

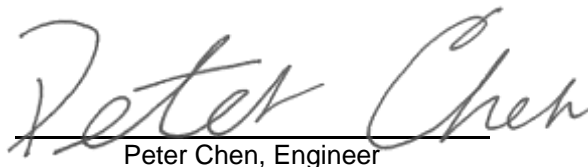
FCC Radio Test Report

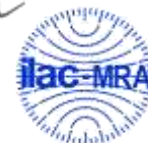
FCC ID: 2AB9W-PP120XP

Report No. : BTL-FCCP-1-1911T047
Equipment : 3D Printer
Model Name : PartPro120 xP
Brand Name : XYZprinting
Applicant : XYZprinting, Inc.
Address : 10F., No.99, Sec. 5, Nanjing E. Rd., Songshan Dist., Taipei City 10571, Taiwan (R.O.C.)
Manufacturer : Cal-Comp Electronics (Thailand) Public Company Limited
Address : 138, Moo 4, Phechkasem Road, Sapang, Koawoyoi, Petchaburi 76140, Thailand.
Factory : Cal-Comp Electronics (Thailand) Public Company Limited
Address : 138, Moo 4, Phechkasem Road, Sapang, Koawoyoi, Petchaburi 76140, Thailand.
Radio Function : WLAN 2.4 GHz
FCC Rule Part(s) : FCC Part15, Subpart C (15.247)
Measurement Procedure(s) : ANSI C63.10-2013
Date of Receipt : 2019/11/27
Date of Test : 2019/11/27 ~ 2019/12/30
Issued Date : 2020/1/8

The above equipment has been tested and found in compliance with the requirement of the above standards by BTL Inc.

Prepared by :


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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NIST, A2LA, or any agency of the U.S. Government.

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BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	2020/1/8

1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

FCC Part 15, Subpart C (15.247)				
Standard(s) Section	Description	Test Result	Judgement	Remark
15.207	AC Power Line Conducted Emissions	APPENDIX A	Pass	-----
15.205 15.209 15.247(d)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	Pass	-----
15.247(a)	Bandwidth	APPENDIX E	Pass	-----
15.247(b)	Output Power	APPENDIX F	Pass	-----
15.247(e)	Power Spectral Density	APPENDIX G	Pass	-----
15.247(d)	Antenna conducted Spurious Emission	APPENDIX H	Pass	-----
15.203	Antenna Requirement	-----	Pass	-----

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report.
- (2) The report format version is TP.1.1.1.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

The test sites and facilities are covered under FCC RN: 3255421 and DN: TW1099.

- C05 CB08 CB11 CB15 CB16
 SR06

No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan

The test sites and facilities are covered under FCC RN: 325517 and DN: TW1115.

- C03 CB18 CB19

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, providing a level of confidence of approximately **95 %**. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U (dB)
C05	CISPR	150 kHz ~ 30MHz	3.44

B. Radiated emissions below 1 GHz test :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
CB18 (3m)	CISPR	30MHz ~ 200MHz	V	4.20
		30MHz ~ 200MHz	H	3.64
		200MHz ~ 1,000MHz	V	4.56
		200MHz ~ 1,000MHz	H	3.90

C. Radiated emissions above 1 GHz test :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
CB18 (3m)	CISPR	1GHz ~ 6GHz	V	4.46
		1GHz ~ 6GHz	H	4.40
		6GHz ~ 18GHz	V	3.88
		6GHz ~ 18GHz	H	4.00

Test Site	Method	Measurement Frequency Range	U,(dB)
CB18 (1m)	CISPR	18 ~ 26.5 GHz	4.62
		26.5 ~ 40 GHz	5.12

D. Conducted test :

Test Item	U,(dB)
Bandwidth	1.13
Output power	1.06
Power Spectral Density	1.20
Conducted Spurious emissions	1.14
Conducted Band edges	1.13

NOTE:

Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

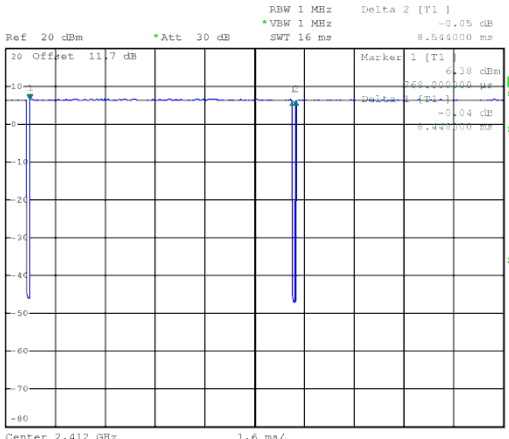
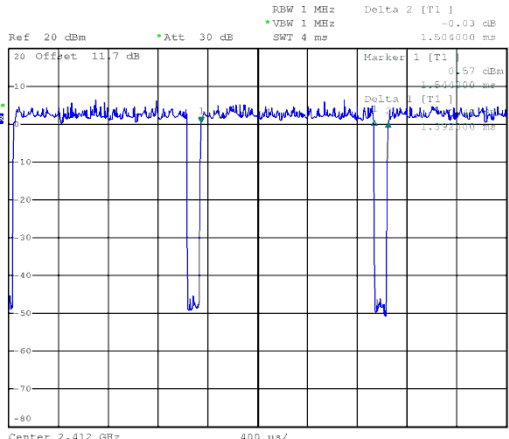
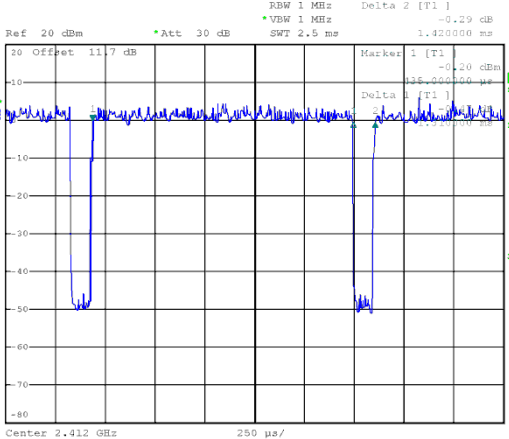
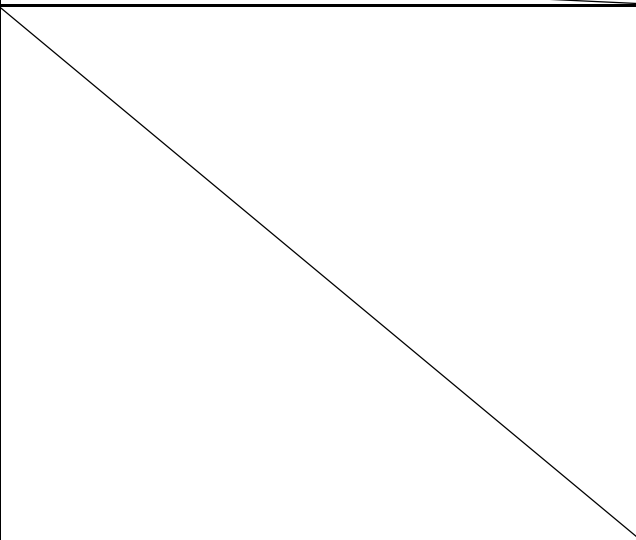
Test Item	Environment Condition	Tested by
AC Power Line Conducted Emissions	20 °C, 51 %	Jay Kao
Radiated emissions below 1 GHz	23 °C, 59 %	Hunter Chiang
Radiated emissions above 1 GHz	23 °C, 59 %	Hunter Chiang
Bandwidth	23.5 °C, 58 %	William Wei
Output Power	23.5 °C, 58 %	William Wei
Power Spectral Density	23.5 °C, 58 %	William Wei
Antenna conducted Spurious Emission	23.5 °C, 58 %	William Wei

1.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

Test Software	Tera Term V4.101			
Mode	2412 MHz	2437 MHz	2462 MHz	Data Rate
IEEE 802.11b	17	16	16	1 Mbps
IEEE 802.11g	14	14	14	6 Mbps
IEEE 802.11n (HT20)	14	15	15	MCS 0

1.5 DUTY CYCLE

If duty cycle is $\geq 98\%$, duty factor is not required.
 If duty cycle is $< 98\%$, duty factor shall be considered.

<h3 style="text-align: center;">IEEE 802.11b</h3>  <p style="font-size: small;">Ref 20 dBm *Att 30 dB RBW 1 MHz Delta 2 [F1] -0.05 dB *VBW 1 MHz 8.544000 ms SWT 16 ms Marker 1 [F1] 6.39 dBm 268.000000 us Delta 1 [F1] -0.04 dB 8.448000 ms Center 2.412 GHz 1.6 ms/</p> <p style="font-size: x-small;">Date: 6.DEC.2019 15:05:32</p>	<h3 style="text-align: center;">IEEE 802.11g</h3>  <p style="font-size: small;">Ref 20 dBm *Att 30 dB RBW 1 MHz Delta 2 [F1] -0.03 dB *VBW 1 MHz 1.504000 ms SWT 4 ms Marker 1 [F1] 0.57 dBm 1.504000 ms Delta 1 [F1] -0.03 dB 1.392000 ms Center 2.412 GHz 400 us/</p> <p style="font-size: x-small;">Date: 6.DEC.2019 15:05:52</p>
<p>Duty cycle= 8.448 ms / 8.544 ms = 98.88 % Duty Factor= 10 * log(1 / 0.9888) = 0.05 dB</p>	<p>Duty cycle= 1.392 ms / 1.504 ms = 92.55 % Duty Factor= 10 * log(1 / 0.9255) = 0.34 dB</p>
<h3 style="text-align: center;">IEEE 802.11n (HT20)</h3>  <p style="font-size: small;">Ref 20 dBm *Att 30 dB RBW 1 MHz Delta 2 [F1] -0.20 dB *VBW 1 MHz 1.420000 ms SWT 2.5 ms Marker 1 [F1] -0.20 dBm 136.000000 us Delta 1 [F1] -0.20 dB 1.310000 ms Center 2.412 GHz 250 us/</p> <p style="font-size: x-small;">Date: 6.DEC.2019 15:06:13</p>	
<p>Duty cycle= 1.310 ms / 1.420 ms = 92.25 % Duty Factor= 10 * log(1 / 0.9225) = 0.35dB</p>	

2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	3D Printer
Model Name	PartPro120 xP
Brand Name	XYZprinting
Model Difference	N/A
Power Source	DC voltage supplied from AC/DC Adapter.
Power Rating	I/P: 100-240V~, 1.8A, 50-60Hz / O/P: 24.0V--- 5A
Products Covered	1 * Power cable 1 * Adapter: FSP / FSP120-AAAN3
Frequency Range	2400 MHz ~ 2483.5 MHz
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Technology	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
Transfer Rate	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 72.2 Mbps
Output Power Max.	IEEE 802.11b: 15.38 dBm (0.0345 W) IEEE 802.11g: 20.02 dBm (0.1005 W) IEEE 802.11n (HT20): 19.99 dBm (0.0998 W)
Test Model	PartPro120 xP
Sample Status	Engineering Sample
EUT Modification(s)	N/A

NOTE:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

(2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		

(3) Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PCB	N/A	-8.65

2.2 TEST MODES

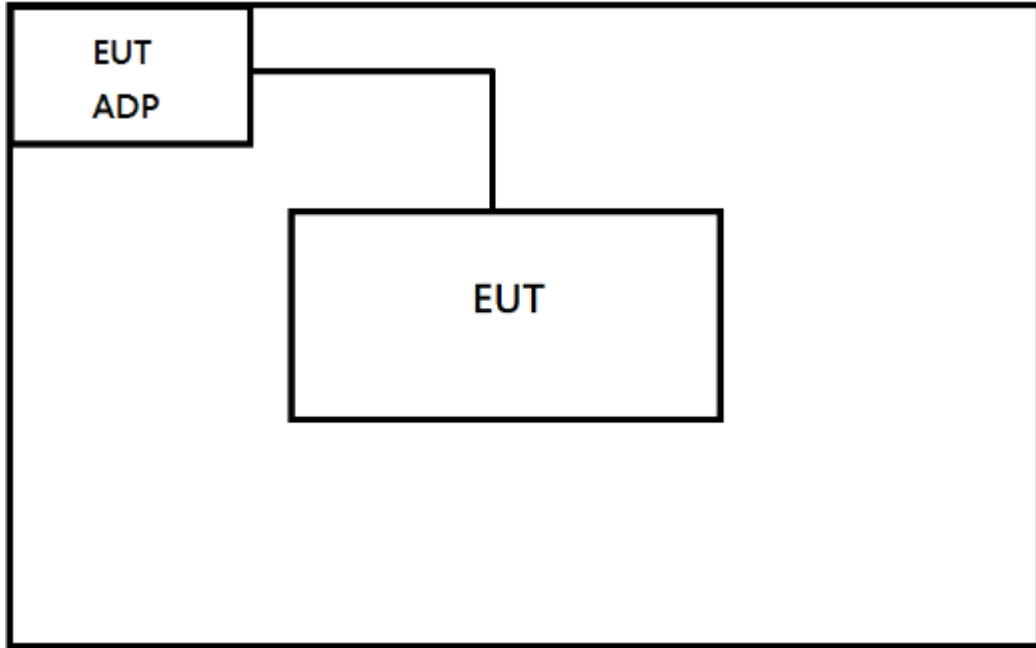
Test Items	Test mode	Channel	Note
AC power line conducted emissions	2.4G_Normal	-	-
Transmitter Radiated Emissions (below 1GHz)	TX Mode_IEEE 802.11b	01	-
Transmitter Radiated Emissions (above 1GHz)	TX Mode_IEEE 802.11b	01/06/11	
	TX Mode_IEEE 802.11g		
	TX Mode_IEEE 802.11n (HT20)		
Bandwidth	TX Mode_IEEE 802.11b	01/06/11	-
	TX Mode_IEEE 802.11g		
	TX Mode_IEEE 802.11n (HT20)		
Output Power	TX Mode_IEEE 802.11b	01/06/11	-
	TX Mode_IEEE 802.11g		
	TX Mode_IEEE 802.11n (HT20)		
Power Spectral Density	TX Mode_IEEE 802.11b	01/06/11	-
	TX Mode_IEEE 802.11g		
	TX Mode_IEEE 802.11n (HT20)		
Antenna conducted Spurious Emission	TX Mode_IEEE 802.11b	01/06/11	-
	TX Mode_IEEE 802.11g		
	TX Mode_IEEE 802.11n (HT20)		

NOTE:

- (1) The Radiated emissions test was verified based on the worst conducted power and Bandwidth test results reported in the original report.
- (2) All X, Y and Z axes are evaluated, but only the worst case (Z axis) is recorded.
- (3) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Vertical) is recorded.

2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
-	-	-	-	-	-

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
-	-	-	-	-	-

3 AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56 *	56 - 46 *
0.50 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)
 Margin Level = Measurement Value – Limit Value
 Calculation example:

Reading Level		Correct Factor		Measurement Value
38.22	+	3.45	=	41.67

Measurement Value		Limit Value		Margin Level
41.67	-	60	=	-18.33

The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).
 All other support equipment were powered from an additional LISN(s).
 The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle to keep the cable above 40 cm.
- c. Excess I/O cables that are not connected to a peripheral shall be bundled in the center.
 The end of the cable will be terminated, using the correct terminating impedance.
 The overall length shall not exceed 1 m.
- d. The LISN is spaced at least 80 cm from the nearest part of the EUT chassis.
- e. For the actual test configuration, please refer to the related Item - EUT TEST PHOTO.

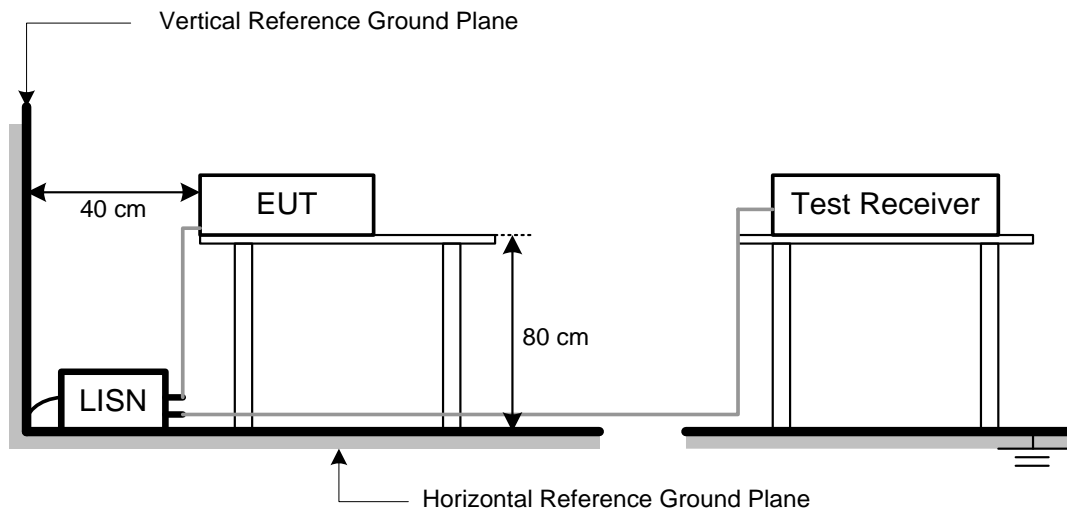
NOTE:

- (1) In the results, each reading is marked as Peak, QP or AVG per the detector used.
 BW=9 kHz (6 dB Bandwidth)
- (2) All readings are Peak unless otherwise stated QP or AVG in column of Note. Both the QP and the AVG readings must be less than the limit for compliance.

3.3 DEVIATION FROM TEST STANDARD

No deviation.

3.4 TEST SETUP



3.5 TEST RESULT

Please refer to the APPENDIX A.

