低功率射頻電機
檢驗報告

申請者	台灣索尼互動娛樂股份有限公司
申請者地址	台北市信義區松高路1號9樓
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)**
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財團法人台灣電子檢驗中心
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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) ：10.44 dBm (發射功率)

工作頻率及調變方式 ：5745 ~ 5825 MHz / 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	發射頻寬之要求	低功率射頻電機技術規範4.7.5節	請參閱6.3節	請參閱6.4節	合格
4	最大傳導輸出功率之要求	低功率射頻電機技術規範4.7.3.3節(1)	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4.7.3.3節(2)	請參閱8.3節	請參閱8.4節	合格
6	混附波發射限制之要求	低功率射頻電機技術規範4.7.2節	請參閱9.3節	請參閱9.4節	合格
7	場強輻射之要求	低功率射頻電機技術規範4.7.4.6節	請參閱10.3節	請參閱10.5節	合格
	以下空白				

測量實驗室負責人：鄭景文 107/08/31 直接主管：林志傑 107/08/31 量測員：羅世弟 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 4 (5725 至 5850 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 3 (5500 至 5700 MHz) 部份請見 ETC 報告編號: 17-07-MAS-037-06。

2. 本器材不具備主控運作模式動態頻率選擇與Ad-hoc功能。

3. 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)，內含之WLAN其發射頻率落於 5745 至 5825 MHz頻段，採用 IEEE 802.11a/n/ac OFDM 調變技術，其應用為區域網路無線傳輸。主波發射功率為 10.44 dBm，即為 11.07 mW。

RF chain	2T2R	
Operating Frequency	IEEE 802.11a/an 20/ac 20MHz: 5.745GHz~5.825GHz, 5ch IEEE 802.11ac 40MHz Band: 5.755GHz~5.795GHz, 2ch IEEE 802.11ac 80MHz: 5.775 GHz, 1ch	
Modulation	IEEE 802.11a(OFDM/DSSS) 48/54 Mbps (QAM-64) 24/36 Mbps (QAM-64) 12/18 Mbps (QPSK) 6/19 Mbps (BPSK)	IEEE 802.11n(OFDM/DSSS) QAM-64 QAM-16 QPSK BPSK
	IEEE 802.11ac(20MHz,40MHz,80MHz)(OFDM/DSSS) QAM-256, QAM-64, QAM-16, QPSK,BPSK	

1.3 測試方法之依據

本測試報告之所有項目皆依據國家通訊傳播委員會低功率射頻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，其發射天線之方向性增益超過6dBi時，應依其所超過之dB數等量降低峰值輸出功率。如用於固定式點對點操作時，應符合下列情形之一:

操作於5725-5850兆赫(MHz)者，依法規4.7.3.3(3)供固定式點對點操作時，使用方向增益超過6 dBi 之發射天線，可不需對應減少發射器之傳導輸出功率限制值。
(4) 除(3)外，使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

(3) 頻寬之要求

對使用數位調變技術之低功率發射機，依據國家通訊傳播委員會低功率射頻電機技術規範4.7.5節之規定，6dB頻寬至少應有500 kHz。

(4) 最大傳導輸出功率之要求

依據國家通訊傳播委員會低功率射頻電機技術規範4.7.3.3節(1)之規定，對使用數位調變技術之低功率發射機，最大傳導輸出功率應小於或等於 1 Watt。

(5) 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4.7.3.3節之(2)規定，對數位調變技術系統，在任何500 kHz 頻帶中最大功率頻譜密度應小於或等於30 dBm

(6) 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4.7.4.2節之規定，在 5.725 GHz～5.850 GHz 的頻段操作之發射器：所有頻帶邊緣向外 5 MHz 內頻率之發射，有效等向輻射功率(EIRP)≦27 dBm/MHz～15.6 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣向外 5 MHz～25 MHz，有效等向輻射功率(EIRP)≦15.6 dBm/MHz～10 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣外 25 MHz～75 MHz，有效等向輻射功率(EIRP)≦10 dBm/MHz～-27 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣外≧75 MHz 的頻率之發射，有效等向輻射功率(EIRP)≦-27 dBm/MHz；有關遮罩限制值詳圖 1。

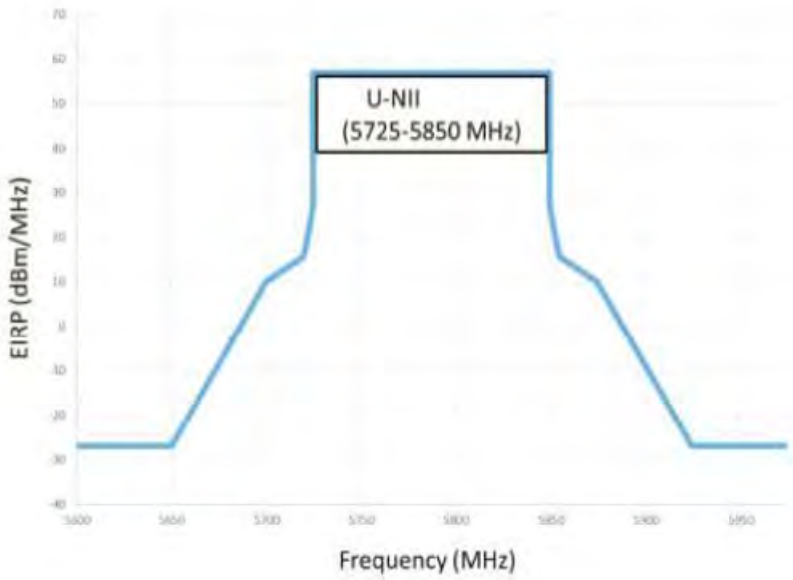


圖 1

(7) 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 4.7.4.6節之要求，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

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	

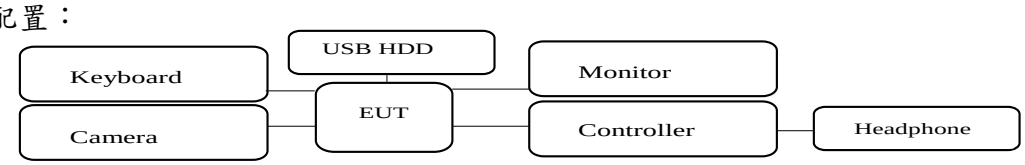
3 受測裝置之系統說明

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, 802.11ac HT20 mode:

測試頻道如下:

Channel	Frequency (MHz)
Low = 149	5745
Middle = 157	5785
High = 165	5825

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

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

3.2 IEEE 802.11an HT40, 802.11ac HT40 mode:

測試頻道如下:

Channel	Frequency (MHz)
Low = 151	5755
High = 159	5795

IEEE 802.11 an HT40, 802.11ac HT40 mode: MCS0 13.5 Mbps data rate is the worse case for full testing.

3.3 IEEE 802.11ac HT80 mode:

測試頻道如下:

Channel	Frequency (MHz)
155	5775

IEEE 802.11 ac HT80 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
IEEE 802.11an HT20	8
IEEE 802.11an HT40	8
IEEE 802.11ac HT20	8
IEEE 802.11ac HT40	8
IEEE 802.11ac HT80	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 802.11ac HT20	-
D	IEEE 802.11an HT40	-
E	IEEE 802.11ac HT40	-
F	IEEE 802.11ac HT80	-

Mode	EEE 802.11a/an20/ac20	IEEE 802.11an40/ac40	IEEE 802.11ac80
Test Channel	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
Channel Low (L)	5745	5755	5775
Channel Mid (M)	5785	n/a	n/a
Channel High (H)	5825	5795	n/a

3.2.2 測試項目及模式

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

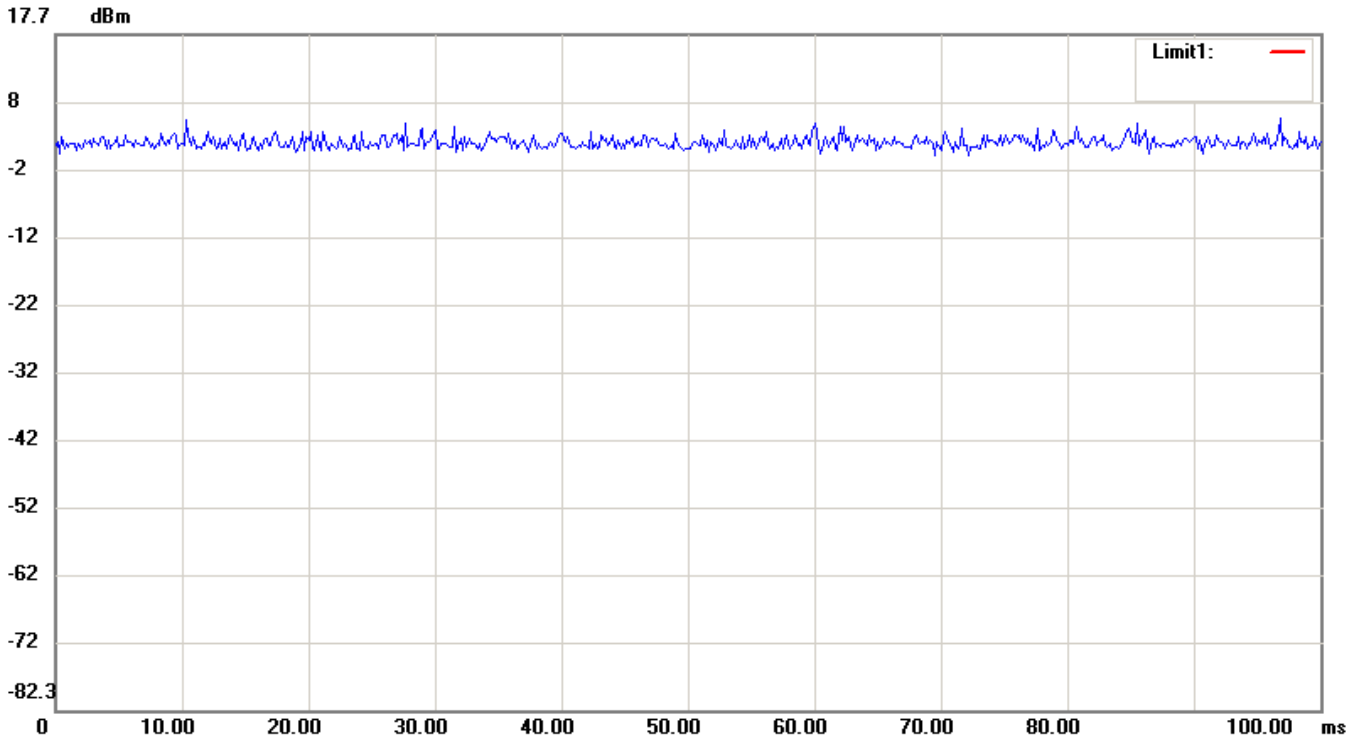
註: 1. 各測試模式預掃時無差異，擇一作最終測試並記錄之。
2. Test Mode B 與 Test Mode C / Test Mode D 與 Test Mode E 使用相同調變技術及頻寬，故以峰值輸出功率較大者 Test Mode B 及 Test Mode D 為 Worse case，作最終測試並記錄之。
3. 本產品內含雙天線，802.11an/ac 模式下有 MIMO 之功能，故對兩隻天線分別進行測試再加總並記綠之。802.11a 無 MIMO 之功能，以峰值輸出功率較大者做為 Worse Case，進行其他項目之量測。
4. 此產品為手持式分別要以二軸相(X、Y)放置，並分別測試以找出最大輻射電場強度軸相，其中以 Y 軸模式較差，並記錄其讀值。
5. 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_5-8a_A0** **#9** **Date:** **2018/8/16** **Temperature:** **25 ℃**

Time: **下午 07:45:14** **Humidity:** **60 %**



Condition: **UNII-Band-4-Bandedge** **RF Conducted**

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

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

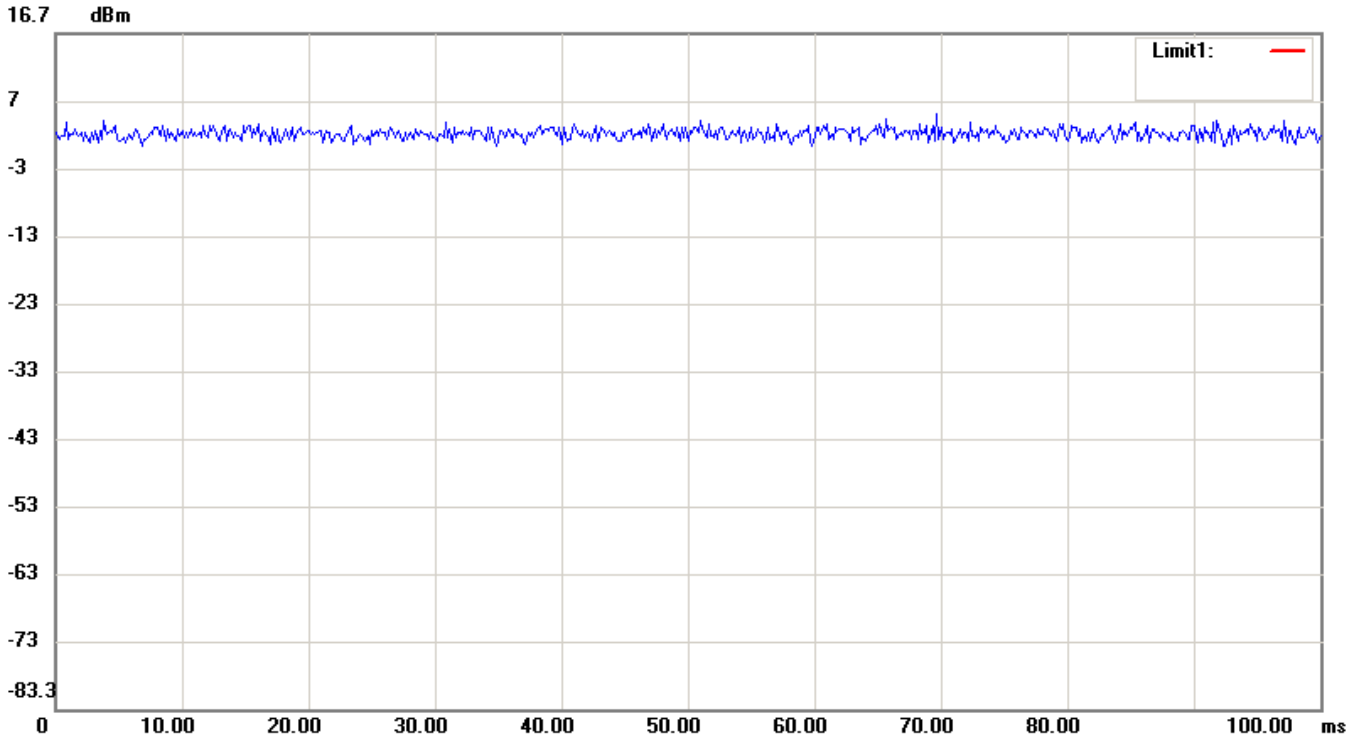
Test Mode:

Note: **NCC_11a_Duty Cycle-1**

Modulation	Duty cycle
IEEE 802.11an HT20	>98%

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

Time: 下午 07:21:55 **Humidity:** 60 %



Condition: UNII-Band-4-Bandedge **RF Conducted**

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

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

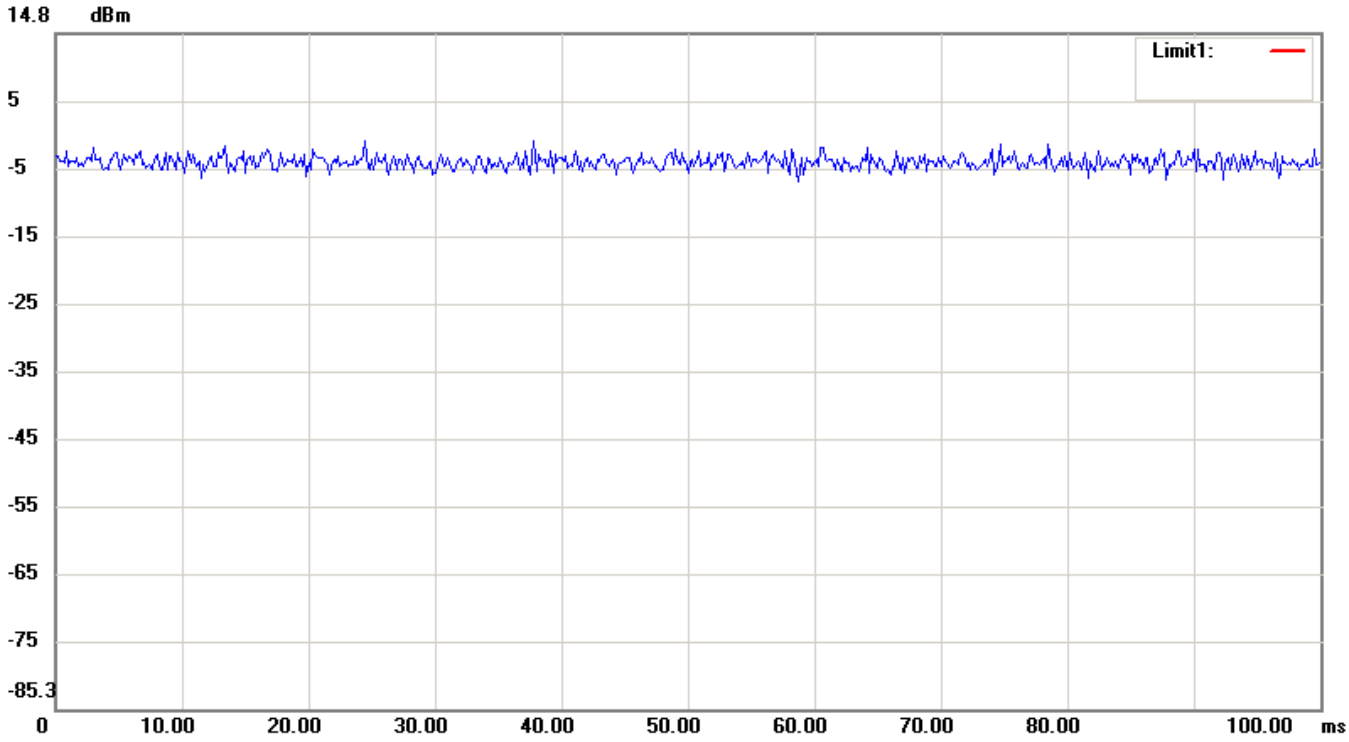
Test Mode:

Note: NCC_11an20_Duty Cycle-1

Modulation	Duty cycle
IEEE 802.11an HT40	>98%

File: **18-07-037_5-8an40_A0** **#7** **Date:** **2018/8/16** **Temperature:** **25 ℃**

Time: **下午 04:08:00** **Humidity:** **60 %**



Condition: **UNII-Band-4-Bandedge** **RF Conducted**

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

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

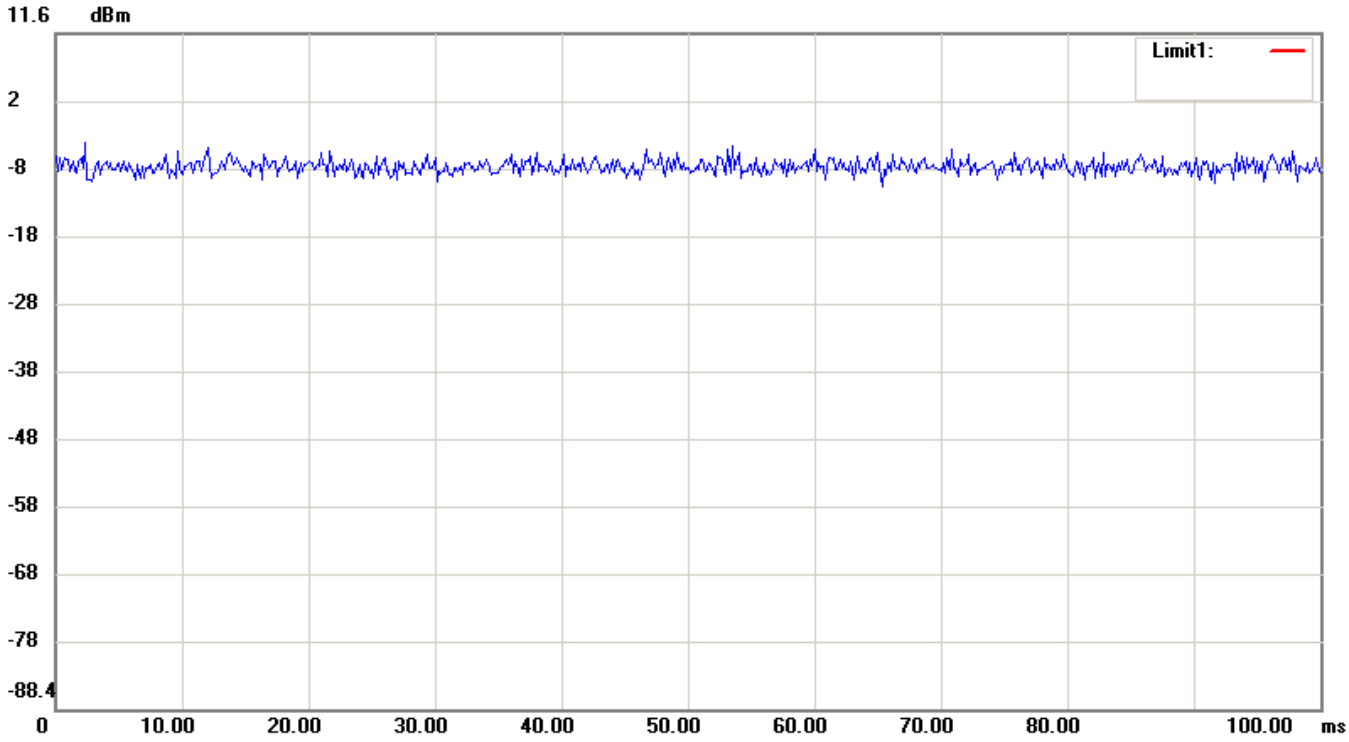
Test Mode:

Note: **NCC_11an40_Duty Cycle-1**

Modulation	Duty cycle
IEEE 802.11ac HT80	>98%

File: 18-07-037_5-8ac80_A0 **#5** **Date:** 2018/8/16 **Temperature:** 25 ℃

Time: 下午 03:45:21 **Humidity:** 60 %



Condition: UNII-Band-4-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

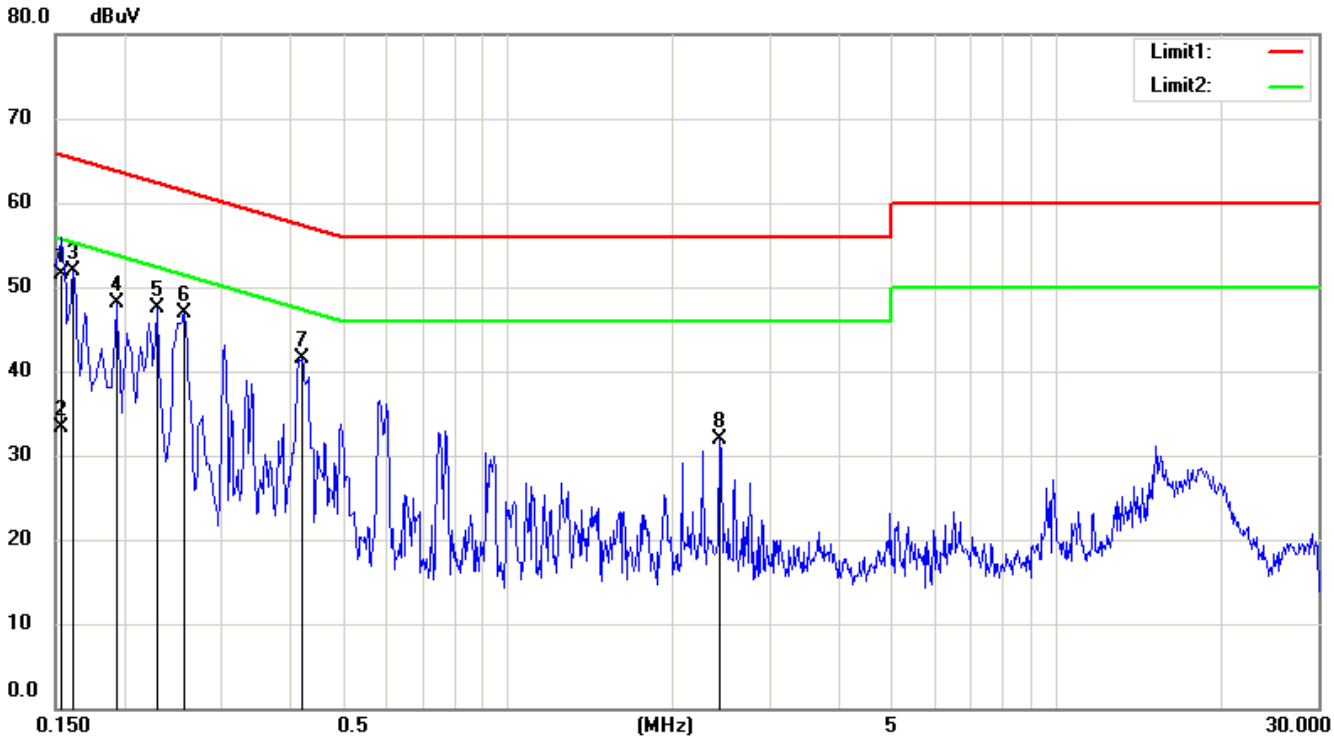
測試軟體: EZ-EMC (Ver. ETC-03A1)

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** **#28** **Date:** **2018/8/28** **Temperature:** **20 ℃**
Time: **下午 05:48:44** **Humidity:** **58 %**



Condition: **Phase:** **L1**
EUT:
Model:
Test Mode: **1TB HGST**
Note: **5.8**

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1540	41.91	QP	9.68	51.59	65.78	-14.19
2	0.1540	23.62	AVG	9.68	33.30	55.78	-22.48
3	0.1620	42.16	QP	9.68	51.84	65.36	-13.52
4	0.1940	38.35	QP	9.67	48.02	63.86	-15.84
5	0.2300	37.77	QP	9.67	47.44	62.45	-15.01
6	0.2580	37.31	QP	9.67	46.98	61.50	-14.52
7	0.4220	31.90	QP	9.68	41.58	57.41	-15.83
8	2.4460	22.15	QP	9.73	31.88	56.00	-24.12

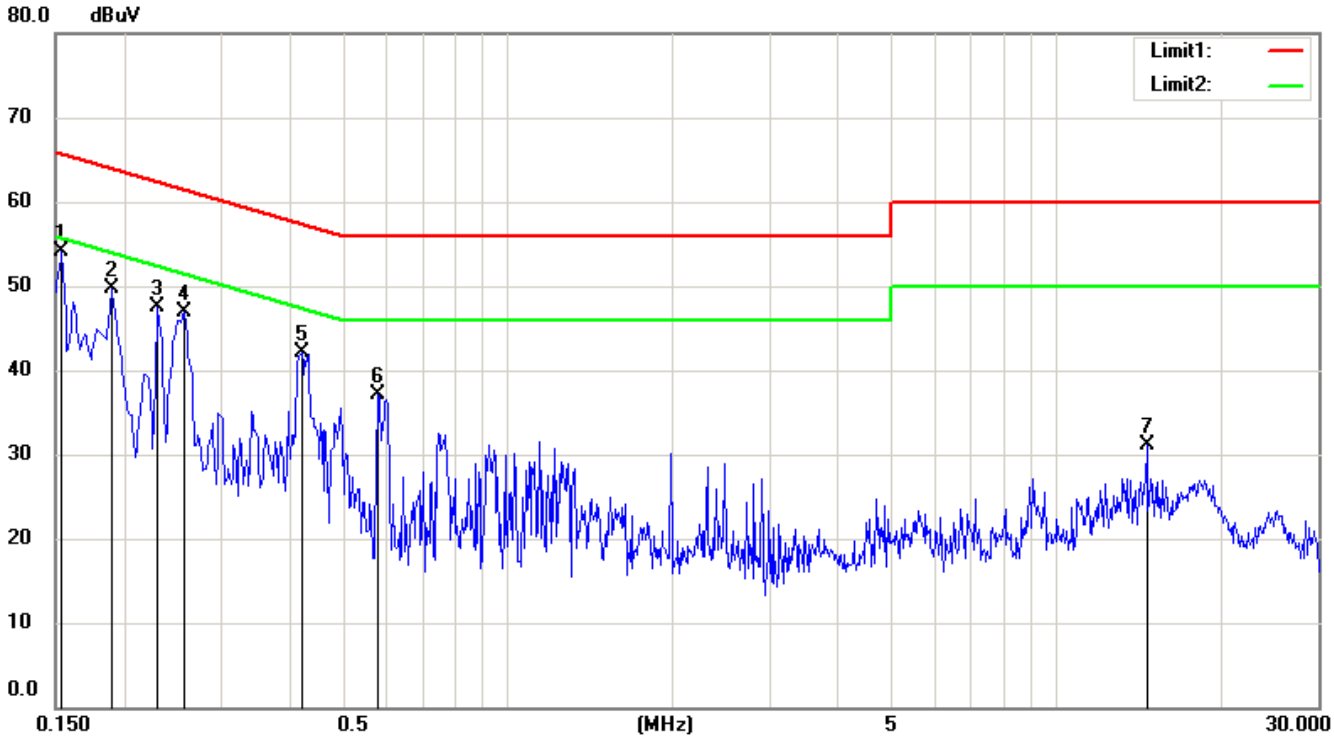
註： 1. “----“表示量測準峰值的結果符合平均值的限制值，則視為同時符合準峰值與平均值的限制值，不需再對其平均值進行量測。

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 **#27** **Date:** 2018/8/28 **Temperature:** 20 ℃
Time: 下午 05:47:38 **Humidity:** 58 %



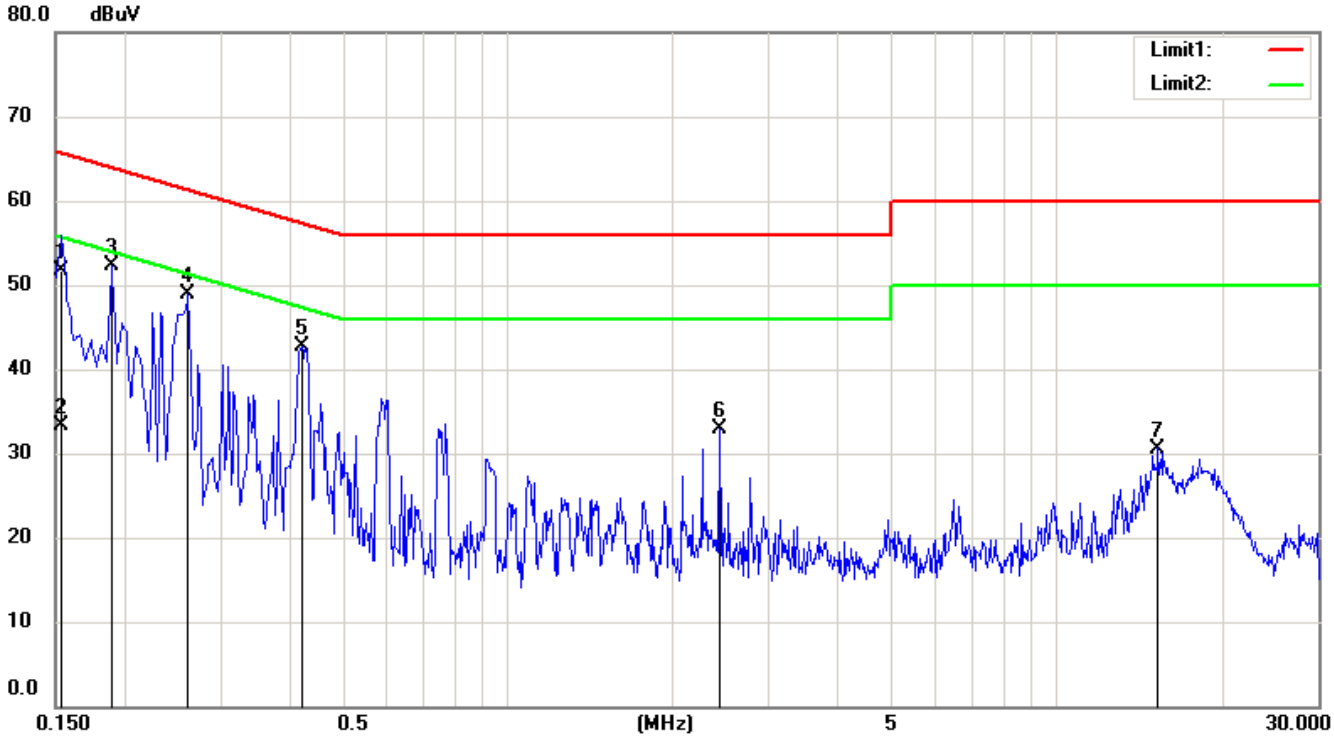
Condition: **Phase:** **N**
EUT:
Model:
Test Mode: **1TB HGST**
Note: **5.8**

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1540	44.47	QP	9.68	54.15	65.78	-11.63
2	0.1900	39.94	QP	9.67	49.61	64.04	-14.43
3	0.2300	37.82	QP	9.67	47.49	62.45	-14.96
4	0.2580	37.26	QP	9.67	46.93	61.50	-14.57
5	0.4220	32.43	QP	9.68	42.11	57.41	-15.30
6	0.5820	27.34	QP	9.68	37.02	56.00	-18.98
7	14.6660	21.15	QP	9.98	31.13	60.00	-28.87

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 #41 Date: 2018/8/28 Temperature: 20 ℃
Time: 下午 06:19:00 Humidity: 58 %

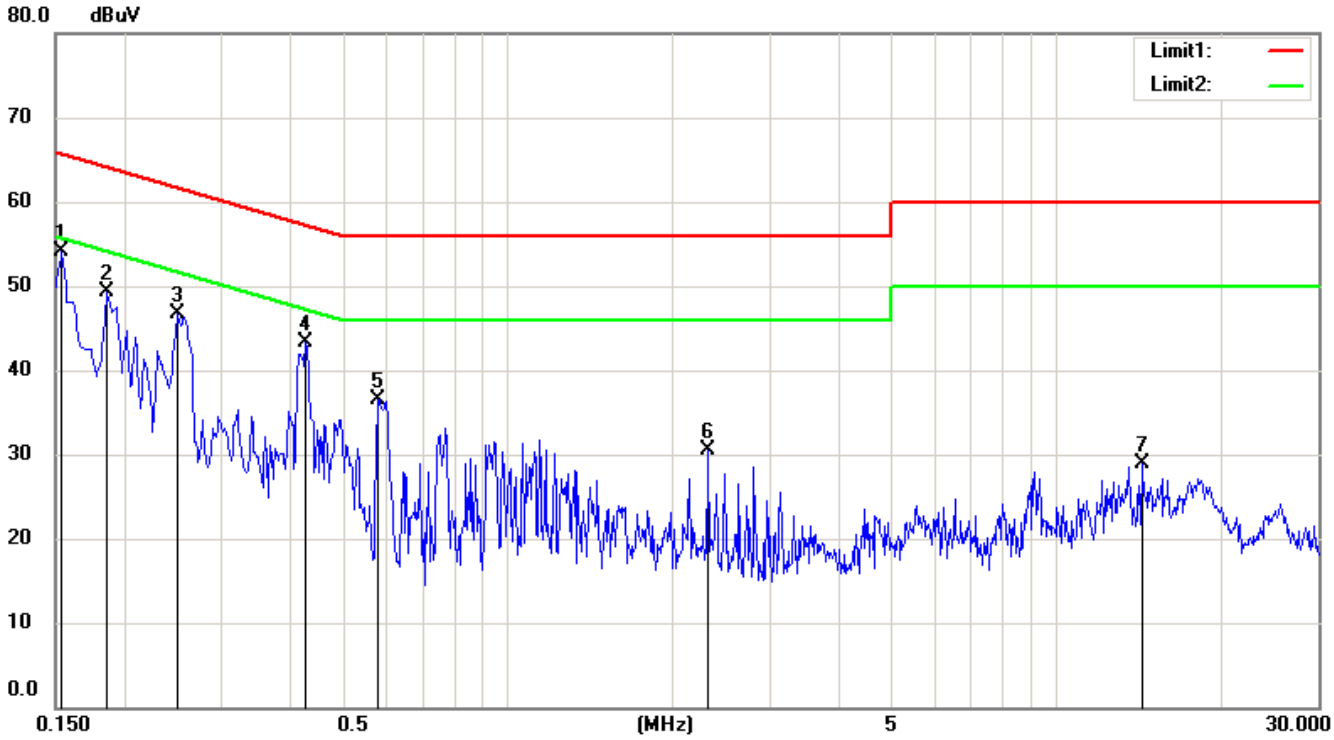


Condition: **Phase: L1**
EUT:
Model:
Test Mode: 1TB TOSHIBA
Note: 5.8

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1540	41.97	QP	9.68	51.65	65.78	-14.13
2	0.1540	23.67	AVG	9.68	33.35	55.78	-22.43
3	0.1900	42.71	QP	9.67	52.38	64.04	-11.66
4	0.2620	39.26	QP	9.67	48.93	61.37	-12.44
5	0.4220	33.03	QP	9.68	42.71	57.41	-14.70
6	2.4380	23.13	QP	9.73	32.86	56.00	-23.14
7	15.3620	20.69	QP	9.91	30.60	60.00	-29.40

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 **#42** **Date:** 2018/8/28 **Temperature:** 20 ℃
Time: 下午 06:20:30 **Humidity:** 58 %



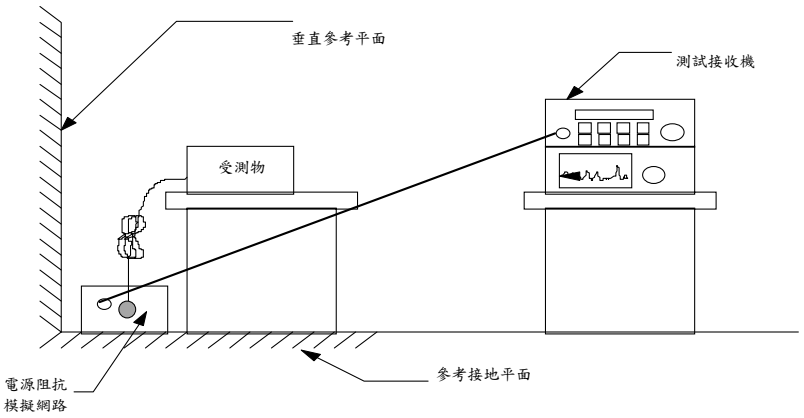
Condition: **Phase:** N
EUT:
Model:
Test Mode: 1TB TOSHIBA
Note: 5.8

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1540	44.45	QP	9.68	54.13	65.78	-11.65
2	0.1860	39.61	QP	9.67	49.28	64.21	-14.93
3	0.2500	37.10	QP	9.67	46.77	61.76	-14.99
4	0.4300	33.72	QP	9.68	43.40	57.25	-13.85
5	0.5820	26.91	QP	9.68	36.59	56.00	-19.41
6	2.3220	20.79	QP	9.71	30.50	56.00	-25.50
7	14.3620	18.86	QP	9.97	28.83	60.00	-31.17

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，其發射天線之方向性增益超過6dBi時，應依其所超過之dB數等量降低峰值輸出功率。如用於固定式點對點操作時，應符合下列情形之一:

操作於5725-5850兆赫(MHz)者，依法規4.7.3.3(3)供固定式點對點操作時，使用方向增益超過6 dBi 之發射天線，可不需對應減少發射器之傳導輸出功率限制值。

(4) 除(3)外，使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

5.2 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。

在 MIMO 模式下 CHAIN 0 + CHAIN 1 之方向性增益為 8.32 dBi 超過 6 dBi，因此需等量減少最大傳導輸出功率限制值。

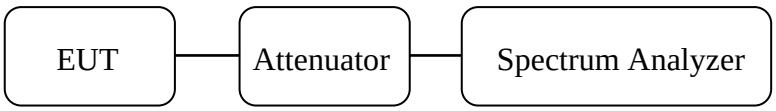
6 發射頻寬之要求

6.1 適用標準

對使用直接序列技術之低功率發射機，依據國家通訊傳播委員會低功率射頻電機技術規範4.7.5節 之規定，6dB頻寬至少應有500 kHz。

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

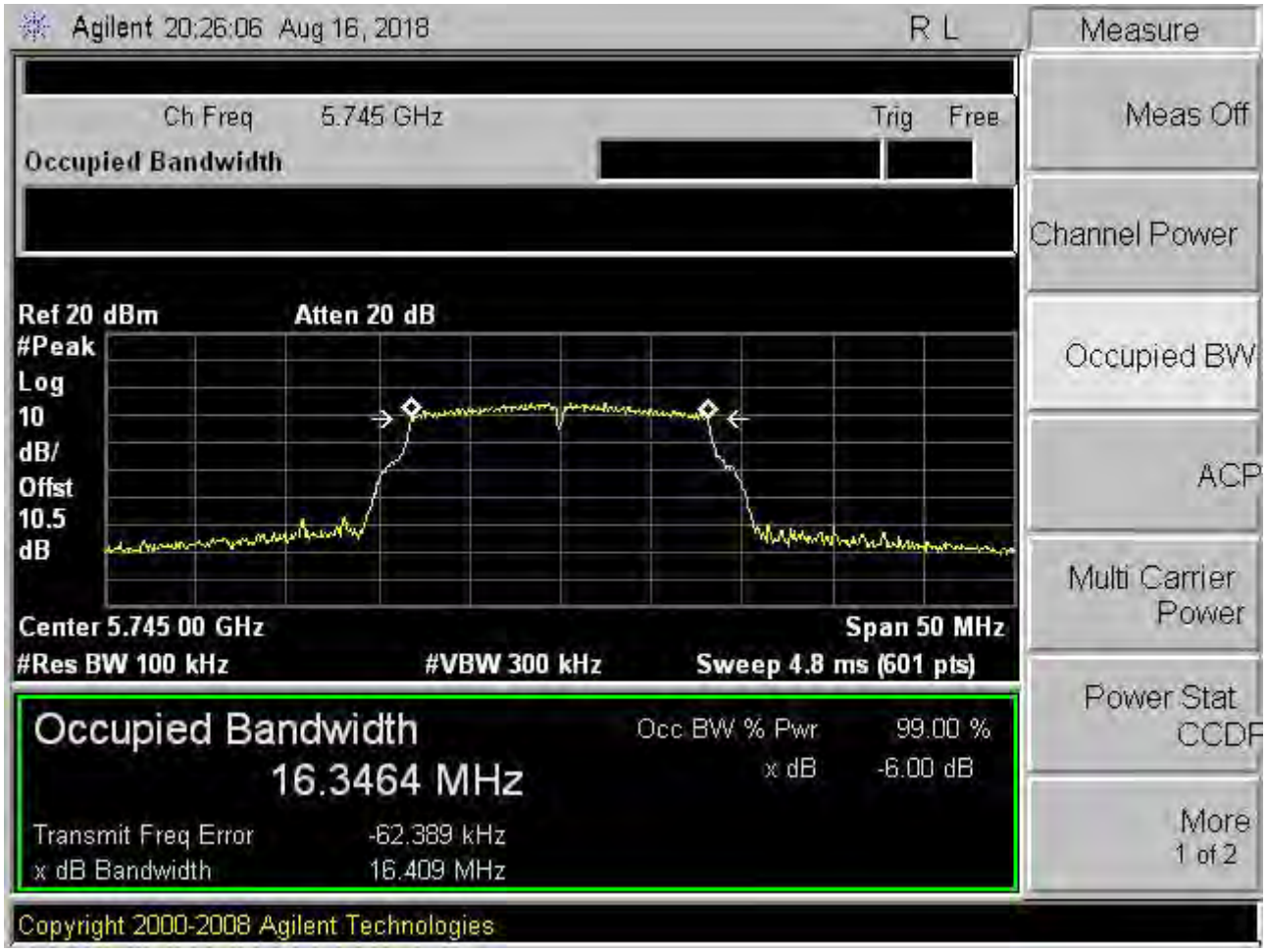
測試工程師: 羅世勇

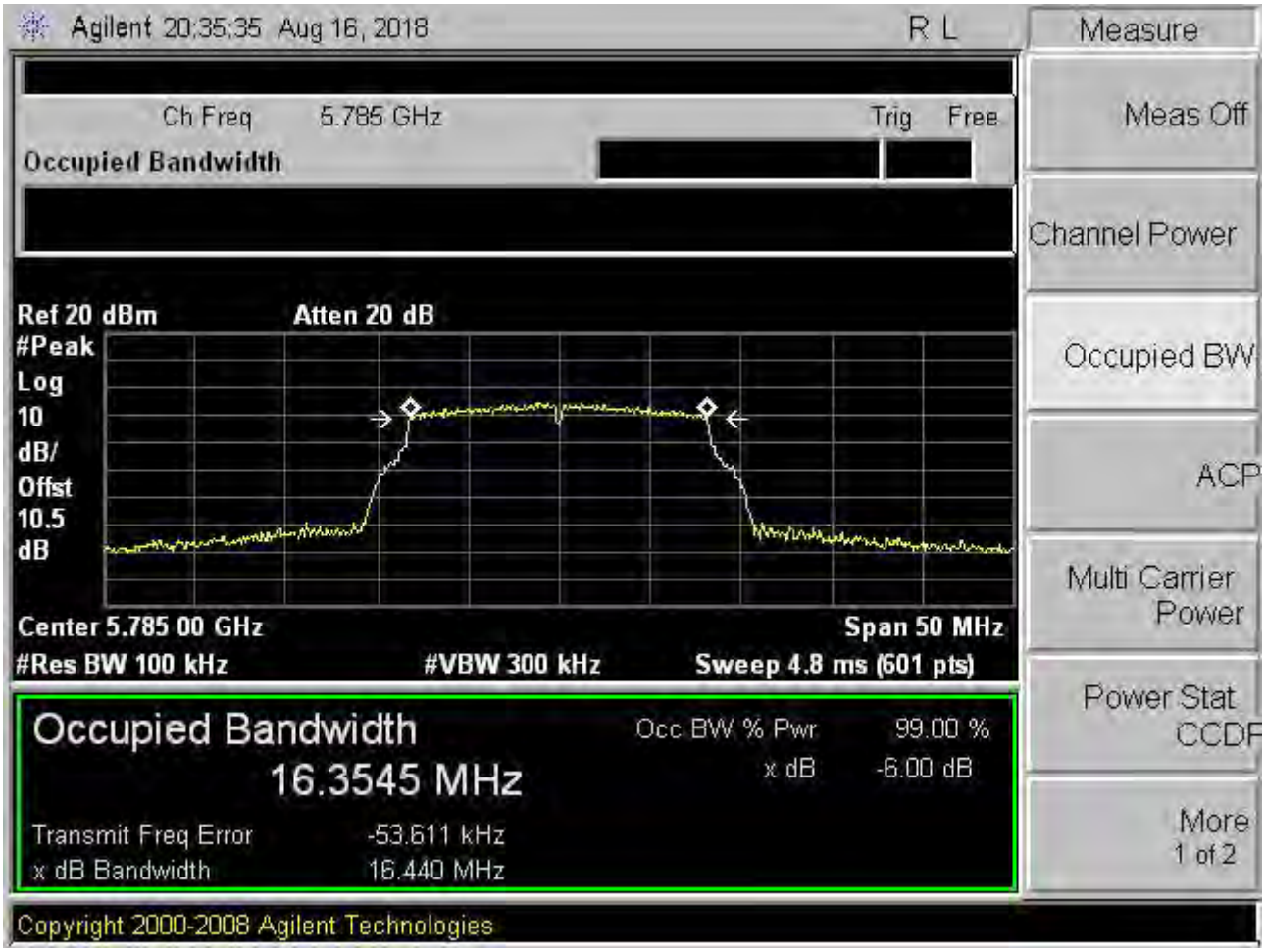
6.4.1 調變技術:IEEE 802.11a

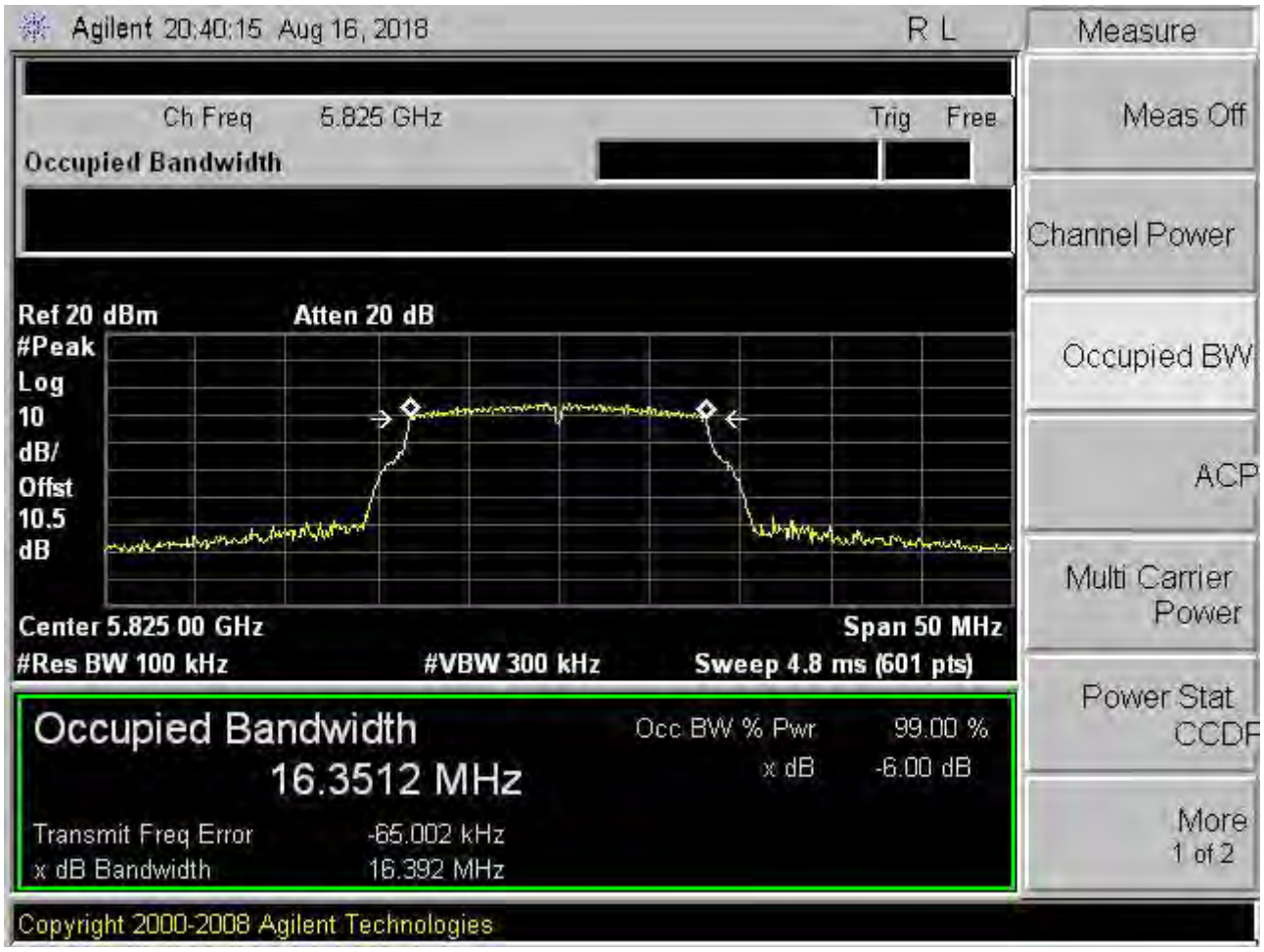
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Channel	6dB Bandwidth (MHz)	NCC Limit (kHz)	Chart
L	16.409	500	Page 26
M	16.440	500	Page 27
H	16.392	500	Page 28

