



Test Report

FCC Part15 Subpart C & RSS-247 Issue 2

Product Name : Wireless Access Point
Model No. : AP305CX
FCC ID : QXO-AP305C
IC : 4141B-AP305C

Applicant : Extreme Networks, Inc
Address : Extreme Networks, 6480 Via Del Oro / San
Jose, CA 95119 U.S.A.

Date of Receipt : Oct. 14, 2020
Test Date : Oct. 14, 2020~ Dec. 01, 2020
Issued Date : Dec. 02, 2020
Report No. : 20A0241R-RF-US-P06V02
Report Version : V 1.0

The test results presented in this report relate only to the object tested.

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.

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Test Report Certification

Issued Date : Dec. 02, 2020

Report No. : 20A0241R-RF-US-P06V02



Product Name : Wireless Access Point
Applicant : Extreme Networks, Inc
Address : Extreme Networks, 6480 Via Del Oro / San Jose, CA 95119
U.S.A.
Manufacturer : Extreme Networks, Inc
Address : Extreme Networks, 6480 Via Del Oro / San Jose, CA 95119
U.S.A.
Model No. : AP305CX
Brand : Extreme Networks
FCC ID : QXO-AP305C
IC : 4141B-AP305C
EUT Voltage : POE 48V
Test Voltage : AC 120V/60Hz
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C
ANSI C63.10:2013;
KDB 558074 D01v05r02
RSS-Gen Issue 5 / RSS-247 Issue 2
Test Result : Complied
Performed Location : DEKRA Testing & 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
FCC Designation Number: CN1199;
ISED CAB identifier: CN0040

Documented By :



(Project Assistant: Kitty Li)

Reviewed By :



(Senior Engineer: Frank He)

Approved By :



(Engineer Supervisor: Jack Zhang)

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1. EUT Description	6
1.2. Working Frequency of Each Channel:	7
1.3. Antenna information	8
1.4. Mode of Operation	12
1.5. Tested System Details	12
1.6. Configuration of Tested System	13
1.7. EUT Exercise Software	14
2. Technical Test	15
2.1. Summary of Test Result	15
2.2. Test Frequency configuration:	17
2.3. Test Environment	18
2.4. Measurement Uncertainty	18
3. AC Power Line Conducted Emission	19
3.1. Test Equipment	19
3.2. Test Setup	19
3.3. Limit	20
3.4. Test Procedure	20
3.5. Test Result	21
4. Emissions in restricted frequency bands	21
4.1. Test Equipment	23
4.2. Test Setup	24
4.3. Limit	25
4.4. Test Procedure	28
4.5. EUT test Axis definition	29
4.6. Test Result	30
5. Emissions in non-restricted frequency bands	46
5.1. Test Equipment	46
5.2. Test Setup	46
5.3. Limit	47
5.4. Test Procedure	48
5.5. EUT test Axis definition	49
5.6. Test Result	50
6. Radiated Emission Band Edge	51
6.1. Test Equipment	51
6.2. Test Setup	52
6.3. Limit	52

6.4.	Test Procedure	53
6.5.	EUT test definition	54
6.6.	Duty Cycle	55
6.7.	Test Result	56
7.	Occupied Bandwidth.....	59
7.1.	Test Equipment.....	59
7.2.	Test Setup.....	59
7.3.	Limit.....	60
7.4.	Test Procedure	60
7.5.	EUT test definition	61
7.6.	Test Result.....	62
8.	Fundamental emission output power	63
8.1.	Test Equipment.....	63
8.2.	Test Setup.....	63
8.3.	Limit.....	63
8.4.	Test Procedure	65
8.5.	EUT test definition	66
8.6.	Test Result.....	67
9.	Power Spectral Density	68
9.1.	Test Equipment.....	68
9.2.	Test Setup.....	68
9.3.	Limit.....	68
9.4.	Test Procedure	69
9.5.	EUT test definition	70
9.6.	Test Result.....	71

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
20A0241R-RF-US-P06V02	V1.0	Initial Issued Report	Dec. 02, 2020

1. General Information

1.1. EUT Description

Product Name	Wireless Access Point
Model No.	AP305CX
EUT Voltage	POE 48V
Test Voltage	AC 120V/60Hz
Bluetooth Specification	V4.0
Frequency Range	2402- 2480 MHz
Channel Number	40
Channel Separation	2MHz
Type of Modulation	GFSK
Data Rate	1Mbps
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

Note: The product AP305CX adds 4 antennas based on the Dekra report:

1962097R-RF-US-P06V02. There are 3 antennas of the same type but different gains, and 1 separate Sector antenna. We evaluate the antenna with the largest antenna gain and the Sector antenna. The conducted power is less than the original reported power. We only evaluated the Output power, Band Edge, Emissions in restricted frequency bands, and Power Spectral Density to meet the consistency.

1.2. Working Frequency of Each Channel:

Bluetooth Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

1.3. Antenna information

ML-2452-PTA2M2-036:

Antenna Model No.	N/A				
Antenna Manufacturer	N/A				
Antenna Delivery	☒	1*TX+1*RX	☒	2*TX+2*RX	☐ 3*TX+3*RX
Antenna Technology	☒	SISO			
	☒	MIMO	☐	Basic methodology	
			☐	Sectorized antenna systems	
			☐	Cross-polarized antennas	
			☐	Unequal antenna gains, with equal transmit powers	
			☒	Spatial Multiplexing	
			☒	Cyclic Delay Diversity (CDD)	
Antenna Type	OMNI				
Categorization	Correlated				
Antenna Gain					
Antenna Technology	Ant Gain(Radio 0) (dBi)				
☒ SISO	☒ Ant1	4			

ML-2452-PTA4M4-036:

Antenna Model No.	N/A				
Antenna Manufacturer	N/A				
Antenna Delivery	☒	1*TX+1*RX	☒	2*TX+2*RX	☐ 3*TX+3*RX
Antenna Technology	☒	SISO			
	☒	MIMO	☐	Basic methodology	
			☐	Sectorized antenna systems	
			☐	Cross-polarized antennas	
			☐	Unequal antenna gains, with equal transmit powers	
			☒	Spatial Multiplexing	
			☒	Cyclic Delay Diversity (CDD)	
Antenna Type	OMNI				
Categorization	Correlated				
Antenna Gain					
Antenna Technology	Ant Gain(Radio 0) (dBi)				
☒ SISO	☒ Ant1	5			

AI-DQ04360S:

Antenna Model No.	N/A				
Antenna Manufacturer	N/A				
Antenna Delivery	☒	1*TX+1*RX	☒	2*TX+2*RX	☐ 3*TX+3*RX
Antenna Technology	☒	SISO			
	☒	MIMO	☐	Basic methodology	
			☐	Sectorized antenna systems	
			☐	Cross-polarized antennas	
			☐	Unequal antenna gains, with equal transmit powers	
			☒	Spatial Multiplexing	
			☒	Cyclic Delay Diversity (CDD)	
Antenna Type	OMNI				
Categorization	Correlated				
Antenna Gain					
Antenna Technology	Ant Gain(Radio 0) (dBi)				
☒ SISO	☒ Ant1	5.5			

ML-2452-SEC6M4-036:

Antenna Model No.	N/A				
Antenna Manufacturer	N/A				
Antenna Delivery	☒	1*TX+1*RX	☒	2*TX+2*RX	☐ 3*TX+3*RX
Antenna Technology	☒	SISO			
	☒	MIMO	☐	Basic methodology	
			☐	Sectorized antenna systems	
			☐	Cross-polarized antennas	
			☐	Unequal antenna gains, with equal transmit powers	
			☒	Spatial Multiplexing	
			☒	Cyclic Delay Diversity (CDD)	
Antenna Type	Sector				
Categorization	Correlated				
Antenna Gain					
Antenna Technology	Ant Gain(Radio 0) (dBi)				
☒ SISO	☒ Ant1	6.9			

1.4. Mode of Operation

Test Mode
Mode 1: Transmit-1Mbps(GFSK_BLE)

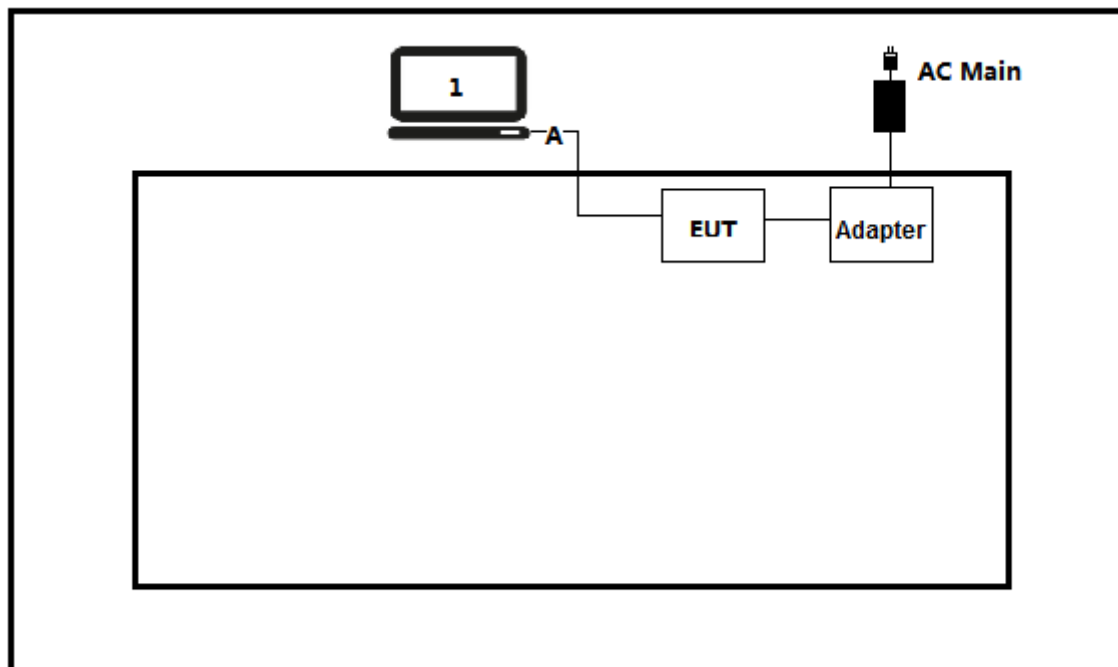
1.5. Tested System Details

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

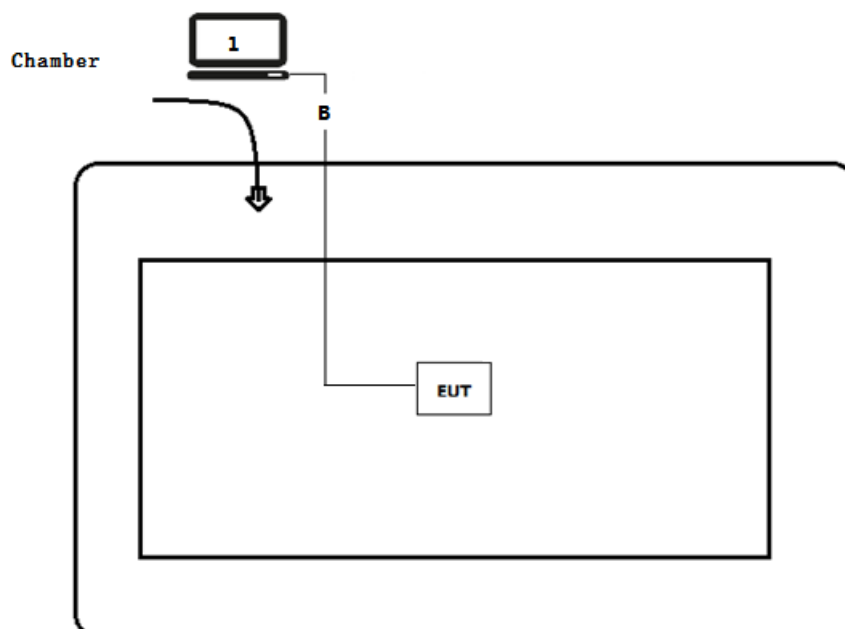
No.	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	LAN Cable	N/A	N/A	N/A	Shield, 0.75m
B	LAN Cable	N/A	N/A	N/A	Shield, 10m

1.6. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



1.7. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run RF software [Mtool], and set the test mode and channel, then press OK to start to continue transmit.

