



Test Report

FCC Part15 Subpart C

Product Name : WIFI LED BULB
L3A19MC08E26XX,L3A19MTW08E26XX,
Model No. : L3A19MW08E26XX
(X can be blank, 0-9 or A-Z, for commercial
use only)
FCC ID : 2AA53-MINI

Applicant : LiFi Labs Inc.
Address : 524 Union Street #309 San Francisco, CA 94133 USA

Date of Receipt : Sep. 13th, 2017
Test Date : Sep. 13th, 2017~ Sep. 29th, 2017
Issued Date : Sep. 29th, 2017
Report No. : 1792057R-RF-US-P06V02
Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF, A2LA or any agency of the government.

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Test Report Certification

Issued Date : Sep. 29th, 2017

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Applicant : LiFi Labs Inc.
Address : 524 Union Street #309 San Francisco, CA 94133 USA
Manufacturer : LiFi Labs Inc.
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L3A19MW08E26XX
(X can be blank, 0-9 or A-Z, for commercial use only)

FCC ID : 2AA53-MINI
EUT Voltage : AC 100V-240V 50/60Hz
Test Voltage : AC 120V/60Hz
Brand Name :



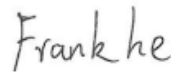
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C
ANSI C63.4:2014; ANSI C63.10:2013;
KDB 558074 D01v04
Test Result : Complied
Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.
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TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration Number: CN1199

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1792057R-RF-US-P06V02	V1.0	Initial Issued Report	Sep. 29th, 2017

1. General Information

1.1. EUT Description

Product Name	WIFI LED BULB
Brand Name	
Model No.	L3A19MC08E26XX, L3A19MTW08E26XX, L3A19MW08E26XX (X can be blank, 0-9 or A-Z, for commercial use only)
EUT Voltage	AC 100V-240V 50/60Hz
Test Voltage	AC 120V/60Hz
Frequency Range	For 2.4GHz Band 802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz
Channel Number	For 2.4GHz Band 802.11b/g/n(20MHz): 11 802.11n(40MHz): 7
Type of Modulation	802.11b: DSSS 802.11g: OFDM
Data Rate	802.11g: 6/9/12/18/24/36/48/54 Mbps 802.11b: 1/2/5.5/11 Mbps 802.11n: up to 150 Mbps
Channel Control	Auto

Note: The above models have same electrical rating, circuit diagram, PCB Layout and construction, except the CCT, and the kind of LED type. L3A19MC08E26XX was selected as the test model, and its test data was recorded in this report.

1.2. Channel List:

802.11b/g/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz	04	2427 MHz
05	2432 MHz	06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	10	2457 MHz	11	2462 MHz	N/A	N/A
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz	N/A	N/A

1.3. Test Channel:

802.11b/g/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	06	2437MHz	11	2462 MHz	N/A	N/A
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	06	2437 MHz	09	2452 MHz	N/A	N/A

1.4. Antenna information

Antenna manufacturer	Shenzhen Well-Wisdom PCB Co Ltd.					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	Sectorized antenna systems		
			☐	Cross-polarized antennas		
			☐	Unequal antenna gains, with equal transmit powers		
			☐	Spatial Multiplexing		
			☐	CDD		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
	☒	Internal	☒	PIFA		
			☐	PCB		
			☐	Ceramic Chip Antenna		
			☐	Metal plate type F antenna		
			☐	Cross-polarize Antenna		
Antenna Gain #0	1.9dBi					

1.5. Mode of Operation

Test Modes List
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)

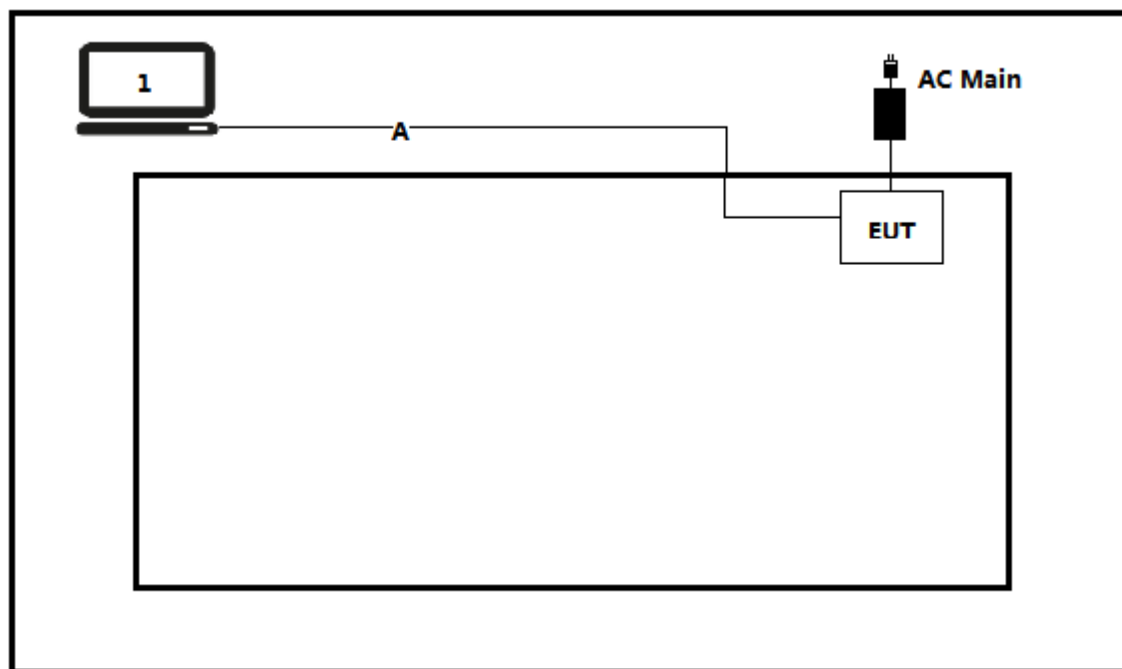
1.6. Tested System Details

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

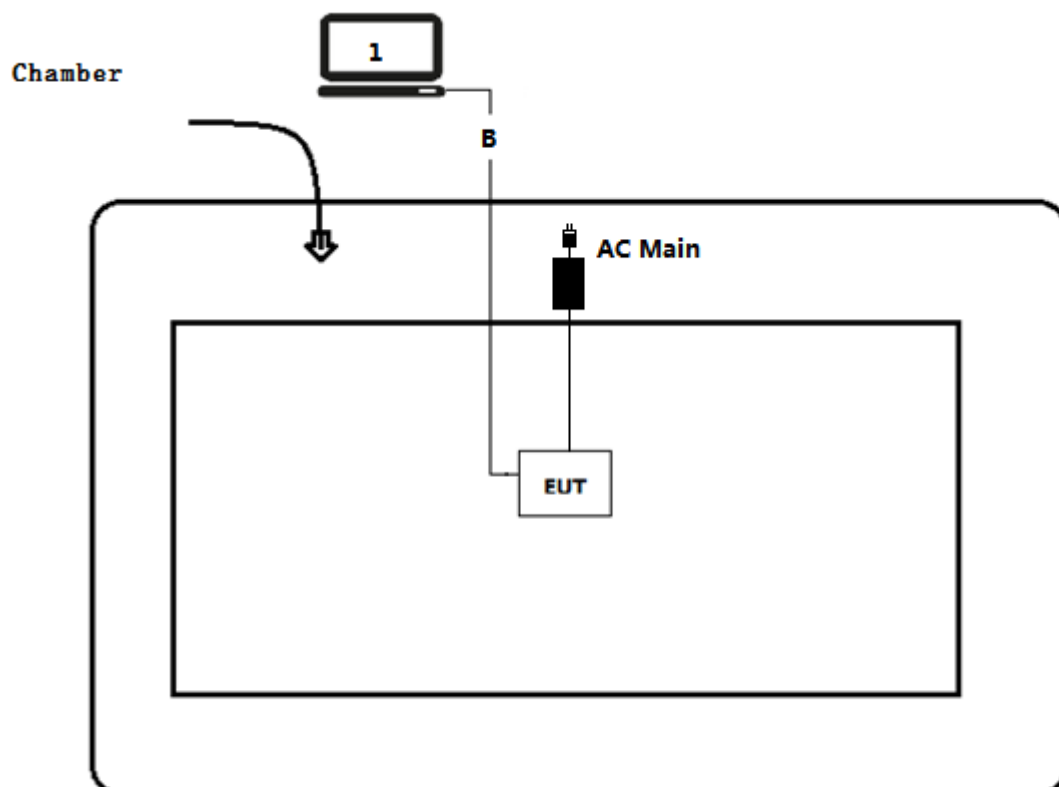
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	USB-Serial Cable	N/A	N/A	N/A	Shield, 1m
B	USB-Serial Cable	N/A	N/A	N/A	Shield, 10m

1.7. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



2. Technical Test

2.1. Summary of Test Result

Performed Test Item	Normative References	Worst case mode	Limit	Result
AC Power Line Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	Mode 1	FCC 15.207	N/A
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Mode 1	FCC 15.209	PASS
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(d)	Mode 1	$\geq 30\text{dBc}$	PASS
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Mode 1	FCC 15.209	PASS
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(2)	Mode 1	$\geq 500\text{kHz}$	PASS
Fundamental emission output power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	Mode 1	$\leq 30\text{dBm}$	PASS
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(e)	Mode 1	$\leq 8\text{dBm}/3\text{kHz}$	PASS
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	N/A	FCC 15.203	PASS

2.2. Power setting parameter

Test Software	SecureCRT_5.50	
Modulation Mode	Test Frequency	Ant 0
802.11b	2412	Auto
	2437	Auto
	2462	Auto
802.11g	2412	Auto
	2437	Auto
	2462	Auto
802.11n(20MHz)	2412	Auto
	2437	Auto
	2462	Auto
802.11n(40MHz)	2422	Auto
	2437	Auto
	2452	Auto

2.3. Power vs Data Rate

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)						
		802.11b	802.11g		20MHz Bandwidth		40MHz Bandwidth	
					800ns GI	400ns GI	800ns GI	400ns GI
0	1	1	6	---	6.5	7.2	13.5	15.0
1	1	2	9	---	13.0	14.4	27.0	30.0
2	1	5.5	12	---	19.5	21.7	40.5	45.0
3	1	11	18	---	26.0	28.9	54.0	60.0
4	1	---	24	---	39.0	43.3	81.0	90.0
5	1	---	36	---	52.0	57.8	108.0	120.0
6	1	---	48	---	58.5	65.0	121.5	135.0
7	1	---	54	---	65.0	72.2	135.0	150.0

Note 1 : The blue form is the maximum power data rate

2.4. Test Environment

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

2.5. Measurement Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	$\pm 2.02\text{dB}$
Radiated Emission	Below 1GHz $\pm 3.8\text{ dB}$
	Above 1GHz $\pm 3.9\text{ dB}$
RF Antenna Port Conducted Emission	$\pm 1.27\text{dB}$
Radiated Emission Band Edge	$\pm 3.9\text{dB}$
Occupied Bandwidth	$\pm 1\text{kHz}$
Power Spectral Density	$\pm 1.27\text{dB}$

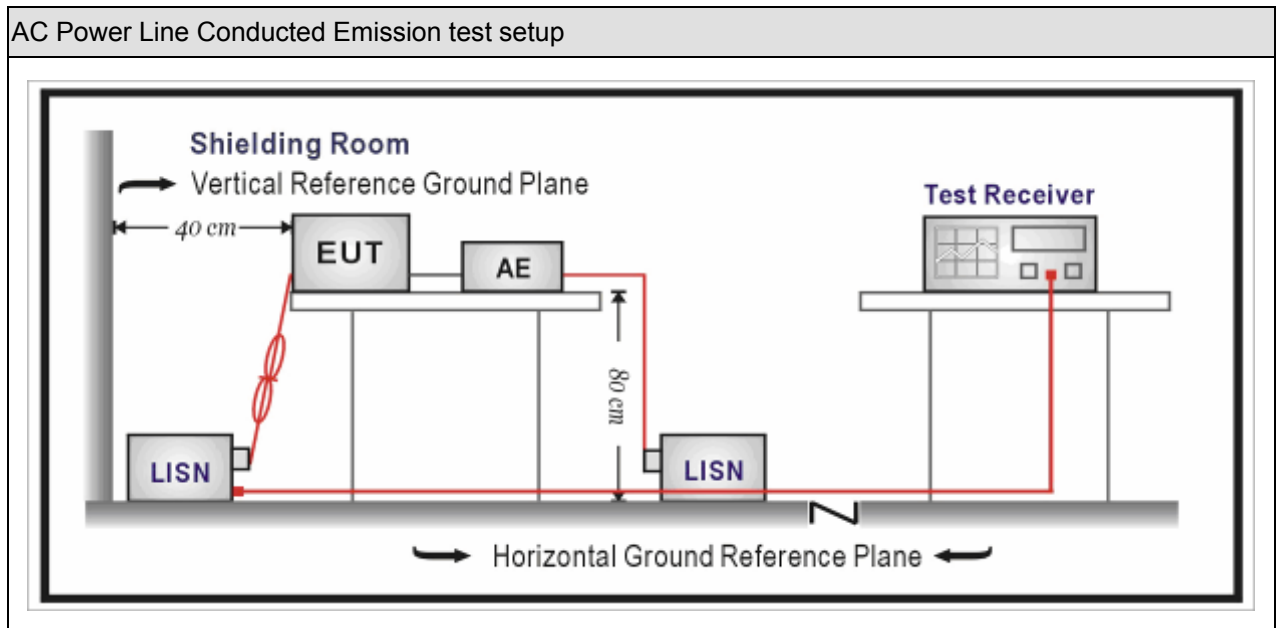
3. AC Power Line Conducted Emission

3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2017.03.05	2018.03.04
Two-Line V-Network	R&S	ENV 216	101189	2017.07.16	2018.07.15
Two-Line V-Network	R&S	ENV 216	101044	2017.09.16	2018.09.15
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2017.09.16	2018.09.15
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2017.01.04	2018.01.03

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

3.2. Test Setup



3.3. Limit

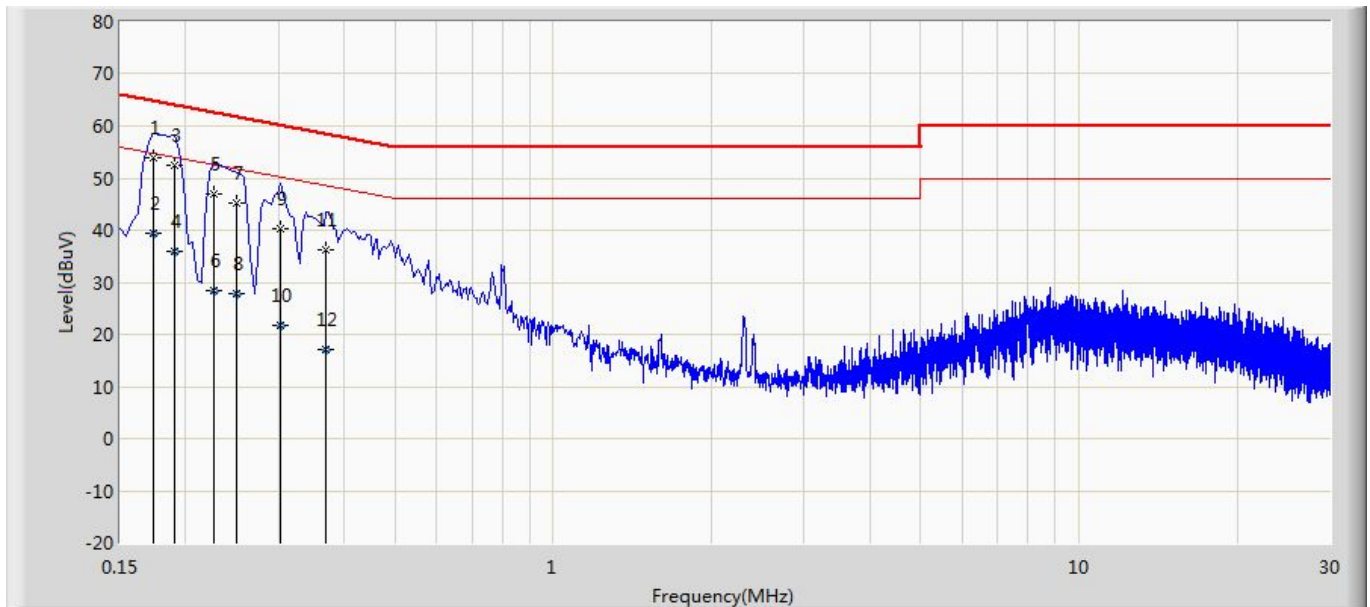
Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dB μ V)	Average (dB μ V)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Note 1: The lower limit shall apply at the transition frequencies.		
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

3.4. Test Procedure

Test Method			
	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices
☒	ANSI C63.4-2014	7	AC power-line conducted emission measurements

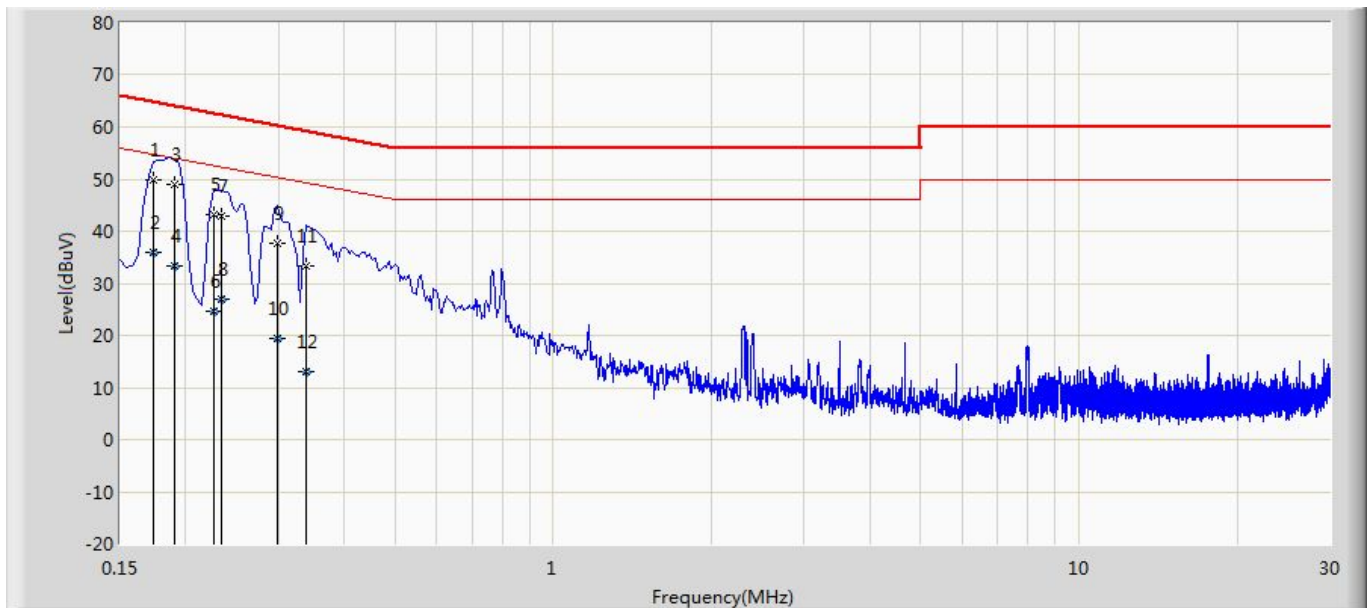
3.5. Test Result

Engineer: Damon	
Site: TR1	Time: 2017/09/29 - 14:42
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2412MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1	*	0.174	53.865	44.233	-10.902	64.767	9.605	0.027	0.000	QP
2		0.174	39.452	29.819	-15.316	54.767	9.605	0.027	0.000	AV
3		0.190	52.458	42.828	-11.579	64.037	9.602	0.028	0.000	QP
4		0.190	35.923	26.293	-18.113	54.037	9.602	0.028	0.000	AV
5		0.226	47.079	37.449	-15.517	62.595	9.600	0.030	0.000	QP
6		0.226	28.400	18.770	-24.196	52.595	9.600	0.030	0.000	AV
7		0.250	45.091	35.460	-16.666	61.757	9.600	0.031	0.000	QP
8		0.250	27.818	18.187	-23.939	51.757	9.600	0.031	0.000	AV
9		0.302	40.322	30.688	-19.866	60.188	9.600	0.034	0.000	QP
10		0.302	21.850	12.216	-28.338	50.188	9.600	0.034	0.000	AV
11		0.370	36.270	26.633	-22.231	58.501	9.600	0.037	0.000	QP
12		0.370	17.163	7.526	-31.338	48.501	9.600	0.037	0.000	AV

Engineer: Damon	
Site: TR1	Time: 2017/09/29 - 15:00
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2412MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1	*	0.174	49.863	40.241	-14.904	64.767	9.595	0.027	0.000	QP
2		0.174	35.852	26.230	-18.915	54.767	9.595	0.027	0.000	AV
3		0.190	48.946	39.320	-15.091	64.037	9.598	0.028	0.000	QP
4		0.190	33.395	23.769	-20.641	54.037	9.598	0.028	0.000	AV
5		0.226	43.253	33.625	-19.342	62.595	9.599	0.030	0.000	QP
6		0.226	24.638	15.009	-27.958	52.595	9.599	0.030	0.000	AV
7		0.234	42.870	33.242	-19.437	62.307	9.598	0.030	0.000	QP
8		0.234	27.065	17.436	-25.242	52.307	9.598	0.030	0.000	AV
9		0.298	37.545	27.915	-22.753	60.298	9.596	0.034	0.000	QP
10		0.298	19.512	9.881	-30.787	50.298	9.596	0.034	0.000	AV
11		0.338	33.253	23.622	-26.000	59.252	9.595	0.035	0.000	QP
12		0.338	12.952	3.321	-36.300	49.252	9.595	0.035	0.000	AV

4. Emissions in restricted frequency bands

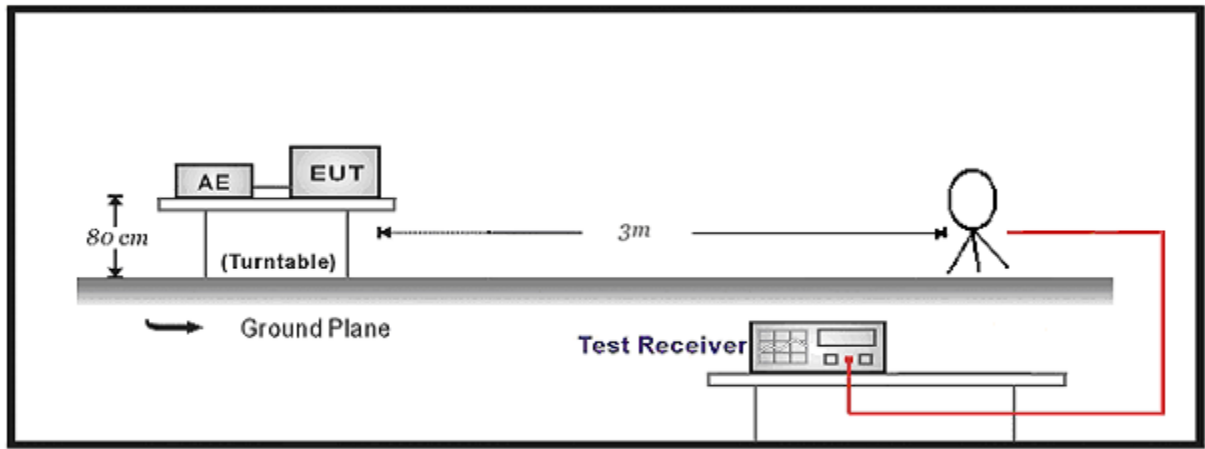
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2017.03.29	2018.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2016.11.16	2017.11.15
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2016.10.16	2017.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2017.03.02	2018.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2017.01.04	2018.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

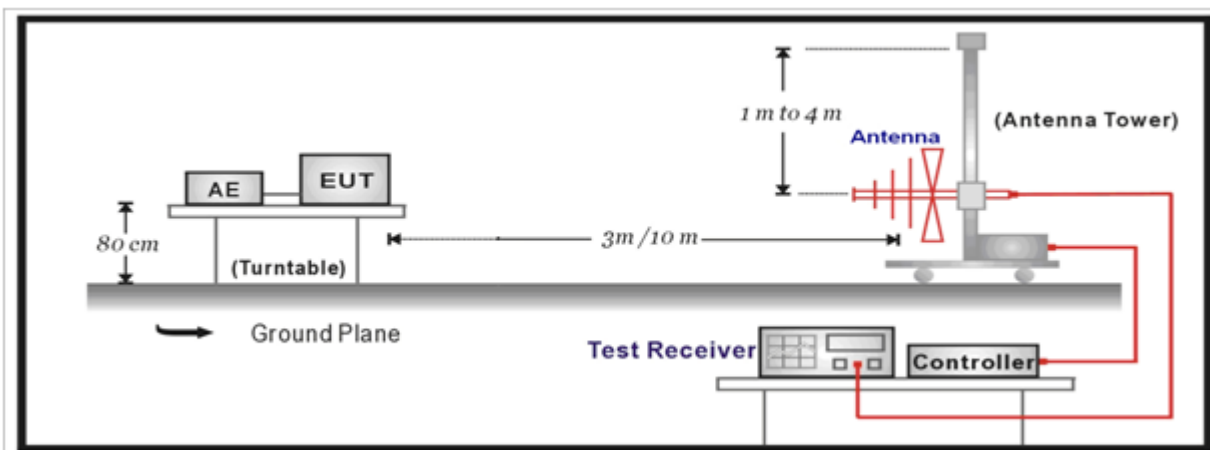
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2017.01.03	2018.01.02
Preamplifier	Miteq	NSP1800-25	1364185	2017.05.06	2018.05.05
Preamplifier	Quietek	AP-040G	CHM-0906001	2017.05.06	2018.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2017.01.22	2018.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2016.11.25	2017.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2017.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2017.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2017.03.02	2018.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2017.06.10	2018.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2017.01.04	2018.01.03
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

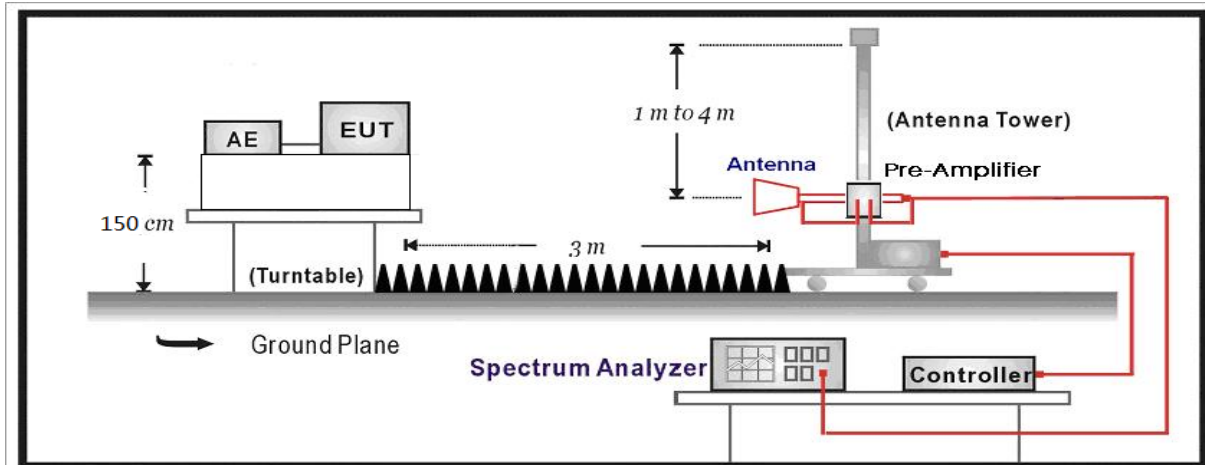
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

For FCC:

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 Band Emissions Limit			
Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/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)

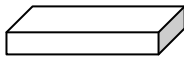
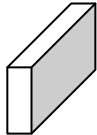
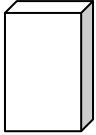
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed 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).

