ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Testing Laboratory 3702

FCC Applicant:	FNATIC GEAR LIMITED 2 Ebor St, London, E1 6AW,UK
FCC Manufacturer:	FNATIC GEAR LIMITED 2 Ebor St, London, E1 6AW,UK
Product Name:	Wireless Mouse
Brand Name:	FNATIC
Model No.:	C-MS0003
Model Difference:	N/A
Report Number:	E2/2021/A0029
FCC ID	2A3COC-MS0003
Issue Date:	December 8, 2021
Date of Test:	October 18, 2021~November 12, 2021
Date of EUT Received:	October 7, 2021

Approved By Arno Hsieh

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 §15.249.

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/A0029	00	Original	December 8, 2021	Carol Li

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1 GENERAL INFORMATION

1.1 Product Description

Product Name:	Wireless Mouse
Brand Name:	FNATIC
Model No.:	C-MS0003
Model Difference:	N/A
Hardware Version:	20210714
Firmware Version:	52833V07
EUT Series No.:	Conducted: N/A Radiated: N/A
Power Supply:	3.7Vdc from Lithium-ion battery

1.2 RF Specification

Radio Technology:	2.4GHz Short Range Radio
Frequency Range:	2403MHz – 2475MHz (2403,2423,2440,2461,2475MHz)
Channel number:	5 channels
Modulation type:	GFSK
Transmit Power:	101.2dBuV at 3m

1.3 Antenna Designation

Antenna Type	Brand	Antenna Model No.	Freq.(MHz)	Peak Antenna Gain (dBi)
Embedded Antenna	FNATIC	C-MS0003	2400~2500	1.73

Note: Antenna information is provided by the applicant.

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1.4 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.249

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	TW3702
		SAC 3		
		Conduction 1		
		Conducted 1		
		Conducted 2		
		Conducted 3		
		Conducted 4		
		Conducted 5		
		Conducted 6		
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conduction C	TW0028	
		SAC C		
		SAC D		
		SAC G		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D		
		Conducted E		
		Conducted F		
		Conducted G		
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 Emissions

The EUT is a 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 according to §15.207. 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 a 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*6m*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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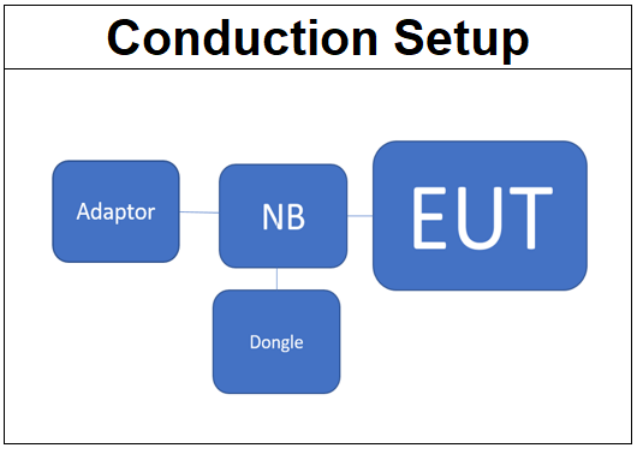
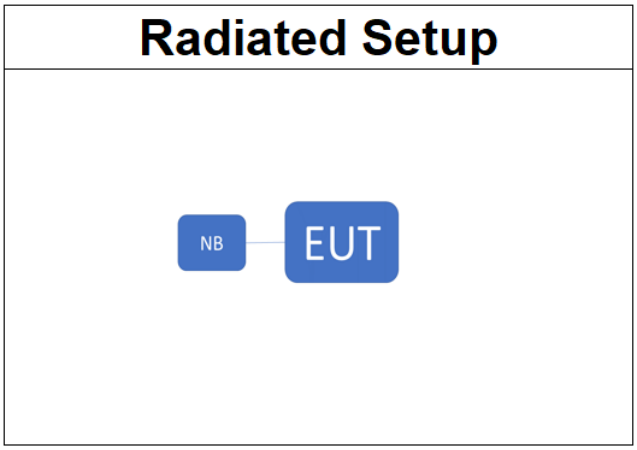
2.5 Test Configuration





AC Power-Line Conducted Emission Test Site: Conduction C					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Notebook	Lenovo	L440	P0000367	N/A	N/A
NB Adaptor	Lenovo	ADLX45NCC3A	N/A	N/A	N/A
Wireless Dongle	C-MS0004	FNATIC	N/A	N/A	N/A
USB cable	YUE-YANG ELECTRONIC	DP474	N/A	N/A	N/A

Radiated Emission Test Site: SAC C					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
USB cable	YUE-YANG ELECTRONIC	DP474	N/A	N/A	N/A
Notebook	Lenovo	L440	P0000367	N/A	N/A

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3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)	AC Power Line Conducted Emission	Compliant
§15.249(a)(e) §15.249(a), 15.209	Radiated Emission	Compliant

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4 DESCRIPTION OF TEST MODES

4.1 Operating Frequencies

Channel	Frequency
0	2403MHz
1	2423MHz
2	2440MHz
3	2461MHz
4	2475MHz

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5 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.

RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)				
MODE	AVAILABLE CHANNEL	TESTED Frequency (MHz)	MODULATION	DATA RATE (Mbps)
2.4G	0 to 4	2440	GFSK	1
2.4G	0 to 4	2440	GFSK	1
RADIATED EMISSION TEST (ABOVE 1 GHz)				
MODE	AVAILABLE CHANNEL	TESTED Frequency (MHz)	MODULATION	DATA RATE (Mbps)
2.4G	0 to 4	2403、2440、2475	GFSK	1

Note: The field strength of radiation emission was measured as EUT three orthogonal planes, E1 / E2 / H, are positioned to pre-scan the emission generating the highest one. The worst position is tested and recorded.

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6 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty		
AC Power Line Conducted Emission	+/-	2.34	dB
20dB & 99% Bandwidth	+/-	1.53	Hz
100 kHz Bandwidth Of Frequency Band Edges	+/-	1.69	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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7 CONDUCTED EMISSION TEST

7.1 Applicable Standard:

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

Frequency range MHz	Limits (dBuV)	
	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.		

7.2 Measurement Equipment Used:

AC Power-Line Conducted Emission Test Site: Conduction C					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Test Software	audix	e3	Ver. 6.11-20180419c	N.C.R	N.C.R
LISN	SCHWARZBECK Mess-Elektronik	NSLK8127	973	03/25/2021	03/24/2022
EMI Test Receiver	R&S	ESCI	101342	04/28/2021	04/27/2022
Coaxial Cable	EC Lab	RF-HY-CAB-250	RF-HY-CAB-250-01	03/27/2021	03/26/2022
Pulse Limiter	EC Lab	VTSD 9561F-N	485	03/27/2021	03/26/2022

7.3 EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
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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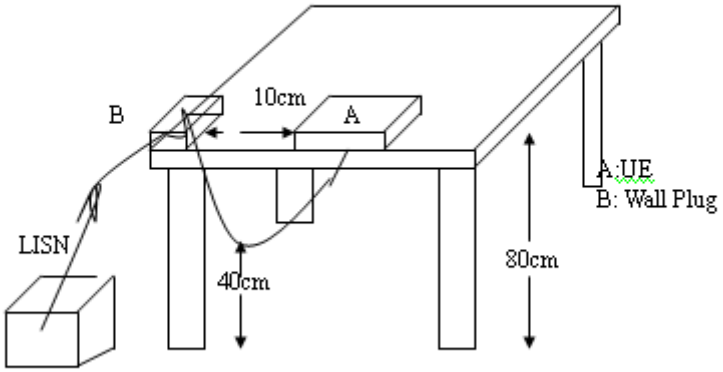
7.4 Test SET-UP



