

ELECTROMAGNETIC EMISSIONS COMPLIANCE CLASS II & IV PERMISSIVE CHANGE REPORT



Applicant: MediaTek Inc.
No. 1, Dusing 1st Rd., Hsinchu Science Park Hsinchu City 30078 Taiwan

Product Name: 2TX 11ax (WiFi6)+BLE Combo Card

Brand Name: MediaTek

Model No.: MT7921

Model Difference: N/A

Report Number: E2/2021/A0063

FCC ID RAS-MT7921

IC: 7542A-MT7921

Issue Date: Jan.10,2022

Date of Test: Oct.15,2021~Oct.25,2021

Date of EUT Received: Oct.13,2021

Approved By


Jay Lin

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, ISSED 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/A0063	Rev.00	Original.	Jan.10,2022	Viola Su

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1 GENERAL INFORMATION

1.1 Product Description of host

Product Name:	Portable Computer
Brand Name:	DELL
Model No.:	P112F
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	7196294700020
Power Supply:	15Vdc

1.2 RF Specification

Radio Technology:	BLE
Frequency Range:	2402 – 2480MHz
Channel number:	40 channels
Modulation type:	GFSK
Transmit Power:	BLE 1M: 11.23 dBm BLE 2M: 11.70 dBm

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1.3 Antenna Designation

TOP / BASE Antenna	Antenna Type	Supplier	Main / Aux	Antenna Part No.	Freq.	Peak Antenna Gain (dBi)	Worst Antenna Gain
TOP	PIFA	AWAN	Aux	AYP6Y-100192 (DC33002KF1L)	2.4GHz	-3.40	
TOP	PIFA	Hong Bo Co., Ltd.	Aux	260-24374 (DC33002KG1L)	2.4GHz	1.27	
TOP	PIFA	SPEEDWIRE	Aux	F-0G-FH-6134-002-00	2.4GHz	2.11	
BASE	PIFA	AWAN	Aux	AYP6Y-100259 (DC33002N01L)	2.4GHz	0.48	
BASE	PIFA	Hong Bo Co., Ltd.	Aux	260-24389 (DC33002N21L)	2.4GHz	2.49	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

RSS-247 issue 2 Feb. 2017

RSS-Gen Issue 5, Amendment 2, February 2021

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 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*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 Configuration of Tested System

Fig. 2-1 Conducted Setup & Radiated



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3 SUMMARY OF TEST RESULTS

FCC Rules	ISED Rules	Description Of Test	Result
§15.247(b) (3)	RSS-247 §5.4 d	Peak Output Power	Compliant
§15.247(d) §15.205 §15.209	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10	Radiated & Conducted Band Edge and Spurious Emission	Compliant

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4 DESCRIPTION OF TEST MODES

4.1 Operated in 2400 ~ 2483.5MHz Band

ITEM	FREQUENCY	ITEM	FREQUENCY	ITEM	FREQUENCY
1	2402 MHz	15	2430 MHz	29	2458 MHz
2	2404 MHz	16	2432 MHz	30	2460 MHz
3	2406 MHz	17	2434 MHz	31	2462 MHz
4	2408 MHz	18	2436 MHz	32	2464 MHz
5	2410 MHz	19	2438 MHz	33	2466 MHz
6	2412 MHz	20	2440 MHz	34	2468 MHz
7	2414 MHz	21	2442 MHz	35	2470 MHz
8	2416MHz	22	2444 MHz	36	2472 MHz
9	2418 MHz	23	2446 MHz	37	2474 MHz
10	2420 MHz	24	2448 MHz	38	2476 MHz
11	2422 MHz	25	2450 MHz	39	2478 MHz
12	2424 MHz	26	2452 MHz	40	2480 MHz
13	2426 MHz	27	2454 MHz		
14	2428 MHz	28	2456 MHz		

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. The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.
4. Investigation has been done on all the possible configurations for searching the worst case.

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4.3 BLE

RADIATED EMISSION TEST (ABOVE 1 GHz)				
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
Bluetooth LE	0 to 39	0,20,39	GFSK	1
Bluetooth LE	0 to 39	0,20,39	GFSK	2
Note: The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for channel Low, Mid and High, the worst case E2 position was reported.				

CONDUCTED TEST				
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
Bluetooth LE	0 to 39	0,20,39	GFSK	1
Bluetooth LE	0 to 39	0,20,39	GFSK	2

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
Peak Output Power	+/- 1 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 and the e.i.r.p. shall not exceed 4 W.

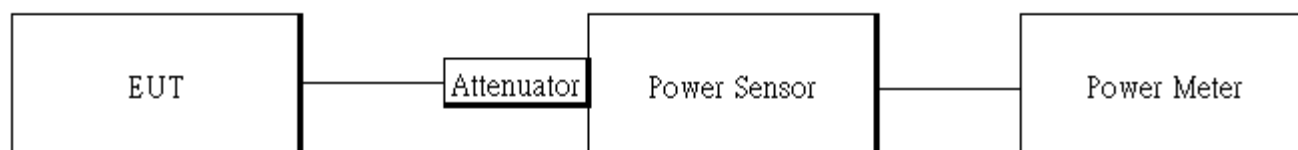
If the transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

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.

6.2 Measurement Equipment Used:

Conducted Emission Test Site: Conducted G					
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/01/2021	05/31/2022
Power Meter	Anritsu	ML2496A	1512003	07/27/2021	07/26/2022
Power Sensor	Anritsu	MA2411B	1339378	07/27/2021	07/26/2022
Power Sensor	Anritsu	MA2411B	1339379	07/27/2021	07/26/2022
Attenuator	Marvelous	MVE2213-10	RF06	11/19/2020	11/18/2021
Attenuator	Marvelous	WATT-218FS-10	RF18	11/19/2020	11/18/2021
Attenuator	Marvelous	WATT-218FS-10	RF23	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF154	11/19/2020	11/18/2021

6.3 Test Set-up:



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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.
4. Record the max. Reading as observed from Power Meter.
5. Repeat above procedures until all test default channel measured was complete.

