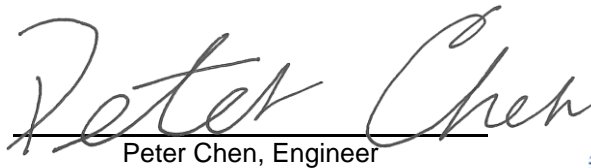
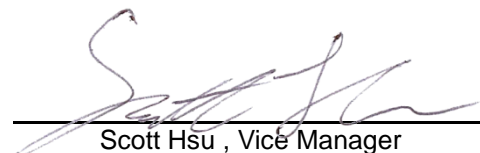


# FCC Radio Test Report

**FCC ID: 2AB9W-PP150XP**

**Report No.** : BTL-FCCP-1-1908T080  
**Equipment** : 3D Printer  
**Model Name** : PartPro150 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 C63.4-2014  
**Date of Receipt** : 2019/9/20  
**Date of Test** : 2019/9/20 ~ 2019/11/14  
**Issued Date** : 2019/11/22

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

**Prepared by** :  
Peter Chen, Engineer**Approved by** :  
Scott Hsu, Vice Manager**BTL Inc.**

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Tel: +886-2-2657-3299

Fax: +886-2-2657-3331

Web: www.newbtl.com

**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.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

**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.

**CONTENTS**

REPORT ISSUED HISTORY	5
1 SUMMARY OF TEST RESULTS	6
1.1 TEST FACILITY	7
1.2 MEASUREMENT UNCERTAINTY	7
1.3 TEST ENVIRONMENT CONDITIONS	8
1.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING	8
1.5 DUTY CYCLE	9
2 GENERAL INFORMATION	10
2.1 DESCRIPTION OF EUT	10
2.2 TEST MODES	11
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	12
2.4 SUPPORT UNITS	12
3 AC POWER LINE CONDUCTED EMISSIONS TEST	13
3.1 LIMIT	13
3.2 TEST PROCEDURE	13
3.3 DEVIATION FROM TEST STANDARD	13
3.4 TEST SETUP	14
3.5 TEST RESULT	14
4 RADIATED EMISSIONS TEST	15
4.1 LIMIT	15
4.2 TEST PROCEDURE	16
4.3 DEVIATION FROM TEST STANDARD	16
4.4 TEST SETUP	16
4.5 EUT OPERATING CONDITIONS	17
4.6 TEST RESULT – 9 KHZ TO 30 MHZ	18
4.7 TEST RESULT – 30 MHZ TO 1 GHZ	18
4.8 TEST RESULT – ABOVE 1 GHZ	18
5 BANDWIDTH TEST	19
5.1 LIMIT	19
5.2 TEST PROCEDURE	19
5.3 DEVIATION FROM TEST STANDARD	19
5.4 TEST SETUP	19
5.5 EUT OPERATING CONDITIONS	19
5.6 TEST RESULT	19
6 OUTPUT POWER TEST	20
6.1 LIMIT	20
6.2 TEST PROCEDURE	20
6.3 DEVIATION FROM TEST STANDARD	20
6.4 TEST SETUP	20
6.5 EUT OPERATING CONDITIONS	20
6.6 TEST RESULT	20
7 POWER SPECTRAL DENSITY	21
7.1 LIMIT	21
7.2 TEST PROCEDURE	21
7.3 DEVIATION FROM TEST STANDARD	21
7.4 TEST SETUP	21
7.5 EUT OPERATING CONDITIONS	21
7.6 TEST RESULT	21

8	ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST	22
8.1	LIMIT	22
8.2	TEST PROCEDURE	22
8.3	DEVIATION FROM TEST STANDARD	22
8.4	TEST SETUP	22
8.5	EUT OPERATING CONDITIONS	22
8.6	TEST RESULT	22
9	LIST OF MEASURING EQUIPMENTS	23
10	EUT TEST PHOTO	25
11	EUT PHOTOS	25
APPENDIX A	AC POWER LINE CONDUCTED EMISSIONS	26
APPENDIX B	RADIATED EMISSIONS - 9 KHZ TO 30 MHZ	29
APPENDIX C	RADIATED EMISSIONS - 30 MHZ TO 1 GHZ	34
APPENDIX D	RADIATED EMISSIONS - ABOVE 1 GHZ	37
APPENDIX E	BANDWIDTH	62
APPENDIX F	OUTPUT POWER	65
APPENDIX G	POWER SPECTRAL DENSITY	67
APPENDIX H	ANTENNA CONDUCTED SPURIOUS EMISSIONS	70

### REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	2019/11/22

## 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.

### 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: 355421 and DN: TW1099.

- C05       CB08       CB11       CB15       CB16  
 CB18       SR06

### 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	25 °C, 45 %	Eric Lee
Radiated emissions below 1 GHz	23 °C, 59 %	John Chuang
Radiated emissions above 1 GHz	23 °C, 59 %	John Chuang
Bandwidth	23.5 °C, 49 %	William Wei
Output Power	23.5 °C, 49 %	William Wei
Power Spectral Density	23.5 °C, 49 %	William Wei
Antenna conducted Spurious Emission	23.5 °C, 49 %	William Wei

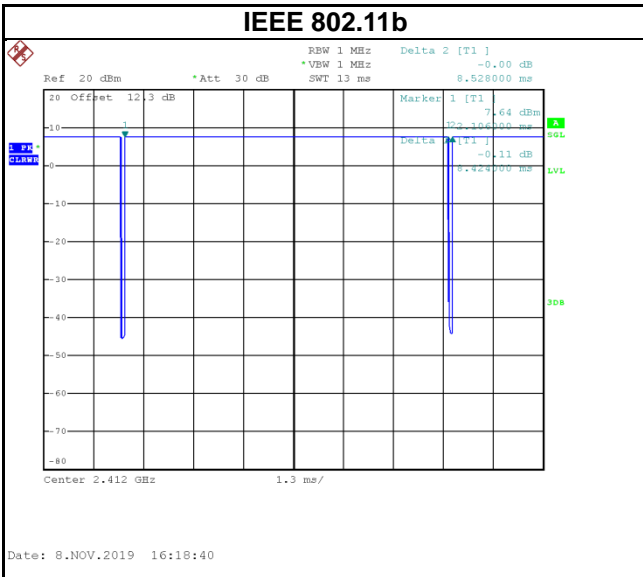
### 1.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

Test Software	Tera Term			
Mode	2412 MHz	2437 MHz	2462 MHz	Data Rate
IEEE 802.11b	31	31	31	1 Mbps
IEEE 802.11g	31	31	31	6 Mbps
IEEE 802.11n (HT20)	31	31	31	MCS 0

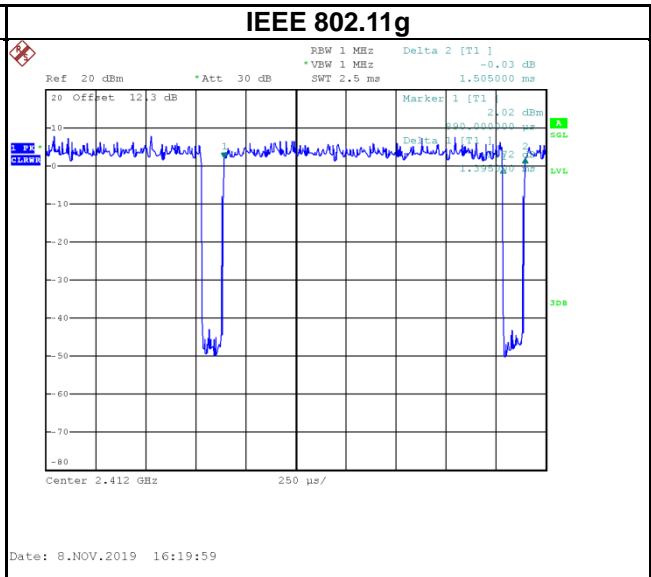


## 1.5 DUTY CYCLE

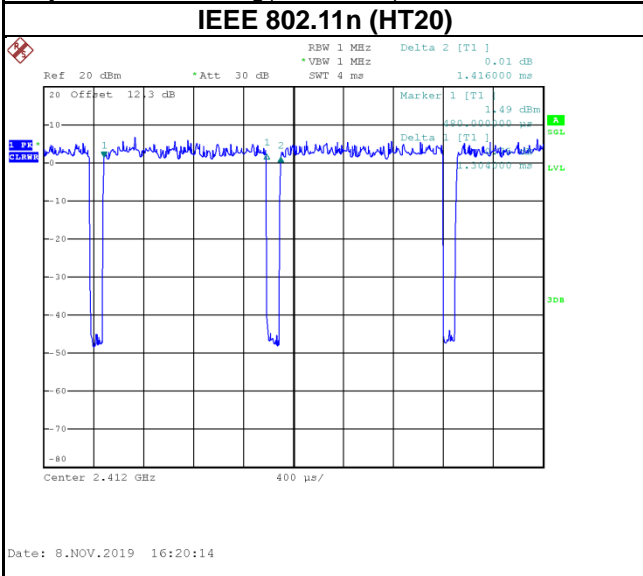
If duty cycle is  $\geq 98\%$ , duty factor is not required.  
 If duty cycle is  $< 98\%$ , duty factor shall be considered.



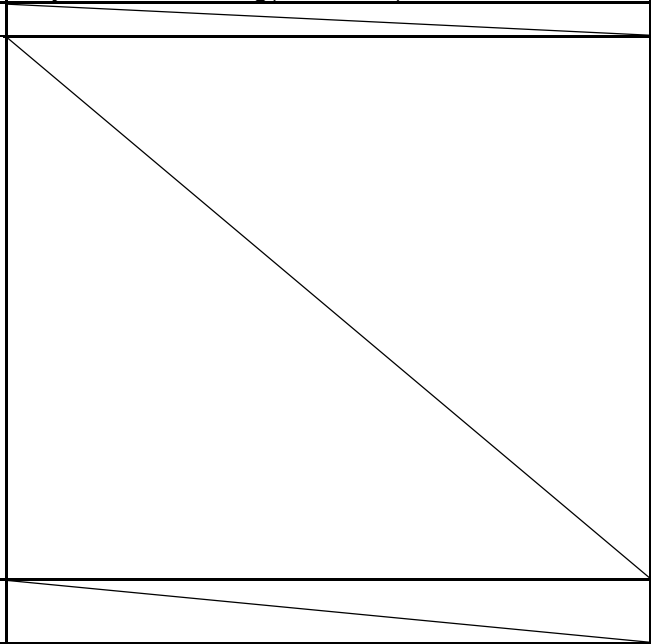
Duty cycle =  $8.424 \text{ ms} / 8.528 \text{ ms} = 98.78\%$   
 Duty Factor =  $10 * \log(1 / 0.9878) = 0.05 \text{ dB}$



Duty cycle =  $1.395 \text{ ms} / 1.505 \text{ ms} = 92.69\%$   
 Duty Factor =  $10 * \log(1 / 0.9269) = 0.33 \text{ dB}$



Duty cycle =  $1.304 \text{ ms} / 1.416 \text{ ms} = 92.09\%$   
 Duty Factor =  $10 * \log(1 / 0.9209) = 0.36 \text{ dB}$



## 2 GENERAL INFORMATION

### 2.1 DESCRIPTION OF EUT

Equipment	3D Printer
Model Name	PartPro150 xP
Brand Name	XYZprinting
Model Difference	N/A
Power Source	DC voltage supplied from AC/DC Adapter. (1) FSP / FSP060-DAAN3 (2) EDAC / EA10681P-240
Power Rating	(1) I/P: 100-240V~, 1.8A 50-60Hz / O/P: 24.0V---2.5A (60E MAX.) (2) I/P: 100-240V~2.0A, 50-60Hz / O/P: 24V---2.5A
Products Covered	1 * USB cable 1 * Power cable 2 * Adapter: (1) FSP / FSP060-DAAN3 (2) EDAC / EA10681P-240
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: 16.07 dBm (0.0405 W) IEEE 802.11g: 21.05 dBm (0.1274 W) IEEE 802.11n (HT20): 19.90 dBm (0.0977 W)
Test Model	PartPro150 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)		

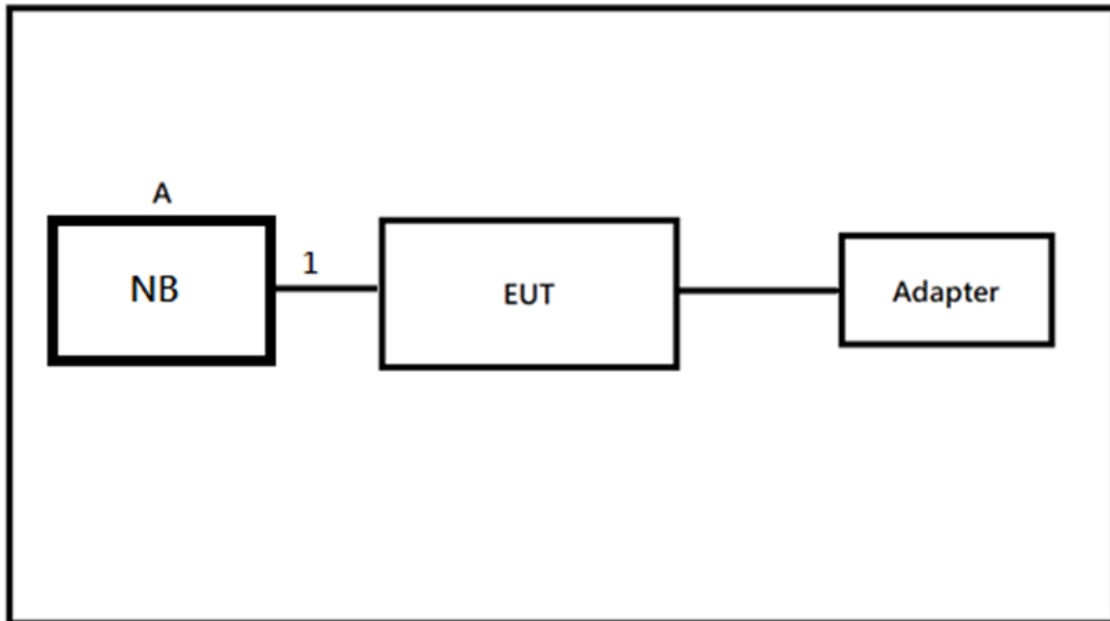
**NOTE:**

- (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.
- (4) The Adapter EDAC / EA10681P-240 was found to be the worst case and used for final test.

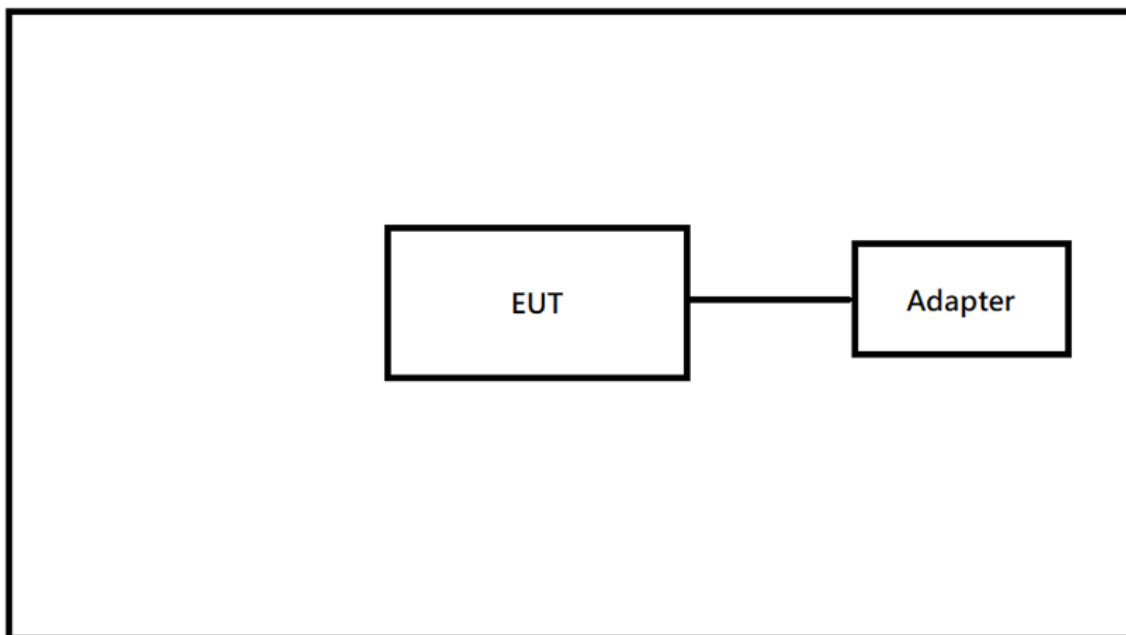
### 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

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

**For 9 kHz to 30 MHz**



**For Above 30 MHz**



### 2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	NB	HP	TPN-I119	N/A	5cg71818hd

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	2m	Console to USB	-

### 3 AC POWER LINE CONDUCTED EMISSIONS TEST

#### 3.1 LIMIT

Frequency (MHz)	Limit (dB $\mu$ 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.

