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

Test report No:
2260063R-RF-US-P06V02

FCC & ISED TEST REPORT

Product Name	LED lamp
Trademark	PHILIPS
Model and /or type reference	9290031509
FCC ID	2AGBW9290031509X
IC	20812-31509X
Applicant´s name / address	Signify (China) investment Co., Ltd Building No.9, Lane 888, Tianlin Road, Minhang district, 200233, Shanghai, China
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10: 2013 KD558074 D01 15.247 Meas Guidance v05r02 RSS-Gen Issue 5 / RSS-247 Issue 2
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Tim Cao/Project Engineer Tim Cao
Approved by (name / position & signature)	Jack Zhang/Manager Jack Zhang
Date of issue	2022-09-02
Report Version	V1.0
Report template No	Template_FCC Part 15C-RF-V1.0

INDEX

page

General conditions 4
Environmental conditions 5
Possible test case verdicts 5
Abbreviations 5
Document History 6
Remarks and Comments 6
Used Equipment 7
Uncertainty 9
1 General Information 10
1.1 General Description of the Item(s) 10
1.2 Antenna Information 11
1.3 Channel List 12
1.4 Power Setting 12
2 Description of Test Setup 13
2.1 Operating mode(s) used for tests 13
2.2 Auxiliary equipment / Test software for the EUT 13
2.3 Test Configuration / Block diagram used for tests 14
2.4 Testing process 15
3 Verdict summary section 16
3.1 Standards 16
3.2 Deviation(s) from the Standard(s) / Test Specification(s) 16
3.3 Overview of results 17
3.4 Test Facility 18
4 Test Results 19
4.1 AC Power Line Conducted Emission 19
4.1.1 Limit 19
4.1.2 Test Setup 19
4.1.3 Test Procedure 19
4.1.4 Test Data 20
4.2 Emissions in restricted frequency bands 22
4.2.1 Limit 22
4.2.2 Test Setup 24
4.2.3 Test Procedure 25
4.2.4 Test Data 26

4.3 Emissions in non-restricted frequency band 34
4.3.1 Limit 34
4.3.2 Test Setup 34
4.3.3 Test Procedure 34
4.3.4 Test Data 35
4.4 Duty cycle 36
4.4.1 Limit 36
4.4.2 Test Setup 36
4.4.3 Test Procedure 36
4.4.4 Test Data 37
4.5 Radiated Emission Band Edge 38
4.5.1 Limit 38
4.5.2 Test Setup 38
4.5.3 Test Procedure 38
4.5.4 Test Data 39
4.6 DTS Bandwidth 47
4.6.1 Limit 47
4.6.2 Test Setup 47
4.6.3 Test Procedure 47
4.6.4 Test Data 48
4.7 Fundamental emission output power 50
4.7.1 Limit 50
4.7.2 Test Setup 50
4.7.3 Test Procedure 51
4.7.4 Test Data 52
4.8 Power Density 53
4.8.1 Limit: 53
4.8.2 Test Setup 53
4.8.3 Test Procedure 53
4.8.4 Test Data 54
4.9 Antenna Requirement 55
4.9.1 Limit: 55
4.9.2 Antenna Connector Construction: 55
5 Test setup photo and EUT Photo 56

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.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

GENERAL CONDITIONS

Test Location	**Emissions in restricted frequency bands above 1GHz:** EPINTEK SUZHOU LTD., SUZHOU INDUSTRIAL PARK BRANCH. Building B, No.5 Minsheng Road, Suzhou Industrial Park, Suzhou, Jiangsu, China **Other:** DEKRA Testing and Certification (Suzhou) Co., Ltd. No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Jul. 04, 2022
Date (start test)	Jul. 07, 2022
Date (finish test)	Jul. 21, 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
2260063R-RF-US-P06V02	V1.0	Initial issue of report.	2022-09-02

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247, RSS-Gen Issue 5, RSS-247 Issue 2.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
   - Chapter 1.1 General Description of the Item(s);
   - Chapter 1.2 Antenna Informaion;
   - Chapter 1.3 Channel List;
   - Chapter 1.4 Power Setting.

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	2022.04.09	2023.04.08
Two-Line V-Network	R&S	ENV216	101044	2022.03.12	2023.03.11
50ohm Termination	SHX	TF2	7081402	2021.09.04	2022.09.03
50ohm Termination	SHX	TF2	7081403	2021.09.04	2022.09.03
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2022.07.07	2023.07.06
Dekra test software	Dekra	-	-	-	-

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

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
MAX Signal Analyzer	Keysight	N9020B	MY59050482	2021.11.18	2022.11.17
Coaxial Cable	Woken	A50-SMAMSMAM-1m	20111443	2022.03.30	2023.03.29
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2022.07.07	2023.07.06
Dekra test software	Dekra	-	-	-	-

Radiated Emission(30MHz-1GHz) / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100176	2021.08.15	2022.08.14
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9168	1231	2022.05.21	2023.05.20
Coaxial Cable	Huber+Suhner	RG 214	AC3-C	2022.03.30	2023.03.29
Temperature/Humidity Meter	RTS	RTS-8S	AC3-TH	2021.11.23	2022.11.22
Dekra test software	Dekra	-	-	-	-

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

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
MXA Signal Analyzer	Keysight	N9020B	MY60112218	2022.01.09	2023.01.08
Amplifier	Keleto	LNPA	SK20190225	2021.09.26	2022.09.25
Pre-Amplifier	EMCI	EMC184045SE	980263	2022.05.21	2023.05.20
DRG Horn Antenna	ETS-Lindgren	3117	167055	2021.08.23	2022.08.22
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2022.05.19	2023.05.18
Loop Antenna	R&S	HFH2-Z2	833799/003	2022.04.15	2023.04.14
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2022.03.30	2023.03.29
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2022.03.21	2023.03.20
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2022.07.07	2023.07.06
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..... :	LED lamp
Model No. ..... :	9290031509
Trademark ..... :	PHILIPS
FCC ID ..... :	2AGBW9290031509X
IC..... :	20812-31509X
Manufacturer..... :	Signify (China) investment Co., Ltd
Manufacturer address ..... :	Building No.9, Lane 888, Tianlin Road, Minhang district, 200233, Shanghai, China

Wireless specifiction..... :	Zigbee
Operating frequency range(s)	2405~2480MHz
Type of Modulation..... :	O-QPSK
Data Rate ..... :	250kbps
Number of channel..... :	16

Rated power supply .....:	Voltage and Frequency	
	☐	AC: 220 – 240 V, 50/60 Hz
	☒	AC: 110 – 130 V, 50/60 Hz
	☐	DC: ……
	☐	Battery: ……
	☐	PoE: ……

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	☐	CDD
			☐	Beam-forming
Antenna Type.....:	☐	External	☐	Dipole
			☐	Sectorized
	☒	Internal	☐	Ceramic Chip
			☐	PIFA
			☐	PCB
			☒	Metal Antenna
			☐	Others……...
Antenna Gain.....:	2.46 dBi			

1.3 Channel List

Working Frequency of Each Channel: For Zigbee							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
11	2405 MHz	12	2410 MHz	13	2415 MHz	14	2420 MHz
15	2425 MHz	16	2430 MHz	17	2435 MHz	18	2440 MHz
19	2445 MHz	20	2450 MHz	21	2455 MHz	22	2460 MHz
23	2465 MHz	24	2470 MHz	25	2475 MHz	26	2480 MHz

1.4 Power Setting

Mode	Channel	Fraquency (MHz)	Power Setting
Zigbee	11	2402	10
	18	2440	10
	26	2480	10

Note: The General Description of the Item , antenna information, Channel List and Power Setting for the EUT in clause 1 are provided and confirmed by the client.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

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

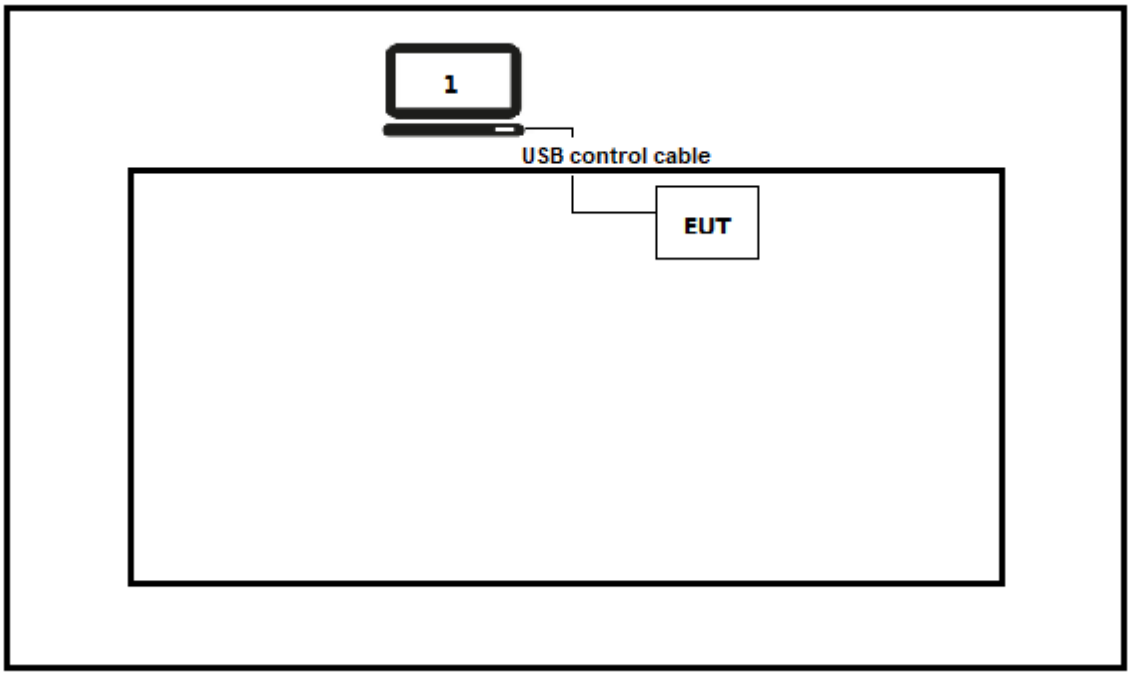
Test Mode For Zigbee	Mode1: Transmit by Zigbee

2.2 Auxiliary equipment / Test software for the EUT

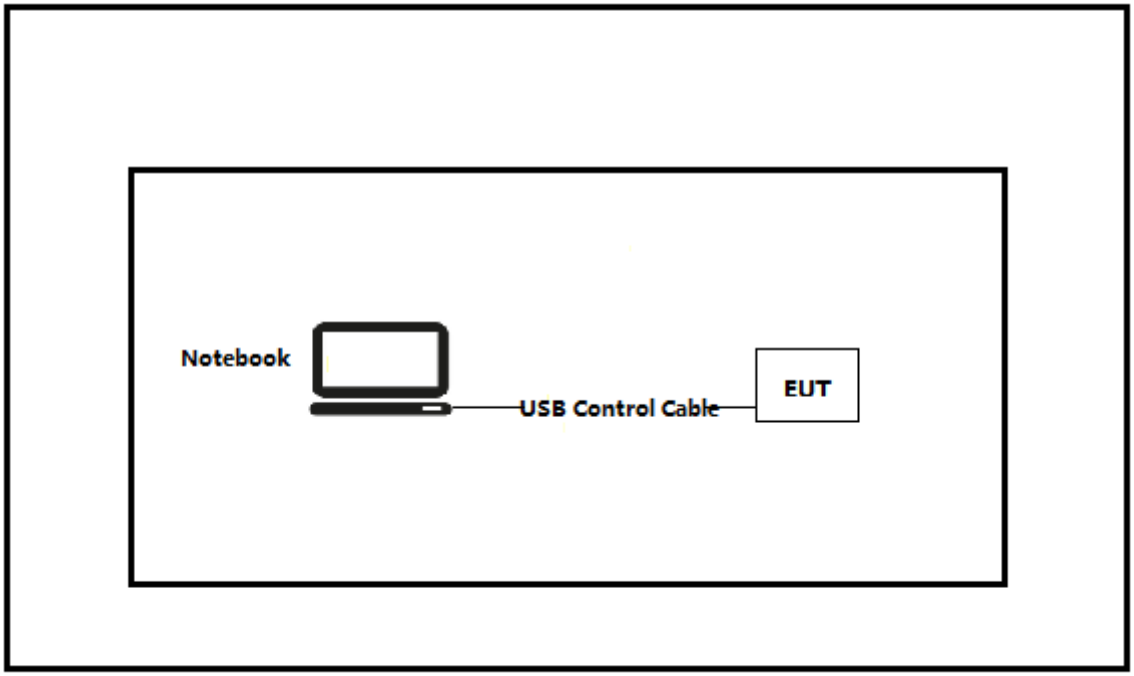
Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x220	Lenovo	Adapter
software	Type / Version	Manufacturer	Supplied by
Approbation Tool	V1.1.5.0	N/A	N/A

2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Conducted test



2.4 Testing process

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

3 VERDICT SUMMARY SECTION

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

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2020	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 558074 D01 v05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247
RSS-Gen Issue 5 Amendment 1	2019	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 2	2017	Digital Transmission Systems (DTSs),Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

