

低功率射頻電機技術規範測試報告 (WLAN)

報告編號.

RT170513E01F

申請者

Lantronix, Inc.

產品名稱

xPico 200 Series Wi-Fi IoT Gateway

型號

xPico 250

系列型號

xPico 270

製造廠商

Lantronix, Inc.

商標或廠牌

Lantronix

該產品樣品試驗

國家通訊傳播委員會低功率射頻電機技術規範

依據之試驗標準

107 年 1 月修訂

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 新竹實驗室

日期 108 年 06 月 14 日

報告簽署人簽章:

陳瓊美



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報告發行紀錄

Issue No.	Description	Date Issued
RT170513E01F	Original release.	108 年 06 月 14 日

證 明 書

產 品 名 稱：xPico 200 Series Wi-Fi IoT Gateway
商 標：Lantronix
型 號：xPico 250
系 列 型 號：xPico 270
申 請 者：Lantronix, Inc.
量 測 規 範：低功率射頻電機技術規範 LP0002
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（型號：xPico 270），收件日期 108 年 04 月 15 日，於 109 年 04 月 30 日至 06 月 03 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“低功率射頻電機技術規範”、“低功率電波輻射性電機管理辦法”及“電信管制射頻器材審驗辦法”製作測試結果報告。

特 此 證 明 ！

報告製作者： 吳 茲 臻 ， 日 期： 108 年 06 月 14 日
吳 茲 臻 / 專員

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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：300 新竹市科學工業園區力行一路 1 號 E-2

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 低功率射頻電機量測記錄表

申請廠商: Lantronix, Inc.

製造廠商: Lantronix, Inc.

申請廠商地址: 7535 Irvine Center Drive, Suite 100 Irvine, California 92618

廠牌: Lantronix

產品名稱: xPico 200 Series Wi-Fi IoT Gateway

型號: xPico 250

系列型號: xPico 270

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 新竹實驗室

量測單位地址: 300 新竹市科學工業園區力行一路 1 號 E-2

量測單位認可編號: TAF 2022

量測規範: 低功率射頻電機技術規範 LP0002
ANSI C63.10-2013
KDB 558074
KDB 789033

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	低功率射頻電機技術規範 3.10.1.5 節	合格
2	電源線傳導干擾	低功率射頻電機技術規範 2.3 節	合格
3	峰值傳導輸出功率	低功率射頻電機技術規範 3.10.1.2 節	合格

WLAN 5.150~5.250GHz 頻段概要

項次	量測項目	規 範	量測結果判定
1	電源線傳導干擾	低功率射頻電機技術規範 2.3 節	合格
2	帶外發射	低功率射頻電機技術規範 4.7.4 節	合格
3	最大傳導輸出功率	低功率射頻電機技術規範 4.7.3.1 節	合格
4	最大功率頻譜密度	低功率射頻電機技術規範 4.7.3.1 節	合格

WLAN 5.250~5.350GHz 頻段概要

項次	量測項目	規 範	量測結果判定
1	電源線傳導干擾	低功率射頻電機技術規範 2.3 節	合格
2	帶外發射	低功率射頻電機技術規範 4.7.4 節	合格
3	最大傳導輸出功率	低功率射頻電機技術規範 4.7.3.2 節	合格
4	最大功率頻譜密度	低功率射頻電機技術規範 4.7.3.2 節	合格
5	發射功率控制(TPC)及動態頻率選擇(DFS)	低功率射頻電機技術規範 4.7.7.1 及 4.7.7.2 節	註一

WLAN 5.470~5.725GHz頻段概要

項次	量測項目	規 範	量測結果判定
1	電源線傳導干擾	低功率射頻電機技術規範2.3節	合格
2	帶外發射	低功率射頻電機技術規範4.7.4節	合格
3	最大傳導輸出功率	低功率射頻電機技術規範4.7.3.2節	合格
4	最大功率頻譜密度	低功率射頻電機技術規範4.7.3.2節	合格
5	發射功率控制(TPC)及動態頻率選擇(DFS)	低功率射頻電機技術規範4.7.7.1及4.7.7.2 節	註一

WLAN 5.725~5.850GHz 頻段概要

項次	量測項目	規 範	量測結果判定
1	電源線傳導干擾	低功率射頻電機技術規範2.3節	合格
2	帶外發射	低功率射頻電機技術規範4.7.4節	合格
3	最大傳導輸出功率	低功率射頻電機技術規範4.7.3.3節	合格
4	最大功率頻譜密度	低功率射頻電機技術規範4.7.3.3節	合格
5	6dB 頻寬	低功率射頻電機技術規範4.7.5節	合格

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	低功率射頻電機技術規範第 5.20.2 節	合格

備註：量測結果之判定不考慮量測不確定度的貢獻

註一：此份測試報告未包含發射功率控制(TPC)及動態頻率選擇(DFS)量測項目，請參閱 DFS 報告

2 一般敘述

2.1 待測設備 (WLAN)

產品名稱：	xPico 200 Series Wi-Fi IoT Gateway
型號：	xPico 250
系列型號：	xPico 270
額定電源：	3.3Vdc from host equipment
調變方式：	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
調變技術：	DSSS, OFDM
傳輸速率：	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 150Mbps 802.11ac: up to 433.3Mbps
載波頻率：	2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.70GHz, 5.745 ~ 5.825GHz
頻道數：	2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 11 5GHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 24 802.11n (HT40), 802.11ac (VHT40): 11 802.11ac (VHT80): 5
發射功率：	2.4GHz: 24.65dBm 5.18 ~ 5.24GHz: 12.34dBm 5.26 ~ 5.32GHz: 12.49dBm 5.50 ~ 5.70GHz: 12.75dBm 5.745 ~ 5.825GHz: 15.18dBm
天線種類：	見註
電源線類別：	NA
信號線類別：	NA
配件：	NA

註:

1. 此報告為報告 RT170513E01C 之系列報告，本次報告 RT170513E01F 其差異詳列如下：

◆ Add new model.

Original				
Product	Brand	Model	Difference	Antenna
xPico 200 Series Wi-Fi IoT Gateway module	Lantronix	xPico 250	SKU A: SIP with two UFL connectors Wi-Fi Chip and Bluetooth chip	Dipole Antenna (long) Dipole Antenna (short) PCB Antenna
Newly				
Product	Brand	Model	Difference	Antenna
xPico 200 Series Wi-Fi IoT Gateway module	Lantronix	xPico 270	SIP with two UFL connectors Wi-Fi Chip and Bluetooth chip uses a TCXO in place of the crystal that runs the Wi-Fi radio and add ac mode	Dipole Antenna (long) Dipole Antenna (short) PCB Antenna

From the above models, model: **xPico 270** was selected as representative model for the test and its data was recorded in this report.

2. 此待測設備對於上述之變更，測試條件如下

- For 2.4GHz: 僅有電源線傳導干擾，帶外發射及 802.11g mode 之峰值傳導輸出功率需進行檢測，並將其量測值記錄於報告中。
- For 5GHz: 僅有 802.11ac (VHT80) mode 之所有量測項目需進行檢測，並將其量測值記錄於報告中。

3. 此待測設備同時具有 Bluetooth 及 WLAN 技術。

4. 同時發射條件如下：

Condition	Technology	
1	WLAN (2.4GHz)	Bluetooth
2	WLAN (5GHz)	Bluetooth

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

5. 此待測設備搭配測試的天線，其資料如下：

Ant Set.	Brand	Model	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type	*Cable Length	*Cable Loss(dB)	excluding cable loss Antenna Gain(dBi)
1	Taoglas	GW.71.5153	2.8	2.4~2.4835	Dipole	R-SMA	45mm	1	3.8
			3.8	5.15~5.85				1.7	5.5
	Taoglas	GW.71.5153	2.8	2.4~2.4835			45mm	1	3.8
			3.8	5.15~5.85				1.7	5.5
2	NA	WSS002	1	2.4~2.4835	Dipole	R-SMA	45mm	1	2
			0.3	5.15~5.85				1.7	2
	NA	WSS002	1	2.4~2.5			45mm	1	2
			0.3	5.15~5.25				1.7	2
3	ethertronics	1000668	2.5	2.4~2.4835	PCB	i-pex(MHF)	50mm	NA	NA
			5	5.15~5.85					
	ethertronics	1000668	2.5	2.4~2.4835					
			5	5.15~5.85					

Note: From the above antennas, Ant Set 1, 3 were selected as representative antenna for the test.

6. 此待測物之技術的種類為 1TX / 1RX 之組合。

2.4GHz Band		
MODULATION MODE	TX & RX CONFIGURATION	
802.11b	1TX Diversity	1RX
802.11g	1TX Diversity	1RX
802.11n (HT20)	1TX Diversity	1RX
5GHz Band		
MODULATION MODE	TX & RX CONFIGURATION	
802.11a	1TX Diversity	1RX
802.11n (HT20)	1TX Diversity	1RX
802.11n (HT40)	1TX Diversity	1RX
802.11ac (VHT20)	1TX Diversity	1RX
802.11ac (VHT40)	1TX Diversity	1RX
802.11ac (VHT80)	1TX Diversity	1RX

7. 此報告中，場強輻射量測經過評估後以下列測試模式進行最終量測。

量測項目	發射
2412 ~ 2462MHz	
1GHz 以上量測	802.11g: Ch 1, 6, 11
其它不必要之訊號	802.11g: Ch 6
5180 ~ 5240MHz	
1GHz 以上量測	802.11ac (VHT80): 42
5260 ~ 5320MHz & 5500 ~ 5700MHz	
1GHz 以上量測	802.11ac (VHT80): Ch 58, 106, 122
5745 ~ 5825MHz	
1GHz 以上量測	802.11ac (VHT80): 155
其它不必要之訊號	802.11ac (VHT80): 155

*電源線傳導干擾量測經過評估後，2412 ~ 2462MHz以802.11g: Ch 6測試模式進行最終量測，5180 ~ 5825MHz以802.11ac (VHT80): 155測試模式進行最終量測。

8. 此待測設備的測試模式如下：

場強輻射	
測試模式	描述
一	EUT+ Antenna set 1
二	EUT+ Antenna set 3
電源線傳導干擾	
測試模式	描述
一	EUT+ Antenna set 3

9. 在原始報告中，此待測設備之天線(PCB)於場強輻射量測經評估三個正交軸方位評估測試擺設方式：平躺、直立、側放，以平躺擁有最大干擾值，故以上述擺放方式進行最終量測，並將測試結果紀錄。

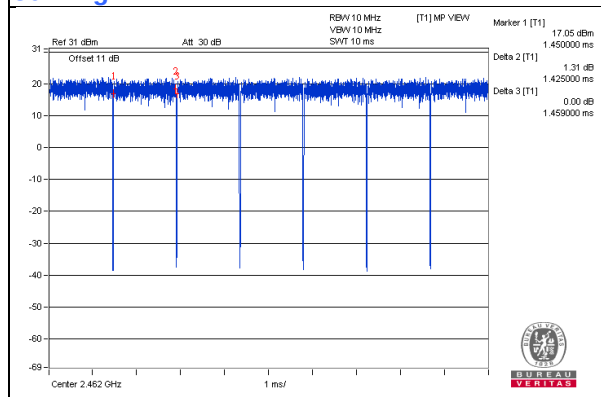
10. Duty cycle of test signal.

2.4GHz 频段

If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11g: Duty cycle = $1.425/1.459 = 0.977$, Duty factor = $10 * \log(1/0.977) = 0.1$

802.11g

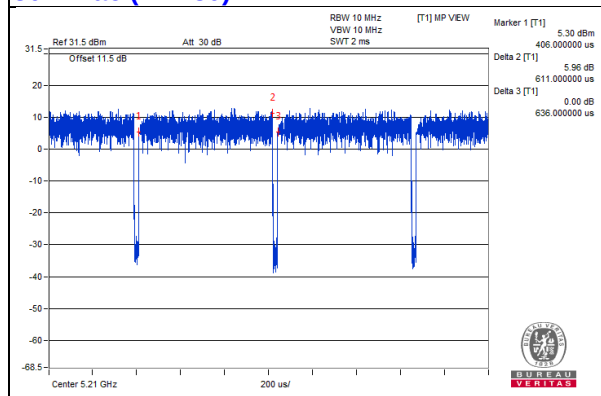


5GHz 频段

If duty cycle of test signal is < 98%, duty factor shall be considered.

Duty cycle = $0.611 \text{ ms}/0.636 \text{ ms} = 0.961$, Duty factor = $10 * \log(1/0.961) = 0.17$

802.11ac (VHT80)



此裝置各頻道的中心頻率如下：

2.4 GHz 頻段：

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		

5GHz 頻段:

802.11a, 802.11n (HT20), 802.11ac (VHT20):

頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)
36	5180	116	5580
40	5200	120	5600
44	5220	124	5620
48	5240	128	5640
52	5260	132	5660
56	5280	136	5680
60	5300	140	5700
64	5320	149	5745
100	5500	153	5765
104	5520	157	5785
108	5540	161	5805
112	5560	165	5825

802.11n (HT40), 802.11ac (VHT40):

頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)
38	5190	118	5590
46	5230	126	5630
54	5270	134	5670
62	5310	151	5755
102	5510	159	5795
110	5550		

802.11ac (VHT80):

頻道	對應頻率 (MHz)	頻道	對應頻率 (MHz)
42	5210	122	5610
58	5290	155	5775
106	5530		

詳細之規格請參考使用說明書，產品的照片請參照 BV 編號:190415E09-1。

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。

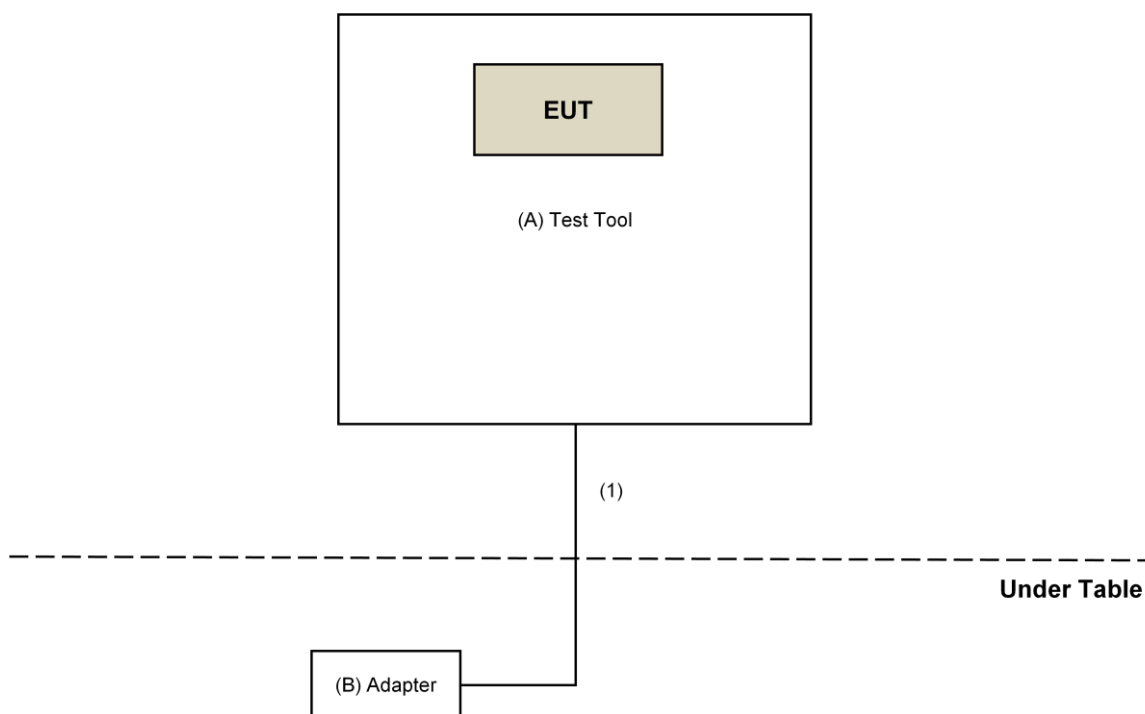
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Test Tool	Lantronix	NA	NA	NA	Supplied by client
B.	Adapter	TOP	W050010GPX1 L1	NA	NA	Supplied by client

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.8	No	0	Supplied by client

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電機技術規範之 2.3 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電機技術規範 3.10.1.5 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 3.10.1.2(1)(C)之最大傳導輸出功率測量方式者，至少須衰減 30 dB。

(II) 操作於 5.15 GHz~5.35 GHz 及 5.470 GHz ~5.725 GHz 頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範 4.7.4.1 節之要求，帶外發射之有效等向輻射功率(EIRP) ≤ -27 dBm/MHz。

(III) 操作於 5.725 GHz~5.850 GHz 頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範 4.7.4.2 節之要求，所有頻帶邊緣向外 5 MHz 內頻率之發射，有效等向輻射功率(EIRP) ≤ 27 dBm/MHz ~ 15.6 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣向外 5 MHz ~ 25 MHz，有效等向輻射功率 35(EIRP) ≤ 15.6 dBm/MHz ~ 10 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣外 25 MHz ~ 75 MHz，有效等向輻射功率(EIRP) ≤ 10 dBm/MHz ~ -27 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣外 ≥ 75 MHz 的頻率之發射，有效等向輻射功率(EIRP) ≤ -27 dBm/MHz；有關遮罩限制值詳圖 1。

在 5.725 GHz $\sim$ 5.850 GHz 頻段操作且天線增益大於 10dBi 之設備於 106 年 3 月 2 日前得適用 3.10.1.5 帶外發射限制；在 5.725 GHz $\sim$ 5.850 GHz 頻段操作且天線增益小於等於 10dBi 之設備於 107 年 3 月 2 日前得適用 3.10.1.5 帶外發射限制規定。