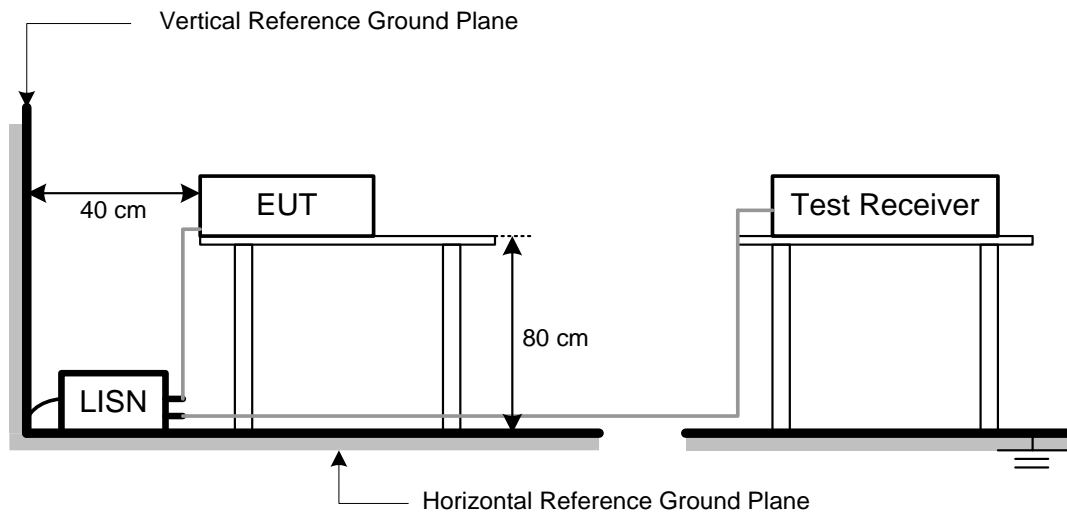
**NOTE:**

- (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

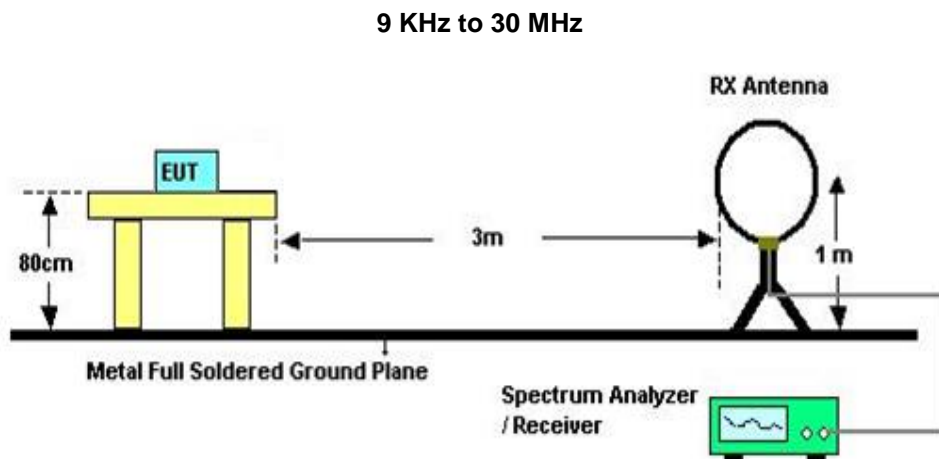
## 4.2 TEST PROCEDURE

- 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

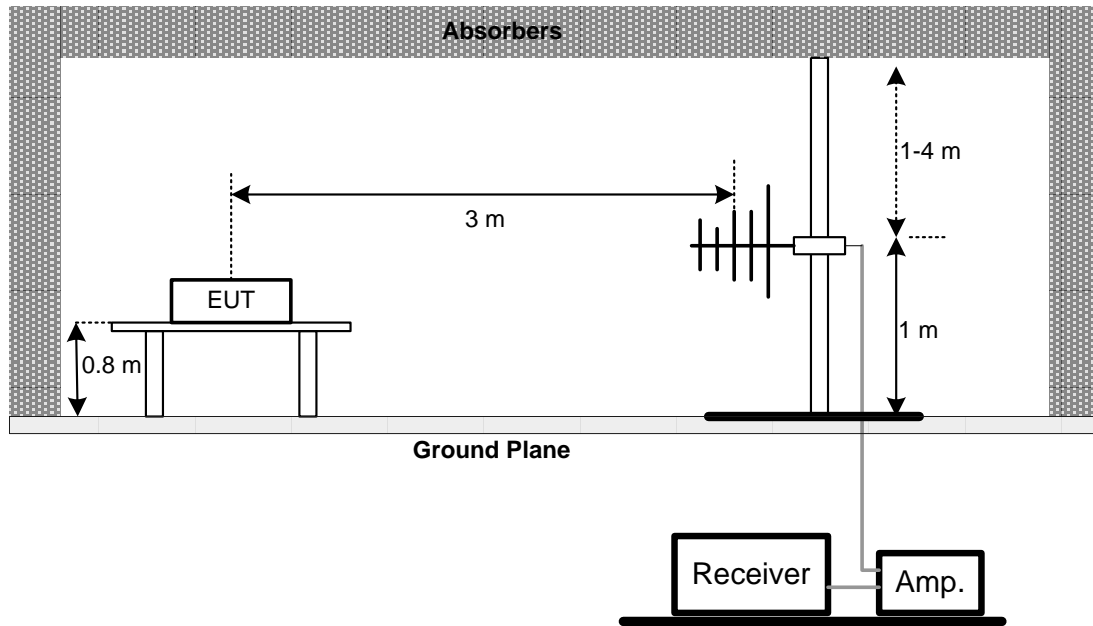
No deviation.

## 4.4 TEST SETUP

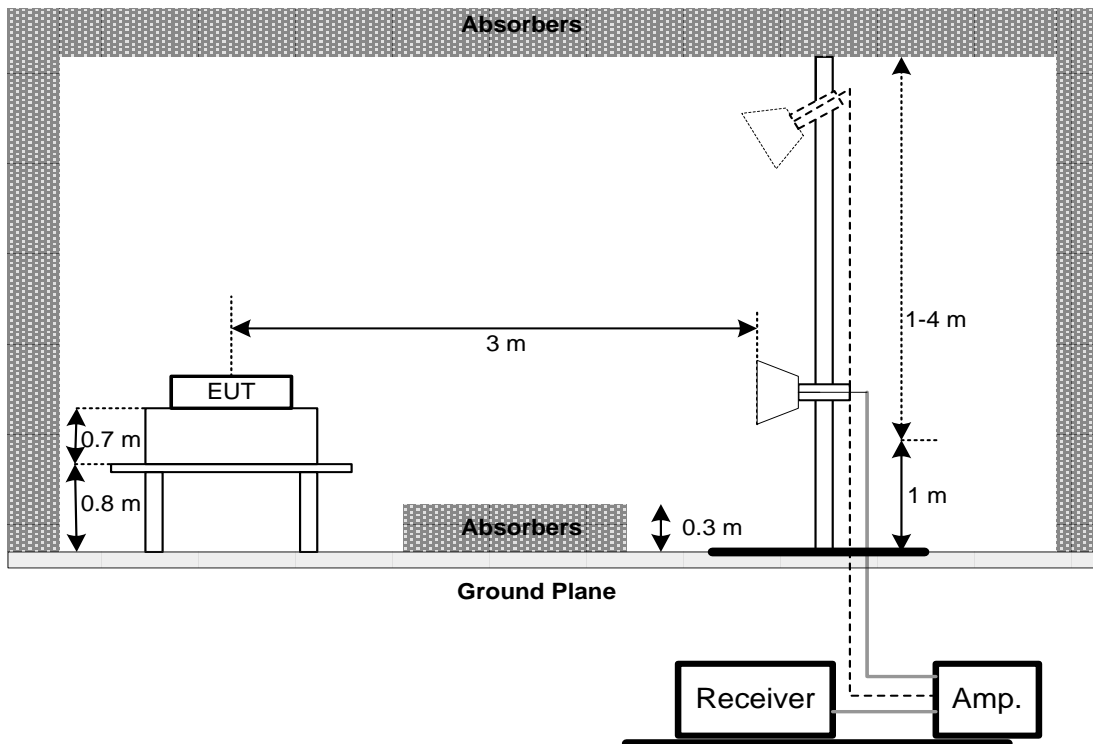




**30 MHz to 1 GHz**



**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	ESR7	101433	2018/12/5	2019/12/4
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	ML2495A	1128008	2018/12/6	2019/12/5
3	Power Sensor	Anritsu	MA2411B	1126001	2018/12/6	2019/12/5

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**

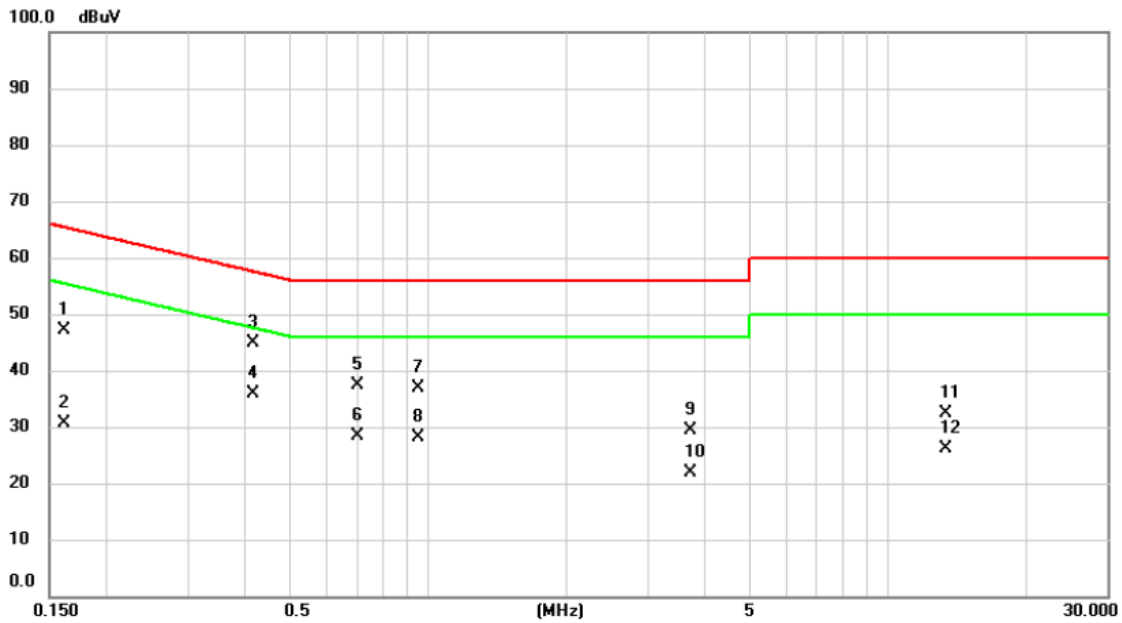
Please refer to document Appendix No.: TP-1908T080-FCCP-1 (APPENDIX-TEST PHOTOS).

## **11 EUT PHOTOS**

Please refer to document Appendix No.: EP-1908T080-1 (APPENDIX-EUT PHOTOS).

## APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

Test Mode	2.4G_Normal	Tested Date	2019/11/8
Test Voltage	AC 120V/60Hz	Phase	Line

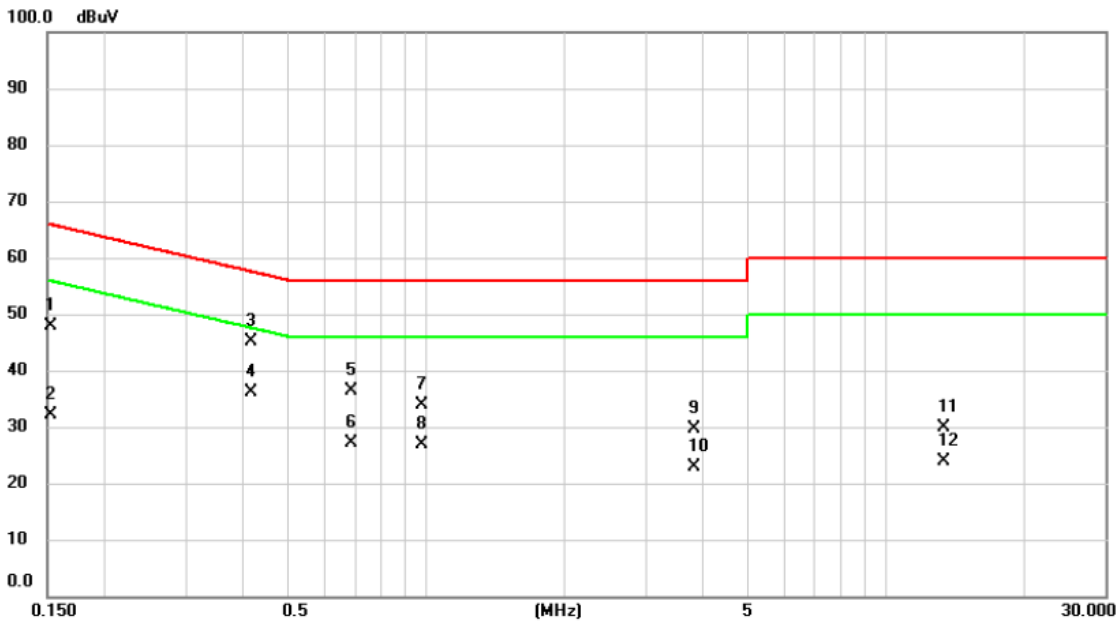


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1613	37.60	9.57	47.17	65.40	-18.23	QP	
2		0.1613	21.14	9.57	30.71	55.40	-24.69	AVG	
3		0.4155	35.34	9.62	44.96	57.54	-12.58	QP	
4	*	0.4155	26.31	9.62	35.93	47.54	-11.61	AVG	
5		0.7012	27.78	9.65	37.43	56.00	-18.57	QP	
6		0.7012	18.74	9.65	28.39	46.00	-17.61	AVG	
7		0.9532	27.19	9.63	36.82	56.00	-19.18	QP	
8		0.9532	18.57	9.63	28.20	46.00	-17.80	AVG	
9		3.7253	19.57	9.72	29.29	56.00	-26.71	QP	
10		3.7253	12.13	9.72	21.85	46.00	-24.15	AVG	
11		13.3800	22.49	9.89	32.38	60.00	-27.62	QP	
12		13.3800	16.27	9.89	26.16	50.00	-23.84	AVG	

**REMARKS:**

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

Test Mode	2.4G_Normal	Tested Date	2019/11/8
Test Voltage	AC 120V/60Hz	Phase	Neutral



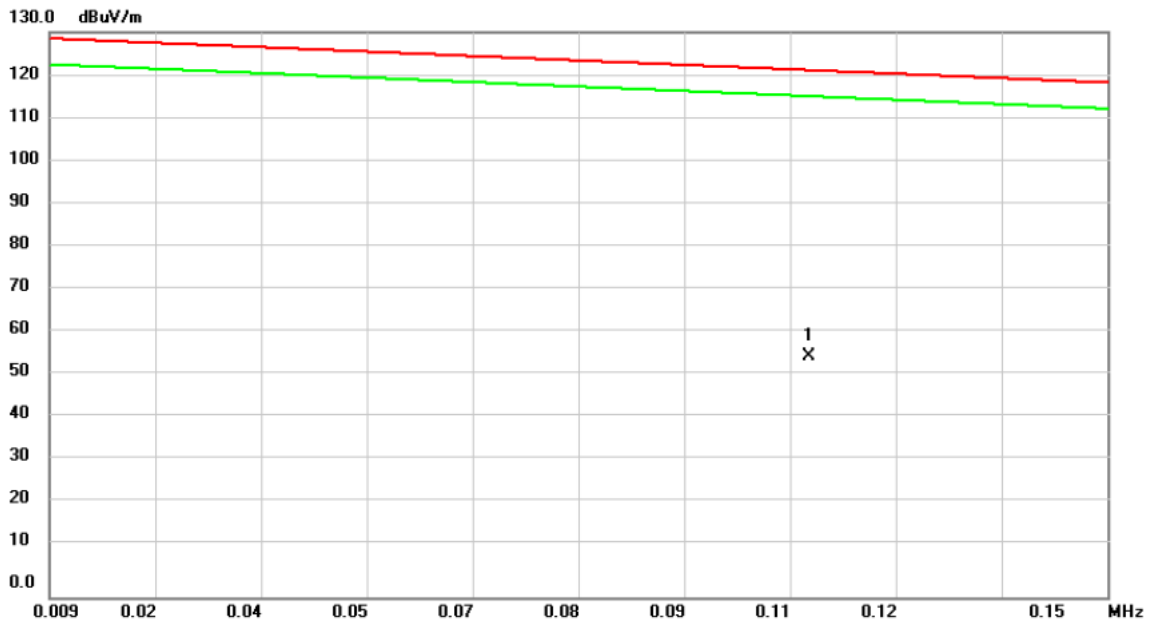
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1522	38.28	9.61	47.89	65.88	-17.99	QP	
2		0.1522	22.51	9.61	32.12	55.88	-23.76	AVG	
3		0.4177	35.36	9.67	45.03	57.49	-12.46	QP	
4	*	0.4177	26.55	9.67	36.22	47.49	-11.27	AVG	
5		0.6855	26.72	9.69	36.41	56.00	-19.59	QP	
6		0.6855	17.38	9.69	27.07	46.00	-18.93	AVG	
7		0.9802	24.31	9.68	33.99	56.00	-22.01	QP	
8		0.9802	17.27	9.68	26.95	46.00	-19.05	AVG	
9		3.8310	19.95	9.76	29.71	56.00	-26.29	QP	
10		3.8310	13.03	9.76	22.79	46.00	-23.21	AVG	
11		13.3305	20.03	9.96	29.99	60.00	-30.01	QP	
12		13.3305	13.98	9.96	23.94	50.00	-26.06	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	2019/11/12
Test Voltage	AC 120V/60Hz	Azimuth Angle	90°