6.5 Duty Factor:

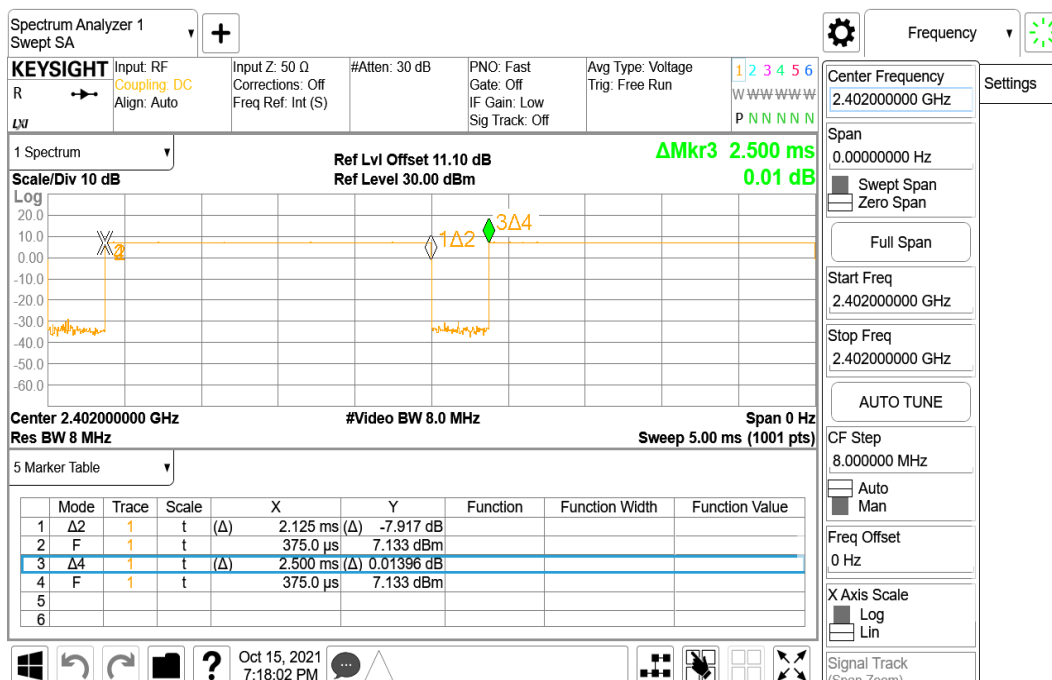
	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
BLE 1M	85.00	0.71	0.47	1.00
BLE 2M	57.00	2.44	0.94	1.00

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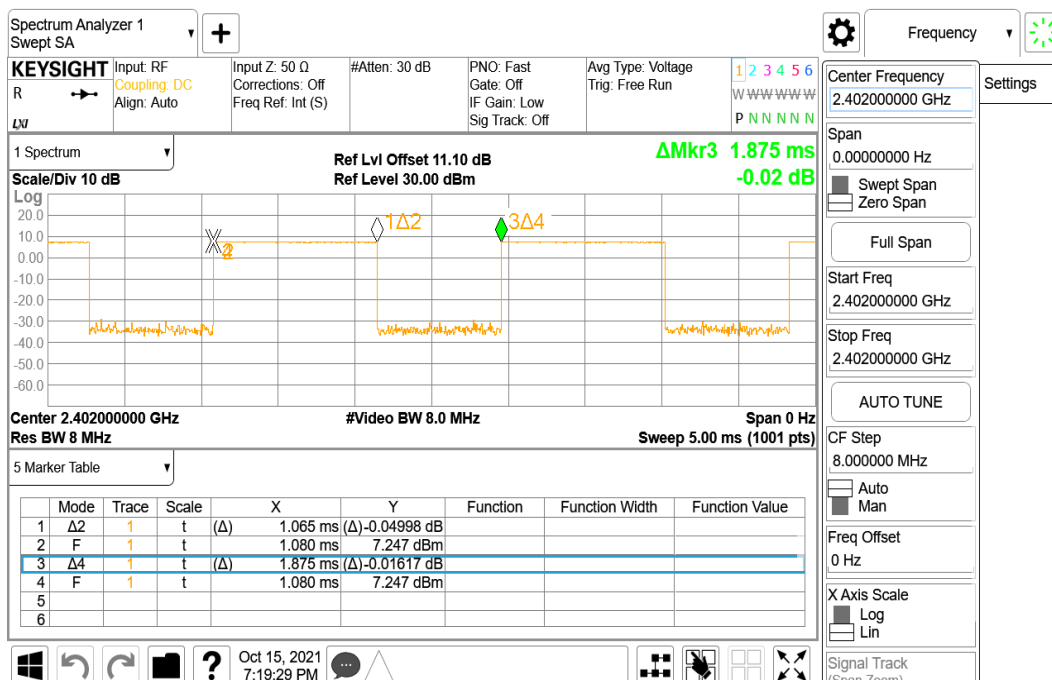
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BLE_1M_LowCH00-2402



BLE_2M_LowCH00-2402



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6.6 Output Power:

6.6.1 Peak & Avg

BLE 1M mode:

CH	Frequency (MHz)	Power set	Peak Power Output (dBm)	Required Limit (dBm)
Low	2402	10	11.23	30
Mid	2442	10	10.96	30
High	2480	10	10.97	30
CH	Frequency (MHz)	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Required Limit (dBm)
Low	2402	10	11.11	30
Mid	2442	10	10.93	30
High	2480	10	10.90	30

**Note: Measured by power meter, cable loss 11.1 dB + Duty cycle factor has been offsetted to the power meter for Avg. power and cable loss has been offsetted for Peak power measurement.*

BLE 2M mode:

