

低功率射頻器材技術規範測試報告

報告編號	RTBHKO-WTW-P21090237-2
申請者	Neatframe Limited
產品名稱	Neat Bar Pro
型號	NF-D1
製造廠商	Neatframe Limited
商標或廠牌	neat.
該產品樣品試驗 依據之試驗標準	國家通訊傳播委員會低功率射頻器材技術規範 109 年 7 月 1 日訂定
試驗結果	符合

香港商立德國際商品試驗有限公司桃園分公司 林口實驗室
日期 110 年 11 月 29 日

報告簽署人簽章:

林炳存



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報告發行紀錄

Issue No.	Description	Date Issued
RTBHKO-WTW-P21090237-2	Original release.	110 年 11 月 29 日

證 明 書

發行日期：110 年 11 月 29 日

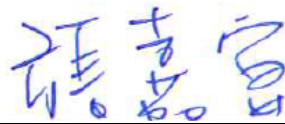
產 品 名 稱： Neat Bar Pro
商 標： neat.
型 號： NF-D1
申 請 者： Neatframe Limited
量 測 規 範： 低功率射頻器材技術規範 LP0002 (訂定日期：109 年 7 月 1 日)
ANSI C63.10-2013

香港商立德國際商品試驗有限公司桃園分公司在此證明上述待測設備樣品一組(型號：NF-D1)，收件日期 110 年 9 月 8 日，於 110 年 10 月 25 日至 11 月 1 日，已在本公司的標準測試場地完成量測。報告中所描述之測試結果和待測設備的架構組合，均根據樣品實際的量測情況作詳實的記錄。

立德桃園分公司依“低功率射頻器材技術規範”及“電信管制射頻器材審驗管理辦法”製作測試結果報告。

特 此 證 明 ！

報告製作者：



張嘉宴 / 高級專員

， 日 期： 110 年 11 月 29 日

審 核 者：



林炳存 / 專案工程師

， 日 期： 110 年 11 月 29 日

香港商立德國際商品試驗有限公司桃園分公司

實驗室地址：新北市林口區嘉寶里 14 鄰 47-2 號

此份報告不得摘錄複製，除全份
複製外，需經實驗室書面同意。



1 低功率射頻器材量測記錄表

申請廠商: Neatframe Limited

製造廠商: Neatframe Limited

申請廠商地址: The Charter Building, Charter Place, Uxbridge, United Kingdom, UB8 1JG

廠牌: neat.

產品名稱: Neat Bar Pro

型號: NF-D1

量測單位名稱: 香港商立德國際商品試驗有限公司桃園分公司 林口實驗室

量測單位地址: 新北市林口區嘉寶里 14 鄰 47-2 號

量測單位認可編號: TAF 2021 (9kHz~40GHz)

量測規範: 低功率射頻器材技術規範 LP0002 (訂定日期: 109 年 7 月 1 日)
ANSI C63.10-2013

項次	量測項目	規 範	量測結果判定
1	帶外發射	低功率射頻器材技術規範 4.10.1.5	符合
2	電源線傳導干擾	低功率射頻器材技術規範 3.3 節	符合
3	20 dB 頻寬	低功率射頻器材技術規範 4.10.1.6 節	Note 1
4	峰值傳導輸出功率	低功率射頻器材技術規範 4.10.1.2 節	符合
5	跳頻頻道數之量測	低功率射頻器材技術規範 4.10.1.6 節	符合
6	跳頻頻道間隔之量測	低功率射頻器材技術規範 4.10.1.6 節	符合
7	每一頻道停留時間之量測	低功率射頻器材技術規範 4.10.1.6 節	符合
8	電波暴露量	低功率射頻器材技術規範第 6.20.2 節	Note 2

備註: 量測結果之判定不考慮量測不確定度的貢獻

Note:

1. 此頻寬測試值為跳頻頻道間隔之量測參考值。
2. 請參照報告: RTBHKO-WTW-P21090237。

2 一般敘述

2.1 待測設備

產品名稱：	Neat Bar Pro
型號：	NF-D1
額定電源：	AC I/P: 100-240V, 50/60Hz, 1.2A
定頻工程軟體：	qdart_verify.win.4.8_installer_00075.204-23-20_02_42_35
調變方式：	GFSK, $\pi/4$ -DQPSK, 8DPSK
傳輸速率：	1/ 2/ 3Mbps
載波頻率：	2402 ~ 2480MHz
頻道數：	79
發射功率(電場強度)：	4.81dBm
天線種類：	見註
電源/信號線類別：	Shielded HDMI cable (2.0m) <蘇州力安捷連接技術有限公司/LYNEA-HDM201> Shielded LAN cable (3.0m) <蘇州力安捷連接技術有限公司/LRJ-8P8C-3000> Non-shielded AC 2-Pin cable (3.0m) <蘇州力安捷連接技術有限公司/LPC-ULC7-3000 & LPC-TWC7-3000> (型號差異僅為銷售區分)
配件：	Neat pad <Brand: neat., Model: A1C or A1> (型號差異僅為銷售區分)

註 1: 此待測設備搭配測試的天線，其資料如下：

Ant. No.	Brand	Model	Gain (dBi)	Antenna Type	Connector Type	Remark
1	INPAQ	RFPCA310735IMLB401	3.64	PCB	ipex	Ant. 1 and Ant. 2 diversity
2	INPAQ	RFPCA401145IMLB401	3.01	PCB	ipex	

Note: 上述天線的規格資訊由申請者聲明，實驗室不承擔任何責任。

註 2: 此報告中傳輸模式於場強輻射之量測1G以下測試，經過評估後以CH0(2402MHz)具有較大的干擾雜訊，因此僅以此傳輸模式(發射及接收)進行最終量測。

註 3: 此報告中，經過評估後以下列測試模式並同時搭配HDMI正常使用模式進行最終量測。

量測項目	頻道
場強輻射量測 - 1GHz 以上量測	發射 GFSK: Ch 0, 39, 78 8DPSK: Ch 0, 39, 78
	接收 GFSK: Ch 0
場強輻射量測 - 其它不必要之訊號	發射/接收 GFSK: Ch 0
電源線傳導干擾量測	發射/接收 GFSK: Ch 0

註 4: 此報告中Bluetooth EDR傳輸模式，除了跳頻頻道數之測試項目外，其餘皆以GFSK調變和8DPSK調變分別進行測試；場強輻射之量測1GHz以下，以GFSK調變技術具有較大干擾值，故以此進行最終量測並記錄於報告中。

註 5: Bluetooth EDR傳輸模式DH1、DH3及DH5皆經過預測試，其中以DH5的傳輸模式具有較大干擾雜訊，故僅以此傳輸模式進行最終量測。

註 6: 功率設定值詳列如下:

Modulation Type	Frequency (MHz)	Power Setting	Frequency (MHz)	Power Setting	Frequency (MHz)	Power Setting
GFSK	2402	8	2441	8	2480	8
8DPSK	2402	8	2441	8	2480	8

註 7: 待測設備於測試時使用以下配件。

*本案器材申請者切結提供隨貨配件與非隨貨配件，測試架構以申請者提供與實驗室提供的配件併同檢測。非隨貨配件之照片請參閱附件。(BV CPS 報告編號: BHKO-WTW-P21090237_SU)

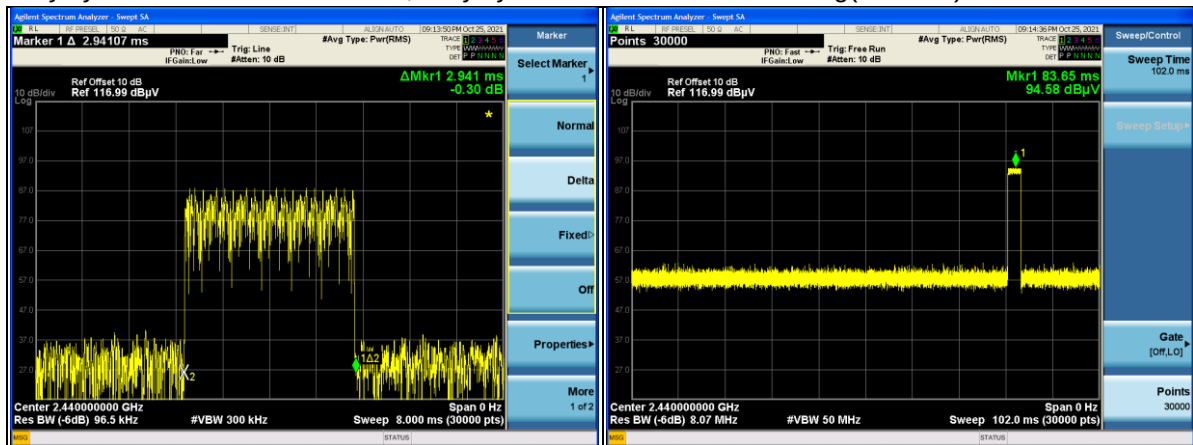
非隨貨配件				
配件	廠牌	型號	規格	備註
USB Type C cable	TCW	UC2100	Shielded 1.7m	申請者提供
HDMI cable	CHANGJIANG	20276	Shielded 1.5m	申請者提供
LAN cable	ktnet	10m	Non-shielded 10m	實驗室提供
LAN cable	ktnet	1m	Non-shielded 1m	實驗室提供

註 8: 待測設備不支援同時發射。

註 9: Duty cycle of test signal

Duty cycle of test signal is < 98%, Duty cycle correction factor shall be considered.

Duty cycle = $2.941/100 = 0.02941$, Duty cycle correction factor = $20 \cdot \log(0.02941) = -30.6$



此裝置各頻道的中心頻率如下：

Bluetooth EDR 頻段：

頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)
0	2402	14	2416	28	2430	42	2444	56	2458	70	2472
1	2403	15	2417	29	2431	43	2445	57	2459	71	2473
2	2404	16	2418	30	2432	44	2446	58	2460	72	2474
3	2405	17	2419	31	2433	45	2447	59	2461	73	2475
4	2406	18	2420	32	2434	46	2448	60	2462	74	2476
5	2407	19	2421	33	2435	47	2449	61	2463	75	2477
6	2408	20	2422	34	2436	48	2450	62	2464	76	2478
7	2409	21	2423	35	2437	49	2451	63	2465	77	2479
8	2410	22	2424	36	2438	50	2452	64	2466	78	2480
9	2411	23	2425	37	2439	51	2453	65	2467		
10	2412	24	2426	38	2440	52	2454	66	2468		
11	2413	25	2427	39	2441	53	2455	67	2469		
12	2414	26	2428	40	2442	54	2456	68	2470		
13	2415	27	2429	41	2443	55	2457	69	2471		

