低功率射頻電機
檢驗報告

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製造廠商	Sony Interactive Entertainment Inc.
受檢設備名稱	主測: PlayStation®4 (With WLAN, Bluetooth Module) 系列: PlayStation®4 Testing Kit (With WLAN, Bluetooth Module)
廠牌	SONY
型號	主測: CUH-7218B 系列: DUH-T7200AA
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)
測試受理日期	107年07月16日
報告受理日期	107年08月31日
報告發行日期	107年08月31日
報告編號	18-07-MAS-037-06
檢驗結果	合格

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實驗室認可證書有效期限: 107年10月31日

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測試報告記錄

申請廠商 ：台灣索尼互動娛樂股份有限公司

製造廠商 ：Sony Interactive Entertainment Inc.

廠牌 ：SONY

品名 ：主測: PlayStation®4 (With WLAN, Bluetooth Module)
系列: PlayStation®4 Testing Kit (With WLAN, Bluetooth Module)

型號 ：主測: CUH-7218B ; 系列: DUH-T7200AA

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) ：10.79 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：LUXSHARE-ICT / L34RF022 / 5.0dBi (5GHz)
廠牌/型號/天線增益：LUXSHARE-ICT / L34RF024 / 5.6dBi (5GHz)

備註：1. 本測試報告僅對受測之樣品負責。
2. 非經本中心同意，測試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	請參閱4.3節	請參閱4.4節	合格
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：鄭敏 107/08/31 直接主管：林志傑 107/08/31 量測員：羅世惠 107/08/31

1 一般資料

1.1 產品描述

a) 產品型態 : 主測: PlayStation®4 (With WLAN, Bluetooth Module)
系列: PlayStation®4 Testing Kit (With WLAN, Bluetooth Module)

b) 商　　標 : SONY

c) 產品型號 : 主測: CUH-7218B ; 系列: DUH-T7200AA

d) 供應電源 : AC 110V

備註：1. 本產品內含 Bluetooth、Bluetooth LE 及 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，Bluetooth 部份請見 ETC 報告編號: 17-07-MAS-037-01，Bluetooth LE 部份請見 ETC 報告編號: 17-07-MAS-037-02，DTS 部份請見 ETC 報告編號: 17-07-MAS-037-03，UNII Band 1 (5180 MHz 至 5240 MHz) 部份請見 ETC 報告編號: 17-07-MAS-037-04，UNII Band 2 (5260 至 5320 MHz)部份請見 ETC 報告編號: 17-07-MAS-037-05，UNII Band 4 (5725 至 5850 MHz) 部份請見 ETC 報告編號: 17-07-MAS-037-07。

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. 主測: CUH-7218B 與系列: DUH-T7200AA之差異如下表所示:

	主型號	系列型號
Model Name	CUH-7218B	DUH-T7200AA
PCB Layouts (電路設計)	O	O
Equipment structure (設備結構)	O	O
Circuit Layout (電路設計)	O	O
RF Module (無線模組)	O	O
Others (其他)	-	型號不同
器材名稱	--	PlayStation®4 Testing Kit (With WLAN, Bluetooth Module)

(1) 完全一致請標示"O"。
完全不一致請標示"X"，或於其他說明欄說明差異處。
主機型符合通信規範時，系列機種差異說明如上，並不影響其符合通信規範，若有不實，願無條件接受 貴單位撤銷該設備審定證明之處分外，並承擔一切法律責任。

4. 該產品確符合同系列產品技術規格及射頻性能相同。

1.2 產品特性

此裝置為PlayStation®4 (with WLAN, Bluetooth 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 10.79 dBm，即為 11.99 mW，其無線特性列表如下：

RF chain	2T2R	
Operating Frequency	IEEE802.11a/an 20/ac20MHz: 5.5GHz~5.7GHz, 11ch IEEE 802.11an 40MHz/ac 40MHz Band 5.51GHz~5.67GHz, 5ch IEEE 802.11ac 80MHz 5.53GHz~5.61GHz;2ch	
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 802.11an(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:

① ISO9001: TüV Product Service

② ISO/IEC 17025: BSMI, TAF, NCC, NVLAP, ILAC MRA, UL, Compliance

③ Filing: FCC, Industry Canada, VCCI

④ MRA: Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through TAF

⑤ FCC Registration Number: TW0371, TW1112

⑥ Industry Canada Site Registration Number: IC 2949A-2

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(dBμV)	
	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，等量減少峰值發射功率以及峰值功率頻譜密度。

(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。

(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。

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 μV/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平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：某一頻道已被順道可用性檢查或 ”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	

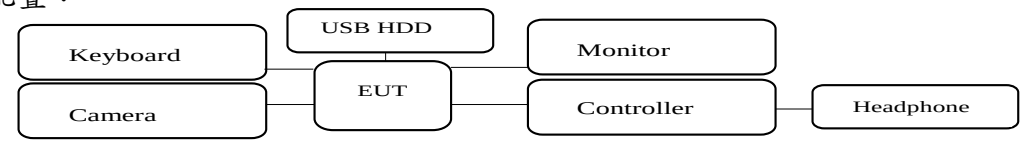
3 受測裝置之系統說明

3.1 受測裝置

裝置名稱	製造者/代理者	型 號	纜線說明
* PlayStation®4 (With WLAN, Bluetooth Module)	Sony Interactive Entertainment Inc.	主測: CUH-7218B	----
Camera	Sony	N/A	隔離信號線 1.8m * 1
Keyboard	Sony	N/A	隔離信號線 2.0m * 1 (USB)
Controller	Sony	CUH-ZCT2G	隔離信號線 1.5m * 1 (USB)
USB HDD	Sony	HD-EG5	隔離信號線 1.0m * 1 (USB 3.0)
Headphone	Sony	N/A	非隔離信號線 1.0m * 1
Monitor	DELL	SE2216Hf	非隔離電源線 1.8m * 1 隔離信號線 1.8m * 1 (HDMI)

註: 1.標記"*"表欲申請之受測物。

2.測試配置：



3 測試模式:

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

測試頻道如下:

Channel	Frequency (MHz)
Low = 100	5500
Middle = 120	5600
High = 140	5700

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

IEEE 802.11an HT20 mode: MCS0 6.5 Mbps, data rate is the worse case for full testing.

IEEE 802.11ac (20MHz) mode: MCS0 6.5 Mbps, data rate is the worse case for full testing.

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

測試頻道如下:

Channel	Frequency (MHz)
Low = 102	5510
Middle = 110	5550
High = 134	5670

IEEE 802.11an HT40 mode: MCS0 13.5 Mbps, data rate is the worse case for full testing.
IEEE 802.11ac (40MHz) mode: MCS0 13.5 Mbps, 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)
106	5530
122	5610

IEEE 802.11ac (80MHz) mode: MCS0 29.3 Mbps, data rate is the worse case for full testing.

4. 軟體設定:

	Power Setting
IEEE 802.11a	8
	8
	8
IEEE 802.11an HT20	8
	8
	8
IEEE 802.11an HT40	8
	8
	8
IEEE 802.11ac (20MHz)	8
	8
	8
IEEE 802.11ac (40MHz)	8
	8
	8
IEEE 802.11ac (80MHz)	8
	8

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 802.11an HT20	-
C	IEEE 802.11an HT40	-
D	IEEE 802.11ac (20MHz)	-
E	IEEE 802.11ac (40MHz)	-
F	IEEE 802.11ac (80MHz)	-

Mode	IEEE 802.11a/an20/ac (20MHz)	IEEE 802.11an40/ac (40MHz)	IEEE 802.11ac (80MHz)
Test Channel	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
Channel Low (L)	5500	5510	5530
Channel Mid (M)	5600	5550	-
Channel High (H)	5700	5670	5610

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	B (註1)	M (註2)
2	發射頻寬之量測	A，B，C，F (註3)	L，M，H
3	峰值輸出功率之量測	A，B，C，D，E，F(註4)	L，M，H
4	功率密度之量測	A，B，C，F (註3、4)	L，M，H
5	混附波發射限制之量測	A，B，C，F (註3)	L，M，H
6	場強輻射之量測(主諧波)	A，B，C，F (註3)	L，M，H
6.1	場強輻射之量測(1GHz以下)	B (註1)	M (註2)
6.2	場強輻射之量測(1GHz以上)	A，B，C，F (註3)	L，M，H

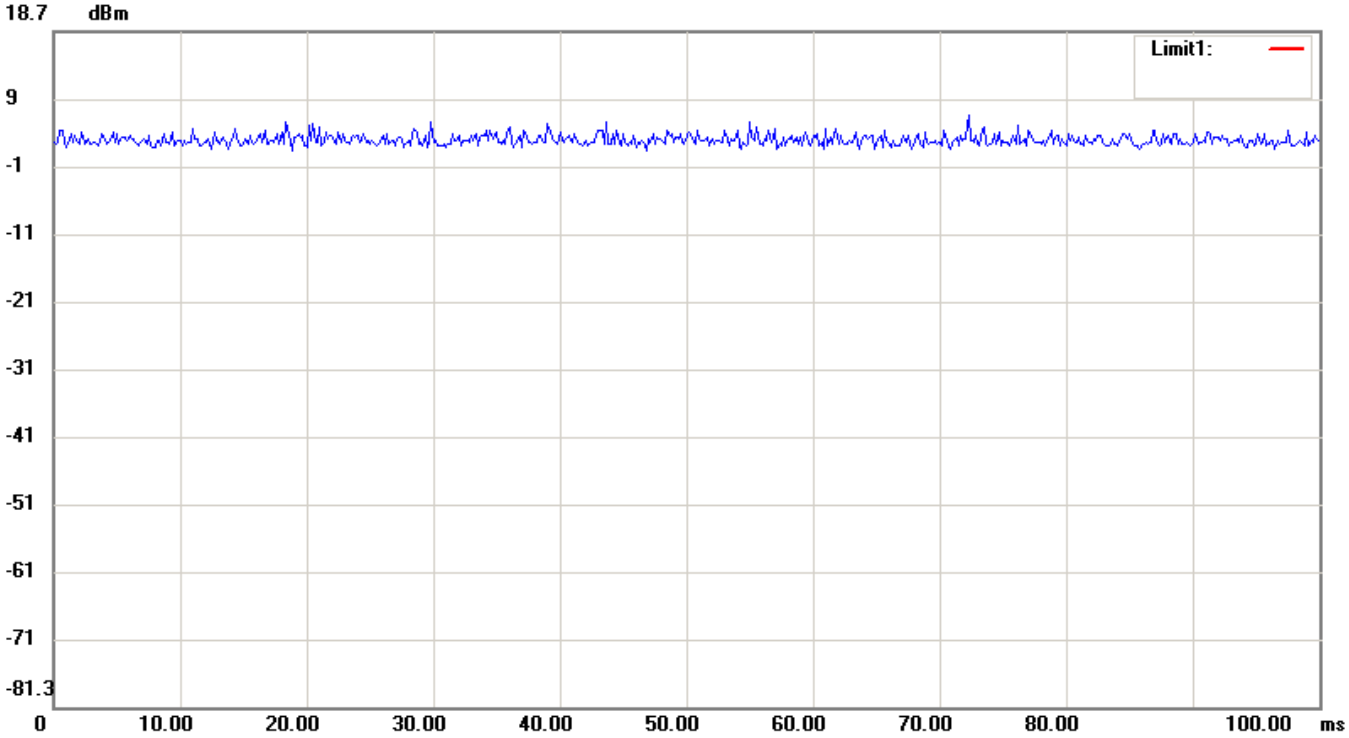
註: 1. 以上調變方式預掃時無差異，擇一作最終測試並記錄之。
2. 高，中，低頻道預掃時無差異，擇中間頻道作最終測試並記錄之。
3. Test Mode B 與 Test Mode D / Test Mode C 與 Test Mode E 使用相同調變技術及頻寬，故以峰值輸出功率較大者 Test Mode B 及 Test Mode C 為 Worse case，作最終測試並記錄之。
4. 本產品內含雙天線，802.11an/ac模式下有MIMO之功能，故對兩隻天線分別進行測試再加總並記綠之。802.11a無MIMO之功能，以峰值輸出功率較大者做為Worse Case，進行其他項目之量測。
5. 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。
6. 此產品為手持式分別要以二軸相(X、Y)放置，並分別測試以找出最大輻射電場強度軸相，其中以 X 軸模式較差，並記錄其讀值。
7. 本產品搭配兩顆相同容量但廠牌不同之硬碟，HGST mode；Toshiba mode。場強輻射之量測1GHz以下時，分別對兩個不同的搭配進行測試並記錄；場強輻射 1GHz以上時，經預掃後以結果較差之模式進行最終測試並記錄。

3.2.3 Duty cycle

Modulation	Duty cycle
IEEE 802.11a	>98%

File: **18-07-037_5-6a_A0** **#9** **Date:** **2018/8/9** **Temperature:** **25 ℃**

Time: **下午 04:39:37** **Humidity:** **60 %**



Condition: **UNII-Band-3-Bandedge** **RF Conducted**

EUT: **Sweep Time: 100ms** **Att.: 20dB**

Model: **RBW: 1000 KHz** **VBW: 1000 KHz**

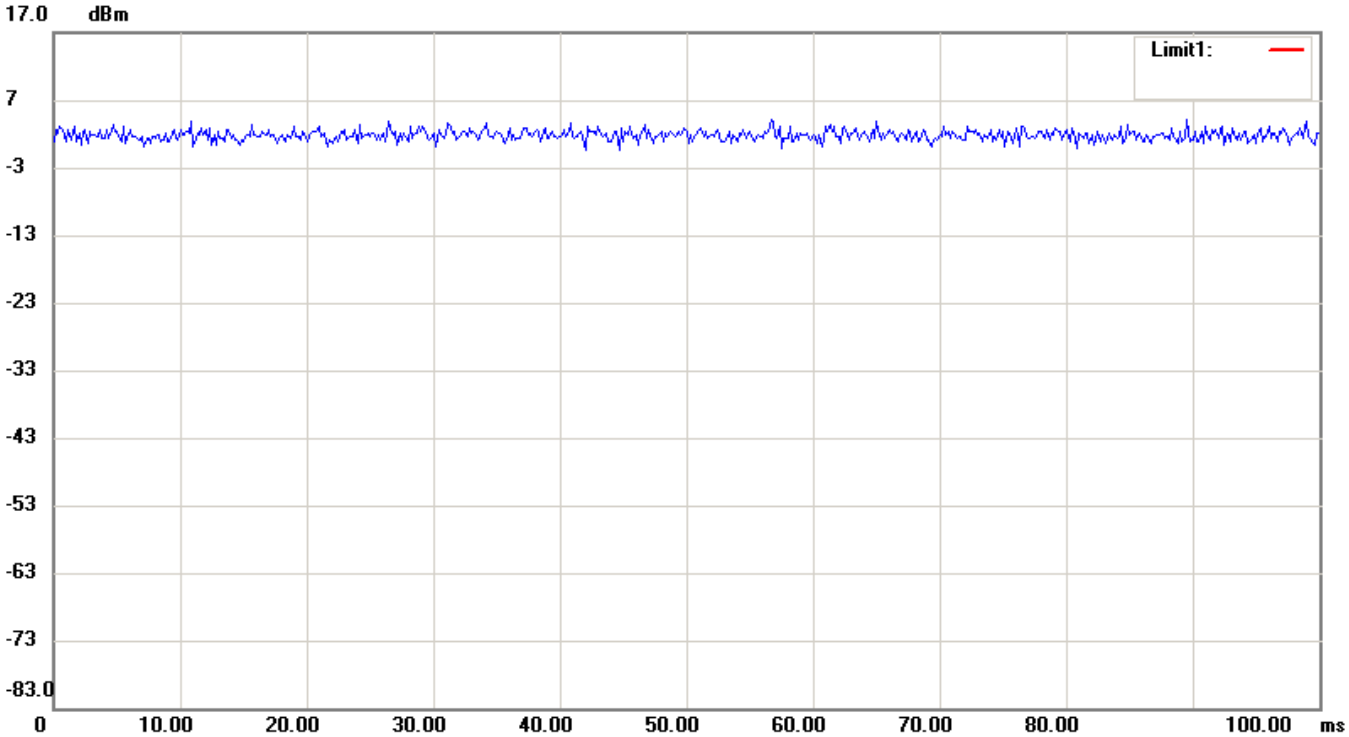
Test Mode:

Note: **NCC_11a_Duty Cycle-1**

Modulation	Duty cycle
IEEE 802.11an HT20	>98%

File: **18-07-037_5-6an20_A0** **#9** **Date:** **2018/8/16** **Temperature:** **25 ℃**

Time: **上午 09:37:10** **Humidity:** **60 %**



Condition: **UNII-Band-3-Bandedge** **RF Conducted**

EUT: **Sweep Time: 100ms** **Att.: 20dB**

Model: **RBW: 1000 KHz** **VBW: 1000 KHz**

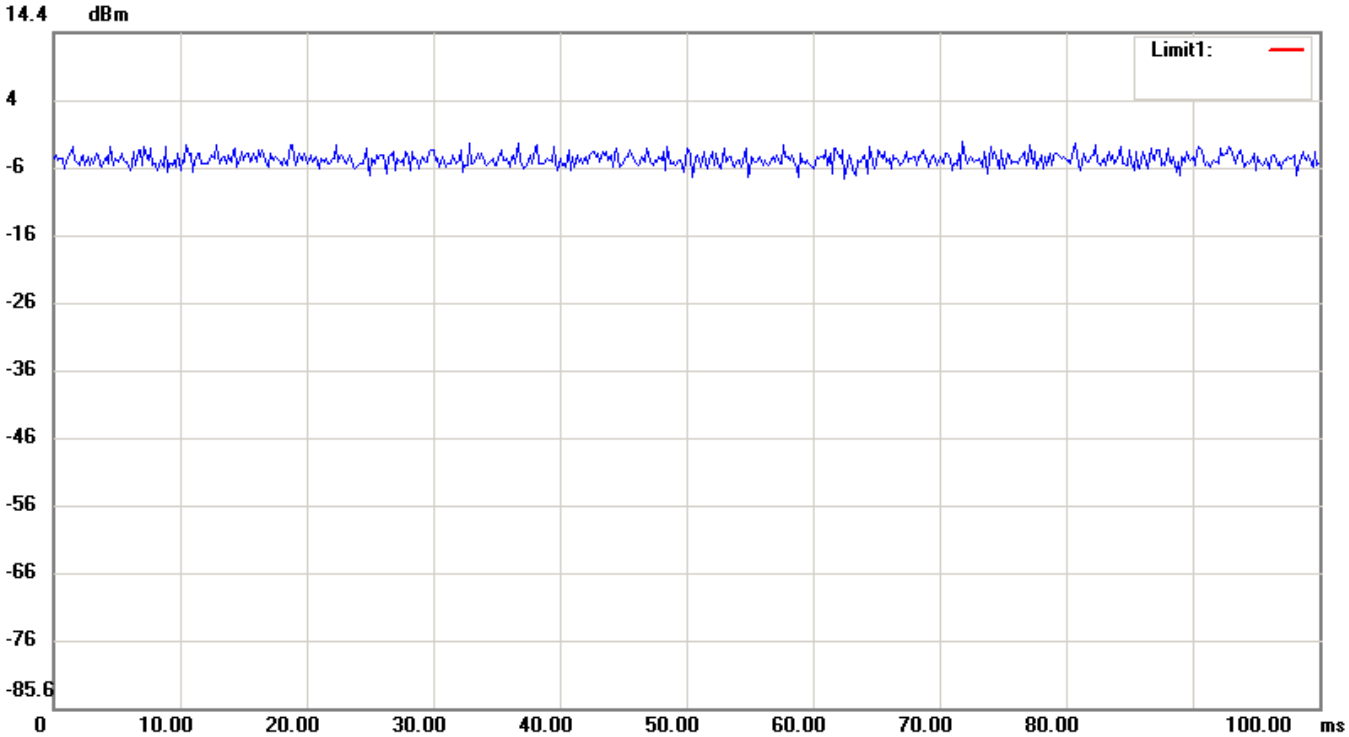
Test Mode:

Note: **NCC_11an20_Duty Cycle-1**

Modulation	Duty cycle
IEEE 802.11an HT40	>98%

File: **18-07-037_5-6an40_A0** **#10** **Date:** **2018/8/16** **Temperature:** **25 ℃**

Time: **下午 12:01:56** **Humidity:** **60 %**



Condition: **UNII-Band-3-Bandedge** **RF Conducted**

EUT: **Sweep Time: 100ms** **Att.: 20dB**

Model: **RBW: 1000 KHz** **VBW: 1000 KHz**

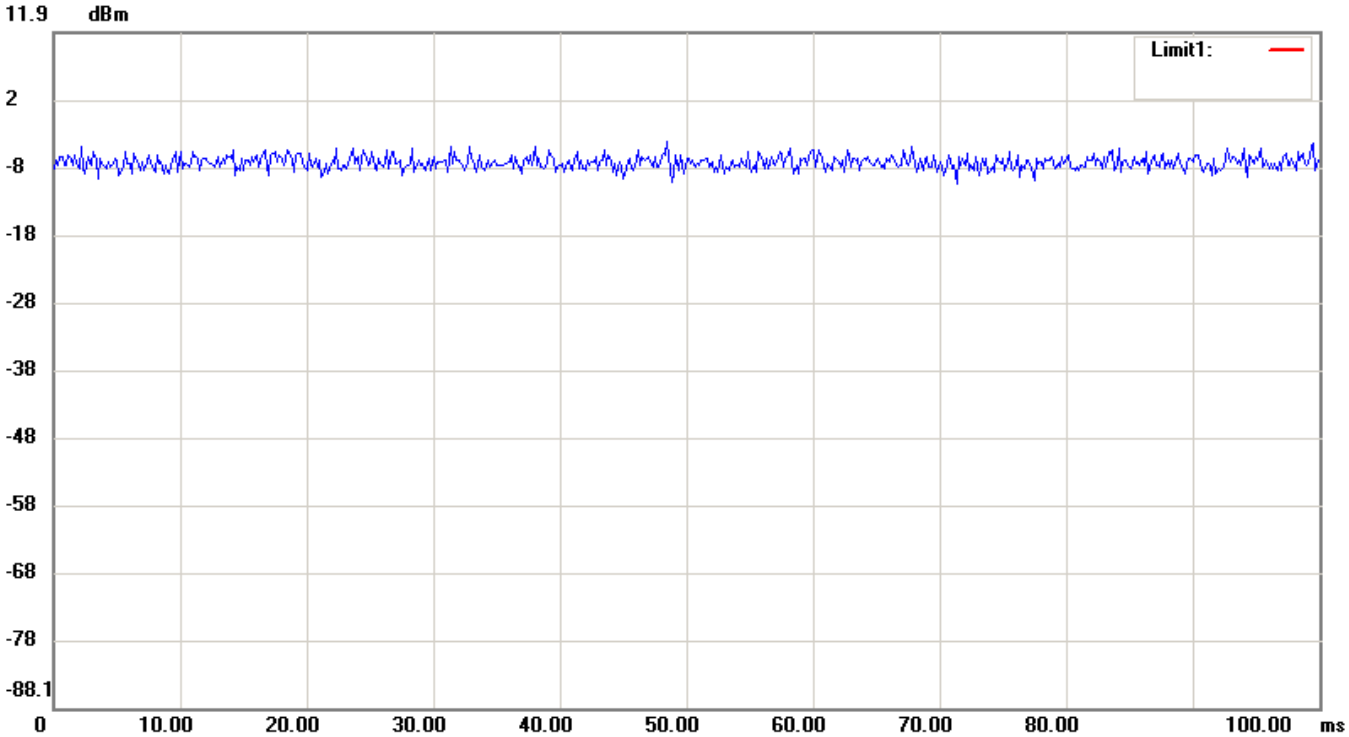
Test Mode:

Note: **NCC_11an40_Duty Cycle-1**

Modulation	Duty cycle
IEEE 802.11ac HT80	>98%

File: **18-07-037_5-6ac80_A0** **#7** **Date:** **2018/8/16** **Temperature:** **25 ℃**

Time: **下午 02:55:06** **Humidity:** **60 %**



Condition: **UNII-Band-3-Bandedge** **RF Conducted**

EUT: **Sweep Time: 100ms** **Att.: 20dB**

Model: **RBW: 1000 KHz** **VBW: 1000 KHz**

Test Mode:

Note: **NCC_11ac80_Duty Cycle-1**

4 電源線傳導干擾之量測

4.1 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2.3節之要求。

4.2 測試方法

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

4.3 量測電源線傳導干擾之儀器

儀器名稱	廠　牌	型　號
EMI Test Receiver	R&S	ESCI
V-LISN	R&S	ENV216

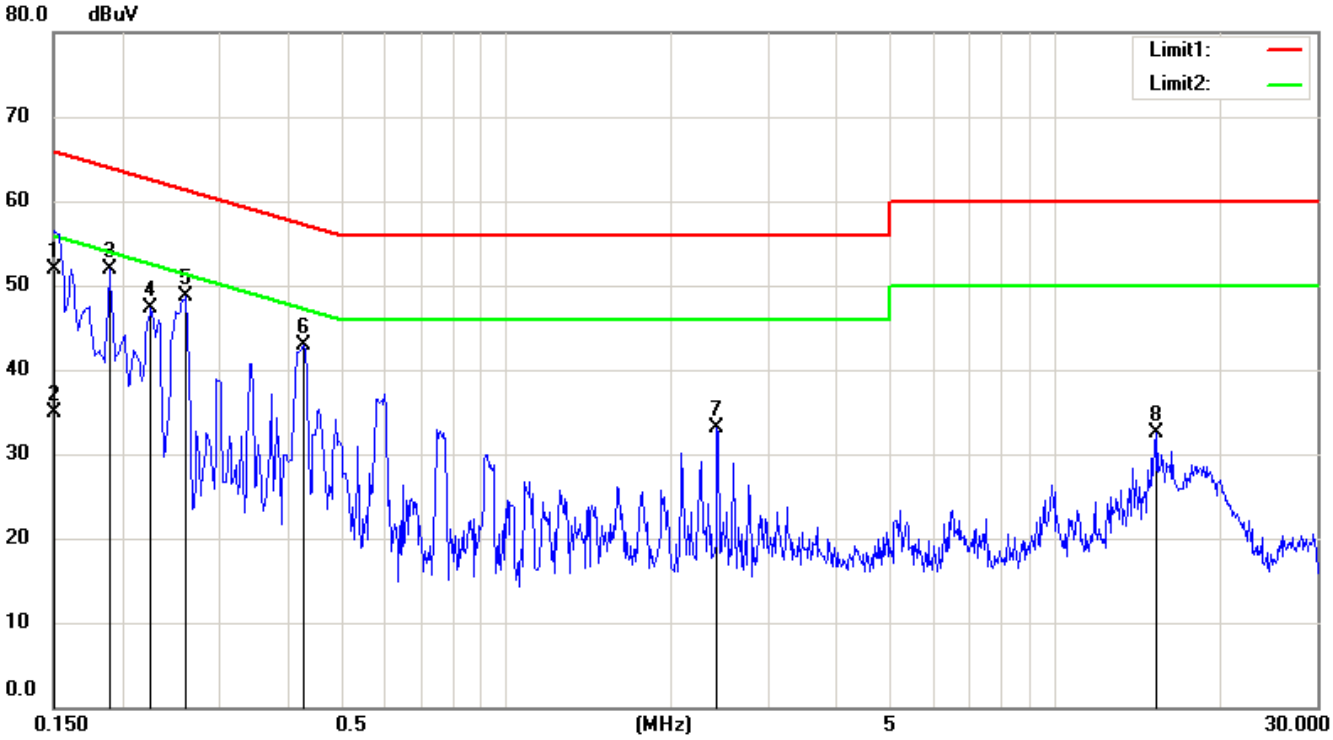
測試軟體: EZ-EMC (Ver. ETC-03A1)

4.4 傳導干擾之量測結果

測試工程師: 羅世勇

4.4.1 測試狀態: HGST mode

File: **PS4_2018_08** **#25** **Date:** **2018/8/28** **Temperature:** **20 ℃**
Time: **下午 05:43:45** **Humidity:** **58 %**

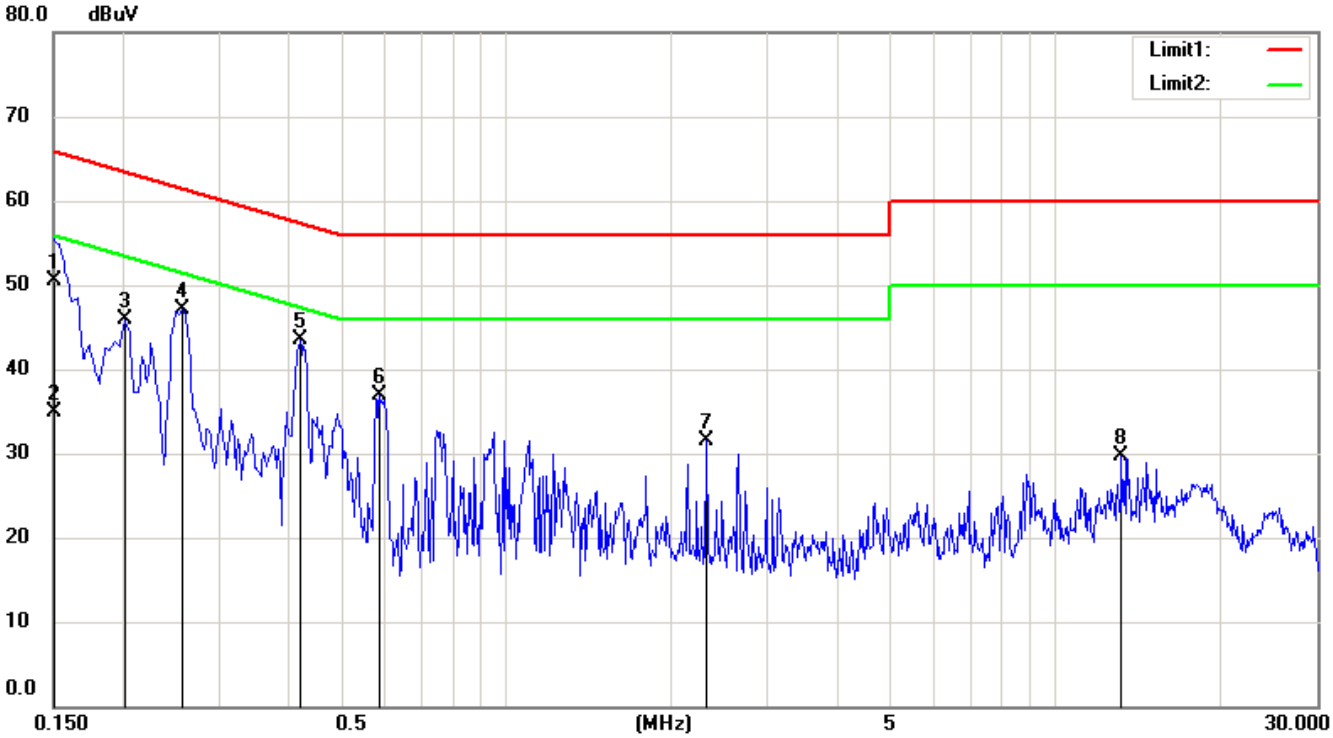


Condition: **Phase:** **L1**
EUT:
Model:
Test Mode: **1TB HGST**
Note: **5.6**

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1500	42.25	QP	9.68	51.93	66.00	-14.07
2	0.1500	25.31	AVG	9.68	34.99	56.00	-21.01
3	0.1900	42.26	QP	9.67	51.93	64.04	-12.11
4	0.2260	37.64	QP	9.67	47.31	62.60	-15.29
5	0.2620	39.00	QP	9.67	48.67	61.37	-12.70
6	0.4300	33.27	QP	9.68	42.95	57.25	-14.30
7	2.4340	23.47	QP	9.73	33.20	56.00	-22.80
8	15.3700	22.60	QP	9.91	32.51	60.00	-27.49

註： 1. “----“表示量測準峰值的結果符合平均值的限制值，則視為同時符合準峰值與平均值的限制值，不需再對其平均值進行量測。
2. “#“表示干擾值太小，直接量取其峰值。
3. 標記“***”表示為本地震盪頻率及其諧波。
4. 量測不準確度: ±2.5dB(150kHz≦f≦30MHz)。

File: PS4_2018_08 **#26** **Date:** 2018/8/28 **Temperature:** 20 ℃
Time: 下午 05:45:38 **Humidity:** 58 %



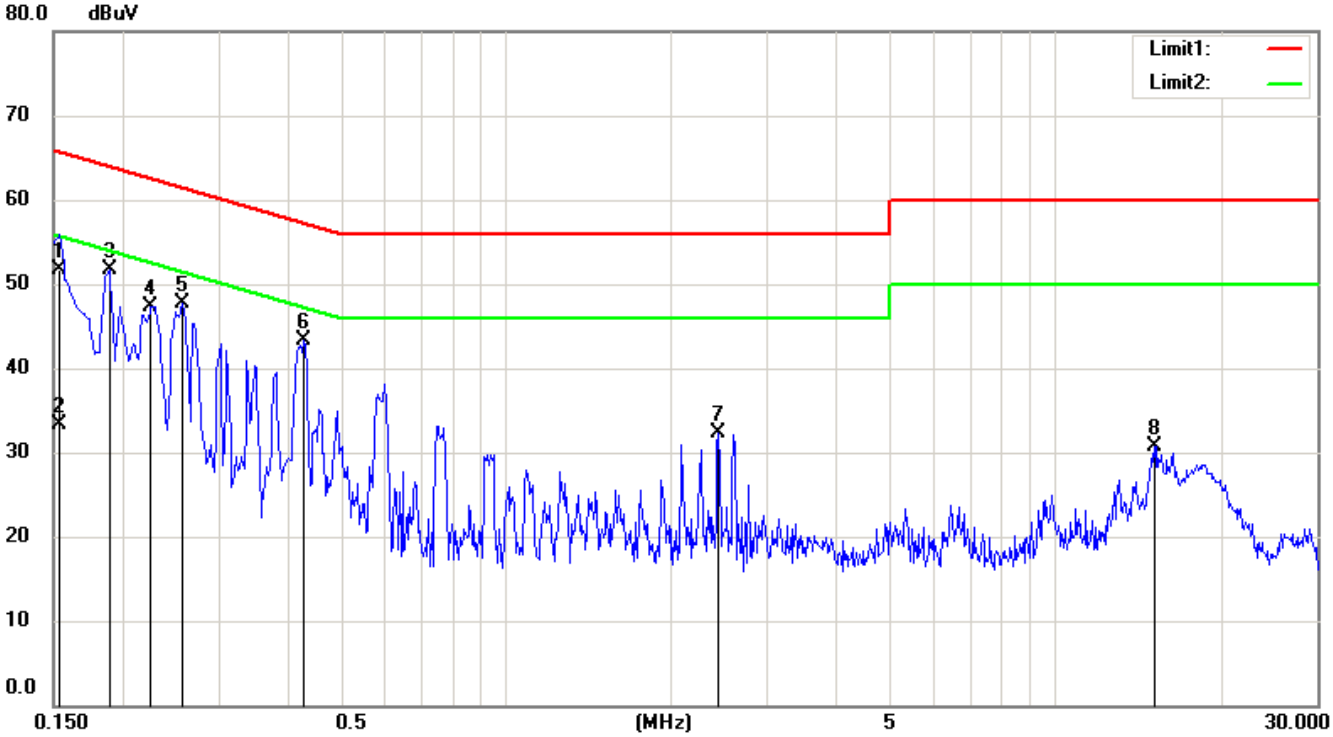
Condition: **Phase:** **N**
EUT:
Model:
Test Mode: **1TB HGST**
Note: **5.6**

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1500	40.83	QP	9.68	50.51	66.00	-15.49
2	0.1500	25.30	AVG	9.68	34.98	56.00	-21.02
3	0.2020	36.30	QP	9.67	45.97	63.53	-17.56
4	0.2580	37.35	QP	9.67	47.02	61.50	-14.48
5	0.4220	33.75	QP	9.68	43.43	57.41	-13.98
6	0.5900	27.27	QP	9.68	36.95	56.00	-19.05
7	2.3220	21.70	QP	9.71	31.41	56.00	-24.59
8	13.2140	19.86	QP	9.94	29.80	60.00	-30.20

註： 1. “----“表示量測準峰值的結果符合平均值的限制值，則視為同時符合準峰值與平均值的限制值，不需再對其平均值進行量測。
2. “#“表示干擾值太小，直接量取其峰值。
3. 標記“***”表示為本地震盪頻率及其諧波。
4. 量測不準確度: ±2.5dB(150kHz≦f≦30MHz)。

4.4.2 測試狀態: Toshiba mode

File: **PS4_2018_08** **#40** **Date:** **2018/8/28** **Temperature:** **20 ℃**
Time: **下午 06:14:38** **Humidity:** **58 %**

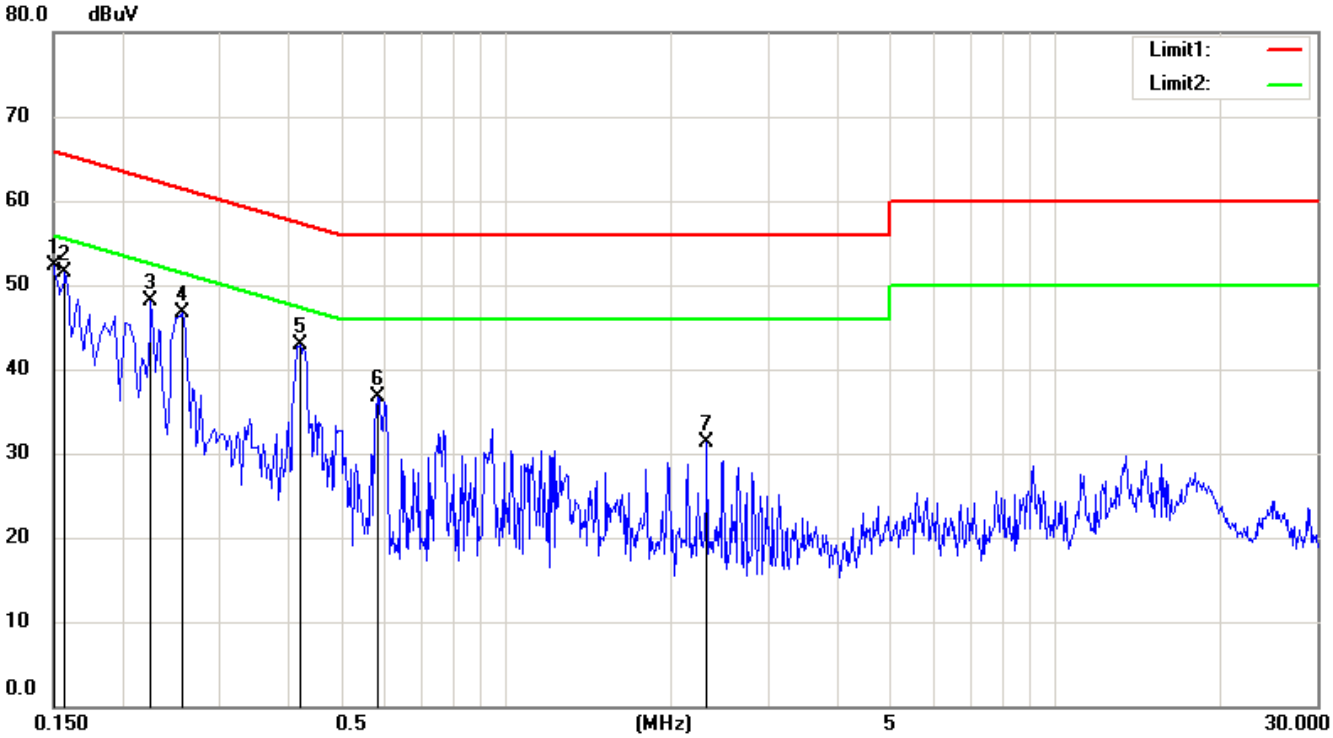


Condition: **Phase:** **L1**
EUT:
Model:
Test Mode: **1TB TOSHIBA**
Note: **5.6**

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1540	41.95	QP	9.68	51.63	65.78	-14.15
2	0.1540	23.68	AVG	9.68	33.36	55.78	-22.42
3	0.1900	42.11	QP	9.67	51.78	64.04	-12.26
4	0.2260	37.71	QP	9.67	47.38	62.60	-15.22
5	0.2580	38.04	peak	9.67	47.71	61.50	-13.79
6	0.4300	33.58	AVG	9.68	43.26	47.25	-3.99
7	2.4380	22.62	QP	9.73	32.35	56.00	-23.65
8	15.1460	20.74	QP	9.91	30.65	60.00	-29.35

註： 1. “----“表示量測準峰值的結果符合平均值的限制值，則視為同時符合準峰值與平均值的限制值，不需再對其平均值進行量測。
2. “#“表示干擾值太小，直接量取其峰值。
3. 標記“***”表示為本地震盪頻率及其諧波。
4. 量測不準確度: ±2.5dB(150kHz≦f≦30MHz)。

File: PS4_2018_08 **#39** **Date:** 2018/8/28 **Temperature:** 20 ℃
Time: 下午 06:12:42 **Humidity:** 58 %



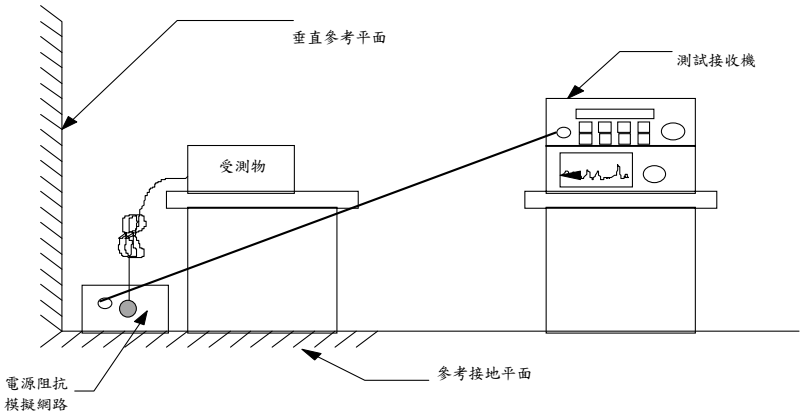
Condition: **Phase:** **N**
EUT:
Model:
Test Mode: **1TB TOSHIBA**
Note: **5.6**

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1500	42.71	QP	9.68	52.39	66.00	-13.61
2	0.1580	41.74	QP	9.68	51.42	65.57	-14.15
3	0.2260	38.35	QP	9.67	48.02	62.60	-14.58
4	0.2580	36.99	QP	9.67	46.66	61.50	-14.84
5	0.4220	33.19	QP	9.68	42.87	57.41	-14.54
6	0.5860	26.93	QP	9.68	36.61	56.00	-19.39
7	2.3220	21.54	QP	9.71	31.25	56.00	-24.75

註： 1. “----“表示量測準峰值的結果符合平均值的限制值，則視為同時符合準峰值與平均值的限制值，不需再對其平均值進行量測。
2. “#“表示干擾值太小，直接量取其峰值。
3. 標記“***”表示為本地震盪頻率及其諧波。
4. 量測不準確度: ±2.5dB(150kHz≦f≦30MHz)。

4.5 電源線傳導干擾之測試配置

圖 1



4.6 傳導量測之配置照片

請參考產品照片

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

此裝置使用內接式天線，其天線資料如下:

5GHz CHAIN 0 :廠牌: LUXSHARE-ICT 型號: L34RF022

Antenna Type	PIFA
Operation Frequency Range	5.15~5.85 GHz
Antenna Gain	5.0 dBi

5GHz CHAIN 1 :廠牌: LUXSHARE-ICT 型號: L34RF024

Antenna Type	PIFA
Operation Frequency Range	5.15~5.85 GHz
Antenna Gain	5.6 dBi

(參照天線規格資料)

5.3 結果判定

CHAIN 0 之方向性增益為5.0 dBi，CHAIN 1 之方向性增益為5.6dBi，皆未超過 6 dBi，因此不需減少最大傳導輸出功率限制值。

操作在MIMO模式下，CHAIN 0 + CHAIN 1之天線增益為 8.32 dBi ，高於6dBi 需減少最大傳導輸出功率及功率密度之限制值。

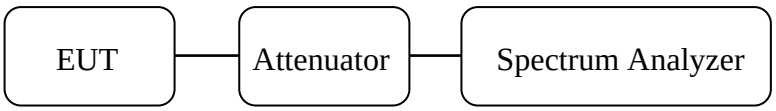
6 發射頻寬之量測

6.1 適用標準

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 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	Agilent	E4446A
Attenuator	WEINSCHEL	56-10

測試軟體: LZ-RF (Ver. ETC-3A2)

6.4 量測結果

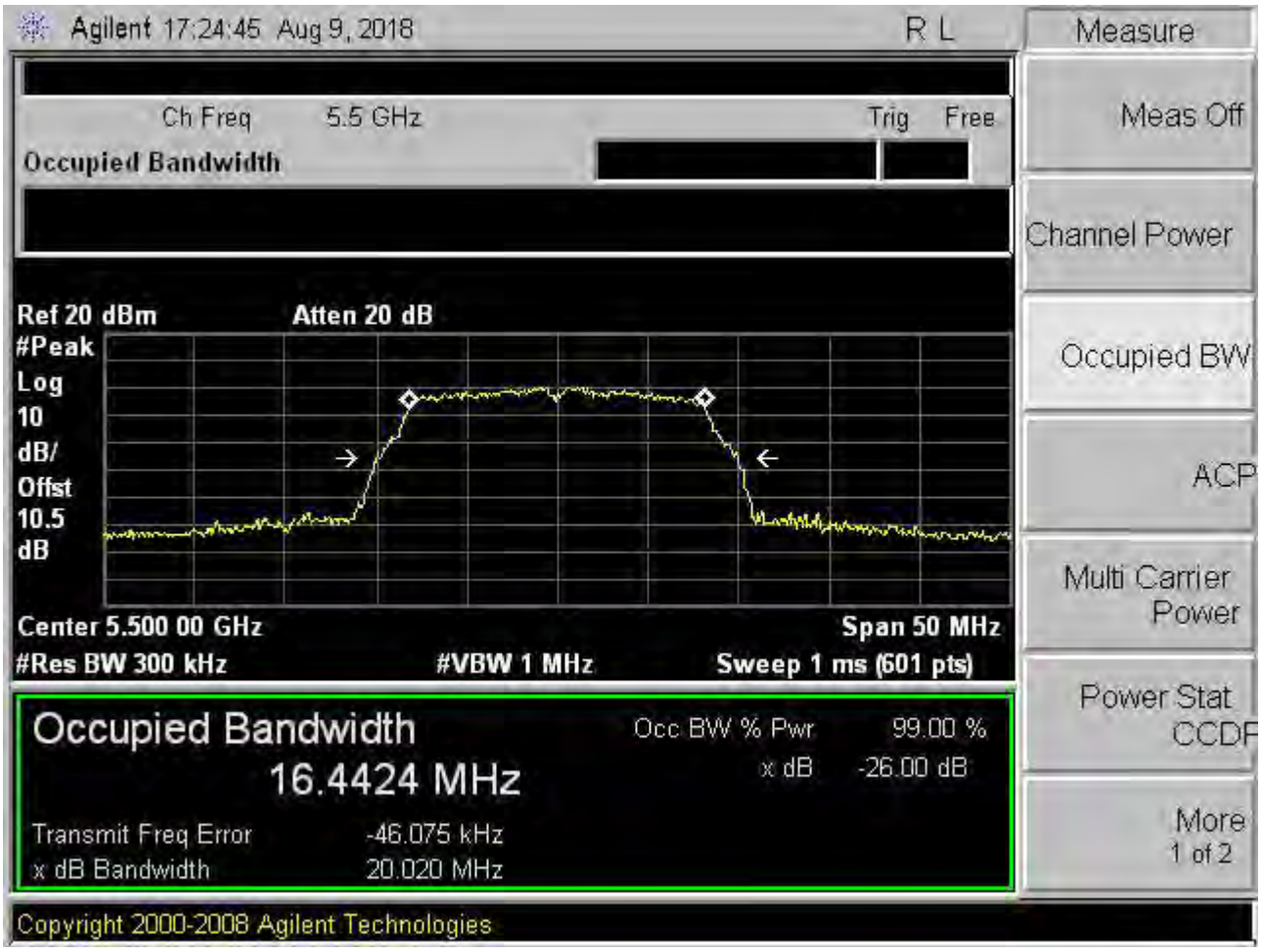
測試工程師: 羅世勇

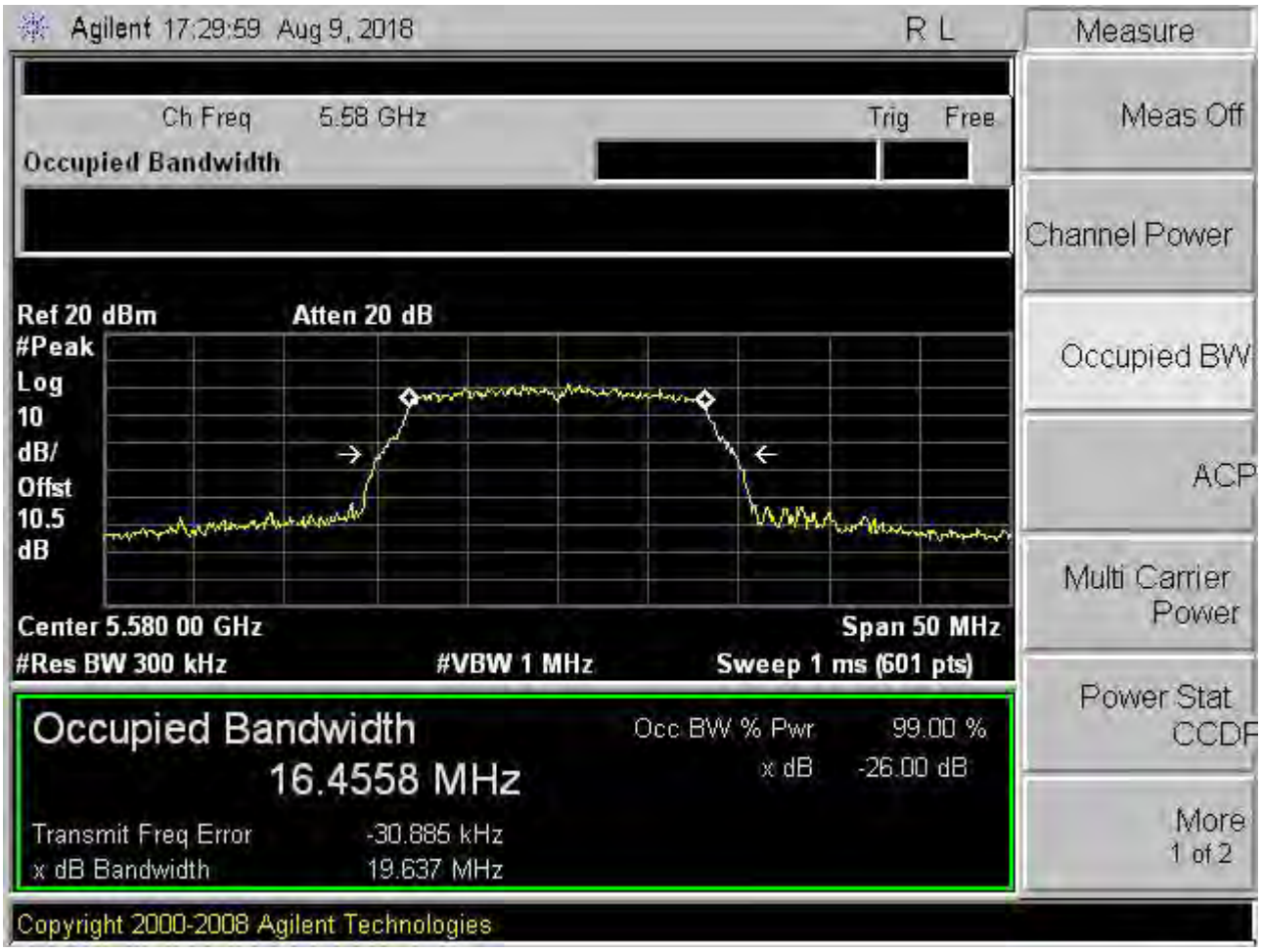
6.4.1 調變技術: IEEE 802.11a

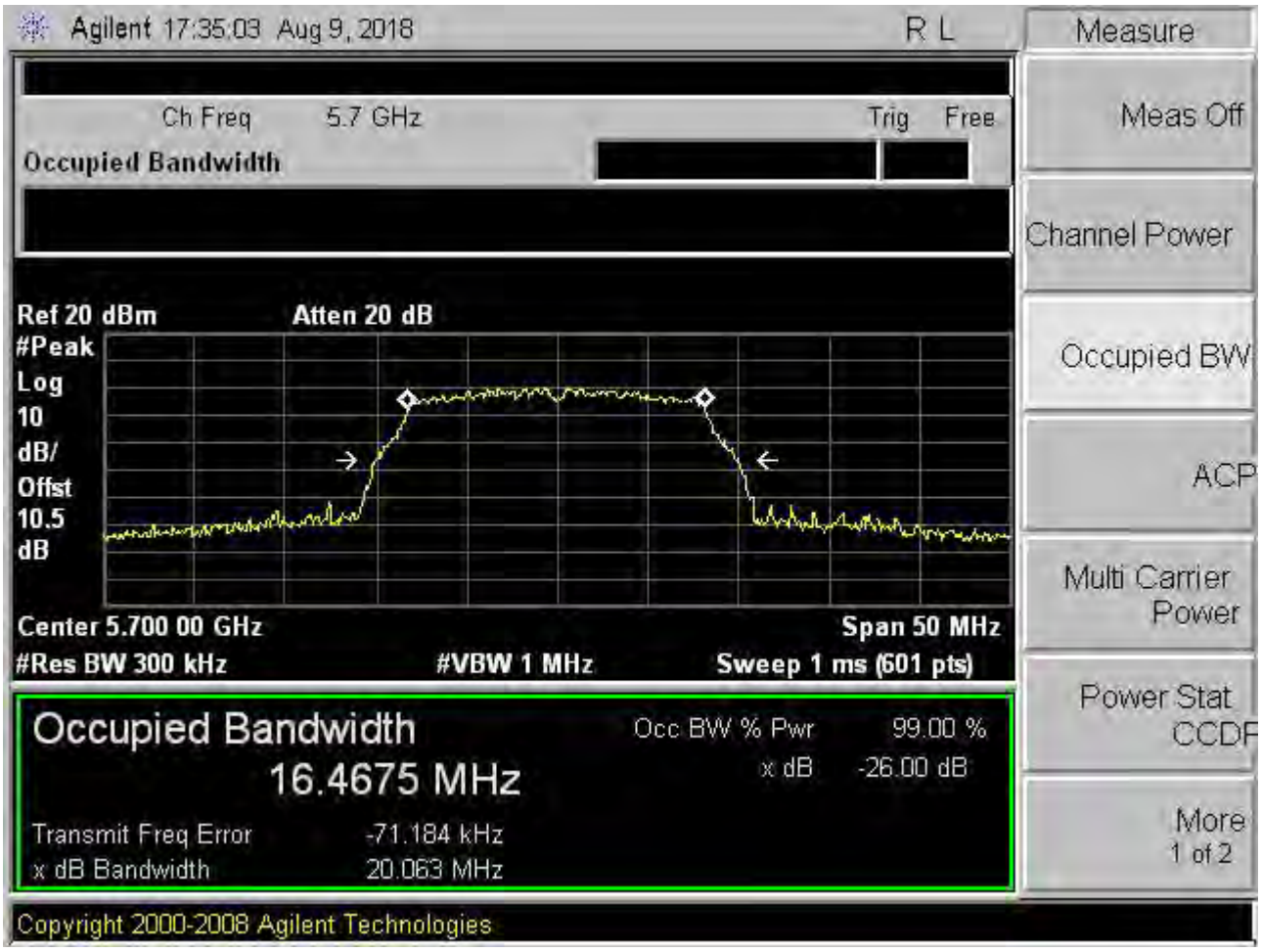
測試日期: Aug. 09, 2018 環境溫度 ： 24℃ 環境濕度: 60%

Channel	26dB Bandwidth (MHz)	Chart
L	20.020	Page 28
M	19.637	Page 29
H	20.063	Page 30

註：1. 繪圖資料請參考第 28-30 頁。
2. 量測不準確度8.25×10^{-7}(1GHz≦f≦18GHz)


Agilent 17:24:45 Aug 9, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.500 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
16.4424 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -46.075 kHz
x dB Bandwidth 20.020 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:29:59 Aug 9, 2018
R L
Measure
Ch Freq 5.58 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.580 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
16.4558 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -30.885 kHz
x dB Bandwidth 19.637 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:35:03 Aug 9, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
16.4675 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -71.184 kHz
x dB Bandwidth 20.063 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

6.4.2 調變技術: IEEE 802.11an HT20

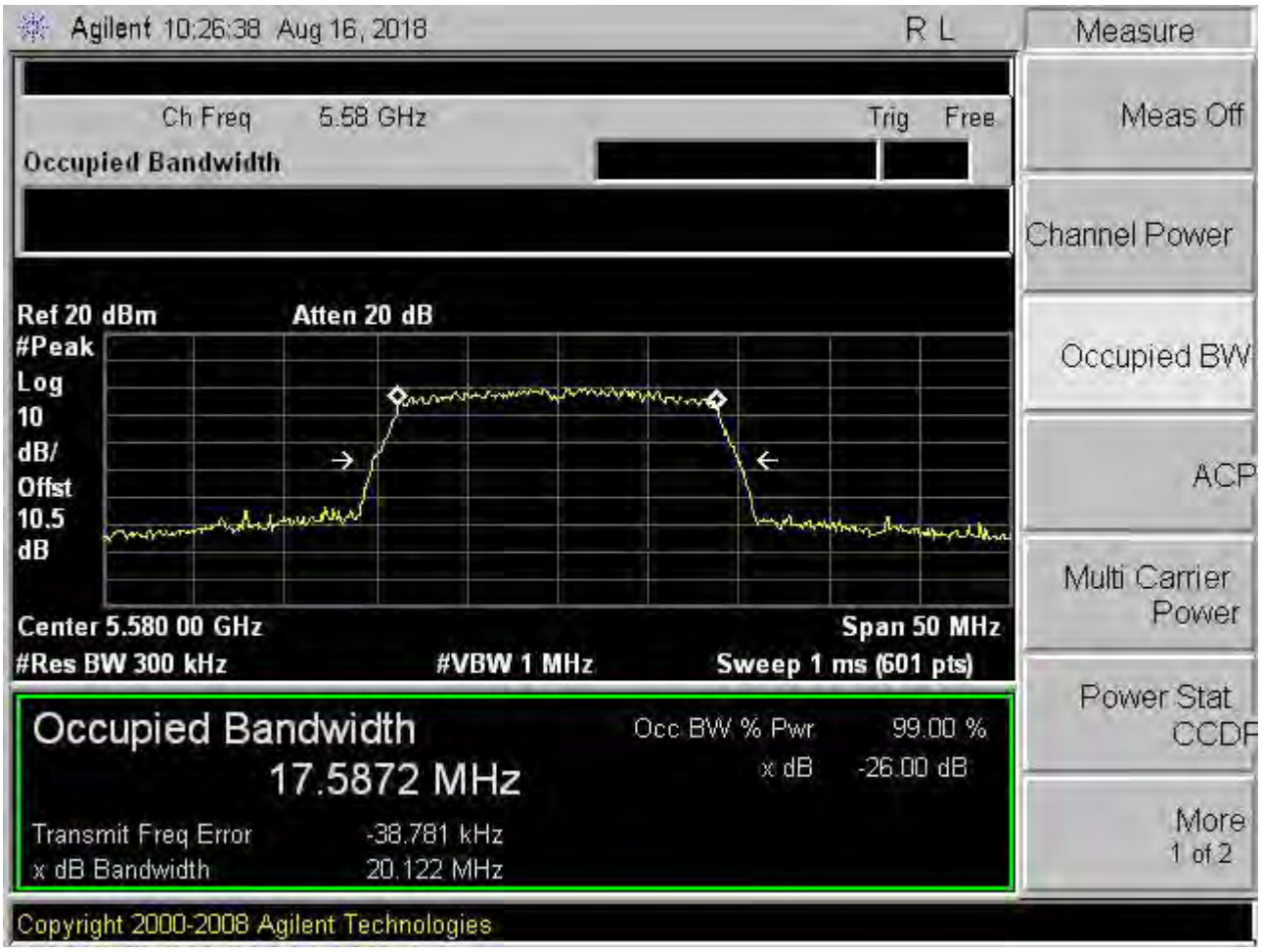
6.4.2.1 CHAIN 0

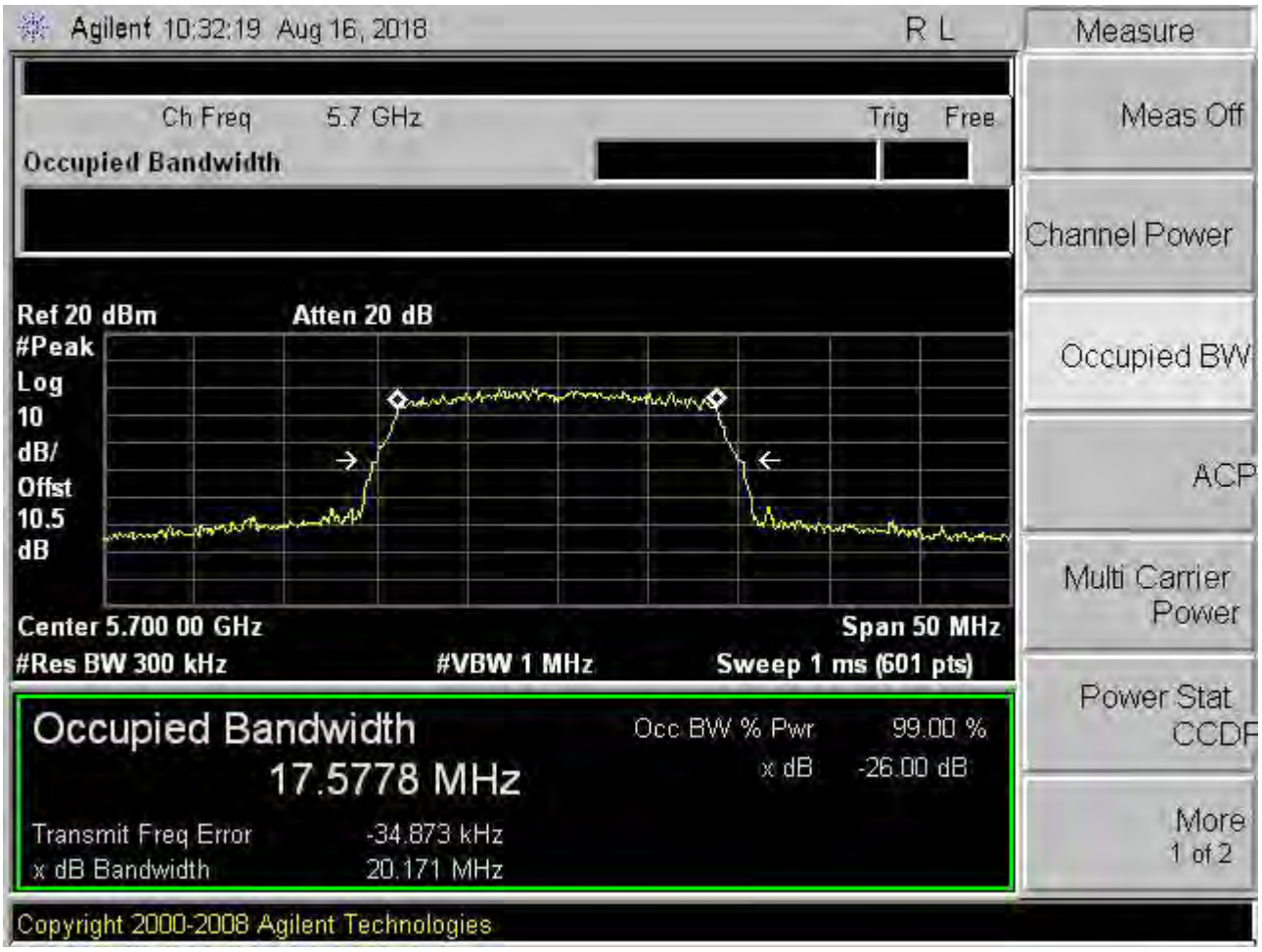
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Channel	26dB Bandwidth (MHz)	Chart
L	20.154	Page 32
M	20.122	Page 33
H	20.171	Page 34

註：1. 繪圖資料請參考第 32-34 頁。
2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)。

Agilent 10:10:28 Aug 16, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.500 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5880 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -44.603 kHz
x dB Bandwidth 20.154 MHz
More
1 of 2
File name error


Agilent 10:26:38 Aug 16, 2018
R L
Measure
Ch Freq 5.58 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.580 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5872 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -38.781 kHz
x dB Bandwidth 20.122 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 10:32:19 Aug 16, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5778 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -34.873 kHz
x dB Bandwidth 20.171 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

6.4.2.2 CHAIN 1

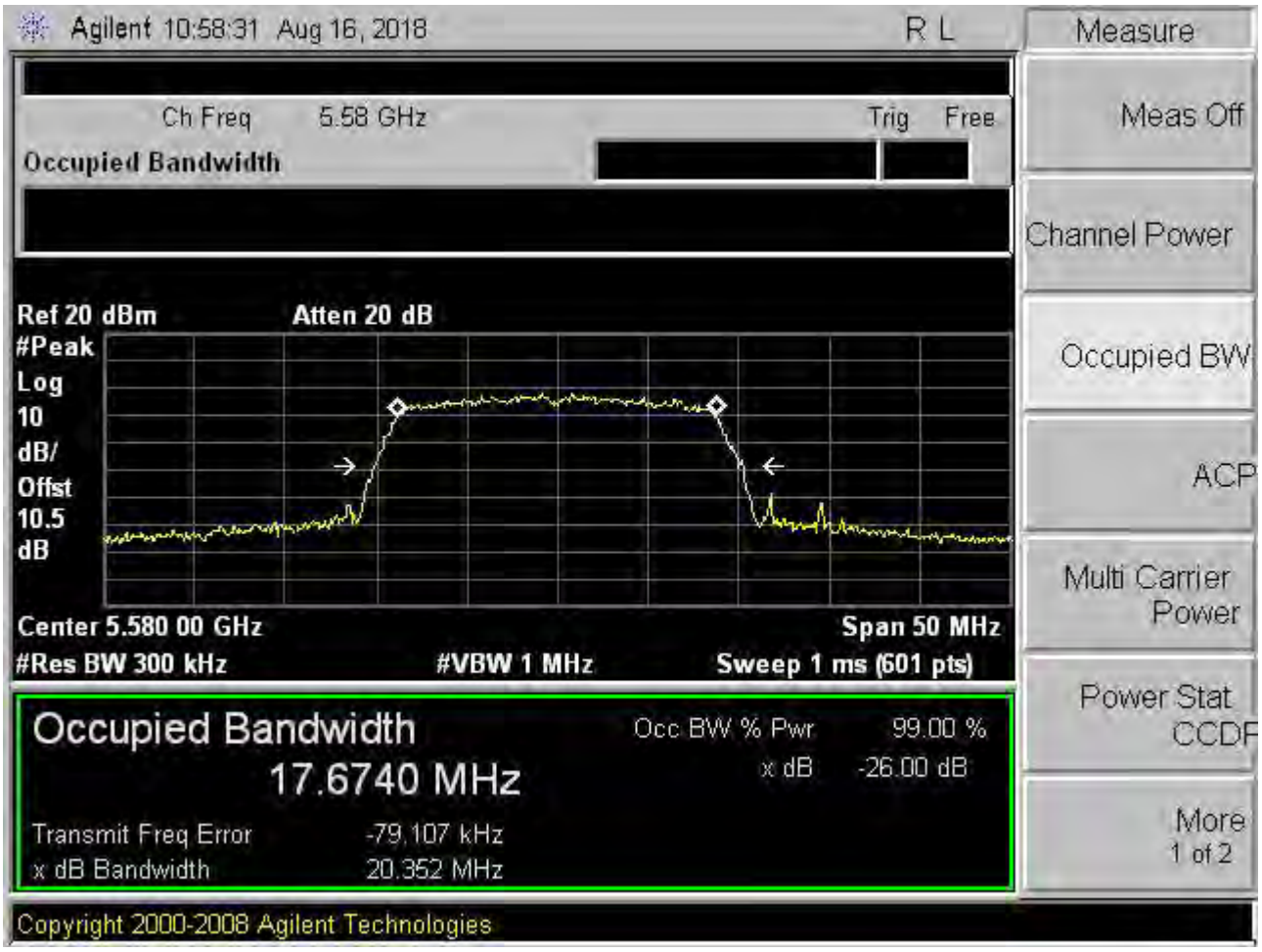
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

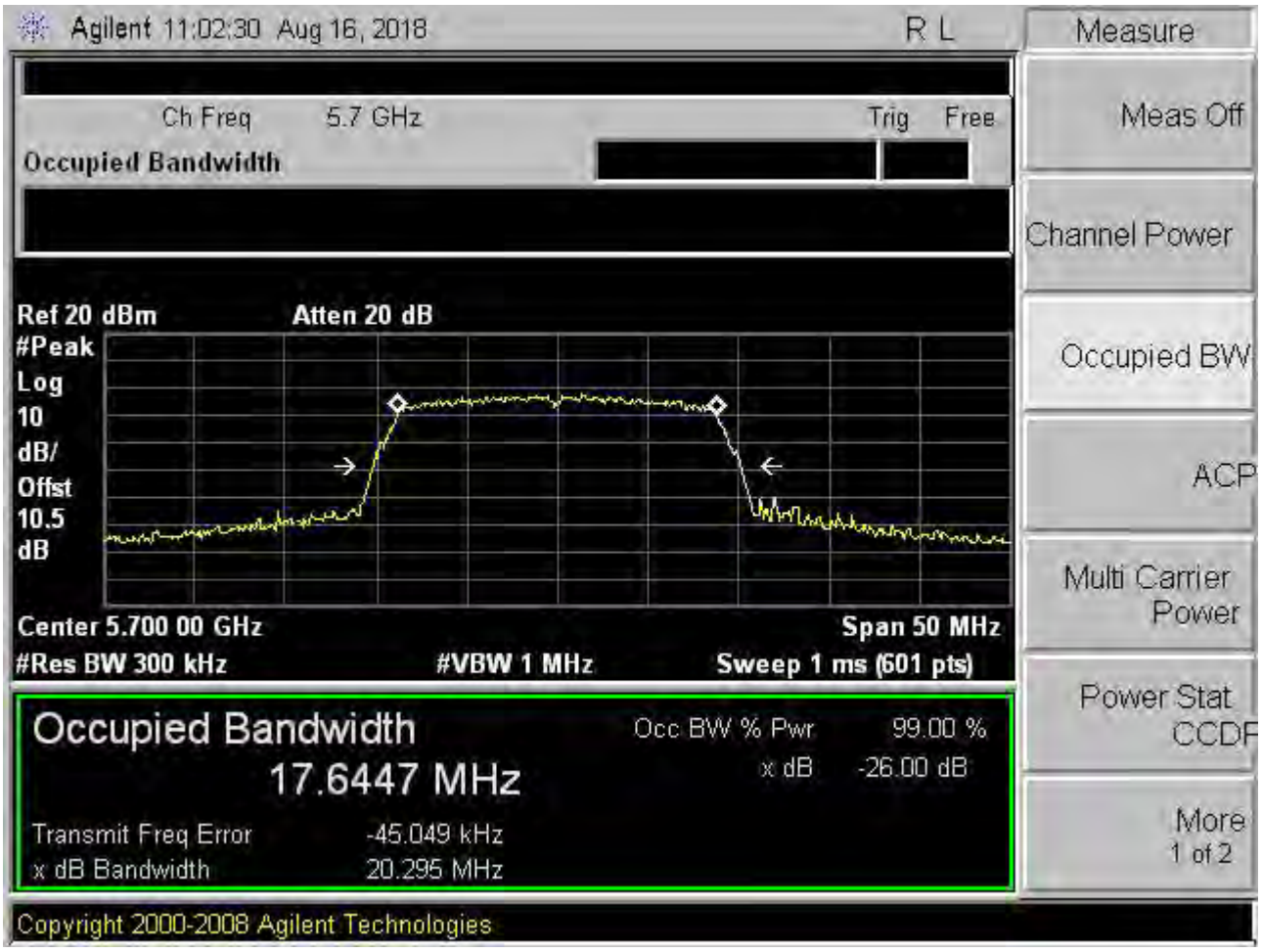
Channel	26dB Bandwidth (MHz)	Chart
L	20.408	Page 36
M	20.352	Page 37
H	20.295	Page 38

註：1. 繪圖資料請參考第 36-38 頁。

2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)。

Agilent 10:49:28 Aug 16, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.500 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.7007 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -67.801 kHz
x dB Bandwidth 20.408 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 10:58:31 Aug 16, 2018
R L
Measure
Ch Freq 5.58 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.580 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.6740 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -79.107 kHz
x dB Bandwidth 20.352 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 11:02:30 Aug 16, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 50 MHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.6447 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -45.049 kHz
x dB Bandwidth 20.295 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

