

## ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

**Applicant:** LOUIS VUITTON MALLETIER  
2, rue du Pont Neuf 75001 PARIS

**Product Name:** Louis Vuitton Tambour Horizon

**Brand Name:** LOUIS VUITTON

**Model No.:** QAD0

**Model Difference:** N/A

**Report Number:** E2/2020/C0018

**FCC ID** 2ALDGQAD0

**IC:** 22571-QAD0

**FCC Rule Part:** §15.247, Cat: DTS

**IC RSS:** RSS-247 issue 2 Feb 2017

**Issue Date:** February 4, 2021

**Date of Test:** December 3, 2020 - December 30, 2020

**Date of EUT Received:** December 3, 2020

**We hereby certify that:**

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Approved By:



Jay Lin / Asst. Supervisor



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## Revision History

Report Number	Revision	Description	Issue Date	Remark
E2/2020/C0018	Rev.00	Original.	February 4, 2021	Revised By: Violetta Tang

**Note:****1、Disclaimer**

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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## 1 GENERAL INFORMATION

### 1.1 Product description

Product Name:	Louis Vuitton Tambour Horizon
Brand Name:	LOUIS VUITTON
Model No.:	QAD0
Model Difference:	N/A
Hardware Version:	N/A
Software Version:	N/A
EUT Series No.:	20J745641534
Power Supply:	3.8Vdc from Rechargeable Li-ion Battery or 5V from AC/DC Adapter

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (dBm)	Modulation Technology		
b	2412-2472	13	18.59	DSSS		
g			19.49	OFDM		
n_HT20			19.51			
Modulation type:	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM					
Data Rate:	802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_HT20: 6.5 – 72.2 Mbps					

### 1.2 Antenna Designation

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
Loop	N/A	N/A	2412~2472	-7.14

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### 1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

RSS-247 issue 2 Feb. 2017

RSS-Gen. issue 5, Amendment 1, March 2019

ANSI C63.10:2013

### 1.4 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702)

No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333

FCC Designation number: TW0028

ISED CAB identifier: TW3702

### 1.5 Special Accessories

There are no special accessories used while test was conducted.

### 1.6 Equipment Modifications

There was no modification incorporated into the EUT.

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## 2 SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

#### 2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

#### 2.3.3 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

### 2.4 Measurement Results Explanation Example

#### 2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m\*9m\*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

#### 2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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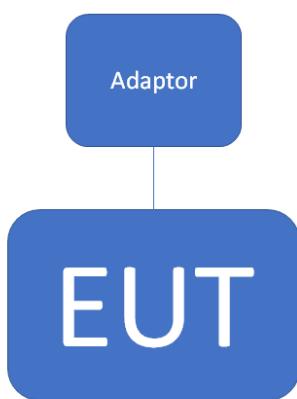
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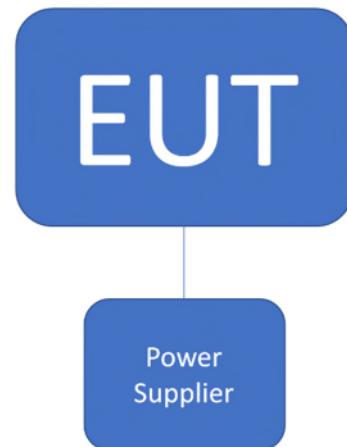
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## 2.5 Configuration of Tested System

**Fig. 2-1 Radiated Emission & Conducted (AC Power Line) Configuration**



**Fig. 2-2 Conducted (Antenna Port) Configuration**



**Table 2-1 Equipment Used in Tested System**

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2	DC Power Supply	Agilent	E3640A	MY53130054	N/A	N/A

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### 3 SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §5.4 d	Peak Output Power	Compliant
§15.247(a)(2)	RSS-247 §5.2 a RSS-Gen §6.7	6dB & 99% Emission Bandwidth	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10 RSS-Gen §6.13	Radiated & Conducted Band Edge and Spurious Emission	Compliant
§15.247(e)	RSS-247 §5.2 b	Power Spectral Density	Compliant
§15.203 §15.247(b)	N/A	Antenna Requirement	Compliant

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## 4 DESCRIPTION OF TEST MODES

### 4.1 Operated in 2400 ~ 2483.5MHz Band

13 channels are provided for 802.11b/g/n 20M.

CHANNEL	FREQUENCY (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462
12	2467
13	2472

### 4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
3. Investigation has been done on all the possible configurations for searching the worst case.

The given UE is pre-scanned among below modes.

Modulation	Transmission Chain				Single Transmission Spatial	Multiple Transmission Spatial
<input checked="" type="checkbox"/> 802.11 b	<input checked="" type="checkbox"/> Ch0	<input type="checkbox"/> Ch1	<input type="checkbox"/> Ch2	<input type="checkbox"/> Ch3	<input checked="" type="checkbox"/> 1TX	<input type="checkbox"/> 2TX
<input checked="" type="checkbox"/> 802.11 g	<input checked="" type="checkbox"/> Ch0	<input type="checkbox"/> Ch1	<input type="checkbox"/> Ch2	<input type="checkbox"/> Ch3	<input checked="" type="checkbox"/> 1TX	<input type="checkbox"/> 2TX
<input checked="" type="checkbox"/> 802.11 n	<input checked="" type="checkbox"/> Ch0	<input type="checkbox"/> Ch1	<input type="checkbox"/> Ch2	<input type="checkbox"/> Ch3	<input checked="" type="checkbox"/> SISO	<input type="checkbox"/> MIMO

4. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.
5. There are 2 type of wrist bands: Metal and Non-Metal. The 2 wrist bands were pre-tested, and the metal wrist band was tested fully for all required items.

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## 4.3 Radiated Emission Test:

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
<b>RADIATED EMISSION TEST (BELOW 1 GHz)</b>					
802.11g	1 to 13	6	OFDM	6	Ch0
<b>RADIATED EMISSION TEST (ABOVE 1 GHz)</b>					
802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	1	Ch0
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	6	Ch0
802.11n20M	1 to 13	1, 6, 11, 12, 13	OFDM	MCS 0	Ch0

**Note:**

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11b/g/n WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

## 4.4 Antenna Port Conducted Mesurement:

<b>CONDUCTED TEST</b>					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	1	Ch0
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	6	Ch0
802.11n 20M	1 to 13	1, 6, 11, 12, 13	OFDM	MCS 0	Ch0

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## 5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
Peak Output Power	+/- 0.84 dB
6dB Bandwidth	+/- 51.33 Hz
100 KHz Bandwidth Of Frequency Band Edges	+/- 0.84 dB
Peak Power Density	+/- 1.3 dB
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission Measurement Uncertainty	
<b>Polarization: Vertical</b>	9kHz~30MHz: +/- 2.3dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB
<b>Polarization: Horizontal</b>	9kHz~30MHz: +/- 2.3dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

**Note:**

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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## 6 CONDUCTED EMISSION TEST

### 6.1 Standard Applicable

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

**Note**

1.The lower limit shall apply at the transition frequencies

2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 6.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
LISN	SCHWARZBECK Mess-Elektronik	NSLK8127	974	03/25/2020	03/24/2021
EMI Test Receiver	R&S	ESCI	101342	04/28/2020	04/27/2021

### 6.3 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

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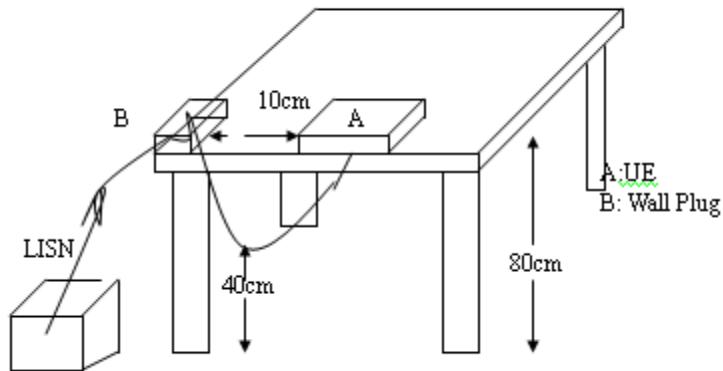
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## 6.4 Test SET-UP (Block Diagram of Configuration)



## 6.5 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed

## 6.6 Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The \* reveals the worst-case results that closet to the limit.

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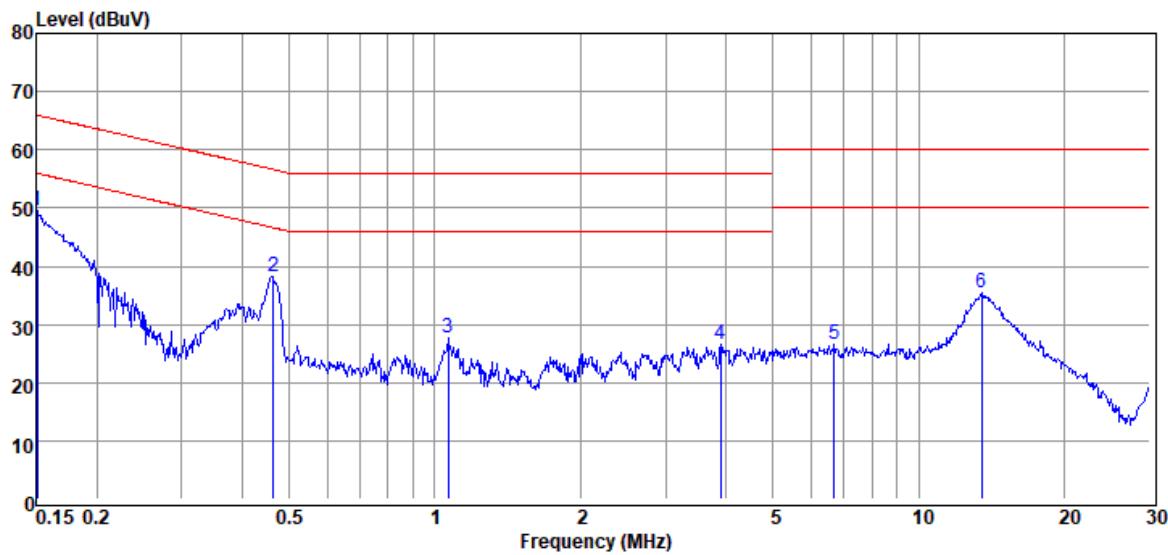
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## AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number	:E2/2020/C0018	Test Site	:Conduction Room C
Test Mode	:WLAN 2.4G	Test Date	:2020-12-24
Power	:120V/60Hz	Temp./Humi.	:24.0/62
Probe	:L1	Engineer	:Kailin Lee



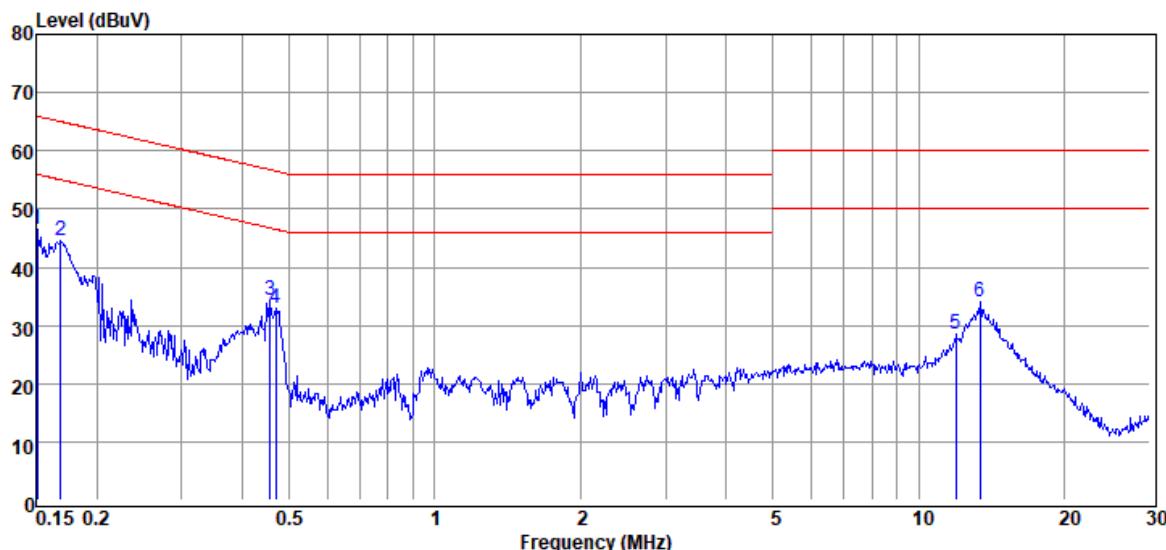
Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual	Limit dB $\mu$ V	Margin dB
				FS dB $\mu$ V		
0.15	Peak	39.30	10.22	49.52	65.96	-16.44
0.46	Peak	28.00	10.22	38.22	56.63	-18.41
1.07	Peak	17.25	10.44	27.69	56.00	-28.31
3.90	Peak	16.03	10.48	26.51	56.00	-29.49
6.70	Peak	15.99	10.59	26.58	60.00	-33.42
13.48	Peak	24.57	10.76	35.33	60.00	-24.67

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Report Number :E2/2020/C0018 Test Site :Conduction Room C  
Test Mode :WLAN 2.4G Test Date :2020-12-24  
Power :120V/60Hz Temp./Humi. :24.0/62  
Probe :N Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V	Limit dB $\mu$ V	Margin
						dB
0.15	Peak	36.43	10.21	46.64	65.96	-19.32
0.17	Peak	34.25	10.21	44.46	65.03	-20.57
0.46	Peak	23.99	10.22	34.21	56.76	-22.55
0.47	Peak	22.76	10.22	32.98	56.54	-23.56
11.93	Peak	17.70	10.75	28.45	60.00	-31.55
13.41	Peak	23.25	10.77	34.02	60.00	-25.98

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## 7 DUTY CYCLE OF TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

### 7.1 Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

### 7.2 Duty Cycle:

	<b>Duty Cycle (%) = Ton / (Ton+Toff)</b>	<b>Duty Factor (dB) =10*log ( 1/Duty Cycle )</b>	<b>1/T (kHz)</b>	<b>VBW setting (kHz)</b>
802.11b	97.51	0.11	0.12	1.00
802.11g	87.18	0.60	0.74	1.00
802.11n_20	86.44	0.63	0.78	1.00

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## 7.3 Duty Cycle test plots

WLAN\802.11b\_20MHz\_Chain0\_2437MHz



WLAN\802.11g\_20MHz\_Chain0\_2437MHz



WLAN\802.11n\_20MHz\_Chain0\_2437MHz



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## 8 PEAK OUTPUT POWER MEASUREMENT

### 8.1 Standard Applicable

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt and the e.i.r.p. shall not exceed 4 W.

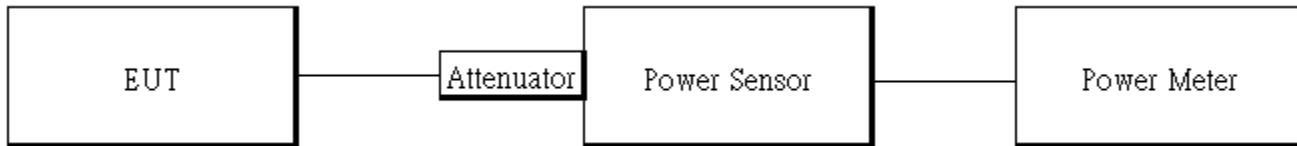
If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

### 8.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1512003	07/23/2020	07/22/2021
Power Sensor	Anritsu	MA2411B	1339378	07/23/2020	07/22/2021
Power Sensor	Anritsu	MA2411B	1339379	07/23/2020	07/22/2021
DC Power Supply	Agilent	E3640A	MY53130054	09/07/2020	09/06/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021

### 8.3 Test Set-up



### 8.4 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

#### Power Meter:

It is used as the auxiliary test equipment to conduct the output power measurement.

4. Record the max. Reading as observed from Spectrum or Power Meter.

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## 8.5 Measurement Result

### Peak & Avg.

802.11b Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	<b>18.59</b>	30.00	PASS
6	2437	1	18.24	30.00	PASS
11	2462	1	18.45	30.00	PASS
12	2467	1	18.43	30.00	PASS
13	2472	1	18.38	30.00	PASS

802.11b Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	1	<b>15.98</b>	30.00	PASS
6	2437	1	15.61	30.00	PASS
11	2462	1	15.92	30.00	PASS
12	2467	1	15.90	30.00	PASS
13	2472	1	15.97	30.00	PASS

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802.11g Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	<b>19.49</b>	30.00	PASS
6	2437	6	18.90	30.00	PASS
11	2462	6	19.08	30.00	PASS
12	2467	6	19.15	30.00	PASS
13	2472	6	19.28	30.00	PASS
802.11g Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	6	10.72	30.00	PASS
6	2437	6	10.14	30.00	PASS
11	2462	6	10.73	30.00	PASS
12	2467	6	<b>10.78</b>	30.00	PASS
13	2472	6	10.68	30.00	PASS
802.11n HT20M Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	<b>19.51</b>	30.00	PASS
6	2437	MCS0	18.88	30.00	PASS
11	2462	MCS0	19.07	30.00	PASS
12	2467	MCS0	19.18	30.00	PASS
13	2472	MCS0	19.21	30.00	PASS
802.11n HT20M Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	<b>10.79</b>	30.00	PASS
6	2437	MCS0	10.09	30.00	PASS
11	2462	MCS0	10.62	30.00	PASS
12	2467	MCS0	10.71	30.00	PASS
13	2472	MCS0	10.75	30.00	PASS

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## EIRP

802.11b Ch0							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	1	15.98	-7.14	<b>8.84</b>	36	PASS
6	2437	1	15.61	-7.14	8.47	36	PASS
11	2462	1	15.92	-7.14	8.78	36	PASS
12	2467	1	15.90	-7.14	8.76	36	PASS
13	2472	1	15.97	-7.14	8.83	36	PASS

802.11g Ch0							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	6	10.72	-7.14	3.58	36	PASS
6	2437	6	10.14	-7.14	3.00	36	PASS
11	2462	6	10.73	-7.14	3.59	36	PASS
12	2467	6	10.78	-7.14	<b>3.64</b>	36	PASS
13	2472	6	10.68	-7.14	3.54	36	PASS

802.11n_HT20M Ch0							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	10.79	-7.14	<b>3.65</b>	36	PASS
6	2437	MCS0	10.09	-7.14	2.95	36	PASS
11	2462	MCS0	10.62	-7.14	3.48	36	PASS
12	2467	MCS0	10.71	-7.14	3.57	36	PASS
13	2472	MCS0	10.75	-7.14	3.61	36	PASS

**\* Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.**

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## 9 6DB & 99% BANDWIDTH MEASUREMENT

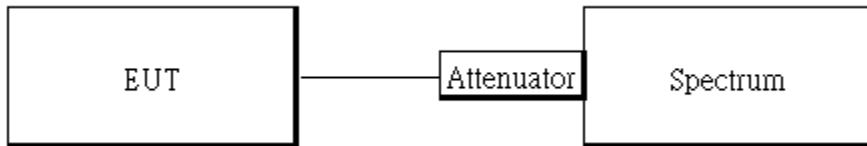
### 9.1 Standard Applicable

The minimum 6 dB bandwidth shall be at least 500 kHz.

### 9.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071574	06/24/2020	06/23/2021
DC Power Supply	Agilent	E3640A	MY53130054	09/07/2020	09/06/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021

### 9.3 Test Set-up



### 9.4 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set the spectrum analyzer as  
RBW= 100kHz ,  
VBW = 3 X RBW,  
Span= 2 to 5 times of the OBW,  
Sweep=auto,  
Detector = Peak, and Max hold for -6dB Bandwidth test.
5. Set the spectrum analyzer as  
RBW= 1 % to 5% of 99% Bandwidth ,  
VBW  $\geq$  3 X RBW,  
Span= large enough to capture all products of the modulation process,  
Sweep=auto,  
Detector = Peak, and Max hold for 99% Bandwidth test.
6. Turn on the 99% bandwidth function, max reading.
7. Repeat above procedures until all test default channel is completed

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## 9.5 6dB Bandwidth

## 802.11b Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	8555.00	> 500	PASS
2437	8565.00	> 500	PASS
2462	<b>8585.00</b>	> 500	PASS
2467	<b>8110.00</b>	> 500	PASS
2472	8103.00	> 500	PASS

## 802.11g Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	16450.00	> 500	PASS
2437	<b>16460.00</b>	> 500	PASS
2462	16430.00	> 500	PASS
2467	<b>16440.00</b>	> 500	PASS
2472	16430.00	> 500	PASS

## 802.11\_n\_HT20 Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	<b>17660.00</b>	> 500	PASS
2437	17650.00	> 500	PASS
2462	17640.00	> 500	PASS
2467	<b>17640.00</b>	> 500	PASS
2472	<b>17640.00</b>	> 500	PASS

\*Refer to next page for plots

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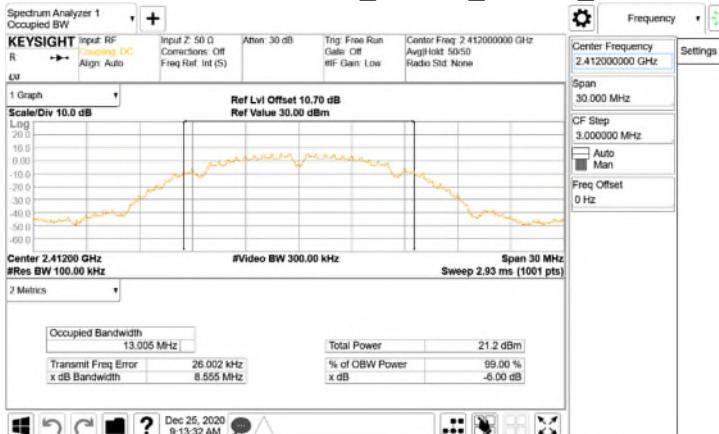
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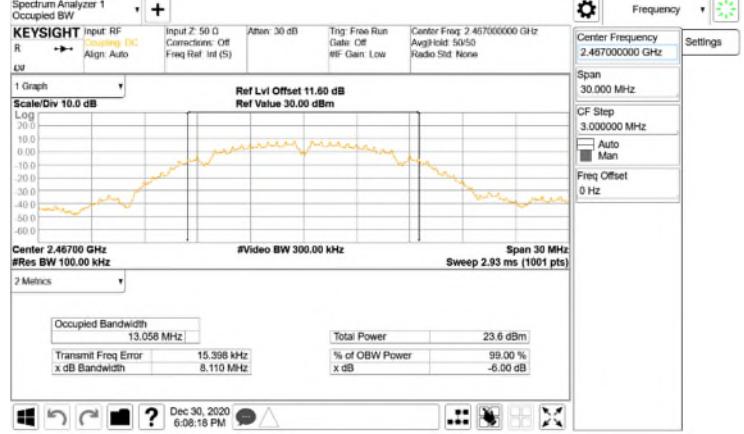
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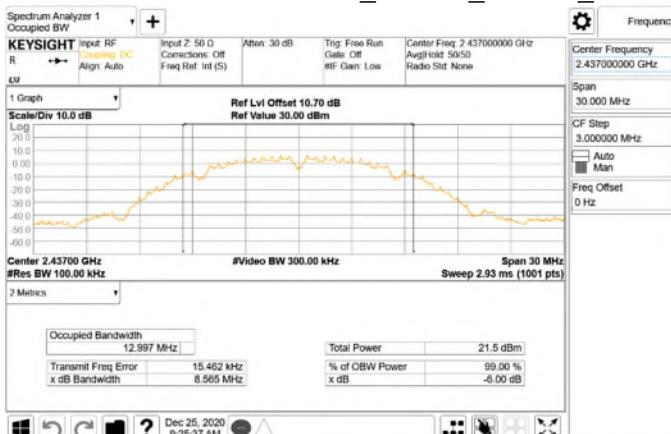
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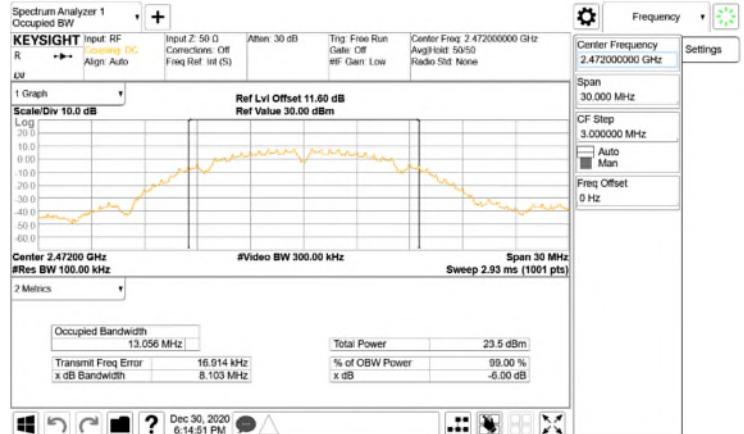
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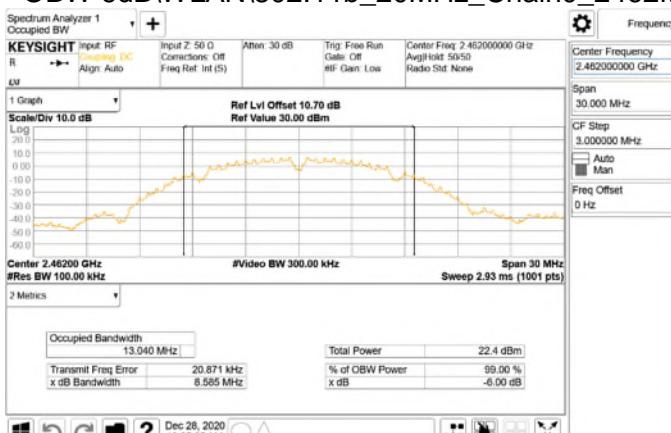
## OBW 6dB\WLAN\802.11b\_20MHz\_Chain0\_2437MHz