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

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

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

3.3 Overview of results

For FCC

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

For ISED

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

3.4 Test Facility

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

4 TEST RESULTS

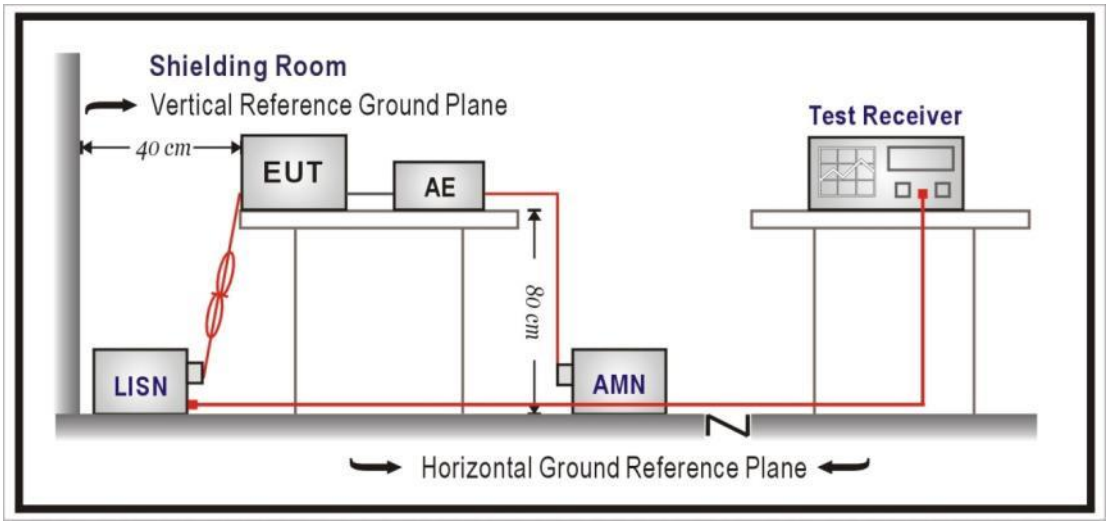
4.1 AC Power Line Conducted Emission	VERDICT: PASS

4.1.1 Limit

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

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

4.1.2 Test Setup

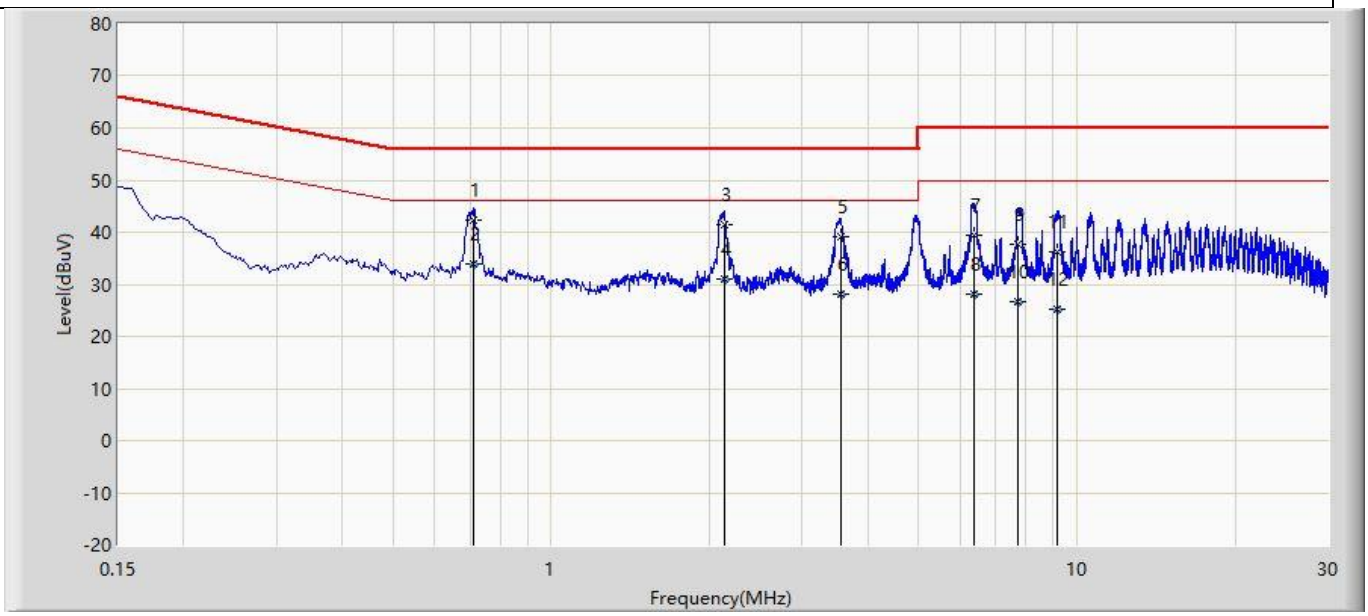


4.1.3 Test Procedure

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

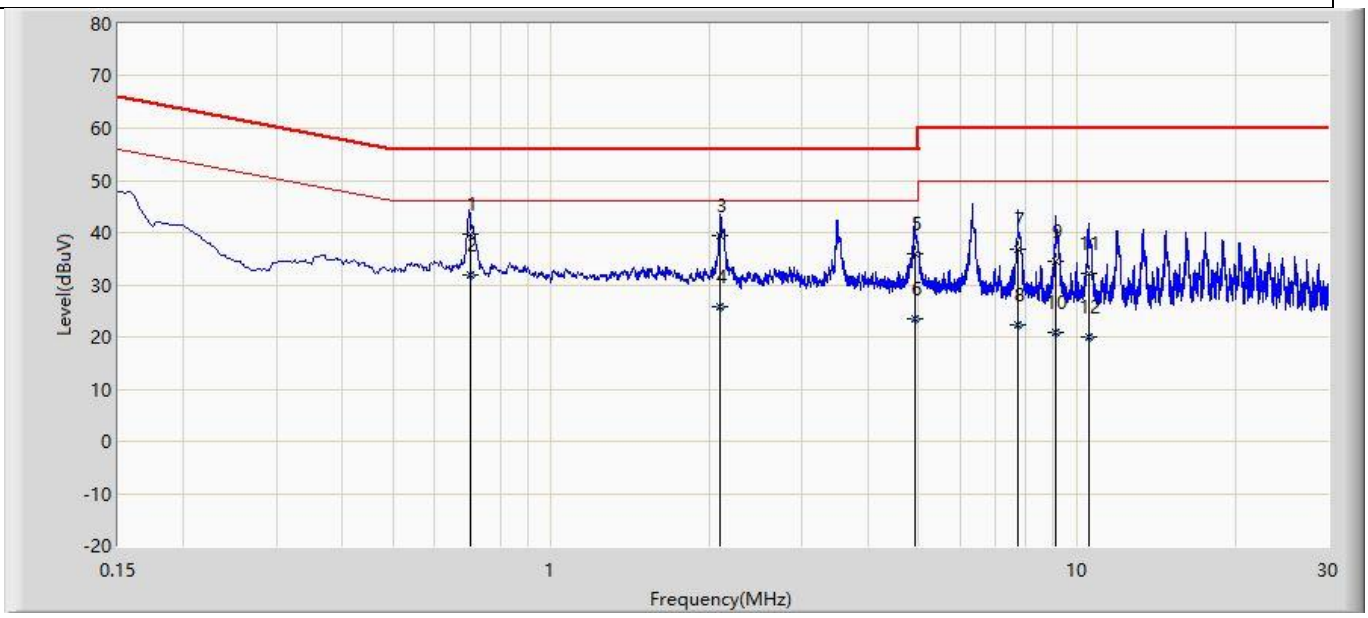
4.1.4 Test Data

Profile: 2260063R	Page No.: 75
Engineer: Yu Liu	
Site: TR1	Time: 2022/07/06 - 04:26
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT:LED Lamp	Power: AC 120V/60Hz
Note: Mode: N-line	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.713	42.459	32.837	-13.541	56.000	9.622	QP
2	*	0.713	33.986	24.364	-12.014	46.000	9.622	AV
3		2.130	41.544	31.863	-14.456	56.000	9.680	QP
4		2.130	30.908	21.227	-15.092	46.000	9.680	AV
5		3.547	39.214	29.467	-16.786	56.000	9.747	QP
6		3.547	28.038	18.291	-17.962	46.000	9.747	AV
7		6.369	39.548	29.673	-20.452	60.000	9.875	QP
8		6.369	28.109	18.234	-21.891	50.000	9.875	AV
9		7.739	37.753	27.828	-22.247	60.000	9.925	QP
10		7.739	26.550	16.626	-23.450	50.000	9.925	AV
11		9.166	36.243	26.258	-23.757	60.000	9.985	QP
12		9.166	25.127	15.141	-24.873	50.000	9.985	AV

Profile: 2260063R	Page No.: 76
Engineer: Yu Liu	
Site: TR1	Time: 2022/07/06 - 04:28
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT:LED Lamp	Power: AC 120V/60Hz
Note: Mode: L-line	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.701	39.805	30.167	-16.195	56.000	9.638	QP
2	*	0.701	31.842	22.204	-14.158	46.000	9.638	AV
3		2.096	39.326	29.647	-16.674	56.000	9.679	QP
4		2.096	25.852	16.173	-20.148	46.000	9.679	AV
5		4.920	35.853	26.039	-20.147	56.000	9.815	QP
6		4.920	23.439	13.625	-22.561	46.000	9.815	AV
7		7.710	36.730	26.804	-23.270	60.000	9.926	QP
8		7.710	22.183	12.257	-27.817	50.000	9.926	AV
9		9.107	34.622	24.642	-25.378	60.000	9.979	QP
10		9.107	20.820	10.840	-29.180	50.000	9.979	AV
11		10.516	32.059	22.032	-27.941	60.000	10.027	QP
12		10.516	19.880	9.852	-30.120	50.000	10.027	AV

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

4.2 Emissions in restricted frequency bands — VERDICT: PASS

4.2.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207		
Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 –16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975–12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675–12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			
Restricted Bands of operation for IC			
0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6
8.362 - 8.366	162.0125 - 167.17	3500 - 4400	
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150	
8.41425 - 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	--	

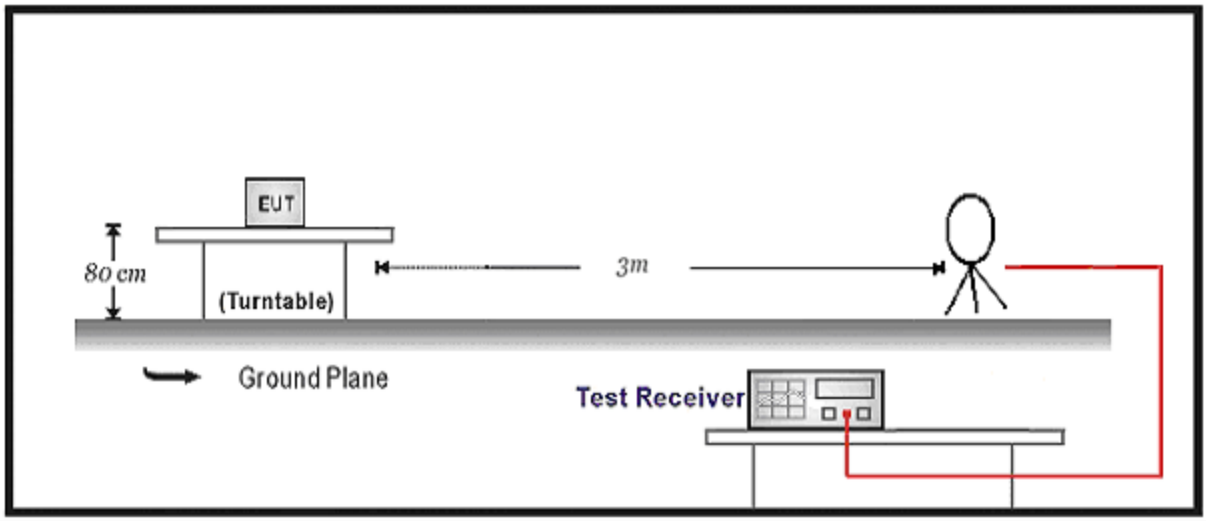
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)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

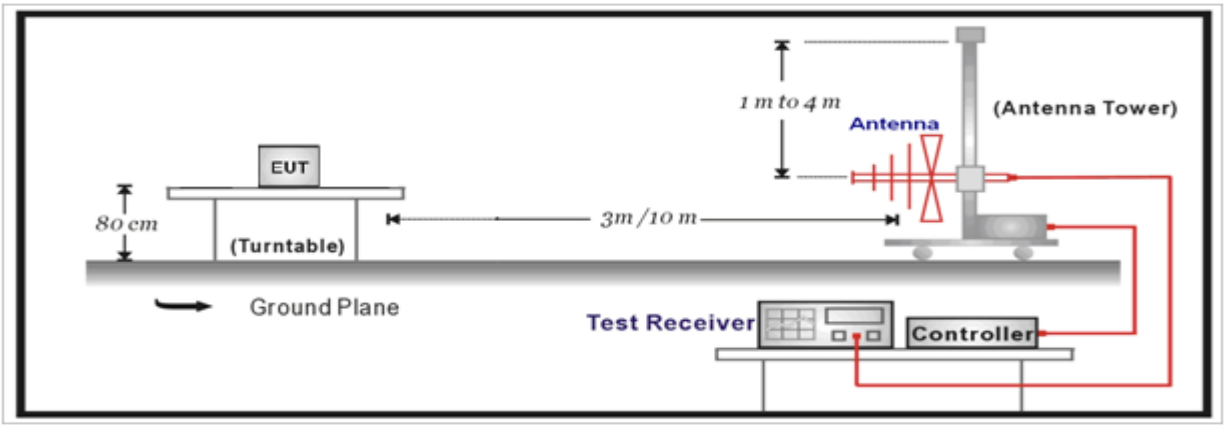
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated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

