

低功率射頻器材試驗報告



申請廠商	思維寶藍科技有限公司 台北市中山區復興北路150號7樓
製造廠商	Shokz Holding Limited Room 2603A, 26/F., Tower 1, Lippo Centre, 89 Queensway, Admiralty, Hong Kong
產品名稱	OpenComm
廠牌	SHOKZ
型號	C102
型號差異	N/A
報告號碼	E2/2021/80050
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Approved By:

黃威豪

黃威豪

待測裝置已於台灣檢驗科技股份有限公司射頻實驗中心，依據國家通訊傳播委員會於中華民國一百零九年七月頒佈之低功率射頻器材技術規範測試。

台灣檢驗科技股份有限公司根據此條文規範項目測試，測試各項數據皆能符合此規範規定之限度值。

報告中所描述之測試結果和待測設備的架構組合，均根據實際量測情況作詳實的記錄，且本測試報告僅對上述待測樣品負責。

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By
E2/2021/80050	00	Original	民國 110 年 9 月 8 日	張嘉芳

Note:

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

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1 測試實驗室資料

1.1 認可登錄資訊:

實驗室認可登錄： 中華民國實驗室認證體系

認可編號： TAF 3702

認證有效期間： 110年06月14日起至113年06月13日止

實驗室名稱： 台灣檢驗科技股份有限公司射頻實驗中心

實驗室地址： 新北市新北產業園區五工路134號

電話： 886-2-22993939

傳真： 886-2-22982698

1.2 實驗室場地資訊

測試場地	測試場地編號		
	SAC 1	SAC 3	Conduction 1
新北市新北產業園區五工路 134 號	Conducted 1	Conducted 2	Conducted 3
	Conducted 4	Conducted 5	Conducted 6
	SAC C	SAC D	SAC G
桃園市龜山區(華亞科技園區)科技一路 2 號	Conduction C	Conducted A	Conducted B
	Conducted C	Conducted D	Conducted E
	Conducted F	Conducted G	
註: 測試場地編號記錄於每項測試之儀器清單, 用以表示測試場地地址。			

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2 實驗室量測不確定度

量測項目	量測不確定度			
	(擴充不確定度)			
傳導干擾量測	電源線	0.15-30MHz	2.34	dB
輻射干擾量測 (3m 測距)	水平極化	9kHz - 30MHz	2.64	dB
		30-1000MHz	4.45	dB
		1-18GHz	4.81	dB
		18-40GHz	4.52	dB
	垂直極化	9kHz - 30MHz	2.64	dB
		30-1000MHz	4.93	dB
		1-18GHz	4.81	dB
		18-40GHz	4.52	dB
頻率誤差量測			1.53	Hz
輸出功率	傳導方式		1	dB
有效輻射功率 (輻射方式)	水平極化	30-1000MHz	2	dB
		1-40GHz	3	dB
	垂直極化	30-1000MHz	2.33	dB
		1-40GHz	3	dB
功率頻譜密度	傳導方式		1.53	dB
鄰頻道功率量測 (輻射方式)	水平極化	30-1000MHz	2	dB
	垂直極化	30-1000MHz	2.33	dB
Transmitter Spurious Emission		33GHz-50GHz	3.8	dB
		50GHz-60GHz	4.67	dB
		60GHz-90GHz	4.81	dB
		90GHz-140GHz	4.57	dB
		140GHz-200GHz	5.42	dB

附註: 1. K=2 即代表測試結果具有95%的量測可信度。

2. 本報告中的符合性判定僅依據試驗結果，不考慮其試驗結果的量測不確定度。

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3 一般資料

3.1 產品描述

產品名稱	OpenComm	
廠牌	SHOKZ	
型號	C102	
型號差異	N/A	
USB Cable	Model No.: C102 Brand: SHOKZ	
使用電源	3.8Vdc from Li-Polymer battery	
	Battery	Model No.: AEC541329 Brand: Apower Electronics Co.,Ltd

3.2 射頻特性

發射頻帶	2402MHz – 2480MHz
輸出功率	10.72 dBm (Peak)
調變方式	BT BR(GFSK)+EDR($\pi/4$ DQPSK, 8DPSK)
頻道數	79

3.3 天線資訊

Antenna Type	Brand	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
Integral Antenna	Shenzhen Shokz Co., Ltd.	C102	2400 - 2500	0.00

Note: Antenna information is provided by the applicant.

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3.4 配件資訊

是否附賣		配件	廠牌	型號	Power Rating (Vdc)
Yes	No				
☒	☐	USB Cable	SHOKZ	C102	N/A

以下不附賣配件經申請者切結，器材不隨貨提供並由申請者提供併同檢驗。

是否附賣		配件	廠牌	型號	Power Rating (Vdc)
Yes	No				
☐	☒	Test Kit	iODM	TRBI200	N/A

以下不附賣配件經申請者切結，器材不隨貨提供並由實驗室提供併同檢驗。

是否附賣		配件	廠牌	型號	Power Rating (Vdc)
Yes	No				
☐	☒	Adapter	HONG SHAING	MUC-5K	5

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4 測試方法依據

本測試報告之所有項目皆依據國家通訊傳播委員會低功率射頻器材技術規範(LP0002, 109.7.1 版本)如無國家標準可適用者，得依美國 EIA、IEEE ANSI 檢驗法檢驗，及美國 FCC 47 CFR Part 2 有關檢驗之規定及參考 ANSI C63.10:2013、FCC CFR 47 15.247 之檢驗法。

項次	測試項目	適用規範	測試結果
1	電源線傳導干擾	低功率射頻器材技術規範 3.3節	符合
2	禁用頻道輻射發射	低功率射頻器材技術規範 3.5 & 3.6節	符合
3	天線增益要求	低功率射頻器材技術規範 4.10.1.3 (1) 節	符合
4	輸出峰值功率	低功率射頻器材技術規範 4.10.1.2.(A)、(B) 節	符合
5	頻帶邊緣發射	低功率射頻器材技術規範 4.10.1.5節	符合
6	20dB頻寬	低功率射頻器材技術規範 4.10.1.6.(1) (A) 節	符合
7	載波頻率間隔	低功率射頻器材技術規範 4.10.1.6.(1) (A) 節	符合
8	載波頻率佔用週期	低功率射頻器材技術規範 4.10.1.6.(1) (A)(a) 節	符合
9	頻道數量	低功率射頻器材技術規範 4.10.1.6.(1) (A)(a) 節	符合

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5 測試模式

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	PACKET TYPE
RADIATED EMISSION TEST (BELOW 1 GHz)				
Bluetooth	0 to 78	39	GFSK	DH5
RADIATED EMISSION TEST (ABOVE 1 GHz)				
Bluetooth	0 to 78	0,39,78	GFSK/8-DPSK	DH5/3DH5
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 position was reported.				

ANTNNA PORT CONDUCTED TEST				
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	PACKET TYPE
Peak Output Power, 20dB Band Width				
Bluetooth	0 to 78	0,39,78	GFSK	DH5
	0 to 78	0,39,78	$\pi/4$ -DQPSK	2DH5
	0 to 78	0,39,78	8-DPSK	3DH5
Band Edge				
Bluetooth	0 to 78	0,78	GFSK/8-DPSK	DH5/3DH5
Frequency Separation				
Bluetooth	0 to 78	0,1,2,38,39,40,76,77,78	GFSK $\pi/4$ -DQPSK 8-DPSK	DH5/2DH5/3DH5
Number of hopping frequency				
Bluetooth	0 to 78	0 to 78	GFSK/8-DPSK	DH5/3DH5
Time of Occupancy(Dwell time)				
Bluetooth	0 to 78	39	GFSK	DH1/DH3/DH5
			$\pi/4$ -DQPSK	2DH1/2DH3/2DH5
			8-DPSK	3DH1/3DH3/3DH5

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6 適用規範

禁用頻帶限制之規定

依據NCC低功率射頻器材技術規範3.5節之要求，任何低功率射頻器材之主波皆不得使用下表所列各頻帶內之頻率；低功率射頻器材落於下表所列頻帶內之混附發射，其電場強度必須符合第3.6節的限制規定。

頻率 (MHz)	頻率 (MHz)	頻率 (MHz)
0.090~0.110	240.00~285.00	3332.0~3339.0
0.490~0.510	322.00~335.40	3345.8~3358.0
2.172~2.198	399.90~410.00	3500.0~4400.0
3.013~3.033	485.00~510.00	4500.0~5250.0
4.115~4.198	608.00~614.00	5350.0~5460.0
5.670~5.690	703.00~748.00	7250.0~7750.0
6.200~6.300	758.00~803.00	8025.0~8500.0
8.230~8.400	825.00~915.00	9000.0~9200.0
12.265~12.600	930.00~1240.0	9300.0~9500.0
13.340~13.430	1300.0~1427.0	10600~12700
14.965~15.020	1435.0~1626.5	13250~13400
16.700~16.755	1660.0~1785.0	14470~14500
19.965~20.020	1805.0~1880.0	15350~16200
25.500~25.700	1885.0~1900.0	17700~21400
37.475~38.275	1905.0~1985.0	22010~23120
73.500~75.400	2010.0~2025.0	23600~24000
108.00~138.00	2110.0~2170.0	31200~31800
149.90~150.05	2200.0~2300.0	36430~36500
156.70~156.90	2310.0~2390.0	38600 以上
162.01~167.17	2483.5~2900.0	
167.72~173.20	3260.0~3267.0	

依據NCC低功率射頻器材技術規範3.9節之要求，低功率射頻電機之收、發信機為成套銷售者，收、發信機應一併送審或提供經型式認證合格之對應收、發信機之送審資料；收信機之輻射電場強度不得超過3.6之發射規定，且不得解調3.5所列之頻率。

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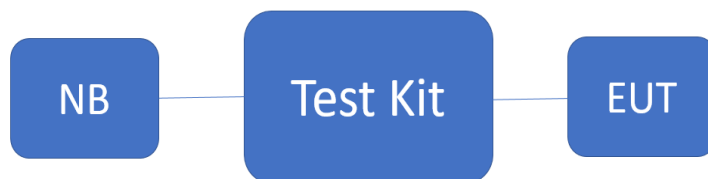
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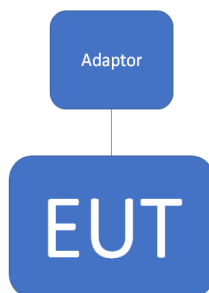
7 測試配置

7.1 待測物與測試週邊配置圖

7.1.1 Conducted Setup & Radiated Setup



7.1.2 Conduction Setup & Radiated Setup_Fully System



7.2 測試週邊描述

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Notebook	Lenovo	L430	P0000195	N/A	N/A
Test Kit	iODM	TRBI200	N/A	N/A	N/A
USB Cable	SHOKZ	C102	PJ218065	N/A	N/A
Adapter	HONG SHAING	MUC-5K	AC-USB012	N/A	N/A

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8 電源線傳導干擾量測

8.1 適用標準

依據NCC低功率射頻器材技術規範之3.3節，以市電為電源之低功率射頻器材，其傳導回電源線上頻率自150 kHz~30 百萬赫(MHz)之射頻電壓(在電源端子每一電源線對接地點)應小於或等於下表所列之限制值。測量時應經過50 微亨利(uH)及50 歐姆(Ω)之電源線阻抗穩定網路(Line Impedance Stabilization Network; LISN)。頻率重疊處，以較低限制值為準。

頻率(MHz)	傳導限制值 (dBuV)	
	準峰值 (Quasi – peak)	平均值 (Average)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5	56	46
5 – 30	60	50

8.2 量測儀器

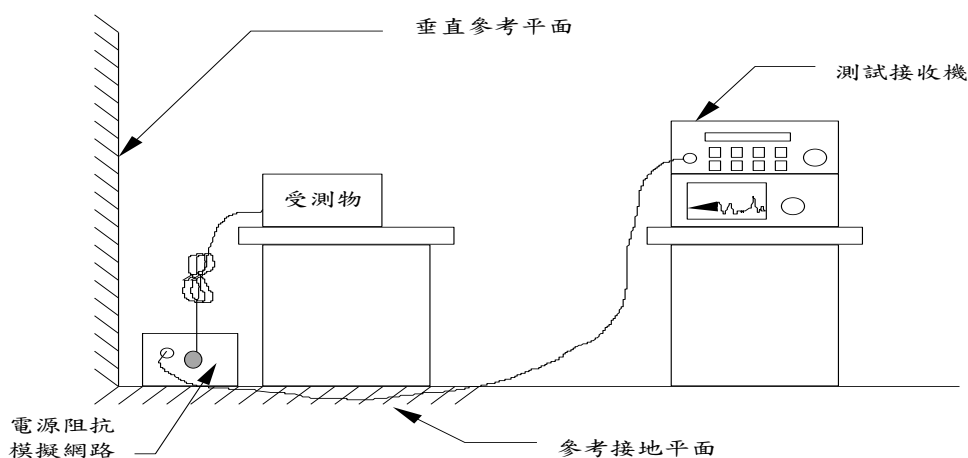
Radiated Emission Test Site: Conduction C					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Test Software	audix	e3	Ver. 6.11-20180419c	N.C.R	N.C.R
LISN	SCHWARZBECK Mess-Elektronik	NSLK8127	974	04/19/2021	04/18/2022
EMI Test Receiver	R&S	ESCI	101342	04/28/2021	04/27/2022
Coaxial Cable	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
Test Software	audix	e3	20923 sgs Ver.9	N.C.R	N.C.R
Adapter	HONG SHAING	MUC-5K	AC-USB012	N.C.R	N.C.R
USB Cable	SHOKZ	C102	PJ218065	N.C.R	N.C.R

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8.3 測試配置



8.4 測試方法

將待測物置於0.8米高的非金屬桌面，使其在工作狀態，待測物電源線接至電源線阻抗穩定網路上，從測試接收機記錄頻率由 0.15MHz 至 30MHz 之間之電源線傳導放射強度的峰值量側(Peak)並提供掃描圖, Mark 最大的六個頻率點進行準峰值量測(QP),如果準峰值QP結果值已低於AV限制值時將不再進行AV值的量測。

8.5 干擾值計算

電源傳導干擾電壓之計算公式 =

儀器讀值(QP/AV) + 校正因子 (饋線損失 + 電源阻抗模擬網路損失)

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8.6 量測結果:

Report Number : E2/2021/80050

Test Site :Conduction C

Test Mode :System

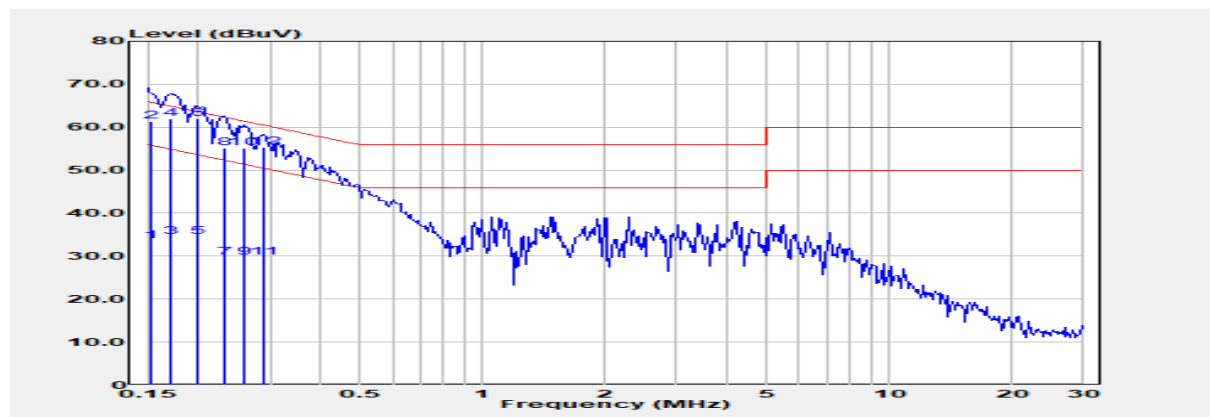
Test Date :2021-08-17

Power :110V/60Hz

Temp./Humi. :24.4/54

Probe :L1

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
0.153	Average	23.10	10.30	33.40	55.82	-22.42
0.153	QP	51.10	10.30	61.40	65.82	-4.42
0.170	Average	24.10	10.30	34.40	54.94	-20.54
0.170	QP	51.60	10.30	61.90	64.94	-3.04
0.200	Average	24.10	10.30	34.40	53.62	-19.22
0.200	QP	51.60	10.30	61.90	63.62	-1.72
0.232	Average	19.40	10.30	29.70	52.39	-22.69
0.232	QP	44.80	10.30	55.10	62.39	-7.29
0.258	Average	19.40	10.30	29.70	51.51	-21.81
0.258	QP	44.90	10.30	55.20	61.51	-6.31
0.289	Average	19.40	10.30	29.70	50.54	-20.84
0.289	QP	45.00	10.30	55.30	60.54	-5.24

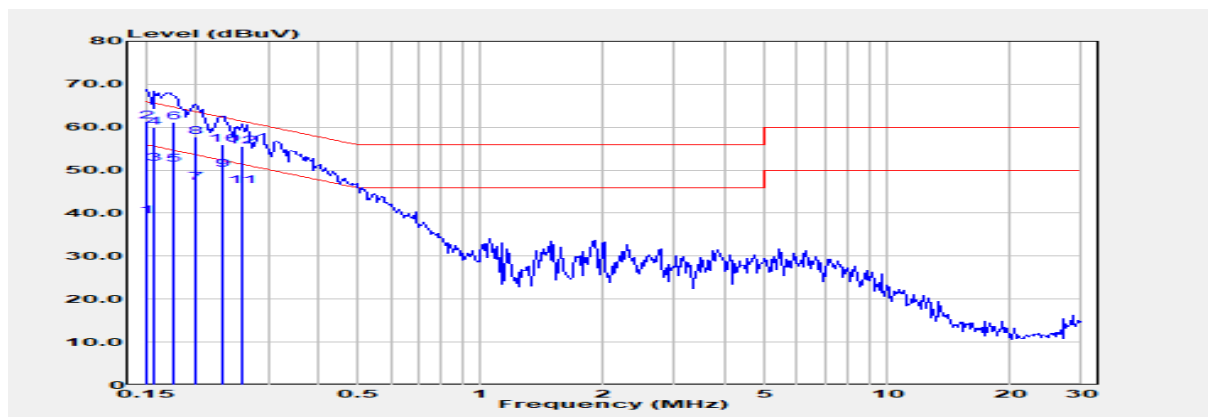
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Report Number : E2/2021/80050
Test Mode : System
Power : 110V/60Hz
Probe : N

Test Site : Conduction C
Test Date : 2021-08-17
Temp./Humi. : 24.4/54
Engineer : Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
0.150	Average	29.00	10.31	39.31	56.00	-16.69
0.150	QP	51.00	10.31	61.31	66.00	-4.69
0.158	Average	41.20	10.31	51.51	55.56	-4.05
0.158	QP	49.70	10.31	60.01	65.56	-5.55
0.176	Average	41.00	10.30	51.30	54.68	-3.38
0.176	QP	50.90	10.30	61.20	64.68	-3.48
0.200	Average	36.80	10.30	47.10	53.62	-6.52
0.200	QP	47.50	10.30	57.80	63.62	-5.82
0.232	Average	39.90	10.30	50.20	52.39	-2.19
0.232	QP	45.60	10.30	55.90	62.39	-6.49
0.258	Average	36.00	10.31	46.31	51.51	-5.20
0.258	QP	45.30	10.31	55.61	61.51	-5.90

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9 輸出峰值功率量測

9.1 適用標準

依據 NCC 低功率射頻器材技術規範 4.10.1.2 (A)之規定，操作於 2400-2483.5 MHz，並至少使用 75 個跳頻頻道之跳頻系統，其峰值輸出功率不得大於 1 Watt。除前項 4.10.1.2 (A)以外，依 4.10.1.6(2)(B)其他限制事項 4.10.1.6(1)(A)，所有操作於 2400-2483.5 兆赫(MHz)之跳頻系統：0.125 瓦(W)(含)以下，且其所使用天線之增益不可大於 6dBi；若使用大於 6dBi 增益之天線，則其輸出峰值功率相對需衰減天線增益所增加之量(單位為 dB)。

依據NCC低功率射頻器材技術規範4.10.1.3之規定，進行固定式點對點操作時，應符合下列情現之一：依據NCC低功率射頻器材技術規範4.10.1.3 (1)之規定，操作頻率為2400-2483.5 兆赫(MHz)者，其發射天線之方向性增益超過6dBi，每超過3dB應降低1dB之最大傳導輸出功率。

依據NCC低功率射頻器材技術規範4.10.1.3 (2)之規定，操作頻率為5725-5850兆赫(MHz)者，其發射天線之方向性增益超過6dBi，不需降低最大傳導輸出功率。

依據NCC低功率射頻器材技術規範4.10.1.3 (3)之規定，用於點對多點操作時，如其發射天線之方向性增益超過 6dBi，應依所超過之dB數等量降低最大傳導輸出功率。

註：固定式點對點操作使用方式，並不包括使用點對多點之系統、全向性之應用以及發射相同資訊之共同安裝的多重發射機。展頻或數位調變之發射器需要專業安裝，該設備操作者或安裝者有責任確認該系統是限用於固定式、點對點之操作，隨機所附之使用手冊必須包含此訊息以告知使用者或安裝者須負之責任。

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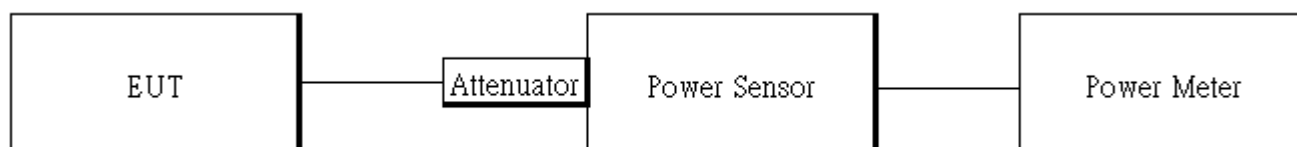
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9.2 量測儀器

Conducted Emission Test Site: Conducted G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1326001	08/12/2021	08/11/2022
Power Sensor	Anritsu	MA2411B	1315048	08/12/2021	08/11/2022
Power Sensor	Anritsu	MA2411B	1315049	08/12/2021	08/11/2022
Attenuator	Marvelous	WATT-218FS-10	RF18	11/19/2020	11/18/2021
Attenuator	Marvelous	WATT-218FS-10	RF23	11/19/2020	11/18/2021

9.3 測試配置



9.4 量測方法

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows ANSI C63.10 Measurement Guidelines.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Max Hold, Detector = Peak, RBW >=20dB bandwidth)
4. Record the max. reading.
5. Repeat above procedures until all default test channel is completed.