## OBW 6dB\WLAN\802.11b\_20MHz\_Chain0\_2472MHz



## OBW 6dB\WLAN\802.11b\_20MHz\_Chain0\_2462MHz



## OBW 6dB\WLAN\802.11g\_20MHz\_Chain0\_2412MHz



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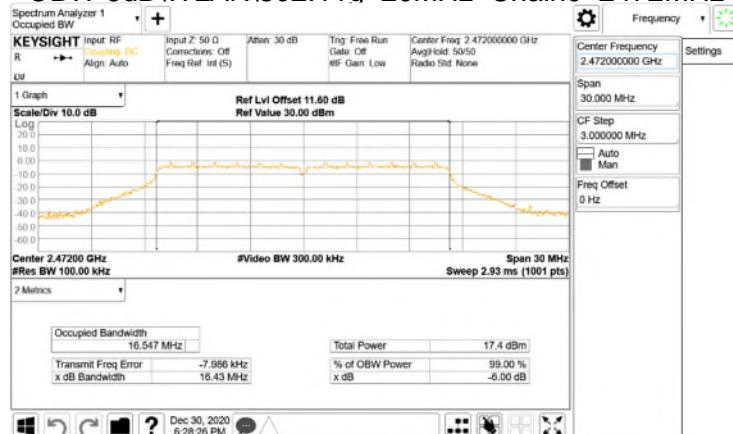
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## OBW 6dB\WLAN\802.11a 20MHz Chain0 2437MHz



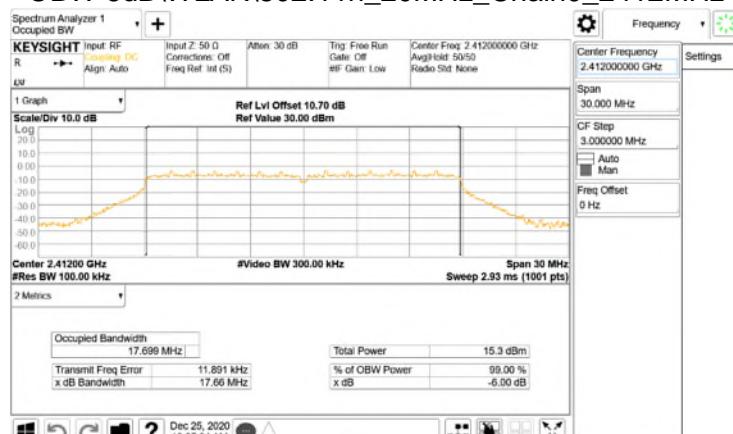
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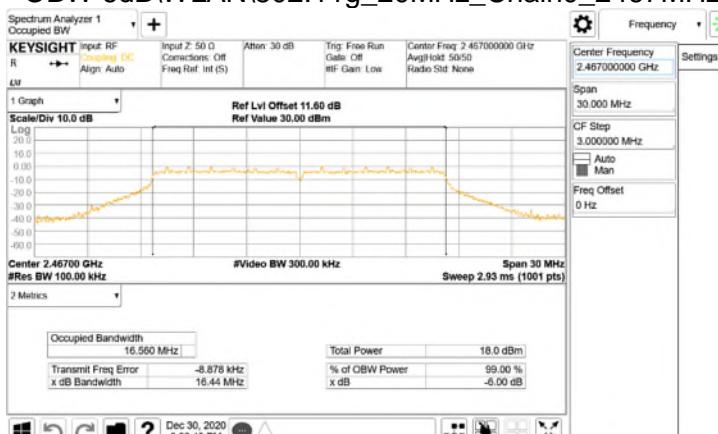
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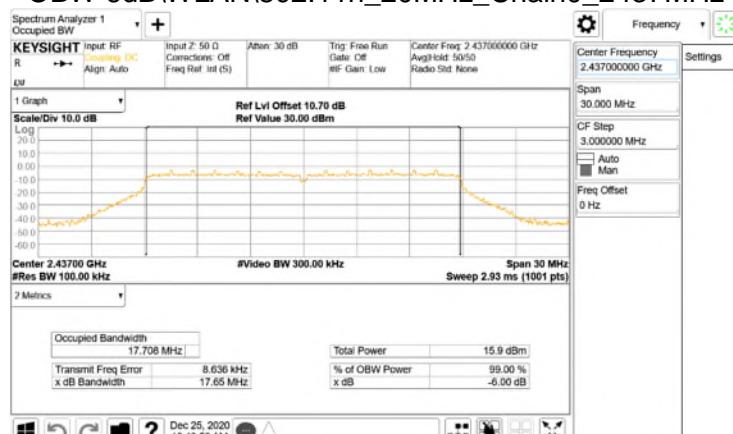
## OBW 6dB\WLAN\802.11n\_20MHz\_Chain0\_2412MHz



## OBW 6dB\WLAN\802.11g\_20MHz\_Chain0\_2467MHz



## OBW 6dB\WLAN\802.11n\_20MHz\_Chain0\_2437MHz



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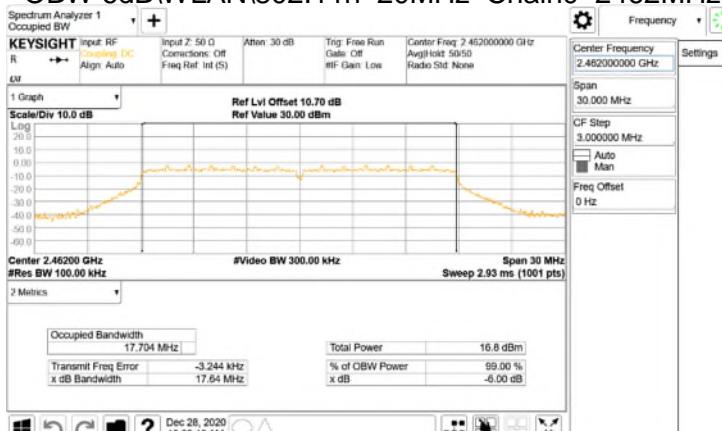
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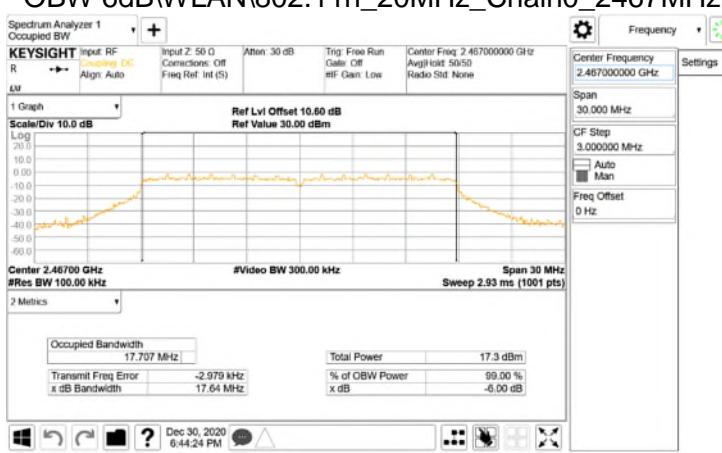
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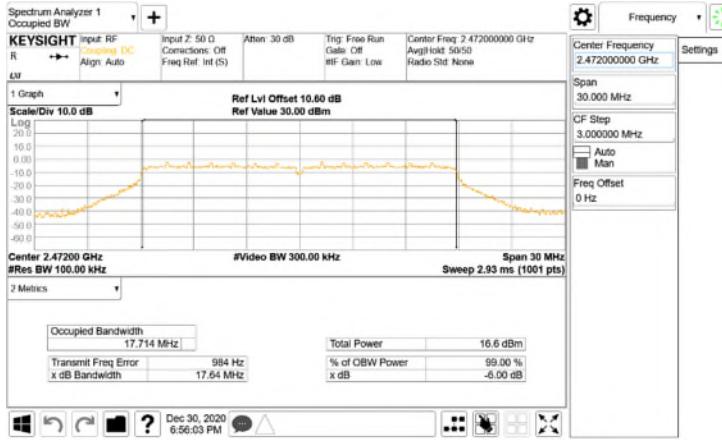
## OBW 6dB\WLAN\802.11n 20MHz Chain0 2462MHz



## OBW 6dB\WLAN\802.11n\_20MHz\_Chain0\_2467MHz



## OBW 6dB\WLAN\802.11n\_20MHz\_Chain0\_2472MHz



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## 9.6 99% Bandwidth

802.11b Ch0	
Freq. (MHz)	99% BW (MHz)
2412	13.049
2437	13.037
2462	13.094
2467	13.098
2472	<b>13.099</b>

802.11g Ch0	
Freq. (MHz)	99% BW (MHz)
2412	17.083
2437	17.093
2462	17.085
2467	17.097
2472	<b>17.115</b>

802.11n_HT20M Ch0	
Freq. (MHz)	99% BW (MHz)
2412	18.083
2437	18.07
2462	18.079
2467	18.081
2472	<b>18.093</b>

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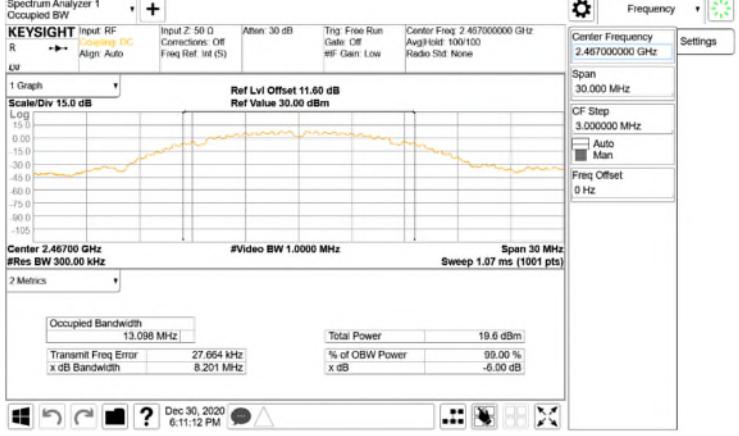
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99%\WLAN\802.11b\_20MHz\_Chain0\_2412MHz



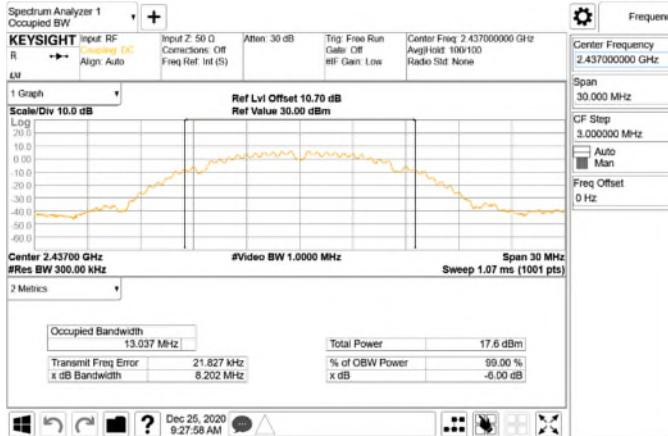
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99%\WLAN\802.11b\_20MHz\_Chain0\_2467MHz



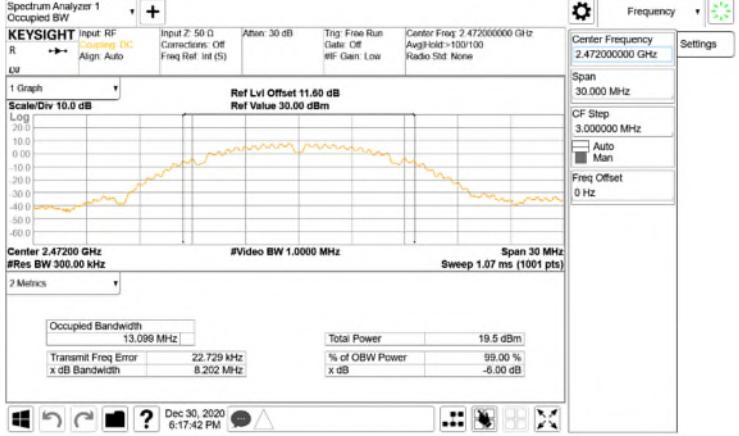
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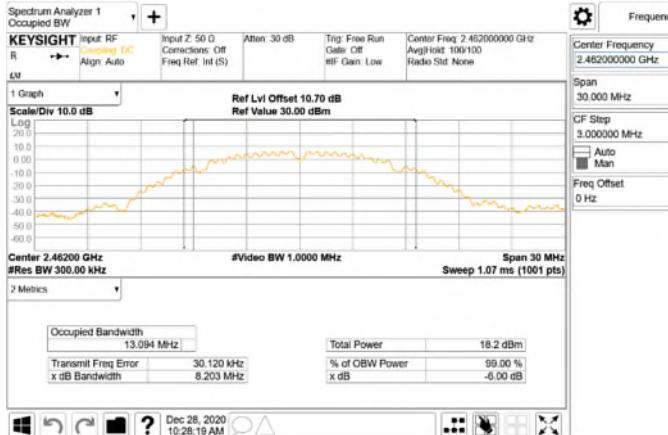
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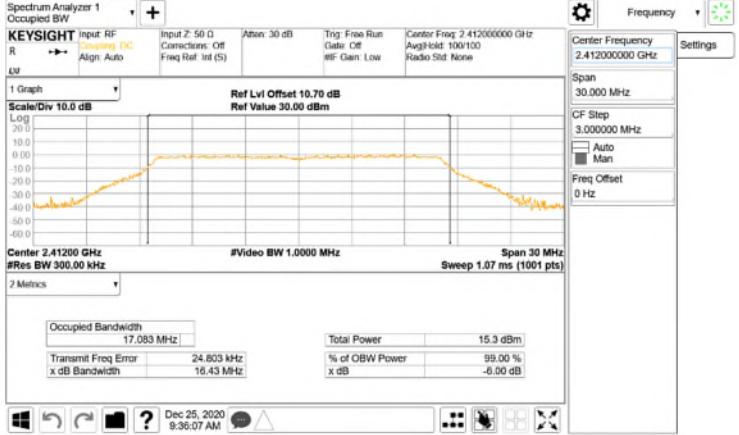
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99%\WLAN\802.11b\_20MHz\_Chain0\_2462MHz



## IC OBW

99%\WLAN\802.11g\_20MHz\_Chain0\_2412MHz



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## IC OBW

99%\WLAN\802.11a 20MHz Chain0 2437MHz



## IC OBW

99%\WLAN\802.11a 20MHz Chain0 2472MHz



## IC OBW

99%\WLAN\802.11g\_20MHz\_Chain0\_2462MHz



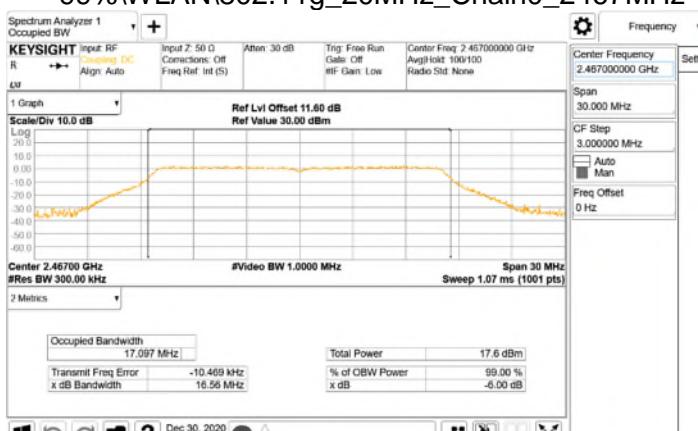
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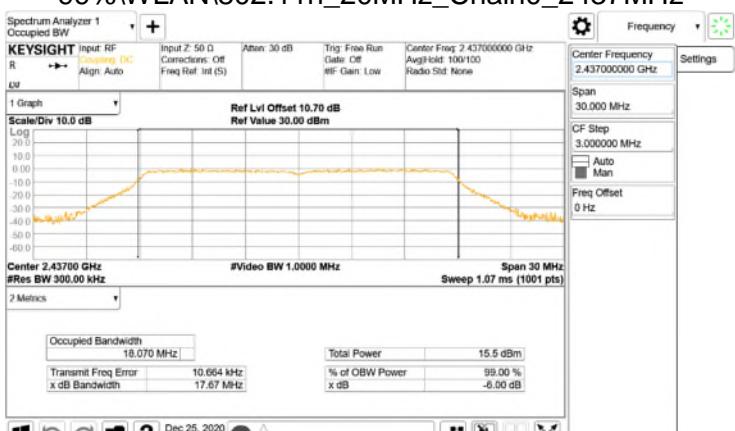
## IC OBW

99%\WLAN\802.11g\_20MHz\_Chain0\_2467MHz



## IC OBW

99%\WLAN\802.11n\_20MHz\_Chain0\_2437MHz



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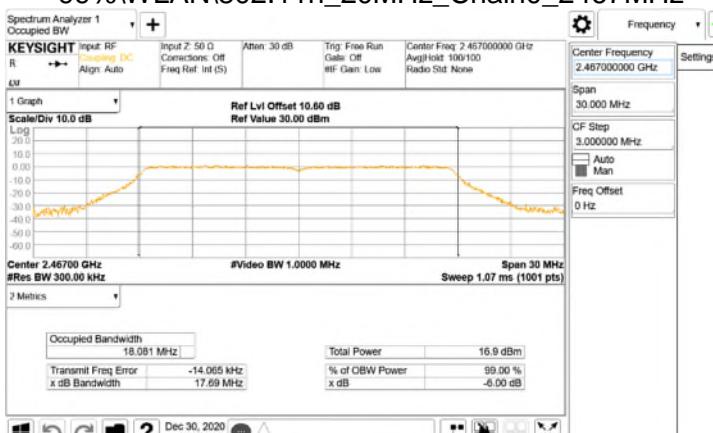
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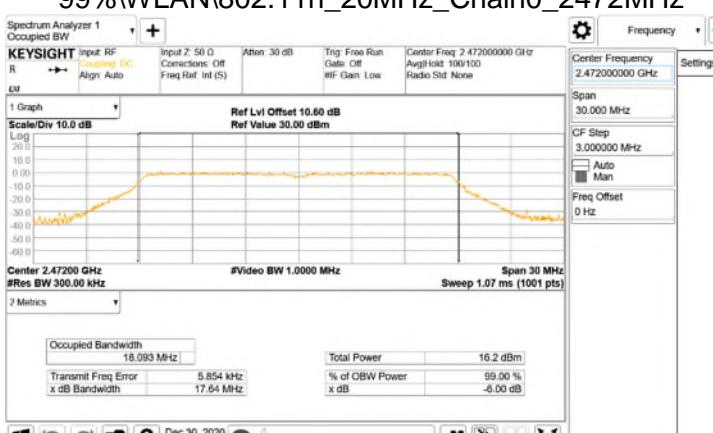
### IC OBW

99%\WLAN\802.11n\_20MHz\_Chain0\_2467MHz



### IC OBW

99%\WLAN\802.11n\_20MHz\_Chain0\_2472MHz



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## 10 CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT

### 10.1 Standard Applicable

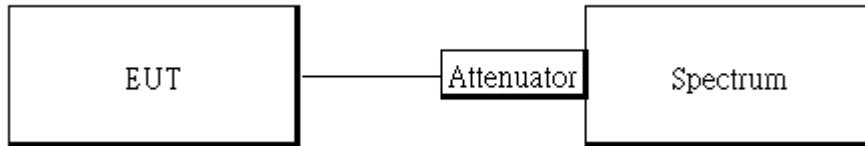
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) & RSS-Gen §8.10, must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.9.

### 10.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071574	06/24/2020	06/23/2021
DC Power Supply	Agilent	E3640A	MY53130054	09/07/2020	09/06/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021

### 10.3 Test SET-UP



### 10.4 Measurement Procedure

#### Reference Level of Emission Limit:

1. Set analyzer center frequency to DTS channel center frequency.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW = 100kHz & VBW = 300 kHz.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.

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### Conducted Band Edge:

1. To connect Antenna Port of EUT to Spectrum.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set start to edge frequency, and stop frequency of spectrum analyzer so as to encompass the spectrum to be examined.
5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Detector = Peak, Sweep = auto
6. Mark the highest reading of the emission as the reference level measurement.
7. Set DL as the limit = reading on marker of reference level measurement – 20dBm
8. Mark the highest readings of the emissions outside of 2400MHz~2483.5MHz.
9. Repeat above procedures until all default test channel (low, middle, and high) was complete.

### Conducted Spurious Emission:

1. To connect Antenna Port of EUT to Spectrum
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Set RBW = 100 kHz & VBW= 300 kHz, Detector =Peak, Sweep = Auto.
4. Allow trace to fully stabilize.
5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. Repeat above procedures until all default test channel measured were complete.

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## 10.5 Measurement Result

Reference Level of Limit 802.11b mode		
Freq. (MHz)	PSD (dBm)	Reference Level of Limit (dBm)
2412	5.49	-14.51
2437	5.90	-14.10
2462	6.35	-13.65
2467	7.93	-12.07
2472	7.68	-12.32

Reference Level of Limit 802.11g mode		
Freq. (MHz)	PSD (dBm)	Reference Level of Limit (dBm)
2412	-2.97	-22.97
2437	-3.46	-23.46
2462	-1.87	-21.87
2467	-0.82	-20.82
2472	-1.32	-21.32

Reference Level of Limit 802.11n20 mode		
Freq. (MHz)	PSD (dBm)	Reference Level of Limit (dBm)
2412	-3.70	-23.70
2437	-2.95	-22.95
2462	-2.04	-22.04
2467	-1.57	-21.57
2472	-2.23	-22.23

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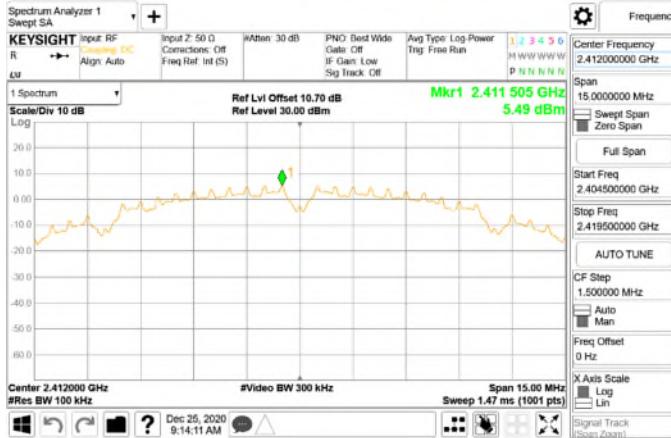
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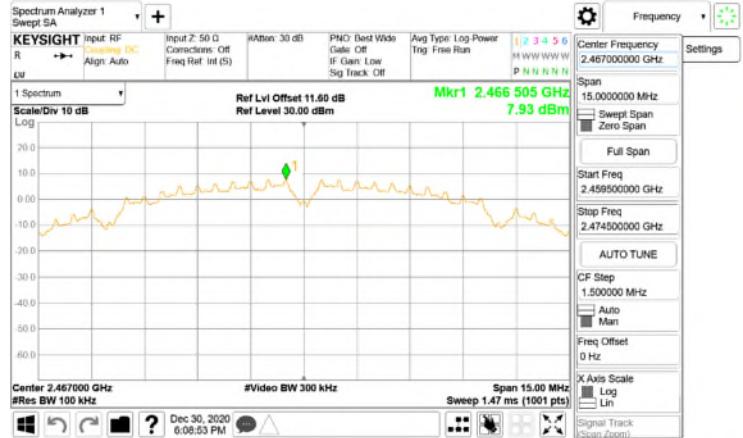
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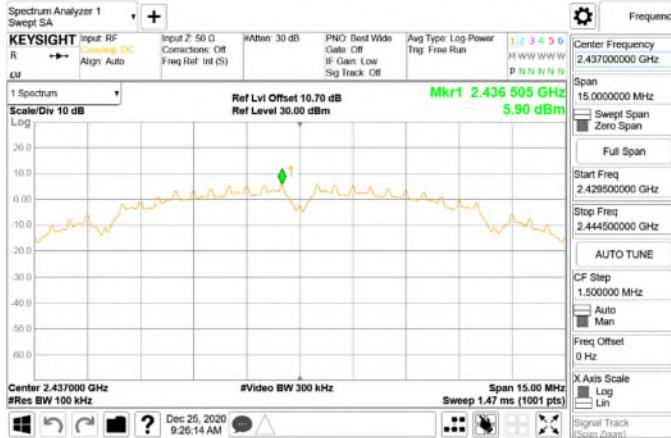
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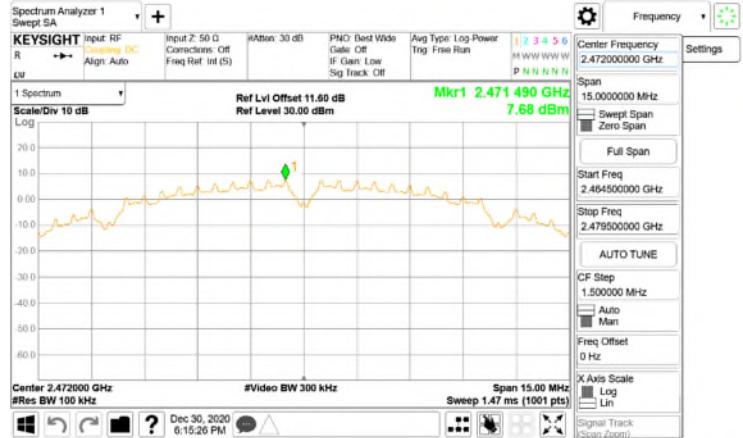
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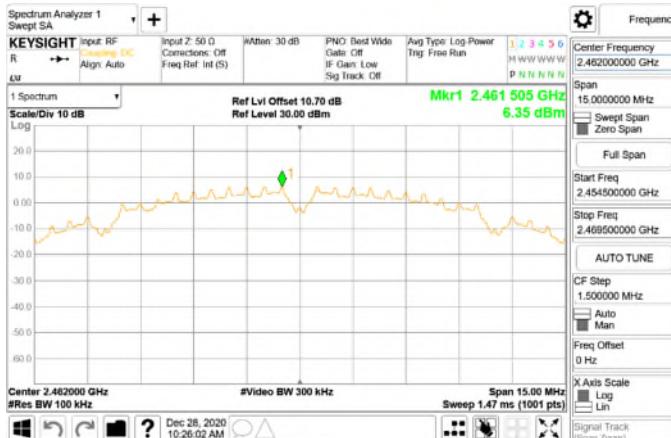
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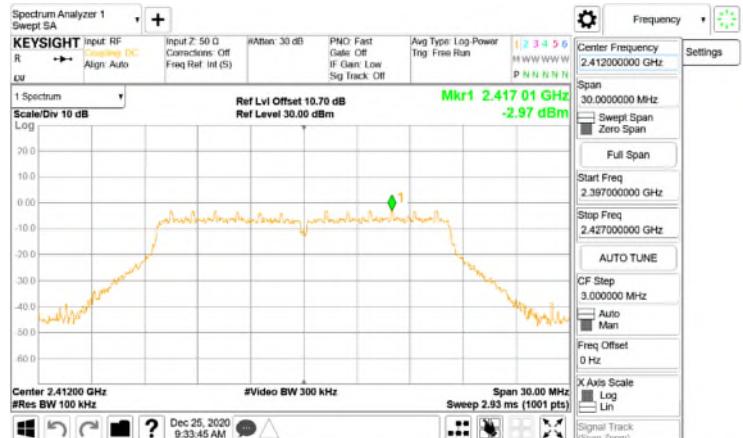
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## Reference Level\WLAN\802.11b\_20MHz\_Chain0\_2462MHz



