

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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## CLASS II & IV PC REPORT

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**Applicant:** Acer Incorporated  
8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City  
22181, Taiwan (R.O.C)

**Product Name:** 2x2 802.11A/B/G/N/AC WiFi + Bluetooth Module

**Brand Name:** acer

**Model No.:** QCNFA324

**Model Difference:** N/A

**Report Number:** E2/2021/60036

**FCC ID** HLZ-QCNFA324

**IC:** 1754F-QCNFA324

**Issue Date:** Jul. 26, 2021

**Date of Test:** Jun. 12, 2021 ~ Jul. 21, 2021

**Date of EUT Received:** Jun. 11, 2021

*Arno Hsieh*  
Approved By \_\_\_\_\_

*Arno Hsieh*

**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 comply with FCC rule part §15.247, ISED RSS-247.

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

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## Revision History

Report Number	Revision	Description	Issue Date	Revised By
E2/2021/60036	Rev.00	Original.	Jul. 26, 2021	Yi-Shan Tsai

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## 1 GENERAL INFORMATION

### 1.1 Product description

Product Name:	2x2 802.11A/B/G/N/AC WiFi + Bluetooth Module
Brand Name:	acer
Model No.:	QCNFA324
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	N8AWGWW00111180F6AF (Conducted) N8AWGWW00111180F6AF7600 (Radiated)
Power Supply:	11.25Vdc from Rechargeable Lithium Ion Battery Pack 5 / 9 / 12 / 15 / 20Vdc from AC/DC Adapter

### 1.2 RF Specification

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Peak) / EIRP (Worst Case)	Modulation Technology	
b	2412-2462	11	23.80 dBm / 24.40 dBm	DSSS	
g			26.74 dBm / 23.84 dBm	OFDM	
n_HT20 ac_VHT20			VHT 27.41 dBm / 23.81 dBm		
n_HT40 ac_VHT40	2422-2452	7	VHT 25.51 dBm / 20.30 dBm		
Modulation type:		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only			
Transistion 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_20MHz: 6.5 – 144.4Mbps 802.11 n_40MHz: 13.5 – 300.0Mbps 802.11 ac_20MHz: 6.5 – 173.3Mbps 802.11 ac_40MHz: 13.5 – 400.0Mbps			

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### 1.3 Antenna Designation

Antenna Type	Main / Aux	Freq. (MHz)	Peak Antenna Gain (dBi)	Worst Antenna Gain
PIFA	Main	2412-2462	-0.87	
	Aux		0.44	V

**Note:**

1. Pre-scanned was done on the above antennas, measurements were demonstrated by using the antenna with the highest gain as the worst case scenarios.
2. Antenna information is provided by the applicant.

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## 1.4 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 DTS Meas. Guidance v05r02

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

RSS-247 issue 2 Feb. 2017

RSS-Gen Issue 5

ANSI C63.10:2013

## 1.5 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	SAC 1	TW0027	
		SAC 3		
		Conduction 1		
		Conducted 1		
		Conducted 2		
		Conducted 3		
		Conducted 4		
		Conducted 5		
		Conducted 6		
		Conducted 7		
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conducted 8	TW0028	TW3702
		Conducted 9		
		Conducted 10		
		Conduction A		
		SAC C		
		SAC D		
		SAC E		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D		
		Conducted E		
		Conducted F		
		Conducted G		
		Conducted H		
		Conducted I		
		Conducted J		
		Conducted TS8997		

**Note:** Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

## 1.6 Special Accessories

There are no special accessories used while test was conducted.

## 1.7 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 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.

#### 2.3.2 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.

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## 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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## 2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission



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.	Adapter	Chicony	A18-045N1A	N/A	N/A	N/A
3.	Notebook	Lenovo	L420	S0011721	N/A	N/A

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### 3 SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§15.247(b) (3)	RSS-247 §5.4 d	Peak Output Power	Compliant
§15.247(d) §15.209	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10 RSS-Gen §6.13	Radiated Band Edge & Radiated Spurious Emission	Compliant

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## 4 DESCRIPTION OF TEST MODES

### 4.1 Operated in 2400 ~ 2483.5MHz Band

11 channels are provided for 802.11b/g/n/ac 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

9 channels are provided for 802.11n/ac 40M

CHANNEL	FREQUENCY (MHz)
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452

### 4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. aTest 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				Multiple Transmission Spatial
<input checked="" type="checkbox"/> 802.11 b	<input checked="" type="checkbox"/> Ch0	<input checked="" type="checkbox"/> Ch1	<input type="checkbox"/> Ch2	<input type="checkbox"/> Ch3	<input checked="" type="checkbox"/> 2TX
<input checked="" type="checkbox"/> 802.11 g	<input checked="" type="checkbox"/> Ch0	<input checked="" type="checkbox"/> Ch1	<input type="checkbox"/> Ch2	<input type="checkbox"/> Ch3	<input checked="" type="checkbox"/> 2TX
<input checked="" type="checkbox"/> 802.11 ac	<input checked="" type="checkbox"/> Ch0	<input checked="" type="checkbox"/> Ch1	<input type="checkbox"/> Ch2	<input type="checkbox"/> Ch3	<input checked="" 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.

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#### 4.3 Radiated Emission Test:

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
<b>RADIATED EMISSION TEST (ABOVE 1 GHz)</b>					
802.11b	1 to 11	1, 6, 11	DSSS	1	2TX

#### 4.4 Antenna Port Conducted Mesurement:

CONDUCTED TEST					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11b	1 to 11	1, 6, 11	DSSS	1	2TX
802.11g	1 to 11	1, 6, 11	OFDM	6	2TX
802.11ac 20M	1 to 11	1, 6, 11	OFDM	MCS 8	MIMO
802.11ac 40M	3 to 9	3, 6, 9	OFDM	MCS 8	MIMO

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## 5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty		
AC Power Line Conducted Emission	+/-	2.34	dB
Peak Output Power	+/-	1	dB
Emission Bandwidth	+/-	1.53	Hz
100 kHz Bandwidth Of Frequency Band Edges	+/-	1.69	dB
Peak Power Density	+/-	1.53	dB
Temperature	+/-	0.4	°C
Humidity	+/-	3.5	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty		
Polarization: Vertical	+/- 2.64 dB	9kHz~30MHz
	+/- 4.93 dB	30MHz - 1000MHz
	+/- 4.81 dB	1GHz - 18GHz
	+/- 4.52 dB	18GHz - 40GHz
Polarization: Horizontal	+/- 2.64 dB	9kHz~30MHz
	+/- 4.45 dB	30MHz - 1000MHz
	+/- 4.81 dB	1GHz - 18GHz
	+/- 4.52 dB	18GHz - 40GHz

**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 PEAK OUTPUT POWER MEASUREMENT

### 6.1 Standard Applicable

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power from 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.

**Note:**

As per section F. 2). e). (ii) of FCC KDB 662911 D01

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following formulas.

$$\bullet \quad \text{DirectionalGain} = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

NSS = the number of independent spatial streams of data;

NANT = the total number of antennas

$g_{j,k}$  = / 20 10Gk if the kth antenna is being fed by spatial stream j, or zero if it is not;

G<sub>k</sub> is the gain in dBi of the kth antenna.

The antenna gain is not grater than 6 dBi. Therefore, reduction of power is not required.

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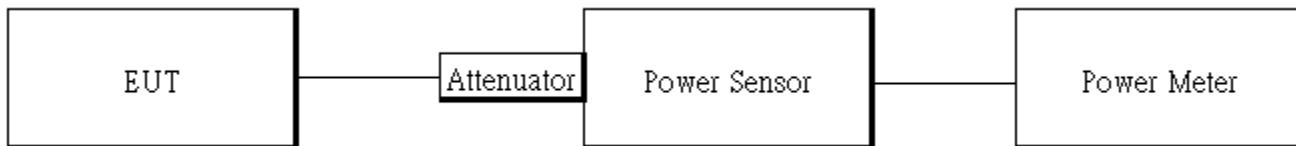
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## 6.2 Measurement Equipment Used

Conducted Emission Test Site: Conducted G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1326001	08/05/2020	08/04/2021
Power Sensor	Anritsu	MA2411B	1315048	08/05/2020	08/04/2021
Power Sensor	Anritsu	MA2411B	1315049	08/05/2020	08/04/2021
Attenuator	Marvelous	MVE2213-10	RF12	11/19/2020	11/18/2021
Attenuator	Marvelous	WATT-218FS-10	RF18	11/19/2020	11/18/2021

## 6.3 Test Set-up

Power Meter:



## 6.4 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.

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

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## 6.5 Measurement Result

### 6.5.1 Conducted output power (FCC)

802.11b Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	17	20.11	30.00	PASS
6	2437	1	16.5	20.58	30.00	PASS
11	2462	1	16	20.66	30.00	PASS

802.11b Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	1	17	17.88	30.00	PASS
6	2437	1	16.5	18.38	30.00	PASS
11	2462	1	16	18.26	30.00	PASS

802.11b Ch1						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	17	20.18	30.00	PASS
6	2437	1	17.5	20.61	30.00	PASS
11	2462	1	17.5	21.08	30.00	PASS

