

低功率射頻器材 檢驗報告

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製造廠商	Fuji Xerox Co., Ltd.
受檢設備名稱	Wireless Network Adapter
廠牌	FUJIFILM
型號	Titan2020
檢驗依據標準	國家通訊傳播委員會低功率射頻器材 技術規範 (LP0002)
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測試報告記錄

申請廠商：富士全錄台灣資訊整合股份有限公司
 製造廠商：Fuji Xerox Co., Ltd.
 廠牌：FUJIFILM
 品名：Wireless Network Adapter
 型號：Titan2020
 檢驗依據標準：國家通訊傳播委員會低功率射頻器材技術規範(LP0002)
 規範修訂日期109年07月01日
 發射功率(電場強度)：9.22 dBm (發射功率)
 工作頻率及調變方式：5180 ~ 5240 MHz / DSSS + OFDM
 天線規格：內置固定式天線

- 備註：1. 本試驗報告中是描述本實驗室以最佳的知識和能力進行試驗，我們的責任僅限於合理與謹慎的試驗，並非確保賣方之法律和/或合同的義務。
 2. 本符合性試驗係依據適當的標準及試驗樣品進行測試，其中量測不確定度可符合國際標準要求不列入結果考量，本試驗報告的結果僅針對受試驗之樣品負責，無法確保產品生產過程中的品質與性能要求。
 3. 非經本中心同意，檢驗報告不得摘錄複印使用。（全部複製除外）。

項次	測試項目	適用規範	量測設備	測試結果	結果判定
1	電源線傳導干擾之要求	低功率射頻器材技術規範 3.3節	----	----	因使用直流電源故無需測試
2	天線增益之要求	低功率射頻器材技術規範 5.7.8節	----	請參閱5.2節	----
3	發射頻寬之量測	低功率射頻器材技術規範 5.7.3.4節	請參閱6.3節	請參閱6.4節	----
4	最大傳導輸出功率之要求	低功率射頻器材技術規範 5.7.3.1節(2)	請參閱7.3節	請參閱7.4節	合格
5	功率密度之要求	低功率射頻器材技術規範 5.7.3.1節(2)	請參閱8.3節	請參閱8.4節	合格
6	混附波發射限制之要求	低功率射頻器材技術規範 5.7.4.1節	請參閱9.3節	請參閱9.4節	合格
7	場強輻射之要求	低功率射頻器材技術規範 5.7.4.4 - 5.7.4.6節	請參閱10.3節	請參閱10.5節	合格
	以下空白				

測量實驗室負責人：

鄭毅文
109.12.11

直接主管：

黃毅瑞
109.12.11

量測員：

郭世偉
109/12/11

1 一般資料

1.1 產品描述

- a) 產品型態 : Wireless Network Adapter
- b) 商 標 : FUJIFILM
- c) 產品型號 : Titan2020
- d) 供應電源 : DC 5V
- e) 產品類別 : ☐ (1) 供戶外操作使用 ☐ (2) 供室內操作使用
☐ (3) 供固定式點對點操作使用 ☒ (4) 供用戶端操作使用

備註：1. 本產品內含WLAN 及 Bluetooth LE 無線技術，WLAN部份包含DTS與UNII頻帶。本報告僅記錄UNII Band 1 (5180 MHz 至 5240 MHz) 部份，Bluetooth LE 部份請見ETC報告編號: 20-10-MAS-035-01，DTS 部份請見ETC報告編號: 20-10-MAS-035-02，UNII Band 2 (5260 至 5320 MHz)部份請見ETC報告編號: 20-10-MAS-035-04，UNII Band 3 (5500至 5700 MHz) 部份請見ETC報告編號: 20-10-MAS-035-05，UNII Band 4 (5725至 5850 MHz) 部份請見ETC報告編號: 20-10-MAS-035-06。。

2. 本器材不具備主控運作模式動態頻率選擇與Ad-hoc功能。

3. 本案經申請者切結器材不提供隨貨配件，配件由實驗室(或申請者)提供併同檢驗。

1.2 產品特性

此裝置為Wireless Network Adapter，其發射頻率落於 5180 至 5240 MHz，採用 IEEE 802.11a/n/ac 直接序列展頻調變技術。其應用為區域網路無線傳輸。5180 ~ 5240 MHz主波發射功率為 9.22 dBm，即為 8.36 mW，其無線特性列表如下：

RF chain	1T1R	
Operating Frequency	IEEE802.11a/n 20/ac20MHz: 5.18GHz ~5.24GHz, 4ch; IEEE 802.11n 40MHz/ac 40MHz 5.19GHz~5.230GHz, 2ch IEEE 802.11ac 80MHz 5.21GHz,1ch	
Modulation	IEEE 802.11a(OFDM/DSSS) 48/54 Mbps (QAM-64) 24/36 Mbps (QAM-64) 12/18 Mbps (QPSK) 6/19 Mbps (BPSK)	IEEE 802.11n(OFDM/DSSS) QAM-64 QAM-16 QPSK BPSK
	IEEE 802.11ac(20MHz,40MHz,80MHz)(OFDM/DSSS) QAM-256, QAM-64, QAM-16, QPSK,BPSK	

1.3 測試方法之依據

本測試報告之所有項目皆依據國家通訊傳播委員會低功率射頻器材技術規範以及參考 IEEE ANSI、歐盟ETSI EN與美國EIA、FCC 47 CFR PART 2、KDB及ARIB STD-T67 等有關檢驗之規定。

試驗室介紹：財團法人台灣商品檢測驗證中心電磁相容試驗室通過下列評鑑、認可、登錄與相互認可協議：

- ❶ ISO/IEC 17025 : TAF(0371), NVLAP(Lab code: 200133-0), CBTL(**TÜ V SÜ D**)
- ❷ Recognized : BSMI, NCC, FCC(TW0371, TW1112), ISED(Industry Canada Site # 2949A-2)
- ❸ Filing : VCCI (C-13518, R-13177, G-10098, T-11682)
- ❹ MRA : Australia, New Zealand, Singapore

2 適用規範

2.1 規範要求

(1) 傳導之規定

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

頻率範圍 MHz	傳導限制值(dB μ V)	
	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) 天線增益之要求

國家通訊傳播委員會低功率射頻器材技術規範5.7.8節規定，天線之規格不受3.2規定之限制。若使用超過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。

(3) 最大傳導輸出功率與功率密度之要求

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.3.1節(1)(2)(3)(4)之規定：

(1) 供戶外操作使用：

(A) 最大傳導輸出功率應小於或等於 1 W。

(B) 在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 17 dBm。

(C) 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。

(D) 在水平面仰角超過 30 度時，其最大 EIRP 應小於或等於 21 dBm。

(2) 供室內操作使用：

(A) 最大傳導輸出功率應小於或等於 1 W。

(B) 在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 17 dBm。

(C) 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。

(3) 供固定式點對點操作使用：

(A) 最大傳導輸出功率應小於或等於 1 W。

(B) 在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 17 dBm。

(C) 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。

(D) 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。

(4) 供用戶端裝置(Client Device)操作使用：

(A) 最大傳導輸出功率應小於或等於 250 mW。

(B) 在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 11 dBm。

(C) 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。

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.3.4節之規定：

- (1) 最大傳導輸出功率必須使用依據均方根等效電壓校準之儀器測量於任何連傳輸之時段，測量結果須依儀器限制(如偵測器反應時間、相較於發射頻寬有限之解析頻寬能力，靈敏度等)調整得出正確之峰值測量，以符合本段落所提之發射定義。
- (2) 最大功率頻譜密度檢驗規定：
 - (A) 應將測試儀器直接連接待測物，以傳導方式執行。
 - (B) 5.15 GHz～5.25 GHz、5.25 GHz～5.35 GHz 及 5.470 GHz～5.725 GHz 頻段，測試儀器之頻寬應設定為 1 MHz 頻寬或待測物之 26 dB 發射頻寬，兩者取較小者。
 - (C) 5.725 GHz～5.850 GHz 頻段，測試儀器之頻寬應設定為 500 kHz 或待測物之 26 dB 發射頻寬，兩者取較小者。
 - (D). 解析頻寬小於 (B)或 (C)時，應以補償方式計算總功率頻譜密度

(4) 帶外發射限制之要求

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.4.1節之規定，在5.15 GHz～5.35 GHz 及5.470 GHz～5.725 GHz 頻段操作的發射器：帶外發射之有效等向輻射功率(EIRP)≤-27 dBm/MHz。

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.4.3節之規定，測量不必要發射時，應使用之最低解析頻寬為 1 MHz。必要時，於頻帶邊緣附近可使用小於 1 MHz 之解析頻寬，並以補償方式計算其總值。

(5) 輻射之規定

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.4.5節之規定，在 1GHz 以下的非必要之發射，應符合第 3.6節之規定，任何使用交流市電為供應電之設備亦須符合第 3.3節之電源線傳導限制值。

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.4.6節之規定，不必要發射頻率屬3.5節 規定頻段者，應符合 3.6節之規定。

落於3.5節禁用頻段之輻射干擾需符合3.6節之一般限制要求：

頻率(f) MHz	電場強度 (微伏特/公尺， $\mu\text{V/m}$)	測距 (公尺)
$0.009 \leq f \leq 0.490$	$2400/f(\text{kHz})$	300
$0.490 < f \leq 1.705$	$24000/f(\text{kHz})$	30
$1.705 < f < 30$	30	30
$30 \leq f \leq 88$	100	3
$88 < f \leq 216$	150	3
$216 < f \leq 960$	200	3
$960 < f$	500	3

2.2 限制使用之頻帶

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

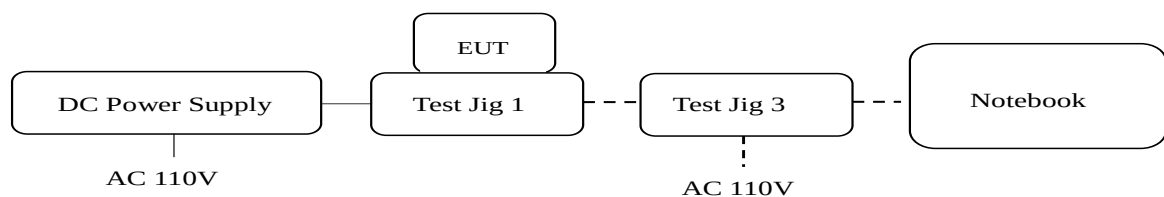
3 受測裝置之系統說明

3.1 受測裝置

裝置名稱	製造者/代理者	型 號	纜線說明
* Wireless Network Adapter	Fuji Xerox Co., Ltd.	Titan2020	----
DC Power Supply	GW Instek	GPS-3030D	非隔離電源線 1.8m*1
Test Jig 1	N/A	N/A	非隔離電源線 2.3m*1
Test Jig 2	N/A	N/A	非隔離信號線 0.1m * 1 非隔離信號線 1.5m * 1(RS-232)
Test Jig 3	N/A	N/A	非隔離電源線 2.8m * 1/Adapter 非隔離信號線 0.1m * 1 隔離信號線 1.0m * 1(USB)
Notebook	HP	probook650G1	----

註: 1.標記“*”表欲申請之受測物及配件。

2.測試配置：



註: Notebook 及 Test Jig3 在完成測試模式設定之後，從以上測試配置中移除來進行最終測試，以降低雜訊之干擾。

3. 測試模式：

3.1 IEEE 802.11a, 802.11n HT20, IEEE 802.11ac (20MHz) mode:

測試頻道如下：

Channel	Frequency (MHz)
Low = 36	5180
Middle = 40	5200
High = 48	5240

IEEE 802.11a mode: 6 Mbps, data rate is the worse case for full testing.

IEEE 802.11n/ac (20 MHz) mode: MCS0 data rate is the worse case for full testing.

3.2 IEEE 802.11n HT40, IEEE 802.11ac (40MHz) mode:

測試頻道如下:

Channel	Frequency (MHz)
38	5190
46	5230

IEEE 802.11n/ac (40 MHz) mode: MCS0 data rate is the worse case for full testing.

3.3 IEEE 802.11ac (80MHz) mode:

測試頻道如下:

Channel	Frequency (MHz)
42	5210

IEEE 802.11ac (80MHz) mode: MCS0 data rate is the worse case for full testing.

4. 軟體設定:Tera Term.exe

		Power Setting
IEEE 802.11a	5180	42
	5200	42
	5240	42
IEEE 802.11n HT20	5180	40
	5200	40
	5240	40
IEEE 802.11n HT40	5190	38
	5230	38
IEEE 802.11ac (20MHz)	5180	40
	5200	40
	5240	40
IEEE 802.11ac (40MHz)	5190	38
	5230	38
IEEE 802.11ac (80MHz)	5210	38

3.2 測試模式說明

3.2.1 調變方式及模式

Test Mode	Modulation	Note
A	IEEE 802.11a	-
B	IEEE 802.11n HT20	-
C	IEEE 802.11n HT40	-
D	IEEE 802.11ac (20MHz)	-
E	IEEE 802.11ac (40MHz)	-
F	IEEE 802.11ac (80MHz)	-

Mode	IEEE 802.11a/n20/ac (20MHz)	IEEE 802.11n40/ac (40MHz)	IEEE 802.11ac (80MHz)
Test Channel	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
Channel Low (L)	5180	5190	5210
Channel Mid (M)	5200	-	-
Channel High (H)	5240	5230	-

3.2.2 測試項目及模式

Item	測試項目	測試模式	測試頻率(MHz)
1	電源線傳導干擾之量測	-	-
2	發射頻寬之量測	A, D, E, F (註3)	L, M, H
3	最大傳導輸出功率之量測	A, B, C, D, E, F	L, M, H
4	功率密度之量測	A, D, E, F (註3)	L, M, H
5	混附波發射限制之量測	A, D, E, F (註3)	L, M, H
6	場強輻射之量測(主諧波)	A, D, E, F (註3)	L, M, H
6.1	場強輻射之量測(1GHz以下)	A (註1)	M (註2)
6.2	場強輻射之量測(1GHz以上)	A, D, E, F (註3)	L, M, H

註: 1. 以上調變方式預掃時無差異，擇一作最終測試並記錄之。

2. 高，中，低頻道預掃時無差異，擇中間頻道作最終測試並記錄之。

3. Test Mode B 與 Test Mode D / Test Mode C 與 Test Mode E 使用相同調變技術及頻寬，故以最大傳導輸出功率較大者 Test Mode D 及 Test Mode E 為 Worse case，作最終測試並記錄之。

4. 量測場強輻射時，應對其三個正交軸 (X、Y、Z) 的方位評估測試，並分別測試以找出最大輻射電場強度軸向，以最差軸模式測試，並記錄其值與軸向放置。

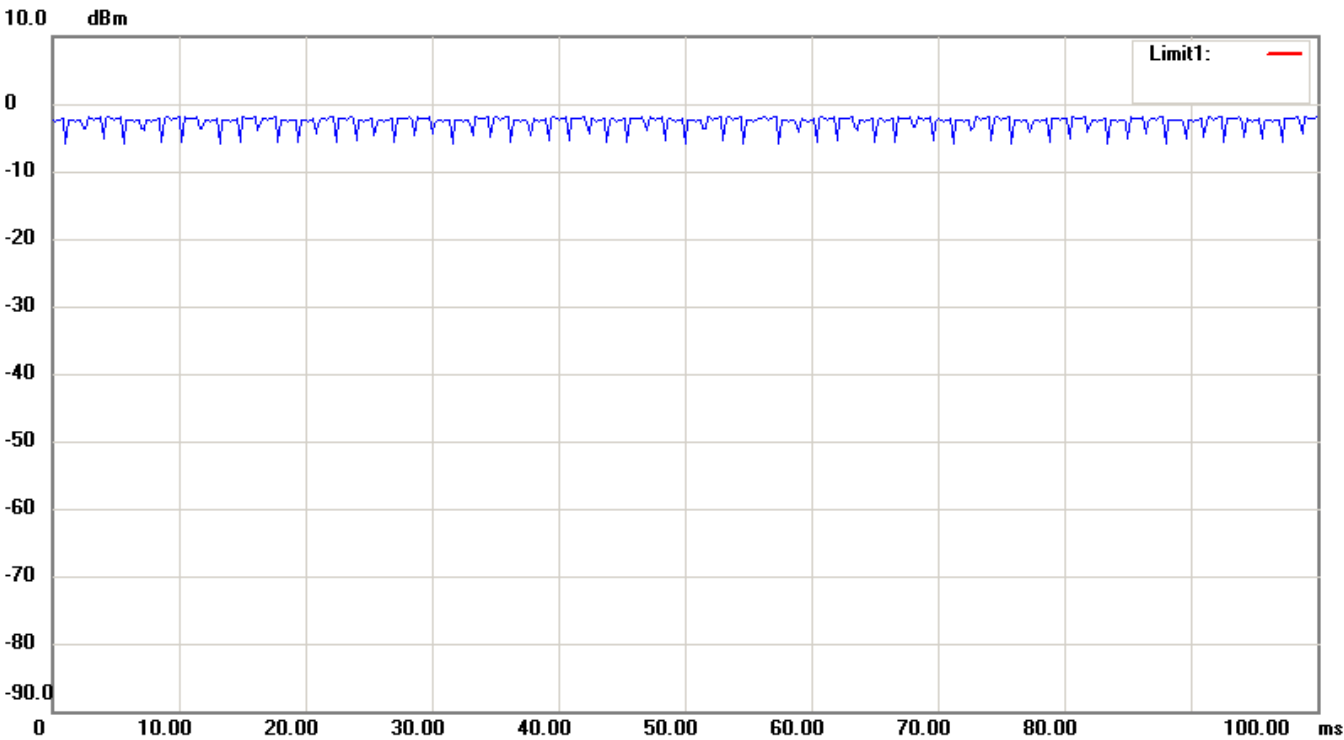
5. 依 NCC 74 次一致性會議：審驗時不具一般正常使用模式者，得不包括一般正常使用模式。

3.2.3 測試場地

項次	測 試 場 地
1	☒ RE02 — EMC B1 — N2 第一大樓地下二樓 3m 半電波暗室(N2)
2	☐ CE04 — 10M 2F 第三大樓二樓傳導測試室(10m 大樓)
3	☒ RF — Cond01 第一大樓地下一樓直量測試區
4	☐ RF — Cond02 第一大樓地下二樓直量測試區

3.2.4 Duty cycle
IEEE 802.11a

File:	20-10-MAS-035_5-2a	#21	Date:	2020/11/20	Temperature:	25 °C
Site:	RF-Cond01				Humidity:	50 %



Condition:	UNII-Band1-2-Bandedge	RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 15dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a Duty-1		

File: 20-10-MAS-035_5-2a

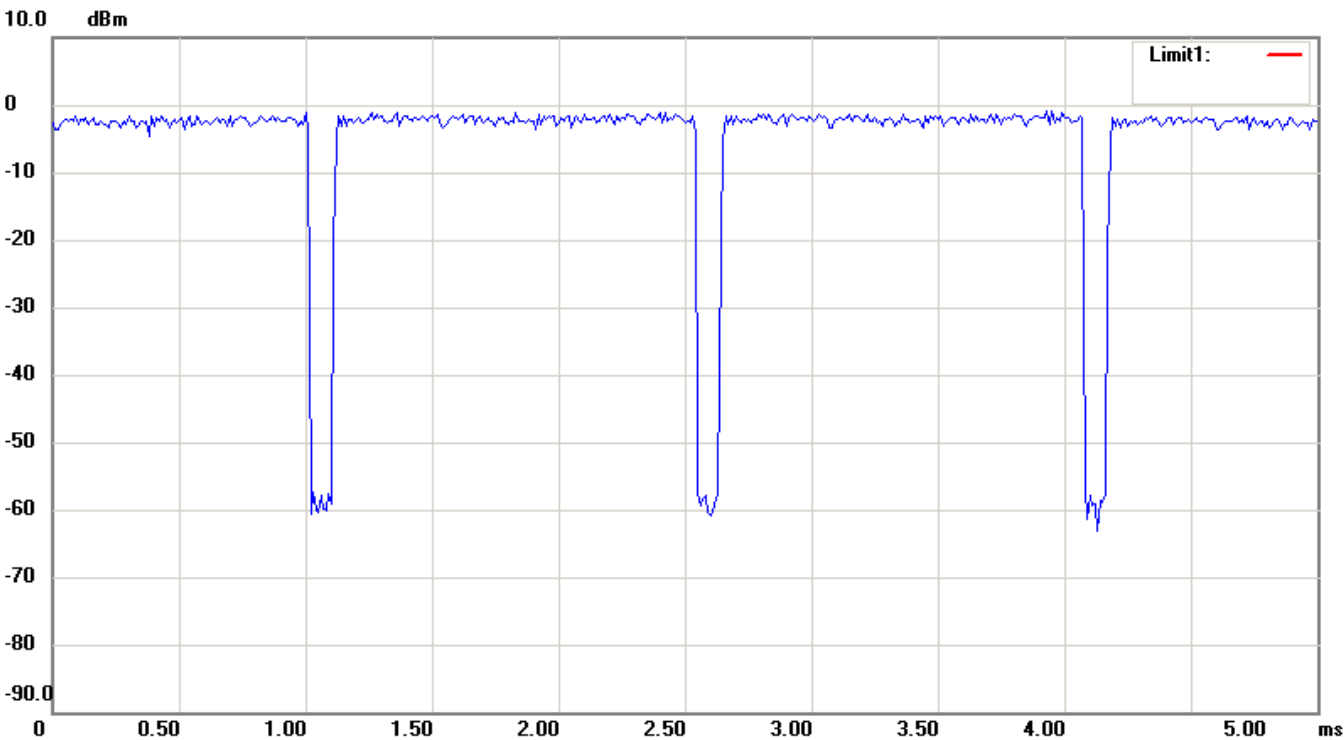
Site: RF-Cond01

#22

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:	UNII-Band1-2-Bandedge	RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 5ms	Att.: 15dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a Duty-2 (Duty = 92.8%)		

IEEE 802.11ac (20MHz)

File: 20-10-MAS-035_5-2ac20

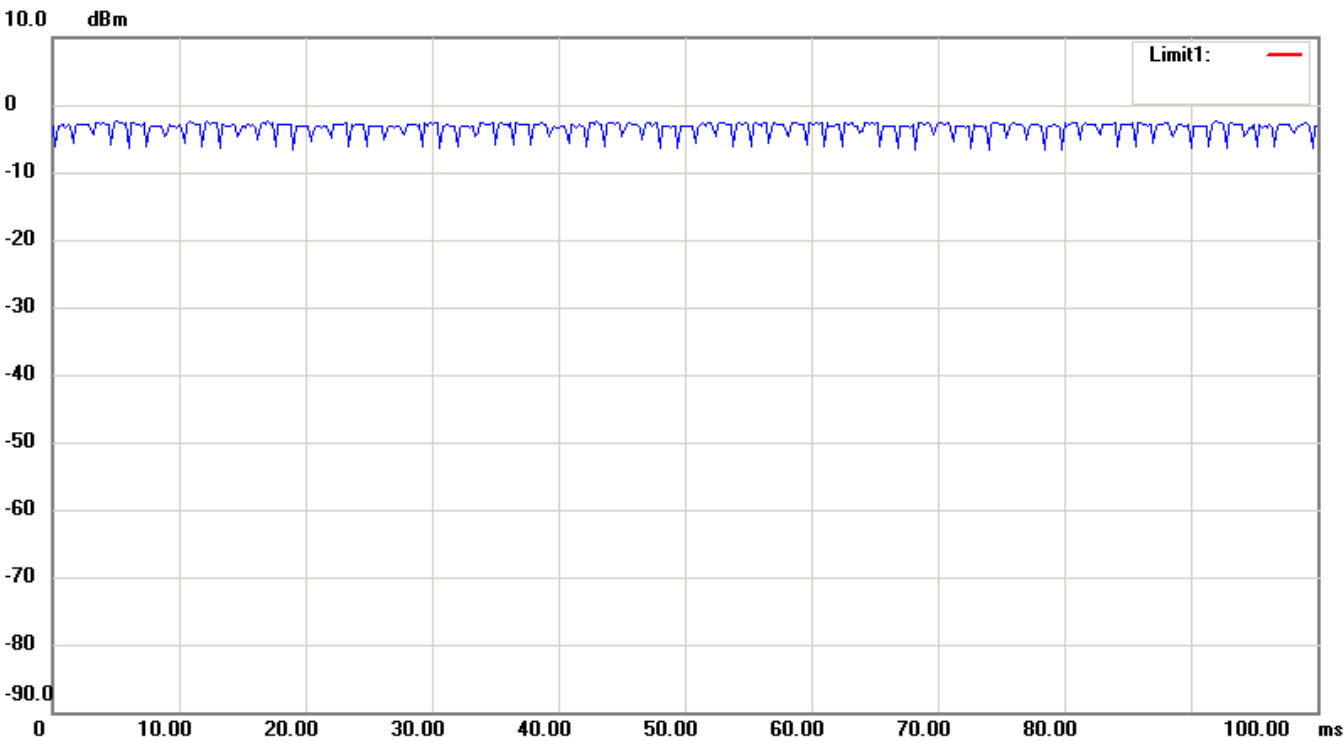
#21

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:	UNII-Band1-2-Bandedge	RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 15dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac20 Duty-1		

File: 20-10-MAS-035_5-2ac20

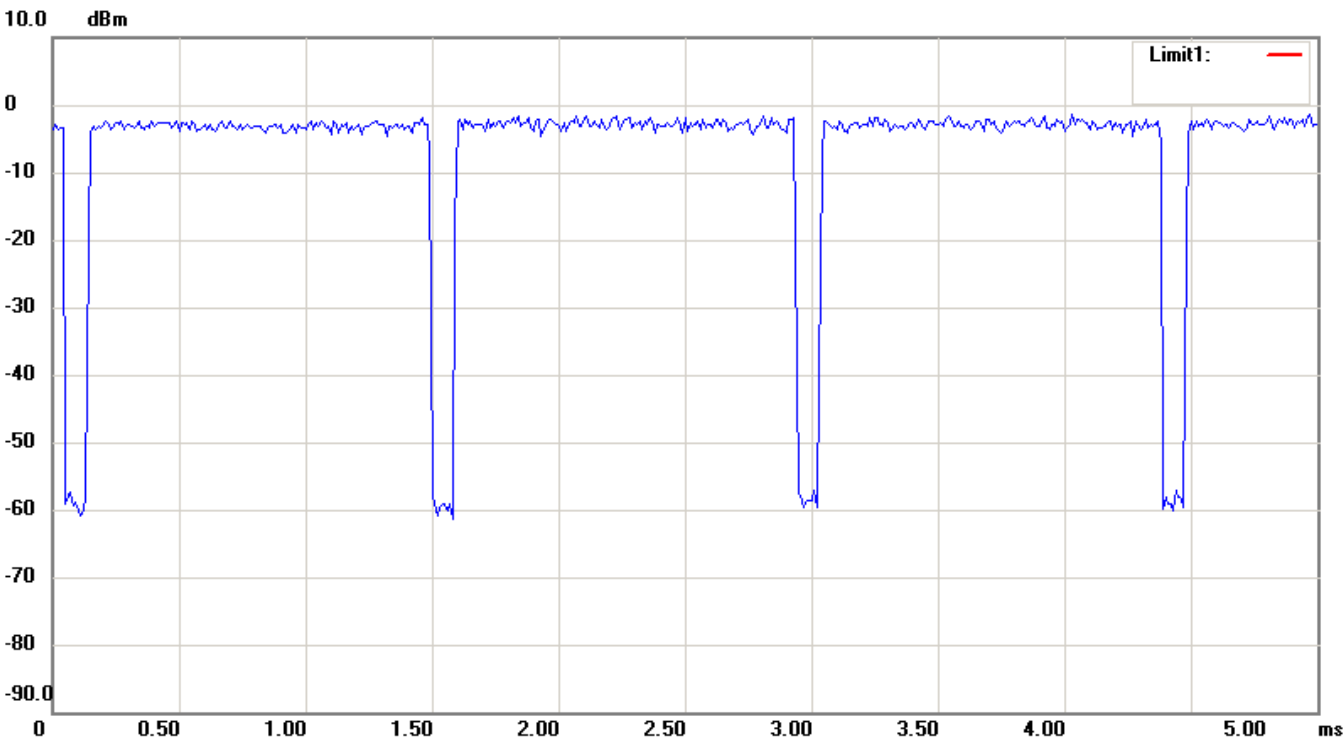
#22

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:	UNII-Band1-2-Bandedge	RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 5ms	Att.: 15dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac20 Duty-2 (Duty = 92.4%)		

IEEE 802.11ac (40MHz)

File: 20-10-MAS-035_5-2ac40

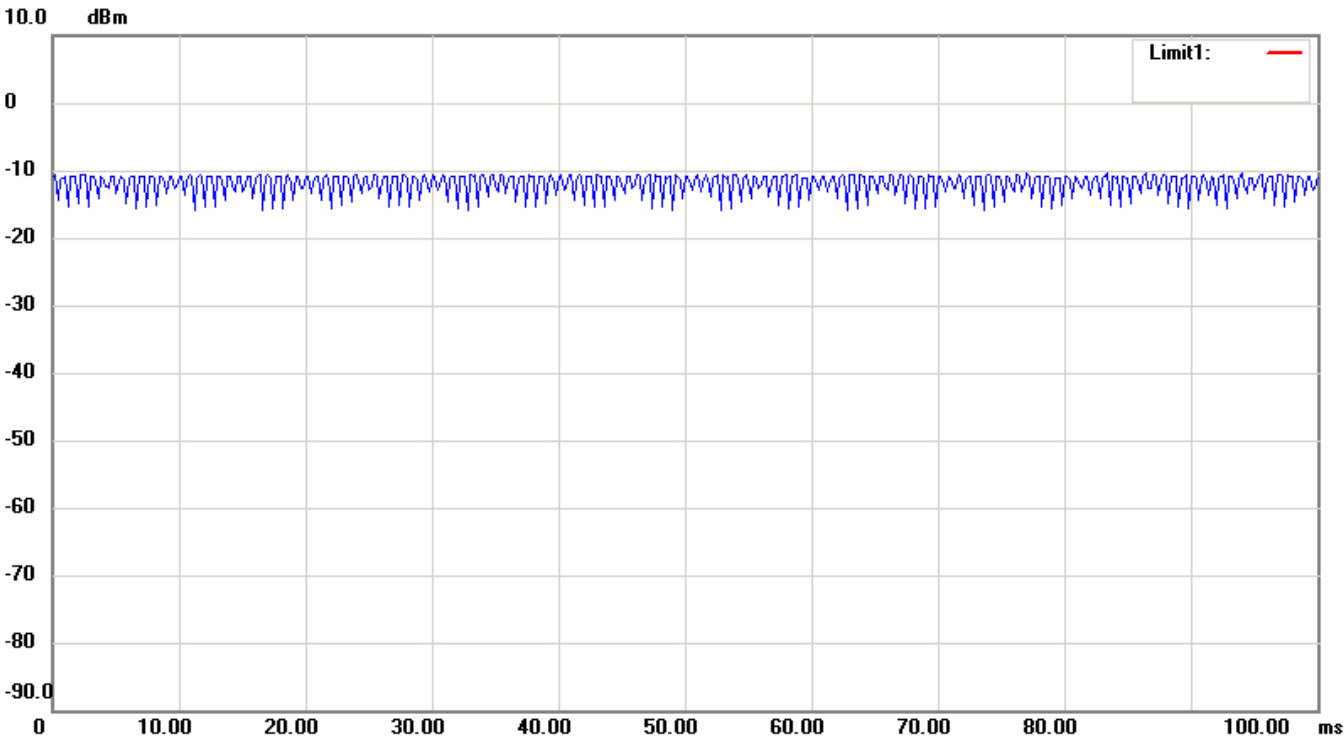
#15

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:	UNII-Band1-2-Bandedge	RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 15dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac40 Duty-1		

File: 20-10-MAS-035_5-2ac40

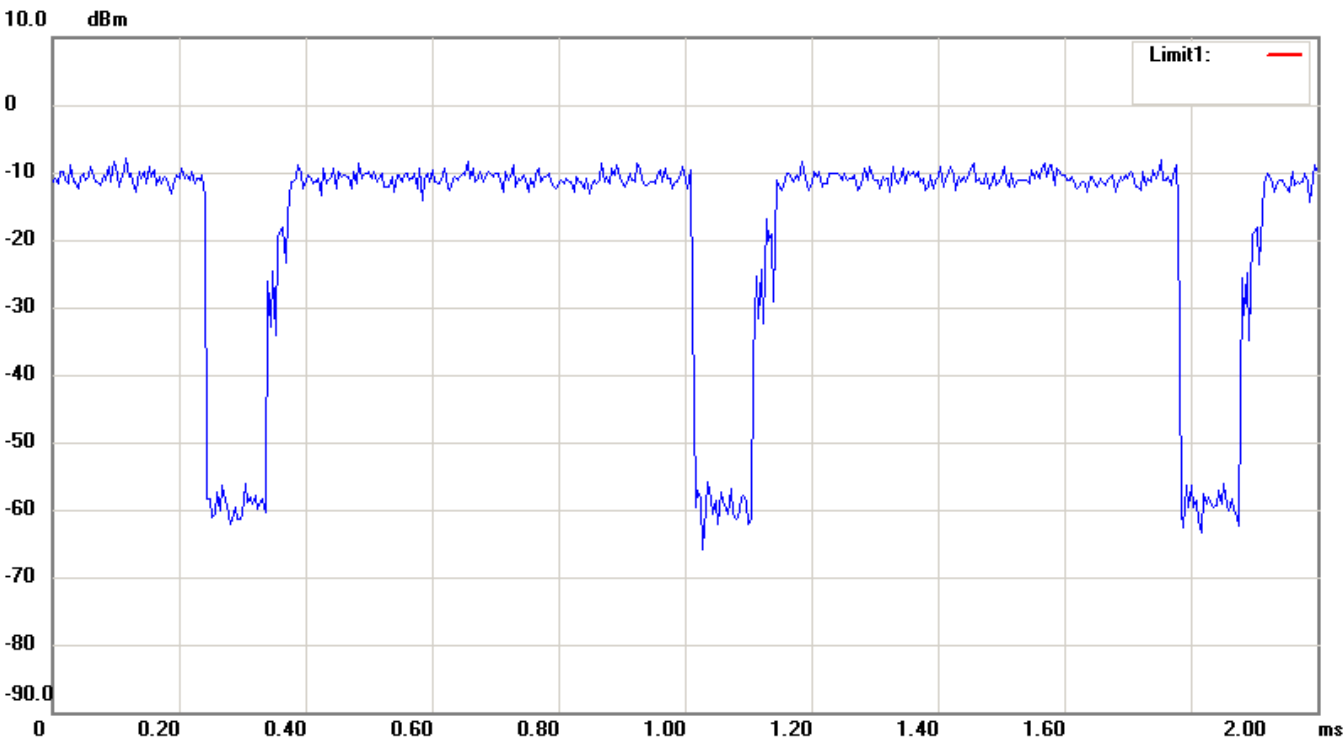
#16

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:	UNII-Band1-2-Bandedge	RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 2ms	Att.: 15dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac40 Duty-2 (Duty = 87%)		

IEEE 802.11ac (80MHz)

File: 20-10-MAS-035_5-2ac80

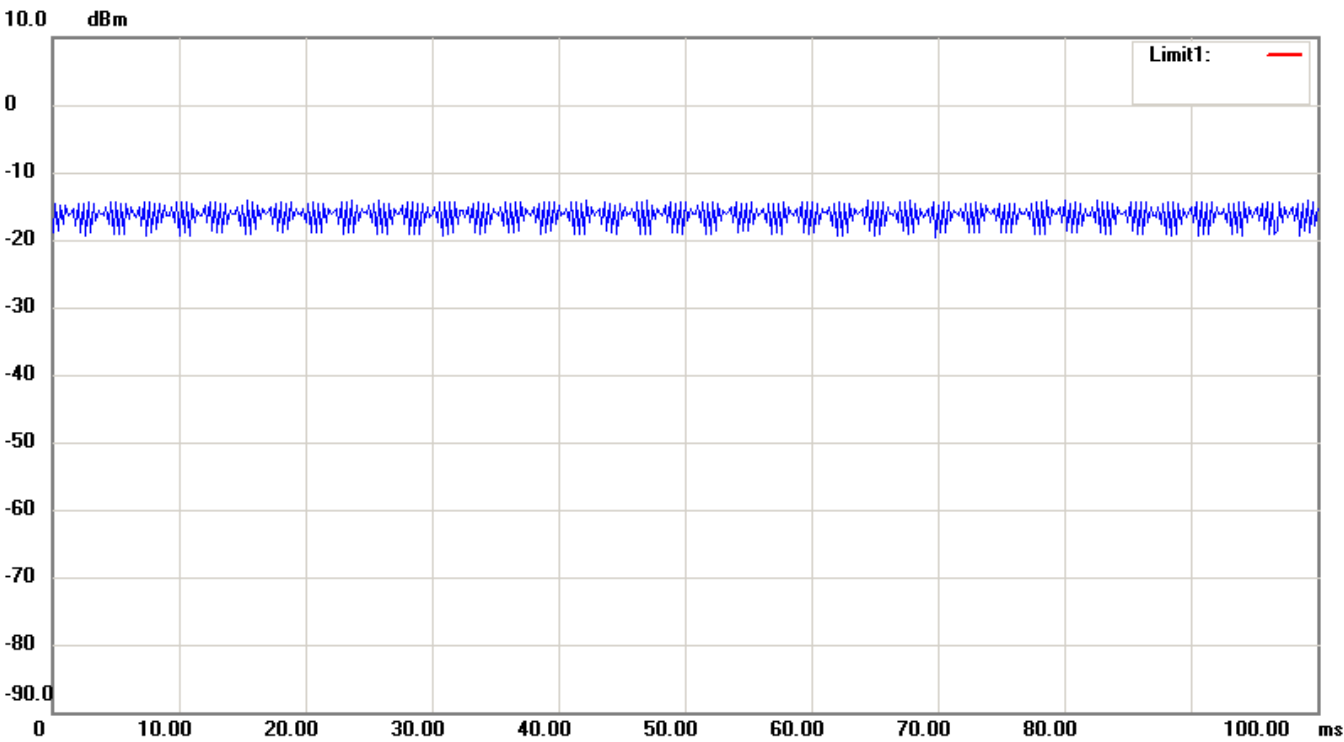
Site: RF-Cond01

#9

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:	UNII-Band1-2-Bandedge	RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 15dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac80 Duty-1		

File: 20-10-MAS-035_5-2ac80

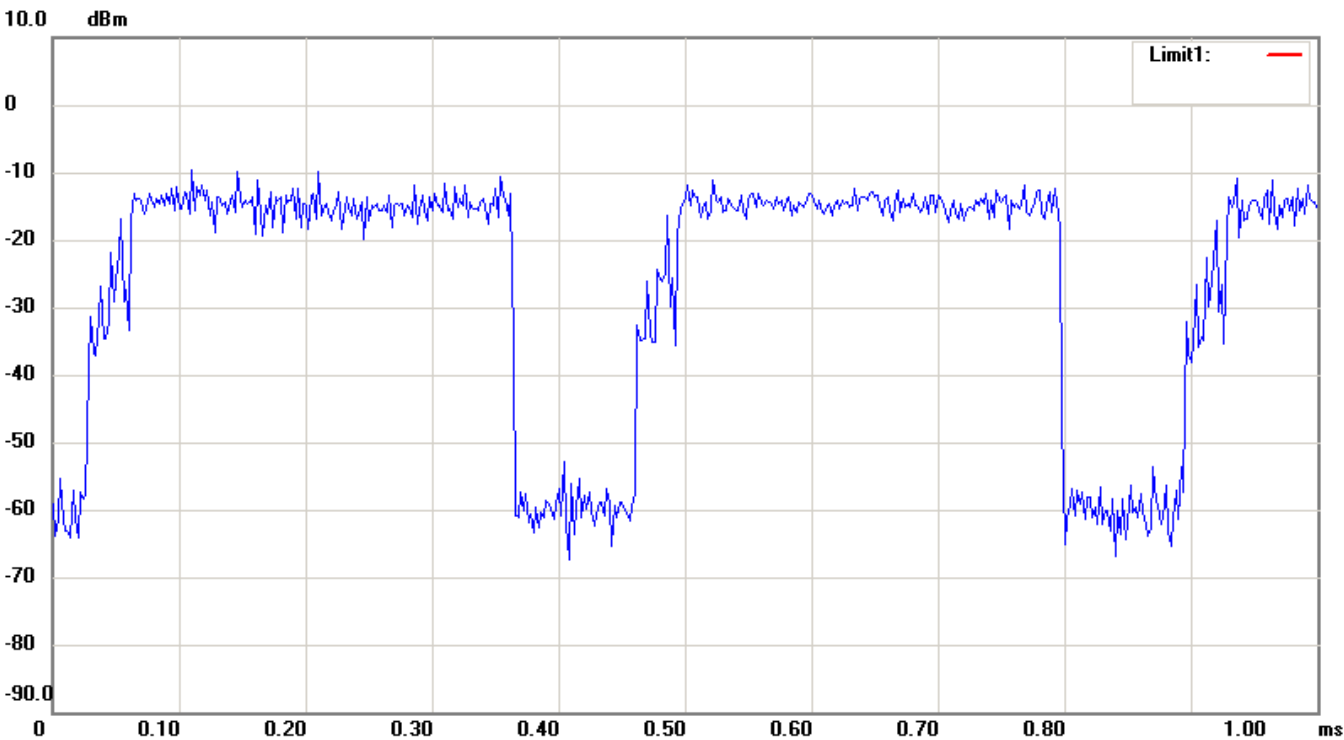
#10

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:	UNII-Band1-2-Bandedge	RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 1ms	Att.: 15dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac80 Duty-2 (Duty = 77.4%)		

4 電源線傳導干擾之量測

本產品使用電源為直流電源，故無須對其電源傳導干擾部份進行測試。

5 天線增益之要求

5.1 適用標準

國家通訊傳播委員會低功率射頻器材技術規範 5.7.8 節規定，天線之規格不受 3.2 規定之限制。若使用超過 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。

5.2 天線增益

此裝置使用內接固定式天線連接於主體內 PCB 板上，天線增益 1.4 dBi，未超過 6 dBi，不須降低峰值輸出功率。

5.3 結果判定

天線之方向性增益未超過6dBi，因此不需減少最大傳導輸出功率及功率密度之限制值。

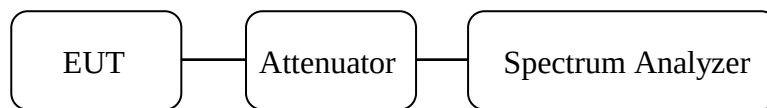
6 發射頻寬之量測

6.1 適用標準

國家通訊傳播委員會低功率射頻器材技術規範5.7節無規定限制值，僅提供數據參考計算用。

6.2 測試配置

圖 2：發射頻寬之測試配置



6.3 發射頻寬之量測儀器

儀器名稱	製造者	型 號
Spectrum Analyzer	KEYSIGHT	N9030B
Attenuator	WEINSCHEL	56-10

測試軟體: LZ-RF (Ver. ETC-3A2)

6.4 量測結果

測試工程師: 羅世勇

6.4.1 調變技術: IEEE 802.11a

測試日期: Nov. 20, 2020

環境溫度 : 25°C

環境濕度: 50%

Channel	26dB Bndwidth (MHz)	Chart
L	21.8966	Page 24
M	21.8152	Page 25
H	21.8152	Page 26

