

低功率射頻電機 檢驗報告

申請者

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申請者地址

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製造廠商

CANON INC.

受檢設備名稱

Wireless LAN Module

廠牌

CANON

型號

BM72065

檢驗依據標準

國家通訊傳播委員會低功率射頻電機
技術規範
(LP0002)

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20-02-MAS-059-04

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合格

財團法人台灣電子檢驗中心

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實驗室認可編號及範圍：0371 (9 kHz to 325 GHz)

實驗室認可證書有效期限：110年10月31日



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測試報告記錄

申請廠商：老達利貿易股份有限公司
 製造廠商：CANON INC.
 廠牌：CANON
 品名：Wireless LAN Module
 型號：BM72065
 檢驗依據標準：國家通訊傳播委員會低功率射頻電機技術規範(LP0002)
 規範修訂日期107年01月10日
 發射功率(電場強度)：10.77 dBm (發射功率)
 工作頻率及調變方式：5500 ~ 5700 MHz / DSSS + OFDM
 天線規格：廠牌/型號/天線增益：molex / 1461530100 / 4 dBi

- 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，本試驗報告的結果僅與測試項目有關，且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	低功率射頻電機技術規範 2.3節	----	----	因使用直流電源故無需測試
2	天線增益之要求	低功率射頻電機技術規範 4.7.8節	----	請參閱5.2節	----
3	發射頻寬之量測	低功率射頻電機技術規範 4.7.2節(1)(2)	請參閱6.3節	請參閱6.4節	----
4	最大傳導輸出功率之要求	低功率射頻電機技術規範 4.7.2節(1)(2)	請參閱7.3節	請參閱7.4節	合格
5	功率密度之要求	低功率射頻電機技術規範 4.7.2節(1)(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	低功率射頻電機技術規範 4.7.3節(1)(2)(3)	請參閱9.3節	請參閱9.4節	合格
7	場強輻射之要求	低功率射頻電機技術規範 4.7.3節(4)(5)	請參閱10.3節	請參閱10.5節	合格
8	DFS之要求	低功率射頻電機技術規範 4.7.7.2節	請參閱12.3節	請參閱12.5節	合格
	以下空白				

測量實驗室負責人：鄭敦
109.06.17

直接主管：黃敬崙
109.06.17

量測員：羅世偉
109/06/17

1 一般資料

1.1 產品描述

- a) 產品型態 : Wireless LAN Module
 b) 商 標 : CANON
 c) 產品型號 : BM72065
 d) 供應電源 : DC 3.3V

備註：1. 本產品內含WLAN無線技術，WLAN部份包含DTS與UNII頻帶。本報告僅記錄UNII Band 3 (5500 至 5700 MHz) 部份，DTS部份請見ETC報告編號: 20-02-MAS-059-01，UNII Band 1 (5180 MHz 至 5240 MHz) 部份請見ETC報告編號: 20-02-MAS-059-02，UNII Band 2 (5260至 5320 MHz)部份請見ETC報告編號: 20-02-MAS-059-03，UNII Band 4 (5725 至 5850 MHz) 部份請見ETC報告編號: 20-02-MAS-059-05。

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. 此產品測試依照”完全模組”之要求進行測試。

4. 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 LAN Module，其發射頻率落於5500 至 5700 MHz頻段，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。主波發射功率為 10.77 dBm，即為 11.94 mW，其無線特性列表如下：

RF chain	1T1R	
Operating Frequency	IEEE802.11a/n 20: 5.5GHz~5.7GHz, 11ch IEEE 802.11n 40 Bnd 5.51GHz~5.67GHz, 5ch	
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

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電機技術規範以及參考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：財團法人台灣電子檢驗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

天線的規格不受國家通訊傳播委員會低功率射頻電機技術規範(2.2)節規定之限制。若使用超過 6dBi 方向增益之發射天線，則以超過 6dBi 天線方向增益的 dBi 總量，等量減少最大傳導輸出功率以及最大功率頻譜密度。

(3) 頻寬之量測

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(1)之規定，5.470~5.725 GHz 頻帶，在操作頻帶下之最大傳導輸出功率不能超過 250 mW 或11分貝毫瓦(dBm) +10 log B (B是26dB 發射頻寬，單位 MHz) 之較小者。

(4) 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電機技術規範4.7.3.2節之規定：

- (1) 5.470~5.725 GHz 頻帶，在操作頻帶下之最大傳導輸出功率應小於或等於 250 mW 或11分貝毫瓦(dBm) +10 log B (B是26dB 發射頻寬，單位 MHz) 之較小者。
- (2) 最大功率頻譜密度在任何 1 MHz 頻帶中應小於或等於 11 dBm。
- (3) 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力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電機技術規範4.7.3.4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) 5.15~5.25 GHz、5.25~5.35 GHz 及 5.470~5.725 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) 5.725~5.850 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。

(5) 發射限制之要求

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.4.1之規定，在 5.15~5.35 GHz 及 5.470~5.725 GHz 頻帶操作的發射器：帶外發射之有效等向輻射功率 (EIRP) 不應超過

-27 dBm/MHz。

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.4.3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。

(6) 輻射之規定

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.4.5節之規定，在 1GHz 以下的非必要之發射，應符合第 2.8 節之規定，任何使用交流市電為供應電之設備亦須符合第 2.3 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電機技術規範4.7.4.6節之規定，不必要發射頻率屬2.7 規定頻段者，應符合 2.8節之規定。

落於2.7節禁用頻段之輻射干擾需符合2.8節之一般限制要求：

頻率 MHz	測試距離 m	限制值 μ V/m
0.009 - 0.490(含)	300	2400/頻率(kHz)
0.490(不含) - 1.705(含)	30	24000/頻率(kHz)
1.705(不含) - 30(不含)	30	30
30(含) - 88(含)	3	100
88(不含) - 216(含)	3	150
216(不含) - 960(含)	3	200
960(不含)以上	3	500

(7) 發射功率控制(TPC)及動態頻率選擇(DFS)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4.7.7.1節之規定。

發射功率控制(TPC)：操作於5.25 GHz~5.35 GHz 與 5470 GHz~5725 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 6dB 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。

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.7.2節之規定。

動態頻率選擇(DFS):操作於 5.25GHz~5.35GHz 與 5470 GHz~5725 GHz 頻段之設備應具備動態頻率選電達偵測功能並啟動之，以完整偵測使用帶內之雷達訊號。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 200mW~1W 之設備，其最低動態頻率選擇的偵測門檻值為 -64 dBm。

(B) 最大 EIRP 低於 200mW，且功率頻譜密度小於 10dBm/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 200mW，且功率頻譜密度大於或等於 10dBm/MHz 之設備，其最低動態頻率選擇的偵測門檻值為 -64 dBm。

(D) 此偵測門檻為 1 微秒內之平均接收功率，並以 0dBi 天線為參考基準。頻道初始設定得由系統隨機選取或使用使用者手動選取。

(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，設備才可以開始用該頻道。

(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) 不可佔用時間：某一頻道已被頻道可用性檢查或 ”服務中” 監觀顯示含有雷達系統，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。

2.2 限制使用之頻帶

MHz	MHz
0.090 - 0.110	1660.0 – 1785.0
0.490 - 0.510	1805.0 – 1880.0
2.172 - 2.198	1855.0 – 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	

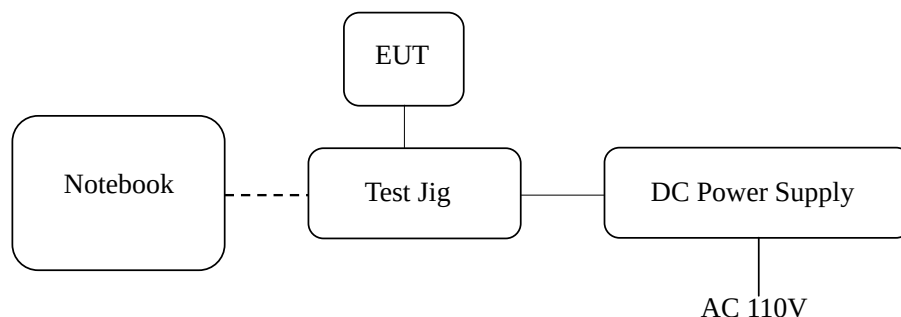
3 受測裝置之系統說明

3.1 受測裝置

裝置名稱	製造者/代理者	型 號	纜線說明
* Wireless LAN Module	CANON INC.	BM72065	----
Test Jig	N/A	N/A	非隔離信號線10cm 非隔離電源線1.5m
DC Power Supply	GW Instek	GPS-1850	非隔離電源線 1.8m
Notebook	Panasonic	CF-N8	非隔離電源線 2.0m * 1/Adapter

註: 1.標記“*”表欲申請之受測物及配件。

2.測試配置：



註: Notebook 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 mode:

測試頻道如下:

Channel	Frequency (MHz)
Low = 100	5500
Middle = 116	5580
High = 140	5700

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

IEEE 802.11n HT20 mode: MCS0 data rate is the worse case for full testing.

3.2 IEEE 802.11n HT40 mode:

測試頻道如下:

Channel	Frequency (MHz)
Low = 102	5510
Middle = 118	5590
High = 134	5670

IEEE 802.11n HT40 mode: MCS0 data rate is the worse case for full testing.

4. 軟體設定:

	Power Setting
IEEE 802.11a	11
	11
	11
IEEE 802.11n HT20	11
	11
	11
IEEE 802.11n HT40	11
	11
	11

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	-

Mode	IEEE 802.11a/n20	IEEE 802.11n40
Test Channel	Frequency (MHz)	Frequency (MHz)
Channel Low (L)	5500	5510
Channel Mid (M)	5580	5590
Channel High (H)	5700	5670

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, B, C	L, M, H
3	最大傳導輸出功率之量測	A, B, C	L, M, H
4	功率密度之量測	A, B, C	L, M, H
5	混附波發射限制之量測	A, B, C	L, M, H
6	場強輻射之量測(主諧波)	A, B, C	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, B, C	L, M, H
7	DFS之量測	C (註4)	5500-5700 MHz

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. 量測場強輻射時，若為手持式或穿戴式之裝置，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。

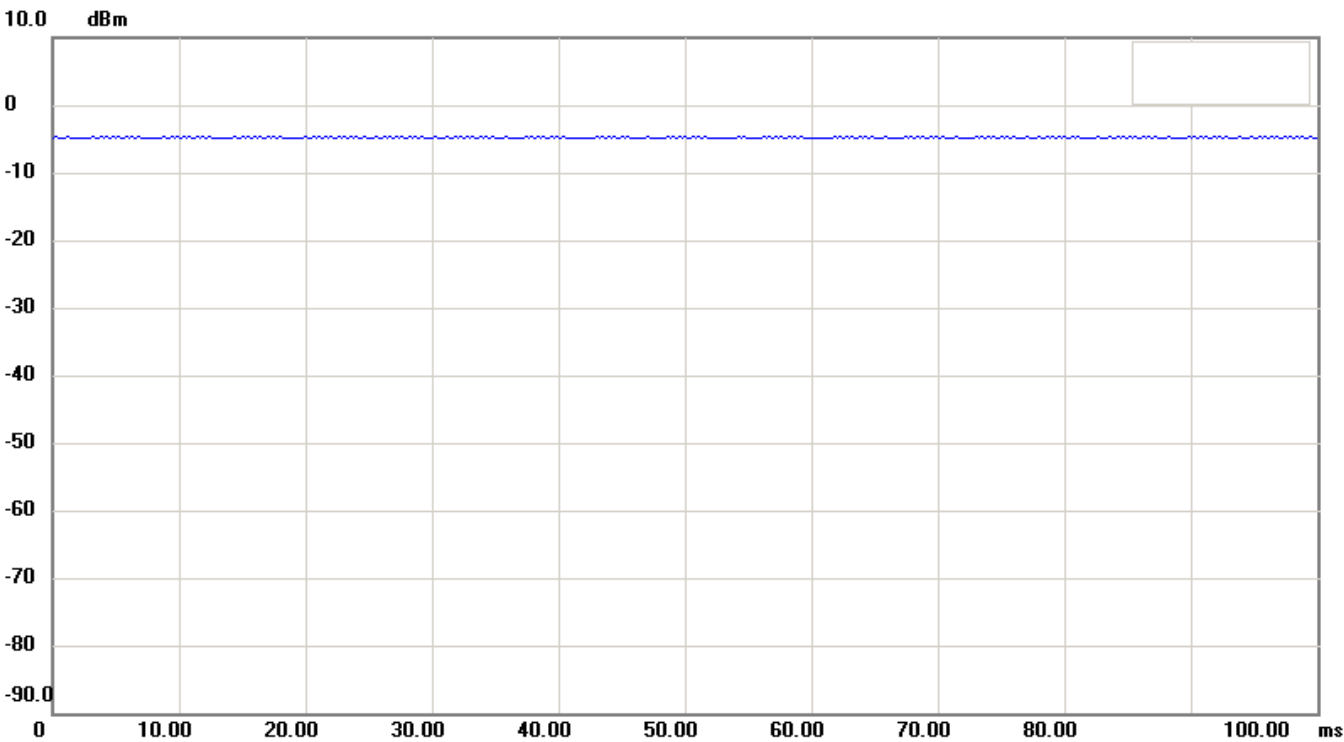
4. 進行 DFS 測試時，產品操作於 Normal mode，並對所有的調變及頻道進行測試，確認所有調變及頻道均合格後，擇一做最終測試並記錄之。

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:	20-02-MAS-059_5-2a	#21	Date:	2020/3/19	Temperature:	24 °C
Site:	RF-Cond01				Humidity:	59 %



Condition:		RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms	Att.: 15dB
Model:	BM72065	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a Dtuy-1		

File: 20-02-MAS-059_5-2a

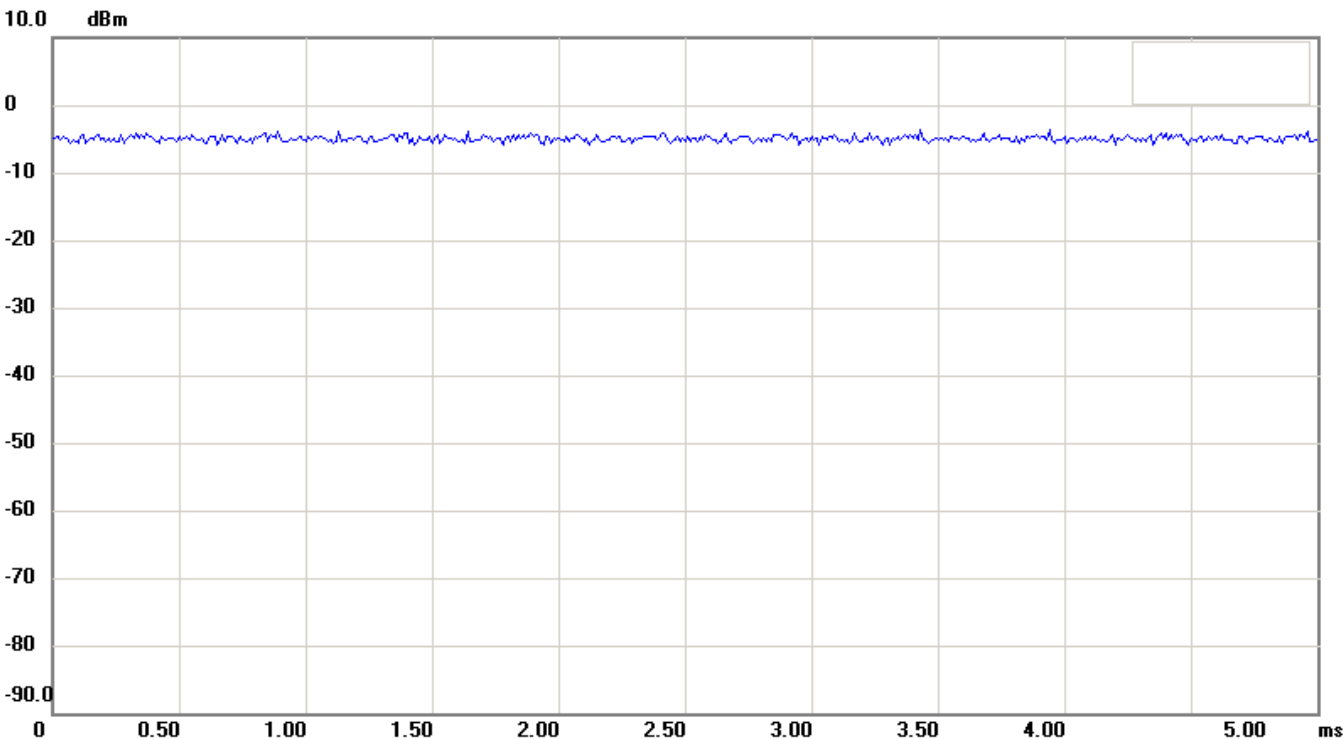
#22

Date: 2020/3/19

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition:		RF Conducted
EUT:	Wireless LAN Module	Sweep Time: 5ms Att.: 15dB
Model:	BM72065	RBW: 1000 KHz VBW: 3000 KHz
Test Mode:	UNII	Operator: Phillip
Note:	大於 98%	

IEEE 802.11n HT20

File: 20-02-MAS-059_5-2an20

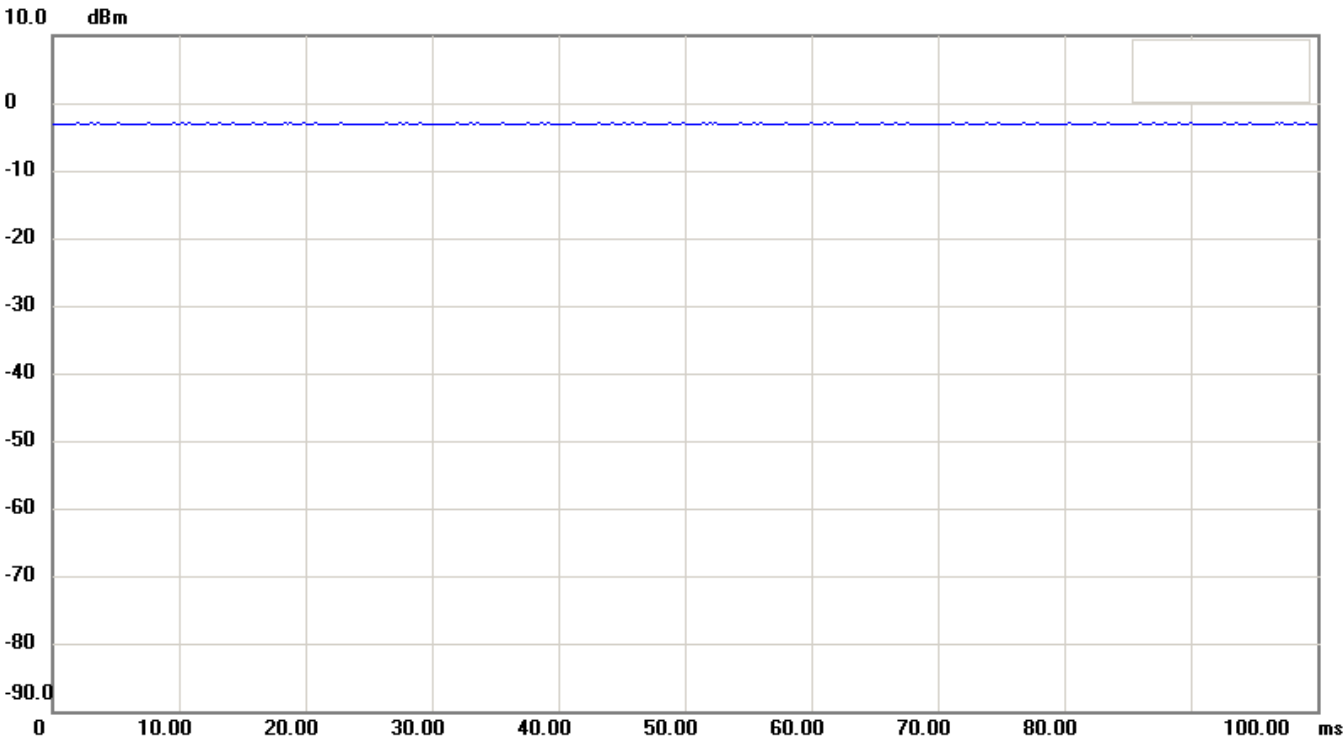
#21

Date: 2020/3/19

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11an20 Dtuy-1

RF Conducted

Sweep Time: 100ms

RBW: 1000 KHz

Operator:

Att.: 15dB

VBW: 3000 KHz

Phillip

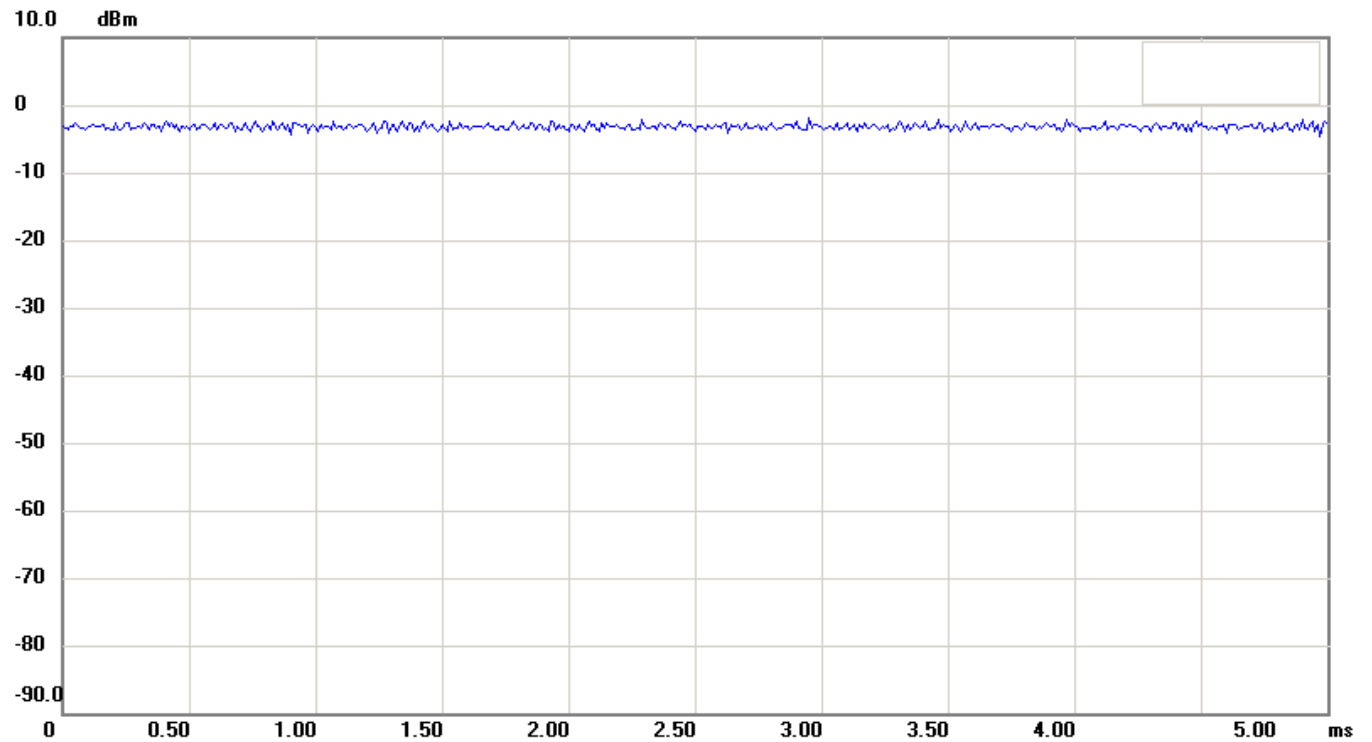
File: 20-02-MAS-059_5-2an20
Site: RF-Cond01

#22

Date: 2020/3/19

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: 大於 98%

RF Conducted

Sweep Time: 5ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

IEEE 802.11n HT40

File: 20-02-MAS-059_5-2an40

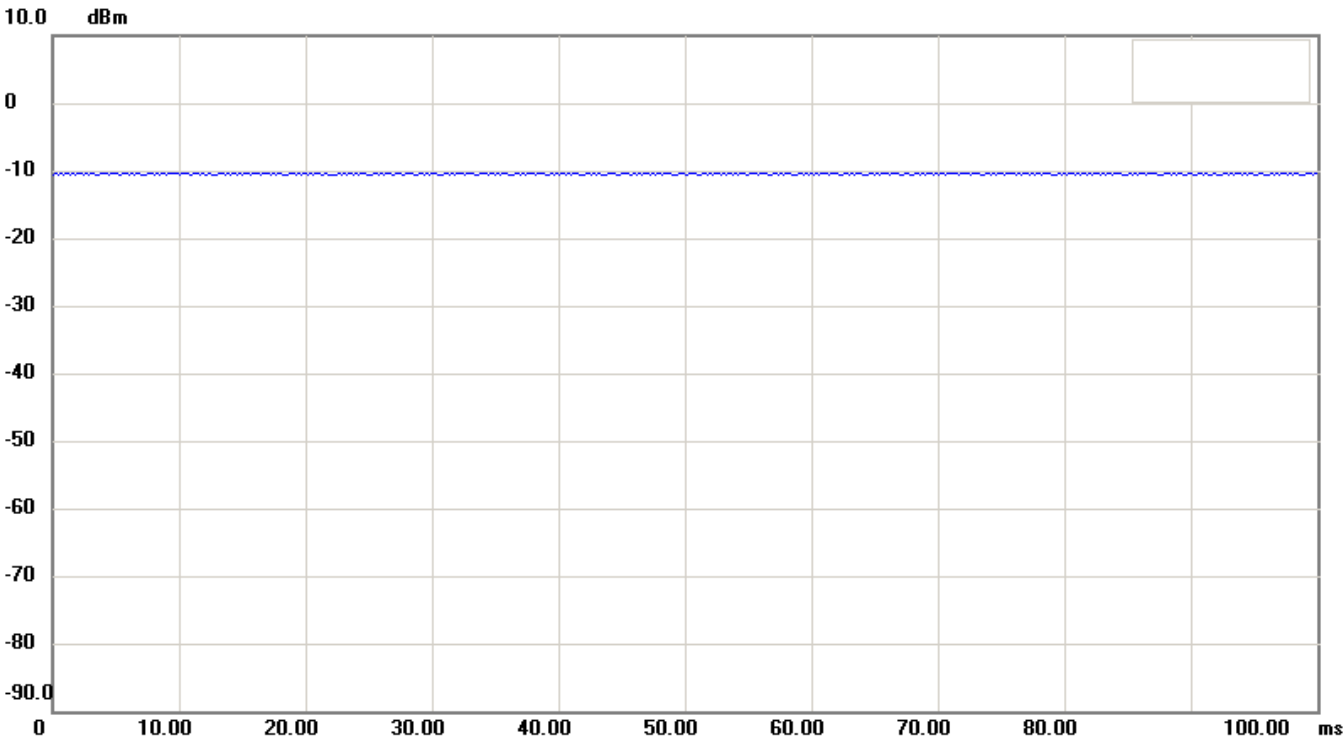
#15

Date: 2020/3/19

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11ac40 Dtuy-1

RF Conducted

Sweep Time: 100ms

RBW: 1000 KHz

Operator:

Att.: 15dB

VBW: 3000 KHz

Phillip

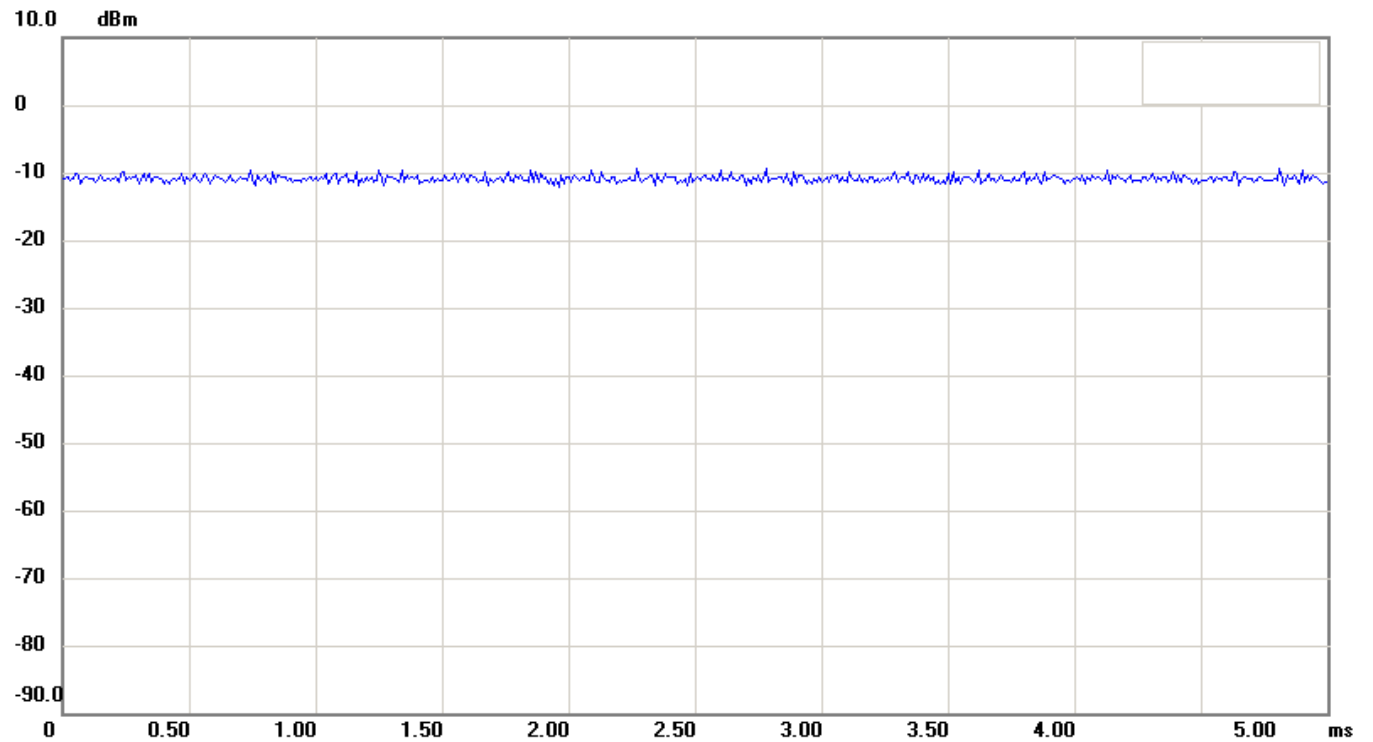
File: 20-02-MAS-059_5-2an40
Site: RF-Cond01

#16

Date: 2020/3/19

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: 大於 98%

RF Conducted

Sweep Time: 5ms Att.: 15dB
RBW: 1000 KHz VBW: 3000 KHz
Operator: Phillip

4 電源線傳導干擾之量測

本產品僅使用電池供電，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

天線的規格不受國家通訊傳播委員會低功率射頻電機技術規範(2.2)節規定之限制。若使用超過 6dBi 方向增益之發射天線，則以超過 6dBi 天線方向增益的 dBi 總量，等量減少峰值發射功率以及峰值功率頻譜密度。

5.2 天線增益

此裝置使用外接式天線，其天線資料如下：

廠牌: molex

型號: 1461530100

Antenna Type	Balanced Flex Antenna
Operation Frequency Range	5.15GHz~5.85GHz
Antenna Gain	4.0 dBi

(參照天線規格資料)

5.3 結果判定

天線之方向性增益未超過6dBi，不須降低最大傳導輸出功率及功率密度之限制值。

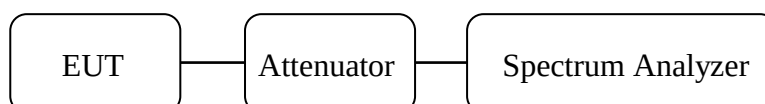
6 發射頻寬之量測

6.1 適用標準

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(1)之規定，5.470~5.725 GHz 頻帶，在操作頻帶下之峰值發射功率不能超過 250 mW 或11分貝毫瓦(dBm) +10 log B (B 是26dB 發射頻寬，單位 MHz) 之較小者。

6.2 測試配置

圖 1：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	R&S	FSV
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: Mar. 17, 2020

環境溫度 : 24°C

環境濕度: 59%

Channel	26dB Bndwidth (MHz)	Chart
L	20.3500	Page 22
M	20.2686	Page 23
H	20.3500	Page 24

註：繪圖資料請參考第 22-24 頁。

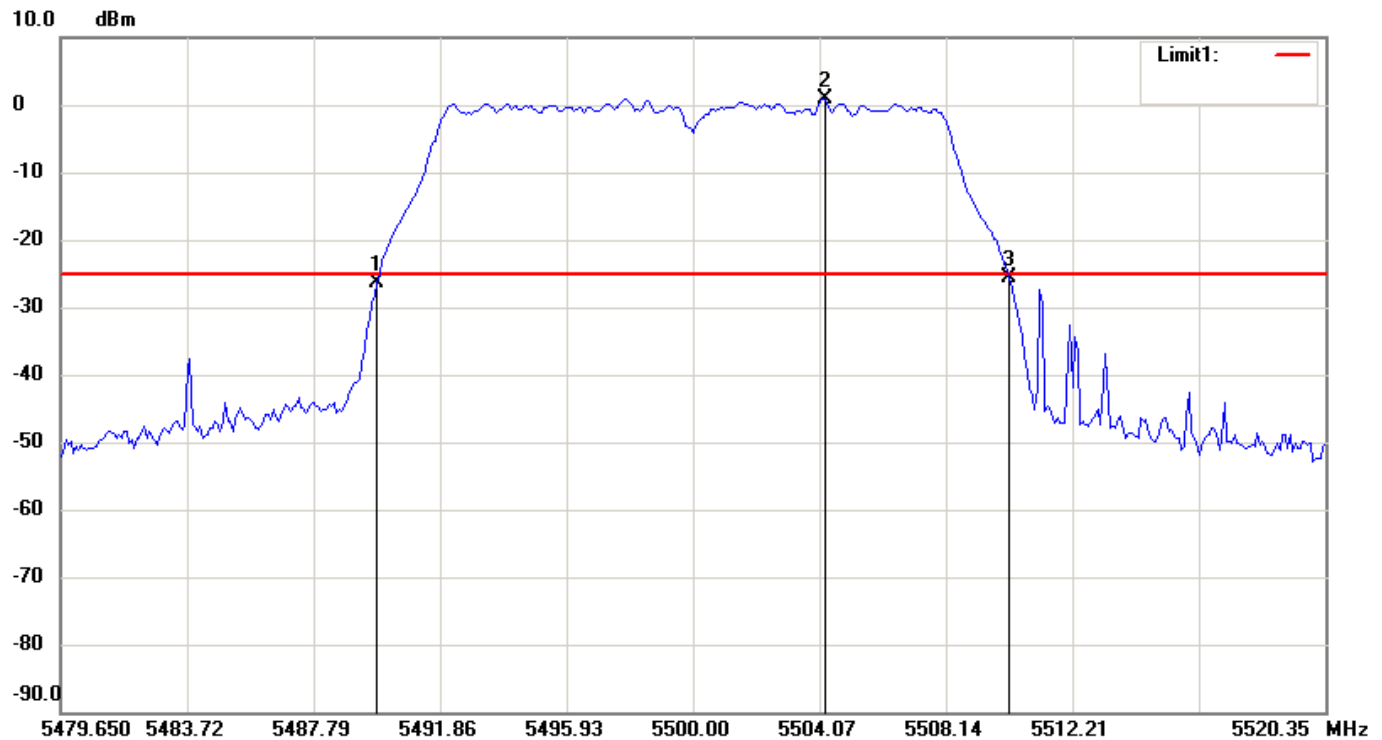
File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#2

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: -25.1dBm
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11a Channel 100_-26dB EBW

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

No.	Frequency(MHz)	Level(dBm)
1	5489.82500	-26.33
2	5504.23280	0.90
3	5510.17500	-25.63

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	20.35	0.7

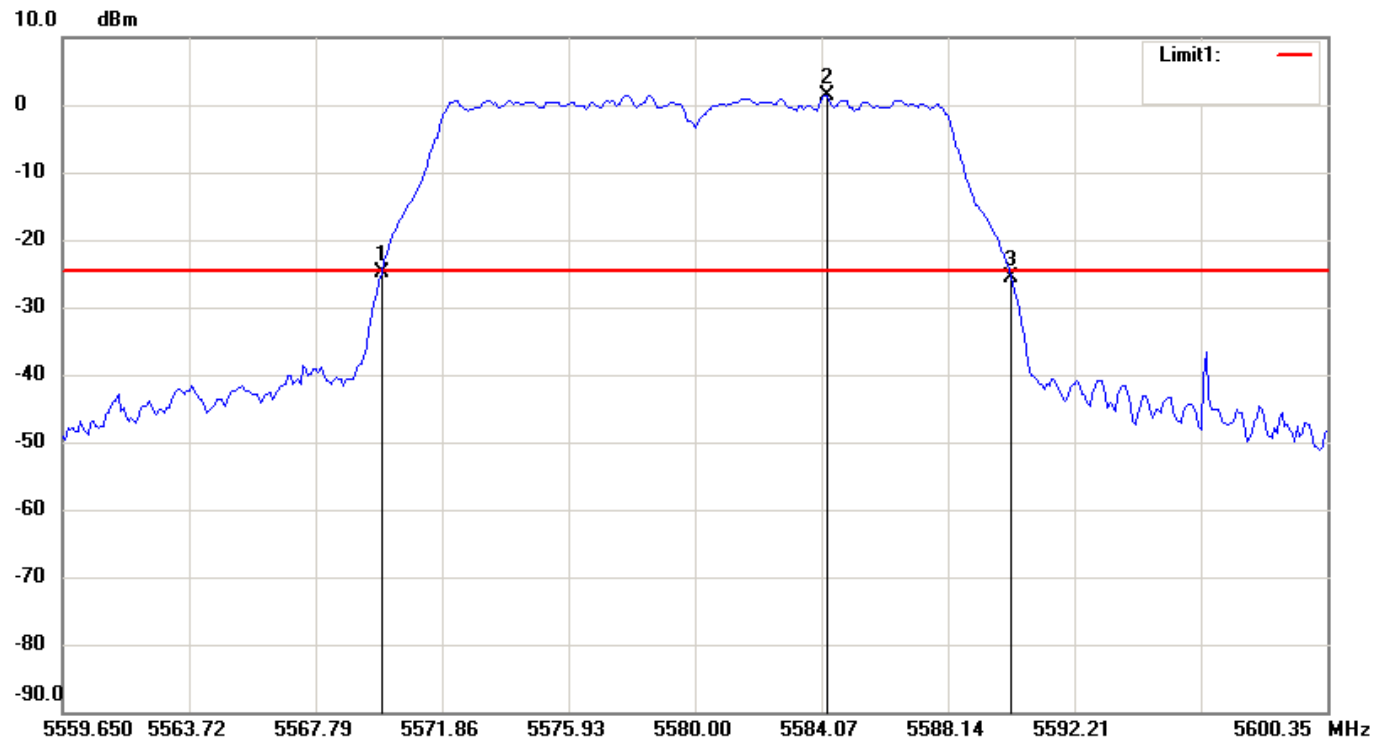
File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#9

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: -24.51dBm
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11a Channel 116_-26dB EBW

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

No.	Frequency(MHz)	Level(dBm)
1	5569.90640	-24.93
2	5584.23280	1.49
3	5590.17500	-25.66