註：1. 繪圖資料請參考第 26-28 頁。
2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)


Agilent 20:26:06 Aug 16, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
16.3464 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -62.389 kHz
x dB Bandwidth 16.409 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 20:35:35 Aug 16, 2018
R L
Measure
Ch Freq 5.785 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 5.785 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
16.3545 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -53.611 kHz
x dB Bandwidth 16.440 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 20:40:15 Aug 16, 2018
R L
Measure
Ch Freq 5.825 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 5.825 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
16.3512 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -65.002 kHz
x dB Bandwidth 16.392 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

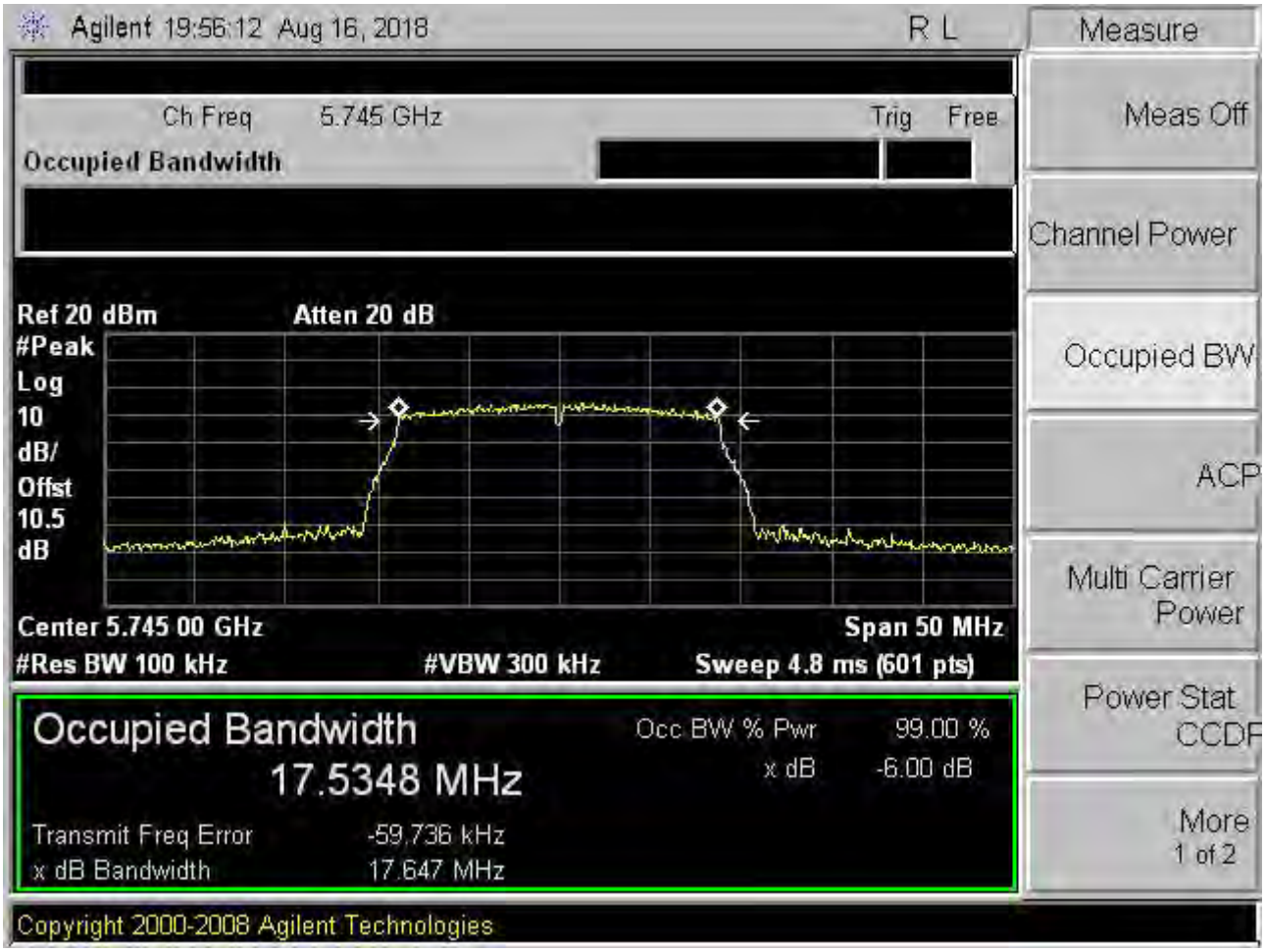
6.4.2 調變技術:IEEE 802.11an HT20

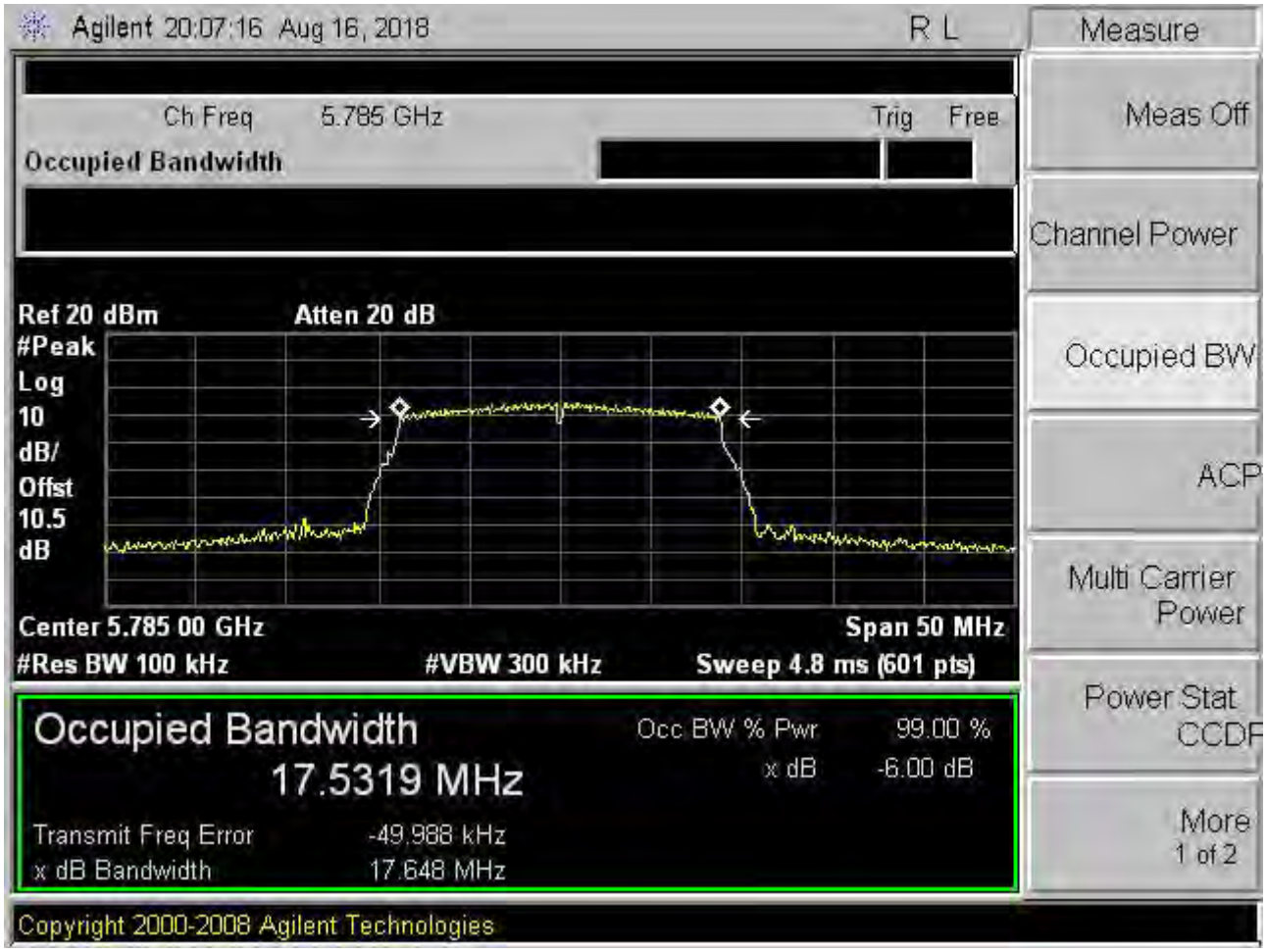
6.4.2.1 CHAIN 0

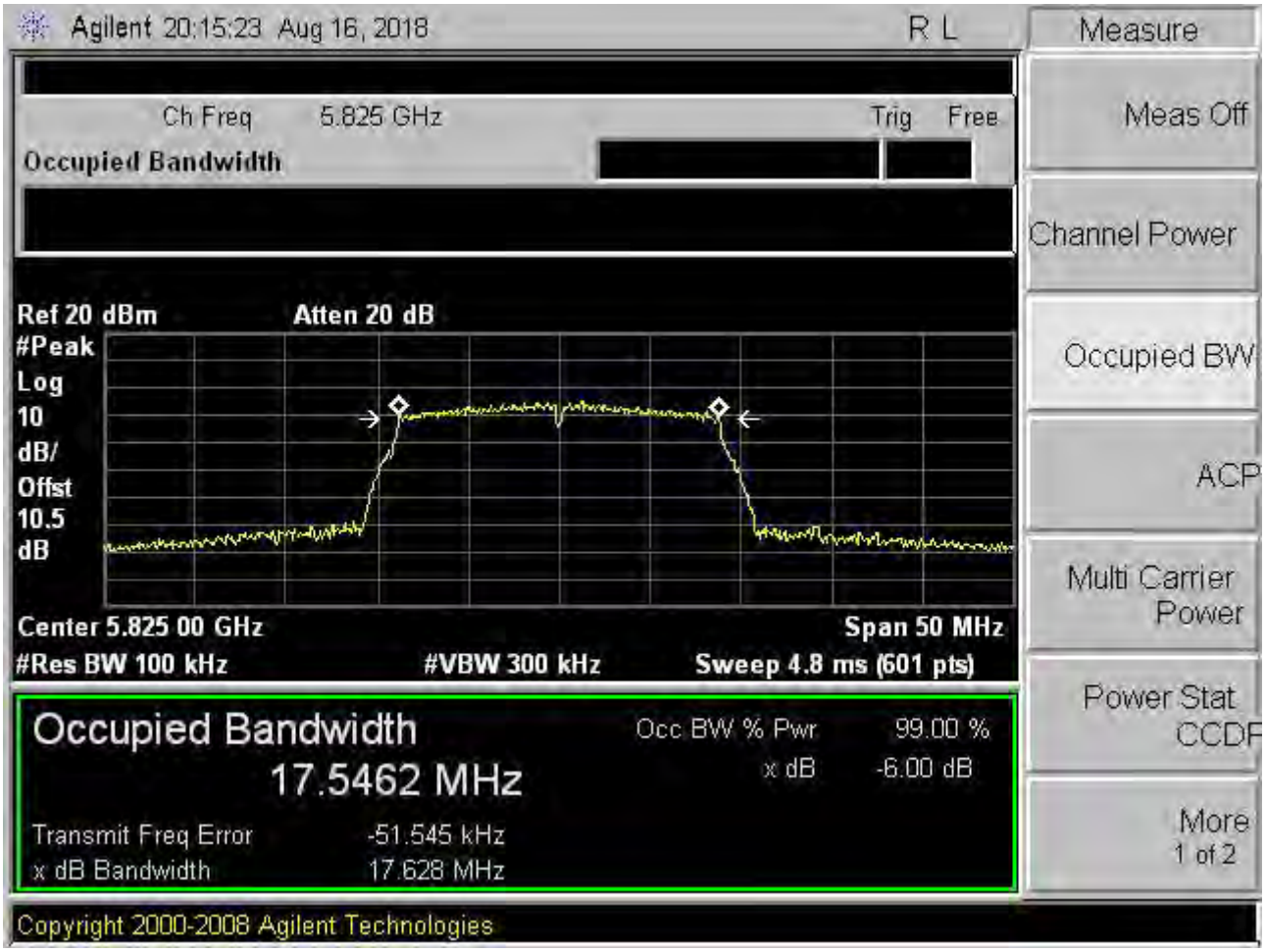
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Channel	6dB Bandwidth (MHz)	NCC Limit (kHz)	Chart
L	17.647	500	Page 30
M	17.648	500	Page 31
H	17.628	500	Page 32

註：1. 繪圖資料請參考第 30-32 頁。
2. 量測不準確度8.25×10^{-7}(1GHz≦f≦18GHz)


Agilent 19:56:12 Aug 16, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5348 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -59.736 kHz
x dB Bandwidth 17.647 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 20:07:16 Aug 16, 2018
R L
Measure
Ch Freq 5.785 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 5.785 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5319 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -49.988 kHz
x dB Bandwidth 17.648 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

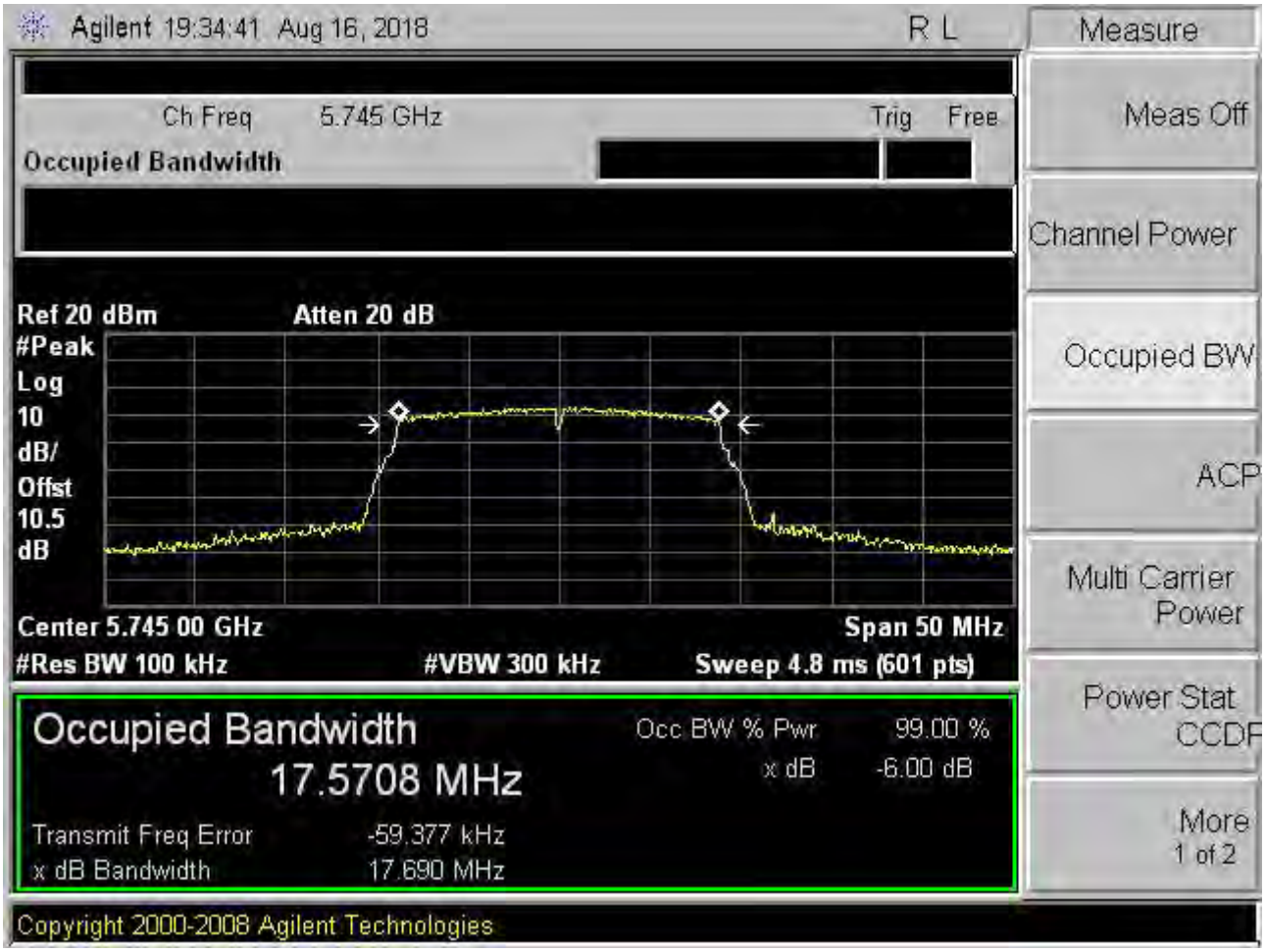

Agilent 20:15:23 Aug 16, 2018
R L
Measure
Ch Freq 5.825 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.825 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5462 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -51.545 kHz
x dB Bandwidth 17.628 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

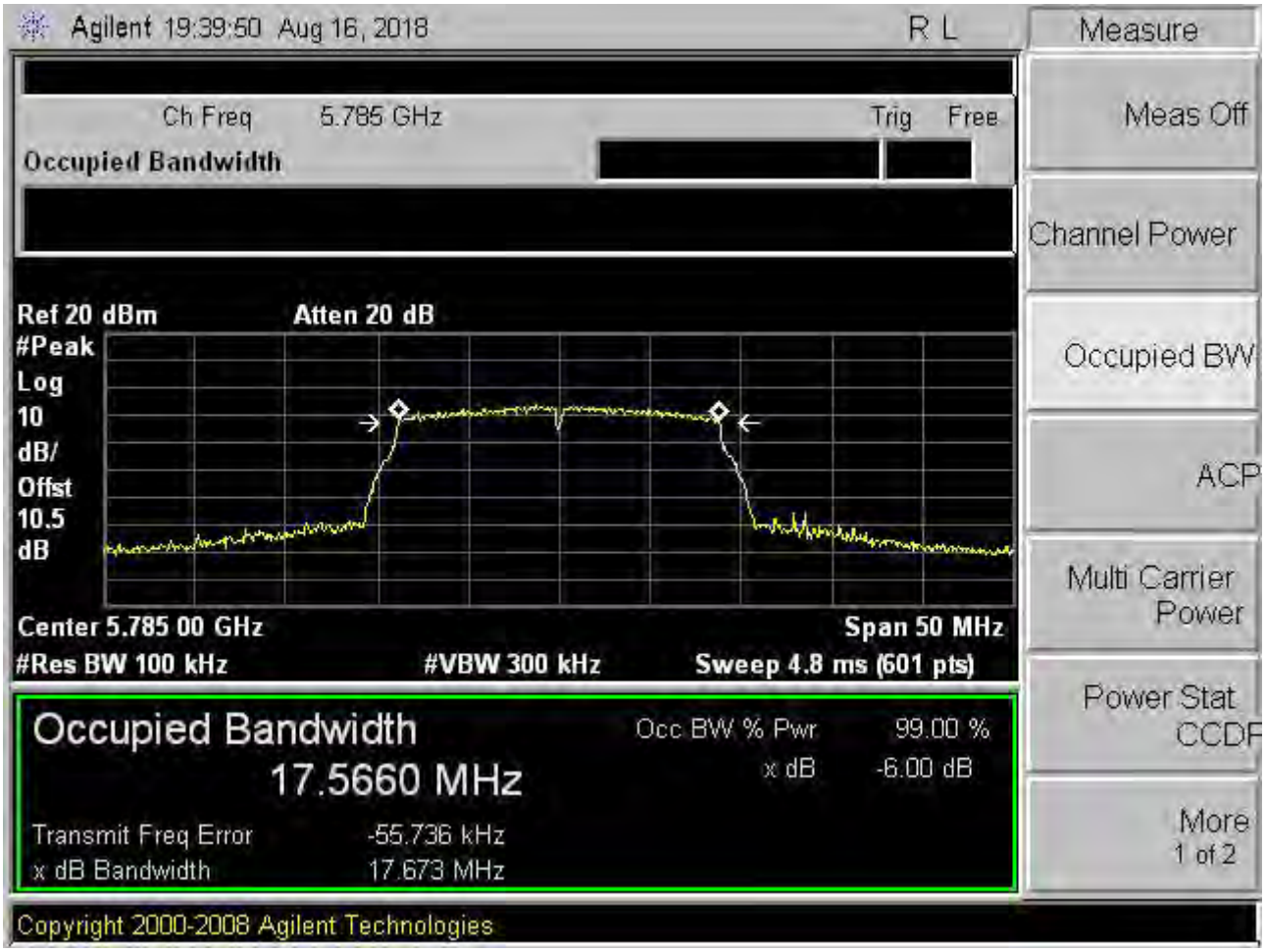
6.4.2.2 CHAIN 1

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

Channel	6dB Bandwidth (MHz)	NCC Limit (kHz)	Chart
L	17.690	500	Page 34
M	17.673	500	Page 35
H	17.657	500	Page 36

註：1. 繪圖資料請參考第 34-36 頁。
2. 量測不準確度8.25×10^{-7}(1GHz≦f≦18GHz)


Agilent 19:34:41 Aug 16, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5708 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -59.377 kHz
x dB Bandwidth 17.690 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 19:39:50 Aug 16, 2018
R L
Measure
Ch Freq 5.785 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 5.785 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5660 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -55.736 kHz
x dB Bandwidth 17.673 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 19:44:55 Aug 16, 2018
R L
Measure
Ch Freq 5.825 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 5.825 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5654 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -57.405 kHz
x dB Bandwidth 17.657 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

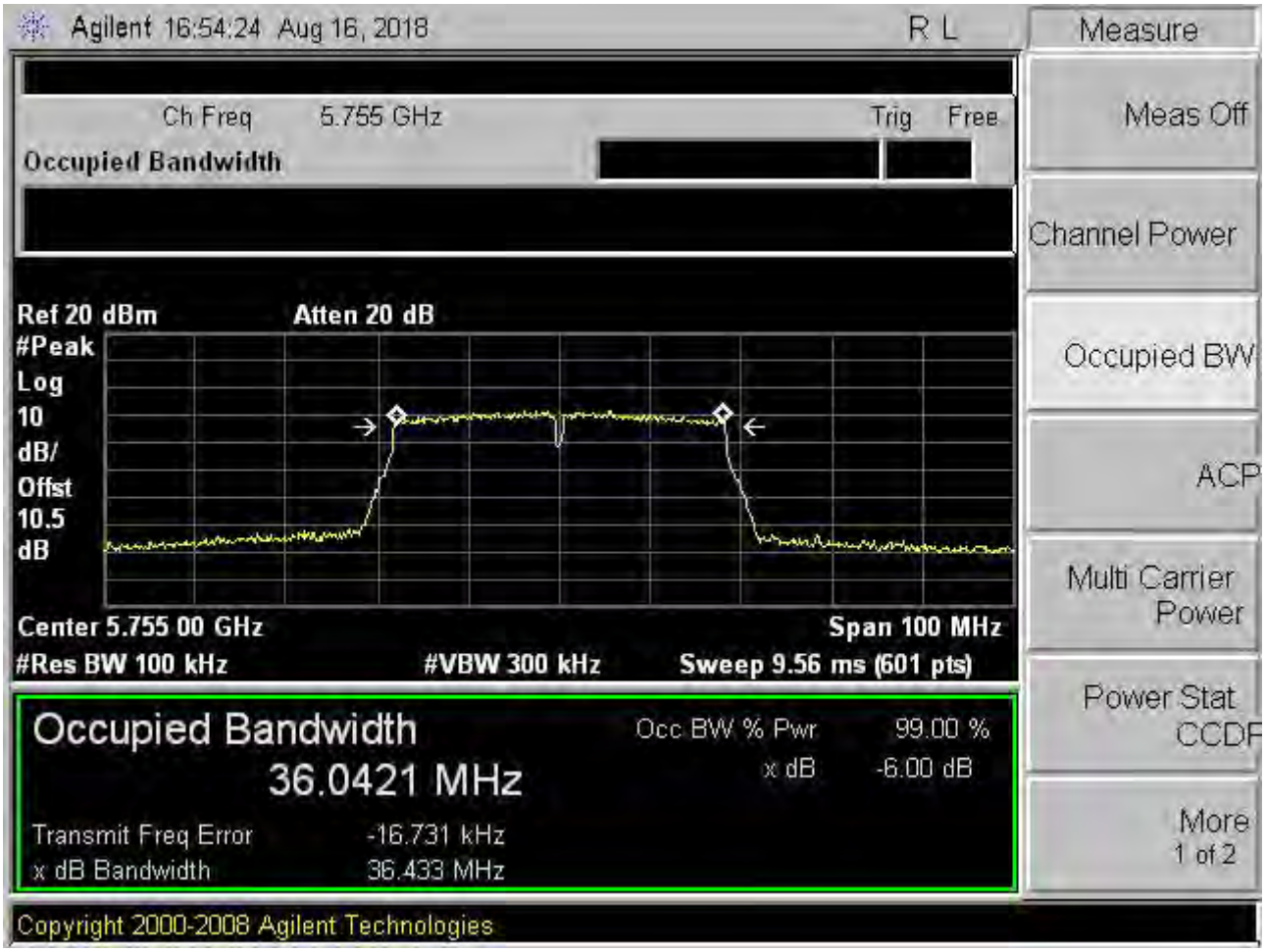
6.4.3 調變技術: IEEE 802.11an HT40

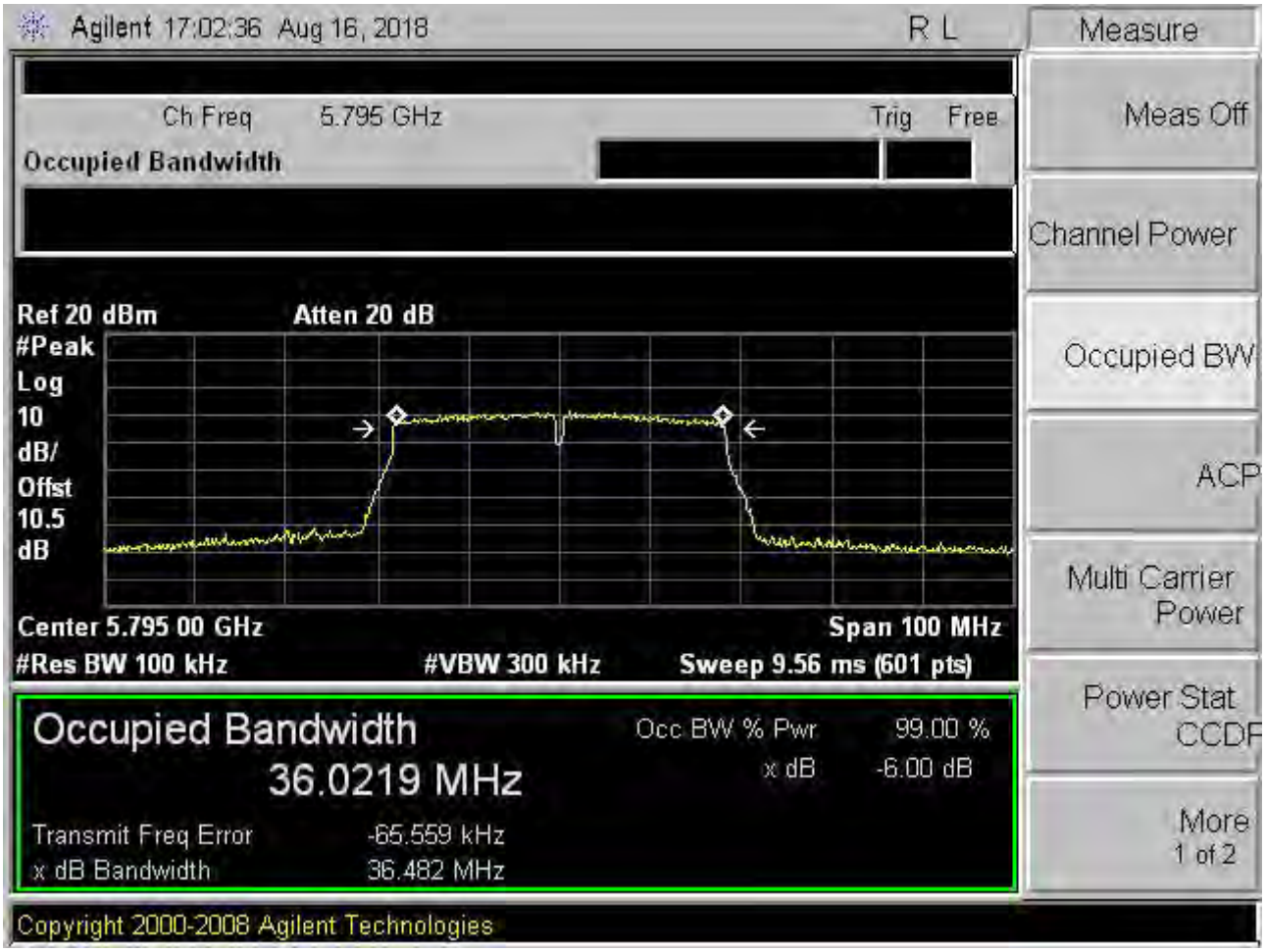
6.4.3.1 CHAIN 0

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

Channel	6dB Bandwidth (MHz)	NCC Limit (kHz)	Chart
L	36.433	500	Page 38
H	36.482	500	Page 39

註：1. 繪圖資料請參考第 38-39 頁。
2. 量測不準確度8.25×10^{-7}(1GHz≦f≦18GHz)


Agilent 16:54:24 Aug 16, 2018
R L
Measure
Ch Freq 5.755 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 5.755 00 GHz
Span 100 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 9.56 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.0421 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -16.731 kHz
x dB Bandwidth 36.433 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

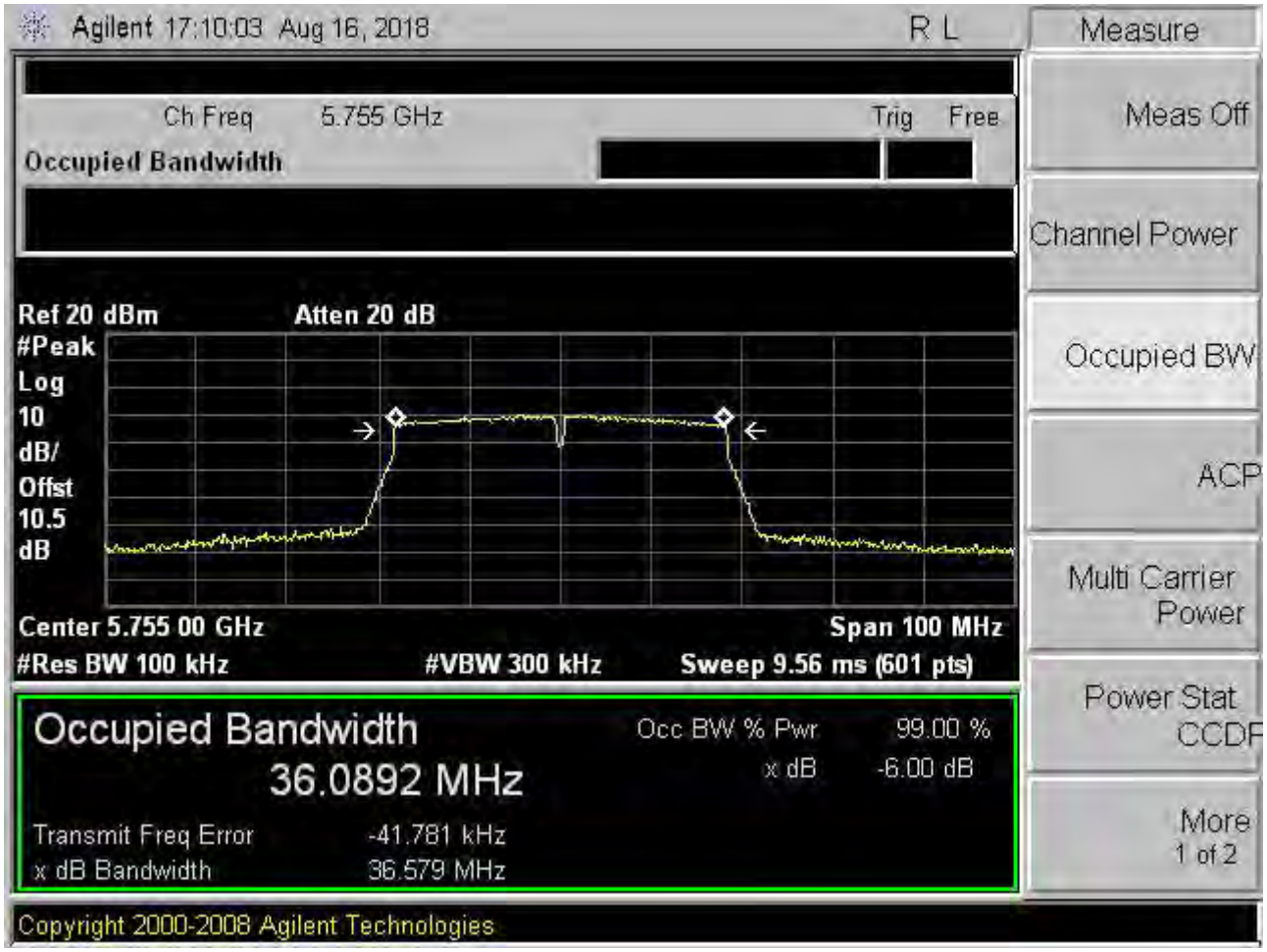

Agilent 17:02:36 Aug 16, 2018
R L
Measure
Ch Freq 5.795 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 5.795 00 GHz
Span 100 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 9.56 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.0219 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -65.559 kHz
x dB Bandwidth 36.482 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

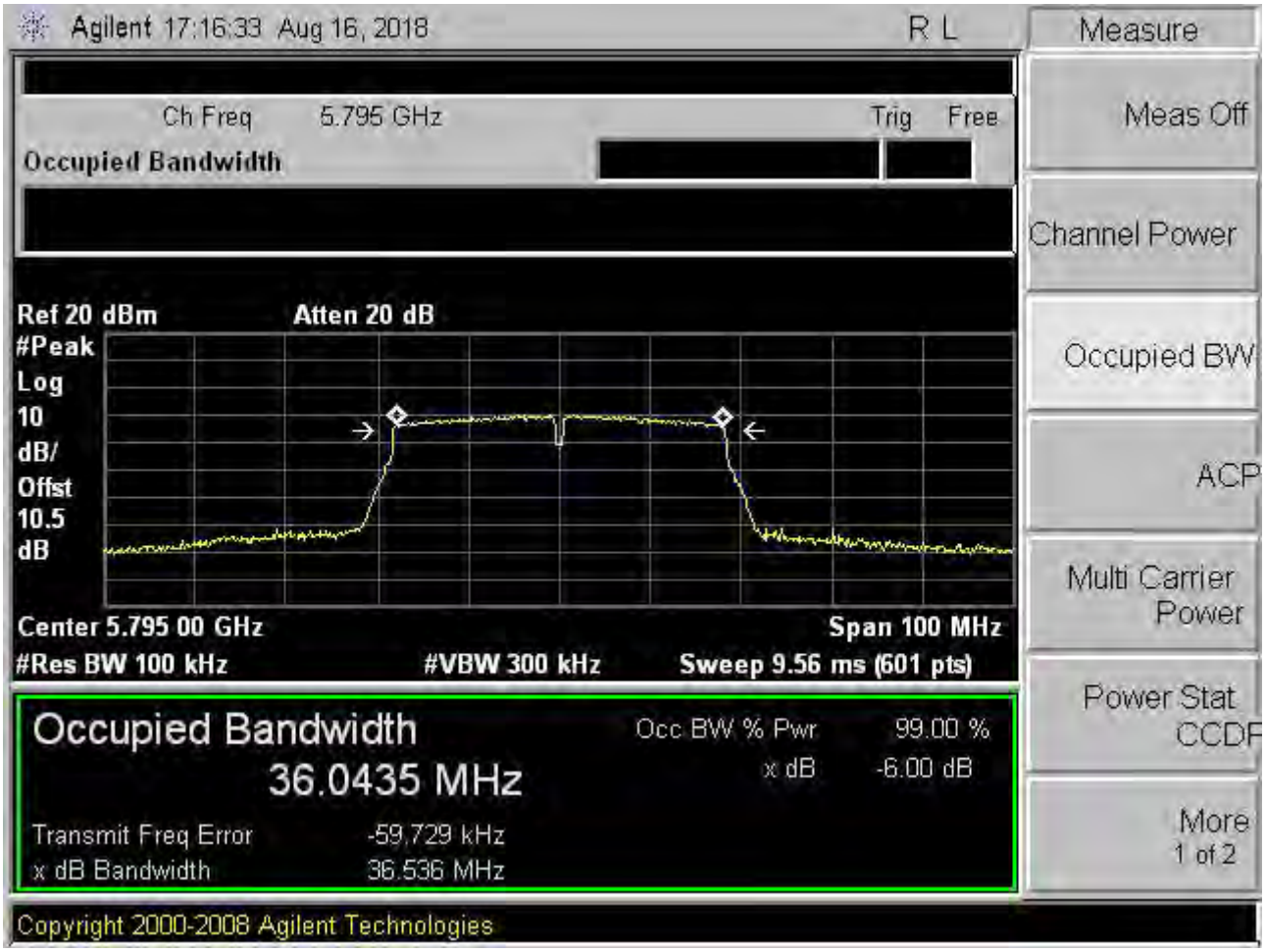
6.4.3.2 CHAIN 1

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

Channel	6dB Bandwidth (MHz)	NCC Limit (kHz)	Chart
L	36.579	500	Page 41
H	36.536	500	Page 42

註：1. 繪圖資料請參考第 41-42 頁。
2. 量測不準確度8.25×10^{-7}(1GHz≦f≦18GHz)


Agilent 17:10:03 Aug 16, 2018
R L
Measure
Ch Freq 5.755 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 5.755 00 GHz
Span 100 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 9.56 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.0892 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -41.781 kHz
x dB Bandwidth 36.579 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:16:33 Aug 16, 2018
R L
Measure
Ch Freq 5.795 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 5.795 00 GHz
Span 100 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 9.56 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
36.0435 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -59.729 kHz
x dB Bandwidth 36.536 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

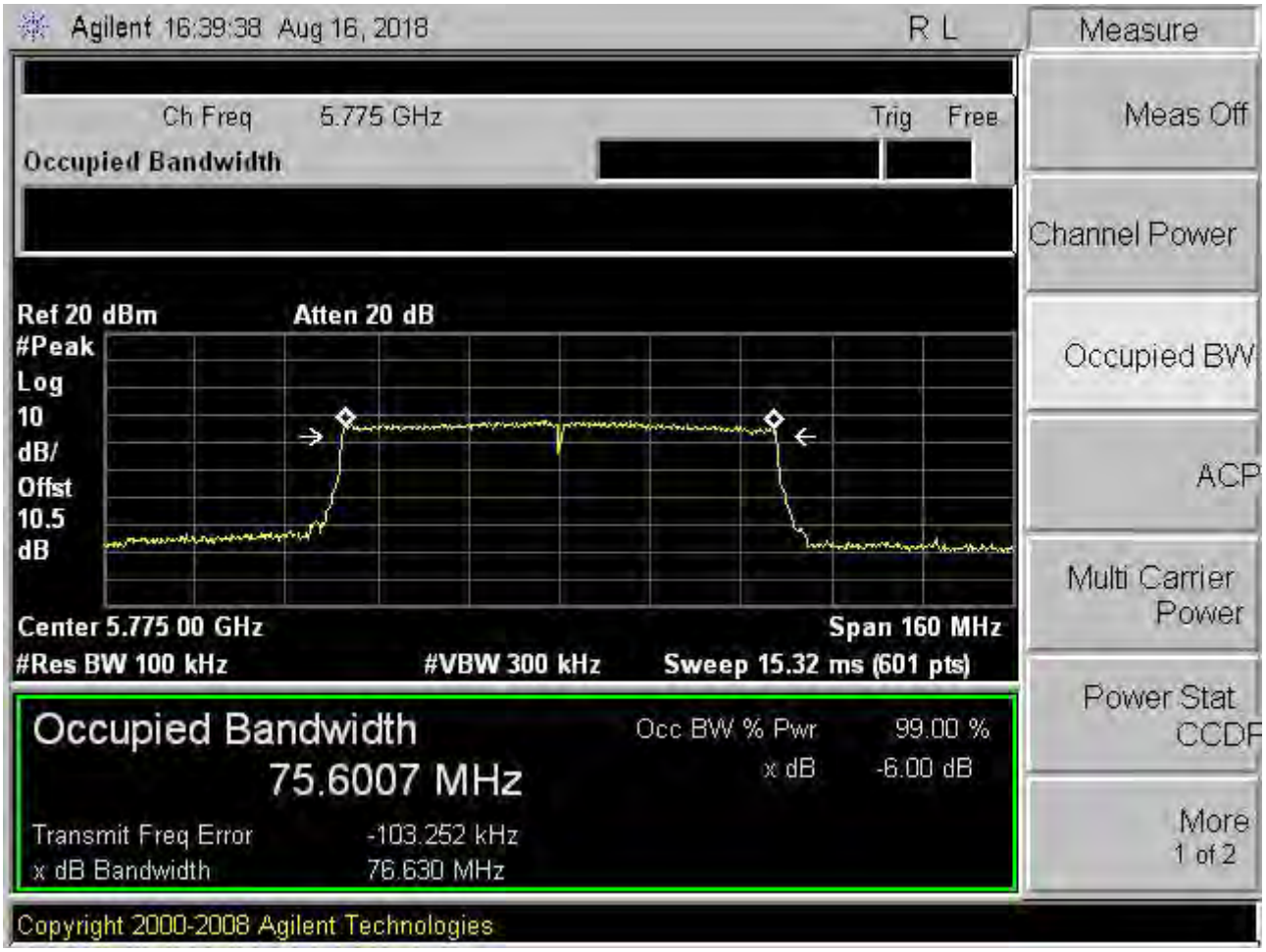
6.4.4 調變技術:IEEE 802.11ac HT80

6.4.4.1 CHAIN 0

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

Channel	6dB Bandwidth (MHz)	NCC Limit (kHz)	Chart
L	76.630	500	Page 44

註：1. 繪圖資料請參考第 44 頁。
2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)


