

FCC Radio Test Report

FCC ID: 2AATB-SMC-1030

Report No. : BTL-FCCP-3-1803T076A
Equipment : Music Streamer
Model Name : SMC-1030
Brand Name : TTI
Applicant : Tatung Technology Inc.
Address : 10F, No.288, Sec 6, Civic Blvd, Xinyi Dist, Taipei City 11087, Taiwan

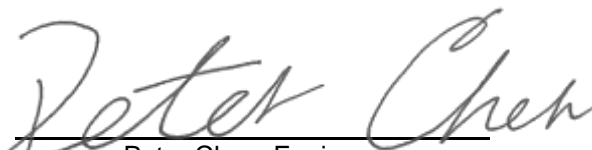
Radio Function : WLAN 2.4 GHz

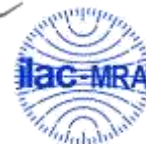
FCC Rule Part(s) : FCC Part15, Subpart C (15.247)
Measurement Procedure(s) : ANSI C63.4-2014

Date of Receipt : 2018/4/25
Date of Test : 2018/4/25 ~ 2019/9/20
Issued Date : 2019/11/7

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

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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.

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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.	2019/11/7

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	Pass	-----
15.247(a)	Bandwidth	APPENDIX D	Pass	-----
15.247(b)	Output Power	APPENDIX E	Pass	-----
15.247(e)	Power Spectral Density	APPENDIX F	Pass	-----
15.247(d)	Antenna conducted Spurious Emission	APPENDIX G	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
 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)
CB15 (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)
CB15 (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)
CB15 (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

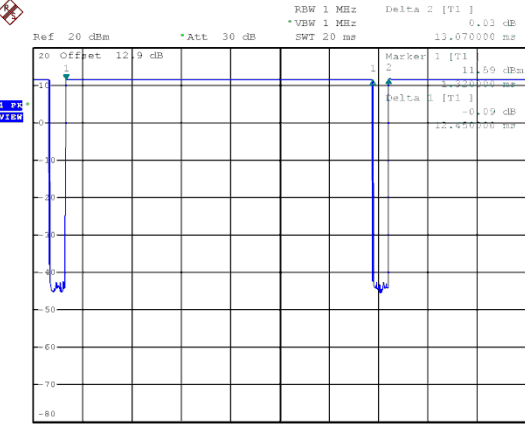
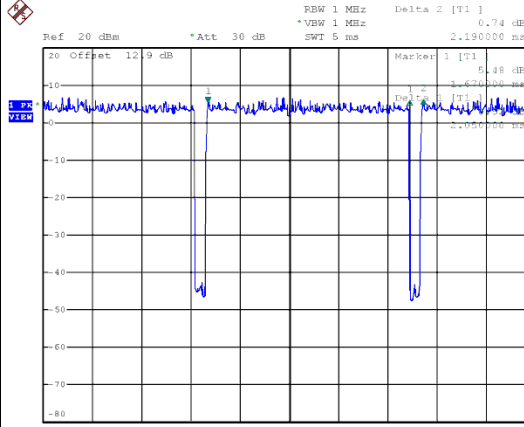
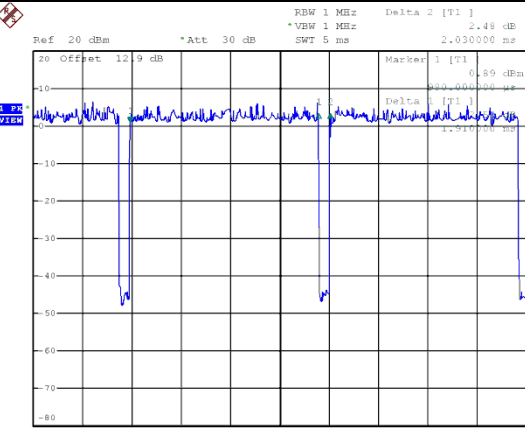
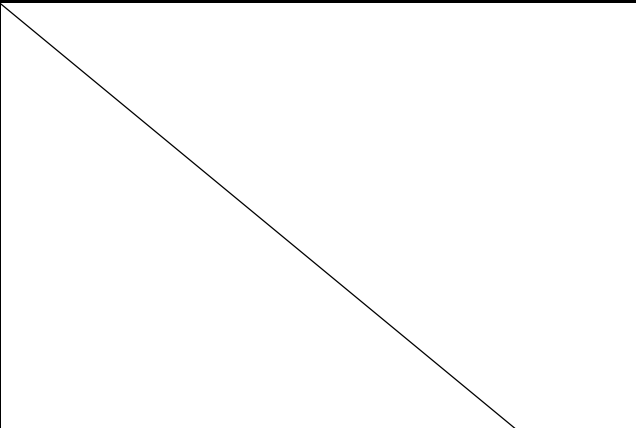
Test Item	Environment Condition	Tested by
AC Power Line Conducted Emissions	25 °C, 45 %	Toby Tian
Radiated emissions below 1 GHz	22 °C, 60 %	Leo Liu
Radiated emissions above 1 GHz	22 °C, 60 %	Toby Tian
Bandwidth	23.9 °C, 49.7 %	Tim Lee
Output Power	23.9 °C, 49.7 %	Tim Lee
Power Spectral Density	23.9 °C, 49.7 %	Tim Lee
Antenna conducted Spurious Emission	23.9 °C, 49.7 %	Tim Lee

1.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

Test Software	Mtool			
Mode	2412 MHz	2437 MHz	2462 MHz	Data Rate
IEEE 802.11b	69	70	70	1 Mbps
IEEE 802.11g	52	68	68	6 Mbps
IEEE 802.11n (HT20)	48	64	64	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.

<div style="text-align: center;">IEEE 802.11b</div>  <p>Date: 10.MAY.2018 14:55:55</p>	<div style="text-align: center;">IEEE 802.11g</div>  <p>Date: 10.MAY.2018 14:58:32</p>
<p>Duty cycle = 12.45 ms / 13.07 ms = 95.26 % Duty Factor = $10 * \log(1 / 0.9526) = 0.21$ dB</p>	<p>Duty cycle = 2.05 ms / 2.19 ms = 93.61 % Duty Factor = $10 * \log(1 / 0.9361) = 0.29$ dB</p>
<div style="text-align: center;">IEEE 802.11n (HT20)</div>  <p>Date: 10.MAY.2018 15:01:21</p>	
<p>Duty cycle = 1.91 ms / 2.03 ms = 94.09 % Duty Factor = $10 * \log(1 / 0.9889) = 0.26$ dB</p>	

2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	Music Streamer
Model Name	SMC-1030
Brand Name	TTI
Model Difference	N/A
Power Source	DC voltage supplied from External Power Supply.
Power Rating	I/P: 100-240V~ 50-60 Hz 0.5A Max. O/P: 12.0V --- 1.0A
Products Covered	1 * Adapter: APD / WA-12M12FU 1 * remote control
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 300 Mbps
Output Power Max.	IEEE 802.11b: 25.12 dBm (0.3247 W) IEEE 802.11g: 27.56 dBm (0.5703 W) IEEE 802.11n (HT20): 26.24 dBm (0.4204 W)
Test Model	SMC-1030
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	Ethertronics	TTI_SMC-1030	PCB	I-PEX	4.8
2	Ethertronics	TTI_SMC-1030	PCB	I-PEX	4.0

NOTE:

(a) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R). 2.4 GHz and 5GHz can't transmit simultaneously.

(b) For Power Spectral Density (CDD mode)

$$\text{Directional Gain} = 10 \log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20})^2 / N_{\text{ANT}}] = 7.42 \text{ dBi} > 6 \text{ dBi.}$$

The reduced power spectral density limits (dBm/MHz) = $8 - (7.42 - 6) = 6.58$

(c) For Conducted Output Power (CDD mode)

For $N_{\text{ANT}} = 2 < 5$,

$$\text{Direction gain} = G_{\text{ANT}} + 0 = 4.8 + 0 = 4.8 \text{ dBi.}$$

The Direction gain is less than 6 dBi, so conducted power limits will not be reduced.

(4) Operating Mode and Antenna Configuration

Operating Mode	2 TX
IEEE 802.11b	Ant. 1 + Ant. 2
IEEE 802.11g	Ant. 1 + Ant. 2
IEEE 802.11n (HT20)	Ant. 1 + Ant. 2

2.2 TEST MODES

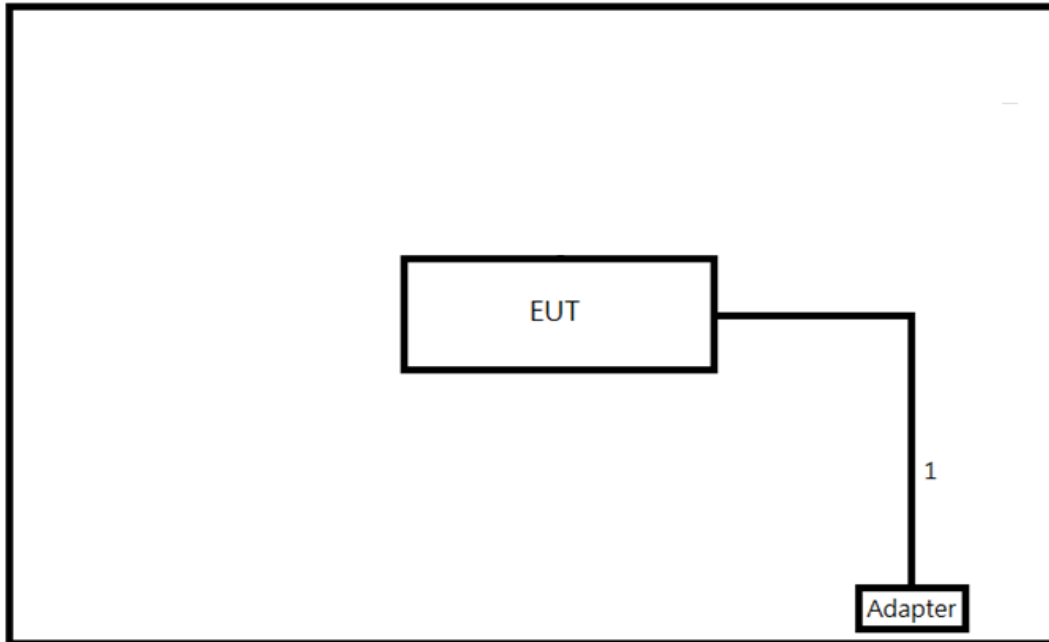
Test Items	Test mode	Channel	Note
AC power line conducted emissions	TX Mode_IEEE 802.11g	06	-
Transmitter Radiated Emissions (below 1GHz)	TX Mode_IEEE 802.11g	06	-
Transmitter Radiated Emissions (above 1GHz)	TX Mode_IEEE 802.11b	01/06/11	
	TX Mode_IEEE 802.11g		
	TX Mode_IEEE 802.11n (HT20)		
Bandwidth	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:

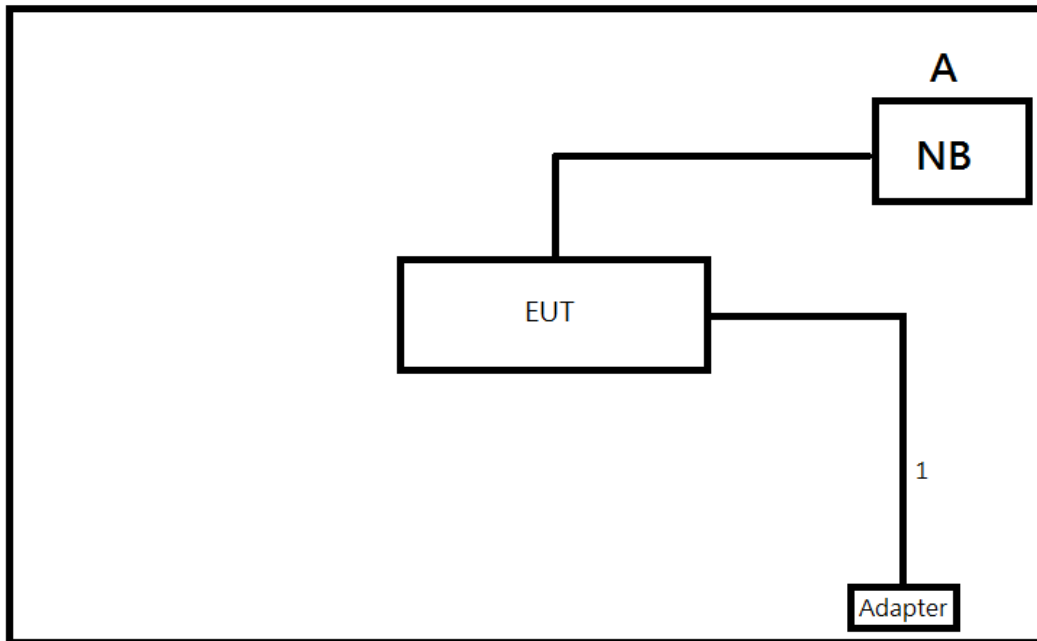
- (1) The Radiated emissions test was verified based on the worst conducted power and Bandwidth test results reported in the original report.
- (2) All X, Y and Z axes are evaluated, but only the worst case (X axis) is recorded.
- (3) There were no emissions found below 30 MHz within 20 dB of the limit.

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.
AC power line conducted emissions



Radiated Emissions



2.4 SUPPORT UNITS

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

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	NO	NO	1m	Power Cable	-

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.

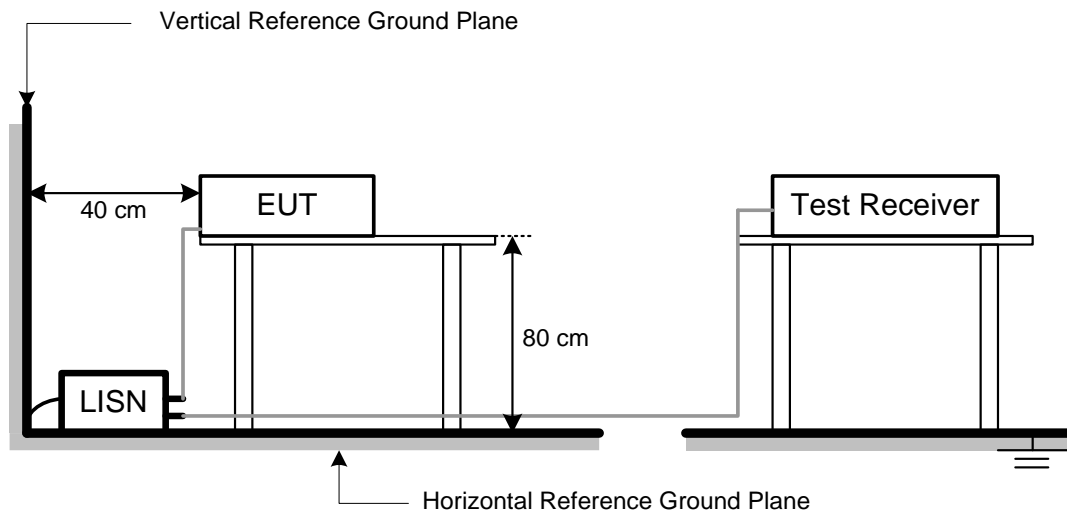
NOTE:

- (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

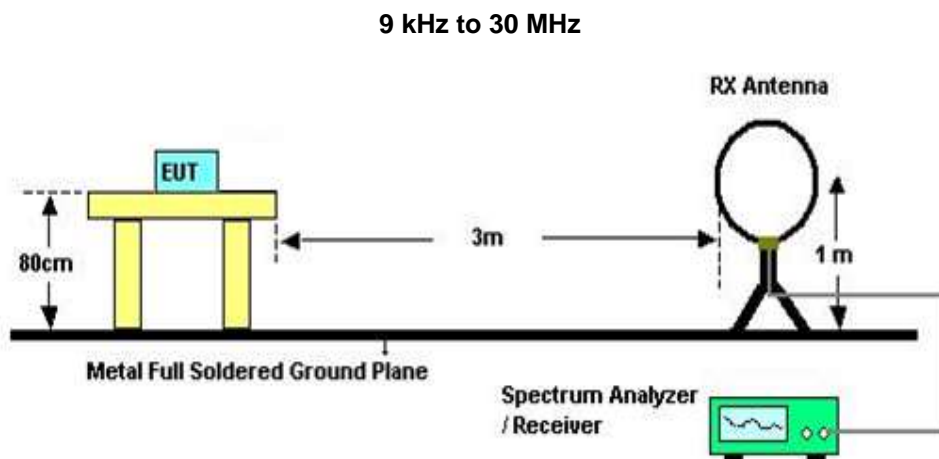
4.2 TEST PROCEDURE

- 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.

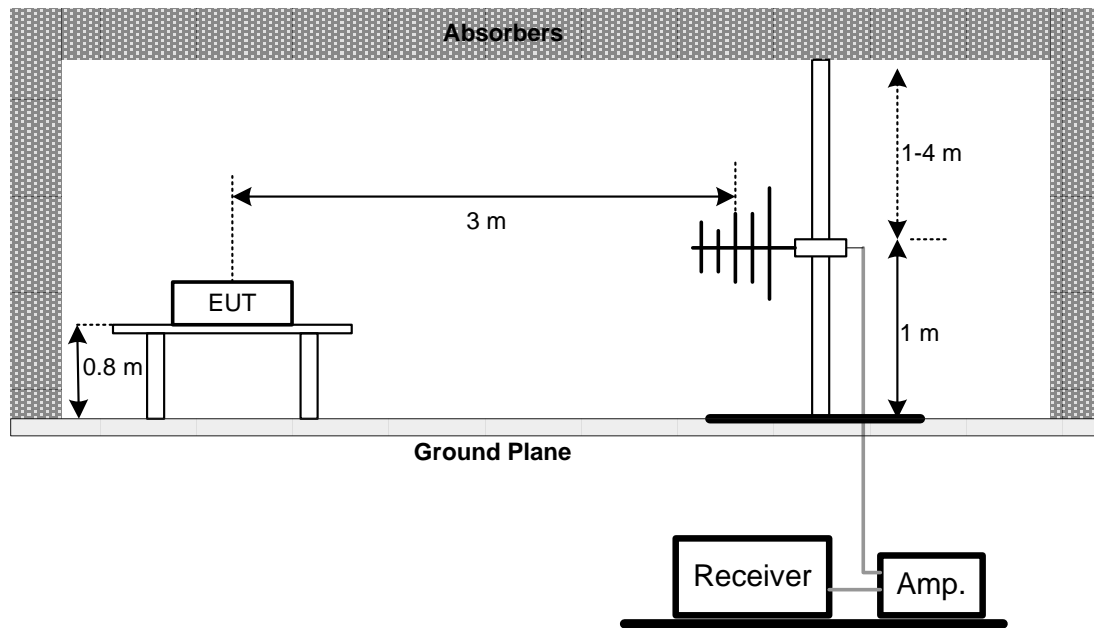
4.3 DEVIATION FROM TEST STANDARD

No deviation.

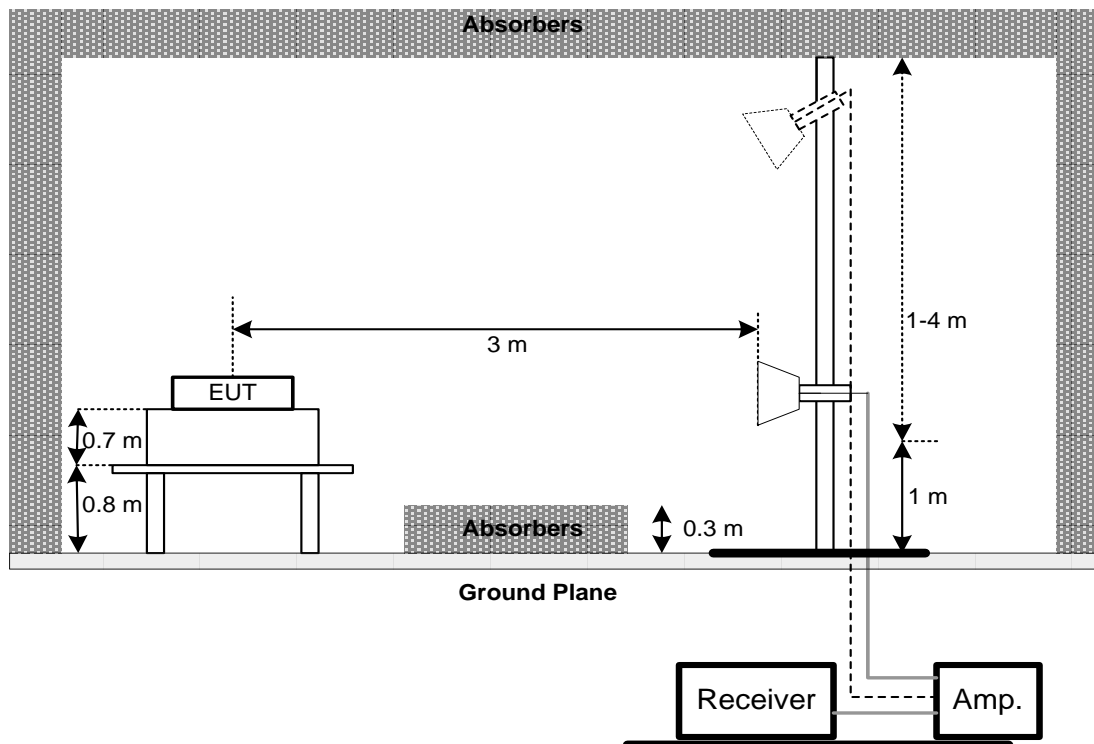
4.4 TEST SETUP



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 – 30 MHZ TO 1 GHZ

Please refer to the APPENDIX B.

4.7 TEST RESULT – ABOVE 1 GHZ

Please refer to the APPENDIX C.

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 D.

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 E.

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)

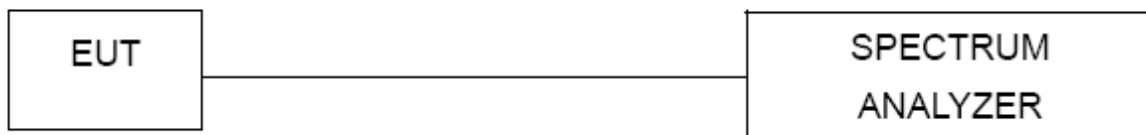
7.2 TEST PROCEDURE

- 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 F.

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 G.