CH	Frequency (MHz)	Power set	Peak Power Output (dBm)	Required Limit (dBm)
Low	2402	11	11.70	30
Mid	2442	11	11.39	30
High	2480	11	11.57	30
CH	Frequency (MHz)	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Required Limit (dBm)
Low	2402	11	11.22	30
Mid	2442	11	11.06	30
High	2480	11	11.34	30

**Note: Measured by power meter, cable loss 11.1 dB + Duty cycle factor has been offsetted to the power meter for Avg. power and cable loss has been offsetted for Peak power measurement.*

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6.6.2 EIRP

EIRP BLE 1M mode

CH	Frequency (MHz)	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit
Low	2402	10	11.11	2.49	13.60	4W= 36 dBm
Mid	2442	10	10.93	2.49	13.42	4W= 36 dBm
High	2480	10	10.90	2.49	13.39	4W= 36 dBm

* **Note:** EIRP = Average Power + Gain

EIRP BLE 2M mode

CH	Frequency (MHz)	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit
Low	2402	11	11.22	2.49	13.71	4W= 36 dBm
Mid	2442	11	11.06	2.49	13.55	4W= 36 dBm
High	2480	11	11.34	2.49	13.83	4W= 36 dBm

* **Note:** EIRP = Average Power + Gain

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7 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:

The lower limit shall apply at the transition frequencies.

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7.2 Measurement Equipment Used

Radiated Emission Test Site: SAC G					
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Broadband Antenna	SCHWAZBECK	VULB 9168	1206	02/22/2021	02/21/2022
Horn Antenna	Schwarzbeck	BBHA9170	185	08/06/2021	08/05/2022
Horn Antenna	Schwarzbeck	DRH18-E	210105A18E	04/09/2021	04/08/2022
Loop Antenna	ETS.LINDGREN	6502	143303	05/07/2021	05/06/2022
3m Site NSA	SGS	966 chamber G	N/A	03/30/2021	03/29/2022
Spectrum Analyzer	KEYSIGHT	N9010A	MY57120200	03/22/2021	03/21/2022
Test Software	audix	e3	E3 20923 SGS Ver.9 (C)	N.C.R	N.C.R
Pre-Amplifier	EMC Instruments	EMC330N	980781	03/15/2021	03/14/2022
Pre-Amplifier	EMC Instruments	EMC118A45SE	980815	03/15/2021	03/14/2022
Attenuator	Marvelous	MVE2213-30	RF04	11/19/2020	11/18/2021
Highpass Filter	WI	WHKX10-2624- 3200-1800-80SS	1	05/10/2021	05/09/2022
Highpass Filter	WI	WHKX10-6090- 7000-17000-80SS	1	05/10/2021	05/09/2022
Highpass Filter	WI	WHKX10-1066- 1300-1500-80SS	18	05/10/2021	05/09/2022
Coaxial Cable	EMC Instruments	EMCCFD400-NM- NM-8000-5000- 2000	210216 、 210217 、 210218	03/15/2021	03/14/2022
Coaxial Cable	EMC Instruments	EMC104-SM-SM- 8000-5000-5000	210219 、 210220 、 210221	03/15/2021	03/14/2022
Coaxial Cable	EMC Instruments	EMC105-NM-NM- 5000-15000	210224 、 210306	03/15/2021	03/14/2022

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

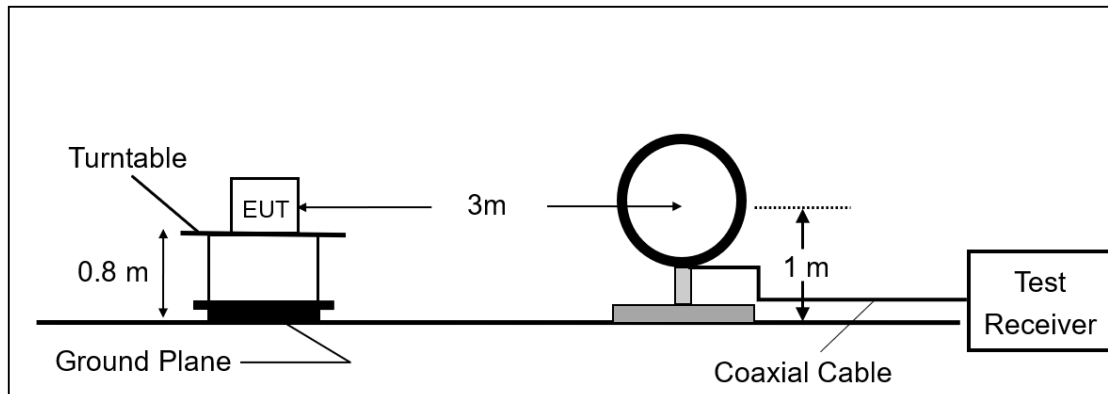
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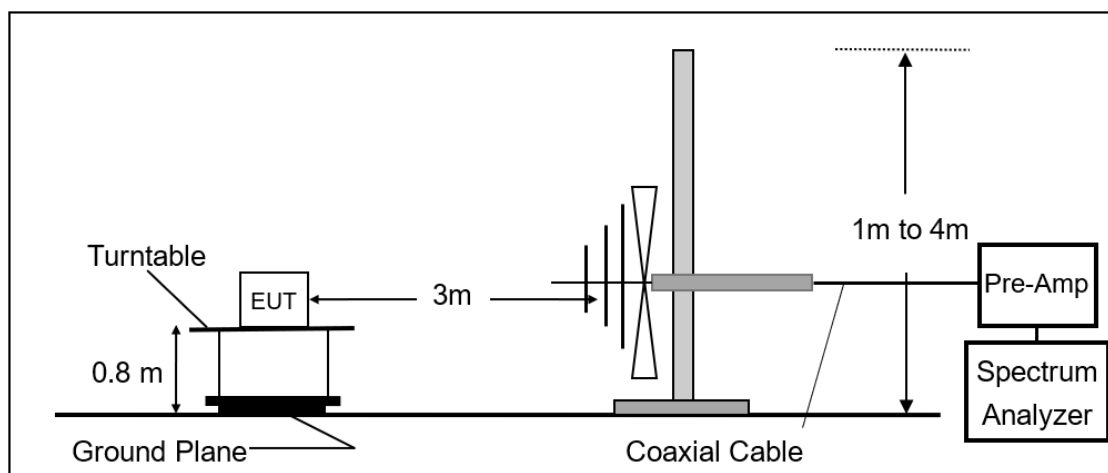
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7.3 Test SET-UP