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9.5 量測結果

1M BR mode (Peak):

CH	Freq. (MHz)	Power set	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	070	10.72	11.803	1000
Mid	2441	070	10.00	10.000	1000
High	2480	070	9.33	8.570	1000

1M BR mode (Average):

CH	Freq. (MHz)	Power set	Max. Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	070	8.24	6.661	1000
Mid	2441	070	7.77	5.977	1000
High	2480	070	7.10	5.123	1000

2M EDR mode (Peak):

CH	Freq. (MHz)	Power set	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	060	8.32	6.792	125
Mid	2441	060	7.83	6.067	125
High	2480	060	7.16	5.200	125

2M EDR mode (Average):

CH	Freq. (MHz)	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	060	7.94	6.218	125
Mid	2441	060	7.54	5.671	125
High	2480	060	7.06	5.077	125

3M EDR mode (Peak):

CH	Freq. (MHz)	Power set	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	070	10.48	11.169	125
Mid	2441	070	9.87	9.705	125
High	2480	070	9.32	8.551	125

3M EDR mode (Average):

CH	Freq. (MHz)	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	070	8.10	6.449	125
Mid	2441	070	7.65	5.814	125
High	2480	070	6.98	4.983	125

NOTE: cable loss as 10.5dB that offsets in the spectrum

*Note: Max. Output include tune up tolerance Power measured by using average detector.

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10 20dB 頻寬要求

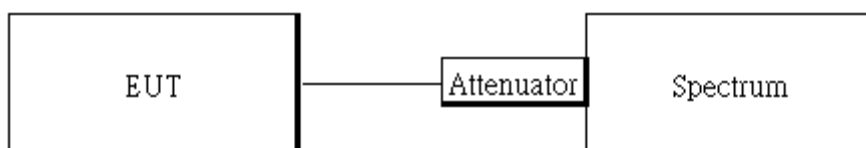
10.1 適用標準

NCC 低功率射頻器材技術規範 4.10.1.6(1)(A) 跳頻系統之載波頻率頻道間隔不得低於 25 千赫 (kHz)或跳頻頻道之 20dB 頻寬，兩者取較寬者。但操作頻率為 2400-2483.5 兆赫(MHz)頻帶且輸出功率不大於 125 毫瓦(mW)跳頻系統，其載波頻率頻道間隔不得小於 25 千赫 (kHz)或跳頻頻道 20dB 頻寬之三分之二，兩者取較寬者。系統之跳頻頻道應依虛擬亂數排列，在各頻率之跳頻頻道上跳躍。每一發射機必須均等的使用每一頻率。系統接收機應具有與發射機跳躍頻道頻寬相匹配之輸入頻寬，且應隨所發射之信號同步偏移接收頻率。

10.2 量測儀器

Conducted Emission Test Site: Conducted G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/01/2021	05/31/2022
Attenuator	Marvelous	MVE2213-10	RF06	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF154	11/19/2020	11/18/2021
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R

10.3 測試配置



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10.4 量測方法

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows ANSI C63.10:2013.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set the spectrum analyzer as
RBW= 1 % to 5% of OBW ,
VBW = 3 X RBW,
Span= 2 to 5 times of the OBW,
Sweep=auto,
Detector = Peak, and Max hold for 20dB Bandwidth test.
5. Mark the peak frequency and -20dB (upper and lower) frequency
6. Repeat above procedures until all test default channel is completed

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10.5 量測結果

GFSK

CH	20 dB BW (MHz)	2/3 BW (MHz)
Low	0.9616	0.64
Mid	0.9626	0.64
High	0.9618	0.64

 $\pi/4$ -DQPSK

CH	20 dB BW (MHz)	2/3 BW (MHz)
Low	1.341	0.89
Mid	1.348	0.90
High	1.347	0.90

8-DPSK

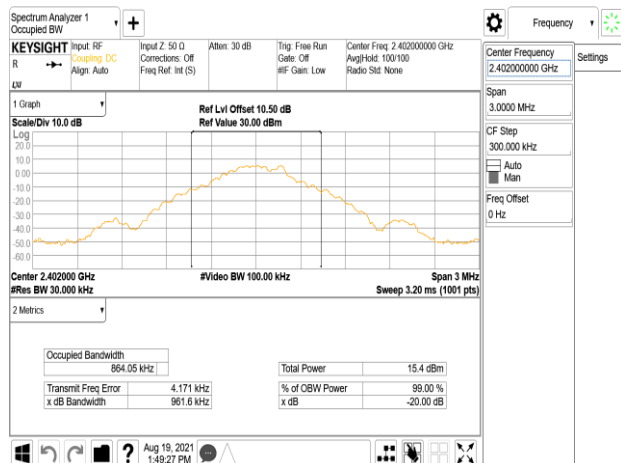
CH	20 dB BW (MHz)	2/3 BW (MHz)
Low	1.313	0.88
Mid	1.317	0.88
High	1.316	0.88

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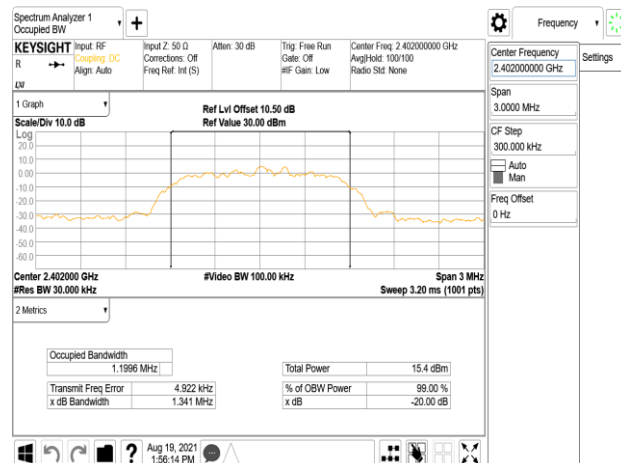
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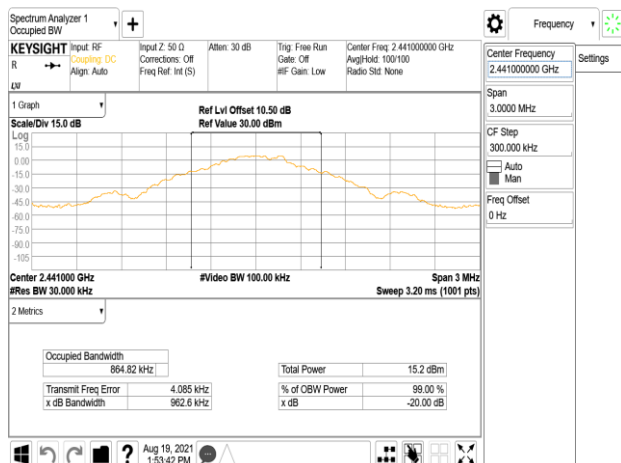
OBW 20dB_GFSK_1M_DH5_2402MHz



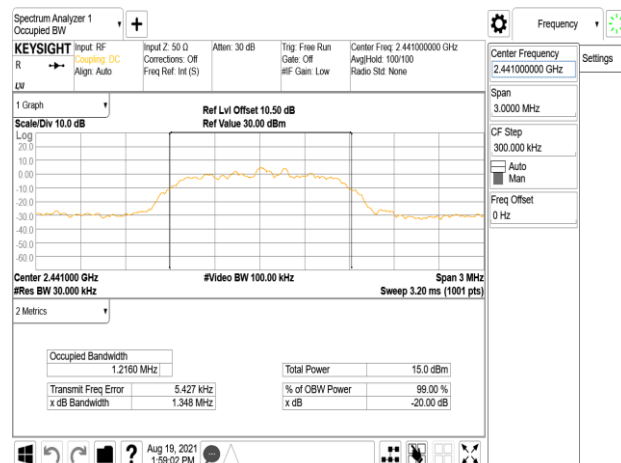
OBW 20dB_π/4DQPSK_2M_DH5_2402MHz



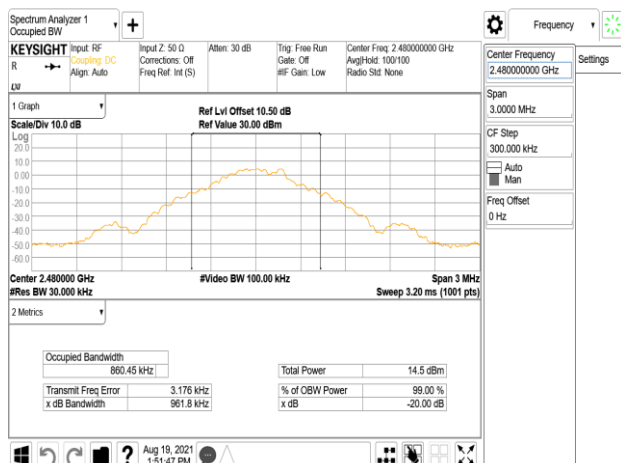
OBW 20dB_GFSK_1M_DH5_2441MHz



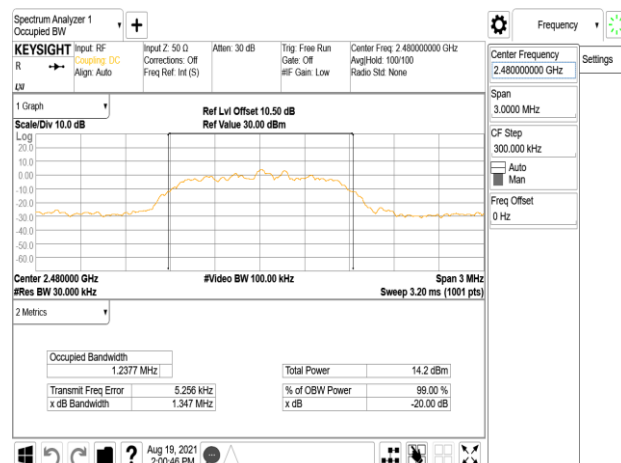
OBW 20dB_π/4DQPSK_2M_DH5_2441MHz



OBW 20dB_GFSK_1M_DH5_2480MHz



OBW 20dB_π/4DQPSK_2M_DH5_2480MHz

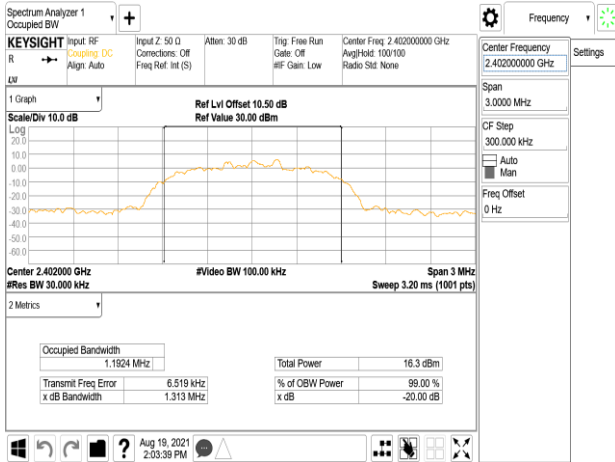


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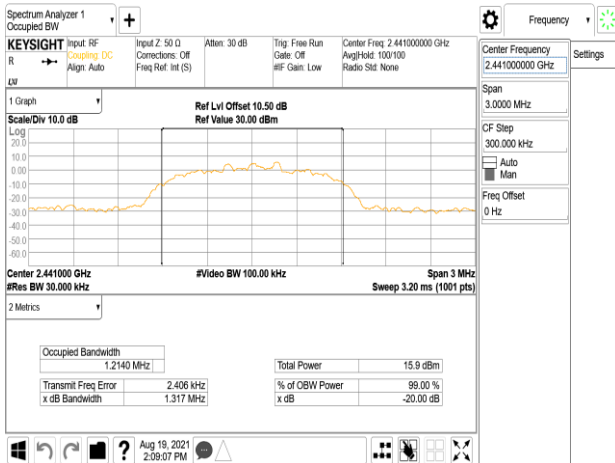
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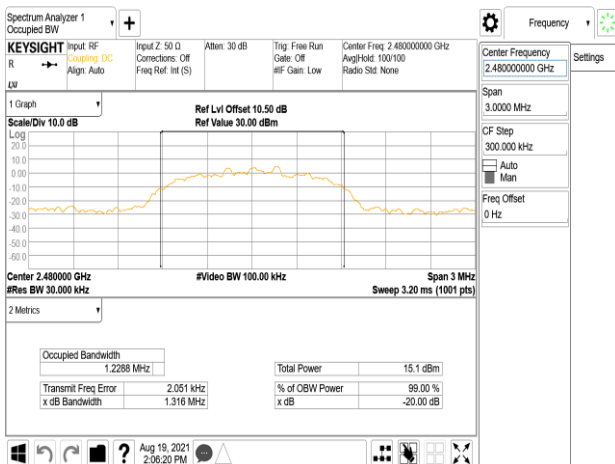
OBW 20dB_8DPSK_3M_DH5_2402MHz



OBW 20dB_8DPSK_3M_DH5_2441MHz



OBW 20dB_8DPSK_3M_DH5_2480MHz



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11 帶外發射限制

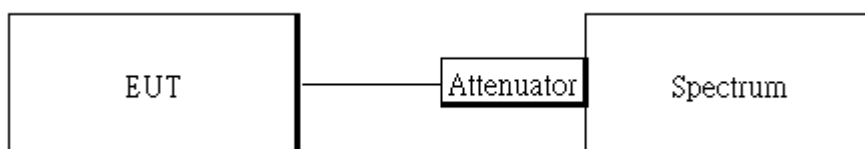
11.1 適用標準

依據 NCC 低功率射頻器材技術規範 4.10.1.5 之規定，發射器所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之 100 千赫內的射頻功率，須衰減 20 分貝(dB)。

11.2 量測儀器

Conducted Emission Test Site: Conducted G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/01/2021	05/31/2022
Attenuator	Marvelous	MVE2213-10	RF06	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF154	11/19/2020	11/18/2021
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R

11.3 測試配置



11.4 量測方法

11.4.1 開放頻帶邊緣量測:

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows ANSI C63.10:2013.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set center frequency of spectrum analyzer = operating frequency.
5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Sweep = auto
6. Mark Peak, 2.3999GHz and 2.4836GHz and record the max. level.
7. Repeat above procedures until all frequency measured were complete.

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11.4.2 發射頻帶外量測:

1. To connect Antenna Port of EUT to Spectrum.
2. The testing follows ANSI C63.10:2013.
3. Set RBW = 100 kHz & VBW = 300 kHz, Detector = Peak, Sweep = Auto
4. Allow trace to fully stabilize.
5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. Repeat above procedures until all default test channel measured were complete.

11.5 量測結果

發射限制測試值 CH-1(下邊緣頻帶): 在 2400.00MHz 之 100kHz 頻寬內最大值皆比主波低 20dB 以上。

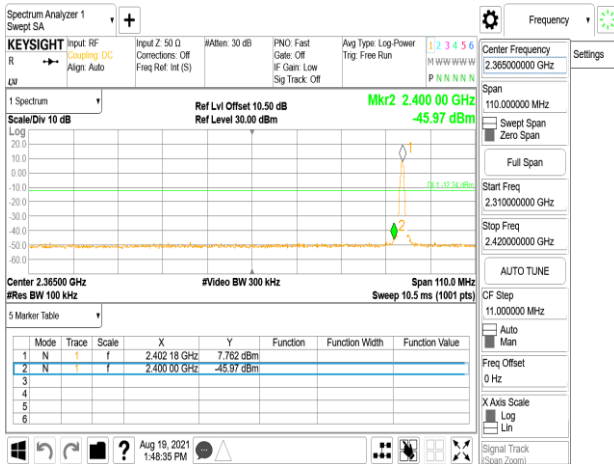
發射限制測試值 CH-79(上邊緣頻帶): 在 2483.5MHz 之 100kHz 頻寬內最大值皆比主波低 20dB 以上。

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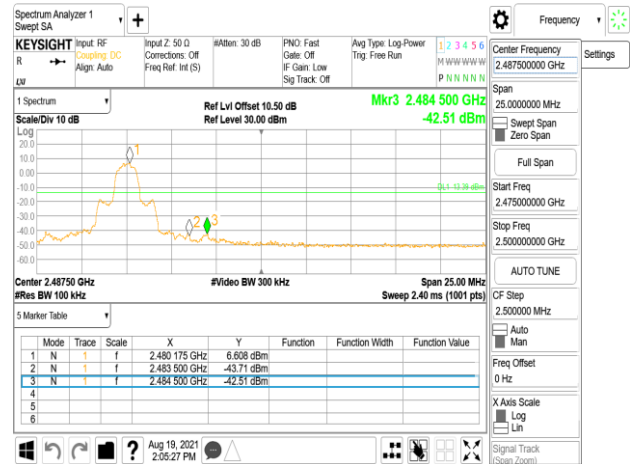
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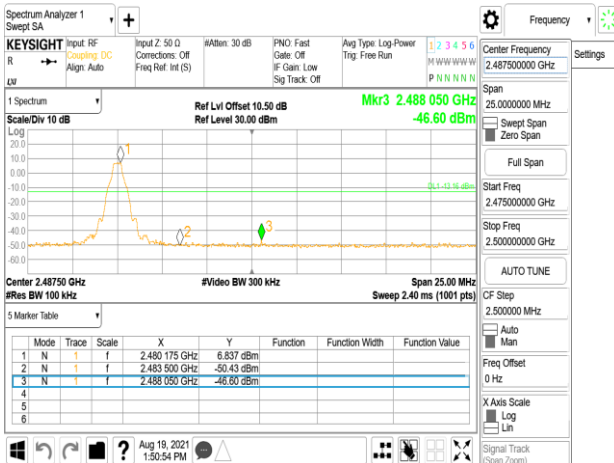
Band Edge_GFSK_1M_DH5_2402MHz



