

低功率射頻器材技術規範測試報告

報告編號	RT200527C05A
申請者	研華股份有限公司
產品名稱	無線路由器
型號	WISE-3240
製造廠商	研華股份有限公司
商標或廠牌	Advantech
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	合格

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 01 月 19 日

報告簽署人簽章:

陳志偉



目 錄

報告發行紀錄	4
1 低功率射頻器材量測記錄表	6
2 一般敘述	7
2.1 待測設備	7
2.2 輔助測試之週邊設備描述	11
2.3 測試架構圖	11
3 適用規範	12
3.1 規範要求和參考	12
3.2 限制使用之頻帶	15
4 帶外發射之量測	16
4.1 適用標準	16
4.2 量測方法	16
4.3 量測儀器	17
4.4 測試配置	18
4.5 場強度之計算	19
4.6 量測結果	20
4.6.1 發射諧波	20
4.6.2 接收諧波	44
4.6.3 其它不必要之訊號	46
4.7 帶外發射之量測 (傳導)	50
4.8 量測結果判定	58
4.9 配置照片	58
5 電源線傳導干擾之量測	59
5.1 適用標準	59
5.2 量測方法	59
5.3 量測儀器	59
5.4 測試配置	60
5.5 干擾值之計算	60
5.6 量測結果	61
5.7 量測結果判定	64
5.8 配置照片	64
6 發射(6 dB)頻寬之要求	65
6.1 適用標準	65
6.2 量測方法	65
6.3 量測儀器	65
6.4 測試配置	65
6.5 量測結果	66
6.6 量測結果判定	67
7 峰值傳導輸出功率之量測	68
7.1 適用標準	68
7.2 量測方法	68
7.3 量測儀器	68
7.4 測試配置	68
7.5 量測結果	69
7.6 量測結果判定	69

8	功率頻譜密度之量測	70
8.1	適用標準	70
8.2	量測方法	70
8.3	量測儀器	70
8.4	測試配置	70
8.5	量測結果	71
8.6	量測結果判定	73
9	電波暴露量之評估	74
9.1	適用標準	74
9.2	評估方法	74
9.3	評估結果	74
	Co-Located 測試項目及結果	75
10	場強輻射及開放頻帶邊緣之量測	75
10.1	適用標準	75
10.2	量測方法	75
10.3	量測儀器	75
10.4	測試配置	75
10.5	場強度之計算	75
10.6	量測結果	76
10.6.1	發射諧波	76
10.6.2	其它不必要之訊號	80
10.7	量測結果判定	81
10.8	配置照片	81
11	檢測實驗室基本資料	82

報告發行紀錄

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證 明 書

發行日期：110 年 01 月 19 日

產 品 名 稱：無線路由器
商 標：Advantech
型 號：WISE-3240
申 請 者：研華股份有限公司
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:WISE-3240)，
收件日期 109 年 05 月 27 日，於 109 年 08 月 12 日至 110 年 01 月 08 日，已在本公司的標準測試
場地完成量測。

Zigbee 模組原始報告為 Report No.: RT190429C33A (原證書號碼為 CCAI19LP1850T2)，此次將
Zigbee 模組安裝在此待測物中，此報告僅紀錄其它不必要之訊號、電源線傳導干擾和 Co-located 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：


簡 佳 琪 / 專員

， 日 期： 110 年 01 月 19 日

審 核 者：


陳 志 偉 / 高級專案工程師

， 日 期： 110 年 01 月 19 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：研華股份有限公司

製造廠商：研華股份有限公司

申請廠商地址：台北市內湖區瑞光路 26 巷 20 弄 1 號

廠牌：Advantech

產品名稱：無線路由器

型號：WISE-3240

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

林口實驗室華亞檢測部

量測單位地址：桃園市龜山區文化里華亞二路 19 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

WLAN 2.4GHz 頻段概要

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 節	合格
2	電源線傳導干擾	低功率射頻器材技術規範 3.3 節	合格
3	6 dB 頻寬	低功率射頻器材技術規範 4.10.1.6 節	合格
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	合格
5	功率頻譜密度	低功率射頻器材技術規範 4.10.1.6 節	合格

備註：量測結果之判定不考慮量測不確定度的貢獻。

最大暴露允許值(Maximum Permissible Exposure, MPE)

項次	量測項目	規 範	量測結果判定
1	電波暴露量	低功率射頻器材技術規範 6.20.2 節	合格

備註：量測結果之判定不考慮量測不確定度的貢獻。

Zigbee 頻段概要

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 節	合格(註 2)
2	電源線傳導干擾	低功率射頻器材技術規範 3.3 節	合格
3	6 dB 頻寬	低功率射頻器材技術規範 4.10.1.6 節	合格(註 2)
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	合格
5	功率頻譜密度	低功率射頻器材技術規範 4.10.1.6 節	合格(註 2)

備註：

1. 量測結果之判定不考慮量測不確定度的貢獻。
2. 其原始模組測項請參考原始報告 BV CPS: RT190429C33A。

2 一般敘述

2.1 待測設備

產品名稱：	無線路由器	
型號：	WISE-3240	
額定電源：	12Vdc from adapter	
調變方式：	Wireless LAN	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
	Zigbee	O-QPSK
傳輸速率：	Wireless LAN	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps
	Zigbee	250kbps
載波頻率：	Wireless LAN	2412 ~ 2462MHz
	Zigbee	2405 ~ 2480MHz
頻道數：	Wireless LAN	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
	Zigbee	16
發射功率：	Wireless LAN	802.11b: 13.95dBm 802.11g: 21.75dBm 802.11n (HT20): 21.94dBm 802.11n (HT40): 20.37dBm
	Zigbee	18.20dBm
天線種類：	見註 2	
電源線類別：	NA	
信號線類別：	NA	
配件：	見註 3	

註 1: 此待測物之技術的種類為2Tx /2Rx之組合。

Modulation Mode	TX Function
802.11b	2TX
802.11g	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

註 2: 此待測設備有兩種功能為WLAN和Zigbee，故有2兩種天線型式給WLAN和Zigbee使用。其天線料如下：

Ant.	Type	Manufacturer	P/N	Connector	Gain (dBi)	Remark
1	PCB	Gortec	NB1377B130GX	Mini Connector	4.79	WLAN_Internal
2	PCB	Gortec	NB1377B130GX	Mini Connector	5.04	WLAN_Internal
3	PCB	Gortec	NB1377-A100BF	Mini Connector	4.31	Zigbee_Internal
4	Dipole	Gortec	AN2450-5010BRS	SMA Male Reverse	5.03	Zigbee_External

*for WLAN antenna 1-2, ant 2 was the max. gain and chosen for final test.

*for Zigbee antenna 3-4, ant 3 was the worst case and chosen for final test.

*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 3: 此待測物搭配使用之配件如下：

*本案器材以申請者切結提供的隨貨配件及選購配件，與實驗室提供的測試配件併同檢測。產品及隨貨配件之照片請參照BV CPS報告編號：200527C06，測試配件之照片請參照BV CPS報告編號：200527C06_SU，測試設置照片請參照BV CPS報告編號：200527C06_RF。

隨貨配件				
配件	廠牌/製造商	型號	規格	
Adapter	Delta Electronics, Inc..	ADP-36PH B	Input: 100-240Vac, 1.0A, 50-60Hz Output: 12Vdc, 3.0A 1.55m DC power cable with one core attach on adapter	
選擇性配件				
AC Power Cable	維熹科技	WS-001+WS-083	1.8m AC power cord without core	
測試配件				
配件	廠牌	型號	規格	備註
LAN cable	AMP NETCONNECT	RN11060081	1.5m non-shielded without core	實驗室提供
LAN cable	AMP NETCONNECT	RN11060081	7.0m non-shielded without core	實驗室提供
Console cable	Z-TEK	ZC304	1.5m non-shielded without core	實驗室提供

註 4: 此報告中，經過評估後以下列測試模式進行最終量測。

載波頻率	量測項目	發射	接收
WLAN 2412 ~ 2462MHz			
場強輻射量測	1GHz 以上量測	802.11b: Ch 1, 6, 11 802.11g: Ch 1, 6, 11 802.11n (HT20): Ch 1, 6, 11 802.11n (HT20): Ch 3, 6, 9	802.11n (HT20): Ch 6
	其它不必要之訊號	802.11n (HT20): Ch 6	
電源線傳導干擾		802.11n (HT20): Ch 6	
Zigbee 2405 ~ 2480MHz			
場強輻射量測	其它不必要之訊號	Ch 11	
電源線傳導干擾		Ch 11	
Co-located			
場強輻射量測	1GHz 以上量測	802.11n (HT20) Ch 6 + Zigbee Ch 11	
	其它不必要之訊號	802.11n (HT20) Ch 6 + Zigbee Ch 11	

註 5: 此報告中傳輸模式，場強輻射量測及電源線傳導干擾量測之外的測試項目，以DSSS調變技術和OFDM調變技術分別進行測試並記錄最終量測結果於報告中。

註 6: 此待測設備，經預測試三個正交軸方位評估測試擺設方式：平躺、側放、垂直，其中以垂直最大干擾值之位置，故以該最大干擾值之擺放方式進行最終量測，並將測試結果紀錄。

註 7: Duty cycle of test signal.

Duty cycle of test signal is > 98%, duty factor is not required.

Duty cycle of test signal is < 98%, duty factor is required.

802.11b: Duty cycle = $12.212/12.274 = 0.995$

802.11g: Duty cycle = $2.020/2.080 = 0.966$ Duty factor = $10 * \log (1/0.966) = 0.15$

802.11n (HT20): Duty cycle = $1.875/1.940 = 0.966$, Duty factor = $10 * \log (1/0.966) = 0.15$

802.11n (HT40): Duty cycle = $0.927/0.970 = 0.956$, Duty factor = $10 * \log (1/0.956) = 0.20$



此裝置各頻道的中心頻率如下：

802.11b, 802.11g, 802.11n (HT20):

頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437		

802.11n (HT40):

頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)
03	2422	07	2442
04	2427	08	2447
05	2432	09	2452
06	2437		

Zigbee 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)
11	2405	15	2425	19	2445	23	2465
12	2410	16	2430	20	2450	24	2470
13	2415	17	2435	21	2455	25	2475
14	2420	18	2440	22	2460	26	2480

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: 200527C06。

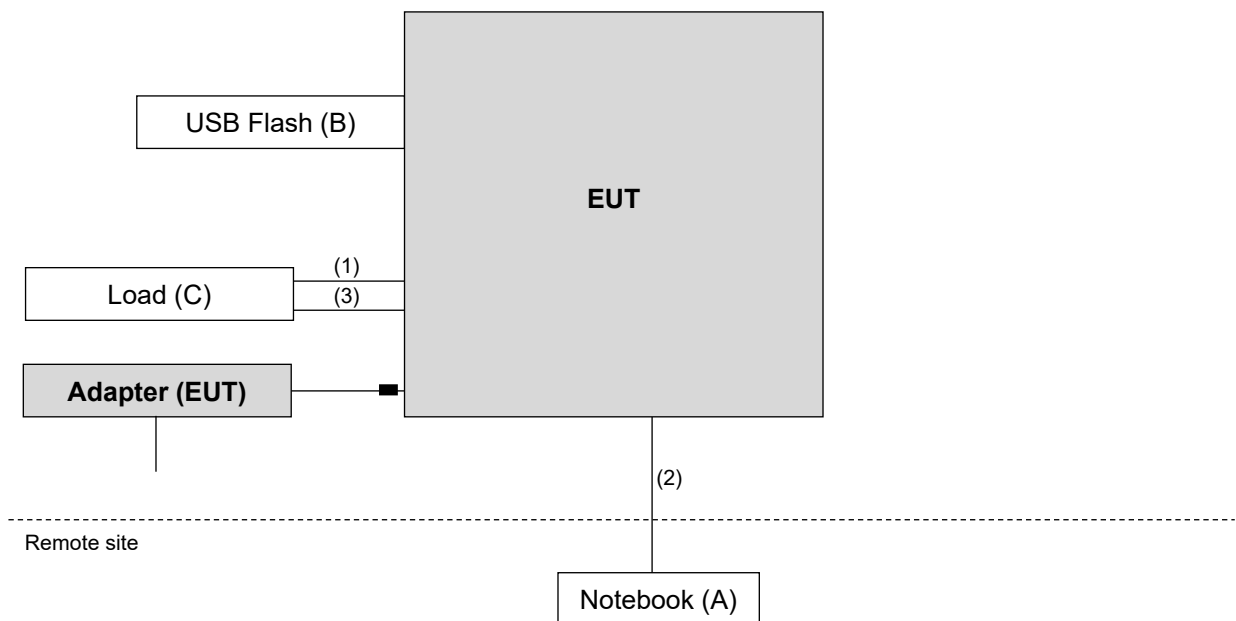
2.2 輔助測試之週邊設備描述

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	DELL	E5410	1HC2XM1	FCC DoC Approved	Provided by Lab
B.	USB Flash	HP	v250W	09	FCC DoC Approved	Provided by Lab
C.	Load	NA	NA	NA	NA	Provided by Lab

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	1	1.5	N	0	Provided by Lab
2.	RJ45, Cat5e	1	7	N	0	Provided by Lab
3.	Console	1	1.5	N	0	Provided by Lab

2.3 測試架構圖



3 適用規範

3.1 規範要求和參考

(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

(I) 操作於 2.4000~2.4835 GHz band:

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。

在 1 GHz 以下不必要之發射，應符合 3.6 之規定。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 節及 4.7.3 節之規定如下：

(I) 操作於 2400 MHz~2483.5 MHz 頻段：

(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) 6dB 頻寬之要求

(I) 操作於 2400 MHz~2483.5 MHz 頻段：

對使用數位調變技術(digital modulation techniques)系統之低功率發射機，依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.6 節之規定，6dB 頻寬至少應有 500kHz。

(6) 傳導輸出功率之要求

(I) 操作於 2.4000~2.4835 GHz band:

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：

數位調變技術系統：1 W(含)以下。

(7) 功率頻譜密度之要求

(I) 操作於 2.4000~2.4835 GHz band:

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，在使用頻率範圍之任一 3 kHz 頻寬內，由發射機傳導至天線之功率頻譜密度在任意傳輸期間內，皆小於或等於 8 毫分貝 (dBm)，且應依 4.10.1.3 之方式降低功率頻譜密度限制值。

(8) 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：百萬赫(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 - 3.0	614	1.63	*100	30
3 - 30	1842/f	4.89/f	*180/f ²	30
30 - 300	27.5	0.073	1.0	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：百萬赫(MHz)。

參考國際標準指南

KDB 558074

KDB 662911

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(I)的規定。

4.2 量測方法

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

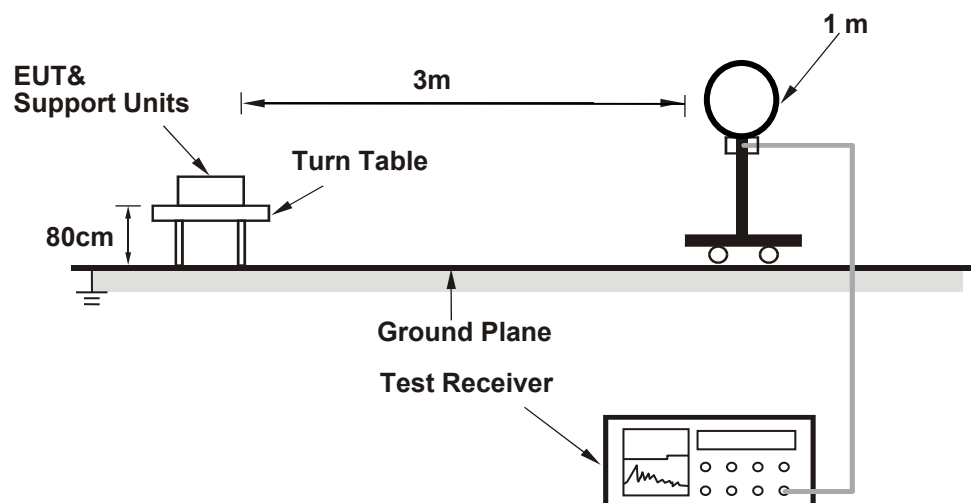
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102579	Jun. 27, 2019	Jun. 26, 2020
			Jul. 07, 2020	Jul. 06, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 11, 2019	Nov. 10, 2020
			Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 24, 2019	Nov. 23, 2020
			Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
			Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 03, 2019	Jul. 02, 2020
			Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 20, 2019	Aug. 19, 2020
			Aug. 16, 2020	Aug. 15, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 23, 2020	Mar. 22, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 20, 2019	Aug. 19, 2020
			Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 20, 2019	Aug. 19, 2020
			Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-S M-8000	Cable-CH3-03 (309224+170907)	Aug. 20, 2019	Aug. 19, 2020
			Aug. 16, 2020	Aug. 15, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	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 HwaYa Chamber 3.
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.

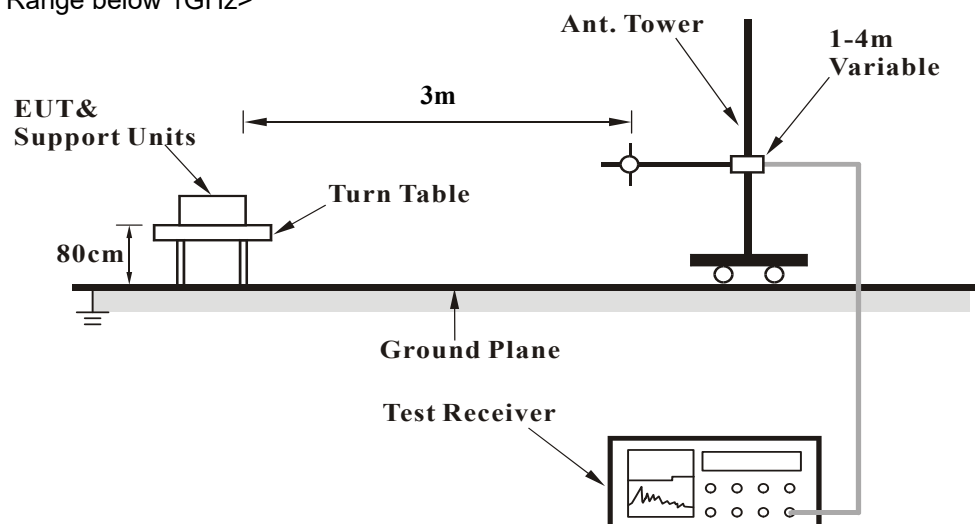
Measurement	Frequency	Uncertainty
Radiated emissions	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

4.4 測試配置

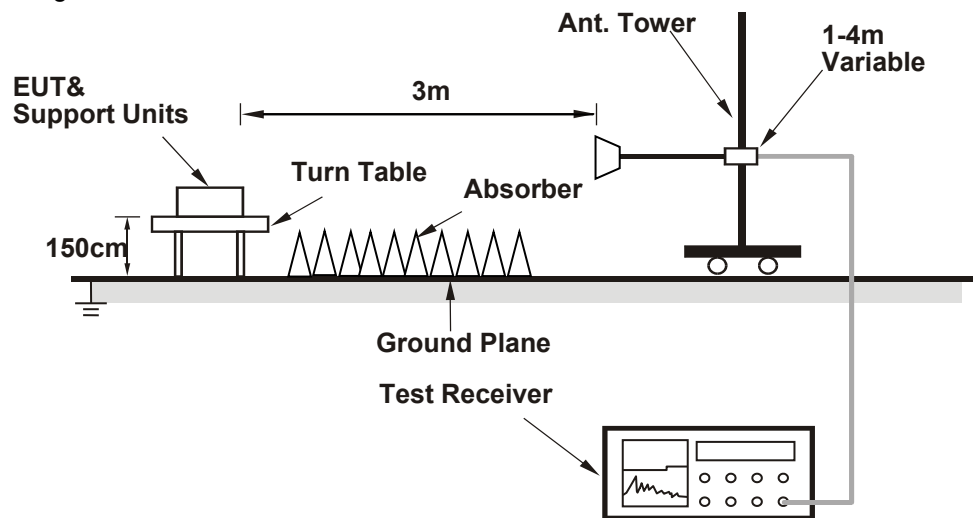
<Frequency Range below 30MHz>



<Frequency Range below 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)