註：繪圖資料請參考第 24-26 頁。

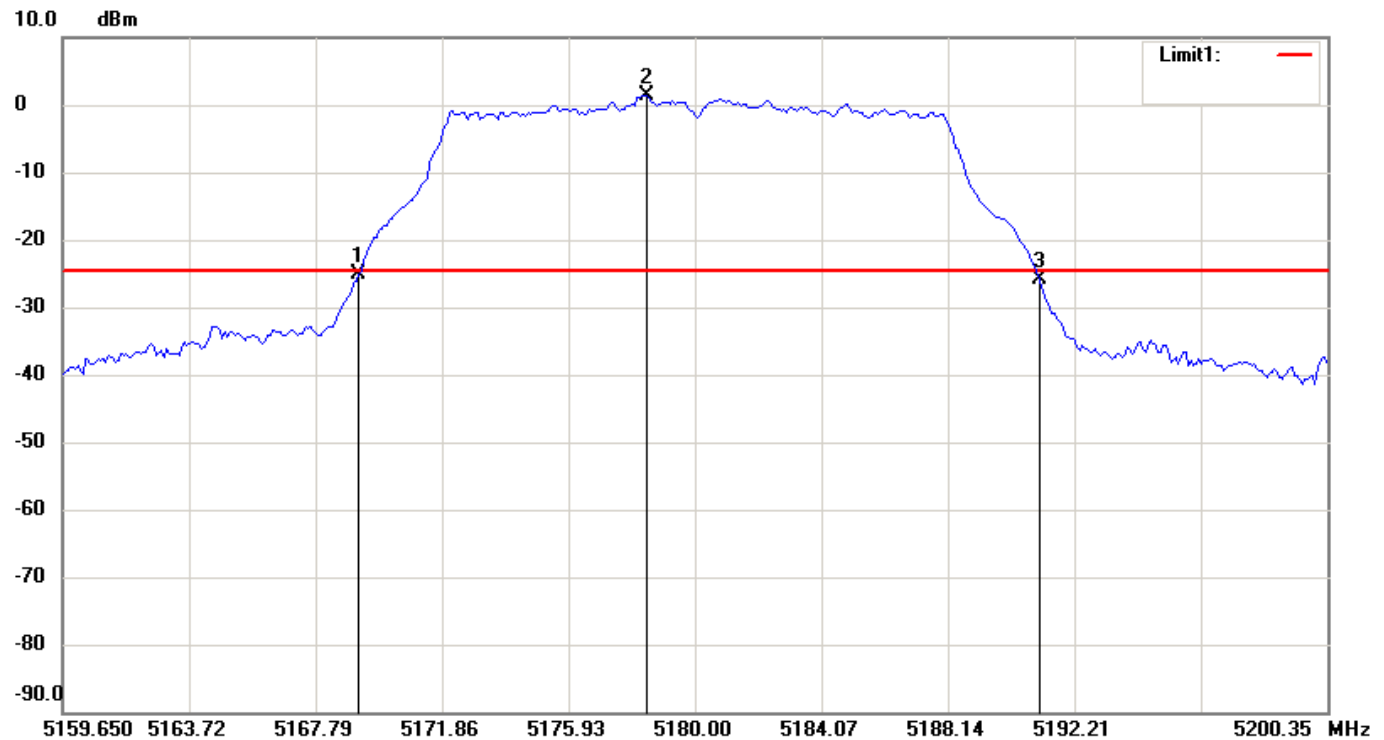
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#2

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: -24.56dBm
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a Channel 36_-26dB EBW

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 300 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5169.17380	-25.07
2	5178.45340	1.44
3	5191.07040	-25.86

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	21.8966	-0.79

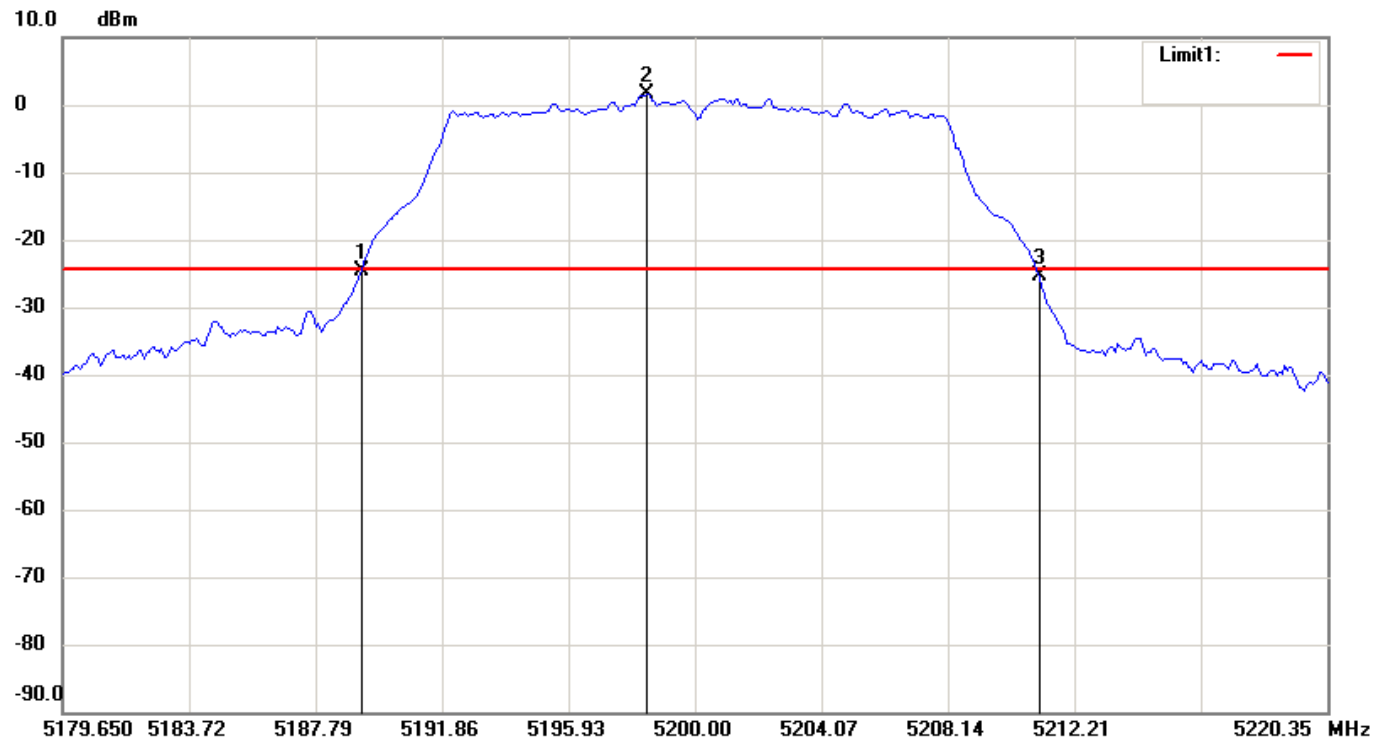
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#9

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: -24.45dBm
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a Channel 40_-26dB EBW

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 300 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5189.25520	-24.67
2	5198.45340	1.55
3	5211.07040	-25.46

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	21.8152	-0.79

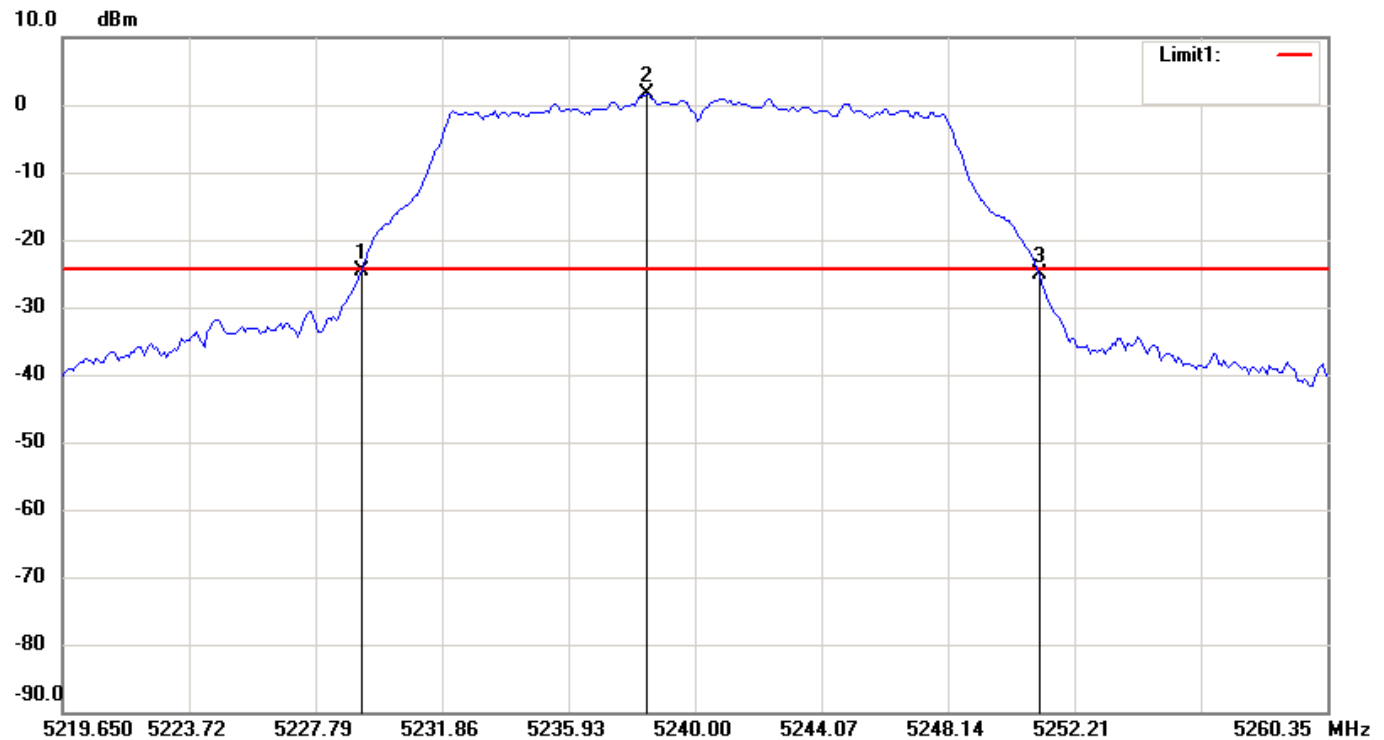
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#15

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: -24.4dBm
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a Channel 48_-26dB EBW

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 300 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5229.25520	-24.74
2	5238.45340	1.60
3	5251.07040	-25.17

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	21.8152	-0.43

6.4.2 調變技術: IEEE 802.11ac (20MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

Channel	26dB Bndwidth (MHz)	Chart
L	22.1408	Page 28
M	22.1408	Page 29
H	22.1408	Page 30

註：繪圖資料請參考第 28-30 頁。

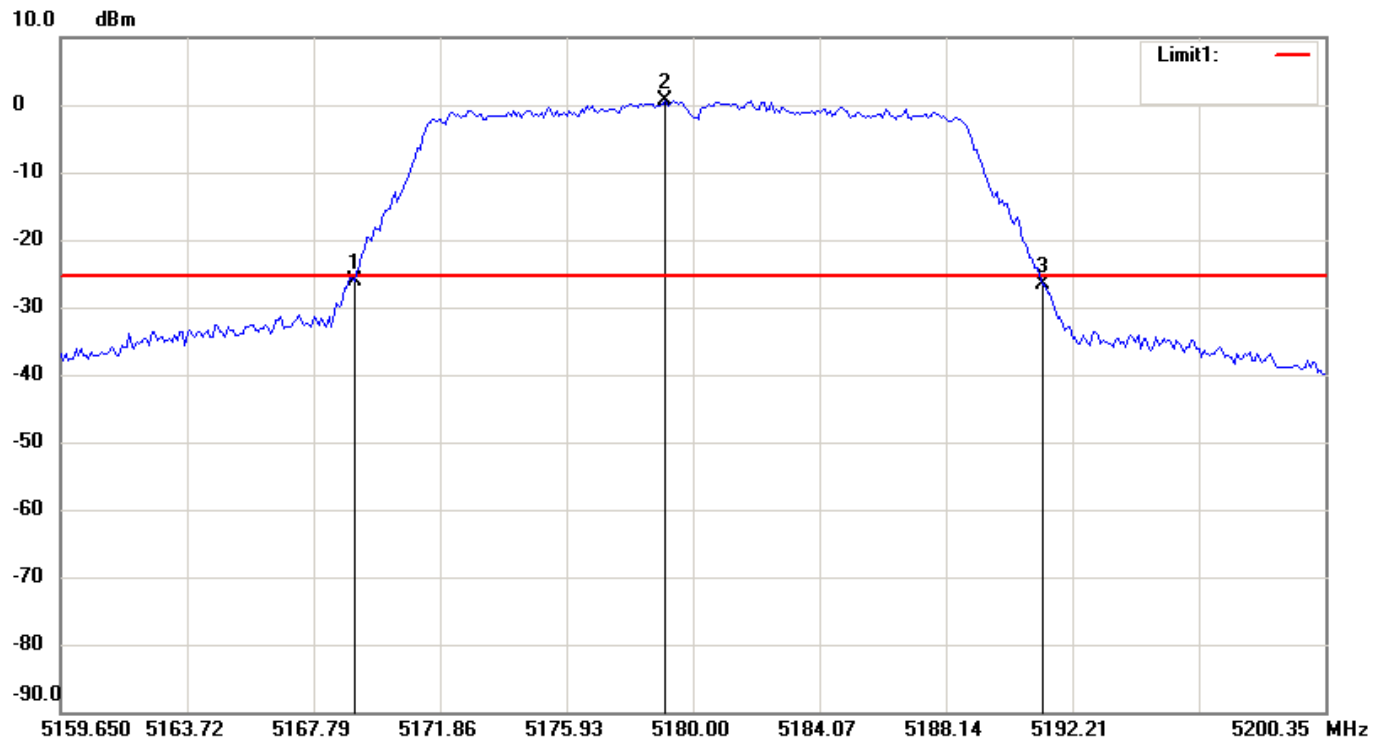
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#2

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: -25.27dBm

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac20 Channel 36_-26dB EBW

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 300 KHz

Operator:

VBW: 1000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5169.09240	-26.02
2	5179.10460	0.73
3	5191.23320	-26.53

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	22.1408	-0.51

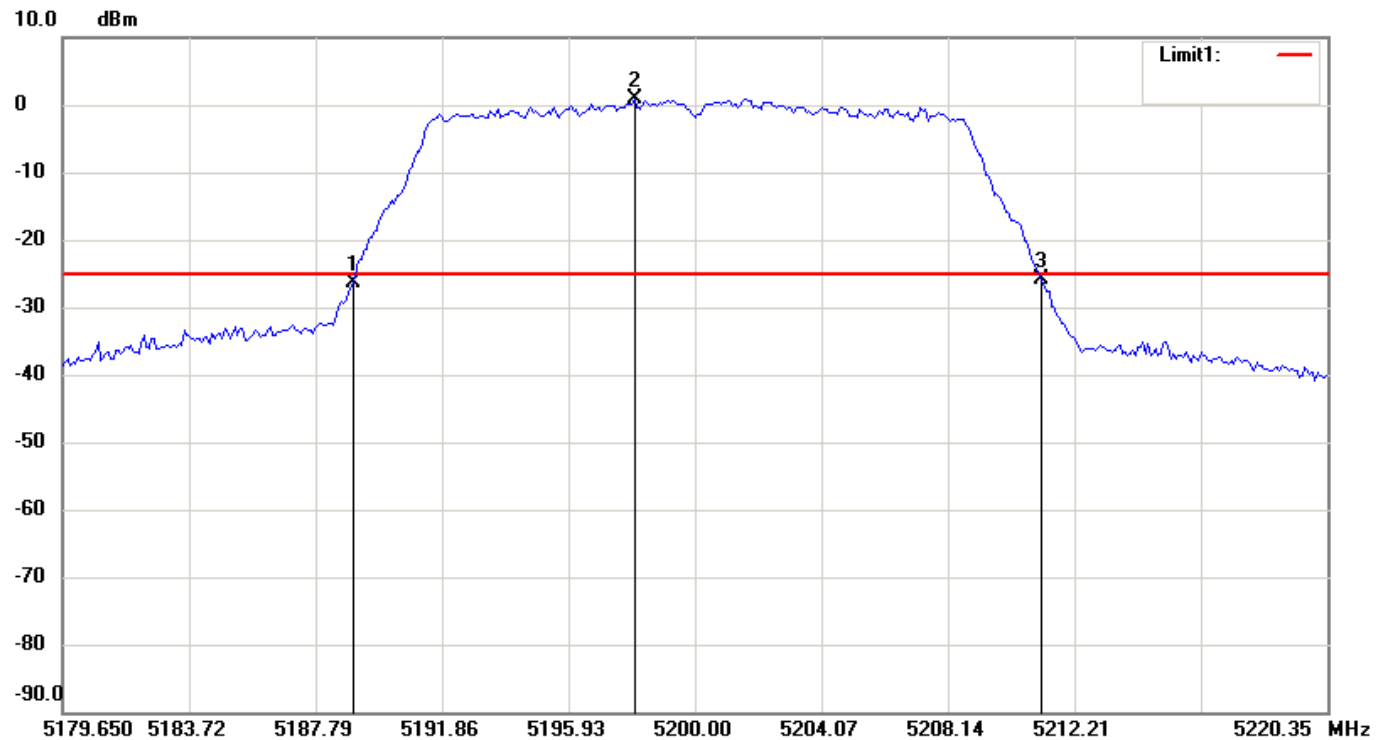
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#9

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: -25.2dBm

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac20 Channel 40_-26dB EBW

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 300 KHz

Operator:

VBW: 1000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5189.01100	-26.45
2	5198.04640	0.80
3	5211.15180	-25.95

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	22.1408	0.5

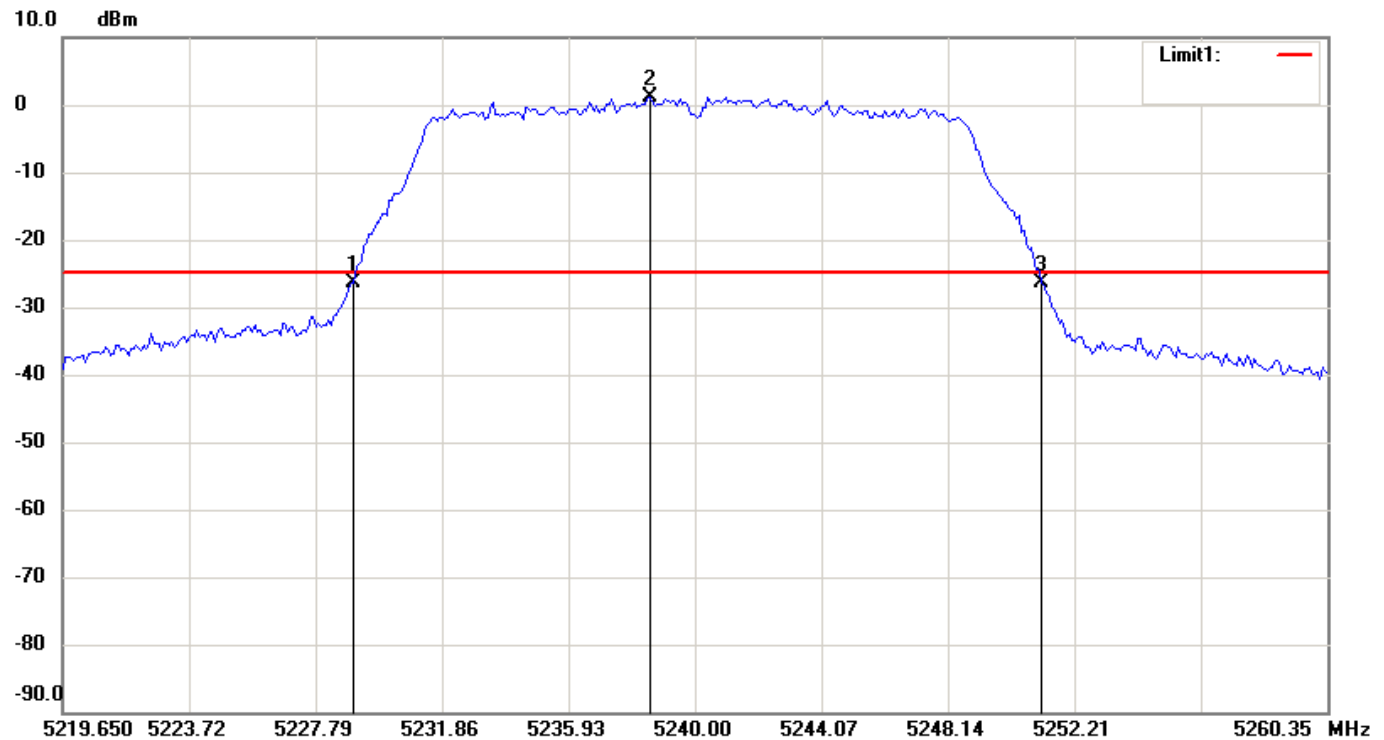
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#15

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: -24.87dBm

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac20 Channel 48_-26dB EBW

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 300 KHz

Operator:

VBW: 1000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5229.01100	-26.28
2	5238.53480	1.13
3	5251.15180	-26.35

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	22.1408	-0.07

6.4.3 調變技術: IEEE 802.11ac (40MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

Channel	26dB Bndwidth (MHz)	Chart
L	40.8126	Page 32
H	40.8126	Page 33

註：繪圖資料請參考第 32-33。

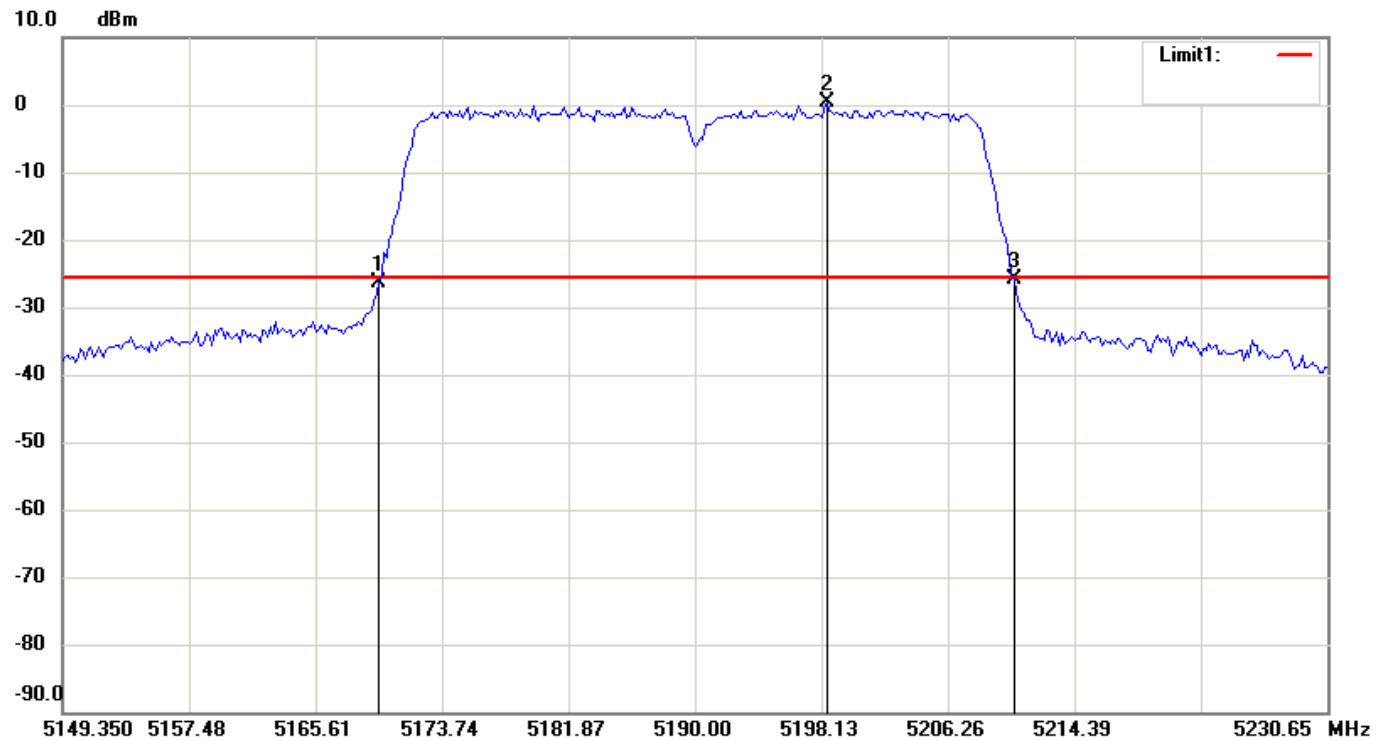
File: 20-10-MAS-035_5-2ac40
Site: RF-Cond01

#2

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: -25.72dBm

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac40 Channel 38_-26dB EBW

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 500 KHz

Operator:

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5169.67500	-26.35
2	5198.45520	0.28
3	5210.48760	-25.83

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	40.8126	0.52

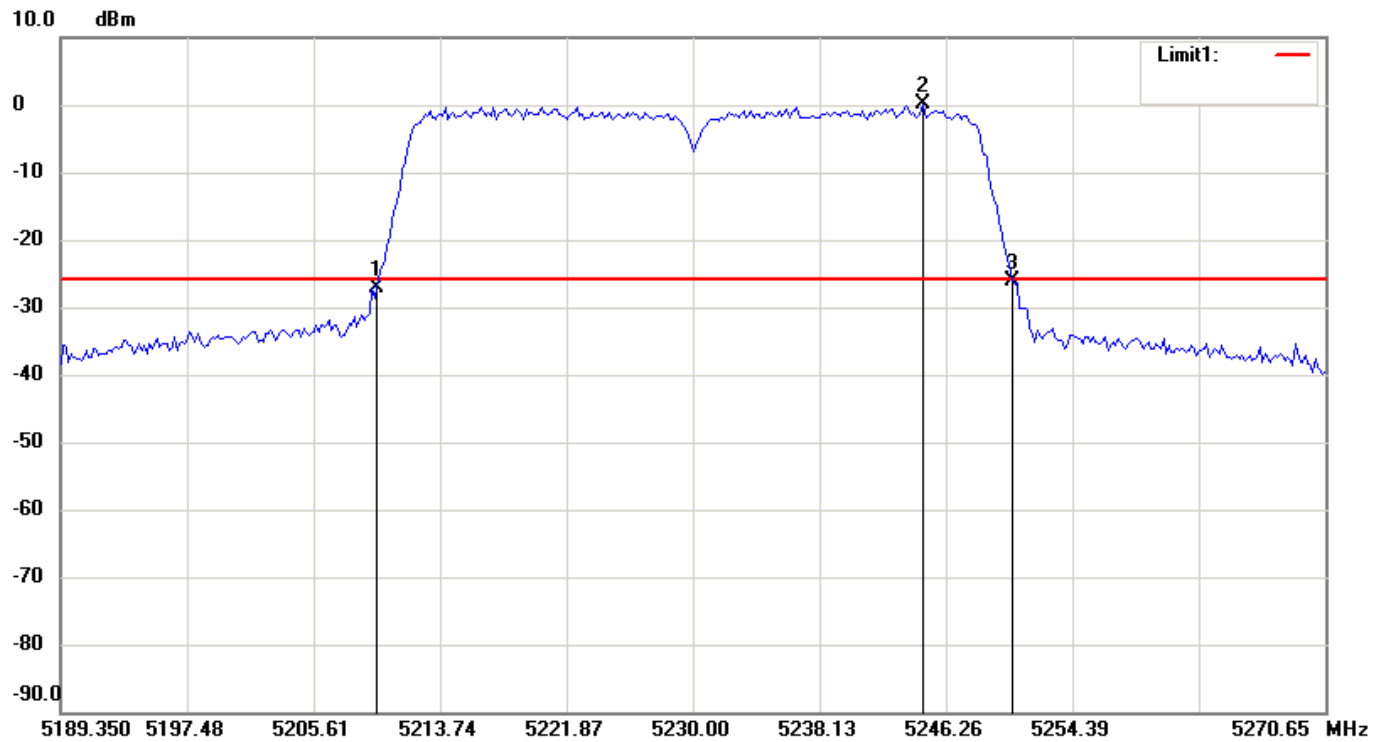
File: 20-10-MAS-035_5-2ac40
Site: RF-Cond01

#9

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: -25.9dBm

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac40 Channel 46_-26dB EBW

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 500 KHz

Operator:

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5209.67500	-27.06
2	5244.79660	0.10
3	5250.48760	-26.06

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	40.8126	1

6.4.4 調變技術:IEEE 802.11ac (80MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

Channel	26dB Bndwidth (MHz)	Chart
L	82.804	Page 35

註：繪圖資料請參考第 35 頁。

6.5 結果判定

僅提供數據，無須判定。

File: 20-10-MAS-035_5-2ac80

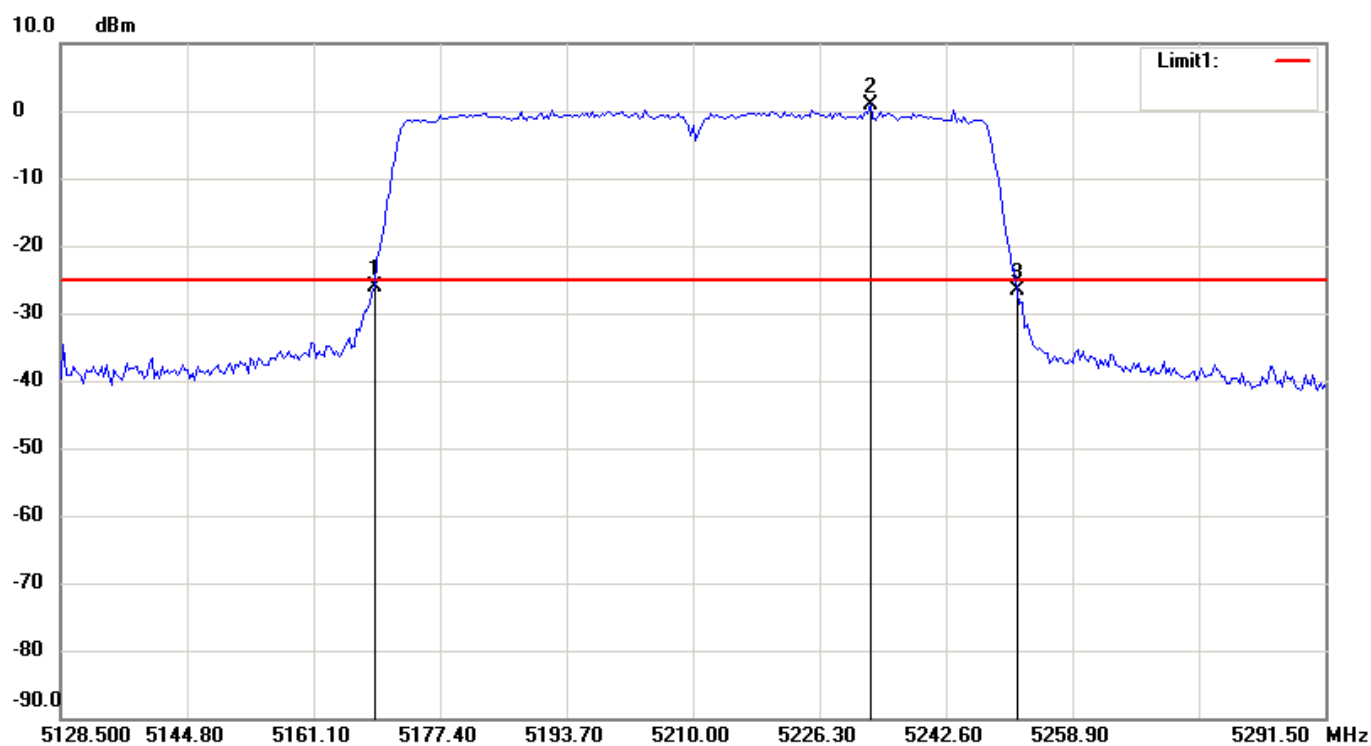
#2

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:

-25dBm

RF Conducted

EUT:

Wireless Network Adapter

Sweep Time: 1ms Att.: 15dB

Model:

Titan2020

RBW: 1000 KHz

VBW: 3000 KHz

Test Mode:

UNII

Operator:

Phillip

Note:

NCC_LP0002_802.11ac80 Channel 42_-26dB EBW

No.	Frequency(MHz)	Level(dBm)
1	5168.92400	-26.04
2	5232.82000	1.00
3	5251.72800	-26.64

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	82.804	-0.6

7 最大傳導輸出功率之量測

7.1 最大傳導輸出功率適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.3.1節(1)(2)(3)(4)之規定，其中相關法規如下：

(1) 供戶外操作使用：

(A) 最大傳導輸出功率應小於或等於 1 W。

(C) 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。

(D) 在水平面仰角超過 30 度時，其最大 EIRP 應小於或等於 21 dBm。

(2) 供室內操作使用：

(A) 最大傳導輸出功率應小於或等於 1 W。

(C) 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。

(3) 供固定式點對點操作使用：

(A) 最大傳導輸出功率應小於或等於 1 W。

(C) 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。

(D) 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。

(4) 供用戶端裝置(Client Device)操作使用：

(A) 最大傳導輸出功率應小於或等於 250 mW

(C) 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 量，等量減少最大傳導輸出功率及最大功率頻譜密度。

7.2 最大傳導輸出功率之測試配置

如圖 2 所示。

7.3 最大傳導輸出功率之量測儀器

儀器名稱	製造者	型 號
Spectrum Analyzer	KEYSIGHT	N9030B
Attenuator	WEINSCHEL	56-10

測試軟體: LZ-RF (Ver. ETC-3A2)

7.4 最大傳導輸出功率之量測結果

測試工程師：羅世勇

7.4.1 調變技術: IEEE 802.11a

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi，NCC Limit 如下表所示：

Channel	Output Power (dBm)	NCC Limit (dBm)	Chart
L	9.22	24	Page 38
M	9.12	24	Page 39
H	9.15	24	Page 40

註：1. 繪圖資料請參考第 38-40 頁。

2. 最大傳導輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

3. Limit = 24 dBm

4. If antenna gain $\leq$ 6dBi, NCC Limit = (Limit) dBm

5. If antenna gain $>$ 6dBi, NCC Limit = (Fixed Limit) dBm – (highest antenna gain – 6 dBi)

6. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

File: 20-10-MAS-035_5-2a

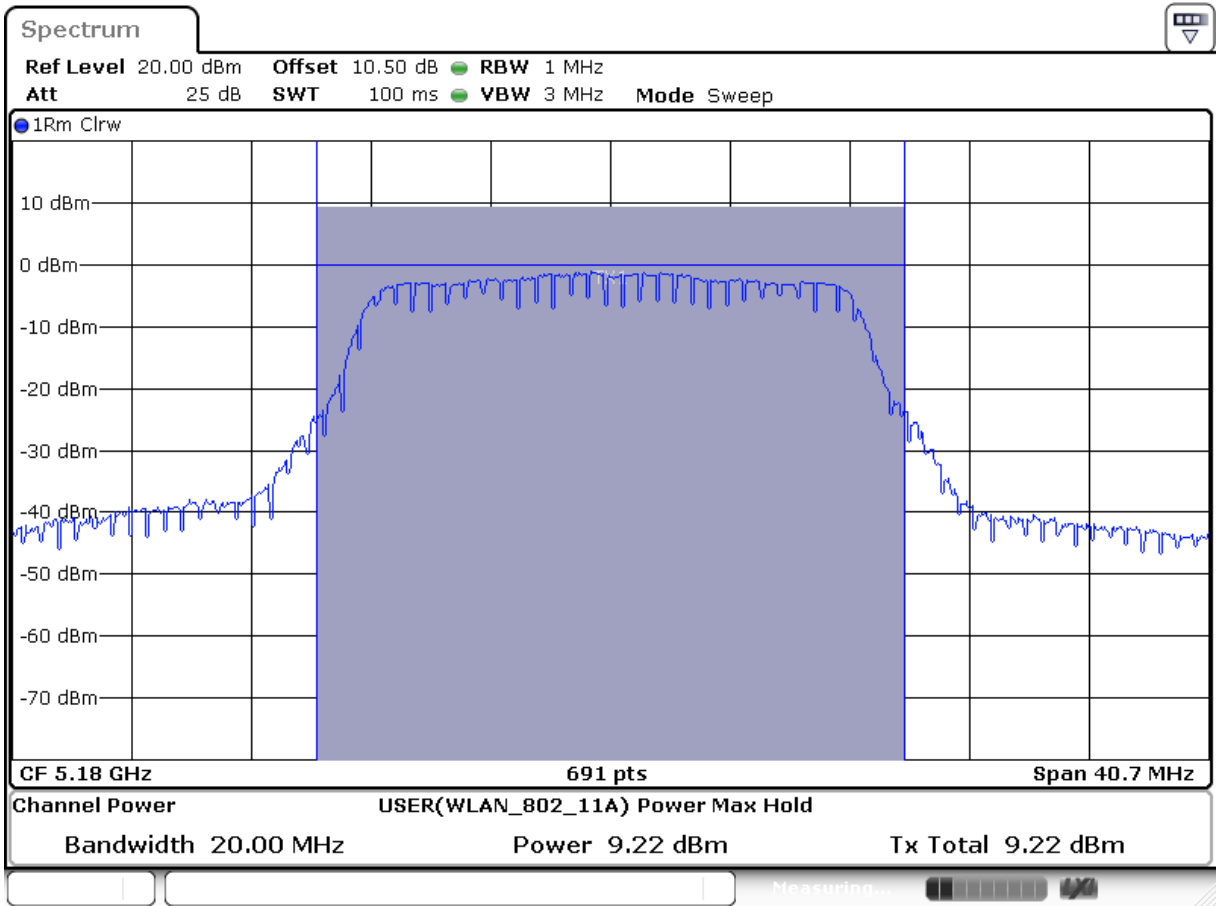
#1

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %

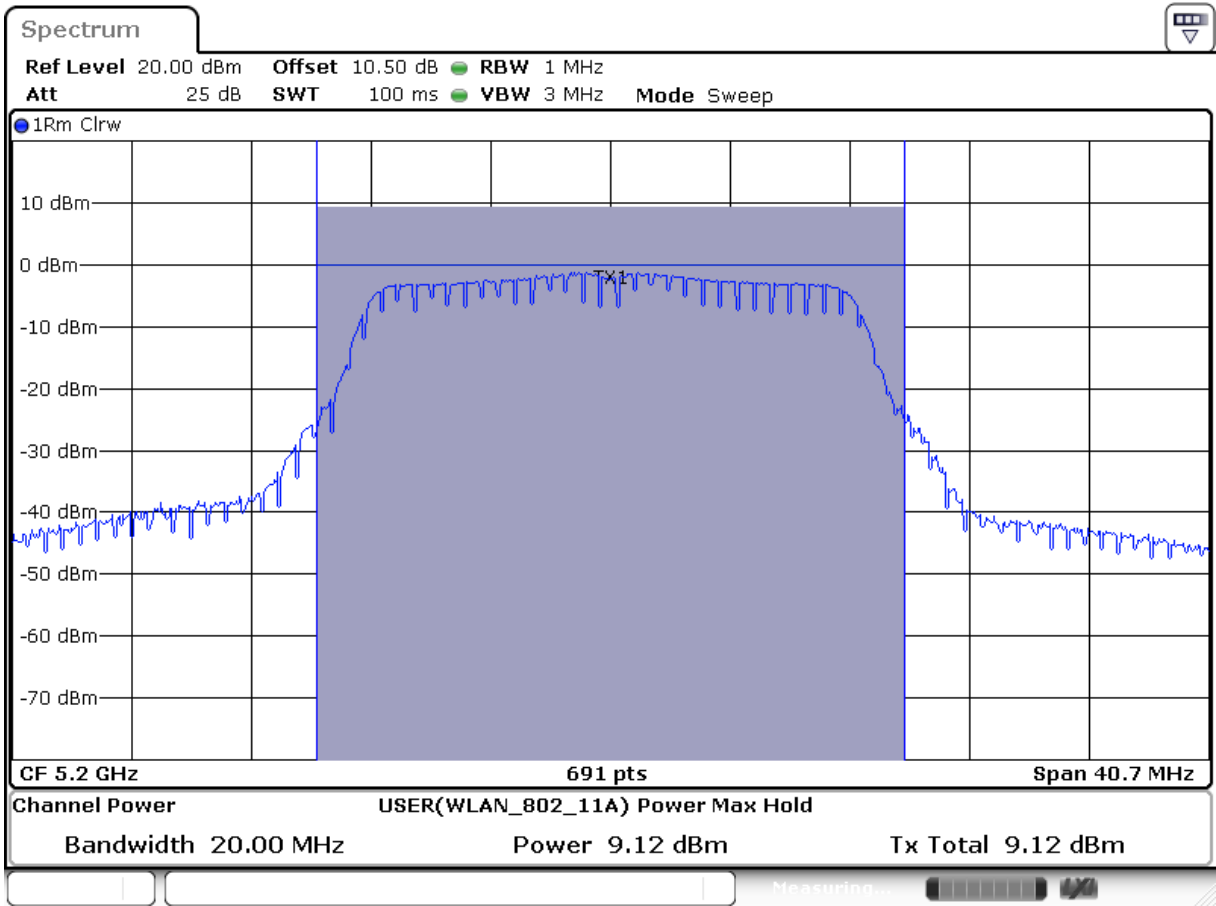


Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a_Channel 36_Output power		

File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#8 Date: 2020/11/20

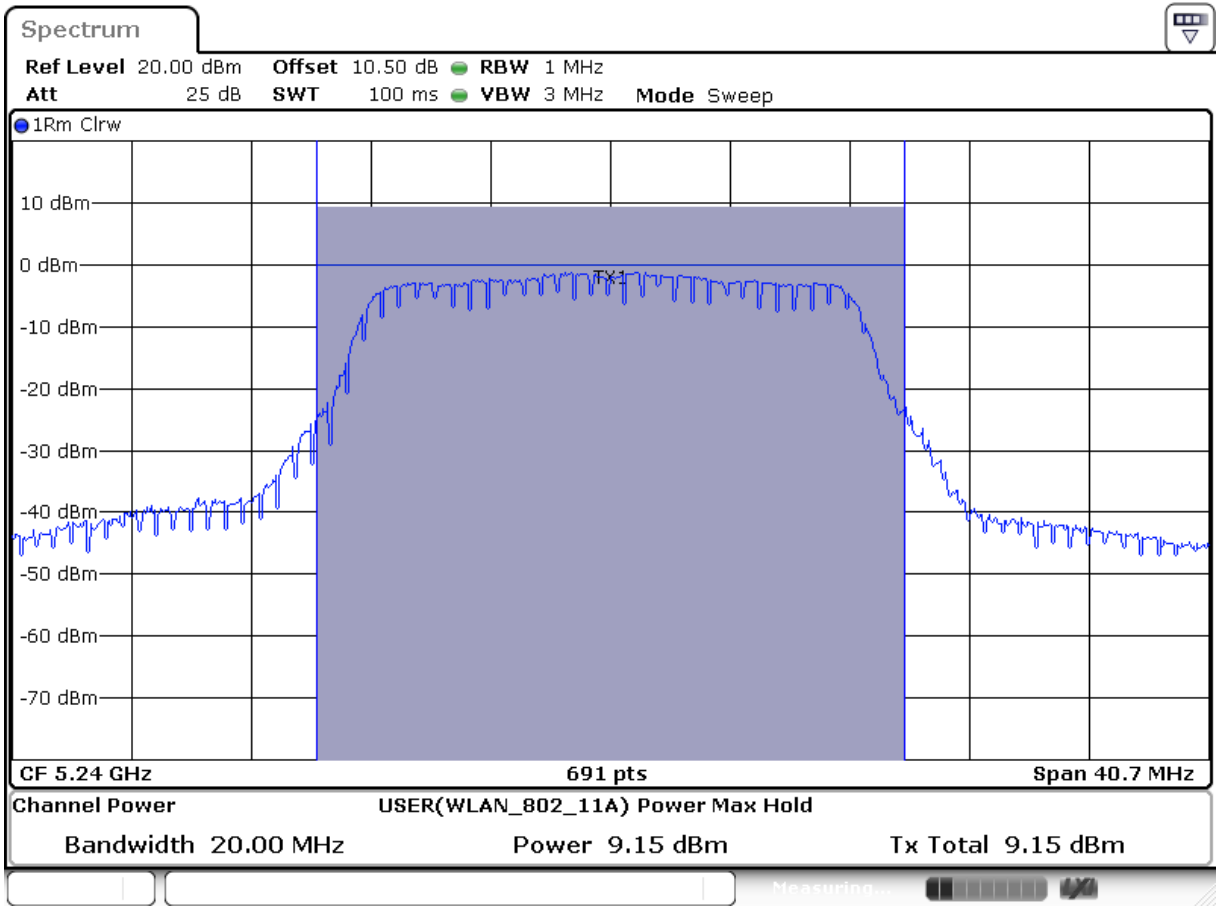
Temperature: 25 °C
Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a_Channel 40_Output power		

File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#14 Date: 2020/11/20 Temperature: 25 °C
Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a_Channel 48_Output power		

7.4.2 調變技術:IEEE 802.11n HT20

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi，NCC Limit 如下表所示：

Channel	Output Power (dBm)	NCC Limit (dBm)	Chart
L	8.69	24	Page 42
M	8.64	24	Page 43
H	8.70	24	Page 44