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	20.2686	-0.73

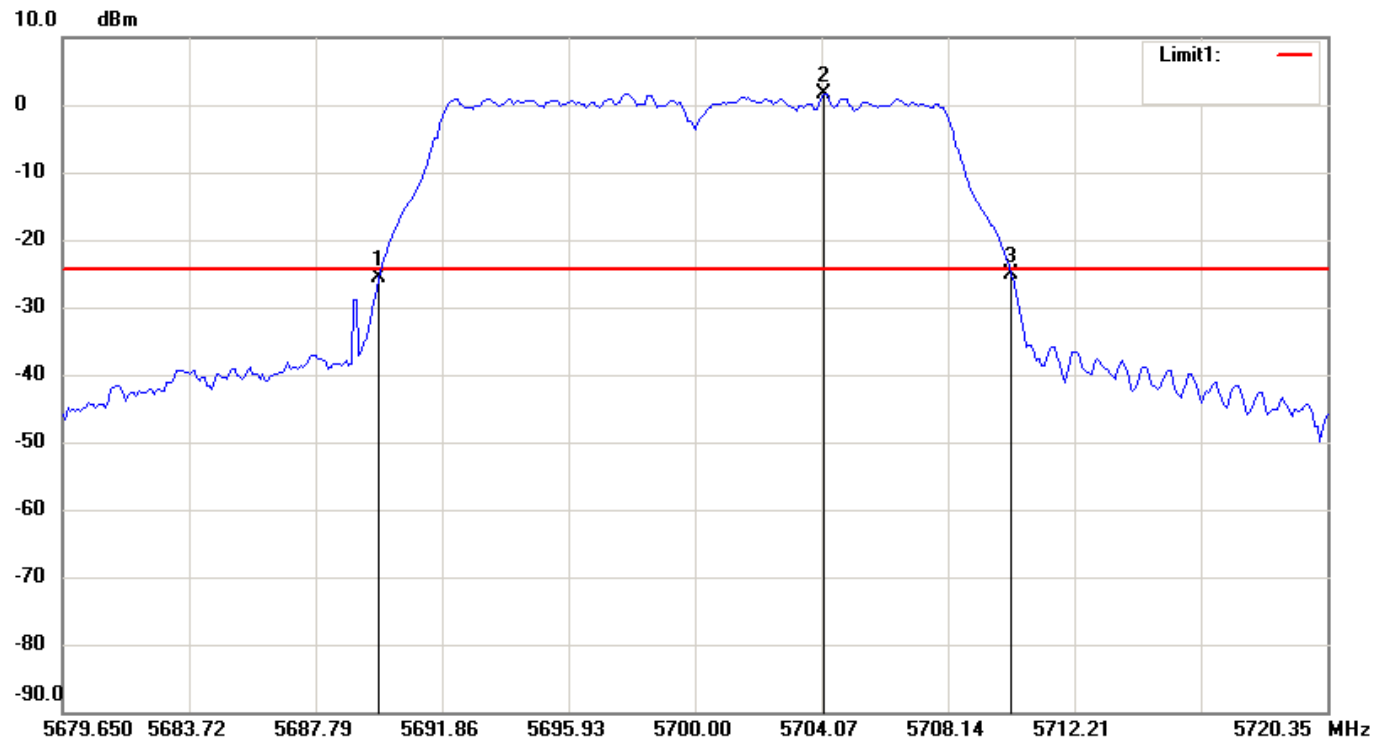
File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#15

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: -24.36dBm
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11a Channel 140_-26dB EBW

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

No.	Frequency(MHz)	Level(dBm)
1	5689.82500	-25.54
2	5704.15140	1.64
3	5710.17500	-25.15

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	20.35	0.39

6.4.2 調變技術: IEEE 802.11n HT20

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

Channel	26dB Bndwidth (MHz)	Chart
L	20.5128	Page 26
M	20.5128	Page 27
H	20.5942	Page 28

註：繪圖資料請參考第 26-28 頁。

File: 20-02-MAS-059_5-6an20

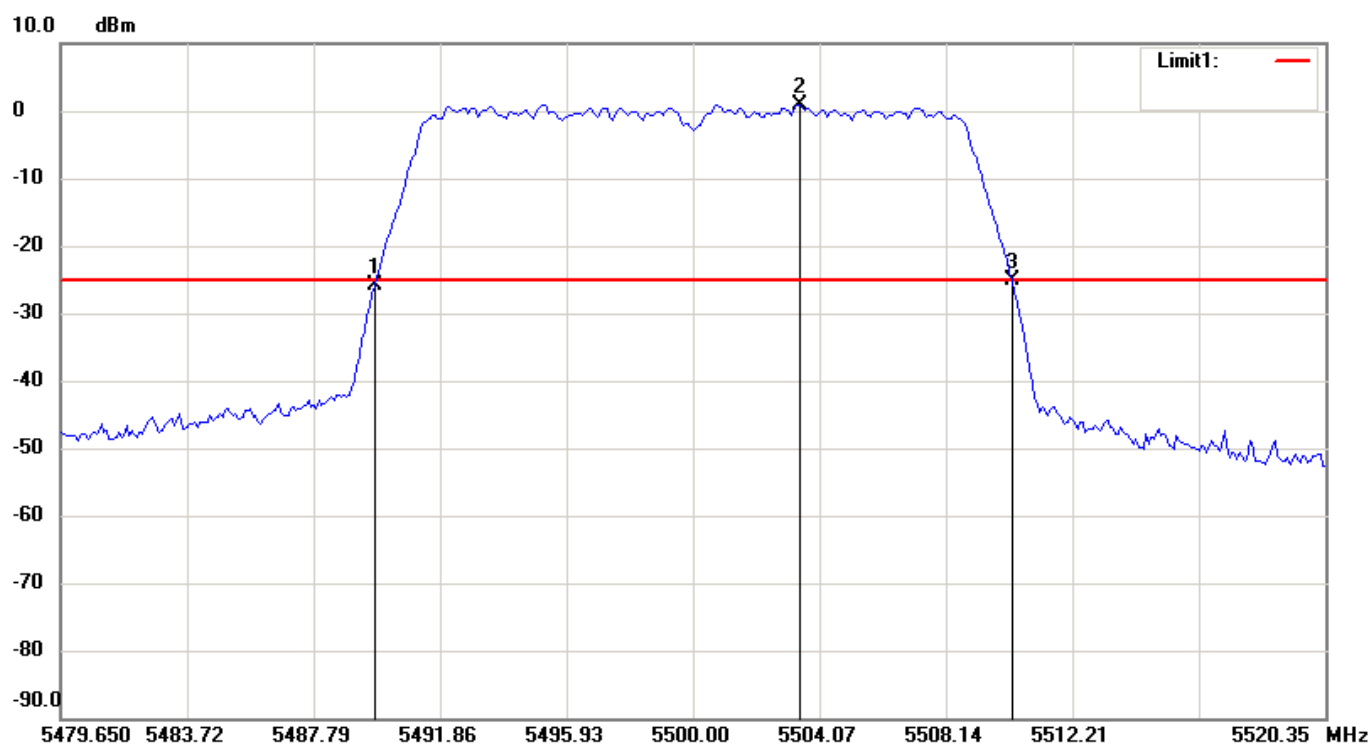
#2

Date: 2020/3/17

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition: -25.01dBm

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n20 Channel 100_-26dB EBW

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 300 KHz

VBW: 1000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5489.74360	-25.99
2	5503.41880	0.99
3	5510.25640	-25.12

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	20.5128	0.87

File: 20-02-MAS-059_5-6an20

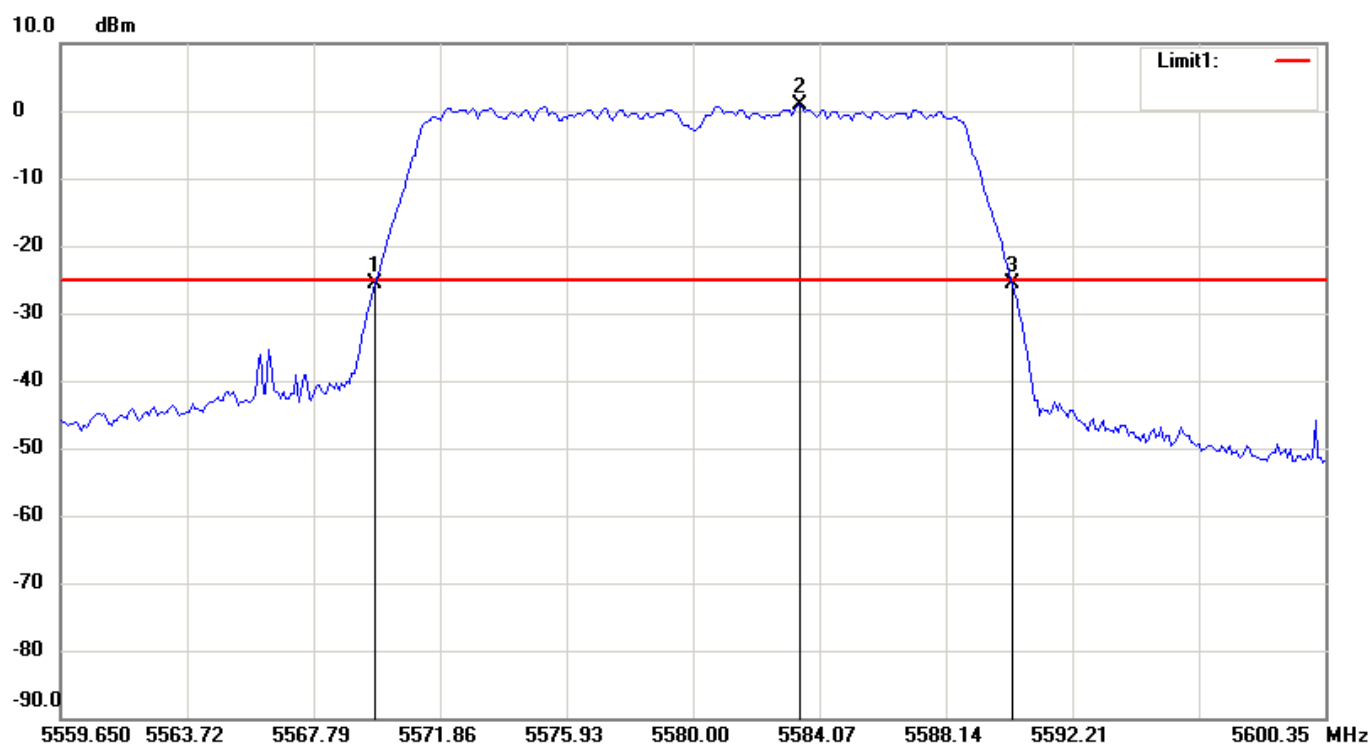
#9

Date: 2020/3/17

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition: -25.09dBm

RF Conducted

EUT: Wireless LAN Module

Sweep Time: 1ms Att.: 15dB

Model: BM72065

RBW: 300 KHz

VBW: 1000 KHz

Test Mode: UNII

Operator:

Phillip

Note: NCC_LP0002_802.11n20 Channel 116_-26dB EBW

No.	Frequency(MHz)	Level(dBm)
1	5569.74360	-25.64
2	5583.41880	0.91
3	5590.25640	-25.53

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	20.5128	0.11

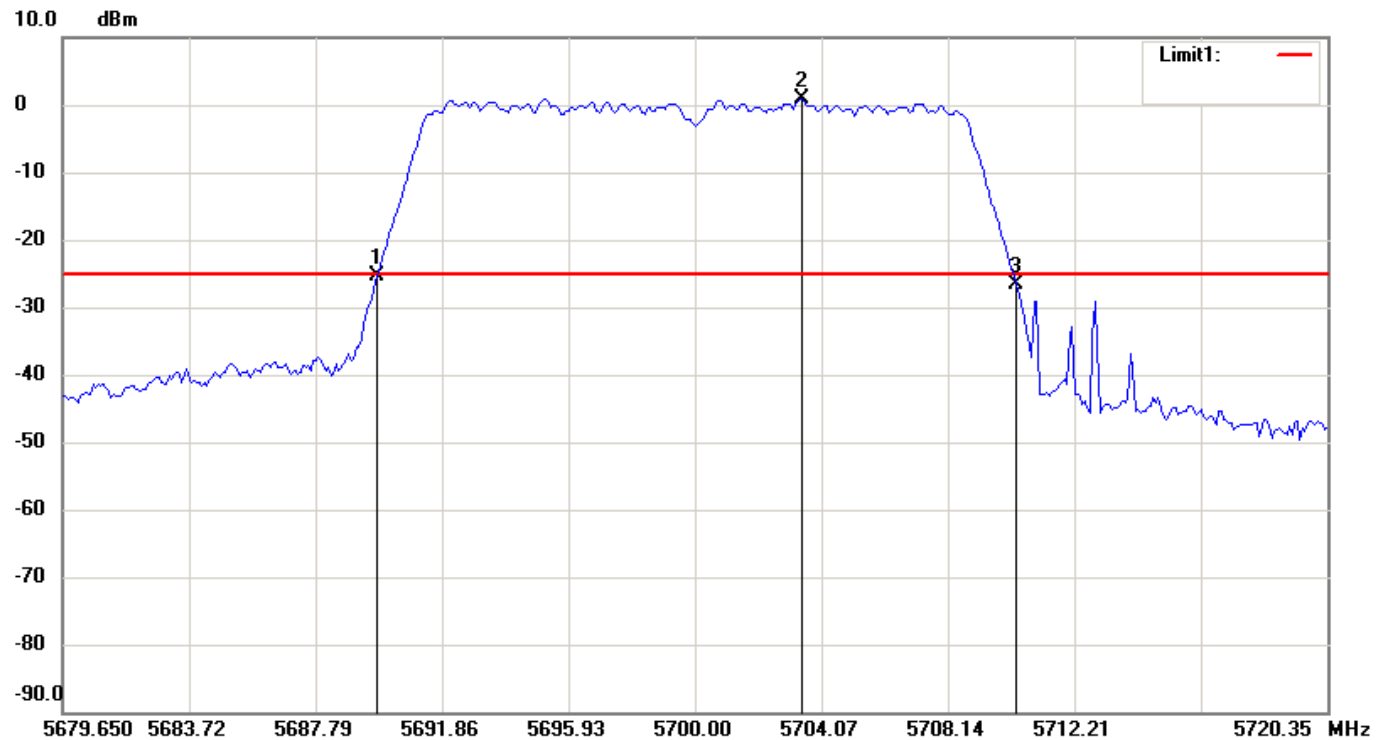
File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#15

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: -25.14dBm
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11n20 Channel 140_-26dB EBW

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

No.	Frequency(MHz)	Level(dBm)
1	5689.74360	-25.28
2	5703.41880	0.86
3	5710.33780	-26.74

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	20.5942	-1.46

6.4.3 調變技術: IEEE 802.11n HT40

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

Channel	26dB Bndwidth (MHz)	Chart
L	41.6256	Page 30
M	41.6256	Page 31
H	41.6256	Page 32

註：繪圖資料請參考第 30-32 頁。

6.5 結果判定

僅提供數據，無須判定。

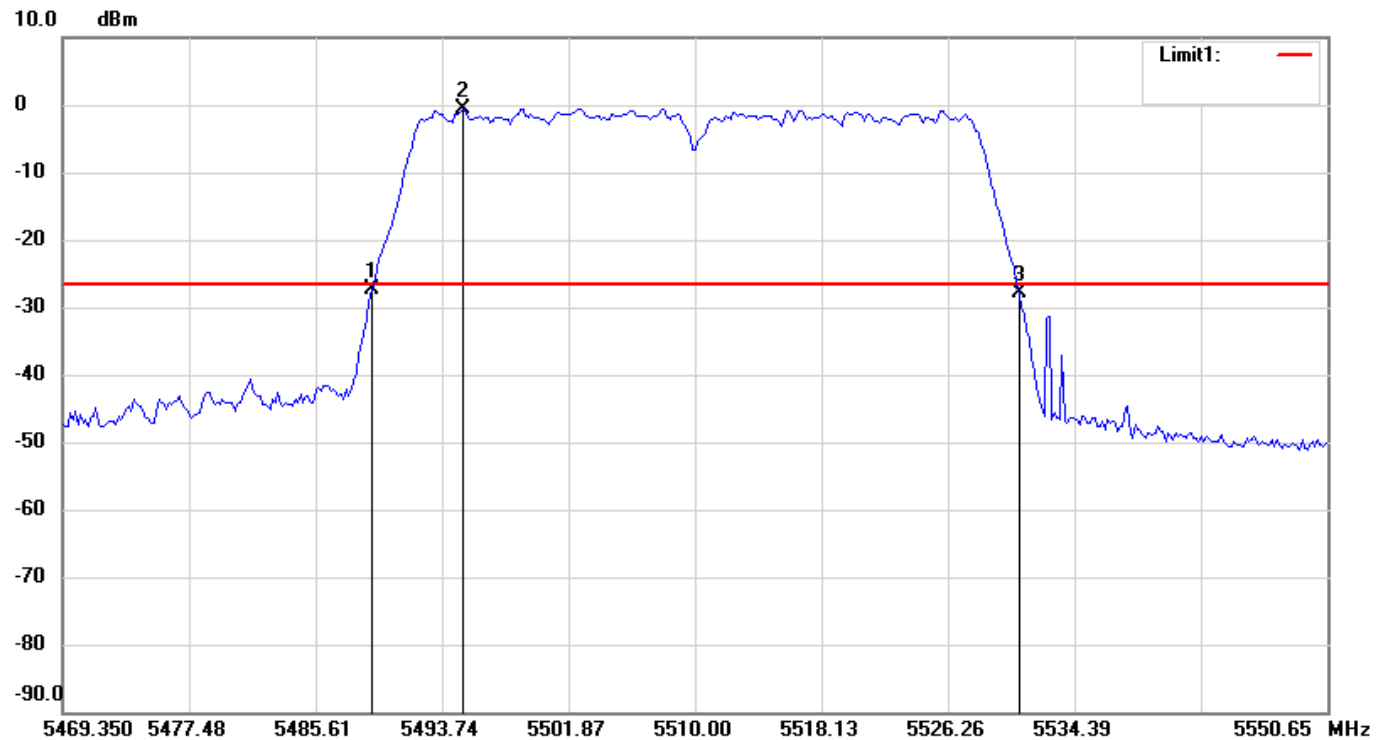
File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#2

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: -26.56dBm
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11n40 Channel 102_-26dB EBW

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 500 KHz VBW: 3000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5489.18720	-27.29
2	5495.04080	-0.56
3	5530.81280	-27.80

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	41.6256	-0.51

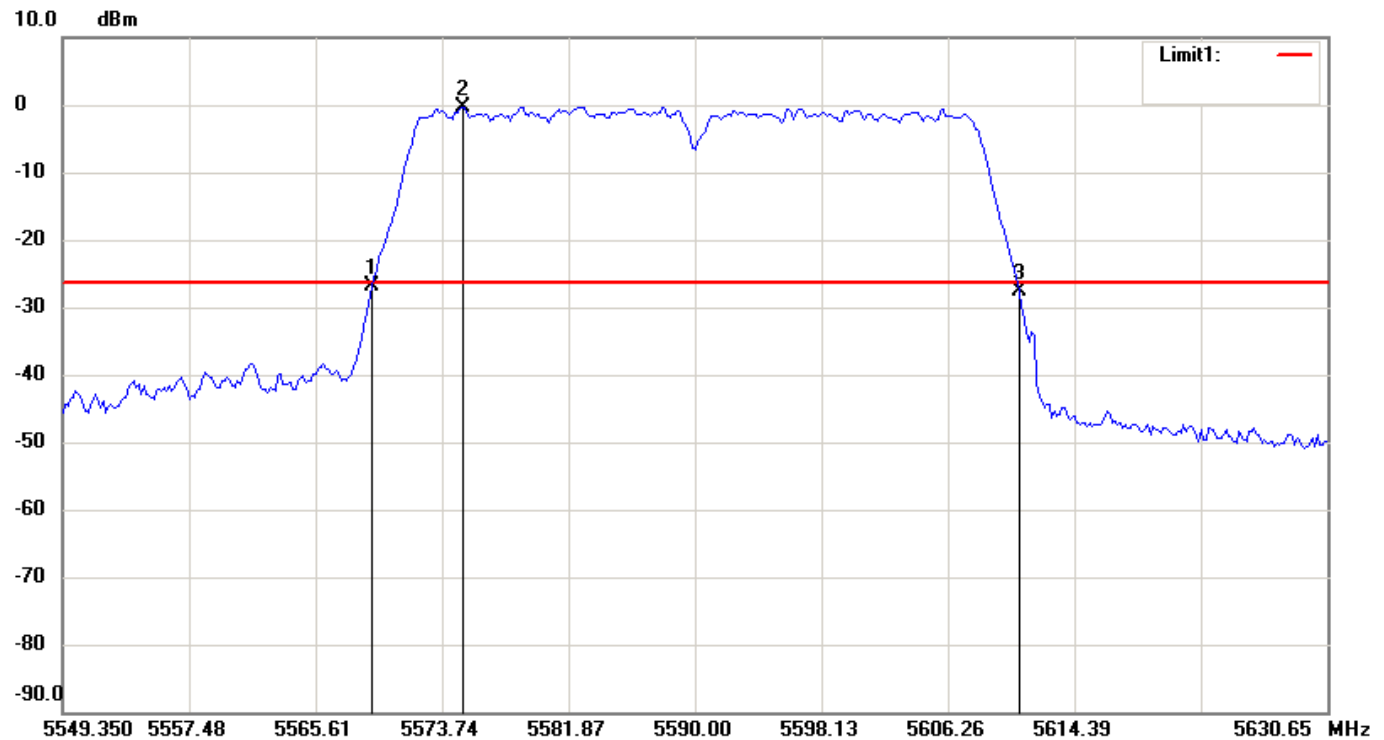
File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#9

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: -26.26dBm
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11n40 Channel 118_-26dB EBW

RF Conducted
Sweep Time: 1ms Att.: 15dB
RBW: 500 KHz VBW: 3000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5569.18720	-26.91
2	5575.04080	-0.26
3	5610.81280	-27.59

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	41.6256	-0.68

File: 20-02-MAS-059_5-6an40

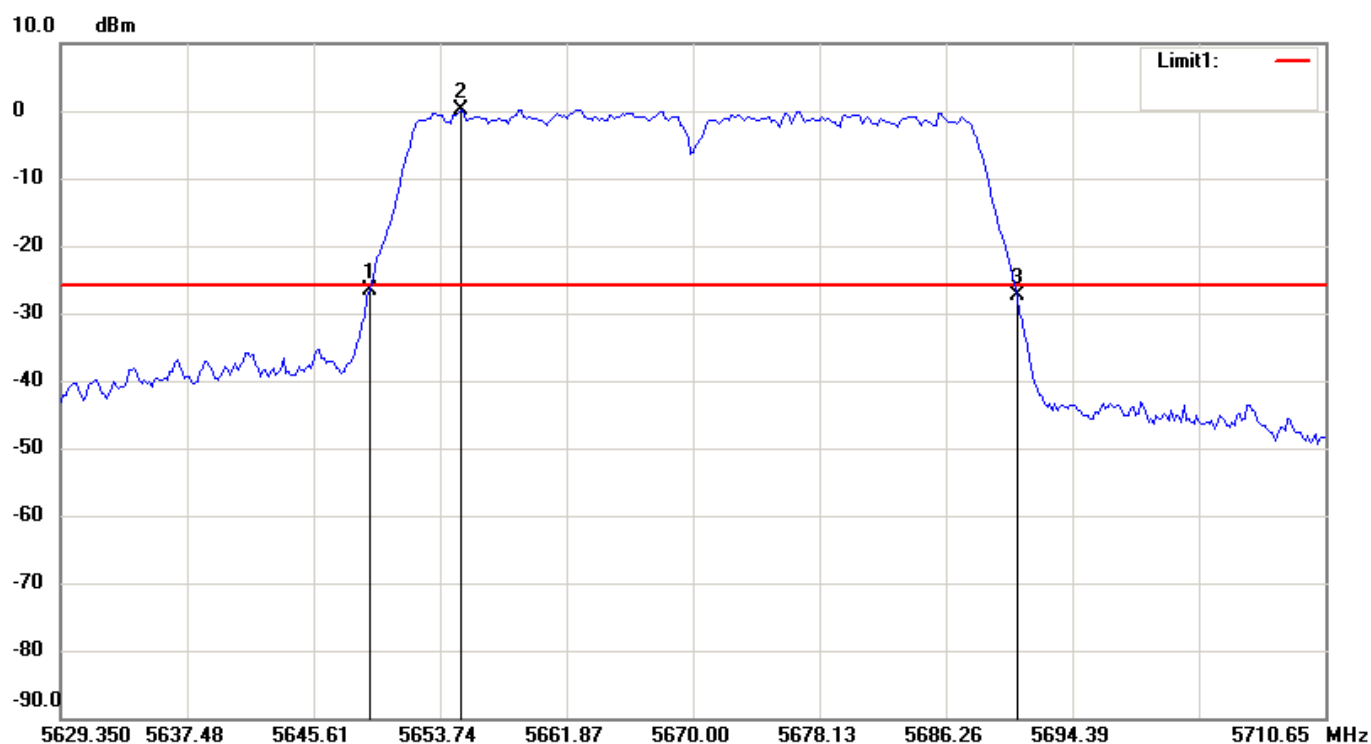
#15

Date: 2020/3/17

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition: -25.82dBm

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n40 Channel 134_-26dB EBW

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 500 KHz

Operator: Phillip

VBW: 3000 KHz

No.	Frequency(MHz)	Level(dBm)
1	5649.18720	-26.65
2	5655.04080	0.18
3	5690.81280	-27.43

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	41.6256	-0.78

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電機技術規範4.7.3.2節之規定：

- (1) 5.470~5.725 GHz 頻帶，在操作頻帶下之最大傳導輸出功率應小於或等於 250 mW 或11分貝毫瓦(dBm) +10 log B (B是26dB 發射頻寬，單位 MHz) 之較小者。
- (3) 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力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 1 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	R&S	FSV
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: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

天線增益最大值為 4 dBi, NCC Limit 如下表所示:

Channel	Fixd limit (dBm)	26dB BW (MHz)	Limit (dBm)	Output Power (dBm)	NCC Limit (dBm)	Chart
L	24	20.350	24.09	10.00	24	Page 35
M	24	20.269	24.07	10.27	24	Page 36
H	24	20.350	24.09	10.77	24	Page 37

註: 1. 繪圖資料請參考第 35-37 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. Fixed Limit = 250mW=24dBm

4. Caculated Limit = 11dBm + 10 log (26dB BW)

5. If antenna gain $\leq$ 6dBi, NCC Limit = (Minimum of Fixed Limit nd Caculated Limit) dBm

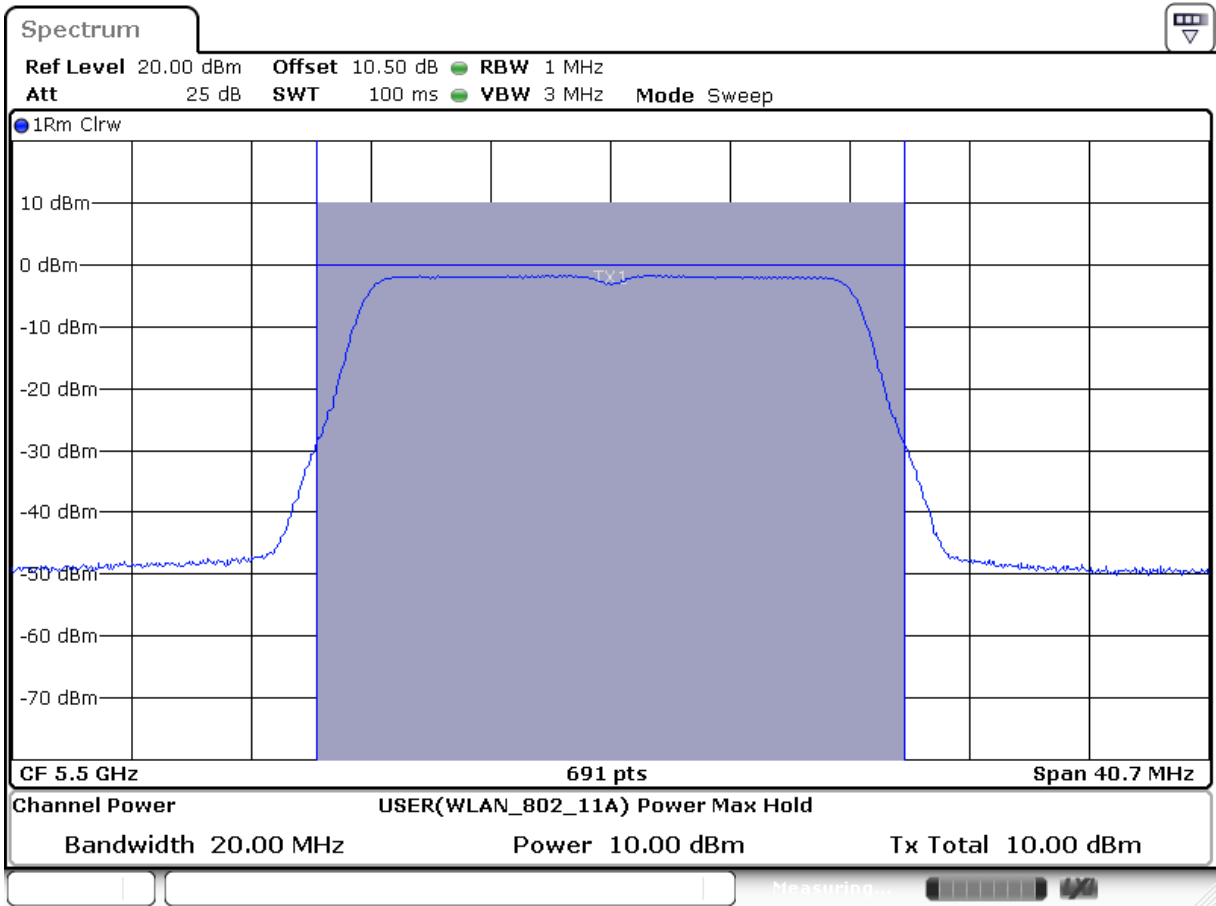
6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit nd Caculated Limit) dBm – (highest ntenna gain – 6 dBi)

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

File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#1 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %

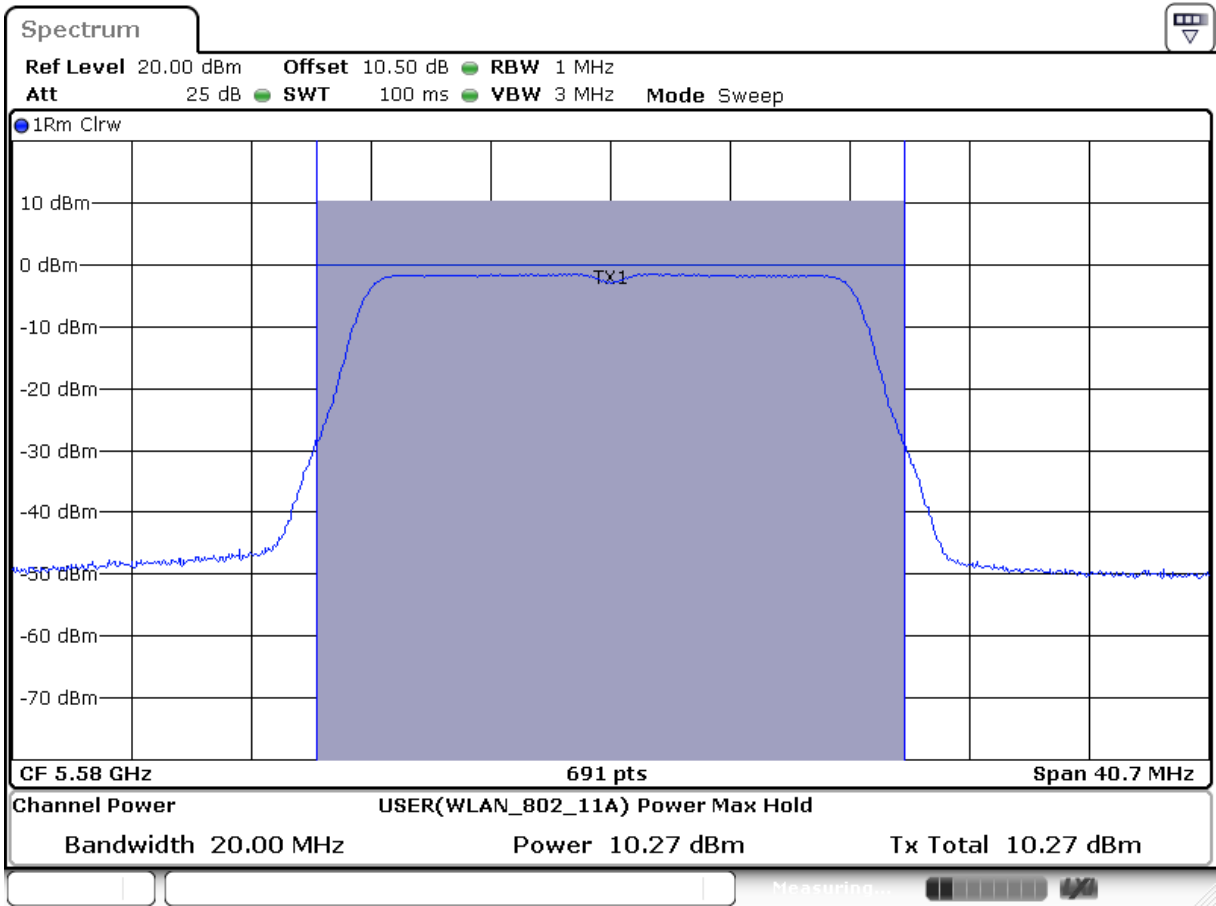


Condition:		RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms	Att.: 25dB
Model:	BM72065	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a_Channel 100_Output power		

File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#8 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %

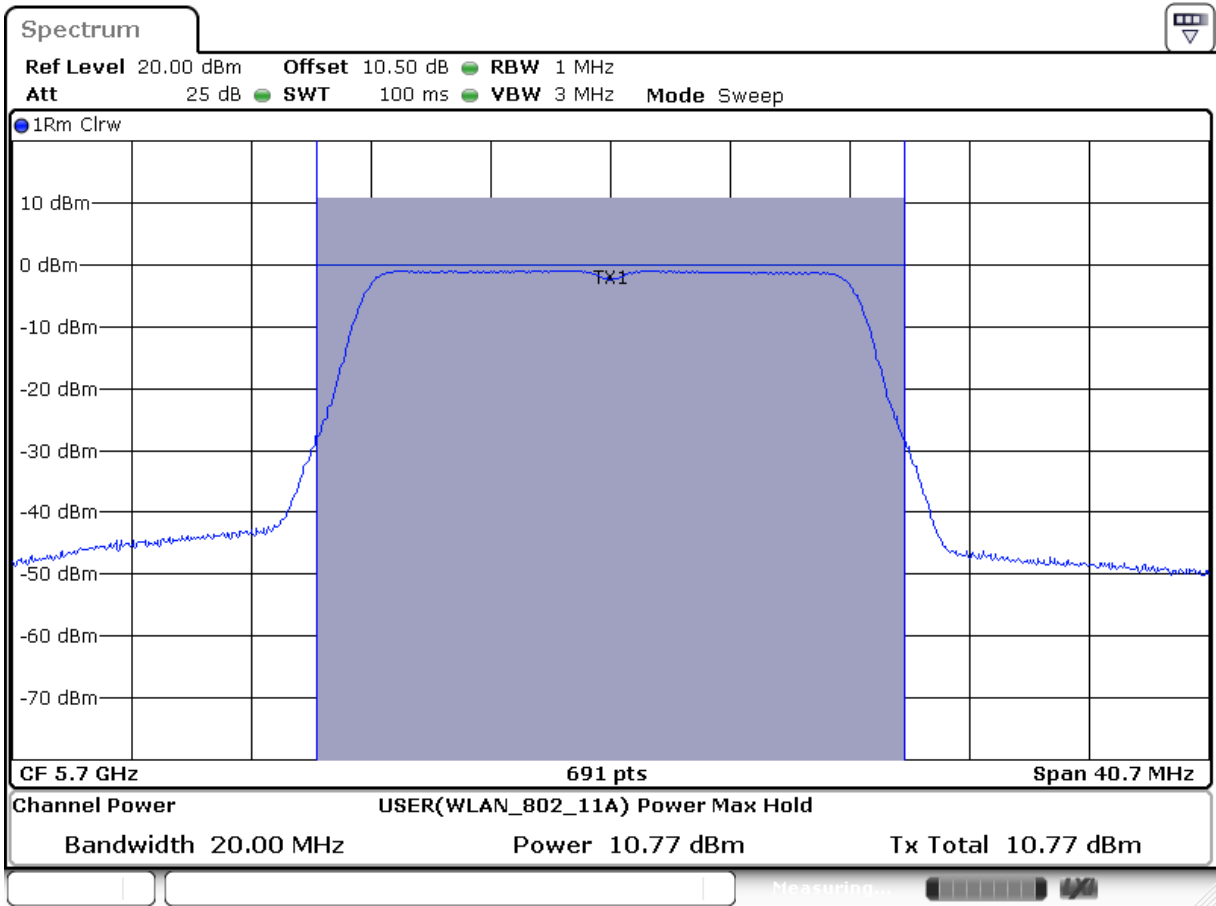


Condition:		RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms	Att.: 25dB
Model:	BM72065	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a_Channel 116_Output power		

File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#14 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:		RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms	Att.: 25dB
Model:	BM72065	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a_Channel 140_Output power		

7.4.2 調變技術:IEEE 802.11n HT20

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

天線增益最大值為 4 dBi，NCC Limit 如下表所示：

Channel	Fixd limit (dBm)	26dB BW (MHz)	Limit (dBm)	Output Power (dBm)	NCC Limit (dBm)	Chart
L	24	20.513	24.12	9.96	24	Page 39
M	24	20.513	24.12	10.27	24	Page 40
H	24	20.594	24.14	10.38	24	Page 41

註：1. 繪圖資料請參考第 39-41 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. Fixed Limit = 250mW=24dBm

4. Caculated Limit = 11dBm + 10 log (26dB BW)

5. If antenna gain $\leq$ 6dBi, NCC Limit = (Minimum of Fixed Limit nd Caculated Limit) dBm

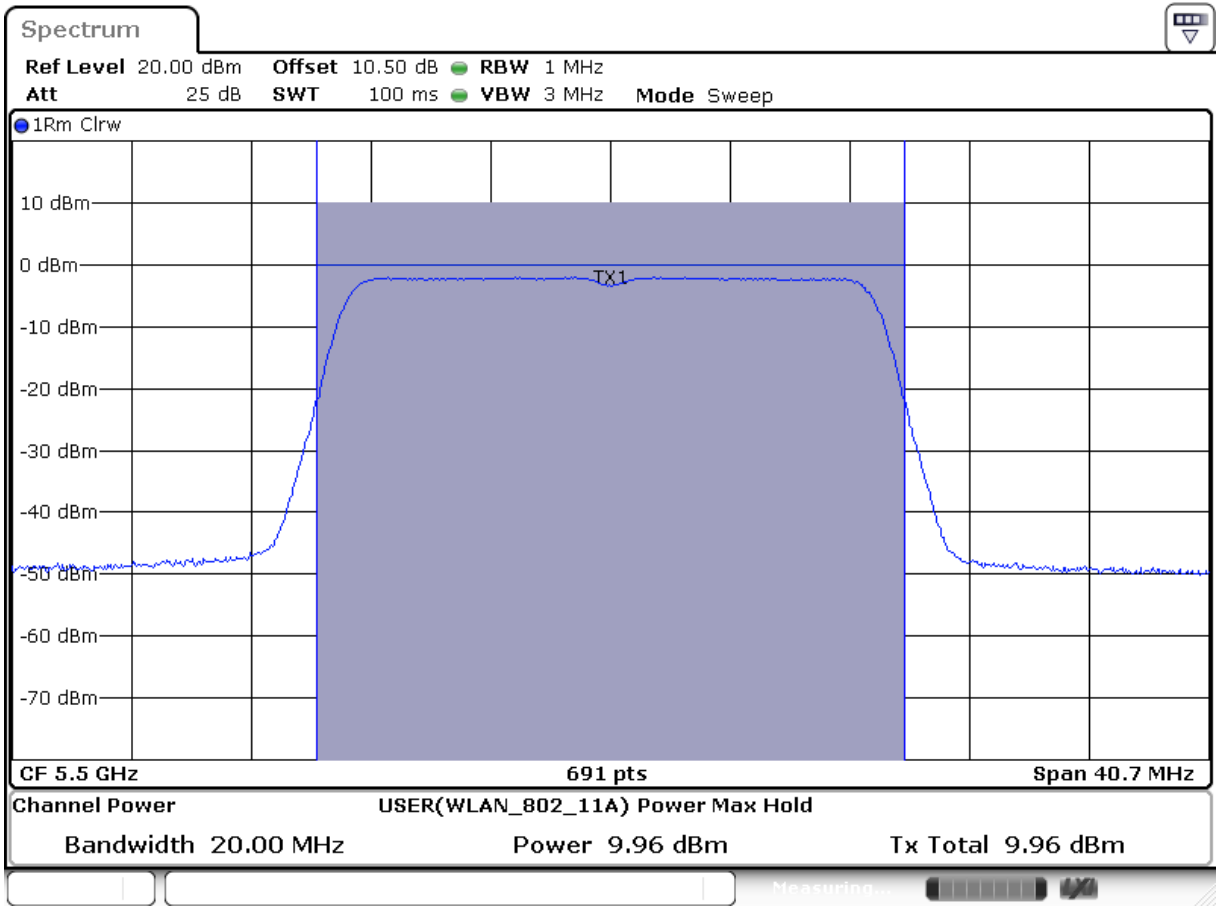
6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit nd Caculated Limit) dBm – (highest ntenna gain – 6 dBi)

