

# FCC Radio Test Report

**FCC ID: TQYAP6256**

**Report No.** : BTL-FCCP-3-2012T001  
**Equipment** : SMART SPEAKER  
**Model Name** : JS1830, JS1832, TD-9016A, CS10  
**Brand Name** : JS, FORA, A1 CAREGIVER  
**Applicant** : Jazz Hipster Corporation  
**Address** : 2Fd, No.512, Yuan-San Rd. Chung-Ho City, Taipei Hsien, Taiwan

**Radio Function** : WLAN 2.4 GHz

**FCC Rule Part(s)** : FCC Part15, Subpart C (15.247)  
**Measurement Procedure(s)** : ANSI C63.10-2013

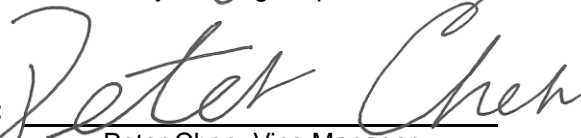
**Date of Receipt** : 2020/12/23  
**Date of Test** : 2020/12/23 ~ 2021/7/28  
**Issued Date** : 2021/8/17

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

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**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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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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**REVISION HISTORY**

Report No.	Version	Description	Issued Date
BTL-FCCP-3-2012T001	R00	Original Report.	2021/8/17

## 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.
- (2) The report format version is TP.1.1.1.

## 1.1 TEST FACILITY

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

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

The test sites and facilities are covered under FCC RN: 674415 and DN: TW0659.

☒ C05      ☐ CB08      ☐ CB11      ☒ CB15      ☐ CB16  
☒ SR05

## 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  $U_{\text{CISPR}}$  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 test :

Test Site	Measurement Frequency Range	U,(dB)
CB15	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
	1 GHz ~ 6 GHz	5.21
	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

C. Conducted test :

Test Item	U,(dB)
Occupied Bandwidth	0.5334
Output power	0.3669
Power Spectral Density	0.6591
Conducted Spurious emissions	0.5416
Conducted Band edges	0.5348

### 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	Test Voltage	Tested by
AC Power Line Conducted Emissions	22 °C, 70 %	AC 120V	Paul Shen
Radiated emissions below 1 GHz	23 °C, 57 %	AC 120V	Hunter Chiang
Radiated emissions above 1 GHz	24 °C, 57 %	AC 120V	Hunter Chiang
Bandwidth	25.8 °C, 54 %	AC 120V	Paul Shen
Output Power	25.8 °C, 54 %	AC 120V	Paul Shen
Power Spectral Density	25.8 °C, 54 %	AC 120V	Paul Shen
Antenna conducted Spurious Emission	25.8 °C, 54 %	AC 120V	Paul Shen

#### 1.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

Test Software	PuTTY suite 0.63			
Mode	2412 MHz	2437 MHz	2462 MHz	Data Rate
IEEE 802.11b	18	18	17	1 Mbps
IEEE 802.11g	14	21	13	6 Mbps
IEEE 802.11n (HT20)	13	21	13	MCS 0

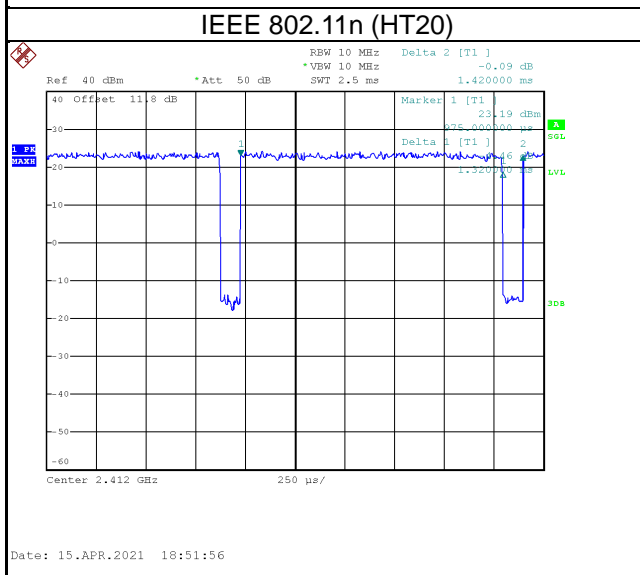
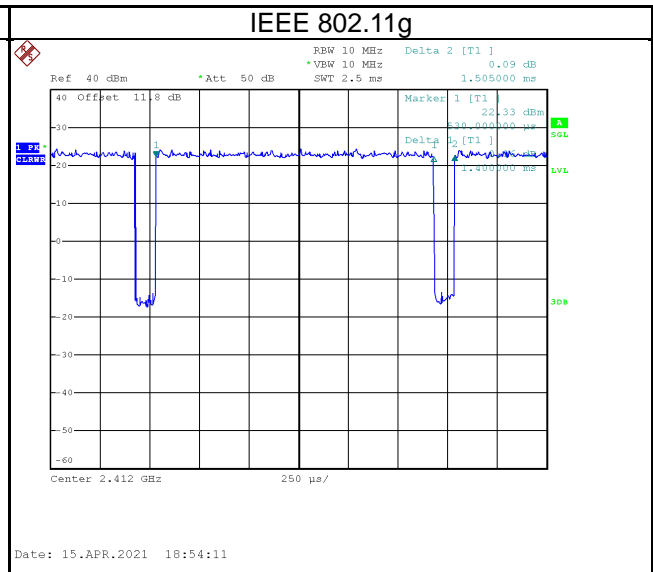
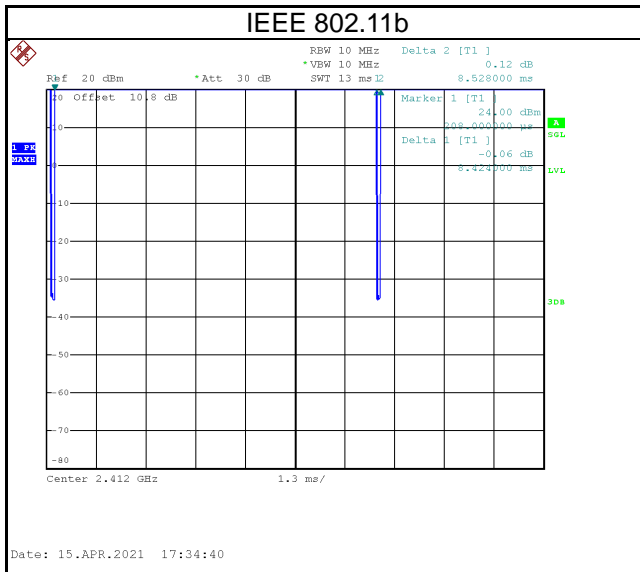


## 1.5 DUTY CYCLE

If duty cycle is  $\geq 98\%$ , duty factor is not required.

If duty cycle is  $< 98\%$ , duty factor shall be considered.

Remark	Delta 1			Delta 2	On Time/Period	10 log(1/Duty Cycle)
Mode	ON (ms)	Numbers (ON)	On Time (B) (ms)	Period (ON+OFF) (ms)	Duty Cycle (%)	Duty Factor (dB)
IEEE 802.11b	8.424	1	8.424	8.528	98.78%	0.05
IEEE 802.11g	1.400	1	1.400	1.505	93.02%	0.31
IEEE 802.11n (HT20)	1.320	1	1.320	1.420	92.96%	0.32



## 2 GENERAL INFORMATION

### 2.1 DESCRIPTION OF EUT

Equipment	SMART SPEAKER			
Model Name	JS1830, JS1832, TD-9016A, CS10			
Brand Name	JS, FORA, A1 CAREGIVER			
Model Difference	Brand Name	Model Name	Upper cover	
	JS	JS1830	A	
	JS	JS1832	B	
	FORA	TD-9016A	A	
	A1 CAREGIVER	CS10	B	
Power Source	DC voltage supplied from AC/DC Adapter.			
Power Rating	INPUT: 100-240V~50/60Hz 0.75A OUTPUT: 12.0V 2.0A 24.0W Max			
Products Covered	1 * Adapter: GPE/ GPE024L-120200-1			
Operation Band	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: 20.76 dBm (0.1191 W) IEEE 802.11g: 23.19 dBm (0.2084W) IEEE 802.11n (HT20): 23.26 dBm (0.2118 W)			
Test Model	JS1830			
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:

Antenna	Manufacture	Model name	Type	Connector	Frequency (MHz)	Gain (dBi)
-	JS	JS-MS1830 DVT	PCB	I-PEX	2400	3.85
					2450	4.85
					2500	4.06
					5150	4.95
					5350	4.99
					5500	4.9
					5725	5.03
					5850	5.13

## 2.2 TEST MODES

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

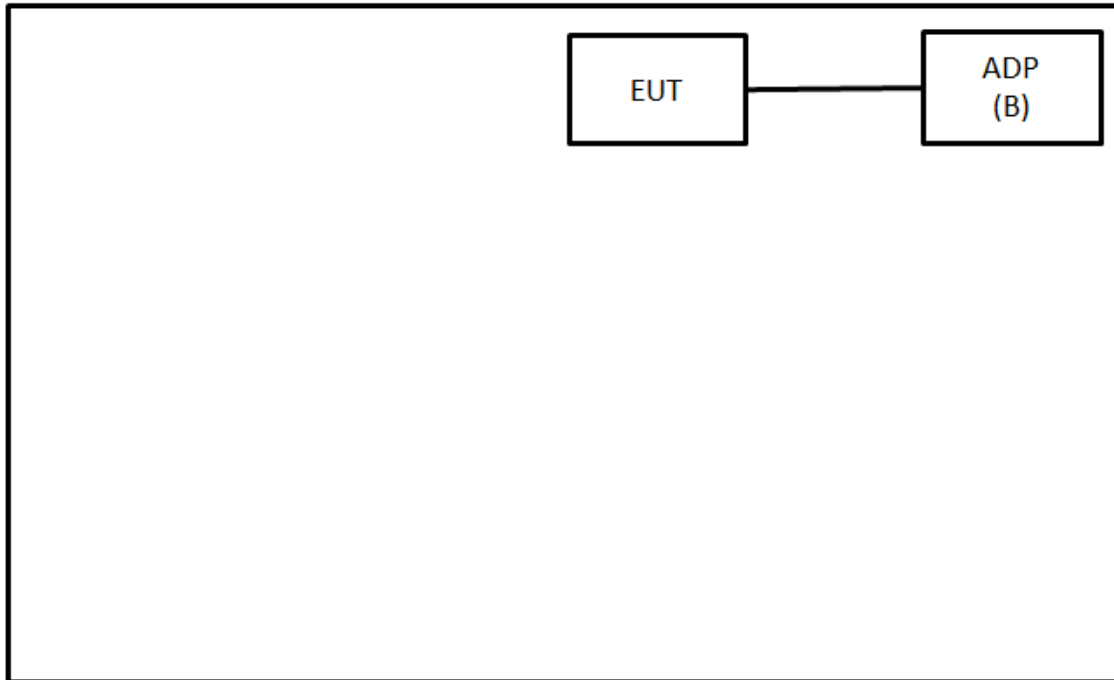
### NOTE:

- (1) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Horizontal) is recorded.
- (2) All X, Y and Z axes are evaluated, but only the worst case (X axis) is recorded.

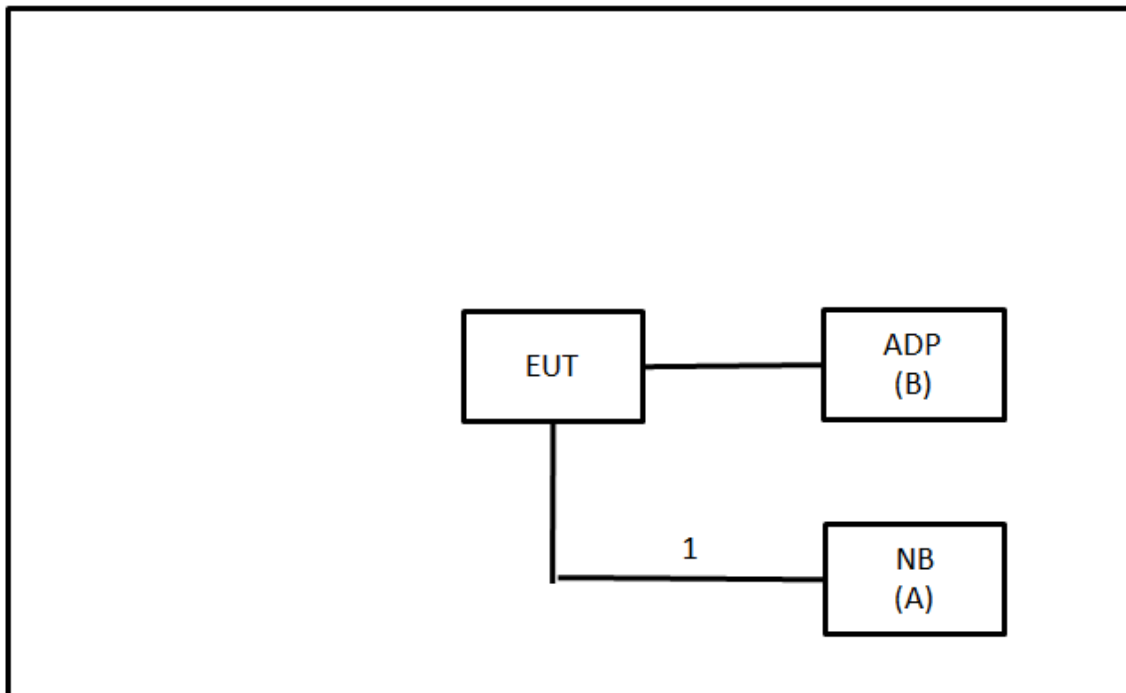
## 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

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

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	Furnished by test lab.
B	Adapter	GOLDEN PROFIT ELECTRONICS LTD	GPE024L-120200 -1	N/A	Supplied by test requester

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	1m	Fixture Cable	Supplied by test requester

### 3 AC POWER LINE CONDUCTED EMISSIONS TEST

#### 3.1 LIMIT

Frequency (MHz)	Limit (dBμV)	
	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.

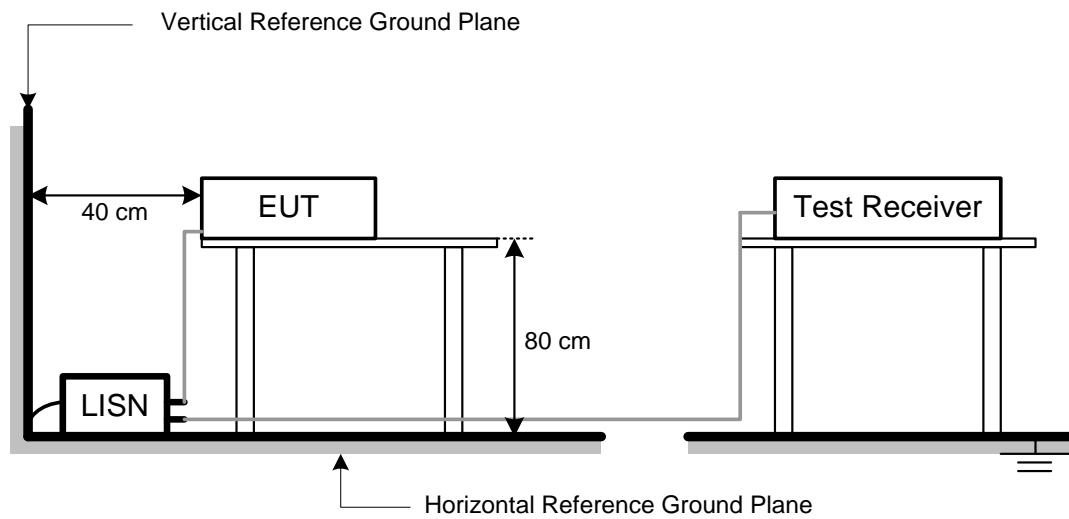
**NOTE:**

- (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



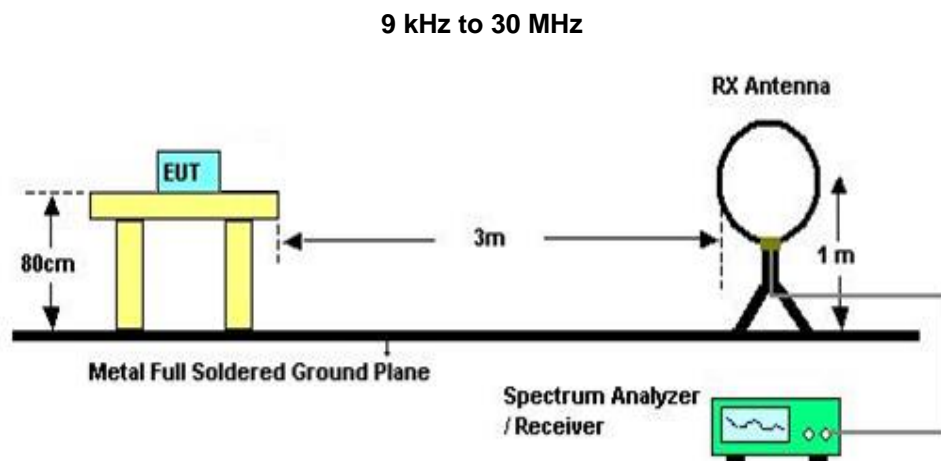
## 4.2 TEST PROCEDURE

- 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)
- 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)
- 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.
- 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).
- 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.
- 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.
- 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)
- 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)
- For the actual test configuration, please refer to the related Item – EUT TEST PHOTO.

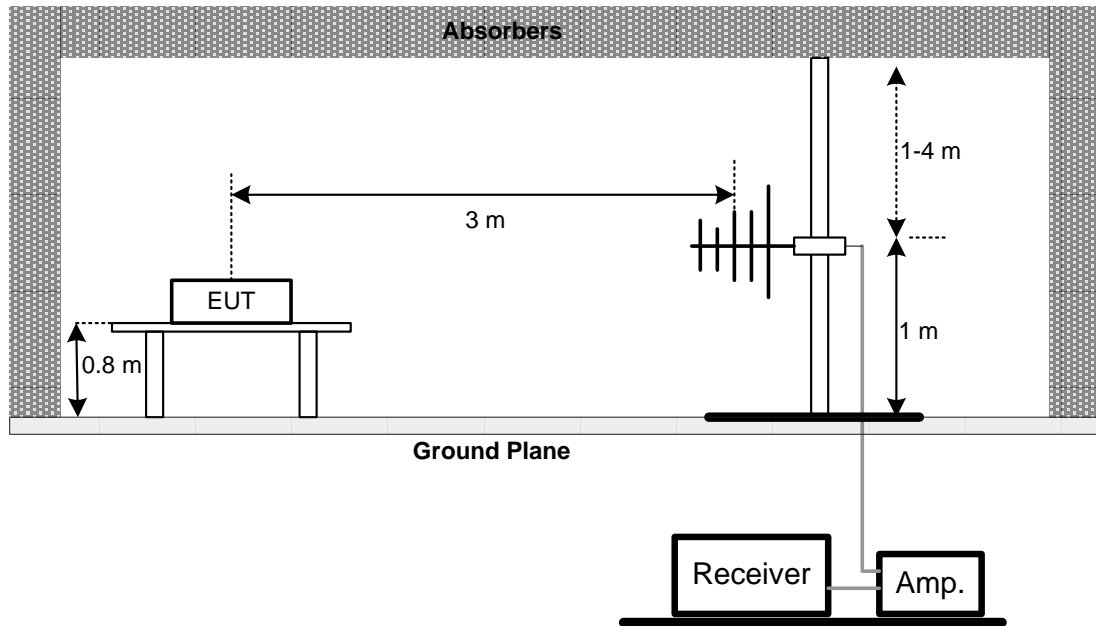
## 4.3 DEVIATION FROM TEST STANDARD

No deviation.