詳細之規格請參考使用說明書，產品的照片請參照 BV 報告編號: BHKO-WTW-P21090237。

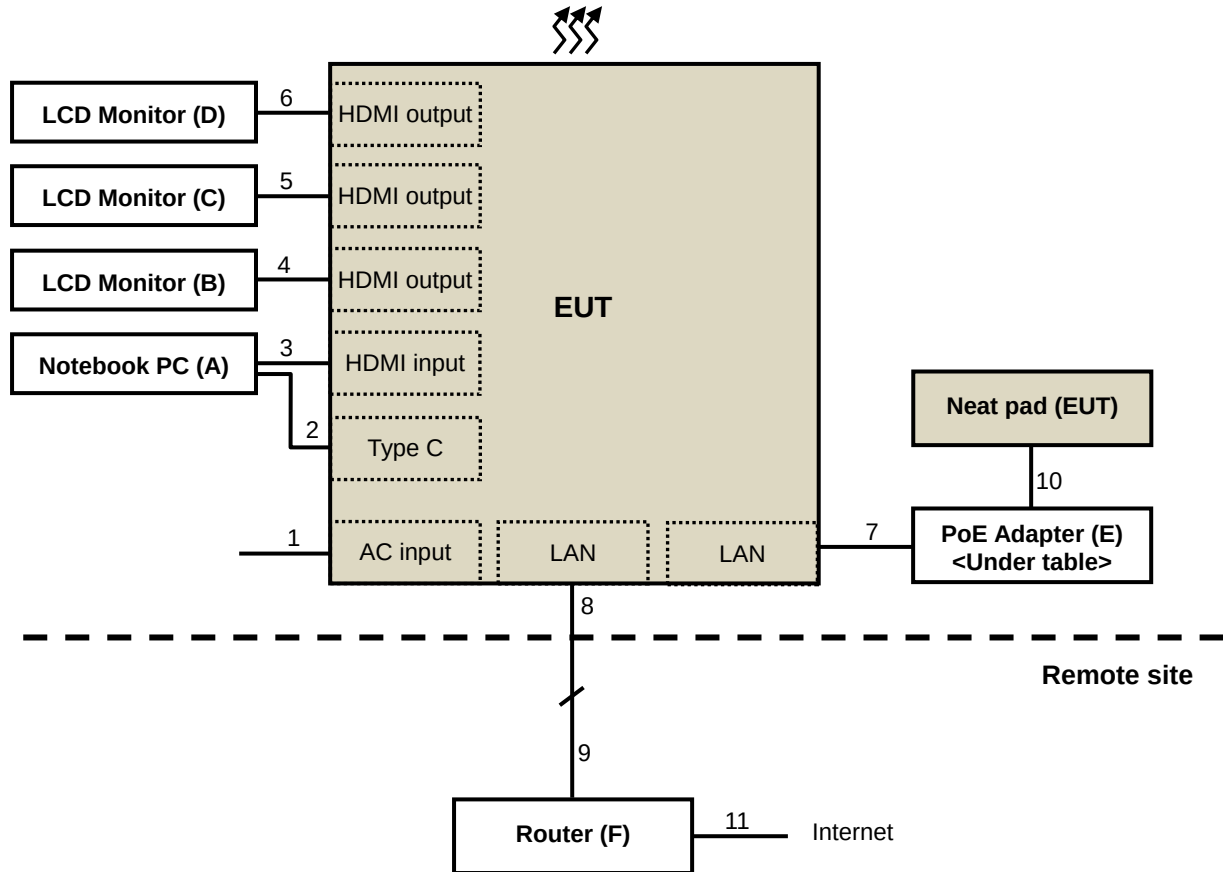
2.2 輔助測試之週邊設備描述

待測設備於受測時均接上其所屬的配件或一般用途之相關設備；下列輔助設備或配件測試中所使用的配備，以形成一個代表待測物實際運作的受測系統。

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook PC	DELL	Latitude 5401	7FJL3X2	N/A	Provided by Lab
B.	LCD Monitor	ASUS	VG289	N/A	N/A	Supplied by applicant
C.	LCD Monitor	ASUS	VG289	N/A	N/A	Supplied by applicant
D.	LCD Monitor	ASUS	VG289	N/A	N/A	Supplied by applicant
E.	POE Adapter	PHIHONG	POE16R-1AFG	N/A	N/A	Supplied by applicant
F.	Router	TOTO Link	N300RB	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/ No)	Cores (Qty.)	Remarks
1.	AC cable	1	3	N	0	Supplied by applicant <蘇州力安捷連接技術有限公司 /LPC-ULC7-3000>
2.	USB Type C cable	1	1.7	Y	0	Supplied by applicant <TCW/ UC2100>
3.	HDMI cable	1	2	Y	0	Supplied by applicant 蘇州力安捷連接技術有限公司 /LYNEA-HDM201
4.	HDMI cable	1	1.5	Y	0	Supplied by applicant <CHANGJIANG/20276>
5.	HDMI cable	1	1.5	Y	0	Supplied by applicant <CHANGJIANG/20276>
6.	HDMI cable	1	1.5	Y	0	Supplied by applicant <CHANGJIANG/20276>
7.	LAN cable	1	3	Y	0	Supplied by applicant <蘇州力安捷連接技術有限公司 /LRJ-8P8C-3000>
8.	LAN cable	1	3	Y	0	Supplied by applicant <蘇州力安捷連接技術有限公司 /LRJ-8P8C-3000>
9.	LAN cable	1	10	Y	0	Provided by Lab (RJ45, Cat.5e) <ktnet/10m>
10.	LAN cable	1	1	N	0	Provided by Lab (RJ45, Cat.5e) <ktnet/1m>
11.	LAN cable	1	1	N	0	Provided by Lab (RJ45, Cat.5e) <ktnet/1m>

2.3 測試架構圖



3 適用規範

3.1 規範要求

(1) 傳導之規定

依據國家通訊傳播委員會低功率射頻器材技術規範之 3.3 節，電源傳導干擾之限制要求如下：

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

(註)：隨頻率之對數遞減。

(2) 帶外發射之規定

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.5 節之要求，操作頻帶範圍外之任意 100 kHz 內，發射機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 kHz 內的射頻功率，其衰減值限制如下：(1) 輸出功率以附件二之峰值輸出功率方式測量者，至少須衰減 20 dB，可使用射頻傳導或輻射方式測量。(2) 輸出功率以 4.10.1.2(1)(C)之最大傳導輸出功率測量方式者，至少須衰減 30 dB。此外，落於 3.5 禁用頻段之輻射發射，應符合 3.6 之規定。

頻率(MHz)	電場強度(微伏特/公尺, uV/m)	測距(公尺)
$0.009 \leq f \leq 0.490$	$2,400/f(\text{kHz})$	300
$0.490 < f \leq 1.705$	$24,000/f(\text{kHz})$	30
$1.705 < f < 30$	30	30
$30 \leq f \leq 88$	100	3
$88 < f \leq 216$	150	3
$216 < f \leq 960$	200	3
$960 < f$	500	3

(3) 天線之規定

天線規格不受第 3.2 節規定之限制。

(4) 天線增益之要求

低功率發射機，依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.3 節之規定如下：

- (A) 進行固定式點對點操作時，其發射天線之方向性增益超過 6 dBi，每超過 3 dBi，最大傳導輸出功率限制值應降低 1 dB。
 - (B) 天線以多向波束發射方式(含同時發射或循序發射)將訊號導向多個接收機或接收機群組時，應符合下列規定：
 - (a) 非同時發射多向波束者，所有載波或頻道傳輸至所有天線陣列或陣列群之總和傳導輸出功率應符合 4.10.1.2 之功率限制值。如天線/天線陣列群之方向性增益超過 6 dBi，每超過 3 dBi，總和傳導輸出功率限制值應降低 1 dB。方向性增益值應計算如下：
 - (i) 方向性增益值 = $10\log(\text{天線陣列之單元數目}) + \text{各單元中最高之方向性增益值}$ 。
 - (ii) 天線陣列間之遮蔽效應或波束干涉損失能充分佐證時，方向性增益得低於(i)計算數值。
 - (b) 同時發射多向波束於相同或不同頻道者，其每一波束功率應符合(a)之功率限制值。如發射波束有重疊現象，功率應降低，以確保總和傳導輸出功率符合(a)之限制值。同時發射的所有波束總和傳導輸出功率不大於(a)總和傳導輸出功率限制值加 8 dB。方向性增益值計算同(a)。
 - (c) 發射機之天線具備單向波束功能者，應符合(1)(A)及(3)後段之規定。
- 除(A)及(B)外，使用超過 6 dBi 方向增益之發射天線時，應依超過 6 dBi 天線方向增益的 dBi 總量，等量減少最大傳導輸出功率限制值。

(5) 峰值傳導輸出功率之要求

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.2 節之規定：
操作於 2400 MHz～2483.5 MHz 者

- (a) 至少使用 75 個跳頻頻道之跳頻系統：1 W(含)以下。
- (b) 除(a)外，依 4.10.1.6 (1)(A)(a)之跳頻系統：0.125 W(含)以下。
- (c) 數位調變技術系統：1 W(含) 以下。

除使用附件二之峰值輸出功率測量方式外，並得使用以最大傳導輸出功率(Maximum Conducted Output Power)作為測量方式。

(6) 跳頻頻道數之量測

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.6 節之規定，操作於 2400-2483.5 MHz 之展頻跳頻系統，須使用至少 15 個無重疊的頻道。應使用智慧型跳頻技術，以避免占用於特定跳頻頻道。

(7) 跳頻頻道間隔之量測

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.6 節之規定，跳頻系統之載波頻率頻道間隔應大於或等於 25 kHz 或跳頻頻道之 20 dB 頻寬，兩者取較寬者。但操作頻率為 2400 MHz～2483.5 MHz 頻段且輸出功率應小於或等於 125 mW 跳頻系統，其載波頻率頻道間隔不得小於 25 kHz 或跳頻頻道 20 dB 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，且應隨所發射之訊號同步偏移接收頻率。

(8) 每一頻道停留時間之量測

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.6 節之規定，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。

(9) 電波暴露量之評估

依據國家通訊傳播委員會低功率射頻器材技術規範 6.20.2 節之規定，若受測物於正常操作模式下，其發射機距離人體 20 公分以上者，可測試最大暴露允許值(Maximum Permissible Exposure, MPE)以證明其符合電波暴露量之要求。

限制值如下：

(1) 職業性/可控制之暴露

頻率範圍 (MHz)	電場強度 (V/m)	磁場強度 (A/m)	功率密度 (mW/cm ²)	平均時間 (minutes)
0.3 - 3.0	614	1.63	*100	6
3 - 30	1842/f	4.89/f	*900/f ²	6
30 - 300	61.4	0.163	1.0	6
300 - 1,500	---	---	f/300	6
1,500 - 100,000	---	---	5.0	6

註 1：標記*表平面波等效功率密度。

註 2：f 表測試頻率，單位：MHz。

(2) 一般人/不可控制之暴露

頻率範圍 (MHz)	電場強度 (V/m)	磁場強度 (A/m)	功率密度 (mW/cm ²)	平均時間 (minutes)
0.3 - 1.34	614	1.63	*100	30
1.34 - 30	824/f	2.19/f	*180/f ²	30
30 - 300	27.5	0.073	0.2	30
300 - 1,500	---	---	f/1500	30
1,500 - 100,000	---	---	1.0	30

註 1：標記*表平面波等效功率密度。

註 2：f 表測試頻率，單位：MHz。

3.2 限制使用之頻帶

除本規範另有規定外，任何低功率射頻器材之主波皆不得使用下表所列各頻段之頻率；低功率射頻器材落於下表所列頻段之混附發射，其電場強度必須符合 3.6 之限制規定。

頻率(兆赫)	頻率(兆赫)	頻率(兆赫)
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	

4 帶外發射之量測

4.1 適用標準

請見本報告 3.1 節第 2 項的規定。

4.2 量測方法

量測頻率 9kHz ~ 30MHz :

將待測物置於0.8米高的非金屬桌面，使其操作在工作狀態。接收天線置於3米外離地1米的高度。測試桌面要360度旋轉，另外接收天線也要分別設置為Parallel軸性(Loop antenna面向EUT)與Perpendicular軸性(Loop antenna與EUT垂直)與Ground-parallel軸性(Loop antenna面向地板) 作量測，以找出最大的輻射電場強度。

量測頻率 30MHz 以上:

在電波暗室，將待測物置於 0.8 米高的非金屬桌面，使其操作在工作狀態。接收天線置於 3 米距離。桌面要 360 度旋轉，另外接收天線從離地 1 米至 4 米升降變化，以找出最大的輻射電場強度，接收天線分別置於水平、垂直極化各執行測試一次。

備註: 對於 1GHz 以上場強輻射的測試，待測物則置於1.5米高的非金屬桌面

4.3 量測儀器

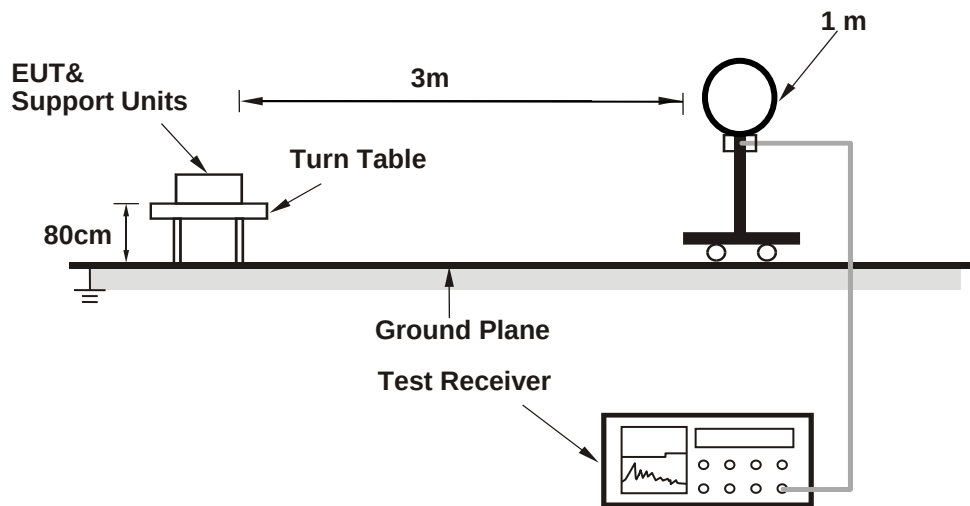
Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Test Receiver Agilent	N9038A	MY51210129	2021/3/12	2022/3/11
Software BVADT	ADT_Radiated_V8.7.08	NA	NA	NA
Software BVADT	ADT_RF Test Software V6.6.5.4	NA	NA	NA
Auto Control System(Antenna Tower, Table, Controller) ADT	SC100+AT100+TT100	0306	NA	NA
Pre_Amplifier EMCI	EMC001340	980269	2021/6/29	2022/6/28
LOOP ANTENNA EMCI	LPA600	270	2021/9/2	2023/9/1
RF Coaxial Cable Pacific	8D-FB	Cable-CH6-02	2021/7/13	2022/7/12
Pre_Amplifier HP	8447D	2432A03504	2021/2/18	2022/2/17
Bi-log Broadband Antenna Schwarzbeck	VULB9168	139	2020/11/6	2021/11/5
Attenuator Mini-Circuits	UNAT-5+	PAD-CH6-01	2021/7/13	2022/7/12
RF Coaxial Cable Pacific	8D-FB	Cable-CH6-02	2021/7/13	2022/7/12
Antenna(Horn) EMCO	3115	00028257	2020/11/22	2021/11/21
Test Receiver Agilent	N9038A	MY51210129	2021/3/12	2022/3/11
Pre-amplifier HP	8449B	3008A01201	2021/2/19	2022/2/18
RF Coaxial Cable NEAT BAR PROER SUHNER	SF-102	Cable-CH6-01	2021/7/8	2022/7/7
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	2021/5/28	2022/5/27
Fix tool for Boresight	BAF-01	5	NA	NA
Pre_Amplifier MITEQ	AMF-6F-260400-33-8P	892164	2021/2/19	2022/2/18
Antenna(Horn) Schwarzbeck	BBHA-9170	BBHA9170190	2020/11/22	2021/11/21
Spectrum Analyzer R&S	FSV40	101544	2021/5/24	2022/5/23
RF Coaxial Cable WOKEN	WC01	Cable-CH10-03	2021/7/8	2022/7/7
RF Coaxial Cable Rosnol	K1K50-UP0279-K1K50-3000	Cable-CH10(3m)-04	2021/7/8	2022/7/7
Highpass filter SUHNER	11SH10-7000/T18000-O/OP	SN 4	2021/5/28	2022/5/27

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in LK - 966 chamber 1.
4. The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