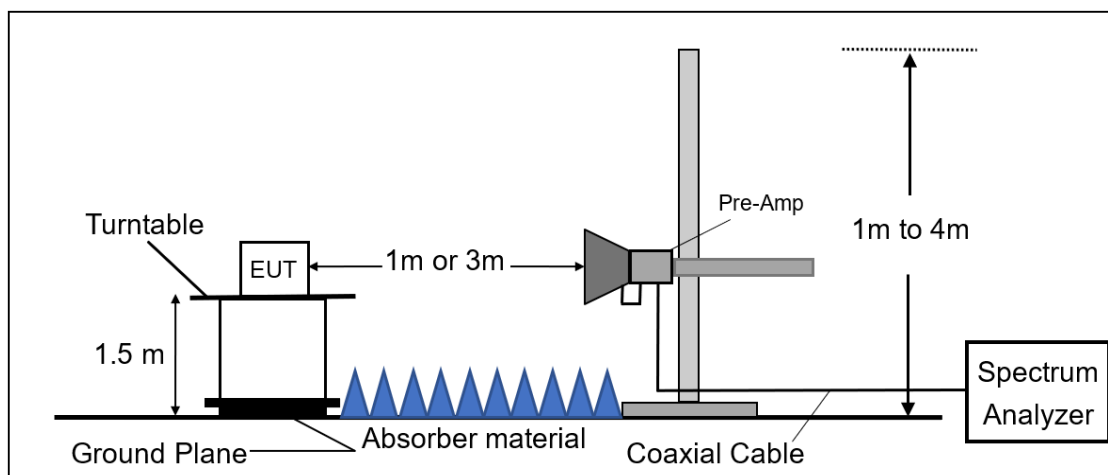
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



(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. Set the spectrum analyzer as RBW=100 kHz and VBW=300 kHz for Peak Detector (PK) at frequency between 30MHz and 1 GHz.
6. Use receiver mode as RBW=120 kHz for Quasi-peak (QP) at frequency between 30MHz and 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 ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. 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.
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.

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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 dBuV/m, which converts $20 \cdot \log(\mu V/m)$

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/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: Refer to next page spectrum analyzer data chart and tabular data sheets.

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7.7.1 Radiated Spurious Emission above 1GHz

Report Number :E2/2021/A0063

Test Site :SAC G

Operation Mode :BLE 1M

Test Date :2021-10-25

Test Frequency :2402 MHz

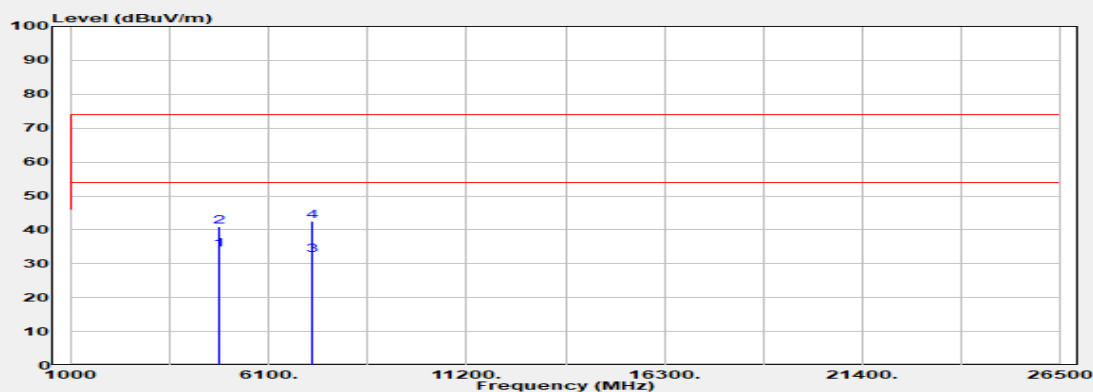
Temp./Humi. :23.2/67

Test Mode :TX CH LOW

Antenna Pol. :Vertical

EUT Pol :NB Plane

Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
4804.000	Average	31.06	3.14	34.20	54.00	-19.80
4804.000	Peak	37.83	3.14	40.97	74.00	-33.03
7206.000	Average	25.29	7.22	32.51	54.00	-21.49
7206.000	Peak	35.24	7.22	42.46	74.00	-31.54

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Report Number :E2/2021/A0063