## Reference Level\WLAN\802.11g\_20MHz\_Chain0\_2412MHz

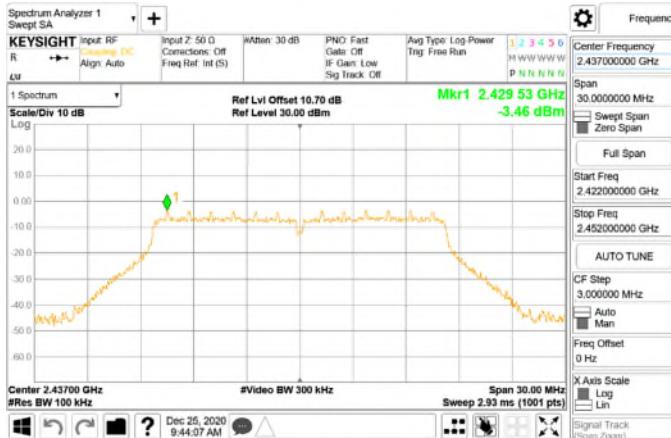


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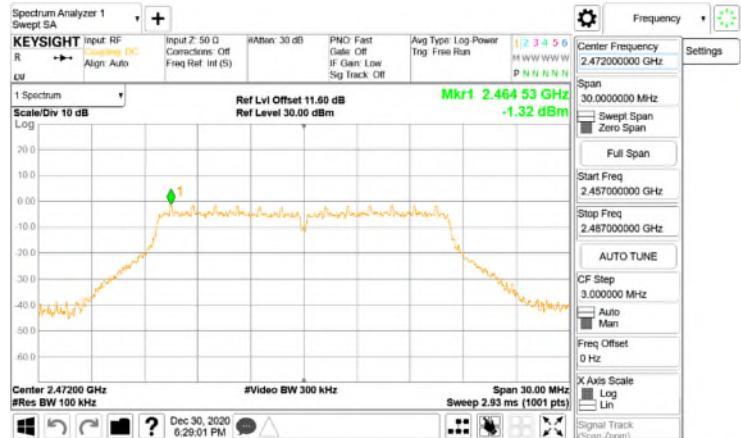
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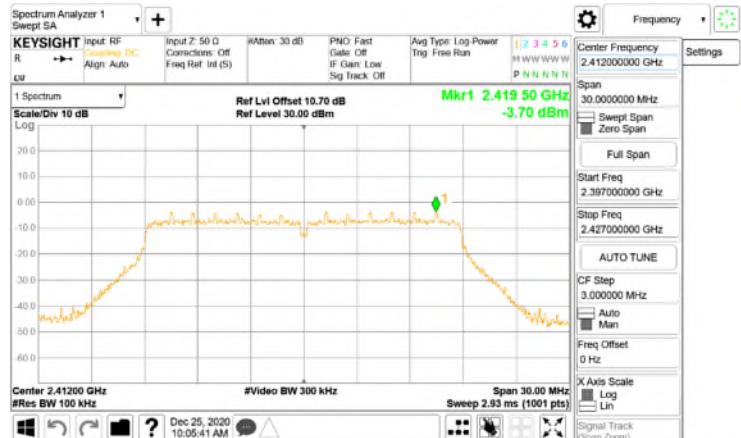
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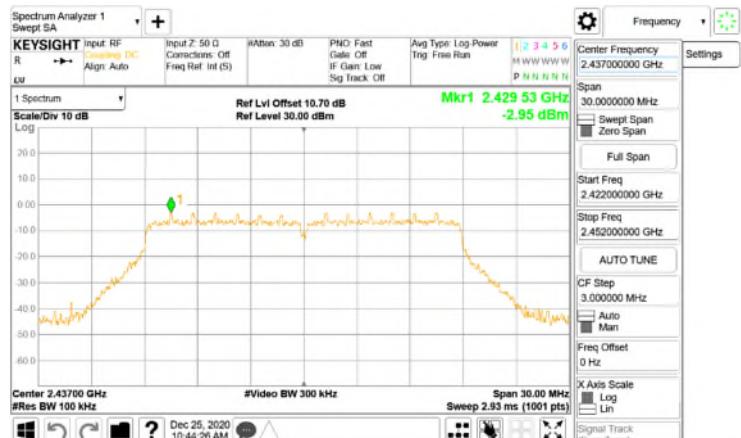
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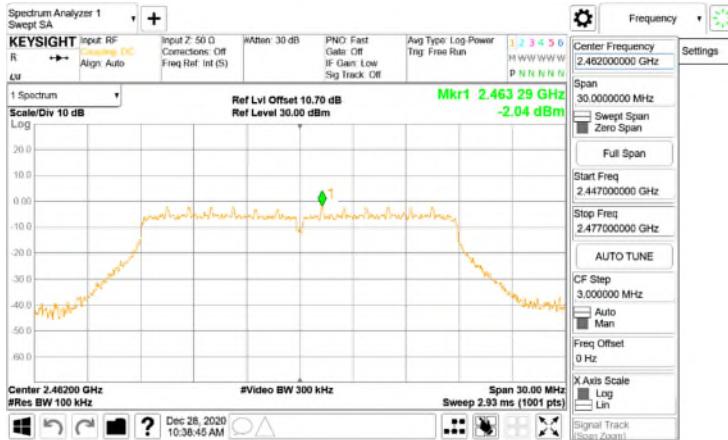


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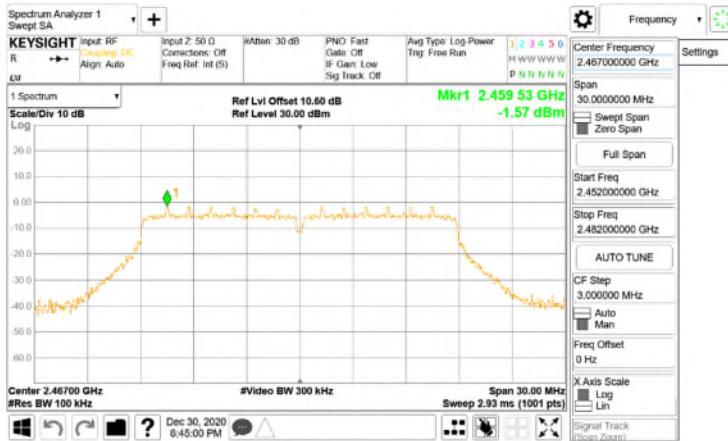
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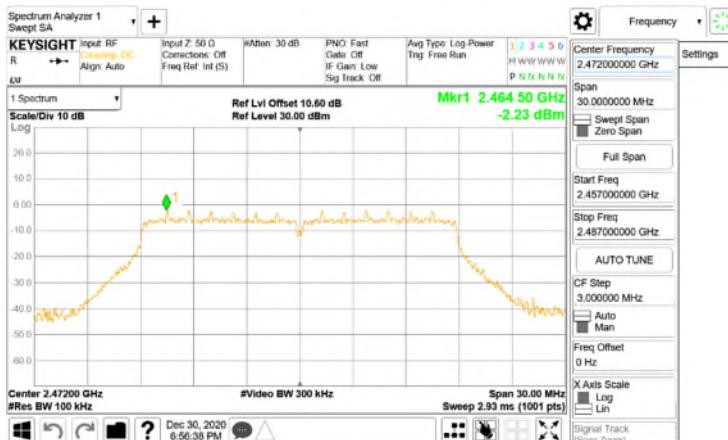
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Reference Level\WLAN\802.11n\_20MHz\_Chain0\_2467MHz



Reference Level\WLAN\802.11n\_20MHz\_Chain0\_2472MHz



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### Band Edge\WLAN\802.11b\_20MHz\_Chain0\_2412MHz



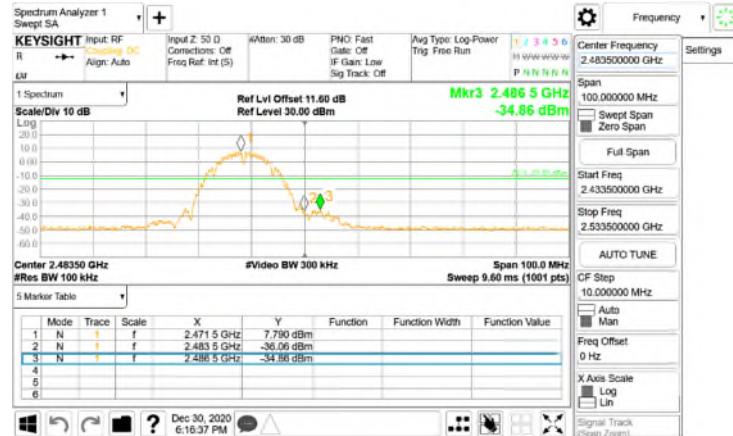
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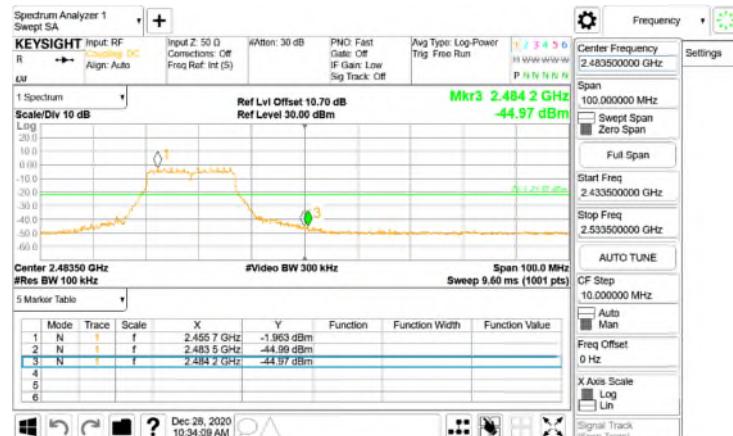
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### Band Edge\WLAN\802.11g\_20MHz\_Chain0\_2412MHz



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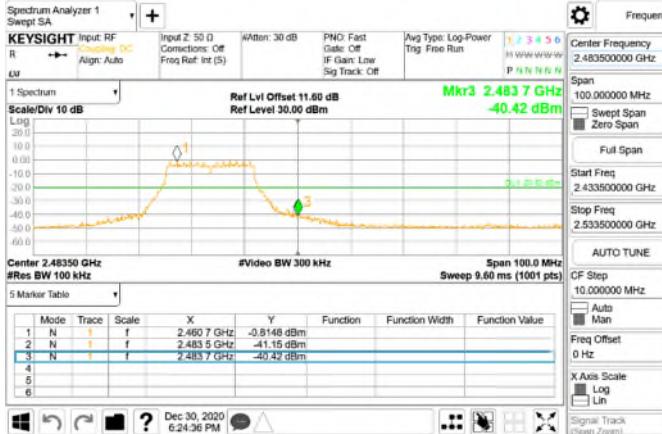


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### Band Edge\WLAN\802.11g\_20MHz\_Chain0\_2467MHz



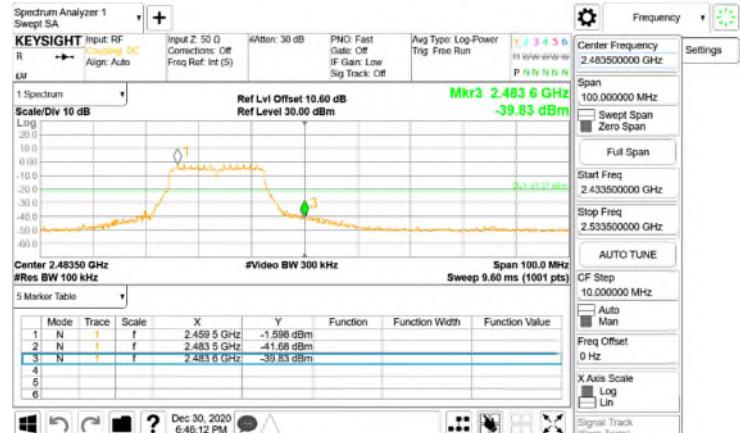
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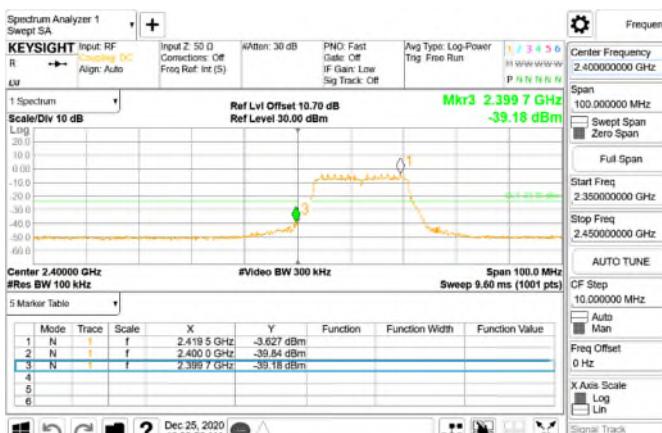
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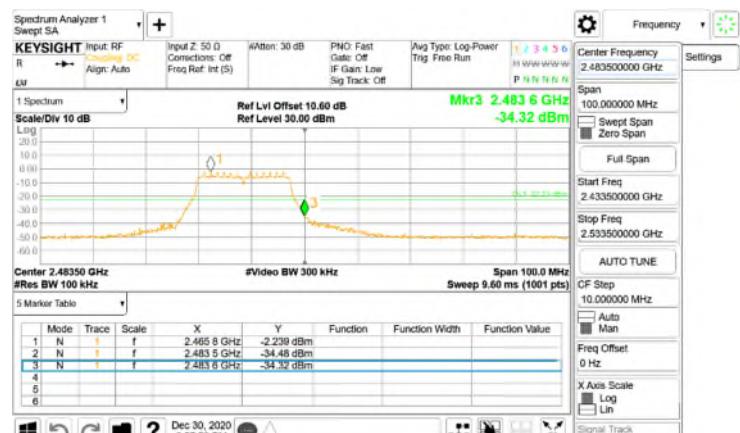
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### Band Edge\WLAN\802.11n\_20MHz\_Chain0\_2412MHz



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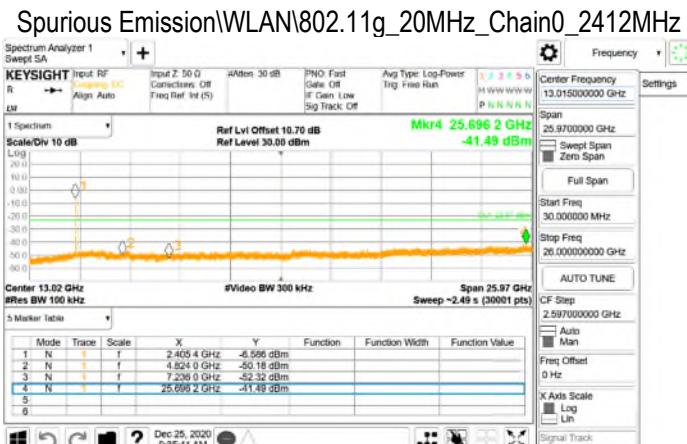
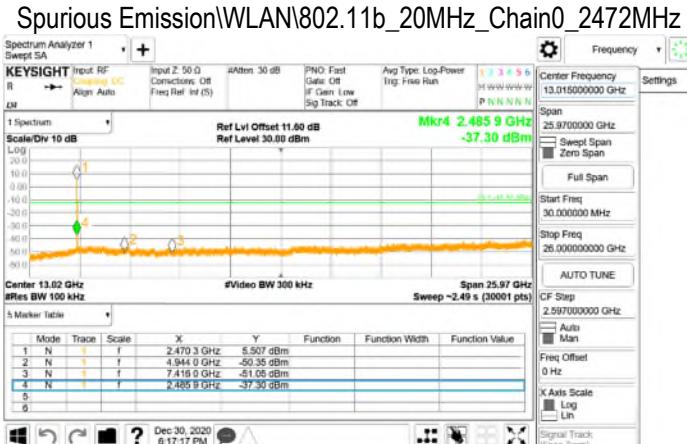
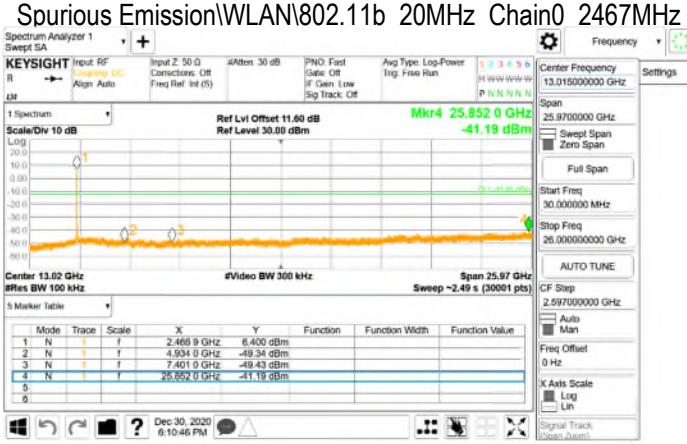
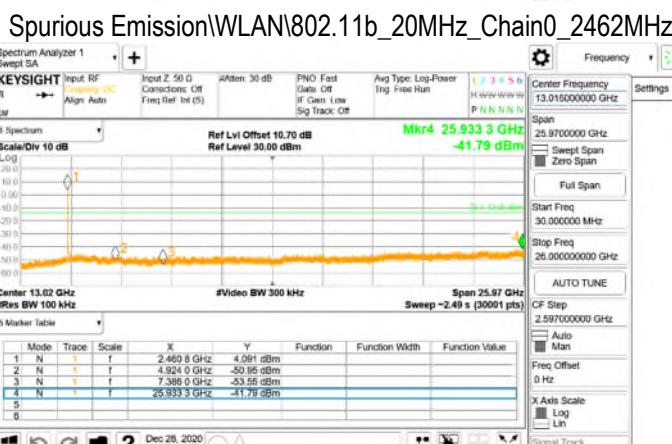
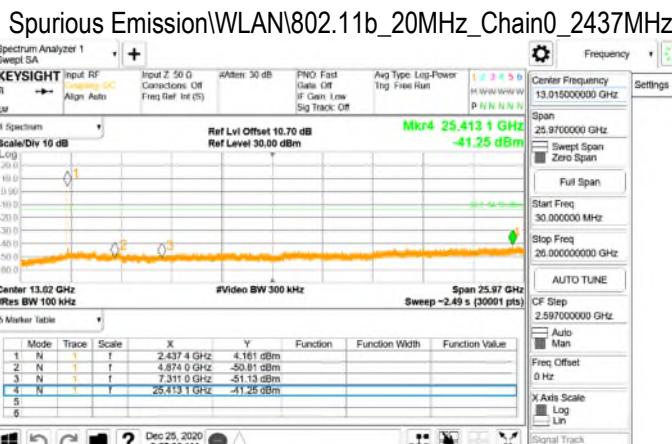
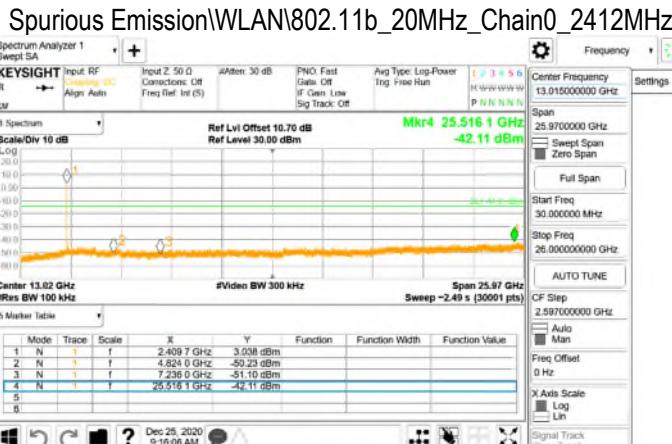
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## Spurious Emission\WLAN\802.11a 20MHz Chain0 2437MHz



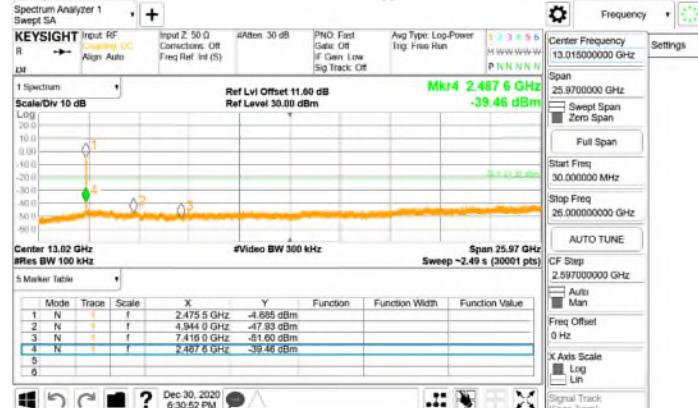
## Spurious Emission\WLAN\802.11g\_20MHz\_Chain0\_2462MHz



## Spurious Emission\WLAN\802.11g\_20MHz\_Chain0\_2467MHz



## Spurious Emission\WLAN\802.11a 20MHz Chain0 2472MHz



## Spurious Emission\WLAN\802.11n\_20MHz\_Chain0\_2412MHz



## Spurious Emission\WLAN\802.11n\_20MHz\_Chain0\_2437MHz



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Spurious Emission\WLAN\802.11n 20MHz Chain0 2462MHz



Spurious Emission\WLAN\802.11n\_20MHz\_Chain0\_2467MHz



Spurious Emission\WLAN\802.11n\_20MHz\_Chain0\_2472MHz



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## 11 RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

### 11.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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 the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 and RSS-Gen §8.9 Table 5 and 6 limit as below. And according to §15.33(a) (1) & RSS-Gen §6.13.2.a, for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

**Note:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)

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## 11.2 Measurement Equipment Used:

966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Broadband Antenna	TESEQ	CBL 6112D	35240	09/08/2020	09/07/2021
Horn Antenna	Schwarzbeck	BBHA9120D	1341	06/22/2020	06/21/2021
Loop Antenna	ETS.LINDGREN	6502	143303	04/28/2020	04/27/2021
3m Site NSA	SGS	966 chamber D	N/A	07/12/2020	07/11/2021
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/08/2020	07/07/2021
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2020	10/26/2021
Pre-Amplifier	EMC Instruments	EMC9135	980234	11/19/2020	11/18/2021
Pre-Amplifier	EMC Instruments	EMC12630SE	980271	11/19/2020	11/18/2021
Attenuator	Marvelous	WATT-218FS-10	RF25	11/19/2020	11/18/2021
High Pass Filter	R&S	F13 HPF 3GHz	RF175	11/19/2020	11/18/2021
Lowpass Filter	Woken	EWT-56-0019	RF173	11/19/2020	11/18/2021
Notch Filter	Woken	EWT-54-0038	RF178	11/19/2020	11/18/2021
Coaxial Cable	Huber Suhner	EMC106-SM-SM-7200	150703	11/19/2020	11/18/2021
Coaxial Cable	Huber+Suhner	RG 214/U	W21.01	11/19/2020	11/18/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17413/4	11/19/2020	11/18/2021

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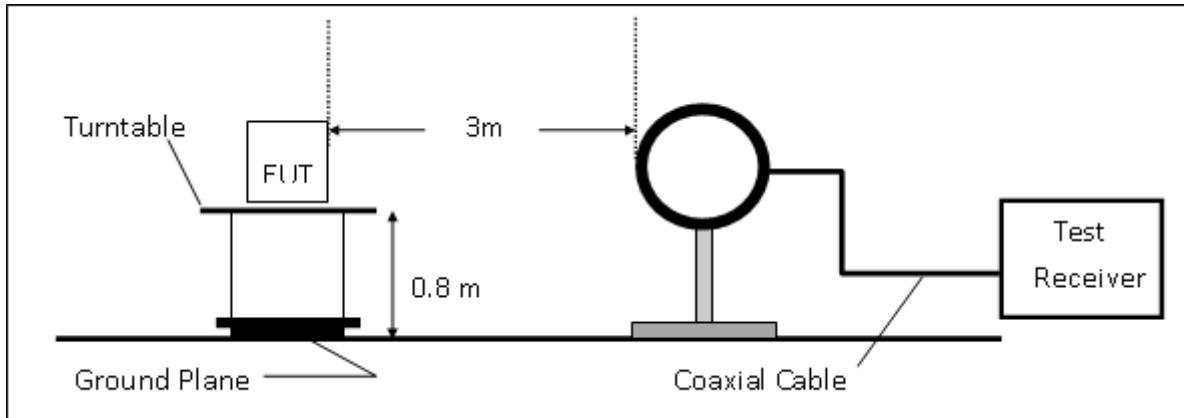
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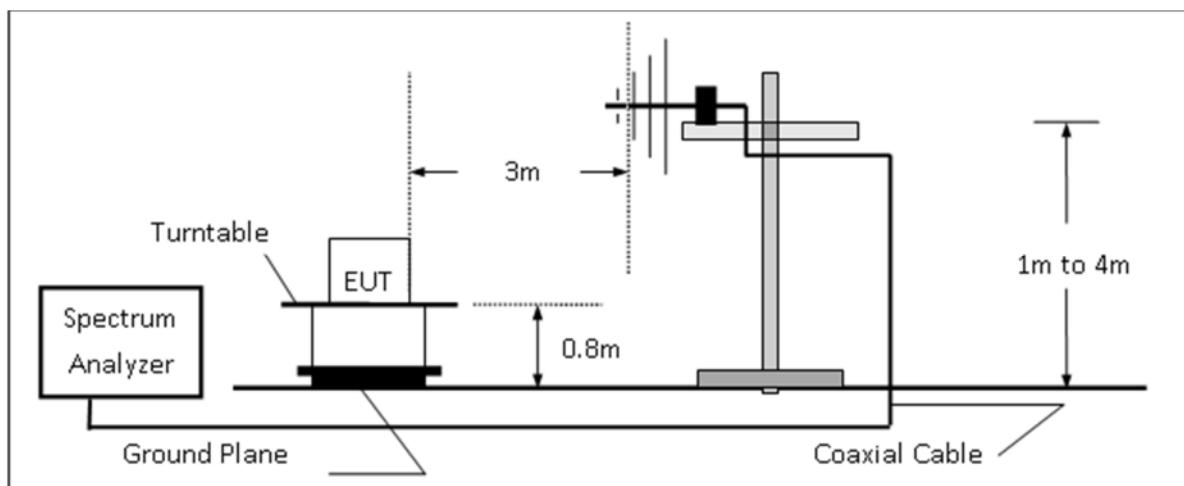
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### 11.3 Test SET-UP

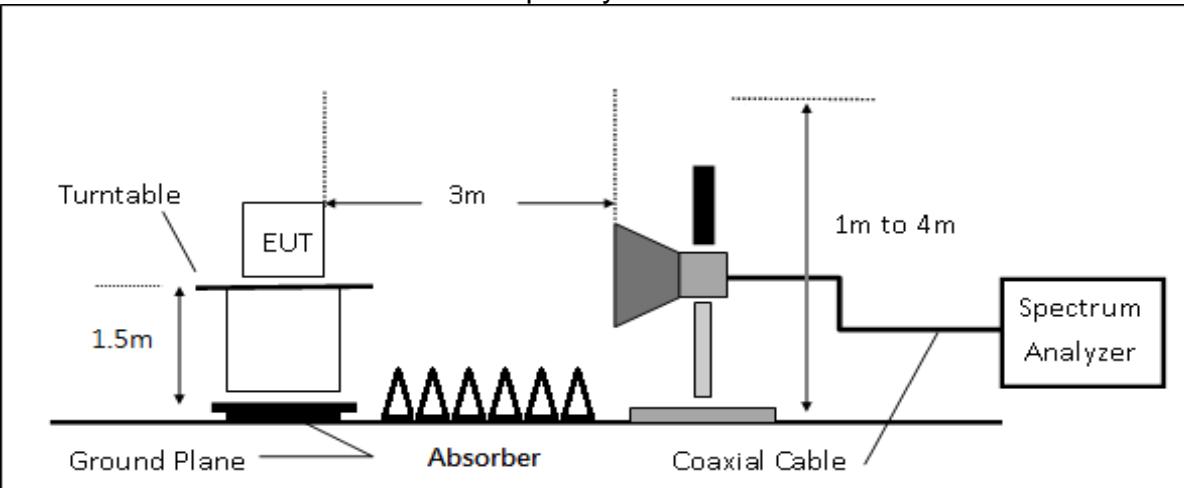
#### (A) Radiated Emission Test Set-UP Frequency Below 30MHz.