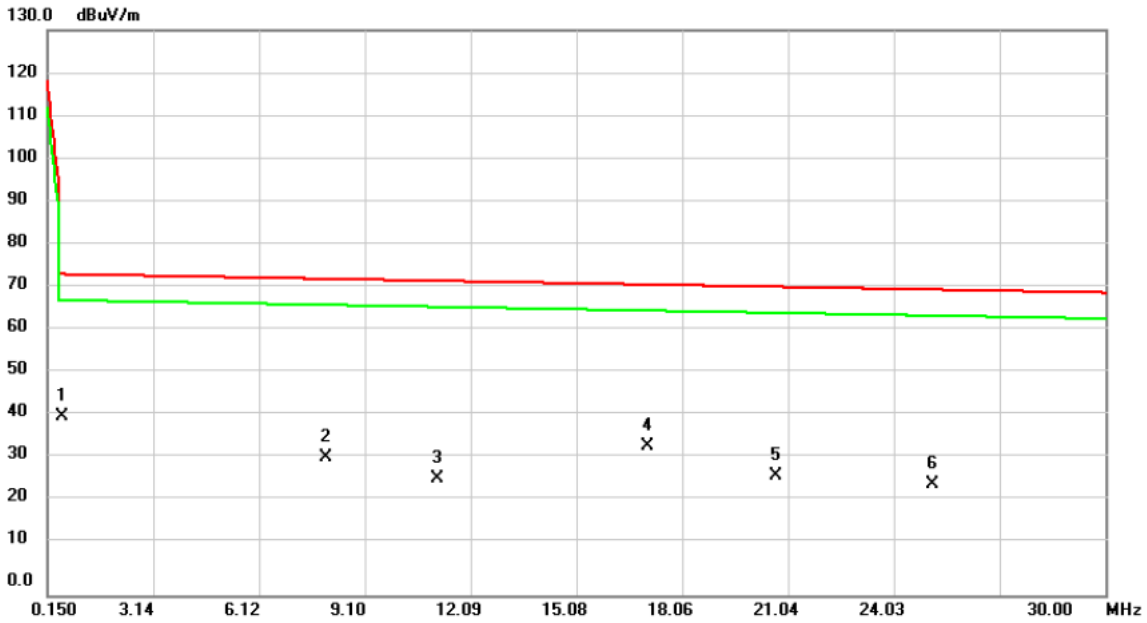


No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	0.1102	39.26	16.02	55.28	121.21	-65.93	AVG	

**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	2019/11/12
Test Voltage	AC 120V/60Hz	Azimuth Angle	90°

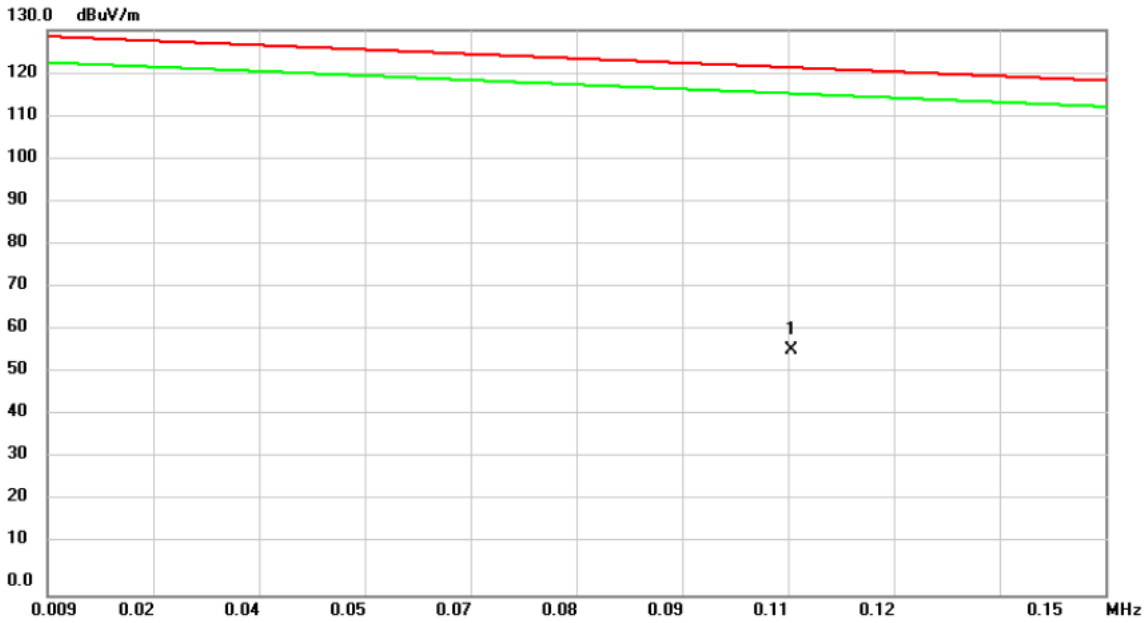


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.5675	37.54	3.48	41.02	73.79	-32.77	QP	
2		8.0006	35.38	-3.78	31.60	72.72	-41.12	QP	
3		11.1646	30.87	-4.09	26.78	72.26	-45.48	QP	
4		17.0750	38.90	-4.75	34.15	71.41	-37.26	QP	
5		20.6868	32.70	-5.24	27.46	70.88	-43.42	QP	
6		25.1341	32.87	-7.51	25.36	70.24	-44.88	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	2019/11/12
Test Voltage	AC 120V/60Hz	Azimuth Angle	0°



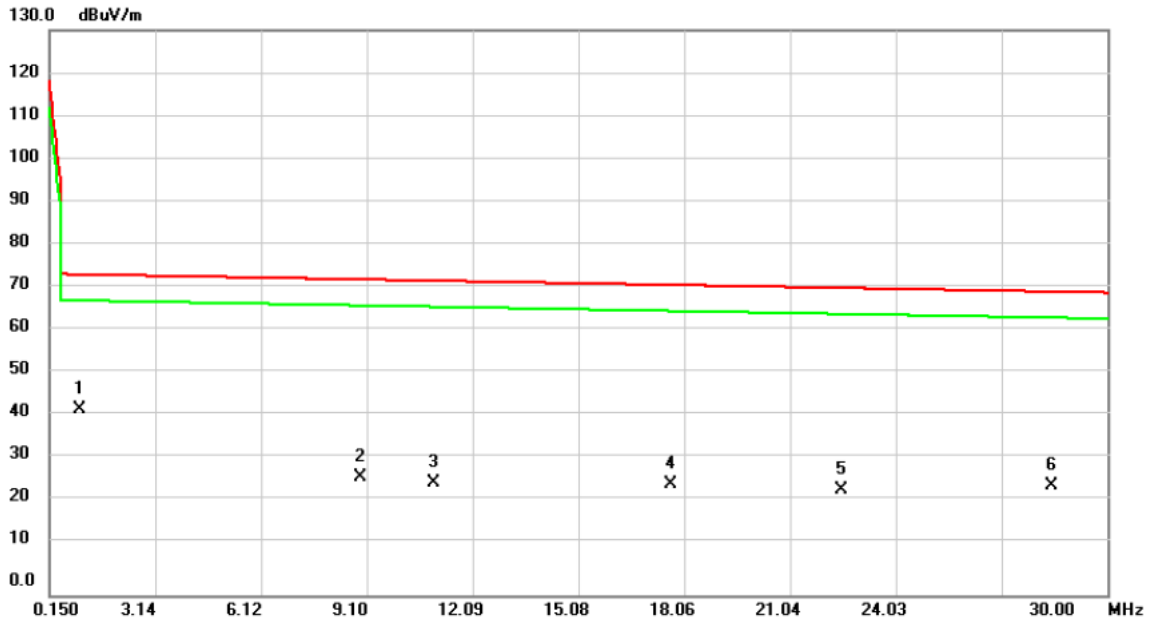
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	0.1082	40.31	16.13	56.44	121.35	-64.91	AVG	

**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	2019/11/12
Test Voltage	AC 120V/60Hz	Azimuth Angle	0°



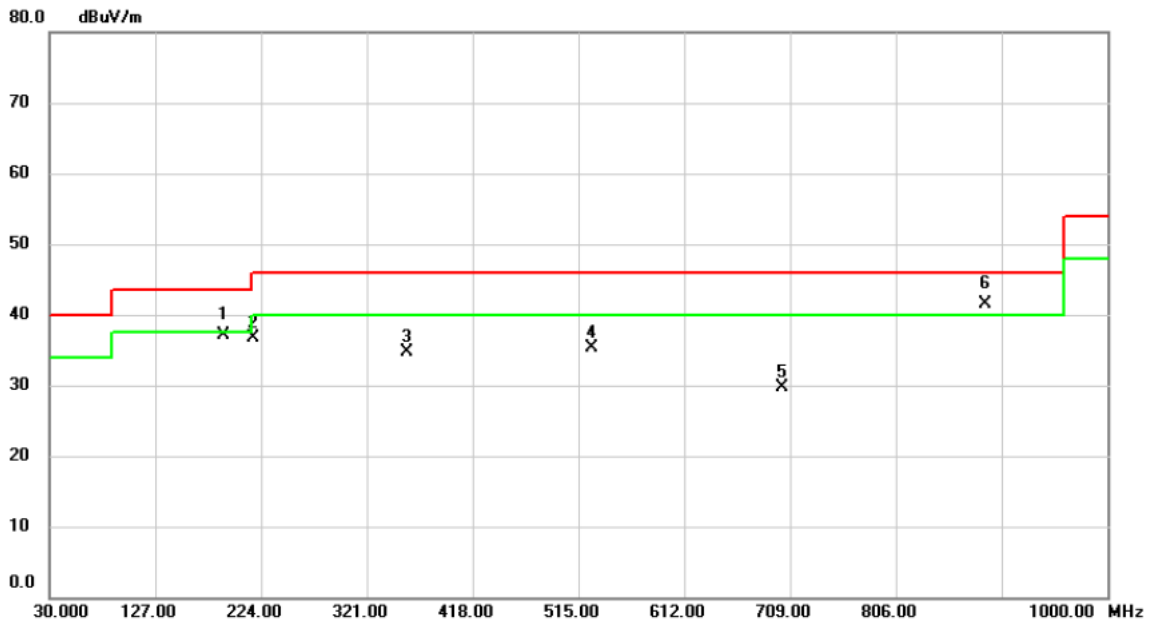
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.9858	42.51	0.26	42.77	73.73	-30.96	QP	
2		8.9260	31.27	-4.11	27.16	72.58	-45.42	QP	
3		11.0152	30.10	-4.10	26.00	72.28	-46.28	QP	
4		17.7013	30.30	-4.95	25.35	71.32	-45.97	QP	
5		22.5076	29.82	-5.66	24.16	70.62	-46.46	QP	
6		28.4180	30.41	-5.32	25.09	69.77	-44.68	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	2019/11/12
Test Voltage	AC 120V/60Hz	Polarization	Vertical

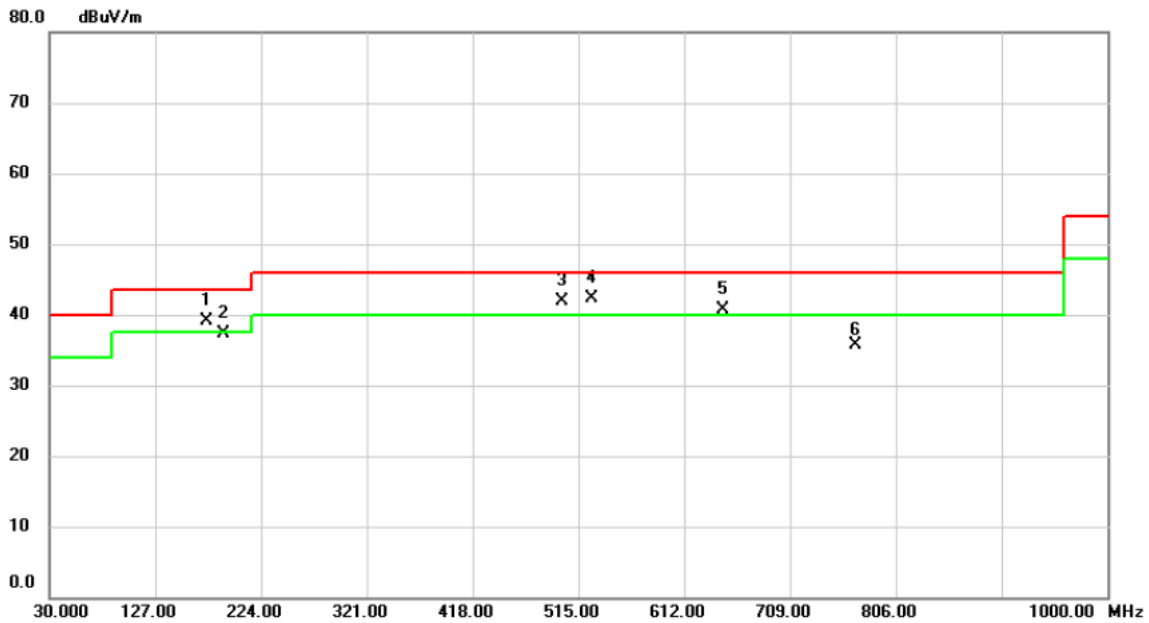


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		189.0800	50.66	-13.65	37.01	43.50	-6.49	QP	
2		216.2400	51.60	-14.80	36.80	46.00	-9.20	peak	
3		357.8600	44.33	-9.57	34.76	46.00	-11.24	peak	
4		526.6400	40.92	-5.68	35.24	46.00	-10.76	peak	
5		702.2100	32.31	-2.51	29.80	46.00	-16.20	peak	
6	*	888.4500	41.30	0.16	41.46	46.00	-4.54	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	2019/11/12
Test Voltage	AC 120V/60Hz	Polarization	Horizontal



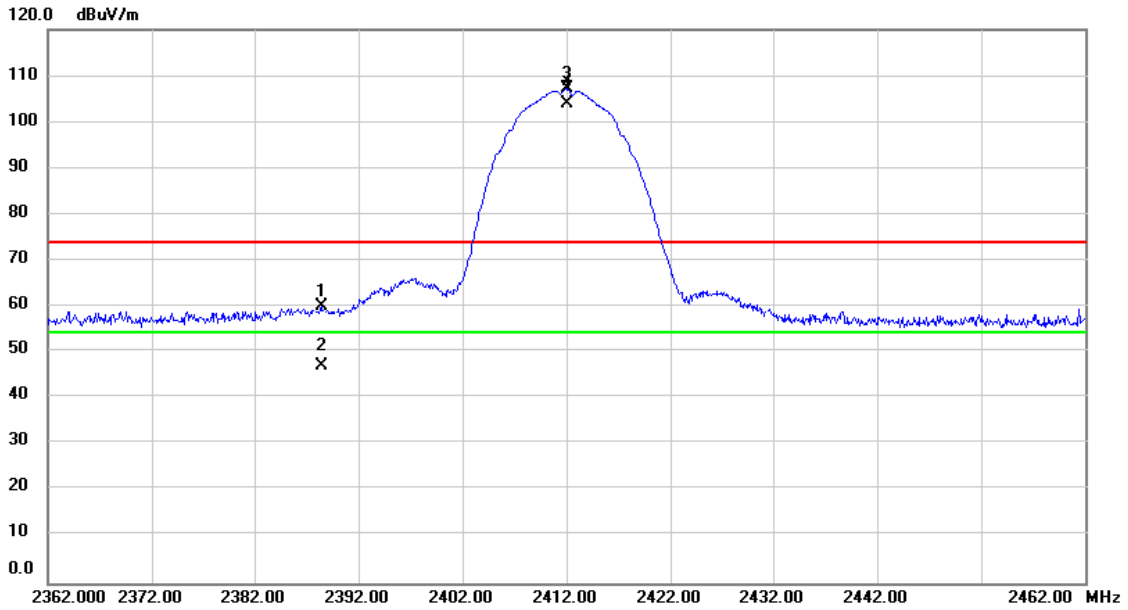
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	!	174.5300	51.29	-12.19	39.10	43.50	-4.40	QP	
2		189.0800	50.89	-13.65	37.24	43.50	-6.26	QP	
3	!	499.4800	48.04	-6.15	41.89	46.00	-4.11	QP	
4	*	526.6400	47.97	-5.68	42.29	46.00	-3.71	QP	
5	!	647.8900	43.73	-3.08	40.65	46.00	-5.35	QP	
6		769.1400	36.69	-0.92	35.77	46.00	-10.23	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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