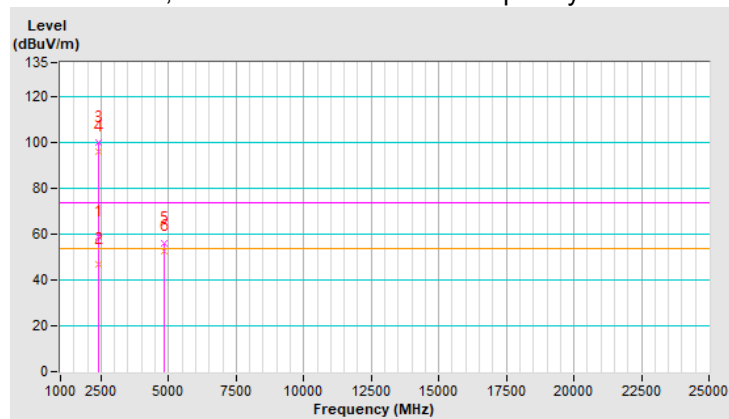
量測結果請見下頁。

操作模式：	發射	調變技術：	DSSS
基本波頻率：	CH 1：2412 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=10Hz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	58.9 PK	74.0	-15.1	2.45 V	12	26.6	32.3
2	2390.00	46.8 AV	54.0	-7.2	2.45 V	12	14.5	32.3
3	*2412.00	99.9 PK			2.45 V	12	67.6	32.3
4	*2412.00	96.3 AV			2.45 V	12	64.0	32.3
5	4824.00	56.2 PK	74.0	-17.8	1.85 V	357	53.0	3.2
6	4824.00	52.6 AV	54.0	-1.4	1.85 V	357	49.4	3.2
7	#7236.00	-	-	-	-	-	-	-
8	#9648.00	-	-	-	-	-	-	-
9	12060.00	-	-	-	-	-	-	-
10	14472.00	-	-	-	-	-	-	-
11	#16884.00	-	-	-	-	-	-	-
12	19296.00	-	-	-	-	-	-	-
13	#21708.00	-	-	-	-	-	-	-
14	#24120.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

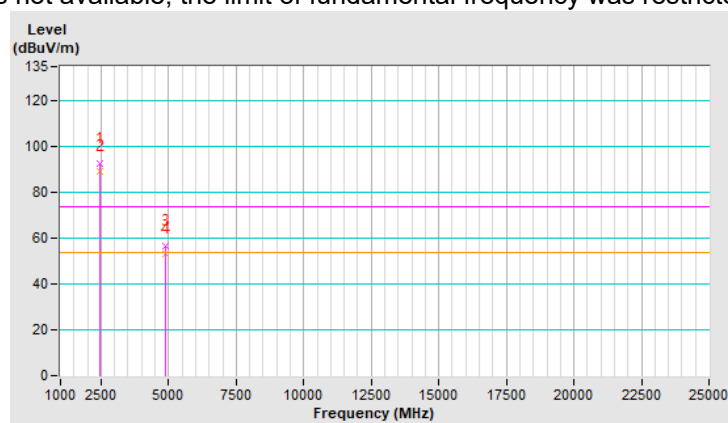


操作模式：	發射	調變技術：	DSSS
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=10Hz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	*2437.00	92.6 PK			1.46 H	312	60.3	32.3
2	*2437.00	89.3 AV			1.46 H	312	57.0	32.3
3	4874.00	56.4 PK	74.0	-17.6	1.85 H	329	53.3	3.1
4	4874.00	53.0 AV	54.0	-1.0	1.85 H	329	49.9	3.1
5	7311.00	-	-	-	-	-	-	-
6	#9748.00	-	-	-	-	-	-	-
7	12185.00	-	-	-	-	-	-	-
8	#14622.00	-	-	-	-	-	-	-
9	#17059.00	-	-	-	-	-	-	-
10	19496.00	-	-	-	-	-	-	-
11	#21933.00	-	-	-	-	-	-	-
12	#24370.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

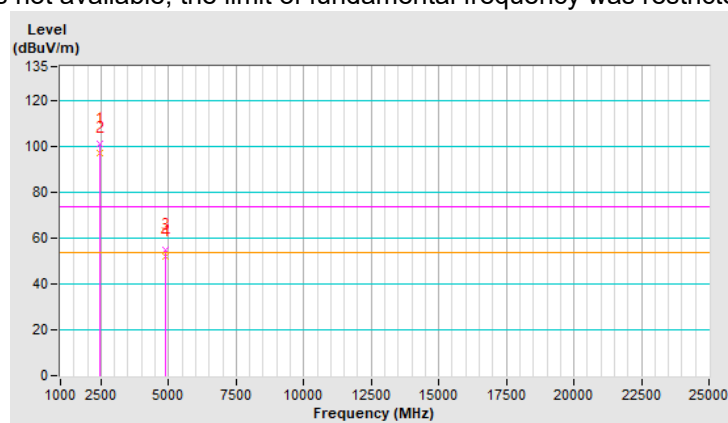


操作模式：	發射	調變技術：	DSSS
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=10Hz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	*2437.00	101.2 PK			1.95 V	55	68.9	32.3
2	*2437.00	97.2 AV			1.95 V	55	64.9	32.3
3	4874.00	55.0 PK	74.0	-19.0	1.91 V	335	51.9	3.1
4	4874.00	52.2 AV	54.0	-1.8	1.91 V	335	49.1	3.1
5	7311.00	-	-	-	-	-	-	-
6	#9748.00	-	-	-	-	-	-	-
7	12185.00	-	-	-	-	-	-	-
8	#14622.00	-	-	-	-	-	-	-
9	#17059.00	-	-	-	-	-	-	-
10	19496.00	-	-	-	-	-	-	-
11	#21933.00	-	-	-	-	-	-	-
12	#24370.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

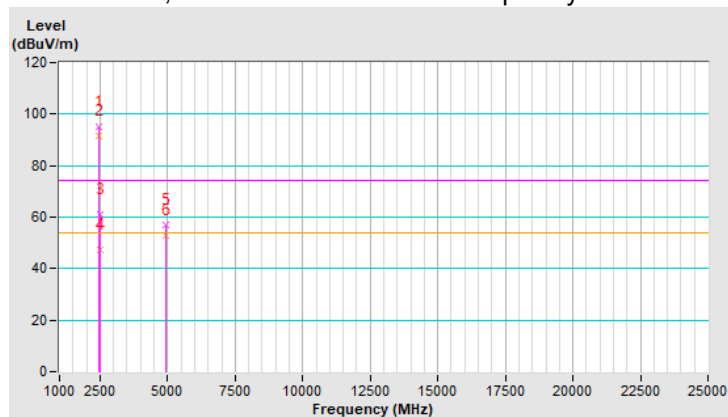


操作模式：	發射	調變技術：	DSSS
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=10Hz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	*2462.00	95.2 PK			1.51 H	309	62.8	32.4
2	*2462.00	91.3 AV			1.51 H	309	58.9	32.4
3	2483.50	60.8 PK	74.0	-13.2	1.51 H	309	28.4	32.4
4	2483.50	47.3 AV	54.0	-6.7	1.51 H	309	14.9	32.4
5	4924.00	57.0 PK	74.0	-17.0	1.69 H	356	53.9	3.1
6	4924.00	52.8 AV	54.0	-1.2	1.69 H	356	49.7	3.1
7	7386.00	-	-	-	-	-	-	-
8	#9848.00	-	-	-	-	-	-	-
9	12310.00	-	-	-	-	-	-	-
10	#14772.00	-	-	-	-	-	-	-
11	#17234.00	-	-	-	-	-	-	-
12	19696.00	-	-	-	-	-	-	-
13	22158.00	-	-	-	-	-	-	-
14	#24620.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

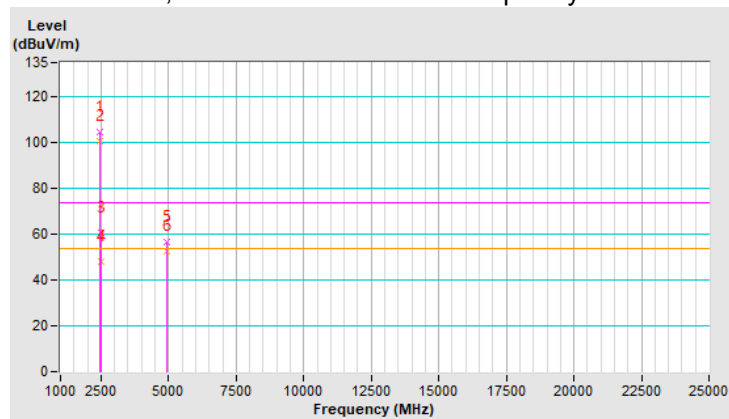


操作模式：	發射	調變技術：	DSSS
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=10Hz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	*2462.00	104.4 PK			1.65 V	60	72.0	32.4
2	*2462.00	100.6 AV			1.65 V	60	68.2	32.4
3	2483.50	60.8 PK	74.0	-13.2	1.65 V	60	28.4	32.4
4	2483.50	48.0 AV	54.0	-6.0	1.65 V	60	15.6	32.4
5	4924.00	56.6 PK	74.0	-17.4	2.00 V	356	53.5	3.1
6	4924.00	52.5 AV	54.0	-1.5	2.00 V	356	49.4	3.1
7	7386.00	-	-	-	-	-	-	-
8	#9848.00	-	-	-	-	-	-	-
9	12310.00	-	-	-	-	-	-	-
10	#14772.00	-	-	-	-	-	-	-
11	#17234.00	-	-	-	-	-	-	-
12	19696.00	-	-	-	-	-	-	-
13	22158.00	-	-	-	-	-	-	-
14	#24620.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.



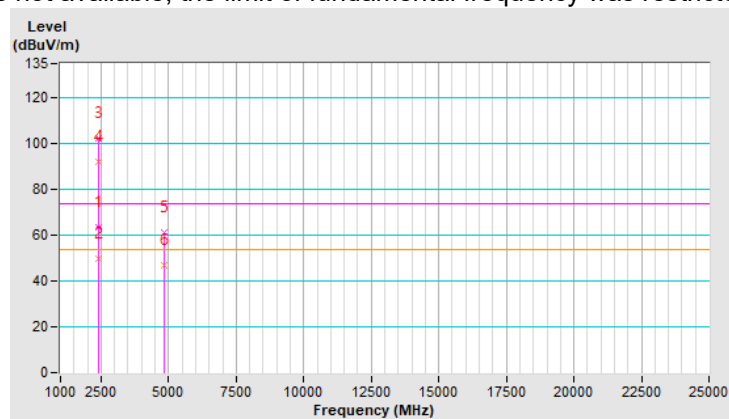
802.11g

操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 1 : 2412 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	63.3 PK	74.0	-10.7	1.55 H	302	31.0	32.3
2	2390.00	49.7 AV	54.0	-4.3	1.55 H	302	17.4	32.3
3	*2412.00	102.6 PK			1.55 H	302	70.3	32.3
4	*2412.00	92.0 AV			1.55 H	302	59.7	32.3
5	4824.00	61.0 PK	74.0	-13.0	1.85 H	320	57.8	3.2
6	4824.00	47.0 AV	54.0	-7.0	1.85 H	320	43.8	3.2
7	#7236.00	-	-	-	-	-	-	-
8	#9648.00	-	-	-	-	-	-	-
9	12060.00	-	-	-	-	-	-	-
10	14472.00	-	-	-	-	-	-	-
11	#16884.00	-	-	-	-	-	-	-
12	19296.00	-	-	-	-	-	-	-
13	#21708.00	-	-	-	-	-	-	-
14	#24120.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

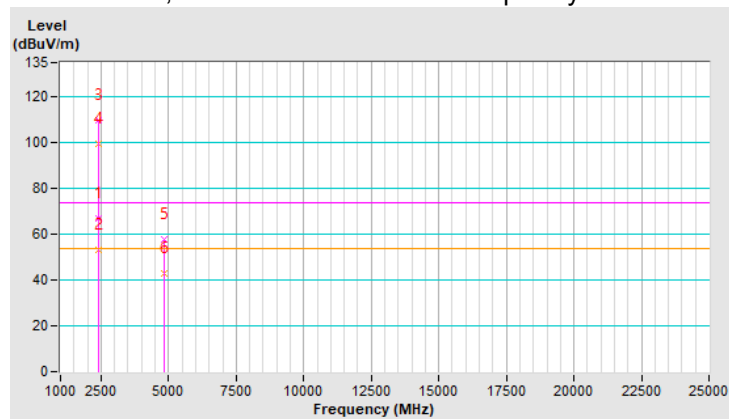


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 1：2412 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	66.9 PK	74.0	-7.1	1.41 V	10	34.6	32.3
2	2390.00	53.0 AV	54.0	-1.0	1.41 V	10	20.7	32.3
3	*2412.00	110.0 PK			1.41 V	10	77.7	32.3
4	*2412.00	99.5 AV			1.41 V	10	67.2	32.3
5	4824.00	57.9 PK	74.0	-16.1	2.00 V	340	54.7	3.2
6	4824.00	43.0 AV	54.0	-11.0	2.00 V	340	39.8	3.2
7	#7236.00	-	-	-	-	-	-	-
8	#9648.00	-	-	-	-	-	-	-
9	12060.00	-	-	-	-	-	-	-
10	14472.00	-	-	-	-	-	-	-
11	#16884.00	-	-	-	-	-	-	-
12	19296.00	-	-	-	-	-	-	-
13	#21708.00	-	-	-	-	-	-	-
14	#24120.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

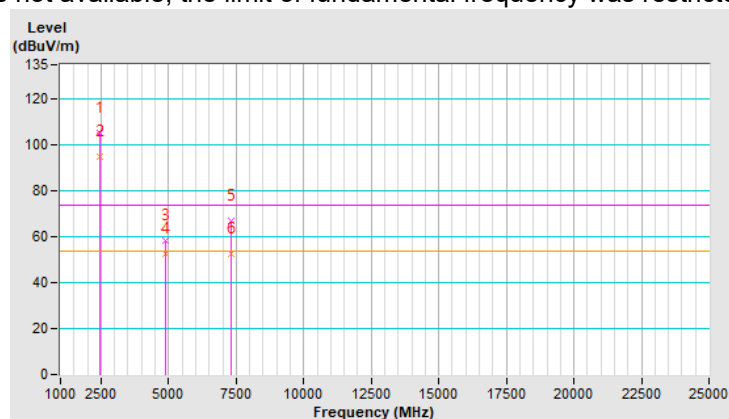


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	*2437.00	105.2 PK			1.40 H	315	72.9	32.3
2	*2437.00	95.0 AV			1.40 H	315	62.7	32.3
3	4874.00	58.6 PK	74.0	-15.4	1.88 H	350	55.5	3.1
4	4874.00	52.5 AV	54.0	-1.5	1.88 H	350	49.4	3.1
5	7311.00	67.0 PK	74.0	-7.0	1.35 H	359	57.1	9.9
6	7311.00	52.7 AV	54.0	-1.3	1.35 H	359	42.8	9.9
7	#9748.00	-	-	-	-	-	-	-
8	12185.00	-	-	-	-	-	-	-
9	#14622.00	-	-	-	-	-	-	-
10	#17059.00	-	-	-	-	-	-	-
11	19496.00	-	-	-	-	-	-	-
12	#21933.00	-	-	-	-	-	-	-
13	#24370.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

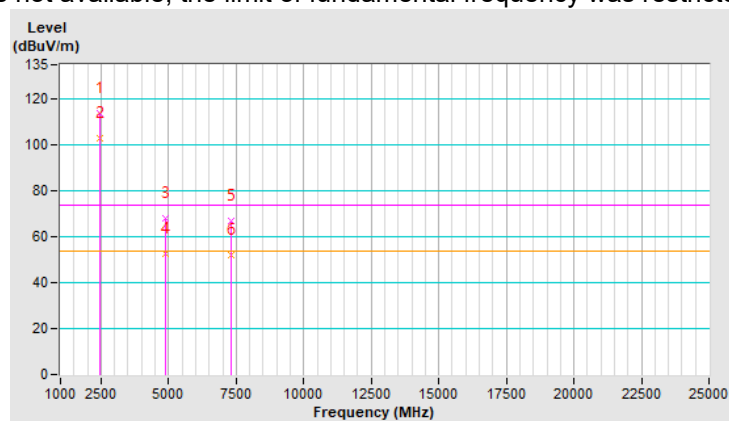


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	*2437.00	113.8 PK			1.58 V	60	81.5	32.3
2	*2437.00	102.9 AV			1.58 V	60	70.6	32.3
3	4874.00	68.0 PK	74.0	-6.0	2.15 V	340	64.9	3.1
4	4874.00	52.9 AV	54.0	-1.1	2.15 V	340	49.8	3.1
5	7311.00	67.0 PK	74.0	-7.0	1.75 V	309	57.1	9.9
6	7311.00	52.2 AV	54.0	-1.8	1.75 V	309	42.3	9.9
7	#9748.00	-	-	-	-	-	-	-
8	12185.00	-	-	-	-	-	-	-
9	#14622.00	-	-	-	-	-	-	-
10	#17059.00	-	-	-	-	-	-	-
11	19496.00	-	-	-	-	-	-	-
12	#21933.00	-	-	-	-	-	-	-
13	#24370.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

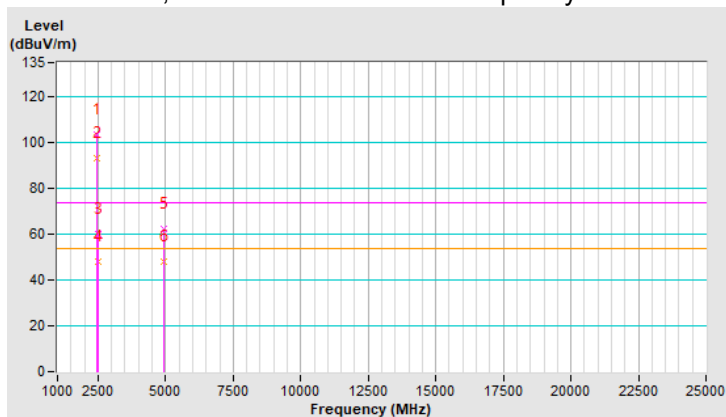


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	*2462.00	103.7 PK			1.50 H	299	71.3	32.4
2	*2462.00	93.3 AV			1.50 H	299	60.9	32.4
3	2483.50	60.1 PK	74.0	-13.9	1.50 H	299	27.7	32.4
4	2483.50	47.8 AV	54.0	-6.2	1.50 H	299	15.4	32.4
5	4924.00	62.5 PK	74.0	-11.5	1.88 H	350	59.4	3.1
6	4924.00	48.0 AV	54.0	-6.0	1.88 H	350	44.9	3.1
7	7386.00	-	-	-	-	-	-	-
8	#9848.00	-	-	-	-	-	-	-
9	12310.00	-	-	-	-	-	-	-
10	#14772.00	-	-	-	-	-	-	-
11	#17234.00	-	-	-	-	-	-	-
12	19696.00	-	-	-	-	-	-	-
13	22158.00	-	-	-	-	-	-	-
14	#24620.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

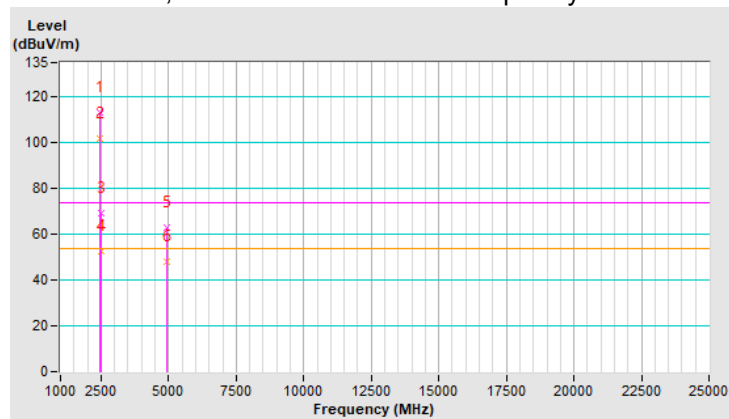


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	*2462.00	113.0 PK			1.63 V	60	80.6	32.4
2	*2462.00	102.0 AV			1.63 V	60	69.6	32.4
3	2483.50	69.0 PK	74.0	-5.0	1.63 V	60	36.6	32.4
4	2483.50	52.9 AV	54.0	-1.1	1.63 V	60	20.5	32.4
5	4924.00	63.1 PK	74.0	-10.9	2.29 V	350	60.0	3.1
6	4924.00	47.8 AV	54.0	-6.2	2.29 V	350	44.7	3.1
7	7386.00	-	-	-	-	-	-	-
8	#9848.00	-	-	-	-	-	-	-
9	12310.00	-	-	-	-	-	-	-
10	#14772.00	-	-	-	-	-	-	-
11	#17234.00	-	-	-	-	-	-	-
12	19696.00	-	-	-	-	-	-	-
13	22158.00	-	-	-	-	-	-	-
14	#24620.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.