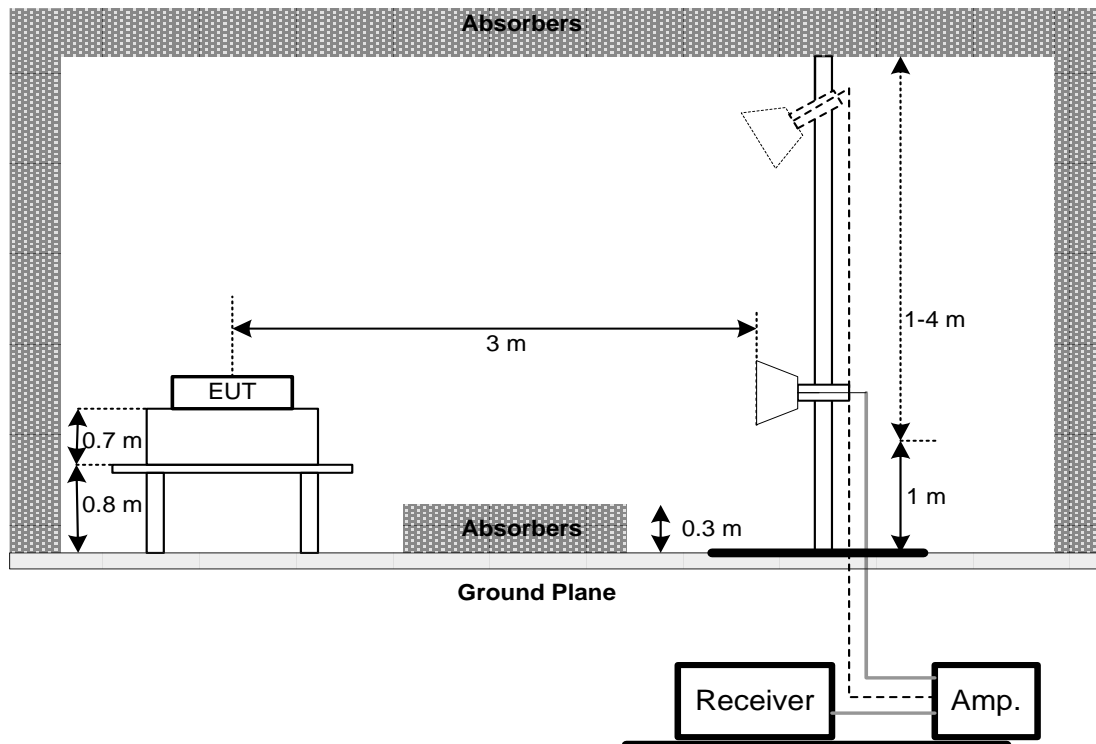
## 4.4 TEST SETUP



## 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 – BELOW 30 MHZ**

There were no emissions found below 30 MHz within 20 dB of the limit.

**4.7 TEST RESULT – 30 MHZ TO 1 GHZ**

Please refer to the APPENDIX B.

**4.8 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

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- The maximum peak conducted output power was performed in accordance with FCC KDB 558074 D01 15.247 Meas Guidance.
- Subclause 11.9.1.1 of ANSI C63.10 is applied. The maximum peak conducted output power may be measured using a broadband peak RF power meter.  
The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

### 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)

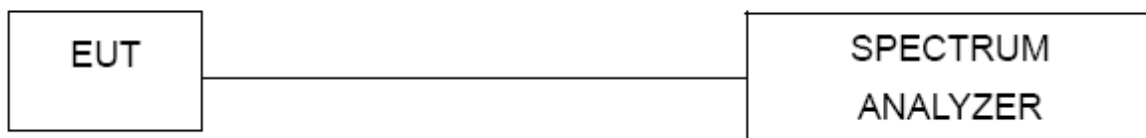
### 7.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- 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	101339	2021/3/10	2022/3/9
2	Test Cable	EMCI	EMCRG58-BM-B M-9000	210501	2021/5/3	2022/5/2
3	EMI Test Receiver	R&S	ESR 7	101433	2020/12/11	2021/12/10
4	Measurement Software	EZ	EZ EMC (Version NB-03A1-01)	N/A	N/A	N/A

Radiated Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC02325B	980217	2021/4/8	2022/4/7
2	Preamplifier	EMCI	EMC012645B	980267	2021/4/8	2022/4/7
3	Preamplifier	EMCI	EMC001340	980555	2021/4/8	2022/4/7
4	Test Cable	EMCI	EMC-SM-SM-1000	180809	2021/4/8	2022/4/7
5	Test Cable	EMCI	EMC104-SM-SM-3000	151205	2021/4/8	2022/4/7
6	Test Cable	EMCI	EMC-SM-SM-7000	180408	2021/4/8	2022/4/7
7	MXE EMI Receiver	Agilent	N9038A	MY554200087	2021/5/27	2022/5/26
8	Signal Analyzer	Agilent	N9010A	MY56480554	2020/8/25	2021/8/24
9	Loop Ant	Electro-Metrics	EMCI-LPA600	274	2021/6/1	2022/5/31
10	Horn Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	2021/6/2	2022/6/1
11	Horn Ant	Schwarzbeck	BBHA 9170	BBHA 9170340	2021/7/9	2022/7/8
12	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	VULB 9168-352	2020/7/24	2021/7/23
13	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0625	2020/7/24	2021/7/23
14	Measurement Software	EZ	EZ EMC (Version NB-03A1-01)	N/A	N/A	N/A

Bandwidth						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP38	101139	2021/3/5	2022/3/4

Output Power						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Power Meter	Anritsu	ML2495A	1128008	2021/5/26	2022/5/25
2	Power Sensor	Anritsu	MA2411B	1126001	2021/5/26	2022/5/25



Power Spectral Density						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP38	101139	2021/3/5	2022/3/4

Antenna conducted Spurious Emission						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP38	101139	2021/3/5	2022/3/4

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**

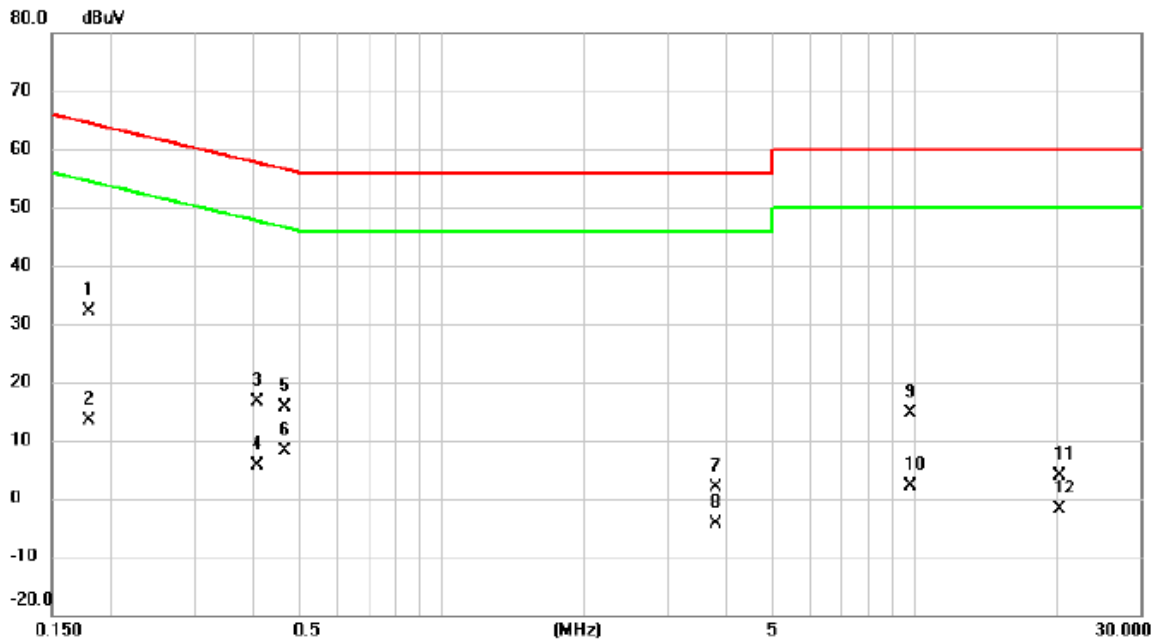
Please refer to document Appendix No.: TP-2012T001-FCCP-1 (APPENDIX-TEST PHOTOS).

**11 EUT PHOTOS**

Please refer to document Appendix No.: EP-2012T001-1 (APPENDIX-EUT PHOTOS).

## **APPENDIX A AC POWER LINE CONDUCTED EMISSIONS**

Test Mode	Normal	Tested Date	2021/5/19
Test Frequency	-	Phase	Line



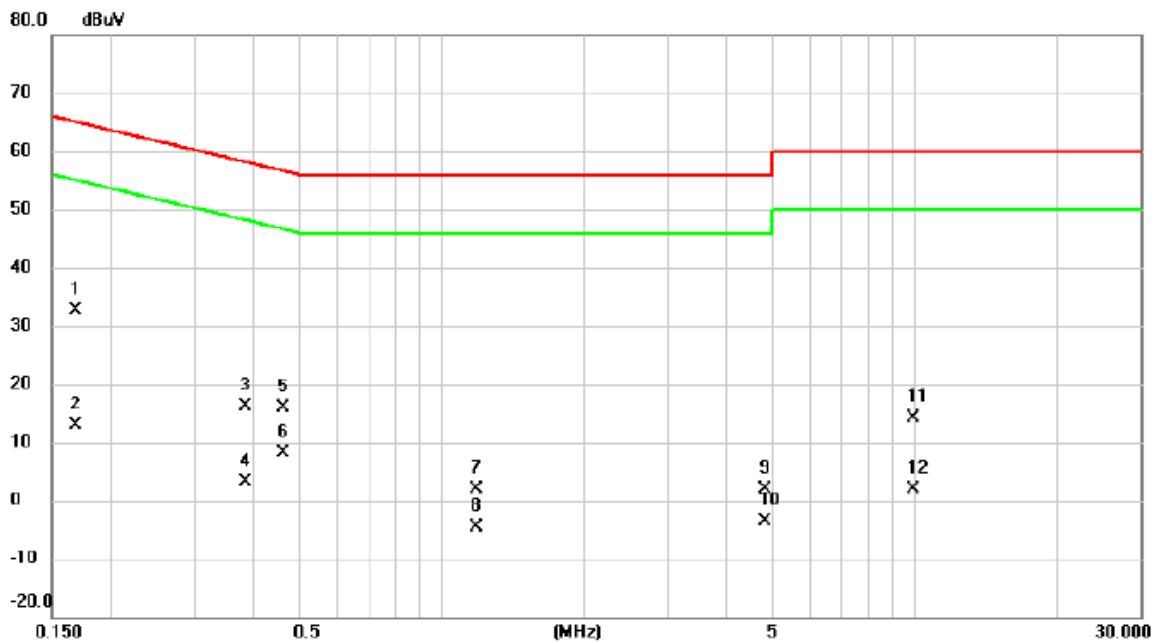
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1796	32.18	0.01	32.19	64.50	-32.31	QP	
2		0.1796	13.34	0.01	13.35	54.50	-41.15	AVG	
3		0.4087	16.61	0.03	16.64	57.67	-41.03	QP	
4		0.4087	5.60	0.03	5.63	47.67	-42.04	AVG	
5		0.4650	15.56	0.03	15.59	56.60	-41.01	QP	
6		0.4650	8.04	0.03	8.07	46.60	-38.53	AVG	
7		3.7950	1.74	0.11	1.85	56.00	-54.15	QP	
8		3.7950	-4.36	0.11	-4.25	46.00	-50.25	AVG	
9		9.8003	14.31	0.21	14.52	60.00	-45.48	QP	
10		9.8003	2.02	0.21	2.23	50.00	-47.77	AVG	
11		20.3370	3.58	0.23	3.81	60.00	-56.19	QP	
12		20.3370	-2.01	0.23	-1.78	50.00	-51.78	AVG	

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	Normal	Tested Date	2021/5/19
Test Frequency	-	Phase	Neutral



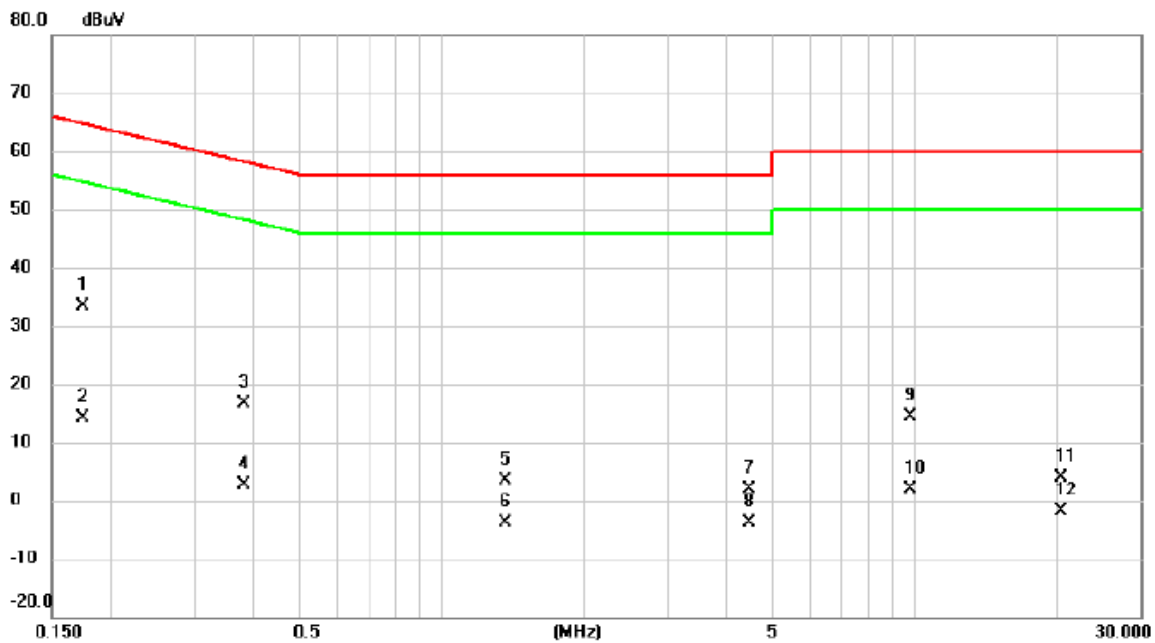
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1685	32.50	0.01	32.51	65.03	-32.52	QP	
2		0.1685	12.93	0.01	12.94	55.03	-42.09	AVG	
3		0.3862	16.19	0.03	16.22	58.15	-41.93	QP	
4		0.3862	3.19	0.03	3.22	48.15	-44.93	AVG	
5		0.4627	15.82	0.03	15.85	56.64	-40.79	QP	
6		0.4627	8.05	0.03	8.08	46.64	-38.56	AVG	
7		1.1805	1.82	0.05	1.87	56.00	-54.13	QP	
8		1.1805	-4.64	0.05	-4.59	46.00	-50.59	AVG	
9		4.8143	1.84	0.14	1.98	56.00	-54.02	QP	
10		4.8143	-3.77	0.14	-3.63	46.00	-49.63	AVG	
11		9.9038	13.98	0.21	14.19	60.00	-45.81	QP	
12		9.9038	1.66	0.21	1.87	50.00	-48.13	AVG	

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	Idle	Tested Date	2021/5/19
Test Frequency	-	Phase	Line



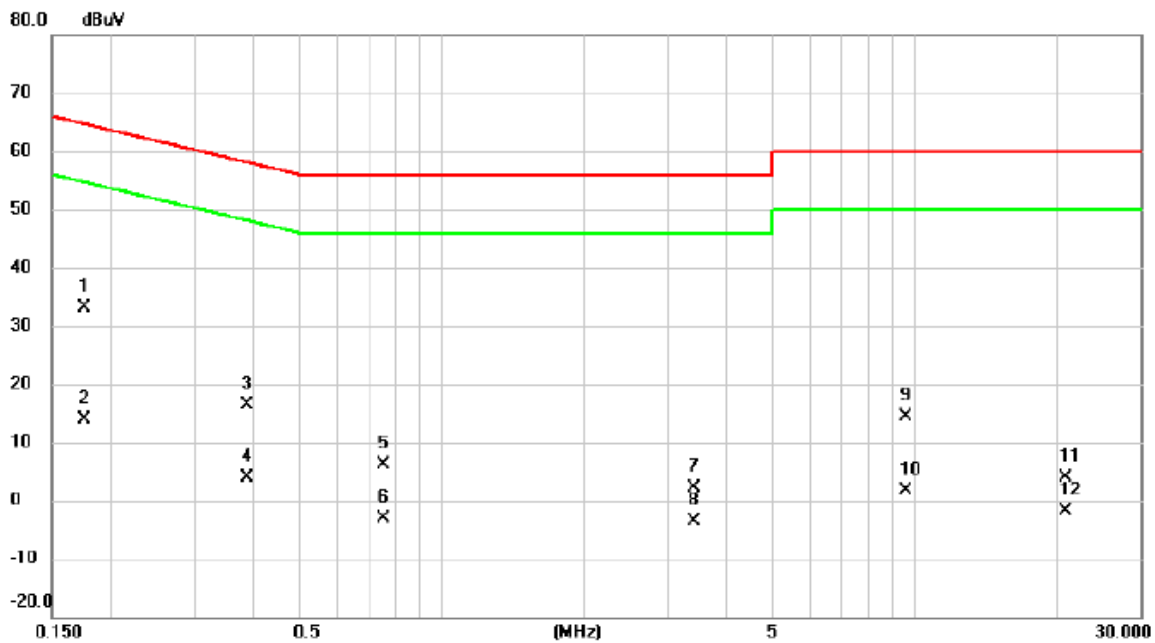
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1748	33.40	0.01	33.41	64.73	-31.32	QP	
2		0.1748	14.14	0.01	14.15	54.73	-40.58	AVG	
3		0.3817	16.59	0.03	16.62	58.24	-41.62	QP	
4		0.3817	2.67	0.03	2.70	48.24	-45.54	AVG	
5		1.3673	3.23	0.05	3.28	56.00	-52.72	QP	
6		1.3673	-3.90	0.05	-3.85	46.00	-49.85	AVG	
7		4.4543	1.80	0.13	1.93	56.00	-54.07	QP	
8		4.4543	-3.91	0.13	-3.78	46.00	-49.78	AVG	
9		9.8025	14.19	0.21	14.40	60.00	-45.60	QP	
10		9.8025	1.71	0.21	1.92	50.00	-48.08	AVG	
11		20.4315	3.71	0.23	3.94	60.00	-56.06	QP	
12		20.4315	-2.00	0.23	-1.77	50.00	-51.77	AVG	