Agilent 16:39:38 Aug 16, 2018
R L
Measure
Ch Freq 5.775 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 5.775 00 GHz
Span 160 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 15.32 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
75.6007 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -103.252 kHz
x dB Bandwidth 76.630 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

6.4.4.2 CHAIN 1

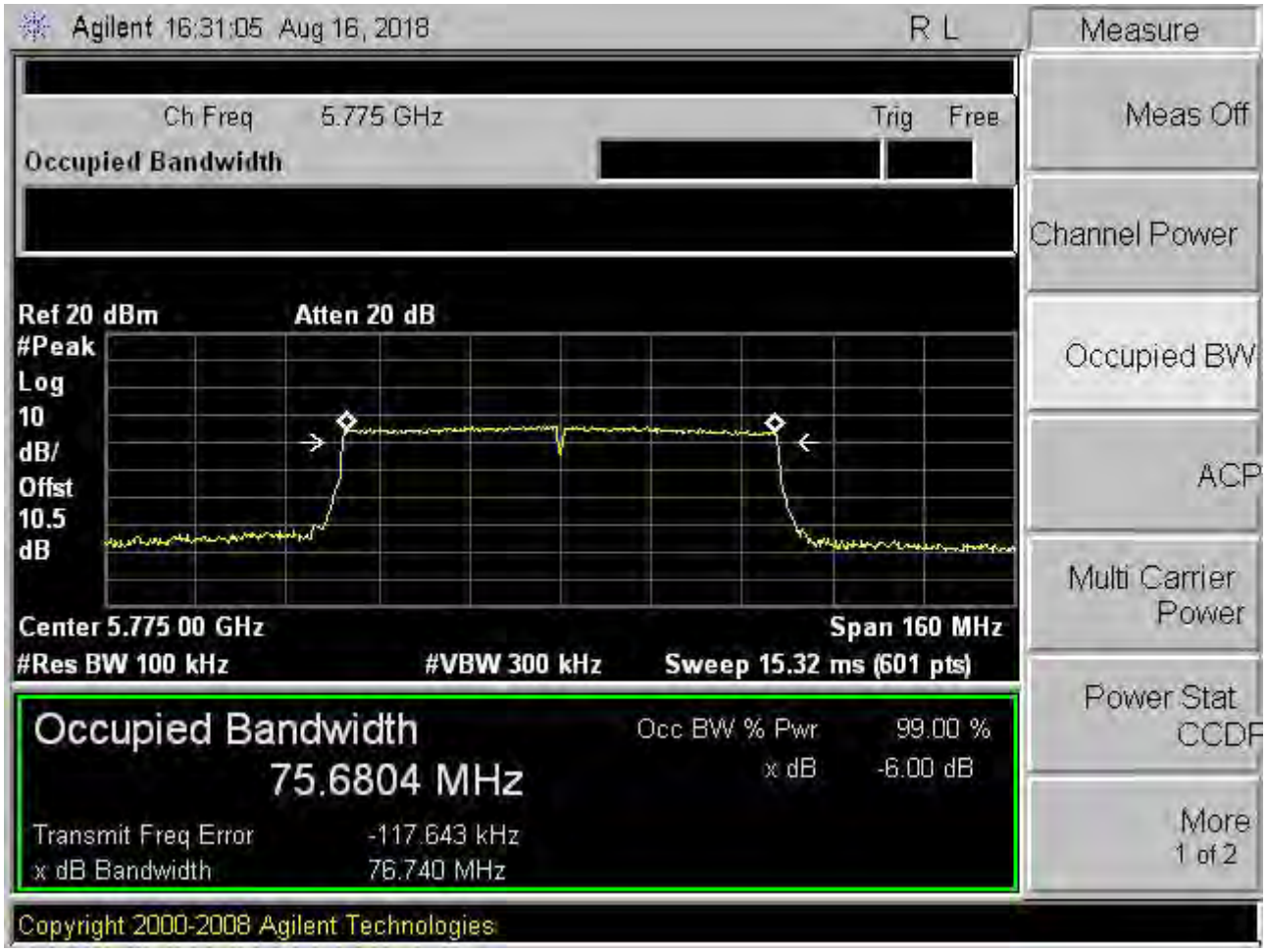
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

Channel	6dB Bandwidth (MHz)	NCC Limit (kHz)	Chart
L	76.740	500	Page 46

註：1. 繪圖資料請參考第 46 頁。
2. 量測不準確度 8.25×10^{-7} (1GHz≦f≦18GHz)

6.5 結果判定

高、中、低頻段的 6dB 頻寬皆大於 500KHz。


Agilent 16:31:05 Aug 16, 2018
R L
Measure
Ch Freq 5.775 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 5.775 00 GHz
Span 160 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 15.32 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
75.6804 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -117.643 kHz
x dB Bandwidth 76.740 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4.7.3.3節之規定，操作於5.725~5850GHz之頻段，最大傳導輸出功率應小於或等於1 W。

操作於5725-5850兆赫(MHz)者，依法規4.7.3.3(3)供固定式點對點操作時，使用方向增益超過6 dBi 之發射天線，可不需對應減少發射器之傳導輸出功率限制值。

依法規4.7.3.3 (4) 除(3)外，使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

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

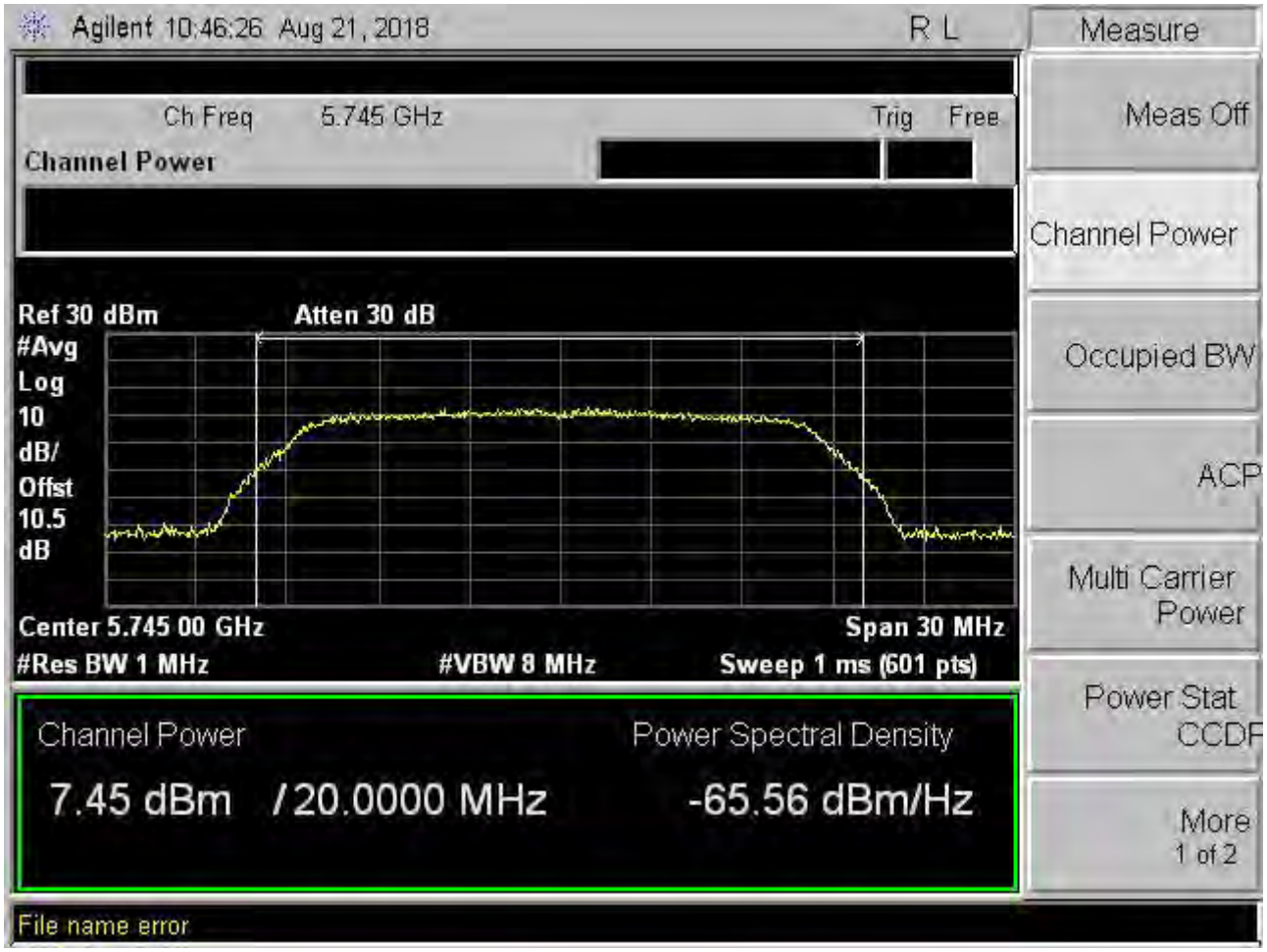
7.4.1.1 CHAIN 0

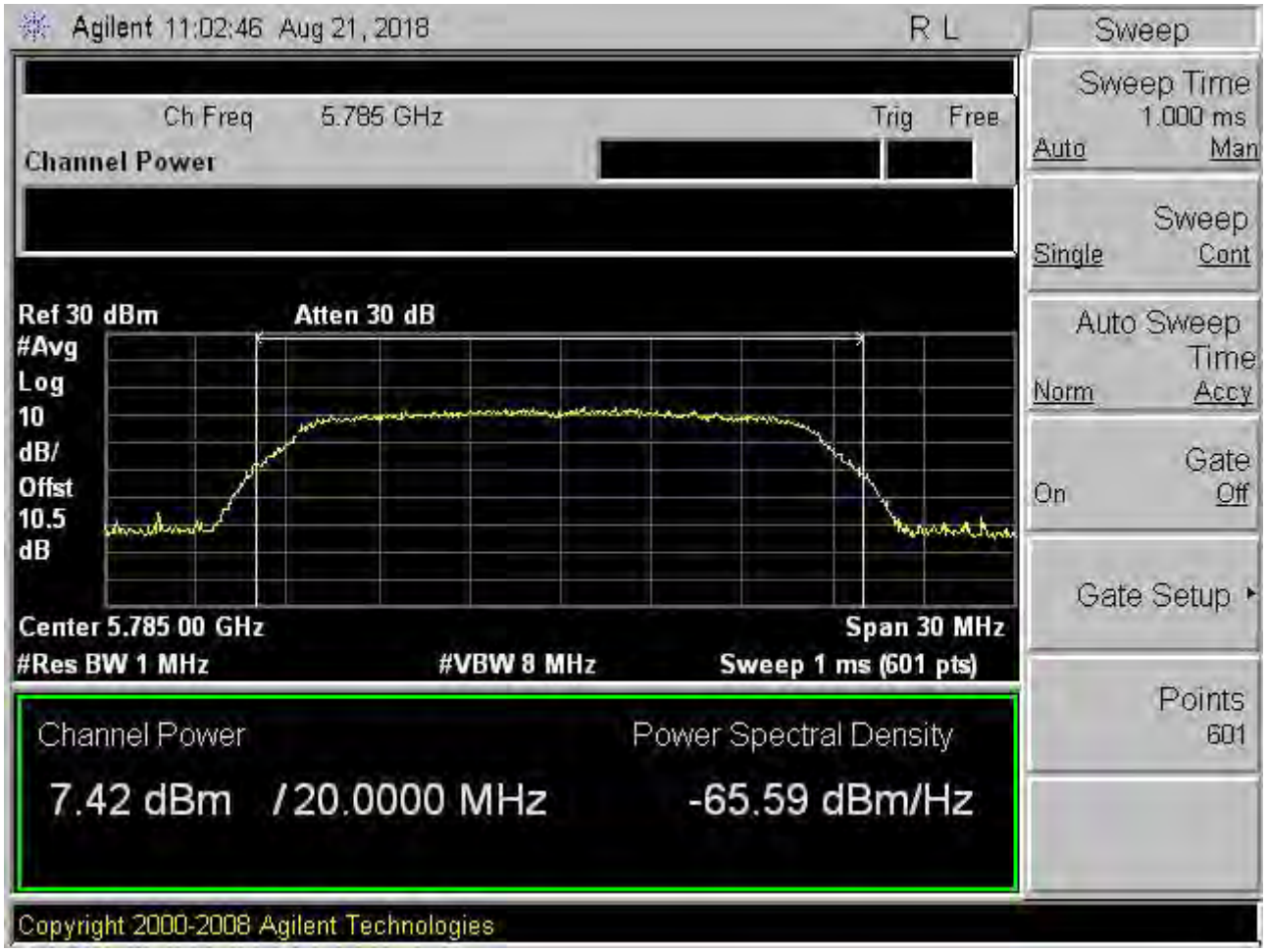
測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

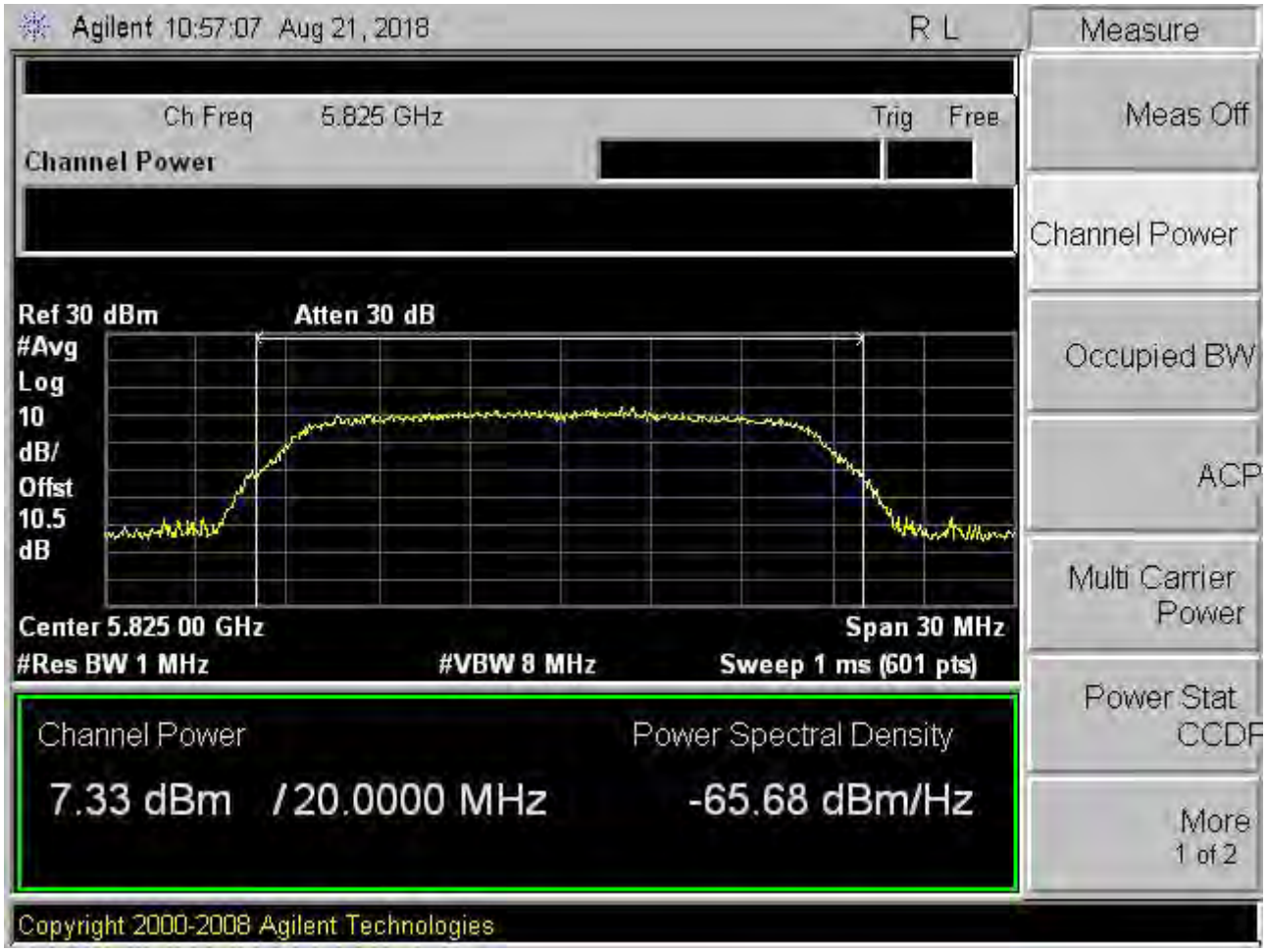
天線增益最大值為 5 dBi，NCC Limit 如下表所示：

Channel	Maximum Output Power (dBm)	NCC Limit (dBm)	Chart
L	7.45	30	Page 49
M	7.42	30	Page 50
H	7.33	30	Page 51

註：1. 繪圖資料請參考第 49-51 頁。
2. 最大傳導輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。
3. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 10:46:26 Aug 21, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.45 dBm / 20.0000 MHz
-65.56 dBm/Hz
File name error


Agilent 11:02:46 Aug 21, 2018
R L
Sweep
Ch Freq 5.785 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 5.785 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Points
601
Channel Power
Power Spectral Density
7.42 dBm / 20.0000 MHz
-65.59 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 10:57:07 Aug 21, 2018
R L
Measure
Ch Freq 5.825 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 5.825 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.33 dBm / 20.0000 MHz
-65.68 dBm/Hz
Copyright 2000-2008 Agilent Technologies

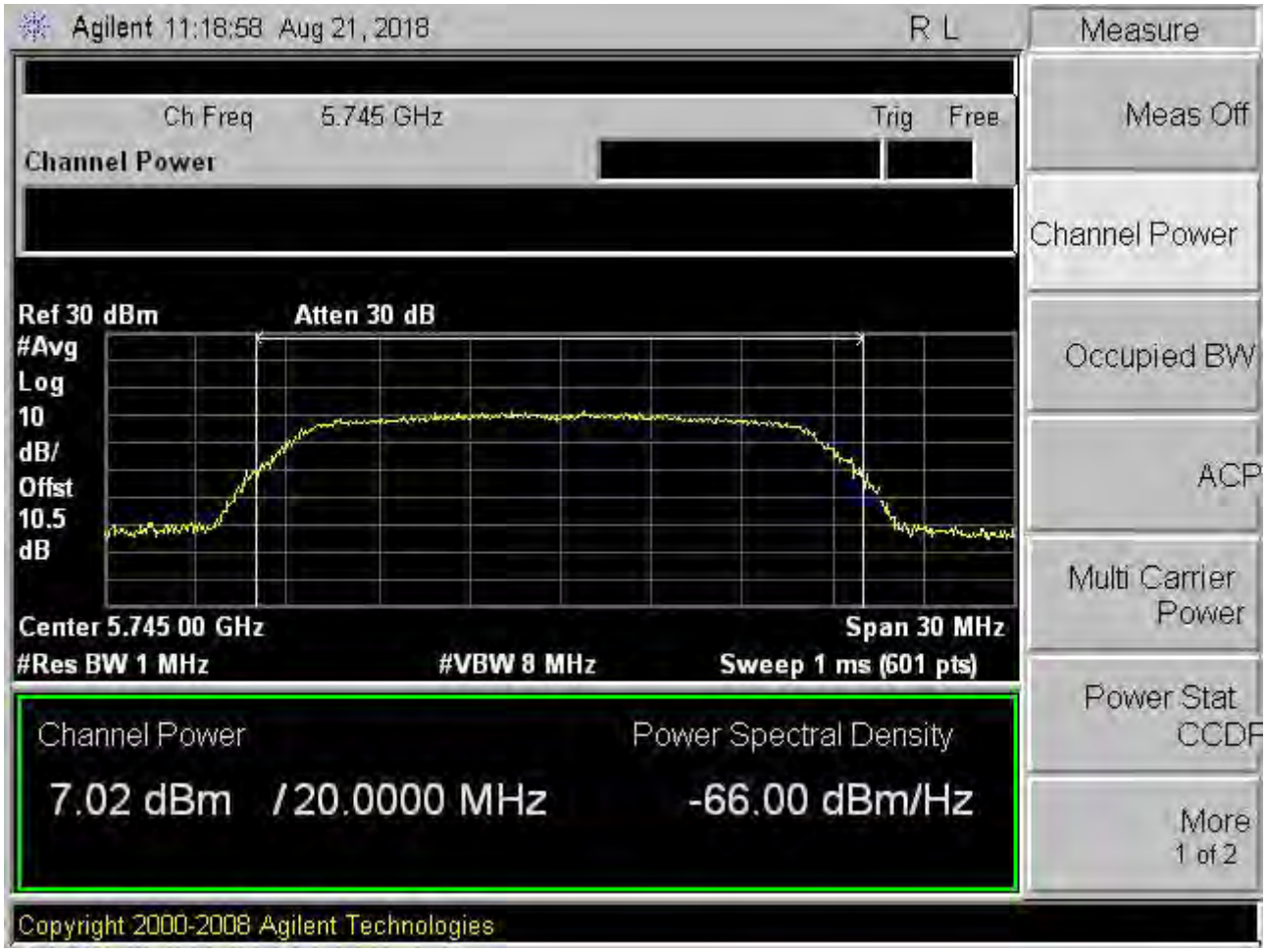
7.4.1.2 CHAIN 1

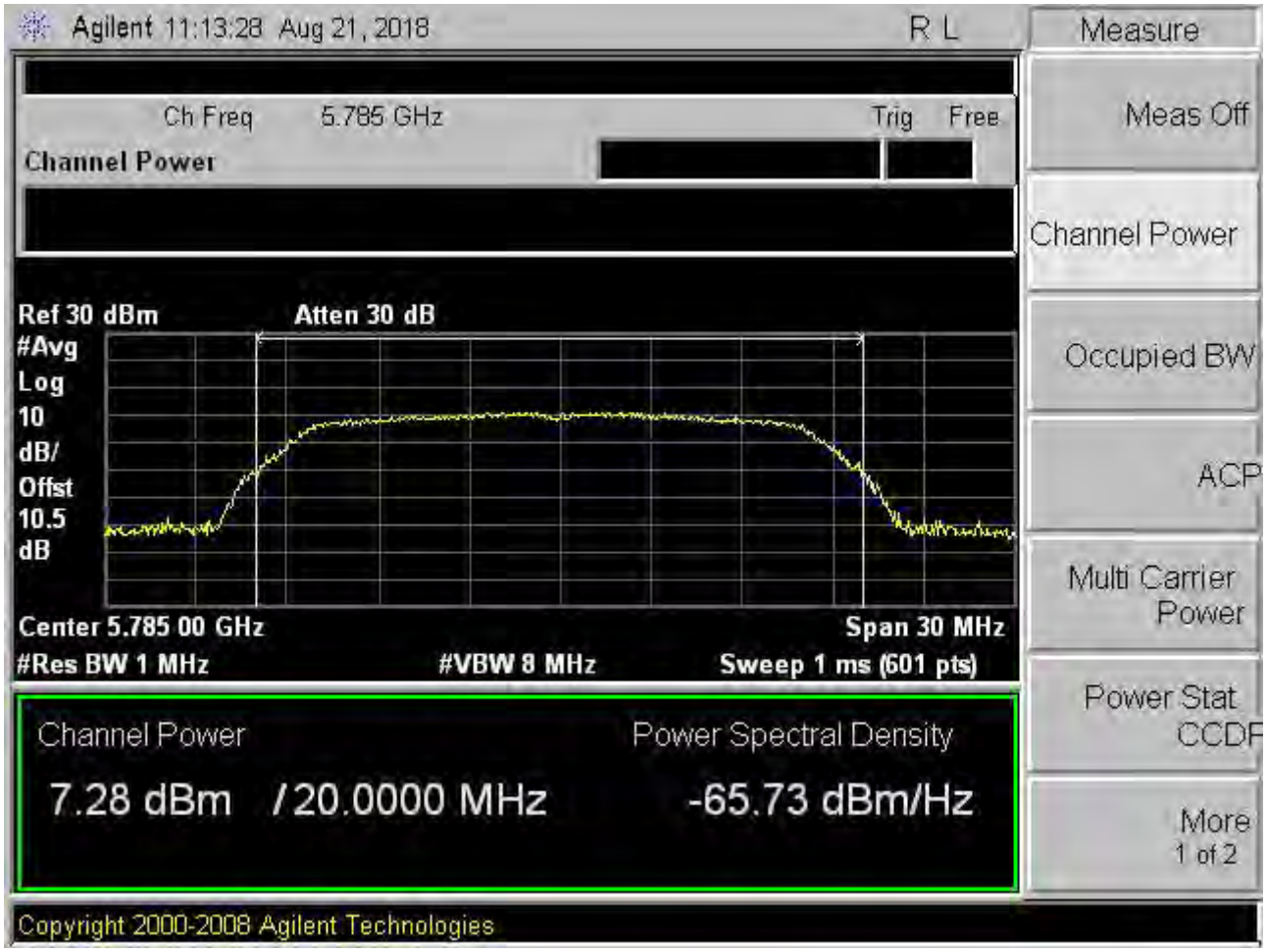
測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

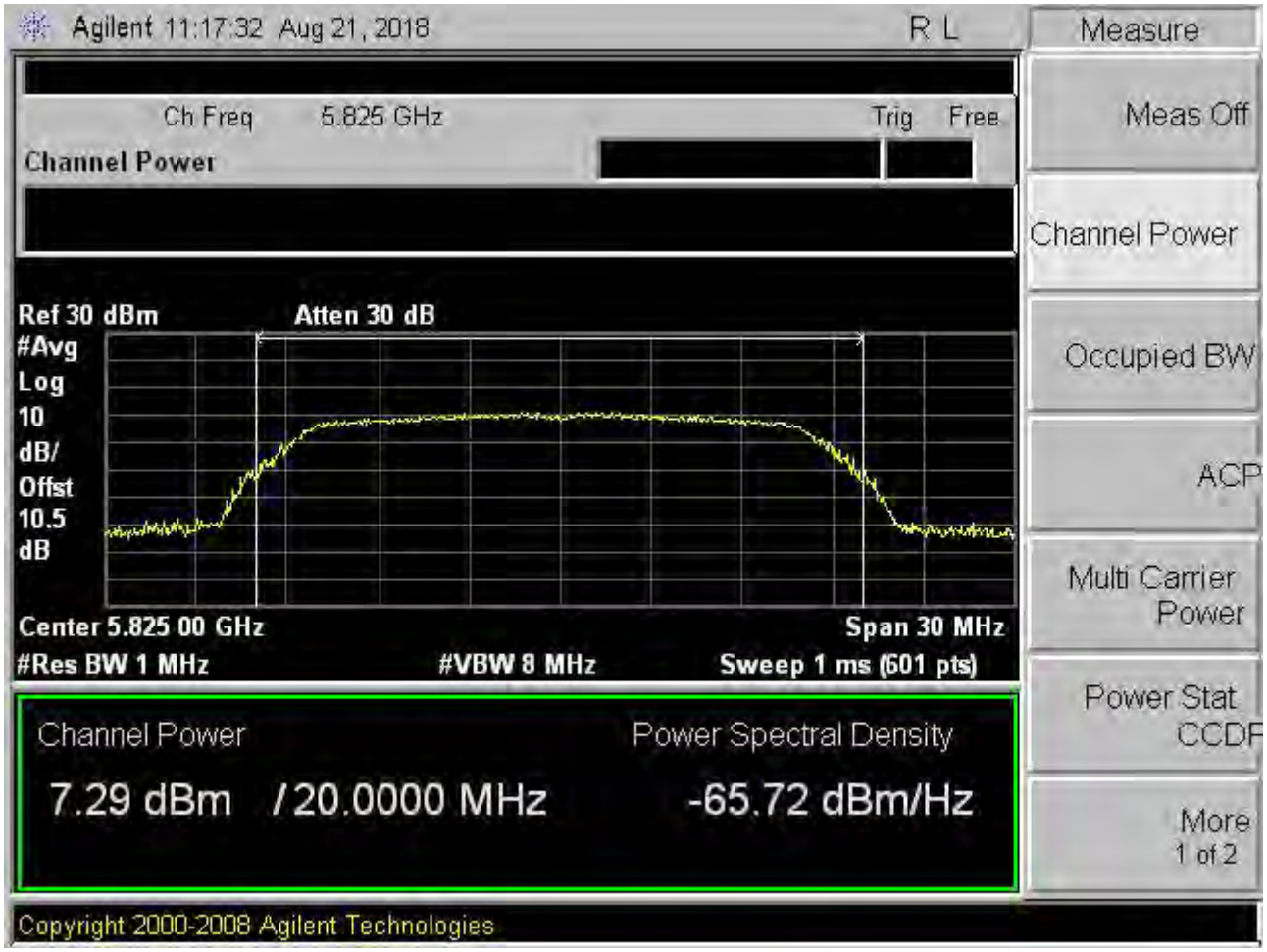
天線增益最大值為 5.6 dBi，NCC Limit 如下表所示：

Channel	Maximum Output Power (dBm)	NCC Limit (dBm)	Chart
L	7.02	30	Page 53
M	7.28	30	Page 54
H	7.29	30	Page 55

註：1. 繪圖資料請參考第 53-55 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 11:18:58 Aug 21, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.02 dBm / 20.0000 MHz
-66.00 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 11:13:28 Aug 21, 2018
R L
Measure
Ch Freq 5.785 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 5.785 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.28 dBm / 20.0000 MHz
-65.73 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 11:17:32 Aug 21, 2018
R L
Measure
Ch Freq 5.825 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 5.825 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.29 dBm / 20.0000 MHz
-65.72 dBm/Hz
Copyright 2000-2008 Agilent Technologies

7.4.2 調變技術: IEEE 802.11an HT20

7.4.2.1 CHAIN 0

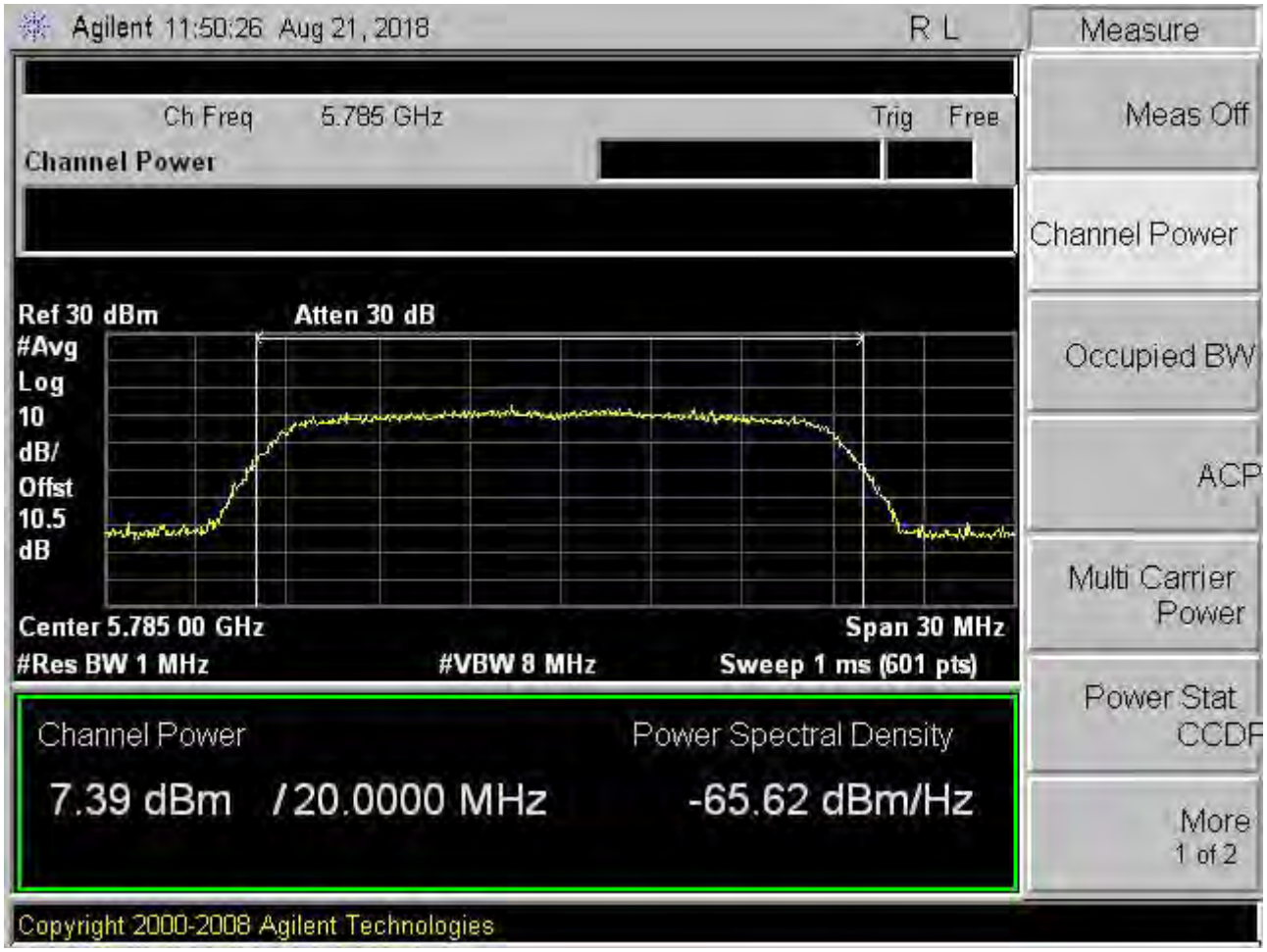
測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

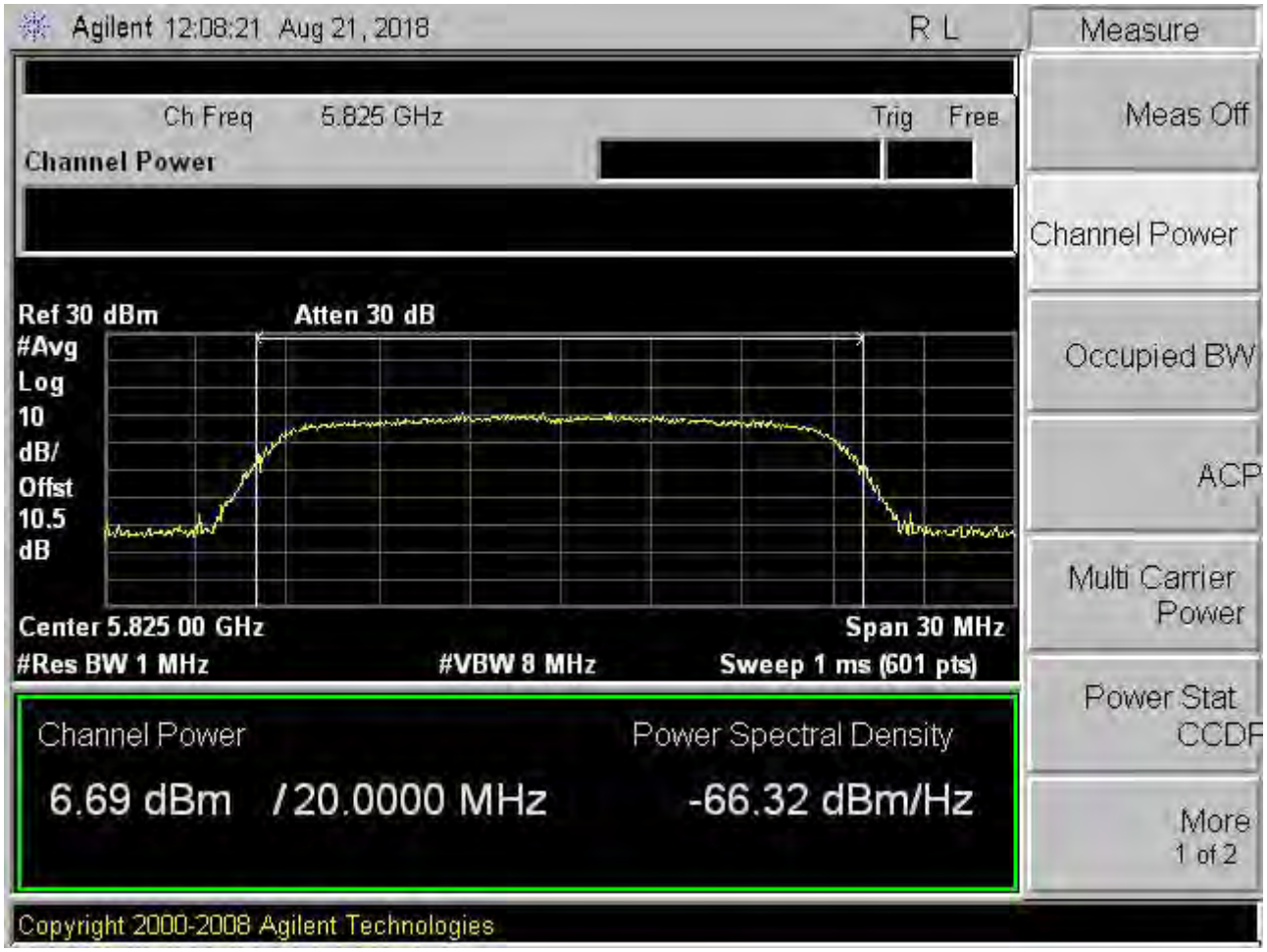
天線增益最大值為 5 dBi，NCC Limit 如下表所示：

Channel	Maximum Output Power (dBm)	NCC Limit (dBm)	Chart
L	7.23	30	Page 57
M	7.39	30	Page 58
H	6.69	30	Page 59

註：1. 繪圖資料請參考第 57-59 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 11:38:13 Aug 21, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.23 dBm / 20.0000 MHz
-65.78 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 11:50:26 Aug 21, 2018
R L
Measure
Ch Freq 5.785 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 5.785 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.39 dBm / 20.0000 MHz
-65.62 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 12:08:21 Aug 21, 2018
R L
Measure
Ch Freq 5.825 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 5.825 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
6.69 dBm / 20.0000 MHz
-66.32 dBm/Hz
Copyright 2000-2008 Agilent Technologies

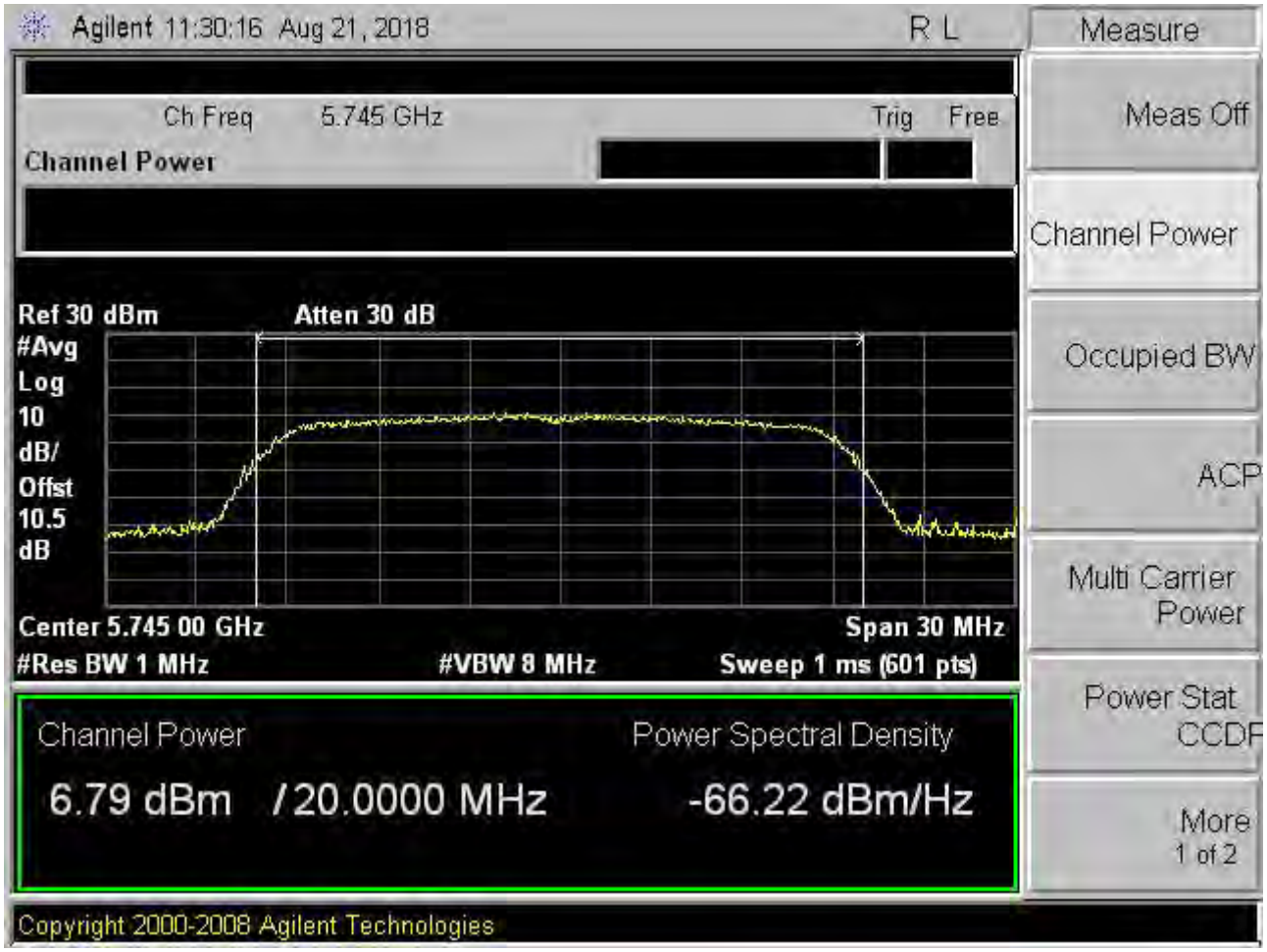
7.4.2.2 CHAIN 1

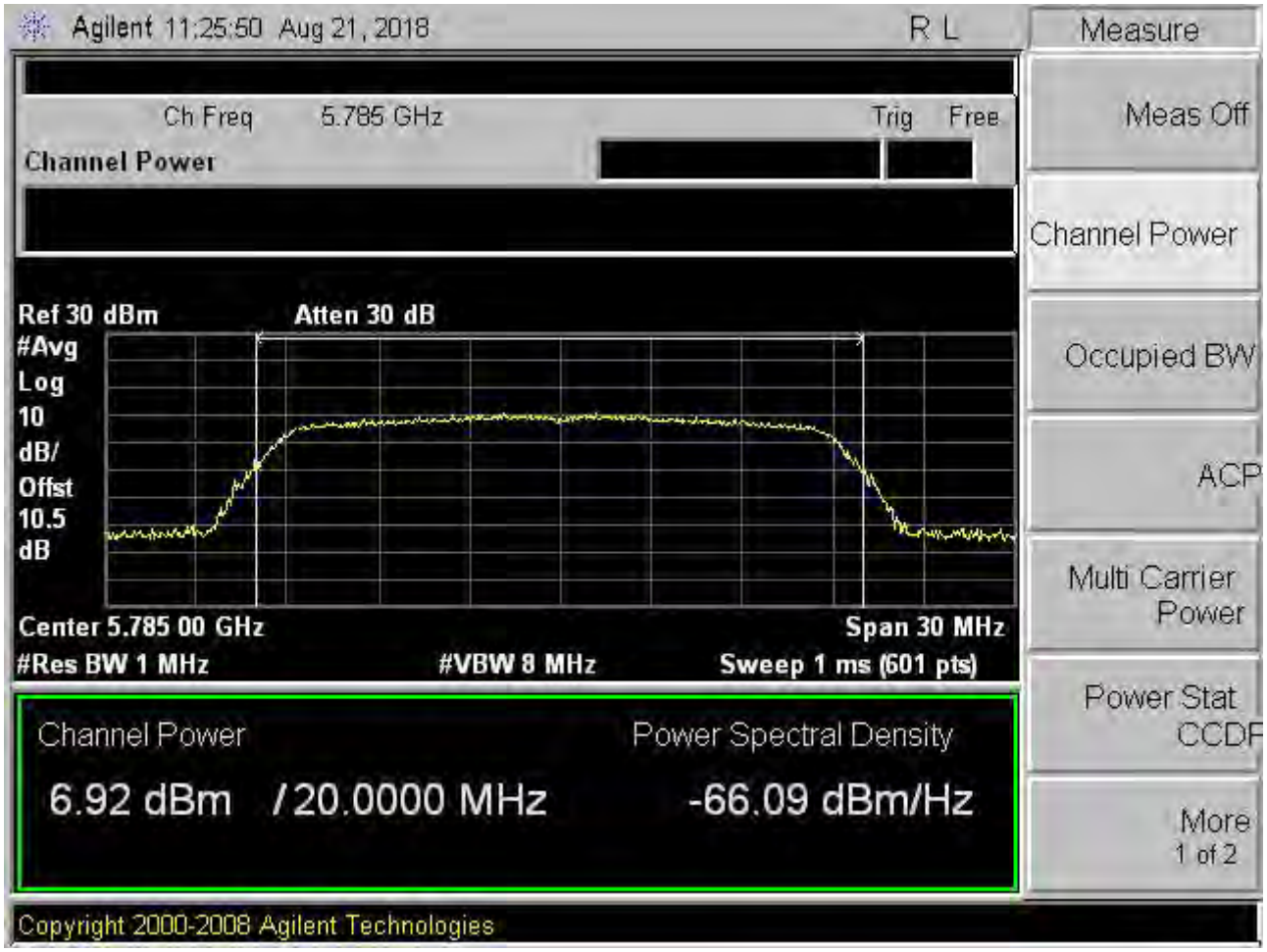
測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 dBi，NCC Limit 如下表所示：

Channel	Maximum Output Power (dBm)	NCC Limit (dBm)	Chart
L	6.79	30	Page 61
M	6.92	30	Page 62
H	6.72	30	Page 63