2. Technical Test

2.1. Summary of Test Result

For FCC

Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	FCC 15.207	PASS
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	FCC 15.209	PASS
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(d)	$\geq 20\text{dBc}$	PASS
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	FCC 15.209	PASS
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(2)	$\geq 500\text{kHz}$	PASS
Fundamental emission output power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	$\leq 30\text{dBm}$	PASS
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(e)	$\leq 8\text{dBm}/3\text{kHz}$	PASS
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	FCC 15.203	PASS

For ISED

Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	RSS-Gen Issue 5 Section 8.8	RSS-Gen	PASS
Emissions in restricted frequency bands	RSS-Gen Issue 5 Section 8.9	RSS-Gen	PASS
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section A5.5	$\geq 20\text{dBc}$	PASS
Radiated Emission Band Edge	RSS-247 Issue 2 Section A5.5	RSS-247	PASS
Occupied Bandwidth	RSS-Gen Issue 5 Section 6.6 RSS-247 Issue 2 Section A5.2(1)	$\geq 500\text{kHz}$	PASS
Fundamental emission output power	RSS-247 Issue 2 Section A5.4(4)	$\leq 30\text{dBm}$	PASS
Power Spectral Density	RSS-247 Issue 2 Section A5.2(2)	$\leq 8\text{dBm}/3\text{kHz}$	PASS
Antenna Requirement	RSS-Gen Issue 5 Section 8.3	RSS-Gen Issue 5	PASS

2.2. Test Frequency configuration:

Modulation Mode	Channel	Frequency	Channel	Frequency	Channel	Frequency
BLE	00	2402 MHz	19	2440 MHz	39	2480MHz

2.3. 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

2.4. 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	$\pm 1.27\text{dB}$

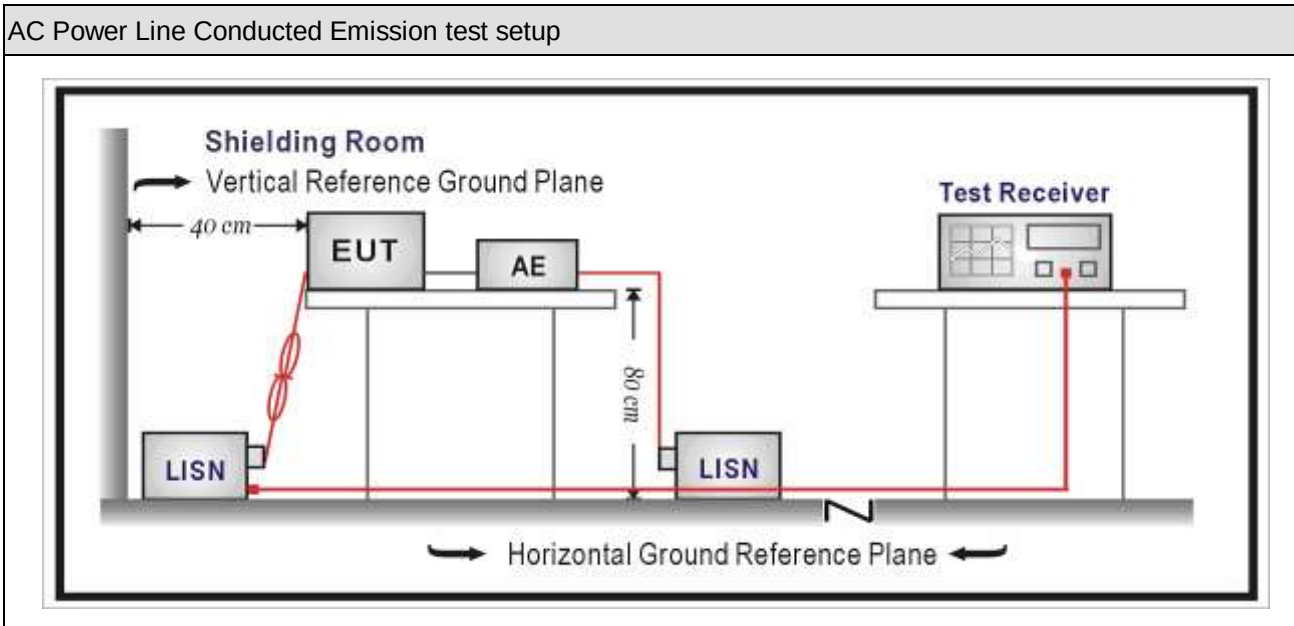
3. AC Power Line Conducted Emission

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	100726	2020.11.03	2021.11.02
Two-Line V-Network	R&S	ENV 216	101189	2020.08.15	2021.08.14
Two-Line V-Network	R&S	ENV 216	101044	2020.04.18	2021.04.17
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081403	2020.09.23	2021.09.22
Temperature/Humidity Meter	zhichen	ZC1-2	TR1-TH	2020.08.13	2021.08.12

Note: All equipment 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 (dBμV)	Average(dBμV)
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.

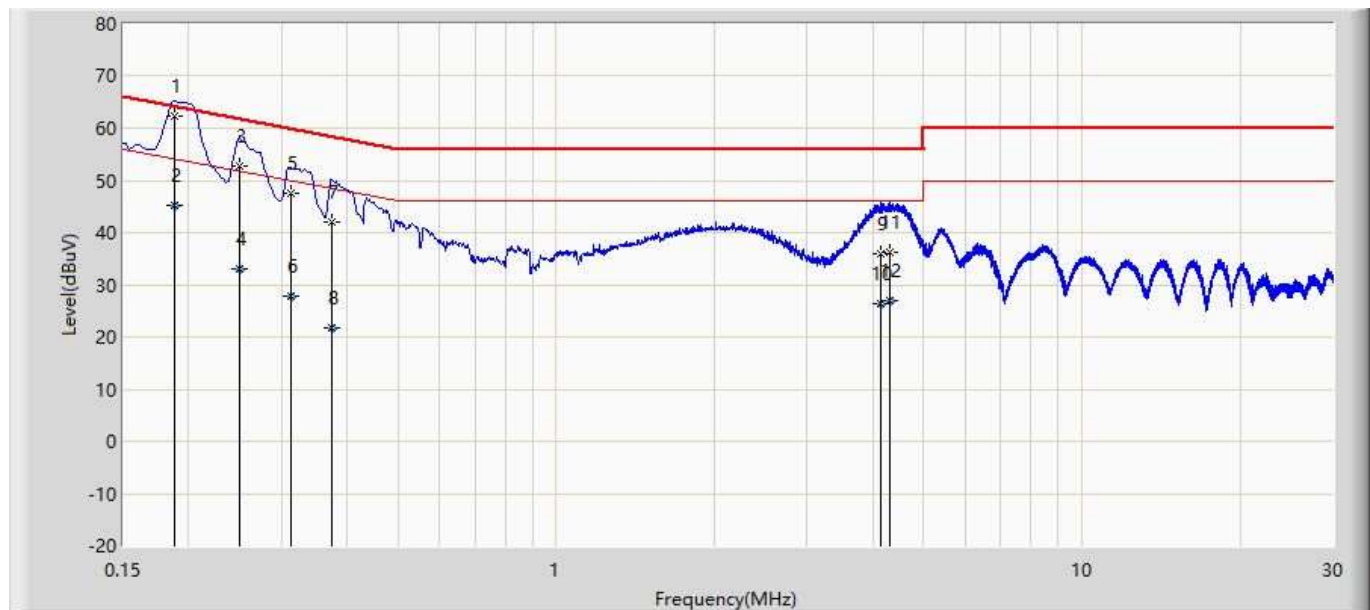
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

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

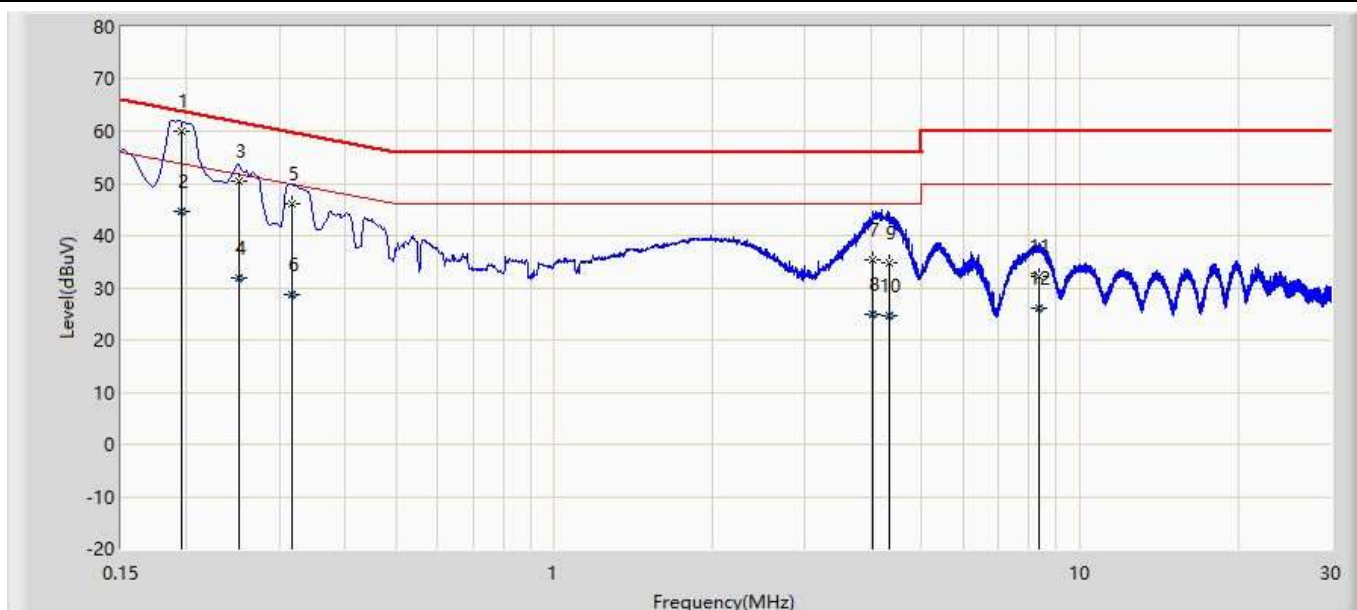
3.5. Test Result

Profile: 20A0241R	Page No.: 1
Engineer: Jun	
Site: TR1	Time: 2020/12/02 - 21:01
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	0.188	62.300	52.621	-1.813	64.113	9.680	0	0	QP
2		0.188	45.307	35.628	-8.806	54.113	9.680	0	0	AV
3		0.249	52.800	43.089	-8.991	61.790	9.711	0	0	QP
4		0.249	32.971	23.260	-18.819	51.790	9.711	0	0	AV
5		0.312	47.642	37.899	-12.275	59.917	9.743	0	0	QP
6		0.312	27.878	18.136	-22.039	49.917	9.743	0	0	AV
7		0.375	41.900	32.127	-16.489	58.389	9.773	0	0	QP
8		0.375	21.846	12.073	-26.544	48.389	9.773	0	0	AV
9		4.135	35.976	25.861	-20.024	56.000	10.115	0	0	QP
10		4.135	26.434	16.319	-19.566	46.000	10.115	0	0	AV
11		4.303	36.334	26.214	-19.666	56.000	10.119	0	0	QP
12		4.303	27.030	16.910	-18.970	46.000	10.119	0	0	AV

Profile: 20A0241R	Page No.: 2
Engineer: Jun	
Site: TR1	Time: 2020/12/02 - 21:11
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	0.195	59.950	50.187	-3.871	63.821	9.763	0	0	QP
2		0.195	44.760	34.997	-9.061	53.821	9.763	0	0	AV
3		0.251	50.491	40.710	-11.225	61.716	9.780	0	0	QP
4		0.251	31.819	22.038	-19.896	51.716	9.780	0	0	AV
5		0.317	46.171	36.372	-13.627	59.798	9.799	0	0	QP
6		0.317	28.791	18.993	-21.007	49.798	9.799	0	0	AV
7		4.040	35.360	25.338	-20.640	56.000	10.022	0	0	QP
8		4.040	25.027	15.005	-20.973	46.000	10.022	0	0	AV
9		4.330	34.888	24.857	-21.112	56.000	10.032	0	0	QP
10		4.330	24.679	14.648	-21.321	46.000	10.032	0	0	AV
11		8.347	32.109	21.924	-27.891	60.000	10.185	0	0	QP
12		8.347	26.045	15.860	-23.955	50.000	10.185	0	0	AV

Note:

1. " * ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4. Emissions in restricted frequency bands

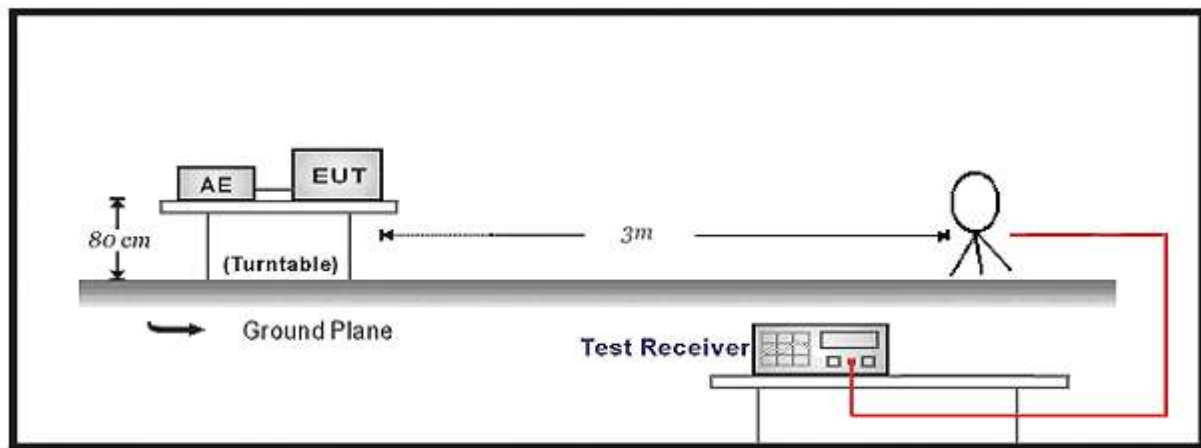
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2019.12.28	2020.12.27
Loop Antenna	R&S	HFH2-Z2	833799/003	2020.02.17	2021.02.16
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2020.09.23	2021.09.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2020.04.05	2021.04.04
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2020.08.13	2021.08.12
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