4 RADIATED EMISSIONS TEST

4.1 LIMIT

In case the emission fall within the restricted band specified on 15.205, then the 15.209 limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 KHz to 1000 MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

LIMITS OF RADIATED EMISSIONS MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Radiated Emissions (dBuV/m)		Measurement Distance (meters)
	Peak	Average	
Above 1000	74	54	3

NOTE:

- (1) The limit for radiated test was performed according to FCC Part 15, Subpart C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
 Margin Level = Measurement Value - Limit Value
 Calculation example:

Reading Level		Correct Factor		Measurement Value
19.11	+	2.11	=	21.22

Measurement Value		Limit Value		Margin Level
21.22	-	54	=	-32.78

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average

Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9KHz~90KHz for PK/AVG detector
Start ~ Stop Frequency	90KHz~110KHz for QP detector
Start ~ Stop Frequency	110KHz~490KHz for PK/AVG detector
Start ~ Stop Frequency	490KHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

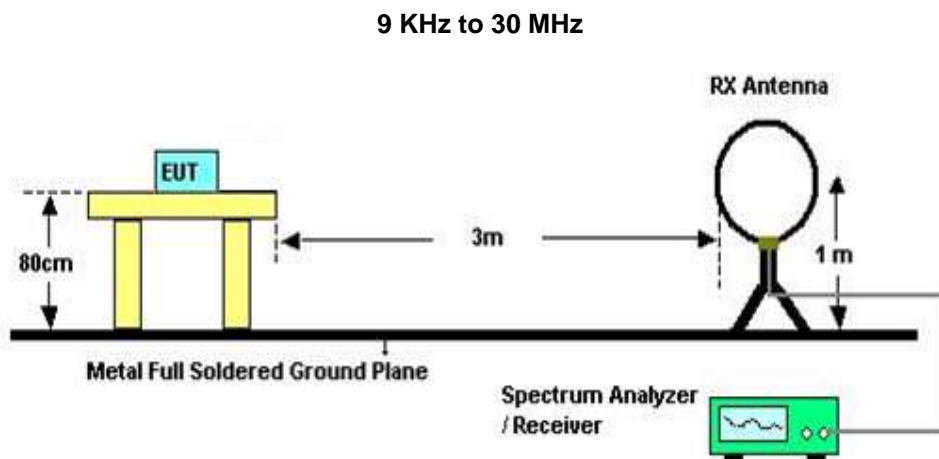
4.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- i. For the actual test configuration, please refer to the related Item – EUT TEST PHOTO.

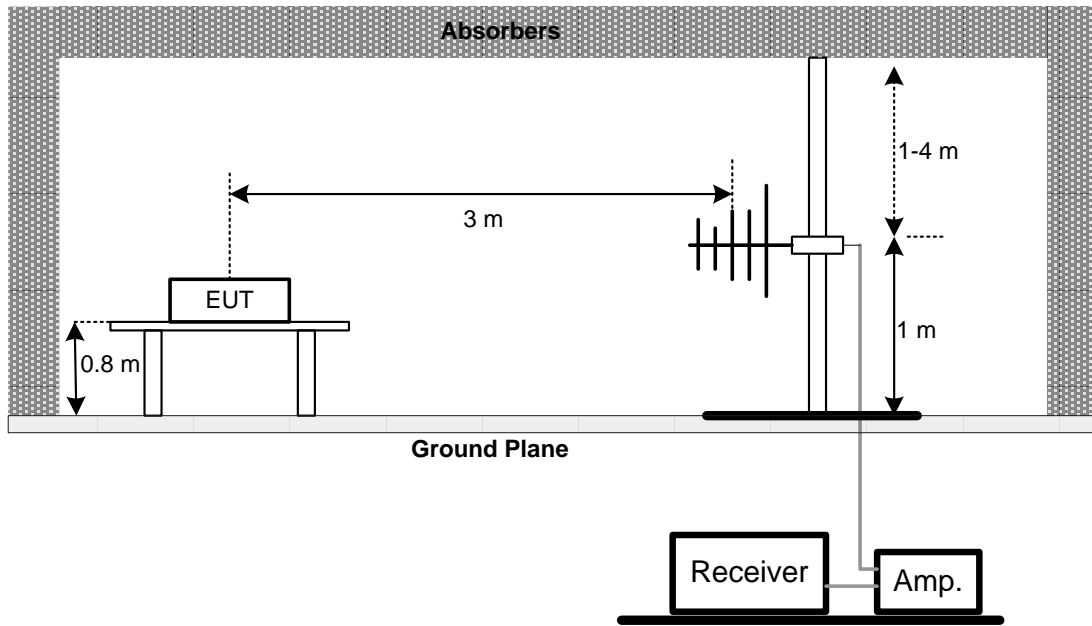
4.3 DEVIATION FROM TEST STANDARD

No deviation.

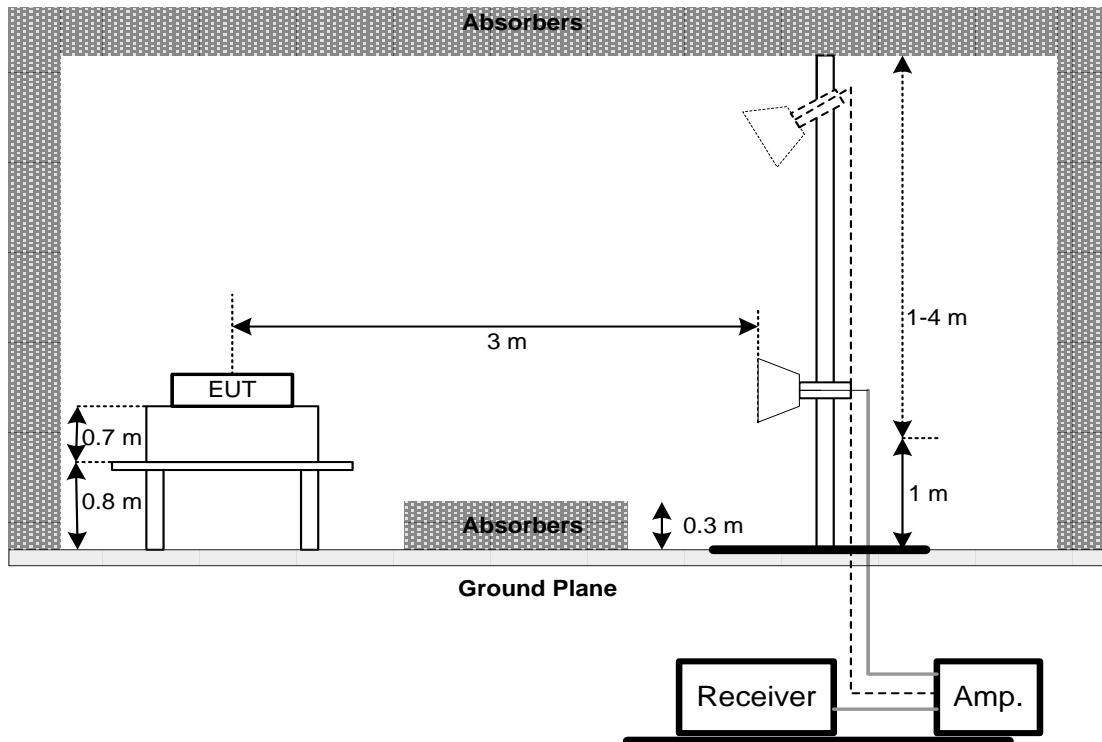
4.4 TEST SETUP



30 MHz to 1 GHz



Above 1 GHz



4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULT – 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B

4.7 TEST RESULT – 30 MHZ TO 1 GHZ

Please refer to the APPENDIX C.

4.8 TEST RESULT – ABOVE 1 GHZ

Please refer to the APPENDIX D.

NOTE:

- (1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5 BANDWIDTH TEST

5.1 LIMIT

FCC Part15, Subpart C (15.247)		
Section	Test Item	Limit
15.247(a)	6 dB Bandwidth	500 kHz

5.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

5.3 DEVIATION FROM TEST STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULT

Please refer to the APPENDIX E.

6 OUTPUT POWER TEST

6.1 LIMIT

FCC Part15, Subpart C (15.247)		
Section	Test Item	Limit
15.247(b)	Maximum Output Power	1 Watt or 30dBm

6.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- b. The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance.

6.3 DEVIATION FROM TEST STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULT

Please refer to the APPENDIX F.

7 POWER SPECTRAL DENSITY

7.1 LIMIT

FCC Part15, Subpart C (15.247)		
Section	Test Item	Limit
15.247(e)	Power Spectral Density	8 dBm (in any 3 kHz)

7.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW = 3 kHz, VBW = 10 kHz, Sweep time = Auto.

7.3 DEVIATION FROM TEST STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULT

Please refer to the APPENDIX G.

8 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST

8.1 LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.

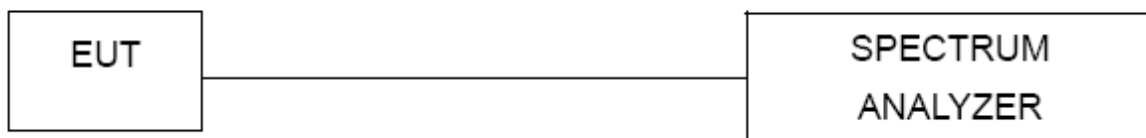
8.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW = 100 kHz, VBW=300 kHz, Sweep time = Auto.
- c. Offset = antenna gain + cable loss.

8.3 DEVIATION FROM TEST STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULT

Please refer to the APPENDIX H.

9 LIST OF MEASURING EQUIPMENTS

AC Power Line Conducted Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	TWO-LINE V-NETWORK	R&S	ENV216	101050	2019/3/18	2020/3/17
2	Test Cable	EMCI	EMCCFD300-BM-BMR-6000	170715	2019/8/7	2020/8/6
3	EMI Test Receiver	R&S	ESCI	100080	2019/6/14	2020/6/13
4	Measurement Software	EZ	EZ EMC (Version NB-03A)	N/A	N/A	N/A

Radiated Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC001340	980555	2019/4/12	2020/4/11
2	Preamplifier	EMCI	EMC02325B	980217	2019/4/12	2020/4/11
3	Preamplifier	EMCI	EMC012645B	980267	2019/4/12	2020/4/11
4	Test Cable	EMCI	EMC104-SM-SM-800	150207	2019/4/12	2020/4/11
5	Test Cable	EMCI	EMC104-SM-SM-3000	151205	2019/4/12	2020/4/11
6	Test Cable	EMCI	EMC-SM-SM-7000	180408	2019/4/12	2020/4/11
7	MXE EMI Receiver	Agilent	N9038A	MY55420127	2019/3/26	2020/3/25
8	Signal Analyzer	Agilent	N9010A	MY56480554	2019/6/6	2020/6/5
9	Loop Ant	EMCO	EMCI-LPA600	274	2019/5/31	2020/5/30
10	Horn Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	2019/6/10	2020/6/9
11	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	000992	2019/5/29	2020/5/28
12	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0508	2019/5/29	2020/5/28

Bandwidth						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP40	100129	2019/5/23	2020/5/22

Output Power						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP40	100129	2019/5/23	2020/5/22
2	Power Meter	Anritsu	ML2487A	6K00004714	2019/6/20	2020/6/18
3	Power Sensor	Anritsu	MA2491A	1725282	2019/6/20	2020/6/18

Power Spectral Density						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP40	100129	2019/5/23	2020/5/22

Antenna conducted Spurious Emission						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP40	100129	2019/5/23	2020/5/22

Remark: "N/A" denotes no model name, no serial no. or no calibration specified.
All calibration period of equipment list is one year.

10 EUT TEST PHOTO

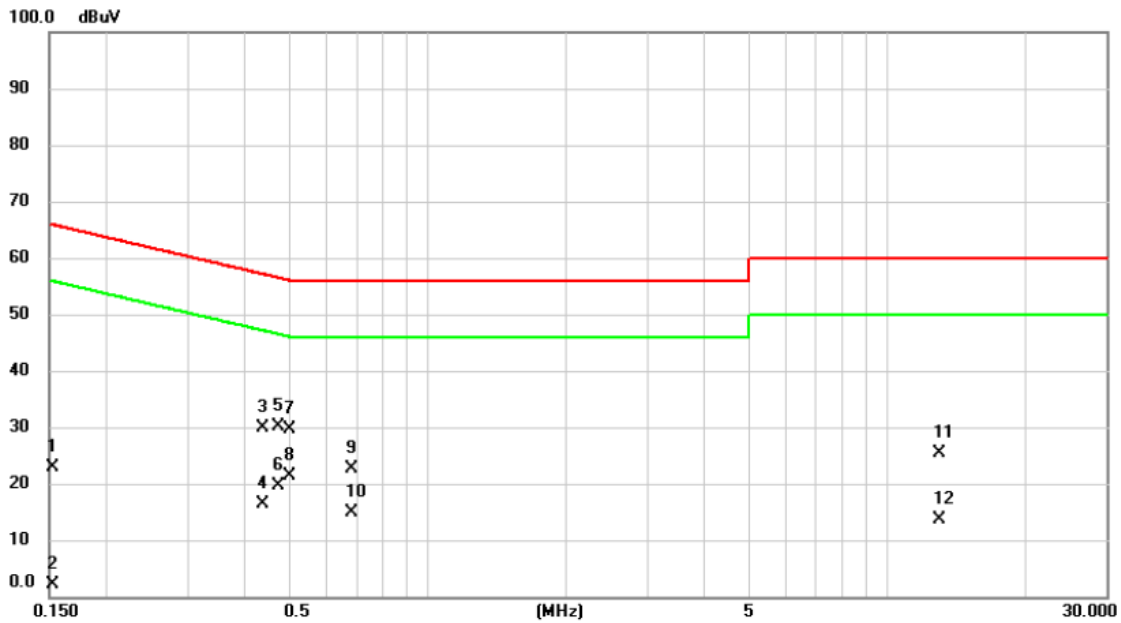
Please refer to document Appendix No.: TP-1911T047-FCCP-1 (APPENDIX-TEST PHOTOS).

11 EUT PHOTOS

Please refer to document Appendix No.: EP-1911T047-1 (APPENDIX-EUT PHOTOS).

APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

Test Mode	2.4G_Normal	Tested Date	2019/12/4
Test Voltage	AC 120V/60Hz	Phase	Line

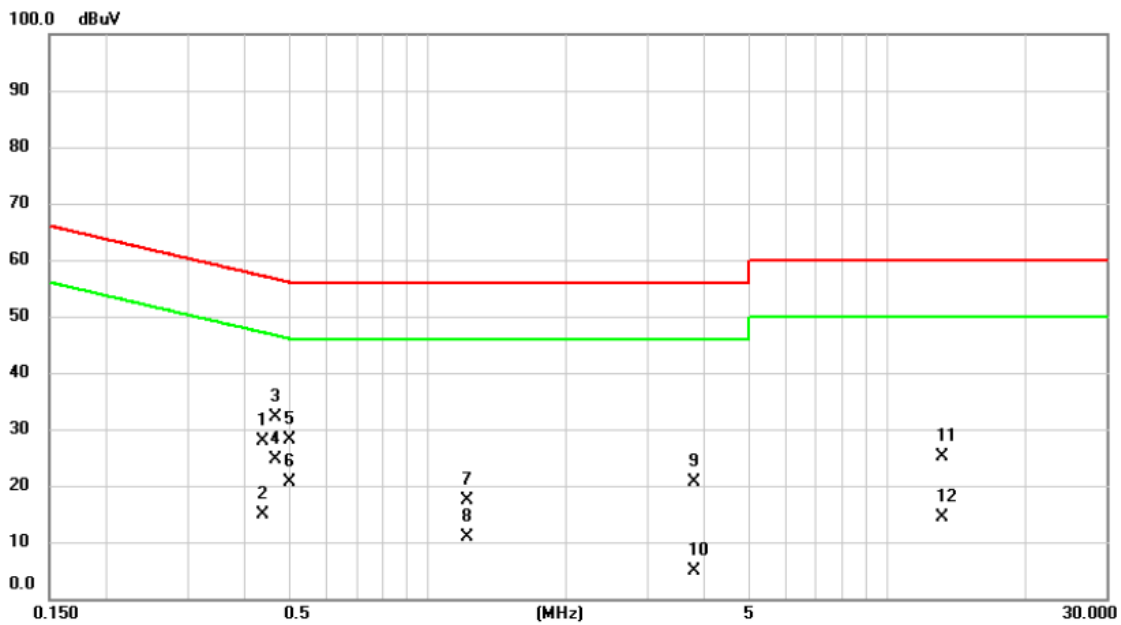


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1522	22.81	0.00	22.81	65.88	-43.07	QP	
2		0.1522	2.08	0.00	2.08	55.88	-53.80	AVG	
3		0.4380	29.73	0.06	29.79	57.10	-27.31	QP	
4		0.4380	16.42	0.06	16.48	47.10	-30.62	AVG	
5		0.4717	30.11	0.06	30.17	56.48	-26.31	QP	
6		0.4717	19.66	0.06	19.72	46.48	-26.76	AVG	
7		0.5010	29.61	0.06	29.67	56.00	-26.33	QP	
8	*	0.5010	21.23	0.06	21.29	46.00	-24.71	AVG	
9		0.6810	22.59	0.08	22.67	56.00	-33.33	QP	
10		0.6810	14.89	0.08	14.97	46.00	-31.03	AVG	
11		13.0268	25.21	0.24	25.45	60.00	-34.55	QP	
12		13.0268	13.28	0.24	13.52	50.00	-36.48	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	2.4G_Normal	Tested Date	2019/12/4
Test Voltage	AC 120V/60Hz	Phase	Neutral