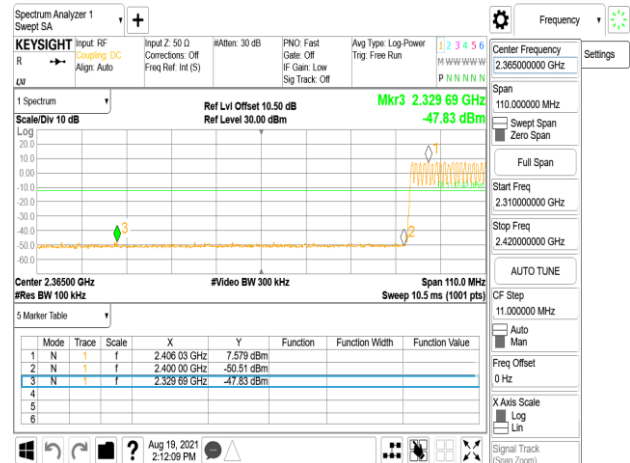
Band Edge_8DPSK_3M_DH5_2480MHz



Band Edge_GFSK_1M_DH5_2480MHz



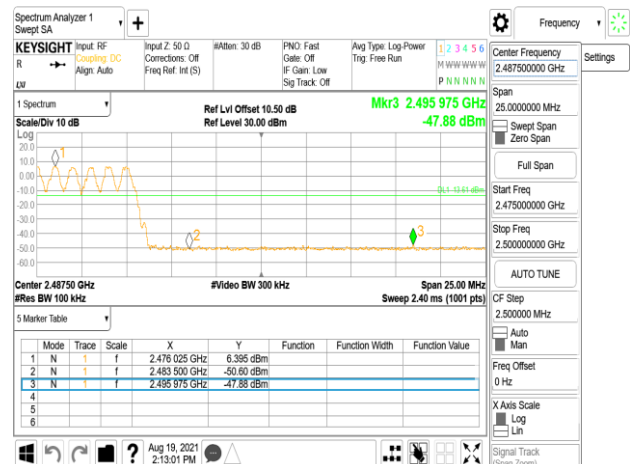
Hopping Band Edge_GFSK_1M_DH5_2402MHz



Band Edge_8DPSK_3M_DH5_2402MHz



Hopping Band Edge_GFSK_1M_DH5_2480MHz

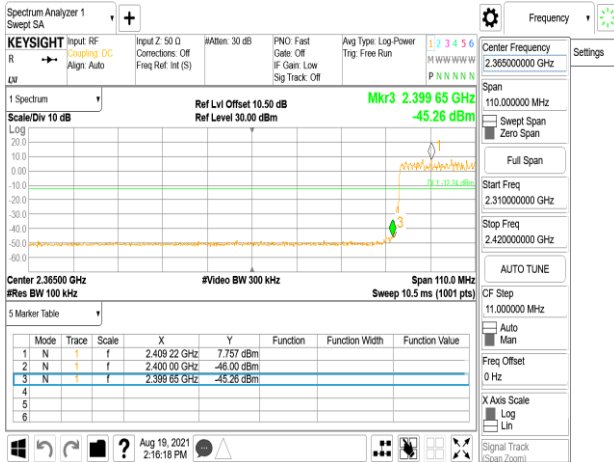


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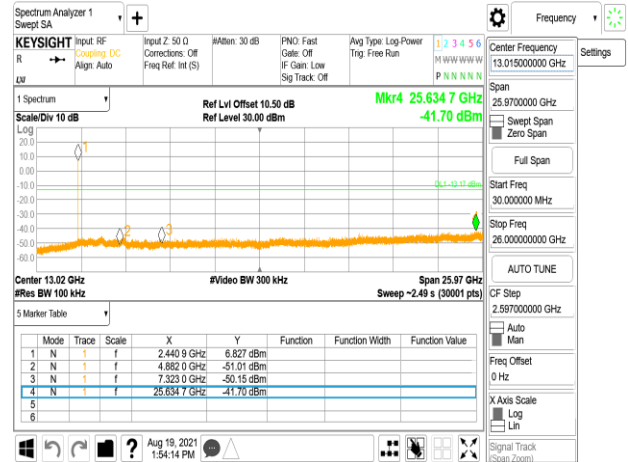
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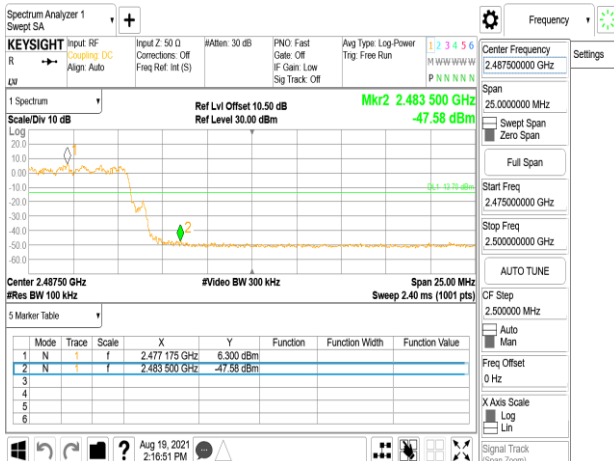
Hopping Band Edge_8DPSK_3M_DH5_2402MHz



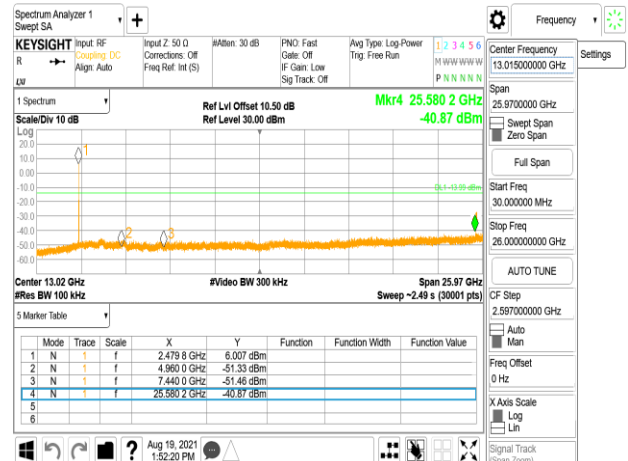
Spurious Emission_GFSK_1M_DH5_2441MHz



Hopping Band Edge_8DPSK_3M_DH5_2480MHz



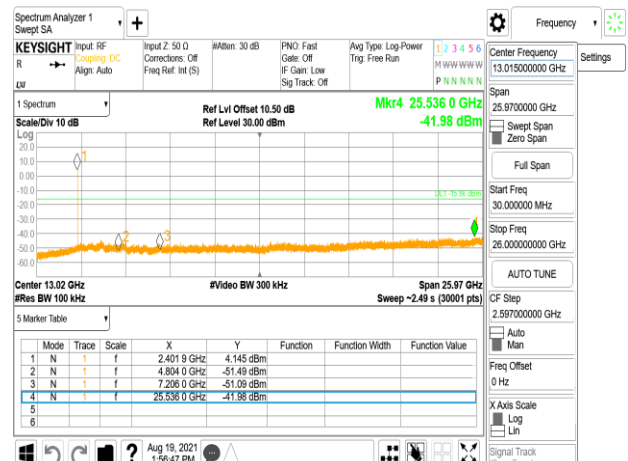
Spurious Emission_GFSK_1M_DH5_2480MHz



Spurious Emission_GFSK_1M_DH5_2402MHz



Spurious Emission_π/4DQPSK_2M_DH5_2402MHz

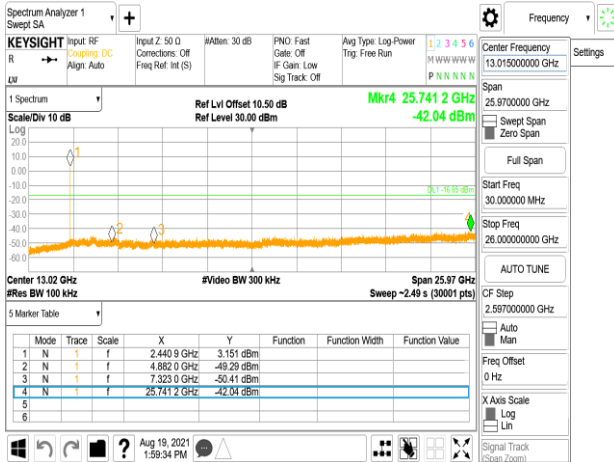


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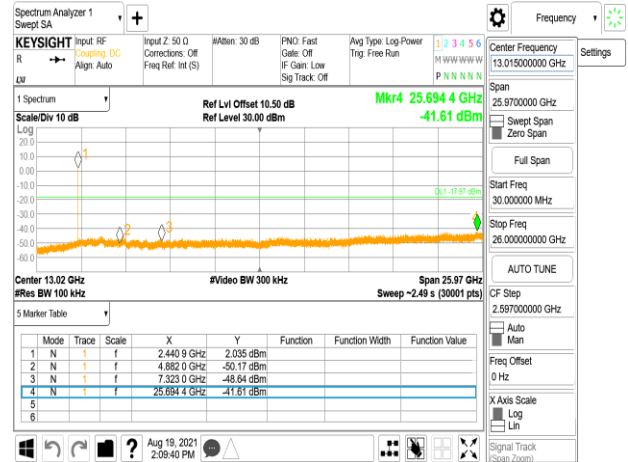
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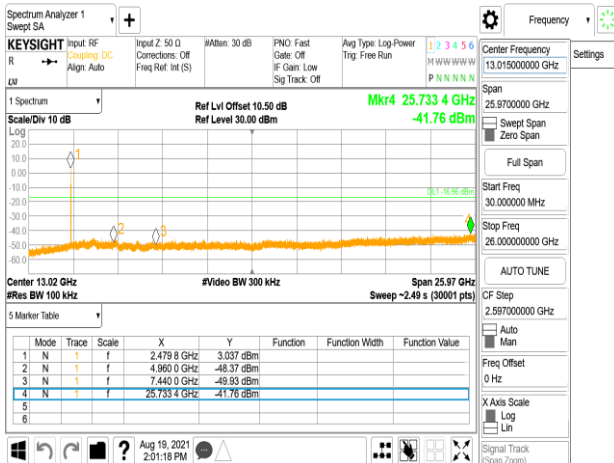
Spurious Emission_π/4DQPSK_2M_DH5_2441MHz



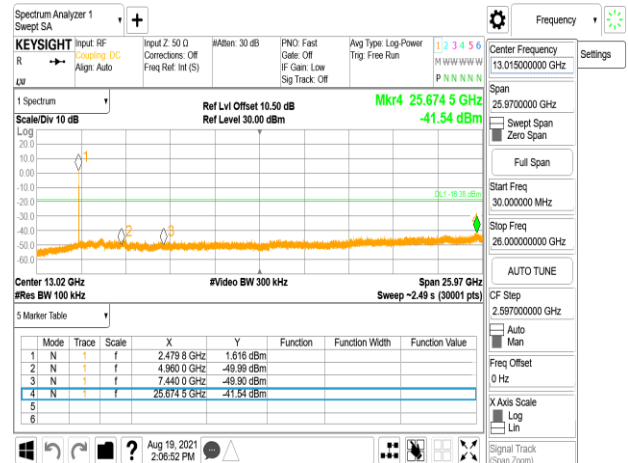
Spurious Emission_8DPSK_3M_DH5_2441MHz



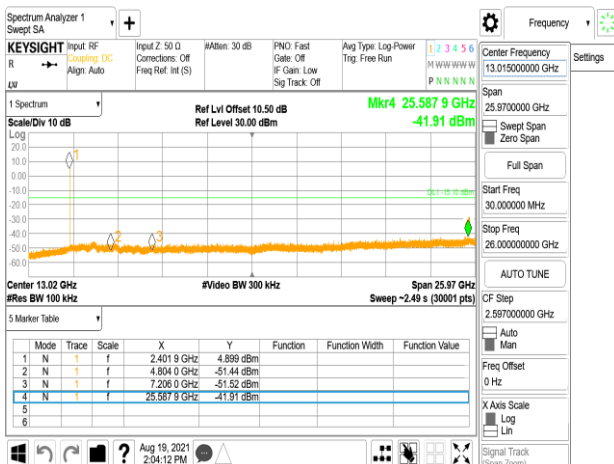
Spurious Emission_π/4DQPSK_2M_DH5_2480MHz



Spurious Emission_8DPSK_3M_DH5_2480MHz



Spurious Emission_8DPSK_3M_DH5_2402MHz



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12 禁用頻帶輻射發射量測

12.1 適用標準

依據NCC低功率射頻器材技術規範3.6 之要求，低功率射頻器材其電場強度應小於或等於下表之限制值，且其不必要之發射皆不得大於主波發射強度，此外，落於3.5禁用頻段之輻射發射，應符合3.6之規定。

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

將待測物置於非金屬桌面，測試頻率1GHz以下時，使用桌高0.8 米，1GHz以上時，使用桌高1.5米，使其在工作狀態，接收天線置於 3 米外相同的高度。待測物分別要垂直或水平放置，而且桌面要 360 度旋轉，另外接收天線也要從 1.0 米至 4.0 米升降變化，以找出最大的輻射電場強度，接收天線置於水平、垂直極向各執行測試一次。

以下為頻譜儀的設定：

頻率	RBW	VBW	Detector
9kHz~150kHz	300Hz	300Hz	Quasi-Peak
150kHz~30MHz	10kHz	10kHz	Quasi-Peak
30MHz~1GHz	100kHz	300kHz	Peak
30MHz~1GHz	120kHz	360kHz	Quasi-Peak
1GHz以上 Maximum Emission	1MHz	3MHz	Peak
1GHz以上 Duty Cycle ≥ 98% Average Emission Measurements	1MHz	10Hz	Peak
1GHz以上 Duty Cycle < 98% Average Emission Measurements	1MHz	1/T	Peak

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12.2 量測儀器

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	06/04/2021	06/03/2022
Horn Antenna	Schwarzbeck	BBHA9170	184	12/11/2020	12/10/2021
Loop Antenna	ETS.LINDGREN	6502	143303	05/07/2021	05/06/2022
3m Site NSA	SGS	966 chamber D	N/A	07/12/2021	07/11/2022
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	03/22/2021	03/21/2022
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
Test Software	audix	e3	210322 sgs Ver.9	N.C.R	N.C.R
Test kit	iODM	TRBI200	N/A	N.C.R	N.C.R

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

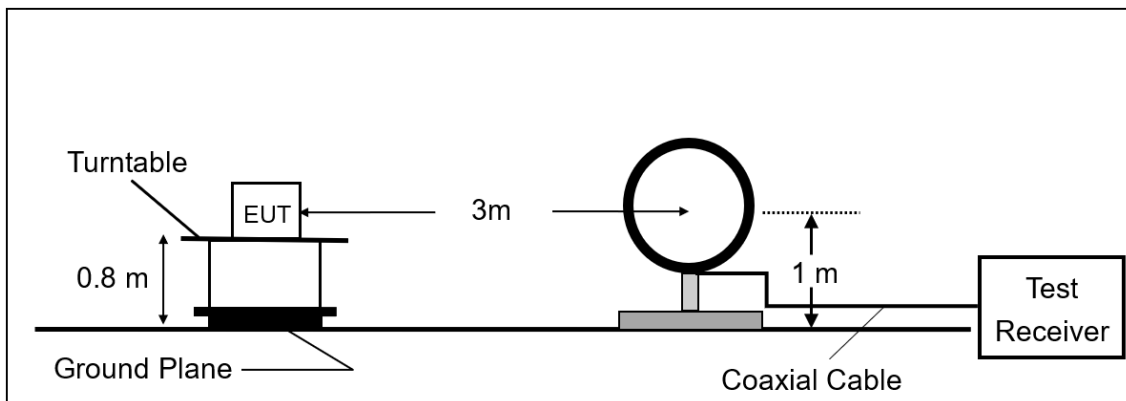
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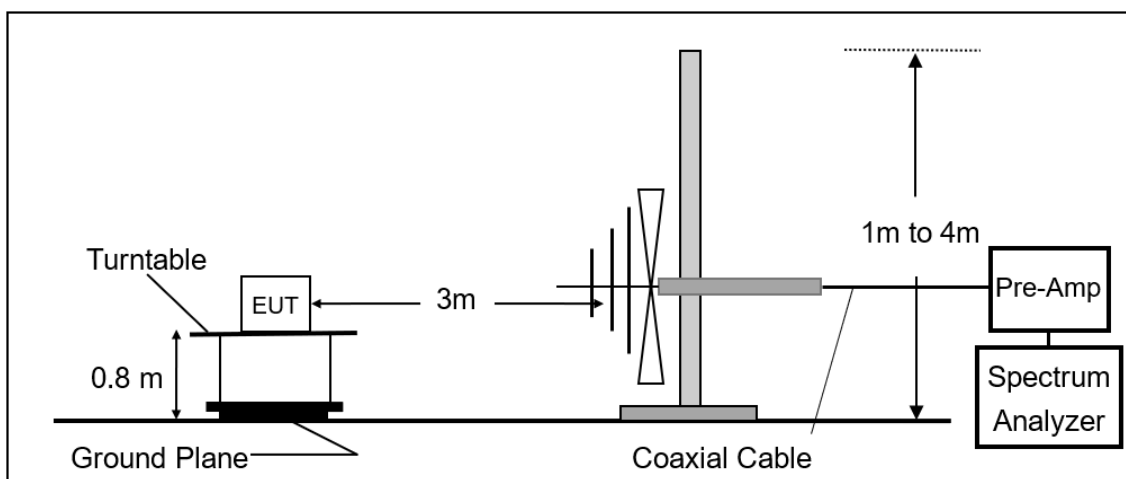
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12.3 測試配置

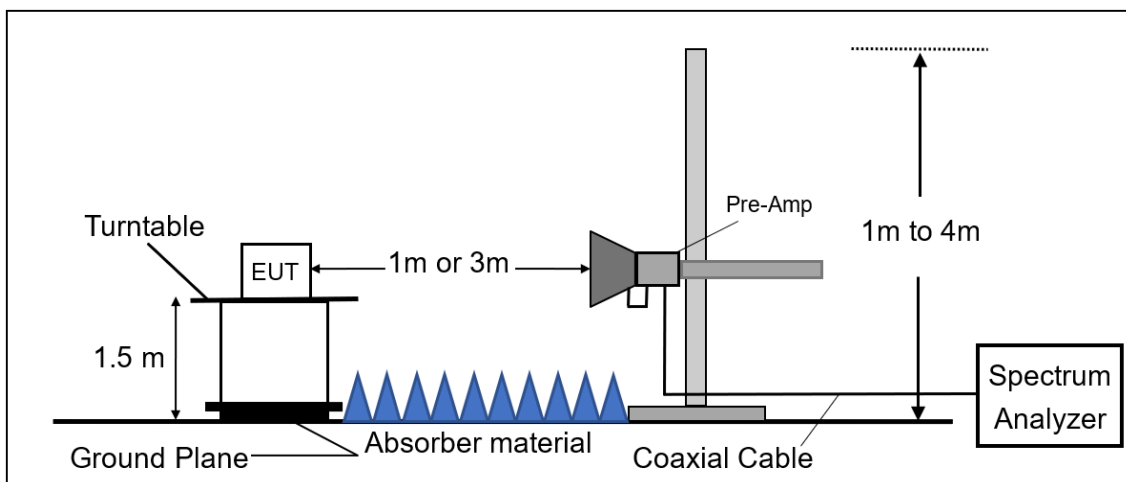
(A) 量測頻率低於 30MHz 以下之測試配置



(B) 量測頻率 30MHz 至 1000MHz 之測試配置



(C) 量測頻率 1000MHz 以上之測試配置



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12.4 量測方法

將待測物置於非金屬桌面，測試頻率1GHz以下時，使用桌高0.8 米，1GHz以上時，使用桌高1.5米，使其在工作狀態，接收天線置於 3 米外相同的高度。待測物分別要垂直或水平放置，而且桌面要 360 度旋轉，另外接收天線也要從 1.0 米至 4.0 米升降變化，以找出最大的輻射電場強度，接收天線置於水平、垂直極向各執行測試一次。

以下為頻譜儀的設定：

頻率	RBW	VBW	Detector
9kHz~150kHz	300Hz	300Hz	Quasi-Peak
150kHz~30MHz	10kHz	10kHz	Quasi-Peak
30MHz~1GHz	100kHz	300kHz	Peak
30MHz~1GHz	120kHz	360kHz	Quasi-Peak
1GHz以上 Maximum Emission	1MHz	3MHz	Peak
According to C63.10:2013 Section 7.5 Procedure for determining the average value of pulsed emissions with duty cycle correction factor $20 \log (T_{on}/100ms)$.			