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	2020/3/16
2	Test Cable	EMCI	EMCCFD300-BM-BMR-6000	170715	2019/8/9	2020/8/7
3	EMI Test Receiver	R&S	ESR7	101433	2018/12/5	2019/12/4
4	Measurement Software	EZ	EZ_EMCI (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	EMC02325	980217	2019/4/15	2020/4/13
2	Preamplifier	EMCI	EMC2654045	980030	2019/2/2	2020/2/1
3	Test Cable	EMCI	EMC104-SM-SM-8000	8m	2019/4/15	2020/4/13
4	Test Cable	EMCI	EMC104-SM-SM-800	150207	2019/4/15	2020/4/13
5	Test Cable	EMCI	EEMC104-SM-SM-3000	151205	2019/4/15	2020/4/13
6	MXE EMI Receiver	Agilent	N9038A	MY55420127	2019/3/26	2020/3/24
7	Signal Analyzer	Agilent	N9010A	MY52220990	2019/4/17	2020/4/15
8	Horn Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	2019/5/3	2020/5/1
9	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-548	2019/3/22	2020/3/20
10	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0623	2019/3/22	2020/3/20

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

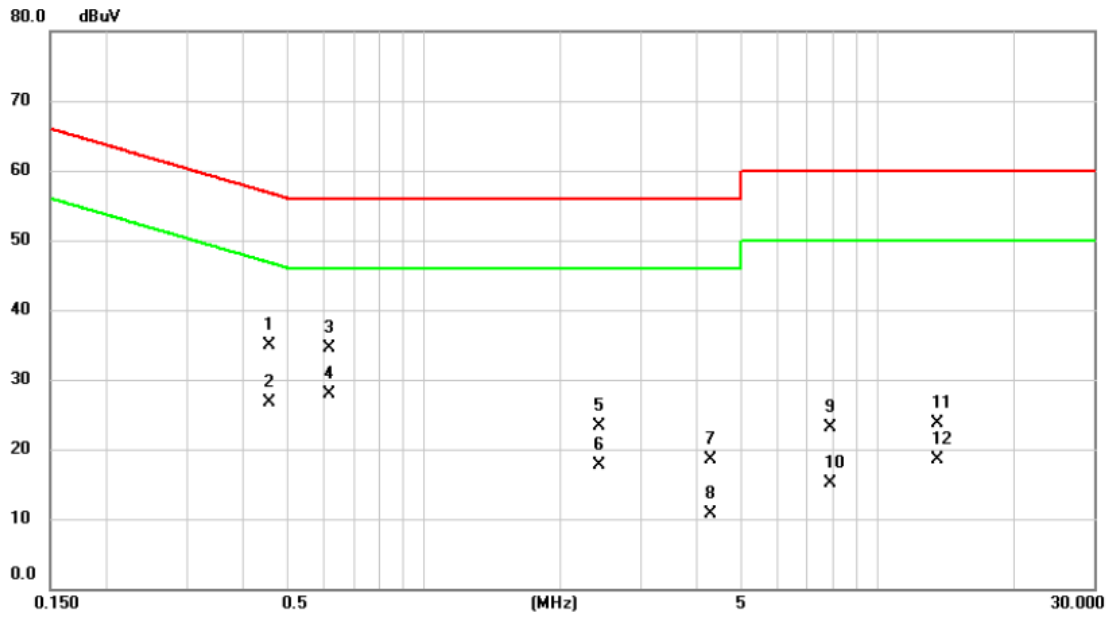
Please refer to document Appendix No.: TP-1803T076A-1 (APPENDIX-TEST PHOTOS).

11 EUT PHOTOS

Please refer to document Appendix No.: EP-1803T076A-1 (APPENDIX-EUT PHOTOS).

APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

Test Mode	TX Mode_IEEE 802.11g_2437MHz	Tested Date	2019/5/7
Test Voltage	AC 120V/60Hz	Phase	Line

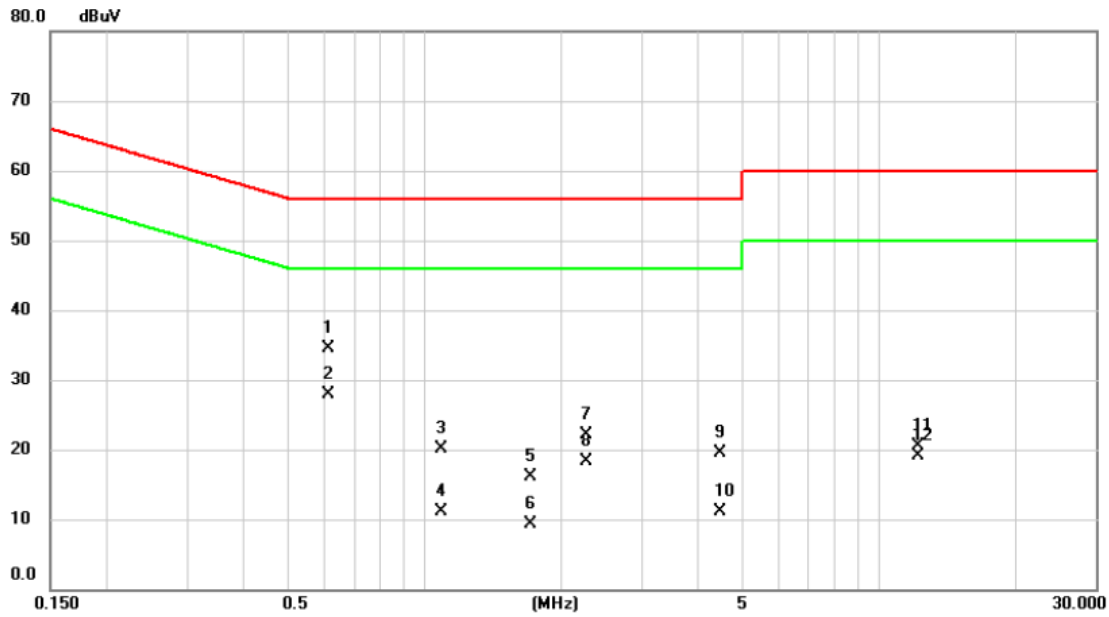


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.4560	25.40	9.58	34.98	56.77	-21.79	QP	
2	0.4560	17.06	9.58	26.64	46.77	-20.13	AVG	
3	0.6202	24.91	9.59	34.50	56.00	-21.50	QP	
4 *	0.6202	18.37	9.59	27.96	46.00	-18.04	AVG	
5	2.4428	13.63	9.69	23.32	56.00	-32.68	QP	
6	2.4428	8.07	9.69	17.76	46.00	-28.24	AVG	
7	4.2855	8.76	9.74	18.50	56.00	-37.50	QP	
8	4.2855	0.98	9.74	10.72	46.00	-35.28	AVG	
9	7.8833	13.25	9.81	23.06	60.00	-36.94	QP	
10	7.8833	5.21	9.81	15.02	50.00	-34.98	AVG	
11	13.5600	13.92	9.87	23.79	60.00	-36.21	QP	
12	13.5600	8.57	9.87	18.44	50.00	-31.56	AVG	

REMARKS:

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

Test Mode	TX Mode_IEEE 802.11g_2437MHz	Tested Date	2019/5/7
Test Voltage	AC 120V/60Hz	Phase	Neutral



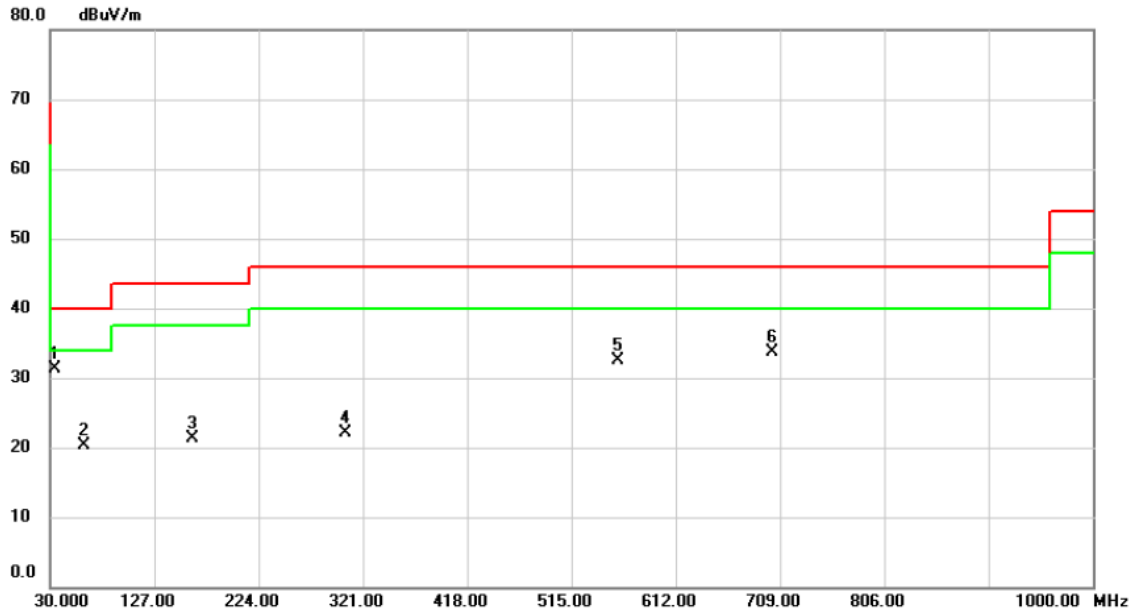
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.6157	24.90	9.64	34.54	56.00	-21.46	QP	
2	*	0.6157	18.18	9.64	27.82	46.00	-18.18	AVG	
3		1.0882	10.42	9.66	20.08	56.00	-35.92	QP	
4		1.0882	1.39	9.66	11.05	46.00	-34.95	AVG	
5		1.7093	6.42	9.70	16.12	56.00	-39.88	QP	
6		1.7093	-0.48	9.70	9.22	46.00	-36.78	AVG	
7		2.2673	12.30	9.72	22.02	56.00	-33.98	QP	
8		2.2673	8.53	9.72	18.25	46.00	-27.75	AVG	
9		4.4543	9.62	9.79	19.41	56.00	-36.59	QP	
10		4.4543	1.26	9.79	11.05	46.00	-34.95	AVG	
11		12.1920	10.48	9.93	20.41	60.00	-39.59	QP	
12		12.1920	9.18	9.93	19.11	50.00	-30.89	AVG	

REMARKS:

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

APPENDIX B RADIATED EMISSIONS - 30 MHZ TO 1 GHZ

Test Mode	TX Mode_IEEE 802.11g_2437MHz	Tested Date	2019/5/7
Test Voltage	AC 120V/60Hz	Polarization	Vertical

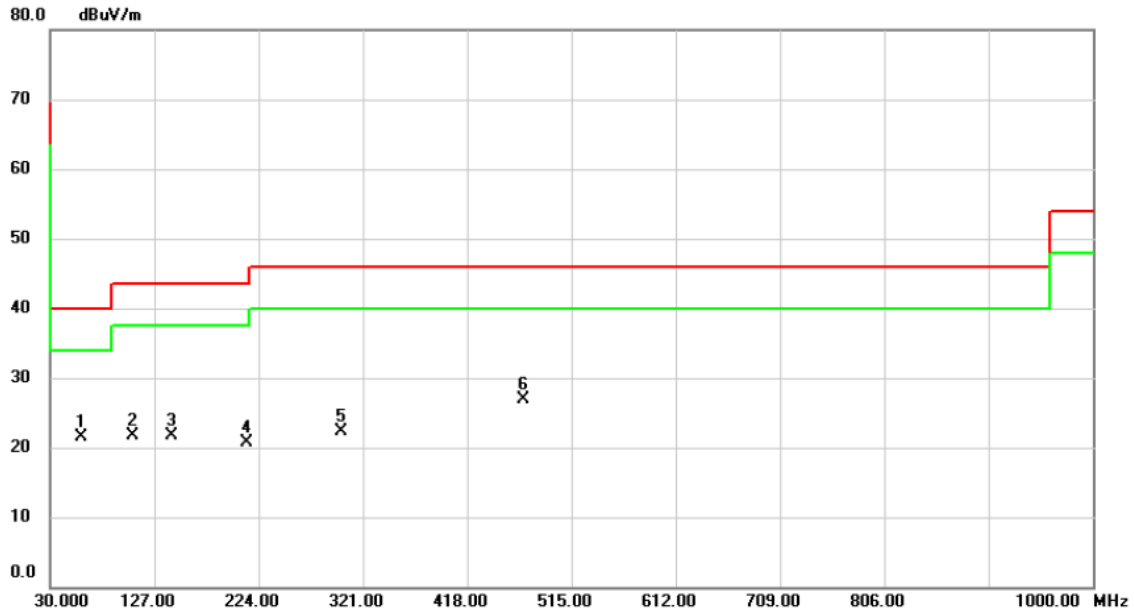


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1 *	34.8500	40.31	-9.01	31.30	40.00	-8.70	peak	
2	61.0400	29.32	-8.94	20.38	40.00	-19.62	peak	
3	161.9200	29.89	-8.60	21.29	43.50	-22.21	peak	
4	304.5100	29.53	-7.40	22.13	46.00	-23.87	peak	
5	558.6500	34.27	-1.73	32.54	46.00	-13.46	peak	
6	701.2400	32.37	1.30	33.67	46.00	-12.33	peak	

REMARKS:

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

Test Mode	TX Mode_IEEE 802.11g_2437MHz	Tested Date	2019/5/7
Test Voltage	AC 120V/60Hz	Polarization	Horizontal



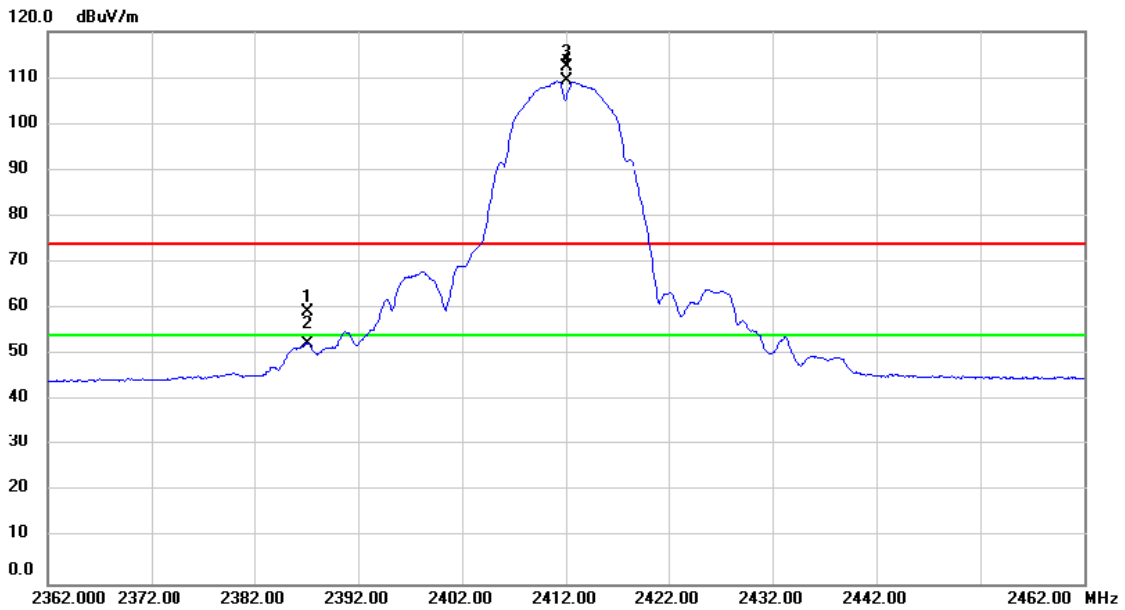
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1 *	59.1000	30.28	-8.69	21.59	40.00	-18.41	peak	
2	106.6300	33.41	-11.78	21.63	43.50	-21.87	peak	
3	142.5200	30.56	-8.77	21.79	43.50	-21.71	peak	
4	212.3600	31.37	-10.67	20.70	43.50	-22.80	peak	
5	300.6300	29.88	-7.50	22.38	46.00	-23.62	peak	
6	470.3800	30.43	-3.44	26.99	46.00	-19.01	peak	

REMARKS:

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

APPENDIX C RADIATED EMISSIONS - ABOVE 1 GHZ

Test Mode	TX Mode_IEEE 802.11b_2412 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

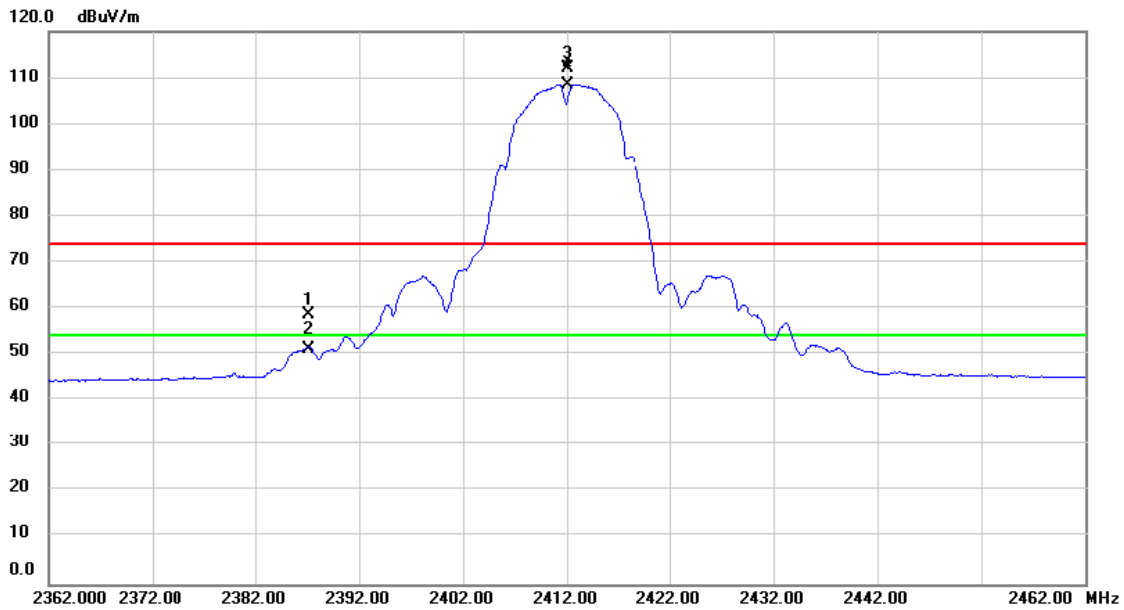


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2387.172	28.24	30.97	59.21	74.00	-14.79	peak	
2		2387.172	21.27	30.97	52.24	54.00	-1.76	AVG	
3	X	2412.000	81.33	31.07	112.40	74.00	38.40	peak	No Limit
4	*	2412.000	78.14	31.07	109.21	54.00	55.21	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_2412 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

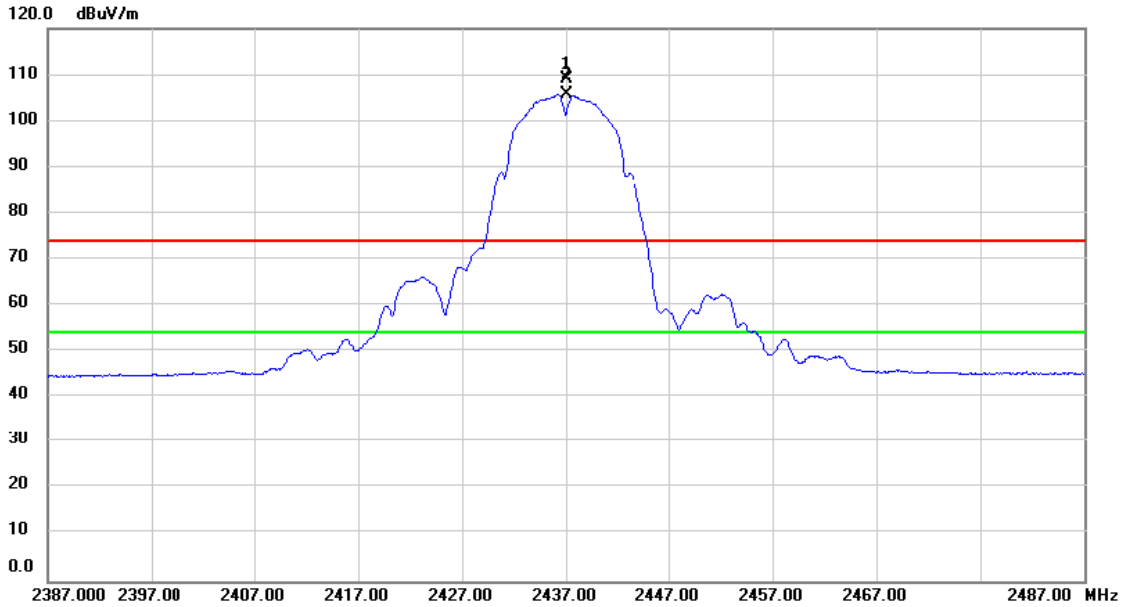


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2387.200	27.83	30.97	58.80	74.00	-15.20	peak	
2		2387.200	20.31	30.97	51.28	54.00	-2.72	AVG	
3	X	2412.000	80.90	31.07	111.97	74.00	37.97	peak	No Limit
4	*	2412.000	77.50	31.07	108.57	54.00	54.57	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_2437 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

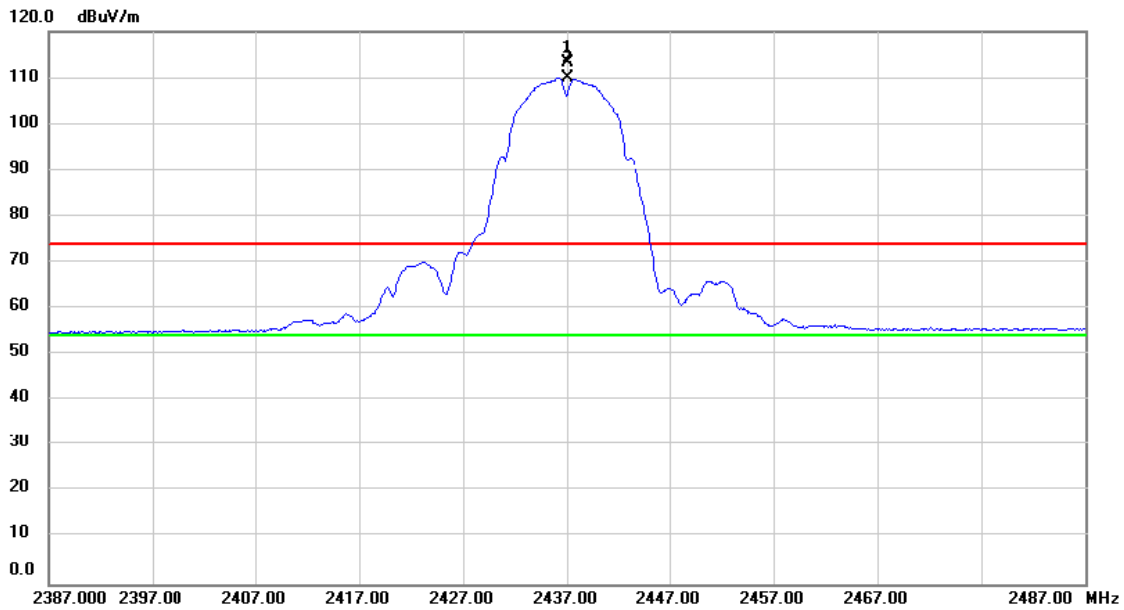


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	77.79	31.18	108.97	74.00	34.97	peak	No Limit
2	*	2437.000	74.50	31.18	105.68	54.00	51.68	AVG	No Limit

REMARKS:

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

Test Mode	TX Mode_IEEE 802.11b_2437 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