註：1. 繪圖資料請參考第 61-63 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 11:30:16 Aug 21, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
6.79 dBm / 20.0000 MHz
-66.22 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 11:25:50 Aug 21, 2018
R L
Measure
Ch Freq 5.785 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 5.785 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
6.92 dBm / 20.0000 MHz
-66.09 dBm/Hz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 11:28:23 Aug 21, 2018
R L
Measure
Ch Freq 5.825 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 5.825 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
6.72 dBm / 20.0000 MHz
-66.29 dBm/Hz
Copyright 2000-2008 Agilent Technologies

7.4.2.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 21, 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 Peak Output Power (dBm)	CHAIN 1 Maximum Peak Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)
L	7.23	6.79	10.03	27.68
M	7.39	6.92	10.17	27.68
H	7.49	6.72	10.13	27.68

註:

1. 最大峰值輸出功率 (Maximum Peak Output Power) 為經儀器校正補償過後的結果值。
2. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
4. NCC Limit (dBm)=10 log NCC Limit (mW)
5. 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

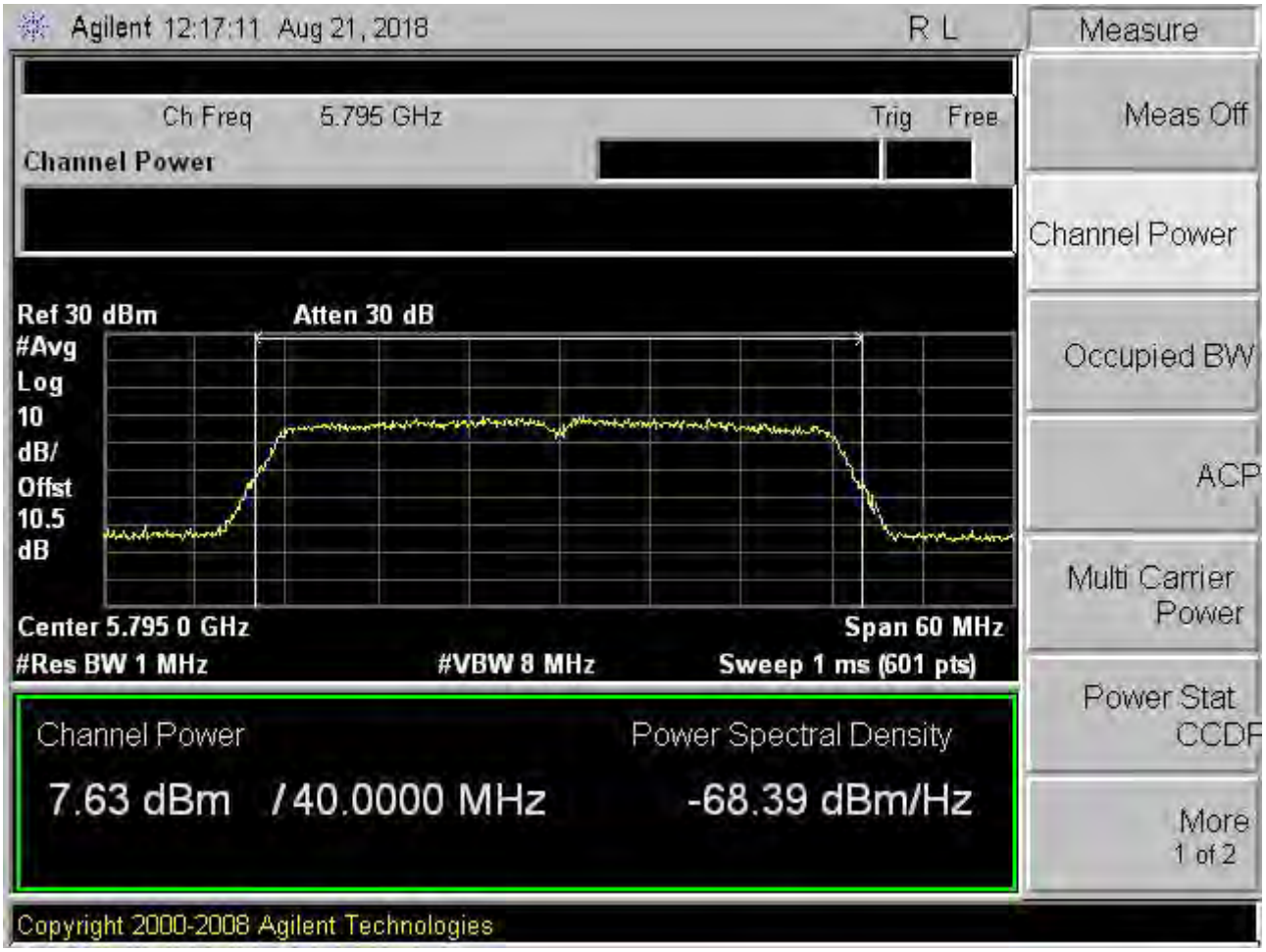
測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 dBi，NCC Limit 如下表所示：

Channel	Maximum Peak Output Power (dBm)	NCC Limit (dBm)	Chart
L	7.51	30	Page 66
H	7.63	30	Page 67

註：1. 繪圖資料請參考第 66-67 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 12:18:50 Aug 21, 2018
R L
Measure
Ch Freq 5.755 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 5.755 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.51 dBm / 40.0000 MHz
-68.51 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 12:17:11 Aug 21, 2018
R L
Measure
Ch Freq 5.795 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 5.795 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
7.63 dBm / 40.0000 MHz
-68.39 dBm/Hz
More 1 of 2
Copyright 2000-2008 Agilent Technologies

7.4.3.2 CHAIN 1

測試日期: Aug. 21, 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	Maximum Peak Output Power (dBm)	NCC Limit (dBm)	Chart
L	7.02	30	Page 69
H	7.22	30	Page 70

註：1. 繪圖資料請參考第 69-70 頁。

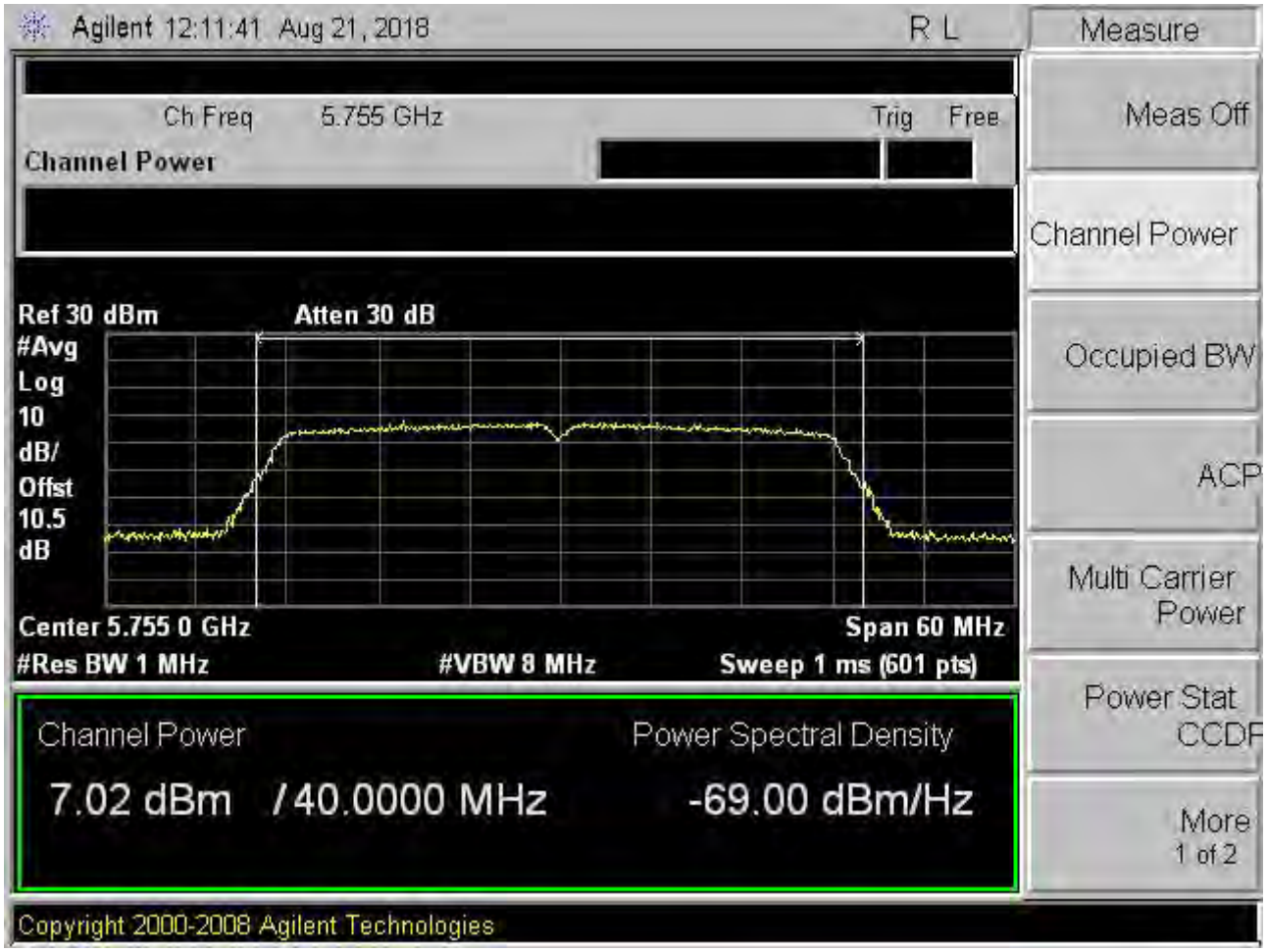
2. 最大傳導輸出功率 (Maximum Output Power) 為經儀器校正補償過後的結果值。

3. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm

4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

5. NCC Limit (dBm)=10 log NCC Limit (mW)

1GHz≦f≦18GHz)


Agilent 12:11:41 Aug 21, 2018
R L
Measure
Ch Freq 5.755 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 5.755 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
7.02 dBm / 40.0000 MHz
-69.00 dBm/Hz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

Agilent 12:14:03 Aug 21, 2018
R L
Measure
Ch Freq 5.795 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 5.795 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.22 dBm / 40.0000 MHz
-68.80 dBm/Hz
Copyright 2000-2008 Agilent Technologies

7.4.3.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 21, 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 Peak Output Power (dBm)	CHAIN 1 Maximum Peak Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)
L	7.51	7.02	10.28	27.68
H	7.63	7.22	10.44	27.68

註:

1. 最大峰值輸出功率 (Maximum Peak Output Power) 為經儀器校正補償過後的結果值。
2. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
4. NCC Limit (dBm)=10 log NCC Limit (mW)

1GHz≦f≦18GHz)

7.4.4 調變技術: IEEE 802.11ac HT20

測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

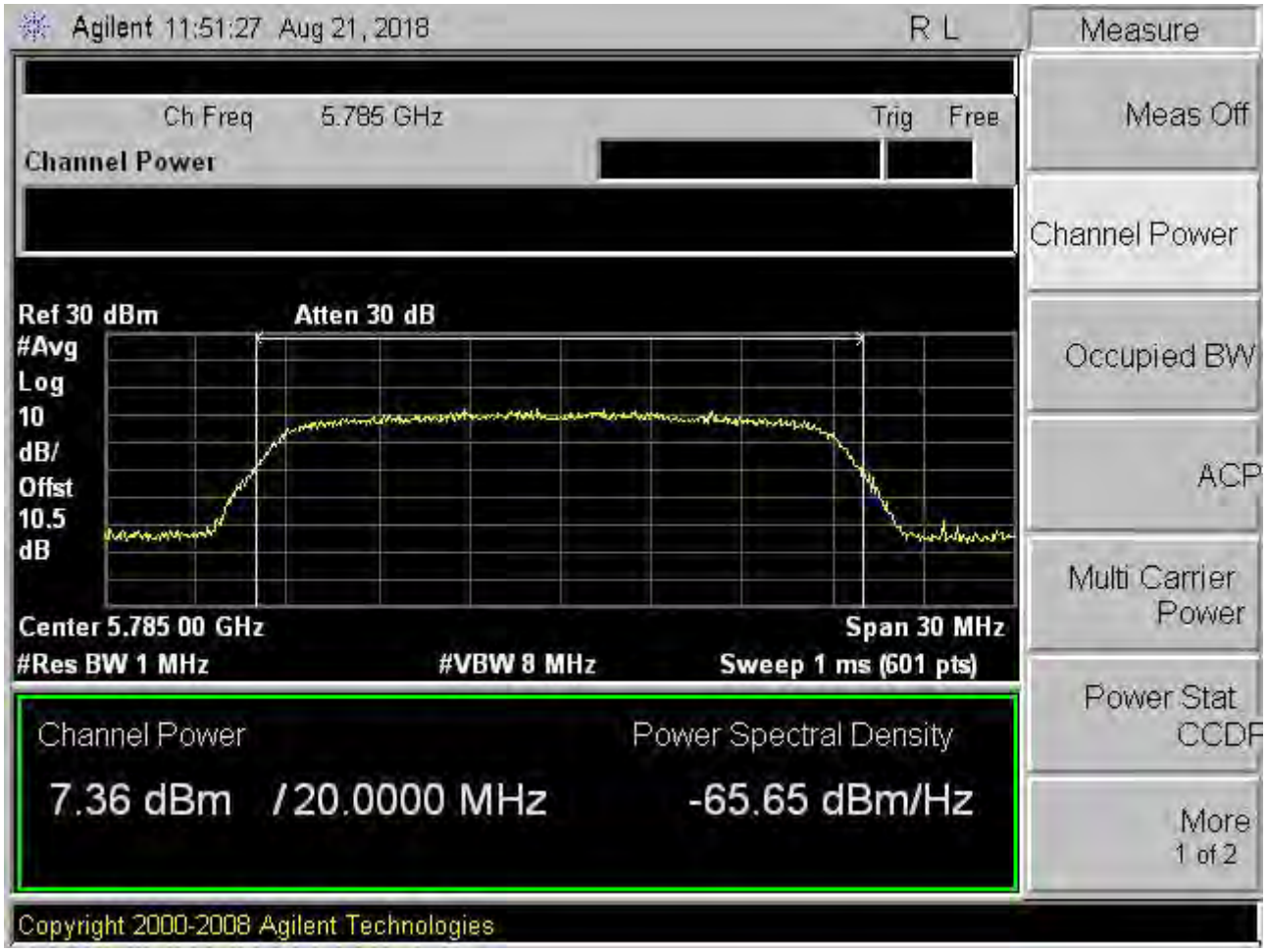
天線增益最大值為 5 dBi，NCC Limit 如下表所示：

7.4.4.1 CHAIN 0

Channel	Maximum Peak Output Power (dBm)	NCC Limit (dBm)	Chart
L	7.22	30	Page 73
M	7.36	30	Page 74
H	7.35	30	Page 75

註：1. 繪圖資料請參考第 73-75 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 11:53:18 Aug 21, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.22 dBm / 20.0000 MHz
-65.79 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 11:51:27 Aug 21, 2018
R L
Measure
Ch Freq 5.785 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 5.785 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.36 dBm / 20.0000 MHz
-65.65 dBm/Hz
Copyright 2000-2008 Agilent Technologies

Agilent 11:48:01 Aug 21, 2018
R L
Ch Freq 5.825 GHz
Trig Free
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Center 5.825 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.35 dBm / 20.0000 MHz
-65.66 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

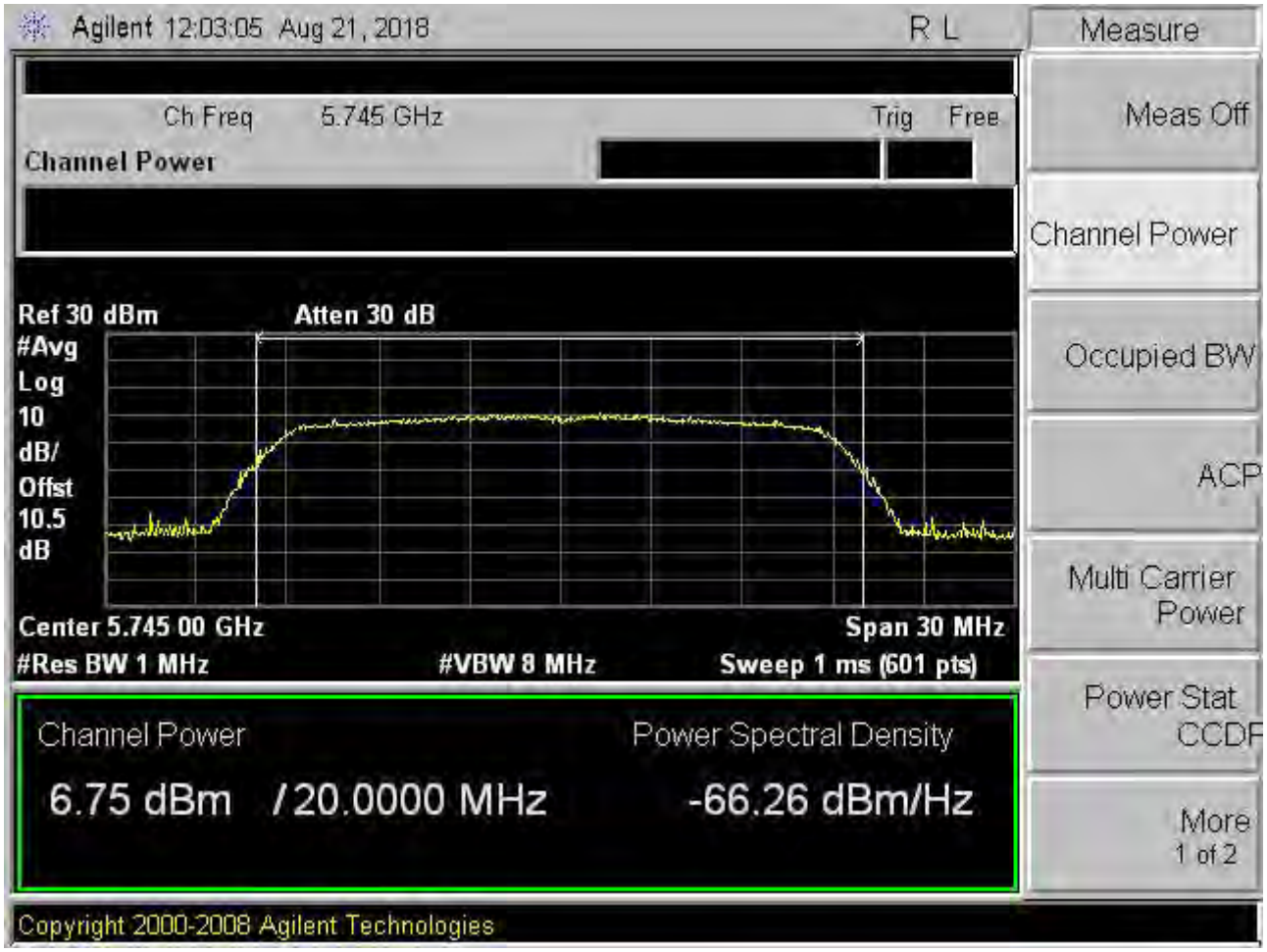
7.4.4.2 CHAIN 1

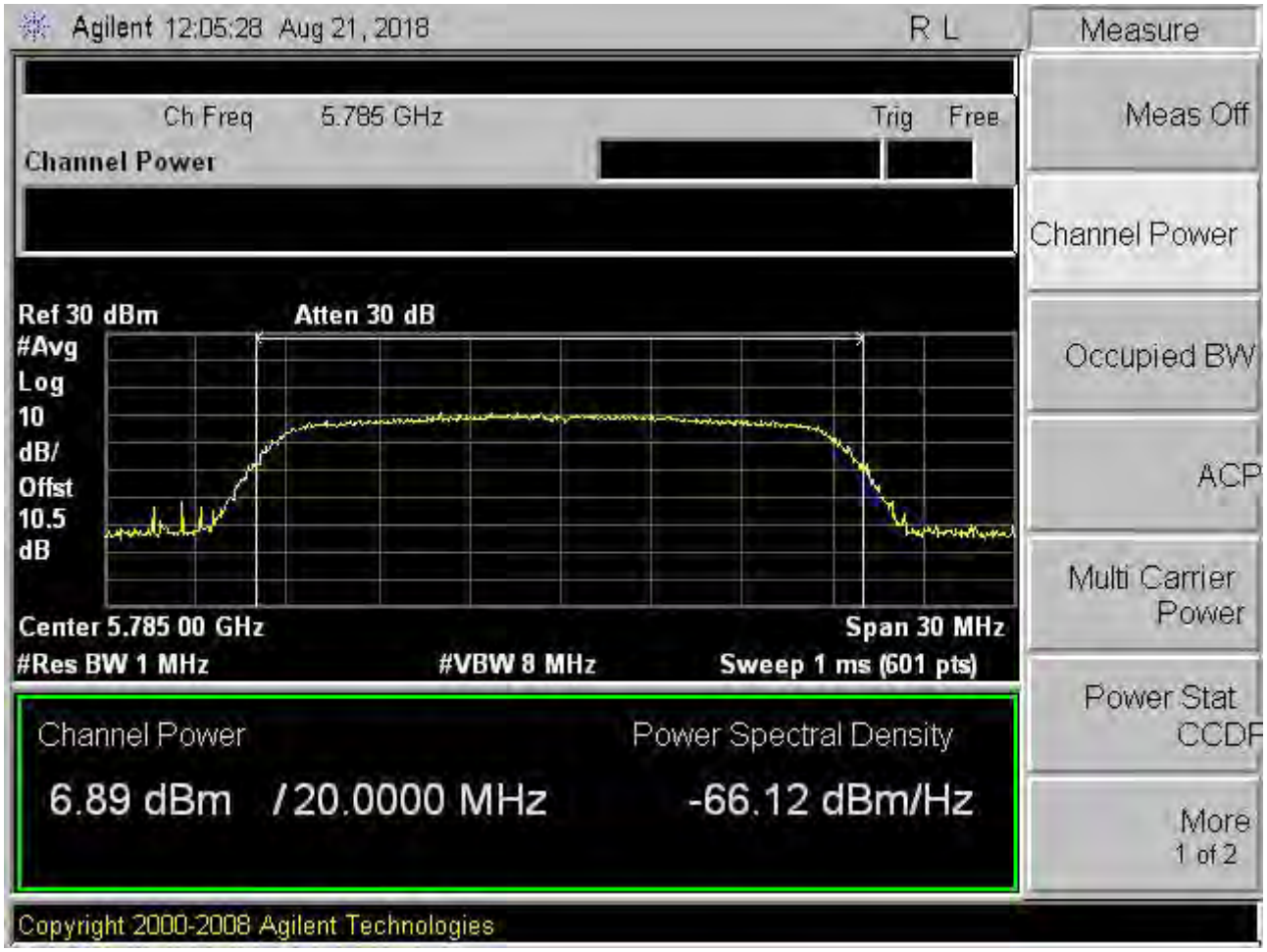
測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

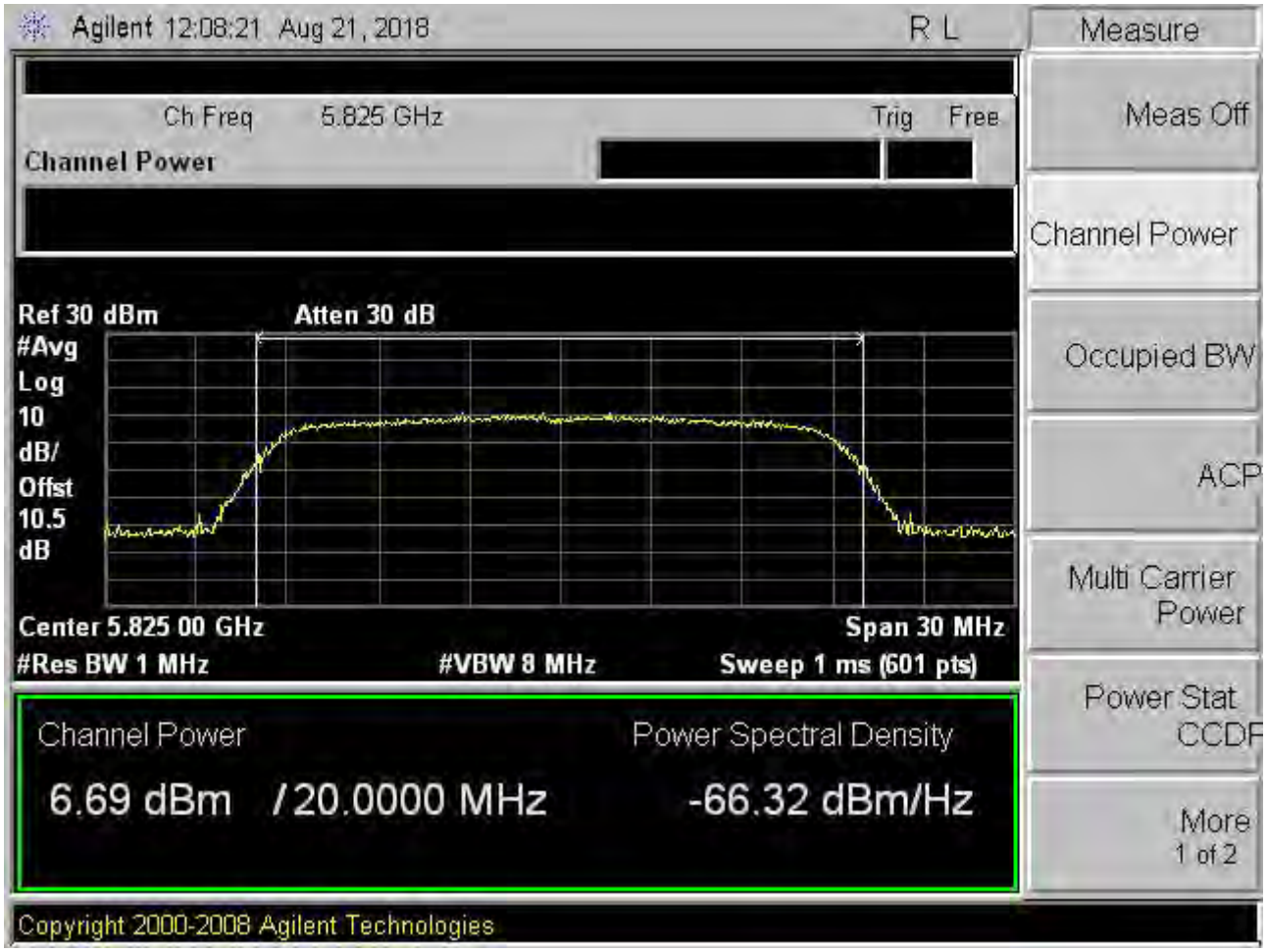
天線增益最大值為 5.6 dBi，NCC Limit 如下表所示：

Channel	Maximum Peak Output Power (dBm)	NCC Limit (dBm)	Chart
L	6.75	30	Page 77
M	6.89	30	Page 78
H	6.69	30	Page 79

註：1. 繪圖資料請參考第 77-79 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 12:03:05 Aug 21, 2018
R L
Measure
Ch Freq 5.745 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 5.745 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
6.75 dBm / 20.0000 MHz
-66.26 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 12:05:28 Aug 21, 2018
R L
Measure
Ch Freq 5.785 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 5.785 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
6.89 dBm / 20.0000 MHz
-66.12 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 12:08:21 Aug 21, 2018
R L
Measure
Ch Freq 5.825 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 5.825 00 GHz
Span 30 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
6.69 dBm / 20.0000 MHz
-66.32 dBm/Hz
Copyright 2000-2008 Agilent Technologies

7.4.4.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 21, 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 Peak Output Power (dBm)	CHAIN 1 Maximum Peak Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)
L	7.22	6.75	10.00	27.68
M	7.36	6.89	10.14	27.68
H	7.35	6.69	10.04	27.68

註:

1. 最大峰值輸出功率 (Maximum Peak Output Power) 為經儀器校正補償過後的結果值。
2. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
4. NCC Limit (dBm)=10 log NCC Limit (mW)
5. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

7.4.5 調變技術: IEEE 802.11ac HT40

7.4.5.1 CHAIN 0

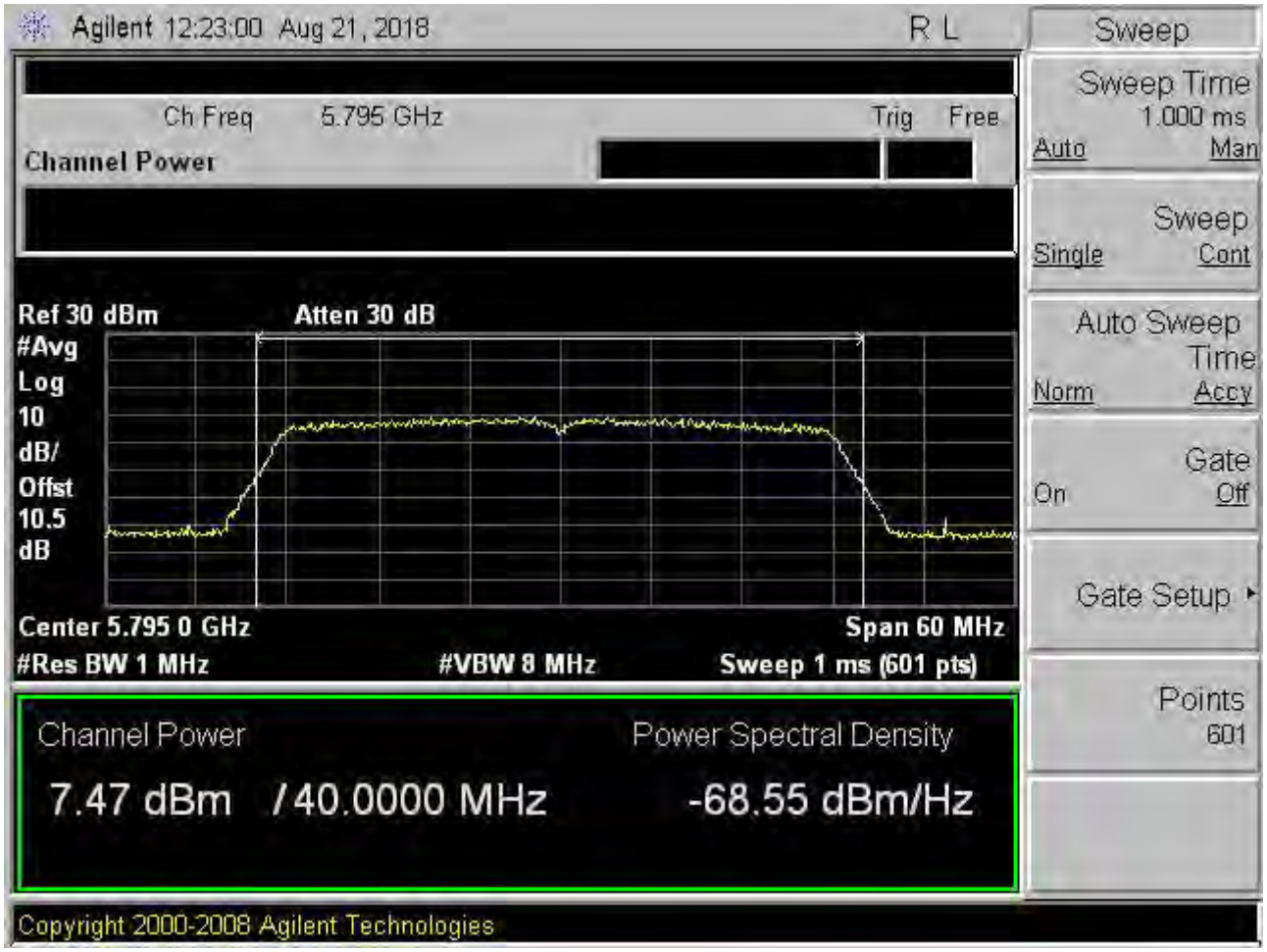
測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5 dBi，NCC Limit 如下表所示：

Channel	Maximum Peak Output Power (dBm)	NCC Limit (dBm)	Chart
L	7.30	30	Page 82
H	7.47	30	Page 83

註：1. 繪圖資料請參考第 82-83 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

Agilent 12:20:36 Aug 21, 2018
R L
Measure
Ch Freq 5.755 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 5.755 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.30 dBm / 40.0000 MHz
-68.72 dBm/Hz
Copyright 2000-2008 Agilent Technologies


Agilent 12:23:00 Aug 21, 2018
R L
Ch Freq 5.795 GHz
Trig Free
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Center 5.795 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
7.47 dBm / 40.0000 MHz
Power Spectral Density
-68.55 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

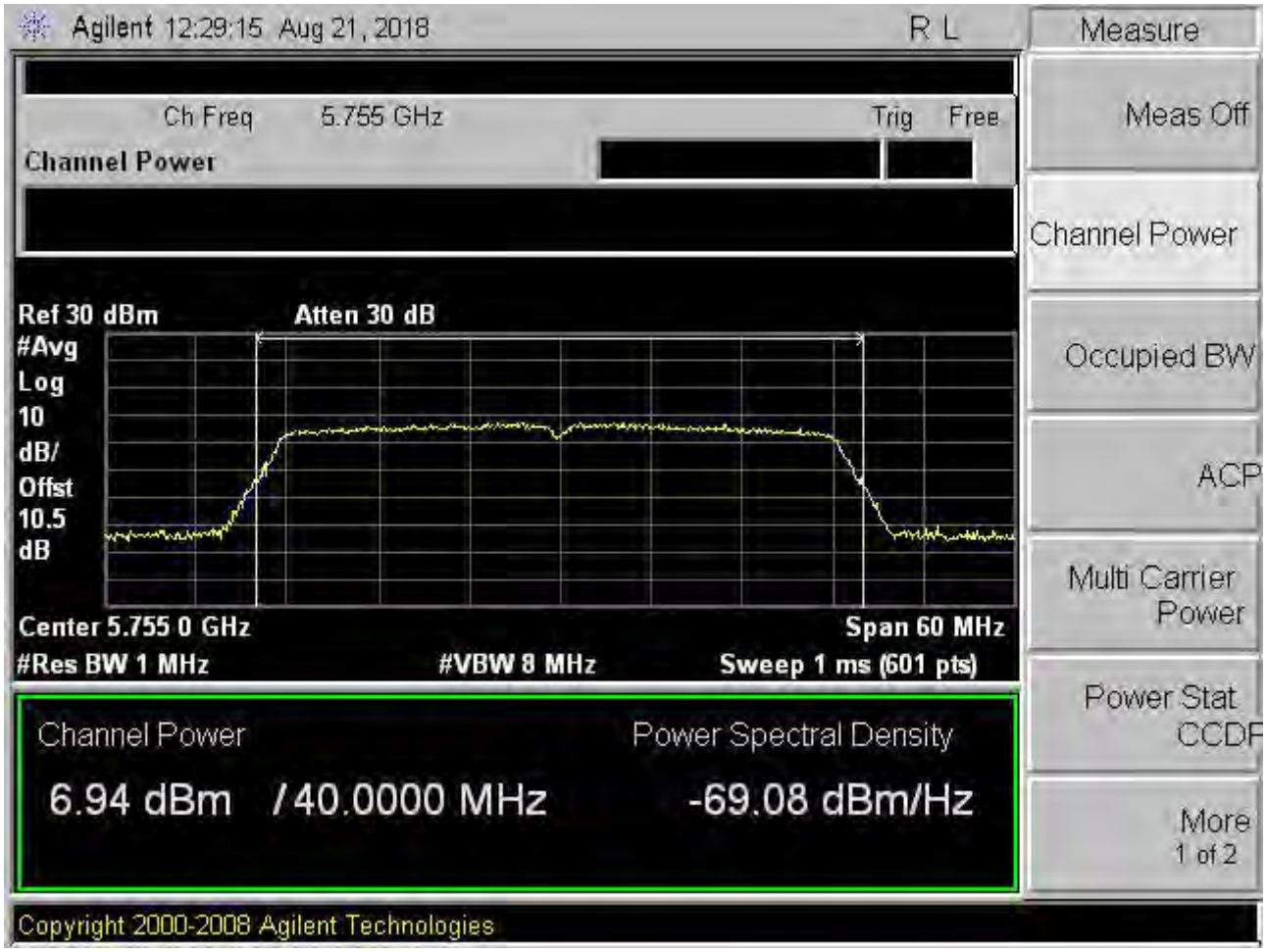
7.4.5.2 CHAIN 1

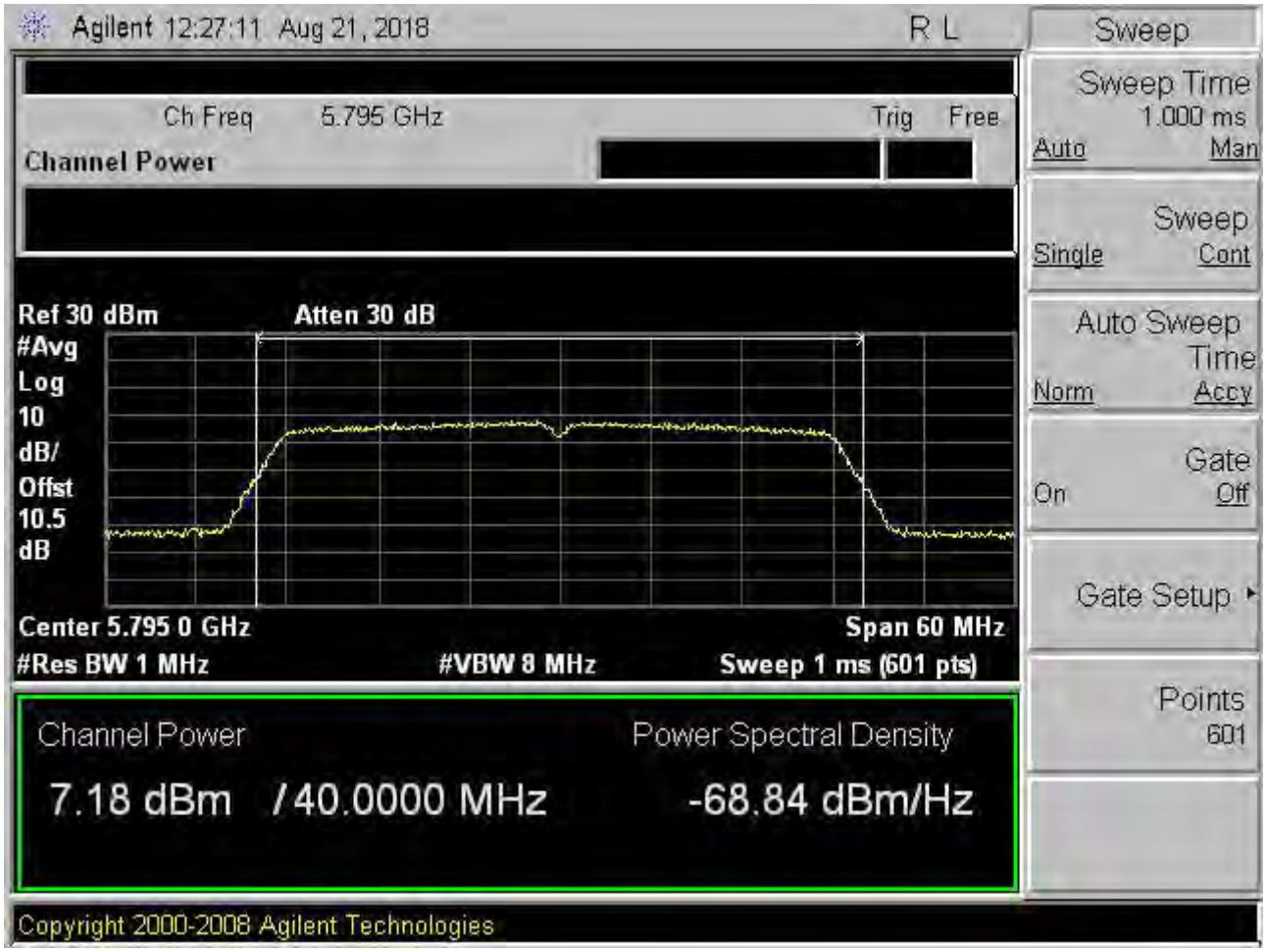
測試日期: Aug. 21, 2018 環境溫度: 24℃ 環境濕度: 60%

天線增益最大值為 5.6 dBi，NCC Limit 如下表所示：

Channel	Maximum Peak Output Power (dBm)	NCC Limit (dBm)	Chart
L	6.94	30	Page 85
H	7.18	30	Page 86

註：1. 繪圖資料請參考第 85-86 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 12:29:15 Aug 21, 2018
R L
Measure
Ch Freq 5.755 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 5.755 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
6.94 dBm / 40.0000 MHz
-69.08 dBm/Hz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 12:27:11 Aug 21, 2018
R L
Ch Freq 5.795 GHz
Trig Free
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Center 5.795 0 GHz
Span 60 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
7.18 dBm / 40.0000 MHz
Power Spectral Density
-68.84 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

7.4.5.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 21, 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 Peak Output Power (dBm)	CHAIN 1 Maximum Peak Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)
L	7.30	6.94	10.13	27.68
H	7.47	7.18	10.34	27.68

註:

1. 最大峰值輸出功率 (Maximum Peak Output Power) 為經儀器校正補償過後的結果值。
2. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
4. NCC Limit (dBm)=10 log NCC Limit (mW)
5. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

7.4.6 調變技術: IEEE 802.11ac HT80

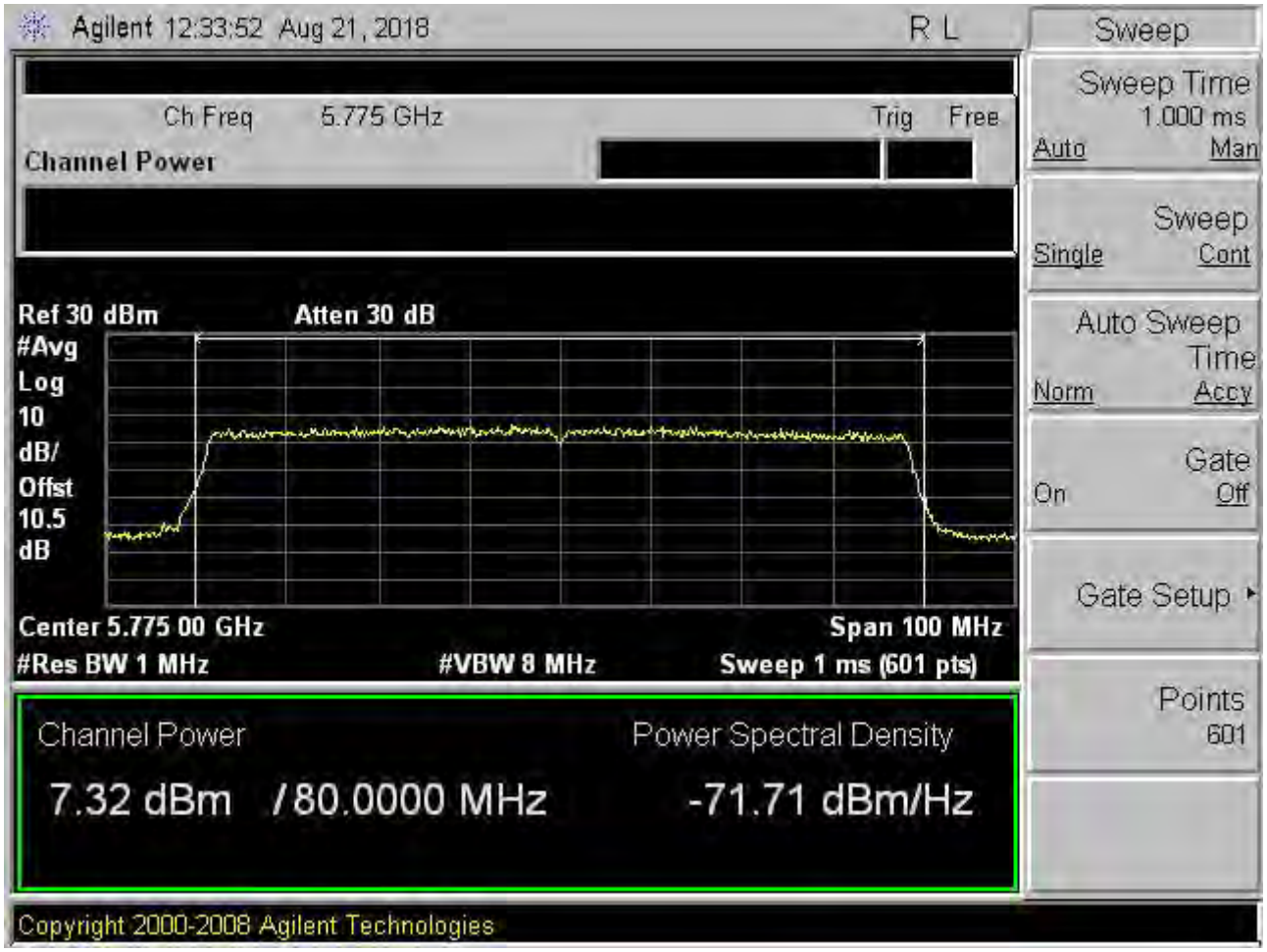
7.4.6.1 CHAIN 0

測試日期: Aug. 21, 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	Maximum Peak Output Power (dBm)	NCC Limit (dBm)	Chart
L	7.32	30	Page 89

註：1. 繪圖資料請參考第 89 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 12:33:52 Aug 21, 2018
R L
Ch Freq 5.775 GHz
Trig Free
Channel Power
Ref 30 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
10.5
dB
Center 5.775 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
7.32 dBm /80.0000 MHz
-71.71 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