註：1. 繪圖資料請參考第 42-44 頁。

2. 最大傳導輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

3. Limit = 24dBm

4. If antenna gain $\leq$ 6dBi, NCC Limit = (Limit) dBm

5. If antenna gain > 6dBi, NCC Limit = (Limit) dBm – (highest antenna gain – 6 dBi)

6. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

File: 20-10-MAS-035_5-2n20

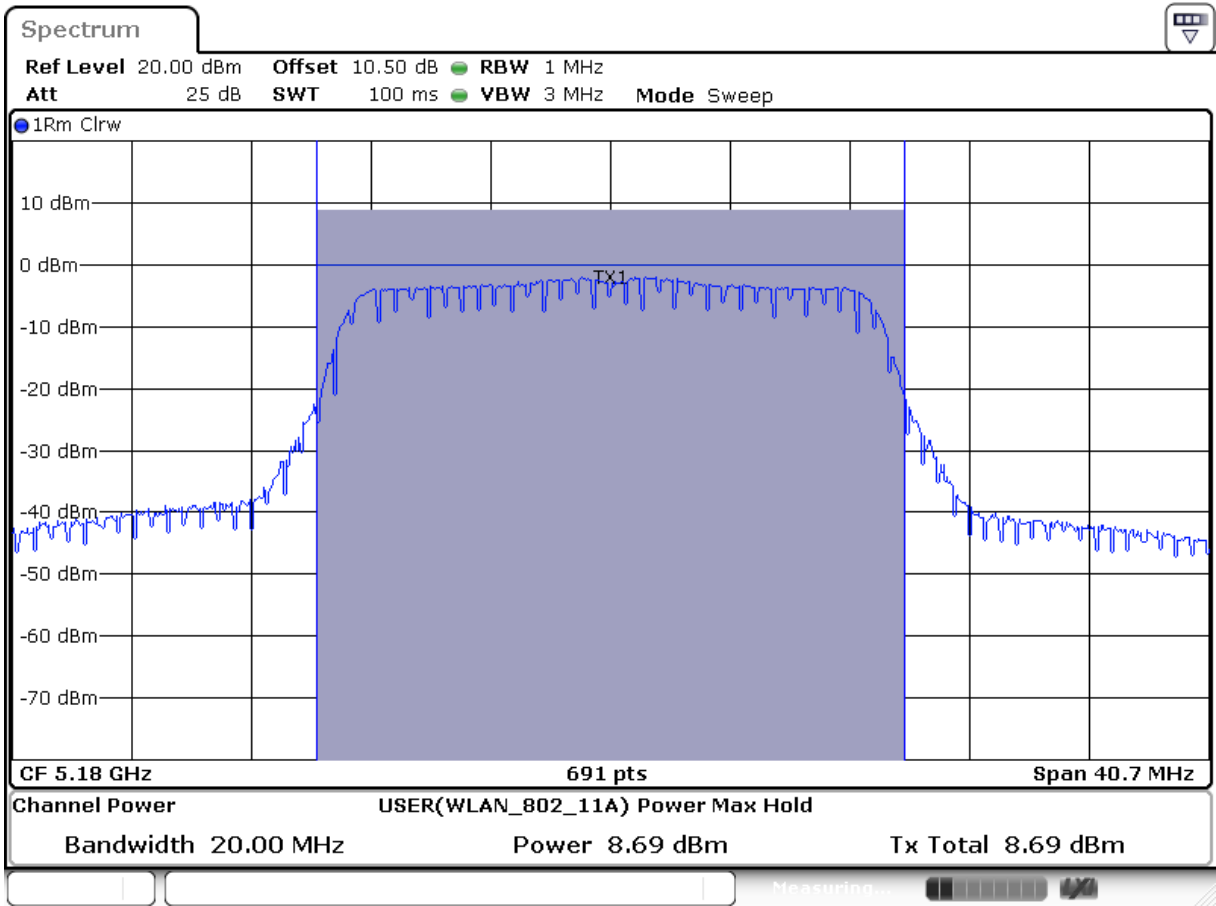
#1

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n20_Channel 36_Output power		

File: 20-10-MAS-035_5-2n20

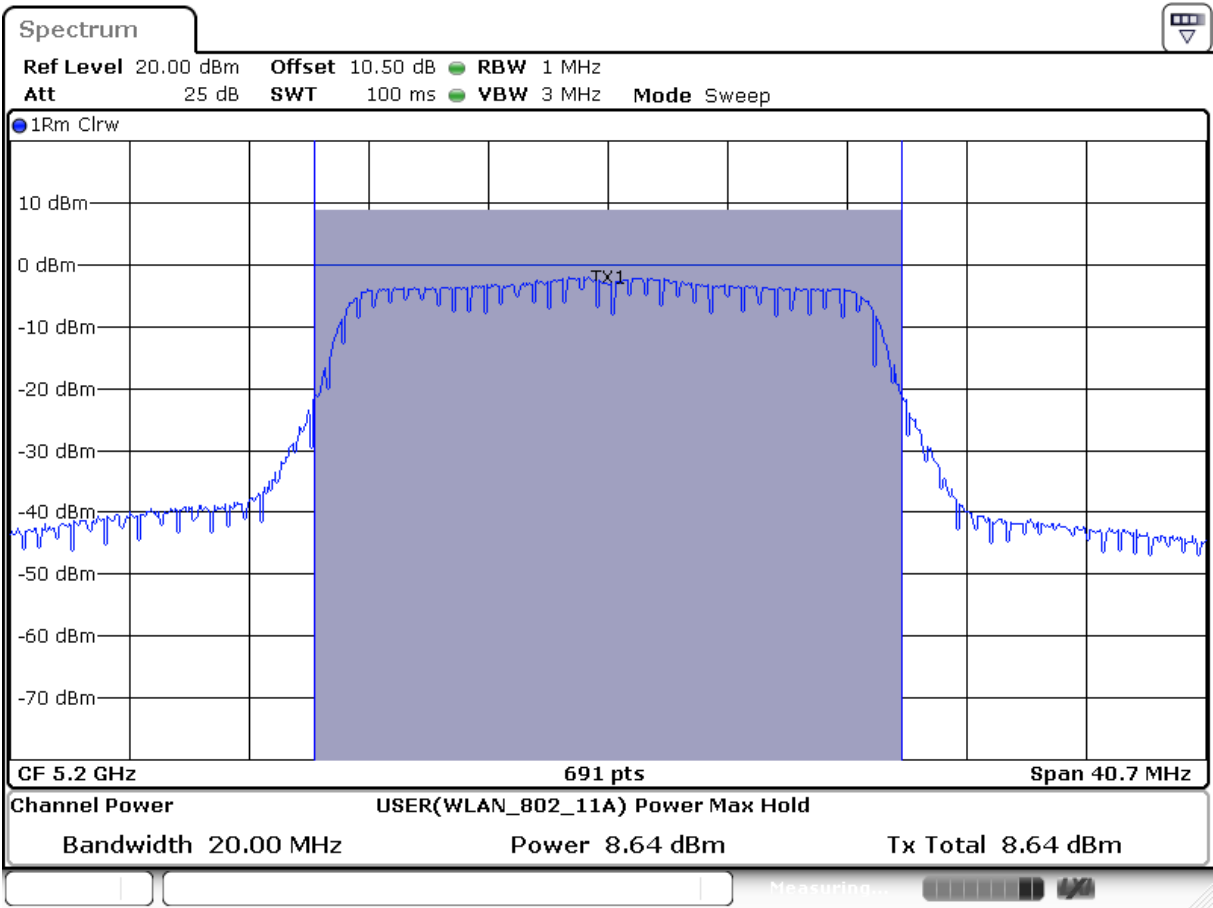
#8

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

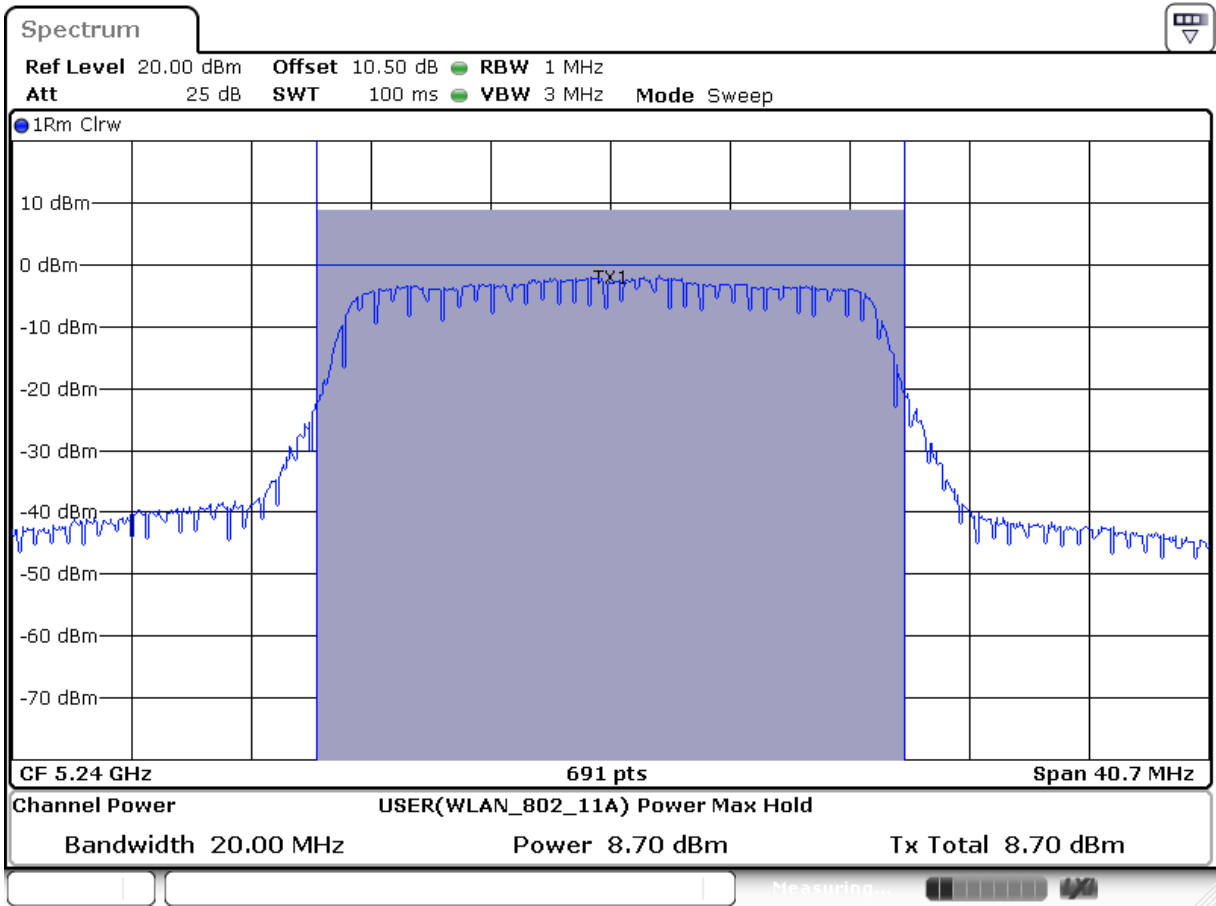
Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n20_Channel 40_Output power		

File: 20-10-MAS-035_5-2n20
Site: RF-Cond01

#14 Date: 2020/11/20 Temperature: 25 °C
Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n20_Channel 48_Output power		

7.4.3 調變技術:IEEE 802.11n HT40

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi , NCC Limit 如下表所示 :

Channel	Output Power (dBm)	NCC Limit (dBm)	Chart
L	8.65	24	Page 46
H	8.75	24	Page 47

註：1. 繪圖資料請參考第 46-47 頁。

2. 最大傳導輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

3. Limit = 24dBm

4. If antenna gain $\leq$ 6dBi, NCC Limit = (Limit) dBm

5. If antenna gain > 6dBi, NCC Limit = (Limit) dBm – (highest antenna gain – 6 dBi)

6. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

File: 20-10-MAS-035_5-2n40

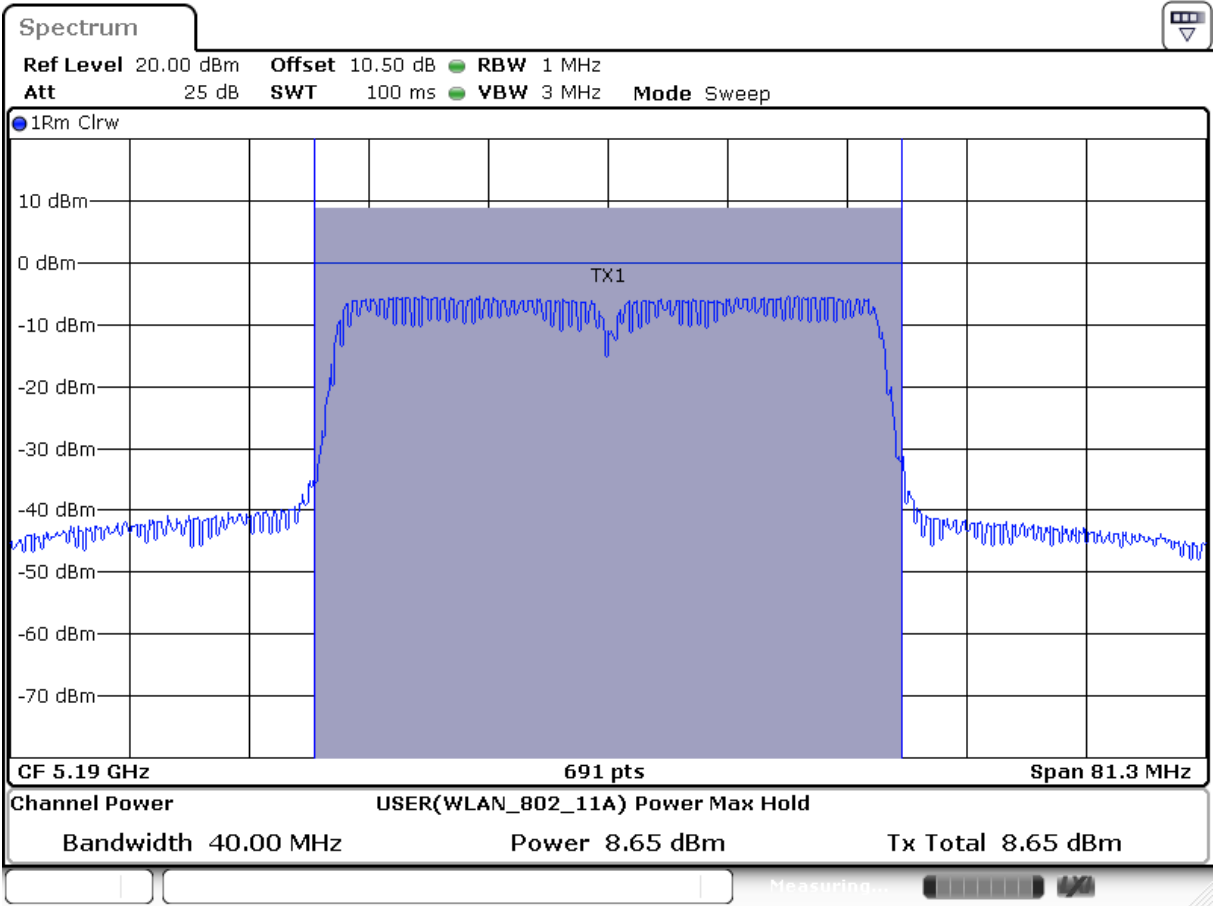
#1

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %

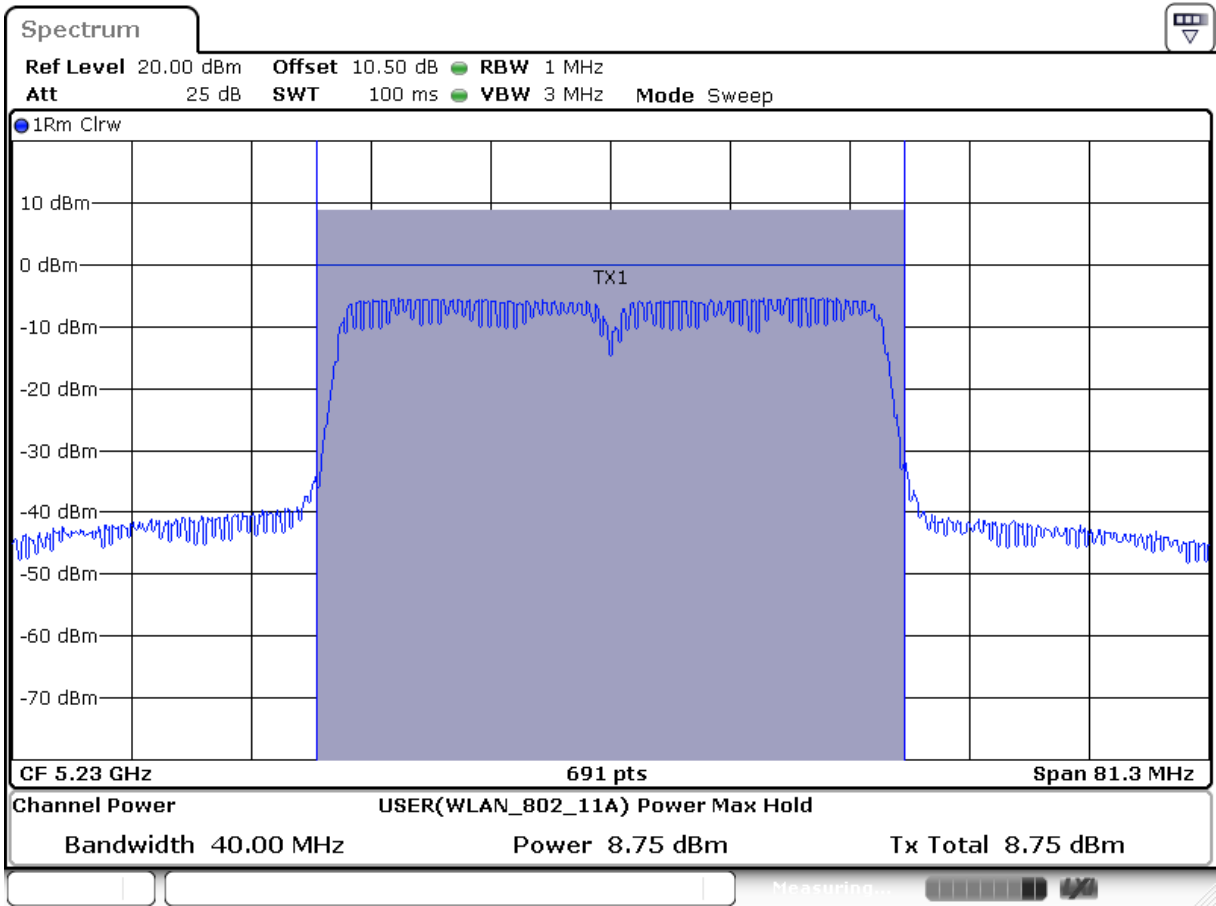


Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n40_Channel 38_Output power		

File: 20-10-MAS-035_5-2n40
Site: RF-Cond01

#8 Date: 2020/11/20

Temperature: 25 °C
Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n40_Channel 46_Output power		

7.4.4 調變技術: IEEE 802.11ac (20MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi , NCC Limit 如下表所示：

Channel	Output Power (dBm)	NCC Limit (dBm)	Chart
L	8.71	24	Page 49
M	8.78	24	Page 50
H	8.76	24	Page 51

註：1. 繪圖資料請參考第 49-51 頁。

2. 最大傳導輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

3. Limit =24dBm

4. If antenna gain $\leq$ 6dBi, NCC Limit = (Limit) dBm

5. If antenna gain > 6dBi, NCC Limit = (Limit) dBm – (highest antenna gain – 6 dBi)

6. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

File: 20-10-MAS-035_5-2ac20

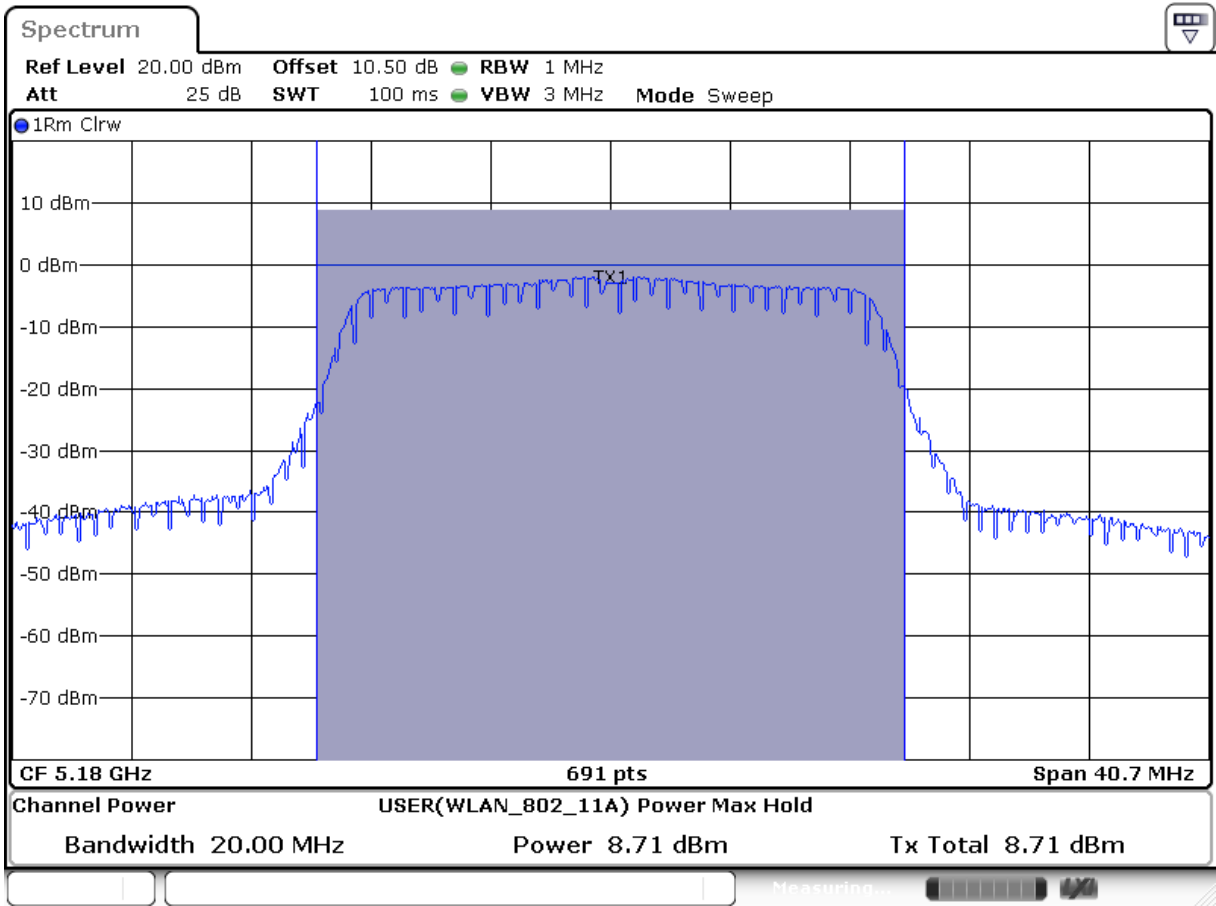
#1

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac20_Channel 36_Output power		

File: 20-10-MAS-035_5-2ac20

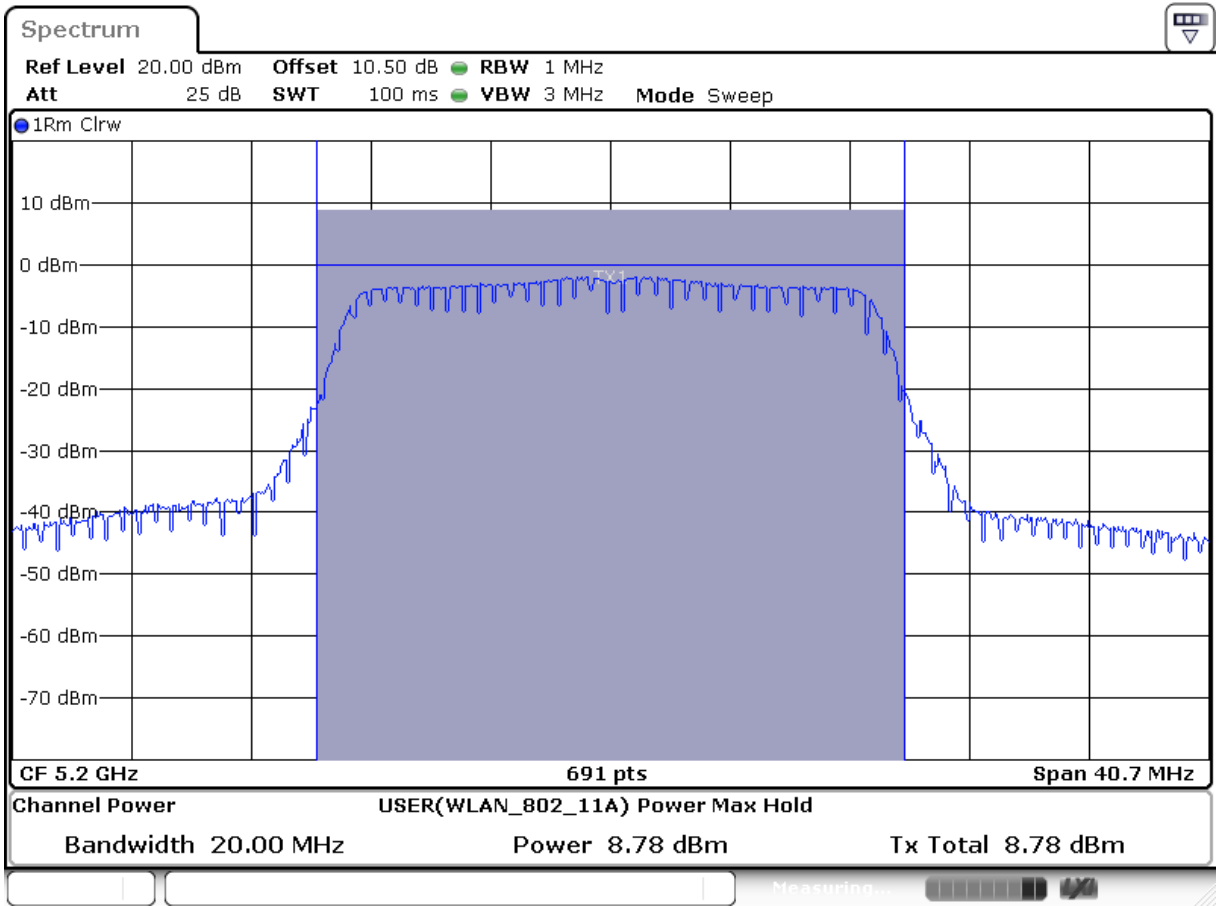
#8

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac20_Channel 40_Output power		

File: 20-10-MAS-035_5-2ac20

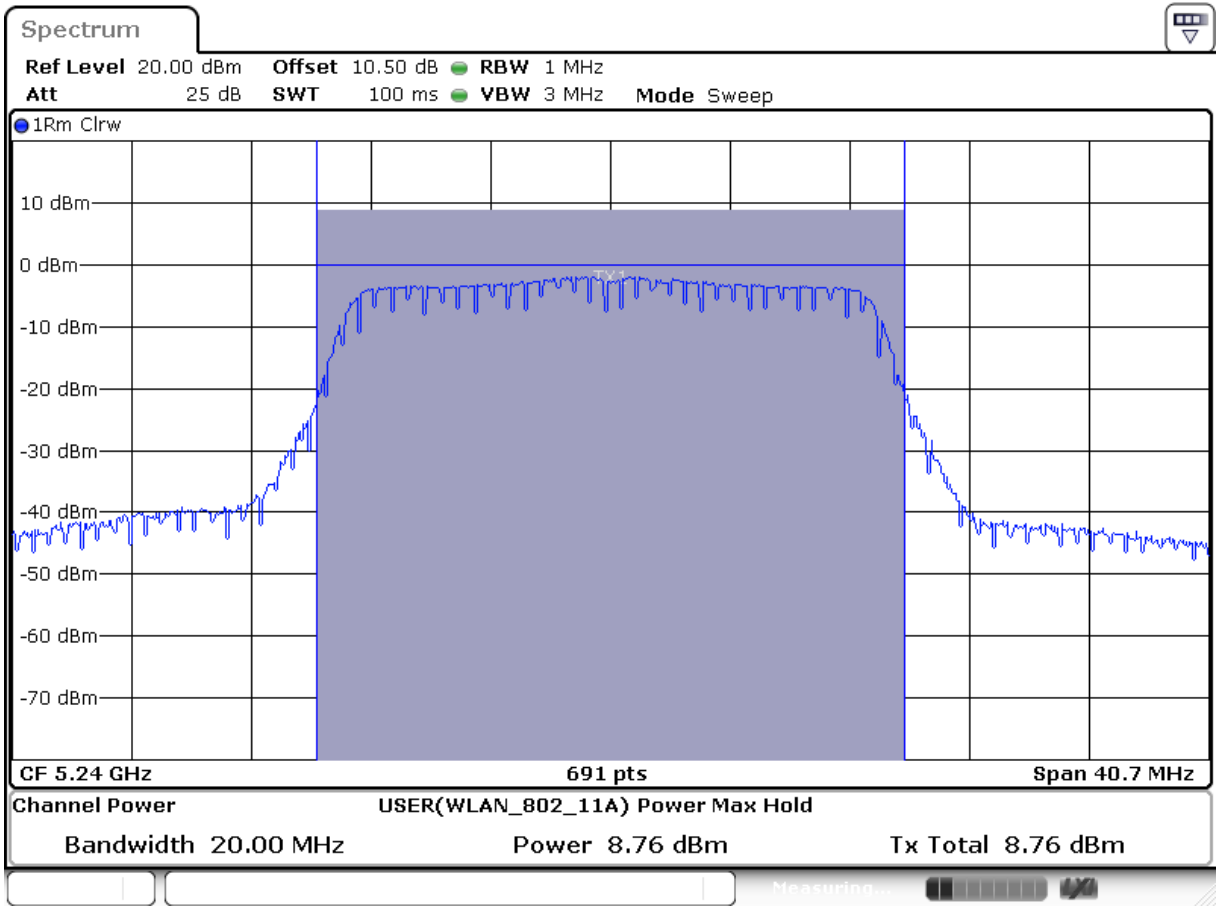
#14

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac20_Channel 48_Output power		

7.4.5 調變技術: IEEE 802.11ac (40MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi , NCC Limit 如下表所示：

Channel	Output Power (dBm)	NCC Limit (dBm)	Chart
L	8.73	24	Page 53
H	8.77	24	Page 54

註：1. 繪圖資料請參考第 53-54 頁。

2. 最大傳導輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

3. Limit = 24dBm

4. If antenna gain $\leq$ 6dBi, NCC Limit = (Limit) dBm

5. If antenna gain > 6dBi, NCC Limit = (Limit) dBm – (highest antenna gain – 6 dBi)

6. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

File: 20-10-MAS-035_5-2ac40

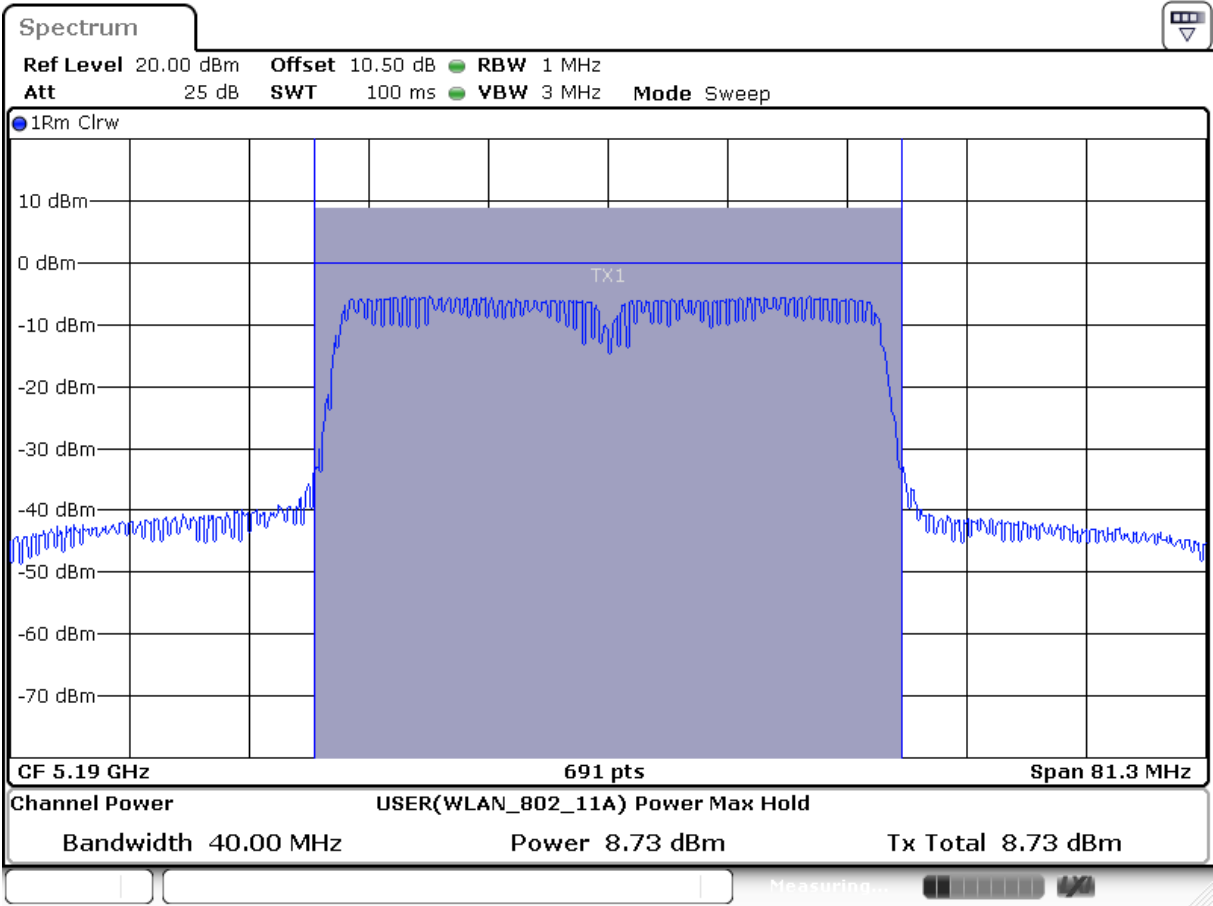
#1

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac40_Channel 38_Output power

RF Conducted

Sweep Time: 100ms

RBW: 1000 KHz

Operator:

Att.: 25dB

VBW: 3000 KHz

Phillip

File: 20-10-MAS-035_5-2ac40

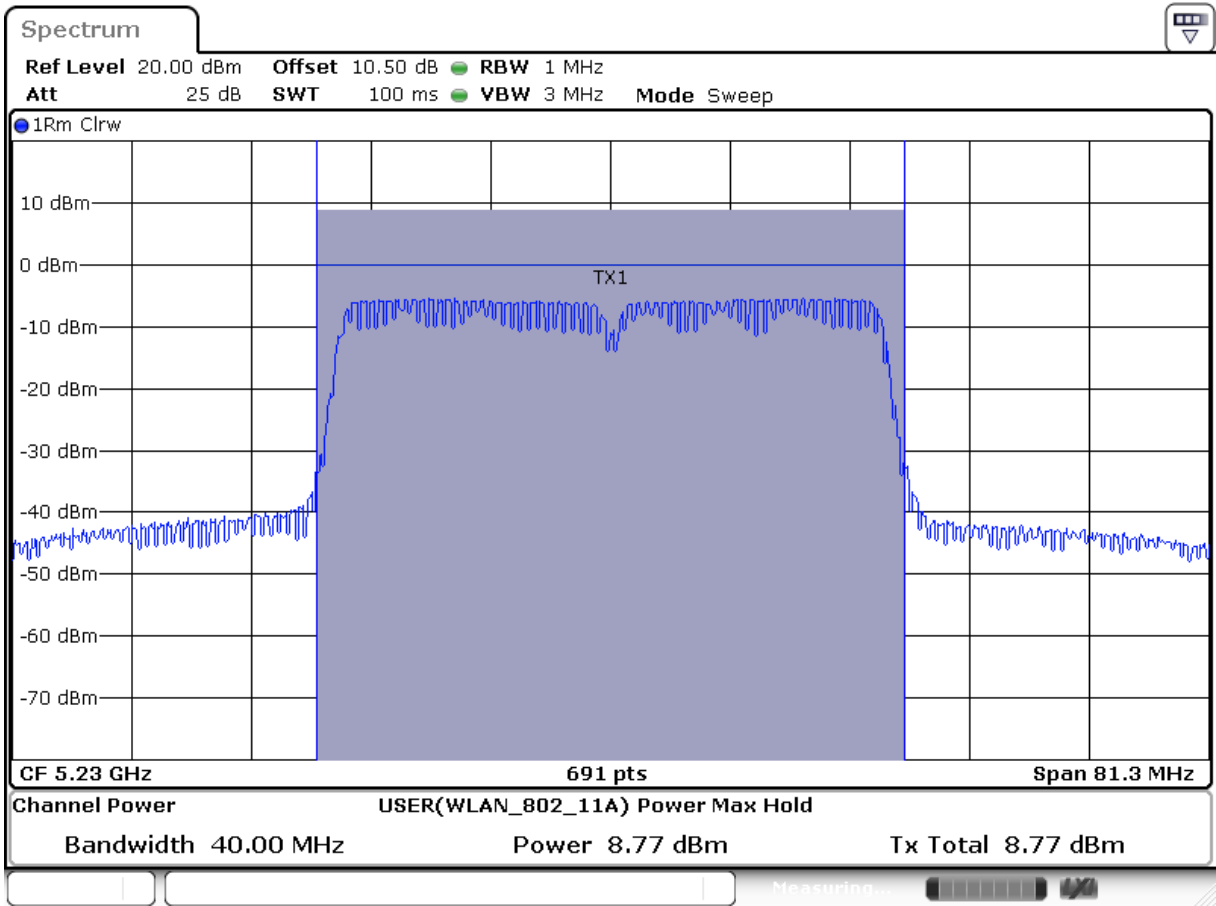
#8

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:		RF Conducted	
EUT:	Wireless Network Adapter	Sweep Time: 100ms	Att.: 25dB
Model:	Titan2020	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11ac40_Channel 46_Output power		

7.4.6 調變技術: IEEE 802.11ac (80MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi，NCC Limit 如下表所示：

Channel	Output Power (dBm)	NCC Limit (dBm)	Chart
L	8.18	24	Page 56

註：1. 繪圖資料請參考第 56 頁。

2. 最大傳導輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

3. Limit=24dBm

4. If antenna gain $\leq$ 6dBi, NCC Limit = (Limit) dBm5. If antenna gain $>$ 6dBi, NCC Limit = (Limit) dBm – (highest antenna gain – 6 dBi)6. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

7.5 結果判定

高、中、低頻段的最大傳導輸出功率皆低於限制值。

File: 20-10-MAS-035_5-2ac80

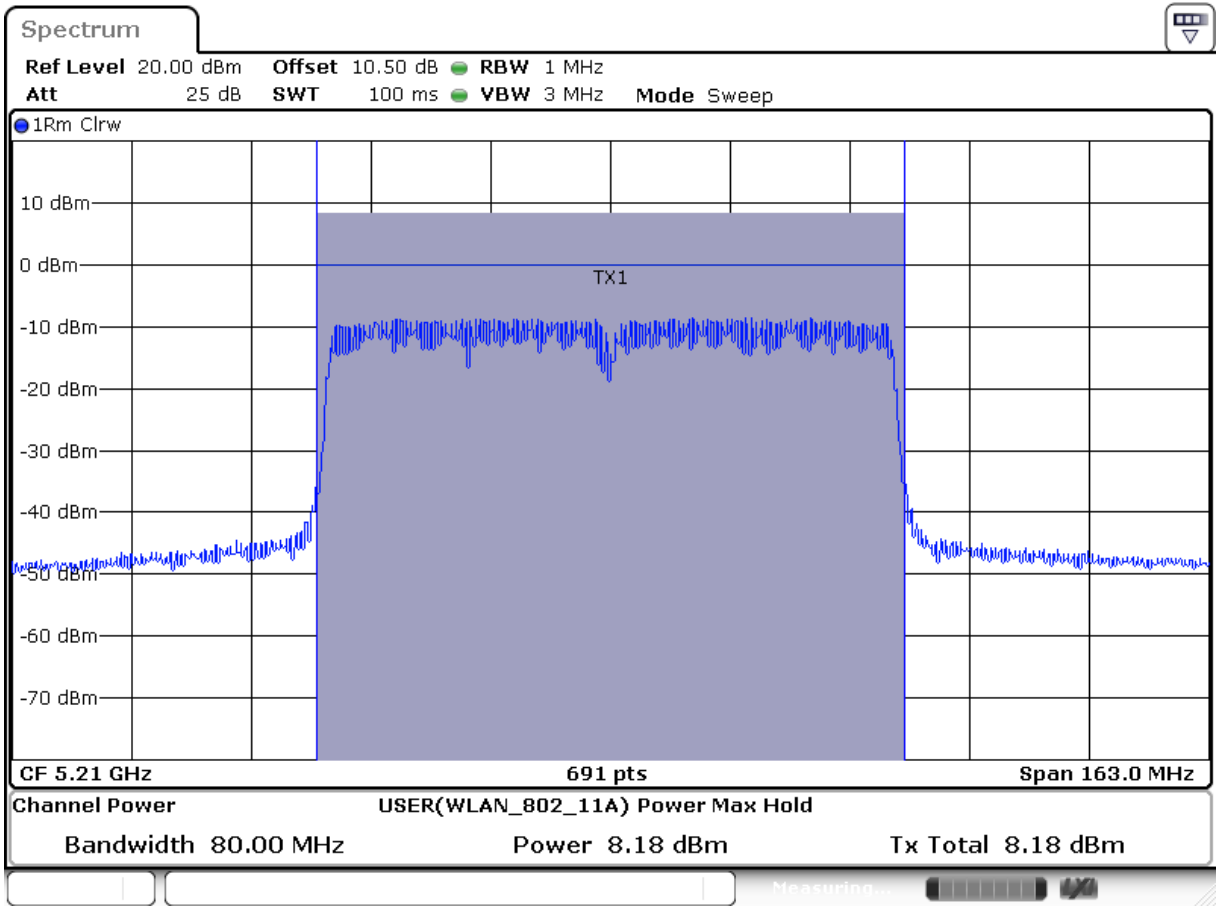
#1

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition:

EUT:

Model:

Test Mode:

Note:

Wireless Network Adapter

Titan2020

UNII

NCC_LP0002_802.11ac40_Channel 42_Output power

RF Conducted

Sweep Time: 100ms

RBW: 1000 KHz

Operator:

Att.: 25dB

VBW: 3000 KHz

Phillip

8 功率密度之量測

8.1 適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.3.1節(1)(2)(3)(4)之規定，其中相關法規如下：

(1) 供戶外操作使用：

(B) 在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 17 dBm。

(C) 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。

(2) 供室內操作使用：

(B) 在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 17 dBm。

(C) 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。

(3) 供固定式點對點操作使用：

(B) 在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 17 dBm。

(C) 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。

(D) 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。

(4) 供用戶端裝置(Client Device)操作使用：

(B) 在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 11 dBm。

(C) 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。

8.2 量測功率密度之配置

如圖 2 所示。

8.3 量測功率密度之儀器

儀器名稱	製造者	型 號
Spectrum Analyzer	KEYSIGHT	N9030B
Attenuator	WEINSCHEL	56-10

測試軟體: LZ-RF (Ver. ETC-3A2)

8.4 量測結果

測試工程師：羅世勇

8.4.1 調變技術: IEEE 802.11a

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi，NCC Limit 如下表所示：

Channel	Peak Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	3.17	11	Page 59
M	3.14	11	Page 60
H	3.30	11	Page 61