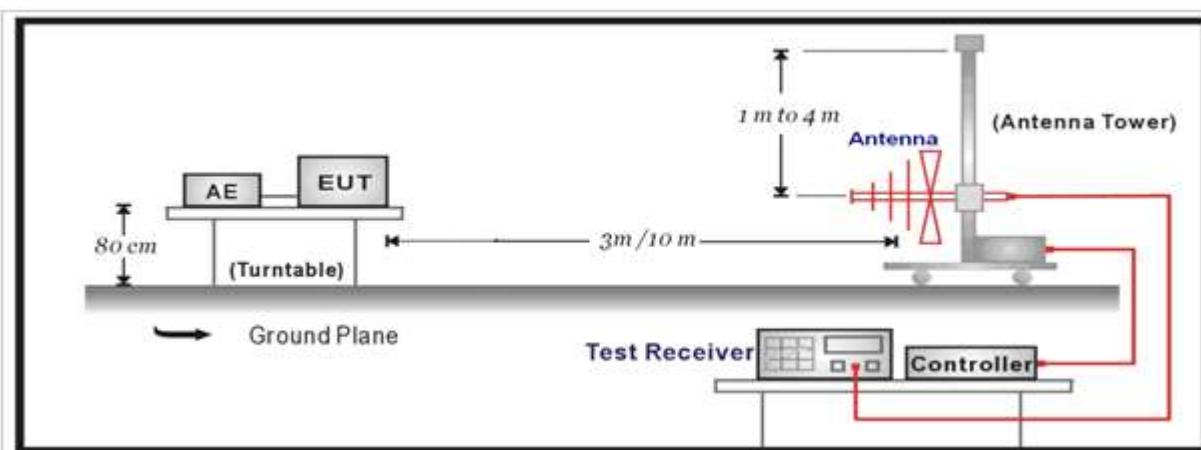
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2020.01.02	2021.01.01
Preamplifier	Miteq	NSP1800-25	1364185	2020.05.03	2021.05.02
Preamplifier	QuieTek	AP-040G	CHM-0906001	2020.05.03	2021.05.02
DRG Horn	ETS-Lindgren	3117	00123988	2020.09.21	2021.09.20
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2020.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.05	2021.04.04
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2020.04.18	2021.04.17
EMI Receiver	Agilent	N9038A	MY51210196	2020.04.18	2021.04.17
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2020.08.13	2021.08.12
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

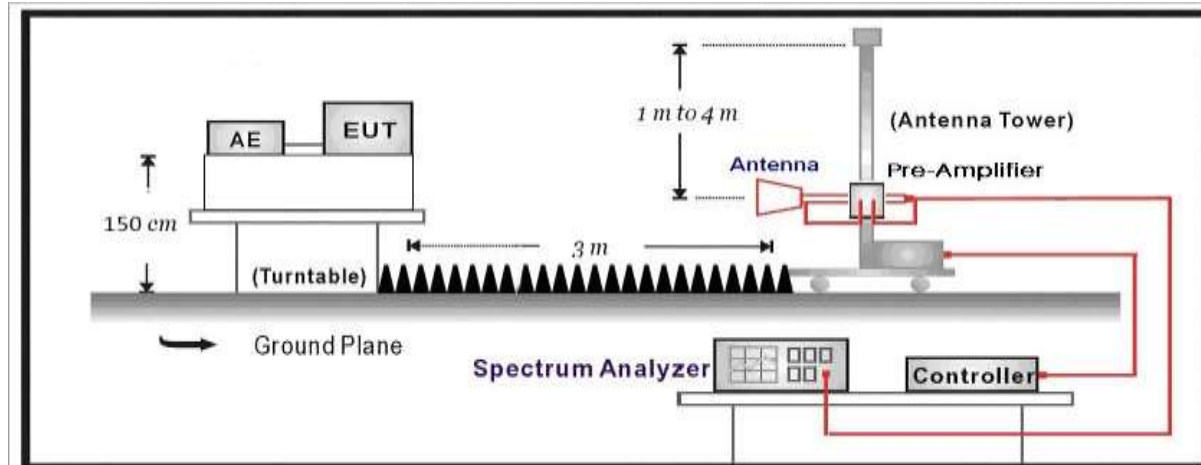
Below 30MHz Test Setup:



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			

For IC:

Restricted Bands of operation

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090-0.110	13.36-13.41	1645.5-1646.5	9.0-9.2
2.1735-2.1905	16.42-16.423	1660-1710	9.3-9.5
3.020-3.026	16.69475-16.69525	1718.8-1722.2	10.6-12.7
4.125-4.128	16.80425-16.80475	2200-2300	13.25-13.4
4.17725-4.17775	25.5-25.67	2310-2390	14.47-14.5
4.20725-4.20775	37.5-38.25	2655-2900	15.35-16.2
5.677-5.683	73-74.6	3260-3267	17.7-21.4
6.215-6.218	74.8-75.2	3332-3339	22.01-23.12
6.26775-6.26825	108-138	3345.8-3358	23.6-24.0
6.31175-6.31225	156.52475-156.52525	3500-4400	31.2-31.8
8.291-8.294	156.7-156.9	4500-5150	36.43-36.5
8.362-8.366	240-285	5350-5460	Above 38.6
8.37625-8.38675	322-335.4	7250-7750	
8.41425-8.41475	399.9-410	8025-8500	
12.29-12.293	608-614		
12.51975-12.52025	960-1427		
12.57675-12.57725	1435-1626.5		

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	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)

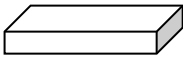
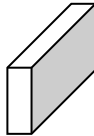
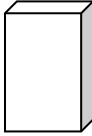
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed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

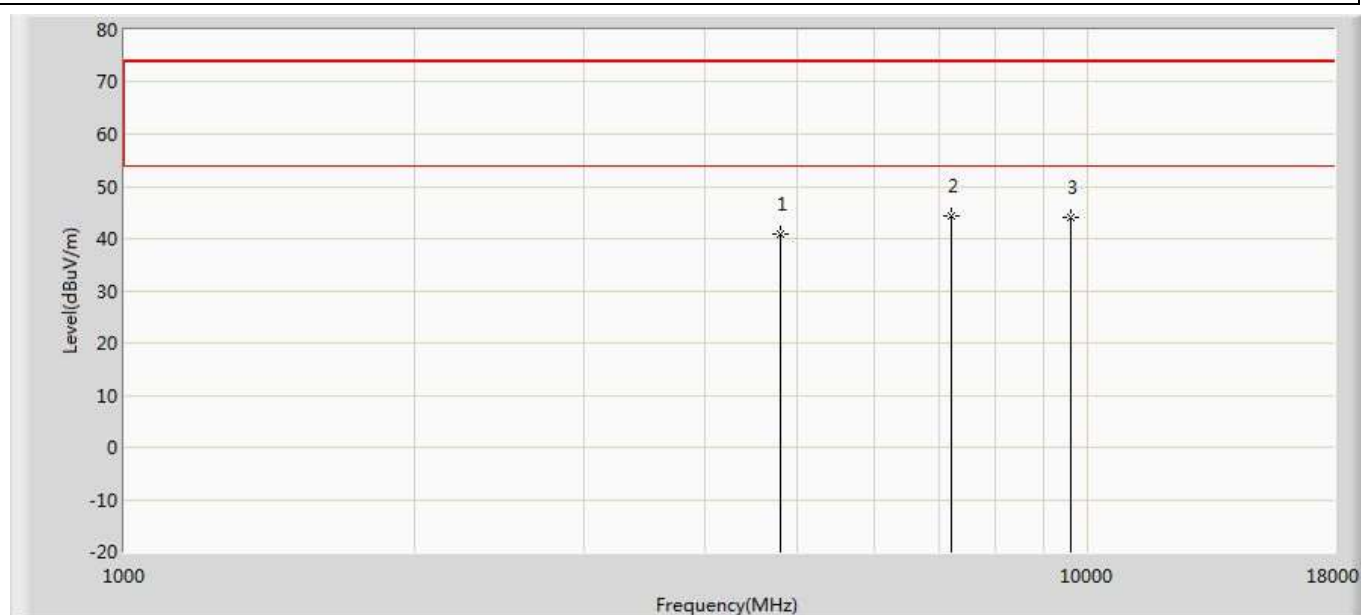
4.5. EUT test Axis definition

Item	Emissions in restricted frequency bands			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
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

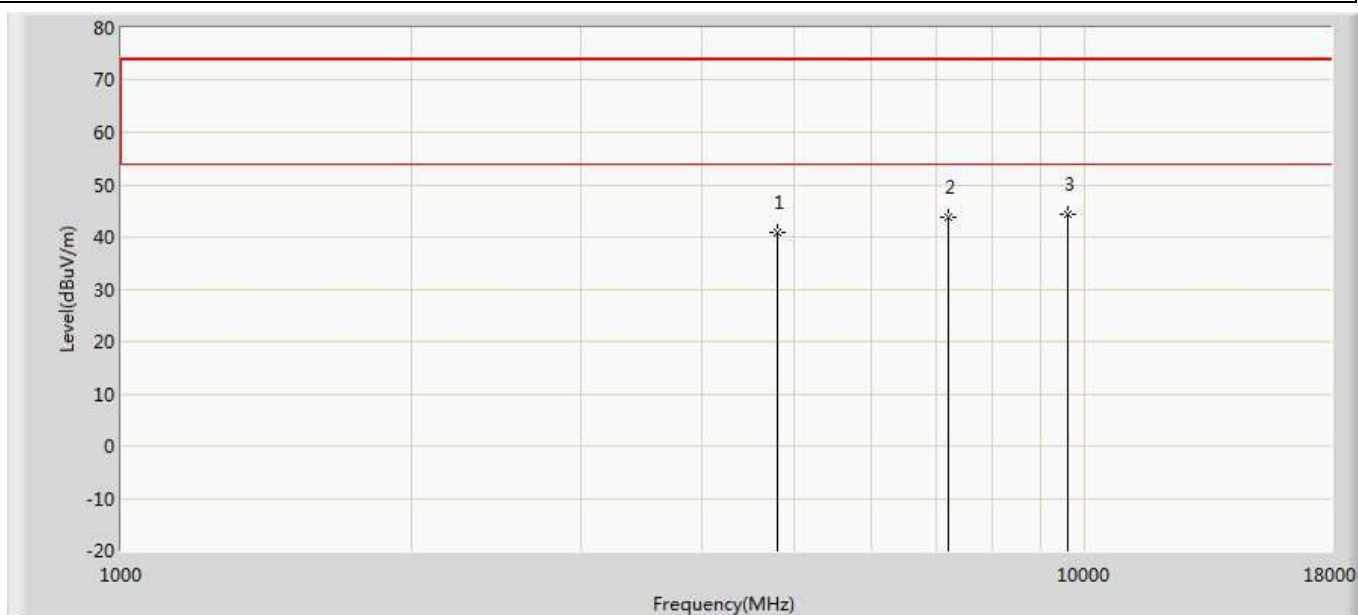
OMNI Antenna

Profile:20A0241R	Page No.: 7
Engineer: Jun	
Site: AC5	Time: 2020/12/21 - 18:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2402MHz by BLE	



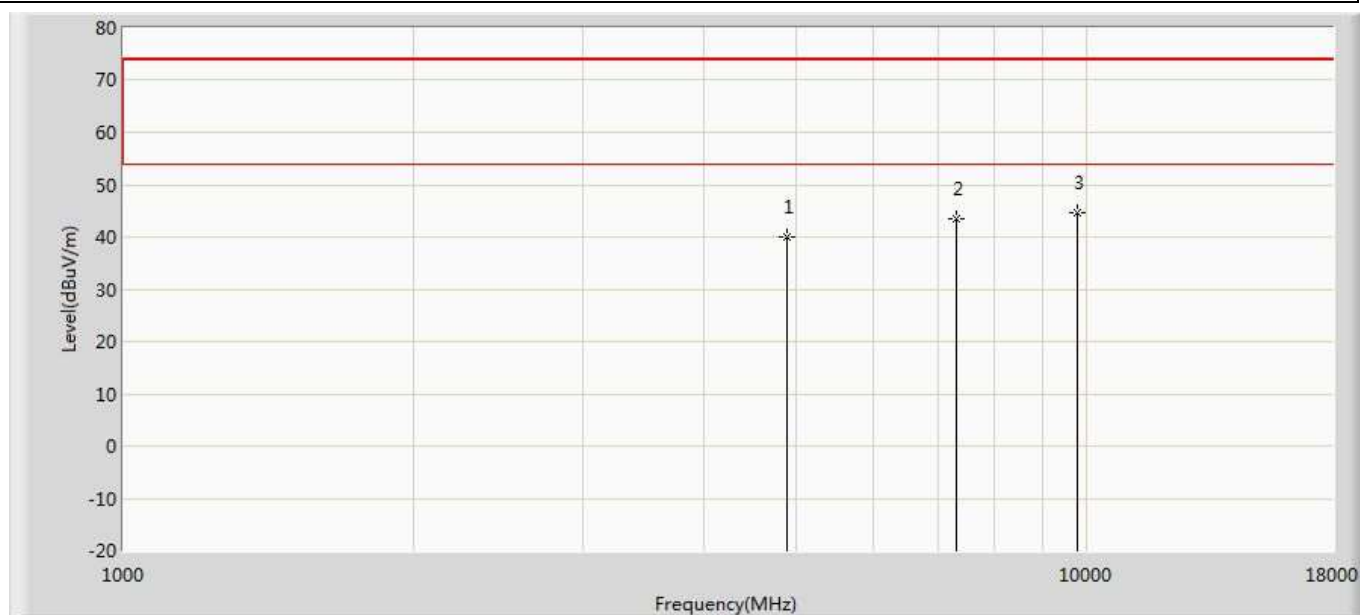
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.837	46.918	-33.163	74.000	-6.081	PK
2	*	7206.000	44.330	47.201	-29.670	74.000	-2.871	PK
3		9608.000	44.103	45.531	-29.897	74.000	-1.427	PK

Profile:20A0241R	Page No.: 8
Engineer: Jun	
Site: AC5	Time: 2020/12/21 - 18:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2402MHz by BLE	