802.11b Ch1						
CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	1	17	17.83	30.00	PASS
6	2437	1	17.5	18.34	30.00	PASS
11	2462	1	17.5	18.79	30.00	PASS

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**802.11b\_2TX**

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
1	2412	1	17	20.09	20.17	23.14	30.00	PASS
6	2437	1	17.5	20.43	20.52	23.49	30.00	PASS
11	2462	1	17.5	20.53	21.03	<b>23.80</b>	30.00	PASS

**802.11b\_2TX**

CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
1	2412	1	17	18.16	17.68	20.97	30.00	PASS
6	2437	1	17.5	18.82	17.87	21.41	30.00	PASS
11	2462	1	17.5	19.00	18.02	<b>21.58</b>	30.00	PASS

**802.11g Ch0**

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	13	19.81	30.00	PASS
6	2437	6	16.5	23.74	30.00	PASS
11	2462	6	12	19.51	30.00	PASS

**802.11g Ch0**

CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	6	13	13.87	30.00	PASS
6	2437	6	16.5	17.96	30.00	PASS
11	2462	6	12	13.58	30.00	PASS

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## 802.11g Ch1

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	13.5	19.02	30.00	PASS
6	2437	6	17.5	23.65	30.00	PASS
11	2462	6	13	19.71	30.00	PASS

## 802.11g Ch1

CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	6	13.5	13.41	30.00	PASS
6	2437	6	17.5	17.92	30.00	PASS
11	2462	6	13	13.54	30.00	PASS

## 802.11g\_2TX

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
1	2412	6	13.5	19.74	18.95	22.37	30.00	PASS
6	2437	6	17.5	23.64	23.81	26.74	30.00	PASS
11	2462	6	12.5	19.48	19.62	22.56	30.00	PASS

## 802.11g\_2TX

CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
1	2412	6	13.5	13.69	12.87	16.60	30.00	PASS
6	2437	6	17.5	18.30	17.04	21.02	30.00	PASS
11	2462	6	12.5	13.81	12.68	16.59	30.00	PASS

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**802.11ac\_VHT20 Ch0**

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	12	19.71	30.00	PASS
6	2437	MCS0	16.5	24.36	30.00	PASS
11	2462	MCS0	11	19.41	30.00	PASS

**802.11ac\_VHT20 Ch0**

CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	12	12.90	30.00	PASS
6	2437	MCS0	16.5	17.91	30.00	PASS
11	2462	MCS0	11	12.46	30.00	PASS

**802.11ac\_VHT20 Ch1**

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	13	20.14	30.00	PASS
6	2437	MCS0	17.5	24.71	30.00	PASS
11	2462	MCS0	12.5	20.00	30.00	PASS

**802.11ac\_VHT20 Ch1**

CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	13	12.82	30.00	PASS
6	2437	MCS0	17.5	17.82	30.00	PASS
11	2462	MCS0	12.5	12.36	30.00	PASS

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**802.11ac\_VHT20 MIMO**

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
1	2412	MCS8	13	20.51	19.73	23.15	30.00	PASS
6	2437	MCS8	18	24.73	24.05	27.41	30.00	PASS
11	2462	MCS8	12	20.32	18.98	22.71	30.00	PASS

**802.11ac\_VHT20 MIMO**

CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
1	2412	MCS8	13	13.11	12.22	15.96	30.00	PASS
6	2437	MCS8	18	18.35	16.98	20.99	30.00	PASS
11	2462	MCS8	12	12.73	11.49	15.42	30.00	PASS

**802.11ac\_VHT40 Ch0**

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	10	18.26	30.00	PASS
6	2437	MCS0	13	21.60	30.00	PASS
9	2452	MCS0	7	15.82	30.00	PASS

**802.11ac\_VHT40 Ch0**

CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	10	10.92	30.00	PASS
6	2437	MCS0	13	14.46	30.00	PASS
9	2452	MCS0	7	8.48	30.00	PASS

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## 802.11ac\_VHT40 Ch1

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	10.5	18.22	30.00	PASS
6	2437	MCS0	14	21.55	30.00	PASS
9	2452	MCS0	8	15.40	30.00	PASS

## 802.11ac\_VHT40 Ch1

CH	Freq. (MHz)	Data Rate	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	10.5	10.83	30.00	PASS
6	2437	MCS0	14	14.25	30.00	PASS
9	2452	MCS0	8	8.41	30.00	PASS

## 802.11ac\_VHT40 MIMO

CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
3	2422	MCS8	11	18.66	18.16	21.43	30.00	PASS
6	2437	MCS8	14.5	22.93	22.03	25.51	30.00	PASS
9	2452	MCS8	8.5	16.76	16.06	19.43	30.00	PASS

## 802.11ac\_VHT40 MIMO

CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
3	2422	MCS8	11	10.79	10.00	13.93	30.00	PASS
6	2437	MCS8	14.5	14.58	13.24	17.48	30.00	PASS
9	2452	MCS8	8.5	8.41	7.45	11.47	30.00	PASS

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

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## 6.5.2 ISED EIRP

802.11b Ch0									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT		
1	2412	1	17.88	-0.87	17.01	36	PASS		
6	2437	1	18.38	-0.87	17.51	36	PASS		
11	2462	1	18.26	-0.87	17.39	36	PASS		
802.11b Ch1									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT		
1	2412	1	17.83	0.44	18.27	36	PASS		
6	2437	1	18.34	0.44	18.78	36	PASS		
11	2462	1	18.79	0.44	19.23	36	PASS		
802.11b_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power	Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT	
			CH 0						CH 1
1	2412	1	18.16	17.68	20.97	2.82	23.79	36	PASS
6	2437	1	18.82	17.87	21.41	2.82	24.23	36	PASS
11	2462	1	19.00	18.02	21.58	2.82	24.40	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	13.87	-0.87	13.00	36	PASS		
6	2437	6	17.96	-0.87	17.09	36	PASS		
11	2462	6	13.58	-0.87	12.71	36	PASS		
802.11g Ch1									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT		
1	2412	6	13.41	0.44	13.85	36	PASS		
6	2437	6	17.92	0.44	18.36	36	PASS		
11	2462	6	13.54	0.44	13.98	36	PASS		

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## 802.11g\_2TX

CH	Freq. (MHz)	Data Rate	Avg. Output Power		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1					
1	2412	6	13.69	12.87	16.60	2.82	19.42	36	PASS
6	2437	6	18.30	17.04	21.02	2.82	23.84	36	PASS
11	2462	6	13.81	12.68	16.59	2.82	19.41	36	PASS

## 802.11ac\_VHT20 Ch0

CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	12.90	-0.87	12.03	36	PASS
6	2437	MCS0	17.91	-0.87	17.04	36	PASS
11	2462	MCS0	12.46	-0.87	11.59	36	PASS

## 802.11ac\_VHT20 Ch1

CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	12.82	0.44	13.26	36	PASS
6	2437	MCS0	17.82	0.44	18.26	36	PASS
11	2462	MCS0	12.36	0.44	12.80	36	PASS

## 802.11ac\_VHT20 MIMO

CH	Freq. (MHz)	Data Rate	Avg. Output Power		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1					
1	2412	MCS8	20.51	19.73	15.96	2.82	18.78	36	PASS
6	2437	MCS8	24.73	24.05	20.99	2.82	23.81	36	PASS
11	2462	MCS8	20.32	18.98	15.42	2.82	18.24	36	PASS

## 802.11ac\_VHT40 Ch0

CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	10.92	-0.87	10.05	36	PASS
6	2437	MCS0	14.46	-0.87	13.59	36	PASS
9	2452	MCS0	8.48	-0.87	7.61	36	PASS

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## 802.11ac\_VHT40 Ch1

CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	10.83	0.44	11.27	36	PASS
6	2437	MCS0	14.25	0.44	14.69	36	PASS
9	2452	MCS0	8.41	0.44	8.85	36	PASS

## 802.11ac\_VHT40 MIMO

CH	Freq. (MHz)	Data Rate	Avg. Output Power		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1					
3	2422	MCS8	10.79	10.00	13.93	2.82	16.75	36	PASS
6	2437	MCS8	14.58	13.24	17.48	2.82	20.30	36	PASS
9	2452	MCS8	8.41	7.45	11.47	2.82	14.29	36	PASS

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## 7 RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

### 7.1 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.

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## 7.2 Measurement Equipment Used:

Radiated Emission Test Site: SAC D					
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
Horn Antenna	Schwarzbeck	BBHA9170	185	07/30/2020	07/29/2021
Loop Antenna	ETS.LIND-GREN	6502	143303	05/07/2021	05/06/2022
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