4.4. Test Procedure

Test Method						
	References Rule		Chapter	Description		
☐	ANSI C63.10		11.11	Emissions in non-restricted frequency bands		
	☐	ANSI C63.10	11.11.2	Reference level measurement		
	☐	ANSI C63.10	11.11.3	Emission level measurement		
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands		
	☒	ANSI C63.10	11.12.1	Radiated emission measurements		
	☒	ANSI C63.10	11.12.2.7	Radiated spurious emission test		
		☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz	
		☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz	
		☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz	
		☐	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

4.5. EUT test Axis definition

Item	Emissions in restricted frequency bands			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☒	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☒
	☐	Conducted		
	☐	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

4.6. Test Result

Product Name	:	WIFI LED BULB	Power	:	AC 120V/60Hz
Test Mode	:	Mode1~4	Test Site	:	TR8
Test Date	:	2017.09.29			

Mode	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measured Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)	Detector
1	1	H	4823.0	61.6	-13.0	48.6	54.0	-5.4	PK
		H	4824.6	70.1	-13.0	57.1	74.0	-16.9	AV
		H	7233.4	62.2	-7.7	54.4	74.0	-19.6	PK
		H	7235.5	53.8	-7.7	46.1	54.0	-7.9	AV
		H	9648.0	54.4	-1.6	52.8	54(Note 3)	-1.2	PK
		V	4824.6	61.5	-13.0	48.4	54.0	-5.6	AV
		V	4824.6	69.8	-13.0	56.8	74.0	-17.2	PK
		V	7233.4	61.4	-7.7	53.7	54(Note 3)	-0.3	PK
		V	9648.0	52.7	-1.6	51.1	54(Note 3)	-2.9	PK
	6	H	4871.6	70.3	-13.0	57.3	74.0	-16.7	PK
		H	4873.2	61.5	-13.0	48.5	54.0	-5.5	AV
		H	7309.8	59.3	-7.7	51.6	54(Note 3)	-2.4	PK
		H	9747.9	54.8	-1.6	53.2	54(Note 3)	-0.8	AV
		V	4871.6	73.1	-13.0	60.1	74.0	-13.9	PK
		V	4873.5	64.9	-13.0	51.8	54.0	-2.2	PK
		V	7309.8	60.0	-7.7	52.3	54(Note 3)	-1.7	PK
		V	9747.9	55.8	-1.6	54.2	74.0	-19.8	PK
		V	9748.2	47.3	-1.6	45.7	54.0	-8.3	AV
	11	H	4924.1	60.5	-13.0	47.4	54.0	-6.6	PK
		H	4924.5	69.3	-13.0	56.3	74.0	-17.7	AV
		H	7386.1	57.5	-7.7	49.8	54(Note 3)	-4.2	PK
		H	9847.8	53.4	-1.6	51.8	54(Note 3)	-2.2	AV
		V	4924.5	72.1	-13.0	59.0	74.0	-15.0	PK
		V	4924.7	63.5	-13.0	50.4	54.0	-3.6	PK
		V	7386.0	51.4	-7.7	43.7	54(Note 3)	-10.3	PK
		V	9847.8	54.2	-1.6	52.6	54(Note 3)	-1.4	PK

Note: 1. Measure Level = Reading Level + Factor.

Note: 2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

Note: 3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Note: 4. The RBW set up, see Clause 6.6.

Mode	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measured Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)	Detector
2	1	H	4823.6	59.1	-13.0	46.0	54.0	-8.0	PK
		H	4824.0	67.5	-13.0	54.5	74.0	-19.5	AV
		H	7236.0	57.7	-7.7	50.0	54(Note 3)	-4.0	PK
		H	9648.0	48.0	-1.6	46.4	54(Note 3)	-7.6	AV
		V	4824.0	69.8	-13.0	56.8	74.0	-17.2	PK
		V	4824.6	61.6	-13.0	48.6	54.0	-5.4	PK
		V	7236.0	57.8	-7.7	50.1	54(Note 3)	-3.9	PK
		V	9648.0	50.6	-1.6	49.0	54(Note 3)	-5.0	PK
	6	H	4871.6	69.2	-13.0	56.2	74.0	-17.8	PK
		H	4872.2	60.5	-13.0	47.4	54.0	-6.6	AV
		H	7309.8	56.9	-7.7	49.2	54(Note 3)	-4.8	PK
		H	9748.0	47.1	-1.6	45.5	54(Note 3)	-8.5	AV
		V	4874.0	68.8	-13.0	55.8	74.0	-18.2	PK
		V	4875.2	60.5	-13.0	47.5	54.0	-6.5	PK
		V	7311.0	55.3	-7.7	47.6	54(Note 3)	-6.4	PK
		V	9748.0	50.3	-1.6	48.7	54(Note 3)	-5.3	PK
	11	H	4924.0	66.6	-13.0	53.6	54(Note 3)	-0.4	PK
		H	7386.0	54.2	-7.7	46.4	54(Note 3)	-7.6	AV
		H	9848.0	47.8	-1.6	46.2	54(Note 3)	-7.8	PK
		V	4924.0	67.6	-13.0	54.6	74.0	-19.4	PK
		V	4925.1	59.5	-13.0	46.5	54.0	-7.5	PK
		V	7386.0	52.6	-7.7	44.9	54(Note 3)	-9.1	PK
		V	9848.0	47.4	-1.6	45.8	54(Note 3)	-8.2	PK

Note: 1. Measure Level = Reading Level + Factor.

Note: 2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

Note: 3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Note: 4. The RBW set up, see Clause 6.6.

Mode	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measured Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)	Detector
3	1	H	4818.8	67.8	-13.0	54.8	74.0	-19.2	PK
		H	4823.4	59.6	-13.0	46.6	54.0	-7.4	AV
		H	7239.3	59.0	-7.7	51.3	54(Note 3)	-2.7	PK
		H	9648.0	47.6	-1.6	46.0	54(Note 3)	-8.0	AV
		V	4824.6	69.3	-13.0	56.3	74.0	-17.7	PK
		V	4825.2	60.9	-13.0	47.8	54.0	-6.2	PK
		V	7233.4	60.8	-7.7	53.1	54(Note 3)	-0.9	PK
		V	9648.0	51.2	-1.6	49.6	54(Note 3)	-4.4	PK
	6	H	4871.6	66.6	-13.0	53.6	54(Note 3)	-0.4	PK
		H	7311.0	55.0	-7.7	47.3	54(Note 3)	-6.7	AV
		H	9748.0	50.6	-1.6	49.0	54(Note 3)	-5.0	PK
		V	4871.6	57.8	-13.0	44.8	54.0	-9.2	PK
		V	4877.5	69.3	-13.0	56.3	74.0	-17.7	PK
		V	7315.6	58.8	-7.7	51.1	54(Note 3)	-2.9	PK
		V	9748.0	50.3	-1.6	48.7	54(Note 3)	-5.3	PK
	11	H	4924.0	66.1	-13.0	53.0	54(Note 3)	-1.0	PK
		H	7386.0	54.5	-7.7	46.8	54(Note 3)	-7.2	AV
		H	9848.0	48.1	-1.6	46.5	54(Note 3)	-7.5	PK
		V	4918.6	69.8	-13.0	56.8	74.0	-17.2	PK
		V	4924.6	61.2	-13.0	48.2	54.0	-5.8	PK
		V	7386.0	55.1	-7.7	47.4	54(Note 3)	-6.6	PK
		V	9848.0	51.0	-1.6	49.4	54(Note 3)	-4.6	PK

Note: 1. Measure Level = Reading Level + Factor.

Note: 2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

Note: 3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Note: 4. The RBW set up, see Clause 6.6.

Mode	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measured Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)	Detector
4	3	H	4842.3	65.4	-13.0	52.3	54(Note 3)	-1.7	PK
		H	7266.0	56.3	-7.7	48.6	54(Note 3)	-5.4	PK
		H	9688.0	48.2	-1.6	46.7	54(Note 3)	-7.3	AV
		V	4842.3	67.5	-13.0	54.5	74.0	-19.5	PK
		V	4843.2	59.3	-13.0	46.2	54.0	-7.8	PK
		V	7266.0	57.4	-7.7	49.7	54(Note 3)	-4.3	PK
		V	9688.0	51.2	-1.6	49.6	54(Note 3)	-4.4	PK
	6	H	4871.6	66.9	-13.0	53.9	54(Note 3)	-0.1	PK
		H	7311.0	54.7	-7.7	47.0	54(Note 3)	-7.0	AV
		H	9748.0	47.1	-1.6	45.5	54(Note 3)	-8.5	PK
		V	4871.6	67.7	-13.0	54.7	74.0	-19.3	PK
		V	4873.1	59.4	-13.0	46.3	54.0	-7.7	PK
		V	7311.0	55.6	-7.7	47.9	54(Note 3)	-6.1	PK
		V	9748.0	49.3	-1.6	47.7	54(Note 3)	-6.3	PK
	9	H	4906.9	64.7	-13.0	51.7	54(Note 3)	-2.3	PK
		H	7356.0	52.3	-7.7	44.6	54(Note 3)	-9.4	AV
		H	9808.0	47.5	-1.6	45.9	54(Note 3)	-8.1	PK
		V	4904.0	66.9	-13.0	53.9	54(Note 3)	-0.1	PK
		V	7356.0	54.3	-7.7	46.6	54(Note 3)	-7.4	PK
		V	9808.0	49.9	-1.6	48.4	54(Note 3)	-5.6	PK

Note: 1. Measure Level = Reading Level + Factor.

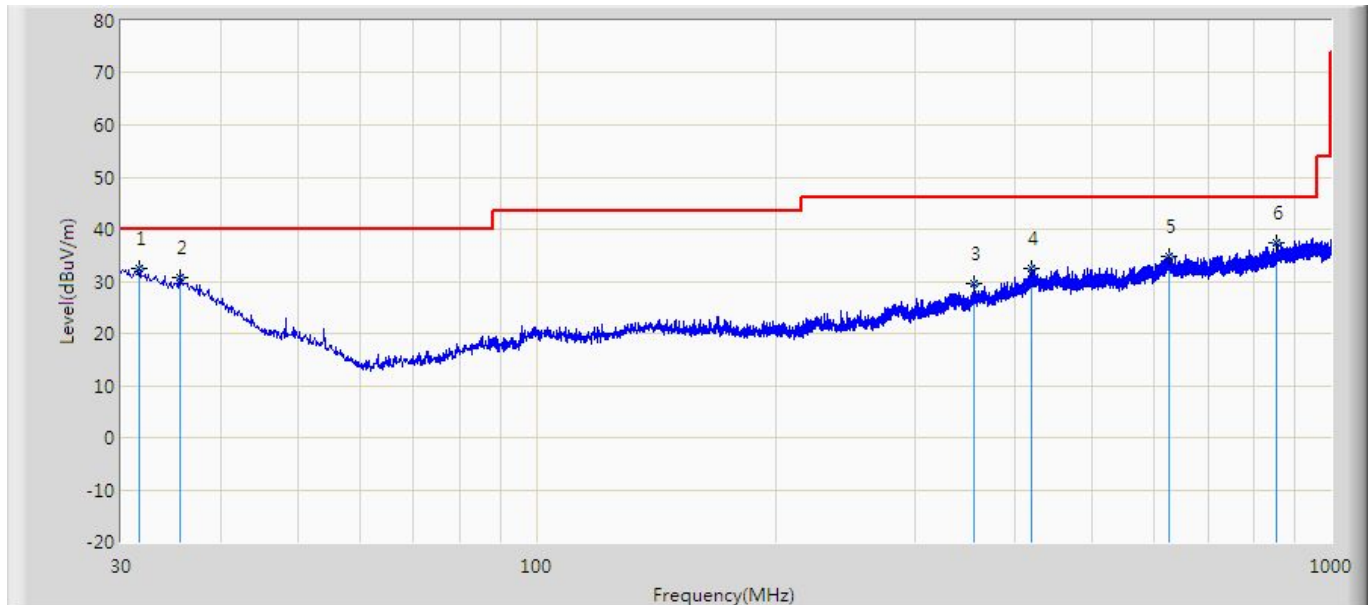
Note: 2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

Note: 3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Note: 4. The RBW set up, see Clause 6.6.

The worst case of Radiated Emission below 1GHz:

Engineer: Damon	
Site: AC3	Time: 2017/09/15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2412MHz by 802.11b	

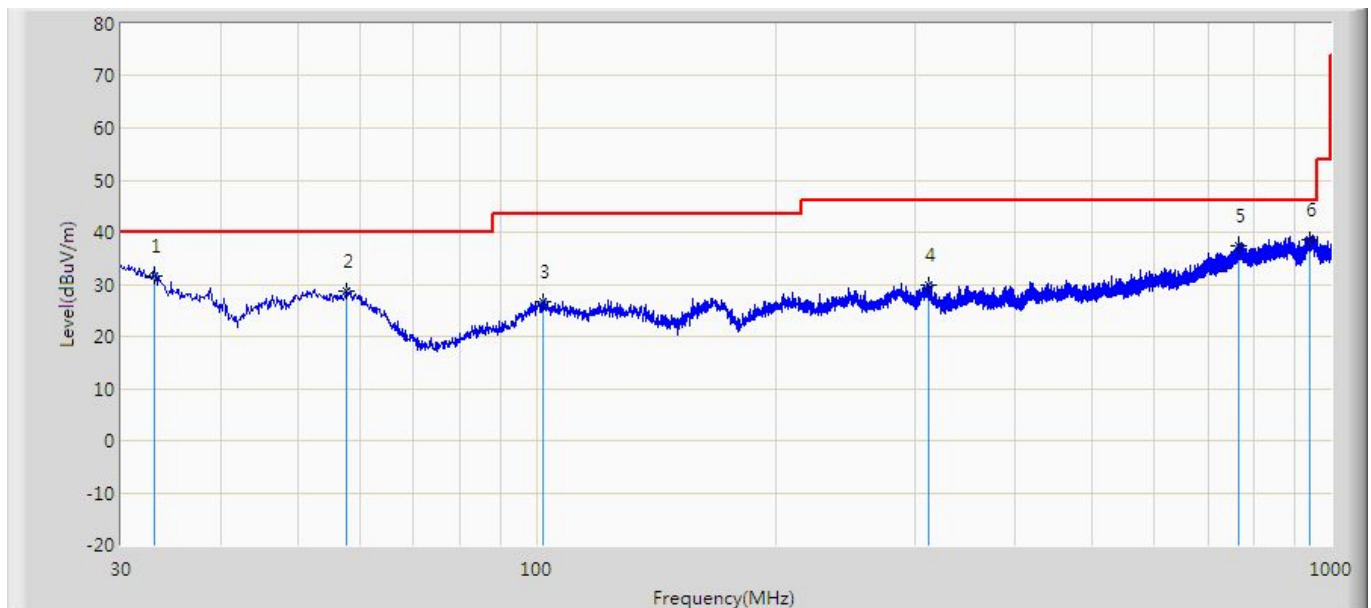


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	31.576	32.438	5.400	-7.562	40.000	20.575	6.463	0.000	100	134	QP
2		35.577	30.806	5.100	-9.194	40.000	19.211	6.495	0.000	100	135	QP
3		355.556	29.609	5.900	-16.391	46.000	15.927	7.782	0.000	200	241	QP
4		419.940	32.493	5.400	-13.507	46.000	19.133	7.960	0.000	100	192	QP
5		626.186	34.740	4.900	-11.260	46.000	21.345	8.495	0.000	100	94	QP
6		854.136	37.275	6.000	-8.725	46.000	22.272	9.003	0.000	100	264	QP

Note:

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

Engineer: Damon	
Site: AC3	Time: 2017/09/15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: WIFI LED BULB	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)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		33.031	31.525	8.400	-8.475	40.000	16.653	6.472	0.000	100	113	QP
2		57.766	28.656	12.200	-11.344	40.000	9.819	6.637	0.000	100	167	QP
3		101.901	26.799	4.700	-16.701	43.500	15.233	6.867	0.000	100	243	QP
4		311.300	29.829	4.600	-16.171	46.000	17.579	7.650	0.000	100	164	QP
5		765.018	37.265	5.100	-8.735	46.000	23.361	8.804	0.000	200	116	QP
6	*	941.800	38.581	4.300	-7.419	46.000	25.097	9.184	0.000	100	327	QP

Note:

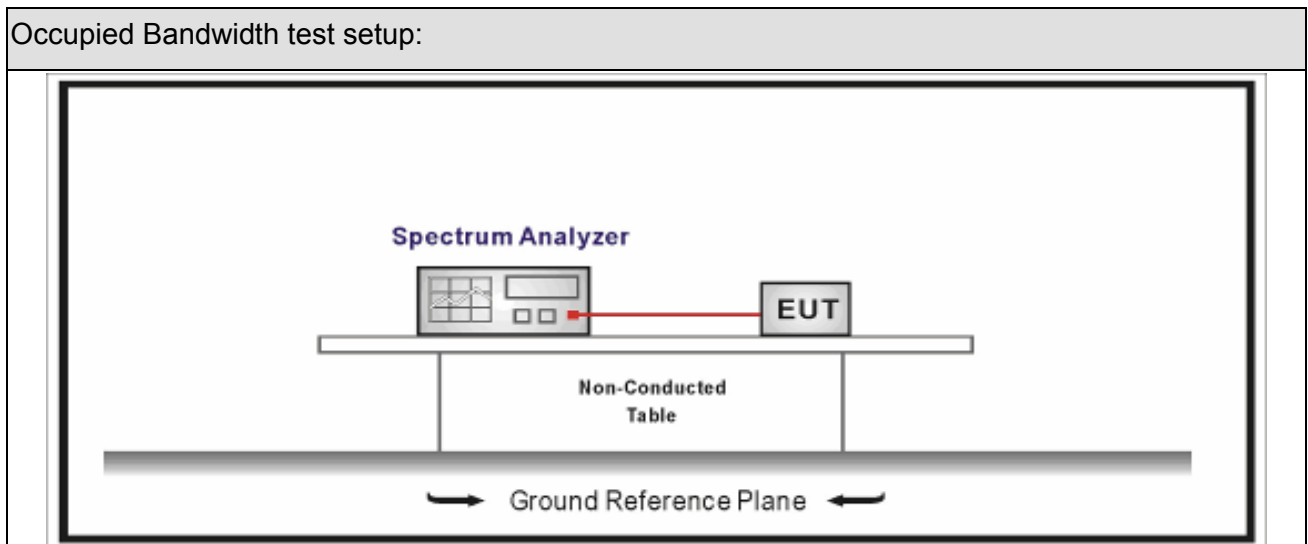
1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

5. Emissions in non-restricted frequency bands

5.1. Test Equipment

Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2. Test Setup



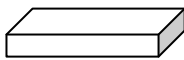
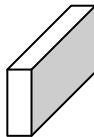
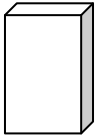
5.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(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).	

5.4. Test Procedure

Test Method				
	References Rule		Chapter	Description
☒	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	☒	ANSI C63.10	11.11.2	Reference level measurement
	☒	ANSI C63.10	11.11.3	Emission level measurement
☐	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☐	ANSI C63.10	11.12.1	Radiated emission measurements
	☐	ANSI C63.10	11.12.2.7	Radiated spurious emission test
☐	ANSI C63.10		6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10		6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10		6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
	☒	ANSI C63.10	11.12.2	Antenna-port conducted measurements
	☐	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		☒	ANSI C63.10	Peak power measurement procedure
		☐	ANSI C63.10	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

5.5. EUT test Axis definition

Item	Emissions in non-restricted frequency bands			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1 ~ Mode 4			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

5.6. Test Result

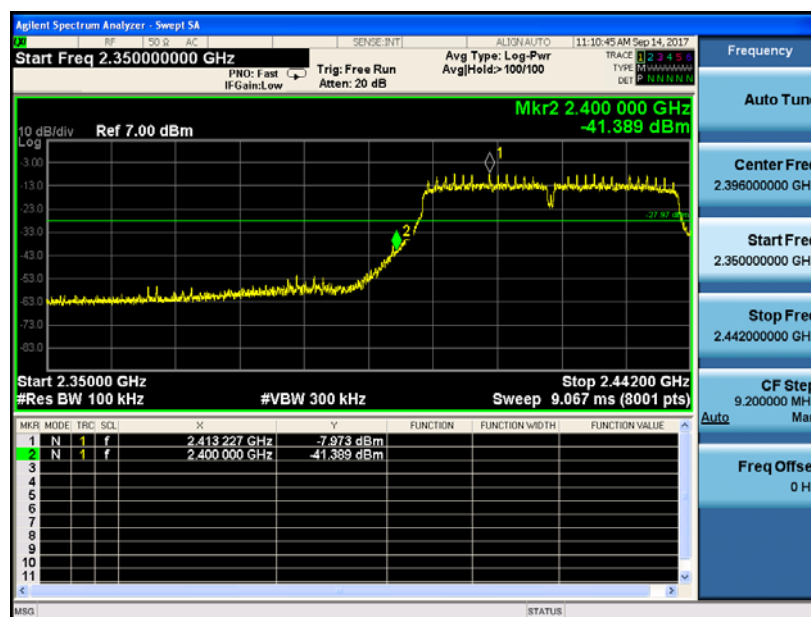
Product Name	:	WIFI LED BULB	Power	:	AC 120V/60Hz
Test Mode	:	Mode1~4	Test Site	:	TR8
Test Date	:	2017.09.15			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	01	2412	-2.032	2400	-58.998	56.966	>20	Pass
1	11	2462	-3.230	2500	-64.136	60.906	>20	Pass
2	01	2412	-4.375	2400	-50.099	45.724	>20	Pass
2	11	2462	-5.366	2500	-63.087	57.721	>20	Pass
3	01	2412	-4.232	2400	-51.065	46.833	>20	Pass
3	11	2462	-5.371	2500	-64.996	59.625	>20	Pass
4	03	2422	-7.973	2400	-41.389	33.416	>20	Pass
4	09	2452	-8.034	2503.2	-55.834	47.8	>20	Pass

Note 1: The worst case of Emissions in non-restricted frequency bands as below:

2: As the radiated emission was performed, so conducted emission was only tested for the nearest emission of fundamental frequency.