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

File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#1 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %

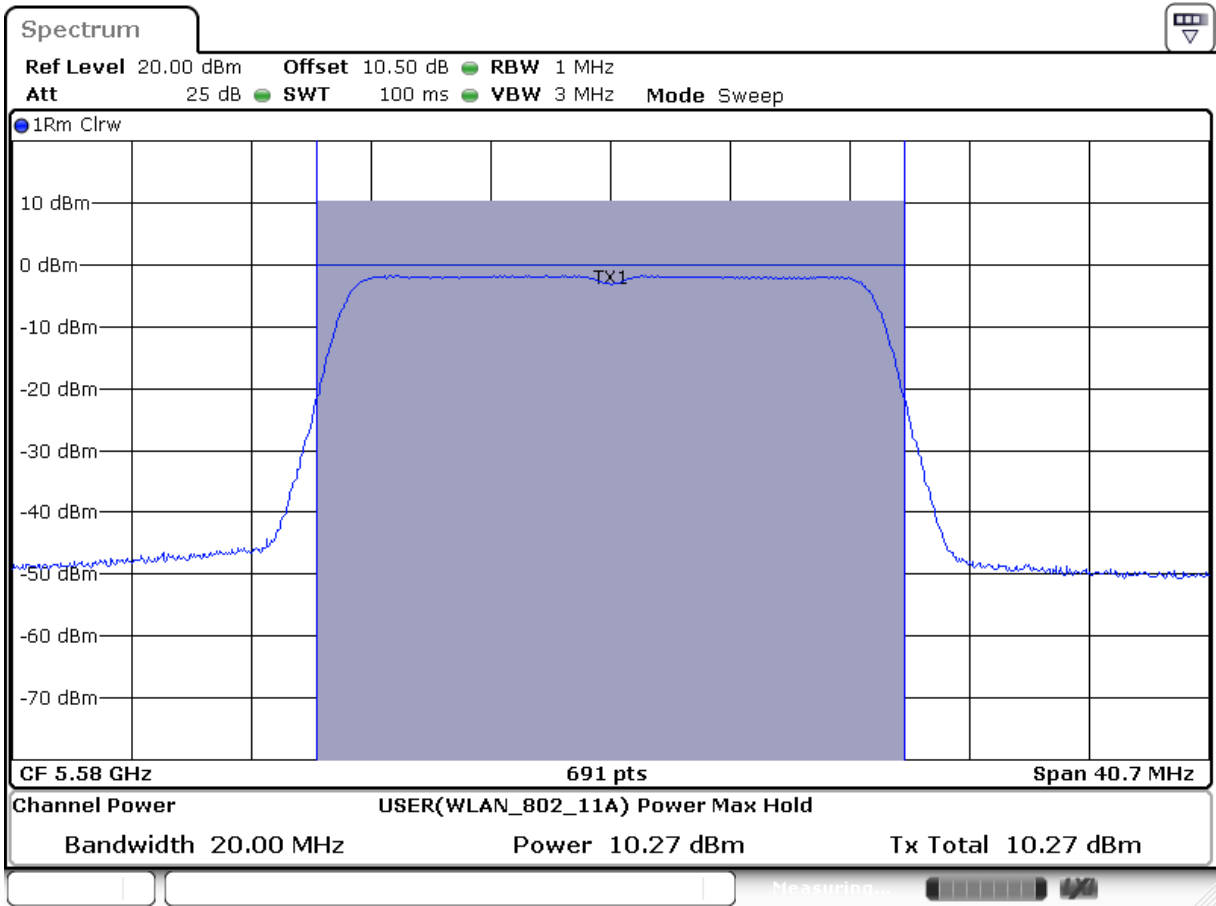


Condition:		RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms	Att.: 25dB
Model:	BM72065	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n20_Channel 100_Output power		

File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#8 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %

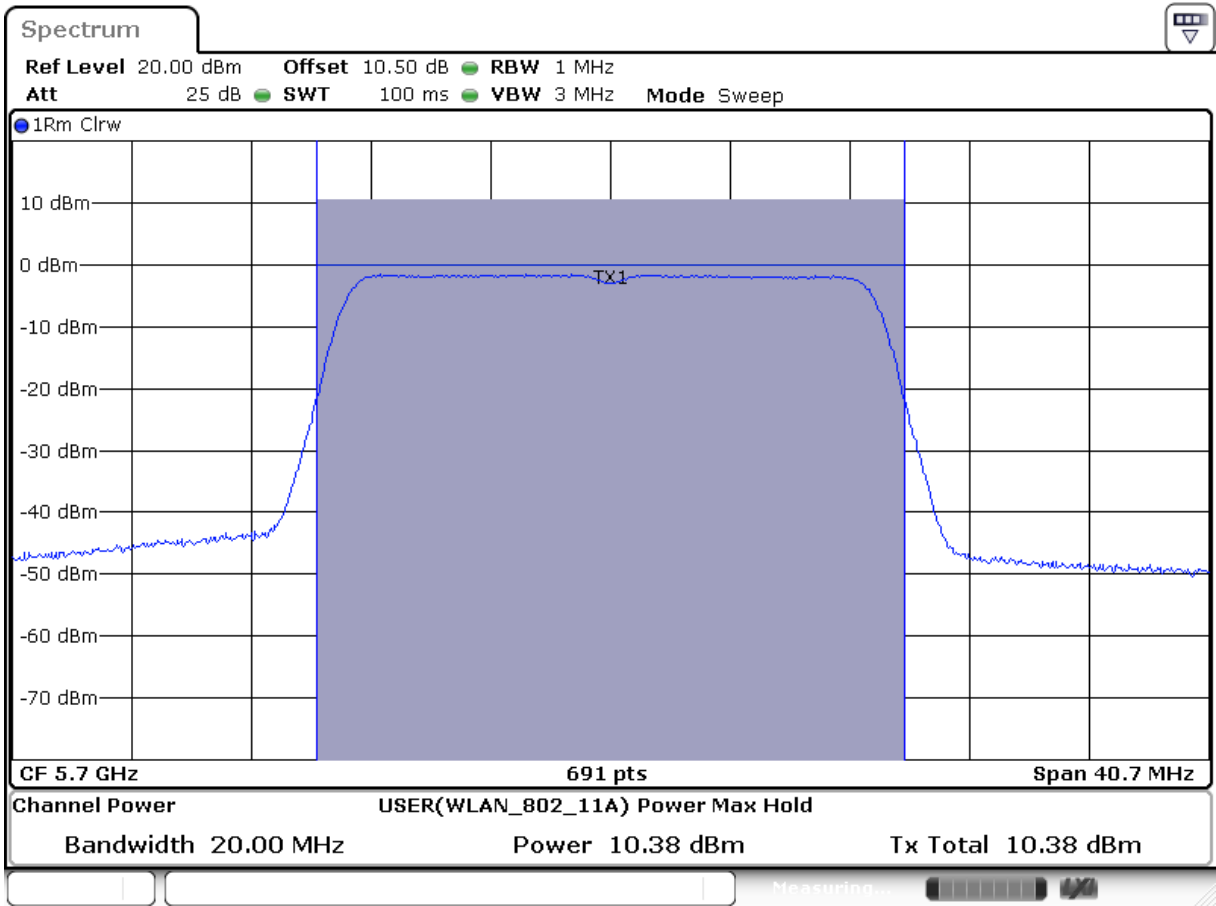


Condition:	RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms Att.: 25dB
Model:	BM72065	RBW: 1000 KHz VBW: 3000 KHz
Test Mode:	UNII	Operator: Phillip
Note:	NCC_LP0002_802.11n20_Channel 116_Output power	

File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#14 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:		RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms	Att.: 25dB
Model:	BM72065	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n20_Channel 140_Output power		

7.4.3 調變技術: IEEE 802.11n HT40

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

天線增益最大值為 4 dBi, NCC Limit 如下表所示:

Channel	Fixd limit (dBm)	26dB BW (MHz)	Limit (dBm)	Output Power (dBm)	NCC Limit (dBm)	Chart
L	24	41.626	27.19	9.66	24	Page 43
M	24	41.626	27.19	9.97	24	Page 44
H	24	41.626	27.19	10.48	24	Page 45

註: 1. 繪圖資料請參考第 43-45 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. Fixed Limit = 250mW=24dBm

4. Caculated Limit = 11dBm + 10 log (26dB BW)

5. If antenna gain $\leq$ 6dBi, NCC Limit = (Minimum of Fixed Limit nd Caculated Limit) dBm

6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit nd Caculated Limit) dBm – (highest ntenna gain – 6 dBi)

7. 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: 20-02-MAS-059_5-6an40

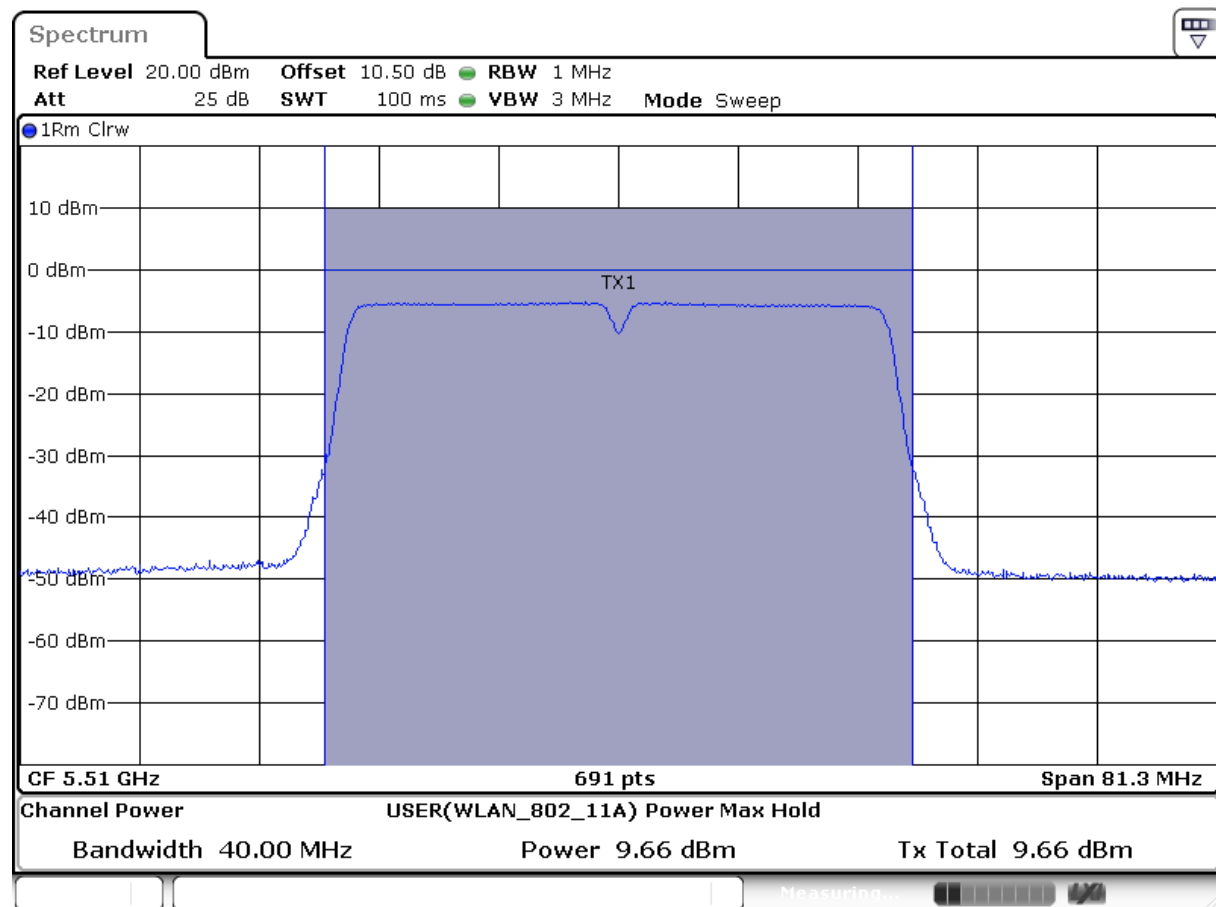
#1

Date: 2020/3/17

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %

**Condition:**

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n40_Channel 102_Output power

RF Conducted

Sweep Time: 100ms Att.: 25dB

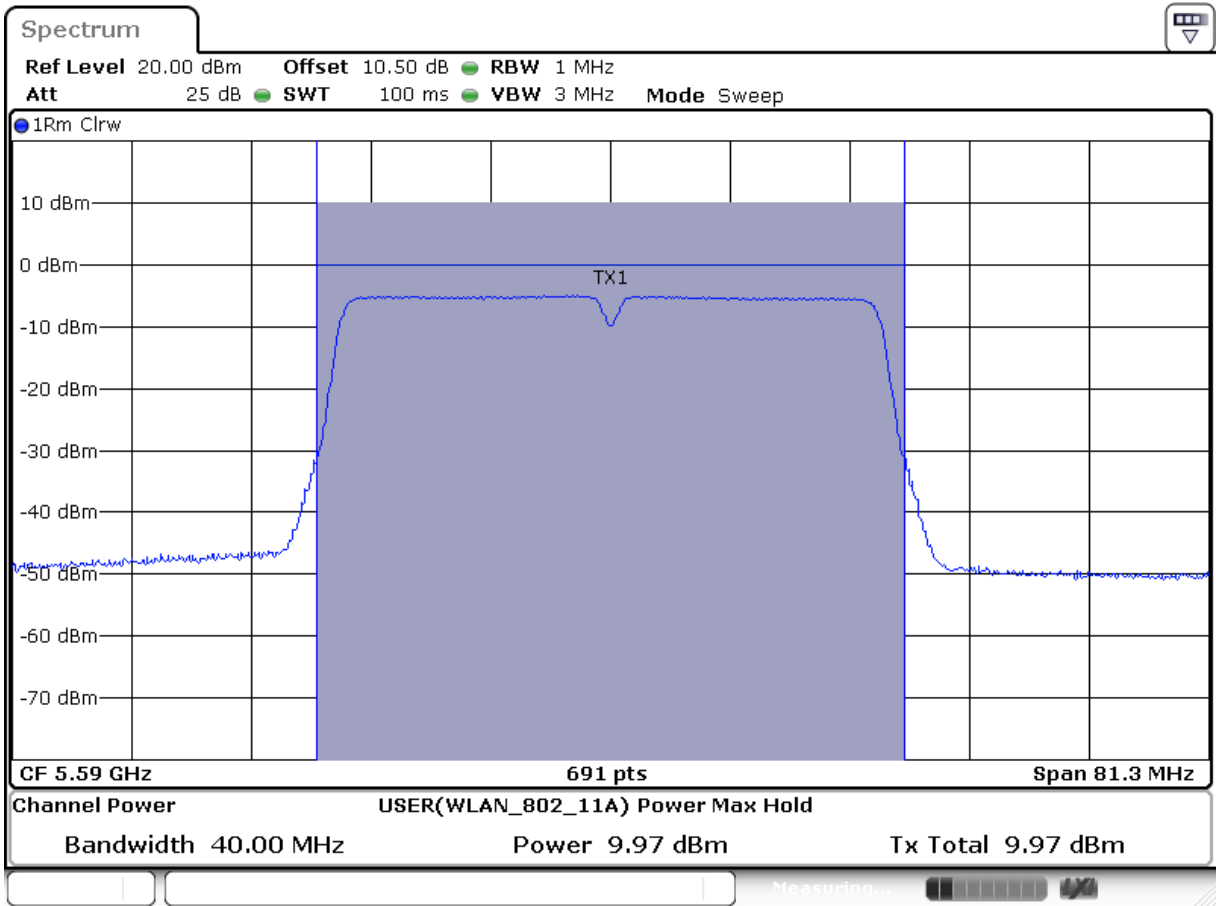
RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#8 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %

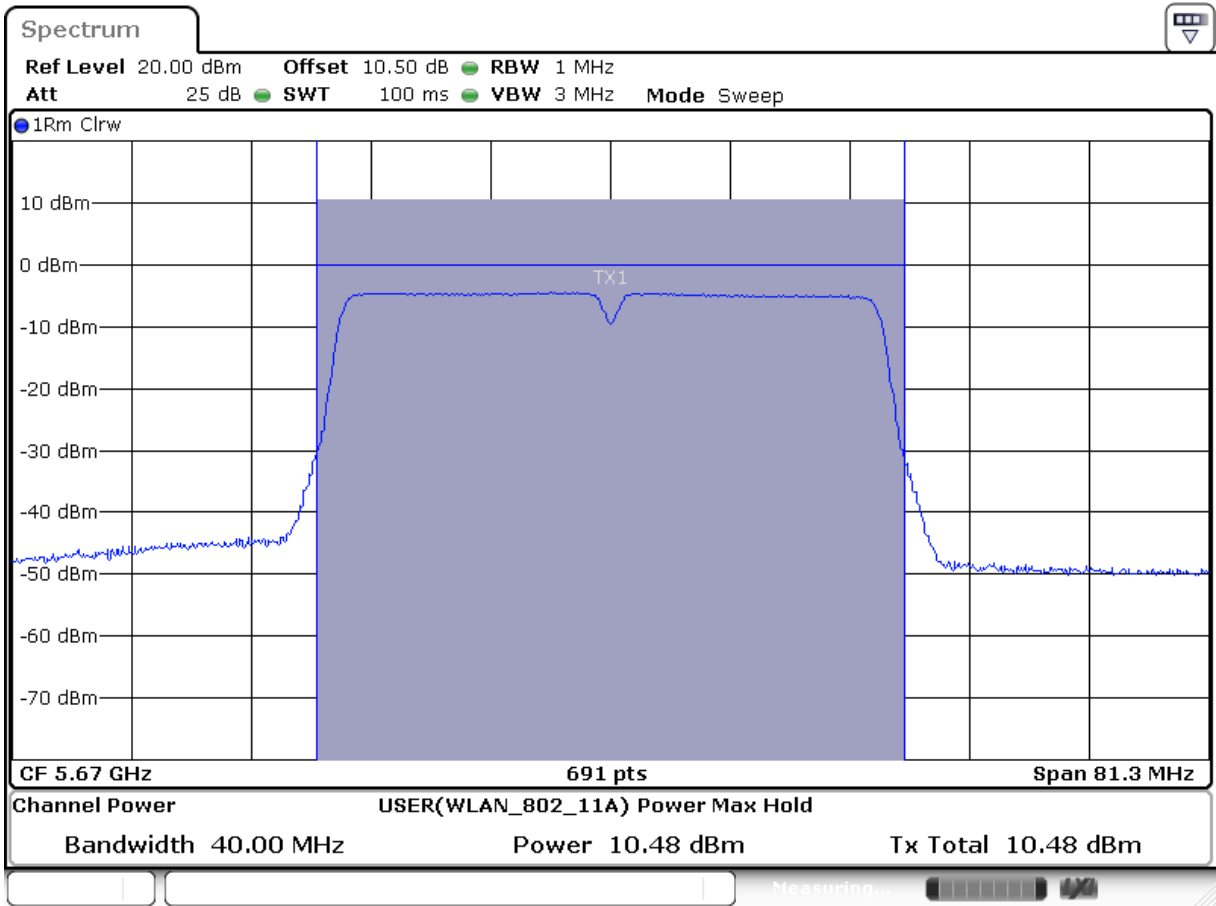


Condition:		RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms	Att.: 25dB
Model:	BM72065	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n40_Channel 118_Output power		

File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#14 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:		RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 100ms	Att.: 25dB
Model:	BM72065	RBW: 1000 KHz	VBW: 3000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n40_Channel 134_Output power		

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電機技術規範4.7.3.2節之規定:

- (2) 最大功率頻譜密度在任何 1 MHz 頻帶中應小於或等於 11 dBm。
- (3) 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 1 所示。

8.3 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)

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: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

天線增益最大值為 4 dBi，NCC Limit 如下表所示：

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	1.94	11.00	Page 48
M	2.80	11.00	Page 49
H	3.26	11.00	Page 50

註：1. 繪圖資料請參考第 48-50 頁。

2. 功率頻譜密度 (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: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

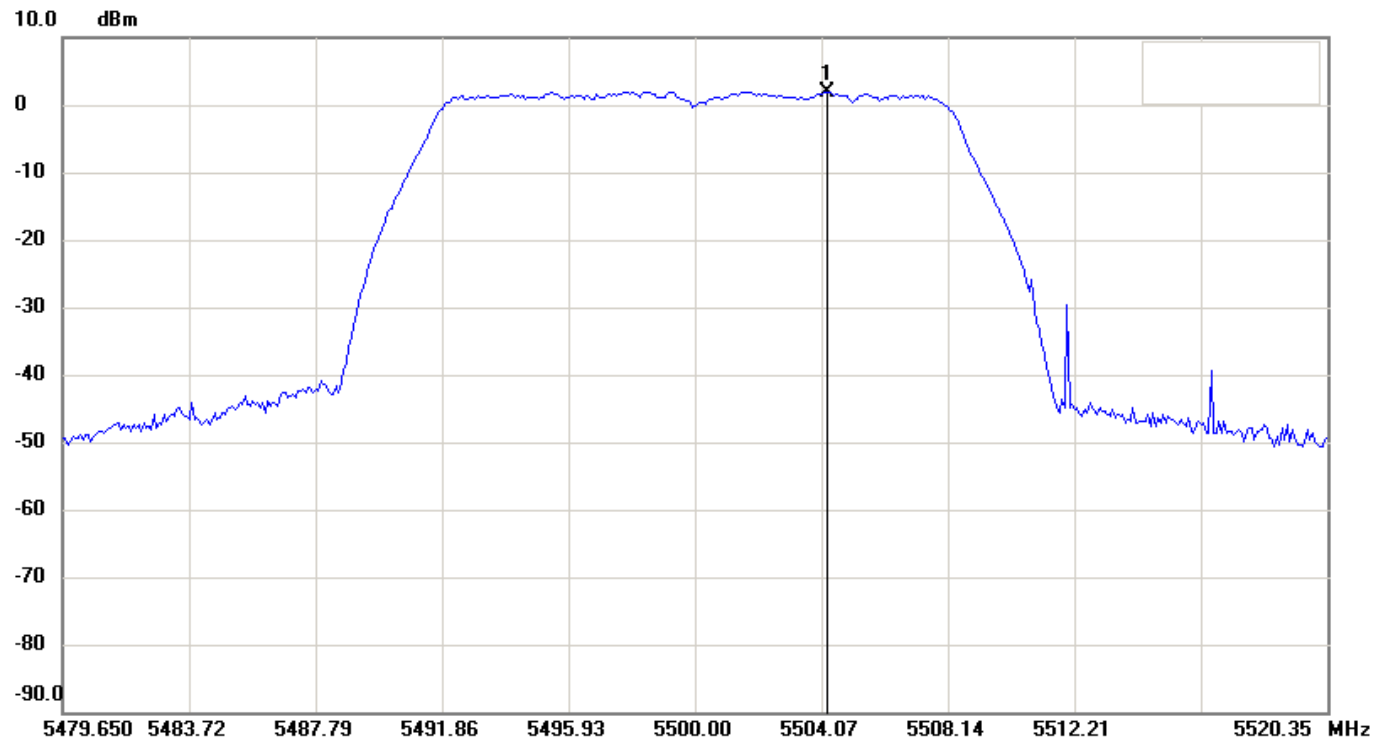
File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#4

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11a_Channel 100_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5504.23280	1.94

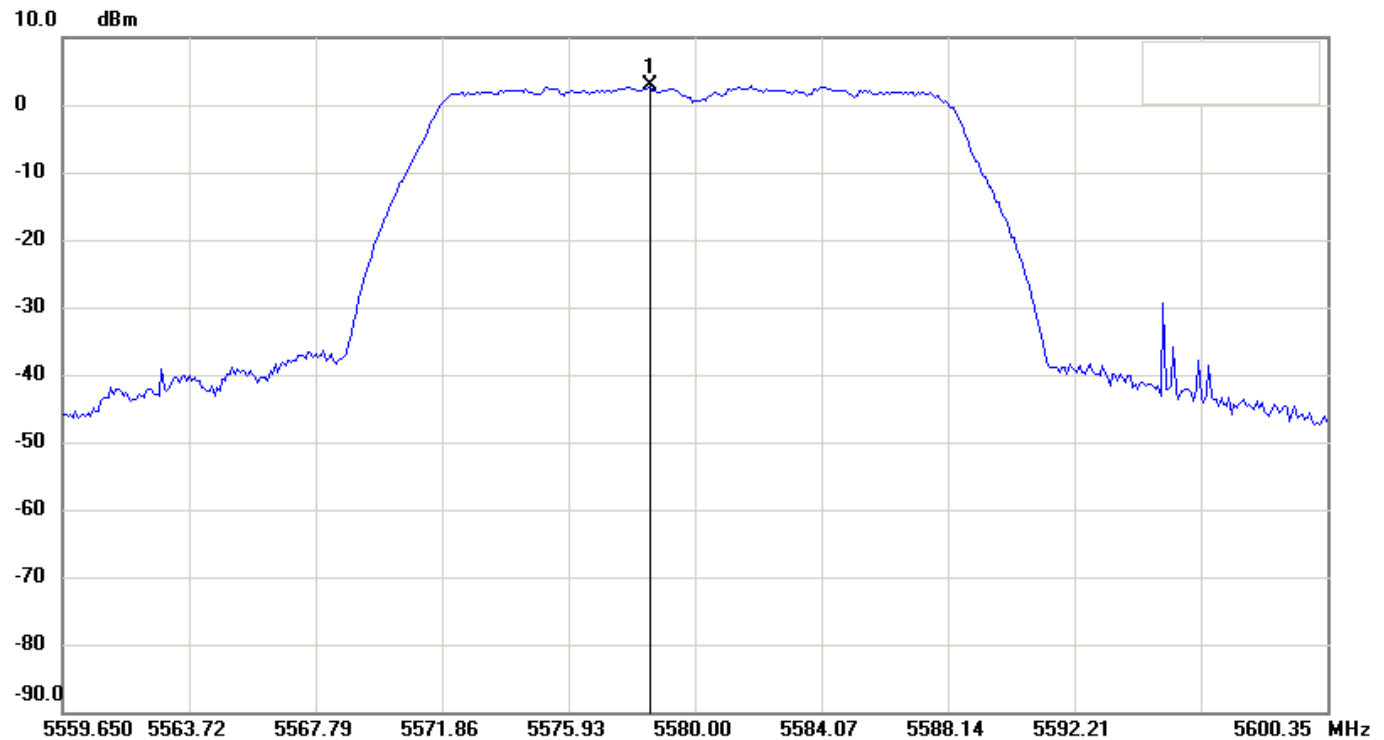
File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#11

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11a_Channel 116_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

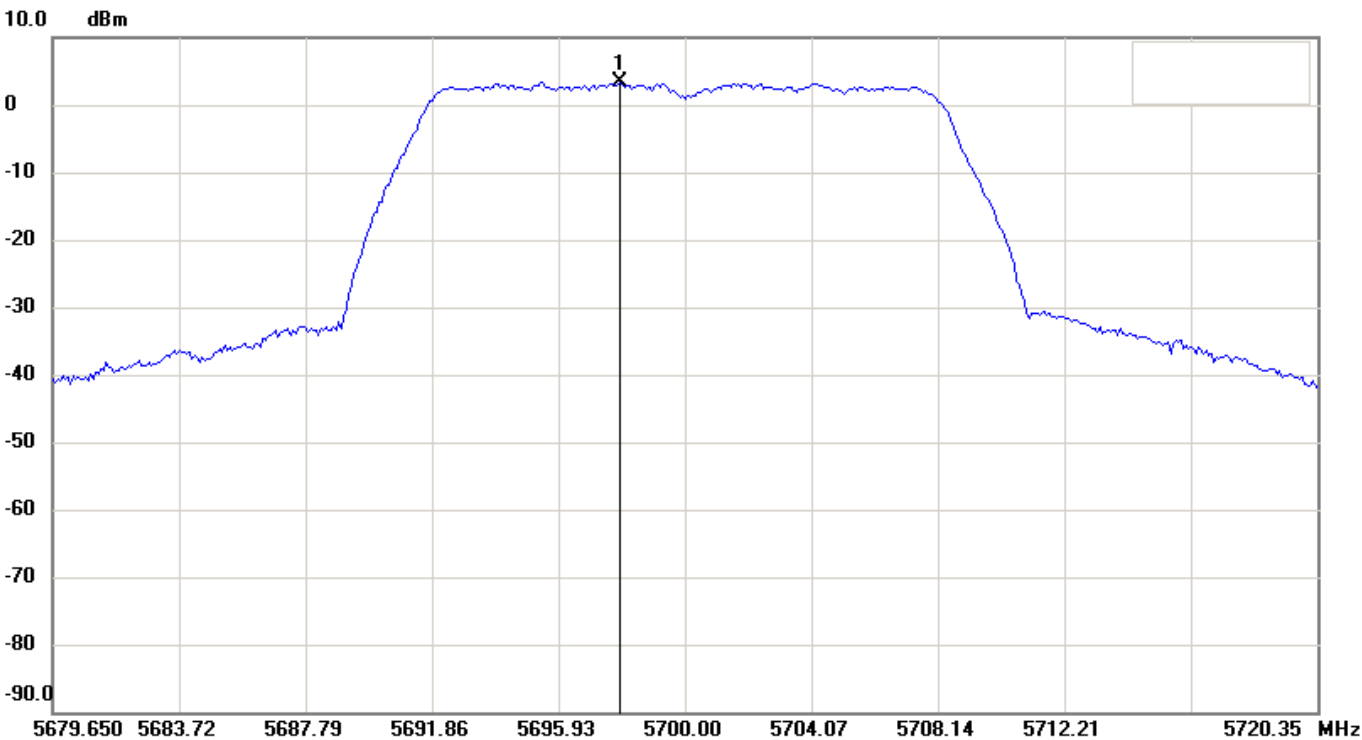
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5578.53480	2.80

File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#17 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:		RF Conducted
EUT:	Wireless LAN Module	Sweep Time: 1ms Att.: 15dB
Model:	BM72065	RBW: 1000 KHz VBW: 3000 KHz
Test Mode:	UNII	Operator: Phillip
Note:	NCC_LP0002_802.11a_Channel 140_Power Density	

No.	Frequency(MHz)	Level(dBm)
1	5697.88360	3.26

8.4.2 調變技術:IEEE 802.11n HT20

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

天線增益最大值為 4 dBi, NCC Limit 如下表所示:

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	2.64	11.0	Page 52
M	2.48	11.0	Page 53
H	2.56	11.0	Page 54

註: 1. 繪圖資料請參考第 52-54 頁。

2. 功率頻譜密度 (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: $\pm 1.5\text{dB}$ ($1\text{GHz} \leq f \leq 18\text{GHz}$)

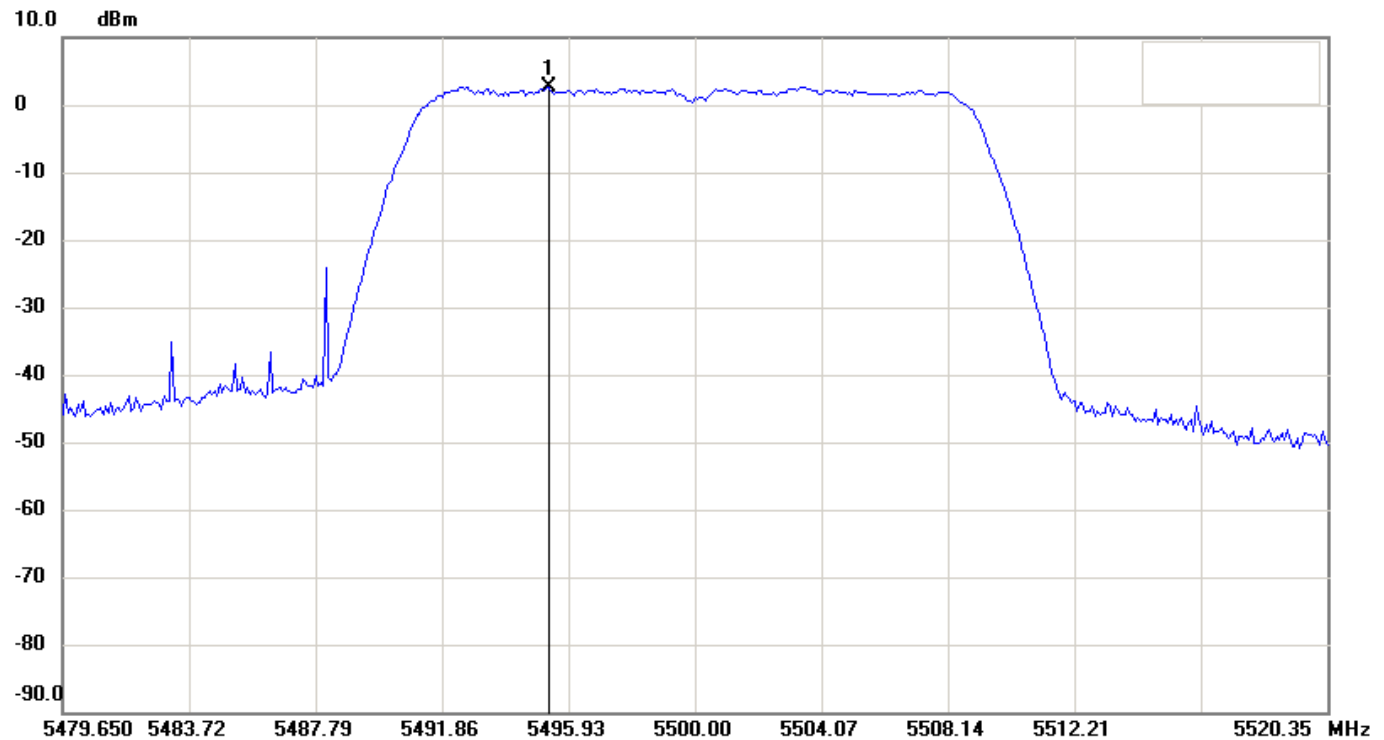
File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#4

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n20_Channel 100_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5495.27880	2.64

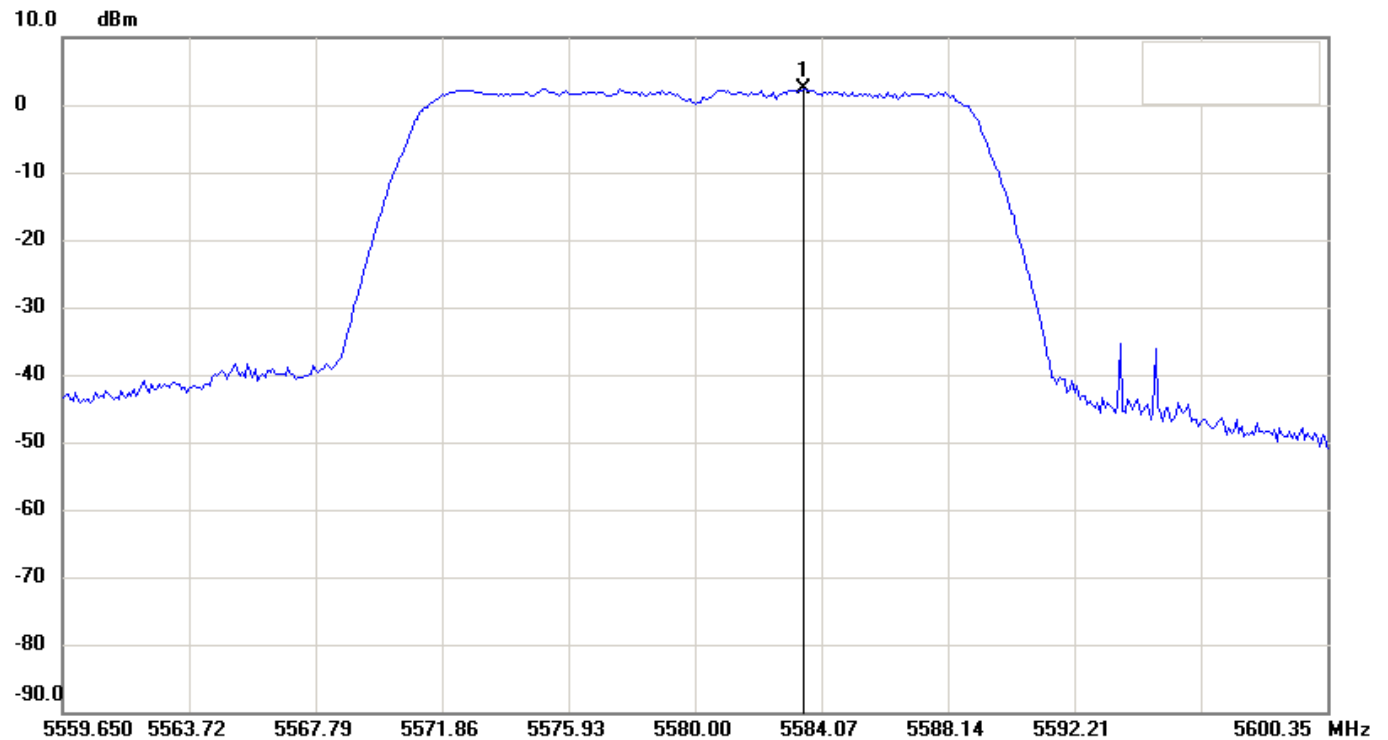
File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#11

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n20_Channel 116_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5583.50020	2.48

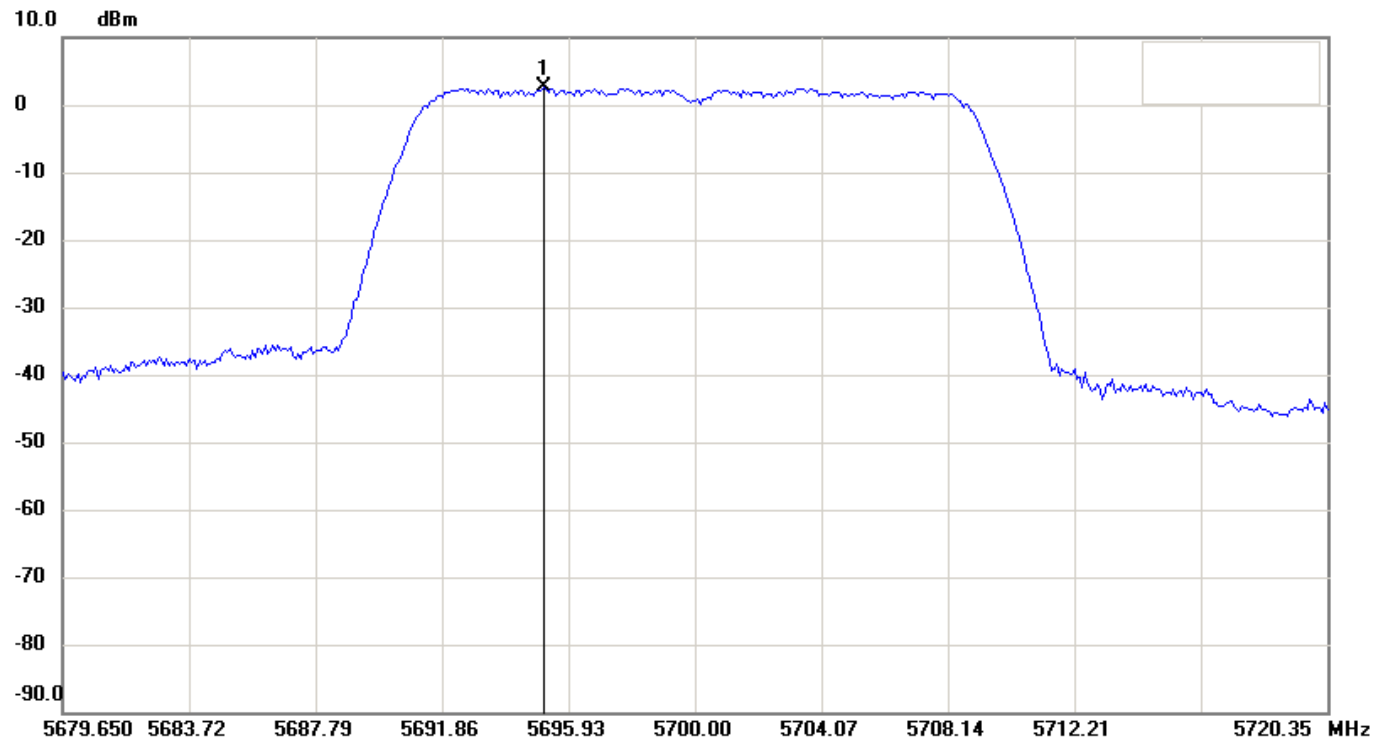
File: 20-02-MAS-059_5-6an20
 Site: RF-Cond01