7.5 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

7.6 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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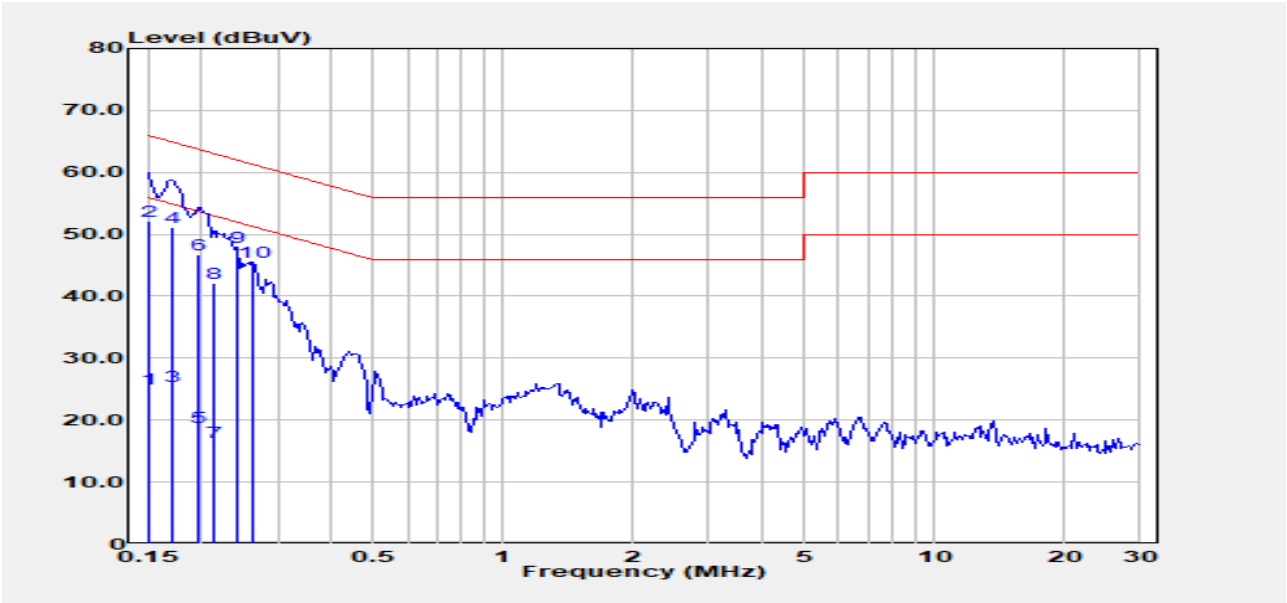
AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number	:E2/2021/A0029	Test Site	:Conduction C
Test Mode	:2.4G	Test Date	:2021-11-02
Power	:120V/60Hz	Temp./Humi.	:22.5/66
Probe	:L1	Engineer	:Jack Tseng
Note:	: Mouse		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV	Limit dBµV	Margin dB
0.152	Average	14.70	10.30	25.00	55.91	-30.91
0.152	QP	41.80	10.30	52.10	65.91	-13.81
0.170	Average	15.10	10.30	25.40	54.94	-29.54
0.170	QP	40.90	10.30	51.20	64.94	-13.74
0.198	Average	8.50	10.30	18.80	53.71	-34.91
0.198	QP	36.40	10.30	46.70	63.71	-17.01
0.213	Average	6.10	10.30	16.40	53.10	-36.69
0.213	QP	31.80	10.30	42.10	63.10	-20.99
0.242	Peak	37.52	10.30	47.82	62.04	-14.22
0.263	Peak	35.30	10.30	45.61	61.34	-15.73

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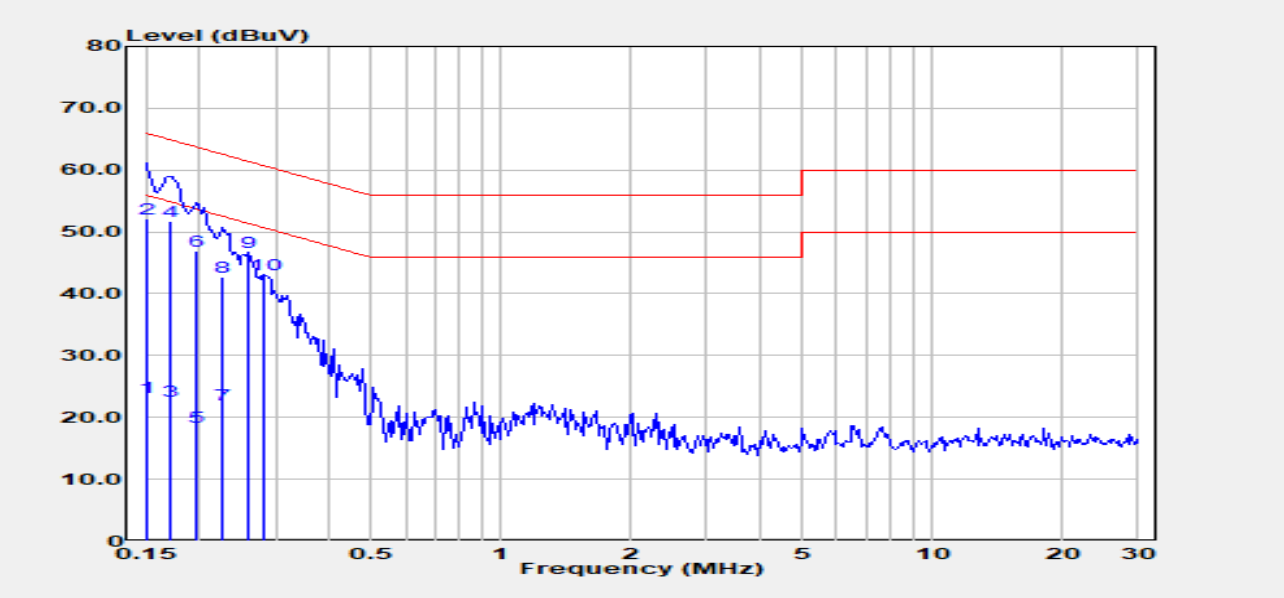
Report Number	:E2/2021/A0029	Test Site	:Conduction C
Test Mode	:2.4G	Test Date	:2021-11-02
Power	:120V/60Hz	Temp./Humi.	:22.5/66
Probe	:N	Engineer	:Jack Tseng
Note:	: Mouse		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV	Limit dBµV	Margin dB
0.152	Average	13.00	10.31	23.31	55.91	-32.60
0.152	QP	41.90	10.31	52.21	65.91	-13.70
0.170	Average	12.40	10.31	22.71	54.94	-32.24
0.170	QP	41.40	10.31	51.71	64.94	-13.24
0.198	Average	8.10	10.30	18.40	53.71	-35.31
0.198	QP	36.60	10.30	46.90	63.71	-16.81
0.227	Average	11.80	10.30	22.10	52.57	-30.46
0.227	QP	32.50	10.30	42.80	62.57	-19.76
0.258	Peak	36.49	10.31	46.80	61.51	-14.72
0.283	Peak	32.86	10.31	43.17	60.72	-17.55