Mode 4 CH03(2422MHz)



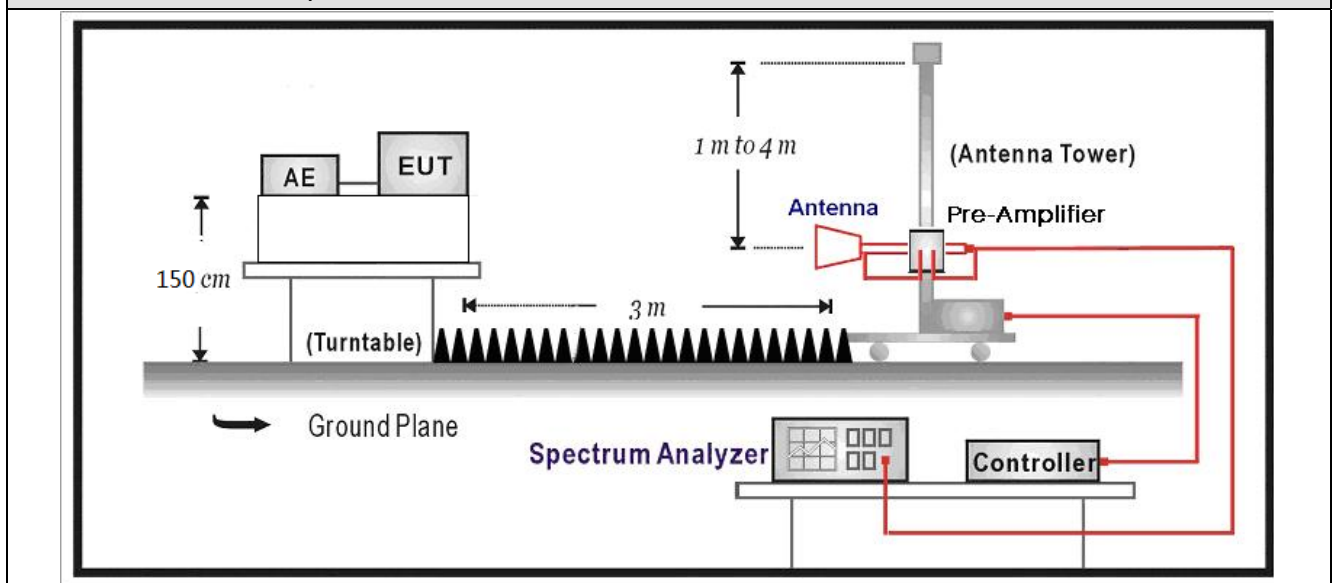
6. Radiated Emission Band Edge

6.1. Test Equipment

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Receiver	Agilent	N9038A	MY51210196	2017.07.16	2018.07.16
Pre-Amplifier	Miteq	NSP1800-25	1364185	2017.05.03	2018.05.02
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2017.07.20	2018.07.20
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2017.09.18	2018.09.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2017.02.28	2018.02.27
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2017.02.28	2018.02.27
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2017.01.05	2018.01.04
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

6.2. Test Setup

Above 1GHz Test Setup:



6.3. Limit

Band edge Limit

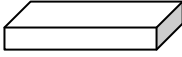
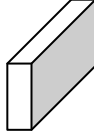
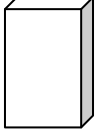
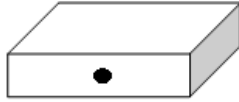
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

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

6.4. Test Procedure

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

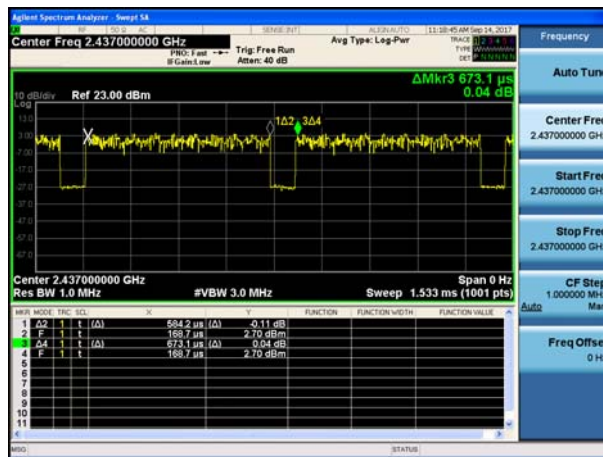
6.5. EUT test definition

Item	Emissions in non-restricted frequency bands			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☒	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☒
	☐	Conducted		
	☐	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

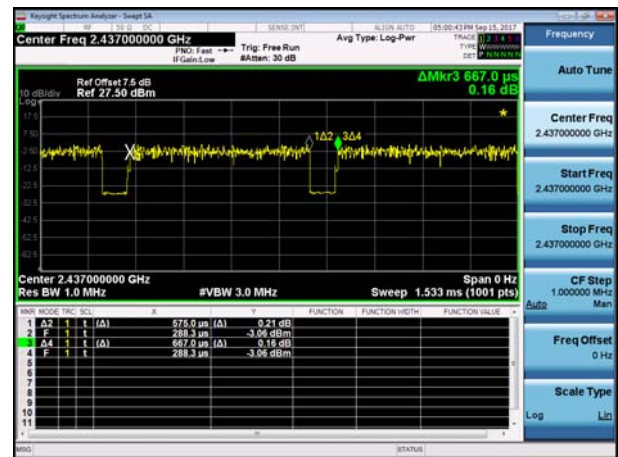
6.6. Duty Cycle

Test Mode	Tx On (ms)	Tx Off (ms)	VBW	Tx On + Tx Off (ms)	Duty Cycle
802.11b	0.584	0.089	1.8KHz	0.673	86.78%
802.11g	0.575	0.092	1.8KHz	0.667	86.2%
802.11n(20MHz)	0.546	0.096	1.8KHz	0.642	85.01%
802.11n(40MHz)	0.542	0.120	1.8KHz	0.662	84.42%

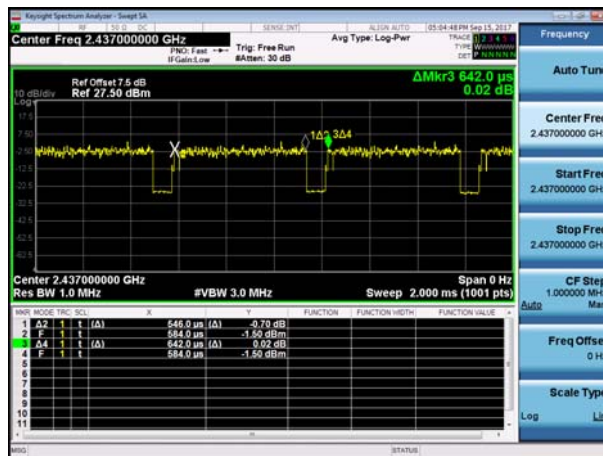
802.11b



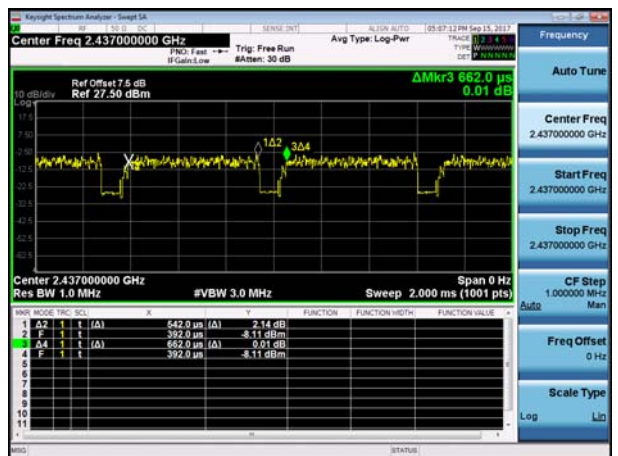
802.11g



802.11n(20MHz)

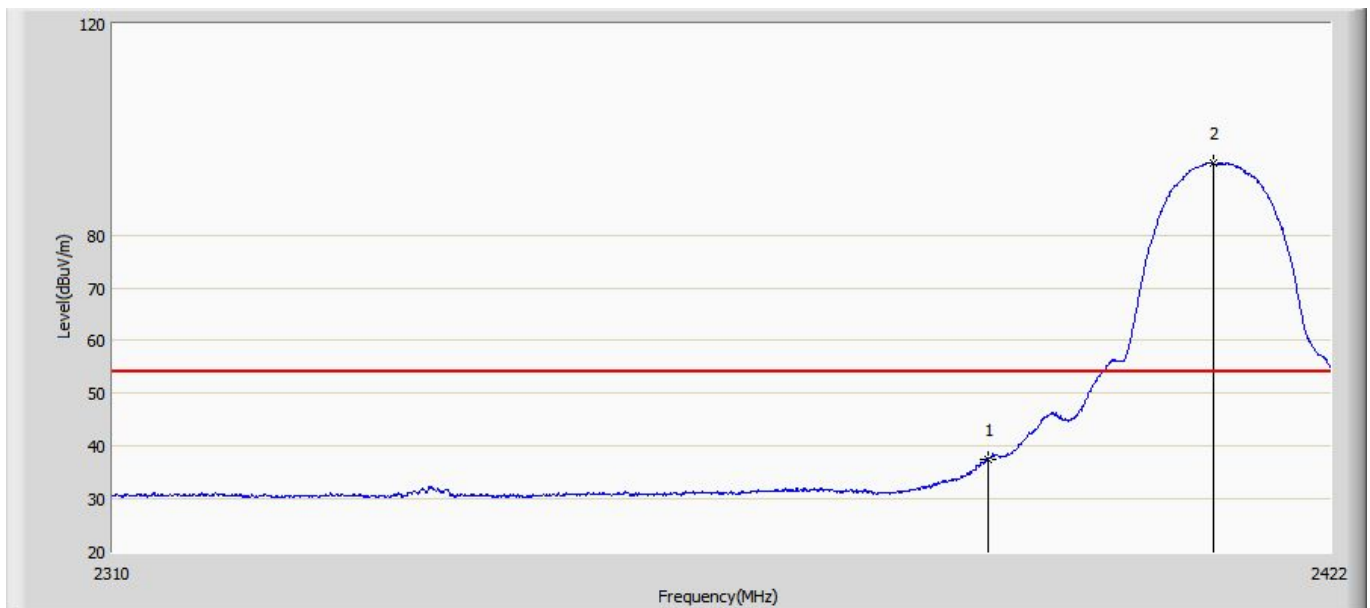


802.11n(40MHz)



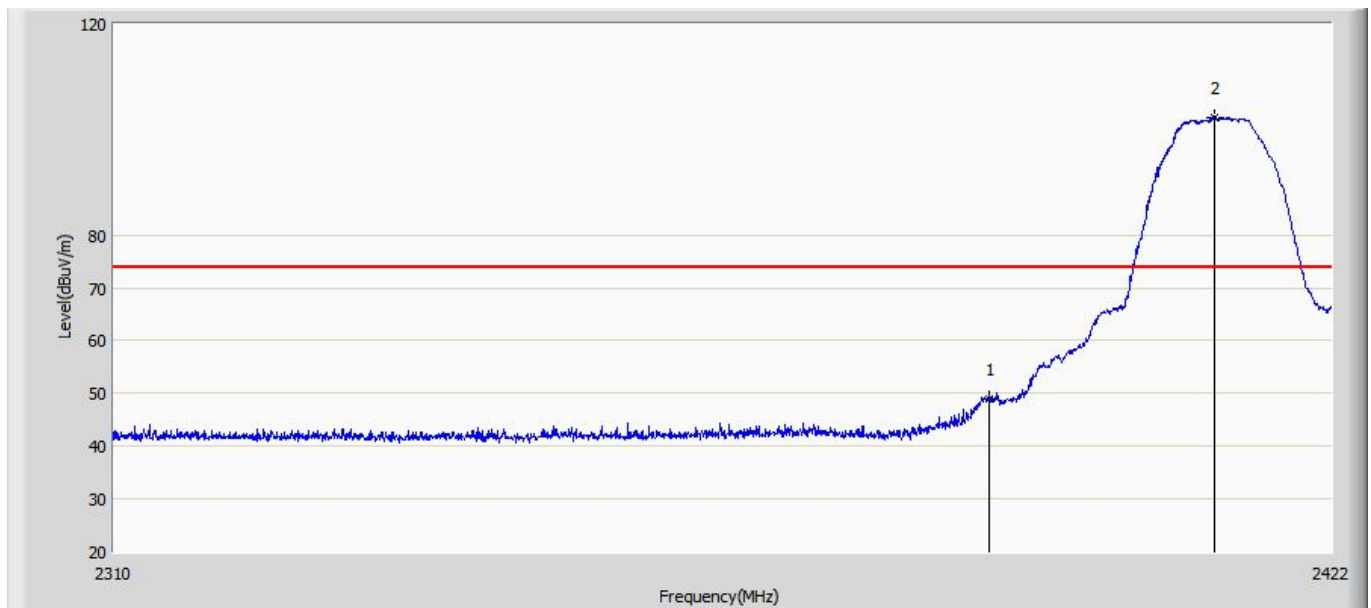
6.7. Test Result

Engineer: Karl	
Site: AC5AC5	Time: 2017/09/28 - 16:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2412MHz by 802.11b	



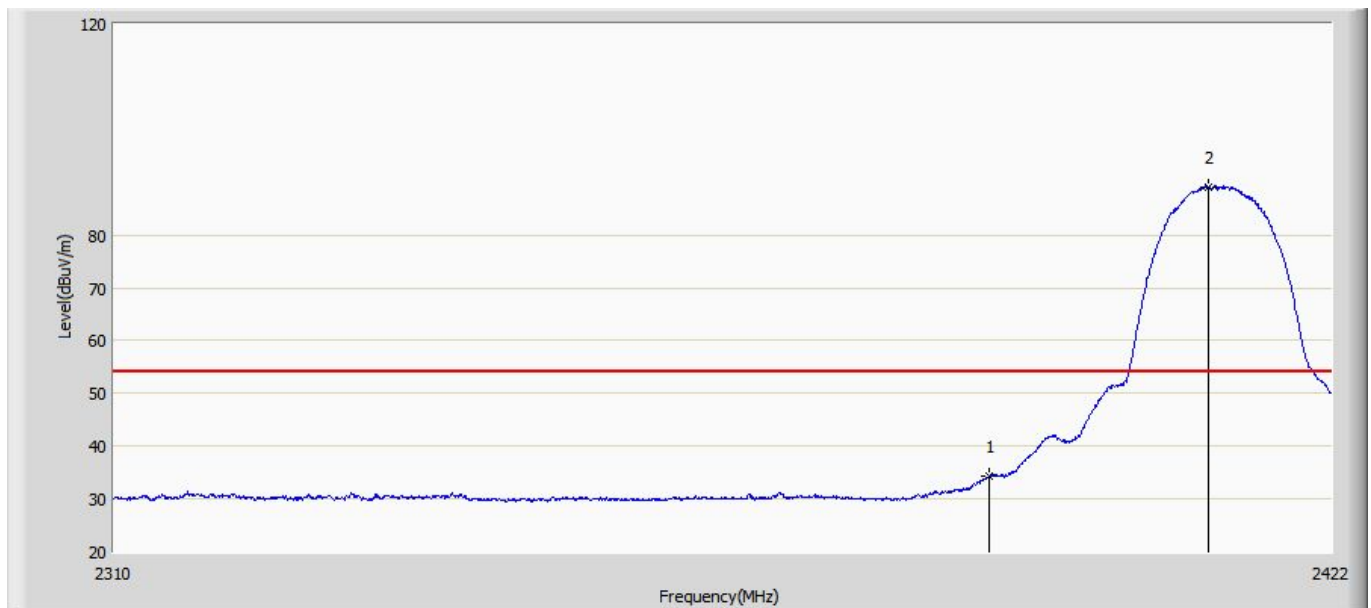
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.520	8.472	-16.480	54.000	29.048	AV
2	*	2411.024	93.565	64.702	39.565	54.000	28.863	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 16:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2412MHz by 802.11b	



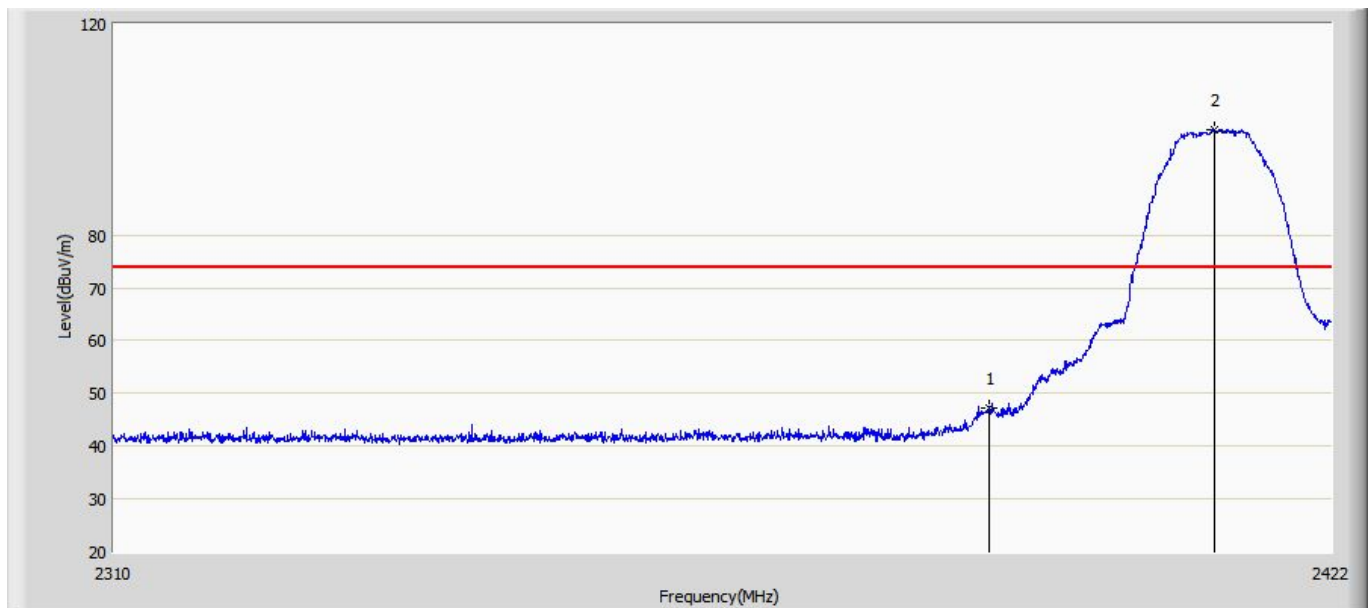
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	48.934	19.886	-25.066	74.000	29.048	PK
2	*	2411.024	102.252	73.389	28.252	74.000	28.863	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 16:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2412MHz by 802.11b	



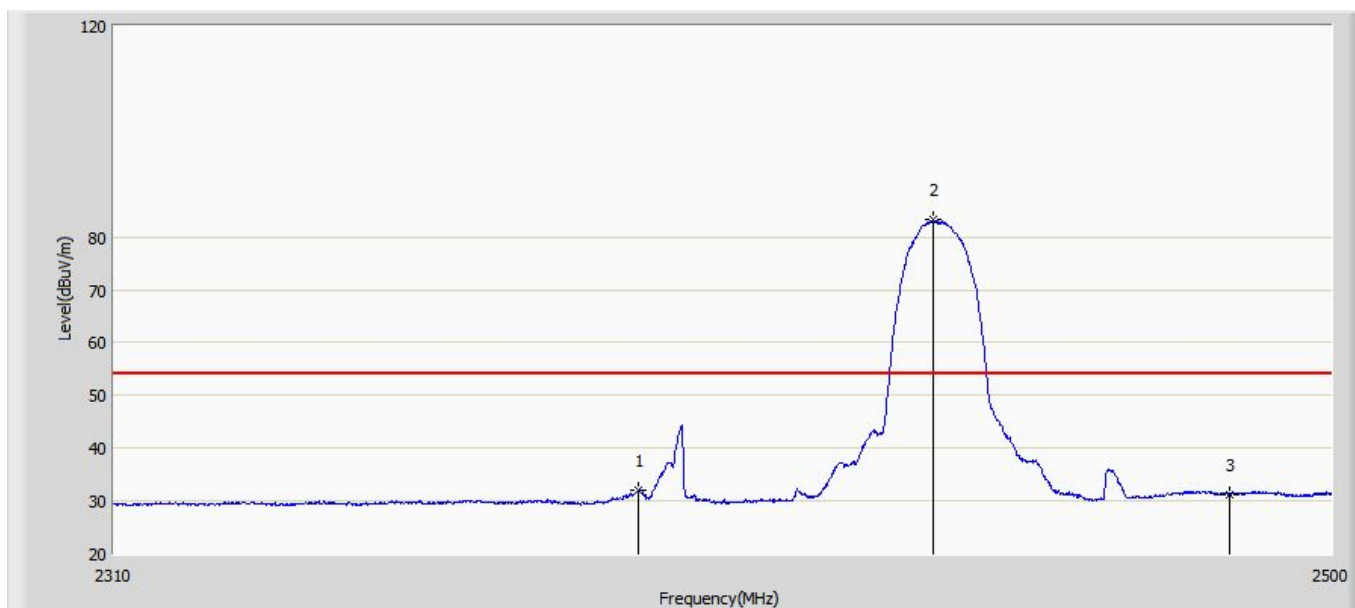
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	34.358	5.310	-19.642	54.000	29.048	AV
2	*	2410.464	89.137	60.268	35.137	54.000	28.869	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 16:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2412MHz by 802.11b	



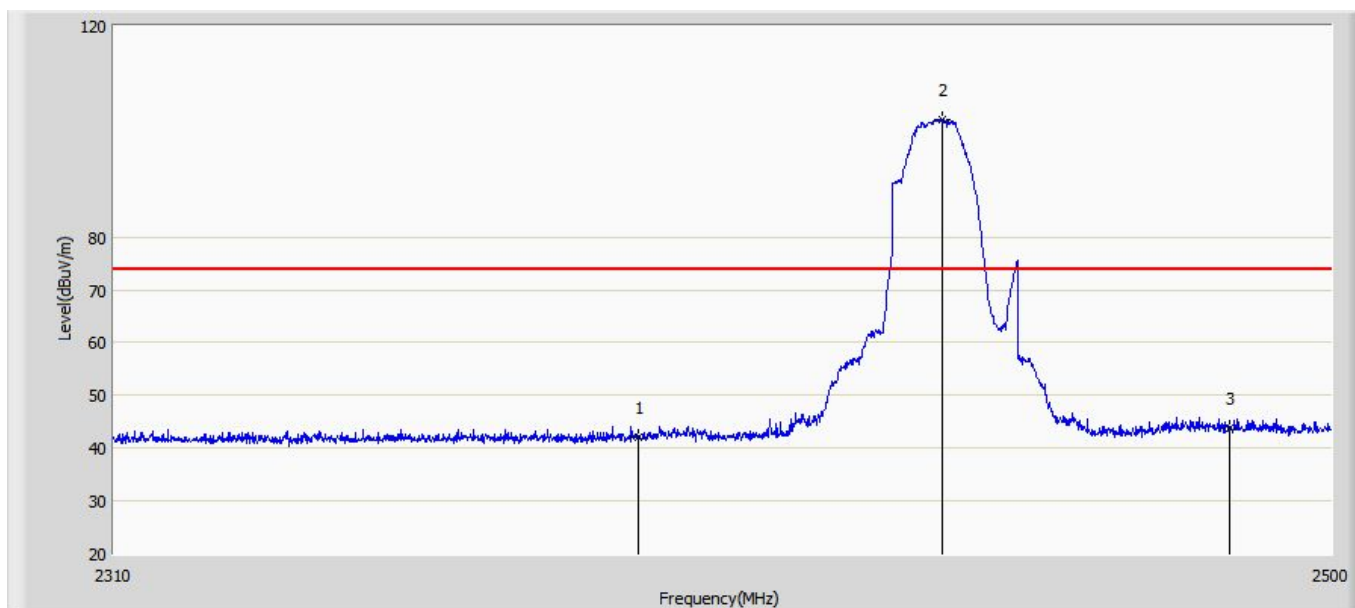
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.081	18.033	-26.919	74.000	29.048	PK
2	*	2411.024	100.080	71.217	26.080	74.000	28.863	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 16:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2437MHz by 802.11b	



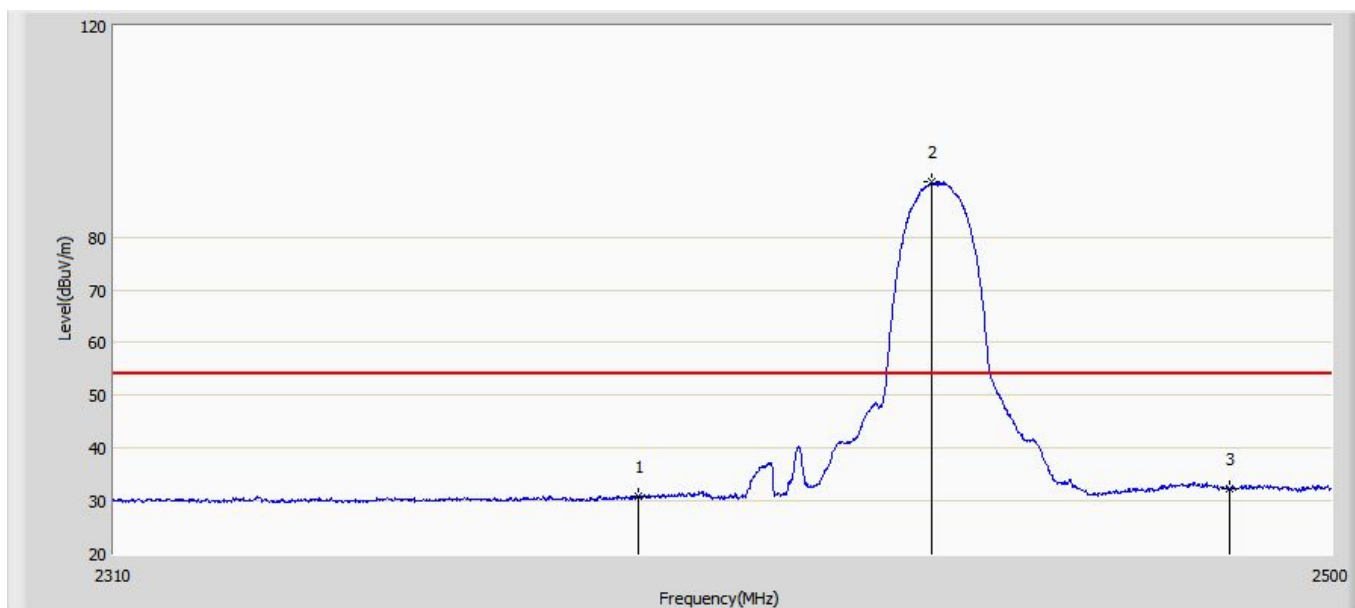
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	32.041	2.993	-21.959	54.000	29.048	AV
2	*	2436.255	83.226	54.284	29.226	54.000	28.942	AV
3		2483.500	31.213	0.729	-22.787	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 16:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2437MHz by 802.11b	