12.5 場強計算

- Distance extrapolation = $40 \cdot \log (\text{Required Distance(m)} / \text{Test Distance(m)})$
- Emission level (dBμV/m) = $20 \log \text{Emission level (μV/m)}$
- Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)
Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

註: 9 kHz ~ 30MHz 之輻射量測皆低於限制值 20dB 以上，依據LP0002 6.13規定混附發射毋需記錄。

輻射量測僅附上最差模式（30MHz 以上）。

比較H Plane、E1 Plane和E2 Plane測試值後，附上最差模式數據。

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12.6 量測結果

12.6.1 禁用頻帶邊緣

Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT BR

Test Date :2021-08-16

Test Frequency :2402 MHz

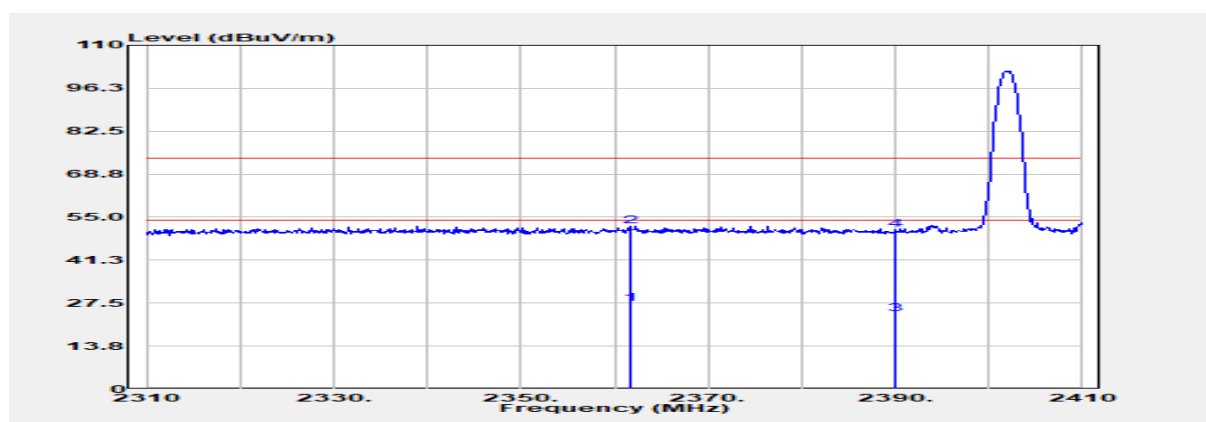
Temp./Humi. :21.2/67

Test Mode :BE CH LOW

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2361.600	Average	35.22	-7.82	27.39	54.00	-26.61
2361.600	Peak	60.01	-7.82	52.19	74.00	-21.81
2390.000	Average	31.95	-7.89	24.06	54.00	-29.94
2390.000	Peak	58.79	-7.89	50.90	74.00	-23.10

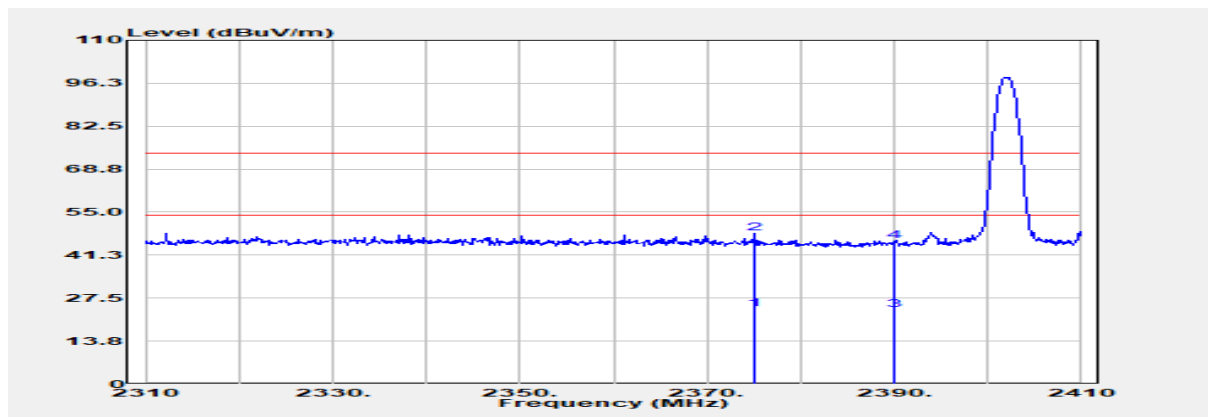
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2402 MHz
Test Mode :BE CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2375.100	Average	31.53	-7.60	23.93	54.00	-30.07
2375.100	Peak	55.94	-7.60	48.34	74.00	-25.66
2390.000	Average	31.48	-7.89	23.59	54.00	-30.41
2390.000	Peak	53.53	-7.89	45.65	74.00	-28.35

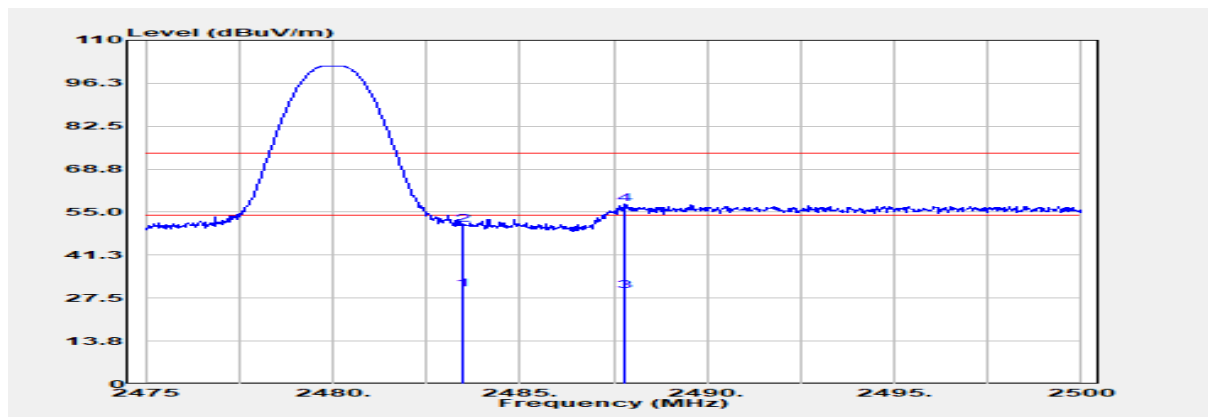
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2480 MHz
Test Mode :BE CH HIGH
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.500	Average	38.47	-8.15	30.32	54.00	-23.68
2483.500	Peak	59.09	-8.15	50.93	74.00	-23.07
2487.825	Average	37.90	-8.16	29.74	54.00	-24.26
2487.825	Peak	65.74	-8.16	57.57	74.00	-16.43

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Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT BR

Test Date :2021-08-16

Test Frequency :2480 MHz

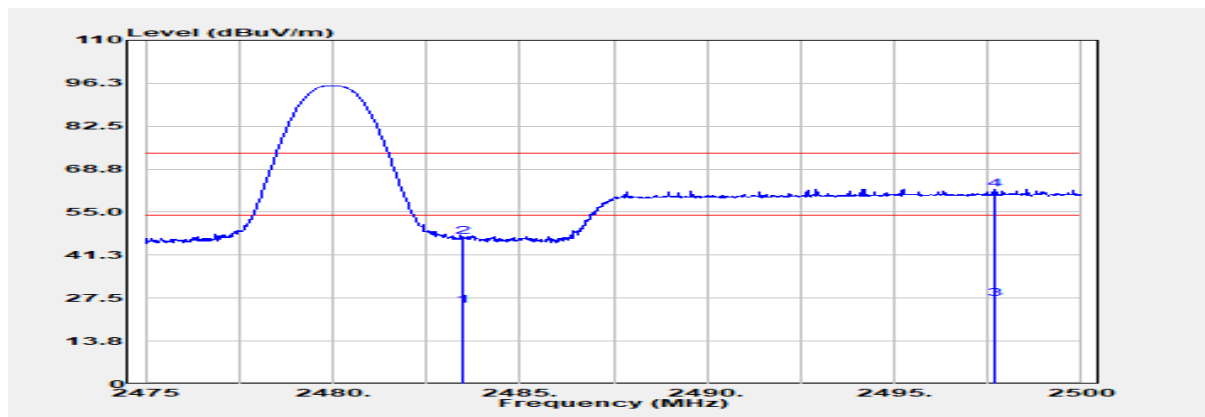
Temp./Humi. :21.2/67

Test Mode :BE CH HIGH

Antenna Pol. :Horizontal

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.500	Average	33.35	-8.15	25.19	54.00	-28.81
2483.500	Peak	55.33	-8.15	47.18	74.00	-26.82
2497.675	Average	34.98	-7.70	27.28	54.00	-26.72
2497.675	Peak	70.12	-7.70	62.41	74.00	-11.59

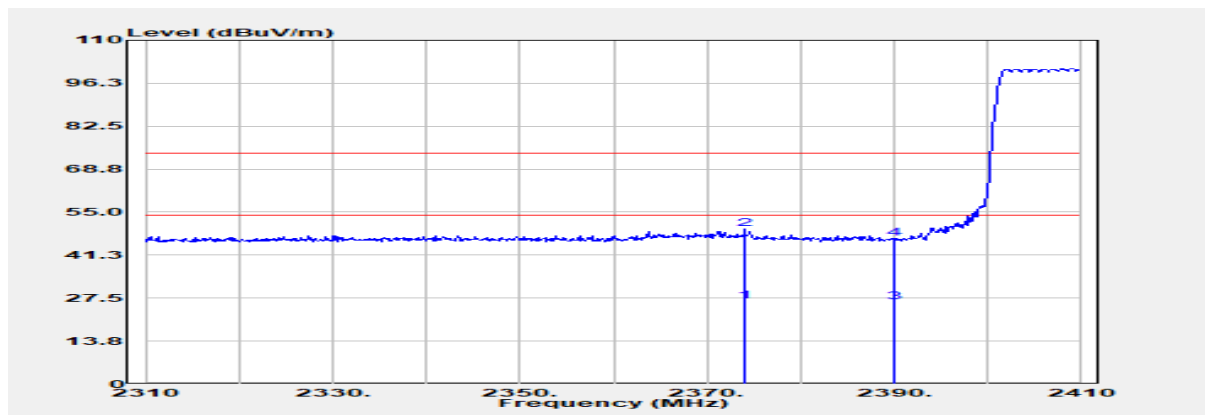
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Report Number :E2/2021/80050
Operation Mode :BT BR HOPPING
Test Frequency :2402 MHz
Test Mode :BE CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2374.000	Average	34.07	-7.60	26.47	54.00	-27.53
2374.000	Peak	57.34	-7.60	49.74	74.00	-24.26
2390.000	Average	34.06	-7.89	26.17	54.00	-27.83
2390.000	Peak	54.62	-7.89	46.73	74.00	-27.27

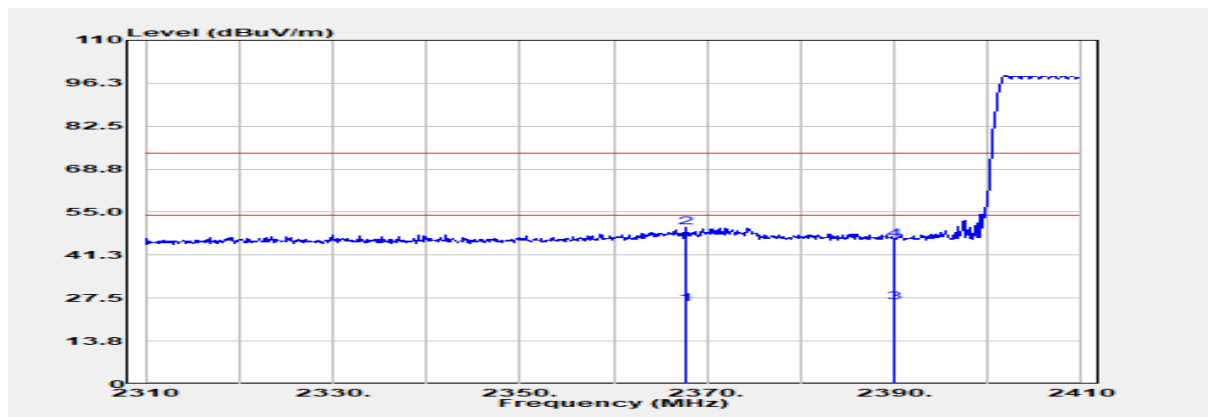
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Report Number :E2/2021/80050
Operation Mode :BT BR HOPPING
Test Frequency :2402 MHz
Test Mode :BE CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2367.700	Average	33.28	-7.67	25.61	54.00	-28.39
2367.700	Peak	57.88	-7.67	50.21	74.00	-23.79
2390.000	Average	34.03	-7.89	26.14	54.00	-27.86
2390.000	Peak	54.21	-7.89	46.32	74.00	-27.68

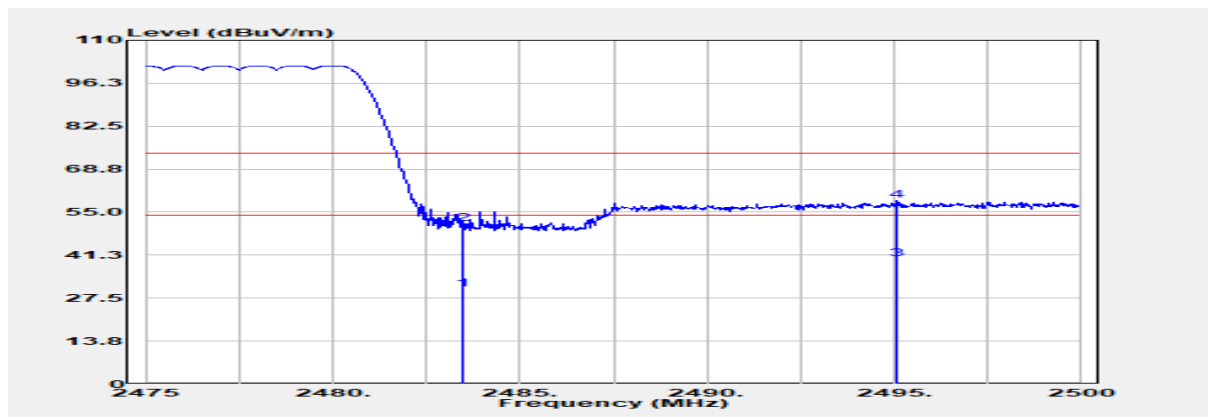
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Report Number :E2/2021/80050
Operation Mode :BT BR HOPPING
Test Frequency :2480 MHz
Test Mode :BE CH HIGH
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.500	Average	38.60	-8.15	30.45	54.00	-23.55
2483.500	Peak	59.35	-8.15	51.20	74.00	-22.80
2495.075	Average	47.87	-7.86	40.01	54.00	-13.99
2495.075	Peak	66.50	-7.86	58.64	74.00	-15.36

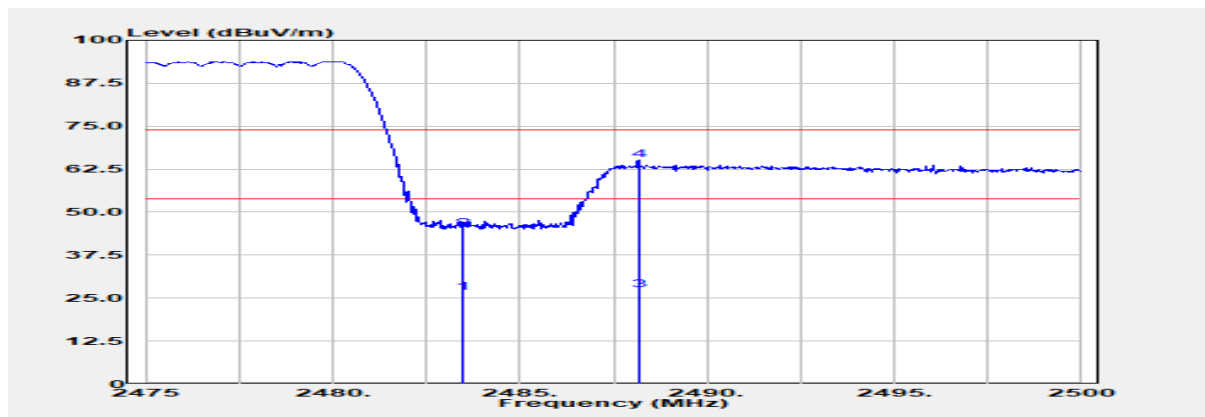
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Report Number :E2/2021/80050
 Operation Mode :BT BR HOPPING
 Test Frequency :2480 MHz
 Test Mode :BE CH HIGH
 EUT Pol :H Plane

Test Site :SAC D
 Test Date :2021-08-16
 Temp./Humi. :21.2/67
 Antenna Pol. :Horizontal
 Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.500	Average	34.71	-8.15	26.56	54.00	-27.44
2483.500	Peak	53.36	-8.15	45.21	74.00	-28.79
2488.175	Average	35.37	-8.17	27.20	54.00	-26.80
2488.175	Peak	73.26	-8.17	65.09	74.00	-8.91

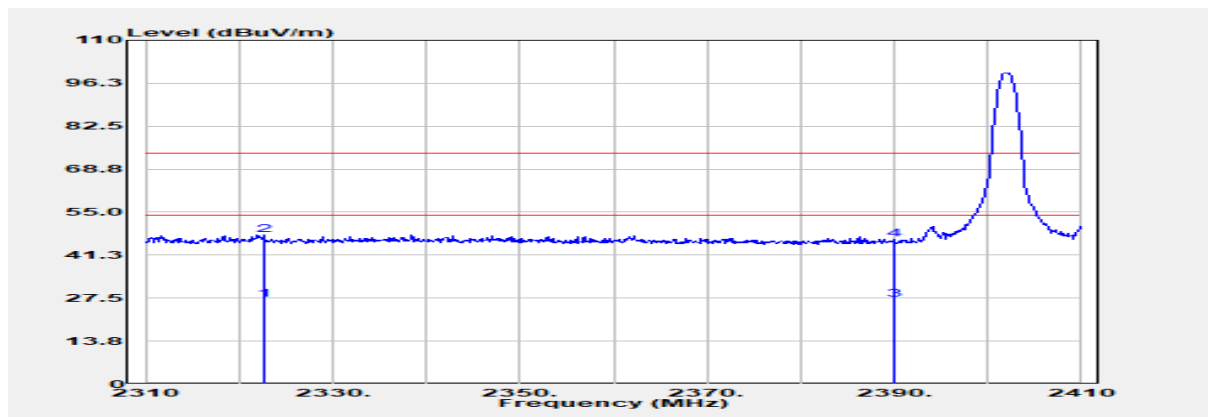
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2402 MHz
Test Mode :BE CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2322.700	Average	34.57	-7.67	26.90	54.00	-27.10
2322.700	Peak	55.28	-7.67	47.62	74.00	-26.38
2390.000	Average	34.78	-7.89	26.89	54.00	-27.11
2390.000	Peak	54.27	-7.89	46.39	74.00	-27.61

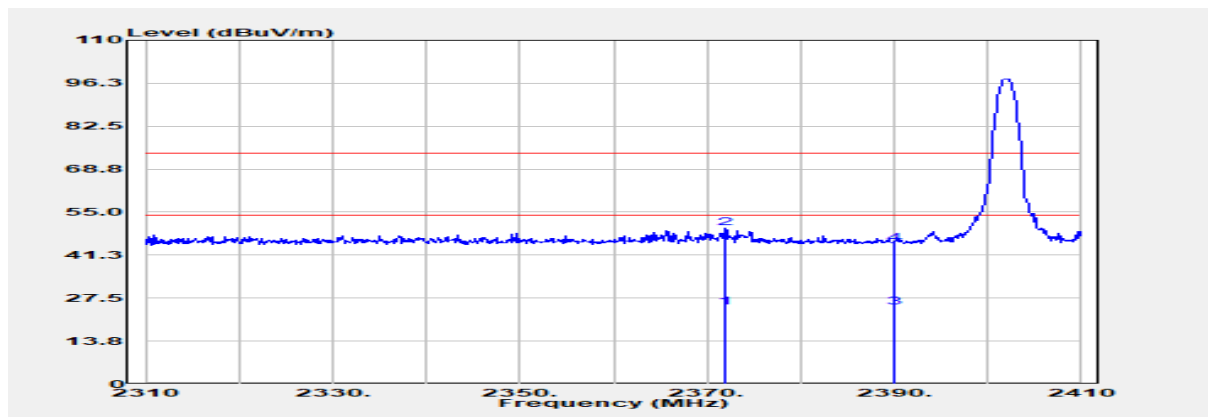
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2402 MHz
Test Mode :BE CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2372.000	Average	32.22	-7.61	24.61	54.00	-29.39
2372.000	Peak	57.61	-7.61	50.00	74.00	-24.00
2390.000	Average	32.50	-7.89	24.61	54.00	-29.39
2390.000	Peak	52.91	-7.89	45.02	74.00	-28.98

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Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT EDR