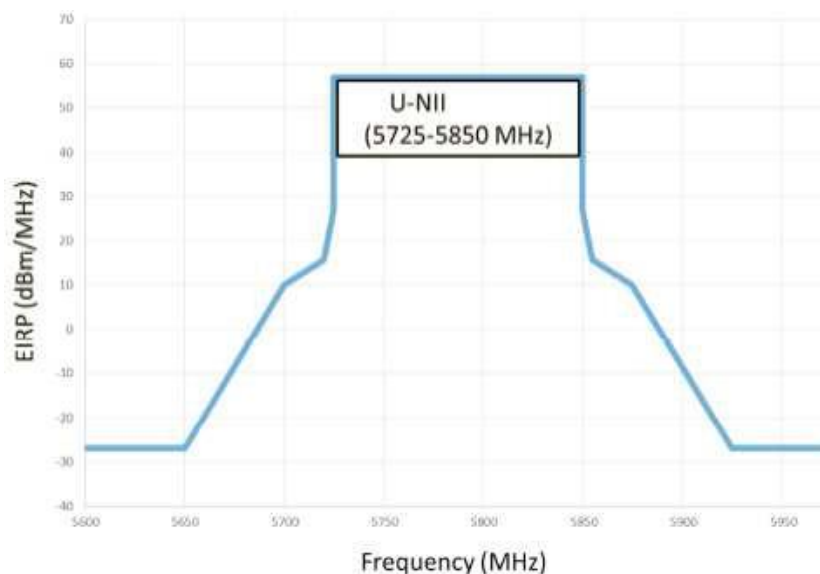


圖 1

在 1 GHz 以下不必要之發射，應符合 2.8 之規定。此外，落於 2.7 禁用頻段之輻射發射，應符合 2.8 之

規定。

頻率(MHz)	電場強度(微伏特/公尺, uV/m)	測距(公尺)
0.009 - 0.490(含)	2,400/f(kHz)	300
0.490 (不含) - 1.705 (含)	24,000/f(kHz)	30
1.705(不含) - 30 (不含)	30	30
30 (含) - 88 (含)	100	3
88 (不含)- 216 (含)	150	3
216 (不含)- 960 (含)	200	3
960 (不含)以上	500	3

(3)天線之規定

天線規格不受第 2.2 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電機技術規範 3.10.1.3 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 3.10.1.2 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= 10log(天線陣列之單元數目)+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。

(II) 操作於 5.15 GHz~5.25 GHz 頻段：

- (A) 供戶外操作使用：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及最大功率頻譜密度。在水平面仰角超過30 度時，其最大EIRP 應小於或等於21 dBm。
- (B) 供室內操作使用：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及最大功率頻譜密度。
- (C) 供固定式點對點操作使用：使用超過23 dBi方向增益之指向性天線時，應依超過23 dBi天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。固定式點對點操作，不包括點對多點系統、全方向性應用及多台共站發射機傳送相同資訊。
- (D) 供用戶端裝置(Client Device)操作使用：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及最大功率頻譜密度。

(III) 操作於 5.25 GHz~5.35 GHz 與 5.470 GHz ~5.725 GHz 頻段：

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及最大功率頻譜密度。

(IV) 操作於 5.725 GHz~5.850 GHz 頻段：

- (A) 供固定式點對點操作時，使用方向增益超過6 dBi 之發射天線，可不需對應減少發射器之傳導輸出功率限制值。

(B) 除(A)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及最大功率頻譜密度。

(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電機技術規範 3.10.1.6 節之規定，6dB 頻寬至少應有 500kHz。

(II) 操作於 5.725 GHz~5.850 GHz 頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範 4.7.5 節之規定，其 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電機技術規範 3.10.1.2 節之規定：

數位調變技術系統：1 W(含)以下。

(II) 操作於 5.15 GHz~5.25 GHz 頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範 4.7.3.1 節之要求：

(A) 供戶外操作使用/供室內操作使用/供固定式點對點操作使用：最大傳導輸出功率應小於或等於1 W。

(B) 供用戶端裝置(Client Device)操作使用：最大傳導輸出功率應小於或等於250 mW。

(III) 操作於 5.25 GHz~5.35 GHz 及 5.470 GHz ~5.725 GHz 頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.3.2節之規定，最大傳導輸出功率應小於或等於250 mW或11dBm+10log B (B是26 dB發射頻寬，單位MHz)之較小者。

(IV) 操作於 5.725 GHz~5.850 GHz 頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範 4.7.3.3 節之規定，最大傳導輸出功率應小於或等於 1 W。

(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電機技術規範 3.10.1.6 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 3.10.1.3 之方式降低功率頻譜密度限制值。

(II) 操作於 5.15 GHz~5.25 GHz 頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範 4.7.3.1 節之要求：

(A) 供戶外操作使用/供室內操作使用/供固定式點對點操作使用：在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。

(B) 供用戶端裝置(Client Device)操作使用：在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於11 dBm。

(III) 操作於 5.25 GHz~5.35 GHz 及 5.470 GHz ~5.725 GHz 頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.3.2節之規定，最大功率頻譜密度在任何1 MHz 頻帶中應小於或等於11 dBm。

(IV) 操作於5.725 GHz~5.850 GHz頻段：

依據國家通訊傳播委員會低功率射頻電機技術規範 4.7.3.3 節之規定，在任何 500 kHz 頻帶中最大功率頻譜密度應小於或等於 30 dBm。

(8) 發射功率控制(TPC)及動態頻率選擇(DFS)之要求

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.7.1及4.7.7.2節之規定。

發射功率控制(TPC)：操作於5.25 GHz~5.35 GHz 與5.470 GHz~5.725 GHz 頻段的設備，應具備發射功率控制功能。設備必須至少具有6 dB低於平均EIRP 30 dBm的能力。EIRP 低於500 mW 之系統不須具備TPC 功能。

動態頻率選擇(DFS)：操作於5.25 GHz~5.35 GHz與5.470 GHz~5.725 GHz頻段之設備應具備動態頻率

選擇雷達偵測功能並啟動之，以完整偵測使用頻帶內之雷達訊號，避免與雷達系統同頻道操作。相關規定如下：

(1) 最低動態頻率選擇的偵測門檻

- (A) 最大EIRP 為200 mW~1 W之設備，其最低動態頻率選擇的偵測門檻值為-64dBm。
- (B) 最大EIRP 低於200 mW，且功率頻譜密度小於10 dBm/MHz 之設備，其最低動態頻率選擇的偵測門檻值為-62 dBm。
- (C) 最大EIRP 低於200 mW，且功率頻譜密度大於或等於10 dBm/MHz 之設備，其最低動態頻率選擇的偵測門檻值為-64 dBm。
- (D) 此偵測門檻值為1 微秒內之平均接收功率，並以0 dBi 天線為參考基準。頻道初始設定得由系統隨機選取或使用者手動選取。

(2) 操作模式：動態頻率選擇之規定適用於以下之操作模式：

- (A) 頻道可用性檢查時間之規定，適用於主控運作模式。
- (B) 頻道移動時間之規定，適用於主控及受控運作模式。

(3) 頻道可用性檢查時間：設備必須檢查其可在某一頻道上起始傳送之前是否有雷達系統已經操作在該頻道上，以及何時其必須移動到另一新的頻道，在60 秒內若沒有偵測到功率位準大過上述之干擾門檻值的雷達訊號時，設備才可開始使用該頻道。

(4) 頻道移動時間：在偵測到雷達的存在後，所有在該操作頻道上的所有傳輸須在10秒內停止，在偵測到雷達訊號後，該期間內的傳輸應維持最多200 毫秒的正常通訊。另外，間歇性的管理與控制訊號可在剩餘的時間中傳送，以便撤離該操作頻道。

(5) 不可佔用期間：某一頻道已被頻道可用性檢查或”服務中”監視顯示含有雷達系統，至少須有30 分鐘的不可佔用期間。不可佔用期間起始於偵測到雷達系統的當時。

(9)無線資訊傳輸設備必須擁有安全功能之要求：

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.7.3節之規定，無線資訊傳輸設備必須擁有安全功能，以保護未經授權之一方更改軟體。製造商應提出符合本節規定之相關證明文件或符合性聲明。

(10) 依據國家通訊傳播委員會低功率射頻電機技術規範4.7.7.4 節之規定，製造商必須在操作於 U-NII 頻段上之數位調變系統中提供安全功能，使第三方團體無法重寫程式，使其操作於非經認證之設定。該軟體必須避免發射機操作於非經認證之頻率、輸出功率、調變形式或其他射頻參數。製造商可使用私有網路，只有經授權的用戶能下載軟體、進行軟體式電子簽章或硬體式的韌體更新，新的軟體可以被合法的載入到設備中，同時又能符合上述事項，並於應用程式中描述設備授權的方法。

(11) 依據國家通訊傳播委員會低功率射頻電機技術規範4.7.7.5 節之規定，製造商必須確保 DFS 功能無法被無線資訊傳輸設備之操作者取消。

(12)電波暴露量之評估

依據國家通訊傳播委員會低功率射頻電機技術規範 5.20.2 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 - 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：MHz。

3.2 限制使用之頻帶

除本規範另有規定外，任何低功率射頻電機之主波皆不得使用下表所列各頻段之頻率；低功率射頻電機落於下表所列頻段之混附發射，其電場強度必須符合 2.8 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	

2.4 GHz 頻段測試紀錄結果

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.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 12, 2018	July 11, 2019
Pre-Amplifier EMCI	EMC001340	980142	Jan. 25, 2019	Jan. 24, 2020
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 22, 2018	Nov. 21, 2019
RF Cable	8D	966-3-1	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-2	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-3	Mar. 18, 2019	Mar. 17, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 27, 2018	Sep. 26, 2019
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC104-SM-SM-1200	160922	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC104-SM-SM-2000	180601	June 12, 2018	June 11, 2019
RF Cable	EMC104-SM-SM-6000	180602	June 12, 2018	June 11, 2019
Spectrum Analyzer Keysight	N9030A	MY54490679	July 23, 2018	July 22, 2019
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

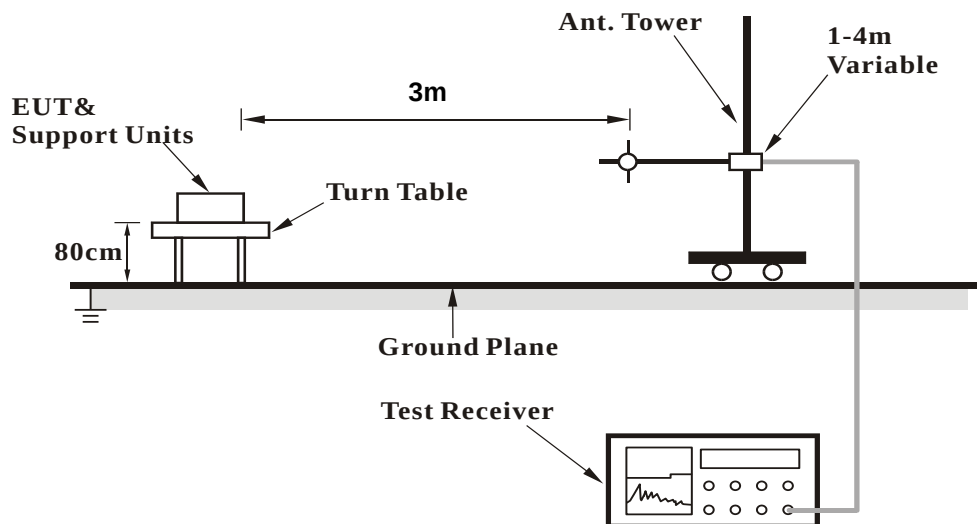
Note:

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 966 Chamber No. 3.
3. Loop antenna was used for all emissions below 30 MHz.
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.

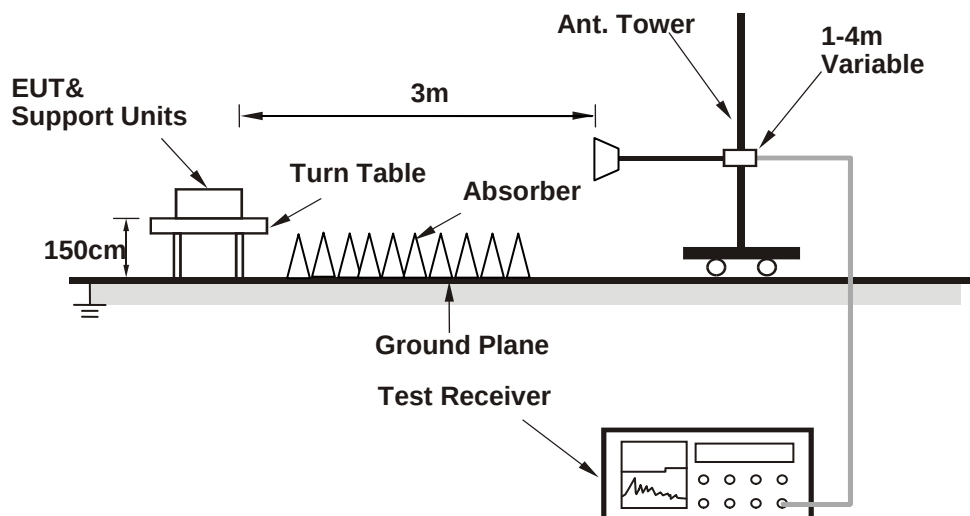
Measurement	Value
Radiated emissions (30MHz-1GHz)	5.1 dB
Radiated emissions (1GHz ~6GHz)	5.1 dB
Radiated emissions (6GHz ~18GHz)	5.0 dB
Radiated emissions (18GHz ~40GHz)	5.2 dB

4.4 測試配置

<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。

4.6 量測結果 (模式一)

4.6.1 發射諧波

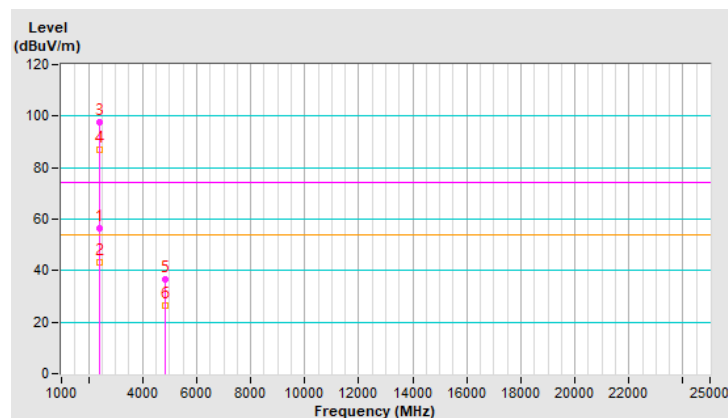
802.11g

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：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	56.5 PK	74.0	-17.5	1.49 H	174	58.5	-2.0
2	2390.00	43.1 AV	54.0	-10.9	1.49 H	174	45.1	-2.0
3	*2412.00	97.6 PK			1.49 H	174	99.6	-2.0
4	*2412.00	87.2 AV			1.49 H	174	89.2	-2.0
5	4824.00	36.5 PK	74.0	-37.5	1.00 H	175	34.2	2.3
6	4824.00	26.5 AV	54.0	-27.5	1.00 H	175	24.2	2.3
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.

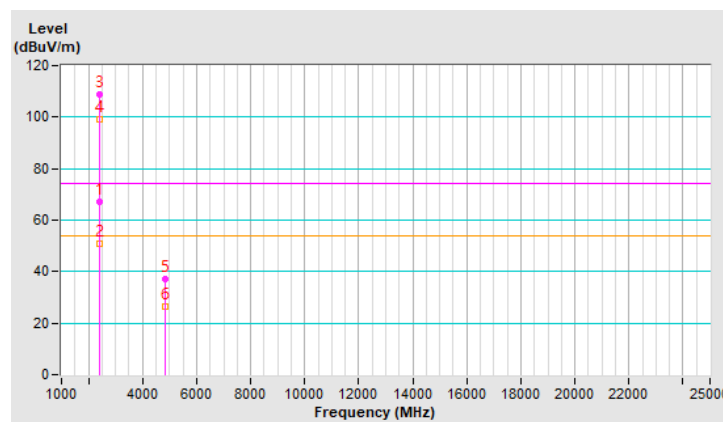


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 1：2412 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	67.0 PK	74.0	-7.0	1.83 V	33	69.0	-2.0
2	2390.00	51.0 AV	54.0	-3.0	1.83 V	33	53.0	-2.0
3	*2412.00	109.0 PK			1.83 V	33	111.0	-2.0
4	*2412.00	99.3 AV			1.83 V	33	101.3	-2.0
5	4824.00	37.0 PK	74.0	-37.0	1.45 V	253	34.7	2.3
6	4824.00	26.6 AV	54.0	-27.4	1.45 V	253	24.3	2.3
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.

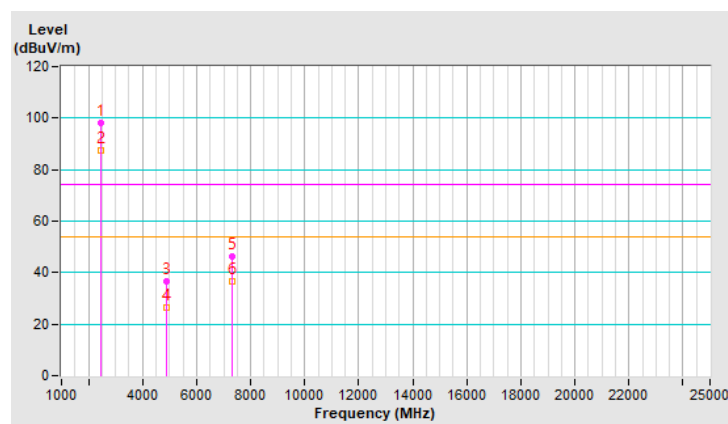


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	*2437.00	98.1 PK			1.56 H	152	100.2	-2.1
2	*2437.00	87.4 AV			1.56 H	152	89.5	-2.1
3	4874.00	36.5 PK	74.0	-37.5	1.06 H	189	34.2	2.3
4	4874.00	26.6 AV	54.0	-27.4	1.06 H	189	24.3	2.3
5	7311.00	46.2 PK	74.0	-27.8	2.97 H	158	37.9	8.3
6	7311.00	36.5 AV	54.0	-17.5	2.97 H	158	28.2	8.3
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.

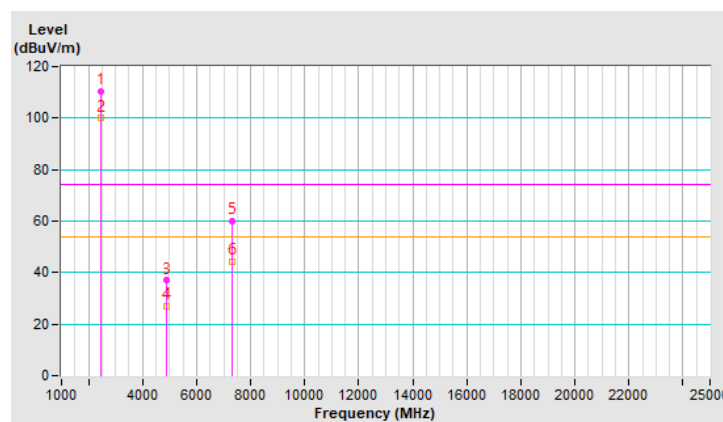


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	*2437.00	110.4 PK			2.02 V	34	112.5	-2.1
2	*2437.00	100.0 AV			2.02 V	34	102.1	-2.1
3	4874.00	36.9 PK	74.0	-37.1	1.37 V	235	34.6	2.3
4	4874.00	27.0 AV	54.0	-27.0	1.37 V	235	24.7	2.3
5	7311.00	60.0 PK	74.0	-14.0	3.24 V	166	51.7	8.3
6	7311.00	44.4 AV	54.0	-9.6	3.24 V	166	36.1	8.3
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.