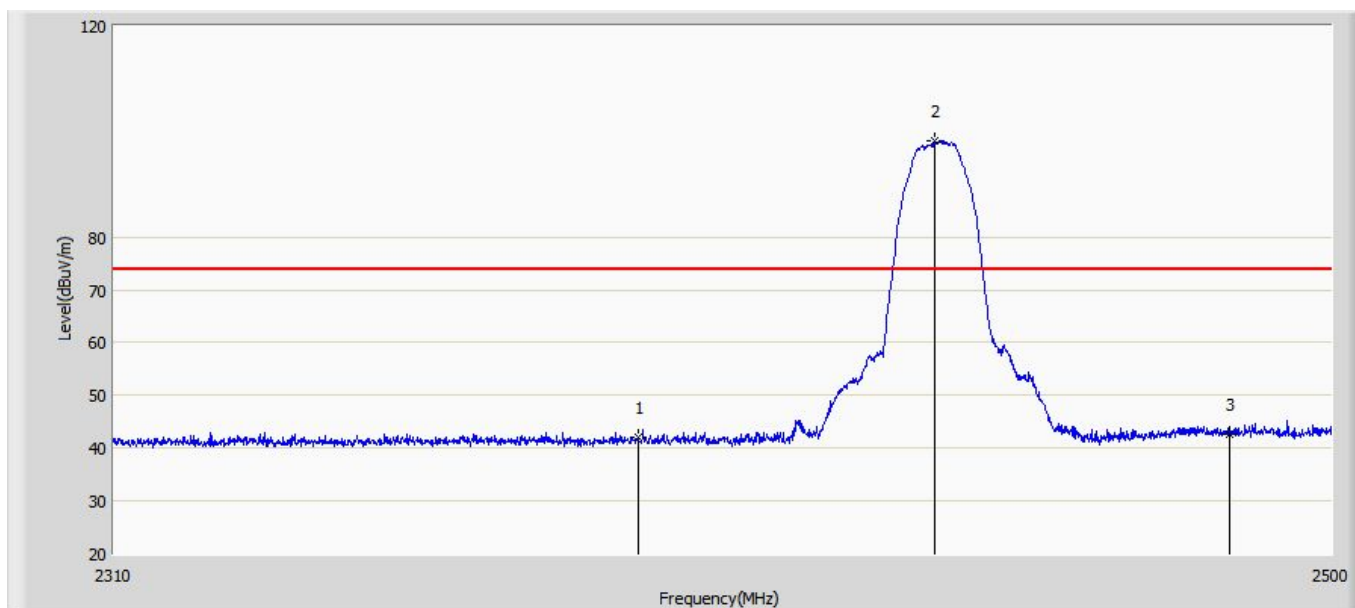
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	41.993	12.945	-32.007	74.000	29.048	PK
2	*	2437.775	102.164	73.225	28.164	74.000	28.939	PK
3		2483.500	43.889	13.405	-30.111	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 16:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2437MHz by 802.11b	



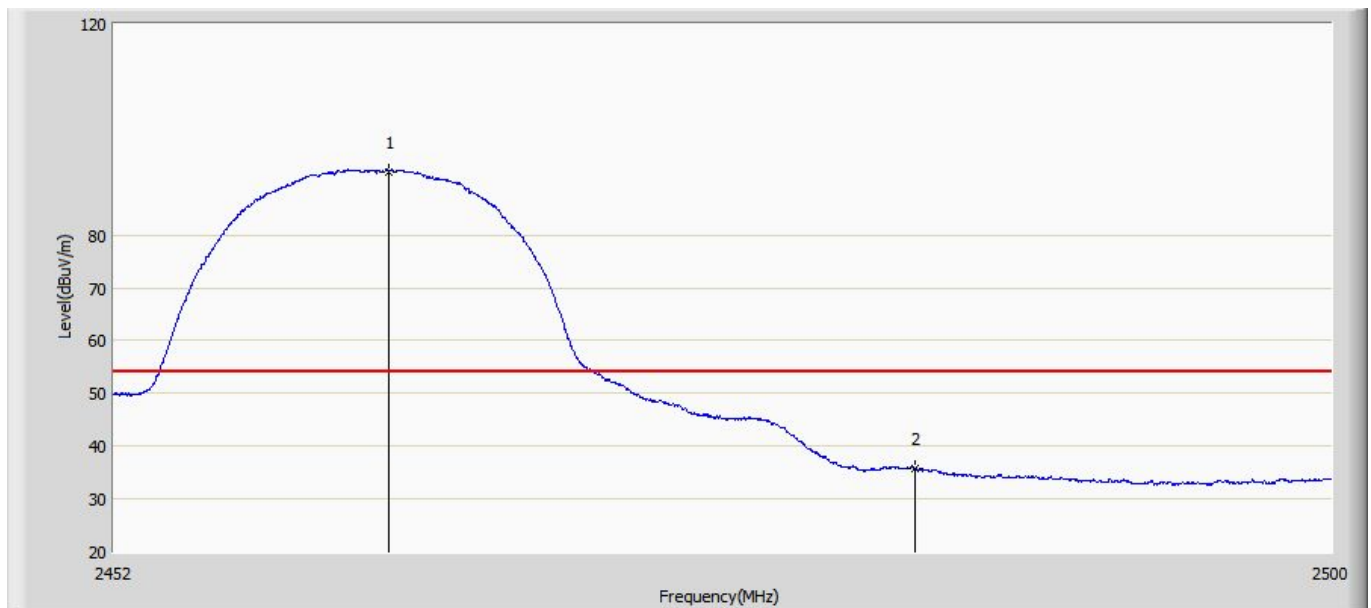
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	30.882	1.834	-23.118	54.000	29.048	AV
2	*	2435.970	90.434	61.491	36.434	54.000	28.943	AV
3		2483.500	32.261	1.777	-21.739	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 16:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2437MHz by 802.11b	



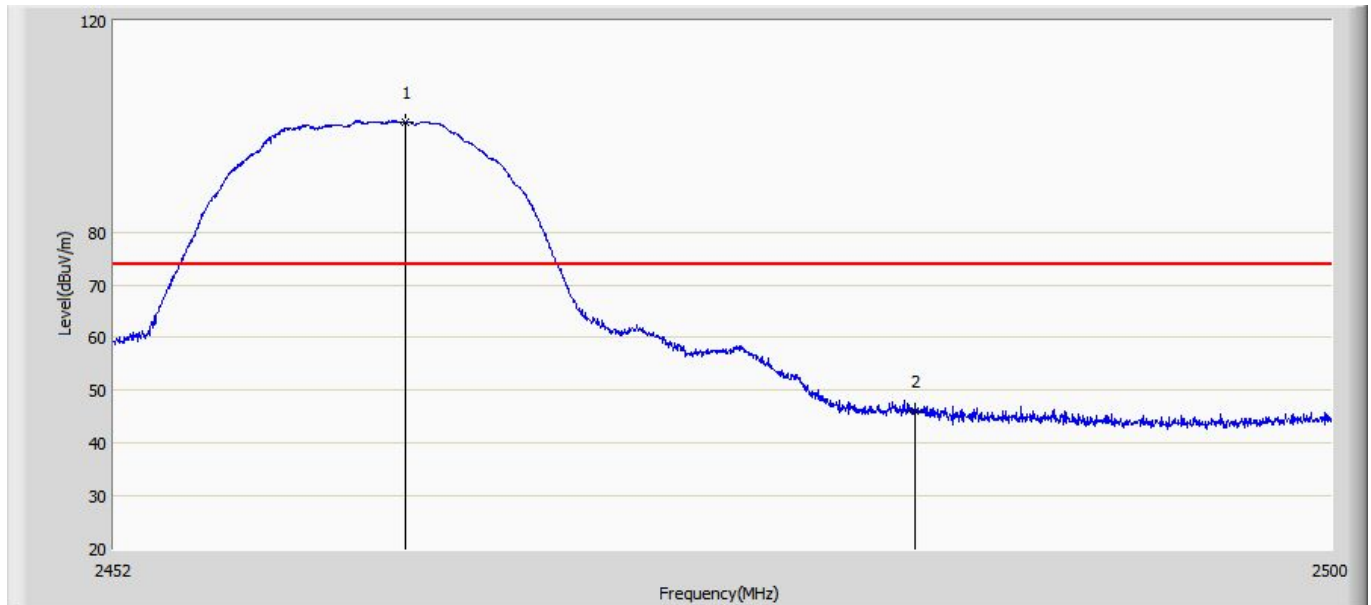
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	41.934	12.886	-32.066	74.000	29.048	PK
2	*	2436.540	98.138	69.197	24.138	74.000	28.941	PK
3		2483.500	42.739	12.255	-31.261	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 16:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2462MHz by 802.11b	



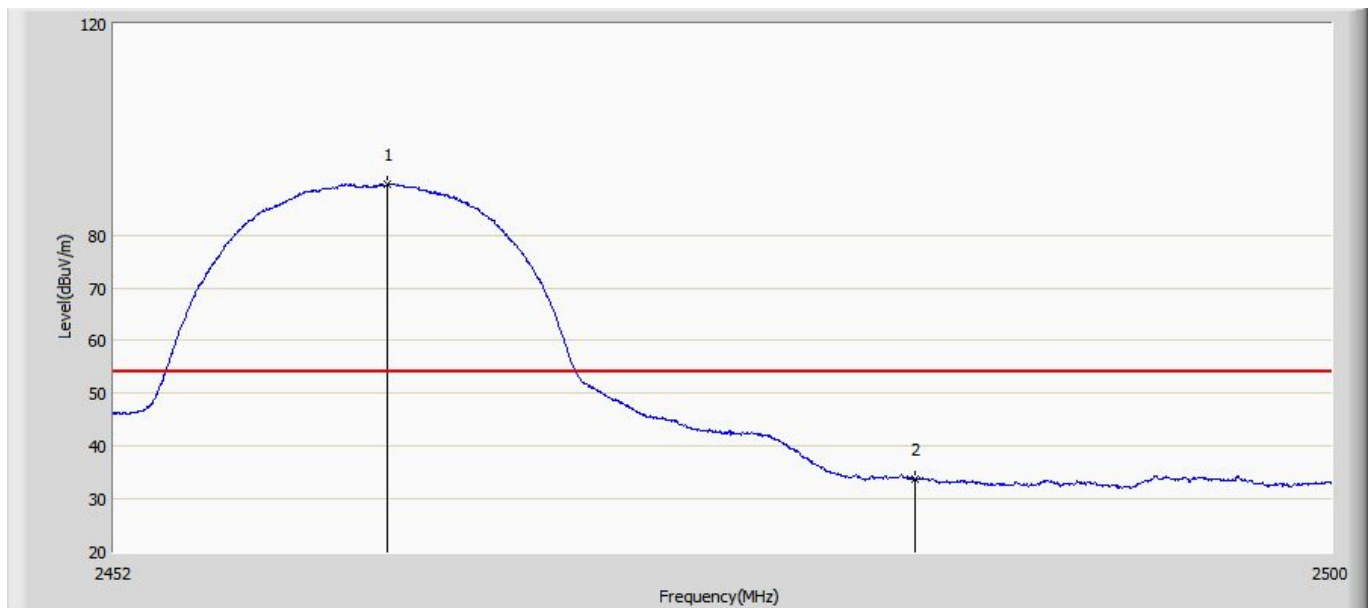
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.776	92.039	62.927	38.039	54.000	29.112	AV
2		2483.500	35.803	5.319	-18.197	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 17:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2462MHz by 802.11b	



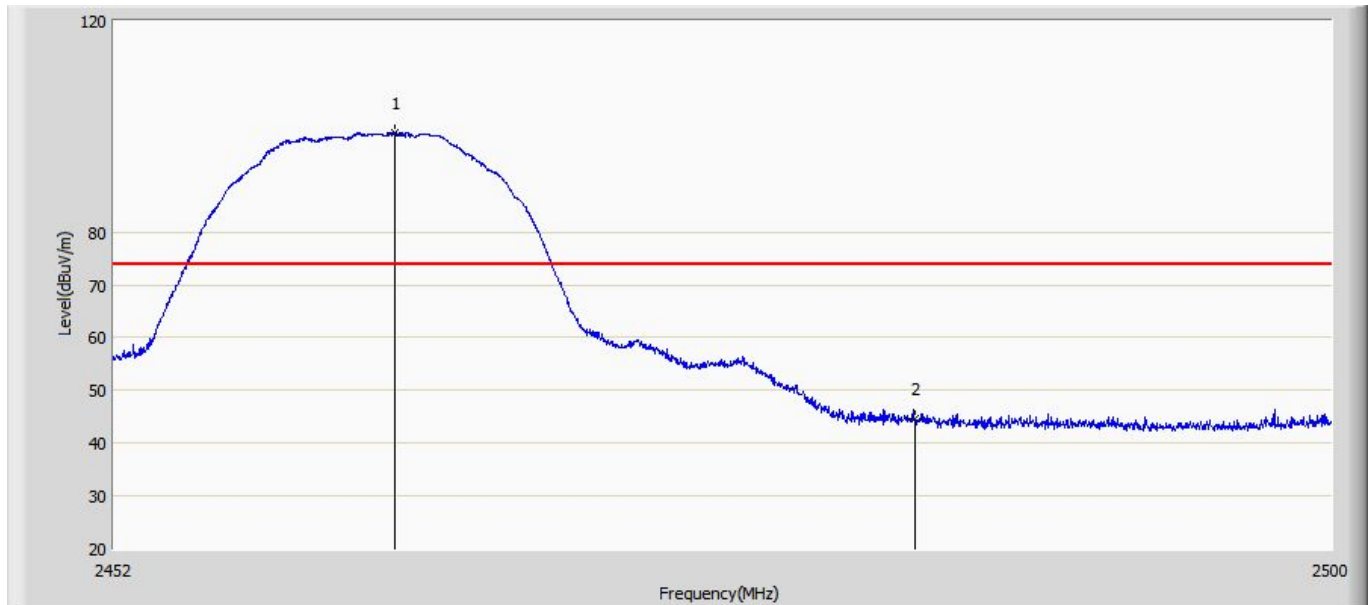
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.400	100.912	71.746	26.912	74.000	29.166	PK
2		2483.500	46.161	15.677	-27.839	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 17:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2462MHz by 802.11b	



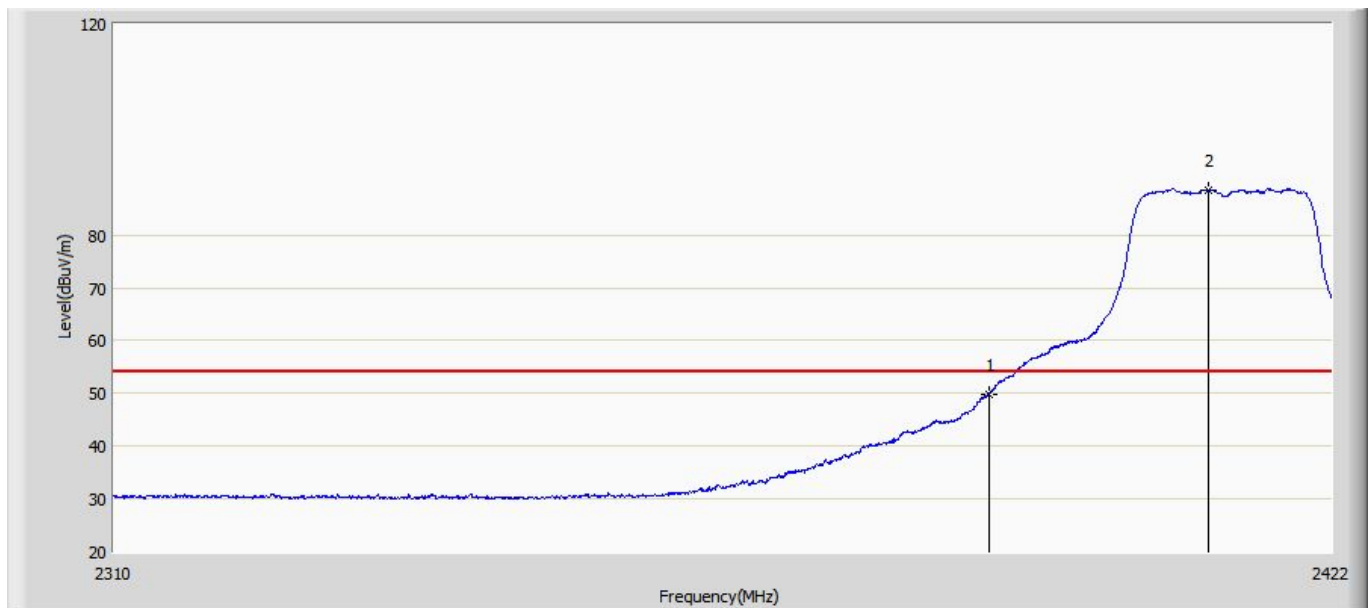
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.704	89.569	60.464	35.569	54.000	29.105	AV
2		2483.500	33.851	3.367	-20.149	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 17:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 1;Transmit at2462MHz by 802.11b	



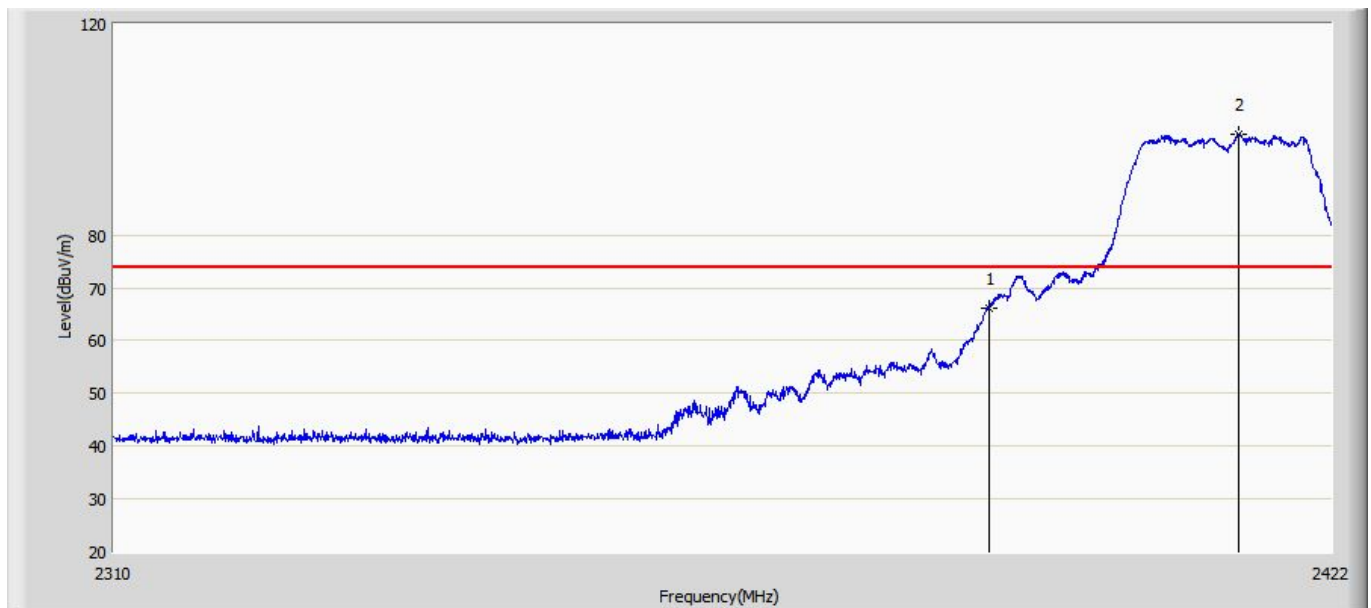
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.016	98.755	69.622	24.755	74.000	29.133	PK
2		2483.500	44.593	14.108	-29.407	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 17:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2412MHz by 802.11g	



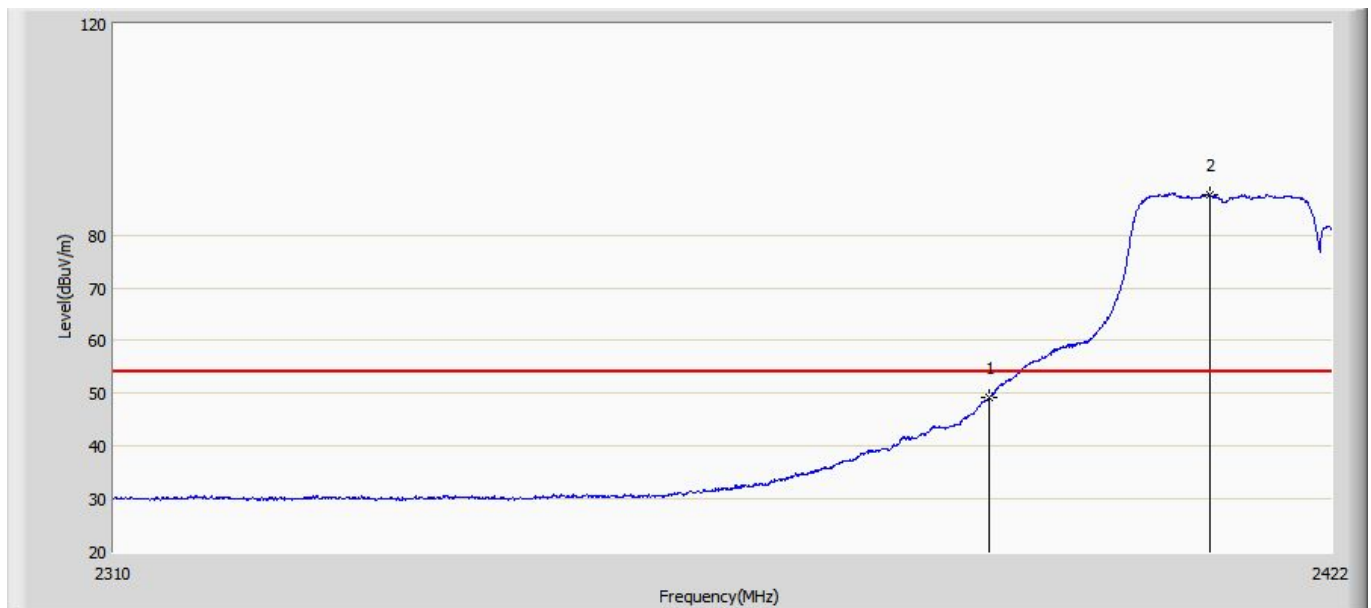
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.711	20.663	-4.289	54.000	29.048	AV
2	*	2410.464	88.591	59.722	34.591	54.000	28.869	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2412MHz by 802.11g	



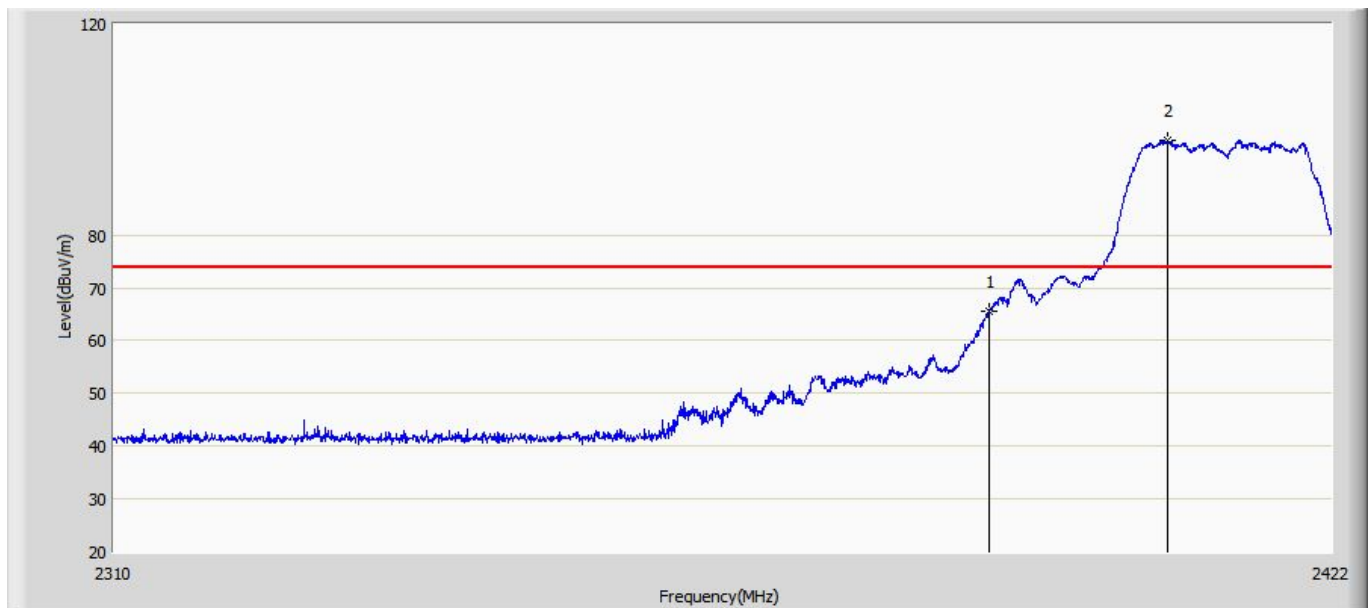
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	66.270	37.222	-7.730	74.000	29.048	PK
2	*	2413.376	99.109	70.232	25.109	74.000	28.877	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2412MHz by 802.11g	



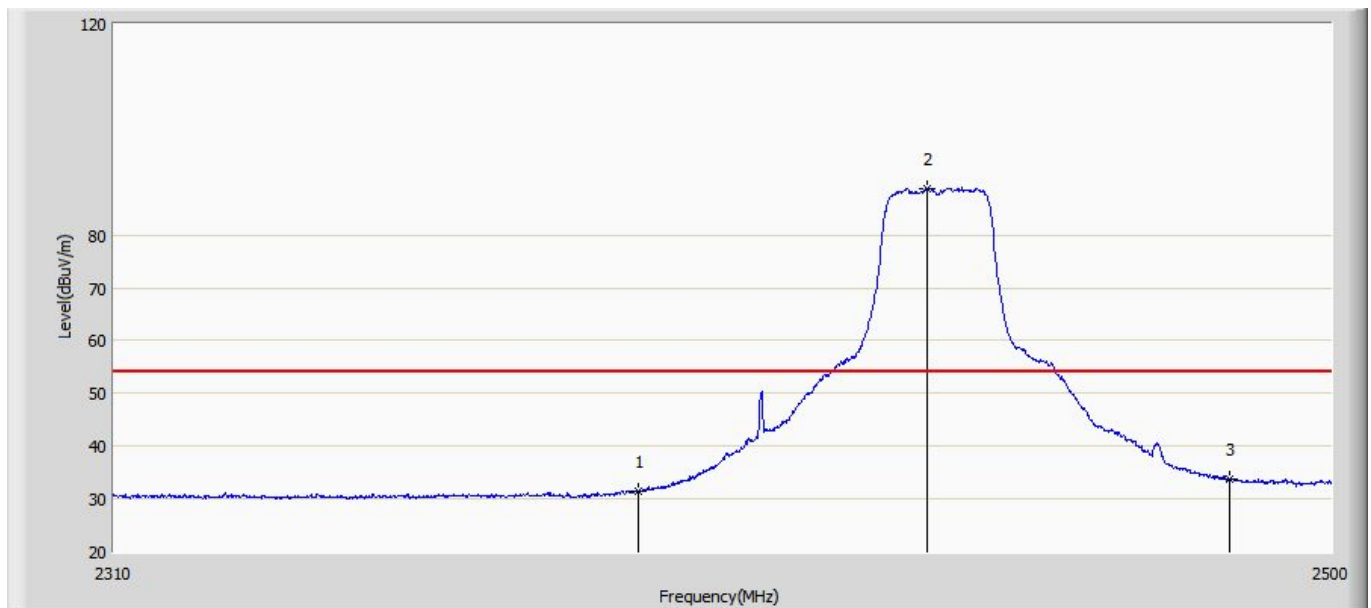
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.089	20.041	-4.911	54.000	29.048	AV
2	*	2410.632	87.589	58.722	33.589	54.000	28.867	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2412MHz by 802.11g	