註：1. 繪圖資料請參考第 59-61 頁。

2. 功率頻譜密度 (Peak Power Spectral Density) 為經儀器校正補償過後的結果值。

3. If antenna gain $\leq$ 6dBi, NCC Limit =11 dBm

4. If antenna gain > 6dBi, NCC Limit =11 dBm – (highest antenna gain – 6 dBi)

5. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

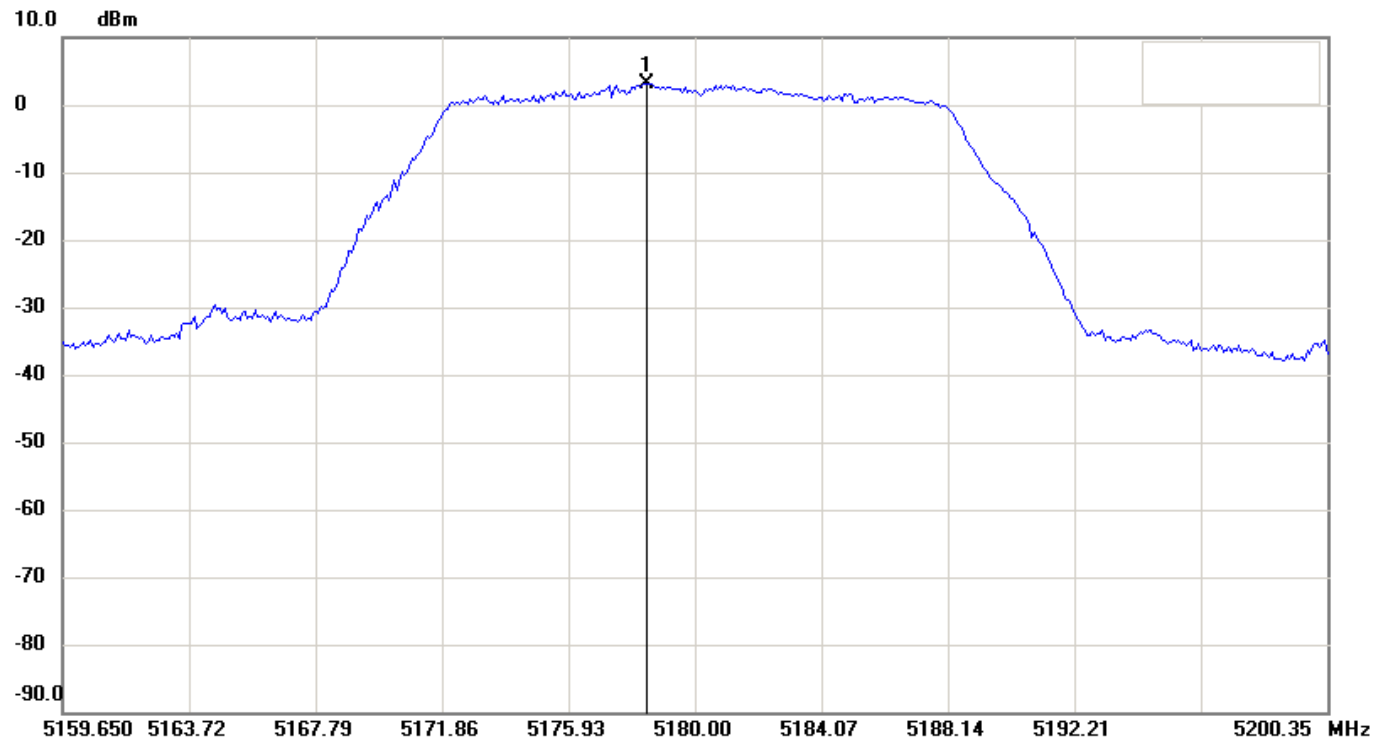
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#4

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11a_Channel 36_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz

Operator:

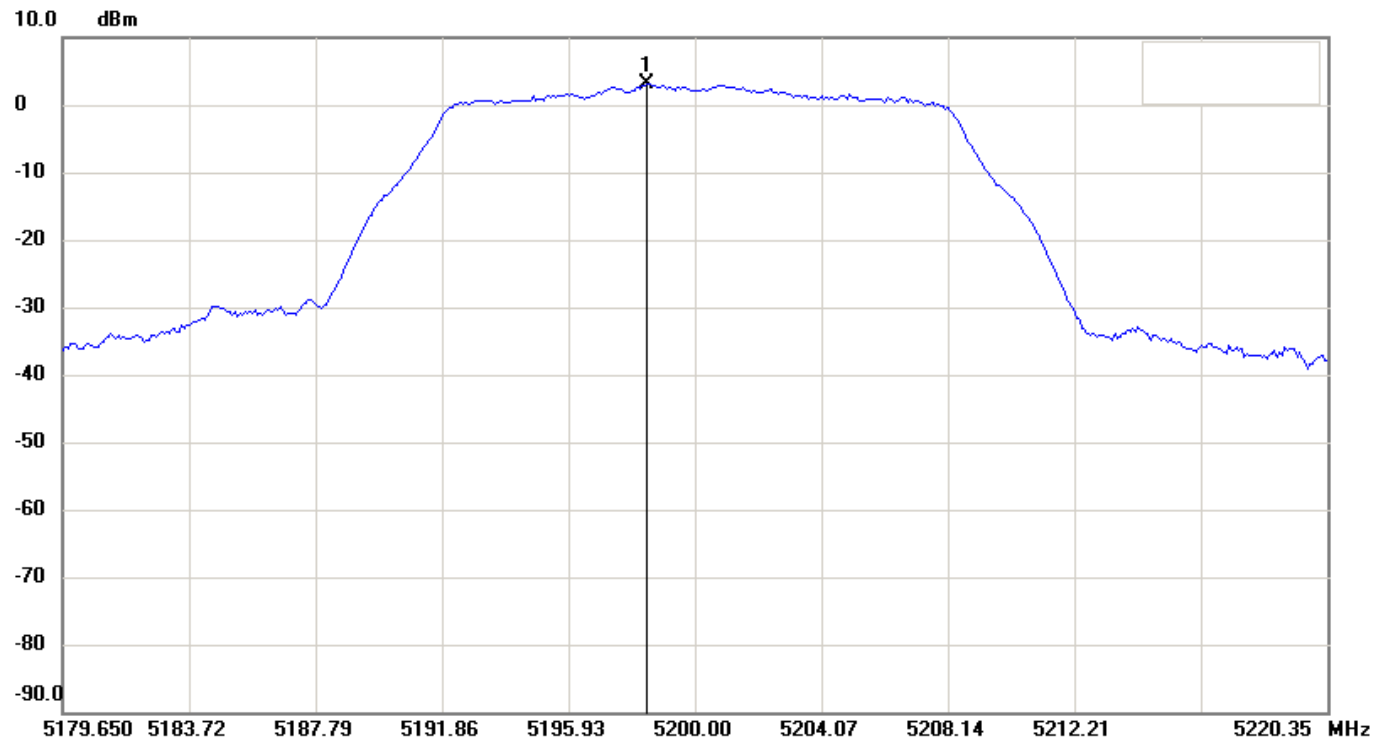
VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5178.45340	3.17

File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#11 Date: 2020/11/20 Temperature: 25 °C
Humidity: 50 %



Condition:

EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a_Channel 40_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB
RBW: 1000 KHz VBW: 3000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5198.45340	3.14

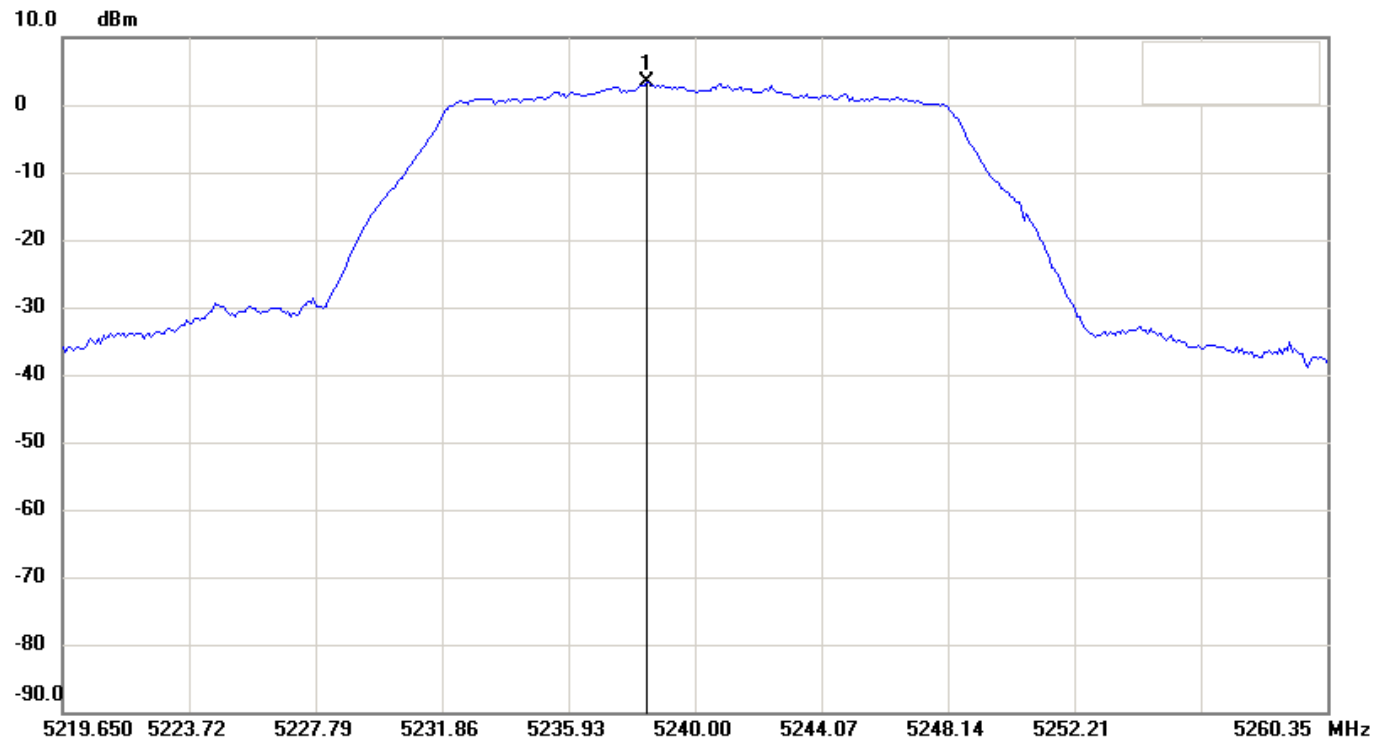
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#17

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11a_Channel 48_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz

Operator:

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5238.45340	3.30

8.4.2 調變技術: IEEE 802.11ac (20MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi, NCC Limit 如下表所示:

Channel	Peak Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	2.80	11	Page 63
M	2.45	11	Page 64
H	2.58	11	Page 65

註: 1. 繪圖資料請參考第 63-65 頁。

2. 功率頻譜密度 (Peak Power Spectral Density) 為經儀器校正補償過後的結果值。

3. If antenna gain $\leq$ 6dBi, NCC Limit =11 dBm

4. If antenna gain > 6dBi, NCC Limit =11 dBm – (highest antenna gain – 6 dBi)

5. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

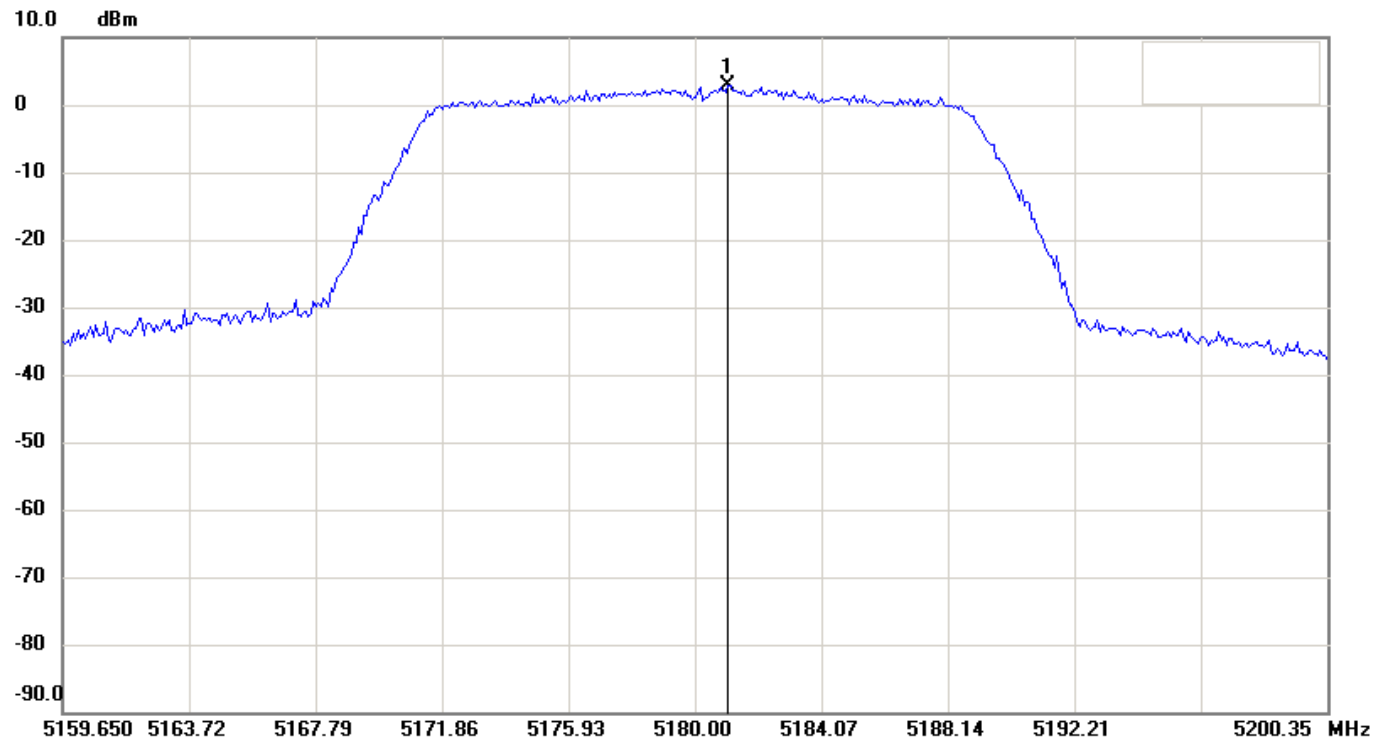
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#4

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac20_Channel 36_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz

Operator:

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5181.05820	2.80

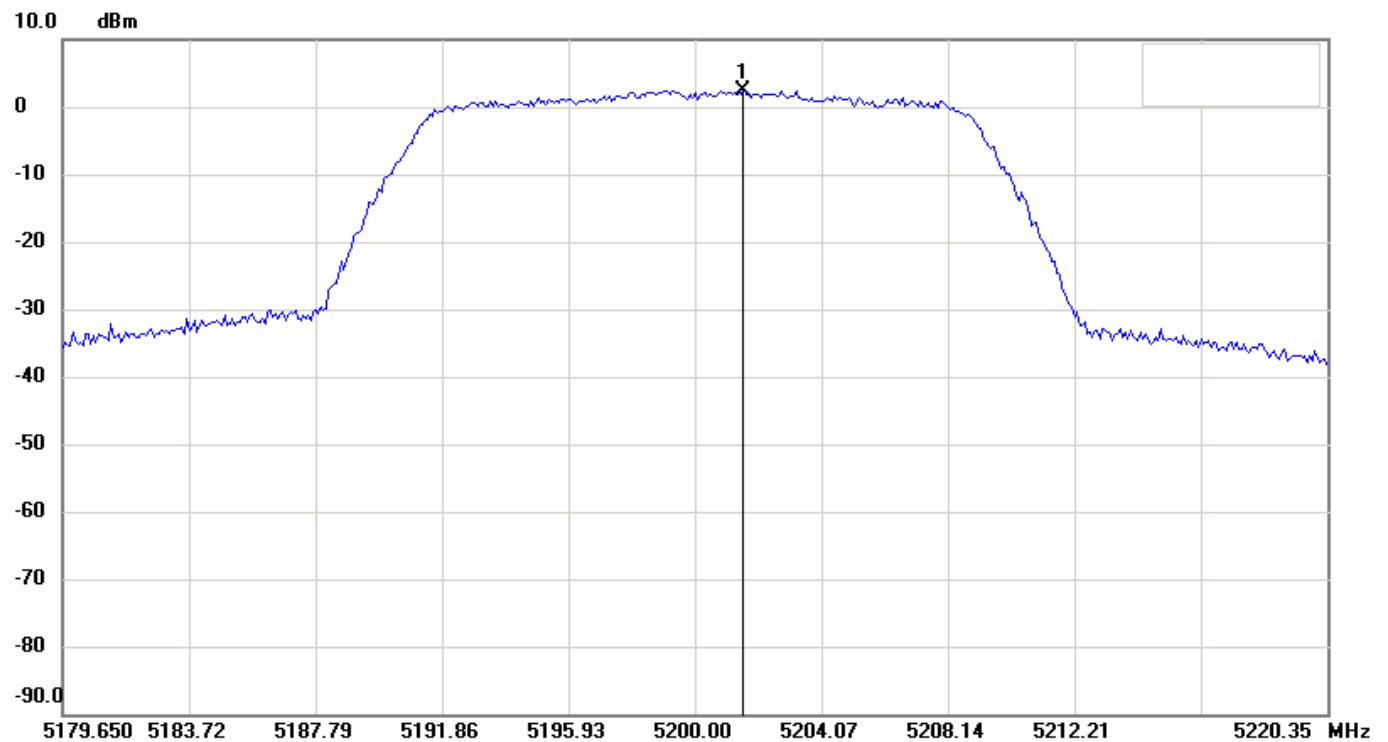
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#11

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac20_Channel 40_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz

Operator:

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5201.54660	2.45

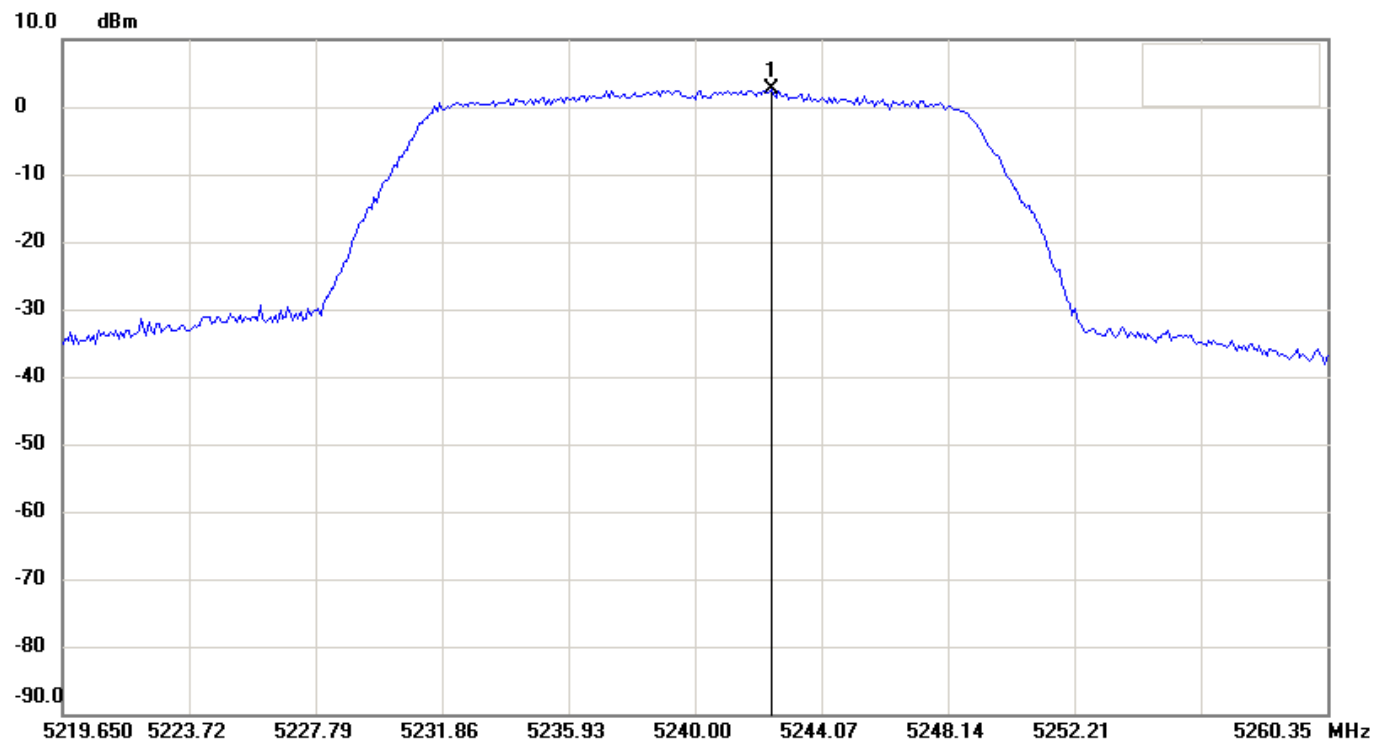
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#17

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac20_Channel 48_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz

Operator:

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5242.44200	2.58

8.4.3 調變技術: IEEE 802.11ac (40MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi, NCC Limit 如下表所示:

Channel	Peak Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-0.85	11	Page 67
H	-0.41	11	Page 68

註: 1. 繪圖資料請參考第 67-68 頁。

2. 功率頻譜密度 (Peak Power Spectral Density) 為經儀器校正補償過後的結果值。

3. If antenna gain $\leq 6\text{dBi}$, NCC Limit = 11 dBm4. If antenna gain $> 6\text{dBi}$, NCC Limit = 11 dBm – (highest antenna gain – 6 dBi)5. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

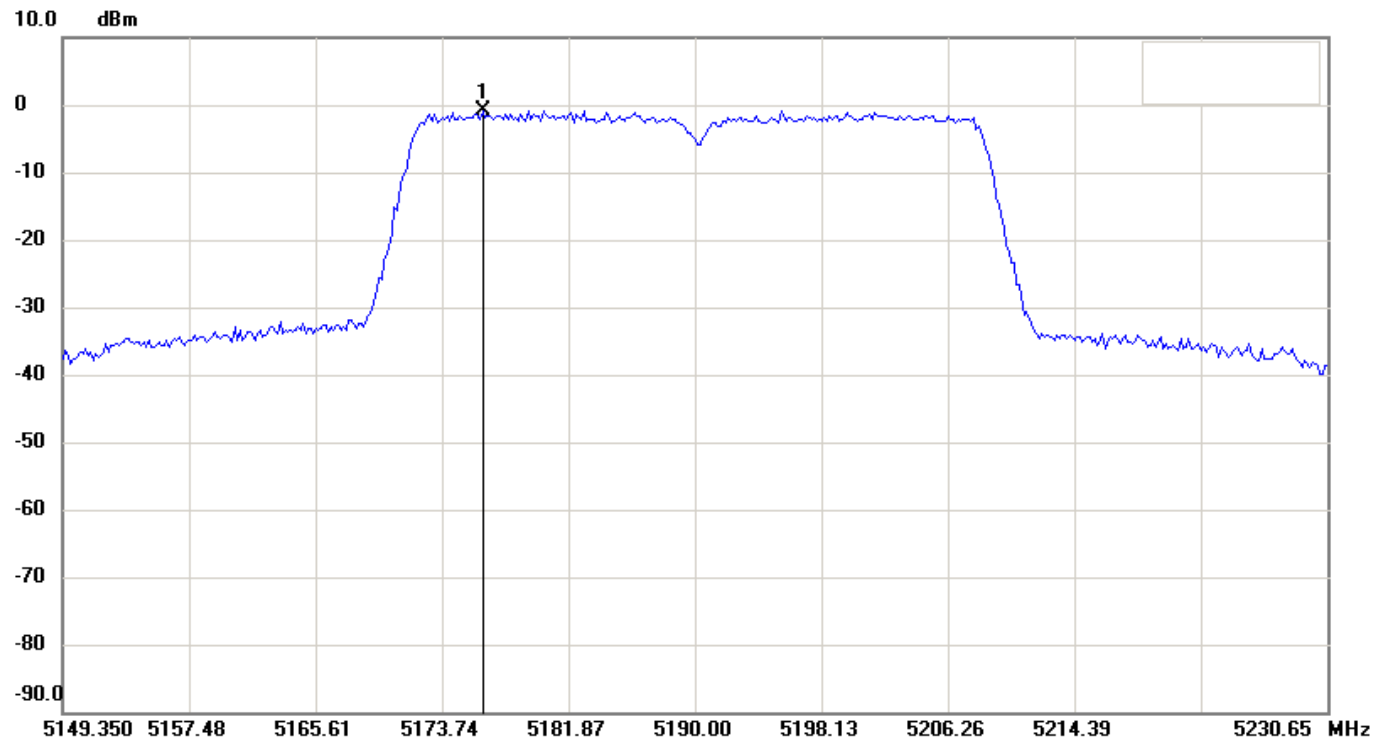
File: 20-10-MAS-035_5-2ac40
Site: RF-Cond01

#4

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac40_Channel 38_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz

VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5176.34160	-0.85

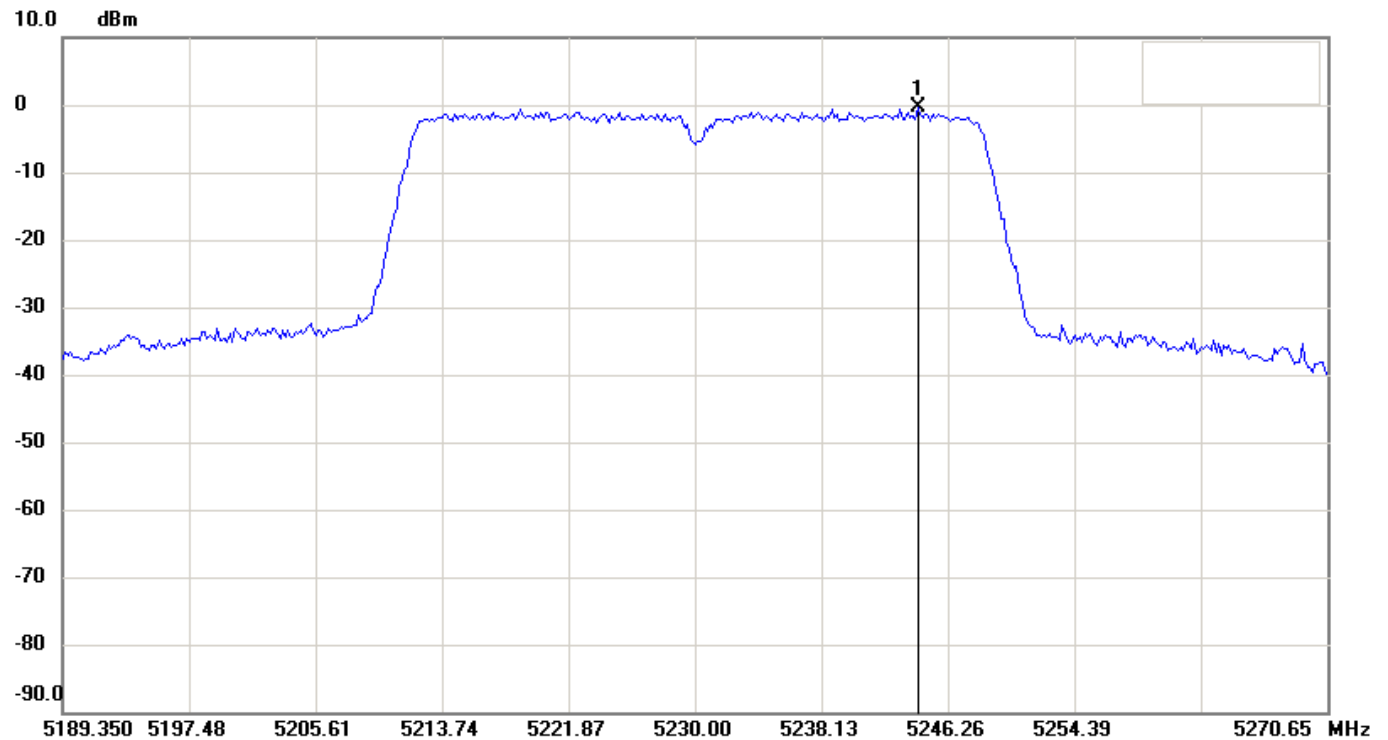
File: 20-10-MAS-035_5-2ac40
 Site: RF-Cond01

#11

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac40_Channel 46_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz

Operator:

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5244.30880	-0.41

8.4.4 調變技術: IEEE 802.11ac (80MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

天線增益最大值為 1.4 dBi，NCC Limit 如下表所示：

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-4.17	11.00	Page 70

註：1. 繪圖資料請參考第 70 頁。

2. 頻譜密度 (Power Spectral Density) 為經儀器校正補償過後的結果值。

3. If antenna gain $\leq$ 6dBi, NCC Limit =11 dBm

4. If antenna gain $>$ 6dBi, NCC Limit =11 dBm – (highest antenna gain – 6 dBi)

5. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

8.5 結果判定

高、中、低頻段的峰值功率頻譜密度皆低於限值，合乎標準規定。

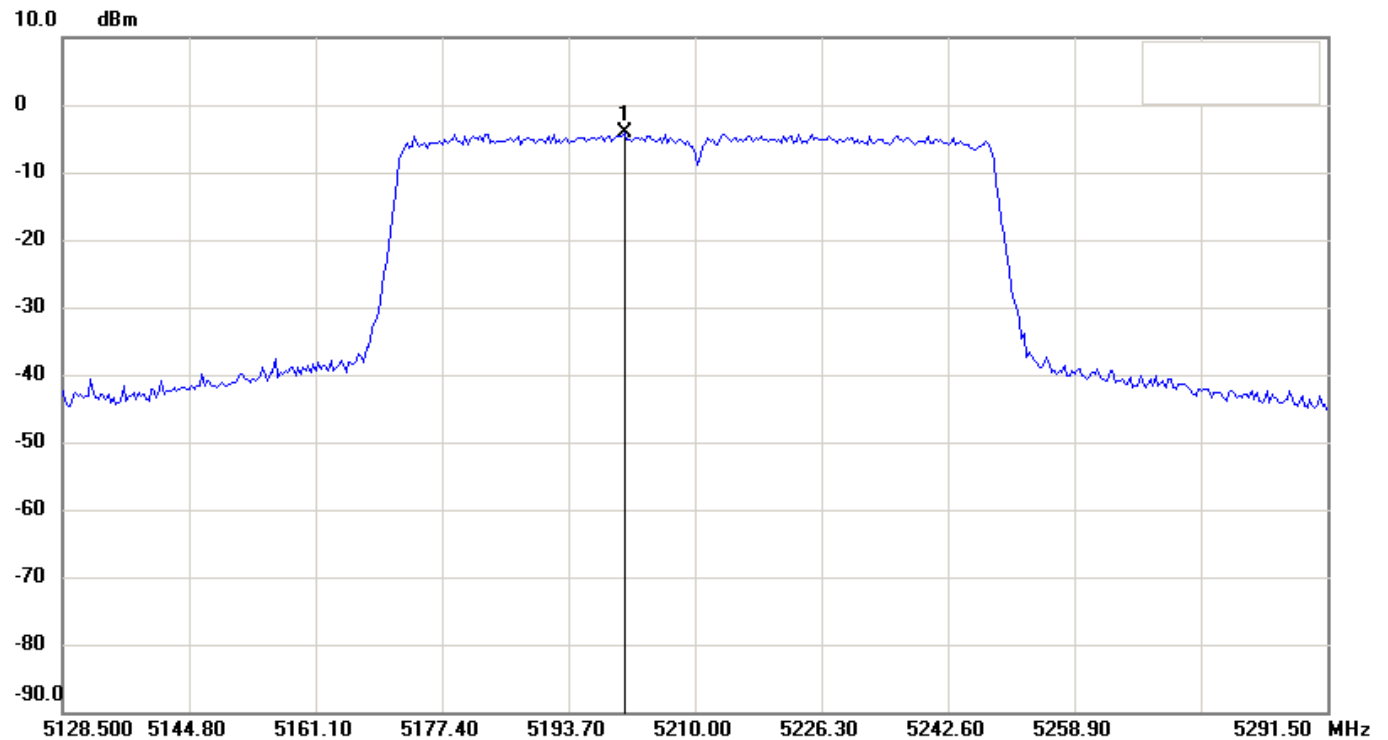
File: 20-10-MAS-035_5-2ac80
Site: RF-Cond01

#4

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition:

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac80_Channel 42_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5200.87200	-4.17

9 混附波發射限制之量測

9.1 適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範5.7.4節之規定：不必要發射之限制值：在操作頻帶外的峰值發射應衰減至符合下列限制值：

- (1) 5.7.4.1節：在5.15 GHz～5.35 GHz 及5.470 GHz～5.725 GHz 頻段操作的發射器：帶外發射之有效等向輻射功率(EIRP) $\leq$ -27 dBm/MHz。。
- (2) 5.7.4.3節：測量不必要發射時，應使用之最低解析頻寬為1 MHz。必要時，於頻帶邊緣附近可使用小於1 MHz 之解析頻寬，並以補償方式計算其總值。
- (3) 5.7.4.4節：當測量不必要發射之限制值時，應將待測物的載波頻率調整到儘可能接近設備設計所允許的上、下頻帶邊緣。

9.2 混附波發射限制之測試配置

如圖2 所示。

9.3 量測混附波發射限制之儀器

儀器名稱	製造者	型 號
Spectrum Analyzer	KEYSIGHT	N9030B
Attenuator	WEINSCHEL	56-10

測試軟體: LZ-RF (Ver. ETC-3A2)

9.4 混附波發射限制之量測結果 (傳導方式量測)

Single Conducted Limit:

Eirp Limit – Aantenna Directional Gain – 10 log[number of Tx output(s)]

9.4.1 調變技術: IEEE 802.11a

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

註：1. 繪圖資料請參考第 72-77 頁。

2. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 40\text{GHz}$)

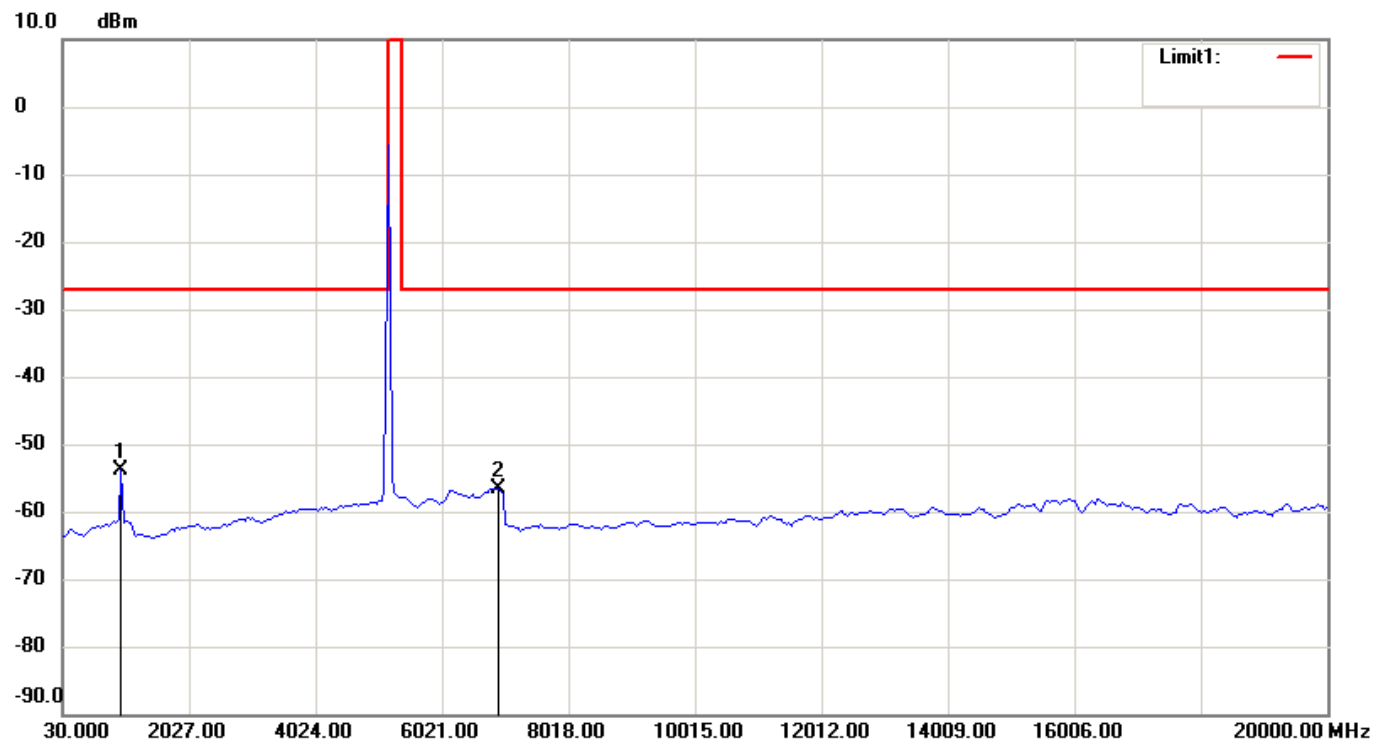
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#5

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a_Channel 36_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	948.6200	-53.85
2	6899.68000	-56.54

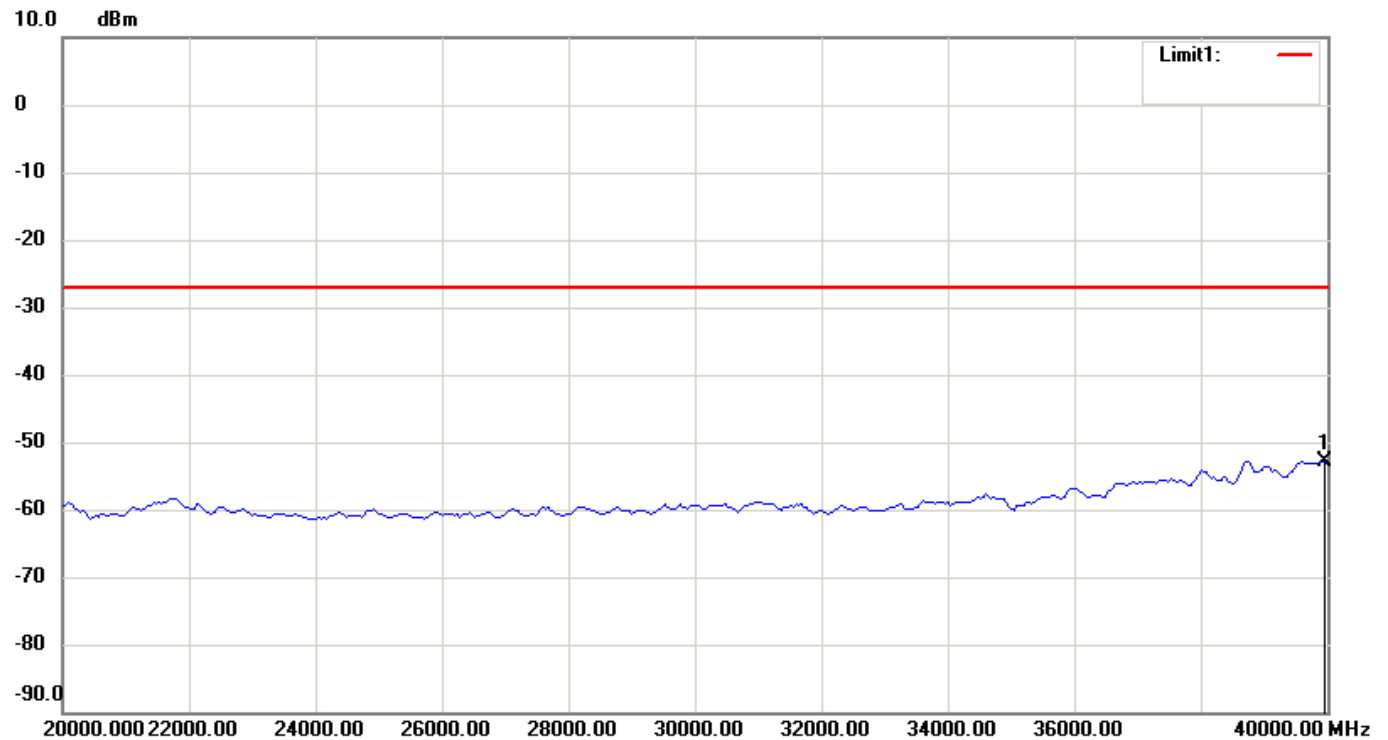
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#6

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a_Channel 36_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	39960.00000	-52.76

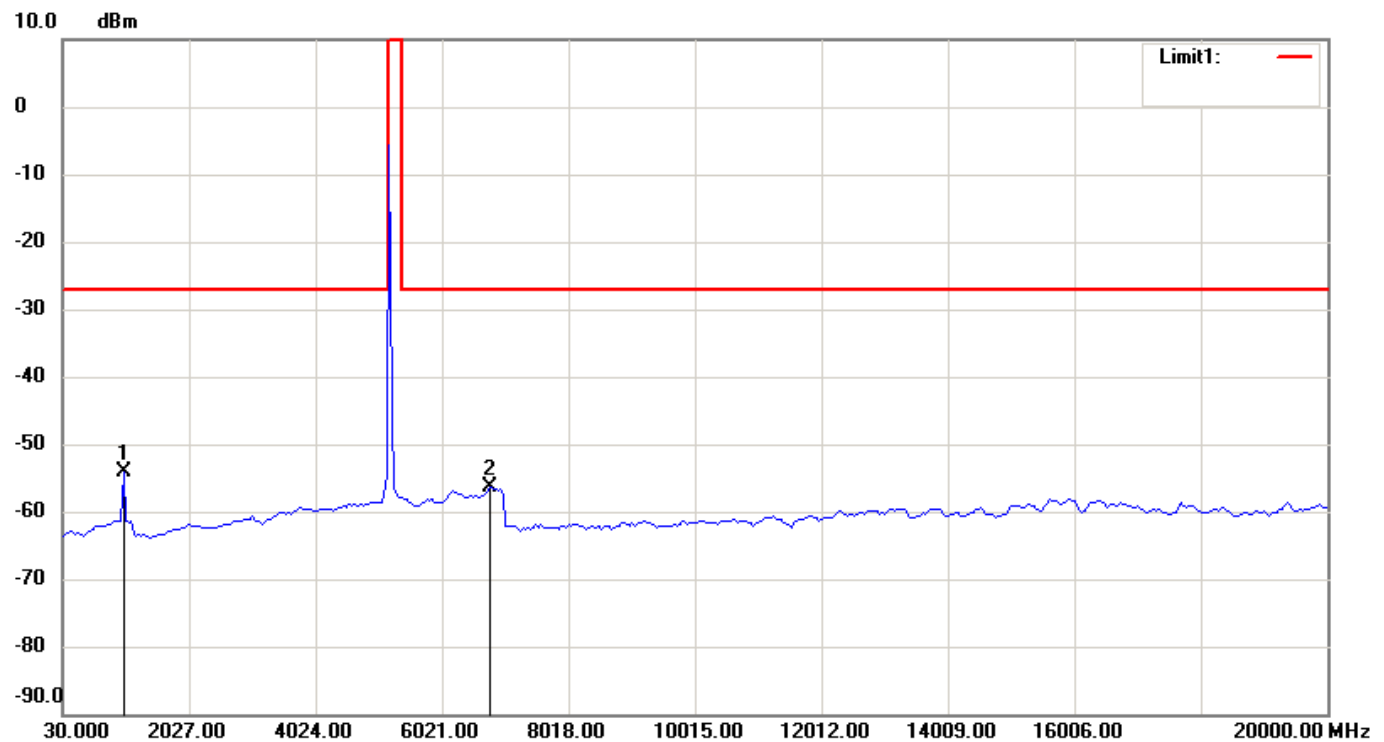
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#12

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a_Channel 40_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	988.5600	-54.08
2	6779.86000	-56.47