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8 RADIATED EMISSION TEST

8.1 Applicable Standard

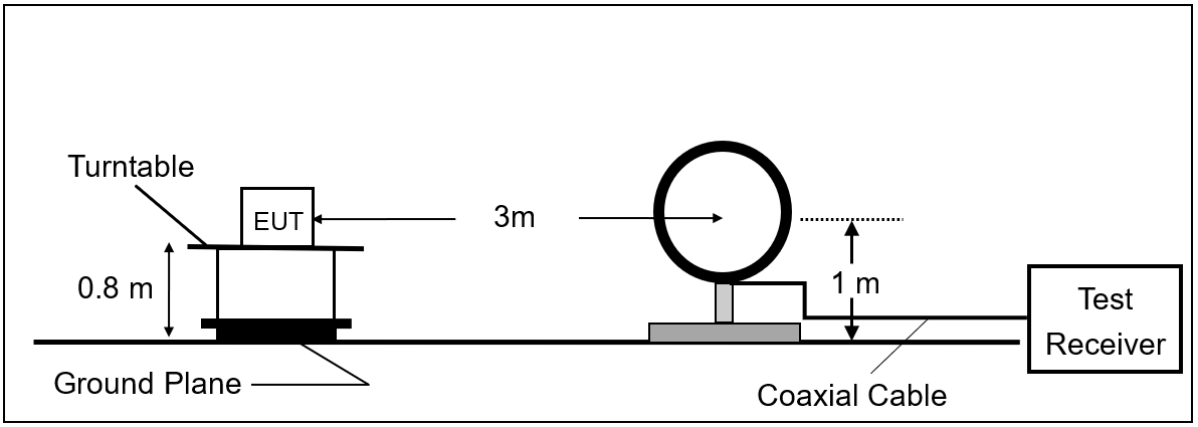
1. Only spurious emissions are permitted in any of the frequency bands listed in §15.205.
2. The field strength of fundamental and harmonic emissions, measured at 3 m, shall not exceed 50 mV/m and 0.5 mV/m respectively.
3. Emissions radiated outside of the specified frequency bands, except for harmonic emissions, shall be attenuated by at least 50 dB below the level of the fundamental emissions or to the general field strength limits listed in §15.209, whichever is less stringent.

8.2 Measurement Procedure

1. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

8.3 Test SET-UP

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



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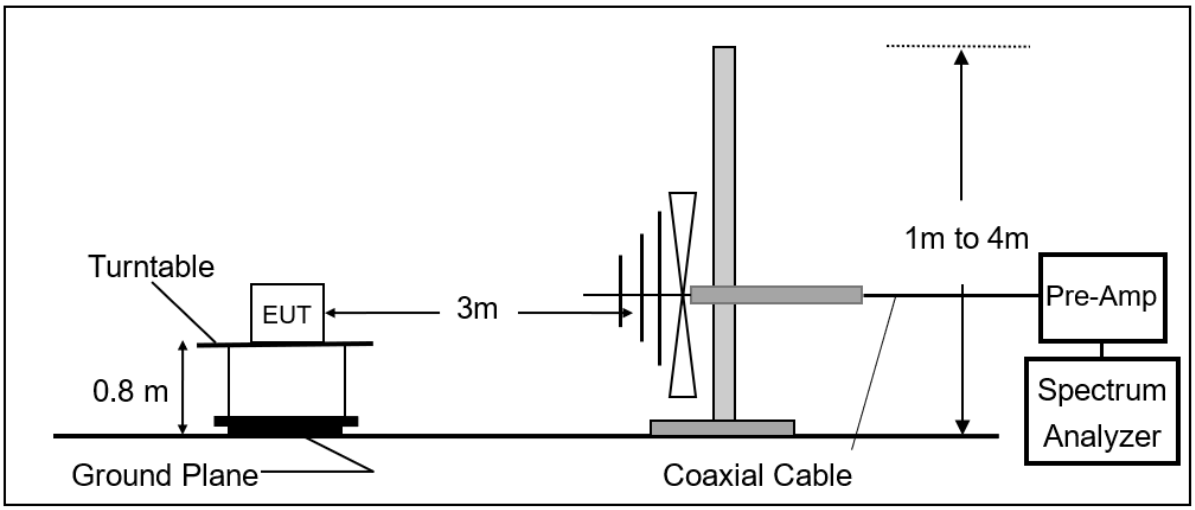
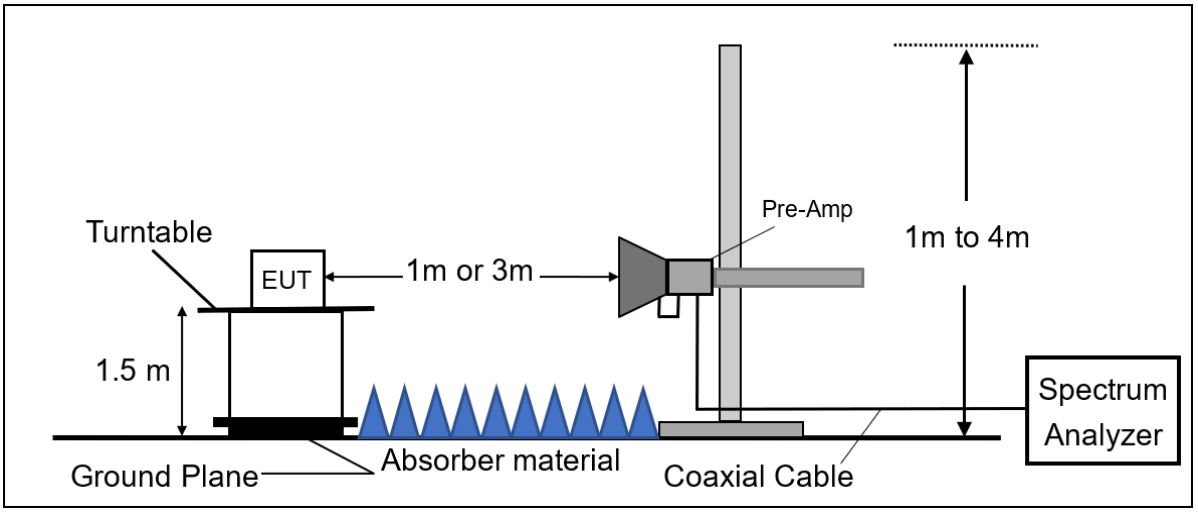
(B) Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz.



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



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8.4 Measurement Equipment Used:

Radiated Emission Test Site: SAC C					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Broadband Antenna	TESEQ	CBL 6112D	35240	09/10/2021	09/09/2022
Horn Antenna	Schwarzbeck	BBHA9170	184	12/11/2020	12/10/2021
Horn Antenna	Schwarzbeck	BBHA9120D	1187	01/11/2021	01/10/2022
Loop Antenna	ETS.LINDGREN	6502	143303	05/07/2021	05/06/2022
EMI Test Receiver	R&S	ESU 40	100363	04/28/2021	04/27/2022
Pre-Amplifier	EMC Instruments	EMC330	980096	11/19/2020	11/18/2021
Pre-Amplifier	EMC Instruments	EMC0011830	980199	11/19/2020	11/18/2021
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2021	10/26/2022
Attenuator	Marvelous	WATT-218FS-10	RF20	11/19/2020	11/18/2021
Band Rejection Filter	Micro-Tronics	BRM50701-01	RF201	11/19/2020	11/18/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	11/19/2020	11/18/2021
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	11/19/2020	11/18/2021
Test Software	audix	e3	20923 sgs Ver.9	N.C.R	N.C.R
High Pass Filter	R&S	F13 HPF 3GHz	RF175	11/19/2020	11/18/2021

NOTE: N.C.R refers to Not Calibrated Required.