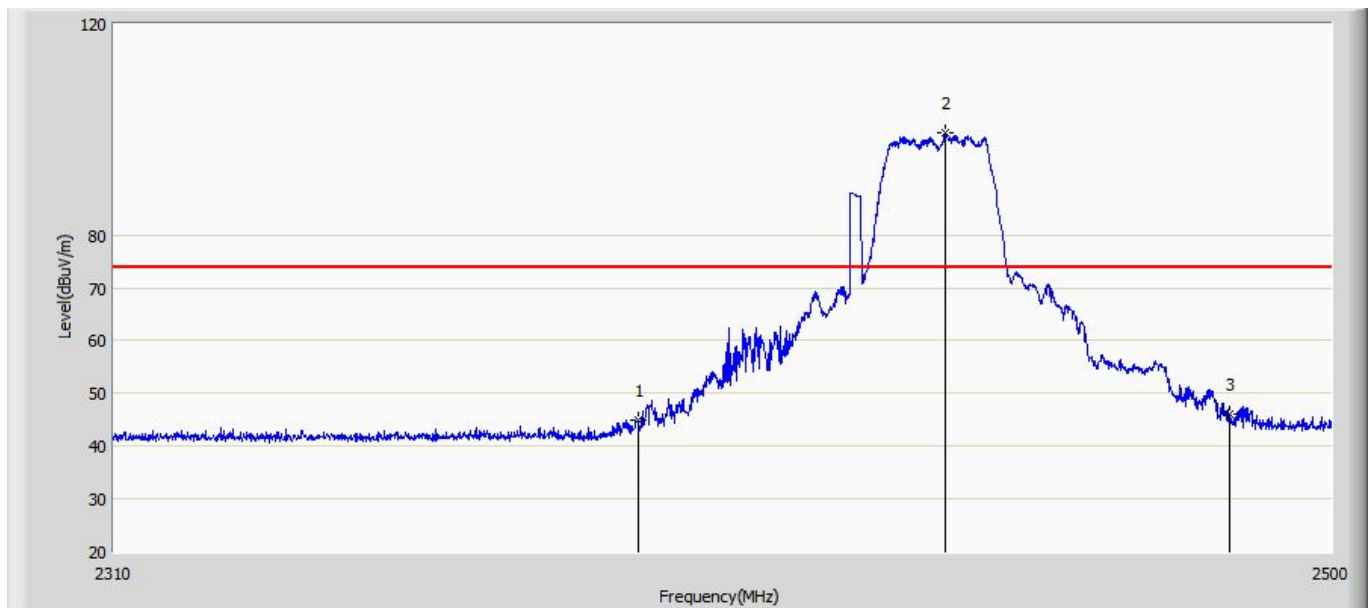
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	65.641	36.593	-8.359	74.000	29.048	PK
2	*	2406.712	97.912	69.003	23.912	74.000	28.909	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2437MHz by 802.11g	



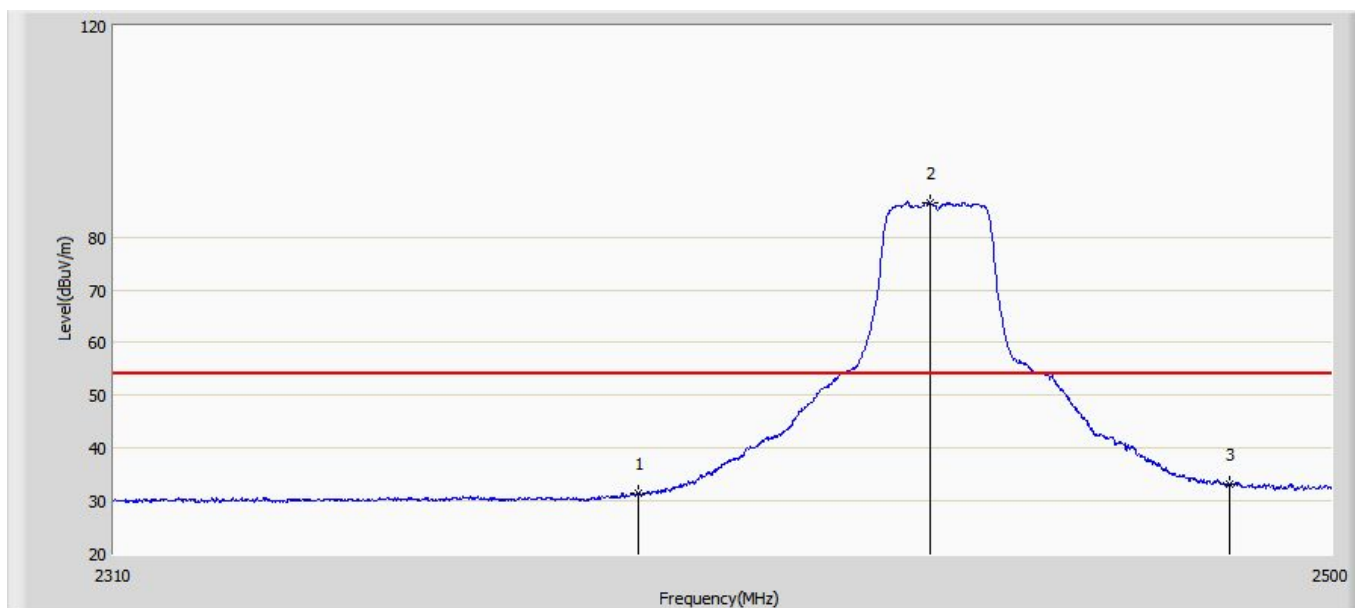
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	31.578	2.530	-22.422	54.000	29.048	AV
2	*	2435.210	88.832	59.888	34.832	54.000	28.944	AV
3		2483.500	33.888	3.404	-20.112	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2437MHz by 802.11g	



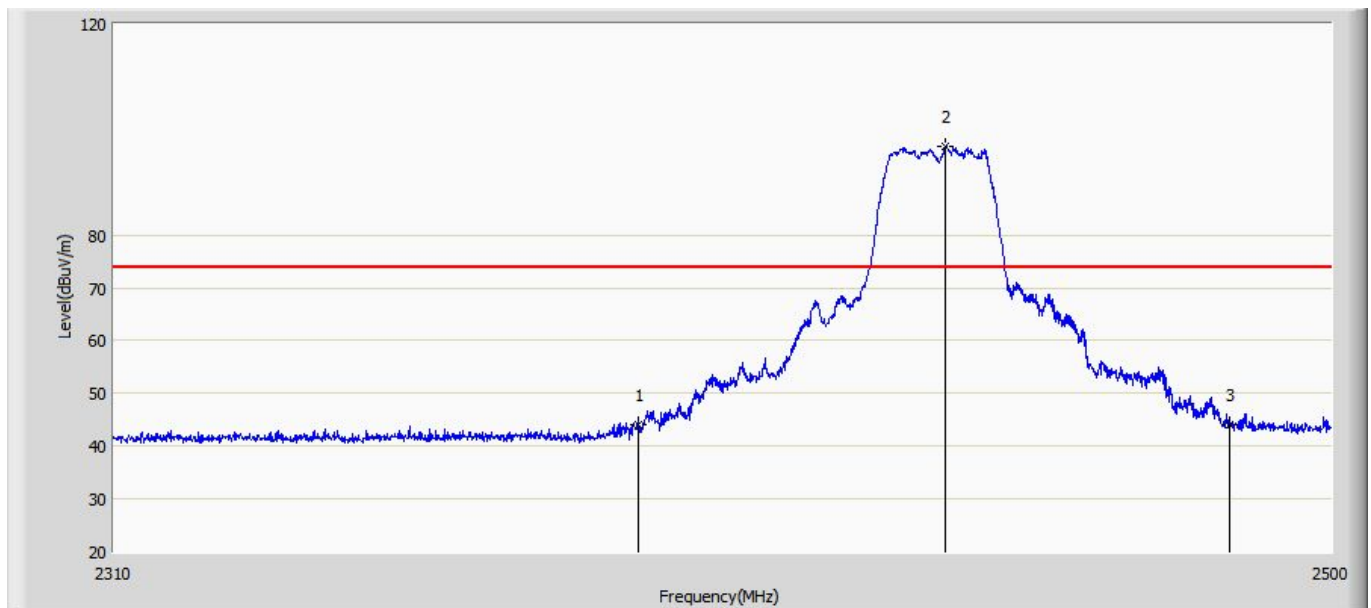
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.868	15.820	-29.132	74.000	29.048	PK
2	*	2438.250	99.281	70.343	25.281	74.000	28.938	PK
3		2483.500	46.198	15.714	-27.802	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2437MHz by 802.11g	



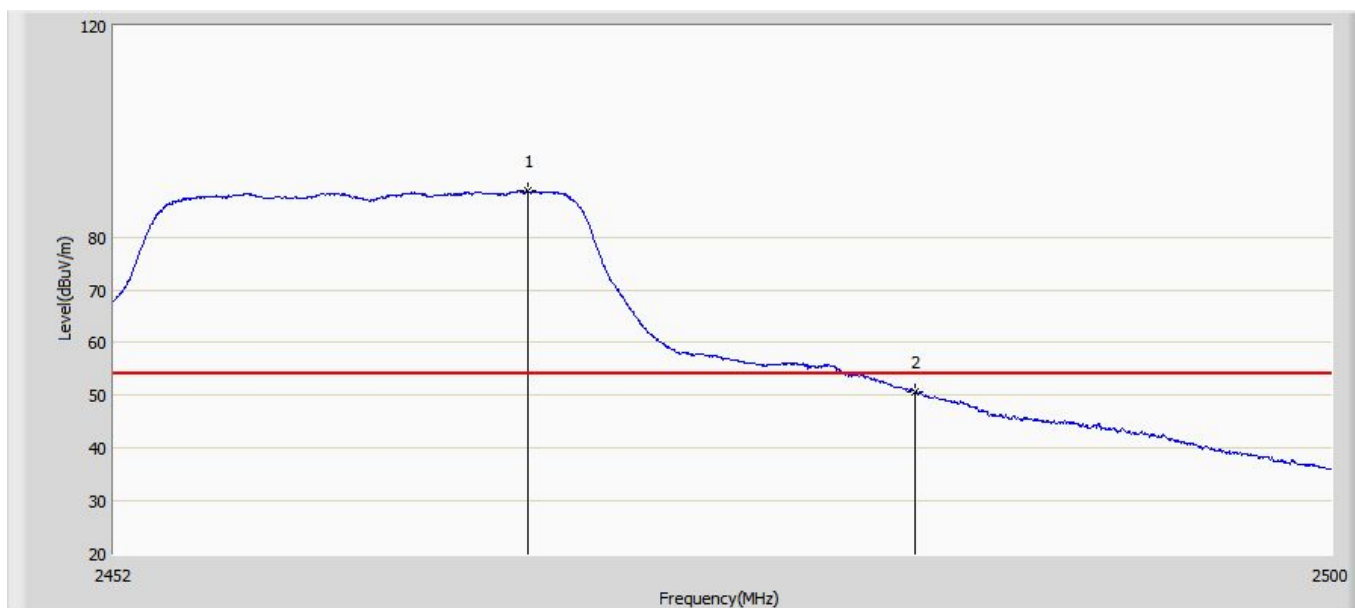
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	31.447	2.399	-22.553	54.000	29.048	AV
2	*	2435.780	86.459	57.516	32.459	54.000	28.943	AV
3		2483.500	33.275	2.791	-20.725	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2437MHz by 802.11g	



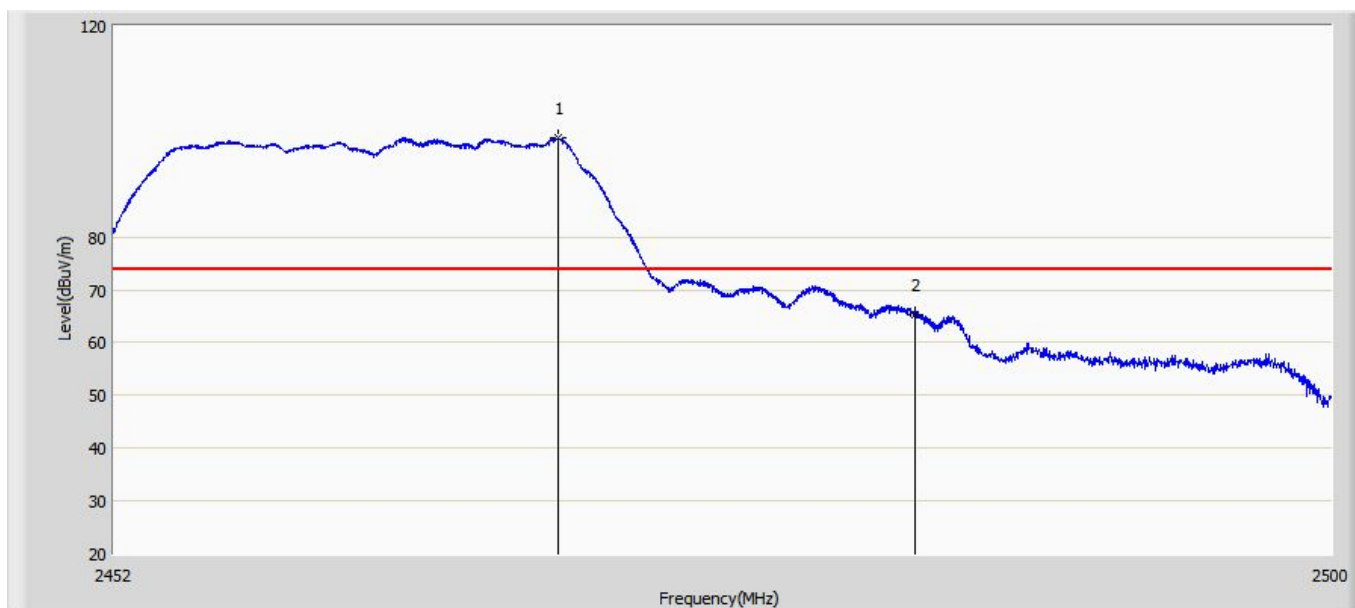
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.113	15.065	-29.887	74.000	29.048	PK
2	*	2438.250	96.896	67.958	22.896	74.000	28.938	PK
3		2483.500	44.003	13.519	-29.997	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2462MHz by 802.11g	



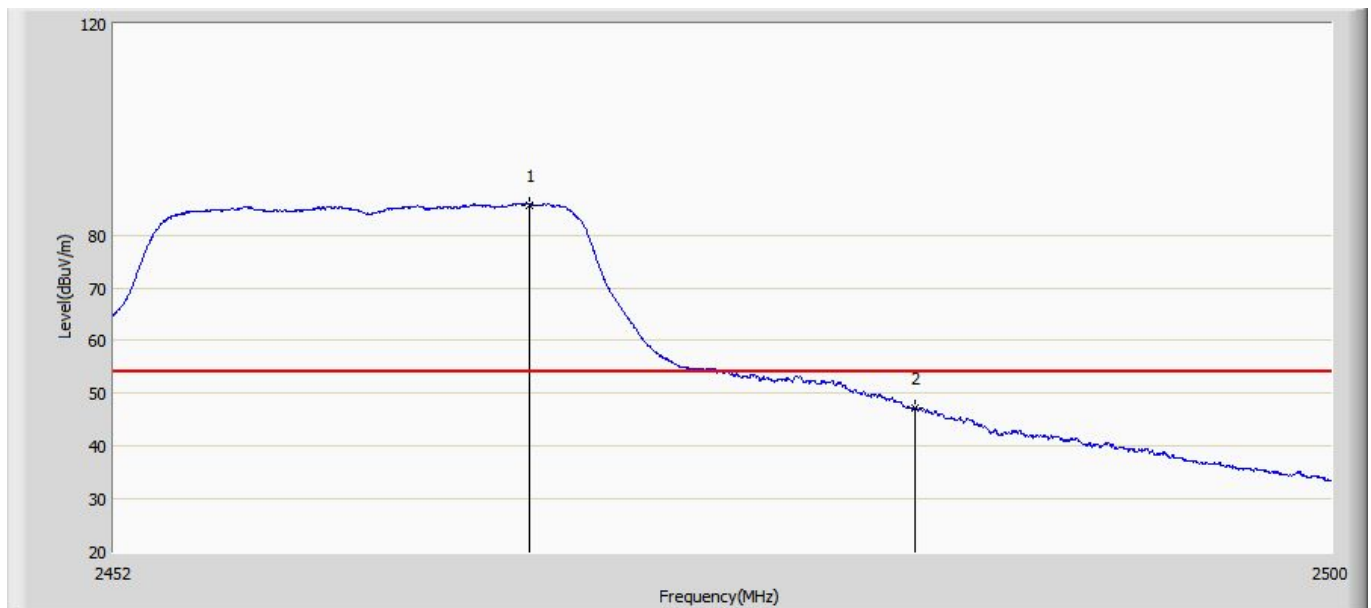
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2468.248	88.660	59.072	34.660	54.000	29.588	AV
2		2483.500	50.635	20.151	-3.365	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2462MHz by 802.11g	



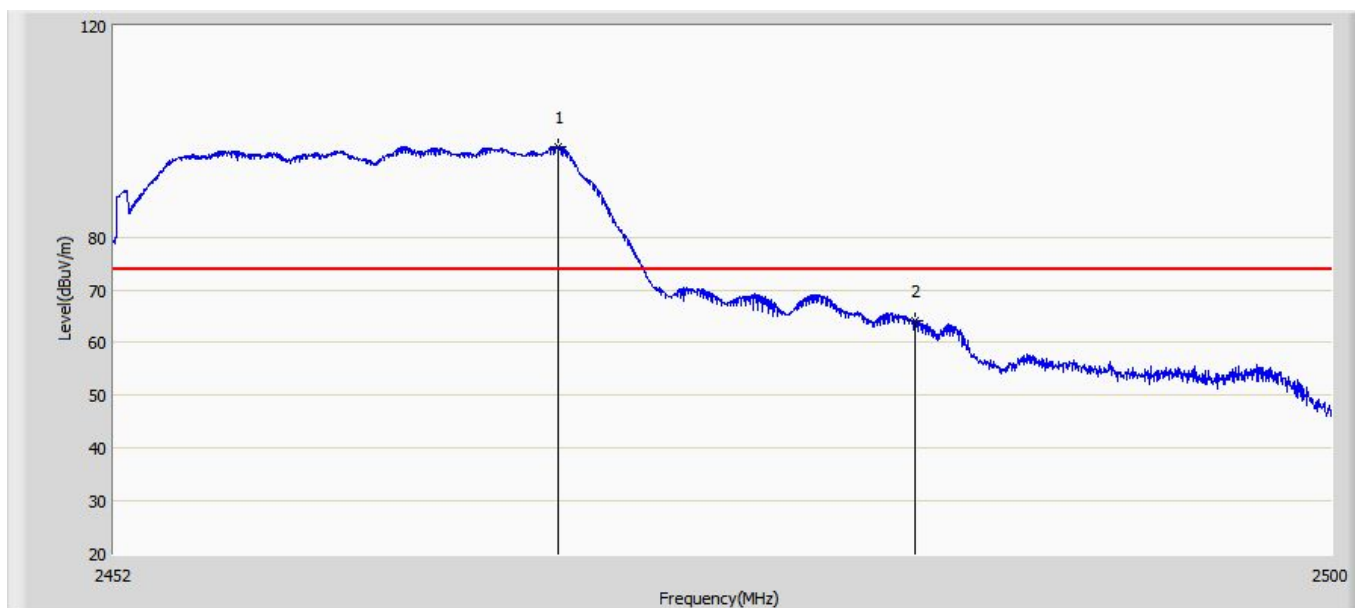
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2469.448	98.732	69.039	24.732	74.000	29.693	PK
2		2483.500	65.401	34.917	-8.599	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2462MHz by 802.11g	



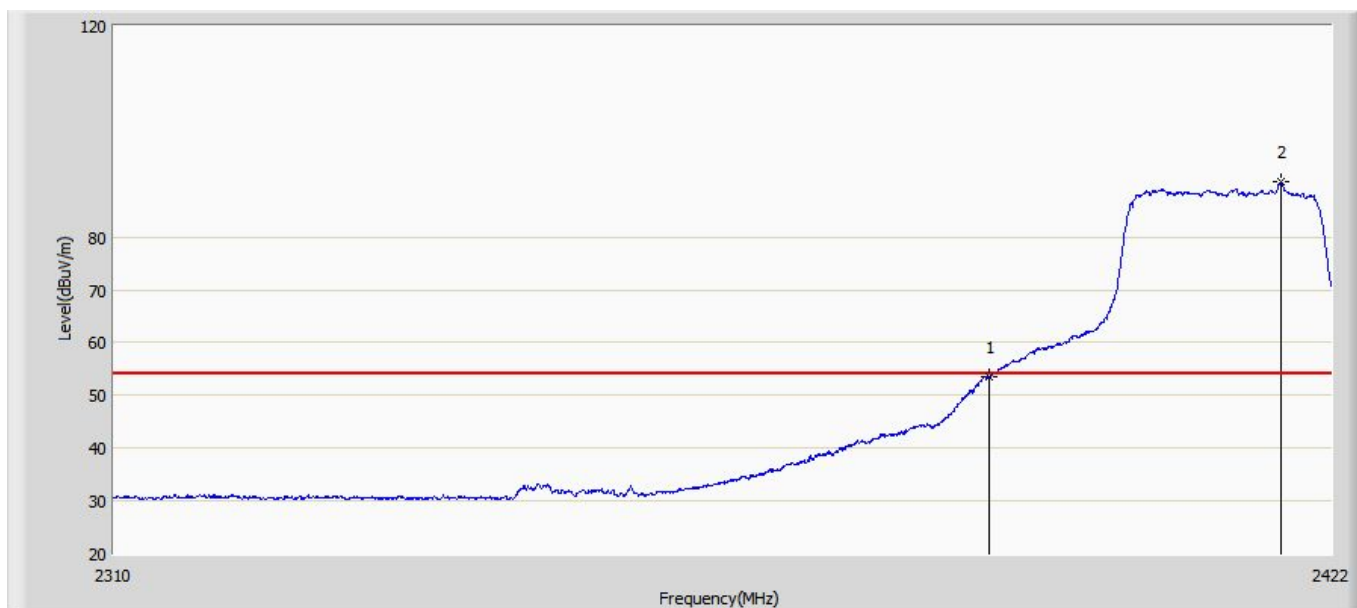
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2468.320	85.756	56.161	31.756	54.000	29.595	AV
2		2483.500	47.185	16.701	-6.815	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 2;Transmit at2462MHz by 802.11g	



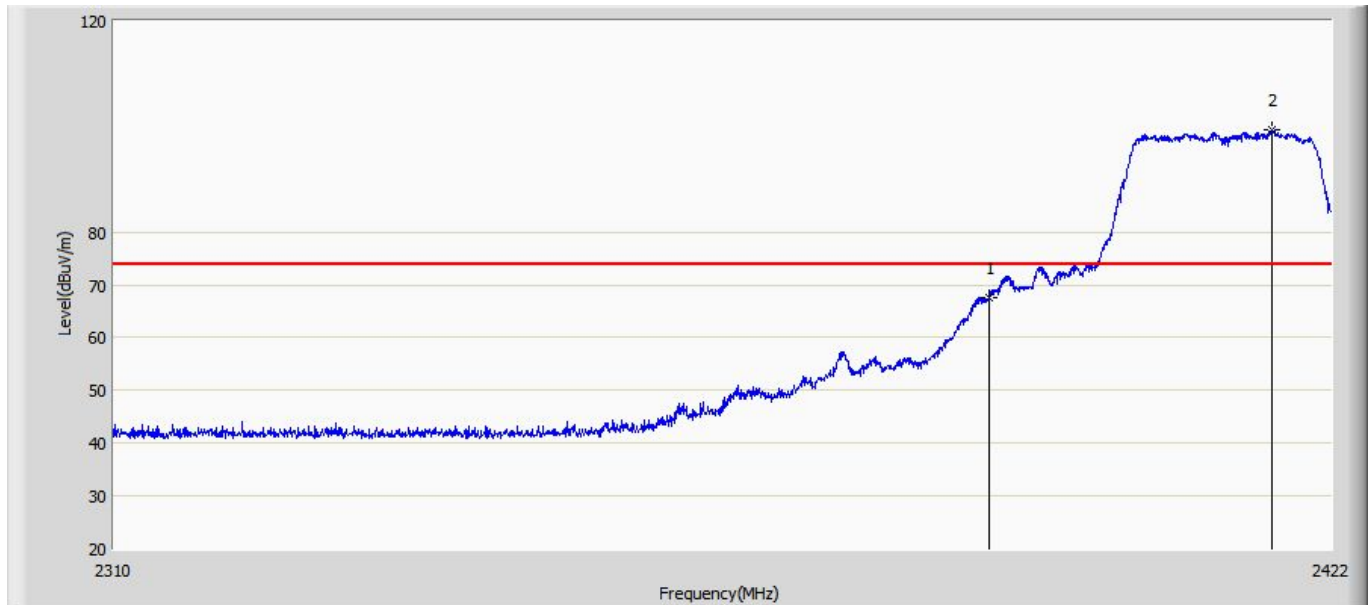
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2469.400	97.200	67.511	23.200	74.000	29.689	PK
2		2483.500	64.049	33.565	-9.951	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 19:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2412MHz by 802.11N20	