#17

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n20_Channel 140_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5695.11600	2.56

8.4.3 調變技術: IEEE 802.11n HT40

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

天線增益最大值為 4 dBi, NCC Limit 如下表所示:

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-0.88	11.0	Page 56
M	-0.61	11.0	Page 57
H	-0.16	11.0	Page 58

註: 1. 繪圖資料請參考第 56-58 頁。

2. 功率頻譜密度 (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。

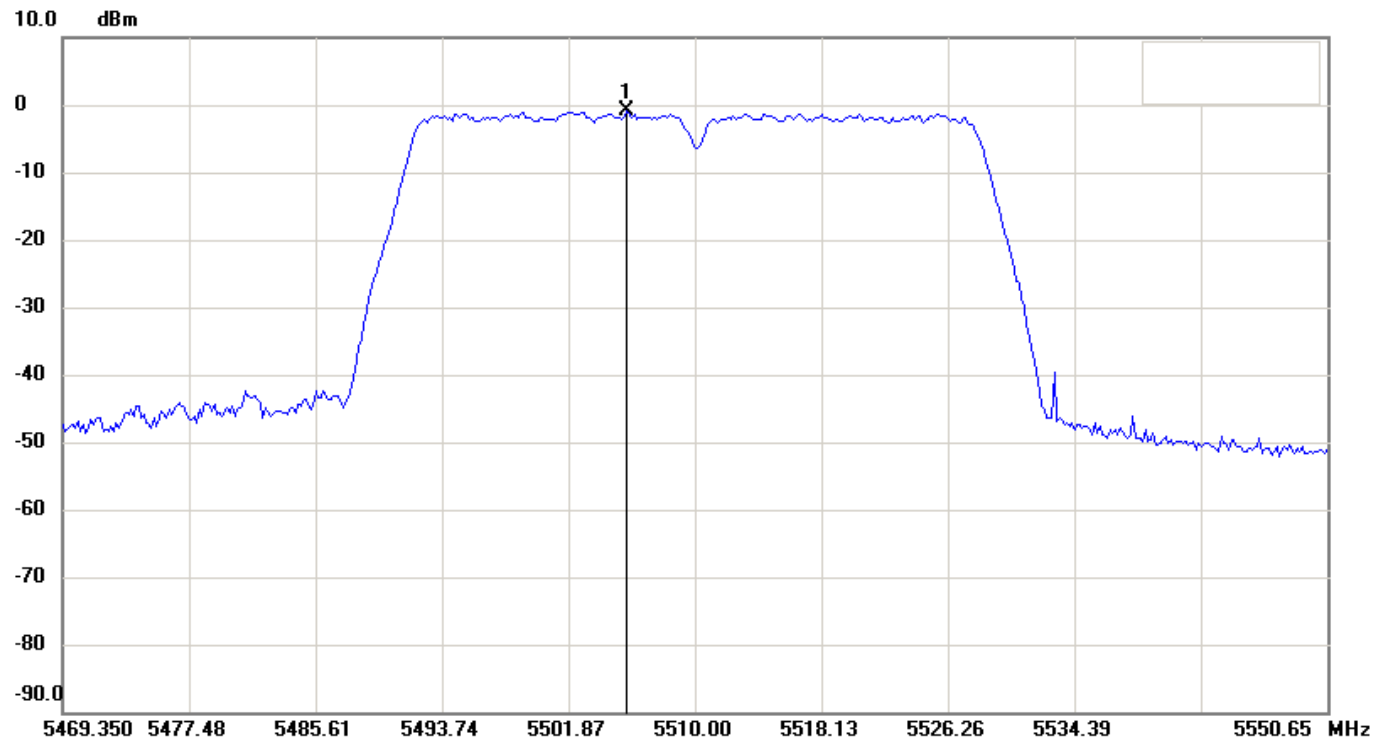
File: 20-02-MAS-059_5-6an40
 Site: RF-Cond01

#4

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n40_Channel 102_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5505.60980	-0.88

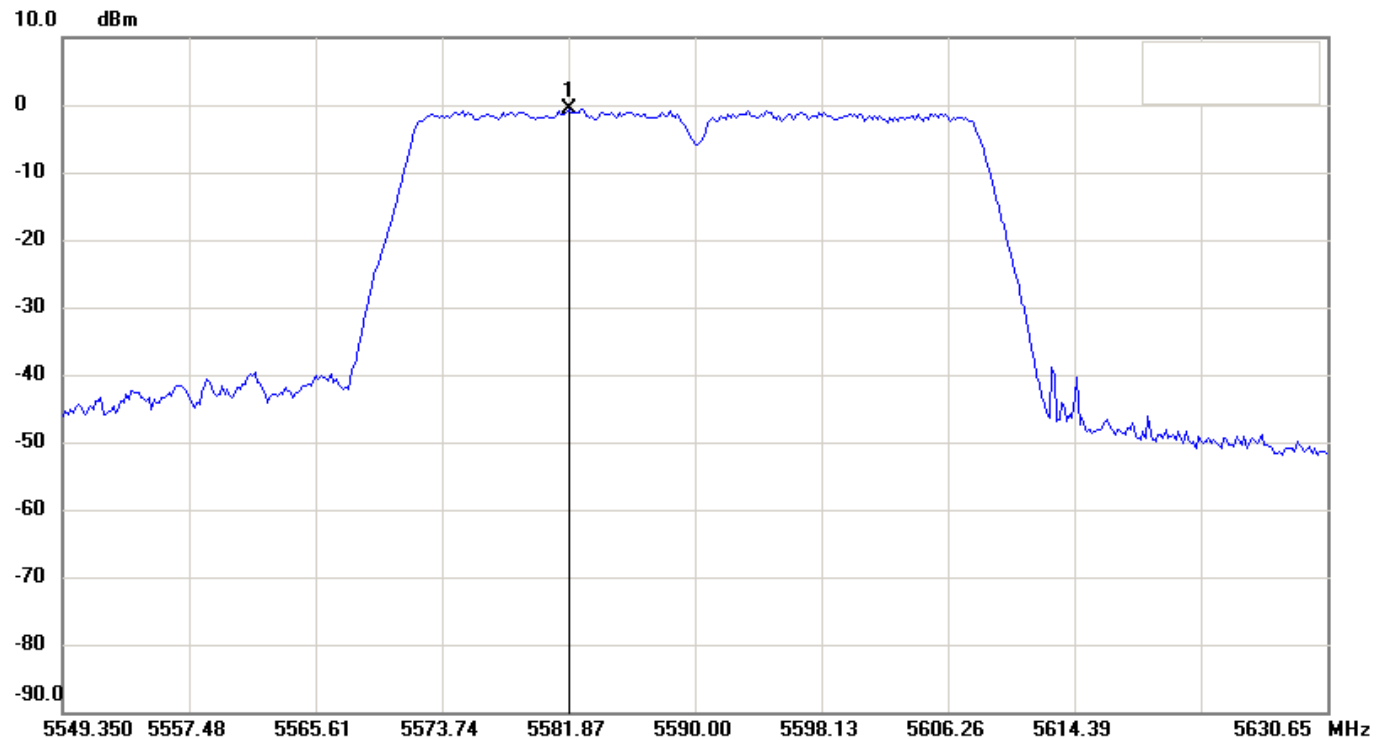
File: 20-02-MAS-059_5-6an40
 Site: RF-Cond01

#11

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n40_Channel 118_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5581.87000	-0.61

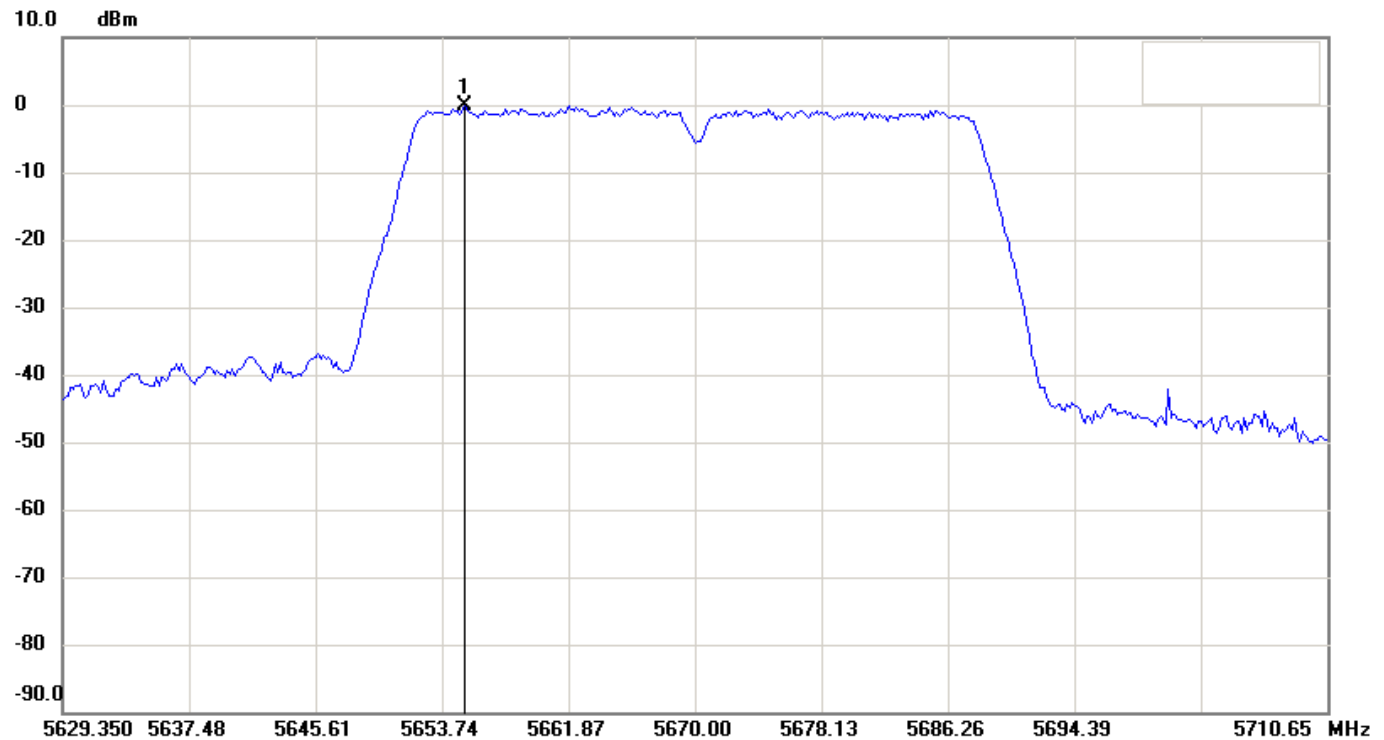
File: 20-02-MAS-059_5-6an40
 Site: RF-Cond01

#17

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition:

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n40_Channel 134_Power Density

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5655.20340	-0.16

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電機技術規範4.7.4.1之規定，在 5.15-5.35 GHz 及 5.470-5.725 GHz 頻帶操作的發射器：帶外發射之有效等向輻射功率 (EIRP) 不應超過 -27 dBm/MHz 。

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.4.3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。

9.2 混附波發射限制之測試配置

如圖1 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	R&S	FSV
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 – Antenna Directional Gain – $10 \log[\text{number of Tx output(s)}]$

測試工程師: 羅世勇

9.4.1 調變技術: IEEE 802.11a

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

註：1. 繪圖資料請參考第 60-65 頁。

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

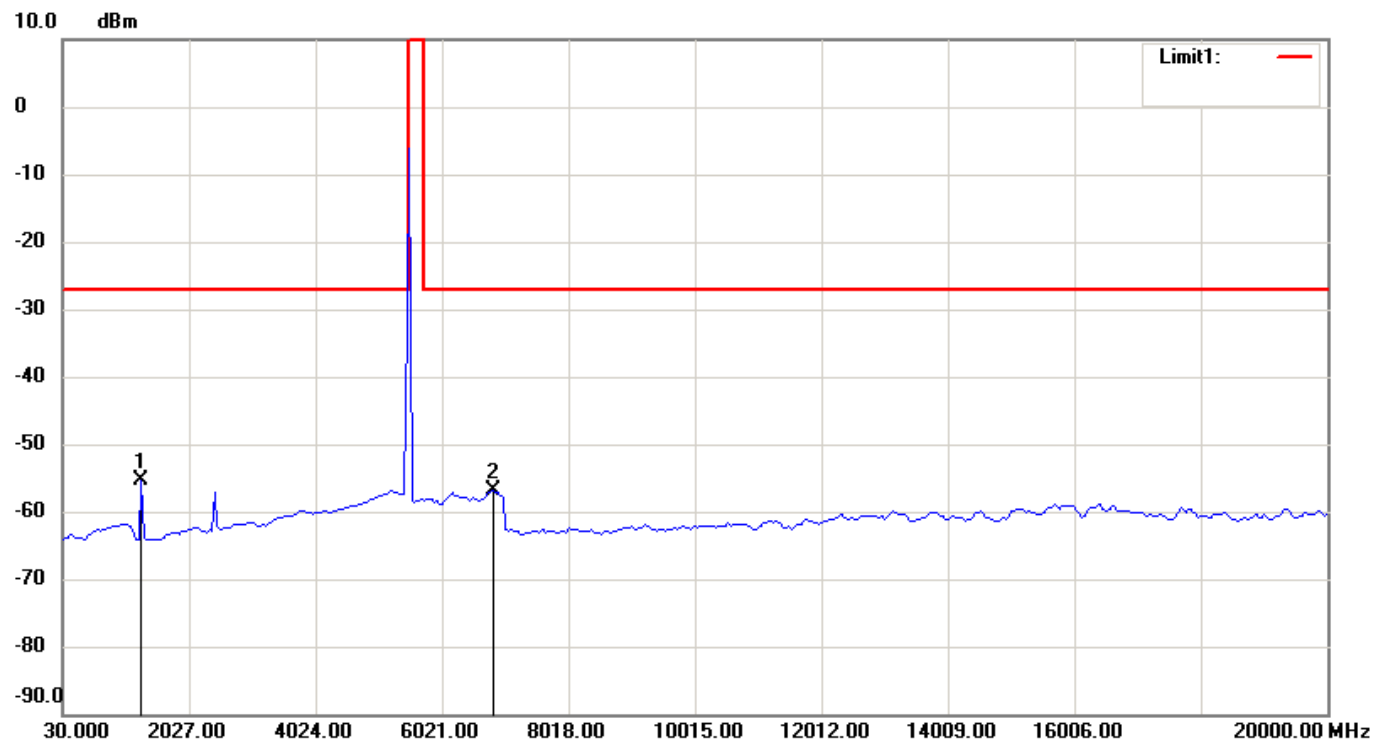
File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#5

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11a_Channel 100_Spurious-1

RF Conducted

Sweep Time: 79.9ms Att.: 15dB

RBW: 1000 KHz VBW: 1000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1268.14000	-55.29
2	6819.80000	-56.91

File: 20-02-MAS-059_5-6a

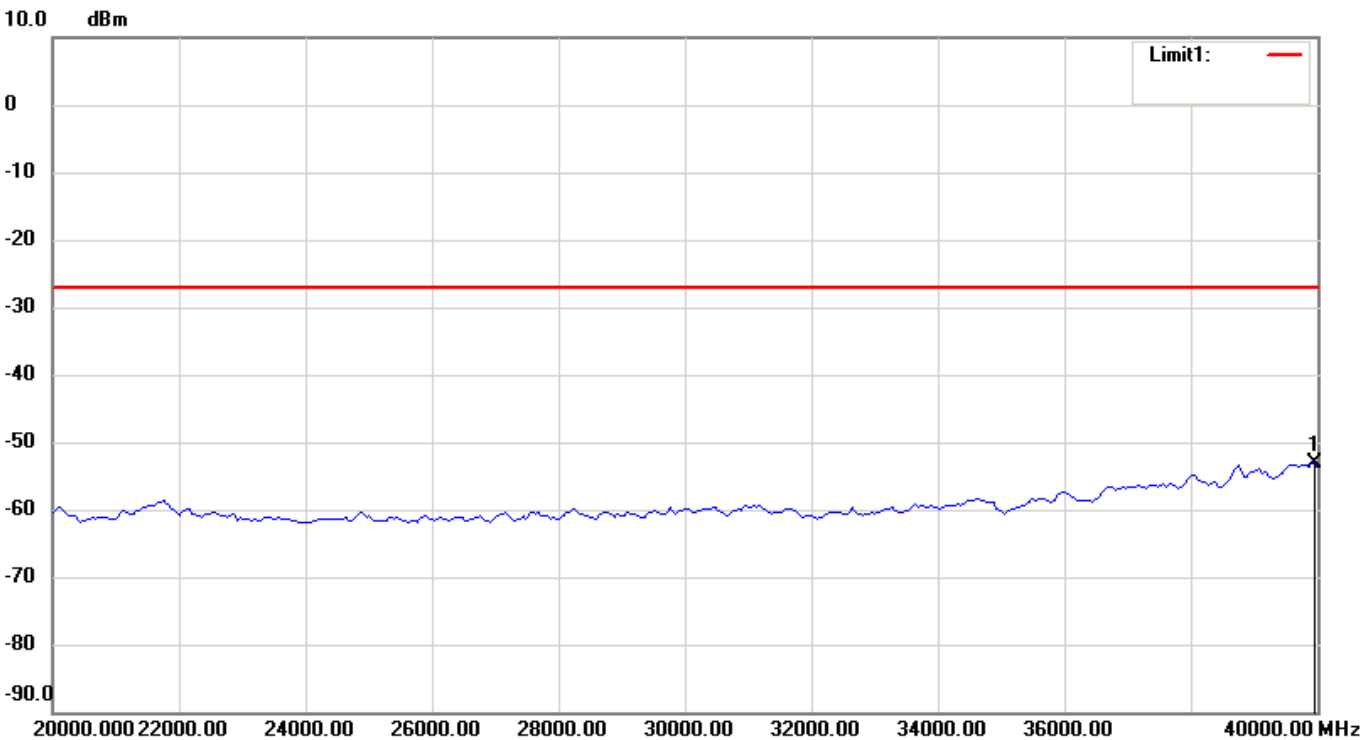
#6

Date: 2020/3/17

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

RF Conducted

EUT: Wireless LAN Module

Sweep Time: 80ms Att.: 15dB

Model: BM72065

RBW: 1000 KHz VBW: 1000 KHz

Test Mode: UNII

Operator: Phillip

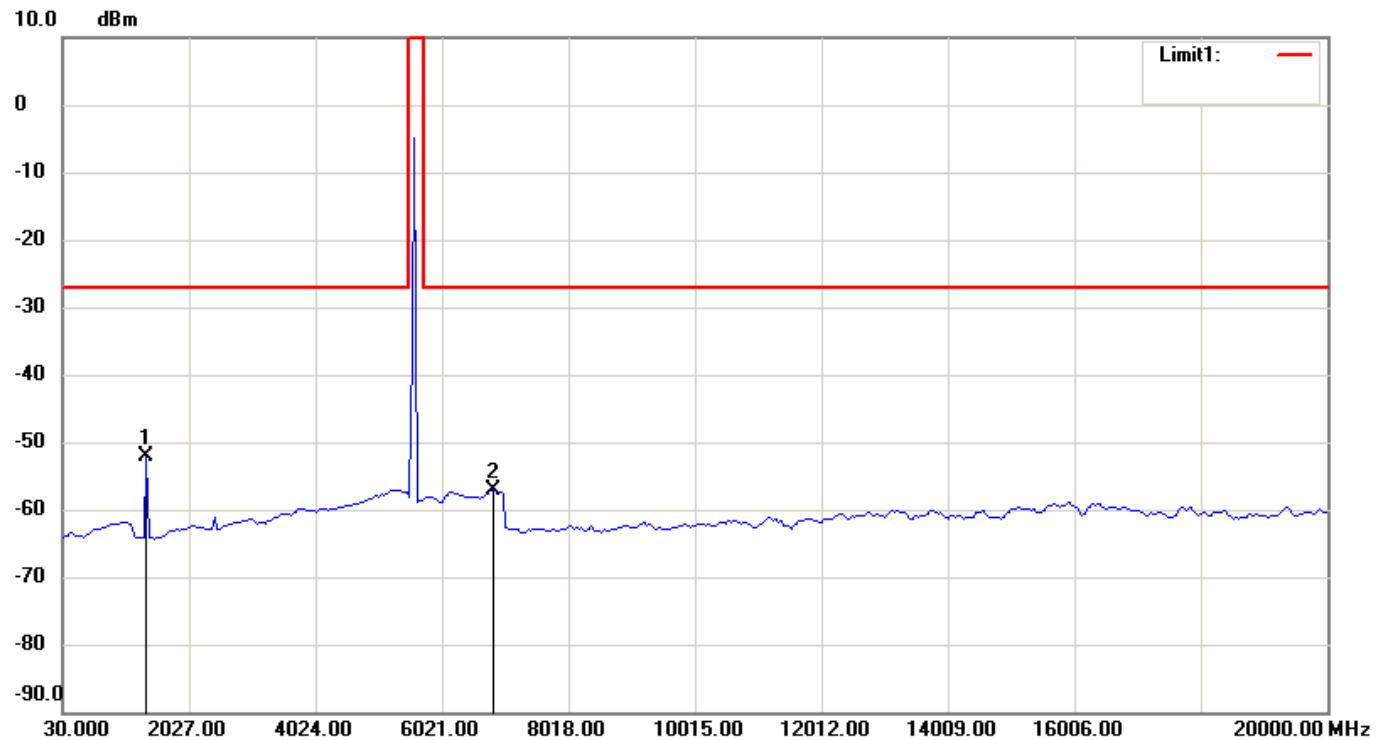
Note: NCC_LP0002_802.11a_Channel 100_Spurious-2

No.	Frequency(MHz)	Level(dBm)
1	39960.00000	-53.07

File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#12 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition: UNII-Band-3-Bandedge
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11a_Channel 116_Spurious-1

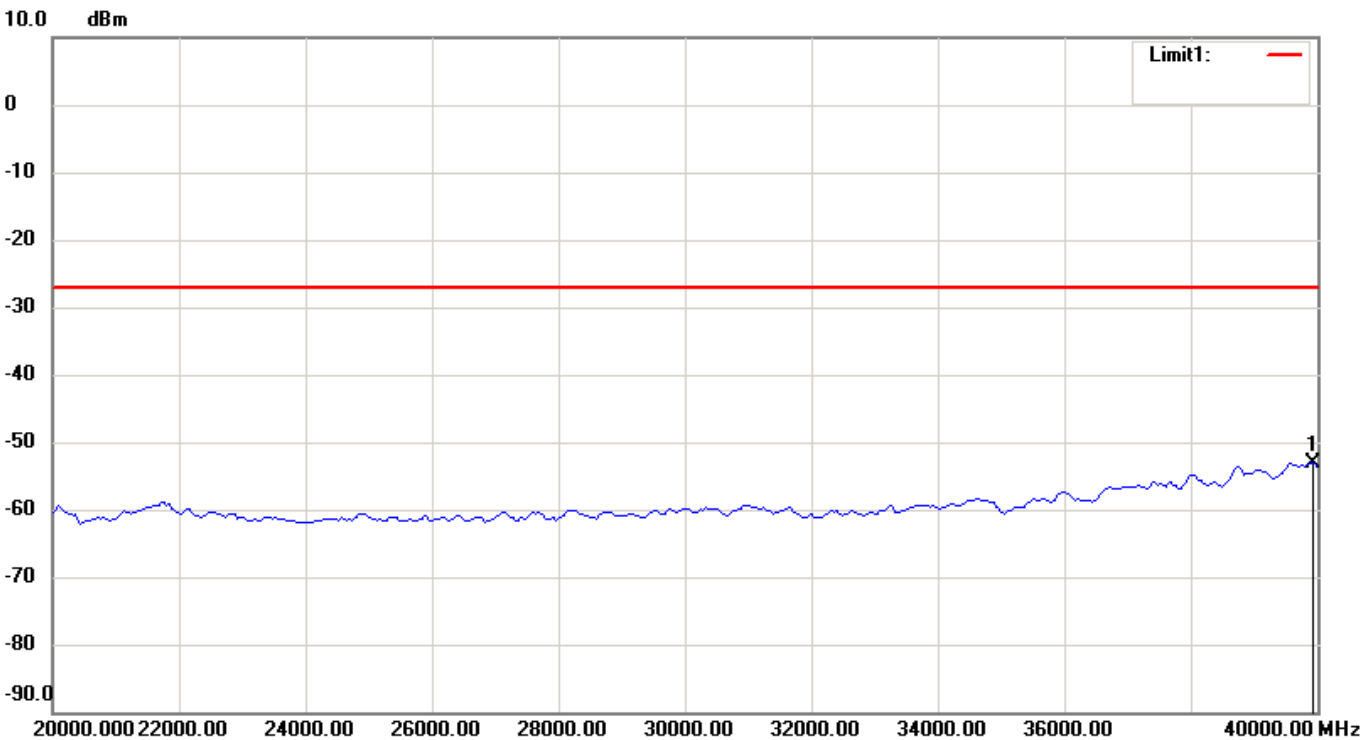
RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1348.02000	-52.16
2	6819.80000	-57.02

File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#13 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:	UNII-Band-3-Bandedge	RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 80ms	Att.: 15dB
Model:	BM72065	RBW: 1000 KHz	VBW: 1000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a_Channel 116_Spurious-2		

No.	Frequency(MHz)	Level(dBm)
1	39920.00000	-53.05

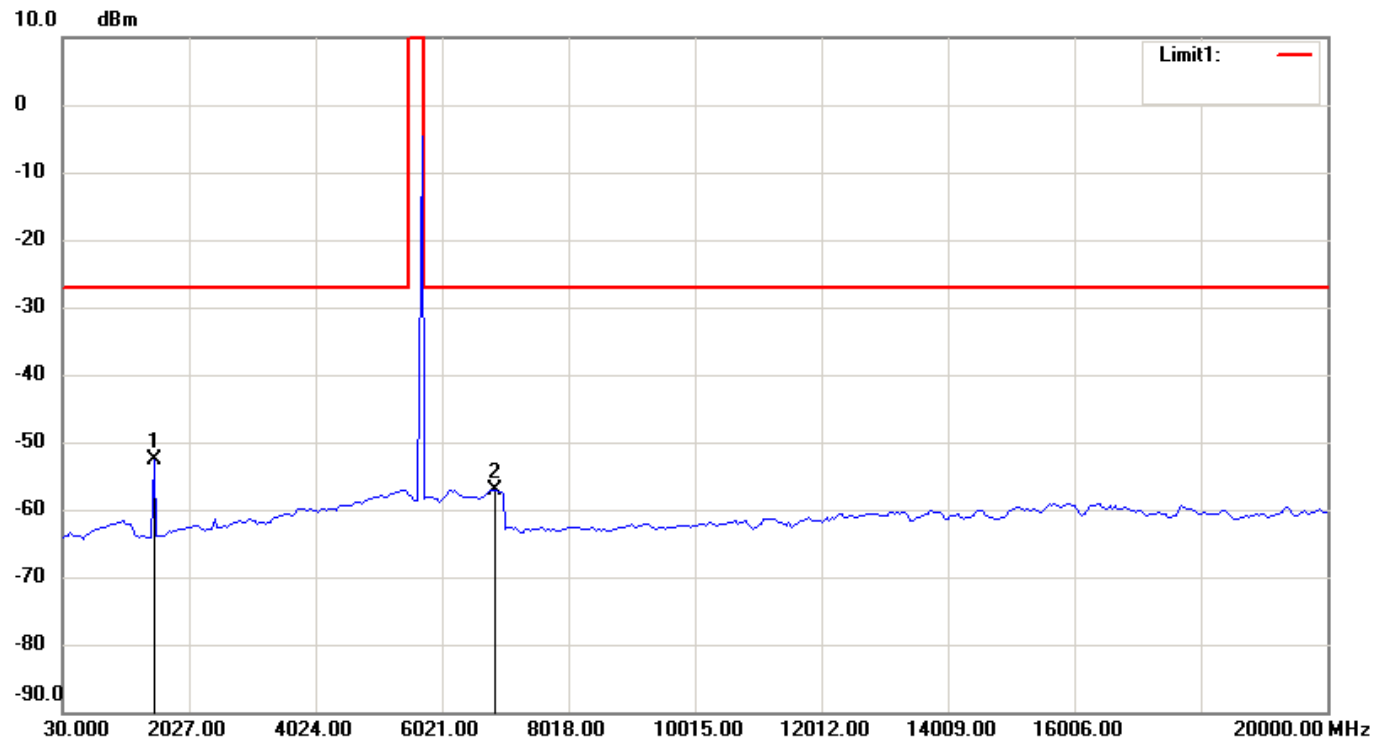
File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#18

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11a_Channel 140_Spurious-1

RF Conducted

Sweep Time: 79.9ms Att.: 15dB

RBW: 1000 KHz VBW: 1000 KHz

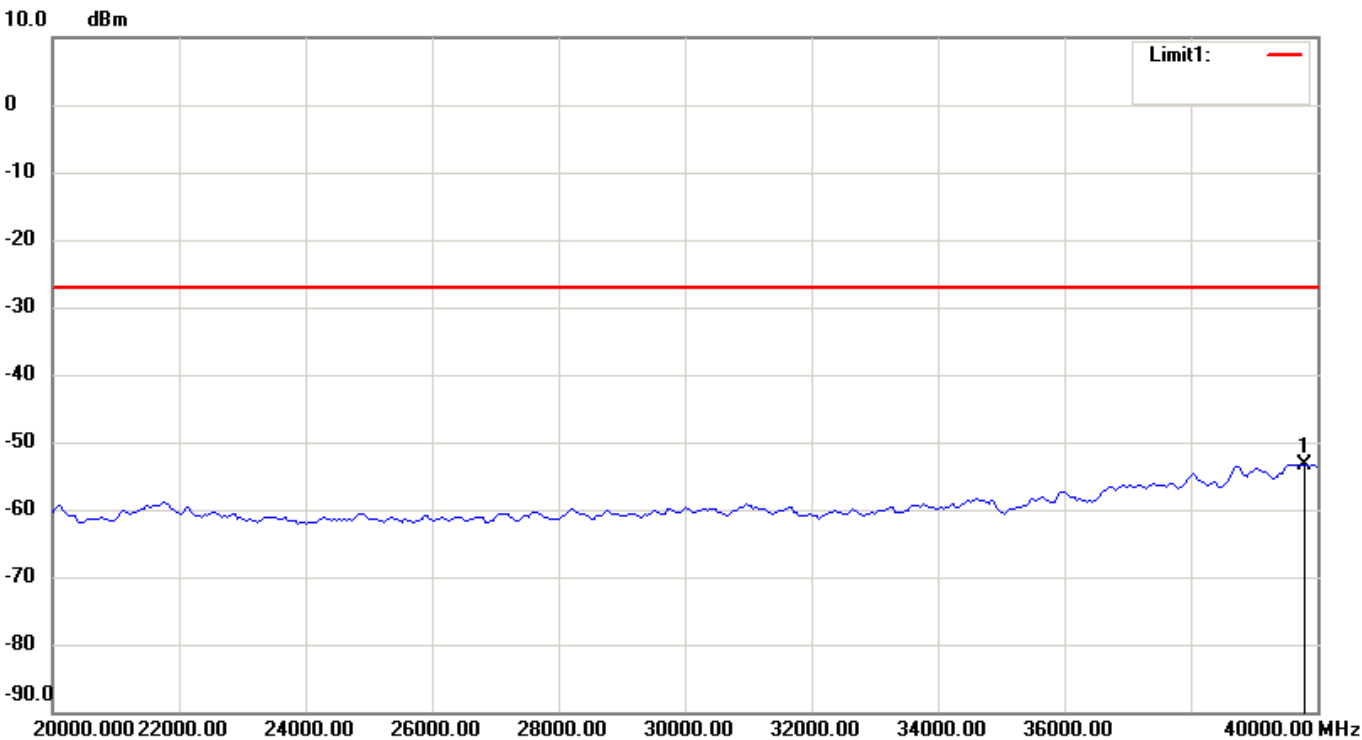
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1467.84000	-52.54
2	6859.74000	-57.00

File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#19 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:	UNII-Band-3-Bandedge	RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 80ms	Att.: 15dB
Model:	BM72065	RBW: 1000 KHz	VBW: 1000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11a_Channel 140_Spurious-2		

No.	Frequency(MHz)	Level(dBm)
1	39800.00000	-53.26

9.4.2 調變技術:IEEE 802.11n HT20

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

註: 1. 繪圖資料請參考第 67-72 頁。

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

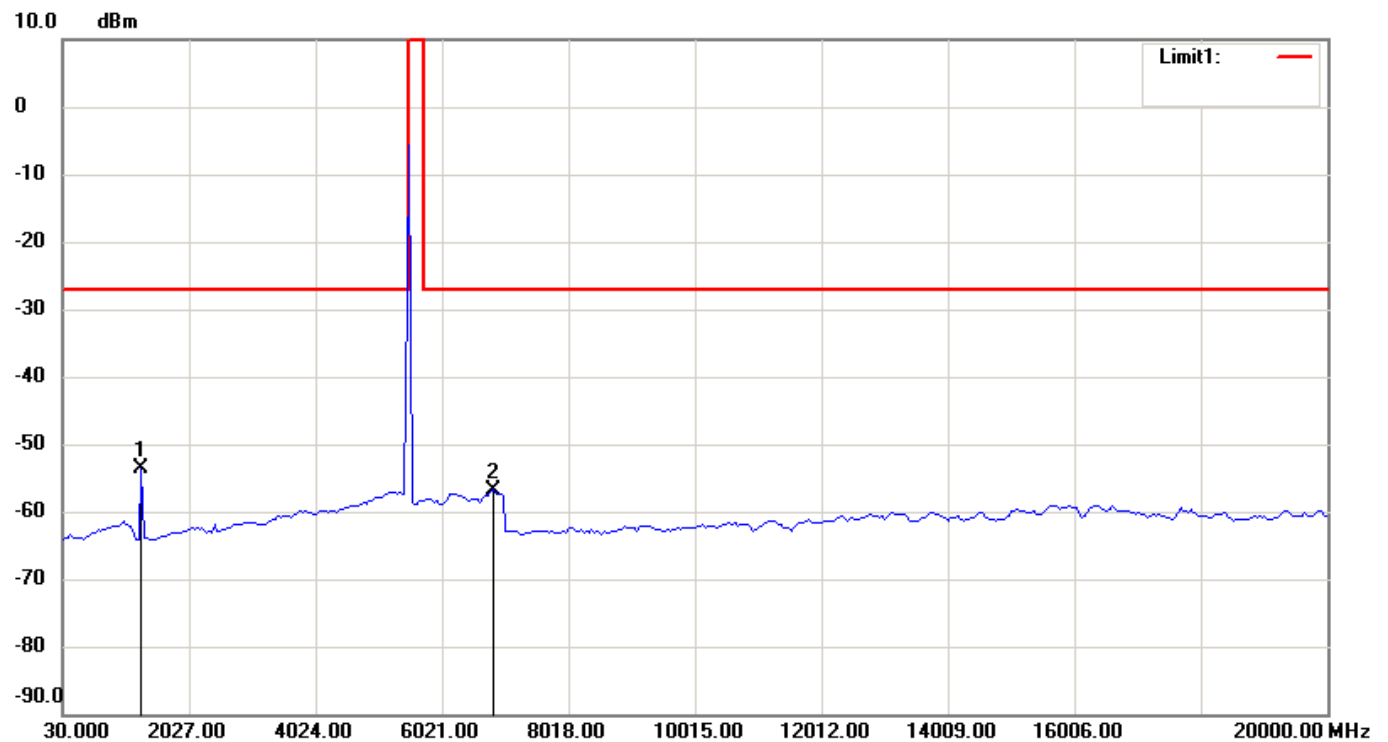
File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#5

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11n20_Channel 100_Spurious-1

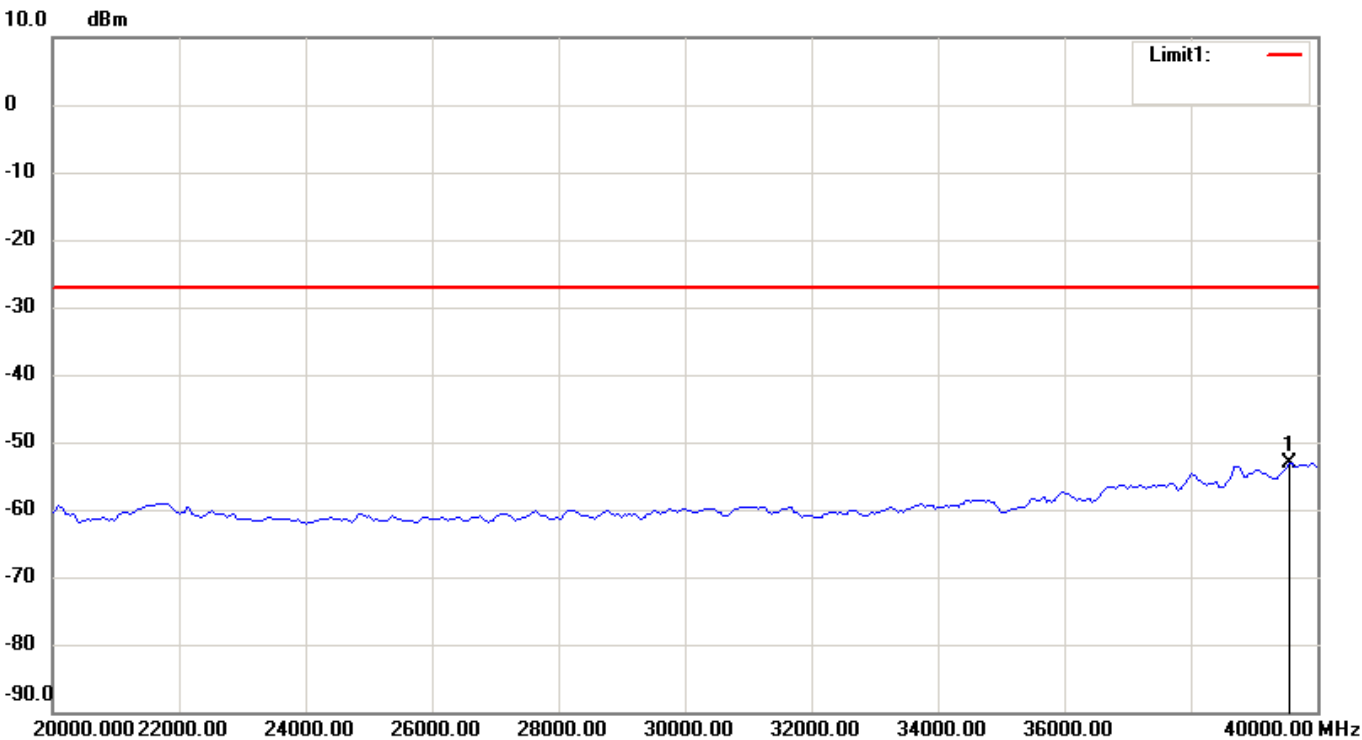
RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1268.14000	-53.73
2	6819.80000	-56.75

File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#6 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:	UNII-Band-3-Bandedge	RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 80ms	Att.: 15dB
Model:	BM72065	RBW: 1000 KHz	VBW: 1000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n20_Channel 100_Spurious-2		