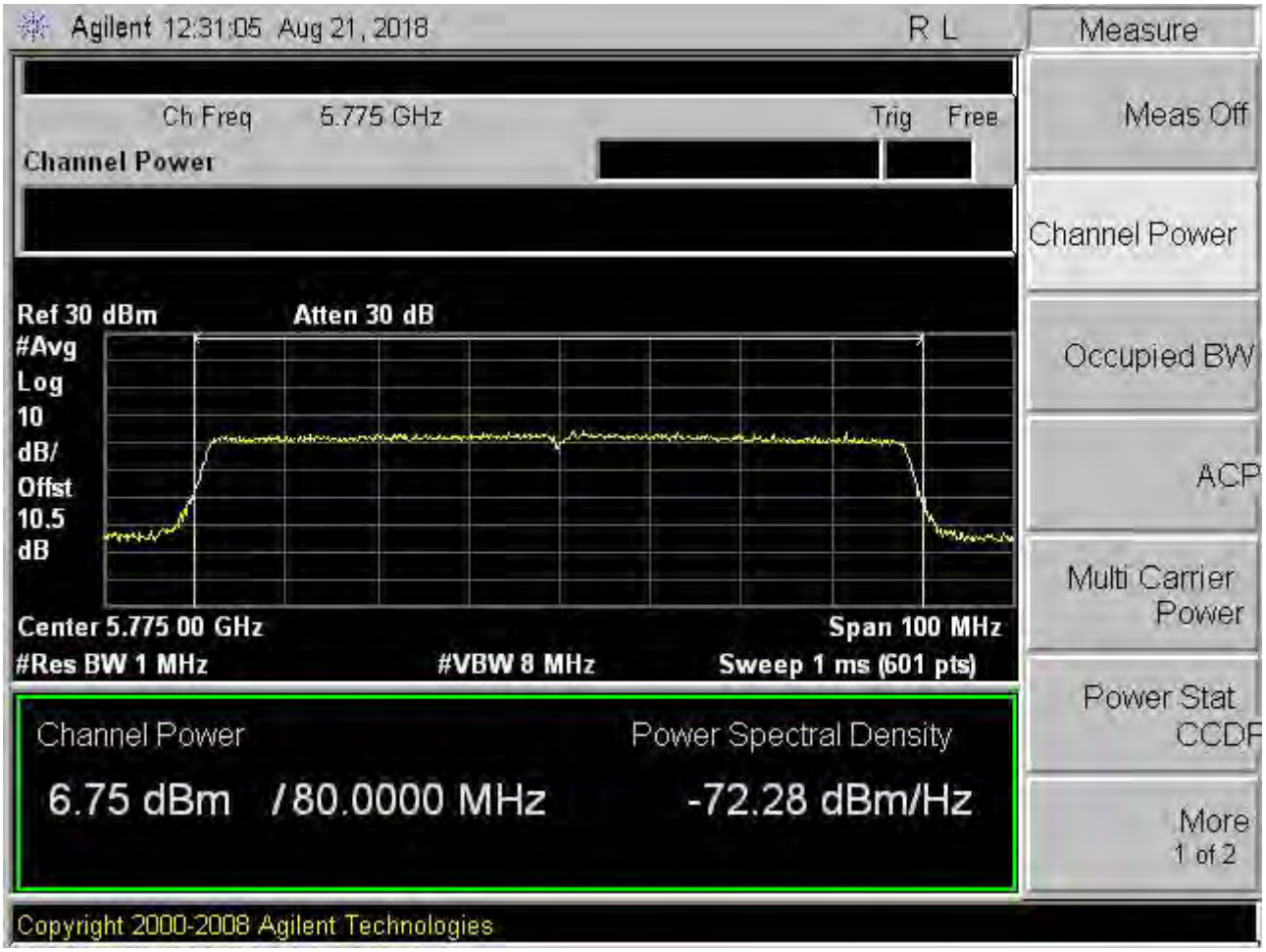
7.4.6.2 CHAIN 1

測試日期: Aug. 21, 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	Maximum Peak Output Power (dBm)	NCC Limit (dBm)	Chart
L	6.75	30	Page 91

註：1. 繪圖資料請參考第 91 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. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
4. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
5. NCC Limit (dBm)=10 log NCC Limit (mW)
6. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 12:31:05 Aug 21, 2018
R L
Measure
Ch Freq 5.775 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 5.775 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (601 pts)
Channel Power
Power Spectral Density
6.75 dBm / 80.0000 MHz
-72.28 dBm/Hz
Copyright 2000-2008 Agilent Technologies

7.4.6.3 CHAIN 0 + CHAIN 1

測試日期: Aug. 21, 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 Peak Output Power (dBm)	CHAIN 1 Maximum Peak Output Power (dBm)	TOTAL Power (dBm)	NCC Limit (dBm)
L	7.32	6.75	10.05	27.68

註:

1. 最大峰值輸出功率 (Maximum Peak Output Power) 為經儀器校正補償過後的結果值。
2. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm
3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)
4. NCC Limit (dBm)=10 log NCC Limit (mW)
5. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

7.5 結果判定

高、中、低頻段的峰值輸出功率皆低於限制值。

8 功率密度之量測

8.1 適用標準

國家通訊傳播委員會低功率射頻電機技術規範4.7.3.3節(2)之規定，在任何500 kHz 頻帶中最大功率頻譜密度應小於或等於30 dBm。

8.2 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. 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：

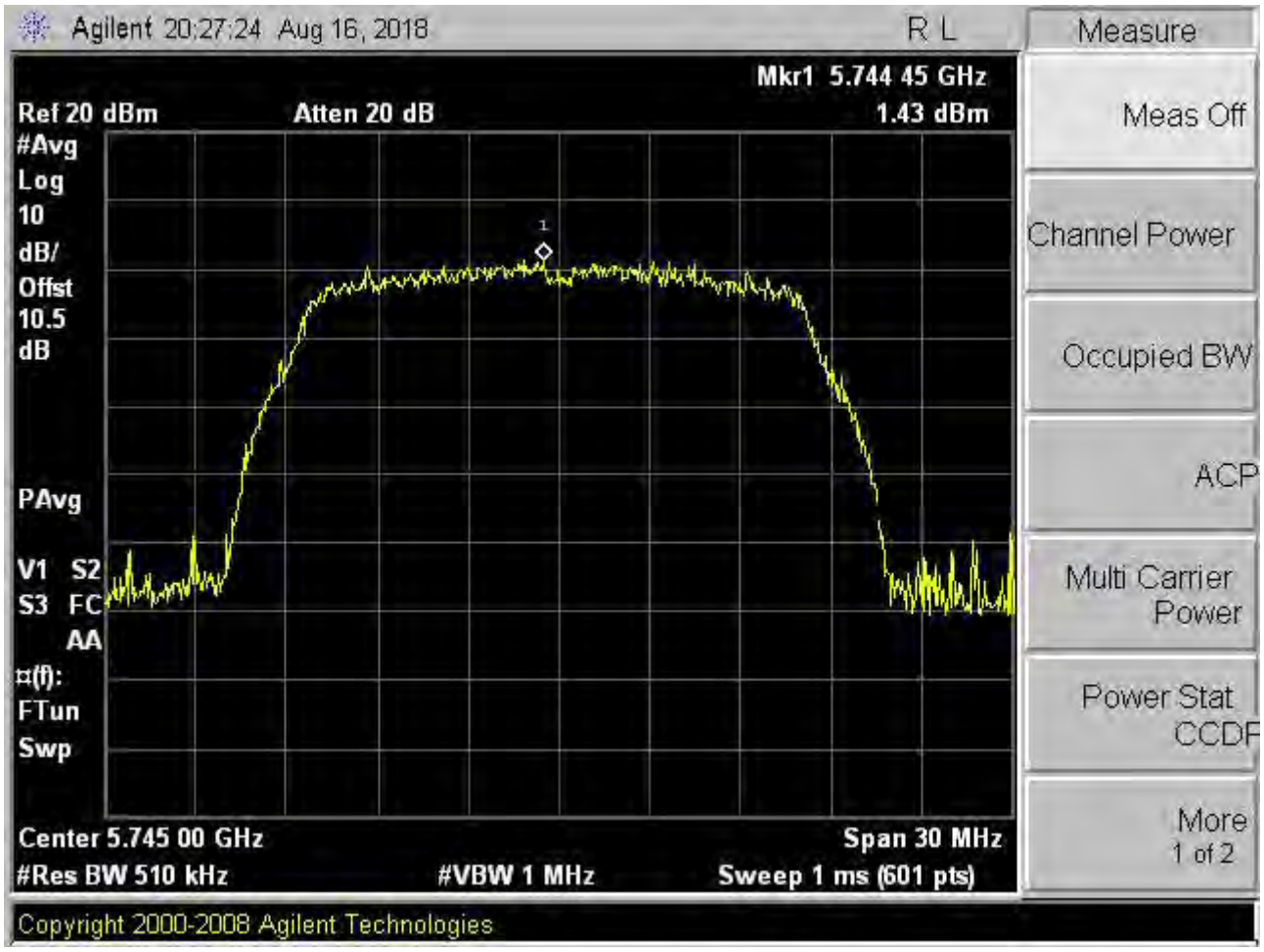
Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	1.43	30	Page 95
M	2.05	30	Page 96
H	1.76	30	Page 97

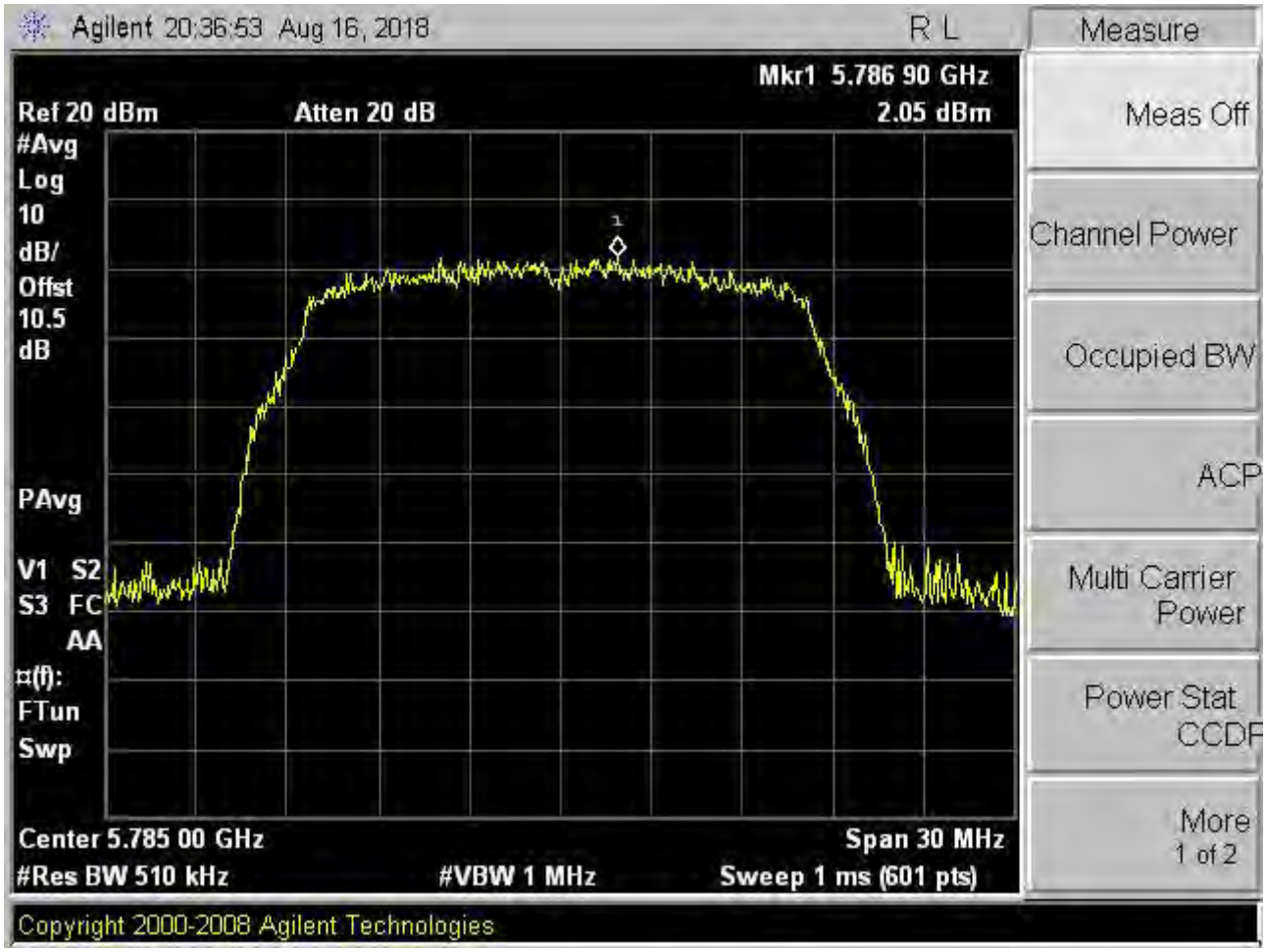
註：1. 繪圖資料請參考第 95-97 頁。

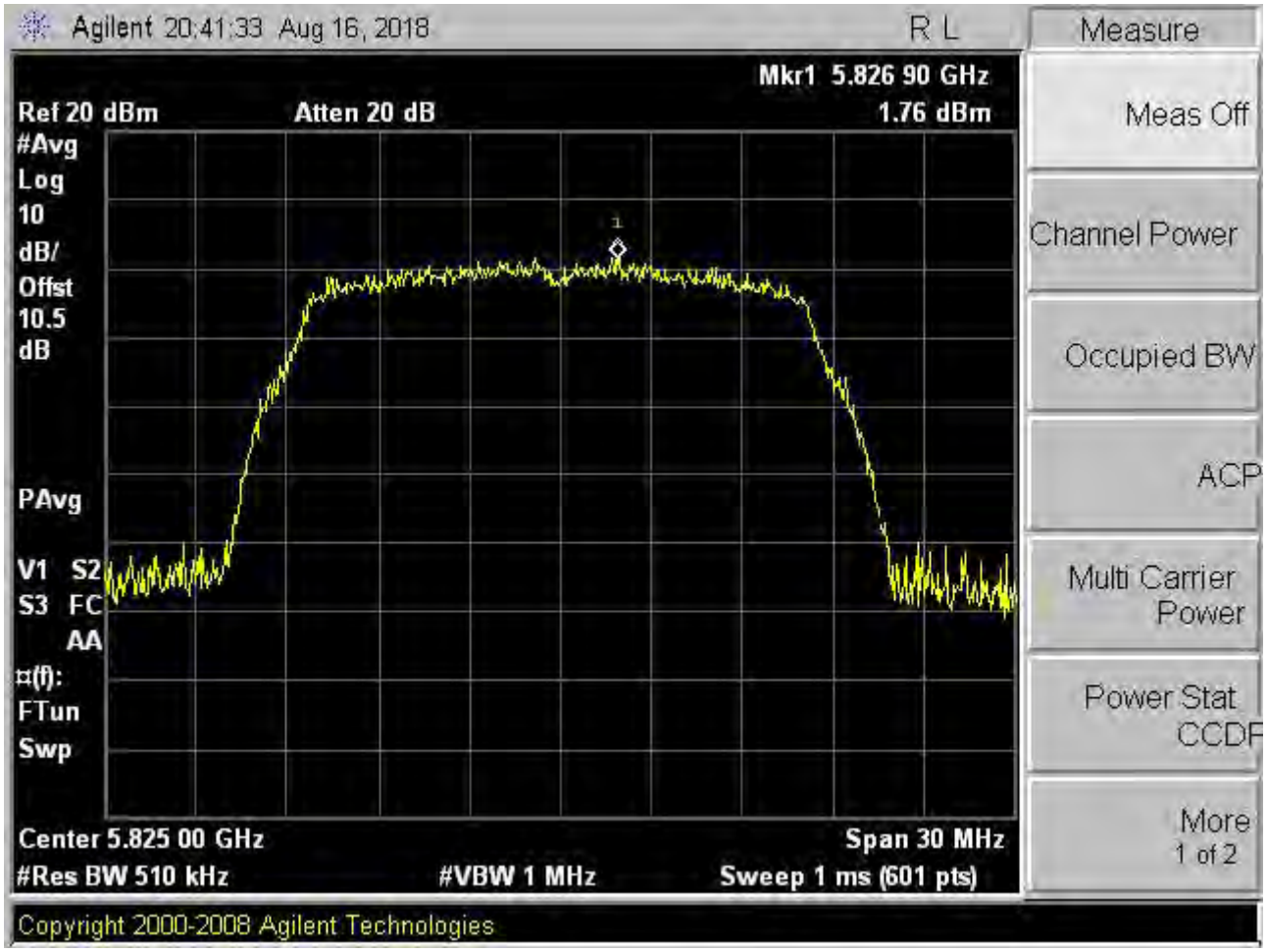
2. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm

3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 20:27:24 Aug 16, 2018
R L
Measure
Mkr1 5.744 45 GHz
1.43 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 5.745 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 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 20:36:53 Aug 16, 2018
R L
Measure
Mkr1 5.786 90 GHz
Ref 20 dBm
Atten 20 dB
2.05 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.785 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 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 20:41:33 Aug 16, 2018
R L
Measure
Mkr1 5.826 90 GHz
Ref 20 dBm
Atten 20 dB
1.76 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.825 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 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：

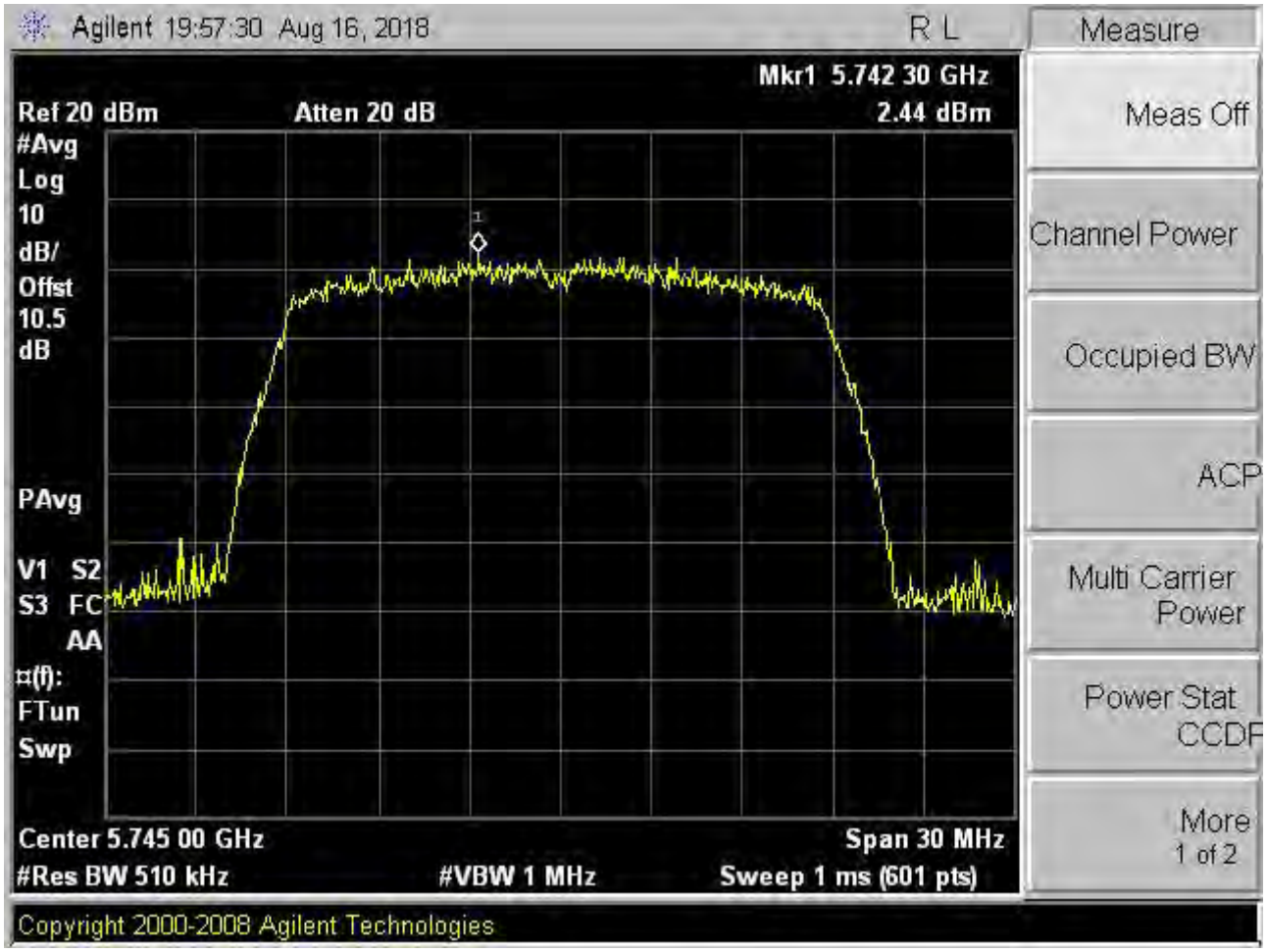
Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	2.44	30	Page 99
M	2.43	30	Page 100
H	1.90	30	Page 101

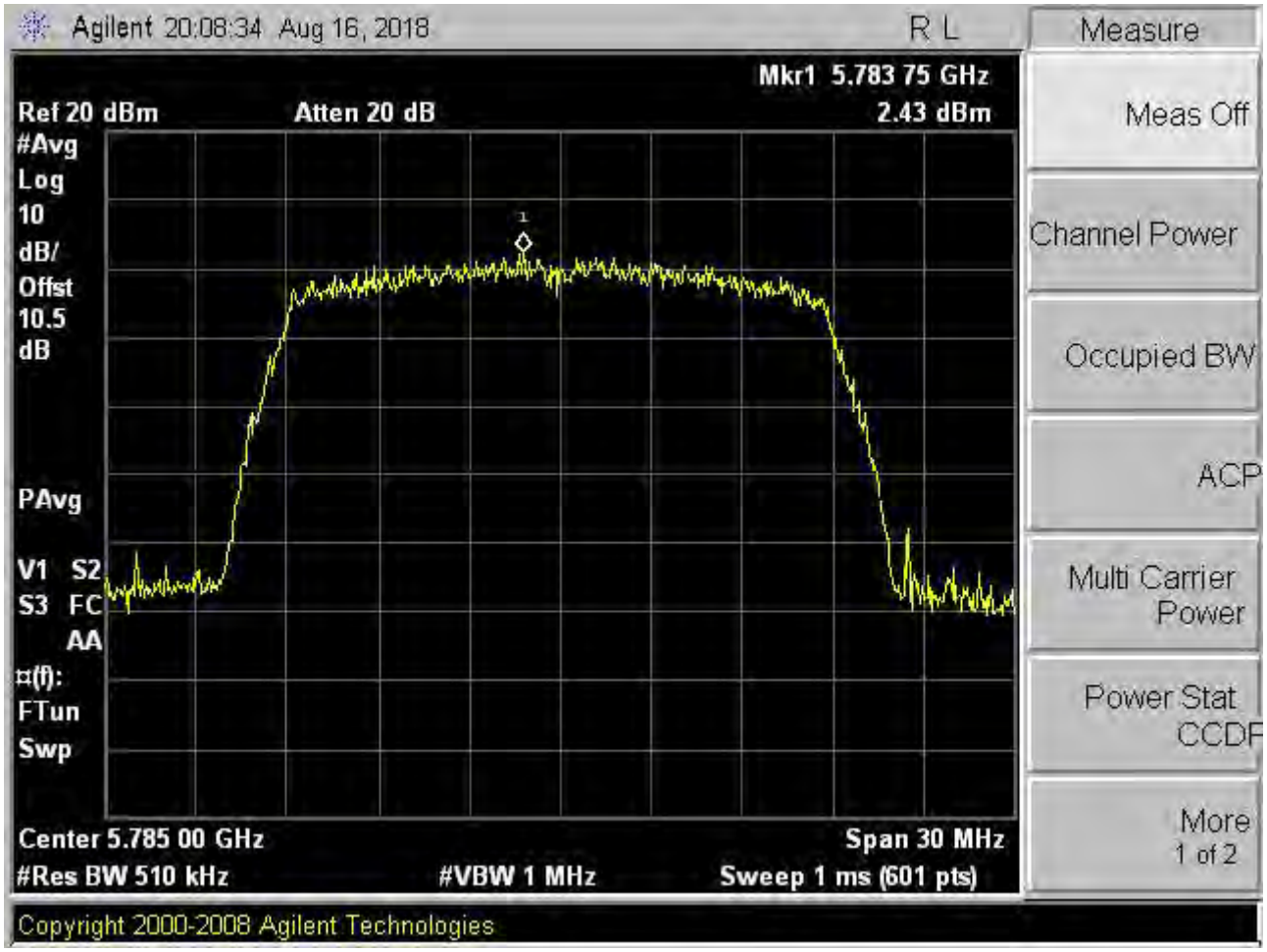
註：1. 繪圖資料請參考第 99-101 頁。

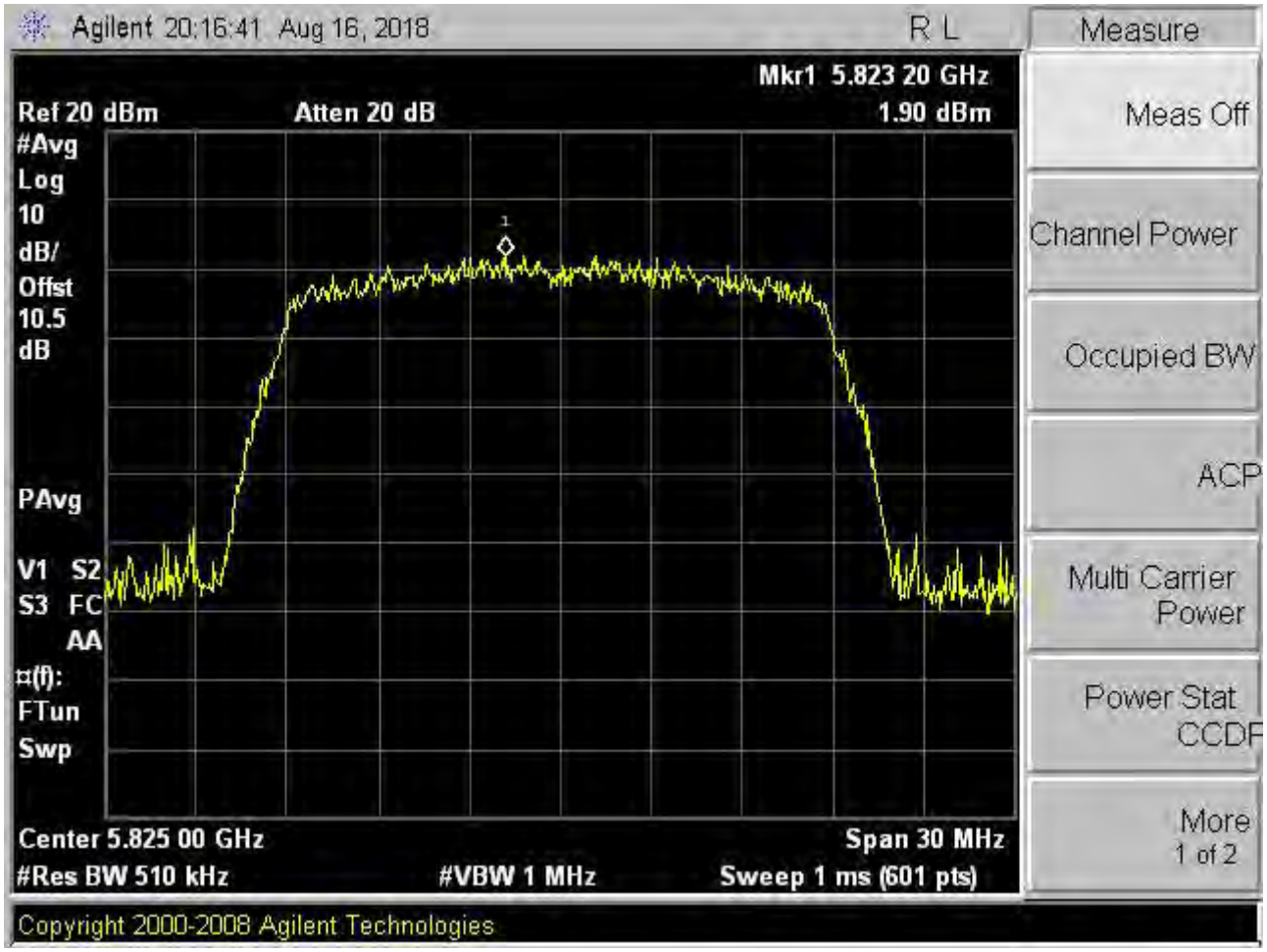
2. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm

3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 19:57:30 Aug 16, 2018
R L
Measure
Mkr1 5.742 30 GHz
Ref 20 dBm
Atten 20 dB
2.44 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.745 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 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 20:08:34 Aug 16, 2018
R L
Measure
Mkr1 5.783 75 GHz
2.43 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 5.785 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 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 20:16:41 Aug 16, 2018
R L
Measure
Mkr1 5.823 20 GHz
Ref 20 dBm
Atten 20 dB
1.90 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 5.825 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 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：

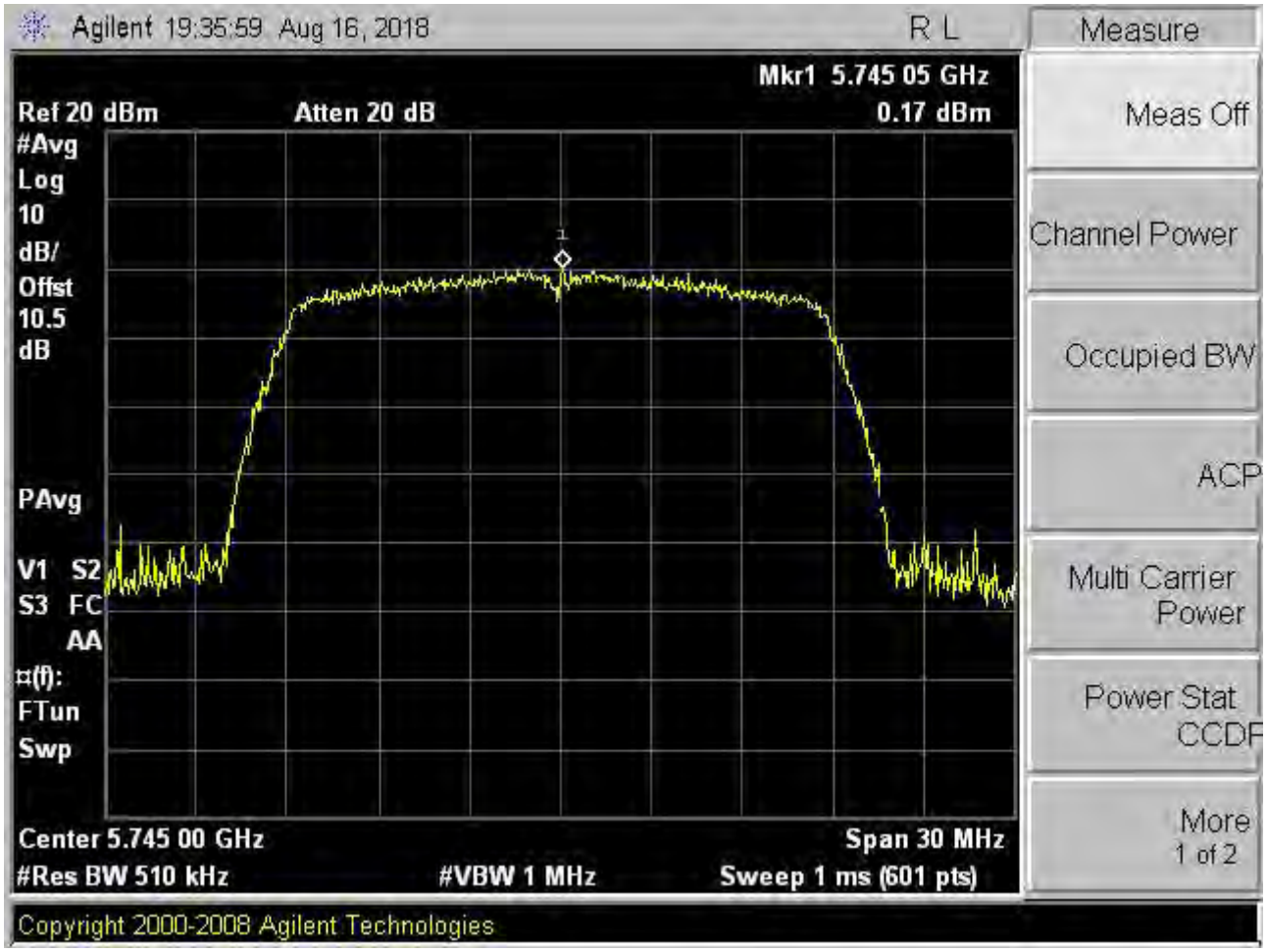
Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	0.17	30	Page 103
M	0.08	30	Page 104
H	0.78	30	Page 105

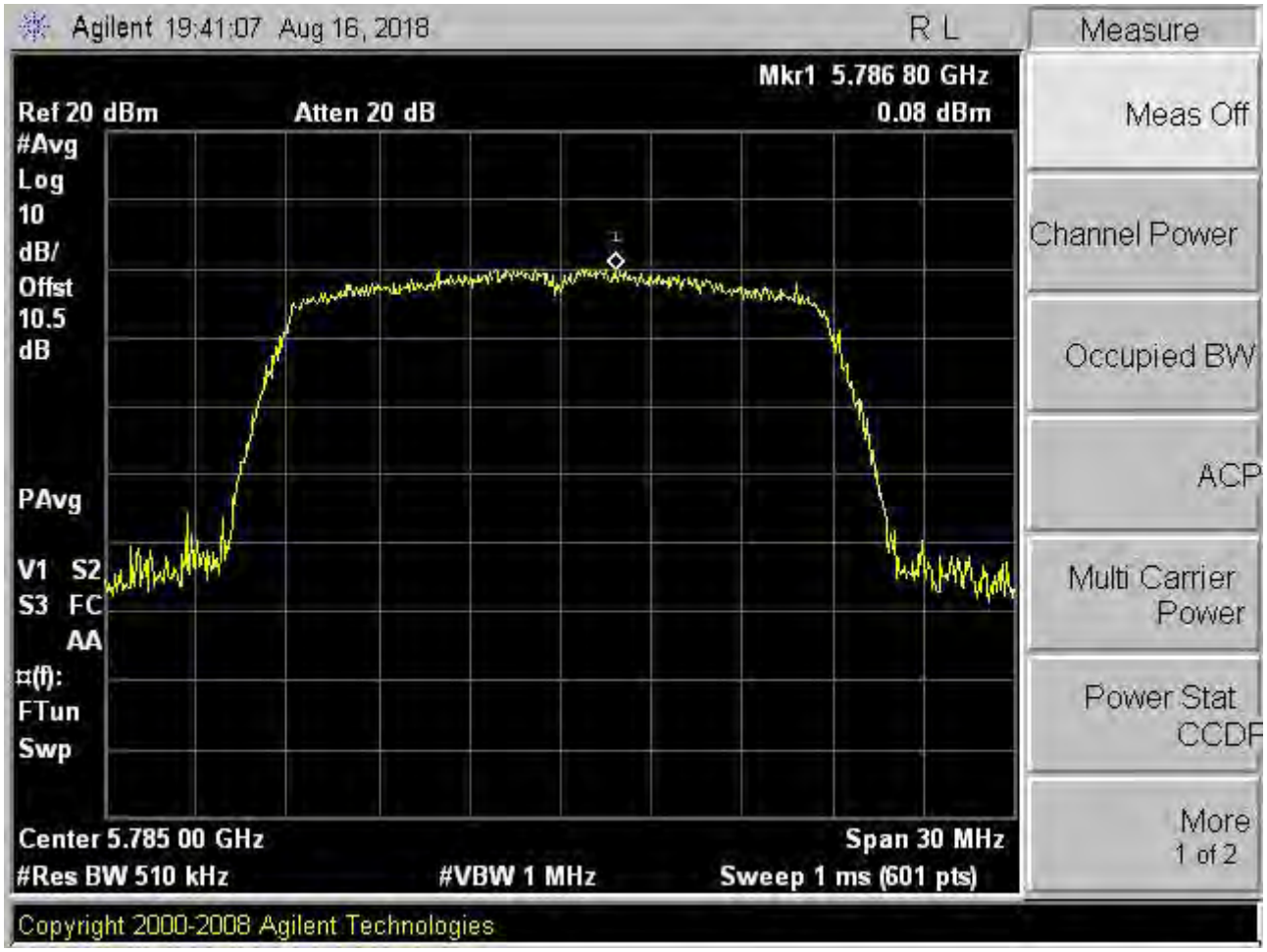
註：1. 繪圖資料請參考第 103-105 頁。

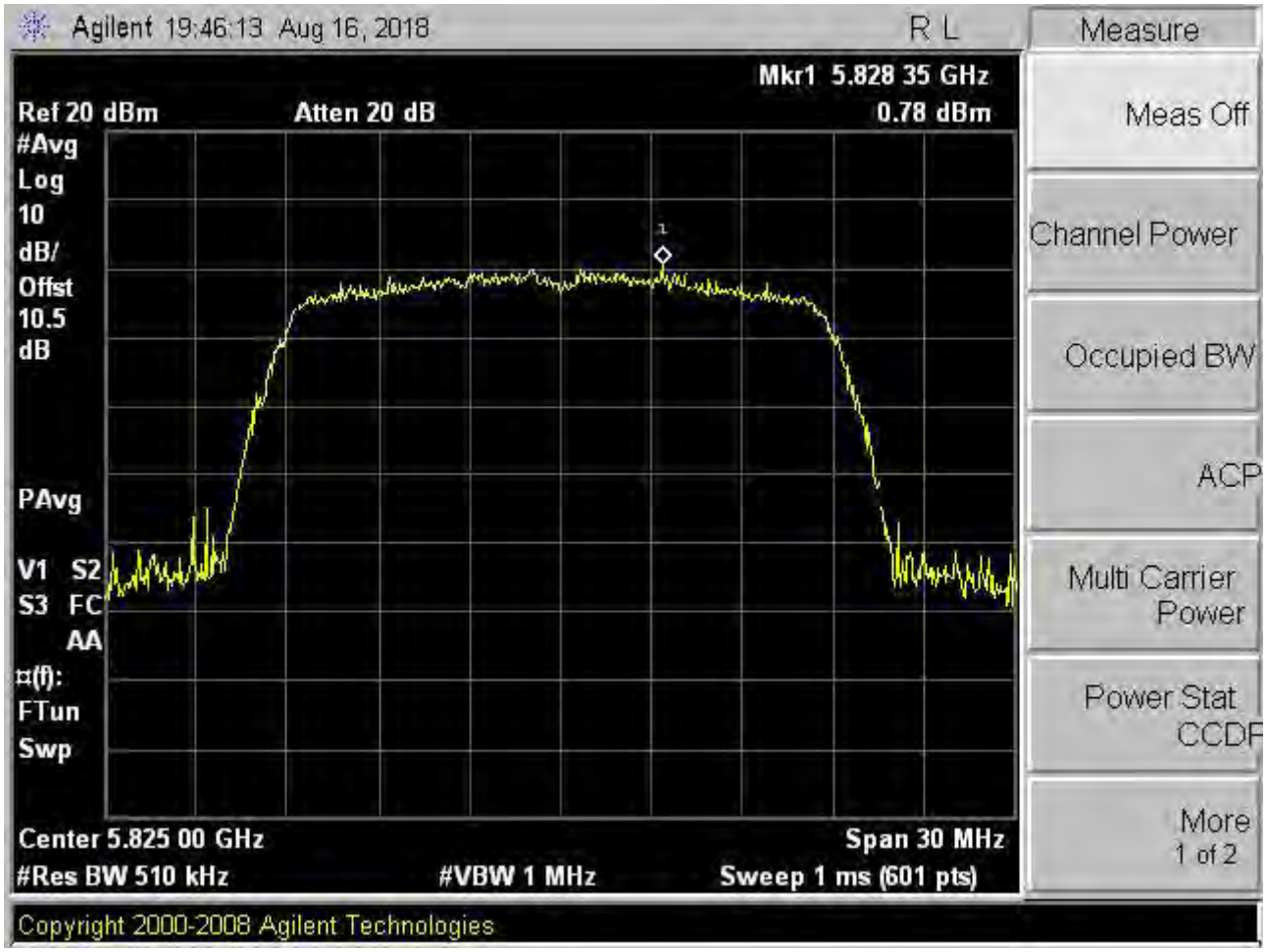
2. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm

3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 19:35:59 Aug 16, 2018
R L
Measure
Mkr1 5.745 05 GHz
Ref 20 dBm
Atten 20 dB
0.17 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.745 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 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 19:41:07 Aug 16, 2018
R L
Measure
Mkr1 5.786 80 GHz
Ref 20 dBm
Atten 20 dB
0.08 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.785 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 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 19:46:13 Aug 16, 2018
R L
Measure
Mkr1 5.828 35 GHz
Ref 20 dBm
Atten 20 dB
0.78 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.825 00 GHz
Span 30 MHz
#Res BW 510 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
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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	2.44	0.17	n/a	4.46	27.68	-
M	2.43	0.08	n/a	4.42	27.68	-
H	1.90	0.78	n/a	4.39	27.68	-

註：1. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm

2. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

3. 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：

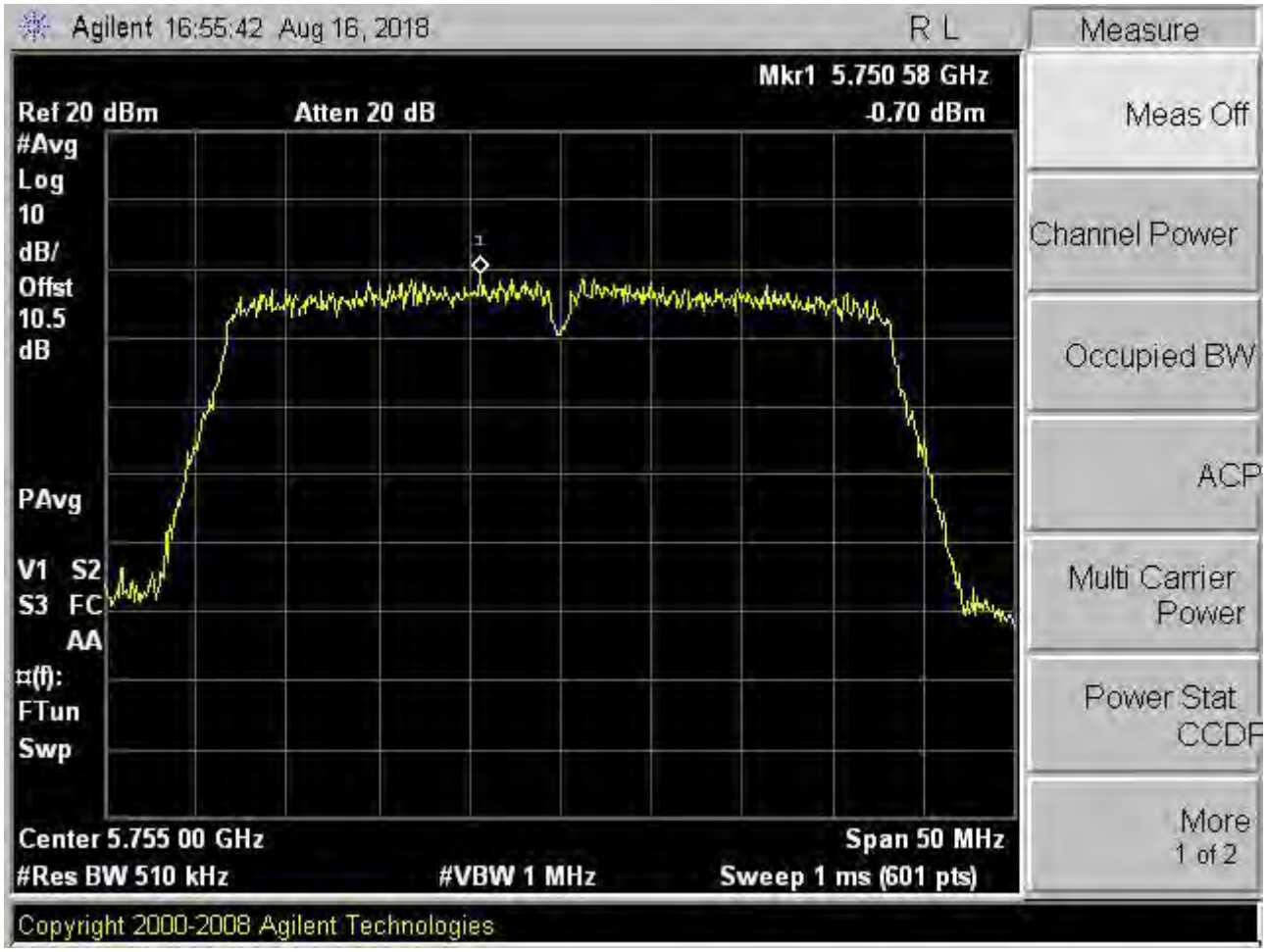
Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-0.70	30	Page 108
H	-1.12	30	Page 109