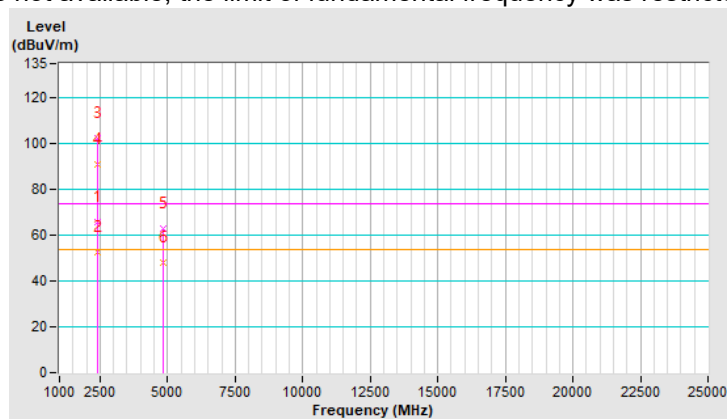
802.11n (HT20)

操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 1：2412 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	65.5 PK	74.0	-8.5	1.60 H	320	33.2	32.3
2	2390.00	52.5 AV	54.0	-1.5	1.60 H	320	20.2	32.3
3	*2412.00	102.6 PK			1.60 H	320	70.3	32.3
4	*2412.00	91.1 AV			1.60 H	320	58.8	32.3
5	4824.00	63.1 PK	74.0	-10.9	1.80 H	339	59.9	3.2
6	4824.00	47.9 AV	54.0	-6.1	1.80 H	339	44.7	3.2
7	#7236.00	-	-	-	-	-	-	-
8	#9648.00	-	-	-	-	-	-	-
9	12060.00	-	-	-	-	-	-	-
10	14472.00	-	-	-	-	-	-	-
11	#16884.00	-	-	-	-	-	-	-
12	19296.00	-	-	-	-	-	-	-
13	#21708.00	-	-	-	-	-	-	-
14	#24120.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

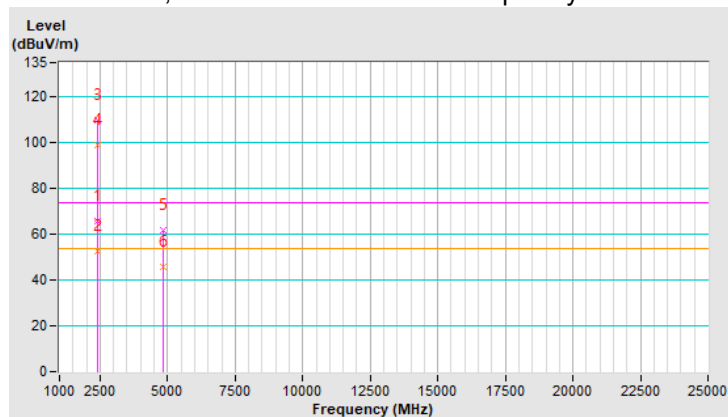


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 1：2412 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	66.0 PK	74.0	-8.0	1.38 V	90	33.7	32.3
2	2390.00	52.6 AV	54.0	-1.4	1.38 V	90	20.3	32.3
3	*2412.00	110.0 PK			1.38 V	90	77.7	32.3
4	*2412.00	98.7 AV			1.38 V	90	66.4	32.3
5	4824.00	62.0 PK	74.0	-12.0	2.00 V	322	58.8	3.2
6	4824.00	45.9 AV	54.0	-8.1	2.00 V	322	42.7	3.2
7	#7236.00	-	-	-	-	-	-	-
8	#9648.00	-	-	-	-	-	-	-
9	12060.00	-	-	-	-	-	-	-
10	14472.00	-	-	-	-	-	-	-
11	#16884.00	-	-	-	-	-	-	-
12	19296.00	-	-	-	-	-	-	-
13	#21708.00	-	-	-	-	-	-	-
14	#24120.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

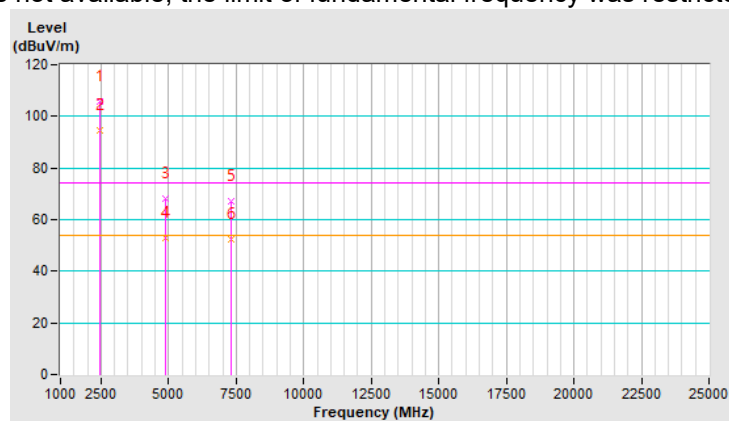


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	*2437.00	105.8 PK			1.35 H	311	73.5	32.3
2	*2437.00	94.6 AV			1.35 H	311	62.3	32.3
3	4874.00	67.9 PK	74.0	-6.1	1.80 H	340	64.8	3.1
4	4874.00	52.9 AV	54.0	-1.1	1.80 H	340	49.8	3.1
5	7311.00	67.3 PK	74.0	-6.7	1.35 H	15	57.4	9.9
6	7311.00	52.5 AV	54.0	-1.5	1.35 H	15	42.6	9.9
7	#9748.00	-	-	-	-	-	-	-
8	12185.00	-	-	-	-	-	-	-
9	#14622.00	-	-	-	-	-	-	-
10	#17059.00	-	-	-	-	-	-	-
11	19496.00	-	-	-	-	-	-	-
12	#21933.00	-	-	-	-	-	-	-
13	#24370.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

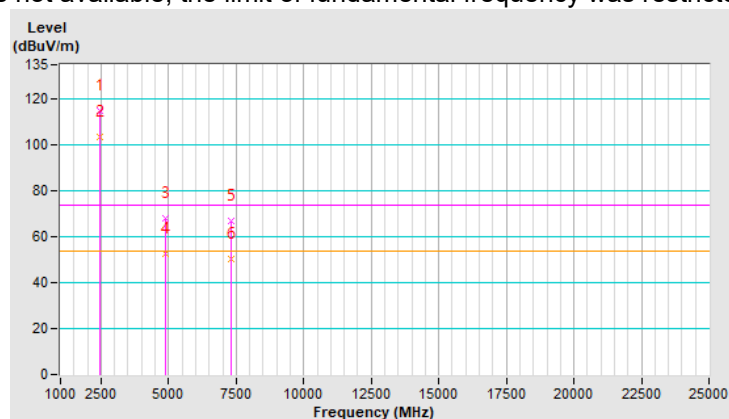


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	*2437.00	114.8 PK			1.58 V	63	82.5	32.3
2	*2437.00	103.7 AV			1.58 V	63	71.4	32.3
3	4874.00	68.2 PK	74.0	-5.8	1.93 V	339	65.1	3.1
4	4874.00	52.4 AV	54.0	-1.6	1.93 V	339	49.3	3.1
5	7311.00	67.0 PK	74.0	-7.0	1.71 V	300	57.1	9.9
6	7311.00	50.4 AV	54.0	-3.6	1.71 V	300	40.5	9.9
7	#9748.00	-	-	-	-	-	-	-
8	12185.00	-	-	-	-	-	-	-
9	#14622.00	-	-	-	-	-	-	-
10	#17059.00	-	-	-	-	-	-	-
11	19496.00	-	-	-	-	-	-	-
12	#21933.00	-	-	-	-	-	-	-
13	#24370.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

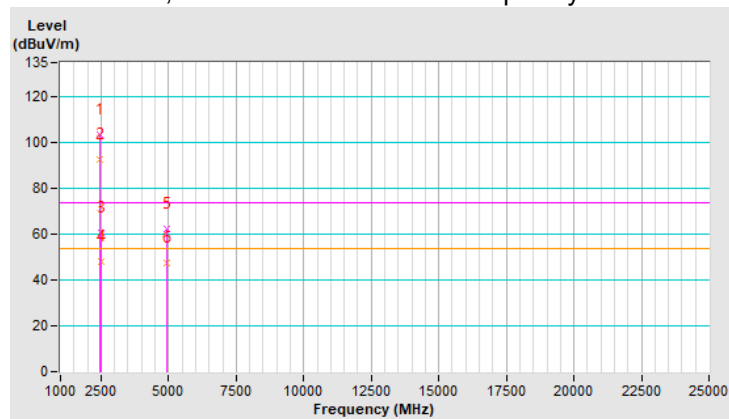


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	*2462.00	103.8 PK			1.45 H	293	71.4	32.4
2	*2462.00	92.9 AV			1.45 H	293	60.5	32.4
3	2483.50	60.5 PK	74.0	-13.5	1.45 H	293	28.1	32.4
4	2483.50	48.2 AV	54.0	-5.8	1.45 H	293	15.8	32.4
5	4924.00	62.5 PK	74.0	-11.5	1.91 H	309	59.4	3.1
6	4924.00	47.6 AV	54.0	-6.4	1.91 H	309	44.5	3.1
7	7386.00	-	-	-	-	-	-	-
8	#9848.00	-	-	-	-	-	-	-
9	12310.00	-	-	-	-	-	-	-
10	#14772.00	-	-	-	-	-	-	-
11	#17234.00	-	-	-	-	-	-	-
12	19696.00	-	-	-	-	-	-	-
13	22158.00	-	-	-	-	-	-	-
14	#24620.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

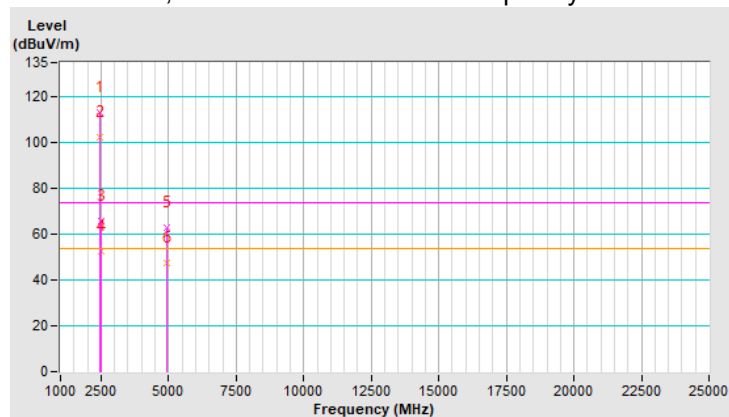


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	*2462.00	113.1 PK			2.00 V	75	80.7	32.4
2	*2462.00	102.2 AV			2.00 V	75	69.8	32.4
3	2483.50	66.0 PK	74.0	-8.0	2.00 V	75	33.6	32.4
4	2483.50	52.8 AV	54.0	-1.2	2.00 V	75	20.4	32.4
5	4924.00	62.7 PK	74.0	-11.3	2.29 V	350	59.6	3.1
6	4924.00	47.3 AV	54.0	-6.7	2.29 V	350	44.2	3.1
7	7386.00	-	-	-	-	-	-	-
8	#9848.00	-	-	-	-	-	-	-
9	12310.00	-	-	-	-	-	-	-
10	#14772.00	-	-	-	-	-	-	-
11	#17234.00	-	-	-	-	-	-	-
12	19696.00	-	-	-	-	-	-	-
13	22158.00	-	-	-	-	-	-	-
14	#24620.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.



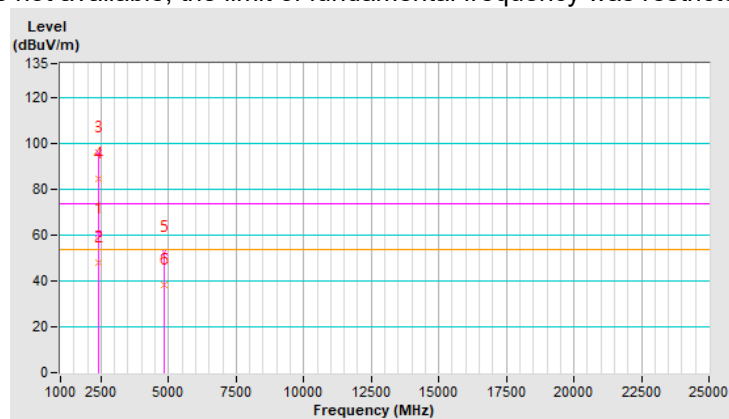
802.11n (HT40)

操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 3：2422 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	60.7 PK	74.0	-13.3	1.45 H	322	28.4	32.3
2	2390.00	48.3 AV	54.0	-5.7	1.45 H	322	16.0	32.3
3	*2422.00	96.0 PK			1.45 H	322	63.7	32.3
4	*2422.00	84.7 AV			1.45 H	322	52.4	32.3
5	4844.00	52.4 PK	74.0	-21.6	1.85 H	344	49.3	3.1
6	4844.00	38.3 AV	54.0	-15.7	1.85 H	344	35.2	3.1
7	7266.00	-	-	-	-	-	-	-
8	#9688.00	-	-	-	-	-	-	-
9	12110.00	-	-	-	-	-	-	-
10	#14532.00	-	-	-	-	-	-	-
11	#16954.00	-	-	-	-	-	-	-
12	19376.00	-	-	-	-	-	-	-
13	#21798.00	-	-	-	-	-	-	-
14	#24220.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

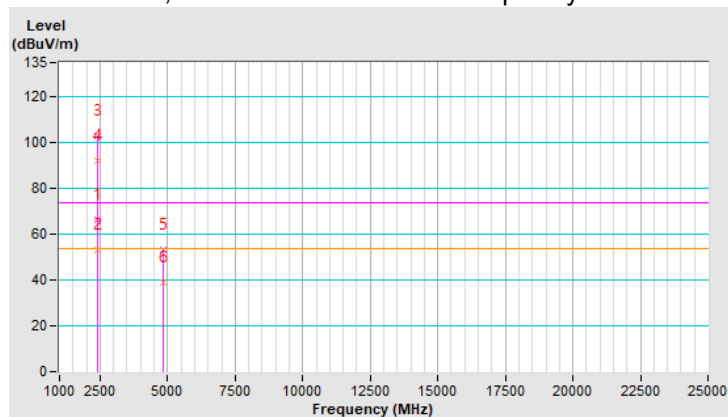


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 3：2422 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	66.5 PK	74.0	-7.5	1.35 V	55	34.2	32.3
2	2390.00	53.0 AV	54.0	-1.0	1.35 V	55	20.7	32.3
3	*2422.00	102.7 PK			1.35 V	55	70.4	32.3
4	*2422.00	92.3 AV			1.35 V	55	60.0	32.3
5	4844.00	53.0 PK	74.0	-21.0	2.02 V	343	49.9	3.1
6	4844.00	39.0 AV	54.0	-15.0	2.02 V	343	35.9	3.1
7	7266.00	-	-	-	-	-	-	-
8	#9688.00	-	-	-	-	-	-	-
9	12110.00	-	-	-	-	-	-	-
10	#14532.00	-	-	-	-	-	-	-
11	#16954.00	-	-	-	-	-	-	-
12	19376.00	-	-	-	-	-	-	-
13	#21798.00	-	-	-	-	-	-	-
14	#24220.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

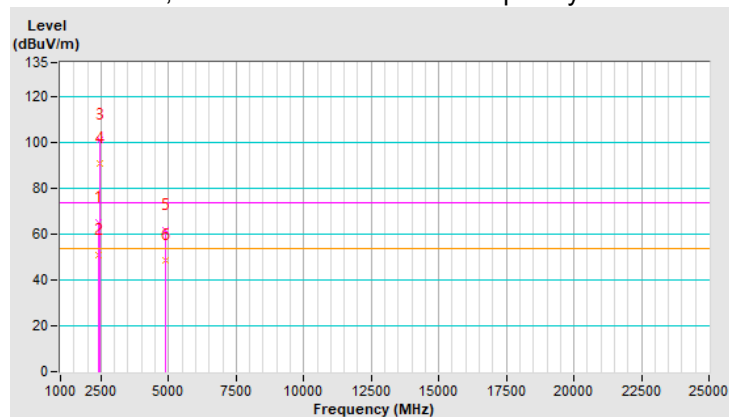


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	65.1 PK	74.0	-8.9	1.40 H	315	32.8	32.3
2	2390.00	51.0 AV	54.0	-3.0	1.40 H	315	18.7	32.3
3	*2437.00	101.0 PK			1.40 H	315	68.7	32.3
4	*2437.00	91.0 AV			1.40 H	315	58.7	32.3
5	4874.00	61.6 PK	74.0	-12.4	1.80 H	323	58.5	3.1
6	4874.00	48.5 AV	54.0	-5.5	1.80 H	323	45.4	3.1
7	7311.00	-	-	-	-	-	-	-
8	#9748.00	-	-	-	-	-	-	-
9	12185.00	-	-	-	-	-	-	-
10	#14622.00	-	-	-	-	-	-	-
11	#17059.00	-	-	-	-	-	-	-
12	19496.00	-	-	-	-	-	-	-
13	#21933.00	-	-	-	-	-	-	-
14	#24370.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

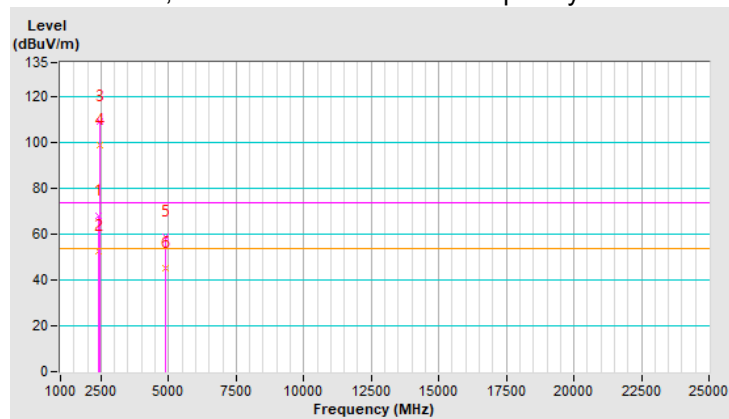


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	68.0 PK	74.0	-6.0	1.60 V	60	35.7	32.3
2	2390.00	52.8 AV	54.0	-1.2	1.60 V	60	20.5	32.3
3	*2437.00	109.3 PK			1.60 V	60	77.0	32.3
4	*2437.00	98.9 AV			1.60 V	60	66.6	32.3
5	4874.00	58.8 PK	74.0	-15.2	1.49 V	311	55.7	3.1
6	4874.00	45.0 AV	54.0	-9.0	1.49 V	311	41.9	3.1
7	7311.00	-	-	-	-	-	-	-
8	#9748.00	-	-	-	-	-	-	-
9	12185.00	-	-	-	-	-	-	-
10	#14622.00	-	-	-	-	-	-	-
11	#17059.00	-	-	-	-	-	-	-
12	19496.00	-	-	-	-	-	-	-
13	#21933.00	-	-	-	-	-	-	-
14	#24370.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

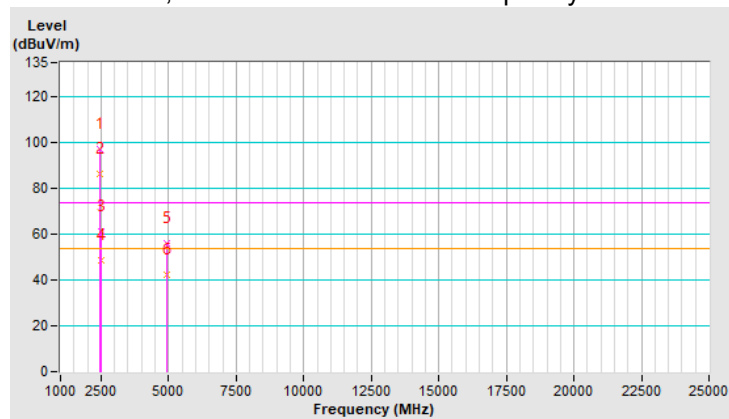


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 9：2452 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

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	*2452.00	97.0 PK			1.29 H	293	64.6	32.4
2	*2452.00	86.6 AV			1.29 H	293	54.2	32.4
3	2483.50	61.0 PK	74.0	-13.0	1.29 H	293	28.6	32.4
4	2483.50	48.4 AV	54.0	-5.6	1.29 H	293	16.0	32.4
5	4924.00	56.0 PK	74.0	-18.0	2.00 H	341	52.9	3.1
6	4924.00	42.1 AV	54.0	-11.9	2.00 H	341	39.0	3.1
7	7356.00	-	-	-	-	-	-	-
8	#9808.00	-	-	-	-	-	-	-
9	12260.00	-	-	-	-	-	-	-
10	#14712.00	-	-	-	-	-	-	-
11	#17164.00	-	-	-	-	-	-	-
12	19616.00	-	-	-	-	-	-	-
13	22068.00	-	-	-	-	-	-	-
14	#24520.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.