#### (B) Radiated Emission Test Set-UP, Frequency from 30MHz to 1000MHz



#### (C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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## 11.4 Measurement Procedure

1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
5. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW  $\geq 1/T$  (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
10. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
11. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. On spectrum, change spectrum mode in linear display mode, and reduce VBW = 10Hz if average reading is measured.
12. Repeat above procedures until all default test channel measured were complete.

## 11.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

**Where**  $FS$  = Field Strength

$CL$  = Cable Attenuation Factor (Cable Loss)

$RA$  = Reading Amplitude

$AG$  = Amplifier Gain

$AF$  = Antenna Factor

The limit of the emission level is expressed in  $dB\mu V/m$ , which converts  $20 \log(uV/m)$

Actual  $FS(dB\mu V/m) = SPA$ . Reading level( $dB\mu V$ ) + Factor( $dB$ )

Factor( $dB$ ) = Antenna Factor( $dB\mu V/m$ ) + Cable Loss( $dB$ ) - Pre\_Amplifier Gain( $dB$ )

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## 11.6 Test Results of Radiated Spurious Emissions form 9 kHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) & RSS-GEN §6.13.2 was not reported.

## 11.7 Measurement Result

### Note:

1. Refer to next page spectrum analyzer data chart and tabular data sheets.
2. Measurements are completed at peak and average level, the mark of average is the highest emission in restricted bands

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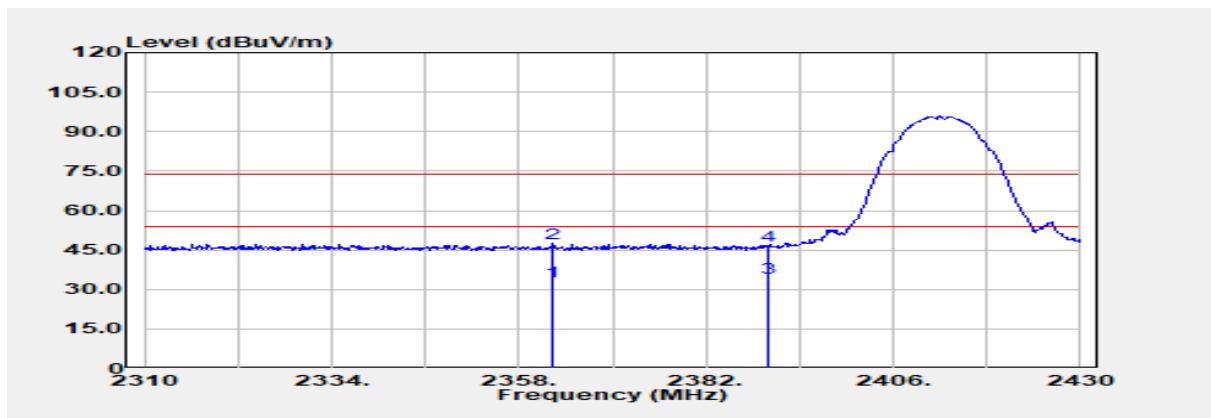
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### 11.7.1 Radiated Band Edge Measurement Result

Report Number	:E2/2020/C0018	Test Site	:966 Chamber D
Operation Mode	:802.11b	Test Date	:2020-12-22
Test Frequency	:2412 MHz	Temp./Humi.	:21.2/65
Test Mode	:BE CH LOW	Antenna Pol.	:Vertical
EUT Pol	:H plan	Engineer	:Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS dB $\mu$ V/m			
2362.440	Average	40.75	-7.90	32.85		54.00	-21.15
2362.440	Peak	55.43	-7.90	47.53		74.00	-26.47
2390.000	Average	42.25	-7.99	34.26		54.00	-19.74
2390.000	Peak	54.80	-7.99	46.82		74.00	-27.18

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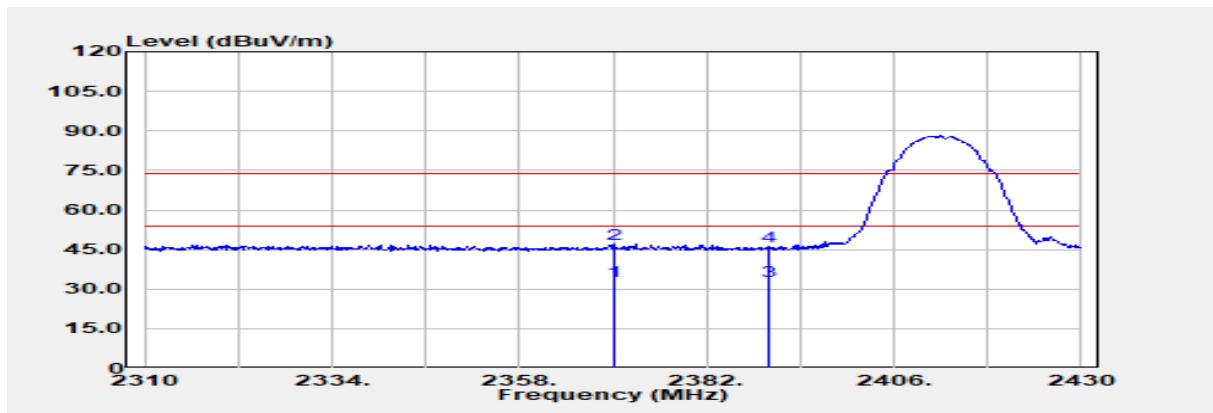
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-22  
 Test Frequency :2412 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH LOW Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dBuV/m		
2370.240	Average	40.69	-7.71	32.98	54.00	54.00	-21.02
2370.240	Peak	54.82	-7.71	47.11	74.00	74.00	-26.89
2390.000	Average	40.99	-7.99	33.00	54.00	54.00	-21.00
2390.000	Peak	54.29	-7.99	46.31	74.00	74.00	-27.69

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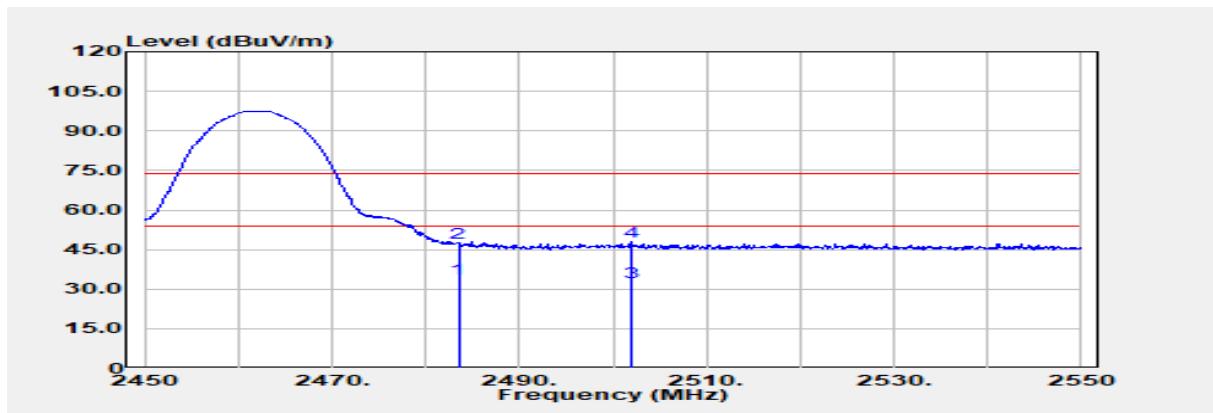
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-22  
 Test Frequency :2462 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH HIGH Antenna Pol. :Vertical  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB $\mu$ V/m	
2483.500	Average	41.90	-8.12	33.78	54.00	-20.22
2483.500	Peak	55.63	-8.12	47.51	74.00	-26.49
2501.900	Average	40.33	-7.64	32.70	54.00	-21.30
2501.900	Peak	55.56	-7.64	47.93	74.00	-26.07

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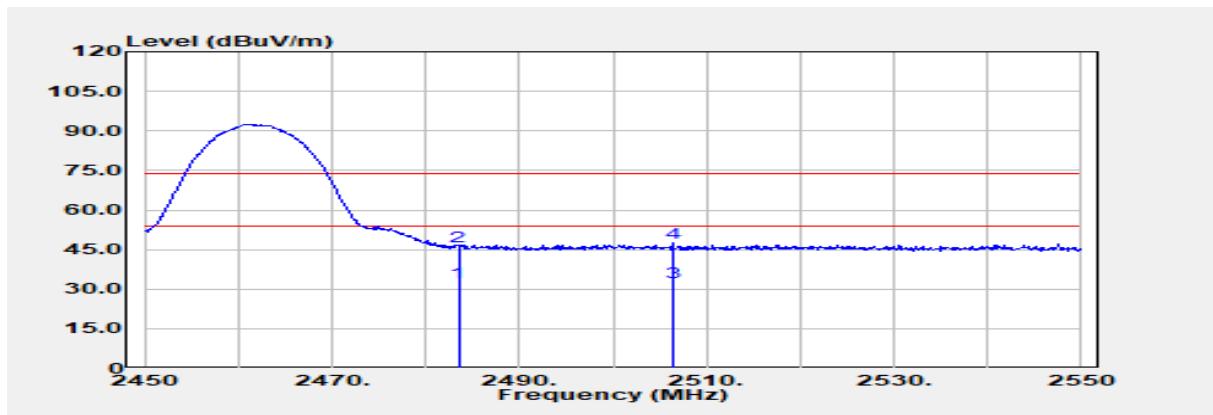
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-22  
 Test Frequency :2462 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH HIGH Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual	Limit	Margin
				FS dB $\mu$ V/m	@3m dB $\mu$ V/m	dB
2483.500	Average	40.91	-8.12	32.79	54.00	-21.21
2483.500	Peak	54.39	-8.12	46.27	74.00	-27.73
2506.400	Average	40.27	-7.82	32.45	54.00	-21.55
2506.400	Peak	55.15	-7.82	47.33	74.00	-26.67

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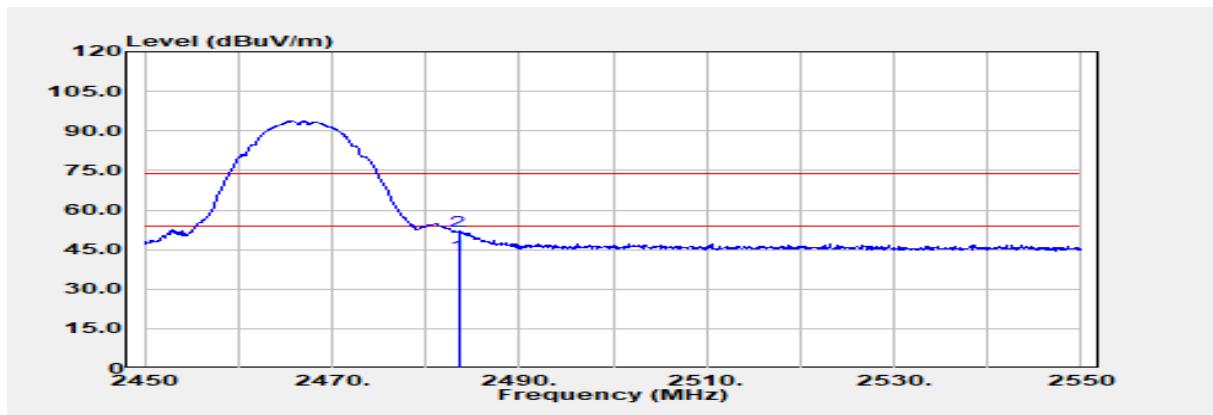
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 12 Antenna Pol. :Vertical  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual	Limit	Margin
				FS dB $\mu$ V/m	@3m dB $\mu$ V/m	dB
2483.500	Average	51.34	-8.12	43.22	54.00	-10.78
2483.500	Peak	59.99	-8.12	51.87	74.00	-22.13

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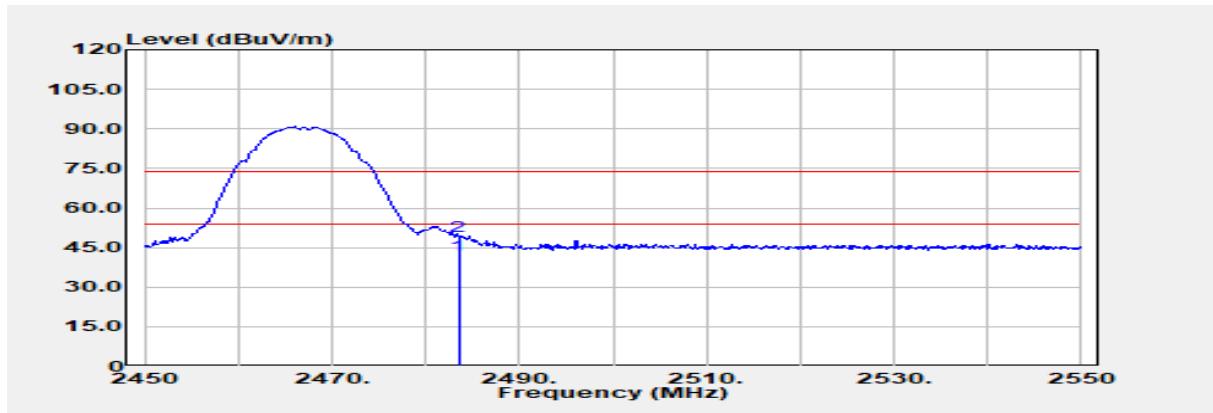
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 12 Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



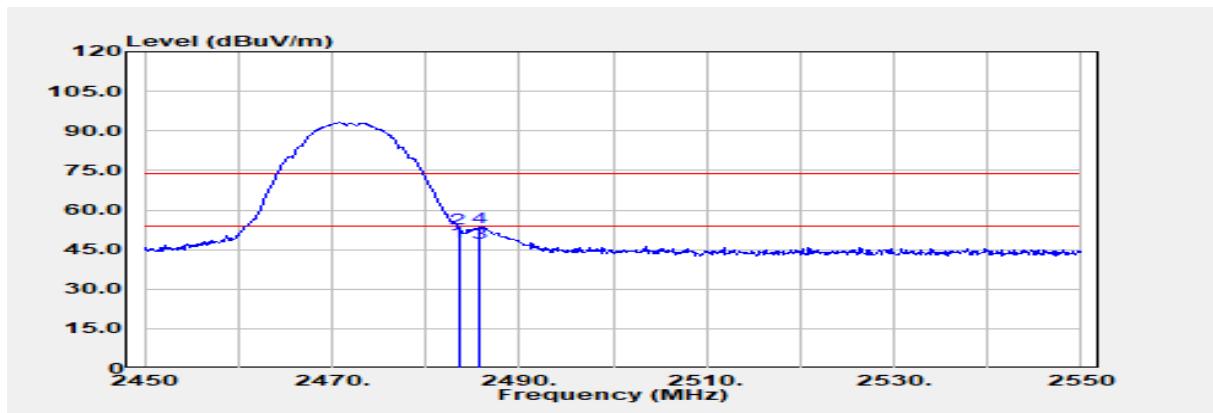
Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dBuV/m		
2483.500	Average	50.15	-8.12		42.03	54.00	-11.97
2483.500	Peak	57.52	-8.12		49.40	74.00	-24.60

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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11b Test Date :2020-12-30  
Test Frequency :2472 MHz Temp./Humi. :20.4/65  
Test Mode :BE CH 13 Antenna Pol. :Vertical  
EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual	Limit	Margin
				FS dB $\mu$ V/m	@3m dB $\mu$ V/m	dB
2483.500	Average	56.20	-8.12	48.08	54.00	-5.92
2483.500	Peak	61.26	-8.12	53.14	74.00	-20.86
2485.700	Average	55.61	-8.13	47.48	54.00	-6.52
2485.700	Peak	61.71	-8.13	53.58	74.00	-20.42

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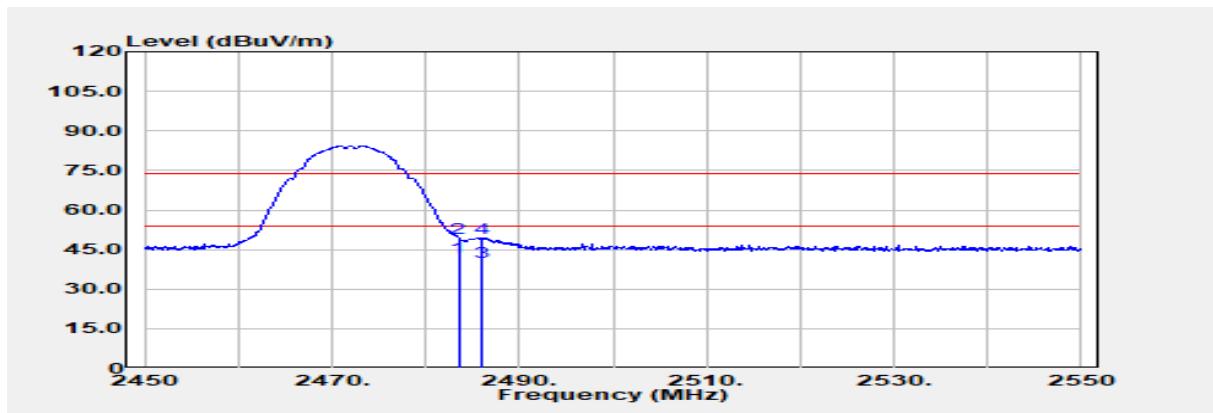
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-30  
 Test Frequency :2472 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 13 Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual	Limit	Margin
				FS dB $\mu$ V/m	@3m dB $\mu$ V/m	dB
2483.500	Average	50.20	-8.12	42.08	54.00	-11.92
2483.500	Peak	57.37	-8.12	49.25	74.00	-24.75
2485.900	Average	48.47	-8.13	40.34	54.00	-13.66
2485.900	Peak	57.60	-8.13	49.47	74.00	-24.53

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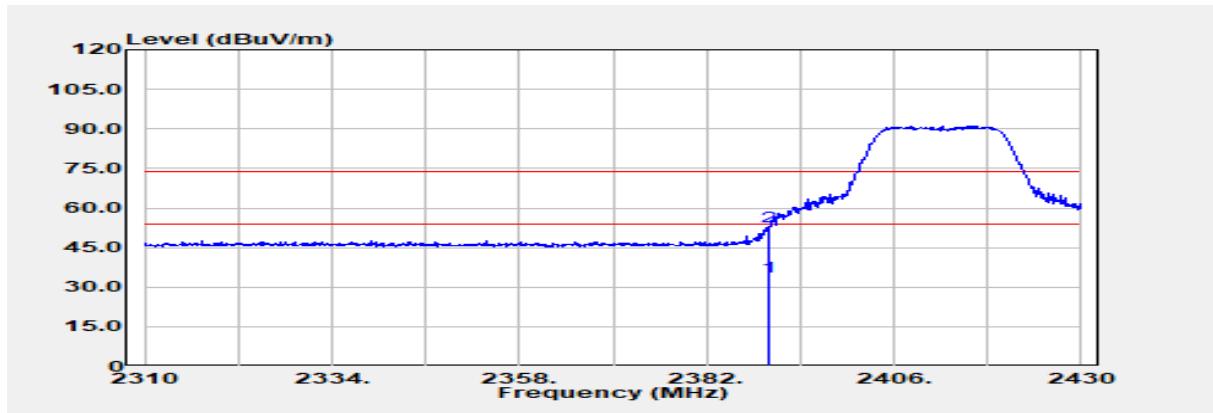
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-22  
 Test Frequency :2412 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH LOW Antenna Pol. :Vertical  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dBuV/m		
2390.000	Average	42.14	-7.99		34.15	54.00	-19.85
2390.000	Peak	60.79	-7.99		52.81	74.00	-21.19

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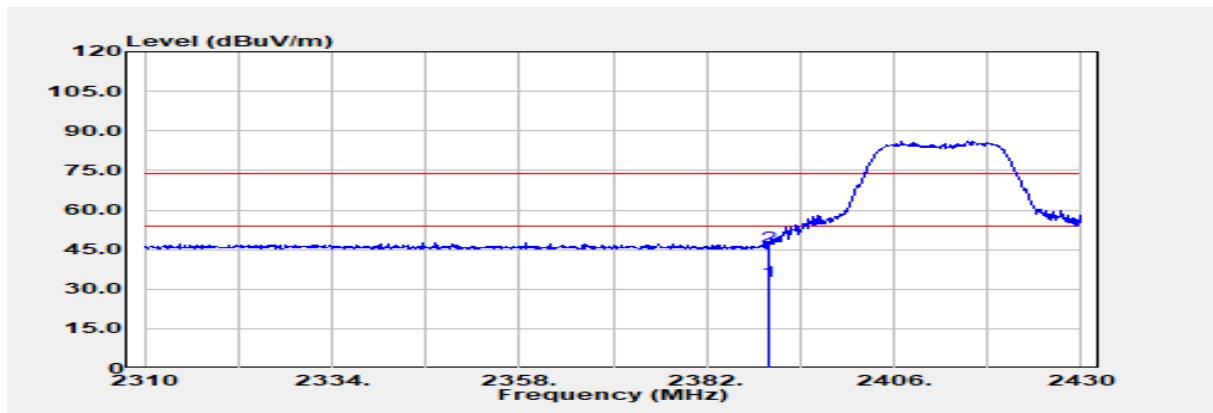
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-22  
 Test Frequency :2412 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH LOW Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dBuV/m		
2390.000	Average	41.10	-7.99		33.11	54.00	-20.89
2390.000	Peak	54.25	-7.99		46.27	74.00	-27.73

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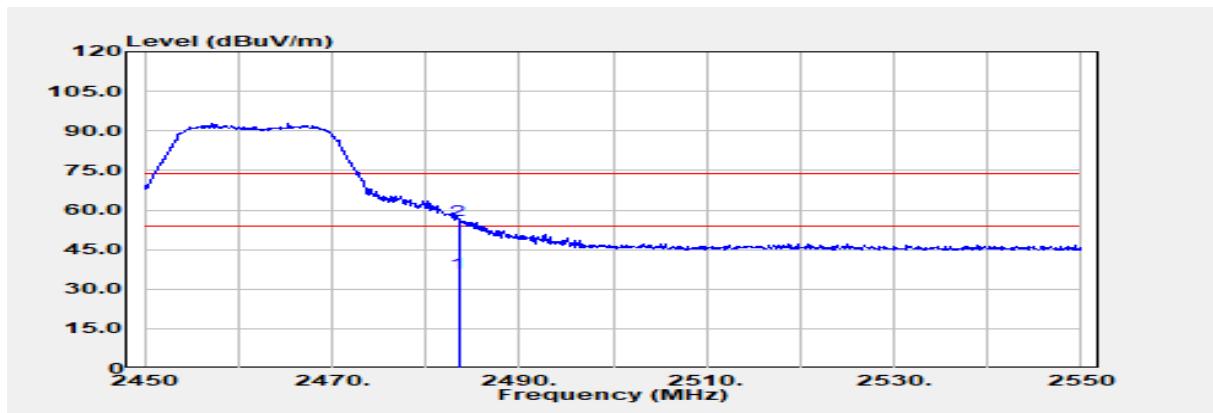
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11g Test Date :2020-12-22  
Test Frequency :2462 MHz Temp./Humi. :21.2/65  
Test Mode :BE CH HIGH Antenna Pol. :Vertical  
EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dBuV/m		
2483.500	Average	44.19	-8.12		36.07	54.00	-17.93
2483.500	Peak	64.35	-8.12		56.23	74.00	-17.77