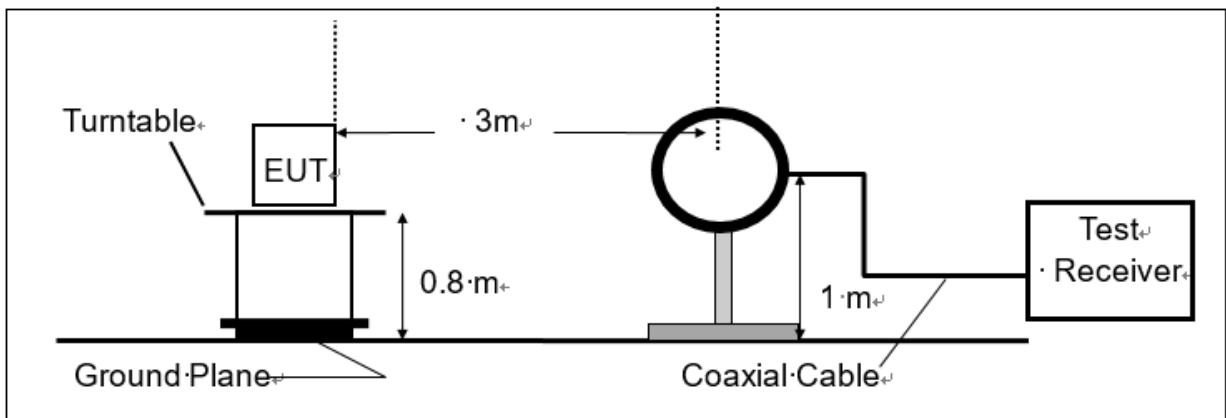
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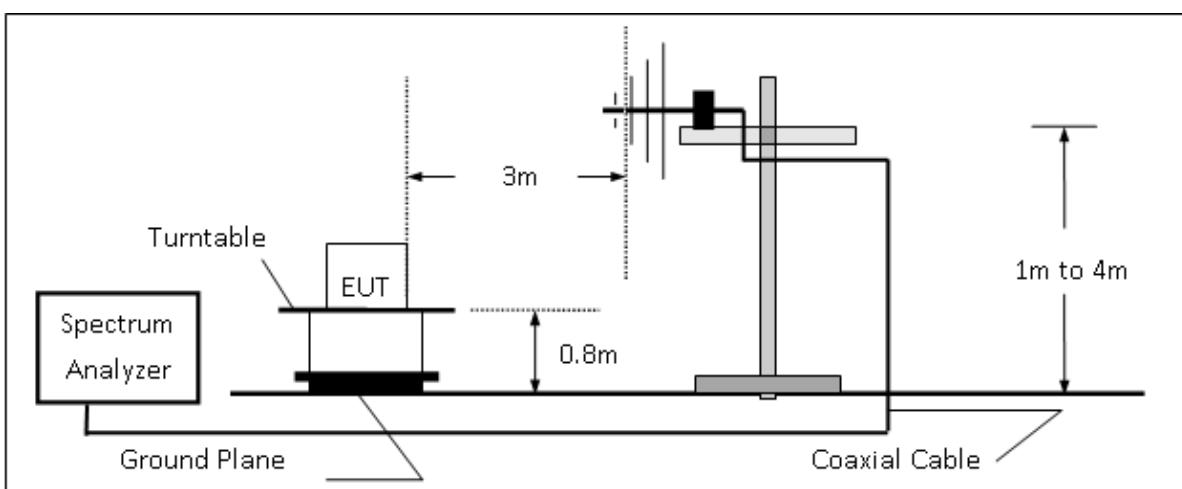
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### 7.3 Test SET-UP

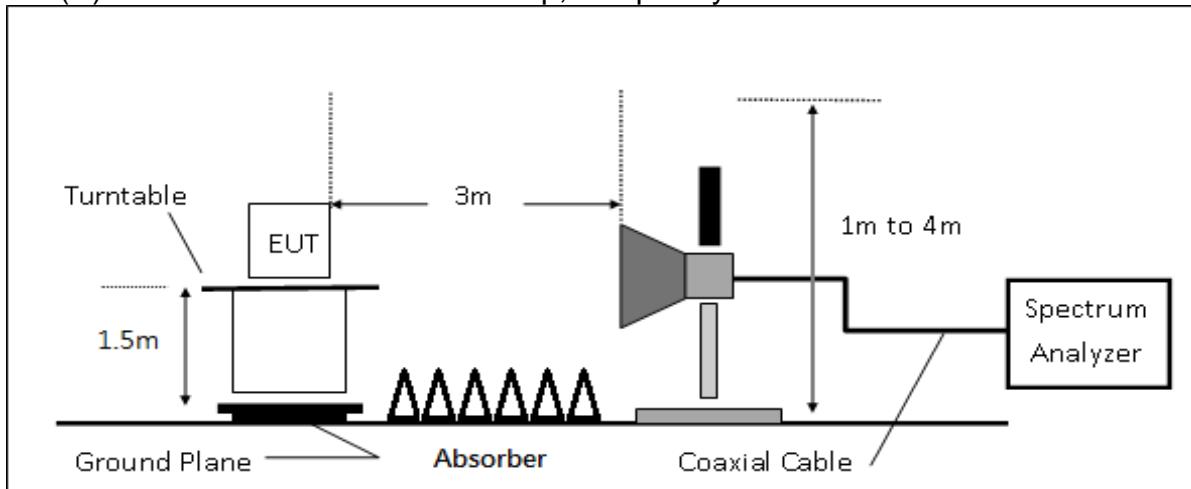
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz



(C) Radiated Emission Test Set-Up, Frequency Above 1GHz



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## 7.4 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=100 kHz and VBW=300 kHz for Peak Detector (PK) at frequency between 30MHz and 1 GHz.
7. Use receiver mode as RBW=120 kHz for Quasi-peak (QP) at frequency between 30MHz and 1 GHz.
8. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
9. 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.
10. 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.
11. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
12. 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.
13. Repeat above procedures until all default test channel measured were complete.

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## 7.5 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( $dB$ )

## 7.6 Test Results of Radiated Spurious Emissions from 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.

## 7.7 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

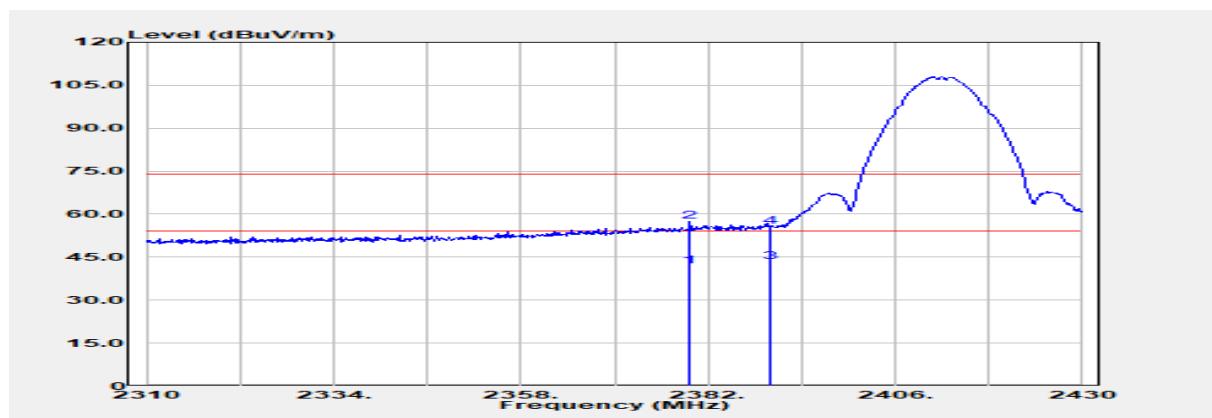
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### 7.7.1 Radiated Band Edge Measurement Result

Report Number	:E2/2021/60036	Test Site	:966 Chamber D
Operation Mode	:802.11b	Test Date	:2021-06-12
Test Frequency	:2412 MHz	Temp./Humi.	:22.7/60
Test Mode	:BE CH LOW	Antenna Pol.	:Vertical
EUT Pol	:NB Plane	Engineer	:Jack Tseng



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
2379.720	Average	49.56	-7.69	41.87	54.00	-12.13
2379.720	Peak	65.14	-7.69	57.45	74.00	-16.55
2390.000	Average	51.17	-7.99	43.18	54.00	-10.82
2390.000	Peak	63.50	-7.99	55.51	74.00	-18.49

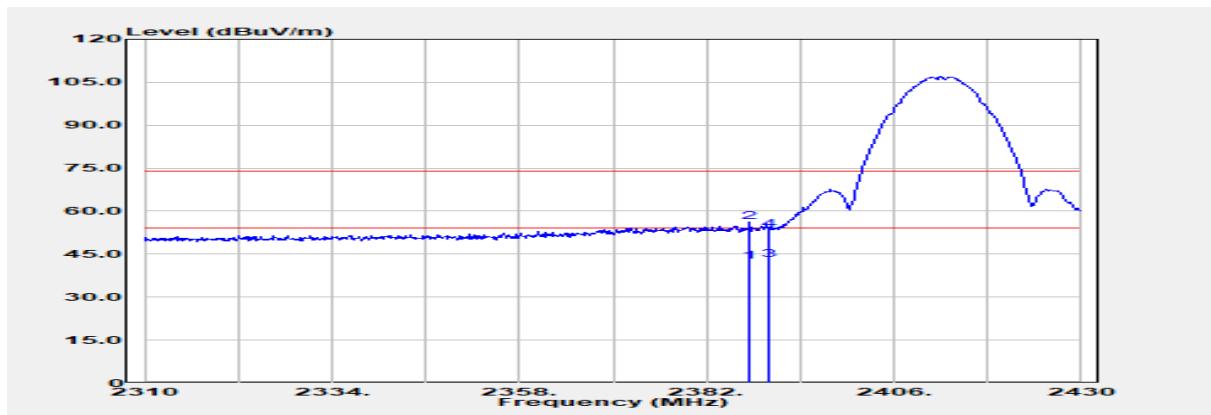
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Report Number :E2/2021/60036  
Operation Mode :802.11b  
Test Frequency :2412 MHz  
Test Mode :BE CH LOW  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor	Actual	Limit	Margin
				FS	@3m	dB
2387.520	Average	50.29	-7.91	42.37	54.00	-11.63
2387.520	Peak	64.12	-7.91	56.20	74.00	-17.80
2390.000	Average	50.92	-7.99	42.94	54.00	-11.06
2390.000	Peak	61.52	-7.99	53.53	74.00	-20.47

