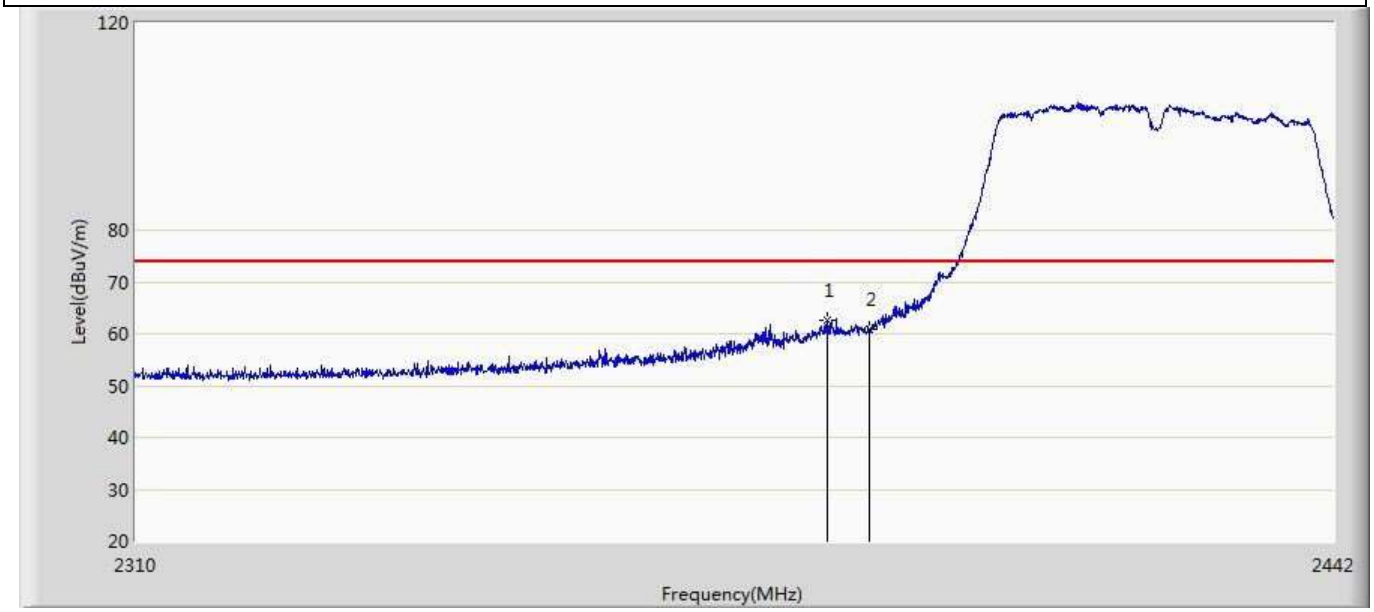
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2386.098	64.417	28.962	-9.583	74.000	35.455	PK
2		2390.000	62.737	27.280	-11.263	74.000	35.458	PK

Profile: 2210426R	Page No.: 27
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n(40MHz)	



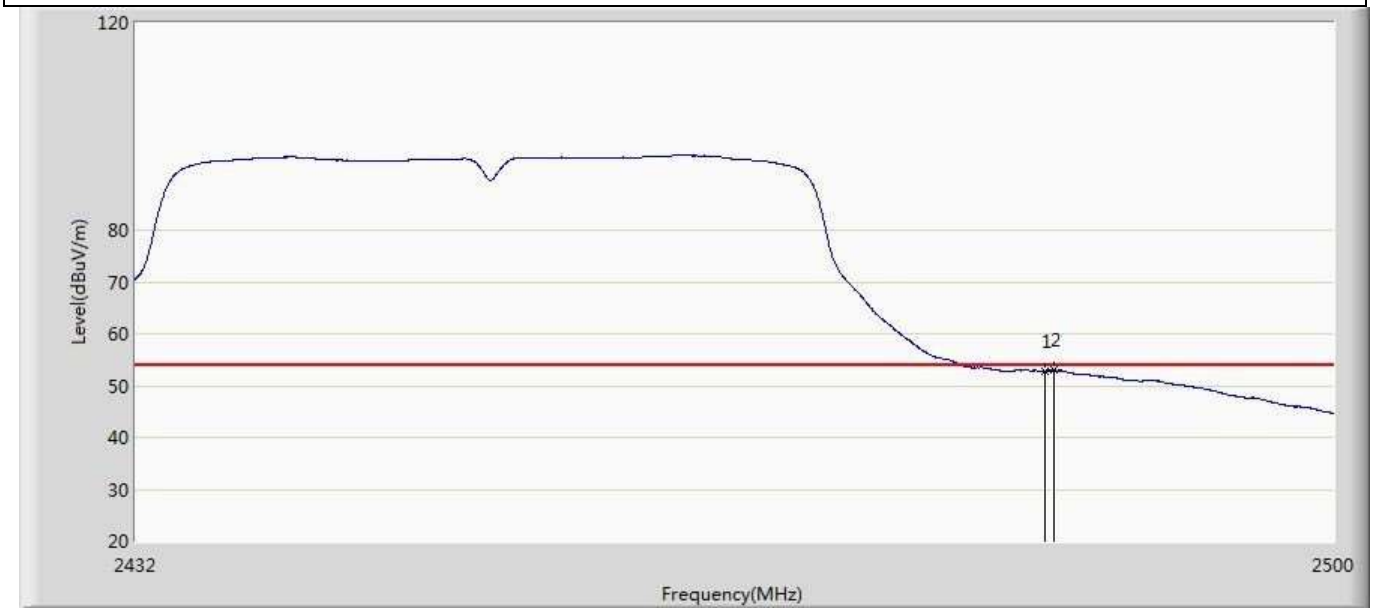
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	50.571	15.114	-3.429	54.000	35.458	AV