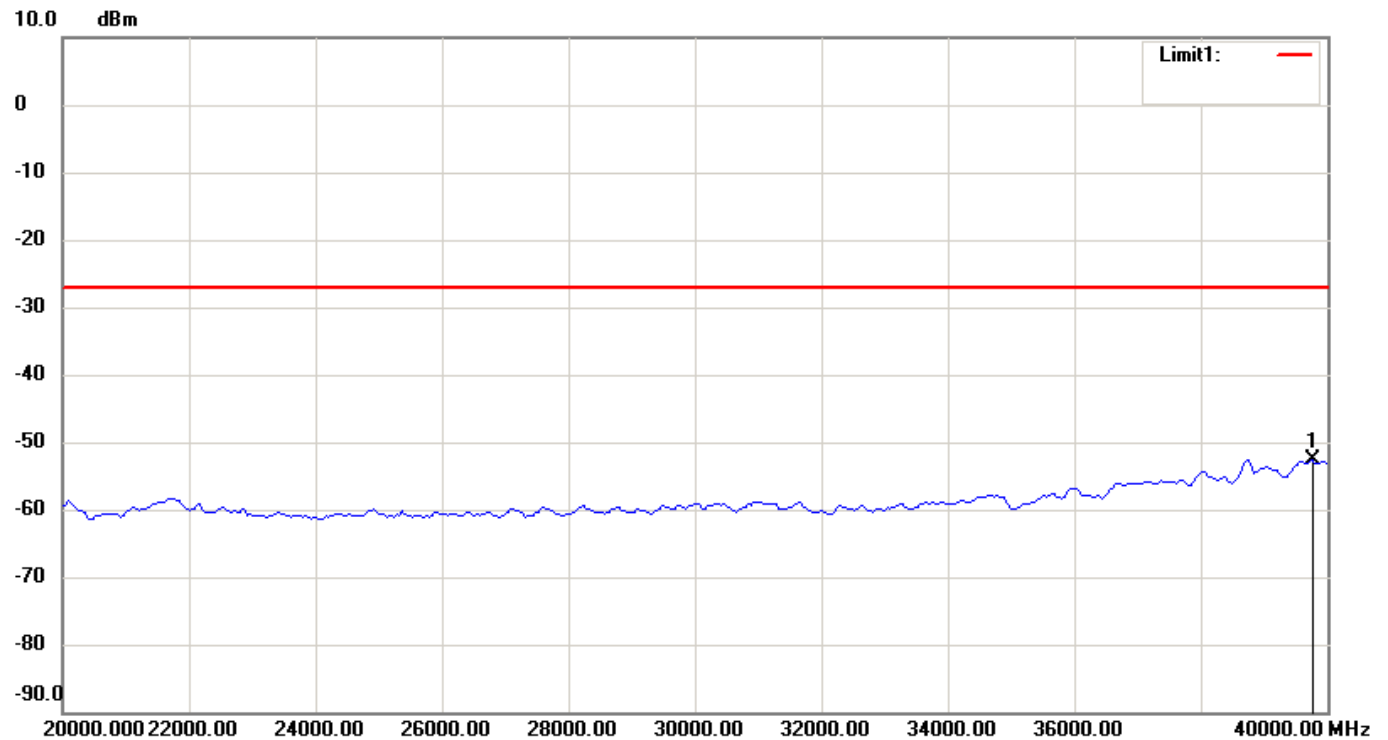
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#13

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a_Channel 40_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	39760.00000	-52.55

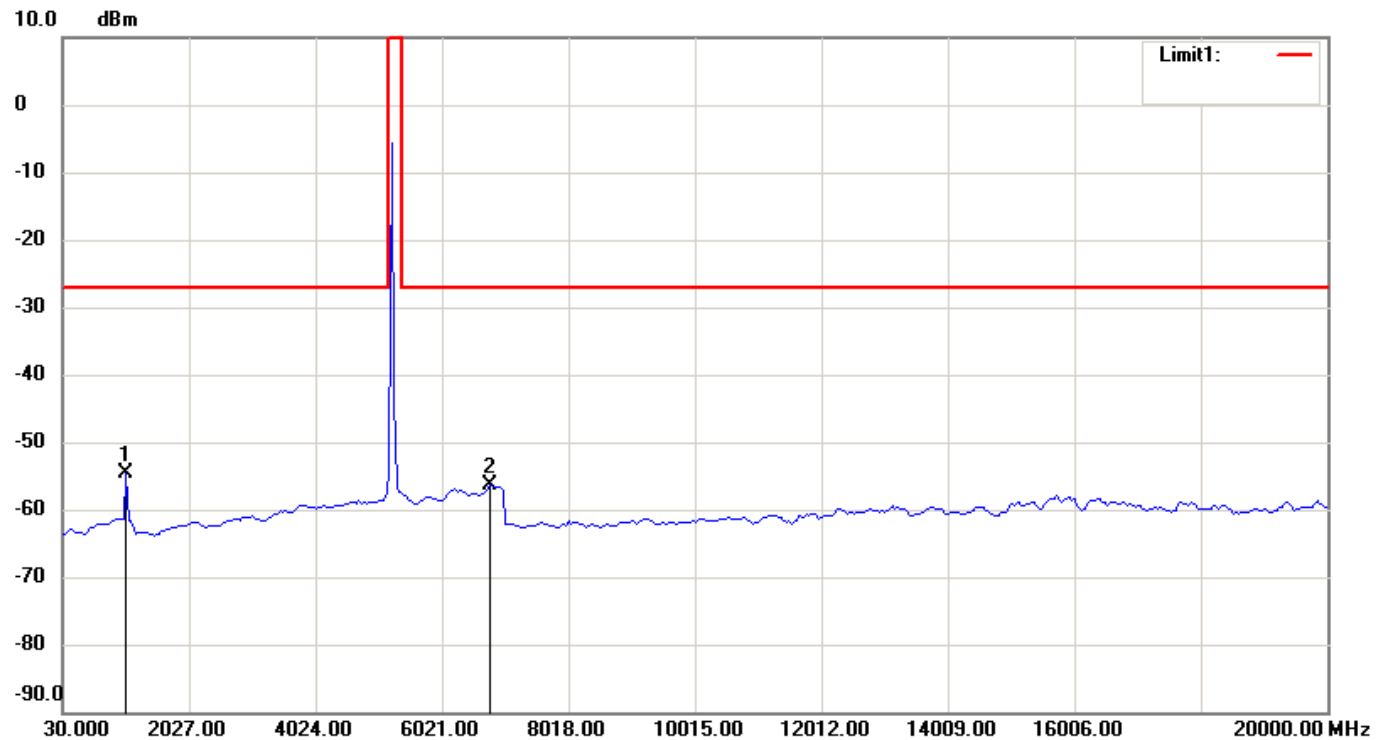
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#18

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a_Channel 48_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1028.50000	-54.65
2	6779.86000	-56.42

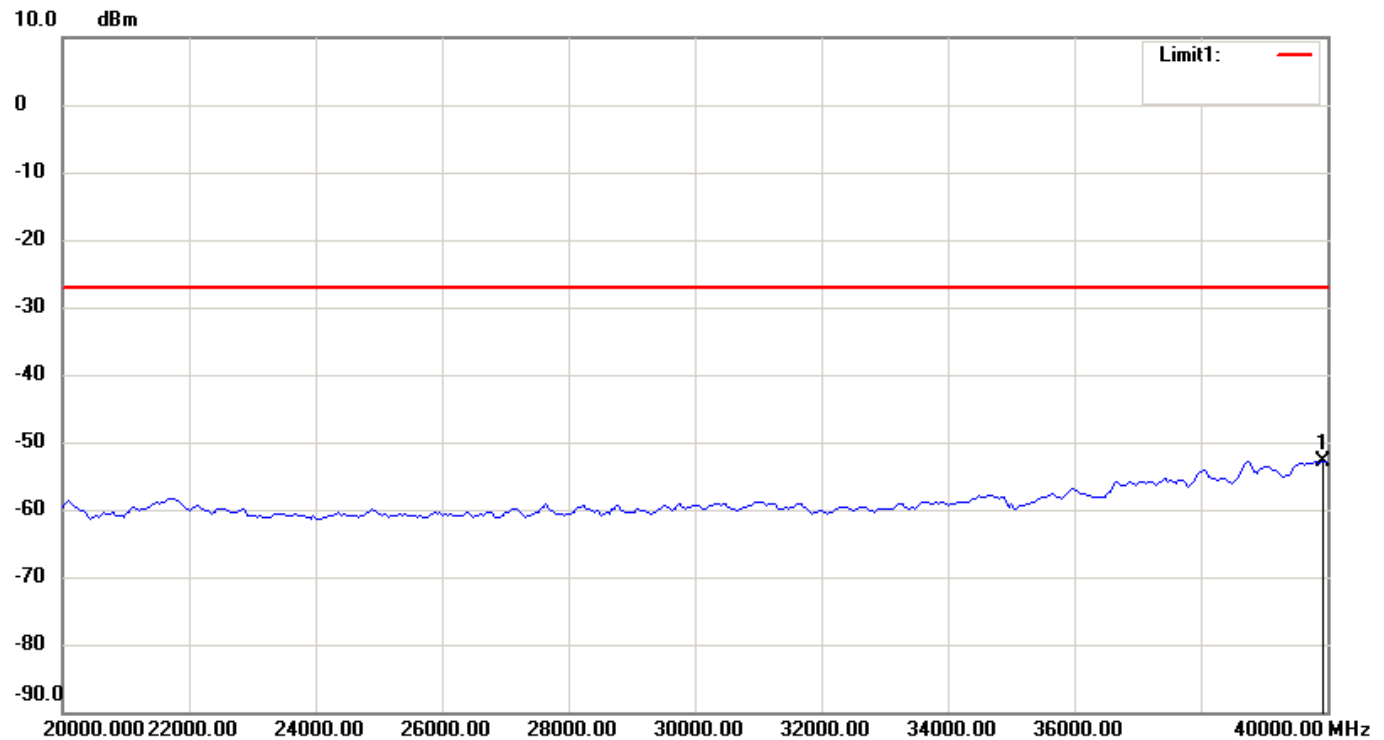
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#19

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a_Channel 48_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	39920.00000	-52.77

9.4.2 調變技術: IEEE 802.11ac (20MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

註：1. 繪圖資料請參考第 79-84 頁。

2. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 40\text{GHz}$)

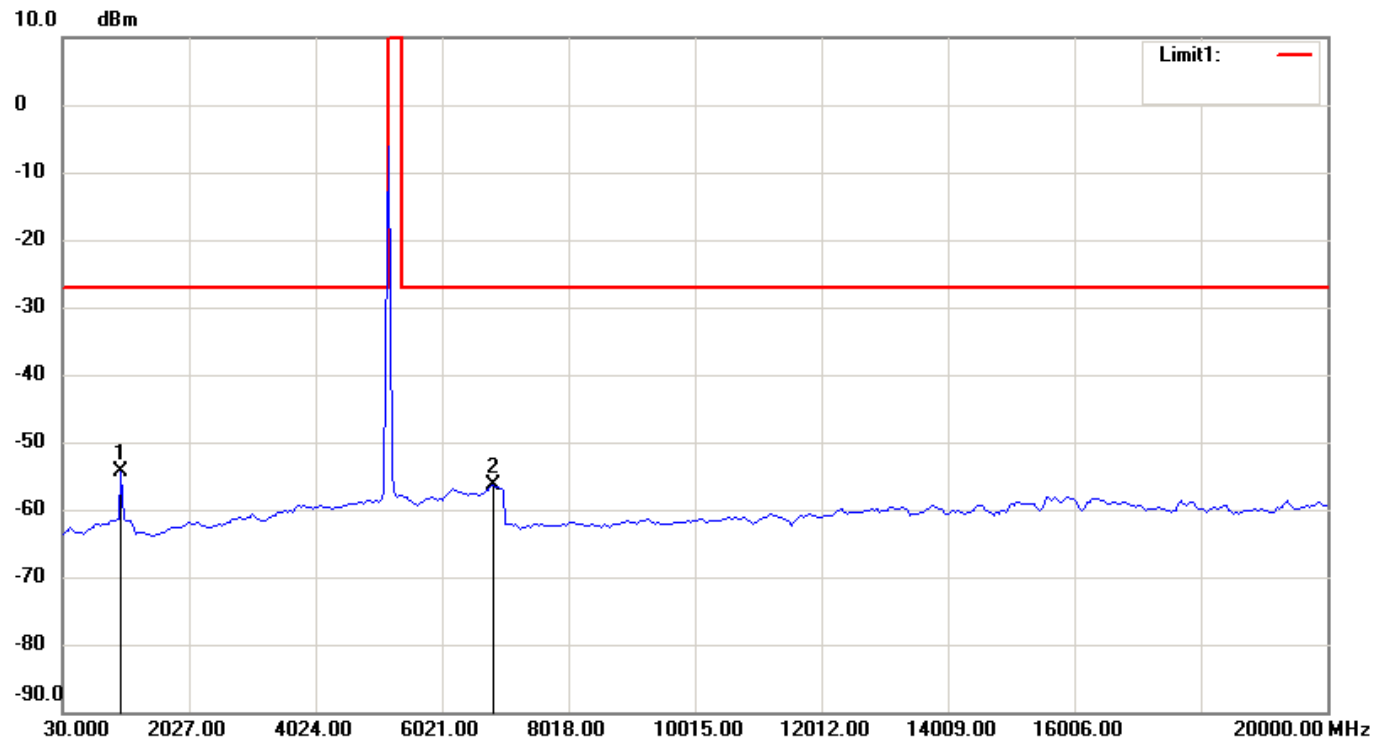
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#5

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac20_Channel 36_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	948.6200	-54.26
2	6819.80000	-56.40

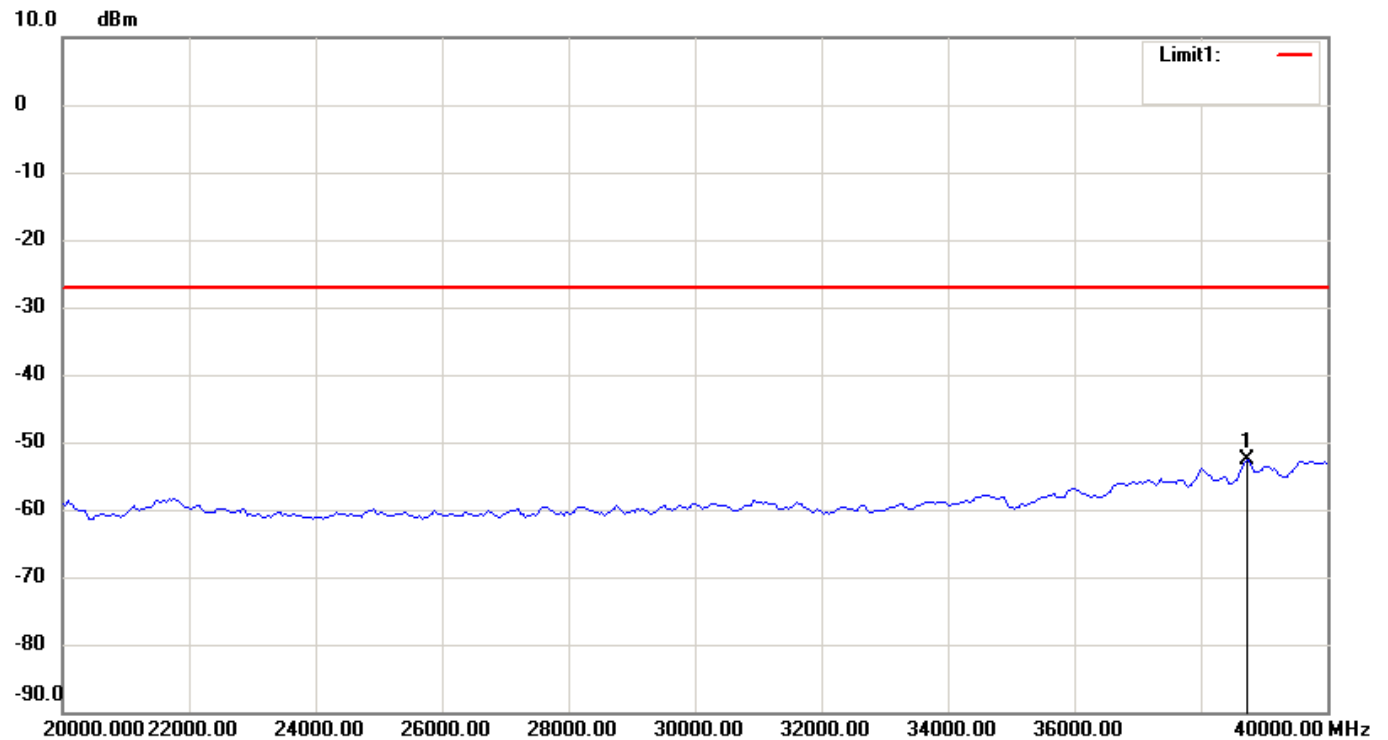
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#6

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac20_Channel 36_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	38720.00000	-52.72

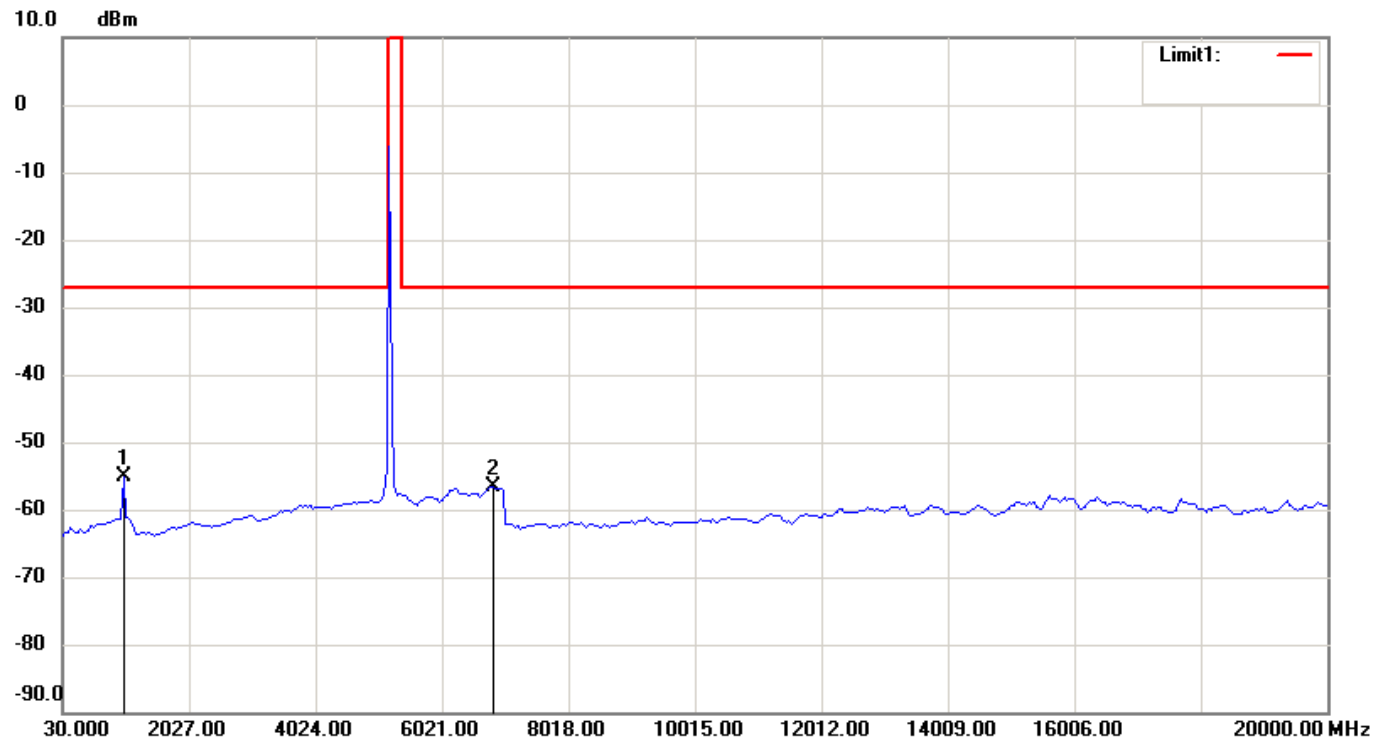
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#12

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac20_Channel 40_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	988.5600	-55.03
2	6819.80000	-56.56

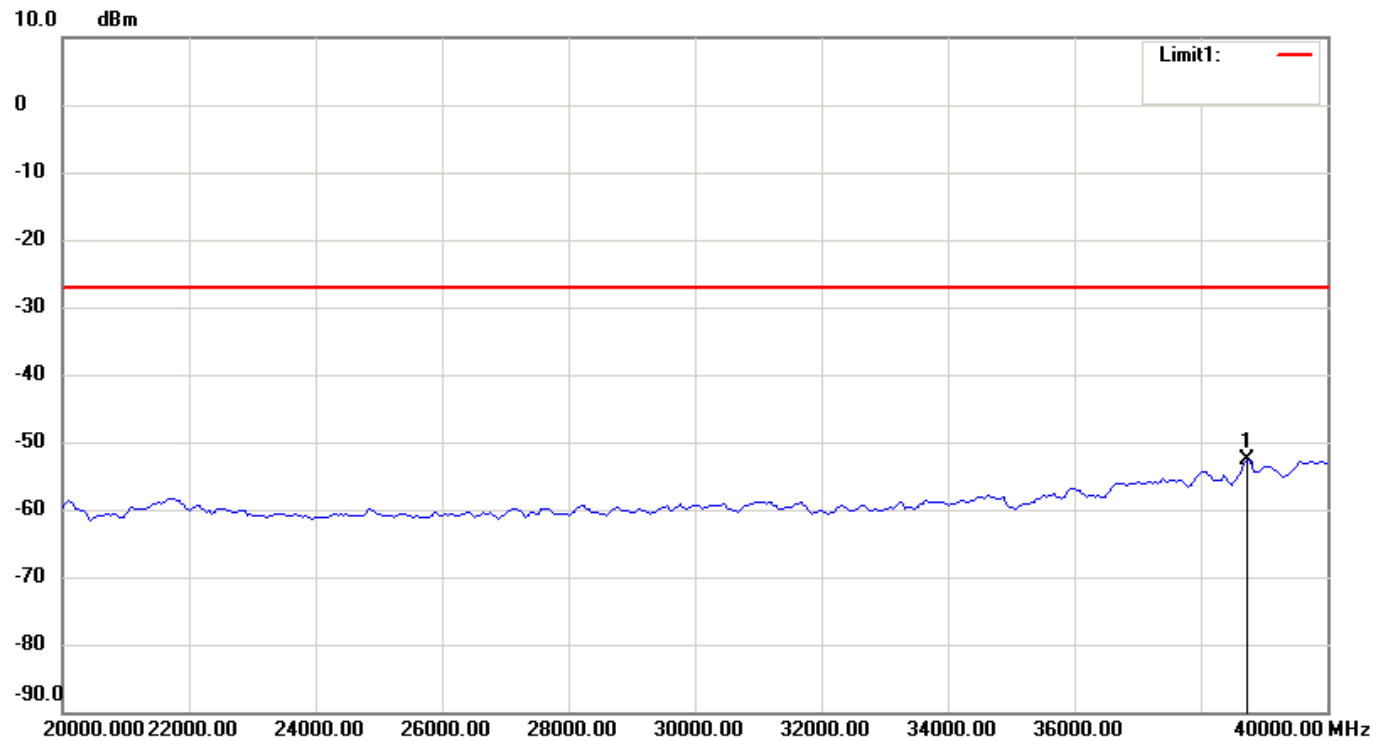
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#13

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac20_Channel 40_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	38720.00000	-52.62

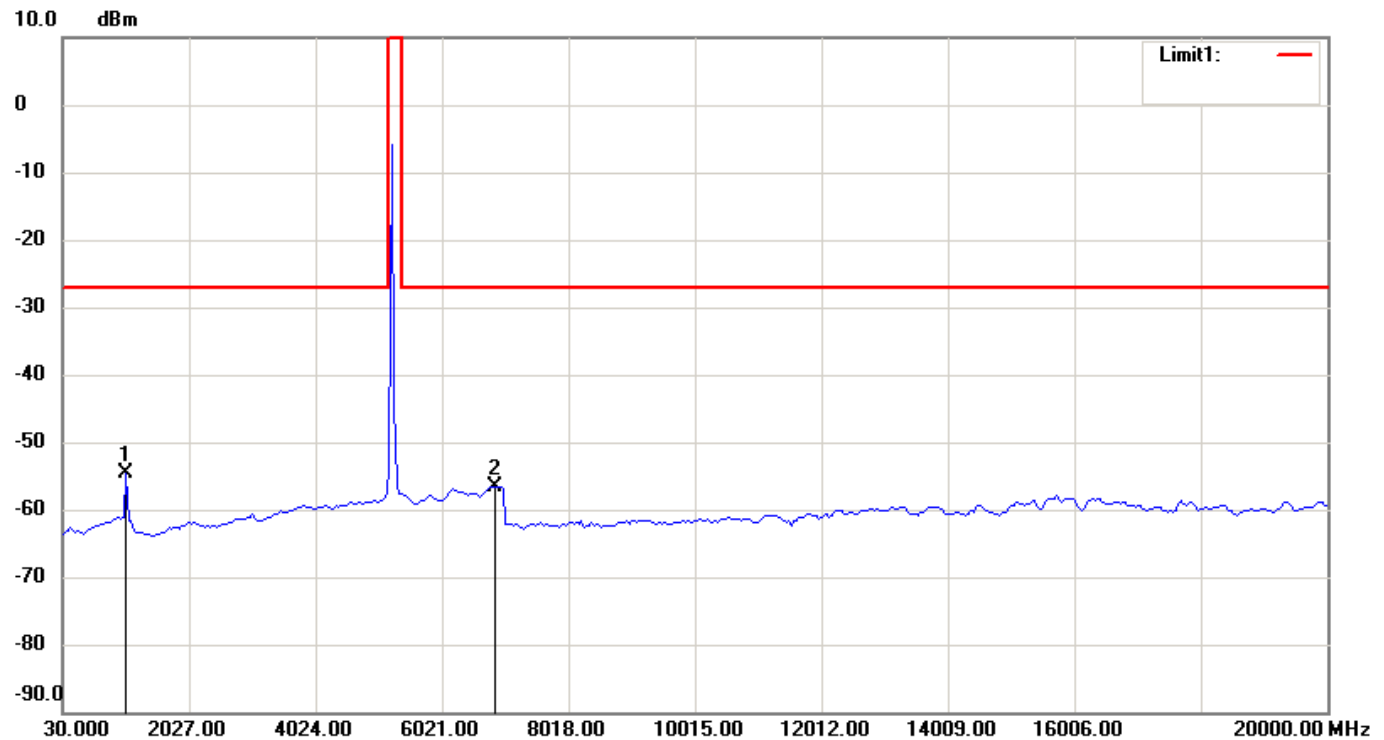
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#18

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac20_Channel 48_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1028.50000	-54.56
2	6859.74000	-56.56

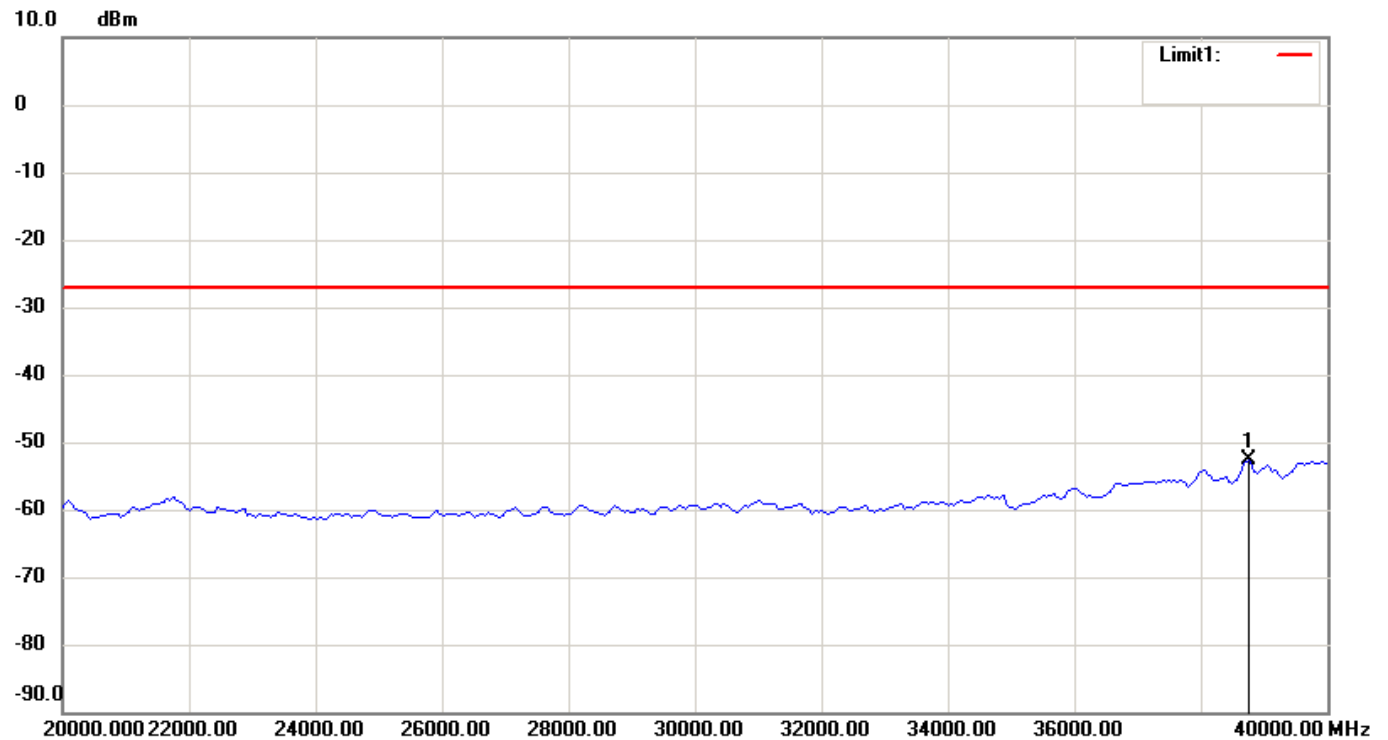
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#19

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac20_Channel 48_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	38760.00000	-52.69

9.4.3 調變技術: IEEE 802.11ac (40MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

註: 1. 繪圖資料請參考第 86-89 頁。

2. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 40\text{GHz}$)

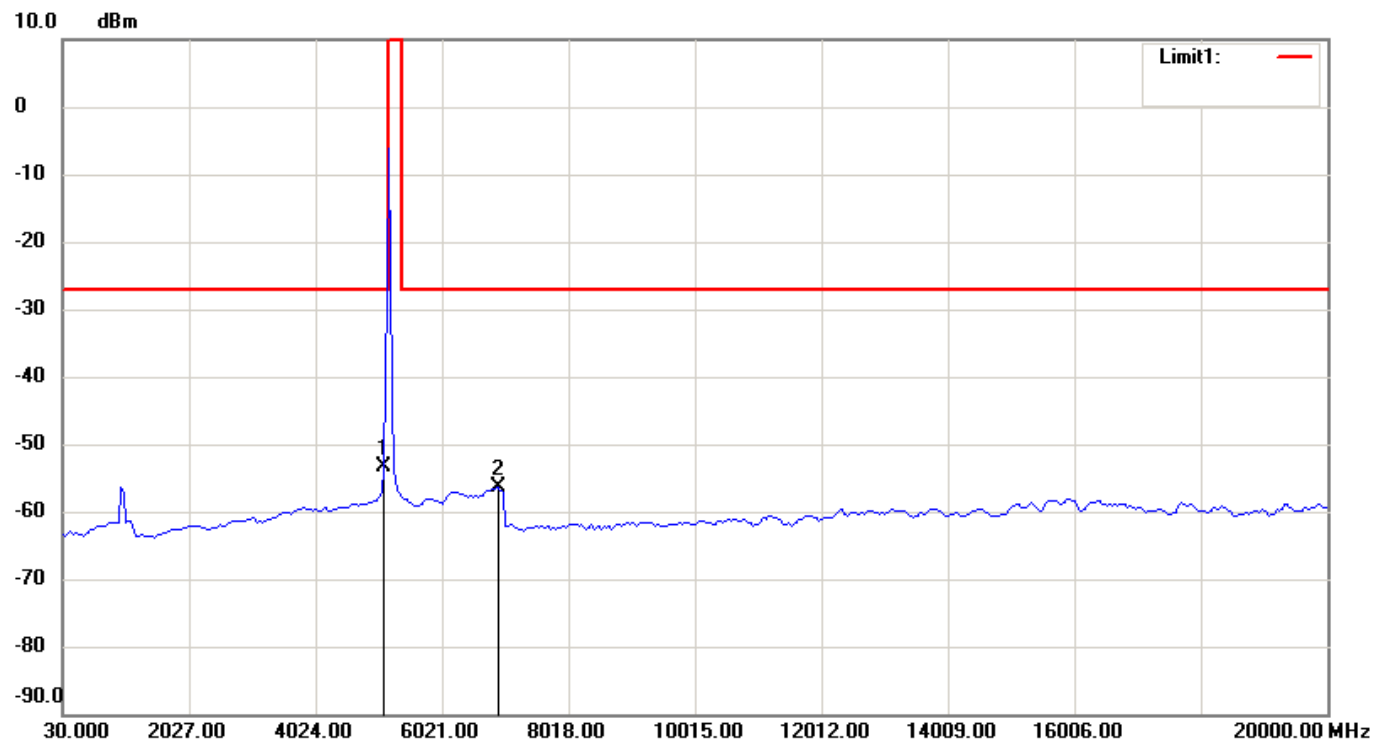
File: 20-10-MAS-035_5-2ac40
Site: RF-Cond01

#5

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac40_Channel 38_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5102.38000	-53.37
2	6899.68000	-56.45

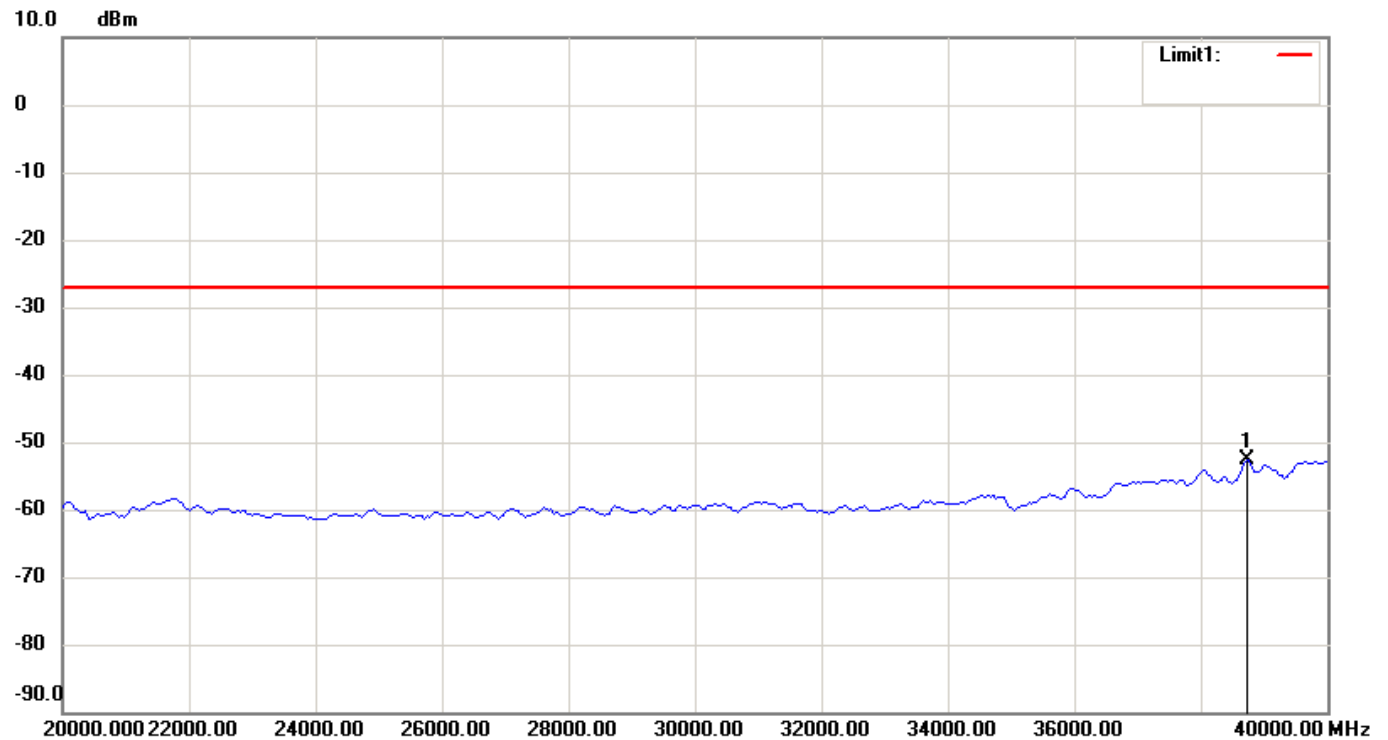
File: 20-10-MAS-035_5-2ac40
Site: RF-Cond01

#6

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac40_Channel 38_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	38720.00000	-52.50

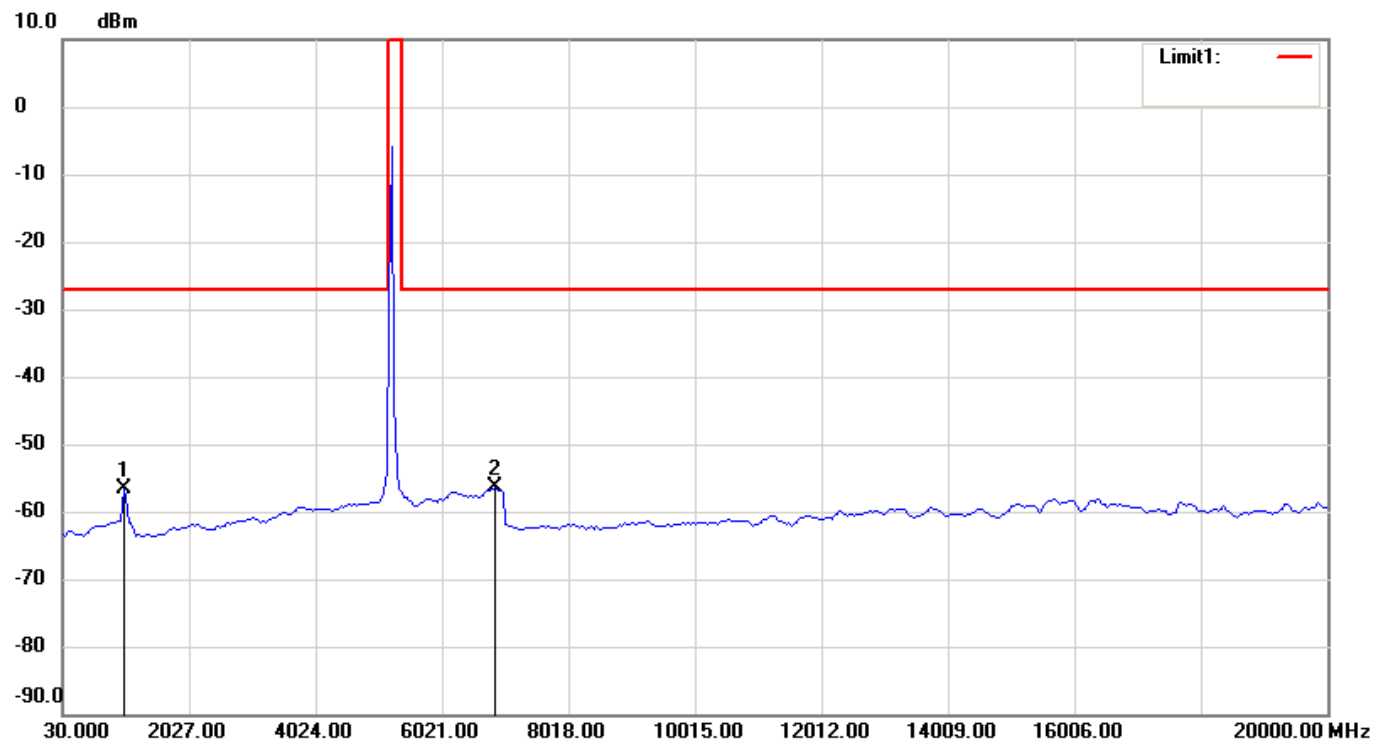
File: 20-10-MAS-035_5-2ac40
Site: RF-Cond01

#12

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac40_Channel 46_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	988.5600	-56.60
2	6859.74000	-56.45

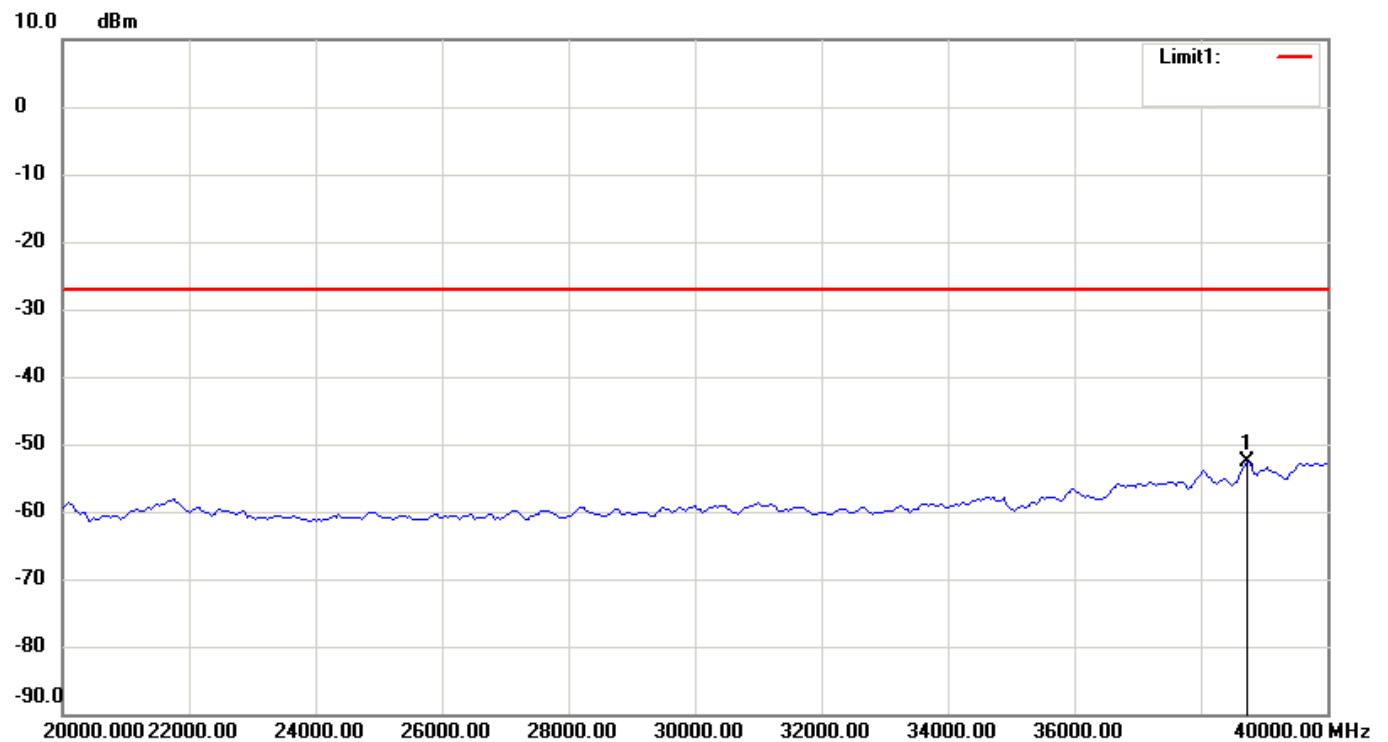
File: 20-10-MAS-035_5-2ac40
Site: RF-Cond01

#13

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac40_Channel 46_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	38720.00000	-52.64

9.4.4 調變技術: IEEE 802.11ac (80MHz)

測試日期: Nov. 20, 2020

環境溫度: 25°C

環境濕度: 50%

註: 1. 繪圖資料請參考第 91-92 頁。

2. 量測不準確度: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 40\text{GHz}$)