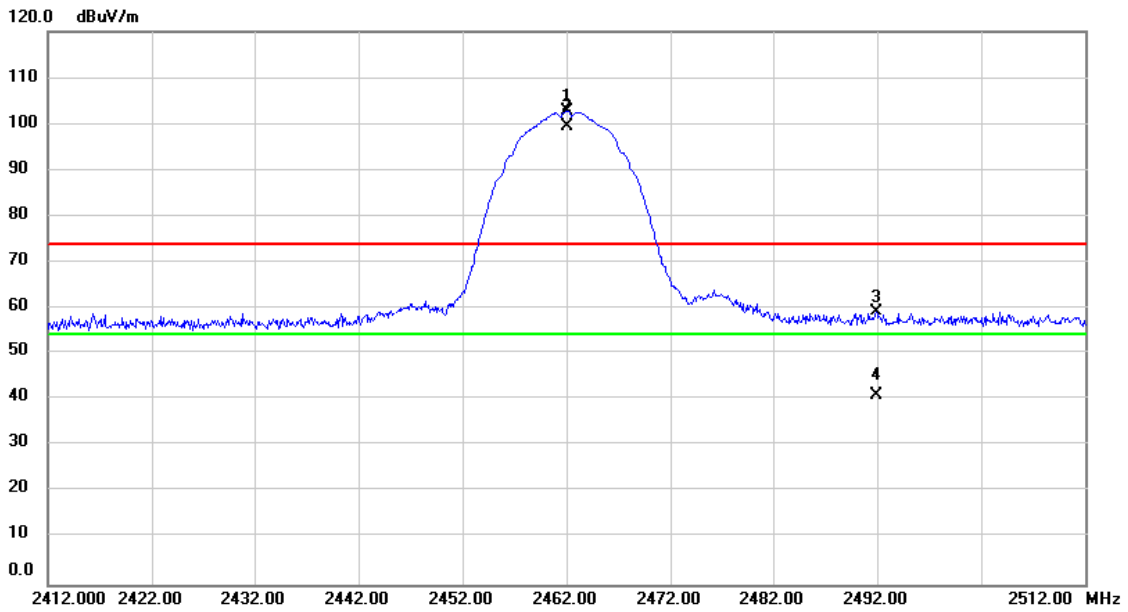


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2388.400	29.05	31.24	60.29	74.00	-13.71	peak	
2		2388.400	15.67	31.24	46.91	54.00	-7.09	AVG	
3	X	2412.000	75.78	31.34	107.12	74.00	33.12	peak	No Limit
4	*	2412.000	72.54	31.34	103.88	54.00	49.88	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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

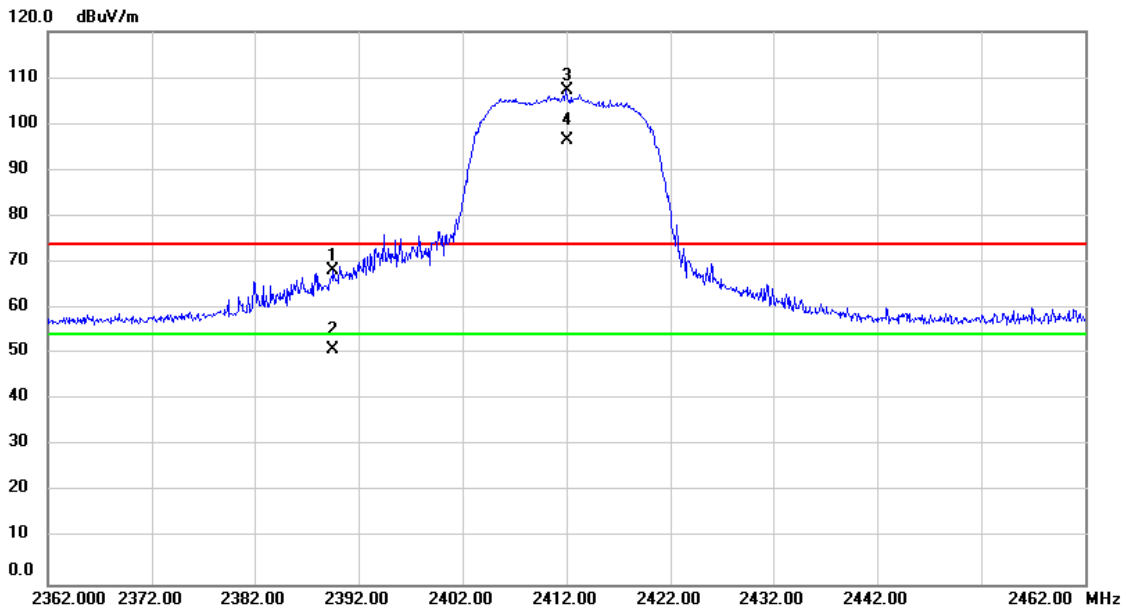


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2462.000	71.24	31.56	102.80	74.00	28.80	peak	No Limit
2	*	2462.000	67.94	31.56	99.50	54.00	45.50	AVG	No Limit
3		2491.900	27.49	31.69	59.18	74.00	-14.82	peak	
4		2491.900	9.32	31.69	41.01	54.00	-12.99	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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical



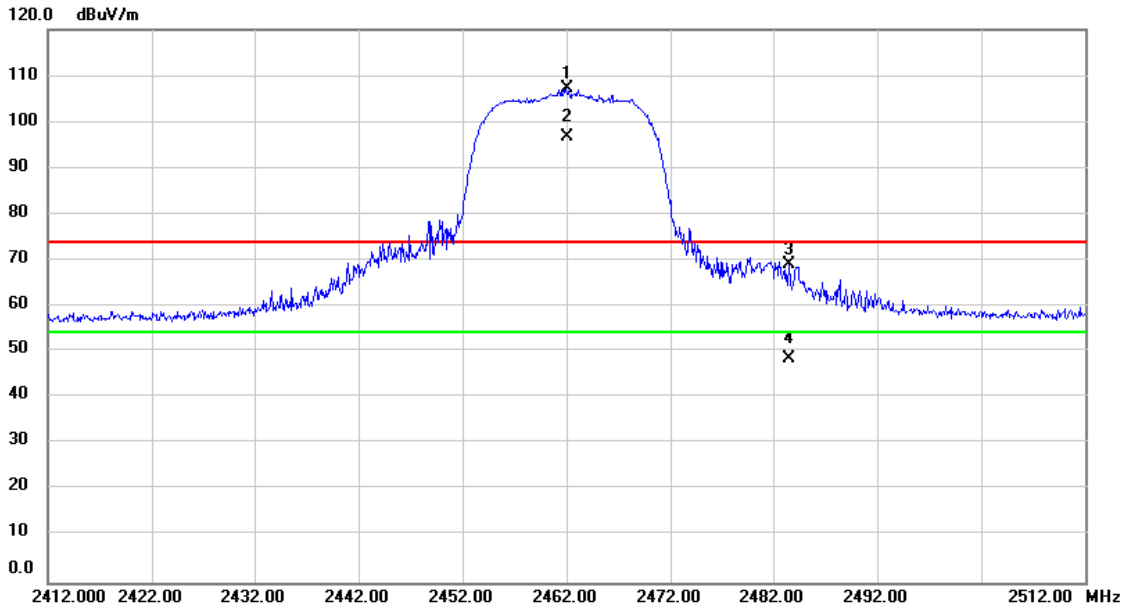
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2389.600	37.01	31.25	68.26	74.00	-5.74	peak	
2		2389.600	19.75	31.25	51.00	54.00	-3.00	AVG	
3	X	2412.000	75.88	31.34	107.22	74.00	33.22	peak	
4	*	2412.000	65.12	31.34	96.46	54.00	42.46	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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

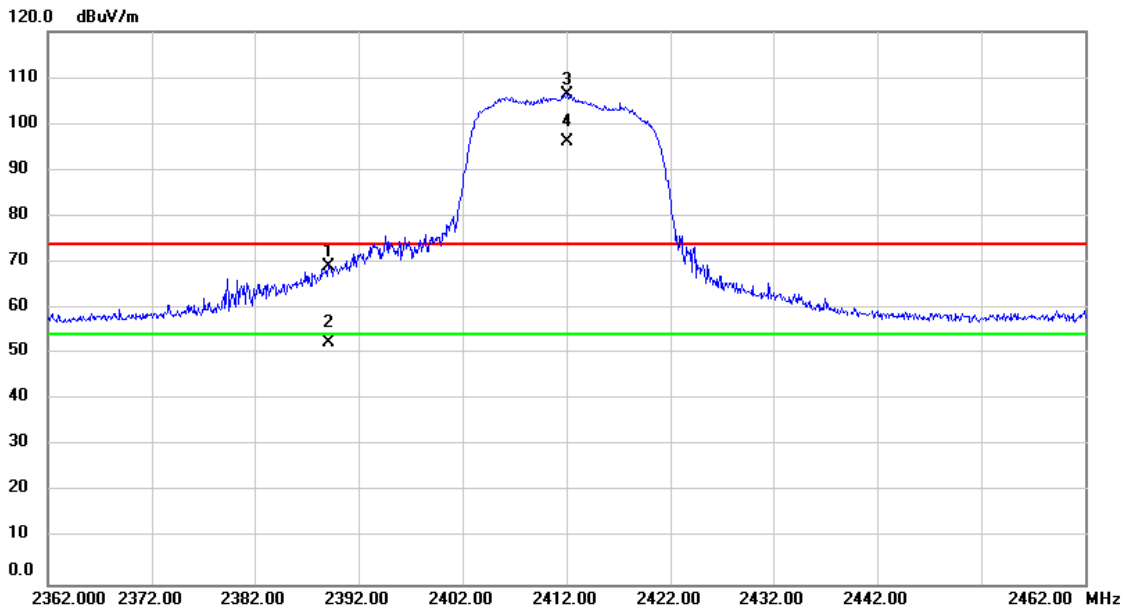


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2462.000	75.58	31.56	107.14	74.00	33.14	peak	
2	*	2462.000	65.29	31.56	96.85	54.00	42.85	AVG	
3		2483.600	37.35	31.66	69.01	74.00	-4.99	peak	
4		2483.600	16.66	31.66	48.32	54.00	-5.68	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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

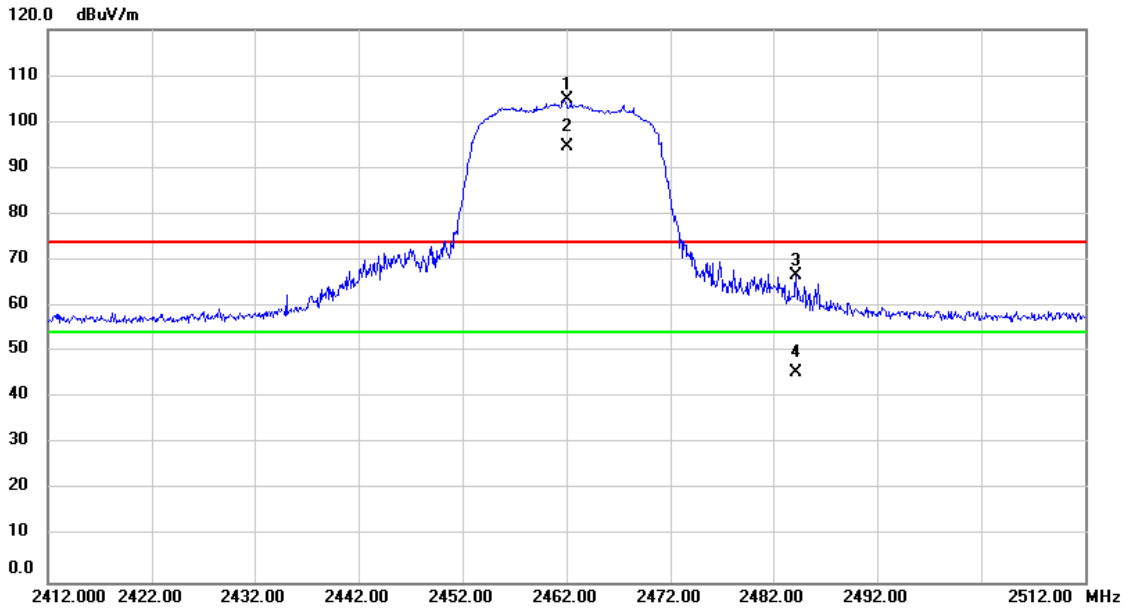


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2389.100	38.05	31.25	69.30	74.00	-4.70	peak	
2		2389.100	21.16	31.25	52.41	54.00	-1.59	AVG	
3	X	2412.000	75.11	31.34	106.45	74.00	32.45	peak	No Limit
4	*	2412.000	64.68	31.34	96.02	54.00	42.02	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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

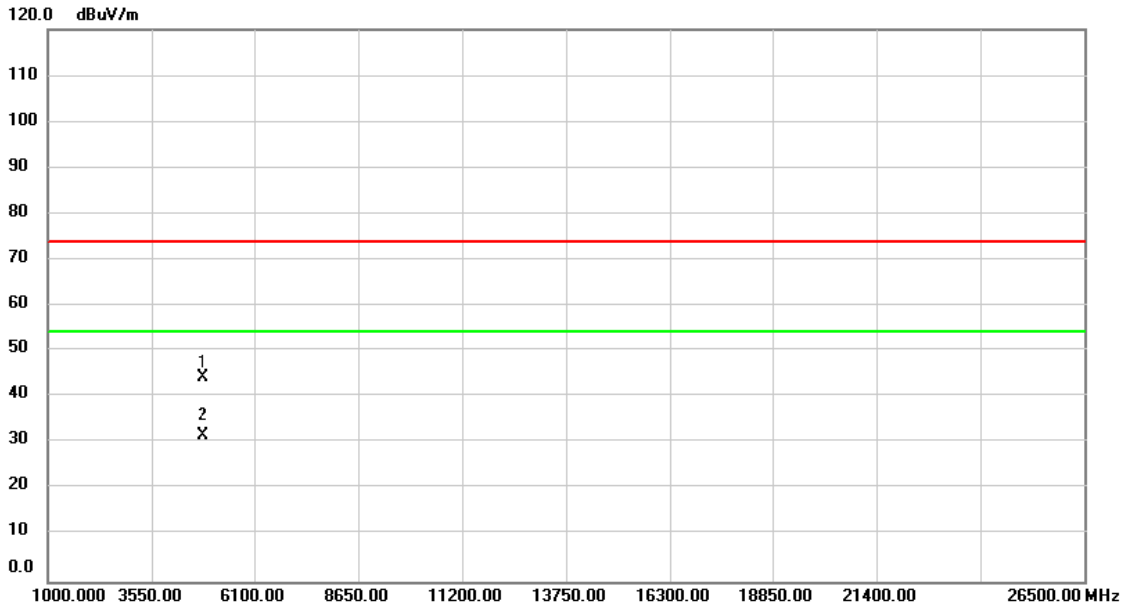


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2462.000	73.26	31.56	104.82	74.00	30.82	peak	No Limit
2	*	2462.000	62.98	31.56	94.54	54.00	40.54	AVG	No Limit
3		2484.200	35.07	31.66	66.73	74.00	-7.27	peak	
4		2484.200	13.81	31.66	45.47	54.00	-8.53	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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

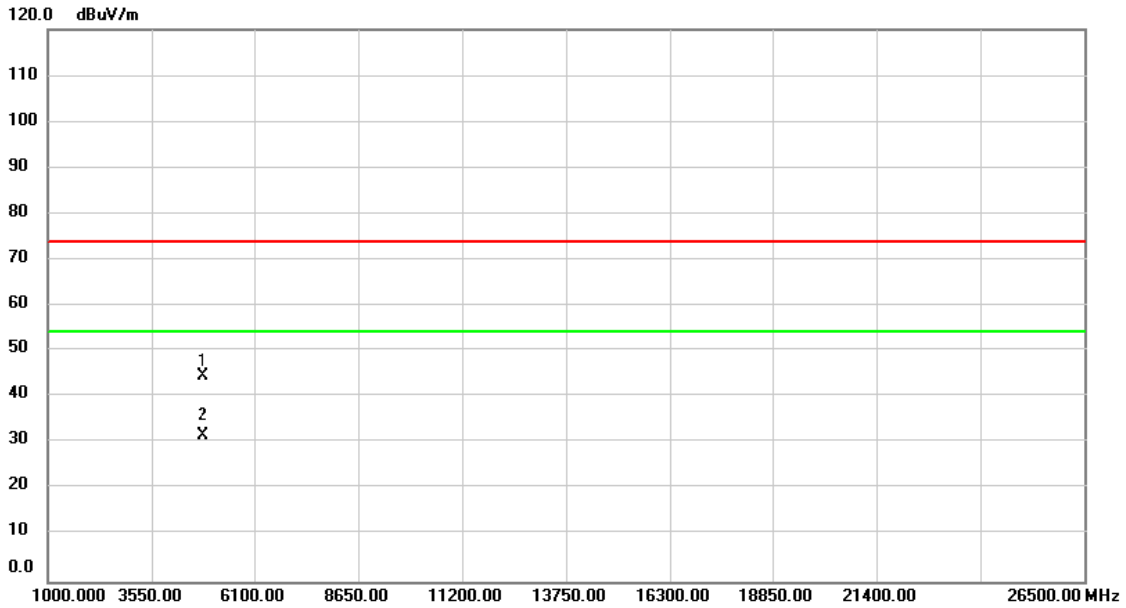


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	54.83	-10.52	44.31	74.00	-29.69	peak	
2	*	4824.000	42.22	-10.52	31.70	54.00	-22.30	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