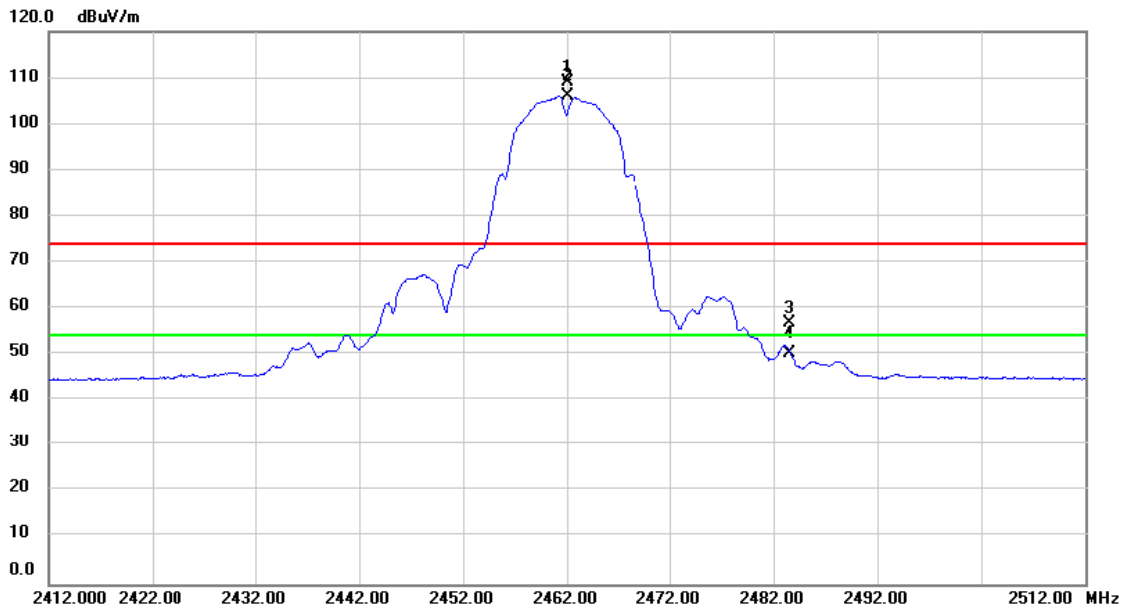


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	81.95	31.18	113.13	74.00	39.13	peak	No Limit
2	*	2437.000	78.78	31.18	109.96	54.00	55.96	AVG	No Limit

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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

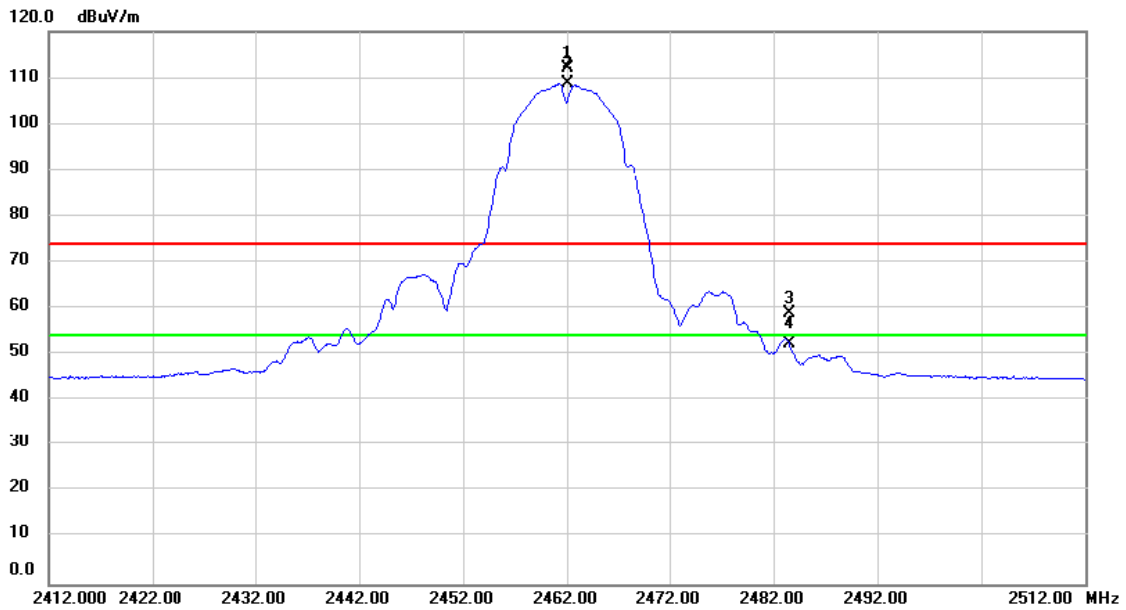


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	77.89	31.27	109.16	74.00	35.16	peak	No Limit
2	*	2462.000	74.72	31.27	105.99	54.00	51.99	AVG	No Limit
3		2483.500	25.64	31.36	57.00	74.00	-17.00	peak	
4		2483.500	18.97	31.36	50.33	54.00	-3.67	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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

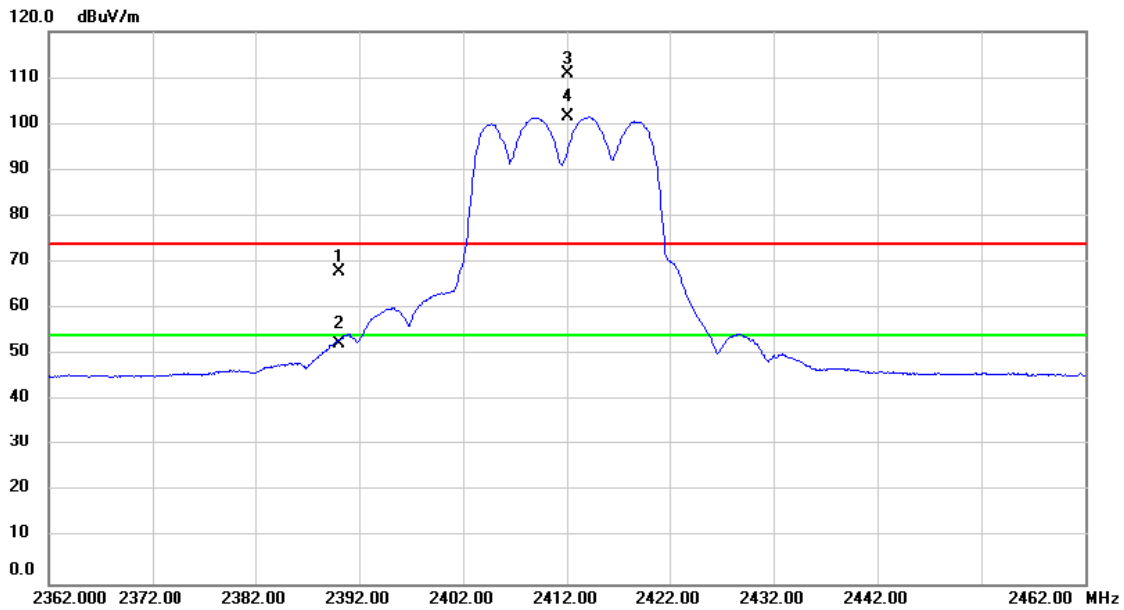


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	80.63	31.27	111.90	74.00	37.90	peak	No Limit
2	*	2462.000	77.45	31.27	108.72	54.00	54.72	AVG	No Limit
3		2483.500	27.46	31.36	58.82	74.00	-15.18	peak	
4		2483.500	20.98	31.36	52.34	54.00	-1.66	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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

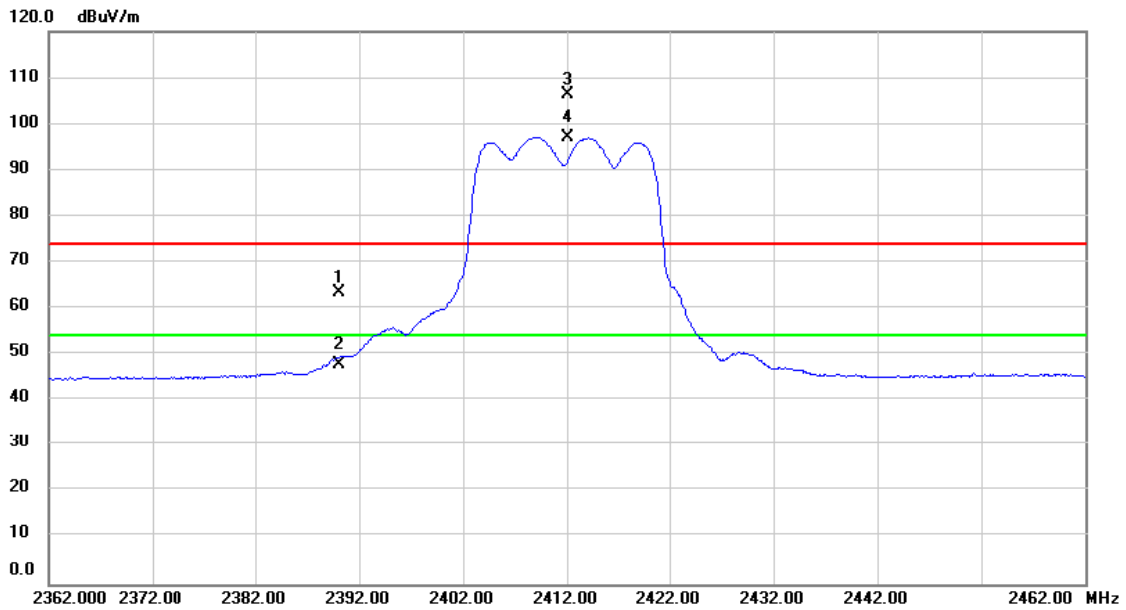


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	36.83	30.98	67.81	74.00	-6.19	peak	
2		2390.000	21.24	30.98	52.22	54.00	-1.78	AVG	
3	X	2412.000	79.65	31.07	110.72	74.00	36.72	peak	No Limit
4	*	2412.000	70.36	31.07	101.43	54.00	47.43	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_2412 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

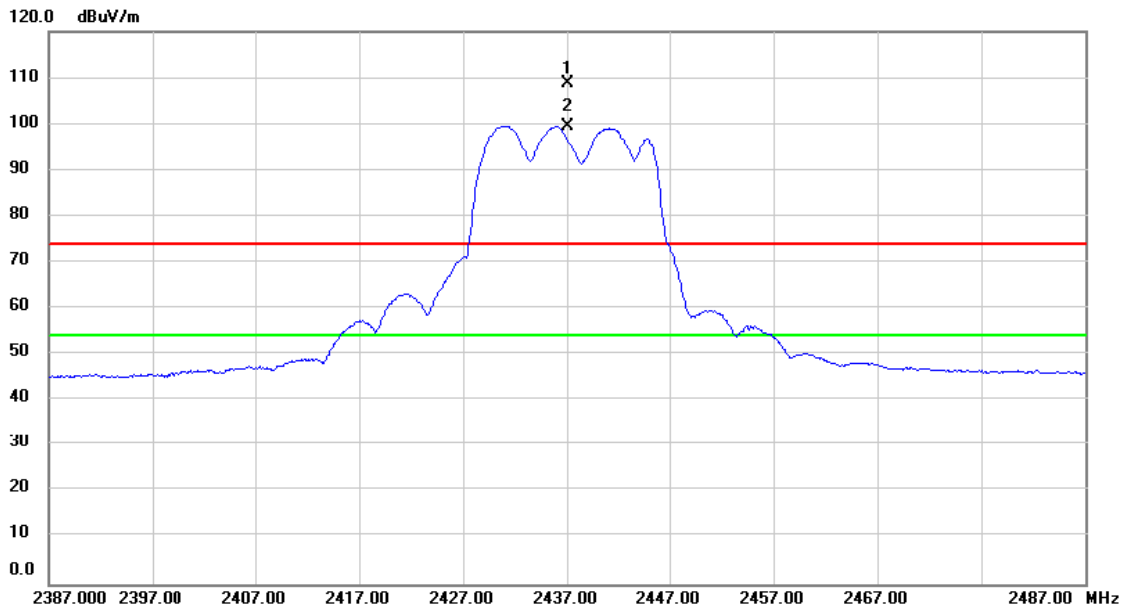


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	32.38	30.98	63.36	74.00	-10.64	peak	
2		2390.000	16.86	30.98	47.84	54.00	-6.16	AVG	
3	X	2412.000	75.39	31.07	106.46	74.00	32.46	peak	No Limit
4	*	2412.000	66.05	31.07	97.12	54.00	43.12	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_2437 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

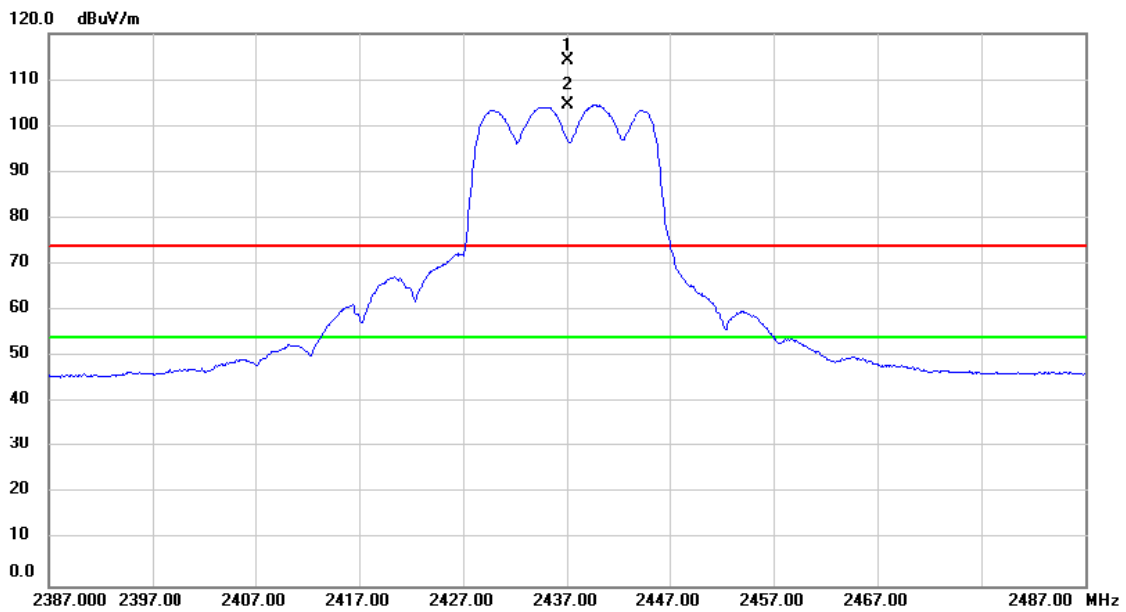


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	77.65	31.18	108.83	74.00	34.83	peak	No Limit
2	*	2437.000	68.41	31.18	99.59	54.00	45.59	AVG	No Limit

REMARKS:

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

Test Mode	TX Mode_IEEE 802.11g_2437 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

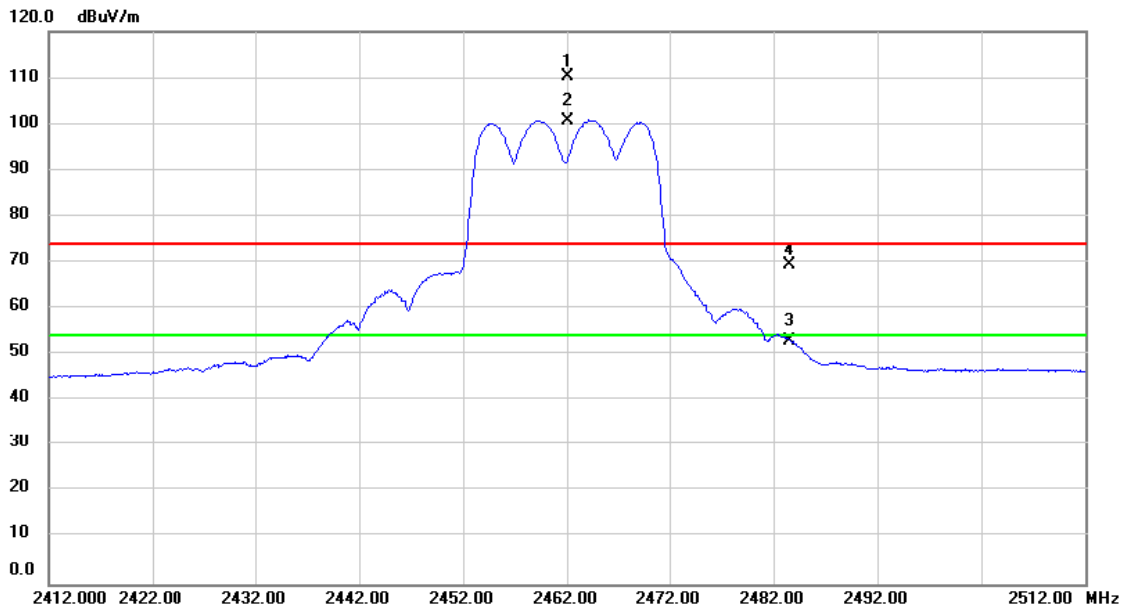


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	83.10	31.18	114.28	74.00	40.28	peak	No Limit
2	*	2437.000	73.32	31.18	104.50	54.00	50.50	AVG	No Limit

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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

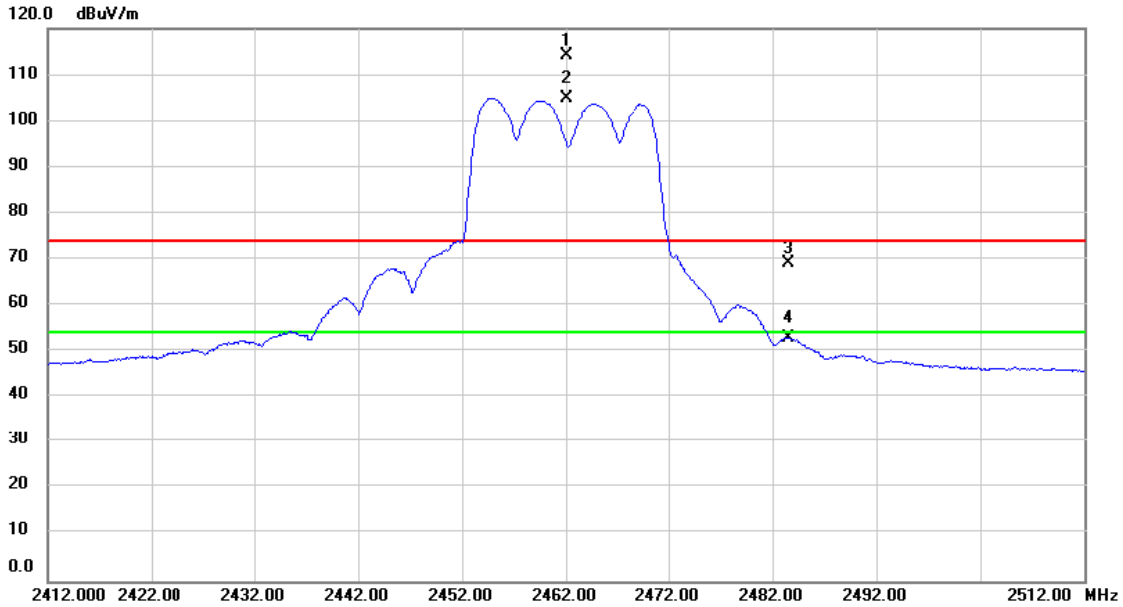


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	78.89	31.27	110.16	74.00	36.16	peak	No Limit
2	*	2462.000	69.48	31.27	100.75	54.00	46.75	AVG	No Limit
3		2483.500	21.58	31.36	52.94	54.00	-1.06	AVG	
4		2483.586	38.21	31.36	69.57	74.00	-4.43	peak	

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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

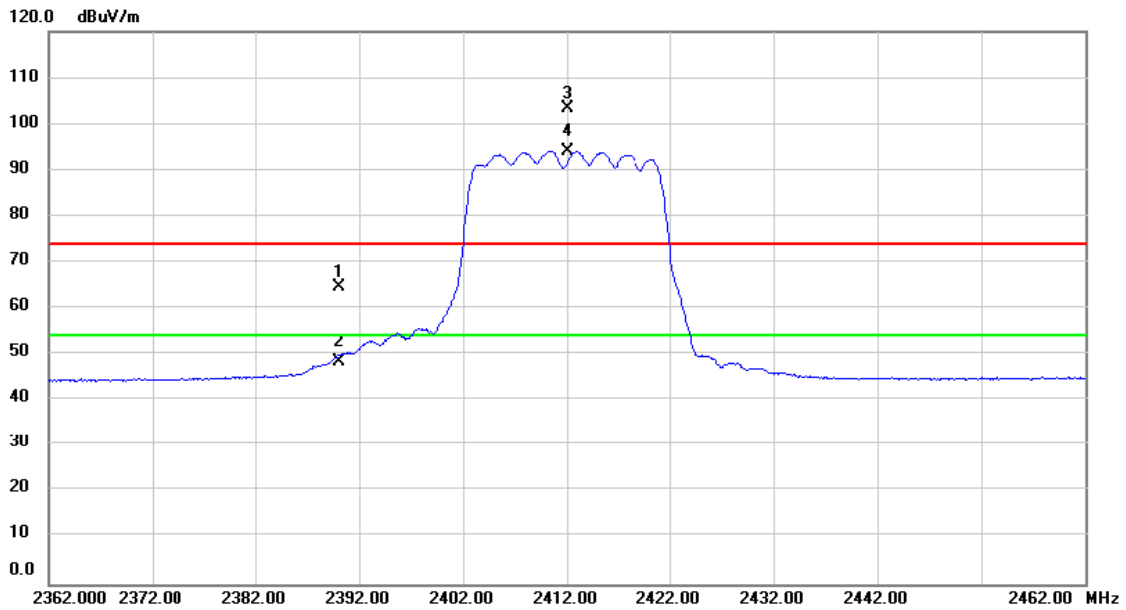


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	82.93	31.27	114.20	74.00	40.20	peak	No Limit
2	*	2462.000	73.63	31.27	104.90	54.00	50.90	AVG	No Limit
3		2483.500	37.83	31.36	69.19	74.00	-4.81	peak	
4		2483.500	21.64	31.36	53.00	54.00	-1.00	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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

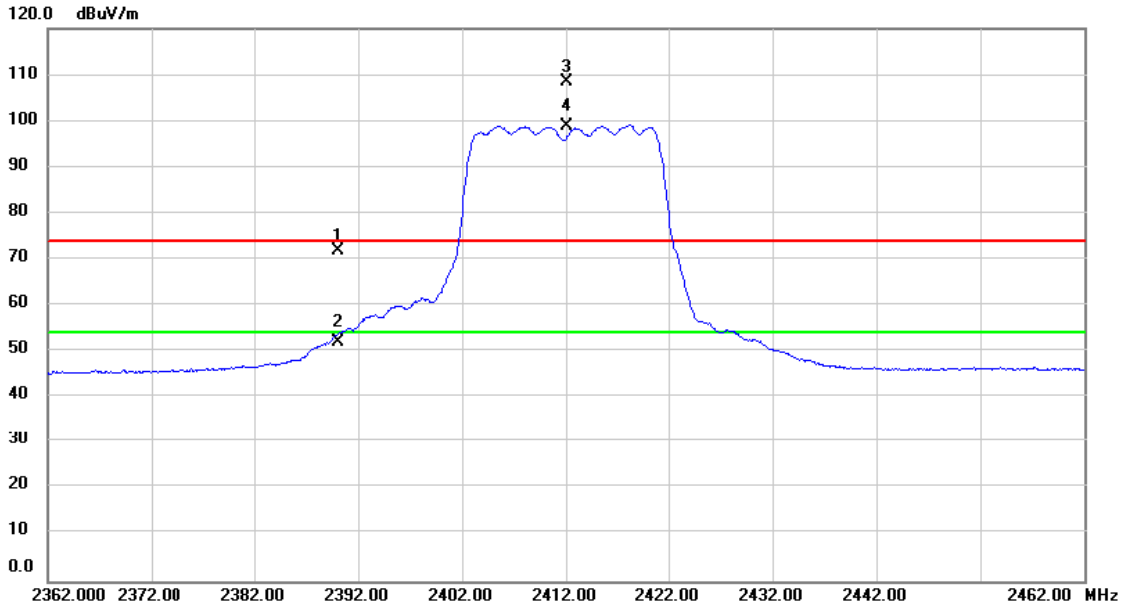


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	33.68	30.98	64.66	74.00	-9.34	peak	
2		2390.000	17.55	30.98	48.53	54.00	-5.47	AVG	
3	X	2412.000	72.21	31.07	103.28	74.00	29.28	peak	No Limit
4	*	2412.000	63.08	31.07	94.15	54.00	40.15	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)_2412 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