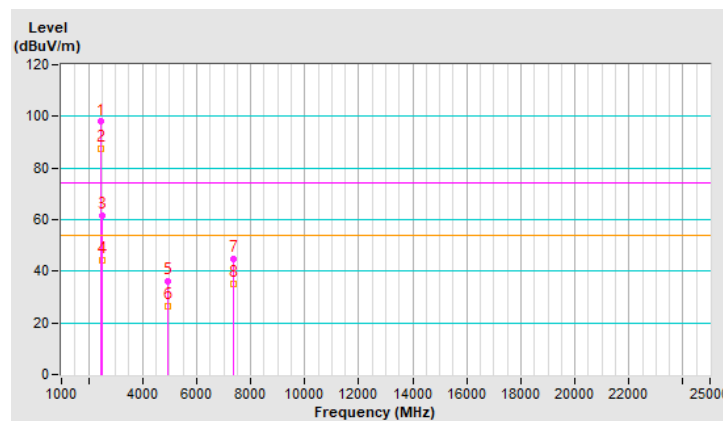


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	*2462.00	97.9 PK			1.54 H	148	100.1	-2.2
2	*2462.00	87.5 AV			1.54 H	148	89.7	-2.2
3	2483.50	61.7 PK	74.0	-12.3	1.54 H	148	63.9	-2.2
4	2483.50	44.4 AV	54.0	-9.6	1.54 H	148	46.6	-2.2
5	4924.00	36.3 PK	74.0	-37.7	1.00 H	188	33.8	2.5
6	4924.00	26.5 AV	54.0	-27.5	1.00 H	188	24.0	2.5
7	7386.00	44.7 PK	74.0	-29.3	2.96 H	161	36.4	8.3
8	7386.00	35.2 AV	54.0	-18.8	2.96 H	161	26.9	8.3
9	#9848.00	-	-	-	-	-	-	-
10	12310.00	-	-	-	-	-	-	-
11	#14772.00	-	-	-	-	-	-	-
12	#17234.00	-	-	-	-	-	-	-
13	19696.00	-	-	-	-	-	-	-
14	22158.00	-	-	-	-	-	-	-
15	#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.

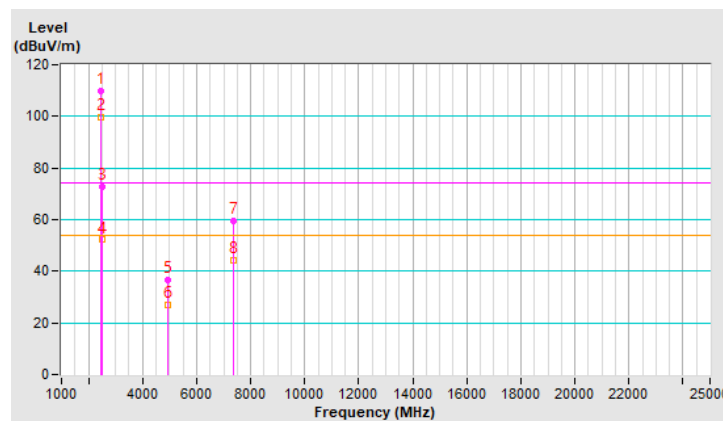


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	*2462.00	109.9 PK			1.77 V	37	112.1	-2.2
2	*2462.00	99.8 AV			1.77 V	37	102.0	-2.2
3	2483.50	72.7 PK	74.0	-1.3	1.77 V	37	74.9	-2.2
4	2483.50	52.2 AV	54.0	-1.8	1.77 V	37	54.4	-2.2
5	4924.00	36.5 PK	74.0	-37.5	1.34 V	216	34.0	2.5
6	4924.00	26.8 AV	54.0	-27.2	1.34 V	216	24.3	2.5
7	7386.00	59.7 PK	74.0	-14.3	3.18 V	187	51.4	8.3
8	7386.00	44.2 AV	54.0	-9.8	3.18 V	187	35.9	8.3
9	#9848.00	-	-	-	-	-	-	-
10	12310.00	-	-	-	-	-	-	-
11	#14772.00	-	-	-	-	-	-	-
12	#17234.00	-	-	-	-	-	-	-
13	19696.00	-	-	-	-	-	-	-
14	22158.00	-	-	-	-	-	-	-
15	#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.



4.6.2 其它不必要之訊號

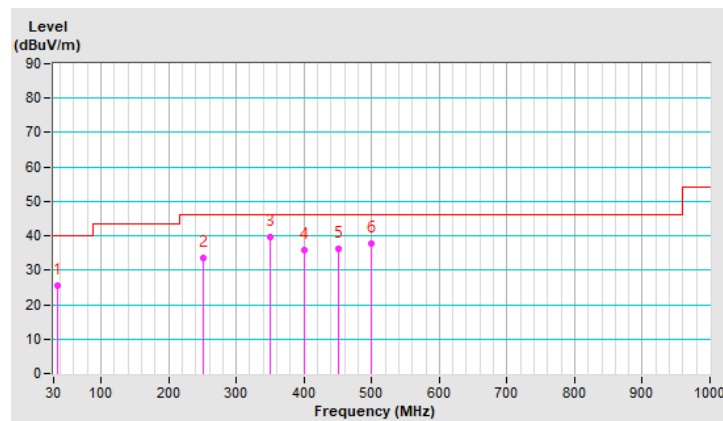
802.11g

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：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	36.28	25.5 QP	40.0	-14.5	2.02 H	47	39.9	-14.4
2	250.21	33.7 QP	46.0	-12.3	1.08 H	320	47.1	-13.4
3	349.91	39.5 QP	46.0	-6.5	1.06 H	107	50.0	-10.5
4	399.89	35.8 QP	46.0	-10.2	1.02 H	74	45.1	-9.3
5	450.08	36.1 QP	46.0	-9.9	2.06 H	258	44.2	-8.1
6	499.99	37.6 QP	46.0	-8.4	2.10 H	106	44.1	-6.5

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.



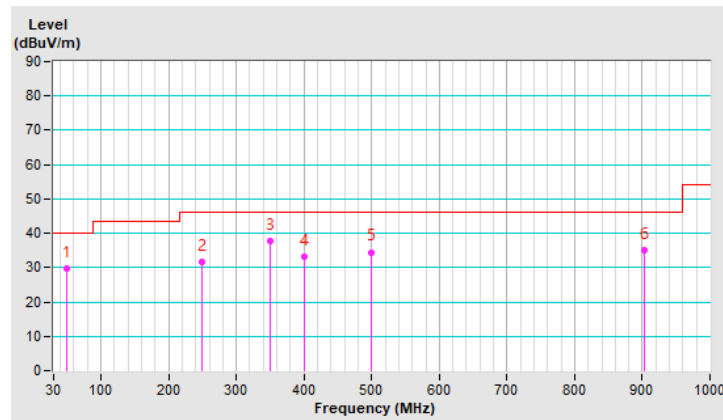
操作模式：	發射接收	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	50.13	29.7 QP	40.0	-10.3	1.04 V	156	43.2	-13.5
2	249.65	31.5 QP	46.0	-14.5	2.00 V	24	44.9	-13.4
3	350.21	37.9 QP	46.0	-8.1	1.55 V	257	48.3	-10.4
4	399.66	33.1 QP	46.0	-12.9	1.00 V	4	42.4	-9.3
5	500.37	34.5 QP	46.0	-11.5	2.09 V	211	41.0	-6.5
6	902.10	35.0 QP	46.0	-11.0	1.00 V	343	34.2	0.8

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 量測結果 (模式二)

4.7.1 發射諧波

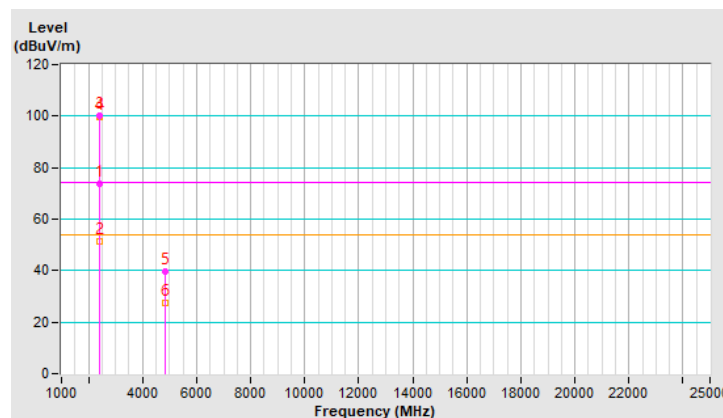
802.11g

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：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	73.9 PK	74.0	-0.1	1.46 H	360	75.9	-2.0
2	2390.00	51.2 AV	54.0	-2.8	1.46 H	360	53.2	-2.0
3	*2412.00	100.2 PK			1.46 H	360	102.2	-2.0
4	*2412.00	99.9 AV			1.46 H	360	101.9	-2.0
5	4824.00	39.7 PK	74.0	-34.3	1.16 H	360	37.4	2.3
6	4824.00	27.5 AV	54.0	-26.5	1.16 H	360	25.2	2.3
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.

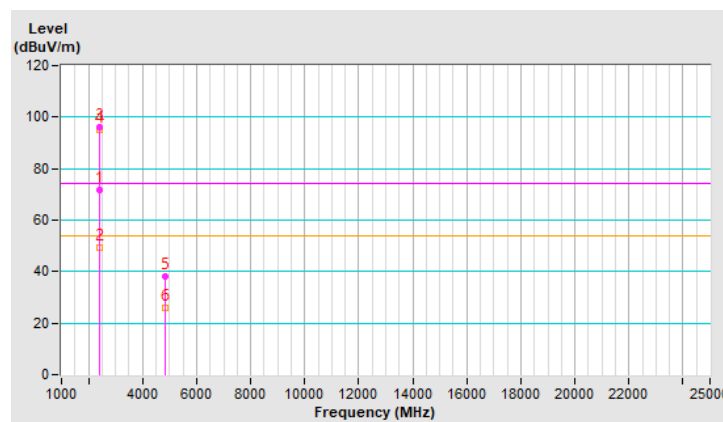


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 1：2412 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	71.8 PK	74.0	-2.2	3.18 V	54	73.8	-2.0
2	2390.00	49.5 AV	54.0	-4.5	3.18 V	54	51.5	-2.0
3	*2412.00	96.0 PK			3.18 V	54	98.0	-2.0
4	*2412.00	95.1 AV			3.18 V	54	97.1	-2.0
5	4824.00	38.3 PK	74.0	-35.7	3.29 V	32	36.0	2.3
6	4824.00	26.1 AV	54.0	-27.9	3.29 V	32	23.8	2.3
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:

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

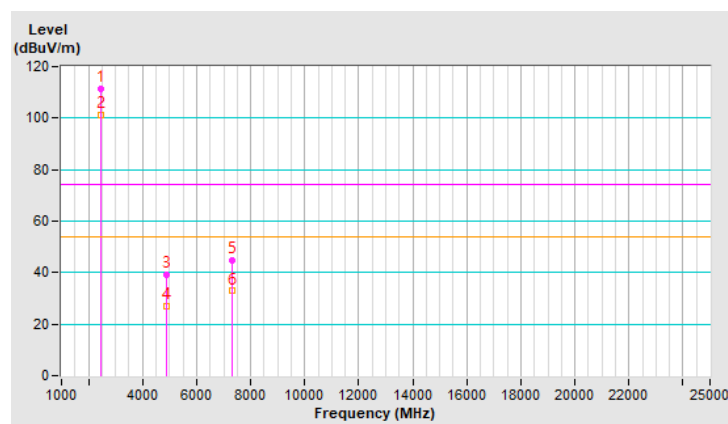


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	*2437.00	111.5 PK			1.42 H	360	113.6	-2.1
2	*2437.00	101.2 AV			1.42 H	360	103.3	-2.1
3	4874.00	39.3 PK	74.0	-34.7	1.06 H	358	37.0	2.3
4	4874.00	26.8 AV	54.0	-27.2	1.06 H	358	24.5	2.3
5	7311.00	45.0 PK	74.0	-29.0	1.02 H	313	36.7	8.3
6	7311.00	32.8 AV	54.0	-21.2	1.02 H	313	24.5	8.3
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.

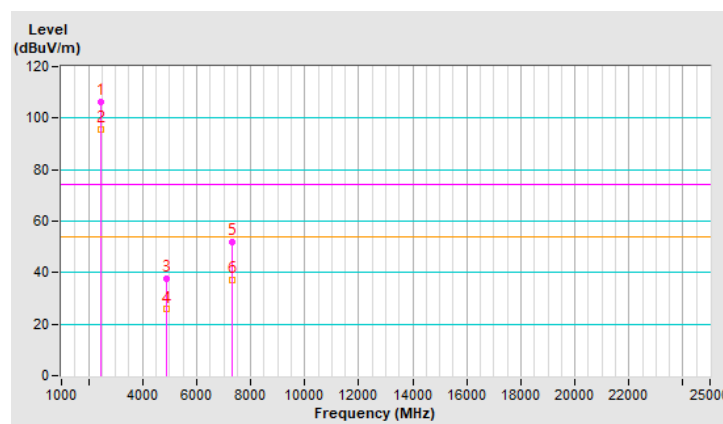


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	*2437.00	106.2 PK			3.27 V	62	108.3	-2.1
2	*2437.00	95.6 AV			3.27 V	62	97.7	-2.1
3	4874.00	37.8 PK	74.0	-36.2	3.30 V	32	35.5	2.3
4	4874.00	25.7 AV	54.0	-28.3	3.30 V	32	23.4	2.3
5	7311.00	52.1 PK	74.0	-21.9	3.20 V	286	43.8	8.3
6	7311.00	37.1 AV	54.0	-16.9	3.20 V	286	28.8	8.3
7	#9748.00	-	-	-	-	-	-	-
8	12185.00	-	-	-	-	-	-	-
9	#14622.00	-	-	-	-	-	-	-
10	#17059.00	-	-	-	-	-	-	-
11	19496.00	-	-	-	-	-	-	-
12	#21933.00	-	-	-	-	-	-	-
13	#24370.00	-	-	-	-	-	-	-

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

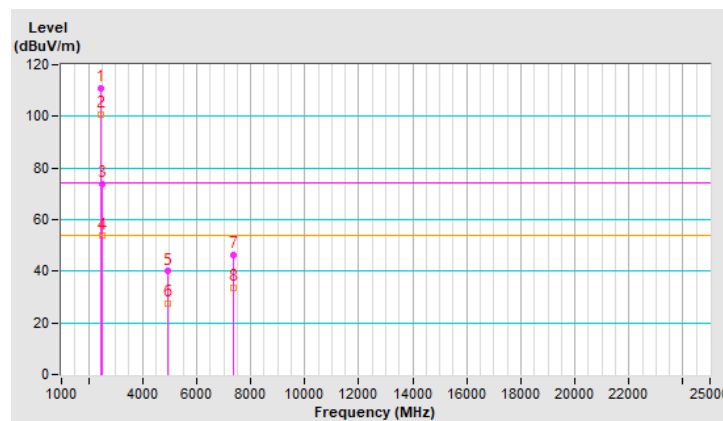


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108年6月3日	測試者：	鄭樹營

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	*2462.00	110.8 PK			1.25 H	350	113.0	-2.2
2	*2462.00	100.8 AV			1.25 H	350	103.0	-2.2
3	2483.50	73.8 PK	74.0	-0.2	1.25 H	350	76.0	-2.2
4	2483.50	53.7 AV	54.0	-0.3	1.25 H	350	55.9	-2.2
5	4924.00	40.0 PK	74.0	-34.0	1.01 H	330	37.5	2.5
6	4924.00	27.7 AV	54.0	-26.3	1.01 H	330	25.2	2.5
7	7386.00	46.4 PK	74.0	-27.6	1.05 H	335	38.1	8.3
8	7386.00	33.6 AV	54.0	-20.4	1.05 H	335	25.3	8.3
9	#9848.00	-	-	-	-	-	-	-
10	12310.00	-	-	-	-	-	-	-
11	#14772.00	-	-	-	-	-	-	-
12	#17234.00	-	-	-	-	-	-	-
13	19696.00	-	-	-	-	-	-	-
14	22158.00	-	-	-	-	-	-	-
15	#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.

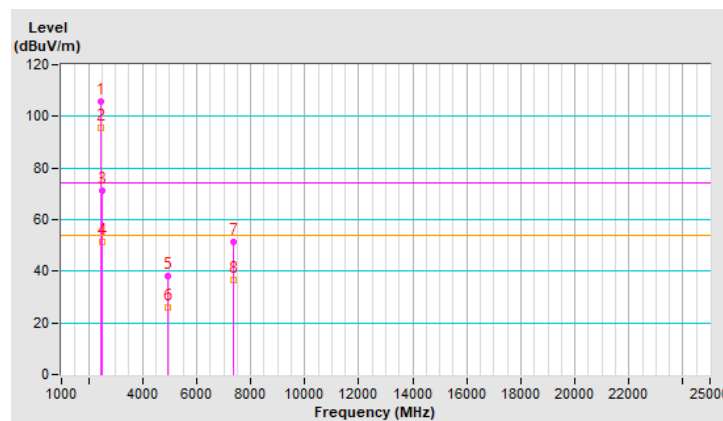


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 11：2462 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=1kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108年6月3日	測試者：	鄭樹營

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	*2462.00	105.7 PK			3.21 V	41	107.9	-2.2
2	*2462.00	95.8 AV			3.21 V	41	98.0	-2.2
3	2483.50	71.1 PK	74.0	-2.9	3.21 V	41	73.3	-2.2
4	2483.50	51.5 AV	54.0	-2.5	3.21 V	41	53.7	-2.2
5	4924.00	38.3 PK	74.0	-35.7	3.30 V	61	35.8	2.5
6	4924.00	26.0 AV	54.0	-28.0	3.30 V	61	23.5	2.5
7	7386.00	51.6 PK	74.0	-22.4	3.24 V	323	43.3	8.3
8	7386.00	36.7 AV	54.0	-17.3	3.24 V	323	28.4	8.3
9	#9848.00	-	-	-	-	-	-	-
10	12310.00	-	-	-	-	-	-	-
11	#14772.00	-	-	-	-	-	-	-
12	#17234.00	-	-	-	-	-	-	-
13	19696.00	-	-	-	-	-	-	-
14	22158.00	-	-	-	-	-	-	-
15	#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.