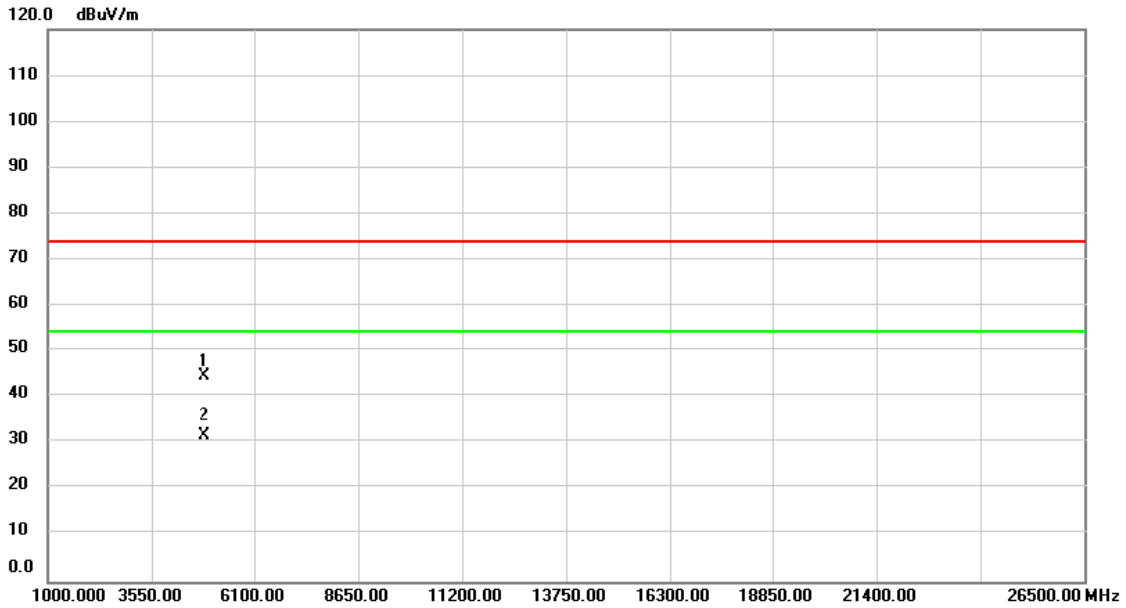


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	55.16	-10.52	44.64	74.00	-29.36	peak	
2	*	4824.000	42.25	-10.52	31.73	54.00	-22.27	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

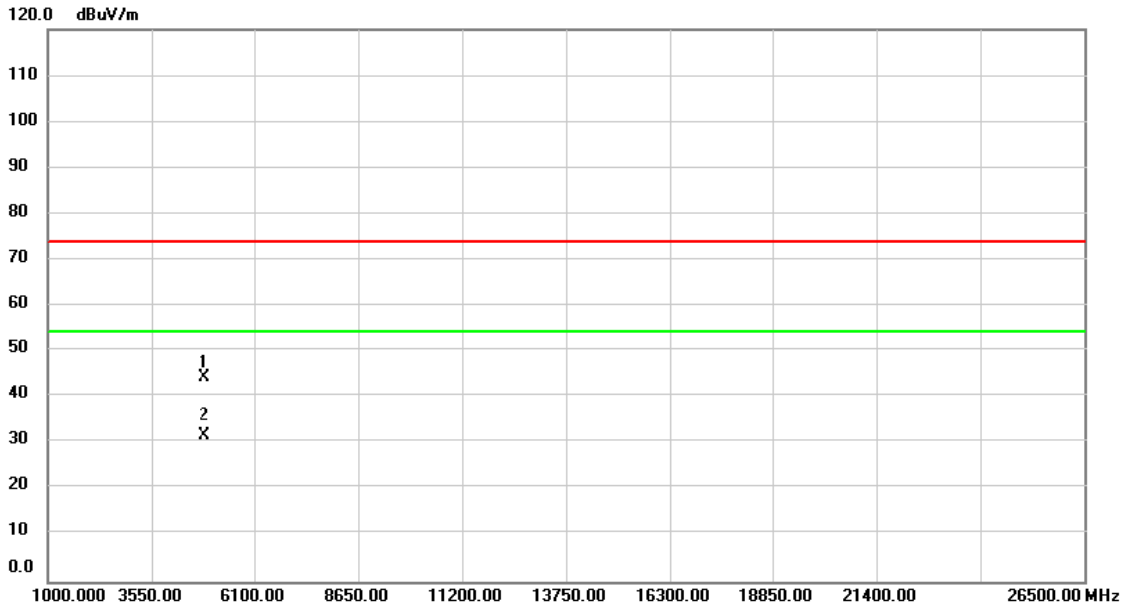


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	54.81	-10.40	44.41	74.00	-29.59	peak	
2	*	4874.000	42.03	-10.40	31.63	54.00	-22.37	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

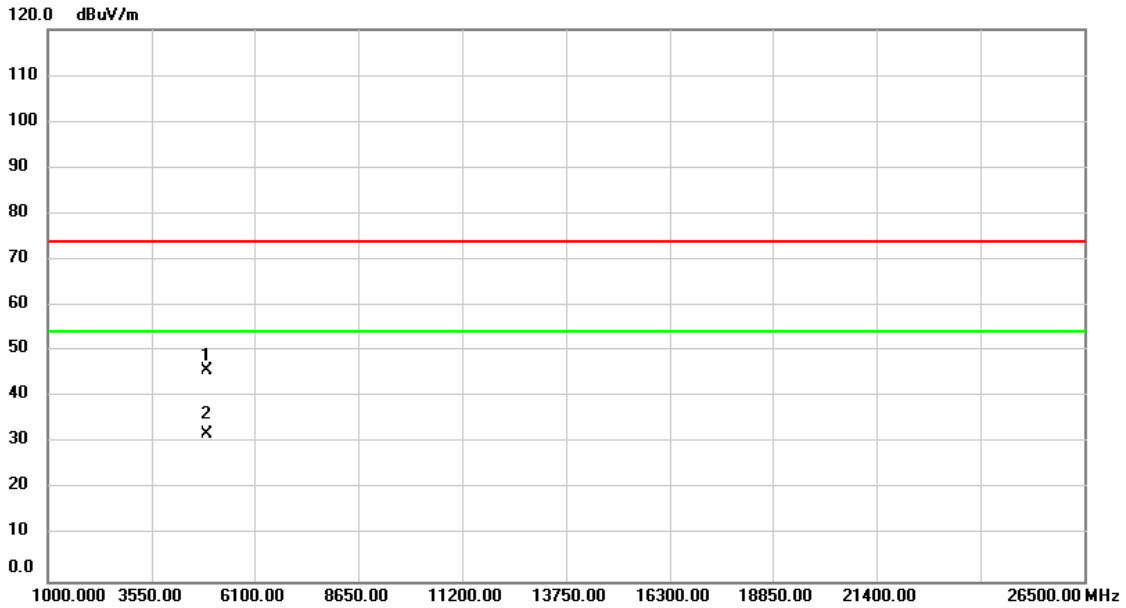


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	54.63	-10.40	44.23	74.00	-29.77	peak	
2	*	4874.000	42.03	-10.40	31.63	54.00	-22.37	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical



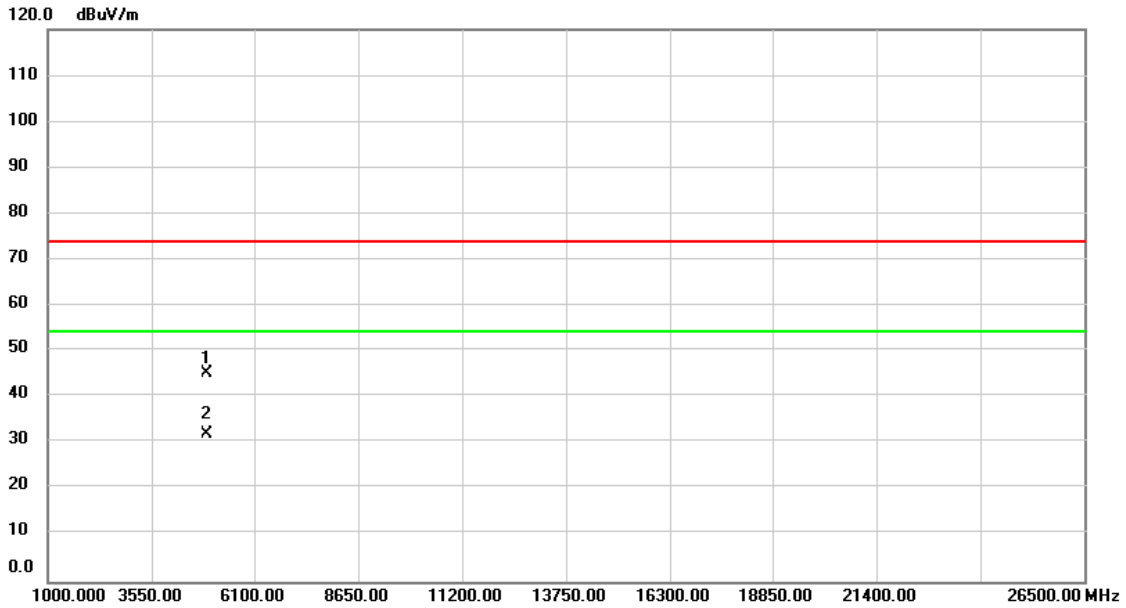
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	56.17	-10.28	45.89	74.00	-28.11	peak	
2	*	4924.000	42.34	-10.28	32.06	54.00	-21.94	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

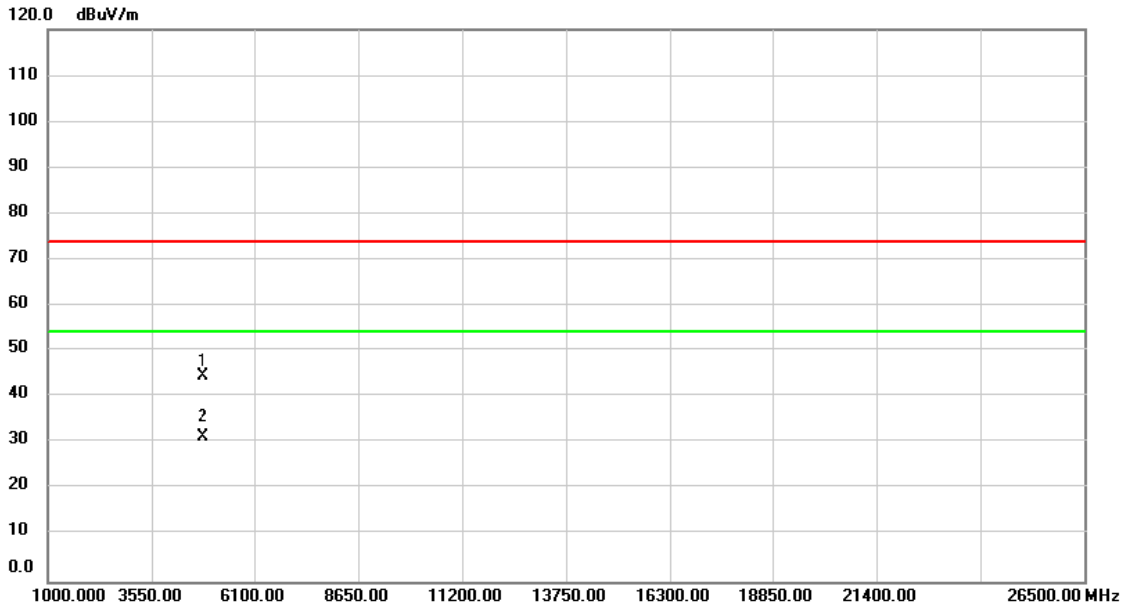


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	55.33	-10.28	45.05	74.00	-28.95	peak	
2	*	4924.000	42.33	-10.28	32.05	54.00	-21.95	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

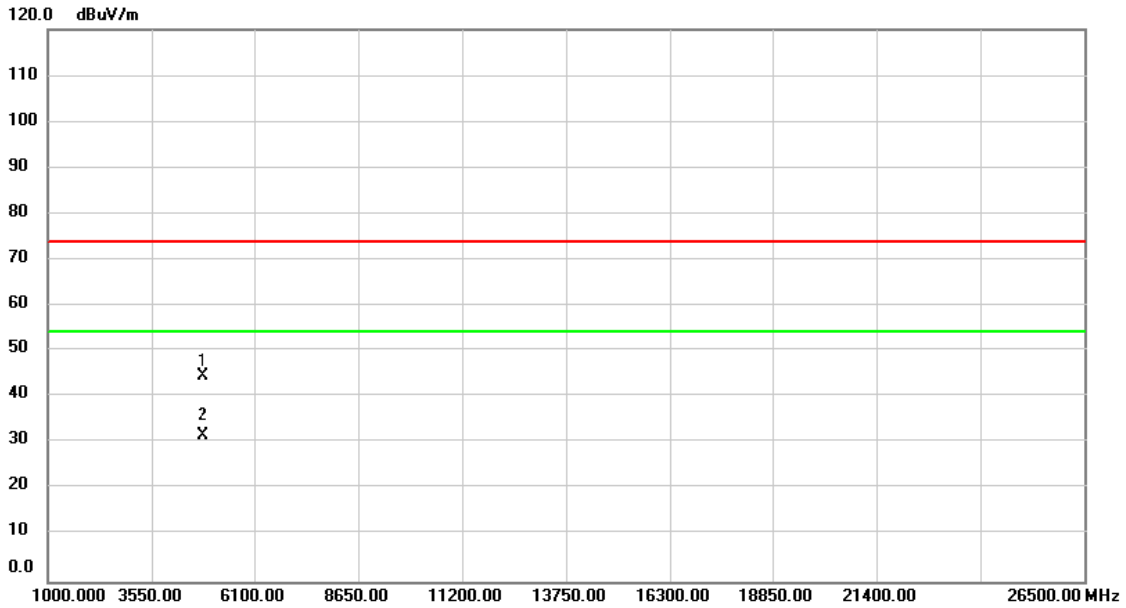


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	54.94	-10.52	44.42	74.00	-29.58	peak	
2	*	4824.000	42.00	-10.52	31.48	54.00	-22.52	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

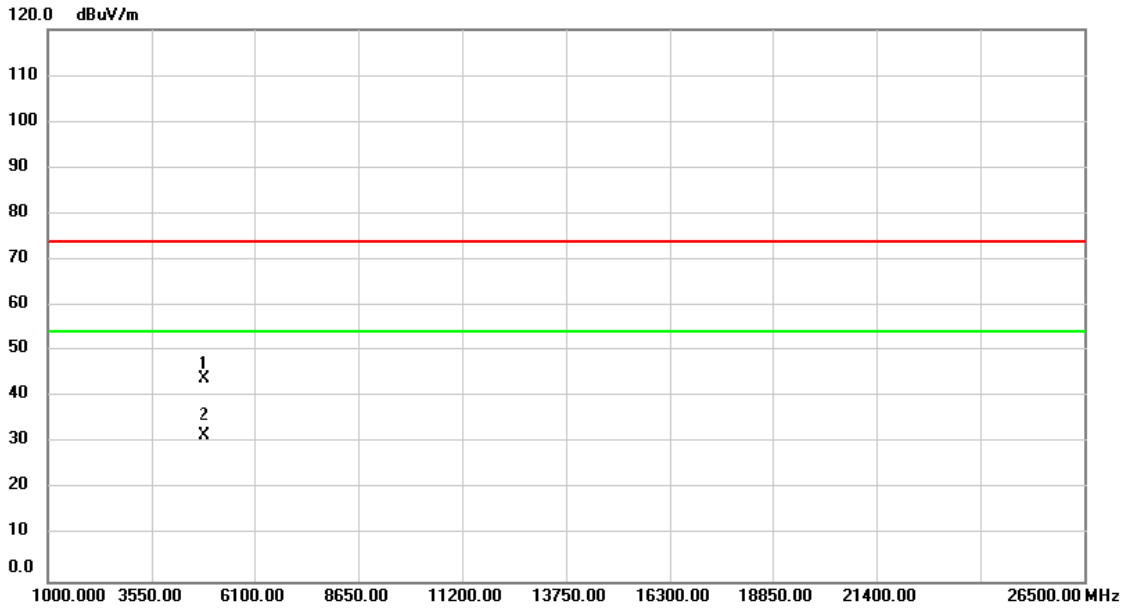


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	54.93	-10.52	44.41	74.00	-29.59	peak	
2	*	4824.000	42.23	-10.52	31.71	54.00	-22.29	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

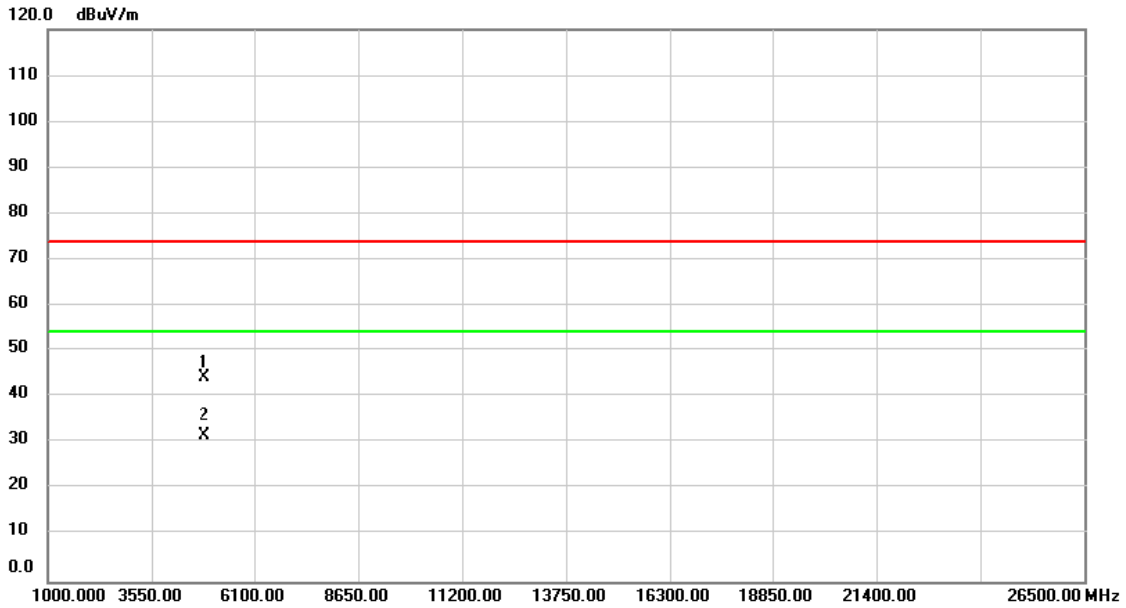


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	54.46	-10.40	44.06	74.00	-29.94	peak	
2	*	4874.000	42.07	-10.40	31.67	54.00	-22.33	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