No.	Frequency(MHz)	Level(dBm)
1	39560.00000	-53.10

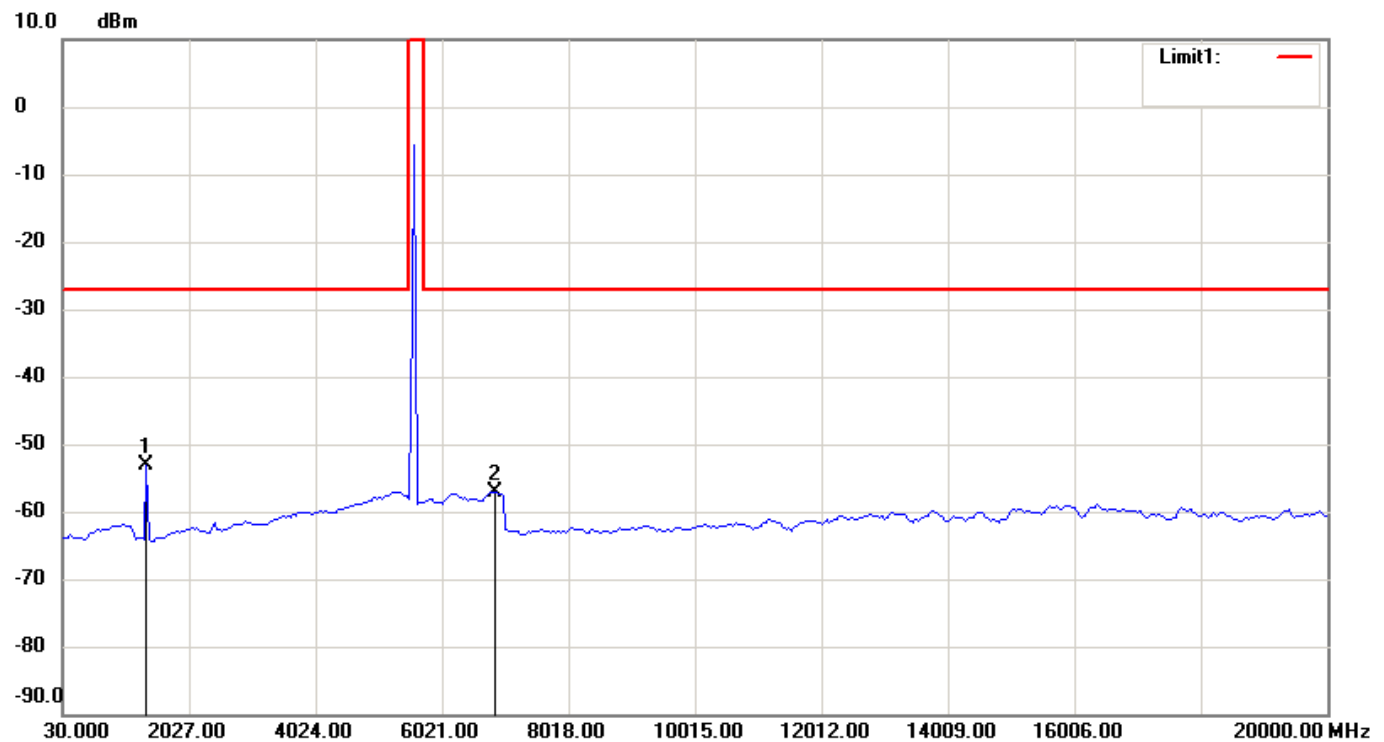
File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#12

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n20_Channel 116_Spurious-1

RF Conducted

Sweep Time: 79.9ms Att.: 15dB

RBW: 1000 KHz VBW: 1000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1348.02000	-53.01
2	6859.74000	-57.01

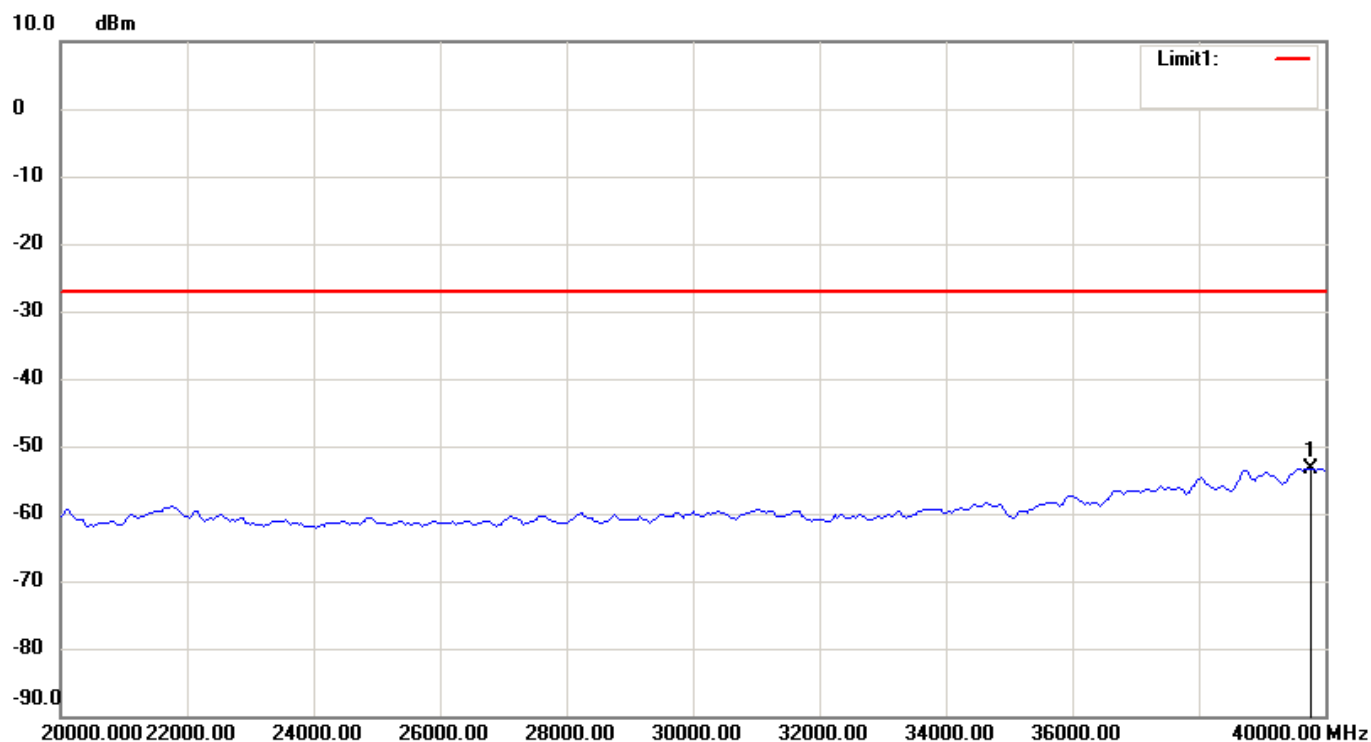
File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#13

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n20_Channel 116_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	-53.27

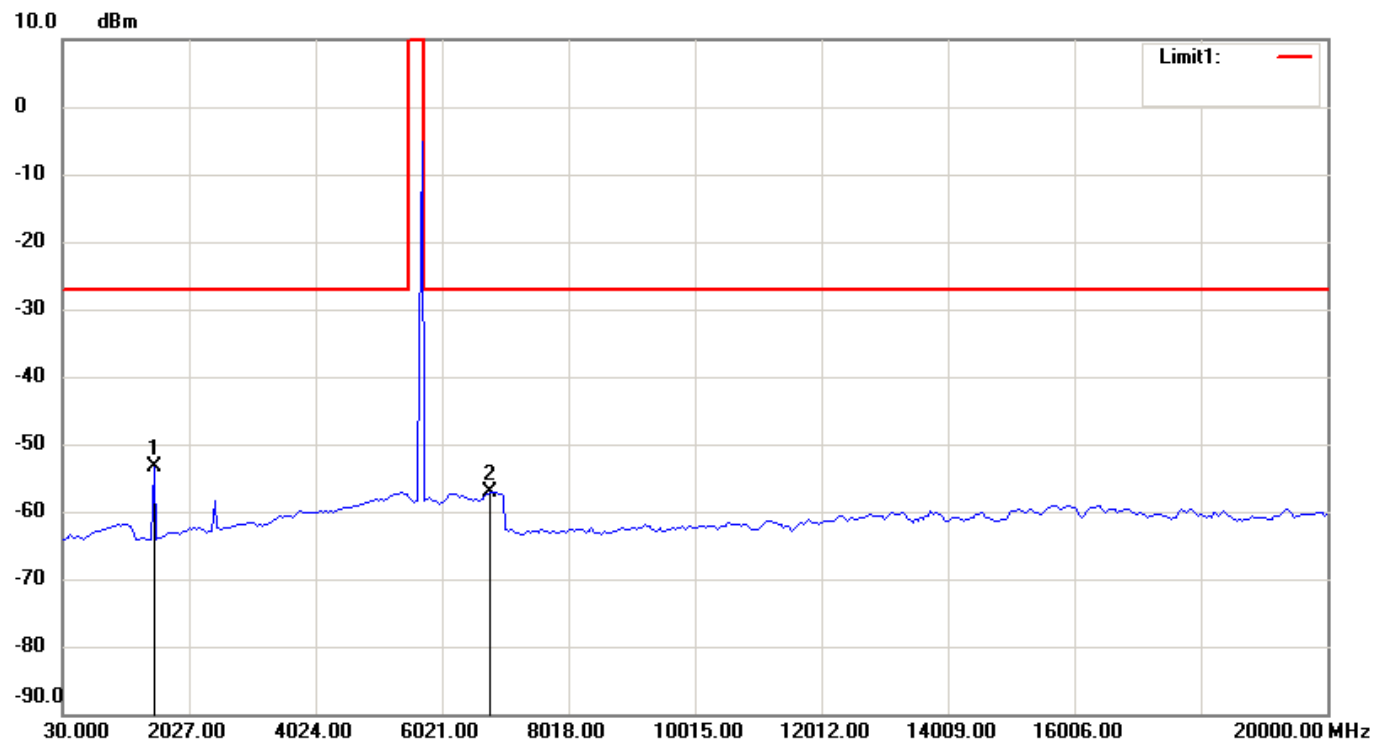
File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#18

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11n20_Channel 140_Spurious-1

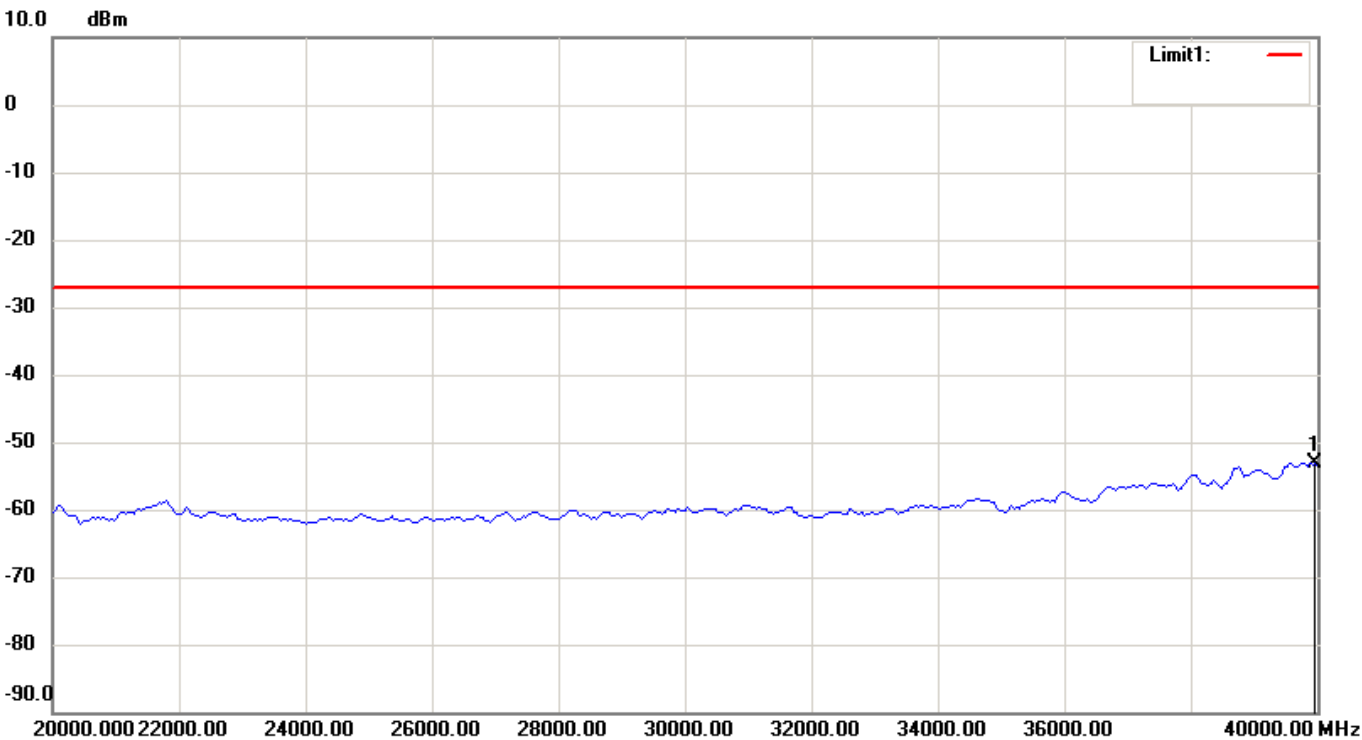
RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1467.84000	-53.44
2	6779.86000	-57.03

File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#19 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:	UNII-Band-3-Bandedge	RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 80ms	Att.: 15dB
Model:	BM72065	RBW: 1000 KHz	VBW: 1000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n20_Channel 140_Spurious-2		

No.	Frequency(MHz)	Level(dBm)
1	39960.00000	-53.06

9.4.3 調變技術: IEEE 802.11n HT40

測試日期: Mar. 17, 2020

環境溫度: 24°C

環境濕度: 59%

註: 1. 繪圖資料請參考第 74-79 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。

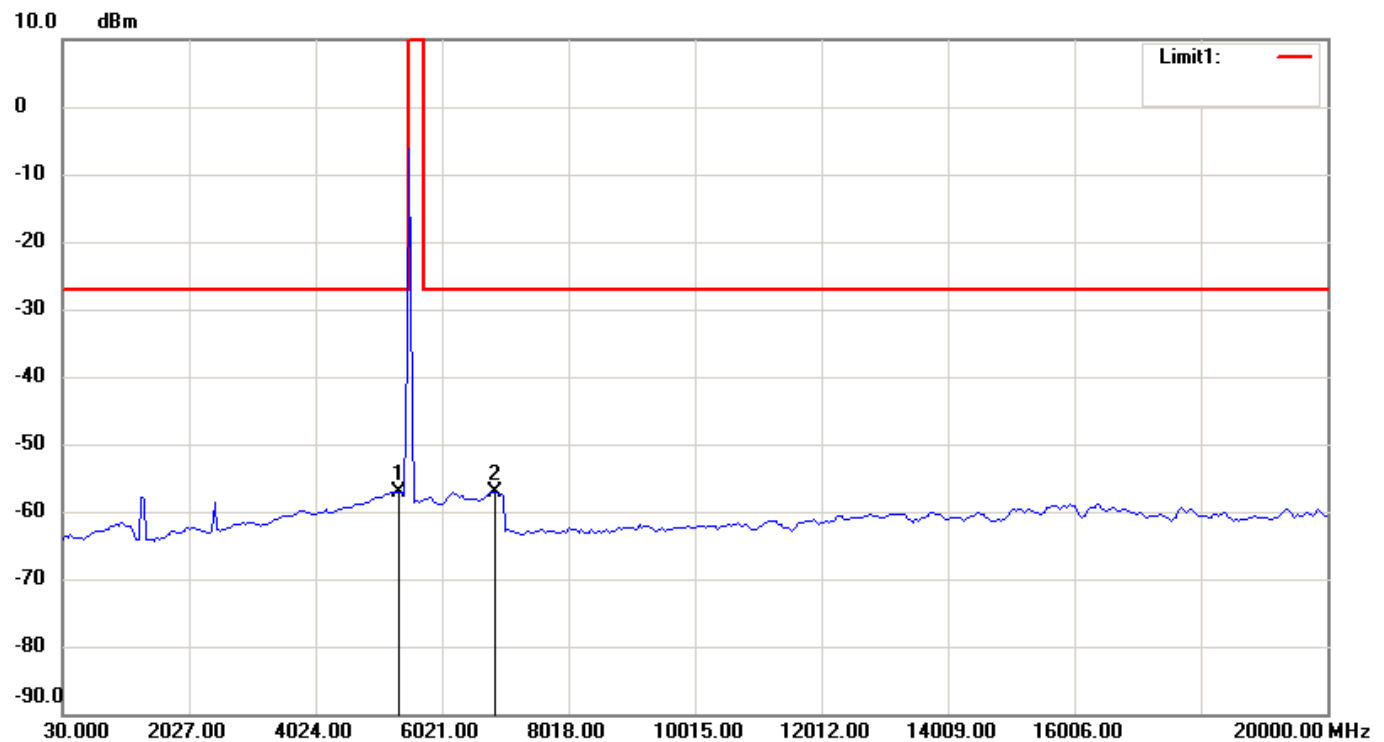
File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#5

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11n40_Channel 102_Spurious-1

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

No.	Frequency(MHz)	Level(dBm)
1	5342.02000	-57.06
2	6859.74000	-57.02

File: 20-02-MAS-059_5-6an40

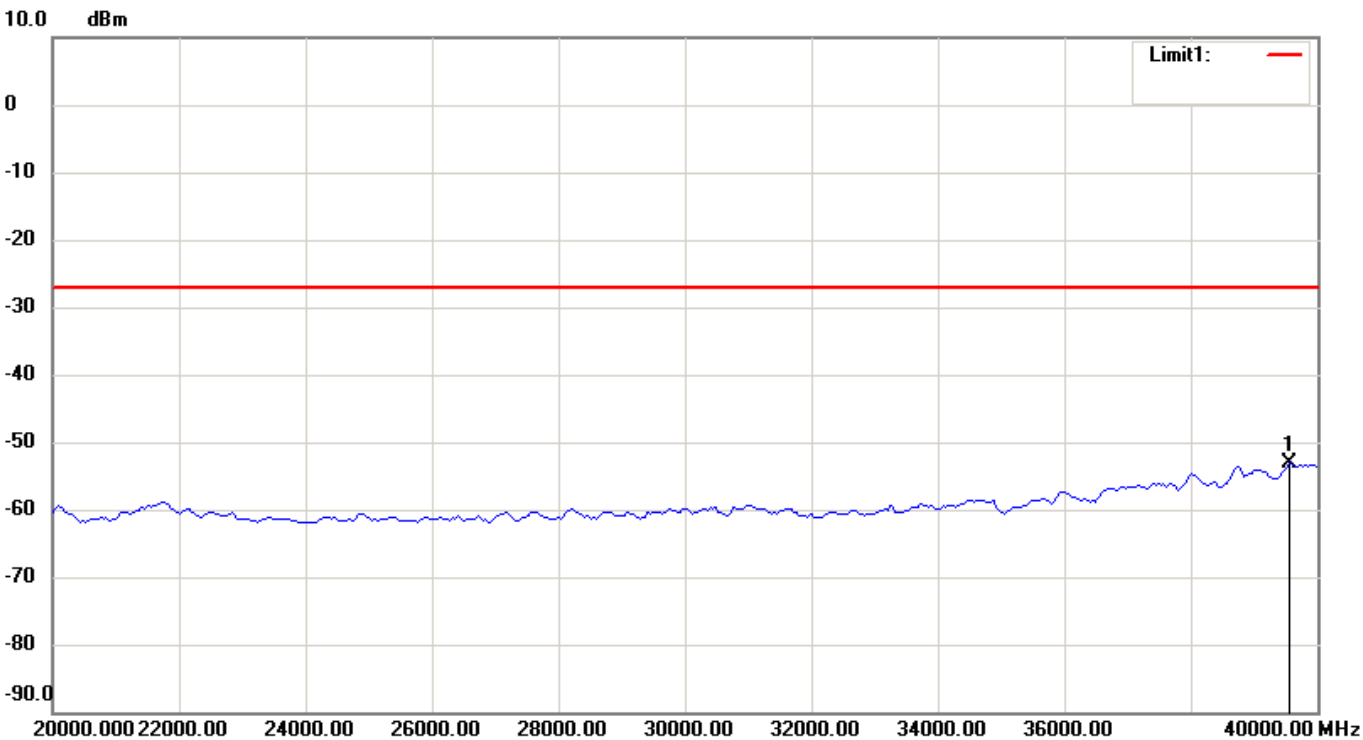
#6

Date: 2020/3/17

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n40_Channel 102_Spurious-2

RF Conducted

Sweep Time: 80ms

RBW: 1000 KHz

Operator:

Att.: 15dB

VBW: 1000 KHz

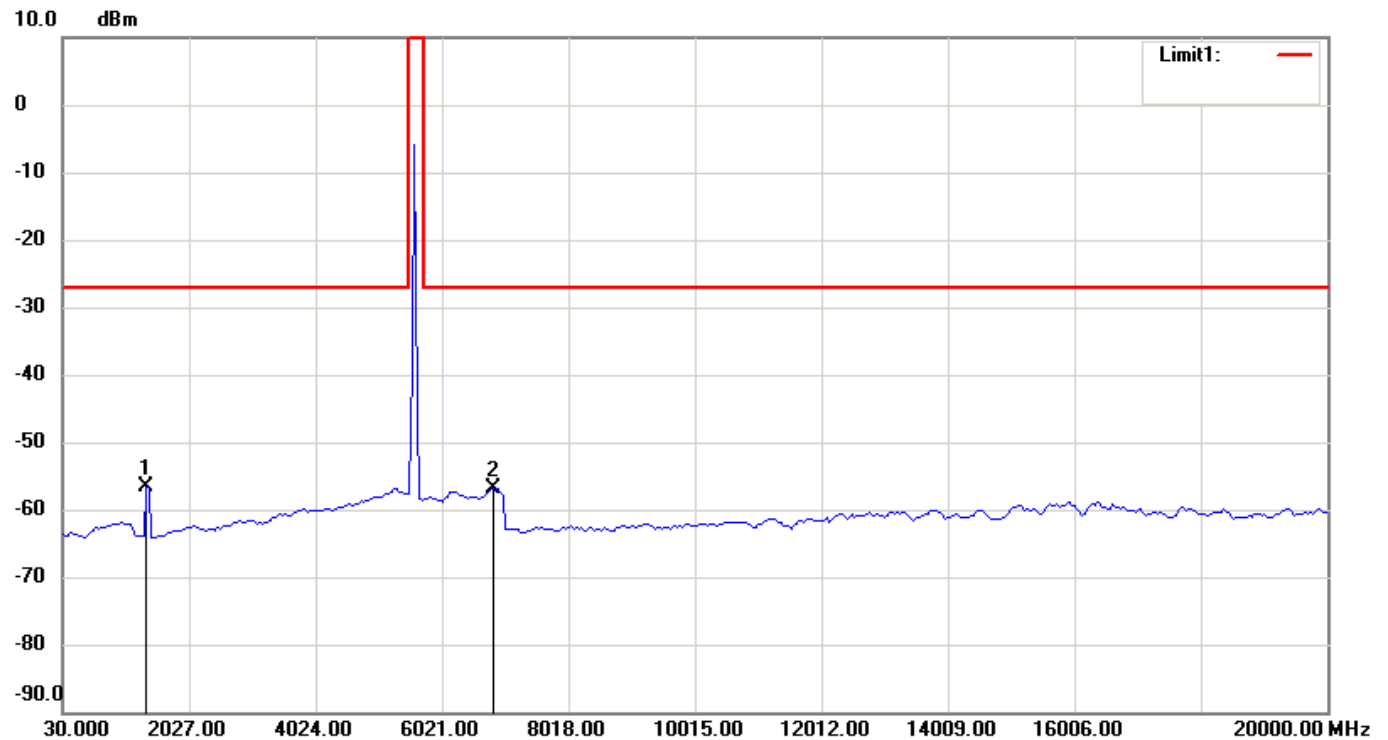
Phillip

No.	Frequency(MHz)	Level(dBm)
1	39560.00000	-53.21

File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#12 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition: UNII-Band-3-Bandedge
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11n40_Channel 118_Spurious-1

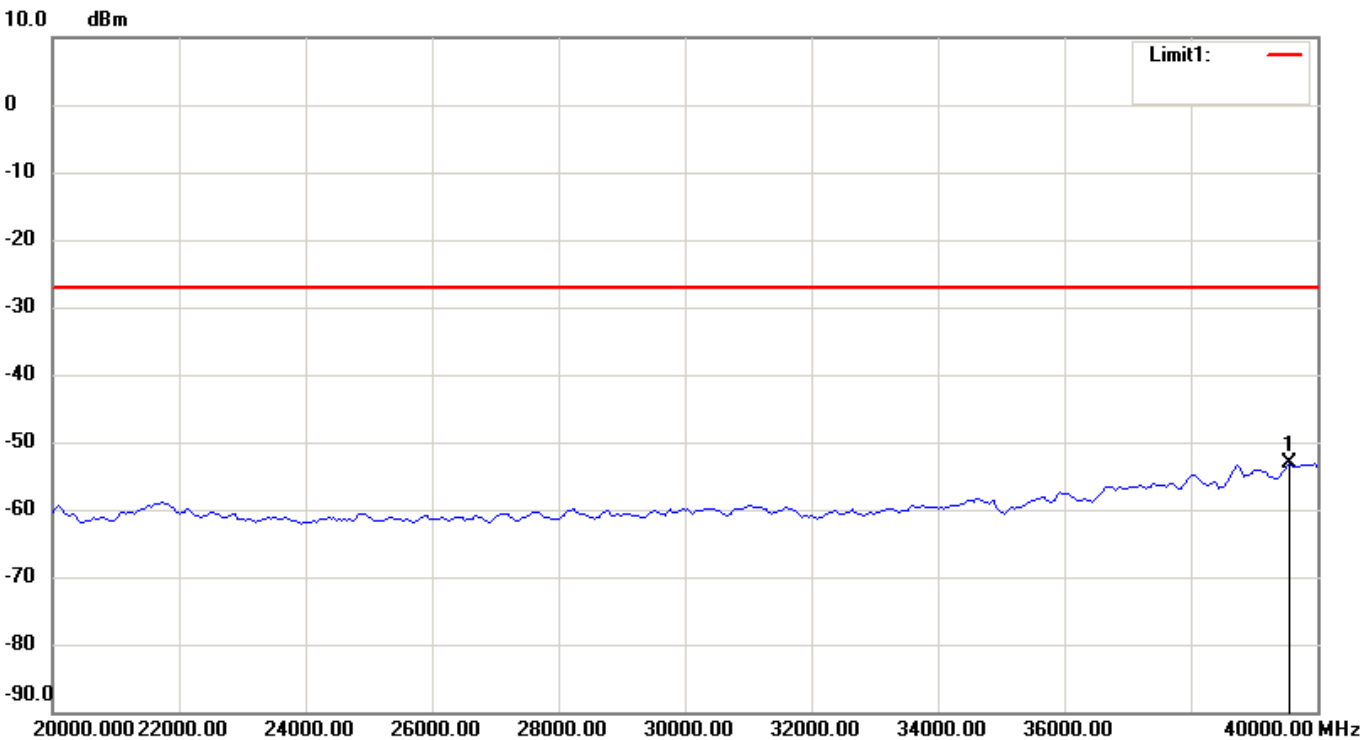
RF Conducted
Sweep Time: 79.9ms Att.: 15dB
RBW: 1000 KHz VBW: 1000 KHz
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1348.02000	-56.52
2	6819.80000	-56.80

File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#13 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:	UNII-Band-3-Bandedge	RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 80ms	Att.: 15dB
Model:	BM72065	RBW: 1000 KHz	VBW: 1000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n40_Channel 118_Spurious-2		

No.	Frequency(MHz)	Level(dBm)
1	39560.00000	-53.13

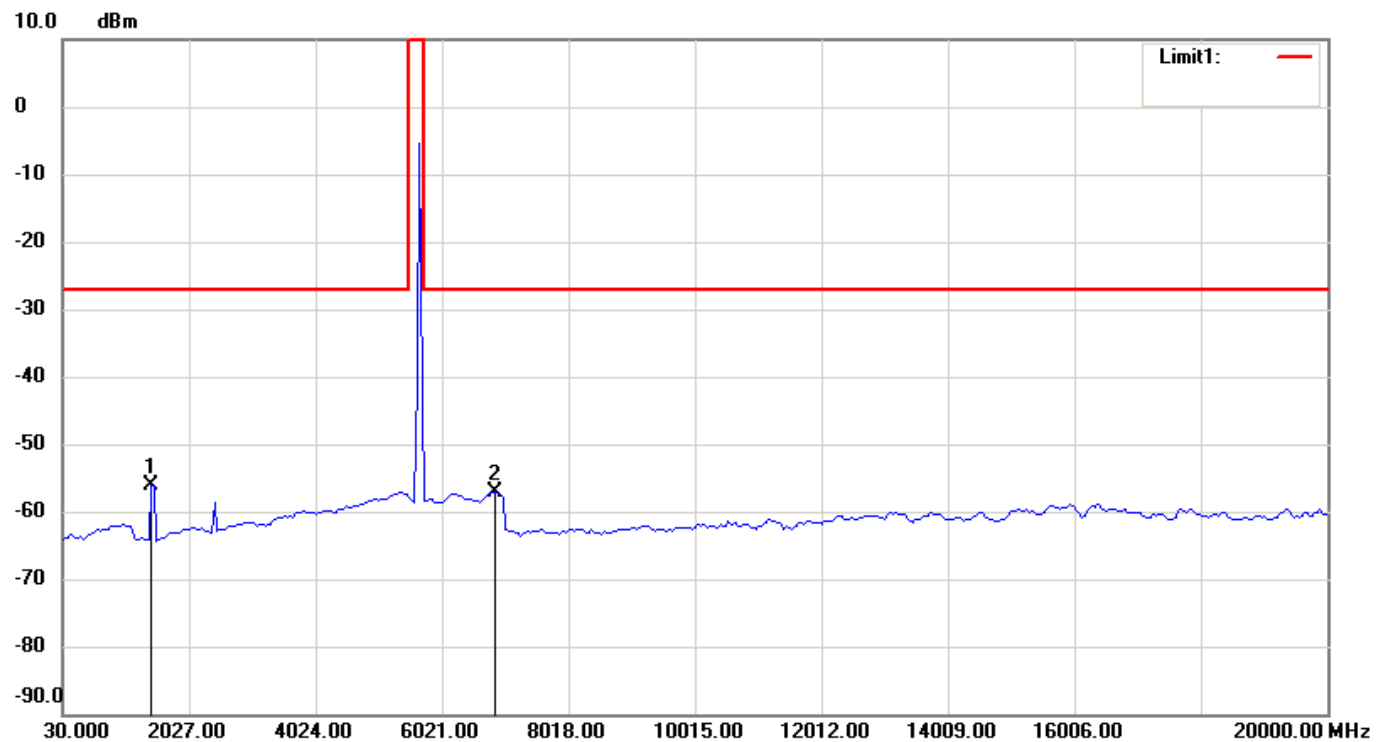
File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#18

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n40_Channel 134_Spurious-1

RF Conducted

Sweep Time: 79.9ms Att.: 15dB

RBW: 1000 KHz VBW: 1000 KHz

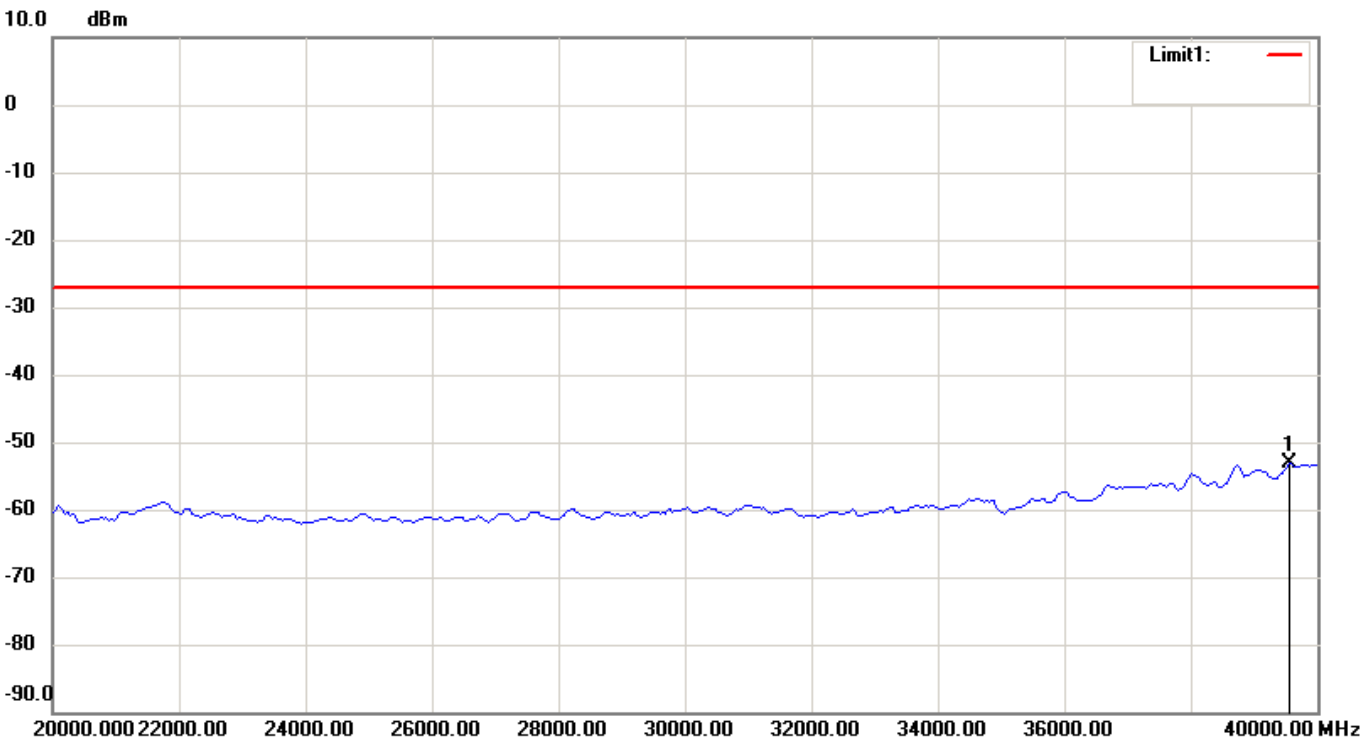
Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	1427.90000	-56.14
2	6859.74000	-57.01

File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#19 Date: 2020/3/17

Temperature: 24 °C
Humidity: 59 %



Condition:	UNII-Band-3-Bandedge	RF Conducted	
EUT:	Wireless LAN Module	Sweep Time: 80ms	Att.: 15dB
Model:	BM72065	RBW: 1000 KHz	VBW: 1000 KHz
Test Mode:	UNII	Operator:	Phillip
Note:	NCC_LP0002_802.11n40_Channel 134_Spurious-2		

No.	Frequency(MHz)	Level(dBm)
1	39560.00000	-53.15

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電機技術規範4.7.4.5節之規定，在 1GHz 以下的不必要之發射，應符合第 2.8 節之規定，任何使用交流市電為供應電之設備亦須符合第 2.3 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電機技術規範4.7.4.6節之規定，不必要發射頻率屬 2.7 規定頻段者，應符合 2.8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 Antenna	EMCO	3117
Horn Antenna	EMCO	3116
PRE-Amplifier	Agilent	8449B
PRE-Amplifier	Agilent	8447D
BiLog Antenna	ETC	MCTD 2786
PRE-Amplifier	Agilent	83051A

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: Apr. 22, 2020

環境溫度: 21°C

環境濕度: 59%

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 : 5500 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)
11000.0000	H	---	---	6.95	---	---	74.0	54.0	---
11000.0000	V	---	---	6.95	---	---	74.0	54.0	---
16500.0000	H	---	---	13.29	---	---	74.0	54.0	---
16500.0000	V	---	---	13.29	---	---	74.0	54.0	---
22000.0000	H	---	---	19.07	---	---	74.0	54.0	---
22000.0000	V	---	---	19.07	---	---	74.0	54.0	---
27500.0000	H	---	---	16.87	---	---	74.0	54.0	---
27500.0000	V	---	---	16.87	---	---	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：5580 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11160.0000	H	---	---	7.12	---	---	74.0	54.0	---
11160.0000	V	---	---	7.12	---	---	74.0	54.0	---
16740.0000	H	---	---	13.72	---	---	74.0	54.0	---
16740.0000	V	---	---	13.72	---	---	74.0	54.0	---
22320.0000	H	---	---	19.53	---	---	74.0	54.0	---
22320.0000	V	---	---	19.53	---	---	74.0	54.0	---
27900.0000	H	---	---	17.25	---	---	74.0	54.0	---
27900.0000	V	---	---	17.25	---	---	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：5700 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11400.0000	H	---	---	7.37	---	---	74.0	54.0	---
11400.0000	V	---	---	7.37	---	---	74.0	54.0	---
17100.0000	H	---	---	14.00	---	---	74.0	54.0	---
17100.0000	V	---	---	14.00	---	---	74.0	54.0	---
22800.0000	H	---	---	19.64	---	---	74.0	54.0	---
22800.0000	V	---	---	19.64	---	---	74.0	54.0	---
28500.0000	H	---	---	17.06	---	---	74.0	54.0	---
28500.0000	V	---	---	17.06	---	---	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: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

測試日期: Apr. 23, 2020

環境溫度: 21°C

環境濕度: 59%

10.5.1.2 調變技術: IEEE 802.11n HT20

a. Channel Low

基本波頻率 : 5500 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)
11000.0000	H	---	---	6.95	---	---	74.0	54.0	---
11000.0000	V	---	---	6.95	---	---	74.0	54.0	---
16500.0000	H	---	---	13.29	---	---	74.0	54.0	---
16500.0000	V	---	---	13.29	---	---	74.0	54.0	---
22000.0000	H	---	---	19.07	---	---	74.0	54.0	---
22000.0000	V	---	---	19.07	---	---	74.0	54.0	---
27500.0000	H	---	---	16.87	---	---	74.0	54.0	---
27500.0000	V	---	---	16.87	---	---	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：5580 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11160.0000	H	---	---	7.12	---	---	74.0	54.0	---
11160.0000	V	---	---	7.12	---	---	74.0	54.0	---
16740.0000	H	---	---	13.72	---	---	74.0	54.0	---
16740.0000	V	---	---	13.72	---	---	74.0	54.0	---
22320.0000	H	---	---	19.53	---	---	74.0	54.0	---
22320.0000	V	---	---	19.53	---	---	74.0	54.0	---
27900.0000	H	---	---	17.25	---	---	74.0	54.0	---
27900.0000	V	---	---	17.25	---	---	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：5700 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11400.0000	H	---	---	7.37	---	---	74.0	54.0	---
11400.0000	V	---	---	7.37	---	---	74.0	54.0	---
17100.0000	H	---	---	14.00	---	---	74.0	54.0	---
17100.0000	V	---	---	14.00	---	---	74.0	54.0	---
22800.0000	H	---	---	19.64	---	---	74.0	54.0	---
22800.0000	V	---	---	19.64	---	---	74.0	54.0	---
28500.0000	H	---	---	17.06	---	---	74.0	54.0	---
28500.0000	V	---	---	17.06	---	---	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: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

測試日期: Apr. 23, 2020

環境溫度: 21°C

環境濕度: 59%

10.5.1.3 調變技術: IEEE 802.11n HT40

a. Channel Low

基本波頻率 : 5510 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)
11020.0000	H	---	---	6.98	---	---	74.0	54.0	---
11020.0000	V	---	---	6.98	---	---	74.0	54.0	---
16530.0000	H	---	---	13.34	---	---	74.0	54.0	---
16530.0000	V	---	---	13.34	---	---	74.0	54.0	---
22040.0000	H	---	---	19.13	---	---	74.0	54.0	---
22040.0000	V	---	---	19.13	---	---	74.0	54.0	---
27550.0000	H	---	---	16.91	---	---	74.0	54.0	---
27550.0000	V	---	---	16.91	---	---	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：5590 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11180.0000	H	---	---	7.13	---	---	74.0	54.0	---
11180.0000	V	---	---	7.13	---	---	74.0	54.0	---
16770.0000	H	---	---	13.78	---	---	74.0	54.0	---
16770.0000	V	---	---	13.78	---	---	74.0	54.0	---
22360.0000	H	---	---	19.58	---	---	74.0	54.0	---
22360.0000	V	---	---	19.58	---	---	74.0	54.0	---
27950.0000	H	---	---	17.29	---	---	74.0	54.0	---
27950.0000	V	---	---	17.29	---	---	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：5670 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11340.0000	H	---	---	7.31	---	---	74.0	54.0	---
11340.0000	V	---	---	7.31	---	---	74.0	54.0	---
17010.0000	H	---	---	14.16	---	---	74.0	54.0	---
17010.0000	V	---	---	14.16	---	---	74.0	54.0	---
22680.0000	H	---	---	19.71	---	---	74.0	54.0	---
22680.0000	V	---	---	19.71	---	---	74.0	54.0	---
28350.0000	H	---	---	17.15	---	---	74.0	54.0	---
28350.0000	V	---	---	17.15	---	---	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