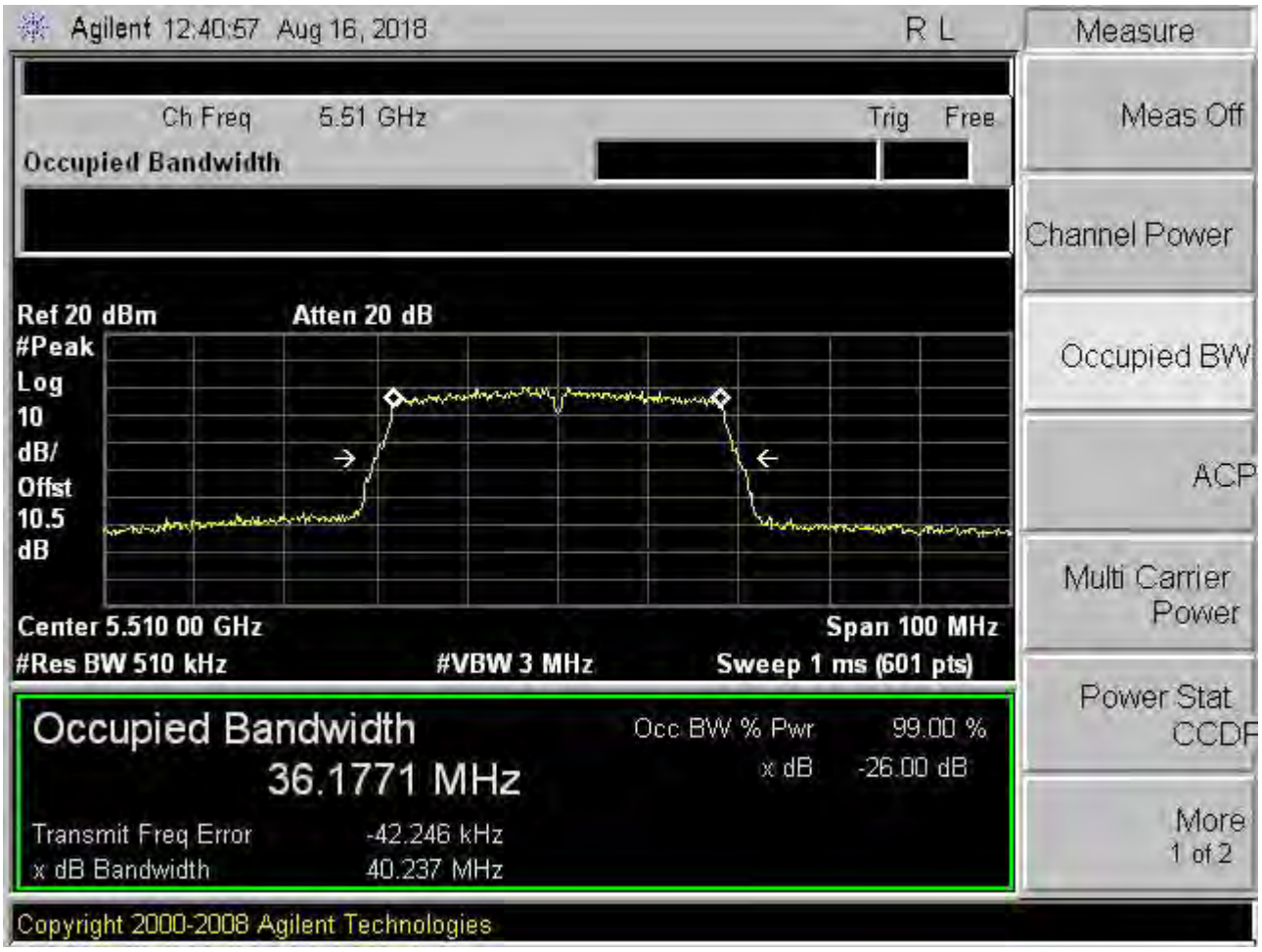
6.4.3 調變技術: IEEE 802.11an HT40

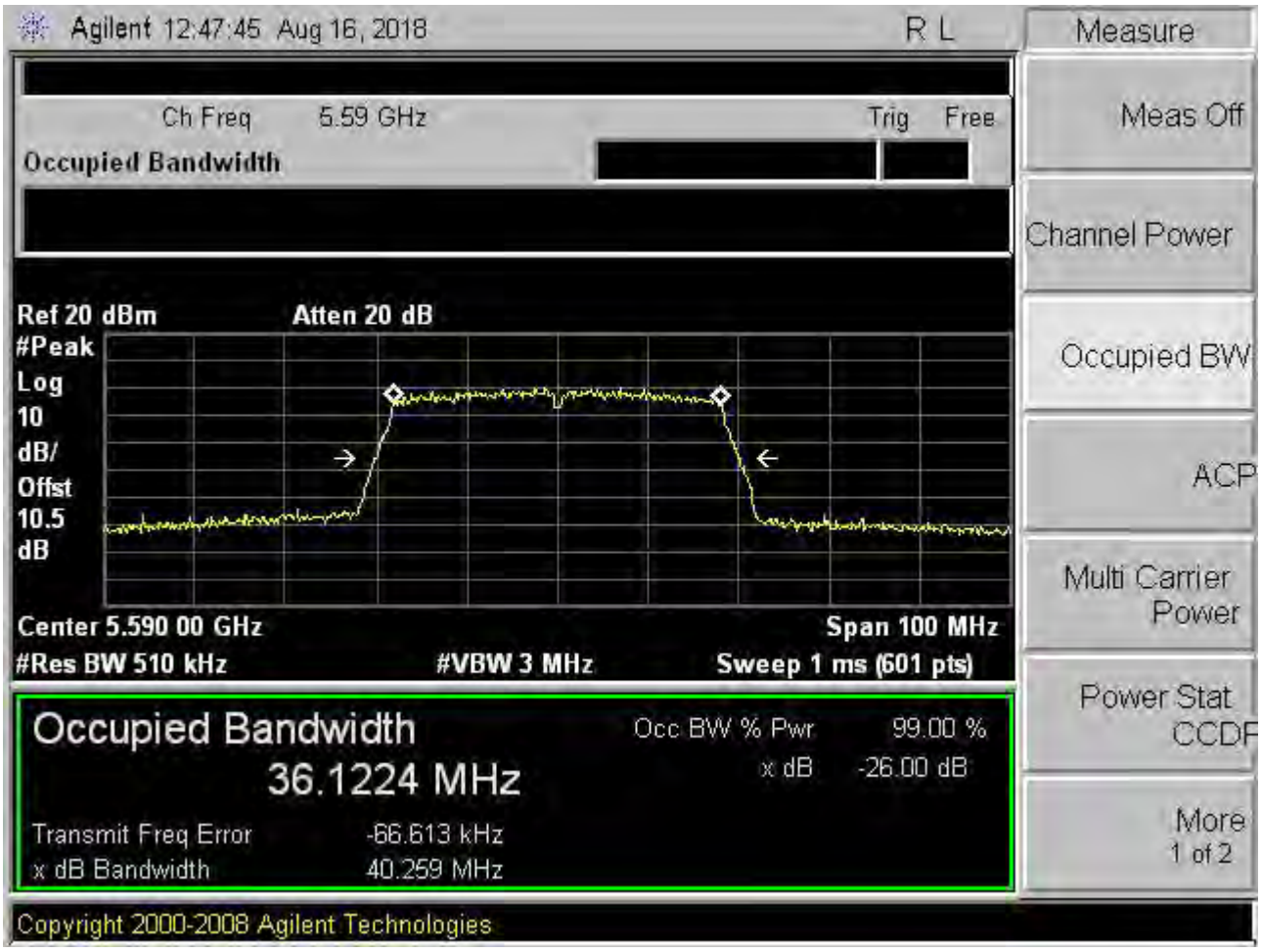
6.4.3.1 CHAIN 0

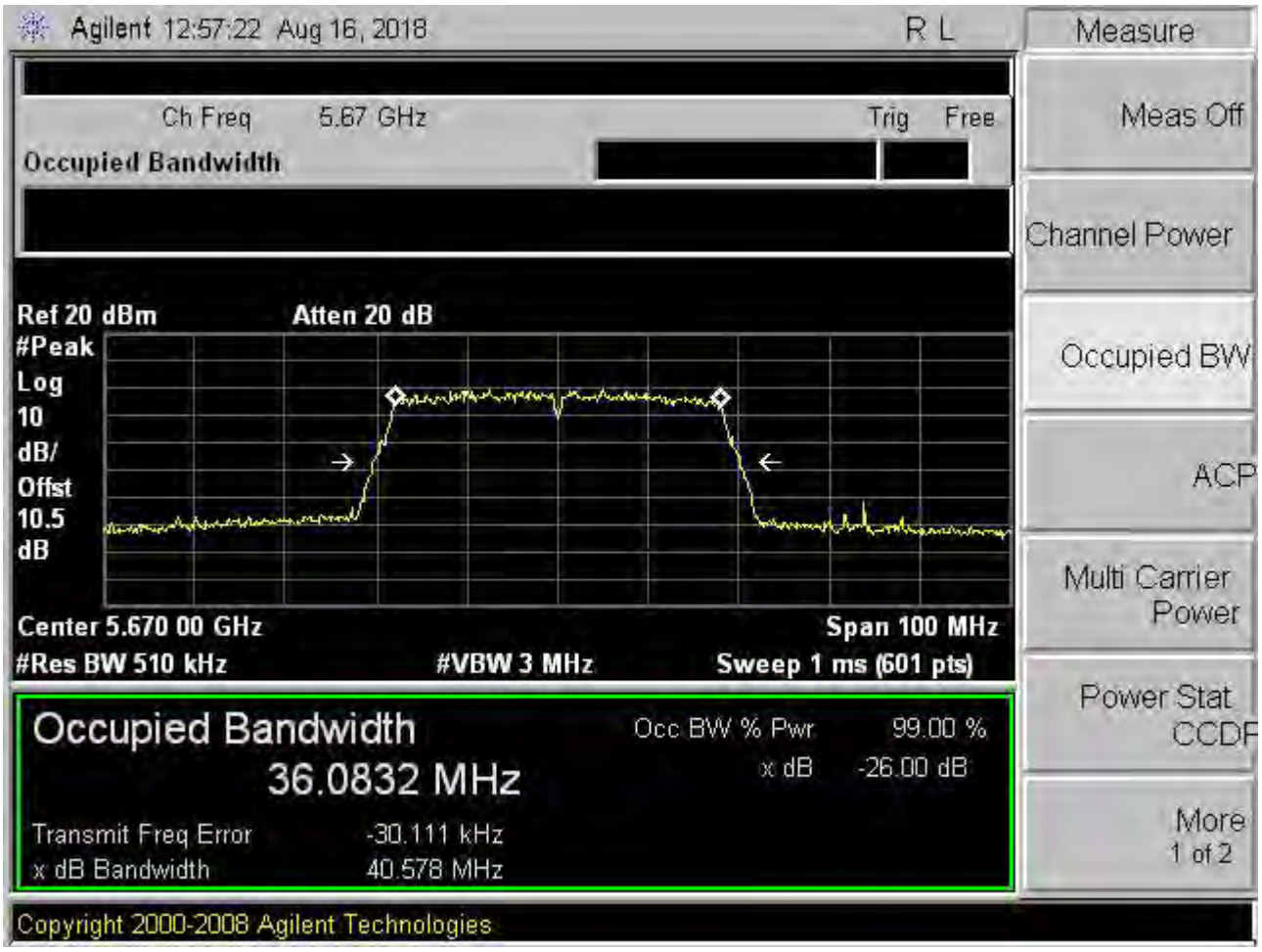
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Channel	26dB Bandwidth (MHz)	Chart
L	40.237	Page 40
M	40.259	Page 41
H	40.578	Page 42

註：1. 繪圖資料請參考第 40-42 頁。
2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)。


Agilent 12:40:57 Aug 16, 2018
R L
Measure
Ch Freq 5.51 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.510 00 GHz
Span 100 MHz
#Res BW 510 kHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.1771 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -42.246 kHz
x dB Bandwidth 40.237 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 12:47:45 Aug 16, 2018
R L
Measure
Ch Freq 5.59 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.590 00 GHz
Span 100 MHz
#Res BW 510 kHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.1224 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -66.613 kHz
x dB Bandwidth 40.259 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 12:57:22 Aug 16, 2018
R L
Measure
Ch Freq 5.67 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.670 00 GHz
Span 100 MHz
#Res BW 510 kHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.0832 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -30.111 kHz
x dB Bandwidth 40.578 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

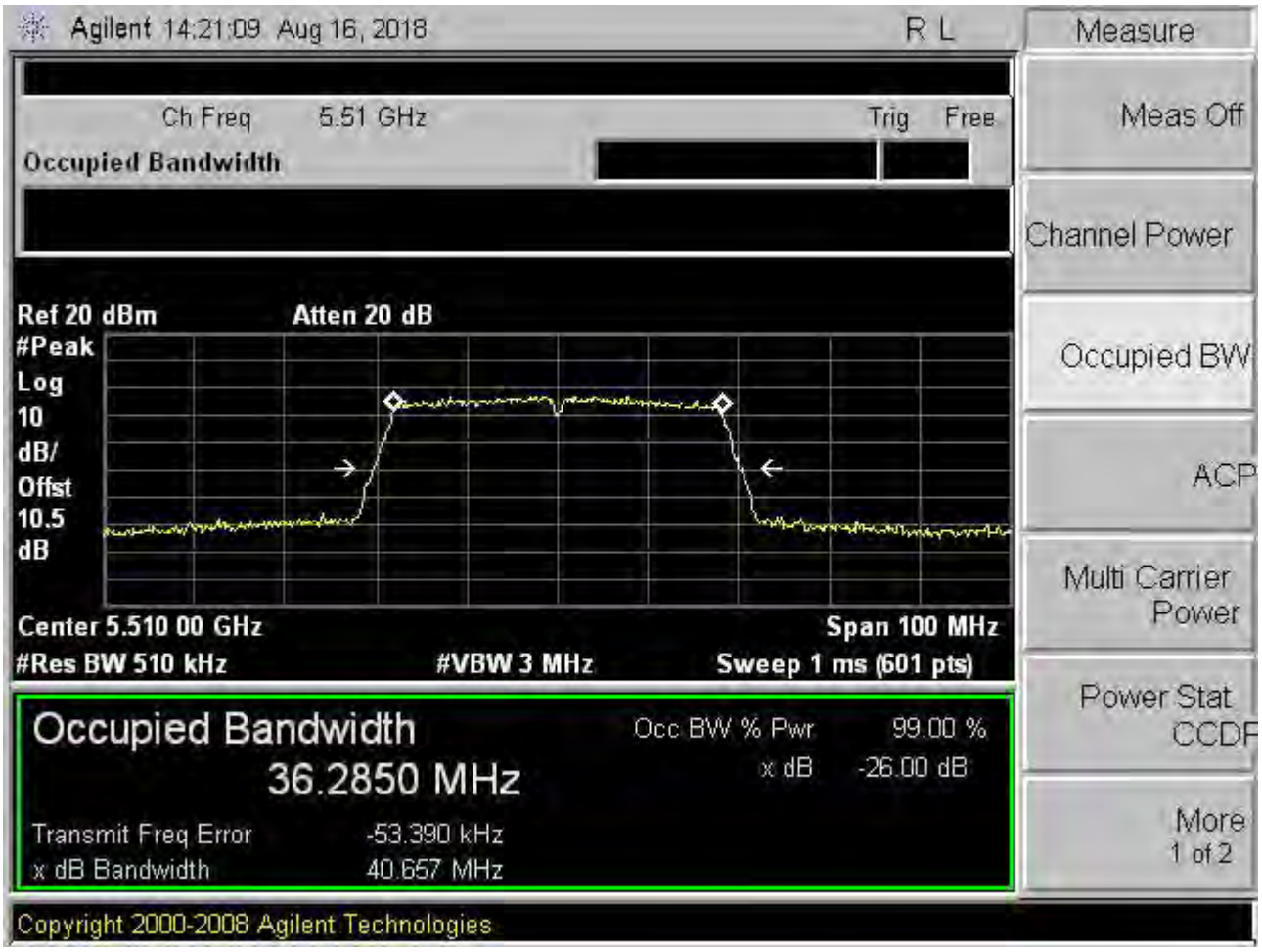
6.4.3.2 CHAIN 1

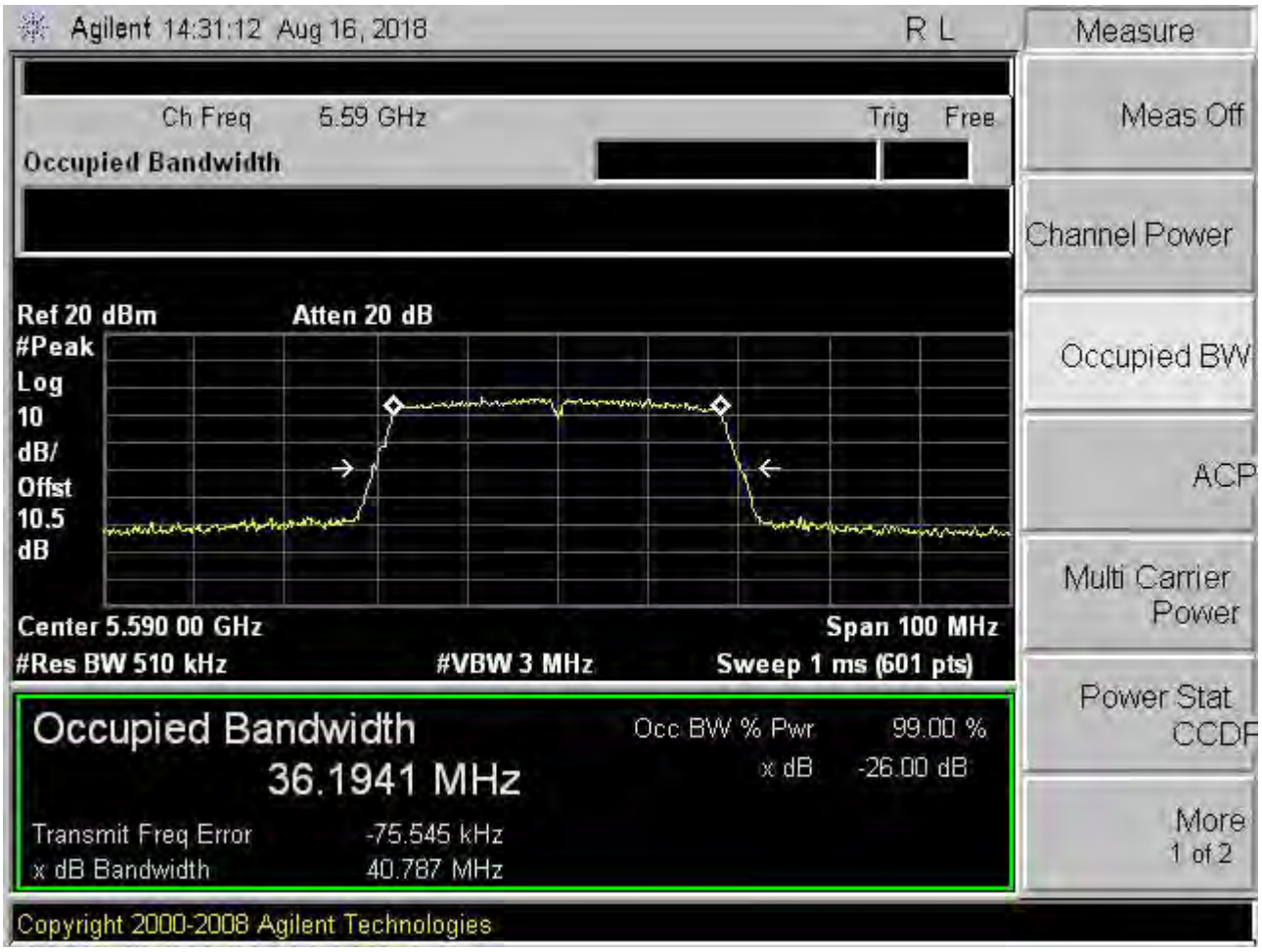
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

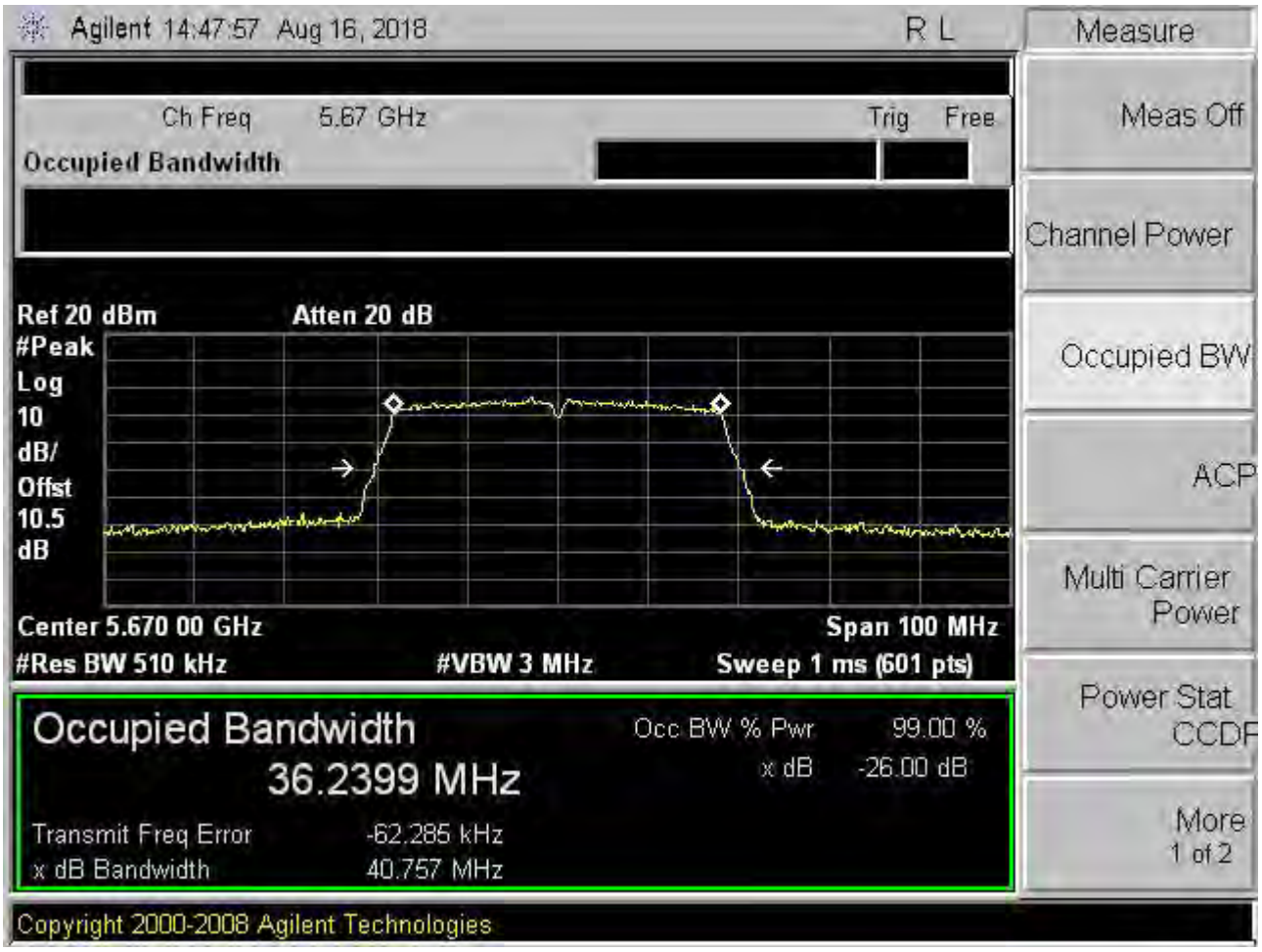
Channel	26dB Bandwidth (MHz)	Chart
L	40.657	Page 44
M	40.787	Page 45
H	40.757	Page 46

註：1. 繪圖資料請參考第 44-46 頁。

2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)。


Agilent 14:21:09 Aug 16, 2018
R L
Measure
Ch Freq 5.51 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.510 00 GHz
Span 100 MHz
#Res BW 510 kHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.2850 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -53.390 kHz
x dB Bandwidth 40.657 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 14:31:12 Aug 16, 2018
R L
Measure
Ch Freq 5.59 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.590 00 GHz
Span 100 MHz
#Res BW 510 kHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.1941 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -75.545 kHz
x dB Bandwidth 40.787 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 14:47:57 Aug 16, 2018
R L
Measure
Ch Freq 5.67 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.670 00 GHz
Span 100 MHz
#Res BW 510 kHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.2399 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -62.285 kHz
x dB Bandwidth 40.757 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

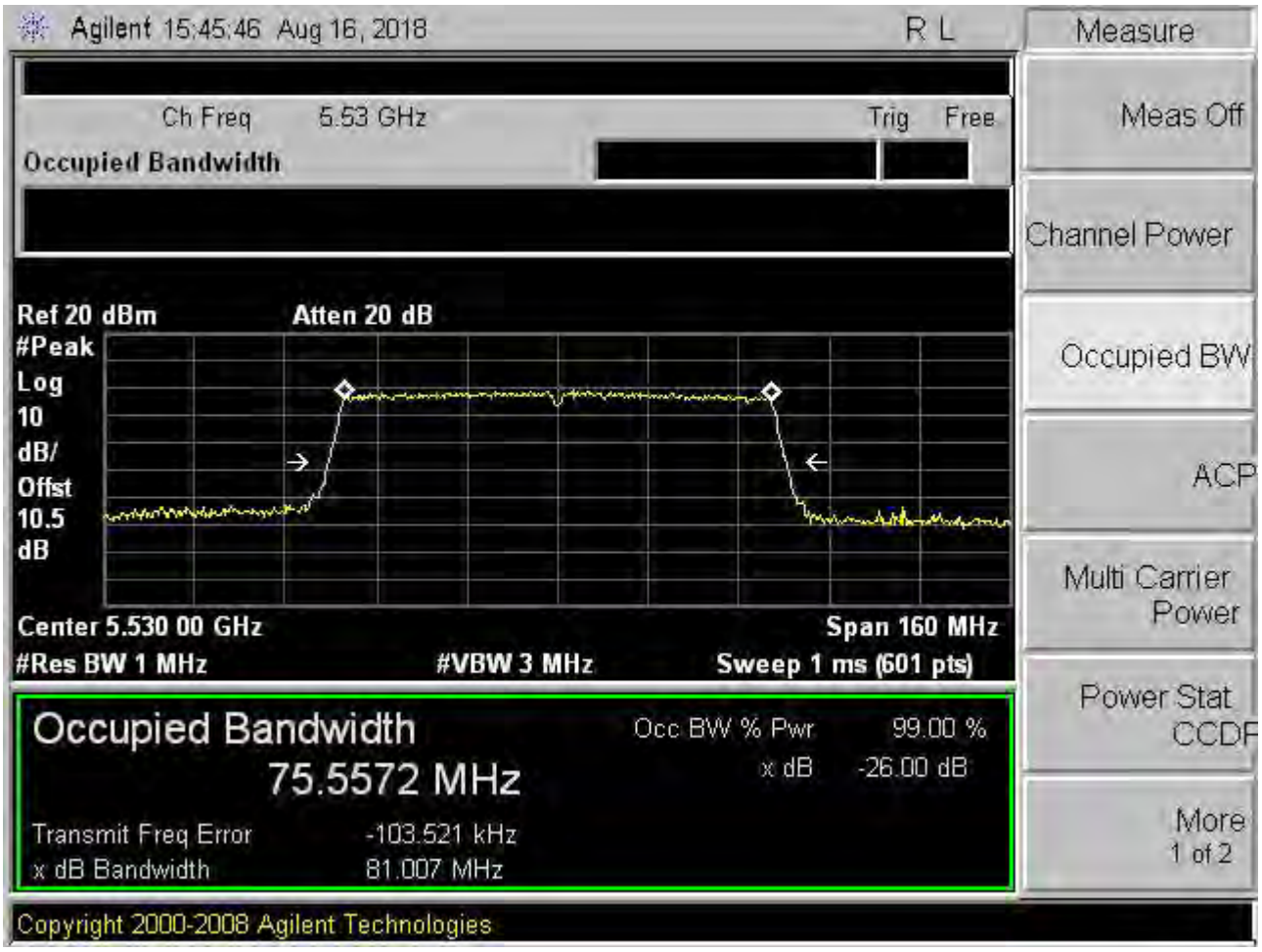
6.4.4 調變技術:IEEE 802.11ac (80MHz)

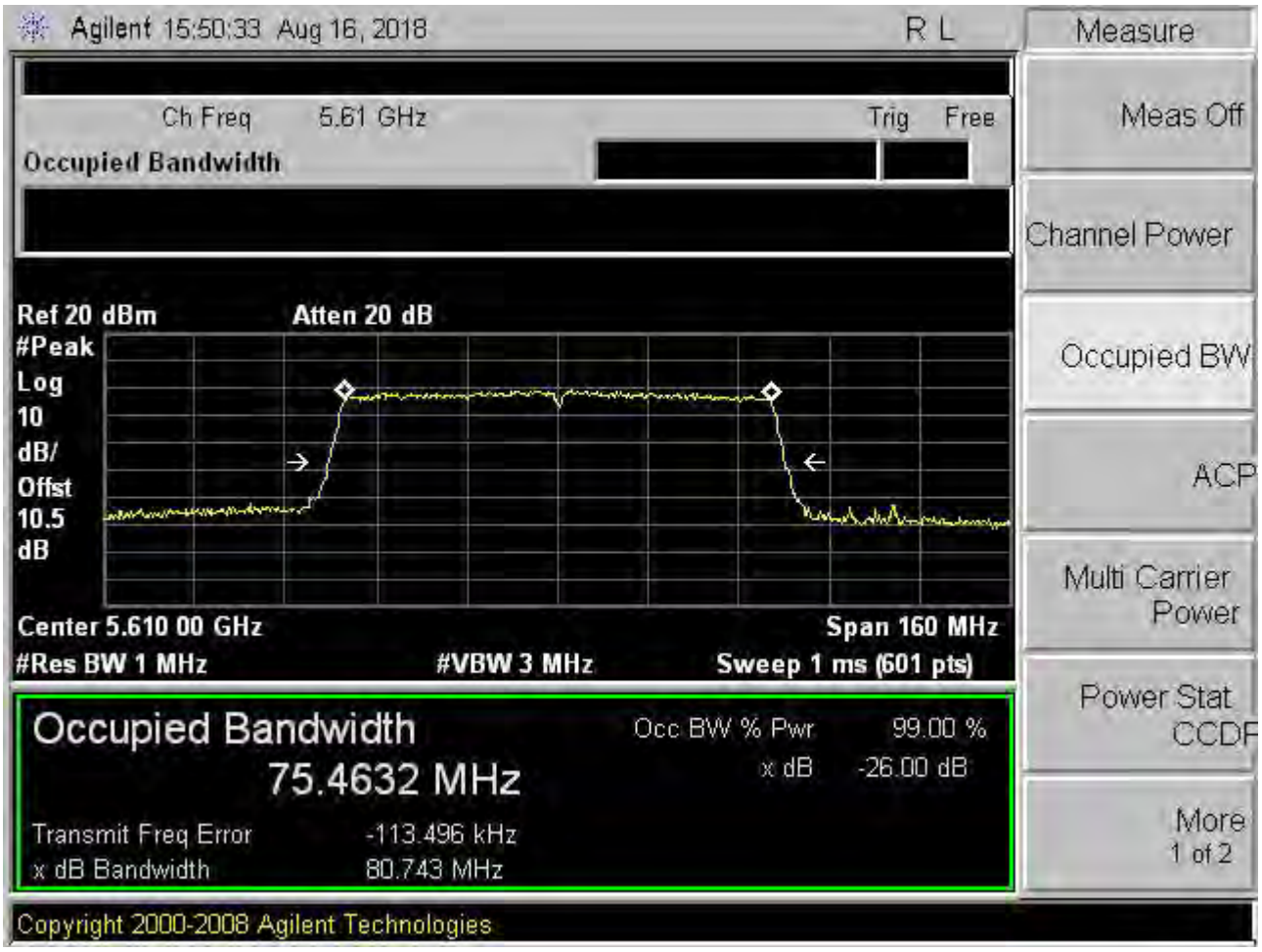
6.4.4.1 CHAIN 0

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Channel	26dB Bandwidth (MHz)	Chart
L	81.007	Page 48
H	80.743	Page 49

註：1. 繪圖資料請參考第 48-49 頁。
2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)。


Agilent 15:45:46 Aug 16, 2018
R L
Measure
Ch Freq 5.53 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.530 00 GHz
Span 160 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
75.5572 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -103.521 kHz
x dB Bandwidth 81.007 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 15:50:33 Aug 16, 2018
R L
Measure
Ch Freq 5.61 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.610 00 GHz
Span 160 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
75.4632 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -113.496 kHz
x dB Bandwidth 80.743 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

6.4.4.2 CHAIN 1

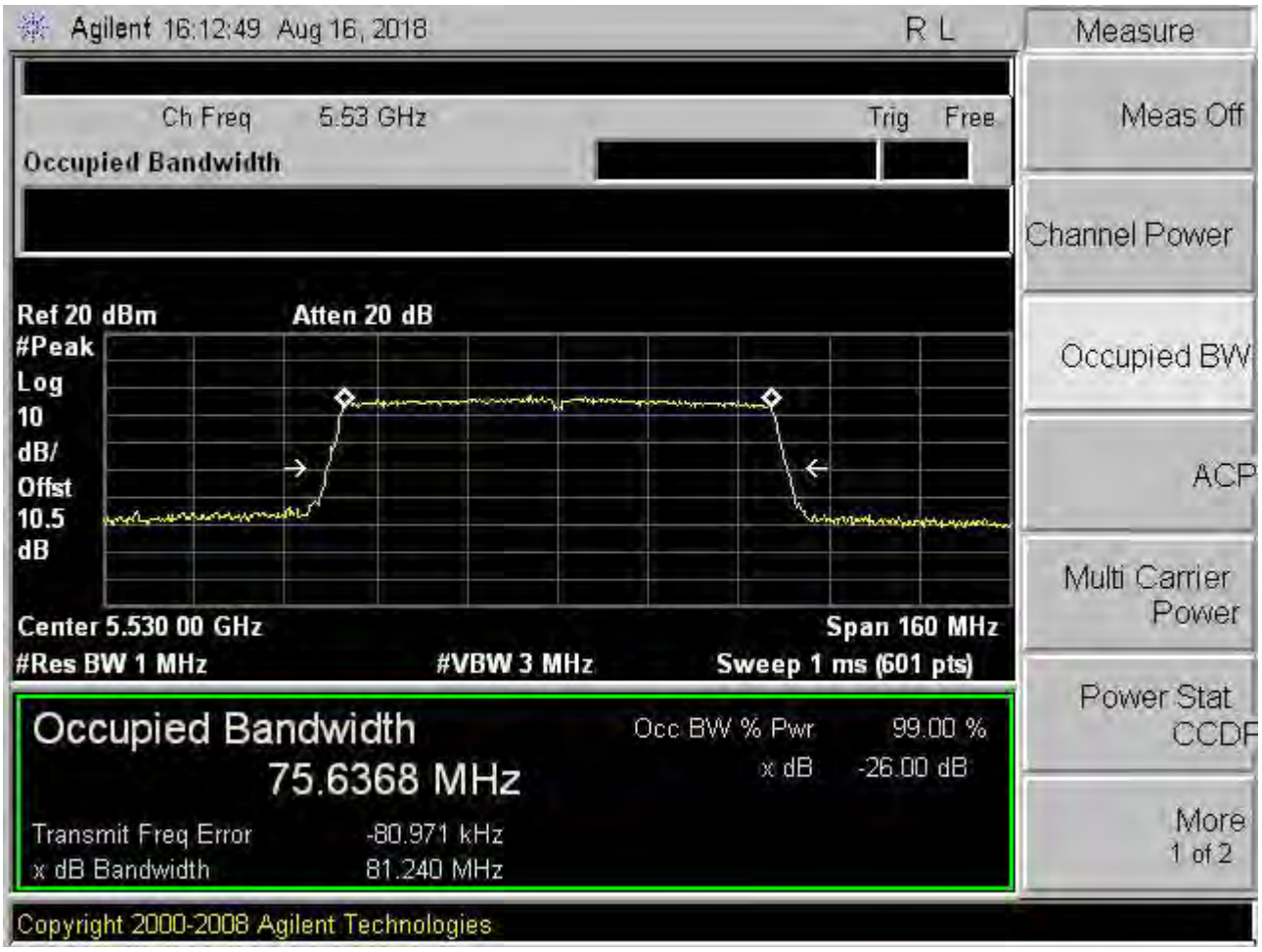
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Channel	26dB Bandwidth (MHz)	Chart
L	81.240	Page 51
H	81.313	Page 52

註：1. 繪圖資料請參考第 51-52 頁。
2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)。

6.5 結果判定

僅提供數據，無須判定。


Agilent 16:12:49 Aug 16, 2018
R L
Measure
Ch Freq 5.53 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.530 00 GHz
Span 160 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
75.6368 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -80.971 kHz
x dB Bandwidth 81.240 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 16:19:08 Aug 16, 2018
R L
Measure
Ch Freq 5.61 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.610 00 GHz
Span 160 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
75.5640 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -99.930 kHz
x dB Bandwidth 81.313 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

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 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	Agilent	E4446A
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

7.4.1.1 CHAIN 0

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 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	20.020	24.01	8.40	24.00	Page 55
M	24	19.637	23.93	8.46	23.93	Page 56
H	24	20.063	24.02	8.13	24.00	Page 57

註：1. 繪圖資料請參考第 55-57 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 20:24:49 Aug 20, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.40 dBm /20.0000 MHz
-64.61 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 20:20:48 Aug 20, 2018
R L
Measure
Ch Freq 5.58 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.46 dBm /20.0000 MHz
-64.55 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 20:19:00 Aug 20, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.13 dBm /20.0000 MHz
-64.88 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.1.2 CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 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	20.020	24.01	7.13	24.00	Page 59
M	24	19.637	23.93	6.31	23.93	Page 60
H	24	20.063	24.02	7.05	24.00	Page 61

註：1. 繪圖資料請參考第 59-61 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 20:10:13 Aug 20, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.13 dBm /20.0000 MHz
-65.88 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 20:15:11 Aug 20, 2018
R L
Sweep
Ch Freq 5.58 GHz
Trig Free
Channel Power
Sweep Time
1.000 ms
Auto Man
Sweep
Single Cont
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Auto Sweep Time
Norm Accy
Gate
On Off
Gate Setup
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Points
601
Channel Power
Power Spectral Density
6.31 dBm /20.0000 MHz
-66.70 dBm/Hz
Copyright 2000-2008 Agilent Technologies

Agilent 20:16:24 Aug 20, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.05 dBm /20.0000 MHz
-65.96 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.2 調變技術:IEEE 802.11an HT20

7.4.2.1 CHAIN 0

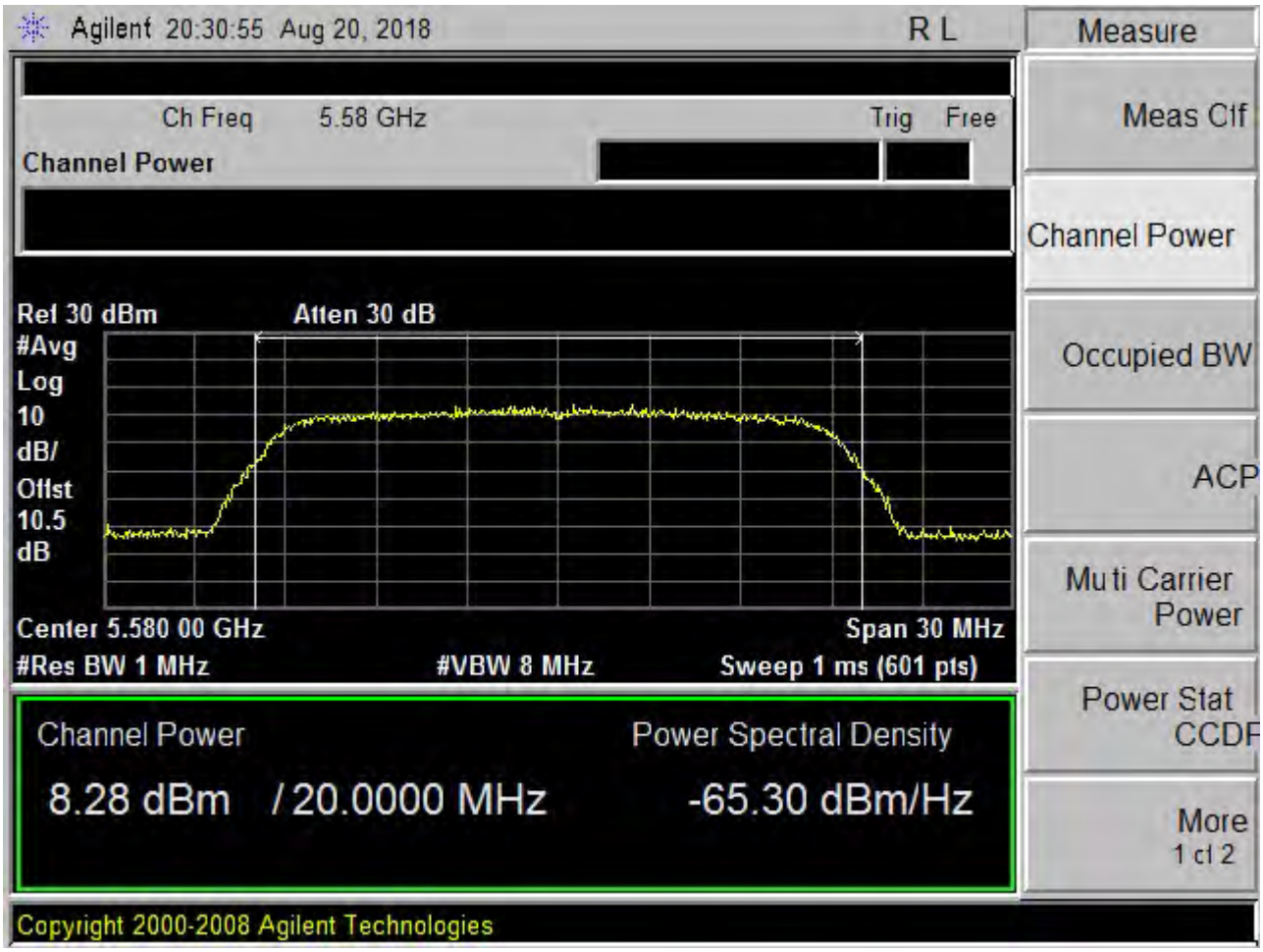
測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 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	20.154	24.04	8.31	24	Page 63
M	24	20.122	24.04	8.28	24	Page 64
H	24	20.171	24.05	8.05	24	Page 65

註：1. 繪圖資料請參考第 63-65 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm
6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm – (highest antenna gain – 6 dBi)
7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 20:27:57 Aug 20, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.31 dBm /20.0000 MHz
-64.70 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 20:30:55 Aug 20, 2018
R L
Ch Freq 5.58 GHz
Trig Free
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
8.28 dBm / 20.0000 MHz
Power Spectral Density
-65.30 dBm/Hz
Measure
Meas Clf
Channel Power
Occupied BW
ACP
Mu ti Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 20:39:27 Aug 20, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.05 dBm /20.0000 MHz
-64.96 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.2.2 CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 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	24.408	24.10	7.17	24	Page 67
M	24	20.352	24.09	6.73	24	Page 68
H	24	20.295	24.07	7.05	24	Page 69

註：1. 繪圖資料請參考第 67-69 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)

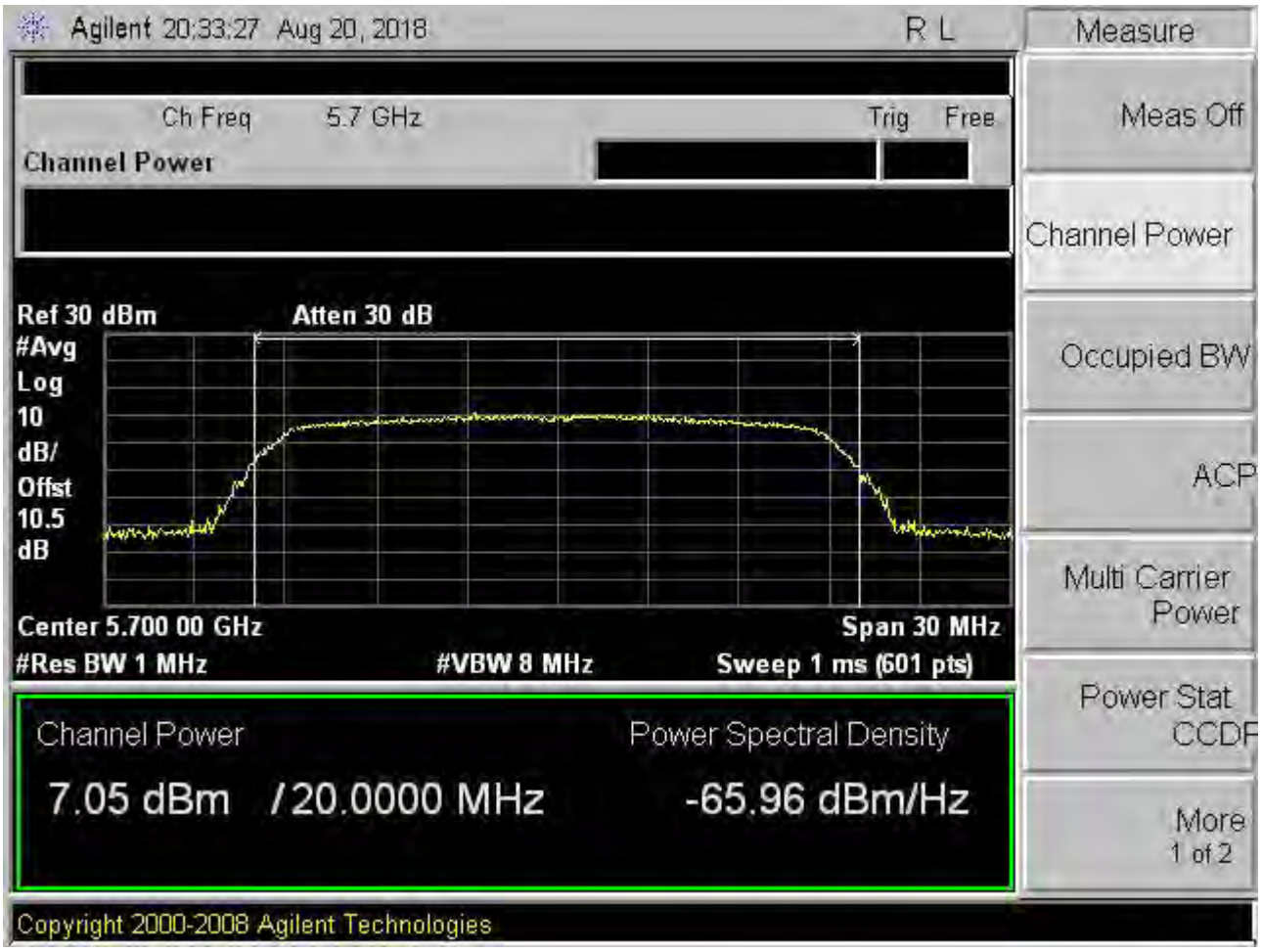
5. If antenna gain ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 20:36:33 Aug 20, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.17 dBm /20.0000 MHz
-65.84 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 20:35:01 Aug 20, 2018
R L
Measure
Ch Freq 5.58 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
6.73 dBm /20.0000 MHz
-66.28 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 20:33:27 Aug 20, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.05 dBm /20.0000 MHz
-65.96 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.2.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

Ant 1 / Ant 2 combination 天線增益最大值為 8.32 dBi，NCC Limit 如下表所示：

Channel	CHAIN 0 Maximum Output Power (dBm)	CHAIN 1 Maximum Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)	Chart
L	8.31	7.17	10.79	21.68	-
M	8.28	6.73	10.58	21.68	-
H	8.05	7.05	10.59	21.68	-

註:

1. 最大發射輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。
2. Fixed Limit = 250mW=24dBm
3. Caculated Limit = 11dBm + 10 log (26dB BW)
4. If antenna gain ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm
5. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm – (highest antenna gain – 6 dBi)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

7.4.3 調變技術: IEEE 802.11an HT40

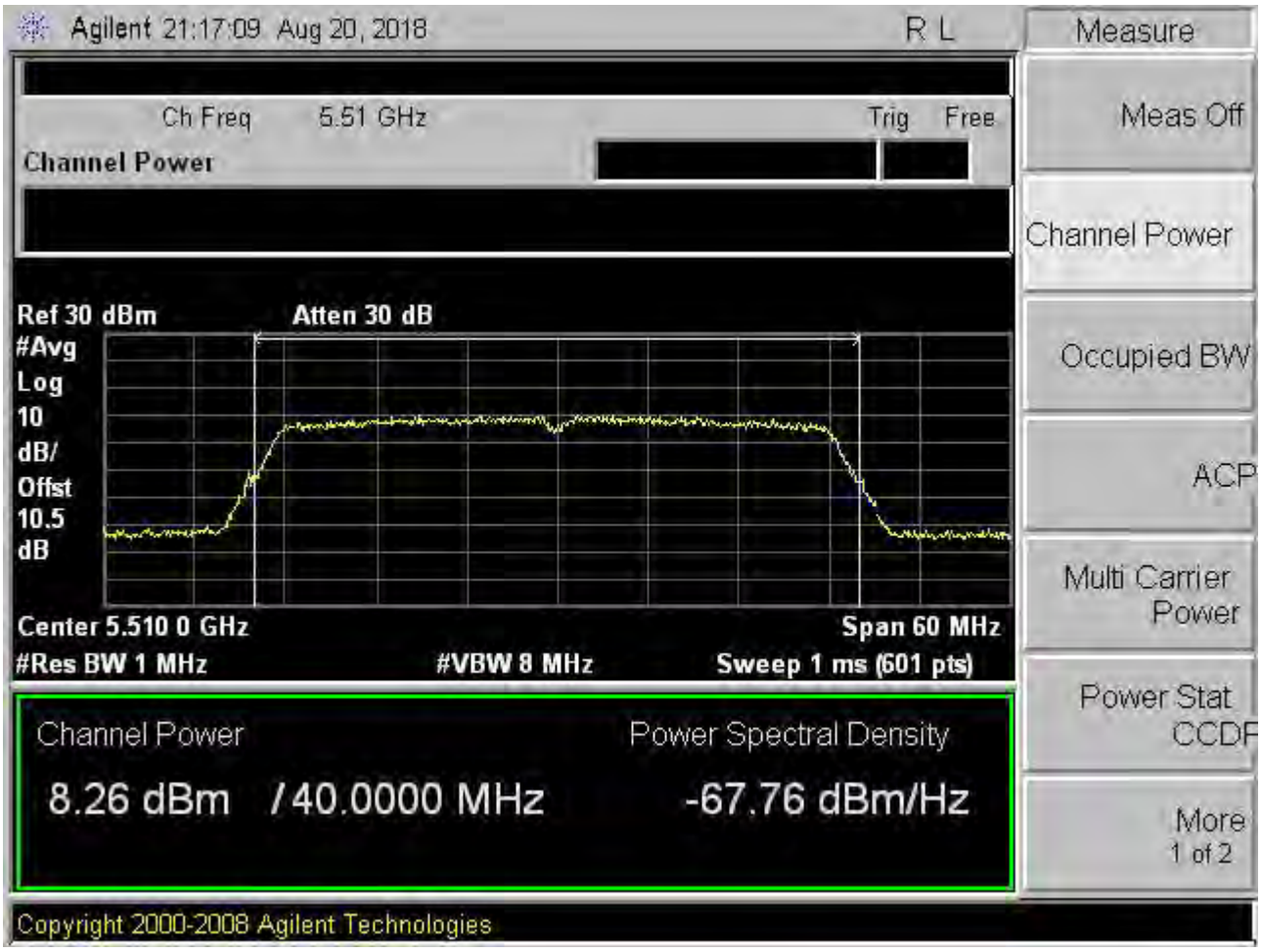
7.4.3.1 CHAIN 0

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 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	40.237	27.05	8.26	24	Page 72
M	24	40.259	27.05	7.96	24	Page 73
H	24	40.578	27.08	7.72	24	Page 74

註：1. 繪圖資料請參考第 72-74 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm
6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm – (highest antenna gain – 6 dBi)
7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 21:17:09 Aug 20, 2018
R L
Measure
Ch Freq 5.51 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.510 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.26 dBm / 40.0000 MHz
-67.76 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 21:15:03 Aug 20, 2018
R L
Measure
Ch Freq 5.59 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.590 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.96 dBm /40.0000 MHz
-68.07 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 21:12:47 Aug 20, 2018
R L
Measure
Ch Freq 5.67 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.670 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.72 dBm /40.0000 MHz
-68.30 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.3.2 CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 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	40.657	27.09	7.12	24	Page 76
M	24	40.787	27.11	6.29	24	Page 77
H	24	40.757	27.10	5.97	24	Page 78

註：1. 繪圖資料請參考第 76-78 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)

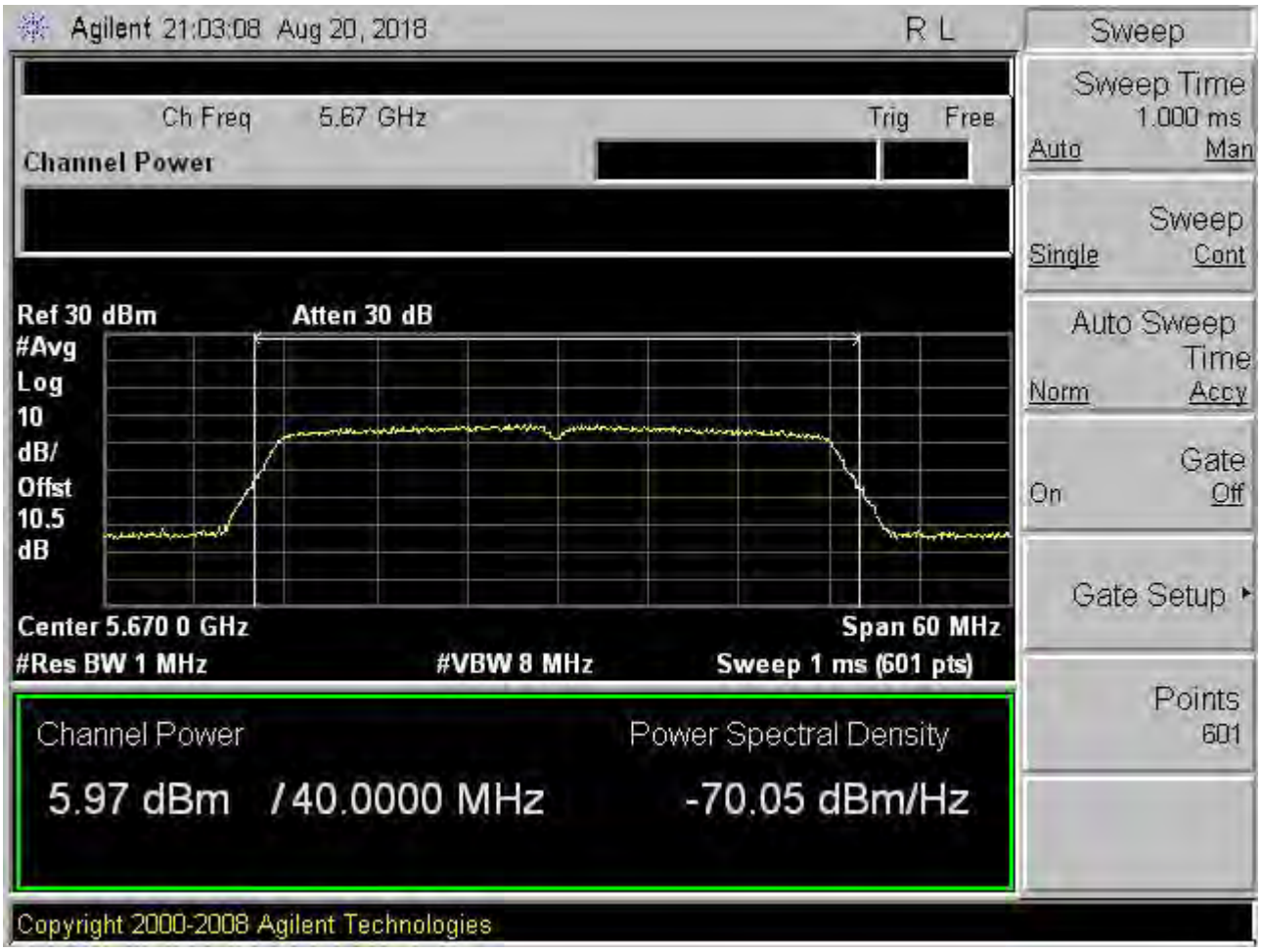
5. If antenna gain ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 21:19:16 Aug 20, 2018
R L
Measure
Ch Freq 5.51 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.510 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.12 dBm /40.0000 MHz
-68.90 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 21:20:29 Aug 20, 2018
R L
Measure
Ch Freq 5.59 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.590 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
6.29 dBm /40.0000 MHz
-69.73 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 21:03:08 Aug 20, 2018
R L
Ch Freq 5.67 GHz
Trig Free
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Center 5.670 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
5.97 dBm /40.0000 MHz
Power Spectral Density
-70.05 dBm/Hz
Sweep
Sweep Time
1.000 ms
Auto
Man
Sweep
Single
Cont
Auto Sweep Time
Norm
Accy
Gate
On
Off
Gate Setup
Points
601
Copyright 2000-2008 Agilent Technologies

7.4.3.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

Ant 1 / Ant 2 combination 天線增益最大值為 8.32 dBi，NCC Limit 如下表所示：

Channel	CHAIN 0 Maximum Output Power (dBm)	CHAIN 1 Maximum Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)	Chart
L	8.26	7.12	10.74	21.68	-
M	7.96	6.29	10.22	21.68	-
H	7.72	5.97	9.94	21.68	-

註: 1. 繪圖資料請參考第81-86頁。

1. Fixed Limit = 250mW=24dBm
4. Caculated Limit = 11dBm + 10 log (26dB BW)
5. If antenna gain ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm
6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm – (highest antenna gain – 6 dBi)
7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

7.4.4 調變技術: IEEE 802.11ac (20MHz)

7.4.4.1 CHAIN 0

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 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	20.154	24.04	8.29	24	Page 81
M	24	20.122	24.04	8.25	24	Page 82
H	24	20.171	24.05	8.03	24	Page 83

註：1. 繪圖資料請參考第 81-83 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm
6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm – (highest antenna gain – 6 dBi)
7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 20:46:28 Aug 20, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
8.29 dBm /20.0000 MHz
Power Spectral Density
-64.72 dBm/Hz
Copyright 2000-2008 Agilent Technologies

Agilent 20:45:01 Aug 20, 2018
R L
Measure
Ch Freq 5.58 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.25 dBm /20.0000 MHz
-64.76 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 20:43:12 Aug 20, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.03 dBm /20.0000 MHz
-64.98 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.4.2 CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 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	20.408	24.10	7.11	24	Page 85
M	24	20.352	24.09	6.32	24	Page 86
H	24	20.295	24.07	7.04	24	Page 87

註：1. 繪圖資料請參考第 85-87 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 20:49:53 Aug 20, 2018
R L
Measure
Ch Freq 5.5 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.11 dBm /20.0000 MHz
-65.90 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 20:51:37 Aug 20, 2018
R L
Sweep
Ch Freq 5.58 GHz
Trig Free
Channel Power
Sweep Time
1.000 ms
Auto Man
Sweep
Single Cont
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Auto Sweep Time
Norm Accy
Gate
On Off
Gate Setup
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Points
601
Channel Power
Power Spectral Density
6.32 dBm /20.0000 MHz
-66.69 dBm/Hz
Copyright 2000-2008 Agilent Technologies

Agilent 20:53:59 Aug 20, 2018
R L
Measure
Ch Freq 5.7 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.04 dBm /20.0000 MHz
-65.97 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.4.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

Ant 1 / Ant 2 combination 天線增益最大值為 8.32 dBi，NCC Limit 如下表所示：

Channel	CHAIN 0 Maximum Output Power (dBm)	CHAIN 1 Maximum Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)	Chart
L	8.29	7.11	10.75	21.68	-
M	8.25	6.32	10.40	21.68	-
H	8.03	7.04	10.57	21.68	-

註: 1. 最大發射輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

2. Fixed Limit = 250mW=24dBm

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

4. If antenna gain ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

7.4.5 調變技術: IEEE 802.11ac (40MHz)

7.4.5.1 CHAIN 0

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 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	40.237	27.05	8.11	24	Page 90
M	24	40.259	27.05	7.94	24	Page 91
H	24	40.578	27.08	7.71	24	Page 92

註：1. 繪圖資料請參考第 90-92 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm
6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm – (highest antenna gain – 6 dBi)
7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 21:08:33 Aug 20, 2018
R L
Measure
Ch Freq 5.51 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.510 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.11 dBm / 40.0000 MHz
-67.91 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 21:07:08 Aug 20, 2018
R L
Sweep
Ch Freq 5.59 GHz
Trig Free
Channel Power
Sweep Time
1.000 ms
Auto Man
Sweep
Single Cont
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Auto Sweep Time
Norm Accy
Gate
On Off
Gate Setup
Center 5.590 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Points
601
Channel Power
Power Spectral Density
7.94 dBm /40.0000 MHz
-68.08 dBm/Hz
Copyright 2000-2008 Agilent Technologies

Agilent 21:10:11 Aug 20, 2018
R L
Measure
Ch Freq 5.67 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.670 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
7.71 dBm /40.0000 MHz
-68.31 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.5.2 CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 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	40.657	27.09	6.72	24	Page 94
M	24	40.787	27.11	6.06	24	Page 95
H	24	40.757	27.10	5.82	24	Page 96

註：1. 繪圖資料請參考第 94-96 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

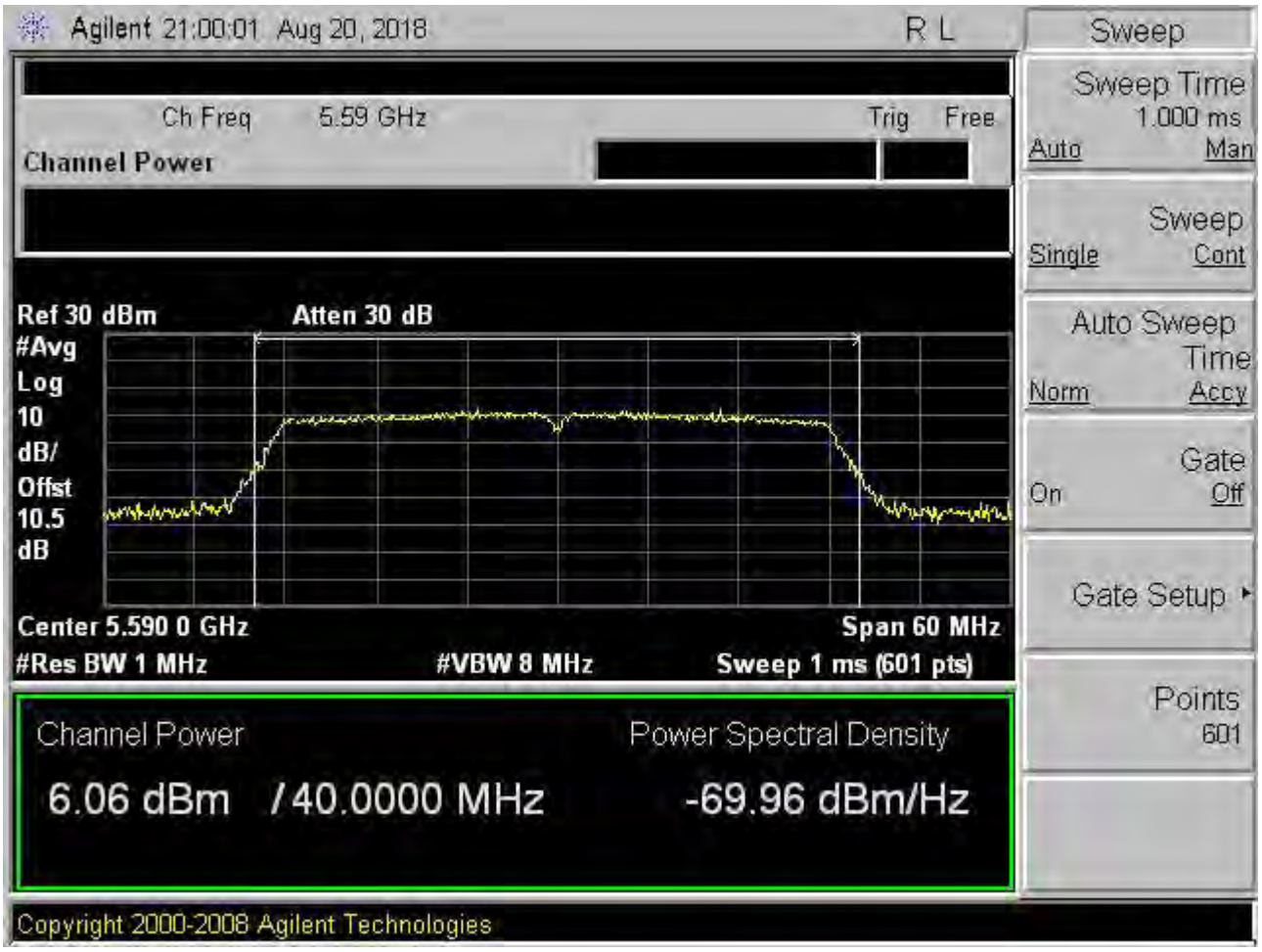
4. Caculated Limit = 11dBm + 10 log (26dB BW)

5. If antenna gain ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 20:55:36 Aug 20, 2018
R L
Measure
Ch Freq 5.51 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.510 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
6.72 dBm /40.0000 MHz
-69.31 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 21:00:01 Aug 20, 2018
R L
Ch Freq 5.59 GHz
Trig Free
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Center 5.590 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
6.06 dBm /40.0000 MHz
Power Spectral Density
-69.96 dBm/Hz
Sweep
Sweep Time
1.000 ms
Auto
Man
Sweep
Single
Cont
Auto Sweep Time
Norm
Accy
Gate
On
Off
Gate Setup
Points
601
Copyright 2000-2008 Agilent Technologies

Agilent 21:23:06 Aug 20, 2018
R L
Sweep
Ch Freq 5.67 GHz
Trig Free
Channel Power
Sweep Time
1.000 ms
Auto Man
Sweep
Single Cont
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Auto Sweep Time
Norm Accy
Gate
On Off
Gate Setup
Center 5.670 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Points
601
Channel Power
Power Spectral Density
5.82 dBm /40.0000 MHz
-70.20 dBm/Hz
Copyright 2000-2008 Agilent Technologies

7.4.5.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

Ant 1 / Ant 2 combination 天線增益最大值為 8.32 dBi，NCC Limit 如下表所示：

Channel	CHAIN 0 Maximum Output Power (dBm)	CHAIN 1 Maximum Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)	Chart
L	8.11	6.72	10.48	21.68	-
M	7.94	6.06	10.11	21.68	-
H	7.71	5.82	9.88	21.68	-

註: 1. 最大發射輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

2. Fixed Limit = 250mW=24dBm

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

4. If antenna gain ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

7.4.6 調變技術: IEEE 802.11ac (80MHz)

7.4.6.1 CHAIN 0

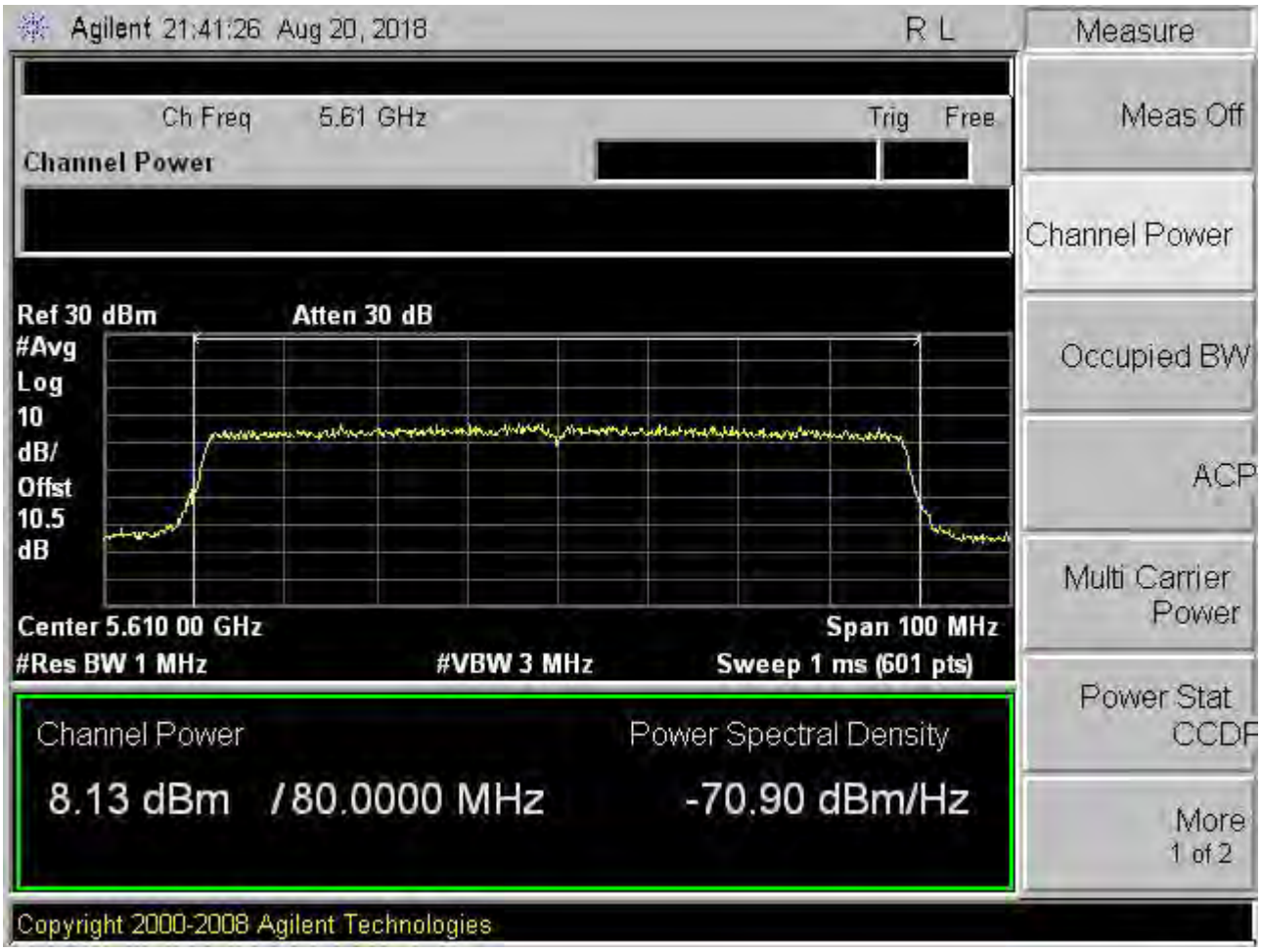
測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 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	81.007	30.09	8.04	24	Page 99
H	24	80.743	30.07	8.13	24	Page 100

註：1. 繪圖資料請參考第 99-100 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm
6. If antenna gain > 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm – (highest antenna gain – 6 dBi)
7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 21:40:06 Aug 20, 2018
R L
Measure
Ch Freq 5.53 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.530 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.04 dBm /80.0000 MHz
-70.99 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 21:41:26 Aug 20, 2018
R L
Measure
Ch Freq 5.61 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.610 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
8.13 dBm /80.0000 MHz
-70.90 dBm/Hz
More 1 of 2
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7.4.6.2 CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 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	81.240	30.1	6.58	24	Page 102
H	24	81.313	30.1	6.09	24	Page 103

註：1. 繪圖資料請參考第 102-103 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 ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

7. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 21:38:23 Aug 20, 2018
R L
Measure
Ch Freq 5.53 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.530 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
6.58 dBm /80.0000 MHz
-72.45 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 21:35:59 Aug 20, 2018
R L
Measure
Ch Freq 5.61 GHz
Trig Free
Channel Power
Meas Off
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.610 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Power Stat CCDF
Channel Power
Power Spectral Density
6.09 dBm /80.0000 MHz
-72.94 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.6.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 20, 2018 環境溫度: 24℃ 環境濕度: 60%

Ant 1 / Ant 2 combination 天線增益最大值為 8.32 dBi，NCC Limit 如下表所示：

Channel	CHAIN 0 Maximum Output Power (dBm)	CHAIN 1 Maximum Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)	Chart
L	8.04	6.58	10.38	21.68	-
H	8.13	6.09	10.24	21.68	-

註: 1. 最大發射輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

2. Fixed Limit = 250mW=24dBm

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

4. If antenna gain ≦ 6dBi, NCC Limit = (Minimum of Fixed Limit and Caculated Limit) dBm

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

6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

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。

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力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	Agilent	E4446A
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: Aug. 09, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 dBi，NCC Limit 如下表所示：

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	3.26	11.00	Page 107
M	4.61	11.00	Page 108
H	3.91	11.00	Page 109

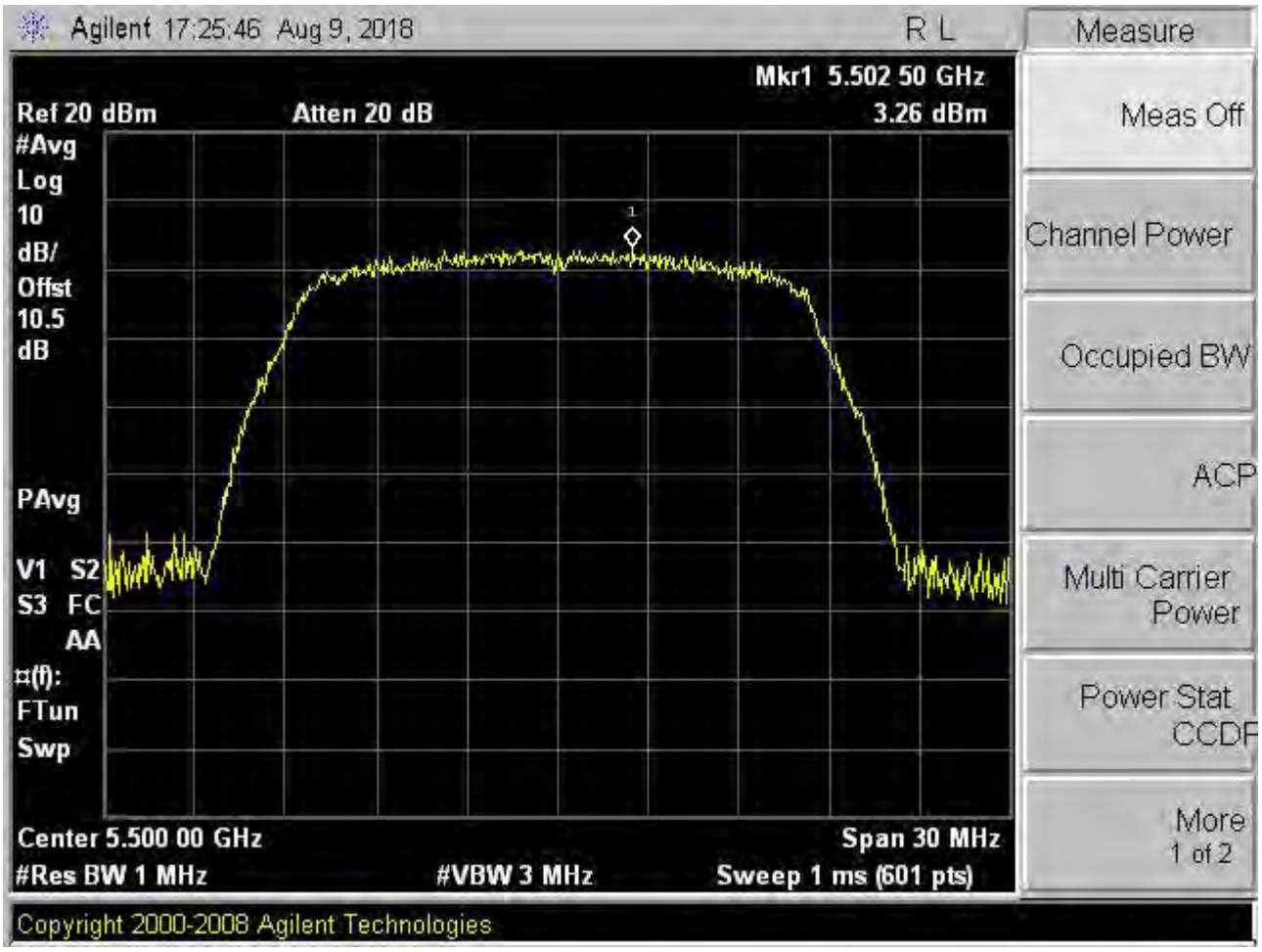
註：1. 繪圖資料請參考第 107-109 頁。

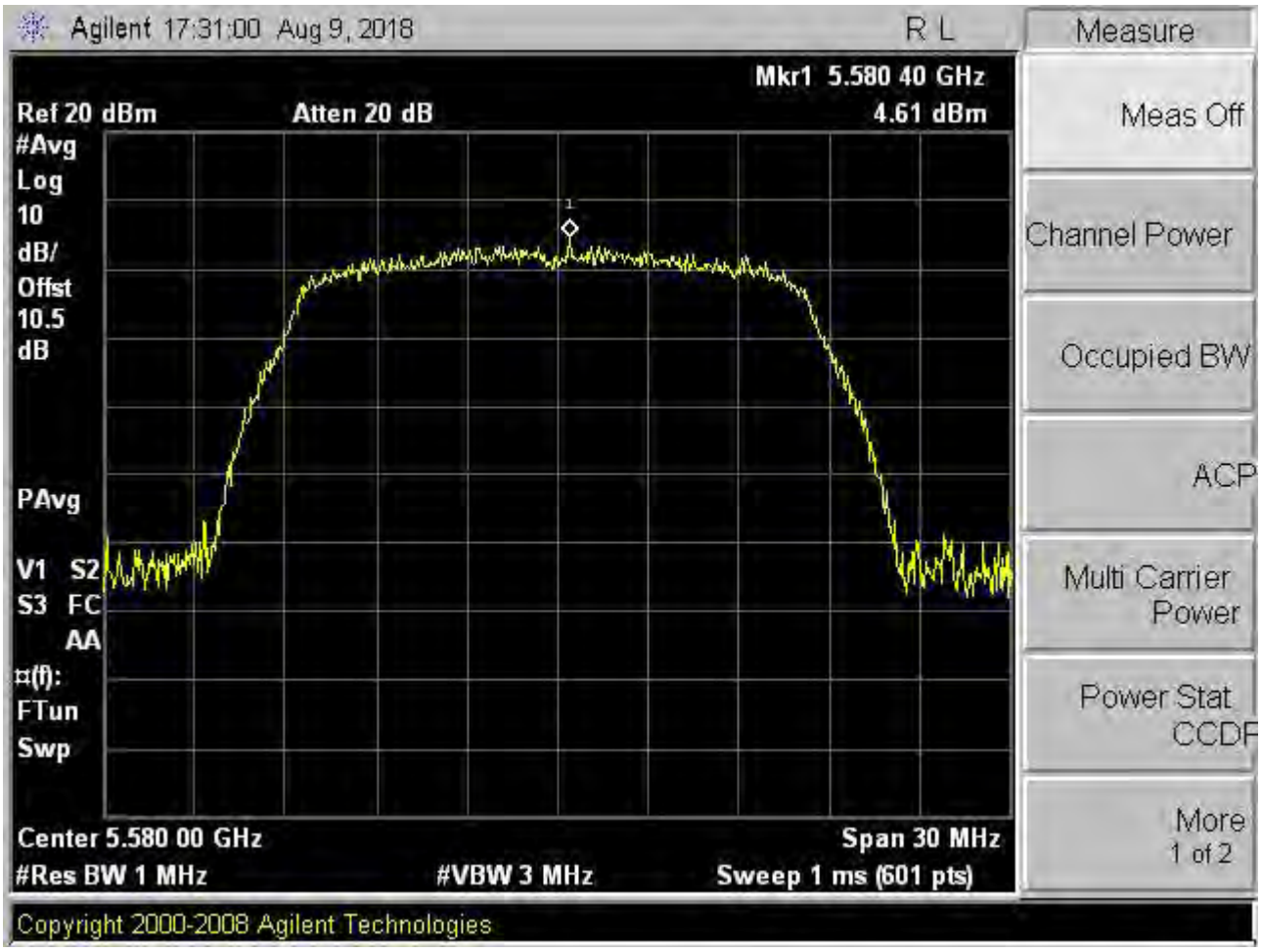
2. 功率頻譜密度 (Power Spectral Density) 為經儀器校正補償過後的結果值。

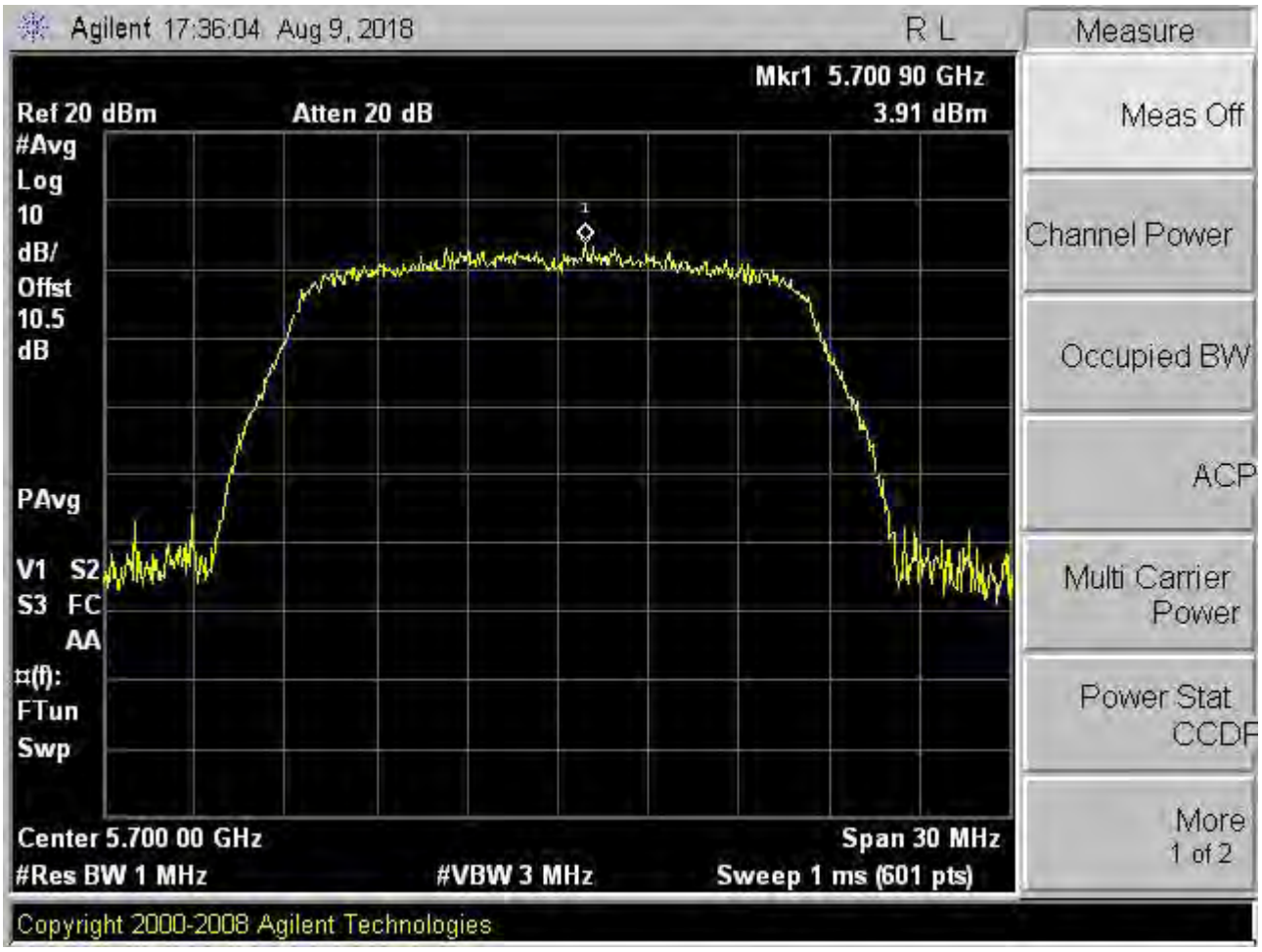
3. If antenna gain ≦ 6dBi, NCC Limit =11 dBm