Profile: 2210426R	Page No.: 28
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n(40MHz)	



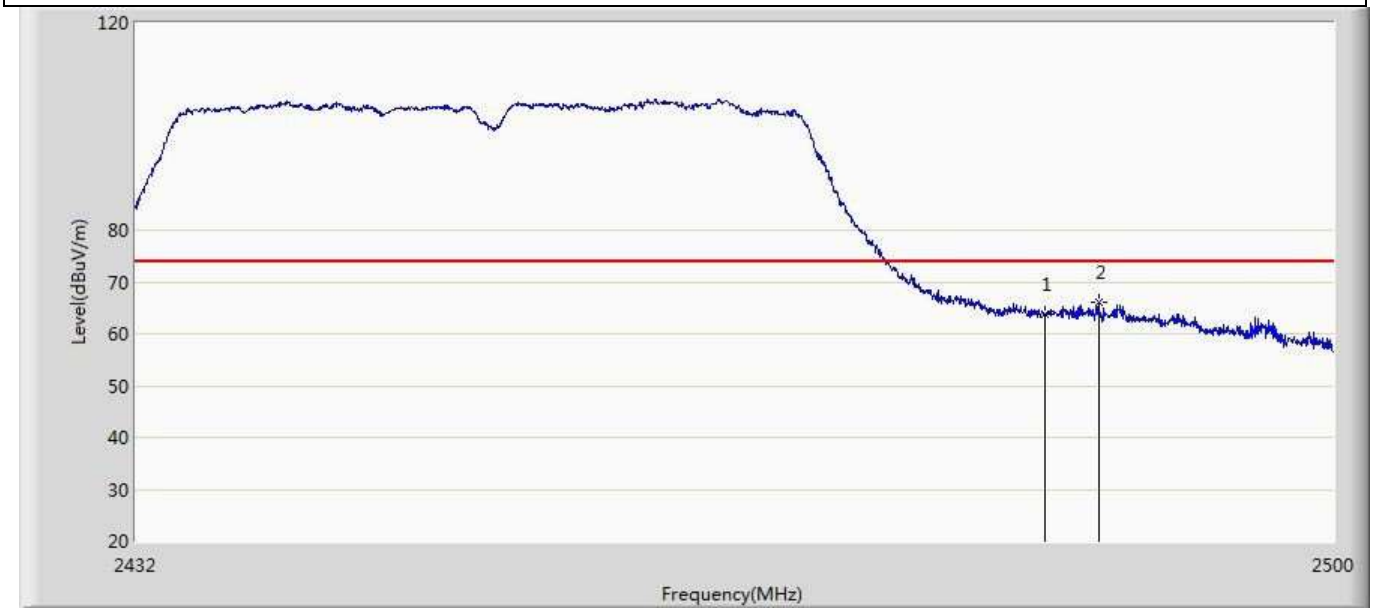
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2385.372	62.747	27.292	-11.253	74.000	35.455	PK
2		2390.000	60.778	25.321	-13.222	74.000	35.458	PK

Profile: 2210426R	Page No.: 29
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n(40MHz)	