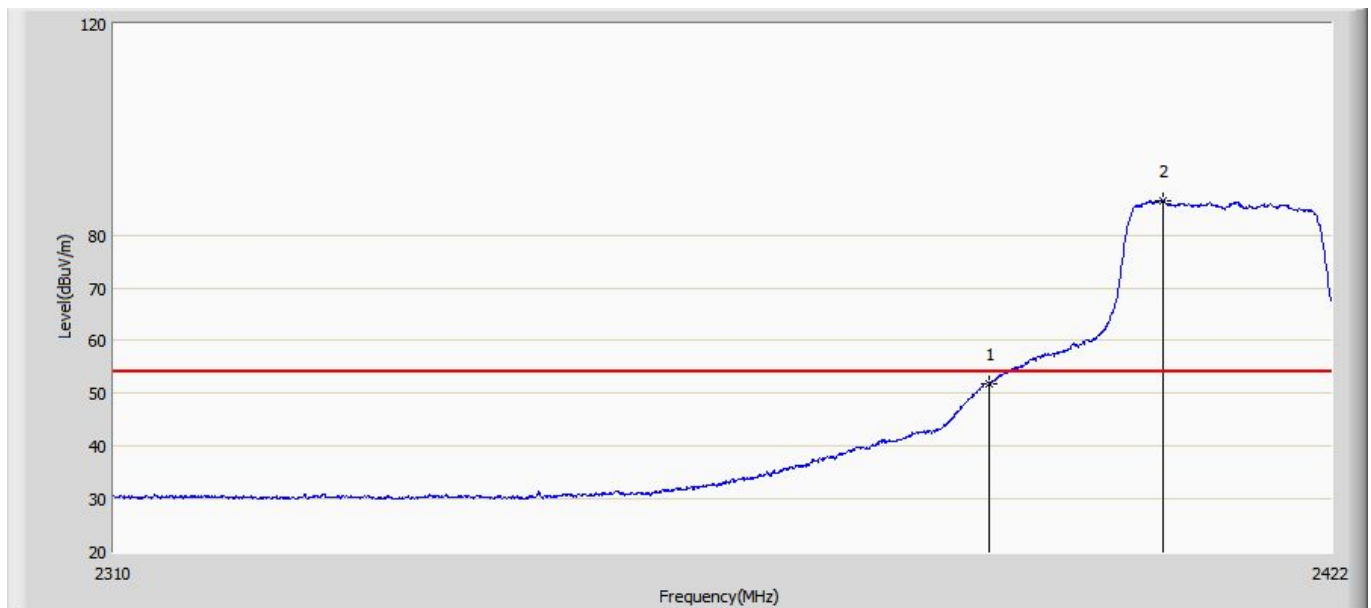
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.430	24.382	-0.570	54.000	29.048	AV
2	*	2417.352	90.432	61.533	36.432	54.000	28.899	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2412MHz by 802.11N20	



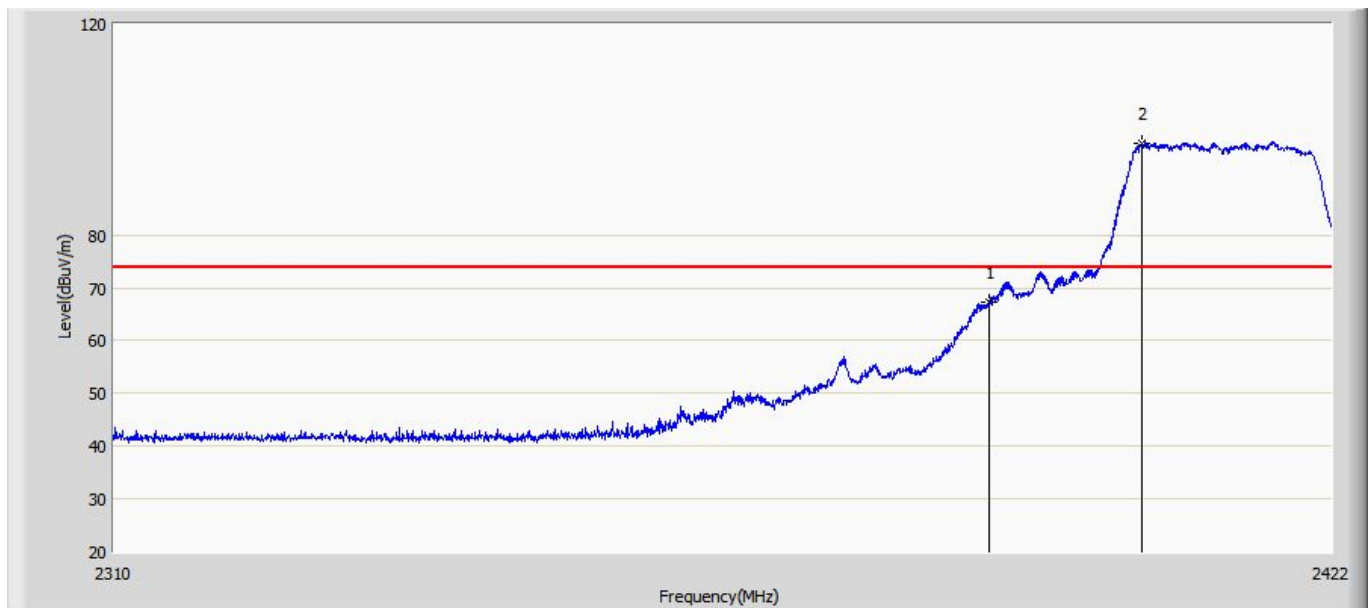
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	67.627	38.579	-6.373	74.000	29.048	PK
2	*	2416.400	99.264	70.370	25.264	74.000	28.894	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2412MHz by 802.11N20	



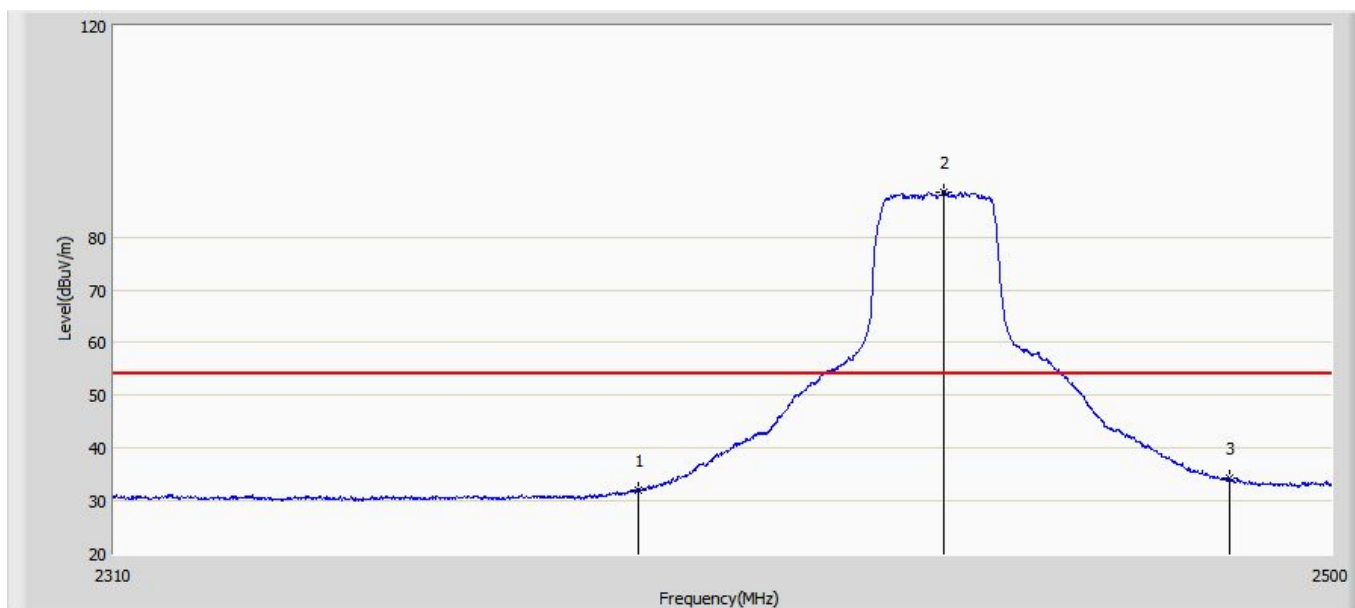
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.840	22.792	-2.160	54.000	29.048	AV
2	*	2406.208	86.339	57.424	32.339	54.000	28.915	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2412MHz by 802.11N20	



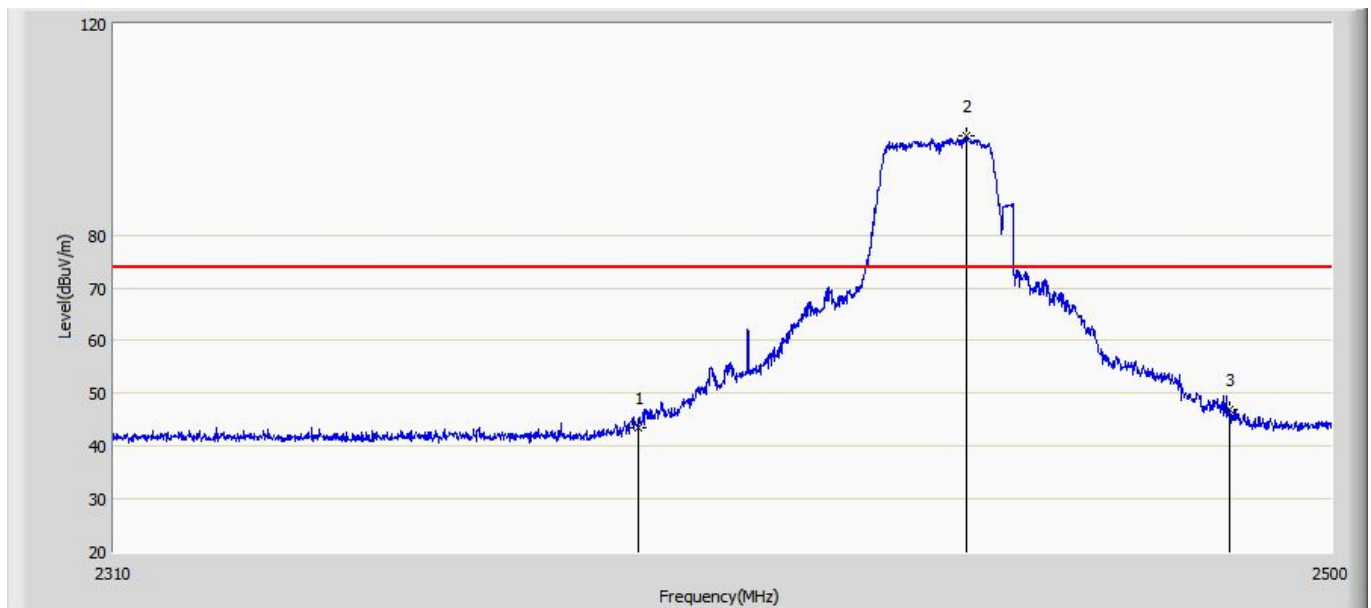
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	67.297	38.249	-6.703	74.000	29.048	PK
2	*	2404.304	97.493	68.558	23.493	74.000	28.935	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2437MHz by 802.11N20	



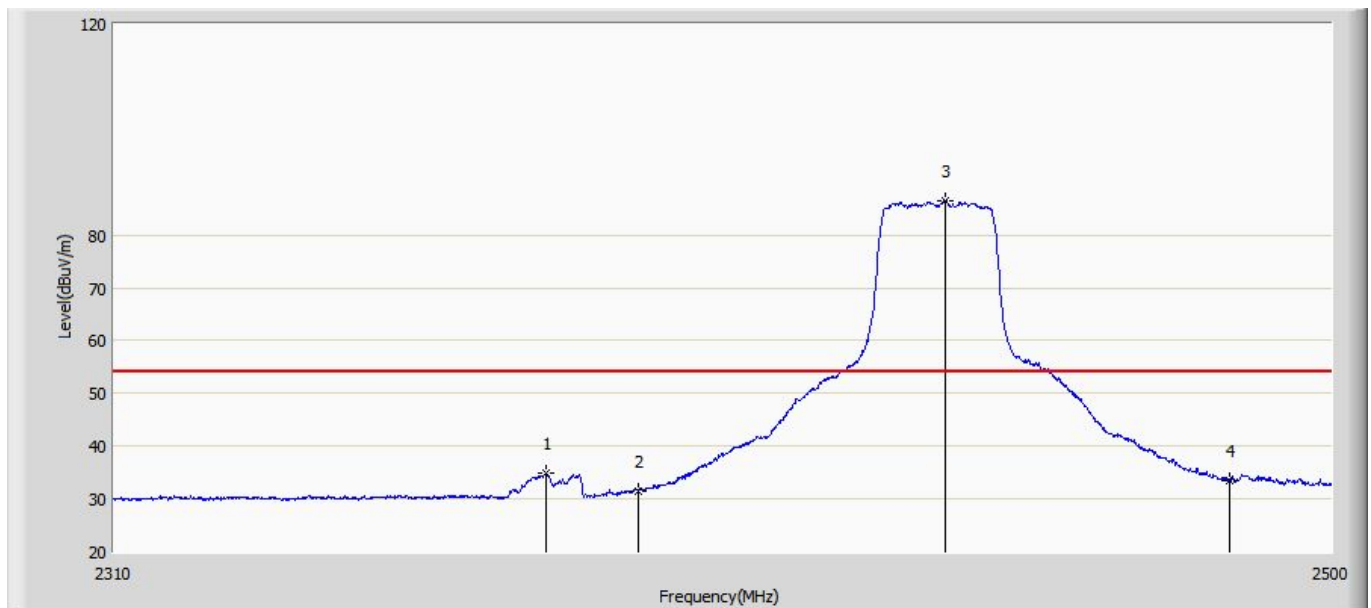
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	31.911	2.863	-22.089	54.000	29.048	AV
2	*	2437.870	88.530	59.591	34.530	54.000	28.939	AV
3		2483.500	34.216	3.732	-19.784	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2437MHz by 802.11N20	



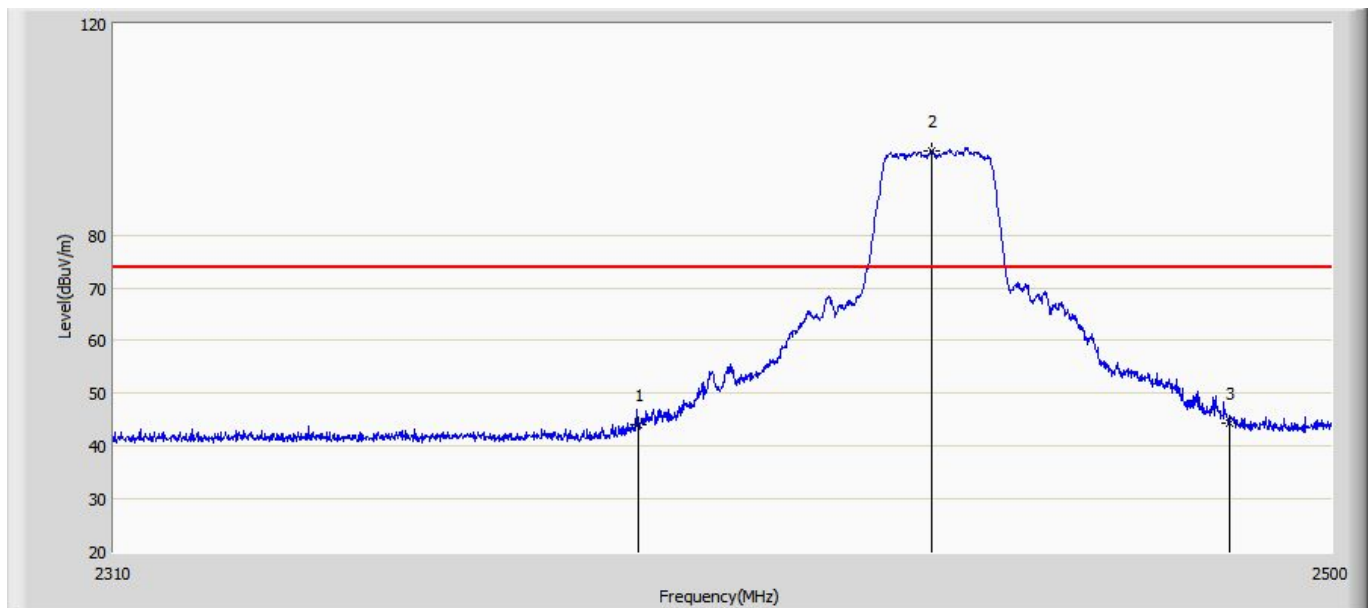
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.523	14.475	-30.477	74.000	29.048	PK
2	*	2441.575	98.728	69.798	24.728	74.000	28.930	PK
3		2483.500	47.063	16.579	-26.937	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2437MHz by 802.11N20	



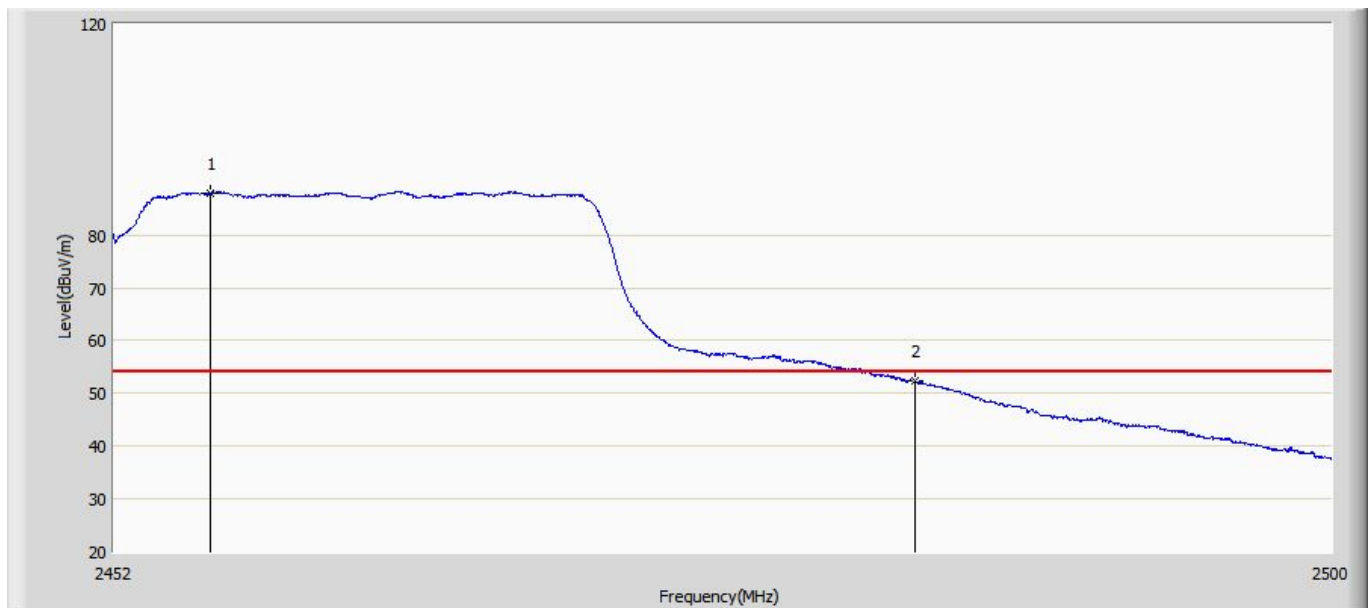
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2375.740	34.764	5.714	-19.236	54.000	29.050	AV
2		2390.000	31.583	2.535	-22.417	54.000	29.048	AV
3	*	2438.250	86.558	57.620	32.558	54.000	28.938	AV
4		2483.500	33.537	3.053	-20.463	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2437MHz by 802.11N20	



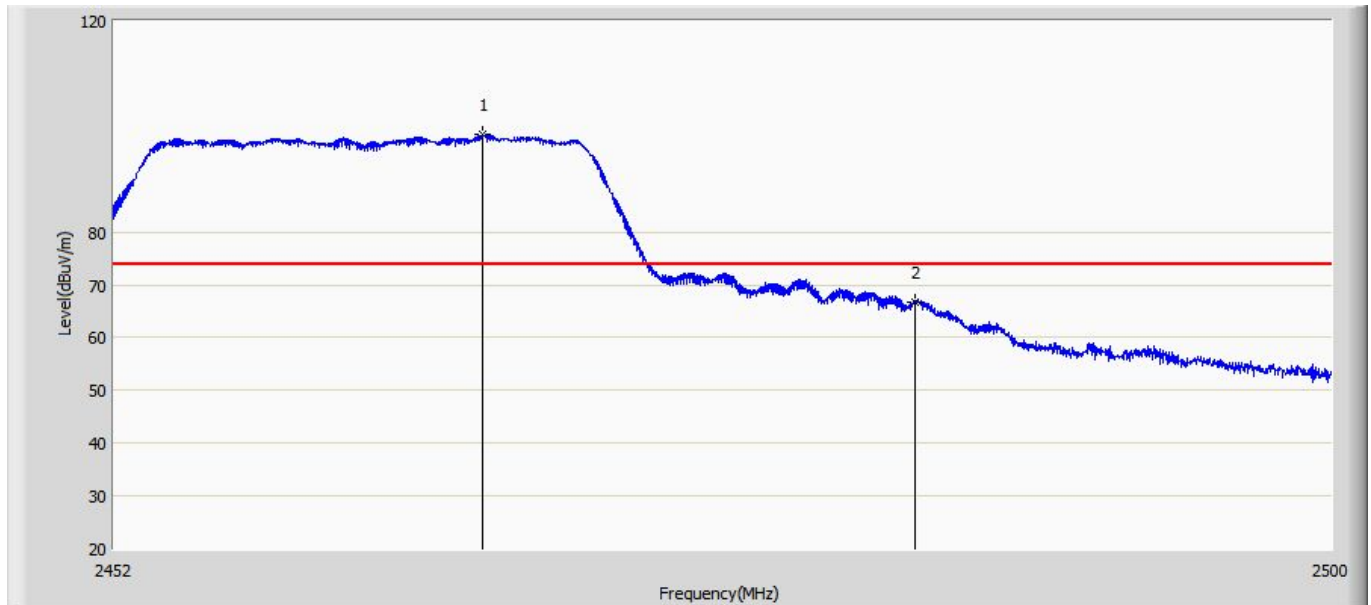
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.174	15.126	-29.826	74.000	29.048	PK
2	*	2436.065	96.051	67.109	22.051	74.000	28.942	PK
3		2483.500	44.494	14.010	-29.506	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2462MHz by 802.11N20	



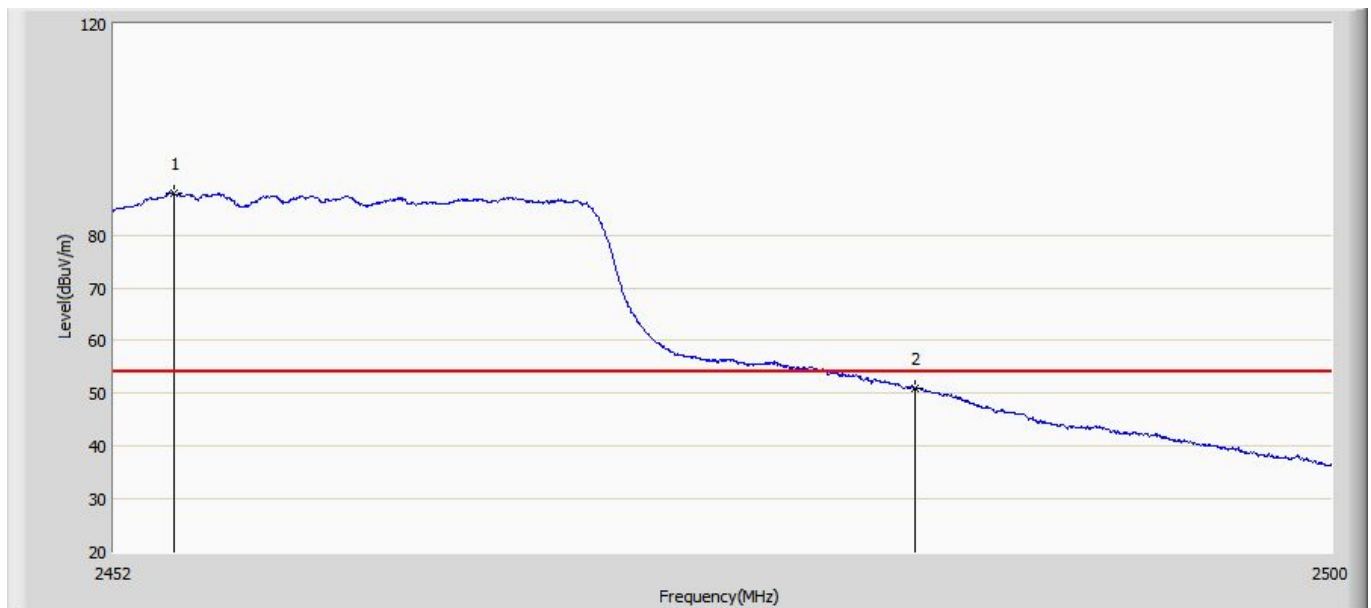
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2455.768	87.969	58.969	33.969	54.000	29.000	AV
2		2483.500	52.331	21.847	-1.669	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2462MHz by 802.11N20	