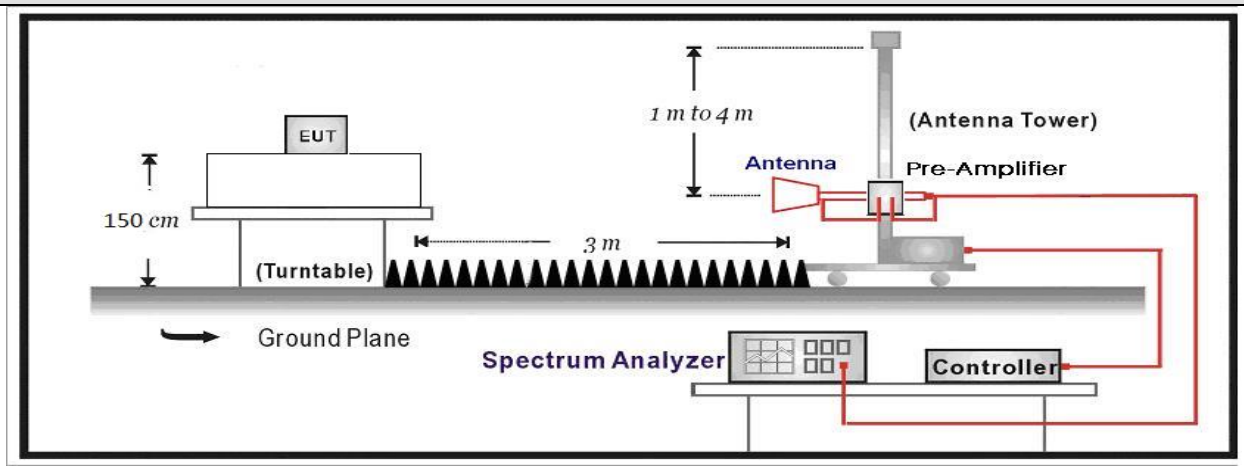
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:

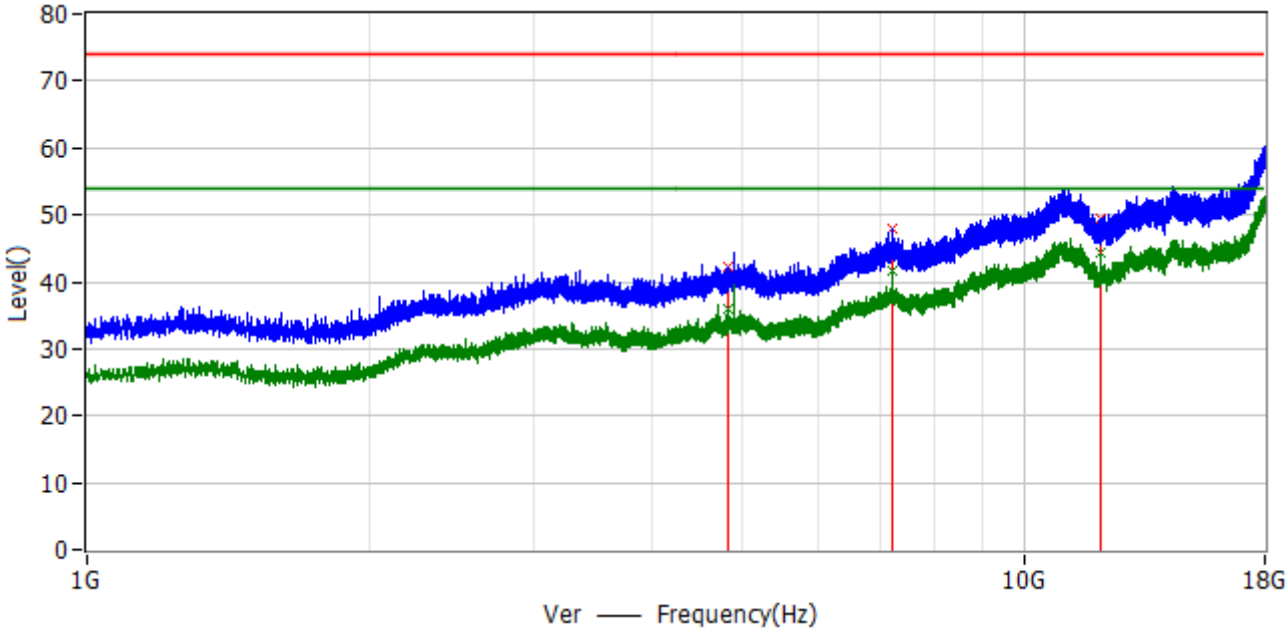


4.2.3 Test Procedure

	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		11.12.2.7	Radiated spurious emission test
		☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
		☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
		☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

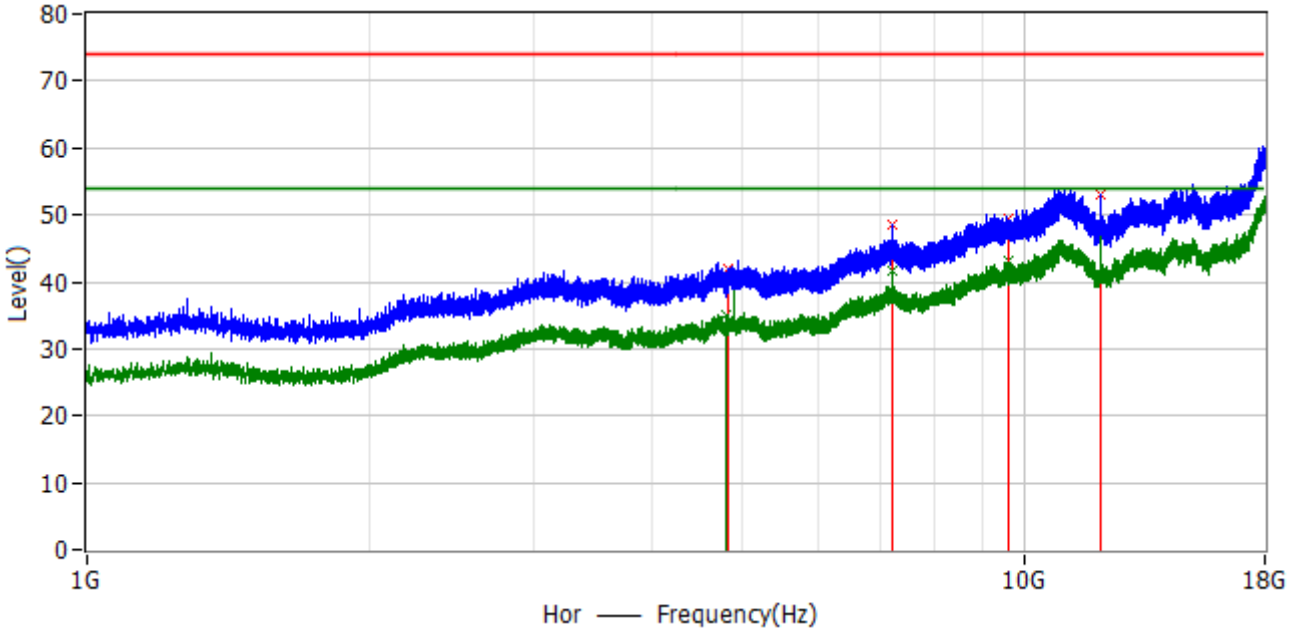
4.2.4 Test Data

Profile: 2260063R	Page No.: 31
Engineer: Zed	
Site: EPINTEK	Time: 2022/07/13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2405MHz by Zigbee	



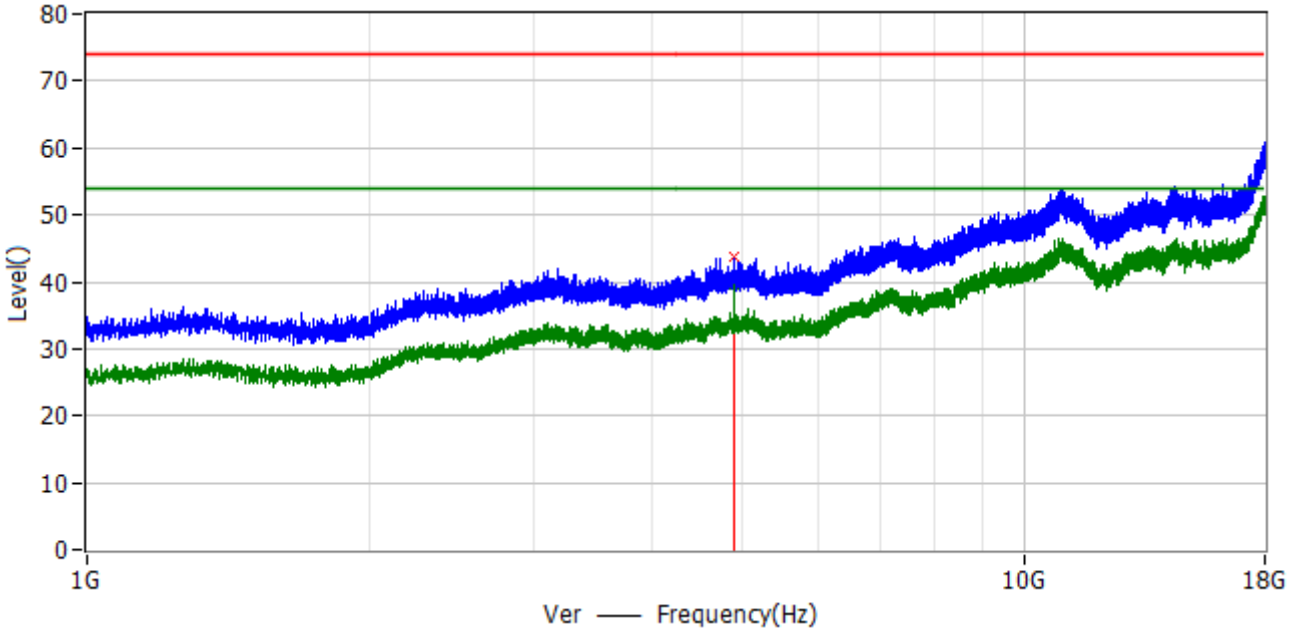
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.811 GHz	74.0	42.2	-31.8	-8.4	PK	Ver
2*	7.213 GHz	74.0	48.0	-26.0	-3.1	PK	Ver
3*	12.027 GHz	74.0	49.5	-24.5	1.7	PK	Ver
4*	4.810 GHz	54.0	35.9	-18.1	-8.4	AV	Ver
5*	7.213 GHz	54.0	41.5	-12.5	-3.1	AV	Ver
6*	12.028 GHz	54.0	44.2	-9.8	1.7	AV	Ver

Profile: 2260063R	Page No.: 32
Engineer: Zed	
Site: EPINTEK	Time: 2022/07/13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2405MHz by Zigbee	



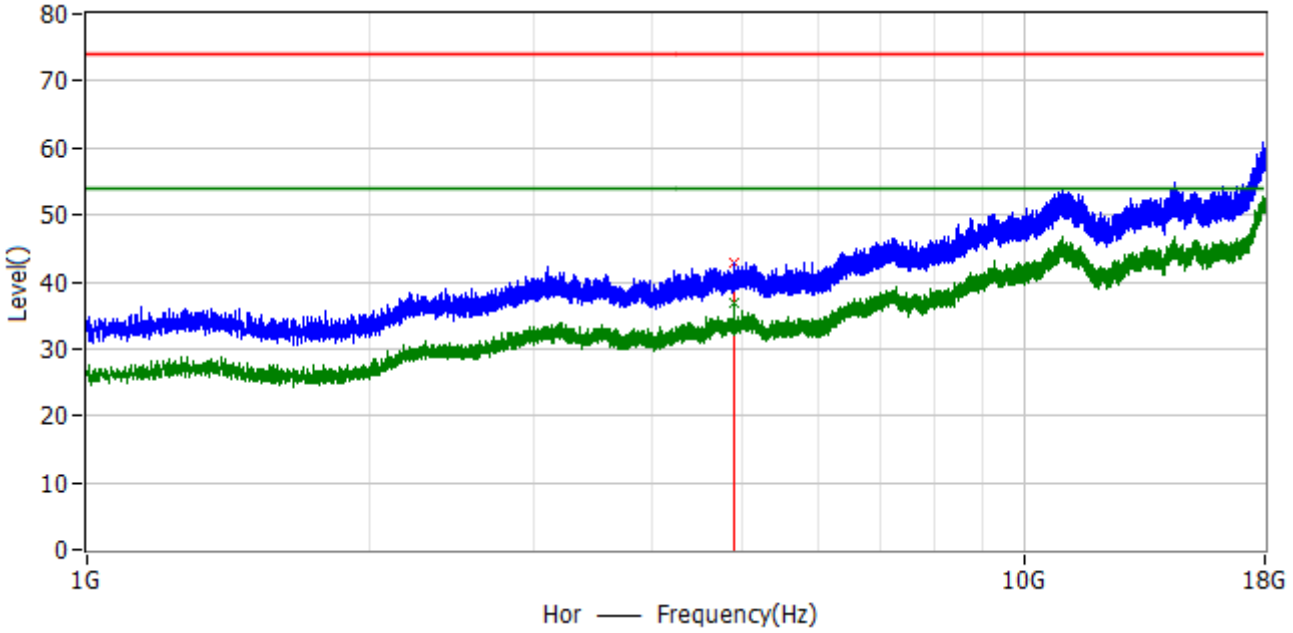
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.811 GHz	74.0	41.8	-32.2	-8.4	PK	Hor
2*	7.213 GHz	74.0	48.5	-25.5	-3.1	PK	Hor
3*	9.611 GHz	74.0	49.3	-24.7	0.3	PK	Hor
4*	12.022 GHz	74.0	53.0	-21.0	1.7	PK	Hor
5*	4.809 GHz	54.0	35.0	-19.0	-8.4	AV	Hor
6*	7.214 GHz	54.0	41.7	-12.3	-3.1	AV	Hor
7*	9.611 GHz	54.0	43.0	-11.0	0.3	AV	Hor
8*	12.023 GHz	54.0	46.8	-7.2	1.7	AV	Hor