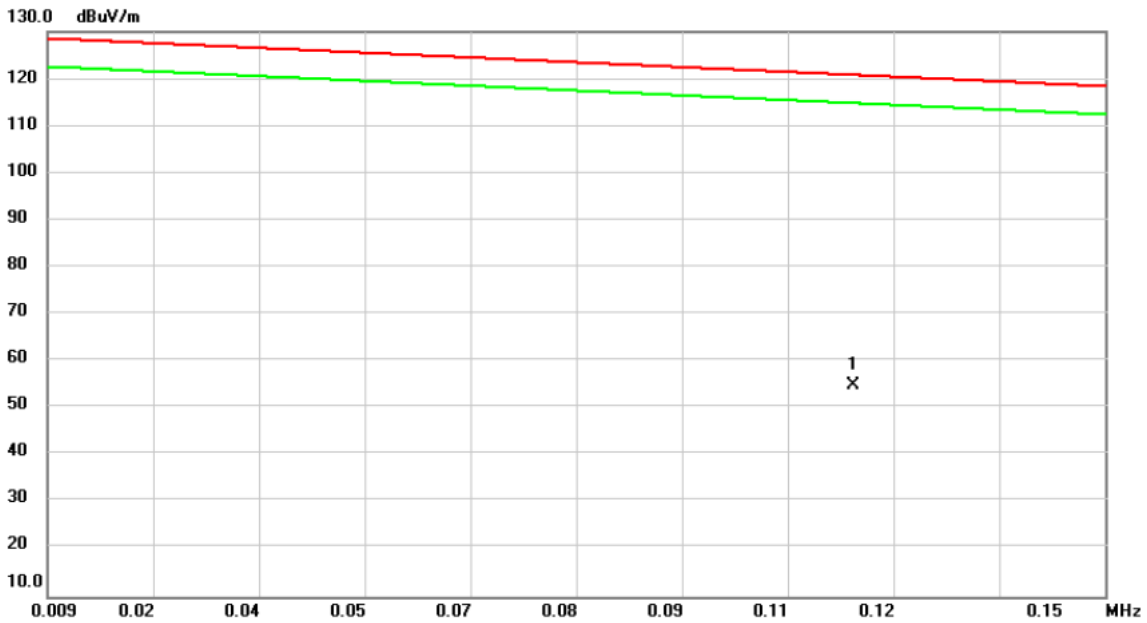
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.4380	27.85	0.06	27.91	57.10	-29.19	QP	
2		0.4380	14.74	0.06	14.80	47.10	-32.30	AVG	
3		0.4650	31.96	0.06	32.02	56.60	-24.58	QP	
4	*	0.4650	24.62	0.06	24.68	46.60	-21.92	AVG	
5		0.5010	28.12	0.06	28.18	56.00	-27.82	QP	
6		0.5010	20.51	0.06	20.57	46.00	-25.43	AVG	
7		1.2164	17.27	0.07	17.34	56.00	-38.66	QP	
8		1.2164	10.71	0.07	10.78	46.00	-35.22	AVG	
9		3.7950	20.53	0.13	20.66	56.00	-35.34	QP	
10		3.7950	4.86	0.13	4.99	46.00	-41.01	AVG	
11		13.1392	24.88	0.24	25.12	60.00	-34.88	QP	
12		13.1392	14.02	0.24	14.26	50.00	-35.74	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX B RADIATED EMISSIONS - 9 KHZ TO 30 MHZ

Test Mode	TX Mode_IEEE 802.11b_2412MHz	Tested Date	2019/12/23
Test Voltage	AC 120V/60Hz	Azimuth Angle	90°

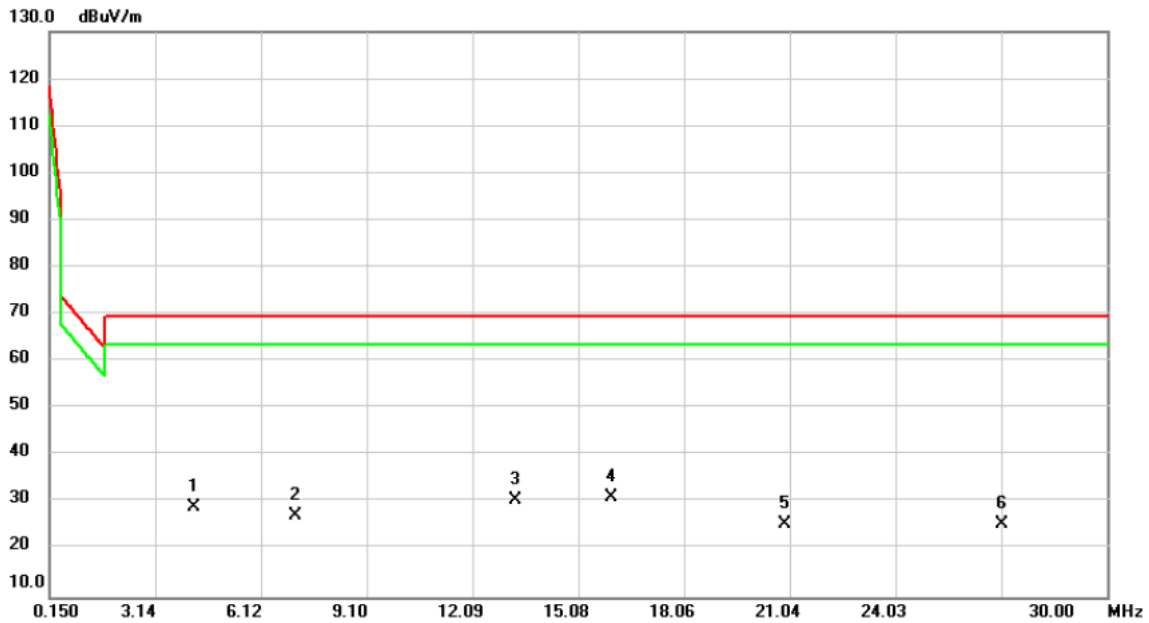


No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	0.1165	39.15	15.66	54.81	120.76	-65.95	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2412MHz	Tested Date	2019/12/23
Test Voltage	AC 120V/60Hz	Azimuth Angle	90°

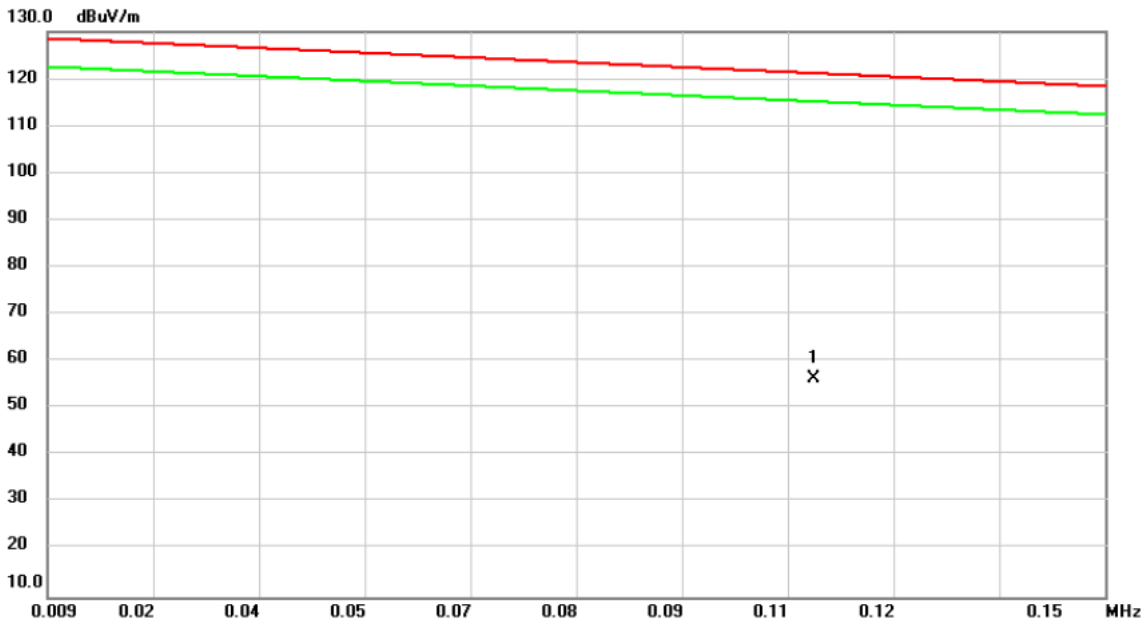


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4.2394	32.30	-3.38	28.92	69.54	-40.62	QP	
2	7.0752	30.79	-3.65	27.14	69.54	-42.40	QP	
3	13.3140	34.59	-3.96	30.63	69.54	-38.91	QP	
4 *	16.0004	35.53	-4.29	31.24	69.54	-38.30	QP	
5	20.8957	30.70	-5.24	25.46	69.54	-44.08	QP	
6	27.0150	32.56	-7.01	25.55	69.54	-43.99	QP	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2412MHz	Tested Date	2019/12/23
Test Voltage	AC 120V/60Hz	Azimuth Angle	0°

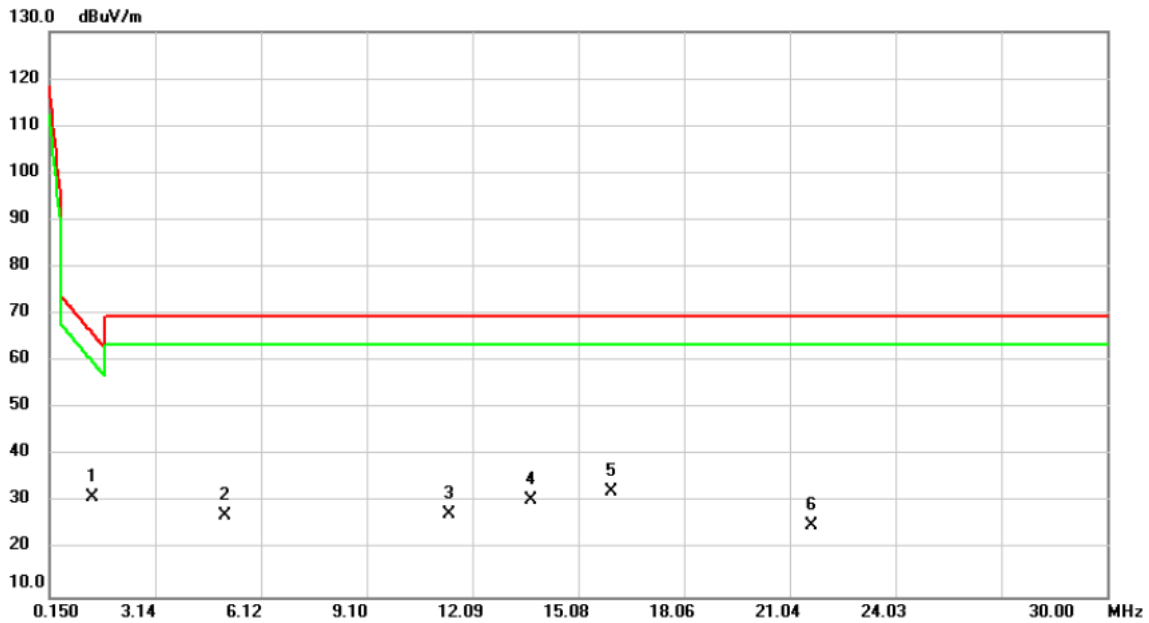


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	0.1111	40.30	15.97	56.27	121.15	-64.88	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2412MHz	Tested Date	2019/12/23
Test Voltage	AC 120V/60Hz	Azimuth Angle	0°



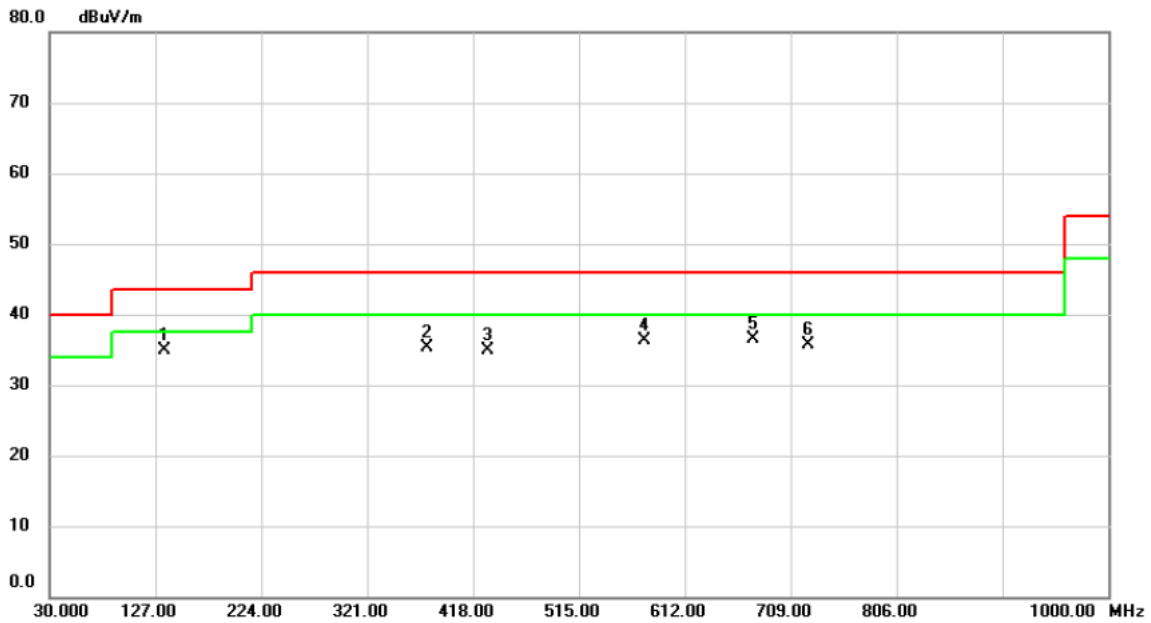
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	1.3740	31.89	-0.74	31.15	65.92	-34.77	QP	
2		5.1051	30.80	-3.55	27.25	69.54	-42.29	QP	
3		11.4333	31.53	-4.07	27.46	69.54	-42.08	QP	
4		13.7317	34.45	-3.93	30.52	69.54	-39.02	QP	
5		16.0004	36.52	-4.29	32.23	69.54	-37.31	QP	
6		21.6420	30.57	-5.31	25.26	69.54	-44.28	QP	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX C RADIATED EMISSIONS - 30 MHZ TO 1 GHZ

Test Mode	TX Mode_IEEE 802.11b_2412MHz	Tested Date	2019/12/20
Test Voltage	AC 120V/60Hz	Polarization	Vertical

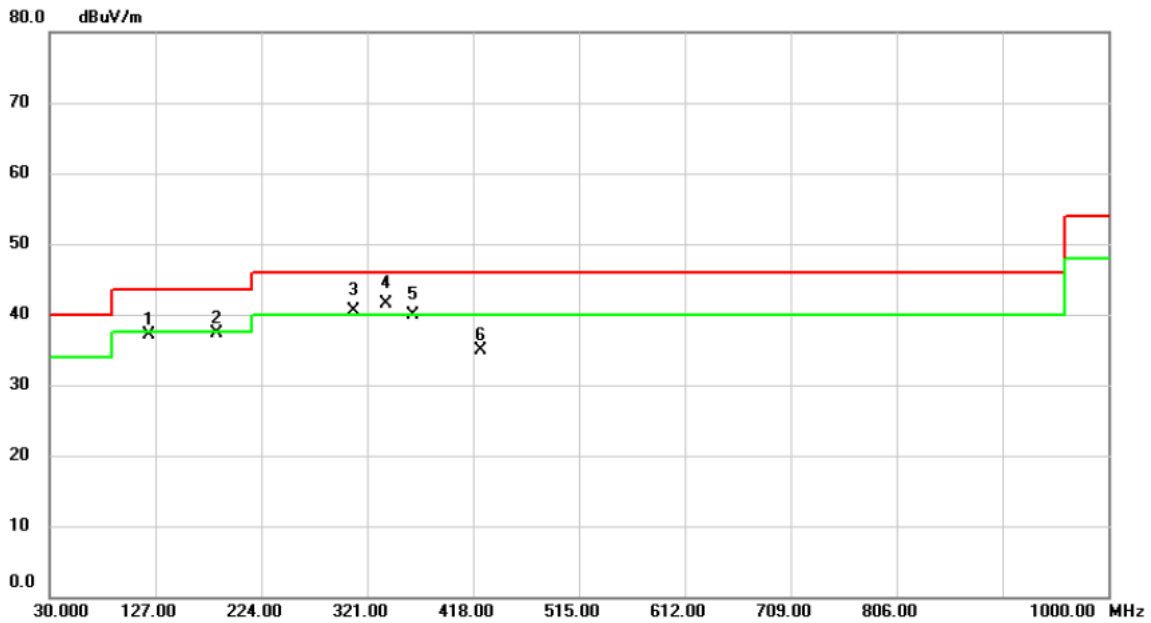


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	134.7600	47.60	-12.72	34.88	43.50	-8.62	peak	
2		375.3200	43.90	-8.68	35.22	46.00	-10.78	peak	
3		431.5800	41.97	-7.08	34.89	46.00	-11.11	peak	
4		575.1400	40.82	-4.52	36.30	46.00	-9.70	peak	
5		675.0500	39.35	-2.84	36.51	46.00	-9.49	peak	
6		725.4900	37.58	-1.83	35.75	46.00	-10.25	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2412MHz	Tested Date	2019/12/20
Test Voltage	AC 120V/60Hz	Polarization	Horizontal