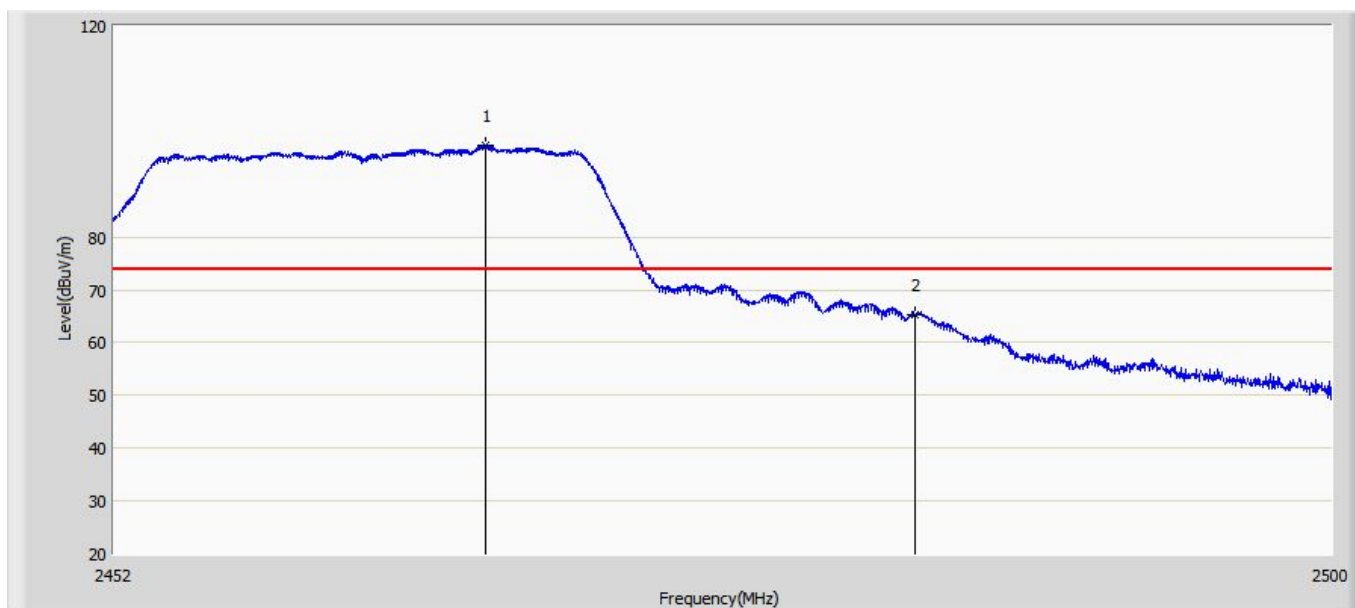
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2466.472	98.440	69.006	24.440	74.000	29.434	PK
2		2483.500	66.814	36.329	-7.186	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2462MHz by 802.11N20	



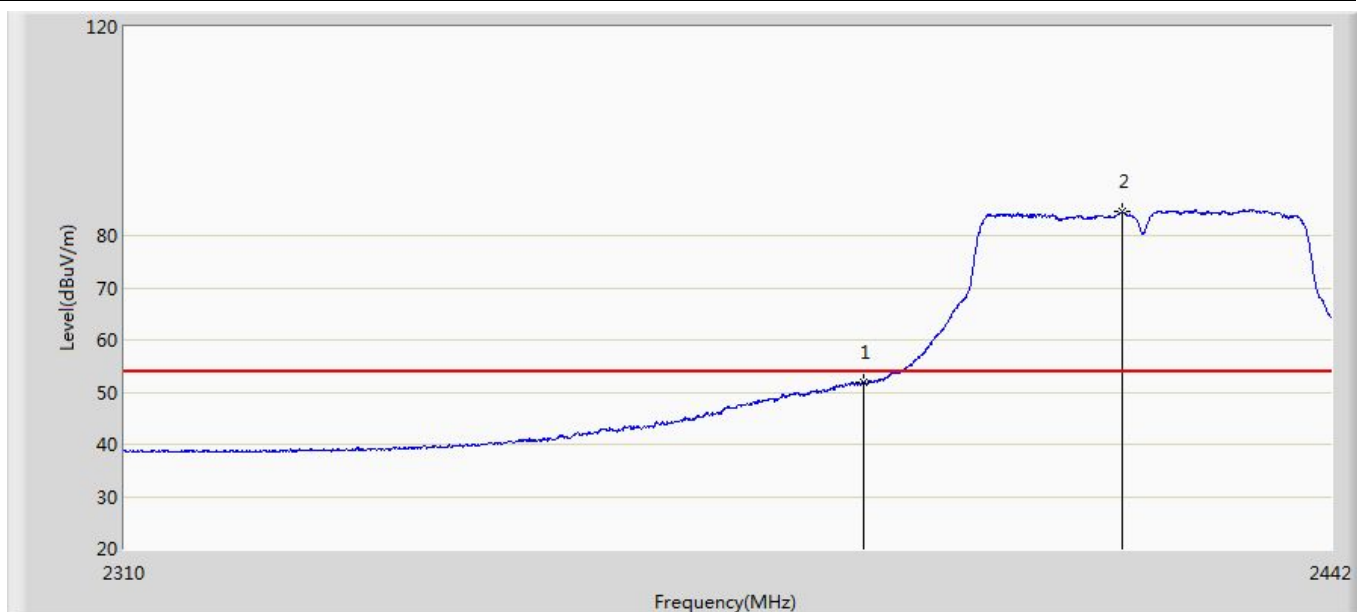
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.352	87.963	58.973	33.963	54.000	28.990	AV
2		2483.500	50.864	20.379	-3.136	54.000	30.484	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/28 - 20:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode 3;Transmit at2462MHz by 802.11N20	



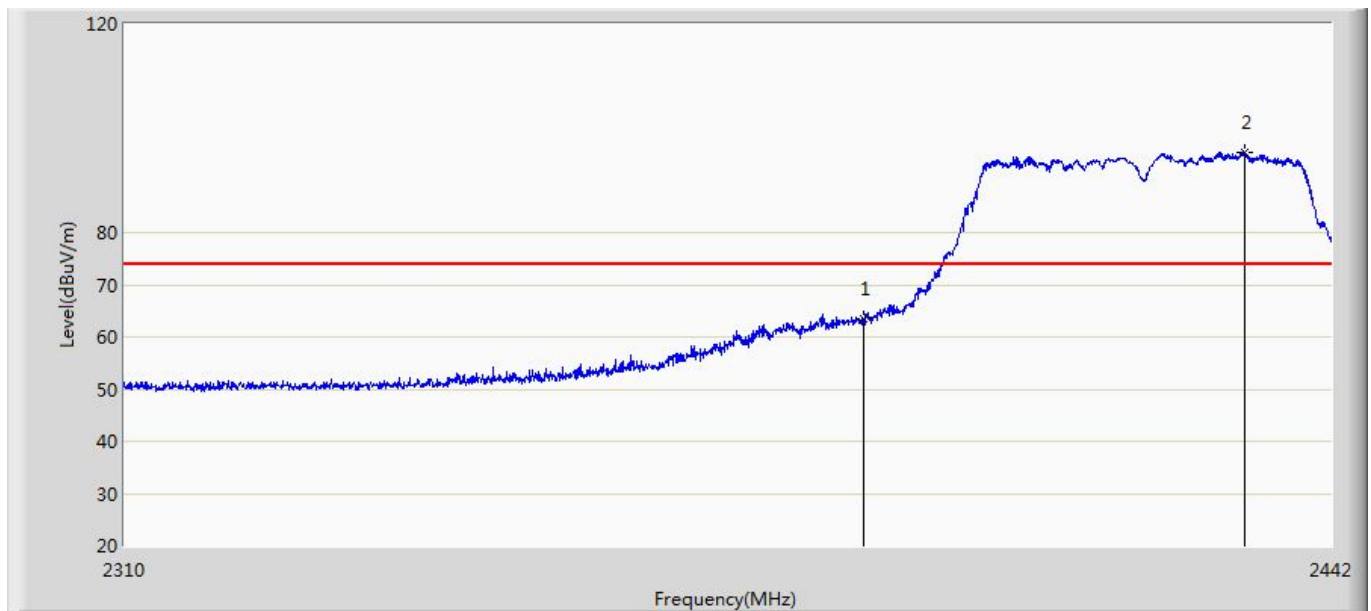
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2466.568	97.315	67.873	23.315	74.000	29.442	PK
2		2483.500	65.216	34.732	-8.784	74.000	30.484	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 12:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2422 by 802.11n40	



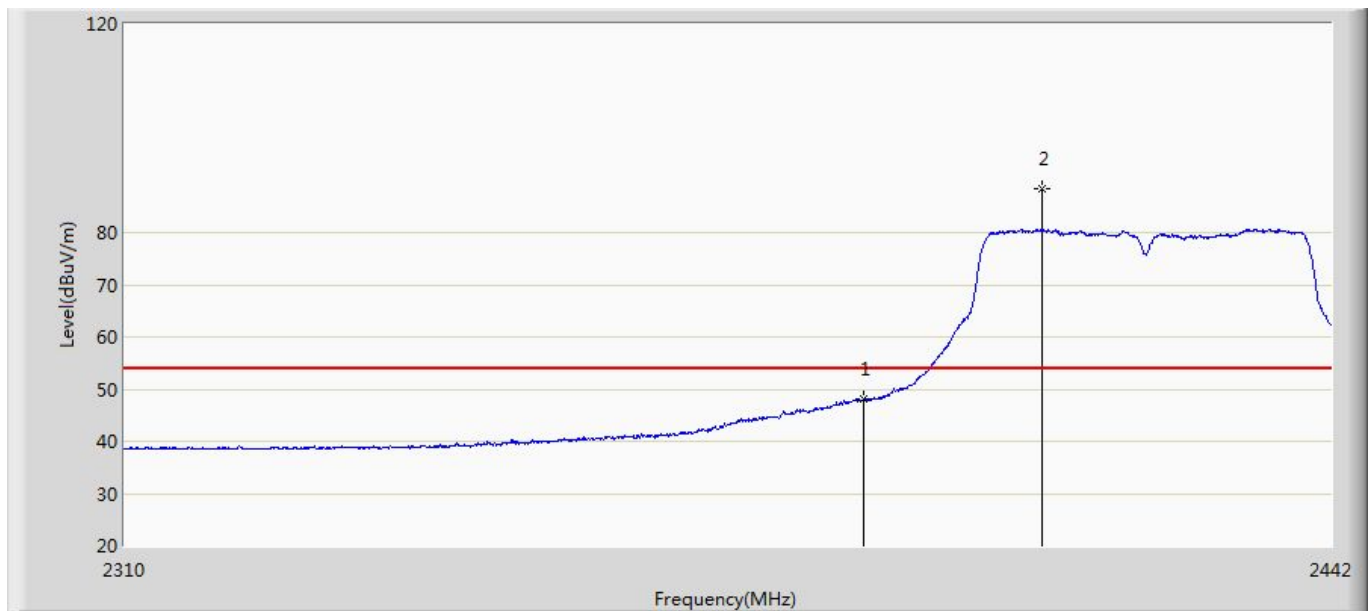
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.846	16.164	-2.154	54.000	35.682	AV
2	*	2418.702	84.548	48.778	30.548	54.000	35.770	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 12:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2422 by 802.11n40	



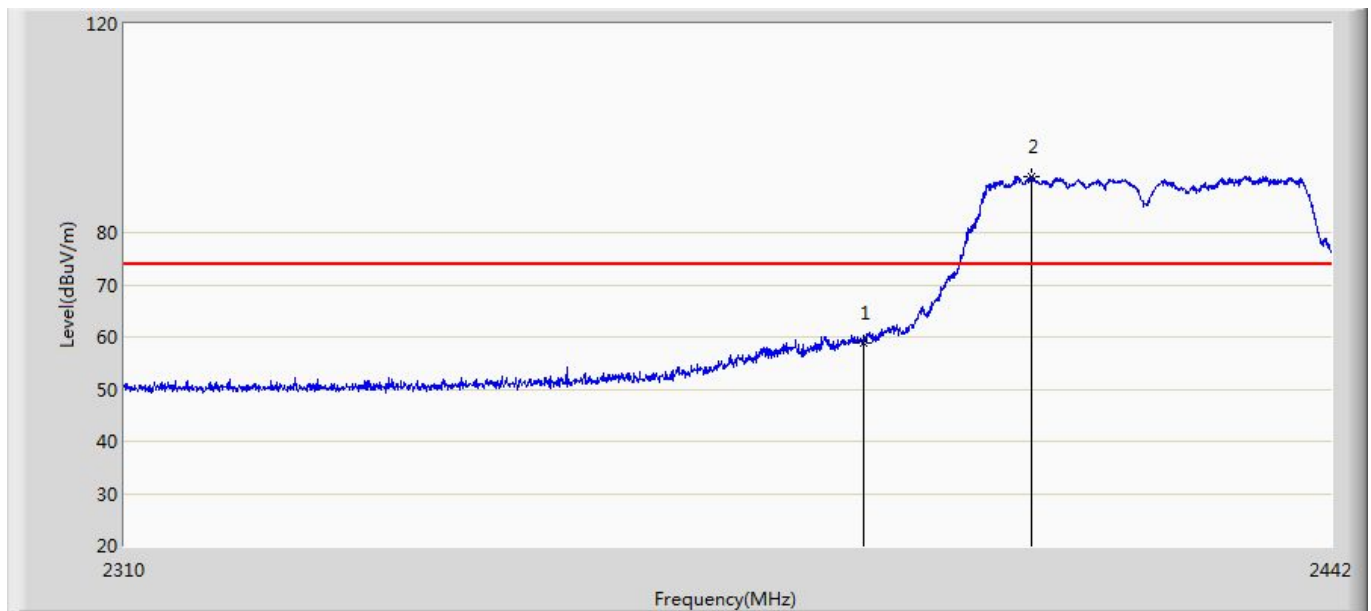
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	63.585	27.903	-10.415	74.000	35.682	PK
2	*	2432.364	95.311	59.504	21.311	74.000	35.807	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 12:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2422 by 802.11n40	



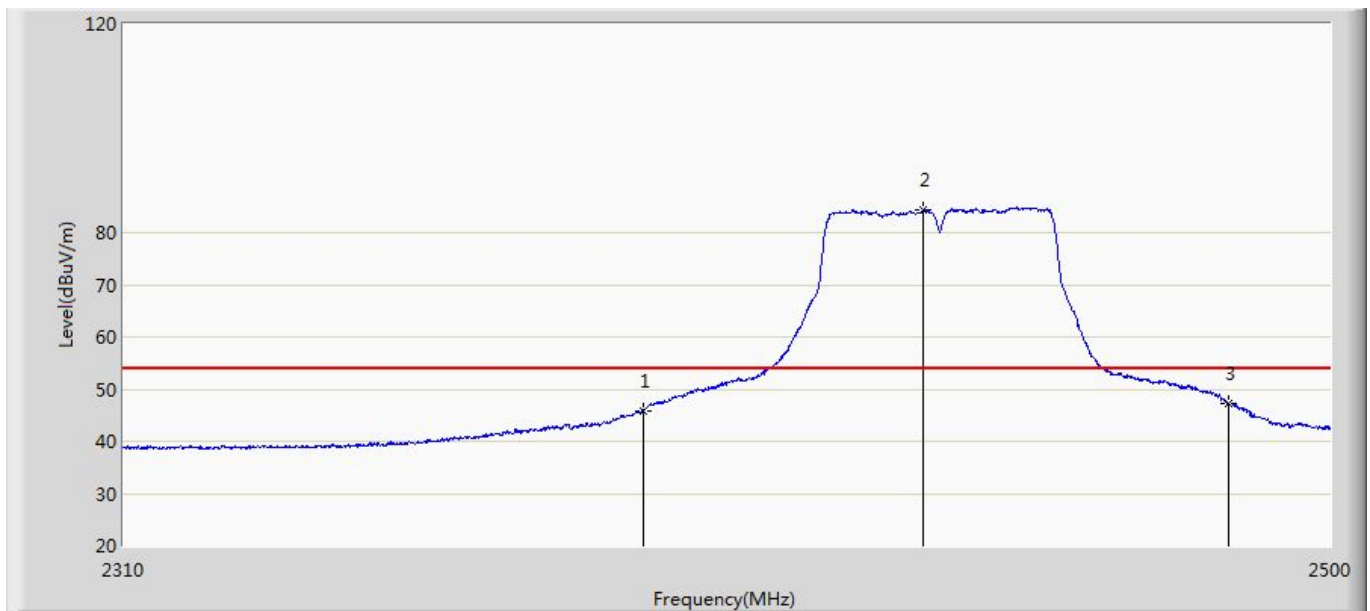
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	48.013	12.331	-5.987	54.000	35.682	AV
2	*	2409.660	88.323	52.589	34.323	54.000	35.733	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2422 by 802.11n40	



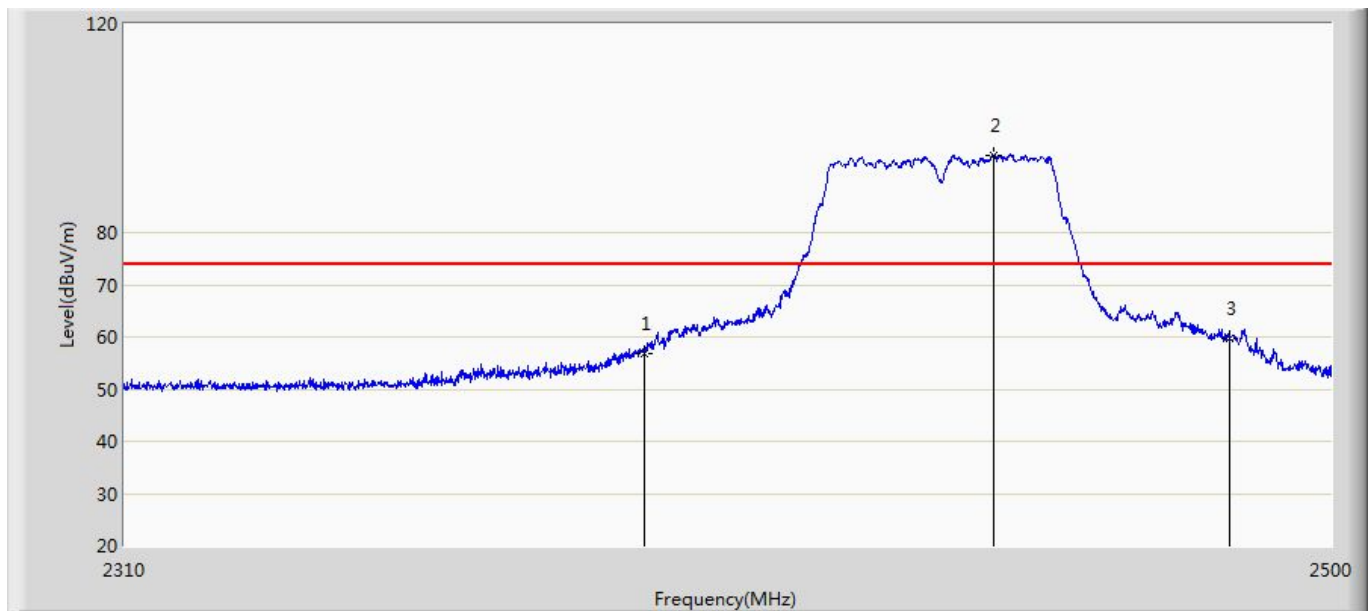
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	58.832	23.150	-15.168	74.000	35.682	PK
2	*	2408.604	90.785	55.054	16.785	74.000	35.731	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2437 by 802.11n40	



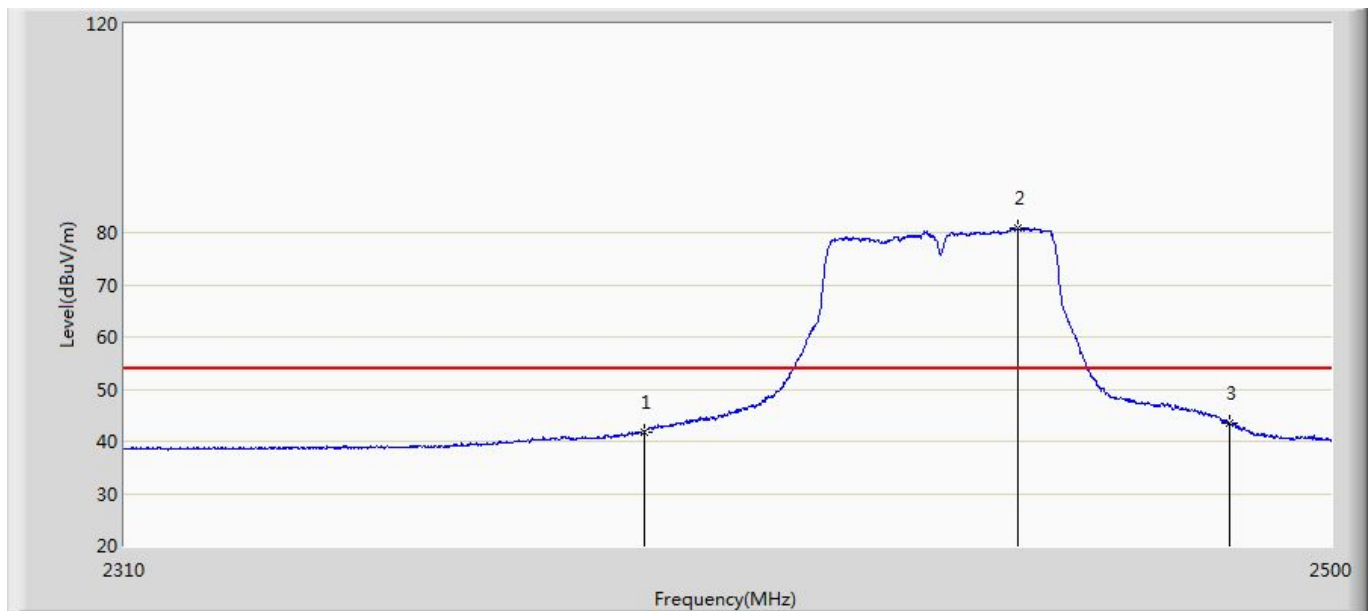
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.800	10.118	-8.200	54.000	35.682	AV
2	*	2434.260	84.464	48.657	30.464	54.000	35.806	AV
3		2483.500	47.311	11.419	-6.689	54.000	35.891	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2437 by 802.11n40	



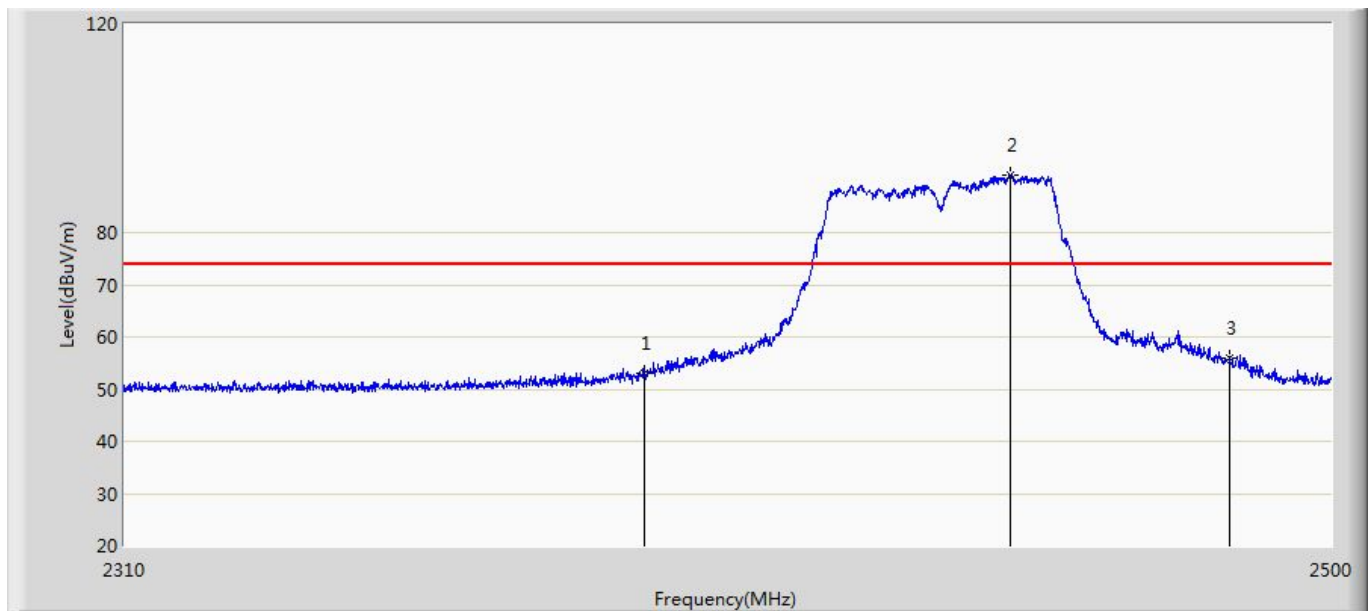
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	56.885	21.203	-17.115	74.000	35.682	PK
2	*	2445.280	94.761	58.956	20.761	74.000	35.805	PK
3		2483.500	59.585	23.693	-14.415	74.000	35.891	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2437 by 802.11n40	



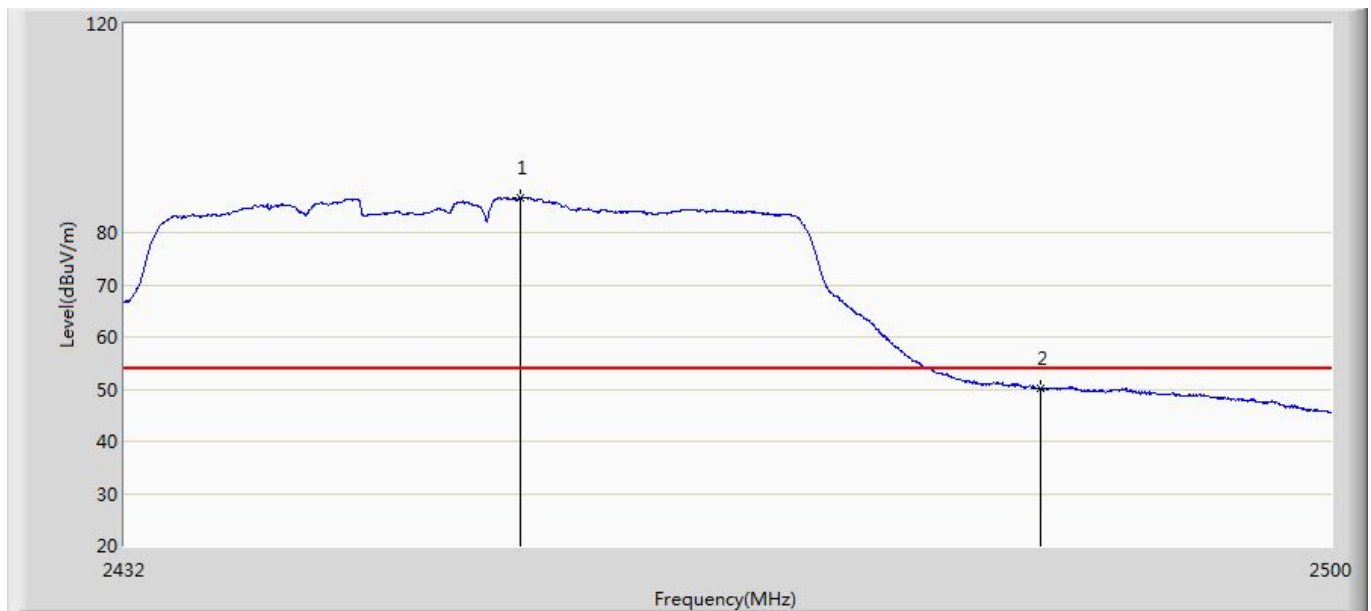
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	41.856	6.174	-12.144	54.000	35.682	AV
2	*	2449.175	80.988	45.166	26.988	54.000	35.822	AV
3		2483.500	43.373	7.481	-10.627	54.000	35.891	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2437 by 802.11n40	