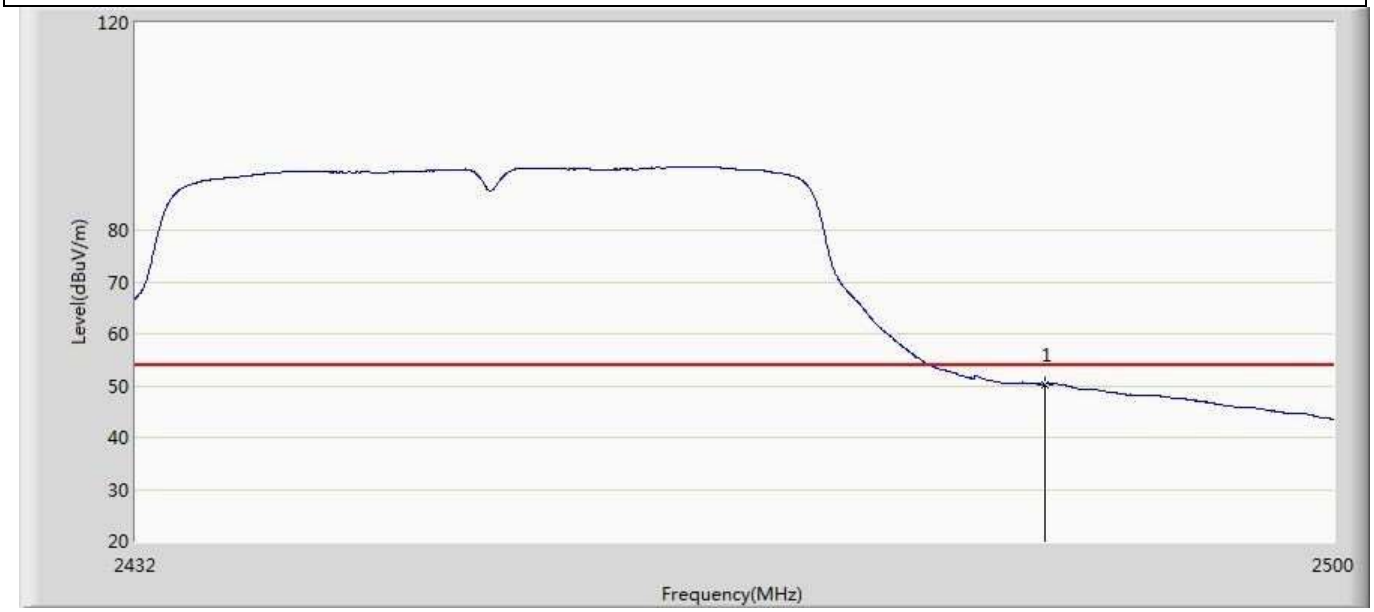
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	52.863	17.345	-1.137	54.000	35.517	AV
2	*	2483.952	52.975	17.455	-1.025	54.000	35.520	AV

Profile: 2210426R	Page No.: 30
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n(40MHz)	



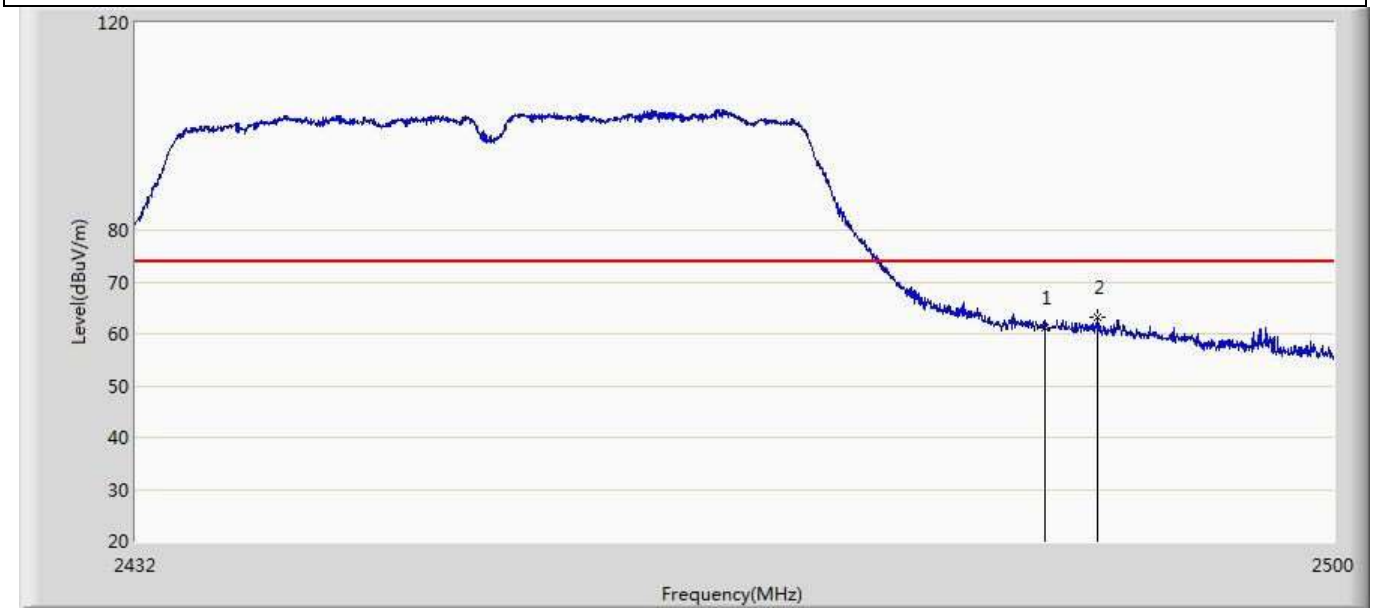
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	63.703	28.185	-10.297	74.000	35.517	PK
2	*	2486.536	66.004	30.469	-7.996	74.000	35.535	PK