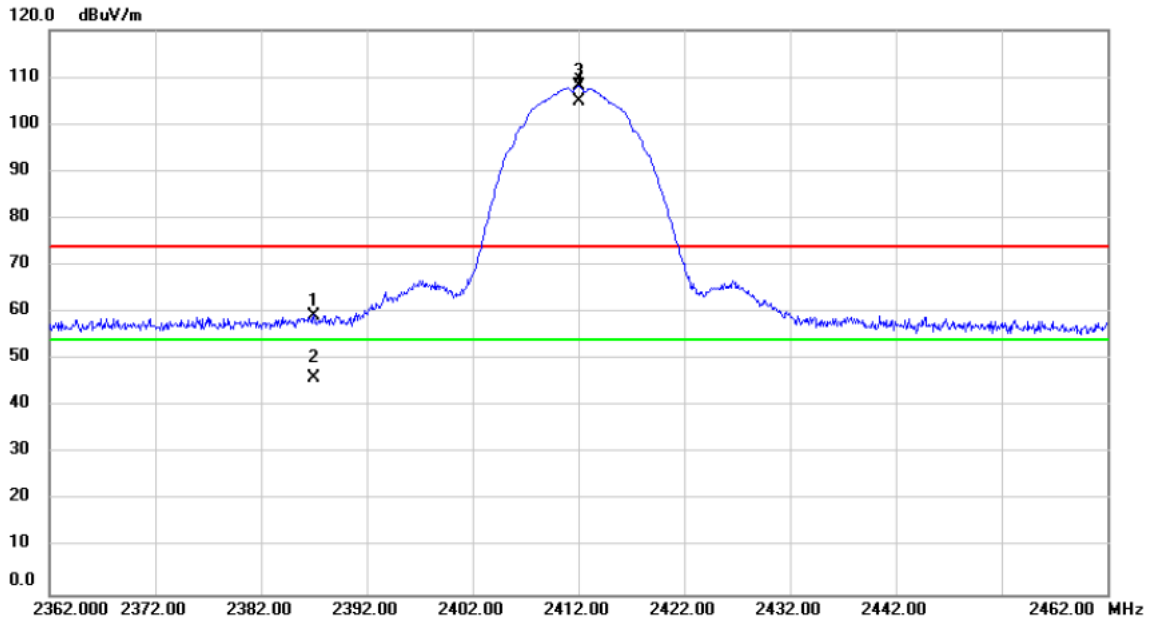
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		121.1800	50.69	-13.52	37.17	43.50	-6.33	peak	
2		183.2600	50.40	-13.13	37.27	43.50	-6.23	peak	
3	!	308.3100	51.09	-10.49	40.60	46.00	-5.40	QP	
4	*	338.5100	51.31	-9.80	41.51	46.00	-4.49	QP	
5		363.6000	48.88	-9.07	39.81	46.00	-6.19	QP	
6		424.7900	41.90	-7.09	34.81	46.00	-11.19	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX D RADIATED EMISSIONS - ABOVE 1 GHZ

Test Mode	TX Mode_IEEE 802.11b_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

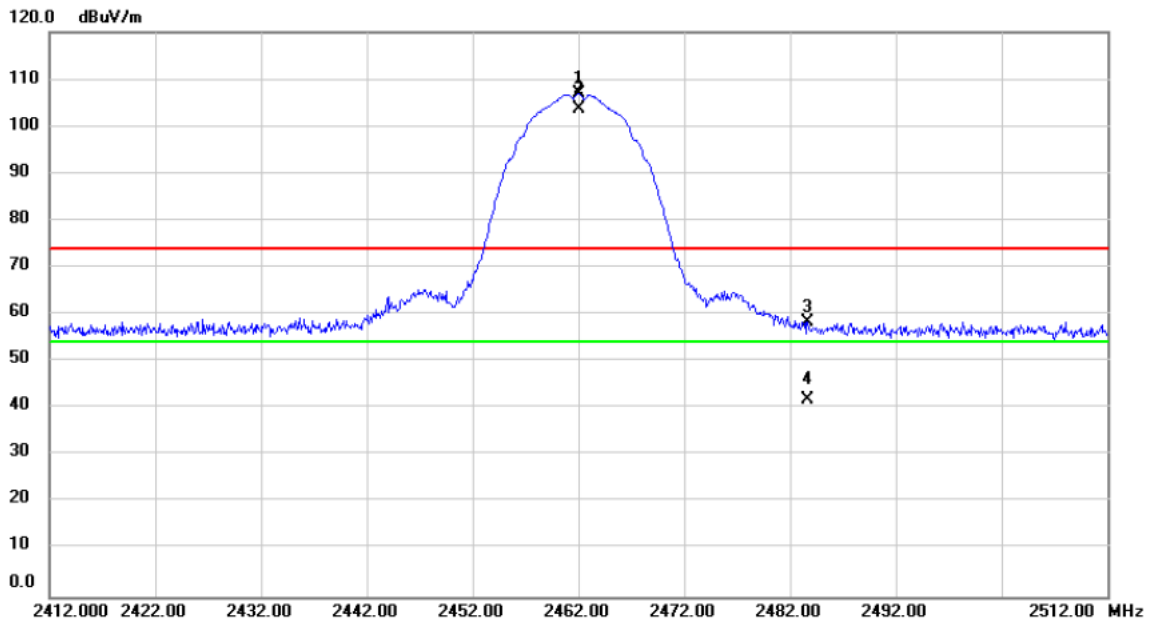


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2387.000	28.17	31.23	59.40	74.00	-14.60	peak	
2		2387.000	14.68	31.23	45.91	54.00	-8.09	AVG	
3	X	2412.000	76.72	31.34	108.06	74.00	34.06	peak	No Limit
4	*	2412.000	73.46	31.34	104.80	54.00	50.80	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

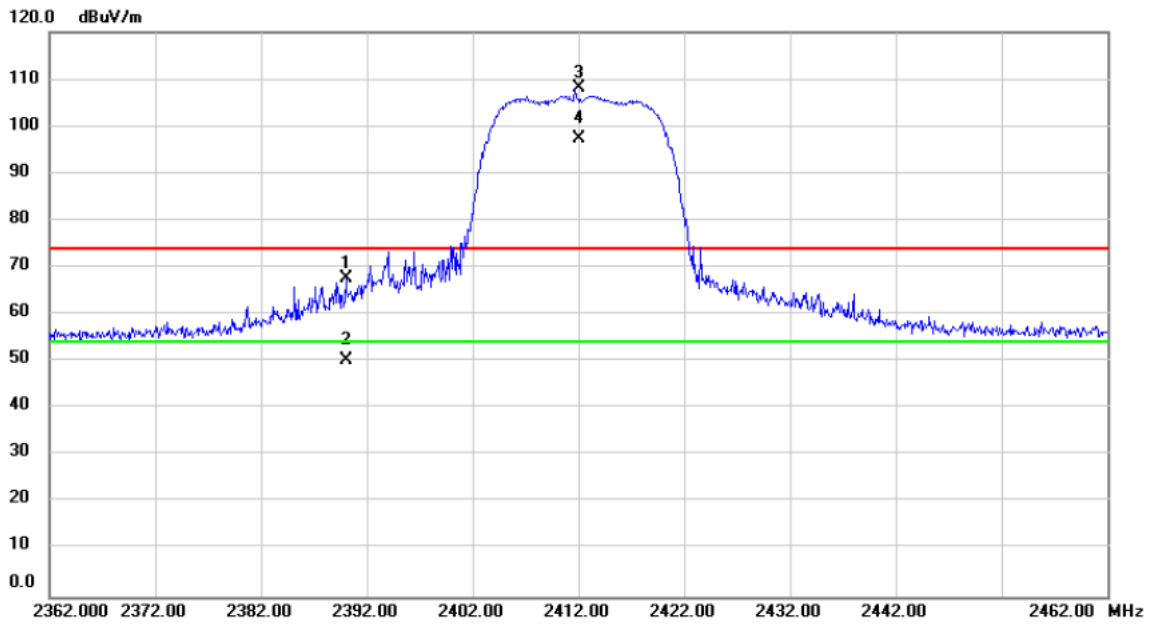


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2462.000	75.36	31.56	106.92	74.00	32.92	peak	No Limit
2	*	2462.000	72.20	31.56	103.76	54.00	49.76	AVG	No Limit
3		2483.700	26.80	31.66	58.46	74.00	-15.54	peak	
4		2483.700	10.29	31.66	41.95	54.00	-12.05	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11g_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

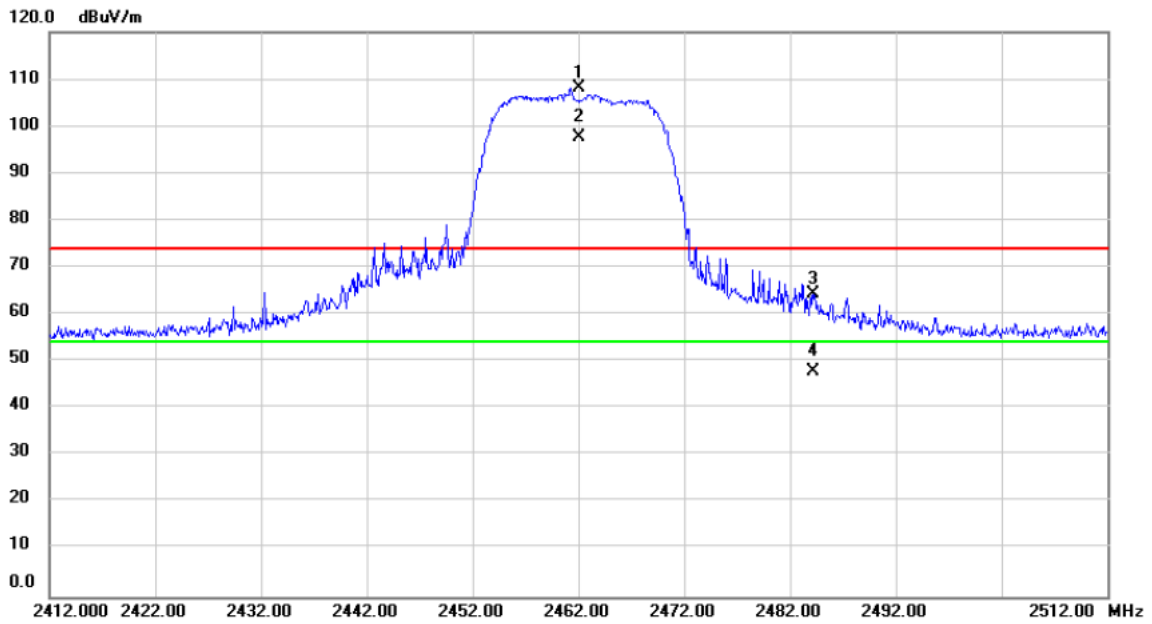


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		2390.000	36.28	31.25	67.53	74.00	-6.47	peak	
2		2390.000	19.03	31.25	50.28	54.00	-3.72	AVG	
3	X	2412.000	76.70	31.34	108.04	74.00	34.04	peak	No Limit
4	*	2412.000	66.12	31.34	97.46	54.00	43.46	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11g_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

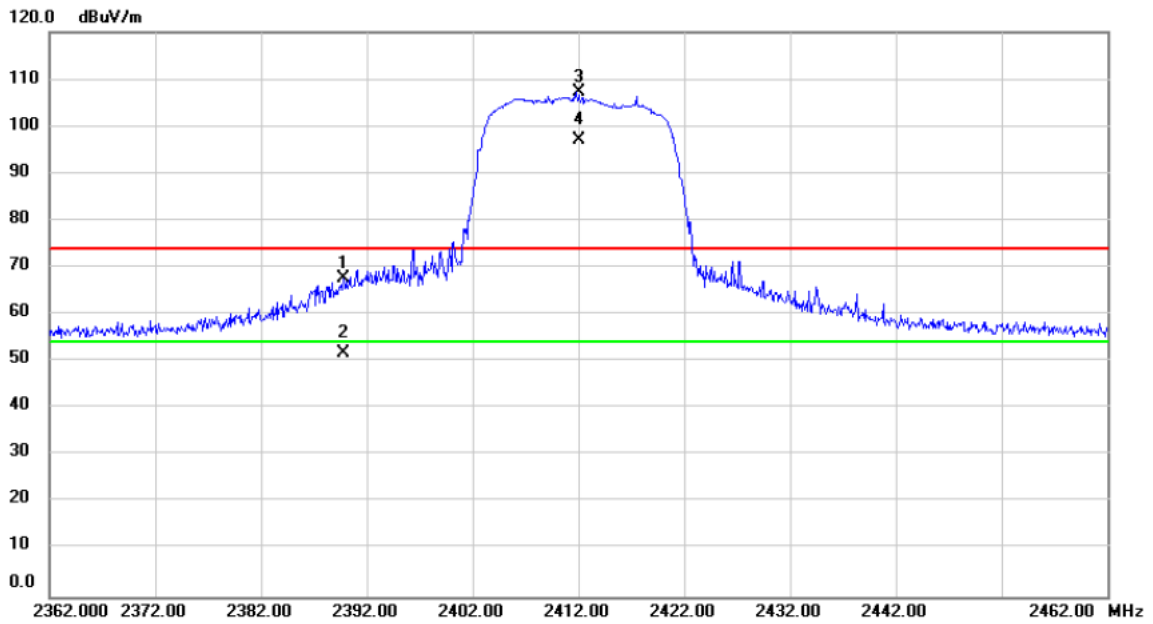


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2462.000	76.46	31.56	108.02	74.00	34.02	peak	No Limit
2	*	2462.000	66.20	31.56	97.76	54.00	43.76	AVG	No Limit
3		2484.200	32.79	31.66	64.45	74.00	-9.55	peak	
4		2484.200	16.23	31.66	47.89	54.00	-6.11	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11n (HT20)_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

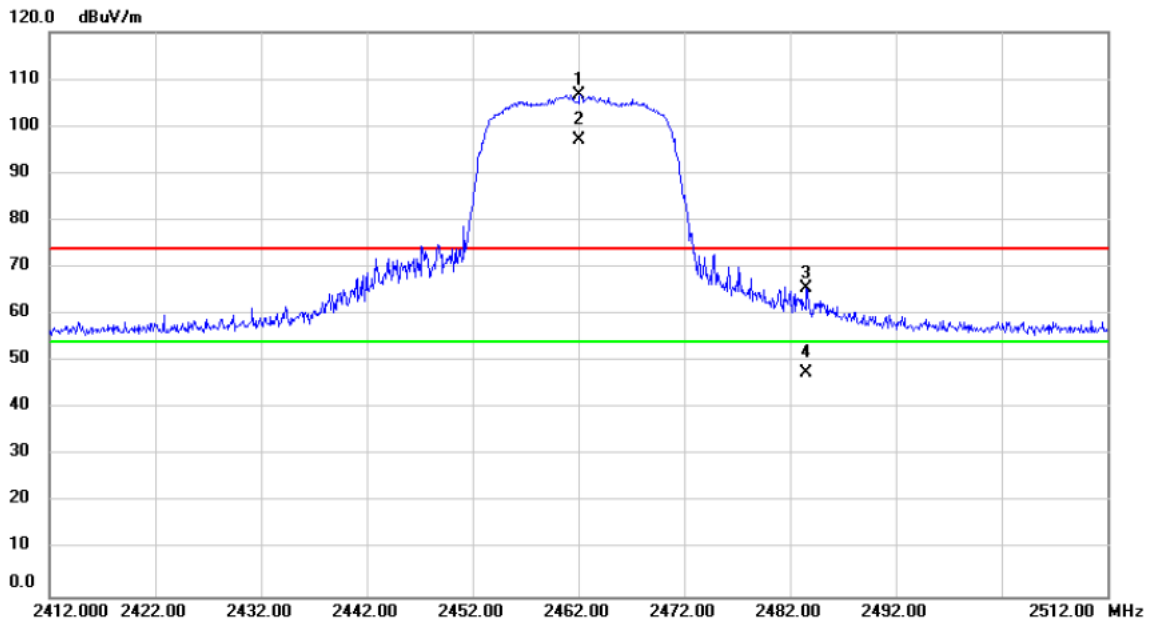


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2389.800	36.27	31.25	67.52	74.00	-6.48	peak	
2	2389.800	20.55	31.25	51.80	54.00	-2.20	AVG	
3 X	2412.000	75.77	31.34	107.11	74.00	33.11	peak	No Limit
4 *	2412.000	65.70	31.34	97.04	54.00	43.04	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11n (HT20)_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

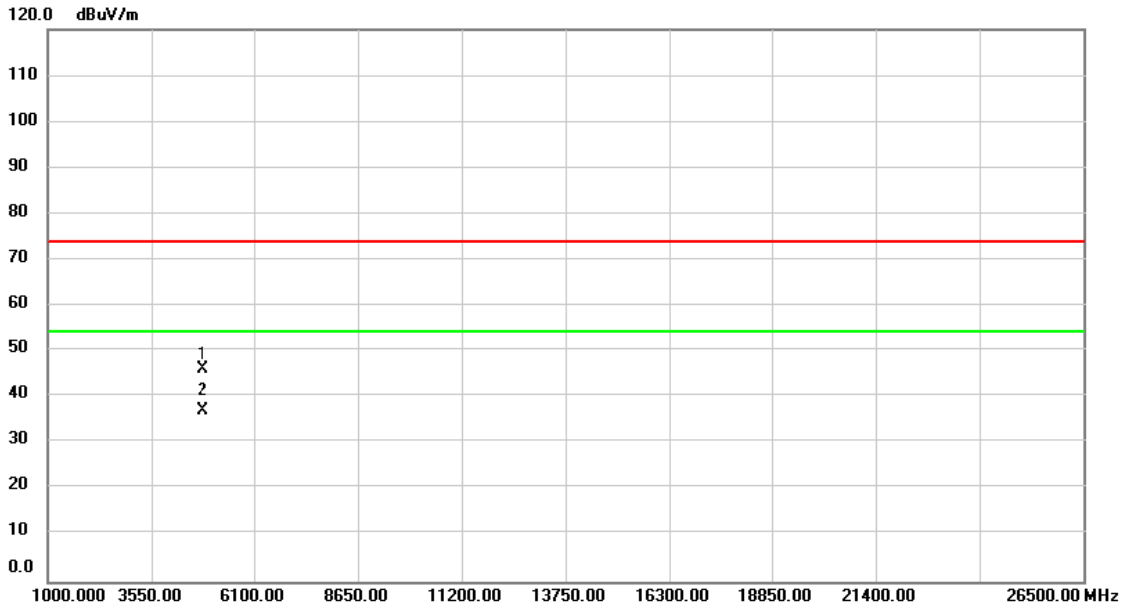


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2462.000	75.23	31.56	106.79	74.00	32.79	peak	No Limit
2	*	2462.000	65.40	31.56	96.96	54.00	42.96	AVG	No Limit
3		2483.600	33.76	31.66	65.42	74.00	-8.58	peak	
4		2483.600	15.96	31.66	47.62	54.00	-6.38	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