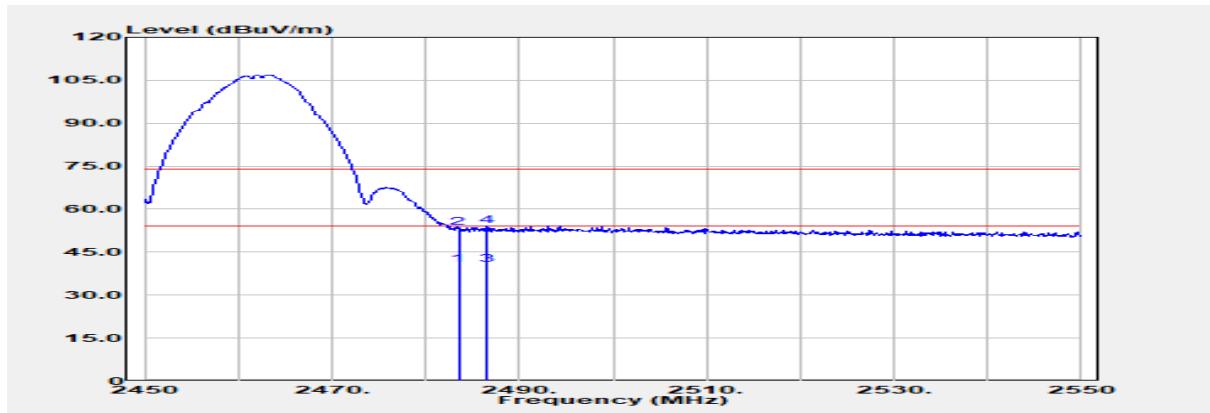
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Report Number :E2/2021/60036  
Operation Mode :802.11b  
Test Frequency :2462 MHz  
Test Mode :BE CH HIGH  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Vertical  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor	Actual	Limit @3m dB $\mu$ V/m	Margin dB
				FS dB $\mu$ V/m		
2483.500	Average	48.86	-8.12	40.74	54.00	-13.26
2483.500	Peak	61.56	-8.12	53.44	74.00	-20.56
2486.400	Average	48.59	-8.13	40.45	54.00	-13.55
2486.400	Peak	62.25	-8.13	54.11	74.00	-19.89

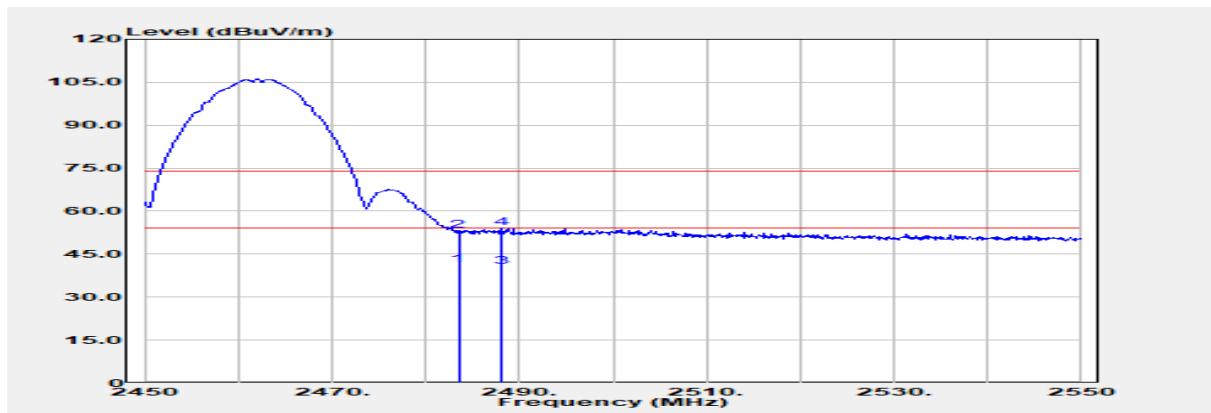
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Report Number :E2/2021/60036  
Operation Mode :802.11b  
Test Frequency :2462 MHz  
Test Mode :BE CH HIGH  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



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	49.19	-8.12	41.07	54.00	-12.93
2483.500	Peak	61.39	-8.12	53.27	74.00	-20.73
2488.100	Average	48.66	-8.14	40.52	54.00	-13.48
2488.100	Peak	62.38	-8.14	54.24	74.00	-19.76

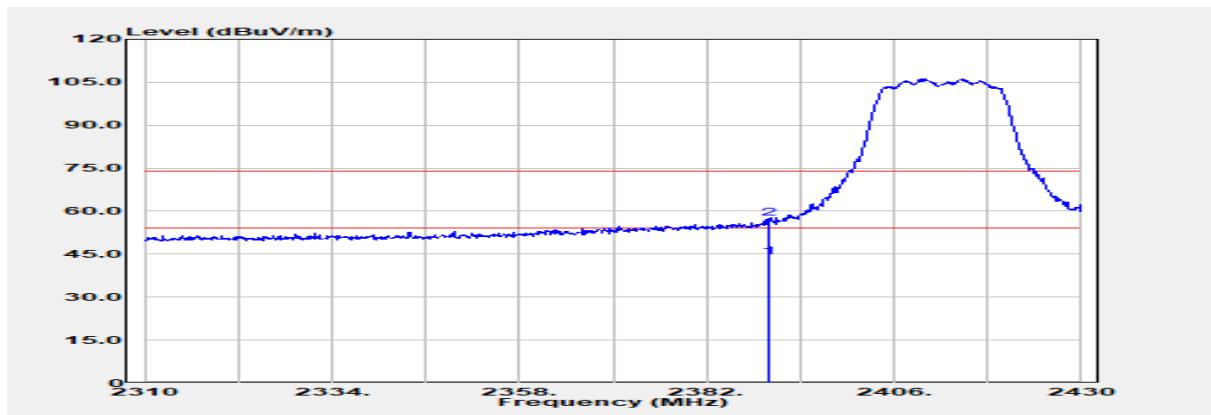
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Report Number :E2/2021/60036  
Operation Mode :802.11g  
Test Frequency :2412 MHz  
Test Mode :BE CH LOW  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Vertical  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading	Factor	Actual	Limit	Margin
				FS	@3m	dB
2390.000	Average	51.99	-7.99	44.00	54.00	-10.00
2390.000	Peak	65.53	-7.99	57.54	74.00	-16.46

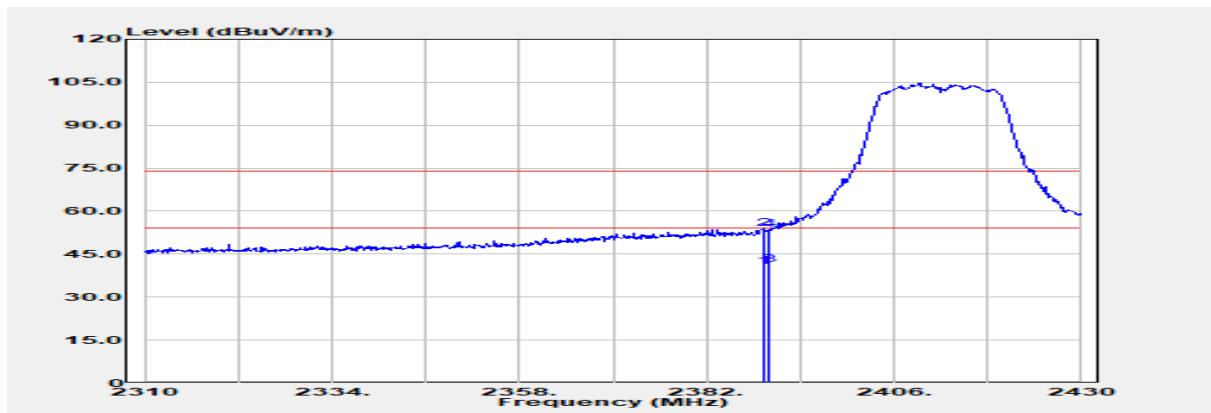
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Report Number :E2/2021/60036  
Operation Mode :802.11g  
Test Frequency :2412 MHz  
Test Mode :BE CH LOW  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor	Actual	Limit	Margin
				FS	@3m	dB
2389.320	Average	48.59	-7.97	40.62	54.00	-13.38
2389.320	Peak	61.93	-7.97	53.96	74.00	-20.04
2390.000	Average	49.26	-7.99	41.27	54.00	-12.73
2390.000	Peak	61.42	-7.99	53.43	74.00	-20.57