Profile: 2260063R	Page No.: 33
Engineer: Zed	
Site: EPINTEK	Time: 2022/07/13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2440MHz by Zigbee	



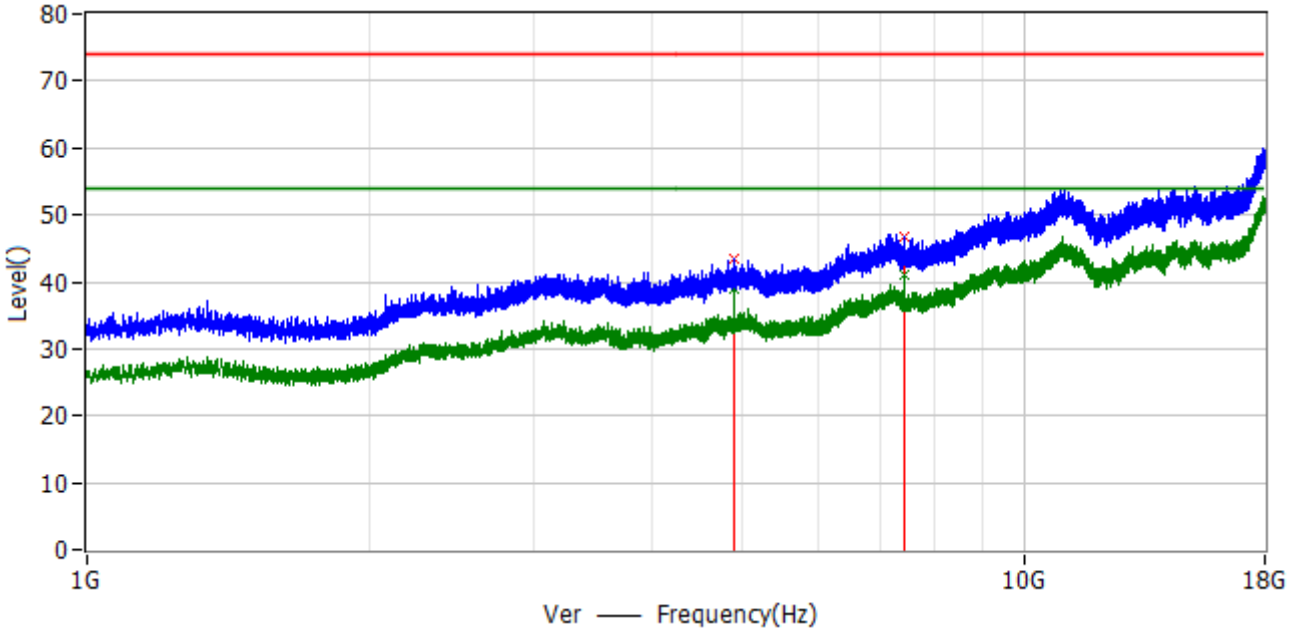
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.901 GHz	74.0	43.6	-30.4	-8.1	PK	Ver
2*	4.901 GHz	54.0	39.6	-14.4	-8.1	AV	Ver

Profile: 2260063R	Page No.: 34
Engineer: Zed	
Site: EPINTEK	Time: 2022/07/13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2440MHz by Zigbee	



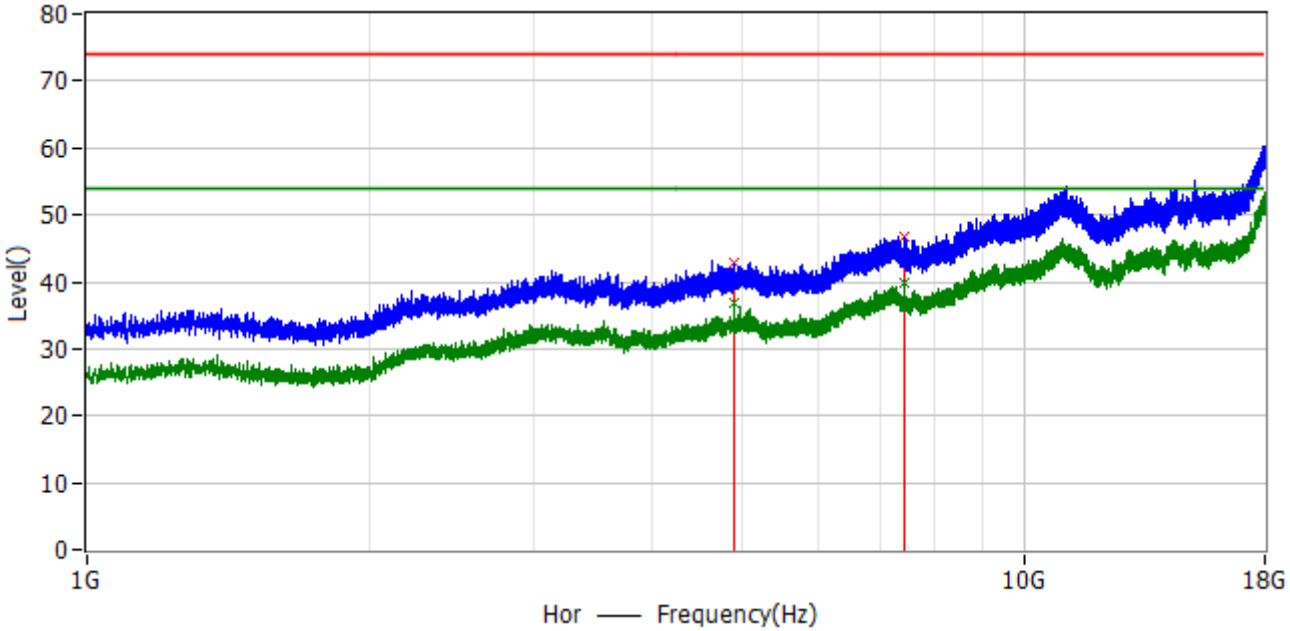
No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.903 GHz	74.0	42.7	-31.3	-8.1	PK	Hor
2*	4.901 GHz	54.0	36.9	-17.1	-8.1	AV	Hor

Profile: 2260063R	Page No.: 35
Engineer: Zed	
Site: EPINTEK	Time: 2022/07/13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by Zigbee	



No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.901 GHz	74.0	43.4	-30.6	-8.1	PK	Ver
2*	7.438 GHz	74.0	46.7	-27.3	-3.1	PK	Ver
3*	4.901 GHz	54.0	39.1	-14.9	-8.1	AV	Ver
4*	7.439 GHz	54.0	41.0	-13.0	-3.1	AV	Ver

Profile: 2260063R	Page No.: 36
Engineer: Zed	
Site: EPINTEK	Time: 2022/07/13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00123988_(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by Zigbee	

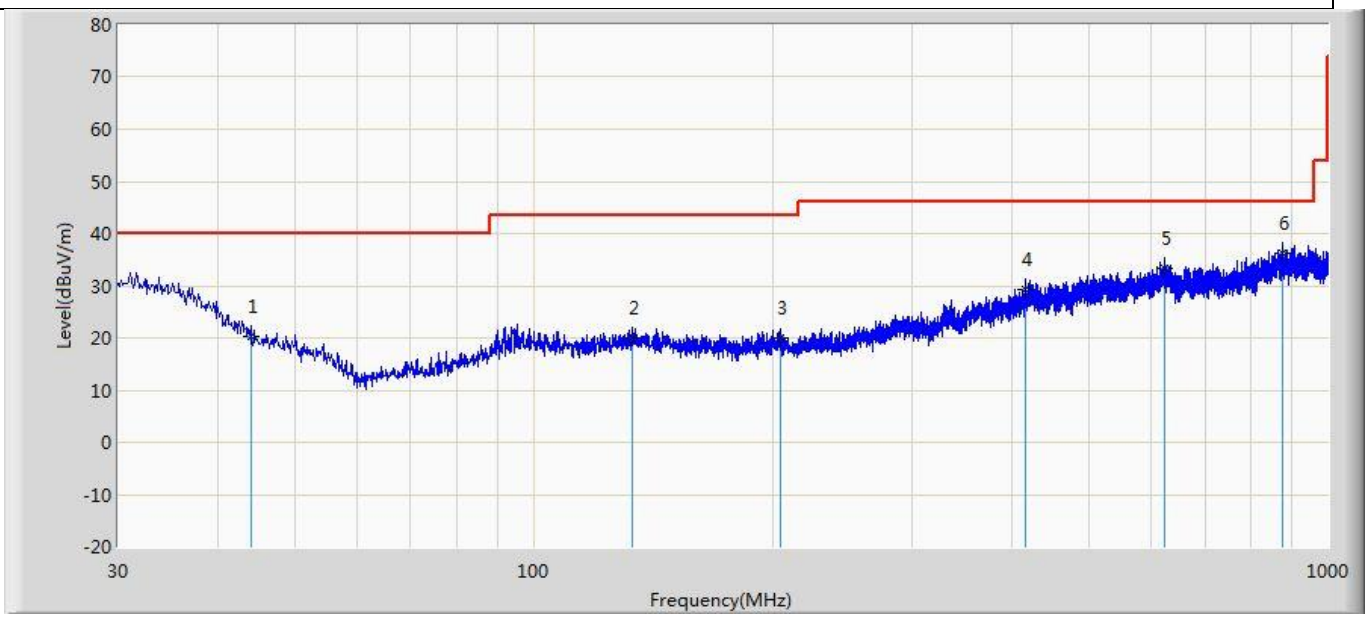


No.	Frequency	Limit (dBuV/m)	Level (dBuV/m)	Delta dB	Factor dB	Detector	Polar
1*	4.900 GHz	74.0	42.8	-31.2	-8.1	PK	Hor
2*	7.439 GHz	74.0	46.8	-27.2	-3.1	PK	Hor
3*	4.902 GHz	54.0	36.8	-17.2	-8.1	AV	Hor
4*	7.439 GHz	54.0	40.0	-14.0	-3.1	AV	Hor

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

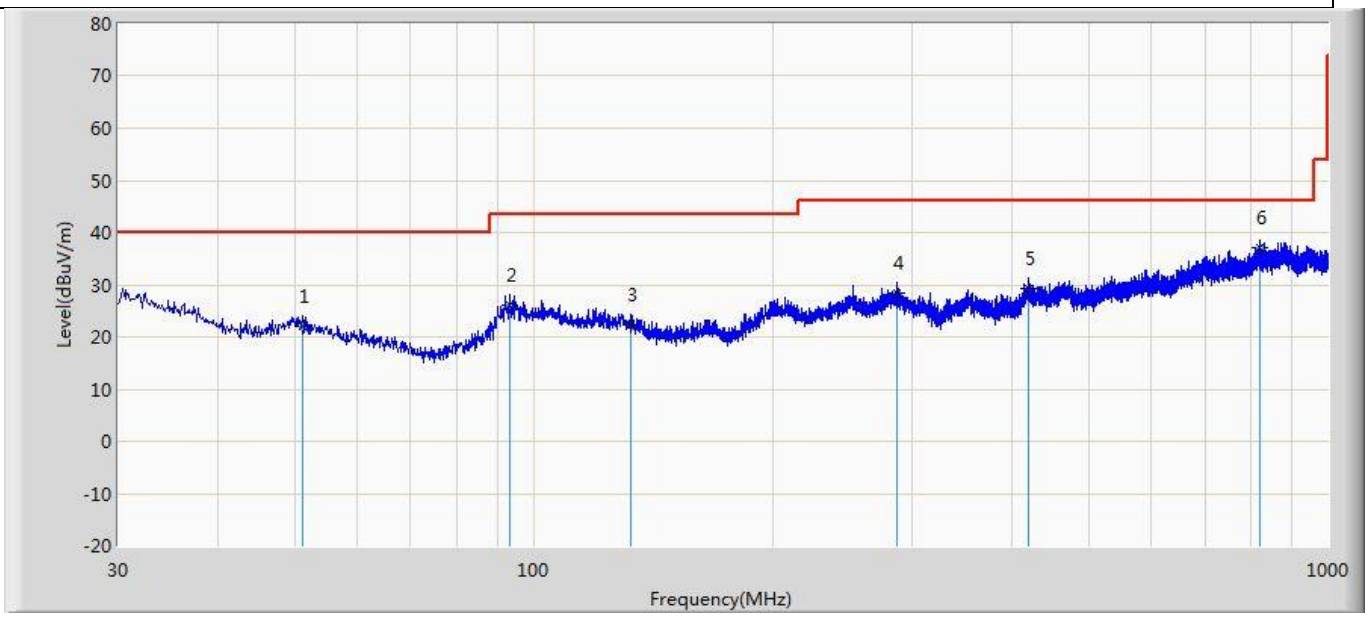
The worst case of Radiated Emission below 1GHz:

Profile:2260063R	Page No.: 73
Engineer: Yu Liu	
Site: AC2	Time: 2022/07/04 - 22:51
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2405MHz by Zigbee	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		44.065	20.383	2.544	-19.617	40.000	17.839	QP
2		132.941	20.035	2.342	-23.465	43.500	17.693	QP
3		204.479	19.869	2.293	-23.631	43.500	17.576	QP
4		416.060	29.310	2.788	-16.690	46.000	26.522	QP
5		621.943	33.460	2.712	-12.540	46.000	30.747	QP
6	*	877.901	36.146	3.669	-9.854	46.000	32.477	QP

Profile:2260063R	Page No.: 74
Engineer: Yu Liu	
Site: AC2	Time: 2022/07/04 - 22:52
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2405MHz by Zigbee	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		51.219	21.917	2.834	-18.083	40.000	19.083	QP
2		93.535	26.080	7.071	-17.420	43.500	19.009	QP
3		132.456	22.301	2.262	-21.199	43.500	20.038	QP
4		287.171	28.306	3.308	-17.694	46.000	24.998	QP
5		420.182	29.241	2.479	-16.759	46.000	26.762	QP
6	*	820.550	36.974	4.068	-9.026	46.000	32.906	QP