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

5. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 17:25:46 Aug 9, 2018
R L
Measure
Mkr1 5.502 50 GHz
Ref 20 dBm
Atten 20 dB
3.26 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 17:31:00 Aug 9, 2018
R L
Measure
Mkr1 5.580 40 GHz
Ref 20 dBm
Atten 20 dB
4.61 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:36:04 Aug 9, 2018
R L
Measure
Mkr1 5.700 90 GHz
Ref 20 dBm
Atten 20 dB
3.91 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

8.4.2 調變技術:IEEE 802.11an HT20

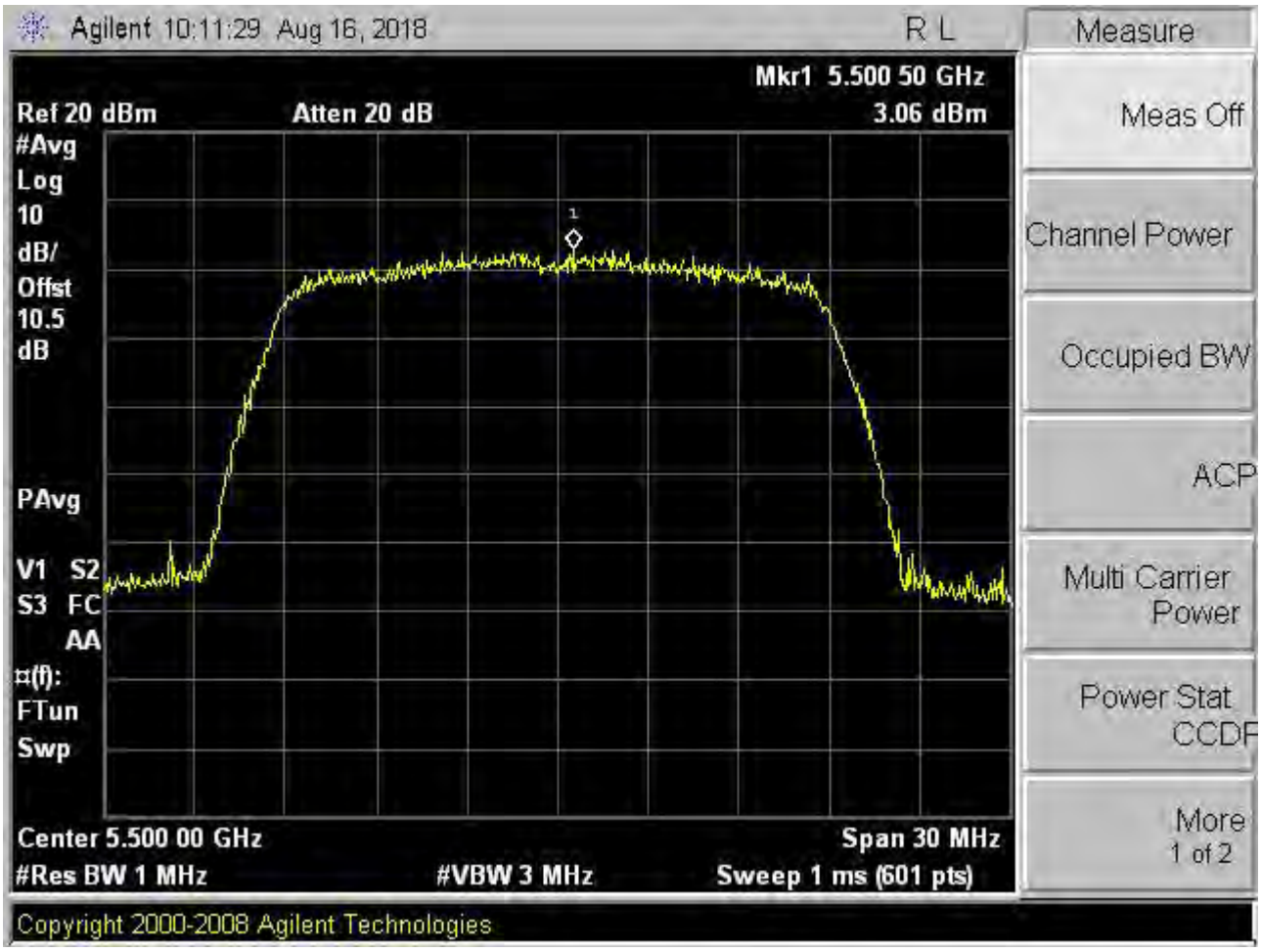
8.4.2.1 CHAIN 0

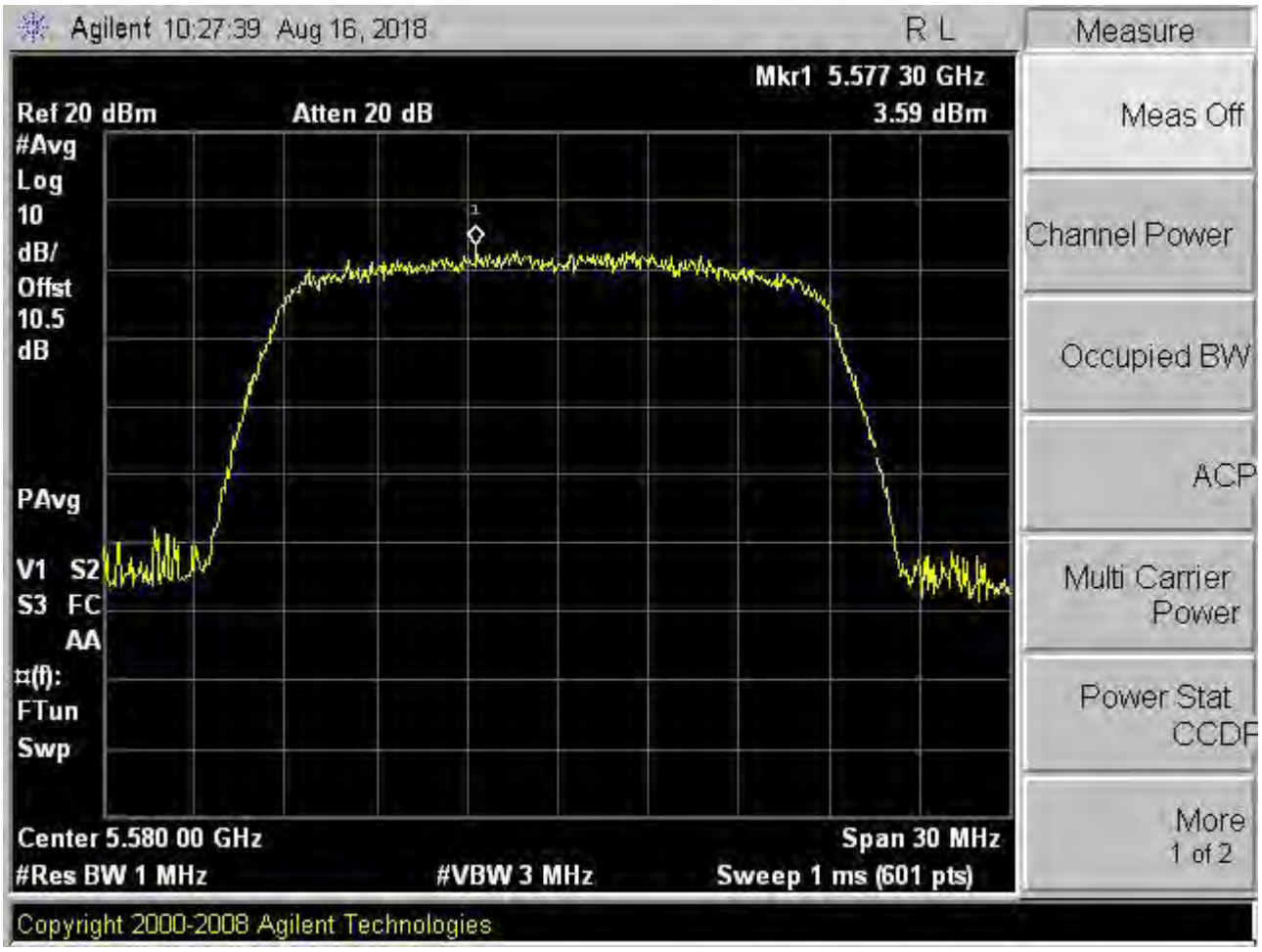
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

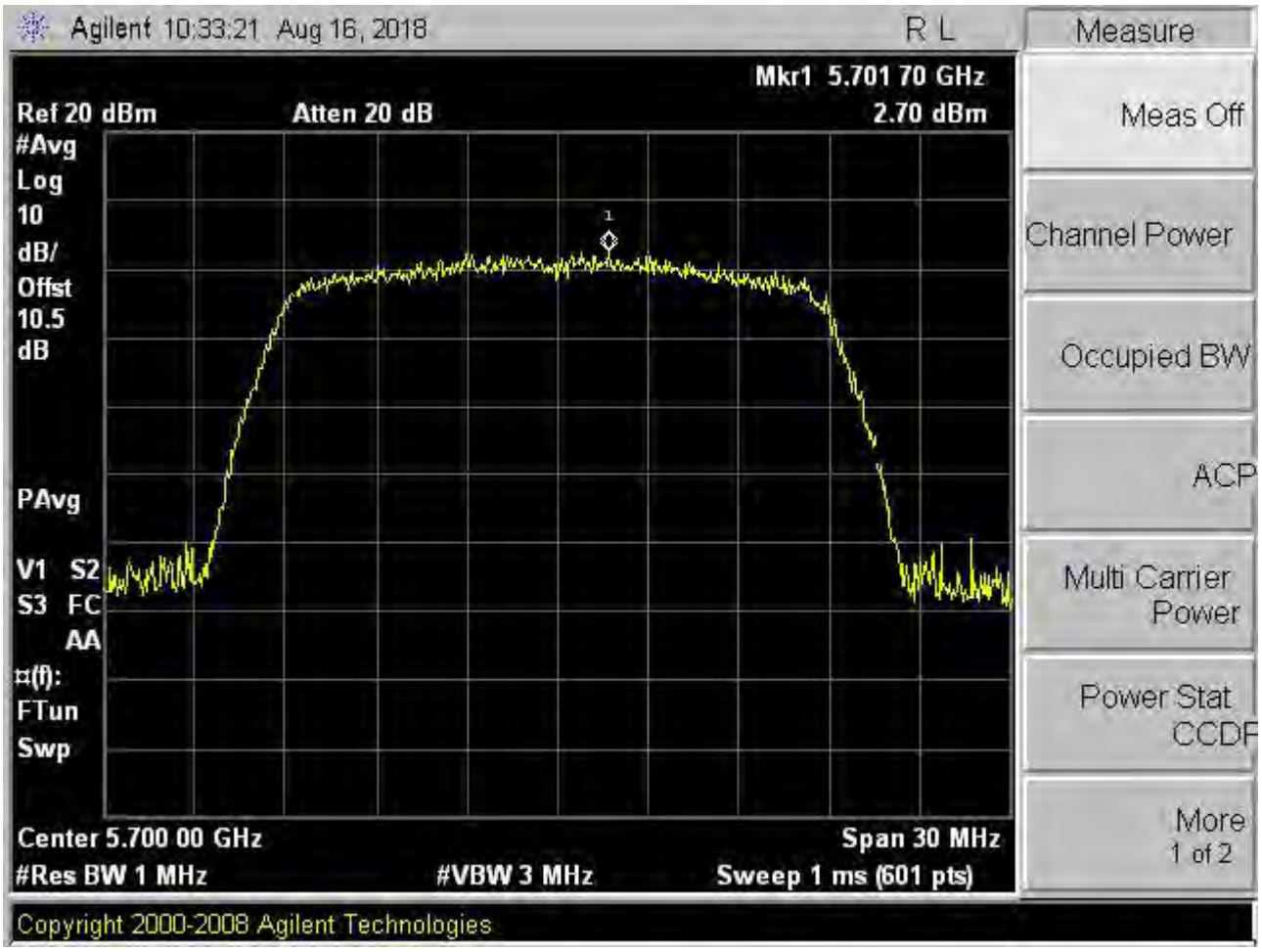
天線增益最大值為 5 dBi，NCC Limit 如下表所示：

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	3.06	11.0	Page 111
M	3.59	11.0	Page 112
H	2.70	11.0	Page 113

註：1. 繪圖資料請參考第 111-113 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 ≦ 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:±1.5dB(1GHz≦f≦18GHz)


Agilent 10:11:29 Aug 16, 2018
R L
Measure
Mkr1 5.500 50 GHz
Ref 20 dBm
Atten 20 dB
3.06 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 10:27:39 Aug 16, 2018
R L
Measure
Mkr1 5.577 30 GHz
3.59 dBm
Ref 20 dBm
Atten 20 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 10:33:21 Aug 16, 2018
R L
Measure
Mkr1 5.701 70 GHz
Ref 20 dBm
Atten 20 dB
2.70 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies

8.4.2.2 CHAIN 1

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 dBi，NCC Limit 如下表所示：

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	0.38	11.0	Page 115
M	-0.27	11.0	Page 116
H	0.02	11.0	Page 117

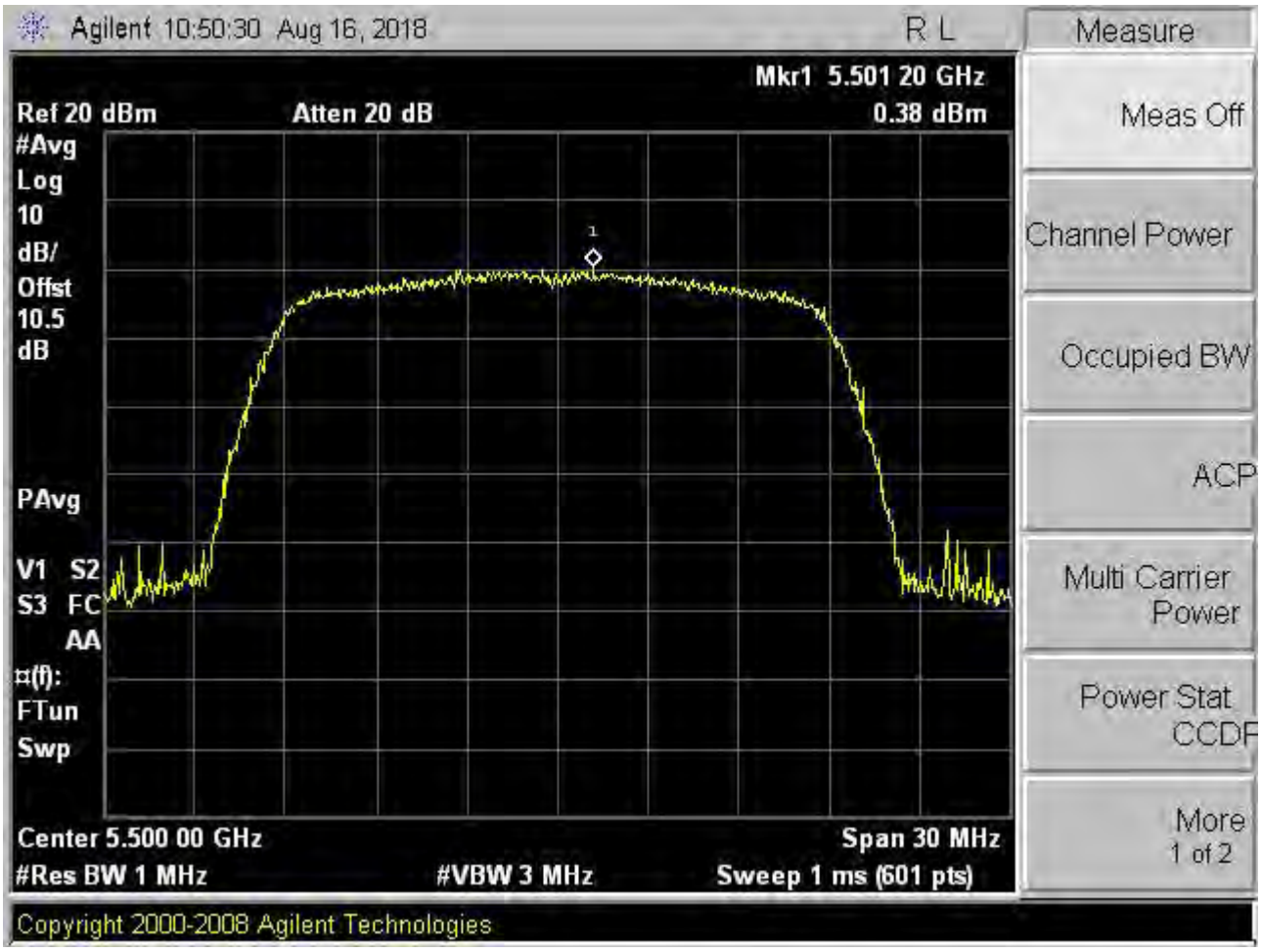
註：1. 繪圖資料請參考第 115-117 頁。

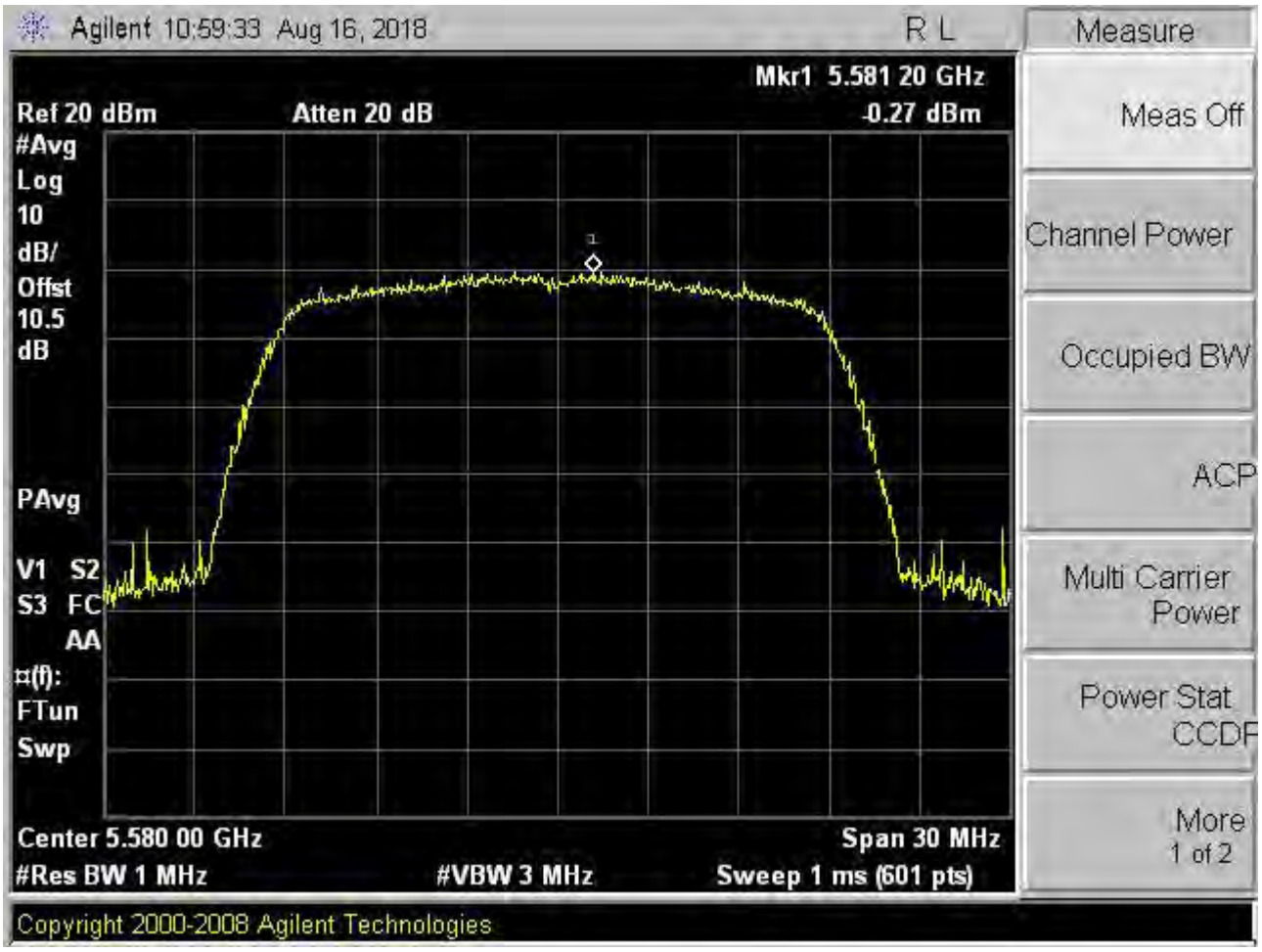
2. 功率頻譜密度 (Power Spectral Density) 為經儀器校正補償過後的結果值。

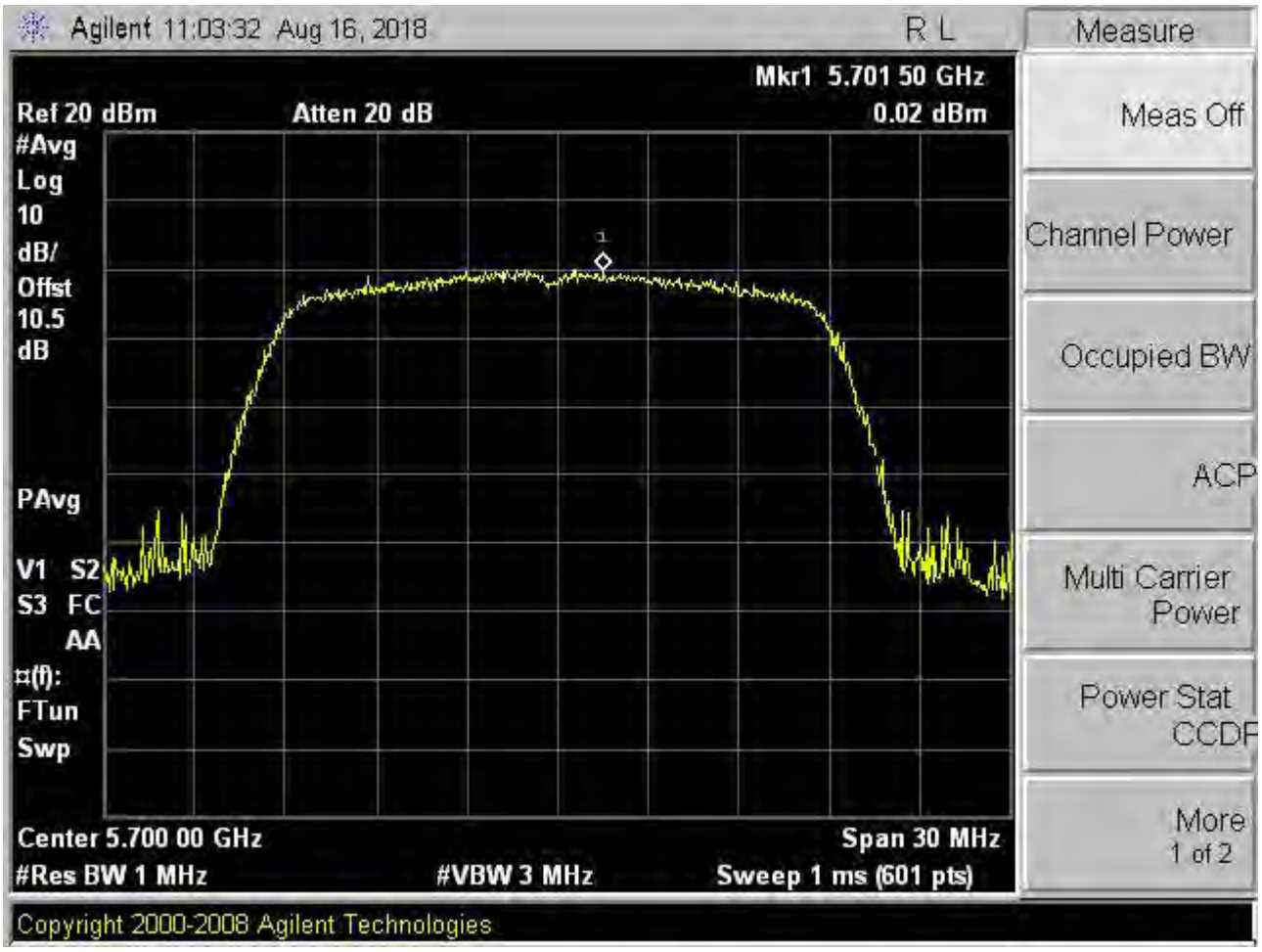
3. If antenna gain ≦ 6dBi, NCC Limit =11 dBm

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

5. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 10:50:30 Aug 16, 2018
R L
Measure
Mkr1 5.501 20 GHz
Ref 20 dBm
Atten 20 dB
0.38 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.500 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 10:59:33 Aug 16, 2018
R L
Measure
Mkr1 5.581 20 GHz
Ref 20 dBm
Atten 20 dB
-0.27 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.580 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 11:03:32 Aug 16, 2018
R L
Measure
Mkr1 5.701 50 GHz
Ref 20 dBm
Atten 20 dB
0.02 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.700 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies

8.4.2.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Total power density calculation formula:

10 log (10^(Chain 0 PPSD / 10) + 10^(Chain 1 PPSD / 10)

天線增益最大值為 8.32 dBi，NCC Limit 如下表所示：

Channel	Peak Power Spectral Density (dBm)			Total Peak Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
	Chain 0	Chain 1	Chain 2			
L	3.06	0.38	n/a	4.93	8.68	-
M	3.59	-0.27	n/a	5.09	8.68	-
H	2.70	0.02	n/a	4.57	8.68	-

註：1.功率頻譜密度 (Power Spectral Density) 為經儀器校正補償過後的結果值。

2. If antenna gain ≦ 6dBi, NCC Limit = 11 dBm

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

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

8.4.3 調變技術: IEEE 802.11an HT40

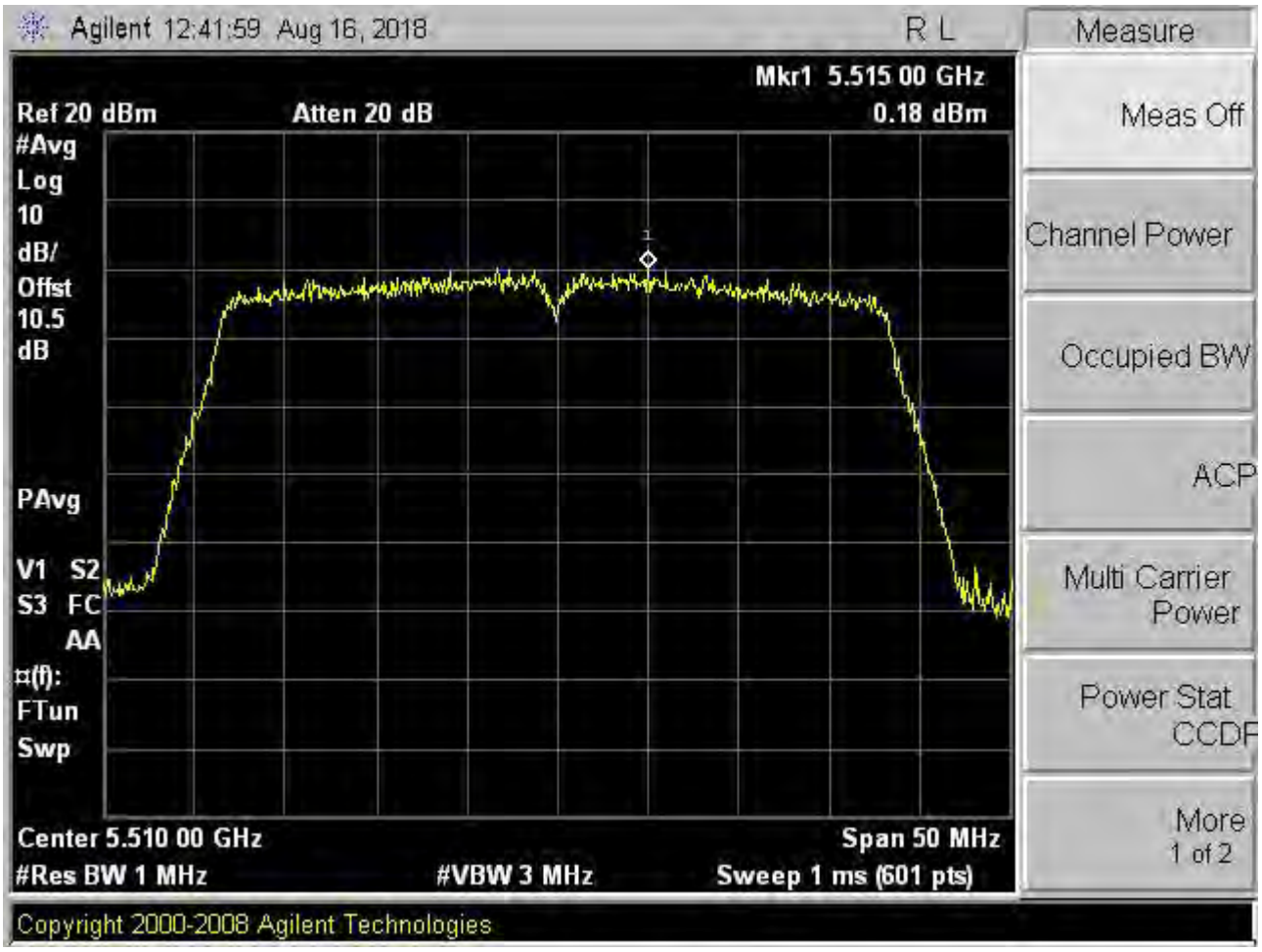
8.4.3.1 CHAIN 0

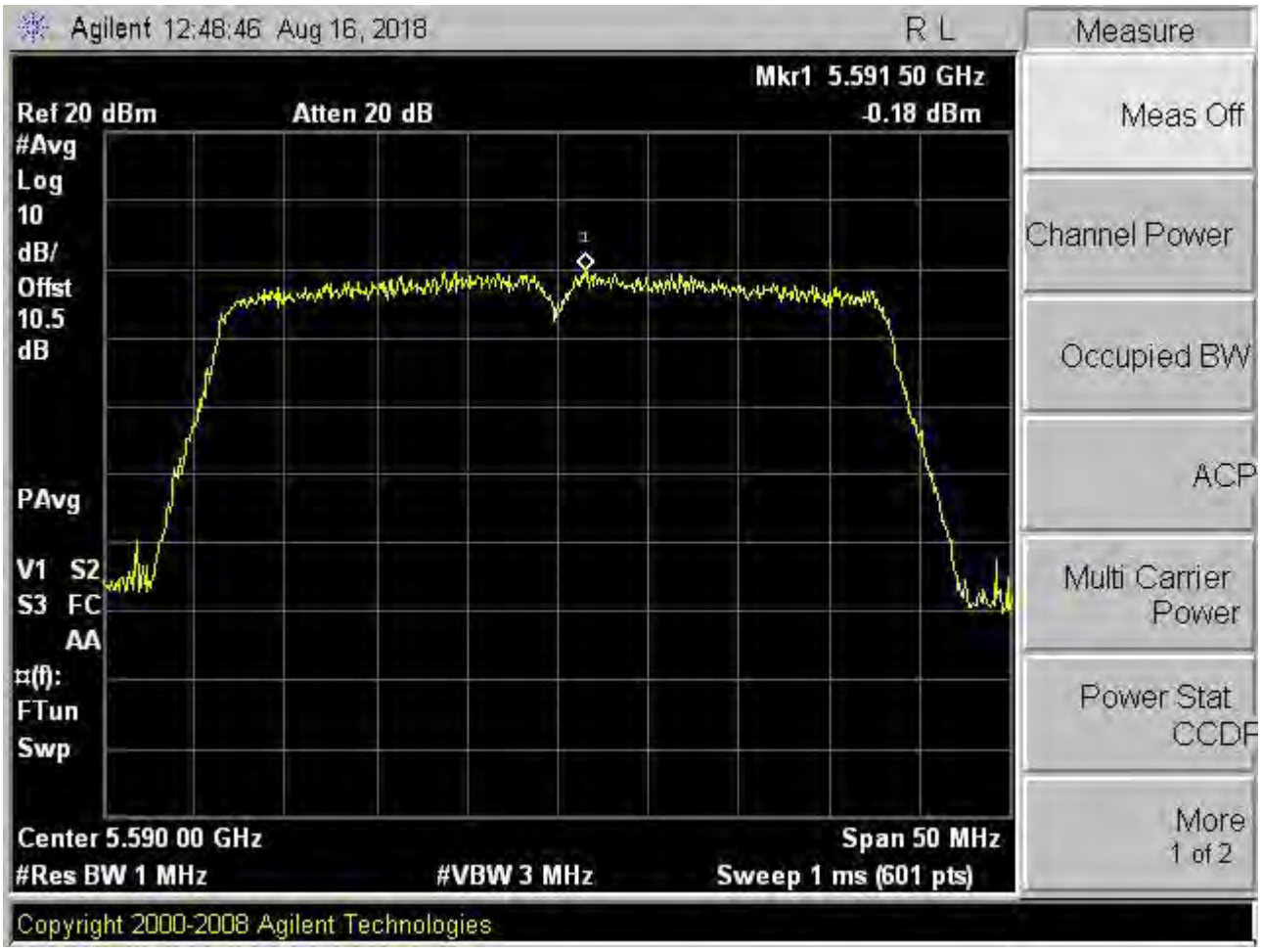
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

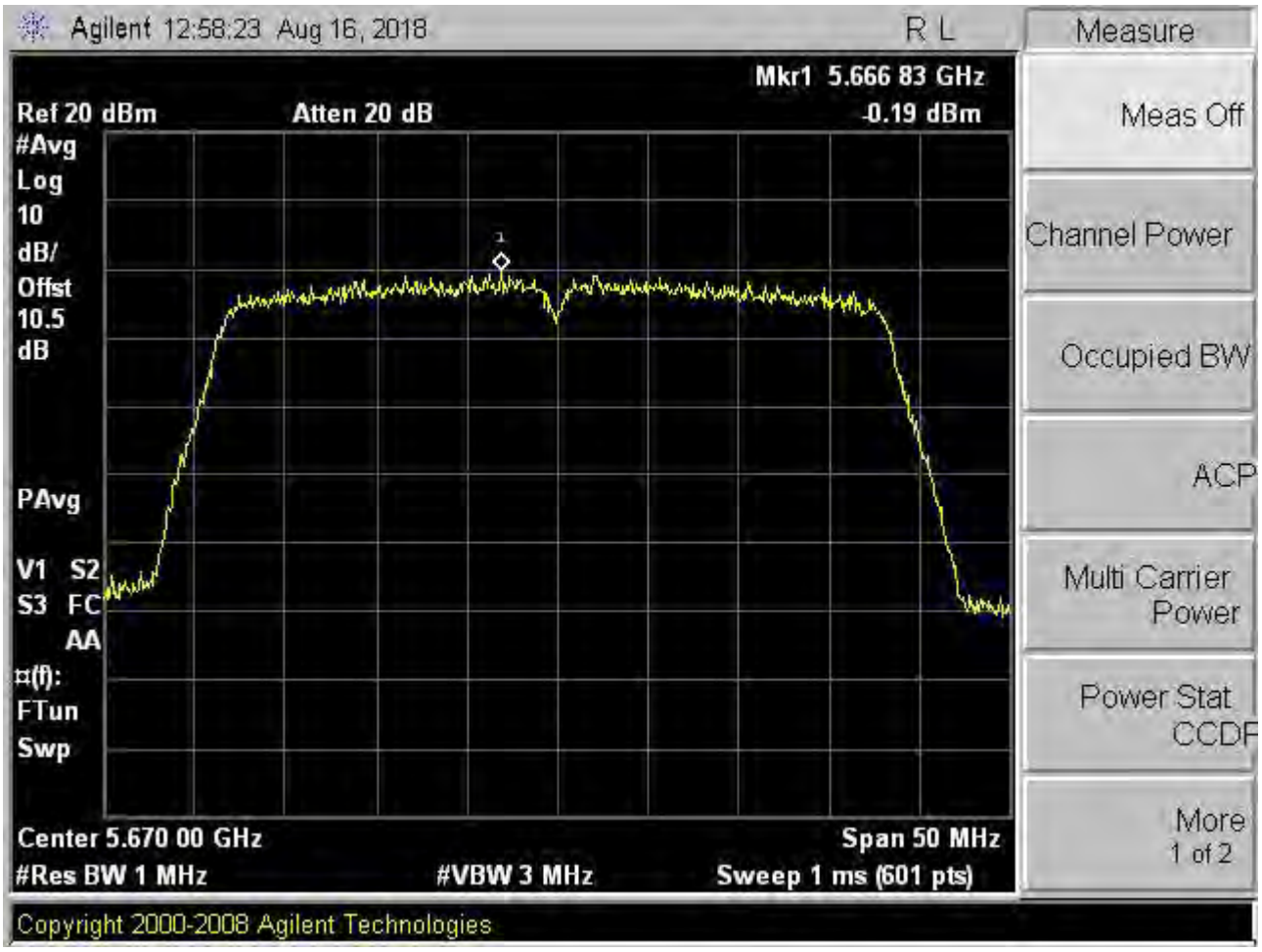
天線增益最大值為 5 dBi，NCC Limit 如下表所示：

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	0.18	11.0	Page 120
M	-0.18	11.0	Page 121
H	-0.19	11.0	Page 122

註：1. 繪圖資料請參考第 120-122 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 ≦ 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:±1.5dB(1GHz≦f≦18GHz)


Agilent 12:41:59 Aug 16, 2018
R L
Measure
Mkr1 5.515 00 GHz
Ref 20 dBm
Atten 20 dB
0.18 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.510 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 12:48:46 Aug 16, 2018
R L
Measure
Mkr1 5.591 50 GHz
Ref 20 dBm
Atten 20 dB
-0.18 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.590 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 12:58:23 Aug 16, 2018
R L
Measure
Mkr1 5.666 83 GHz
Ref 20 dBm
Atten 20 dB
-0.19 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.670 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies

8.4.3.2 CHAIN 1

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 dBi，NCC Limit 如下表所示：

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-2.92	11.0	Page 124
M	-3.16	11.0	Page 125
H	-3.63	11.0	Page 126

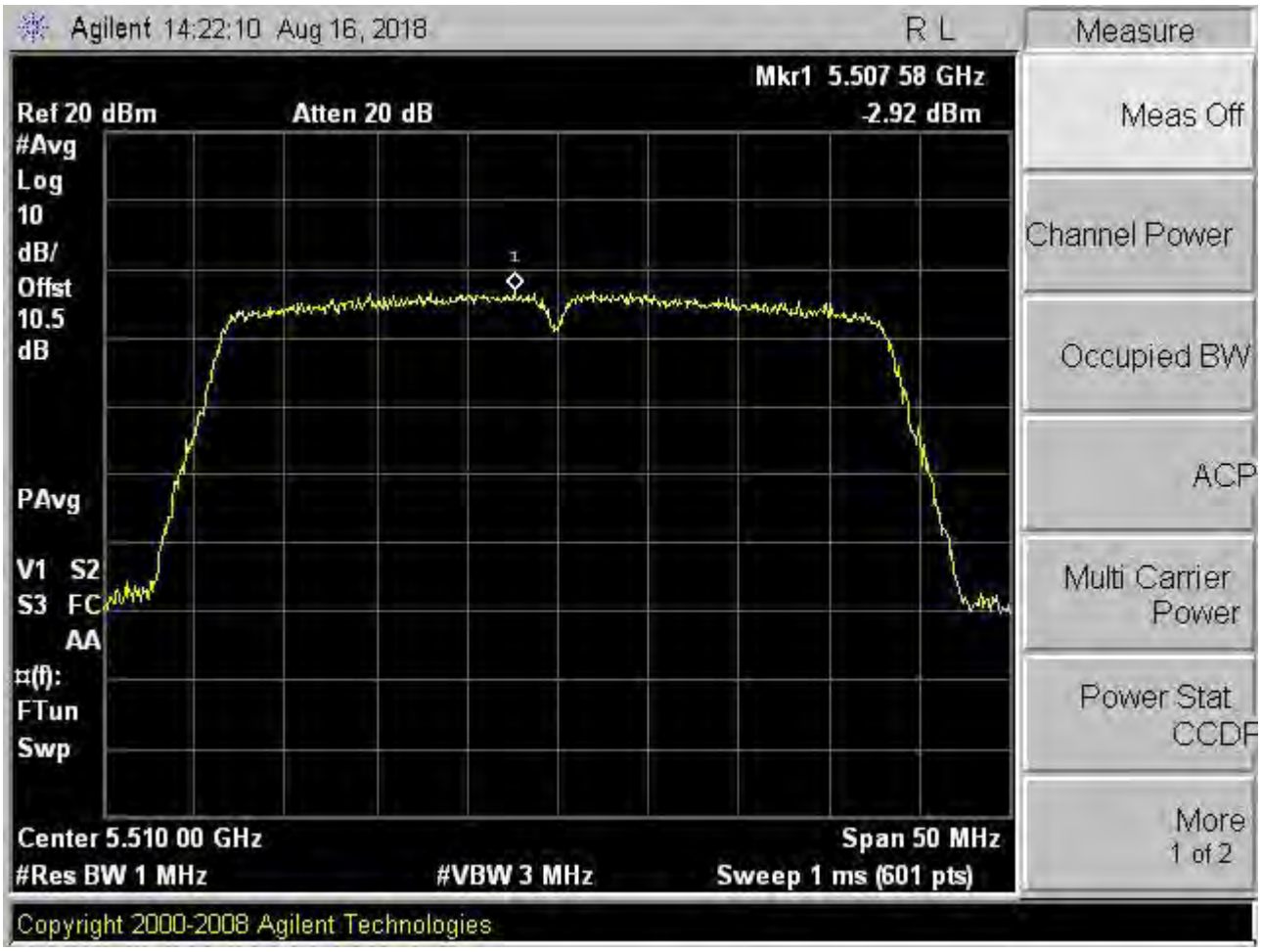
註：1. 繪圖資料請參考第 124-126 頁。

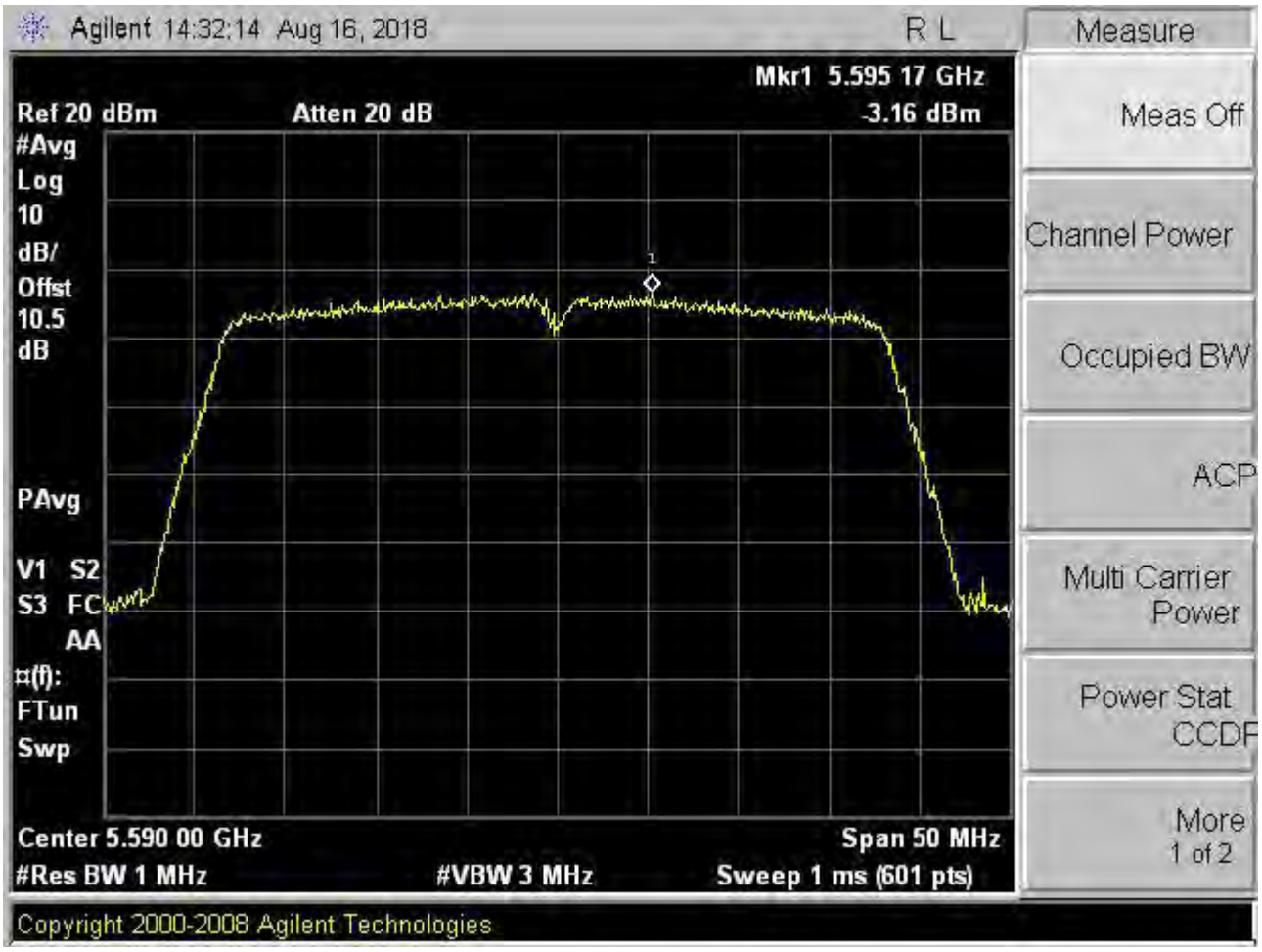
2. 功率頻譜密度 (Power Spectral Density) 為經儀器校正補償過後的結果值。

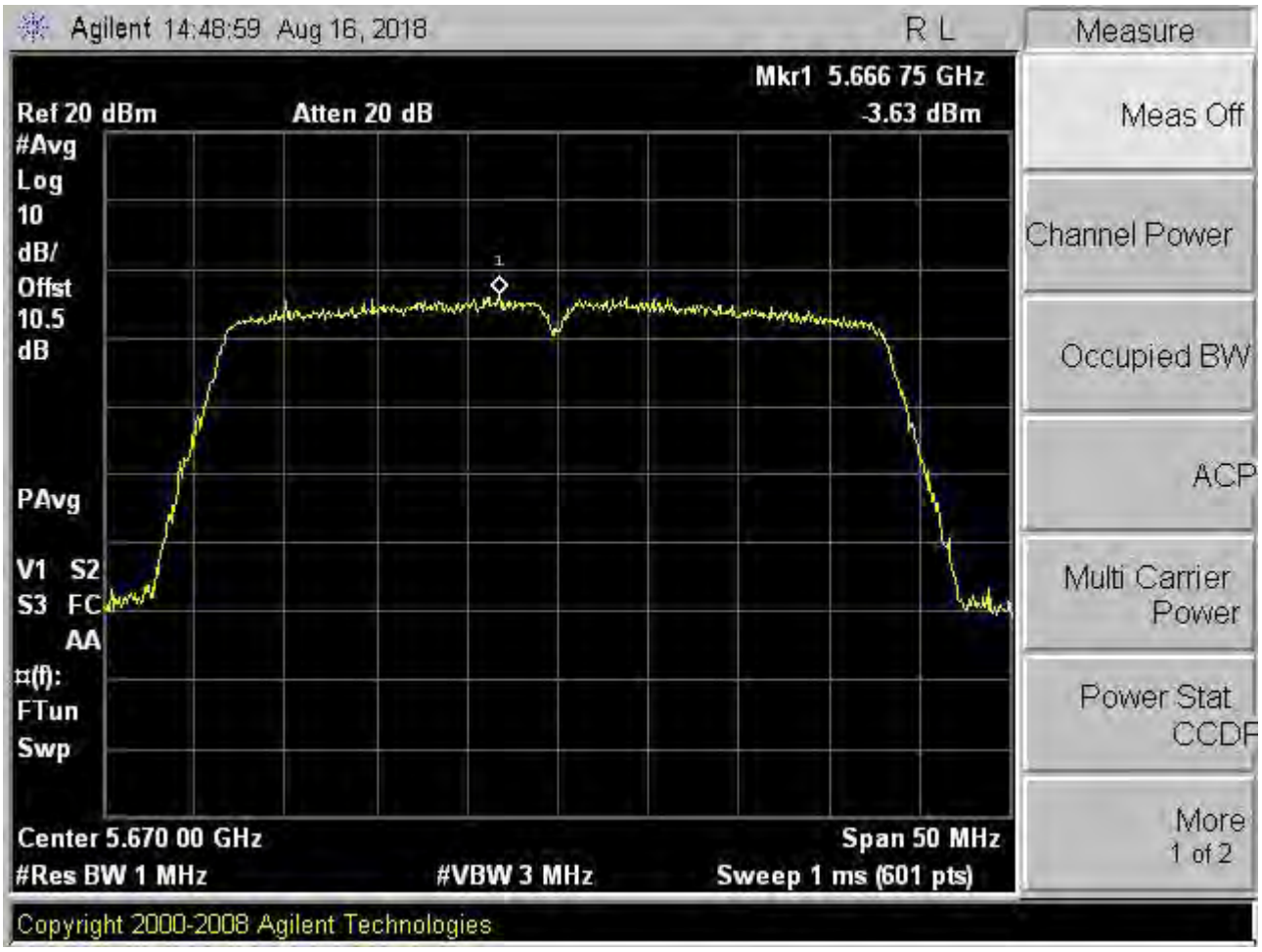
3. If antenna gain ≦ 6dBi, NCC Limit =11 dBm

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

5. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 14:22:10 Aug 16, 2018
R L
Measure
Mkr1 5.507 58 GHz
Ref 20 dBm
Atten 20 dB
-2.92 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.510 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 14:32:14 Aug 16, 2018
R L
Measure
Mkr1 5.595 17 GHz
Ref 20 dBm
Atten 20 dB
-3.16 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.590 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 14:48:59 Aug 16, 2018
R L
Measure
Mkr1 5.666 75 GHz
Ref 20 dBm
Atten 20 dB
-3.63 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
FTun
Swp
Center 5.670 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

8.4.3.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Total power density calculation formula:

10 log (10^(Chain 0 PPSD / 10) + 10^(Chain 1 PPSD / 10)

天線增益最大值為 8.32 dBi，NCC Limit 如下表所示：

Channel	Peak Power Spectral Density (dBm)			Total Peak Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
	Chain 0	Chain 1	Chain 2			
L	0.18	-2.92	n/a	1.91	8.68	-
M	-0.18	-3.16	n/a	1.59	8.68	-
H	-0.19	-3.63	n/a	1.43	8.68	-

註：1.功率頻譜密度 (Power Spectral Density) 為經儀器校正補償過後的結果值。

2. If antenna gain ≦ 6dBi, NCC Limit = 11 dBm

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

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

8.4.4 調變技術: IEEE 802.11ac (80MHz)

8.4.4.1 CHAIN 0

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

測試日期: Aug. 29, 2018 環境溫度: 24℃ 環境濕度: 60%

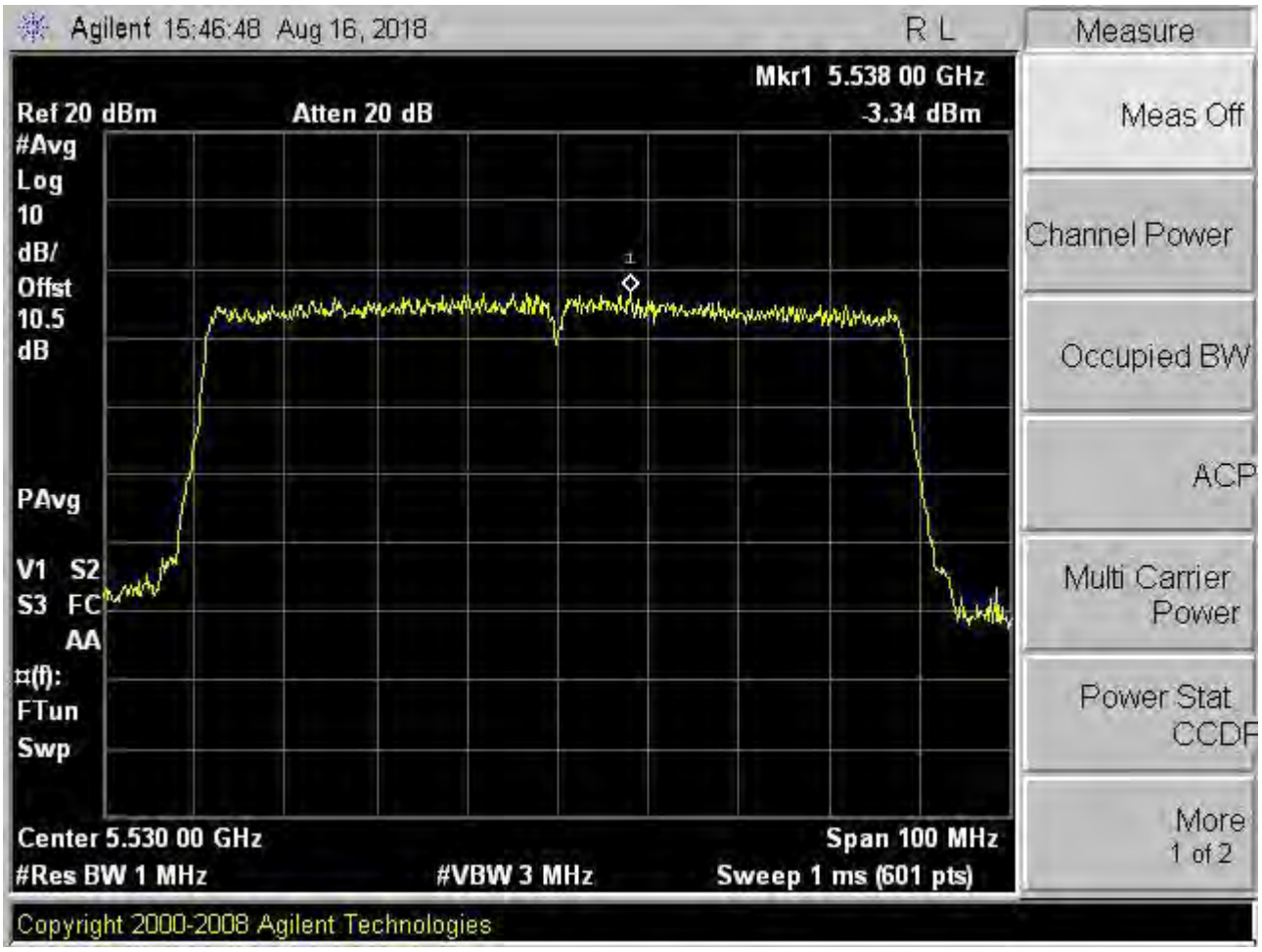
天線增益最大值為 5 dBi ，NCC Limit 如下表所示：

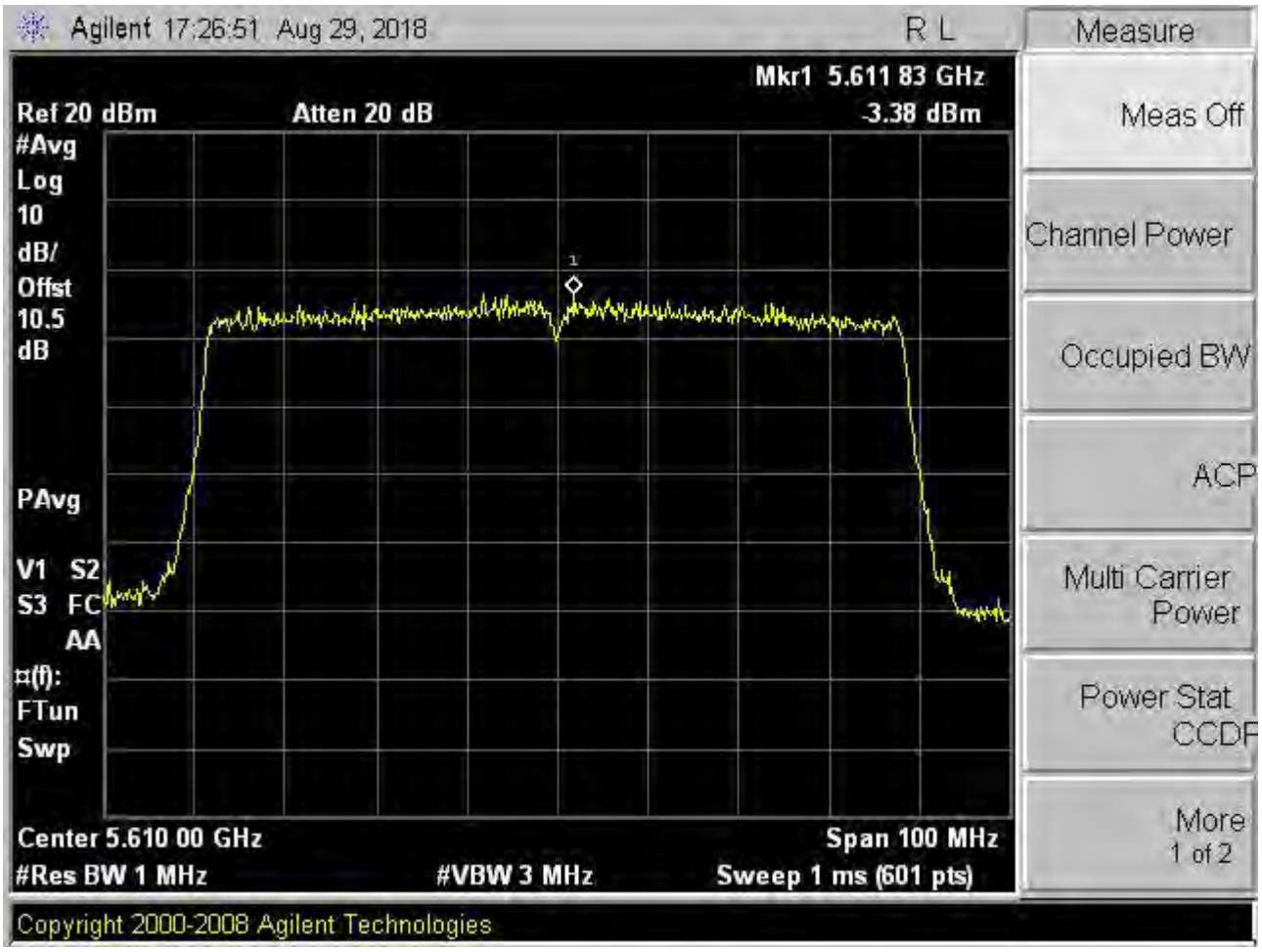
Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-3.34	11.00	Page 129
H	-3.38	11.00	Page 130

註：1. 繪圖資料請參考第 129-130 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 ≦ 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:±1.5dB(1GHz≦f≦18GHz)

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。


Agilent 15:46:48 Aug 16, 2018
R L
Measure
Mkr1 5.538 00 GHz
Ref 20 dBm
Atten 20 dB
-3.34 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.530 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:26:51 Aug 29, 2018
R L
Measure
Mkr1 5.611 83 GHz
Ref 20 dBm
Atten 20 dB
-3.38 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.610 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies

8.4.4.2 CHAIN 1

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

測試日期: Aug. 29, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6.dBi ，NCC Limit 如下表所示：

Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-7.00	11.00	Page 132
H	-7.45	11.00	Page 133

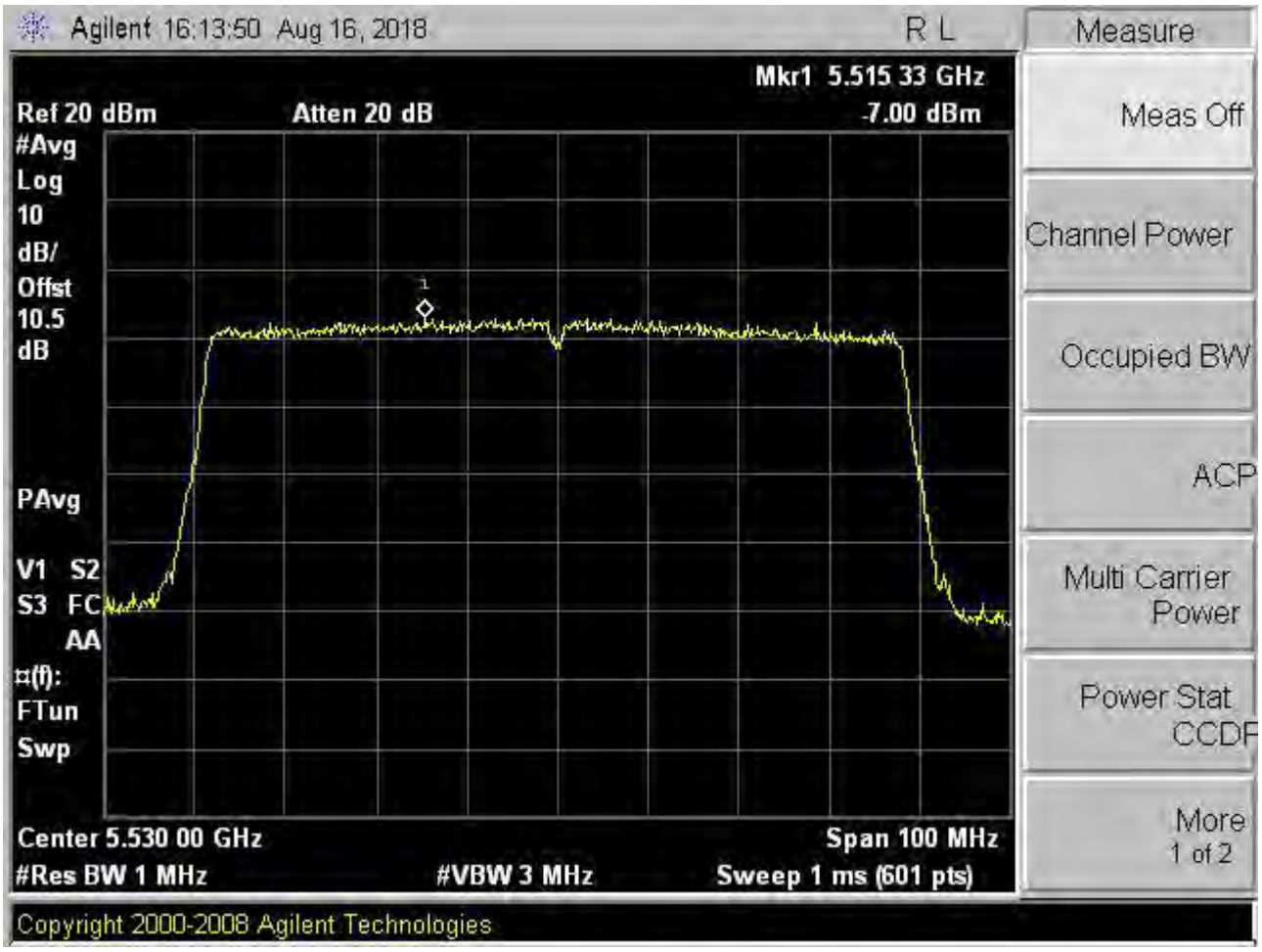
註：1. 繪圖資料請參考第 132-133 頁。

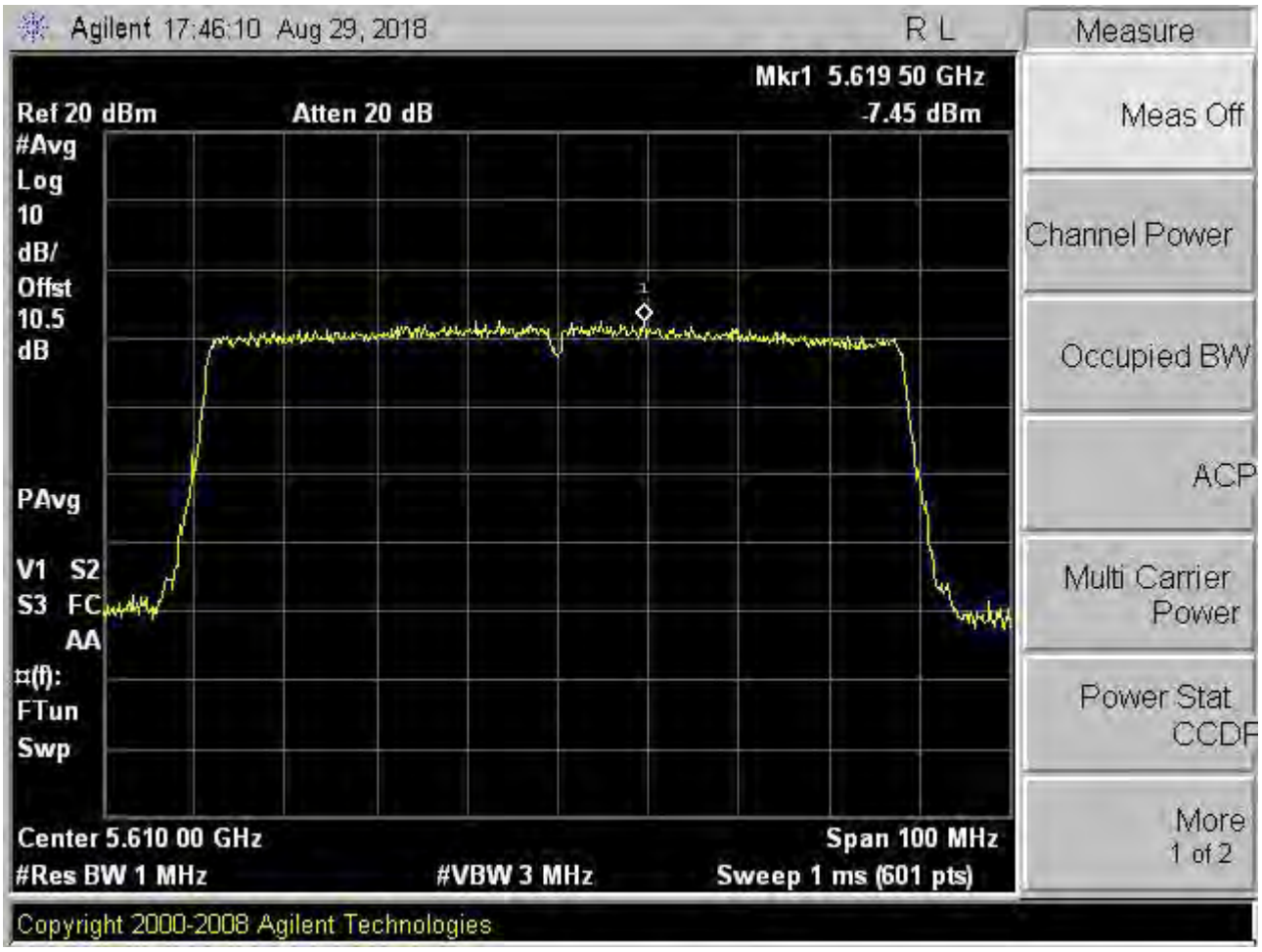
2. 功率頻譜密度 (Power Spectral Density) 為經儀器校正補償過後的結果值。

3. If antenna gain ≦ 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:±1.5dB(1GHz≦f≦18GHz)


Agilent 16:13:50 Aug 16, 2018
R L
Measure
Mkr1 5.515 33 GHz
Ref 20 dBm
Atten 20 dB
-7.00 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.530 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 17:46:10 Aug 29, 2018
R L
Measure
Mkr1 5.619 50 GHz
Ref 20 dBm
Atten 20 dB
-7.45 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Center 5.610 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies

8.4.4.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Total power density calculation formula:

10 log (10^(Chain 0 PPSD / 10) + 10^(Chain 1 PPSD / 10)

天線增益最大值為 8.32 dBi，NCC Limit 如下表所示：

Channel	Peak Power Spectral Density (dBm)			Total Peak Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
	Chain 0	Chain 1	Chain 2			
L	-3.34	-7.00	n/a	-1.79	8.68	-
H	-3.38	-7.45	n/a	-1.94	8.68	-

註：1.功率頻譜密度 (Power Spectral Density) 為經儀器校正補償過後的結果值。

2. If antenna gain ≦ 6dBi, NCC Limit = 11 dBm

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

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

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。

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	Agilent	E4446A
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:

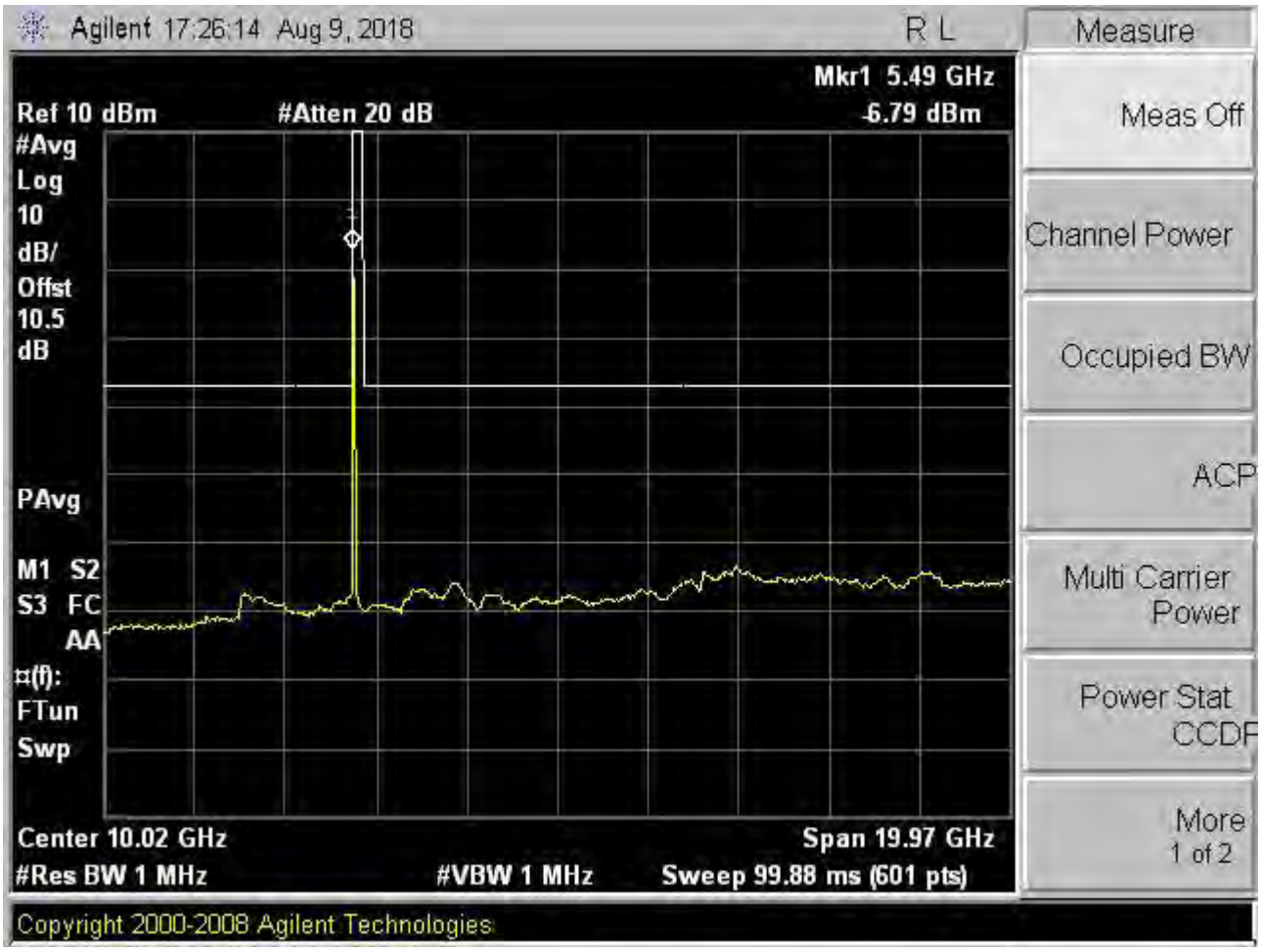
Eirp Limit – Antenna Directional Gain – 10 log[number of Tx output(s)]