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8.5 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	

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)
Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

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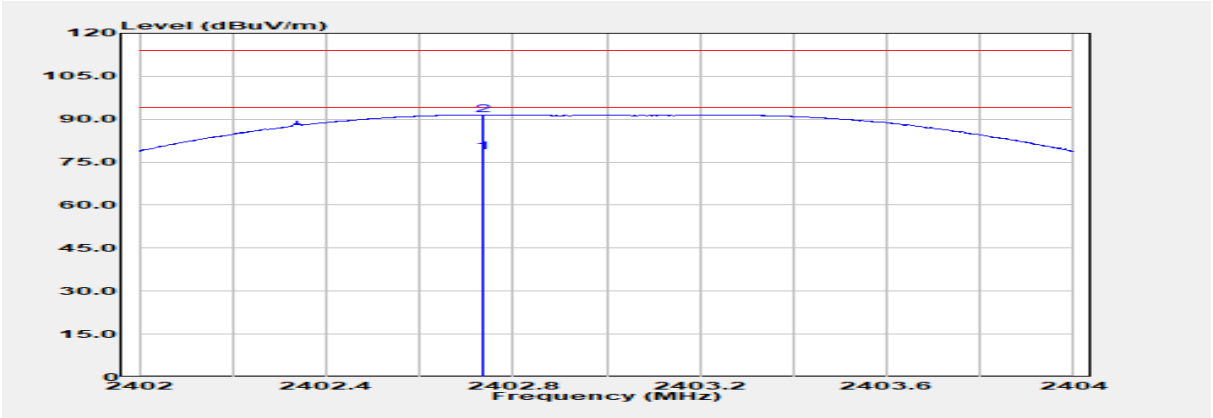
8.6 Measurement Result

8.6.1 Field Strength of the Fundamental Signal

Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2403 MHz	Temp./Humi.	:19.1/55
Test Mode	:Main	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2402.737	Average	73.678	4.79	78.47	94.00	-15.53
2402.737	Peak	86.68	4.79	91.47	114.00	-22.53

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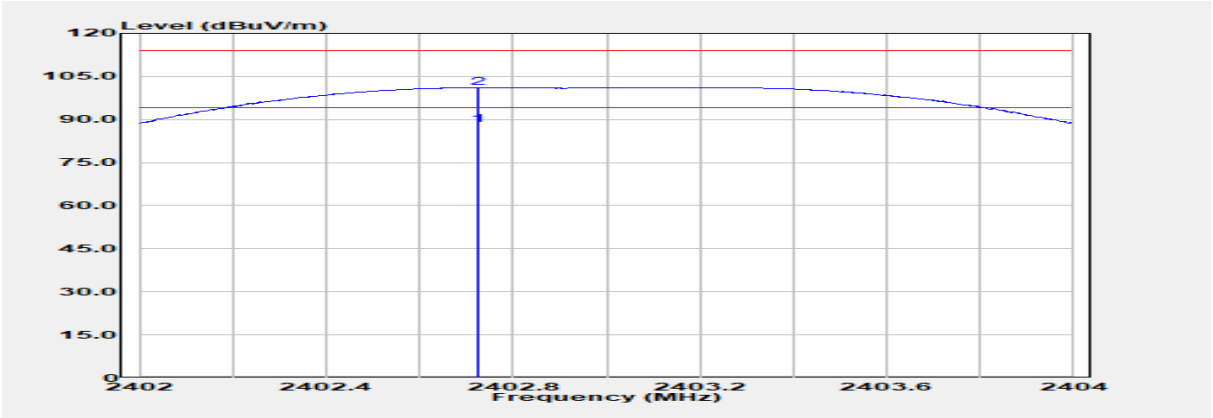
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2403 MHz	Temp./Humi.	:19.1/55
Test Mode	:Main	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2402.724	Average	83.26	4.79	88.05	94.00	-5.95
2402.724	Peak	96.26	4.79	101.05	114.00	-12.95

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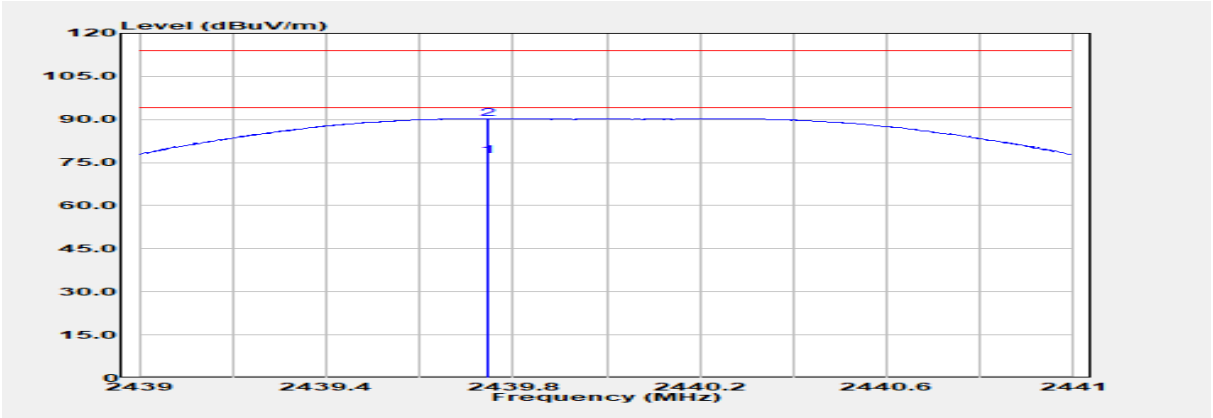
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2440 MHz	Temp./Humi.	:19.1/55
Test Mode	:Main	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2439.744	Average	73.18	4.15	77.33	94.00	-16.67
2439.744	Peak	86.18	4.15	90.33	114.00	-23.67

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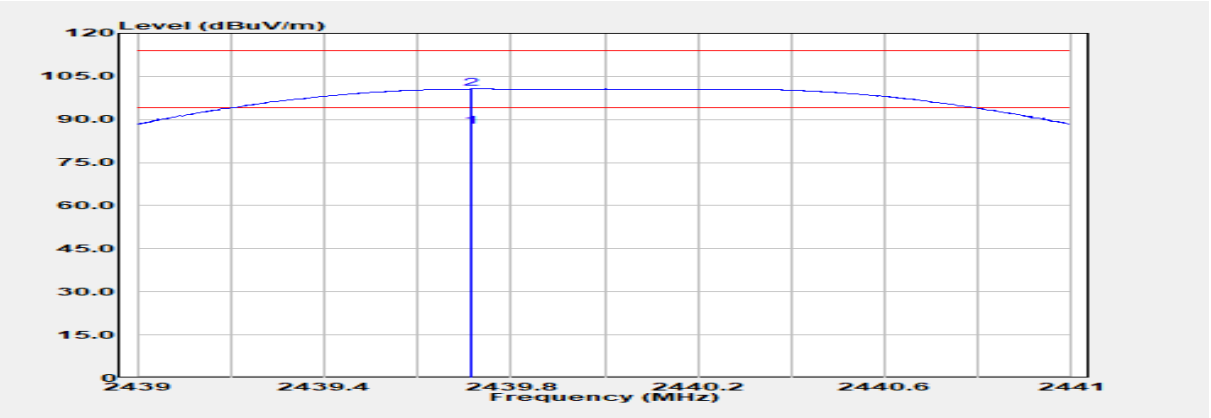
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2440 MHz	Temp./Humi.	:19.1/55
Test Mode	:Main	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2439.715	Average	83.46	4.15	87.61	94.00	-6.39
2439.715	Peak	96.46	4.15	100.61	114.00	-13.39