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

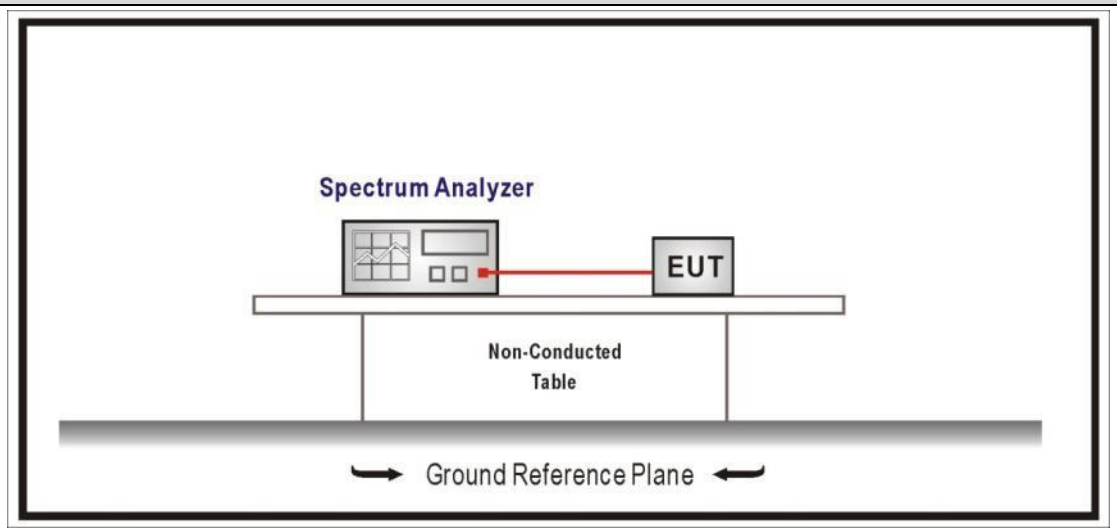
4.3 Emissions in non-restricted frequency band — VERDICT: PASS

4.3.1 Limit

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

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).
Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

4.3.2 Test Setup

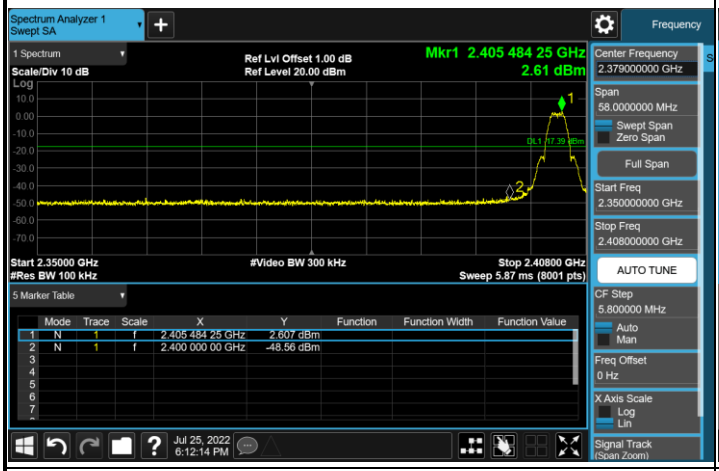


4.3.3 Test Procedure

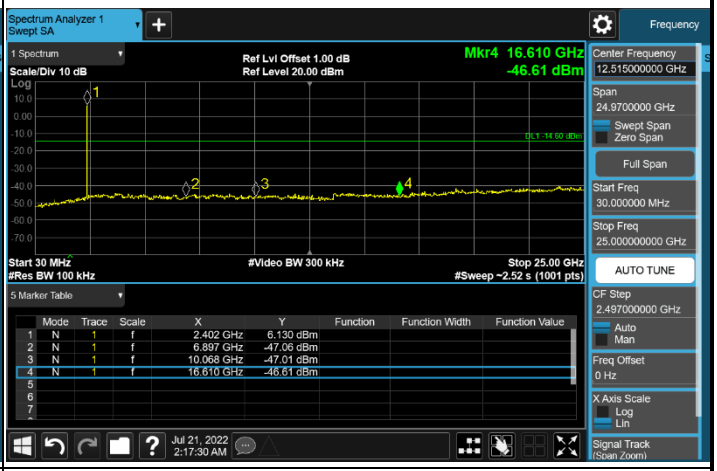
References Rule			Chapter	Description
☒	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	☒	ANSI C63.10	11.11.1	General
	☒	ANSI C63.10	11.11.2	Reference level measurement
	☒	ANSI C63.10	11.11.3	Emission level measurement

4.3.4 Test Data

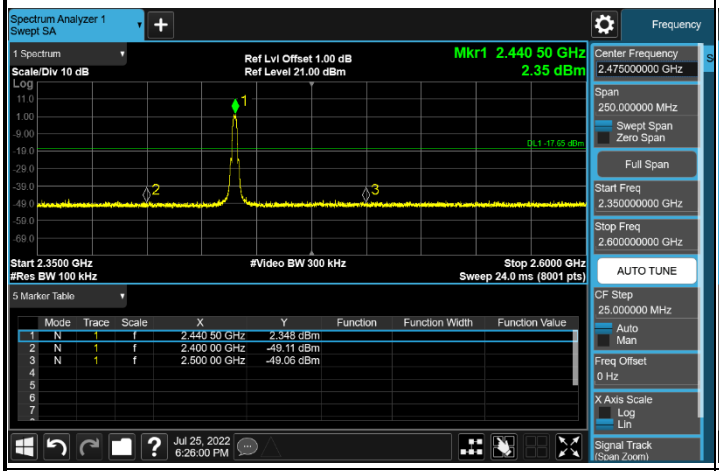
Mode 1 / CH11(2405MHz)



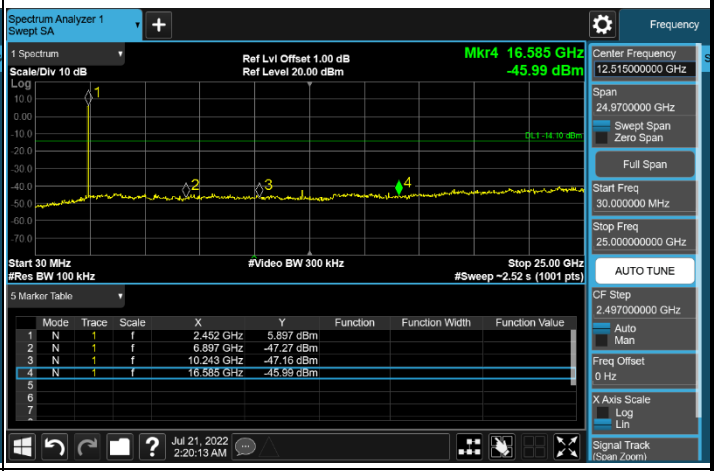
Mode 1 / CH11(2405MHz)



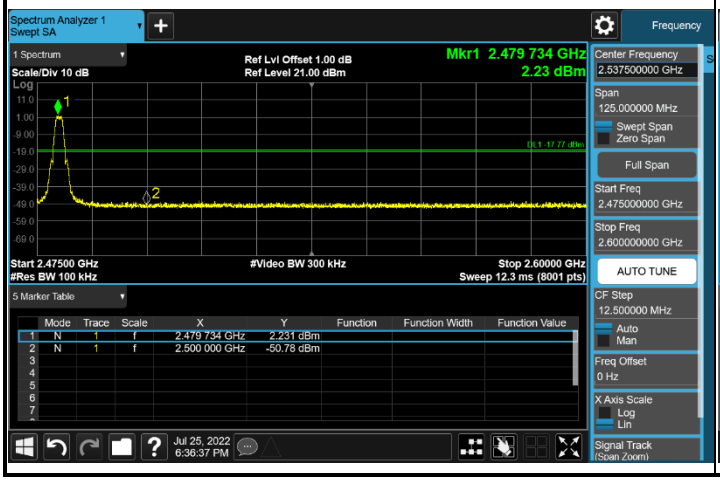
Mode 1 / CH18(2440MHz)



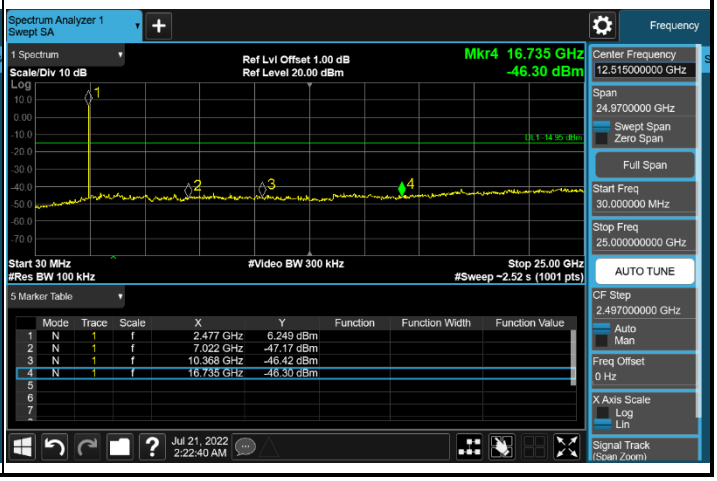
Mode 1 / CH18(2440MHz)



Mode 1 / CH26(2480MHz)



Mode 1 / CH26(2480MHz)

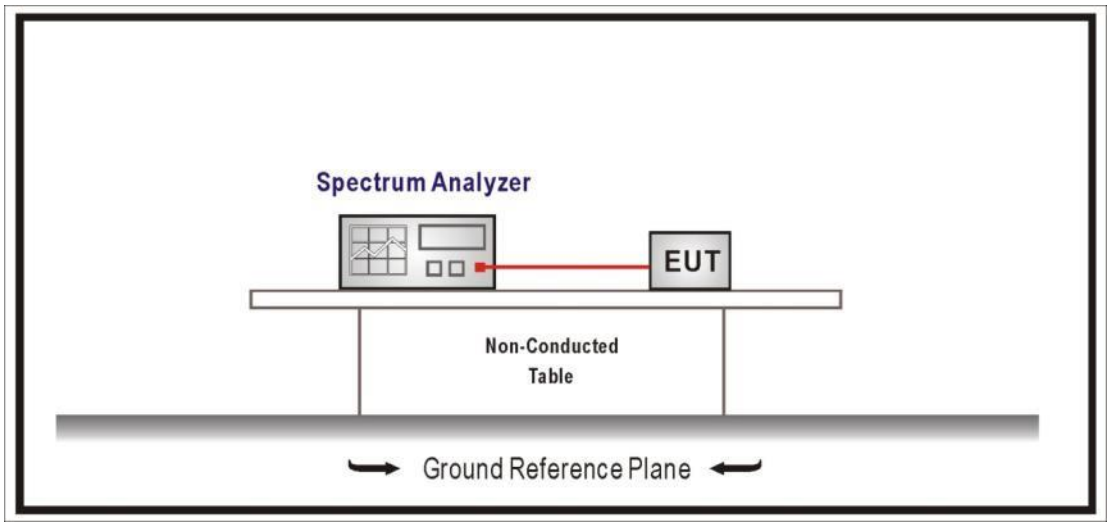


4.4 Duty cycle	VERDICT: PASS

4.4.1 Limit

N/A

4.4.2 Test Setup



4.4.3 Test Procedure

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

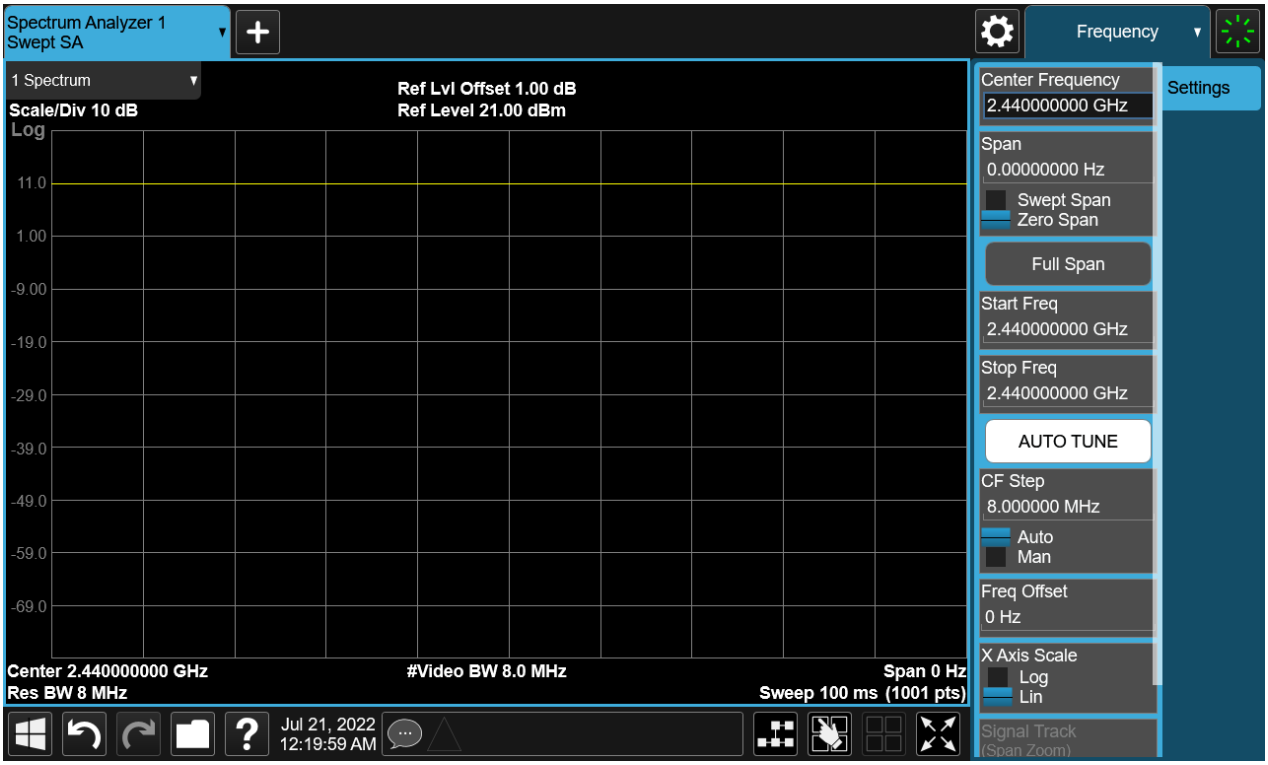
4.4.4 Test Data

Test Mode	Tx On (ms)	Duty Cycle	VBW (kHz)	Detector
Mode 1	--	100%	3000	RMS

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

Note 2: According to C63.10, if continuous transmission of the EUT (D ⩾ 98%) cannot be achieved and the duty cycle is constant (duty cycle variations are less than ±2%), for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ⩾ 3RBW will be used; If continuous transmission of the EUT (D ⩾ 98%) cannot be achieved and the duty cycle is not constant (duty cycle variations exceed ±2%),when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.