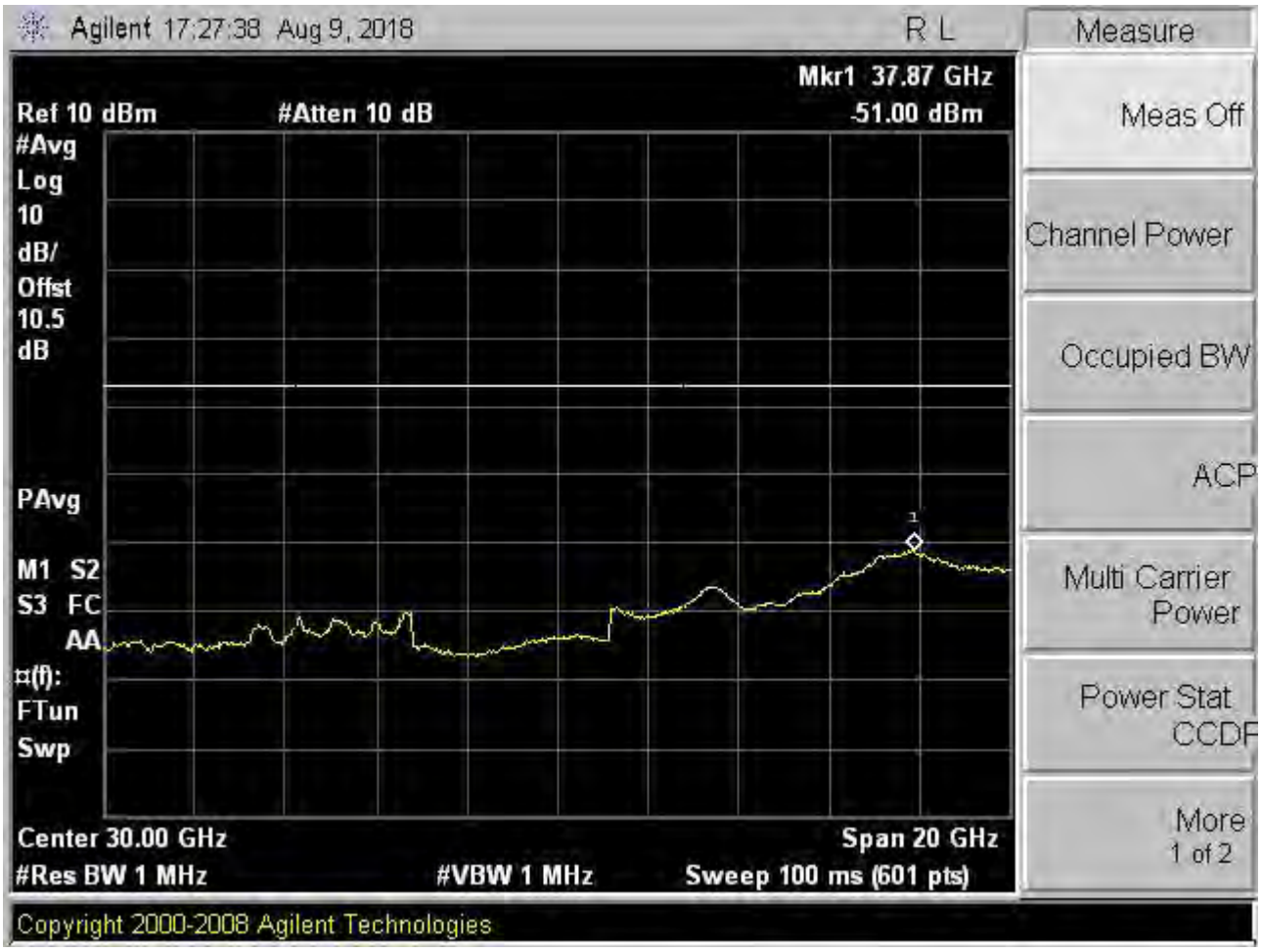
測試工程師: 羅世勇

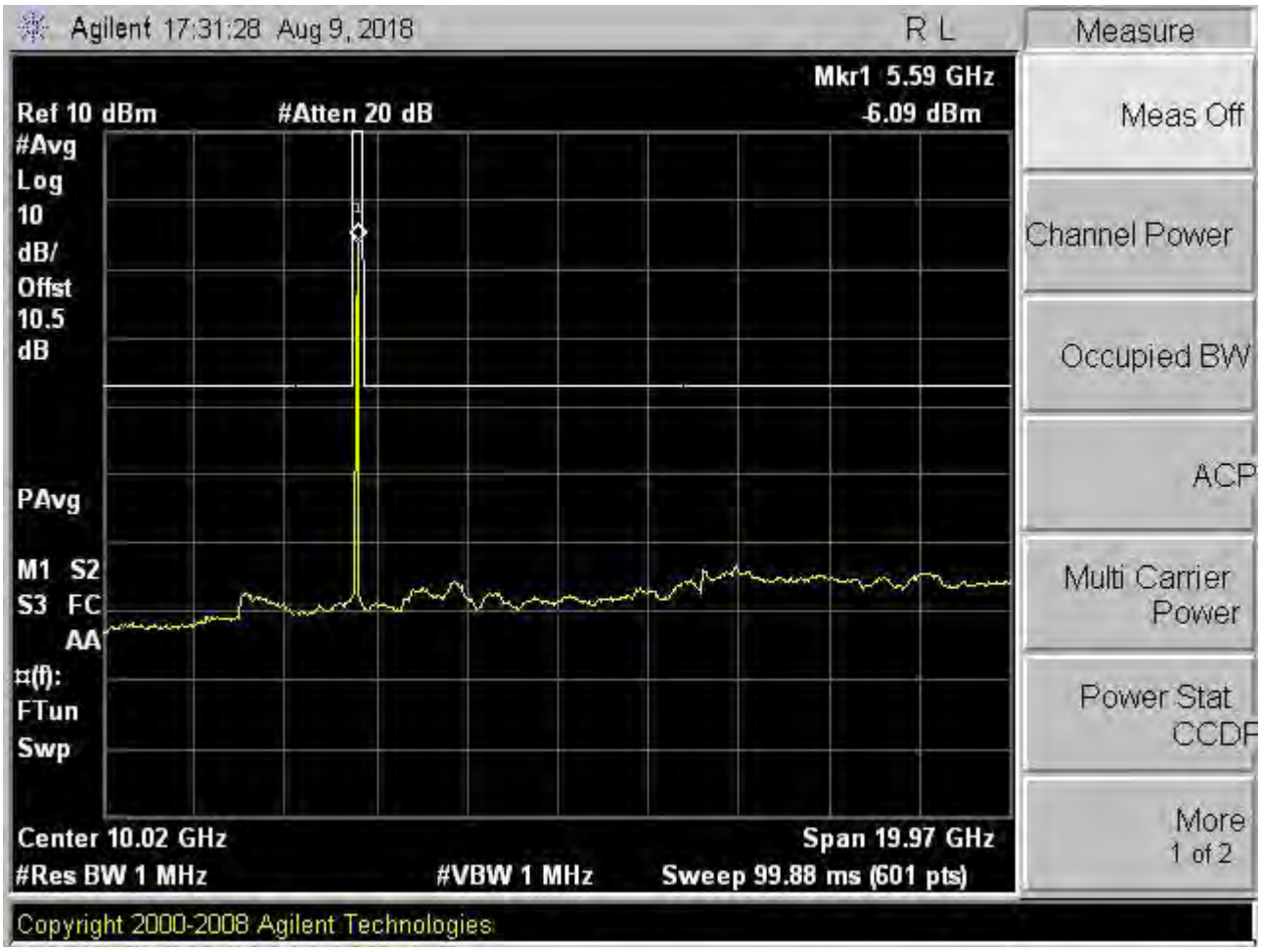
9.4.1 調變技術: IEEE 802.11a

測試日期: Aug. 09, 2018　　環境溫度: 24℃　　環境濕度: 60%

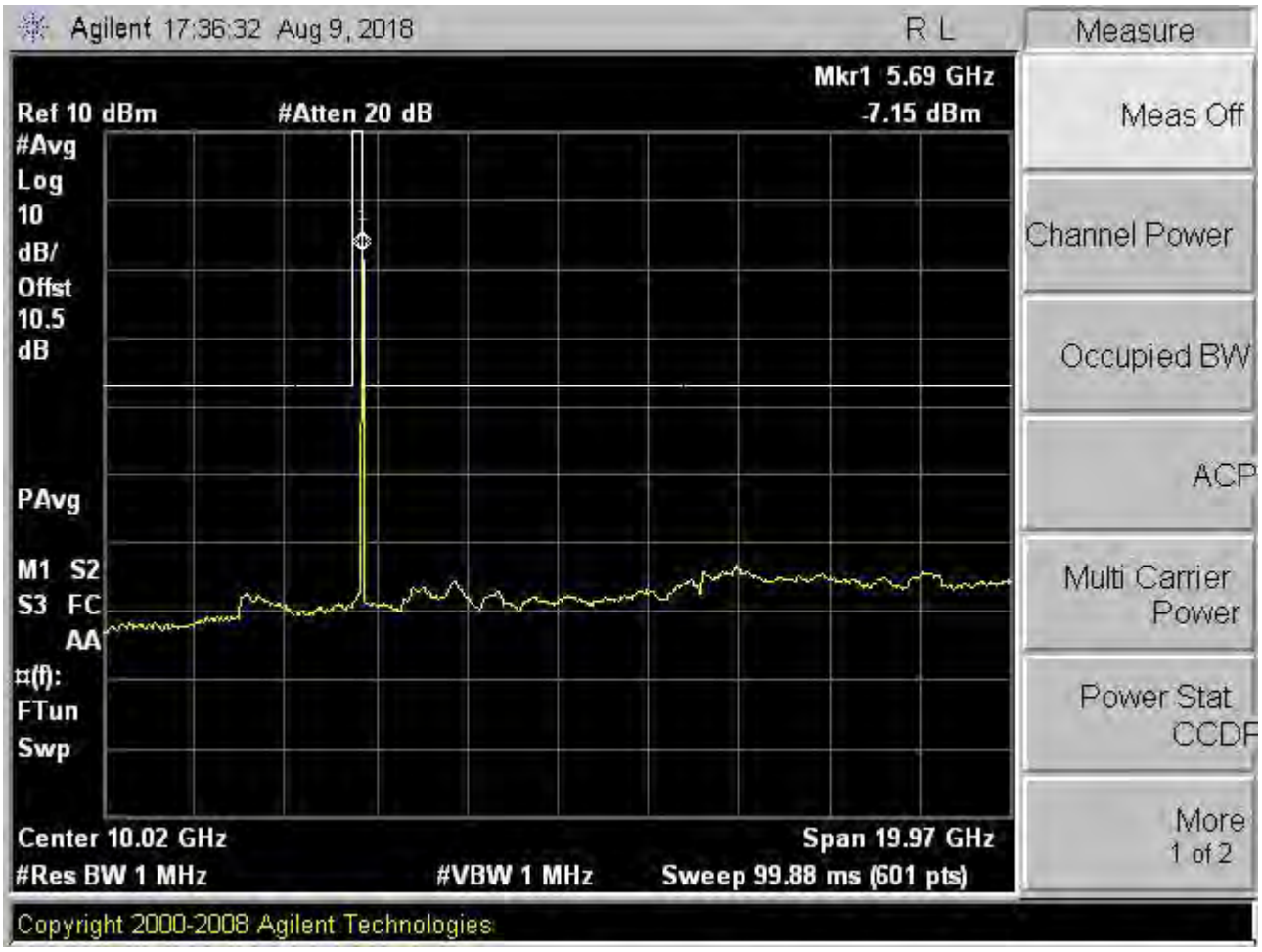
註：1. 繪圖資料請參考第 136-141 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦40GHz)

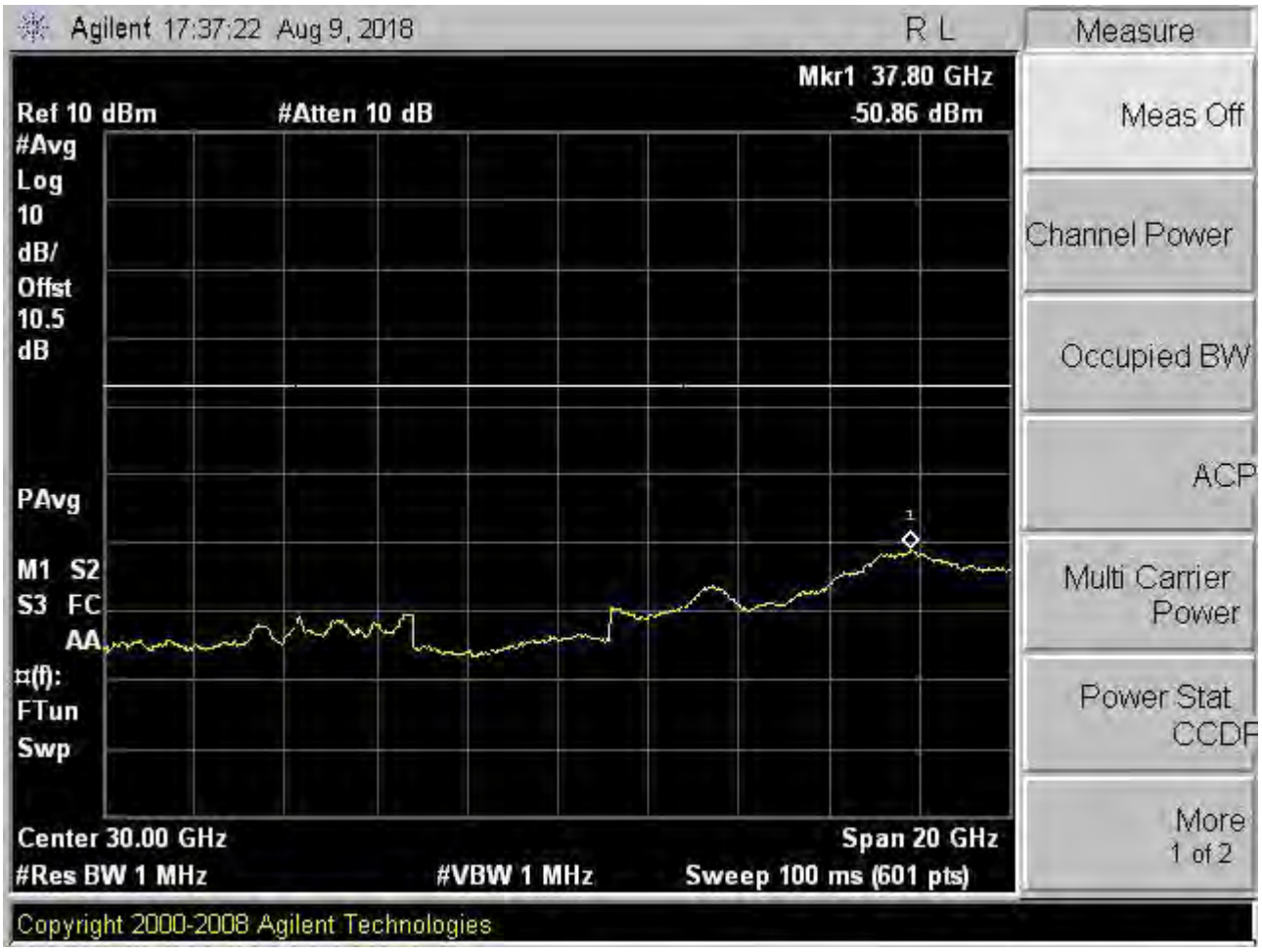

Agilent 17:26:14 Aug 9, 2018
R L
Measure
Mkr1 5.49 GHz
Ref 10 dBm
#Atten 20 dB
-6.79 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:27:38 Aug 9, 2018
R L
Measure
Mkr1 37.87 GHz
Ref 10 dBm
#Atten 10 dB
-51.00 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:31:28 Aug 9, 2018
R L
Measure
Mkr1 5.59 GHz
Ref 10 dBm
#Atten 20 dB
-6.09 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 17:32:22 Aug 9, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-50.89 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:36:32 Aug 9, 2018
R L
Measure
Mkr1 5.69 GHz
Ref 10 dBm
#Atten 20 dB
-7.15 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

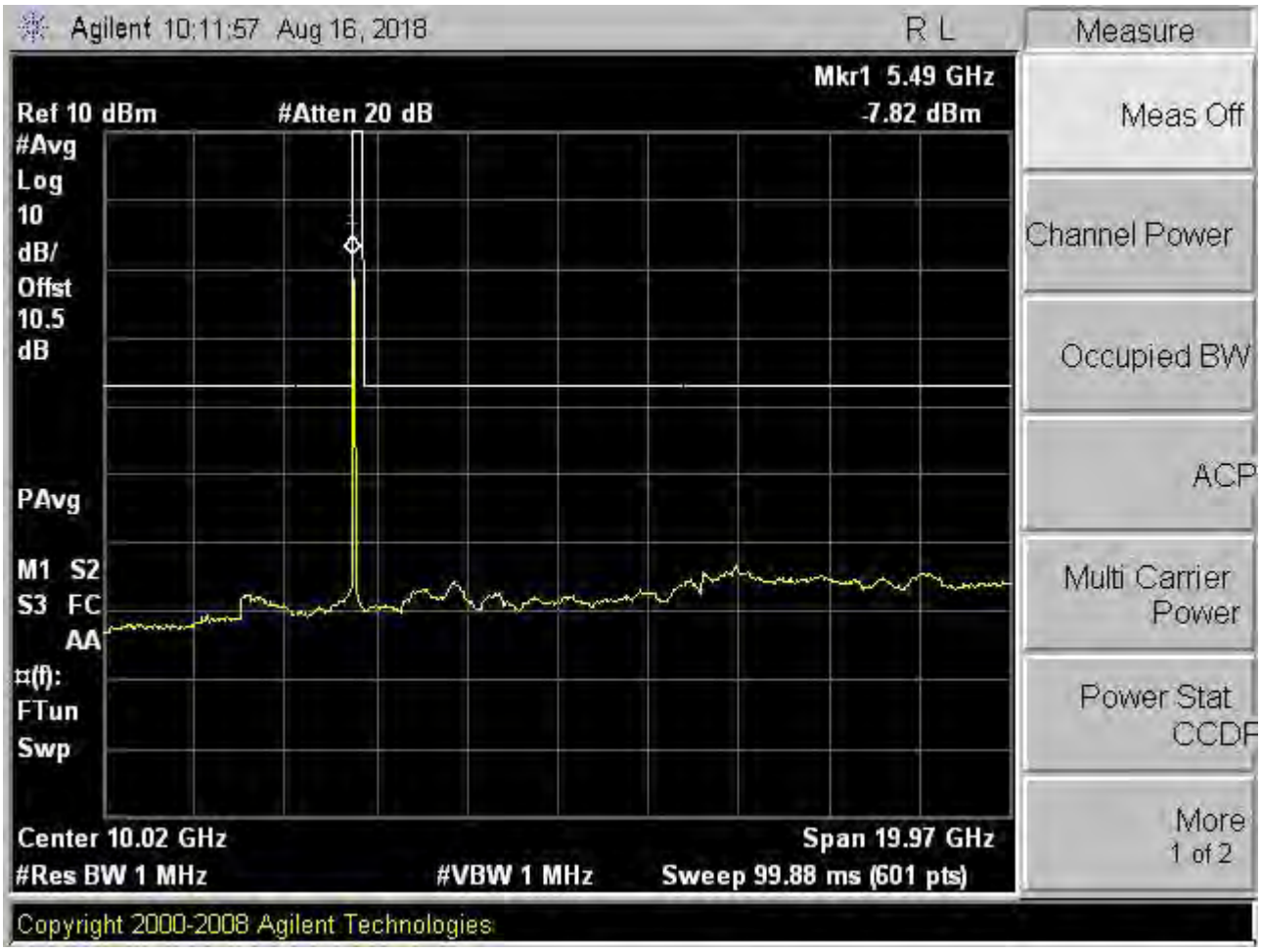

Agilent 17:37:22 Aug 9, 2018
R L
Measure
Mkr1 37.80 GHz
Ref 10 dBm
#Atten 10 dB
-50.86 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

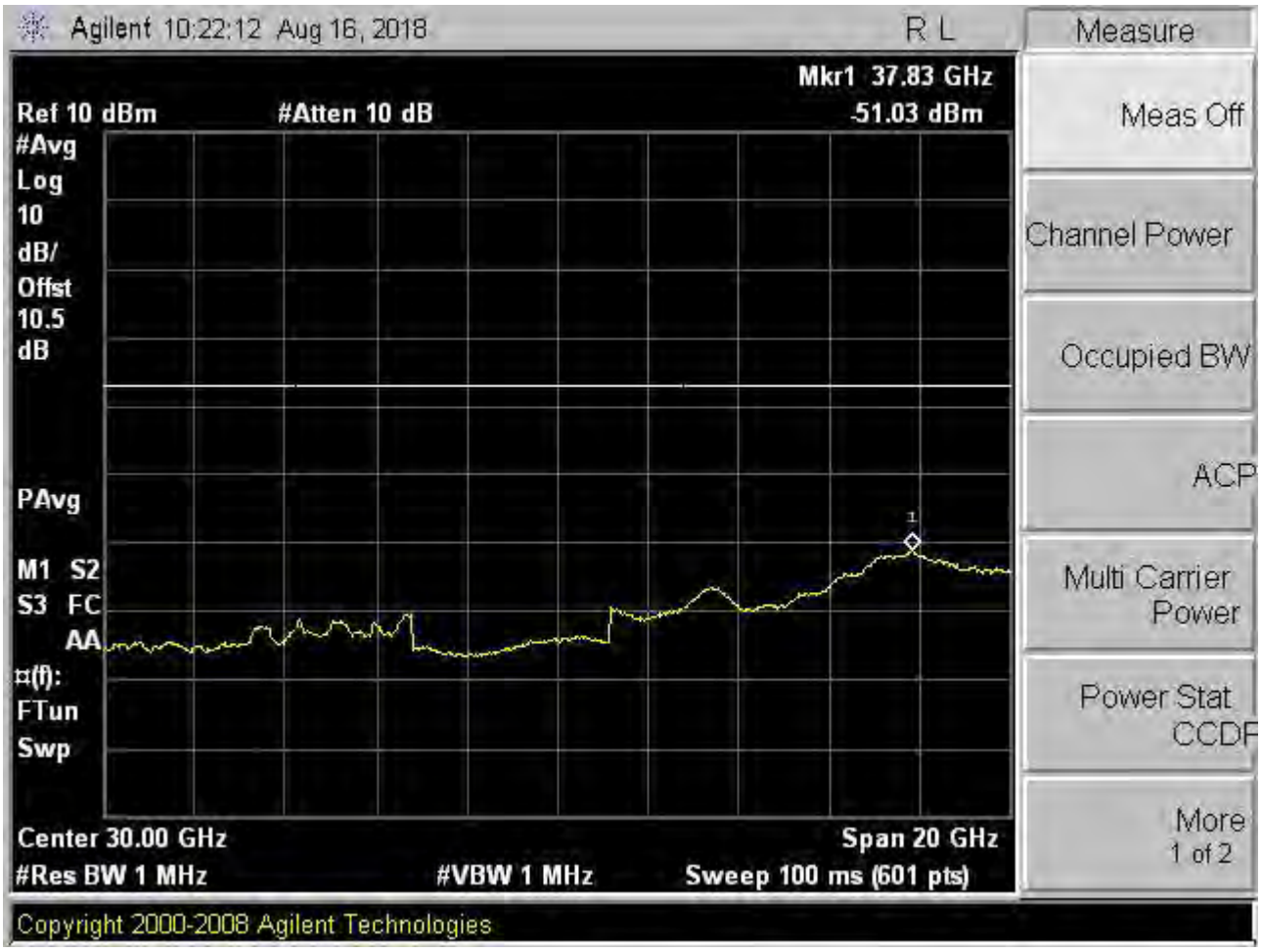
9.4.2 調變技術:IEEE 802.11an HT20

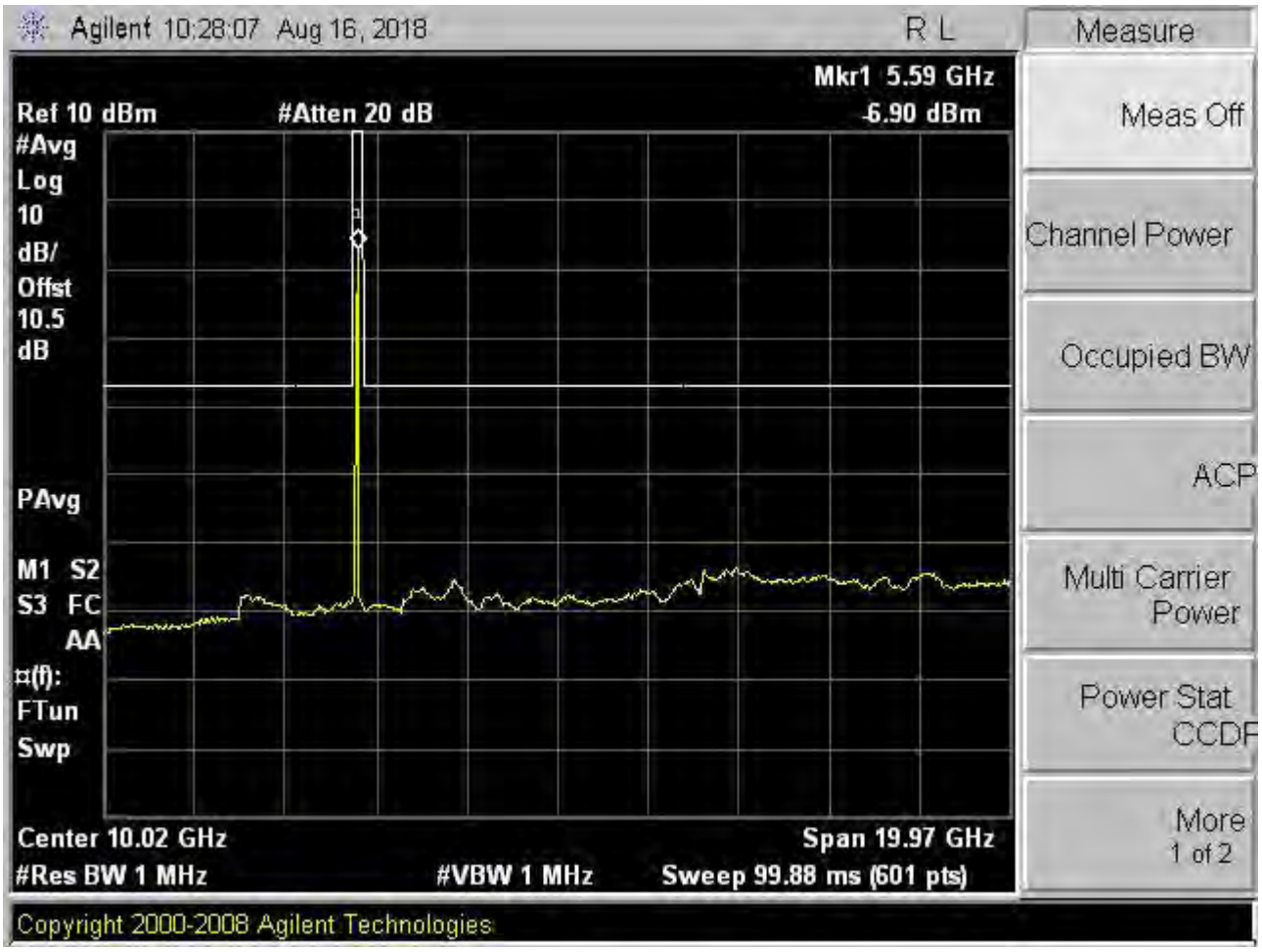
9.4.2.1 CHAIN 0

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

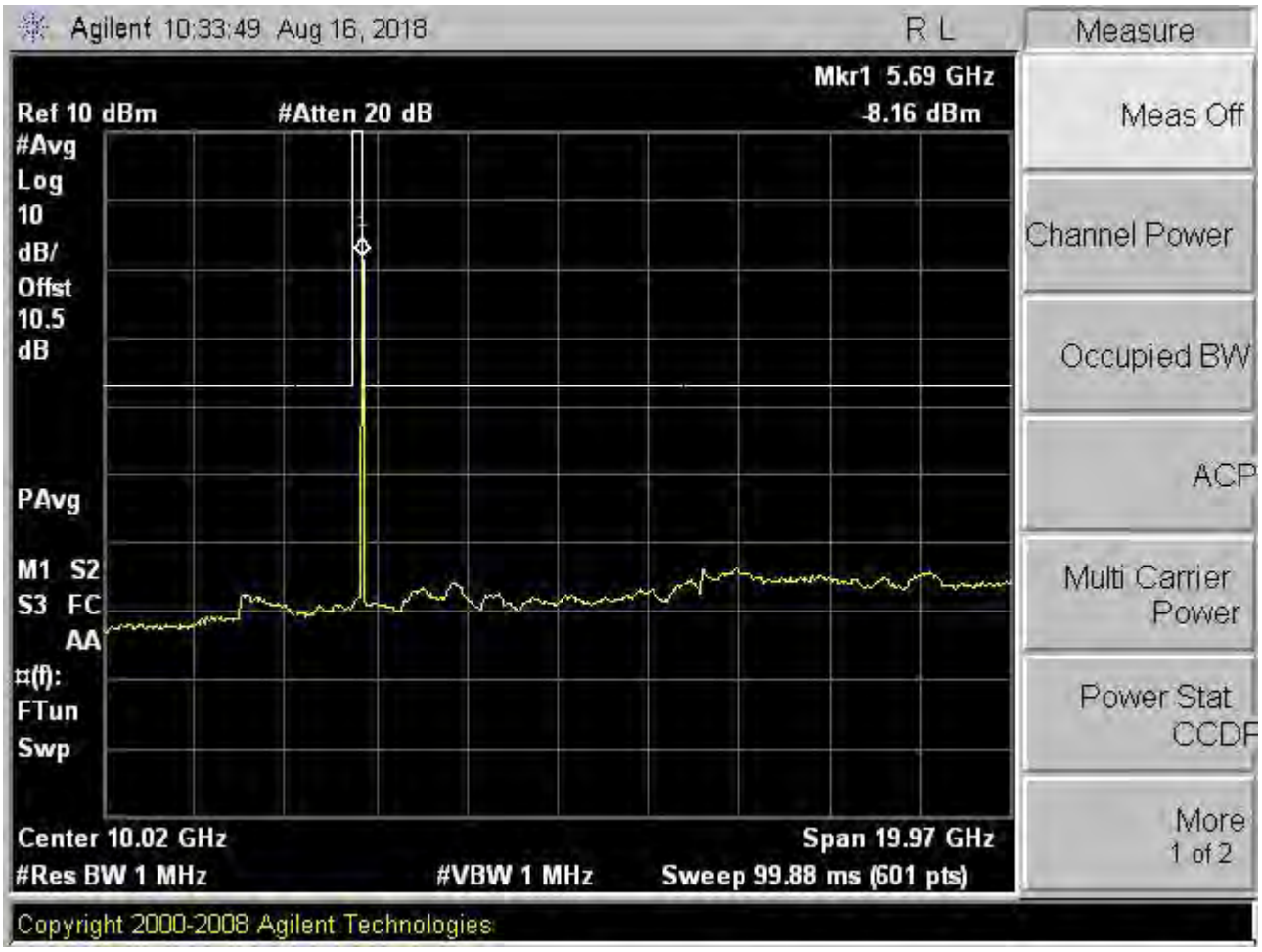
註：1. 繪圖資料請參考第 143-148 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦40GHz)

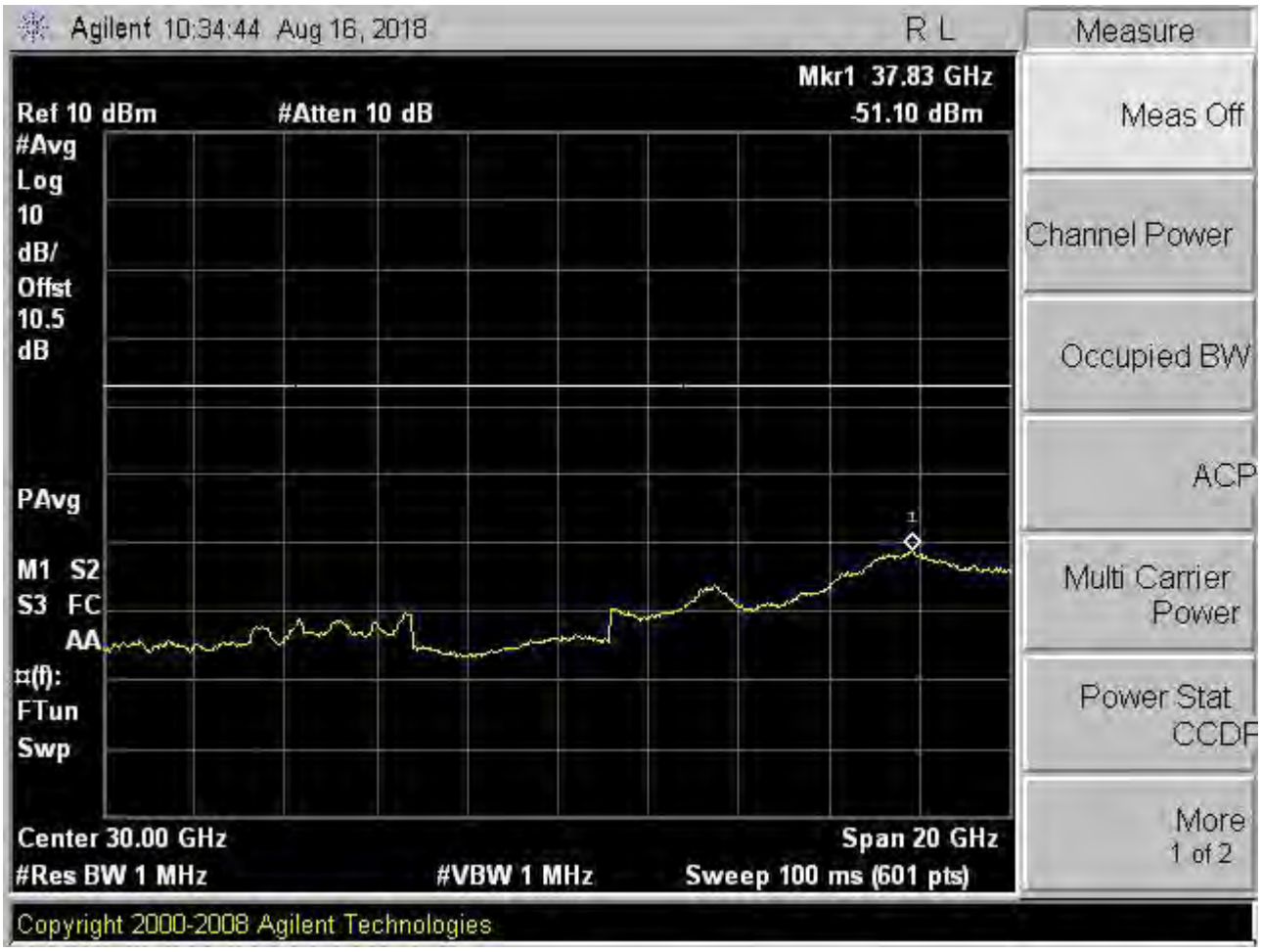

Agilent 10:11:57 Aug 16, 2018
R L
Measure
Mkr1 5.49 GHz
Ref 10 dBm
#Atten 20 dB
-7.82 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 10:22:12 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.03 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 10:28:07 Aug 16, 2018
R L
Measure
Mkr1 5.59 GHz
Ref 10 dBm
#Atten 20 dB
-6.90 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 10:29:03 Aug 16, 2018
R L
Measure
Mkr1 37.77 GHz
Ref 10 dBm
#Atten 10 dB
-51.14 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

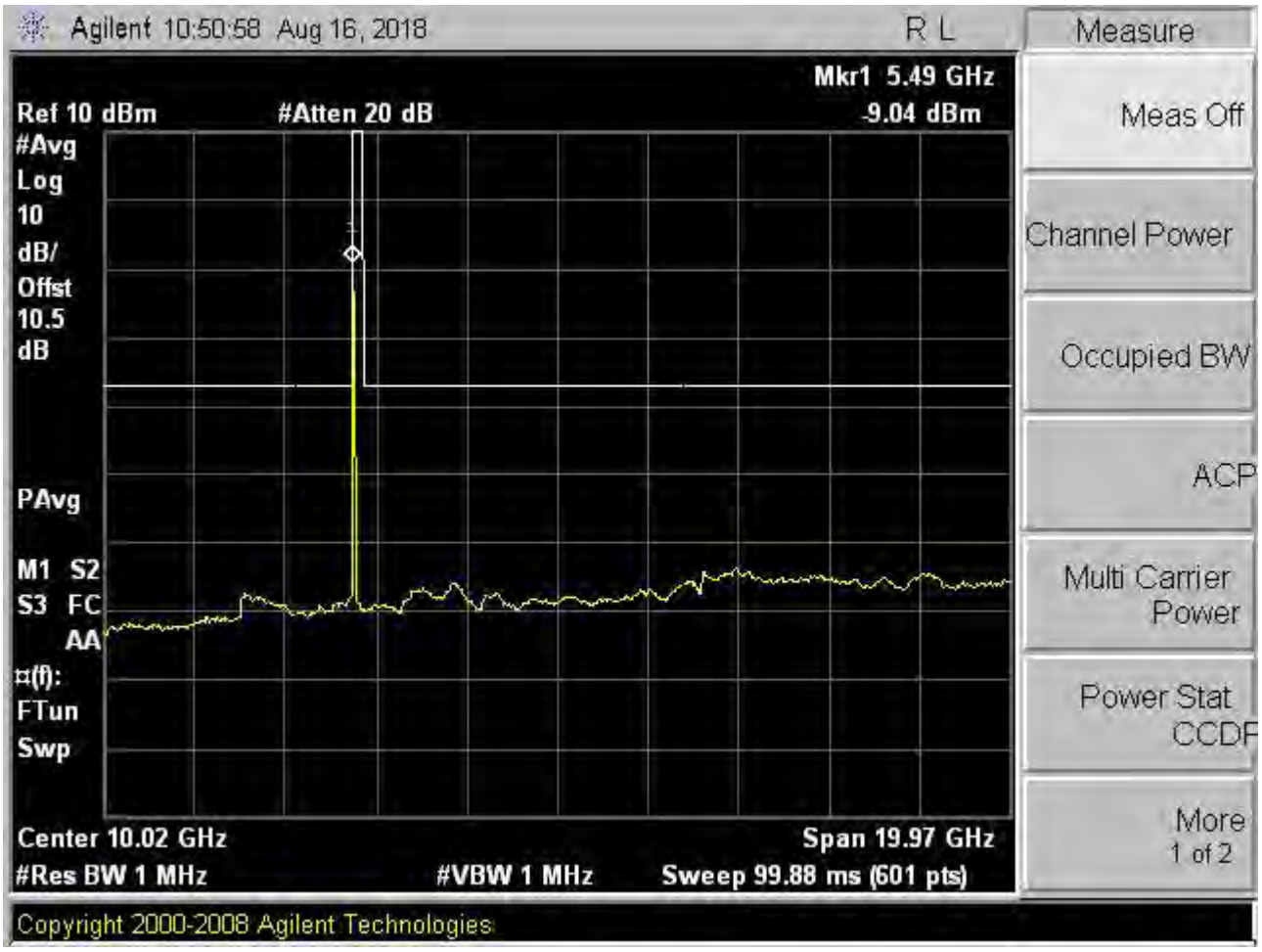

Agilent 10:33:49 Aug 16, 2018
R L
Measure
Mkr1 5.69 GHz
Ref 10 dBm
#Atten 20 dB
-8.16 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

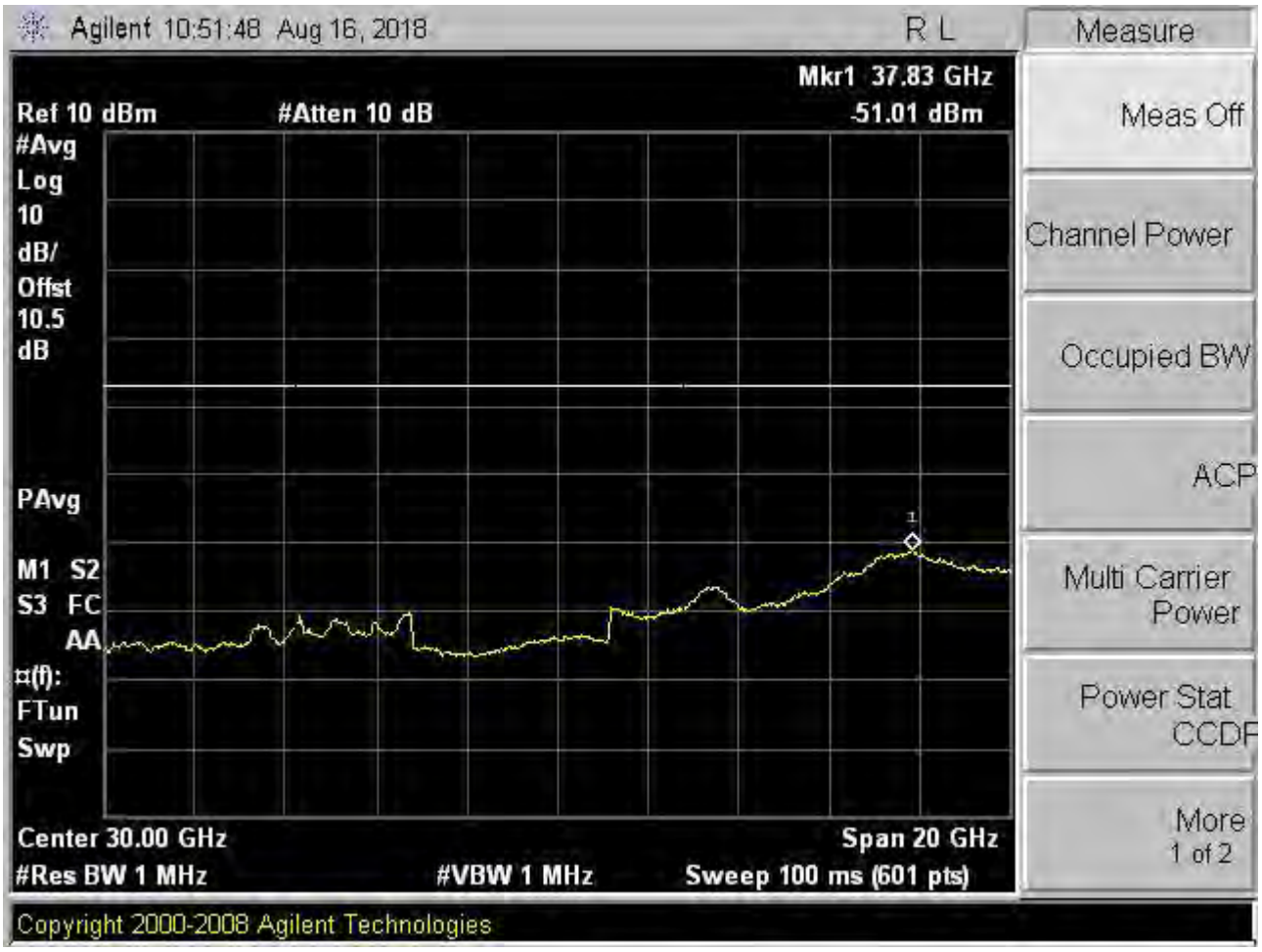

Agilent 10:34:44 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.10 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

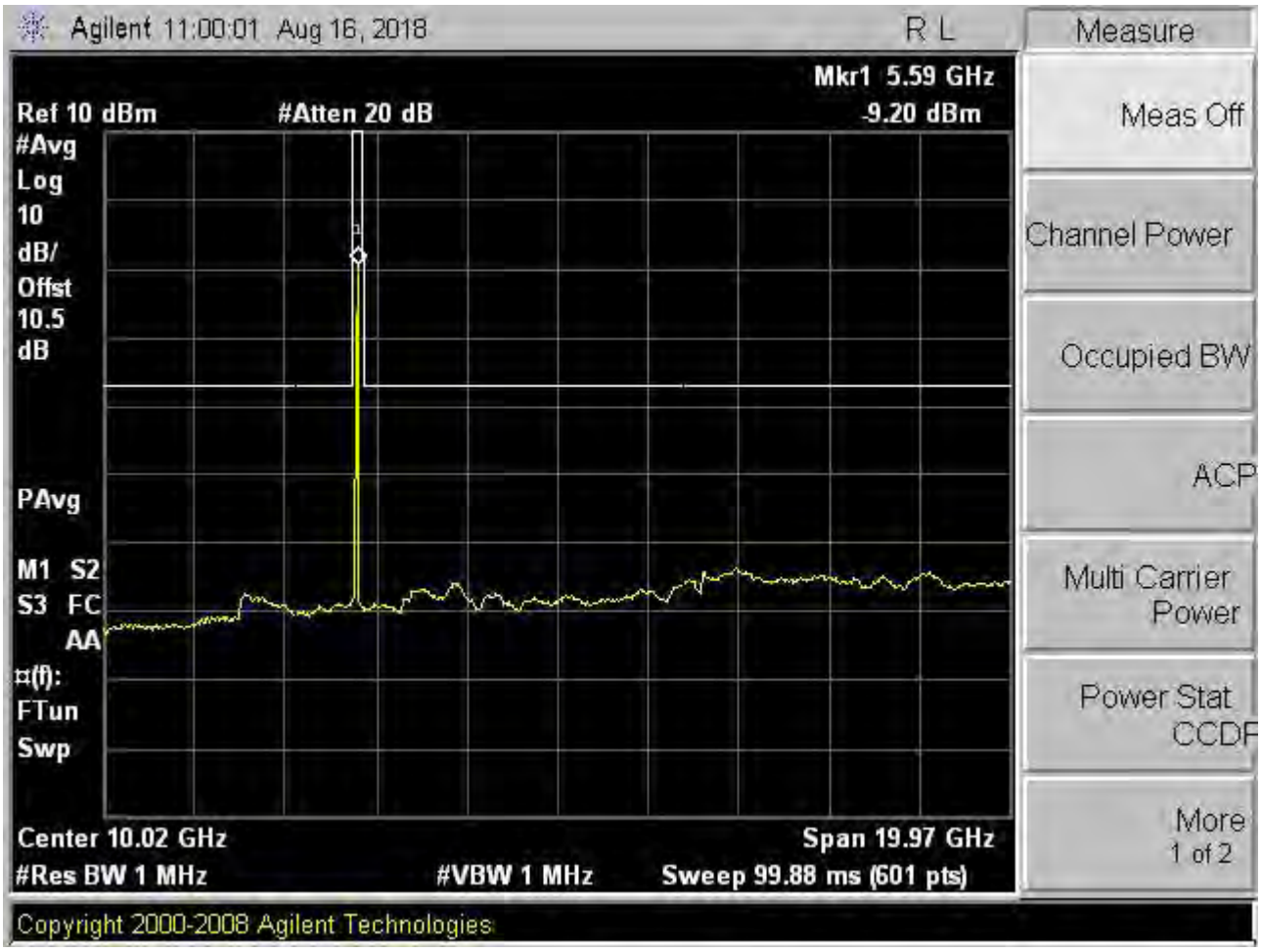
9.4.2.2 CHAIN 1

測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

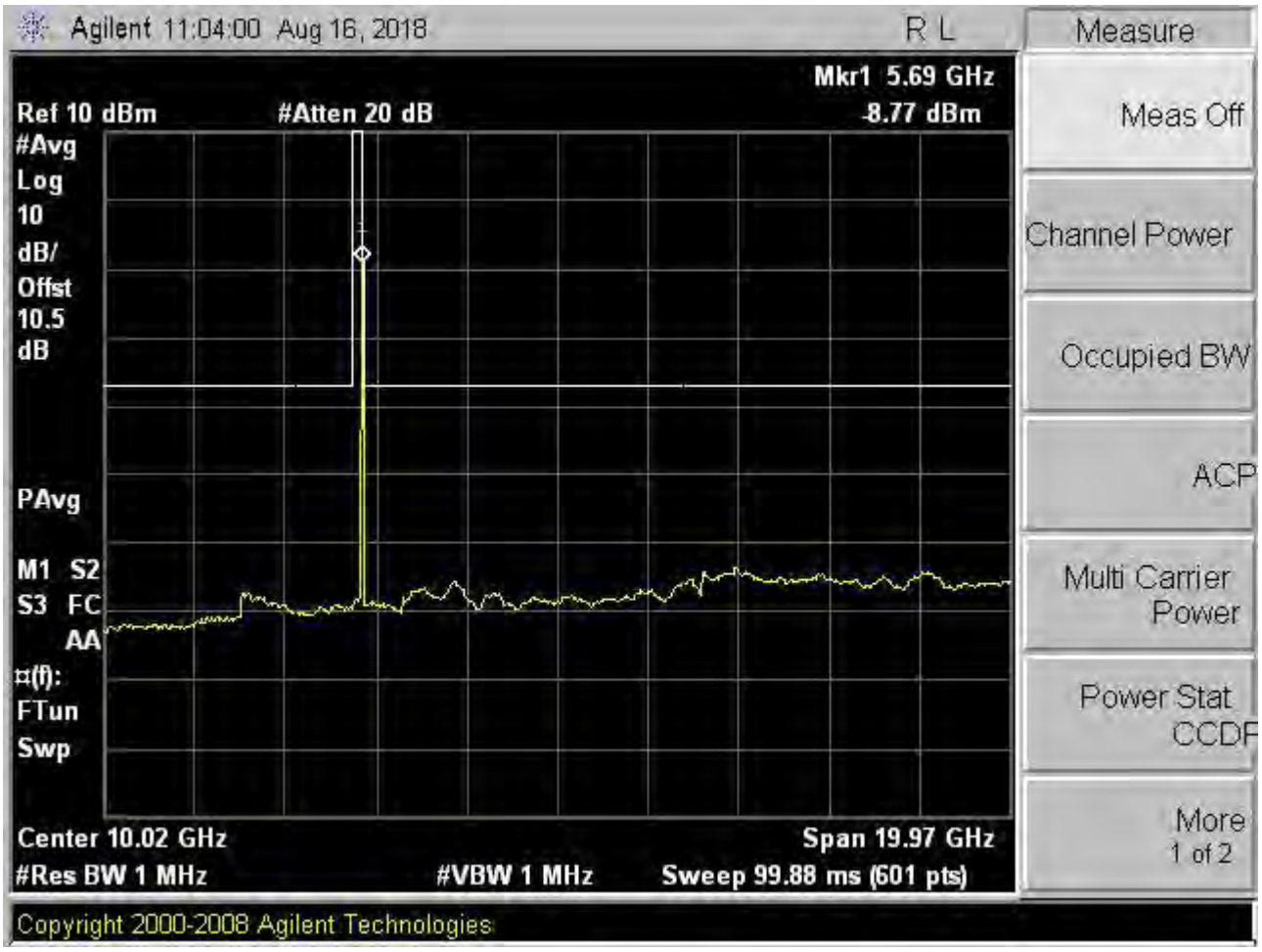
註：1. 繪圖資料請參考第 150-155 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦40GHz)

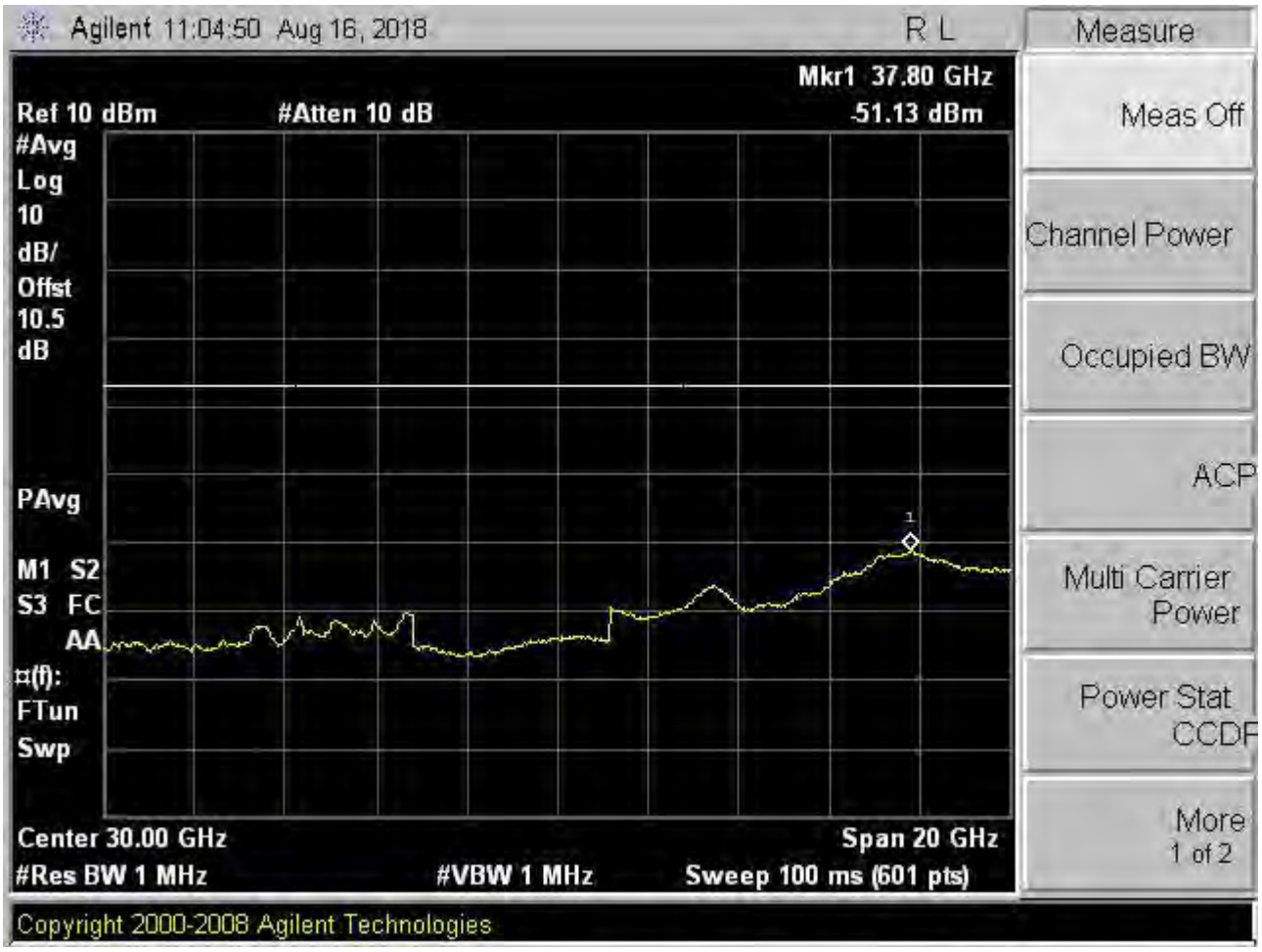

Agilent 10:50:58 Aug 16, 2018
R L
Measure
Mkr1 5.49 GHz
Ref 10 dBm
#Atten 20 dB
-9.04 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 10:51:48 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.01 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 11:00:01 Aug 16, 2018
R L
Measure
Mkr1 5.59 GHz
Ref 10 dBm
#Atten 20 dB
-9.20 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 11:00:51 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-50.95 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 11:04:00 Aug 16, 2018
R L
Measure
Mkr1 5.69 GHz
Ref 10 dBm
#Atten 20 dB
-8.77 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

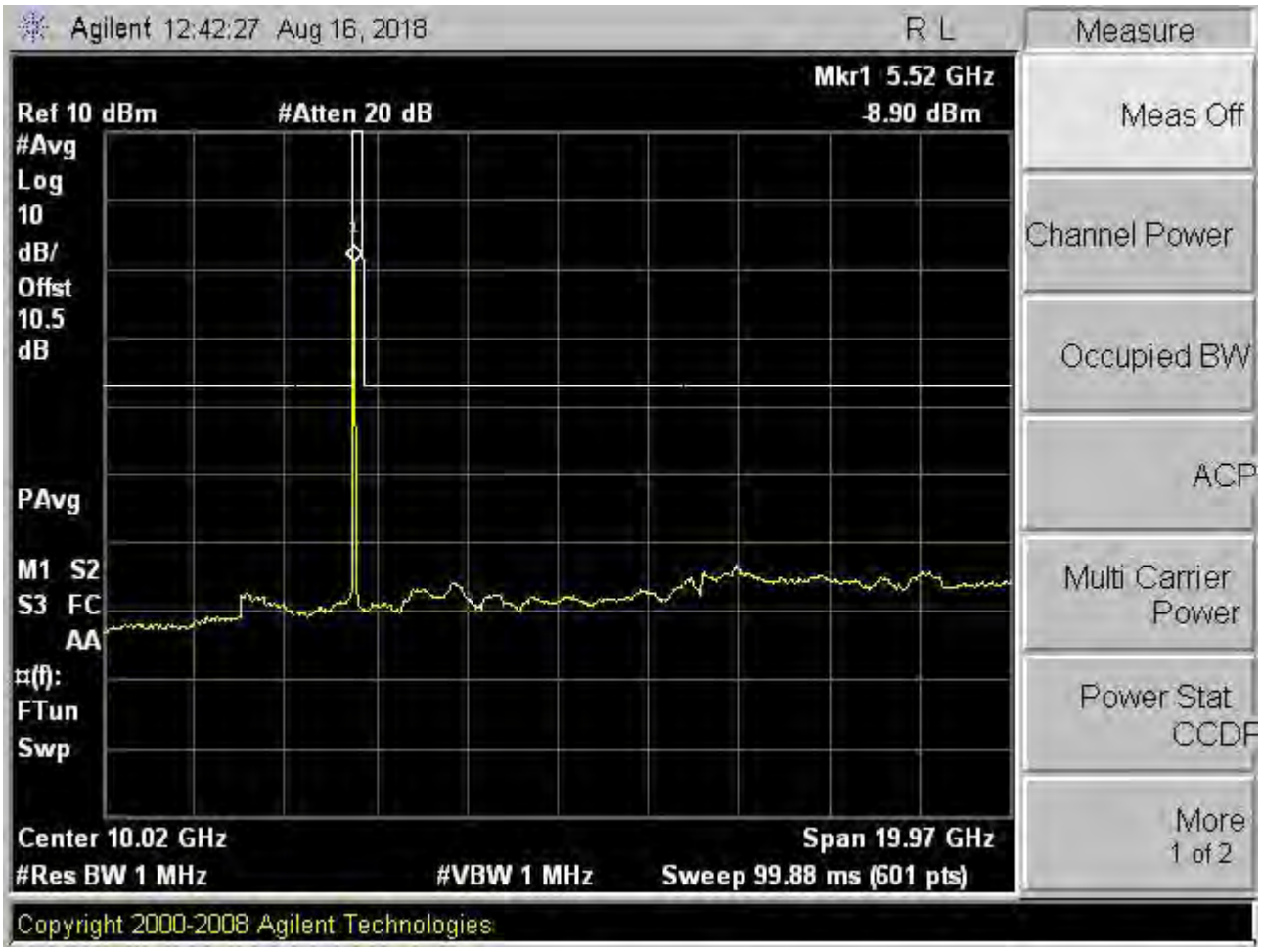

Agilent 11:04:50 Aug 16, 2018
R L
Measure
Mkr1 37.80 GHz
Ref 10 dBm
#Atten 10 dB
-51.13 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
1
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

9.4.3 調變技術: IEEE 802.11an HT40

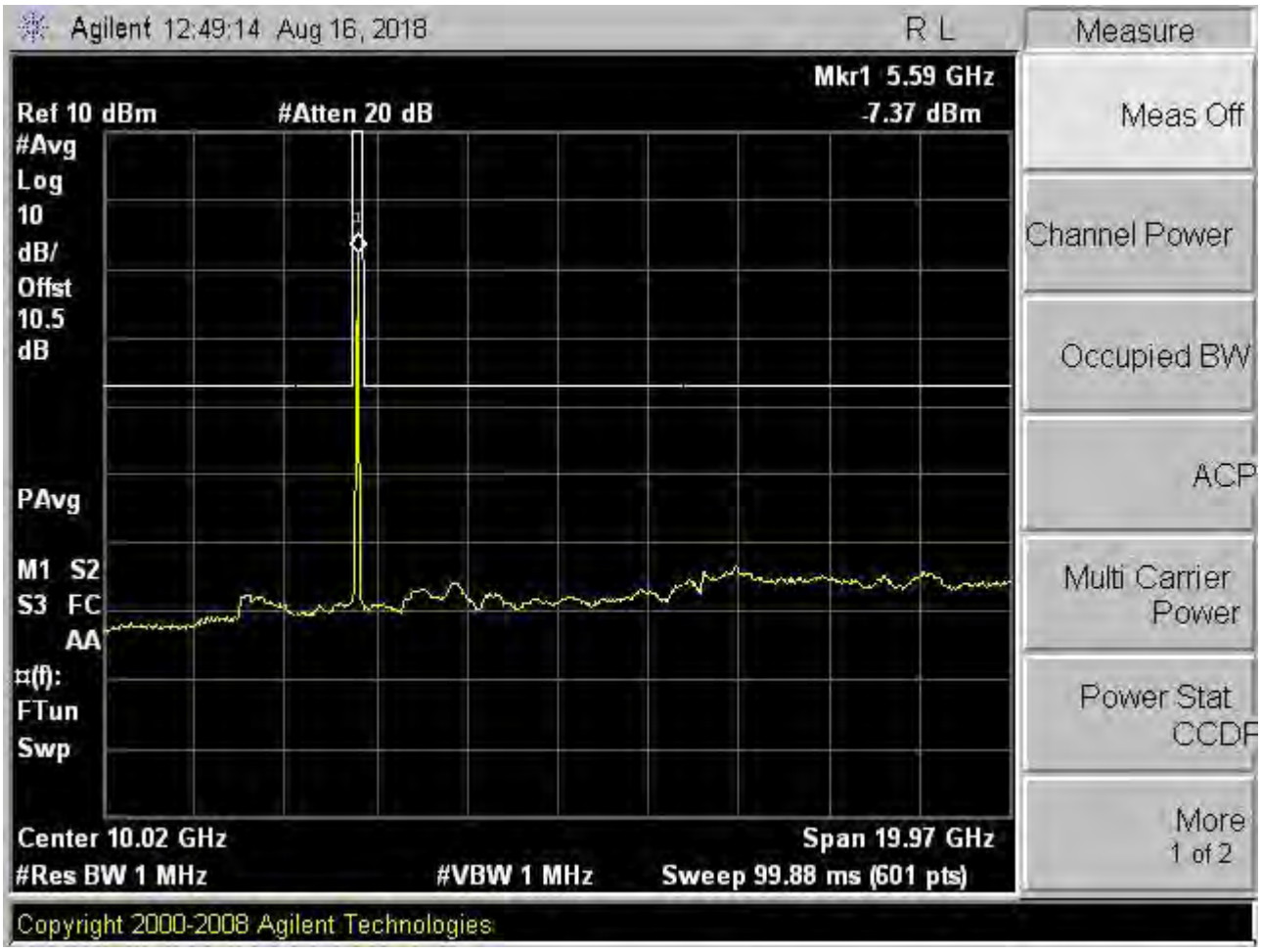
9.4.3.1 CHAIN 0

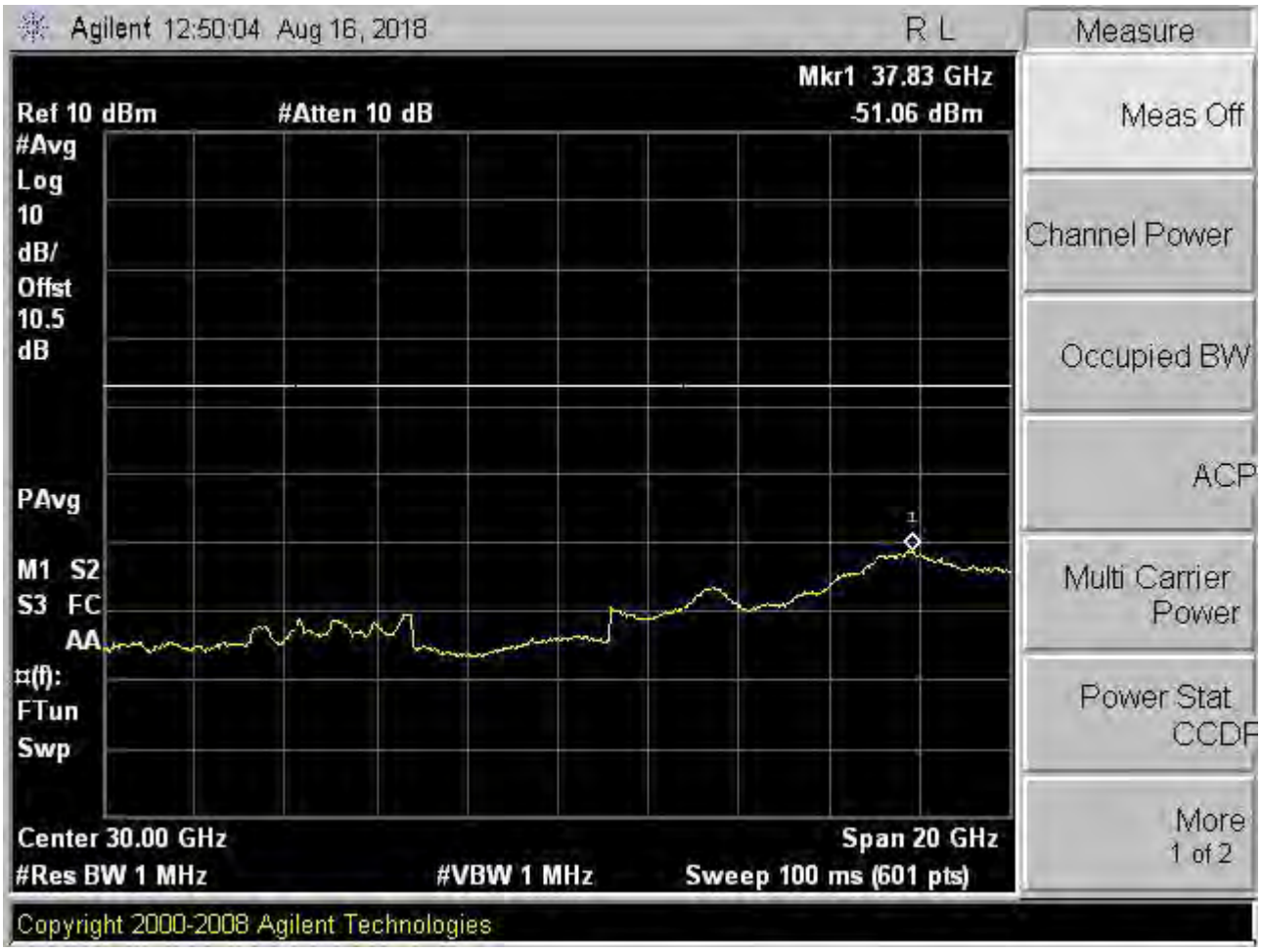
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

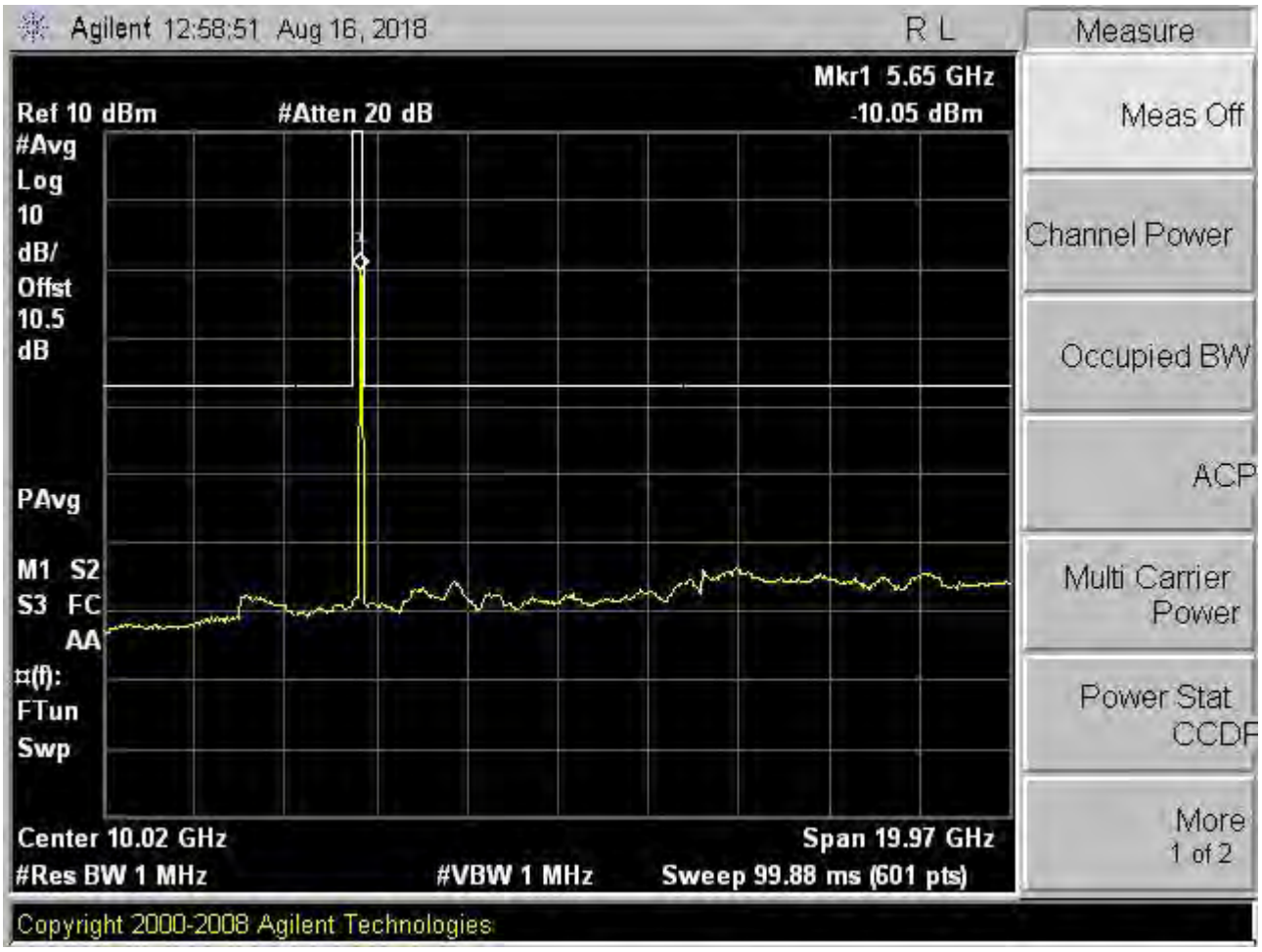
註：1. 繪圖資料請參考第 157-162 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦40GHz)

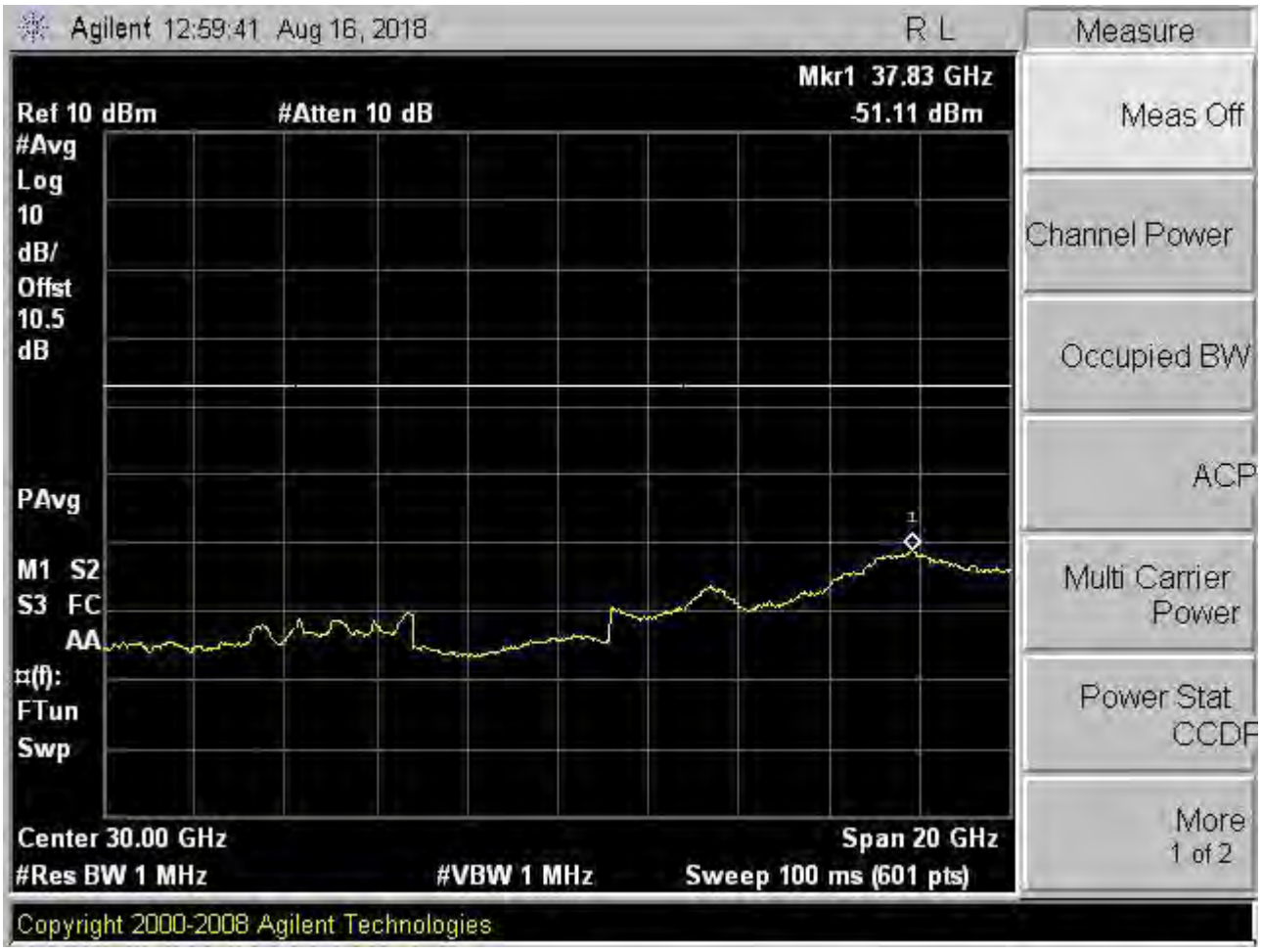

Agilent 12:42:27 Aug 16, 2018
R L
Measure
Mkr1 5.52 GHz
Ref 10 dBm
#Atten 20 dB
-8.90 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 12:43:36 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.12 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 12:49:14 Aug 16, 2018
R L
Measure
Mkr1 5.59 GHz
-7.37 dBm
Ref 10 dBm
#Atten 20 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 12:50:04 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.06 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

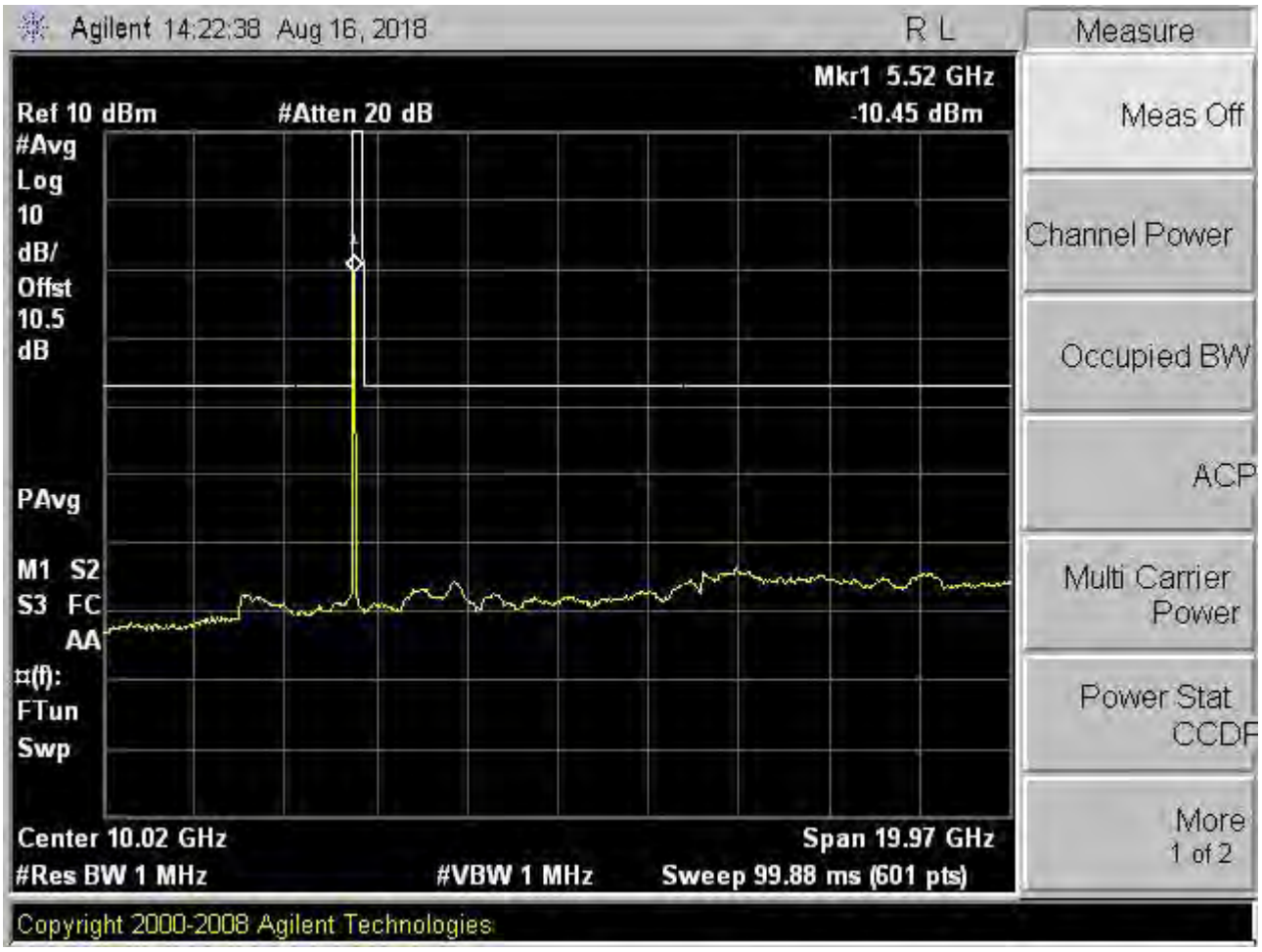

Agilent 12:58:51 Aug 16, 2018
R L
Measure
Mkr1 5.65 GHz
Ref 10 dBm
#Atten 20 dB
-10.05 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 12:59:41 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.11 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

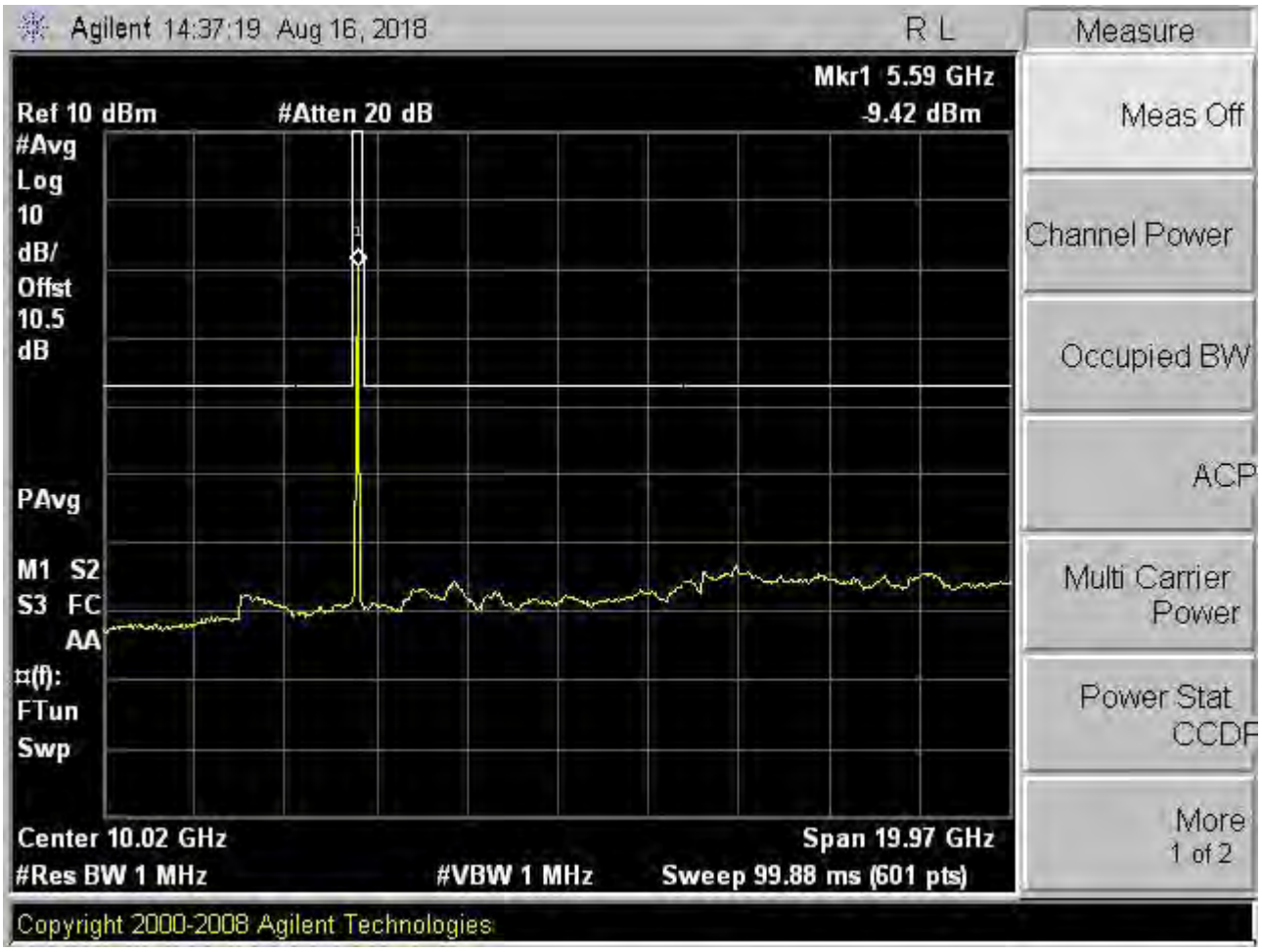
9.4.3.2 CHAIN 1

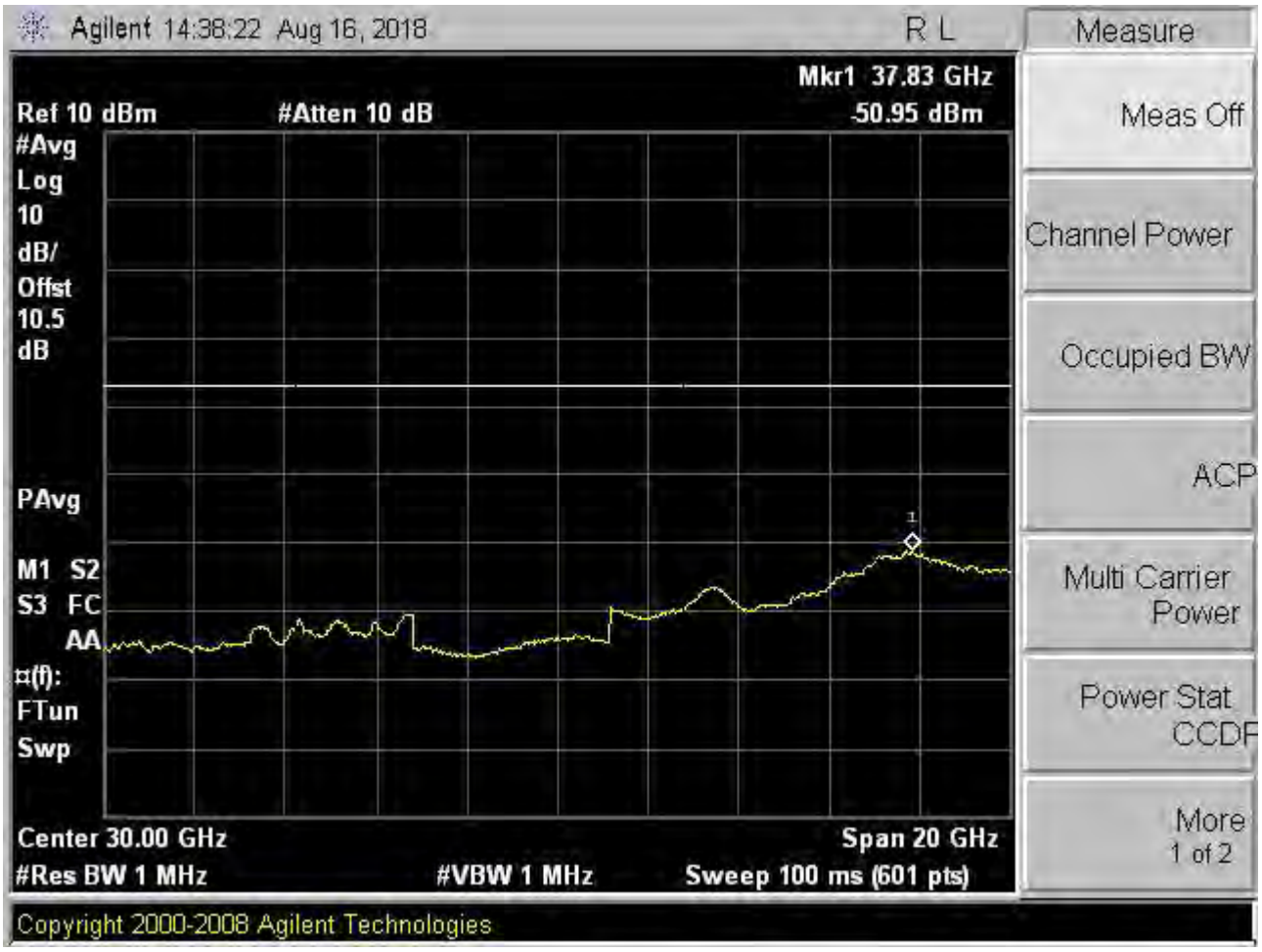
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