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	Idle	Tested Date	2021/5/19
Test Frequency	-	Phase	Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1758	33.13	0.01	33.14	64.68	-31.54	QP	
2		0.1758	13.95	0.01	13.96	54.68	-40.72	AVG	
3		0.3885	16.42	0.03	16.45	58.10	-41.65	QP	
4		0.3885	3.81	0.03	3.84	48.10	-44.26	AVG	
5		0.7530	5.98	0.04	6.02	56.00	-49.98	QP	
6		0.7530	-3.07	0.04	-3.03	46.00	-49.03	AVG	
7		3.4058	1.93	0.10	2.03	56.00	-53.97	QP	
8		3.4058	-3.81	0.10	-3.71	46.00	-49.71	AVG	
9		9.5550	14.13	0.20	14.33	60.00	-45.67	QP	
10		9.5550	1.39	0.20	1.59	50.00	-48.41	AVG	
11		20.9198	3.59	0.23	3.82	60.00	-56.18	QP	
12		20.9198	-2.00	0.23	-1.77	50.00	-51.77	AVG	

## REMARKS:

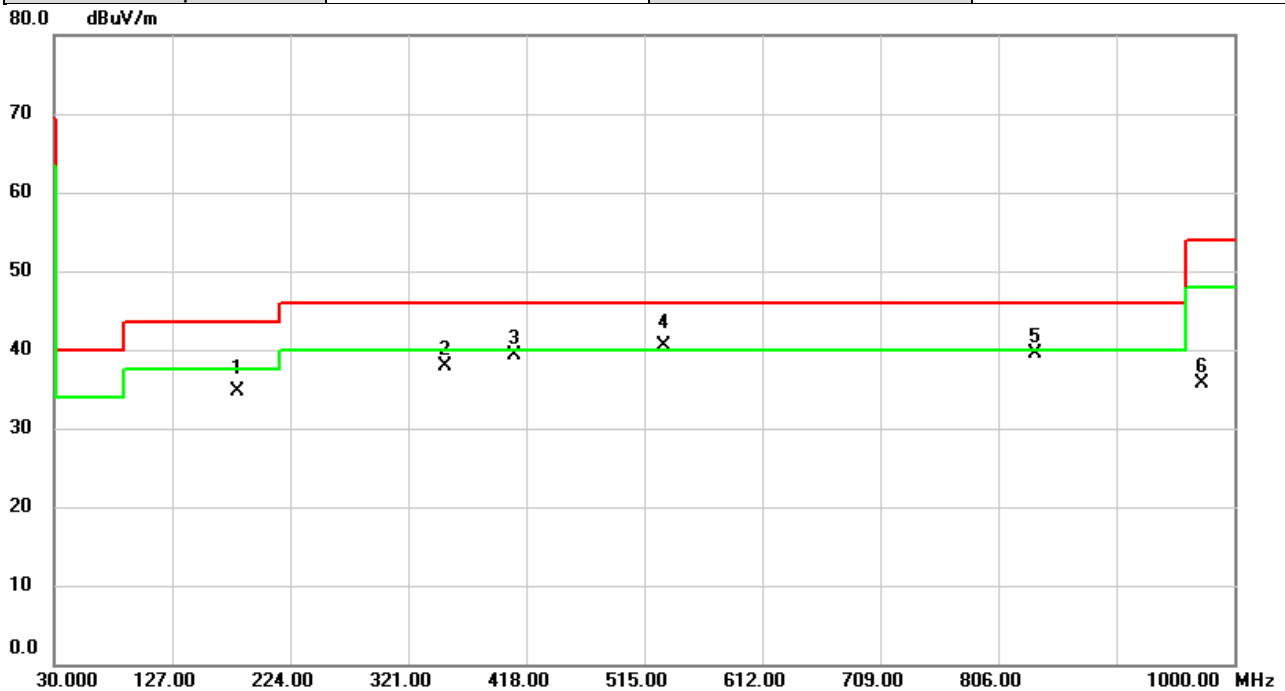
(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

## **APPENDIX B    RADIATED EMISSIONS - 30 MHZ TO 1 GHZ**



Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/1
Test Frequency	2462MHz	Polarization	Vertical
Temp	23°C	Hum.	57%

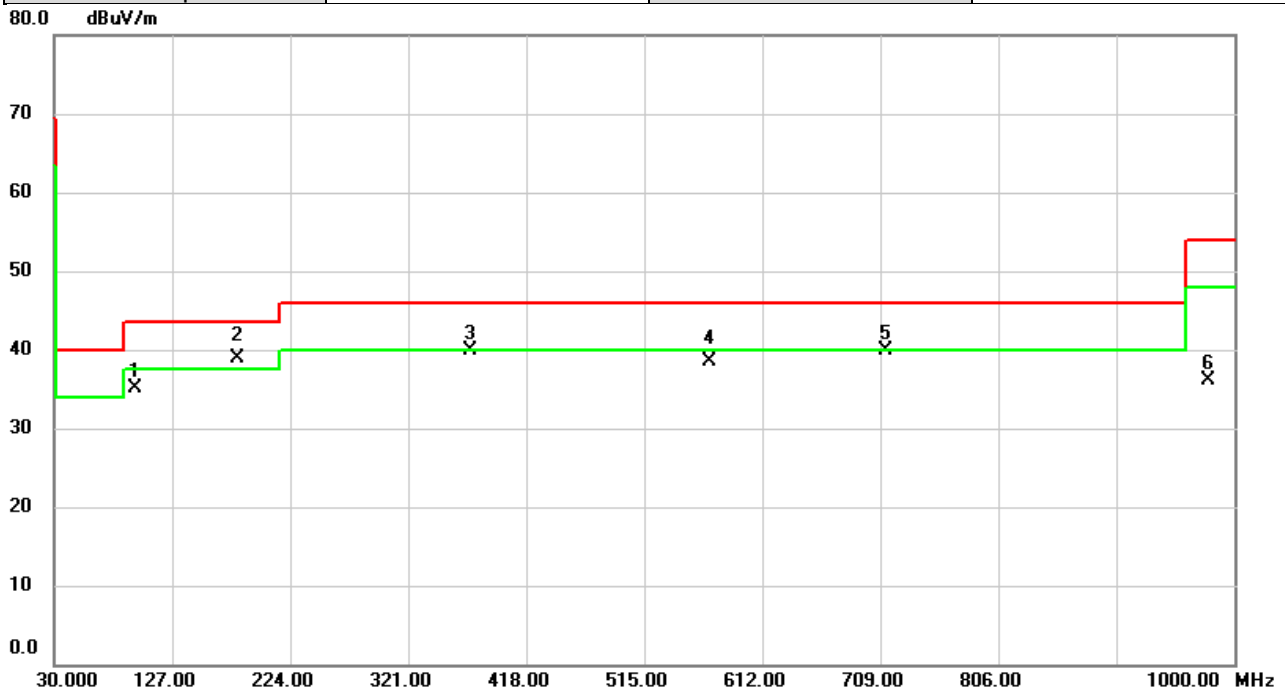


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		180.1236	44.39	-9.75	34.64	43.50	-8.86	QP	
2		351.6843	43.98	-6.14	37.84	46.00	-8.16	peak	
3		408.6230	43.82	-4.61	39.21	46.00	-6.79	peak	
4	*	531.4252	42.75	-2.16	40.59	46.00	-5.41	QP	
5		836.1345	36.50	3.09	39.59	46.00	-6.41	peak	
6		973.2603	30.41	5.24	35.65	54.00	-18.35	peak	

## REMARKS:

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

Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/1
Test Frequency	2462MHz	Polarization	Horizontal
Temp	23°C	Hum.	57%



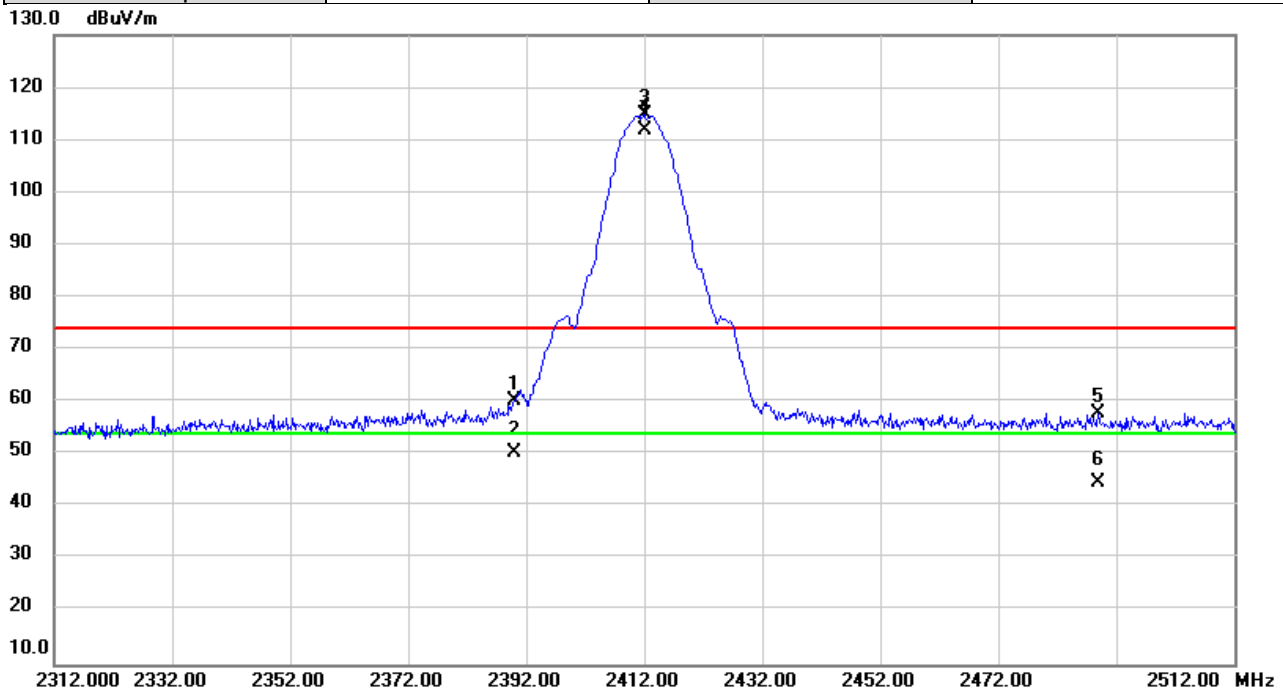
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		96.1216	48.85	-13.80	35.05	43.50	-8.45	peak	
2	*	180.1880	48.69	-9.76	38.93	43.50	-4.57	QP	
3		371.9895	45.54	-5.57	39.97	46.00	-6.03	peak	
4		568.1236	39.84	-1.28	38.56	46.00	-7.44	QP	
5		713.3002	38.84	1.07	39.91	46.00	-6.09	peak	
6		979.0153	30.82	5.31	36.13	54.00	-17.87	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	IEEE 802.11b	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

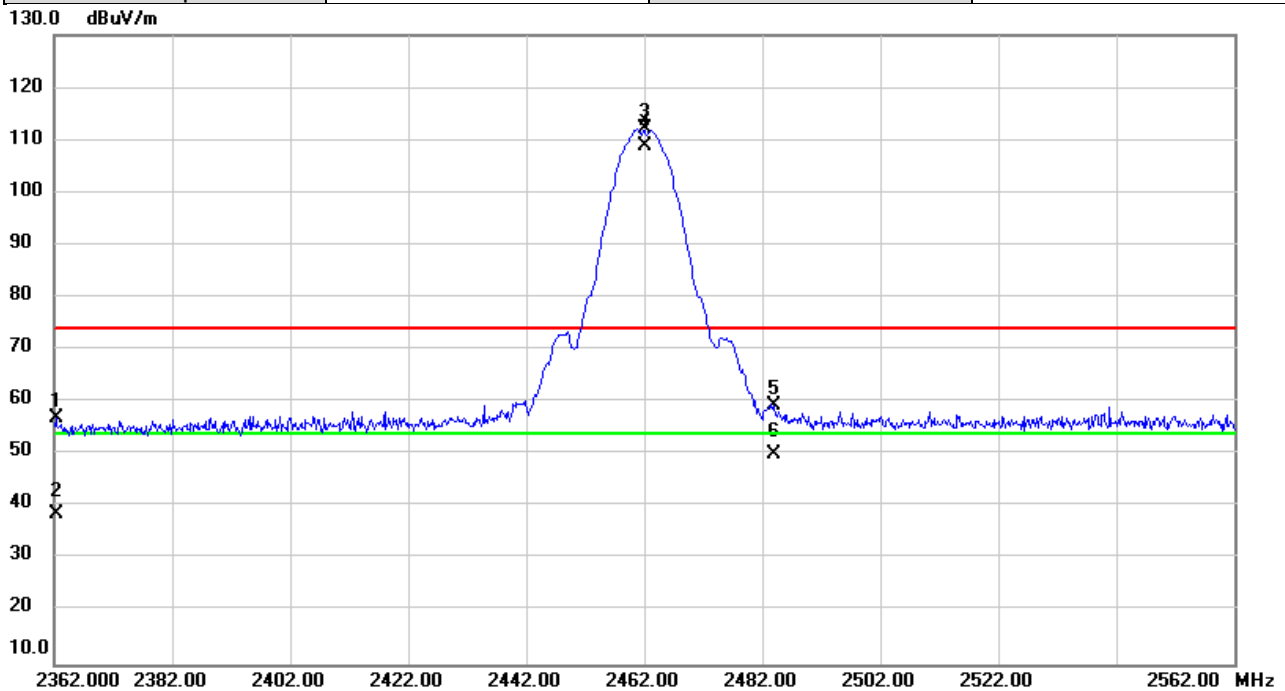


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2389.913	29.40	30.79	60.19	74.00	-13.81	peak	
2		2389.913	19.50	30.79	50.29	54.00	-3.71	AVG	
3	X	2412.000	84.05	30.88	114.93	74.00	40.93	peak	NoLimit
4	*	2412.000	81.09	30.88	111.97	54.00	57.97	AVG	NoLimit
5		2488.860	26.69	31.18	57.87	74.00	-16.13	peak	
6		2488.860	13.57	31.18	44.75	54.00	-9.25	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11b	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

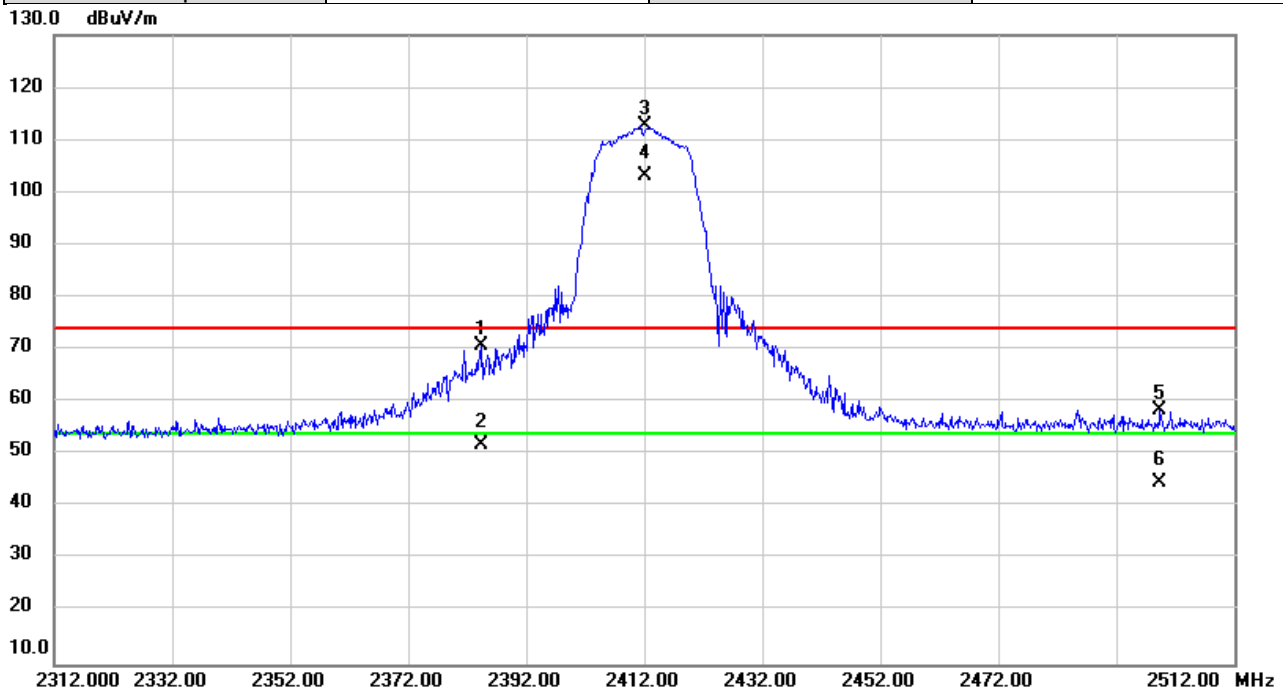


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2362.360	26.22	30.68	56.90	74.00	-17.10	peak	
2		2362.360	7.96	30.68	38.64	54.00	-15.36	AVG	
3	X	2462.000	80.98	31.08	112.06	74.00	38.06	peak	NoLimit
4	*	2462.000	77.89	31.08	108.97	54.00	54.97	AVG	NoLimit
5		2484.073	28.07	31.17	59.24	74.00	-14.76	peak	
6		2484.073	18.98	31.17	50.15	54.00	-3.85	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11g	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

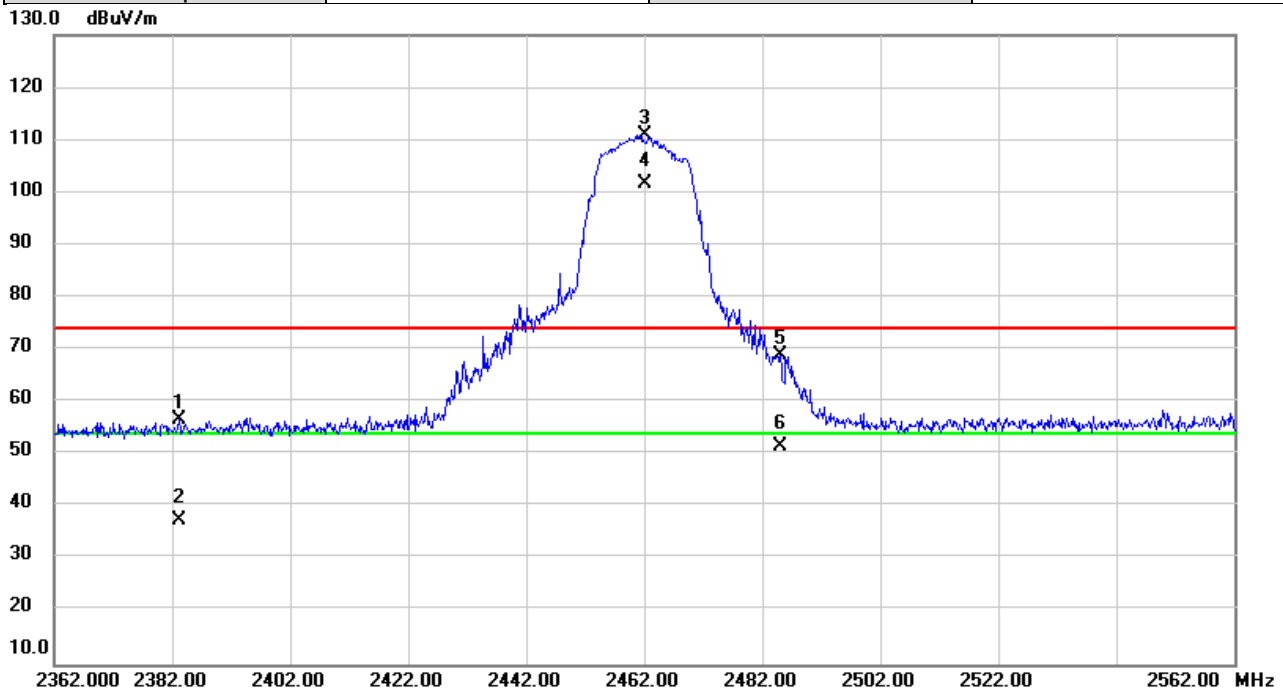


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2384.427	39.91	30.77	70.68	74.00	-3.32	peak	
2		2384.427	21.02	30.77	51.79	54.00	-2.21	AVG	
3	X	2412.000	81.75	30.88	112.63	74.00	38.63	peak	NoLimit
4	*	2412.000	72.18	30.88	103.06	54.00	49.06	AVG	NoLimit
5		2499.427	27.31	31.23	58.54	74.00	-15.46	peak	
6		2499.427	13.37	31.23	44.60	54.00	-9.40	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11g	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