Mode 1 CH18 2440MHz



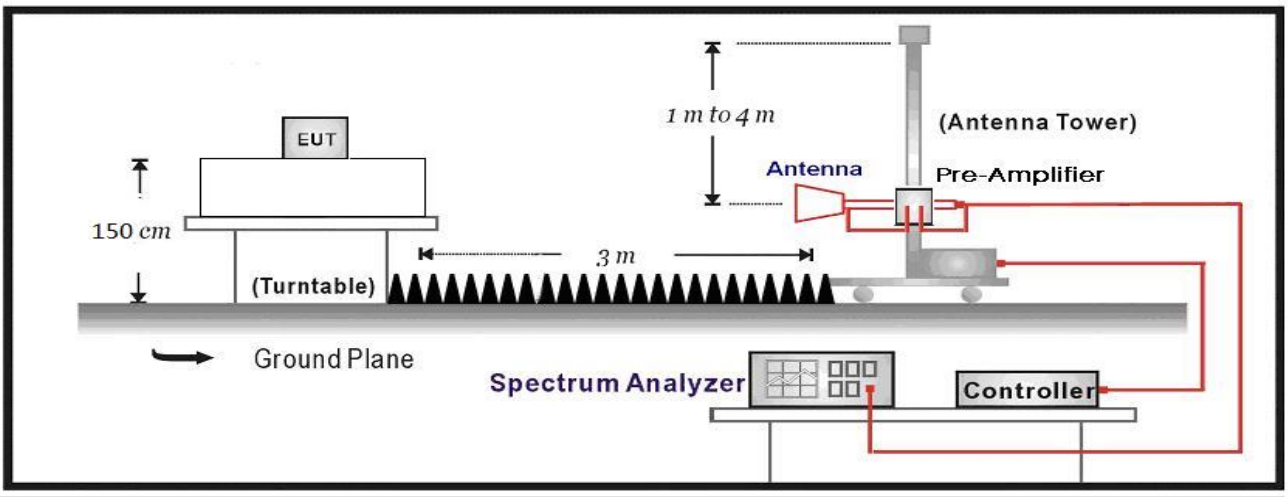
4.5 Radiated Emission Band Edge — VERDICT: PASS

4.5.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(d) , 15.209			
Frequency bands (MHz)	Detector	Limit (dBμV/m)	RBW (MHz)	Distance (m)
2310-2390 2483.5-2500	PK	74	1	3
	AV	54	1	3
Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.				

4.5.2 Test Setup

Above 1GHz Test Setup:

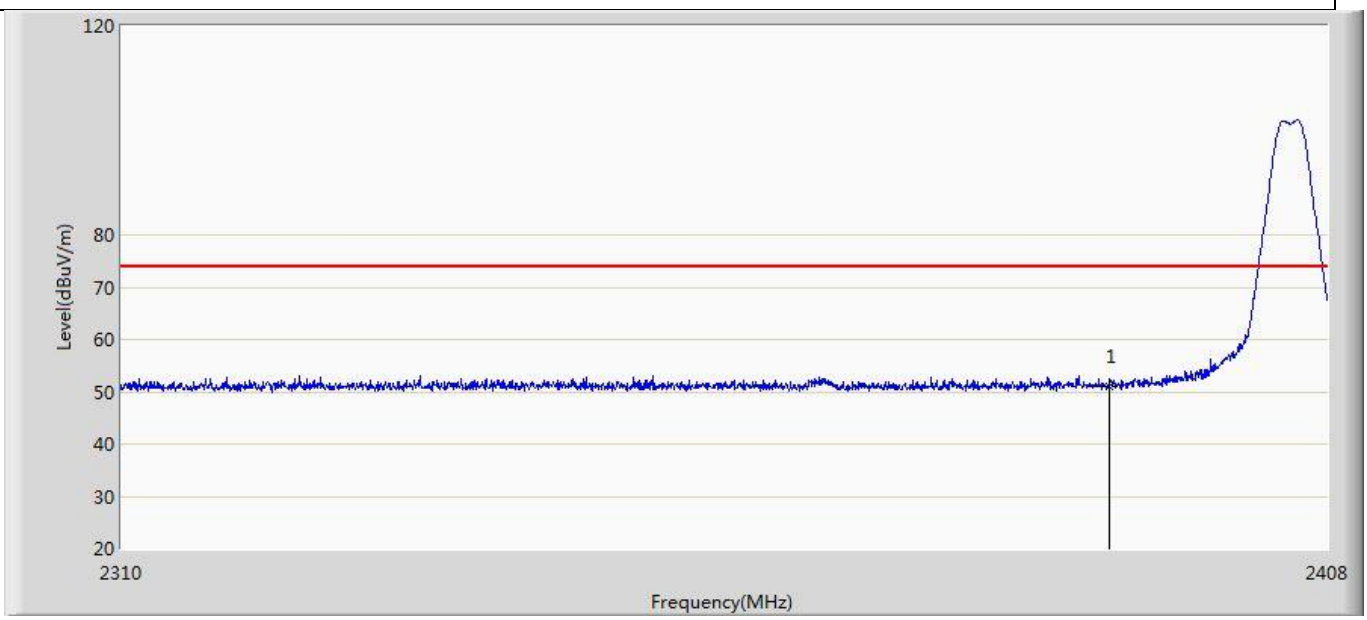


4.5.3 Test Procedure

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

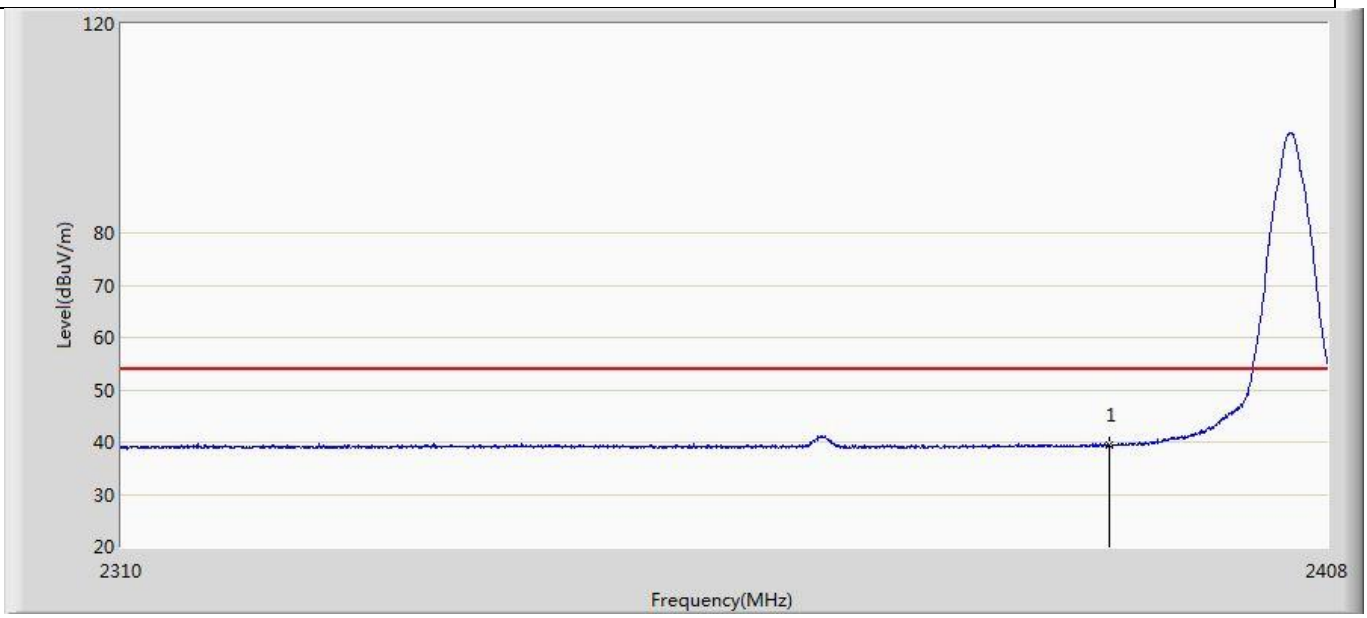
4.5.4 Test Data

Profile: 2260063R	Page No.: 34
Engineer: Yu Liu	
Site: AC5	Time: 2022/07/05 - 22:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 5:Transmit at 2402MHz by Zigbee	



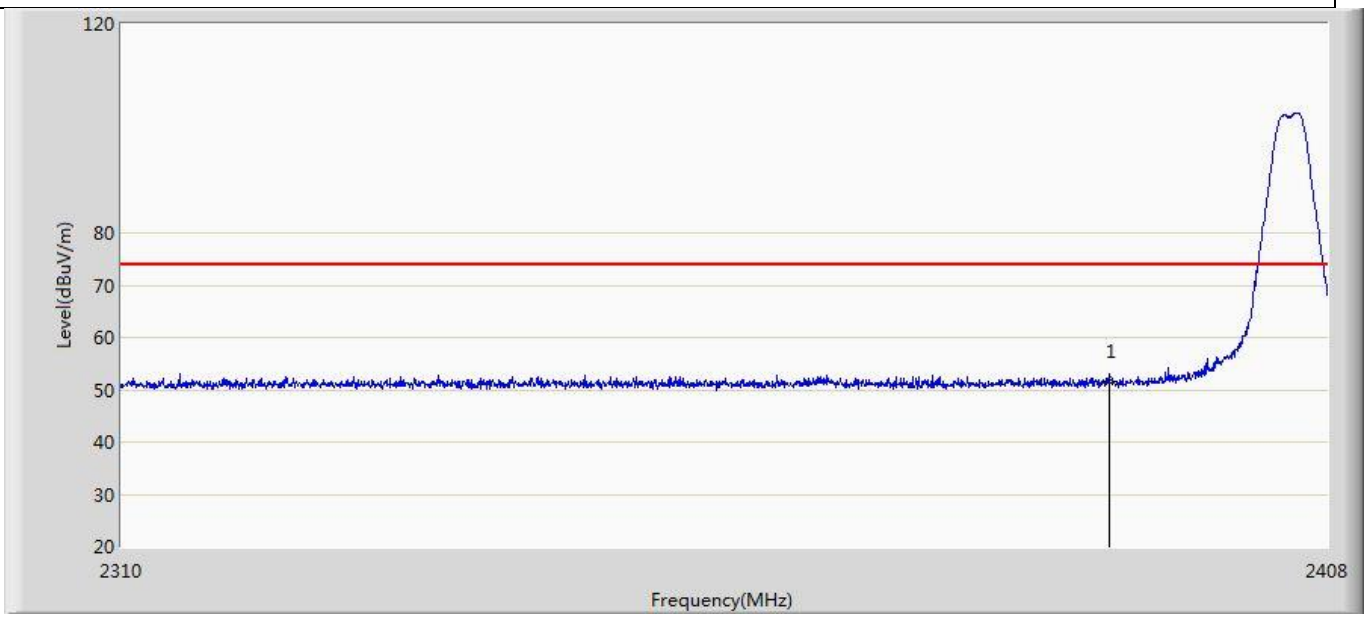
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	51.085	14.987	-22.915	74.000	36.098	PK

Profile: 2260063R	Page No.: 33
Engineer: Yu Liu	
Site: AC5	Time: 2022/07/05 - 22:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 5:Transmit at 2402MHz by Zigbee	