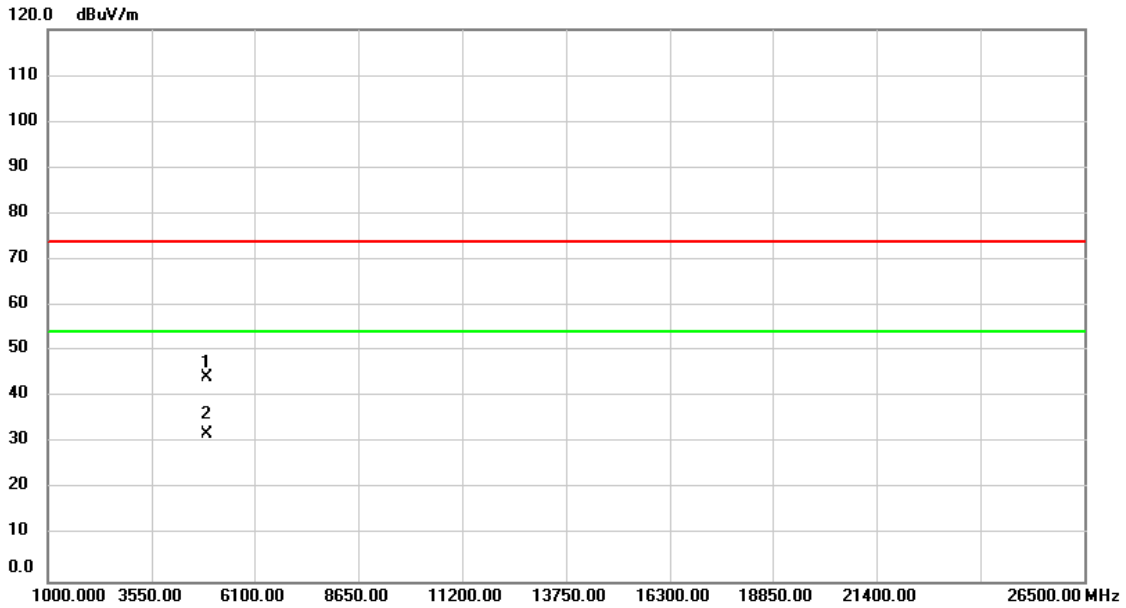


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	54.66	-10.40	44.26	74.00	-29.74	peak	
2	*	4874.000	42.06	-10.40	31.66	54.00	-22.34	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

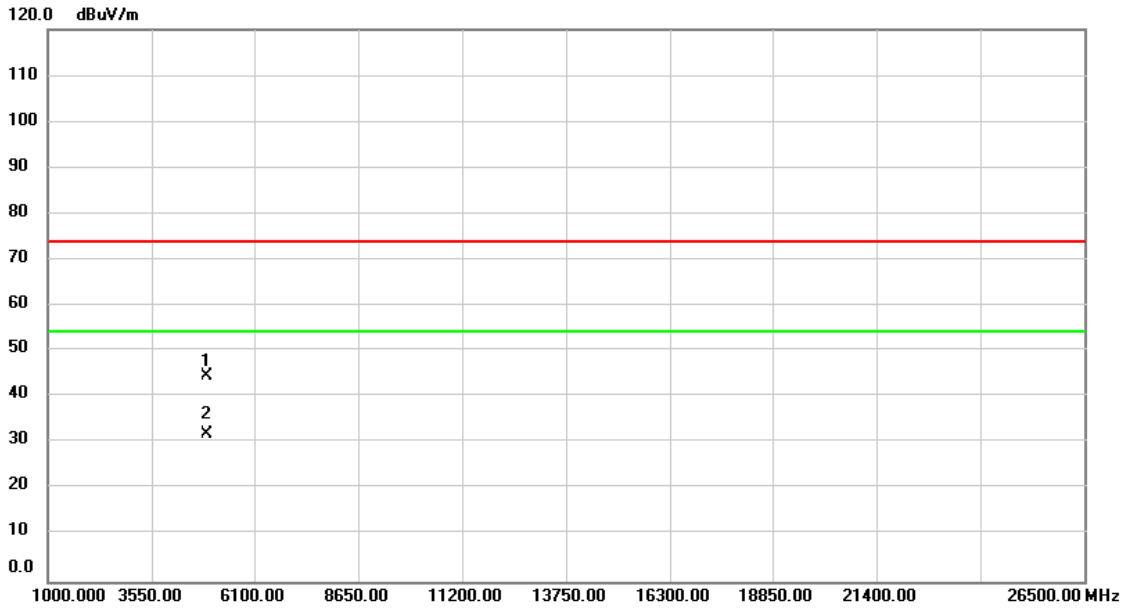


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	54.49	-10.28	44.21	74.00	-29.79	peak	
2	*	4924.000	42.37	-10.28	32.09	54.00	-21.91	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

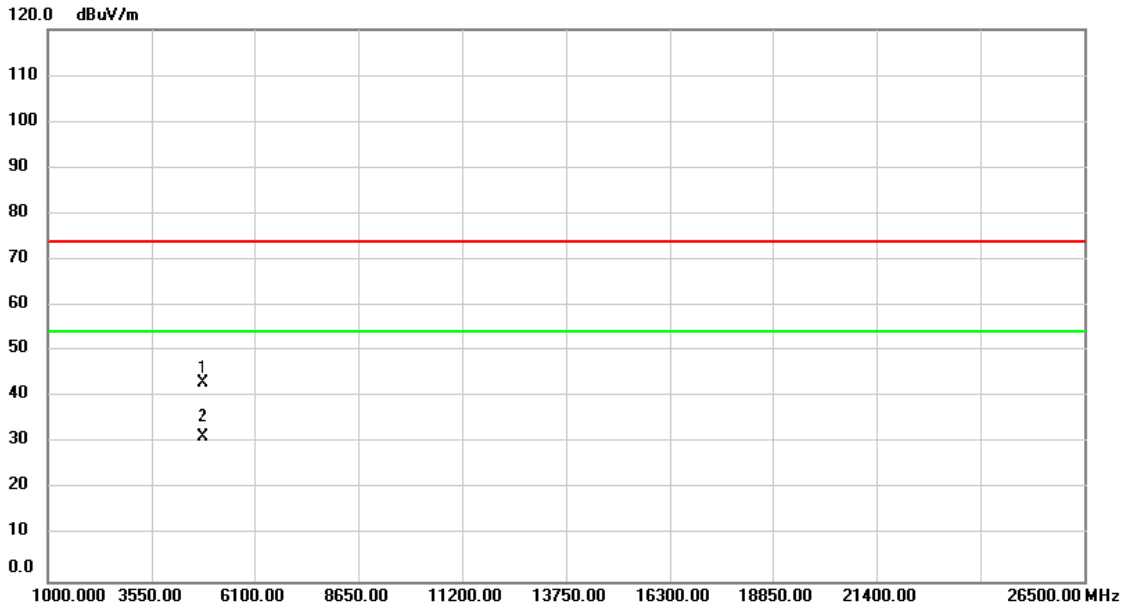


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	54.87	-10.28	44.59	74.00	-29.41	peak	
2	*	4924.000	42.34	-10.28	32.06	54.00	-21.94	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical



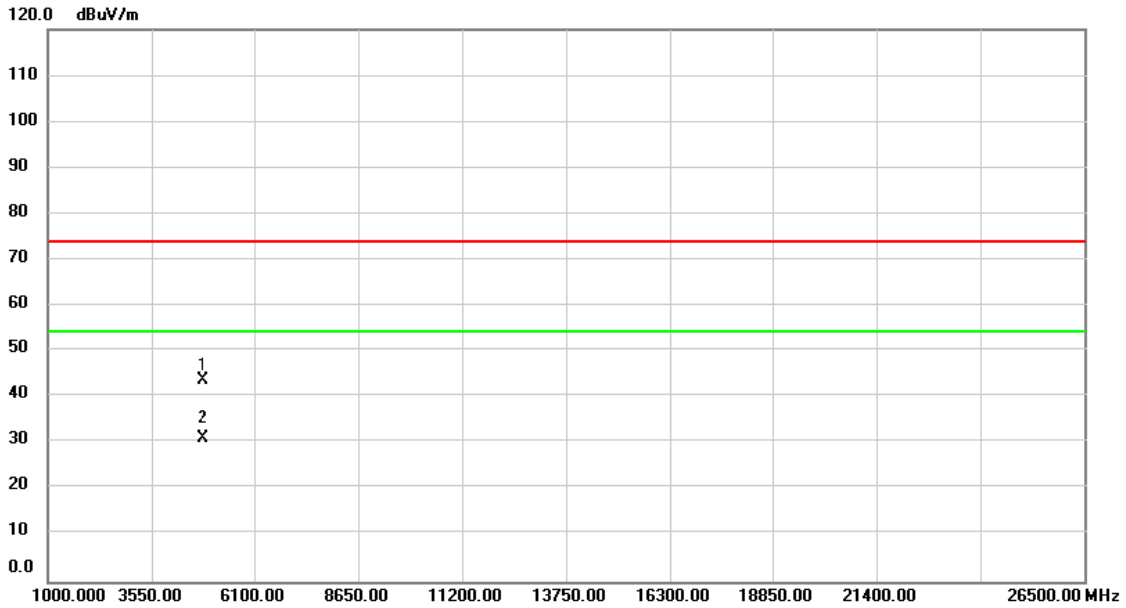
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	53.59	-10.52	43.07	74.00	-30.93	peak	
2	*	4824.000	41.79	-10.52	31.27	54.00	-22.73	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

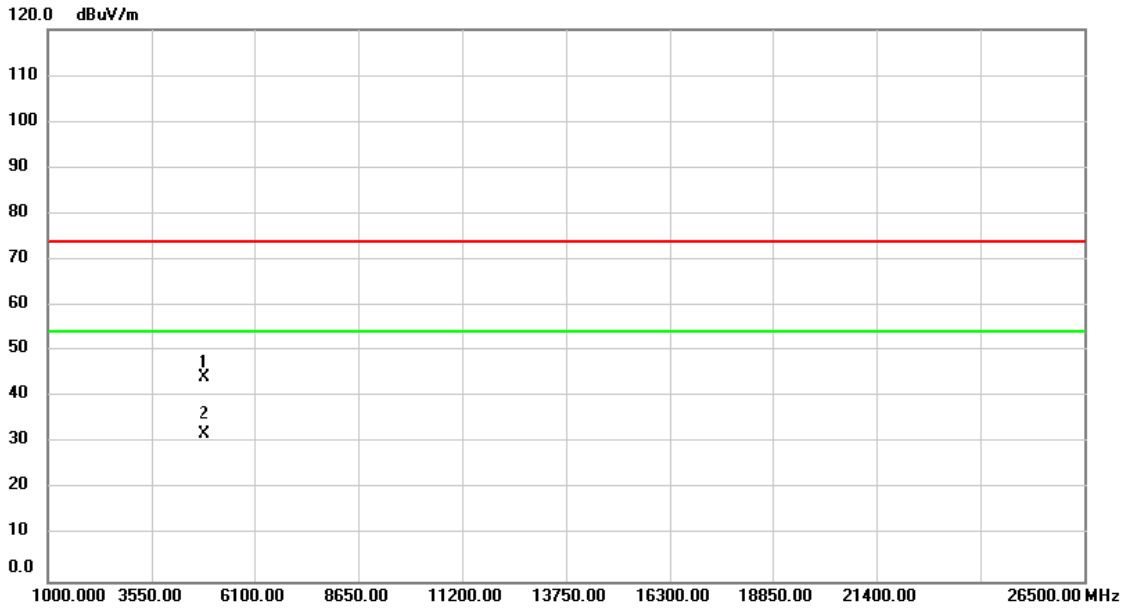


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4824.000	54.22	-10.52	43.70	74.00	-30.30	peak	
2	*	4824.000	41.59	-10.52	31.07	54.00	-22.93	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

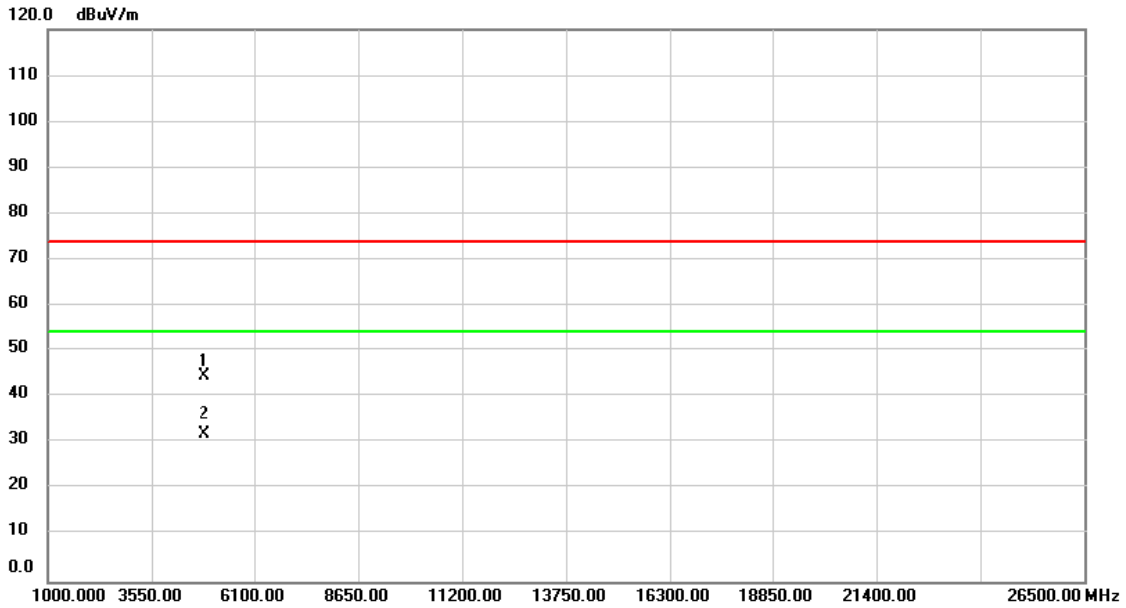


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	54.66	-10.40	44.26	74.00	-29.74	peak	
2	*	4874.000	42.24	-10.40	31.84	54.00	-22.16	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

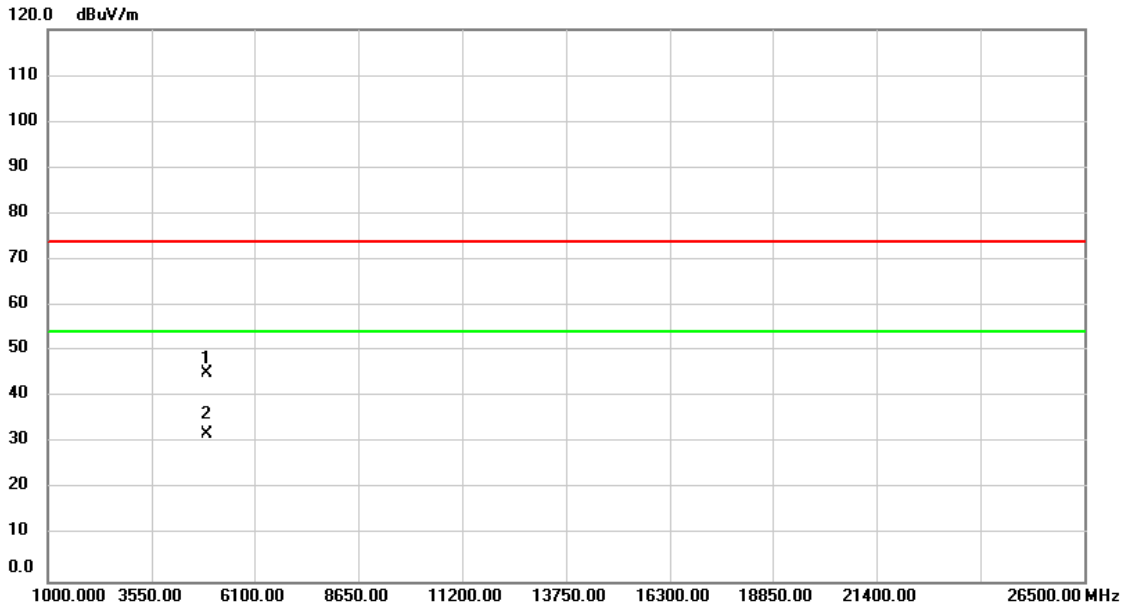


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4874.000	54.90	-10.40	44.50	74.00	-29.50	peak	
2	*	4874.000	42.35	-10.40	31.95	54.00	-22.05	AVG	