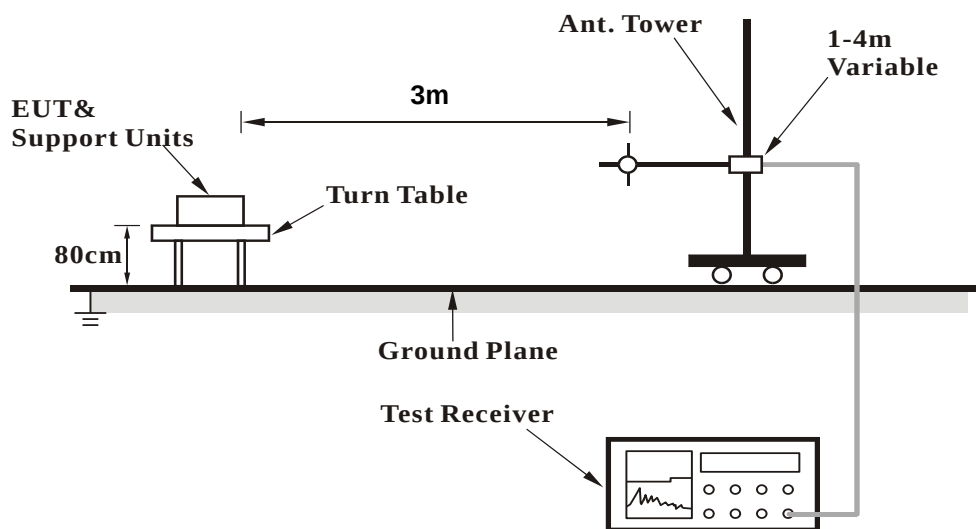
MEASUREMENT	FREQUENCY	UNCERTAINTY
Radiated emissions	9kHz ~ 30MHz	±2.38 dB
	30MHz ~ 1GHz	±5.70 dB
	Above 1GHz	±5.21 dB

4.4 測試配置

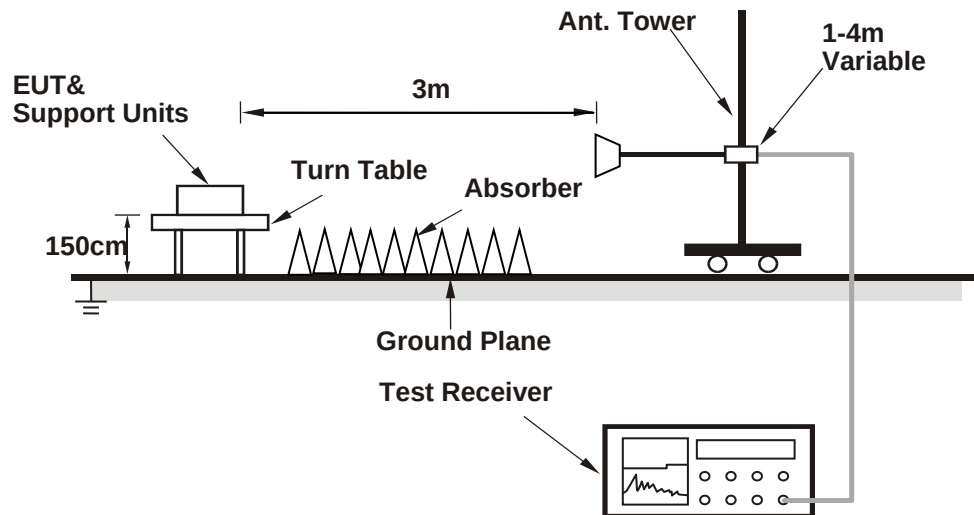
<Frequency Range 9kHz ~ 30MHz>



<Frequency Range 30MHz ~ 1GHz>



<Frequency Range above 1GHz>



4.5 場強度之計算

場強之計算公式如下：

結果值 Emission level (dBuV/m)=機器讀值 Raw Value (dBuV) +校正因子 Correction Factor (dB/m)

餘裕度 Margin(dB)= 結果值 Emission level (dBuV/m)-限制值 Limit value (dBuV/m)

量測結果請見下頁。

4.6 量測結果

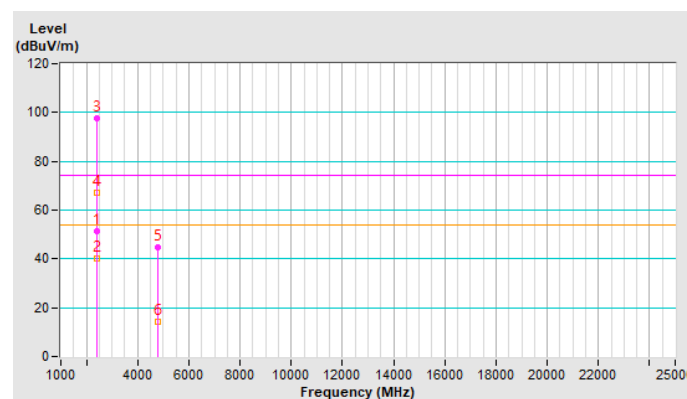
4.6.1 發射諧波

操作模式：	發射 BT_GFSK	調變技術：	GFSK
基本波頻率：	CH 0 : 2402 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頤

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	51.61 PK	74.00	-22.39	2.45 H	87	53.89	-2.28
2	2390.00	40.30 AV	54.00	-13.70	2.45 H	87	42.58	-2.28
3	*2402.00	97.76 PK			2.45 H	87	99.98	-2.22
4	*2402.00	67.16 AV			2.45 H	87	69.38	-2.22
5	4804.00	44.71 PK	74.00	-29.29	1.38 H	291	39.05	5.66
6	4804.00	14.11 AV	54.00	-39.89	1.38 H	291	8.45	5.66
7	#7206.00	-	-	-	-	-	-	-
8	#9608.00	-	-	-	-	-	-	-
9	12010.00	-	-	-	-	-	-	-
10	#14412.00	-	-	-	-	-	-	-
11	#16814.00	-	-	-	-	-	-	-
12	19216.00	-	-	-	-	-	-	-
13	#21618.00	-	-	-	-	-	-	-
14	#24020.00	-	-	-	-	-	-	-

Remarks:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- Margin value = Emission Level – Limit value
- The other emission levels were very low against the limit.
- " * ": Fundamental frequency (主頻).
- " # ": The radiated frequency is out of the restricted band.
- The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
Please refer to the plotted duty (see section 2.1)
- " - ": The emission levels were too low to be detected.
- The blank is not available, the limit of fundamental frequency was restricted at the output power.

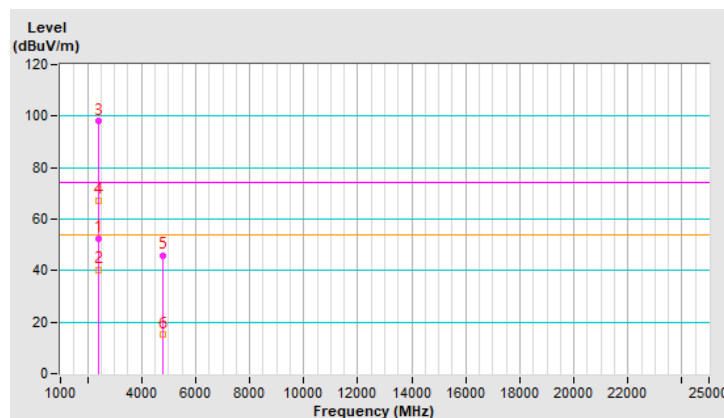


操作模式：	發射 BT_GFSK	調變技術：	GFSK
基本波頻率：	CH 0：2402 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	52.27 PK	74.00	-21.73	1.34 V	176	54.55	-2.28
2	2390.00	40.41 AV	54.00	-13.59	1.34 V	176	42.69	-2.28
3	*2402.00	97.96 PK			1.34 V	176	100.18	-2.22
4	*2402.00	67.36 AV			1.34 V	176	69.58	-2.22
5	4804.00	45.64 PK	74.00	-28.36	2.02 V	268	39.98	5.66
6	4804.00	15.04 AV	54.00	-38.96	2.02 V	268	9.38	5.66
7	#7206.00	-	-	-	-	-	-	-
8	#9608.00	-	-	-	-	-	-	-
9	12010.00	-	-	-	-	-	-	-
10	#14412.00	-	-	-	-	-	-	-
11	#16814.00	-	-	-	-	-	-	-
12	19216.00	-	-	-	-	-	-	-
13	#21618.00	-	-	-	-	-	-	-
14	#24020.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
 Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

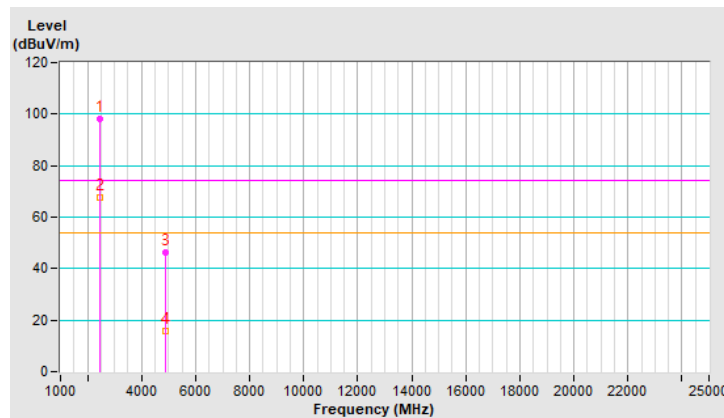


操作模式：	發射 BT_GFSK	調變技術：	GFSK
基本波頻率：	CH 39 : 2441 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	98.13 PK			2.40 H	86	100.27	-2.14
2	*2441.00	67.53 AV			2.40 H	86	69.67	-2.14
3	4882.00	46.36 PK	74.00	-27.64	1.42 H	288	40.67	5.69
4	4882.00	15.76 AV	54.00	-38.24	1.42 H	288	10.07	5.69
5	7323.00	-	-	-	-	-	-	-
6	#9764.00	-	-	-	-	-	-	-
7	12205.00	-	-	-	-	-	-	-
8	#14646.00	-	-	-	-	-	-	-
9	#17087.00	-	-	-	-	-	-	-
10	19528.00	-	-	-	-	-	-	-
11	#21969.00	-	-	-	-	-	-	-
12	#24410.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
20 log(Duty cycle) = 20 log(2.941 ms / 100 ms) = -30.6 dB
Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

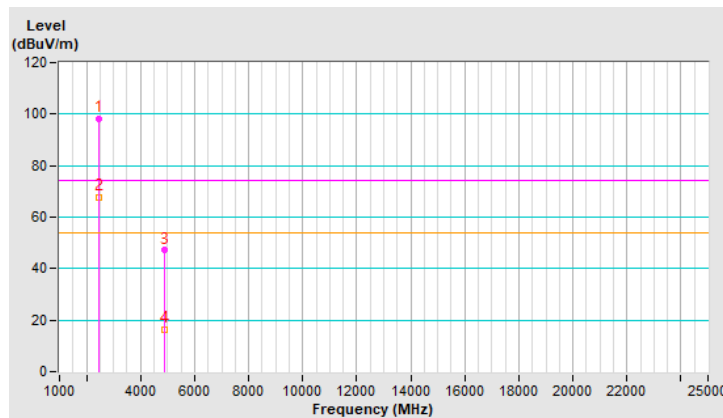


操作模式：	發射 BT_GFSK	調變技術：	GFSK
基本波頻率：	CH 39：2441 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	98.26 PK			1.32 V	178	100.40	-2.14
2	*2441.00	67.66 AV			1.32 V	178	69.80	-2.14
3	4882.00	47.04 PK	74.00	-26.96	1.96 V	273	41.35	5.69
4	4882.00	16.44 AV	54.00	-37.56	1.96 V	273	10.75	5.69
5	7323.00	-	-	-	-	-	-	-
6	#9764.00	-	-	-	-	-	-	-
7	12205.00	-	-	-	-	-	-	-
8	#14646.00	-	-	-	-	-	-	-
9	#17087.00	-	-	-	-	-	-	-
10	19528.00	-	-	-	-	-	-	-
11	#21969.00	-	-	-	-	-	-	-
12	#24410.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
20 log(Duty cycle) = 20 log(2.941 ms / 100 ms) = -30.6 dB
Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

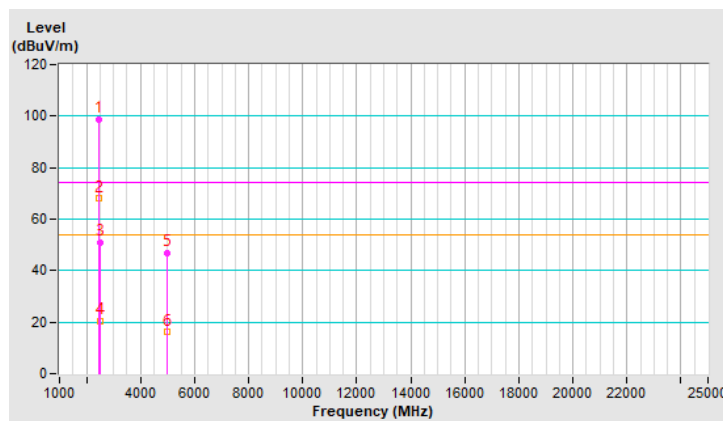


操作模式：	發射 BT_GFSK	調變技術：	GFSK
基本波頻率：	CH 78：2480 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	98.49 PK			1.08 H	113	100.45	-1.96
2	*2480.00	67.89 AV			1.08 H	113	69.85	-1.96
3	2483.50	50.86 PK	74.00	-23.14	1.08 H	113	52.80	-1.94
4	2483.50	20.26 AV	54.00	-33.74	1.08 H	113	22.20	-1.94
5	4960.00	46.62 PK	74.00	-27.38	1.45 H	286	40.76	5.86
6	4960.00	16.02 AV	54.00	-37.98	1.45 H	286	10.16	5.86
7	7440.00	-	-	-	-	-	-	-
8	#9920.00	-	-	-	-	-	-	-
9	12400.00	-	-	-	-	-	-	-
10	#14880.00	-	-	-	-	-	-	-
11	#17360.00	-	-	-	-	-	-	-
12	19840.00	-	-	-	-	-	-	-
13	22320.00	-	-	-	-	-	-	-
14	#24800.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