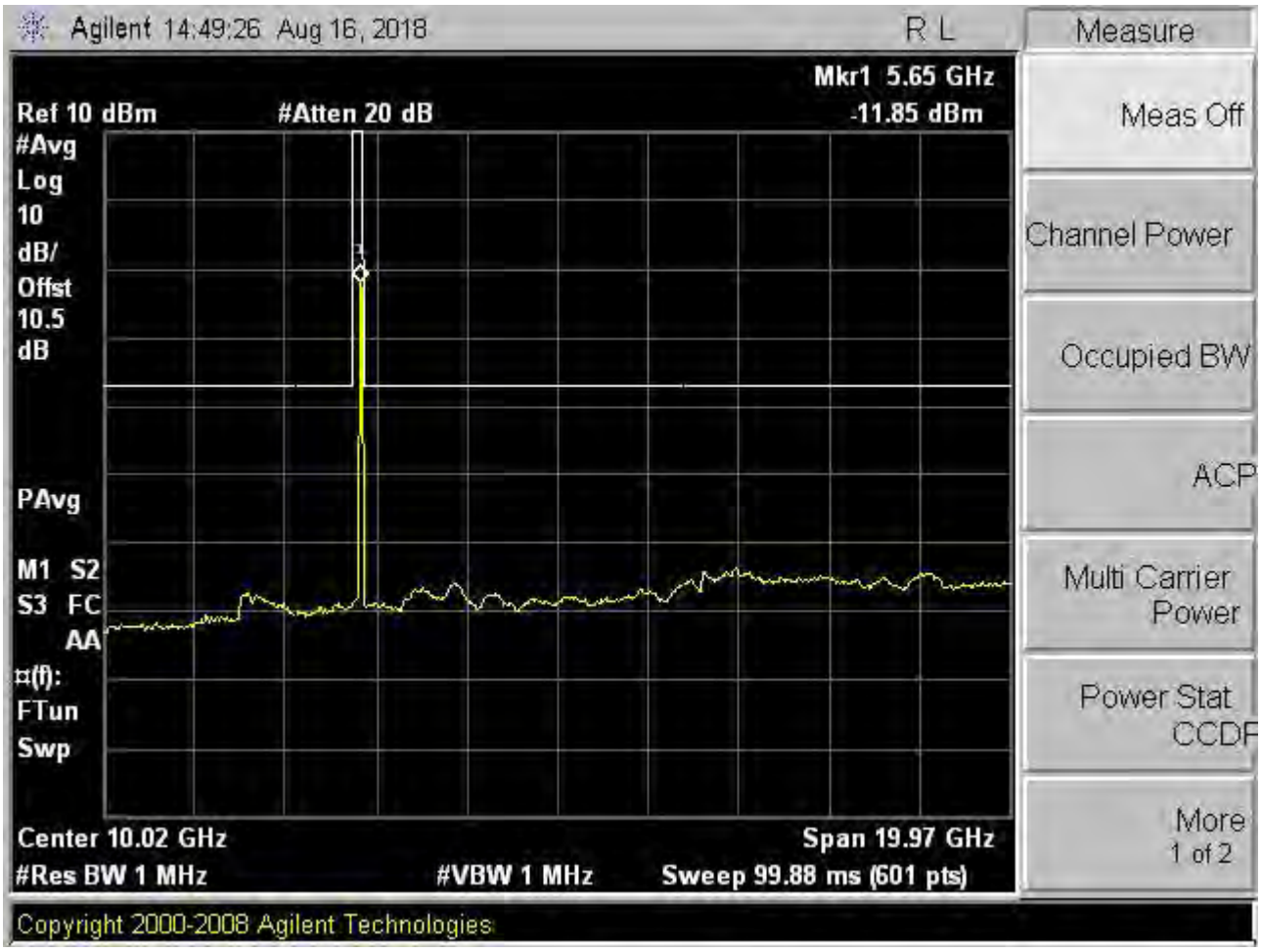
註：1. 繪圖資料請參考第 164-169 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦40GHz)

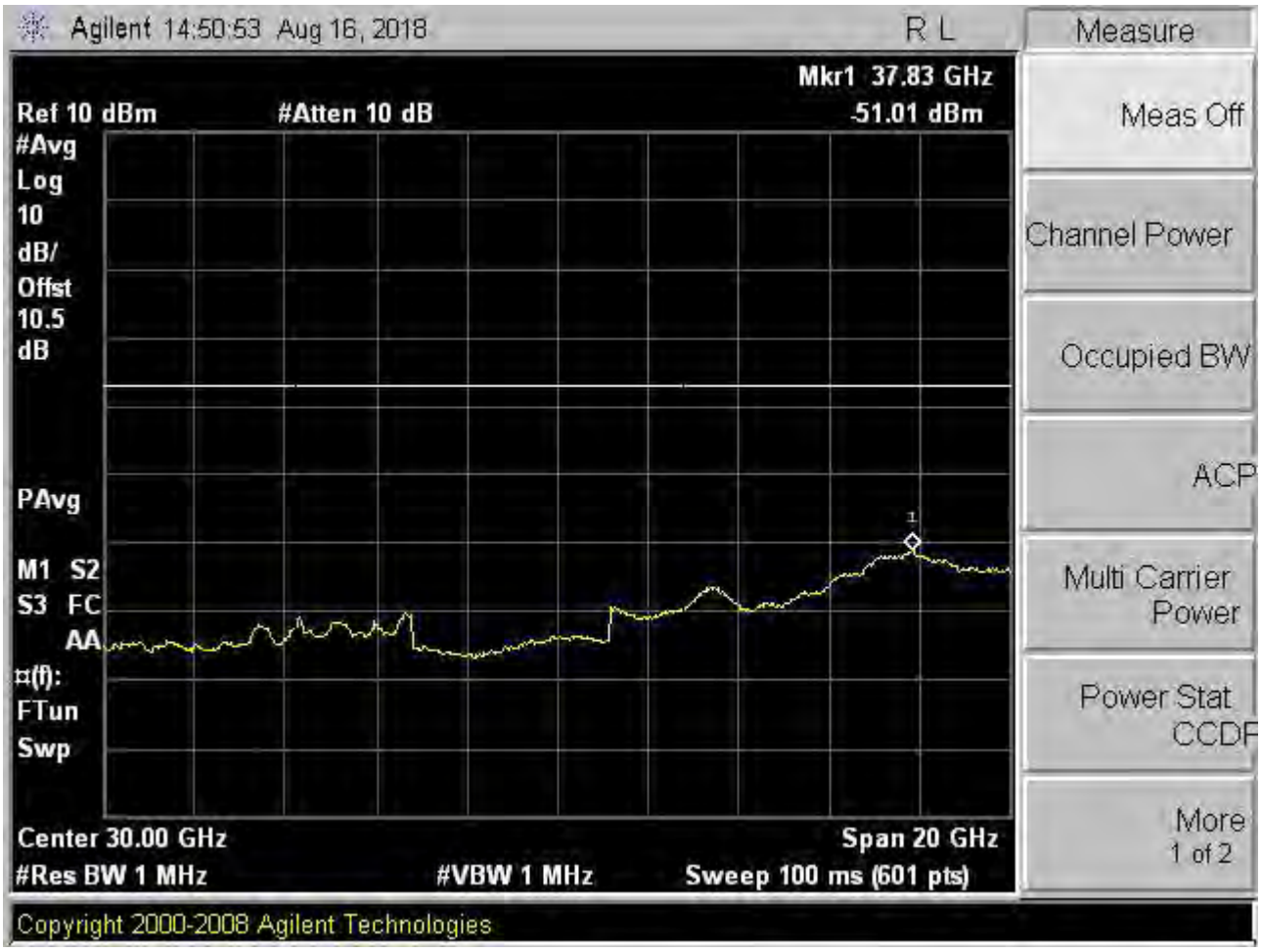

Agilent 14:22:38 Aug 16, 2018
R L
Measure
Mkr1 5.52 GHz
Ref 10 dBm
#Atten 20 dB
-10.45 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 14:27:37 Aug 16, 2018
R L
Measure
Mkr1 37.80 GHz
Ref 10 dBm
#Atten 10 dB
-51.30 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 14:37:19 Aug 16, 2018
R L
Measure
Mkr1 5.59 GHz
Ref 10 dBm
#Atten 20 dB
-9.42 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 14:38:22 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-50.95 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 14:49:26 Aug 16, 2018
R L
Measure
Mkr1 5.65 GHz
Ref 10 dBm
#Atten 20 dB
-11.85 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

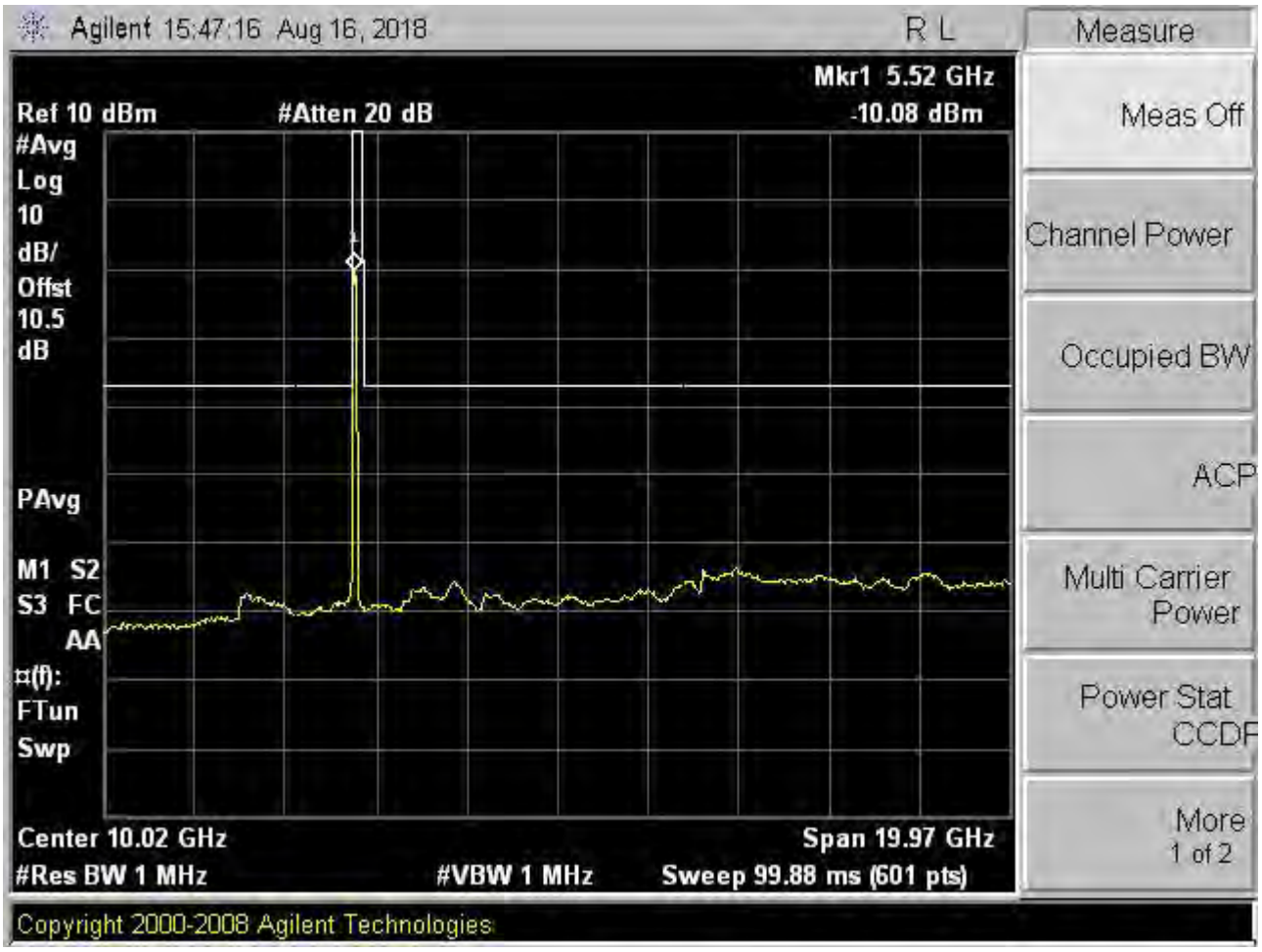

Agilent 14:50:53 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.01 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

9.4.4 調變技術: IEEE 802.11ac (80MHz)

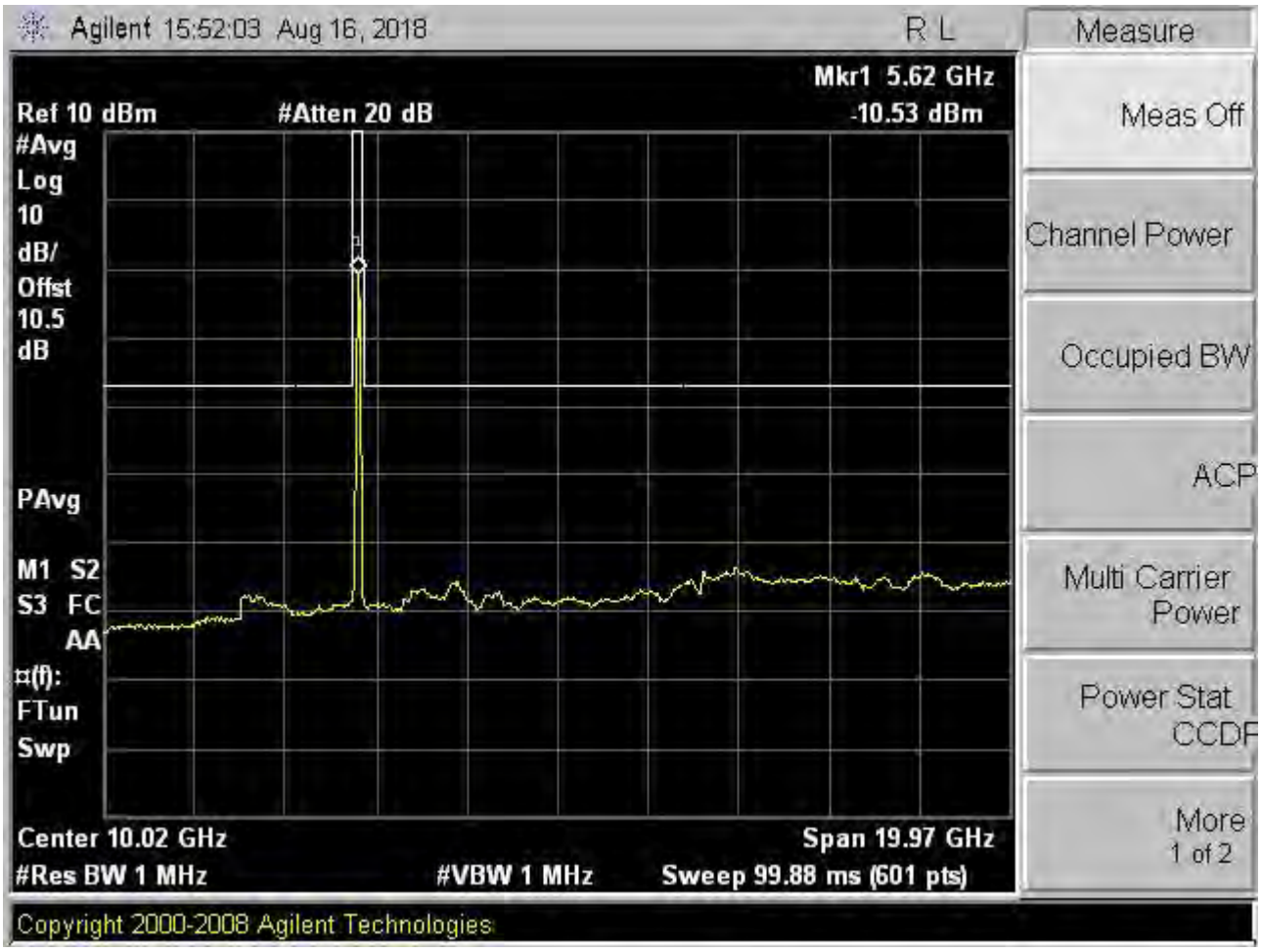
9.4.4.1 CHAIN 0

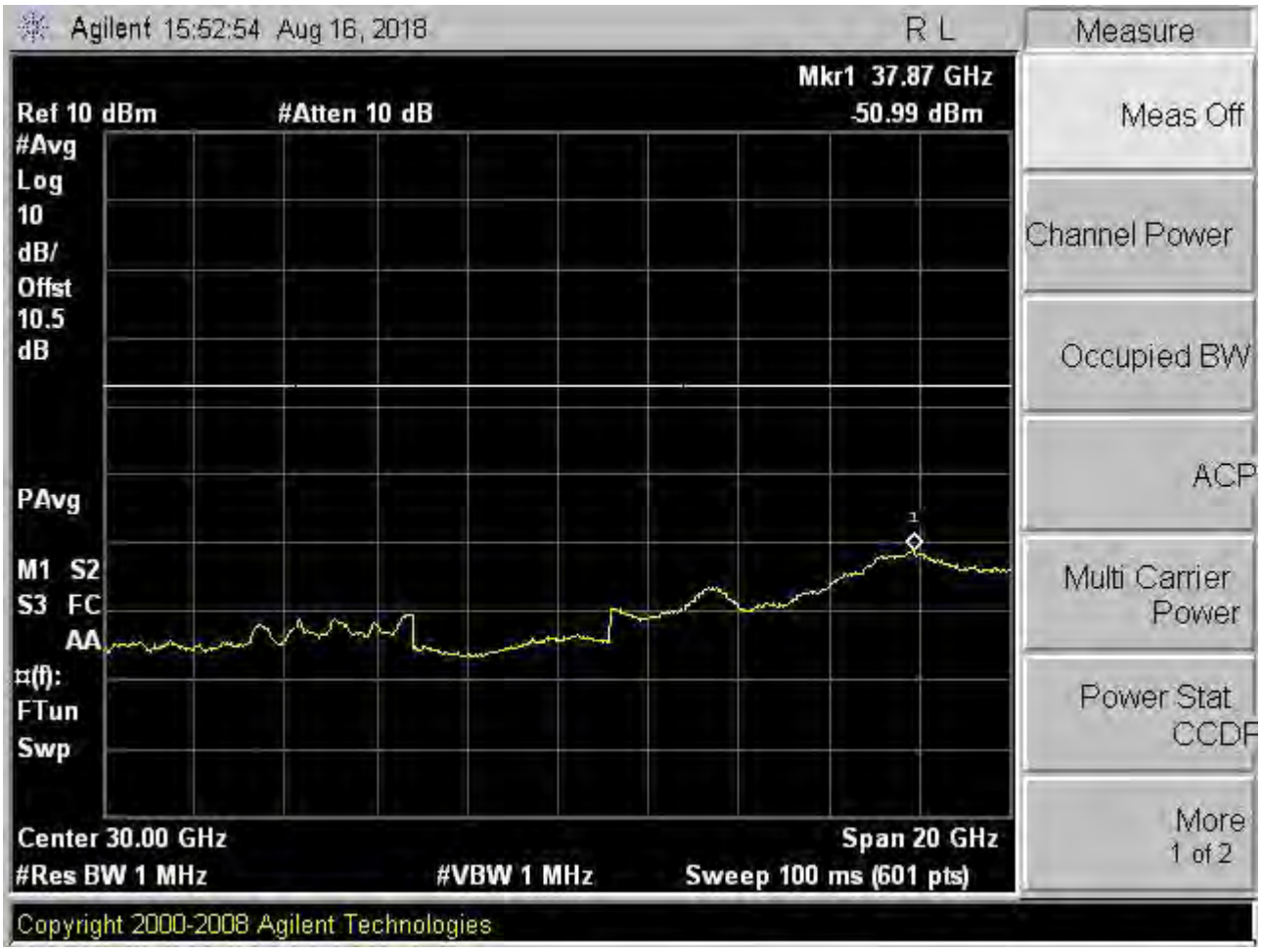
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

註：1. 繪圖資料請參考第 171-174 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦40GHz)


Agilent 15:47:16 Aug 16, 2018
R L
Measure
Mkr1 5.52 GHz
Ref 10 dBm
#Atten 20 dB
-10.08 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 15:48:19 Aug 16, 2018
R L
Measure
Mkr1 37.77 GHz
Ref 10 dBm
#Atten 10 dB
-50.93 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 15:52:03 Aug 16, 2018
R L
Measure
Mkr1 5.62 GHz
Ref 10 dBm
#Atten 20 dB
-10.53 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 15:52:54 Aug 16, 2018
R L
Measure
Mkr1 37.87 GHz
Ref 10 dBm
#Atten 10 dB
-50.99 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

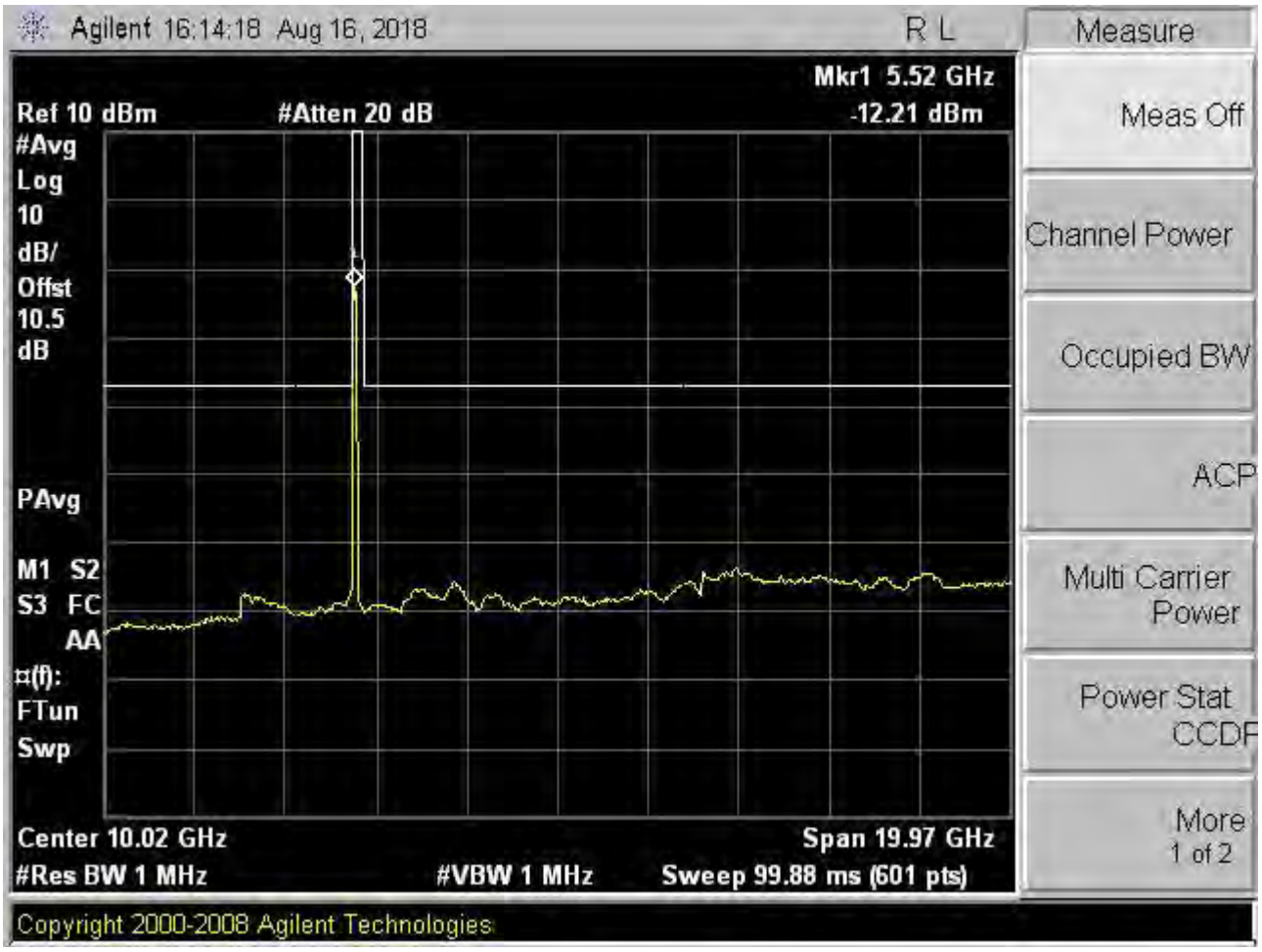
9.4.4.2 CHAIN 1

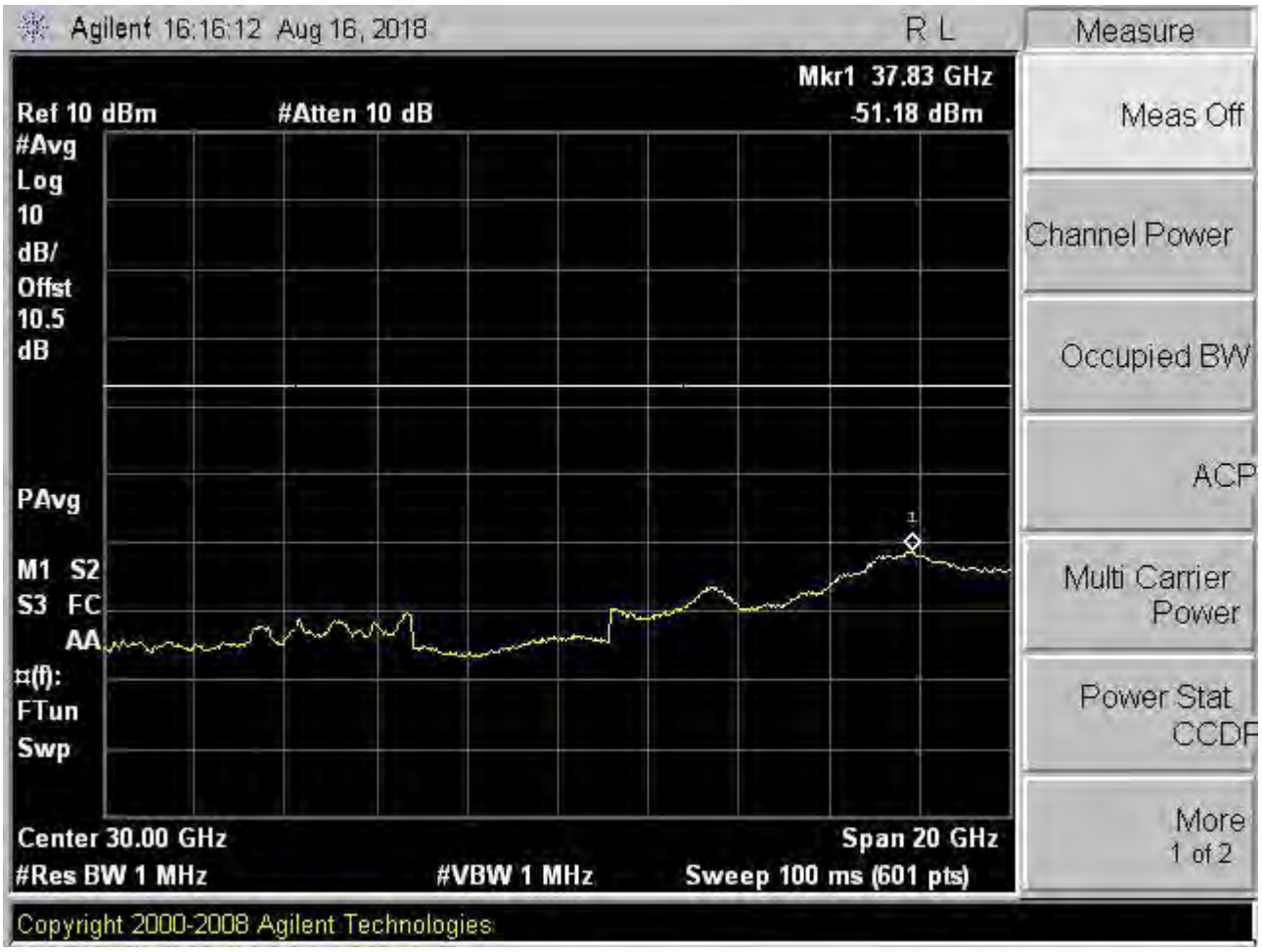
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

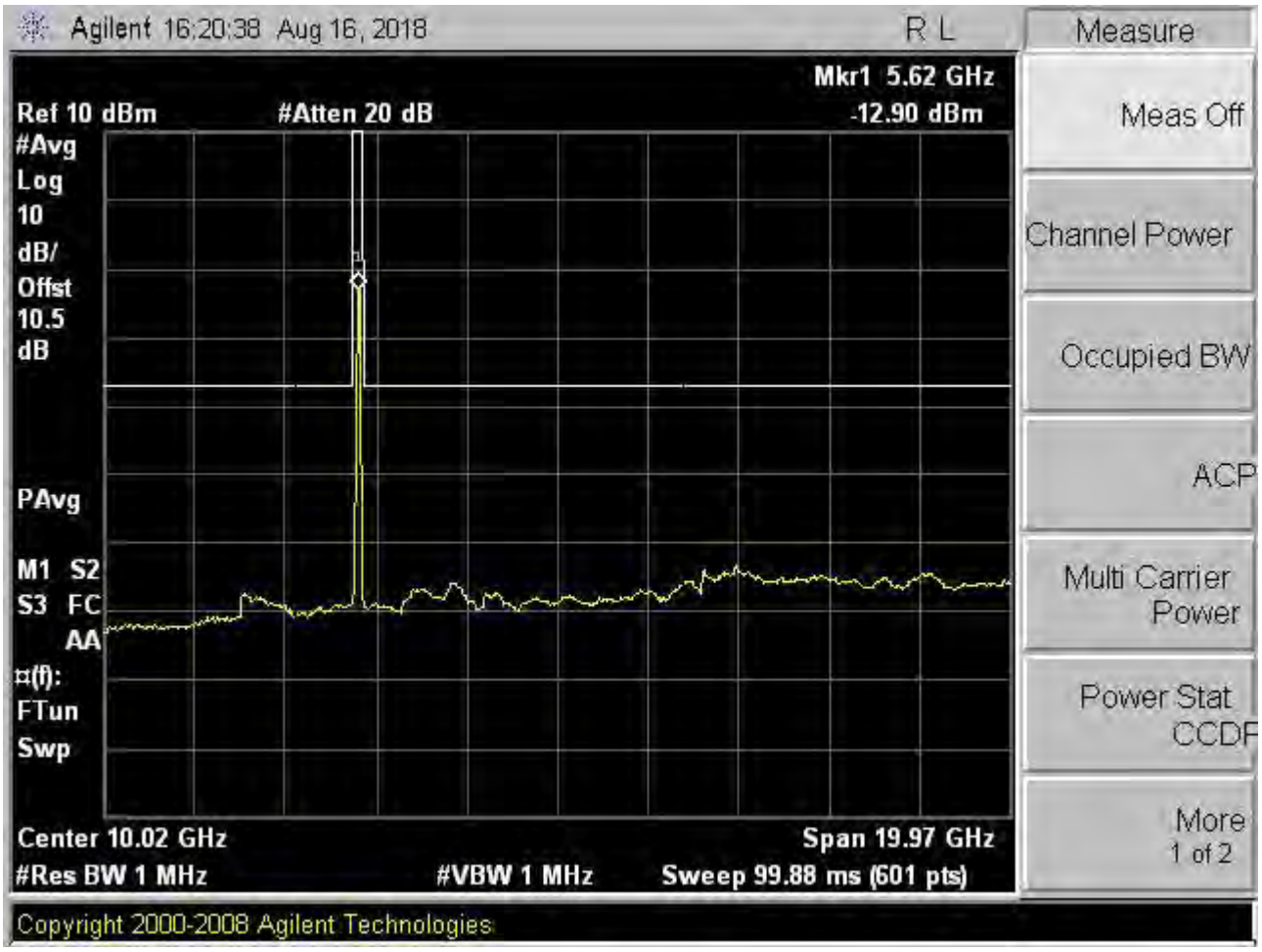
註：1. 繪圖資料請參考第 176-179 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦40GHz)

9.5 結果判定

混附波之發射皆低於限值，符合標準規定。


Agilent 16:14:18 Aug 16, 2018
R L
Measure
Mkr1 5.52 GHz
Ref 10 dBm
#Atten 20 dB
-12.21 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 16:16:12 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.18 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 16:20:38 Aug 16, 2018
R L
Measure
Mkr1 5.62 GHz
Ref 10 dBm
#Atten 20 dB
-12.90 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 16:21:32 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.25 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

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、低各頻道產生最高峰值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	3115
Horn Antenna	EMCO	3116
PRE-Amplifier	Agilent	8449B
PRE-Amplifier	Agilent	8447D
BiLog Antenna	ETC	MCTD 2786B
PRE-Amplifier	Agilent	83051

測試軟體: LZ-RF (Ver. ETC-3A2)

(2)儀器設定

Frequency Band (MHz)	Instrument	Function	Resolution Bandwidth	Video Bandwidth
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

結果值 = 讀值 + 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

10.5.1 諧波發射

測試工程師: 羅世勇

測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11000.0000	H	---	---	4.30	---	---	74.0	54.0	---
11000.0000	V	---	---	4.30	---	---	74.0	54.0	---
16500.0000	H	---	---	5.00	---	---	74.0	54.0	---
16500.0000	V	---	---	5.00	---	---	74.0	54.0	---
22000.0000	H	---	---	11.70	---	---	74.0	54.0	---
22000.0000	V	---	---	11.70	---	---	74.0	54.0	---
27500.0000	H	---	---	14.10	---	---	74.0	54.0	---
27500.0000	V	---	---	14.10	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)

b. Channel Mid

基本波頻率 :5600 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)
11200.0000	H	---	---	4.43	---	---	74.0	54.0	---
11200.0000	V	---	---	4.43	---	---	74.0	54.0	---
16800.0000	H	---	---	6.25	---	---	74.0	54.0	---
16800.0000	V	---	---	6.25	---	---	74.0	54.0	---
22400.0000	H	---	---	12.02	---	---	74.0	54.0	---
22400.0000	V	---	---	12.02	---	---	74.0	54.0	---
28000.0000	H	---	---	14.26	---	---	74.0	54.0	---
28000.0000	V	---	---	14.26	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)

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	---	---	4.62	---	---	74.0	54.0	---
11400.0000	V	---	---	4.62	---	---	74.0	54.0	---
17100.0000	H	---	---	8.24	---	---	74.0	54.0	---
17100.0000	V	---	---	8.24	---	---	74.0	54.0	---
22800.0000	H	---	---	12.08	---	---	74.0	54.0	---
22800.0000	V	---	---	12.08	---	---	74.0	54.0	---
28500.0000	H	---	---	13.90	---	---	74.0	54.0	---
28500.0000	V	---	---	13.90	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)
   ±4.4dB(18GHz≦f≦40GHz)

10.5.1.2 調變技術: IEEE 802.11an 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11000.0000	H	---	---	4.30	---	---	74.0	54.0	---
11000.0000	V	---	---	4.30	---	---	74.0	54.0	---
16500.0000	H	---	---	5.00	---	---	74.0	54.0	---
16500.0000	V	---	---	5.00	---	---	74.0	54.0	---
22000.0000	H	---	---	11.70	---	---	74.0	54.0	---
22000.0000	V	---	---	11.70	---	---	74.0	54.0	---
27500.0000	H	---	---	14.10	---	---	74.0	54.0	---
27500.0000	V	---	---	14.10	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)

b. Channel Mid

基本波頻率 :5600 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)
11200.0000	H	---	---	4.43	---	---	74.0	54.0	---
11200.0000	V	---	---	4.43	---	---	74.0	54.0	---
16800.0000	H	---	---	6.25	---	---	74.0	54.0	---
16800.0000	V	---	---	6.25	---	---	74.0	54.0	---
22400.0000	H	---	---	12.02	---	---	74.0	54.0	---
22400.0000	V	---	---	12.02	---	---	74.0	54.0	---
28000.0000	H	---	---	14.26	---	---	74.0	54.0	---
28000.0000	V	---	---	14.26	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)

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	---	---	4.62	---	---	74.0	54.0	---
11400.0000	V	---	---	4.62	---	---	74.0	54.0	---
17100.0000	H	---	---	8.24	---	---	74.0	54.0	---
17100.0000	V	---	---	8.24	---	---	74.0	54.0	---
22800.0000	H	---	---	12.08	---	---	74.0	54.0	---
22800.0000	V	---	---	12.08	---	---	74.0	54.0	---
28500.0000	H	---	---	13.90	---	---	74.0	54.0	---
28500.0000	V	---	---	13.90	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)
   ±4.4dB(18GHz≦f≦40GHz)

10.5.1.3 調變技術: IEEE 802.11an 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
11020.0000	H	---	---	4.12	---	---	74.0	54.0	---
11020.0000	V	---	---	4.12	---	---	74.0	54.0	---
16530.0000	H	---	---	4.88	---	---	74.0	54.0	---
16530.0000	V	---	---	4.88	---	---	74.0	54.0	---
22040.0000	H	---	---	11.74	---	---	74.0	54.0	---
22040.0000	V	---	---	11.74	---	---	74.0	54.0	---
27550.0000	H	---	---	14.12	---	---	74.0	54.0	---
27550.0000	V	---	---	14.12	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)

b. Channel Mid

基本波頻率 ：5550 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)
11100.0000	H	---	---	4.18	---	---	74.0	54.0	---
11100.0000	V	---	---	4.18	---	---	74.0	54.0	---
16650.0000	H	---	---	5.57	---	---	74.0	54.0	---
16650.0000	V	---	---	5.57	---	---	74.0	54.0	---
22200.0000	H	---	---	11.90	---	---	74.0	54.0	---
22200.0000	V	---	---	11.90	---	---	74.0	54.0	---
27750.0000	H	---	---	14.20	---	---	74.0	54.0	---
27750.0000	V	---	---	14.20	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)

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	---	---	4.37	---	---	74.0	54.0	---
11340.0000	V	---	---	4.37	---	---	74.0	54.0	---
17010.0000	H	---	---	7.66	---	---	74.0	54.0	---
17010.0000	V	---	---	7.66	---	---	74.0	54.0	---
22680.0000	H	---	---	12.13	---	---	74.0	54.0	---
22680.0000	V	---	---	12.13	---	---	74.0	54.0	---
28350.0000	H	---	---	14.02	---	---	74.0	54.0	---
28350.0000	V	---	---	14.02	---	---	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，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)
   ±4.4dB(18GHz≦f≦40GHz)

10.5.1.4 IEEE 802.11ac (80MHz)

a. Channel Low

基本波頻率 : 5530 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)
11060.0000	H	---	---	4.15	---	---	74.0	54.0	---
11060.0000	V	---	---	4.15	---	---	74.0	54.0	---
16590.0000	H	---	---	5.22	---	---	74.0	54.0	---
16590.0000	V	---	---	5.22	---	---	74.0	54.0	---
22120.0000	H	---	---	11.82	---	---	74.0	54.0	---
22120.0000	V	---	---	11.82	---	---	74.0	54.0	---
27650.0000	H	---	---	14.16	---	---	74.0	54.0	---
27650.0000	V	---	---	14.16	---	---	74.0	54.0	---

註：

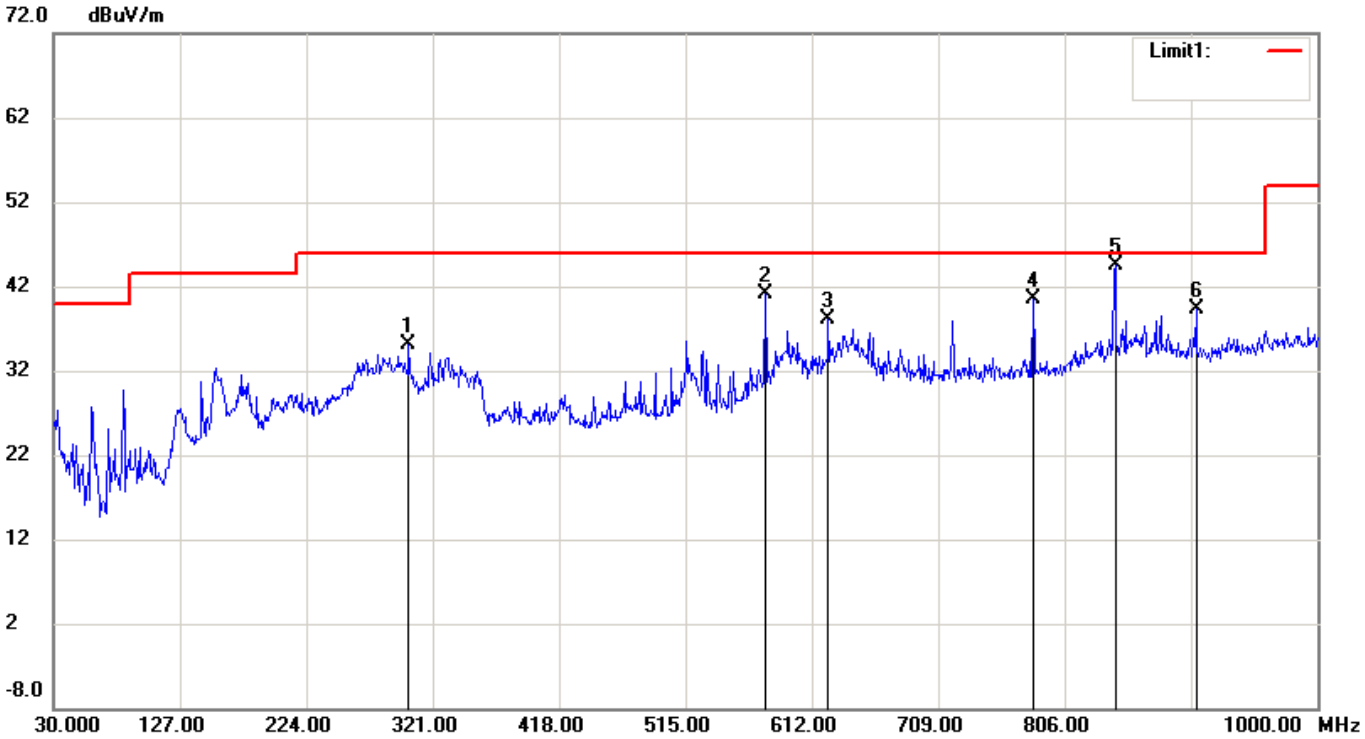
1. 標記“---”表發射之訊號太弱而儀器無法量測。
2. 若以峰值檢測功能測量之值符合平均值限制值，則可視同以平均值功能測量之值亦符合平均值限制值，在此以標記“#”表之。
3. 標記“*”表示為本地震盪頻率及其諧波
4. 量測不準確度: ±4.1dB(1GHz≦f<18GHz)

10.5.2 其它不必要之訊號

10.5.2.1 測試狀態: HGST mode

10.5.2.1.1 1GHz以下

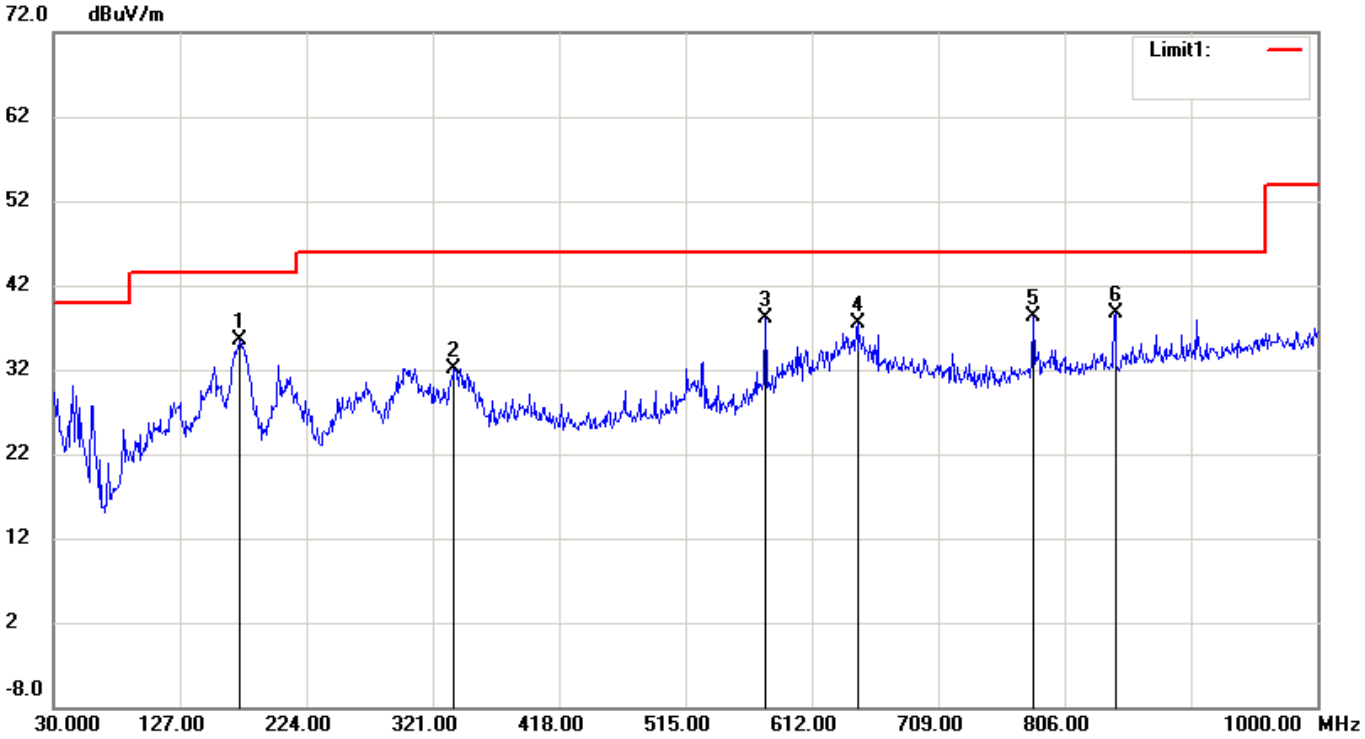
File:	**18-07-MAS-037_Below 1G**	**#25**	**Date:**	**2018/8/24**	**Temperature:**	**21 ℃**
			Time:	**下午 12:17:32**	**Humidity:**	**63 %**



Condition:	**NCC_LP0002_30-1000MHz**	**Polarization:**	**Horizontal**
EUT:		**Distance:**	**3m**
Model:			
Test Mode:	**1TB HGST**		
Note:	**5-6**		

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	302.5700	38.84	QP	-3.69	35.15	46.00	-10.85
2	576.1100	40.55	QP	0.61	41.16	46.00	-4.84
3	624.6100	36.28	QP	1.81	38.09	46.00	-7.91
4	781.7500	36.04	QP	4.48	40.52	46.00	-5.48
5	844.8000	38.49	QP	6.05	44.54	46.00	-1.46
6	906.8800	32.05	QP	7.27	39.32	46.00	-6.68

File:	**18-07-MAS-037_Below 1G**	**#26**	**Date:**	**2018/8/24**	**Temperature:**	**21 ℃**
			Time:	**下午 12:22:09**	**Humidity:**	**63 %**



Condition:	**NCC_LP0002_30-1000MHz**	**Polarization:**	**Vertical**
EUT:		**Distance:**	**3m**
Model:			
Test Mode:	**1TB HGST**		
Note:	**5-6**		

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	172.5900	44.57	QP	-9.02	35.55	43.50	-7.95
2	337.4900	35.14	QP	-2.98	32.16	46.00	-13.84
3	576.1100	37.56	QP	0.61	38.17	46.00	-7.83
4	646.9200	34.70	QP	2.75	37.45	46.00	-8.55
5	781.7500	33.79	QP	4.48	38.27	46.00	-7.73
6	844.8000	32.61	QP	6.05	38.66	46.00	-7.34

10.5.2.1.2 1GHz以上

10.5.2.1.2.1 調變技術: IEEE 802.11a

10.5.2.1.2.1.1 操作頻率 : 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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1043.1730	V	54.9	---	-13.20	41.7	---	74	54	-12.3
1071.9550	H	57.1	---	-13.00	44.1	---	74	54	-9.9
1179.8877	V	52.7	---	-12.50	40.2	---	74	54	-13.8
1251.8430	H	54.9	---	-12.10	42.8	---	74	54	-11.2
1330.9936	V	52.9	---	-11.70	41.2	---	74	54	-12.8
1395.7532	V	52.6	---	-11.30	41.3	---	74	54	-12.7
1431.7308	H	53.2	---	-11.10	42.1	---	74	54	-11.9
2921.2020	H	50.8	---	-4.90	45.9	---	74	54	-8.1
2942.7885	V	51.0	---	-4.80	46.2	---	74	54	-7.8
3050.7211	H	50.7	---	-4.50	46.2	---	74	54	-7.8
3057.9167	V	50.8	---	-4.50	46.3	---	74	54	-7.7
3165.8494	H	50.2	---	-4.10	46.1	---	74	54	-7.9
6832.6441	H	48.2	---	2.30	50.5	---	74	54	-3.5

10.5.2.1.2.1.2 操作頻率 : 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)
1050.3686	V	54.4	---	-13.10	41.3	---	74	54	-12.7
1071.9550	H	53.6	---	-13.00	40.6	---	74	54	-13.4
1129.5191	H	53.0	---	-12.70	40.3	---	74	54	-13.7
1172.6922	V	53.2	---	-12.50	40.7	---	74	54	-13.3
1352.5800	H	53.3	---	-11.50	41.8	---	74	54	-12.2
1388.5577	V	53.8	---	-11.40	42.4	---	74	54	-11.6
1438.9263	V	52.7	---	-11.10	41.6	---	74	54	-12.4
2856.4423	H	51.3	---	-5.10	46.2	---	74	54	-7.8
2942.7885	H	51.6	---	-4.80	46.8	---	74	54	-7.2
2949.9840	V	49.8	---	-4.80	45.0	---	74	54	-9.0
3065.1122	H	51.1	---	-4.40	46.7	---	74	54	-7.3
3086.6986	V	50.1	---	-4.40	45.7	---	74	54	-8.3
6852.3397	H	50.9	32.5	2.30	53.2	34.8	74	54	-19.2

10.5.2.1.2.1.3 操作頻率 ：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)
1000.0000	V	53.3	---	-13.40	39.9	---	74	54	-14.1
1071.9550	H	53.6	---	-13.00	40.6	---	74	54	-13.4
1172.6922	H	53.6	---	-12.50	41.1	---	74	54	-12.9
1172.6922	V	54.0	---	-12.50	41.5	---	74	54	-12.5
1223.0608	H	53.8	---	-12.20	41.6	---	74	54	-12.4
1316.6025	V	52.9	---	-11.70	41.2	---	74	54	-12.8
1431.7308	V	52.5	---	-11.10	41.4	---	74	54	-12.6
2928.3973	H	51.1	---	-4.90	46.2	---	74	54	-7.8
3057.9167	H	51.4	---	-4.50	46.9	---	74	54	-7.1
3079.5032	V	51.6	---	-4.40	47.2	---	74	54	-6.8
3237.8045	H	50.7	---	-3.90	46.8	---	74	54	-7.2
3367.3236	V	50.1	---	-3.50	46.6	---	74	54	-7.4

註：1. 繪圖資料請參考第 204-221 頁。
2. 〝#〞，表示干擾值很低，記錄其峰值。
3. 標記”---“表發射之訊號太弱而儀器無法量測。
4. 量測不準確度: +4.20dB/ -4.24 dB (30MHz≦f<1GHz)
+4.10dB/ -4.10 dB (1GHz≦f<18GHz)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)

10.5.2.1.2.2 調變技術: IEEE 802.11an HT20

10.5.2.1.2.2.1 操作頻率 ：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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1050.3686	H	53.5	---	-13.10	40.4	---	74	54	-13.6
1079.1505	H	53.3	---	-13.00	40.3	---	74	54	-13.7
1079.1505	V	54.3	---	-13.00	41.3	---	74	54	-12.7
1172.6922	V	52.5	---	-12.50	40.0	---	74	54	-14.0
1179.8877	H	53.5	---	-12.50	41.0	---	74	54	-13.0
1323.7980	V	52.0	---	-11.70	40.3	---	74	54	-13.7
1438.9263	H	52.5	---	-11.10	41.4	---	74	54	-12.6
1438.9263	V	51.3	---	-11.10	40.2	---	74	54	-13.8
2957.1795	H	51.3	---	-4.80	46.5	---	74	54	-7.5
2964.3750	V	50.1	---	-4.80	45.3	---	74	54	-8.7
3093.8942	V	50.3	---	-4.30	46.0	---	74	54	-8.0
3237.8045	H	51.0	---	-3.90	47.1	---	74	54	-6.9

10.5.2.1.2.2.2 操作頻率 ：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)
1071.9550	H	53.9	---	-13.00	40.9	---	74	54	-13.1
1079.1505	V	53.8	---	-13.00	40.8	---	74	54	-13.2
1179.8877	V	52.7	---	-12.50	40.2	---	74	54	-13.8
1230.2563	H	52.9	---	-12.20	40.7	---	74	54	-13.3
1330.9936	V	52.8	---	-11.70	41.1	---	74	54	-12.9
1417.3396	V	52.3	---	-11.20	41.1	---	74	54	-12.9
1438.9263	H	53.1	---	-11.10	42.0	---	74	54	-12.0
1561.2500	H	52.0	---	-10.40	41.6	---	74	54	-12.4
1992.9808	H	50.8	---	-7.60	43.2	---	74	54	-10.8
2942.7885	H	51.1	---	-4.80	46.3	---	74	54	-7.7
3043.5255	V	50.3	---	-4.50	45.8	---	74	54	-8.2
3252.1954	V	49.7	---	-3.80	45.9	---	74	54	-8.1
6852.3397	H	49.8	32.2	2.30	52.1	34.5	74	54	-19.5

10.5.2.1.2.2.3 操作頻率 ：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)
1000.0000	V	53.9	---	-13.40	40.5	---	74	54	-13.5
1050.3369	V	54.3	---	-13.10	41.2	---	74	54	-12.8
1079.1505	H	53.5	---	-13.00	40.5	---	74	54	-13.5
1079.1505	V	54.1	---	-13.00	41.1	---	74	54	-12.9
1172.6922	H	54.2	---	-12.50	41.7	---	74	54	-12.3
1172.6922	V	53.1	---	-12.50	40.6	---	74	54	-13.4
1230.2563	H	53.2	---	-12.20	41.0	---	74	54	-13.0
1431.7308	V	51.8	---	-11.10	40.7	---	74	54	-13.3
1438.9263	H	52.8	---	-11.10	41.7	---	74	54	-12.3
2935.5930	H	51.3	---	-4.90	46.4	---	74	54	-7.6
3050.7211	V	50.9	---	-4.50	46.4	---	74	54	-7.6
3237.8045	H	50.4	---	-3.90	46.5	---	74	54	-7.5

註：1. 繪圖資料請參考第 222-239 頁。
2. 〝#〞，表示干擾值很低，記錄其峰值。
3. 標記”---“表發射之訊號太弱而儀器無法量測。
4. 量測不準確度: +4.20dB/ -4.24 dB (30MHz≦f<1GHz)
+4.10dB/ -4.10 dB (1GHz≦f<18GHz)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)

10.5.2.1.2.3 調變技術: IEEE 802.11an HT40

10.5.2.1.2.3.1 操作頻率 ：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)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1000.0000	V	55.5	---	-13.40	42.1	---	74	54	-11.9
1057.5641	V	53.9	---	-13.10	40.8	---	74	54	-13.2
1079.1505	H	53.7	---	-13.00	40.7	---	74	54	-13.3
1179.8870	V	53.4	---	-12.50	40.9	---	74	54	-13.1
1179.8877	H	53.4	---	-12.50	40.9	---	74	54	-13.1
1223.0608	H	53.1	---	-12.20	40.9	---	74	54	-13.1
1388.5577	V	52.3	---	-11.40	40.9	---	74	54	-13.1
1575.6410	H	53.2	---	-10.30	42.9	---	74	54	-11.1
2856.4423	H	51.7	---	-5.10	46.6	---	74	54	-7.4
2928.3973	H	51.4	---	-4.90	46.5	---	74	54	-7.5
3079.5032	V	50.8	---	-4.40	46.4	---	74	54	-7.6
3144.2627	V	51.3	---	-4.20	47.1	---	74	54	-6.9
6872.0352	H	49.7	33.0	2.30	52	35.3	74	54	-18.7

10.5.2.1.2.3.2 操作頻率 ：5550 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)
1000.0000	V	54.7	---	-13.40	41.3	---	74	54	-12.7
1079.1505	H	54.2	---	-13.00	41.2	---	74	54	-12.8
1165.4967	V	52.3	---	-12.50	39.8	---	74	54	-14.2
1179.8877	H	53.6	---	-12.50	41.1	---	74	54	-12.9
1431.7308	H	53.9	---	-11.10	42.8	---	74	54	-11.2
1431.7308	V	52.5	---	-11.10	41.4	---	74	54	-12.6
1539.6635	V	50.6	---	-10.50	40.1	---	74	54	-13.9
1582.8364	H	51.8	---	-10.20	41.6	---	74	54	-12.4
2914.0064	V	49.8	---	-4.90	44.9	---	74	54	-9.1
2964.3750	H	52.5	---	-4.80	47.7	---	74	54	-6.3
3108.2853	V	49.7	---	-4.30	45.4	---	74	54	-8.6
3209.0223	H	50.3	---	-4.00	46.3	---	74	54	-7.7

10.5.2.1.2.3.3 操作頻率 ：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)
1050.3686	V	54.4	---	-13.10	41.3	---	74	54	-12.7
1079.1505	H	53.1	---	-13.00	40.1	---	74	54	-13.9
1172.6922	V	53.2	---	-12.50	40.7	---	74	54	-13.3
1179.8877	H	53.7	---	-12.50	41.2	---	74	54	-12.8
1244.6474	V	53.2	---	-12.10	41.1	---	74	54	-12.9
1323.7980	H	53.0	---	-11.70	41.3	---	74	54	-12.7
1424.5353	V	52.2	---	-11.20	41.0	---	74	54	-13.0
1438.9263	H	53.4	---	-11.10	42.3	---	74	54	-11.7
1568.4455	H	52.2	---	-10.30	41.9	---	74	54	-12.1
2921.2020	H	51.4	---	-4.90	46.5	---	74	54	-7.5
2957.1795	V	50.6	---	-4.80	45.8	---	74	54	-8.2
3115.4807	V	50.5	---	-4.30	46.2	---	74	54	-7.8
6832.6441	H	49.4	32.7	2.30	51.7	35.0	74	54	-19.0

註：1. 繪圖資料請參考第 240-251 頁。
2. 〝#〞，表示干擾值很低，記錄其峰值。
3. 標記”---“表發射之訊號太弱而儀器無法量測。
4. 量測不準確度: +4.20dB/ -4.24 dB (30MHz≦f<1GHz)
+4.10dB/ -4.10 dB (1GHz≦f<18GHz)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)

10.5.2.1.2.4 IEEE 802.11ac (80MHz)

10.5.2.1.2.4.1 操作頻率 ：5530 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)
1057.5641	V	53.9	---	-13.10	40.8	---	74	54	-13.2
1071.9550	H	53.2	---	-13.00	40.2	---	74	54	-13.8
1172.6922	V	52.9	---	-12.50	40.4	---	74	54	-13.6
1230.2563	H	53.1	---	-12.20	40.9	---	74	54	-13.1
1273.4294	V	53.2	---	-12.00	41.2	---	74	54	-12.8
1395.7532	V	52.5	---	-11.30	41.2	---	74	54	-12.8
1482.0994	H	53.0	---	-10.90	42.1	---	74	54	-11.9
1561.2500	H	53.1	---	-10.40	42.7	---	74	54	-11.3
2957.1795	H	51.8	---	-4.80	47.0	---	74	54	-7.0
3108.2853	V	52.0	---	-4.30	47.7	---	74	54	-6.3
3237.8045	H	51.9	---	-3.90	48.0	---	74	54	-6.0
3374.5192	V	50.2	---	-3.40	46.8	---	74	54	-7.2

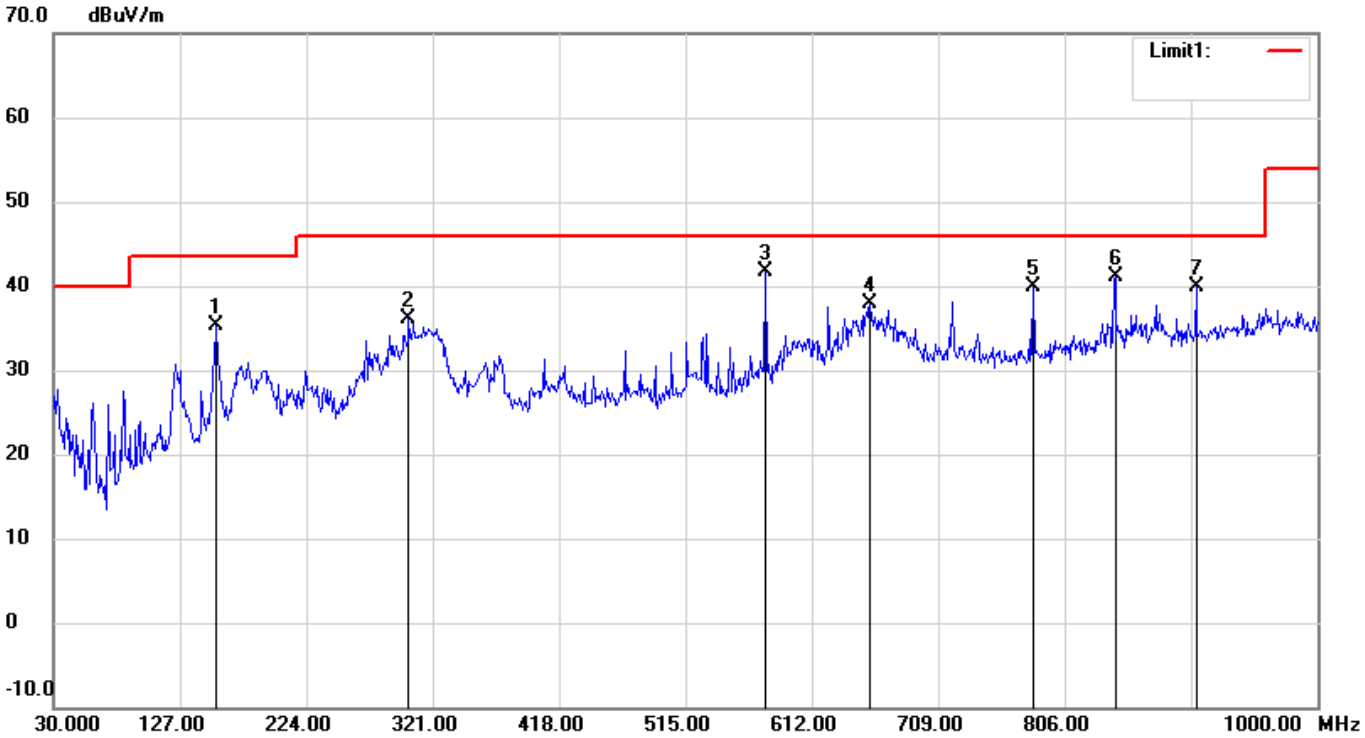
10.5.2.1.2.4.2 操作頻率 ：5610 MHz

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)
1000.0000	V	54.4	---	-13.40	41.0	---	74	54	-13.0
1086.3461	V	53.6	---	-13.00	40.6	---	74	54	-13.4
1172.6922	H	54.7	---	-12.50	42.2	---	74	54	-11.8
1172.6922	V	54.1	---	-12.50	41.6	---	74	54	-12.4
1230.2563	H	53.8	---	-12.20	41.6	---	74	54	-12.4
1431.7308	H	53.2	---	-11.10	42.1	---	74	54	-11.9
1431.7308	V	52.4	---	-11.10	41.3	---	74	54	-12.7
1575.6410	H	52.4	---	-10.30	42.1	---	74	54	-11.9
2863.6377	V	51.1	---	-5.10	46.0	---	74	54	-8.0
2921.2020	H	51.2	---	-4.90	46.3	---	74	54	-7.7
2921.2020	V	50.8	---	-4.90	45.9	---	74	54	-8.1
3144.2627	H	51.5	---	-4.20	47.3	---	74	54	-6.7
6832.6441	H	48.4	---	2.30	50.7	---	74	54	-3.3

註：1. 繪圖資料請參考第 252-257 頁。
2. 〝#〞，表示干擾值很低，記錄其峰值。
3. 標記”---“表發射之訊號太弱而儀器無法量測。
4. 量測不準確度: +4.20dB/ -4.24 dB (30MHz≦f<1GHz)
+4.10dB/ -4.10 dB (1GHz≦f<18GHz)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)

10.5.2.2 測試狀態：Toshiba mode

File:	**18-07-MAS-037_Below 1G**	**#3**	**Date: 2018/8/23**	**Temperature:**	**21 ℃**
			Time: 下午 07:17:31	**Humidity:**	**63 %**

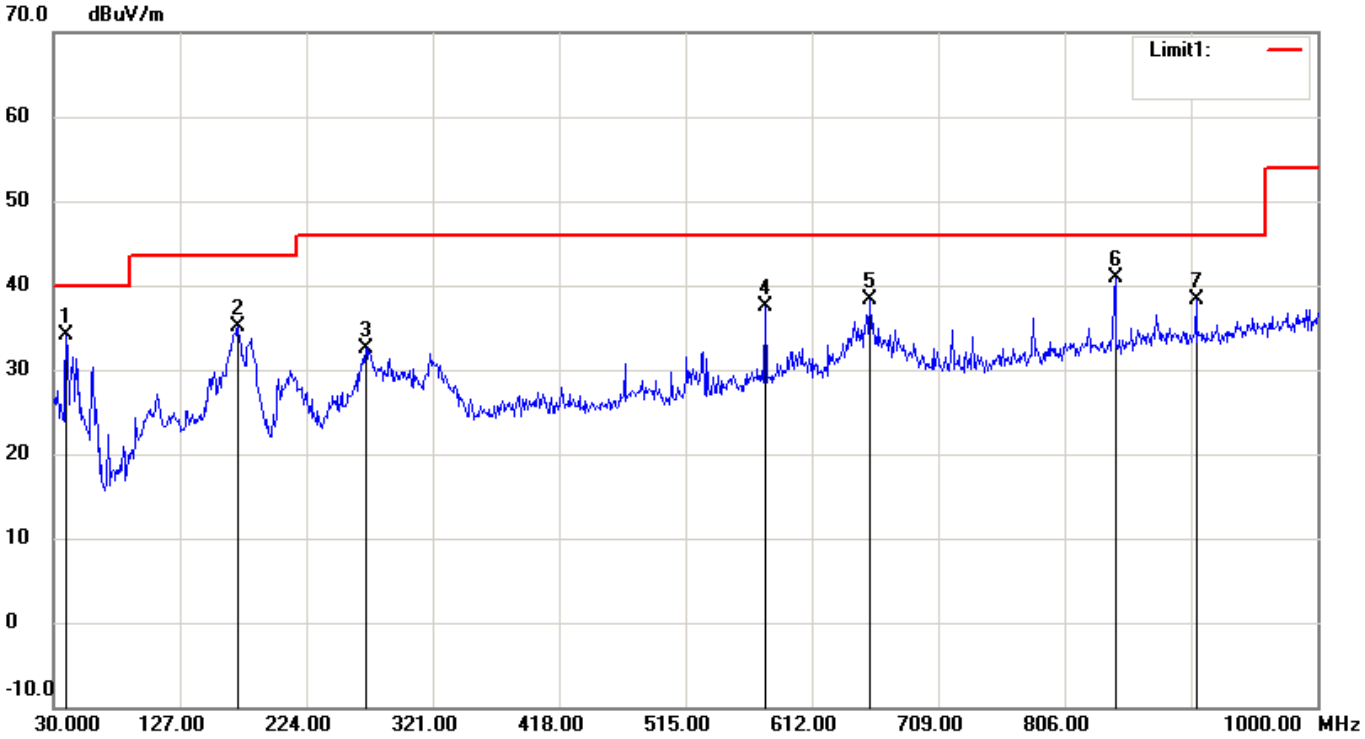


Condition:	**NCC_LP0002_30-1000MHz**	**Polarization:**	**Horizontal**
EUT:		**Distance:**	**3m**
Model:			
Test Mode:	**1TB TOSHIBA**		
Note:	**5-6**		

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	155.1300	43.69	QP	-8.37	35.32	43.50	-8.18
2	302.5700	39.85	QP	-3.69	36.16	46.00	-9.84
3	576.1100	41.16	QP	0.61	41.77	46.00	-4.23
4	656.6200	34.90	QP	2.94	37.84	46.00	-8.16
5	781.7500	35.41	QP	4.48	39.89	46.00	-6.11
6	844.8000	34.98	QP	6.05	41.03	46.00	-4.97
7	906.8800	32.67	QP	7.27	39.94	46.00	-6.06

File: 18-07-MAS-037_Below 1G **#4** **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 07:22:08 **Humidity:** 63 %

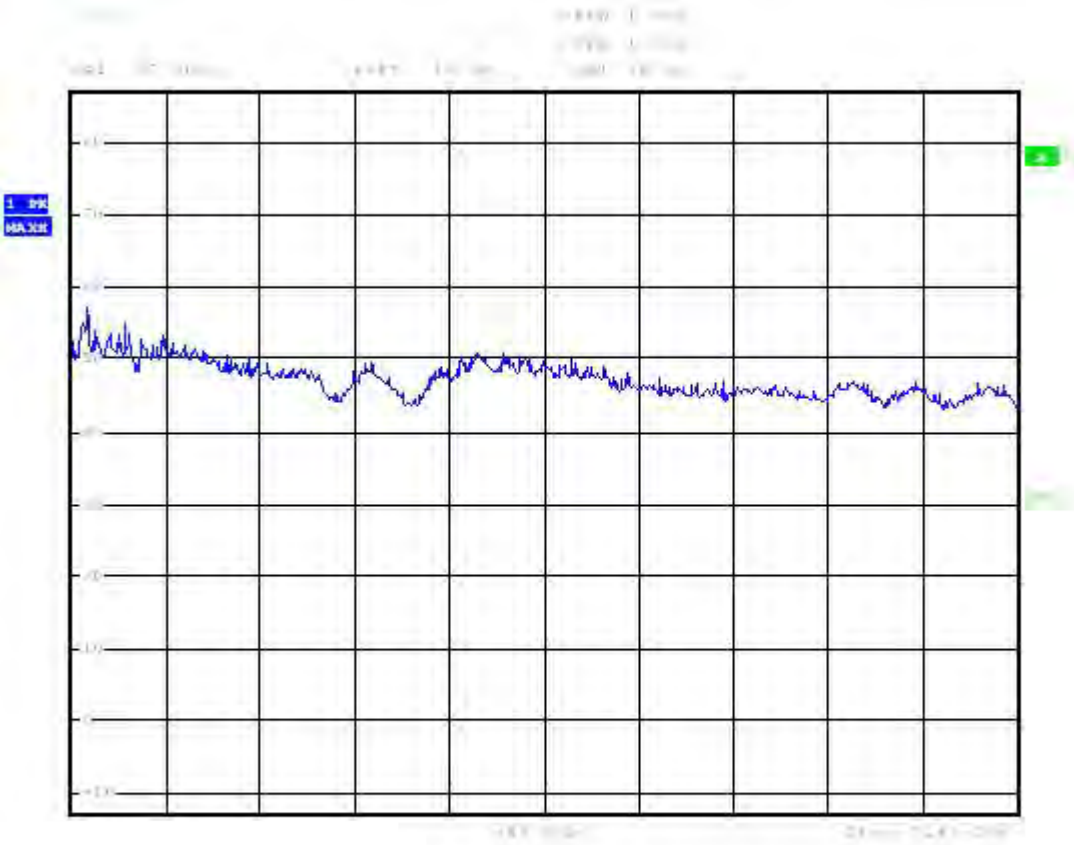


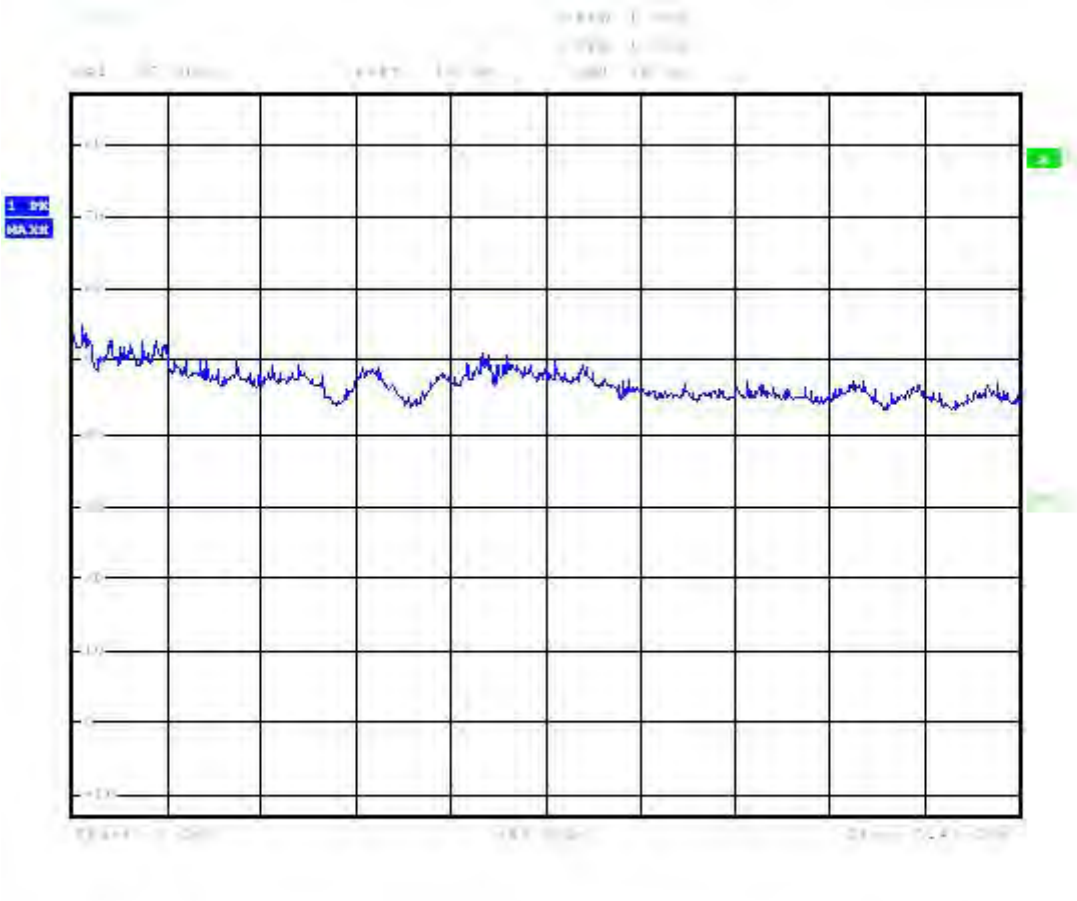
Condition: NCC_LP0002_30-1000MHz **Polarization:** Vertical
EUT: **Distance:** 3m
Model:
Test Mode: 1TB TOSHIBA
Note: 5-6