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：5500 MHz

File: 20-02-MAS-059_5-6a

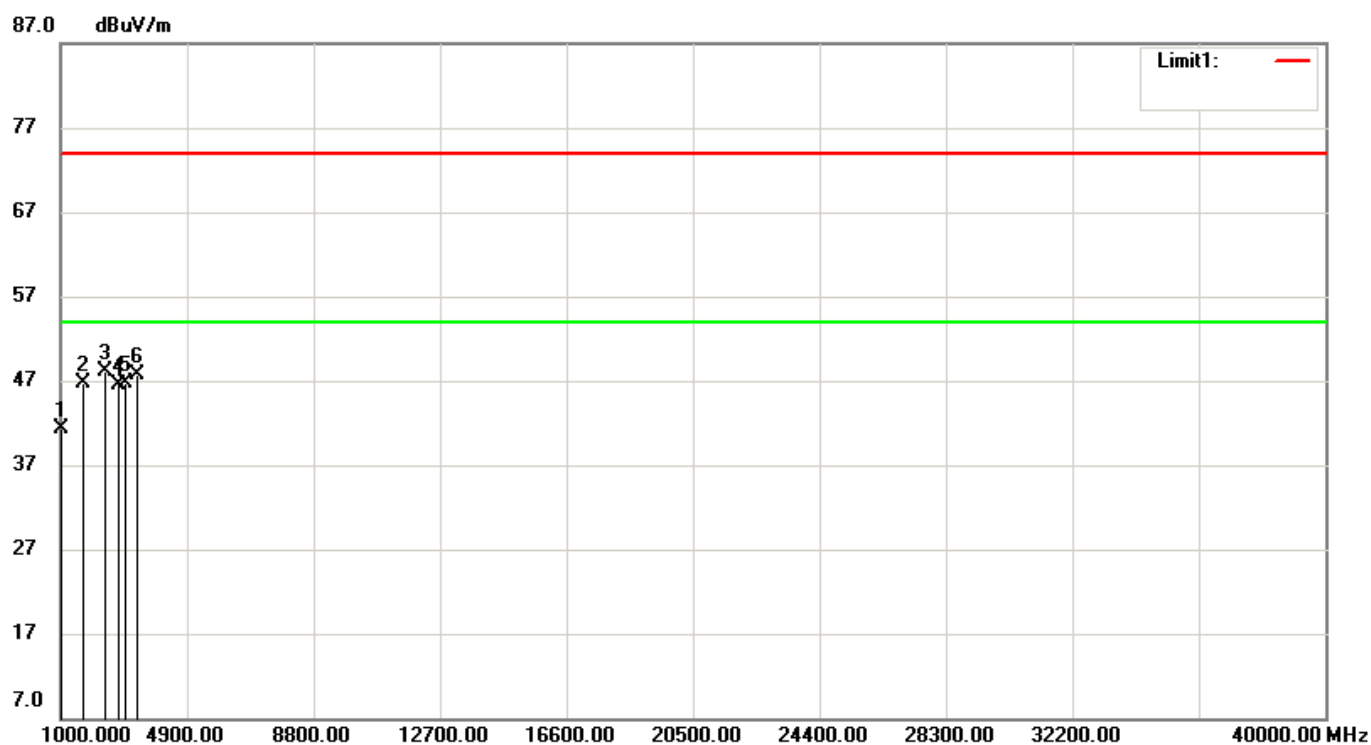
#35

Date: 2020/4/22

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-LOW
 Note:

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	1000.0000	51.24	peak	-9.89	41.35	74.00	-32.65
2	1659.03840	53.59	peak	-6.87	46.72	74.00	-27.28
3	2332.40380	50.98	peak	-2.92	48.06	74.00	-25.94
4	2762.21150	48.71	peak	-2.24	46.47	74.00	-27.53
5	2962.78840	48.68	peak	-2.06	46.62	74.00	-27.38
6	3320.96150	49.21	peak	-1.56	47.65	74.00	-26.35

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：5500 MHz

File: 20-02-MAS-059_5-6a

#36

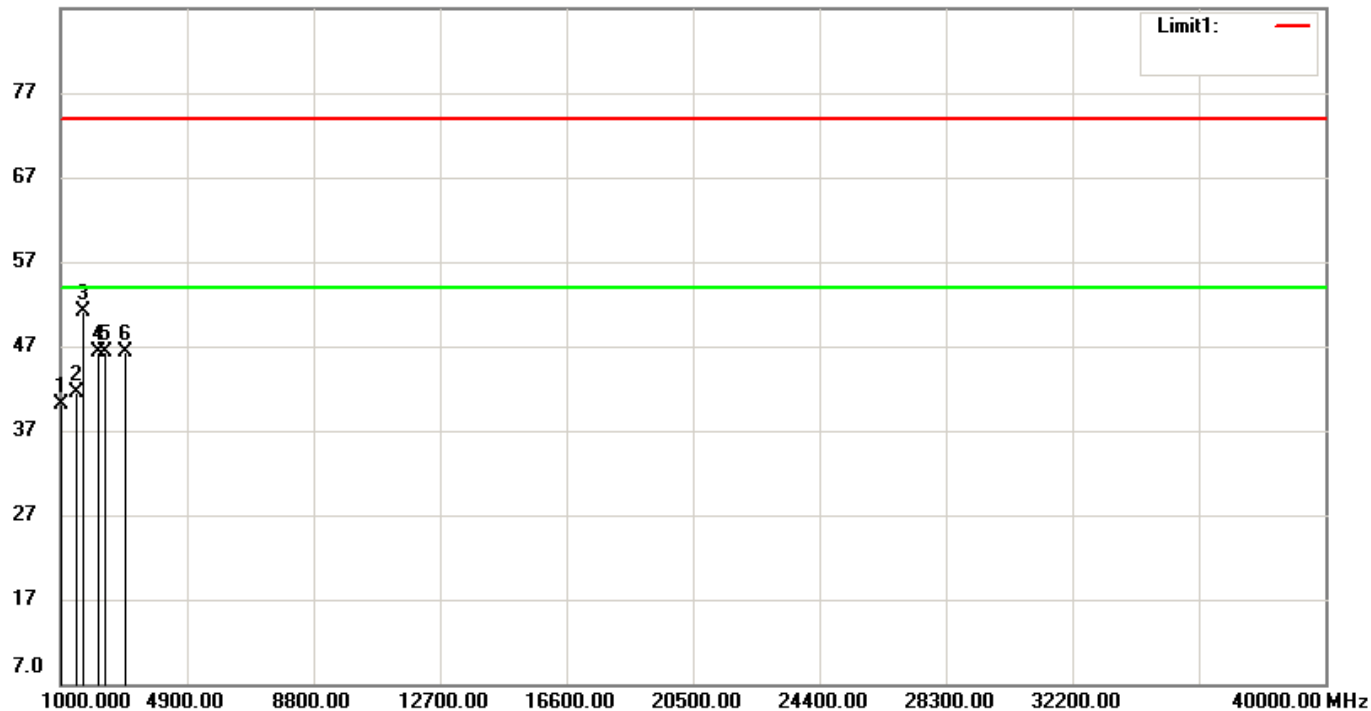
Date: 2020/4/22

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %

87.0 dBuV/m



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-LOW
 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	1000.0000	50.00	peak	-9.89	40.11	74.00	-33.89
2	1472.78840	49.81	peak	-8.39	41.42	74.00	-32.58
3	1659.03840	58.06	peak	-6.87	51.19	74.00	-22.81
4	2174.80760	49.61	peak	-3.34	46.27	74.00	-27.73
5	2325.24030	49.25	peak	-2.94	46.31	74.00	-27.69
6	2991.44230	48.26	peak	-2.05	46.21	74.00	-27.79

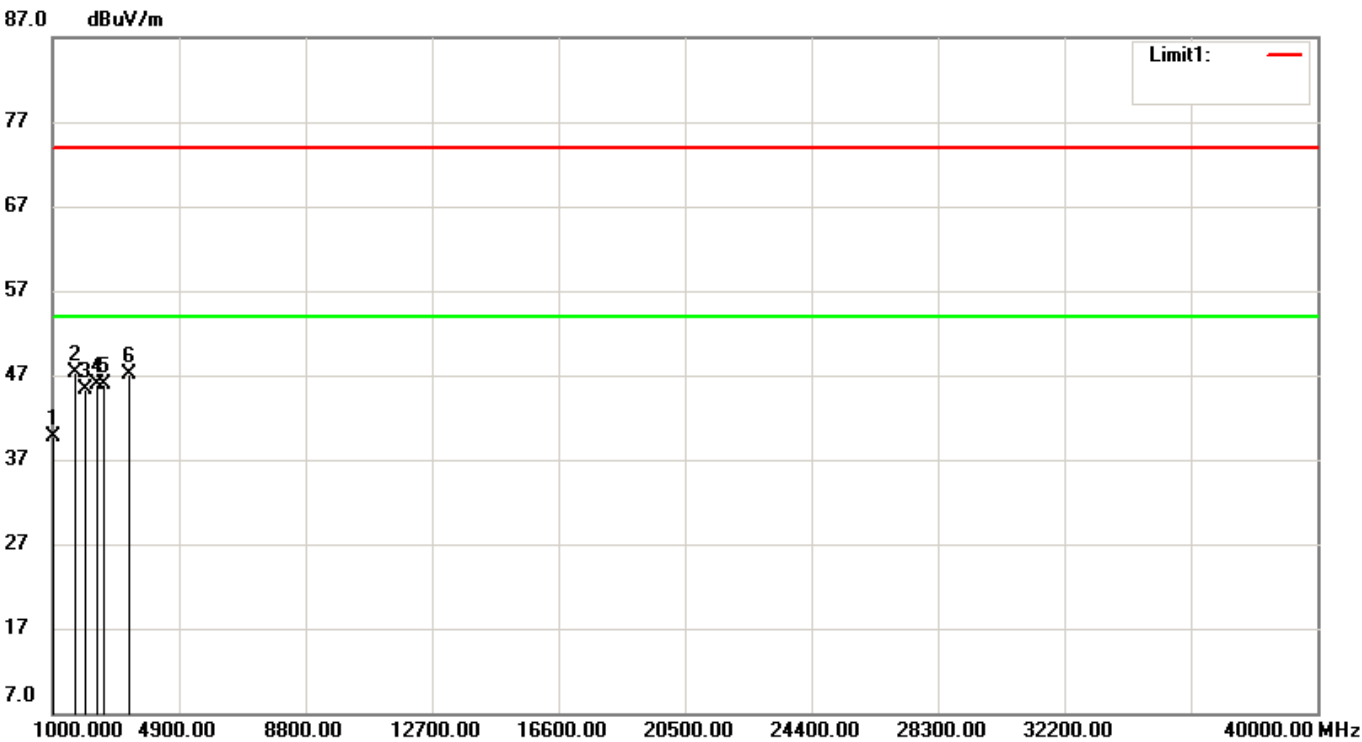
註: 1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

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

b. Channel Mid

操作模式：發射接收
基本波頻率：5580 MHz

File: 20-02-MAS-059_5-6a #37 Date: 2020/4/22 Temperature: 21 °C
Site: RE02-EMC B1- N2 Humidity: 59 %



Condition: NCC_Above1G_Pk Polarization: Horizontal
EUT: Wireless LAN Module Distance: 3m
Model: BM72065
Test Mode: UNII-MID Operator: Phillip
Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1000.0000	49.51	peak	-9.89	39.62	74.00	-34.38
2	1659.03840	54.25	peak	-6.87	47.38	74.00	-26.62
3	1967.06730	49.38	peak	-4.09	45.29	74.00	-28.71
4	2332.40380	48.78	peak	-2.92	45.86	74.00	-28.14
5	2518.65380	48.39	peak	-2.47	45.92	74.00	-28.08
6	3356.77880	48.60	peak	-1.51	47.09	74.00	-26.91

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：5580 MHz

File: 20-02-MAS-059_5-6a

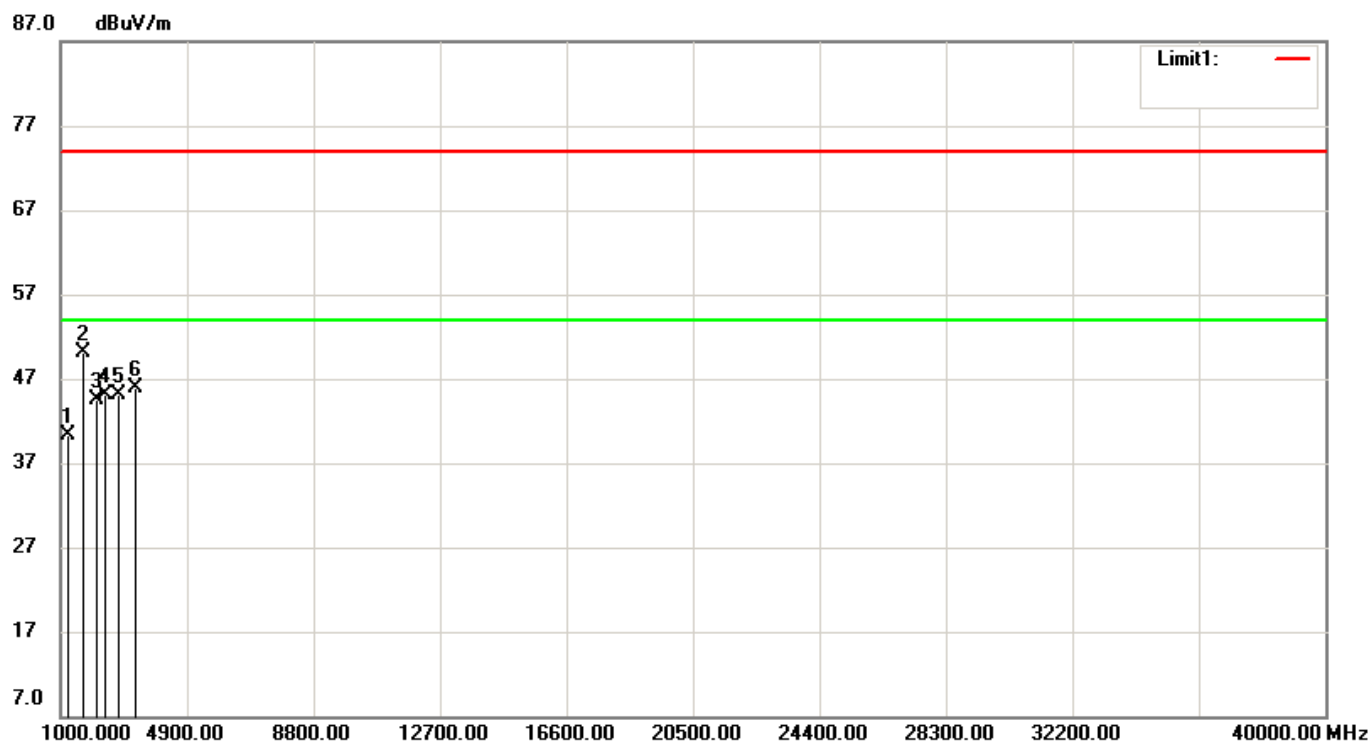
#38

Date: 2020/4/22

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-MID
 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	1193.41340	49.67	peak	-9.27	40.40	74.00	-33.60
2	1659.03840	56.95	peak	-6.87	50.08	74.00	-23.92
3	2088.84610	48.12	peak	-3.56	44.56	74.00	-29.44
4	2325.24030	48.14	peak	-2.94	45.20	74.00	-28.80
5	2776.53840	47.41	peak	-2.22	45.19	74.00	-28.81
6	3292.30760	47.43	peak	-1.60	45.83	74.00	-28.17

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: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

c. Channel High

操作模式：發射接收

基本波頻率：5700 MHz

File: 20-02-MAS-059_5-6a

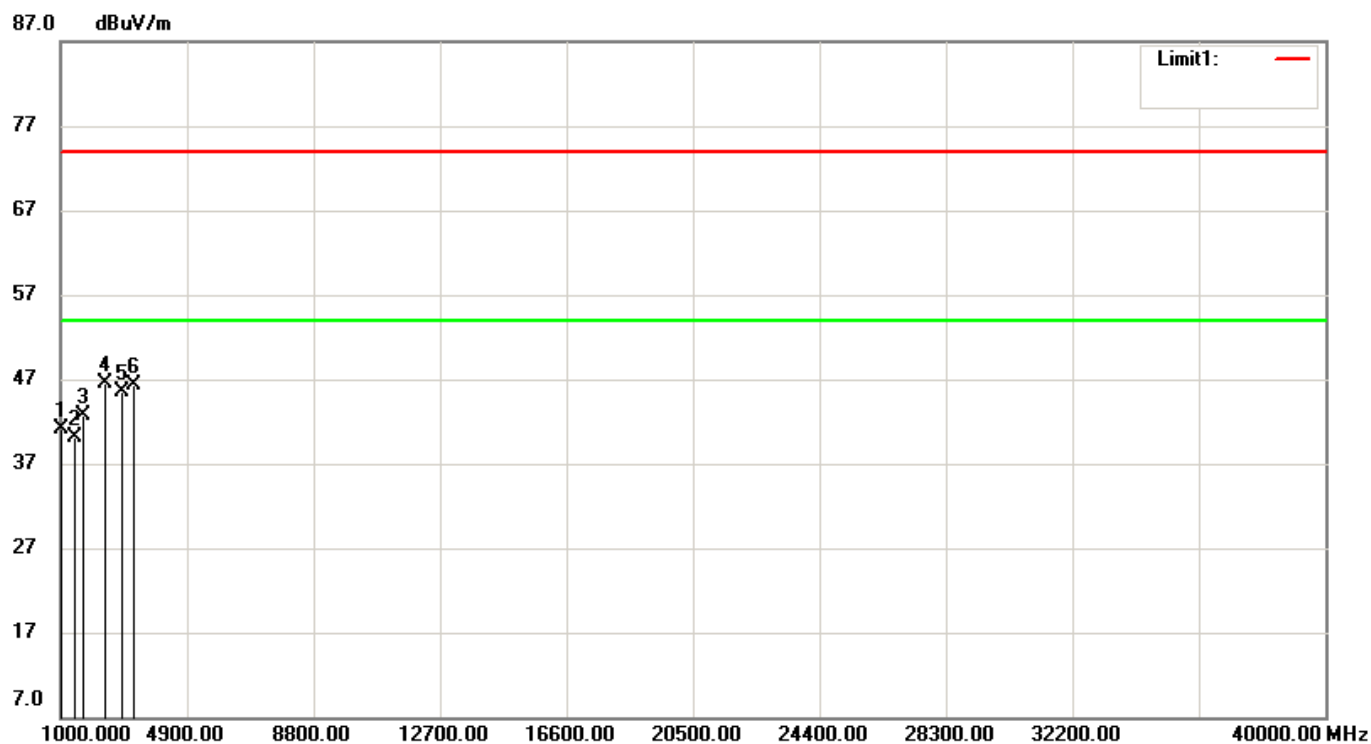
#39

Date: 2020/4/22

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-HIGH
 Note:

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	1000.0000	50.92	peak	-9.89	41.03	74.00	-32.97
2	1393.99030	48.69	peak	-8.63	40.06	74.00	-33.94
3	1659.03840	49.67	peak	-6.87	42.80	74.00	-31.20
4	2325.24030	49.51	peak	-2.94	46.57	74.00	-27.43
5	2826.68260	47.74	peak	-2.18	45.56	74.00	-28.44
6	3213.50960	47.99	peak	-1.71	46.28	74.00	-27.72

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：5700 MHz

File: 20-02-MAS-059_5-6a

#40

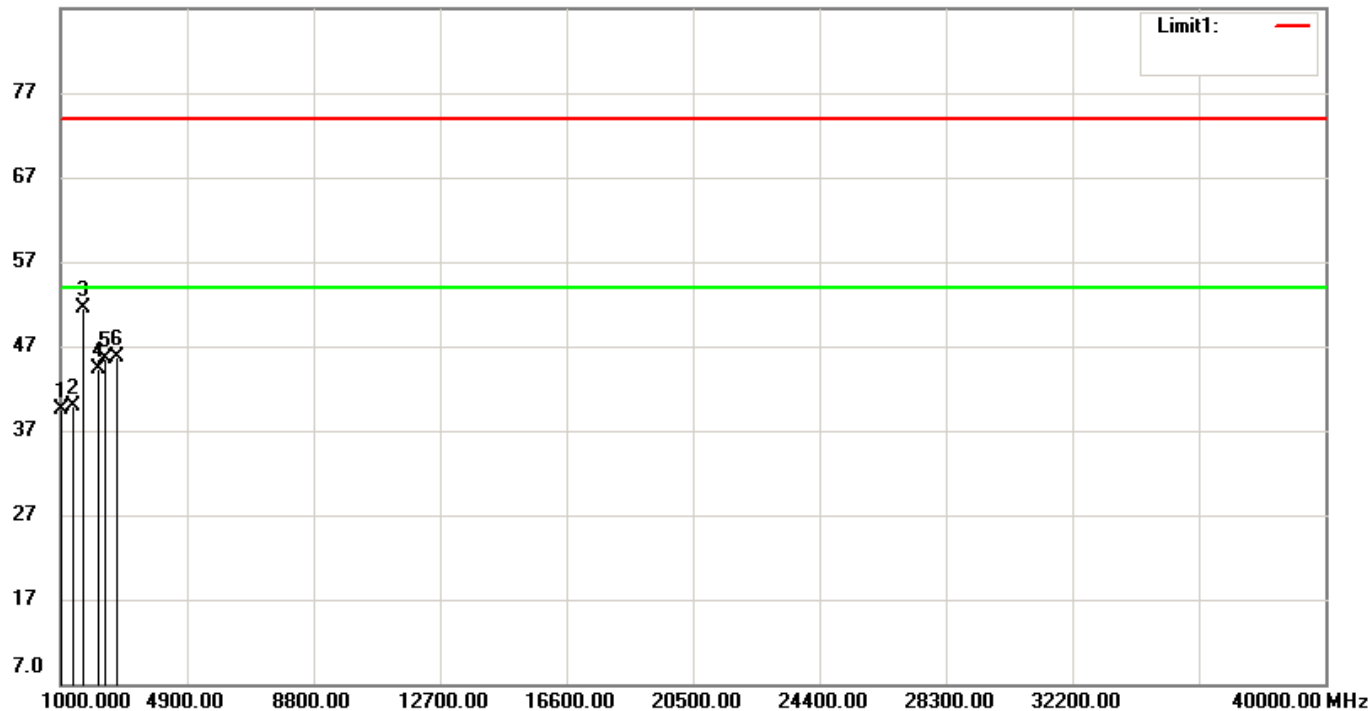
Date: 2020/4/22

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %

87.0 dBuV/m



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-HIGH
 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	1000.0000	49.33	peak	-9.89	39.44	74.00	-34.56
2	1322.35570	48.83	peak	-8.87	39.96	74.00	-34.04
3	1659.03840	58.32	peak	-6.87	51.45	74.00	-22.55
4	2138.99030	47.81	peak	-3.43	44.38	74.00	-29.62
5	2325.24030	48.38	peak	-2.94	45.44	74.00	-28.56
6	2697.74030	48.05	peak	-2.30	45.75	74.00	-28.25

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 802.11an HT20

a. Channel Low

操作模式：發射接收

基本波頻率：5500 MHz

File: 20-02-MAS-059_5-6n20

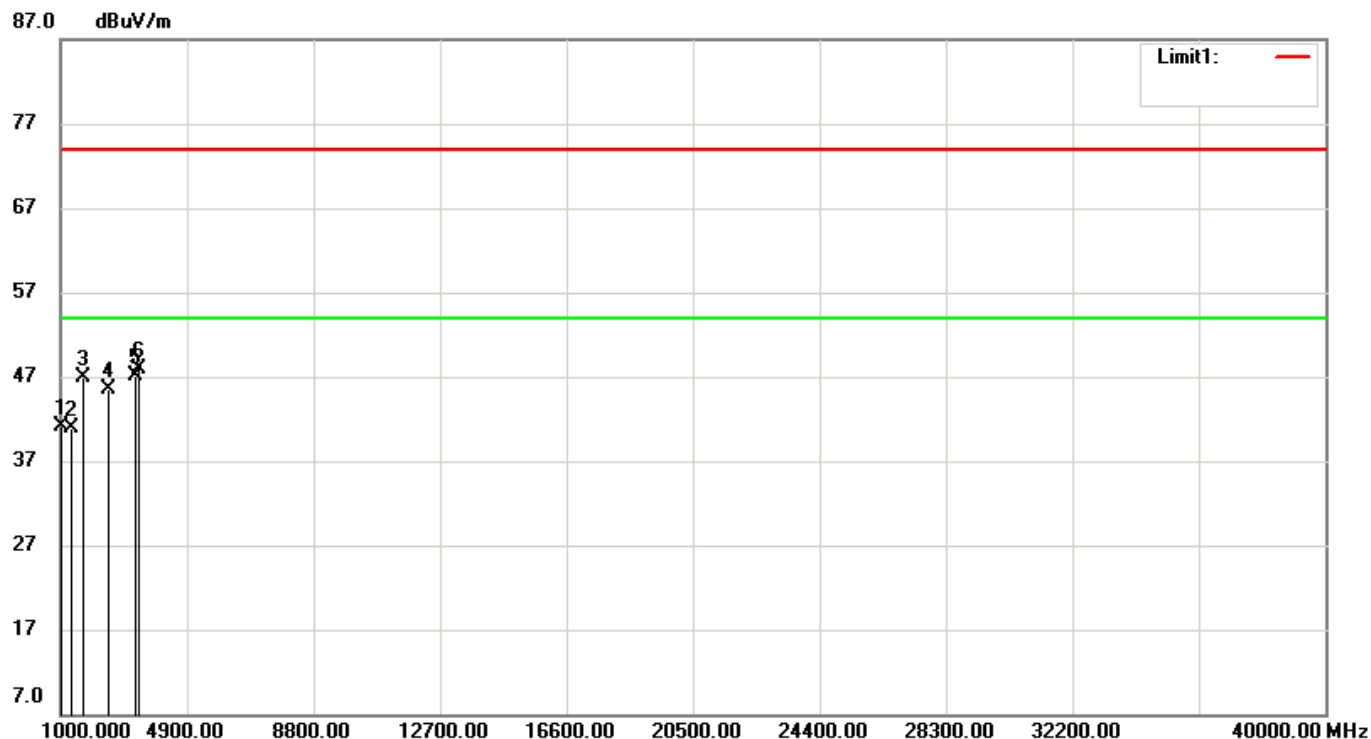
#27

Date: 2020/4/23

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-LOW
 Note:

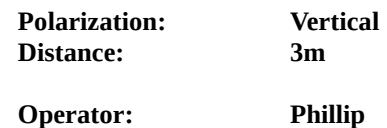
Polarization: Horizontal
 Distance: 3m
 Operator: Phillip

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1000.0000	50.99	peak	-9.89	41.10	74.00	-32.90
2	1250.72110	49.92	peak	-9.09	40.83	74.00	-33.17
3	1659.03840	53.70	peak	-6.87	46.83	74.00	-27.17
4	2497.16340	48.01	peak	-2.49	45.52	74.00	-28.48
5	3292.30760	48.76	peak	-1.60	47.16	74.00	-26.84
6	3428.41340	49.34	peak	-1.41	47.93	74.00	-26.07

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: $\pm 4.1\text{dB}$ ($1\text{GHz} \leq f < 18\text{GHz}$)
 $\pm 4.4\text{dB}$ ($18\text{GHz} \leq f \leq 40\text{GHz}$)

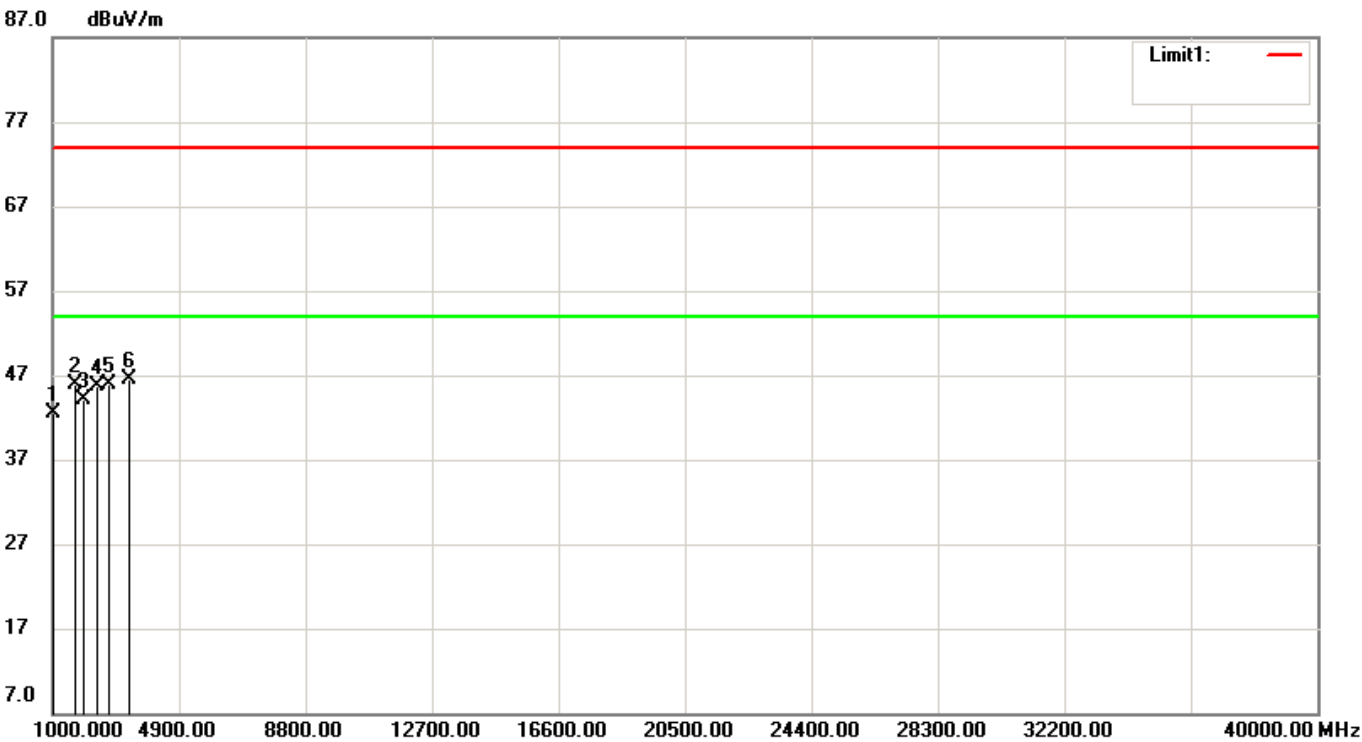
Humidity: 59 %

Rev. No 1.0

b. Channel Mid

操作模式：發射接收
基本波頻率：5580 MHz

File: 20-02-MAS-059_5-6n20 #29 Date: 2020/4/23 Temperature: 21 °C
Site: RE02-EMC B1- N2 Humidity: 59 %



Condition: NCC_Above1G_Pk Polarization: Horizontal
EUT: Wireless LAN Module Distance: 3m
Model: BM72065
Test Mode: UNII-MID Operator: Phillip
Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1000.0000	52.47	peak	-9.89	42.58	74.00	-31.42
2	1666.2020	52.80	peak	-6.80	46.00	74.00	-28.00
3	1888.2692	48.88	peak	-4.81	44.07	74.00	-29.93
4	2325.2403	48.64	peak	-2.94	45.70	74.00	-28.30
5	2697.7403	48.27	peak	-2.30	45.97	74.00	-28.03
6	3356.7788	48.04	peak	-1.51	46.53	74.00	-27.47

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: $\pm 4.1\text{dB}(1\text{GHz} \leq f < 18\text{GHz})$
 $\pm 4.4\text{dB}(18\text{GHz} \leq f \leq 40\text{GHz})$

基本波頻率：5580 MHz

Humidity: 59 %



No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1000.0000	52.49	peak	-9.89	42.60	74.00	-31.40
2	1343.84610	49.18	peak	-8.79	40.39	74.00	-33.61
3	1666.20200	57.17	peak	-6.80	50.37	74.00	-23.63
4	2325.24030	48.21	peak	-2.94	45.27	74.00	-28.73
5	2712.06730	48.45	peak	-2.28	46.17	74.00	-27.83
6	3442.74030	47.53	peak	-1.38	46.15	74.00	-27.85

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：5700 MHz

File: 20-02-MAS-059_5-6n20

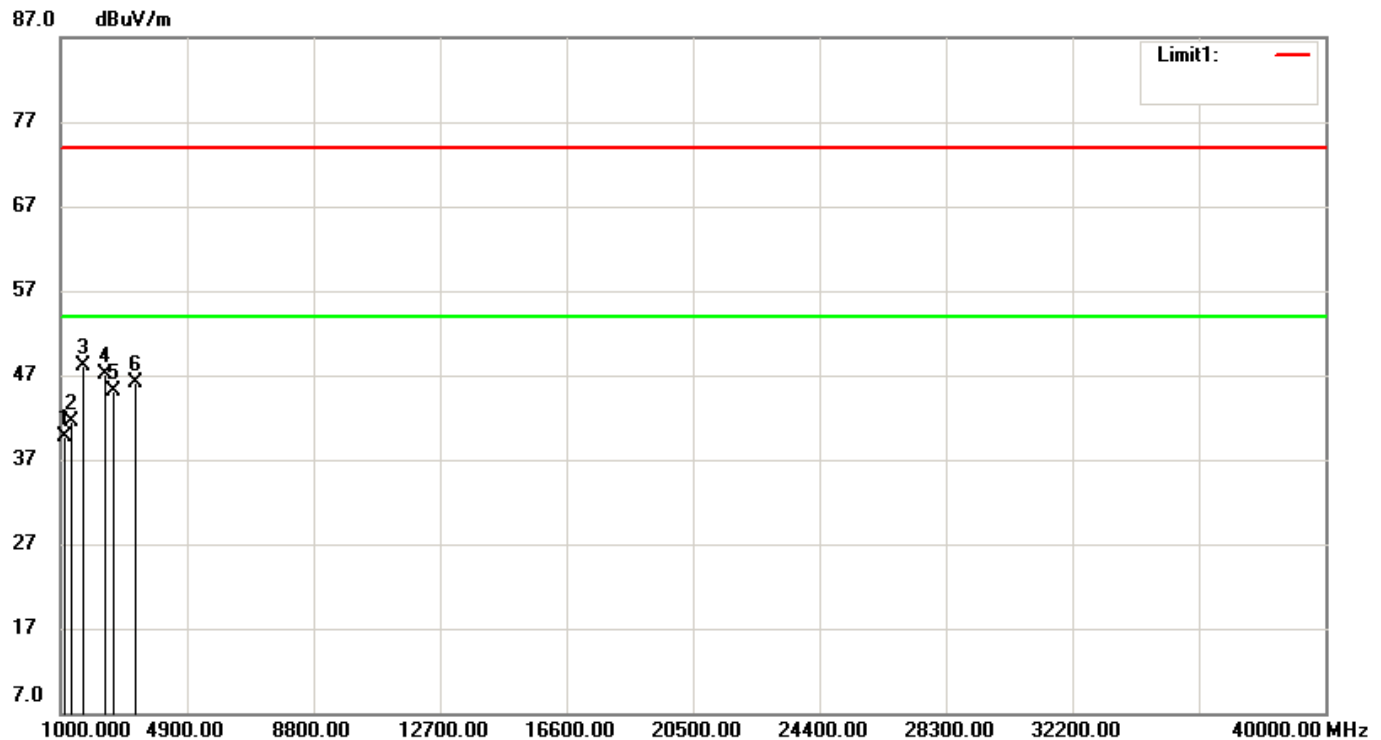
#31

Date: 2020/4/23

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-HIGH
 Note:

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	1071.63460	49.40	peak	-9.67	39.73	74.00	-34.27
2	1272.21150	50.50	peak	-9.03	41.47	74.00	-32.53
3	1666.20200	54.93	peak	-6.80	48.13	74.00	-25.87
4	2325.24030	50.07	peak	-2.94	47.13	74.00	-26.87
5	2568.79800	47.59	peak	-2.42	45.17	74.00	-28.83
6	3285.14420	47.66	peak	-1.62	46.04	74.00	-27.96

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：5700 MHz

File: 20-02-MAS-059_5-6n20

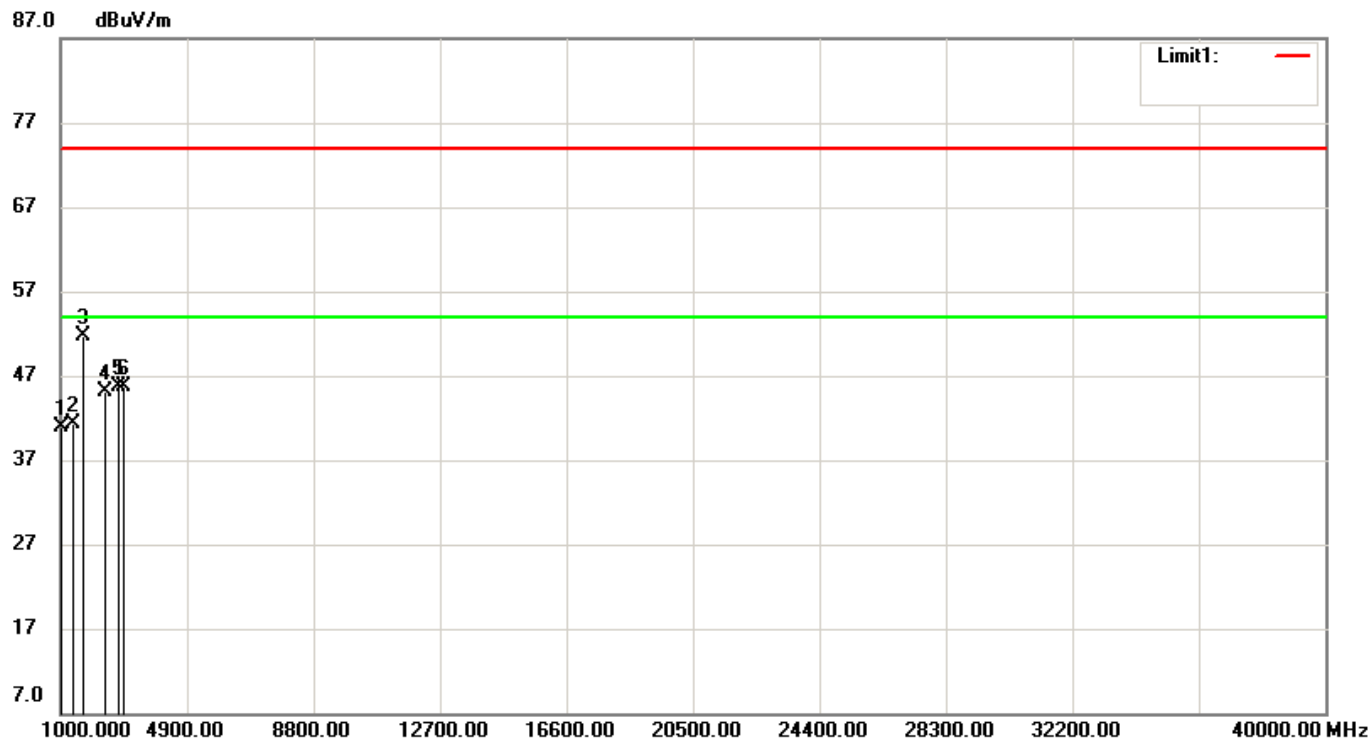
#32

Date: 2020/4/23

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-HIGH
 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	1000.0000	50.83	peak	-9.89	40.94	74.00	-33.06
2	1322.35570	50.21	peak	-8.87	41.34	74.00	-32.66
3	1659.03840	58.49	peak	-6.87	51.62	74.00	-22.38
4	2332.40380	48.01	peak	-2.92	45.09	74.00	-28.91
5	2790.86530	47.94	peak	-2.23	45.71	74.00	-28.29
6	2919.80760	47.88	peak	-2.11	45.77	74.00	-28.23