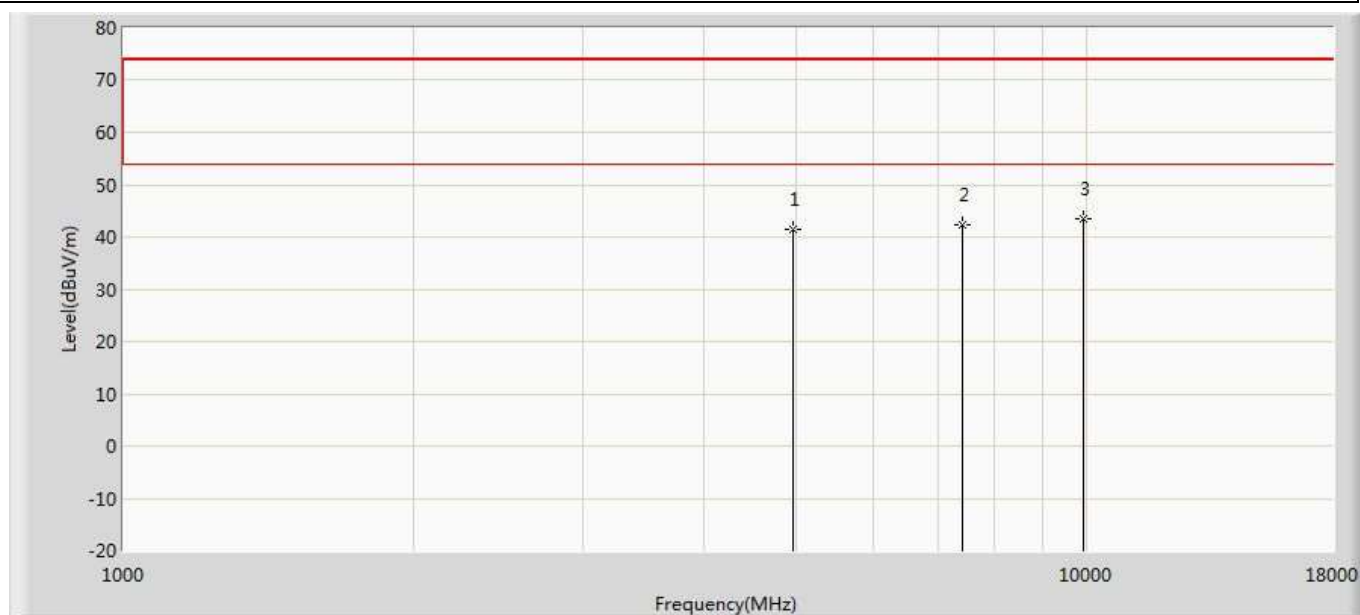
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	40.881	46.962	-33.119	74.000	-6.081	PK
2		7206.000	43.649	46.520	-30.351	74.000	-2.871	PK
3	*	9608.000	44.310	45.738	-29.690	74.000	-1.427	PK

Profile:20A0241R	Page No.: 9
Engineer: Jun	
Site: AC5	Time: 2020/12/21 - 18:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2440MHz by BLE	



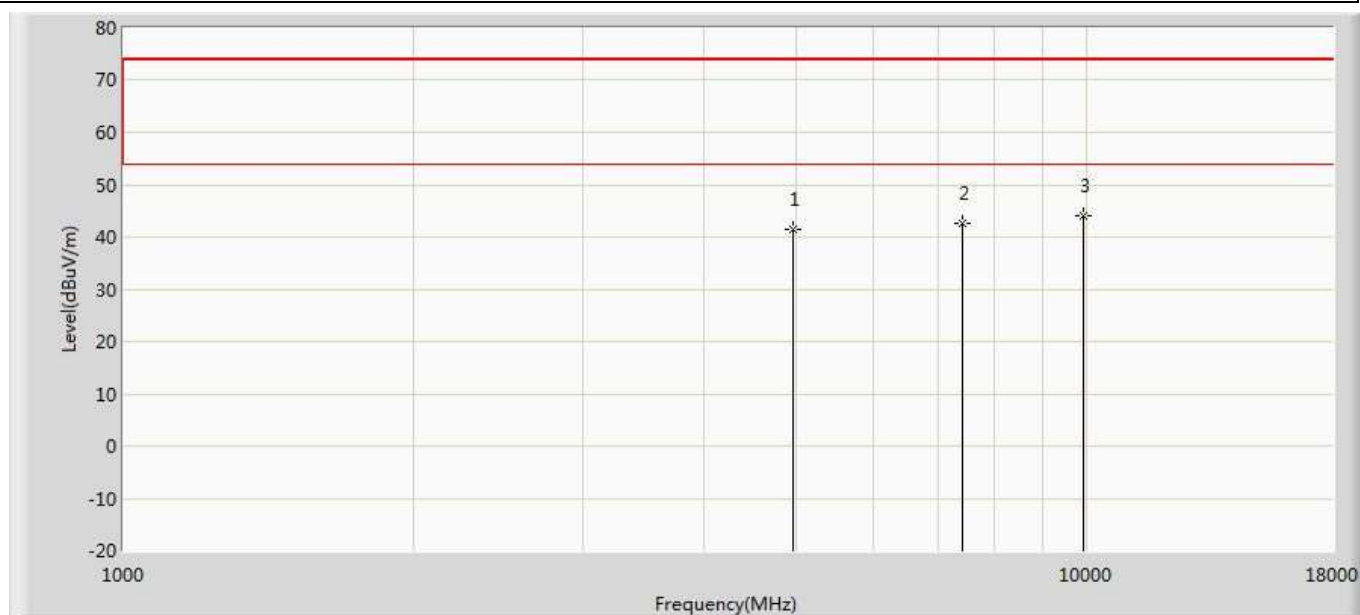
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	39.950	45.823	-34.050	74.000	-5.873	PK
2		7320.000	43.610	46.674	-30.390	74.000	-3.064	PK
3	*	9760.000	44.613	45.661	-29.387	74.000	-1.048	PK

Profile:20A0241R	Page No.: 10
Engineer: Jun	
Site: AC5	Time: 2020/12/21 - 18:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315_(1-18GHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2480MHz by BLE	



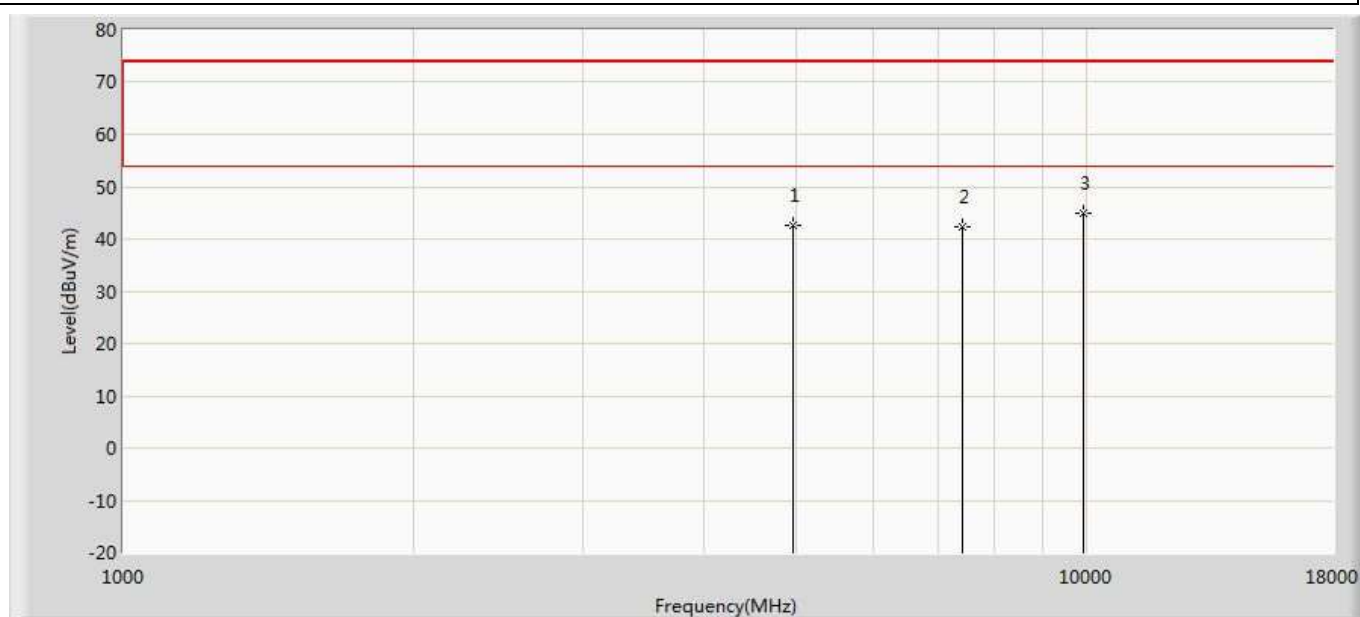
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	41.562	46.855	-32.438	74.000	-5.293	PK
2		7440.000	42.365	45.562	-31.635	74.000	-3.197	PK
3	*	9920.000	43.361	43.143	-30.639	74.000	0.218	PK

Profile:20A0241R	Page No.: 11
Engineer: Jun	
Site: AC5	Time: 2020/12/21 - 18:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315_(1-18GHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	41.406	46.699	-32.594	74.000	-5.293	PK
2		7440.000	42.572	45.769	-31.428	74.000	-3.197	PK
3	*	9920.000	44.161	43.943	-29.839	74.000	0.218	PK

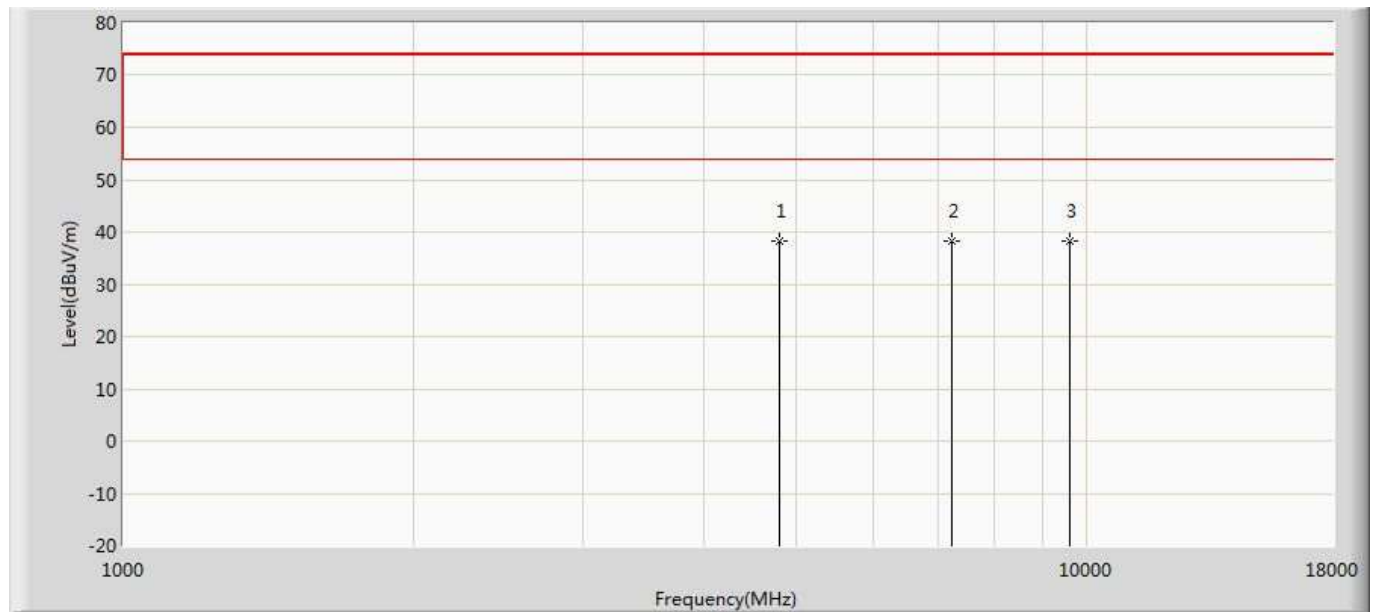
Profile:20A0241R	Page No.: 12
Engineer: Jun	
Site: AC5	Time: 2020/12/21 - 18:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315_(1-18GHz)	Polarity: Vertical
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	42.741	48.034	-31.259	74.000	-5.293	PK
2		7440.000	42.205	45.402	-31.795	74.000	-3.197	PK
3	*	9920.000	44.981	44.763	-29.019	74.000	0.218	PK