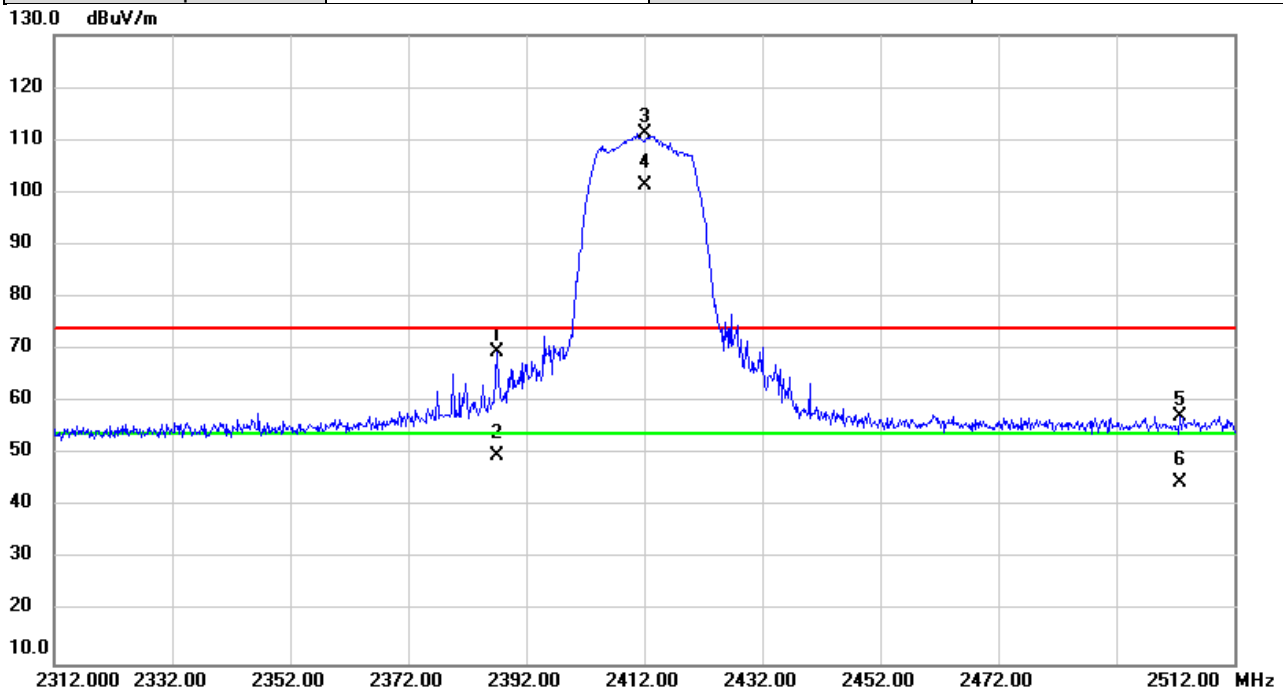


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2383.080	26.01	30.76	56.77	74.00	-17.23	peak	
2		2383.080	6.58	30.76	37.34	54.00	-16.66	AVG	
3	X	2462.000	79.81	31.08	110.89	74.00	36.89	peak	NoLimit
4	*	2462.000	70.52	31.08	101.60	54.00	47.60	AVG	NoLimit
5		2485.067	37.76	31.17	68.93	74.00	-5.07	peak	
6		2485.067	20.41	31.17	51.58	54.00	-2.42	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%



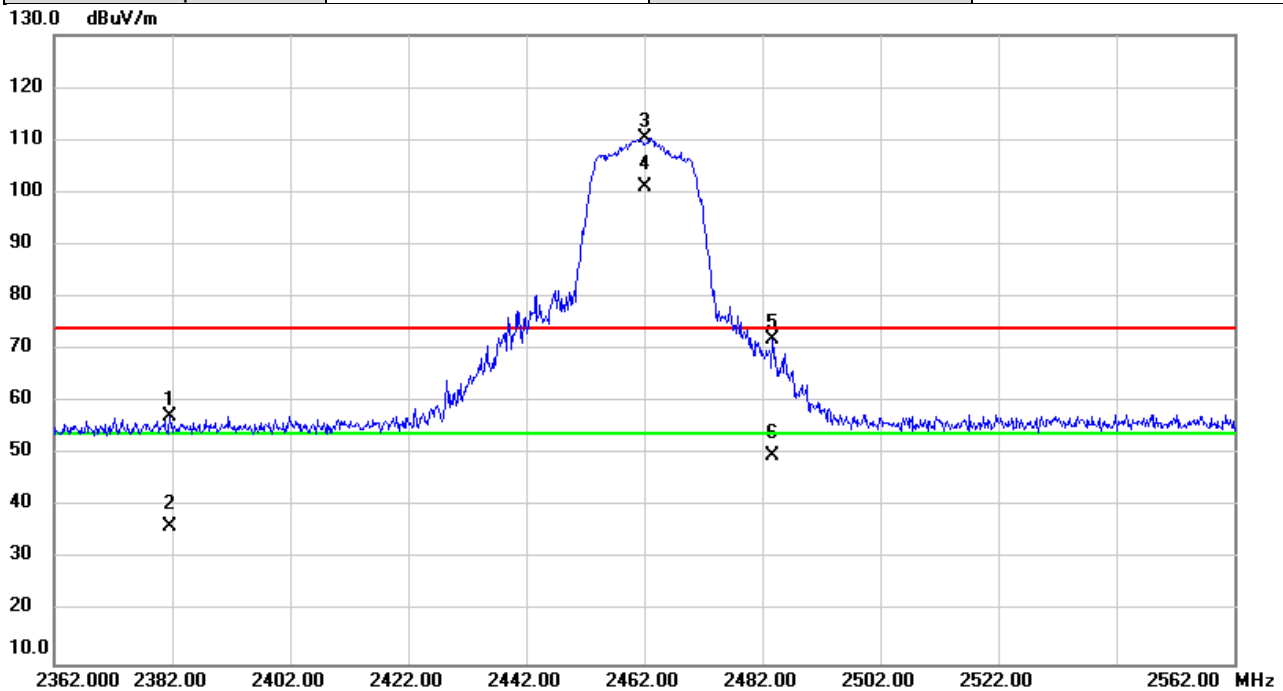
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2387.187	38.91	30.78	69.69	74.00	-4.31	peak	
2		2387.187	18.85	30.78	49.63	54.00	-4.37	AVG	
3	X	2412.000	80.29	30.88	111.17	74.00	37.17	peak	NoLimit
4	*	2412.000	70.61	30.88	101.49	54.00	47.49	AVG	NoLimit
5		2502.900	26.12	31.24	57.36	74.00	-16.64	peak	
6		2502.900	13.55	31.24	44.79	54.00	-9.21	AVG	

## REMARKS:

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



Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

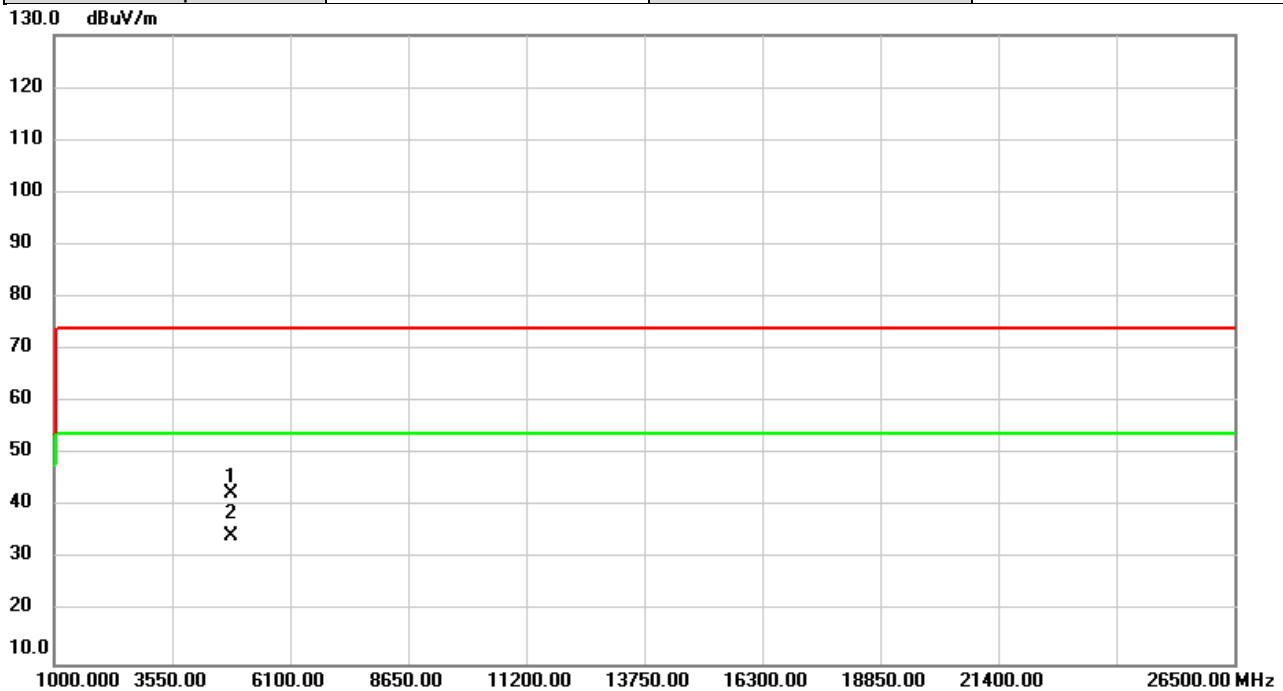


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2381.733	26.55	30.76	57.31	74.00	-16.69	peak	
2		2381.733	5.40	30.76	36.16	54.00	-17.84	AVG	
3	X	2462.000	79.24	31.08	110.32	74.00	36.32	peak	NoLimit
4	*	2462.000	70.00	31.08	101.08	54.00	47.08	AVG	NoLimit
5		2483.693	40.77	31.16	71.93	74.00	-2.07	peak	
6		2483.693	18.60	31.16	49.76	54.00	-4.24	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11b	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Vertical
Temp	24°C	Hum.	57%

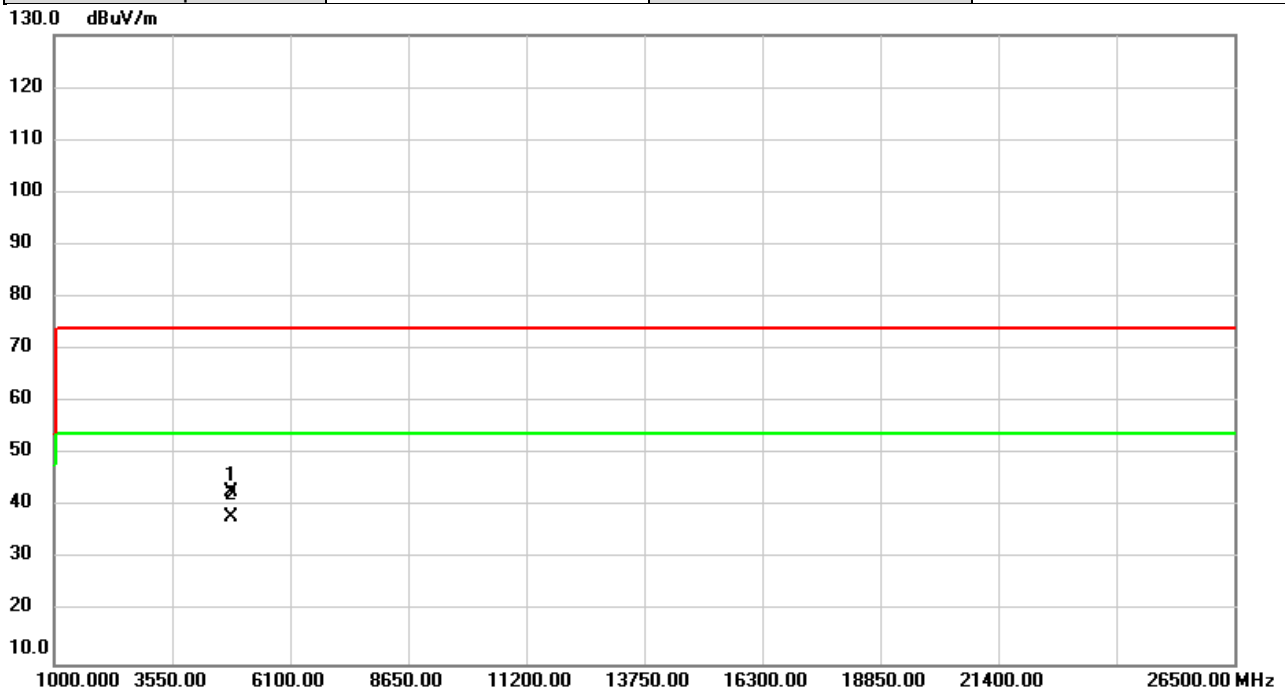


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.000	52.59	-9.96	42.63	74.00	-31.37	peak	
2	*	4824.000	44.52	-9.96	34.56	54.00	-19.44	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11b	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

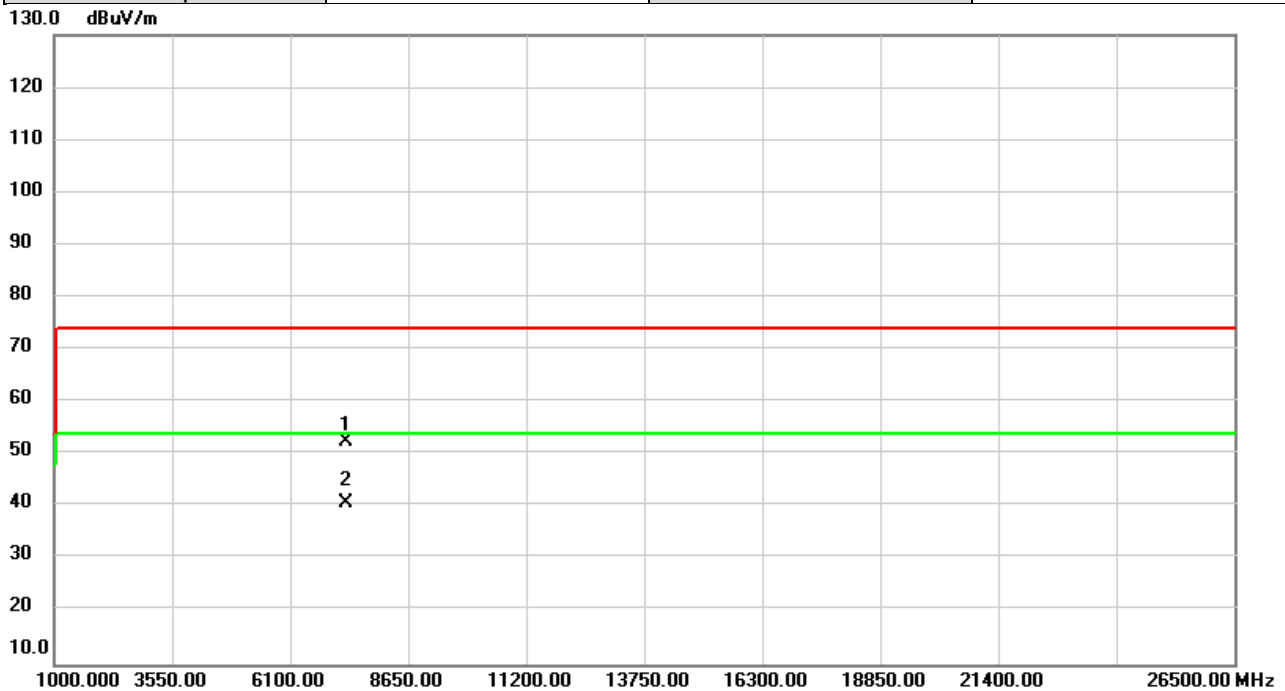


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.000	52.89	-9.96	42.93	74.00	-31.07	peak	
2	*	4824.000	48.05	-9.96	38.09	54.00	-15.91	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11b	Test Date	2021/7/3
Test Frequency	2437MHz	Polarization	Vertical
Temp	24°C	Hum.	57%



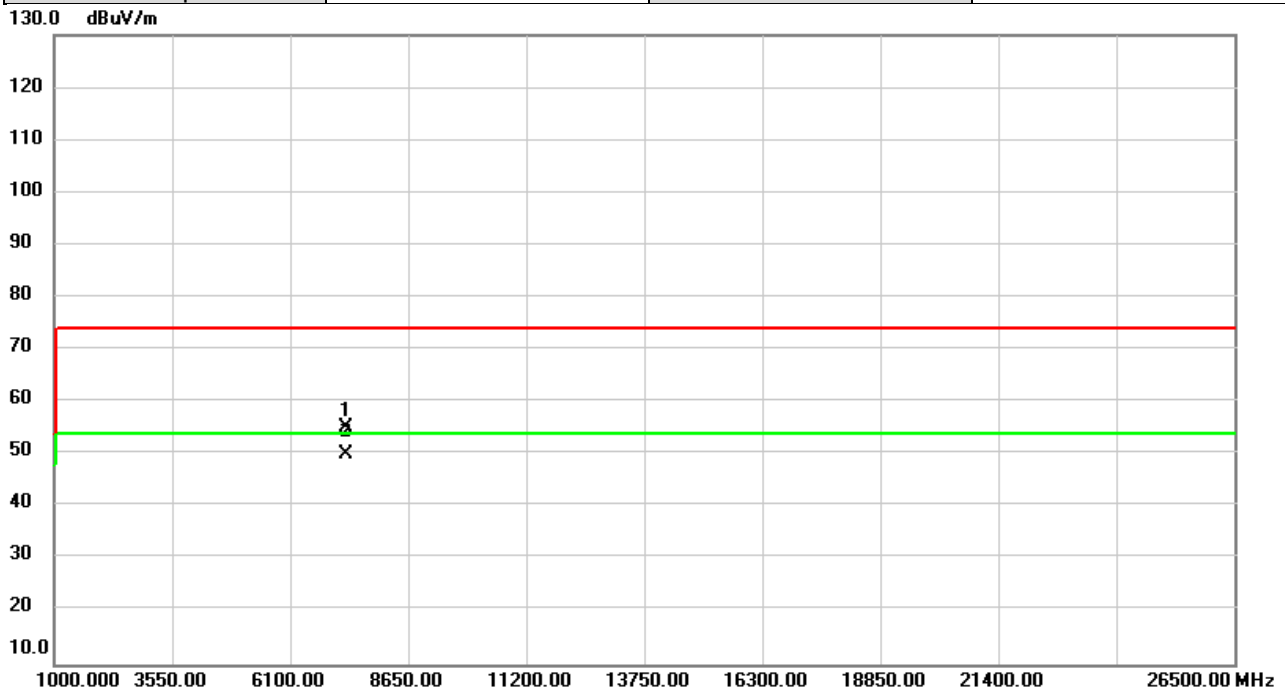
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7311.000	54.77	-2.43	52.34	74.00	-21.66	peak	
2	*	7311.000	43.26	-2.43	40.83	54.00	-13.17	AVG	