9.5 結果判定

混附波之發射皆低於限值，符合標準規定。

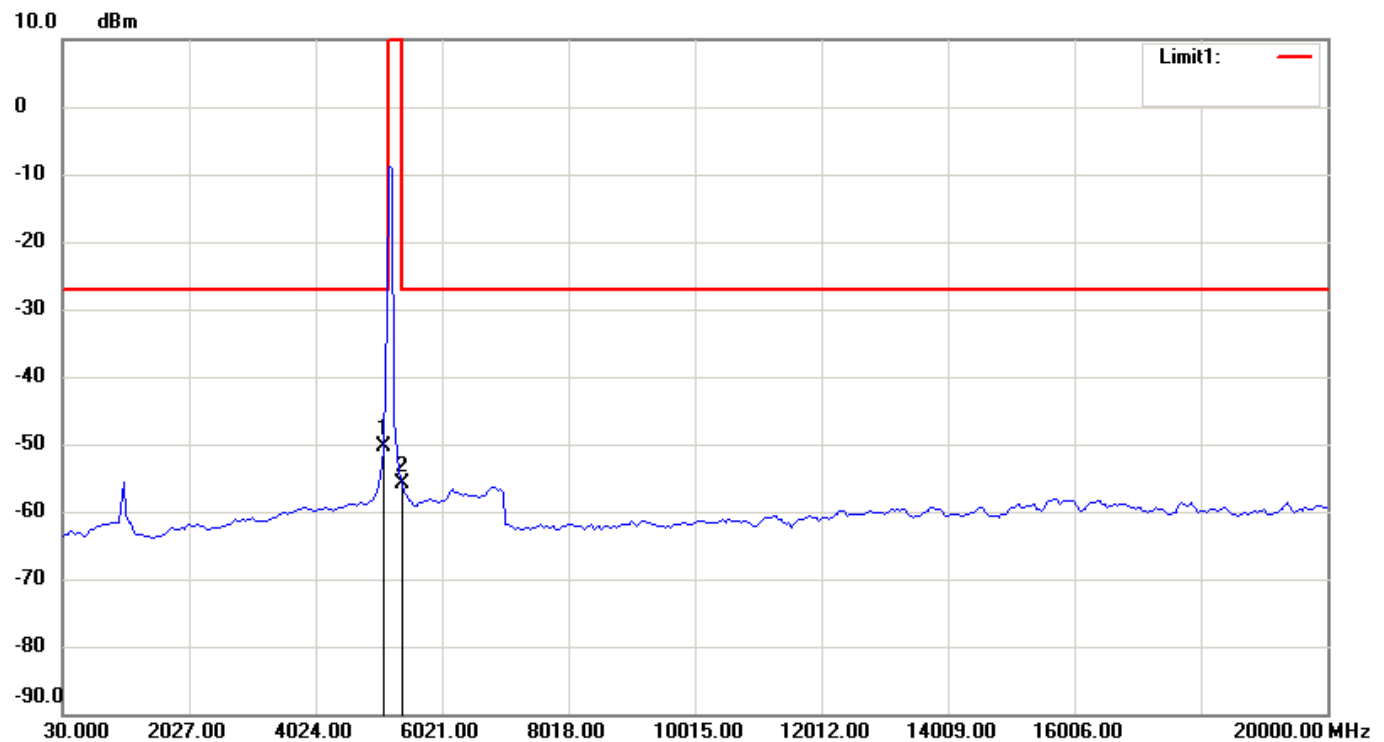
File: 20-10-MAS-035_5-2ac80
Site: RF-Cond01

#5

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac80_Channel 42_Spurious-1

RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5102.38000	-50.35
2	5381.96000	-55.98

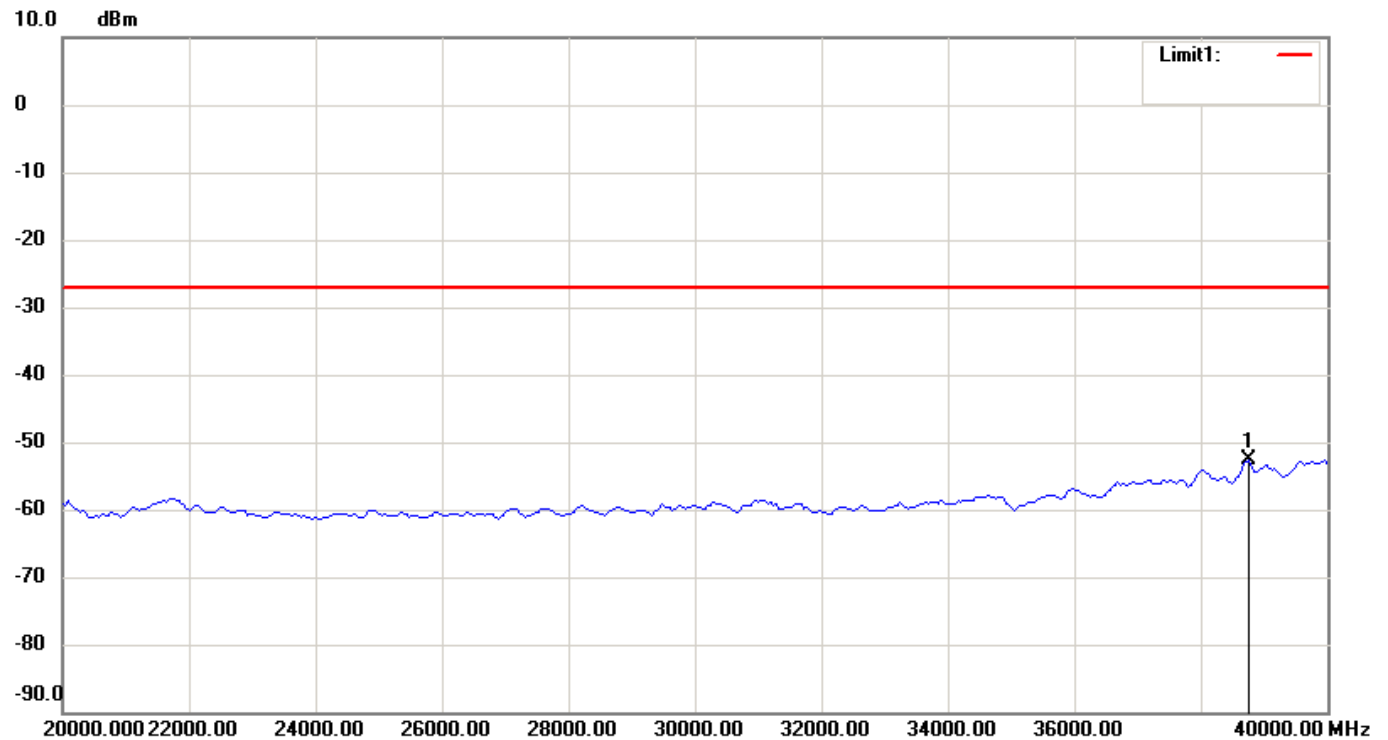
File: 20-10-MAS-035_5-2ac80
Site: RF-Cond01

#6

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac80_Channel 42_Spurious-2

RF Conducted
Sweep Time: 80ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	38760.00000	-52.60

10 場強輻射之量測

10.1 適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範 5.7.4.5 節之規定，在 1GHz 以下的不必要之發射，應符合第 3.6 節之規定，任何使用交流市電為供應電之設備亦須符合第 3.3 節之電源線傳導限制值。

依據國家通訊傳播委員會低功率射頻器材技術規範 5.7.4.6 節之規定，不必要發射頻率屬 3.5 節規定頻段者，應符合 3.6 節之規定。

10.2 量測方法

將待測物置於非金屬桌面，使其在測試模式狀態，且設定為高、中、低各頻道產生最高最大傳導輸出功率的傳輸速率，接收天線置於3米外，且桌面要360度旋轉，另外接收天線也要從1米至4米升降變化，接收天線置於水平、垂直極向各執行測試一次。待測物若為手持式則分別要以三軸相放置，並分別測試以找出最大輻射電場強度。

10.3 量測場強輻射之儀器

(1)量測儀器

儀器名稱	製造者	型號
EMI Receiver	R&S	ESCI
Spectrum Analyzer	R&S	FSU46
Horn Aantenna	EMCO	3117
Horn Aantenna	EMCO	3116
PRE-Amplifier	Agilent	8449B
PRE-Amplifier	Agilent	8447D
BiLog Aantenna	ETC	MCTD 2786
PRE-Amplifier	Agilent	83051A
Spectrum Analyzer	KEYSIGHT	N9030B

測試軟體: LZ-RF (Ver. ETC-3A2)

(2)儀器設定

Frequency Bnd (MHz)	Instrument	Function	Resolution Bndwidth	Video Bndwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	300 kHz
	RF Test Receiver	Peak	120 kHz	300 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz

10.4 場強度之計算

場強之計算公式如下

$$\text{結果值} = \text{讀值} + \text{校正因子}$$

其中校正因子為：

天線因子+饋線損失+濾波器損失（若有使用）-放大器增益（若有使用）
量測結果請見下頁。

10.5 場強輻射之量測結果

測試工程師: 羅世勇

測試日期: Nov. 27, 2020

環境溫度: 22°C

環境濕度: 60%

10.5.1 諧波發射量測值

10.5.1.1 調變技術: IEEE 802.11a

a. Channel Low

基本波頻率 : 5180 MHz

輻射 頻率 (MHz)	天線 極性 H/V	機器讀值 (dBuV/m)@3m		校正 因子 (dB)	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse) (dB)
		Peak	AVG		Peak	AVG	Peak	AVG	
10360.0000	H	---	---	3.40	---	---	74.0	54.0	---
10360.0000	V	---	---	3.40	---	---	74.0	54.0	---
15540.0000	H	---	---	3.92	---	---	74.0	54.0	---
15540.0000	V	---	---	3.92	---	---	74.0	54.0	---
20720.0000	H	---	---	-4.72	---	---	74.0	54.0	---
20720.0000	V	---	---	-4.72	---	---	74.0	54.0	---
25900.0000	H	---	---	-5.94	---	---	74.0	54.0	---
25900.0000	V	---	---	-5.94	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

b. Channel Mid

基本波頻率：5200 MHz

輻射 頻率	天線 極性	機器讀值 (dBuV/m)@3m		校正 因子	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse)
		Peak	AVG		Peak	AVG	Peak	AVG	
(MHz)	H/V			(dB)					(dB)
10400.0000	H	---	---	3.46	---	---	74.0	54.0	---
10400.0000	V	---	---	3.46	---	---	74.0	54.0	---
15600.0000	H	---	---	3.80	---	---	74.0	54.0	---
15600.0000	V	---	---	3.80	---	---	74.0	54.0	---
20800.0000	H	---	---	-4.66	---	---	74.0	54.0	---
20800.0000	V	---	---	-4.66	---	---	74.0	54.0	---
26000.0000	H	---	---	-6.20	---	---	74.0	54.0	---
26000.0000	V	---	---	-6.20	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

c. Channel High

基本波頻率：5240 MHz

輻射 頻率	天線 極性	機器讀值 (dBuV/m)@3m		校正 因子	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse)
		Peak	AVG		Peak	AVG	Peak	AVG	
(MHz)	H/V			(dB)					(dB)
10480.0000	H	---	---	3.52	---	---	74.0	54.0	---
10480.0000	V	---	---	3.52	---	---	74.0	54.0	---
15720.0000	H	---	---	3.68	---	---	74.0	54.0	---
15720.0000	V	---	---	3.68	---	---	74.0	54.0	---
20960.0000	H	---	---	-4.60	---	---	74.0	54.0	---
20960.0000	V	---	---	-4.60	---	---	74.0	54.0	---
26200.0000	H	---	---	-6.16	---	---	74.0	54.0	---
26200.0000	V	---	---	-6.16	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

10.5.1.2 調變技術: IEEE 802.11ac (20MHz)

a. Channel Low

基本波頻率 : 5180 MHz

輻射 頻率 (MHz)	天線 極性 H/V	機器讀值 (dBuV/m)@3m		校正 因子 (dB)	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse) (dB)
		Peak	AVG		Peak	AVG	Peak	AVG	
10360.0000	H	---	---	3.40	---	---	74.0	54.0	---
10360.0000	V	---	---	3.40	---	---	74.0	54.0	---
15540.0000	H	---	---	3.92	---	---	74.0	54.0	---
15540.0000	V	---	---	3.92	---	---	74.0	54.0	---
20720.0000	H	---	---	-4.72	---	---	74.0	54.0	---
20720.0000	V	---	---	-4.72	---	---	74.0	54.0	---
25900.0000	H	---	---	-5.94	---	---	74.0	54.0	---
25900.0000	V	---	---	-5.94	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度: $\pm 4.1\text{dB}(1\text{GHz} \leq f < 18\text{GHz})$
 $\pm 4.4\text{dB}(18\text{GHz} \leq f \leq 40\text{GHz})$

b. Channel Mid

基本波頻率：5200 MHz

輻射 頻率	天線 極性	機器讀值 (dBuV/m)@3m		校正 因子	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse)
		Peak	AVG		Peak	AVG	Peak	AVG	
(MHz)	H/V			(dB)					(dB)
10400.0000	H	---	---	3.46	---	---	74.0	54.0	---
10400.0000	V	---	---	3.46	---	---	74.0	54.0	---
15600.0000	H	---	---	3.80	---	---	74.0	54.0	---
15600.0000	V	---	---	3.80	---	---	74.0	54.0	---
20800.0000	H	---	---	-4.66	---	---	74.0	54.0	---
20800.0000	V	---	---	-4.66	---	---	74.0	54.0	---
26000.0000	H	---	---	-6.20	---	---	74.0	54.0	---
26000.0000	V	---	---	-6.20	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

c. Channel High

基本波頻率：5240 MHz

輻射 頻率	天線 極性	機器讀值 (dBuV/m)@3m		校正 因子	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse)
		Peak	AVG		Peak	AVG	Peak	AVG	
(MHz)	H/V			(dB)					(dB)
10480.0000	H	---	---	3.52	---	---	74.0	54.0	---
10480.0000	V	---	---	3.52	---	---	74.0	54.0	---
15720.0000	H	---	---	3.68	---	---	74.0	54.0	---
15720.0000	V	---	---	3.68	---	---	74.0	54.0	---
20960.0000	H	---	---	-4.60	---	---	74.0	54.0	---
20960.0000	V	---	---	-4.60	---	---	74.0	54.0	---
26200.0000	H	---	---	-6.16	---	---	74.0	54.0	---
26200.0000	V	---	---	-6.16	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

10.5.1.3 調變技術: IEEE 802.11ac (40MHz)

a. Channel High

基本波頻率 : 5190 MHz

輻射 頻率 (MHz)	天線 極性 H/V	機器讀值 (dBuV/m)@3m		校正 因子 (dB)	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse) (dB)
		Peak	AVG		Peak	AVG	Peak	AVG	
10380.0000	H	---	---	3.44	---	---	74.0	54.0	---
10380.0000	V	---	---	3.44	---	---	74.0	54.0	---
15570.0000	H	---	---	3.85	---	---	74.0	54.0	---
15570.0000	V	---	---	3.85	---	---	74.0	54.0	---
20760.0000	H	---	---	-4.69	---	---	74.0	54.0	---
20760.0000	V	---	---	-4.69	---	---	74.0	54.0	---
25950.0000	H	---	---	-6.07	---	---	74.0	54.0	---
25950.0000	V	---	---	-6.07	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

b. Channel Low

基本波頻率：5230 MHz

輻射 頻率	天線 極性	機器讀值 (dBuV/m)@3m		校正 因子 (dB)	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse) (dB)
		Peak	AVG		Peak	AVG	Peak	AVG	
(MHz)	H/V								
10460.0000	H	---	---	3.54	---	---	74.0	54.0	---
10460.0000	V	---	---	3.54	---	---	74.0	54.0	---
15690.0000	H	---	---	3.62	---	---	74.0	54.0	---
15690.0000	V	---	---	3.62	---	---	74.0	54.0	---
20920.0000	H	---	---	-4.56	---	---	74.0	54.0	---
20920.0000	V	---	---	-4.56	---	---	74.0	54.0	---
26150.0000	H	---	---	-6.14	---	---	74.0	54.0	---
26150.0000	V	---	---	-6.14	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

10.5.1.4 IEEE 802.11ac (80MHz)

Channel High

基本波頻率：5210 MHz

輻射 頻率 (MHz)	天線 極性 H/V	機器讀值 (dBuV/m)@3m		校正 因子 (dB)	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse) (dB)
		Peak	AVG		Peak	AVG	Peak	AVG	
10420.0000	H	---	---	3.48	---	---	74.0	54.0	---
10420.0000	V	---	---	3.48	---	---	74.0	54.0	---
15630.0000	H	---	---	3.75	---	---	74.0	54.0	---
15630.0000	V	---	---	3.75	---	---	74.0	54.0	---
20840.0000	H	---	---	-4.63	---	---	74.0	54.0	---
20840.0000	V	---	---	-4.63	---	---	74.0	54.0	---
26050.0000	H	---	---	-6.18	---	---	74.0	54.0	---
26050.0000	V	---	---	-6.18	---	---	74.0	54.0	---

註：1. 標記“---”表發射之訊號太弱而儀器無法量測。

2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

3. 量測不準確度： $\pm 4.1\text{dB}(1\text{GHz} \leq f < 18\text{GHz})$
 $\pm 4.4\text{dB}(18\text{GHz} \leq f \leq 40\text{GHz})$

10.5.2 諧波及其它不必要之訊號測試圖

10.5.2.1 調變技術: IEEE 802.11a

a. Channel Low

操作模式：發射接收

基本波頻率：5180 MHz

File: 20-10-MAS-035_5-2a

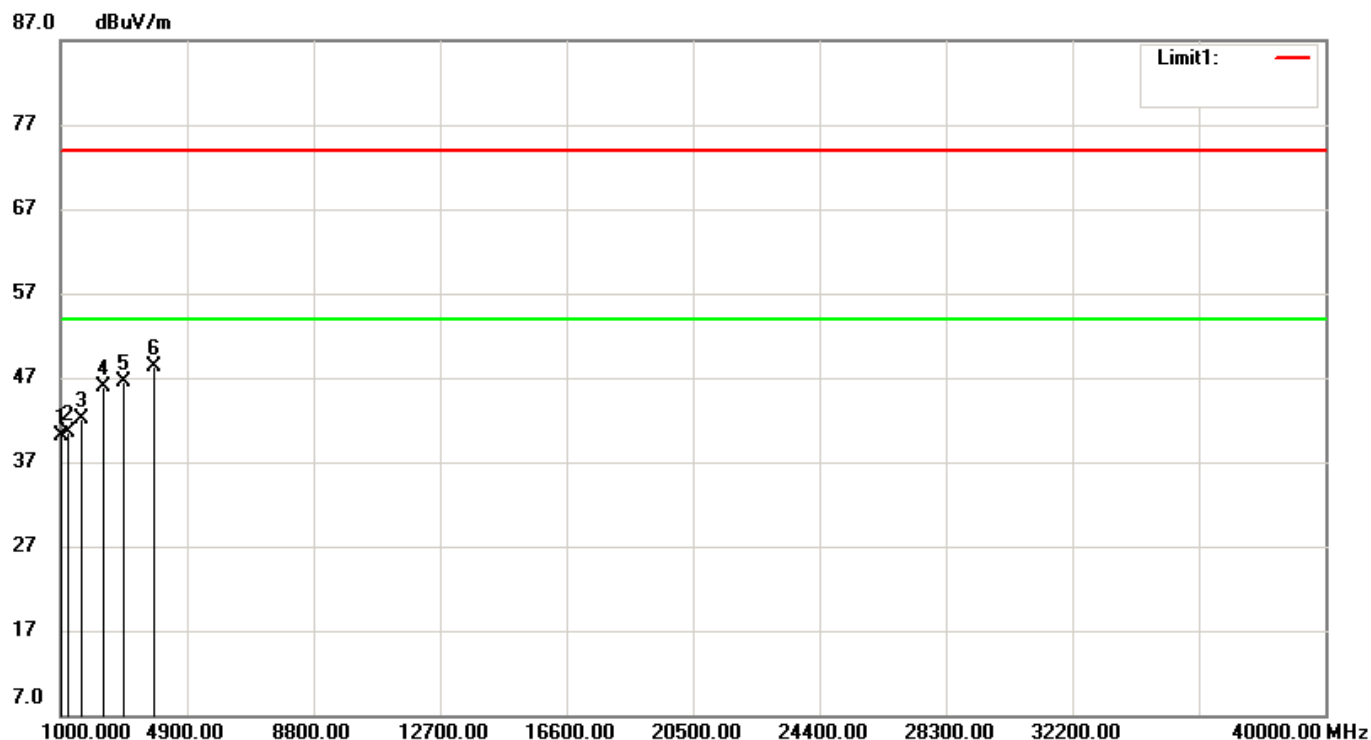
#42

Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH LOW-1

Polarization: Horizontal
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1013.30110	49.63	peak	-9.44	40.19	74.00	-33.81
2	1226.12160	49.40	peak	-8.89	40.51	74.00	-33.49
3	1598.55760	49.35	peak	-7.30	42.05	74.00	-31.95
4	2296.87500	48.77	peak	-2.96	45.81	74.00	-28.19
5	2882.13140	48.45	peak	-2.01	46.44	74.00	-27.56
6	3873.07700	48.41	peak	-0.19	48.22	74.00	-25.78

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

操作模式：發射接收

基本波頻率：5180 MHz

File: 20-10-MAS-035_5-2a

#43

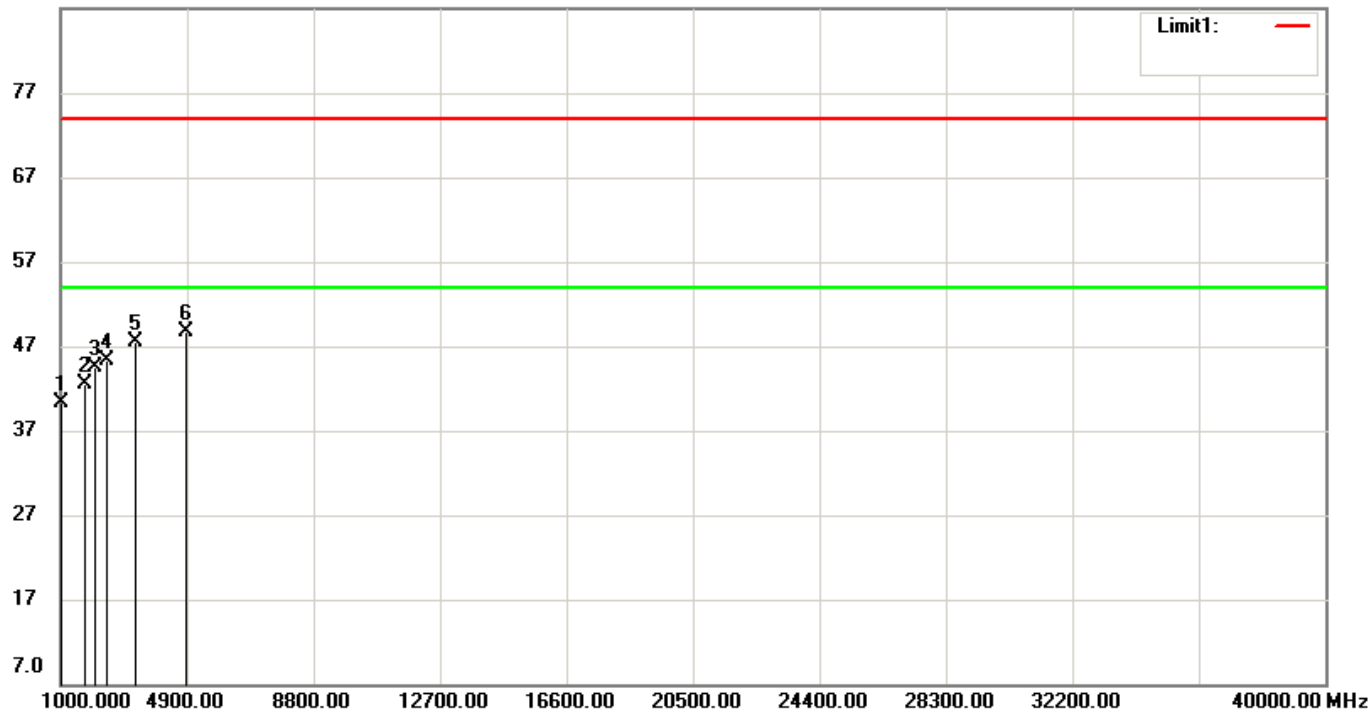
Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %

87.0 dBuV/m



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH LOW-1

Polarization: Vertical
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1019.95200	49.65	peak	-9.42	40.23	74.00	-33.77
2	1744.87160	48.45	peak	-6.00	42.45	74.00	-31.55
3	2030.84930	48.09	peak	-3.64	44.45	74.00	-29.55
4	2416.58640	47.97	peak	-2.64	45.33	74.00	-28.67
5	3301.12170	48.95	peak	-1.46	47.49	74.00	-26.51
6	4817.46800	47.57	peak	1.07	48.64	74.00	-25.36

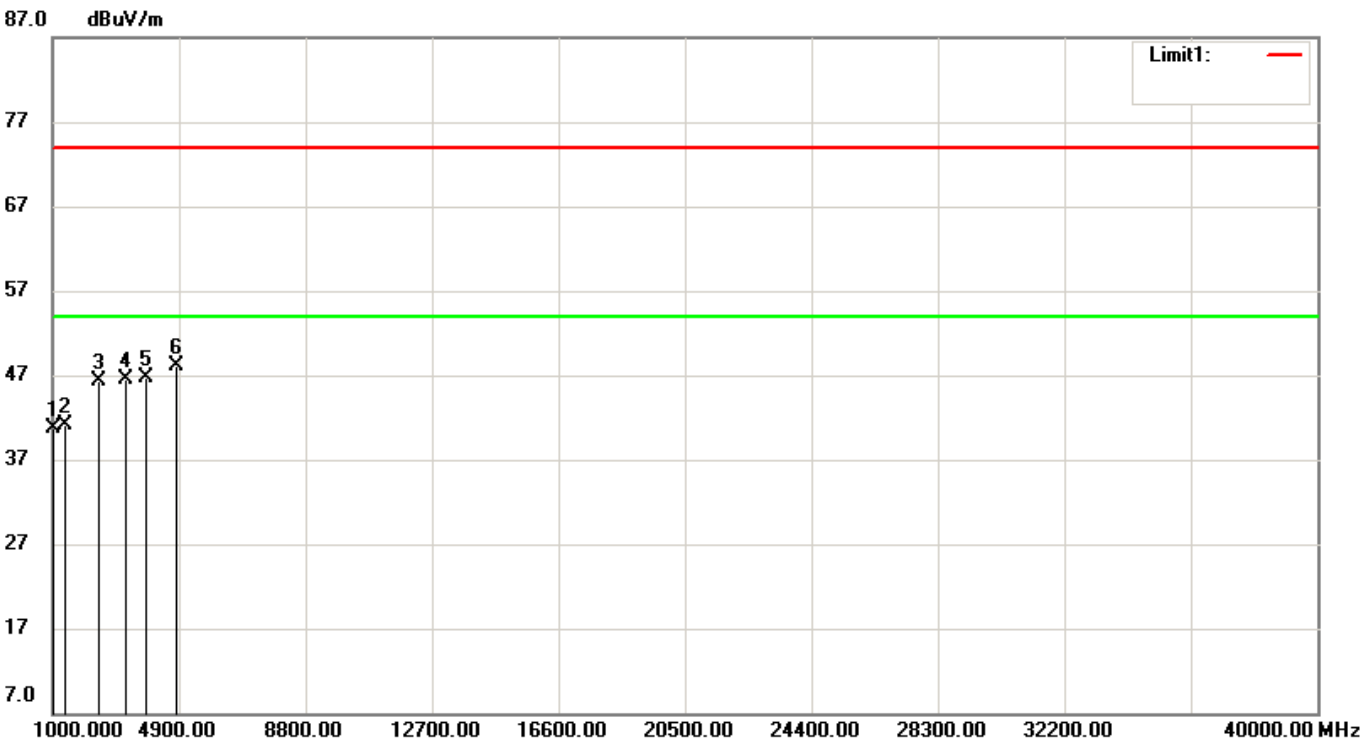
註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

b. Channel Mid

操作模式：發射接收
基本波頻率：5200 MHz

File: 20-10-MAS-035_5-2a #44 Date: 2020/11/27 Temperature: 22 °C
Site: RE02-EMC B1- N2 Humidity: 60 %



Condition: NCC_Above1G_Pk Polarization: Horizontal
EUT: Wireless Network Adapter Distance: 3m
Model: Titan2020
Test Mode: UNII Operator: Phillip
Note: CH MID-1

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1019.95200	50.08	peak	-9.42	40.66	74.00	-33.34
2	1339.18260	49.64	peak	-8.60	41.04	74.00	-32.96
3	2409.93580	49.04	peak	-2.66	46.38	74.00	-27.62
4	3214.66330	48.02	peak	-1.58	46.44	74.00	-27.56
5	3866.42610	46.91	peak	-0.21	46.70	74.00	-27.30
6	4770.91340	47.05	peak	0.98	48.03	74.00	-25.97

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。
2. 量測不準確度: $\pm 4.1\text{dB}(1\text{GHz} \leq f < 18\text{GHz})$
 $\pm 4.4\text{dB}(18\text{GHz} \leq f \leq 40\text{GHz})$

操作模式：發射接收

基本波頻率：5200 MHz

File: 20-10-MAS-035_5-2a

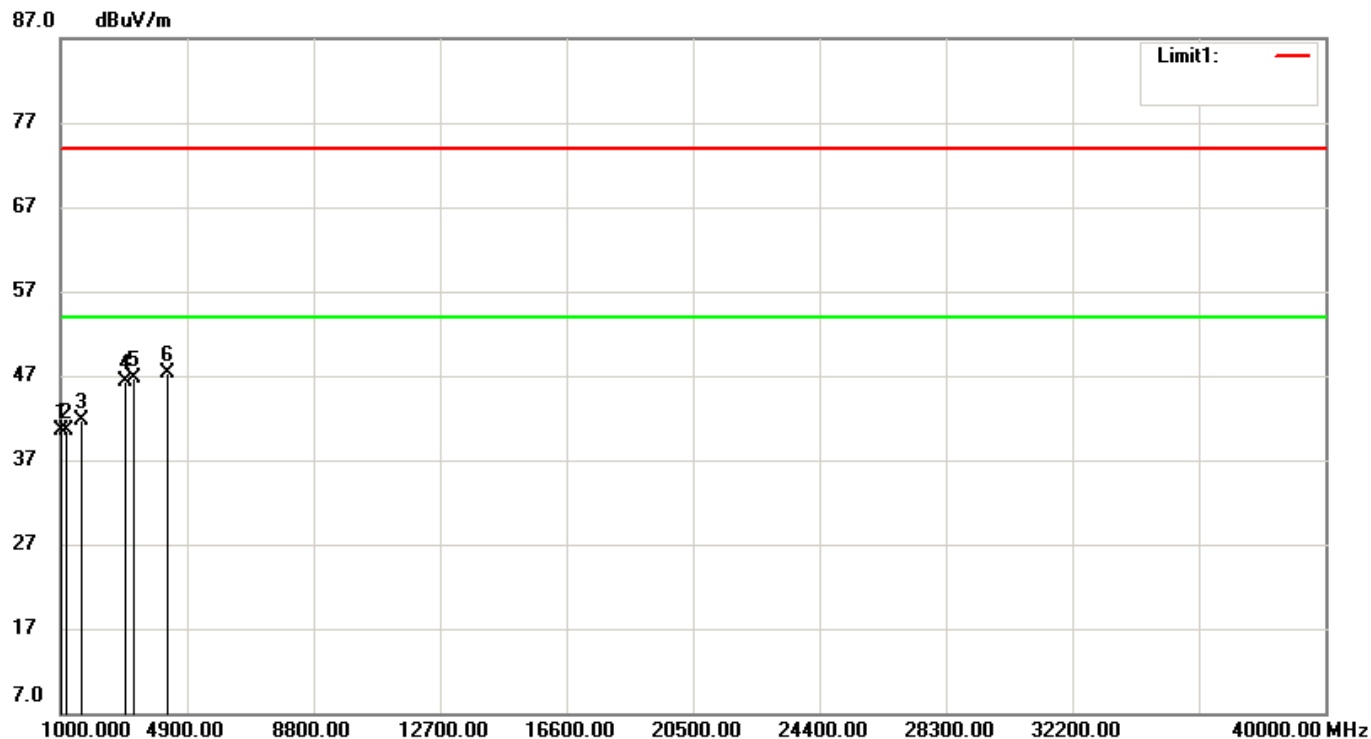
#45

Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH MID-1

Polarization: Vertical
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1046.55430	49.90	peak	-9.35	40.55	74.00	-33.45
2	1152.96460	49.58	peak	-9.07	40.51	74.00	-33.49
3	1591.90700	48.99	peak	-7.36	41.63	74.00	-32.37
4	2961.93910	48.24	peak	-1.94	46.30	74.00	-27.70
5	3214.66330	48.34	peak	-1.58	46.76	74.00	-27.24
6	4305.36840	47.06	peak	0.33	47.39	74.00	-26.61

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

c. Channel High

操作模式：發射接收

基本波頻率：5240 MHz

File: 20-10-MAS-035_5-2a

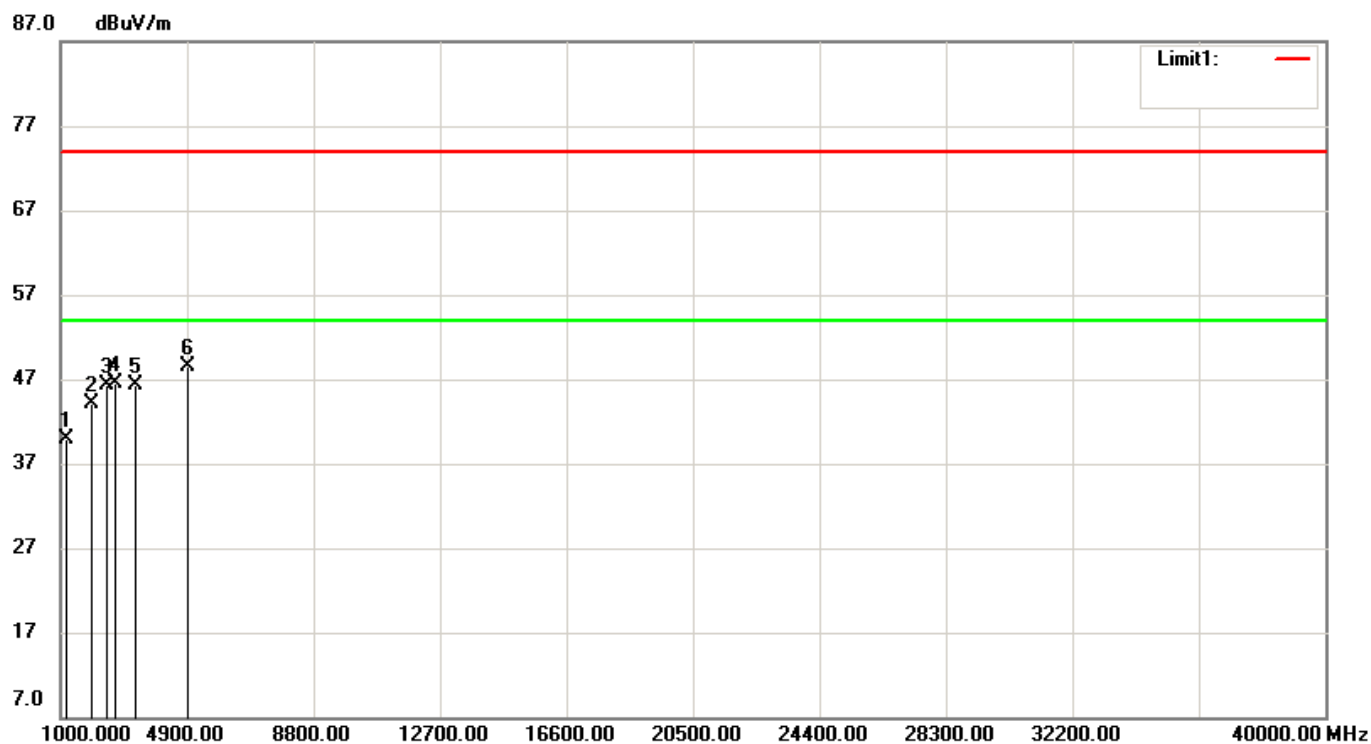
#46

Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH HIGH-1

Polarization: Horizontal
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1152.96460	49.03	peak	-9.07	39.96	74.00	-34.04
2	1904.48710	48.61	peak	-4.59	44.02	74.00	-29.98
3	2409.93580	48.92	peak	-2.66	46.26	74.00	-27.74
4	2669.31080	48.76	peak	-2.24	46.52	74.00	-27.48
5	3301.12170	47.77	peak	-1.46	46.31	74.00	-27.69
6	4877.32360	47.24	peak	1.17	48.41	74.00	-25.59

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

操作模式：發射接收

基本波頻率：5240 MHz

File: 20-10-MAS-035_5-2a

#47

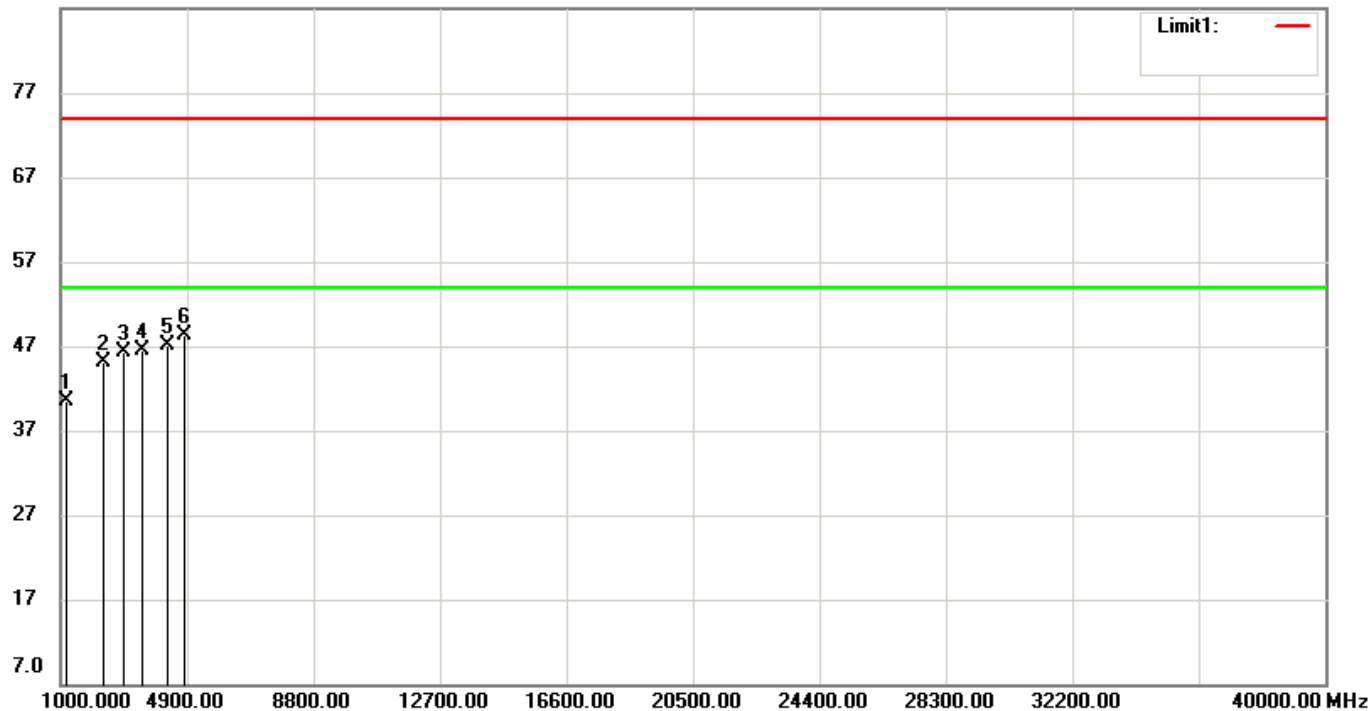
Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %

87.0 dBuV/m



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH HIGH-1

Polarization: Vertical
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1179.56720	49.58	peak	-9.01	40.57	74.00	-33.43
2	2283.57360	48.10	peak	-2.99	45.11	74.00	-28.89
3	2882.13140	48.34	peak	-2.01	46.33	74.00	-27.67
4	3474.03830	47.80	peak	-1.20	46.60	74.00	-27.40
5	4285.41650	46.85	peak	0.32	47.17	74.00	-26.83
6	4804.16650	47.19	peak	1.03	48.22	74.00	-25.78

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

10.5.2.2 調變技術: IEEE 802.11ac (20MHz)

a. Channel Low

操作模式：發射接收

基本波頻率：5180 MHz

File: 20-10-MAS-035_5-2ac20

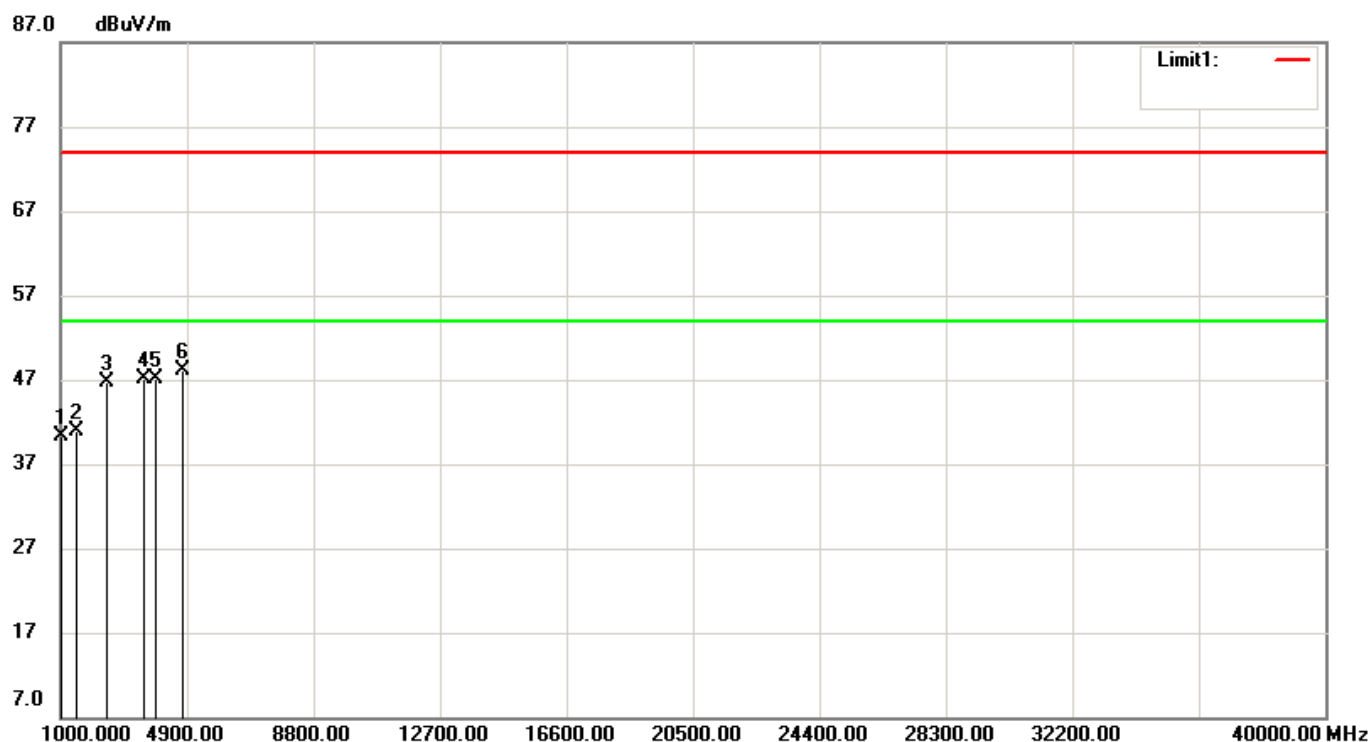
#35

Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH LOW-1

Polarization: Horizontal
 Distance: 3m
 Operator: Phillip

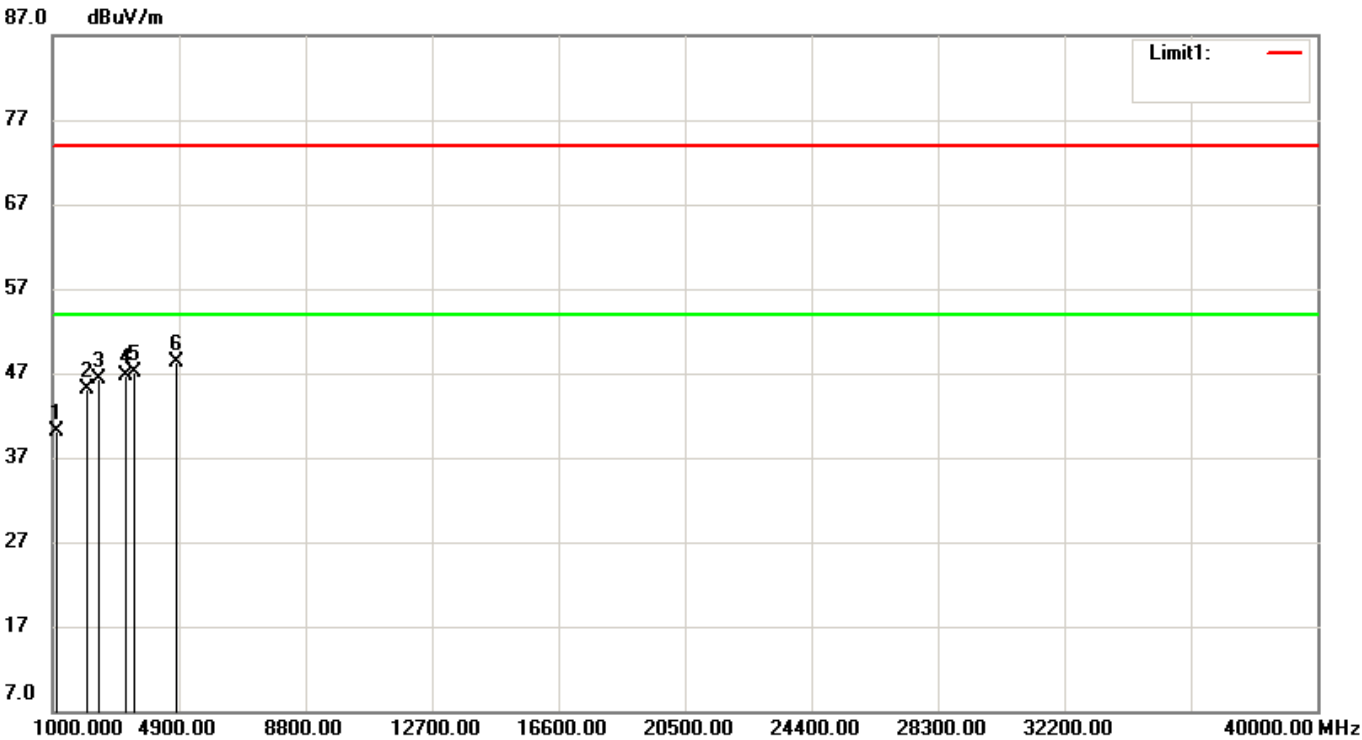
No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1013.30120	49.67	peak	-9.44	40.23	74.00	-33.77
2	1498.79800	49.16	peak	-8.18	40.98	74.00	-33.02
3	2409.93580	49.35	peak	-2.66	46.69	74.00	-27.31
4	3533.89420	48.16	peak	-1.08	47.08	74.00	-26.92
5	3919.63140	47.26	peak	-0.07	47.19	74.00	-26.81
6	4737.66020	47.23	peak	0.92	48.15	74.00	-25.85