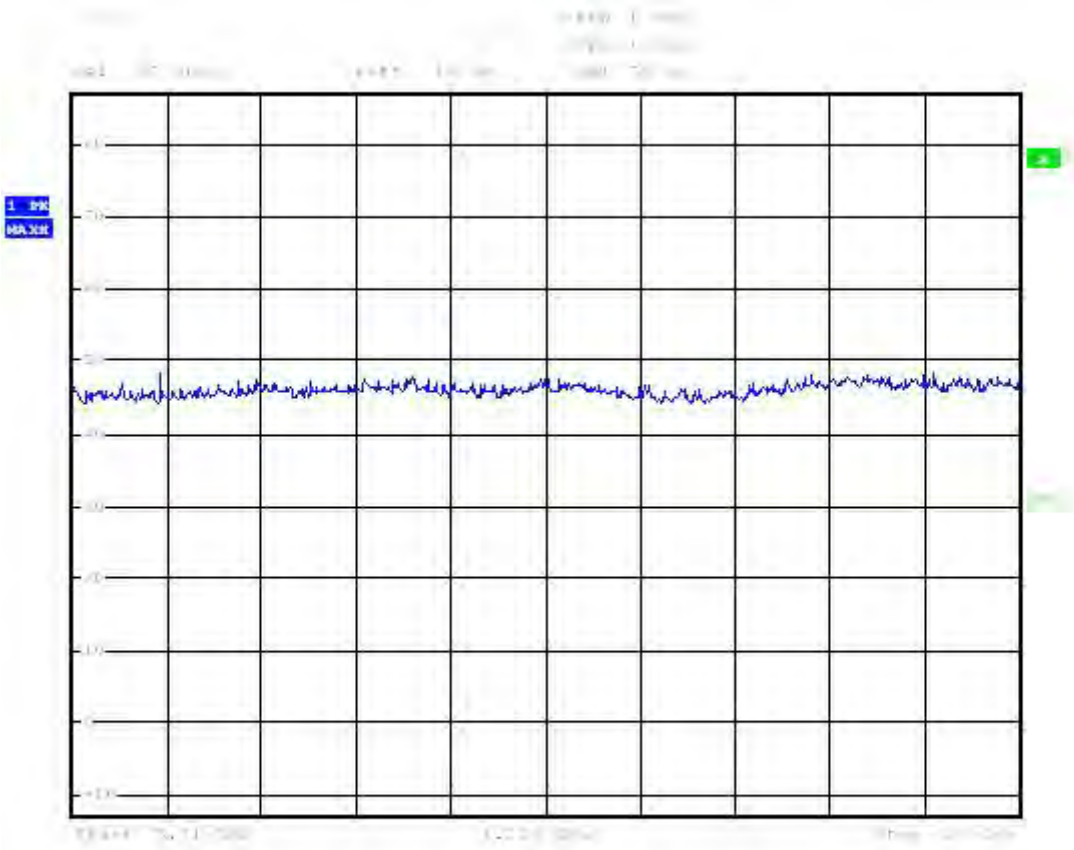
No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	39.7000	41.01	QP	-6.90	34.11	40.00	-5.89
2	171.6200	44.07	QP	-8.95	35.12	43.50	-8.38
3	269.5900	37.26	QP	-4.83	32.43	46.00	-13.57
4	576.1100	36.88	QP	0.61	37.49	46.00	-8.51
5	656.6200	35.31	QP	2.94	38.25	46.00	-7.75
6	844.8000	34.76	QP	6.05	40.81	46.00	-5.19
7	906.8800	30.95	QP	7.27	38.22	46.00	-7.78

註：
1. 〝#〞，表示干擾值很低，記錄其峰值。
2. 標記”---“表發射之訊號太弱而儀器無法量測。
3. 量測不準確度: +4.20dB/ -4.24 dB (30MHz≦f<1GHz)
+4.10dB/ -4.10 dB (1GHz≦f<18GHz)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)

調變技術: IEEE 802.11a



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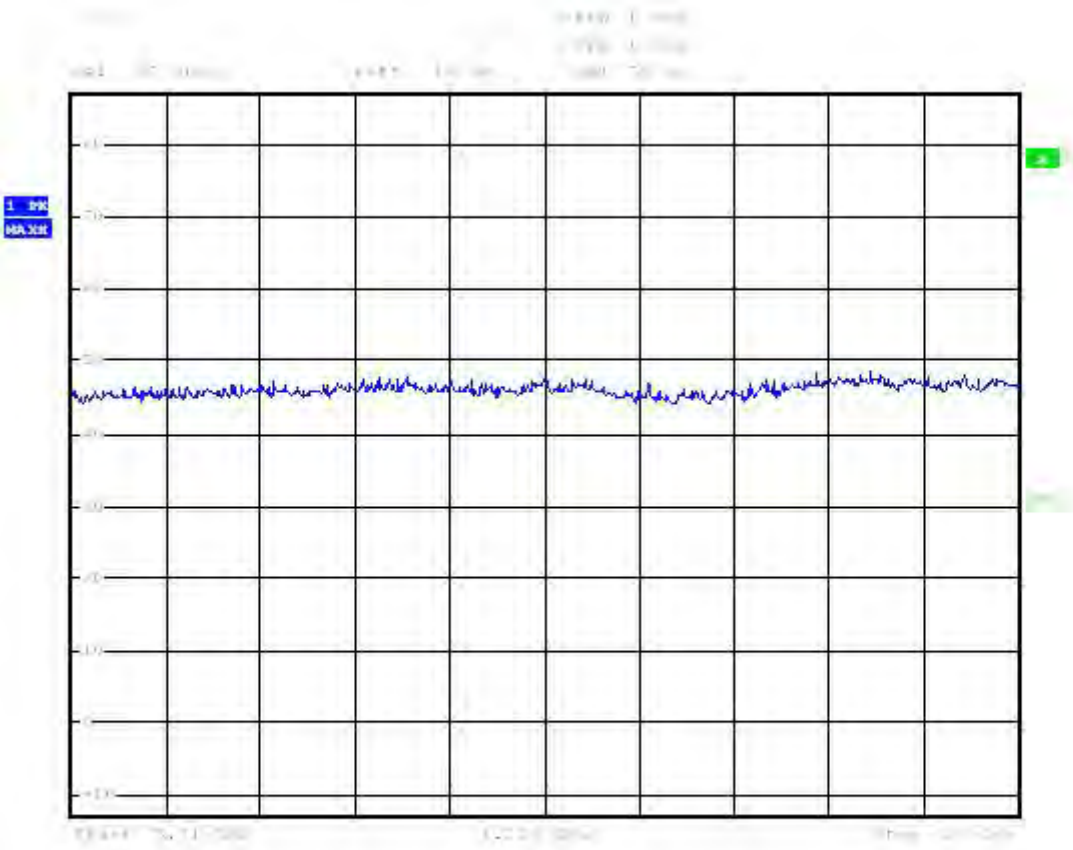
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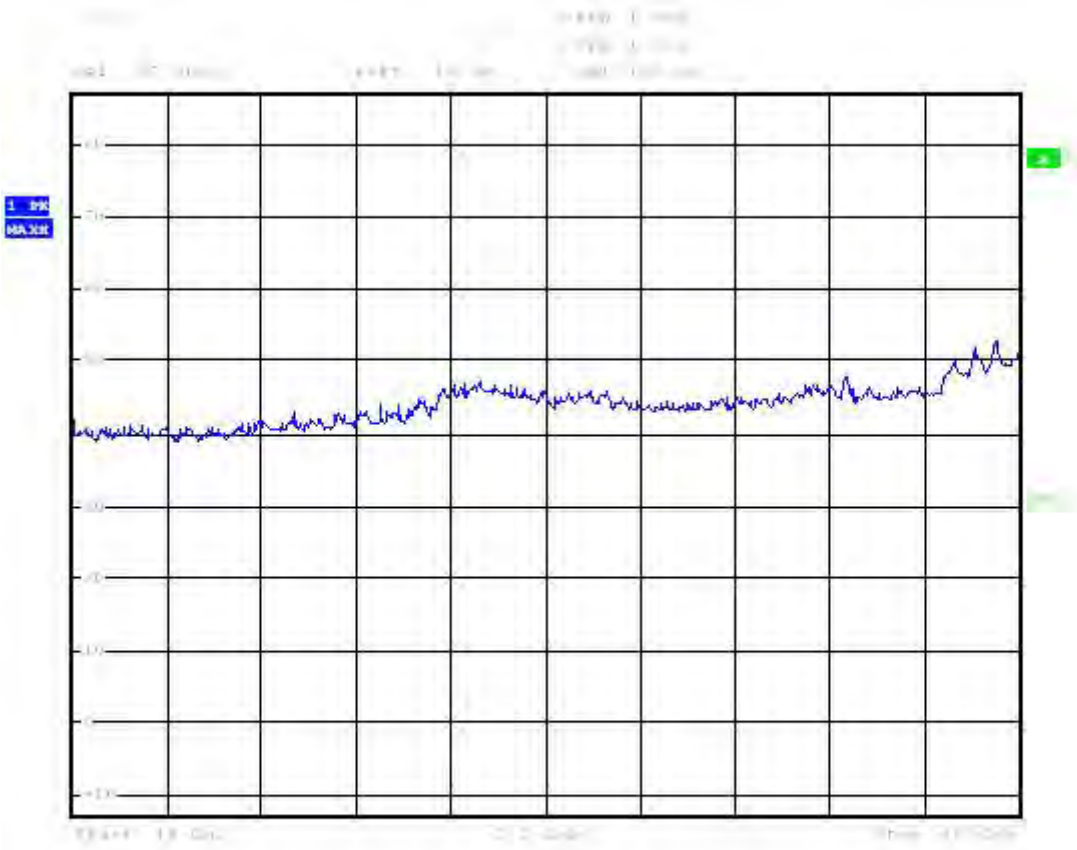
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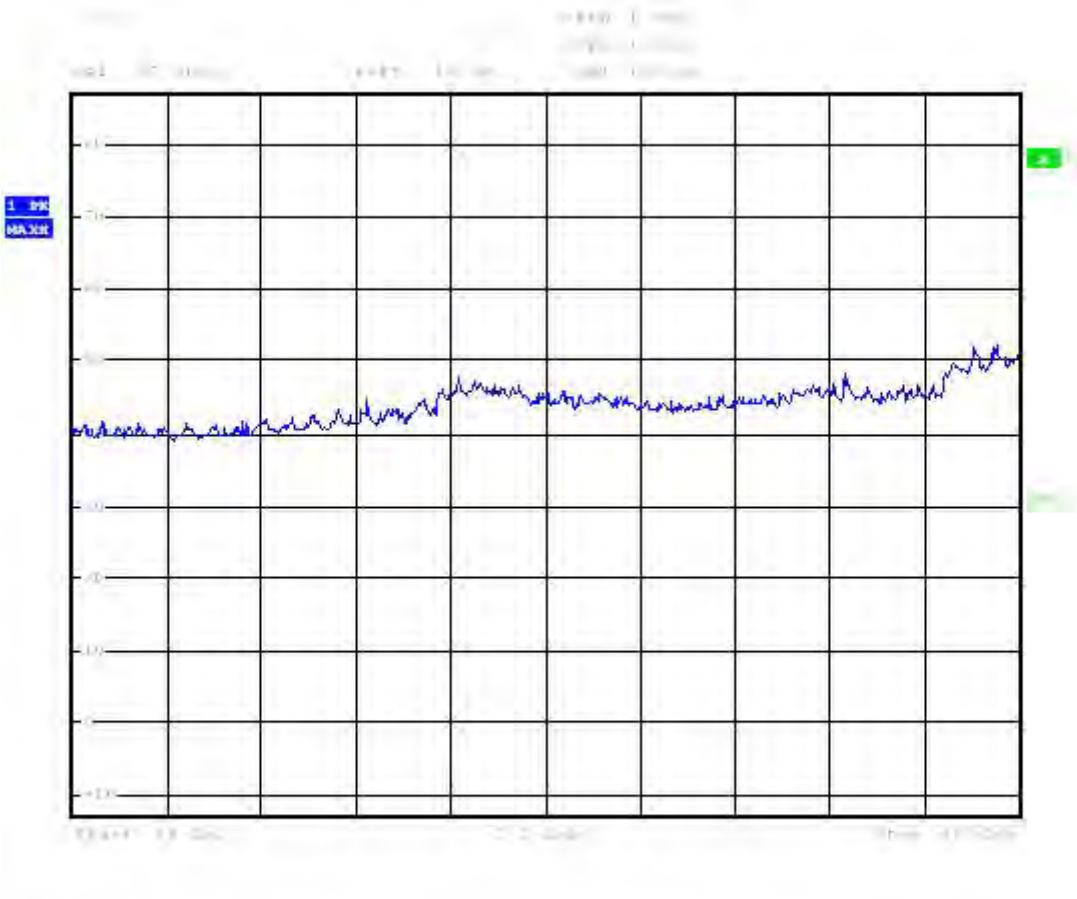

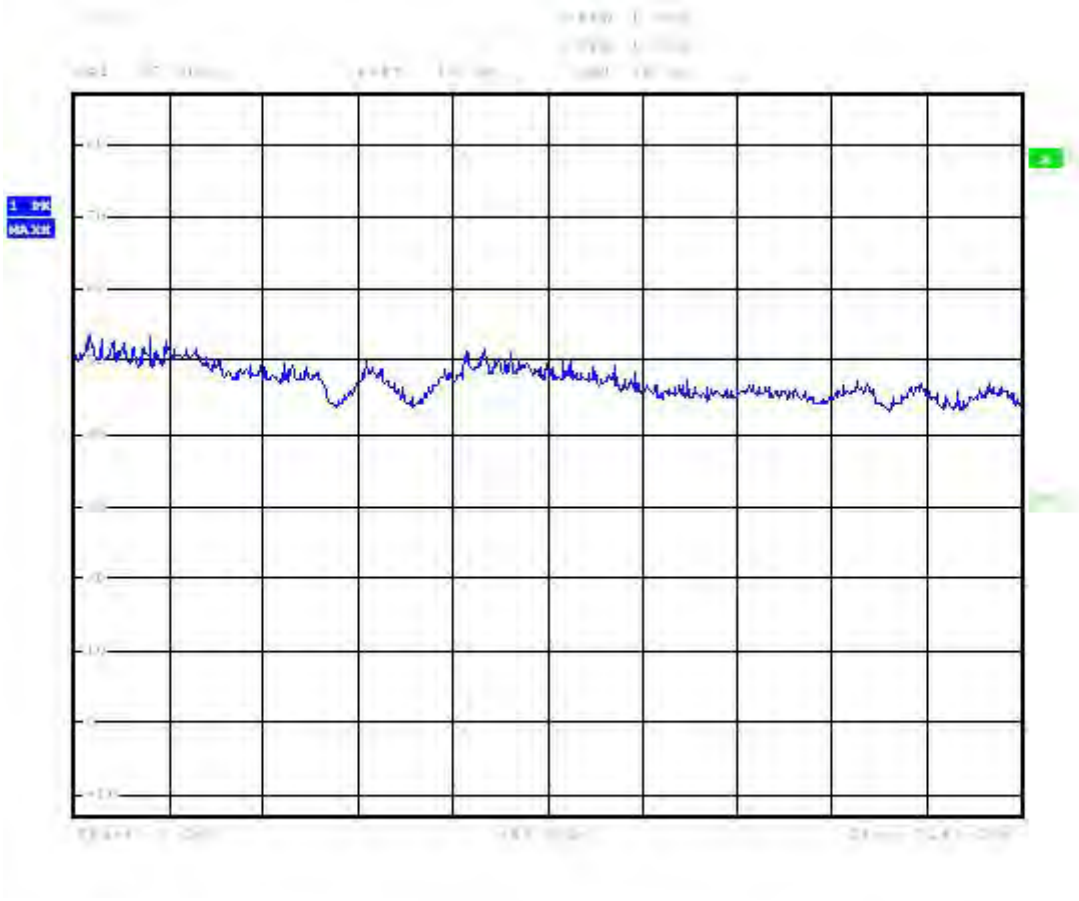

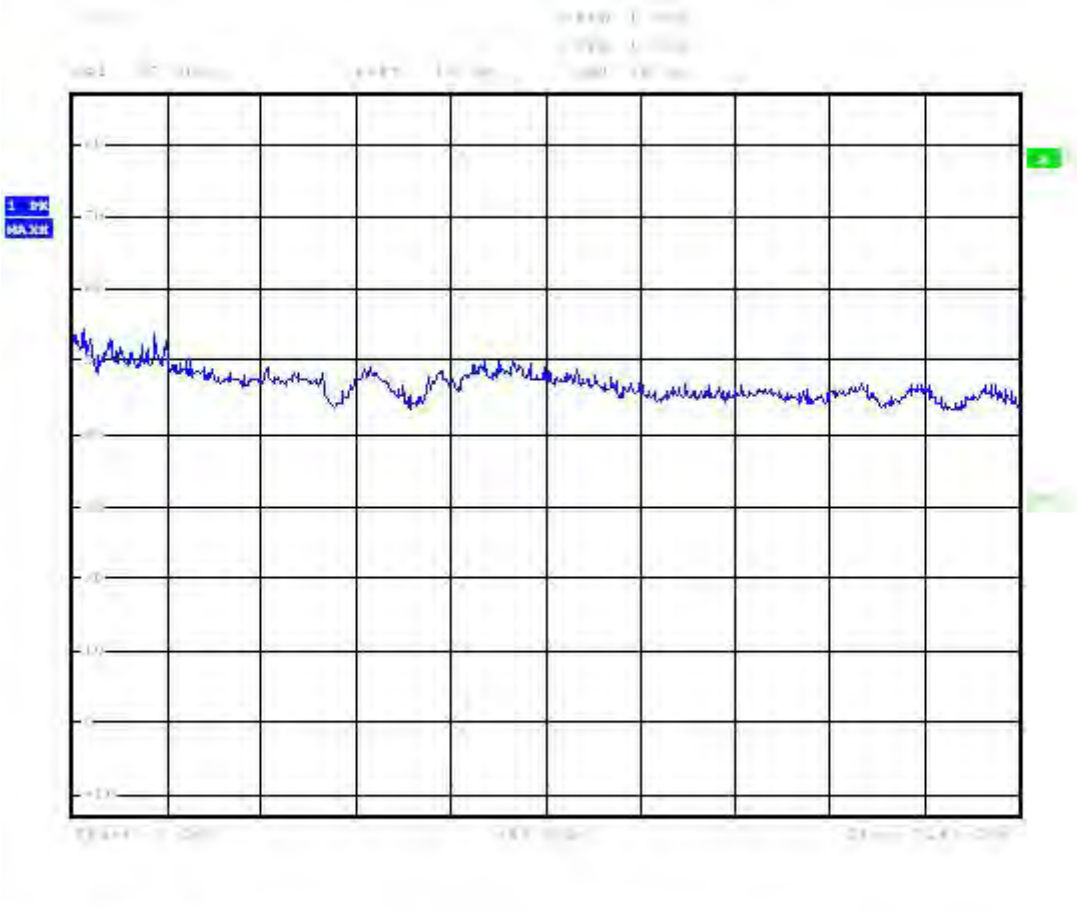

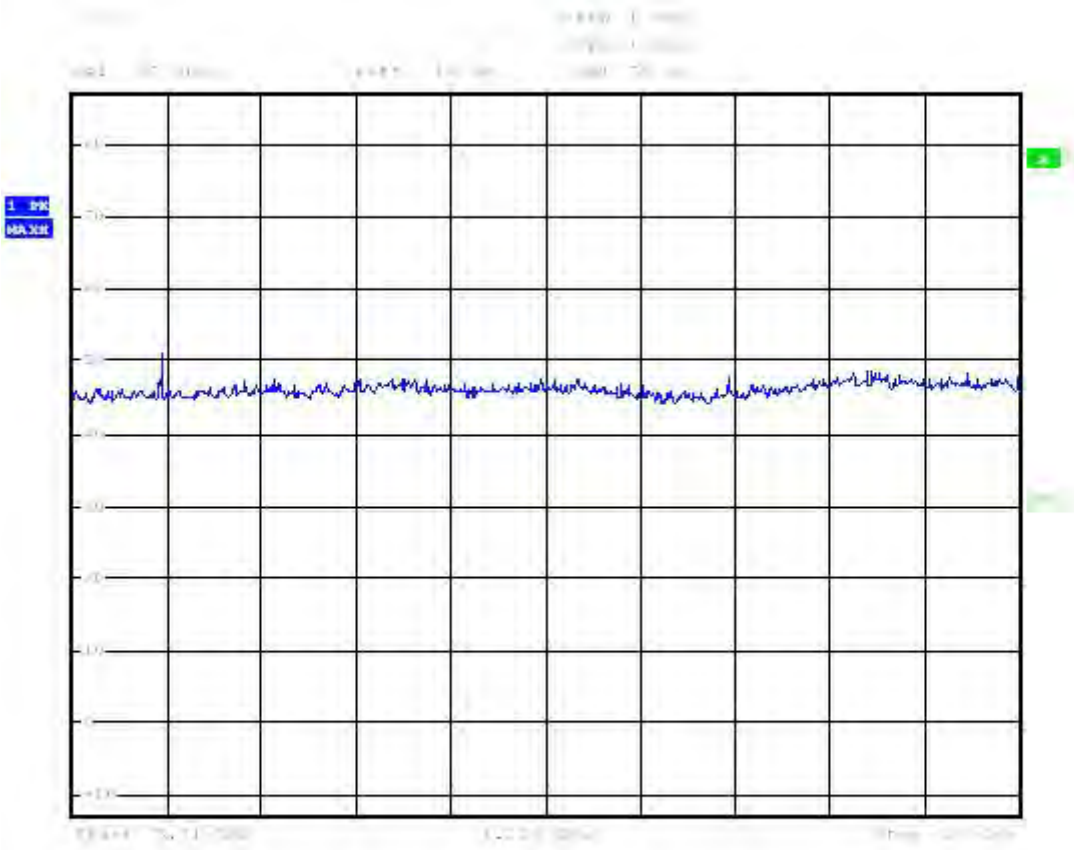
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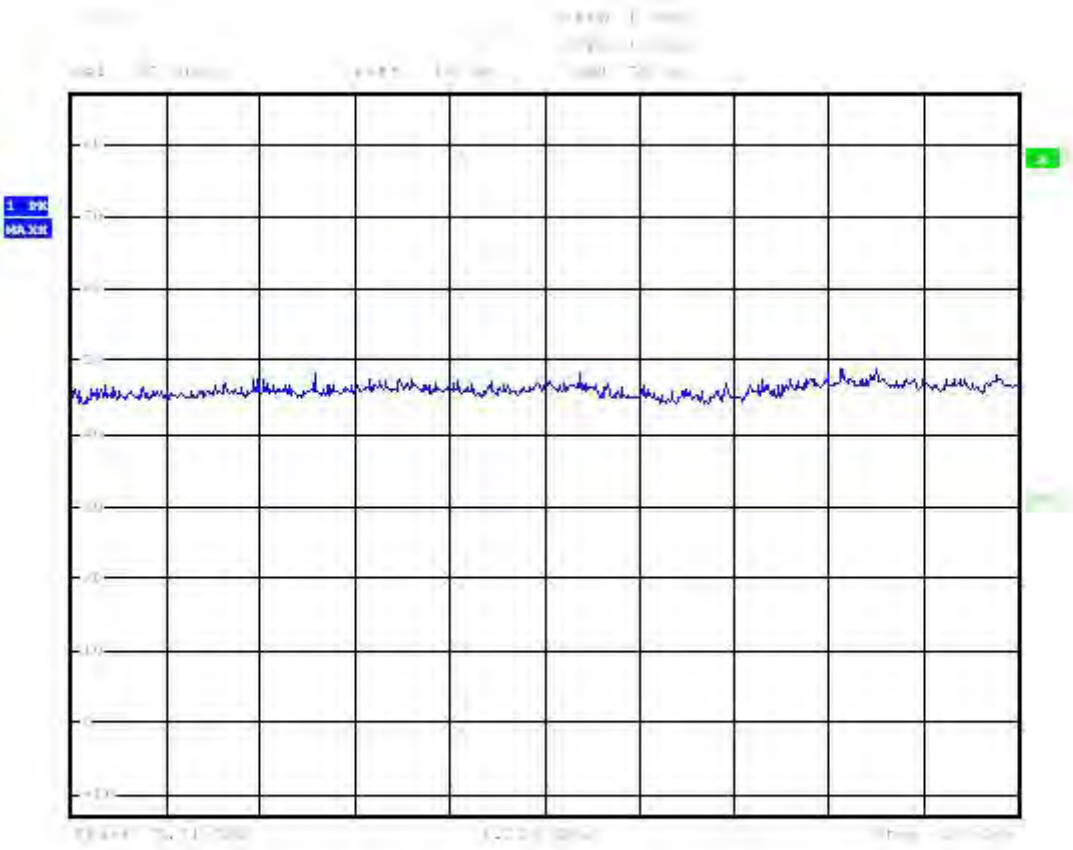
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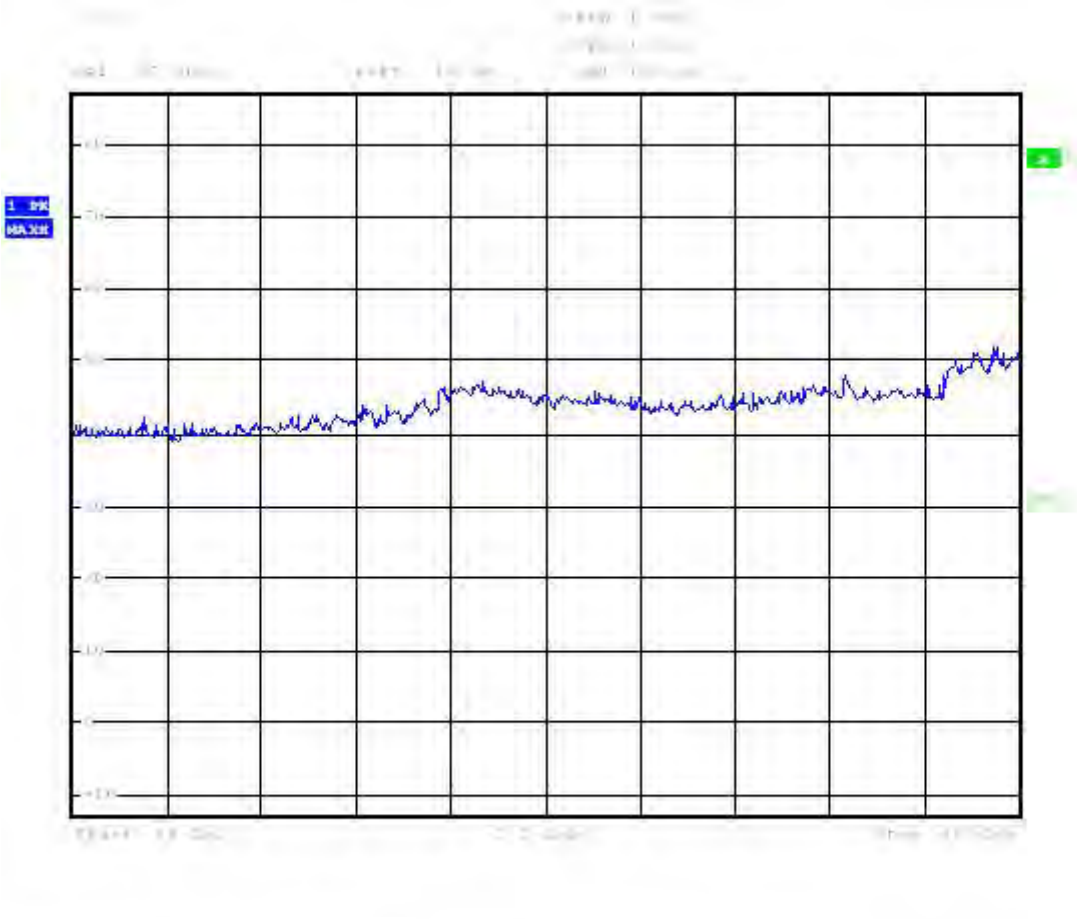
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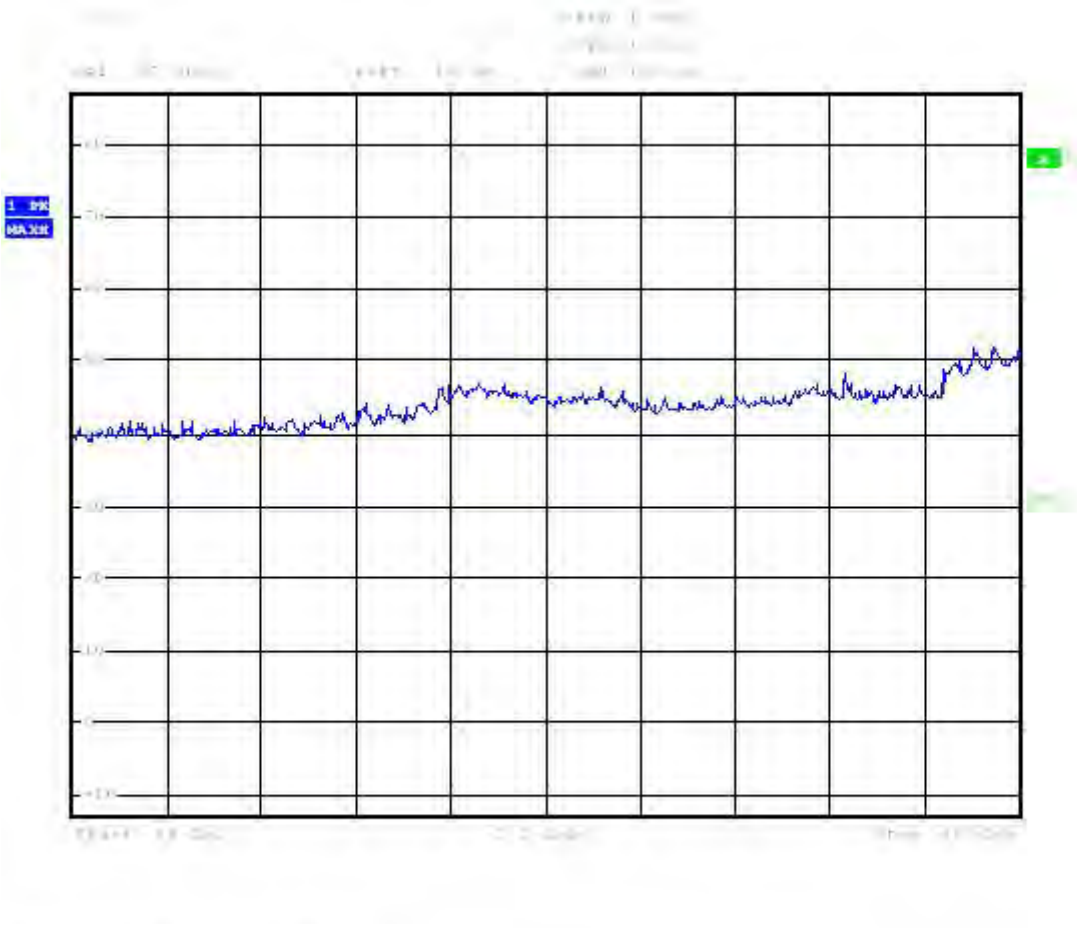
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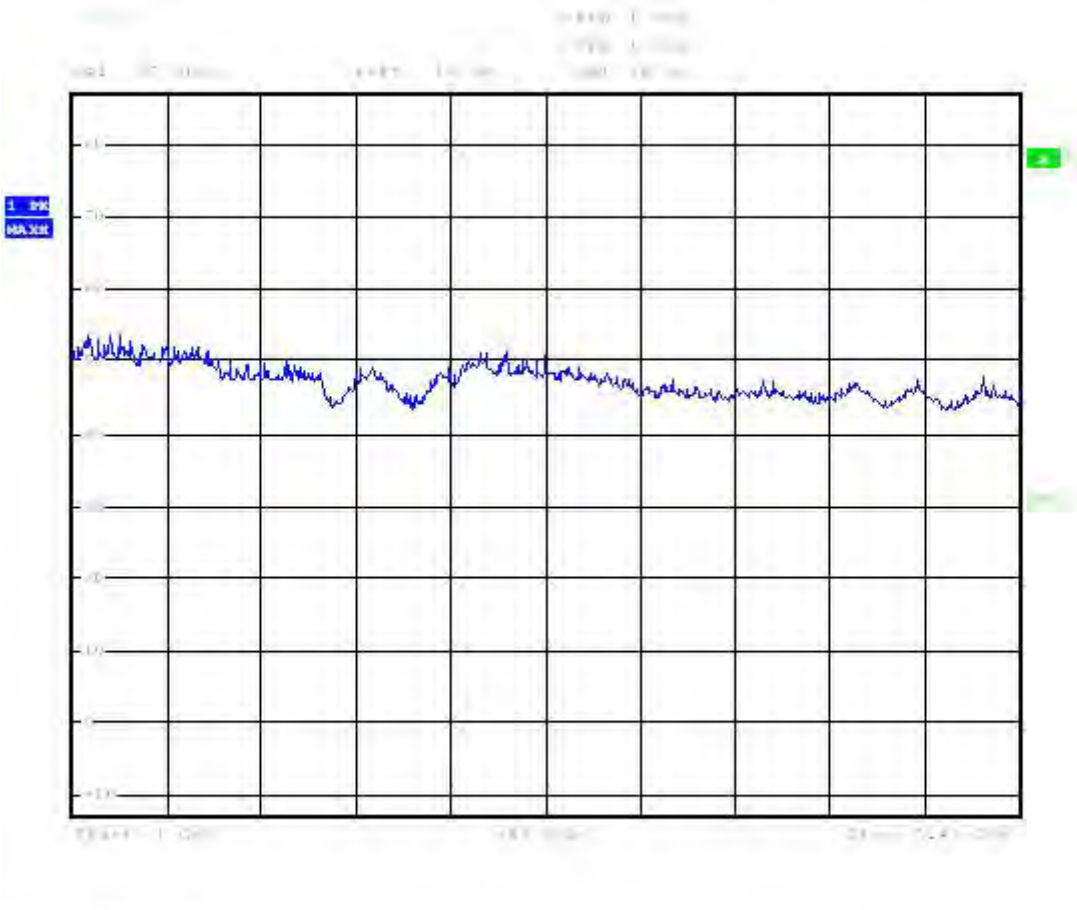
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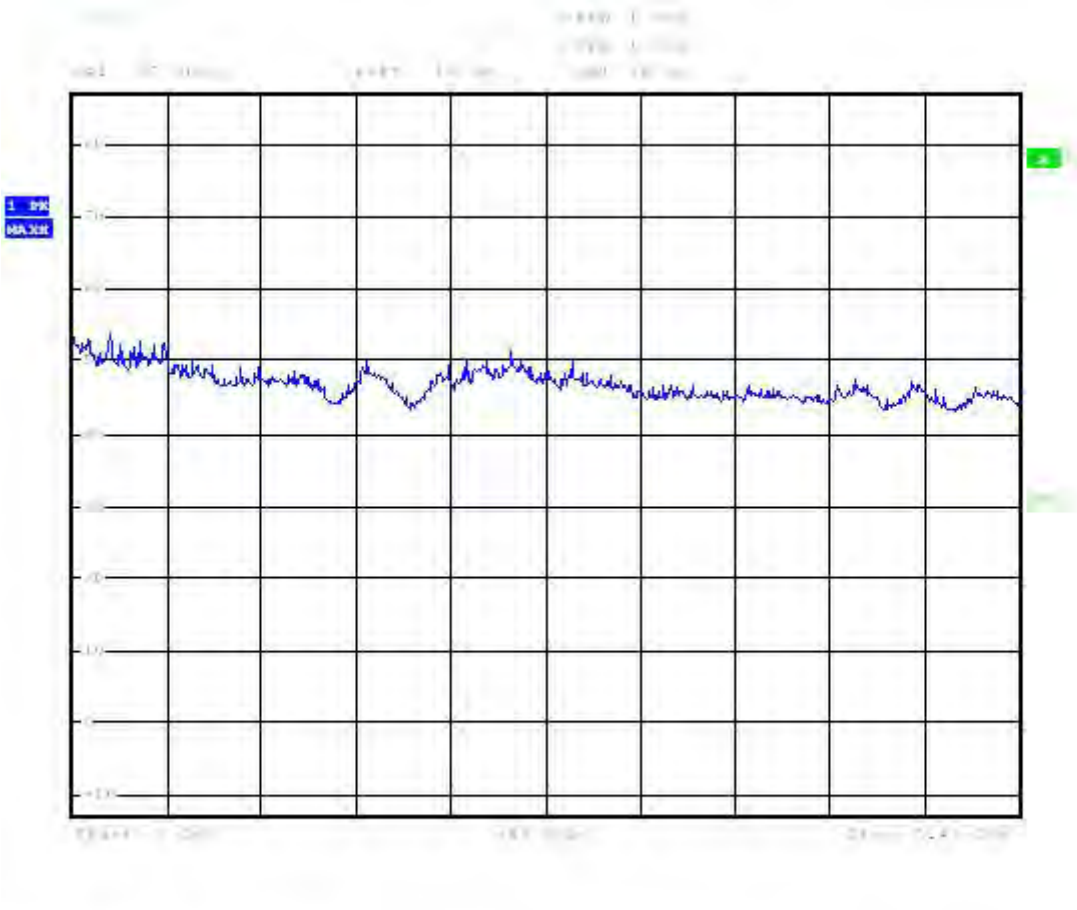

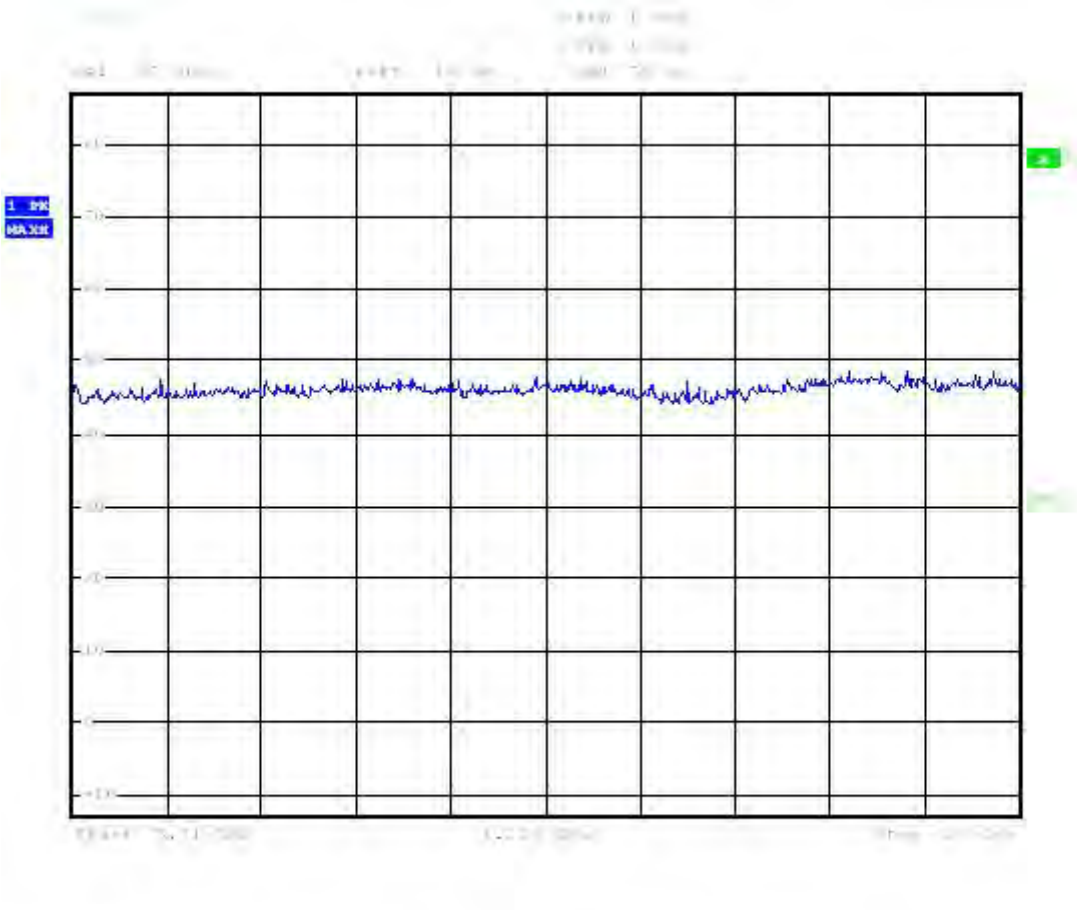
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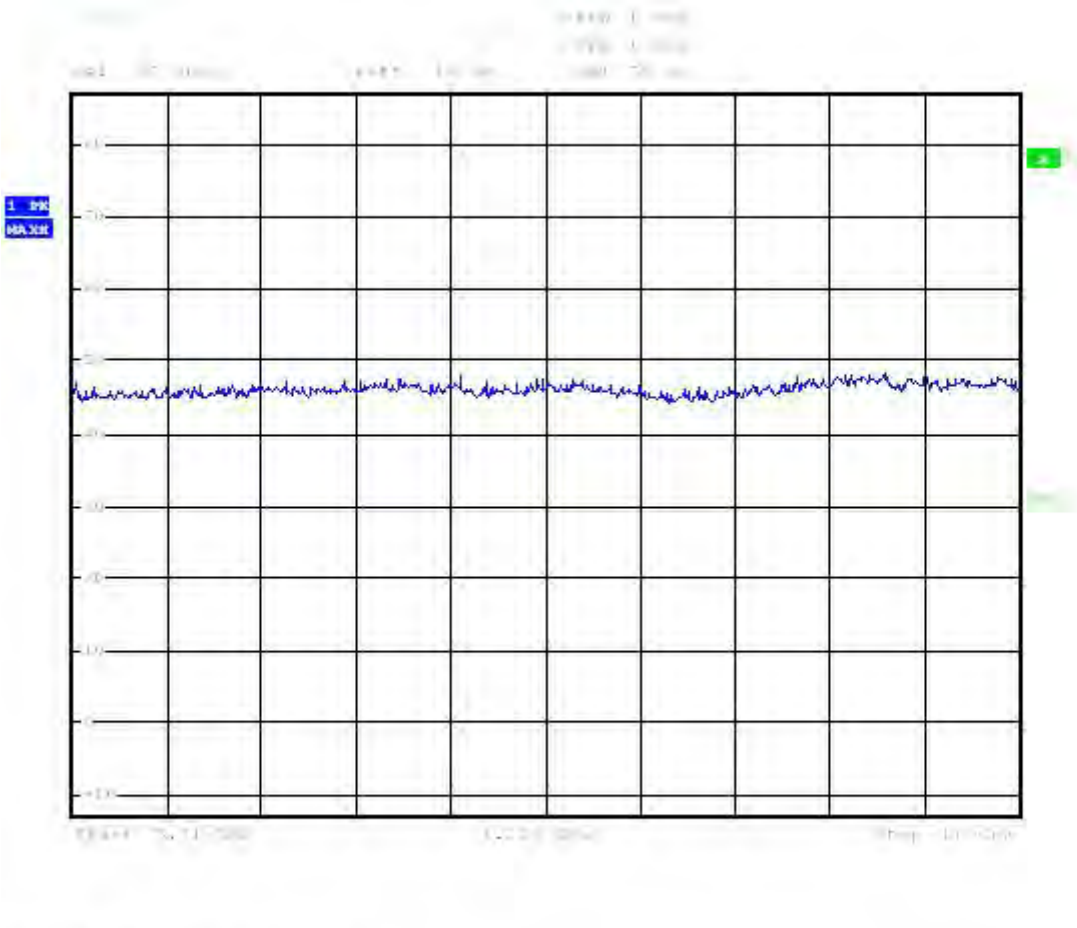
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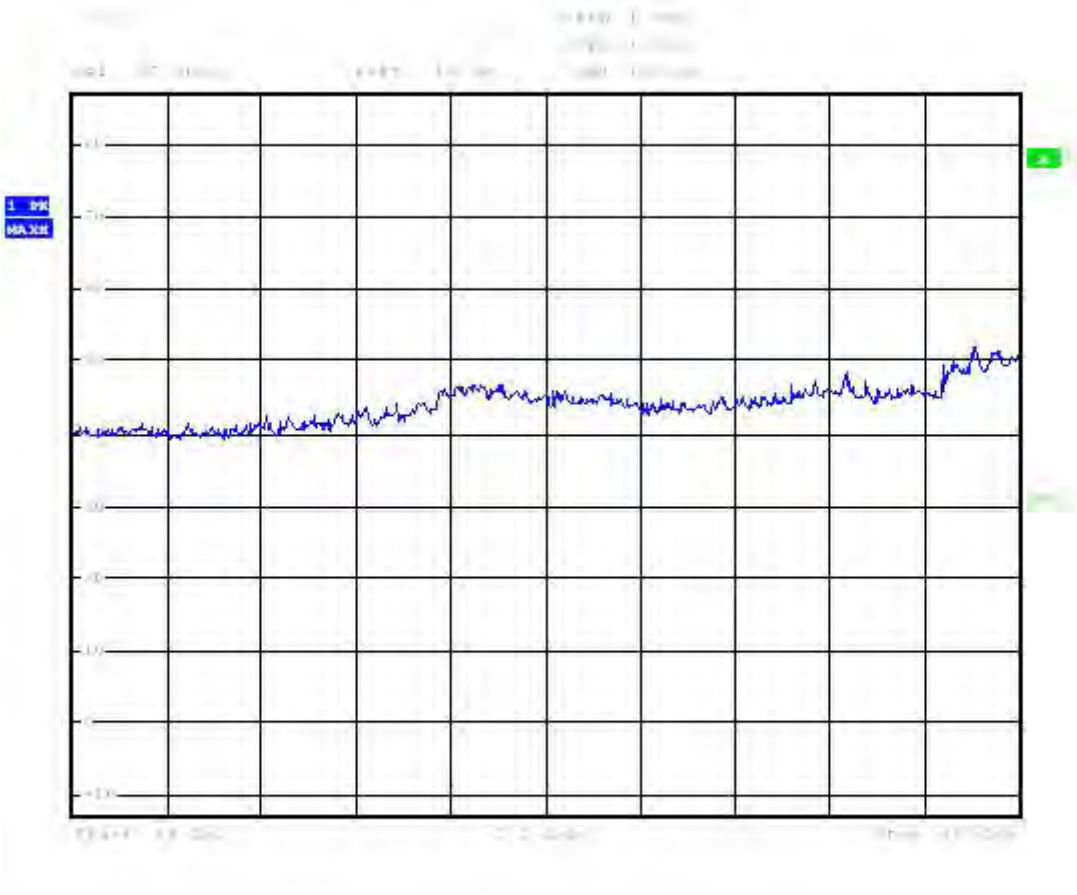

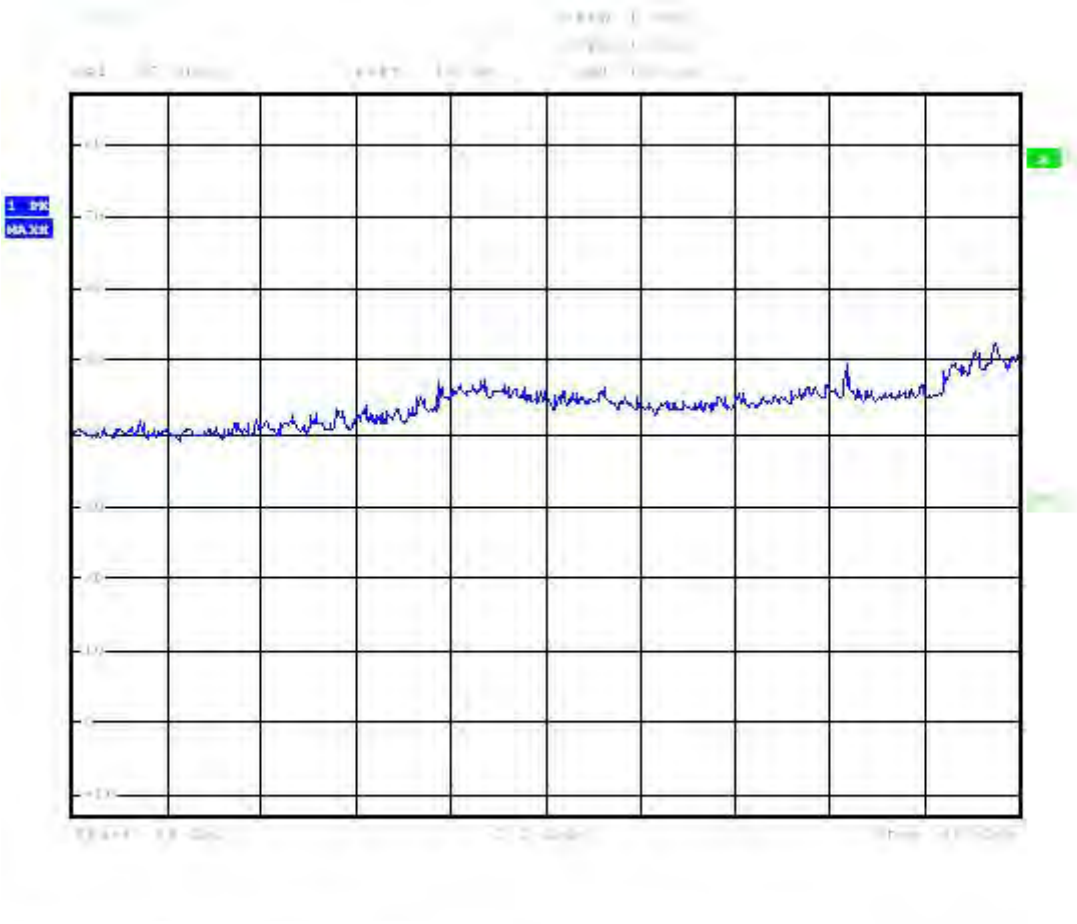
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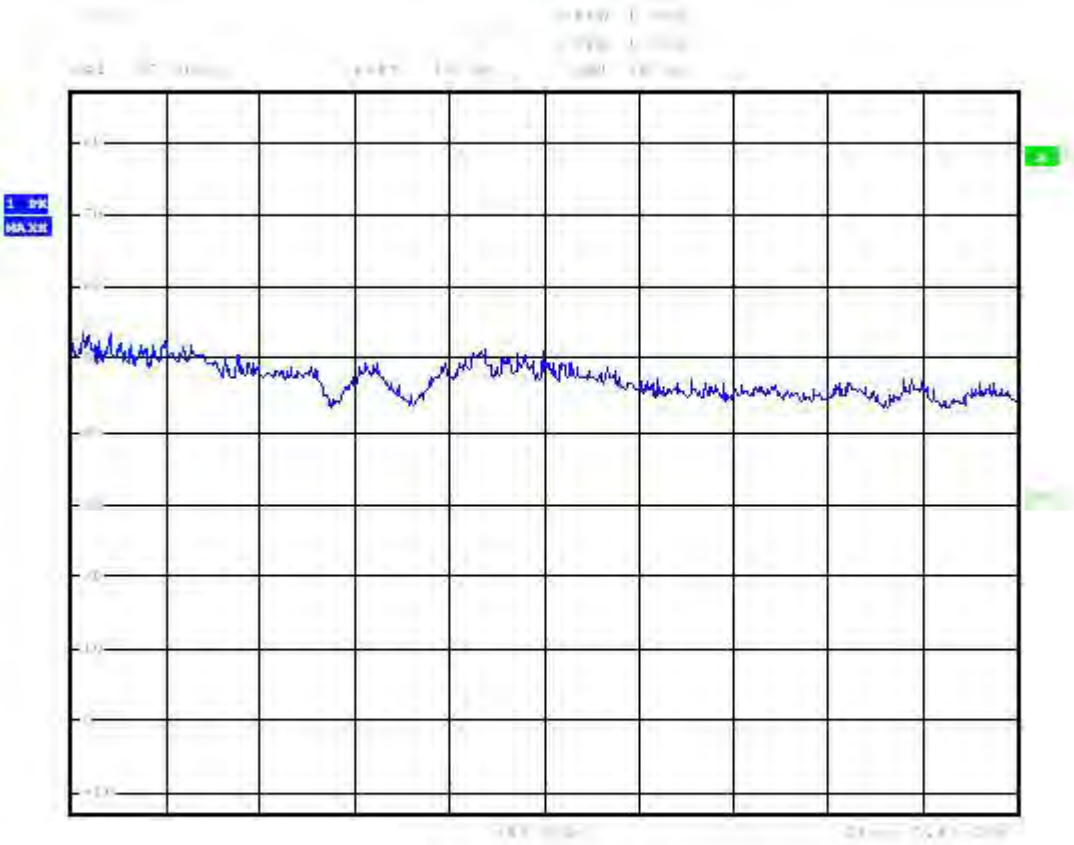
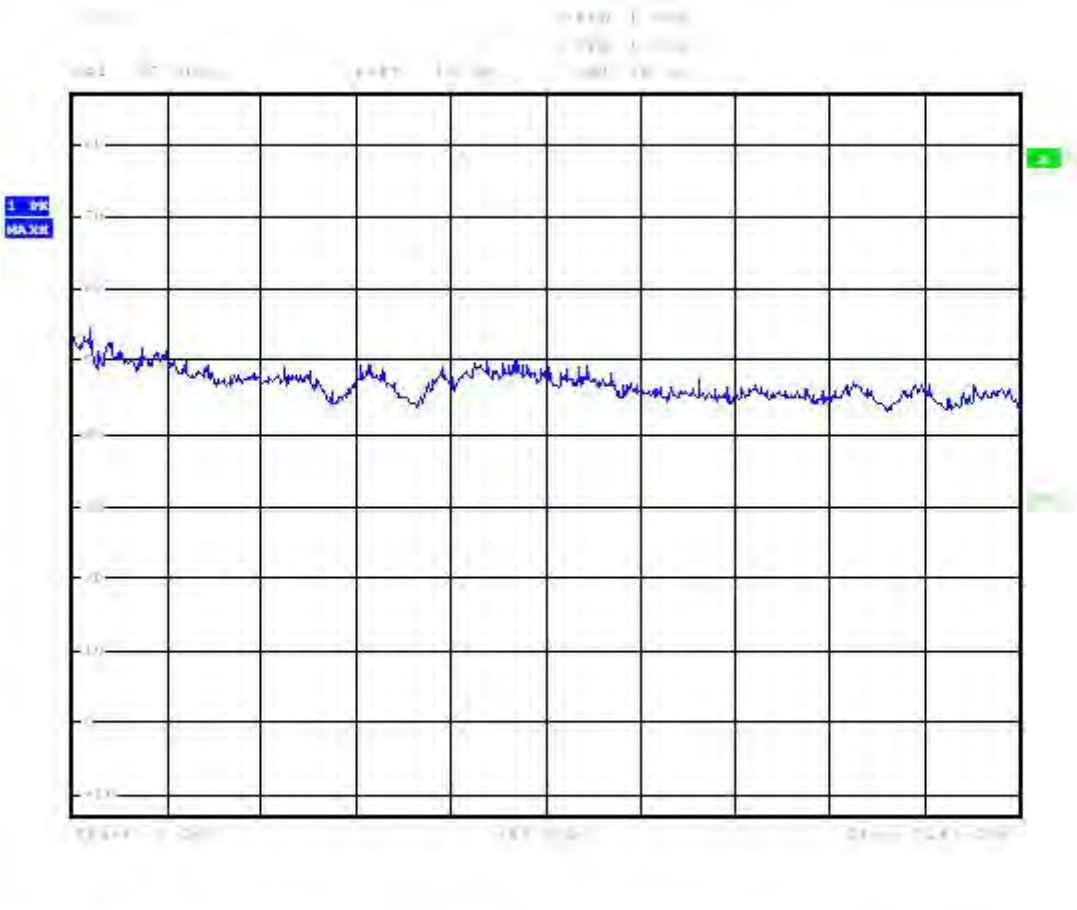
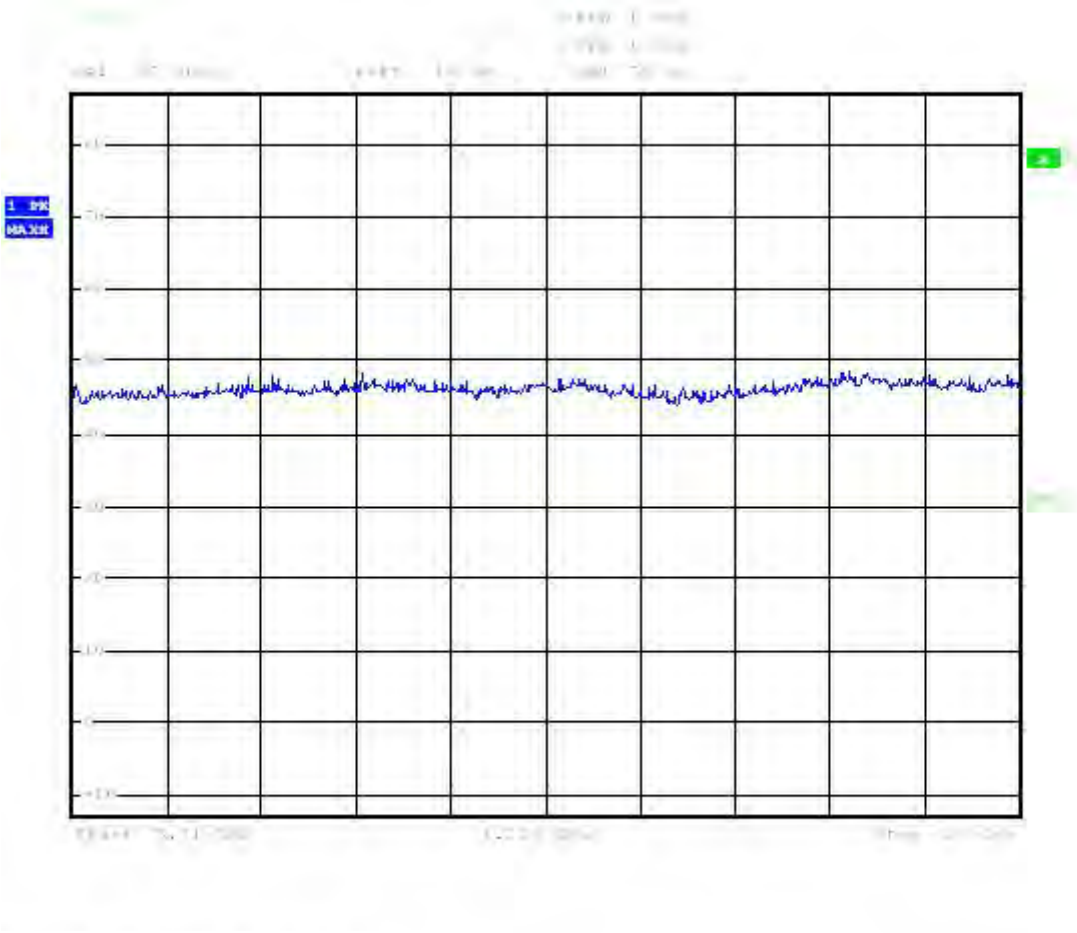
調變技術: IEEE 802.11an HT20



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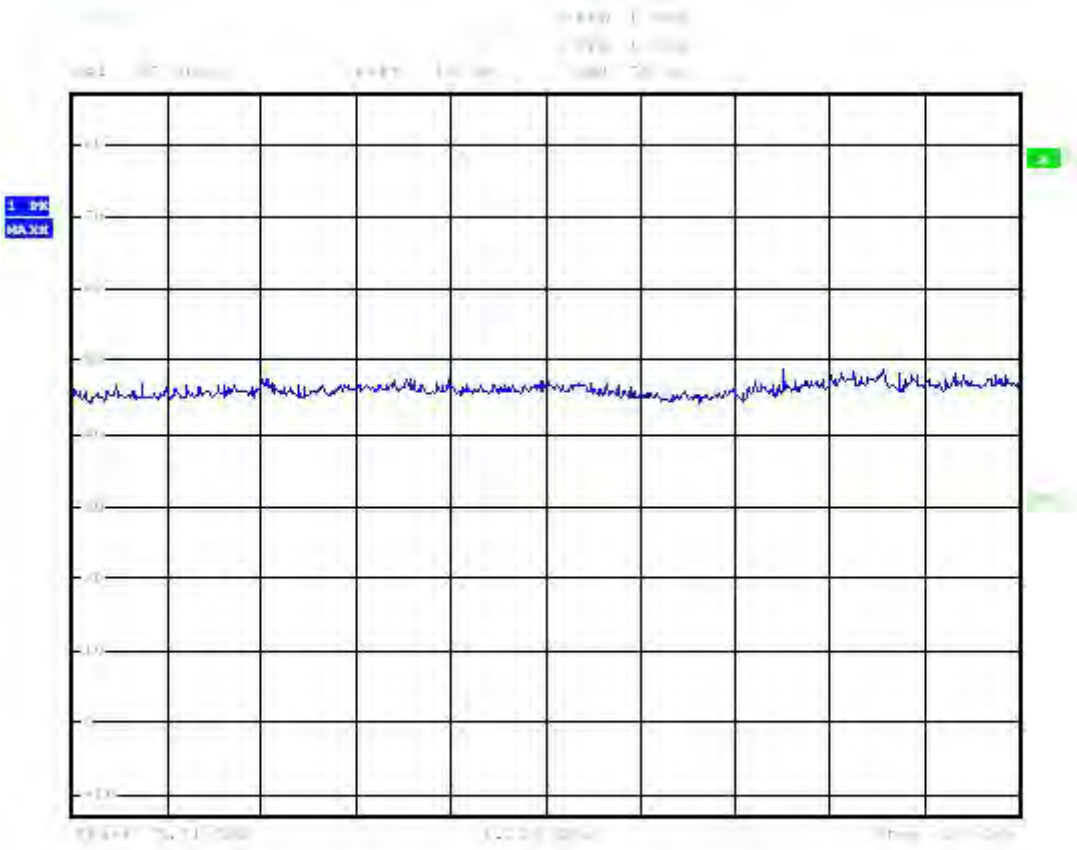
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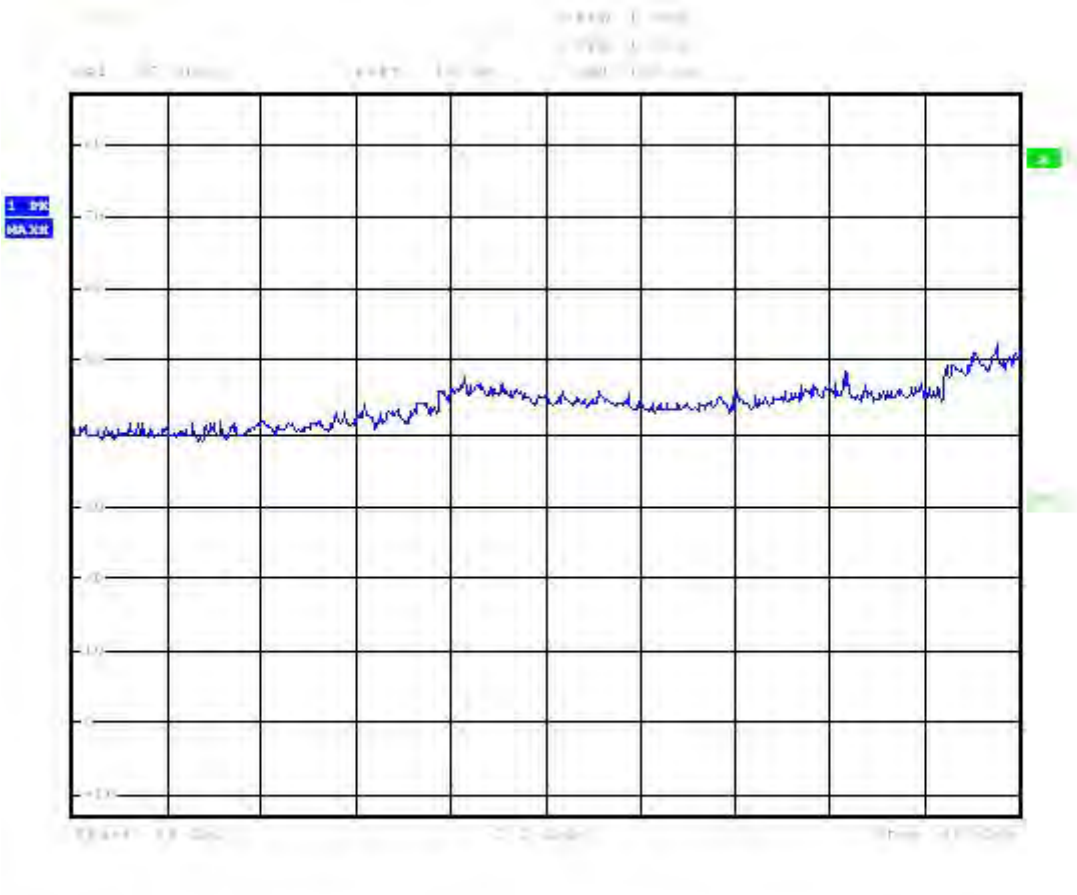

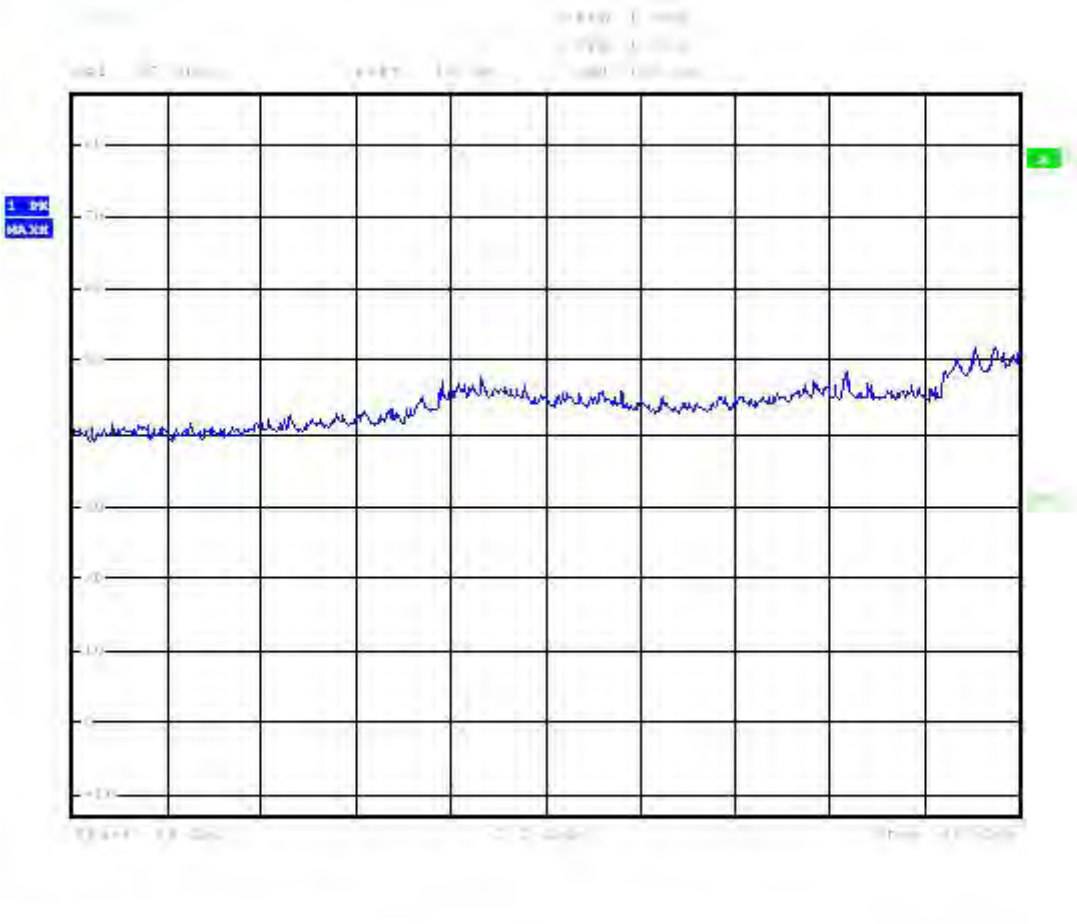
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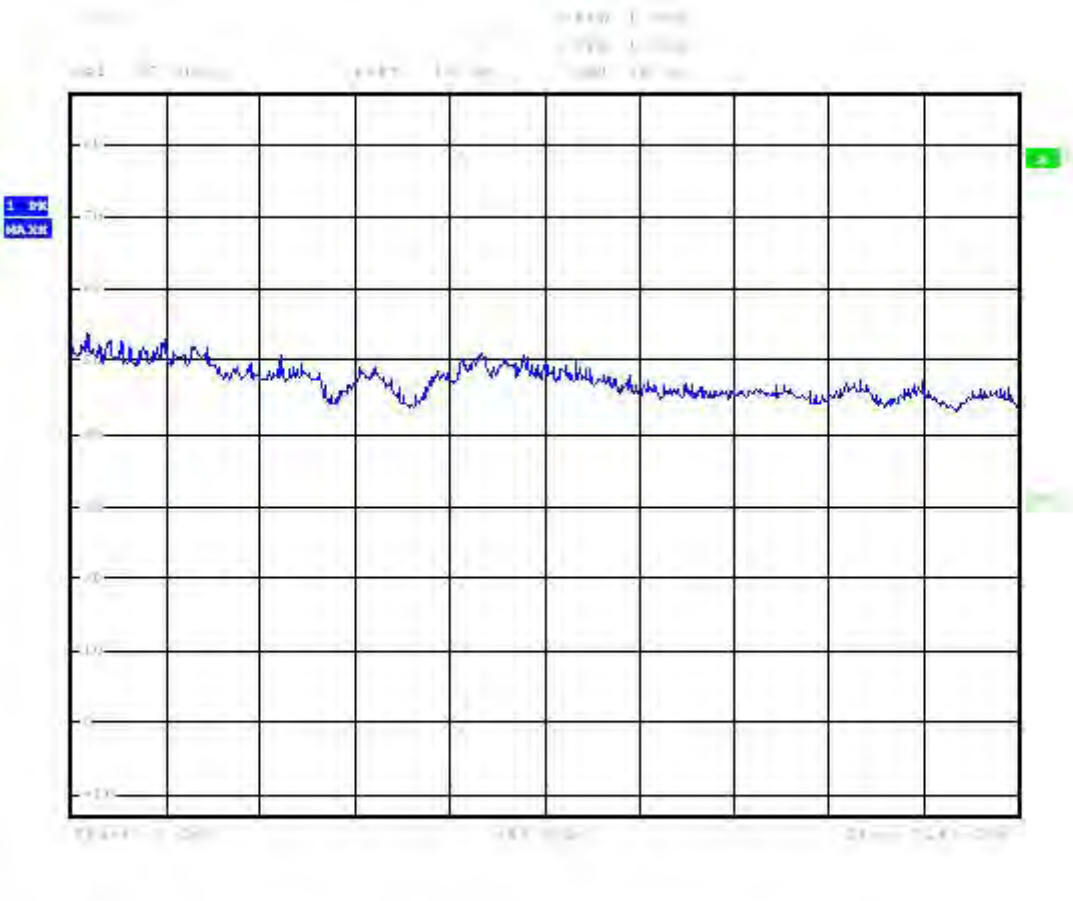

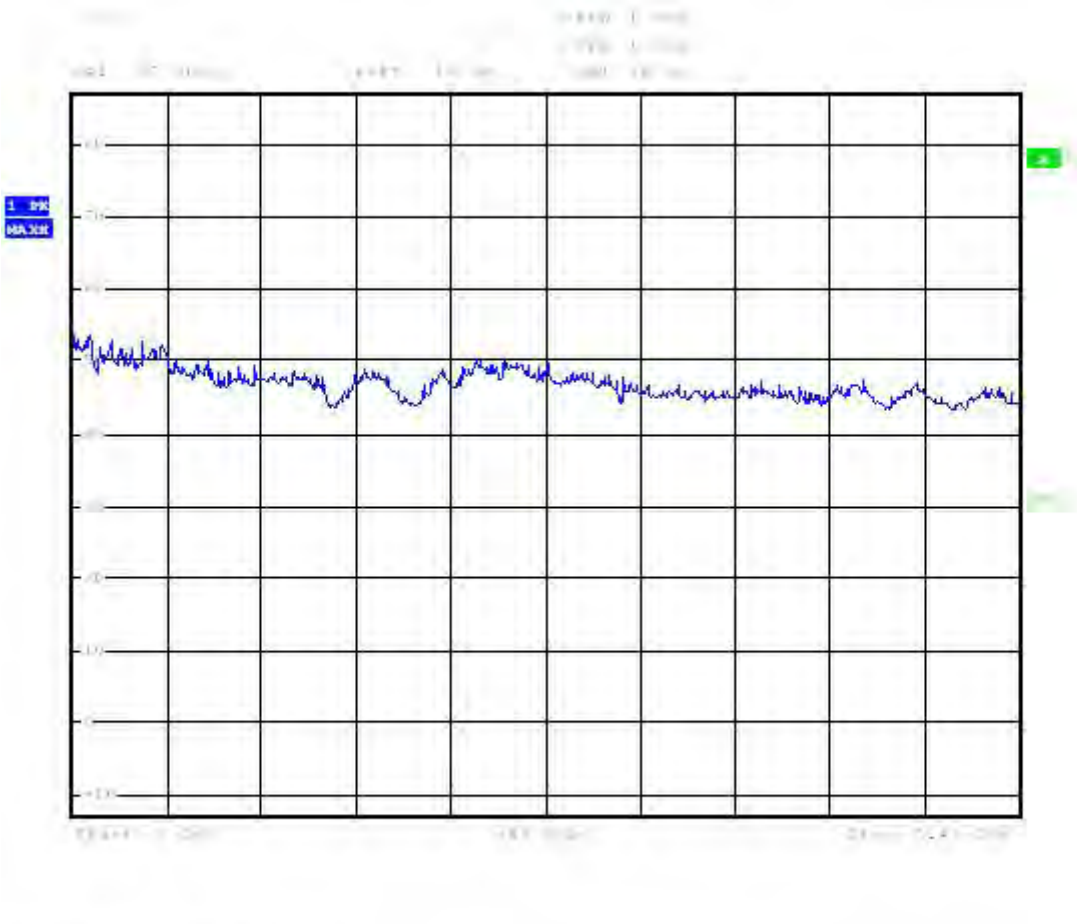

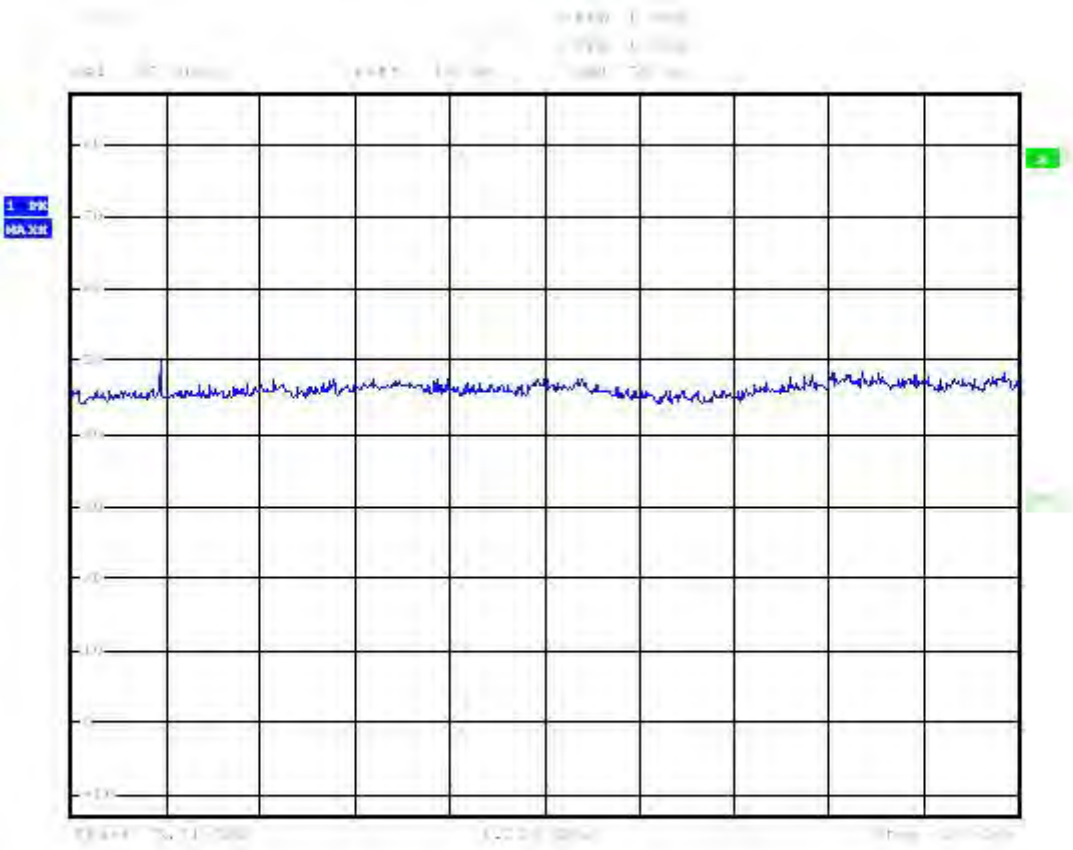
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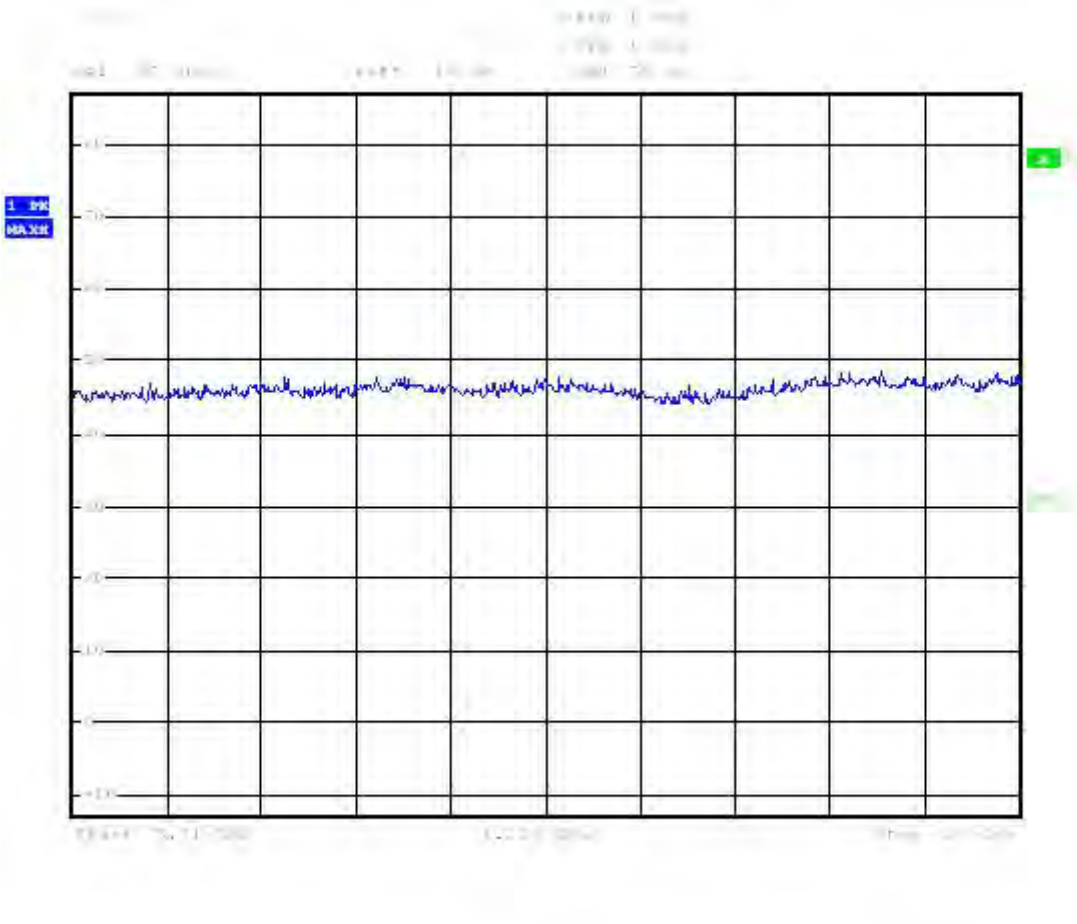
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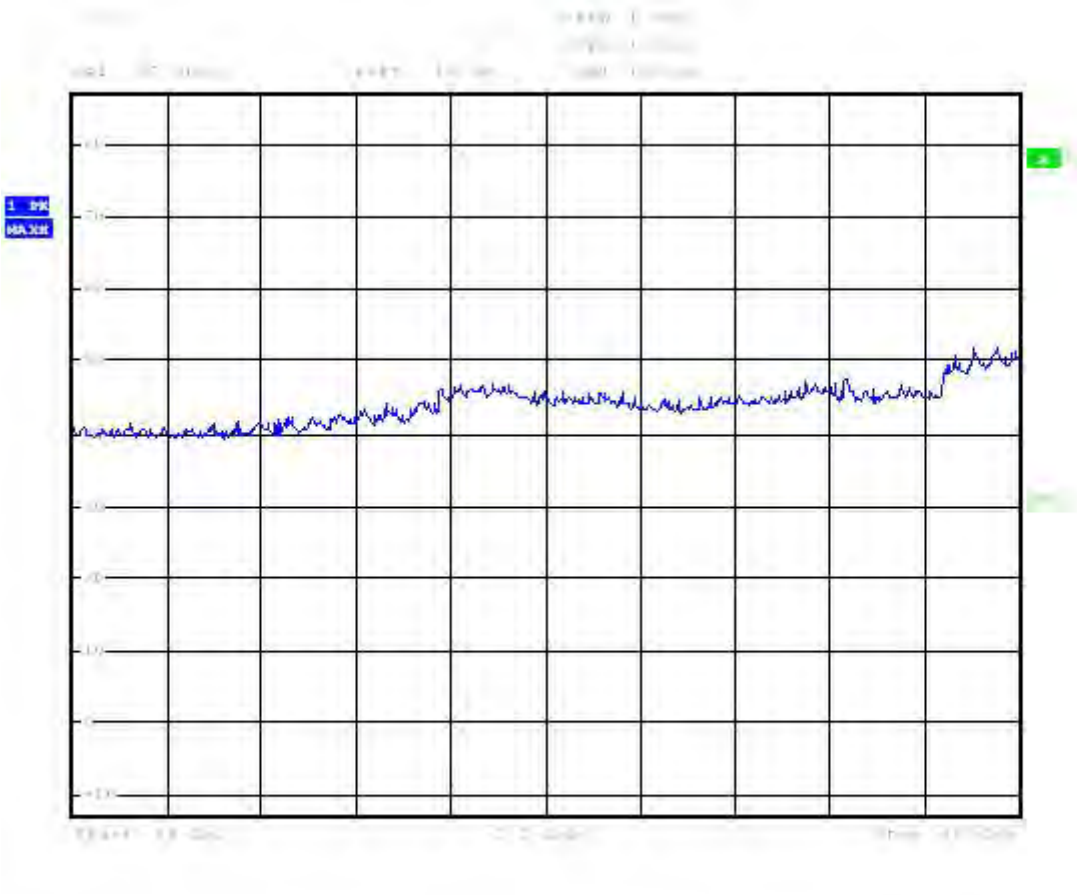