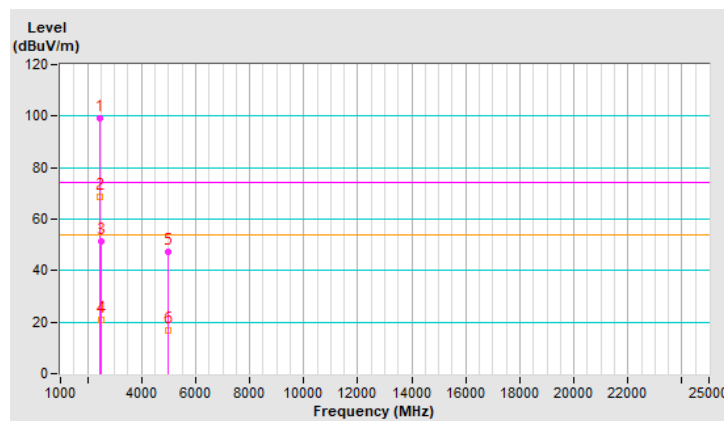


操作模式：	發射 BT_GFSK	調變技術：	GFSK
基本波頻率：	CH 78：2480 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	99.25 PK			2.34 V	68	101.21	-1.96
2	*2480.00	68.65 AV			2.34 V	68	70.61	-1.96
3	2483.50	51.58 PK	74.00	-22.42	2.34 V	68	53.52	-1.94
4	2483.50	20.98 AV	54.00	-33.02	2.34 V	68	22.92	-1.94
5	4960.00	47.31 PK	74.00	-26.69	2.01 V	274	41.45	5.86
6	4960.00	16.71 AV	54.00	-37.29	2.01 V	274	10.85	5.86
7	7440.00	-	-	-	-	-	-	-
8	#9920.00	-	-	-	-	-	-	-
9	12400.00	-	-	-	-	-	-	-
10	#14880.00	-	-	-	-	-	-	-
11	#17360.00	-	-	-	-	-	-	-
12	19840.00	-	-	-	-	-	-	-
13	22320.00	-	-	-	-	-	-	-
14	#24800.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

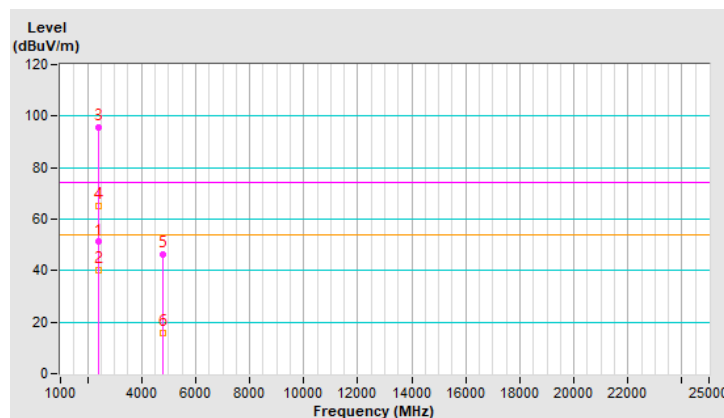


操作模式：	發射 BT_8DPSK	調變技術：	BT_8DPSK
基本波頻率：	CH 0：2402 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	51.16 PK	74.00	-22.84	2.45 H	85	53.44	-2.28
2	2390.00	40.10 AV	54.00	-13.90	2.45 H	85	42.38	-2.28
3	*2402.00	95.76 PK			2.45 H	85	97.98	-2.22
4	*2402.00	65.16 AV			2.45 H	85	67.38	-2.22
5	4804.00	46.22 PK	74.00	-27.78	1.36 H	289	40.56	5.66
6	4804.00	15.62 AV	54.00	-38.38	1.36 H	289	9.96	5.66
7	#7206.00	-	-	-	-	-	-	-
8	#9608.00	-	-	-	-	-	-	-
9	12010.00	-	-	-	-	-	-	-
10	#14412.00	-	-	-	-	-	-	-
11	#16814.00	-	-	-	-	-	-	-
12	19216.00	-	-	-	-	-	-	-
13	#21618.00	-	-	-	-	-	-	-
14	#24020.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
 Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

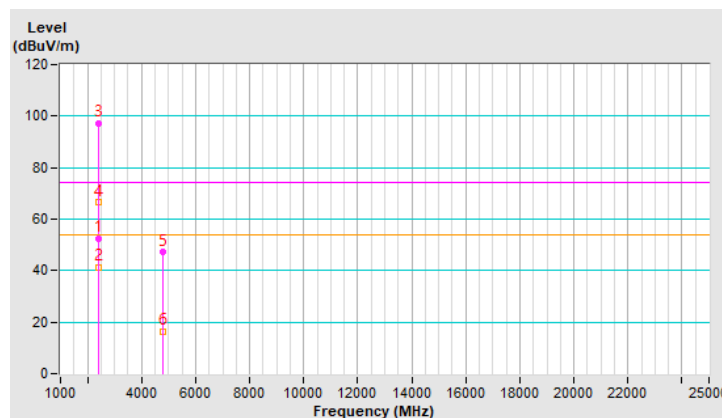


操作模式：	發射 BT_8DPSK	調變技術：	BT_8DPSK
基本波頻率：	CH 0：2402 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	52.27 PK	74.00	-21.73	1.35 V	176	54.55	-2.28
2	2390.00	41.11 AV	54.00	-12.89	1.35 V	176	43.39	-2.28
3	*2402.00	97.04 PK			1.35 V	176	99.26	-2.22
4	*2402.00	66.44 AV			1.35 V	176	68.66	-2.22
5	4804.00	47.08 PK	74.00	-26.92	2.05 V	266	41.42	5.66
6	4804.00	16.48 AV	54.00	-37.52	2.05 V	266	10.82	5.66
7	#7206.00	-	-	-	-	-	-	-
8	#9608.00	-	-	-	-	-	-	-
9	12010.00	-	-	-	-	-	-	-
10	#14412.00	-	-	-	-	-	-	-
11	#16814.00	-	-	-	-	-	-	-
12	19216.00	-	-	-	-	-	-	-
13	#21618.00	-	-	-	-	-	-	-
14	#24020.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

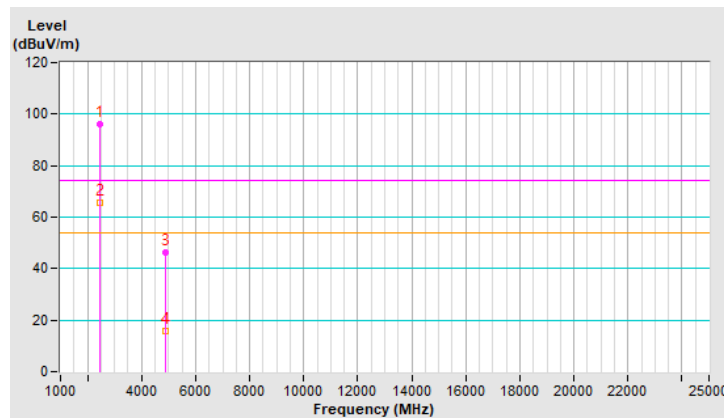


操作模式：	發射 BT_8DPSK	調變技術：	BT_8DPSK
基本波頻率：	CH 39：2441 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	96.05 PK			2.39 H	86	98.19	-2.14
2	*2441.00	65.45 AV			2.39 H	86	67.59	-2.14
3	4882.00	46.27 PK	74.00	-27.73	1.37 H	287	40.58	5.69
4	4882.00	15.67 AV	54.00	-38.33	1.37 H	287	9.98	5.69
5	7323.00	-	-	-	-	-	-	-
6	#9764.00	-	-	-	-	-	-	-
7	12205.00	-	-	-	-	-	-	-
8	#14646.00	-	-	-	-	-	-	-
9	#17087.00	-	-	-	-	-	-	-
10	19528.00	-	-	-	-	-	-	-
11	#21969.00	-	-	-	-	-	-	-
12	#24410.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + $20 \log(\text{Duty cycle})$ Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

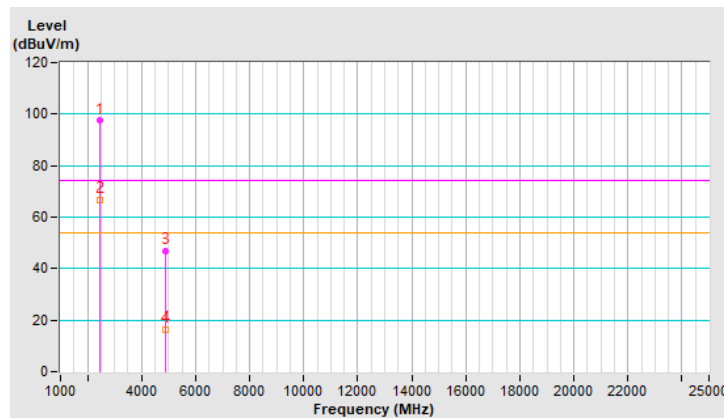


操作模式：	發射 BT_8DPSK	調變技術：	BT_8DPSK
基本波頻率：	CH 39：2441 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	97.38 PK			1.32 V	179	99.52	-2.14
2	*2441.00	66.78 AV			1.32 V	179	68.92	-2.14
3	4882.00	46.97 PK	74.00	-27.03	2.08 V	269	41.28	5.69
4	4882.00	16.37 AV	54.00	-37.63	2.08 V	269	10.68	5.69
5	7323.00	-	-	-	-	-	-	-
6	#9764.00	-	-	-	-	-	-	-
7	12205.00	-	-	-	-	-	-	-
8	#14646.00	-	-	-	-	-	-	-
9	#17087.00	-	-	-	-	-	-	-
10	19528.00	-	-	-	-	-	-	-
11	#21969.00	-	-	-	-	-	-	-
12	#24410.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
20 log(Duty cycle) = 20 log(2.941 ms / 100 ms) = -30.6 dB
Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

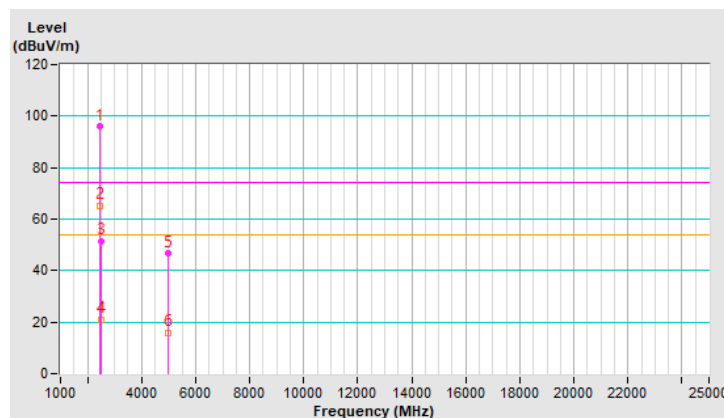


操作模式：	發射 BT_8DPSK	調變技術：	BT_8DPSK
基本波頻率：	CH 78：2480 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	95.85 PK			1.08 H	111	97.81	-1.96
2	*2480.00	65.25 AV			1.08 H	111	67.21	-1.96
3	2483.50	51.33 PK	74.00	-22.67	1.08 H	111	53.27	-1.94
4	2483.50	20.73 AV	54.00	-33.27	1.08 H	111	22.67	-1.94
5	4960.00	46.53 PK	74.00	-27.47	1.45 H	296	40.67	5.86
6	4960.00	15.93 AV	54.00	-38.07	1.45 H	296	10.07	5.86
7	7440.00	-	-	-	-	-	-	-
8	#9920.00	-	-	-	-	-	-	-
9	12400.00	-	-	-	-	-	-	-
10	#14880.00	-	-	-	-	-	-	-
11	#17360.00	-	-	-	-	-	-	-
12	19840.00	-	-	-	-	-	-	-
13	22320.00	-	-	-	-	-	-	-
14	#24800.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.

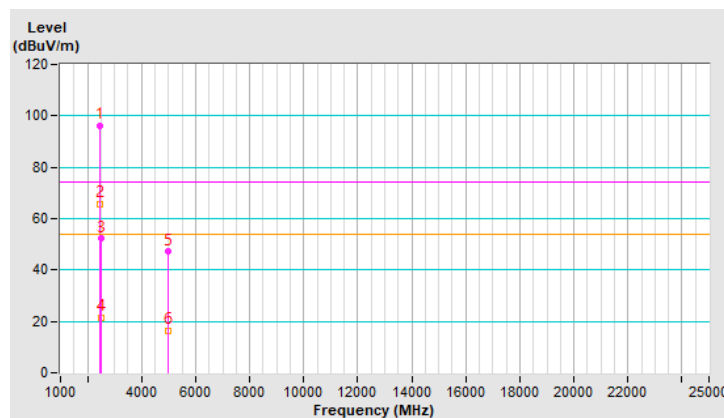


操作模式：	發射 BT_8DPSK	調變技術：	BT_8DPSK
基本波頻率：	CH 78：2480 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) 1M/3M detector RMS trace AV
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	96.31 PK			2.36 V	65	98.27	-1.96
2	*2480.00	65.71 AV			2.36 V	65	67.67	-1.96
3	2483.50	52.19 PK	74.00	-21.81	2.36 V	65	54.13	-1.94
4	2483.50	21.59 AV	54.00	-32.41	2.36 V	65	23.53	-1.94
5	4960.00	47.07 PK	74.00	-26.93	2.04 V	263	41.21	5.86
6	4960.00	16.47 AV	54.00	-37.53	2.04 V	263	10.61	5.86
7	7440.00	-	-	-	-	-	-	-
8	#9920.00	-	-	-	-	-	-	-
9	12400.00	-	-	-	-	-	-	-
10	#14880.00	-	-	-	-	-	-	-
11	#17360.00	-	-	-	-	-	-	-
12	19840.00	-	-	-	-	-	-	-
13	22320.00	-	-	-	-	-	-	-
14	#24800.00	-	-	-	-	-	-	-

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency (主頻).
6. " # ": The radiated frequency is out of the restricted band.
7. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
 $20 \log(\text{Duty cycle}) = 20 \log(2.941 \text{ ms} / 100 \text{ ms}) = -30.6 \text{ dB}$
 Please refer to the plotted duty (see section 2.1)
8. " - ": The emission levels were too low to be detected.
9. The blank is not available, the limit of fundamental frequency was restricted at the output power.