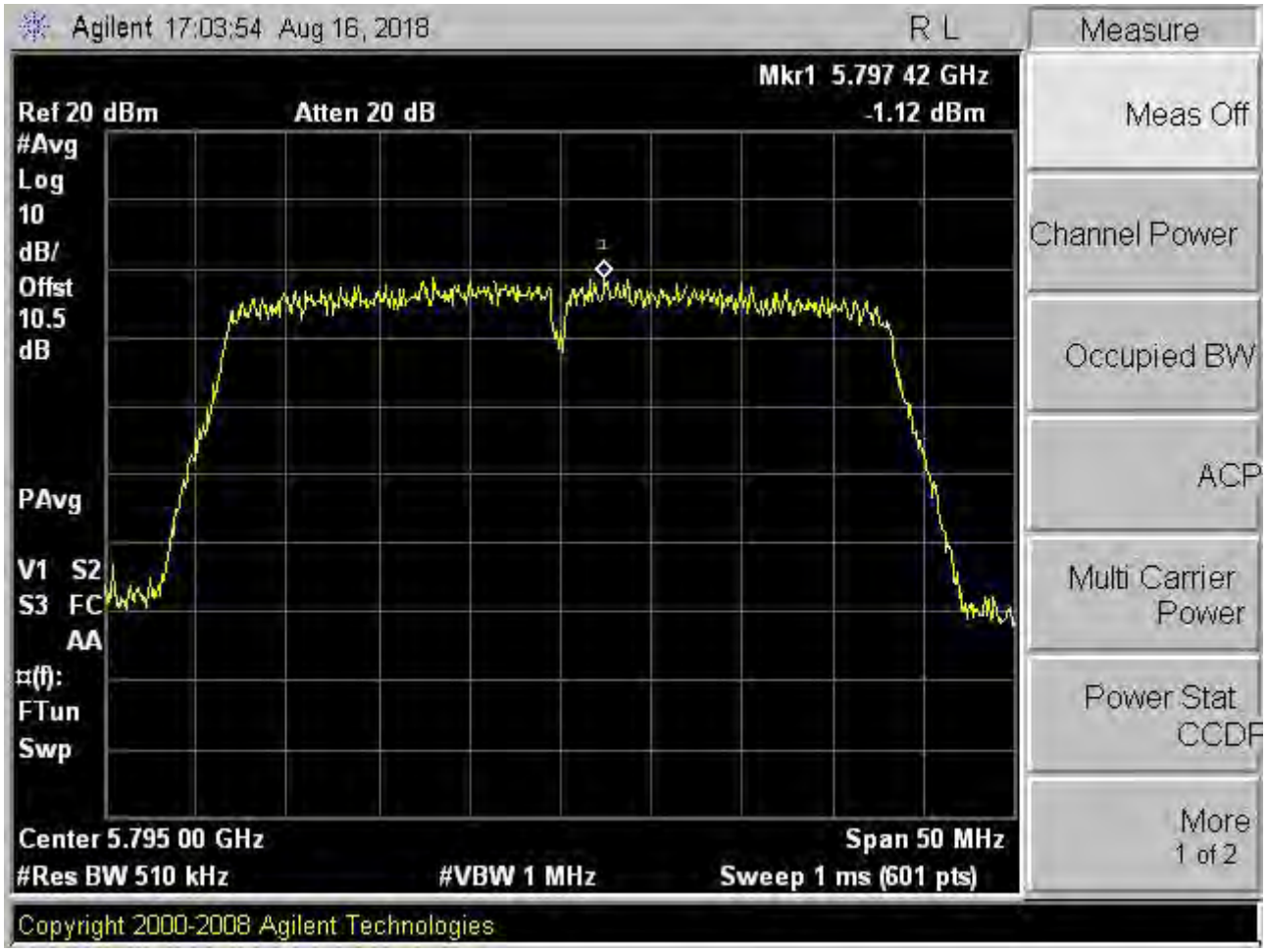
註：1. 繪圖資料請參考第 108-109 頁。

2. If antenna gain ≦ 6dBi, NCC Limit = 30dBm

3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 16:55:42 Aug 16, 2018
R L
Measure
Mkr1 5.750 58 GHz
Ref 20 dBm
Atten 20 dB
-0.70 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.755 00 GHz
Span 50 MHz
#Res BW 510 kHz
#VBW 1 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 17:03:54 Aug 16, 2018
R L
Measure
Mkr1 5.797 42 GHz
Ref 20 dBm
Atten 20 dB
-1.12 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.795 00 GHz
Span 50 MHz
#Res BW 510 kHz
#VBW 1 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

8.4.3.2 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：

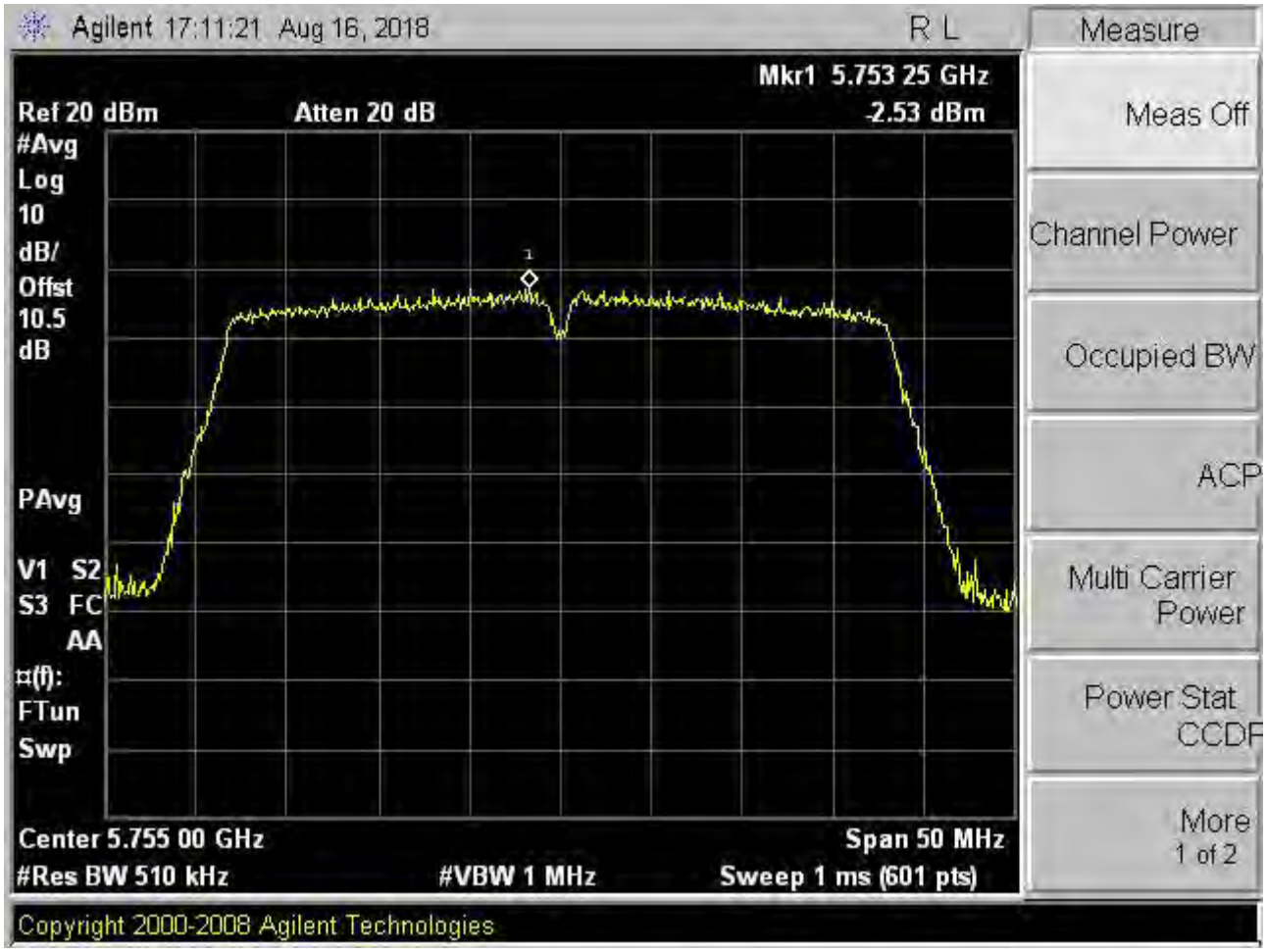
Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-2.53	30	Page 111
H	-2.30	30	Page 112

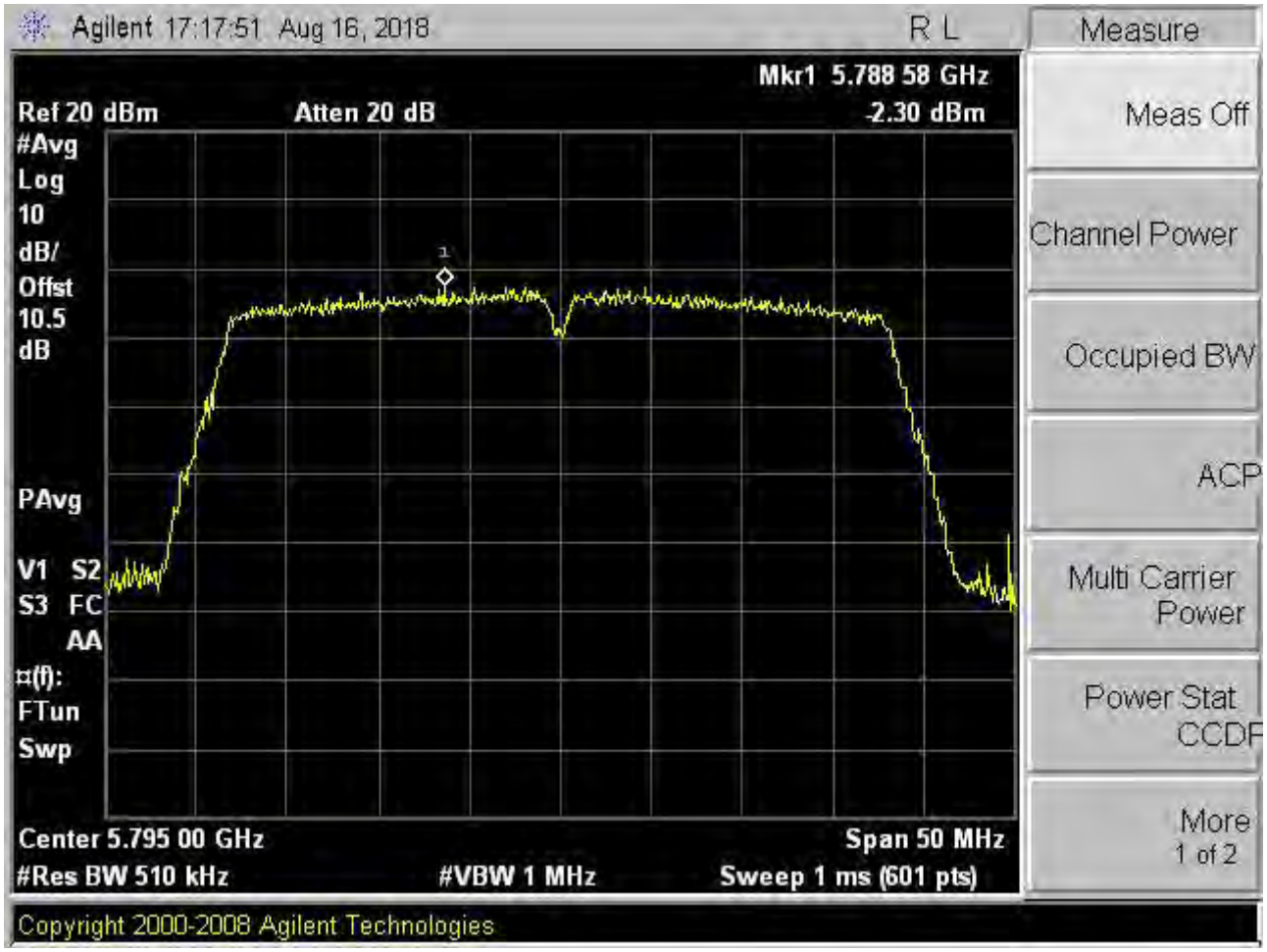
註：1. 繪圖資料請參考第 111-112 頁。

2. If antenna gain ≦ 6dBi, NCC Limit = 30dBm

3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 17:11:21 Aug 16, 2018
R L
Measure
Mkr1 5.753 25 GHz
Ref 20 dBm
Atten 20 dB
-2.53 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 5.755 00 GHz
Span 50 MHz
#Res BW 510 kHz
#VBW 1 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 17:17:51 Aug 16, 2018
R L
Measure
Mkr1 5.788 58 GHz
Ref 20 dBm
Atten 20 dB
-2.30 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.795 00 GHz
Span 50 MHz
#Res BW 510 kHz
#VBW 1 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	-0.70	-2.53	n/a	1.49	27.68	-
H	-1.12	-2.30	n/a	1.34	27.68	-

註：1. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm

2. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

3. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

8.4.4 調變技術: IEEE 802.11ac HT80

8.4.4.1 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：

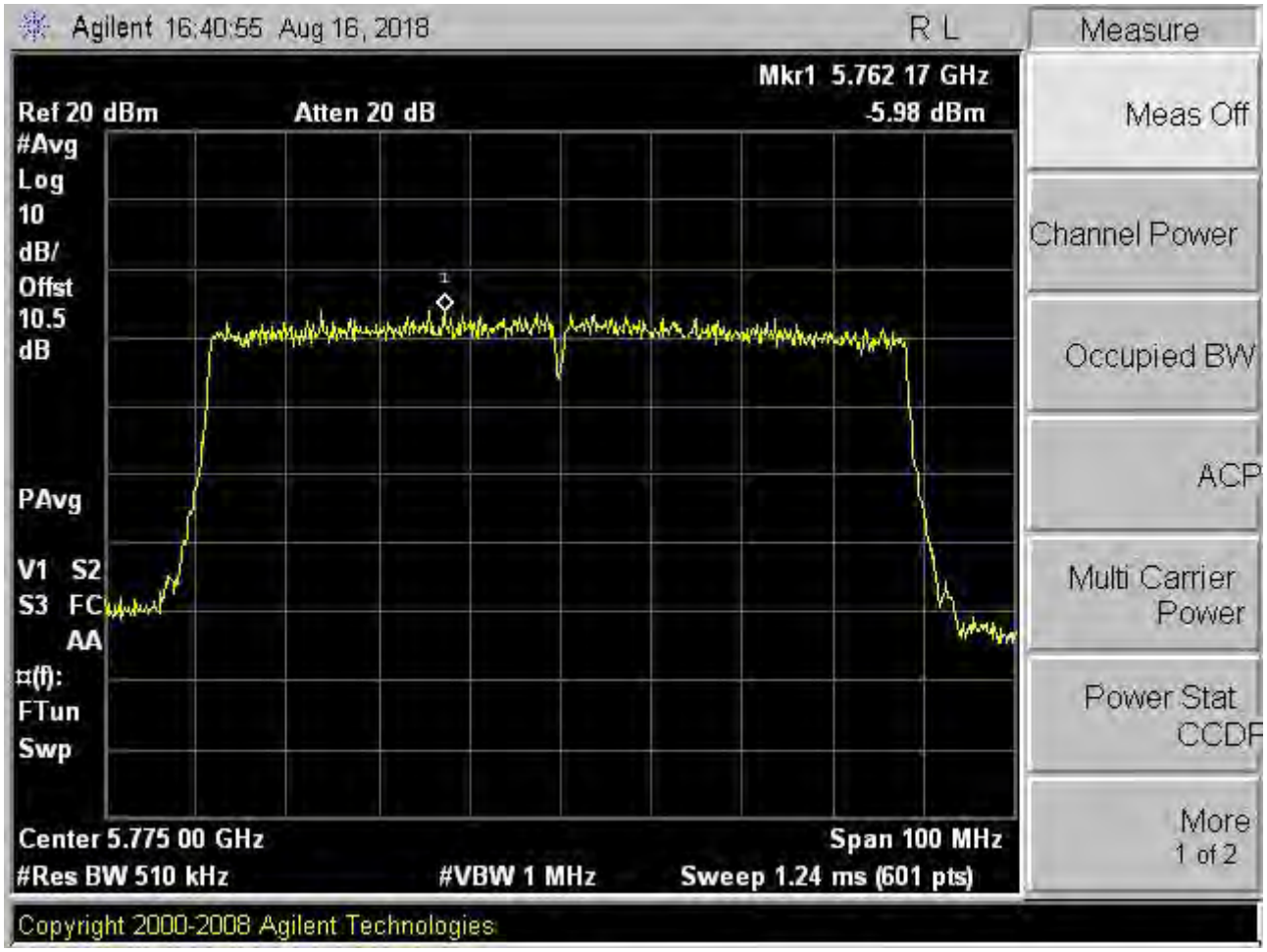
Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-5.98	30	Page 115

註：1. 繪圖資料請參考第 115 頁。

2. If antenna gain ≦ 6dBi, NCC Limit =30 dBm

3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 16:40:55 Aug 16, 2018
R L
Measure
Mkr1 5.762 17 GHz
Ref 20 dBm
Atten 20 dB
-5.98 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.775 00 GHz
Span 100 MHz
#Res BW 510 kHz
#VBW 1 MHz
Sweep 1.24 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
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8.4.4.2 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：

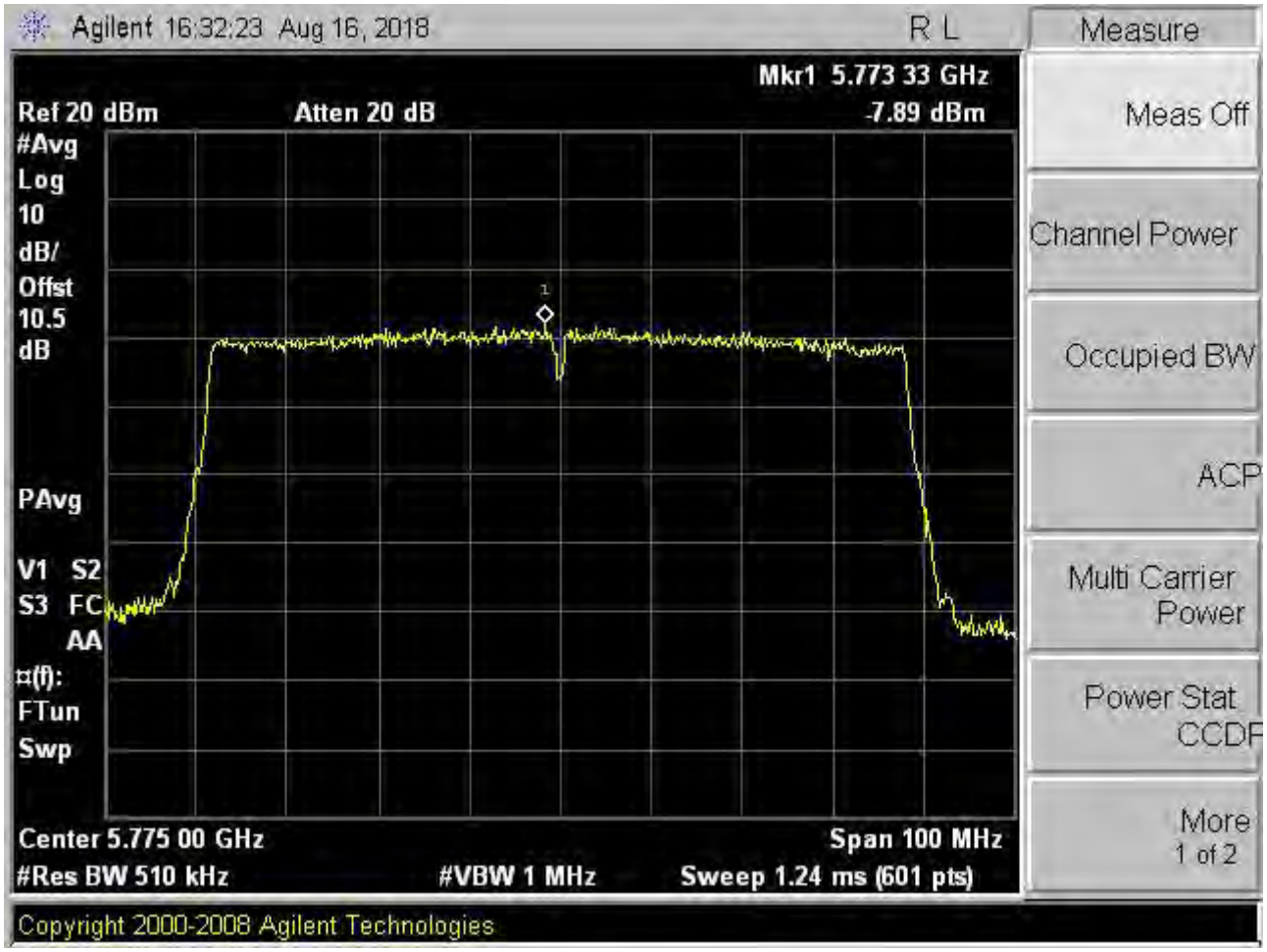
Channel	Power Spectral Density (dBm)	NCC Limit (dBm)	Chart
L	-7.89	30	Page 117

註：1. 繪圖資料請參考第 117 頁。

2. If antenna gain ≦ 6dBi, NCC Limit =30 dBm

3. If antenna gain > 6dBi, NCC Limit = 30 dBm – (highest antenna gain – 6 dBi)

4. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 16:32:23 Aug 16, 2018
R L
Measure
Mkr1 5.773 33 GHz
Ref 20 dBm
Atten 20 dB
-7.89 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
V1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.775 00 GHz
Span 100 MHz
#Res BW 510 kHz
#VBW 1 MHz
Sweep 1.24 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
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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	-5.98	-7.89	n/a	-3.82	27.68	-

註：1. If antenna gain ≦ 6dBi, NCC Limit = 30 dBm

2. If antenna gain > 6dBi, NCC Limit =30 dBm – (highest antenna gain – 6 dBi)

3. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

8.5 結果判定

高、中、低頻段的3kHz功率密度皆低於限制值，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4.7.4.2節之規定，在 5.725 GHz～5.850 GHz 的頻段操作之發射器：所有頻帶邊緣向外 5 MHz 內頻率之發射，有效等向輻射功率(EIRP)≦27 dBm/MHz～15.6 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣向外 5 MHz～25 MHz，有效等向輻射功率(EIRP)≦15.6 dBm/MHz～10 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣外 25 MHz～75 MHz，有效等向輻射功率(EIRP)≦10 dBm/MHz～-27 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣外≧75 MHz 的頻率之發射，有效等向輻射功率(EIRP)≦-27 dBm/MHz。

此外落於國家通訊傳播委員會低功率射頻電機技術規範第2.7節禁用頻段之輻射，應符合國家通訊傳播委員會低功率射頻電機技術規範第2.8節之規定。

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)

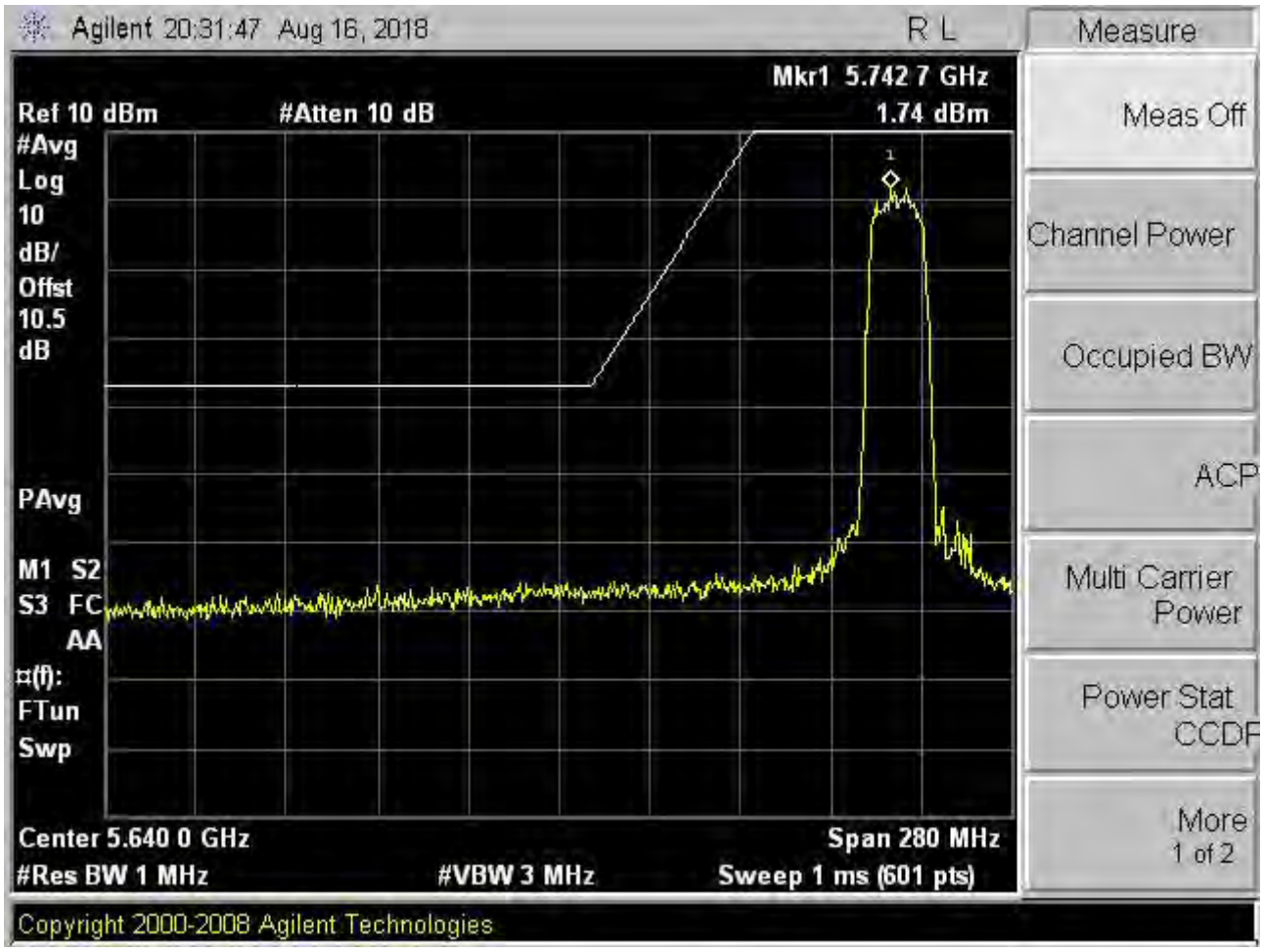
9.4 混附波發射限制之量測結果 (傳導方式量測)

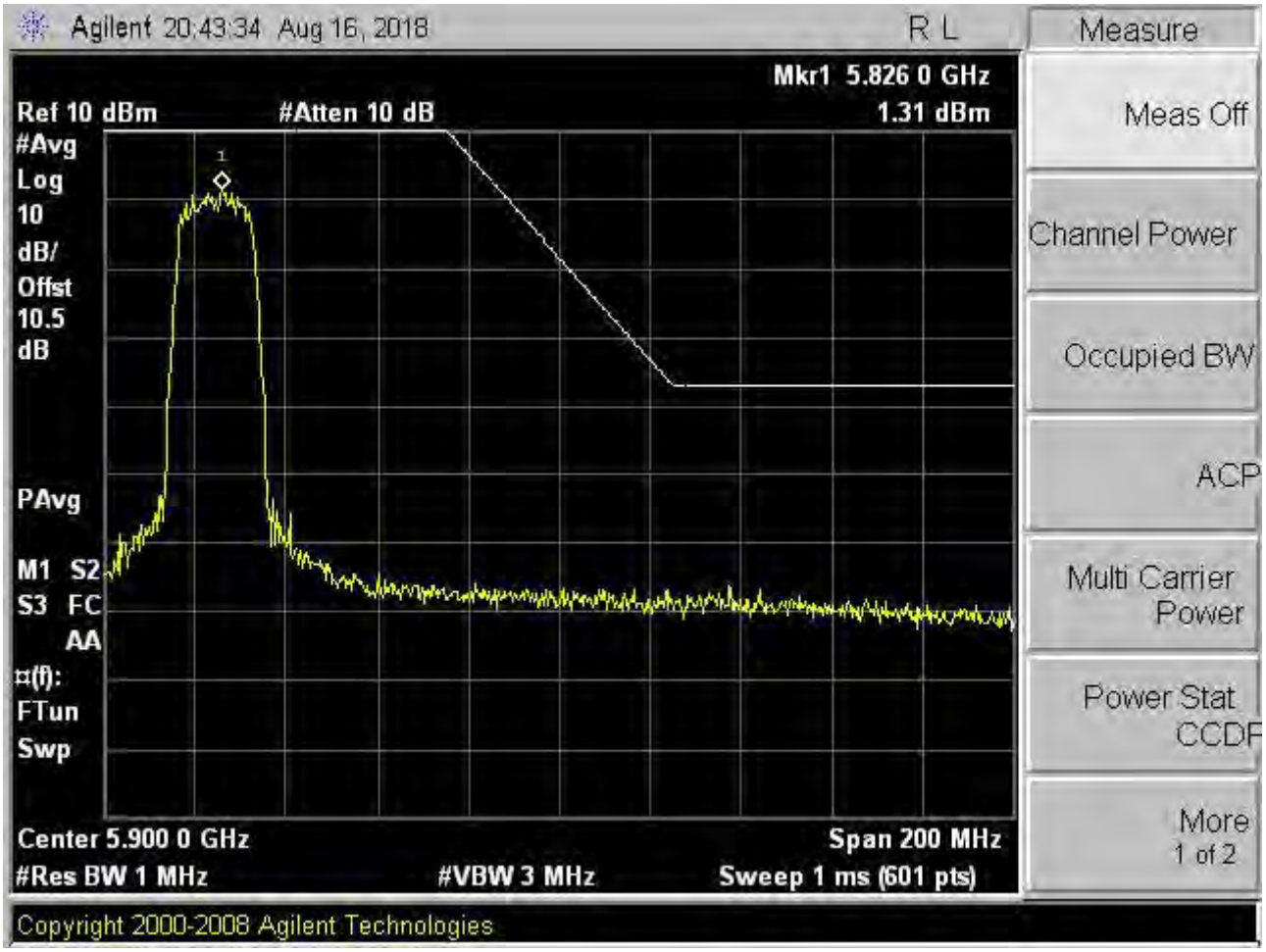
測試工程師: 羅世勇

9.4.1 調變技術:IEEE 802.11a

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 120-127 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 20:31:47 Aug 16, 2018
R L
Measure
Mkr1 5.742 7 GHz
Ref 10 dBm
#Atten 10 dB
1.74 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.640 0 GHz
Span 280 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 20:43:34 Aug 16, 2018
R L
Measure
Mkr1 5.826 0 GHz
1.31 dBm
Ref 10 dBm
#Atten 10 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.900 0 GHz
Span 200 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
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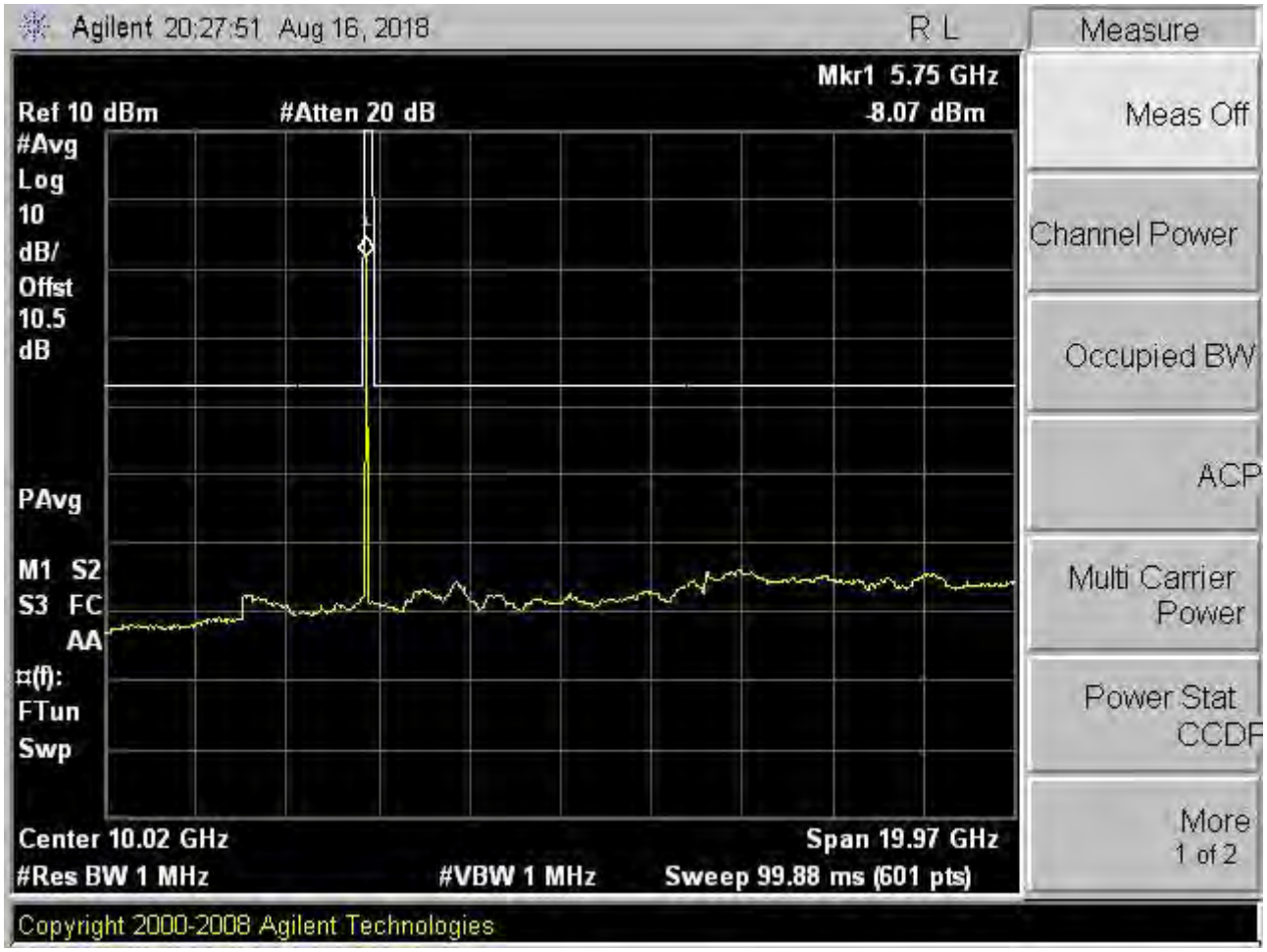
Agilent 20:27:51 Aug 16, 2018
R L
Measure
Mkr1 5.75 GHz
Ref 10 dBm
#Atten 20 dB
-8.07 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More
1 of 2
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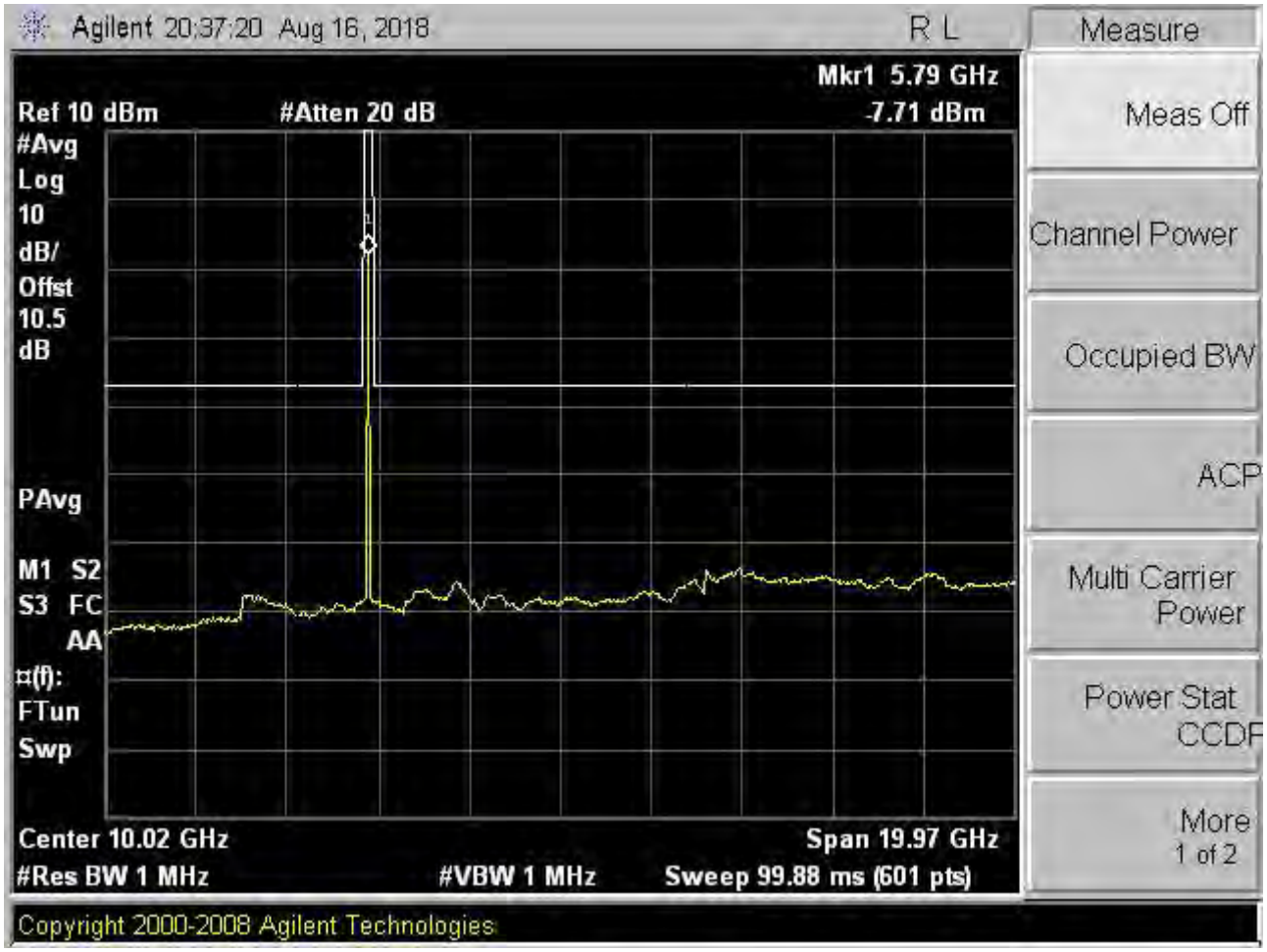
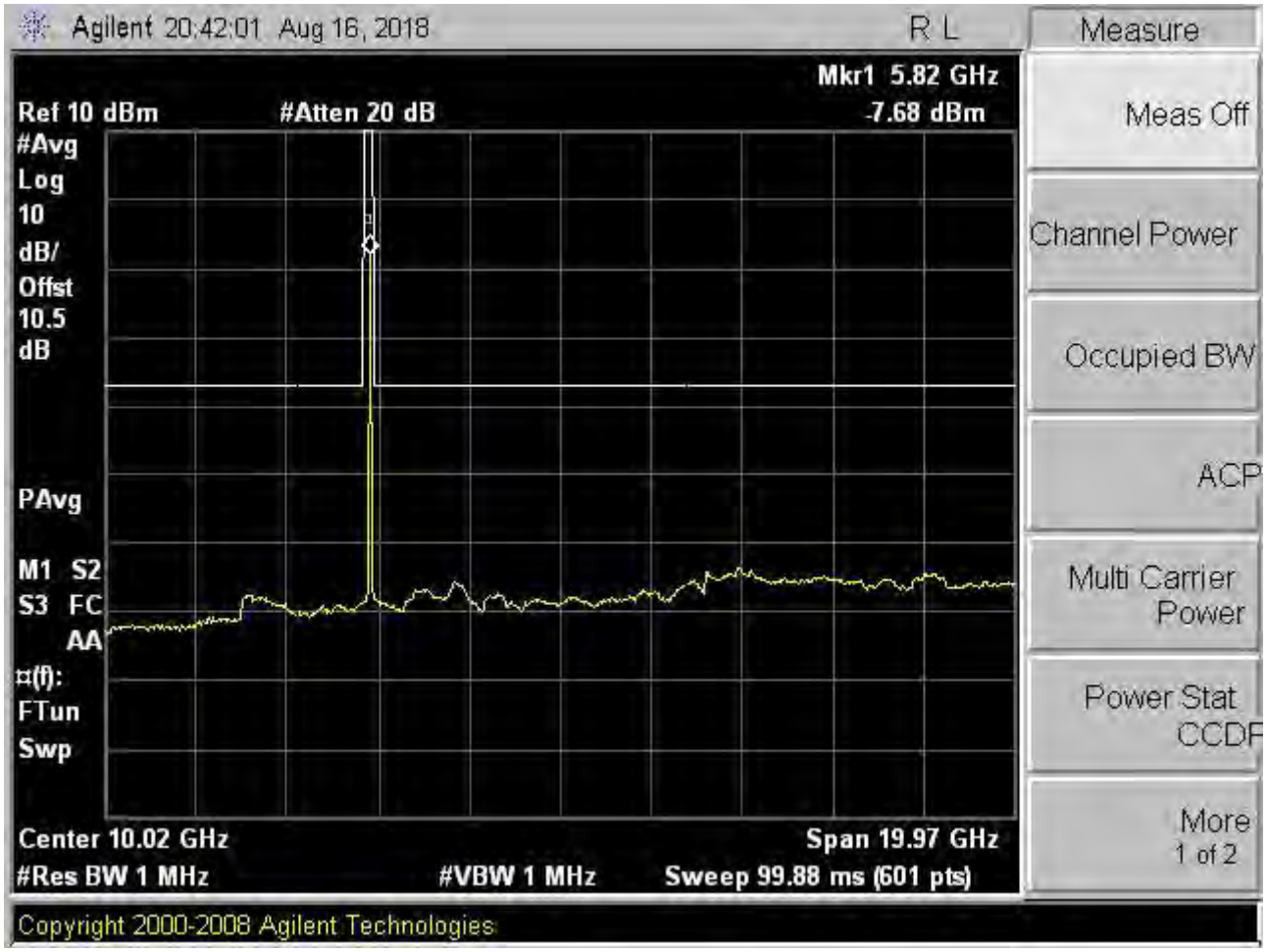
Agilent 20:31:10 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-50.98 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 20:37:20 Aug 16, 2018
R L
Measure
Mkr1 5.79 GHz
Ref 10 dBm
#Atten 20 dB
-7.71 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 20:38:15 Aug 16, 2018
R L
Measure
Mkr1 37.77 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 20:42:01 Aug 16, 2018
R L
Measure
Mkr1 5.82 GHz
Ref 10 dBm
#Atten 20 dB
-7.68 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
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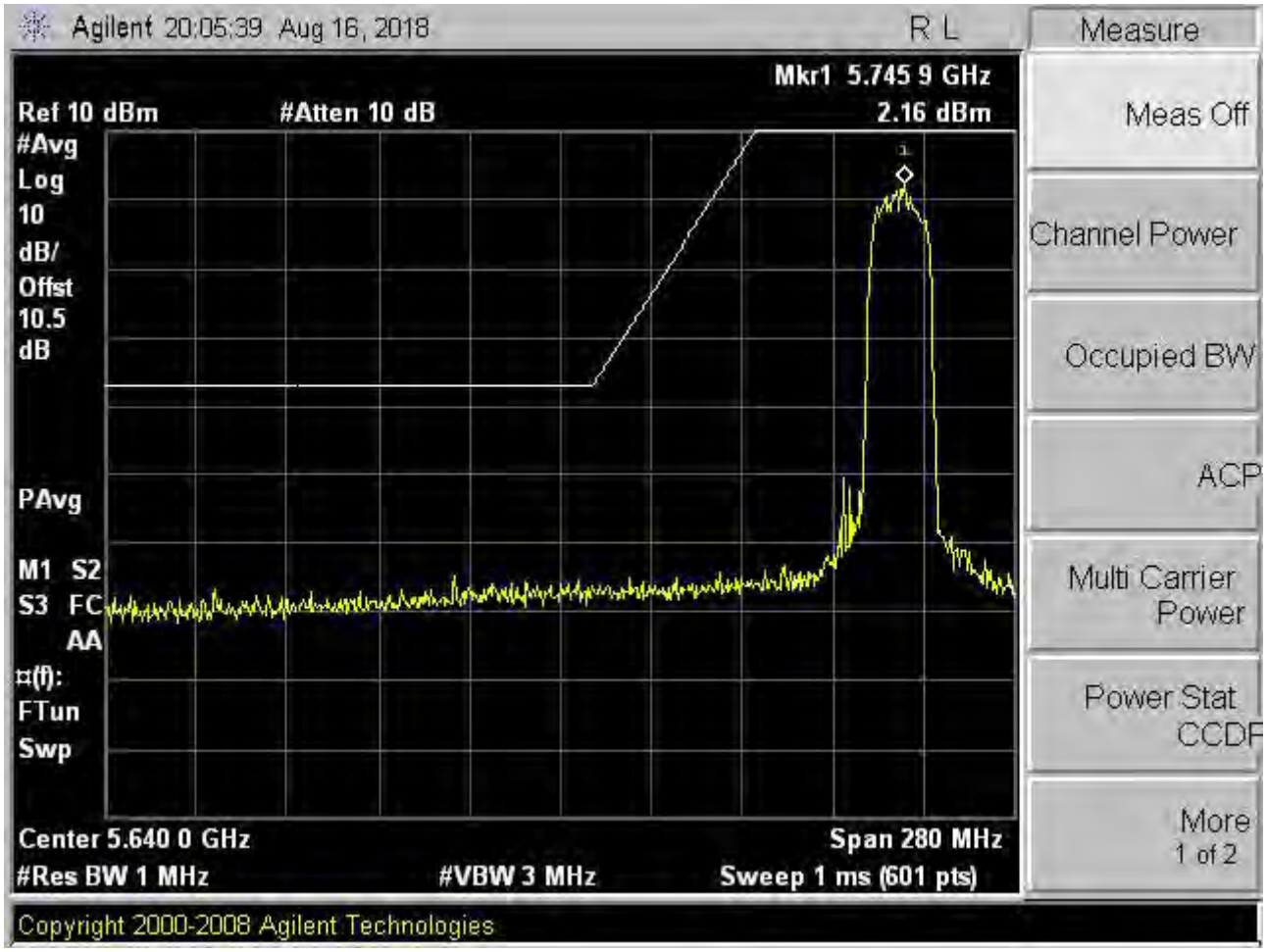
Agilent 20:42:55 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.15 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