Profile: 2210426R	Page No.: 31
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 15:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	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	*	2483.500	50.282	14.764	-3.718	54.000	35.517	AV

Profile: 2210426R	Page No.: 32
Engineer: YULIU	
Site: AC5	Time: 2021/04/07 - 16:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Connected Sleep & Wake-Up Light	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n(40MHz)	

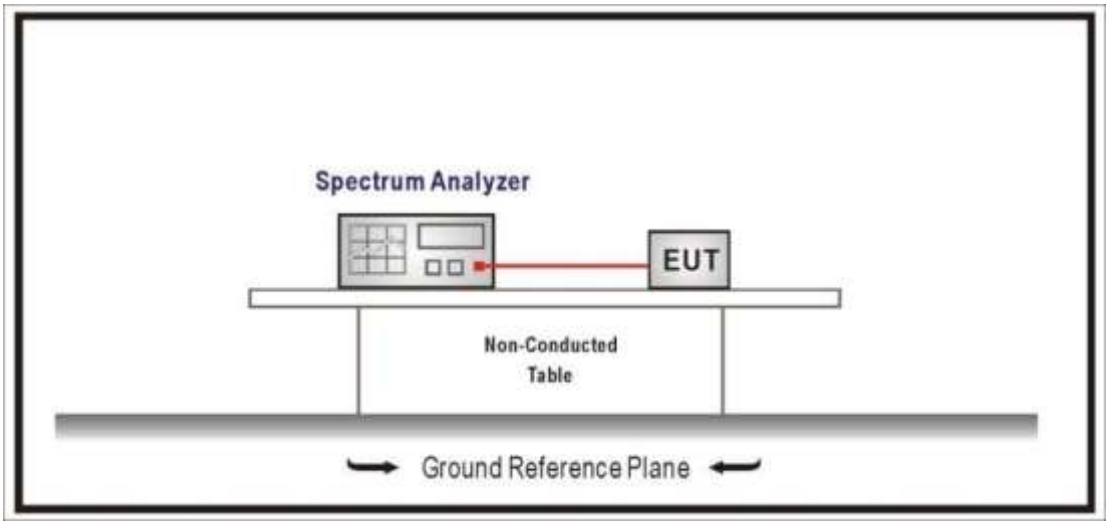


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2483.500	61.258	25.740	-12.742	74.000	35.517	PK
2	*	2486.502	63.241	27.706	-10.759	74.000	35.535	PK

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	10.11	≥500	Pass
	6	2437	10.11	≥500	Pass
	11	2462	10.10	≥500	Pass
2	1	2412	16.44	≥500	Pass
	6	2437	16.43	≥500	Pass
	11	2462	16.42	≥500	Pass
3	1	2412	17.34	≥500	Pass
	6	2437	17.12	≥500	Pass
	11	2462	17.35	≥500	Pass
4	3	2422	36.44	≥500	Pass
	6	2437	36.44	≥500	Pass
	9	2452	35.64	≥500	Pass

Note: The worst case of Occupied Bandwidth as below:

6dB Occupied Bandwidth

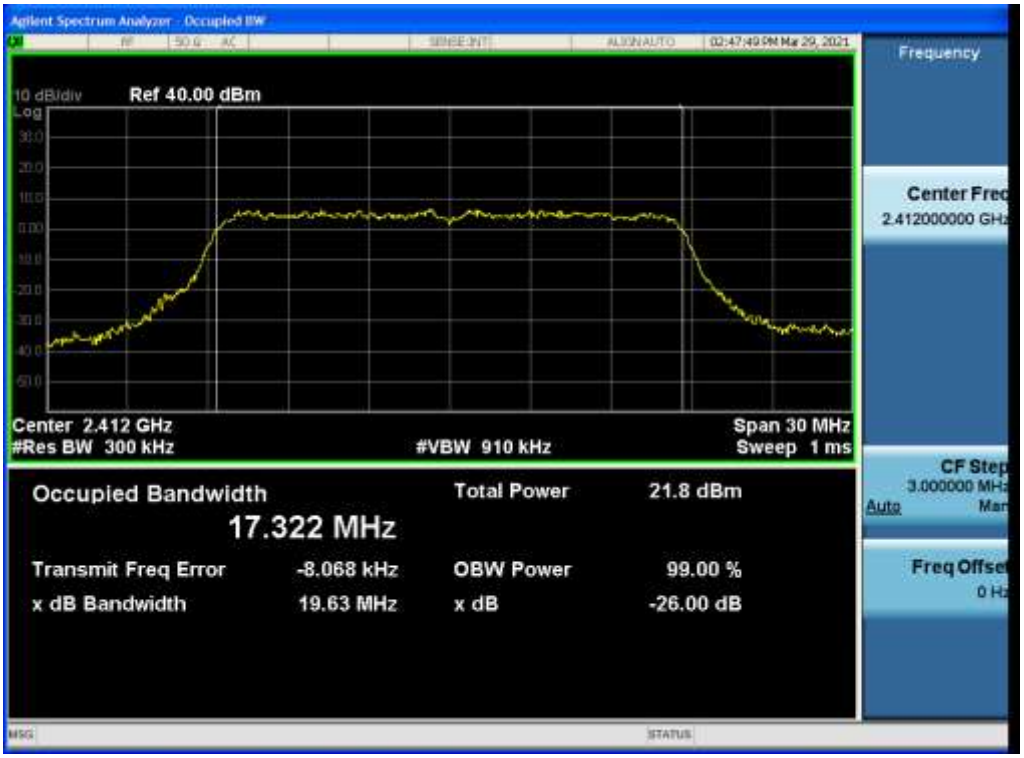
Mode 1 CH11 (2462MHz)

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
1	1	2412	13.054	Within frequency range	Pass
	6	2437	13.038	Within frequency range	Pass
	11	2462	13.016	Within frequency range	Pass
2	1	2412	16.489	Within frequency range	Pass
	6	2437	16.472	Within frequency range	Pass
	11	2462	16.476	Within frequency range	Pass
3	1	2412	17.322	Within frequency range	Pass
	6	2437	17.313	Within frequency range	Pass
	11	2462	17.313	Within frequency range	Pass
4	3	2422	36.378	Within frequency range	Pass
	6	2437	36.377	Within frequency range	Pass
	9	2452	36.397	Within frequency range	Pass

Note: The worst case of Occupied Bandwidth as below:

99% Occupied Bandwidth

Mode 3 CH01 (2412MHz)



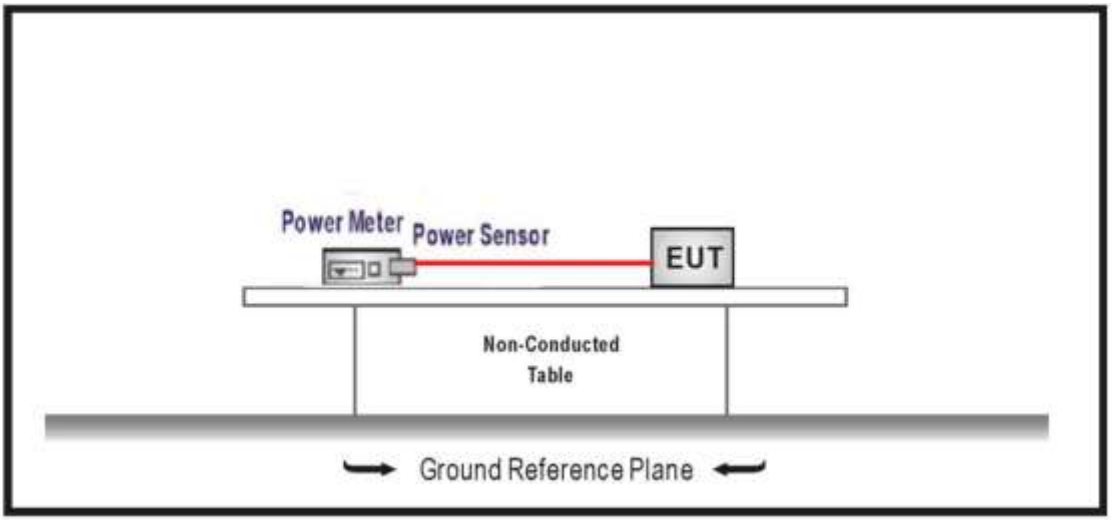
4.6 Fundamental emission output power — VERDICT: PASS