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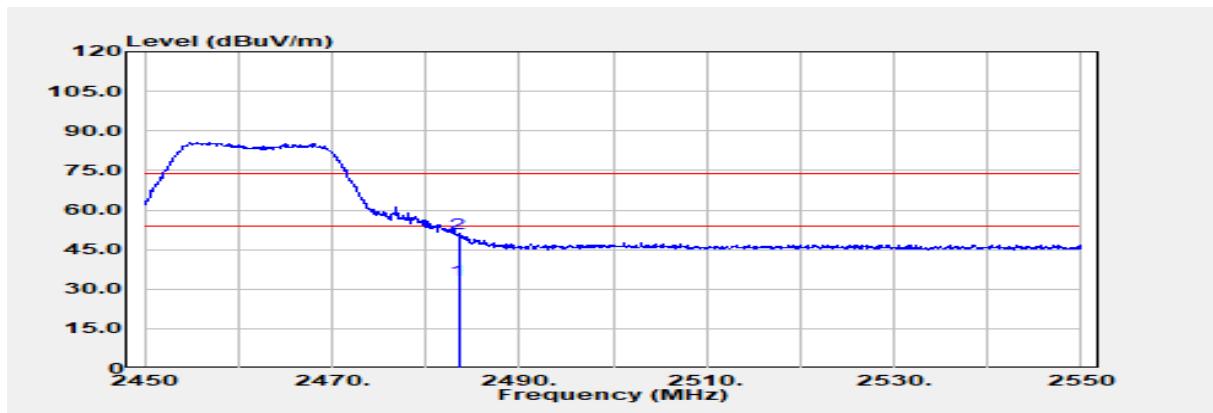
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11g Test Date :2020-12-22  
Test Frequency :2462 MHz Temp./Humi. :21.2/65  
Test Mode :BE CH HIGH Antenna Pol. :Horizontal  
EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual	Limit @3m	Margin
				FS dB $\mu$ V/m	dB $\mu$ V/m	dB
2483.500	Average	41.78	-8.12	33.66	54.00	-20.34
2483.500	Peak	59.26	-8.12	51.14	74.00	-22.86

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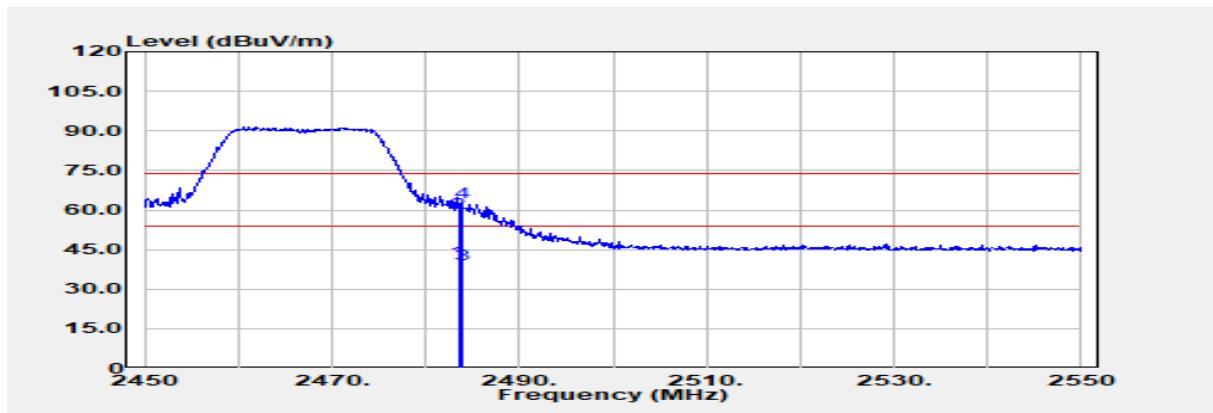
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 12 Antenna Pol. :Vertical  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dB $\mu$ V/m		
2483.500	Average	48.96	-8.12	40.84	54.00	54.00	-13.16
2483.500	Peak	66.84	-8.12	58.72	74.00	74.00	-15.28
2483.900	Average	47.72	-8.12	39.60	54.00	54.00	-14.40
2483.900	Peak	70.87	-8.12	62.74	74.00	74.00	-11.26

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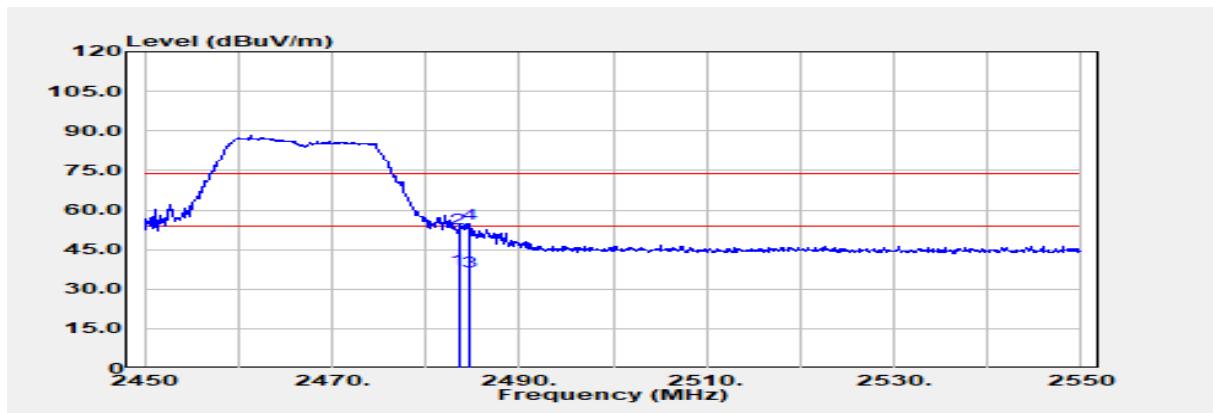
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 12 Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB $\mu$ V/m	
2483.500	Average	45.48	-8.12	37.36	54.00	-16.64
2483.500	Peak	61.00	-8.12	52.88	74.00	-21.12
2484.600	Average	44.74	-8.12	36.62	54.00	-17.38
2484.600	Peak	62.78	-8.12	54.65	74.00	-19.35

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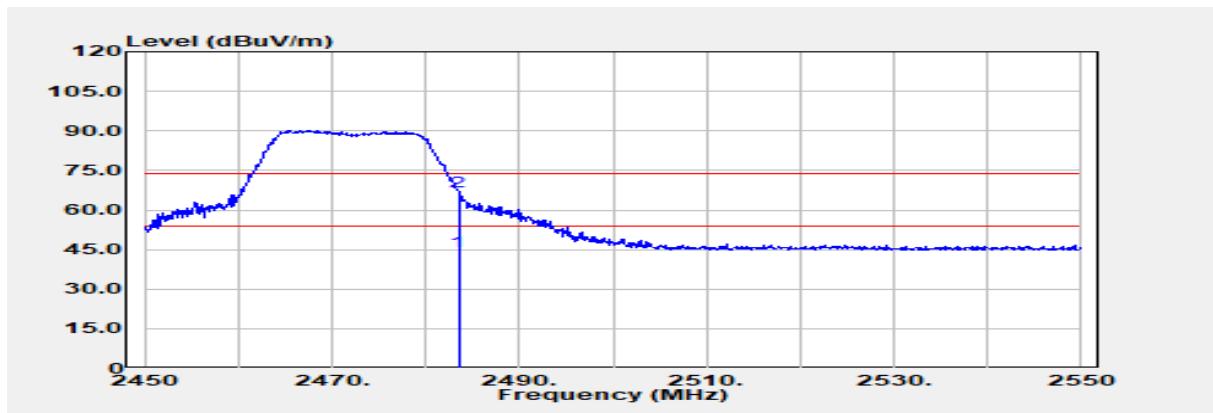
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11g Test Date :2020-12-30  
Test Frequency :2472 MHz Temp./Humi. :20.4/65  
Test Mode :BE CH 13 Antenna Pol. :Vertical  
EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
2483.500	Average	52.30	-8.12	44.18	54.00	-9.82
2483.500	Peak	75.06	-8.12	66.94	74.00	-7.06

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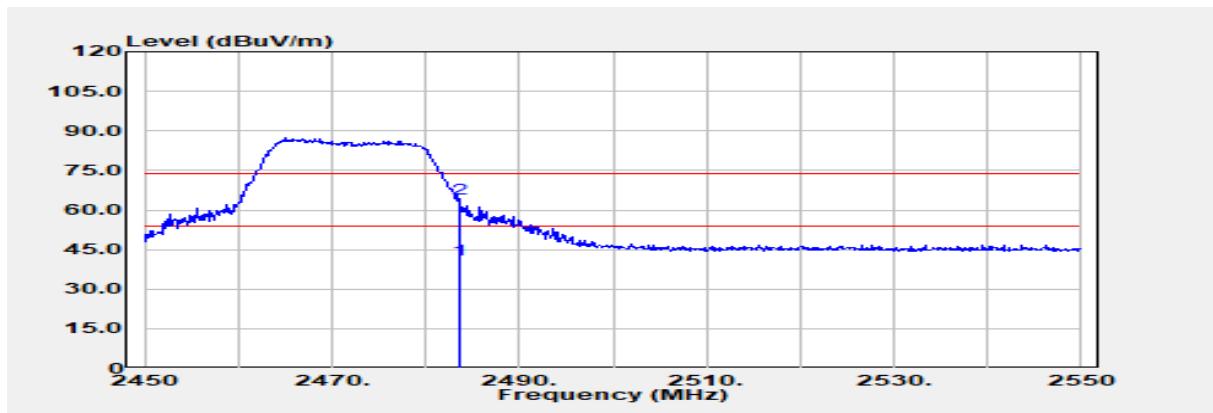
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-30  
 Test Frequency :2472 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 13 Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB $\mu$ V/m	
2483.600	Average	49.32	-8.12	41.20	54.00	-12.80
2483.600	Peak	72.32	-8.12	64.20	74.00	-9.80

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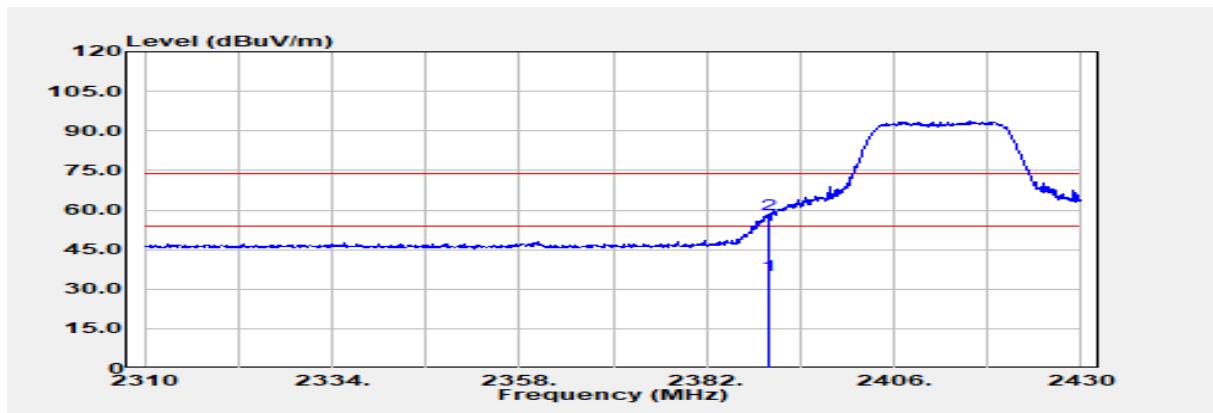
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-22  
 Test Frequency :2412 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH LOW Antenna Pol. :Vertical  
 EUT Pol :H plan Engineer :Kailin Lee



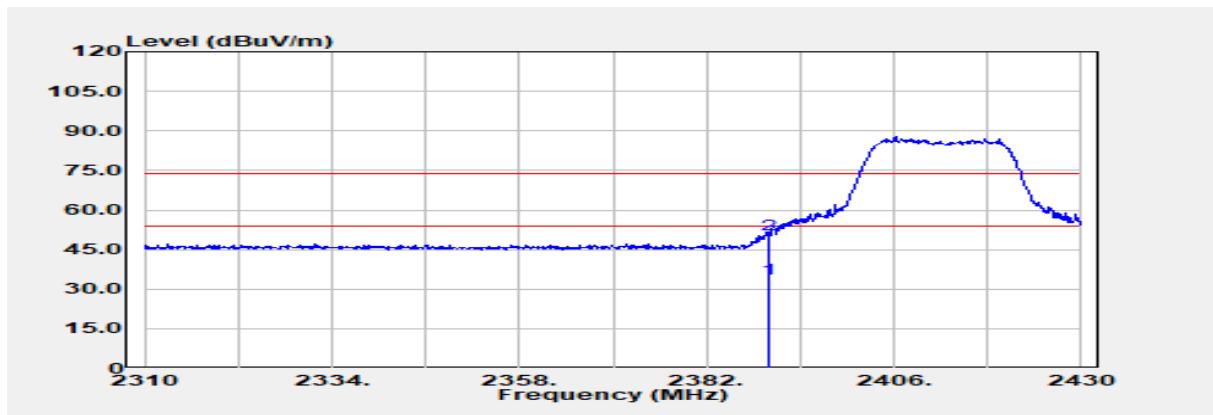
Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dB $\mu$ V/m		
2390.000	Average	43.21	-7.99		35.22	54.00	-18.78
2390.000	Peak	66.21	-7.99		58.22	74.00	-15.78

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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-22  
 Test Frequency :2412 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH LOW Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



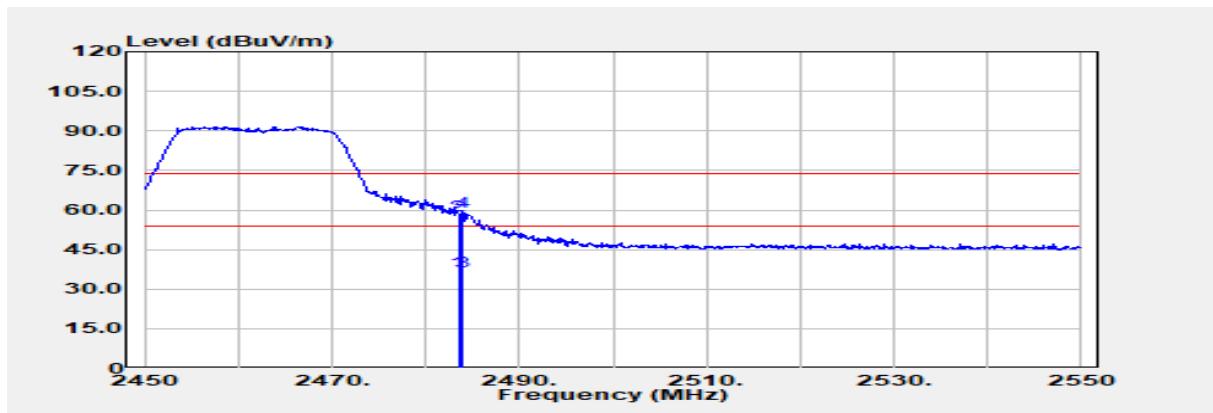
Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dBuV/m		
2390.000	Average	41.83	-7.99		33.85	54.00	-20.15
2390.000	Peak	58.79	-7.99		50.80	74.00	-23.20

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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-22  
 Test Frequency :2462 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH HIGH Antenna Pol. :Vertical  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB $\mu$ V/m	
2483.500	Average	44.67	-8.12	36.55	54.00	-17.45
2483.500	Peak	65.89	-8.12	57.77	74.00	-16.23
2483.800	Average	44.74	-8.12	36.62	54.00	-17.38
2483.800	Peak	67.25	-8.12	59.13	74.00	-14.87

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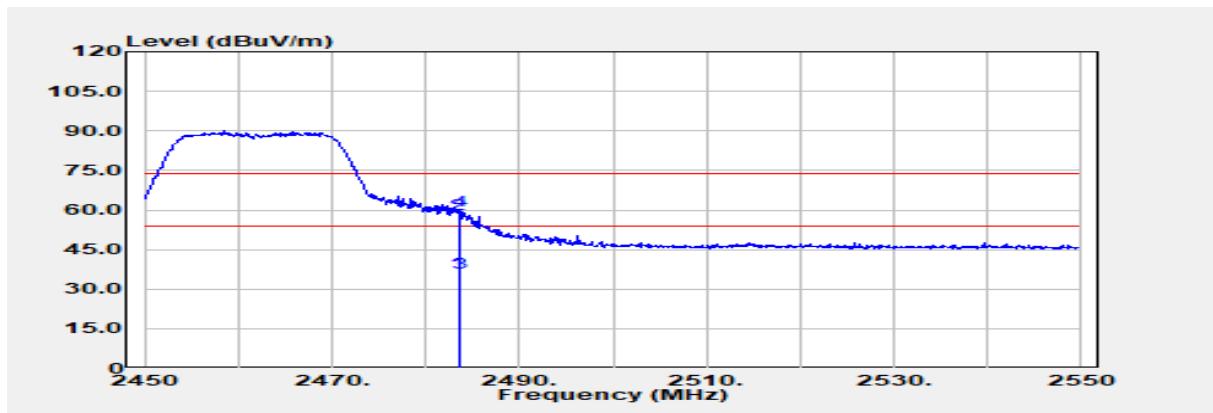
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-22  
 Test Frequency :2462 MHz Temp./Humi. :21.2/65  
 Test Mode :BE CH HIGH Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB $\mu$ V/m	
2483.500	Average	44.57	-8.12	36.45	54.00	-17.55
2483.500	Peak	66.33	-8.12	58.21	74.00	-15.79
2483.600	Average	44.52	-8.12	36.40	54.00	-17.60
2483.600	Peak	67.87	-8.12	59.75	74.00	-14.25

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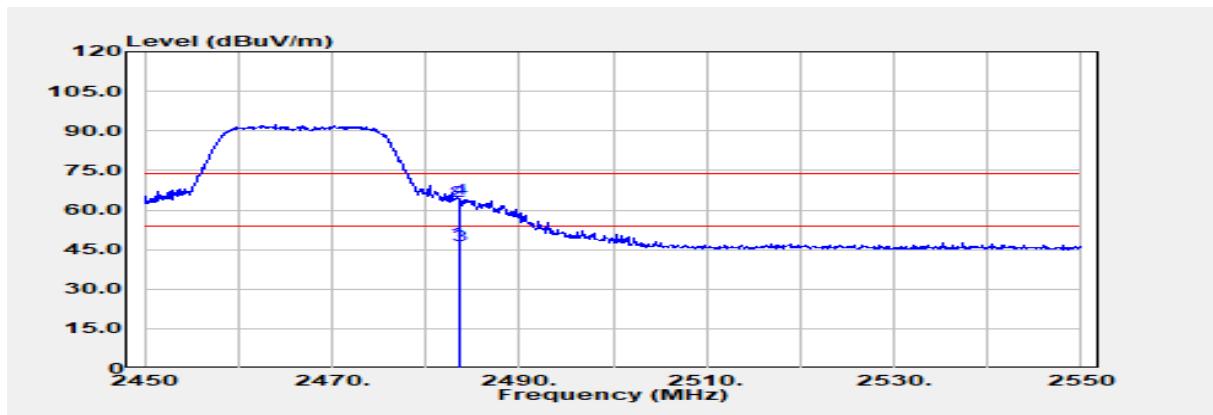
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 12 Antenna Pol. :Vertical  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB $\mu$ V/m	
2483.500	Average	56.05	-8.12	47.93	54.00	-6.07
2483.500	Peak	71.46	-8.12	63.34	74.00	-10.66
2483.700	Average	54.90	-8.12	46.78	54.00	-7.22
2483.700	Peak	72.34	-8.12	64.22	74.00	-9.78

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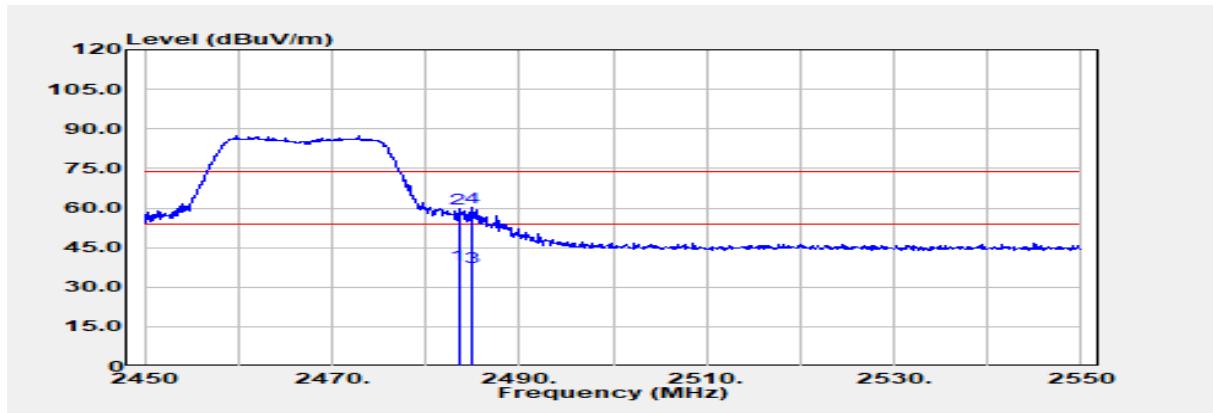
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 12 Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual	Limit	Margin
				FS dB $\mu$ V/m	@3m dB $\mu$ V/m	dB
2483.500	Average	46.67	-8.12	38.55	54.00	-15.45
2483.500	Peak	67.88	-8.12	59.76	74.00	-14.24
2485.000	Average	45.83	-8.13	37.70	54.00	-16.30
2485.000	Peak	68.44	-8.13	60.31	74.00	-13.69

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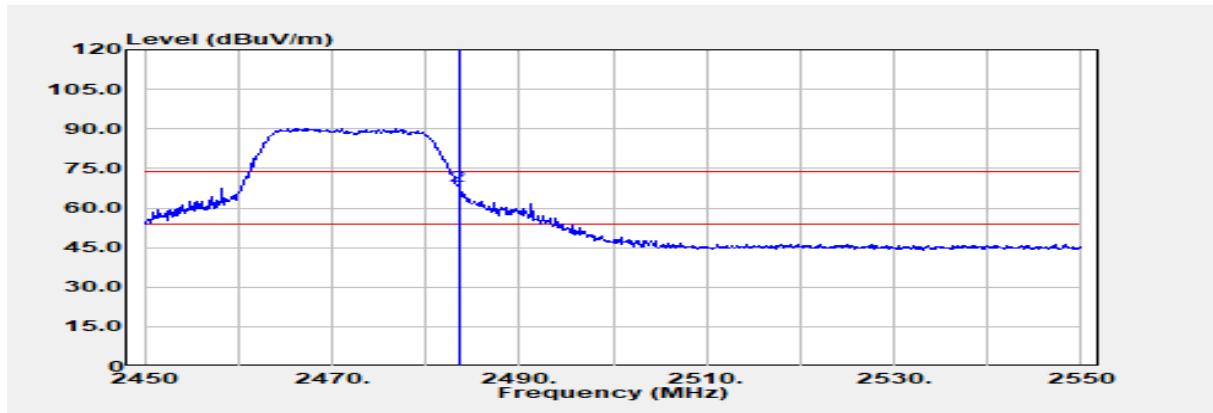
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-30  
 Test Frequency :2472 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 13 Antenna Pol. :Vertical  
 EUT Pol :H plan Engineer :Kailin Lee



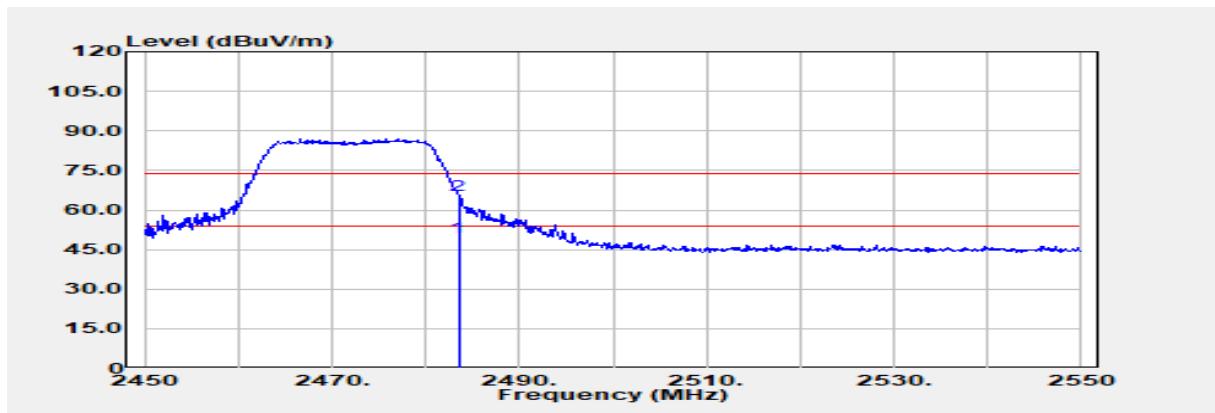
Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS	dB $\mu$ V/m		
2483.500	Average	523.40	-8.12		515.28	54.00	461.28
2483.500	Peak	76.29	-8.12		68.17	74.00	-5.83

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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-30  
 Test Frequency :2472 MHz Temp./Humi. :20.4/65  
 Test Mode :BE CH 13 Antenna Pol. :Horizontal  
 EUT Pol :H plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB $\mu$ V/m	
2483.500	Average	57.76	-8.12	49.64	54.00	-4.36
2483.500	Peak	73.97	-8.12	65.85	74.00	-8.15