Test Date :2021-08-16

Test Frequency :2480 MHz

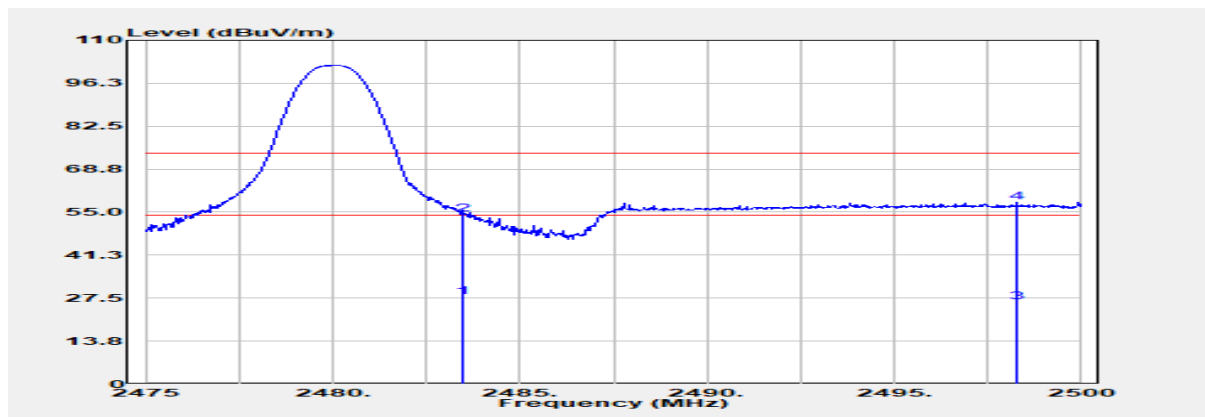
Temp./Humi. :21.2/67

Test Mode :BE CH HIGH

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.500	Average	36.13	-8.15	27.98	54.00	-26.02
2483.500	Peak	62.52	-8.15	54.37	74.00	-19.63
2498.275	Average	33.84	-7.67	26.17	54.00	-27.83
2498.275	Peak	65.71	-7.67	58.04	74.00	-15.96

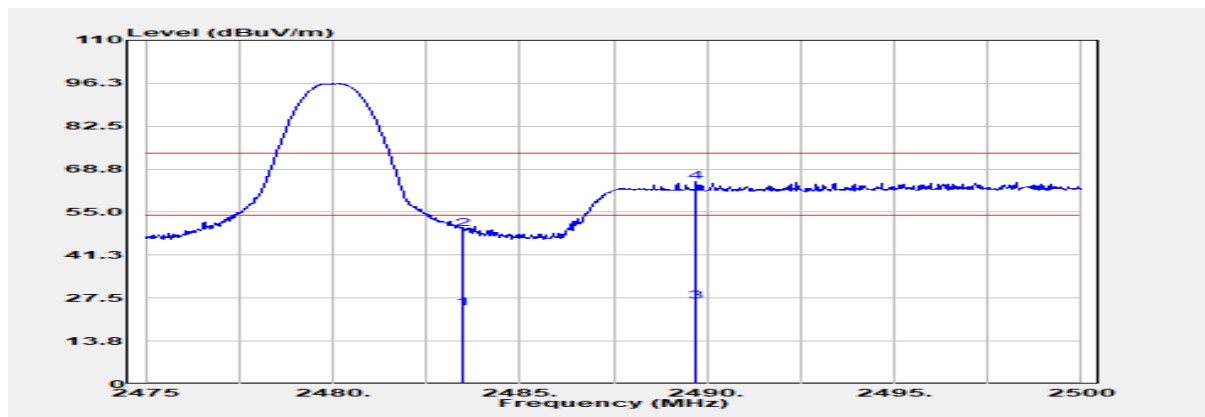
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2480 MHz
Test Mode :BE CH HIGH
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.500	Average	32.41	-8.15	24.26	54.00	-29.74
2483.500	Peak	57.88	-8.15	49.73	74.00	-24.27
2489.700	Average	34.72	-8.17	26.55	54.00	-27.45
2489.700	Peak	72.93	-8.17	64.76	74.00	-9.24

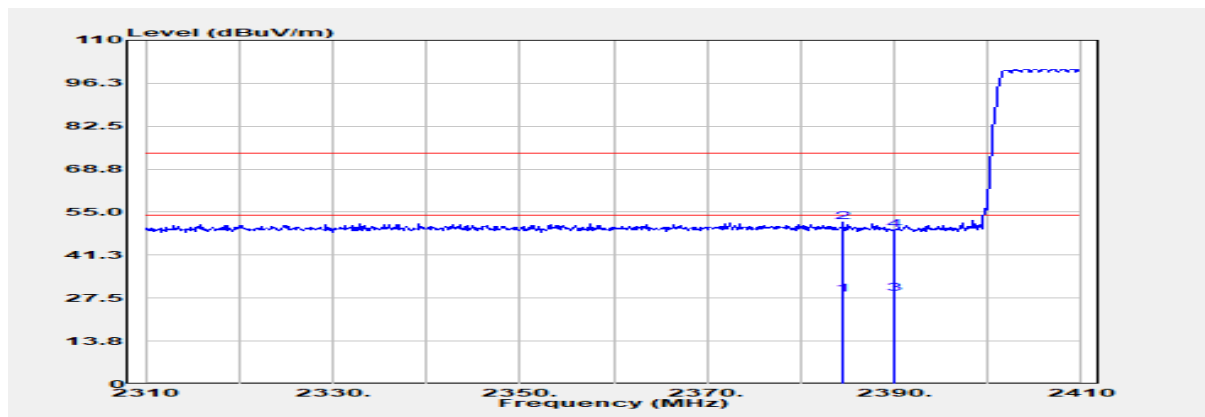
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Report Number :E2/2021/80050
Operation Mode :BT EDR HOPPING
Test Frequency :2402 MHz
Test Mode :BE CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2384.600	Average	36.41	-7.72	28.69	54.00	-25.31
2384.600	Peak	59.53	-7.72	51.80	74.00	-22.20
2390.000	Average	36.85	-7.89	28.96	54.00	-25.04
2390.000	Peak	57.12	-7.89	49.24	74.00	-24.76

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Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT EDR HOPPING

Test Date :2021-08-16

Test Frequency :2402 MHz

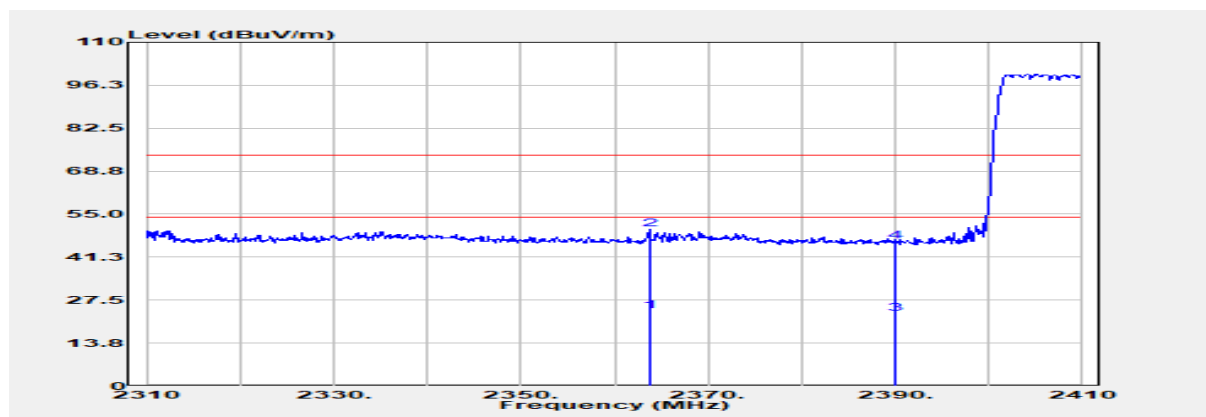
Temp./Humi. :21.2/67

Test Mode :BE CH LOW

Antenna Pol. :Horizontal

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2363.700	Average	31.64	-7.77	23.87	54.00	-30.13
2363.700	Peak	57.90	-7.77	50.13	74.00	-23.87
2390.000	Average	31.13	-7.89	23.24	54.00	-30.76
2390.000	Peak	54.11	-7.89	46.23	74.00	-27.77

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Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT EDR HOPPING

Test Date :2021-08-16

Test Frequency :2480 MHz

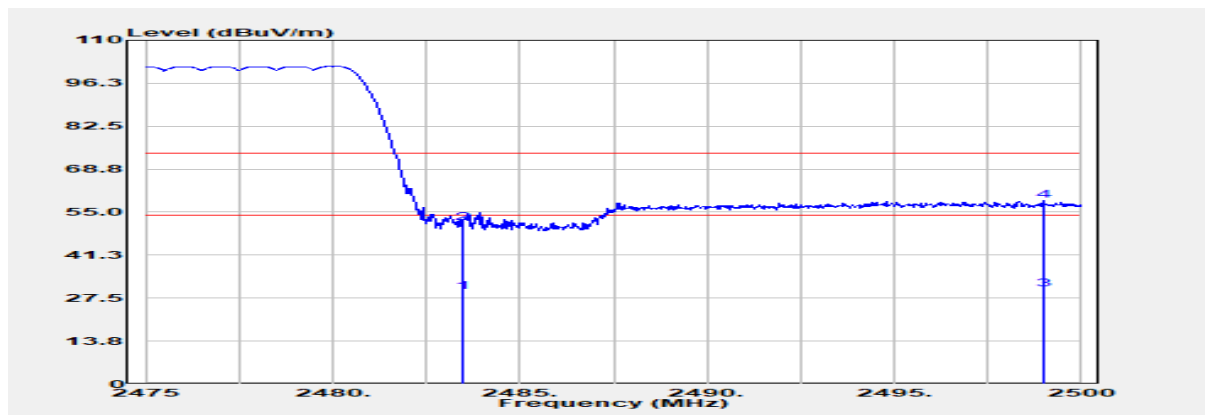
Temp./Humi. :21.2/67

Test Mode :BE CH HIGH

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.500	Average	37.78	-8.15	29.63	54.00	-24.37
2483.500	Peak	59.73	-8.15	51.58	74.00	-22.42
2498.975	Average	37.91	-7.63	30.28	54.00	-23.72
2498.975	Peak	66.30	-7.63	58.67	74.00	-15.33

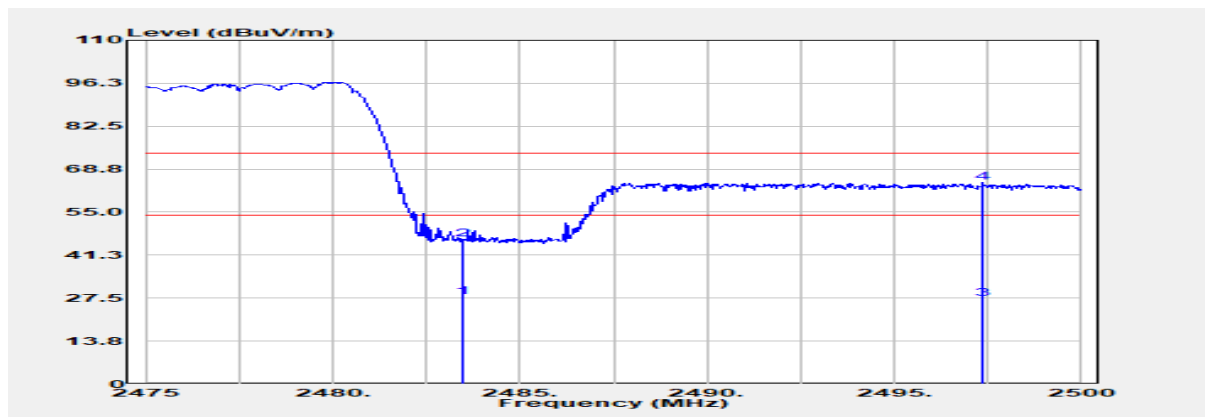
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Report Number :E2/2021/80050
Operation Mode :BT EDR HOPPING
Test Frequency :2480 MHz
Test Mode :BE CH HIGH
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.500	Average	35.89	-8.15	27.74	54.00	-26.26
2483.500	Peak	54.39	-8.15	46.24	74.00	-27.76
2497.350	Average	35.11	-7.72	27.39	54.00	-26.61
2497.350	Peak	72.35	-7.72	64.62	74.00	-9.38

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12.6.2 禁用頻帶內輻射

Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT BR

Test Date :2021-08-17

Test Frequency :2441 MHz

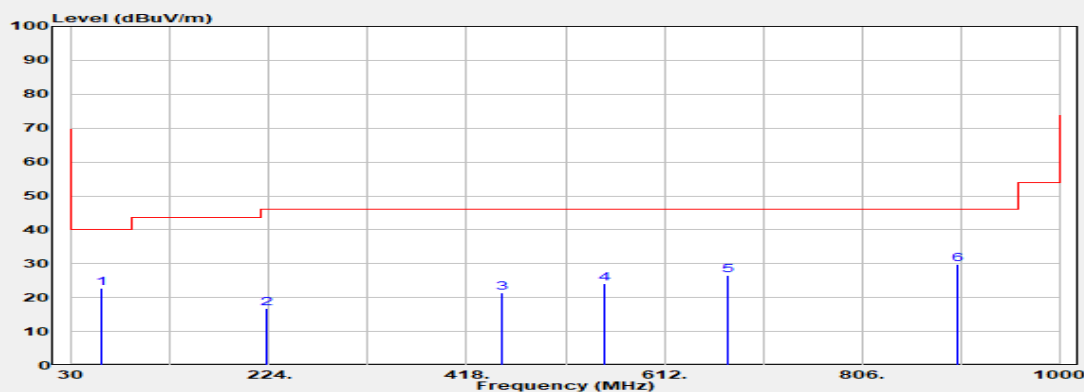
Temp./Humi. :22.5/62

Test Mode :TX CH MID

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
59.100	Peak	40.77	-18.01	22.76	40.00	-17.24
221.090	Peak	36.79	-20.04	16.75	46.00	-29.25
451.950	Peak	33.88	-12.34	21.54	46.00	-24.46
552.830	Peak	34.65	-10.47	24.18	46.00	-21.82
674.080	Peak	35.38	-8.74	26.64	46.00	-19.36
900.090	Peak	35.82	-5.92	29.90	46.00	-16.10

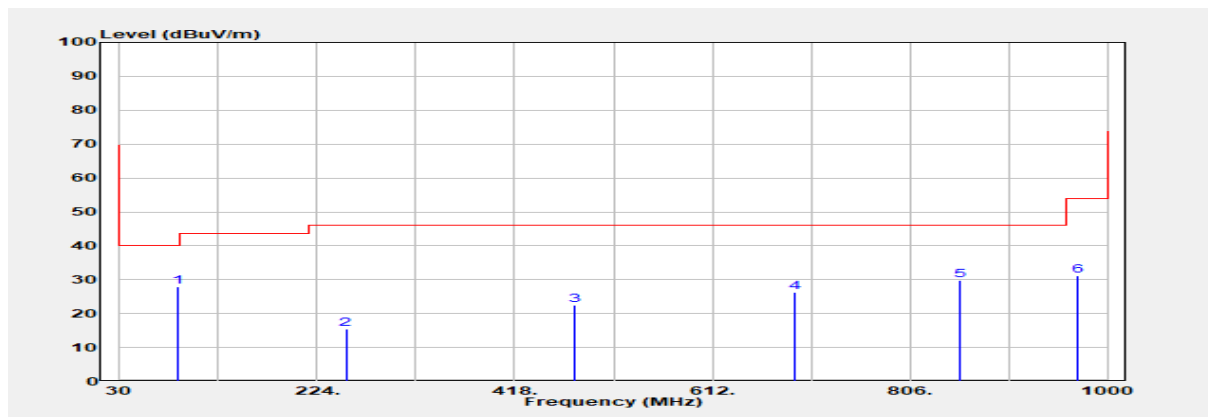
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2441 MHz
Test Mode :TX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-17
Temp./Humi. :22.5/62
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
86.260	Peak	50.66	-22.85	27.81	40.00	-12.19
252.130	Peak	33.53	-17.95	15.58	46.00	-30.42
477.170	Peak	34.33	-11.80	22.53	46.00	-23.47
692.510	Peak	34.69	-8.38	26.31	46.00	-19.69
855.470	Peak	35.65	-5.75	29.90	46.00	-16.10
970.900	Peak	35.15	-3.94	31.20	54.00	-22.80

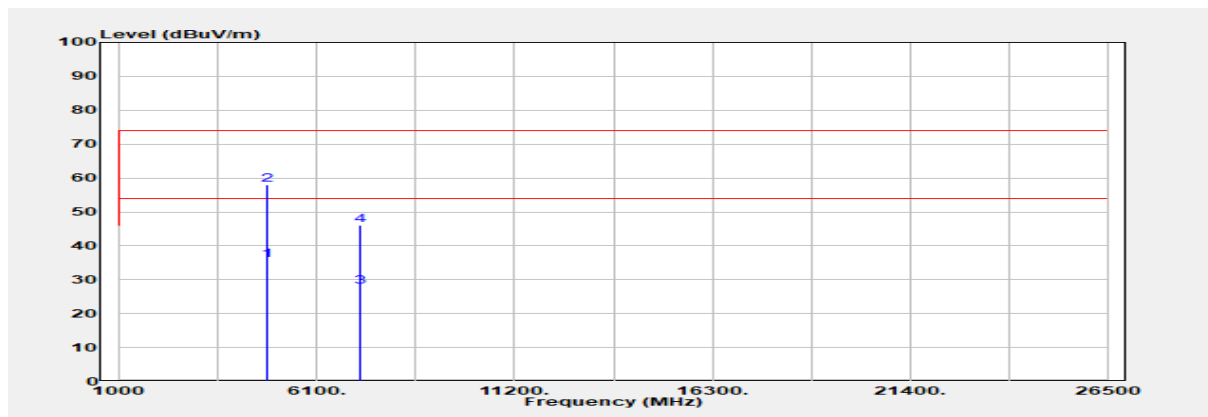
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2402 MHz
Test Mode :TX CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



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	38.73	-3.04	35.69	54.00	-18.31
4804.000	Peak	61.17	-3.04	58.13	74.00	-15.87
7206.000	Average	24.88	2.98	27.86	54.00	-26.14
7206.000	Peak	43.09	2.98	46.07	74.00	-27.93

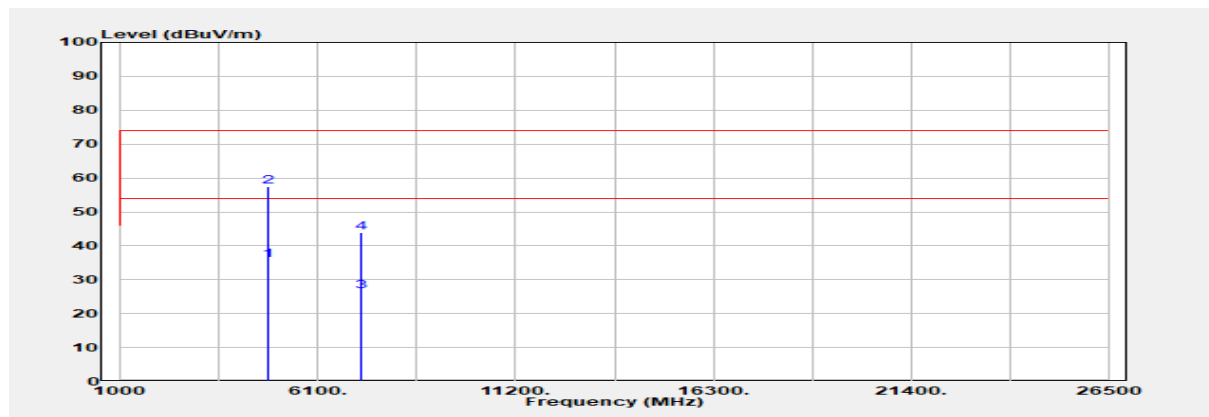
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2402 MHz
Test Mode :TX CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



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	38.91	-3.04	35.87	54.00	-18.13
4804.000	Peak	60.52	-3.04	57.48	74.00	-16.52
7206.000	Average	23.50	2.98	26.48	54.00	-27.52
7206.000	Peak	40.95	2.98	43.94	74.00	-30.06