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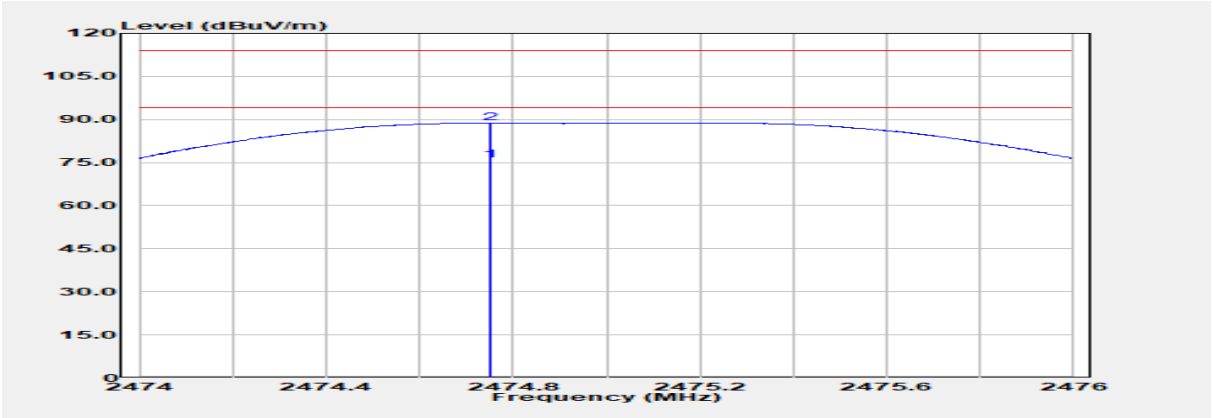
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2475 MHz	Temp./Humi.	:19.1/55
Test Mode	:Main	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2474.750	Average	71.91	3.85	75.76	94.00	-18.24
2474.750	Peak	84.91	3.85	88.77	114.00	-25.23

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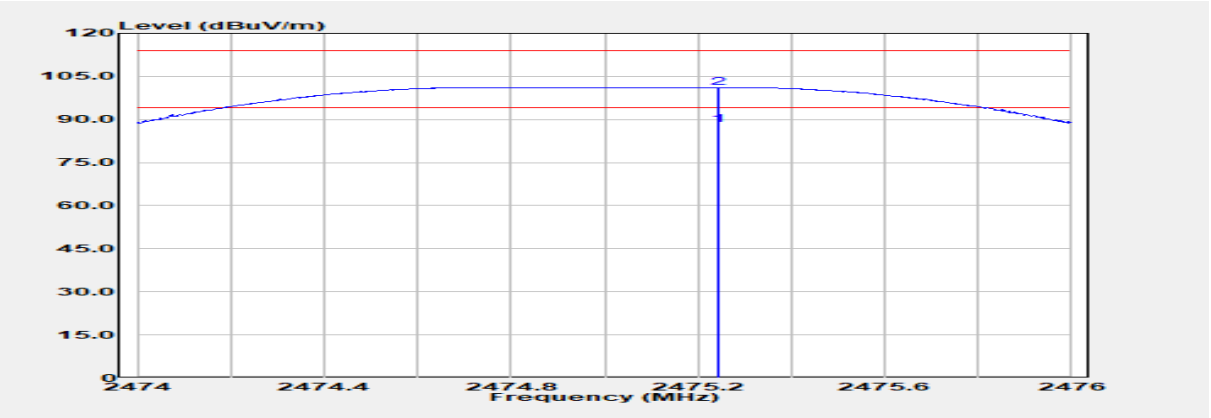
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2475 MHz	Temp./Humi.	:19.1/55
Test Mode	:Main	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2475.244	Average	84.32	3.87	88.20	94.00	-5.81
2475.244	Peak	97.32	3.87	101.20	114.00	-12.80

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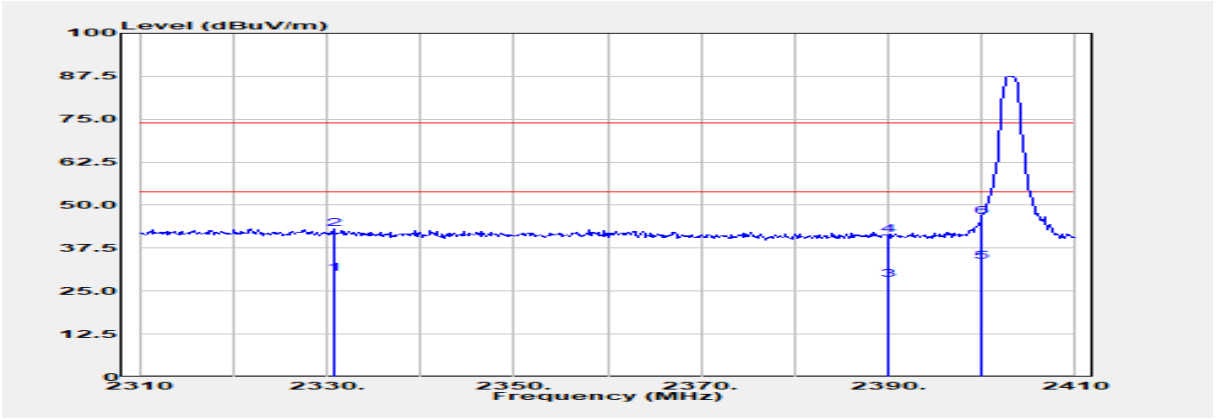
8.6.2 Restricted bands around fundamental frequency

Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2403 MHz	Temp./Humi.	:20/55
Test Mode	:BE CH LOW	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2330.673	Average	31.21	-1.19	30.02	54.00	-23.98
2330.673	Peak	44.21	-1.19	43.02	74.00	-30.98
2390.000	Average	30.07	-1.72	28.35	54.00	-25.65
2390.000	Peak	43.07	-1.72	41.35	74.00	-32.65
2400.000	Average	35.73	-2.05	33.68	54.00	-20.32
2400.000	Peak	48.73	-2.05	46.68	74.00	-27.32