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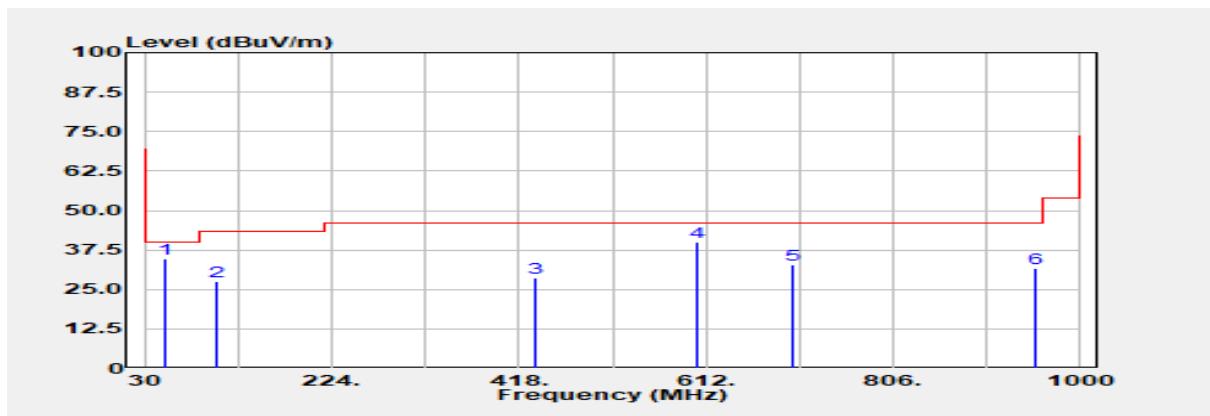
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## 11.7.2 Below 1GHz Worst-Case Emission:

Report Number	:E2/2020/C0018	Test Site	:966 Chamber D
Operation Mode	:802.11g	Test Date	:2020-12-30
Test Frequency	:2437 MHz	Temp./Humi.	:20.7/64
Test Mode	:TX CH MID	Antenna Pol.	:Vertical
EUT Pol	:H Plan	Engineer	:Kailin Lee



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Limit @3m dB $\mu$ V/m	Margin dB
				FS dB $\mu$ V/m			
50.370	Peak	52.45	-17.62	34.83		40.00	-5.17
103.720	Peak	48.89	-21.42	27.47		43.50	-16.03
434.490	Peak	41.33	-12.74	28.59		46.00	-17.41
602.300	Peak	48.87	-8.77	40.10		46.00	-5.90
701.240	Peak	41.88	-8.95	32.92		46.00	-13.08
953.440	Peak	36.71	-5.17	31.54		46.00	-14.46

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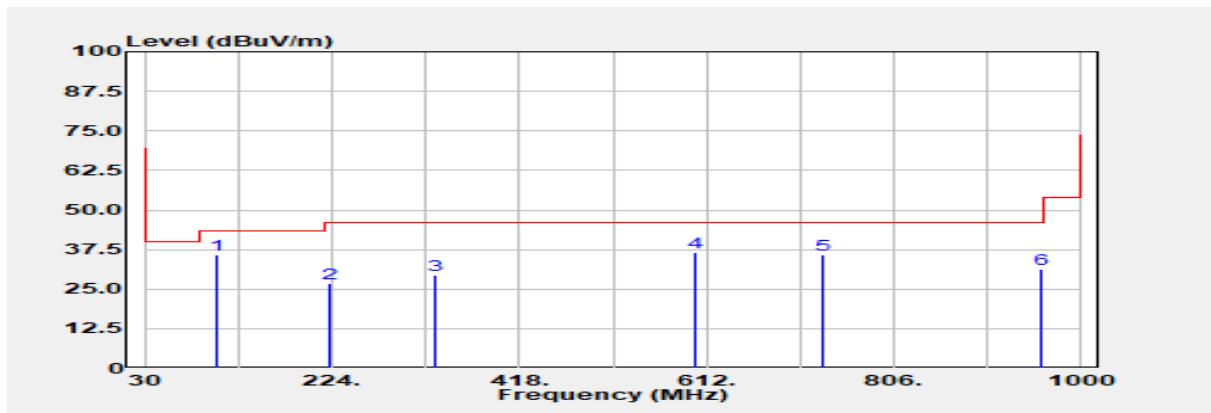
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-30  
 Test Frequency :2437 MHz Temp./Humi. :20.7/64  
 Test Mode :TX CH MID Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	dBuV/m	
104.690	Peak	57.12	-21.08	36.03	43.50	-7.47
221.090	Peak	46.82	-20.04	26.78	46.00	-19.22
329.730	Peak	44.59	-15.33	29.26	46.00	-16.74
601.330	Peak	45.26	-8.81	36.46	46.00	-9.54
731.310	Peak	43.35	-7.38	35.97	46.00	-10.03
958.290	Peak	36.10	-4.90	31.20	46.00	-14.80

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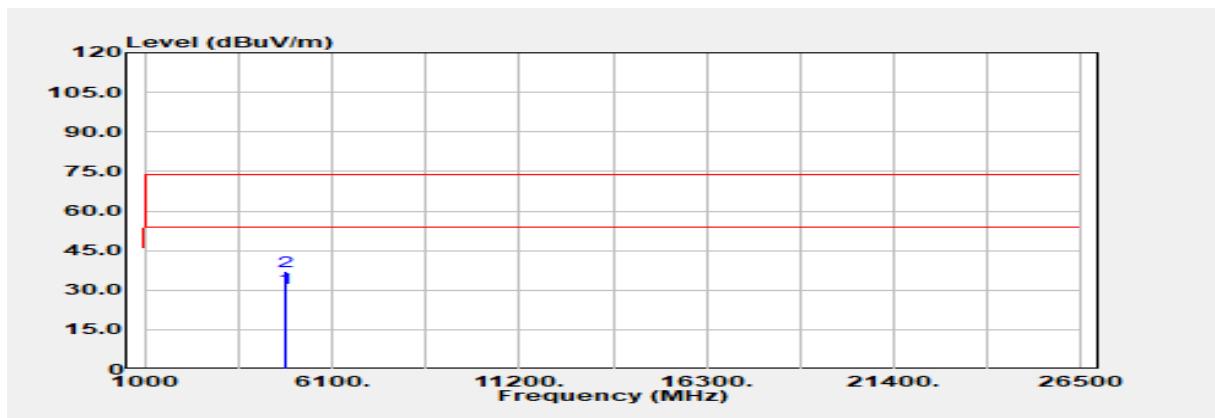
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### 11.7.3 Above 1GHz Emission:

Report Number	:E2/2020/C0018	Test Site	:966 Chamber D
Operation Mode	:802.11b	Test Date	:2020-12-22
Test Frequency	:2412 MHz	Temp./Humi.	:21.2/67
Test Mode	:TX CH LOW	Antenna Pol.	:Vertical
EUT Pol	:H Plan	Engineer	:Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB $\mu$ V/m	
4824.000	Average	34.05	-3.13	30.92	54.00	-23.08
4824.000	Peak	40.23	-3.13	37.10	74.00	-36.90

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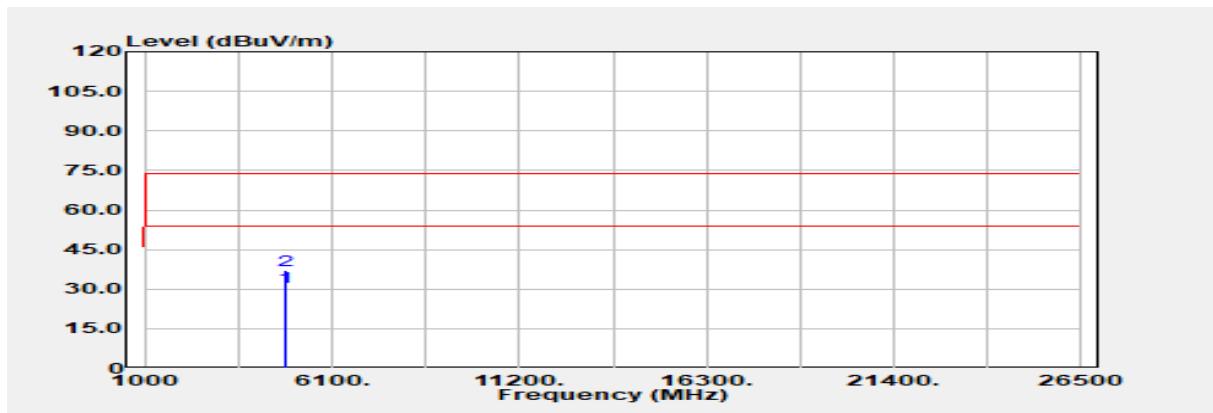
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-22  
 Test Frequency :2412 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH LOW Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>B</sub> uV/m	
4824.000	Average	34.09	-3.13	30.97	54.00	-23.03
4824.000	Peak	40.40	-3.13	37.27	74.00	-36.73

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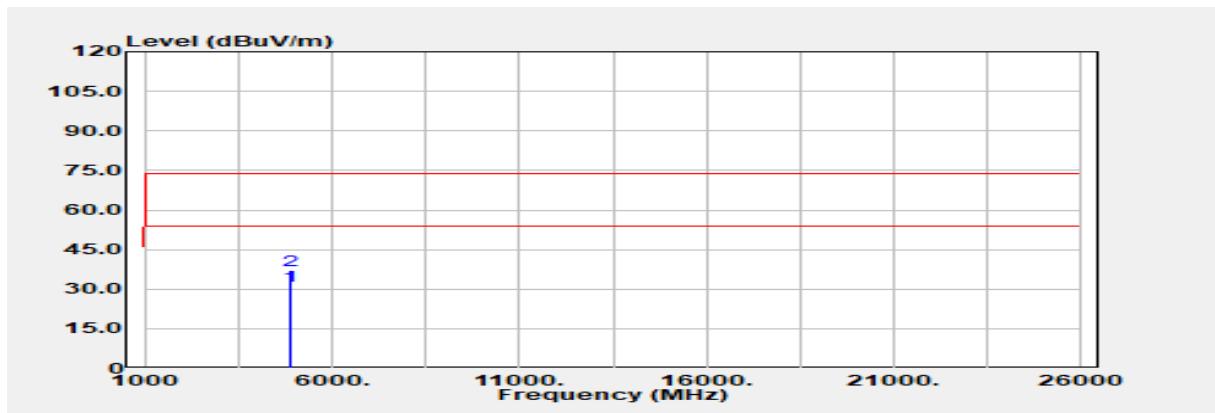
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11b Test Date :2020-12-22  
Test Frequency :2437 MHz Temp./Humi. :21.2/67  
Test Mode :TX CH MID Antenna Pol. :Vertical  
EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4874.000	Average	34.14	-3.00	31.14	54.00	-22.86
4874.000	Peak	40.13	-3.00	37.13	74.00	-36.87

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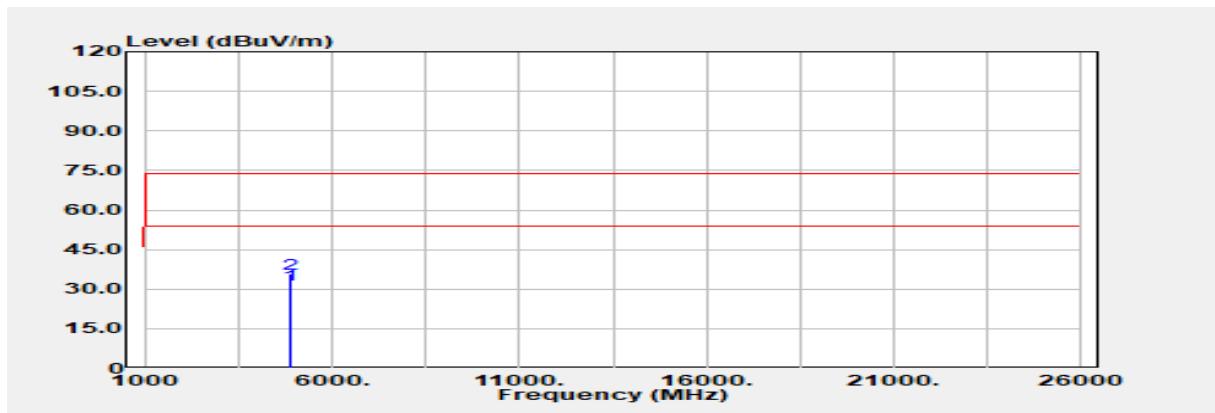
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-22  
 Test Frequency :2437 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH MID Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4874.000	Average	34.67	-3.00	31.67	54.00	-22.33
4874.000	Peak	38.92	-3.00	35.92	74.00	-38.08

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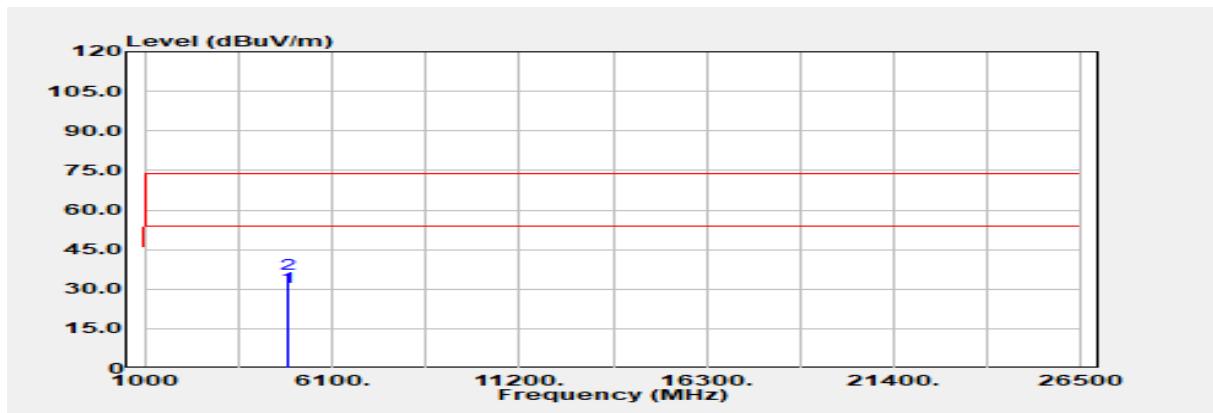
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-22  
 Test Frequency :2462 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH HIGH Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>BuV</sub>	Factor dB	Actual		Margin dB
				FS dB <sub>BuV/m</sub>	Limit @3m dB <sub>BuV/m</sub>	
4924.000	Average	33.87	-3.21	30.67	54.00	-23.33
4924.000	Peak	38.89	-3.21	35.69	74.00	-38.31

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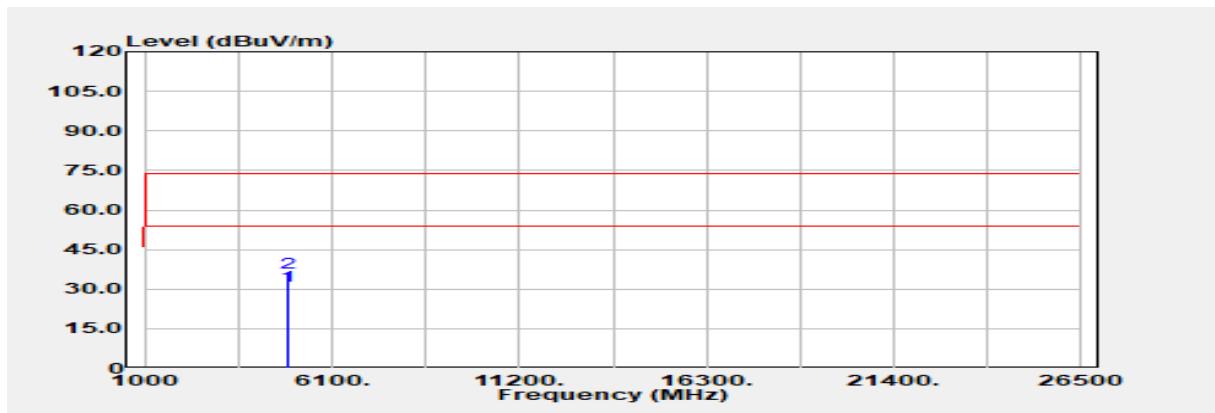
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-22  
 Test Frequency :2462 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH HIGH Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



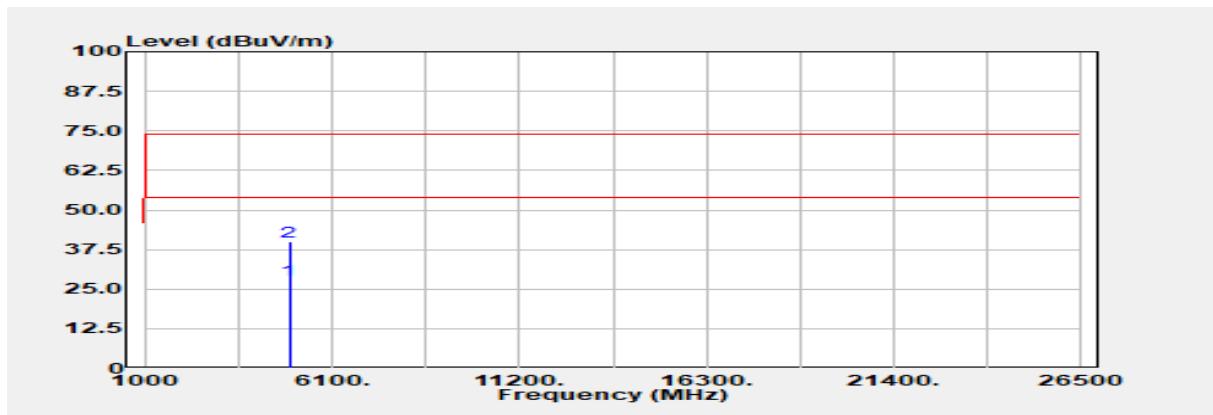
Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>B</sub> uV/m	
4924.000	Average	34.67	-3.21	31.46	54.00	-22.54
4924.000	Peak	39.24	-3.21	36.03	74.00	-37.97

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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :TX CH 12 Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4934.000	Average	31.08	-3.06	28.02	54.00	-25.98
4934.000	Peak	43.01	-3.06	39.95	74.00	-34.05

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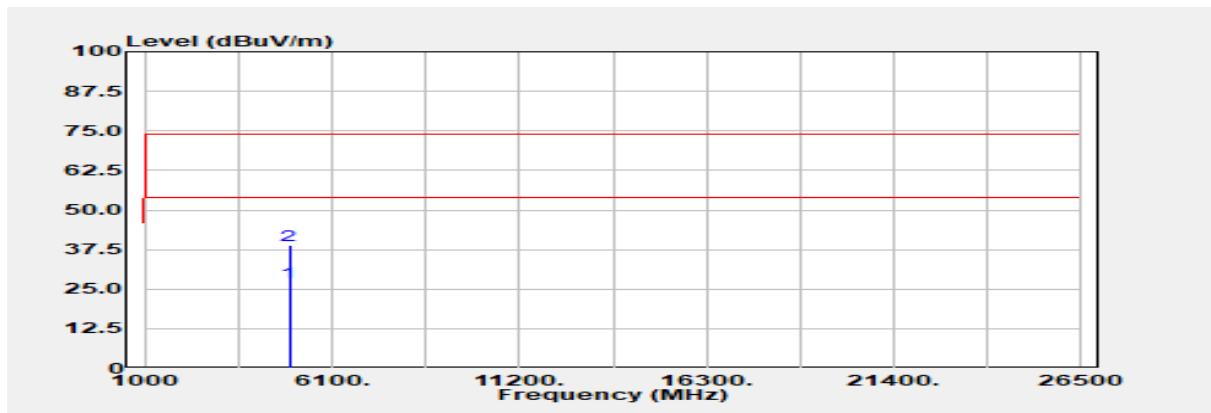
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11b Test Date :2020-12-30  
Test Frequency :2467 MHz Temp./Humi. :20.4/65  
Test Mode :TX CH 12 Antenna Pol. :Horizontal  
EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>P</sub> uV	Factor dB	Actual	Limit	Margin
				FS dB <sub>B</sub> uV/m	@3m dB <sub>B</sub> uV/m	dB
4934.000	Average	30.42	-3.06	27.35	54.00	-26.65
4934.000	Peak	41.89	-3.06	38.83	74.00	-35.17

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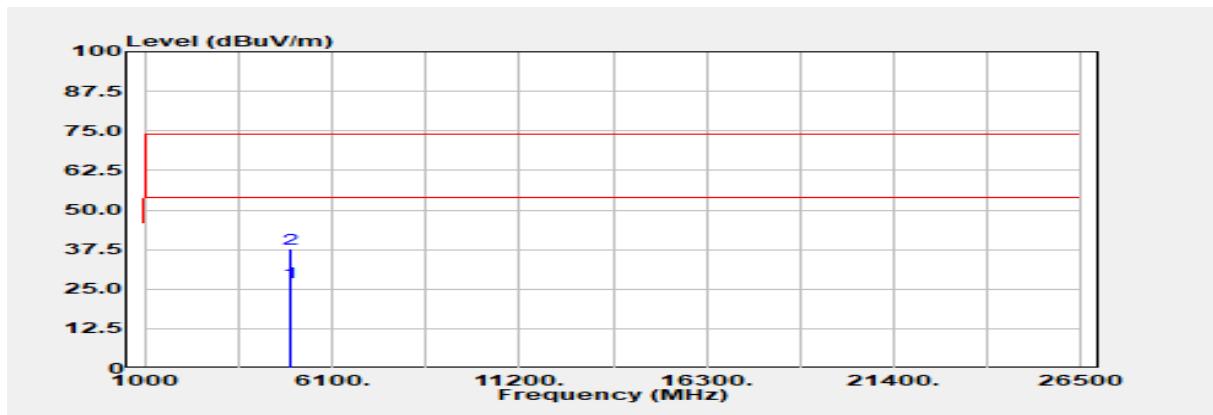
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 Operation Mode :802.11b Test Date :2020-12-30  
 Test Frequency :2472 MHz Temp./Humi. :20.4/65  
 Test Mode :TX CH 13 Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>μ</sub> V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>μ</sub> V/m	
4944.000	Average	29.92	-2.58	27.34	54.00	-26.66
4944.000	Peak	40.36	-2.58	37.78	74.00	-36.22

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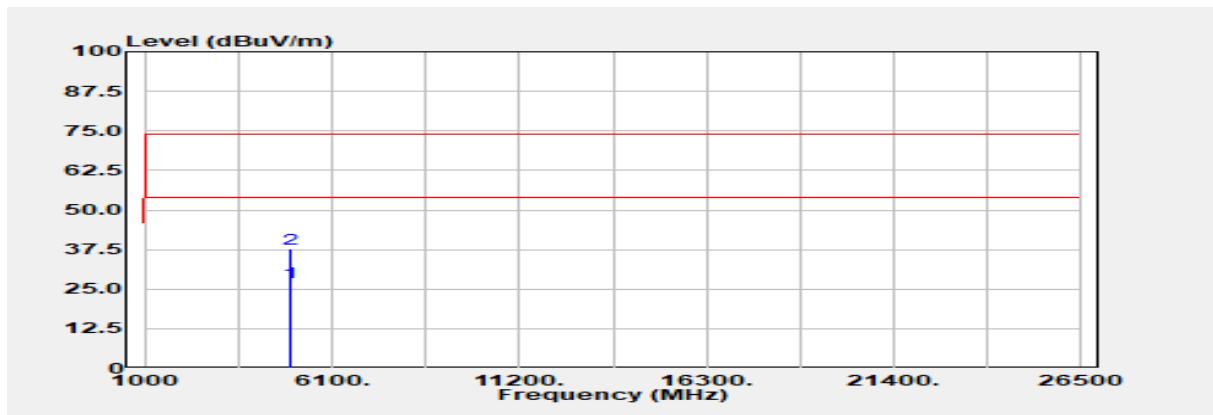
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11b Test Date :2020-12-30  
 Test Frequency :2472 MHz Temp./Humi. :20.4/65  
 Test Mode :TX CH 13 Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>B</sub> uV/m	
4944.000	Average	29.93	-2.58	27.35	54.00	-26.65
4944.000	Peak	40.37	-2.58	37.79	74.00	-36.21

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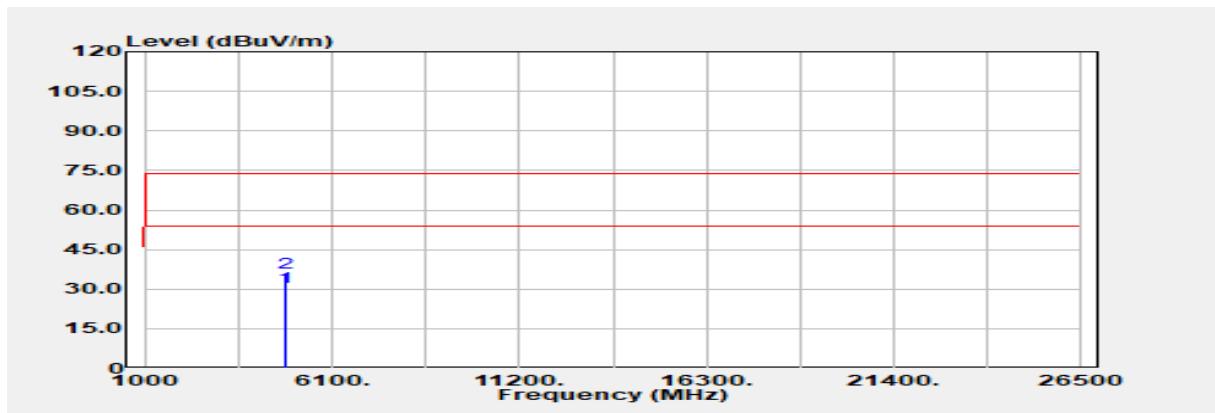
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-23  
 Test Frequency :2412 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH LOW Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>B</sub> uV/m	
4824.000	Average	33.90	-3.13	30.77	54.00	-23.23
4824.000	Peak	39.32	-3.13	36.19	74.00	-37.81