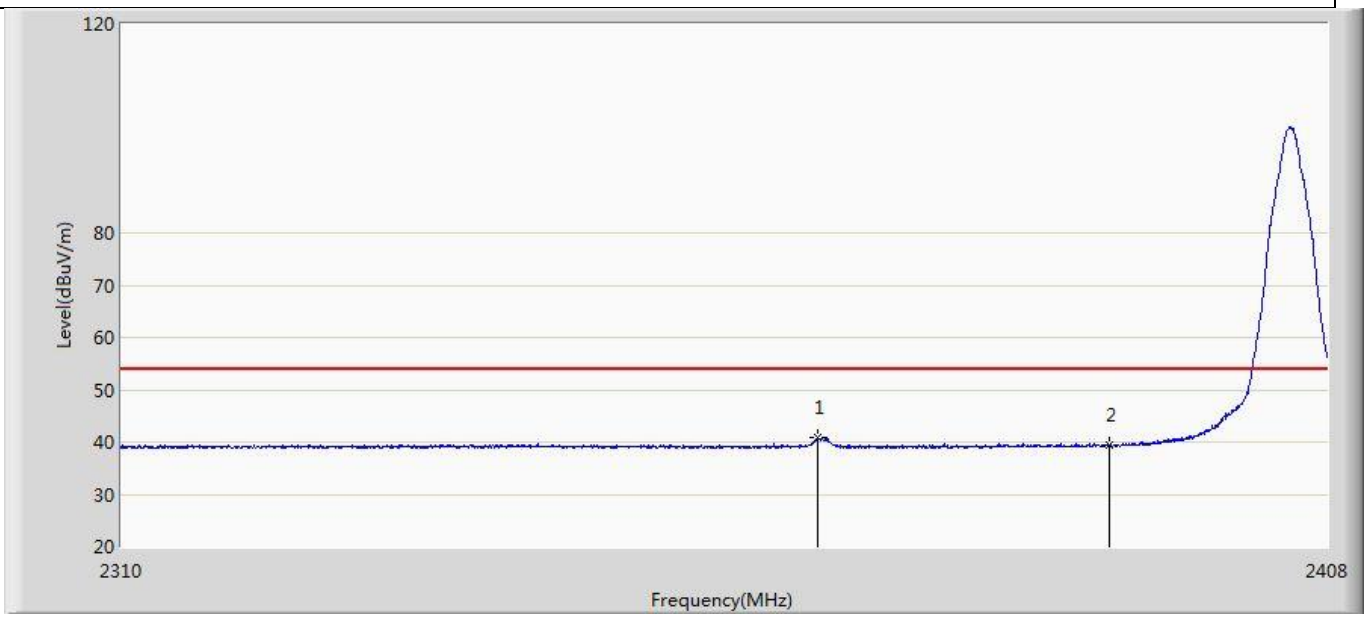
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	39.489	3.391	-14.511	54.000	36.098	AV

Profile: 2260063R	Page No.: 36
Engineer: Yu Liu	
Site: AC5	Time: 2022/07/05 - 22:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 5:Transmit at 2402MHz by Zigbee	



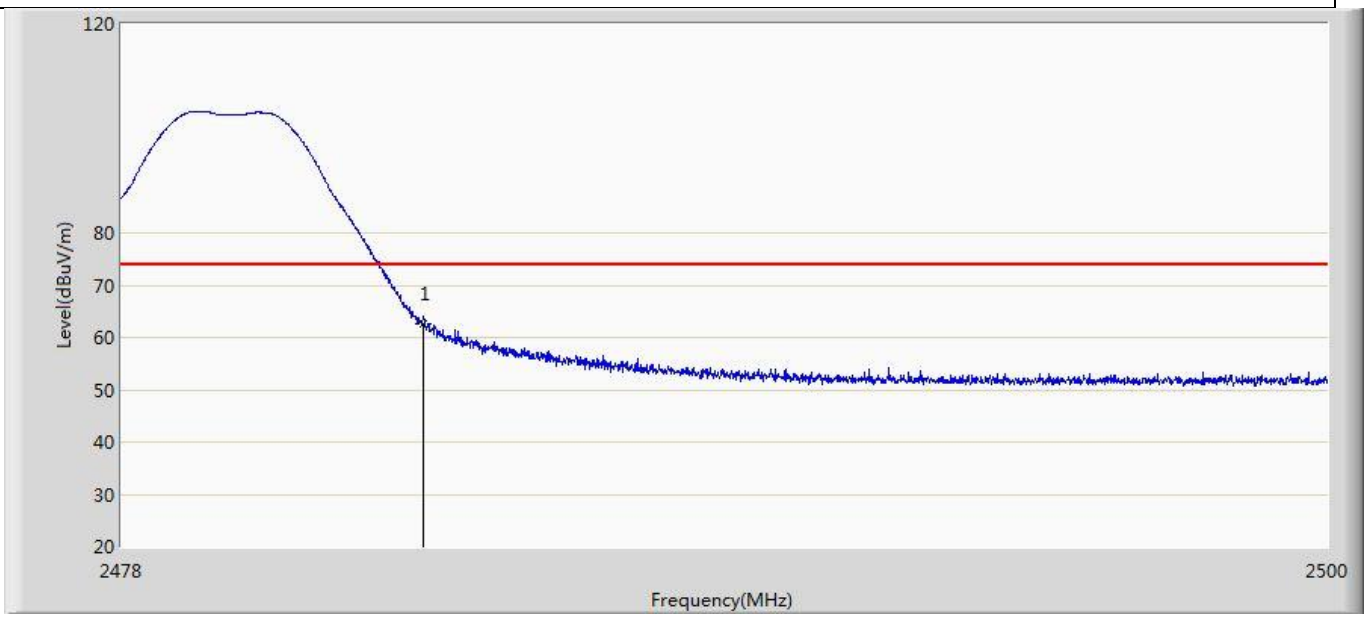
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2390.000	51.499	15.401	-22.501	74.000	36.098	PK

Profile: 2260063R	Page No.: 35
Engineer: Yu Liu	
Site: AC5	Time: 2022/07/05 - 22:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 5:Transmit at 2402MHz by Zigbee	



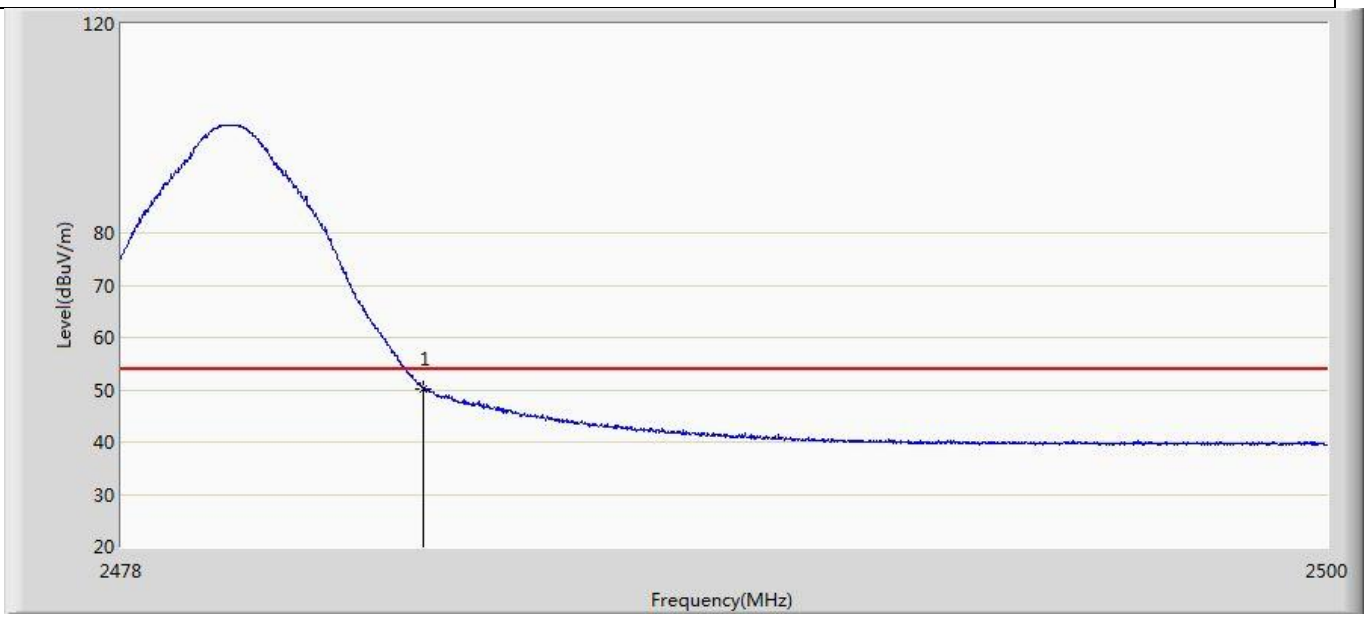
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2366.154	40.727	4.789	-13.273	54.000	35.938	AV
2		2390.000	39.389	3.291	-14.611	54.000	36.098	AV

Profile: 2260063R	Page No.: 38
Engineer: Yu Liu	
Site: AC5	Time: 2022/07/05 - 22:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 5:Transmit at 2480MHz by Zigbee	



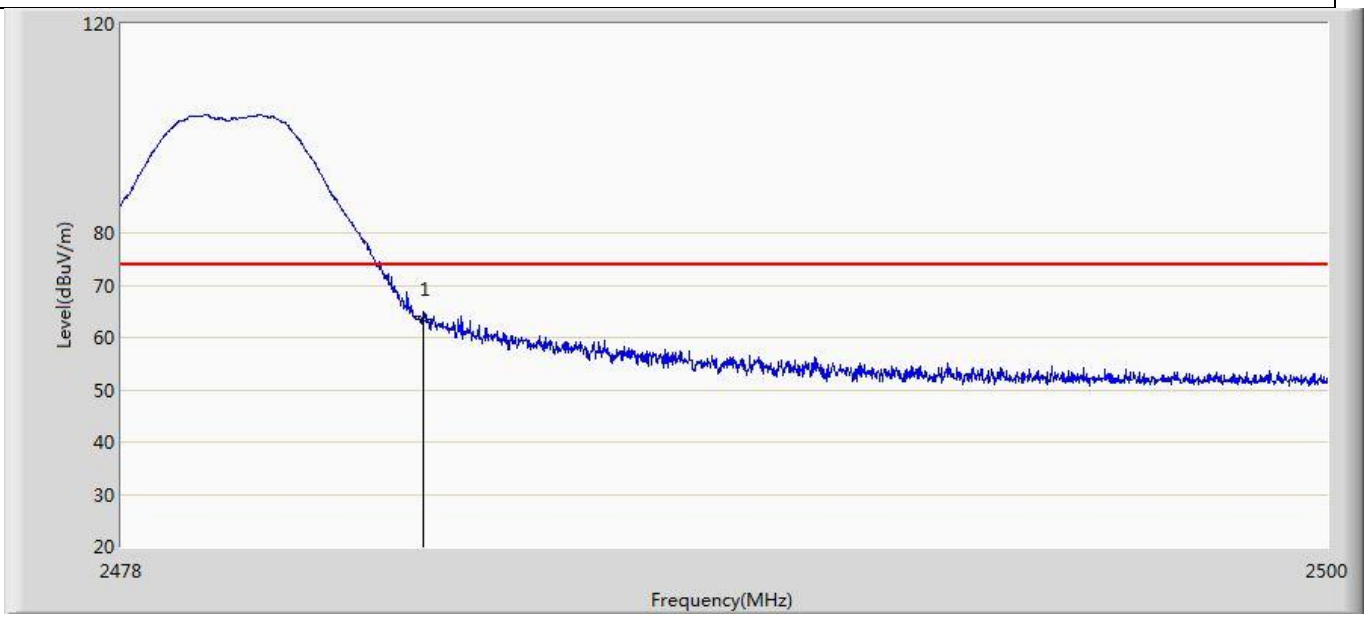
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	62.717	26.496	-11.283	74.000	36.220	PK

Profile: 2260063R	Page No.: 37
Engineer: Yu Liu	
Site: AC5	Time: 2022/07/05 - 22:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 5:Transmit at 2480MHz by Zigbee	



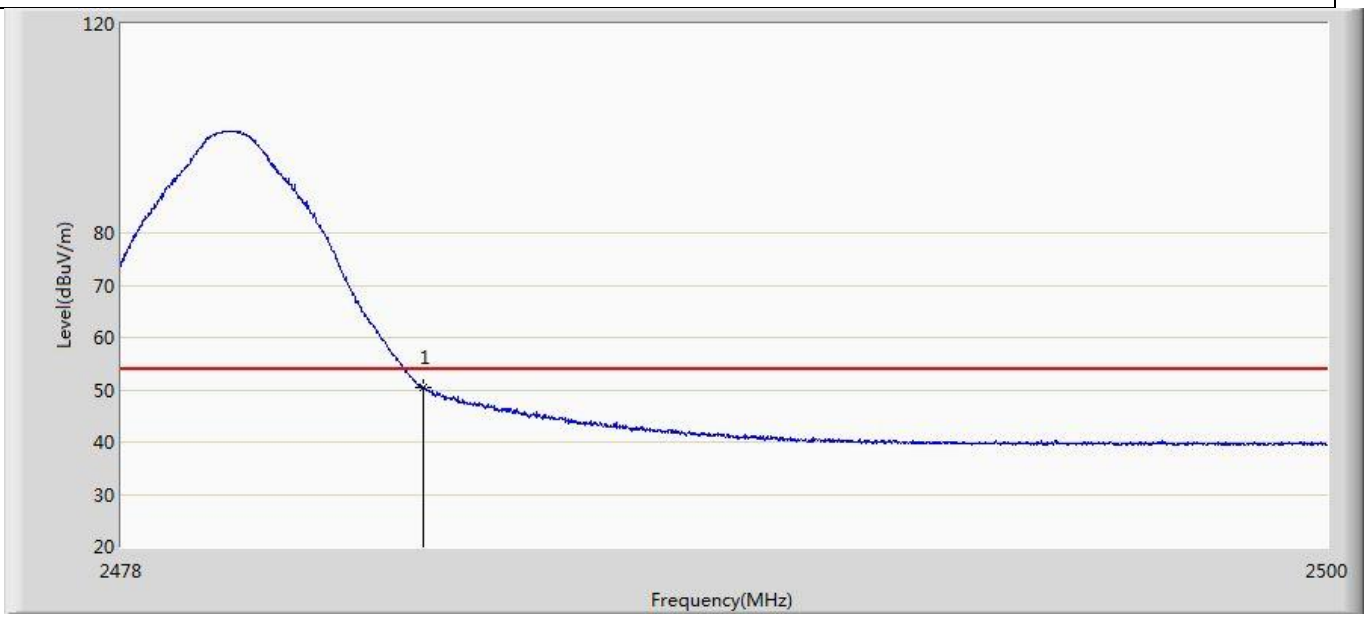
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	50.046	13.825	-3.954	54.000	36.220	AV