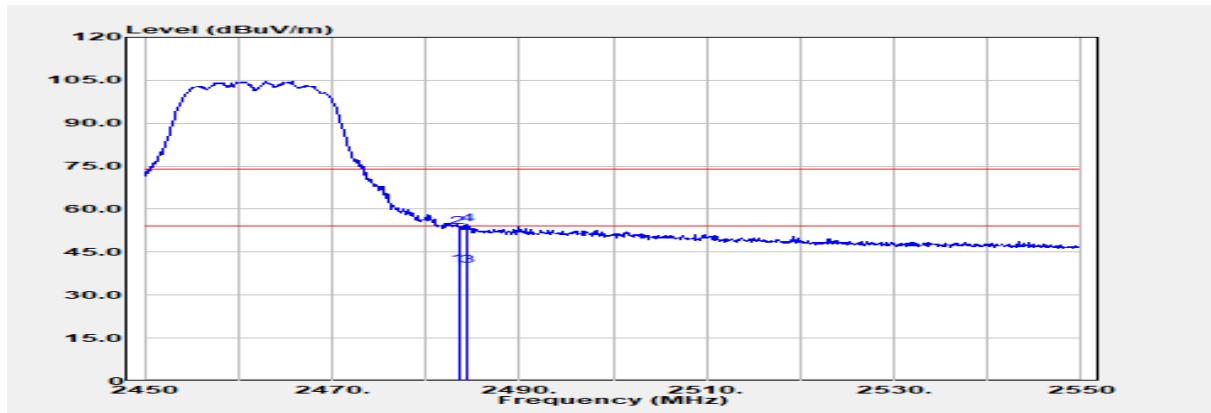
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Report Number :E2/2021/60036  
Operation Mode :802.11g  
Test Frequency :2462 MHz  
Test Mode :BE CH HIGH  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Vertical  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor	Actual	Limit	Margin
				FS	@3m	dB
2483.500	Average	48.86	-8.12	40.74	54.00	-13.26
2483.500	Peak	61.92	-8.12	53.80	74.00	-20.20
2484.500	Average	48.54	-8.12	40.42	54.00	-13.58
2484.500	Peak	62.76	-8.12	54.64	74.00	-19.36

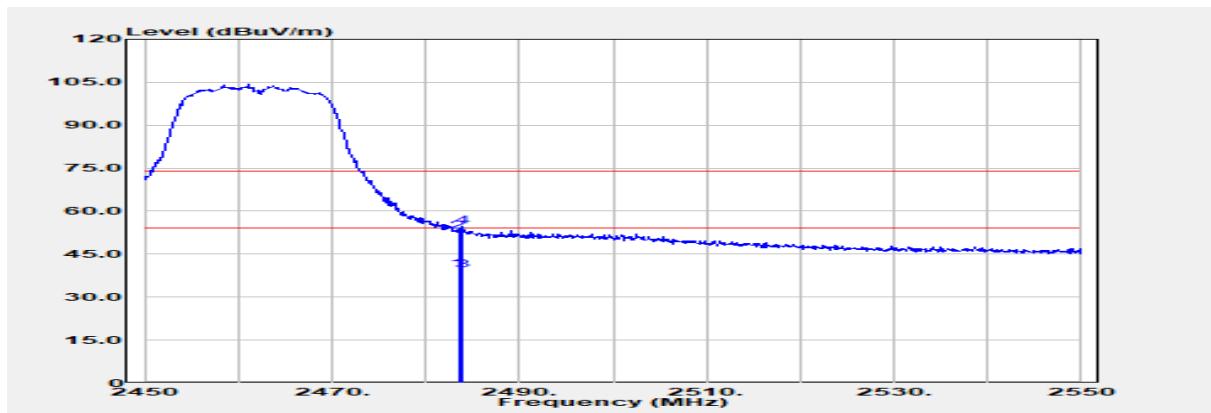
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Report Number :E2/2021/60036  
Operation Mode :802.11g  
Test Frequency :2462 MHz  
Test Mode :BE CH HIGH  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading	Factor	Actual	Limit	Margin
				FS	@3m	
	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
2483.500	Average	47.81	-8.12	39.69	54.00	-14.31
2483.500	Peak	61.00	-8.12	52.88	74.00	-21.12
2484.000	Average	47.61	-8.12	39.48	54.00	-14.52
2484.000	Peak	62.84	-8.12	54.72	74.00	-19.28

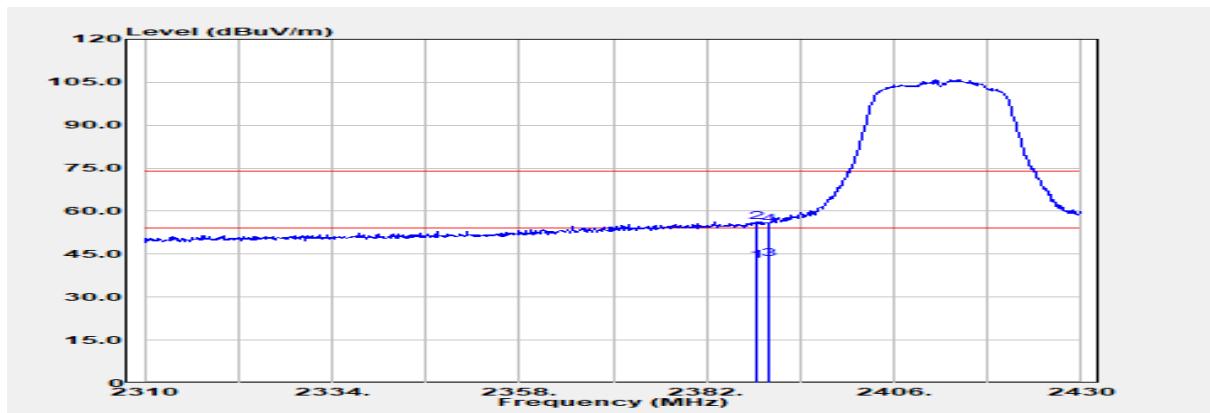
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Report Number :E2/2021/60036  
Operation Mode :802.11ac20  
Test Frequency :2412 MHz  
Test Mode :BE CH LOW  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Vertical  
Engineer :Jack Tseng



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
2388.480	Average	50.74	-7.94	42.80	54.00	-11.20
2388.480	Peak	64.27	-7.94	56.33	74.00	-17.67
2390.000	Average	51.29	-7.99	43.30	54.00	-10.70
2390.000	Peak	63.38	-7.99	55.40	74.00	-18.60

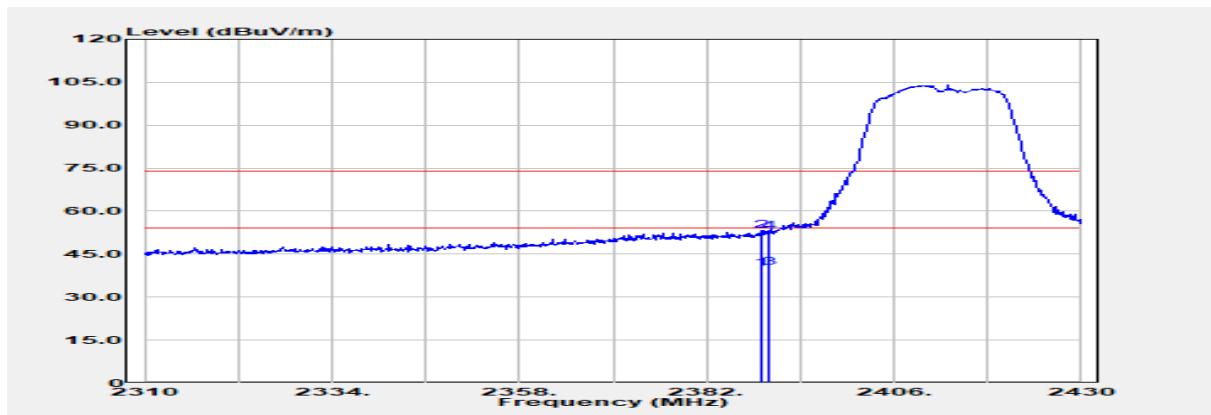
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Report Number :E2/2021/60036  
Operation Mode :802.11ac20  
Test Frequency :2412 MHz  
Test Mode :BE CH LOW  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