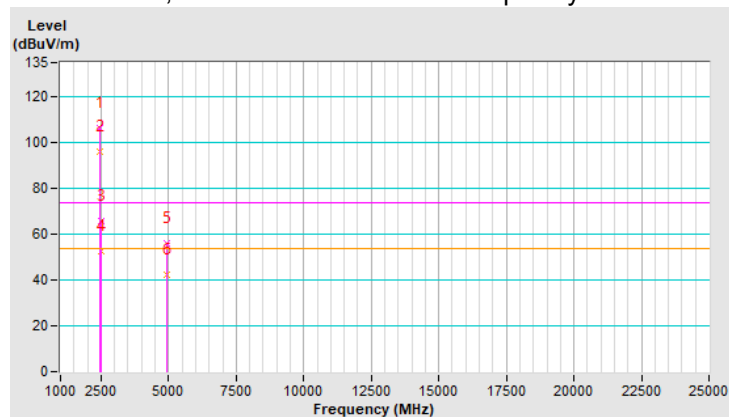


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 9：2452 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 12 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	*2452.00	106.3 PK			1.69 V	66	73.9	32.4
2	*2452.00	96.0 AV			1.69 V	66	63.6	32.4
3	2483.50	66.0 PK	74.0	-8.0	1.69 V	66	33.6	32.4
4	2483.50	52.9 AV	54.0	-1.1	1.69 V	66	20.5	32.4
5	4924.00	56.3 PK	74.0	-17.7	2.15 V	350	53.2	3.1
6	4924.00	42.5 AV	54.0	-11.5	2.15 V	350	39.4	3.1
7	7356.00	-	-	-	-	-	-	-
8	#9808.00	-	-	-	-	-	-	-
9	12260.00	-	-	-	-	-	-	-
10	#14712.00	-	-	-	-	-	-	-
11	#17164.00	-	-	-	-	-	-	-
12	19616.00	-	-	-	-	-	-	-
13	22068.00	-	-	-	-	-	-	-
14	#24520.00	-	-	-	-	-	-	-

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 emission levels were too low to be detected.
8. The blank is not available, the limit of fundamental frequency was restricted at the output power.



4.6.2 接收諧波

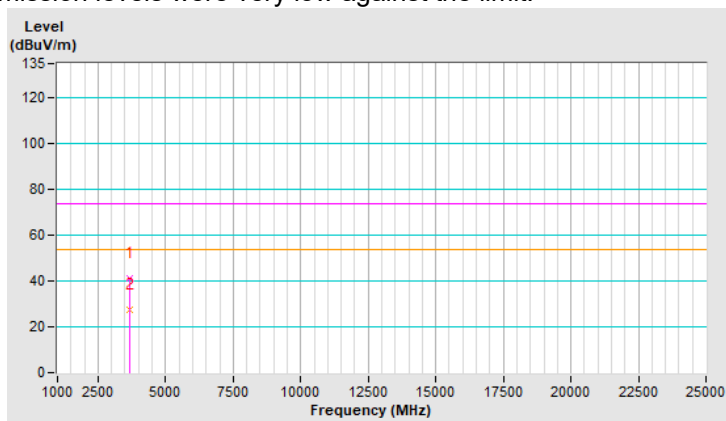
802.11n (HT20)

操作模式：	接收		
基本波頻率：	CH 6 : 2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3MHz (RMS)
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 13 日	測試者：	彭民達

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	3655.50	41.2 PK	74.0	-32.8	2.35 H	111	42.6	-1.4
2	3655.50	27.7 AV	54.0	-26.3	2.35 H	111	29.1	-1.4

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.

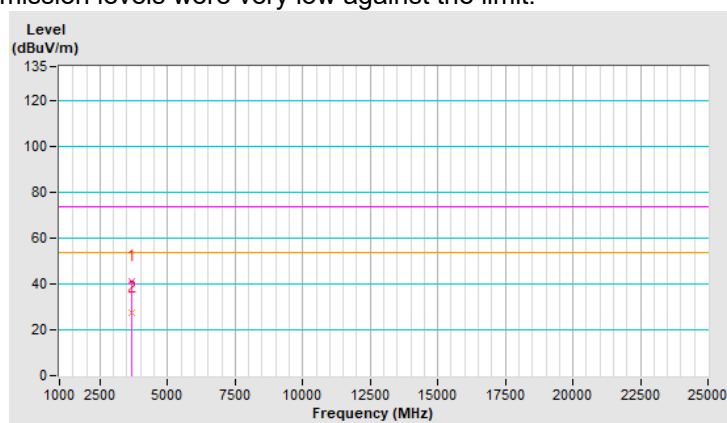


操作模式：	接收		
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3MHz (RMS)
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 13 日	測試者：	彭民達

Antenna Polarity & Test Distance : Vertical at 3m								
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	3655.50	41.3 PK	74.0	-32.7	1.85 V	311	42.7	-1.4
2	3655.50	27.5 AV	54.0	-26.5	1.85 V	311	28.9	-1.4

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

WLAN:

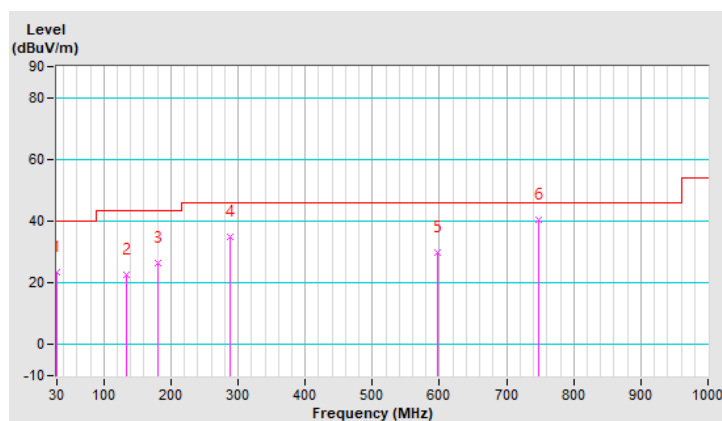
802.11n (HT20)

操作模式：	發射/接收	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	21°C	量測場地濕度：	67%RH
測試日期：	110 年 01 月 08 日	測試者：	李桓輔

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	30.00	23.3 QP	40.0	-16.7	1.00 H	359	34.2	-10.9
2	134.03	22.5 QP	43.5	-21.0	1.50 H	107	32.0	-9.5
3	180.42	26.6 QP	43.5	-16.9	1.00 H	241	36.6	-10.0
4	288.67	35.0 QP	46.0	-11.0	2.00 H	255	41.7	-6.7
5	596.54	30.0 QP	46.0	-16.0	2.00 H	54	29.8	0.2
6	746.96	40.4 QP	46.0	-5.6	1.50 H	173	37.2	3.2

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.

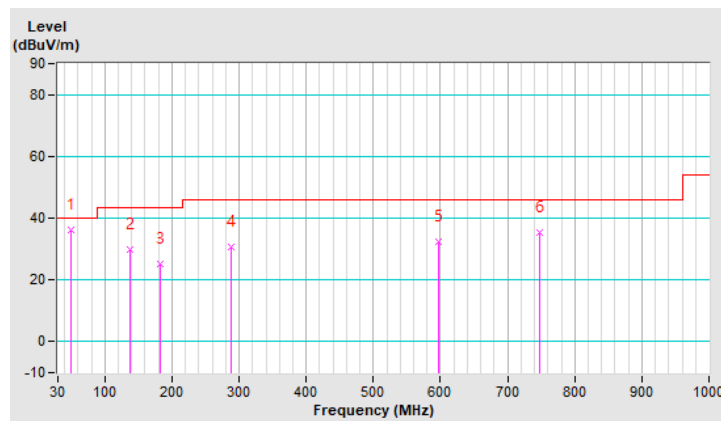


操作模式：	發射/接收	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	21°C	量測場地濕度：	67%RH
測試日期：	110 年 01 月 08 日	測試者：	李桓輔

Antenna Polarity & Test Distance : Vertical at 3m								
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	49.68	36.2 QP	40.0	-3.8	1.50 V	175	45.3	-9.1
2	138.25	30.0 QP	43.5	-13.5	1.00 V	69	39.1	-9.1
3	183.23	25.1 QP	43.5	-18.4	2.00 V	87	35.3	-10.2
4	287.26	30.8 QP	46.0	-15.2	1.00 V	291	37.6	-6.8
5	597.94	32.3 QP	46.0	-13.7	2.00 V	143	32.1	0.2
6	746.96	35.4 QP	46.0	-10.6	1.50 V	0	32.2	3.2

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.



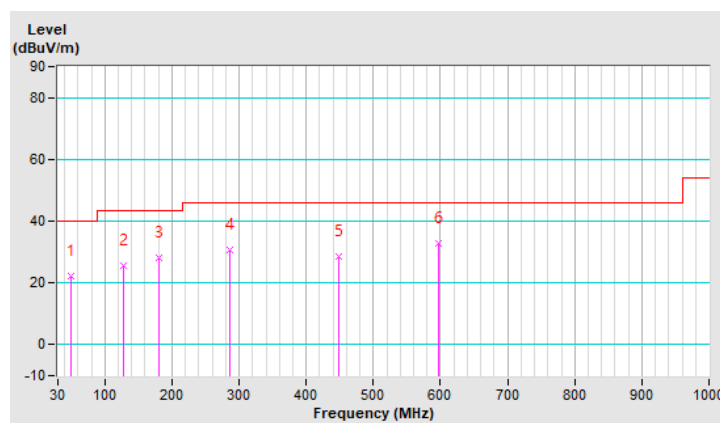
Zigbee:

操 作 模 式 :	發射/接收	調 變 技 術 :	Q-PSK
基 本 波 頻 率 :	CH 11 : 2405 MHz	測 試 儀 器 :	(QP) RB=120kHz
量測場地溫度 :	21°C	量測場地濕度 :	67%RH
測 試 日 期 :	110 年 01 月 08 日	測 試 者 :	李桓輔

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	49.68	22.3 QP	40.0	-17.7	1.00 H	16	31.4	-9.1
2	128.41	25.7 QP	43.5	-17.8	1.50 H	330	35.8	-10.1
3	180.42	28.3 QP	43.5	-15.2	1.00 H	263	38.3	-10.0
4	285.86	30.6 QP	46.0	-15.4	1.50 H	268	37.4	-6.8
5	448.93	28.5 QP	46.0	-17.5	1.50 H	132	31.9	-3.4
6	597.94	32.7 QP	46.0	-13.3	2.00 H	78	32.5	0.2

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.

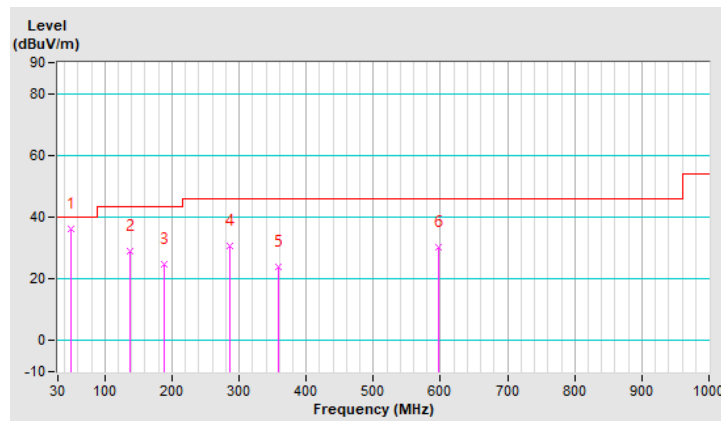


操作模式：	發射/接收	調變技術：	Q-PSK
基本波頻率：	CH 11：2405 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	21°C	量測場地濕度：	67%RH
測試日期：	110 年 01 月 08 日	測試者：	李桓輔

Antenna Polarity & Test Distance : Vertical at 3m								
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	49.68	36.0 QP	40.0	-4.0	2.00 V	11	45.1	-9.1
2	138.25	29.0 QP	43.5	-14.5	1.50 V	63	38.1	-9.1
3	188.86	24.8 QP	43.5	-18.7	2.00 V	30	35.7	-10.9
4	285.86	30.6 QP	46.0	-15.4	1.50 V	287	37.4	-6.8
5	358.96	24.0 QP	46.0	-22.0	1.00 V	269	29.4	-5.4
6	597.94	30.2 QP	46.0	-15.8	1.00 V	193	30.0	0.2

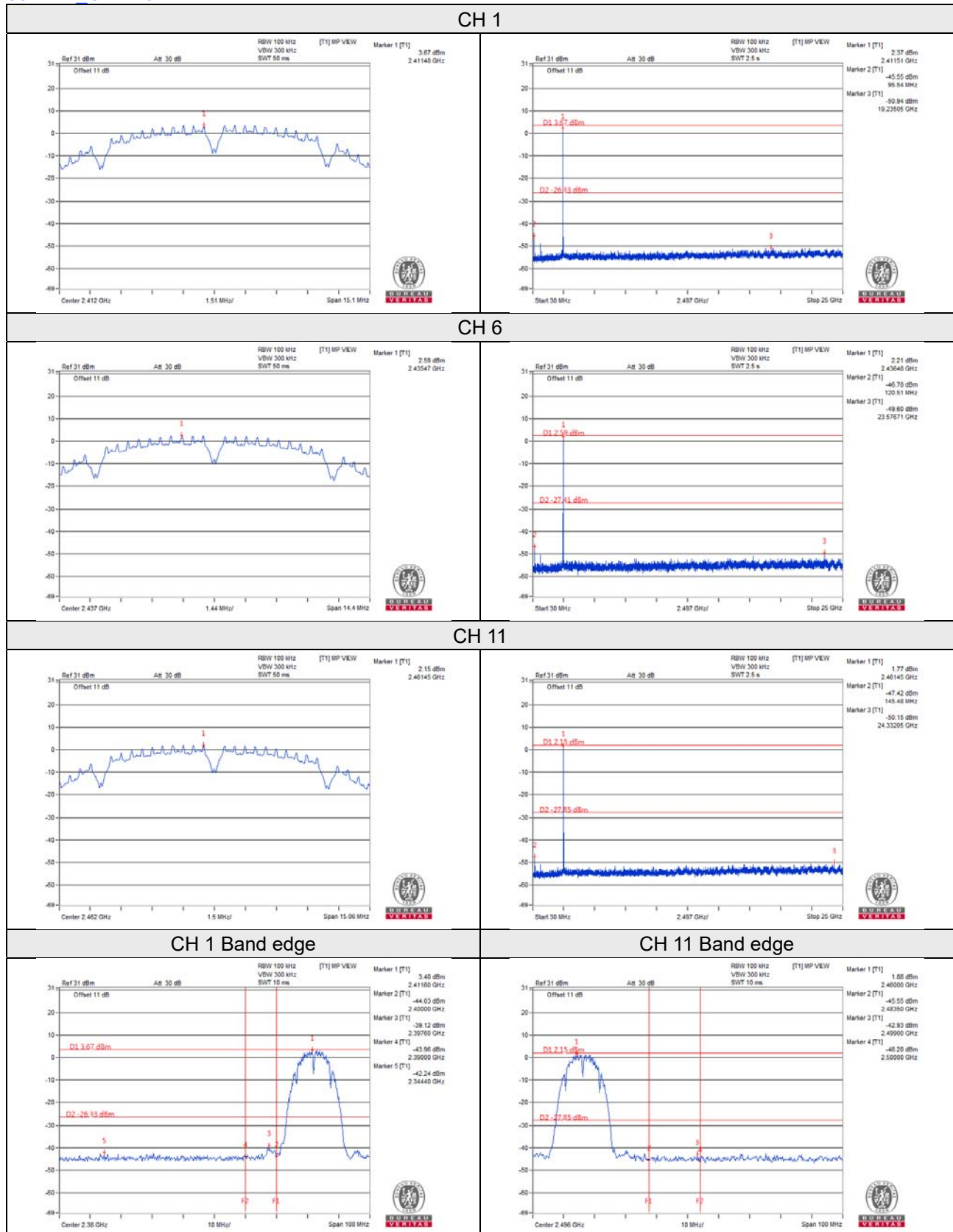
Remarks:

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.