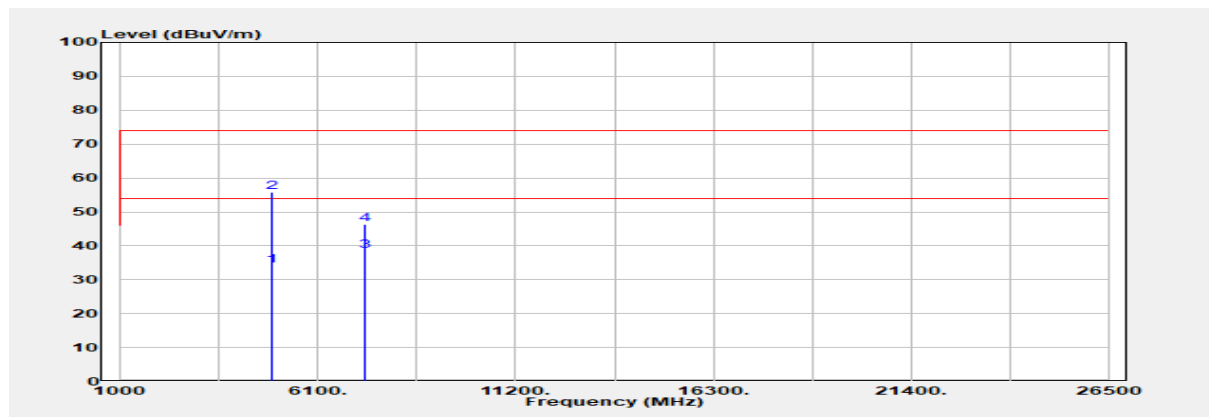
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2441 MHz
Test Mode :TX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4882.000	Average	37.30	-3.06	34.24	54.00	-19.76
4882.000	Peak	58.83	-3.06	55.77	74.00	-18.23
7323.000	Average	35.22	3.37	38.59	54.00	-15.41
7323.000	Peak	43.01	3.37	46.38	74.00	-27.62

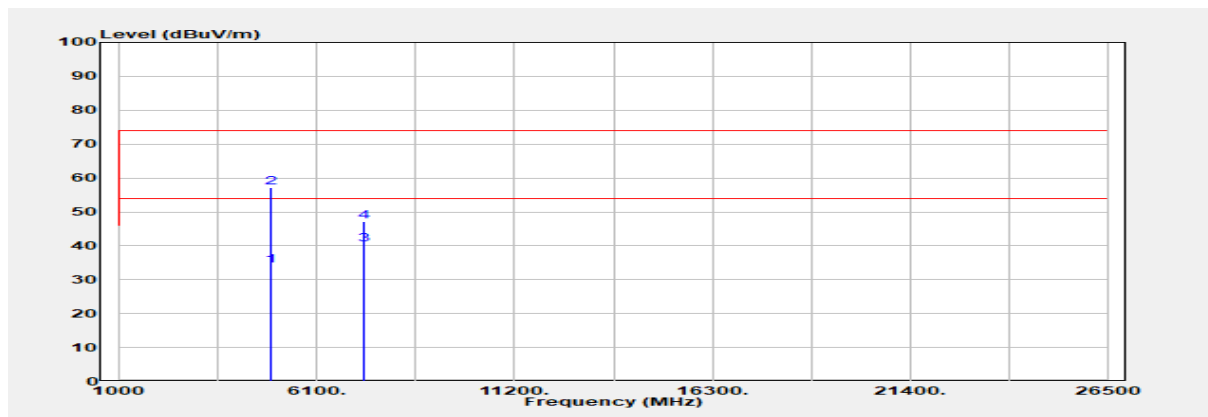
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2441 MHz
Test Mode :TX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4882.000	Average	37.14	-3.06	34.09	54.00	-19.91
4882.000	Peak	60.14	-3.06	57.09	74.00	-16.91
7323.000	Average	36.94	3.37	40.31	54.00	-13.69
7323.000	Peak	43.69	3.37	47.06	74.00	-26.94

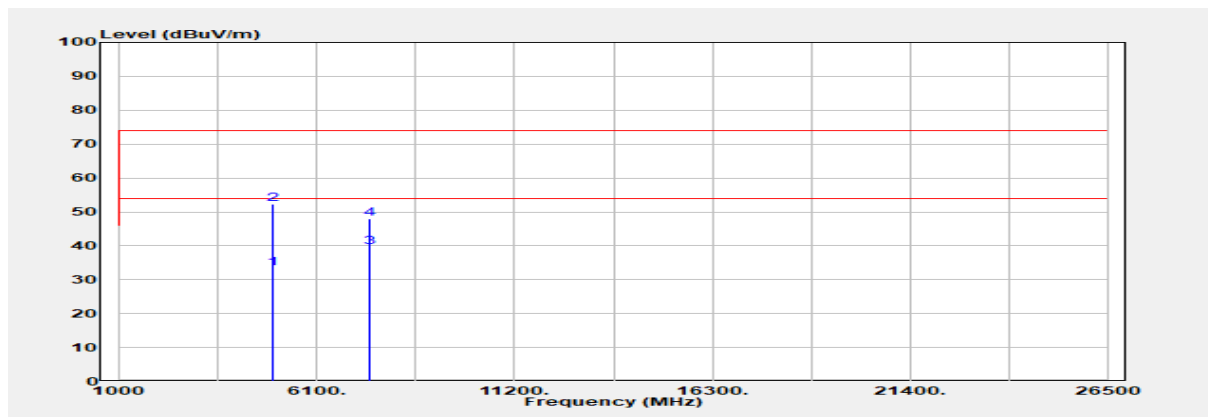
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2480 MHz
Test Mode :TX CH HIGH
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



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
4960.000	Average	36.23	-2.87	33.35	54.00	-20.65
4960.000	Peak	55.23	-2.87	52.35	74.00	-21.65
7440.000	Average	35.72	3.85	39.57	54.00	-14.43
7440.000	Peak	44.05	3.85	47.89	74.00	-26.11

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Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT BR

Test Date :2021-08-16

Test Frequency :2480 MHz

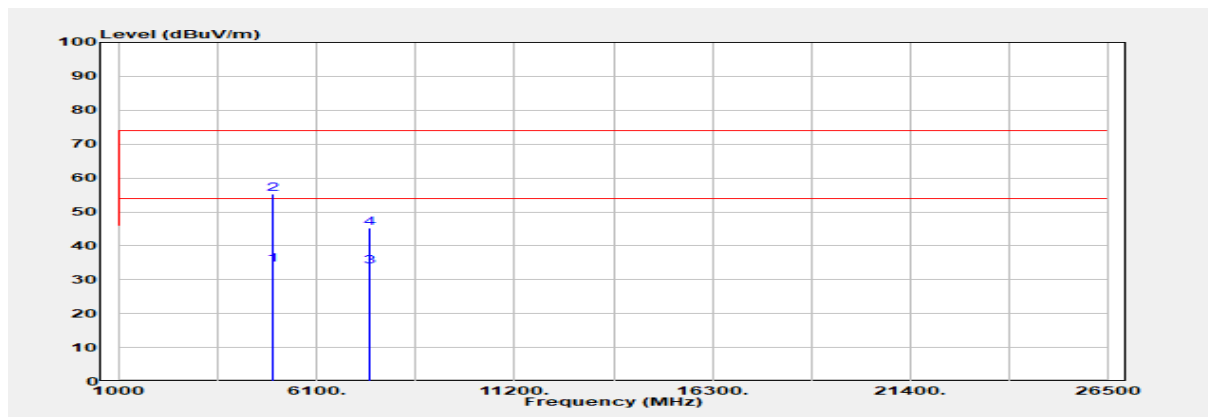
Temp./Humi. :21.2/67

Test Mode :TX CH HIGH

Antenna Pol. :Horizontal

EUT Pol :H Plane

Engineer :Jack Tseng



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	37.19	-2.87	34.32	54.00	-19.68
4960.000	Peak	58.04	-2.87	55.16	74.00	-18.84
7440.000	Average	30.16	3.85	34.01	54.00	-19.99
7440.000	Peak	41.47	3.85	45.32	74.00	-28.68

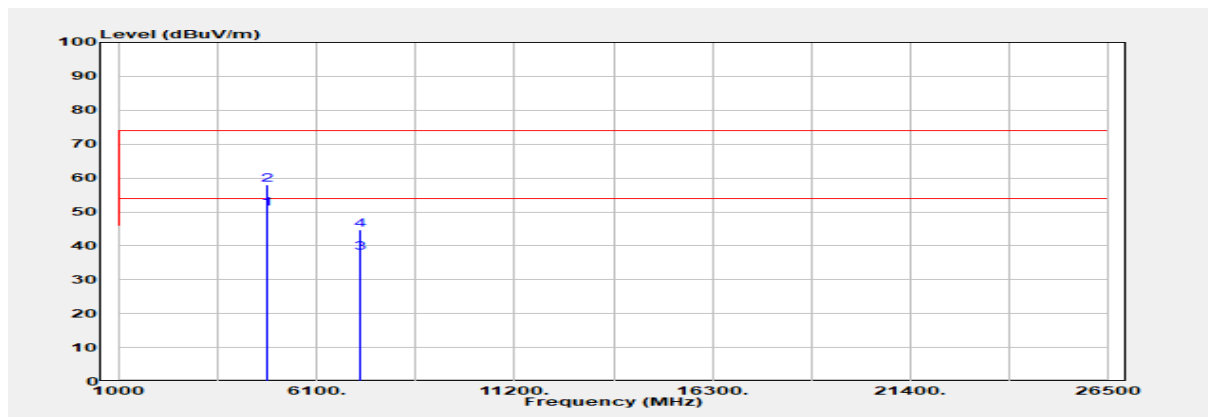
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2402 MHz
Test Mode :TX CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



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	53.86	-3.04	50.82	54.00	-3.18
4804.000	Peak	60.96	-3.04	57.92	74.00	-16.08
7206.000	Average	35.03	2.98	38.01	54.00	-15.99
7206.000	Peak	41.62	2.98	44.60	74.00	-29.40

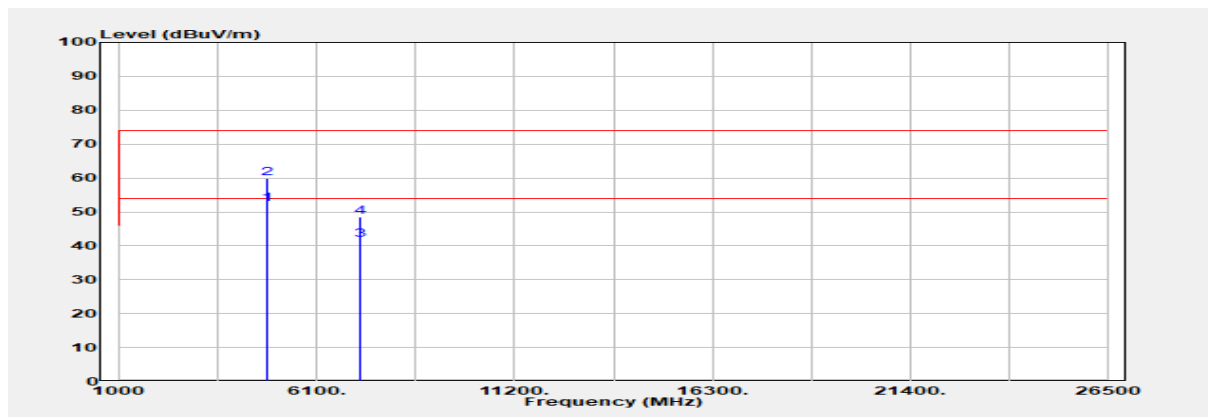
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2402 MHz
Test Mode :TX CH LOW
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



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	55.27	-3.04	52.23	54.00	-1.77
4804.000	Peak	62.97	-3.04	59.93	74.00	-14.07
7206.000	Average	38.66	2.98	41.64	54.00	-12.36
7206.000	Peak	45.50	2.98	48.48	74.00	-25.52

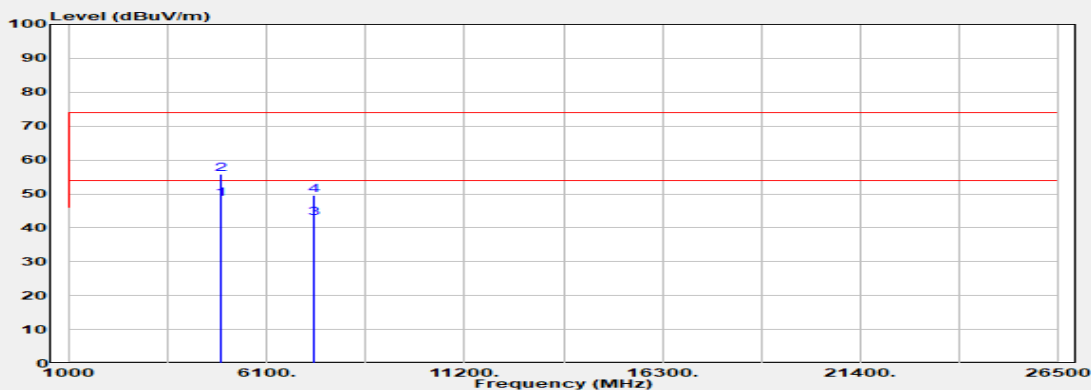
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2441 MHz
Test Mode :TX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4882.000	Average	51.56	-3.06	48.50	54.00	-5.50
4882.000	Peak	58.97	-3.06	55.91	74.00	-18.09
7323.000	Average	39.55	3.37	42.92	54.00	-11.08
7323.000	Peak	46.35	3.37	49.72	74.00	-24.28

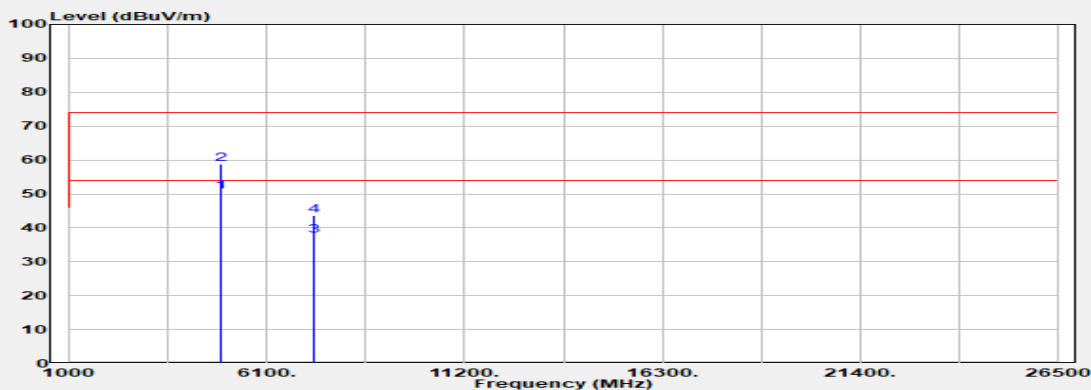
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2441 MHz
Test Mode :TX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4882.000	Average	53.82	-3.06	50.76	54.00	-3.24
4882.000	Peak	61.76	-3.06	58.70	74.00	-15.30
7323.000	Average	34.23	3.37	37.60	54.00	-16.40
7323.000	Peak	40.15	3.37	43.52	74.00	-30.48

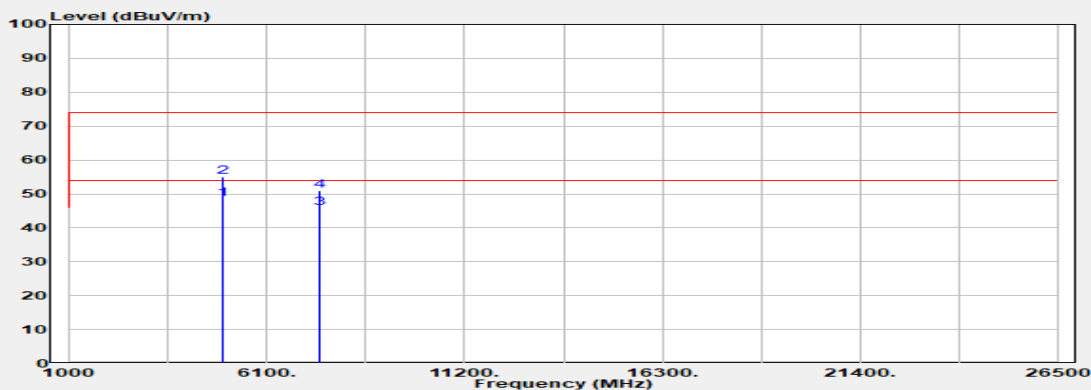
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2480 MHz
Test Mode :TX CH HIGH
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



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	51.48	-2.87	48.60	54.00	-5.40
4960.000	Peak	57.86	-2.87	54.98	74.00	-19.02
7440.000	Average	41.88	3.85	45.73	54.00	-8.27
7440.000	Peak	47.09	3.85	50.94	74.00	-23.06

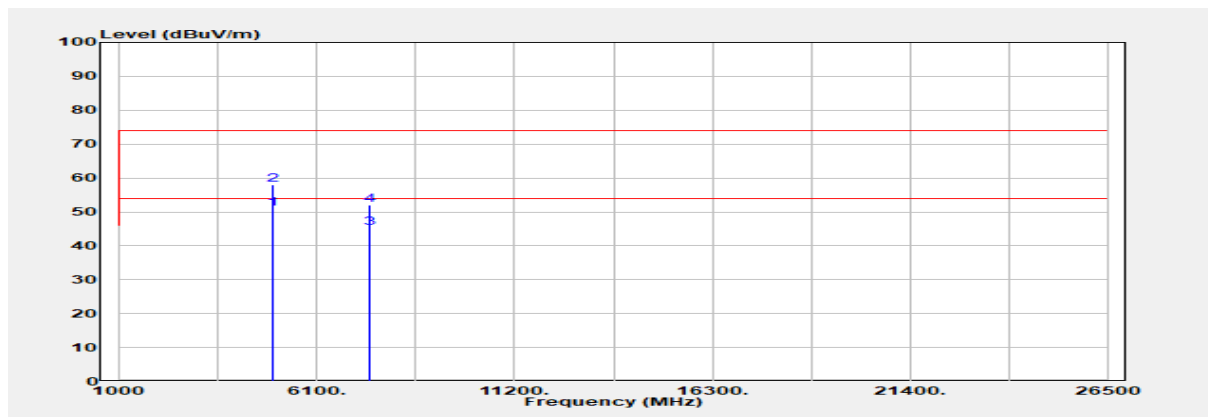
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2480 MHz
Test Mode :TX CH HIGH
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-16
Temp./Humi. :21.2/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



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	53.70	-2.87	50.82	54.00	-3.18
4960.000	Peak	60.87	-2.87	57.99	74.00	-16.01
7440.000	Average	41.37	3.85	45.22	54.00	-8.78
7440.000	Peak	48.09	3.85	51.93	74.00	-22.07

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12.6.3 接收機場強輻射

Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT BR

Test Date :2021-08-17

Test Frequency :2441 MHz

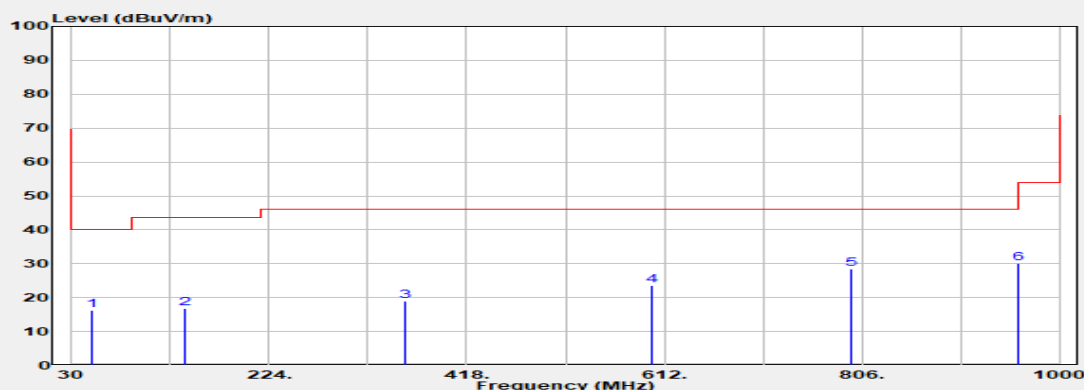
Temp./Humi. :22.5/62

Test Mode :RX CH MID

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
50.370	Peak	33.82	-17.62	16.20	40.00	-23.80
140.580	Peak	33.86	-17.00	16.86	43.50	-26.64
357.860	Peak	33.76	-14.88	18.87	46.00	-27.13
600.360	Peak	32.53	-8.84	23.69	46.00	-22.31
795.330	Peak	34.95	-6.61	28.34	46.00	-17.66
959.260	Peak	35.02	-4.90	30.12	46.00	-15.88

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Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :BT BR