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	IEEE 802.11b	Test Date	2021/7/3
Test Frequency	2437MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

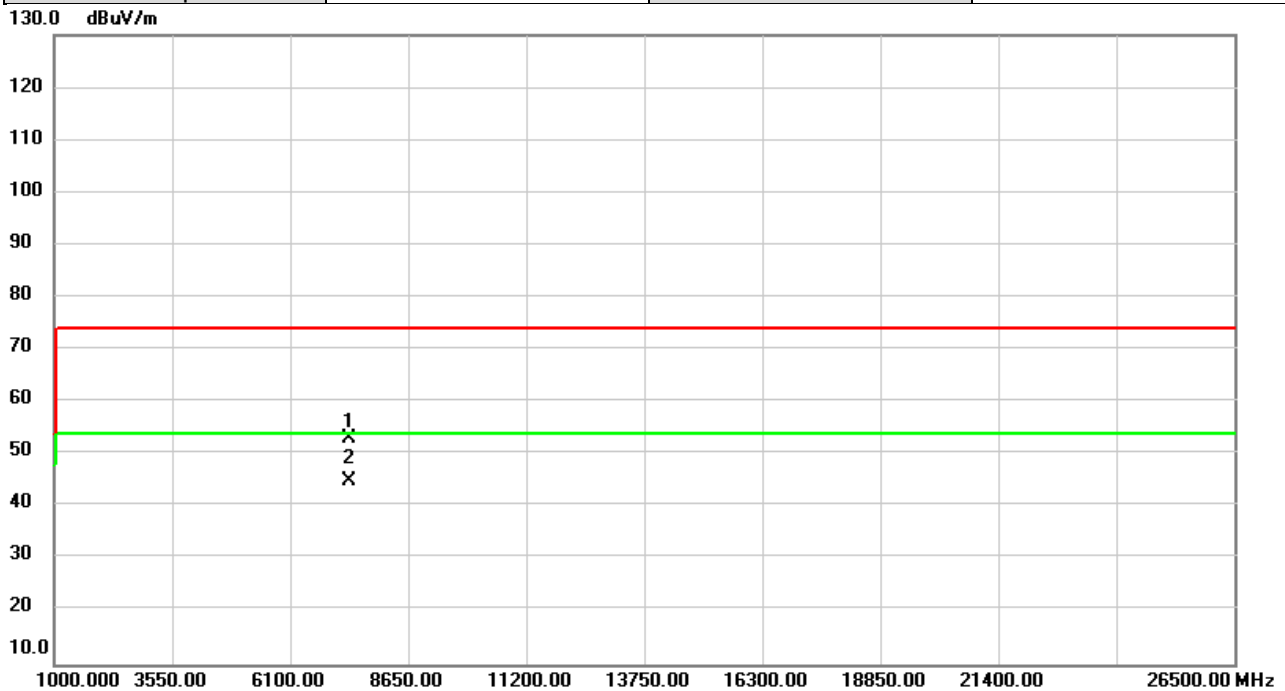


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		7311.000	57.72	-2.43	55.29	74.00	-18.71	peak	
2	*	7311.000	52.52	-2.43	50.09	54.00	-3.91	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11b	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Vertical
Temp	24°C	Hum.	57%

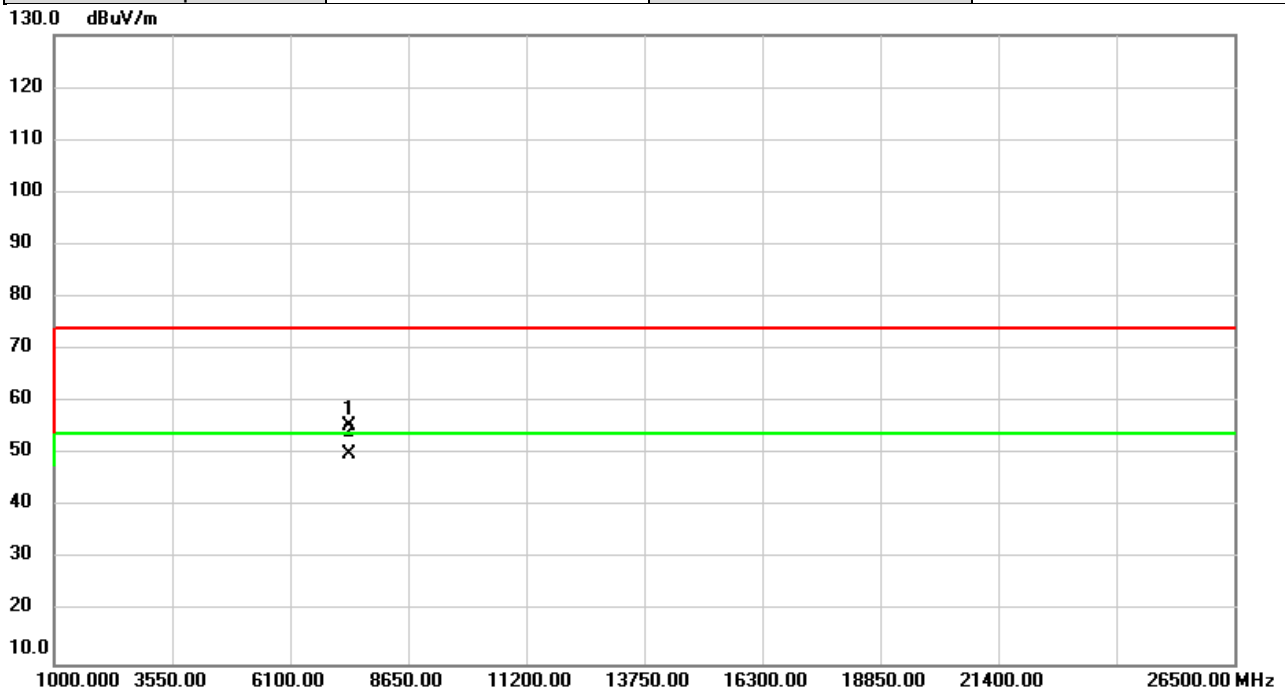


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		7387.750	55.12	-2.07	53.05	74.00	-20.95	peak	
2	*	7387.750	47.05	-2.07	44.98	54.00	-9.02	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11b	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

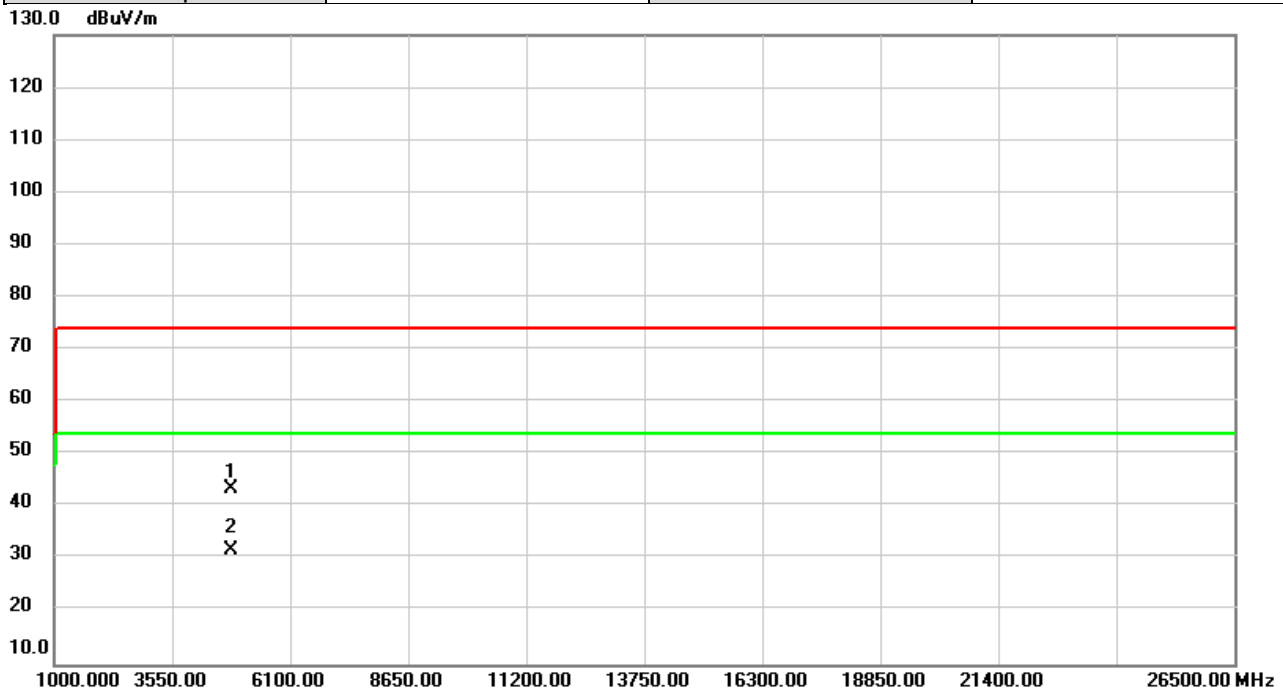


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7386.000	57.67	-2.09	55.58	74.00	-18.42	peak	
2	*	7386.000	52.01	-2.09	49.92	54.00	-4.08	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11g	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Vertical
Temp	24°C	Hum.	57%



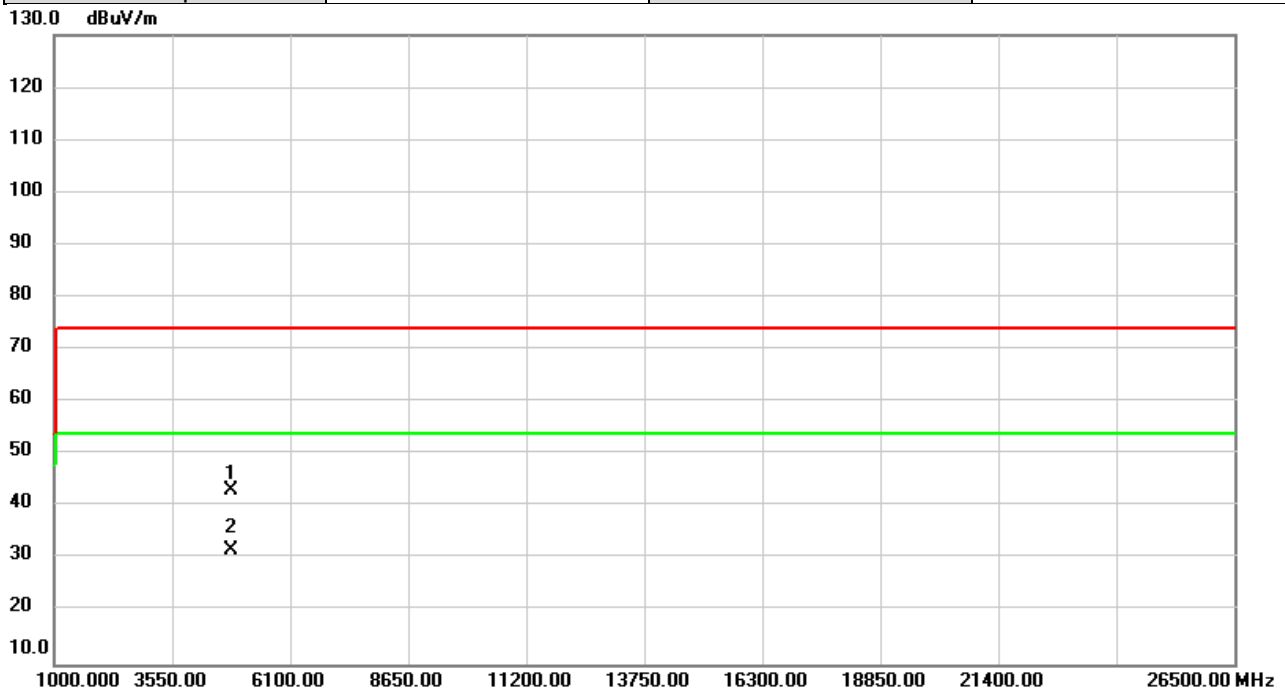
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	53.42	-9.96	43.46	74.00	-30.54	peak	
2	*	4824.000	41.60	-9.96	31.64	54.00	-22.36	AVG	

## REMARKS:

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



Test Mode	IEEE 802.11g	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%



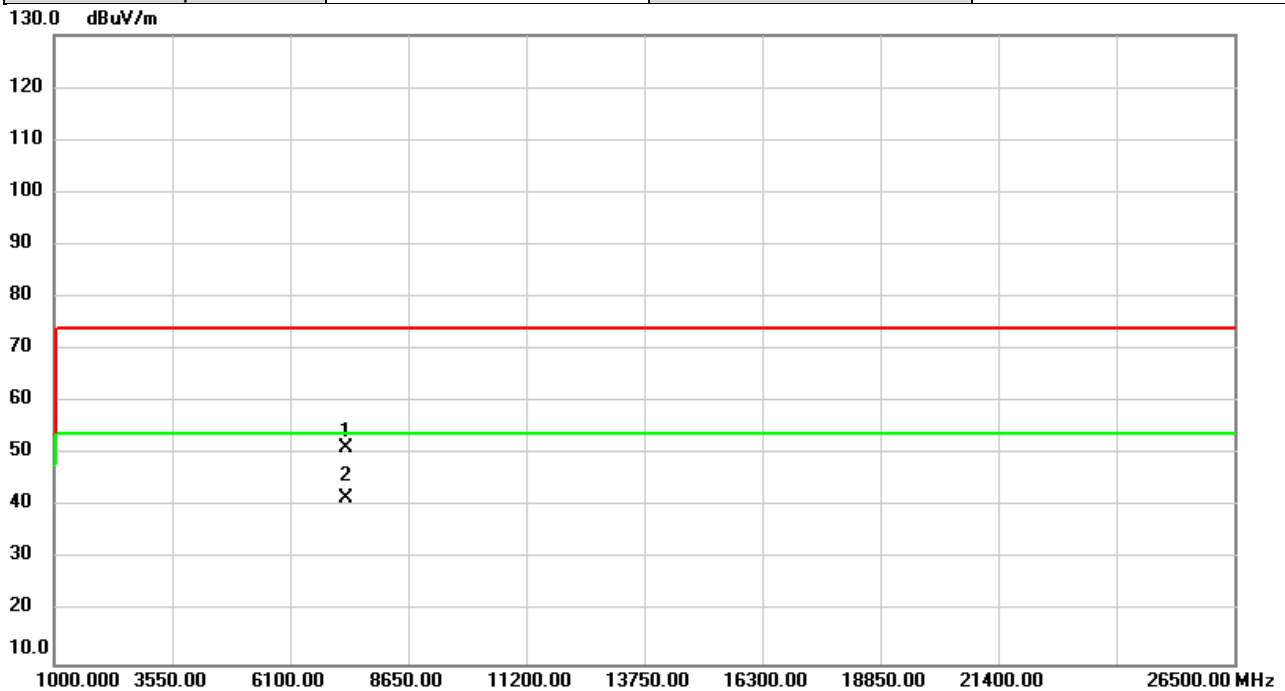
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.000	53.11	-9.96	43.15	74.00	-30.85	peak	
2	*	4824.000	41.69	-9.96	31.73	54.00	-22.27	AVG	

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	IEEE 802.11g	Test Date	2021/7/3
Test Frequency	2437MHz	Polarization	Vertical
Temp	24°C	Hum.	57%

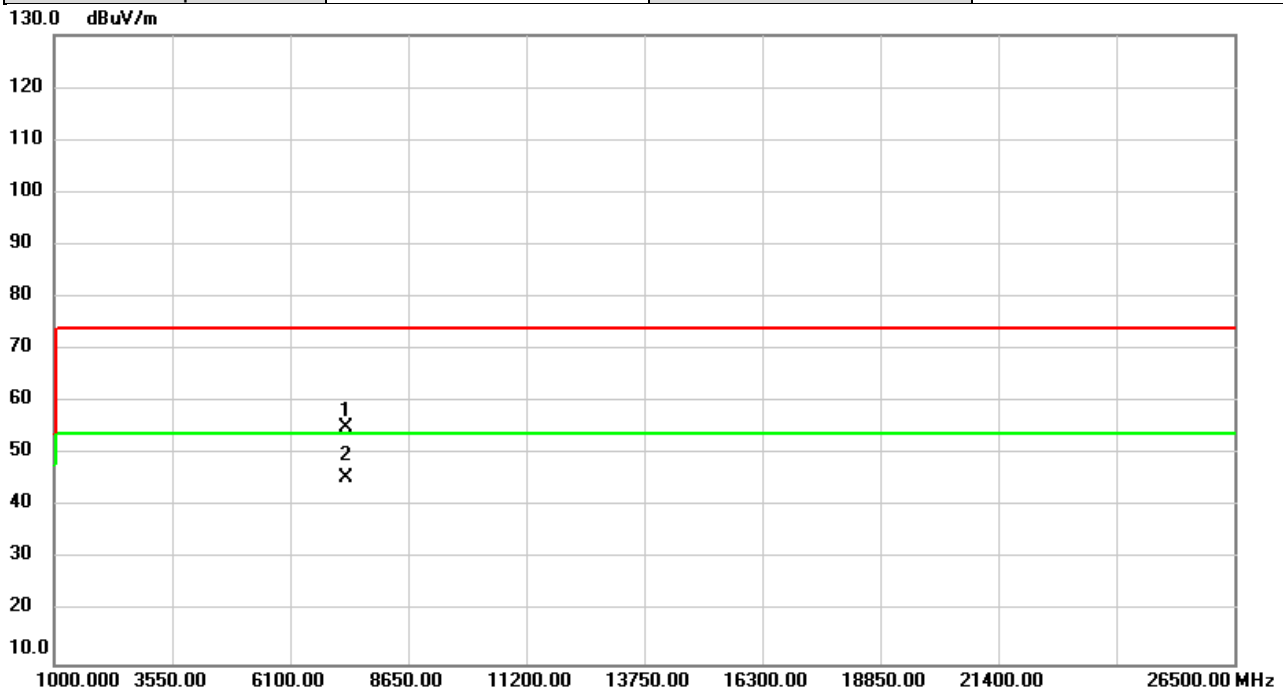


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7311.000	53.80	-2.43	51.37	74.00	-22.63	peak	
2	*	7311.000	44.01	-2.43	41.58	54.00	-12.42	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11g	Test Date	2021/7/3
Test Frequency	2437MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%