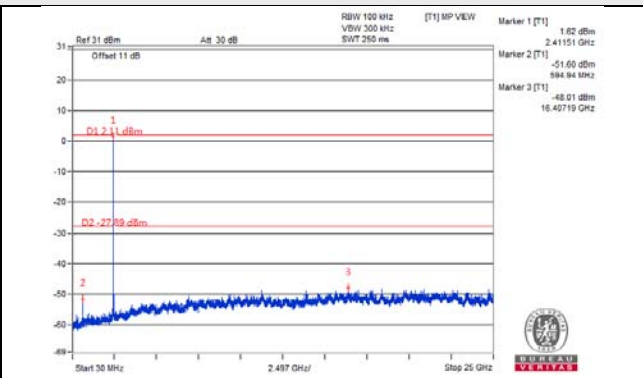
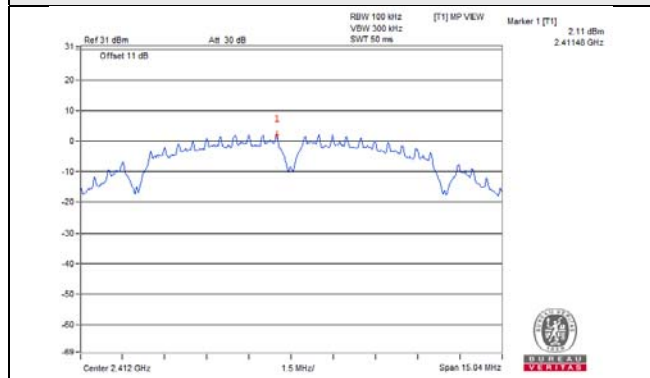
4.7 帶外發射之量測 (傳導)

802.11b_Chain 0

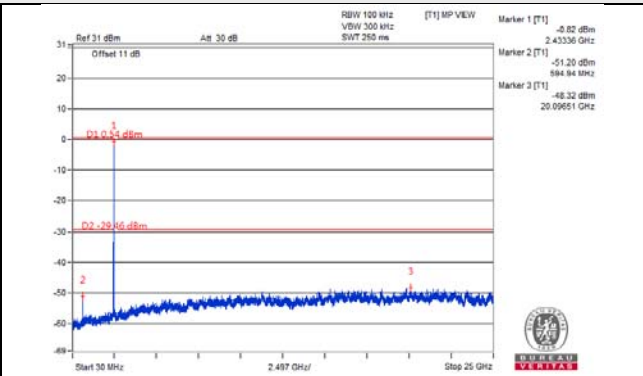
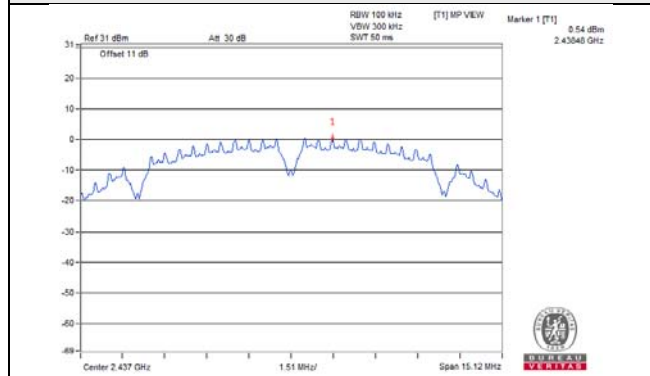


802.11b_Chain 1

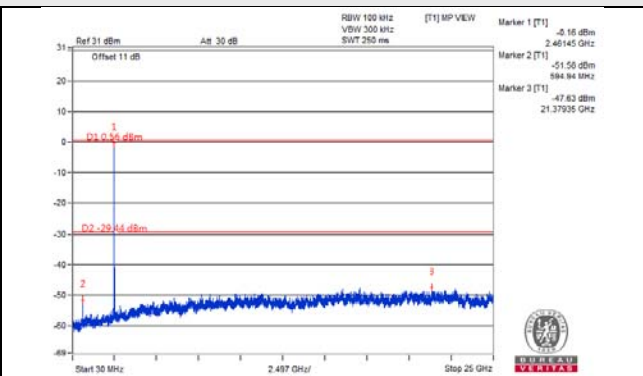
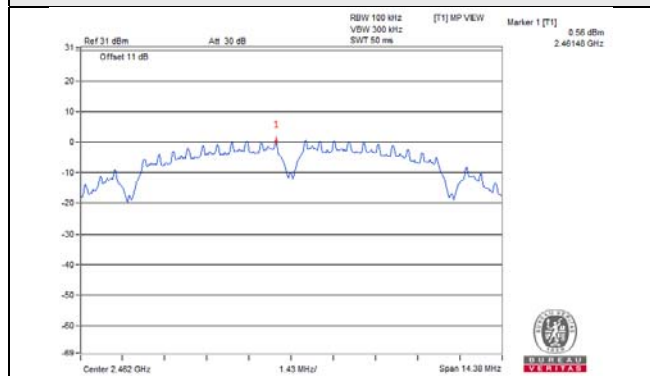
CH 1



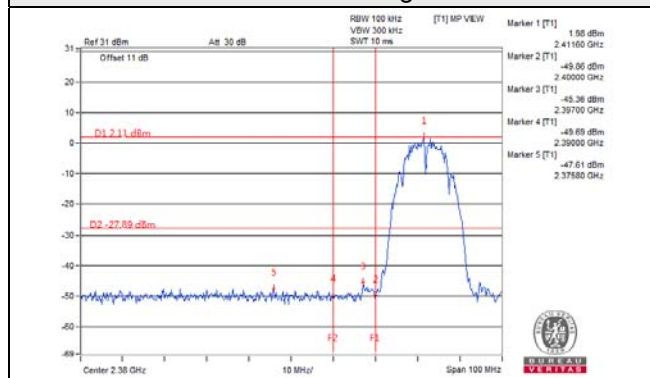
CH 6



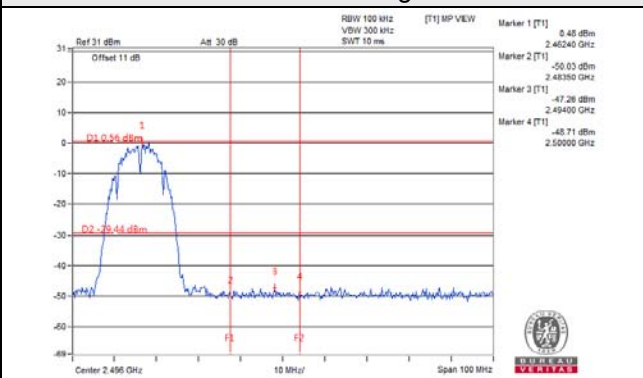
CH 11



CH 1 Band edge

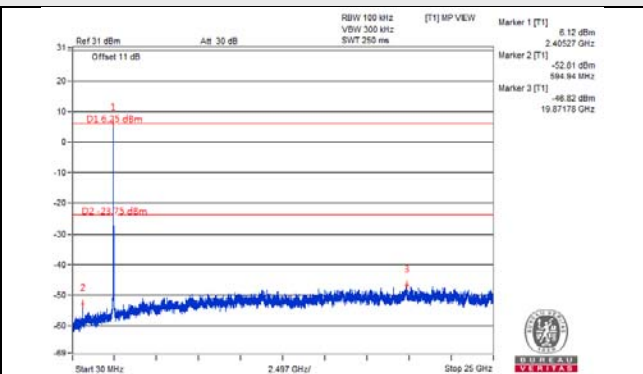
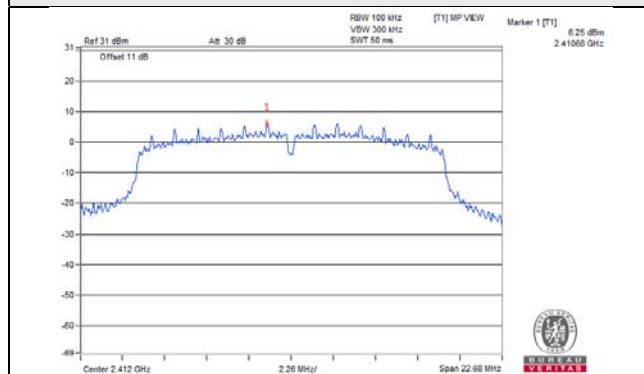


CH 11 Band edge

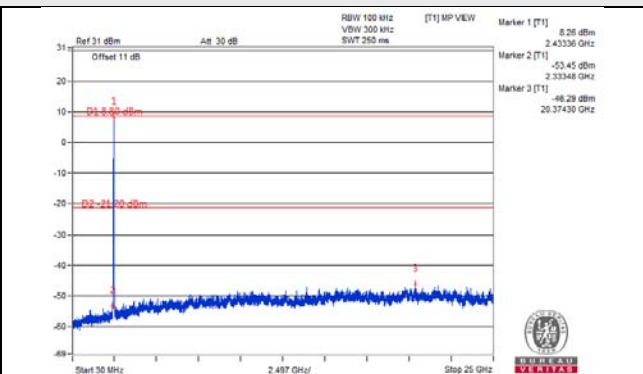
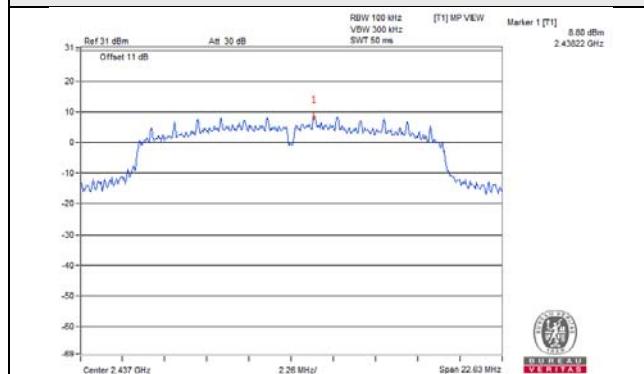


802.11g_Chain 0

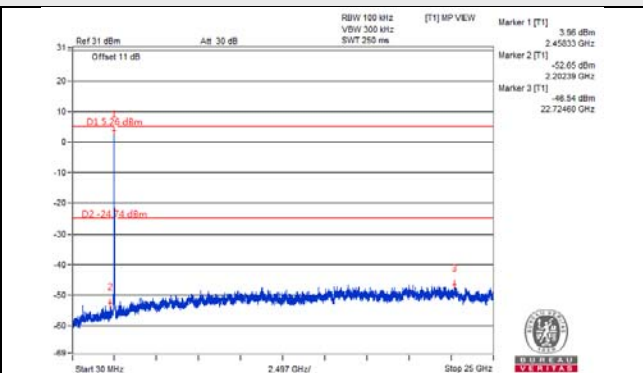
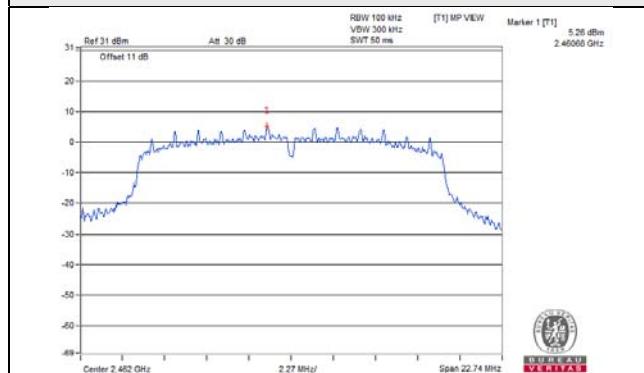
CH 1



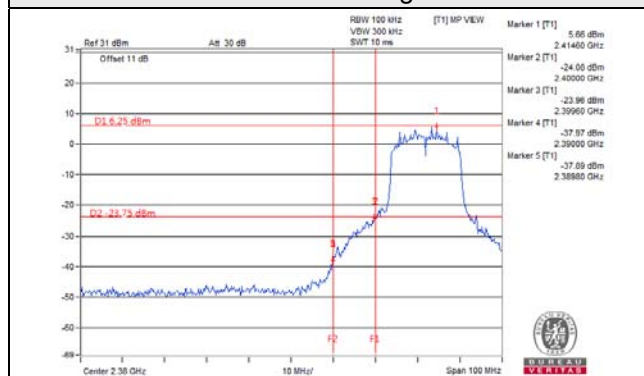
CH 6



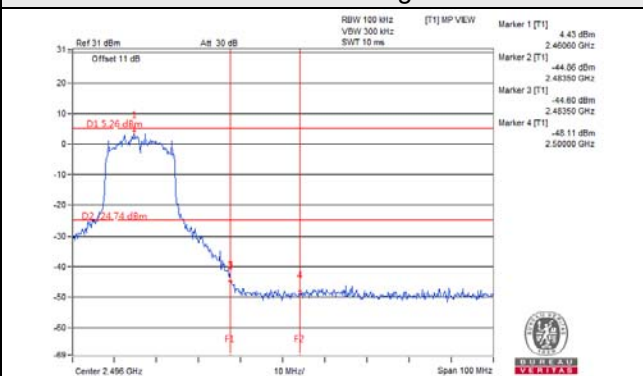
CH 11



CH 1 Band edge

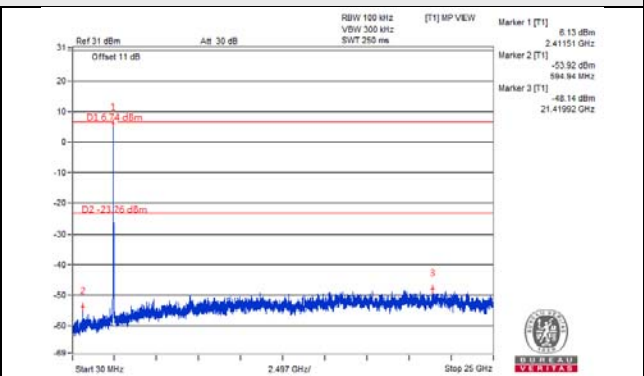
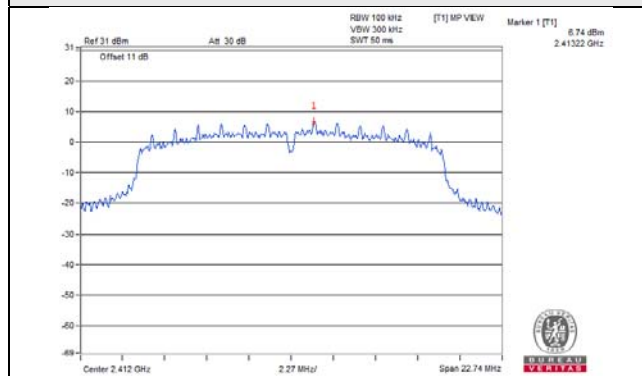


CH 11 Band edge

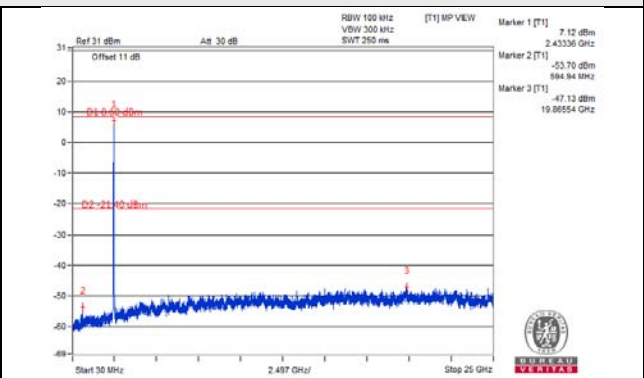
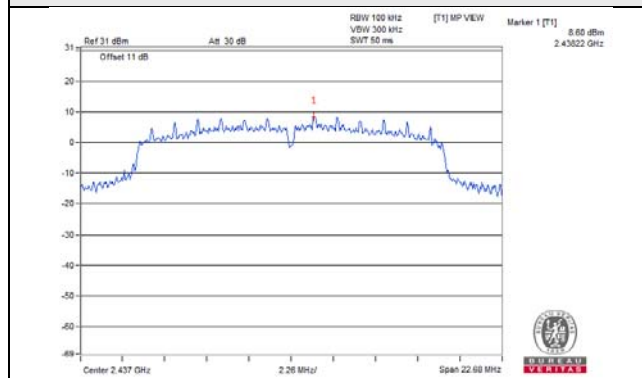


802.11g_Chain 1

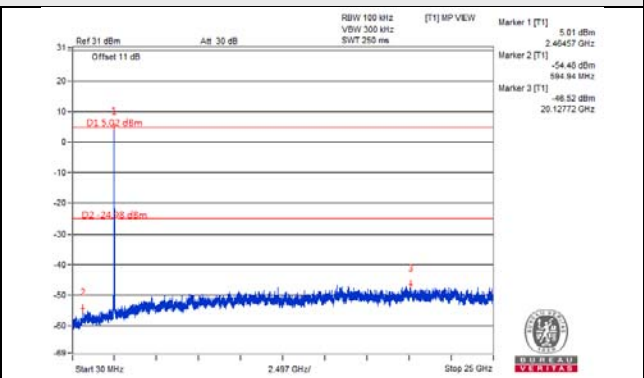
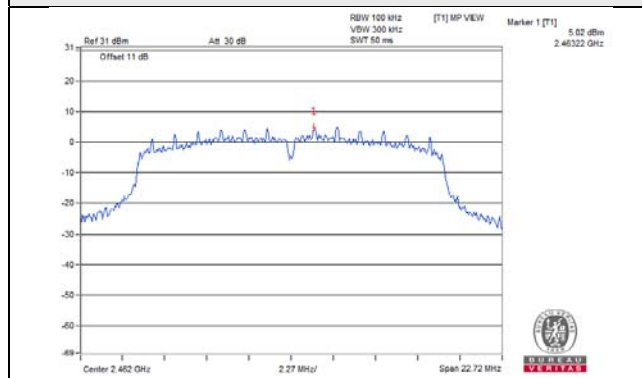
CH 1



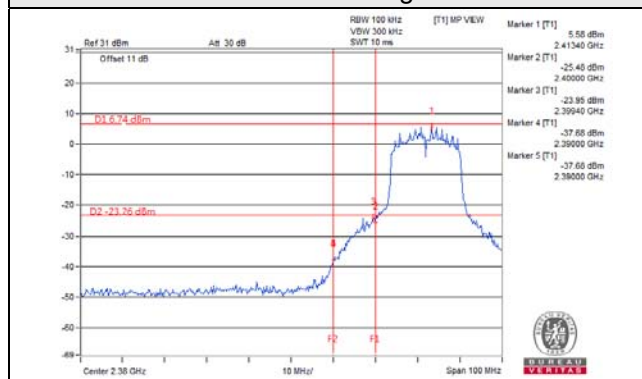
CH 6



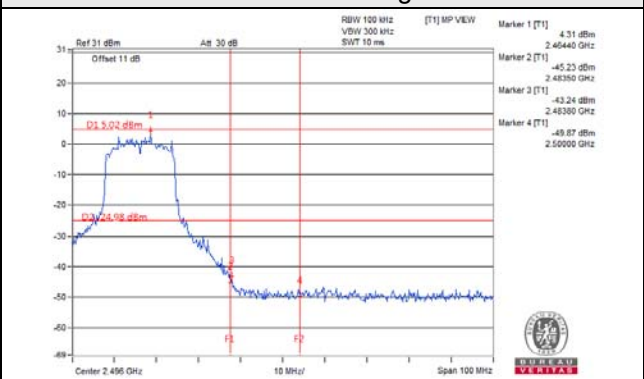
CH 11



CH 1 Band edge

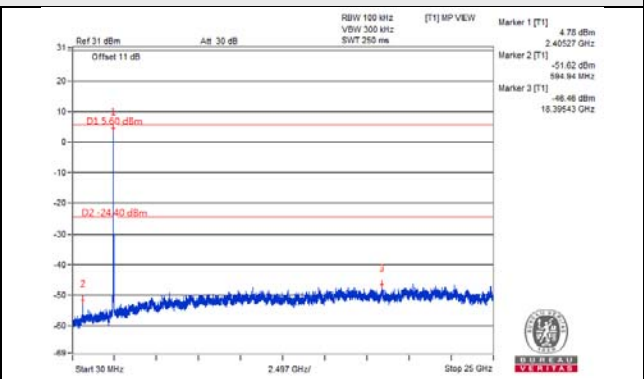
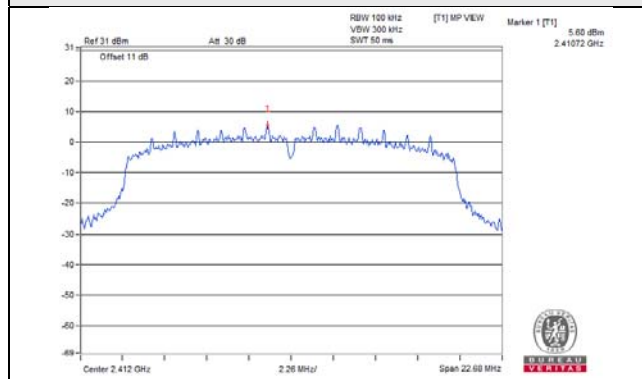


CH 11 Band edge

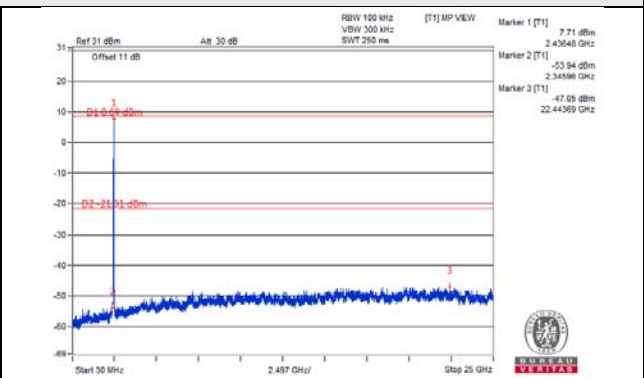
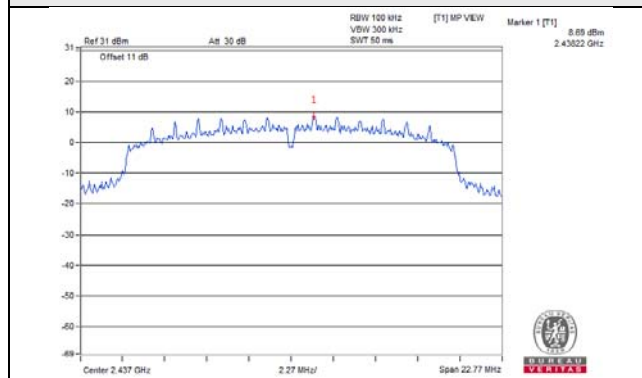