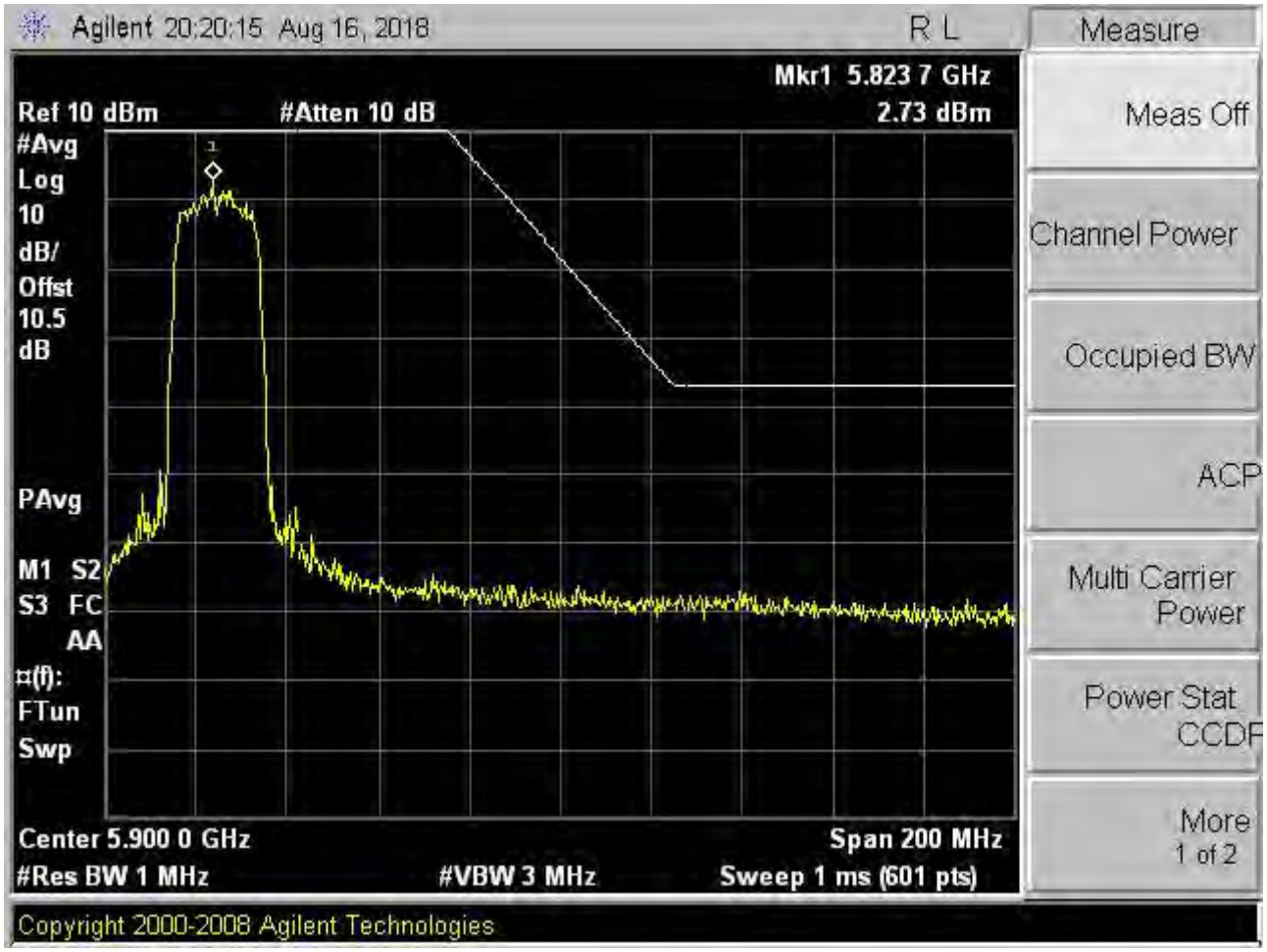
9.4.2 調變技術:IEEE 802.11an HT20

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 129-136 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 20:05:39 Aug 16, 2018
R L
Measure
Mkr1 5.745 9 GHz
2.16 dBm
Ref 10 dBm
#Atten 10 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.640 0 GHz
Span 280 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 20:20:15 Aug 16, 2018
R L
Measure
Mkr1 5.823 7 GHz
Ref 10 dBm
#Atten 10 dB
2.73 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.900 0 GHz
Span 200 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
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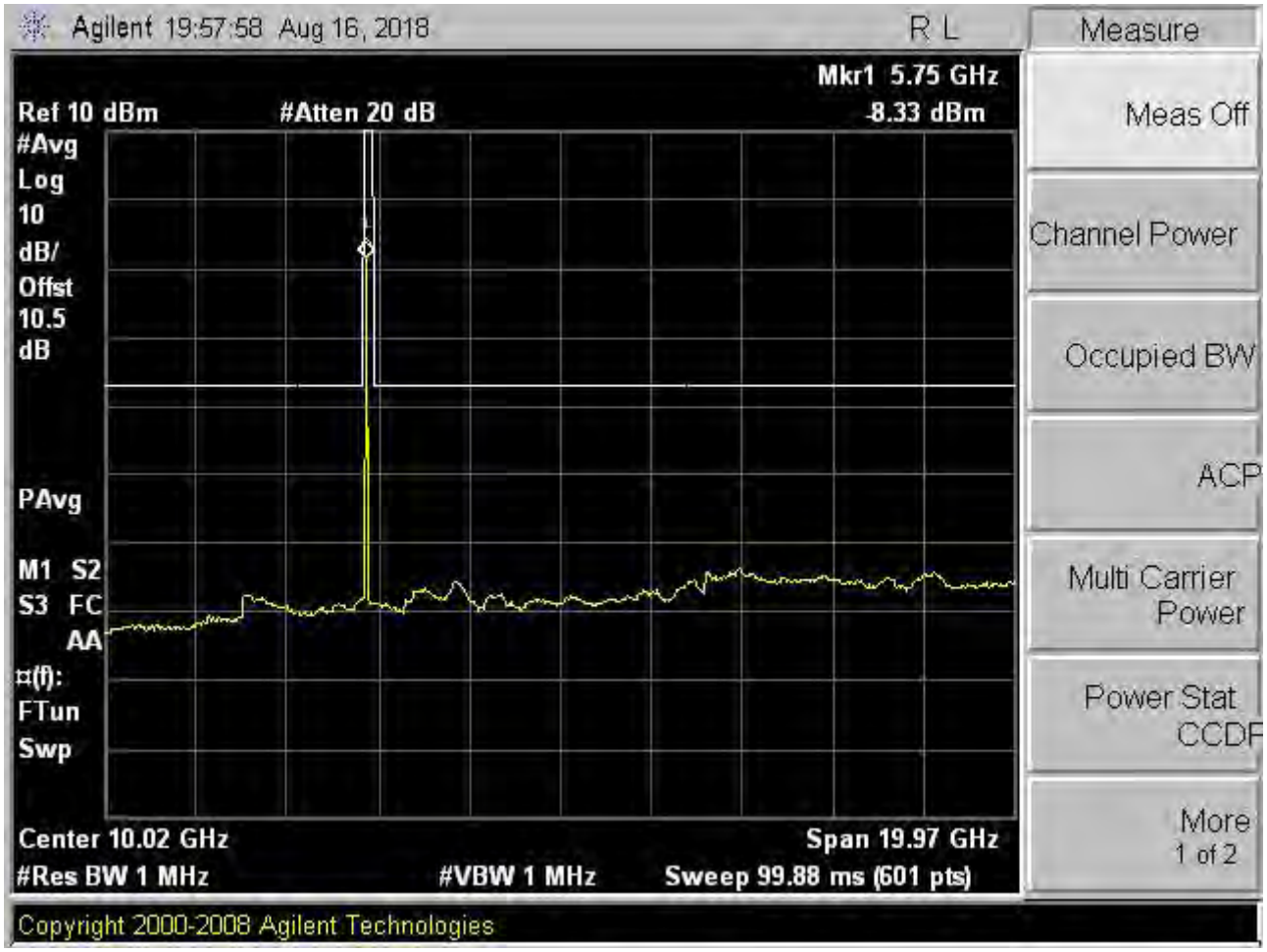
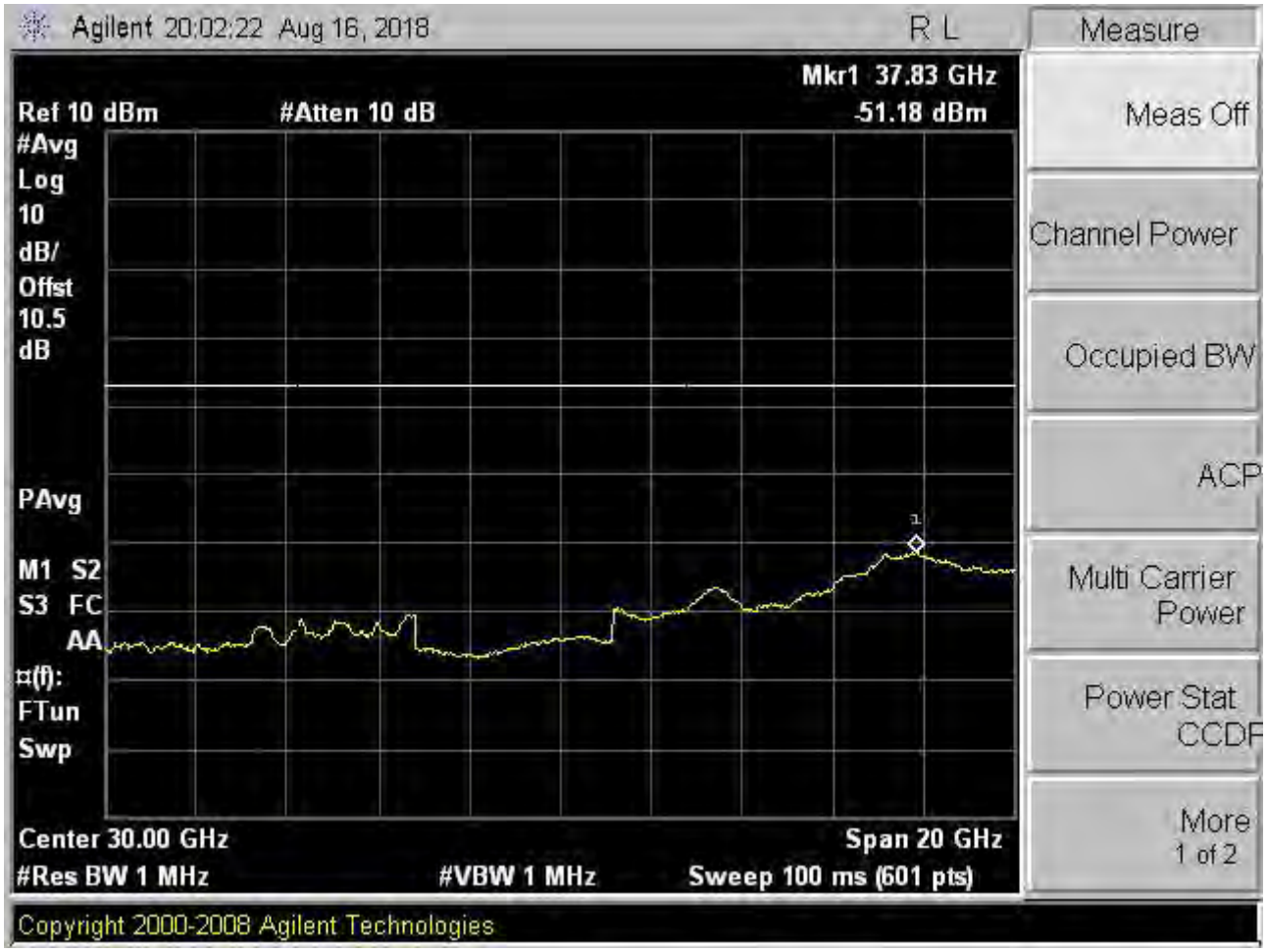
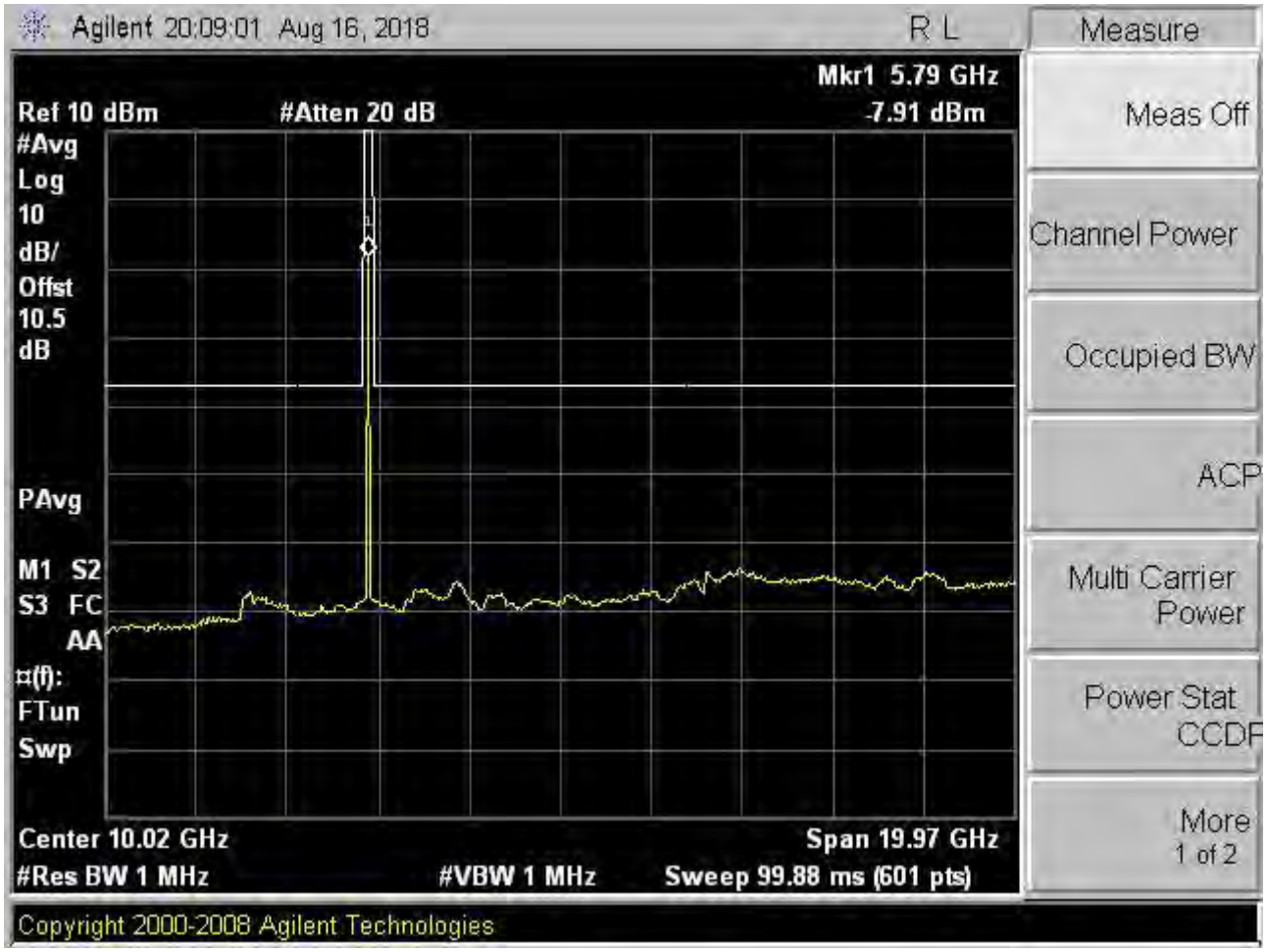
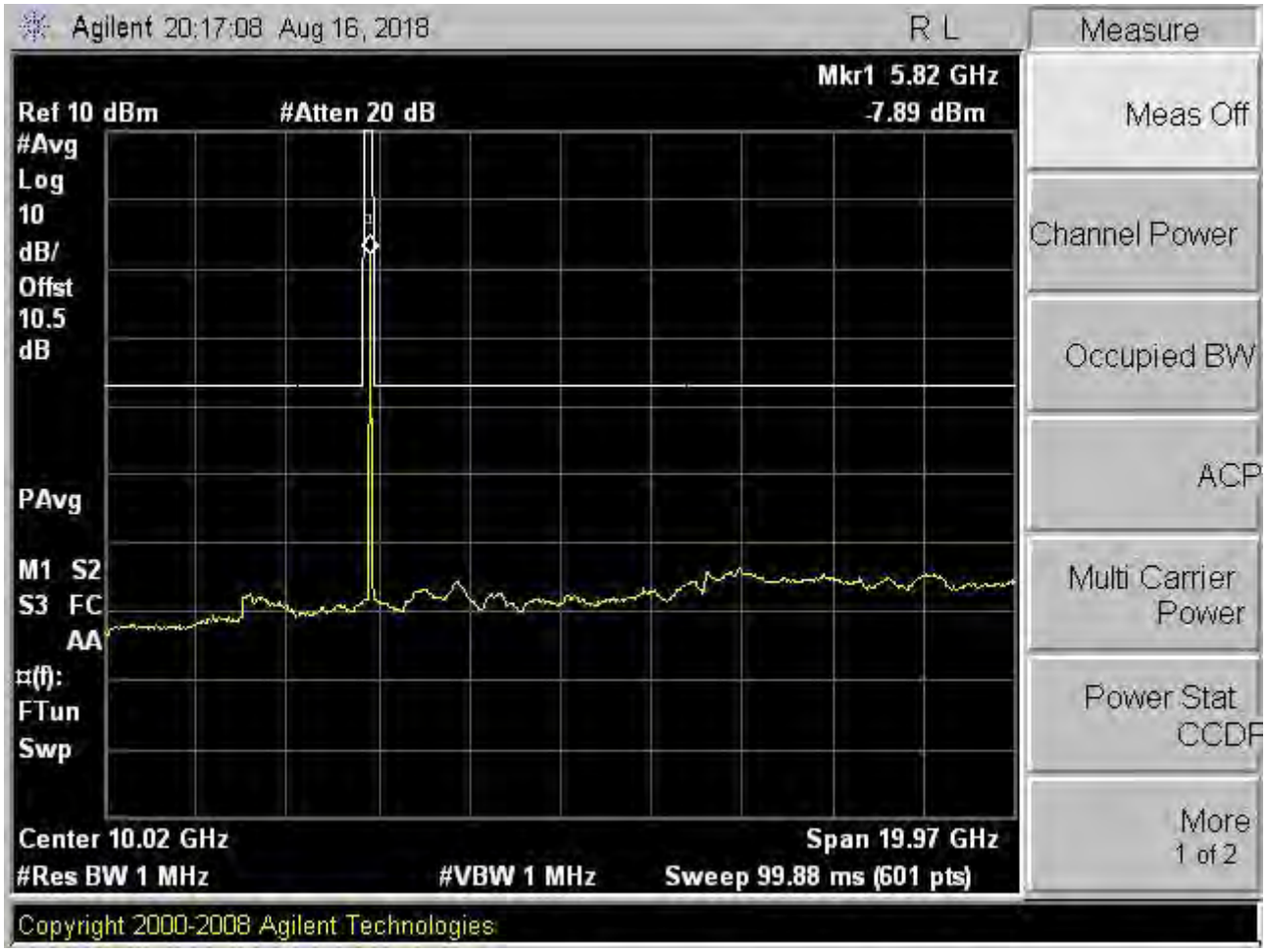
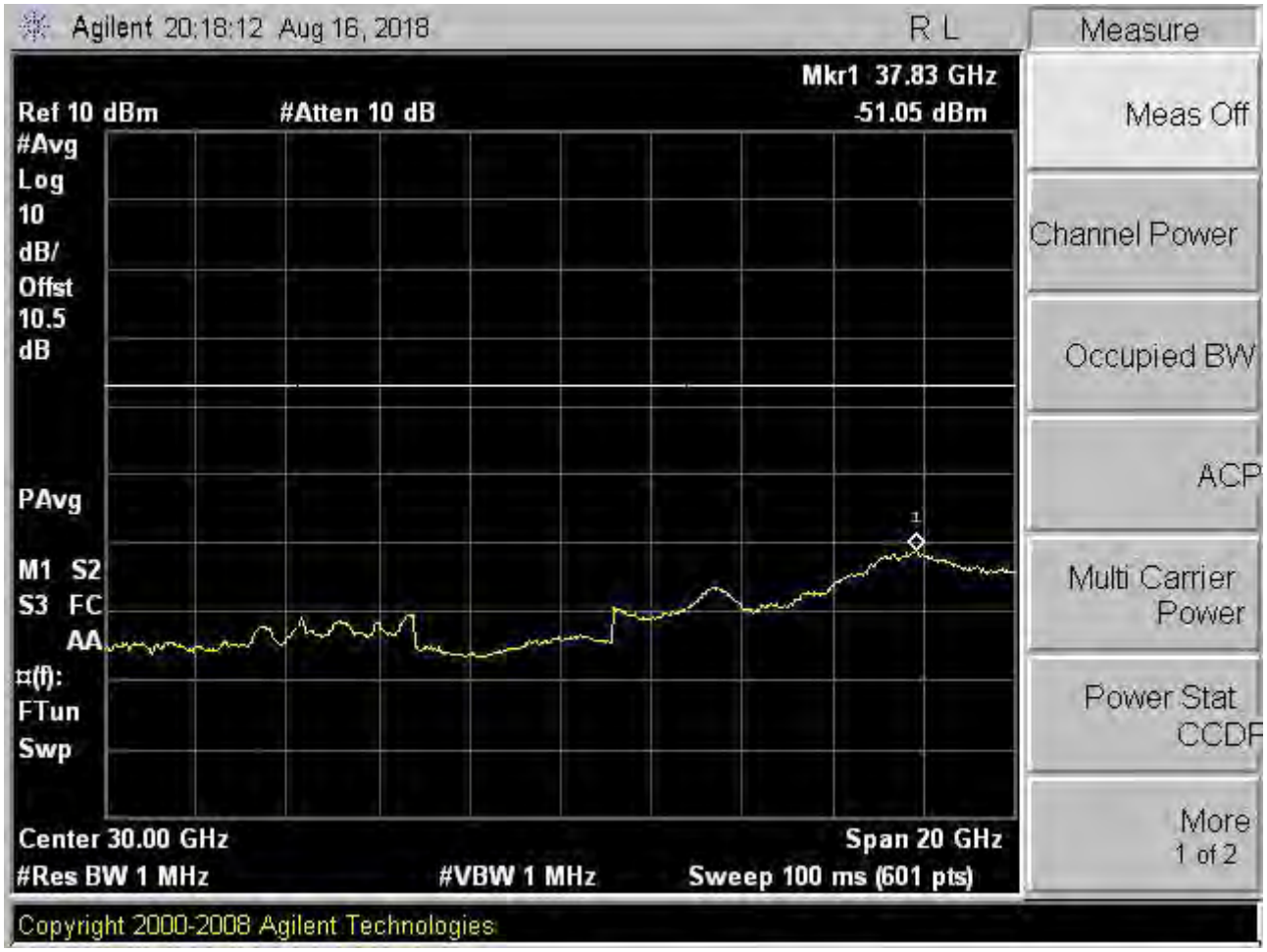

Agilent 19:57:58 Aug 16, 2018
R L
Measure
Mkr1 5.75 GHz
Ref 10 dBm
#Atten 20 dB
-8.33 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 20:02:22 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 20:09:01 Aug 16, 2018
R L
Measure
Mkr1 5.79 GHz
Ref 10 dBm
#Atten 20 dB
-7.91 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 20:09:52 Aug 16, 2018
R L
Measure
Mkr1 37.77 GHz
Ref 10 dBm
#Atten 10 dB
-51.17 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 20:17:08 Aug 16, 2018
R L
Measure
Mkr1 5.82 GHz
Ref 10 dBm
#Atten 20 dB
-7.89 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 20:18:12 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.05 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
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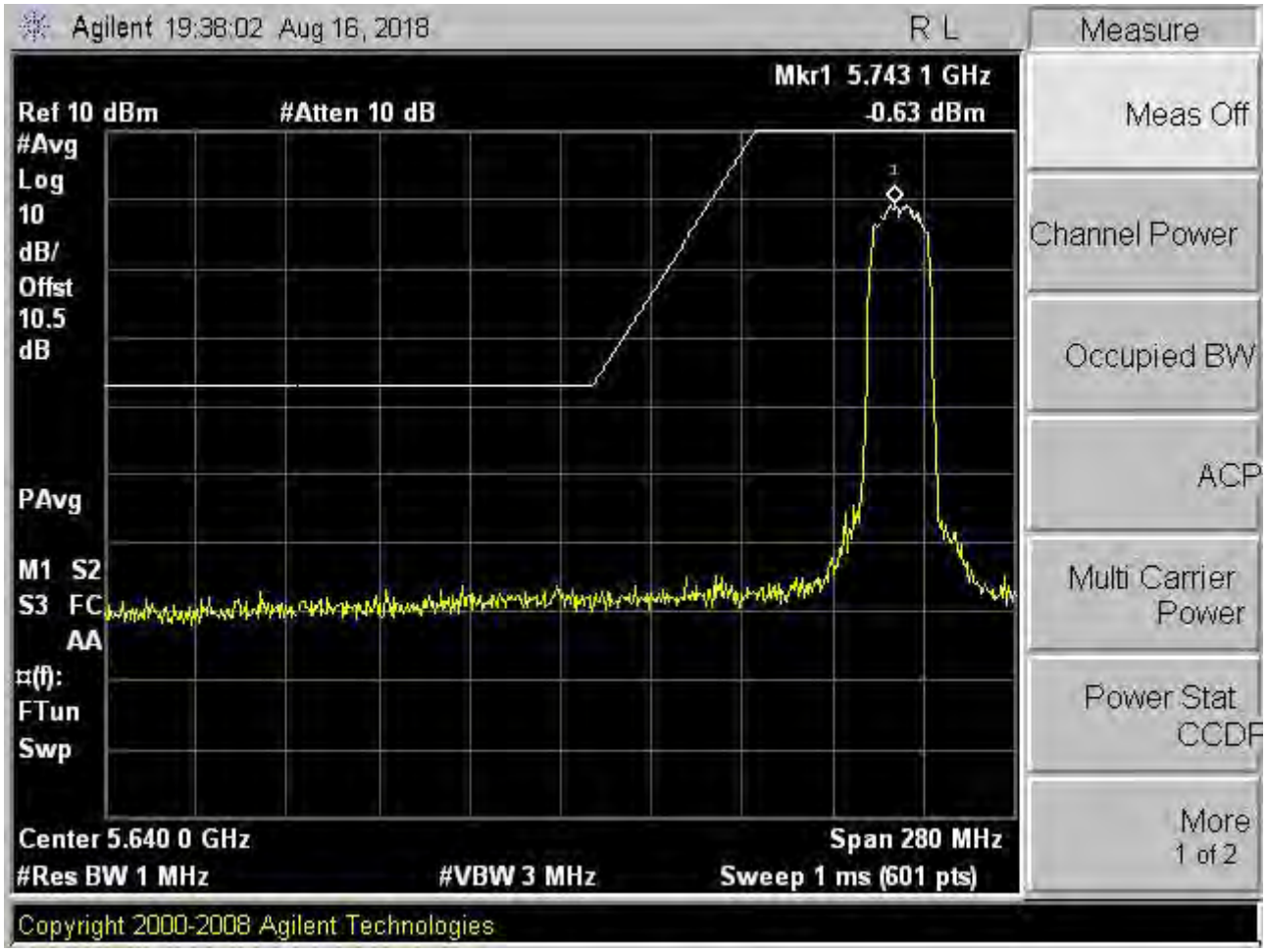
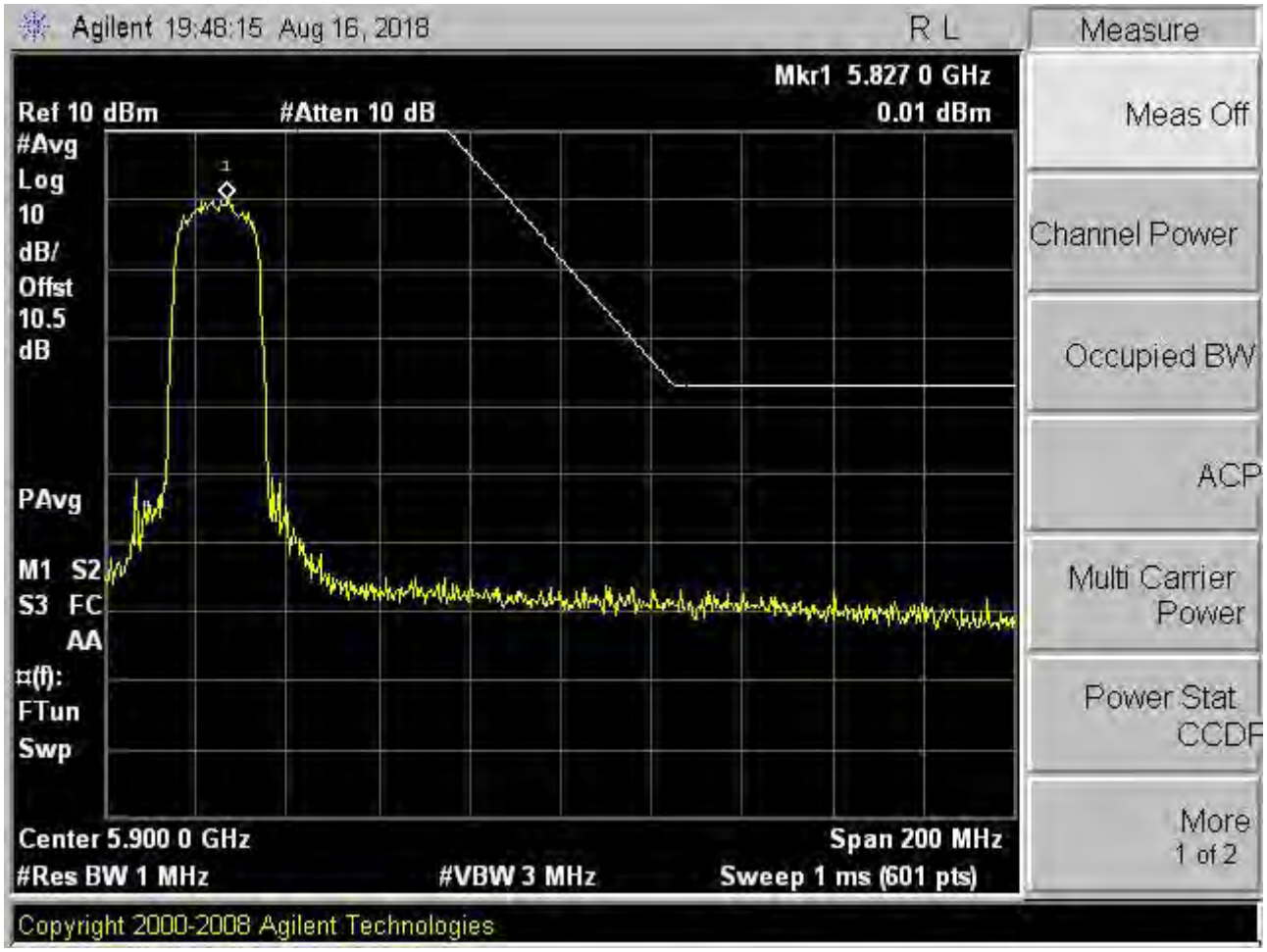
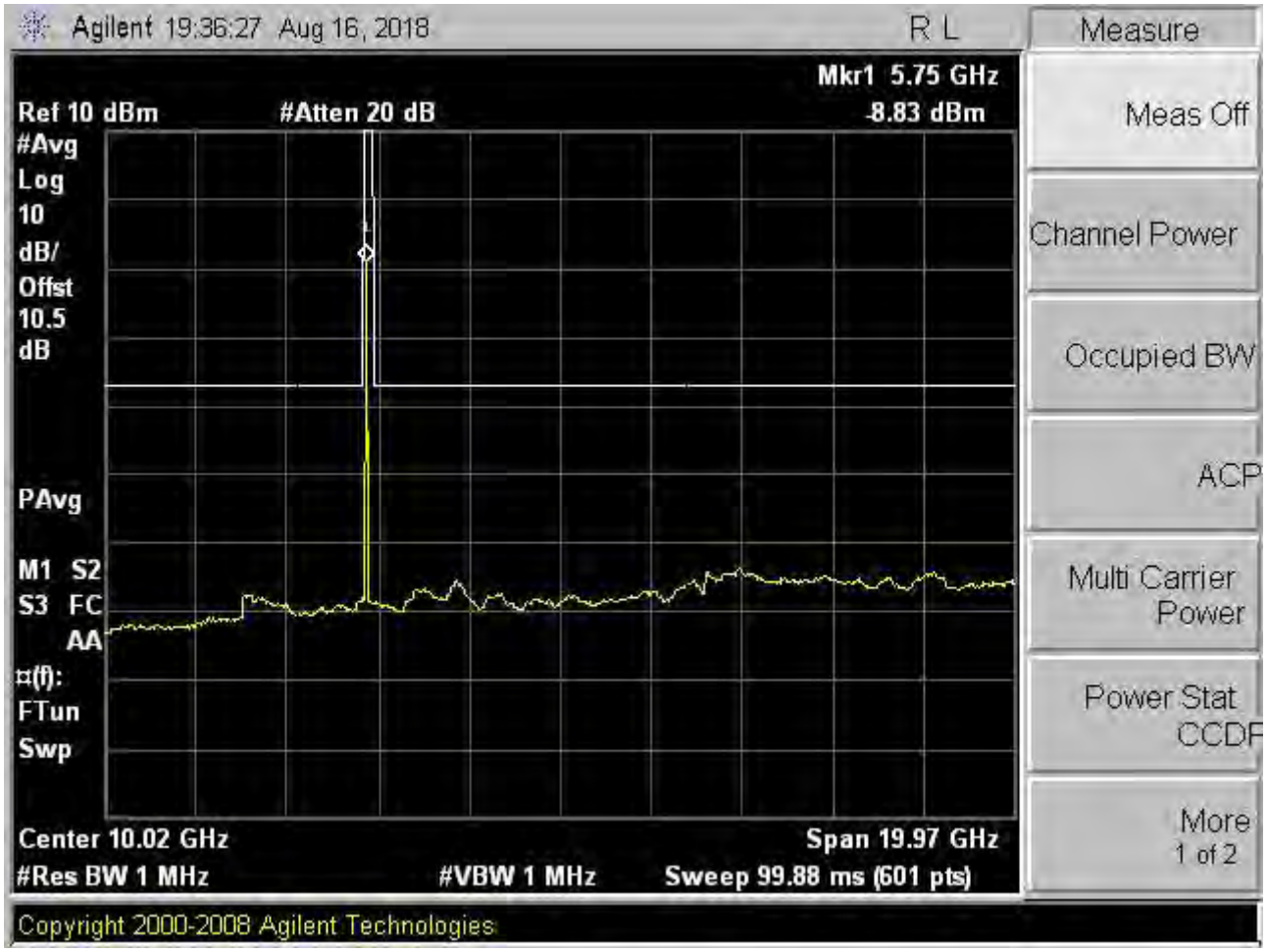
9.4.2.2 CHAIN 1

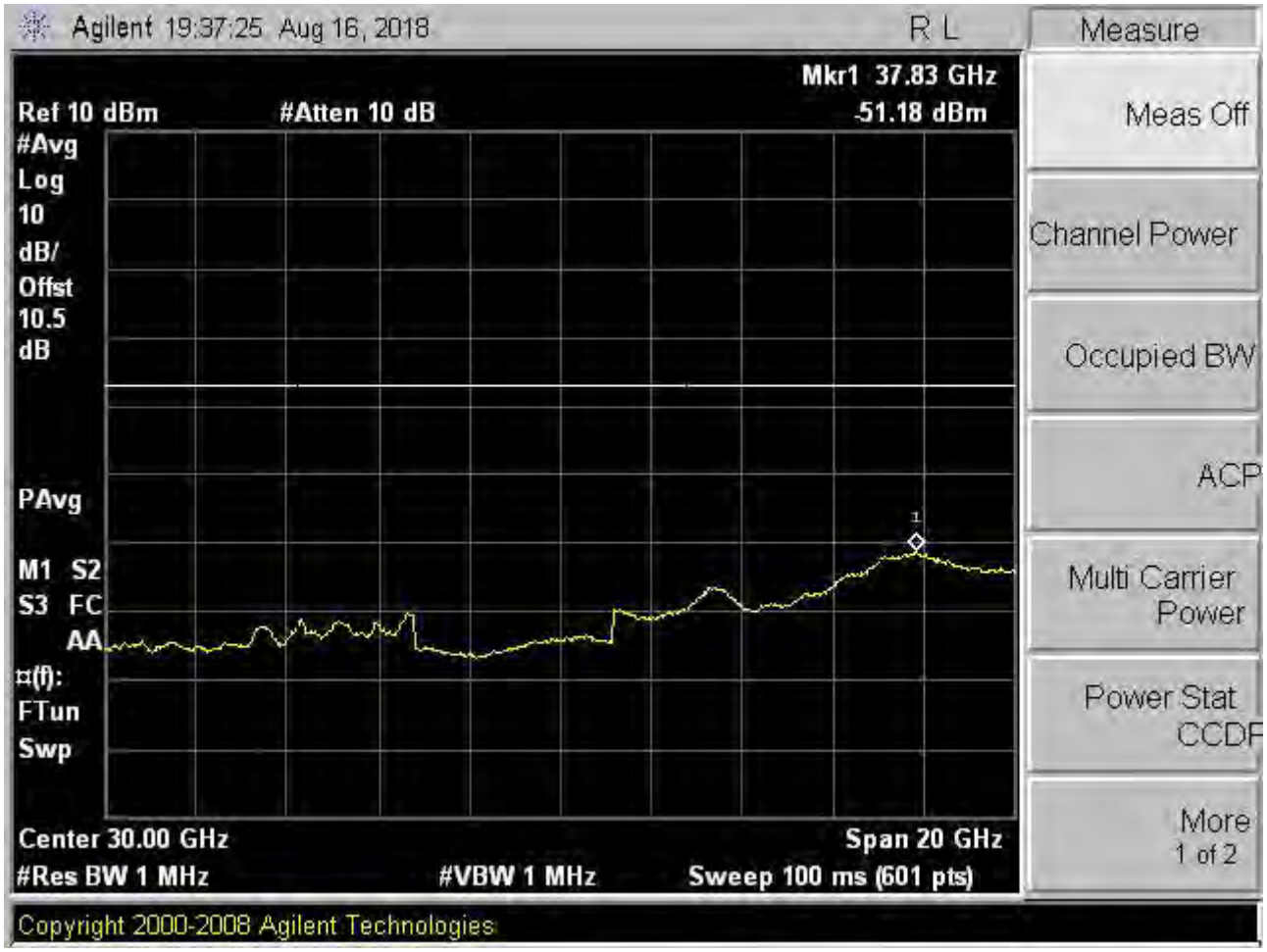
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

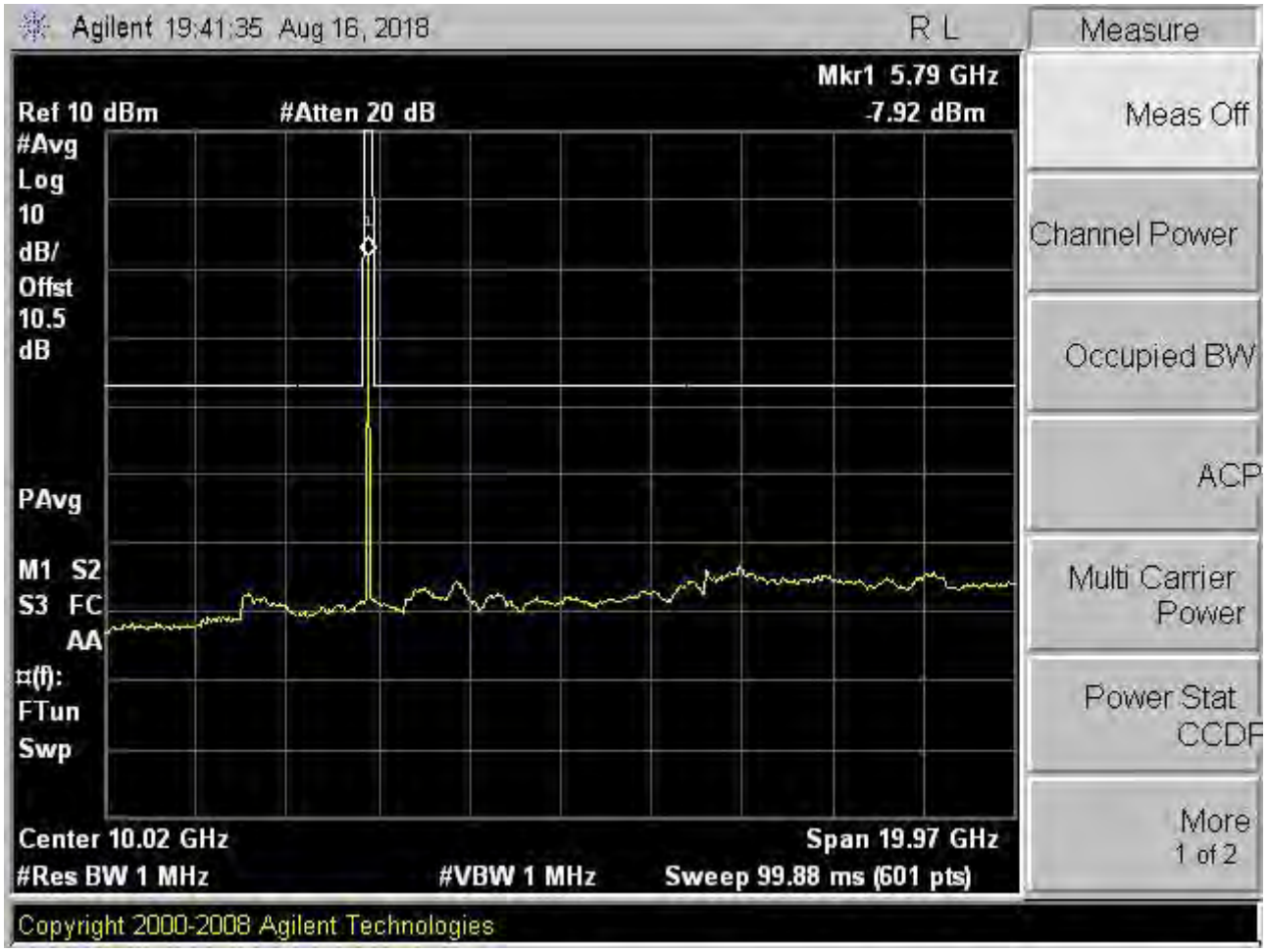
註：1. 繪圖資料請參考第 138-145 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 19:38:02 Aug 16, 2018
R L
Measure
Mkr1 5.743 1 GHz
Ref 10 dBm
#Atten 10 dB
-0.63 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.640 0 GHz
Span 280 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

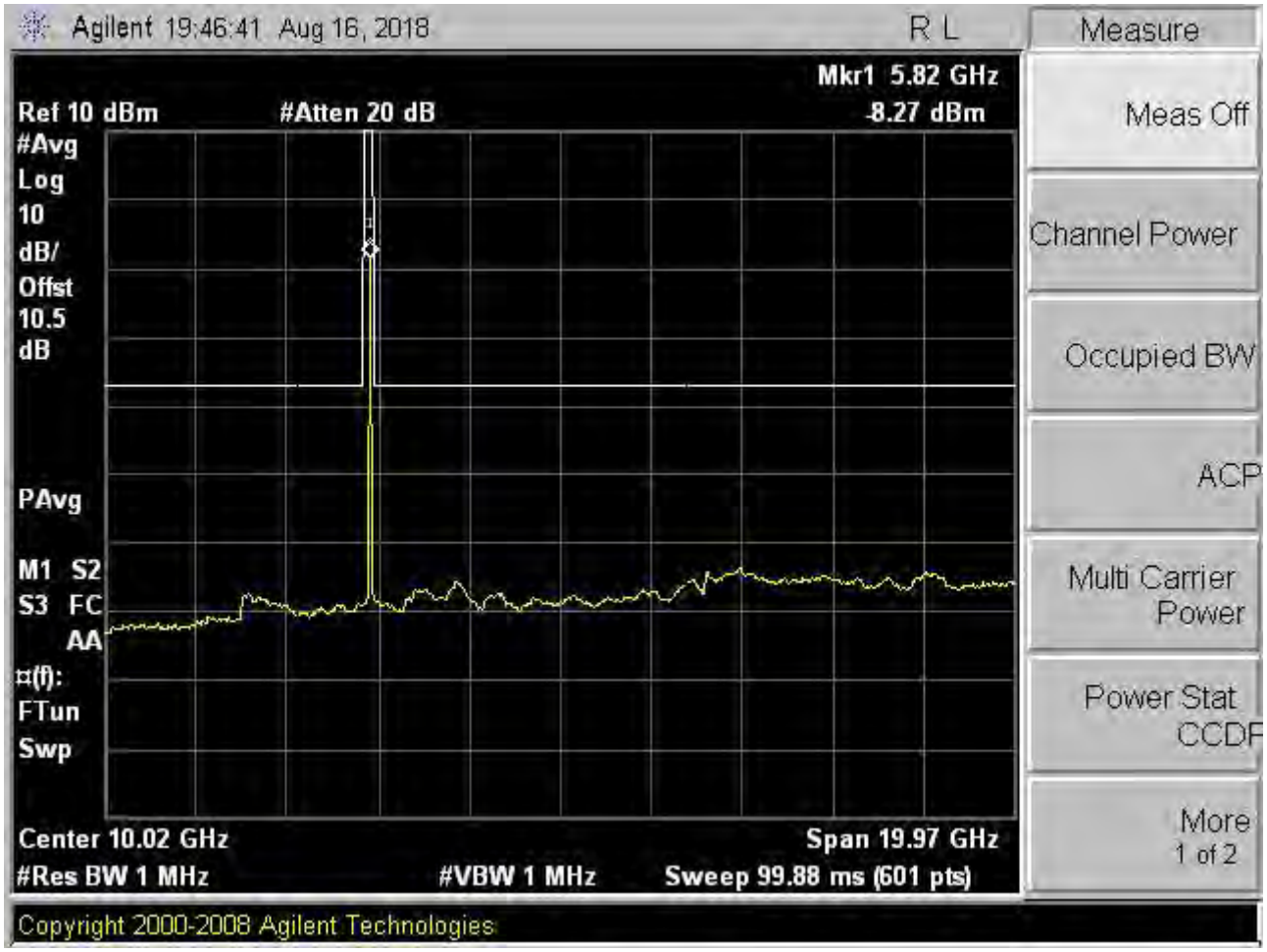

Agilent 19:48:15 Aug 16, 2018
R L
Measure
Mkr1 5.827 0 GHz
0.01 dBm
Ref 10 dBm
#Atten 10 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.900 0 GHz
Span 200 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