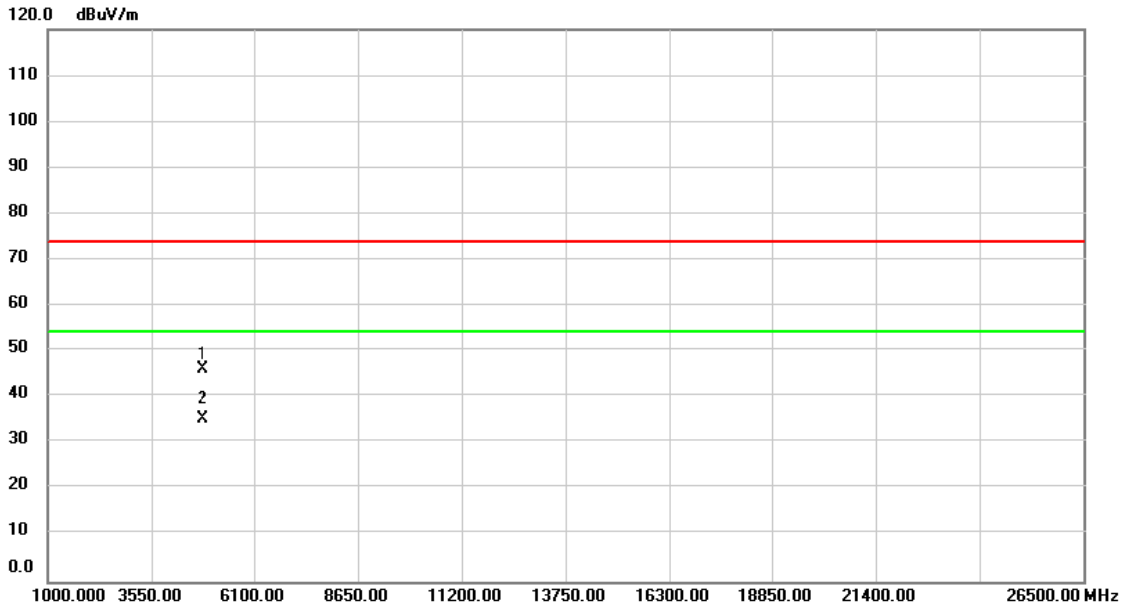


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4824.000	56.67	-10.52	46.15	74.00	-27.85	peak	
2 *	4824.000	47.59	-10.52	37.07	54.00	-16.93	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

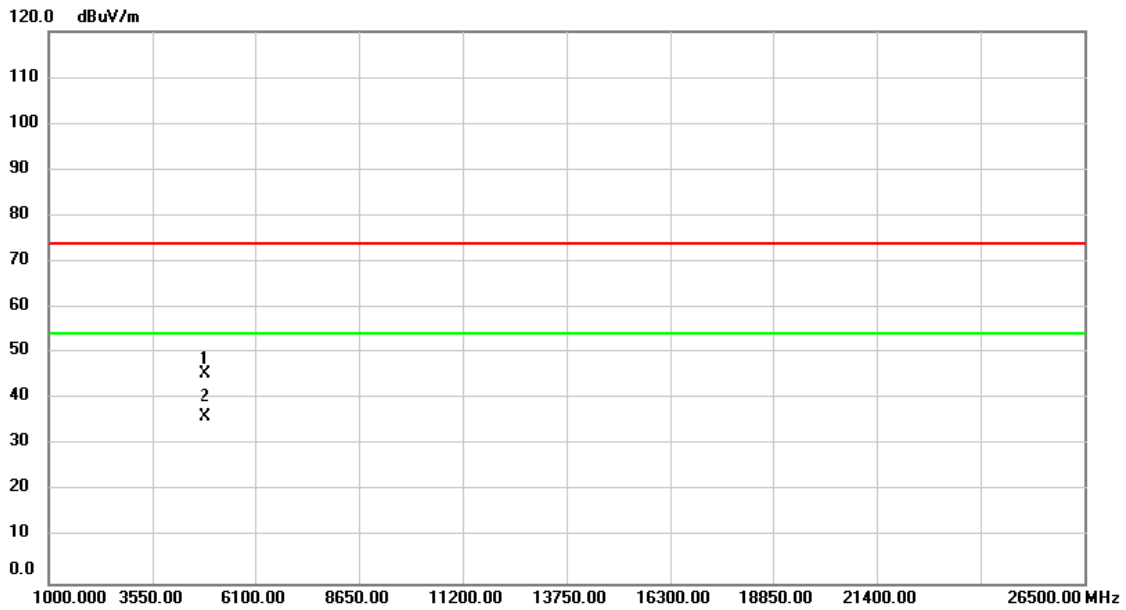


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4824.000	56.43	-10.52	45.91	74.00	-28.09	peak	
2 *	4824.000	45.65	-10.52	35.13	54.00	-18.87	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2437 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

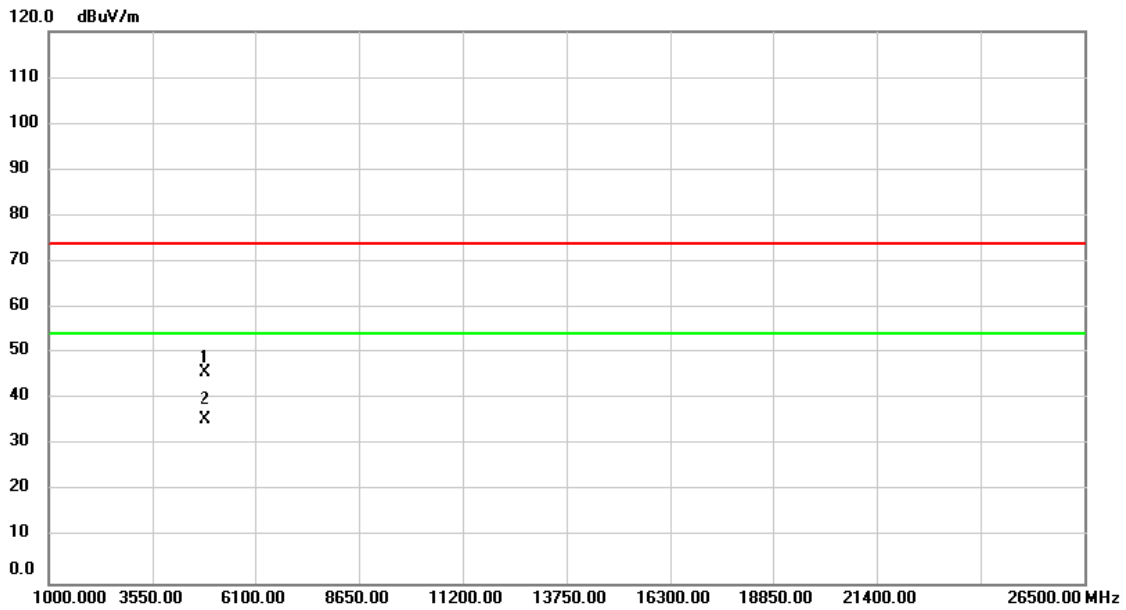


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4874.000	55.91	-10.40	45.51	74.00	-28.49	peak	
2 *	4874.000	46.42	-10.40	36.02	54.00	-17.98	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2437 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

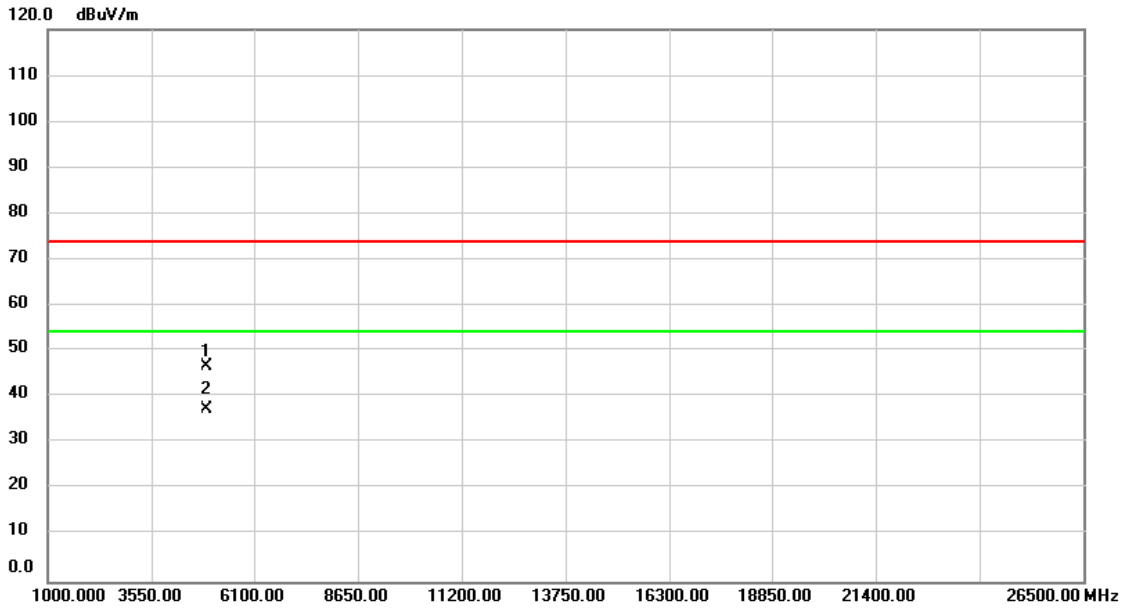


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4874.000	56.17	-10.40	45.77	74.00	-28.23	peak	
2 *	4874.000	46.09	-10.40	35.69	54.00	-18.31	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

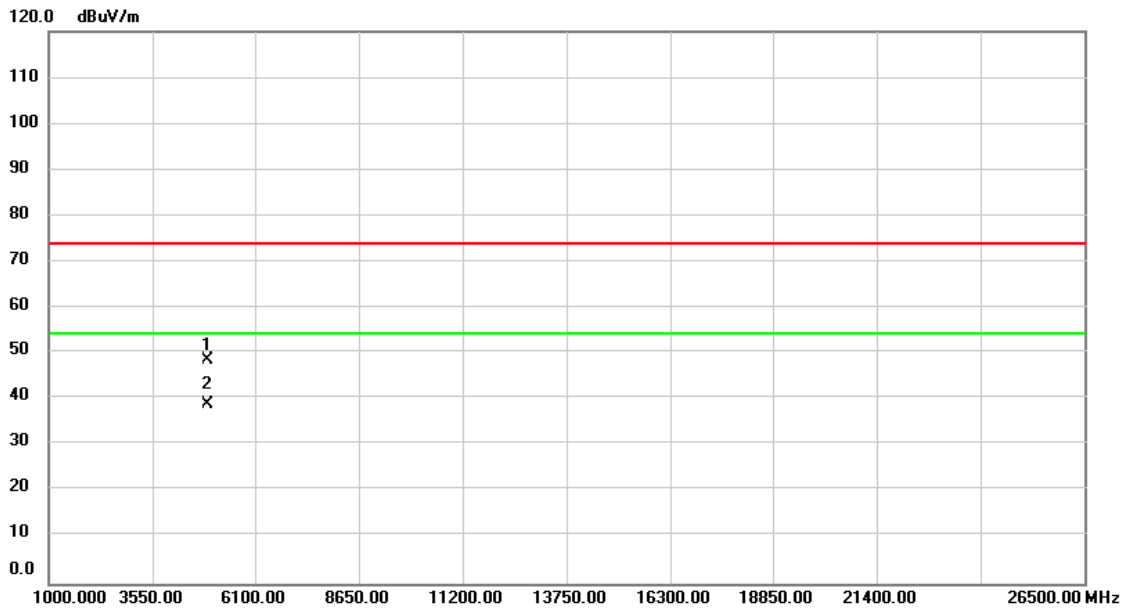


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	56.93	-10.28	46.65	74.00	-27.35	peak	
2	*	4924.000	47.52	-10.28	37.24	54.00	-16.76	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11b_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

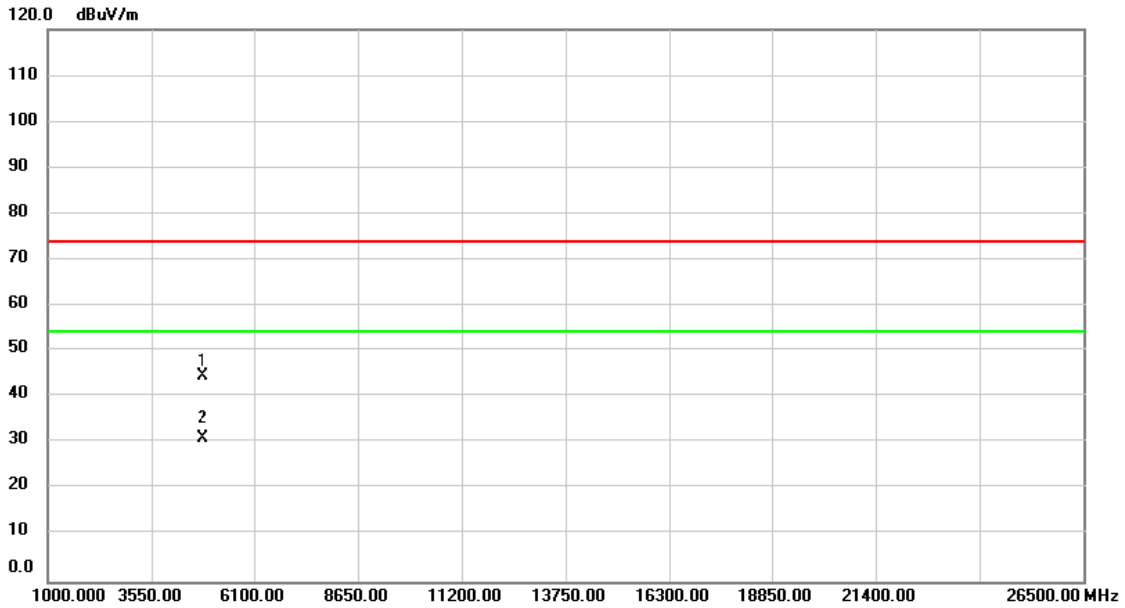


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		4924.000	58.59	-10.28	48.31	74.00	-25.69	peak	
2	*	4924.000	49.13	-10.28	38.85	54.00	-15.15	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11g_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

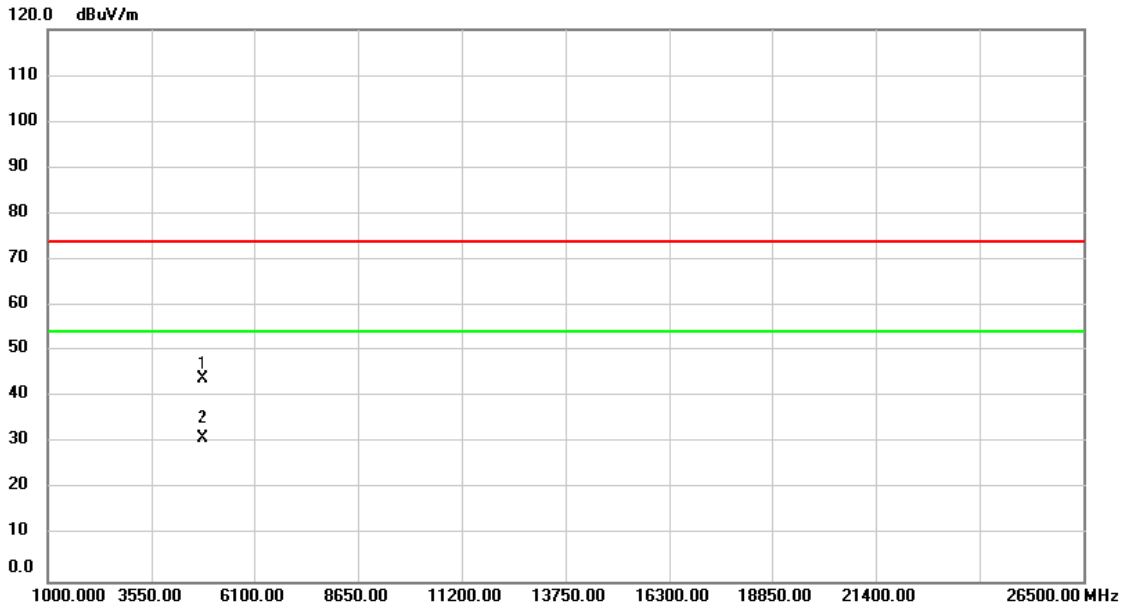


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	55.01	-10.52	44.49	74.00	-29.51	peak	
2	*	4824.000	41.67	-10.52	31.15	54.00	-22.85	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11g_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

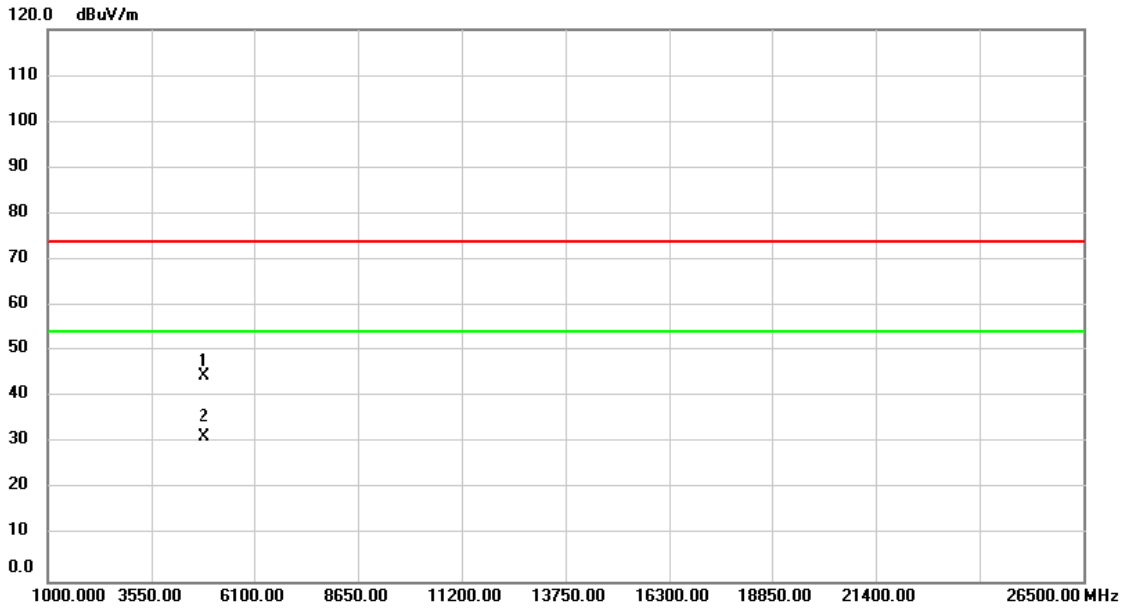


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	54.62	-10.52	44.10	74.00	-29.90	peak	
2	*	4824.000	41.71	-10.52	31.19	54.00	-22.81	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11g_2437 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