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

操作模式：發射接收
基本波頻率：5180 MHz

File: 20-10-MAS-035_5-2ac20 #36 Date: 2020/11/27 Temperature: 22 °C
Site: RE02-EMC B1- N2 Humidity: 60 %



Condition: NCC_Above1G_Pk Polarization: Vertical
EUT: Wireless Network Adapter Distance: 3m
Model: Titan2020
Test Mode: UNII Operator: Phillip
Note: CH LOW-1

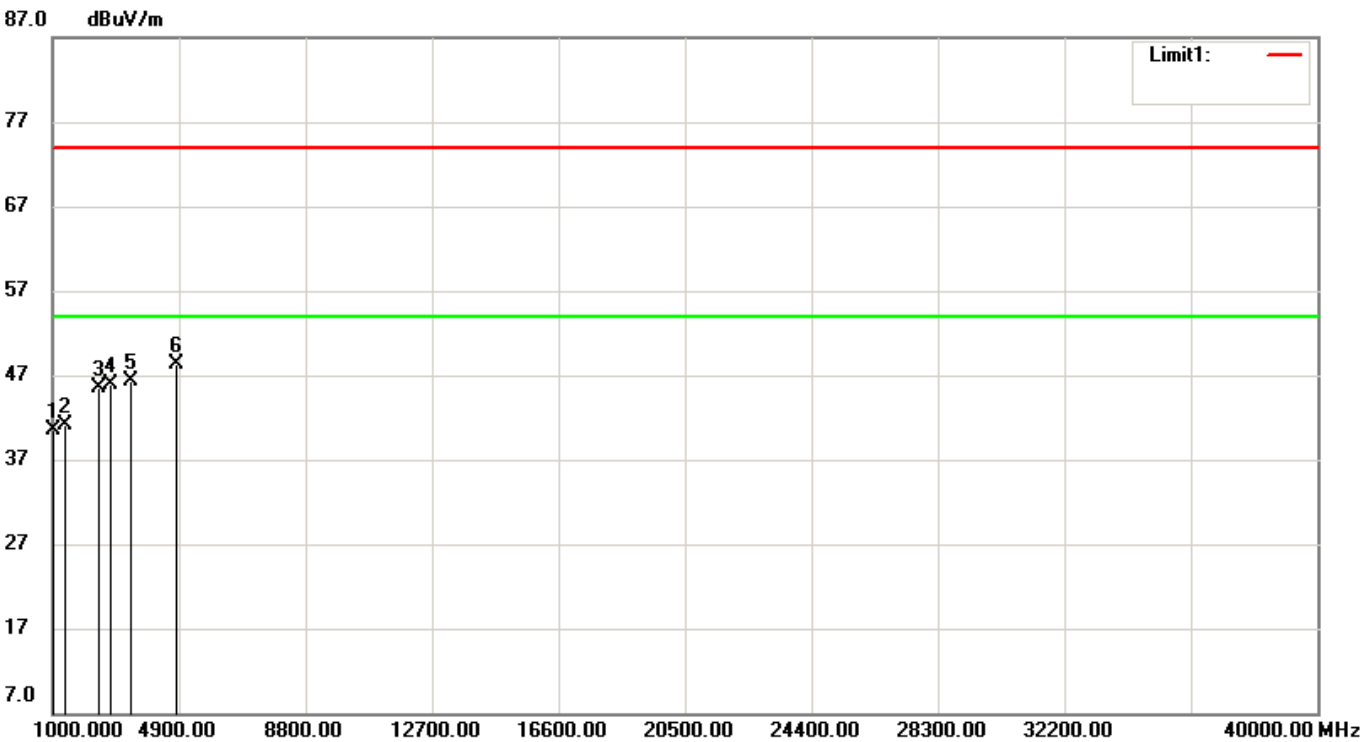
No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1119.71150	49.28	peak	-9.16	40.12	74.00	-33.88
2	2057.45200	48.73	peak	-3.58	45.15	74.00	-28.85
3	2409.93580	49.01	peak	-2.66	46.35	74.00	-27.65
4	3234.61530	48.23	peak	-1.56	46.67	74.00	-27.33
5	3467.38780	48.40	peak	-1.22	47.18	74.00	-26.82
6	4784.21470	47.23	peak	1.00	48.23	74.00	-25.77

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。
2. 量測不準確度: $\pm 4.1\text{dB}(1\text{GHz} \leq f < 18\text{GHz})$
 $\pm 4.4\text{dB}(18\text{GHz} \leq f \leq 40\text{GHz})$

b. Channel Mid

操作模式：發射接收
基本波頻率：5200 MHz

File: 20-10-MAS-035_5-2ac20 #37 Date: 2020/11/27 Temperature: 22 °C
Site: RE02-EMC B1- N2 Humidity: 60 %



Condition: NCC_Above1G_Pk Polarization: Horizontal
EUT: Wireless Network Adapter Distance: 3m
Model: Titan2020
Test Mode: UNII Operator: Phillip
Note: CH MID-1

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1013.30120	49.90	peak	-9.44	40.46	74.00	-33.54
2	1339.18260	49.69	peak	-8.60	41.09	74.00	-32.91
3	2409.93580	48.14	peak	-2.66	45.48	74.00	-28.52
4	2769.07050	48.05	peak	-2.13	45.92	74.00	-28.08
5	3407.53200	47.61	peak	-1.31	46.30	74.00	-27.70
6	4810.81730	47.17	peak	1.04	48.21	74.00	-25.79

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。
2. 量測不準確度: $\pm 4.1\text{dB}(1\text{GHz} \leq f < 18\text{GHz})$
 $\pm 4.4\text{dB}(18\text{GHz} \leq f \leq 40\text{GHz})$

操作模式：發射接收

基本波頻率：5200 MHz

File: 20-10-MAS-035_5-2ac20

#38

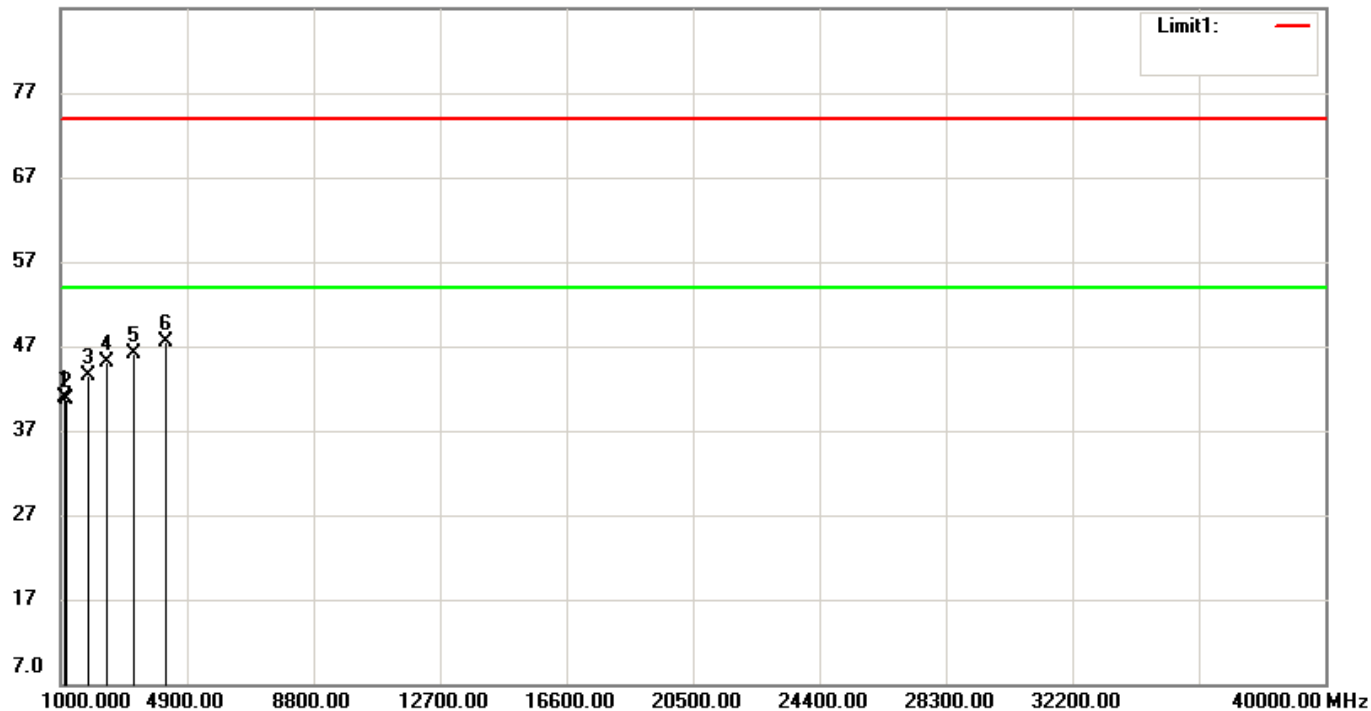
Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %

87.0 dBuV/m



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH MID-1

Polarization: Vertical
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1099.75960	50.13	peak	-9.22	40.91	74.00	-33.09
2	1146.31410	49.90	peak	-9.10	40.80	74.00	-33.20
3	1824.67940	48.73	peak	-5.30	43.43	74.00	-30.57
4	2409.93580	47.81	peak	-2.66	45.15	74.00	-28.85
5	3221.31410	47.71	peak	-1.57	46.14	74.00	-27.86
6	4245.51280	47.28	peak	0.30	47.58	74.00	-26.42

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

c. Channel High

操作模式：發射接收

基本波頻率：5240 MHz

File: 20-10-MAS-035_5-2ac20

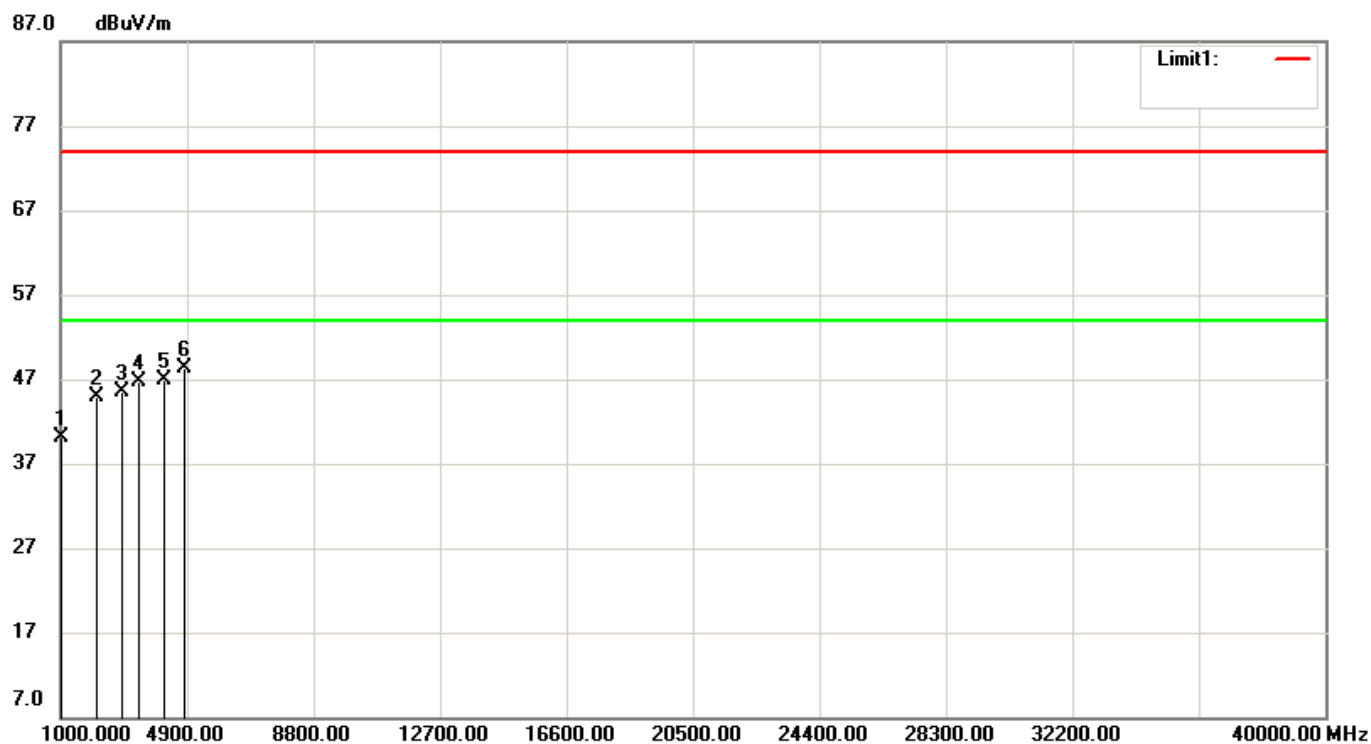
#39

Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH HIGH-1

Polarization: Horizontal
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1046.55440	49.46	peak	-9.35	40.11	74.00	-33.89
2	2104.00640	48.35	peak	-3.45	44.90	74.00	-29.10
3	2828.92620	47.50	peak	-2.08	45.42	74.00	-28.58
4	3420.83330	48.04	peak	-1.28	46.76	74.00	-27.24
5	4179.00640	46.71	peak	0.25	46.96	74.00	-27.04
6	4790.86530	47.27	peak	1.01	48.28	74.00	-25.72

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

操作模式：發射接收

基本波頻率：5240 MHz

File: 20-10-MAS-035_5-2ac20

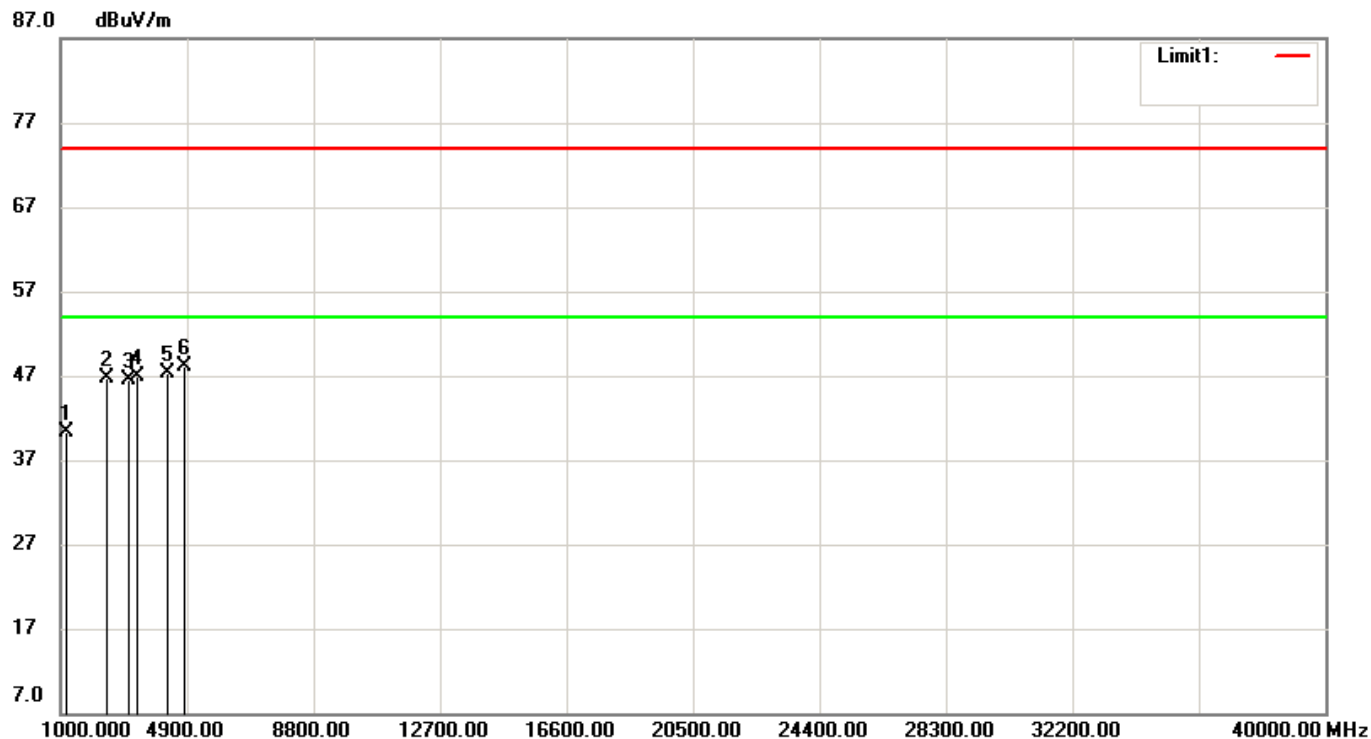
#40

Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH HIGH-1

Polarization: Vertical
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1146.31410	49.42	peak	-9.10	40.32	74.00	-33.68
2	2409.93580	49.32	peak	-2.66	46.66	74.00	-27.34
3	3114.90380	48.33	peak	-1.73	46.60	74.00	-27.40
4	3347.67620	48.29	peak	-1.39	46.90	74.00	-27.10
5	4258.81410	47.08	peak	0.31	47.39	74.00	-26.61
6	4784.21470	47.10	peak	1.00	48.10	74.00	-25.90

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

10.5.2.3 調變技術: IEEE 802.11ac (40MHz)

a. Channel Low

操作模式：發射接收

基本波頻率：5190 MHz

File: 20-10-MAS-035_5-2ac40

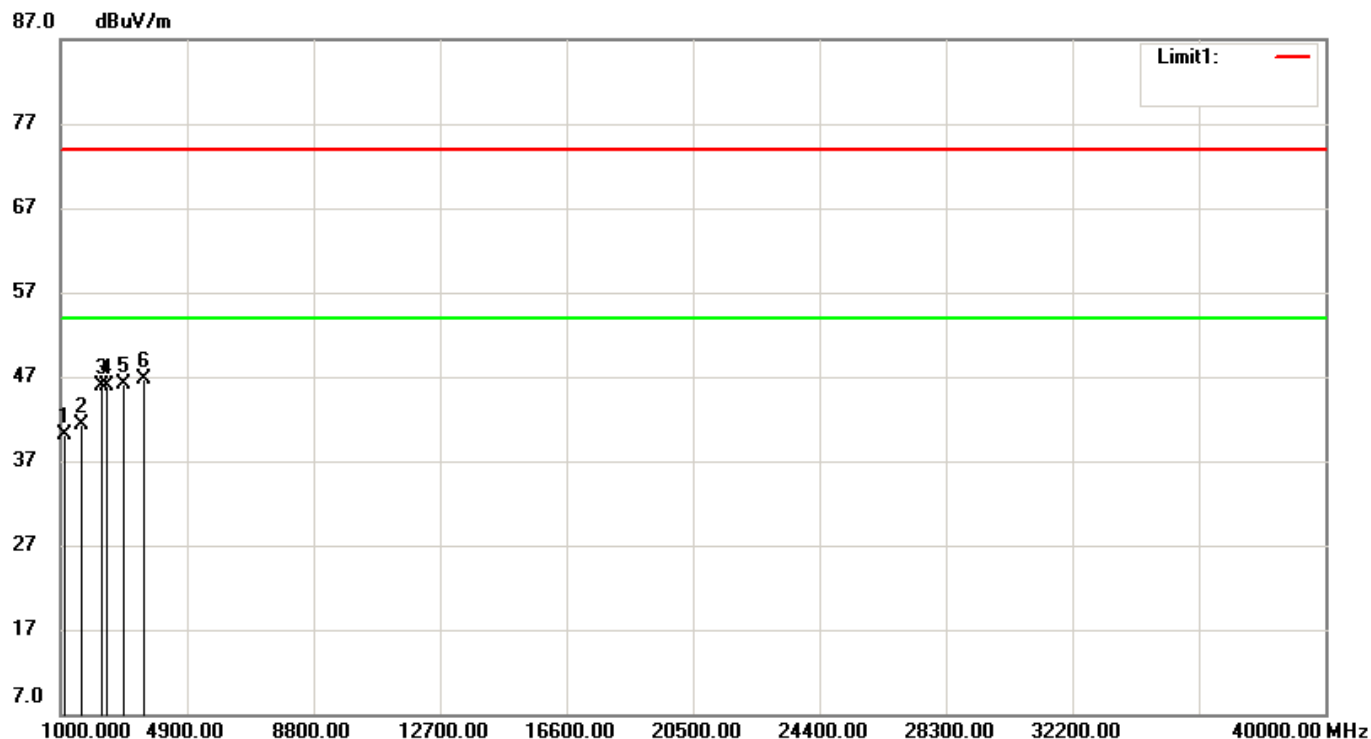
#29

Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH LOW-1

Polarization: Horizontal
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1099.75960	49.36	peak	-9.22	40.14	74.00	-33.86
2	1598.55760	48.54	peak	-7.30	41.24	74.00	-32.76
3	2230.36850	48.95	peak	-3.13	45.82	74.00	-28.18
4	2409.93580	48.50	peak	-2.66	45.84	74.00	-28.16
5	2875.48060	48.21	peak	-2.03	46.18	74.00	-27.82
6	3513.94230	47.86	peak	-1.13	46.73	74.00	-27.27

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

操作模式：發射接收

基本波頻率：5190 MHz

File: 20-10-MAS-035_5-2ac40

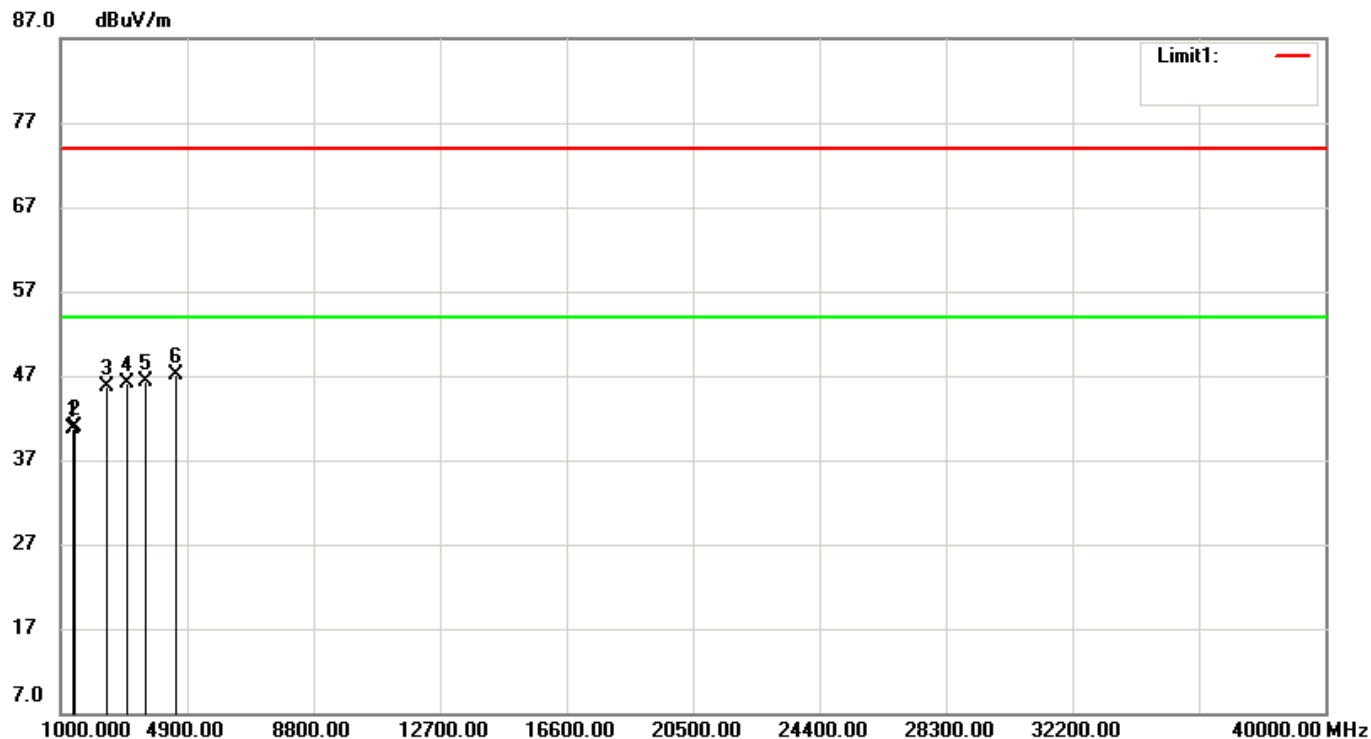
#30

Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH LOW-1

Polarization: Vertical
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1359.13460	49.31	peak	-8.55	40.76	74.00	-33.24
2	1412.33970	49.23	peak	-8.40	40.83	74.00	-33.17
3	2409.93580	48.38	peak	-2.66	45.72	74.00	-28.28
4	3061.69870	47.90	peak	-1.82	46.08	74.00	-27.92
5	3607.05120	47.22	peak	-0.89	46.33	74.00	-27.67
6	4524.83970	46.63	peak	0.51	47.14	74.00	-26.86

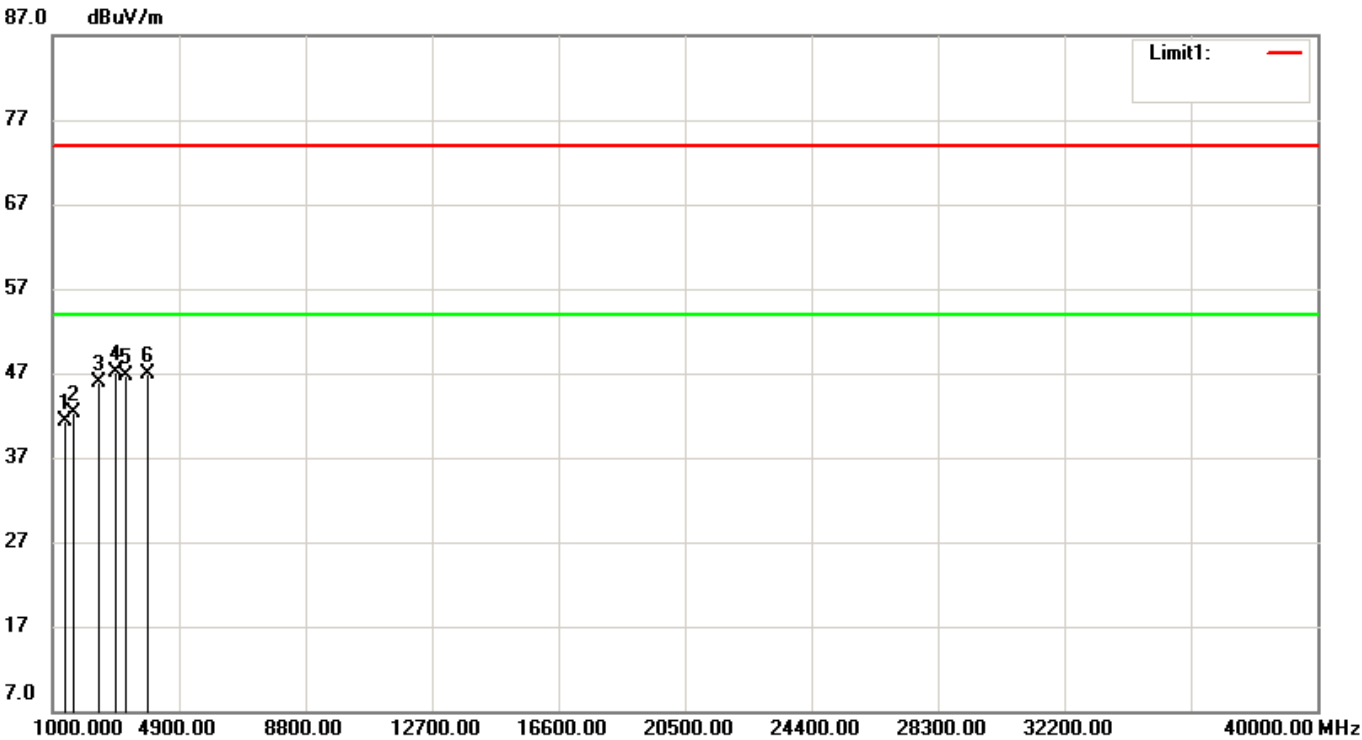
註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

b. Channel High

操作模式：發射接收
基本波頻率：5230 MHz

File: 20-10-MAS-035_5-2ac40 #31 Date: 2020/11/27 Temperature: 22 °C
Site: RE02-EMC B1- N2 Humidity: 60 %



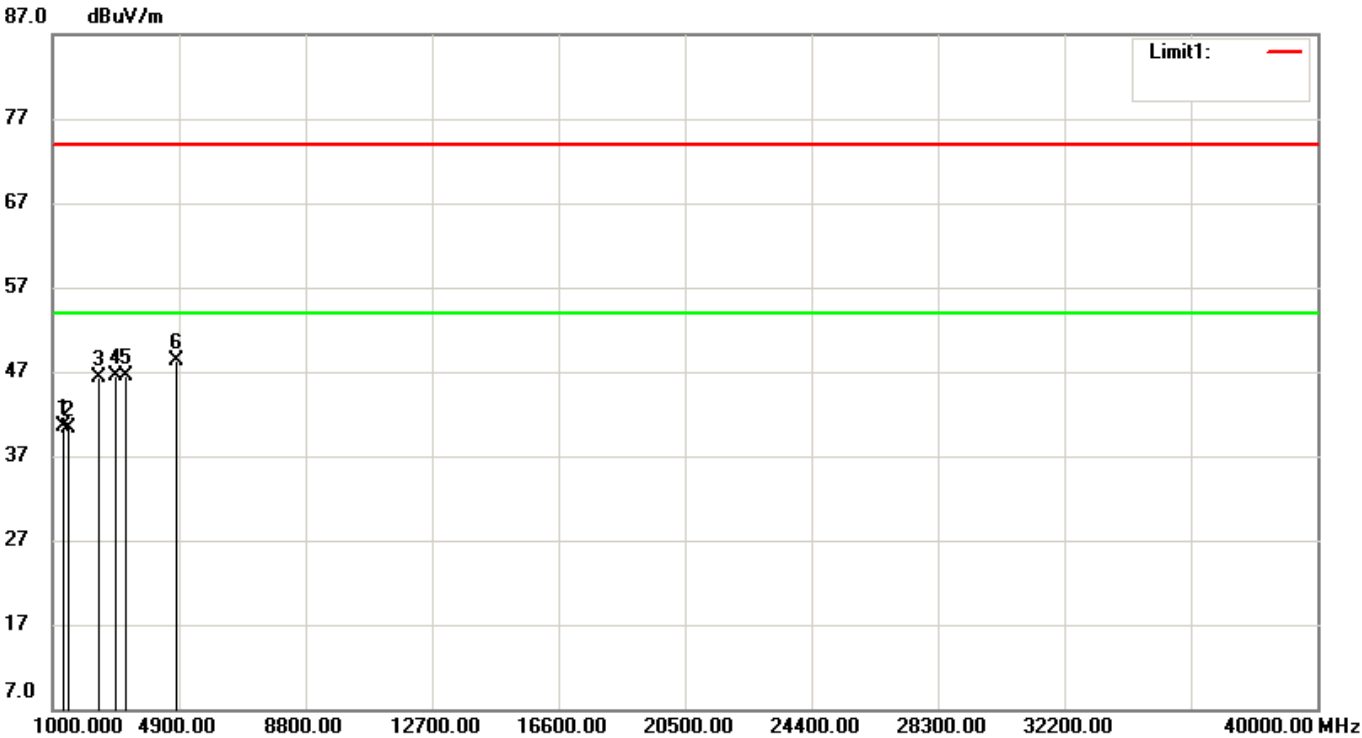
Condition: NCC_Above1G_Pk Polarization: Horizontal
EUT: Wireless Network Adapter Distance: 3m
Model: Titan2020
Test Mode: UNII Operator: Phillip
Note: CH HIGH-1

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1339.18260	49.95	peak	-8.60	41.35	74.00	-32.65
2	1598.55760	49.51	peak	-7.30	42.21	74.00	-31.79
3	2409.93580	48.50	peak	-2.66	45.84	74.00	-28.16
4	2935.33650	49.08	peak	-1.96	47.12	74.00	-26.88
5	3234.61530	48.28	peak	-1.56	46.72	74.00	-27.28
6	3926.28200	46.98	peak	-0.06	46.92	74.00	-27.08

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。
2. 量測不準確度: $\pm 4.1\text{dB}(1\text{GHz} \leq f < 18\text{GHz})$
 $\pm 4.4\text{dB}(18\text{GHz} \leq f \leq 40\text{GHz})$

操作模式：發射接收
基本波頻率：5230 MHz

File: 20-10-MAS-035_5-2ac40 #32 Date: 2020/11/27 Temperature: 22 °C
Site: RE02-EMC B1- N2 Humidity: 60 %



Condition: NCC_Above1G_Pk Polarization: Vertical
EUT: Wireless Network Adapter Distance: 3m
Model: Titan2020
Test Mode: UNII Operator: Phillip
Note: CH HIGH-1

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1252.72430	49.31	peak	-8.82	40.49	74.00	-33.51
2	1438.94230	48.56	peak	-8.34	40.22	74.00	-33.78
3	2409.93580	49.03	peak	-2.66	46.37	74.00	-27.63
4	2935.33650	48.38	peak	-1.96	46.42	74.00	-27.58
5	3227.96460	47.99	peak	-1.57	46.42	74.00	-27.58
6	4797.51600	47.26	peak	1.03	48.29	74.00	-25.71

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。
2. 量測不準確度: $\pm 4.1\text{dB}(1\text{GHz} \leq f < 18\text{GHz})$
 $\pm 4.4\text{dB}(18\text{GHz} \leq f \leq 40\text{GHz})$

10.5.2.4 調變技術: IEEE 802.11ac (80MHz)

操作模式 : 發射接收

基本波頻率 : 5210 MHz

File: 20-10-MAS-035_5-2ac80

#23

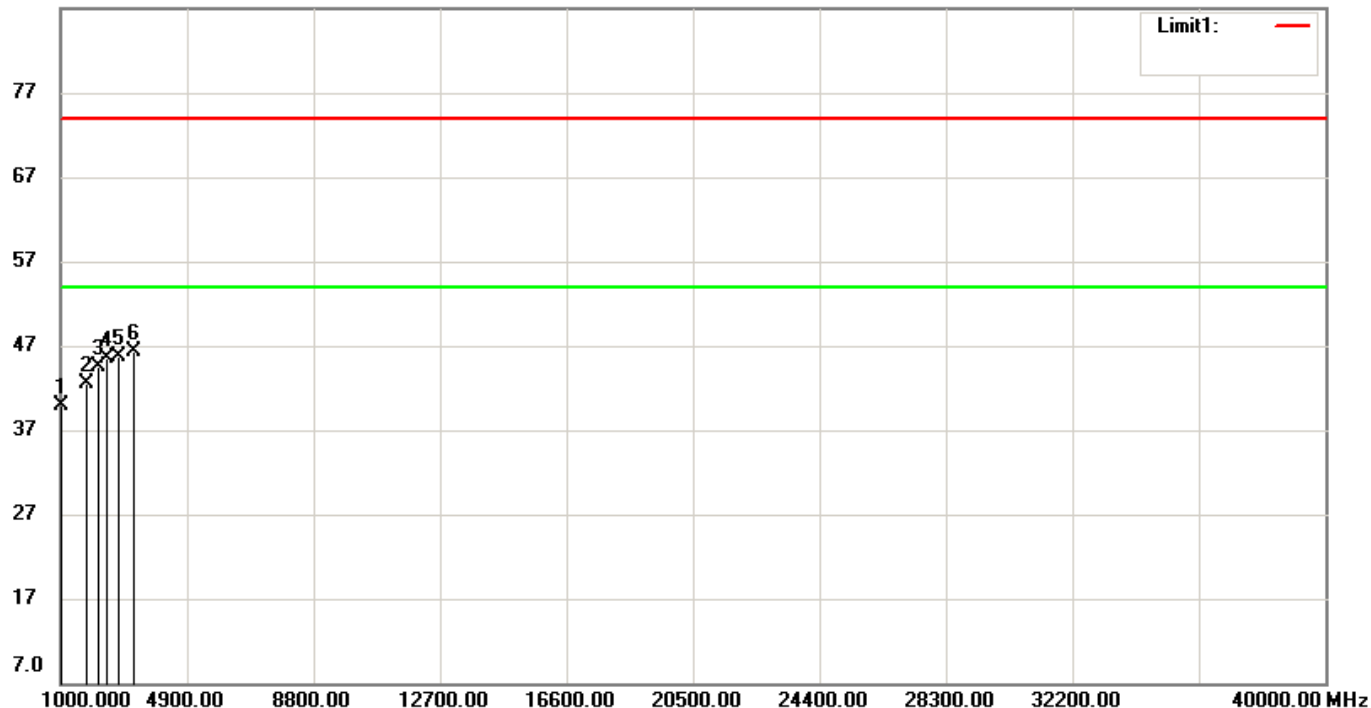
Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %

87.0 dBuV/m



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH LOW-1

Polarization: Horizontal
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1019.95200	49.31	peak	-9.42	39.89	74.00	-34.11
2	1758.17300	48.35	peak	-5.89	42.46	74.00	-31.54
3	2137.25960	47.88	peak	-3.37	44.51	74.00	-29.49
4	2409.93580	48.24	peak	-2.66	45.58	74.00	-28.42
5	2795.67300	47.78	peak	-2.11	45.67	74.00	-28.33
6	3188.06080	47.96	peak	-1.62	46.34	74.00	-27.66

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

操作模式：發射接收

基本波頻率：5210 MHz

File: 20-10-MAS-035_5-2ac80

#24

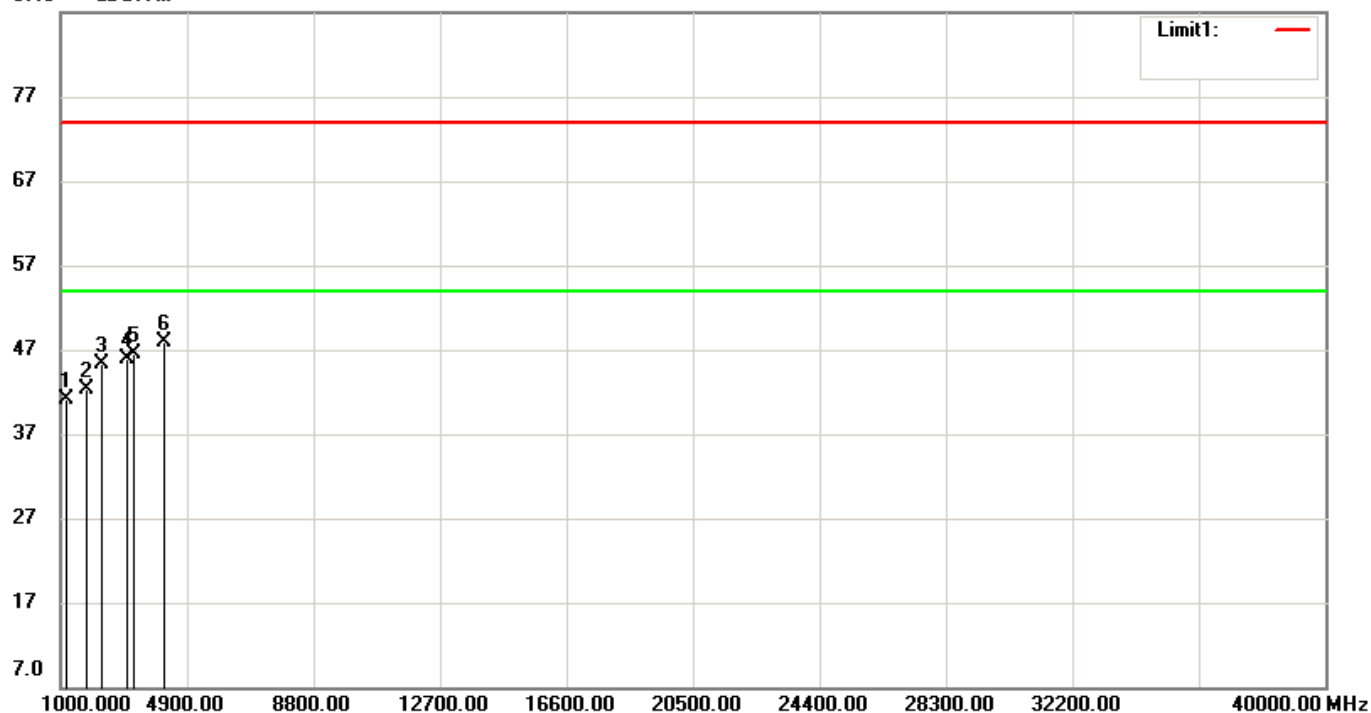
Date: 2020/11/27

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 60 %

87.0 dBuV/m



Condition: NCC_Above1G_Pk
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: CH LOW-1

Polarization: Vertical
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1146.31410	50.12	peak	-9.10	41.02	74.00	-32.98
2	1764.82370	48.13	peak	-5.82	42.31	74.00	-31.69
3	2217.06730	48.48	peak	-3.16	45.32	74.00	-28.68
4	3008.49350	47.72	peak	-1.90	45.82	74.00	-28.18
5	3227.96450	48.12	peak	-1.57	46.55	74.00	-27.45
6	4185.65700	47.57	peak	0.26	47.83	74.00	-26.17