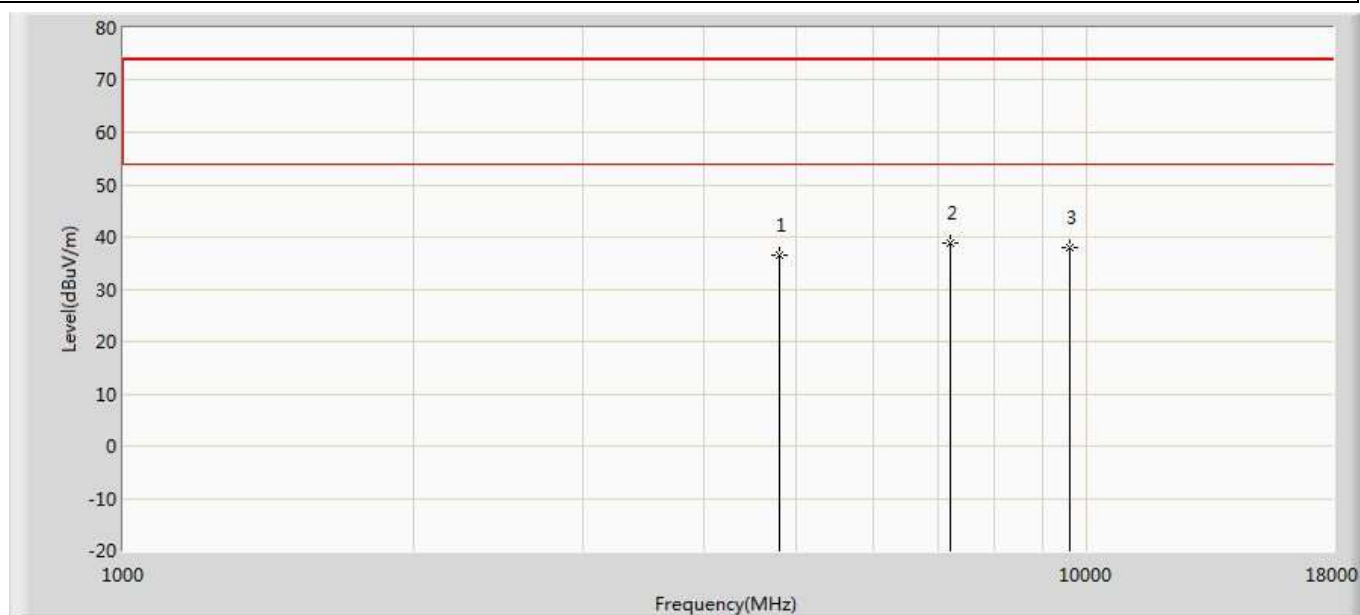
Sector Antenna

Profile:20A0241R	Page No.: 7
Engineer: Simon	
Site: AC5	Time: 2020/12/21 - 18:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2402MHz by BLE	



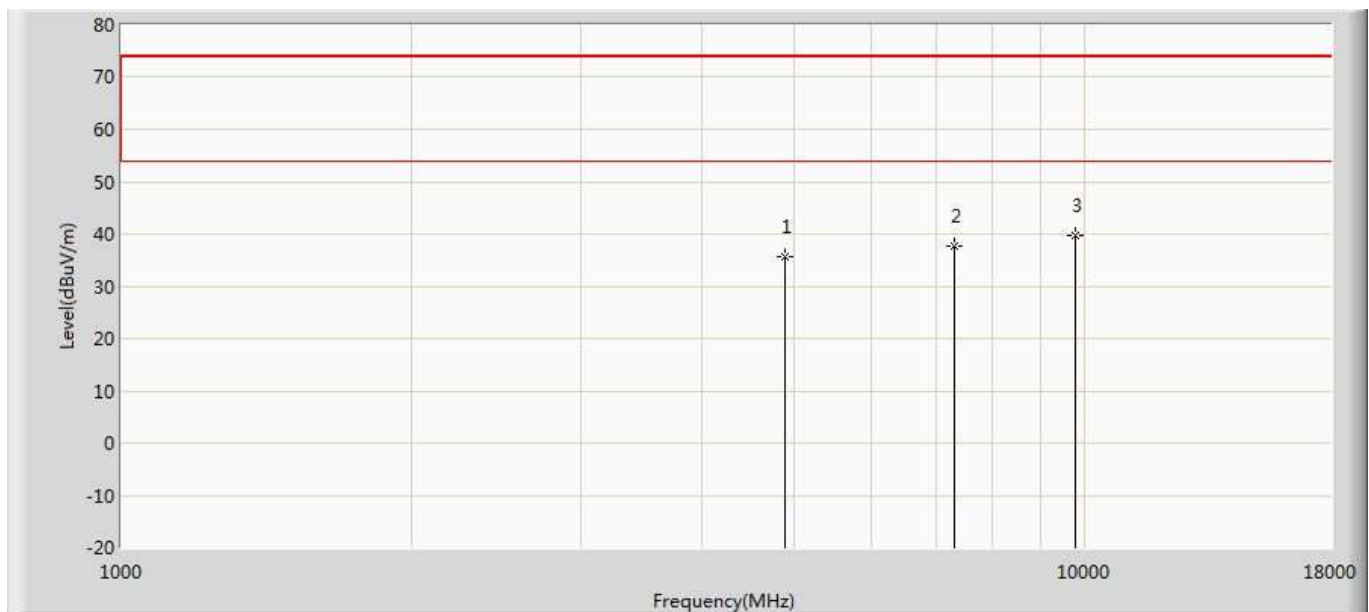
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	38.126	44.207	-35.874	74.000	-6.081	PK
2		7236.000	38.213	41.170	-35.787	74.000	-2.957	PK
3	*	9608.000	38.390	39.818	-35.610	74.000	-1.427	PK

Profile:20A0241R	Page No.: 8
Engineer: Simon	
Site: AC5	Time: 2020/12/21 - 18:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2402MHz by BLE	



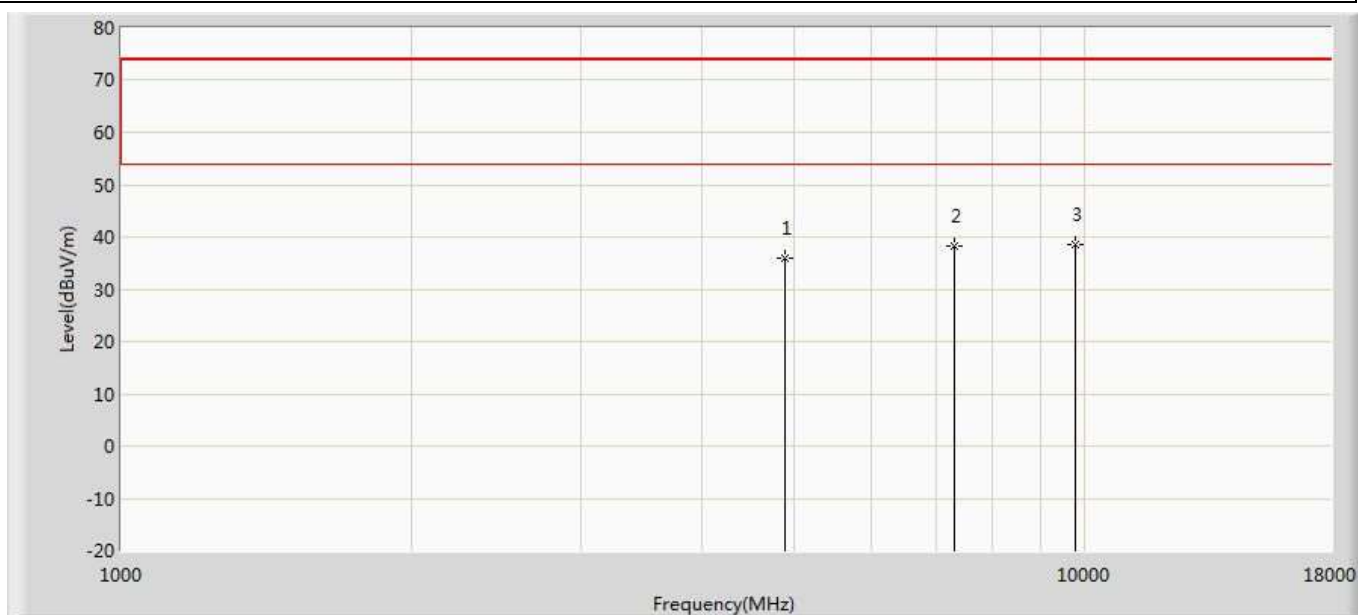
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	36.473	42.554	-37.527	74.000	-6.081	PK
2	*	7206.000	38.934	41.805	-35.066	74.000	-2.871	PK
3		9608.000	38.046	39.474	-35.954	74.000	-1.427	PK

Profile:20A0241R	Page No.: 9
Engineer: Simon	
Site: AC5	Time: 2020/12/21 - 18:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2440MHz by BLE	



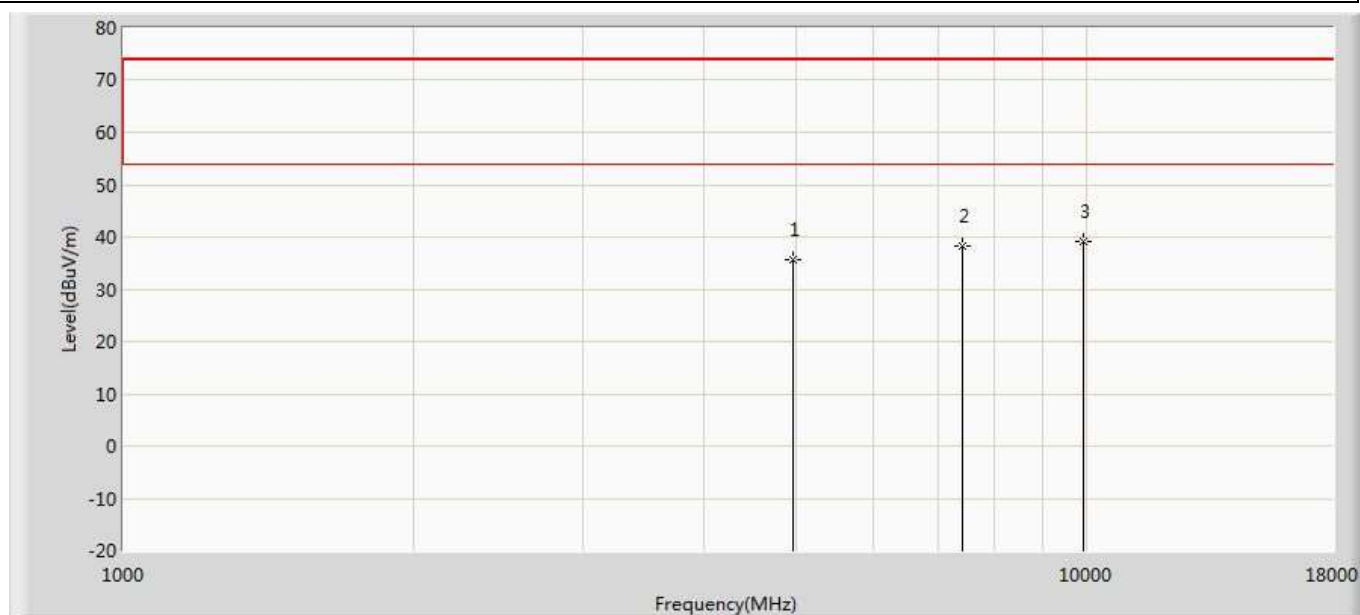
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	35.543	41.416	-38.457	74.000	-5.873	PK
2		7320.000	37.824	40.888	-36.176	74.000	-3.064	PK
3	*	9760.000	39.692	40.740	-34.308	74.000	-1.048	PK

Profile:20A0241R	Page No.: 10
Engineer: Simon	
Site: AC5	Time: 2020/12/21 - 18:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2440MHz by BLE	



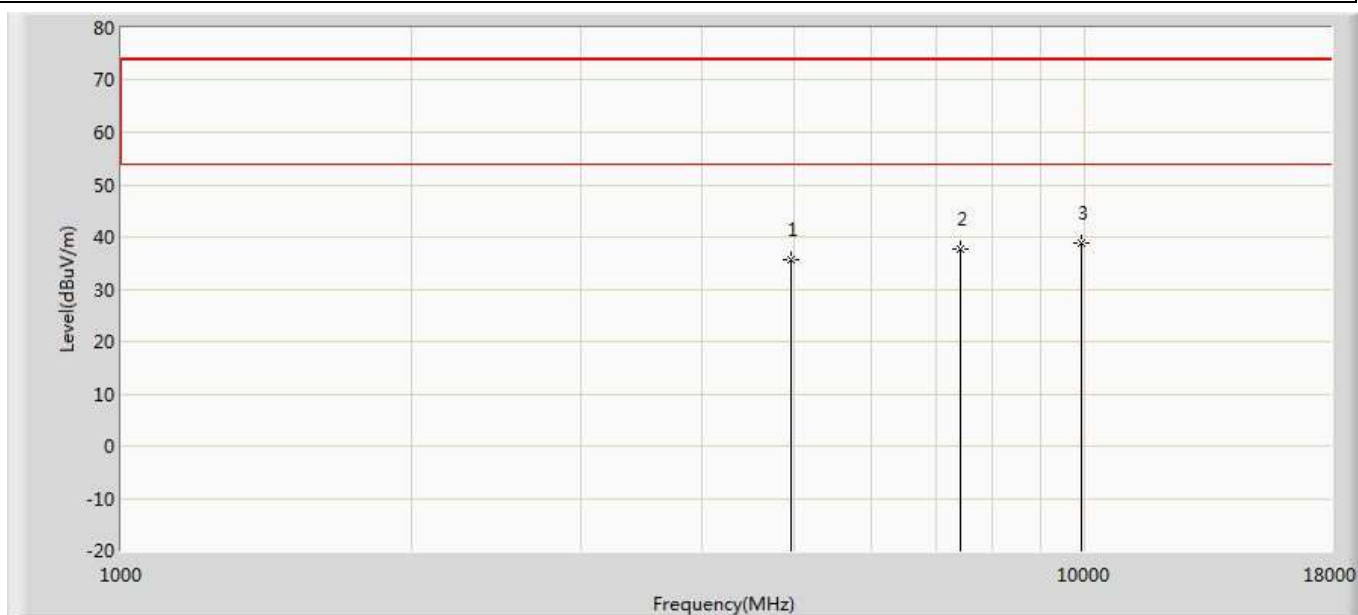
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	36.061	41.934	-37.939	74.000	-5.873	PK
2		7320.000	38.195	41.259	-35.805	74.000	-3.064	PK
3	*	9760.000	38.593	39.641	-35.407	74.000	-1.048	PK