Profile: 2260063R	Page No.: 40
Engineer: Yu Liu	
Site: AC5	Time: 2022/07/05 - 22:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 5:Transmit at 2480MHz by Zigbee	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	63.558	27.337	-10.442	74.000	36.220	PK

Profile: 2260063R	Page No.: 39
Engineer: Yu Liu	
Site: AC5	Time: 2022/07/05 - 22:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: LED Lamp	Power: AC 120V/60Hz
Note: Mode 5:Transmit at 2480MHz by Zigbee	



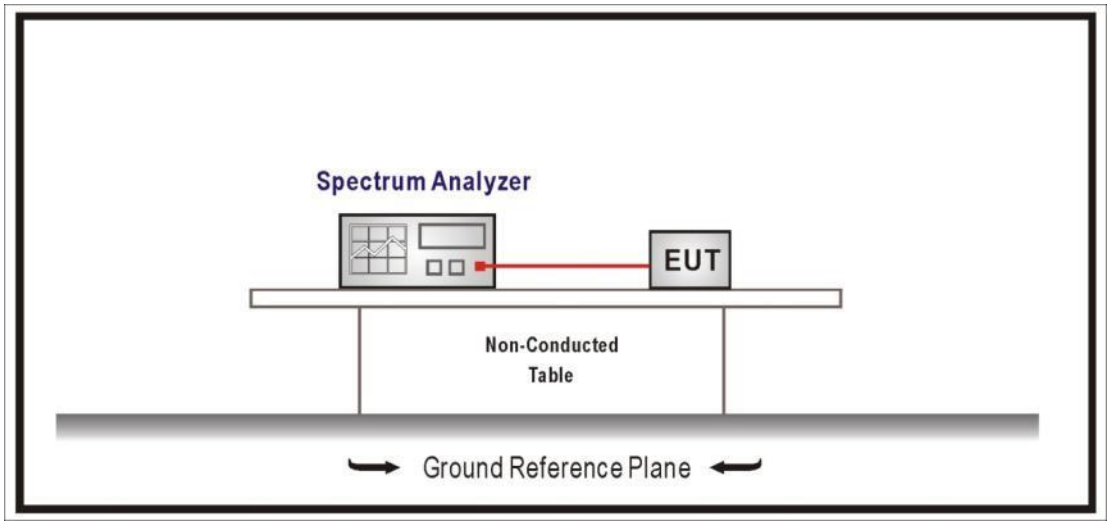
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2483.500	50.374	14.153	-3.626	54.000	36.220	AV

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

4.6 DTS Bandwidth	VERDICT: PASS

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

4.6.2 Test Setup



4.6.3 Test Procedure

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

4.6.4 Test Data

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
1	11	2405	1.64	>500	Pass
	18	2440	1.64	>500	Pass
	26	2480	1.65	>500	Pass

Note : The worst case of Occupied Bandwidth as below:

6dB Occupied Bandwidth

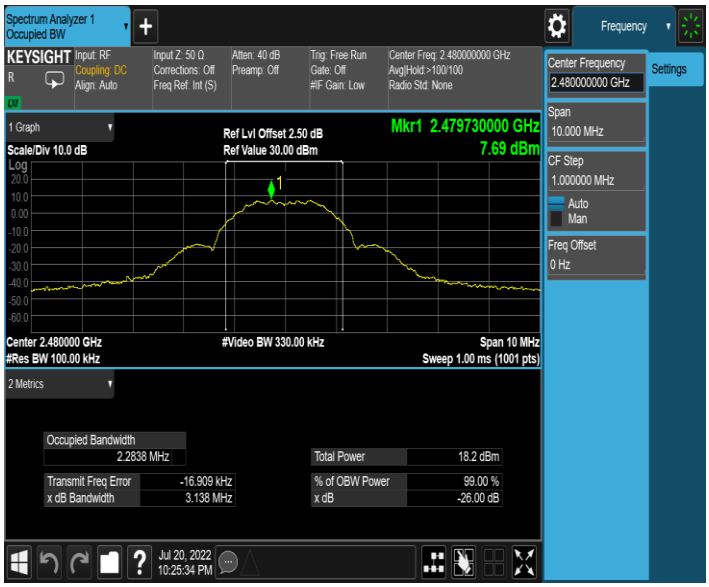
Mode 1 / CH11 (2405MHz)

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	Limit	Result
1	11	2405	2.2740	N/A	Pass
	18	2440	2.2735	N/A	Pass
	26	2480	2.2835	N/A	Pass

Note : The worst case of Occupied Bandwidth as below:

99% Occupied Bandwidth

Mode 1 / CH26 (2480MHz)



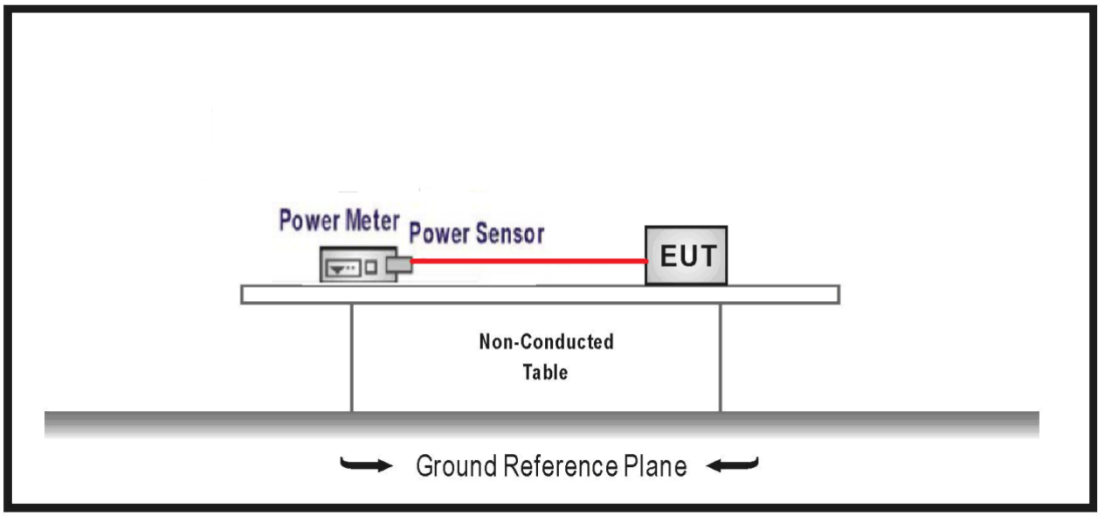
4.7 Fundamental emission output power	VERDICT: PASS

4.7.1 Limit

Standard			FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
☒	GTX ＜6dBi		Pout≤30dBm
☐	GTX ＞6dBi		
	☐	Non-Fix point-point	Pout≤30-(GTX -6)
	☐	Fix point-point	Pout≤30-[(GTX-6)]/3
	☐	Point-to-multipoint	Pout≤30-(GTX-6)
	☐	Overlap Beams	Pout≤30-[(GTX-6)]/3
	☐	Aggregate power transmitted simultaneously on all beams	Pout≤30-[(GTX-6)]/3
	☐	single directional beam	Pout≤30-[(GTX-6)]/3+8dB

Note 1 : GTX directional gain of transmitting antennas.
Note 2 : Pout is maximum peak conducted output power .

4.7.2 Test Setup



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

4.7.4 Test Data

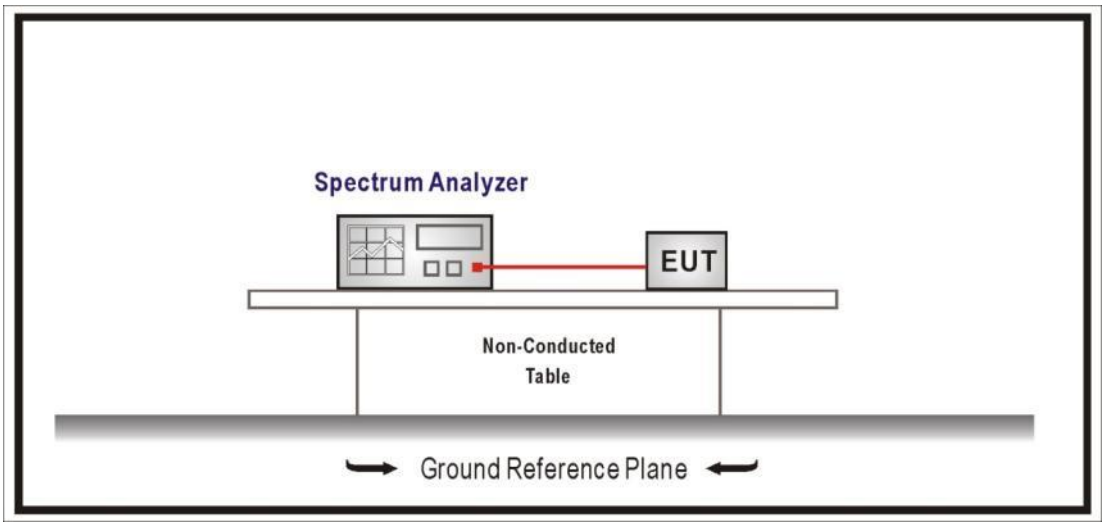
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
Mode 1	11	2405	6.29	≤30	8.75	≤36	Pass
	18	2440	6.32	≤30	8.78	≤36	Pass
	26	2480	6.36	≤30	8.82	≤36	Pass

Note 1: EIRP= Power Output + Antenna gain
Note 2: Please refer to clause 1.2 for antenna gain.

4.8 Power Density	VERDICT: PASS

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

4.8.2 Test Setup



4.8.3 Test Procedure

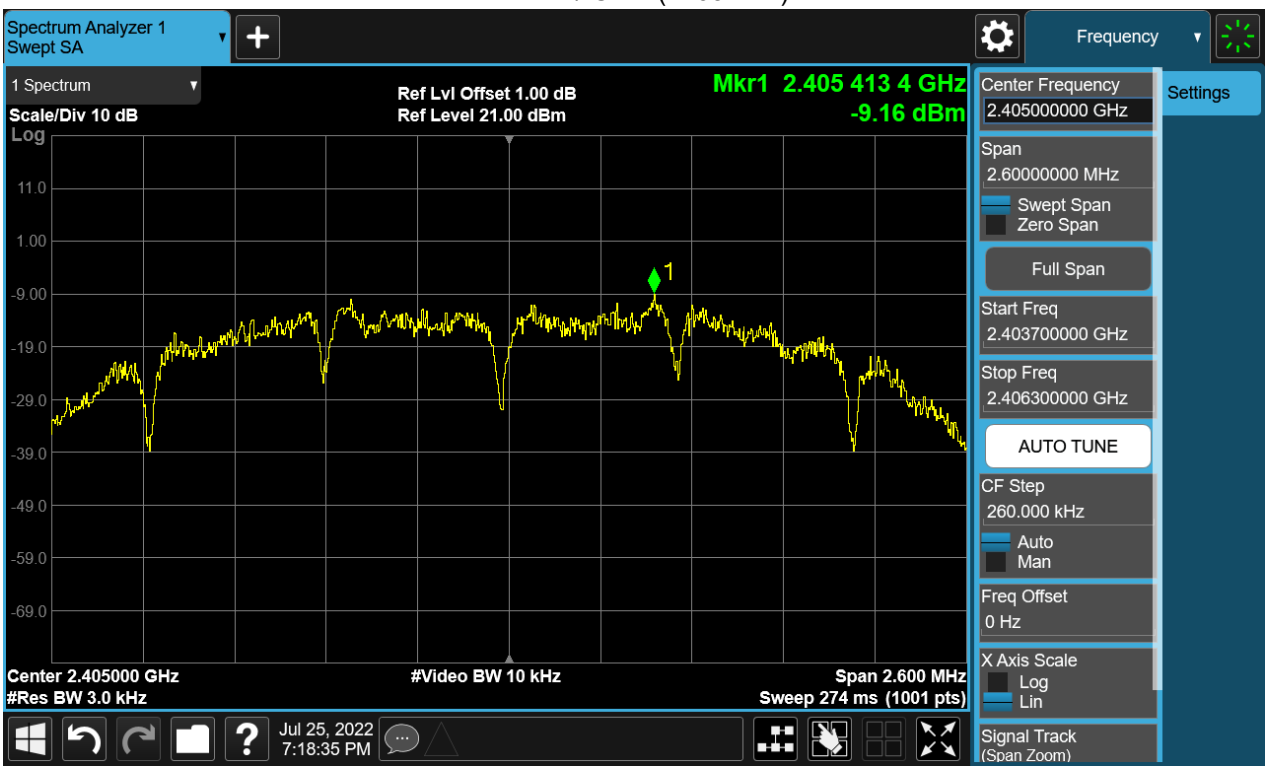
	References Rule		Chapter	Description
☒	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	☒	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	☐	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.5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

4.8.4 Test Data

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Mode 1	11	2405	-9.16	≤8	Pass
	18	2440	-10.82	≤8	Pass
	26	2480	-9.65	≤8	Pass

Note : The worst case of PSD as below:

Mode 1 / CH11(2405MHz)



4.9 Antenna Requirement	VERDICT: PASS

4.9.1 Limit:	
Standard	FCC Part 15 Subpart C Paragraph 15.203
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.	

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

5 TEST SETUP PHOTO AND EUT PHOTO

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

The End