Test Site :SAC G

Operation Mode :BLE 1M

Test Date :2021-10-25

Test Frequency :2402 MHz

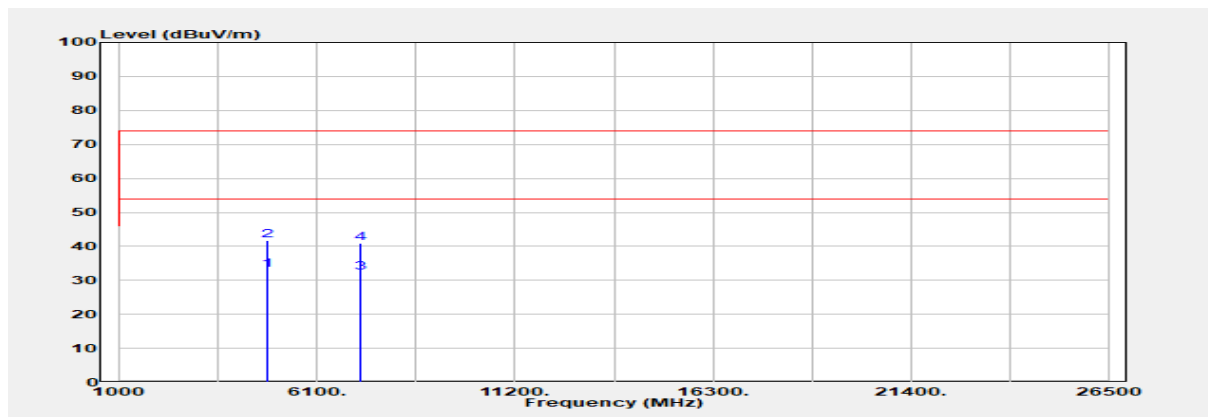
Temp./Humi. :23.2/67

Test Mode :TX CH LOW

Antenna Pol. :Horizontal

EUT Pol :NB Plane

Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4804.000	Average	30.06	3.14	33.19	54.00	-20.81
4804.000	Peak	38.47	3.14	41.61	74.00	-32.39
7206.000	Average	24.97	7.22	32.19	54.00	-21.81
7206.000	Peak	33.68	7.22	40.90	74.00	-33.10

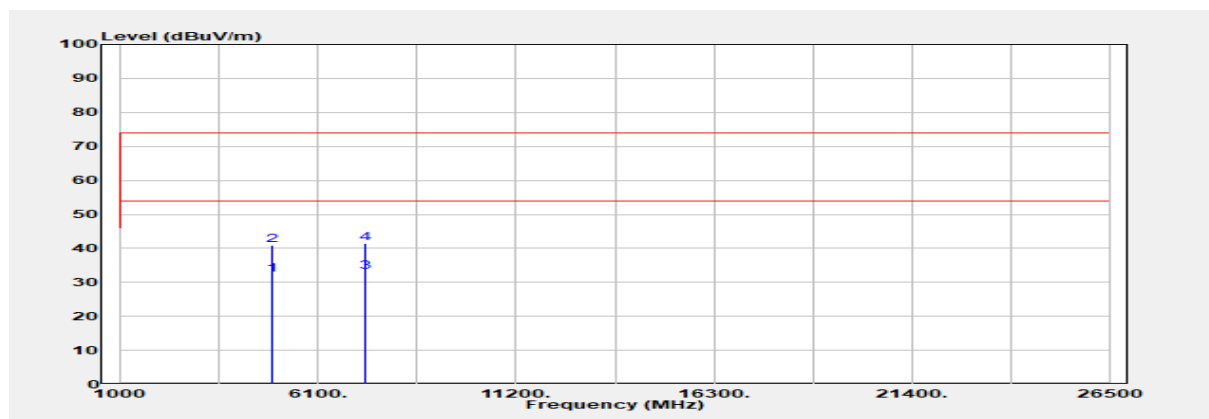
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Report Number :E2/2021/A0063
 Operation Mode :BLE 1M
 Test Frequency :2442 MHz
 Test Mode :TX CH MID
 EUT Pol :NB Plane

Test Site :SAC G
 Test Date :2021-10-25
 Temp./Humi. :23.2/67
 Antenna Pol. :Vertical
 Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4884.000	Average	28.83	3.30	32.13	54.00	-21.87
4884.000	Peak	37.62	3.30	40.92	74.00	-33.08
7326.000	Average	25.40	7.68	33.07	54.00	-20.93
7326.000	Peak	33.77	7.68	41.45	74.00	-32.55

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Report Number :E2/2021/A0063

Test Site :SAC G

Operation Mode :BLE 1M

Test Date :2021-10-25

Test Frequency :2442 MHz

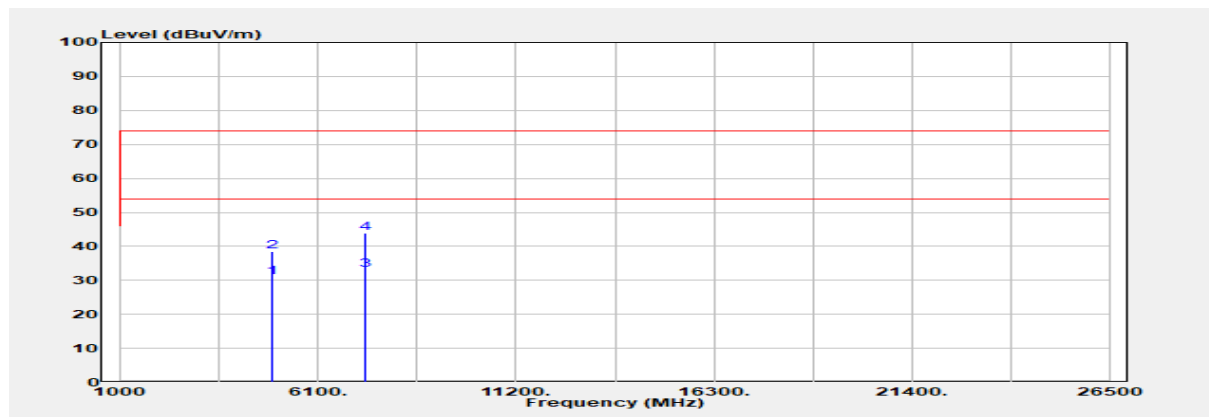
Temp./Humi. :23.2/67

Test Mode :TX CH MID

Antenna Pol. :Horizontal

EUT Pol :NB Plane

Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4884.000	Average	27.57	3.30	30.87	54.00	-23.13
4884.000	Peak	35.22	3.30	38.52	74.00	-35.48
7326.000	Average	25.41	7.68	33.09	54.00	-20.91
7326.000	Peak	36.22	7.68	43.90	74.00	-30.10

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Report Number :E2/2021/A0063