Profile:20A0241R	Page No.: 11
Engineer: Simon	
Site: AC5	Time: 2020/12/21 - 18:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	35.707	41.443	-38.293	74.000	-5.737	PK
2		7440.000	38.264	41.237	-35.736	74.000	-2.973	PK
3	*	9920.000	39.061	39.478	-34.939	74.000	-0.418	PK

Profile:20A0241R	Page No.: 12
Engineer: Simon	
Site: AC5	Time: 2020/12/21 - 18:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	35.748	41.484	-38.252	74.000	-5.737	PK
2		7440.000	37.714	40.687	-36.286	74.000	-2.973	PK
3	*	9920.000	38.701	39.118	-35.299	74.000	-0.418	PK

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

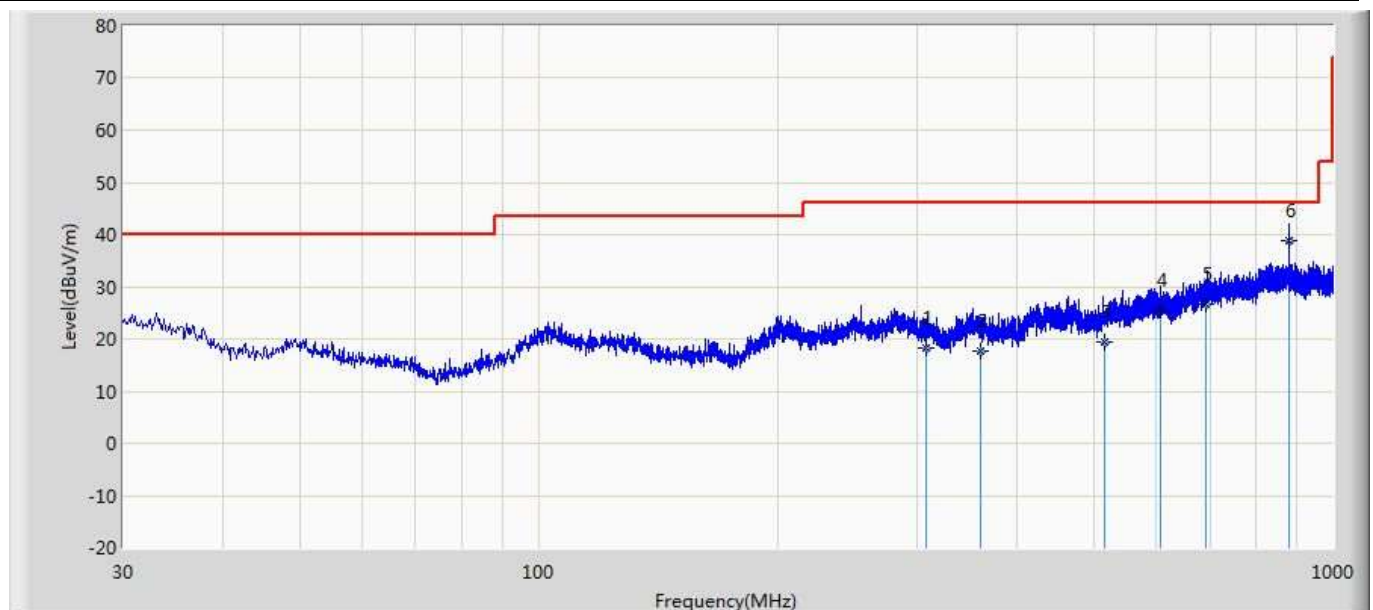
Note: 2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

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. We evaluated all the antennas and the report shows the worst data

The worst case of Radiated Emission below 1GHz:

Profile: 20A0241R	Page No.: 9
Engineer: Jun	
Site: AC2	Time: 2020/12/02 - 19:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1	

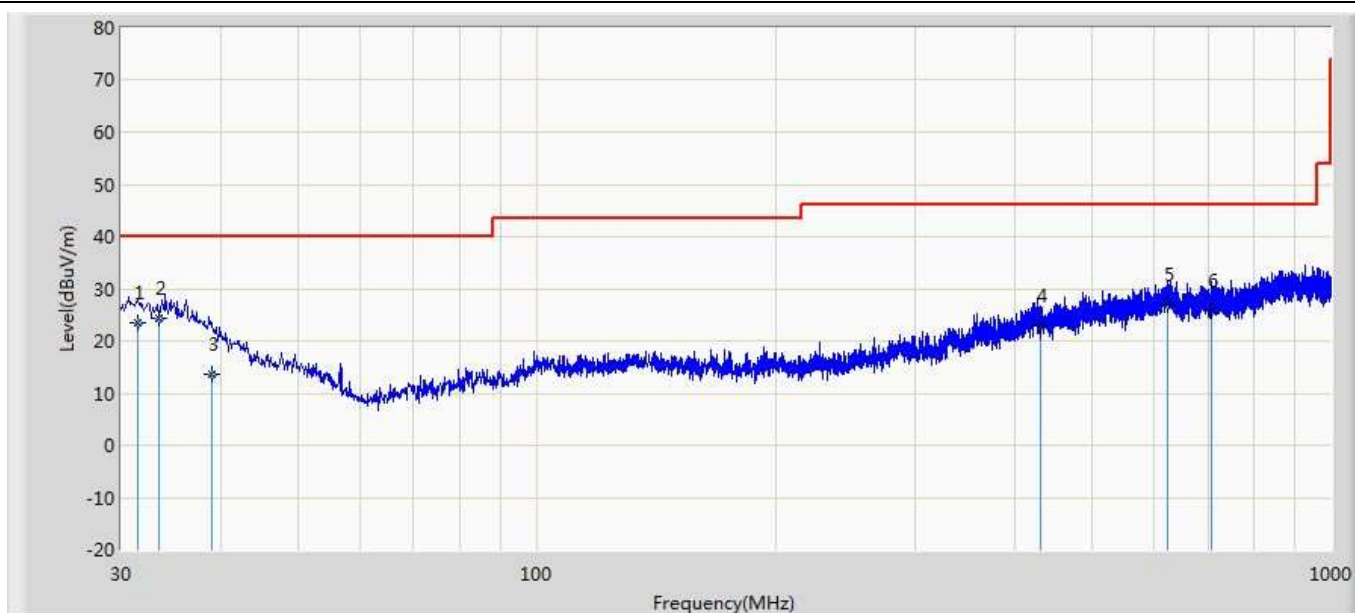


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		307.520	18.287	-5.852	-27.713	46.000	24.139	100	152	QP
2		360.422	17.711	-6.750	-28.289	46.000	24.461	110	152	QP
3		515.520	19.293	-6.820	-26.707	46.000	26.113	100	74	QP
4		607.852	25.515	-2.471	-20.485	46.000	27.986	100	42	QP
5		691.820	26.770	-3.400	-19.230	46.000	30.170	100	85	QP
6	*	880.740	38.875	5.525	-7.125	46.000	33.350	100	93	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).

Profile: 20A0241R	Page No.: 10
Engineer: Jun	
Site: AC2	Time: 2020/12/02 - 19:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: Wireless Access Point	Power: AC 120V/60Hz
Note: Mode 1	



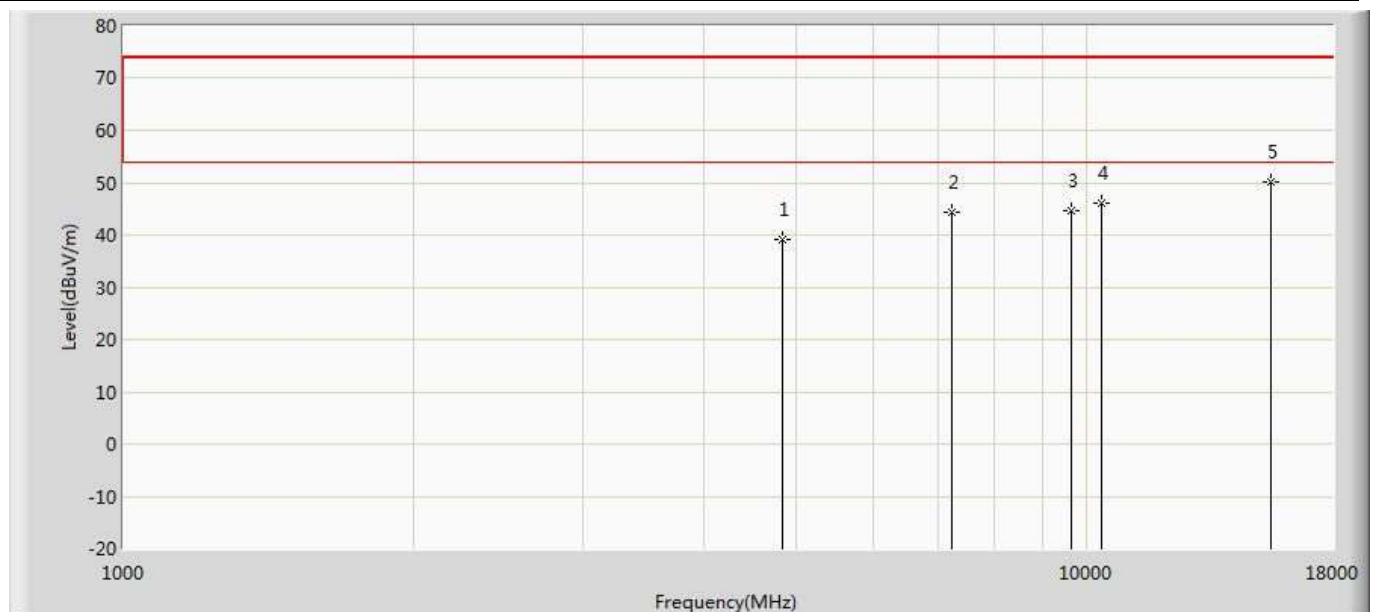
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		31.500	23.618	-3.520	-16.382	40.000	27.137	100	42	QP
2	*	33.520	24.234	-2.800	-15.766	40.000	27.034	100	54	QP
3		38.960	13.676	-9.520	-26.324	40.000	23.196	100	42	QP
4		431.520	22.791	-3.520	-23.209	46.000	26.310	100	142	QP
5		623.520	26.967	-3.630	-19.033	46.000	30.597	100	152	QP
6		708.850	25.781	-3.520	-20.219	46.000	29.301	100	41	QP

Note:

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

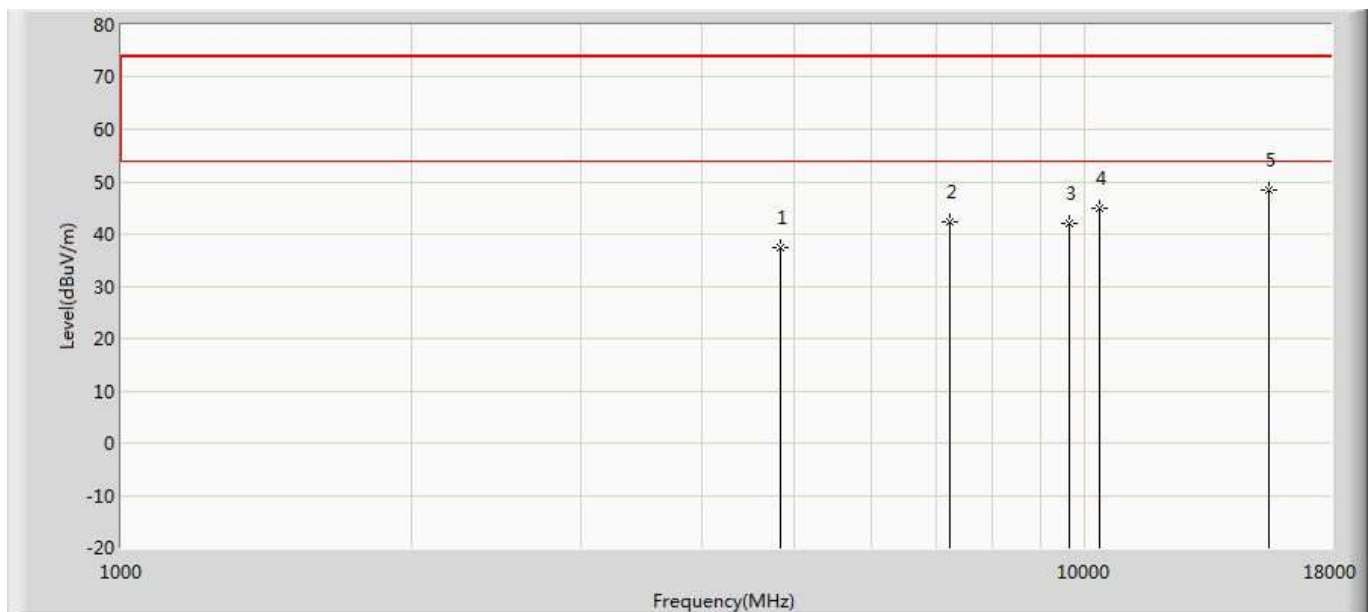
The worst case of Simultaneous transmission:

Profile: 20A2041R	Page No.: 5
Engineer: Jun	
Site: AC5	Time: 2020/12/02 - 18:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: AP305CX	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 5180MHz by 802.11a ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	39.098	44.994	-34.902	74.000	-5.896	PK
2		7236.000	44.314	47.271	-29.686	74.000	-2.957	PK
3		9648.000	44.620	46.115	-29.380	74.000	-1.495	PK
4		10360.000	46.066	45.205	-27.934	74.000	0.860	PK
5	*	15540.000	50.142	43.504	-23.858	74.000	6.637	PK