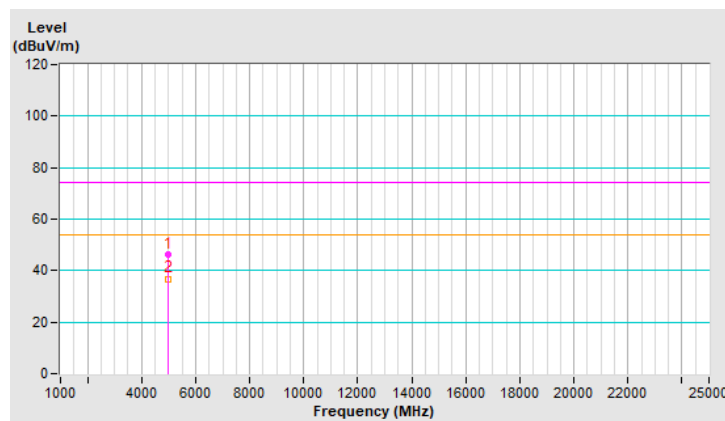
4.6.2 接收諧波

操作模式：	接收		
基本波頻率：	CH 0 : 2402 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3MHz(RMS)
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頤

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4804.00	46.07 PK	74.00	-27.93	1.87 H	211	40.41	5.66
2	4804.00	36.46 AV	54.00	-17.54	1.87 H	211	30.80	5.66

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.

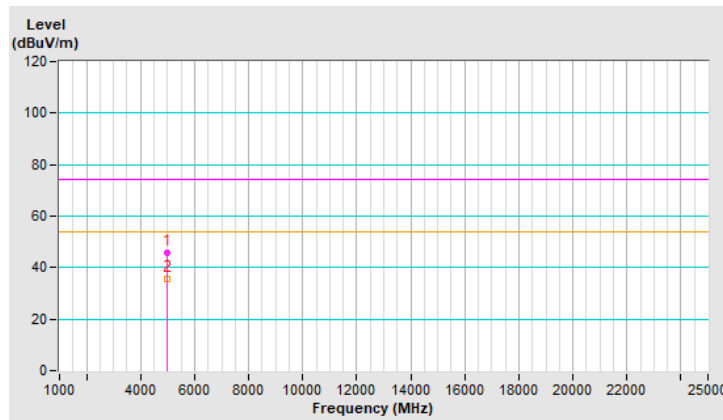


操作模式：	接收		
基本波頻率：	CH 0 : 2402 MHz	檢測器與頻寬：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3MHz(RMS)
量測場地溫度：	22 °C	量測場地濕度：	58% RH
測試日期：	110 年 10 月 25 日	測試者：	吳俊頡

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4804.00	45.94 PK	74.00	-28.06	1.22 V	149	40.28	5.66
2	4804.00	35.53 AV	54.00	-18.47	1.22 V	149	29.87	5.66

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.



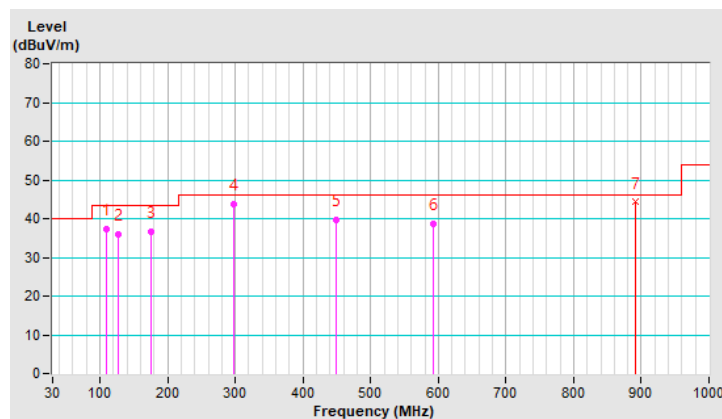
4.6.3 其它不必要之訊號

操作模式：	發射接收 BT_GFSK	調變技術：	GFSK
基本波頻率：	CH 0：2402 MHz	檢測器與頻寬：	(QP) RB=120kHz
量測場地溫度：	25 °C	量測場地濕度：	72% RH
測試日期：	110 年 11 月 1 日	測試者：	張君煌

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	110.17	37.34 QP	43.50	-6.16	2.55 H	192	47.09	-9.75
2	127.73	35.93 QP	43.50	-7.57	3.16 H	243	43.90	-7.97
3	175.06	36.73 QP	43.50	-6.77	2.28 H	332	43.51	-6.78
4	296.99	43.74 QP	46.00	-2.26	1.46 H	154	48.01	-4.27
5	448.46	39.59 QP	46.00	-6.41	2.43 H	222	40.46	-0.87
6	592.55	38.78 QP	46.00	-7.22	1.75 H	144	36.65	2.13
7	890.99	44.31 QP	46.00	-1.69	2.38 H	144	36.72	7.59

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

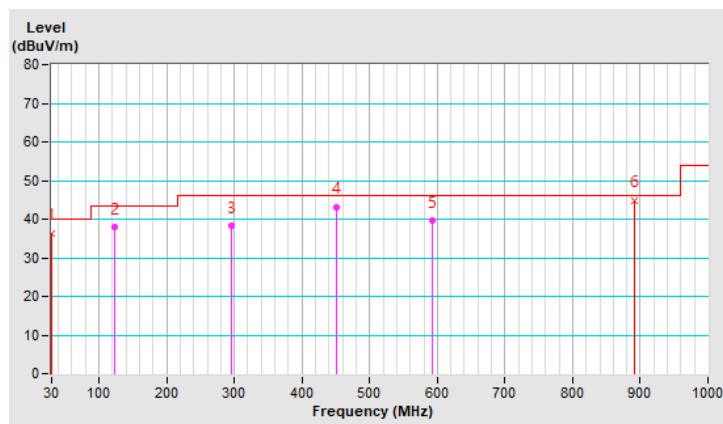


操作模式：	發射接收 BT_GFSK	調變技術：	GFSK
基本波頻率：	CH 0：2402 MHz	檢測器與頻寬：	(QP) RB=120kHz
量測場地溫度：	25 °C	量測場地濕度：	72% RH
測試日期：	110 年 11 月 1 日	測試者：	張君煌

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.63	36.24 QP	40.00	-3.76	1.24 V	142	45.07	-8.83
2	123.07	37.81 QP	43.50	-5.69	1.33 V	360	46.28	-8.47
3	296.26	38.20 QP	46.00	-7.80	1.87 V	198	42.49	-4.29
4	451.17	43.08 QP	46.00	-2.92	2.26 V	149	43.89	-0.81
5	592.60	39.51 QP	46.00	-6.49	2.41 V	190	37.38	2.13
6	890.99	44.68 QP	46.00	-1.32	1.08 V	186	37.09	7.59

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

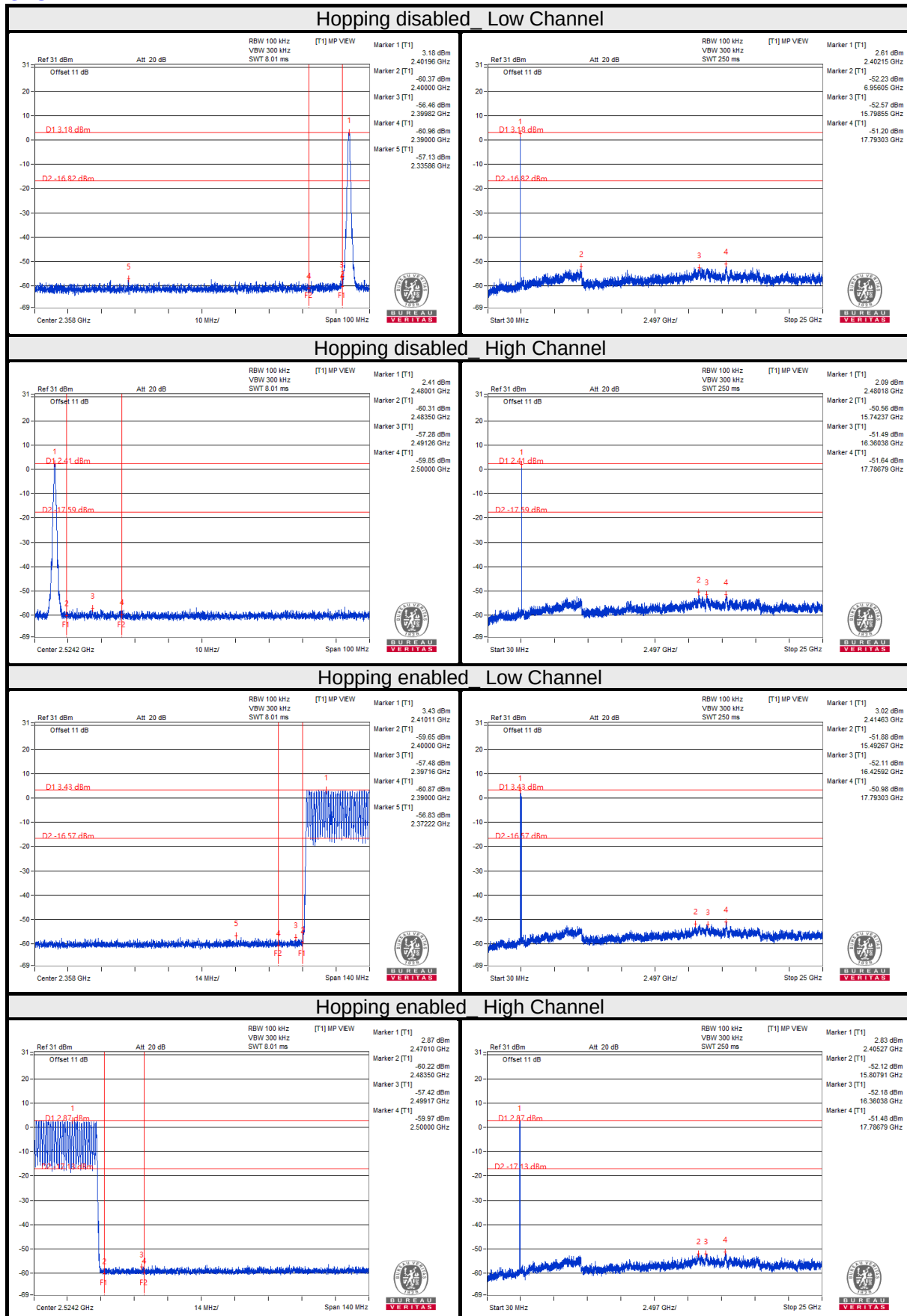


4.7 配置照片

請參照 Test Setup Photos: BHKO-WTW-P21090237_TSup

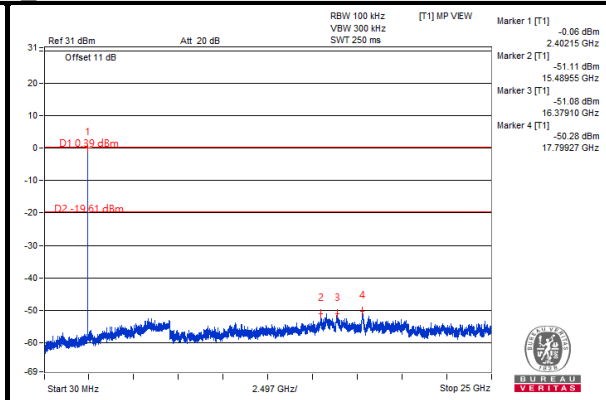
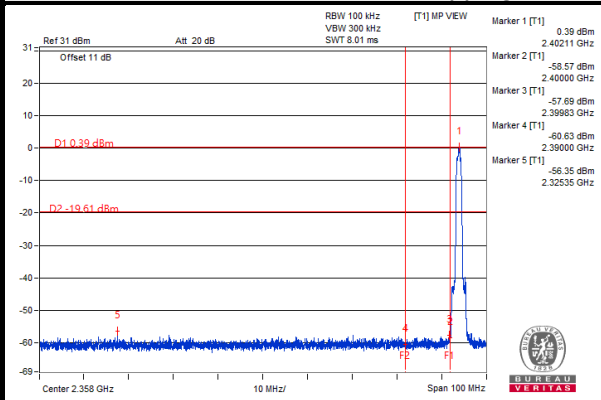
4.8 帶外發射之量測(傳導)