Test Site :SAC G

Operation Mode :BLE 1M

Test Date :2021-10-25

Test Frequency :2480 MHz

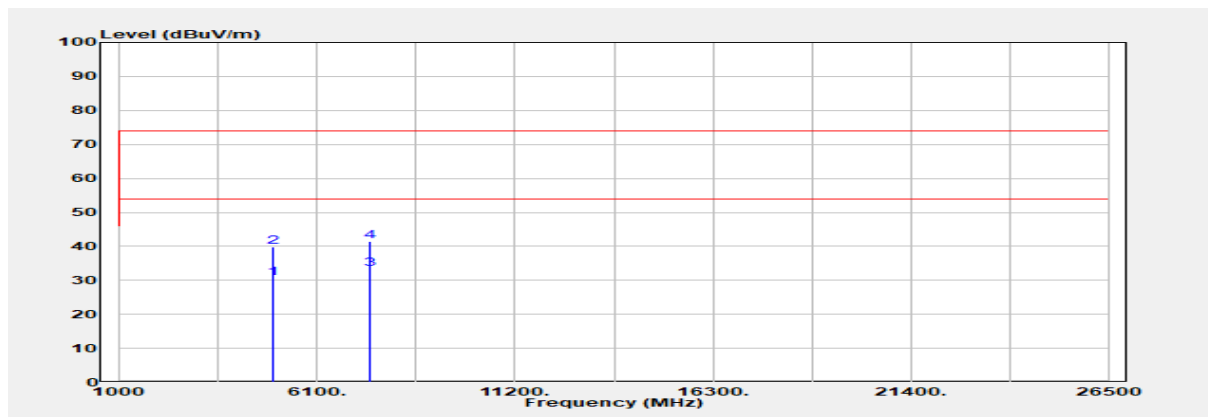
Temp./Humi. :23.2/67

Test Mode :TX CH HIGH

Antenna Pol. :Vertical

EUT Pol :NB Plane

Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4960.000	Average	27.31	3.42	30.73	54.00	-23.27
4960.000	Peak	36.40	3.42	39.82	74.00	-34.18
7440.000	Average	25.24	8.11	33.35	54.00	-20.65
7440.000	Peak	33.45	8.11	41.56	74.00	-32.44

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Report Number :E2/2021/A0063

Test Site :SAC G

Operation Mode :BLE 1M

Test Date :2021-10-25

Test Frequency :2480 MHz

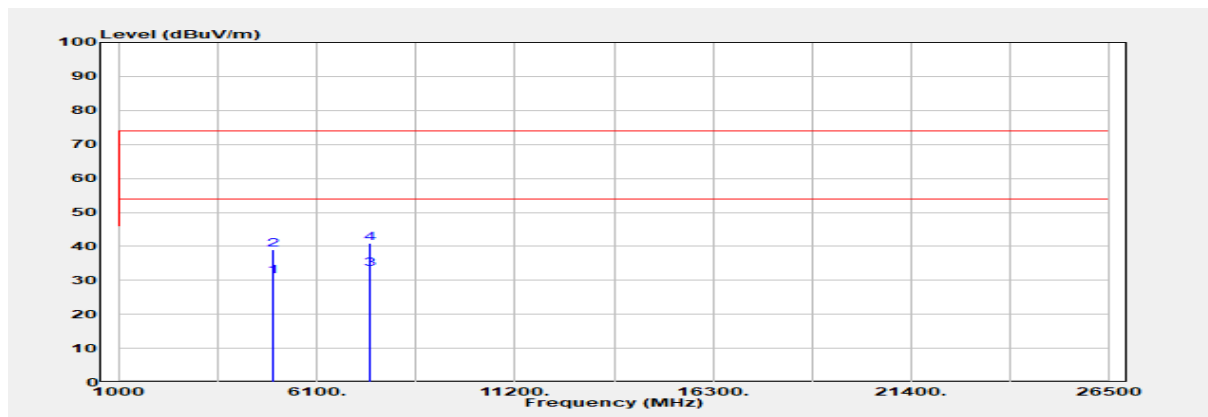
Temp./Humi. :23.2/67

Test Mode :TX CH HIGH

Antenna Pol. :Horizontal

EUT Pol :NB Plane

Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4960.000	Average	27.80	3.42	31.22	54.00	-22.78
4960.000	Peak	35.67	3.42	39.09	74.00	-34.91
7440.000	Average	25.17	8.11	33.28	54.00	-20.72
7440.000	Peak	32.78	8.11	40.89	74.00	-33.11

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Report Number :E2/2021/A0063

Test Site :SAC G

Operation Mode :BLE 2M

Test Date :2021-10-25

Test Frequency :2402 MHz

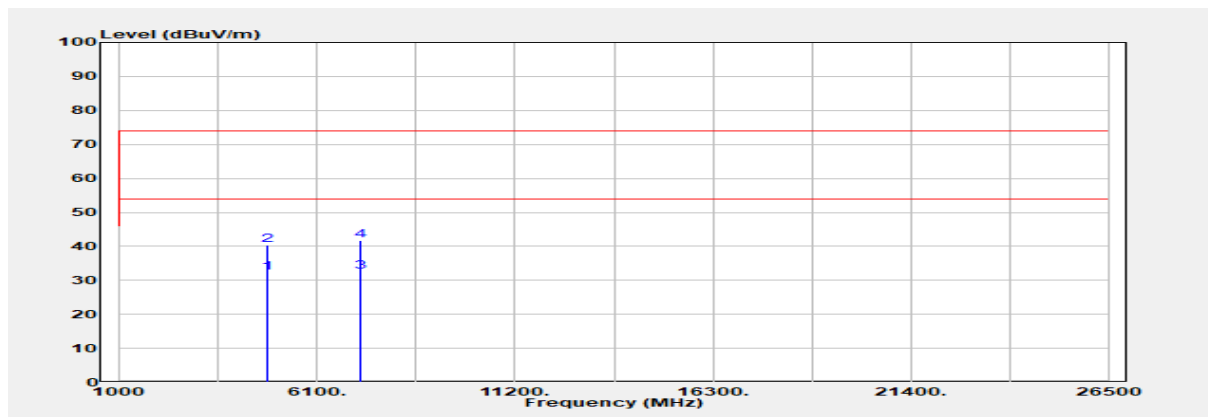
Temp./Humi. :23.2/67

Test Mode :TX CH LOW

Antenna Pol. :Vertical

EUT Pol :NB Plane

Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4804.000	Average	29.19	3.14	32.32	54.00	-21.68
4804.000	Peak	37.37	3.14	40.51	74.00	-33.49
7206.000	Average	25.20	7.22	32.42	54.00	-21.58
7206.000	Peak	34.61	7.22	41.83	74.00	-32.17