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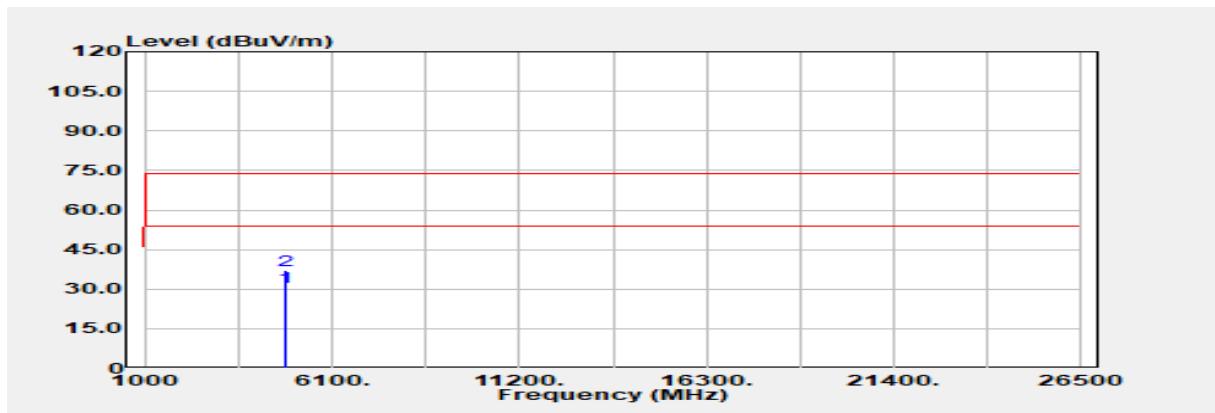
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-23  
 Test Frequency :2412 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH LOW Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



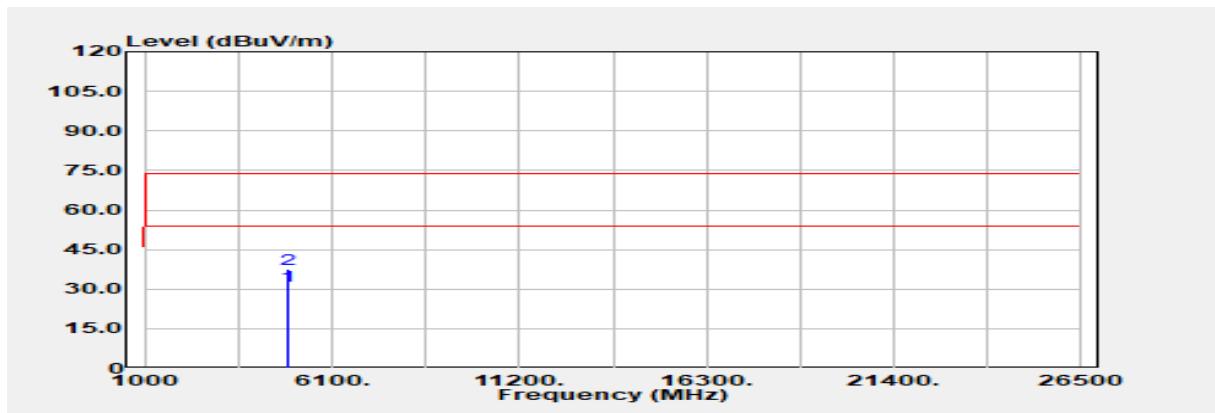
Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>B</sub> uV/m	
4824.000	Average	33.98	-3.13	30.85	54.00	-23.15
4824.000	Peak	40.07	-3.13	36.94	74.00	-37.06

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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-23  
 Test Frequency :2437 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH MID Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>B</sub> uV/m	
4874.000	Average	34.06	-3.00	31.06	54.00	-22.94
4874.000	Peak	40.75	-3.00	37.75	74.00	-36.25

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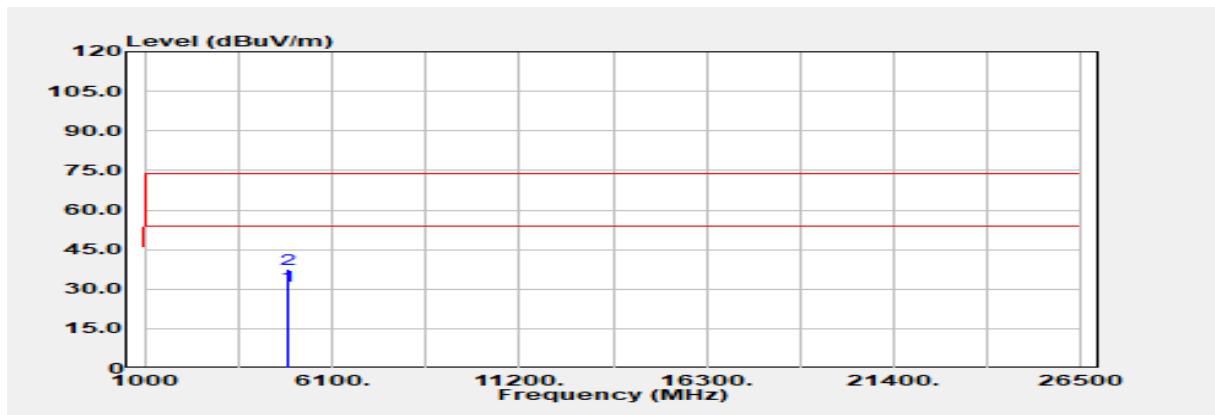
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-23  
 Test Frequency :2437 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH MID Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



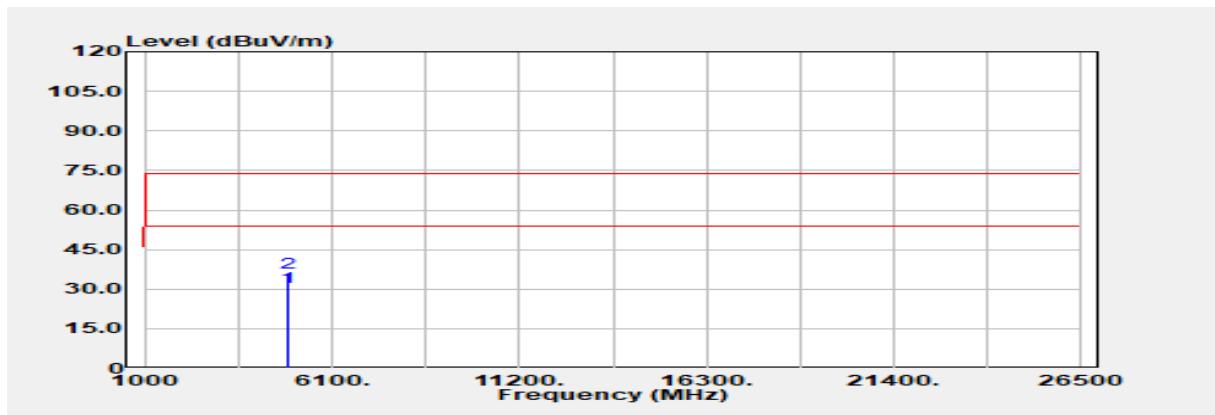
Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>B</sub> uV/m	
4874.000	Average	34.15	-3.00	31.15	54.00	-22.85
4874.000	Peak	40.58	-3.00	37.58	74.00	-36.42

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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-23  
 Test Frequency :2462 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH HIGH Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4924.000	Average	33.78	-3.21	30.57	54.00	-23.43
4924.000	Peak	39.39	-3.21	36.18	74.00	-37.82

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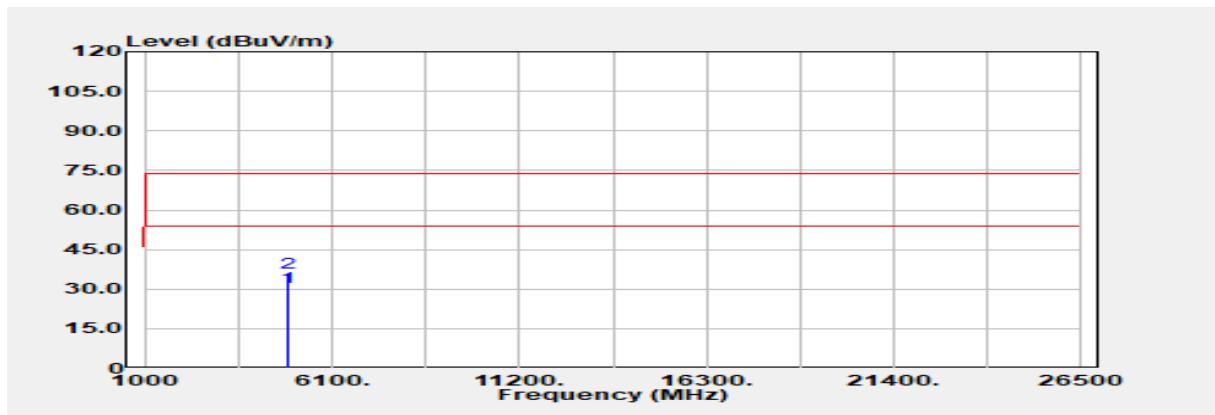
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-23  
 Test Frequency :2462 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH HIGH Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4924.000	Average	33.86	-3.21	30.66	54.00	-23.34
4924.000	Peak	39.62	-3.21	36.41	74.00	-37.59

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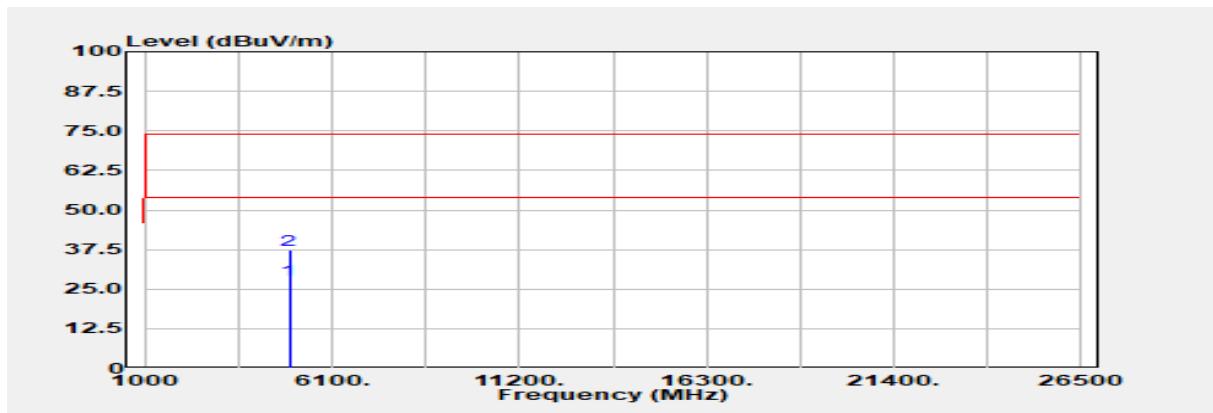
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :TX CH 12 Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4934.000	Average	31.04	-3.06	27.98	54.00	-26.02
4934.000	Peak	40.49	-3.06	37.43	74.00	-36.57

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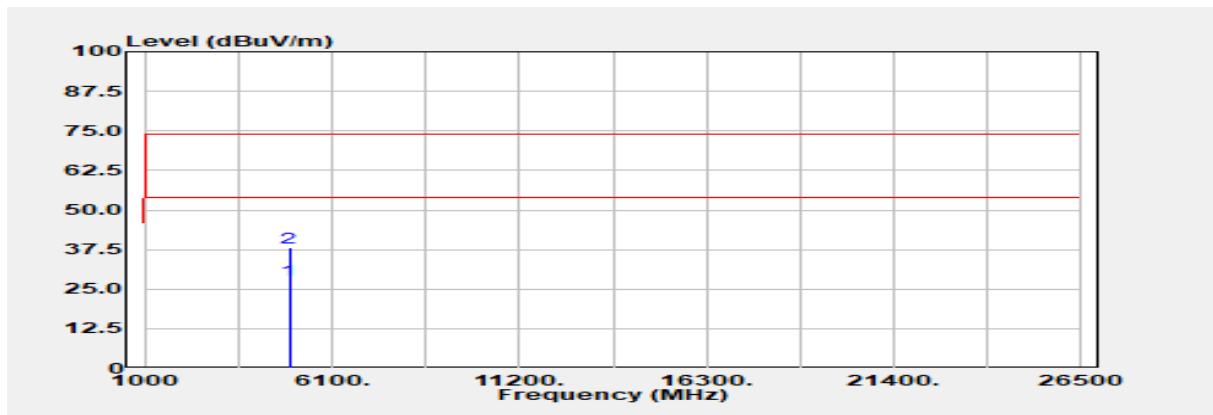
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :TX CH 12 Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4934.000	Average	30.91	-3.06	27.85	54.00	-26.15
4934.000	Peak	41.31	-3.06	38.25	74.00	-35.75

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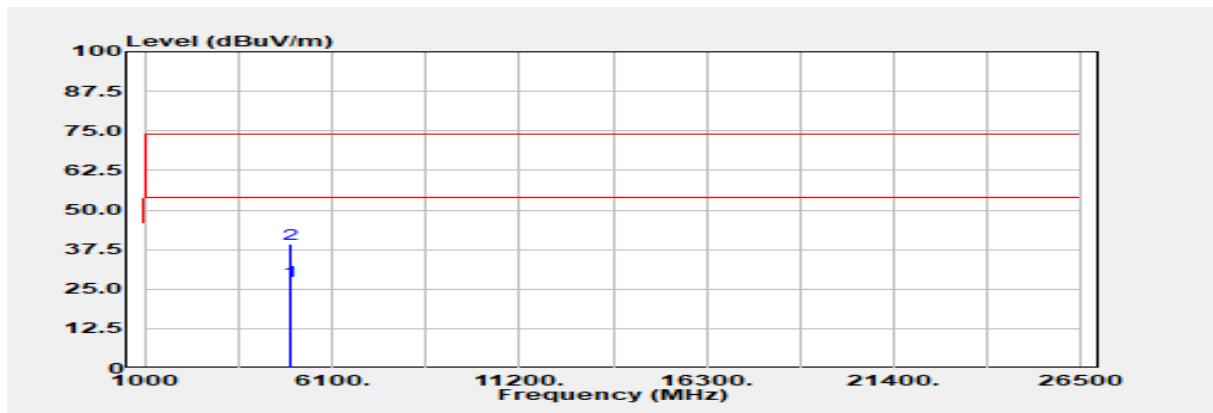
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11g Test Date :2020-12-30  
 Test Frequency :2472 MHz Temp./Humi. :20.4/65  
 Test Mode :TX CH 13 Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>μ</sub> V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>μ</sub> V/m	
4944.000	Average	30.25	-2.58	27.67	54.00	-26.33
4944.000	Peak	41.67	-2.58	39.09	74.00	-34.91

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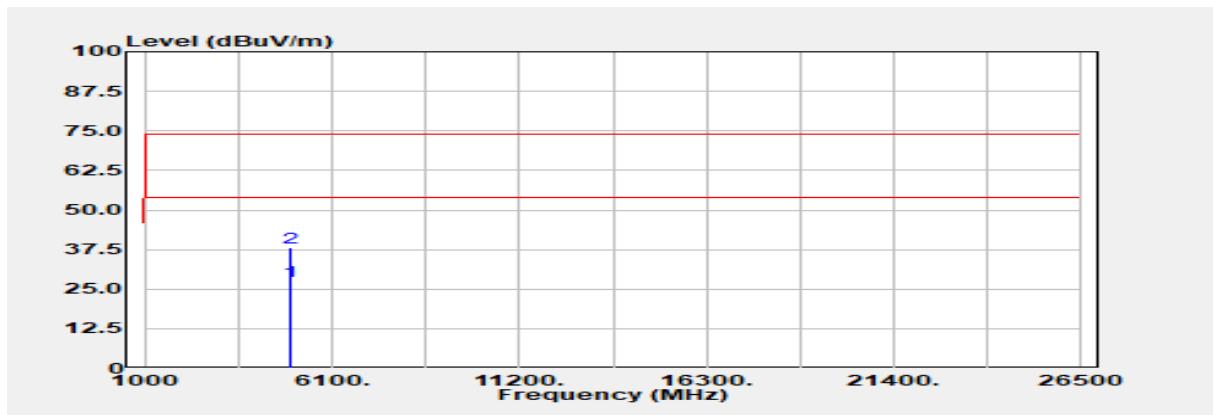
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11g Test Date :2020-12-30  
Test Frequency :2472 MHz Temp./Humi. :20.4/65  
Test Mode :TX CH 13 Antenna Pol. :Horizontal  
EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>μ</sub> V	Factor dB	Actual	Limit	Margin
				FS dB <sub>B</sub> uV/m	@3m dB <sub>B</sub> uV/m	dB
4944.000	Average	30.22	-2.58	27.64	54.00	-26.36
4944.000	Peak	40.76	-2.58	38.18	74.00	-35.82

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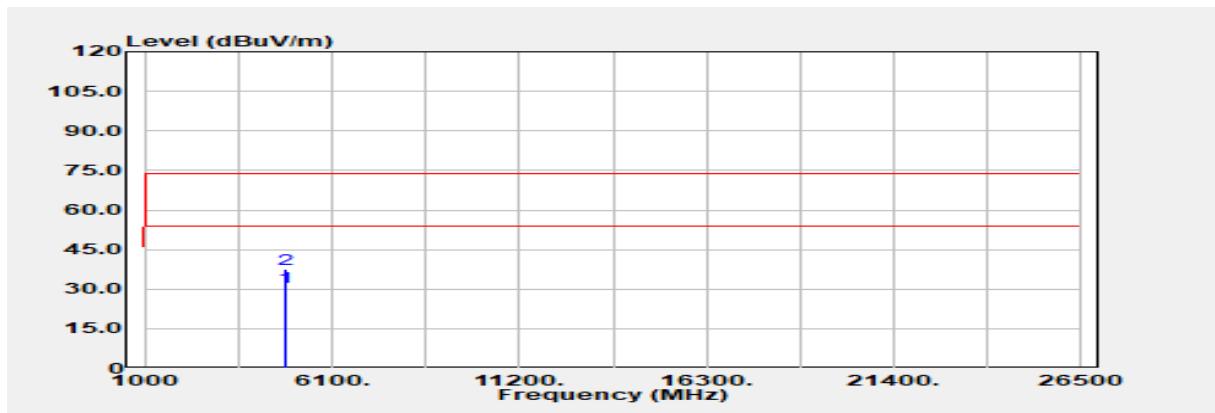
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-23  
 Test Frequency :2412 Hz Temp./Humi. :21.2/67  
 Test Mode :TX CH LOW Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level	Factor	Actual		Margin
				FS	@3m	
4824.000	Average	33.90	-3.13	30.77	54.00	-23.23
4824.000	Peak	40.74	-3.13	37.62	74.00	-36.38

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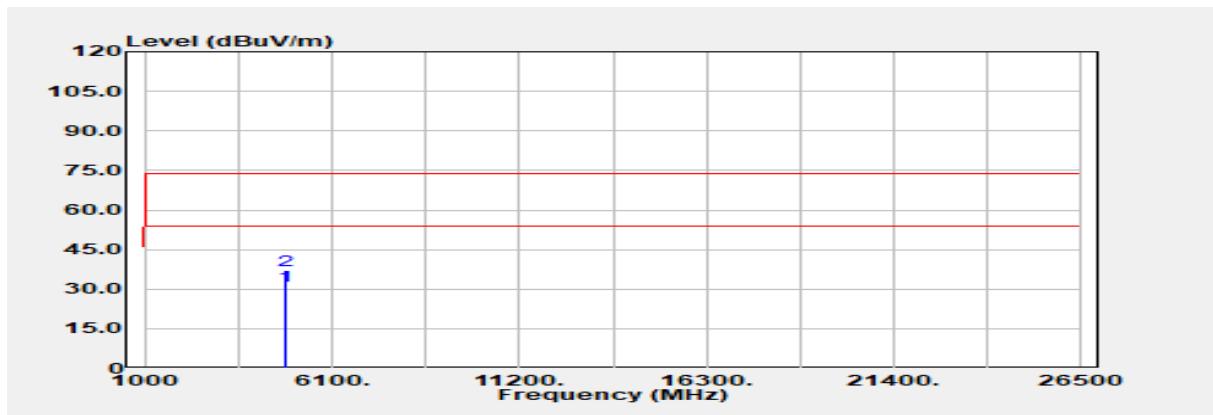
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-23  
 Test Frequency :2412 Hz Temp./Humi. :21.2/67  
 Test Mode :TX CH LOW Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	
4824.000	Average	34.21	-3.13	31.09	54.00	-22.91
4824.000	Peak	40.07	-3.13	36.94	74.00	-37.06

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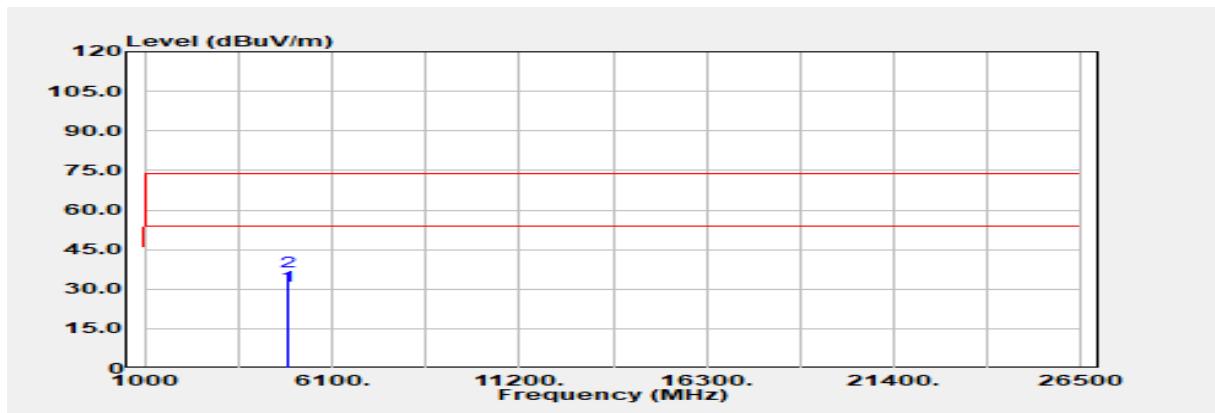
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-23  
 Test Frequency :2437 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH MID Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4874.000	Average	34.14	-3.00	31.14	54.00	-22.86
4874.000	Peak	39.66	-3.00	36.67	74.00	-37.33

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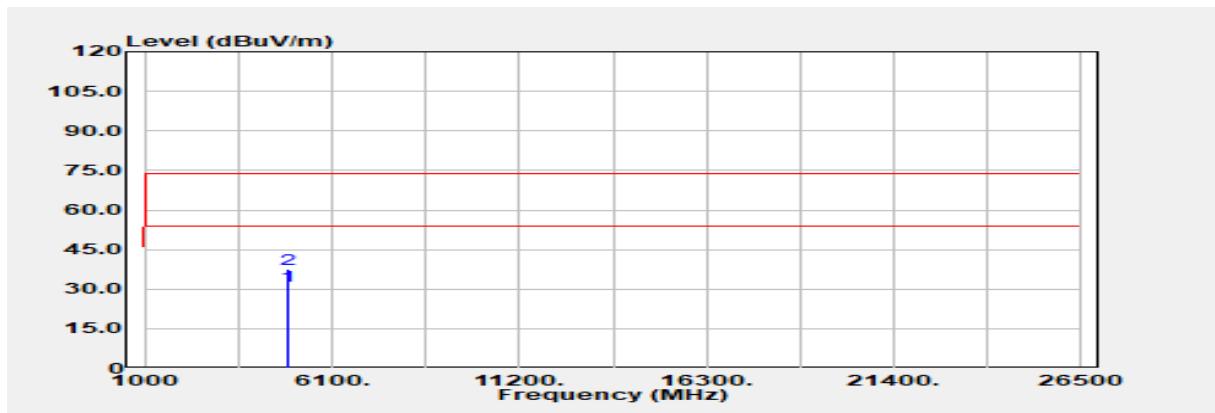
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-23  
 Test Frequency :2437 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH MID Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>B</sub> uV/m	
4874.000	Average	34.31	-3.00	31.32	54.00	-22.68
4874.000	Peak	40.48	-3.00	37.48	74.00	-36.52

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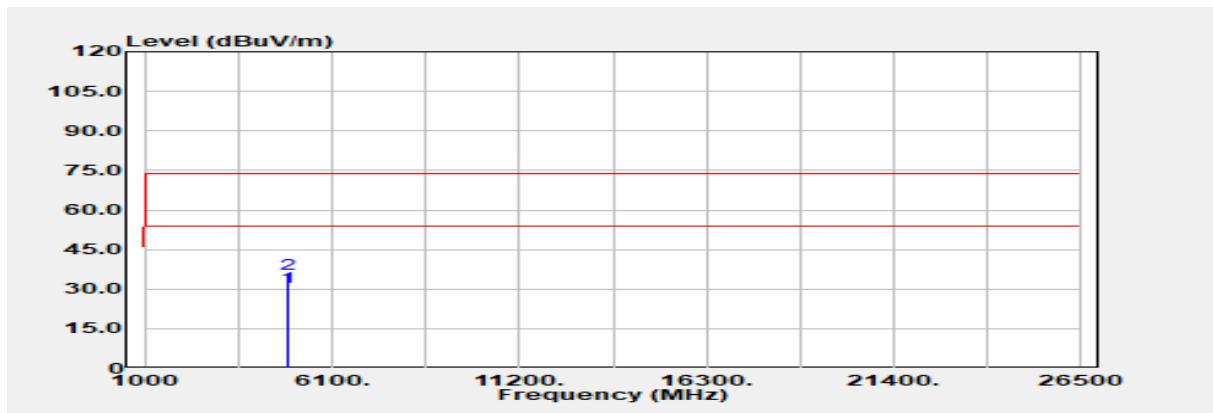
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11n20 Test Date :2020-12-23  
Test Frequency :2462 MHz Temp./Humi. :21.2/67  
Test Mode :TX CH HIGH Antenna Pol. :Vertical  
EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS	@3m dB <sub>B</sub> uV/m	
4924.000	Average	34.05	-3.21	30.84	54.00	-23.16
4924.000	Peak	38.77	-3.21	35.56	74.00	-38.44