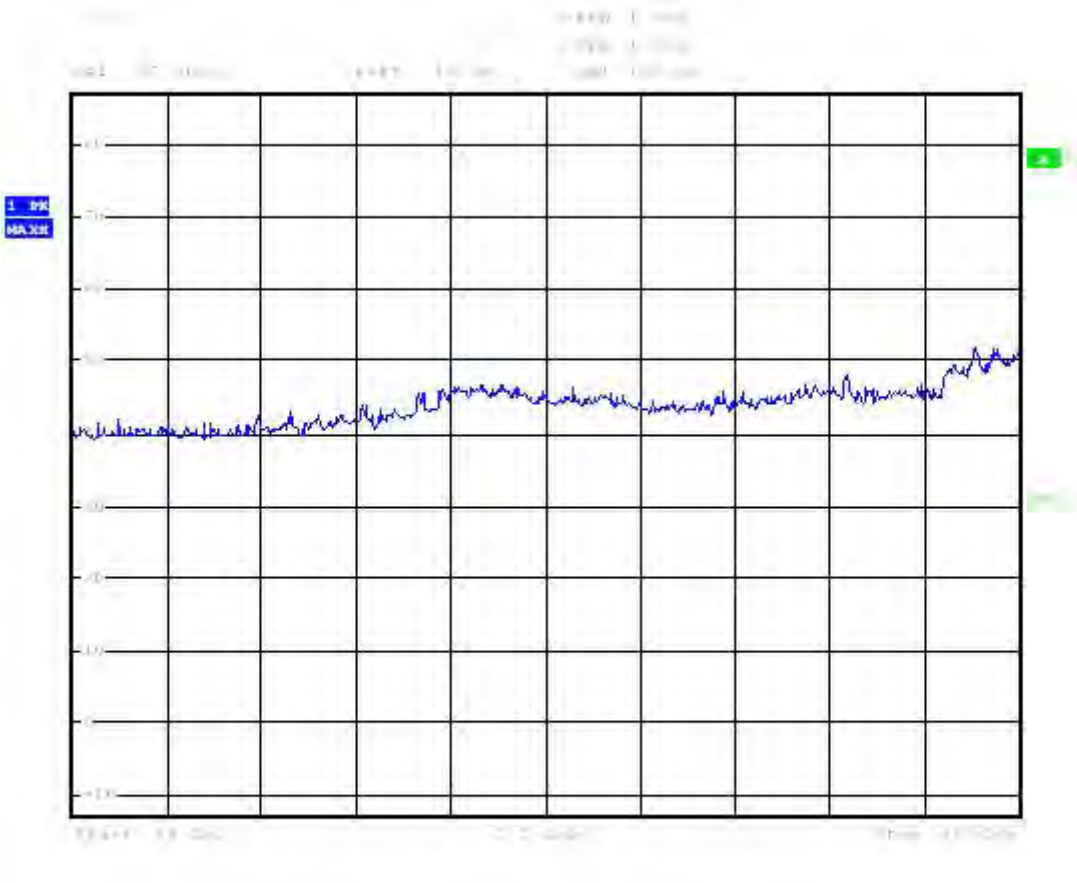
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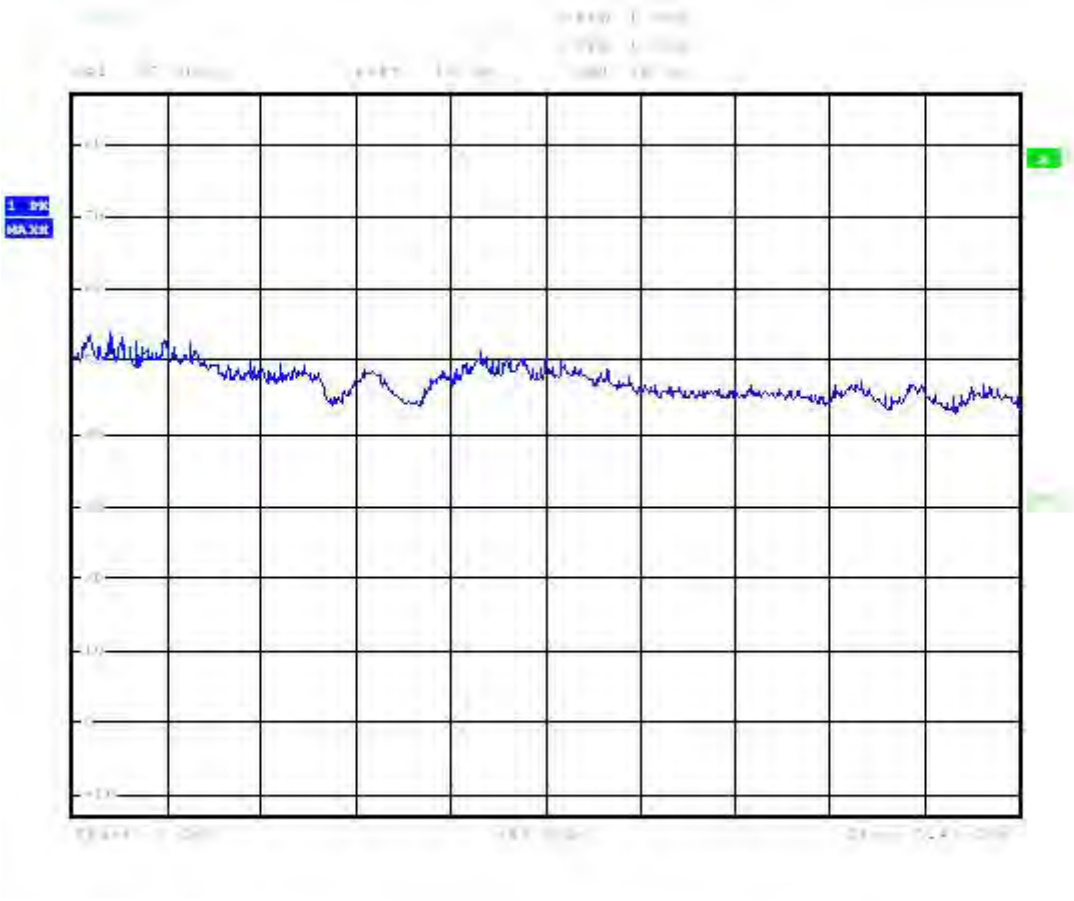
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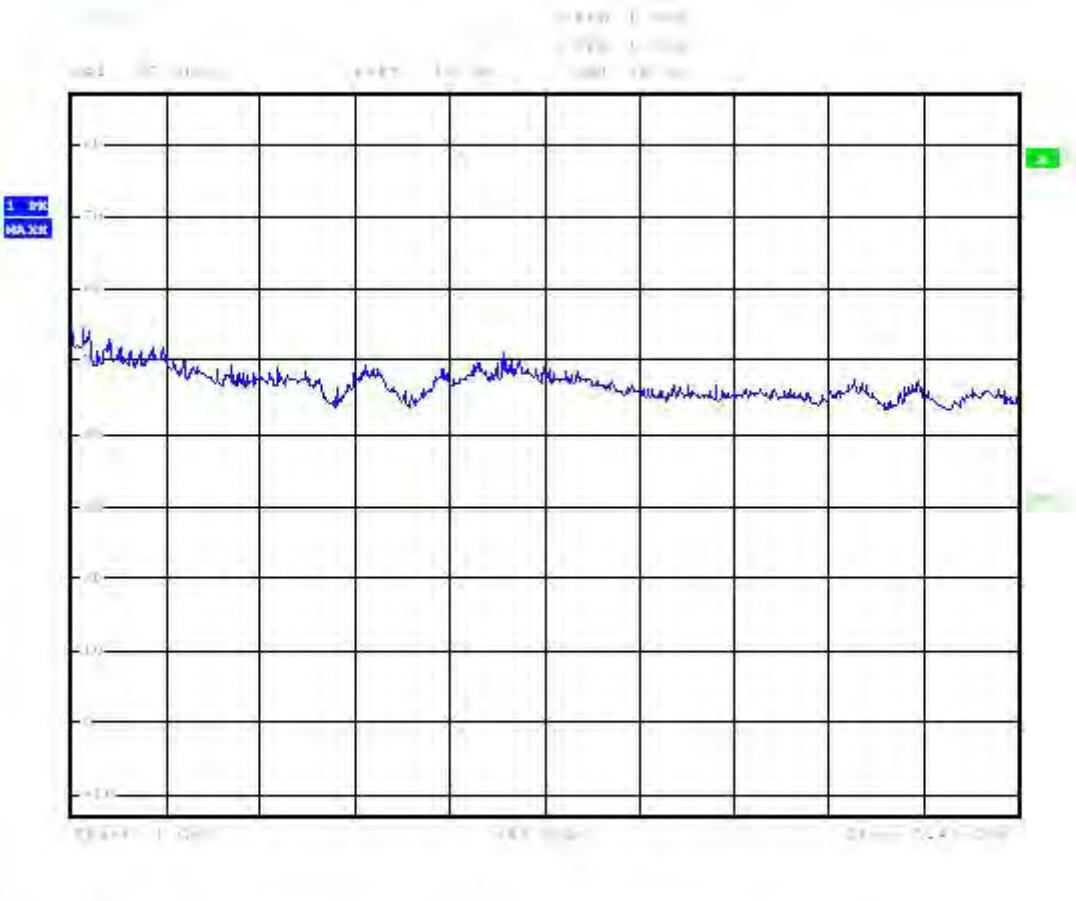

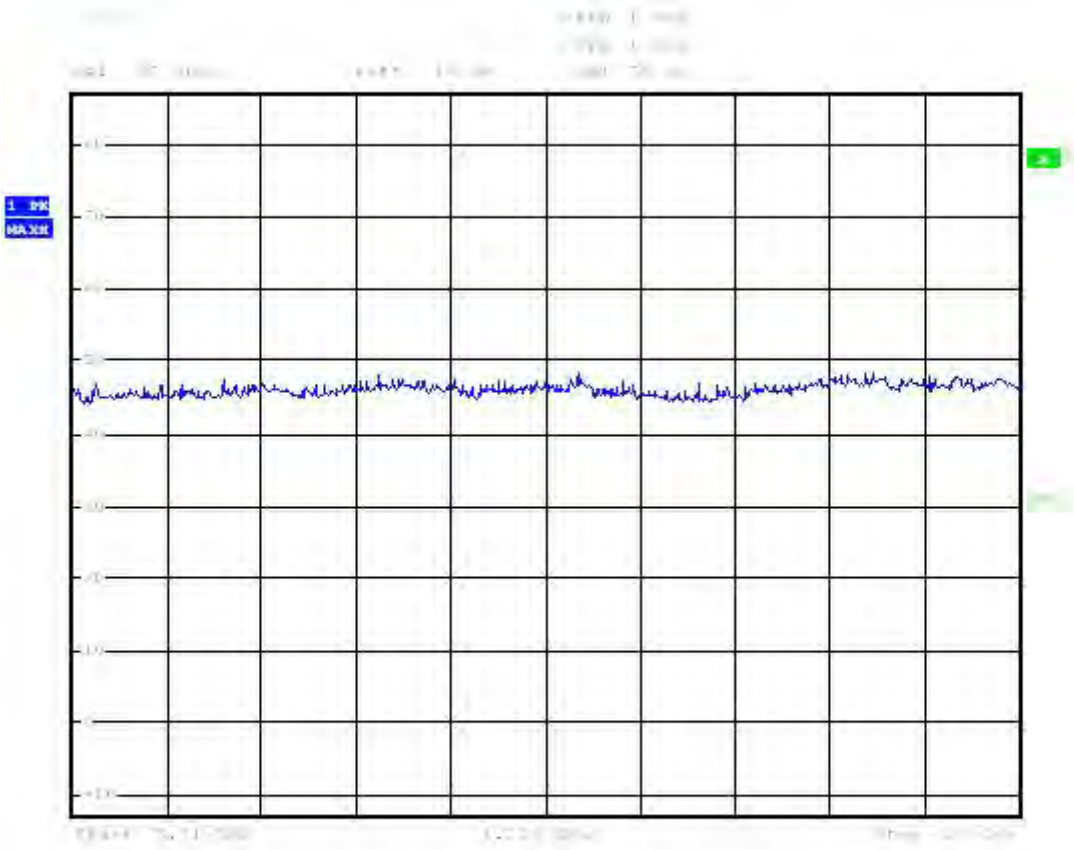
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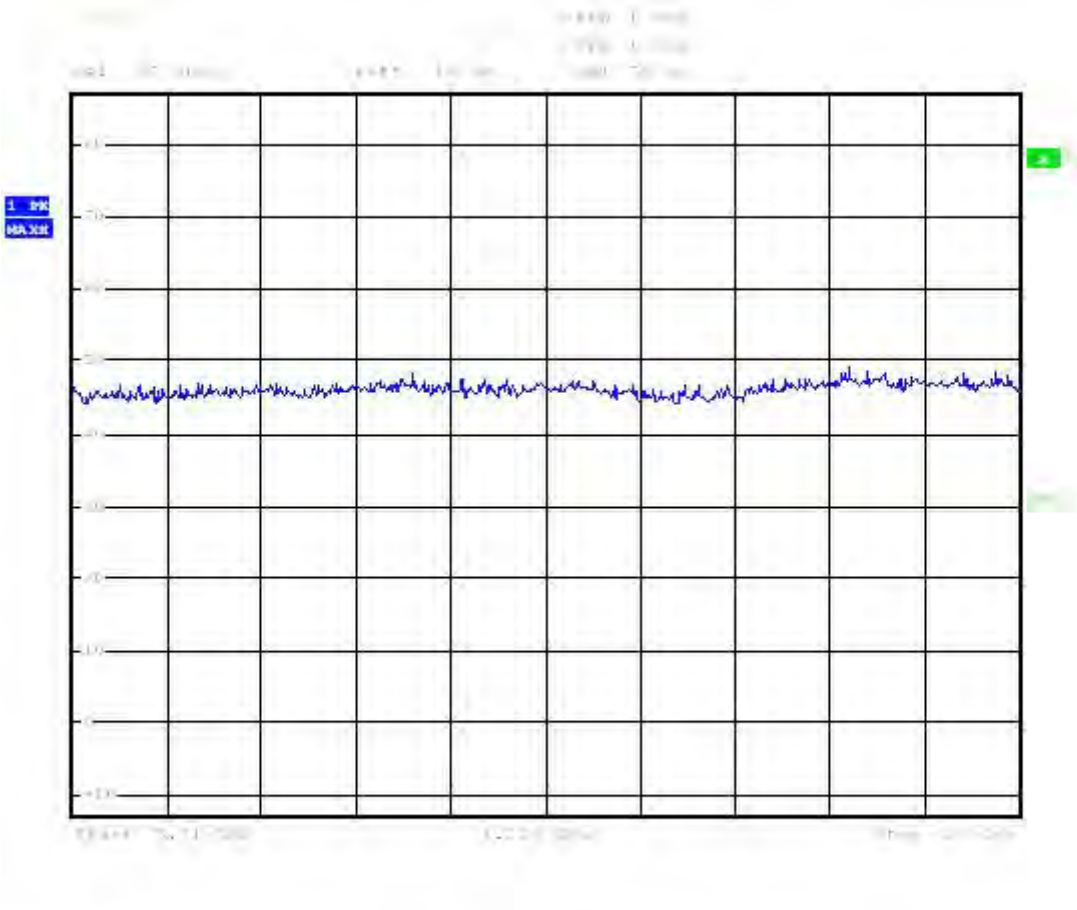
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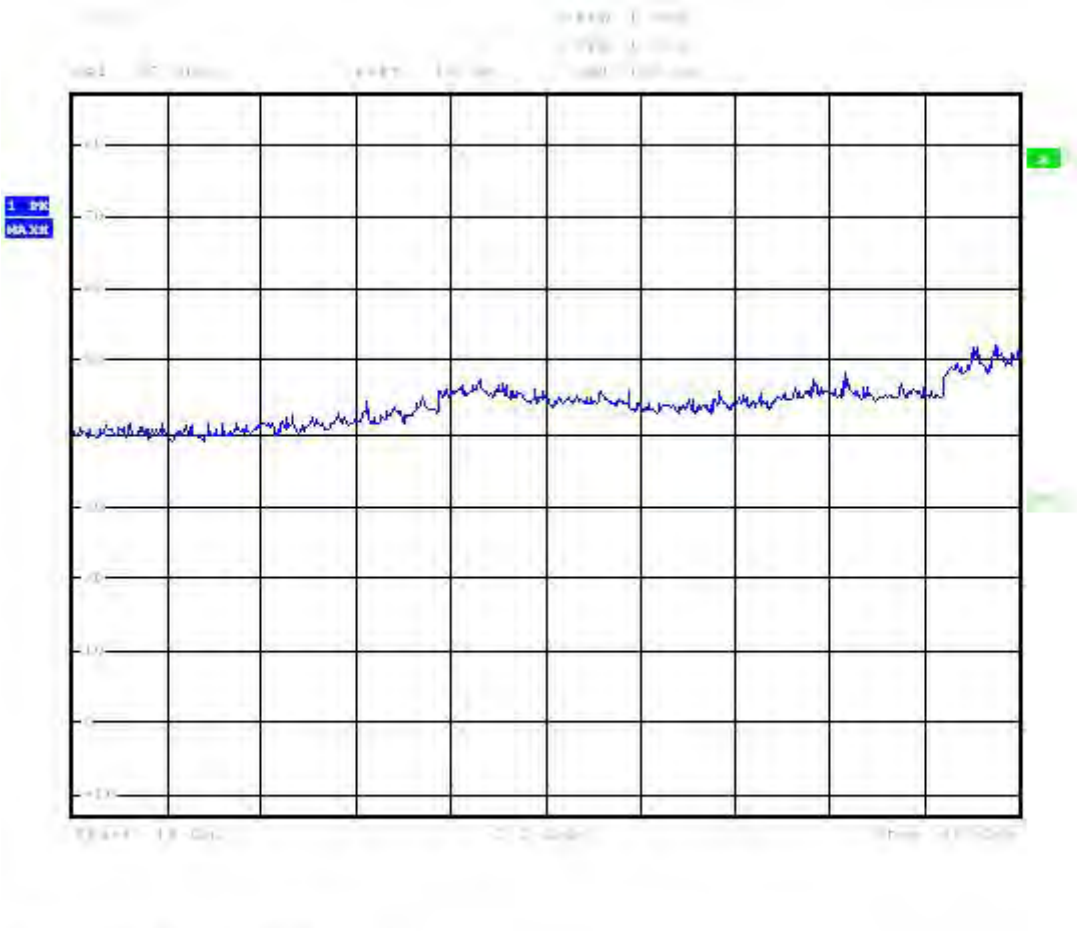
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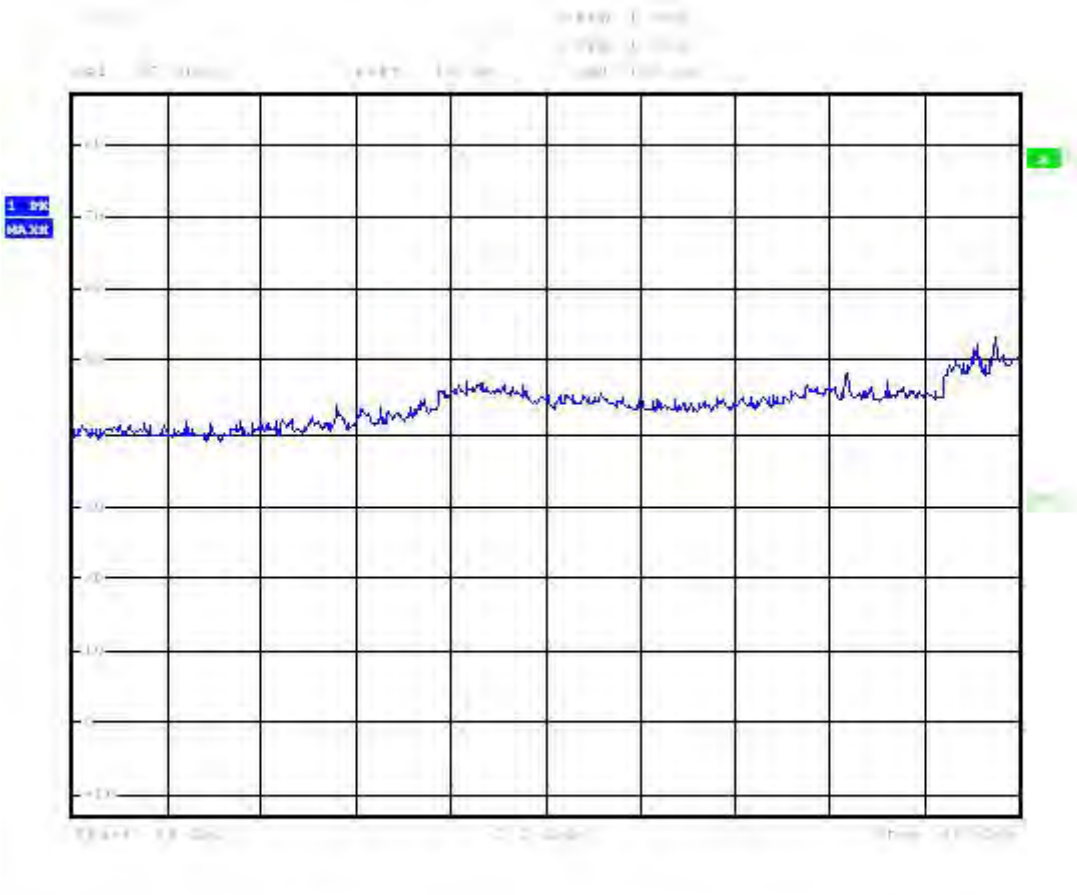
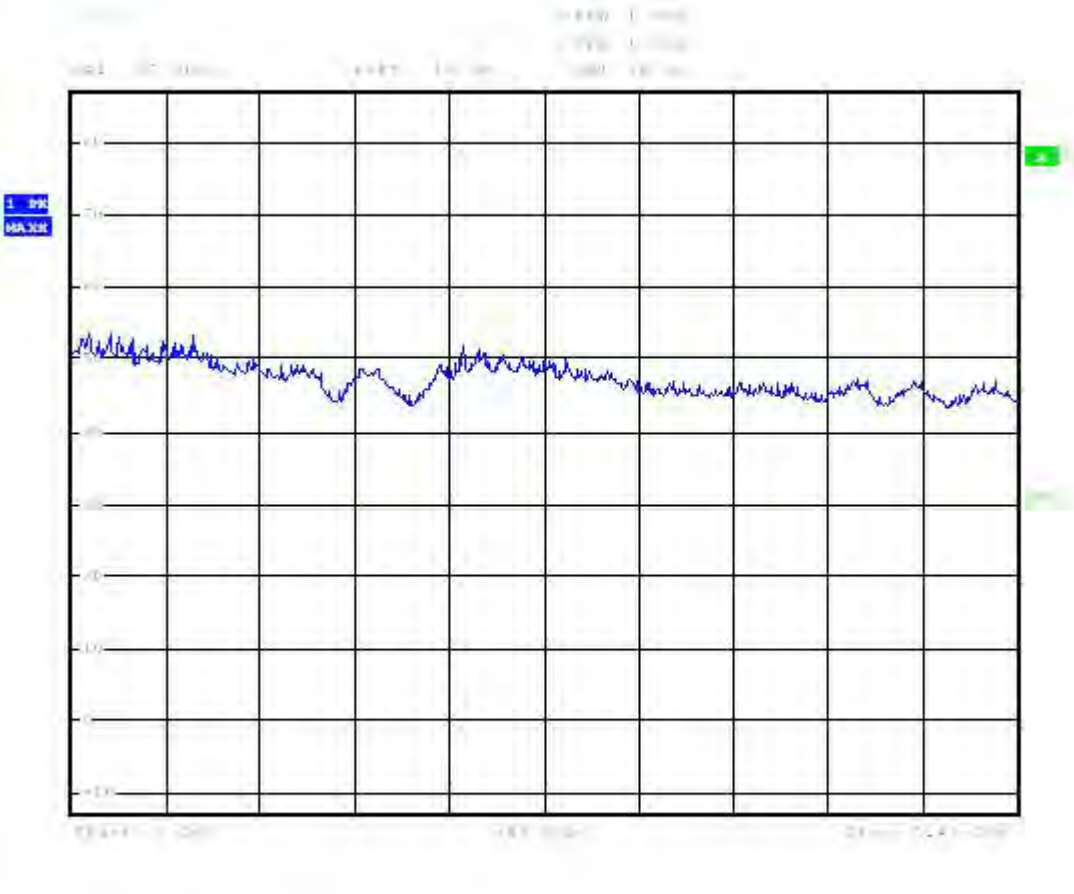
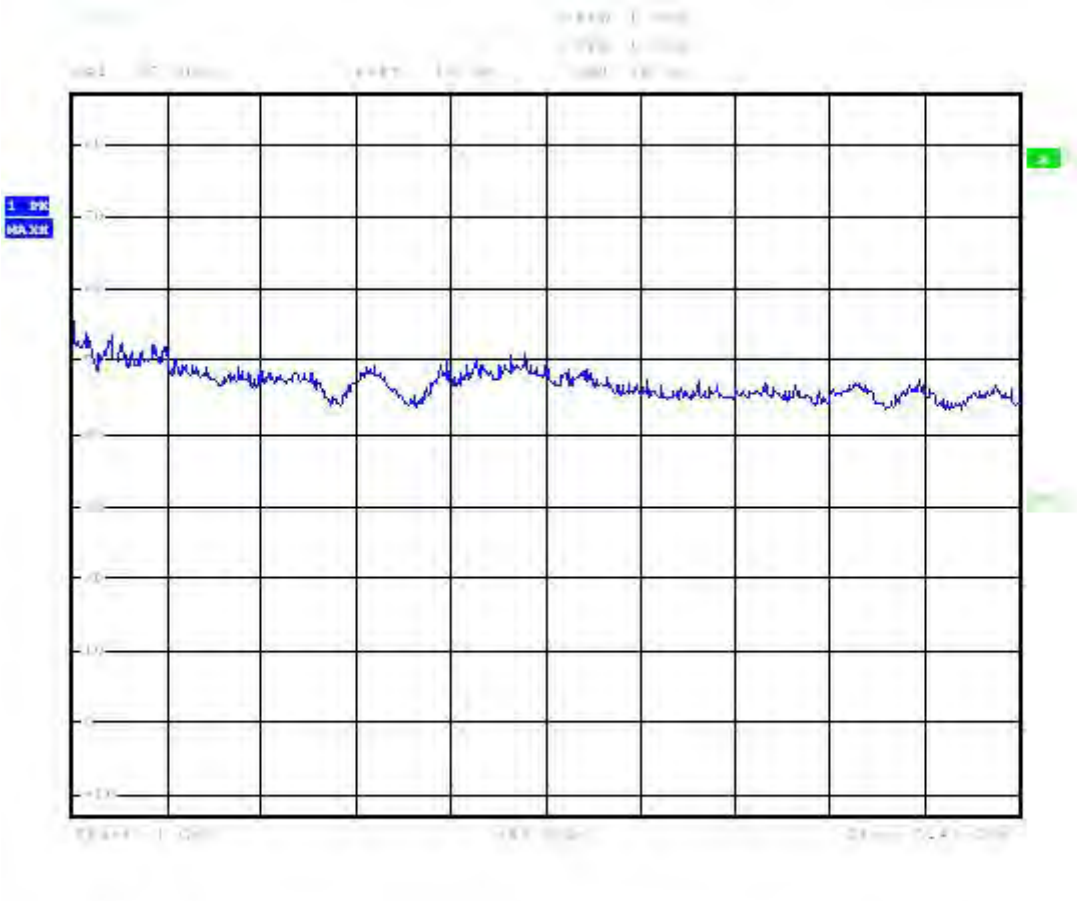


調變技術: IEEE 802.11an HT40

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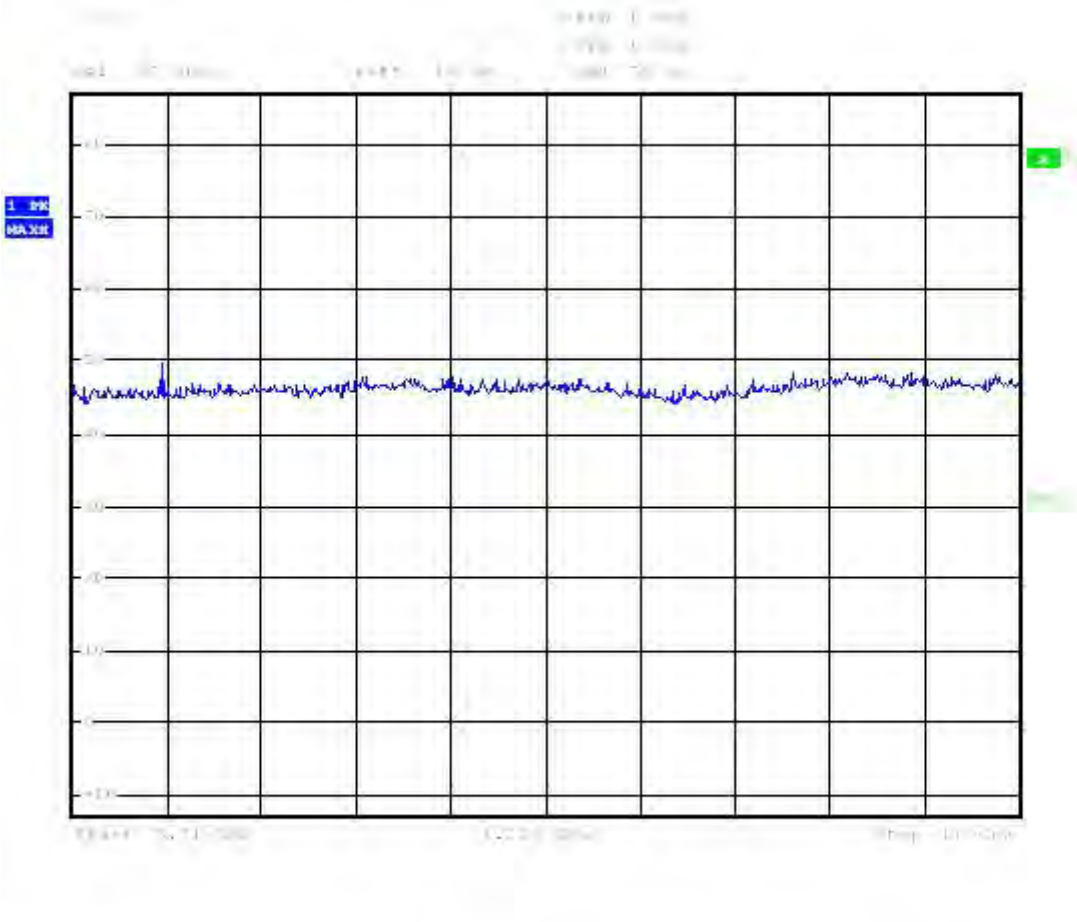
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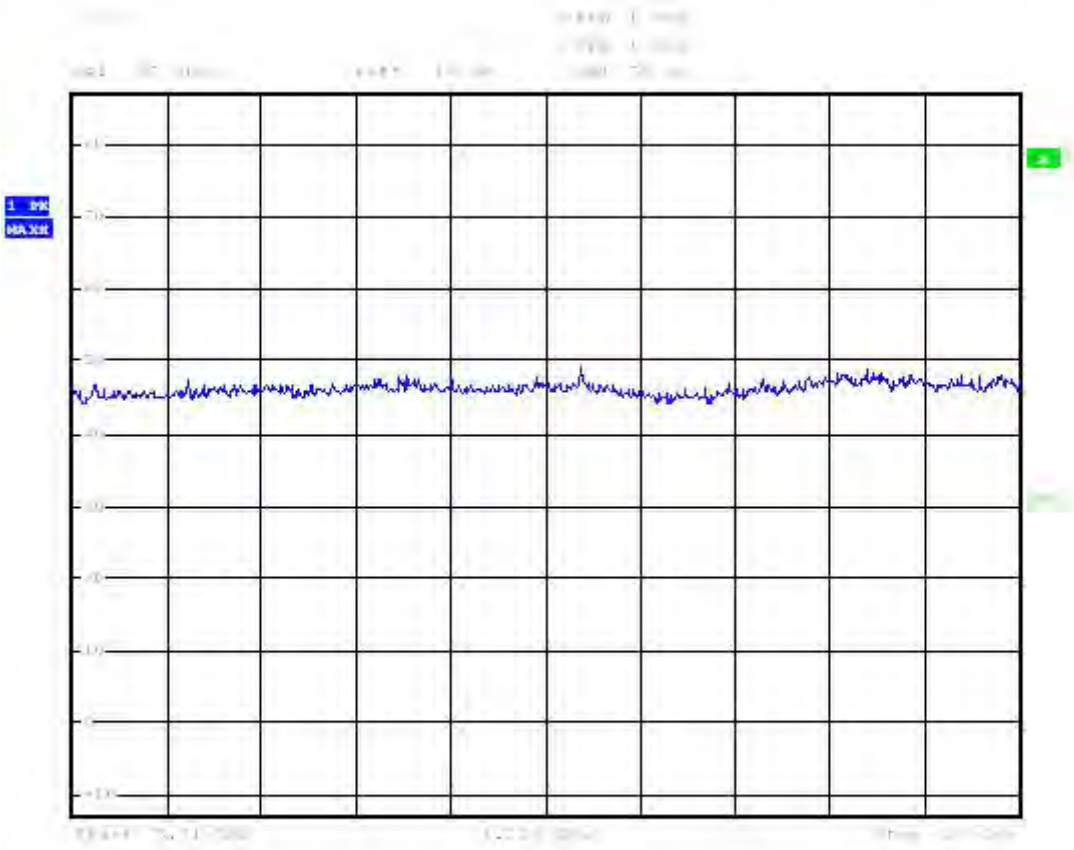
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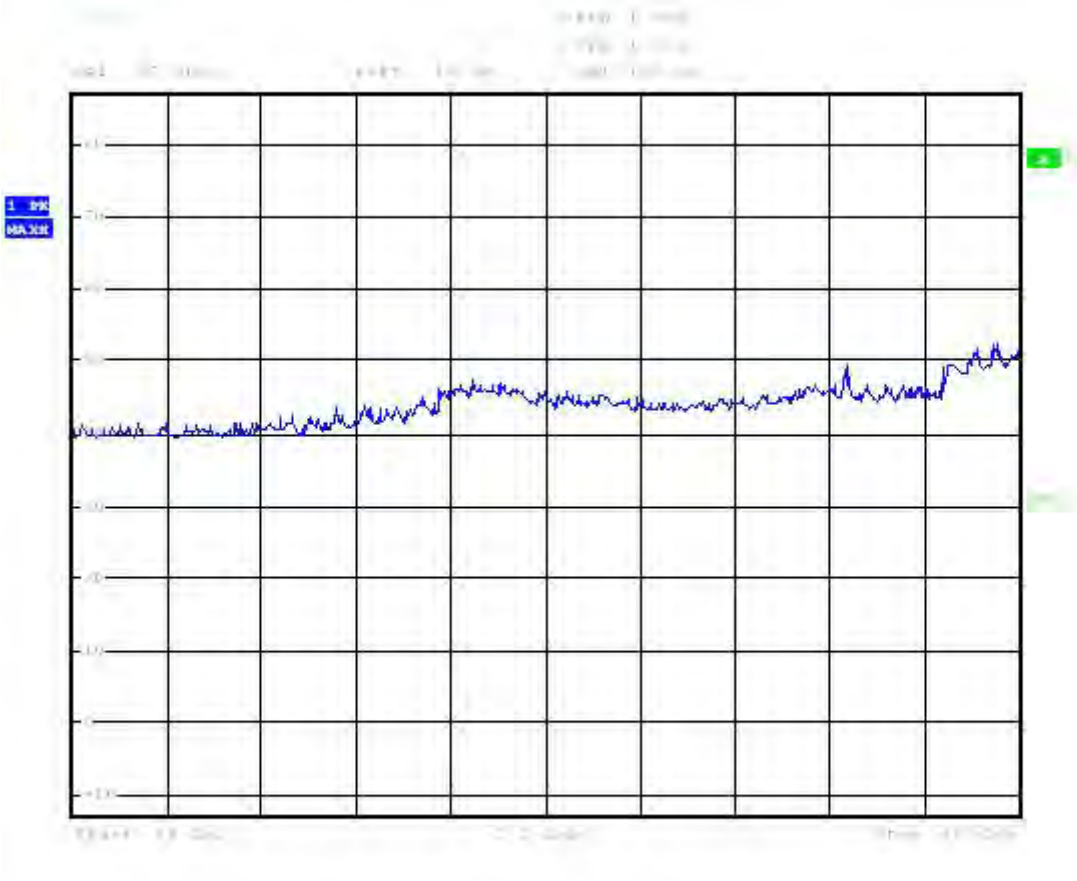
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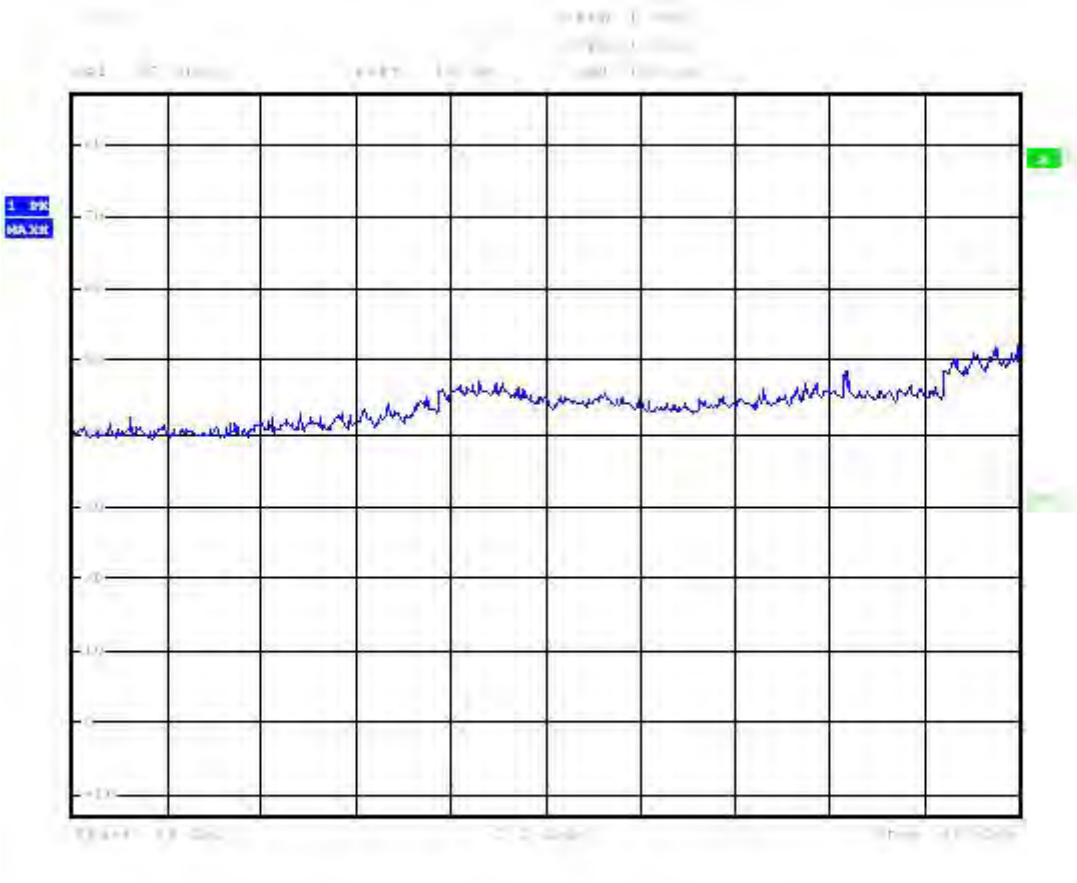
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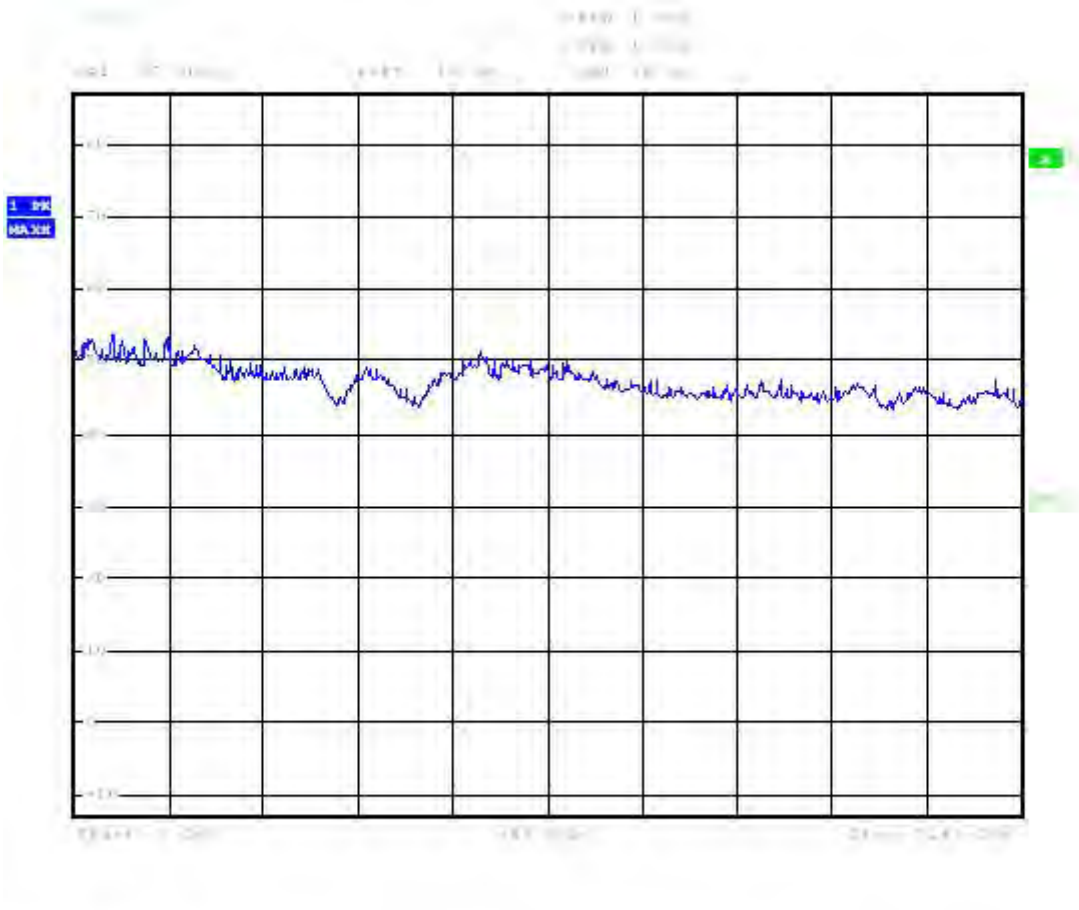

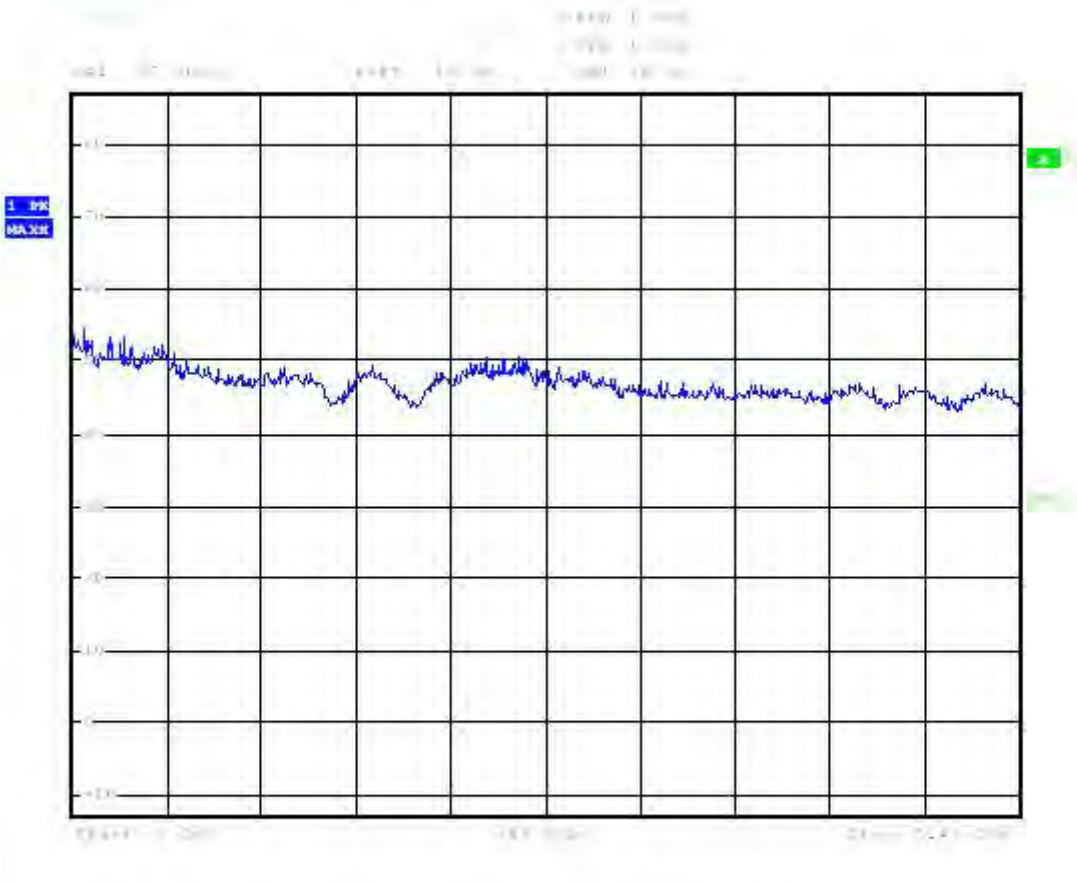

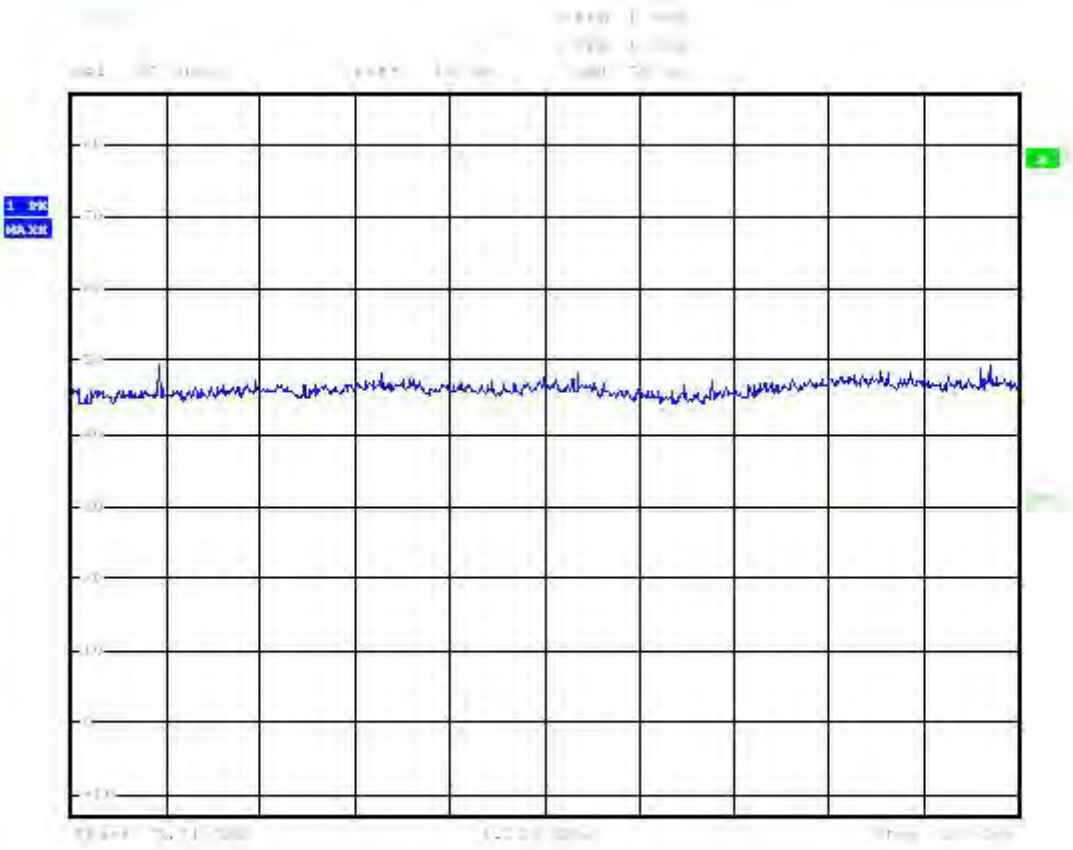

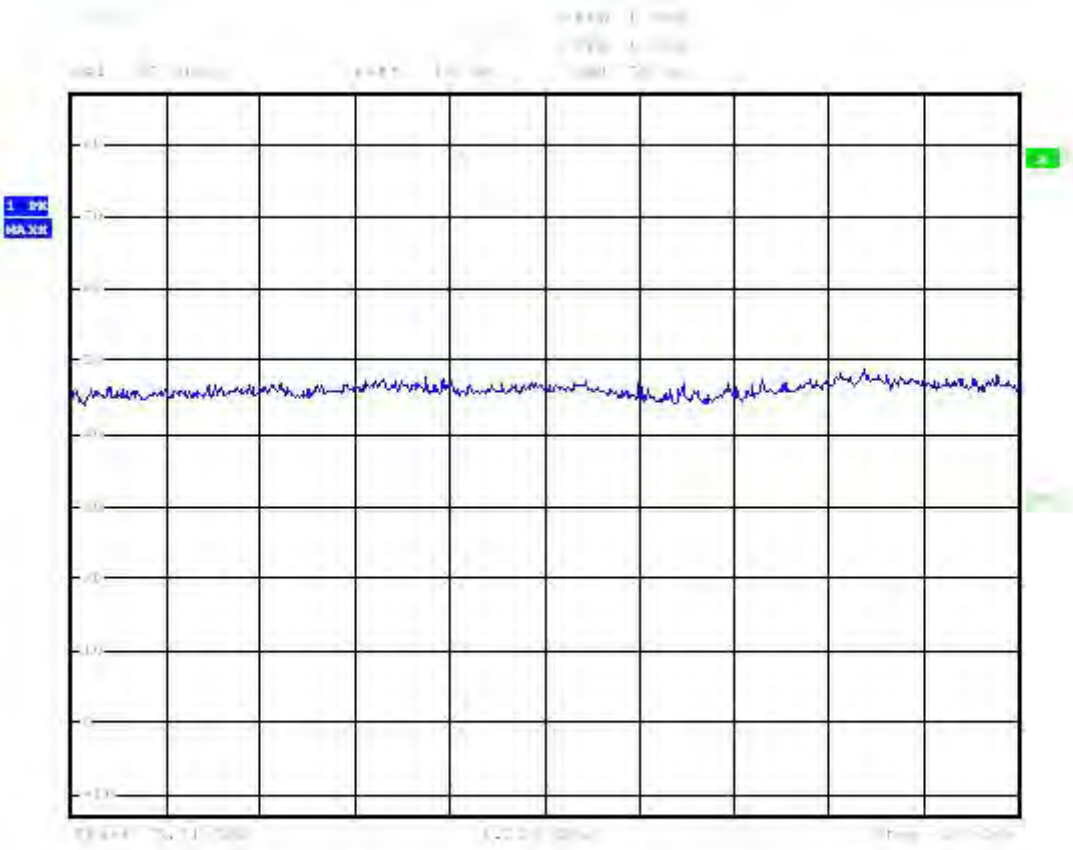
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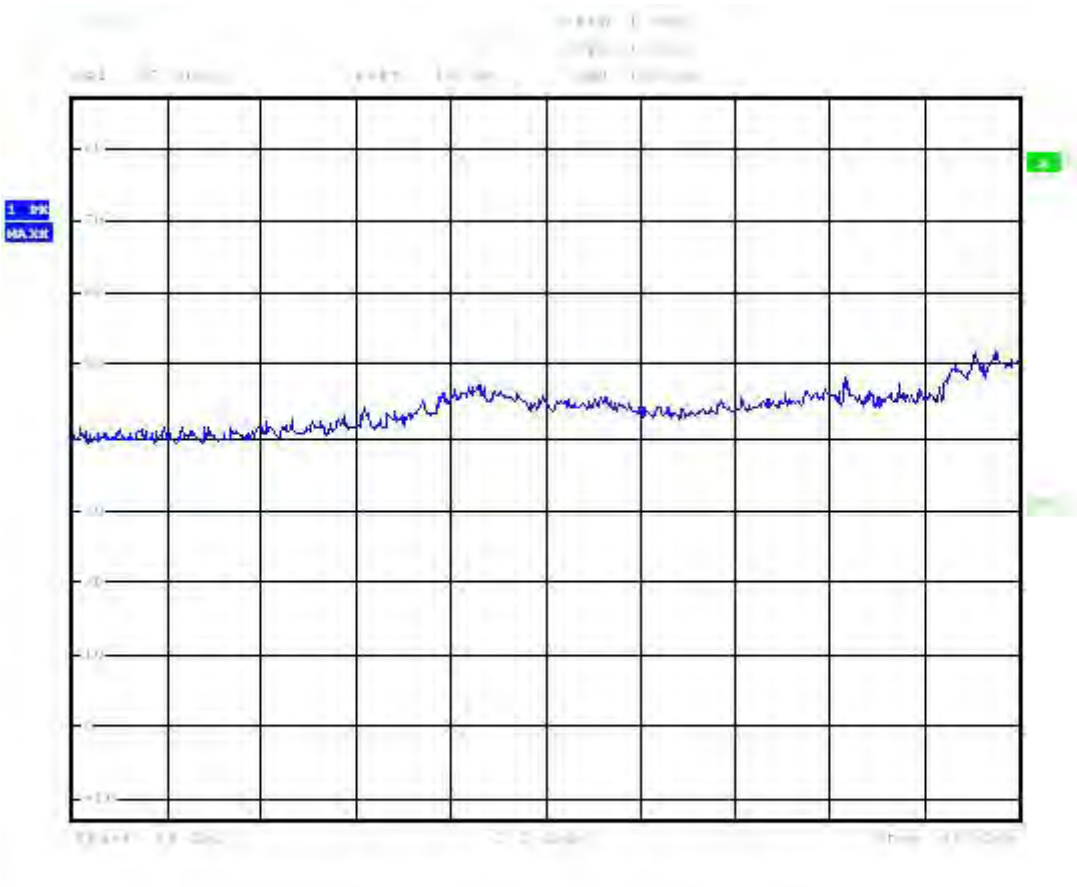
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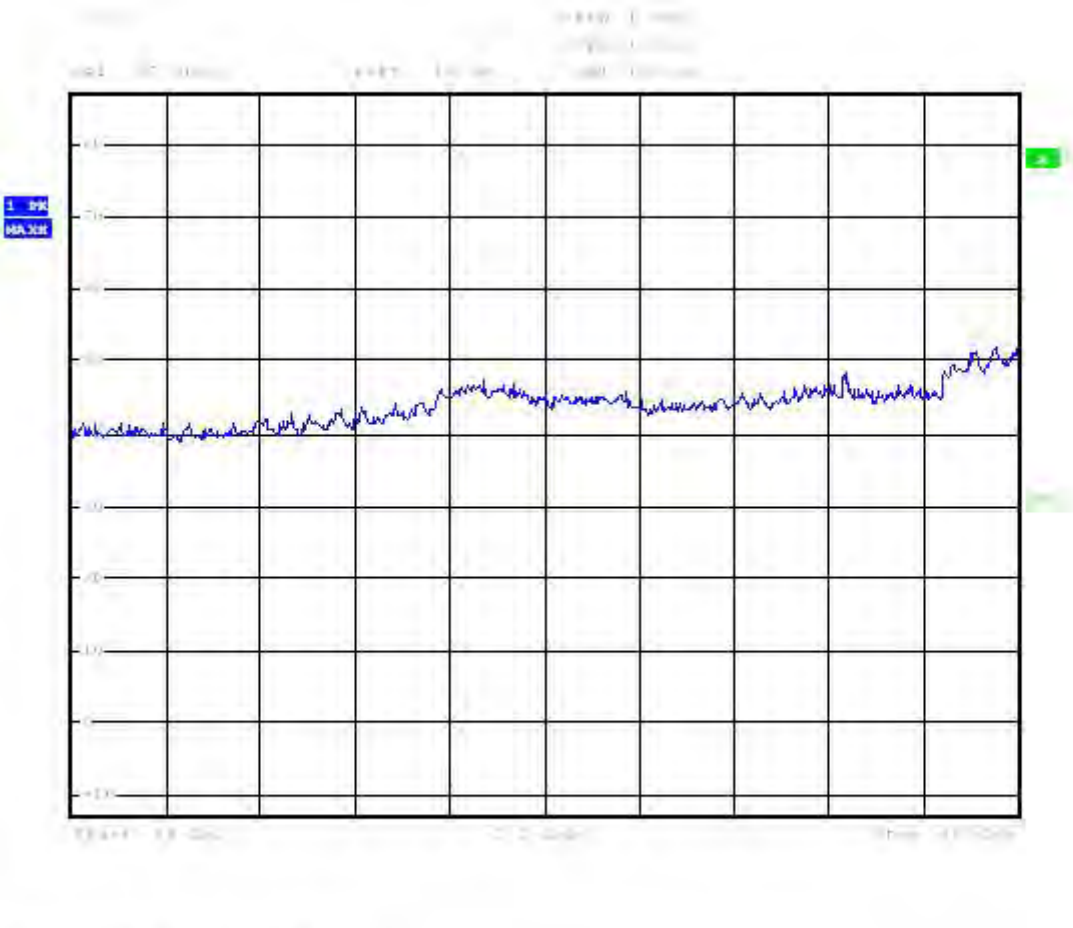
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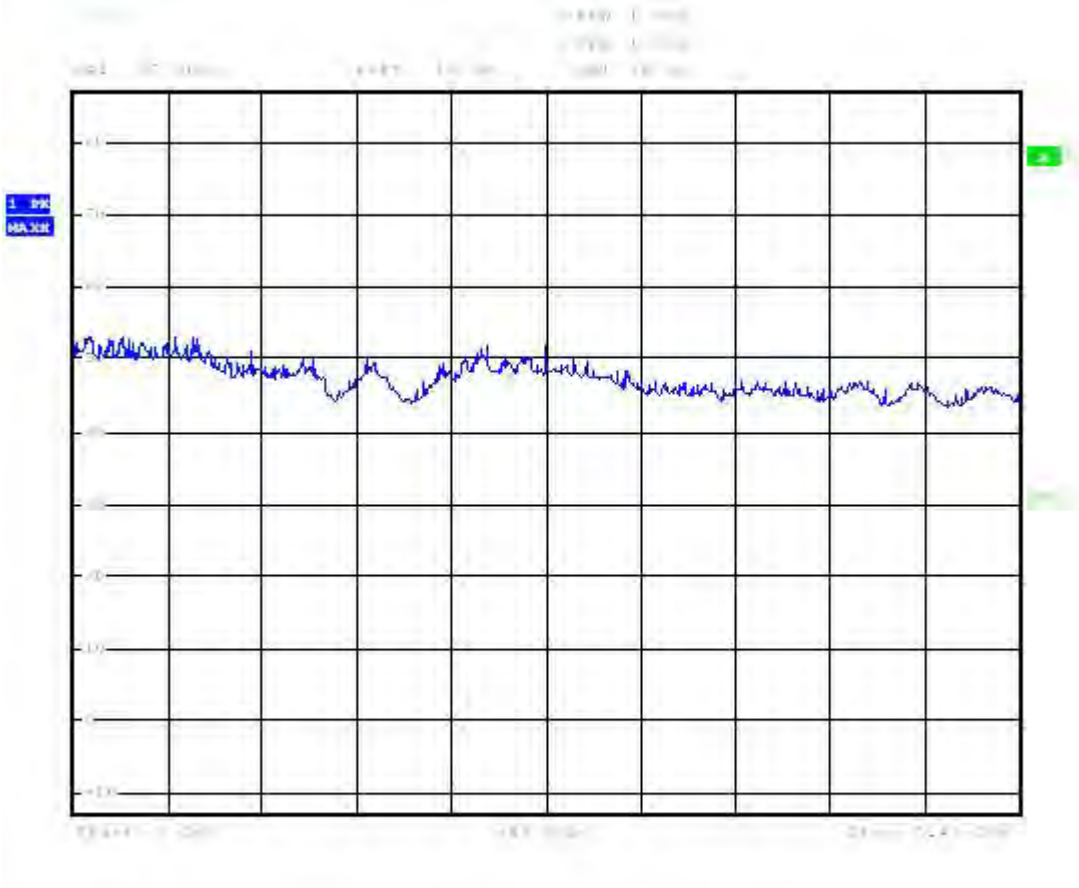
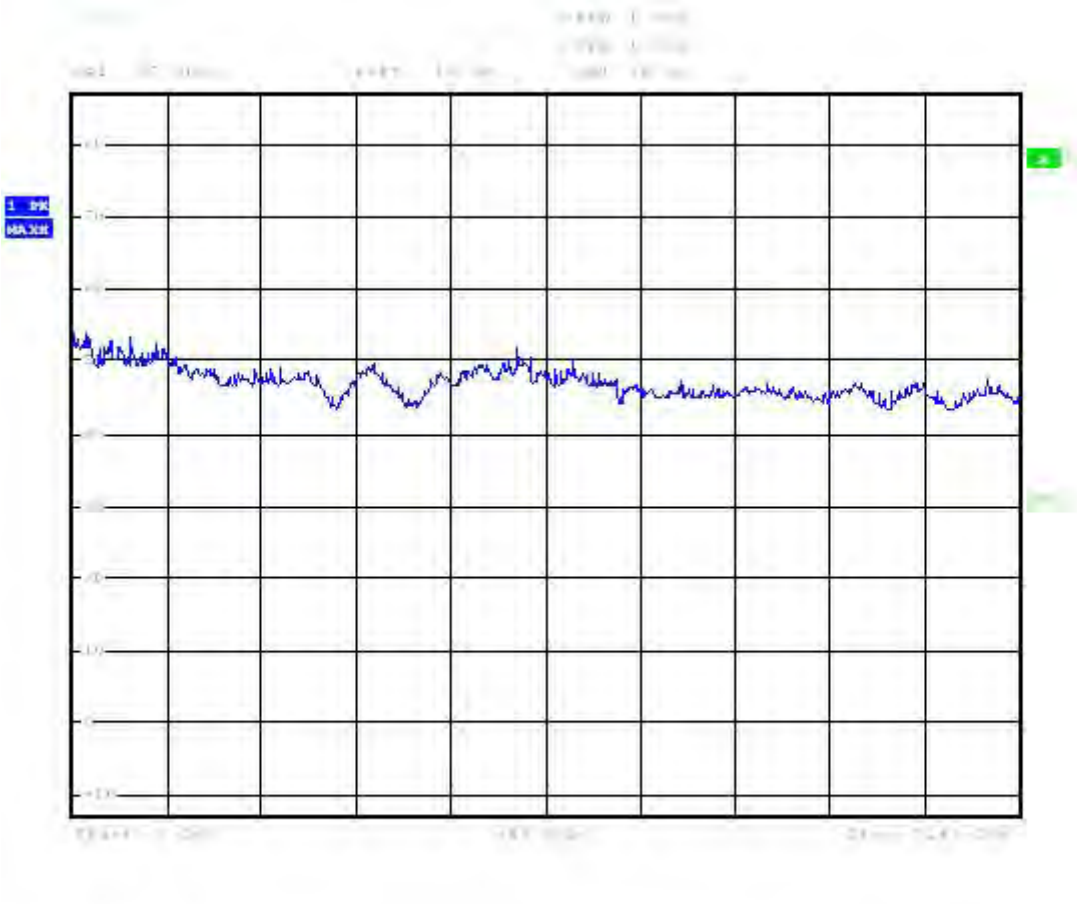
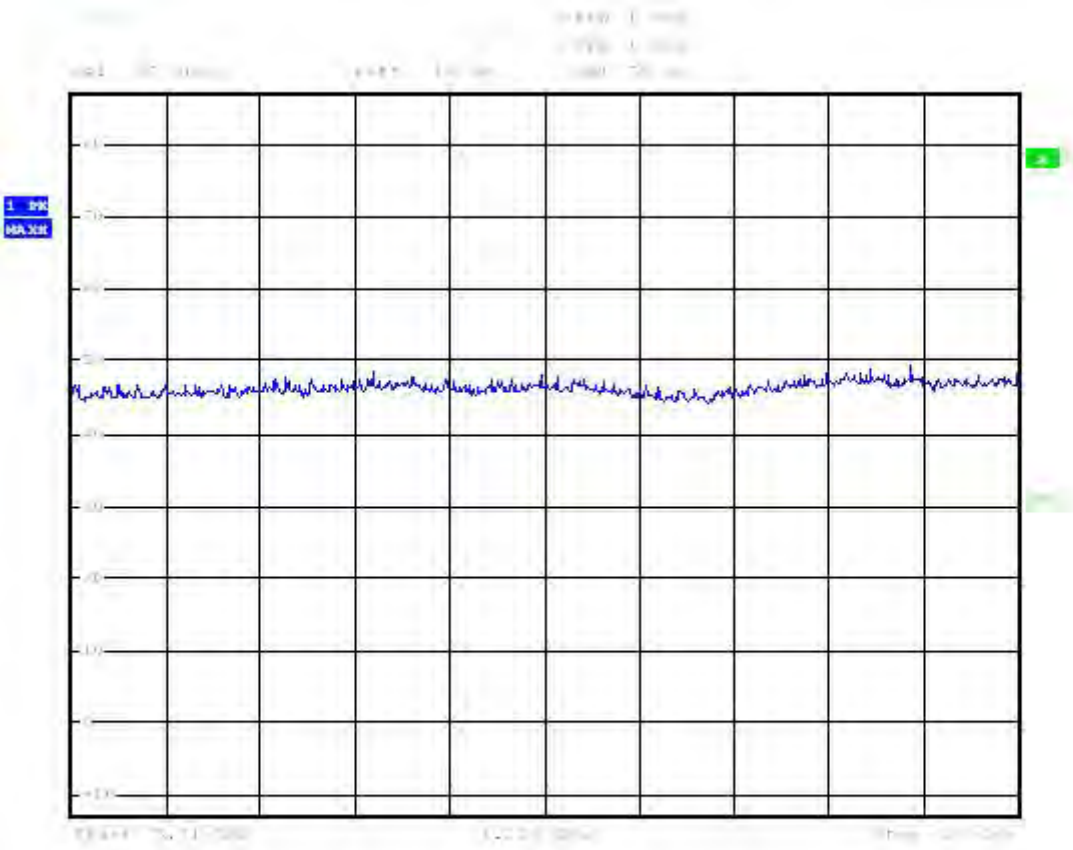
調變技術: IEEE 802.11ac80



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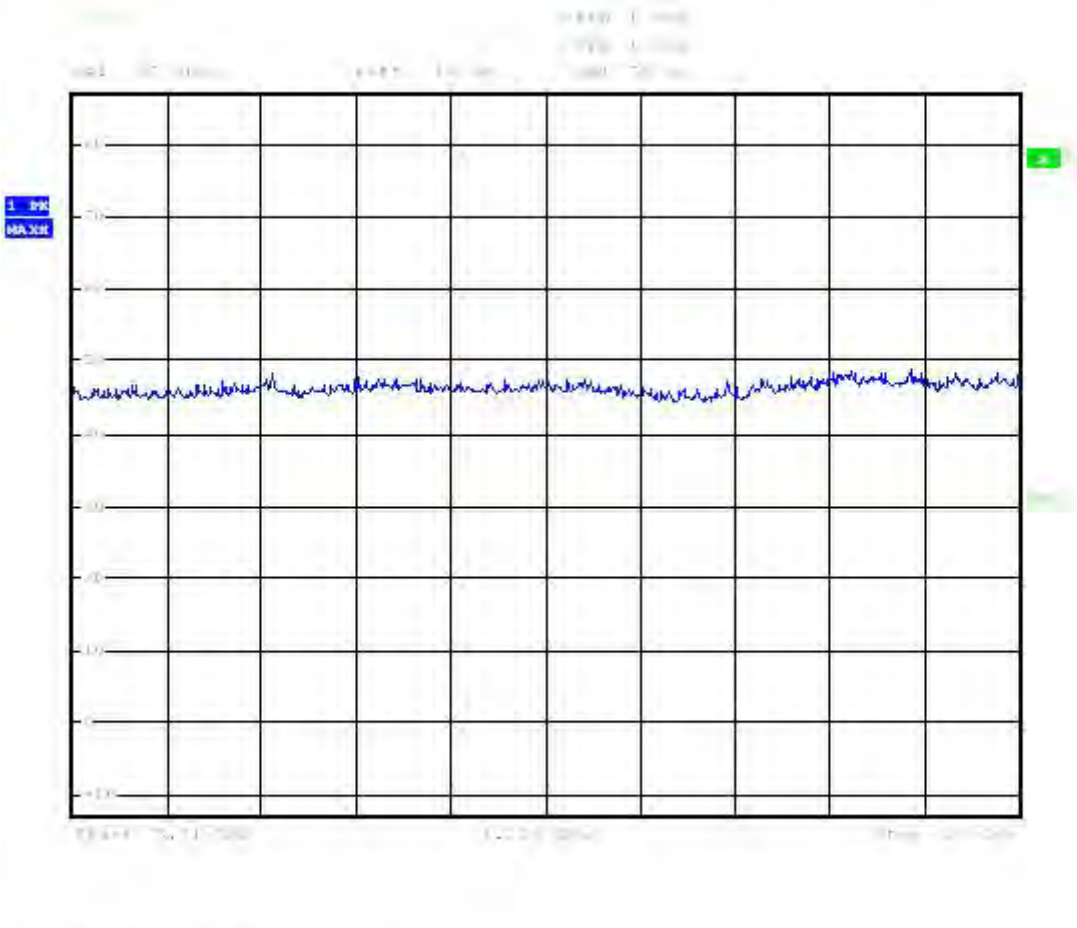
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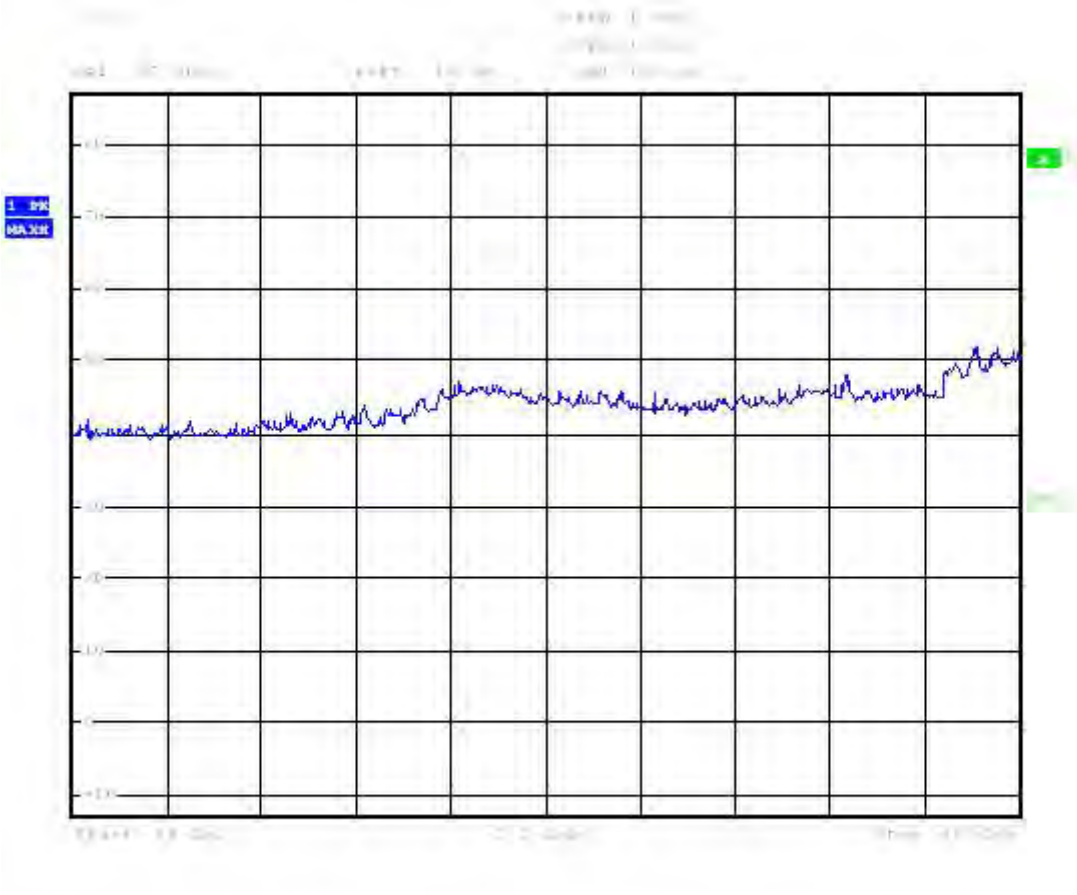
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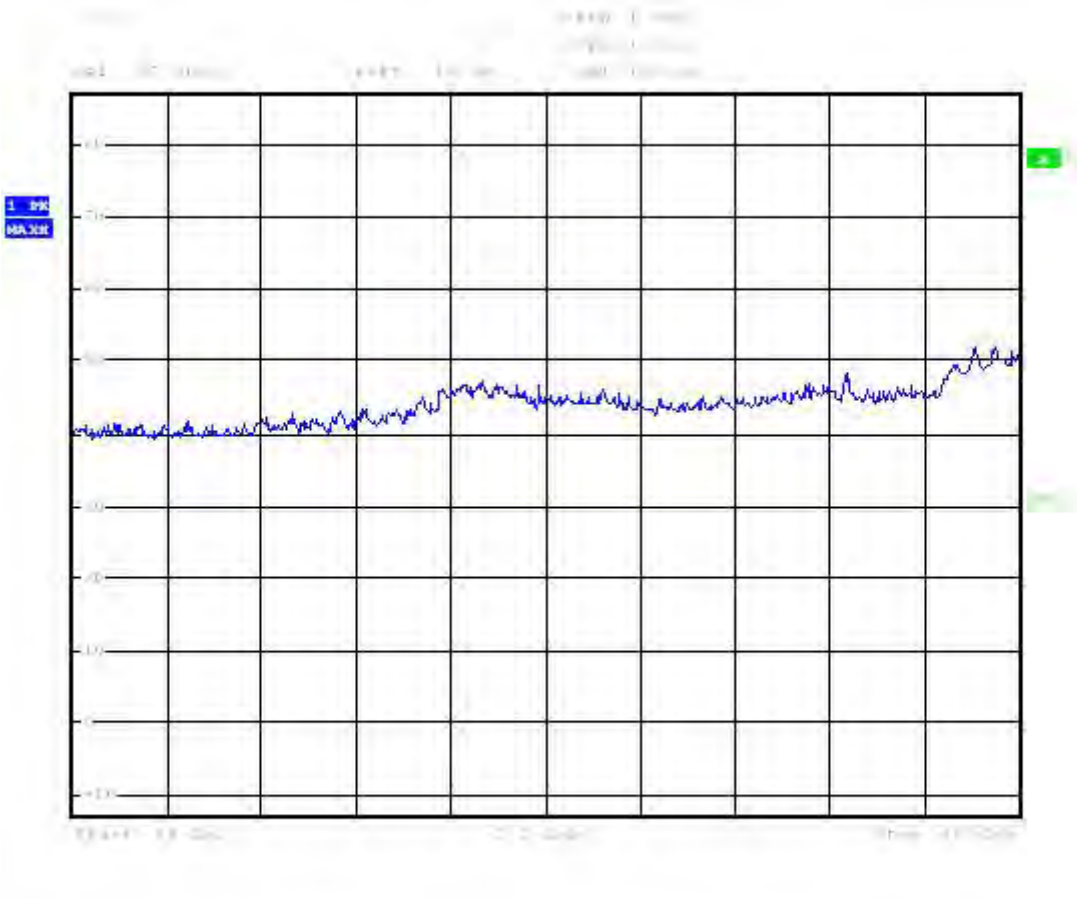