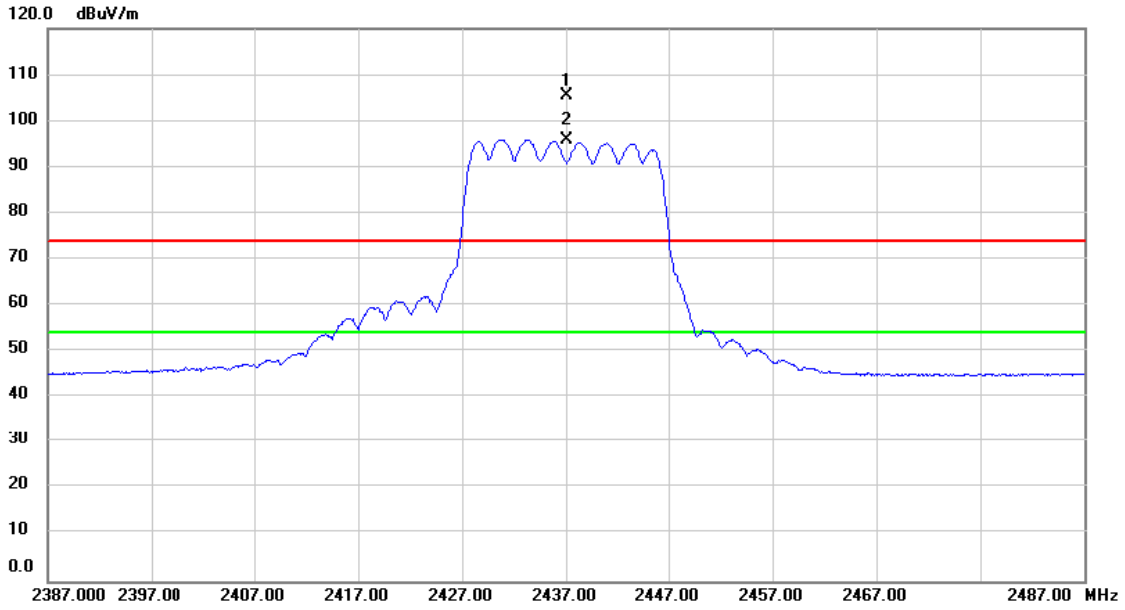


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	41.00	30.98	71.98	74.00	-2.02	peak	
2		2390.000	21.13	30.98	52.11	54.00	-1.89	AVG	
3	X	2412.000	77.48	31.07	108.55	74.00	34.55	peak	No Limit
4	*	2412.000	67.85	31.07	98.92	54.00	44.92	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)_2437 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

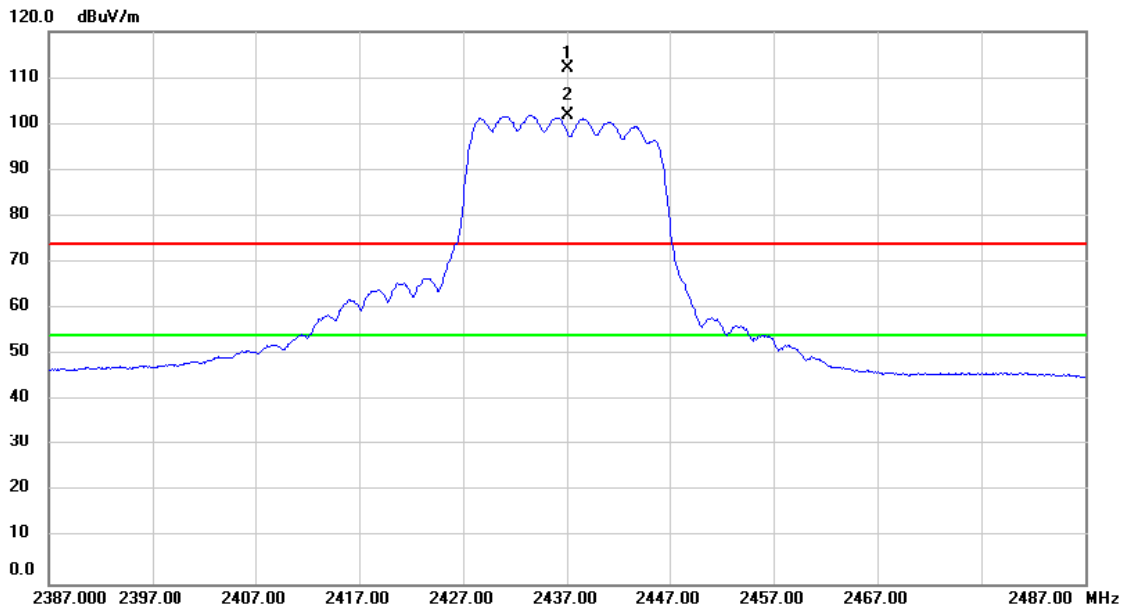


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	74.28	31.18	105.46	74.00	31.46	peak	No Limit
2	*	2437.000	64.59	31.18	95.77	54.00	41.77	AVG	No Limit

REMARKS:

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

Test Mode	TX Mode_IEEE 802.11n (HT20)_2437 MHz	Tested Date	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

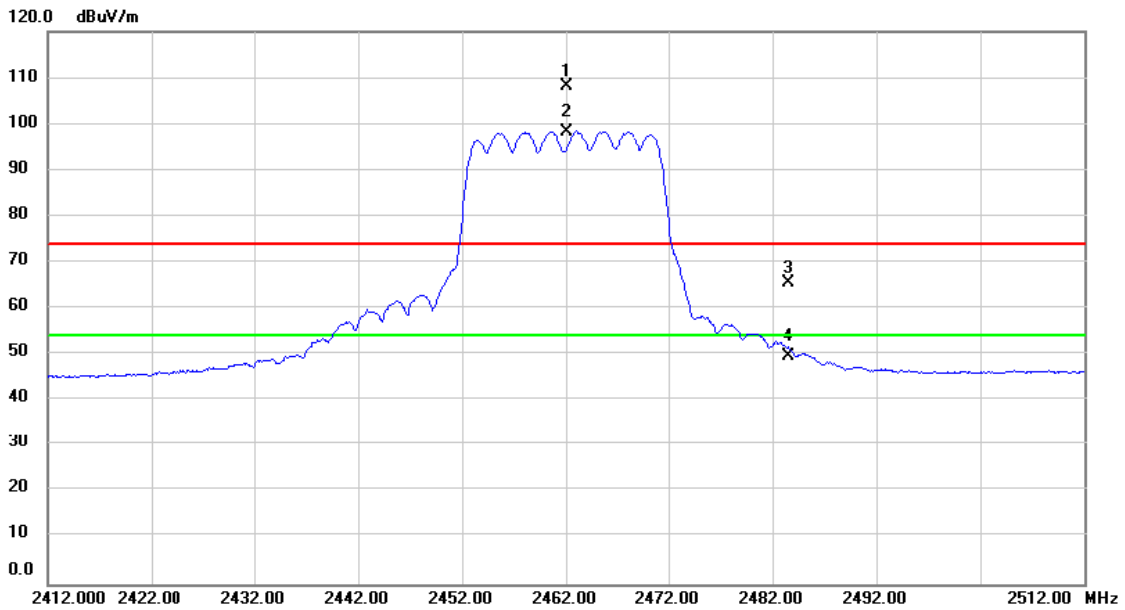


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	80.76	31.18	111.94	74.00	37.94	peak	No Limit
2	*	2437.000	70.75	31.18	101.93	54.00	47.93	AVG	No Limit

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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

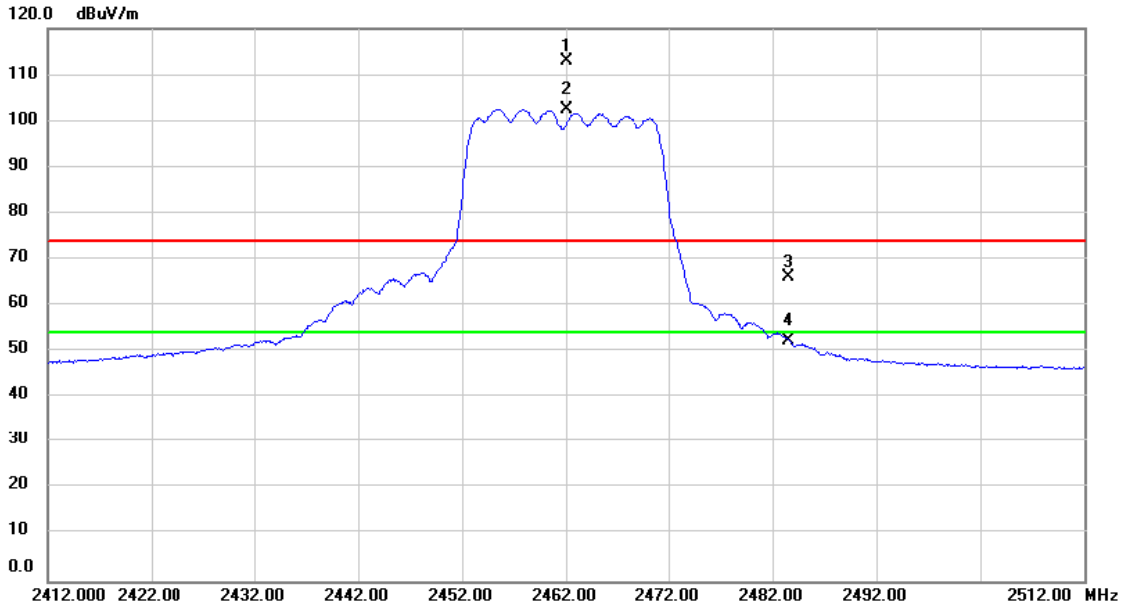


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	76.81	31.27	108.08	74.00	34.08	peak	No Limit
2	*	2462.000	67.10	31.27	98.37	54.00	44.37	AVG	No Limit
3		2483.500	34.09	31.36	65.45	74.00	-8.55	peak	
4		2483.500	18.43	31.36	49.79	54.00	-4.21	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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

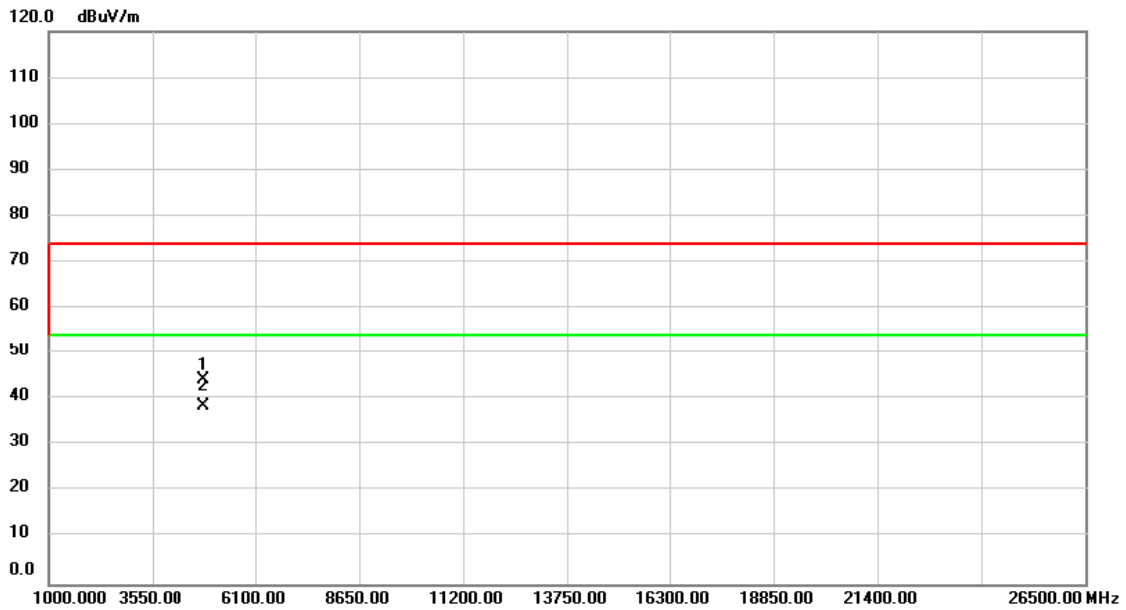


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	81.62	31.27	112.89	74.00	38.89	peak	No Limit
2	*	2462.000	71.06	31.27	102.33	54.00	48.33	AVG	No Limit
3		2483.500	34.80	31.36	66.16	74.00	-7.84	peak	
4		2483.500	21.10	31.36	52.46	54.00	-1.54	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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Vertical

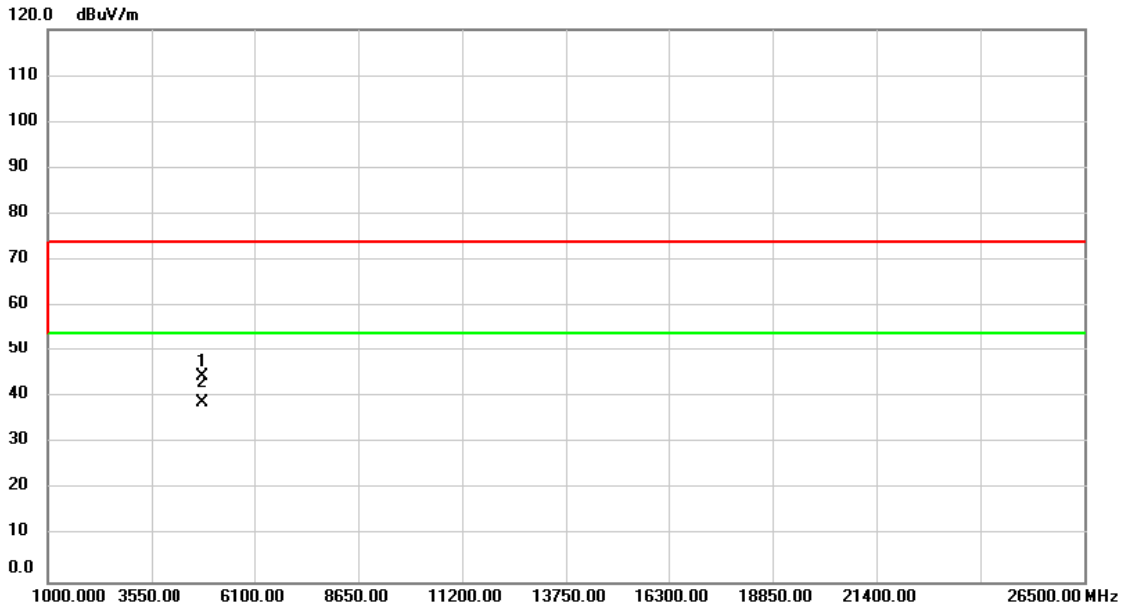


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4824.000	55.80	-11.45	44.35	74.00	-29.65	peak	
2 *	4824.000	50.14	-11.45	38.69	54.00	-15.31	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

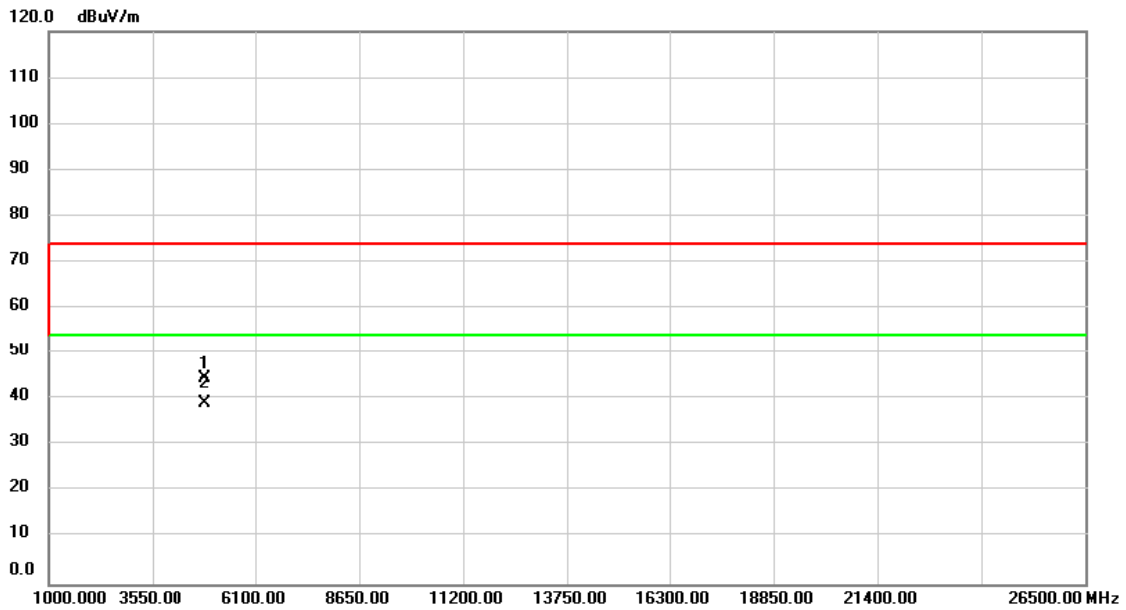


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4824.000	55.98	-11.45	44.53	74.00	-29.47	peak	
2 *	4824.000	50.44	-11.45	38.99	54.00	-15.01	AVG	

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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Vertical

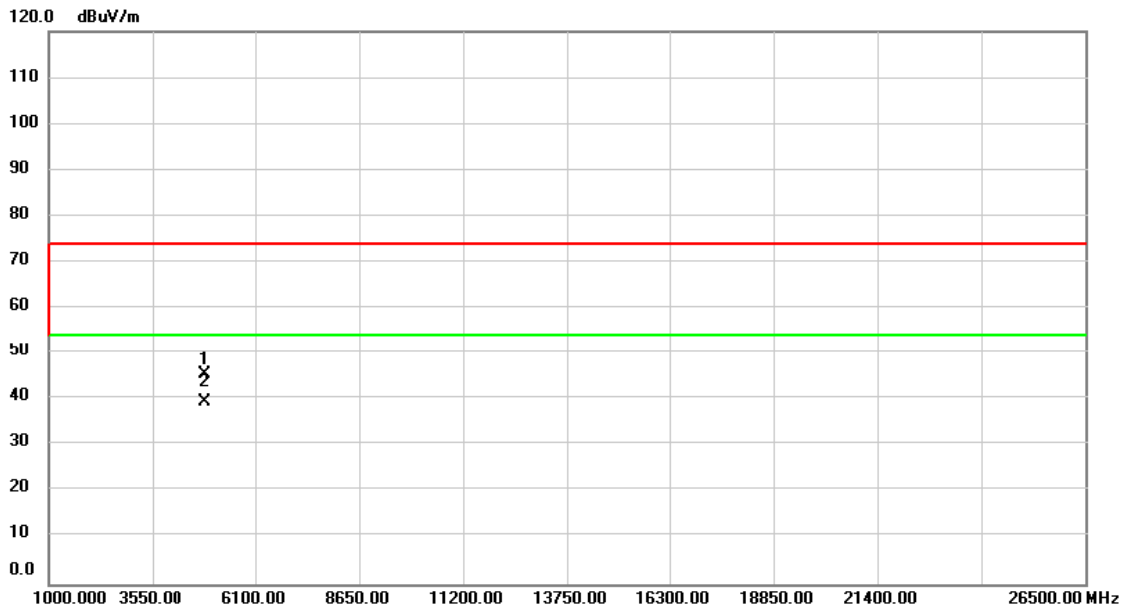


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4874.000	55.98	-11.37	44.61	74.00	-29.39	peak	
2 *	4874.000	50.66	-11.37	39.29	54.00	-14.71	AVG	

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	2019/5/8
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

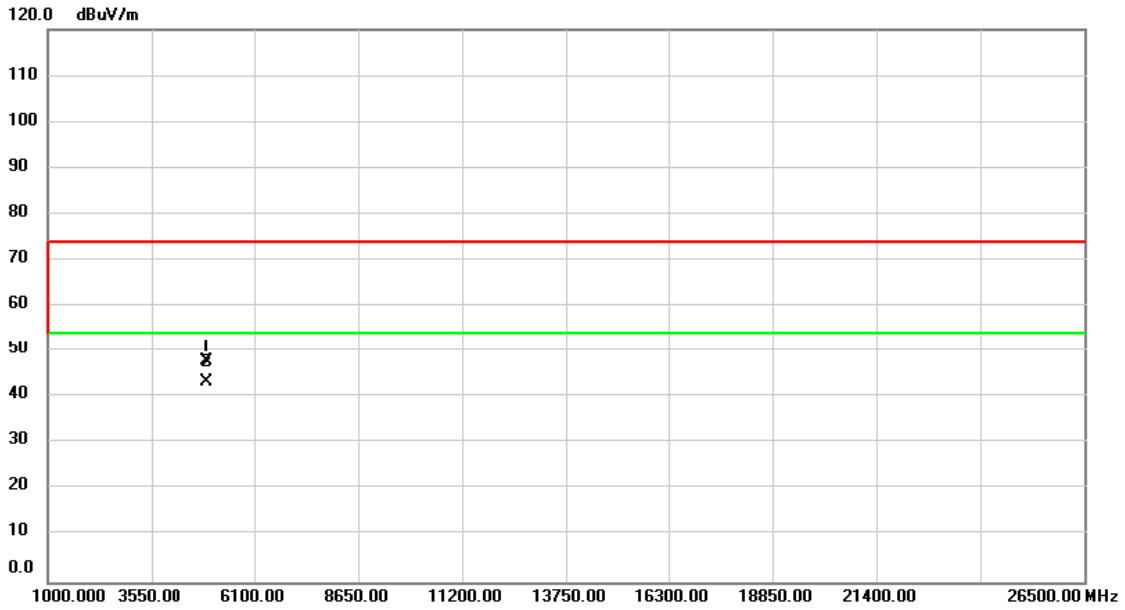


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4874.000	56.71	-11.37	45.34	74.00	-28.66	peak	
2 *	4874.000	50.95	-11.37	39.58	54.00	-14.42	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Vertical