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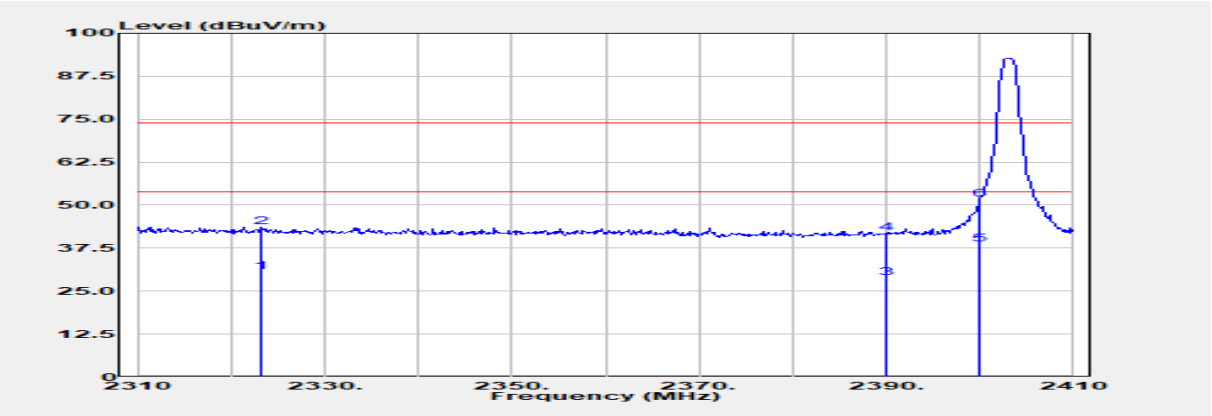
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2403 MHz	Temp./Humi.	:20/55
Test Mode	:BE CH LOW	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
2323.301	Average	31.68	-1.05	30.63	54.00	-23.37
2323.301	Peak	44.67	-1.05	43.62	74.00	-30.38
2390.000	Average	30.66	-1.72	28.94	54.00	-25.06
2390.000	Peak	43.66	-1.72	41.94	74.00	-32.06
2400.000	Average	40.61	-2.05	38.56	54.00	-15.44
2400.000	Peak	53.61	-2.05	51.56	74.00	-22.44

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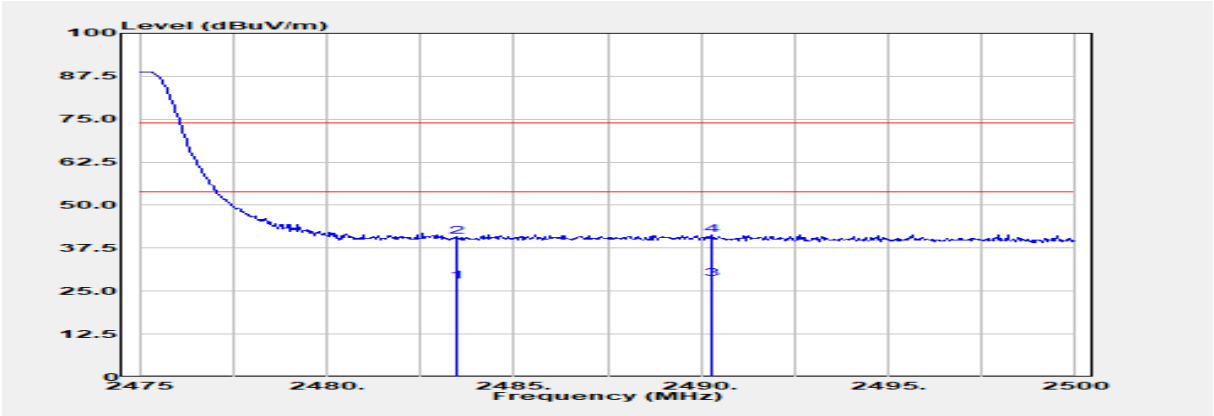
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2475 MHz	Temp./Humi.	:20/55
Test Mode	:BE CH HIGH	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500	Average	30.81	-3.06	27.75	54.00	-26.25
2483.500	Peak	43.81	-3.06	40.75	74.00	-33.25
2490.304	Average	31.62	-3.14	28.48	54.00	-25.52
2490.304	Peak	44.62	-3.14	41.48	74.00	-32.52

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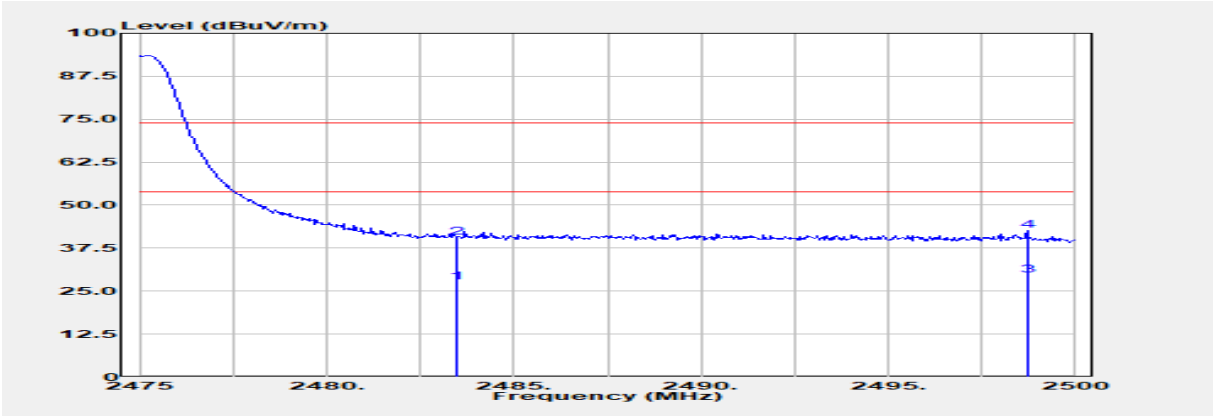
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2475 MHz	Temp./Humi.	:20/55
Test Mode	:BE CH HIGH	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.500	Average	30.63	-3.06	27.57	54.00	-26.43
2483.500	Peak	43.64	-3.06	40.57	74.00	-33.43
2498.718	Average	33.16	-3.65	29.51	54.00	-24.49
2498.718	Peak	46.16	-3.65	42.51	74.00	-31.49

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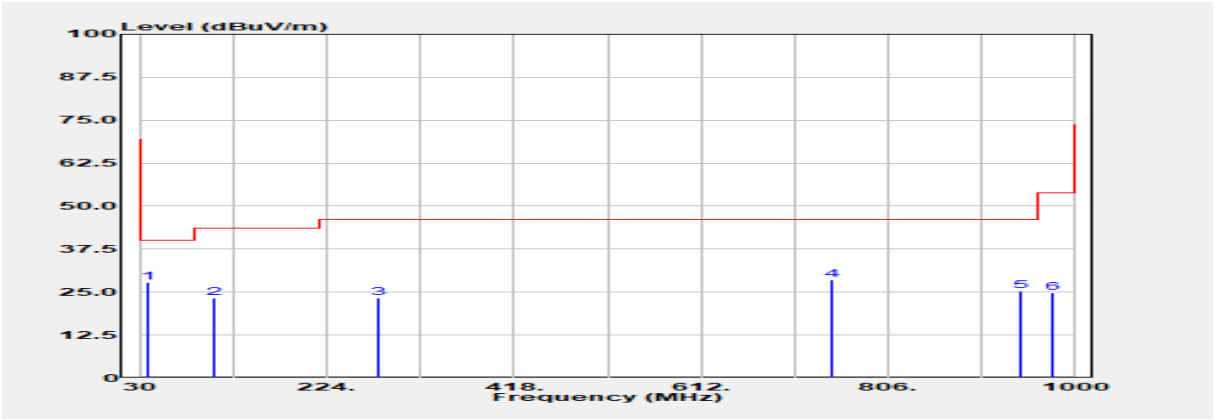
8.6.3 Radiated Spurious Emission Measurement Result

Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-12
Test Frequency	:2440 MHz	Temp./Humi.	:22/59
Test Mode	:TX CH MID	Antenna Pol.	:VERTICAL
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
39.327	Peak	39.50	-11.58	27.93	40.00	-12.07
106.170	Peak	41.89	-18.69	23.19	43.50	-20.31
277.164	Peak	39.06	-15.70	23.36	46.00	-22.64
746.619	Peak	36.36	-7.79	28.57	46.00	-17.43
942.484	Peak	30.91	-5.55	25.36	46.00	-20.64
976.683	Peak	30.30	-5.51	24.79	54.00	-29.21