Profile: 20A2041R	Page No.: 6
Engineer: Jun	
Site: AC5	Time: 2020/12/02 - 18:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: AP305CX	Power: AC 120V/60Hz
Note: Mode 1:Transmint at 5180MHz by 802.11a ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	37.527	43.423	-36.473	74.000	-5.896	PK
2		7236.000	42.387	45.344	-31.613	74.000	-2.957	PK
3		9648.000	42.156	43.651	-31.844	74.000	-1.495	PK
4		10360.000	44.939	44.078	-29.061	74.000	0.860	PK
5	*	15540.000	48.425	41.787	-25.575	74.000	6.637	PK

Note:

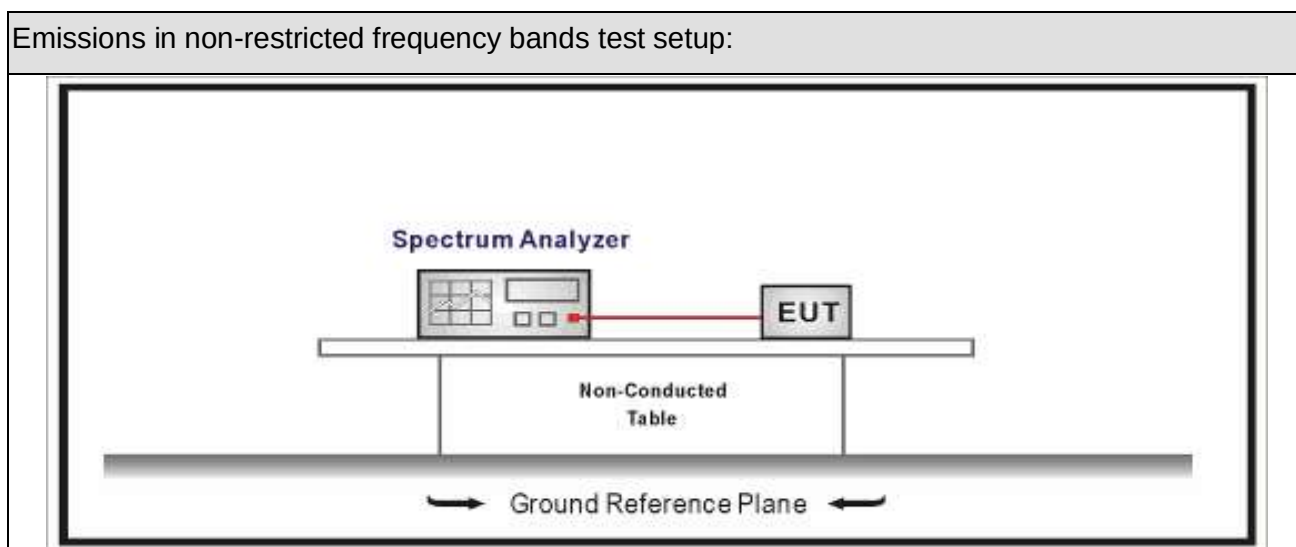
1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).
3. We evaluated all the mode channels and antennas, the report shows the worst data.

5. Emissions in non-restricted frequency bands

5.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2. Test Setup



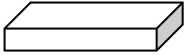
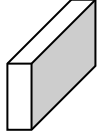
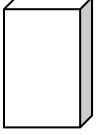
5.3. Limit

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	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

5.5. EUT test Axis definition

Item	Emissions in non-restricted frequency bands			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
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

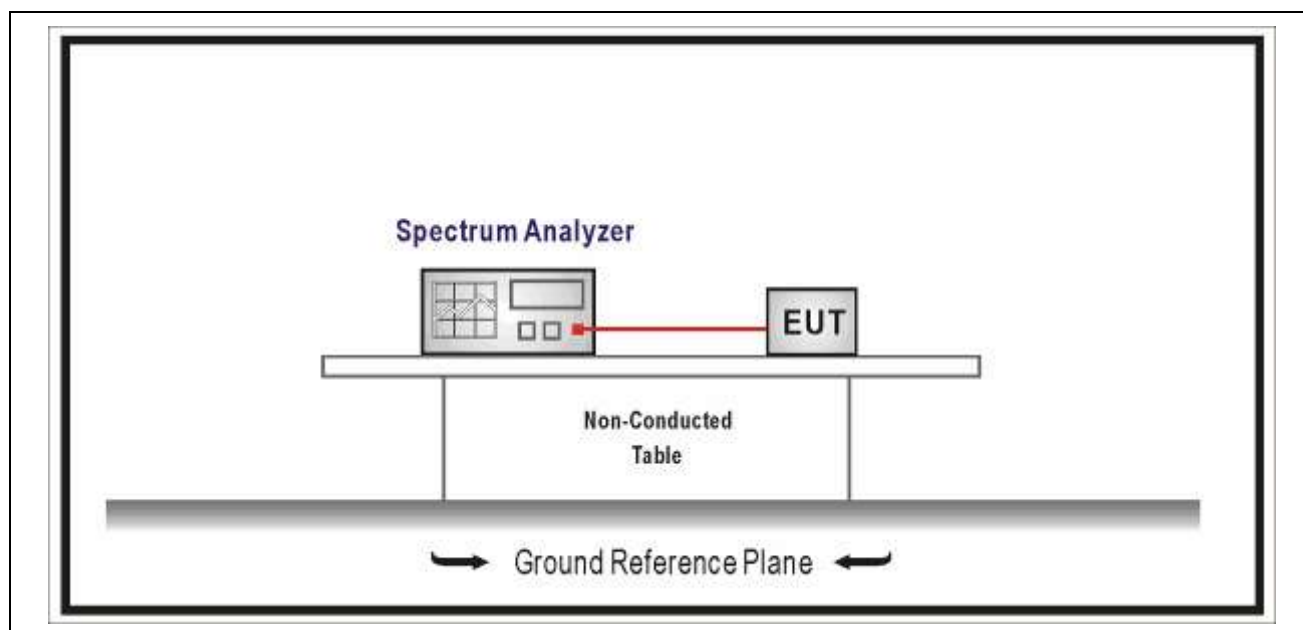
N/A

6. Band Edge

6.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

6.2. Test Setup



6.3. Limit

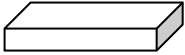
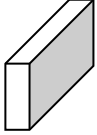
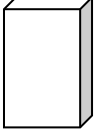
Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

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

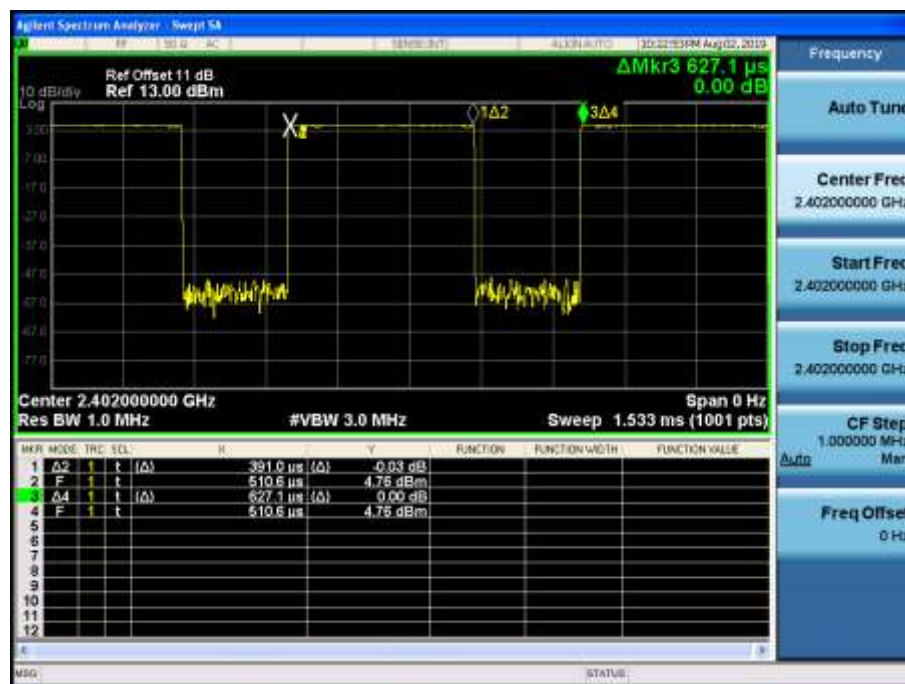
6.5. EUT test definition

Item	Radiated Emission Band Edge			
Device Category	☐	Fixed point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
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)	Reduced VBW	Tx On + Tx Off (ms)	Duty Cycle
BLE	0.391	0.236	3KHz	0.627	62.36%

BLE



6.7 Test Result

OMNI Antenna

PK Limit=74dBuV/m-95.2-5.5(Antenna Gain) =-26.7dBm

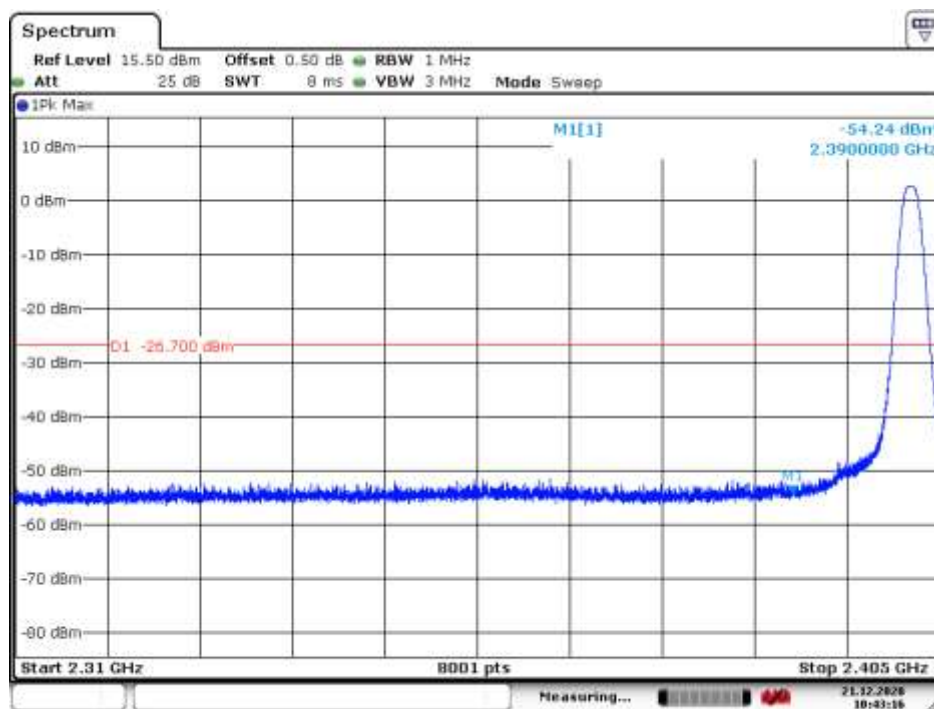
AV Limit=54dBuV/m-95.2-5.5(Antenna Gain) =-46.7dBm

Sector Antenna

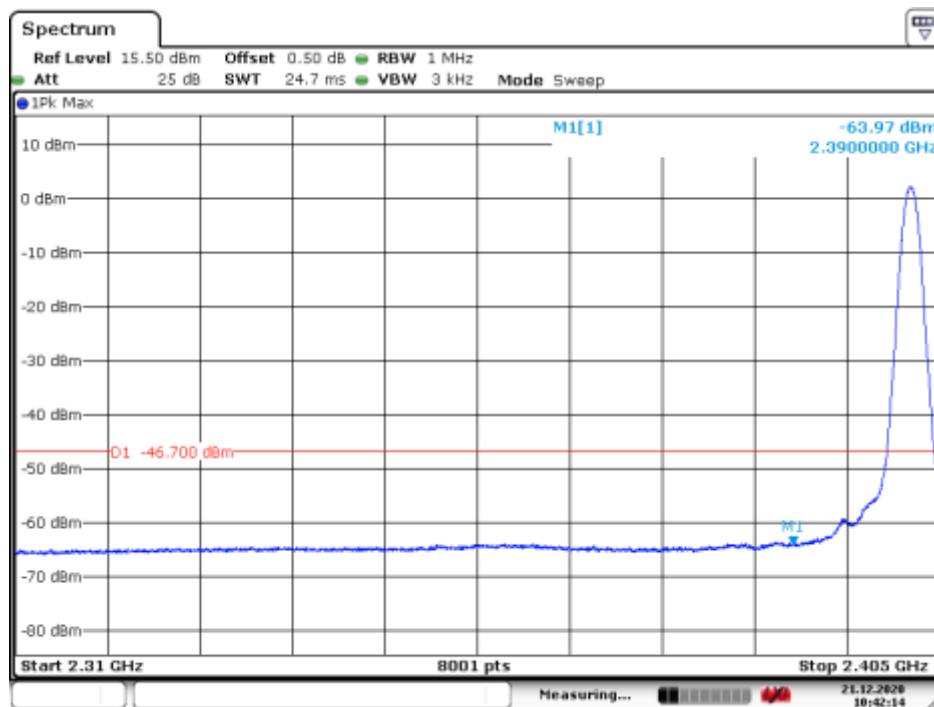
PK Limit=74dBuV/m-95.2-6.9(Antenna Gain) =-28.1dBm