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Report Number :E2/2021/A0063

Test Site :SAC G

Operation Mode :BLE 2M

Test Date :2021-10-25

Test Frequency :2402 MHz

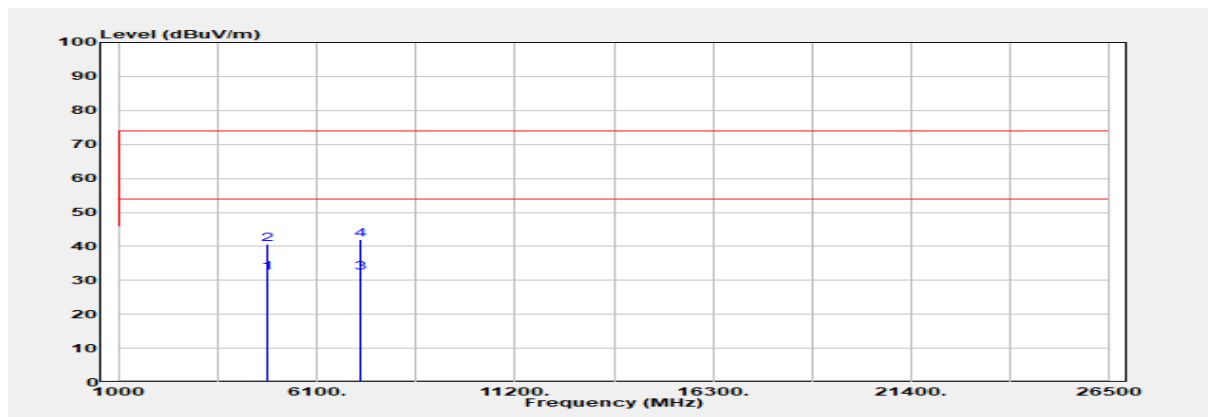
Temp./Humi. :23.2/67

Test Mode :TX CH LOW

Antenna Pol. :Horizontal

EUT Pol :NB Plane

Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4804.000	Average	29.07	3.14	32.21	54.00	-21.79
4804.000	Peak	37.58	3.14	40.72	74.00	-33.28
7206.000	Average	25.07	7.22	32.29	54.00	-21.71
7206.000	Peak	34.82	7.22	42.04	74.00	-31.96

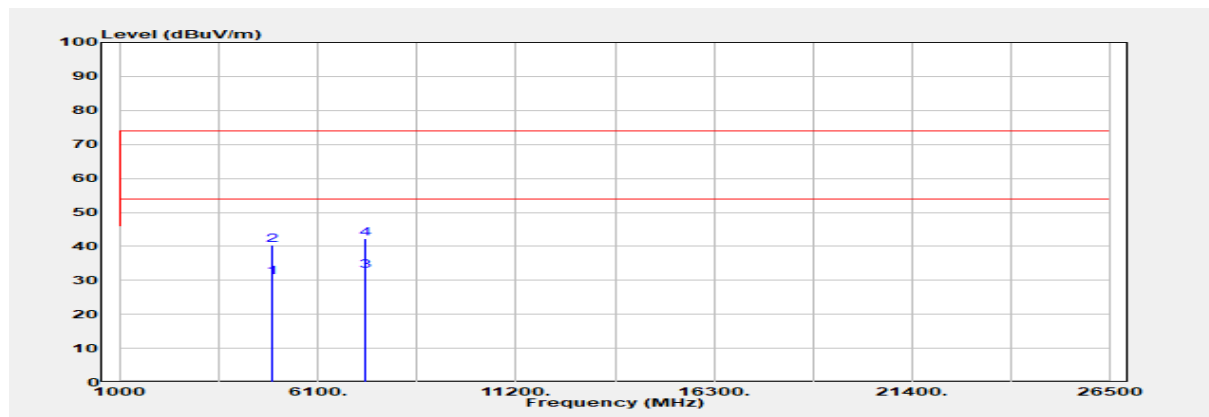
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Report Number :E2/2021/A0063
 Operation Mode :BLE 2M
 Test Frequency :2442 MHz
 Test Mode :TX CH MID
 EUT Pol :NB Plane

Test Site :SAC G
 Test Date :2021-10-25
 Temp./Humi. :23.2/67
 Antenna Pol. :Vertical
 Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4884.000	Average	27.54	3.30	30.84	54.00	-23.16
4884.000	Peak	37.11	3.30	40.41	74.00	-33.59
7326.000	Average	25.20	7.68	32.88	54.00	-21.12
7326.000	Peak	34.59	7.68	42.27	74.00	-31.73

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Report Number :E2/2021/A0063