10.6 頻帶外邊緣輻射場強之量測結果

10.6.1 調變技術: IEEE 802.11a

操作模式: 發射接收
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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
5460.000	27.2	12.6	27.4	12.6	37.75	65.1	50.4	74.0	54.0	-8.9	-3.6

10.6.2 調變技術: IEEE 802.11an 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
5460.000	27.7	12.7	27.5	12.6	37.75	65.4	50.4	74.0	54.0	-8.6	-3.6

10.6.3 調變技術: IEEE 802.11an 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
5460.000	26.9	12.8	27.2	12.7	37.75	64.9	50.6	74.0	54.0	-9.1	-3.4

10.6.4 調變技術: IEEE 802.11ac (80MHz)

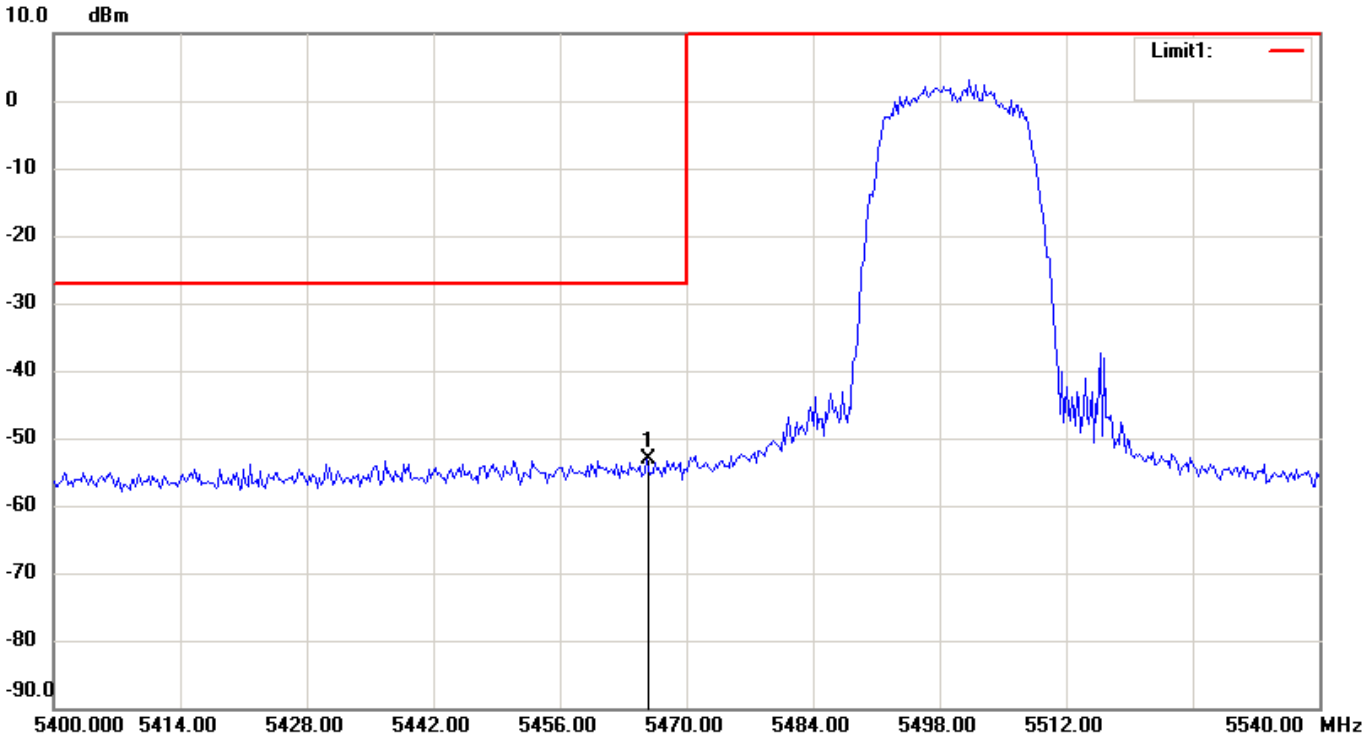
輻射頻率	儀器讀值@3m (dBuV/m)				校正因子	結果值		限制值@3m		餘裕值 (worse)	
	水平		垂直			(dBuV/m)		(dBuV/m)		(dB)	
(MHz)	峰值	平均值	峰值	平均值	(dB)	峰值	平均值	峰值	平均值	峰值	平均值
5460.000	28.4	13.5	27.2	13.1	37.75	66.1	51.3	74.0	54.0	-7.9	-2.8

註:1. “----“表示干擾值太小而儀器無法量得。
2. “#“表示干擾值太小，直接量取其峰值。
3. 標記“***”表示為本地震盪頻率及其諧波。
4. 量測不準確度: ±4.1dB(1GHz≦f≦18GHz)
5. 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:	**18-07-037_5-6a_A0**	**#3**	**Date:**	**2018/8/9**	**Temperature:**	**25 ℃**
			Time:	**下午 04:29:04**	**Humidity:**	**60 %**



Condition: **UNII-Band-3-Bandedge** **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

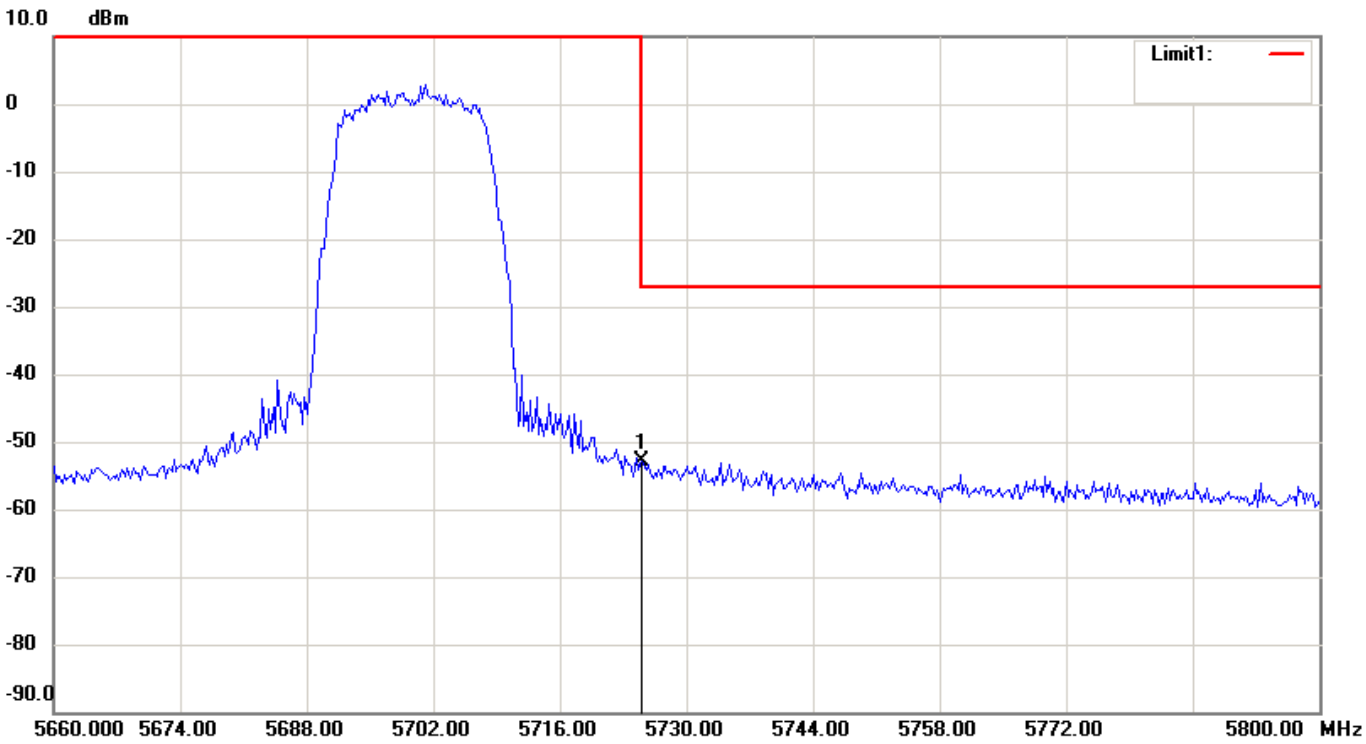
Test Mode:

Note: **5500_a_Low_bandedge**

No.	Frequency(MHz)	Level(dBm)
1	5465.56670	-53.17

File: 18-07-037_5-6a_A0 **#8** **Date:** 2018/8/9 **Temperature:** 25 ℃

Time: 下午 04:38:49 **Humidity:** 60 %



Condition: UNII-Band-3-Bandedge **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

Test Mode:

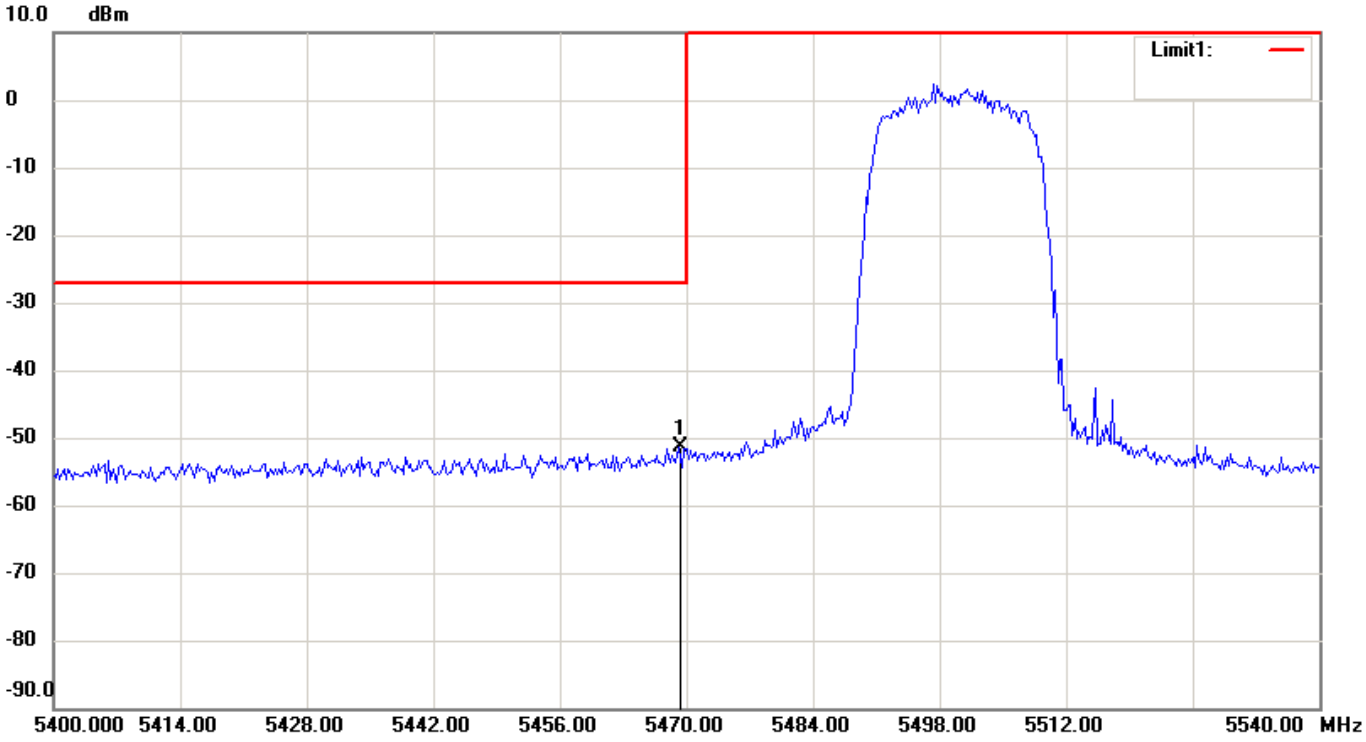
Note: 5700_a_High_bandedge

No.	Frequency(MHz)	Level(dBm)
1	5725.10000	-52.85

調變技術: IEEE 802.11an HT20

CHAIN 0

File:	**18-07-037_5-6an20_A0**	**#3**	**Date:**	**2018/8/16**	**Temperature:**	**25 ℃**
			Time:	**上午 09:23:45**	**Humidity:**	**60 %**

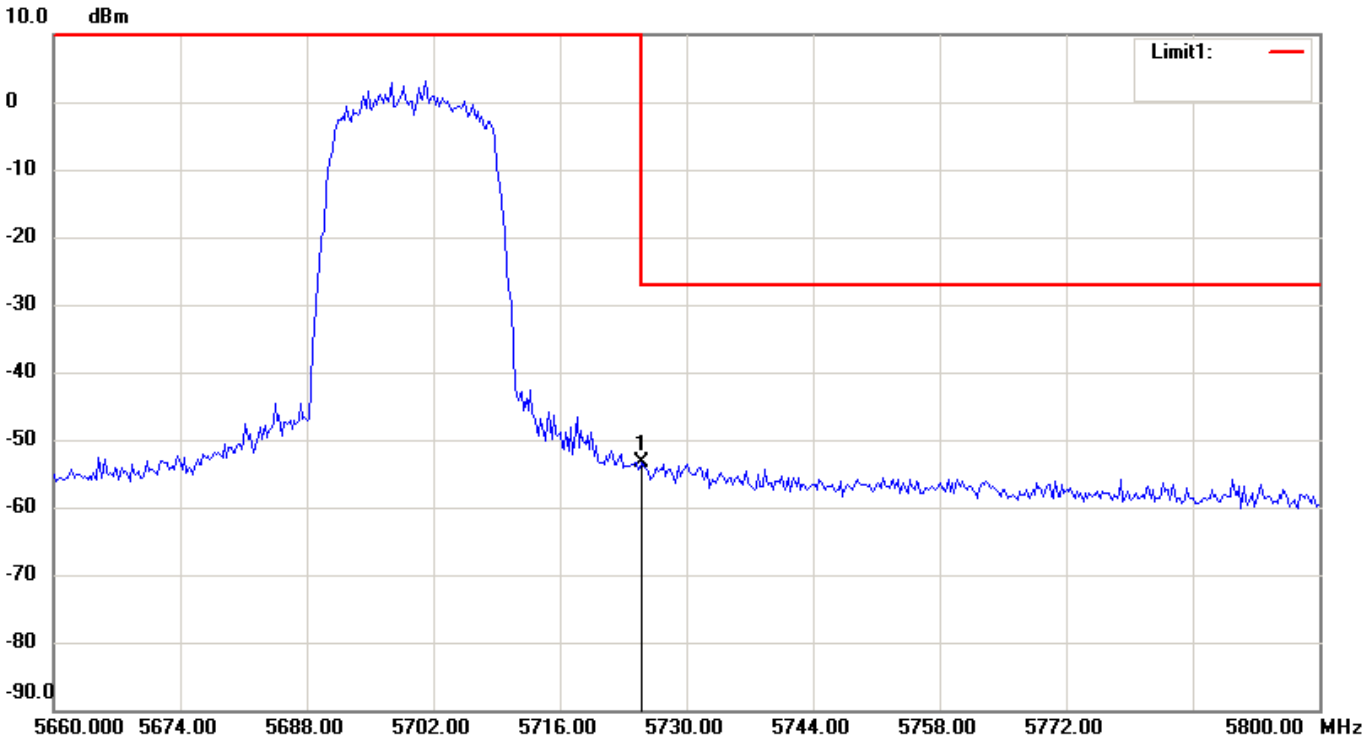


Condition:	**UNII-Band-3-Bandedge**	**RF Conducted**	
EUT:		**Sweep Time: 1ms**	**Att.: 10dB**
Model:		**RBW: 1000 KHz**	**VBW: 3000 KHz**
Test Mode:			
Note:	**5500_an20_Low_bandedge**		

No.	Frequency(MHz)	Level(dBm)
1	5469.06670	-51.47

File: 18-07-037_5-6an20_A0 **#8** **Date:** 2018/8/16 **Temperature:** 25 ℃

Time: 上午 09:36:20 **Humidity:** 60 %



Condition: UNII-Band-3-Bandedge **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

Test Mode:

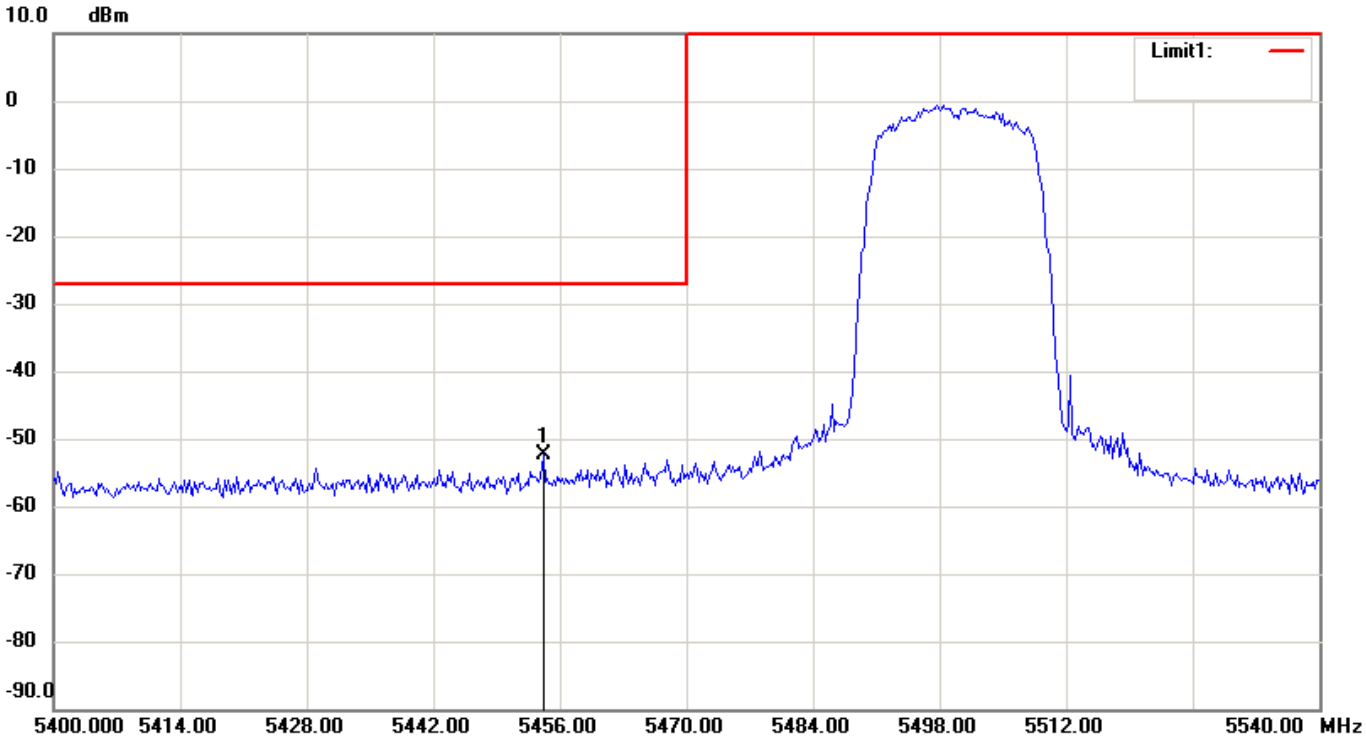
Note: 5700_an20_High_bandedge

No.	Frequency(MHz)	Level(dBm)
1	5725.10000	-53.34

調變技術: IEEE 802.11an HT20

CHAIN 1

File:	**18-07-037_5-6an20_A1**	**#3**	**Date:**	**2018/8/16**	**Temperature:**	**25 ℃**
			Time:	**上午 09:53:19**	**Humidity:**	**60 %**



Condition: **UNII-Band-3-Bandedge** **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 10dB**

Model: **RBW: 1000 KHz VBW: 3000 KHz**

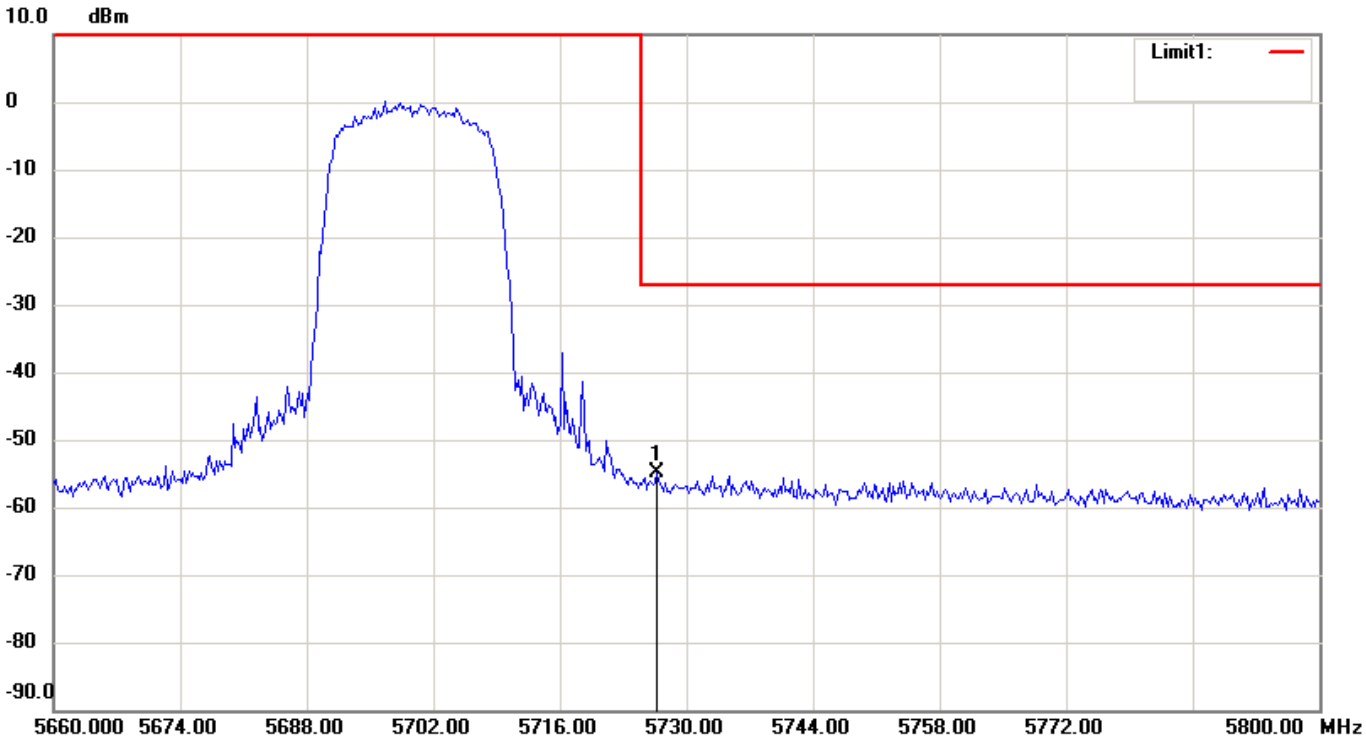
Test Mode:

Note: **5500_an20_Low_bandedge**

No.	Frequency(MHz)	Level(dBm)
1	5454.13330	-52.40

File: 18-07-037_5-6an20_A1 **#8** **Date:** 2018/8/16 **Temperature:** 25 ℃

Time: 上午 10:06:21 **Humidity:** 60 %



Condition: UNII-Band-3-Bandedge **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

Test Mode:

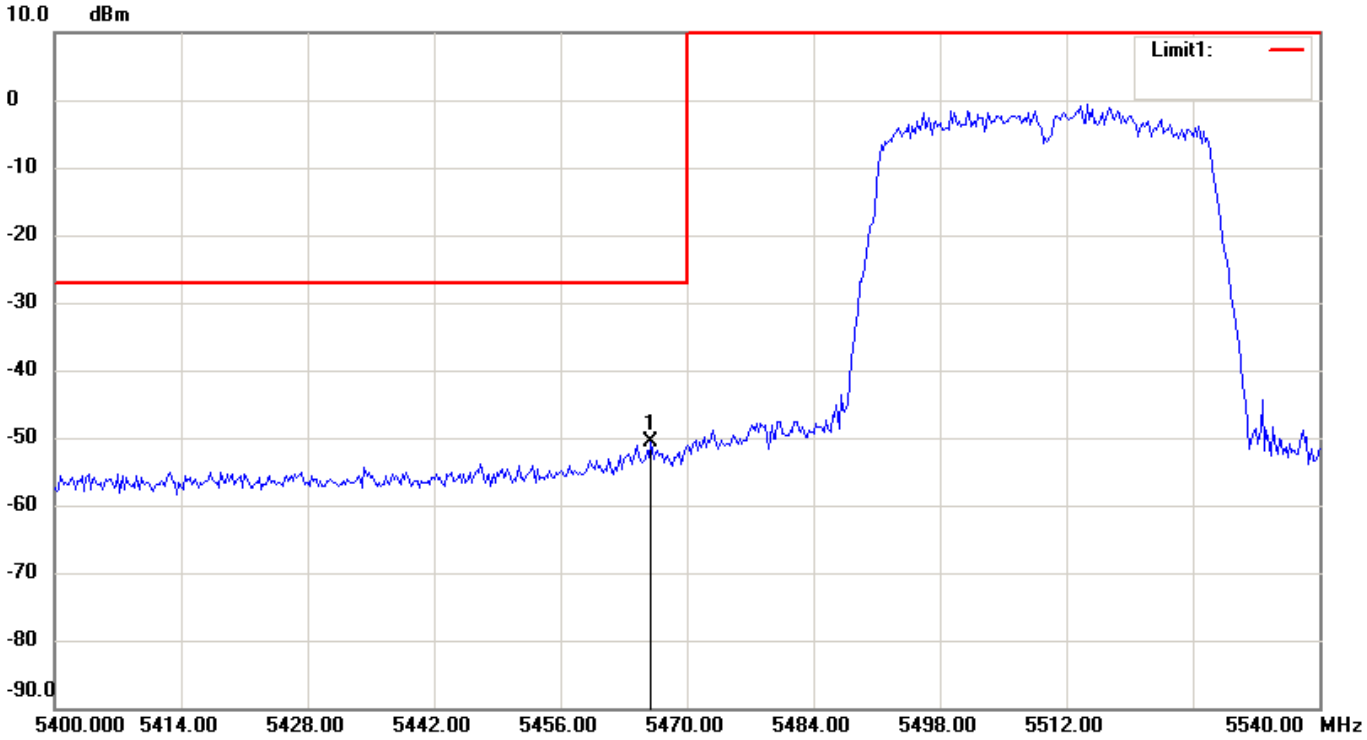
Note: 5700_an20_High_bandedge

No.	Frequency(MHz)	Level(dBm)
1	5726.73330	-54.78

調變技術: IEEE 802.11an HT40

CHAIN 0

File:	**18-07-037_5-6an40_A0**	**#4**	**Date:**	**2018/8/16**	**Temperature:**	**25 ℃**
			Time:	**上午 11:45:06**	**Humidity:**	**60 %**

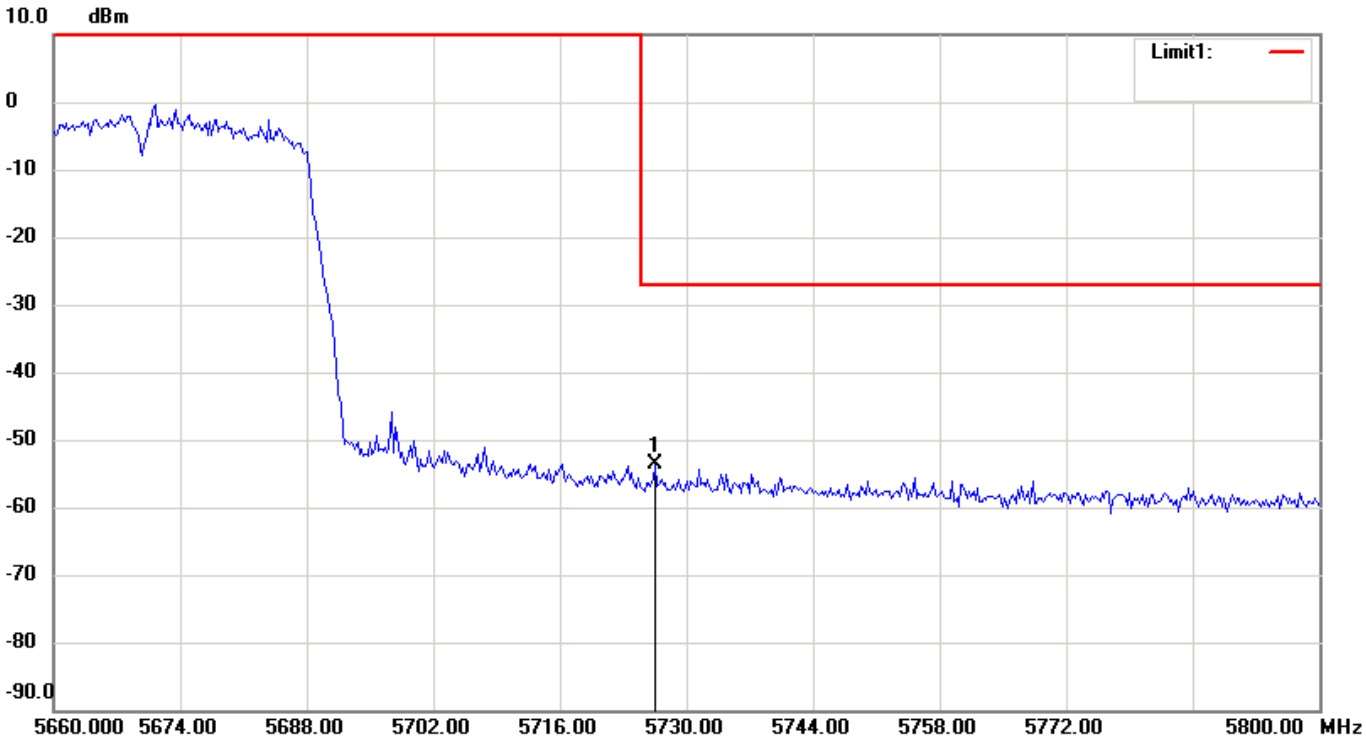


Condition:	**UNII-Band-3-Bandedge**	**RF Conducted**	
EUT:		**Sweep Time: 1ms**	**Att.: 10dB**
Model:		**RBW: 1000 KHz**	**VBW: 3000 KHz**
Test Mode:			
Note:	**5510_an40_Low_bandedge**		

No.	Frequency(MHz)	Level(dBm)
1	5466.03330	-50.72

File: 18-07-037_5-6an40_A0 **#9** **Date:** 2018/8/16 **Temperature:** 25 ℃

Time: 下午 12:01:11 **Humidity:** 60 %



Condition: UNII-Band-3-Bandedge **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

Test Mode:

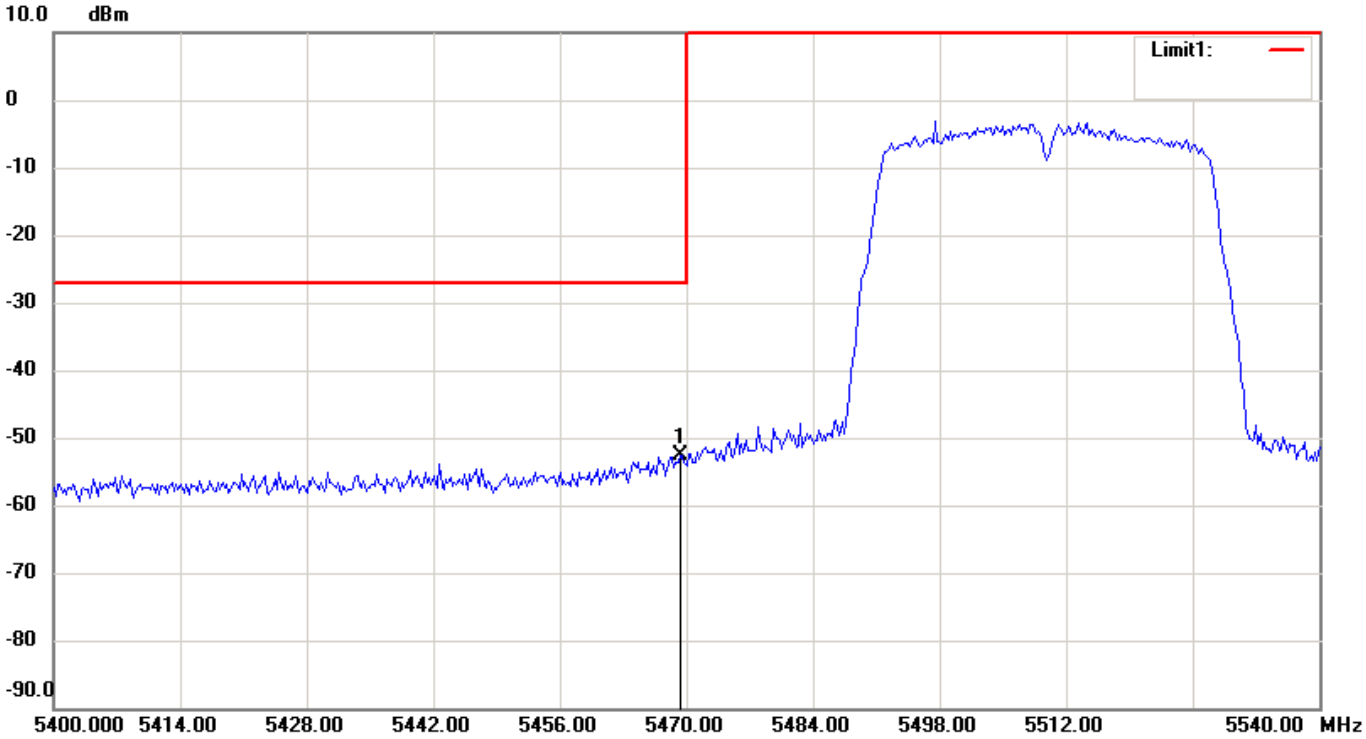
Note: 5670_an40_High_bandedge

No.	Frequency(MHz)	Level(dBm)
1	5726.50000	-53.59

調變技術: IEEE 802.11an HT40

CHAIN 1

File:	**18-07-037_5-6an40_A1**	**#3**	**Date:**	**2018/8/16**	**Temperature:** 25 ℃
			Time:	**下午 01:29:08**	**Humidity:** 60 %



Condition: **UNII-Band-3-Bandedge** **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 10dB**

Model: **RBW: 1000 KHz VBW: 3000 KHz**

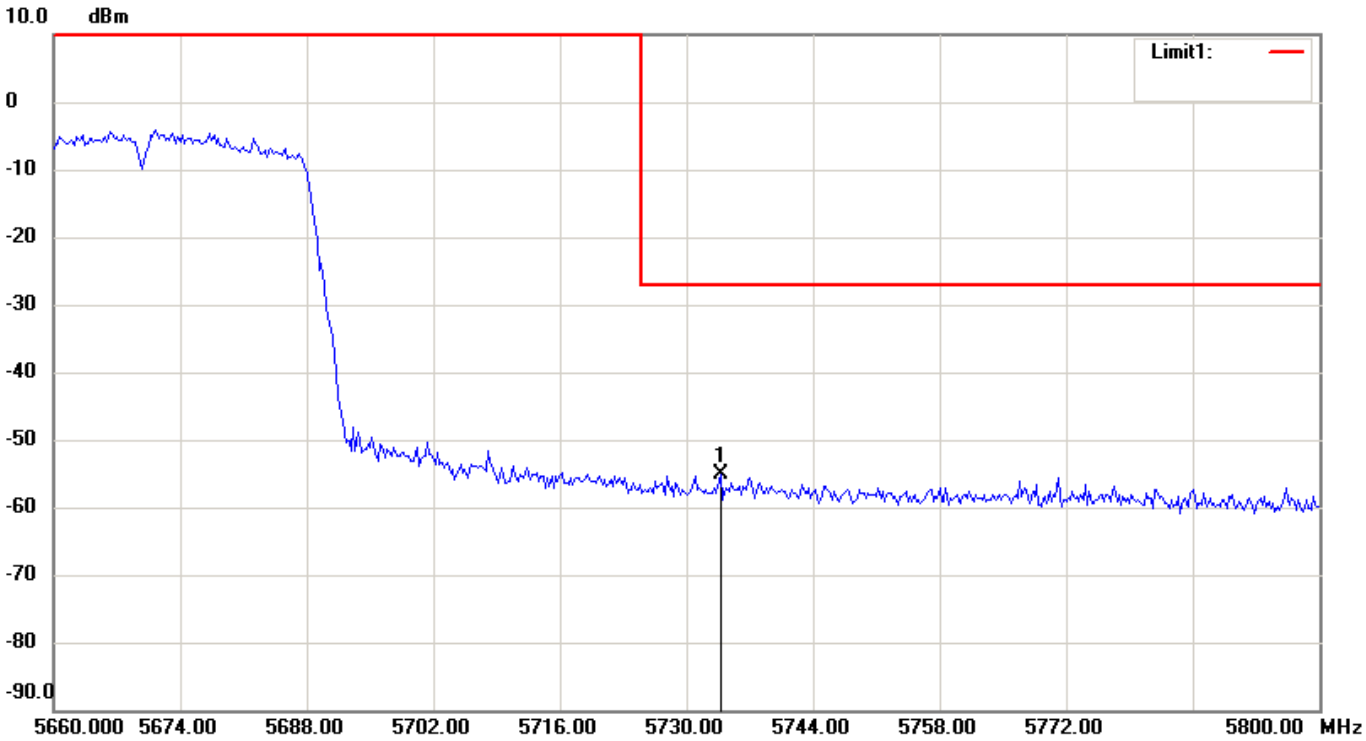
Test Mode:

Note: **5510_an40_Low_bandedge**

No.	Frequency(MHz)	Level(dBm)
1	5469.30000	-52.53

File: 18-07-037_5-6an40_A1 **#9** **Date:** 2018/8/16 **Temperature:** 25 ℃

Time: 下午 01:52:23 **Humidity:** 60 %



Condition: UNII-Band-3-Bandedge **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

Test Mode:

Note: 5670_an40_High_bandedge

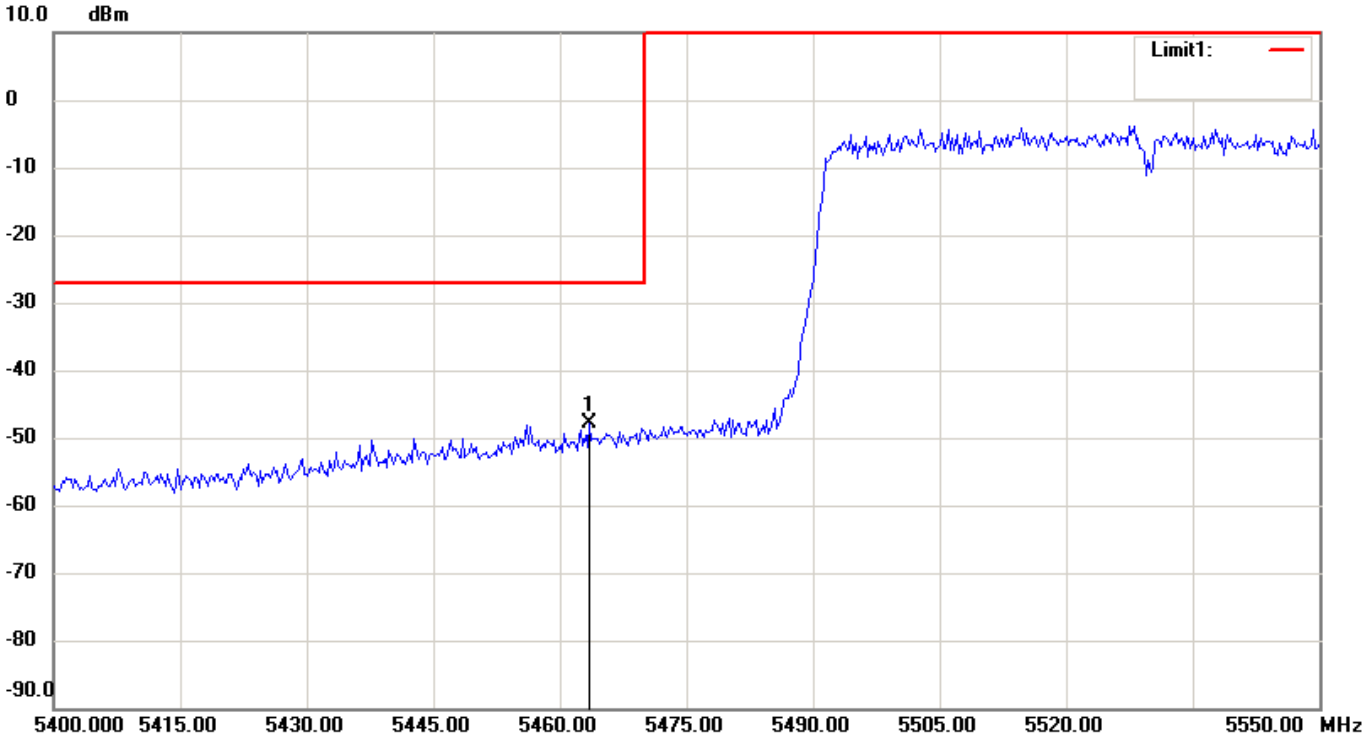
No.	Frequency(MHz)	Level(dBm)
1	5733.73330	-55.22

調變技術: IEEE 802.11ac80

CHAIN 0

File: **18-07-037_5-6ac80_A0** **#3** **Date:** **2018/8/16** **Temperature:** **25 ℃**

Time: **下午 02:49:46** **Humidity:** **60 %**



Condition: **UNII-Band-3-Bandedge** **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

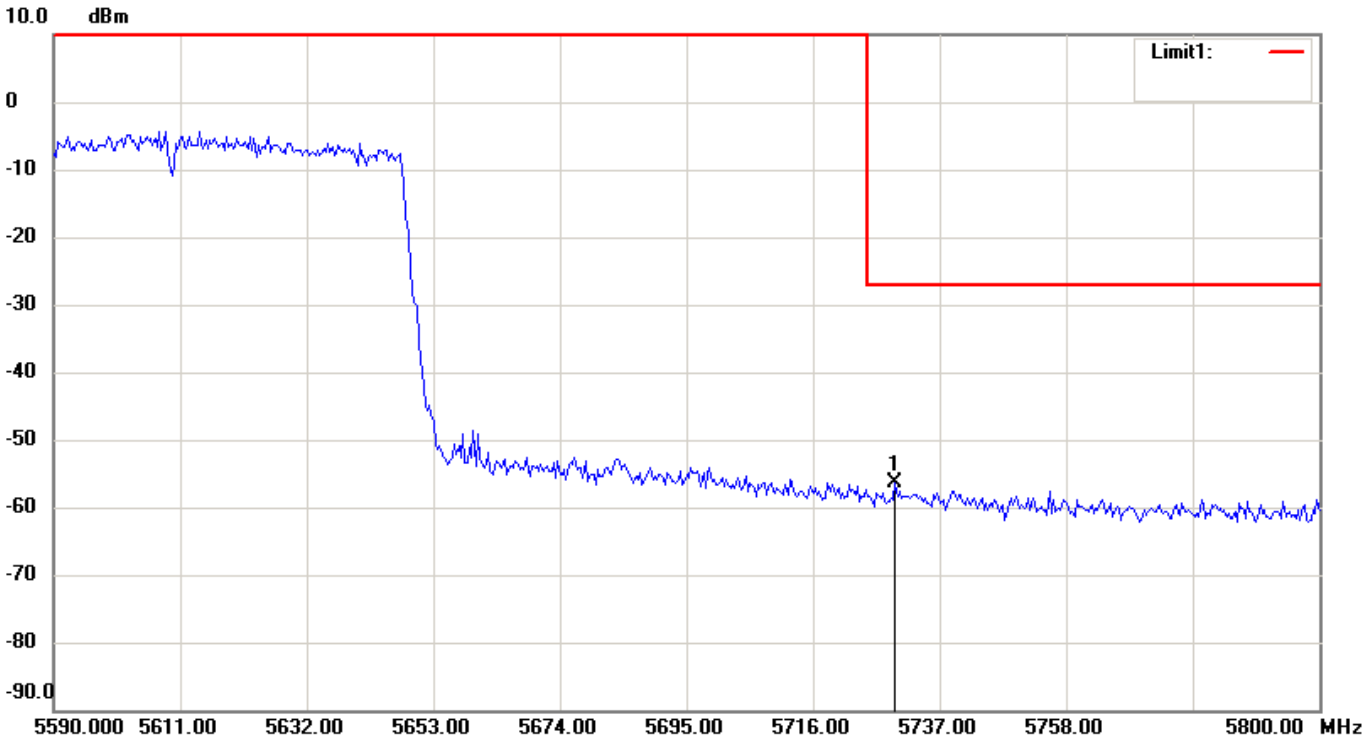
Test Mode:

Note: **5530_ac80_Low_bandedge**

No.	Frequency(MHz)	Level(dBm)
1	5463.50000	-47.98

File: 18-07-037_5-6ac80_A0 **#6** **Date:** 2018/8/16 **Temperature:** 25 ℃

Time: 下午 02:54:20 **Humidity:** 60 %



Condition: UNII-Band-3-Bandedge **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

Test Mode:

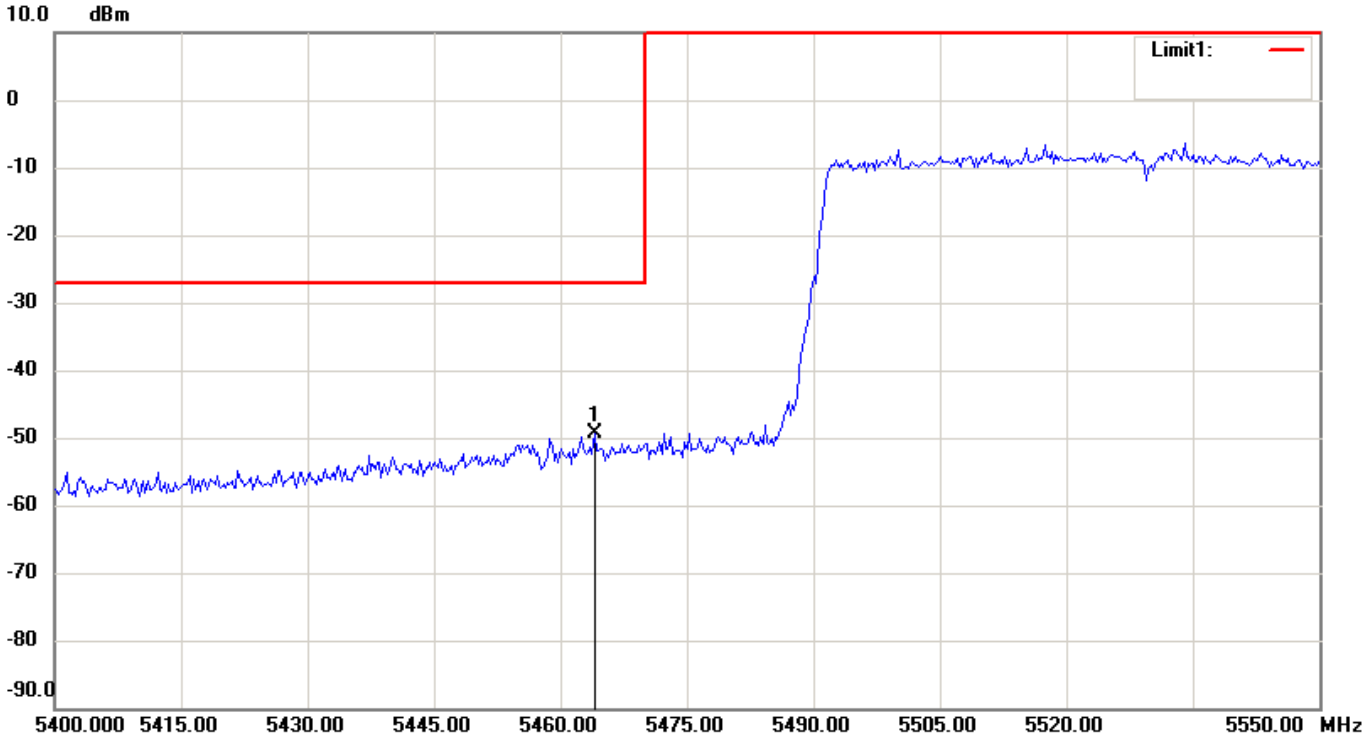
Note: 5610_ac80_High_bandedge

No.	Frequency(MHz)	Level(dBm)
1	5729.65000	-56.37

調變技術: IEEE 802.11ac80

CHAIN 1

File:	**18-07-037_5-6ac80_A1**	**#3**	**Date:**	**2018/8/16**	**Temperature:**	**25 ℃**
			Time:	**下午 03:17:38**	**Humidity:**	**60 %**

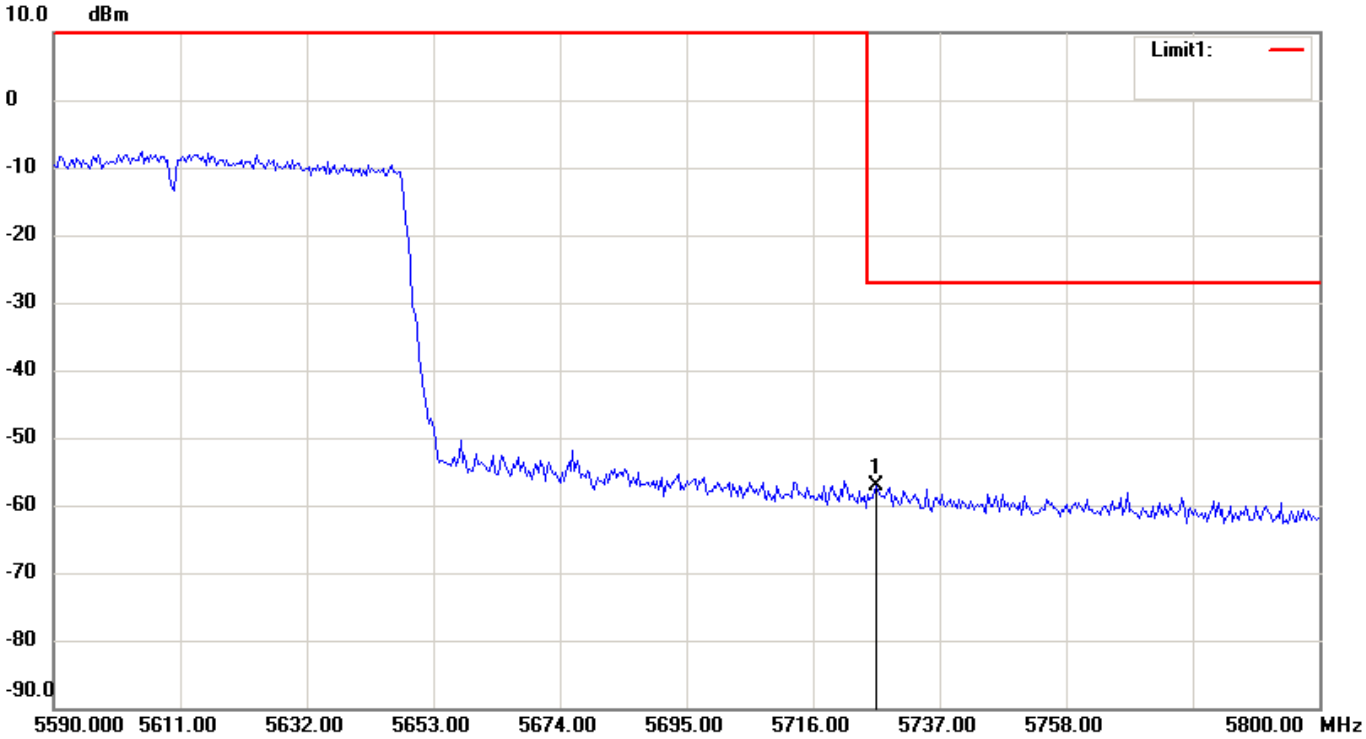


Condition:	**UNII-Band-3-Bandedge**	**RF Conducted**	
EUT:		**Sweep Time: 1ms**	**Att.: 10dB**
Model:		**RBW: 1000 KHz**	**VBW: 3000 KHz**
Test Mode:			
Note:	**5530_ac80_Low_bandedge**		

No.	Frequency(MHz)	Level(dBm)
1	5464.00000	-49.35

File: 18-07-037_5-6ac80_A1 **#6** **Date:** 2018/8/16 **Temperature:** 25 ℃

Time: 下午 03:23:03 **Humidity:** 60 %



Condition: UNII-Band-3-Bandedge **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 10dB**

Model: **RBW: 1000 KHz** **VBW: 3000 KHz**

Test Mode:

Note: 5610_ac80_High_bandedge

No.	Frequency(MHz)	Level(dBm)
1	5726.50000	-57.24

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 3: 量測頻率低於1GHz之測試配置

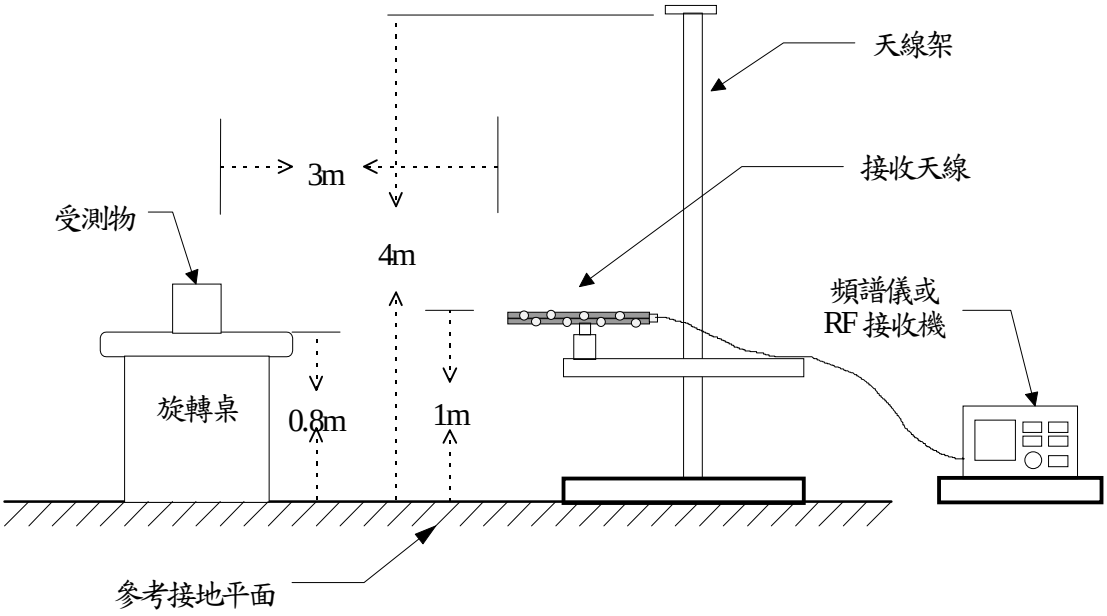
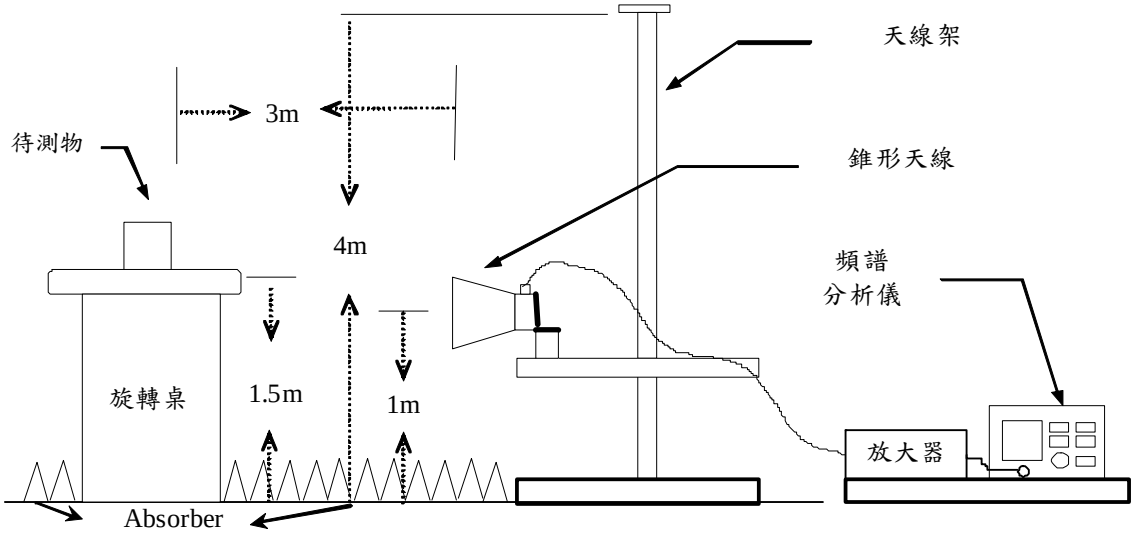


圖 4: 量測頻率高於1GHz之測試配置



10.10 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 2 所示。

11.3 發射功率控制(TPC)之量測儀器

儀器名稱	製造者	型 號
Spectrum Analyzer	Agilent	E4446A

11.4 適用性

Highest Power Level in DFS Band (EIRP)		11.9dBm+0.27dBi =12.17dBm =16.48mW
☒	EIRP < 500 mW	Not Applicable
☐	EIRP ≧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 NCC 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
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	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
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	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 ≥ 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. **Note3:** 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
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. **Note 2:** The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* 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 *U-NII Detection Bandwidth* 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	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\mu\text{sec}}}\right)\right\}$	60%	30
		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			
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 than 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

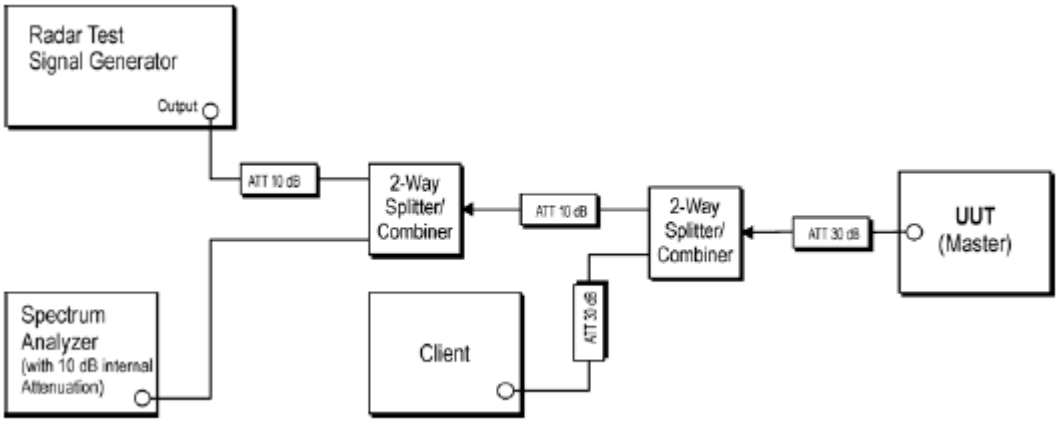
所有雷達信號依據 NCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 之規定產生。

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。

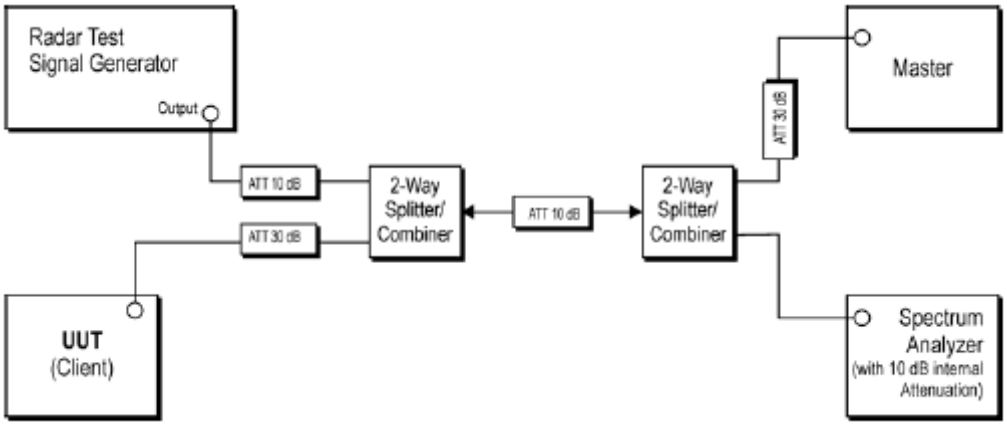
12.3.2 系統配置

12.3.2.1 Setup for Master with injection at the Master



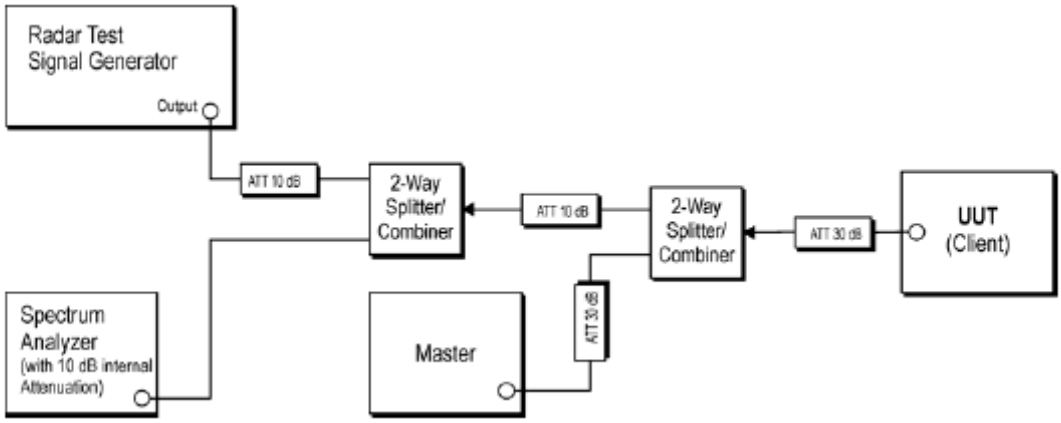
主控設備配置圖

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	FSU46
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	nx6320	非隔離電源線 3.3m*1 / Adaptor 非隔離信號線 1.0m*1/RJ45
Access Point	Cisco	AIR-AP1252AG-A-K9	非隔離電源線 1.8m*1 / Adaptor 非隔離信號線 1.0m*1/RJ45
Access Point	Cisco	AIR-CAP2702y-A-K9	非隔離電源線 1.8m*1 / Adaptor 非隔離信號線 1.0m*1/RJ45

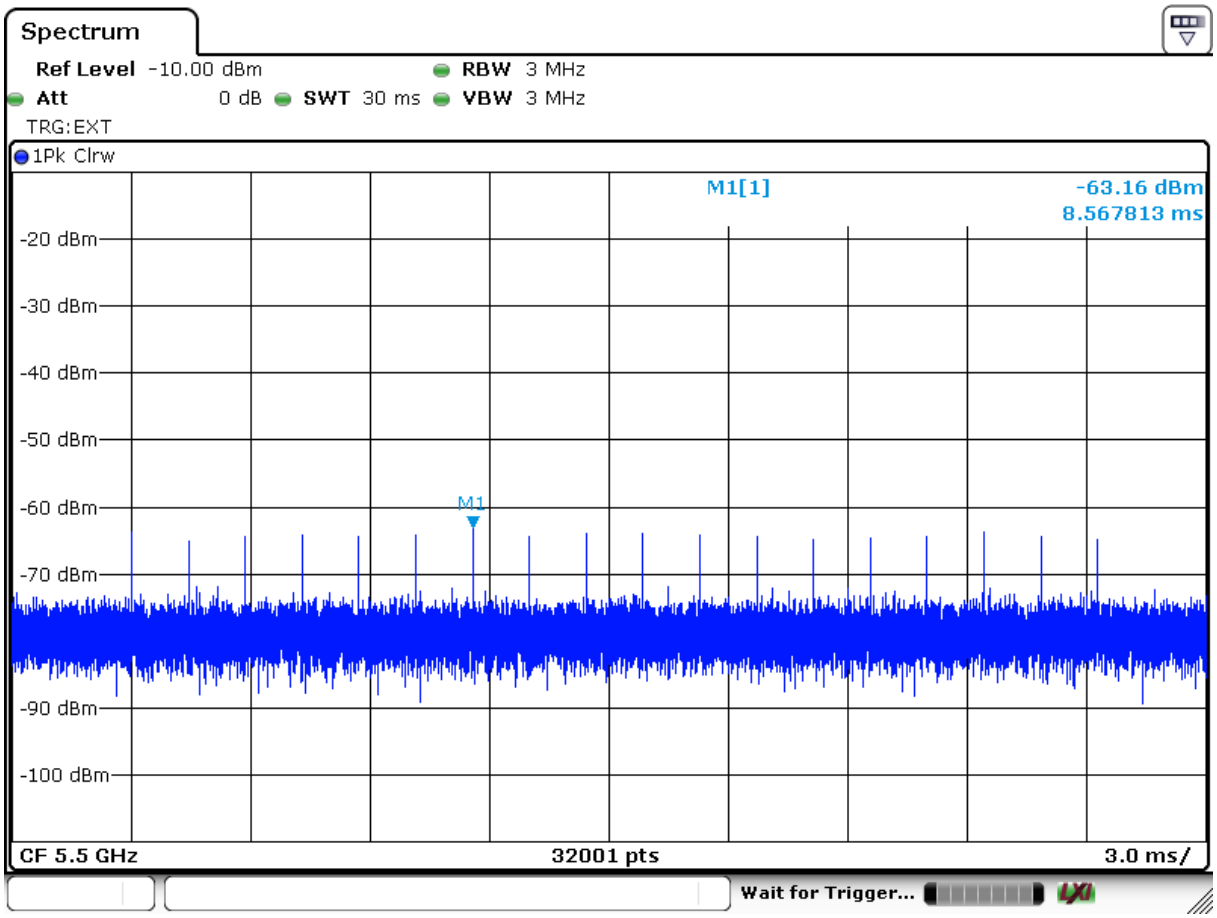
12.4 測試頻道及測試方法

12.4.1

測試方法	☒直接量測方式	☐輻射方式

12.4.2 使用雷達信號

Short Pulse Radar Type 0

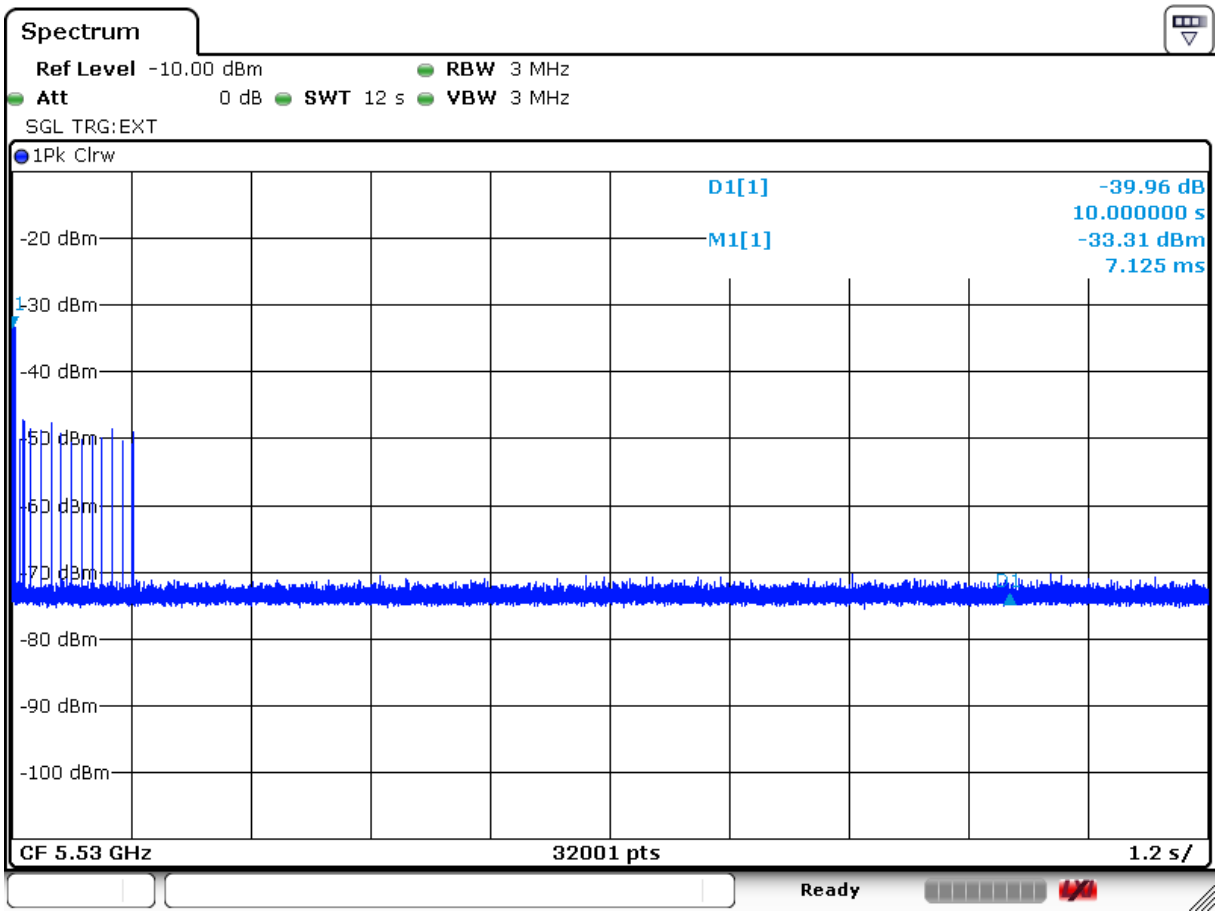


12.5 量測結果

12.5.1 Radar TYPE 0 CHANNEL MOVE TIME RESULTS

結果判定：符合標準規定。

Modulation	Operation Frequency (MHz)	Channel Move Time (s)	Limit (s)
IEEE 802.11ac VHT80	5530	< 10S	10



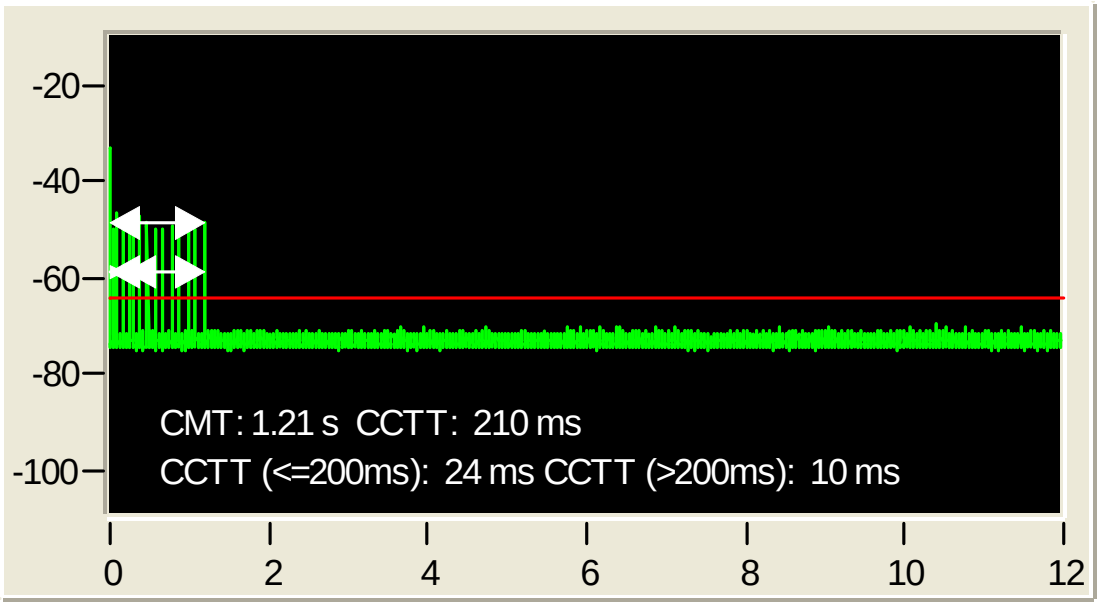
Date: 8.AUG.2018 15:04:15

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。

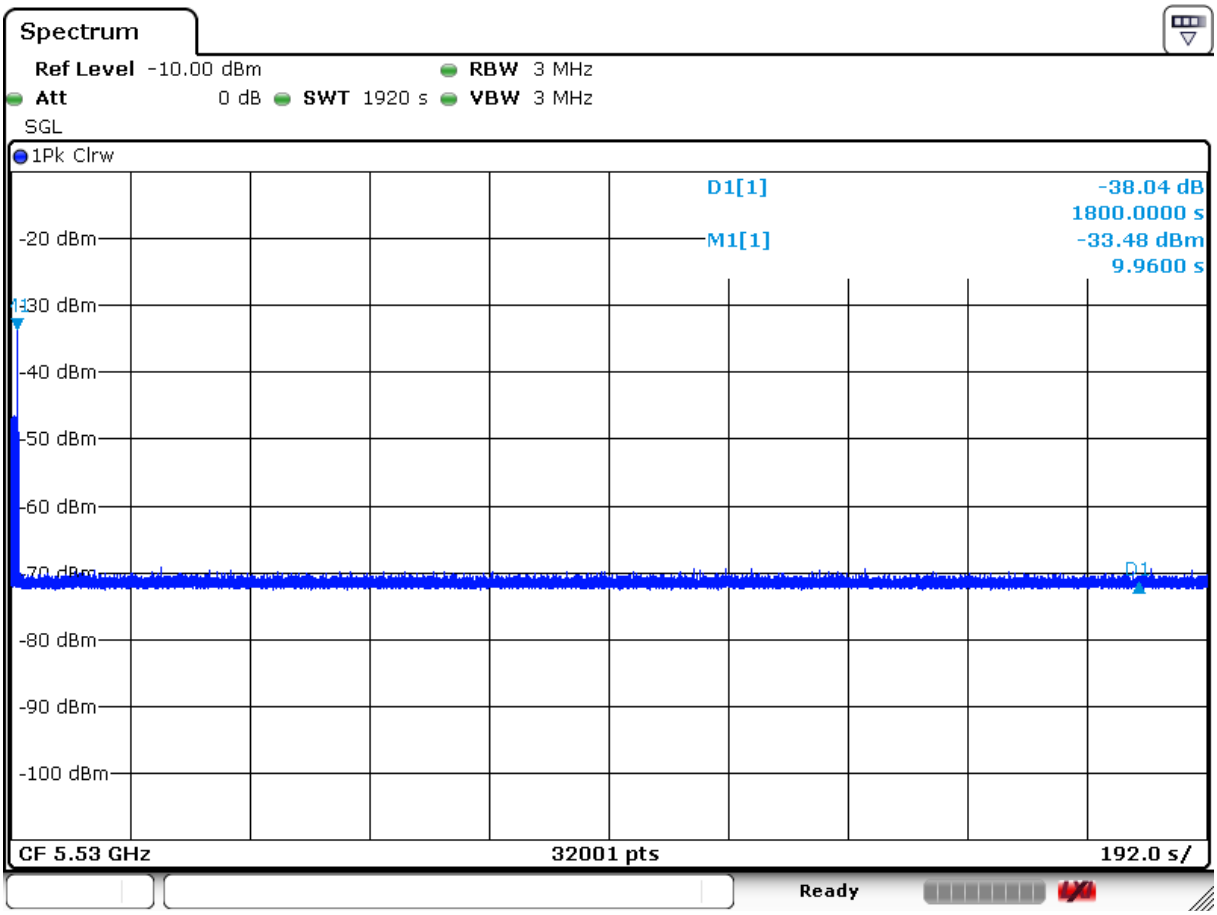
Modulation	Operation Frequency (MHz)	Aggregate Transmission Time (ms)	Limit (ms)
IEEE 802.11an HT40	5530	10	60



Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)
=10ms

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。



Date: 8.AUG.2018 13:39:01

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
EMI Test Receiver	R&S	ESCI	13054418-001	01/19/2018	01/18/2019
V-LISN	R&S	ENV216	13057719-001	09/12/2017	09/11/2018
Spectrum Analyzer	Agilent	E4446A	13052013-001	12/27/2017	12/26/2018
Attenuator	WEINSCHEL	56-10	58772	04/27/2018	04/26/2019
EMI Receiver	R&S	ESCI	13054423-001	01/19/2018	01/18/2019
Spectrum Analyzer	R&S	FSU46	13040904-001	01/08/2018	01/07/2019
Horn Antenna	EMCO	3115	13059201-001	11/29/2017	11/28/2018
Horn Antenna	EMCO	3116	13059202-001	11/04/2017	11/03/2018
PRE-Amplifier	Agilent	8449B	13040709-001	01/04/2018	01/03/2019
PRE-Amplifier	Agilent	8447D	13040715-002	04/23/2018	04/22/2019
BiLog Antenna	ETC	MCTD 2786	BL11M03003	05/12/2018	05/11/2019
PRE-Amplifier	Agilent	83051	MY53010020	04/25/2018	04/24/2019
Vector Signal Generator	R&S	SMU200A	13549901-002	06/20/2018	06/19/2019