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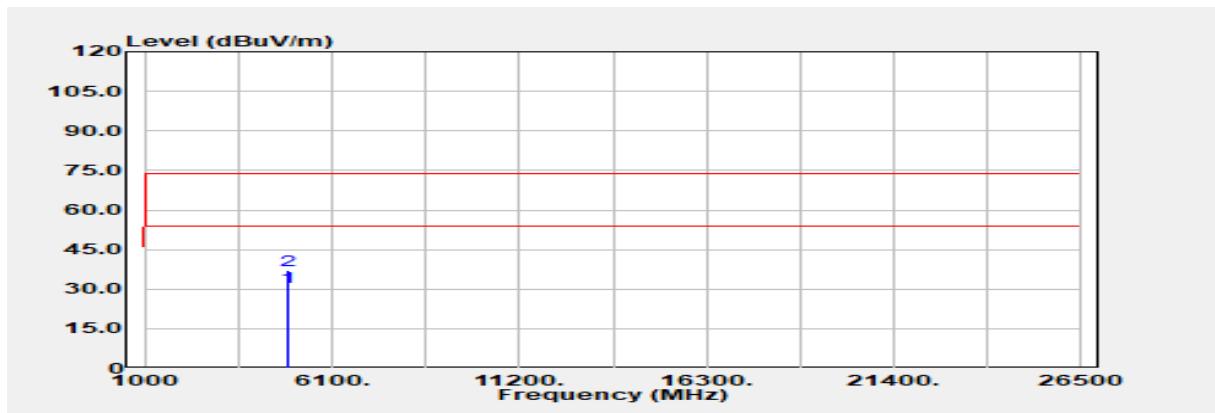
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-23  
 Test Frequency :2462 MHz Temp./Humi. :21.2/67  
 Test Mode :TX CH HIGH Antenna Pol. :Horizontal  
 EUT Pol :H Plan Engineer :Kailin Lee



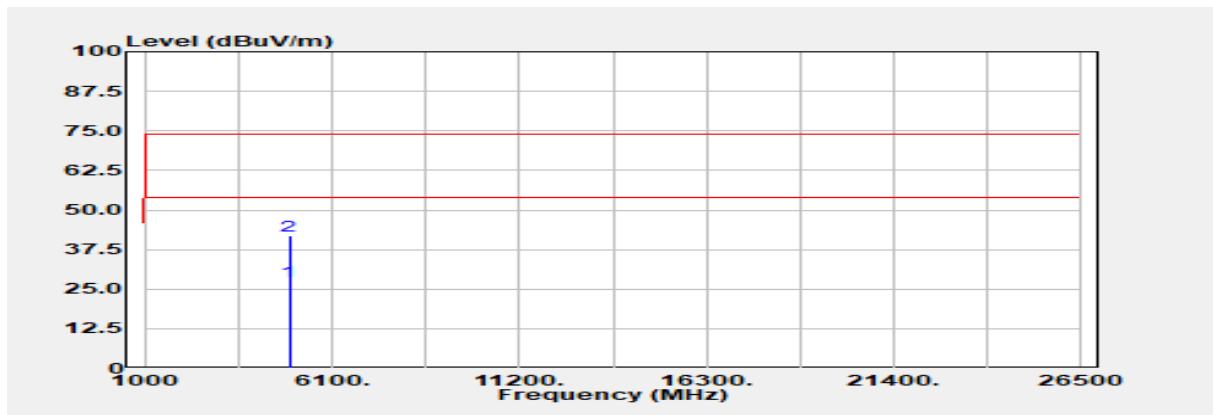
Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>B</sub> uV	Factor dB	Actual		Margin dB
				FS dB <sub>B</sub> uV/m	Limit @3m dB <sub>B</sub> uV/m	
4924.000	Average	34.08	-3.21	30.87	54.00	-23.13
4924.000	Peak	40.40	-3.21	37.19	74.00	-36.81

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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-30  
 Test Frequency :2467 MHz Temp./Humi. :20.4/65  
 Test Mode :TX CH 12 Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>μ</sub> V	Factor dB	Actual		Margin dB
				FS	Limit @3m dB <sub>μ</sub> V/m	
4934.000	Average	30.64	-3.06	27.58	54.00	-26.42
4934.000	Peak	44.76	-3.06	41.70	74.00	-32.30

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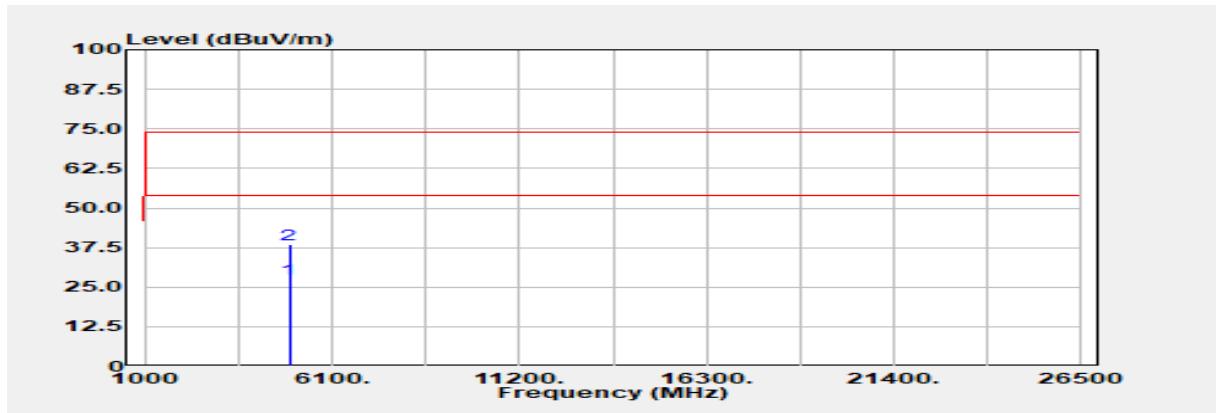
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Report Number	:E2/2020/C0018	Test Site	:966 Chamber D
Operation Mode	:802.11n20	Test Date	:2020-12-30
Test Frequency	:2467 MHz	Temp./Humi.	:20.4/65
Test Mode	:TX CH 12	Antenna Pol.	:Horizontal
EUT Pol	:H Plan	Engineer	:Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading	Factor	Actual		Margin dB
				FS	@3m	
PK/QP/AV	dB <sub>μ</sub> V	dB <sub>μ</sub> V	dB	dB <sub>μ</sub> V/m	dB <sub>μ</sub> V/m	
4934.000	Average	30.62	-3.06	27.56	54.00	-26.44
4934.000	Peak	41.43	-3.06	38.37	74.00	-35.63

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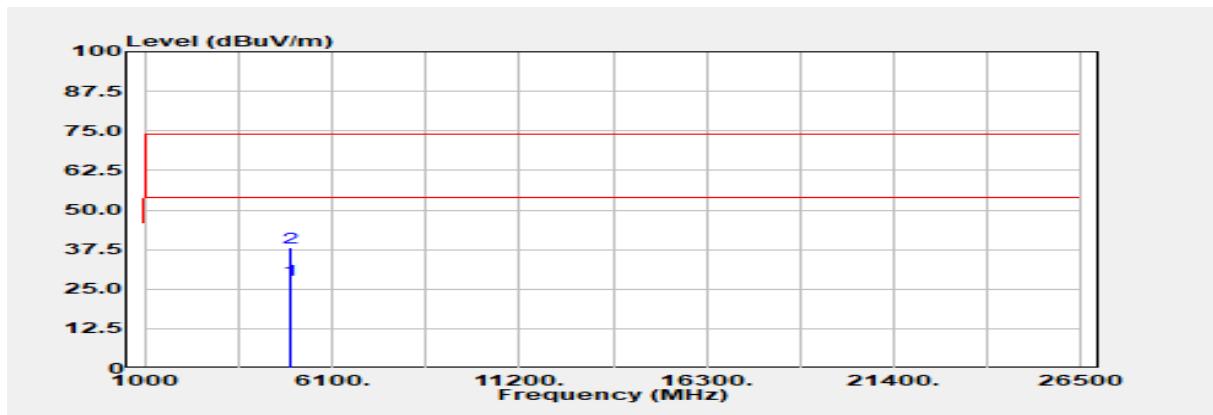
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
 Operation Mode :802.11n20 Test Date :2020-12-30  
 Test Frequency :2472 MHz Temp./Humi. :20.4/65  
 Test Mode :TX CH 13 Antenna Pol. :Vertical  
 EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>μV</sub>	Factor dB	Actual	Limit	Margin
				FS dB <sub>μV/m</sub>	@3m dB <sub>μV/m</sub>	dB
4944.000	Average	30.37	-2.58	27.80	54.00	-26.20
4944.000	Peak	40.76	-2.58	38.18	74.00	-35.82

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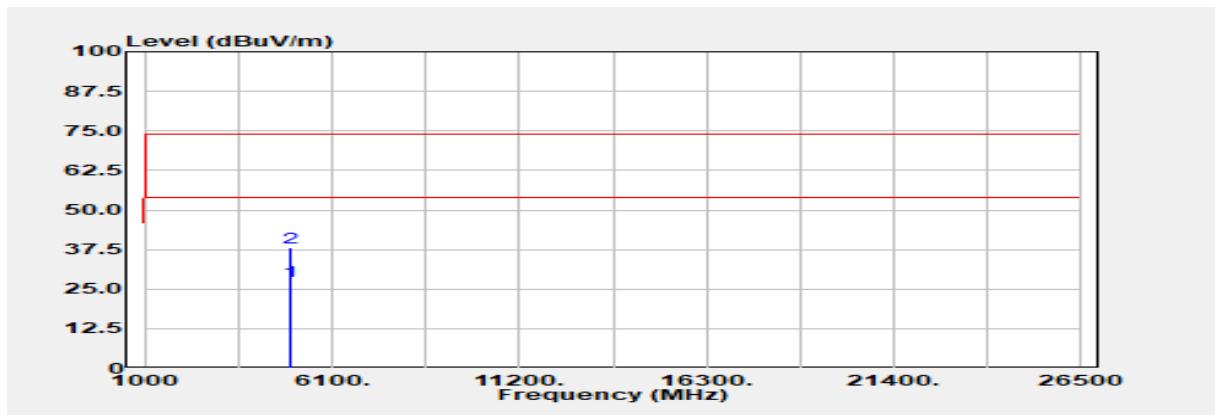
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Report Number :E2/2020/C0018 Test Site :966 Chamber D  
Operation Mode :802.11n20 Test Date :2020-12-30  
Test Frequency :2472 MHz Temp./Humi. :20.4/65  
Test Mode :TX CH 13 Antenna Pol. :Horizontal  
EUT Pol :H Plan Engineer :Kailin Lee



Freq. MHz	Detector Mode	Spectrum Reading Level dB <sub>μ</sub> V	Factor dB	Actual	Limit	Margin
				FS dB <sub>μ</sub> V/m	@3m dB <sub>μ</sub> V/m	dB
4944.000	Average	30.27	-2.58	27.69	54.00	-26.31
4944.000	Peak	40.67	-2.58	38.09	74.00	-35.91

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## 12 POWER SPECTRAL DENSITY

### 12.1 Standard Applicable

Per Part 15.247 (e)

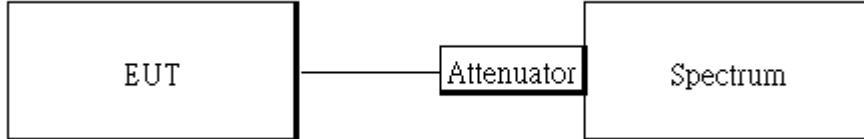
The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### 12.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071574	06/24/2020	06/23/2021
DC Power Supply	Agilent	E3640A	MY53130054	09/07/2020	09/06/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021

### 12.3 Test Set-up



### 12.4 Measurement Procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW = 3 kHz & VBW = 10 kHz.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.

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## 12.5 Power spectral density

POWER DENSITY 802.11b				
Freq. (MHz)	Ch0 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-8.85	-8.85	8.00	PASS
2437	-8.13	-8.13	8.00	PASS
2462	-8.05	-8.05	8.00	PASS
2467	-6.17	-6.17	8.00	PASS
2472	-6.29	-6.29	8.00	PASS

POWER DENSITY 802.11g				
Freq. (MHz)	Ch0 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-16.79	-16.79	8.00	PASS
2437	-17.17	-17.17	8.00	PASS
2462	-15.84	-15.84	8.00	PASS
2467	-14.86	-14.86	8.00	PASS
2472	-14.75	-14.75	8.00	PASS

POWER DENSITY 802.11n HT20				
Freq. (MHz)	Ch0 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-17.93	-17.93	8.00	PASS
2437	-17.99	-17.99	8.00	PASS
2462	-16.28	-16.28	8.00	PASS
2467	-15.97	-15.97	8.00	PASS
2472	-15.01	-15.01	8.00	PASS

\*Refer to next page for plots

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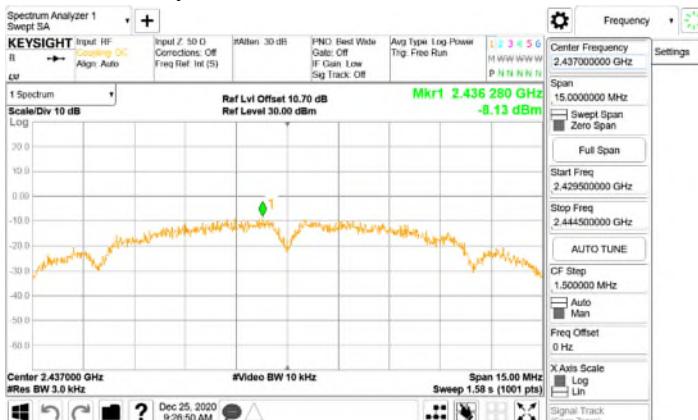
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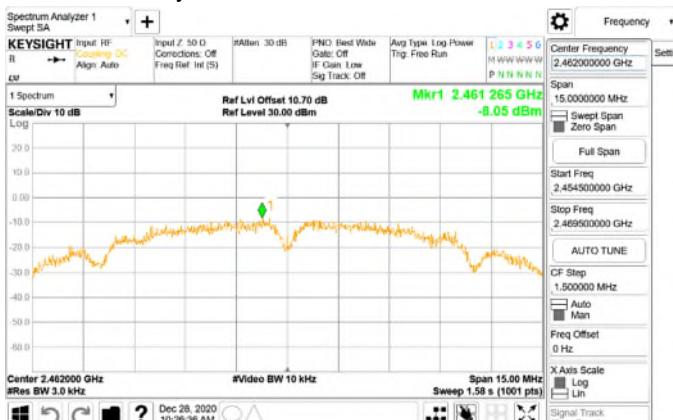
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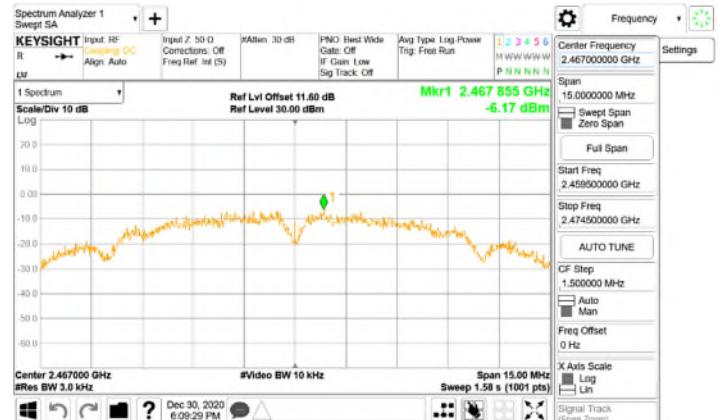
Power Density\WLAN\802.11b\_20MHz\_Chain0\_2437MHz



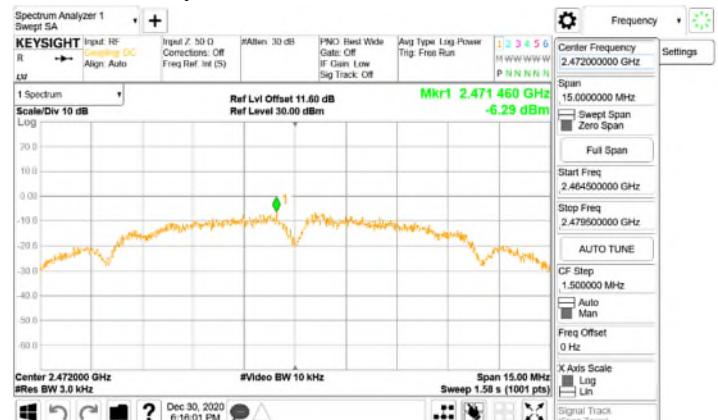
Power Density\WLAN\802.11b\_20MHz\_Chain0\_2462MHz



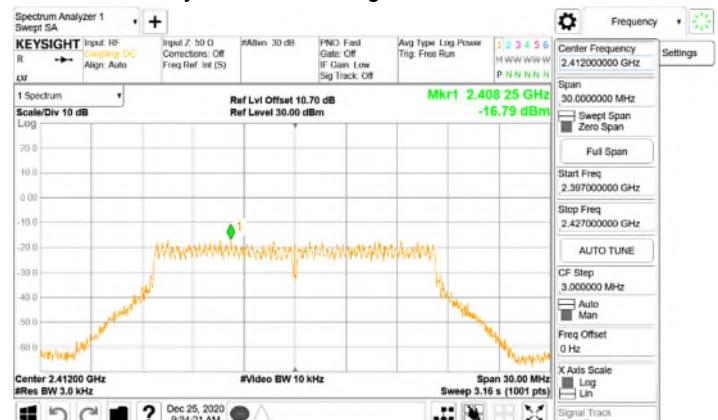
Power Density\WLAN\802.11b\_20MHz\_Chain0\_2467MHz



Power Density\WLAN\802.11b\_20MHz\_Chain0\_2472MHz



Power Density\WLAN\802.11g\_20MHz\_Chain0\_2412MHz



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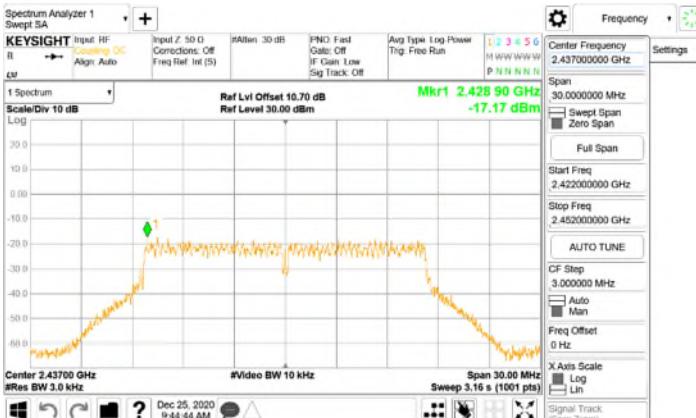
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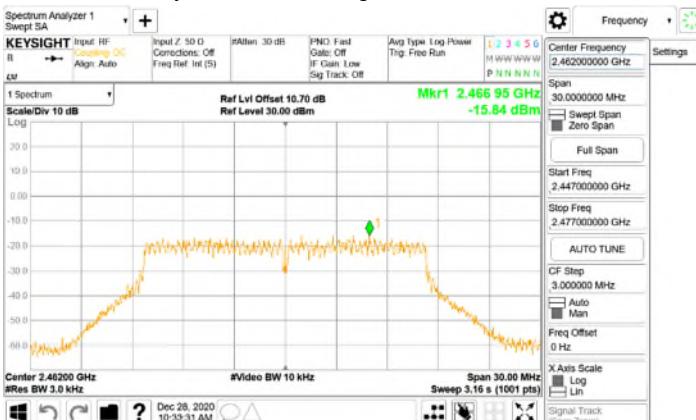
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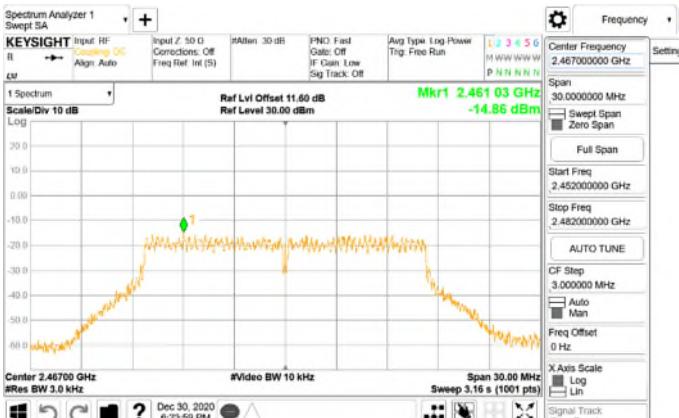
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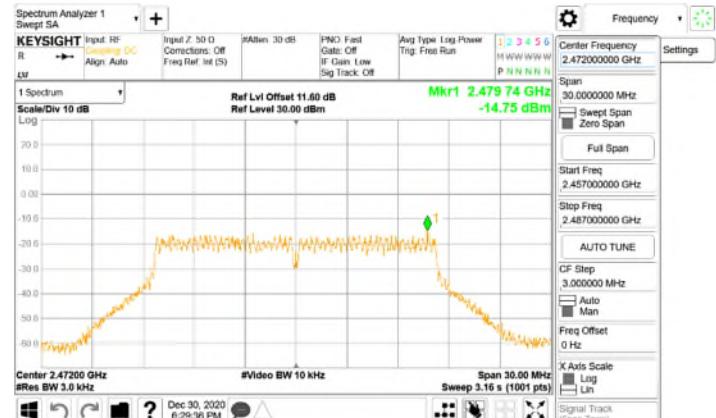
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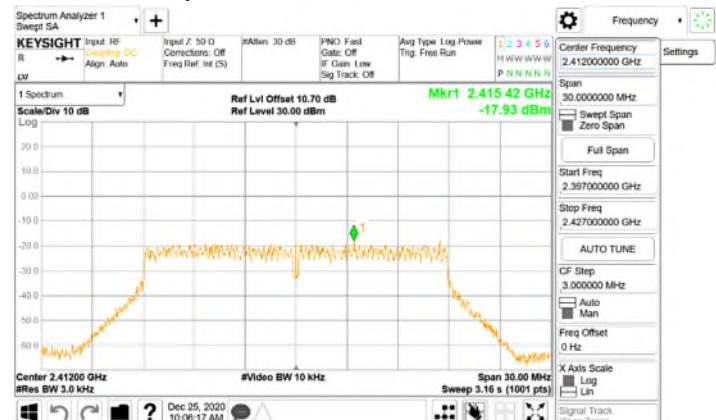
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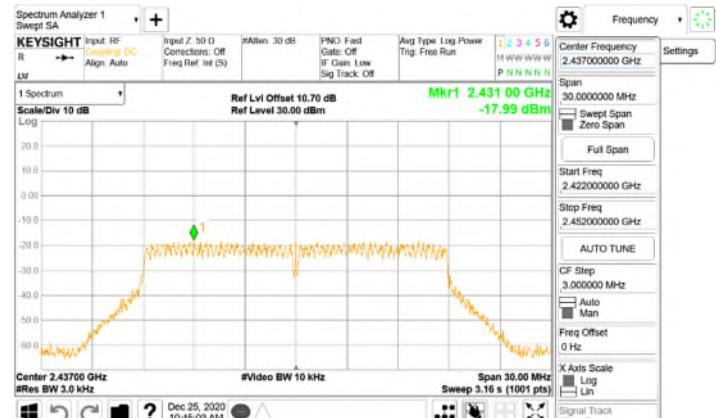
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## Power Density\WLAN\802.11n\_20MHz\_Chain0\_2412MHz



## Power Density\WLAN\802.11n\_20MHz\_Chain0\_2437MHz



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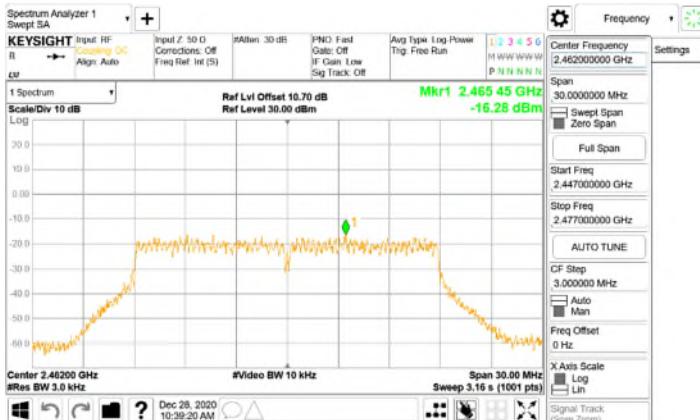
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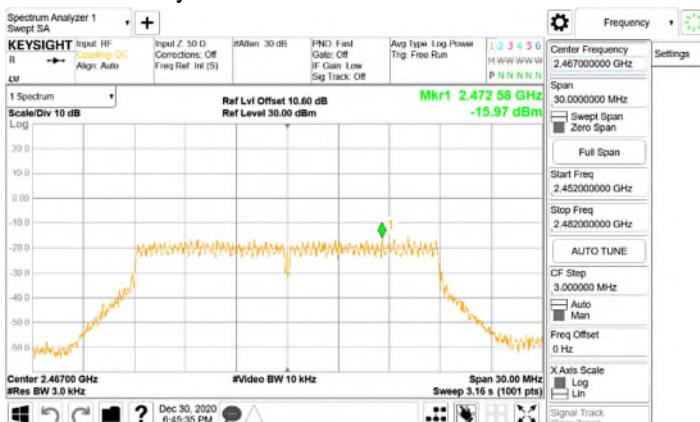
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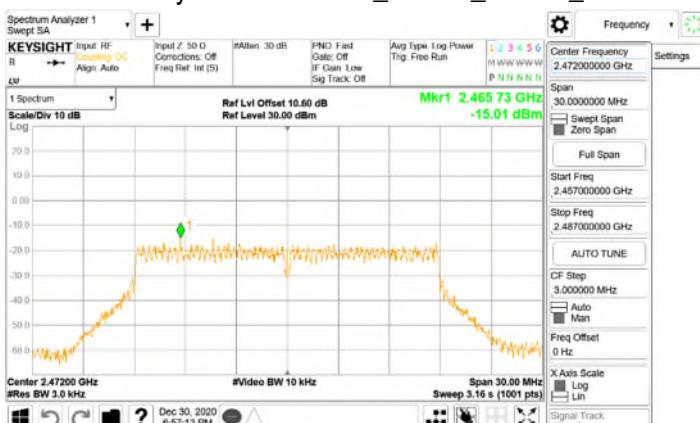
### Power Density\WLAN\802.11n\_20MHz\_Chain0\_2462MHz



### Power Density\WLAN\802.11n\_20MHz\_Chain0\_2467MHz



### Power Density\WLAN\802.11n\_20MHz\_Chain0\_2472MHz



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## 13 ANTENNA REQUIREMENT

### 13.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

If the transmitting antenna is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

### 13.2 Antenna Connected Construction

The antenna is designed as permanently attached and no consideration of replacement. Please see EUT photo for details.

*~ End of Report ~*

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