802.11n (HT20)_Chain 0

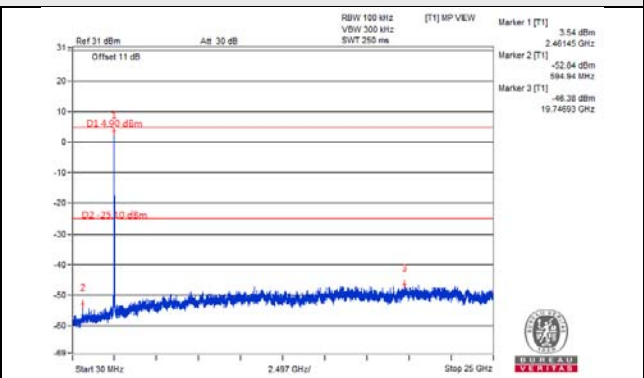
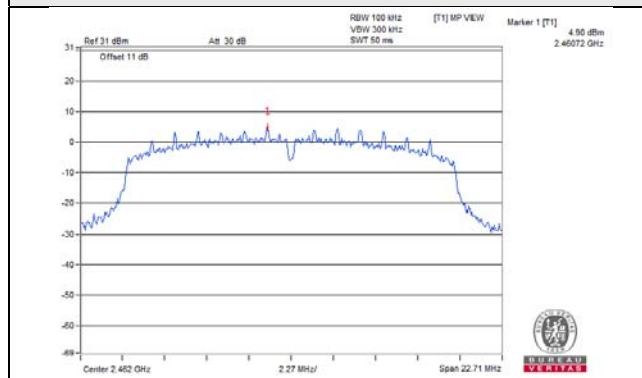
CH 1



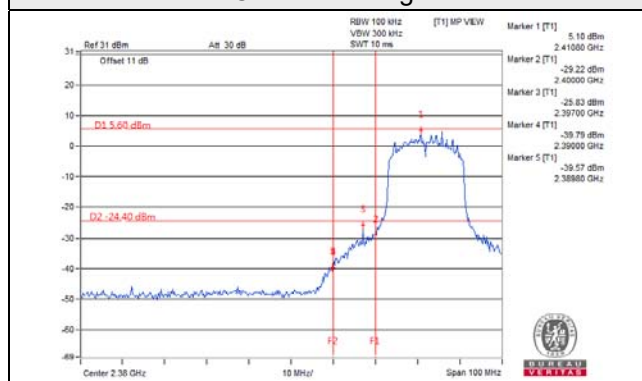
CH 6



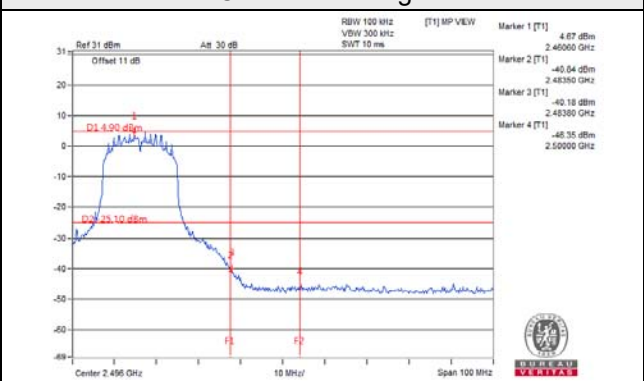
CH 11



CH 1 Band edge

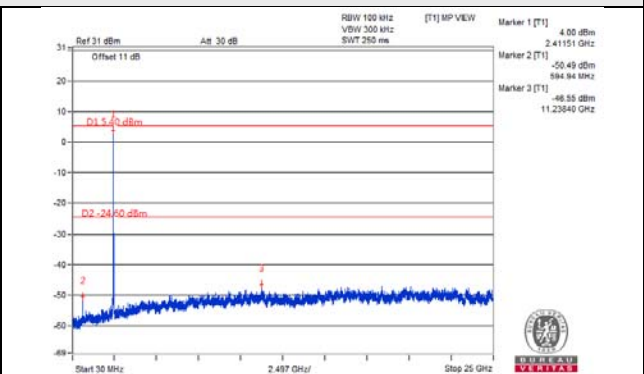
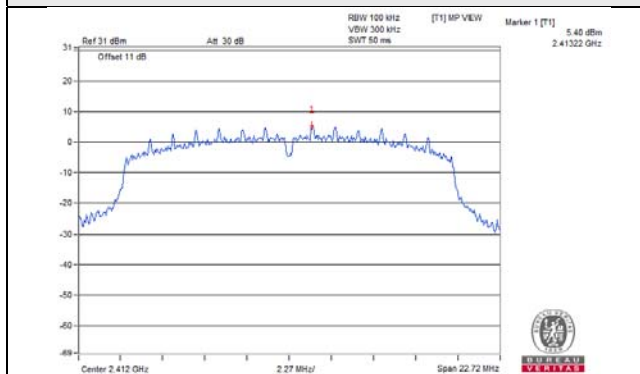


CH 11 Band edge

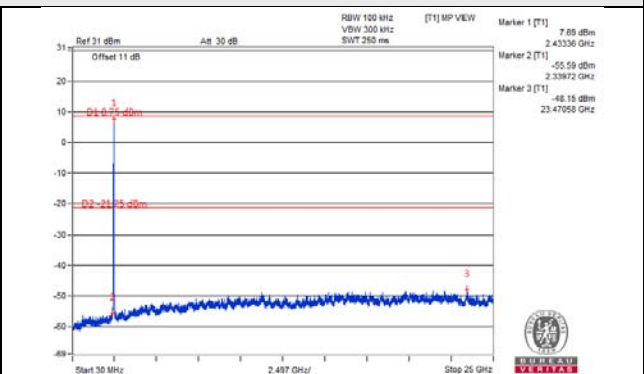
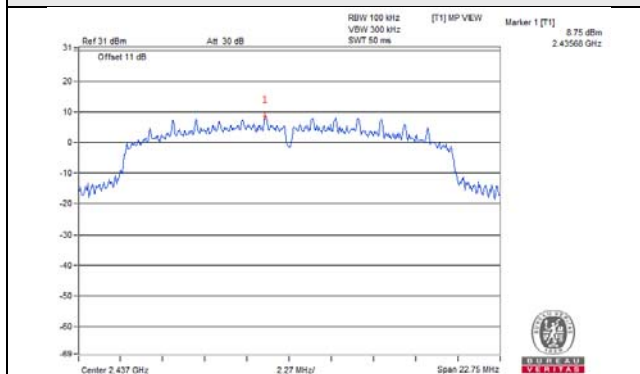


802.11n (HT20)_Chain 1

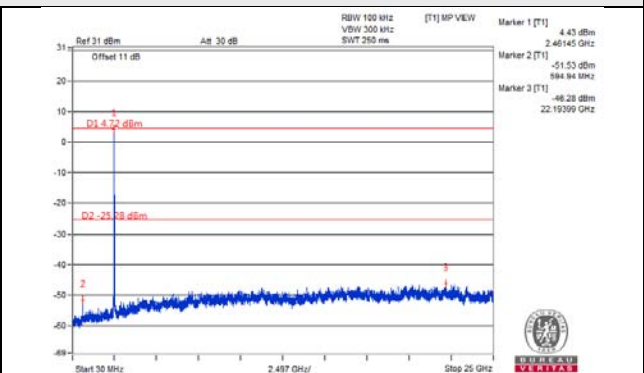
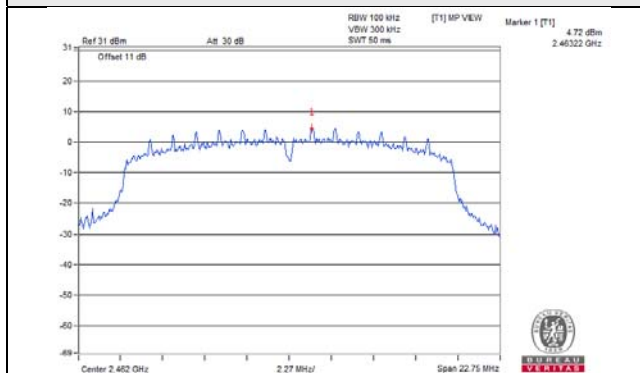
CH 1



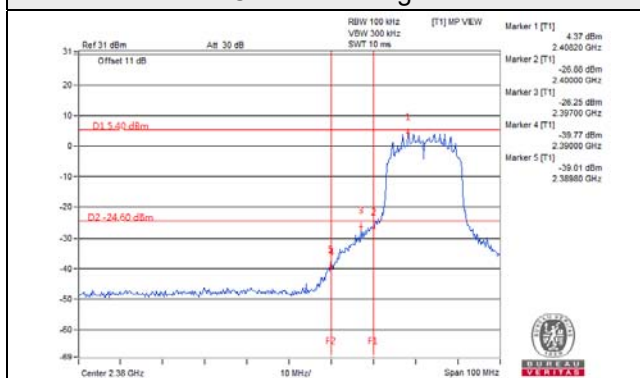
CH 6



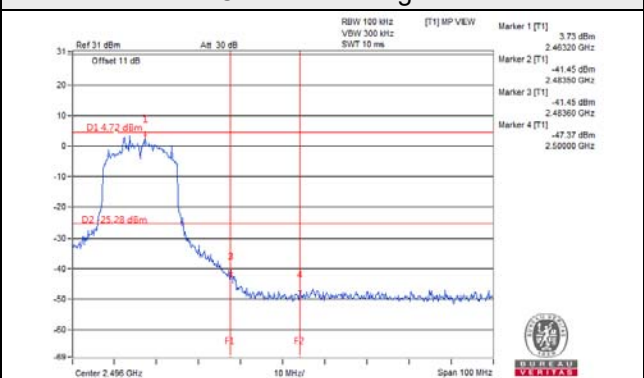
CH 11



CH 1 Band edge

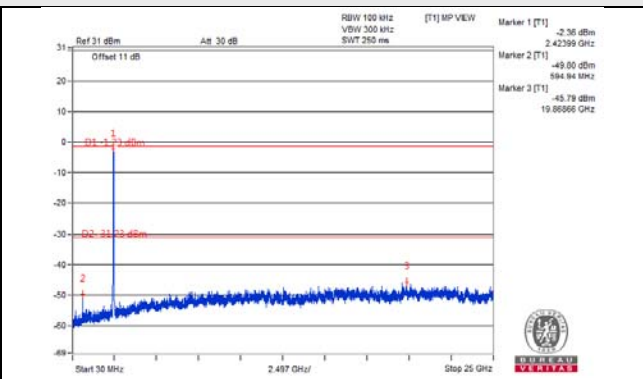
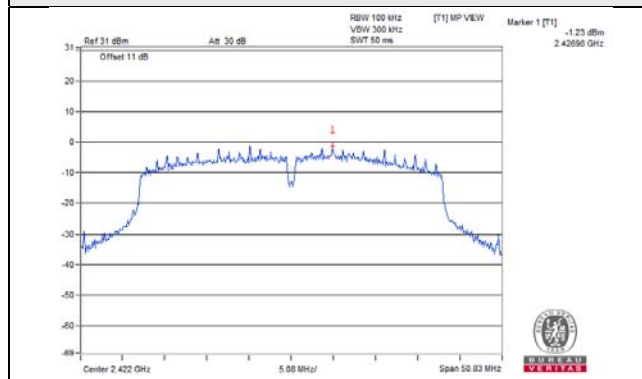


CH 11 Band edge

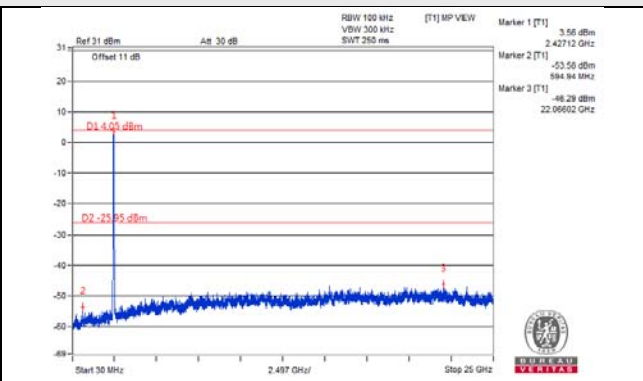
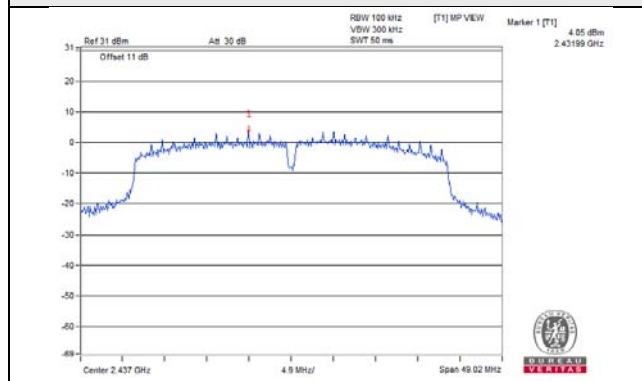


802.11n (HT40)_Chain 0

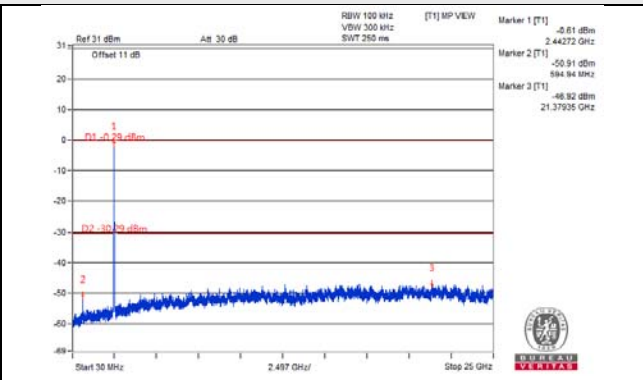
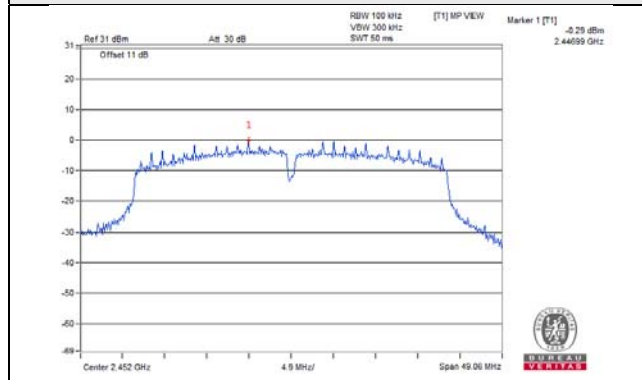
CH 3



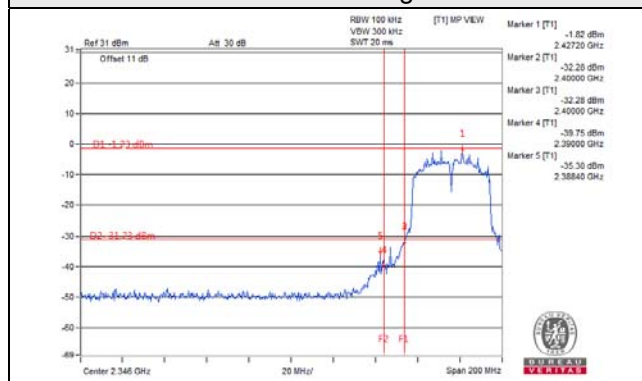
CH 6



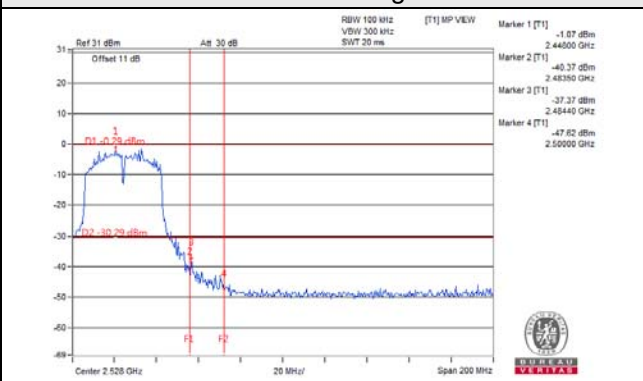
CH 9



CH 3 Band edge

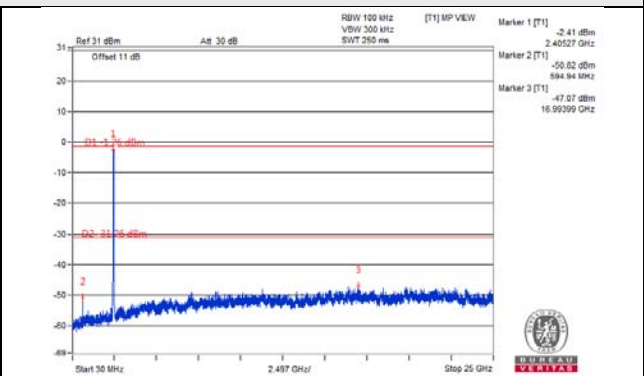
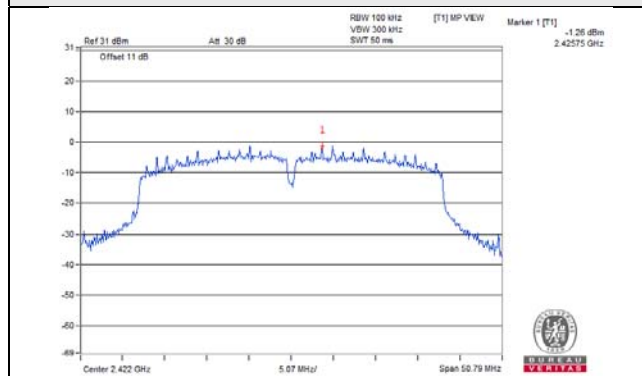


CH 9 Band edge

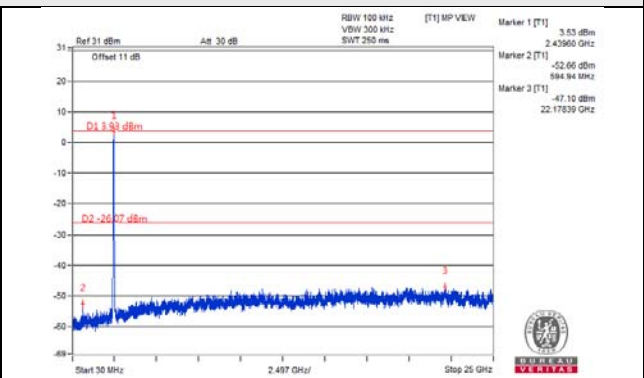
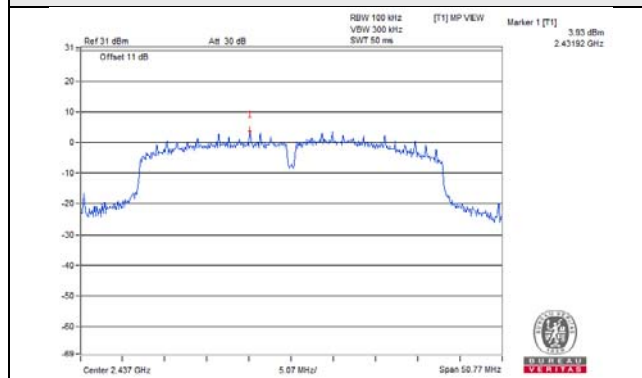