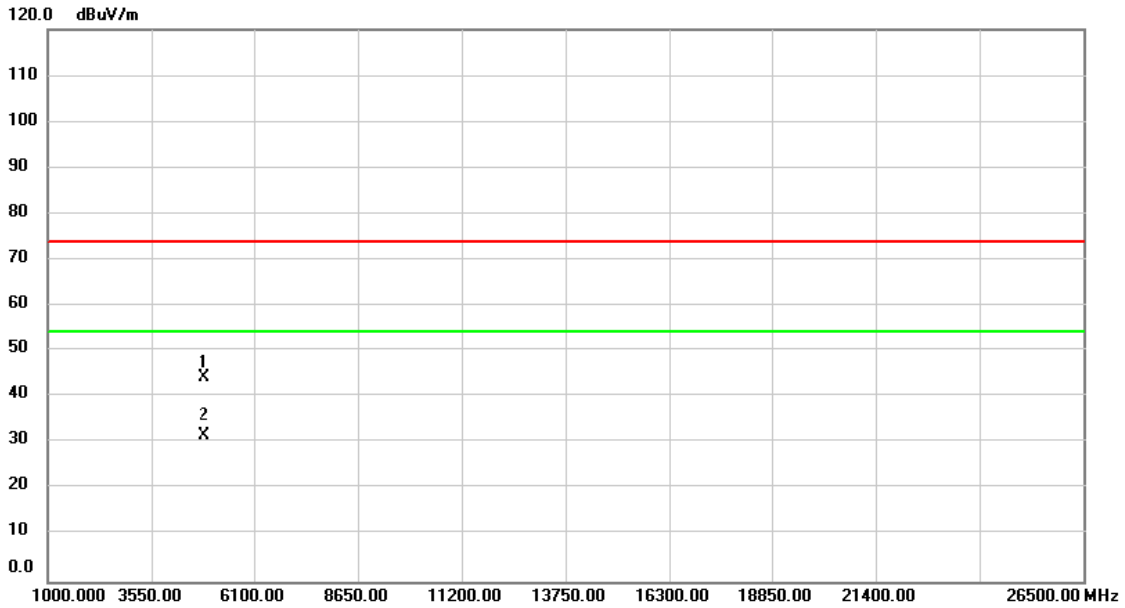


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	55.06	-10.40	44.66	74.00	-29.34	peak	
2	*	4874.000	41.70	-10.40	31.30	54.00	-22.70	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11g_2437 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

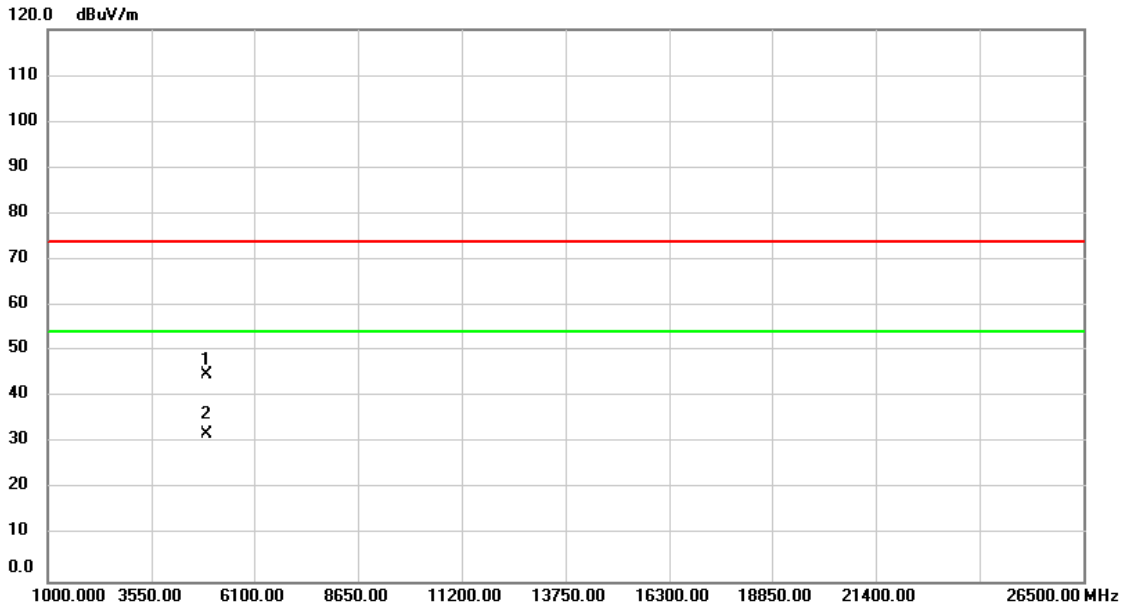


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	54.56	-10.40	44.16	74.00	-29.84	peak	
2	*	4874.000	42.15	-10.40	31.75	54.00	-22.25	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11g_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

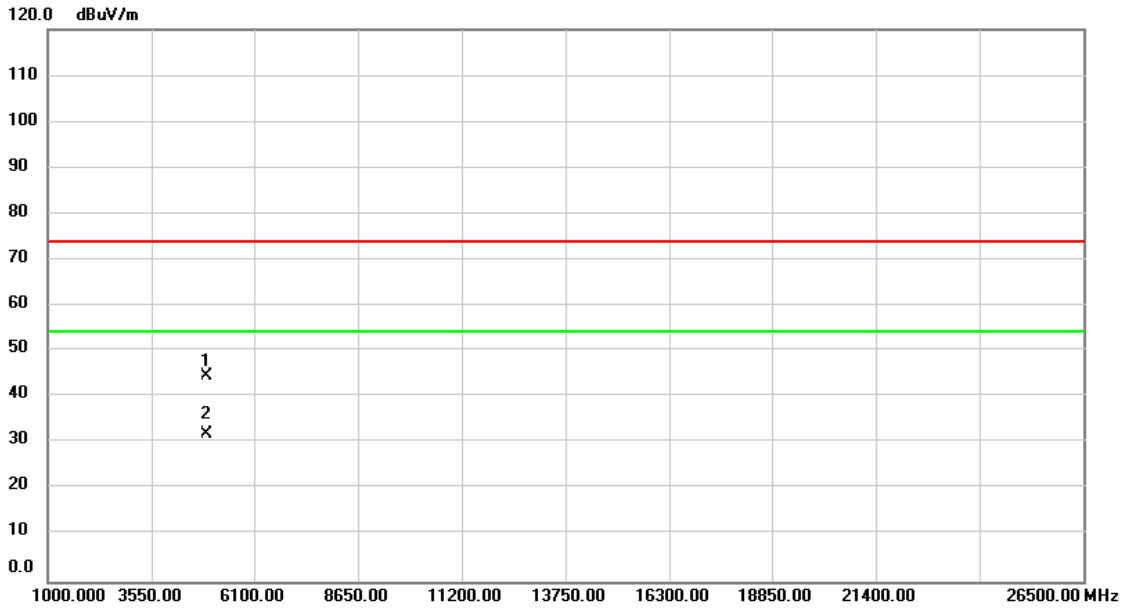


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	55.28	-10.28	45.00	74.00	-29.00	peak	
2	*	4924.000	42.11	-10.28	31.83	54.00	-22.17	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11g_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

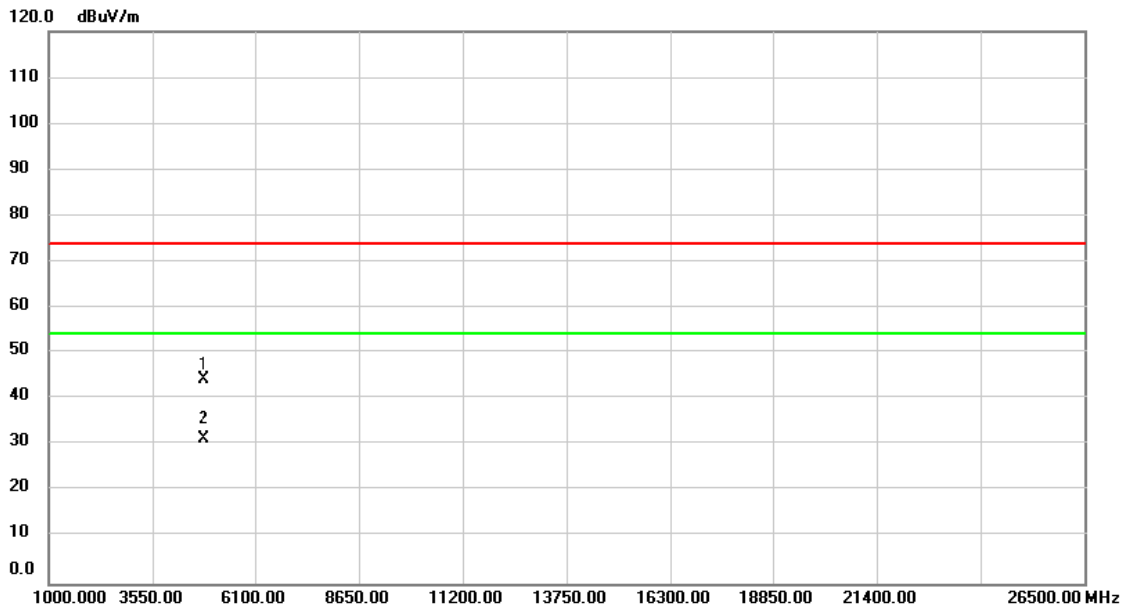


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	54.85	-10.28	44.57	74.00	-29.43	peak	
2	*	4924.000	42.09	-10.28	31.81	54.00	-22.19	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11n (HT20)_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

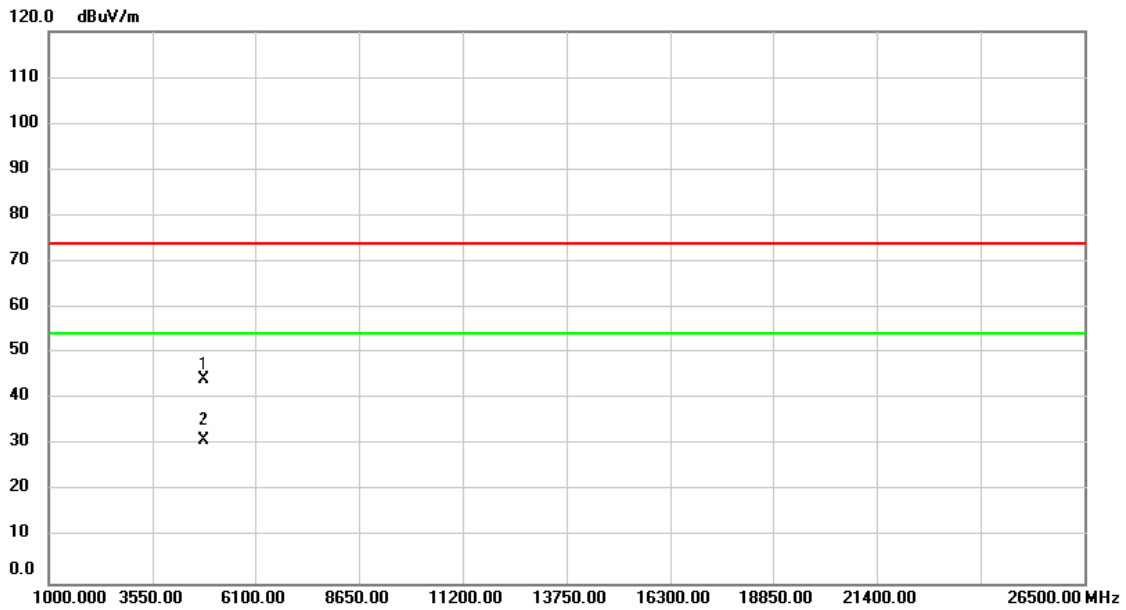


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	54.90	-10.52	44.38	74.00	-29.62	peak	
2	*	4824.000	41.80	-10.52	31.28	54.00	-22.72	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11n (HT20)_2412 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

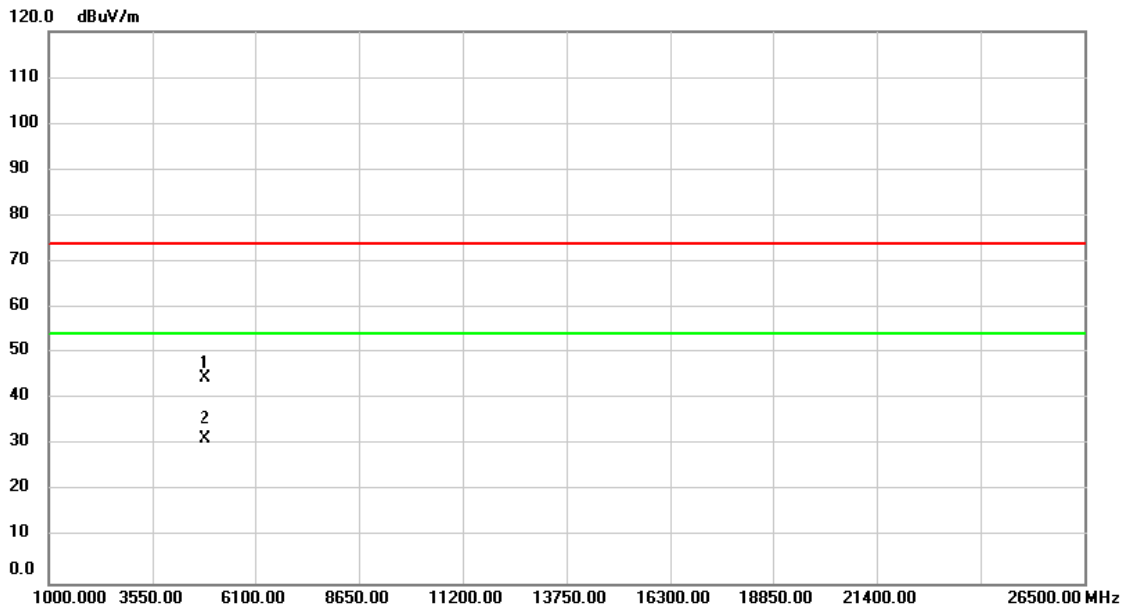


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	54.81	-10.52	44.29	74.00	-29.71	peak	
2	*	4824.000	41.68	-10.52	31.16	54.00	-22.84	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11n (HT20)_2437 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

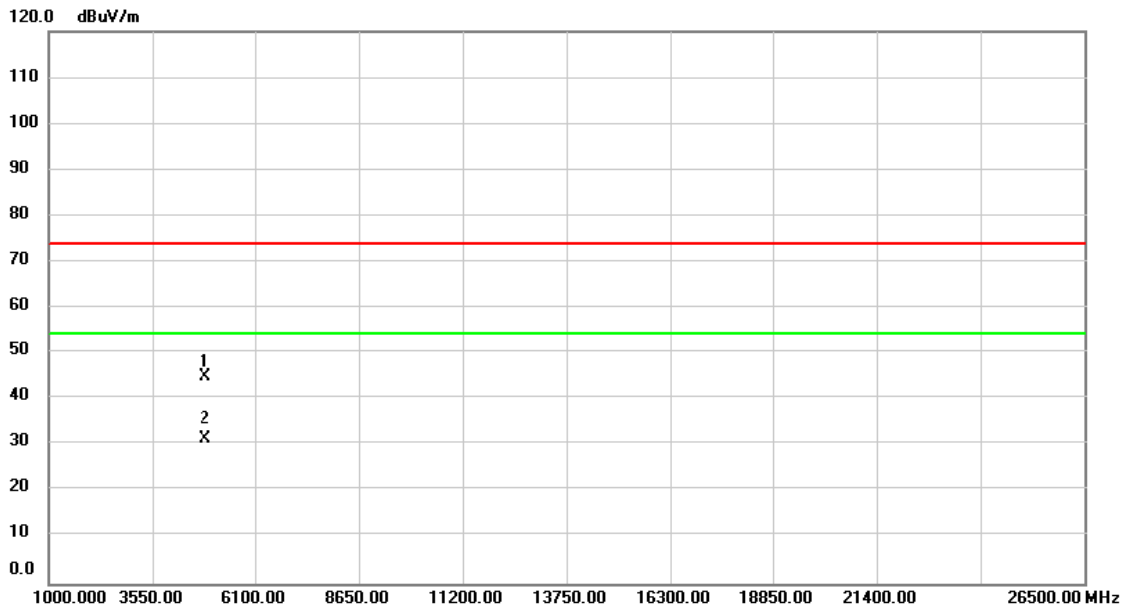


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	55.09	-10.40	44.69	74.00	-29.31	peak	
2	*	4874.000	41.66	-10.40	31.26	54.00	-22.74	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11n (HT20)_2437 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