4.7.2 其它不必要之訊號

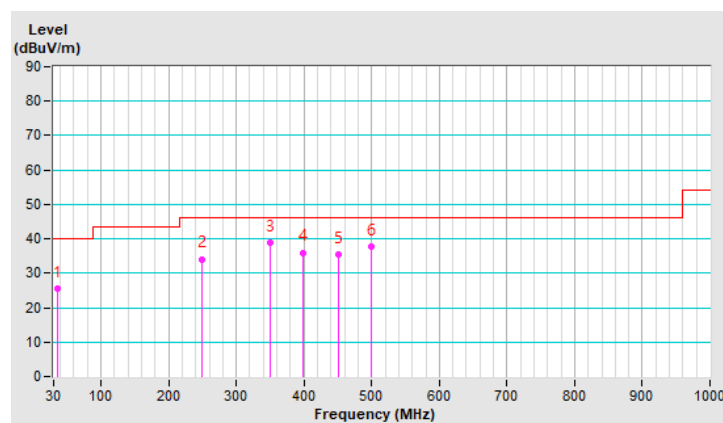
802.11g

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：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	36.13	25.6 QP	40.0	-14.4	2.03 H	70	40.0	-14.4
2	249.73	34.1 QP	46.0	-11.9	1.08 H	314	47.5	-13.4
3	350.03	38.9 QP	46.0	-7.1	1.06 H	129	49.3	-10.4
4	399.55	36.0 QP	46.0	-10.0	1.00 H	64	45.3	-9.3
5	450.31	35.6 QP	46.0	-10.4	2.10 H	253	43.7	-8.1
6	500.31	37.7 QP	46.0	-8.3	2.09 H	97	44.2	-6.5

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.

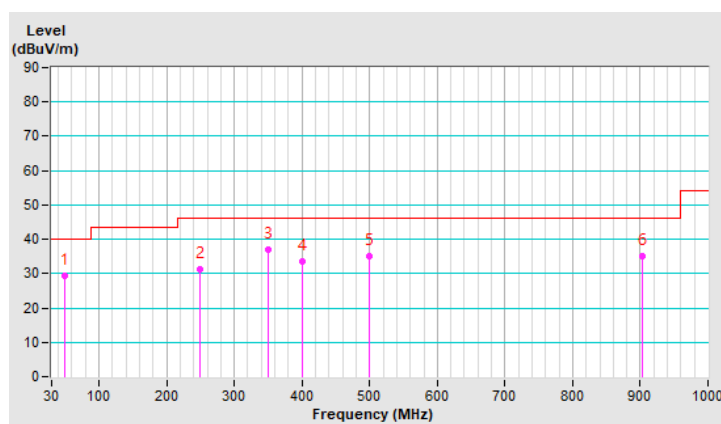


操作模式：	發射接收	調變技術：	OFDM
基本波頻率：	CH 6：2437 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	25°C	量測場地濕度：	65%RH
測試日期：	108 年 6 月 3 日	測試者：	鄭樹營

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	49.59	29.3 QP	40.0	-10.7	1.03 V	152	42.9	-13.6
2	249.61	31.4 QP	46.0	-14.6	1.99 V	35	44.8	-13.4
3	350.45	37.1 QP	46.0	-8.9	1.60 V	281	47.4	-10.3
4	399.87	33.4 QP	46.0	-12.6	1.00 V	25	42.7	-9.3
5	500.05	35.0 QP	46.0	-11.0	2.02 V	199	41.5	-6.5
6	902.06	34.9 QP	46.0	-11.1	1.01 V	318	34.1	0.8

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.



4.8 量測結果判定

依據測試數據結果，符合低功率射頻電機技術規範之要求。

4.9 配置照片

請參照 Test Setup Photos

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。

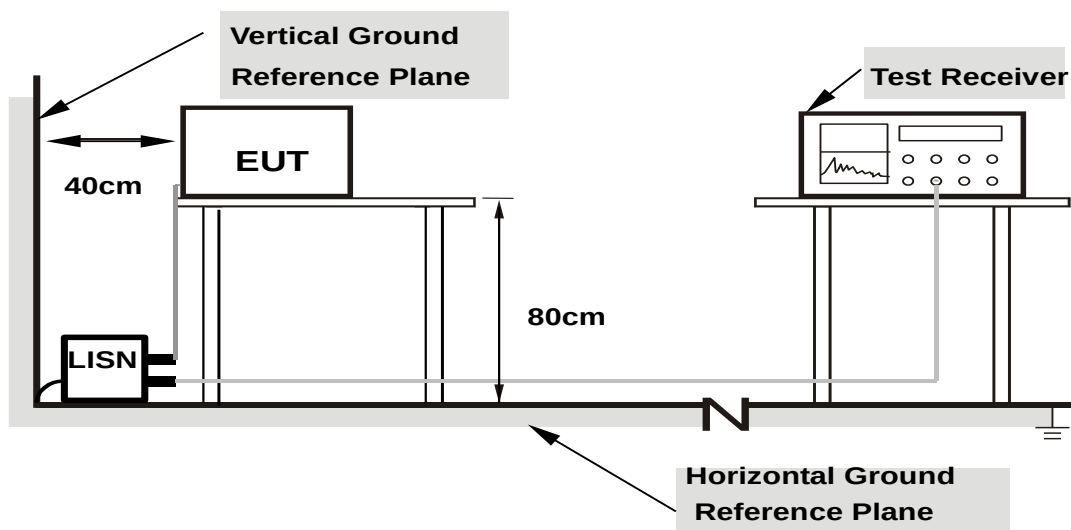
5.3 量測儀器

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2018	Oct. 23, 2019
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 22, 2018	Oct. 21, 2019
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	N/A	3	Oct. 22, 2018	Oct. 21, 2019
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 14, 2019	Mar. 13, 2020
Software BVADT	BVADT_Conf_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 1.
3. The measurement uncertainty is 2.98 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.

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

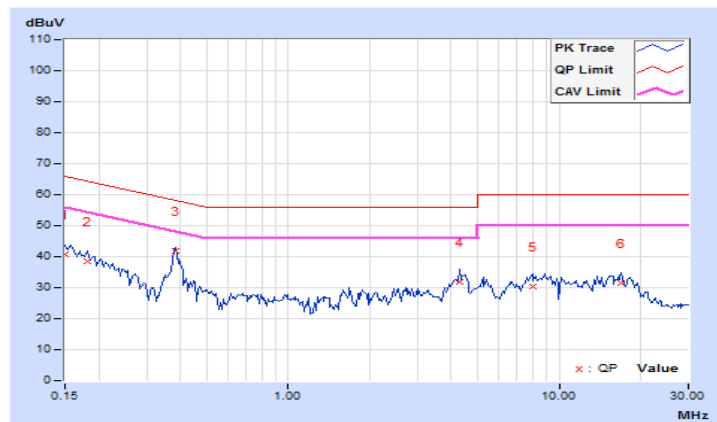
5.6 量測結果

操作模式	發射/ 接收	測試日期	108 年 06 月 11 日
基本波頻率	CH 1: 2412MHz	量測場地溫度	25°C
調變技術	OFDM	量測場地濕度	75%RH
測試者	何欣儒		

		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.
0.15000	10.03	30.69	15.44	40.72	25.47	66.00	56.00	-25.28	-30.53
0.18125	10.04	28.57	16.50	38.61	26.54	64.43	54.43	-25.82	-27.89
0.38438	10.08	31.76	30.82	41.84	40.90	58.18	48.18	-16.34	-7.28
4.26953	10.34	21.61	13.12	31.95	23.46	56.00	46.00	-24.05	-22.54
7.95313	10.57	19.66	10.99	30.23	21.56	60.00	50.00	-29.77	-28.44
16.98047	11.16	20.16	10.74	31.32	21.90	60.00	50.00	-28.68	-28.10

NOTE:

- 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.

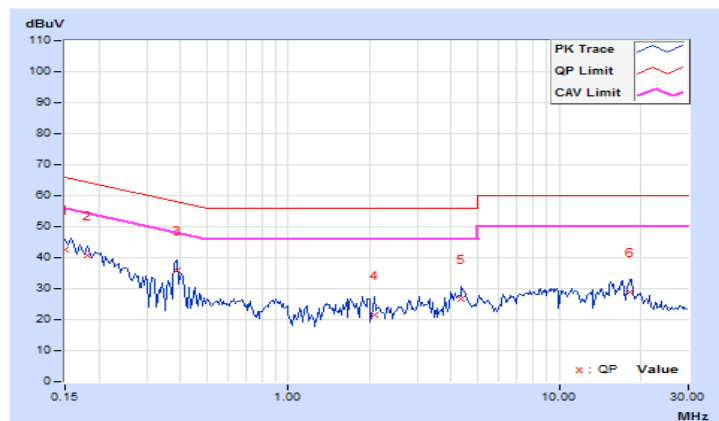


操作模式	發射/ 接收	測試日期	108 年 06 月 11 日
基本波頻率	CH 1: 2412MHz	量測場地溫度	25°C
調變技術	OFDM	量測場地濕度	75%RH
測試者	何欣儒		

		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.
0.15000	9.94	32.83	14.96	42.77	24.90	66.00	56.00	-23.23	-31.10
0.18125	9.95	30.68	15.25	40.63	25.20	64.43	54.43	-23.80	-29.23
0.38828	9.98	25.90	15.64	35.88	25.62	58.10	48.10	-22.22	-22.48
2.08203	10.07	11.47	2.03	21.54	12.10	56.00	46.00	-34.46	-33.90
4.34766	10.19	16.40	6.54	26.59	16.73	56.00	46.00	-29.41	-29.27
18.26563	11.03	17.91	6.41	28.94	17.44	60.00	50.00	-31.06	-32.56

NOTE:

- 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，符合低功率射頻電機技術規範之要求。

5.8 配置照片

請參照 Test Setup Photos

6 傳導輸出功率之量測

6.1 適用標準

請見本報告 3.1 節第 6 項(I)及 4 項(I)的規定。

6.2 量測方法

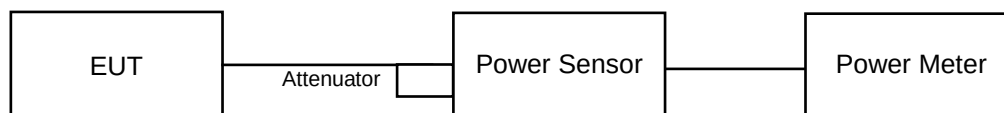
- 將待測物輸出經由衰減器接到功率計上。
- 設定待測物處於連續發射狀態。
- 計算其最大輸出功率。

6.3 量測儀器

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

NOTE: 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

6.4 測試配置



6.5 量測結果

操作模式	發射	測試日期	108 年 06 月 03 日
量測場地溫度	25°C	量測場地濕度	60%RH
測試者	鄭樹營		

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	288.403	24.60	30	Pass
6	2437	291.743	24.65	30	Pass
11	2462	286.418	24.57	30	Pass

6.6 量測結果判定

依據測試數據結果，符合低功率射頻電機技術規範之要求。

U-NII 頻段測試紀錄結果

7 帶外發射之量測

7.1 適用標準

待測物操作頻帶	適用標準
☒ 5.15 GHz~5.25 GHz	請見本報告 3.1 節第 2 項(II)的規定
☒ 5.25 GHz~5.35 GHz	請見本報告 3.1 節第 2 項(II)的規定
☒ 5.470 GHz~5.725 GHz	請見本報告 3.1 節第 2 項(II)的規定
☒ 5.725 GHz~5.850 GHz	請見本報告 3.1 節第 2 項(III)的規定

7.2 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

7.3 量測儀器

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 05, 2018	July 04, 2019
Pre-Amplifier EMCI	EMC001340	980142	Jan. 25, 2019	Jan. 24, 2020
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Oct. 30, 2018	Oct. 29, 2019
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 22, 2018	Nov. 21, 2019
RF Cable	8D	966-4-1	Mar. 19, 2019	Mar. 18, 2020
RF Cable	8D	966-4-2	Mar. 19, 2019	Mar. 18, 2020
RF Cable	8D	966-4-3	Mar. 19, 2019	Mar. 18, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Sep. 27, 2018	Sep. 26, 2019
Horn Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980385	Aug. 16, 2018	Aug. 15, 2019
RF Cable	EMC104-SM-SM-1200	160923	Jan. 28, 2019	Jan. 27, 2020
RF Cable	104 RF cable	131215	Jan. 10, 2019	Jan. 09, 2020
RF Cable	EMC104-SM-SM-6000	180418	May 07, 2018	May 06, 2019
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA

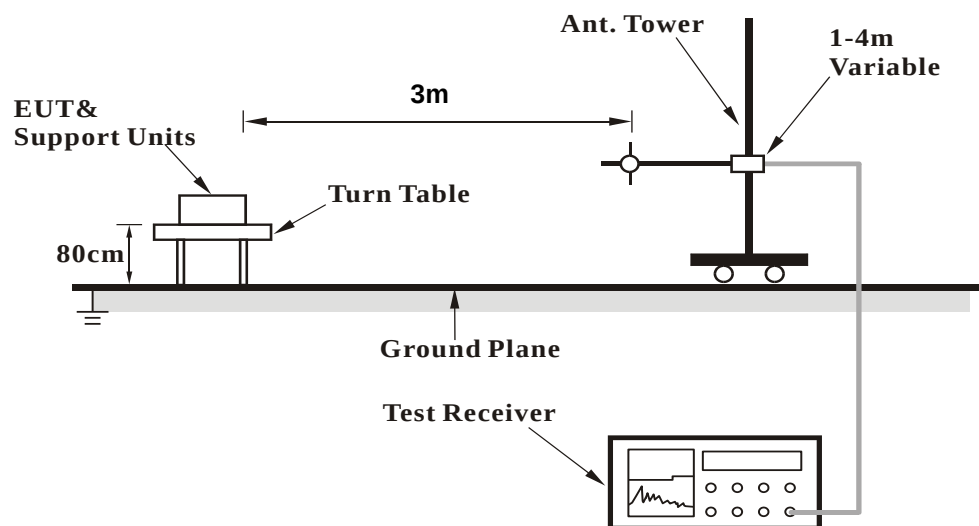
Note:

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 966 Chamber No. 4.
3. Loop antenna was used for all emissions below 30 MHz.
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.

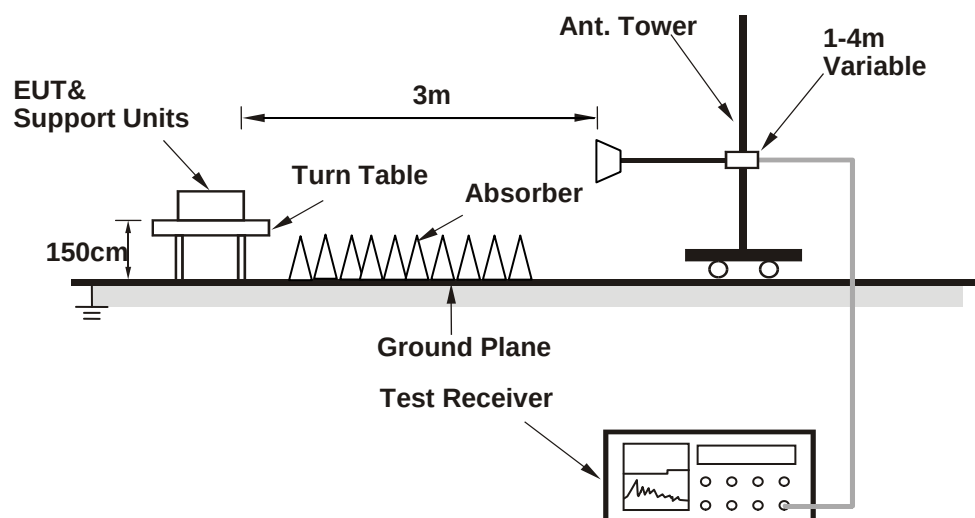
Measurement	Value
Radiated emissions (30MHz-1GHz)	4.9 dB
Radiated emissions (1GHz ~6GHz)	5.1 dB
Radiated emissions (6GHz ~18GHz)	4.9 dB
Radiated emissions (18GHz ~40GHz)	5.2 dB

7.4 帶外發射之測試配置

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



7.5 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)

*有效等向輻射功率限制值轉換場強值如下：

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK:74 (dBμV/m)	AV:54 (dBμV/m)
操作頻帶	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	技術規範 4.7.4.1 節	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz	技術規範 4.7.4.1 節		
5470~5725 MHz	技術規範 4.7.4.1 節		
5725~5850 MHz	☒ 技術規範 4.7.4.2 節	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2(dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8(dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
	☐ 技術規範 4.7.4.7 節	適用 3.10.1.5 節帶外發射限制	
^{*1} beyond 75 MHz or more above of the band edge.		^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.		^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note:

有效等向輻射功率限制值轉換場強之公式如下：

$$E=(30PG)^{1/2}/d$$

E: 以最寬解析頻寬所測得之最大場強值，單位:V/m。

G: 發射天線相對於全向性輻射器之數值增益。

d: 測試場強的距離，單位: m。

P: 求得之功率，單位:W。

7.6 帶外發射之量測結果 (模式一)

7.6.1 發射諧波

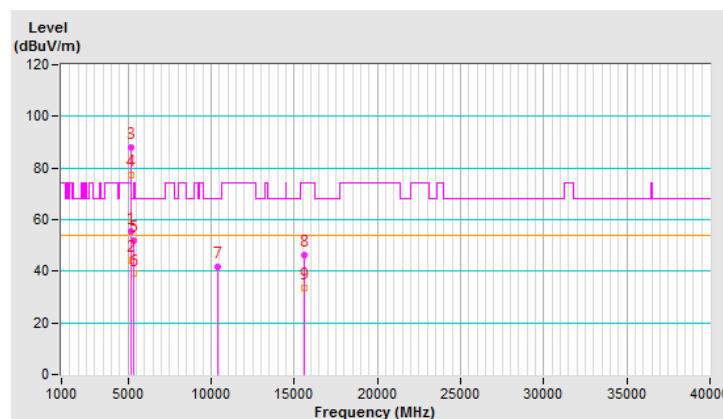
802.11ac (VHT80)

操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 42：5210 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5150.00	55.2 PK	74.0	-18.8	1.12 H	75	52.5	2.7
2	5150.00	44.1 AV	54.0	-9.9	1.12 H	75	41.4	2.7
3	*5210.00	87.9 PK			1.12 H	75	85.3	2.6
4	*5210.00	77.5 AV			1.12 H	75	74.9	2.6
5	5350.00	52.1 PK	74.0	-21.9	1.12 H	75	49.5	2.6
6	5350.00	38.9 AV	54.0	-15.1	1.12 H	75	36.3	2.6
7	#10420.00	41.6 PK	68.2	-26.6	1.66 H	145	28.6	13.0
8	15630.00	46.5 PK	74.0	-27.5	1.32 H	177	33.9	12.6
9	15630.00	33.5 AV	54.0	-20.5	1.32 H	177	20.9	12.6
10	20840.00	-	-	-	-	-	-	-
11	#26050.00	-	-	-	-	-	-	-
12	31260.00	-	-	-	-	-	-	-
13	36470.00	-	-	-	-	-	-	-

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.