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 802.11an HT40

a. Channel Low

操作模式 : 發射接收

基本波頻率 : 5510 MHz

File: 20-02-MAS-059_5-6n40

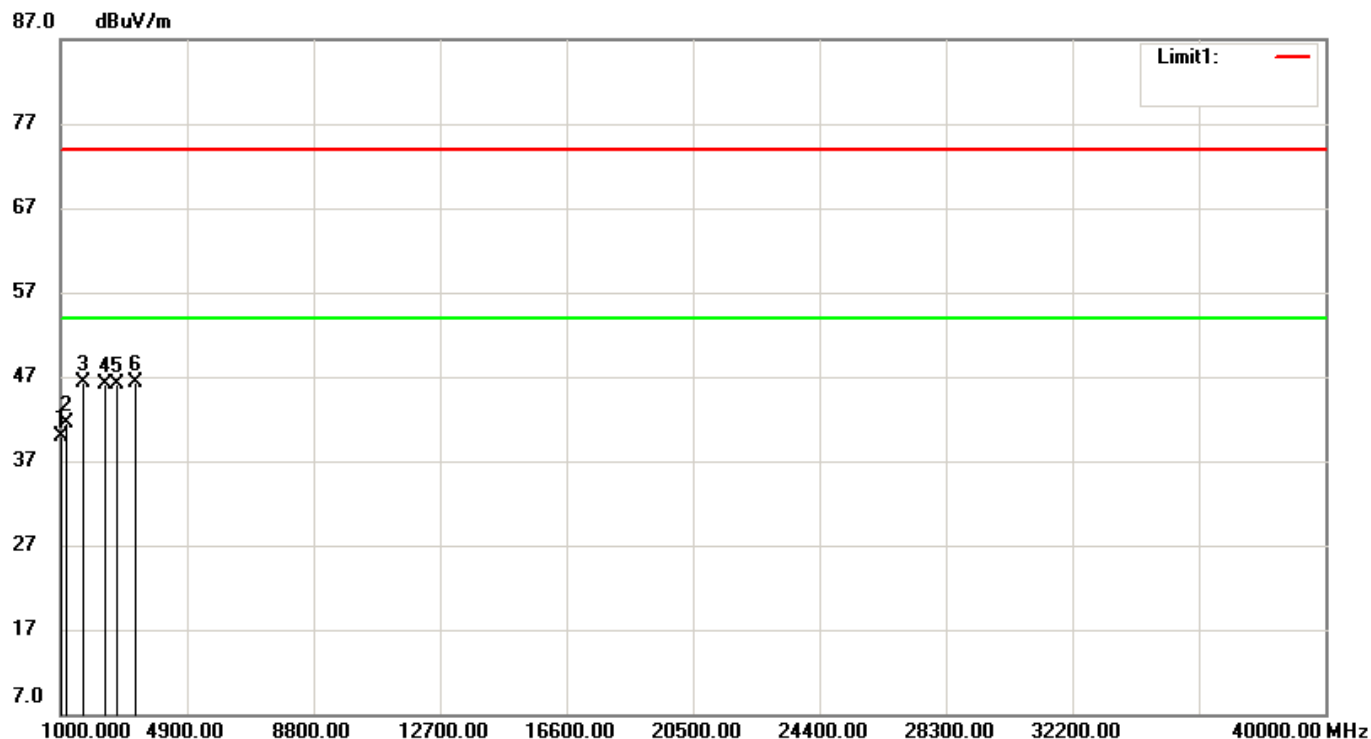
#27

Date: 2020/4/23

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-LOW
 Note:

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	1050.14420	49.67	peak	-9.73	39.94	74.00	-34.06
2	1150.43260	50.94	peak	-9.41	41.53	74.00	-32.47
3	1666.20200	53.10	peak	-6.80	46.30	74.00	-27.70
4	2318.07700	49.10	peak	-2.96	46.14	74.00	-27.86
5	2733.55760	48.46	peak	-2.27	46.19	74.00	-27.81
6	3306.63460	47.90	peak	-1.58	46.32	74.00	-27.68

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：5510 MHz

File: 20-02-MAS-059_5-6n40

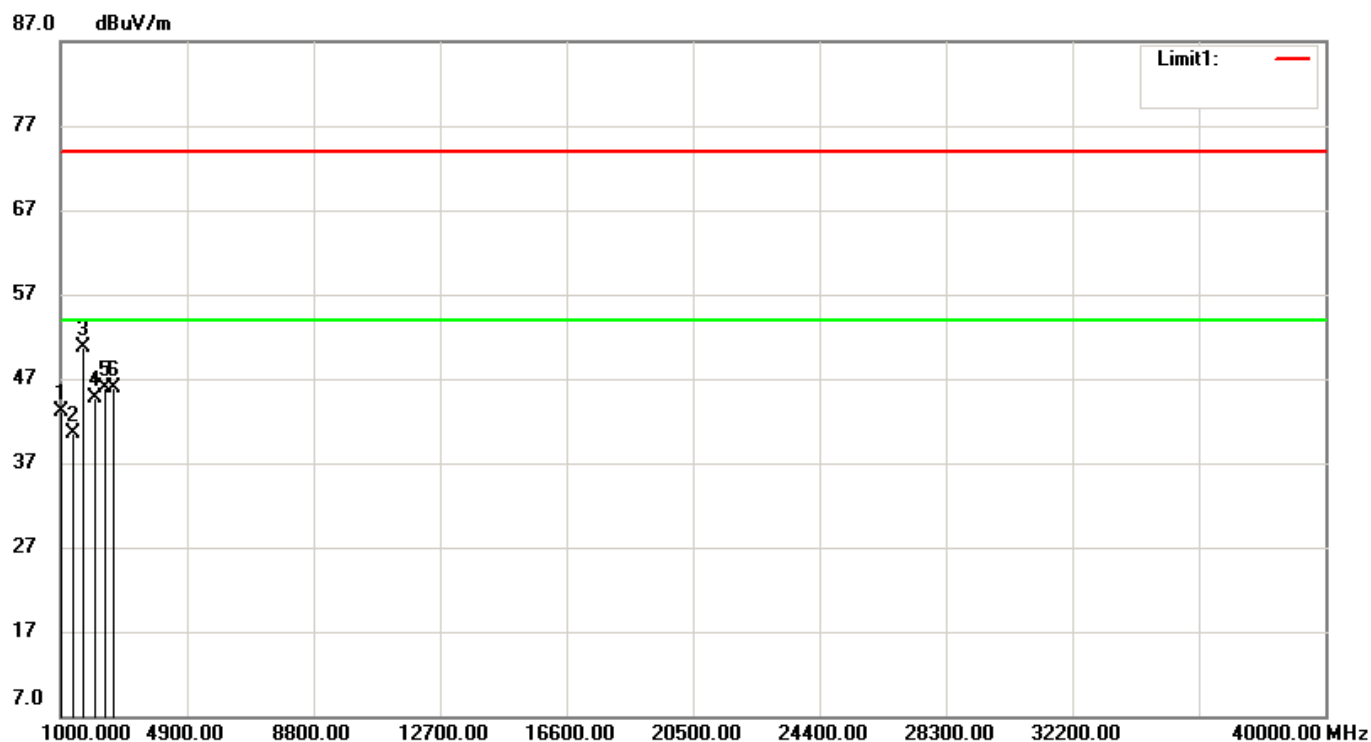
#28

Date: 2020/4/23

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-LOW
 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	1000.0000	52.99	peak	-9.89	43.10	74.00	-30.90
2	1322.35570	49.47	peak	-8.87	40.60	74.00	-33.40
3	1666.20200	57.41	peak	-6.80	50.61	74.00	-23.39
4	2045.86530	48.47	peak	-3.68	44.79	74.00	-29.21
5	2325.24030	48.91	peak	-2.94	45.97	74.00	-28.03
6	2590.28840	48.40	peak	-2.41	45.99	74.00	-28.01

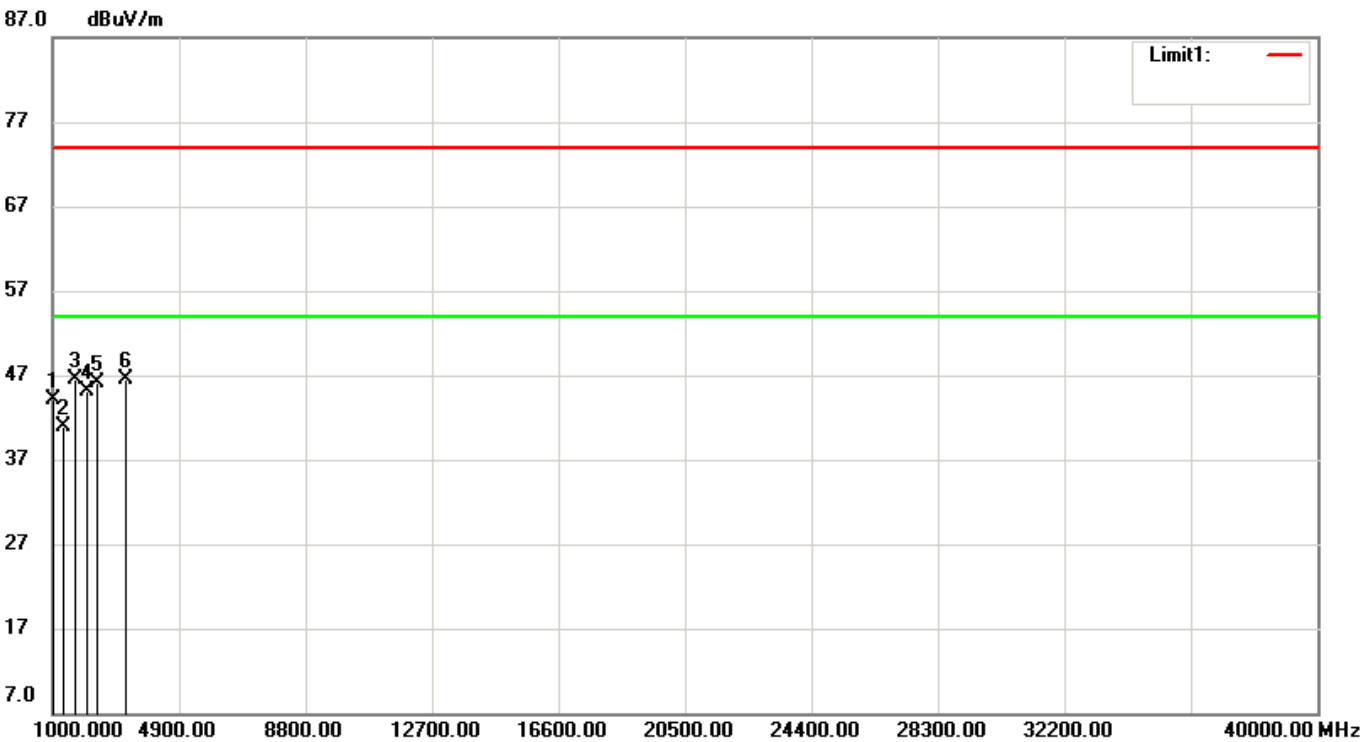
註: 1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

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：5590 MHz

File: 20-02-MAS-059_5-6n40 #29 Date: 2020/4/23 Temperature: 21 °C
Site: RE02-EMC B1- N2 Humidity: 59 %



Condition: NCC_Above1G_Pk Polarization: Horizontal
EUT: Wireless LAN Module Distance: 3m
Model: BM72065
Test Mode: UNII-MID Operator: Phillip
Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1000.0000	53.94	peak	-9.89	44.05	74.00	-29.95
2	1272.21150	50.01	peak	-9.03	40.98	74.00	-33.02
3	1659.03840	53.30	peak	-6.87	46.43	74.00	-27.57
4	2045.86530	48.74	peak	-3.68	45.06	74.00	-28.94
5	2318.07700	49.13	peak	-2.96	46.17	74.00	-27.83
6	3235.00000	48.18	peak	-1.69	46.49	74.00	-27.51

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：5590 MHz

File: 20-02-MAS-059_5-6n40

#30

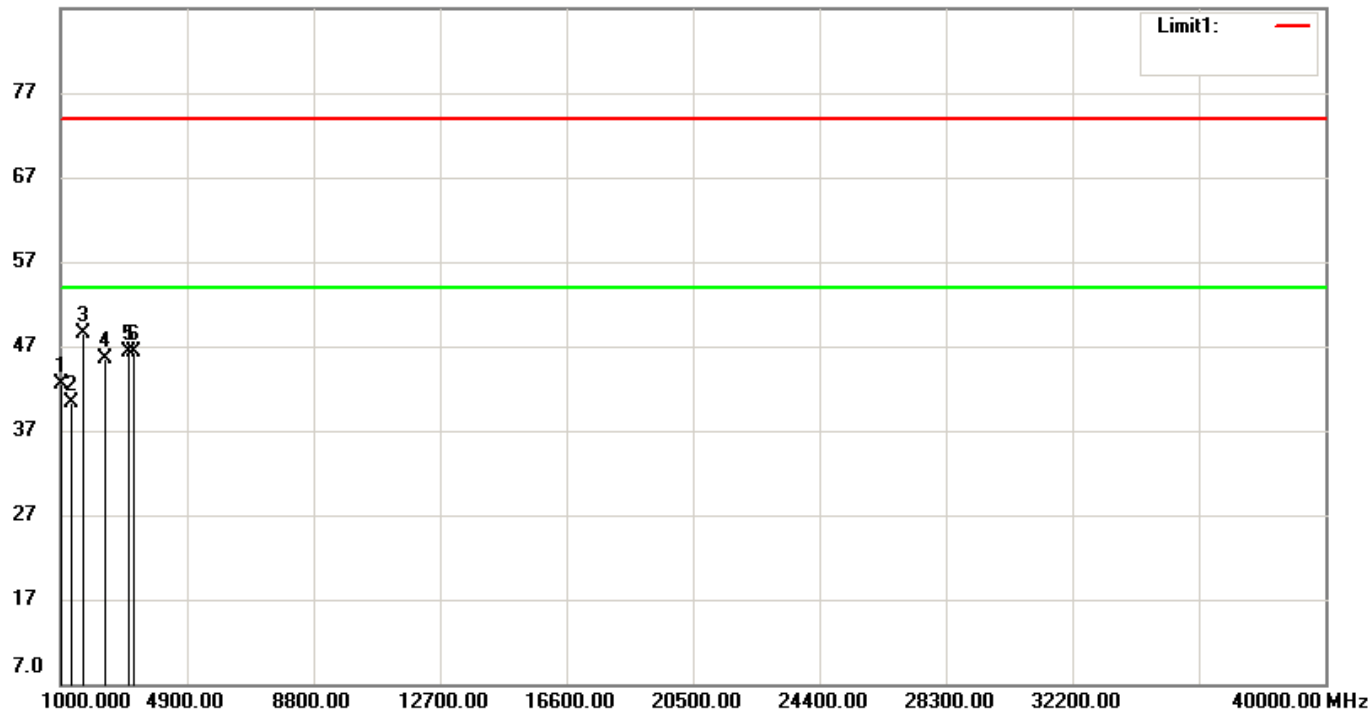
Date: 2020/4/23

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %

87.0 dBuV/m



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-MID
 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	1000.0000	52.47	peak	-9.89	42.58	74.00	-31.42
2	1300.86530	49.24	peak	-8.94	40.30	74.00	-33.70
3	1666.20200	55.32	peak	-6.80	48.52	74.00	-25.48
4	2332.40380	48.45	peak	-2.92	45.53	74.00	-28.47
5	3077.40380	48.25	peak	-1.92	46.33	74.00	-27.67
6	3213.50960	48.10	peak	-1.71	46.39	74.00	-27.61

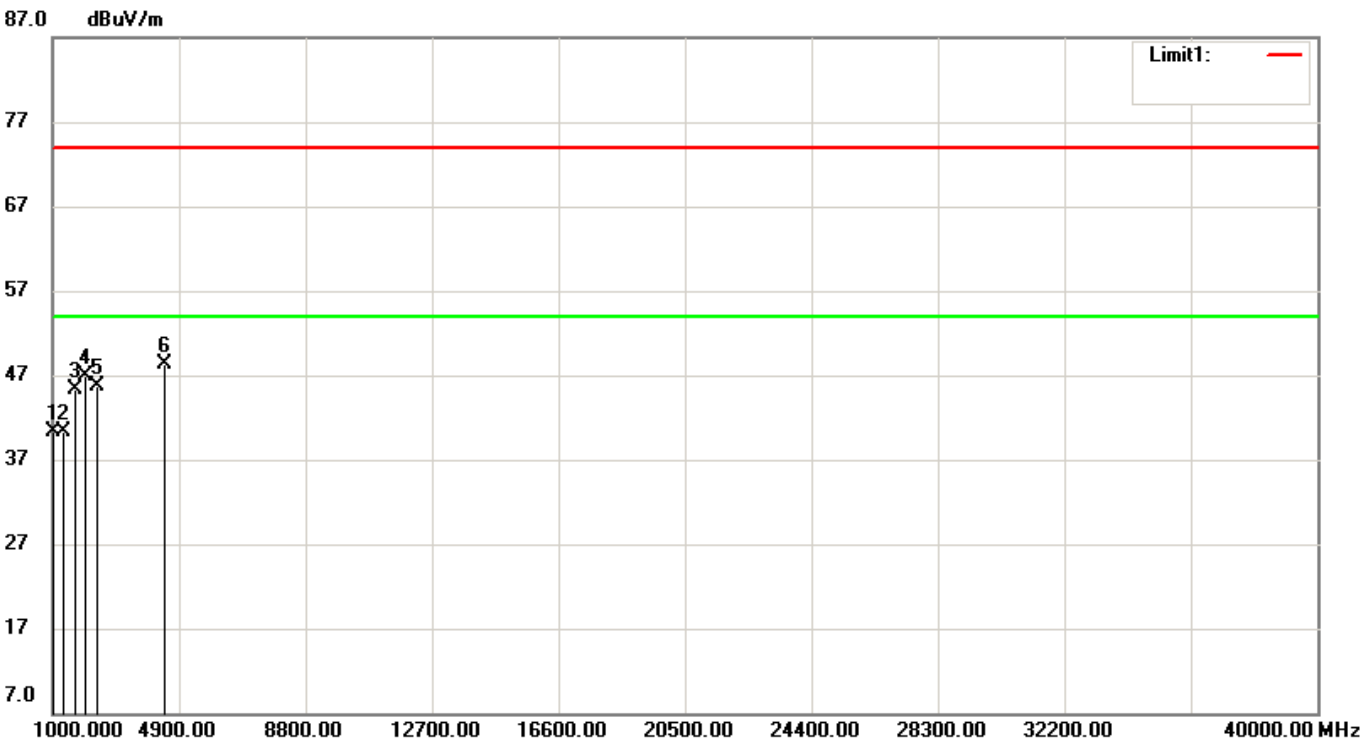
註: 1. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值。

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：5670 MHz

File: 20-02-MAS-059_5-6n40 #31 Date: 2020/4/23 Temperature: 21 °C
Site: RE02-EMC B1- N2 Humidity: 59 %



Condition: NCC_Above1G_Pk Polarization: Horizontal
EUT: Wireless LAN Module Distance: 3m
Model: BM72065
Test Mode: UNII-HIGH Operator: Phillip
Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1000.0000	50.19	peak	-9.89	40.30	74.00	-33.70
2	1293.70200	49.25	peak	-8.95	40.30	74.00	-33.70
3	1659.03840	52.11	peak	-6.87	45.24	74.00	-28.76
4	1995.72110	50.78	peak	-3.83	46.95	74.00	-27.05
5	2325.24030	48.67	peak	-2.94	45.73	74.00	-28.27
6	4424.13460	48.01	peak	0.32	48.33	74.00	-25.67

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：5670 MHz

File: 20-02-MAS-059_5-6n40

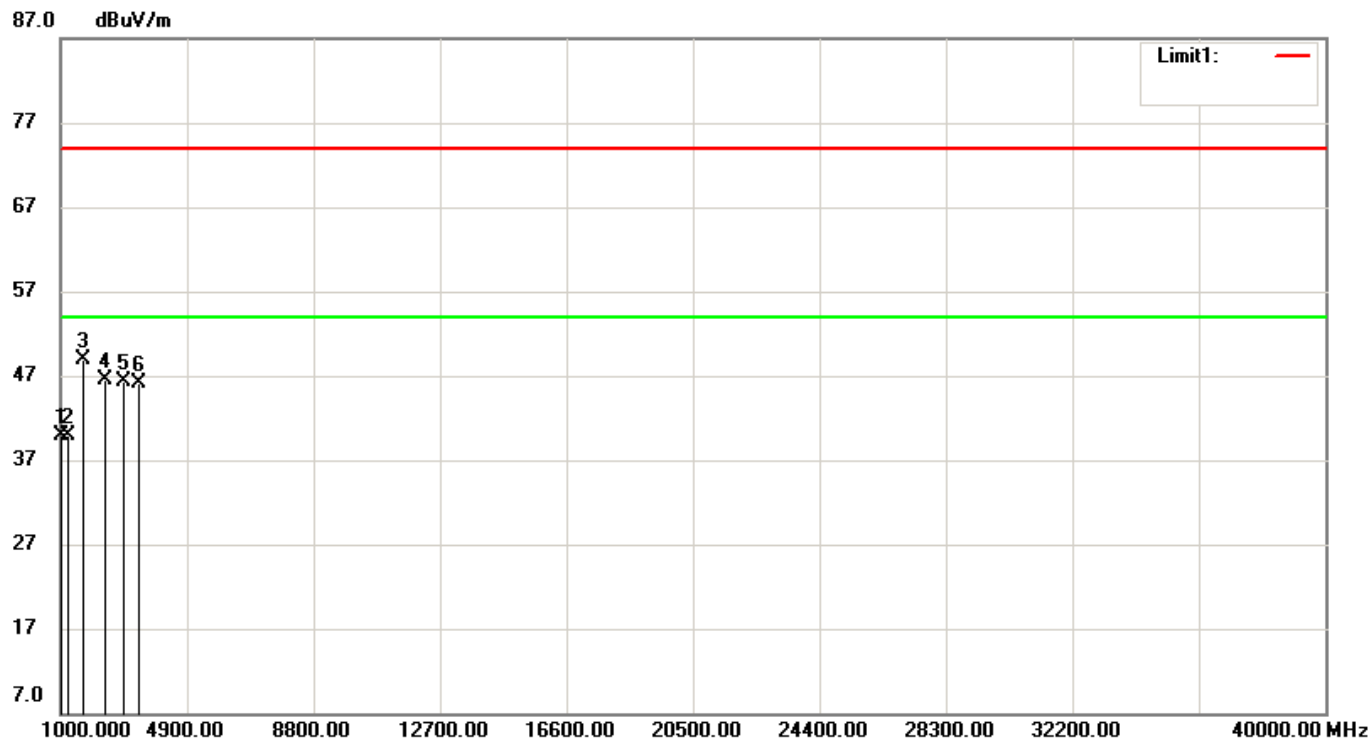
#32

Date: 2020/4/23

Temperature: 21 °C

Site: RE02-EMC B1- N2

Humidity: 59 %



Condition: NCC_Above1G_Pk
 EUT: Wireless LAN Module
 Model: BM72065
 Test Mode: UNII-HIGH
 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	1000.0000	49.77	peak	-9.89	39.88	74.00	-34.12
2	1243.55760	48.94	peak	-9.12	39.82	74.00	-34.18
3	1659.03840	55.86	peak	-6.87	48.99	74.00	-25.01
4	2325.24030	49.47	peak	-2.94	46.53	74.00	-27.47
5	2919.80760	48.39	peak	-2.11	46.28	74.00	-27.72
6	3421.25000	47.49	peak	-1.41	46.08	74.00	-27.92

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 其它不必要之訊號1GHz以下

10.5.2.4.1 測試狀態: IEEE 802.11n HT40

File: 20-02-MAS-059

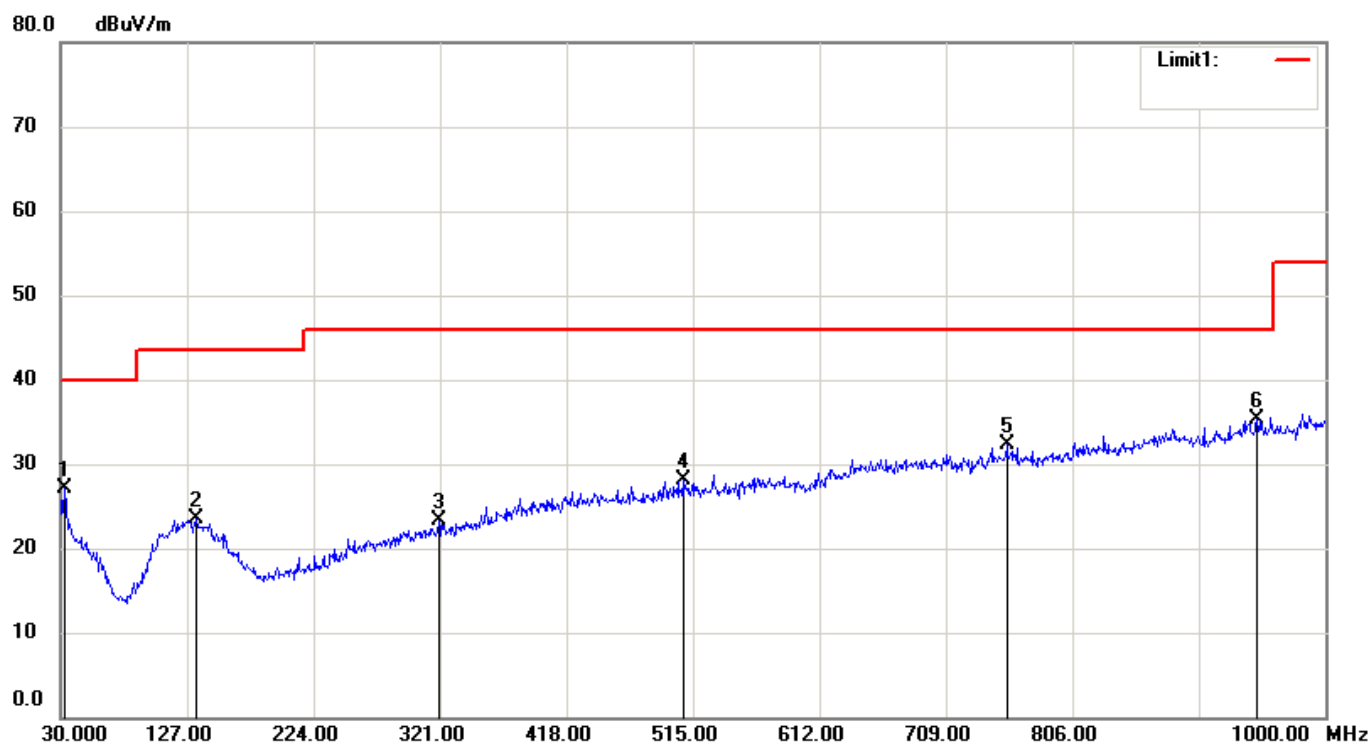
#7

Date: 2020/5/4

Temperature: 20 °C

Site: RE02-EMC B1- N2

Humidity: 60 %



Condition: NCC_LP0002_30-1000MHz

Polarization: Horizontal

EUT: Wireless LAN Module

Distance: 3m

Model: BM72065

Test Mode: UNII-Band 3

Operator: Phillip

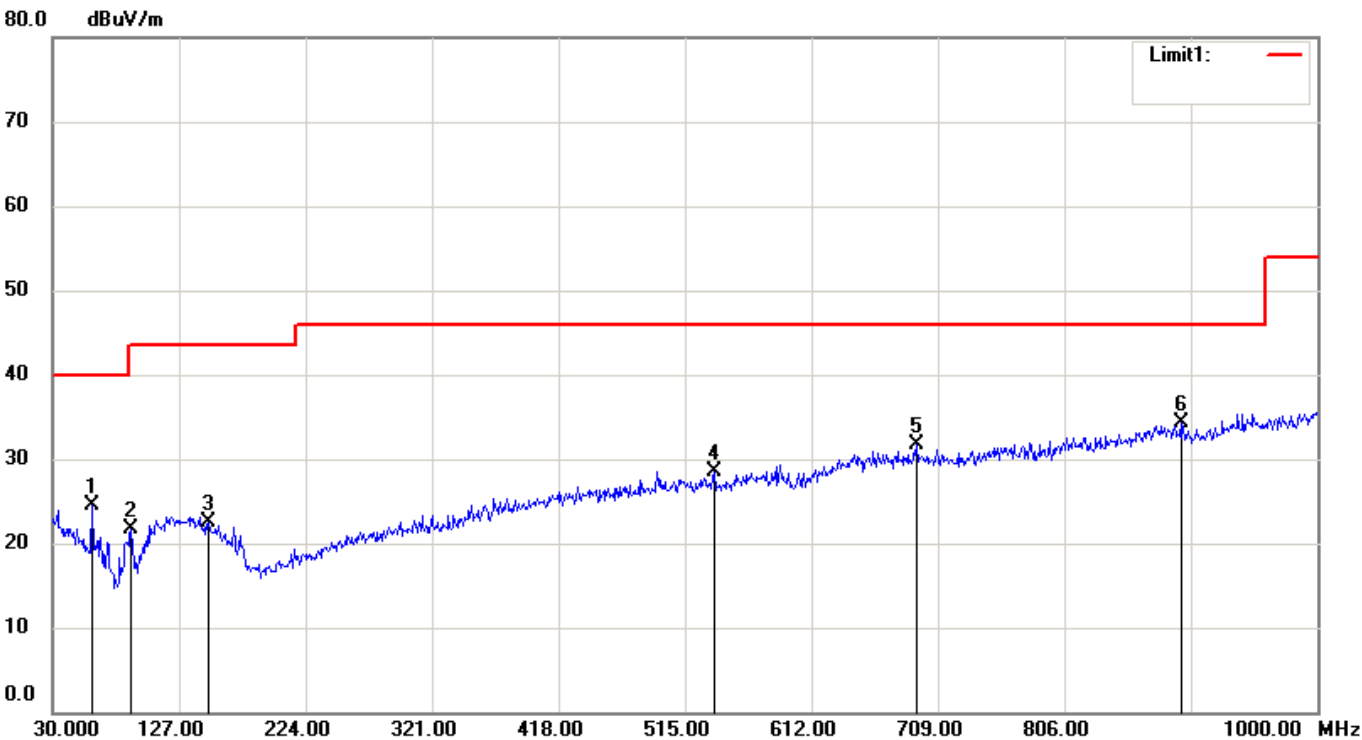
Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	32.9100	31.41	peak	-4.25	27.16	40.00	-12.84
2	133.7900	27.20	peak	-3.74	23.46	43.50	-20.04
3	320.0300	27.40	peak	-4.01	23.39	46.00	-22.61
4	507.2400	28.76	peak	-0.57	28.19	46.00	-17.81
5	755.5580	28.76	peak	3.63	32.39	46.00	-13.61
6	947.6200	27.52	peak	7.71	35.23	46.00	-10.77

File: 20-02-MAS-059
Site: RE02-EMC B1- N2

#8 Date: 2020/5/4

Temperature: 20 °C
Humidity: 60 %



Condition: NCC_LP0002_30-1000MHz
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII-Band 3
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	60.0700	33.68	peak	-9.26	24.42	40.00	-15.58
2	90.1400	32.75	peak	-10.97	21.78	43.50	-21.72
3	149.3100	27.65	peak	-5.09	22.56	43.50	-20.94
4	537.3100	28.71	peak	-0.11	28.60	46.00	-17.40
5	692.5100	28.83	peak	2.93	31.76	46.00	-14.24
6	895.2400	27.99	peak	6.39	34.38	46.00	-11.62

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 (30MHz ≤ f < 1GHz)

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: Apr. 22, 2020

環境溫度: 21°C

環境濕度: 59%

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
5430.048	27.3	13.1	27.3	13.1	38.66	66.0	51.8	74.0	54.0	-8.0	-2.2

10.6.2 調變技術: IEEE 802.11n HT20

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
5458.221	27.1	13.2	27.2	13.2	38.68	65.9	51.9	74.0	54.0	-8.1	-2.1

10.6.3 調變技術: IEEE 802.11n HT40

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
5458.702	27.1	13.1	27.5	13.1	38.69	66.2	51.8	74.0	54.0	-7.8	-2.2

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之量測結果

調變技術: IEEE 802.11a

File: 20-02-MAS-059_5-6a

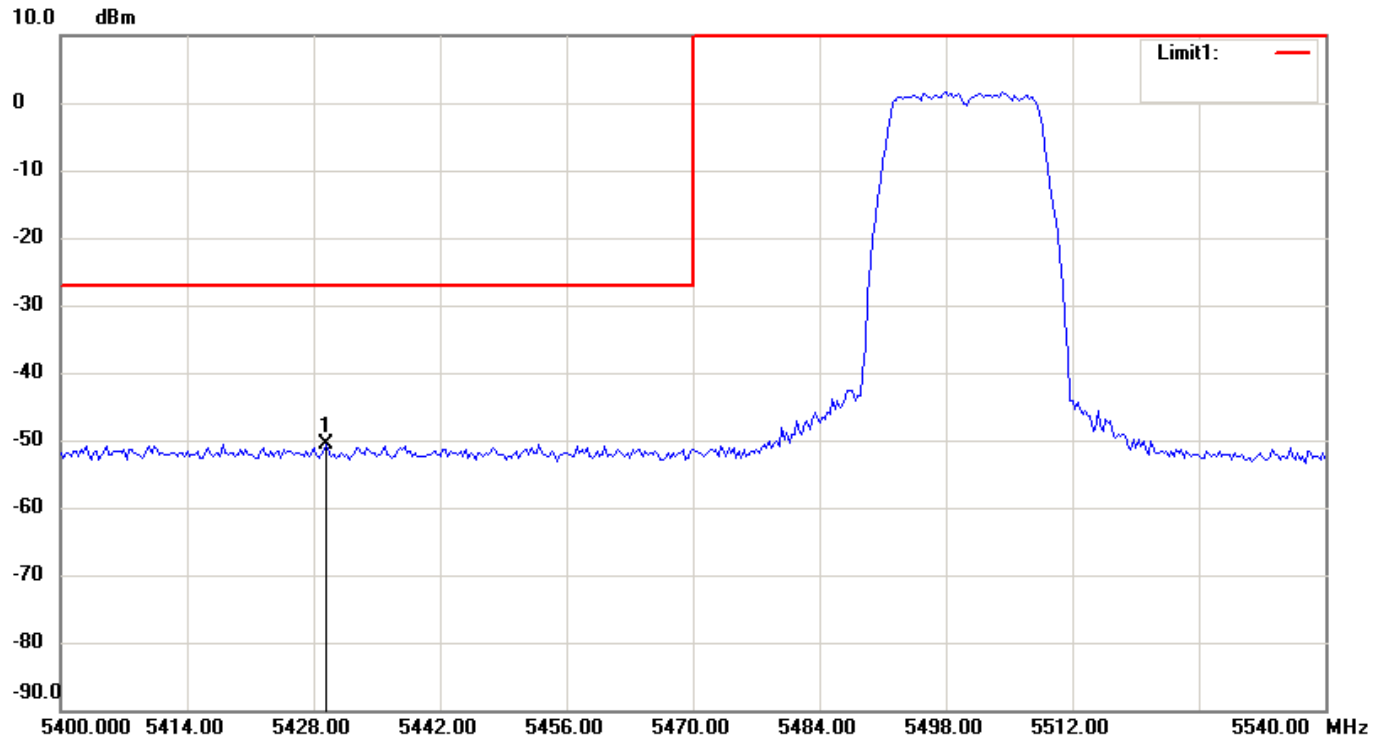
#7

Date: 2020/3/17

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11a Channel 100_Low_Bandedge

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5429.40000	-50.60

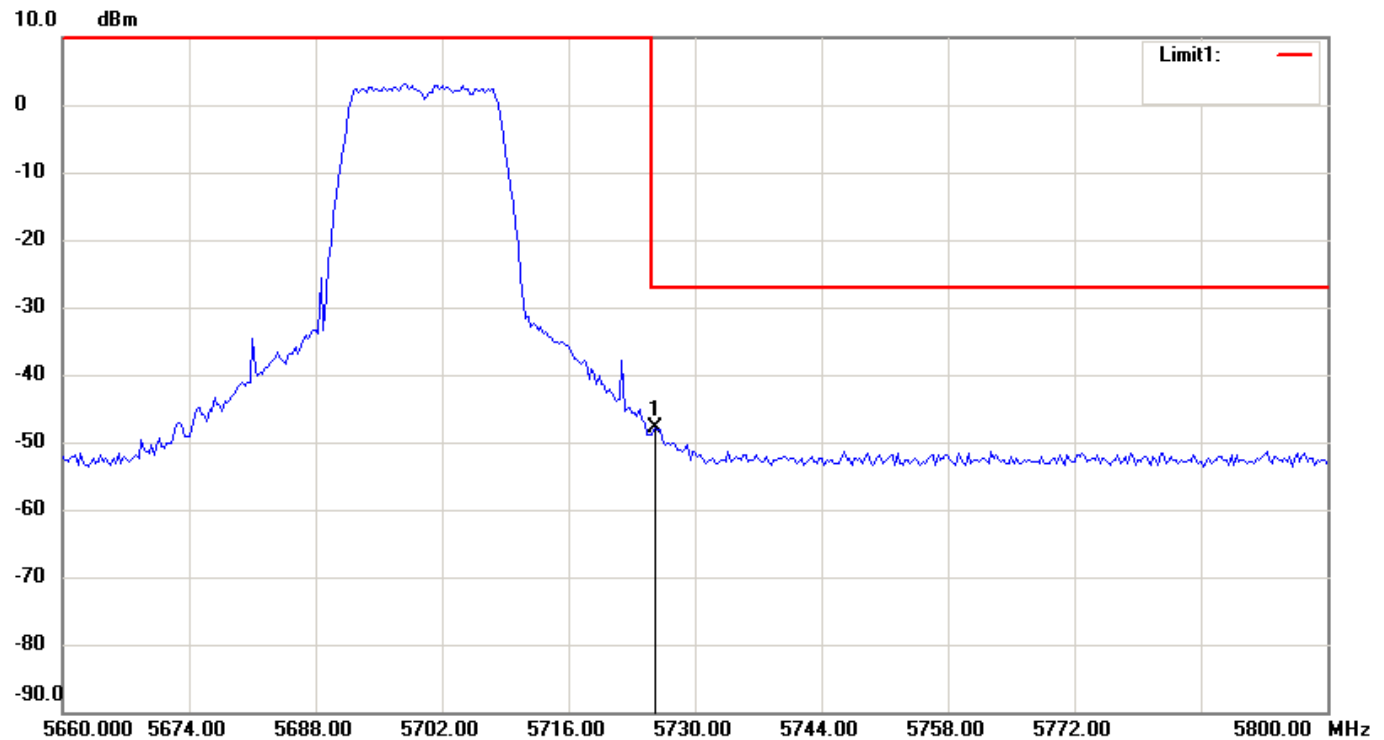
File: 20-02-MAS-059_5-6a
Site: RF-Cond01

#20

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11a Channel 140_High_Bandedge

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

No.	Frequency(MHz)	Level(dBm)
1	5725.52000	-47.95

調變技術: IEEE 802.11n HT20

File: 20-02-MAS-059_5-6an20

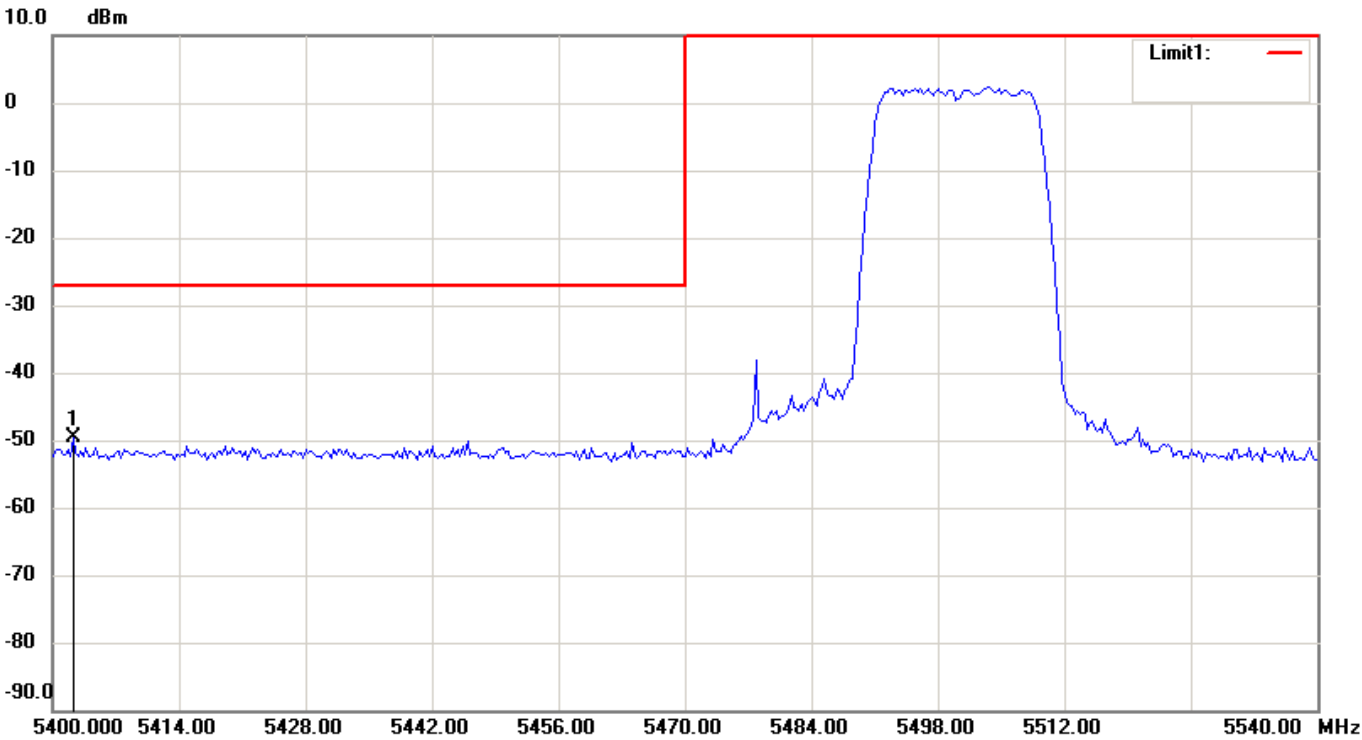
#7

Date: 2020/3/17

Temperature: 24 °C

Site: RF-Cond01

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n20 Channel 100_Low_Bandedge