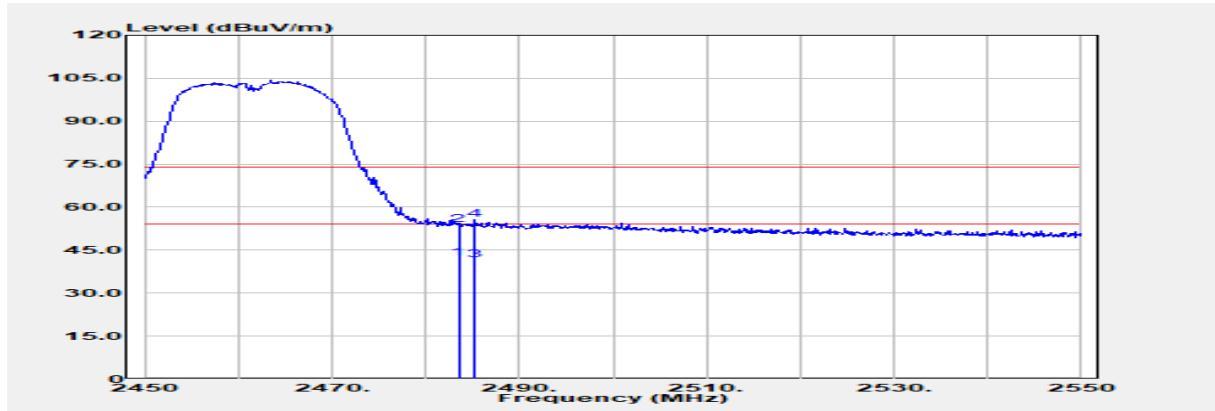
Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor	Actual	Limit	Margin
				FS	@3m	dB
2389.080	Average	48.04	-7.96	40.08	54.00	-13.92
2389.080	Peak	61.11	-7.96	53.15	74.00	-20.85
2390.000	Average	48.42	-7.99	40.43	54.00	-13.57
2390.000	Peak	61.00	-7.99	53.02	74.00	-20.98

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Report Number :E2/2021/60036 Test Site :966 Chamber D  
Operation Mode :802.11ac20 Test Date :2021-06-12  
Test Frequency :2462 MHz Temp./Humi. :22.7/60  
Test Mode :BE CH HIGH Antenna Pol. :Vertical  
EUT Pol :NB Plane Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor	Actual	Limit	Margin
				FS	@3m	dB
2483.500	Average	50.13	-8.12	42.01	54.00	-11.99
2483.500	Peak	62.08	-8.12	53.96	74.00	-20.04
2485.200	Average	49.78	-8.13	41.65	54.00	-12.35
2485.200	Peak	63.78	-8.13	55.65	74.00	-18.35

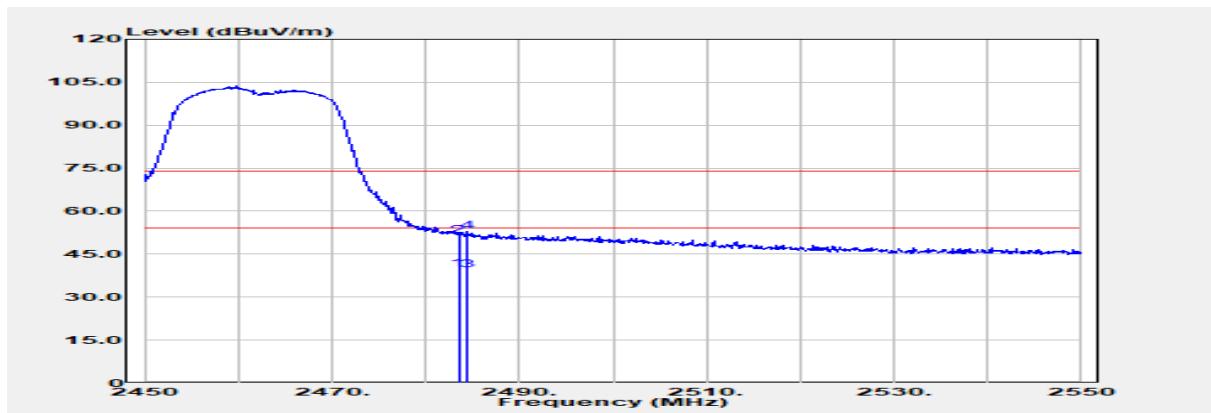
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Report Number :E2/2021/60036  
Operation Mode :802.11ac20  
Test Frequency :2462 MHz  
Test Mode :BE CH HIGH  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-12  
Temp./Humi. :22.7/60  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



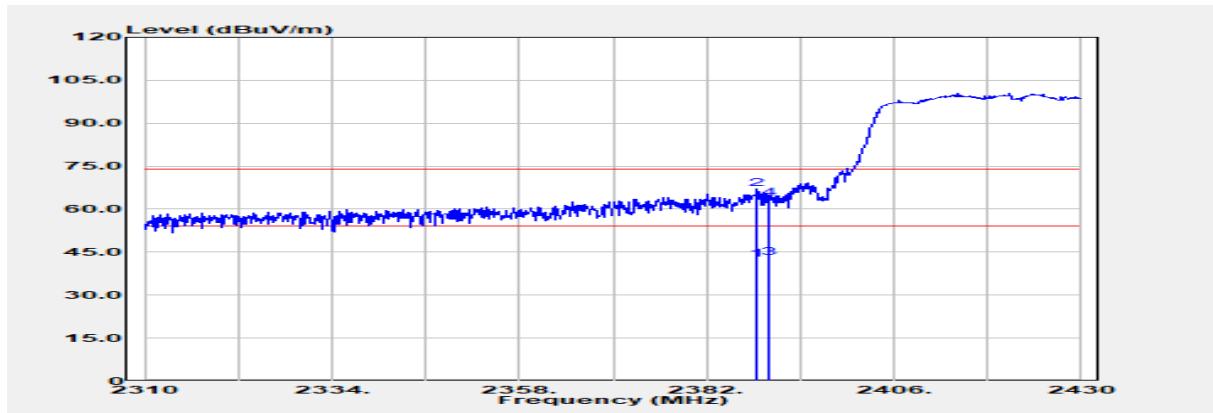
Freq. MHz	Detector Mode	Spectrum Reading	Factor	Actual	Limit	Margin
				FS	@3m	
	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
2483.500	Average	47.76	-8.12	39.64	54.00	-14.36
2483.500	Peak	59.41	-8.12	51.29	74.00	-22.71
2484.300	Average	47.55	-8.12	39.42	54.00	-14.58
2484.300	Peak	61.06	-8.12	52.94	74.00	-21.06

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Report Number :E2/2021/60036 Test Site :966 Chamber D  
Operation Mode :802.11ac40 Test Date :2021-06-15  
Test Frequency :2422 MHz Temp./Humi. :21.4/70  
Test Mode :BE CH LOW Antenna Pol. :Vertical  
EUT Pol :NB Plane Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor	Actual		Limit @3m	Margin
				PK/QP/AV	FS dB $\mu$ V/m		
2388.480	Average	50.39	-7.94	42.45	54.00	-11.55	
2388.480	Peak	75.11	-7.94	67.17	74.00	-6.83	
2390.000	Average	51.07	-7.99	43.08	54.00	-10.92	
2390.000	Peak	71.66	-7.99	63.67	74.00	-10.33	

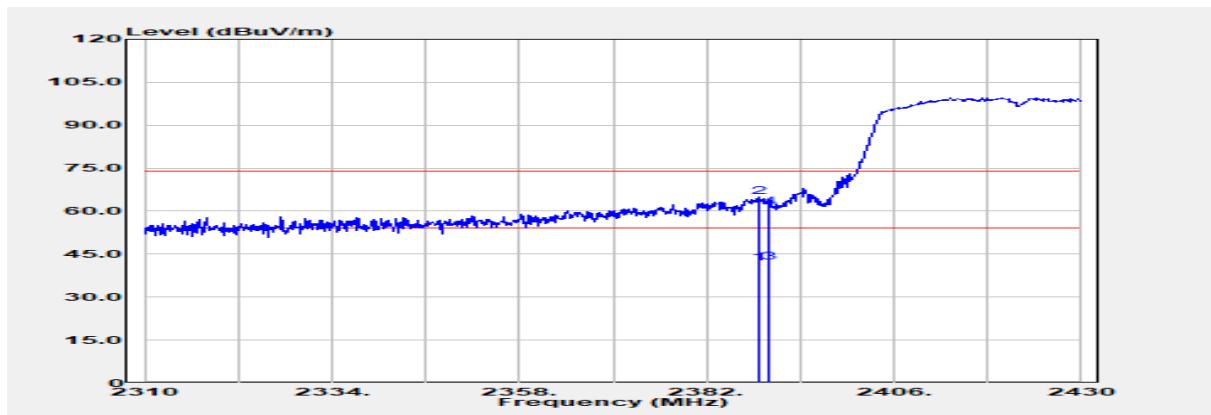
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Report Number :E2/2021/60036  
Operation Mode :802.11ac40  
Test Frequency :2422 MHz  
Test Mode :BE CH LOW  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-15  
Temp./Humi. :21.4/70  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading Level	Factor	Actual	Limit	Margin
				FS	@3m	
	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
2388.840	Average	49.82	-7.95	41.87	54.00	-12.13
2388.840	Peak	72.94	-7.95	64.99	74.00	-9.01
2390.000	Average	50.24	-7.99	42.25	54.00	-11.75
2390.000	Peak	69.30	-7.99	61.31	74.00	-12.69