AV Limit=54dBuV/m-95.2-6.9(Antenna Gain) =-48.1dBm

2402MHz



Date: 21.DEC.2020 10:43:16

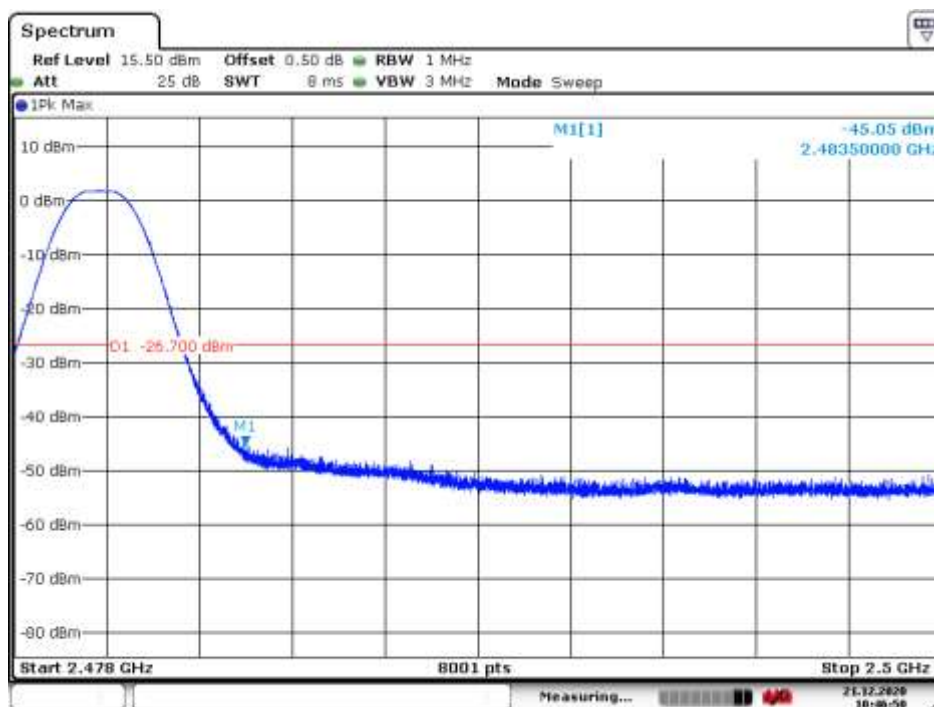


Date: 21.DEC.2020 10:42:14

2480MHz



Date: 21.DEC.2020 10:47:56



Date: 21.DEC.2020 10:46:50

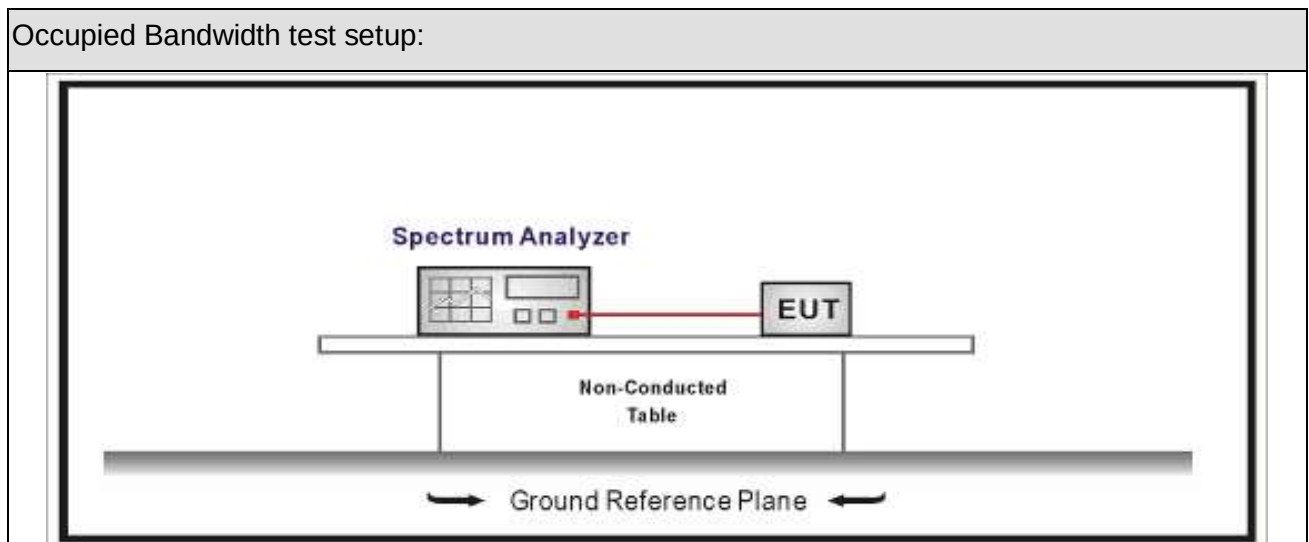
Note: We evaluated all the mode channels and antennas, the report shows the worst data

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	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup



7.3. Limit

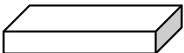
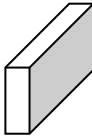
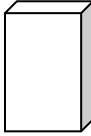
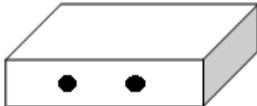
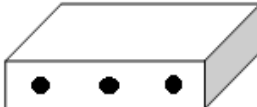
Occupied Bandwidth

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 point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
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

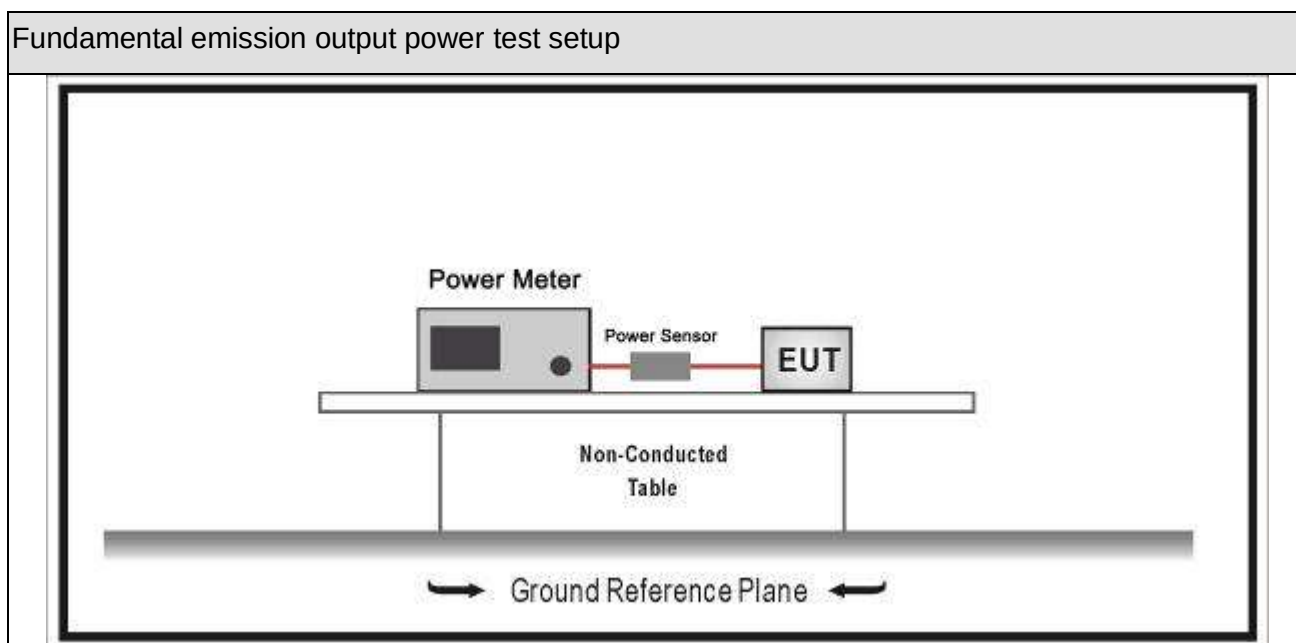
N/A

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	N9010A	MY48030494	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup



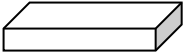
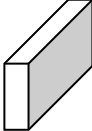
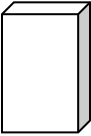
8.3. Limit

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	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	☐ Point-to-multipoint	$P_{out} \leq 30 - (G_{TX} - 6)$
	☐ Overlap Beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	☐ Aggregate power transmitted simultaneously on all beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	☐ single directional beam	$P_{out} \leq 30 - [(G_{TX} - 6)]/3 + 8\text{dB}$
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 point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
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	:	Wireless Access Point	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.11.30	Test Engineer	:	Eric

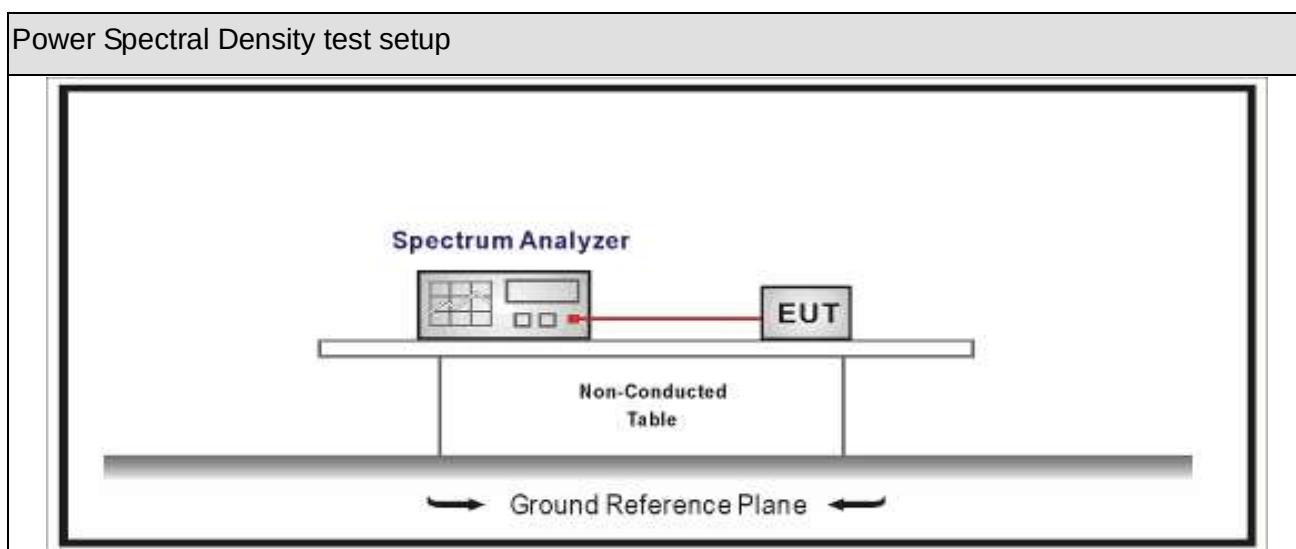
Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	00	2402	2.82	30	Pass
1	19	2440	2.57	30	Pass
1	39	2480	2.31	30	Pass

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	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup



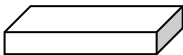
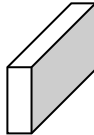
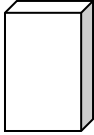
9.3. Limit

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 point-to-point		
	☐	Emit multiple directional beams, simultaneously or sequentially		
	☒	Other cases		
Test mode	Mode 1			
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
				

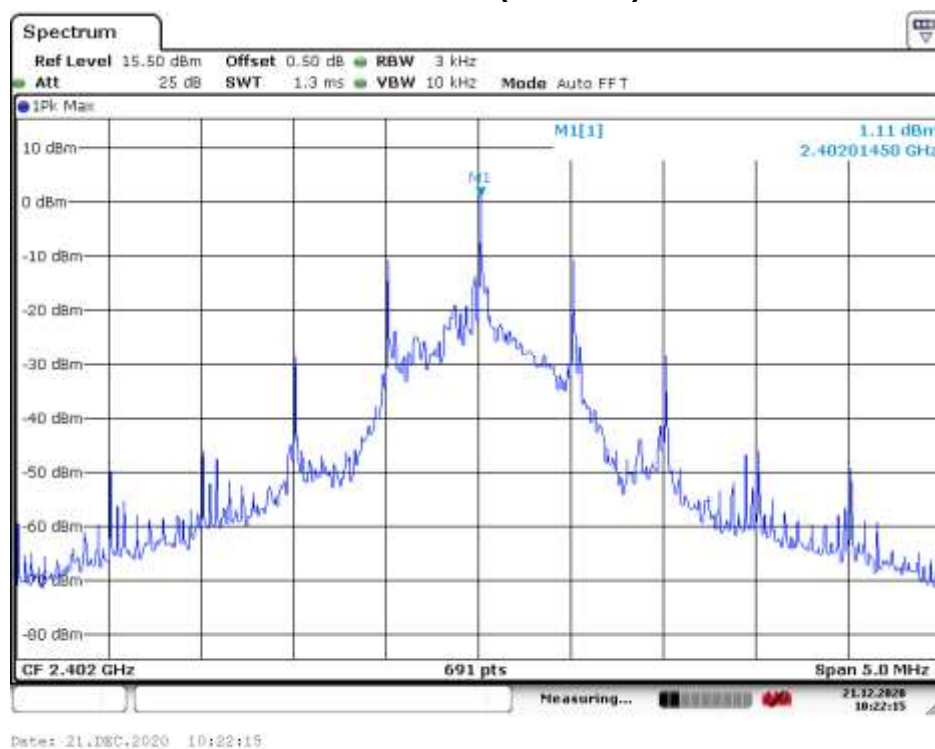
9.6. Test Result

Product Name	: Wireless Access Point	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2020.11.30	Test Engineer	: Eric

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	00	2402	1.11	1.11	8	Pass
1	19	2440	0.95	0.95	8	Pass
1	39	2480	0.74	0.74	8	Pass

Note : The worst case of Power Spectral Density as below:

Mode 1 CH00(2402MHz)



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

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.	

_____ The End _____