Test Site :SAC G

Operation Mode :BLE 2M

Test Date :2021-10-25

Test Frequency :2442 MHz

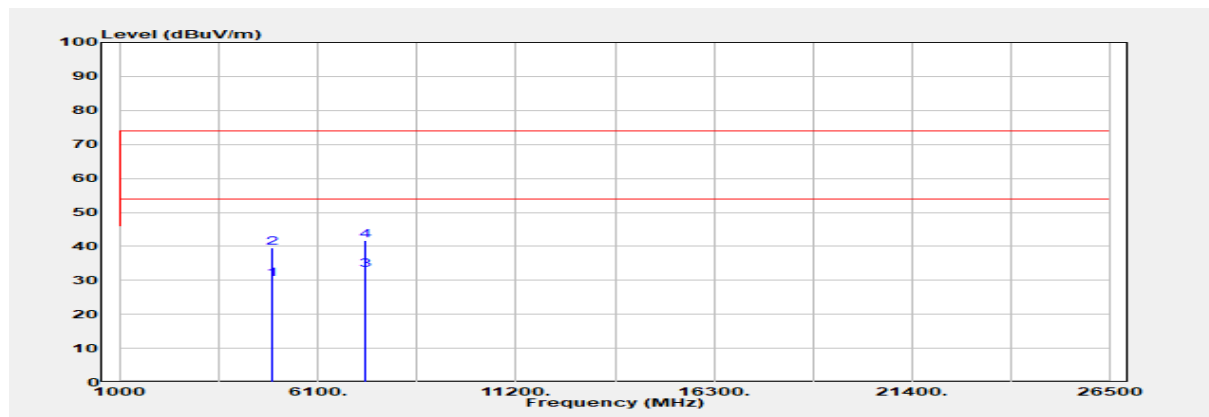
Temp./Humi. :23.2/67

Test Mode :TX CH MID

Antenna Pol. :Horizontal

EUT Pol :NB Plane

Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4884.000	Average	26.98	3.30	30.28	54.00	-23.72
4884.000	Peak	36.31	3.30	39.61	74.00	-34.39
7326.000	Average	25.34	7.68	33.02	54.00	-20.98
7326.000	Peak	34.00	7.68	41.68	74.00	-32.32

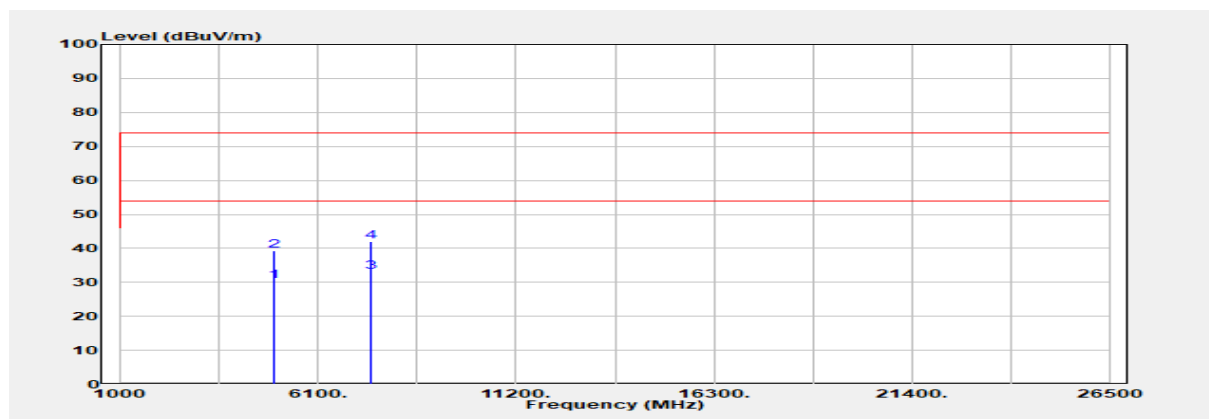
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Report Number :E2/2021/A0063
 Operation Mode :BLE 2M
 Test Frequency :2480 MHz
 Test Mode :TX CH HIGH
 EUT Pol :NB Plane

Test Site :SAC G
 Test Date :2021-10-25
 Temp./Humi. :23.2/67
 Antenna Pol. :Vertical
 Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4960.000	Average	26.94	3.42	30.36	54.00	-23.64
4960.000	Peak	35.86	3.42	39.28	74.00	-34.72
7440.000	Average	25.03	8.11	33.14	54.00	-20.86
7440.000	Peak	33.83	8.11	41.94	74.00	-32.06

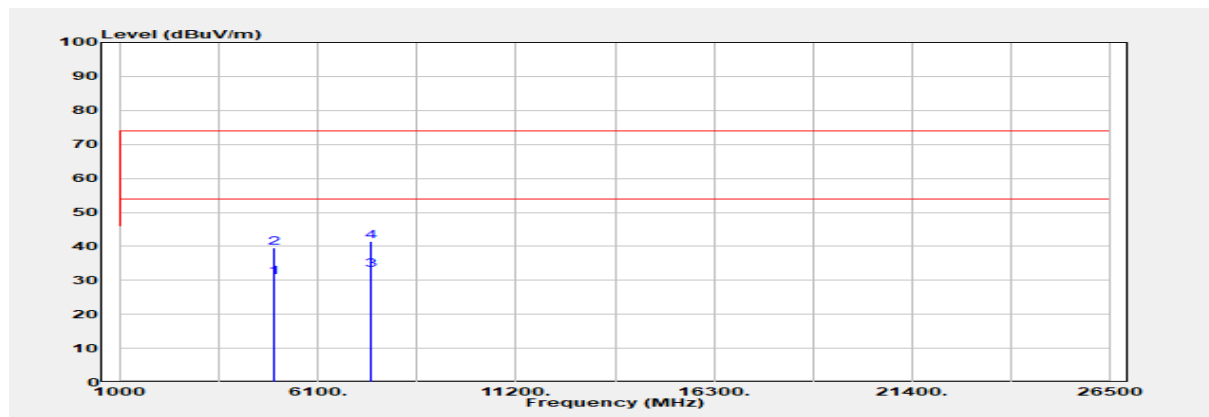
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Report Number :E2/2021/A0063
 Operation Mode :BLE 2M
 Test Frequency :2480 MHz
 Test Mode :TX CH HIGH
 EUT Pol :NB Plane

Test Site :SAC G
 Test Date :2021-10-25
 Temp./Humi. :23.2/67
 Antenna Pol. :Horizontal
 Engineer :Jason Yeh



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4960.000	Average	27.34	3.42	30.76	54.00	-23.24
4960.000	Peak	36.27	3.42	39.69	74.00	-34.31
7440.000	Average	25.05	8.11	33.16	54.00	-20.84
7440.000	Peak	33.43	8.11	41.54	74.00	-32.46

~ End of Report ~

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