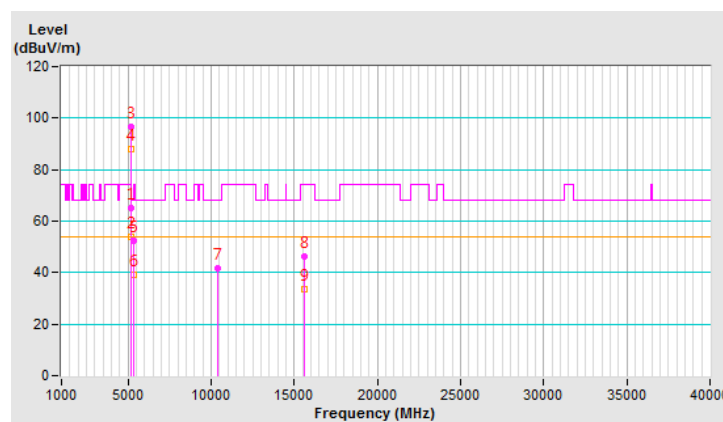


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 42：5210 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5150.00	65.0 PK	74.0	-9.0	2.16 V	88	62.3	2.7
2	5150.00	53.8 AV	54.0	-0.2	2.16 V	88	51.1	2.7
3	*5210.00	96.8 PK			2.16 V	88	94.2	2.6
4	*5210.00	88.1 AV			2.16 V	88	85.5	2.6
5	5350.00	52.4 PK	74.0	-21.6	2.16 V	88	49.8	2.6
6	5350.00	39.4 AV	54.0	-14.6	2.16 V	88	36.8	2.6
7	#10420.00	41.7 PK	68.2	-26.5	1.44 V	321	28.7	13.0
8	15630.00	46.4 PK	74.0	-27.6	3.11 V	88	33.8	12.6
9	15630.00	33.8 AV	54.0	-20.2	3.11 V	88	21.2	12.6
10	20840.00	-	-	-	-	-	-	-
11	#26050.00	-	-	-	-	-	-	-
12	31260.00	-	-	-	-	-	-	-
13	36470.00	-	-	-	-	-	-	-

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.



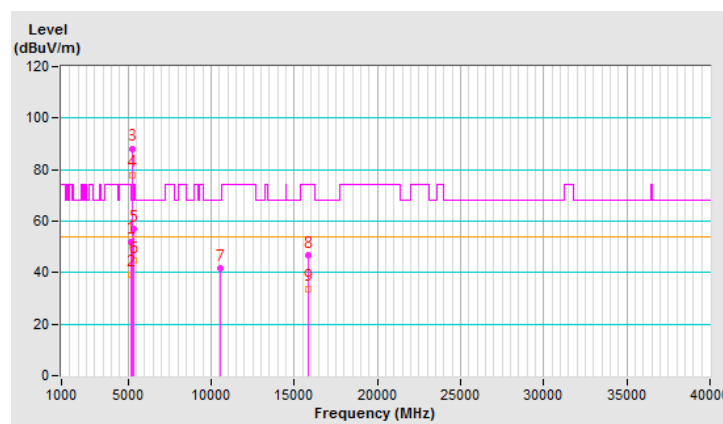
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 58：5290 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5150.00	52.1 PK	74.0	-21.9	1.20 H	65	49.4	2.7
2	5150.00	39.4 AV	54.0	-14.6	1.20 H	65	36.7	2.7
3	*5290.00	88.2 PK			1.20 H	65	85.8	2.4
4	*5290.00	77.9 AV			1.20 H	65	75.5	2.4
5	5350.00	56.7 PK	74.0	-17.3	1.20 H	65	54.1	2.6
6	5350.00	44.5 AV	54.0	-9.5	1.20 H	65	41.9	2.6
7	#10580.00	41.5 PK	68.2	-26.7	1.71 H	145	28.7	12.8
8	15870.00	46.6 PK	74.0	-27.4	1.34 H	188	34.5	12.1
9	15870.00	33.8 AV	54.0	-20.2	1.34 H	188	21.7	12.1
10	21160.00	-	-	-	-	-	-	-
11	#26450.00	-	-	-	-	-	-	-
12	31740.00	-	-	-	-	-	-	-
13	#37030.00	-	-	-	-	-	-	-

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

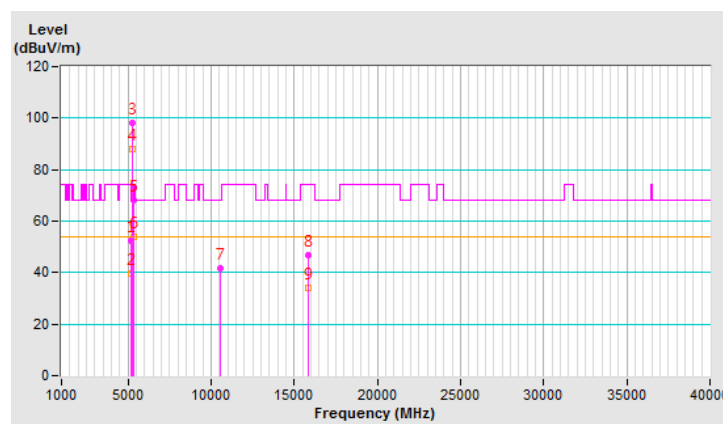


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 58：5290 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5150.00	52.4 PK	74.0	-21.6	2.19 V	97	49.7	2.7
2	5150.00	39.9 AV	54.0	-14.1	2.19 V	97	37.2	2.7
3	*5290.00	98.0 PK			2.19 V	97	95.6	2.4
4	*5290.00	87.8 AV			2.19 V	97	85.4	2.4
5	5350.00	68.0 PK	74.0	-6.0	2.19 V	97	65.4	2.6
6	5350.00	53.9 AV	54.0	-0.1	2.19 V	97	51.3	2.6
7	#10580.00	41.7 PK	68.2	-26.5	1.43 V	324	28.9	12.8
8	15870.00	46.9 PK	74.0	-27.1	3.15 V	88	34.8	12.1
9	15870.00	34.2 AV	54.0	-19.8	3.15 V	88	22.1	12.1
10	21160.00	-	-	-	-	-	-	-
11	#26450.00	-	-	-	-	-	-	-
12	31740.00	-	-	-	-	-	-	-
13	#37030.00	-	-	-	-	-	-	-

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.



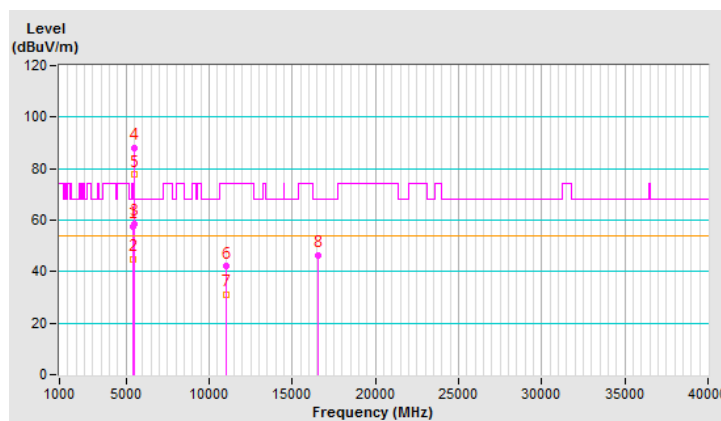
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 106：5530 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5460.00	57.7 PK	74.0	-16.3	1.10 H	75	54.8	2.9
2	5460.00	44.6 AV	54.0	-9.4	1.10 H	75	41.7	2.9
3	#5470.00	58.5 PK	68.2	-9.7	1.10 H	75	55.6	2.9
4	*5530.00	88.0 PK			1.10 H	75	85.1	2.9
5	*5530.00	77.6 AV			1.10 H	75	74.7	2.9
6	11060.00	42.0 PK	74.0	-32.0	1.60 H	154	28.7	13.3
7	11060.00	31.0 AV	54.0	-23.0	1.60 H	154	17.7	13.3
8	#16590.00	46.5 PK	68.2	-21.7	1.32 H	177	31.5	15.0
9	22120.00	-	-	-	-	-	-	-
10	#27650.00	-	-	-	-	-	-	-
11	#33180.00	-	-	-	-	-	-	-
12	38710.00	-	-	-	-	-	-	-

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.

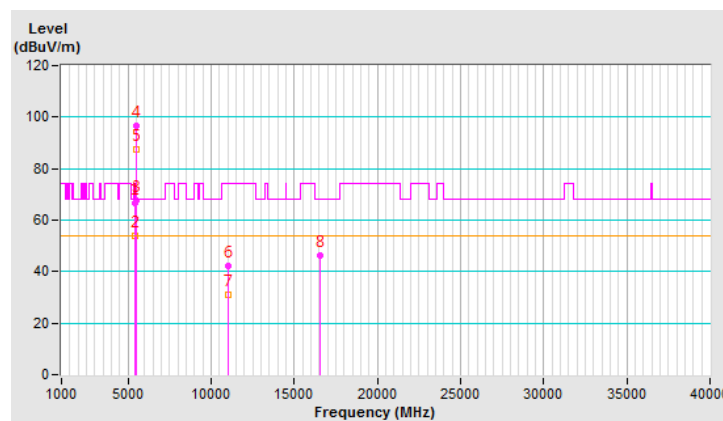


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 106：5530 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22℃	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5460.00	66.5 PK	74.0	-7.5	2.24 V	93	63.6	2.9
2	5460.00	53.8 AV	54.0	-0.2	2.24 V	93	50.9	2.9
3	#5470.00	67.5 PK	68.2	-0.7	2.24 V	93	64.6	2.9
4	*5530.00	96.6 PK			2.24 V	93	93.7	2.9
5	*5530.00	87.7 AV			2.24 V	93	84.8	2.9
6	11060.00	42.1 PK	74.0	-31.9	1.50 V	326	28.8	13.3
7	11060.00	31.2 AV	54.0	-22.8	1.50 V	326	17.9	13.3
8	#16590.00	46.3 PK	68.2	-21.9	3.13 V	87	31.3	15.0
9	22120.00	-	-	-	-	-	-	-
10	#27650.00	-	-	-	-	-	-	-
11	#33180.00	-	-	-	-	-	-	-
12	38710.00	-	-	-	-	-	-	-

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.



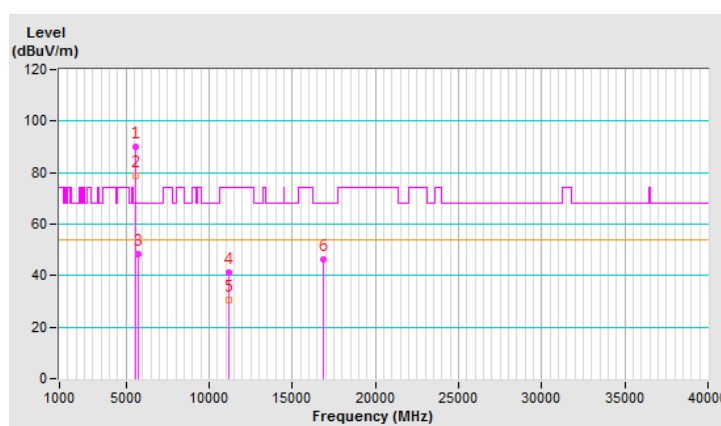
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 122：5610 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	*5610.00	89.9 PK			1.20 H	65	86.9	3.0
2	*5610.00	78.7 AV			1.20 H	65	75.7	3.0
3	#5725.00	48.2 PK	68.2	-20.0	1.20 H	65	45.0	3.2
4	11220.00	41.4 PK	74.0	-32.6	1.62 H	148	28.3	13.1
5	11220.00	30.6 AV	54.0	-23.4	1.62 H	148	17.5	13.1
6	#16830.00	46.4 PK	68.2	-21.8	1.33 H	172	30.1	16.3
7	22440.00	-	-	-	-	-	-	-
8	#28050.00	-	-	-	-	-	-	-
9	#33660.00	-	-	-	-	-	-	-
10	39270.00	-	-	-	-	-	-	-

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.



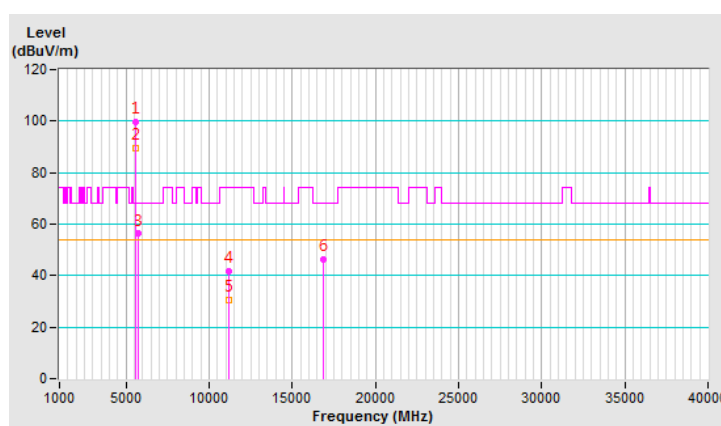
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 122：5610 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	*5610.00	99.5 PK			2.27 V	96	96.5	3.0
2	*5610.00	89.5 AV			2.27 V	96	86.5	3.0
3	#5725.00	56.2 PK	68.2	-12.0	2.27 V	96	53.0	3.2
4	11220.00	41.6 PK	74.0	-32.4	1.40 V	323	28.5	13.1
5	11220.00	30.7 AV	54.0	-23.3	1.40 V	323	17.6	13.1
6	#16830.00	46.5 PK	68.2	-21.7	3.12 V	90	30.2	16.3
7	22440.00	-	-	-	-	-	-	-
8	#28050.00	-	-	-	-	-	-	-
9	#33660.00	-	-	-	-	-	-	-
10	39270.00	-	-	-	-	-	-	-

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.

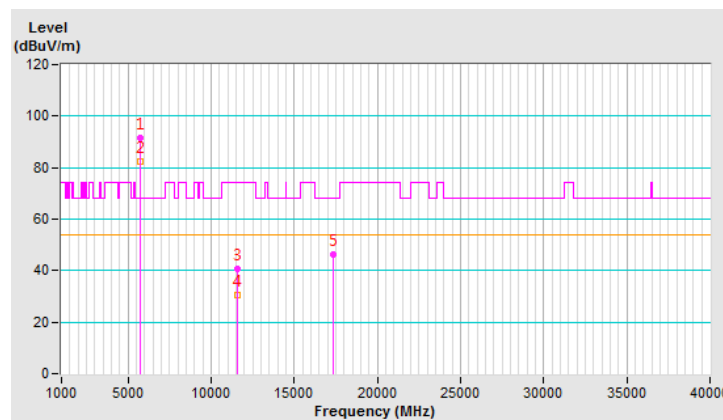


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 155：5775 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	*5775.00	91.6 PK			1.15 H	75	88.3	3.3
2	*5775.00	82.3 AV			1.15 H	75	79.0	3.3
3	11550.00	40.9 PK	74.0	-33.1	1.69 H	148	27.9	13.0
4	11550.00	30.5 AV	54.0	-23.5	1.69 H	148	17.5	13.0
5	#17325.00	46.3 PK	68.2	-21.9	1.38 H	189	29.5	16.8
6	23100.00	-	-	-	-	-	-	-
7	#28875.00	-	-	-	-	-	-	-
8	#34650.00	-	-	-	-	-	-	-

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.

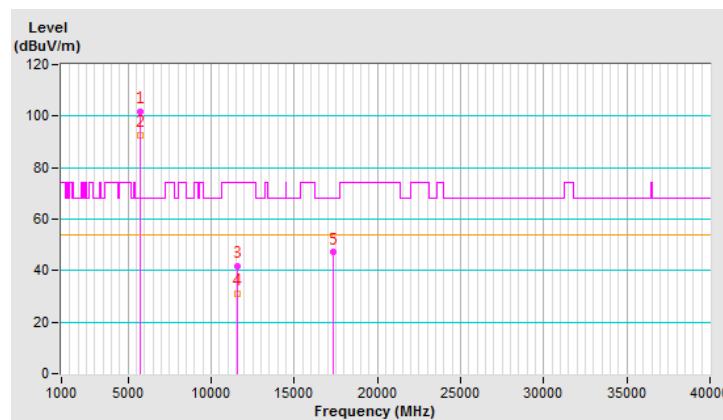


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 155：5775 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	*5775.00	101.8 PK			2.25 V	91	98.5	3.3
2	*5775.00	92.5 AV			2.25 V	91	89.2	3.3
3	11550.00	41.6 PK	74.0	-32.4	1.50 V	335	28.6	13.0
4	11550.00	30.9 AV	54.0	-23.1	1.50 V	335	17.9	13.0
5	#17325.00	47.1 PK	68.2	-21.1	3.15 V	78	30.3	16.8
6	23100.00	-	-	-	-	-	-	-
7	#28875.00	-	-	-	-	-	-	-
8	#34650.00	-	-	-	-	-	-	-

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.



7.6.2 其它不必要之訊號

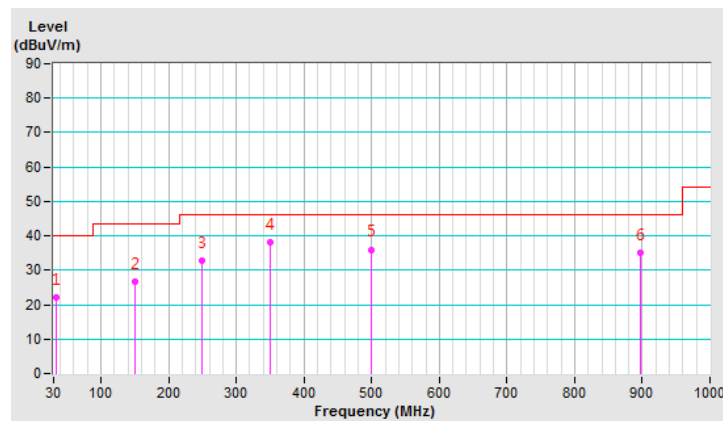
802.11ac (VHT80)

操作模式：	發射接收	調變技術：	OFDM
基本波頻率：	CH 155：5775 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	26°C	量測場地濕度：	71%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	33.12	22.2 QP	40.0	-17.8	1.46 H	166	31.2	-9.0
2	150.32	26.6 QP	43.5	-16.9	1.52 H	77	34.8	-8.2
3	250.01	32.9 QP	46.0	-13.1	1.65 H	321	42.3	-9.4
4	350.01	38.1 QP	46.0	-7.9	1.69 H	244	44.6	-6.5
5	500.06	36.0 QP	46.0	-10.0	1.77 H	287	38.8	-2.8
6	896.21	35.0 QP	46.0	-11.0	1.78 H	100	31.2	3.8

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.