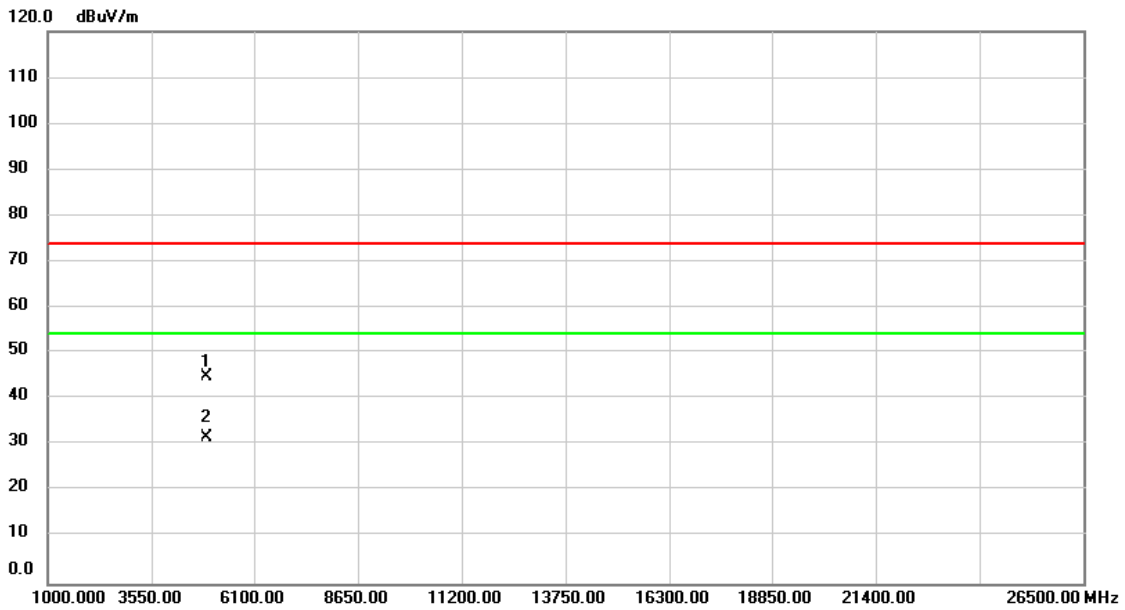


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	55.30	-10.40	44.90	74.00	-29.10	peak	
2	*	4874.000	41.70	-10.40	31.30	54.00	-22.70	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11n (HT20)_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Vertical

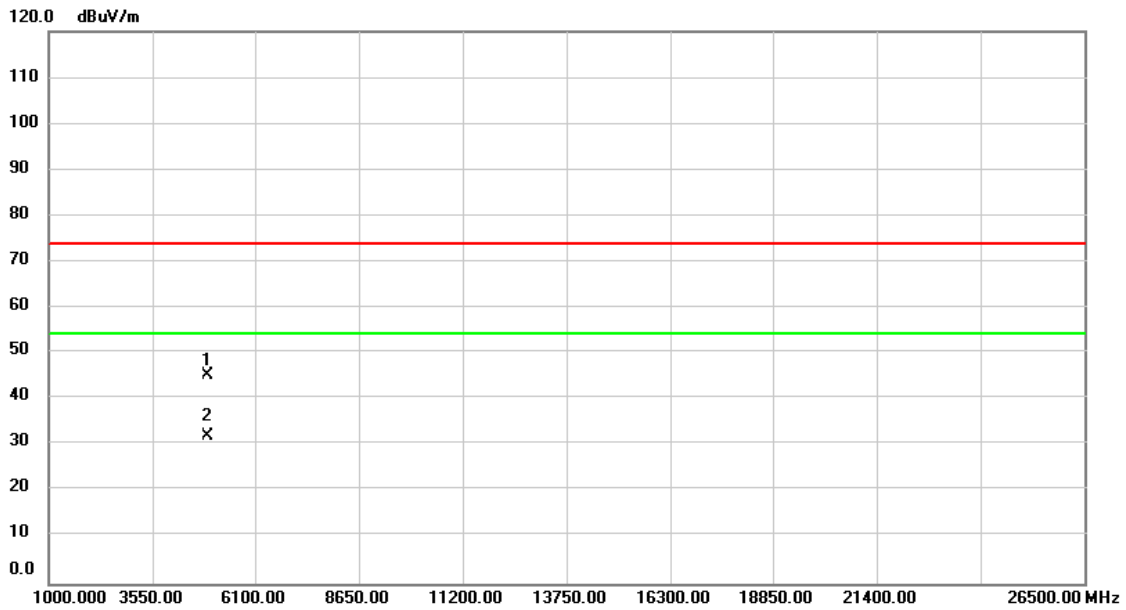


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	55.25	-10.28	44.97	74.00	-29.03	peak	
2	*	4924.000	42.04	-10.28	31.76	54.00	-22.24	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_IEEE 802.11n (HT20)_2462 MHz	Tested Date	2019/12/13
Test Voltage	AC 120V/60Hz	Polarization	Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	55.39	-10.28	45.11	74.00	-28.89	peak	
2	*	4924.000	42.15	-10.28	31.87	54.00	-22.13	AVG	

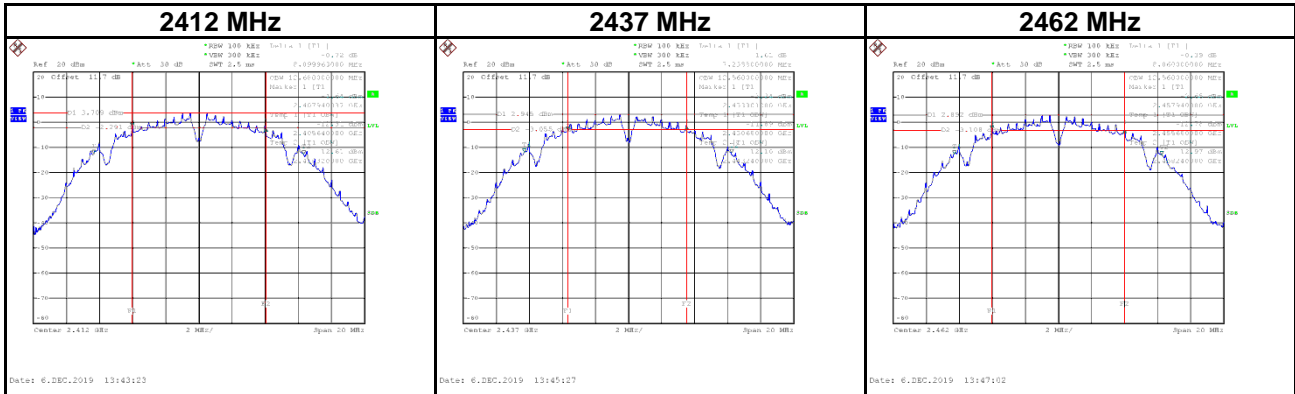
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX E BANDWIDTH

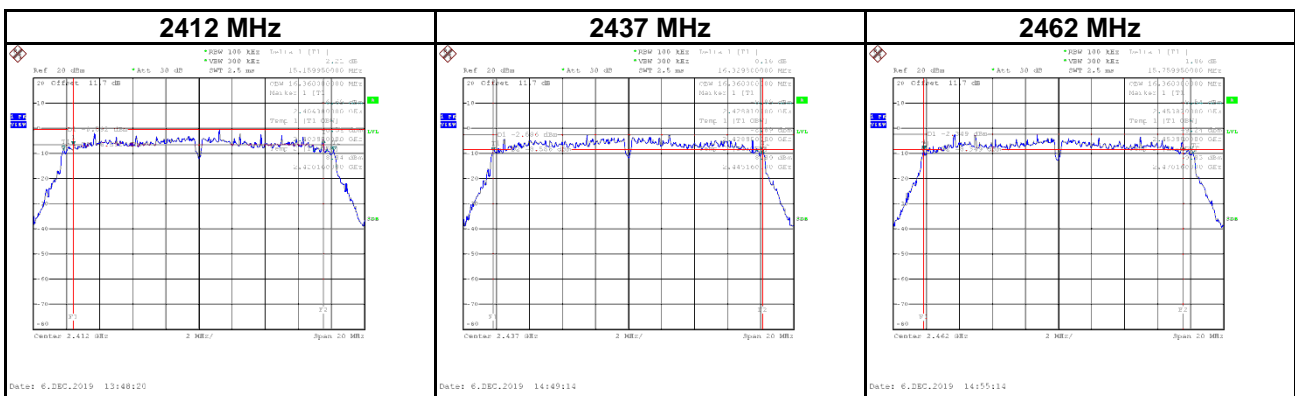
Test Mode	IEEE 802.11b
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	8.10	12.68	500	Complies
2437	7.24	12.56	500	Complies
2462	8.06	12.56	500	Complies



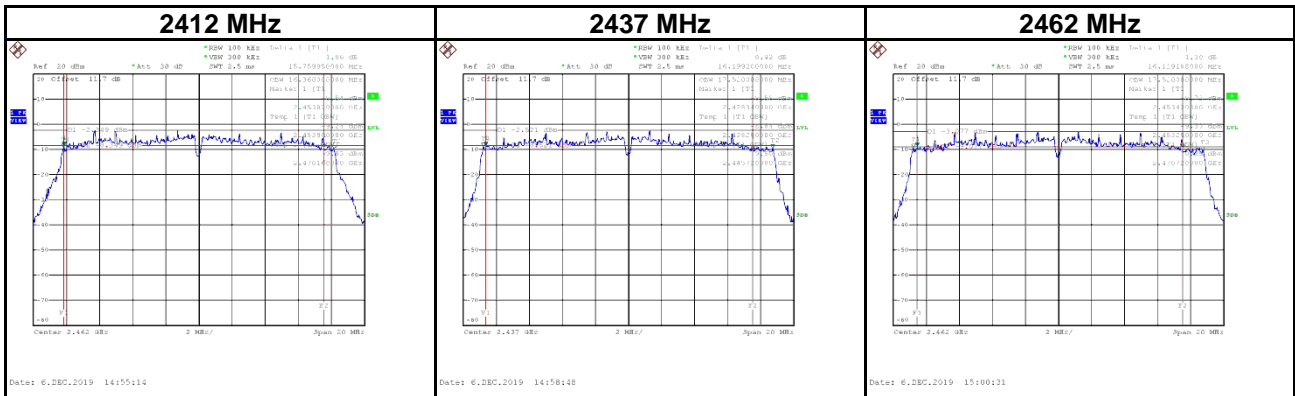
Test Mode	IEEE 802.11g
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	15.16	16.36	500	Complies
2437	16.33	16.36	500	Complies
2462	15.75	16.36	500	Complies



Test Mode	IEEE 802.11n (HT20)
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	16.14	17.56	500	Complies
2437	16.20	17.52	500	Complies
2462	16.12	17.52	500	Complies



APPENDIX F OUTPUT POWER

Test Mode	IEEE 802.11b	Tested Date	2019/12/4
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	15.38	0.0345	30.00	1.0000	Complies
2437	15.02	0.0318	30.00	1.0000	Complies
2462	14.77	0.0300	30.00	1.0000	Complies

Test Mode	IEEE 802.11g	Tested Date	2019/12/4
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	20.02	0.1005	30.00	1.0000	Complies
2437	19.75	0.0944	30.00	1.0000	Complies
2462	19.63	0.0918	30.00	1.0000	Complies

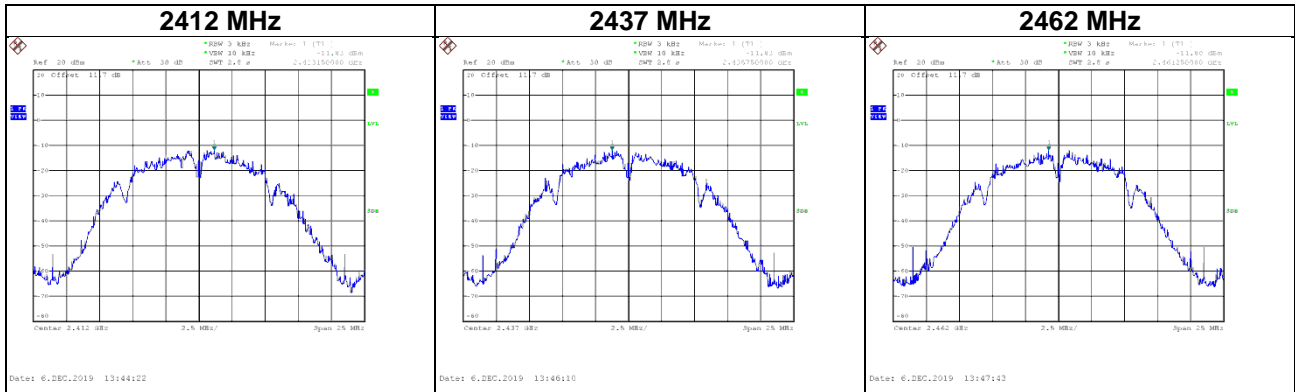
Test Mode	IEEE 802.11n (HT20)	Tested Date	2019/12/4
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	19.99	0.0998	30.00	1.0000	Complies
2437	19.78	0.0951	30.00	1.0000	Complies
2462	19.72	0.0938	30.00	1.0000	Complies

APPENDIX G POWER SPECTRAL DENSITY

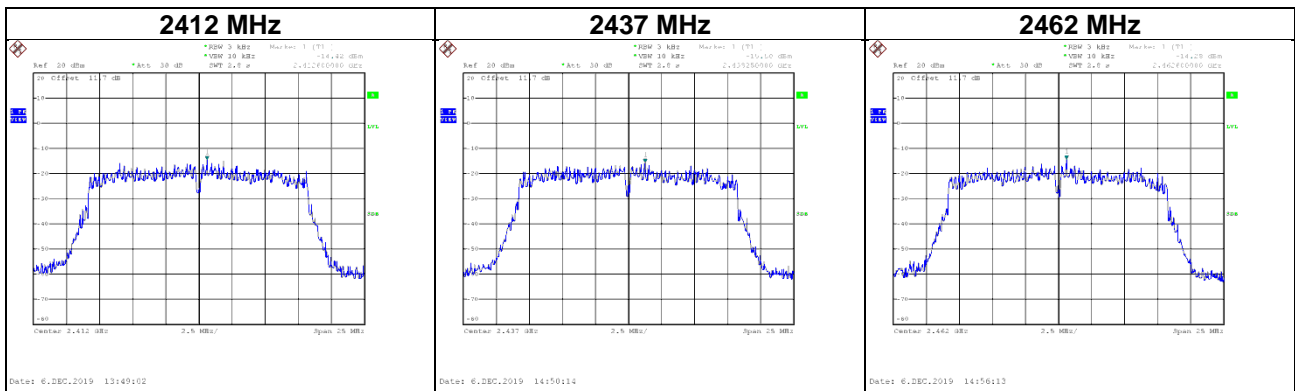
Test Mode	IEEE 802.11b
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-11.83	8.00	Complies
2437	-11.83	8.00	Complies
2462	-11.80	8.00	Complies



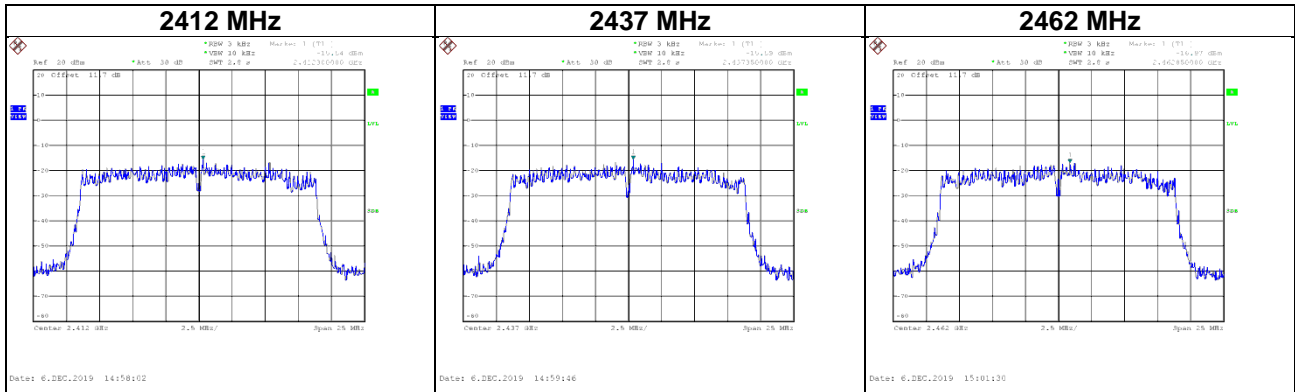
Test Mode	IEEE 802.11g
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-14.42	8.00	Complies
2437	-15.50	8.00	Complies
2462	-14.28	8.00	Complies