GFSK

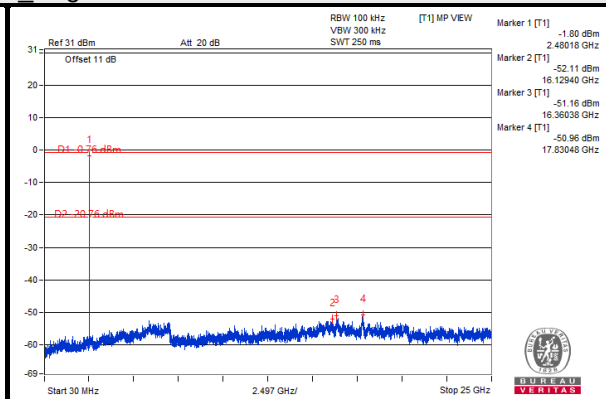
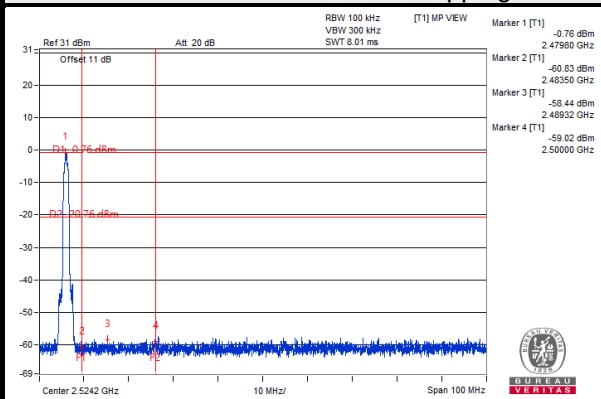


8DPSK

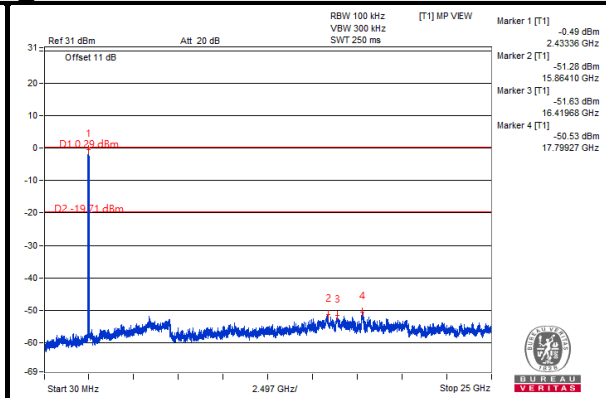
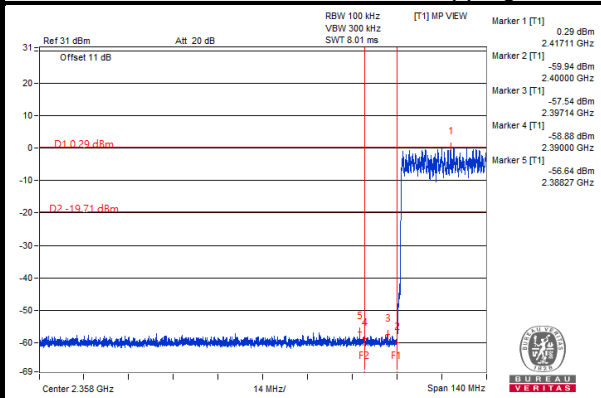
Hopping disabled Low Channel



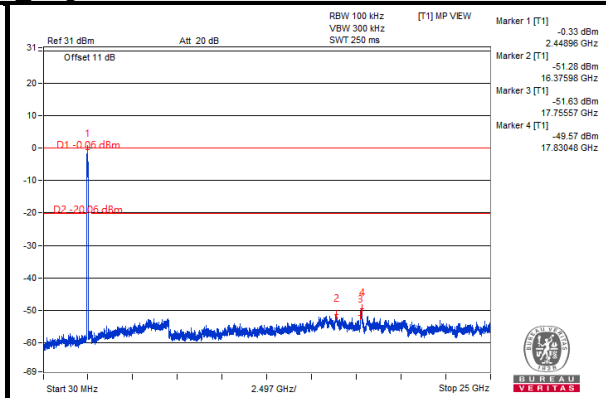
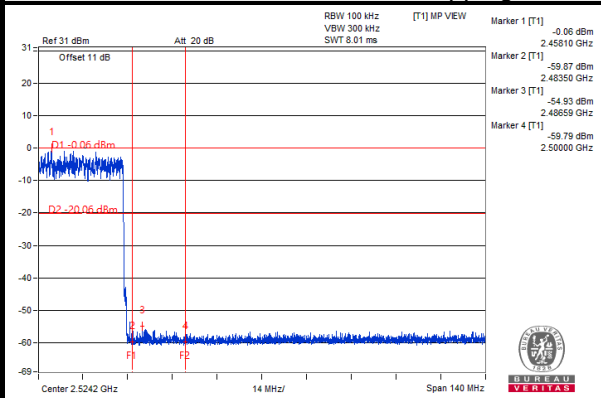
Hopping disabled High Channel



Hopping enabled Low Channel



Hopping enabled High Channel



4.9 量測結果判定

依據測試數據結果，符合低功率射頻器材技術規範之要求。

5 電源線傳導干擾之量測

5.1 適用標準

請見本報告 3.1 節第 1 項的規定。

5.2 量測方法

將待測物置於 0.8 米高的非金屬桌面，使其操作在工作狀態，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。

5.3 量測儀器

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Test Receiver ESR3 R&S	ESR3	102412	2021/1/29	2022/1/28
LISN SCHWARZBECK	NSLK 8128	8128-244	2020/11/19	2021/11/18
LISN SCHWARZBECK	NNLK8129	8129229	2021/5/20	2022/5/19
DC LISN SCHWARZBECK	NNLK 8121	8121-808	2021/4/18	2022/4/17
LISN SCHWARZBECK	NNLK 8121	8121-731	2021/4/28	2022/4/27
LISN R&S	ENV216	101196	2021/4/26	2022/4/25
LISN R&S	ESH3-Z5	100220	2020/12/1	2021/11/30
LISN R&S	ESH3-Z6	844950/018	2021/7/25	2022/7/24
DC LISN R&S	ESH3-Z6	100219	2021/7/25	2022/7/24
High Voltage Probe Schwarzbeck	TK9420	00982	2021/1/8	2022/1/7
RF Coaxial Cable Commate	5D-FB	Cable-CO5-01	2021/1/29	2022/1/28
Attenuator STI	STI02-2200-10	NO.4	2021/9/3	2022/9/2
50 Ohms Terminator LYNICS	0900510	E1-01-305	2021/2/17	2022/2/16
Isolation Transformer Erika Fiedler	D-65396	017	2021/9/9	2022/9/8
Software BVADT	Cond_V7.3.7.4	NA	NA	NA

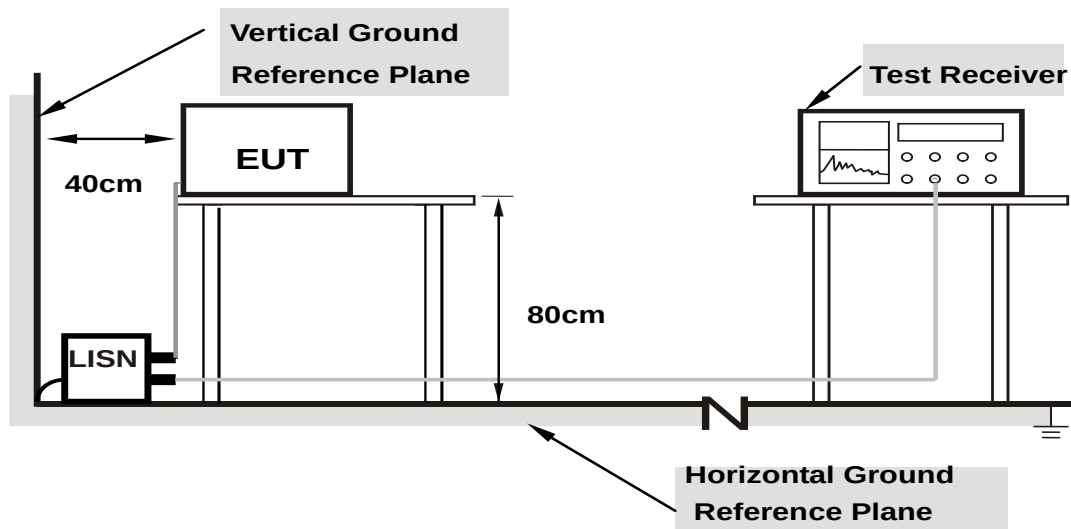
Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in Linkou Conduction05

3 The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

Measurement	Uncertainty
Conducted emissions	±3.00 dB

5.4 測試配置



Note: 1.Support units were connected to second LISN.

5.5 干擾值之計算

餘裕度 Margin(dB)= 結果值 Emission level (dBuV)-限制值 Limit value (dBuV)

電源傳導干擾電壓之計算公式如下

結果值 Emission level (dBuV)=校正因子 Correction Factor (dB)+儀器讀值 Reading value (dBuV)

其中校正因子 Correction Factor (dB)為：

饋線損失+電源阻抗模擬網路損失

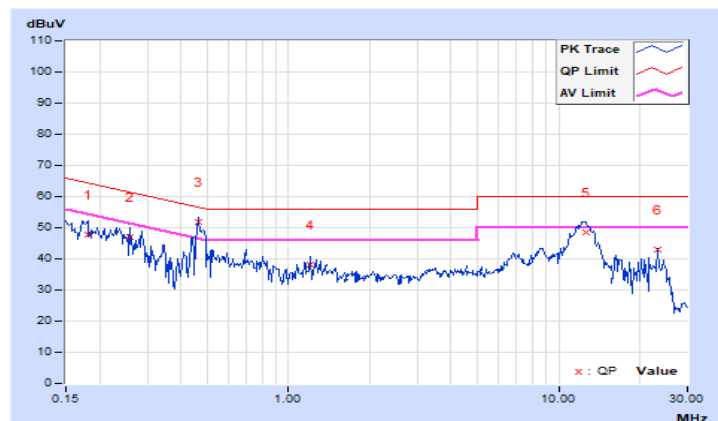
5.6 量測結果

操作模式：	發射接收 BT_GFSK	基本波頻率：	CH 0 : 2402 MHz
量測頻率範圍：	150kHz ~ 30MHz	檢測器與頻寬：	準峰值 (QP) / 平均值 (AV), 9kHz
量測場地溫度：	25 °C	量測場地濕度：	75% RH
測試日期：	110 年 10 月 27 日	測試者：	張君煌

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	9.88	38.04	30.11	47.92	39.99	64.43	54.43	-16.51	-14.44
2	0.25938	9.89	37.20	28.42	47.09	38.31	61.45	51.45	-14.36	-13.14
3	0.46641	9.91	41.81	32.51	51.72	42.42	56.58	46.58	-4.86	-4.16
4	1.20703	9.96	28.27	21.57	38.23	31.53	56.00	46.00	-17.77	-14.47
5	12.65234	10.28	38.42	30.99	48.70	41.27	60.00	50.00	-11.30	-8.73
6	23.12891	10.48	32.33	30.99	42.81	41.47	60.00	50.00	-17.19	-8.53

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

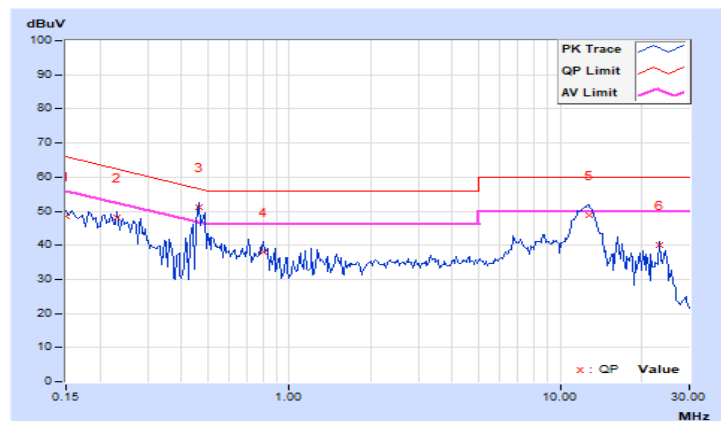


操作模式：	發射接收 BT_GFSK	基本波頻率：	CH 0 : 2402 MHz
量測頻率範圍：	150kHz ~ 30MHz	檢測器與頻寬：	準峰值 (QP) / 平均值 (AV), 9kHz
量測場地溫度：	25 °C	量測場地濕度：	75% RH
測試日期：	110 年 10 月 27 日	測試者：	張君煌

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.89	38.45	32.26	48.34	42.15	66.00	56.00	-17.66	-13.85
2	0.23203	9.89	38.18	30.55	48.07	40.44	62.38	52.38	-14.31	-11.94
3	0.46250	9.92	41.34	32.50	51.26	42.42	56.65	46.65	-5.39	-4.23
4	0.80625	9.94	28.10	22.90	38.04	32.84	56.00	46.00	-17.96	-13.16
5	12.77344	10.31	38.42	31.07	48.73	41.38	60.00	50.00	-11.27	-8.62
6	23.12891	10.50	29.42	28.41	39.92	38.91	60.00	50.00	-20.08	-11.09

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



5.7 量測結果判定

依據測試數據結果，符合低功率射頻器材技術規範之要求。

5.8 配置照片

請參照 Test Setup Photos: BHKO-WTW-P21090237_TSup

6 20 dB 頻寬之量測

6.1 適用標準

請見本報告 3.1 節第 7 項的規定。

6.2 量測方法

- 將待測物輸出經由衰減器接到頻譜分析儀上。
- 設定待測物處於連續發射狀態。
- 計算由最大輸出功率峰值減 20dB 的最大頻率範圍。

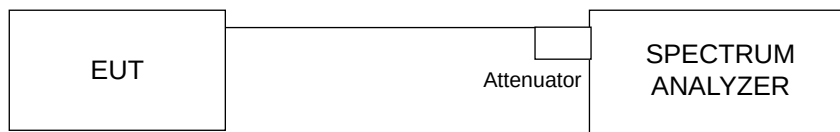
6.3 量測儀器

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Spectrum Analyzer R&S	FSV40	101042	2021/9/9	2022/9/8

NOTE:

- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- The measurement uncertainty is $\pm 2.63\text{dB}$, which is calculated as per the document ETSI TR 100 028. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

6.4 測試配置



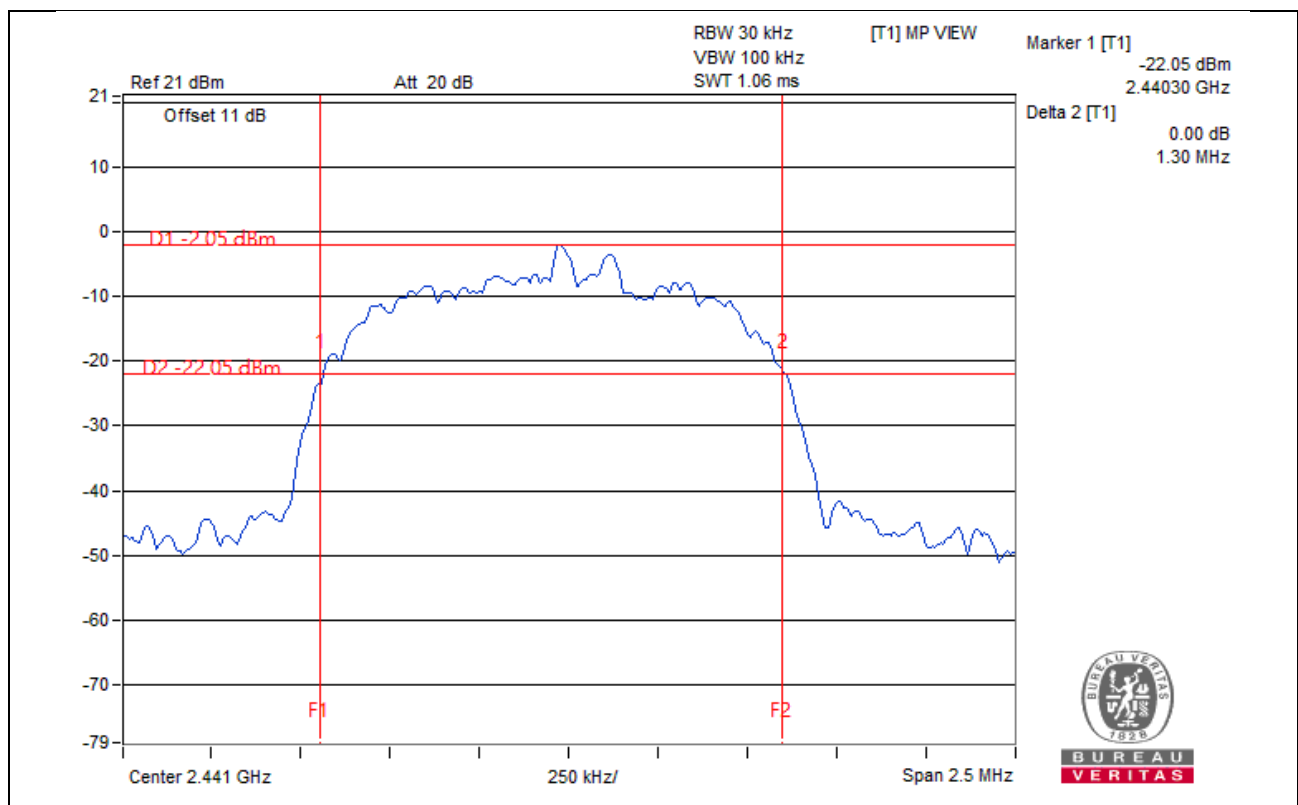
6.5 量測結果

操作模式	發射	測試日期	110 年 10 月 28 日
量測場地溫度	25°C	量測場地濕度	76%RH
測試者	謝昕霖		

Channel	Channel Frequency (MHz)	20 dB Bandwidth (MHz)		>= 25kHz
		GFSK	8DPSK	
0	2402	0.94	1.29	YES
39	2441	0.94	1.30	YES
78	2480	0.94	1.30	YES

註：依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.6 節之規定，跳頻系統之載波頻率頻道間隔應大於或等於 25 kHz 或跳頻頻道之 20 dB 頻寬，兩者取較寬者。但操作頻率為 2400 MHz~2483.5 MHz 頻段且輸出功率應小於或等於 125 mW 跳頻系統，其載波頻率頻道間隔不得小於 25 kHz 或跳頻頻道 20 dB 頻寬之三分之二，兩者取較寬者。

**此測試圖僅放測試結果最差的頻道。



6.6 量測結果判定

依據測試數據結果，三分之二 20dB 頻寬值乃為此產品之載波頻率頻道間隔的判定限制值。

7 峰值傳導輸出功率之量測

7.1 適用標準

請見本報告 3.1 節第 5 項的規定。

7.2 量測方法

- 將待測物輸出經由衰減器接到頻譜分析儀上。
- 設定待測物處於連續發射狀態。
- 計算其峰值傳導輸出功率。

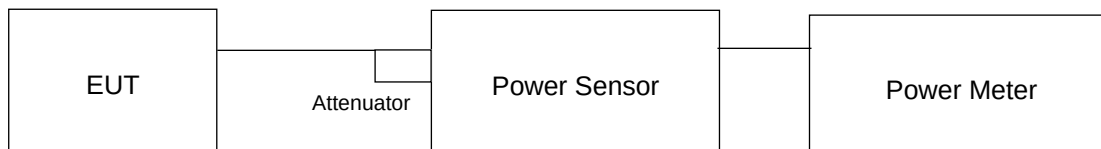
7.3 量測儀器

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Pulse Power Sensor Anritsu	MA2411B	0738404	2021/4/15	2022/4/14
Peak Power meter Anritsu	ML2495A	0842014	2021/4/15	2022/4/14

NOTE:

- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- The measurement uncertainty is $\pm 2.63\text{dB}$, which is calculated as per the document ETSI TR 100 028. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

7.4 測試配置



7.5 量測結果

操作模式	發射	測試日期	110 年 10 月 28 日
量測場地溫度	25°C	量測場地濕度	76%RH
測試者	謝昕霖		

FOR PEAK POWER

Channel	Frequency (MHz)	Output Power (mW)		Output Power (dBm)		Power Limit (mW)	Pass / Fail
		GFSK	8DPSK	GFSK	8DPSK		
0	2402	3.027	1.510	4.81	1.79	125	Pass
39	2441	2.871	1.476	4.58	1.69	125	Pass
78	2480	2.523	1.291	4.02	1.11	125	Pass

Note: 待測物操作頻率為 2400 MHz~2483.5 MHz 頻段，且輸出功率應小於或等於 125 mW 跳頻系統，其載波頻率頻道間隔不得小於跳頻頻道 20 dB 頻寬之三分之二，參考 9.5 章節(頻道間隔)量測結果。

FOR AVERAGE POWER

Channel	Frequency (MHz)	Output Power (mW)		Output Power (dBm)	
		GFSK	8DPSK	GFSK	8DPSK
0	2402	2.742	1.279	4.38	1.07
39	2441	2.624	1.250	4.19	0.97
78	2480	2.275	1.084	3.57	0.35

Note: 待測物操作頻率為 2400 MHz~2483.5 MHz 頻段，且輸出功率應小於或等於 125 mW 跳頻系統，其載波頻率頻道間隔不得小於跳頻頻道 20 dB 頻寬之三分之二，參考 9.5 章節(頻道間隔)量測結果。

7.6 量測結果判定

依據測試數據結果，符合低功率射頻器材技術規範之要求。

8 跳頻頻道數之量測

8.1 適用標準

請見本報告 3.1 節第 6 項的規定。

8.2 量測方法

- 將待測物輸出接到頻譜分析儀上。
- 設定待測物處於正常傳輸跳頻模式下。
- 設定 RBW= 100 kHz，VBW=300 kHz，量測跳頻頻道數。

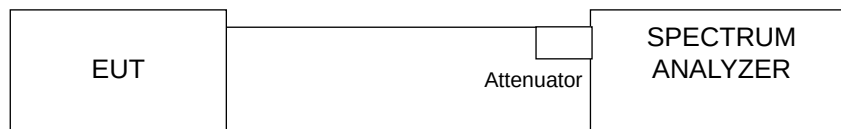
8.3 量測儀器

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Spectrum Analyzer R&S	FSV40	101042	2021/9/9	2022/9/8

NOTE:

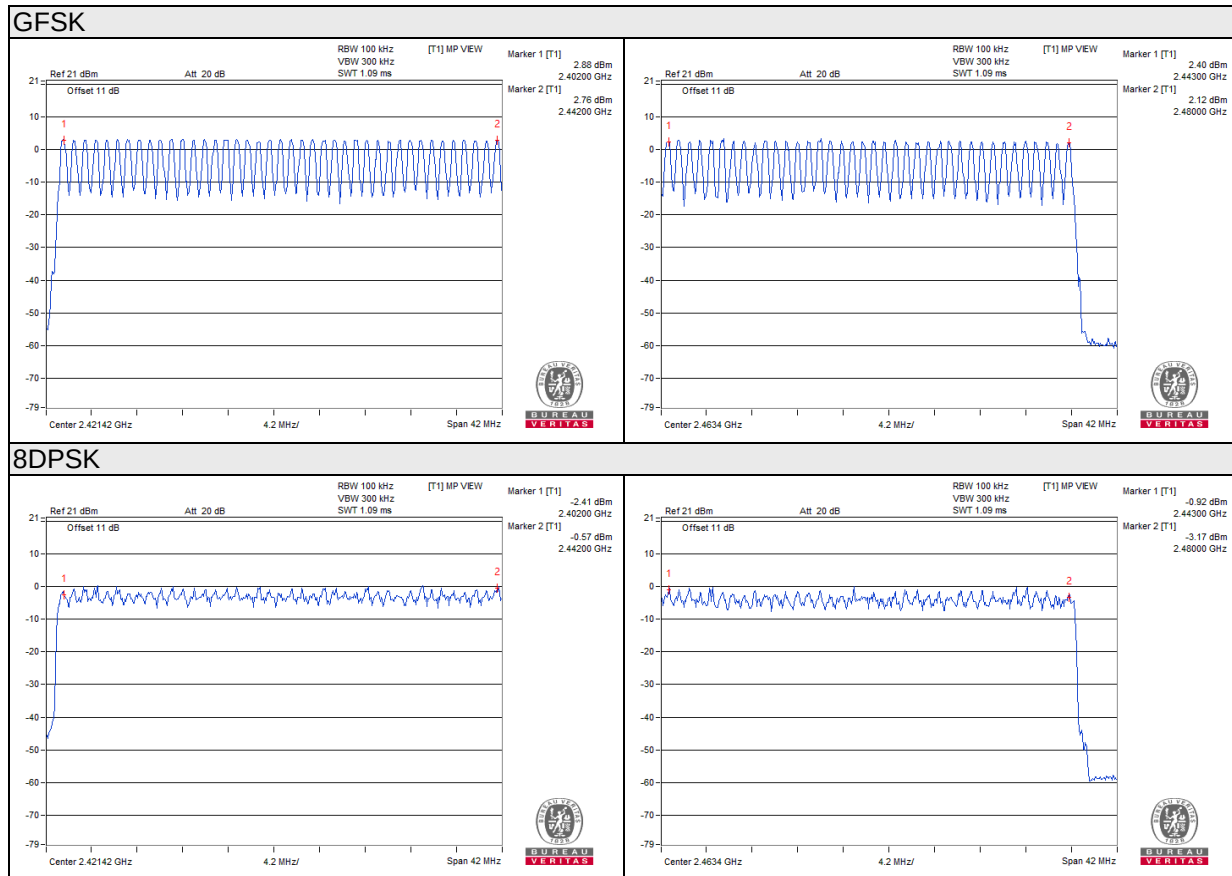
- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- The measurement uncertainty is $\pm 2.63\text{dB}$, which is calculated as per the document ETSI TR 100 028. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

8.4 測試配置



8.5 量測結果

其掃描圖請參閱下圖。跳頻頻道數共有 79 個，符合至少 15 個的規定。



8.6 量測結果判定

依據測試數據結果，符合低功率射頻器材技術規範之要求。

9 跳頻頻道間隔之量測

9.1 適用標準

請見本報告 3.1 節第 7 項規定。

9.2 量測方法

- 將待測物輸出接到頻譜分析儀上。
- 設定待測物處於連續發射狀態。
- 設定 RBW= 30 kHz, VBW=100 kHz，量測相鄰兩個頻道間的間隔。

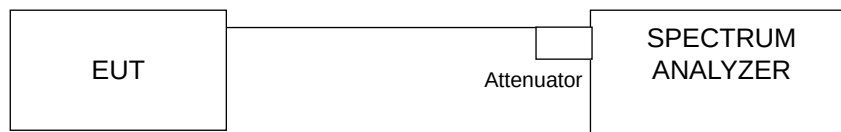
9.3 量測儀器

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Spectrum Analyzer R&S	FSV40	101042	2021/9/9	2022/9/8

NOTE:

- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- The measurement uncertainty is $\pm 2.63\text{dB}$, which is calculated as per the document ETSI TR 100 028. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