802.11n (HT40)_Chain 1

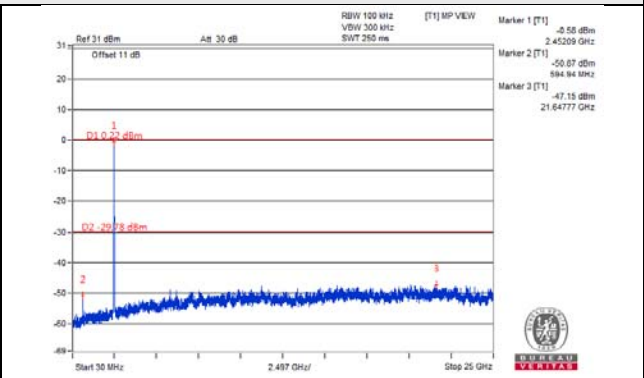
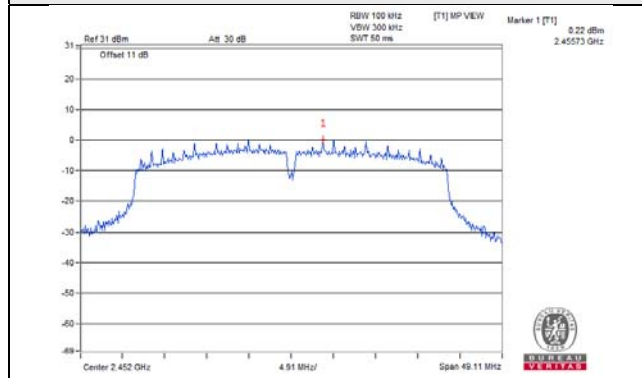
CH 3



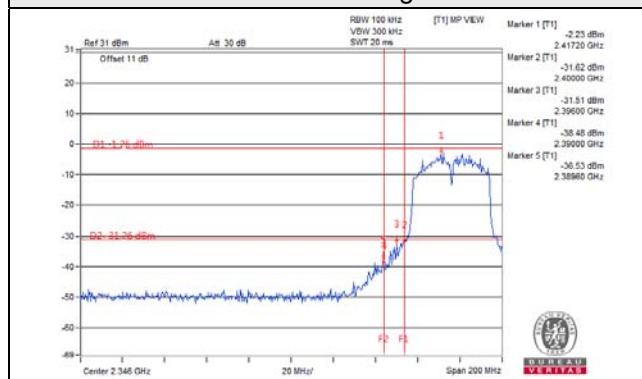
CH 6



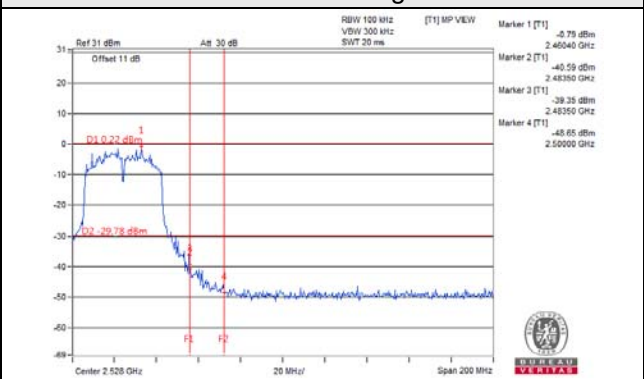
CH 9



CH 3 Band edge



CH 9 Band edge



4.8 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。

4.9 配置照片

請參閱附件測試設置照片(BV CPS 報告編號：200527C06_RF)。

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

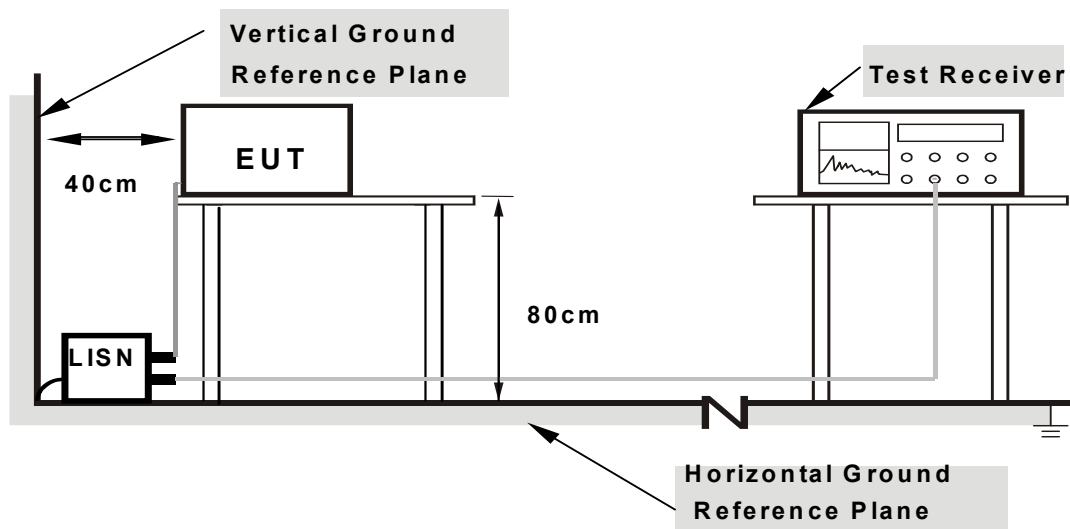
將待測物置於0.8米高的非金屬桌面，使其操作在工作狀態，待測物電源線接至電源線阻抗穩定網路上，從測試接收機記錄頻率由0.15MHz至30MHz之間之電源線傳導放射強度。

5.3 量測儀器

儀器名稱 (廠牌/製造商)	型號	序號	校正日期	下次校正日期
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable Woken	5D-FB	Cable-cond1-01	Jan. 16, 2021	Jan. 15, 2022
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 20, 2020	Feb. 19, 2021
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Conc_ 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 HwaYa Shielded Room 1 (Conduction 1).
 3. The VCCI Site Registration No. is C-12040.
 4. The measurement uncertainty is 2.79 dB, 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.

5.4 測試配置



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

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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

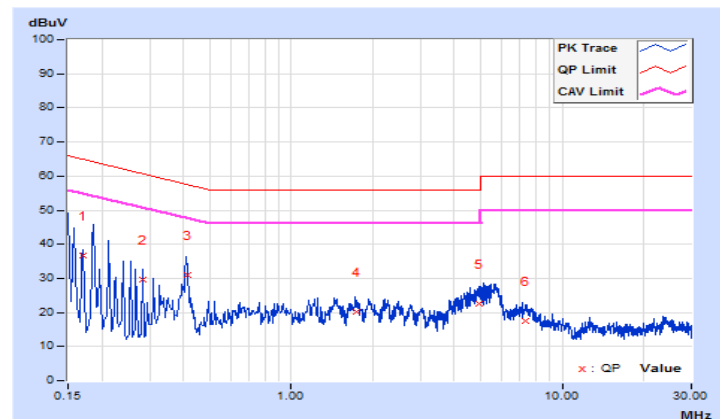
WLAN: 802.11n (HT20)

操作模式	發射/接收	測試日期	110 年 01 月 08 日
基本波頻率	CH 6 : 2437 MHz	量測場地溫度	25°C
調變技術	OFDM	量測場地濕度	75%RH
測試者	李桓輔		

		6 dB Bandwidth: 9kHz				PHASE: LINE (L)			
輻射頻率	校正因子	儀器讀值		結果值		限制值		餘裕度	
[MHz]	[dB]	[dB (uV)]		[dB (uV)]		[dB (uV)]		[dB]	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.16955	9.83	26.91	10.93	36.74	20.76	64.98	54.98	-28.24	-34.22
0.28140	9.86	19.87	5.48	29.73	15.34	60.77	50.77	-31.04	-35.43
0.41197	9.87	21.13	15.83	31.00	25.70	57.61	47.61	-26.61	-21.91
1.73339	9.93	10.16	5.03	20.09	14.96	56.00	46.00	-35.91	-31.04
4.90797	10.01	12.71	6.40	22.72	16.41	56.00	46.00	-33.28	-29.59
7.30530	10.03	7.33	1.71	17.36	11.74	60.00	50.00	-42.64	-38.26

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.

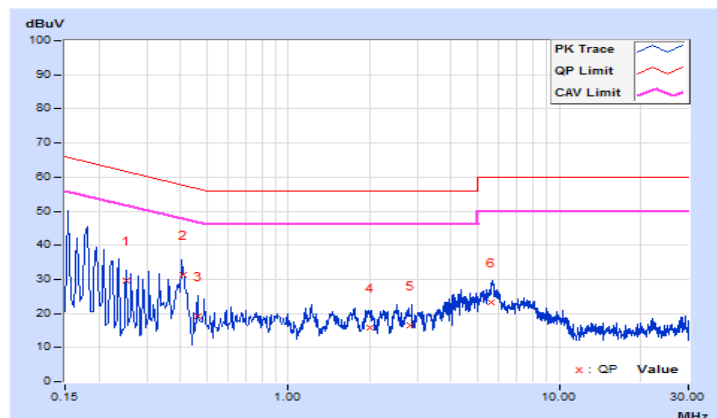


操作模式	發射/接收	測試日期	110 年 01 月 08 日
基本波頻率	CH 6 : 2437 MHz	量測場地溫度	25°C
調變技術	OFDM	量測場地濕度	75%RH
測試者	李桓輔		

		6 dB Bandwidth: 9kHz				PHASE: NEUTRAL (N)			
輻射頻率	校正因子	儀器讀值		結果值		限制值		餘裕度	
[MHz]	[dB]	[dB (uV)]		[dB (uV)]		[dB (uV)]		[dB]	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.25125	9.86	19.91	4.63	29.77	14.49	61.72	51.72	-31.95	-37.23
0.40806	9.90	21.54	16.85	31.44	26.75	57.69	47.69	-26.25	-20.94
0.46179	9.90	9.35	1.83	19.25	11.73	56.66	46.66	-37.41	-34.93
1.99317	10.00	5.84	1.21	15.84	11.21	56.00	46.00	-40.16	-34.79
2.81271	10.02	6.43	1.03	16.45	11.05	56.00	46.00	-39.55	-34.95
5.58099	10.06	13.09	5.27	23.15	15.33	60.00	50.00	-36.85	-34.67

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.



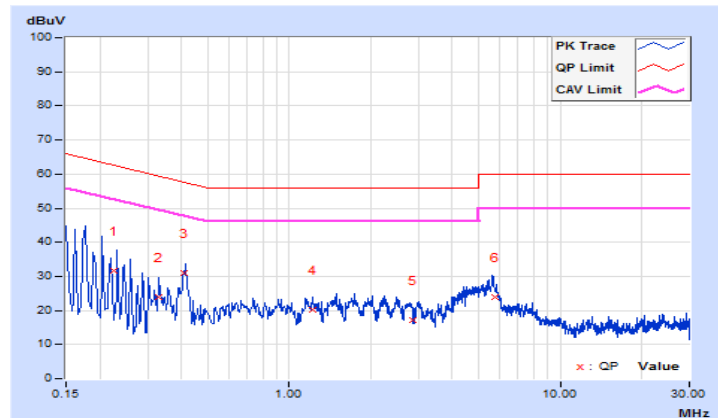
Zigbee:

操作模式	發射/接收	測試日期	110 年 01 月 08 日
基本波頻率	CH 11 : 2405 MHz	量測場地溫度	25°C
調變技術	O-QPSK	量測場地濕度	75%RH
測試者	李桓輔		

		6 dB Bandwidth: 9kHz				PHASE: LINE (L)			
輻射頻率	校正因子	儀器讀值		結果值		限制值		餘裕度	
[MHz]	[dB]	[dB (uV)]		[dB (uV)]		[dB (uV)]		[dB]	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.22429	9.85	21.76	6.64	31.61	16.49	62.66	52.66	-31.05	-36.17
0.32786	9.86	13.89	4.58	23.75	14.44	59.51	49.51	-35.76	-35.07
0.40693	9.87	21.27	15.64	31.14	25.51	57.71	47.71	-26.57	-22.20
1.21454	9.92	10.12	6.09	20.04	16.01	56.00	46.00	-35.96	-29.99
2.84399	9.97	7.06	0.92	17.03	10.89	56.00	46.00	-38.97	-35.11
5.72175	10.02	13.83	6.89	23.85	16.91	60.00	50.00	-36.15	-33.09

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.

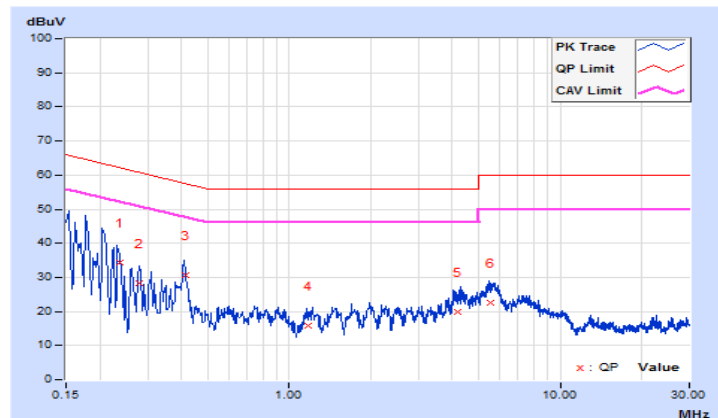


操作模式	發射/接收	測試日期	110 年 01 月 08 日
基本波頻率	CH 11 : 2405 MHz	量測場地溫度	25°C
調變技術	O-QPSK	量測場地濕度	75%RH
測試者	李桓輔		

		6 dB Bandwidth: 9kHz				PHASE: NEUTRAL (N)			
輻射頻率	校正因子	儀器讀值		結果值		限制值		餘裕度	
[MHz]	[dB]	[dB (uV)]		[dB (uV)]		[dB (uV)]		[dB]	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.23602	9.86	24.37	7.55	34.23	17.41	62.24	52.24	-28.01	-34.83
0.27844	9.87	18.29	3.68	28.16	13.55	60.86	50.86	-32.70	-37.31
0.41197	9.90	20.88	16.20	30.78	26.10	57.61	47.61	-26.83	-21.51
1.17051	9.95	5.80	1.94	15.75	11.89	56.00	46.00	-40.25	-34.11
4.17339	10.04	9.95	2.14	19.99	12.18	56.00	46.00	-36.01	-33.82
5.50670	10.06	12.56	4.54	22.62	14.60	60.00	50.00	-37.38	-35.40

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

請參閱附件測試設置照片(BV CPS 報告編號：200527C06_RF)。

6 發射(6 dB)頻寬之要求

6.1 適用標準

請見本報告3.1節第5項(I)的規定。

6.2 量測方法

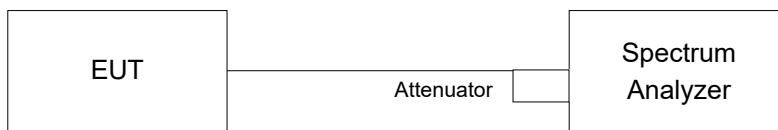
- 將待測物輸出經由衰減器接到頻譜分析儀上。
- 設定待測物處於連續發射狀態。
- 計算由最大輸出功率峰值減6dB的最大頻率範圍。

6.3 量測儀器

儀器名稱 (廠牌/製造商)	型號	序號	校正日期	下次校正日期
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020

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 measurement uncertainty is 207Hz, 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	109 年 09 月 04 日
量測場地溫度	25°C	量測場地濕度	60%RH
測試者	王紀雄		

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	10.07	10.03	0.5	Pass
6	2437	9.60	10.08	0.5	Pass
11	2462	10.04	9.59	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.12	15.16	0.5	Pass
6	2437	15.09	15.12	0.5	Pass
11	2462	15.16	15.15	0.5	Pass

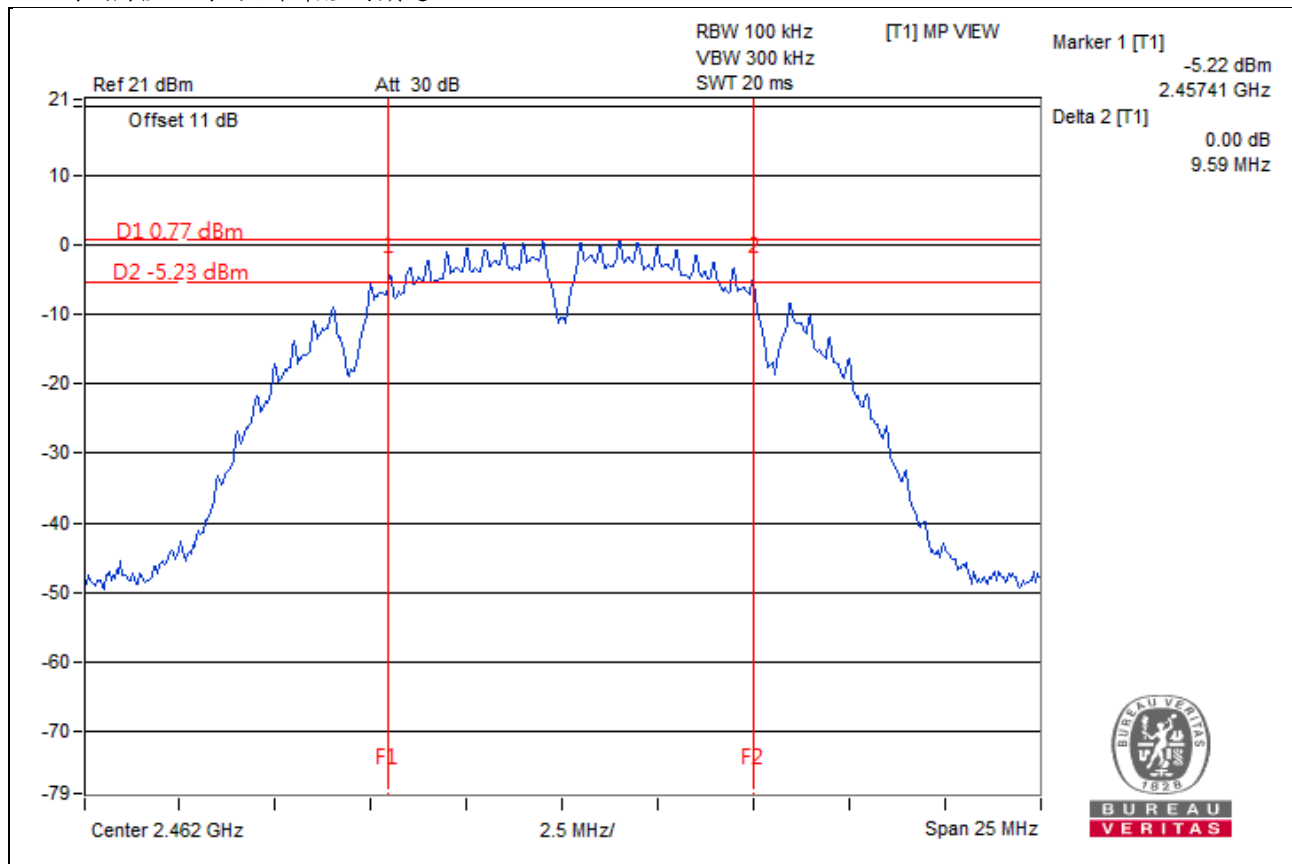
802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.12	15.15	0.5	Pass
6	2437	15.18	15.17	0.5	Pass
11	2462	15.14	15.17	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	33.89	33.86	0.5	Pass
6	2437	32.68	33.85	0.5	Pass
9	2452	32.71	32.74	0.5	Pass

**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，符合低功率射頻器材技術規範之要求。

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6項(I)及4項(I)的規定。

7.2 量測方法

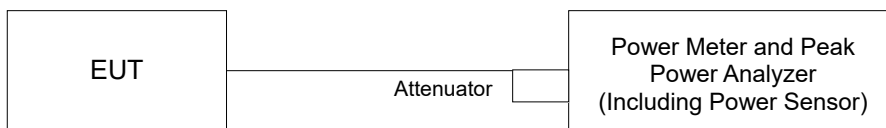
- 將待測物輸出經由衰減器接到功率計上 (Average Detector with Gating Function)。
- 設定待測物處於連續發射狀態。
- 計算其輸出功率峰值。