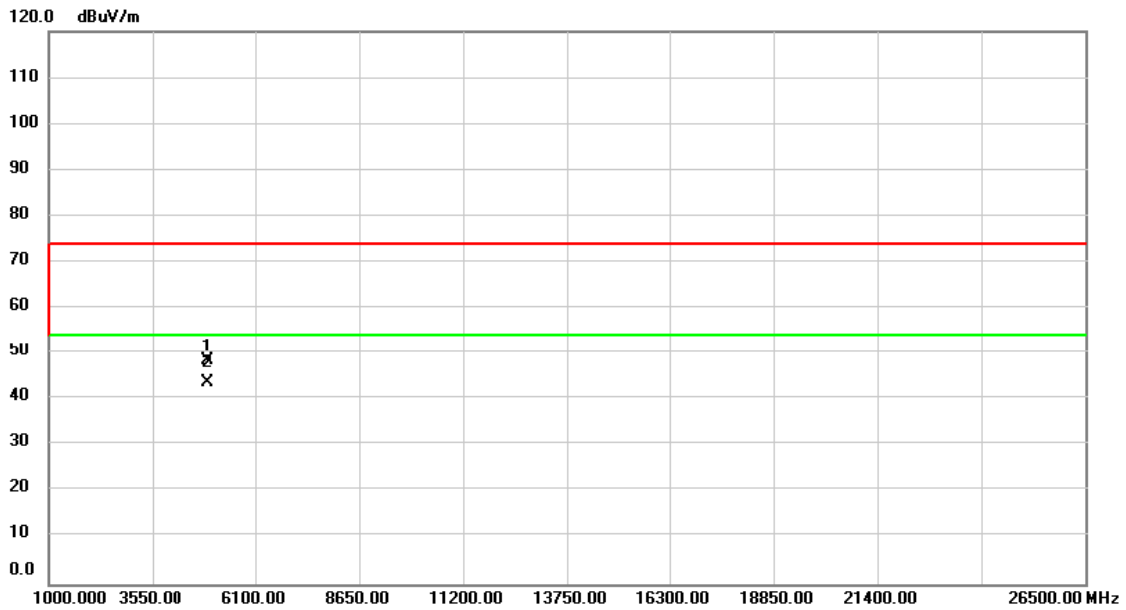


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4924.000	59.20	-11.30	47.90	74.00	-26.10	peak	
2 *	4924.000	54.60	-11.30	43.30	54.00	-10.70	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

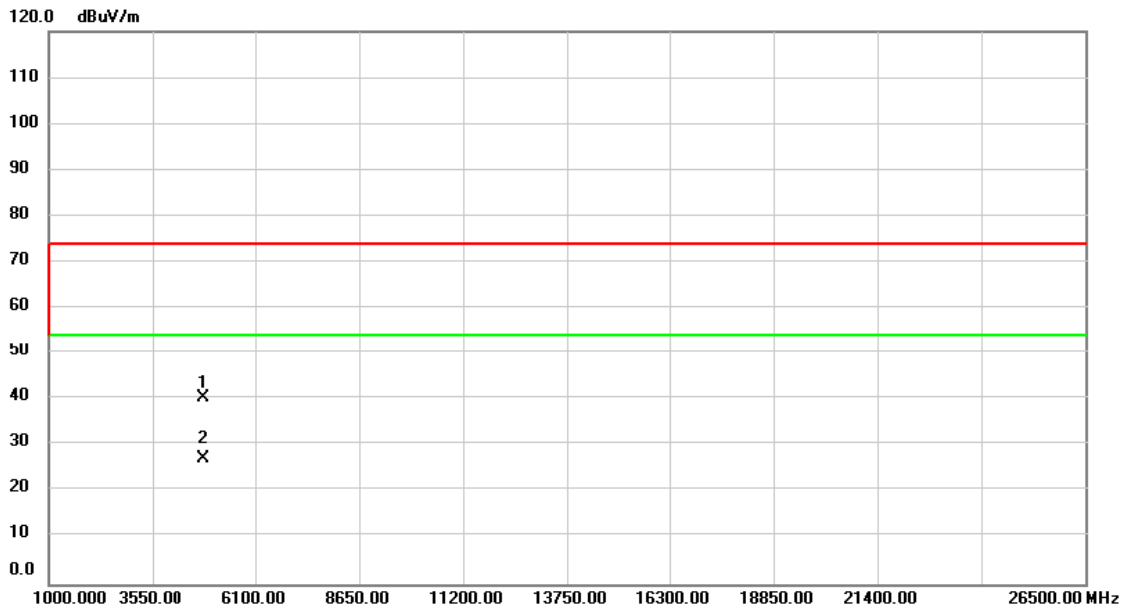


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4924.000	59.64	-11.30	48.34	74.00	-25.66	peak	
2 *	4924.000	54.87	-11.30	43.57	54.00	-10.43	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Vertical

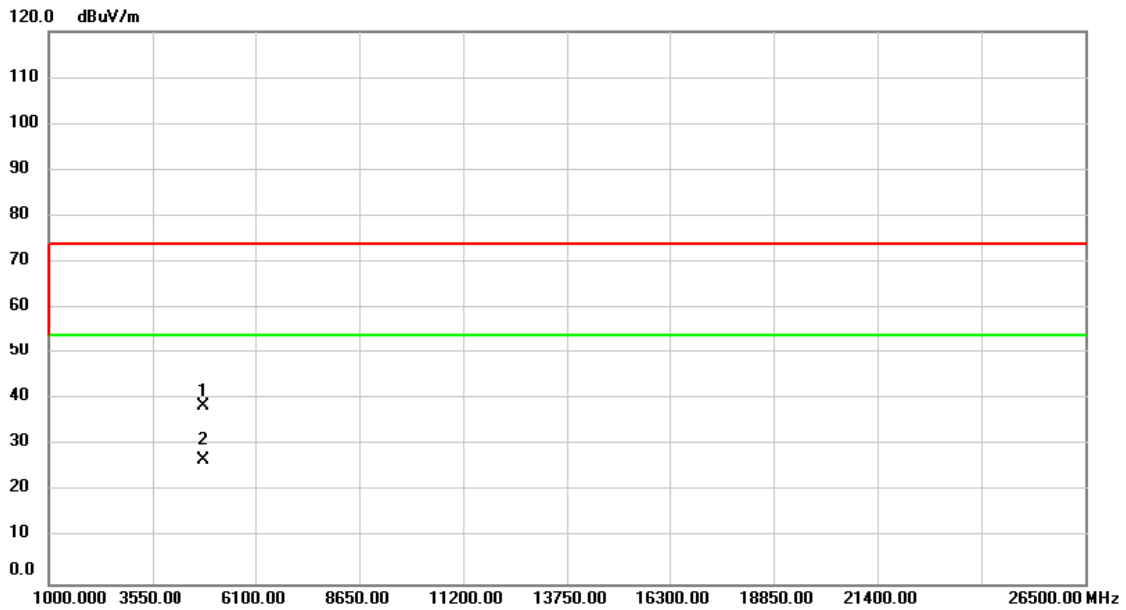


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4824.000	51.75	-11.45	40.30	74.00	-33.70	peak	
2 *	4824.000	38.73	-11.45	27.28	54.00	-26.72	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

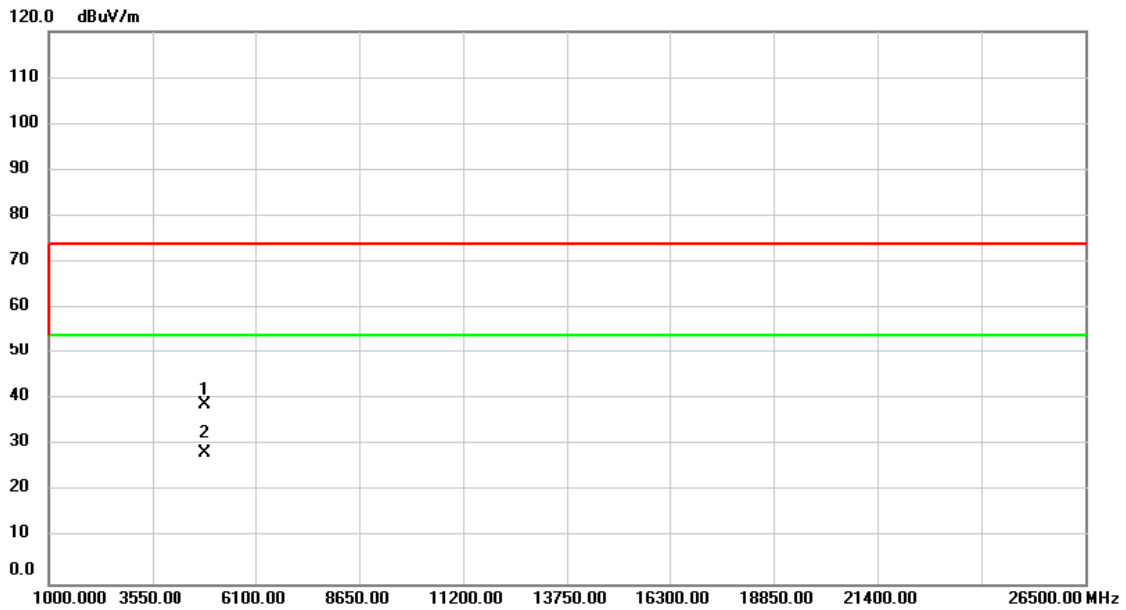


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4824.000	50.13	-11.45	38.68	74.00	-35.32	peak	
2 *	4824.000	38.37	-11.45	26.92	54.00	-27.08	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Vertical

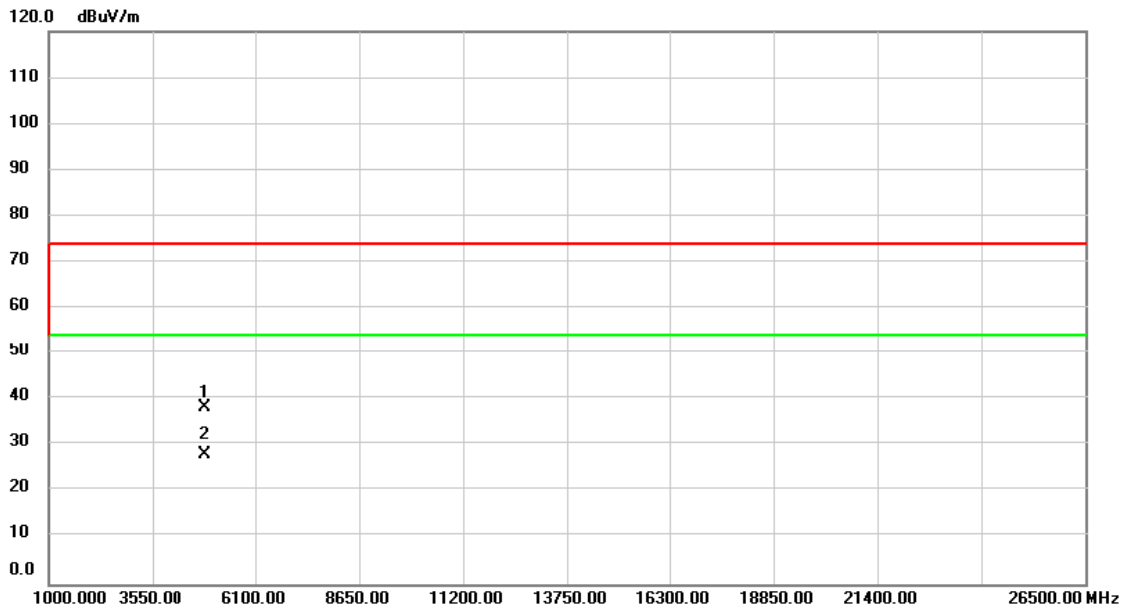


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4874.000	50.15	-11.37	38.78	74.00	-35.22	peak	
2 *	4874.000	39.65	-11.37	28.28	54.00	-25.72	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

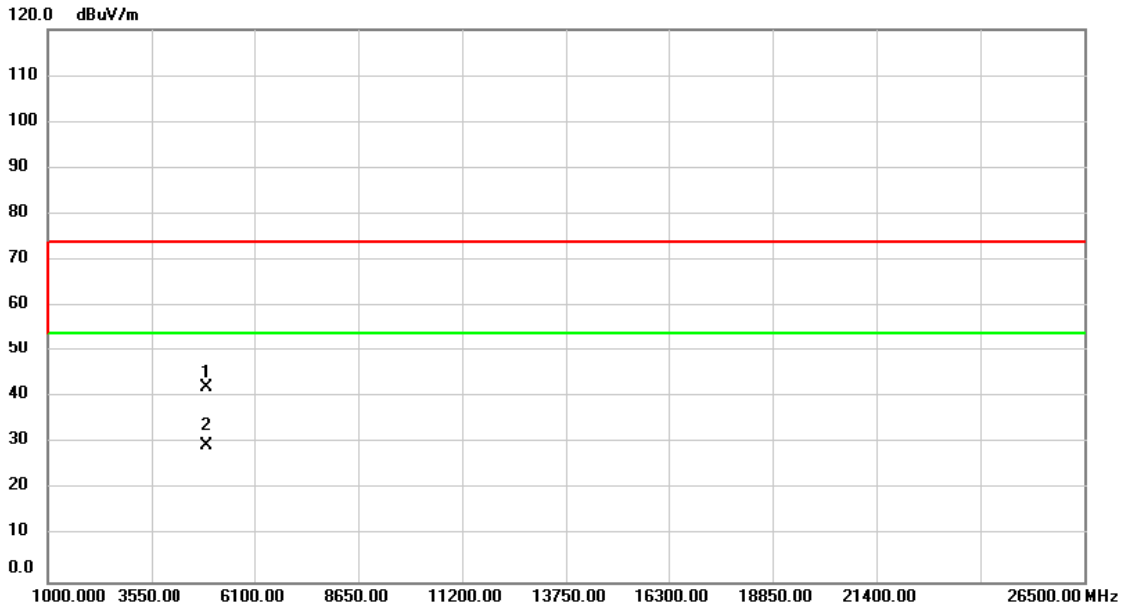


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4874.000	49.50	-11.37	38.13	74.00	-35.87	peak	
2 *	4874.000	39.34	-11.37	27.97	54.00	-26.03	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Vertical

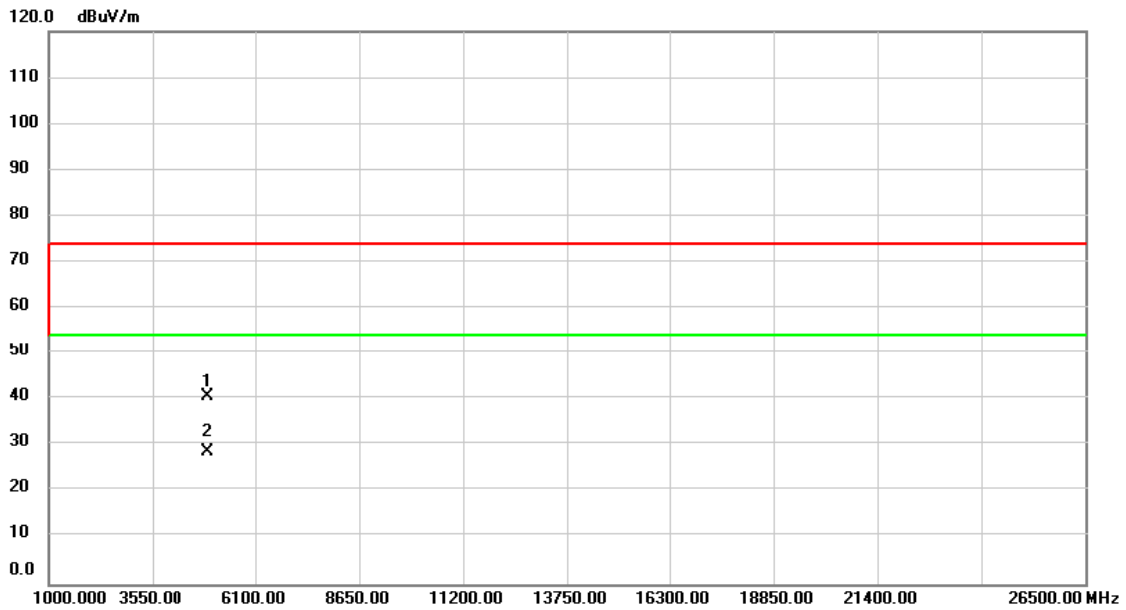


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4924.000	53.48	-11.30	42.18	74.00	-31.82	peak	
2 *	4924.000	40.76	-11.30	29.46	54.00	-24.54	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

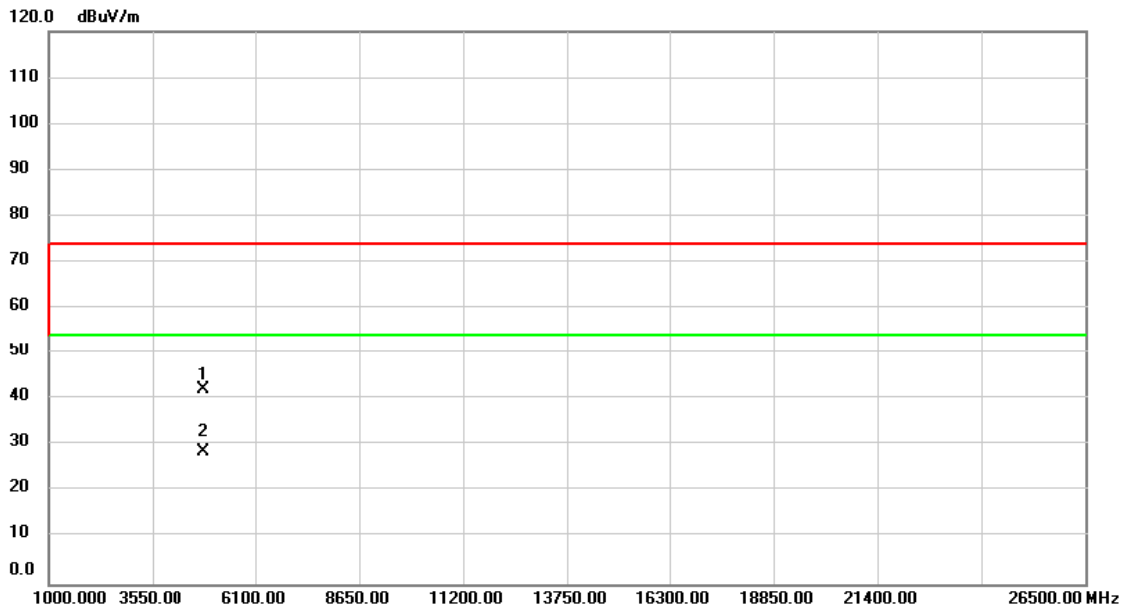


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4924.000	51.90	-11.30	40.60	74.00	-33.40	peak	
2 *	4924.000	39.93	-11.30	28.63	54.00	-25.37	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Vertical

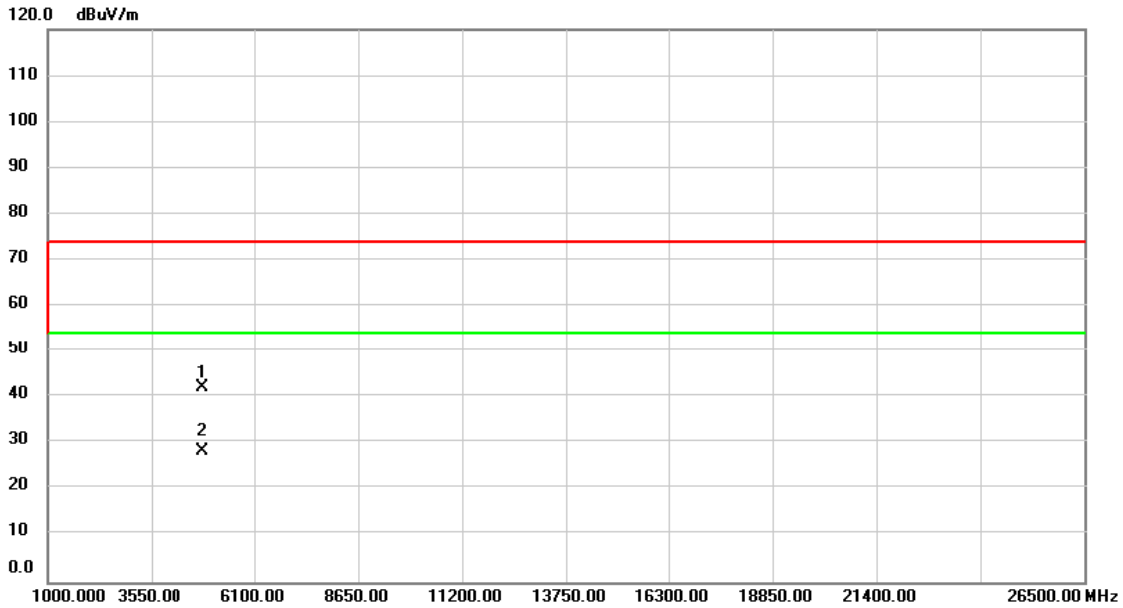


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4824.000	53.57	-11.45	42.12	74.00	-31.88	peak	
2 *	4824.000	40.18	-11.45	28.73	54.00	-25.27	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

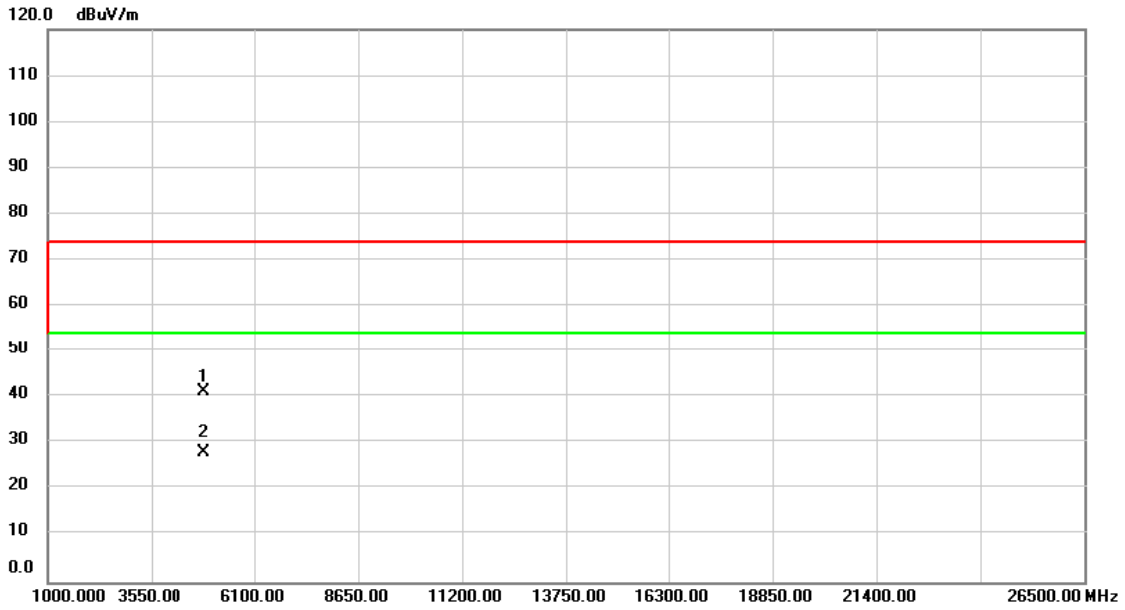


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4824.000	53.46	-11.45	42.01	74.00	-31.99	peak	
2 *	4824.000	39.79	-11.45	28.34	54.00	-25.66	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Vertical