Test Date :2021-08-17

Test Frequency :2441 MHz

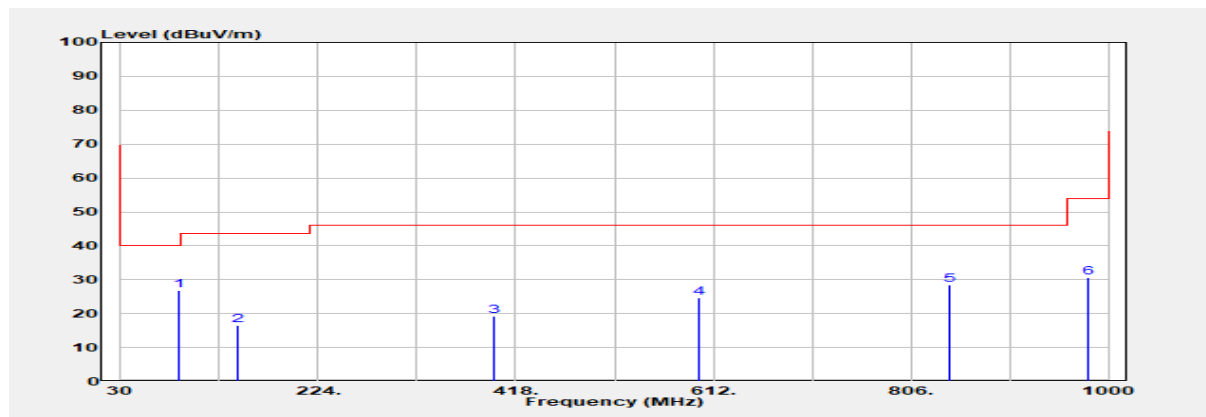
Temp./Humi. :22.5/62

Test Mode :RX CH MID

Antenna Pol. :Horizontal

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
86.260	Peak	49.72	-22.85	26.87	40.00	-13.13
144.460	Peak	33.51	-16.85	16.66	43.50	-26.84
396.660	Peak	33.05	-13.81	19.24	46.00	-26.76
597.450	Peak	33.77	-8.98	24.79	46.00	-21.21
844.800	Peak	34.75	-6.31	28.44	46.00	-17.56
980.600	Peak	35.20	-4.64	30.56	54.00	-23.44

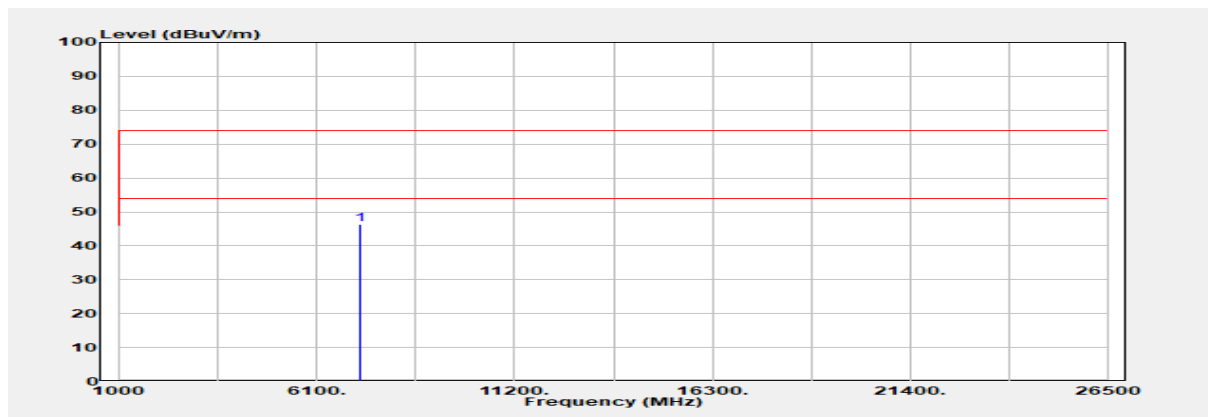
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2441 MHz
Test Mode :RX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-17
Temp./Humi. :23.8/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
7230.000	Peak	43.20	3.20	46.39	74.00	-27.61

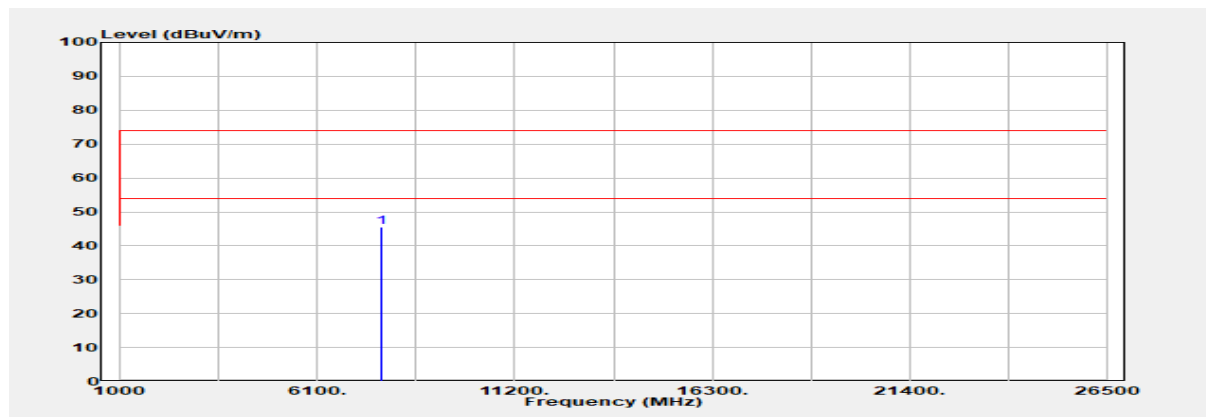
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Report Number :E2/2021/80050
Operation Mode :BT BR
Test Frequency :2441 MHz
Test Mode :RX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-17
Temp./Humi. :23.8/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
7748.000	Peak	42.21	3.39	45.60	74.00	-28.40

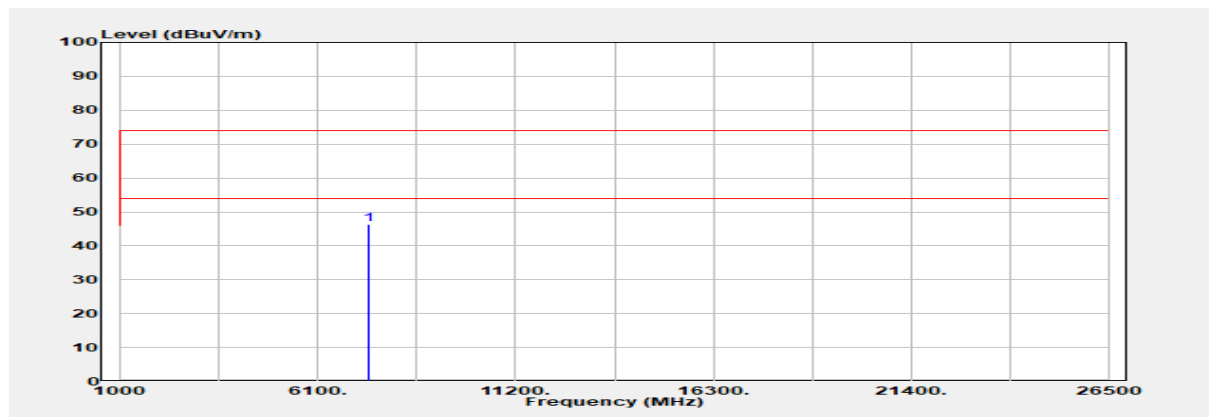
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2441 MHz
Test Mode :RX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-17
Temp./Humi. :23.8/67
Antenna Pol. :Vertical
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
7405.000	Peak	42.63	3.76	46.39	74.00	-27.61

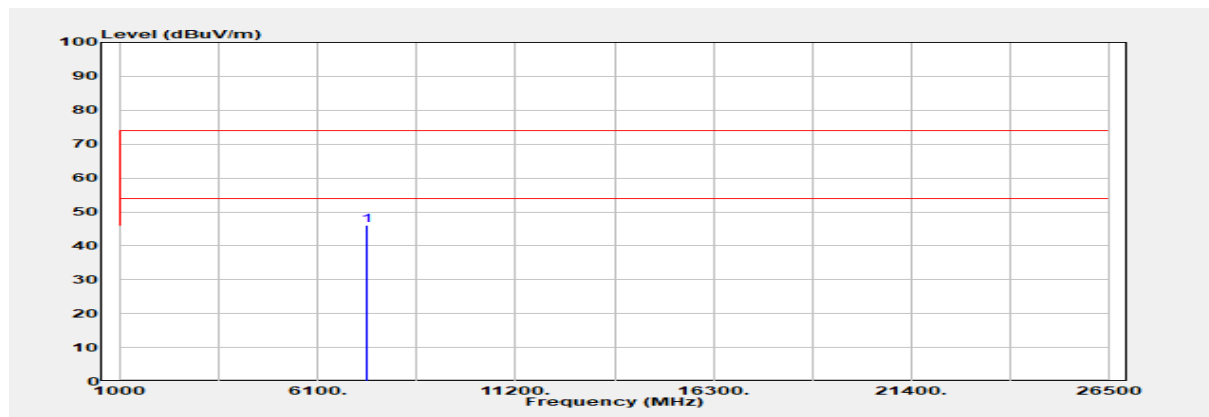
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Report Number :E2/2021/80050
Operation Mode :BT EDR
Test Frequency :2441 MHz
Test Mode :RX CH MID
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-17
Temp./Humi. :23.8/67
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
7356.000	Peak	42.24	3.74	45.98	74.00	-28.02

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12.6.4 Fully System

Report Number :E2/2021/80050

Test Site :SAC D

Operation Mode :System

Test Date :2021-08-17

Test Frequency :System

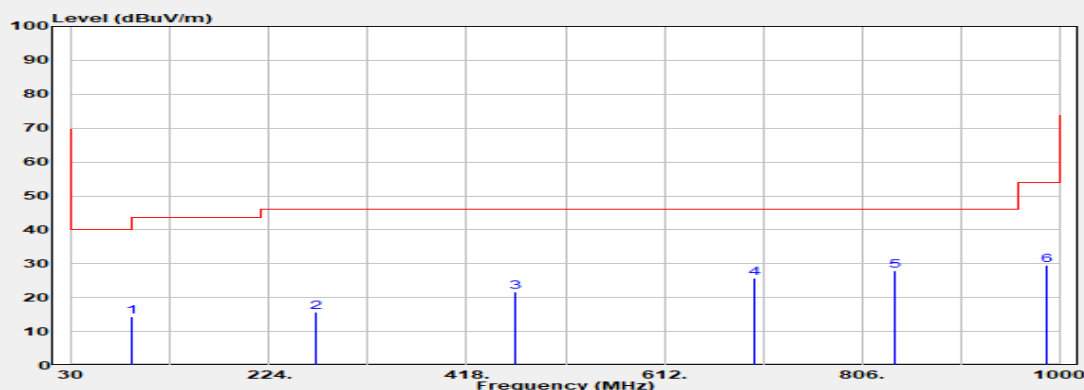
Temp./Humi. :22.5/62

Test Mode :System

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
89.170	Peak	37.67	-23.23	14.44	43.50	-29.06
270.560	Peak	32.77	-17.10	15.67	46.00	-30.33
465.530	Peak	33.54	-11.94	21.60	46.00	-24.40
700.270	Peak	34.90	-9.02	25.87	46.00	-20.13
838.010	Peak	34.49	-6.61	27.87	46.00	-18.13
988.360	Peak	34.49	-4.87	29.62	54.00	-24.38

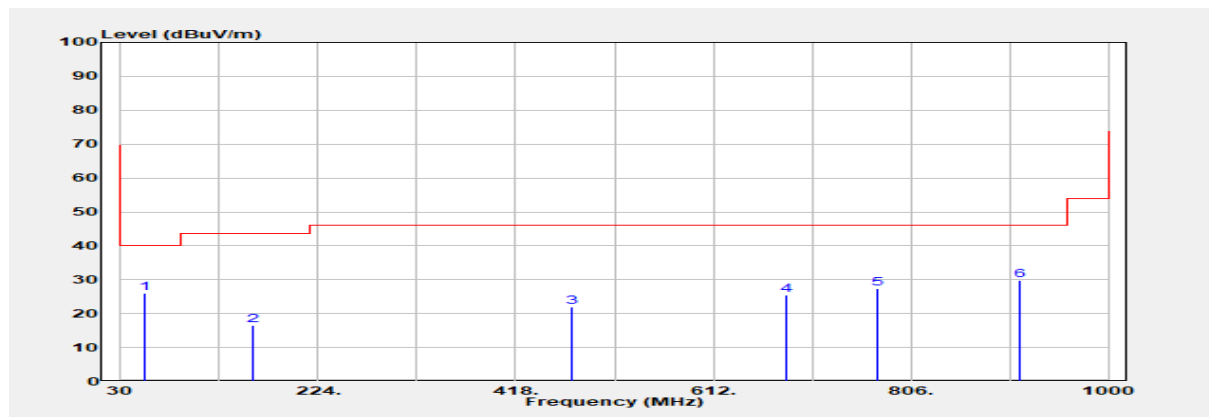
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Report Number :E2/2021/80050
Operation Mode :System
Test Frequency :System
Test Mode :System
EUT Pol :H Plane

Test Site :SAC D
Test Date :2021-08-17
Temp./Humi. :22.5/62
Antenna Pol. :Horizontal
Engineer :Jack Tseng



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.250	Peak	43.86	-17.80	26.06	40.00	-13.94
159.010	Peak	33.58	-17.11	16.48	43.50	-27.02
473.290	Peak	33.99	-11.96	22.02	46.00	-23.98
683.780	Peak	33.32	-7.93	25.40	46.00	-20.60
773.990	Peak	34.08	-6.59	27.49	46.00	-18.51
913.670	Peak	35.23	-5.53	29.71	46.00	-16.29

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13 載波頻率間隔量測

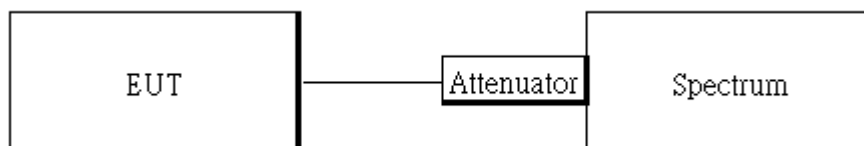
13.1 適用標準

NCC 低功率射頻器材技術規範 4.10.1.6(1)(A) 跳頻系統之載波頻率頻道間隔不得低於 25 千赫 (kHz)或跳頻頻道之 20dB 頻寬，兩者取較寬者。但操作頻率為 2400-2483.5 兆赫(MHz)頻帶且輸出功率不大於 125 毫瓦(mW)跳頻系統，其載波頻率頻道間隔不得小於 25 千赫 (kHz)或跳頻頻道 20dB 頻寬之三分之二，兩者取較寬者。系統之跳頻頻道應依虛擬亂數排列，在各頻率之跳頻頻道上跳躍。每一發射機必須均等的使用每一頻率。系統接收機應具有與發射機跳躍頻道頻寬相匹配之輸入頻寬，且應隨所發射之信號同步偏移接收頻率。

13.2 量測儀器

Conducted Emission Test Site: Conducted G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/01/2021	05/31/2022
Attenuator	Marvelous	MVE2213-10	RF06	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF154	11/19/2020	11/18/2021
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R

13.3 測試配置



13.4 量測方法

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows ANSI C63.10:2013.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set center frequency of spectrum analyzer = middle of hopping channel.
5. Set the spectrum analyzer as RBW, VBW=100 kHz, Adjust Span to 5MHz, Sweep = auto.
6. Max hold. Mark 3 Peaks of hopping channel and record the 3 peaks frequency.

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13.5 量測結果

頻道	載波頻率間隔	最小限制值 (kHz)	
CH Low	1MHz	≥ 25	$\geq 2/3 \times 20\text{dB Bandwidth}$
CH Mid	1MHz	≥ 25	$\geq 2/3 \times 20\text{dB Bandwidth}$
Ch High	1MHz	≥ 25	$\geq 2/3 \times 20\text{dB Bandwidth}$
依據 NCC 低功率射頻器材技術規範 4.10.1 節(6.1.(A))之標準，故取載波頻率間隔之量測值。			

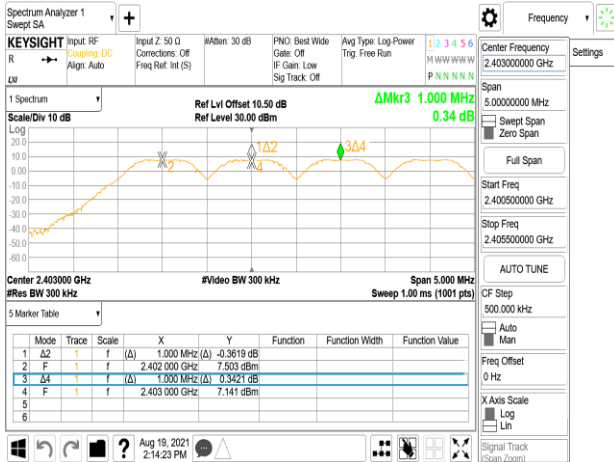
註: 操作頻率為 2400-2483.5 兆赫(MHz)頻帶且輸出功率不大於 125 毫瓦(mW)跳頻系統，其載波頻率頻道間隔不得小於 25 千赫(kHz)或跳頻頻道 20dB 頻寬之三分之二

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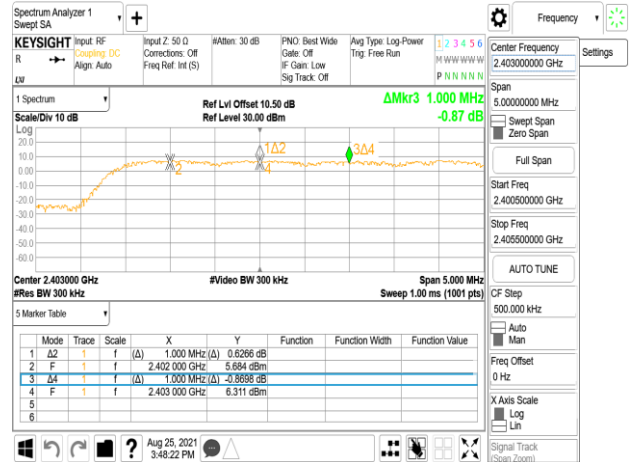
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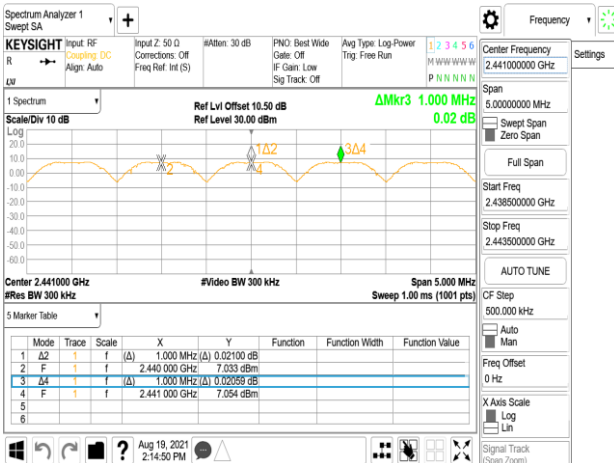
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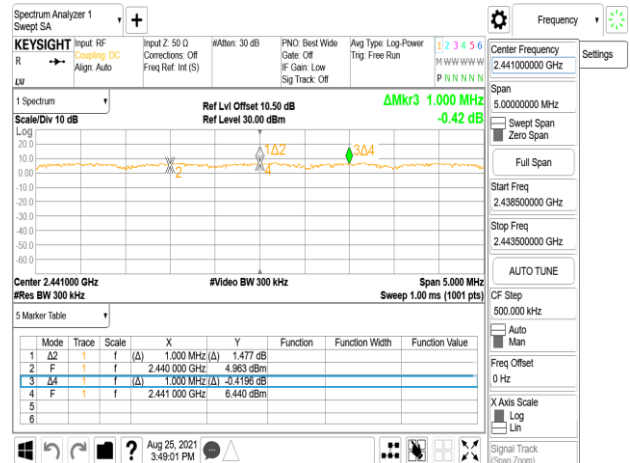
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GFSK_1M_DH5_CH38CH39CH40