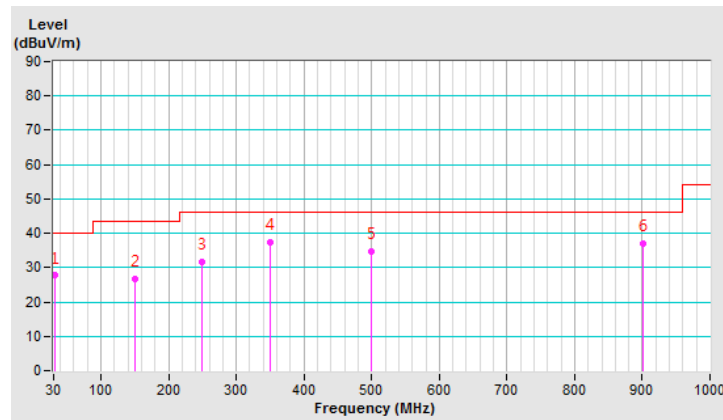
操作模式：	發射接收	調變技術：	OFDM
基本波頻率：	CH 155 : 5775 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	26°C	量測場地濕度：	71%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	31.62	27.6 QP	40.0	-12.4	1.11 V	63	37.0	-9.4
2	150.03	26.6 QP	43.5	-16.9	1.44 V	100	34.8	-8.2
3	250.01	31.5 QP	46.0	-14.5	2.77 V	69	40.9	-9.4
4	350.01	37.5 QP	46.0	-8.5	1.46 V	92	44.0	-6.5
5	500.11	34.6 QP	46.0	-11.4	1.77 V	57	37.4	-2.8
6	900.46	37.1 QP	46.0	-8.9	1.25 V	72	33.2	3.9

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. 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.



7.7 帶外發射之量測結果 (模式二)

7.7.1 發射諧波

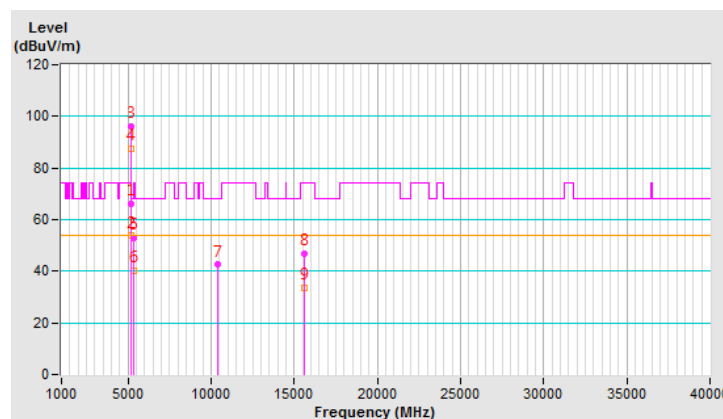
802.11ac (VHT80)

操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 42：5210 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5150.00	66.1 PK	74.0	-7.9	1.14 H	342	63.4	2.7
2	5150.00	53.7 AV	54.0	-0.3	1.14 H	342	51.0	2.7
3	*5210.00	96.2 PK			1.14 H	342	93.6	2.6
4	*5210.00	87.7 AV			1.14 H	342	85.1	2.6
5	5350.00	53.1 PK	74.0	-20.9	1.14 H	342	50.5	2.6
6	5350.00	40.2 AV	54.0	-13.8	1.14 H	342	37.6	2.6
7	#10420.00	42.5 PK	68.2	-25.7	1.27 H	93	29.5	13.0
8	15630.00	46.7 PK	74.0	-27.3	3.69 H	319	34.1	12.6
9	15630.00	33.8 AV	54.0	-20.2	3.69 H	319	21.2	12.6
10	20840.00	-	-	-	-	-	-	-
11	#26050.00	-	-	-	-	-	-	-
12	31260.00	-	-	-	-	-	-	-
13	36470.00	-	-	-	-	-	-	-

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.

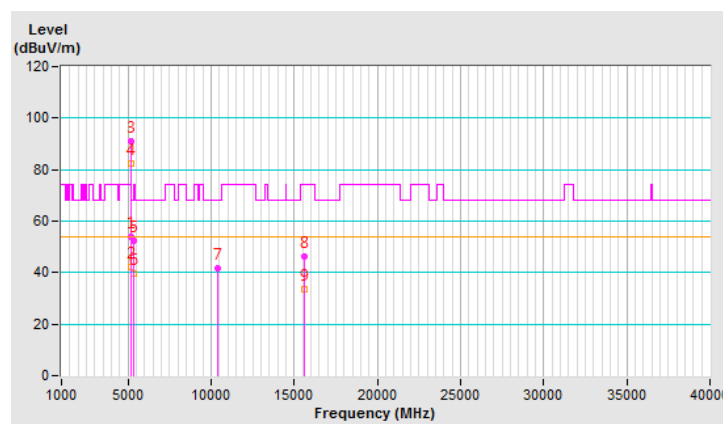


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 42：5210 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5150.00	53.8 PK	74.0	-20.2	3.20 V	291	51.1	2.7
2	5150.00	42.2 AV	54.0	-11.8	3.20 V	291	39.5	2.7
3	*5210.00	91.1 PK			3.20 V	291	88.5	2.6
4	*5210.00	82.6 AV			3.20 V	291	80.0	2.6
5	5350.00	52.6 PK	74.0	-21.4	3.20 V	291	50.0	2.6
6	5350.00	39.8 AV	54.0	-14.2	3.20 V	291	37.2	2.6
7	#10420.00	41.9 PK	68.2	-26.3	2.13 V	244	28.9	13.0
8	15630.00	46.3 PK	74.0	-27.7	1.97 V	177	33.7	12.6
9	15630.00	33.7 AV	54.0	-20.3	1.97 V	177	21.1	12.6
10	20840.00	-	-	-	-	-	-	-
11	#26050.00	-	-	-	-	-	-	-
12	31260.00	-	-	-	-	-	-	-
13	36470.00	-	-	-	-	-	-	-

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.



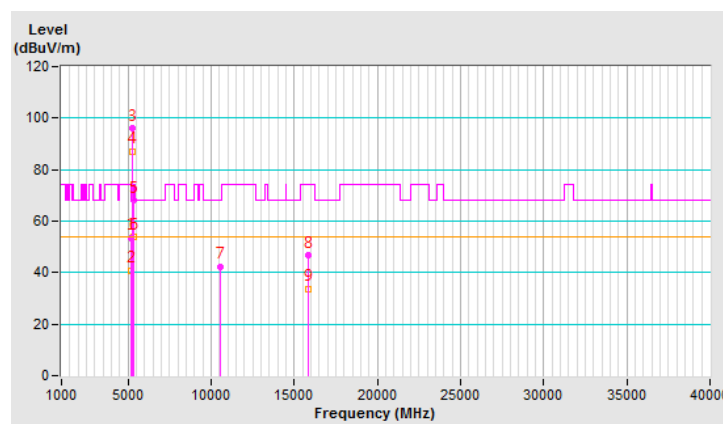
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 58：5290 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5150.00	53.5 PK	74.0	-20.5	1.00 H	338	50.8	2.7
2	5150.00	40.7 AV	54.0	-13.3	1.00 H	338	38.0	2.7
3	*5290.00	95.9 PK			1.00 H	338	93.5	2.4
4	*5290.00	86.8 AV			1.00 H	338	84.4	2.4
5	5350.00	67.9 PK	74.0	-6.1	1.00 H	338	65.3	2.6
6	5350.00	53.7 AV	54.0	-0.3	1.00 H	338	51.1	2.6
7	#10580.00	42.3 PK	68.2	-25.9	1.30 H	102	29.5	12.8
8	15870.00	46.6 PK	74.0	-27.4	3.70 H	317	34.5	12.1
9	15870.00	33.8 AV	54.0	-20.2	3.70 H	317	21.7	12.1
10	21160.00	-	-	-	-	-	-	-
11	#26450.00	-	-	-	-	-	-	-
12	31740.00	-	-	-	-	-	-	-
13	#37030.00	-	-	-	-	-	-	-

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.



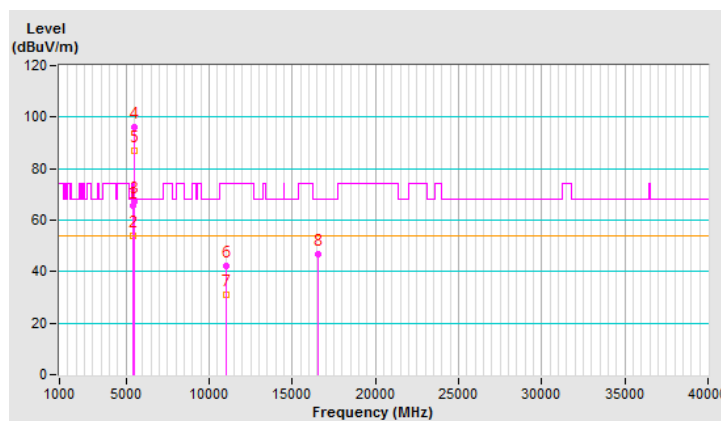
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 106：5530 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22℃	量測場地濕度：	65%RH
測試日期：	108年4月30日	測試者：	鄭樹營

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	5460.00	65.4 PK	74.0	-8.6	1.02 H	325	62.5	2.9
2	5460.00	53.9 AV	54.0	-0.1	1.02 H	325	51.0	2.9
3	#5470.00	67.1 PK	68.2	-1.1	1.02 H	325	64.2	2.9
4	*5530.00	96.3 PK			1.02 H	325	93.4	2.9
5	*5530.00	86.8 AV			1.02 H	325	83.9	2.9
6	11060.00	42.3 PK	74.0	-31.7	1.29 H	100	29.0	13.3
7	11060.00	31.1 AV	54.0	-22.9	1.29 H	100	17.8	13.3
8	#16590.00	46.8 PK	68.2	-21.4	3.65 H	317	31.8	15.0
9	22120.00	-	-	-	-	-	-	-
10	#27650.00	-	-	-	-	-	-	-
11	#33180.00	-	-	-	-	-	-	-
12	38710.00	-	-	-	-	-	-	-

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.

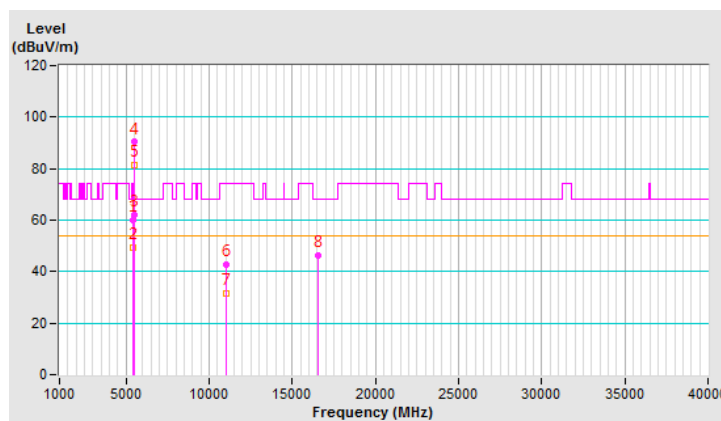


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 106：5530 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	5460.00	60.2 PK	74.0	-13.8	3.20 V	289	57.3	2.9
2	5460.00	49.3 AV	54.0	-4.7	3.20 V	289	46.4	2.9
3	#5470.00	62.1 PK	68.2	-6.1	3.20 V	289	59.2	2.9
4	*5530.00	90.3 PK			3.20 V	289	87.4	2.9
5	*5530.00	81.5 AV			3.20 V	289	78.6	2.9
6	11060.00	42.7 PK	74.0	-31.3	2.20 V	245	29.4	13.3
7	11060.00	31.7 AV	54.0	-22.3	2.20 V	245	18.4	13.3
8	#16590.00	46.5 PK	68.2	-21.7	1.99 V	170	31.5	15.0
9	22120.00	-	-	-	-	-	-	-
10	#27650.00	-	-	-	-	-	-	-
11	#33180.00	-	-	-	-	-	-	-
12	38710.00	-	-	-	-	-	-	-

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.

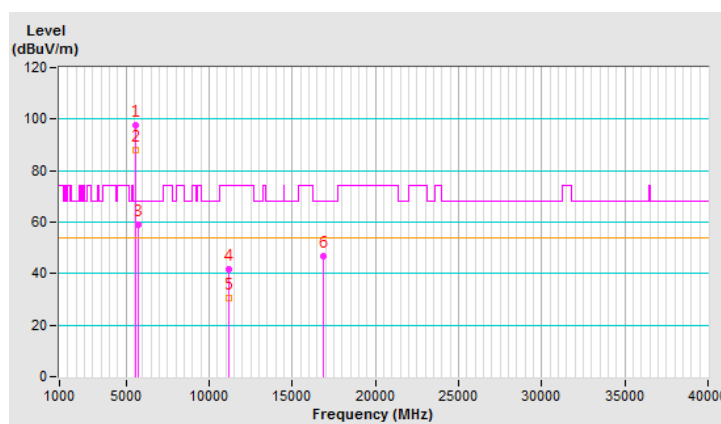


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 122：5610 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22℃	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	*5610.00	97.6 PK			1.16 H	327	94.6	3.0
2	*5610.00	87.8 AV			1.16 H	327	84.8	3.0
3	#5725.00	59.2 PK	68.2	-9.0	1.16 H	327	56.0	3.2
4	11220.00	41.8 PK	74.0	-32.2	1.23 H	106	28.7	13.1
5	11220.00	30.7 AV	54.0	-23.3	1.23 H	106	17.6	13.1
6	#16830.00	47.0 PK	68.2	-21.2	3.65 H	308	30.7	16.3
7	22440.00	-	-	-	-	-	-	-
8	#28050.00	-	-	-	-	-	-	-
9	#33660.00	-	-	-	-	-	-	-
10	39270.00	-	-	-	-	-	-	-

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.



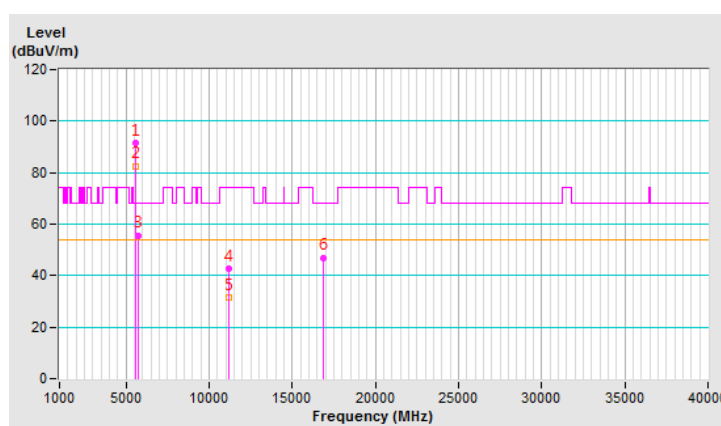
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 122：5610 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22℃	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	*5610.00	91.3 PK			3.17 V	298	88.3	3.0
2	*5610.00	82.5 AV			3.17 V	298	79.5	3.0
3	#5725.00	55.4 PK	68.2	-12.8	3.17 V	298	52.2	3.2
4	11220.00	42.5 PK	74.0	-31.5	2.16 V	244	29.4	13.1
5	11220.00	31.3 AV	54.0	-22.7	2.16 V	244	18.2	13.1
6	#16830.00	46.7 PK	68.2	-21.5	1.95 V	165	30.4	16.3
7	22440.00	-	-	-	-	-	-	-
8	#28050.00	-	-	-	-	-	-	-
9	#33660.00	-	-	-	-	-	-	-
10	39270.00	-	-	-	-	-	-	-

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.

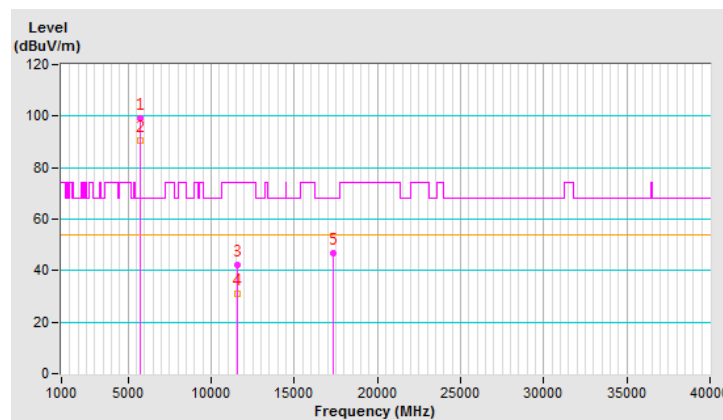


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 155：5775 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	*5775.00	99.3 PK			1.17 H	330	96.0	3.3
2	*5775.00	90.7 AV			1.17 H	330	87.4	3.3
3	11550.00	42.2 PK	74.0	-31.8	1.33 H	106	29.2	13.0
4	11550.00	30.9 AV	54.0	-23.1	1.33 H	106	17.9	13.0
5	#17325.00	46.9 PK	68.2	-21.3	3.65 H	315	30.1	16.8
6	23100.00	-	-	-	-	-	-	-
7	#28875.00	-	-	-	-	-	-	-
8	#34650.00	-	-	-	-	-	-	-

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.

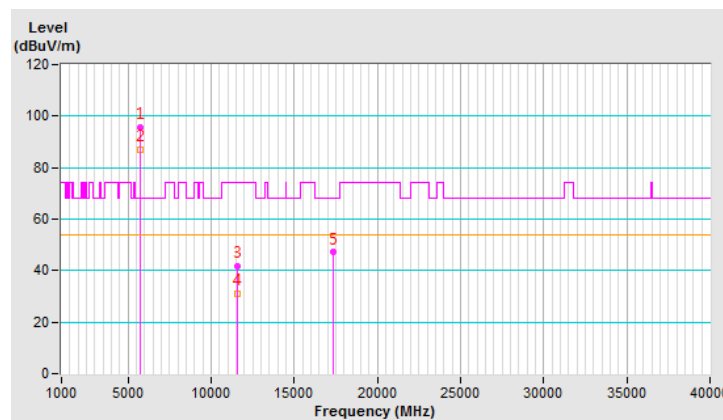


操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 155：5775 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz (AV) RB=1MHz, VB=3kHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	*5775.00	95.6 PK			3.16 V	290	92.3	3.3
2	*5775.00	86.8 AV			3.16 V	290	83.5	3.3
3	11550.00	41.8 PK	74.0	-32.2	2.11 V	260	28.8	13.0
4	11550.00	30.9 AV	54.0	-23.1	2.11 V	260	17.9	13.0
5	#17325.00	47.1 PK	68.2	-21.1	1.92 V	176	30.3	16.8
6	23100.00	-	-	-	-	-	-	-
7	#28875.00	-	-	-	-	-	-	-
8	#34650.00	-	-	-	-	-	-	-

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.