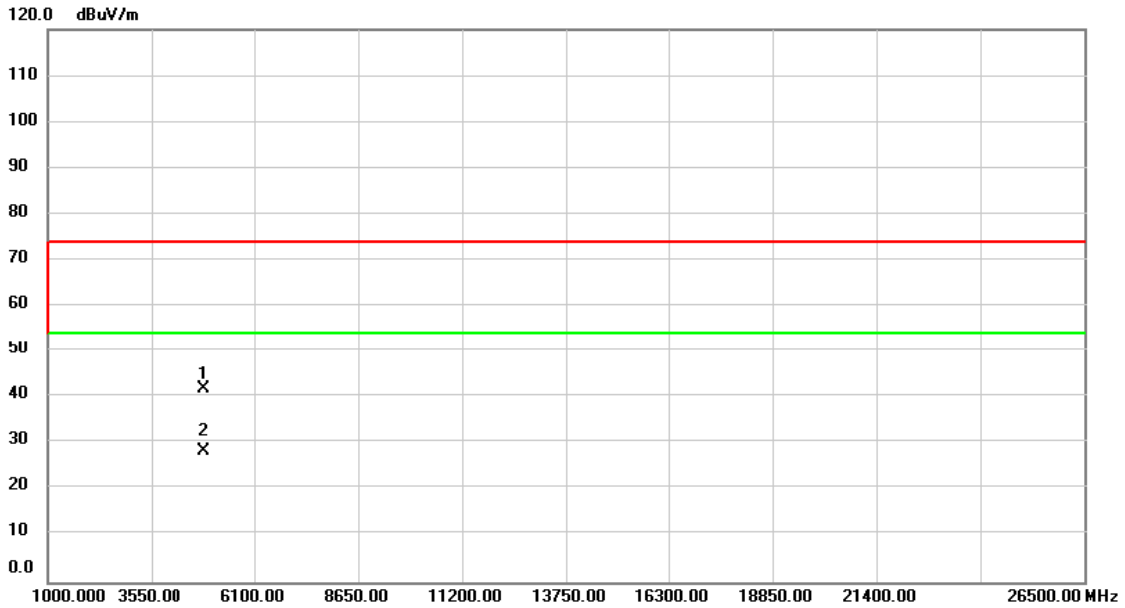


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4874.000	52.59	-11.37	41.22	74.00	-32.78	peak	
2 *	4874.000	39.55	-11.37	28.18	54.00	-25.82	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Horizontal

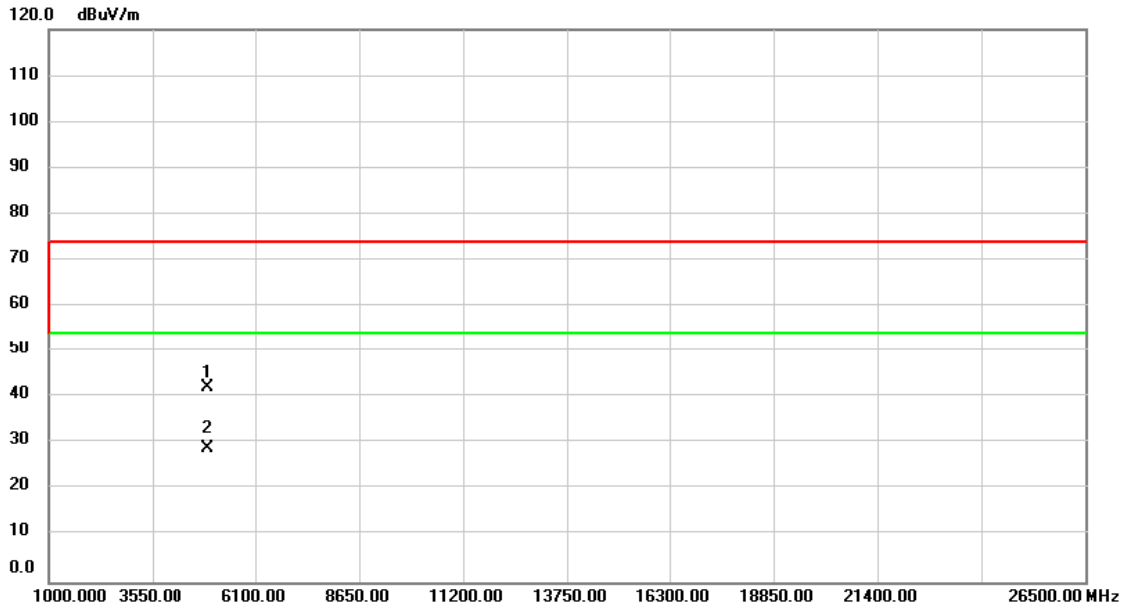


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4874.000	53.11	-11.37	41.74	74.00	-32.26	peak	
2 *	4874.000	39.78	-11.37	28.41	54.00	-25.59	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Vertical

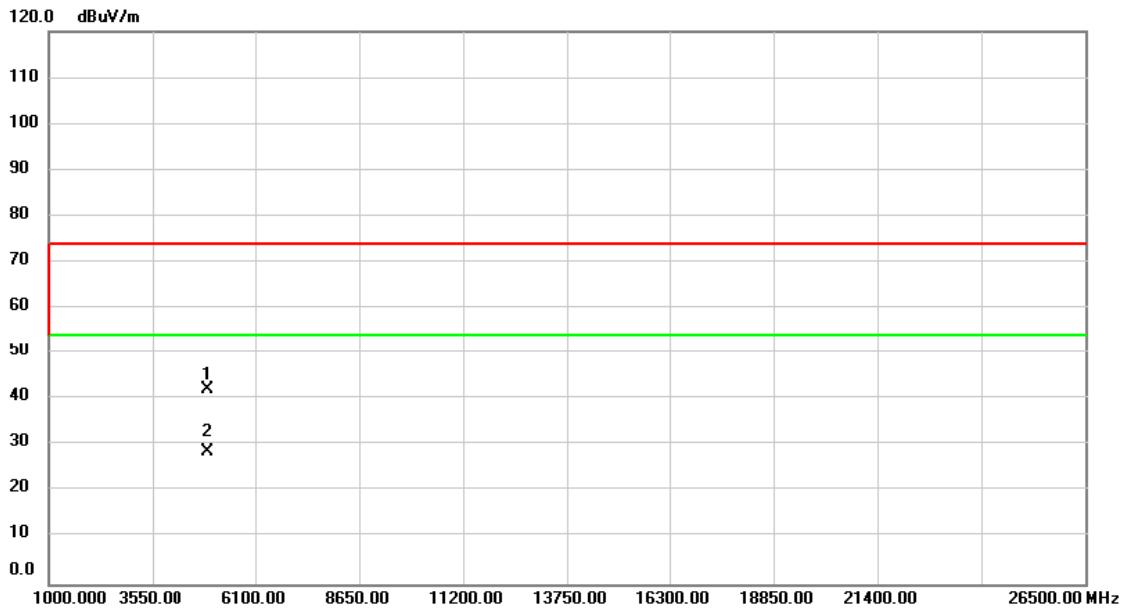


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4924.000	53.38	-11.30	42.08	74.00	-31.92	peak	
2 *	4924.000	40.34	-11.30	29.04	54.00	-24.96	AVG	

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	2019/5/9
Test Voltage	AC 120V/60Hz	Polarization	Horizontal



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	4924.000	53.35	-11.30	42.05	74.00	-31.95	peak	
2 *	4924.000	39.95	-11.30	28.65	54.00	-25.35	AVG	

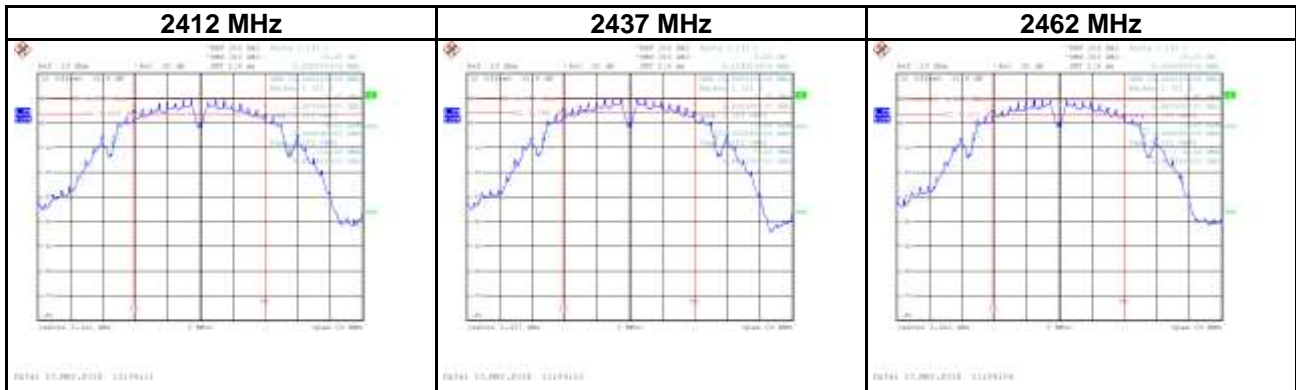
REMARKS:

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

APPENDIX D BANDWIDTH

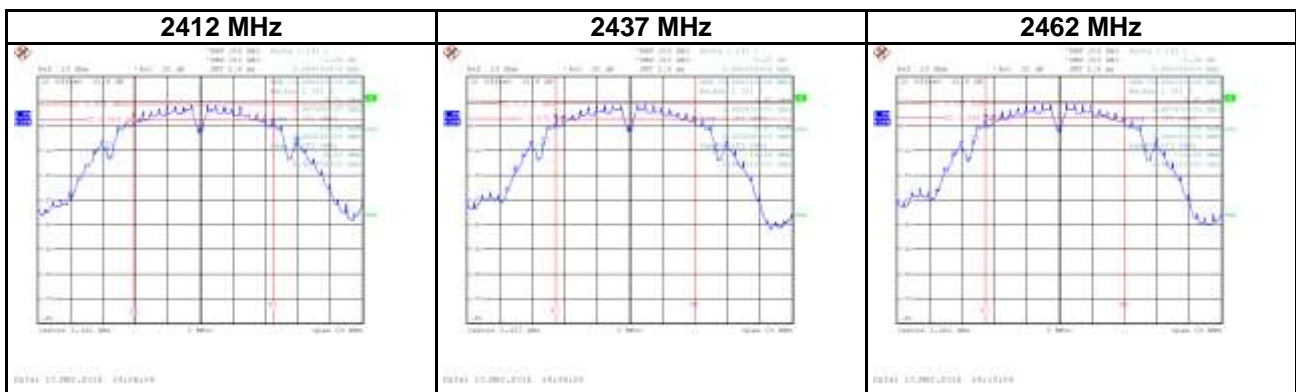
Test Mode	IEEE 802.11b_ANT 1
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	8.10	10.84	500	Complies
2437	8.12	10.56	500	Complies
2462	8.10	10.48	500	Complies



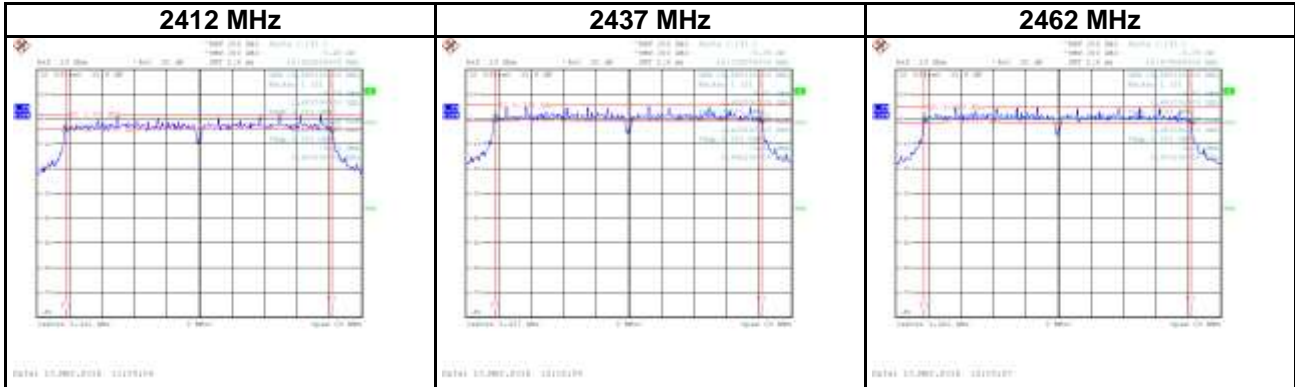
Test Mode	IEEE 802.11b_ANT 2
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	8.60	11.60	500	Complies
2437	8.59	10.68	500	Complies
2462	8.58	10.64	500	Complies



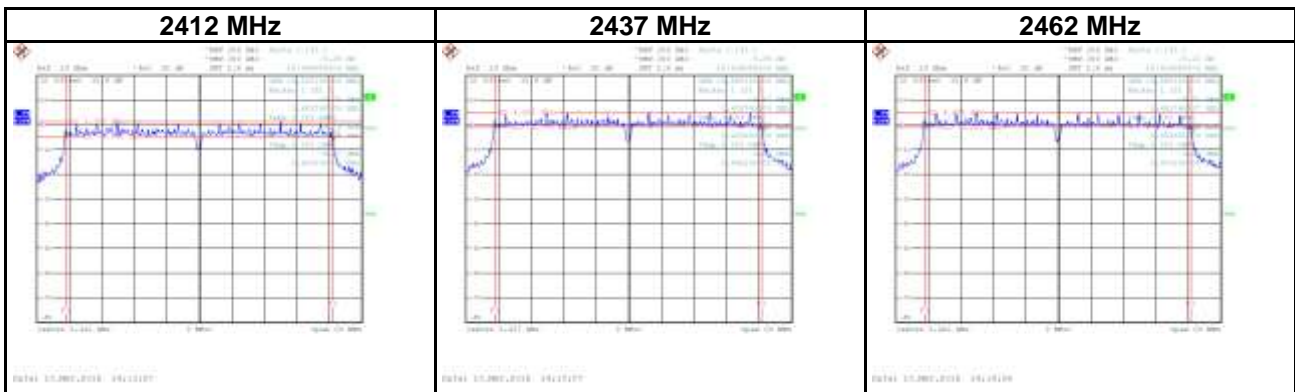
Test Mode	IEEE 802.11g_ANT 1
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	16.42	16.56	500	Complies
2437	16.38	16.56	500	Complies
2462	16.48	16.56	500	Complies



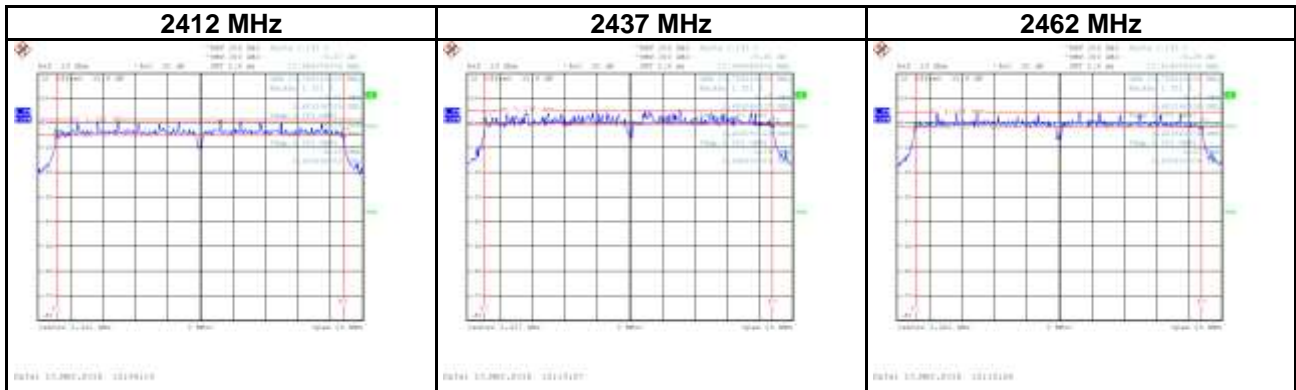
Test Mode	IEEE 802.11g_ANT 2
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	16.45	16.52	500	Complies
2437	16.44	16.56	500	Complies
2462	16.42	16.56	500	Complies



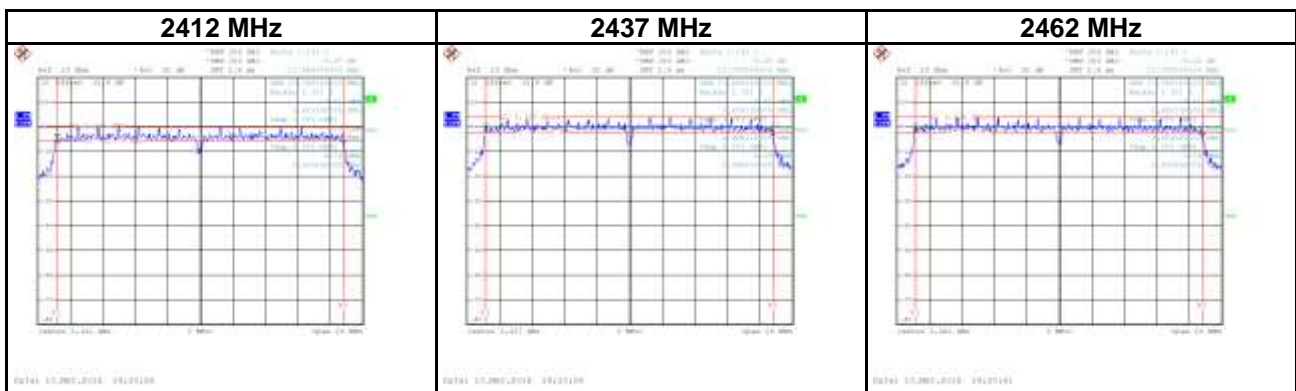
Test Mode	IEEE 802.11n (HT20)_ANT 1
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	17.66	17.76	500	Complies
2437	17.70	17.72	500	Complies
2462	17.62	17.72	500	Complies



Test Mode	IEEE 802.11n (HT20)_ANT 2
Test Voltage	AC 120V/60Hz

Frequency (MHz)	6dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Limit (kHz)	Result
2412	17.66	17.76	500	Complies
2437	17.70	17.68	500	Complies
2462	17.70	17.76	500	Complies



APPENDIX E OUTPUT POWER

Test Mode	IEEE 802.11b_ANT 1	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	21.50	0.1413	30.00	1.0000	Complies
2437	22.84	0.1923	30.00	1.0000	Complies
2462	21.73	0.1489	30.00	1.0000	Complies

Test Mode	IEEE 802.11b_ANT 2	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	20.86	0.1219	30.00	1.0000	Complies
2437	21.22	0.1324	30.00	1.0000	Complies
2462	21.17	0.1309	30.00	1.0000	Complies

Test Mode	IEEE 802.11b_Total	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	24.20	0.2632	30.00	1.0000	Complies
2437	25.12	0.3247	30.00	1.0000	Complies
2462	24.47	0.2799	30.00	1.0000	Complies

Test Mode	IEEE 802.11g_ANT 1	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	20.43	0.1104	30.00	1.0000	Complies
2437	24.47	0.2799	30.00	1.0000	Complies
2462	24.12	0.2582	30.00	1.0000	Complies

Test Mode	IEEE 802.11g_ANT 2	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	19.88	0.0973	30.00	1.0000	Complies
2437	24.63	0.2904	30.00	1.0000	Complies
2462	24.62	0.2897	30.00	1.0000	Complies

Test Mode	IEEE 802.11g_Total	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	23.17	0.2077	30.00	1.0000	Complies
2437	27.56	0.5703	30.00	1.0000	Complies
2462	27.39	0.5480	30.00	1.0000	Complies

Test Mode	IEEE 802.11n (HT20) _ANT 1	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	19.67	0.0927	30.00	1.0000	Complies
2437	23.13	0.2056	30.00	1.0000	Complies
2462	22.61	0.1824	30.00	1.0000	Complies

Test Mode	IEEE 802.11n (HT20) _ANT 2	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	18.72	0.0745	30.00	1.0000	Complies
2437	23.32	0.2148	30.00	1.0000	Complies
2462	22.46	0.1762	30.00	1.0000	Complies

Test Mode	IEEE 802.11n (HT20)_Total	Tested Date	2018/5/10
Test Voltage	AC 120V/60Hz		

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	22.23	0.1672	30.00	1.0000	Complies
2437	26.24	0.4204	30.00	1.0000	Complies
2462	25.55	0.3586	30.00	1.0000	Complies

APPENDIX F POWER SPECTRAL DENSITY

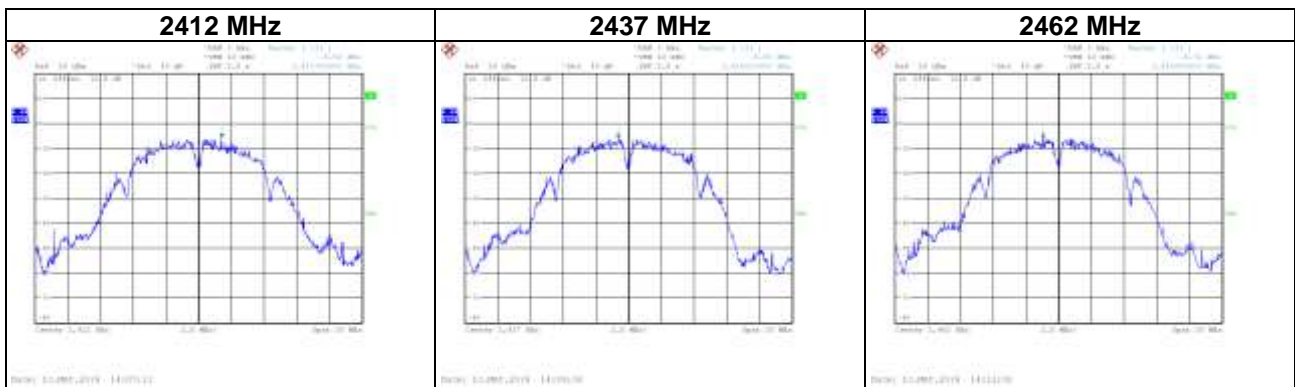
Test Mode	IEEE 802.11b_ANT 1
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-4.63	6.58	Complies
2437	-4.17	6.58	Complies
2462	-5.08	6.58	Complies



Test Mode	IEEE 802.11b_ANT 2
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-5.56	6.58	Complies
2437	-5.88	6.58	Complies
2462	-5.74	6.58	Complies

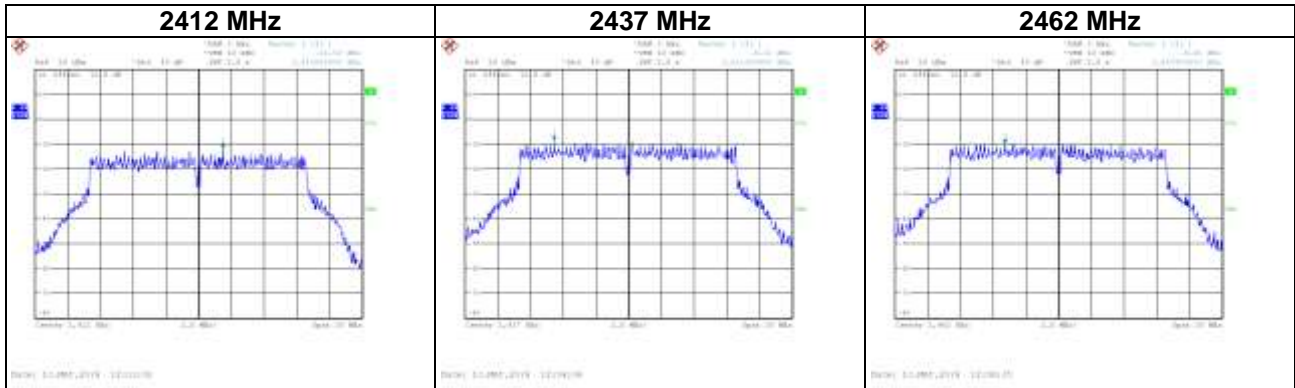


Test Mode	IEEE 802.11b_Total
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-2.06	6.58	Complies
2437	-1.93	6.58	Complies
2462	-2.39	6.58	Complies