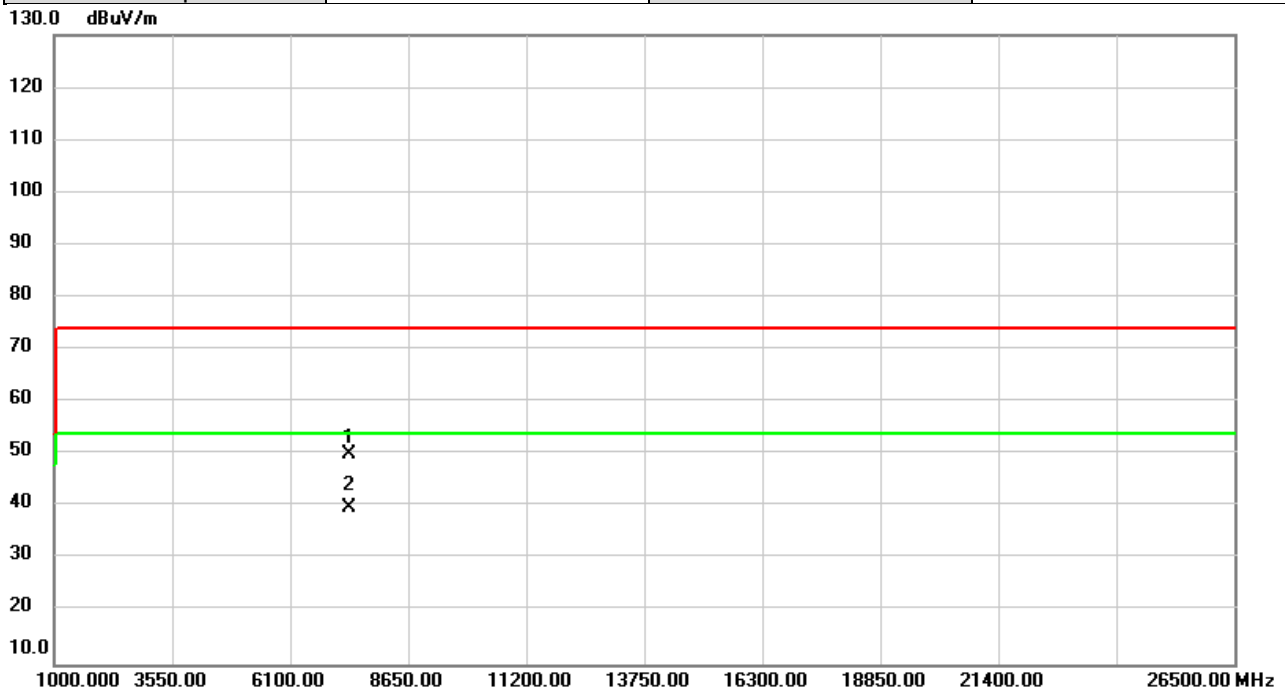
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7311.000	57.64	-2.43	55.21	74.00	-18.79	peak	
2	*	7311.000	47.99	-2.43	45.56	54.00	-8.44	AVG	

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	IEEE 802.11g	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Vertical
Temp	24°C	Hum.	57%

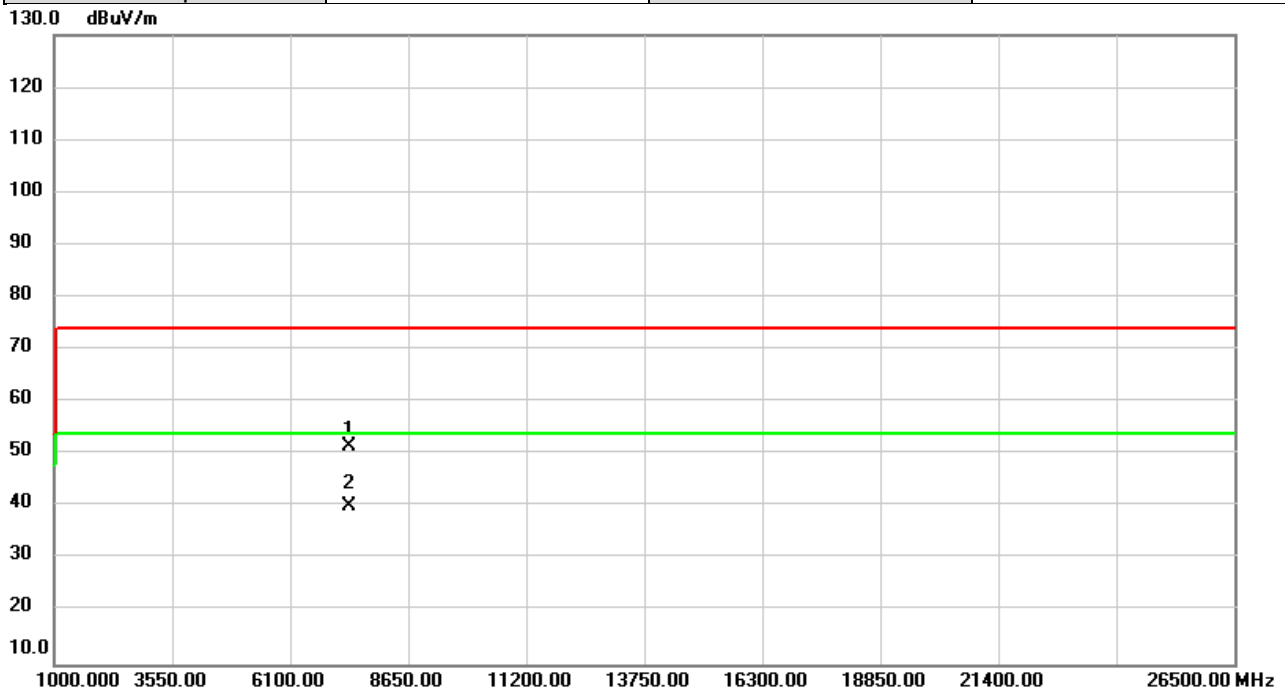


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7386.000	52.22	-2.09	50.13	74.00	-23.87	peak	
2	*	7386.000	42.05	-2.09	39.96	54.00	-14.04	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11g	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

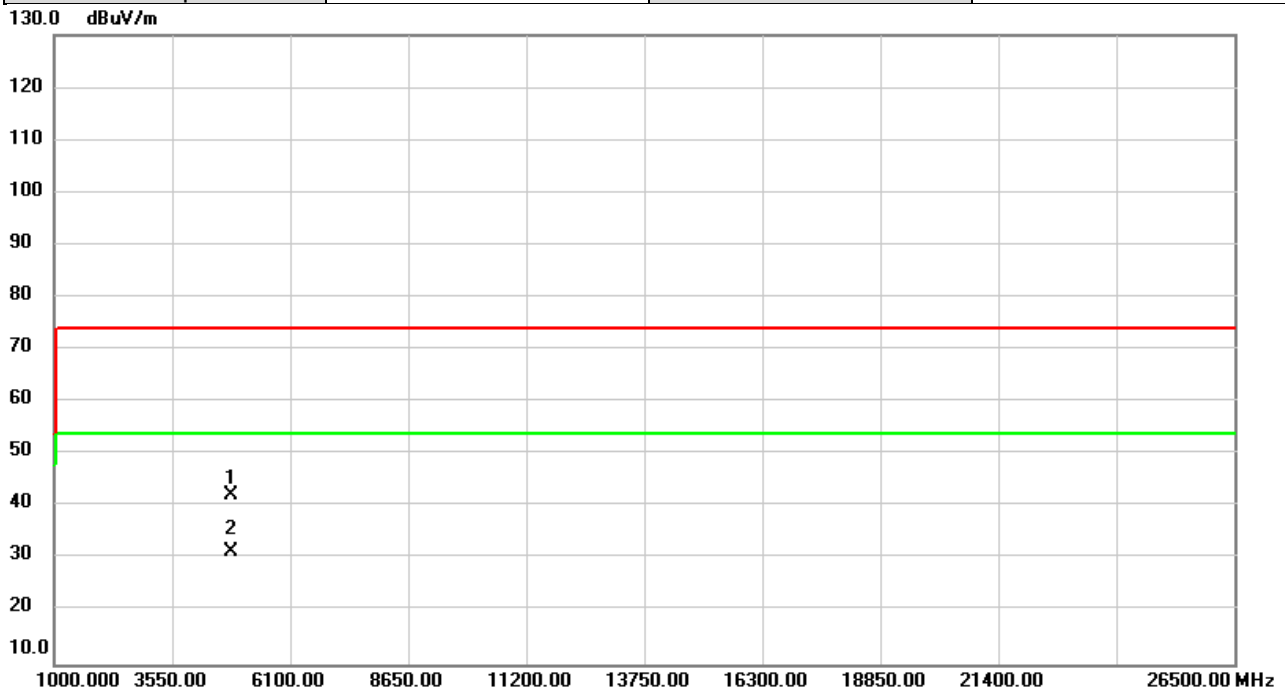


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		7386.000	53.52	-2.09	51.43	74.00	-22.57	peak	
2	*	7386.000	42.23	-2.09	40.14	54.00	-13.86	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Vertical
Temp	24°C	Hum.	57%

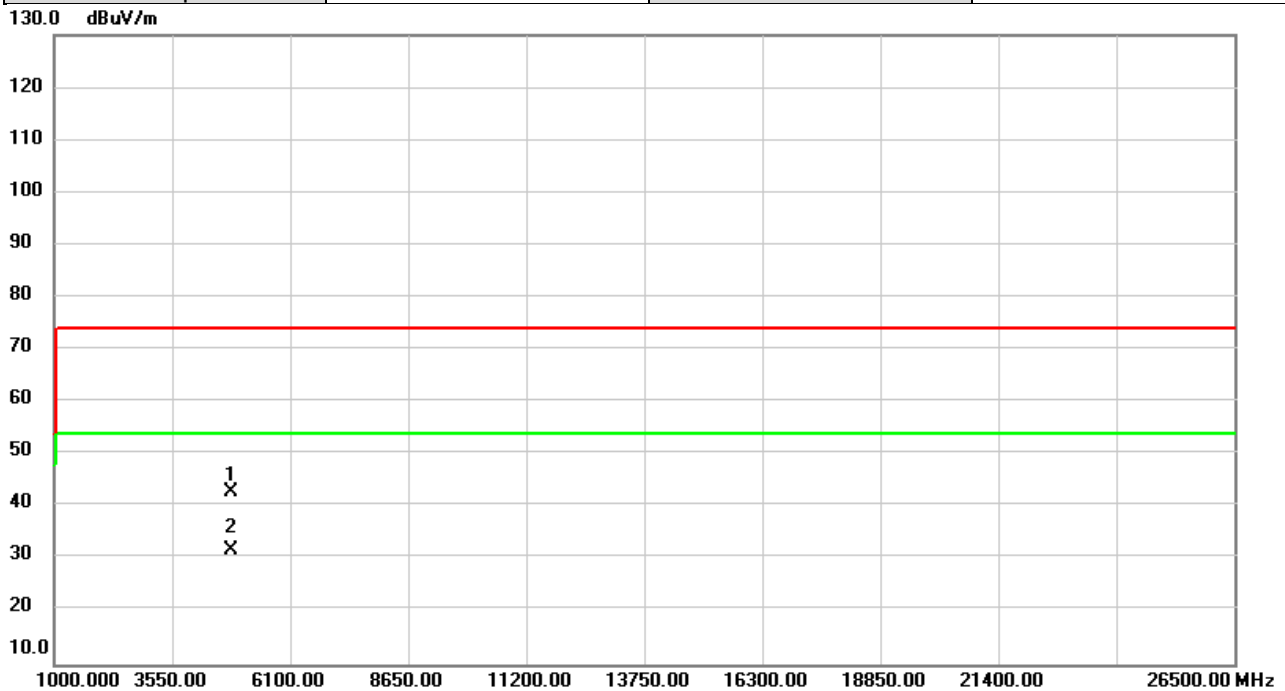


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	52.31	-9.96	42.35	74.00	-31.65	peak	
2	*	4824.000	41.36	-9.96	31.40	54.00	-22.60	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/3
Test Frequency	2412MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%



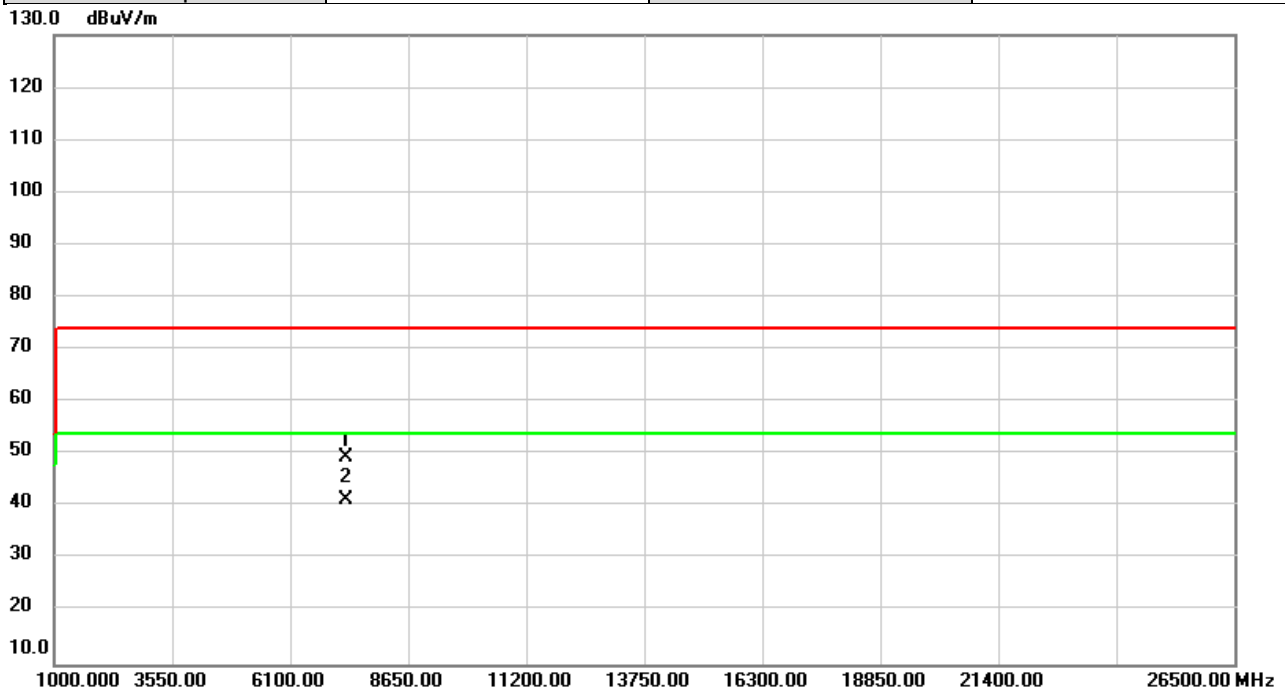
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.000	52.79	-9.96	42.83	74.00	-31.17	peak	
2	*	4824.000	41.57	-9.96	31.61	54.00	-22.39	AVG	

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/3
Test Frequency	2437MHz	Polarization	Vertical
Temp	24°C	Hum.	57%



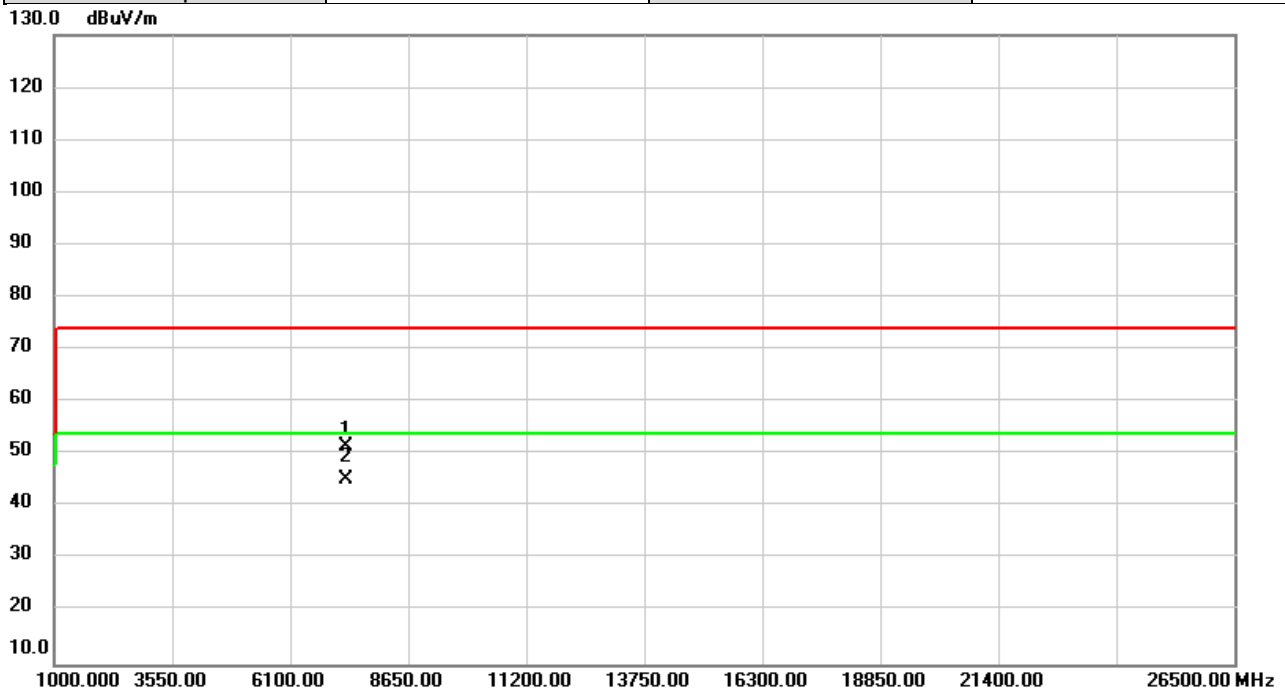
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7311.000	51.79	-2.43	49.36	74.00	-24.64	peak	
2	*	7311.000	43.67	-2.43	41.24	54.00	-12.76	AVG	

## REMARKS:

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



Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/3
Test Frequency	2437MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%

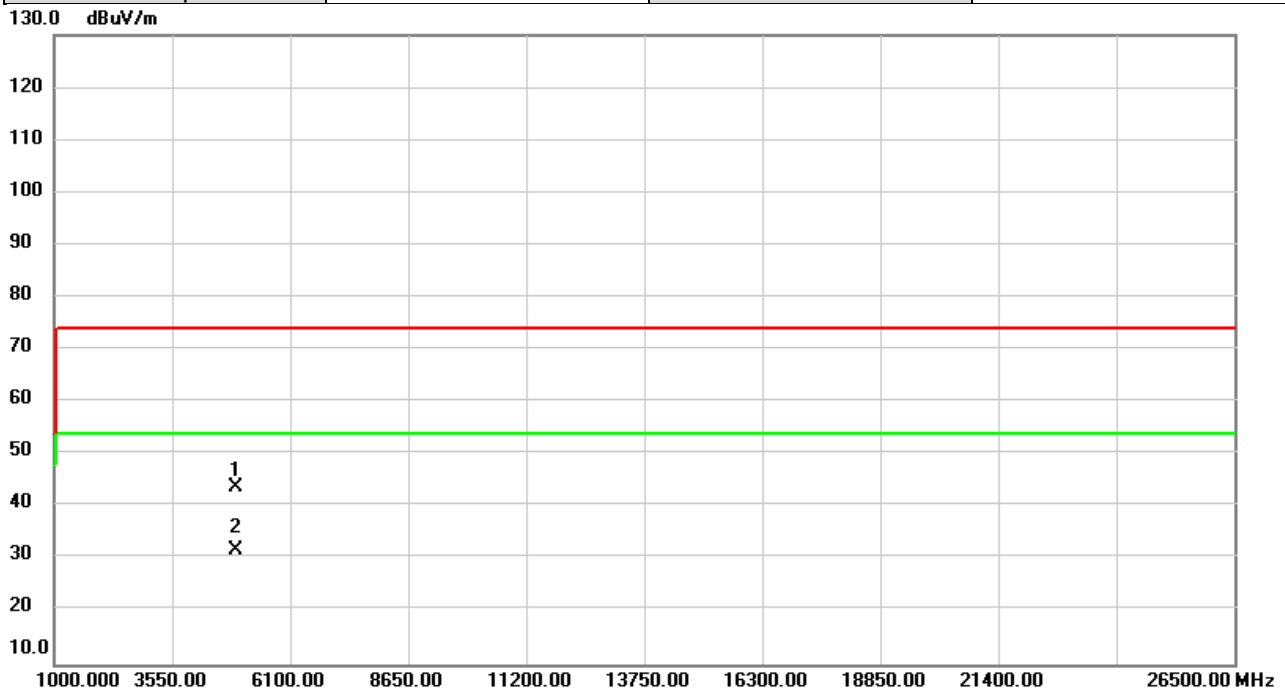


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		7311.000	53.91	-2.43	51.48	74.00	-22.52	peak	
2	*	7311.000	47.72	-2.43	45.29	54.00	-8.71	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Vertical
Temp	24°C	Hum.	57%