7.3 量測儀器

儀器名稱 (廠牌/製造商)	型號	序號	校正日期	下次校正日期
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55210005	Jul. 13, 2020	Jul. 12, 2021

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 measurement uncertainty is 1.393dB, 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	109 年 09 月 04 日
量測場地溫度	25°C	量測場地濕度	60%RH
測試者	王紀雄		

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	11.15	10.71	24.808	13.95	30.00	Pass
6	2437	9.81	9.67	18.840	12.75	30.00	Pass
11	2462	9.93	10.69	21.562	13.34	30.00	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	16.70	16.61	92.588	19.67	30.00	Pass
6	2437	18.72	18.76	149.635	21.75	30.00	Pass
11	2462	15.57	15.83	74.340	18.71	30.00	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.61	15.26	69.965	18.45	30.00	Pass
6	2437	19.02	18.84	156.359	21.94	30.00	Pass
11	2462	14.75	15.07	61.990	17.92	30.00	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	12.11	11.77	31.287	14.95	30.00	Pass
6	2437	17.38	17.33	108.777	20.37	30.00	Pass
9	2452	13.15	13.47	42.887	16.32	30.00	Pass

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 功率頻譜密度之量測

8.1 適用標準

請見本報告3.1節第7項(I)的規定。

8.2 量測方法

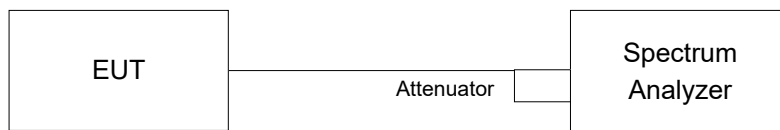
- a) 將待測物之天線埠連接至測試儀器。
- b) 設定解析頻寬為 3kHz，視訊頻寬為 10kHz，掃描時間設為自動，直至掃描信號穩定。
- c) 使用 RMS 功能鍵，並找到最大的峰值準位。

8.3 量測儀器

儀器名稱 (廠牌/製造商)	型號	序號	校正日期	下次校正日期
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020

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 measurement uncertainty is 207Hz, 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

操作模式	發射	測試日期	109 年 09 月 04 日
量測場地溫度	25°C	量測場地濕度	60%RH
測試者	王紀雄		

802.11b

TX chain	Channel	Frequency (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-21.40	3.01	-18.39	5.95	Pass
	6	2437	-22.69	3.01	-19.68	5.95	Pass
	11	2462	-23.14	3.01	-20.13	5.95	Pass
1	1	2412	-22.91	3.01	-19.90	5.95	Pass
	6	2437	-24.42	3.01	-21.41	5.95	Pass
	11	2462	-24.18	3.01	-21.17	5.95	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add $10 \log (N_{ANT})$ dB.
- Directional gain = $5.04\text{dBi} + 10\log(2) = 8.05\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $8-(8.05-6) = 5.95\text{dBm}$.

802.11g

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-19.01	3.01	0.15	-15.85	5.95	Pass
	6	2437	-16.81	3.01	0.15	-13.65	5.95	Pass
	11	2462	-20.44	3.01	0.15	-17.28	5.95	Pass
1	1	2412	-18.86	3.01	0.15	-15.70	5.95	Pass
	6	2437	-17.36	3.01	0.15	-14.20	5.95	Pass
	11	2462	-20.31	3.01	0.15	-17.15	5.95	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add $10 \log (N_{ANT})$ dB.
- Directional gain = $5.04\text{dBi} + 10\log(2) = 8.05\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $8-(8.05-6) = 5.95\text{dBm}$.
- Refer to section 2.1 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-20.42	3.01	0.15	-17.26	5.95	Pass
	6	2437	-17.44	3.01	0.15	-14.28	5.95	Pass
	11	2462	-20.97	3.01	0.15	-17.81	5.95	Pass
1	1	2412	-20.77	3.01	0.15	-17.61	5.95	Pass
	6	2437	-16.96	3.01	0.15	-13.80	5.95	Pass
	11	2462	-21.48	3.01	0.15	-18.32	5.95	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add $10 \log (N_{ANT})$ dB.
2. Directional gain = $5.04\text{dBi} + 10\log(2) = 8.05\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $8-(8.05-6) = 5.95\text{dBm}$.
3. Refer to section 2.1 for duty cycle spectrum plot.

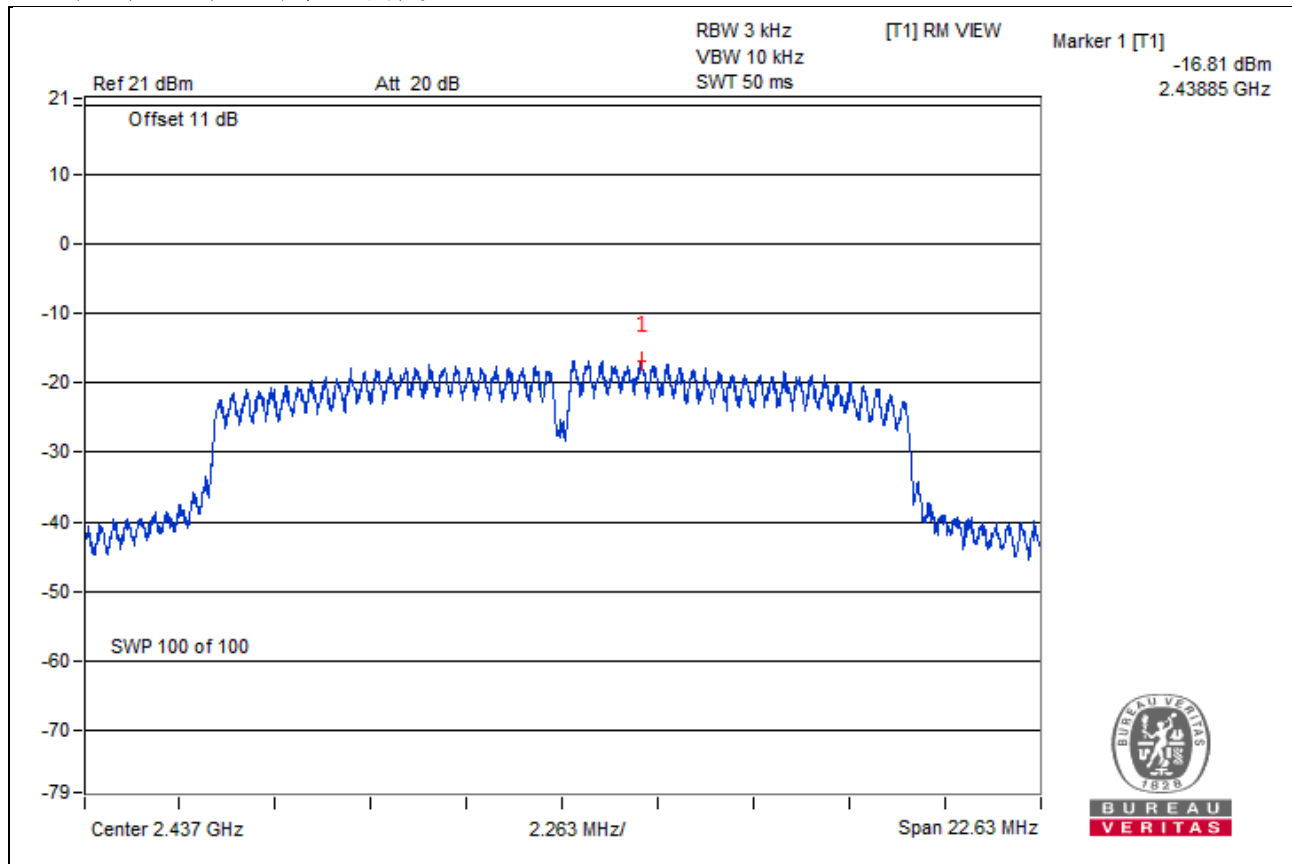
802.11n (HT40)

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-27.17	3.01	0.20	-23.96	5.95	Pass
	6	2437	-21.89	3.01	0.20	-18.68	5.95	Pass
	9	2452	-26.55	3.01	0.20	-23.34	5.95	Pass
1	3	2422	-27.15	3.01	0.20	-23.94	5.95	Pass
	6	2437	-22.53	3.01	0.20	-19.32	5.95	Pass
	9	2452	-25.79	3.01	0.20	-22.58	5.95	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add $10 \log (N_{ANT})$ dB.
2. Directional gain = $5.04\text{dBi} + 10\log(2) = 8.05\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $8-(8.05-6) = 5.95\text{dBm}$.
3. Refer to section 2.1 for duty cycle spectrum plot.

**此測試圖僅放測試結果最差的頻道。



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 電波暴露量之評估

9.1 適用標準

請見本報告3.1節第12項的規定。

9.2 評估方法

a) 以第7.5節所測得的最大輸出功率值再加上待測物天線的增益值(Gain)帶入下面公式換算出待測物所輻射的功率密度。

$$b) P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

9.3 評估結果

Frequency Band (MHz)	Max.AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	LIMIT (mW/cm^2)
2412-2462	21.94	8.05	20	0.198	1
2405-2480	15.14	5.03	20	0.021	1

Note:

- For WLAN: Directional gain = $5.04dBi + 10\log(2) = 8.05dBi > 6dBi$
For Zigbee: Max. gain = $5.03dBi$
- The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

CONCLUSION:

Both of the WLAN 2.4G & Zigbee can transmit simultaneously, the formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4GHz} + \text{Zigbee Module} = 0.198/1 + 0.021/1 = 0.219$$

Therefore, the maximum calculation of this situation is 0.219, which is less than the "1" limit.

Co-Located 測試項目及結果

10 場強輻射及開放頻帶邊緣之量測

10.1 適用標準

請見本報告3.1節第2項的規定。

10.2 量測方法

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米處。桌面要360度旋轉，另外接收天線也要從離地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。

Note: 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

10.3 量測儀器

同4.3節

10.4 測試配置

同4.4節。

10.5 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。

10.6 量測結果

10.6.1 發射諧波

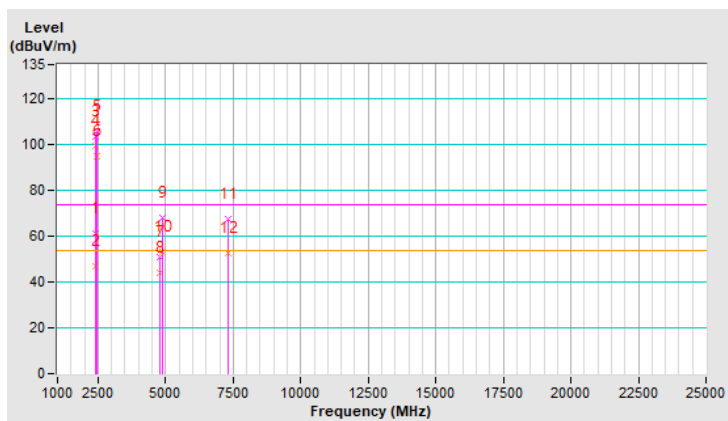
802.11n (HT20): Ch 6 + Zigbee: Ch 11

操作模式：	發射	調變技術：	OFDM+O-QPSK
基本波頻率：	CH 6: 2437 MHz + CH 11: 2405 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 13 日	測試者：	彭民達

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	61.0 PK	74.0	-13.0	1.35 H	333	28.7	32.3
2	2390.00	46.7 AV	54.0	-7.3	1.35 H	333	14.4	32.3
3	*2405.00	103.6 PK			1.35 H	333	71.3	32.3
4	*2405.00	99.4 AV			1.35 H	333	67.1	32.3
5	*2437.00	106.1 PK			1.40 H	303	73.8	32.3
6	*2437.00	95.0 AV			1.40 H	303	62.7	32.3
7	4810.00	51.1 PK	74.0	-22.9	2.44 H	331	47.9	3.2
8	4810.00	44.0 AV	54.0	-10.0	2.44 H	331	40.8	3.2
9	4874.00	68.2 PK	74.0	-5.8	1.91 H	352	65.1	3.1
10	4874.00	53.2 AV	54.0	-0.8	1.91 H	352	50.1	3.1
11	7311.00	67.5 PK	74.0	-6.5	1.44 H	23	57.6	9.9
12	7311.00	52.6 AV	54.0	-1.4	1.44 H	23	42.7	9.9
	9748.00	-	-	-	-	-	-	-
	12185.00	-	-	-	-	-	-	-
	14622.00	-	-	-	-	-	-	-
	17059.00	-	-	-	-	-	-	-
	19496.00	-	-	-	-	-	-	-
	21933.00	-	-	-	-	-	-	-
	24370.00	-	-	-	-	-	-	-

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency (主頻).
6. " - ": The emission levels were too low to be detected.
7. " # ": The radiated frequency is out of the restricted band.
8. The blank is not available, the limit of fundamental frequency was restricted at the peak output power.

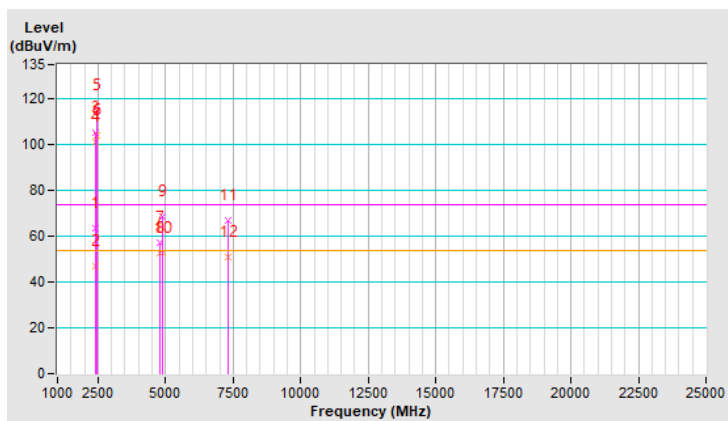


操作模式：	發射	調變技術：	OFDM+O-QPSK
基本波頻率：	CH 6: 2437 MHz + CH 11: 2405 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	23°C	量測場地濕度：	67%RH
測試日期：	109 年 08 月 13 日	測試者：	彭民達

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	63.4 PK	74.0	-10.6	2.05 V	15	31.1	32.3
2	2390.00	47.1 AV	54.0	-6.9	2.05 V	15	14.8	32.3
3	*2405.00	105.5 PK			2.05 V	15	73.2	32.3
4	*2405.00	101.2 AV			2.05 V	15	68.9	32.3
5	*2437.00	115.1 PK			1.61 V	65	82.8	32.3
6	*2437.00	104.0 AV			1.61 V	65	71.7	32.3
7	4810.00	57.4 PK	74.0	-16.6	1.88 V	13	54.2	3.2
8	4810.00	52.6 AV	54.0	-1.4	1.88 V	13	49.4	3.2
9	4874.00	68.4 PK	74.0	-5.6	2.00 V	340	65.3	3.1
10	4874.00	52.6 AV	54.0	-1.4	2.00 V	340	49.5	3.1
11	7311.00	67.2 PK	74.0	-6.8	1.75 V	309	57.3	9.9
12	7311.00	50.7 AV	54.0	-3.3	1.75 V	309	40.8	9.9
	9748.00	-	-	-	-	-	-	-
	12185.00	-	-	-	-	-	-	-
	14622.00	-	-	-	-	-	-	-
	17059.00	-	-	-	-	-	-	-
	19496.00	-	-	-	-	-	-	-
	21933.00	-	-	-	-	-	-	-
	24370.00	-	-	-	-	-	-	-

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency (主頻).
6. " - ": The emission levels were too low to be detected.
7. " # ": The radiated frequency is out of the restricted band.
8. The blank is not available, the limit of fundamental frequency was restricted at the peak output power.



10.6.2 其它不必要之訊號

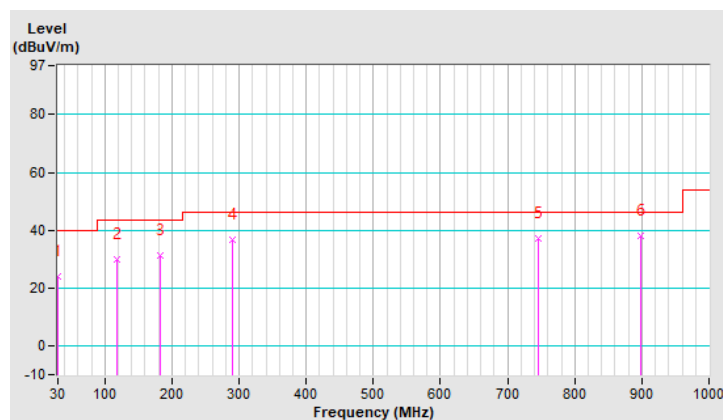
802.11n (HT20): Ch 6 + Zigbee: Ch 11

操作模式：	發射/接收	調變技術：	OFDM+O-QPSK
基本波頻率：	CH 6: 2437 MHz + CH 11: 2405 MHz	測試儀器：	(QP) RB=VB=120kHz
量測場地溫度：	21°C	量測場地濕度：	67%RH
測試日期：	110 年 01 月 08 日	測試者：	李桓輔

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	24.0 QP	40.0	-16.0	1.00 H	299	34.9	-10.9
2	118.16	29.9 QP	43.5	-13.6	1.00 H	299	40.9	-11.0
3	183.23	31.2 QP	43.5	-12.3	1.50 H	260	41.4	-10.2
4	289.26	36.8 QP	46.0	-9.2	2.00 H	255	43.5	-6.7
5	745.55	37.1 QP	46.0	-8.9	1.00 H	143	33.9	3.2
6	897.38	37.9 QP	46.0	-8.1	1.00 H	311	32.5	5.4

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. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz.

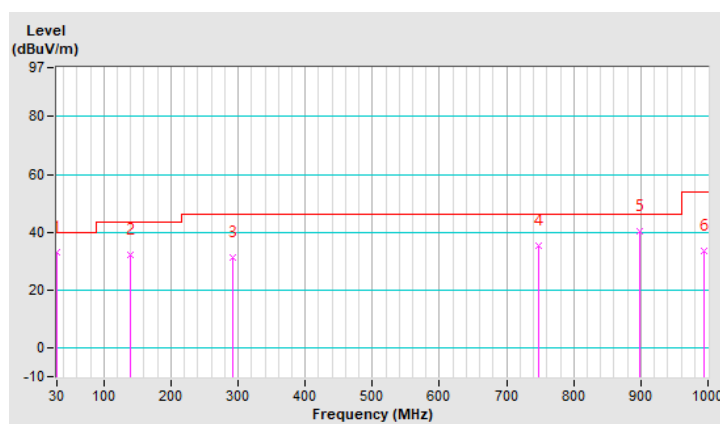


操作模式：	發射/接收	調變技術：	OFDM+O-QPSK
基本波頻率：	CH 6: 2437 MHz + CH 11: 2405 MHz	測試儀器：	(QP) RB=VB=120kHz
量測場地溫度：	21°C	量測場地濕度：	67%RH
測試日期：	110 年 01 月 08 日	測試者：	李桓輔

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	32.9 QP	40.0	-7.1	1.00 V	236	43.8	-10.9
2	139.25	32.0 QP	43.5	-11.5	1.00 V	66	41.1	-9.1
3	292.48	31.3 QP	46.0	-14.7	1.00 V	284	38.0	-6.7
4	746.96	35.4 QP	46.0	-10.6	1.50 V	0	32.2	3.2
5	897.38	40.3 QP	46.0	-5.7	1.00 V	319	34.9	5.4
6	994.38	33.5 QP	54.0	-20.5	1.00 V	148	26.6	6.9

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. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz.



10.7 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。

10.8 配置照片

請參閱附件測試設置照片(BV CPS 報告編號：200527C06_RF)。

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

您也可以在我们的網站內找到各實驗室的地圖。

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