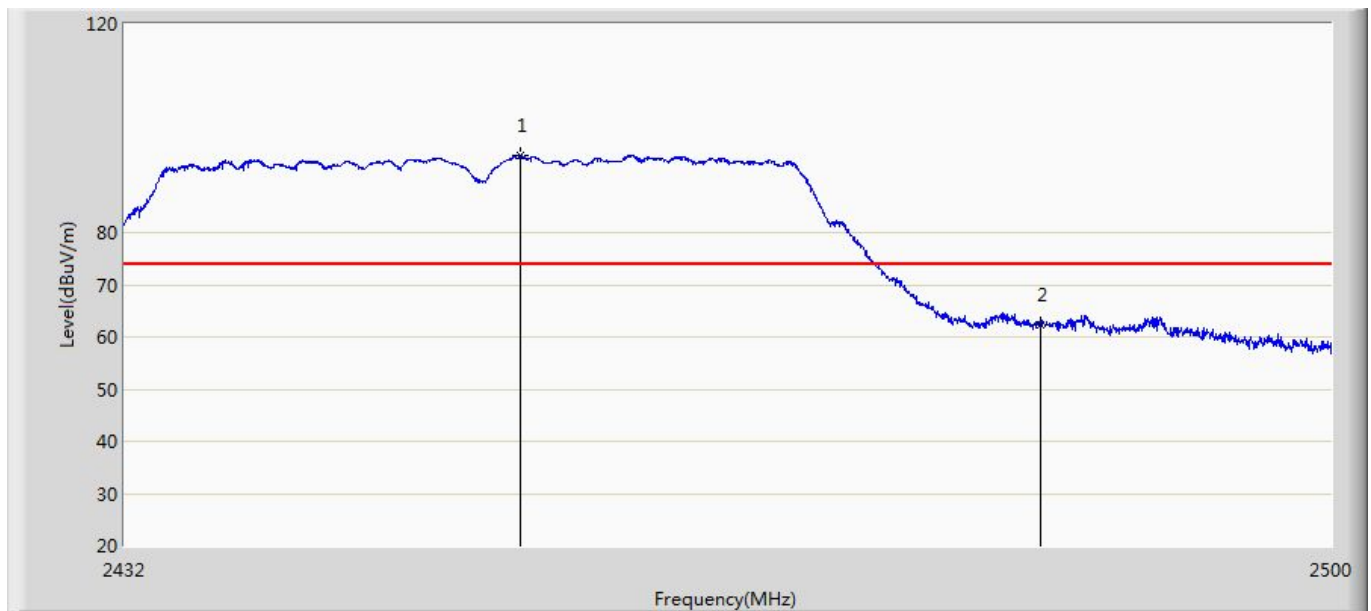
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.904	17.222	-21.096	74.000	35.682	PK
2	*	2448.130	90.999	55.181	16.999	74.000	35.818	PK
3		2483.500	55.978	20.086	-18.022	74.000	35.891	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2452 by 802.11n40	



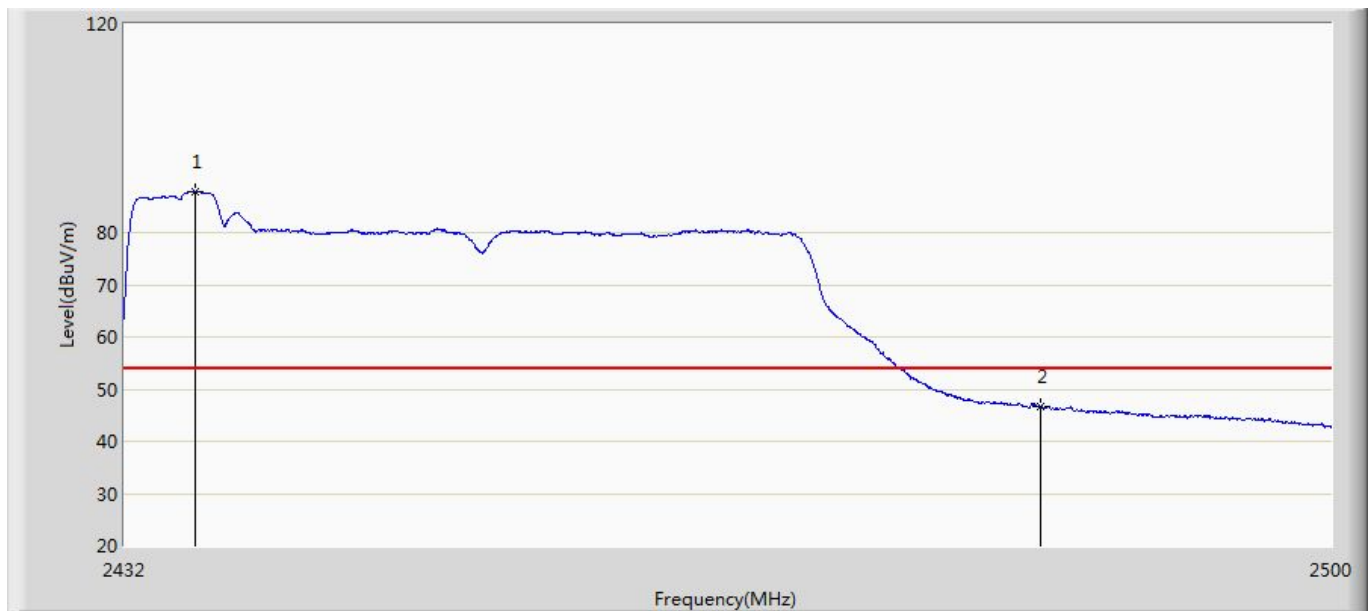
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.100	86.689	50.845	32.689	54.000	35.844	AV
2		2483.500	50.110	14.218	-3.890	54.000	35.891	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2452 by 802.11n40	



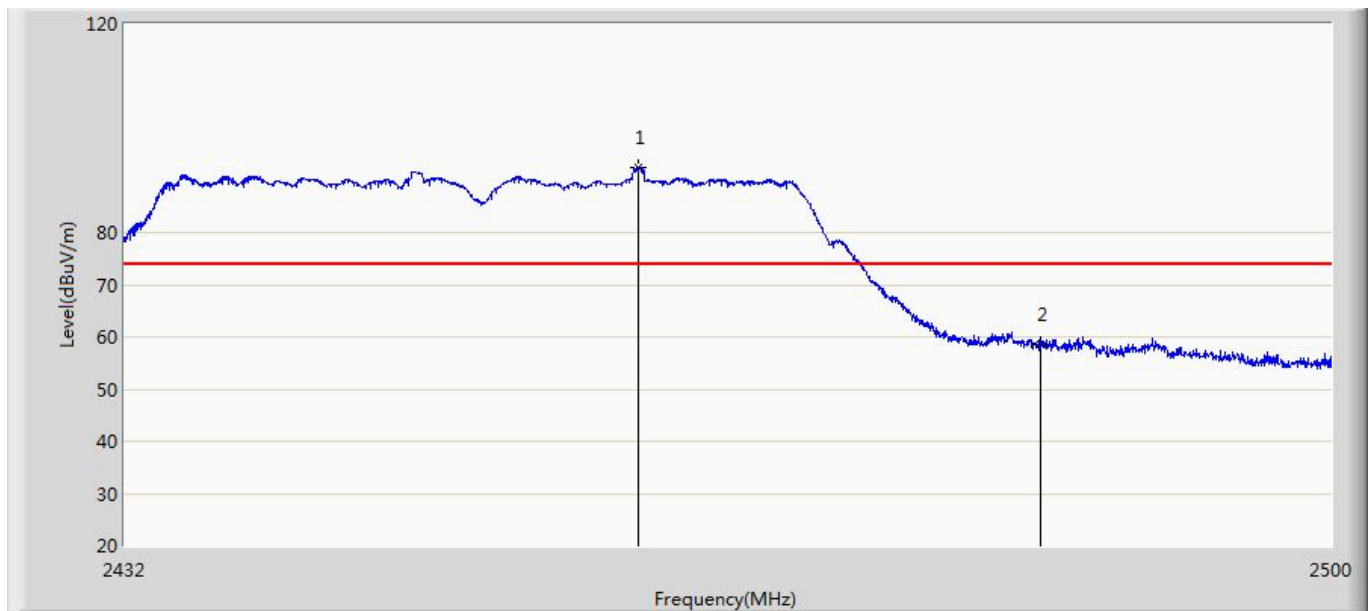
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.100	94.777	58.933	20.777	74.000	35.844	PK
2		2483.500	62.449	26.557	-11.551	74.000	35.891	PK

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2452 by 802.11n40	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2435.944	87.925	52.119	33.925	54.000	35.806	AV
2		2483.500	46.554	10.662	-7.446	54.000	35.891	AV

Engineer: Karl	
Site: AC5	Time: 2017/09/29 - 13:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: WIFI LED BULB	Power: AC 120V/60Hz
Note: Mode4: Transmit at2452 by 802.11n40	



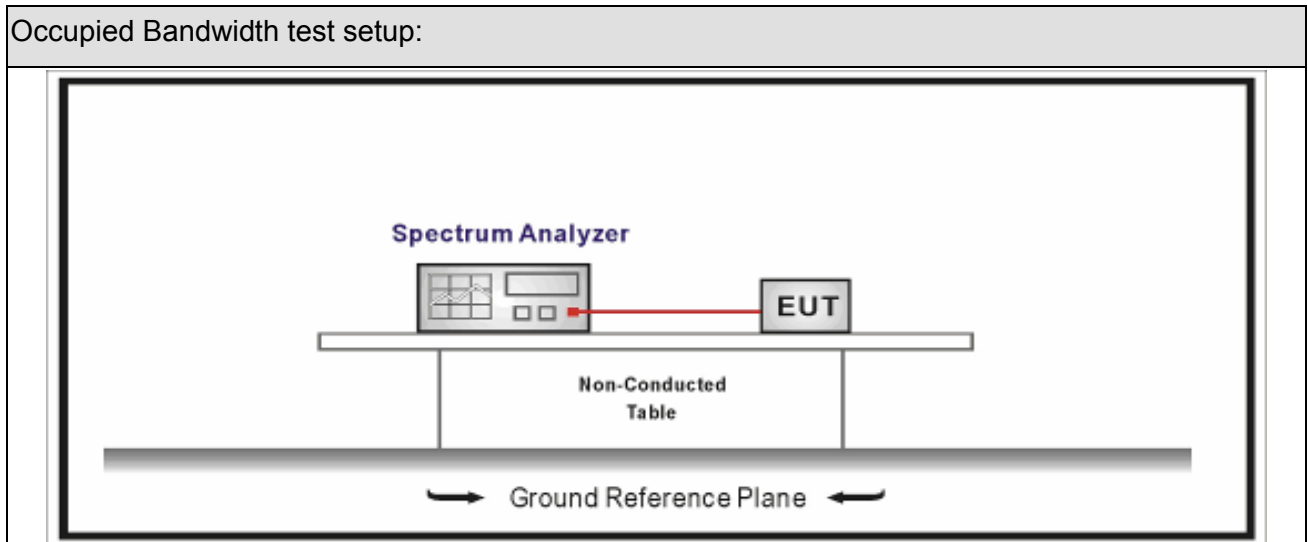
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.764	92.534	56.661	18.534	74.000	35.873	PK
2		2483.500	58.471	22.579	-15.529	74.000	35.891	PK

7. Occupied Bandwidth

7.1. Test Equipment

Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup



7.3. Limit

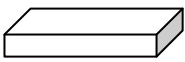
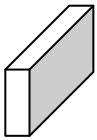
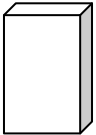
Occupied Bandwidth

Systems using digital modulation techniques operate in the 2400-2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz

7.4. Test Procedure

Test Method				
	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

7.5. EUT test definition

Item	Occupied Bandwidth			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

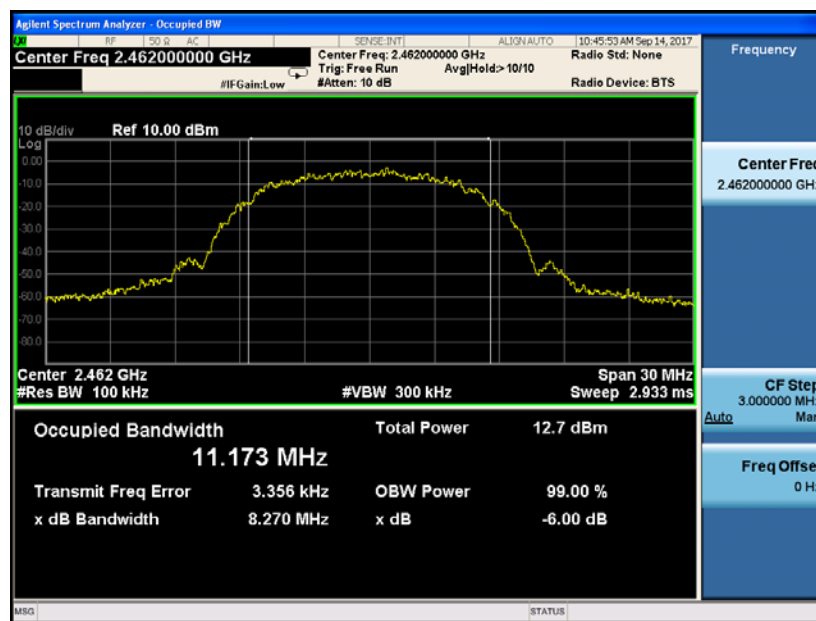
7.6. Test Result

Product Name	: WIFI LED BULB	Power	: AC 120V/60Hz
Test Mode	: Mode1~4	Test Site	: TR8
Test Date	: 2017.09.16		

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
1	01	2412	11.159	8.764	>500	Pass
1	06	2437	11.128	8.789	>500	Pass
1	11	2462	11.173	8.270	>500	Pass
2	01	2412	16.339	15.50	>500	Pass
2	06	2437	16.346	15.81	>500	Pass
2	11	2462	16.347	15.83	>500	Pass
3	01	2412	17.194	15.17	>500	Pass
3	06	2437	17.183	15.69	>500	Pass
3	11	2462	17.187	15.75	>500	Pass
4	03	2422	35.908	35.18	>500	Pass
4	06	2437	35.935	35.16	>500	Pass
4	09	2452	36.039	35.09	>500	Pass

Note : The worst case of Occupied Bandwidth as below:

Mode 1 CH11 (2462MHz) Ant0



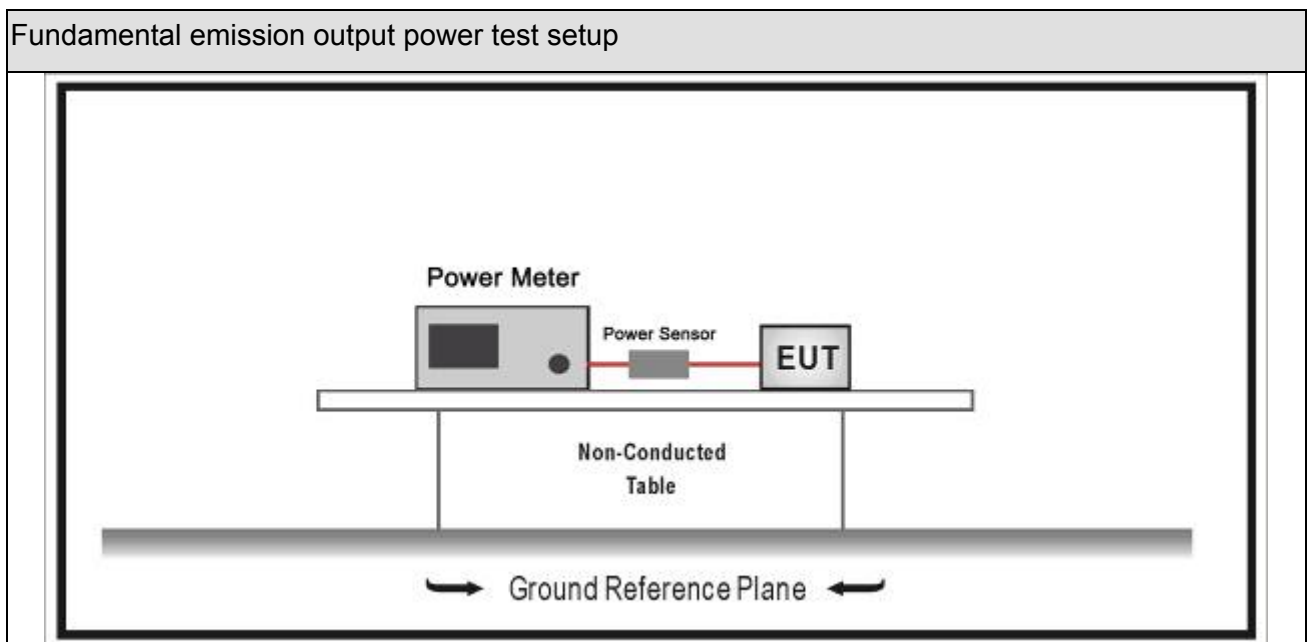
8. Fundamental emission output power

8.1. Test Equipment

Fundamental emission output power/ TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2017.01.03	2018.01.02
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2016.10.14	2017.10.13
Power Sensor	Anritsu	MA2411B	0846014	2016.10.14	2017.10.13
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2017.04.10	2018.04.09

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

8.2. Test Setup



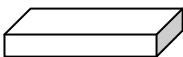
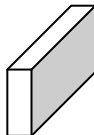
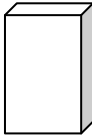
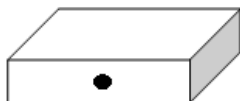
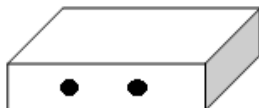
8.3. Limit

Fundamental emission output power Limit		
☒	$G_{TX} < 6\text{dBi}$	$P_{out} \leq 30\text{dBm}$
☐	$G_{TX} > 6\text{dBi}$	
☒	Non-Fix point-point	$P_{out} \leq 30 - (G_{TX} - 6)$
☐	Fix point-point	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
☐	emits multiple directional beams but does not do emit multiple directional beams simultaneously	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
☐	operates simultaneously on multiple directional beams using the same or different frequency channels	$P_{out} \leq 30 - [(G_{TX} - 6)]/3 + 8\text{dB}$
☐	single directional beam	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
Note 1 : G_{TX} directional gain of transmitting antennas.		
Note 2 : P_{out} is maximum peak conducted output power .		

8.4. Test Procedure

Fundamental emission output power Test Method						
	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

8.5. EUT test definition

Item	Fundamental emission output power			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

8.6. Test Result

Product Name	:	WIFI LED BULB	Power	:	AC 120V/60Hz
Test Mode	:	Mode1~4	Test Site	:	TR8
Test Date	:	2017.09.29			

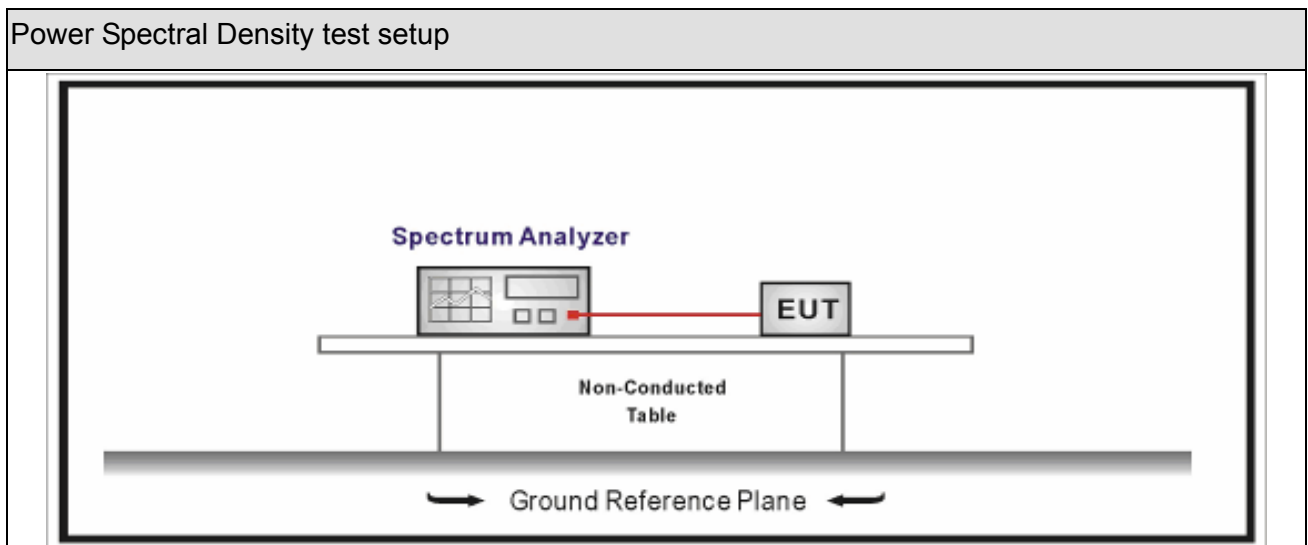
Mode	Channel	Test Frequency (MHz)	Peak Power Output (dBm)	Antenna Gain (dBi)	Limit (dBm)	Result
1	01	2412	10.16	1.9	30	Pass
1	06	2437	10.10	1.9	30	Pass
1	11	2462	9.91	1.9	30	Pass
2	01	2412	11.74	1.9	30	Pass
2	06	2437	12.33	1.9	30	Pass
2	11	2462	11.83	1.9	30	Pass
3	01	2412	11.19	1.9	30	Pass
3	06	2437	11.44	1.9	30	Pass
3	11	2462	12.17	1.9	30	Pass
4	03	2422	11.19	1.9	30	Pass
4	06	2437	12.04	1.9	30	Pass
4	09	2452	12.13	1.9	30	Pass

9. Power Spectral Density

9.1. Test Equipment

Power Spectral Density / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup



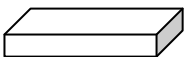
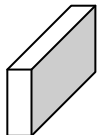
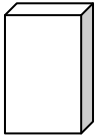
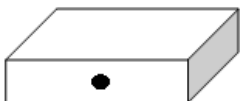
9.3. Limit

Power Spectral Density Limit
Power Spectral Density $\leq 8\text{dBm}/3\text{kHz}$

9.4. Test Procedure

Power Spectral Density Test Method				
	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 $\geq$ 98%)
	☐	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle $\geq$ 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

9.5. EUT test definition

Item	Power Spectral Density Test Method			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

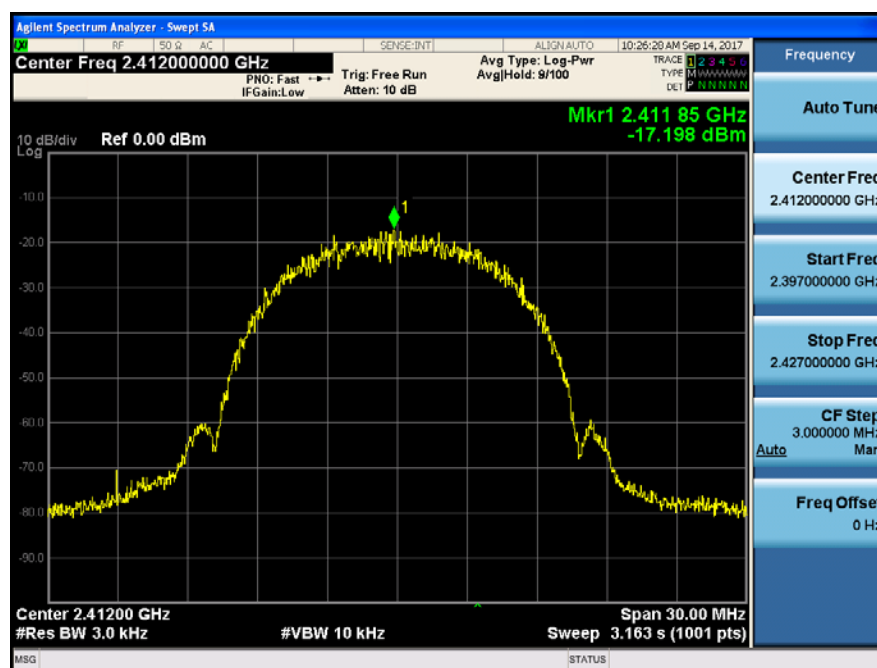
9.6. Test Result

Product Name	:	WIFI LED BULB	Power	:	AC 120V/60Hz
Test Mode	:	Mode1~4	Test Site	:	TR8
Test Date	:	2017.06.30			

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	01	2412	-17.198	-17.198	8.0	Pass
1	06	2437	-17.537	-17.537	8.0	Pass
1	11	2462	-19.408	-19.408	8.0	Pass
2	01	2412	-20.263	-20.263	8.0	Pass
2	06	2437	-21.239	-21.239	8.0	Pass
2	11	2462	-22.040	-22.040	8.0	Pass
3	01	2412	-20.705	-20.705	8.0	Pass
3	06	2437	-21.010	-21.010	8.0	Pass
3	11	2462	-22.180	-22.180	8.0	Pass
4	03	2422	-22.613	-22.613	8.0	Pass
4	06	2437	-22.619	-22.619	8.0	Pass
4	09	2452	-24.366	-24.366	8.0	Pass

Note : The worst case of Occupied Bandwidth as below:

Mode 1 CH01 (2412MHz)



10. Antenna Requirement

10.1. Limit

Antenna Requirement Limit
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.

10.2. Antenna Connector Construction

The EUT use permanently attached antennas and comply with FCC 15.203.

_____ The End _____