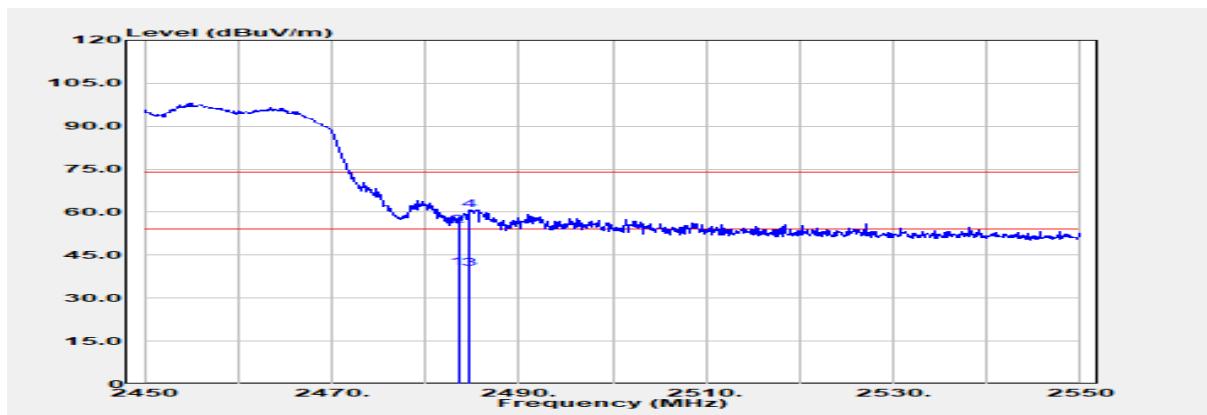
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Report Number :E2/2021/60036  
Operation Mode :802.11ac40  
Test Frequency :2452 MHz  
Test Mode :BE CH HIGH  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-15  
Temp./Humi. :21.4/70  
Antenna Pol. :Vertical  
Engineer :Jack Tseng



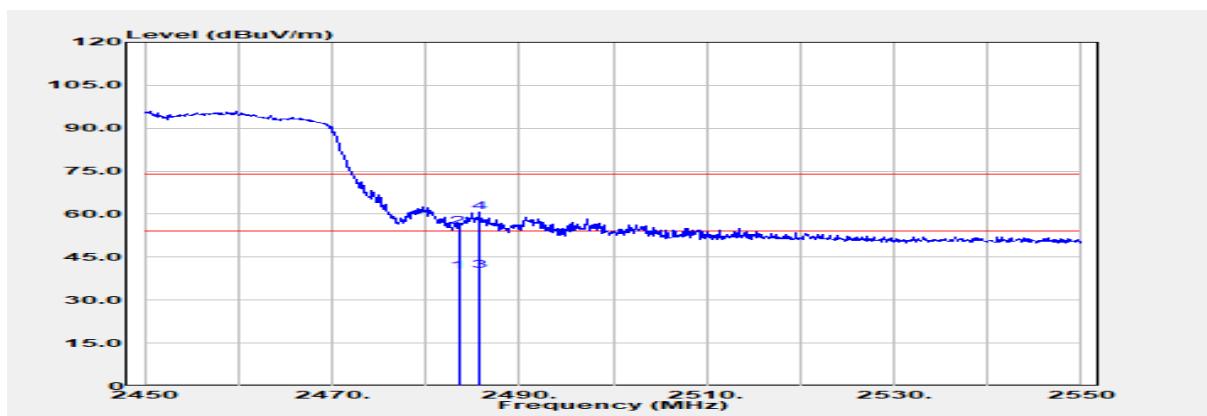
Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB
				FS	@3m dB $\mu$ V/m	
2483.500	Average	48.80	-8.12	40.68	54.00	-13.32
2483.500	Peak	63.56	-8.12	55.44	74.00	-18.56
2484.600	Average	48.42	-8.12	40.30	54.00	-13.70
2484.600	Peak	68.97	-8.12	60.84	74.00	-13.16

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Report Number :E2/2021/60036      Test Site :966 Chamber D  
 Operation Mode :802.11ac40      Test Date :2021-06-15  
 Test Frequency :2452 MHz      Temp./Humi. :21.4/70  
 Test Mode :BE CH HIGH      Antenna Pol. :Horizontal  
 EUT Pol :NB Plane      Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading	Factor	Actual		Margin
				PK/QP/AV	dB $\mu$ V	
2483.500	Average	48.22	-8.12	40.10	54.00	-13.90
2483.500	Peak	63.78	-8.12	55.66	74.00	-18.34
2485.800	Average	48.35	-8.13	40.22	54.00	-13.78
2485.800	Peak	68.93	-8.13	60.80	74.00	-13.20

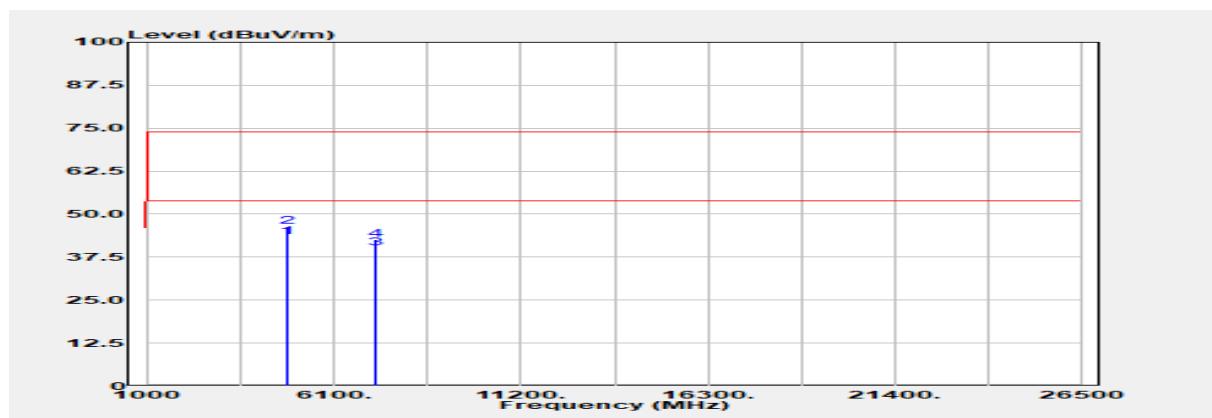
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### 7.7.2 Above 1GHz Emission:

Report Number	:E2/2021/60036	Test Site	:966 Chamber D
Operation Mode	:802.11b	Test Date	:2021-06-15
Test Frequency	:2412 MHz	Temp./Humi.	:20.5/69
Test Mode	:TX CH LOW	Antenna Pol.	:Vertical
EUT Pol	:NB Plane	Engineer	:Jack Tseng



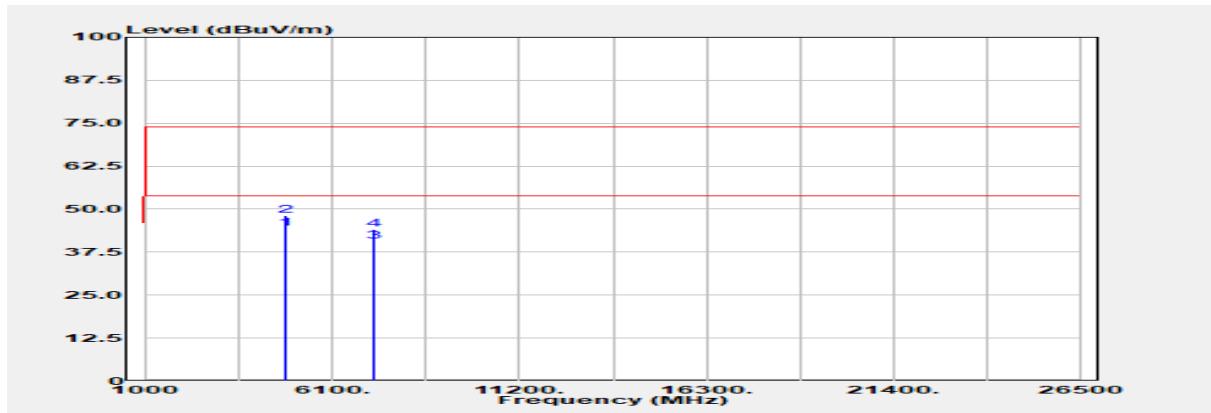
Freq. MHz	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual	Limit	Margin
				FS dB $\mu$ V/m	@3m dB $\mu$ V/m	dB
4824.000	Average	46.54	-3.13	43.41	54.00	-10.59
4824.000	Peak	49.45	-3.13	46.32	74.00	-27.68
7236.000	Average	37.63	2.41	40.04	54.00	-13.96
7236.000	Peak	40.20	2.41	42.61	74.00	-31.39

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Report Number :E2/2021/60036 Test Site :966 Chamber D  
Operation Mode :802.11b Test Date :2021-06-15  
Test Frequency :2412 MHz Temp./Humi. :20.5/69  
Test Mode :TX CH LOW Antenna Pol. :Horizontal  
EUT Pol :NB Plane Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual		Margin dB	
				FS			
				dB $\mu$ V/m	dB $\mu$ V/m		
4824.000	Average	47.58	-3.13	44.45	54.00	-9.55	
4824.000	Peak	51.26	-3.13	48.13	74.00	-25.87	
7236.000	Average	38.12	2.41	40.53	54.00	-13.47	
7236.000	Peak	41.80	2.41	44.21	74.00	-29.79	