7.7.2 其它不必要之訊號

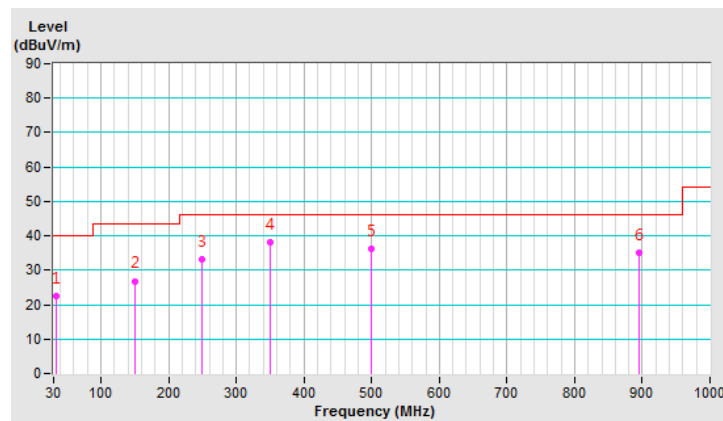
802.11ac (VHT80)

操作模式：	發射接收	調變技術：	OFDM
基本波頻率：	CH 155：5775 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	26°C	量測場地濕度：	71%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	33.02	22.3 QP	40.0	-17.7	1.88 H	93	31.3	-9.0
2	150.13	26.9 QP	43.5	-16.6	1.63 H	211	35.1	-8.2
3	250.06	33.1 QP	46.0	-12.9	2.47 H	165	42.5	-9.4
4	350.02	38.2 QP	46.0	-7.8	1.77 H	302	44.7	-6.5
5	500.01	36.1 QP	46.0	-9.9	3.66 H	210	38.9	-2.8
6	896.16	35.1 QP	46.0	-10.9	1.24 H	42	31.3	3.8

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.



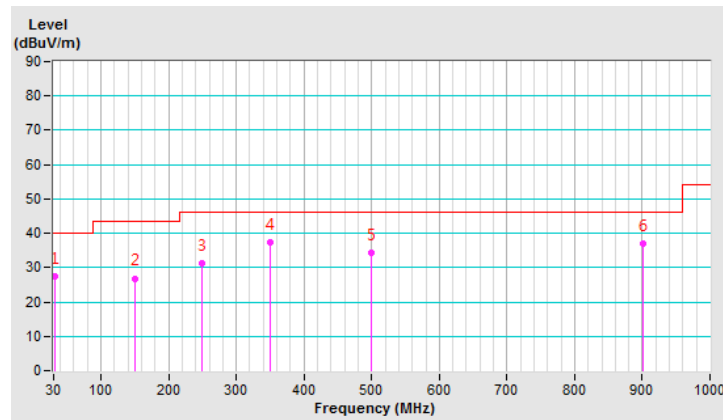
操作模式：	發射接收	調變技術：	OFDM
基本波頻率：	CH 155：5775 MHz	測試儀器：	(QP) RB=120kHz
量測場地溫度：	26°C	量測場地濕度：	71%RH
測試日期：	108 年 4 月 30 日	測試者：	鄭樹營

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	31.45	27.5 QP	40.0	-12.5	1.22 V	100	37.0	-9.5
2	150.02	26.9 QP	43.5	-16.6	1.92 V	75	35.1	-8.2
3	250.06	31.4 QP	46.0	-14.6	2.22 V	33	40.8	-9.4
4	350.03	37.5 QP	46.0	-8.5	2.47 V	75	44.0	-6.5
5	500.16	34.2 QP	46.0	-11.8	1.88 V	99	37.0	-2.8
6	900.32	37.0 QP	46.0	-9.0	1.51 V	15	33.1	3.9

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. 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.



7.8 量測結果判定

依據測試數據結果，符合低功率射頻電機技術規範之要求。

7.9 輻射量測之配置照片

請參照 Test Setup Photos

8 電源線傳導干擾之量測

8.1 適用標準

請見本報告 3.1 節第 1 項的規定。

8.2 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 0.15 MHz 至 30 MHz 之間之電源線傳導放射強度。

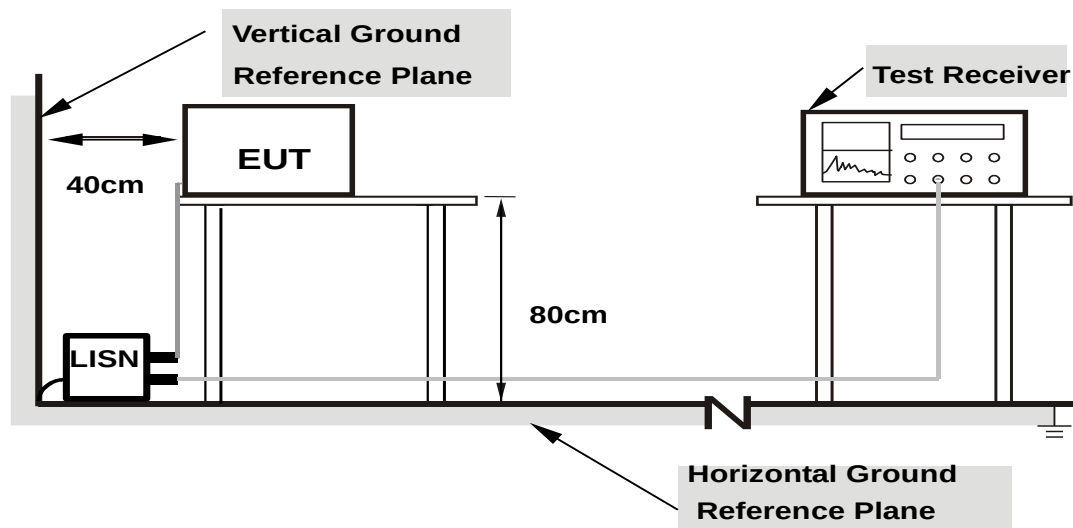
8.3 量測儀器

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2018	Oct. 23, 2019
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 22, 2018	Oct. 21, 2019
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	N/A	3	Oct. 22, 2018	Oct. 21, 2019
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 14, 2019	Mar. 13, 2020
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
3. The measurement uncertainty is 2.98 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.

8.4 測試配置



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

8.5 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

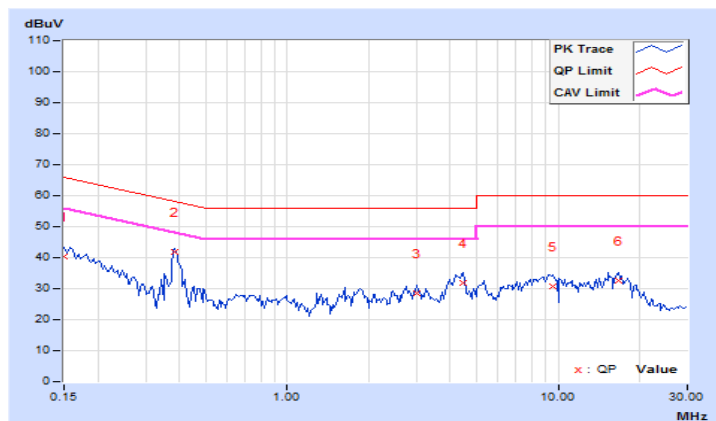
8.6 量測結果

操作模式	發射	測試日期	108 年 05 月 03 日
基本波頻率	CH 155: 5775MHz	量測場地溫度	25°C
調變技術	OFDM	量測場地濕度	75%RH
測試者	何欣儒		

		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.
0.15000	10.03	30.44	15.06	40.47	25.09	66.00	56.00	-25.53	-30.91
0.38438	10.08	31.91	31.01	41.99	41.09	58.18	48.18	-16.19	-7.09
3.01953	10.26	18.14	11.11	28.40	21.37	56.00	46.00	-27.60	-24.63
4.45703	10.35	21.50	13.17	31.85	23.52	56.00	46.00	-24.15	-22.48
9.58984	10.67	20.15	11.03	30.82	21.70	60.00	50.00	-29.18	-28.30
16.73828	11.14	21.62	12.30	32.76	23.44	60.00	50.00	-27.24	-26.56

NOTE:

- 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.

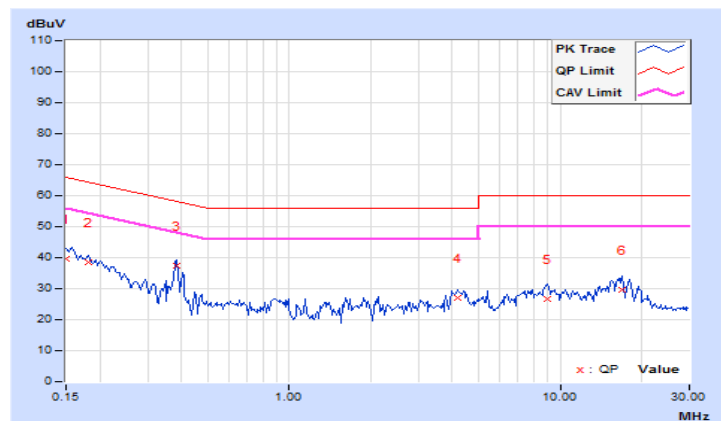


操作模式	發射	測試日期	108 年 05 月 03 日
基本波頻率	CH 155: 5775MHz	量測場地溫度	25°C
調變技術	OFDM	量測場地濕度	75%RH
測試者	何欣儒		

		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.
0.15000	9.94	29.80	13.22	39.74	23.16	66.00	56.00	-26.26	-32.84
0.18125	9.95	28.39	12.90	38.34	22.85	64.43	54.43	-26.09	-31.58
0.38438	9.98	27.60	19.31	37.58	29.29	58.18	48.18	-20.60	-18.89
4.19922	10.18	16.77	7.18	26.95	17.36	56.00	46.00	-29.05	-28.64
8.98047	10.47	16.15	5.98	26.62	16.45	60.00	50.00	-33.38	-33.55
17.04297	10.96	18.72	6.91	29.68	17.87	60.00	50.00	-30.32	-32.13

NOTE:

- 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.



8.7 量測結果判定

依據測試數據結果，符合低功率射頻電機技術規範之要求。

8.8 配置照片

請參照 Test Setup Photos

9 傳導輸出功率量測及發射頻寬之要求

9.1 適用標準

待測物操作頻帶	適用標準
☒ 5.15 GHz~5.25 GHz	請見本報告 3.1 節第 6 項(II)及 4 項(II)的規定
☒ 5.25 GHz~5.35 GHz	請見本報告 3.1 節第 6 項(III)及 4 項(III)的規定
☒ 5.470 GHz~5.725 GHz	請見本報告 3.1 節第 6 項(III)及 4 項(III)的規定
☒ 5.725 GHz~5.850 GHz	請見本報告 3.1 節第 6 項(IV)及 4 項(IV)的規定

9.2 量測方法

傳導輸出功率量測方法：

- 將待測物輸出經由衰減器接到功率計上。
- 設定待測物處於連續發射狀態。
- 計算其最大傳導輸出功率。

發射頻寬量測方法：

- 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。
- 最大輸出功率峰值減 26dB 的最大頻率範圍。

9.3 量測儀器

峰值傳導輸出功率量測儀器：

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	1014008	May 09, 2018	May 08, 2019
Power sensor Anritsu	MA2411B	0917122	May 09, 2018	May 08, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

NOTE: 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

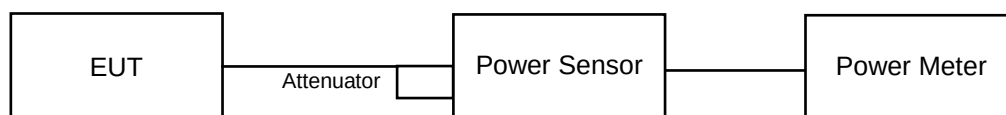
發射頻寬之量測儀器：

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	June 20, 2018	June 19, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

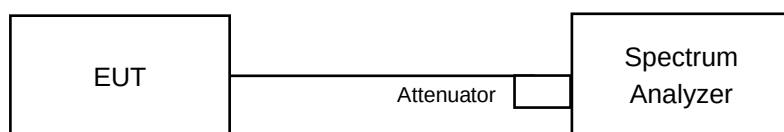
NOTE: 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

9.4 測試配置

峰值傳導輸出功率測試配置：



發射頻寬之測試配置：



9.5 峰值傳導輸出功率之量測結果

操作模式	發射	測試日期	108 年 05 月 03 日
量測場地溫度	25°C	量測場地濕度	60%RH
測試者	陳高逸		

802.11ac (VHT80)

Power Output:

Channel	Channel Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass/Fail
42	5210	17.14	12.34	24.00	Pass
58	5290	17.742	12.49	24.00	Pass
106	5530	17.14	12.34	24.00	Pass
122	5610	18.836	12.75	24.00	Pass
155	5775	32.961	15.18	30.00	Pass

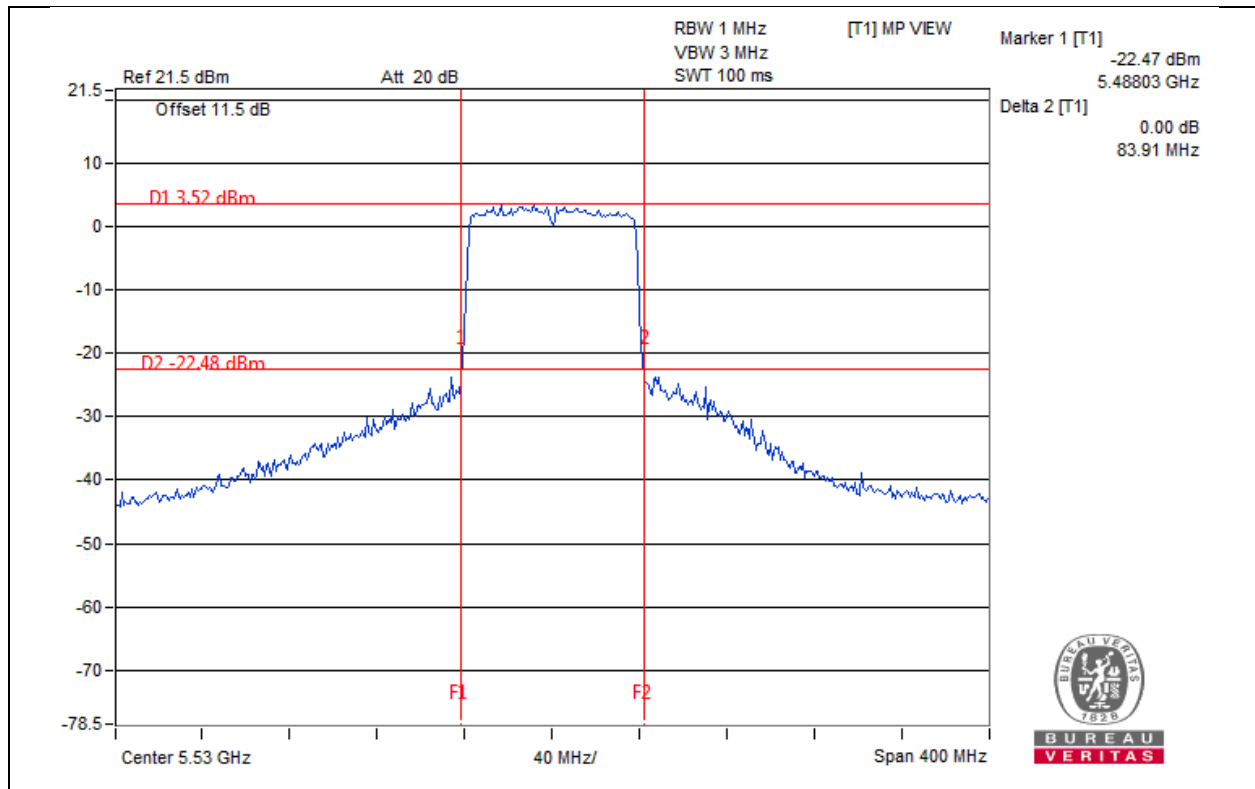
26dB OCCUPIED BANDWIDTH

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
58	5290	122.43
106	5530	83.91
122	5610	112.22

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	122.43	31.87 > 24
106	5530	83.91	30.23 > 24
122	5610	112.22	31.50 > 24

**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，符合低功率射頻電機技術規範之要求。

10 功率頻譜密度之量測

10.1 適用標準

	待測物操作頻帶	適用標準
☒	5.15 GHz~5.25 GHz	請見本報告 3.1 節第 7 項(II)及 4 項(II)的規定
☒	5.25 GHz~5.35 GHz	請見本報告 3.1 節第 7 項(III)及 4 項(III)的規定
☒	5.470 GHz~5.725 GHz	請見本報告 3.1 節第 7 項(III)及 4 項(III)的規定
☒	5.725 GHz~5.850 GHz	請見本報告 3.1 節第 7 項(IV)及 4 項(IV)的規定

10.2 量測方法

	待測物操作頻帶	KDB 789033 D02 量測方法	KDB 662911 D01 量測方法
☒	5.15 GHz~5.25 GHz	☒ SA-1 ☐ SA-1 alternative ☒ SA-2 ☐ SA-2 alternative ☐ SA-3 ☐ SA-3 alternative	☒ Section E)2)a) ☐ Section E)2)b) ☐ Section E)2)c)
☒	5.25 GHz~5.35 GHz	☒ SA-1 ☐ SA-1 alternative ☒ SA-2 ☐ SA-2 alternative ☐ SA-3 ☐ SA-3 alternative	☒ Section E)2)a) ☐ Section E)2)b) ☐ Section E)2)c)
☒	5.470 GHz~5.725 GHz	☒ SA-1 ☐ SA-1 alternative ☒ SA-2 ☐ SA-2 alternative ☐ SA-3 ☐ SA-3 alternative	☒ Section E)2)a) ☐ Section E)2)b) ☐ Section E)2)c)
☒	5.725 GHz~5.850 GHz	☒ SA-1 ☐ SA-1 alternative ☒ SA-2 ☐ SA-2 alternative ☐ SA-3 ☐ SA-3 alternative	☐ Section E)2)a) ☐ Section E)2)b) ☒ Section E)2)c)

For U-NII-1, U-NII-2A, U-NII-2C:

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to "free run".
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and add 10 log (1/duty cycle)

For U-NII-3:

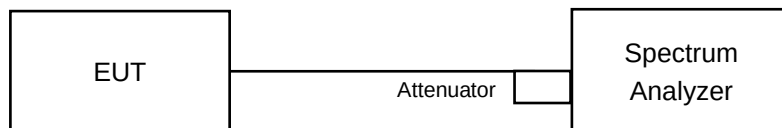
1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500\text{ kHz}/300\text{ kHz})$
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add 10 log (1/duty cycle)

10.3 量測功率頻譜密度之儀器

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	June 20, 2018	June 19, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

NOTE: 1. The test was performed in Oven room 2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

10.4 功率頻譜密度之測試配置



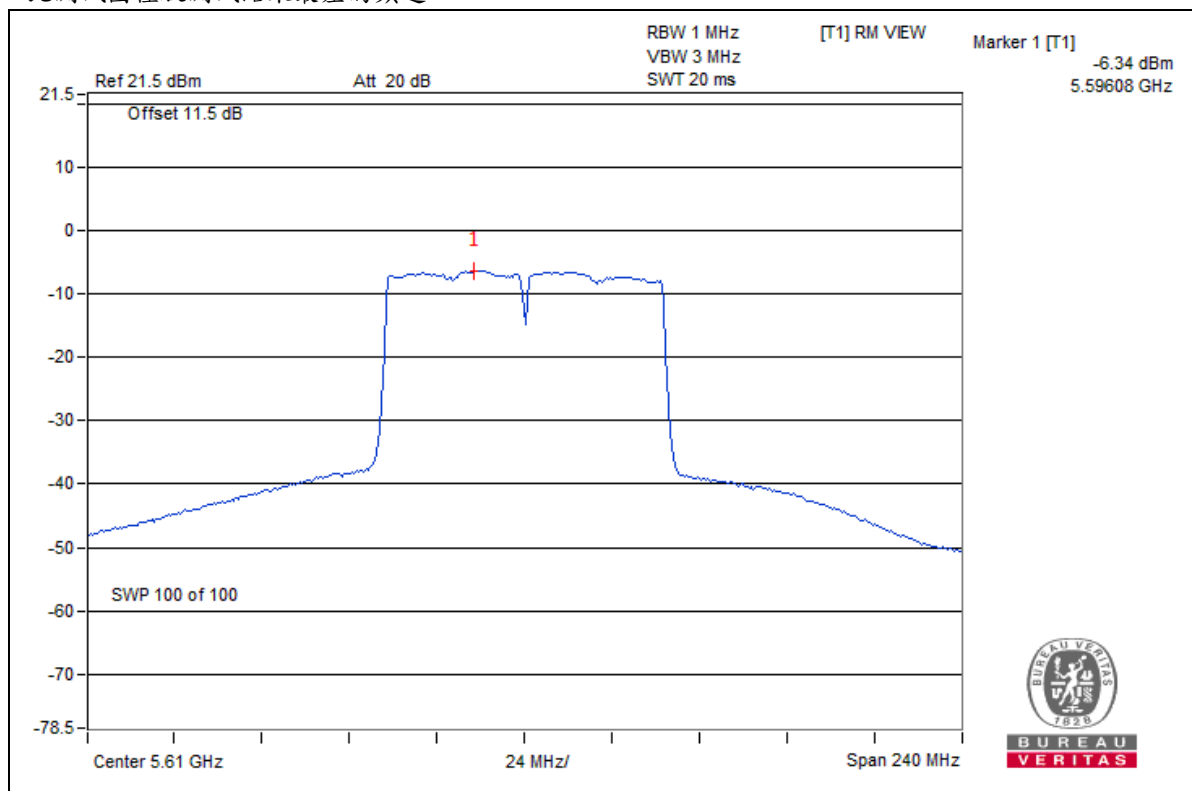
10.5 功率頻譜密度之量測結果

操作模式	發射	測試日期	108 年 05 月 03 日
量測場地溫度	25°C	量測場地濕度	60%RH
測試者	陳高逸		

For U-NII-1, U-NII-2A, U-NII-2C:
802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
42	5210	-6.88	0.17	-6.71	11.00	Pass
58	5290	-6.90	0.17	-6.73	11.00	Pass
106	5530	-7.30	0.17	-7.13	11.00	Pass
122	5610	-6.34	0.17	-6.17	11.00	Pass

**此測試圖僅放測試結果最差的頻道。

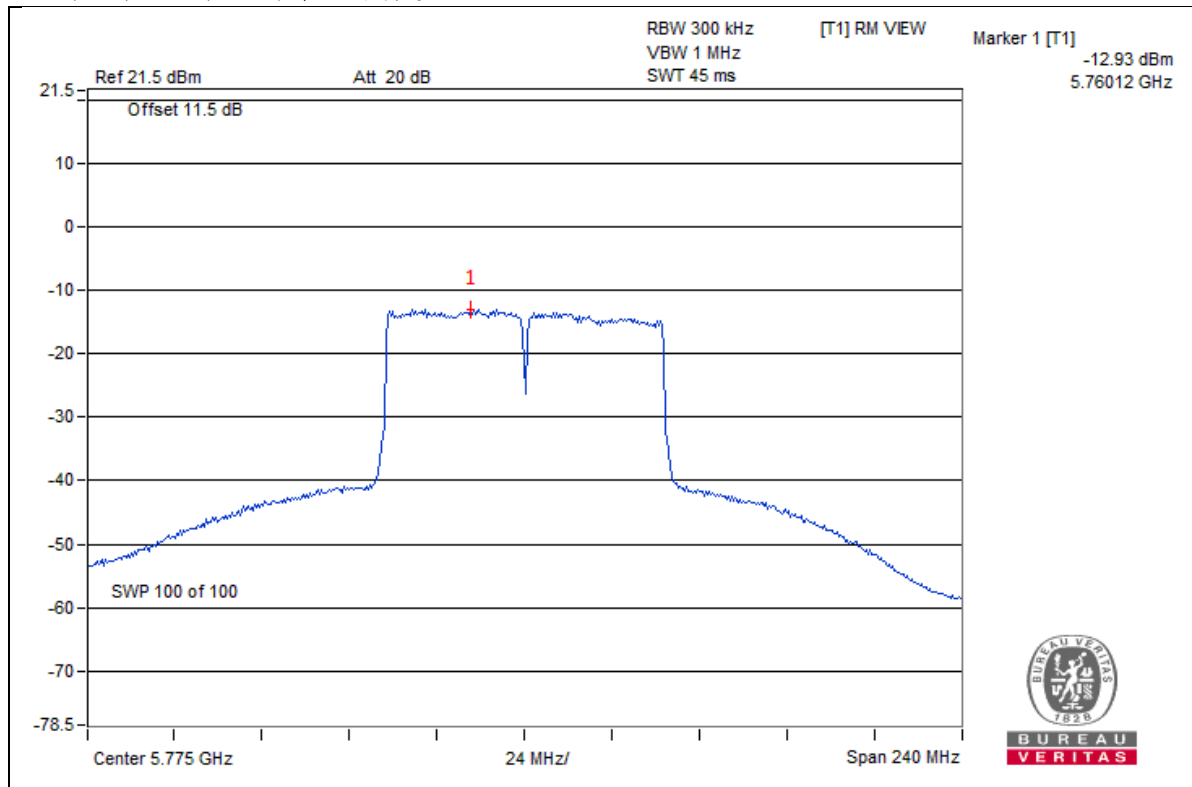


For U-NII-3:

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
155	5775	-12.93	0.17	-12.76	-10.54	30.00	Pass

**此測試圖僅放測試結果最差的頻道。



10.6 量測結果判定

依據測試數據結果，符合低功率射頻電機技術規範之要求。

11 6 dB 頻寬之要求

11.1 適用標準

待測物操作頻帶	適用標準
☒ 5.725 GHz~5.850 GHz	請見本報告 3.1 節第 6 項(II)的規定

11.2 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。

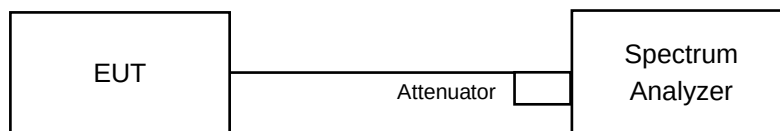
11.3 量測儀器

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	June 20, 2018	June 19, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

NOTE:

- The test was performed in Oven room 2.
- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

11.4 測試配置



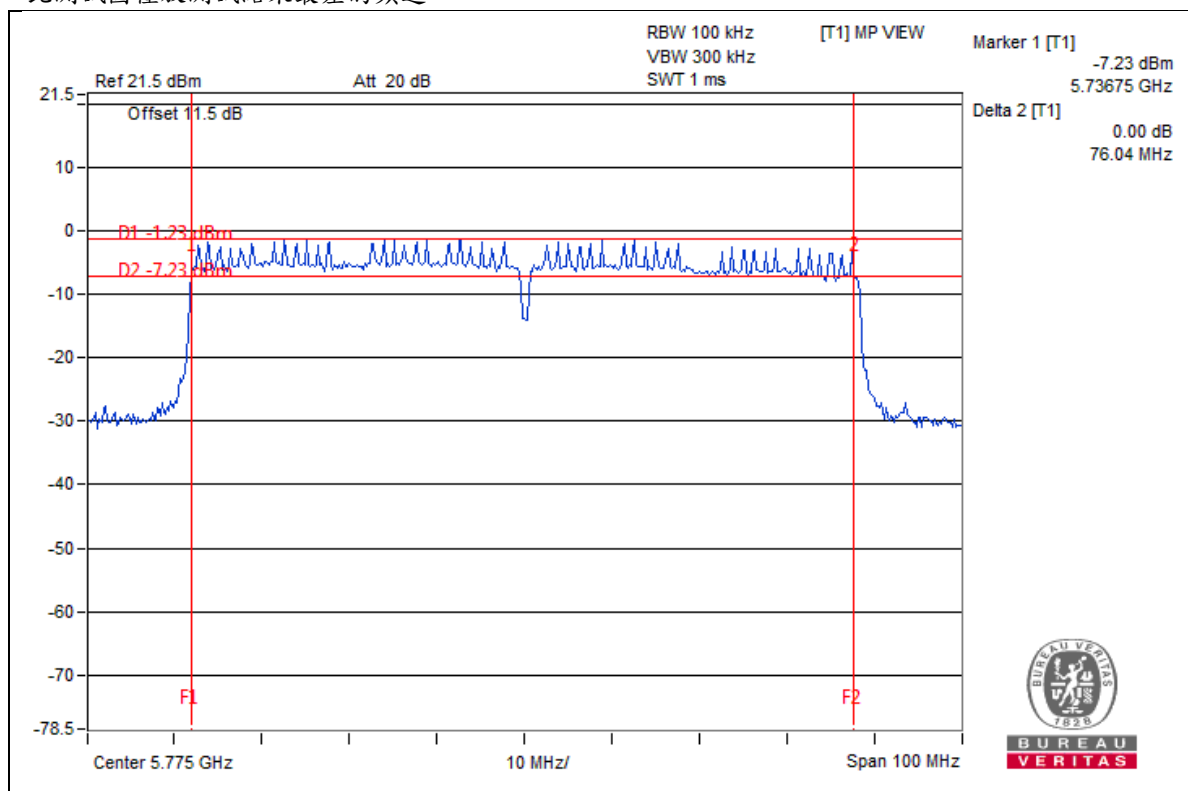
11.5 量測結果

操作模式	發射	測試日期	108 年 05 月 03 日
量測場地溫度	25°C	量測場地濕度	60%RH
測試者	陳高逸		

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	76.04	0.5	PASS

**此測試圖僅放測試結果最差的頻道。



11.6 量測結果判定

依據測試數據結果，符合低功率射頻電機技術規範之要求。

12 電波暴露量之評估

12.1 適用標準

請見本報告 3.1 節第 12 項的規定。

12.2 評估方法

a) 以 7.5 及 11.5 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

12.3 評估結果

電波暴露量之評估
☐ 待測物並非是 WLAN AP/Router 產品，不需進行電波暴露量之評估
☒ 待測物為 WLAN AP/Router 產品，需進行電波暴露量之評估

For WLAN:

Frequency Band (MHz)	Max. Power (mW)	Max. Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	291.743	24.65	2.8	20	0.11059	1
5180-5240	17.14	12.34	5.0	20	0.01078	1
5260-5320	17.742	12.49	5.0	20	0.01116	1
5500-5700	18.836	12.75	5.0	20	0.01185	1
5745-5825	32.961	15.18	5.0	20	0.02074	1

For Bluetooth:

BT-EDR

Frequency Band (MHz)	Max. Power (mW)	Max. Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2402-2480	1.125	0.51	2.8	20	0.00043	1

BT-LE

Frequency Band (MHz)	Max. Power (mW)	Max. Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2402-2480	3.436	5.36	2.8	20	0.00130	1

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

Simultaneously transmission condition:

Condition	Technology	
1	WLAN (2.4GHz)	Bluetooth
2	WLAN (5GHz)	Bluetooth

Condition 1: WLAN 2.4GHz + Bluetooth = $0.11059 / 1 + 0.00130 / 1 = 0.11189$

Condition 2: WLAN 5GHz + Bluetooth = $0.02074 / 1 + 0.00130 / 1 = 0.02204$

Therefore the maximum calculations of above situations are less than the "1" limit.

13 Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 Band) (Mode 1)

802.11ac (VHT80)

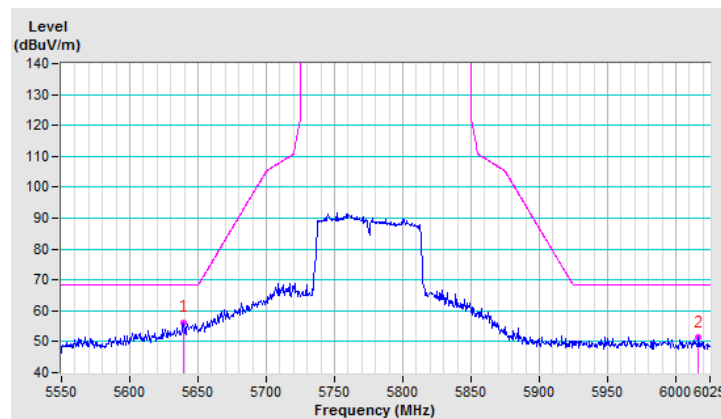
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 155 : 5775 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 29 日	測試者：	鄭樹營

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	#5639.63	56.0 PK	68.2	-12.2	1.15 H	75	53.1	2.9
2	#6016.14	51.3 PK	68.2	-16.9	1.15 H	75	47.7	3.6

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. " # ": The radiated frequency is out of the restricted band.



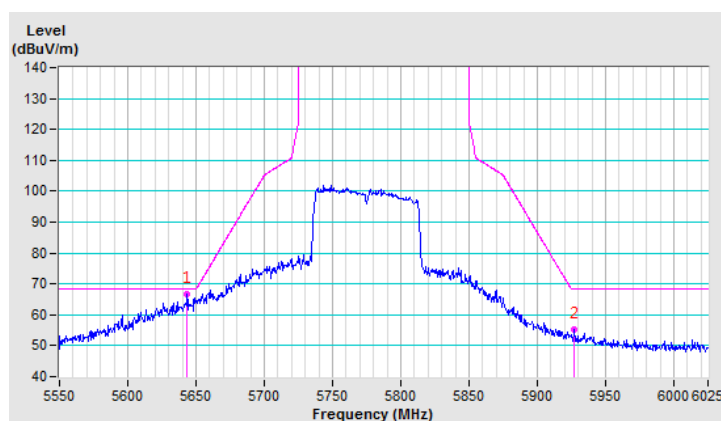
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 155 : 5775 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 29 日	測試者：	鄭樹營

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	#5643.47	66.7 PK	68.2	-1.5	2.25 V	91	63.8	2.9
2	#5927.23	55.2 PK	68.2	-13.0	2.25 V	91	51.6	3.6

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. " # ": The radiated frequency is out of the restricted band.



14 Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 Band) (Mode 2)

802.11ac (VHT80)

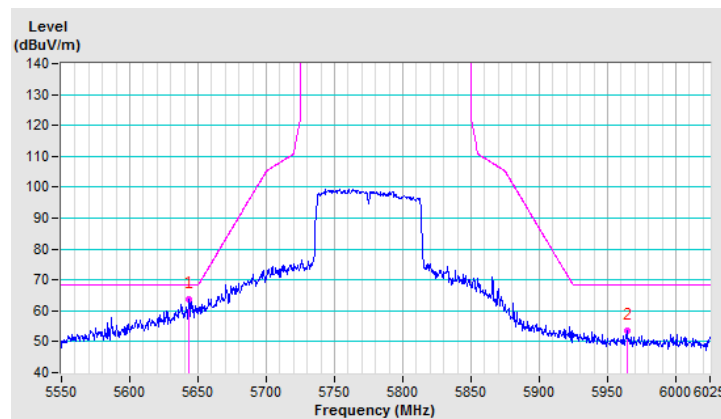
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 155 : 5775 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 29 日	測試者：	鄭樹營

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	#5643.60	63.9 PK	68.2	-4.3	1.17 H	330	61.0	2.9
2	#5964.13	53.5 PK	68.2	-14.7	1.17 H	330	49.9	3.6

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. " # ": The radiated frequency is out of the restricted band.



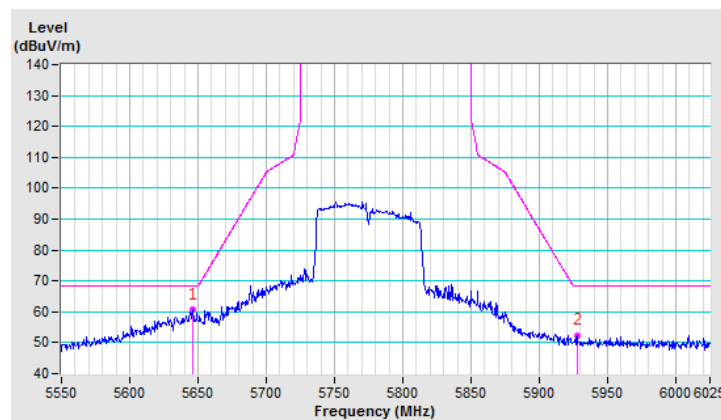
操作模式：	發射	調變技術：	OFDM
基本波頻率：	CH 155 : 5775 MHz	測試儀器：	(PK) RB=1MHz, VB=3MHz
量測場地溫度：	22°C	量測場地濕度：	65%RH
測試日期：	108 年 4 月 29 日	測試者：	鄭樹營

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	#5646.31	60.6 PK	68.2	-7.6	3.16 V	290	57.7	2.9
2	#5927.73	52.2 PK	68.2	-16.0	3.16 V	290	48.6	3.6

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. " # ": The radiated frequency is out of the restricted band.



15 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

您也可以在我們的網站內找到各實驗室的地圖。

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