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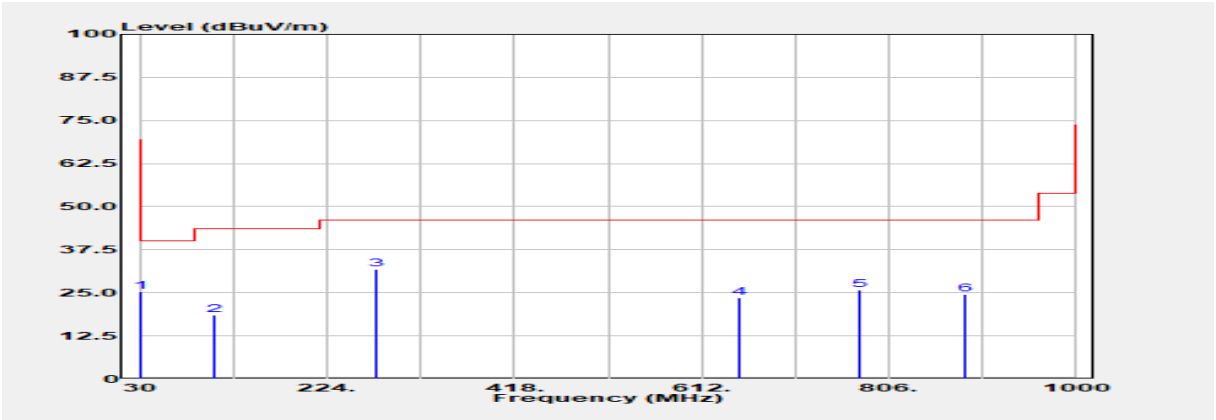
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-12
Test Frequency	:2440 MHz	Temp./Humi.	:22/59
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
31.554	Peak	32.67	-7.29	25.37	40.00	-14.63
107.724	Peak	36.98	-18.50	18.48	43.50	-25.02
275.609	Peak	47.46	-15.72	31.74	46.00	-14.26
650.240	Peak	31.90	-8.35	23.55	46.00	-22.45
774.599	Peak	32.94	-7.17	25.77	46.00	-20.23
884.968	Peak	30.43	-5.99	24.44	46.00	-21.56

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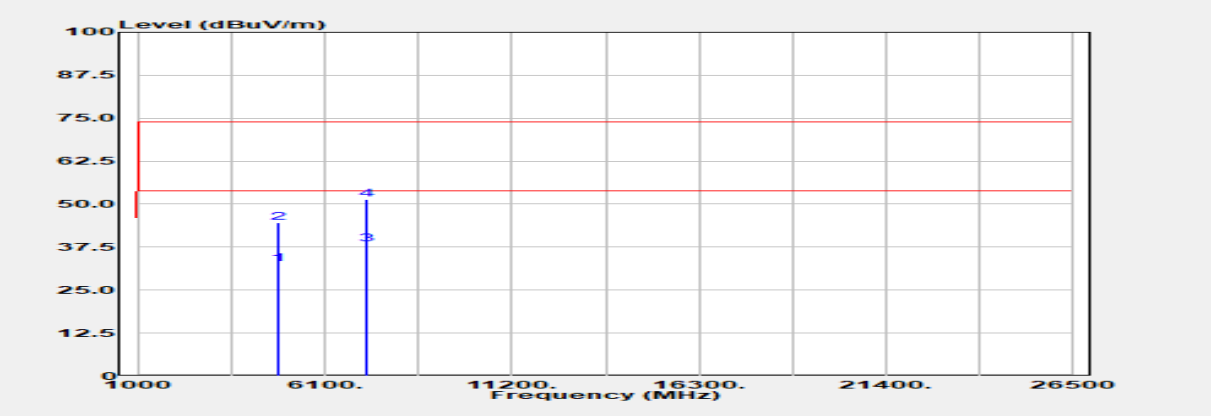
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-12
Test Frequency	:2403 MHz	Temp./Humi.	:20.5/52
Test Mode	:TX CH LOW	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
4806.000	Average	21.79	10.92	32.71	54.00	-21.29
4806.000	Peak	33.78	10.92	44.70	74.00	-29.30
7209.000	Average	21.20	17.07	38.27	54.00	-15.73
7209.000	Peak	34.20	17.07	51.27	74.00	-22.73

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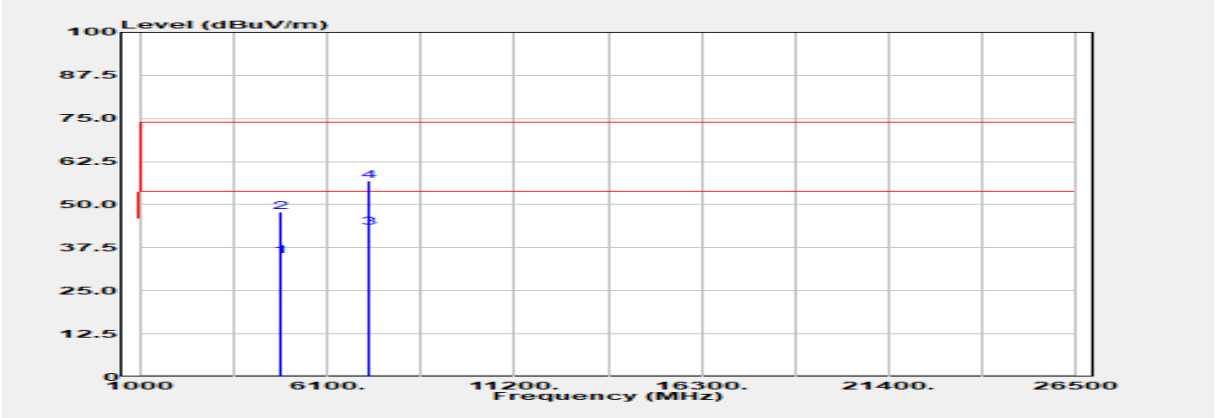
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-12
Test Frequency	:2403 MHz	Temp./Humi.	:20.5/52
Test Mode	:TX CH LOW	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
4806.000	Average	24.08	10.92	35.00	54.00	-19.00
4806.000	Peak	37.08	10.92	47.99	74.00	-26.01
7209.000	Average	26.30	17.07	43.37	54.00	-10.63
7209.000	Peak	39.80	17.07	56.87	74.00	-17.13