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5402.24000	-49.70

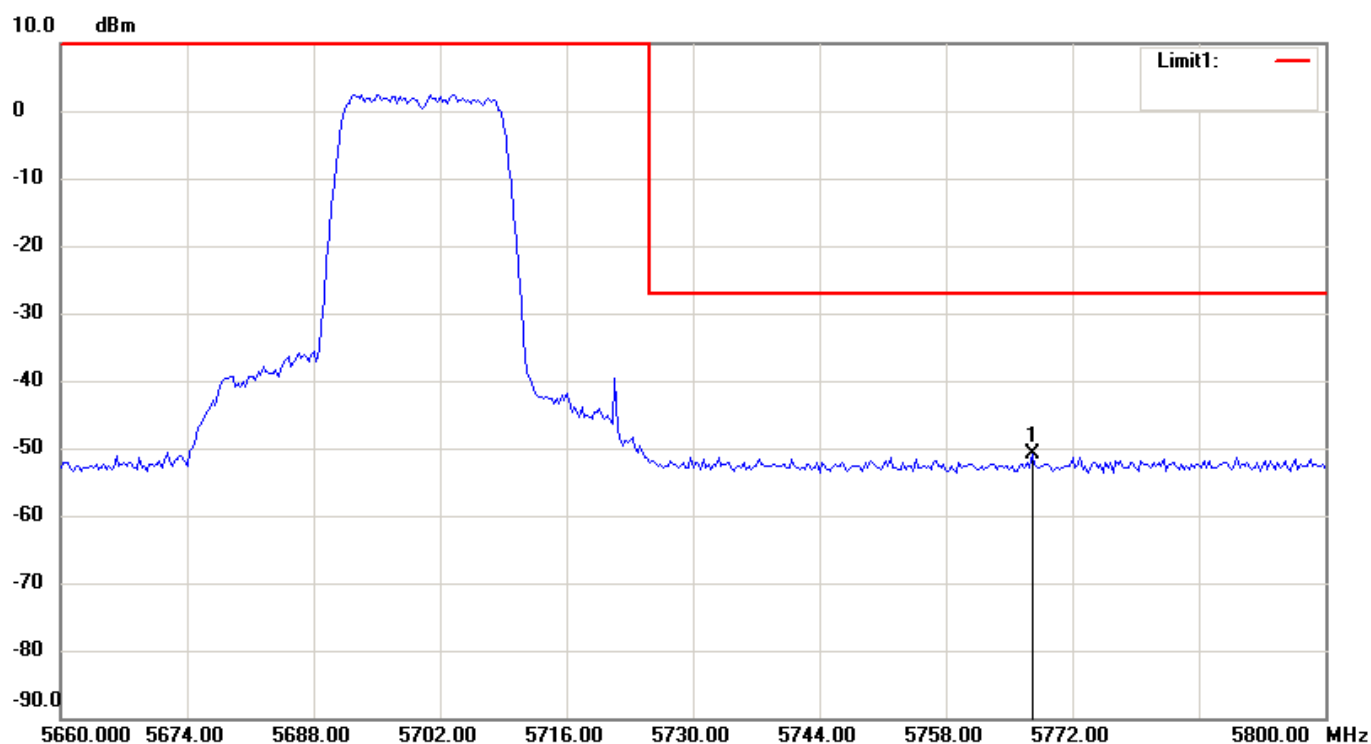
File: 20-02-MAS-059_5-6an20
Site: RF-Cond01

#20

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n20 Channel 140_High_Bandedge

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5767.52000	-50.93

調變技術: IEEE 802.11n HT40

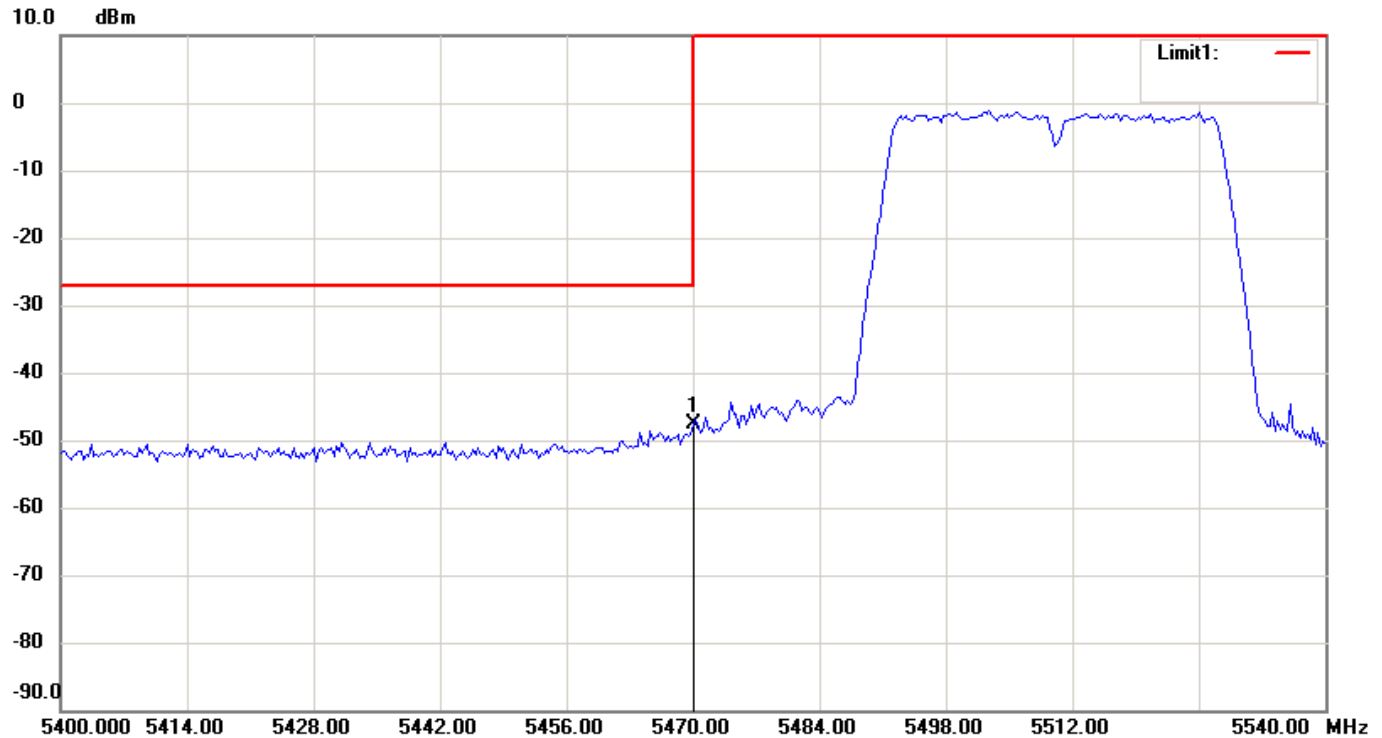
File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#7

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge
EUT: Wireless LAN Module
Model: BM72065
Test Mode: UNII
Note: NCC_LP0002_802.11n40 Channel 102_Low_Bandedge

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

No.	Frequency(MHz)	Level(dBm)
1	5470.00000	-47.56

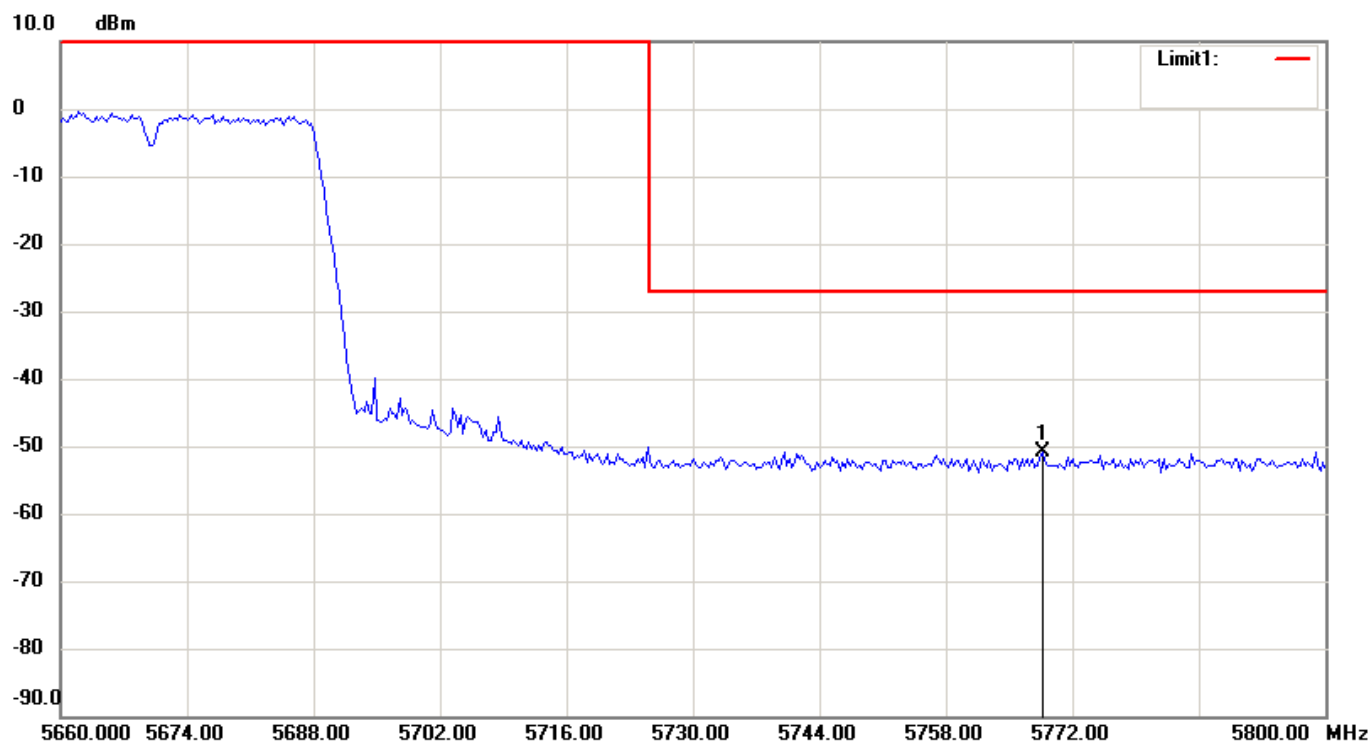
File: 20-02-MAS-059_5-6an40
Site: RF-Cond01

#20

Date: 2020/3/17

Temperature: 24 °C

Humidity: 59 %



Condition: UNII-Band-3-Bandedge

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Note: NCC_LP0002_802.11n40 Channel 134_High_Bandedge

RF Conducted

Sweep Time: 1ms Att.: 15dB

RBW: 1000 KHz VBW: 3000 KHz

Operator: Phillip

No.	Frequency(MHz)	Level(dBm)
1	5768.64000	-50.77

10.8 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。

10.9 輻射之測試配置

圖 2: 量測頻率低於1GHz之測試配置

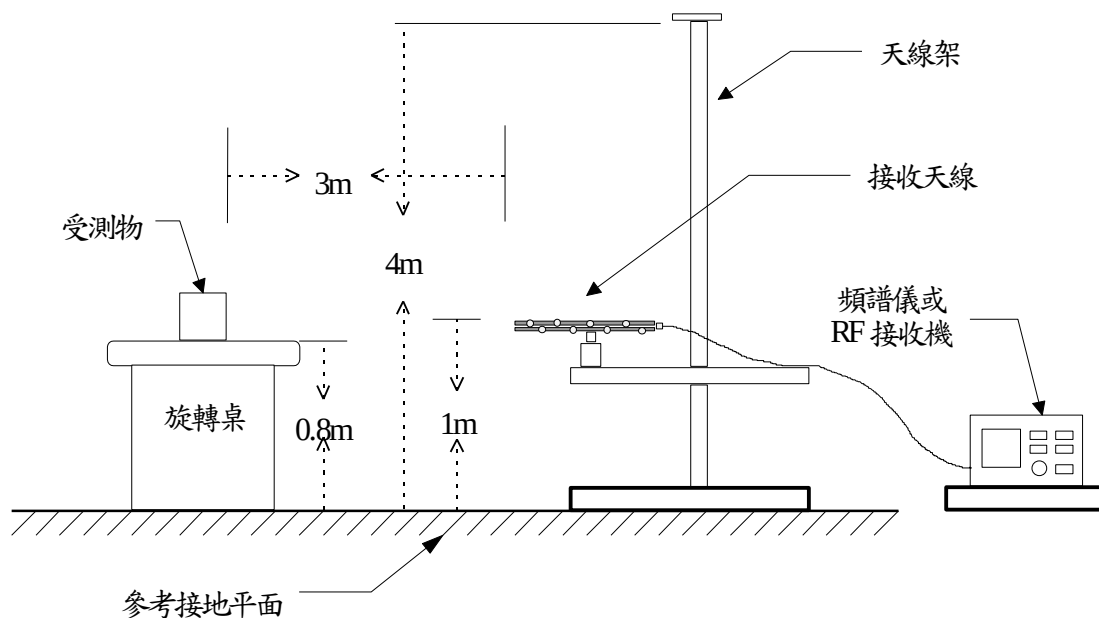
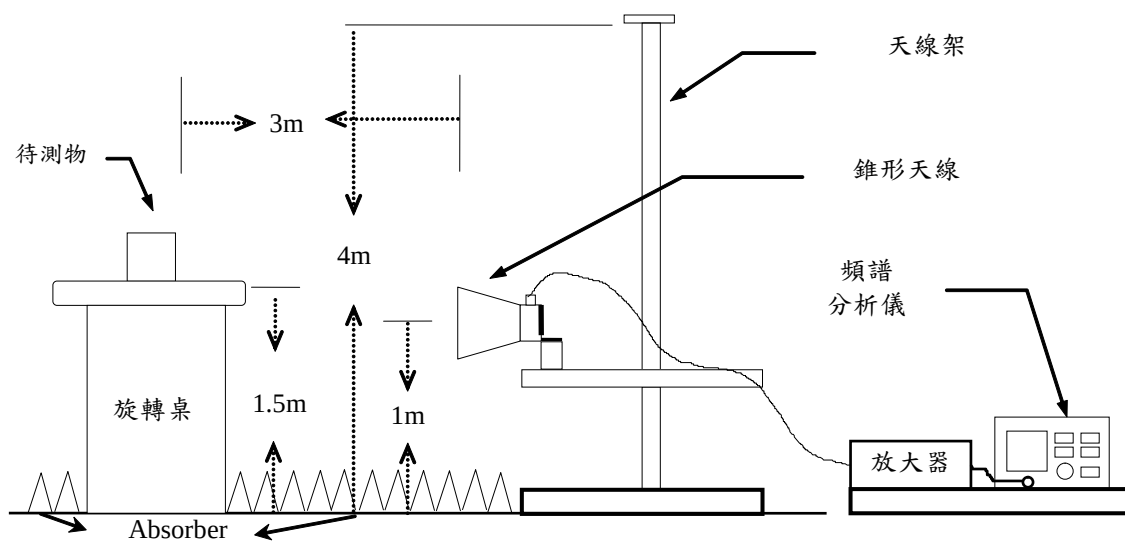


圖 3: 量測頻率高於1GHz之測試配置



10.10 輻射量測之配置照片

請參考產品照片

11 發射功率控制(TPC)之量測

11.1 發射功率控制(TPC)適用標準

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

11.2 發射功率控制(TPC)之測試配置

如圖 1 所示。

11.3 適用性

Highest Power Level in DFS Bnd (EIRP)		10.77 dBm+4 dBi = 14.77 dBm = 29.99 mW
☒	EIRP < 500 mW	Not Applicable
☐	EIRP $\geq$ 500 mW	Applicable

12 動態頻率選擇(DFS)之量測

12.1 LIMITS

依據國家通訊傳播委員會低功率射頻電機技術規範 4.7.7.2 節之規定與 FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
<i>Non-Occupancy Period</i>	Yes	Not required	Yes
<i>DFS Detection Threshold</i>	Yes	Not required	Yes
<i>Channel Availability Check Time</i>	Yes	Not required	Not required
<i>U-NII Detection Bandwidth</i>	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
<i>DFS Detection Threshold</i>	Yes	Not required
<i>Channel Closing Transmission Time</i>	Yes	Yes
<i>Channel Move Time</i>	Yes	Yes
<i>U-NII Detection Bandwidth</i>	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
<i>U-NII Detection Bandwidth and Statistical Performance Check</i>	All BW modes must be tested	Not required
<i>Channel Move Time and Channel Closing Transmission Time</i>	Test using widest BW mode available	Test using the widest BW mode available for the link
<i>All other tests</i>	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

Table 3: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP $\geq$ 200 milliwatt	-64 dBm
EIRP $<$ 200 milliwatt and power spectral density $<$ 10 dBm/MHz	-62 dBm
EIRP $<$ 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

Table 4: DFS Response Requirement Values

Parameter	Value
<i>Non-occupancy period</i>	Minimum 30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds See Note 1.
<i>Channel Closing Transmission Time</i>	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A	$\text{Roundup} \left\{ \left(\frac{1}{360} \right), \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\}$	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					

Table 5a - Pulse Repetition Intervals Values for Test A

Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)
1	1930.5	518
2	1858.7	538
3	1792.1	558
4	1730.1	578
5	1672.2	598
6	1618.1	618
7	1567.4	638
8	1519.8	658
9	1474.9	678
10	1432.7	698
11	1392.8	718
12	1355	738
13	1319.3	758
14	1285.3	778
15	1253.1	798
16	1222.5	818
17	1193.3	838
18	1165.6	858
19	1139	878
20	1113.6	898
21	1089.3	918
22	1066.1	938
23	326.2	3066

Table 6 – Long Pulse Radar Test Waveform

Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

12.2 產品描述

12.2.1 待測物

DFS 操作頻帶	☒ 5470MHz~5725MHz
操作模式	☐ 主控 (Master)
	☒ 受控 (Client without In-Service Monitoring)
	☐ 受控 (Client with In-Service Monitoring)
頻道負載運作方式	☒ IP Based System
	☐ Frame Based System
	☐ Other System _____

Note: The tested level is lower thn the required level hence it provides margin to the limit.

12.3 測試系統

12.3.1 系統描述

12.3.1.1 雷達信號

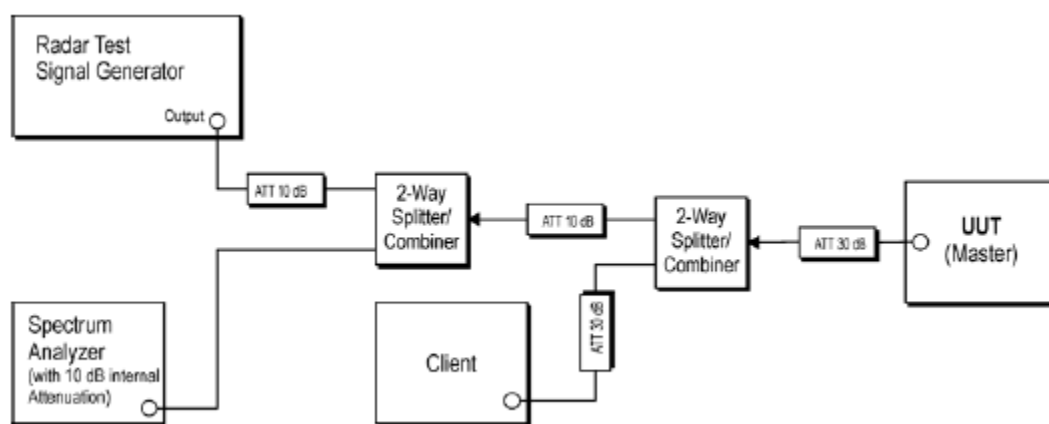
所有雷達信號依據 FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 之規定產生。

12.3.1.2 參考信號負載

無線傳輸信號負載使用由美國電信資訊署(N.T.I.A)參考系統所提供之 MPEG 影像檔。
資料傳送方向由 Master 傳送到 Client。

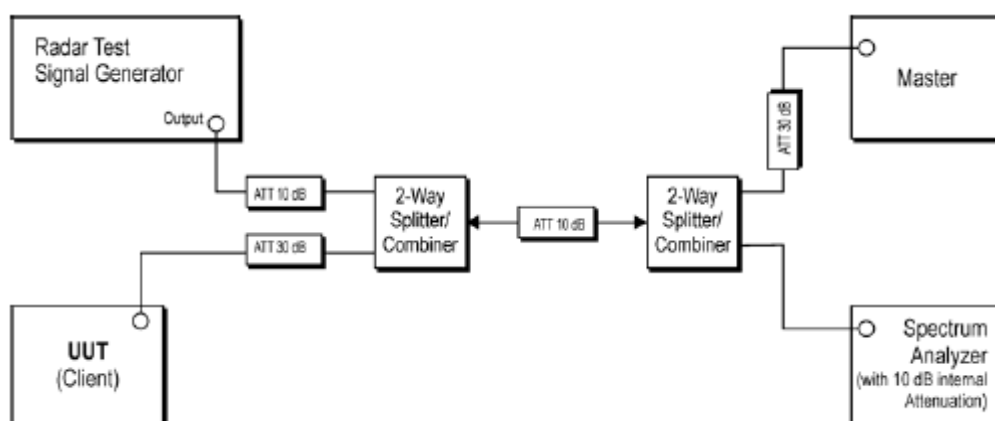
12.3.2 系統配置

12.3.2.1 Setup for Master with injection at the Master



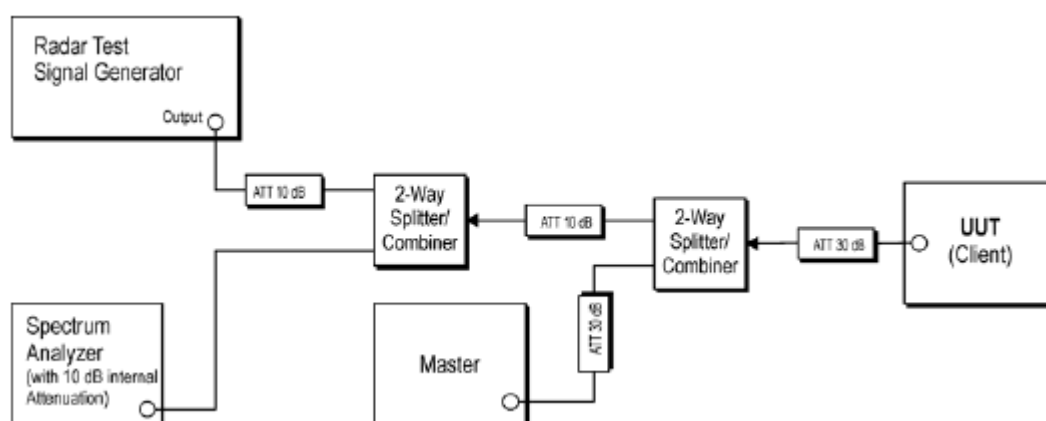
主控設備配置圖

12.3.2.2 Setup for Client with injection at the Master



受控設備配置圖 1(Client without In-Service Monitoring)

12.3.2.3 Setup for Client with injection at the Client



受控設備配置圖 2 (Client with In-Service Monitoring)

12.3.3 量測儀器

儀器名稱	製造者	型 號
Spectrum Analyzer	R&S	FSV
Vector Signal Generator	R&S	SMU200A

12.3.4 使用週邊

裝置名稱	製造者/代理者	型 號	纜 線 說 明
Notebook	Dell	Inspiron 1420	非隔離電源線 3.3m*1 / Adaptor 非隔離信號線 1.0m*1/RJ45
Notebook	HP	650G1	非隔離電源線 2.8m*1 / Adaptor 非隔離信號線 1.0m*1/RJ45
Access Point	I O Data	WN-AC1167GR	非隔離電源線 1.5m*1 / Adaptor

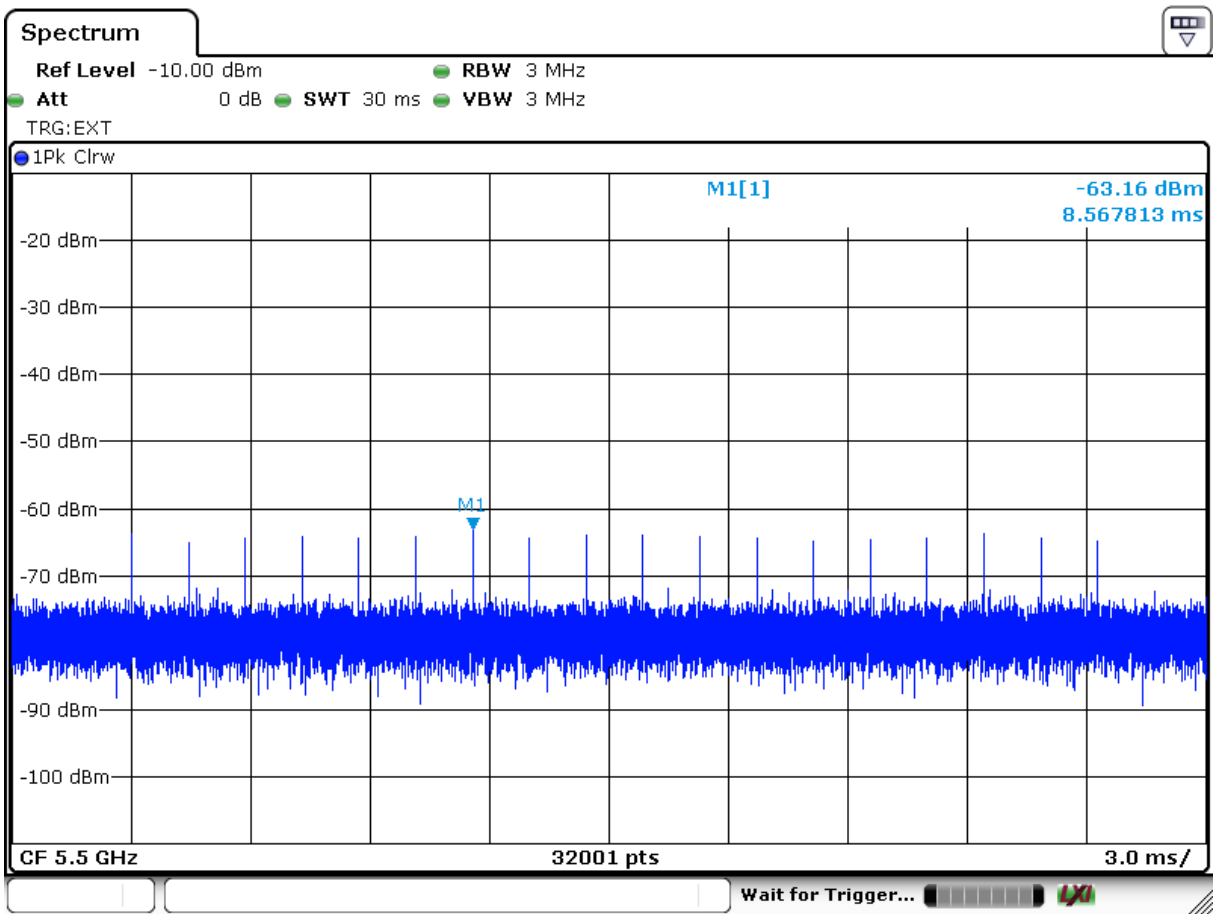
12.4 測試頻道及測試方法

12.4.1

測試方法	☒ 直接量測方式	☐ 輻射方式
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12.4.2 使用雷達信號

Short Pulse Radar Type 0



12.5 量測結果

12.5.1 Radar TYPE 0 CHANNEL MOVE TIME RESULTS

結果判定：符合標準規定。

Modulation	Operation Frequency (MHz)	Chnnel Move Time (s)	Limit (s)
IEEE 802.11n HT40	5510	< 10S	10

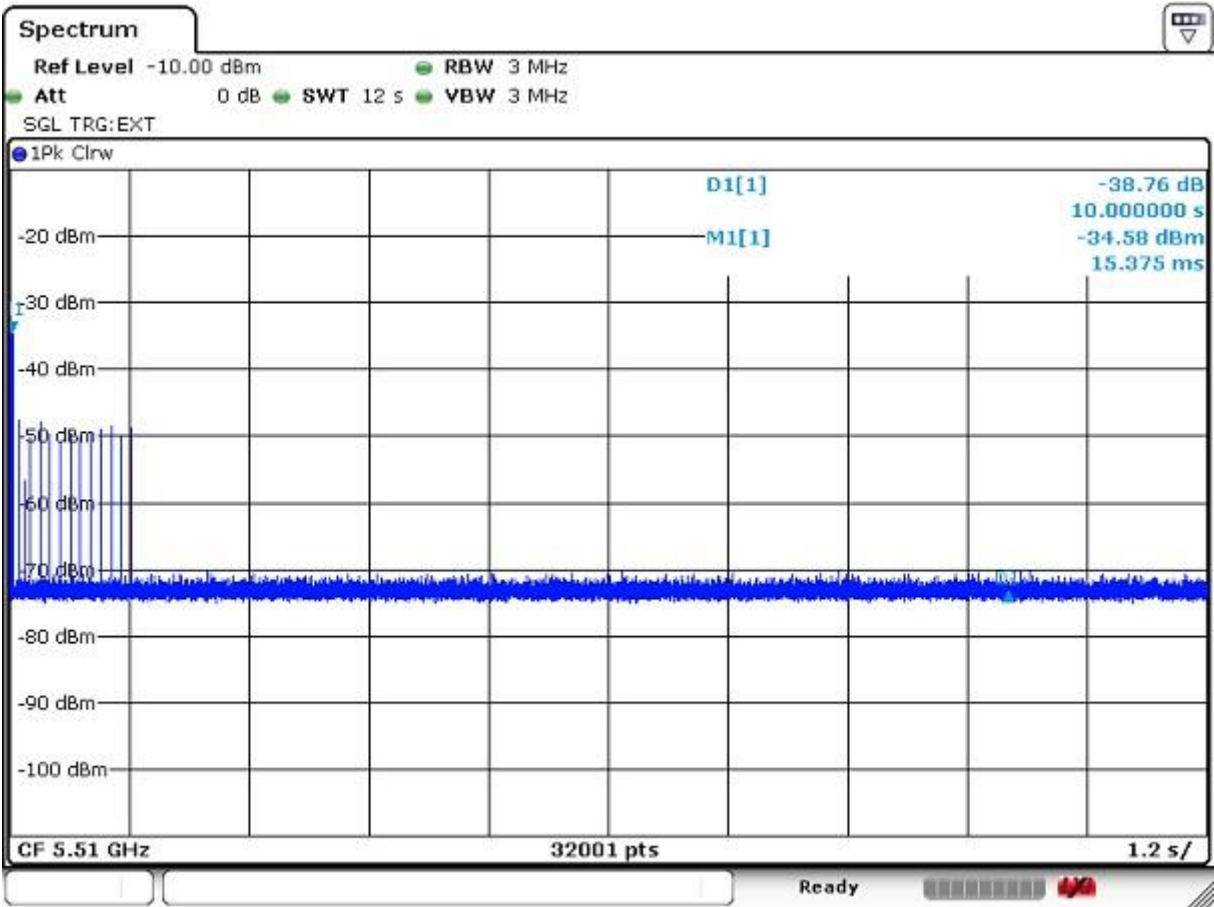
File: 20-02-MAS-059_5-6

Date: 2020/4/01

Temperature: 25 °C

Site: RF-Cond02

Humidity: 59 %



Condition:

RF Conducted

EUT:

Wireless LAN Module

Model:

BM72065

Test Mode:

UNII

Operator:

Phillip

Note:

12S-1

12.5.2 Radar TYPE 0 CHANNEL CLOSING TRANSMISSION TIME RESULTS

The following plot demonstrates a channel close time of <200ms, with an aggregate of no more than 60 ms.

結果判定：符合標準規定。

Modulation	Operation Frequency (MHz)	Aggregate Trnsmission Time (ms)	Limit (ms)
IEEE 802.11n HT40	5510	8	60

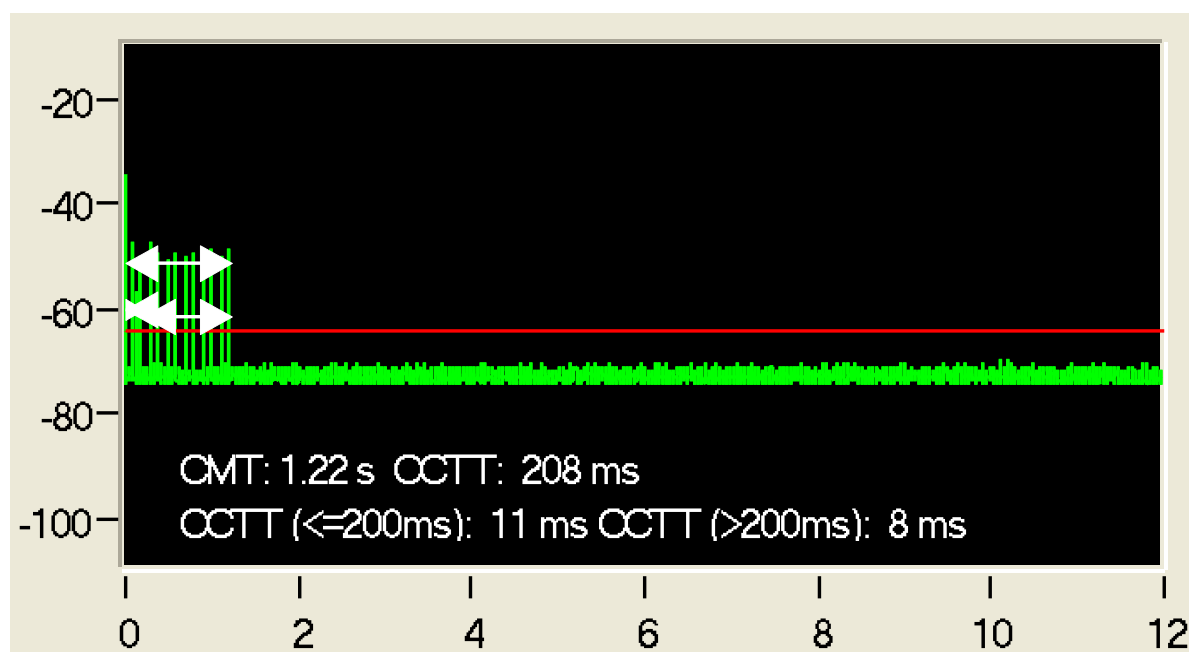
File: 20-02-MAS-059_5-6

Date: 2020/4/01

Temperature: 25 °C

Site: RF-Cond02

Humidity: 59 %



Condition:

RF Conducted

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Operator: Phillip

Note: 12S-2

Aggregate Trnsmission Time =

(Number of nalyzer bins showing trnsmission) * (dwell time per bin)

= 8 ms

12.5.3 Non-occupancy Period (Associated Test)

No EUT transmissions were observed on the test channel during the 30-minute observation time.

結果判定：符合標準規定。

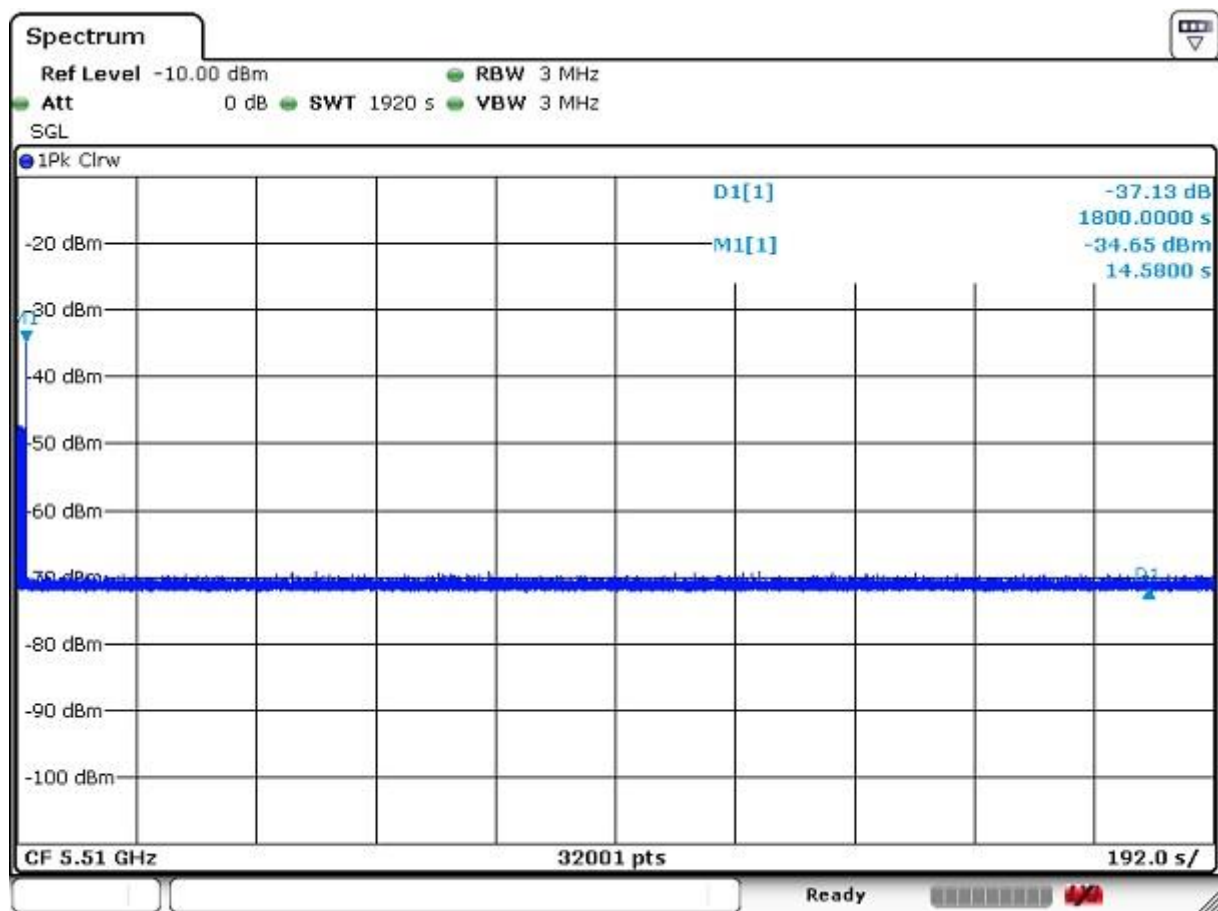
File: 20-02-MAS-059_5-6

Date: 2020/4/01

Temperature: 25 °C

Site: RF-Cond02

Humidity: 59 %



Condition:

RF Conducted

EUT: Wireless LAN Module

Model: BM72065

Test Mode: UNII

Operator: Phillip

Note: 30 min

13 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	R&S	FSV	13052017-001	07/05/2019	07/04/2020
Attenuator	WEINSCHTEL	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	06/10/2019	06/09/2020
Horn Antenna	EMCO	3117	13059211-004	04/21/2020	04/20/2021
Horn Antenna	EMCO	3116	13059202-001	11/15/2019	11/14/2020
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	09/19/2019	09/18/2020
Vector Signal Generator	R&S	SMU200A	13549901-002	06/11/2019	06/10/2020