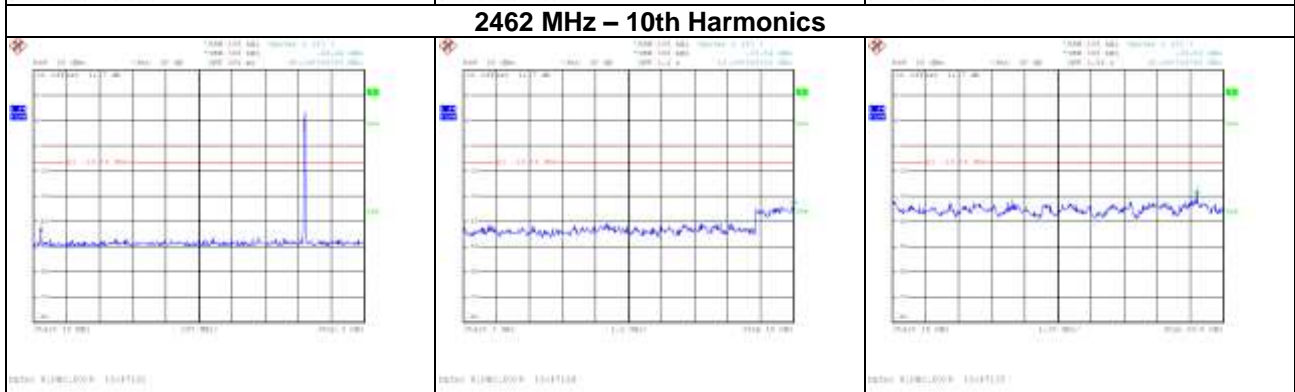
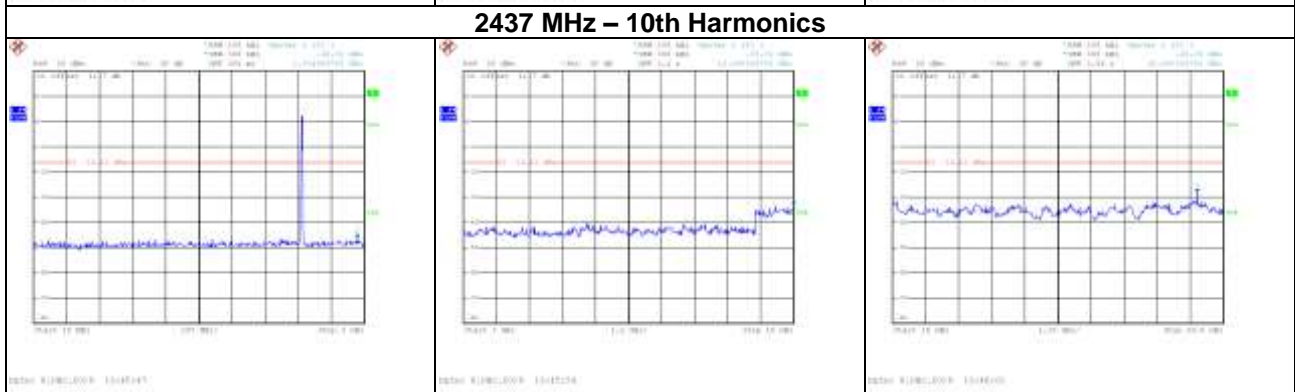
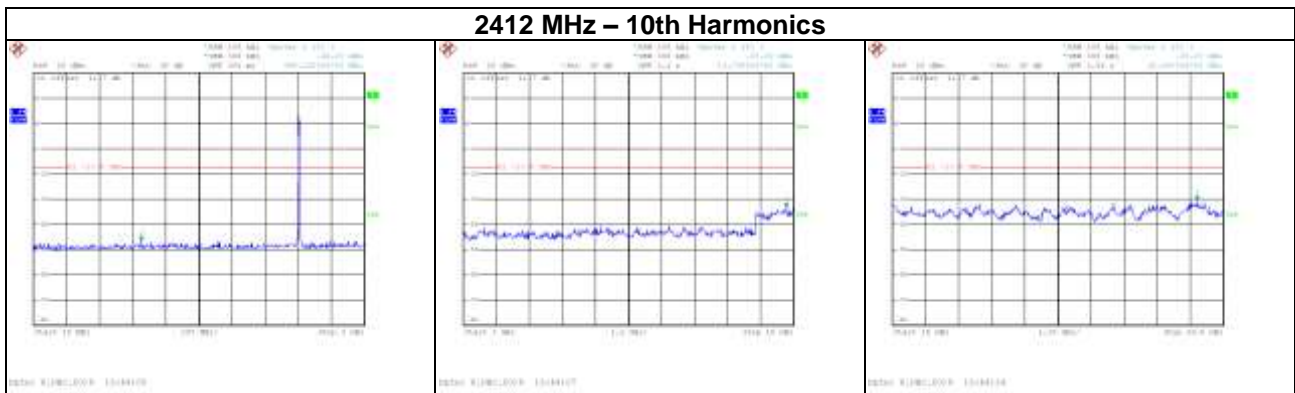
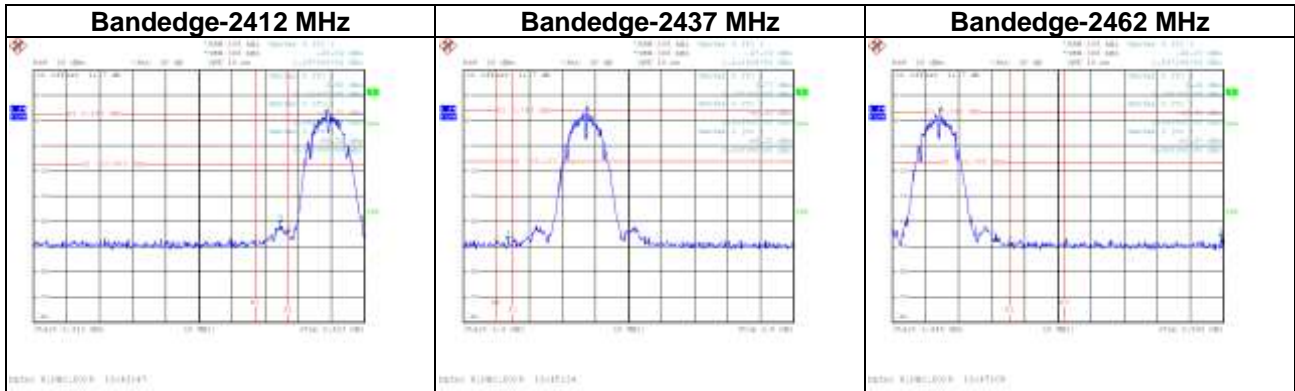
Test Mode	IEEE 802.11n (HT20)
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-15.54	8.00	Complies
2437	-15.59	8.00	Complies
2462	-16.97	8.00	Complies

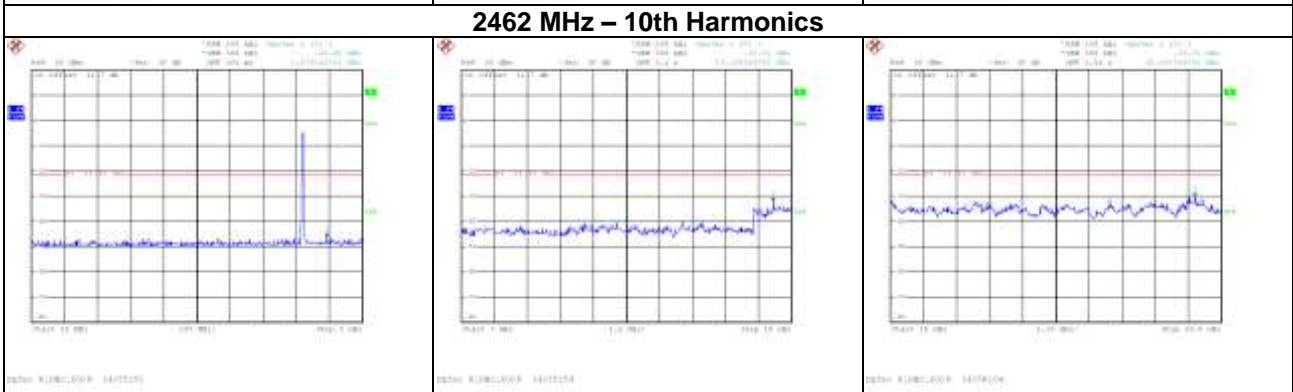
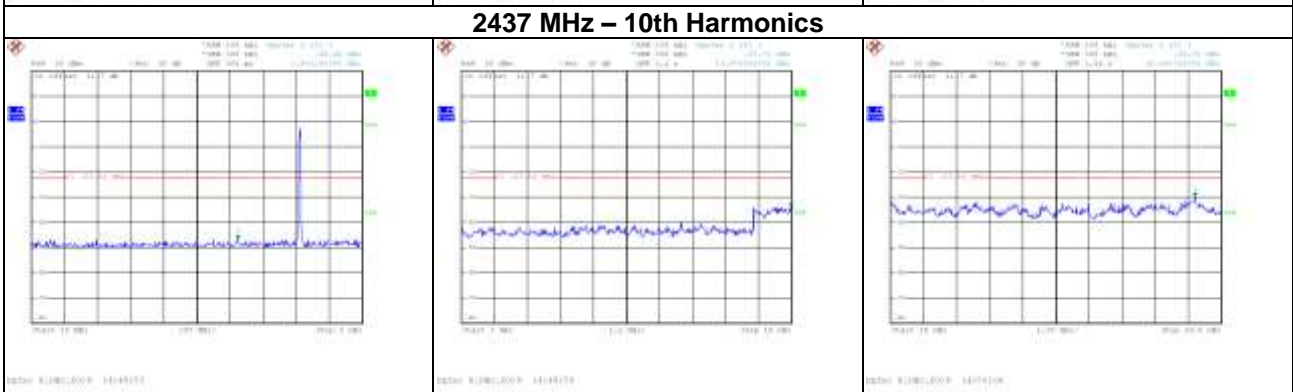
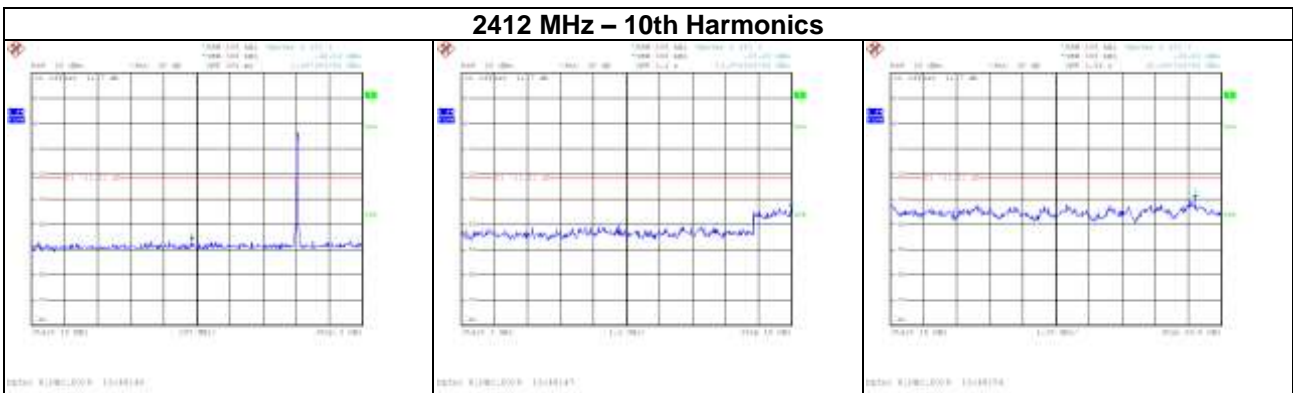
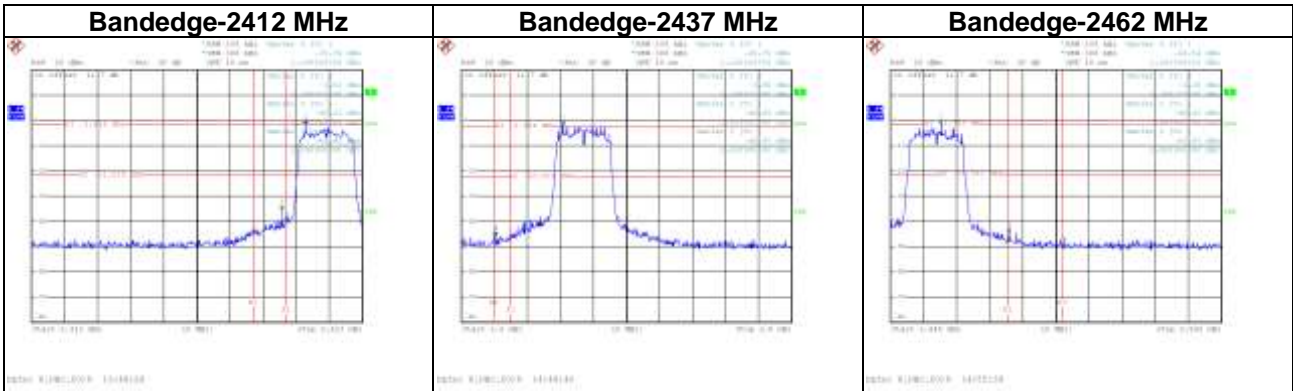


APPENDIX H ANTENNA CONDUCTED SPURIOUS EMISSIONS

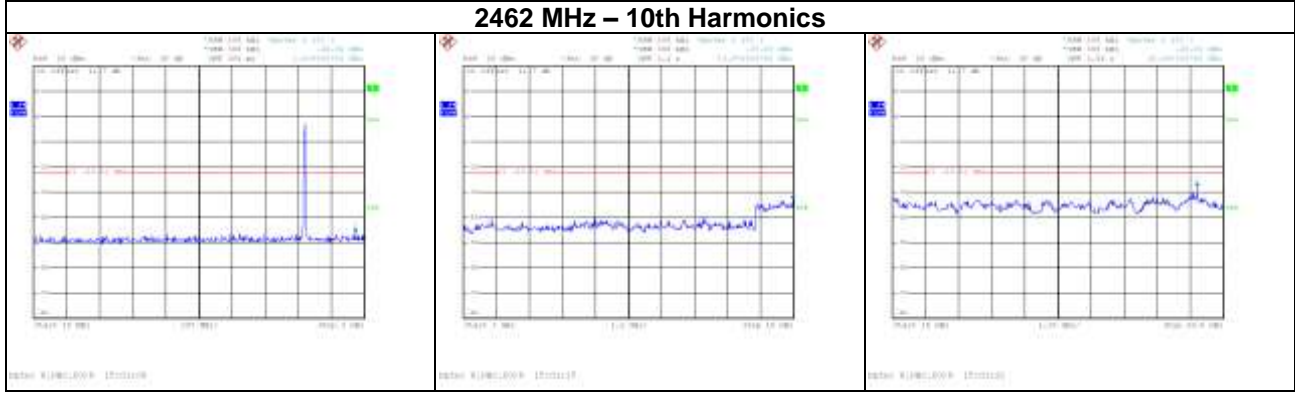
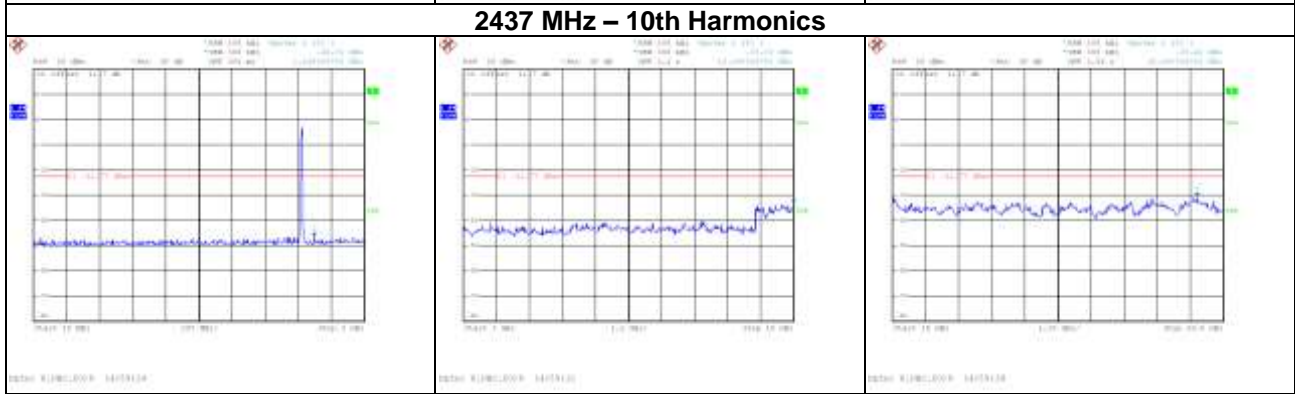
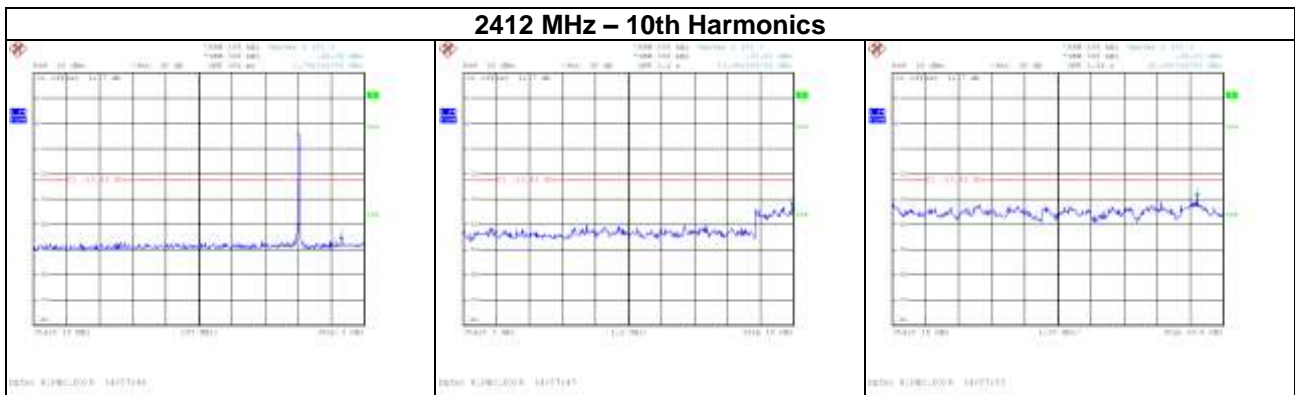
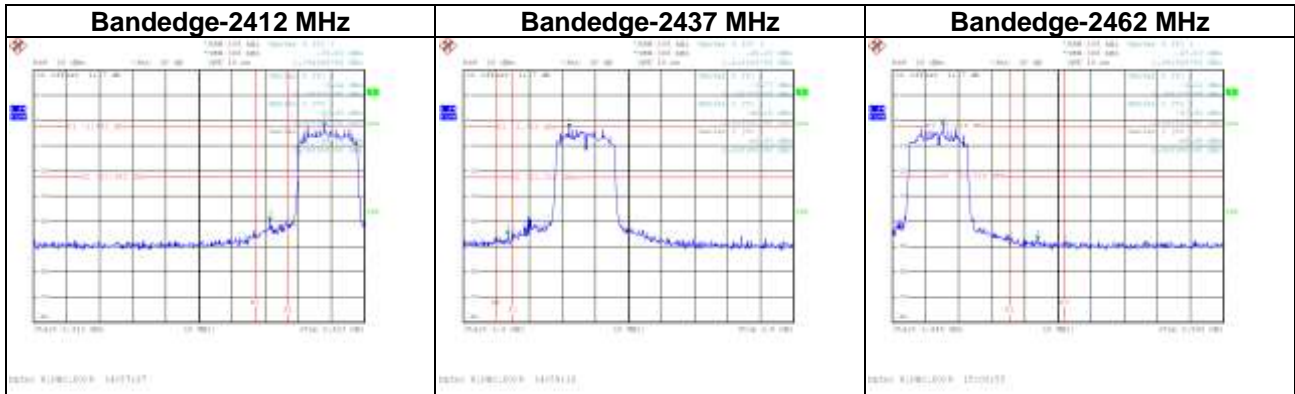
Test Mode	IEEE 802.11b
Test Voltage	AC 120V/60Hz



Test Mode	IEEE 802.11g
Test Voltage	AC 120V/60Hz



Test Mode	IEEE 802.11n (HT20)
Test Voltage	AC 120V/60Hz



End of Test Report