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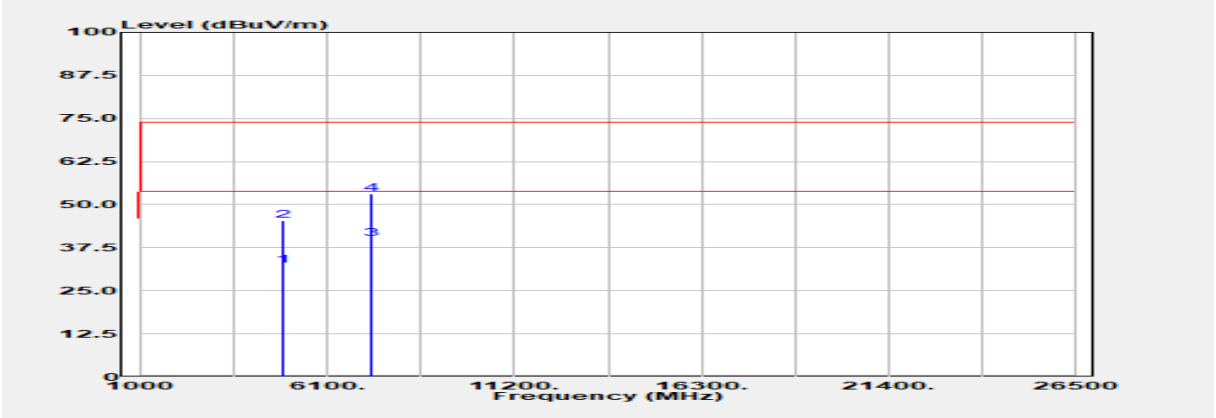
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2440 MHz	Temp./Humi.	:20.5/52
Test Mode	:TX CH MID	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
4880.000	Average	22.22	10.07	32.29	54.00	-21.71
4880.000	Peak	35.22	10.07	45.29	74.00	-28.71
7320.000	Average	21.30	18.77	40.07	54.00	-13.93
7320.000	Peak	34.30	18.77	53.07	74.00	-20.93

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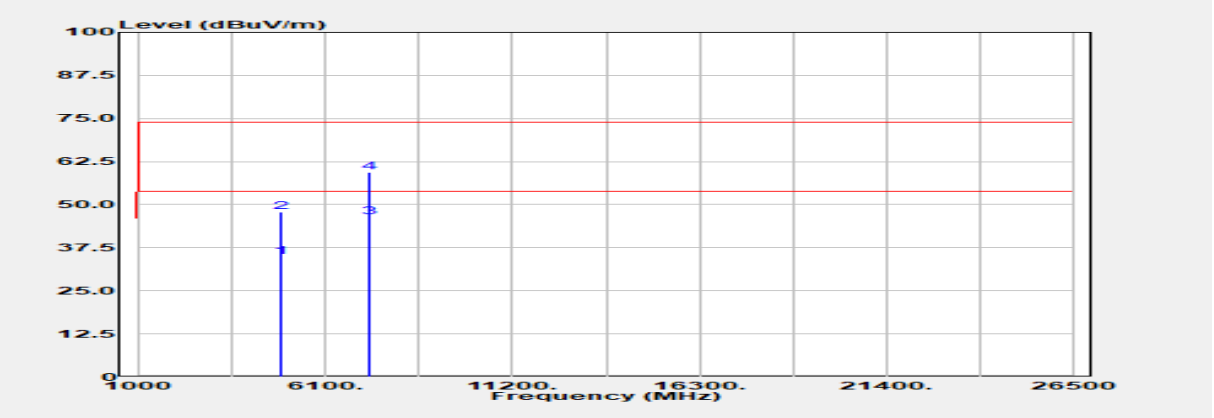
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2440 MHz	Temp./Humi.	:20.5/52
Test Mode	:TX CH MID	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
4880.000	Average	24.74	10.07	34.81	54.00	-19.19
4880.000	Peak	37.74	10.07	47.81	74.00	-26.19
7320.000	Average	27.60	18.77	46.37	54.00	-7.63
7320.000	Peak	40.60	18.77	59.37	74.00	-14.63

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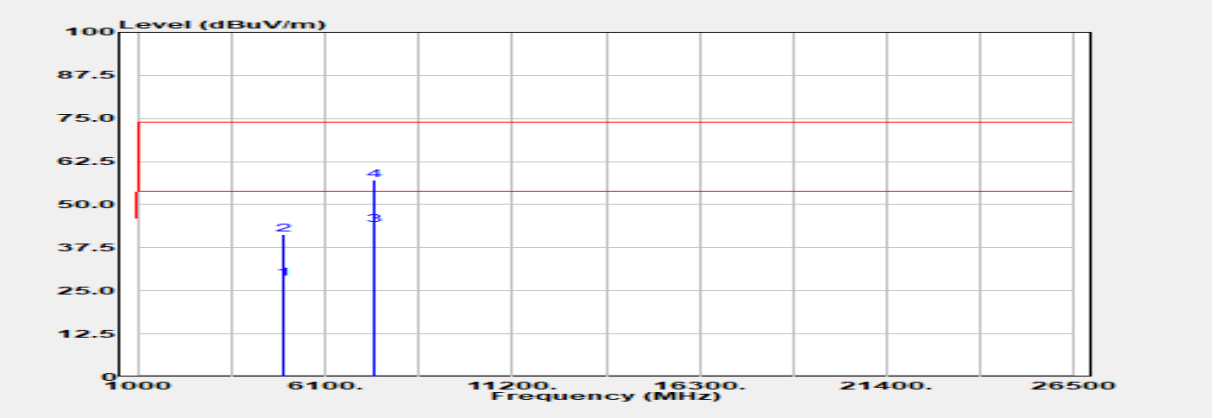
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2475 MHz	Temp./Humi.	:20.5/52
Test Mode	:TX CH HIGH	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
4950.000	Average	18.72	9.75	28.47	54.00	-25.53
4950.000	Peak	31.72	9.75	41.47	74.00	-32.53
7425.000	Average	26.48	17.58	44.06	54.00	-9.94
7425.000	Peak	39.48	17.58	57.06	74.00	-16.94

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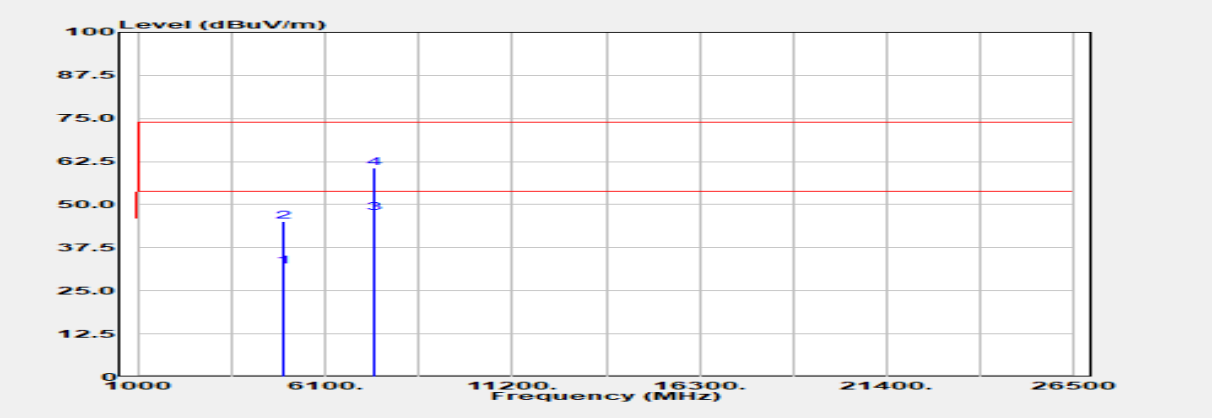
Report Number	:E2/2021/A0029	Test Site	:SAC C
Operation Mode	:2.4G	Test Date	:2021-11-11
Test Frequency	:2475 MHz	Temp./Humi.	:20.5/52
Test Mode	:TX CH HIGH	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Andy Wang



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
4950.000	Average	22.30	9.75	32.05	54.00	-21.95
4950.000	Peak	35.31	9.75	45.05	74.00	-28.95
7425.000	Average	29.96	17.58	47.54	54.00	-6.46
7425.000	Peak	42.96	17.58	60.54	74.00	-13.46

~ End of Report ~

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