註：1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

2. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

10.5.3 其它不必要之訊號

File: 20-10-MAS-035_Below 1G

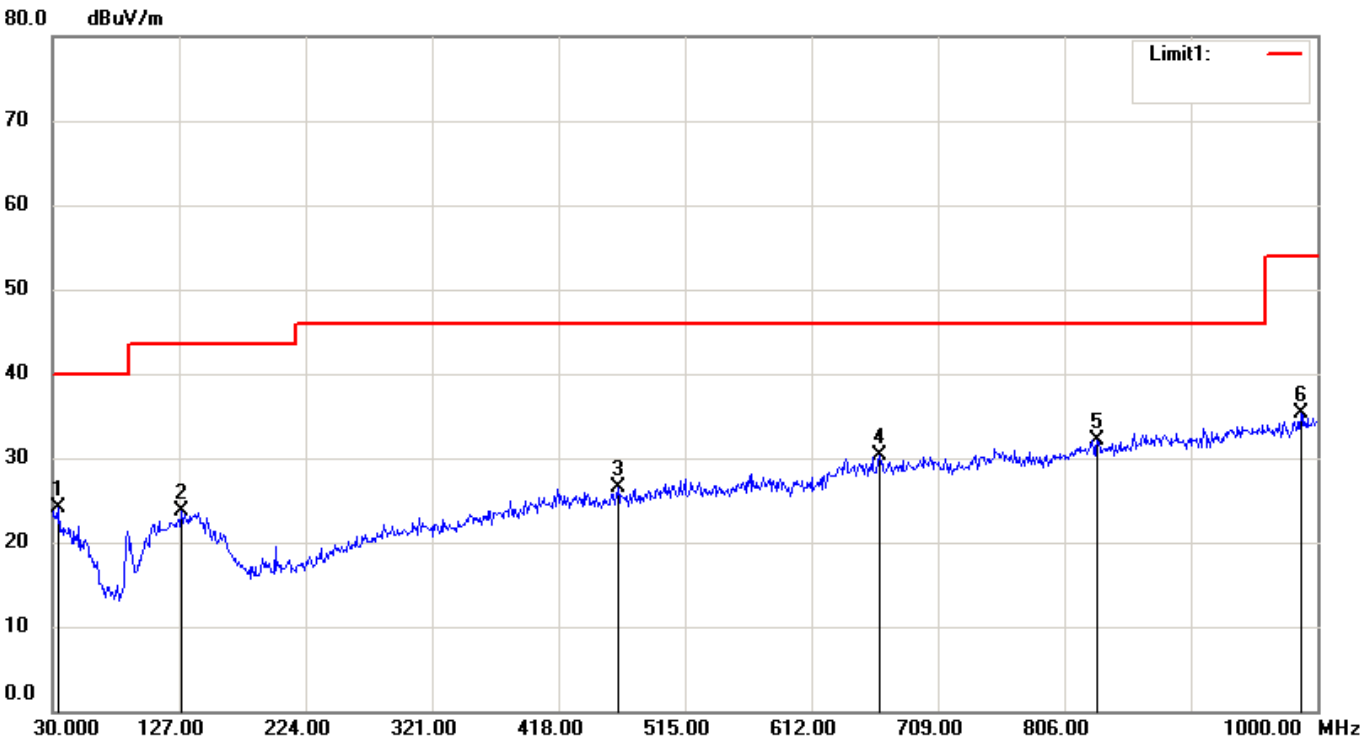
#3

Date: 2020/12/1

Temperature: 22 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_LP0002_30-1000MHz

Polarization: Horizontal

EUT: Wireless Network Adapter

Distance: 3m

Model: Titan2020

Operator: Phillip

Test Mode: Band1

Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	34.8500	28.48	QP	-4.37	24.11	40.00	-15.89
2	128.9400	27.32	QP	-3.52	23.80	43.50	-19.70
3	463.5900	28.14	QP	-1.68	26.46	46.00	-19.54
4	664.3800	28.34	QP	2.03	30.37	46.00	-15.63
5	831.2200	27.56	QP	4.58	32.14	46.00	-13.86
6	987.3900	27.53	QP	7.86	35.39	54.00	-18.61

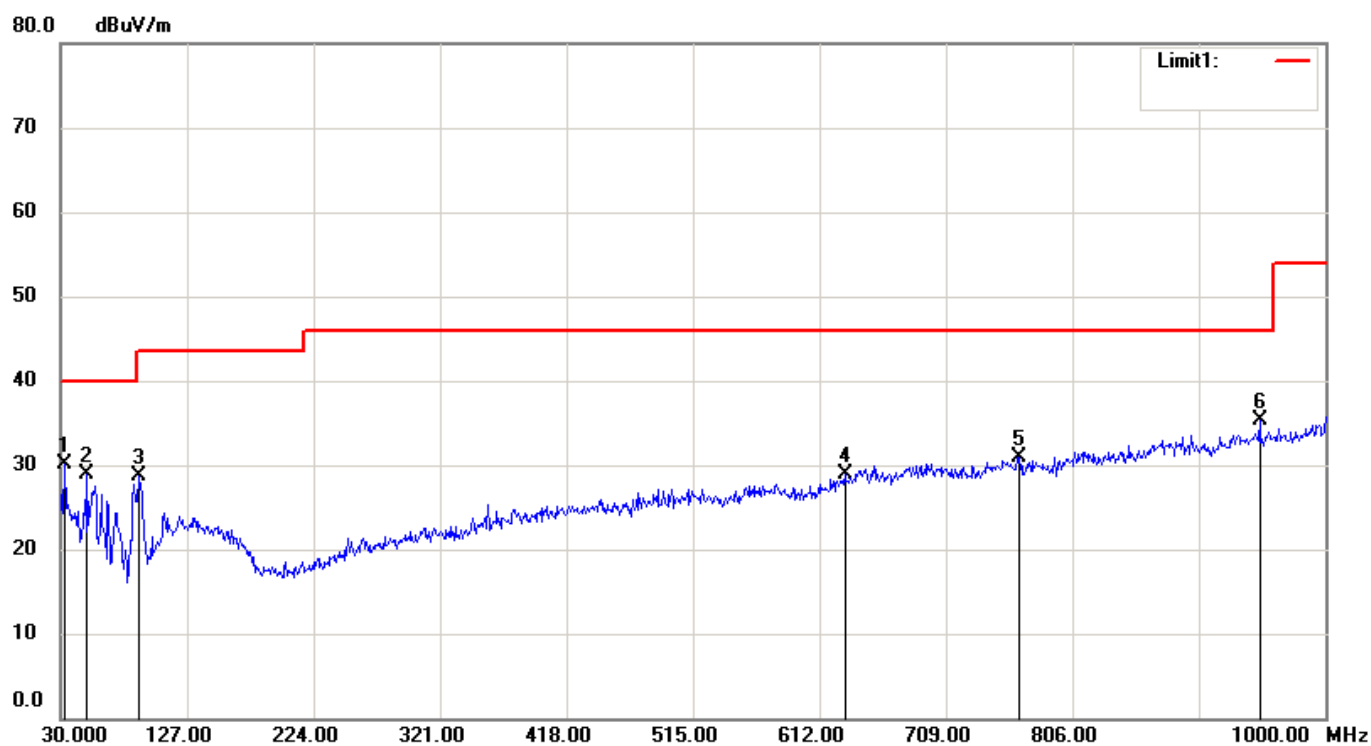
File: 20-10-MAS-035_Below 1G
Site: RE02-EMC B1- N2

#4

Date: 2020/12/1

Temperature: 22 °C

Humidity: 59 %



Condition: NCC_LP0002_30-1000MHz
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: Band1
Note:

Polarization: Vertical
Distance: 3m
Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	32.9100	34.10	QP	-4.00	30.10	40.00	-9.90
2	50.3700	35.91	QP	-7.06	28.85	40.00	-11.15
3	90.1400	39.54	QP	-10.90	28.64	43.50	-14.86
4	631.4000	27.87	QP	1.07	28.94	46.00	-17.06
5	765.2600	27.74	QP	3.12	30.86	46.00	-15.14
6	949.5600	28.21	QP	7.06	35.27	46.00	-10.73

註：1. 若以峰值檢測功能測量之值符合準峰值限制值，則可視同以準峰值功能測量之值亦符合準峰值限制值。

2. 量測不準確度: +4.20dB/ -4.24 dB ($30\text{MHz} \leq f < 1\text{GHz}$)

10.6 頻帶外邊緣輻射場強之量測結果

操作模式: 發射接收

測試日期: Nov. 27, 2020

環境溫度: 22°C

環境濕度: 60%

10.6.1 調變技術: IEEE 802.11a

輻射 頻率	儀器讀值@3m (dBuV/m)				校正 因子	結果值		限制值@3m		餘裕值 (worse)	
	水平		垂直			(dBuV/m)		(dBuV/m)		(dB)	
(MHz)	峰值	平均值	峰值	平均值	(dB)	峰值	平均值	峰值	平均值	峰值	平均值
5150.000	27.26	13.40	27.03	13.01	38.47	65.73	51.87	74.00	54.00	-8.27	-2.13
5350.000	26.94	12.79	27.09	12.76	38.91	66.00	51.70	74.00	54.00	-8.00	-2.30

10.6.2 調變技術: IEEE 802.11ac (20MHz)

輻射 頻率	儀器讀值@3m (dBuV/m)				校正 因子	結果值		限制值@3m		餘裕值 (worse)	
	水平		垂直			(dBuV/m)		(dBuV/m)		(dB)	
(MHz)	峰值	平均值	峰值	平均值	(dB)	峰值	平均值	峰值	平均值	峰值	平均值
5150.000	26.98	13.30	26.64	12.99	38.47	65.45	51.77	74.00	54.00	-8.55	-2.23
5350.000	27.64	12.76	27.62	12.76	38.91	66.55	51.67	74.00	54.00	-7.45	-2.33

10.6.3 調變技術: IEEE 802.11ac (40MHz)

輻射 頻率	儀器讀值@3m (dBuV/m)				校正 因子	結果值		限制值@3m		餘裕值 (worse)	
	水平		垂直			(dBuV/m)		(dBuV/m)		(dB)	
(MHz)	峰值	平均值	峰值	平均值	(dB)	峰值	平均值	峰值	平均值	峰值	平均值
5150.000	30.92	15.38	26.91	13.18	38.47	69.39	53.85	74.00	54.00	-4.61	-0.15
5350.000	27.80	12.81	26.69	12.76	38.91	66.71	51.72	74.00	54.00	-7.29	-2.28

10.6.4 調變技術: IEEE 802.11ac (80MHz)

輻射 頻率	儀器讀值@3m (dBuV/m)				校正 因子	結果值		限制值@3m		餘裕值 (worse)	
	水平		垂直			(dBuV/m)		(dBuV/m)		(dB)	
(MHz)	峰值	平均值	峰值	平均值	(dB)	峰值	平均值	峰值	平均值	峰值	平均值
5146.202	28.18	13.67	27.25	13.04	38.46	66.64	52.13	74.00	54.00	-7.36	-1.87
5350.000	26.84	12.95	26.76	12.75	38.91	65.75	51.86	74.00	54.00	-8.25	-2.14

註: 1. 量測不準確度: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

2. 量測頻率範圍為 4500 ~ 5250 MHz 及 5350 ~ 5460 MHz, 並記錄兩頻率範圍中之最大讀值。

10.7 頻帶外邊緣直接量測

10.7.1 適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範4.7.4 不必要發射之限制值：在操作頻帶外的峰值發射應衰減至符合下列限制值：

4.7.4.1 在5.15 GHz～5.35 GHz 及5.470 GHz～5.725 GHz 頻段操作的發射器：帶外發射之

有效等向輻射功率(EIRP) ≤ -27 dBm/MHz。

10.7.2 量測功率密度之配置

如圖 2 所示。

10.7.3 量測功率密度之儀器

儀器名稱	製造者	型 號
Spectrum Analyzer	R&S	FSV
Attenuator	WEINSCHEL	56-10

測試軟體: LZ-RF (Ver. ETC-3A2)

10.7.4 頻帶外邊緣直接量測之量測結果

調變技術: IEEE 802.11a

File: 20-10-MAS-035_5-2a

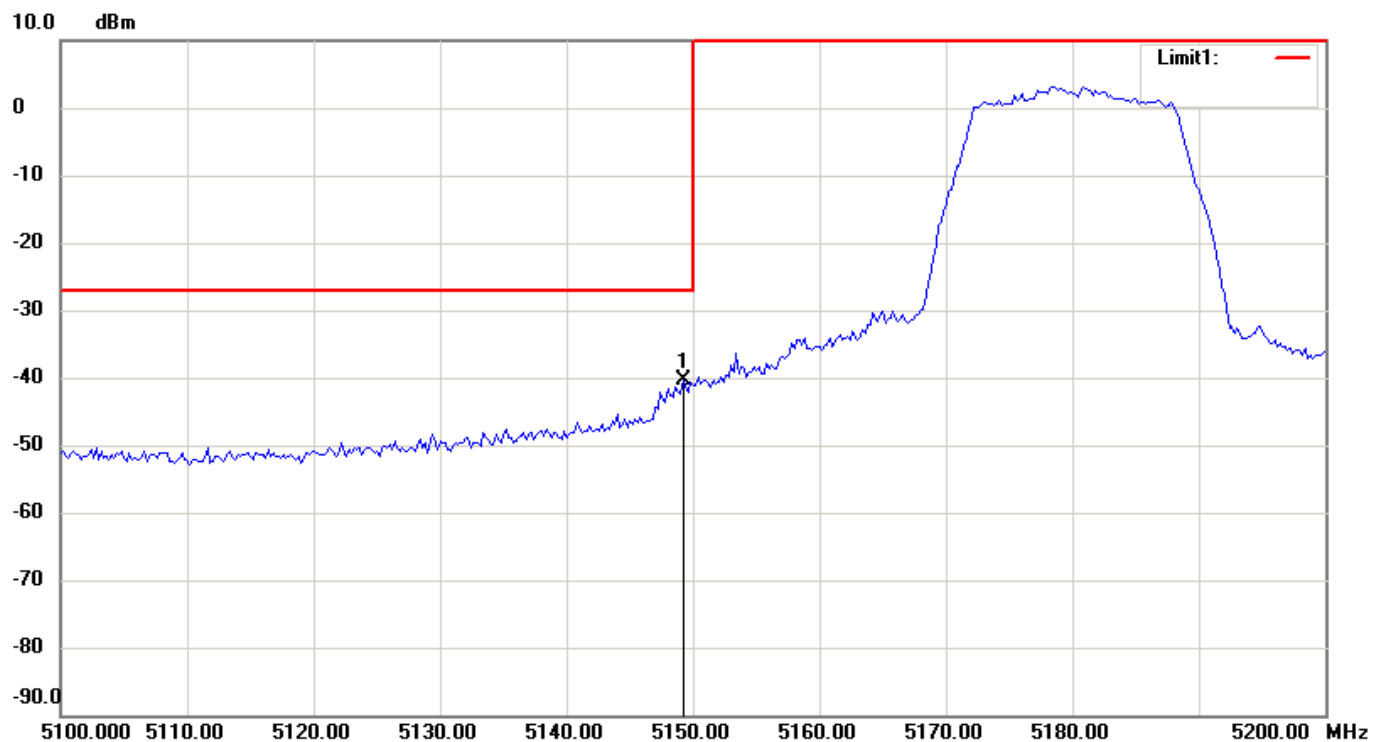
#7

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
 EUT: Wireless Network Adapter
 Model: Titan2020
 Test Mode: UNII
 Note: NCC_LP0002_802.11a Channel 36_Low_Bandedge

RF Conducted
 Sweep Time: 1ms Att.: 15dB
 RBW: 1000 KHz VBW: 3000 KHz
 Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5149.20000	-40.35

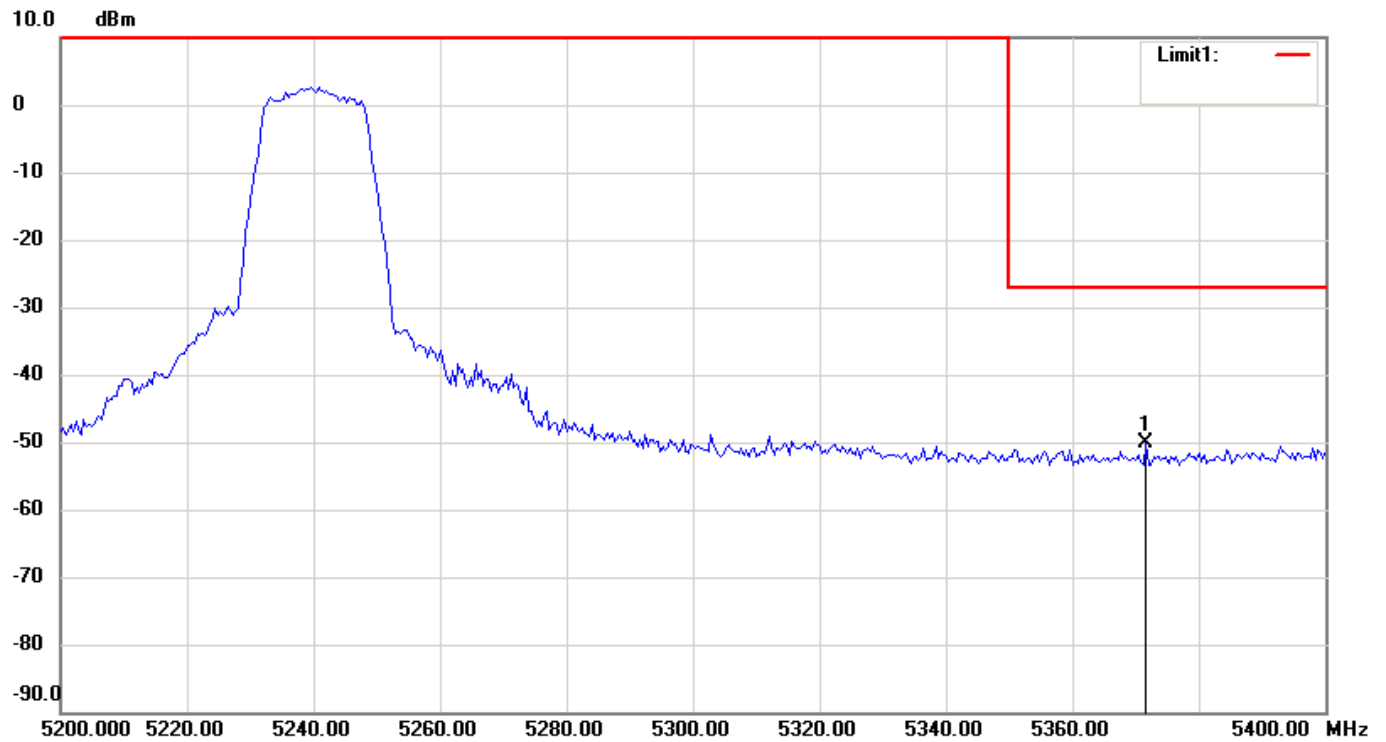
File: 20-10-MAS-035_5-2a
Site: RF-Cond01

#20

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



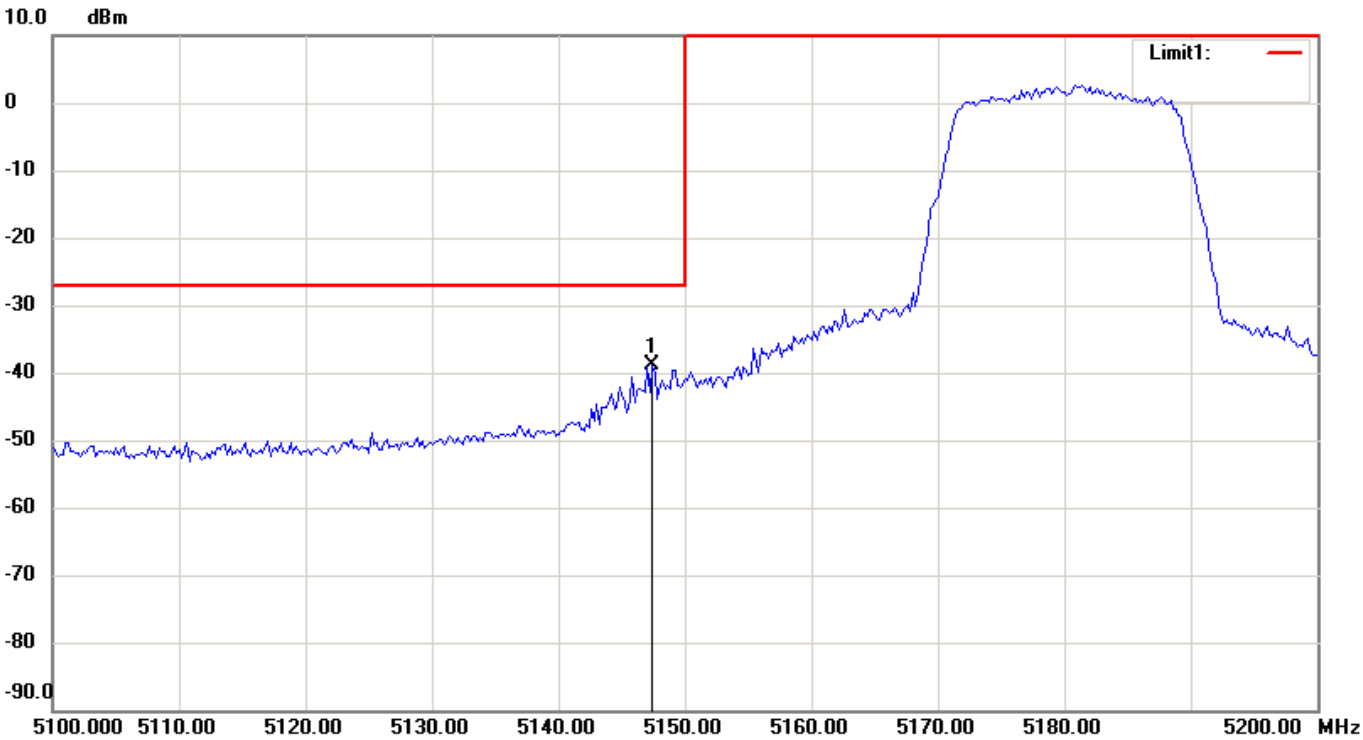
Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11a Channel 48_High_Bandedge

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 1000 KHz VBW: 3000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5371.60000	-50.09

調變技術: IEEE 802.11ac (20MHz)

File: 20-10-MAS-035_5-2ac20 #7 Date: 2020/11/20 Temperature: 25 °C
Site: RF-Cond01 Humidity: 50 %



Condition: UNII-Band1-2-Bandedge RF Conducted
EUT: Wireless Network Adapter Sweep Time: 1ms Att.: 15dB
Model: Titan2020 RBW: 1000 KHz VBW: 3000 KHz
Test Mode: UNII Operator: Phillip
Note: NCC_LP0002_802.11ac20 Channel 36_Low_Bandedge

No.	Frequency(MHz)	Level(dBm)
1	5147.40000	-38.78

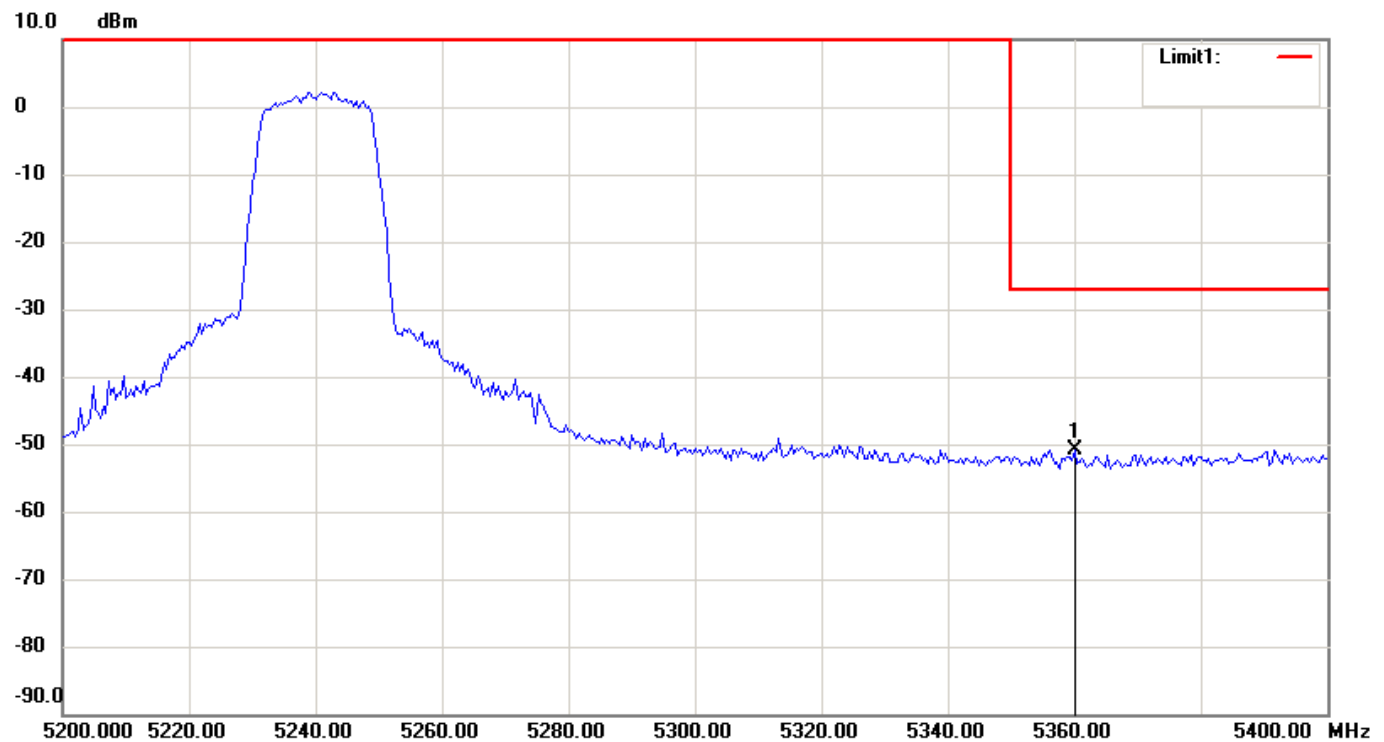
File: 20-10-MAS-035_5-2ac20
Site: RF-Cond01

#20

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac20 Channel 48_High_Bandedge

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 1000 KHz VBW: 3000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5360.00000	-50.87

調變技術: IEEE 802.11ac (40MHz)

File: 20-10-MAS-035_5-2ac40

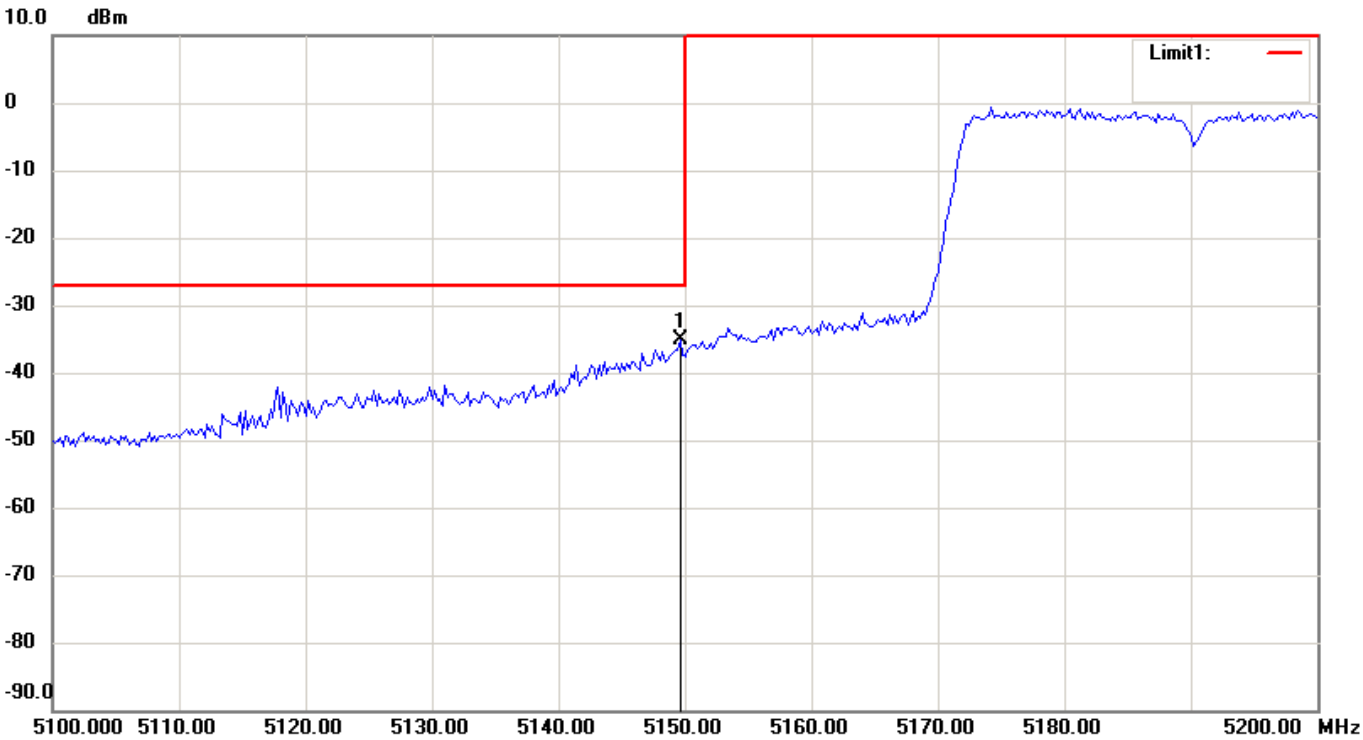
#7

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac40 Channel 38_Low_Bandedge

RF Conducted

Sweep Time: 1ms

RBW: 1000 KHz

Operator:

Att.: 15dB

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5149.60000	-35.17

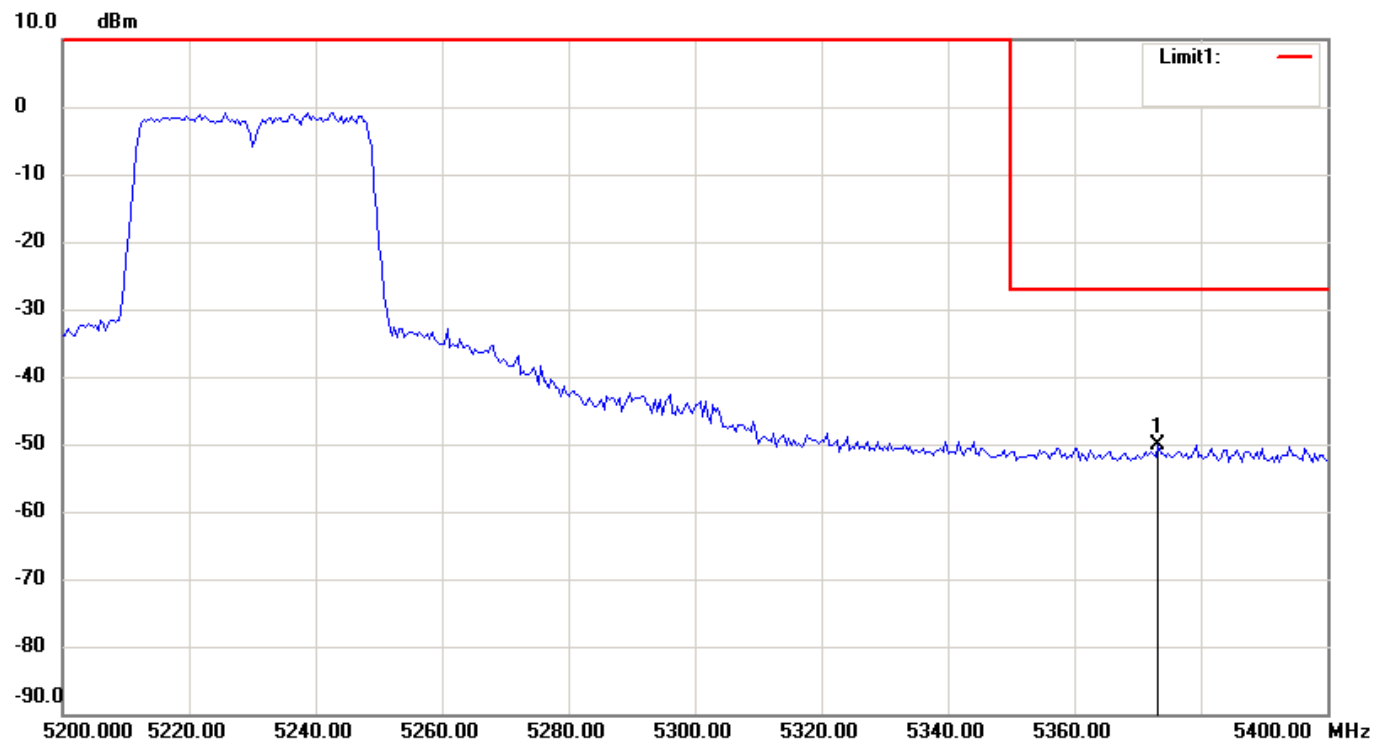
File: 20-10-MAS-035_5-2ac40
Site: RF-Cond01

#14

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac40 Channel 46_High_Bandedge

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 1000 KHz VBW: 3000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5373.20000	-50.12

調變技術: IEEE 802.11ac80

File: 20-10-MAS-035_5-2ac80

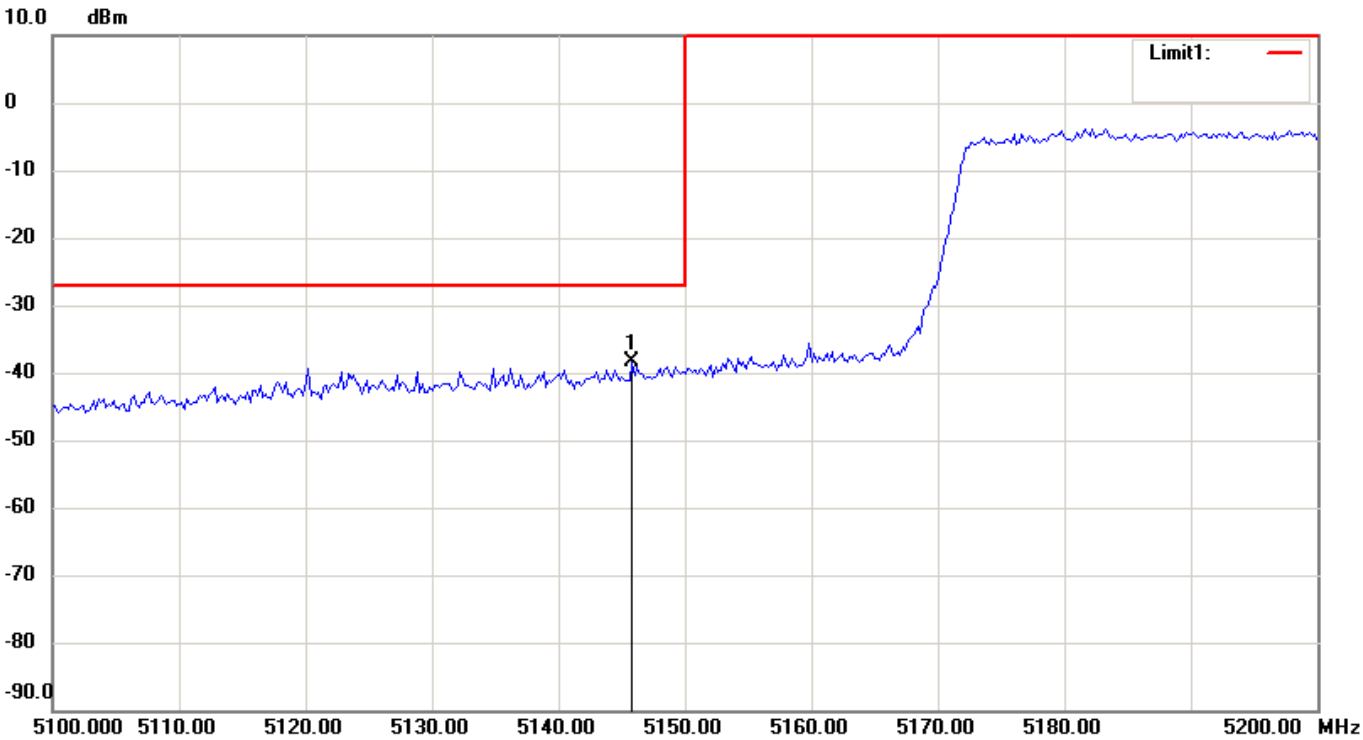
#7

Date: 2020/11/20

Temperature: 25 °C

Site: RF-Cond01

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge

EUT: Wireless Network Adapter

Model: Titan2020

Test Mode: UNII

Note: NCC_LP0002_802.11ac80 Channel 42_Low_Bandedge

RF Conducted

Sweep Time: 1ms

RBW: 1000 KHz

Operator:

Att.: 15dB

VBW: 3000 KHz

Phillip

No.	Frequency(MHz)	Level(dBm)
1	5145.80000	-38.49

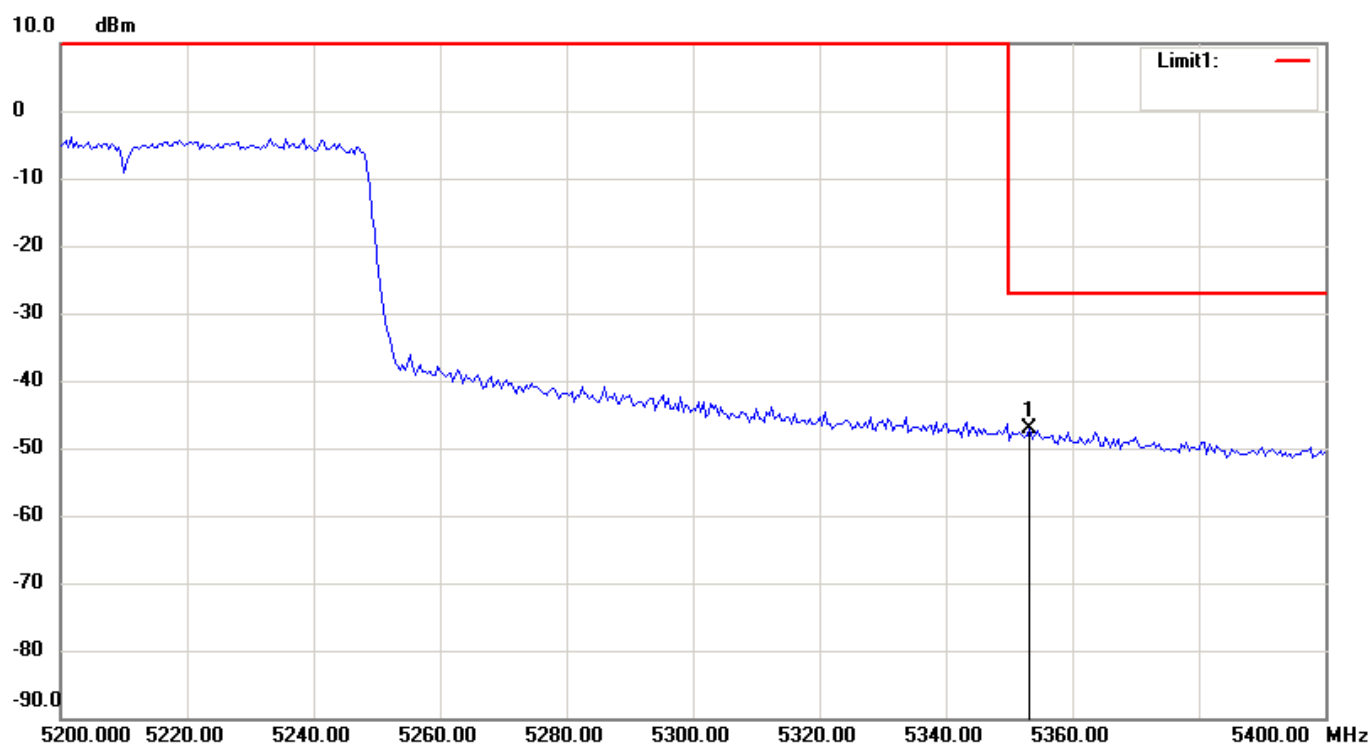
File: 20-10-MAS-035_5-2ac80
Site: RF-Cond01

#8

Date: 2020/11/20

Temperature: 25 °C

Humidity: 50 %



Condition: UNII-Band1-2-Bandedge
EUT: Wireless Network Adapter
Model: Titan2020
Test Mode: UNII
Note: NCC_LP0002_802.11ac80 Channel 42_High_Bandedge

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 1000 KHz VBW: 3000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5353.20000	-47.19

10.7.5 結果判定

以上頻帶外邊緣測試之結果皆低於限制值-27dBm，合乎標準規定。

10.8 輻射之測試配置

圖 3: 量測頻率低於1GHz之測試配置

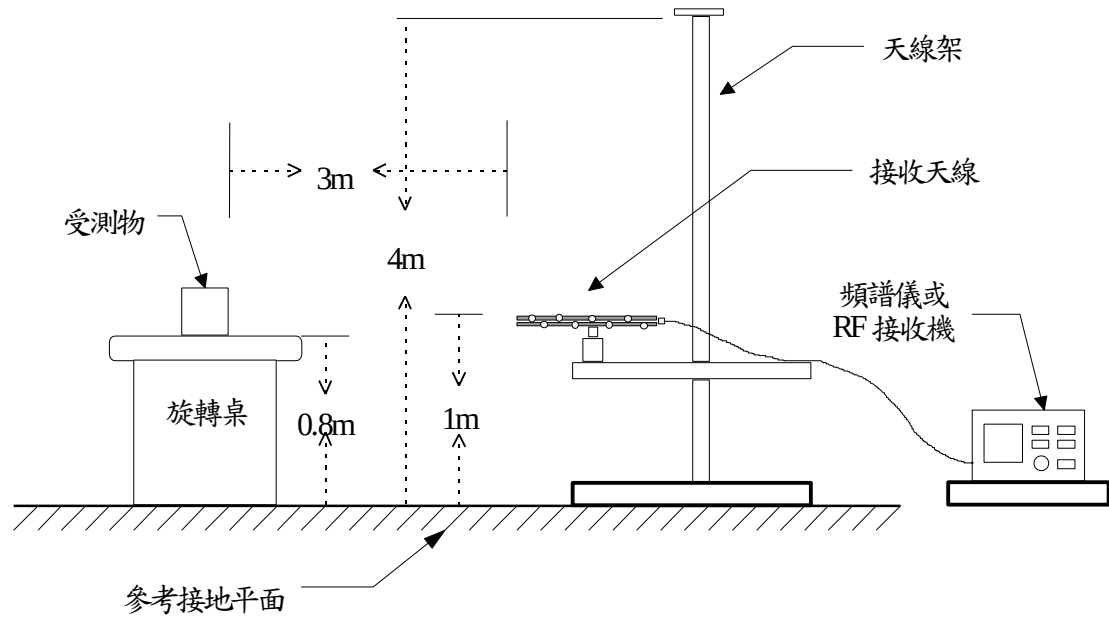
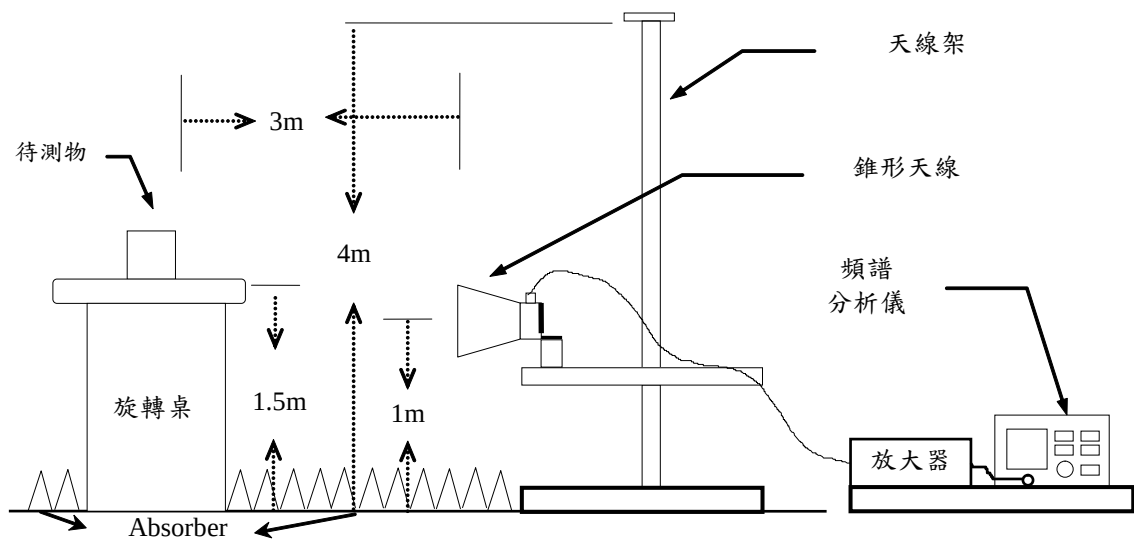


圖 4: 量測頻率高於1GHz之測試配置



10.9 輻射量測之配置照片

請參考產品照片

11 量測之儀器

儀器名稱	製造者	型 號	財產編號/序號	校驗日期	下次校驗日期
Spectrum Analyzer	KEYSIGHT	N9030B	MY60070506	09/23/2020	09/24/2021
Attenuator	WEINSCHEL	56-10	58772	04/24/2020	04/23/2021
EMI Receiver	R&S	ESCI	13054423-001	12/24/2019	12/25/2020
Spectrum Analyzer	R&S	FSU46	13040904-001	05/28/2020	05/27/2021
Horn Antenna	EMCO	3117	13059211-004	04/21/2020	04/20/2021
Horn Antenna	EMCO	3116	13059202-001	11/06/2020	11/05/2021
PRE-Amplifier	Agilent	8449B	13040709-001	12/31/2019	12/30/2020
PRE-Amplifier	Agilent	8447D	13040715-002	04/22/2020	04/21/2021
BiLog Antenna	ETC	MCTD 2786	BL19J04024	01/14/2020	01/13/2021
PRE-Amplifier	Agilent	83051A	13052916001	09/18/2020	09/17/2021