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

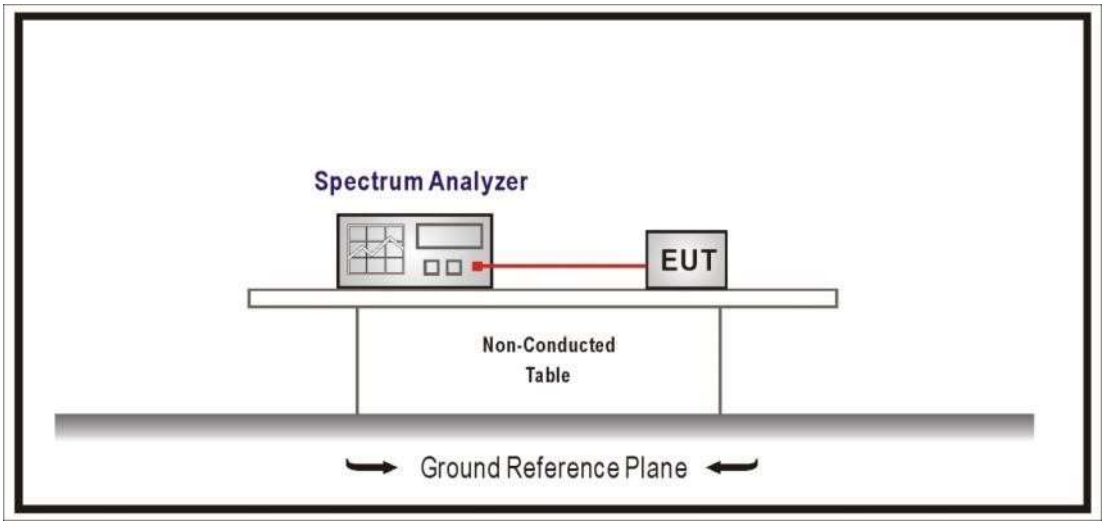
4.6.4 Test Data

Mode	Channel	Test Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)	Conducted Power Limit (dBm)	EIRP Limit (dBm)	Result
Mode 1	1	2412	25.48	28.78	⩽30	⩽36	Pass
	6	2437	25.12	28.42	⩽30	⩽36	Pass
	11	2462	24.87	28.17	⩽30	⩽36	Pass
Mode 2	1	2412	23.83	27.13	⩽30	⩽36	Pass
	6	2437	24.98	28.28	⩽30	⩽36	Pass
	11	2462	23.68	26.98	⩽30	⩽36	Pass
Mode 3	1	2412	23.89	27.19	⩽30	⩽36	Pass
	6	2437	25.08	28.38	⩽30	⩽36	Pass
	11	2462	23.65	26.95	⩽30	⩽36	Pass
Mode 4	3	2422	23.16	26.46	⩽30	⩽36	Pass
	6	2437	25.13	28.43	⩽30	⩽36	Pass
	9	2452	22.23	25.53	⩽30	⩽36	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	-5.976	≤8	Pass
	6	2437	-5.396	≤8	Pass
	11	2462	-5.927	≤8	Pass
2	1	2412	-12.887	≤8	Pass
	6	2437	-12.635	≤8	Pass
	11	2462	-13.177	≤8	Pass
3	1	2412	-12.597	≤8	Pass
	6	2437	-12.545	≤8	Pass
	11	2462	-13.156	≤8	Pass
4	3	2422	-14.997	≤8	Pass
	6	2437	-15.511	≤8	Pass
	9	2452	-15.862	≤8	Pass

Note: The worst case of PSD as below:

Mode 1 / CH06 / 2437MHz

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.	

5 TEST SETUP PHOTO AND EUT PHOTO

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

The End