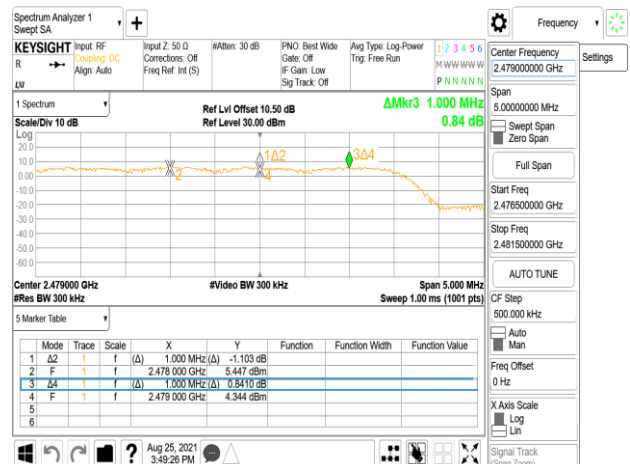
π/4DQPSK_2M_DH5_CH38CH39CH40



GFSK_1M_DH5_CH76CH77CH78



π/4DQPSK_2M_DH5_CH76CH77CH78

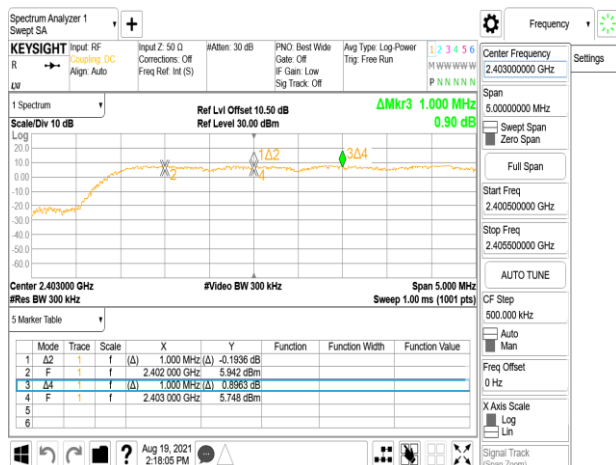


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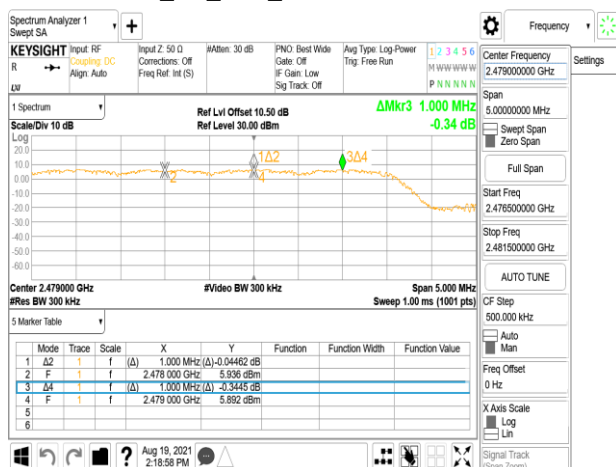
8DPSK_3M_DH5_CH0CH1CH2



8DPSK_3M_DH5_CH38CH39CH40



8DPSK_3M_DH5_CH76CH77CH78



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14 頻道數量測

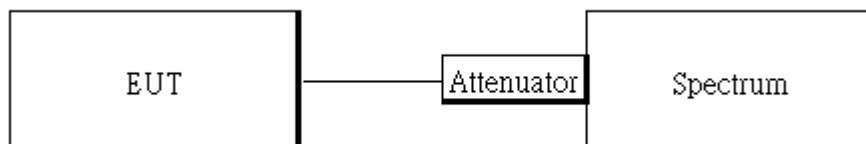
14.1 適用標準

依據NCC低功率射頻器材技術規範4.10.1.6(1)(A)(a)規定，操作於2400 MHz～2483.5 MHz之展頻跳頻系統，須使用至少15 個無重疊的頻道，在0.4 秒乘以跳頻頻道數之週期內，任一頻率占用之平均時間應小於或等於0.4 秒。應使用智慧型跳頻技術，以避免占用於特定跳頻頻道。

14.2 量測儀器

Conducted Emission Test Site: Conducted G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/01/2021	05/31/2022
Attenuator	Marvelous	MVE2213-10	RF06	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF154	11/19/2020	11/18/2021
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R

14.3 測試配置



14.4 量測方法

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows ANSI C63.10:2013.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set spectrum analyzer Start=2400MHz, Stop = 2483.5MHz, Sweep = auto.
5. Set the spectrum analyzer as RBW=430kHz, VBW=1.5MHz., Detector = Peak
6. Max hold, view and count how many channel in the band.

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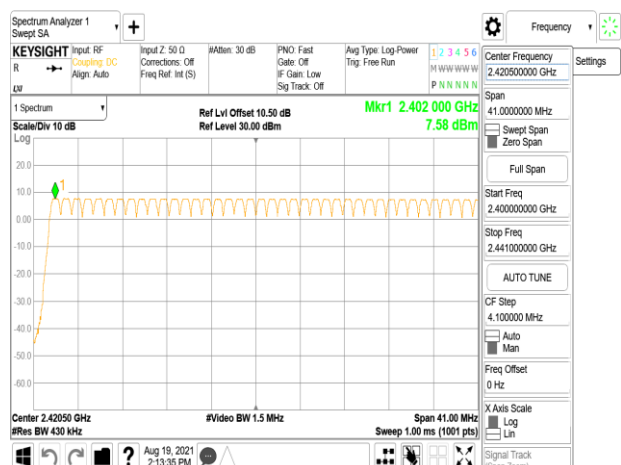
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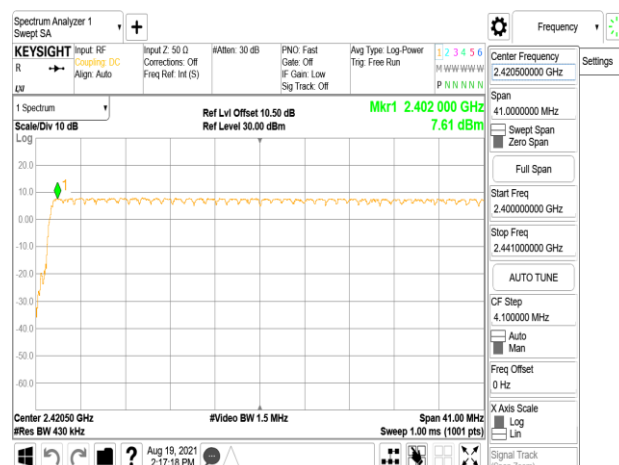
14.5 量測結果

頻道數	限制值 (CH)	量測值 (CH)	調變方式	結果
	≥ 75	79	1M_GFSK	Pass
	≥ 15	79	3M_8DPSK	Pass

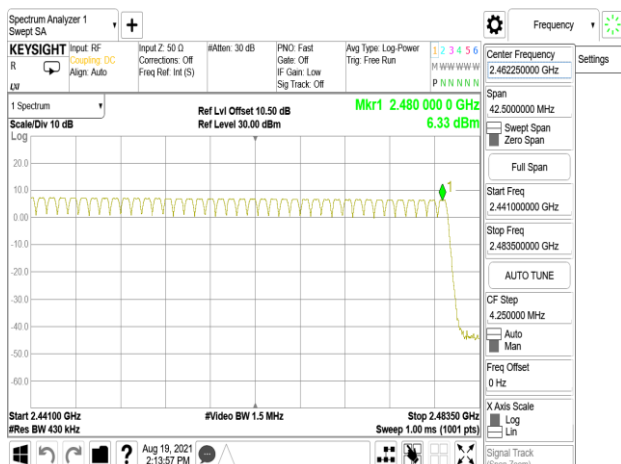
GFSK_1M_DH5_2400-2441



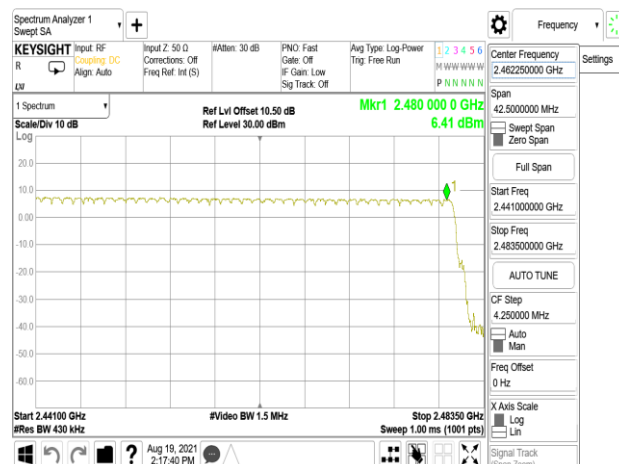
8DPSK_3M_DH5_2400-2441



GFSK_1M_DH5_2441-2480



8DPSK_3M_DH5_2441-2480



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15 載波頻率佔用週期量測

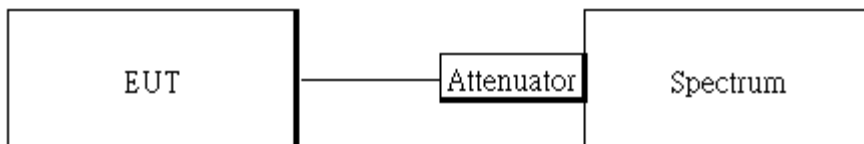
15.1 適用標準

NCC 低功率射頻器材技術規範 4.10.1.6(1)(A)(a) 在 0.4 秒乘以跳頻頻道數之週期內，任一頻率佔用之平均時間不得超過 0.4 秒。

15.2 量測儀器

Conducted Emission Test Site: Conducted G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/01/2021	05/31/2022
Attenuator	Marvelous	MVE2213-10	RF06	11/19/2020	11/18/2021
DC Block	PASTERNAK	PE8210	RF154	11/19/2020	11/18/2021
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R

15.3 測試配置



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15.4 量測方式

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows ANSI C63.10:2015.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set center frequency of spectrum analyzer = operating frequency.
5. Set the spectrum analyzer as RBW, VBW=1MHz, 3MHz, Span = 0Hz , Detector = Peak, Adjust Sweep = 2~8ms.
6. Repeat above procedures until all frequency of the interest measured were complete.
7. Formula Deduced:

time occupancy of one time slot X Hopping rate / total slot in one channel / total channel that hops X period of working channels.

Where, standard hopping rate is 1600 hops/s, slot in one channel for DH1, DH3, and DH5 is 2, 4, and 6, respectively.

DH1 consists of single time slot of the uplink, and one slot of the downlink Total Slot: 2

DH3 consists of three time slot of the uplink, and one slot of the downlink. Total Slot: 4

DH5 consists of five time slot of the uplink, and one slot of the downlink. Total Slot: 6

In AFH mode, hopping rate is 800 hop/s with 6 slots in 20 hopping channels with channel hopping rate $(800 / 6 / 20)$ in Occupancy Time Limit $(0.4 * 20)$ (S), Hop Over Occupancy Time comes to $(800 / 6 / 20) * (0.4 * 20) = 53.33$

Note:

the result of the complete test default channel at 1Mbps is recorded on the test report, 2Mbps, and 3Mbps only records the measurement result at middle channel that reveals no much deviation.

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15.5 開放載波頻率佔用週期量測結果:

GFSK (1Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)	1/T (kHz)	VBW setting (kHz)
Mid	DH1	123.20	400ms	2.597	3.00
	DH3	262.40	400ms	0.610	1.00
	DH5	307.95	400ms	0.346	1.00

 $\pi/4$ DQPSK (2Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)	1/T (kHz)	VBW setting (kHz)
Mid	2DH1	128.00	400ms	2.500	3.00
	2DH3	264.00	400ms	0.606	1.00
	2DH5	307.95	400ms	0.346	1.00

8-DPSK (3Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)	1/T (kHz)	VBW setting (kHz)
Mid	3DH1	128.00	400ms	2.500	3.00
	3DH3	262.40	400ms	0.610	1.00
	3DH5	307.95	400ms	0.346	1.00

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GFSK (1Mbps):

CH Mid	DH1 time slot	=	0.385	*	(1600/2/79)	*	31.6	=	123.20	(ms)
	DH3 time slot	=	1.640	*	(1600/4/79)	*	31.6	=	262.40	(ms)
	DH5 time slot	=	2.887	*	(1600/6/79)	*	31.6	=	307.95	(ms)

 $\pi/4$ -DQPSK (2Mbps):

CH Mid	2DH1 time slot	=	0.400	*	(1600/2/79)	*	31.6	=	128.00	(ms)
	2DH3 time slot	=	1.650	*	(1600/4/79)	*	31.6	=	264.00	(ms)
	2DH5 time slot	=	2.887	*	(1600/6/79)	*	31.6	=	307.95	(ms)

8-DPSK (3Mbps):

CH Mid	3DH1 time slot	=	0.400	*	(1600/2/79)	*	31.6	=	128.00	(ms)
	3DH3 time slot	=	1.640	*	(1600/4/79)	*	31.6	=	262.40	(ms)
	3DH5 time slot	=	2.887	*	(1600/6/79)	*	31.6	=	307.95	(ms)

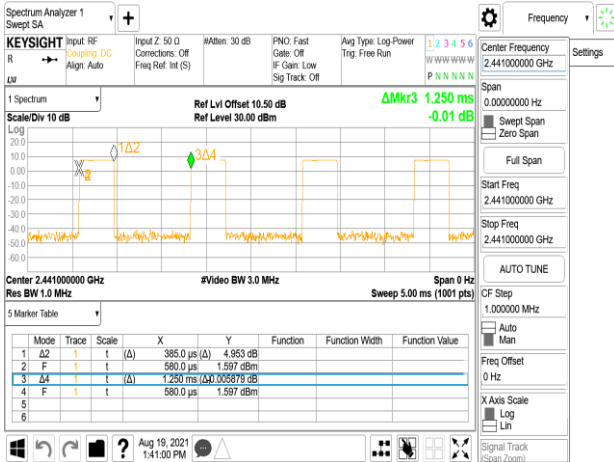
A period time = 0.4 (s) * 79 = 31.6 (s)

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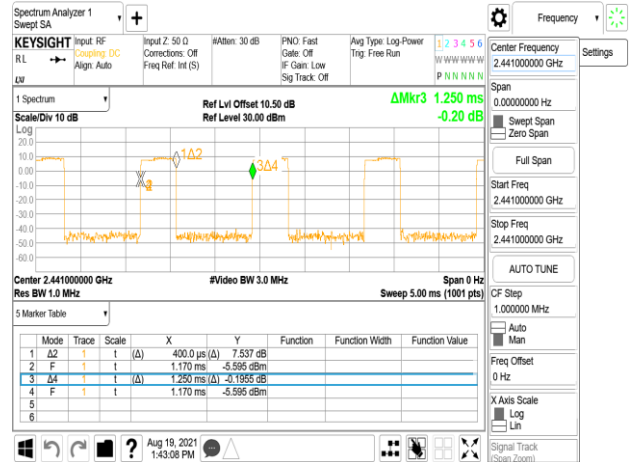
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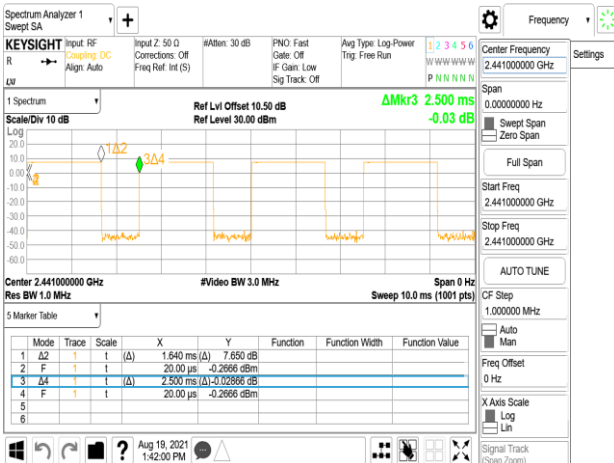
Dwell Time_GFSK_1M_DH1_2441MHz



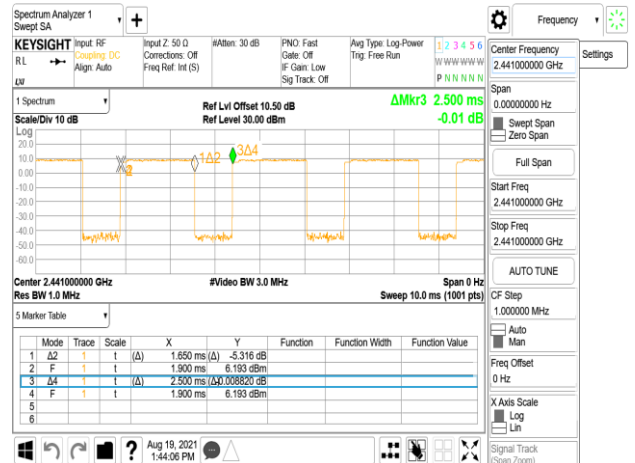
Dwell Time_π/4DQPSK_2M_DH5_2441MHz



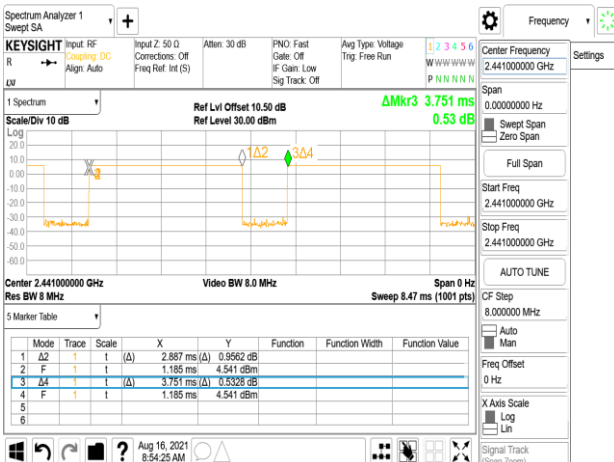
Dwell Time_GFSK_1M_DH3_2441MHz



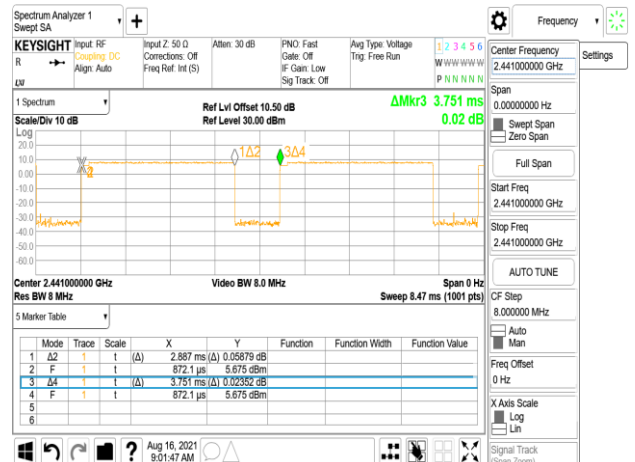
Dwell Time_π/4DQPSK_2M_DH5_2441MHz



Dwell Time_GFSK_1M_DH5_2441MHz



Dwell Time_π/4DQPSK_2M_DH5_2441MHz



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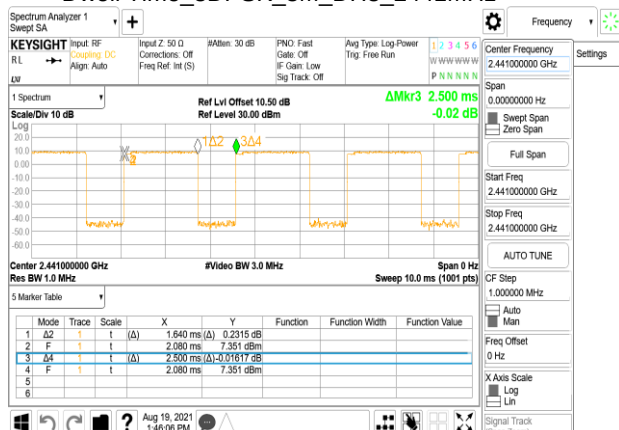
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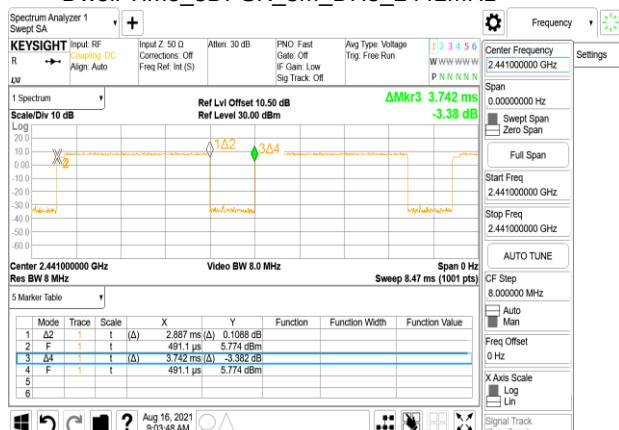
Dwell Time_8DPSK_3M_DH1_2441MHz



Dwell Time_8DPSK_3M_DH3_2441MHz



Dwell Time_8DPSK_3M_DH5_2441MHz



~ End of Report ~

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