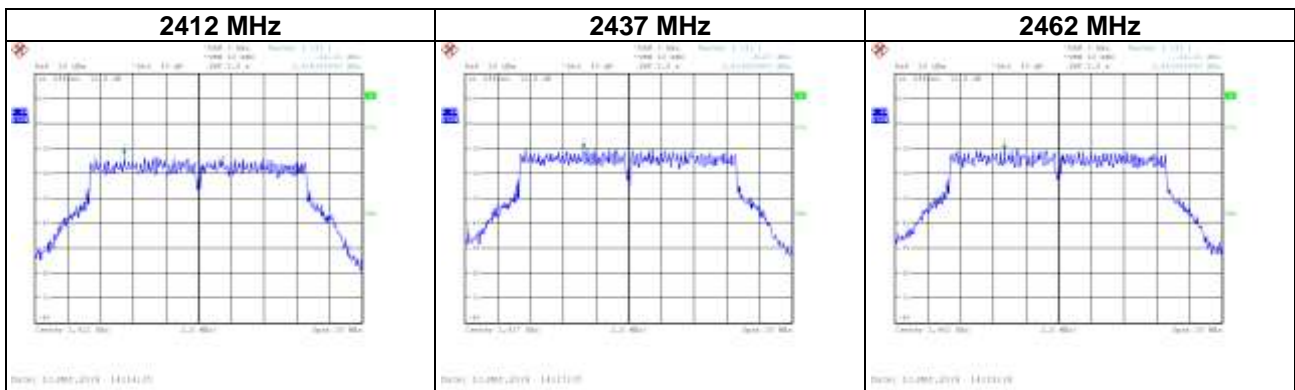
Test Mode	IEEE 802.11g_ANT 1
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-11.59	6.58	Complies
2437	-8.10	6.58	Complies
2462	-9.46	6.58	Complies



Test Mode	IEEE 802.11g_ANT 2
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-12.13	6.58	Complies
2437	-9.67	6.58	Complies
2462	-10.13	6.58	Complies

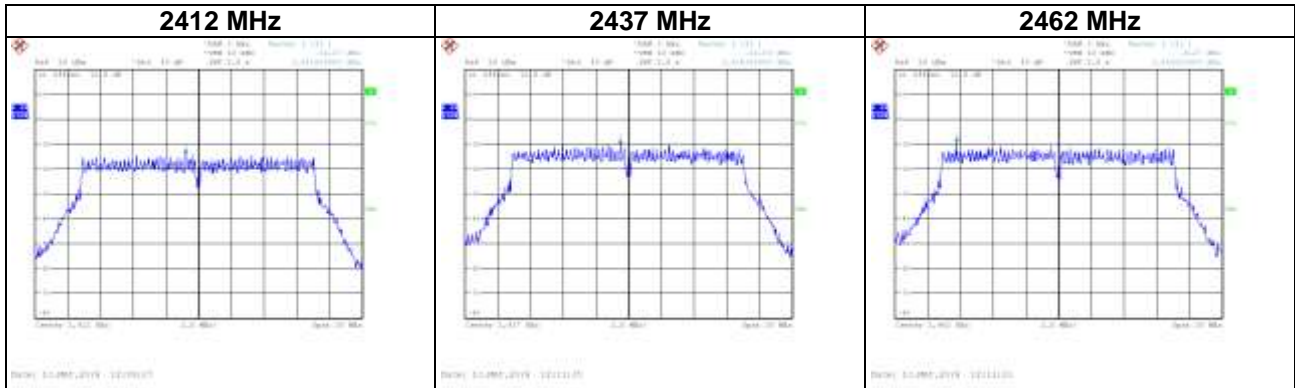


Test Mode	IEEE 802.11g_Total
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-8.84	6.58	Complies
2437	-5.80	6.58	Complies
2462	-6.77	6.58	Complies

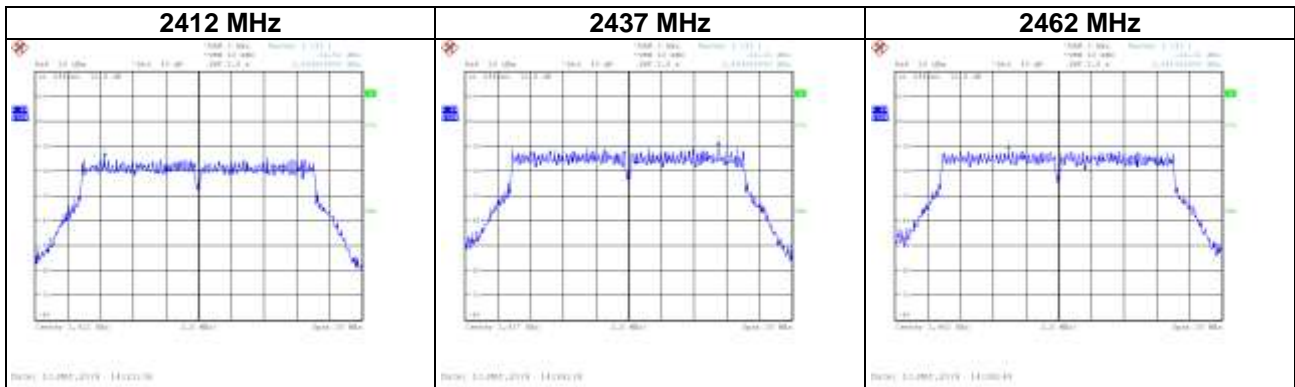
Test Mode	IEEE 802.11n (HT20)_ANT 1
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-14.07	6.58	Complies
2437	-10.09	6.58	Complies
2462	-9.27	6.58	Complies



Test Mode	IEEE 802.11n (HT20)_ANT 2
Test Voltage	AC 120V/60Hz

Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-14.51	6.58	Complies
2437	-10.13	6.58	Complies
2462	-11.32	6.58	Complies

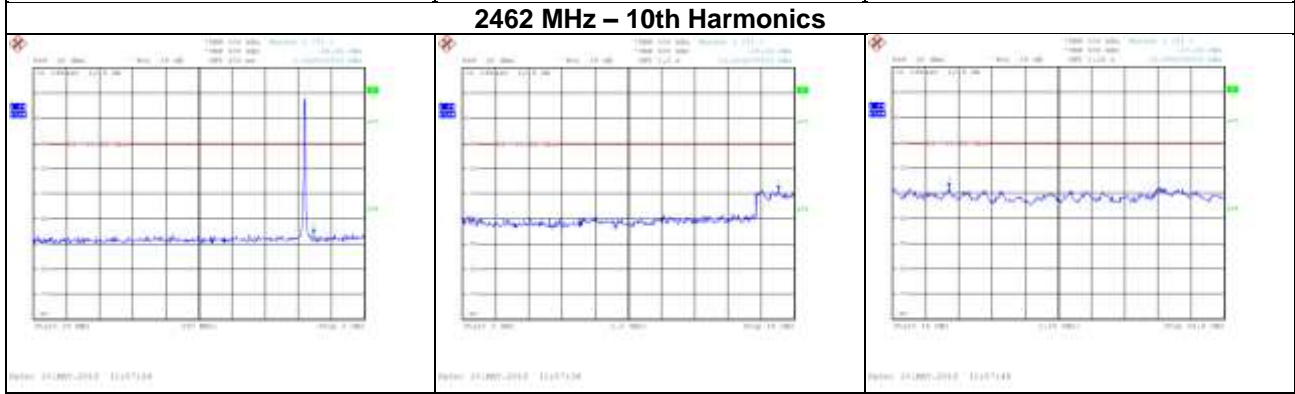
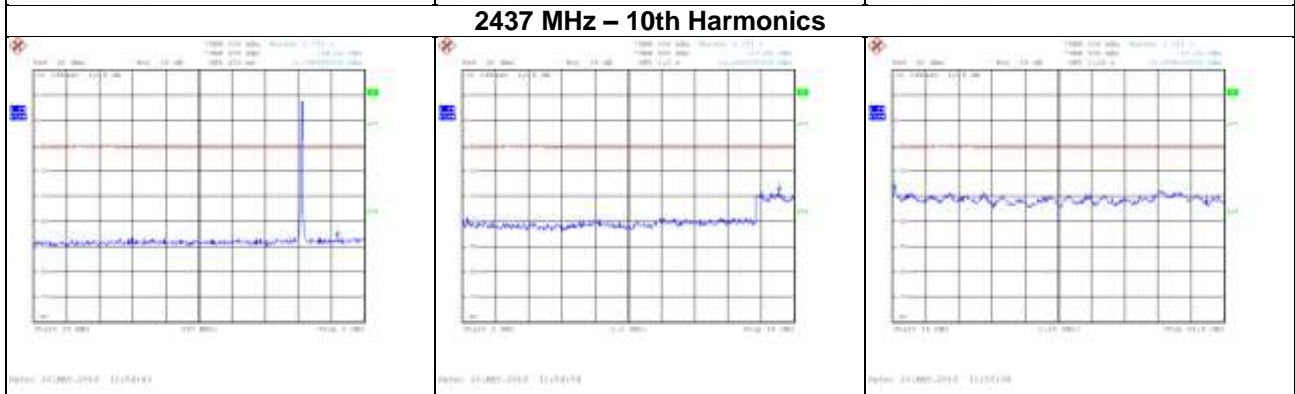
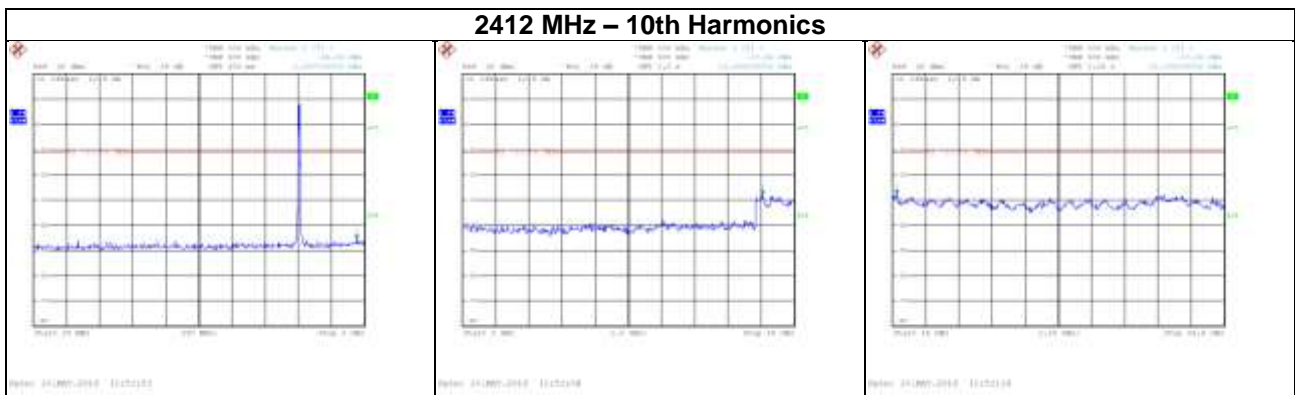
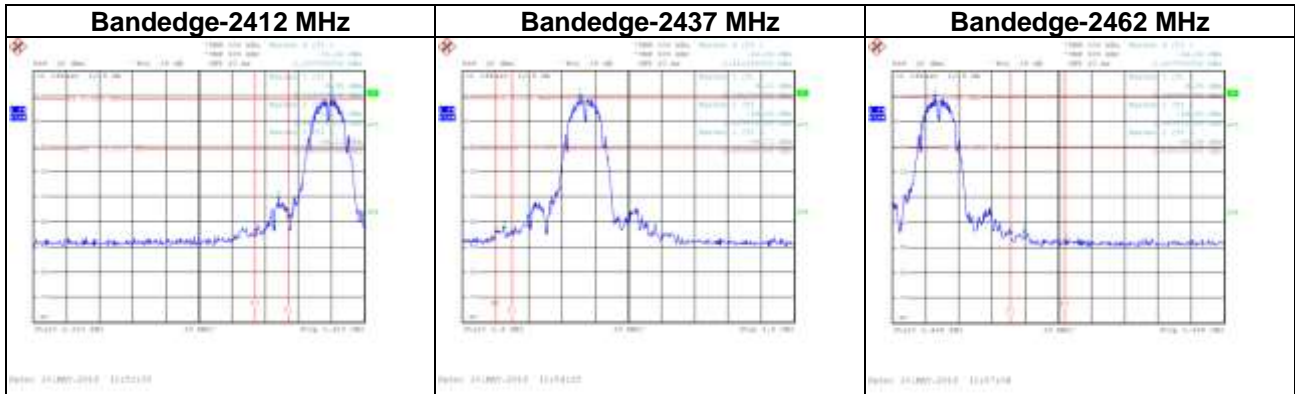


Test Mode	IEEE 802.11n (HT20)_Total
Test Voltage	AC 120V/60Hz

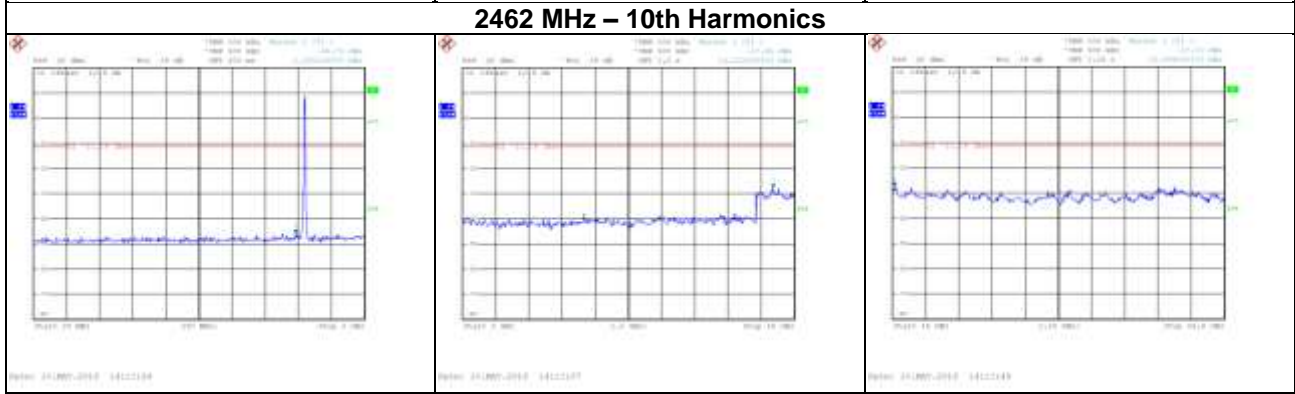
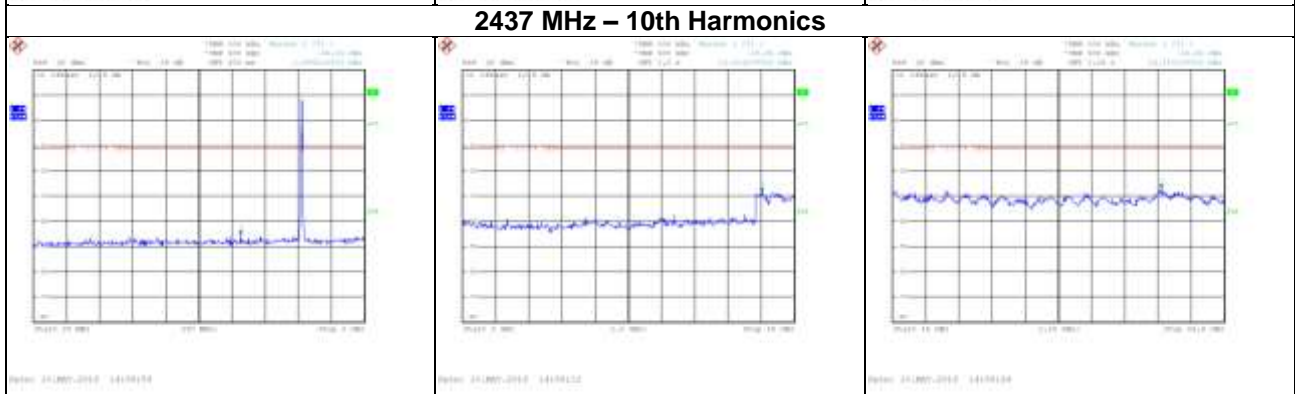
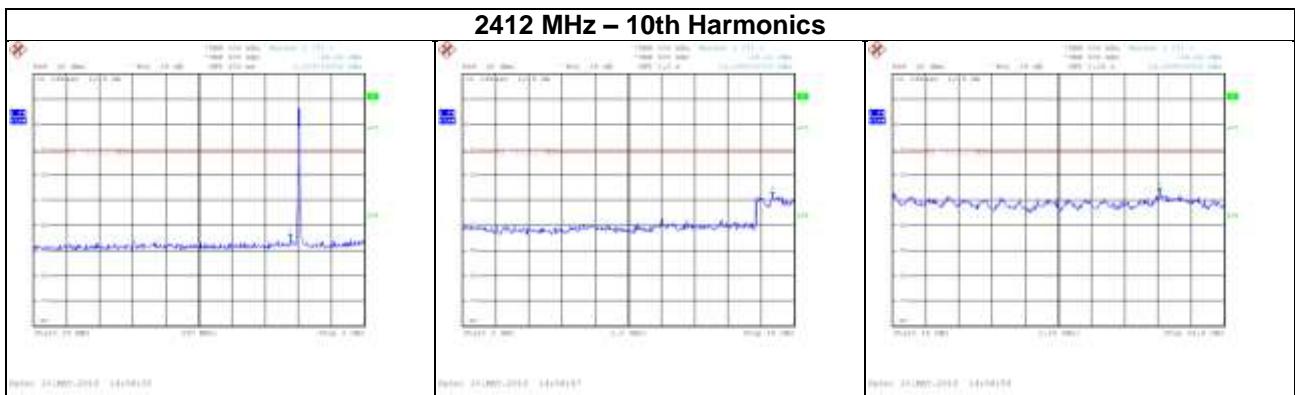
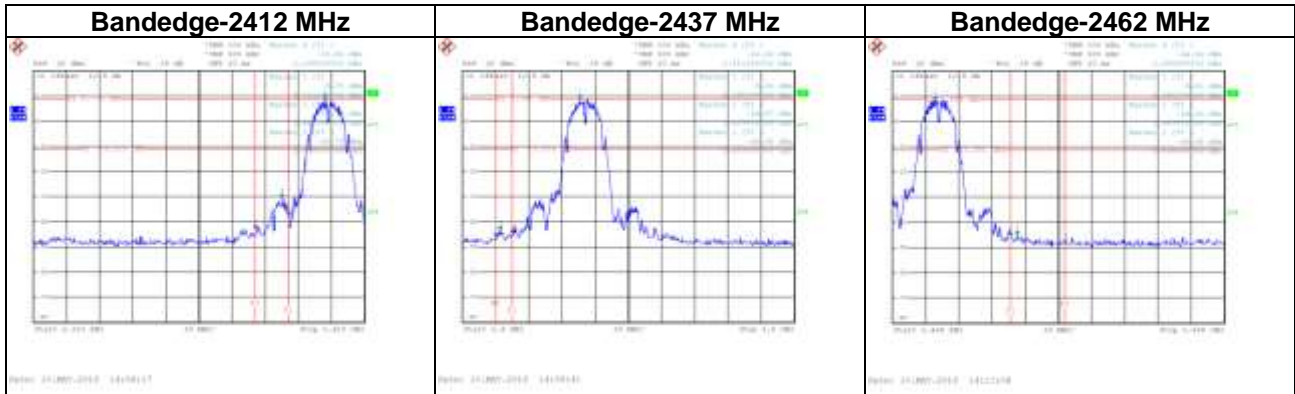
Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm)	Result
2412	-11.27	6.58	Complies
2437	-7.10	6.58	Complies
2462	-7.16	6.58	Complies

APPENDIX G ANTENNA CONDUCTED SPURIOUS EMISSIONS

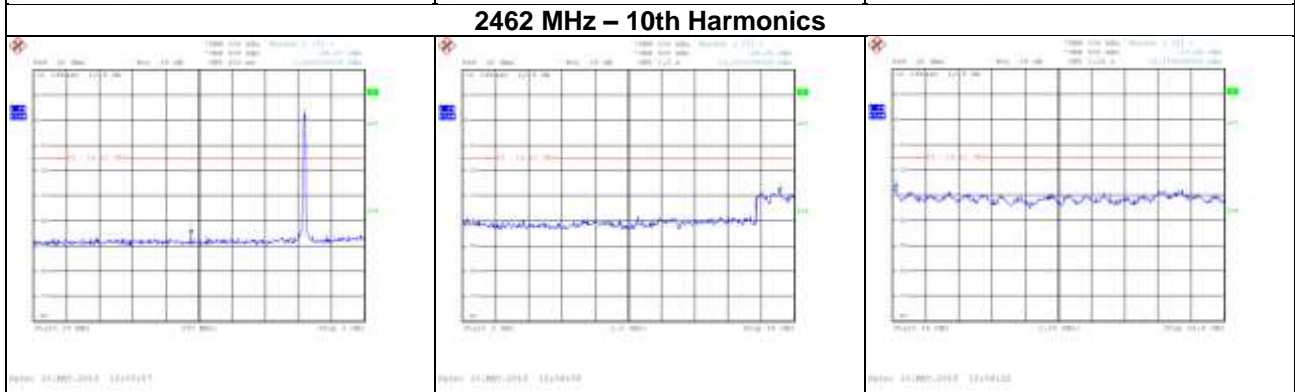
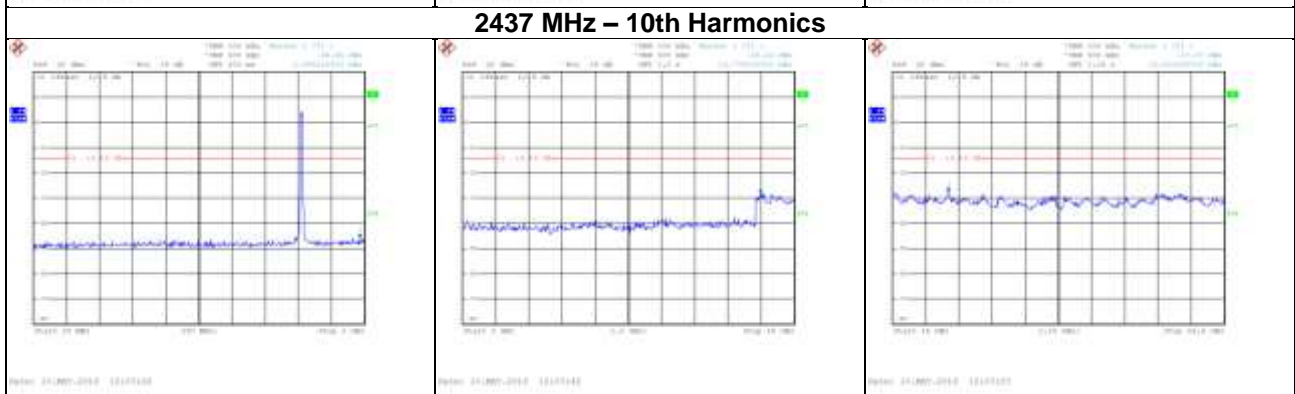
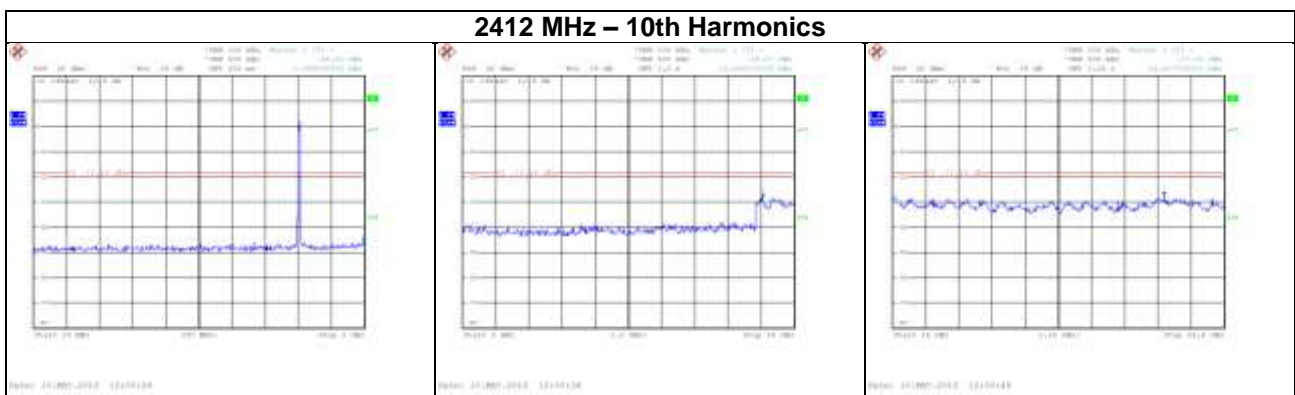
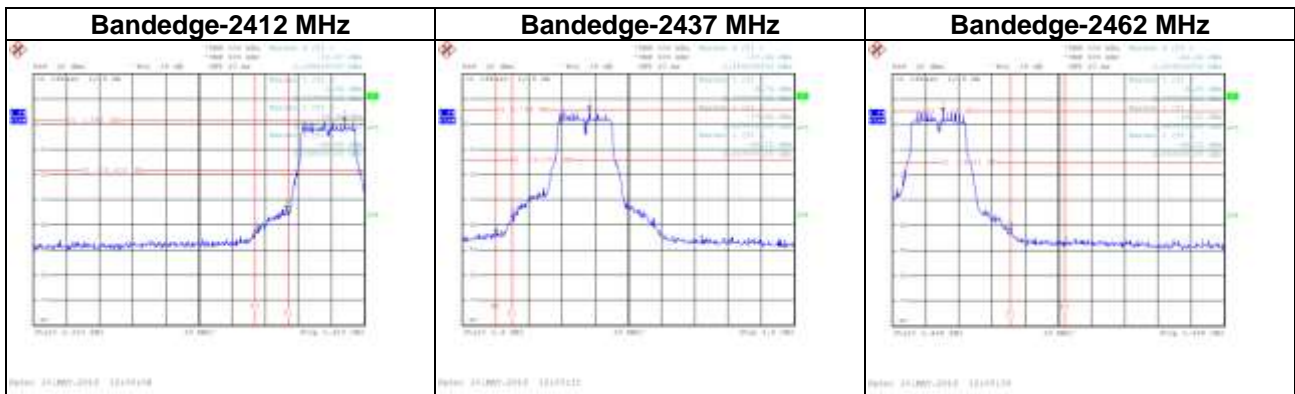
Test Mode	IEEE 802.11b_ANT 1
Test Voltage	AC 120V/60Hz