**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	2019/11/11
Test Voltage	AC 120V/60Hz	Polarization	Vertical

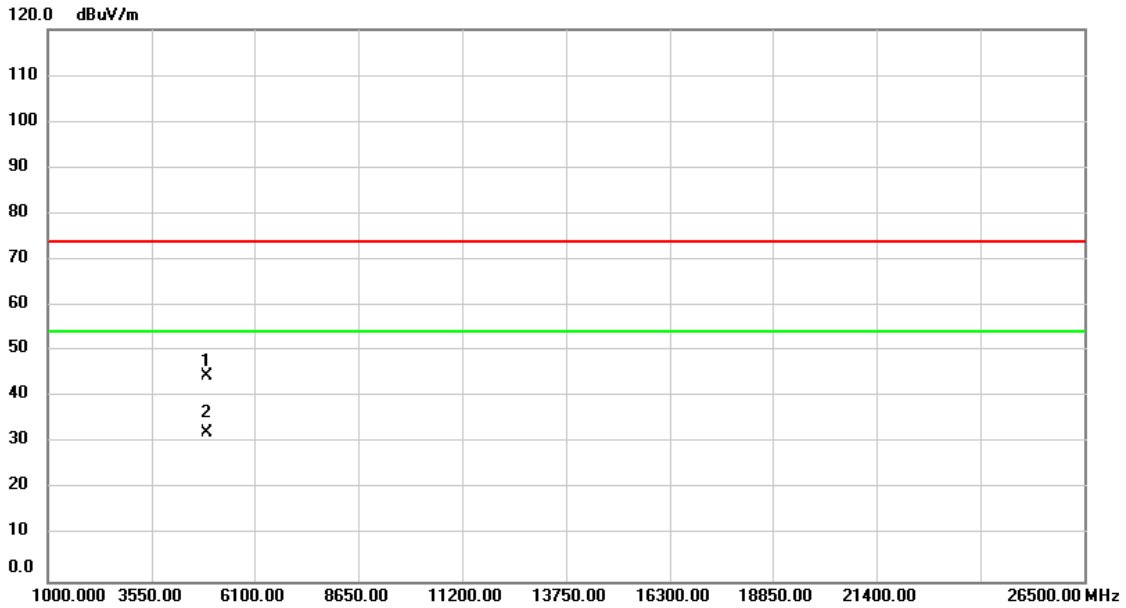


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4924.000	55.36	-10.28	45.08	74.00	-28.92	peak	
2	*	4924.000	42.17	-10.28	31.89	54.00	-22.11	AVG	

**REMARKS:**

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

Test Mode	TX Mode_IEEE 802.11n (HT20)_2462 MHz	Tested Date	2019/11/11
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	54.96	-10.28	44.68	74.00	-29.32	peak	
2	*	4924.000	42.51	-10.28	32.23	54.00	-21.77	AVG	

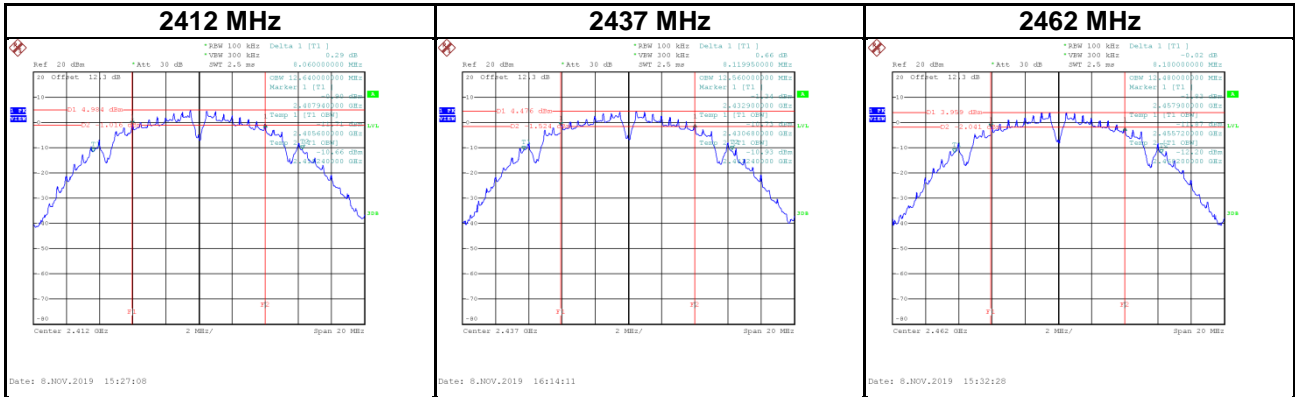
**REMARKS:**

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

## APPENDIX E BANDWIDTH

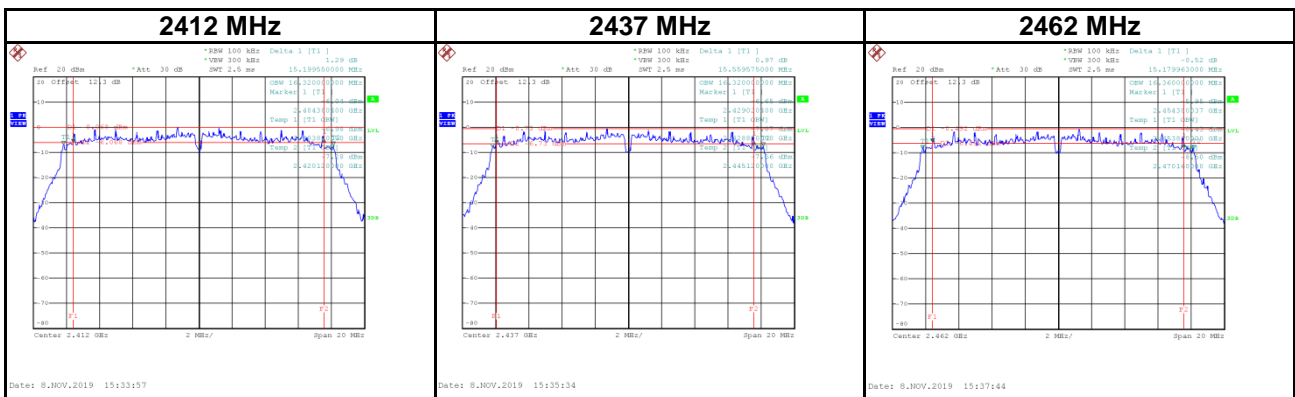
Test Mode	IEEE 802.11b
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	8.06	12.64	500	Complies
2437	8.11	12.56	500	Complies
2462	8.10	12.48	500	Complies



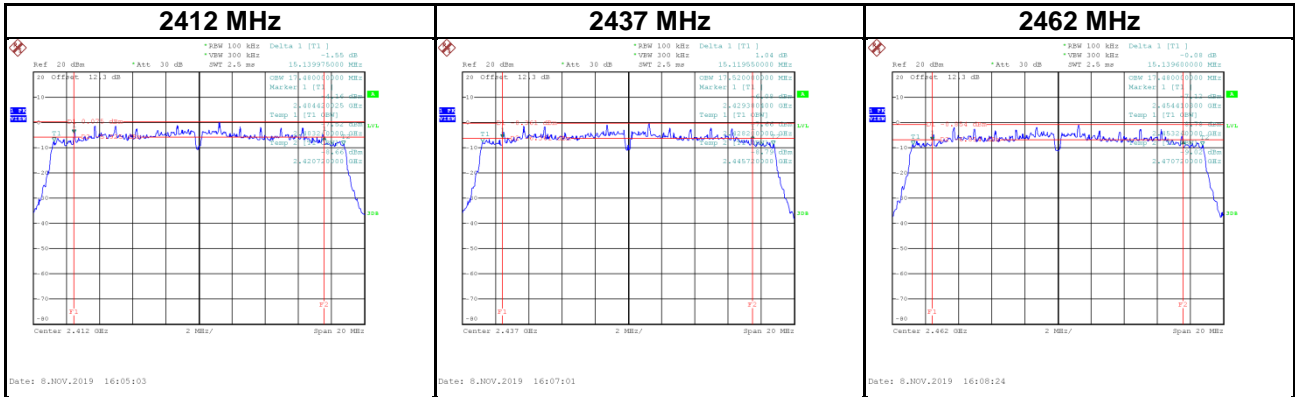
Test Mode	IEEE 802.11g
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	15.20	16.32	500	Complies
2437	15.56	16.32	500	Complies
2462	15.18	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	15.14	17.48	500	Complies
2437	15.12	17.52	500	Complies
2462	15.14	17.48	500	Complies





## APPENDIX F OUTPUT POWER

Test Mode	IEEE 802.11b	Tested Date	2018/11/8
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	16.07	0.0405	30.00	1.0000	Complies
2437	15.47	0.0352	30.00	1.0000	Complies
2462	15.06	0.0321	30.00	1.0000	Complies

Test Mode	IEEE 802.11g	Tested Date	2018/11/8
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	21.05	0.1274	30.00	1.0000	Complies
2437	19.95	0.0989	30.00	1.0000	Complies
2462	19.06	0.0805	30.00	1.0000	Complies

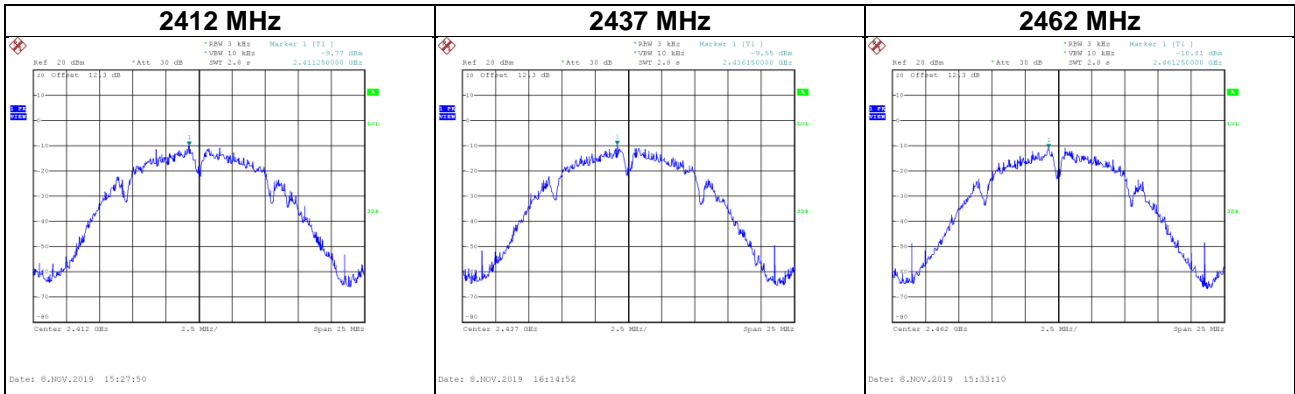
Test Mode	IEEE 802.11n (HT20)	Tested Date	2018/11/8
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	19.90	0.0977	30.00	1.0000	Complies
2437	19.28	0.0847	30.00	1.0000	Complies
2462	19.12	0.0817	30.00	1.0000	Complies

## APPENDIX G POWER SPECTRAL DENSITY

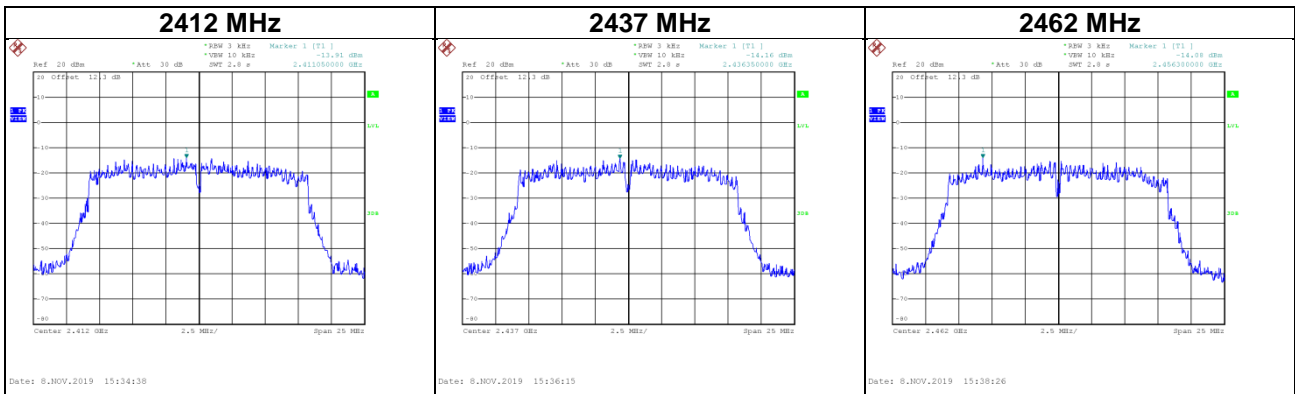
Test Mode	IEEE 802.11b
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-9.77	8.00	Complies
2437	-9.55	8.00	Complies
2462	-10.81	8.00	Complies



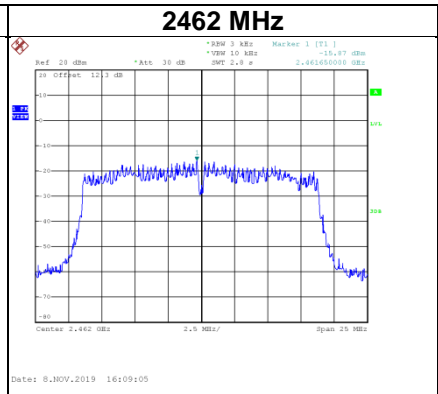
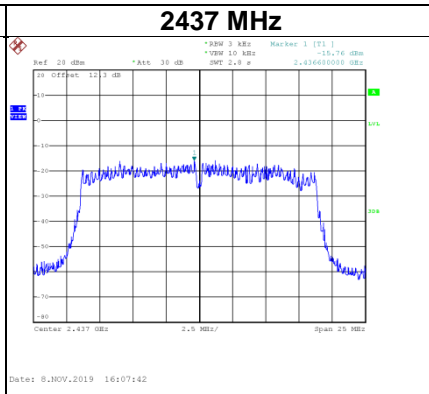
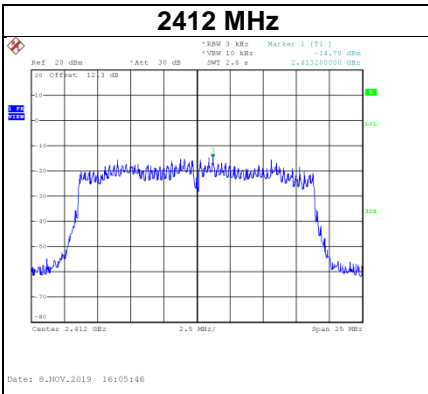
Test Mode	IEEE 802.11g
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-13.91	8.00	Complies
2437	-14.16	8.00	Complies
2462	-14.08	8.00	Complies