9.4 測試配置



9.5 量測結果

操作模式	發射	測試日期	110 年 10 月 28 日
量測場地溫度	25°C	量測場地濕度	76%RH
測試者	謝昕霖		

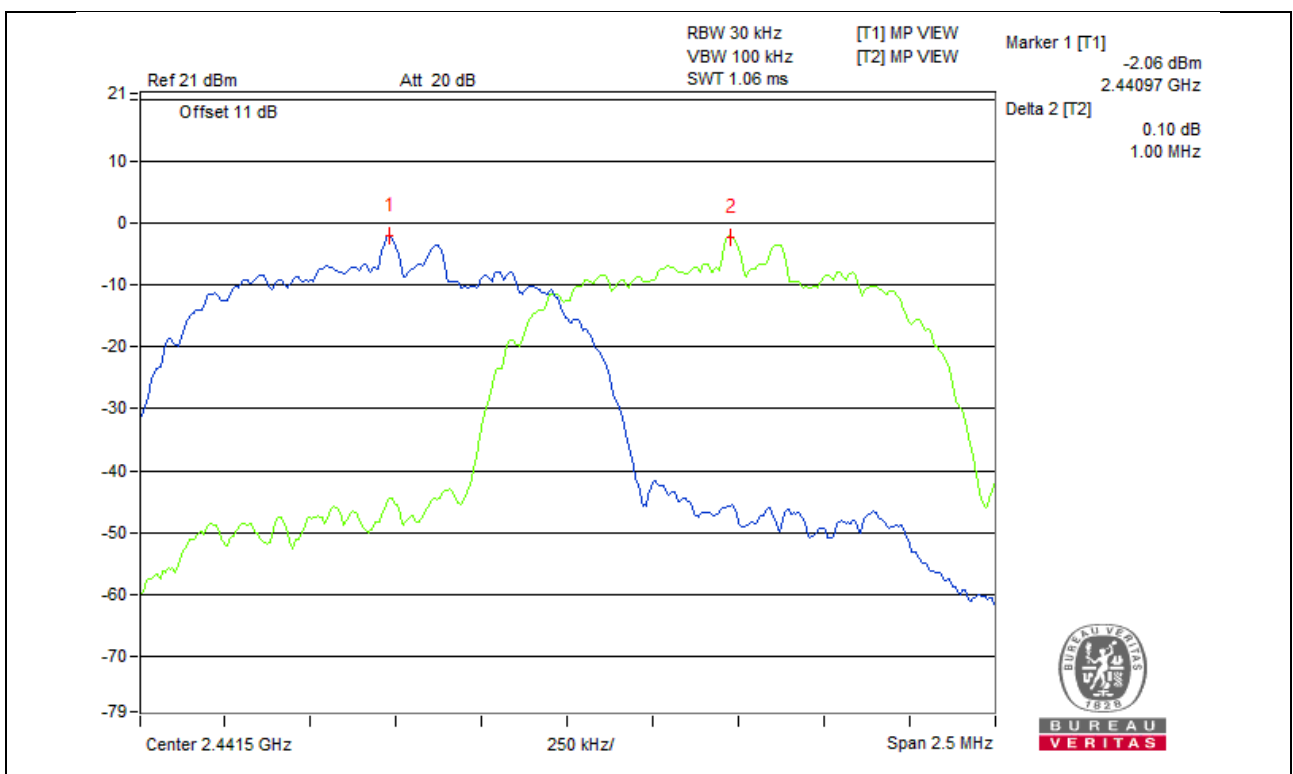
GFSK

Channel	Frequency (MHz)	Adjacent Channel Separation (MHz)	20dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
0	2402	1.00	0.94	0.63	Pass
39	2441	1.00	0.94	0.63	Pass
78	2480	1.00	0.94	0.63	Pass

8DPSK

Channel	Frequency (MHz)	Adjacent Channel Separation (MHz)	20dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
0	2402	1.00	1.29	0.86	Pass
39	2441	1.00	1.30	0.87	Pass
78	2480	1.00	1.30	0.87	Pass

**此測試圖僅放測試結果最差的頻道。



9.6 量測結果判定

依據測試數據結果，符合低功率射頻器材技術規範之要求。

10 每一頻道停留時間之量測

10.1 適用標準

請見本報告 3.1 節第 8 項的規定。

10.2 量測方法

- 將待測物輸出接到頻譜分析儀上。
- 設定待測物處於正常傳輸跳頻模式下。
- 設定 RBW= 100kHz, VBW=300kHz, 量測在不同傳輸模式下的頻道停留時間。

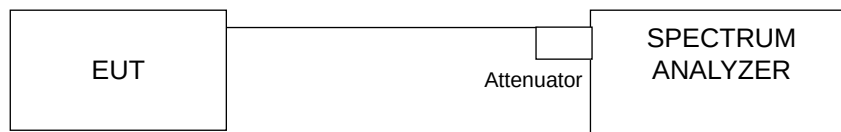
10.3 量測儀器

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Spectrum Analyzer R&S	FSV40	101042	2021/9/9	2022/9/8

NOTE:

- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- The measurement uncertainty is $\pm 2.63\text{dB}$, which is calculated as per the document ETSI TR 100 028. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

10.4 測試配置



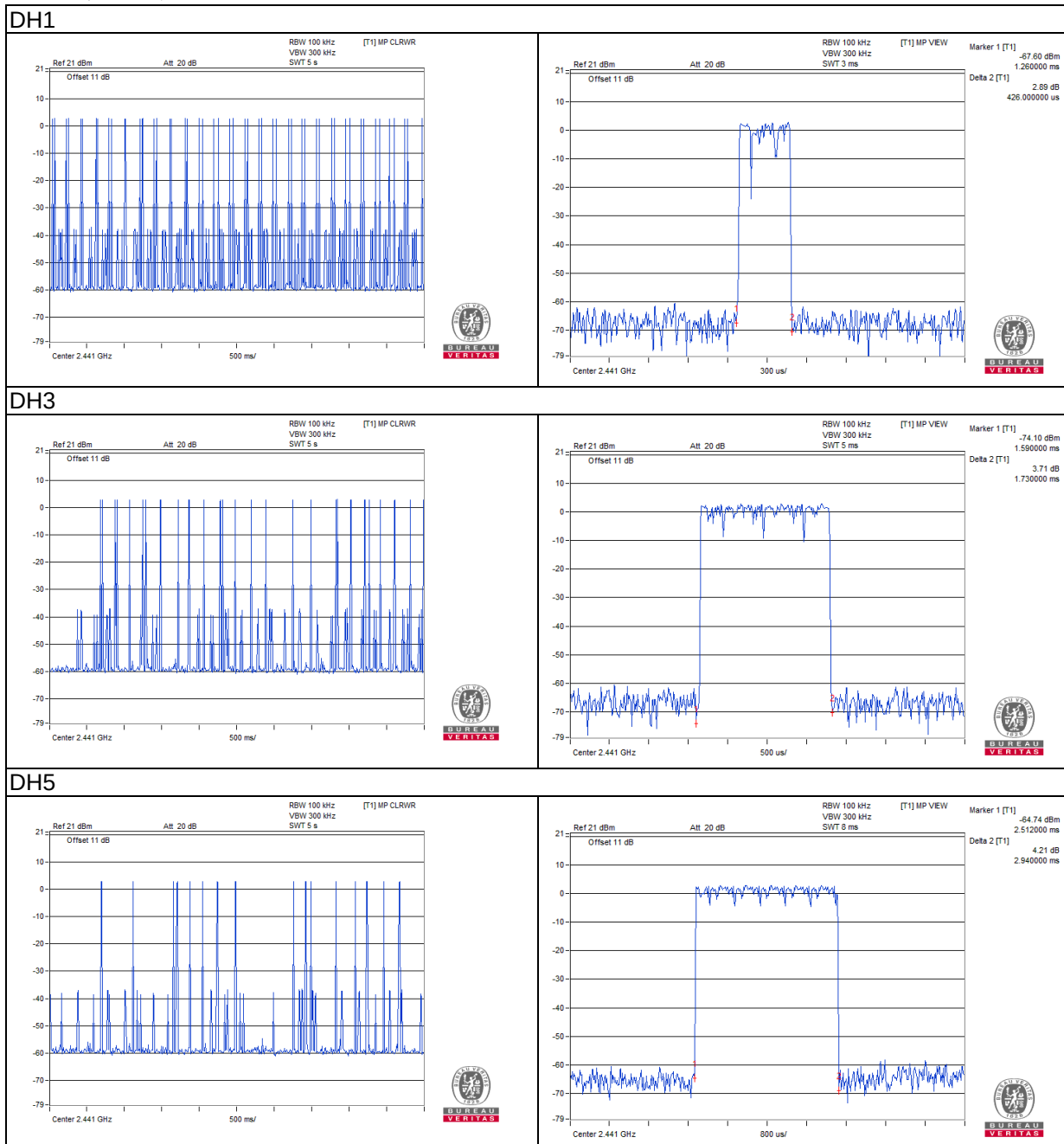
10.5 量測結果

調變方式: GFSK

Mode	Number of transmission in a 31.6 (79Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
DH1	50 (times / 5 sec) * 6.32 = 316 times	0.426	134.62	400
DH3	26 (times / 5 sec) * 6.32 = 165 times	1.730	285.45	400
DH5	16 (times / 5 sec) * 6.32 = 102 times	2.940	299.88	400

註：因為 Bluetooth 每秒跳 1600 次，會平均落在每個頻道，所以僅測試 Ch39 作為代表。

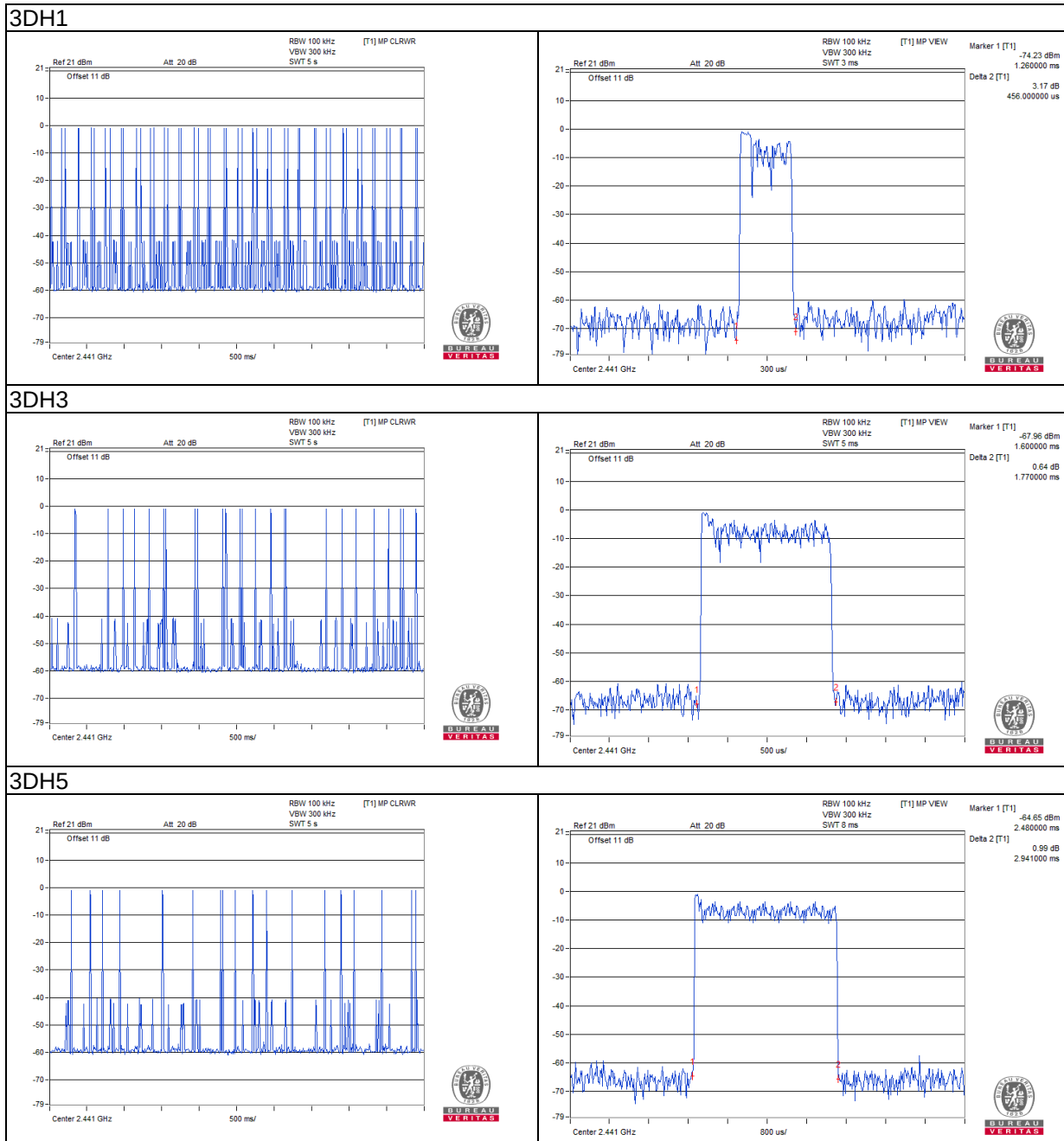
其掃描圖請參閱下圖



調變方式: 8DPSK

Mode	Number of transmission in a 31.6 (79Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
3DH1	50 (times / 5 sec) * 6.32 = 316 times	0.456	144.10	400
3DH3	25 (times / 5 sec) * 6.32 = 158 times	1.770	279.66	400
3DH5	18 (times / 5 sec) * 6.32 = 114 times	2.941	335.27	400

註：因為 Bluetooth 每秒跳 1600 次，會平均落在每個頻道，所以僅測試 Ch39 作為代表。
其掃描圖請參閱下圖



10.6 量測結果判定

依據測試數據結果，符合低功率射頻器材技術規範之要求。

11 檢測實驗室基本資料

立德國際商品試驗有限公司桃園分公司提供產業界最佳的檢測以及諮詢服務。
本公司為 ISO/IEC 17025 認可實驗室。

如您有任何問題或建議，請與下列實驗室聯絡：

林口 EMC / RF 實驗室：

Tel: 886-2-26052180

Fax: 886-2-26051924

新竹 EMC / RF 及通訊實驗室：

Tel: 886-3-6668565

Fax: 886-3-6668323

華亞 EMC / RF / Safety 實驗室：

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

您也可以在我们的网站内找到各實驗室的地圖。

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