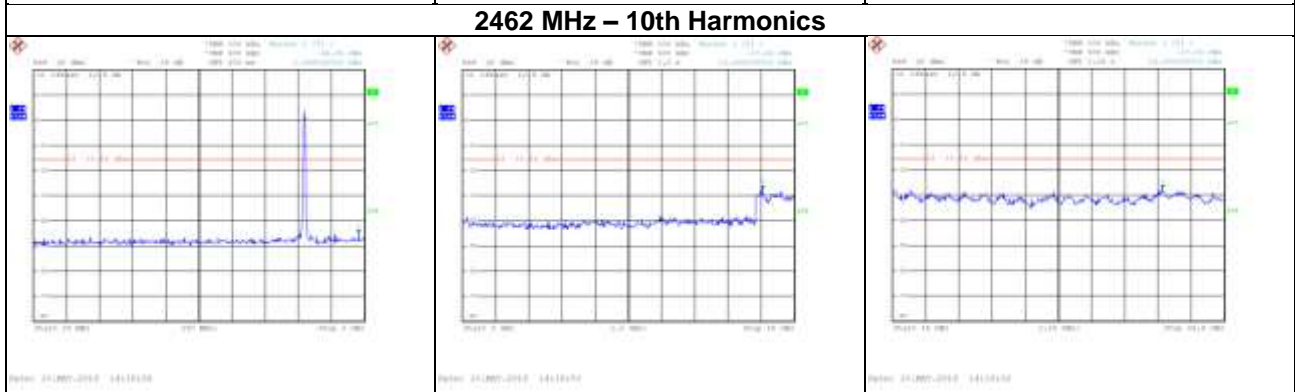
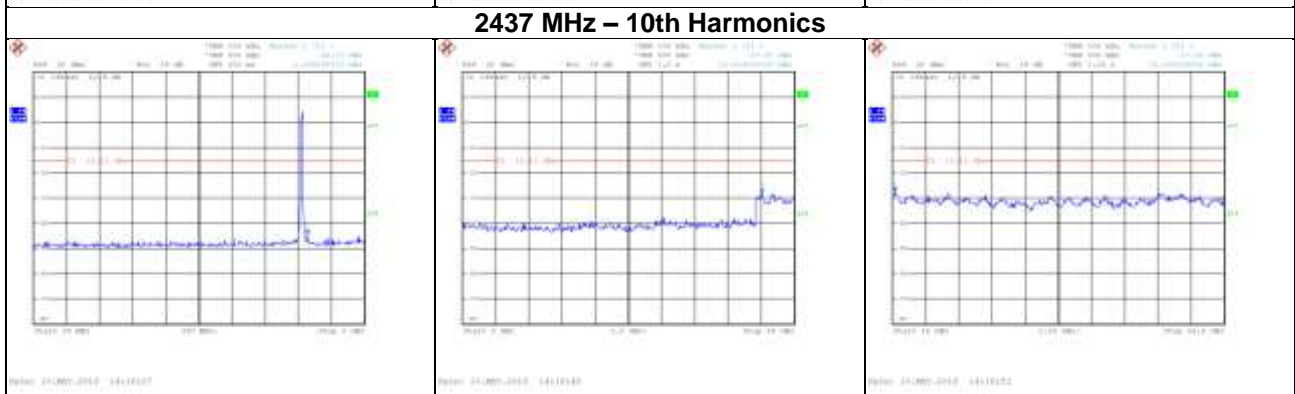
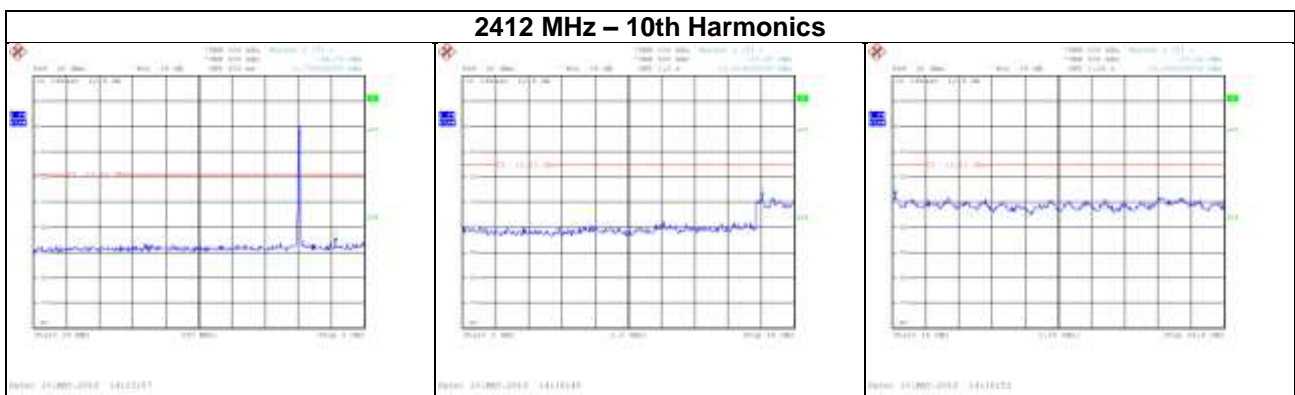
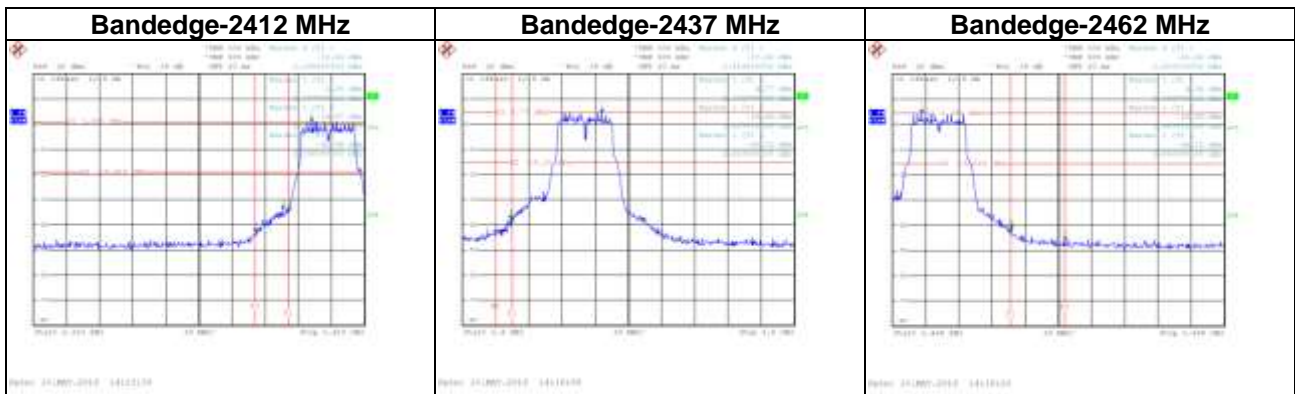
Test Mode	IEEE 802.11b_ANT 2
Test Voltage	AC 120V/60Hz



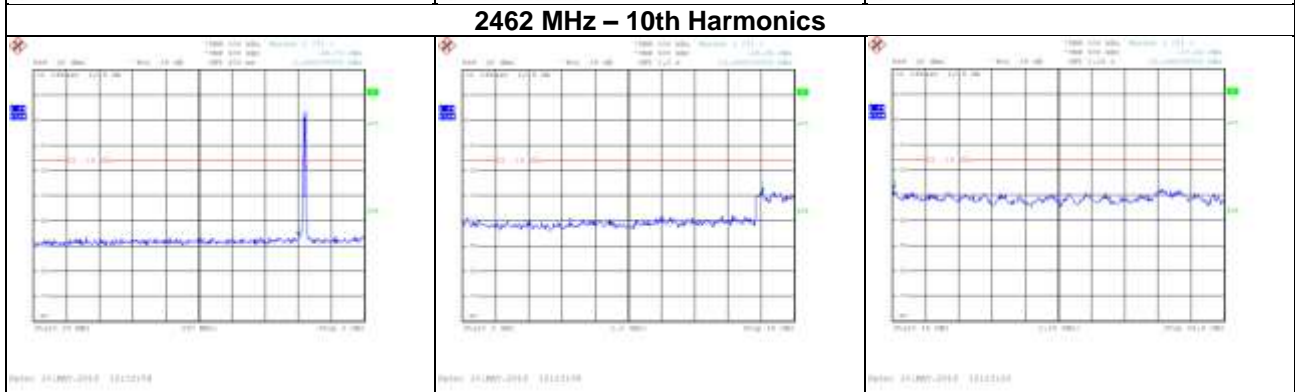
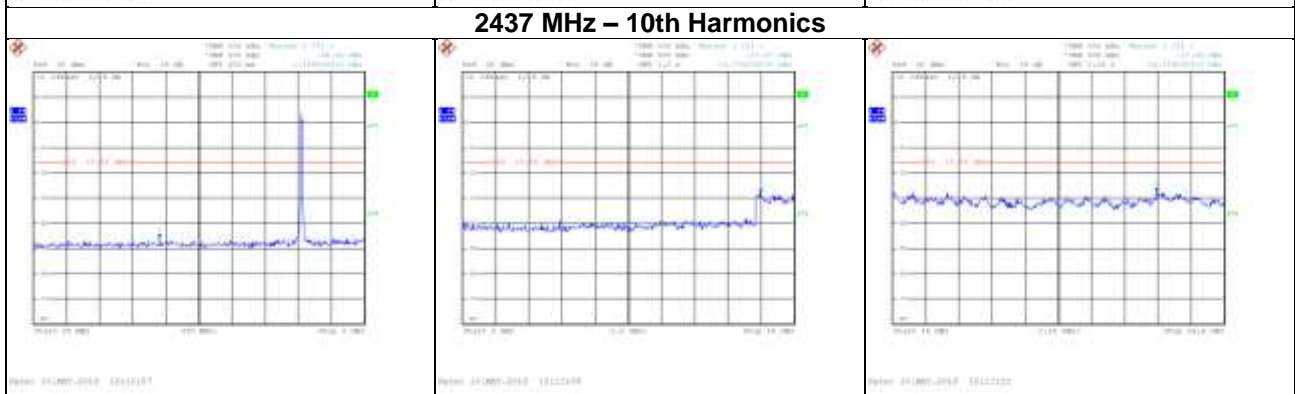
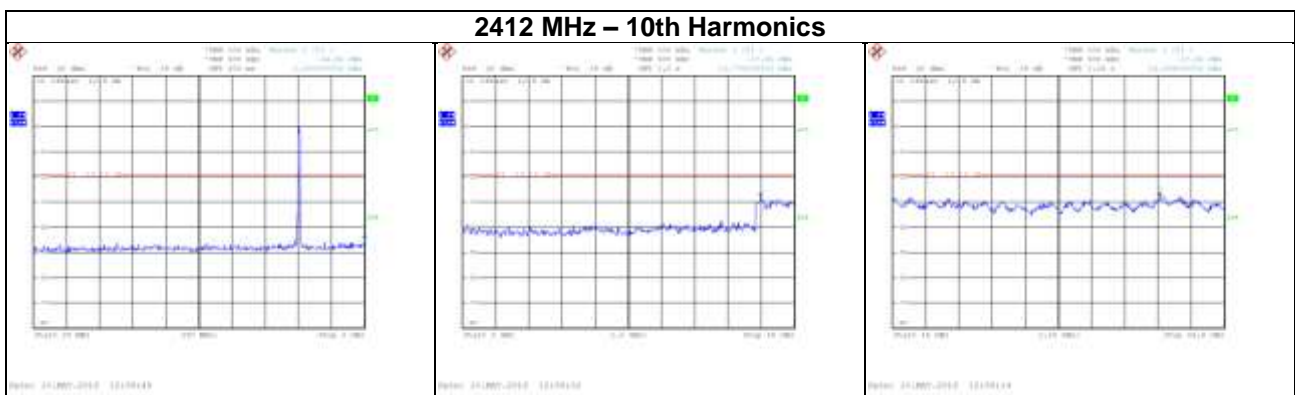
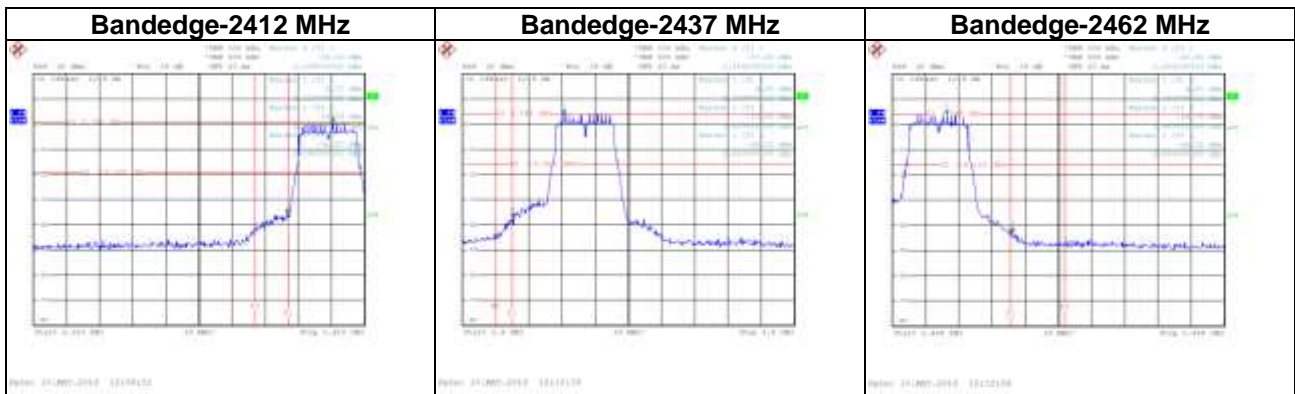
Test Mode	IEEE 802.11g_ANT 1
Test Voltage	AC 120V/60Hz



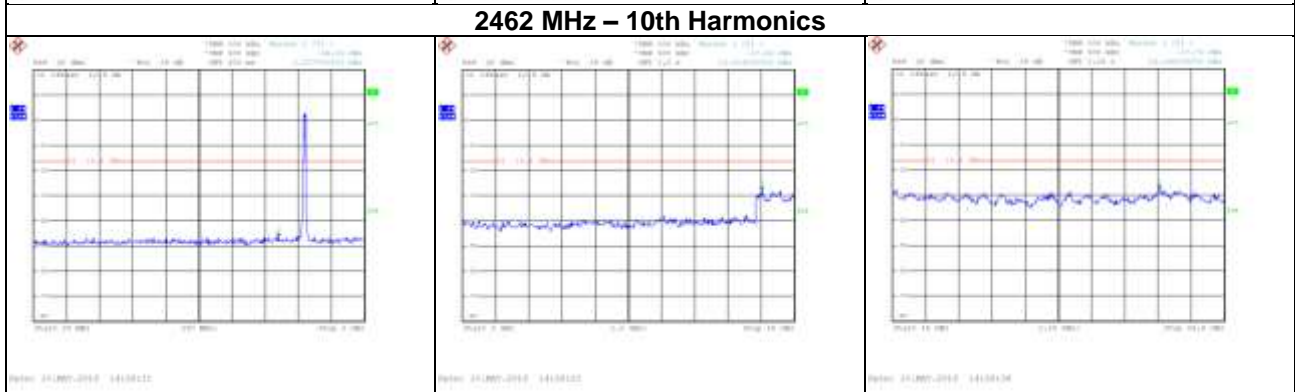
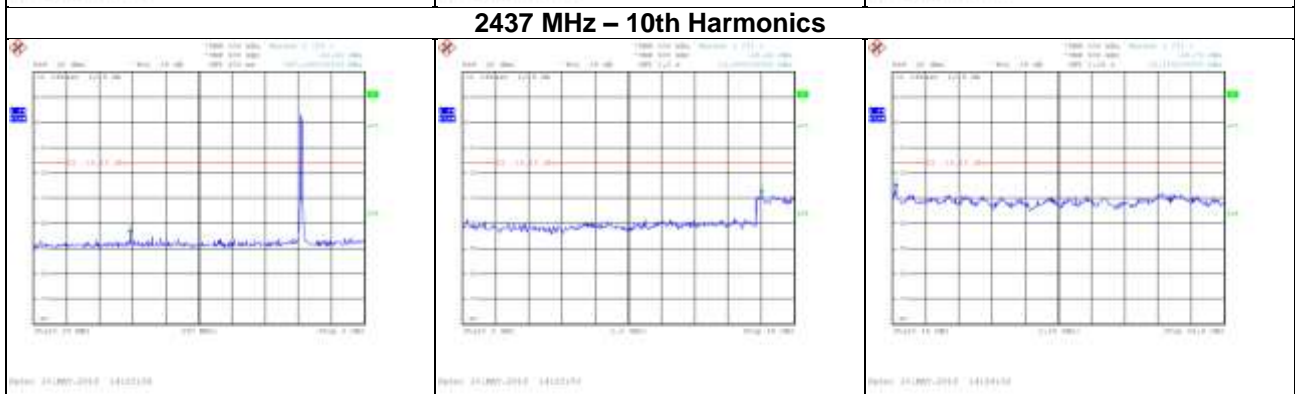
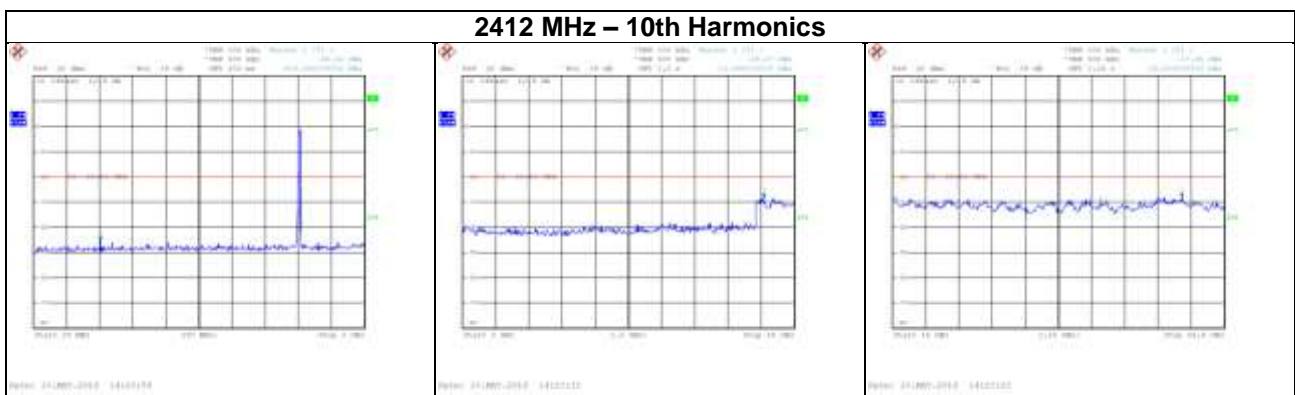
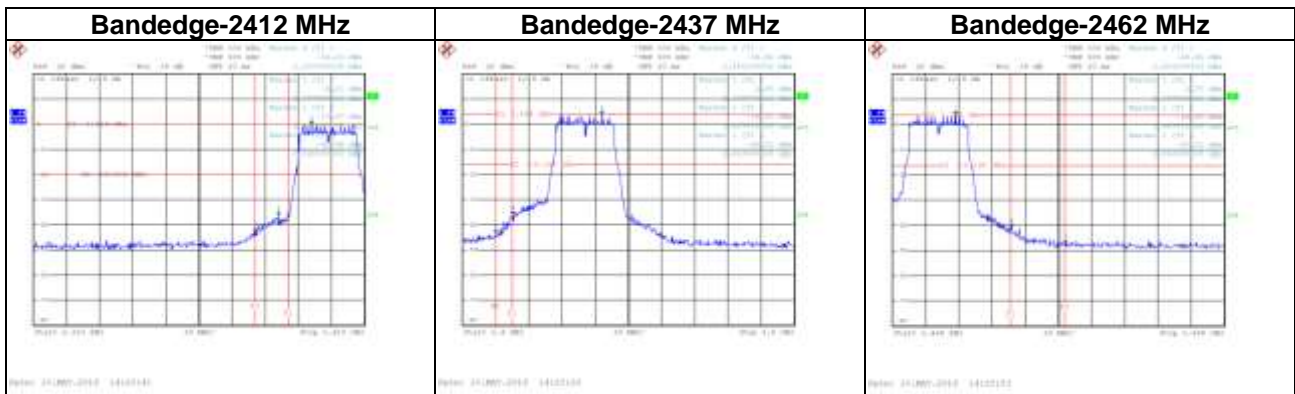
Test Mode	IEEE 802.11g_ANT 2
Test Voltage	AC 120V/60Hz



Test Mode	IEEE 802.11n (HT20)_ANT 1
Test Voltage	AC 120V/60Hz



Test Mode	IEEE 802.11n (HT20)_ANT 2
Test Voltage	AC 120V/60Hz



End of Test Report