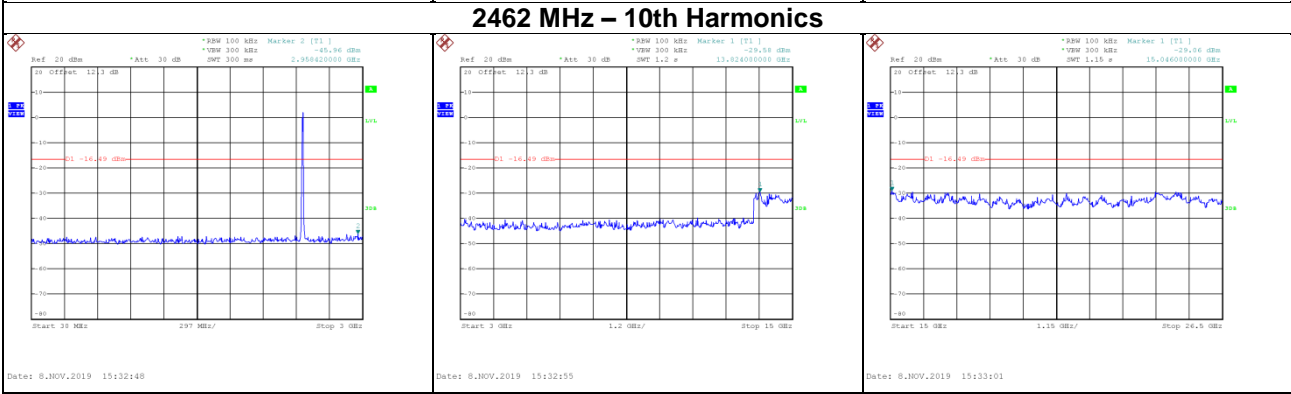
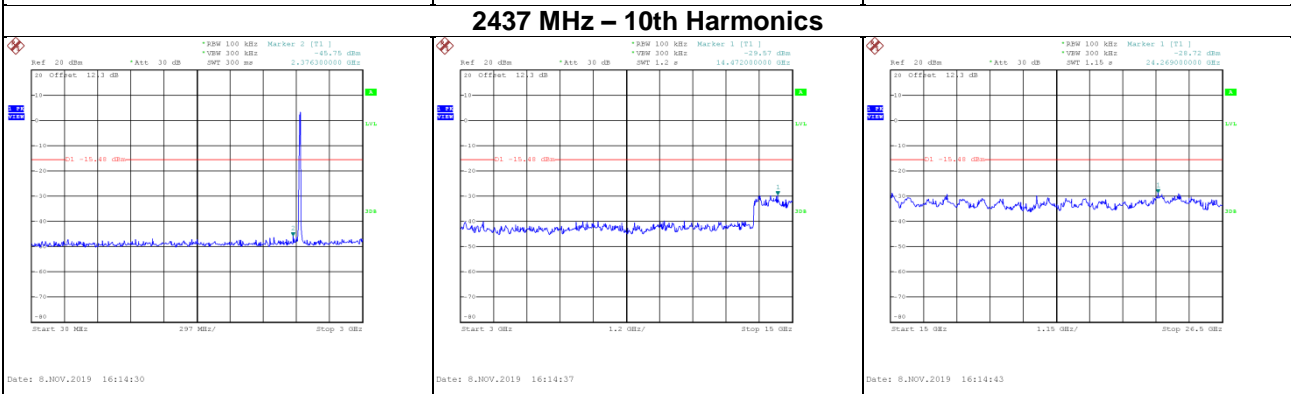
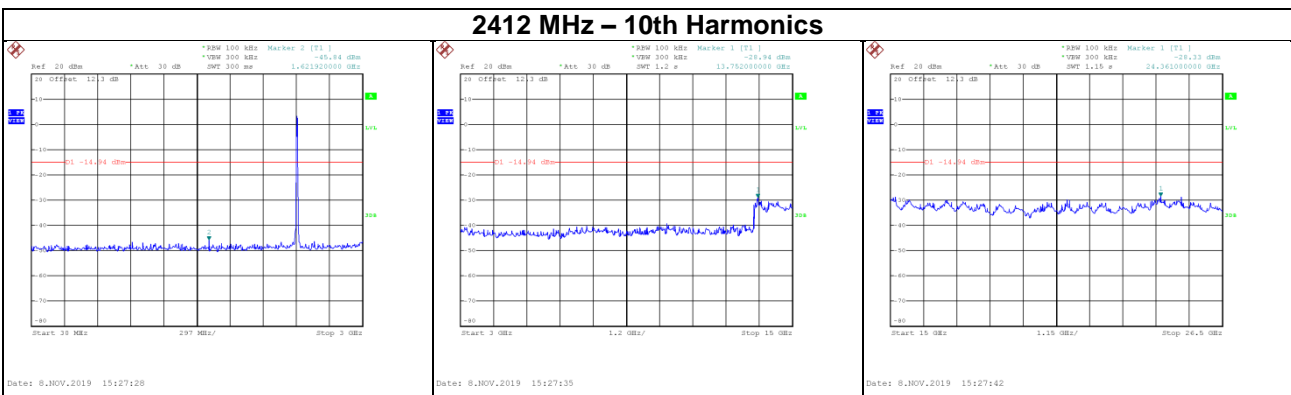
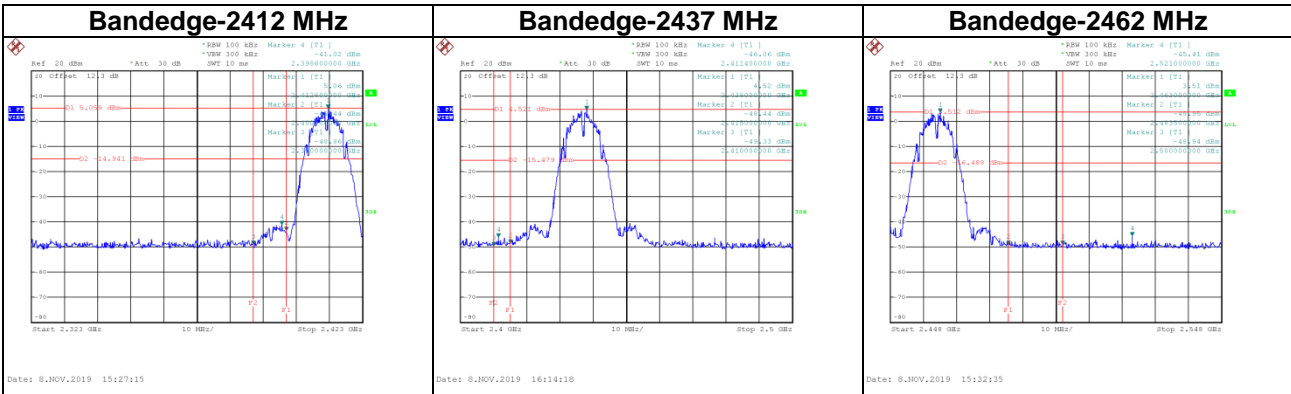
Test Mode	IEEE 802.11n (HT20)
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-14.70	8.00	Complies
2437	-15.76	8.00	Complies
2462	-15.87	8.00	Complies

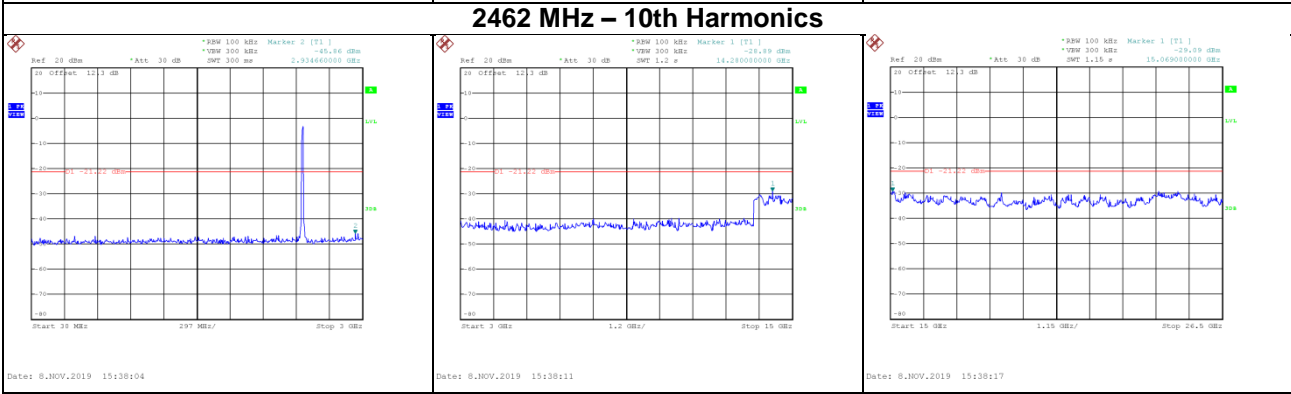
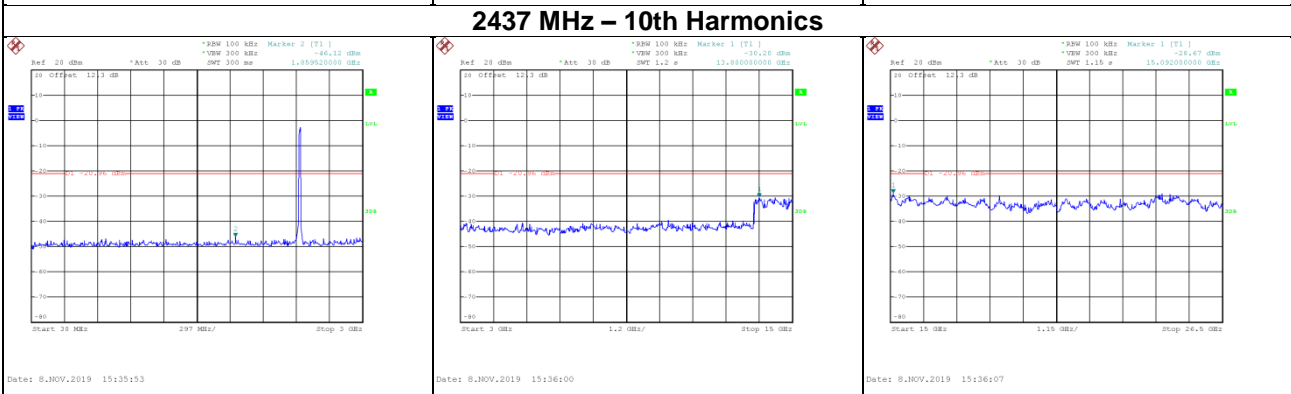
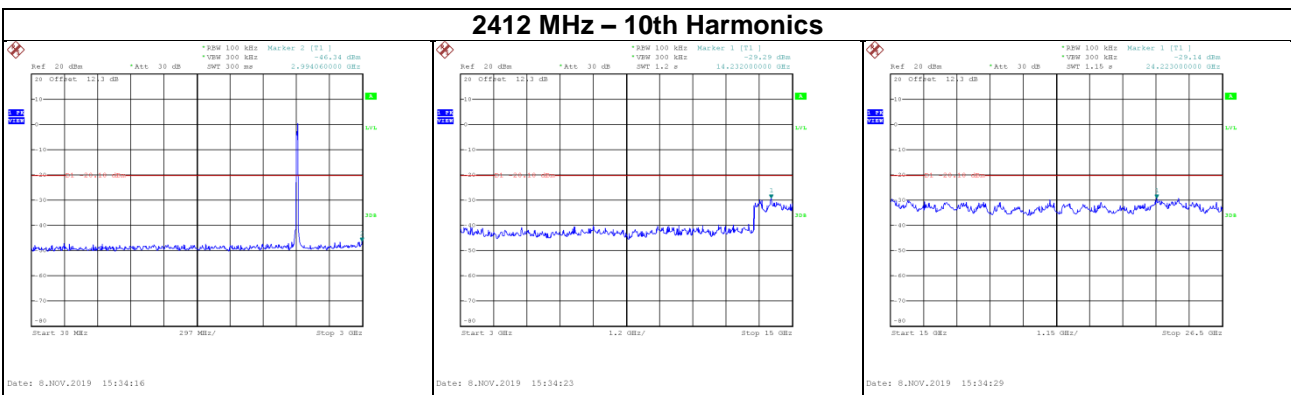
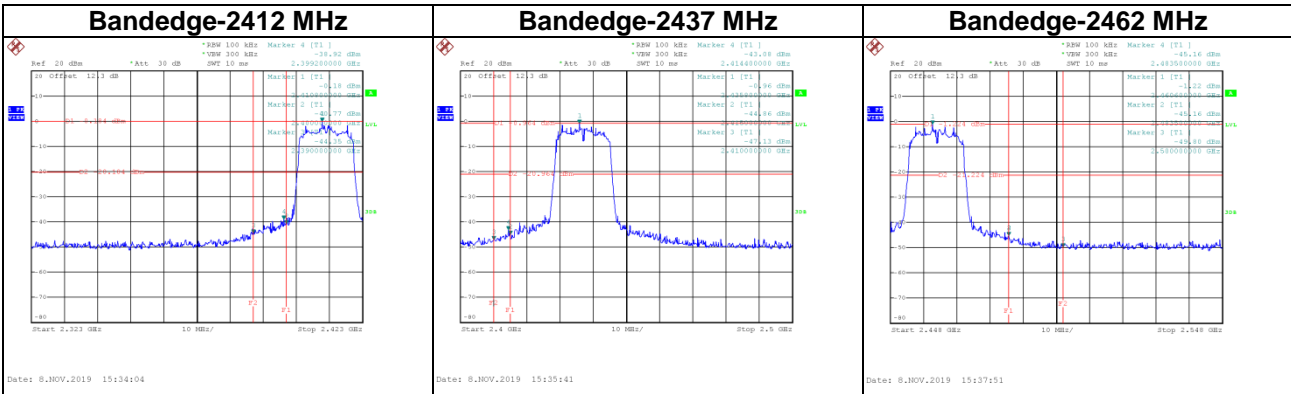


## **APPENDIX H ANTENNA CONDUCTED SPURIOUS EMISSIONS**

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

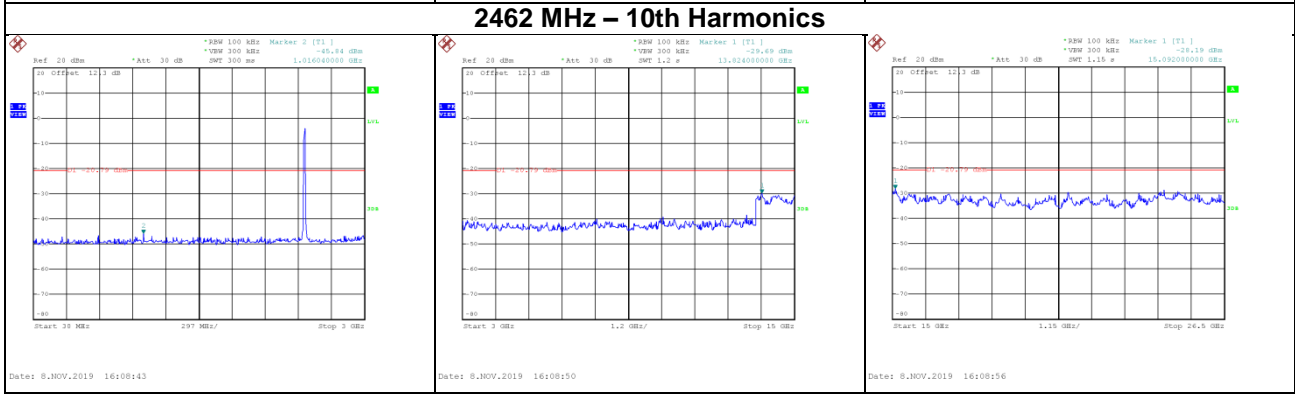
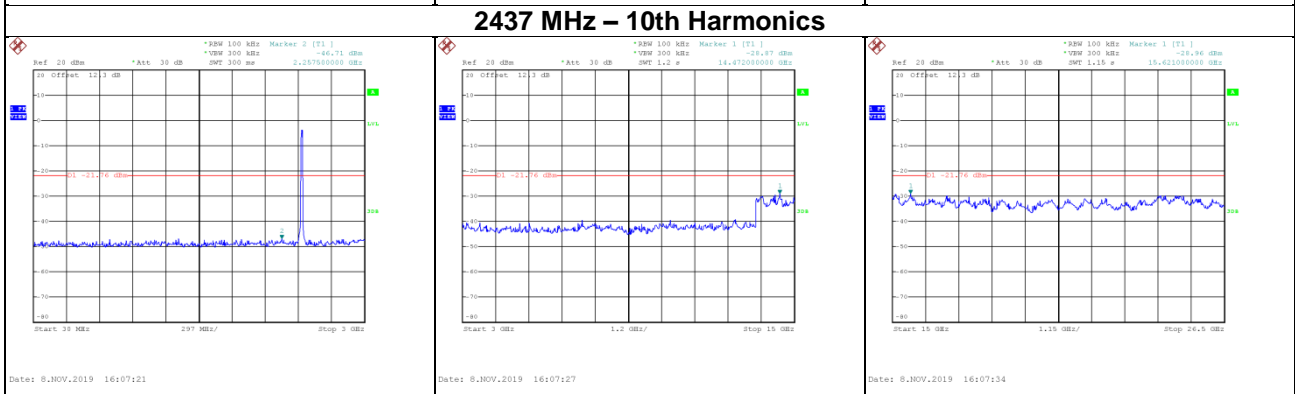
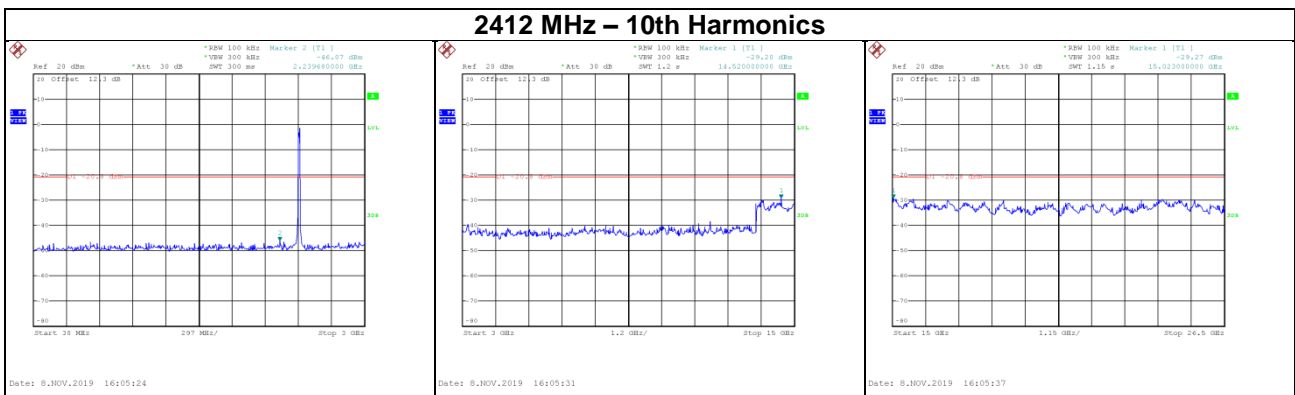
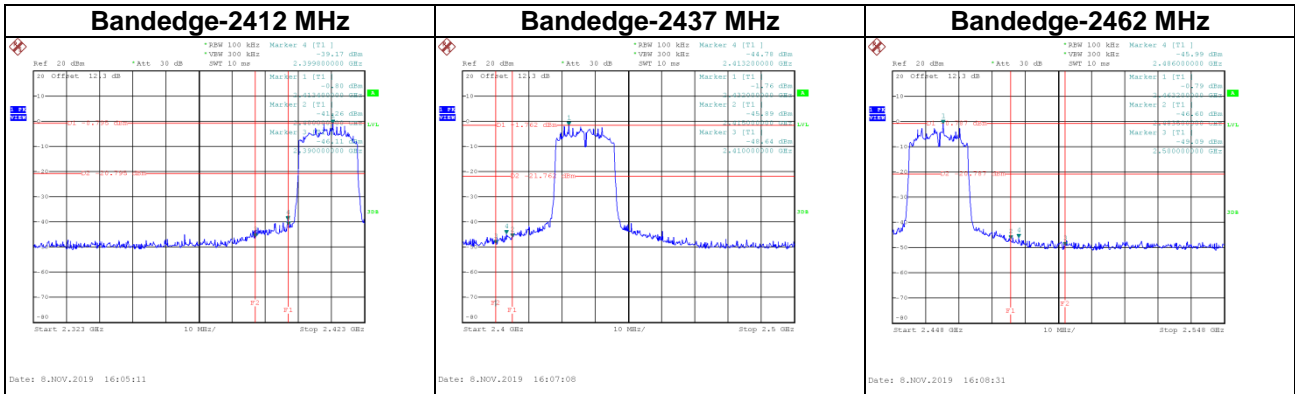


Test Mode	IEEE 802.11g
Test Voltage	AC 120V/60Hz





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



End of Test Report