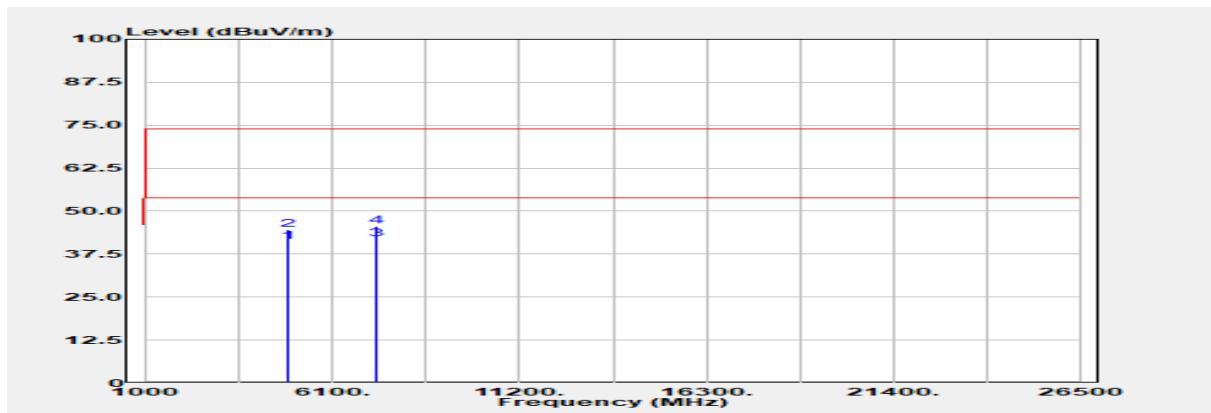
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Report Number :E2/2021/60036  
Operation Mode :802.11b  
Test Frequency :2437 MHz  
Test Mode :TX CH MID  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-15  
Temp./Humi. :20.5/69  
Antenna Pol. :Vertical  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading	Factor	Actual	Limit	Margin
				FS	@3m	
	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
4874.000	Average	43.99	-3.00	40.99	54.00	-13.01
4874.000	Peak	47.69	-3.00	44.69	74.00	-29.31
7311.000	Average	37.95	3.86	41.81	54.00	-12.19
7311.000	Peak	41.65	3.86	45.51	74.00	-28.49

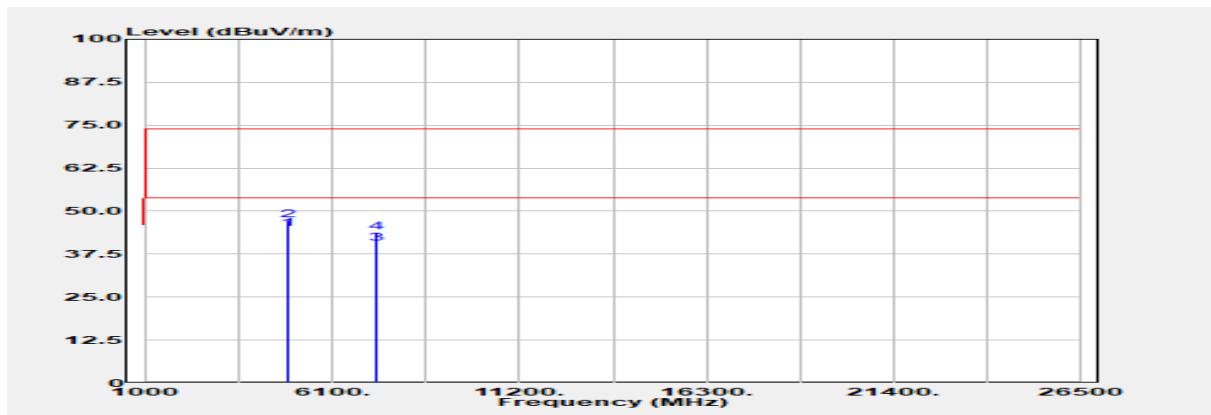
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Report Number :E2/2021/60036  
Operation Mode :802.11b  
Test Frequency :2437 MHz  
Test Mode :TX CH MID  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-15  
Temp./Humi. :20.5/69  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



Freq. MHz	Detector Mode	Spectrum Reading	Factor	Actual	Limit	Margin
				FS	@3m	
	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
4874.000	Average	47.91	-3.00	44.91	54.00	-9.09
4874.000	Peak	50.34	-3.00	47.34	74.00	-26.66
7311.000	Average	36.76	3.86	40.62	54.00	-13.38
7311.000	Peak	39.89	3.86	43.75	74.00	-30.25

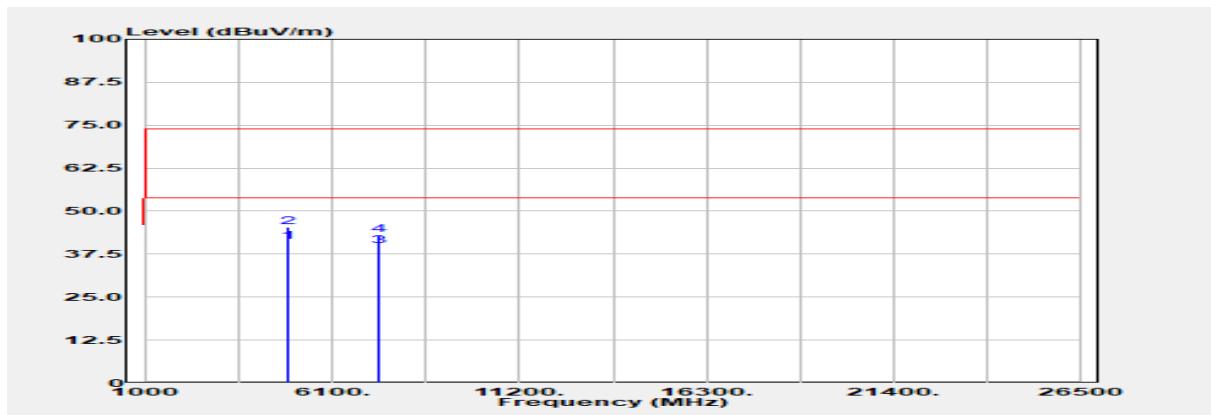
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Report Number :E2/2021/60036  
Operation Mode :802.11b  
Test Frequency :2462 MHz  
Test Mode :TX CH HIGH  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-15  
Temp./Humi. :20.5/69  
Antenna Pol. :Vertical  
Engineer :Jack Tseng



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
4924.000	Average	44.38	-3.21	41.17	54.00	-12.83
4924.000	Peak	48.56	-3.21	45.35	74.00	-28.65
7386.000	Average	36.72	3.04	39.76	54.00	-14.24
7386.000	Peak	40.16	3.04	43.20	74.00	-30.80

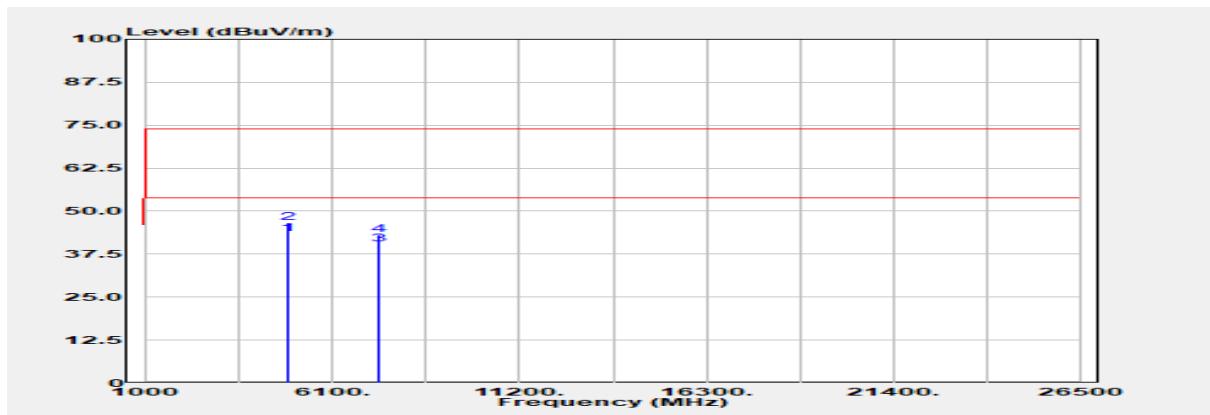
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Report Number :E2/2021/60036  
Operation Mode :802.11b  
Test Frequency :2462 MHz  
Test Mode :TX CH HIGH  
EUT Pol :NB Plane

Test Site :966 Chamber D  
Test Date :2021-06-15  
Temp./Humi. :20.5/69  
Antenna Pol. :Horizontal  
Engineer :Jack Tseng



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
4924.000	Average	46.66	-3.21	43.45	54.00	-10.55
4924.000	Peak	49.80	-3.21	46.59	74.00	-27.41
7386.000	Average	37.42	3.04	40.46	54.00	-13.54
7386.000	Peak	40.02	3.04	43.06	74.00	-30.94

*~ End of Report ~*

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