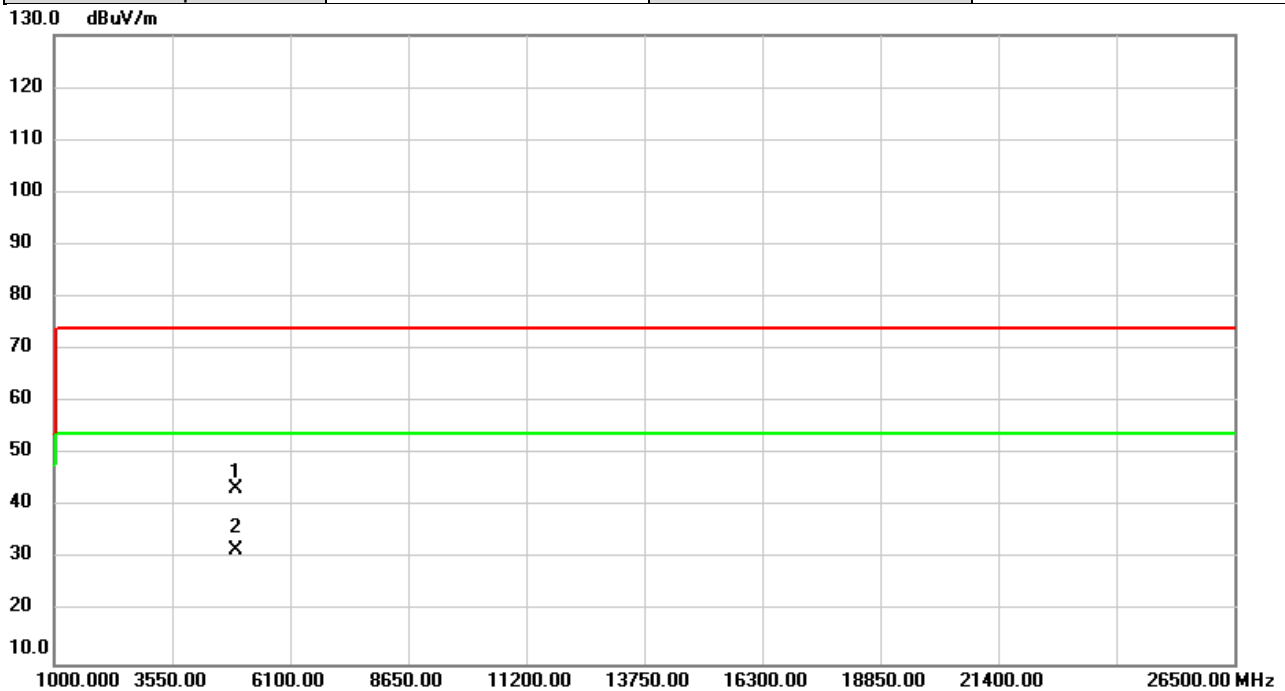


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.000	53.31	-9.62	43.69	74.00	-30.31	peak	
2	*	4924.000	41.33	-9.62	31.71	54.00	-22.29	AVG	

## REMARKS:

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

Test Mode	IEEE 802.11n(HT20)	Test Date	2021/7/3
Test Frequency	2462MHz	Polarization	Horizontal
Temp	24°C	Hum.	57%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.000	52.95	-9.62	43.33	74.00	-30.67	peak	
2	*	4924.000	41.43	-9.62	31.81	54.00	-22.19	AVG	

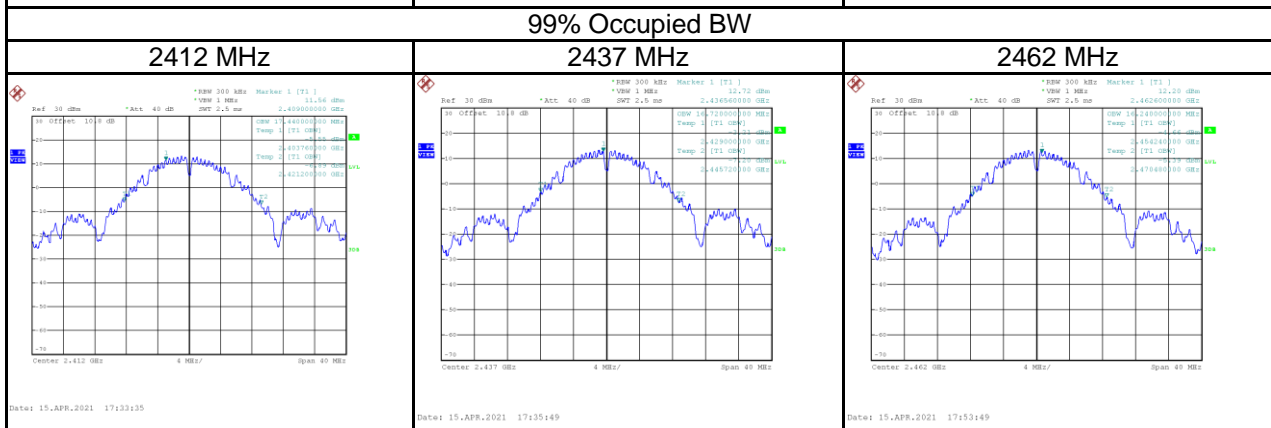
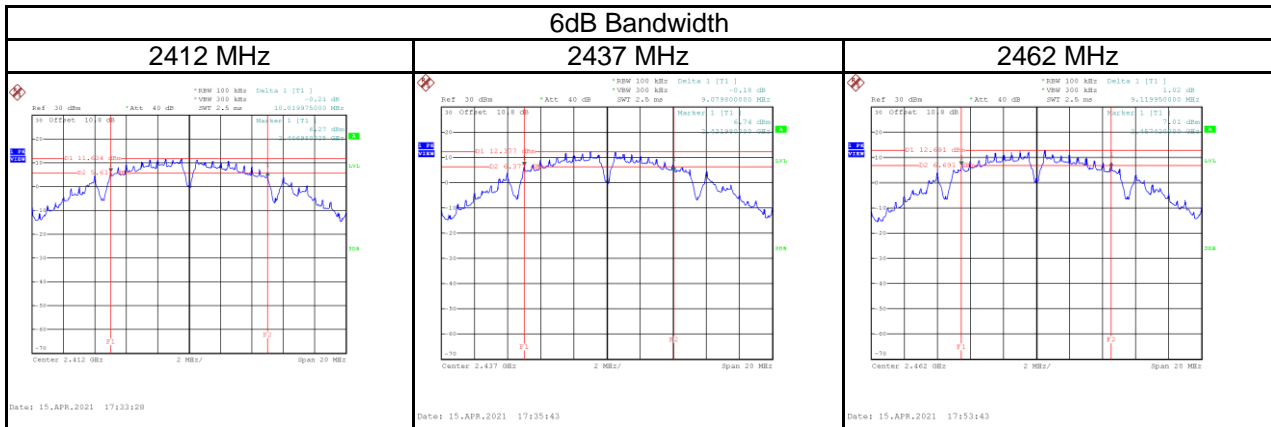
## REMARKS:

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

## **APPENDIX D    BANDWIDTH**

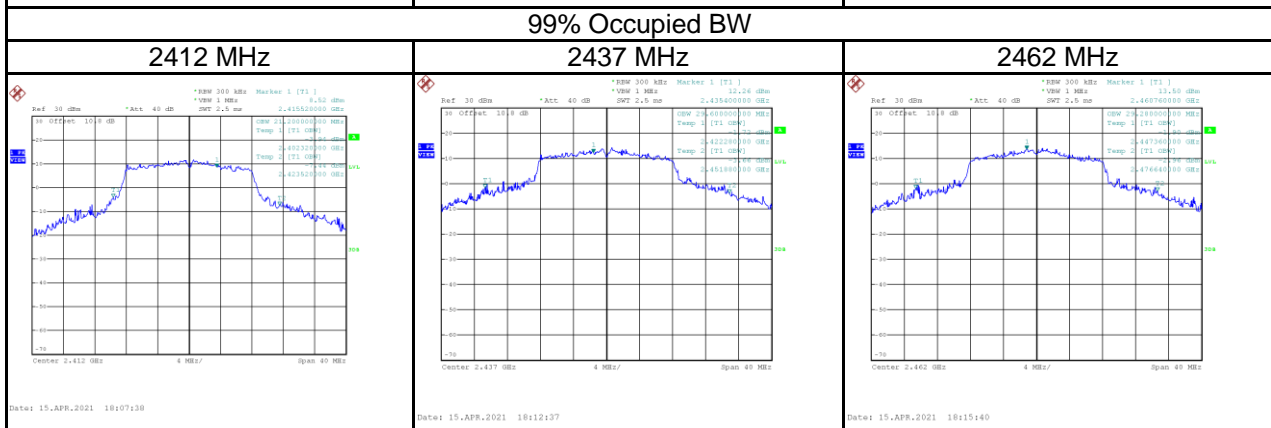
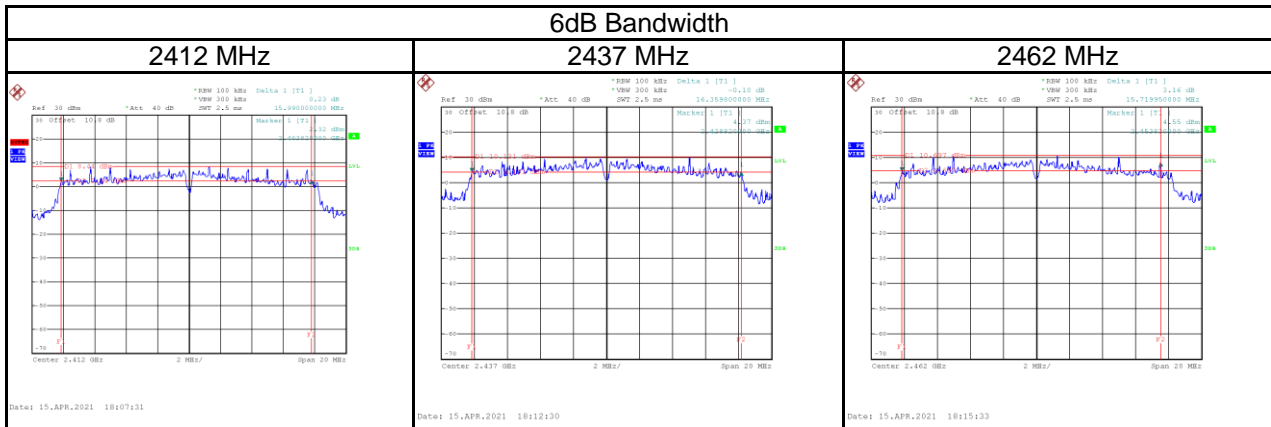
Test Mode	IEEE 802.11b
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Test Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Minimum 6 dB Bandwidth Limit (kHz)	Result
2412	10.02	17.44	$\geq 500$	Pass
2437	9.08	16.72	$\geq 500$	Pass
2462	9.12	16.24	$\geq 500$	Pass



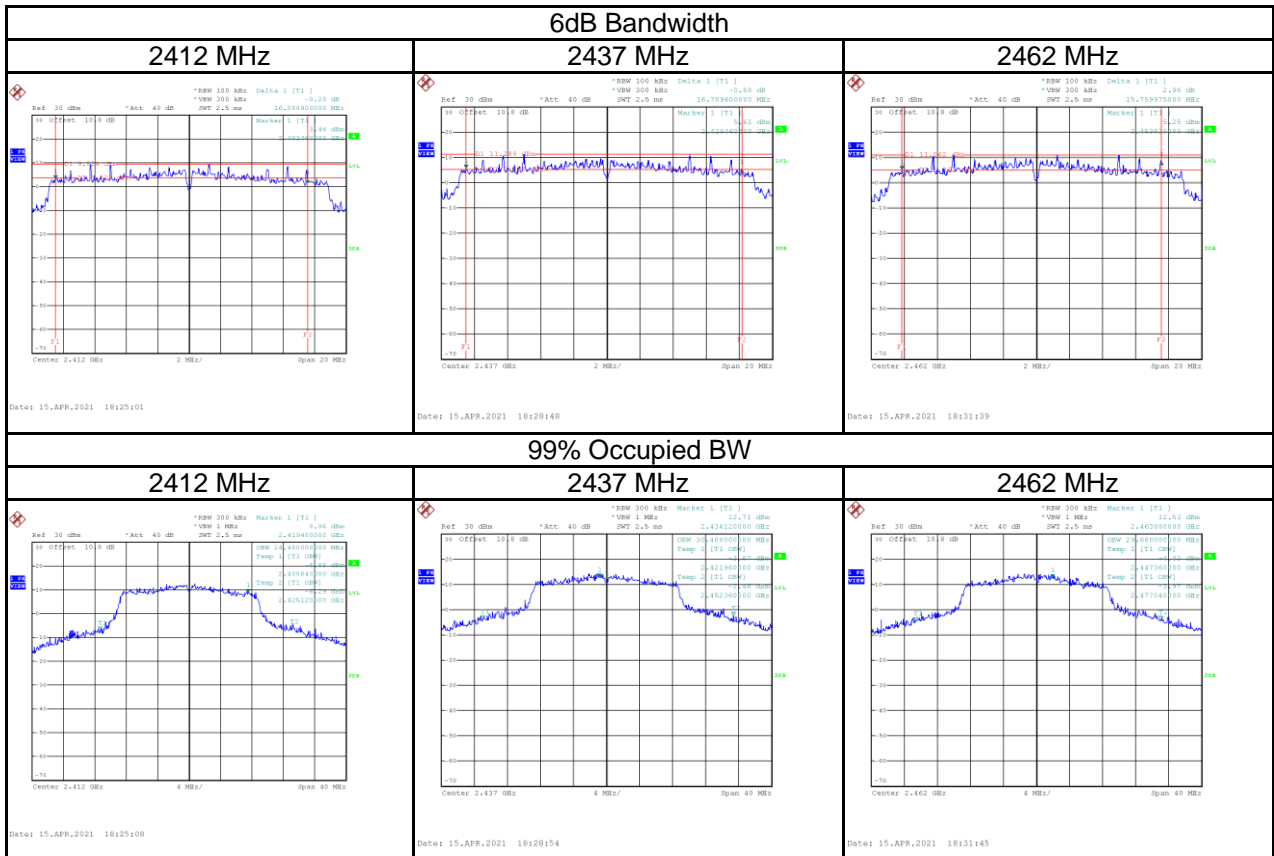
Test Mode	IEEE 802.11g
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Test Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Minimum 6 dB Bandwidth Limit (kHz)	Result
2412	15.99	21.20	$\geq 500$	Pass
2437	16.36	29.60	$\geq 500$	Pass
2462	15.72	29.28	$\geq 500$	Pass



Test Mode	IEEE 802.11n (HT20)
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Test Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Minimum 6 dB Bandwidth Limit (kHz)	Result
2412	16.09	24.48	$\geq 500$	Pass
2437	16.71	30.40	$\geq 500$	Pass
2462	15.76	29.68	$\geq 500$	Pass



## **APPENDIX E    OUTPUT POWER**



Test Mode	IEEE 802.11b	Tested Date	2021/4/15
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Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	20.76	0.1191	30.00	1.0000	Complies
2437	18.76	0.0752	30.00	1.0000	Complies
2462	18.73	0.0746	30.00	1.0000	Complies

Test Mode	IEEE 802.11g	Tested Date	2021/4/15
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Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	22.18	0.1652	30.00	1.0000	Complies
2437	23.19	0.2084	30.00	1.0000	Complies
2462	22.03	0.1596	30.00	1.0000	Complies

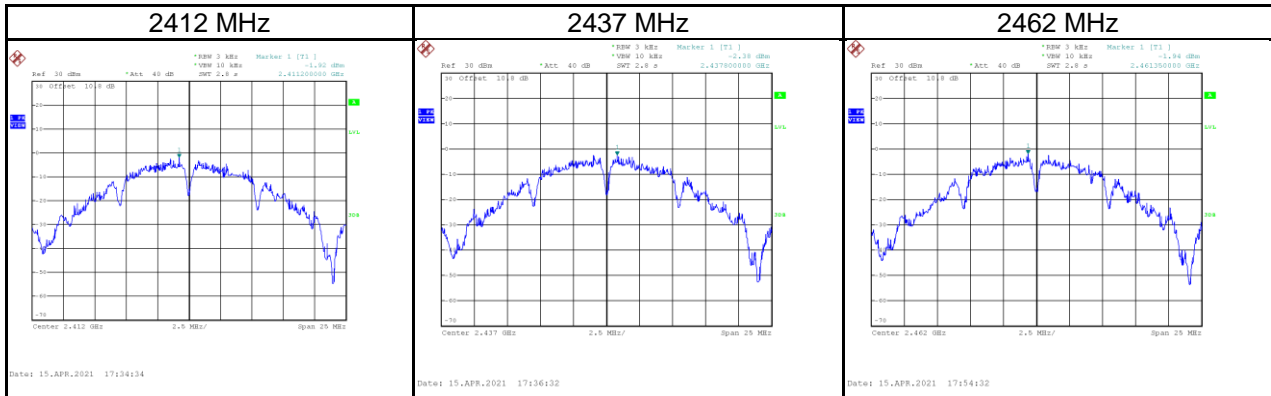
Test Mode	IEEE 802.11n (HT20)	Tested Date	2021/4/15
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Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Limit (dBm)	Limit (W)	Result
2412	21.08	0.1282	30.00	1.0000	Complies
2437	23.26	0.2118	30.00	1.0000	Complies
2462	21.93	0.1560	30.00	1.0000	Complies

## **APPENDIX F    POWER SPECTRAL DENSITY**

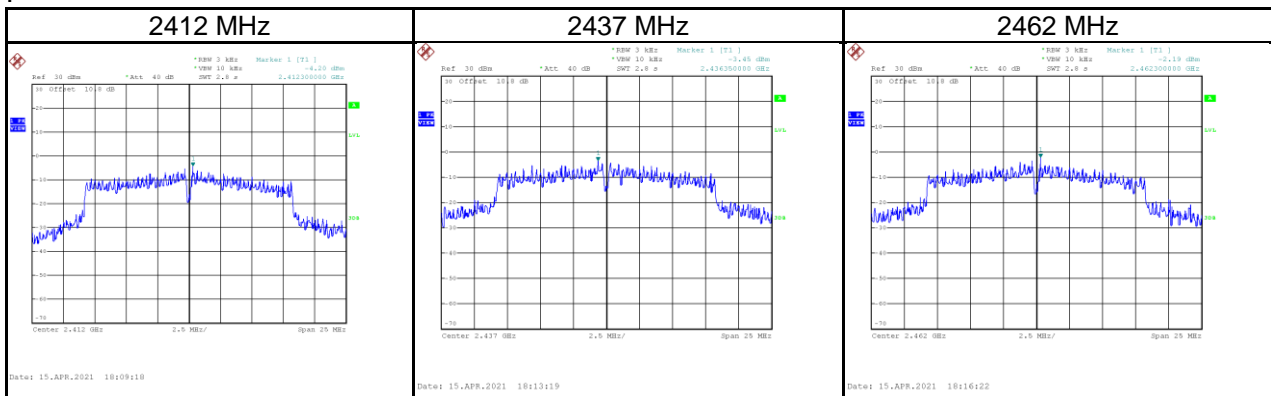
Test Mode	IEEE 802.11b
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Test Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2412	-1.92	8.00	Pass
2437	-2.38	8.00	Pass
2462	-1.94	8.00	Pass



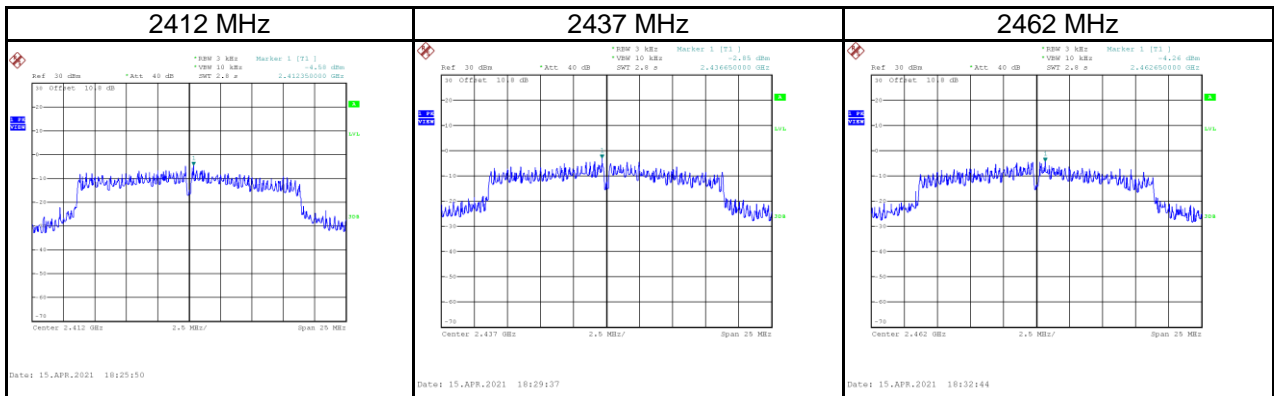
Test Mode	IEEE 802.11g
-----------	--------------

Test Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2412	-4.20	8.00	Pass
2437	-3.45	8.00	Pass
2462	-2.19	8.00	Pass



Test Mode	IEEE 802.11n (HT20)
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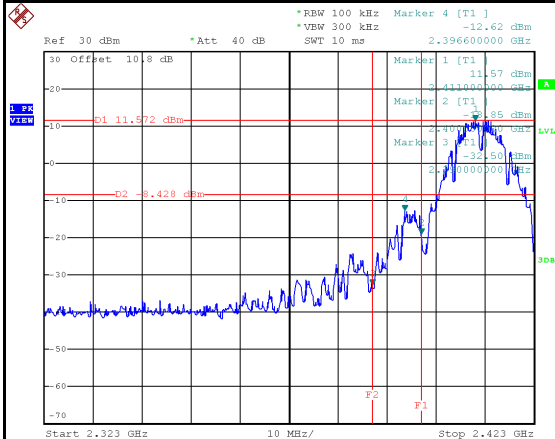
Test Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2412	-4.58	8.00	Pass
2437	-2.85	8.00	Pass
2462	-4.26	8.00	Pass



## **APPENDIX G    ANTENNA CONDUCTED SPURIOUS EMISSIONS**

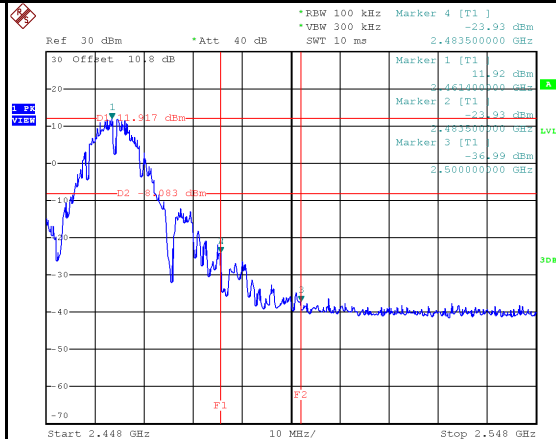
Test Mode IEEE 802.11b

## Low Bandedge-2412 MHz



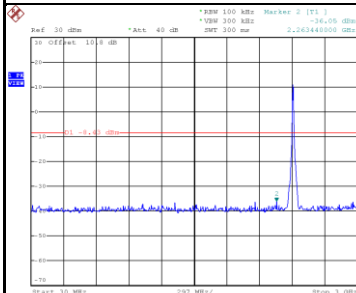
Date: 15.APR.2021 17:33:59

## High Bandedge-2462 MHz

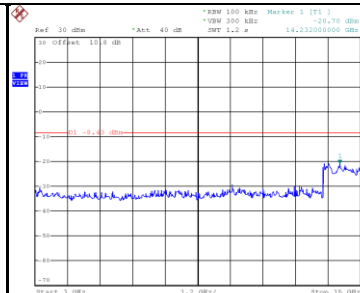


Date: 15.APR.2021 17:53:56

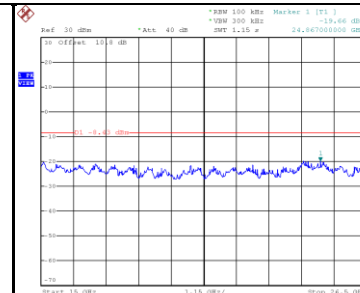
## 2412 MHz-10th Harmonics



Date: 15.APR.2021 17:34:12

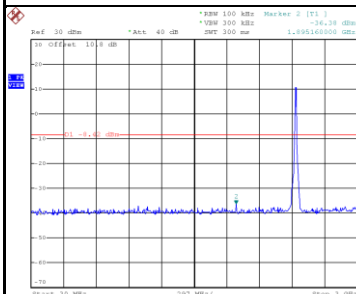


Date: 15.APR.2021 17:34:19

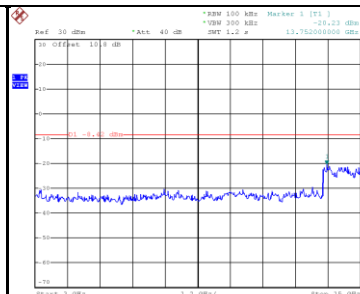


Date: 15.APR.2021 17:34:26

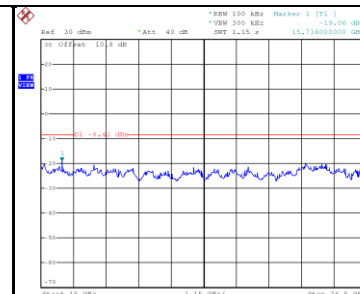
## 2437 MHz-10th Harmonics



Date: 15.APR.2021 17:36:10

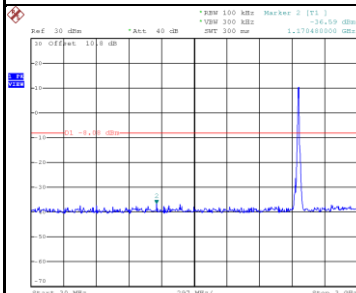


Date: 15.APR.2021 17:36:17

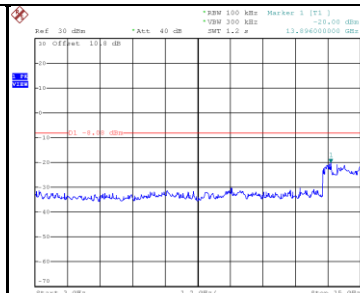


Date: 15.APR.2021 17:36:24

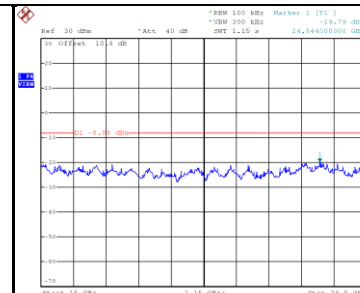
## 2462 MHz-10th Harmonics



Date: 15.APR.2021 17:54:09



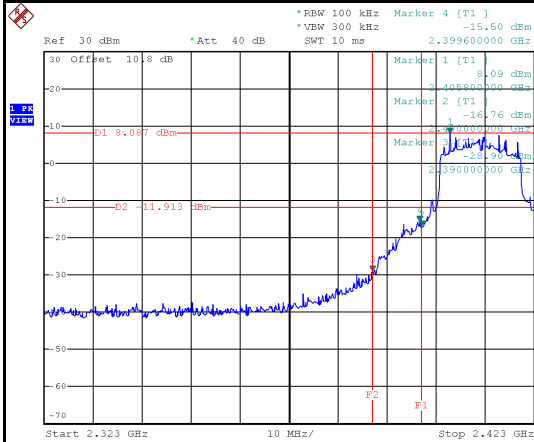
Date: 15.APR.2021 17:54:16



Date: 15.APR.2021 17:54:23

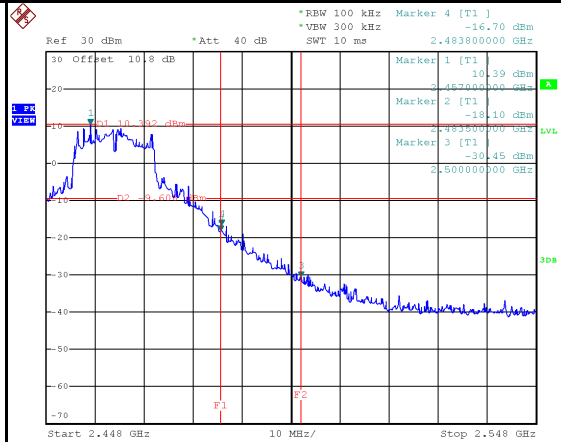
Test Mode IEEE 802.11g

## Low Bandedge-2412 MHz



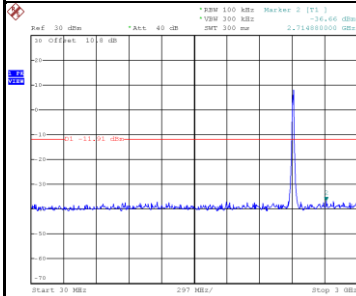
Date: 15.APR.2021 18:07:45

## High Bandedge-2462 MHz

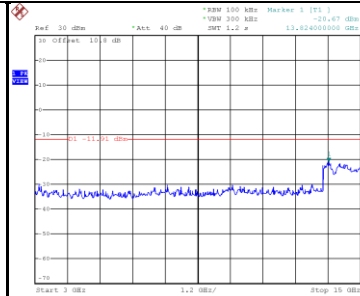


Date: 15.APR.2021 18:15:47

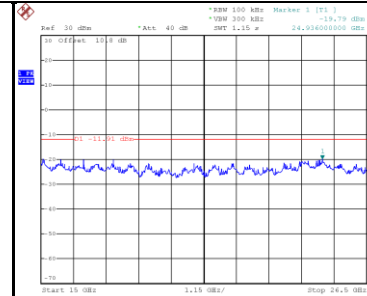
## 2412 MHz-10th Harmonics



Date: 15.APR.2021 18:07:57

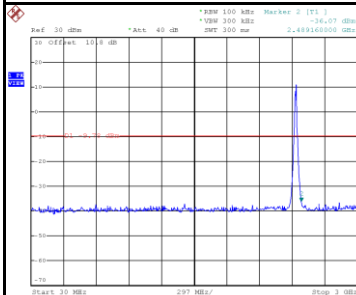


Date: 15.APR.2021 18:08:05

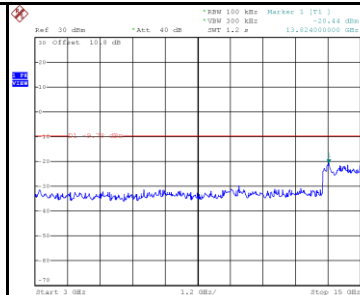


Date: 15.APR.2021 18:08:11

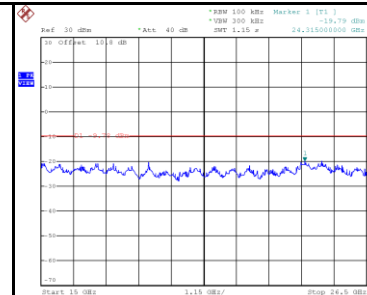
## 2437 MHz-10th Harmonics



Date: 15.APR.2021 18:12:56

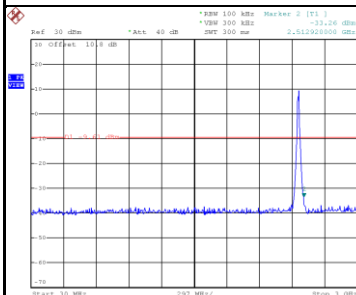


Date: 15.APR.2021 18:13:04

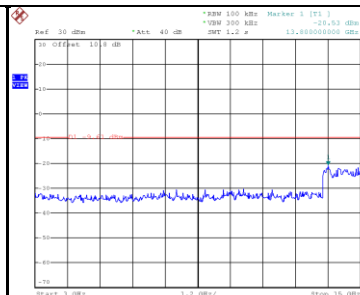


Date: 15.APR.2021 18:13:11

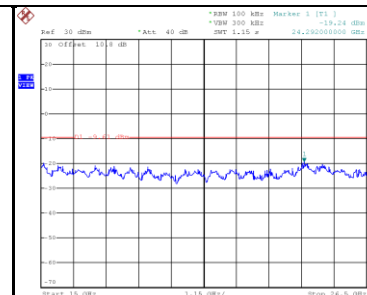
## 2462 MHz-10th Harmonics



Date: 15.APR.2021 18:16:00



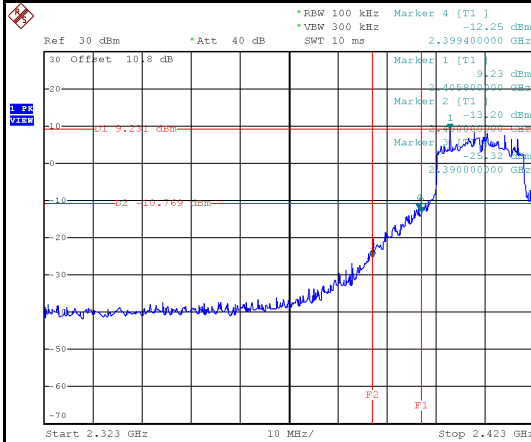
Date: 15.APR.2021 18:16:07



Date: 15.APR.2021 18:16:14

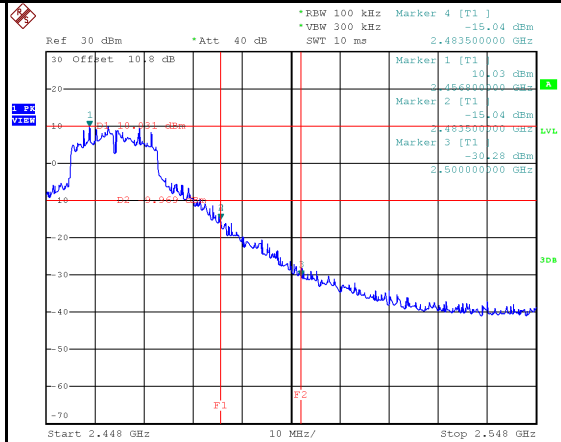
Test Mode IEEE 802.11n (HT20)

## Low Bandedge-2412 MHz



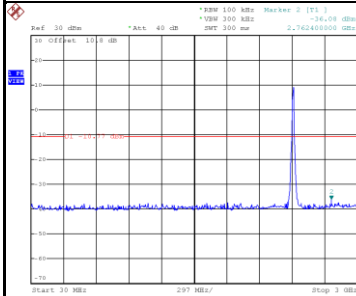
Date: 15.APR.2021 18:25:15

## High Bandedge-2462 MHz

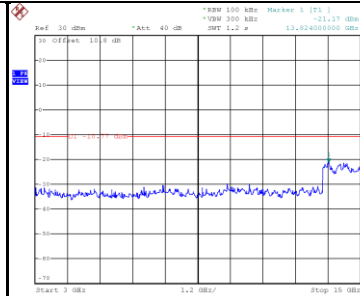


Date: 15.APR.2021 18:32:09

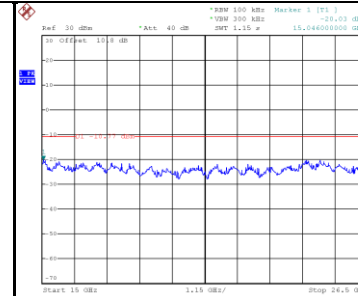
## 2412 MHz-10th Harmonics



Date: 15.APR.2021 18:25:18

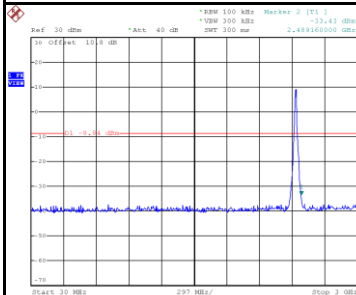


Date: 15.APR.2021 18:25:15

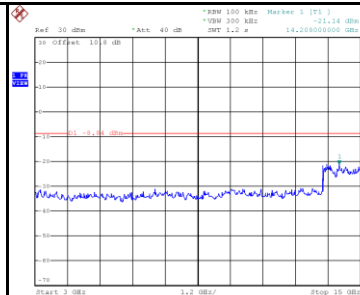


Date: 15.APR.2021 18:25:42

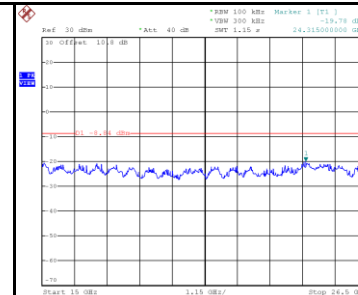
## 2437 MHz-10th Harmonics



Date: 15.APR.2021 18:29:14

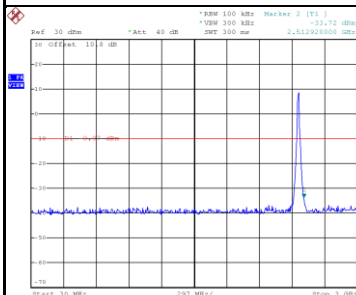


Date: 15.APR.2021 18:29:21

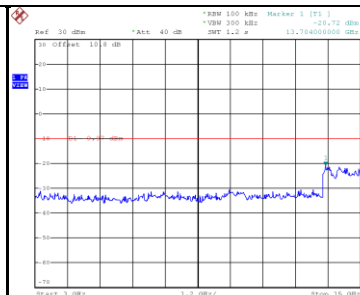


Date: 15.APR.2021 18:29:28

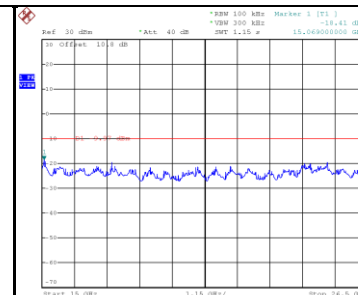
## 2462 MHz-10th Harmonics



Date: 15.APR.2021 18:32:22



Date: 15.APR.2021 18:32:29



Date: 15.APR.2021 18:32:36

End of Test Report