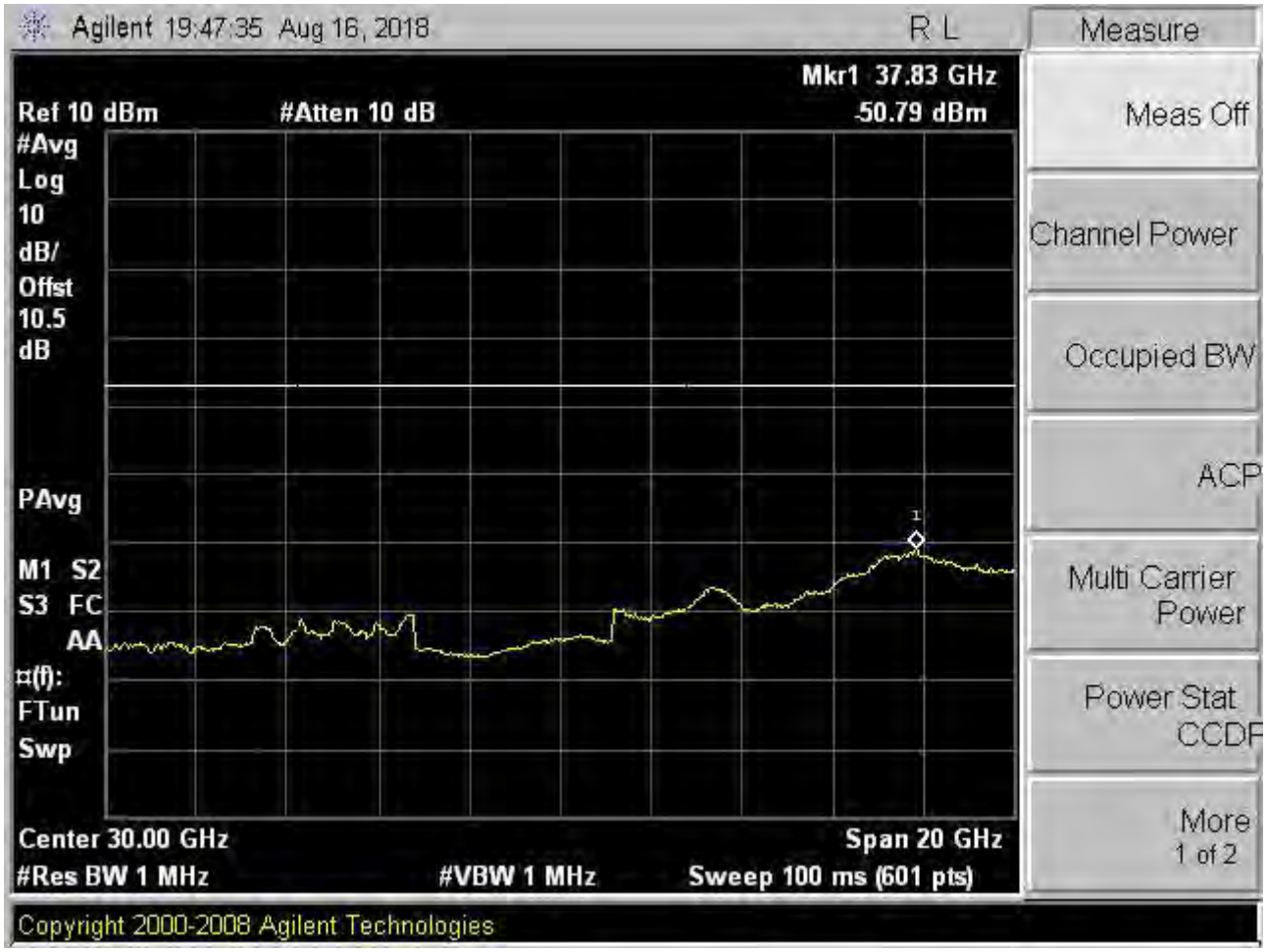

Agilent 19:36:27 Aug 16, 2018
R L
Measure
Mkr1 5.75 GHz
Ref 10 dBm
#Atten 20 dB
-8.83 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 19:37:25 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 19:41:35 Aug 16, 2018
R L
Measure
Mkr1 5.79 GHz
-7.92 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 19:42:30 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 19:46:41 Aug 16, 2018
R L
Measure
Mkr1 5.82 GHz
Ref 10 dBm
#Atten 20 dB
-8.27 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

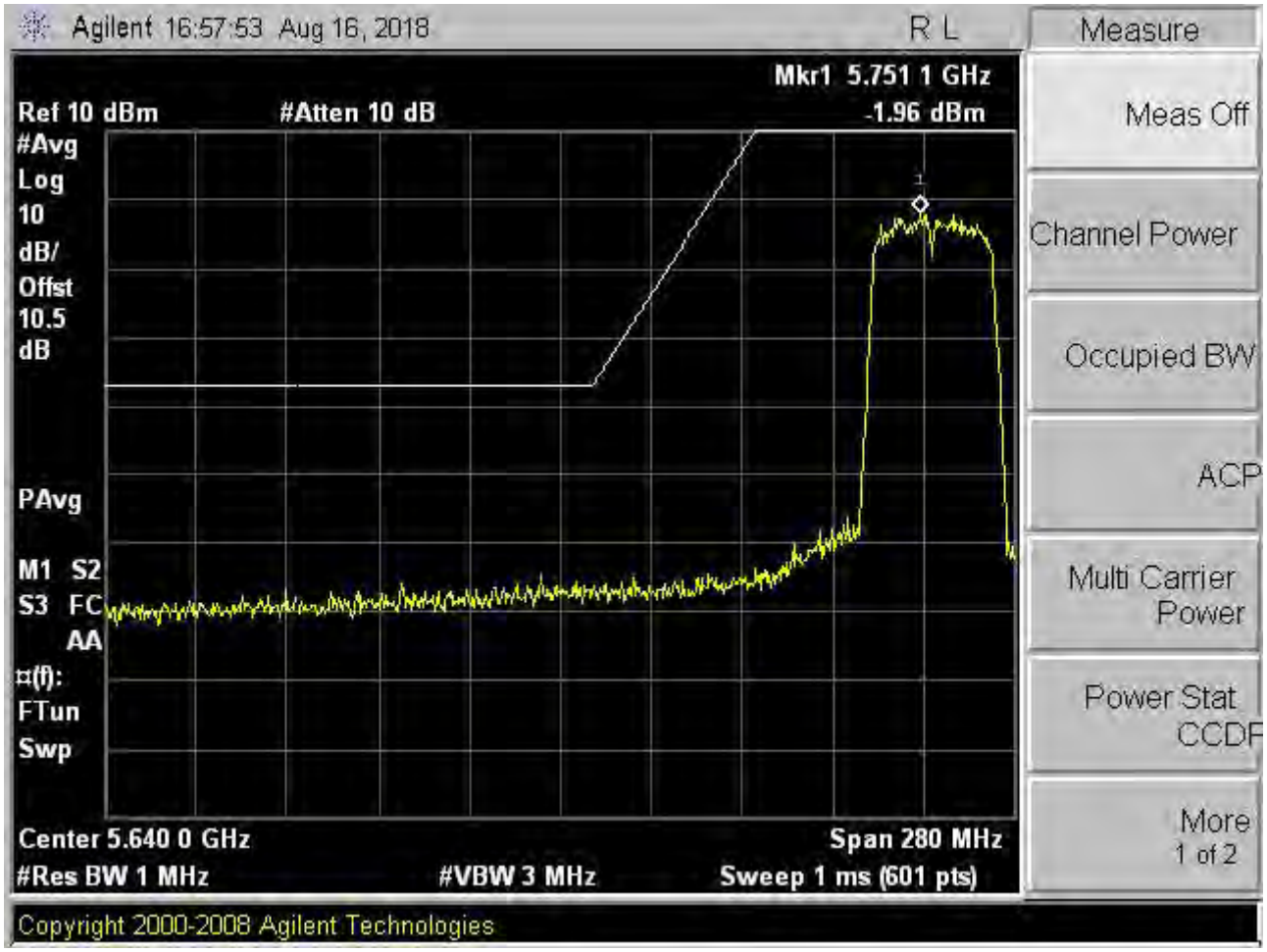

Agilent 19:47:35 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-50.79 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

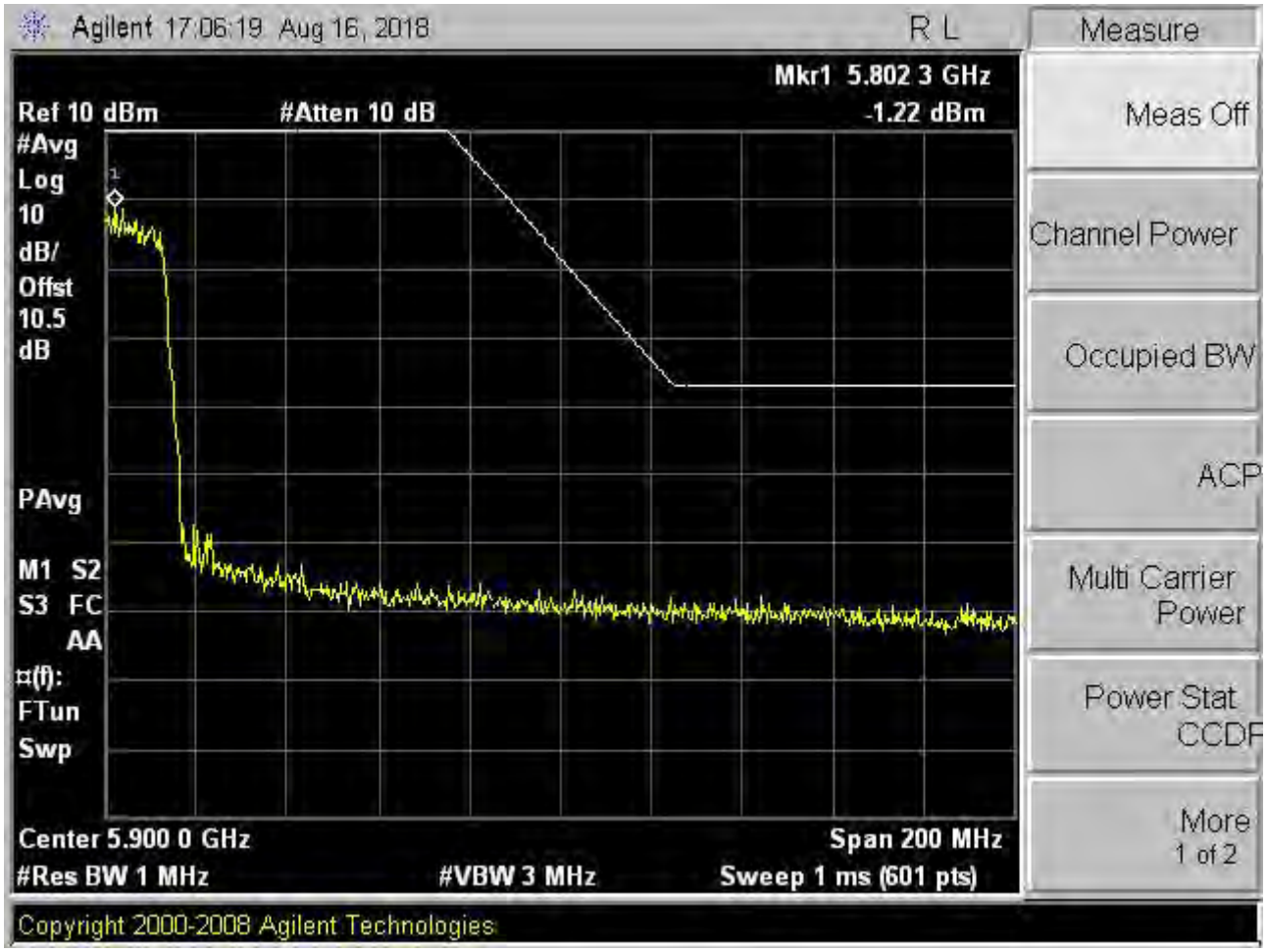
9.4.3 調變技術: IEEE 802.11an HT40

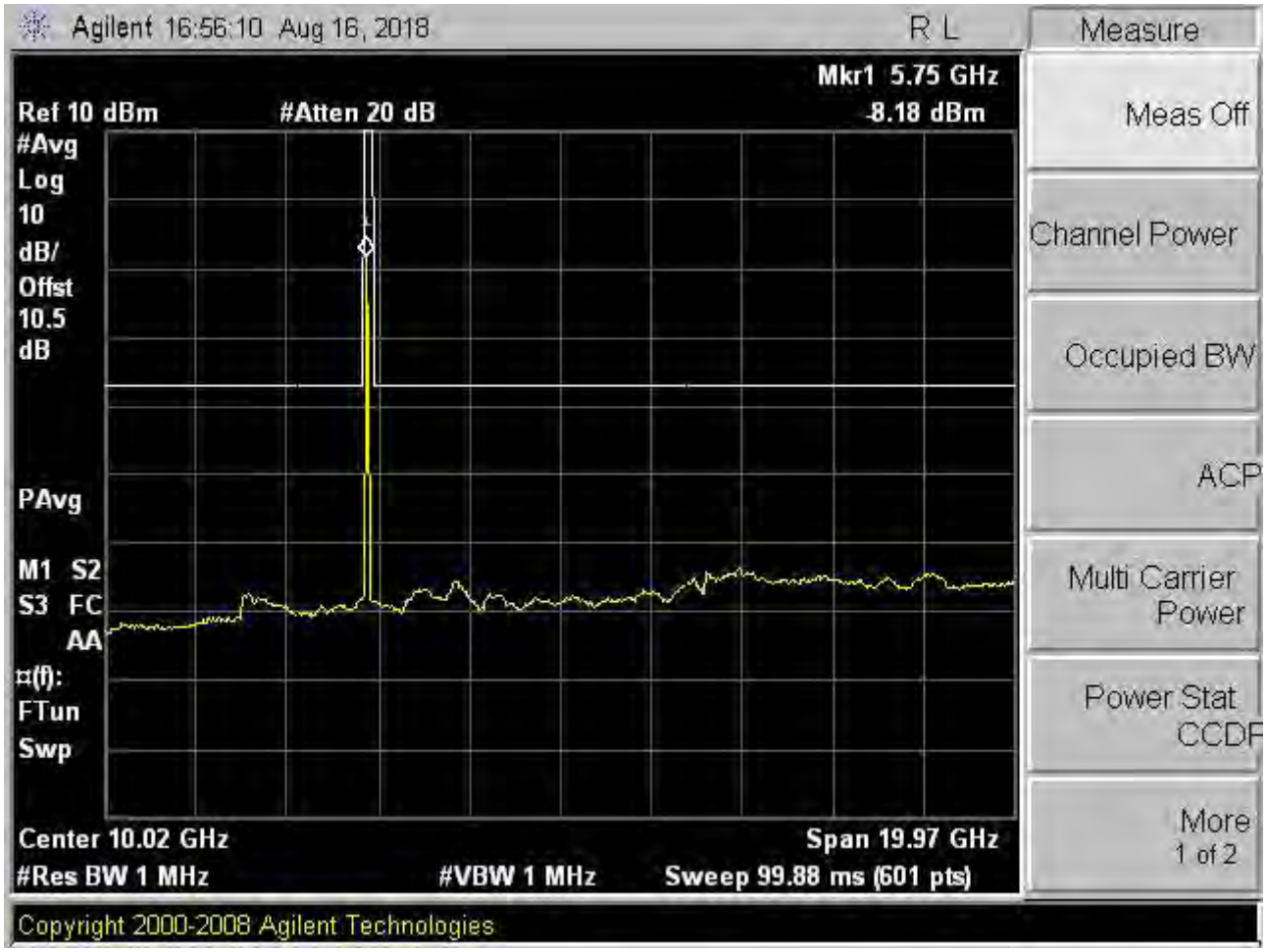
9.4.3.1 CHAIN 0

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

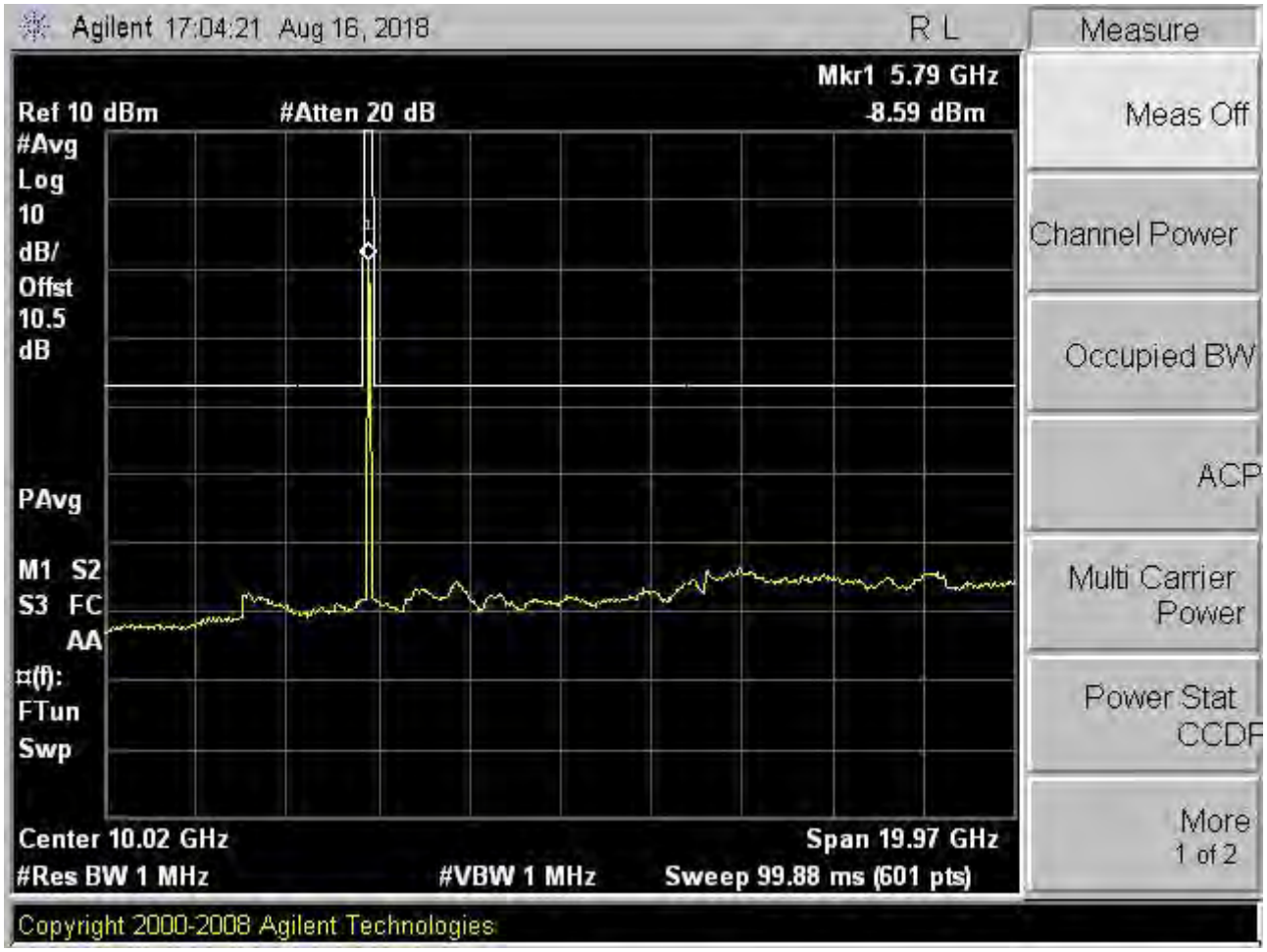
註：1. 繪圖資料請參考第 147-152 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 16:57:53 Aug 16, 2018
R L
Measure
Mkr1 5.751 1 GHz
-1.96 dBm
Ref 10 dBm
#Atten 10 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.640 0 GHz
Span 280 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 17:06:19 Aug 16, 2018
R L
Measure
Mkr1 5.802 3 GHz
-1.22 dBm
Ref 10 dBm
#Atten 10 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.900 0 GHz
Span 200 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 16:56:10 Aug 16, 2018
R L
Measure
Mkr1 5.75 GHz
Ref 10 dBm
#Atten 20 dB
-8.18 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 16:57:18 Aug 16, 2018
R L
Measure
Mkr1 37.80 GHz
Ref 10 dBm
#Atten 10 dB
-51.04 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

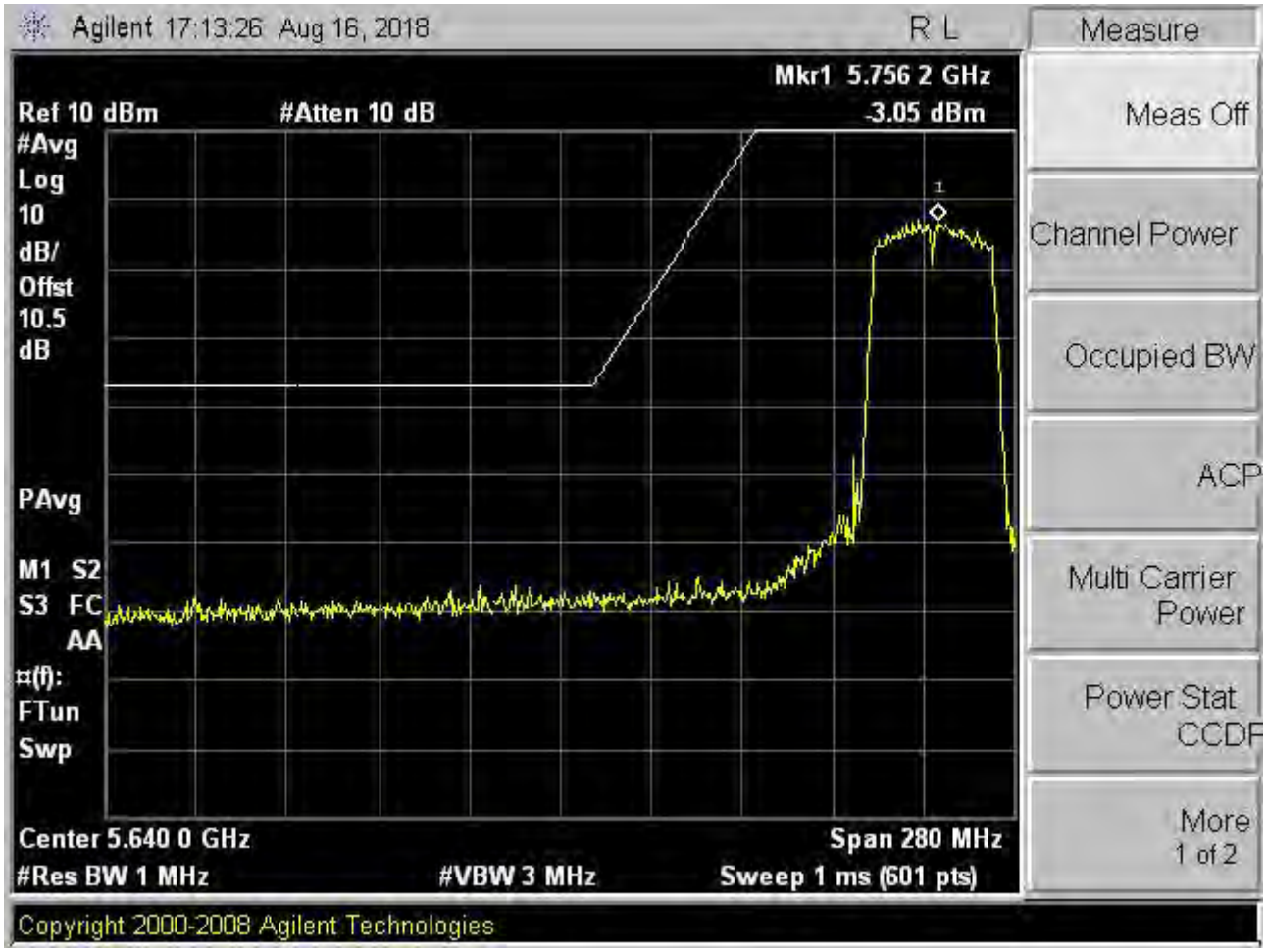

Agilent 17:04:21 Aug 16, 2018
R L
Measure
Mkr1 5.79 GHz
Ref 10 dBm
#Atten 20 dB
-8.59 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 10.02 GHz
Span 19.97 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 99.88 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

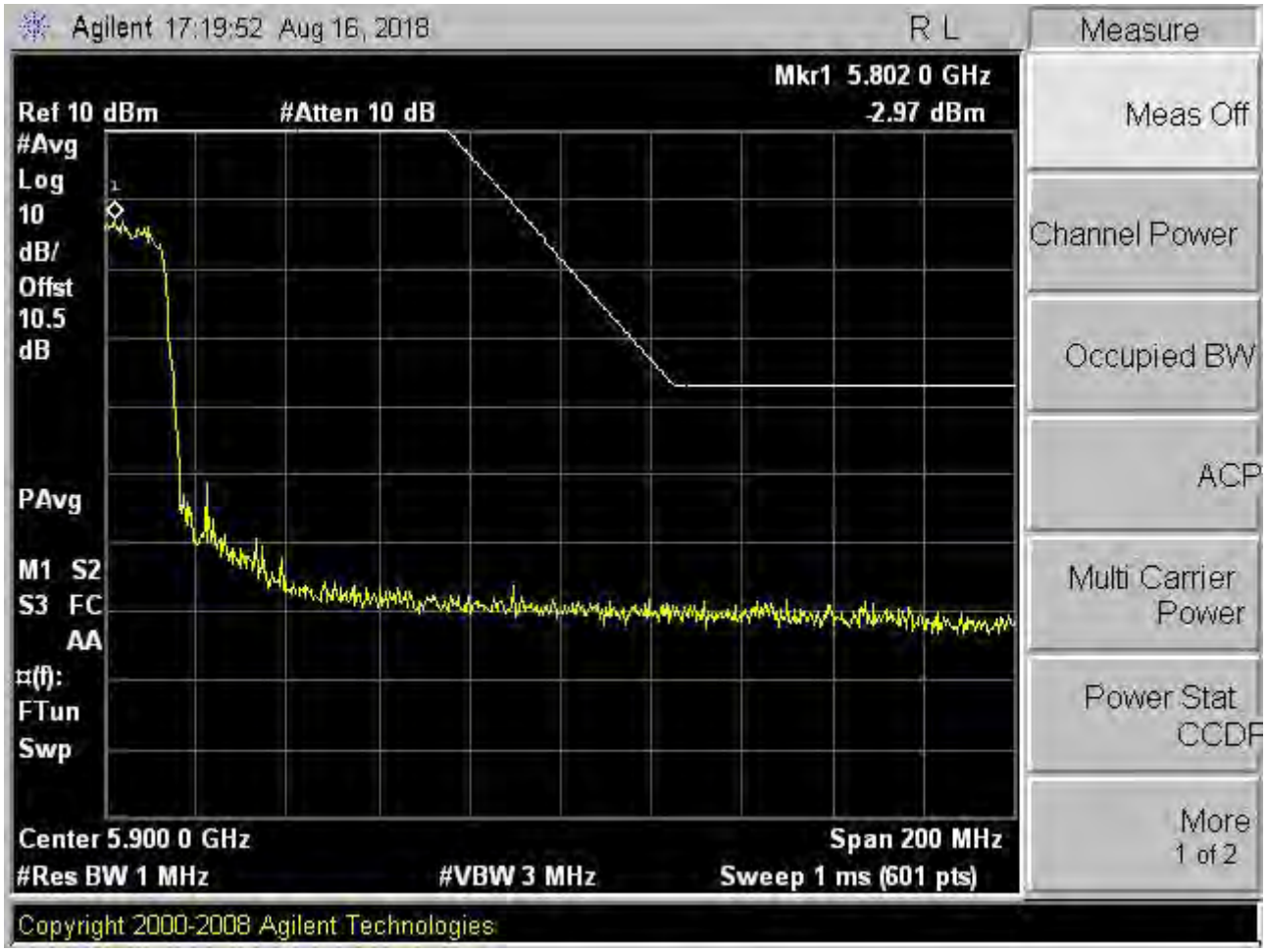
Agilent 17:05:17 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.10 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

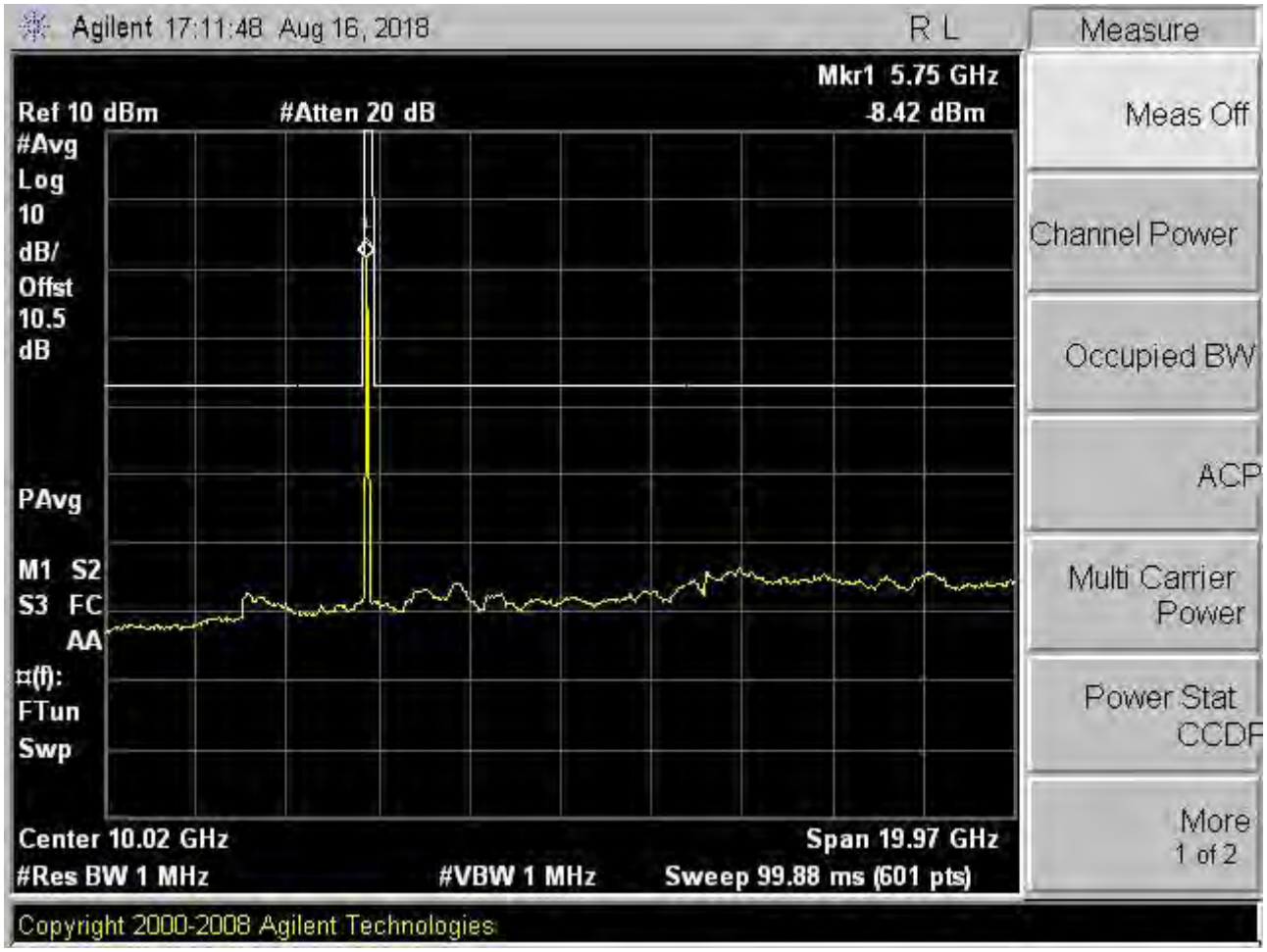
9.4.3.2 CHAIN 1

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

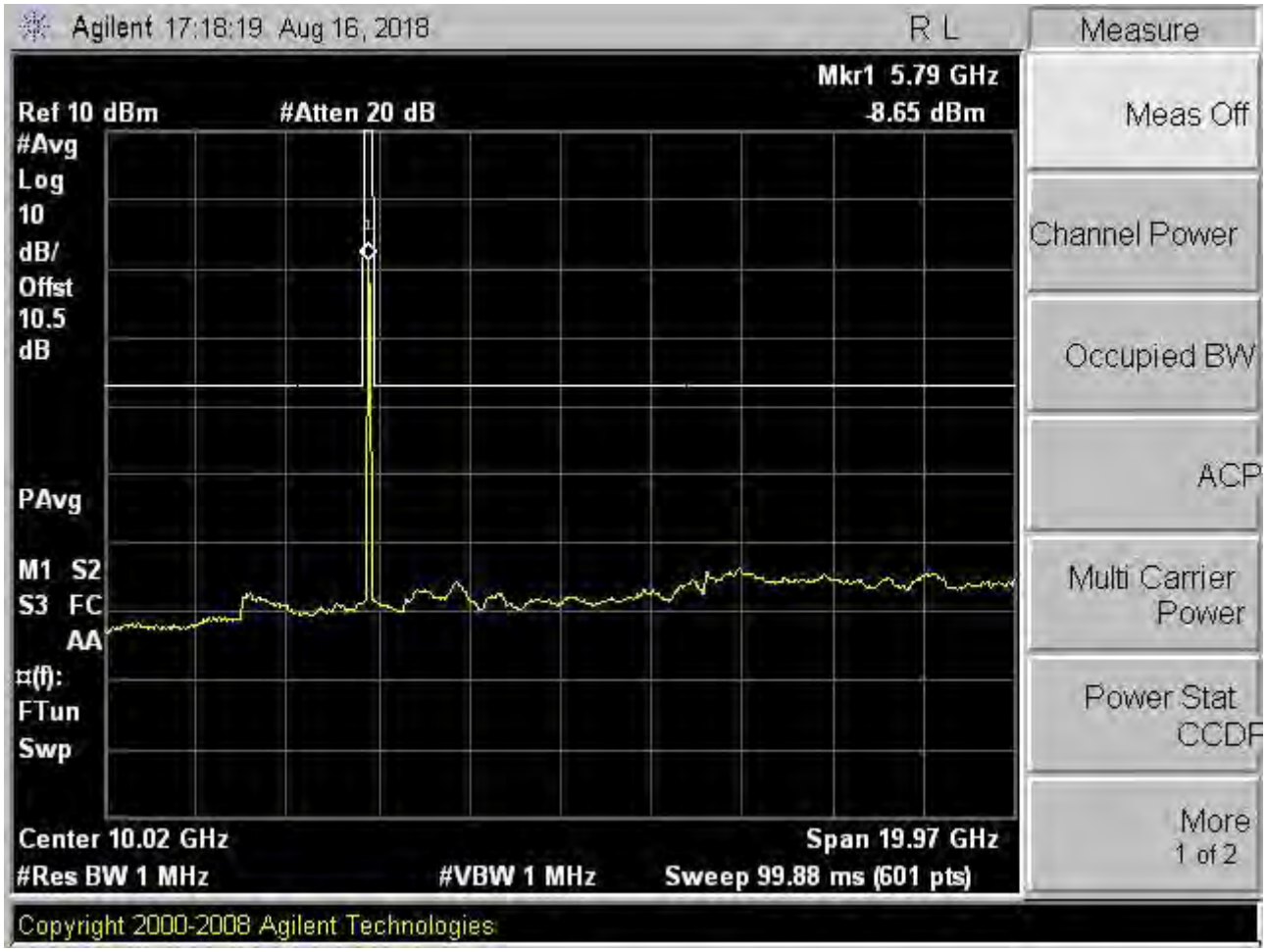
註：1. 繪圖資料請參考第 154-159 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

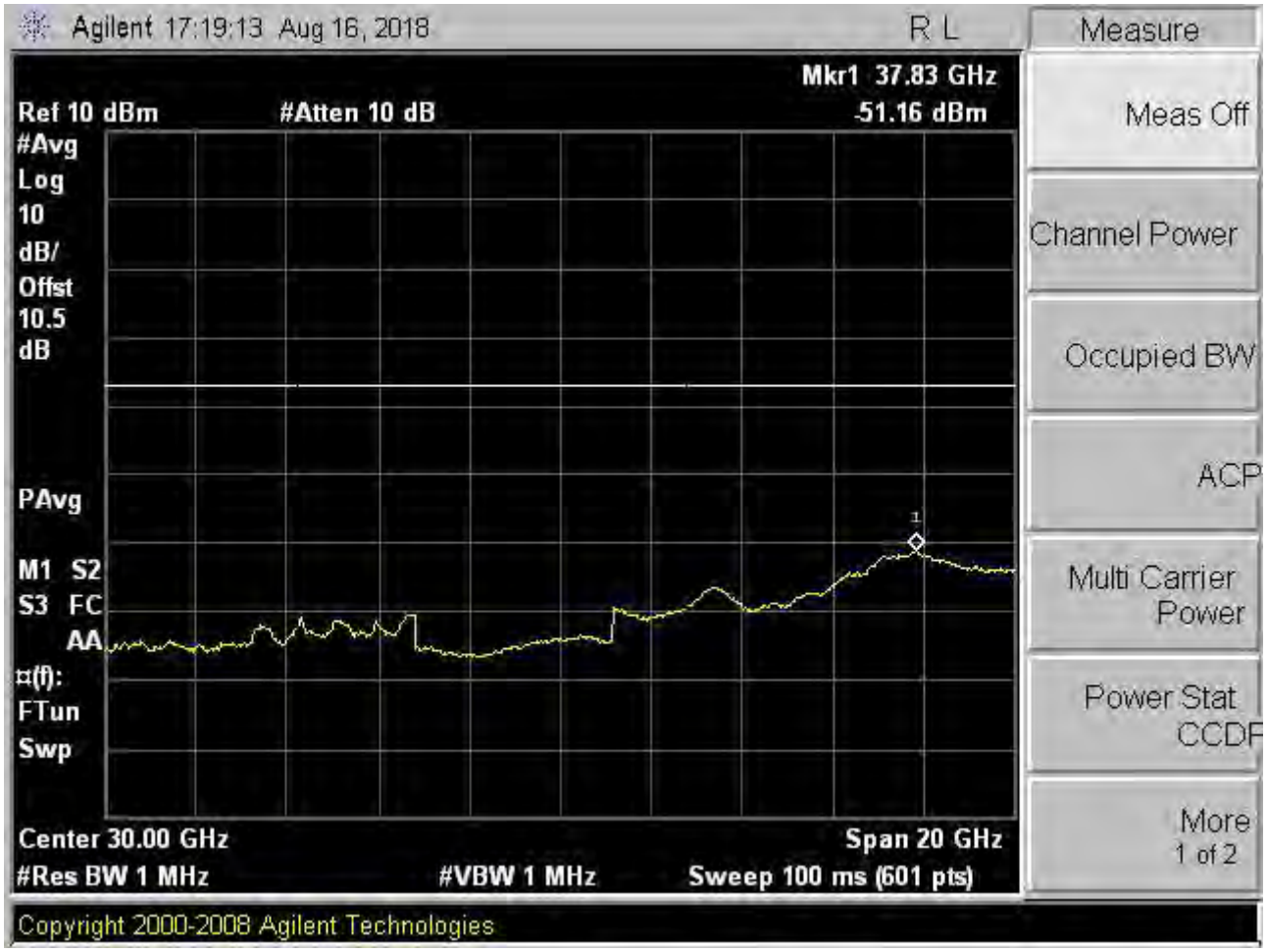

Agilent 17:13:26 Aug 16, 2018
R L
Measure
Mkr1 5.756 2 GHz
-3.05 dBm
Ref 10 dBm
#Atten 10 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.640 0 GHz
Span 280 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:19:52 Aug 16, 2018
R L
Measure
Mkr1 5.802 0 GHz
Ref 10 dBm
#Atten 10 dB
-2.97 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.900 0 GHz
Span 200 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 17:11:48 Aug 16, 2018
R L
Measure
Mkr1 5.75 GHz
Ref 10 dBm
#Atten 20 dB
-8.42 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 17:12:46 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.21 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 17:18:19 Aug 16, 2018
R L
Measure
Mkr1 5.79 GHz
Ref 10 dBm
#Atten 20 dB
-8.65 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

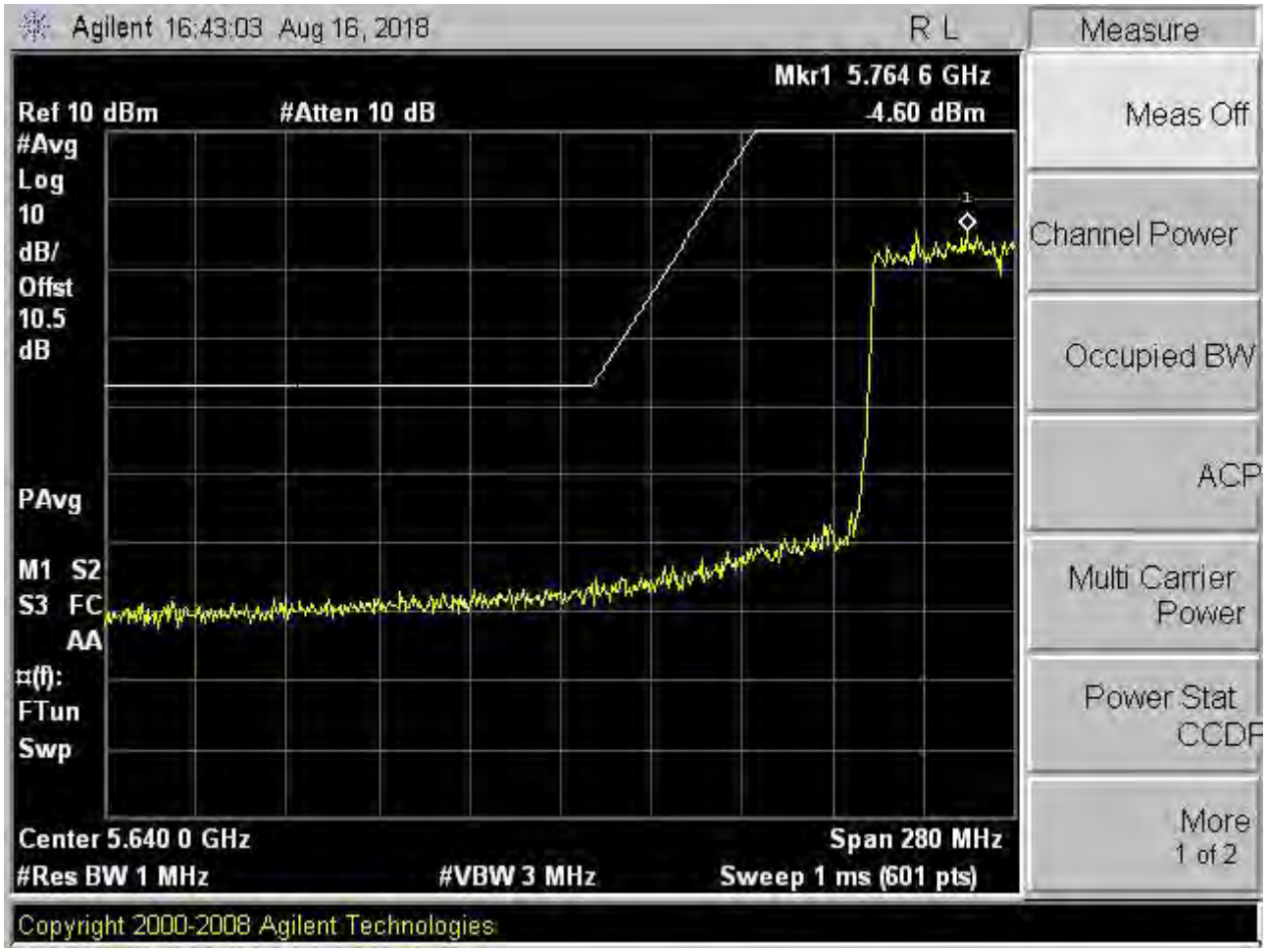

Agilent 17:19:13 Aug 16, 2018
R L
Measure
Mkr1 37.83 GHz
Ref 10 dBm
#Atten 10 dB
-51.16 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 30.00 GHz
Span 20 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 100 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Copyright 2000-2008 Agilent Technologies

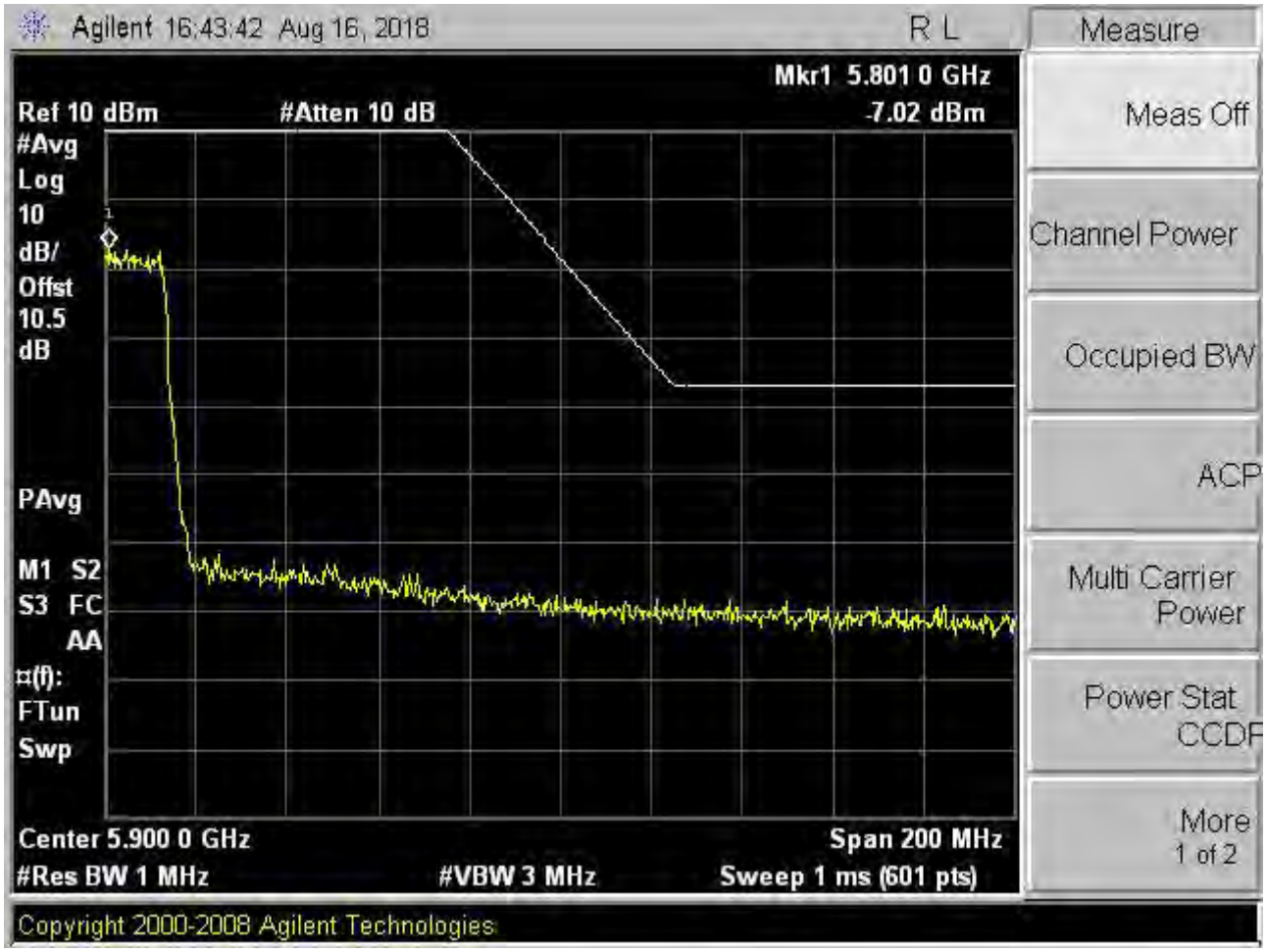
9.4.4 調變技術:IEEE 802.11ac HT80

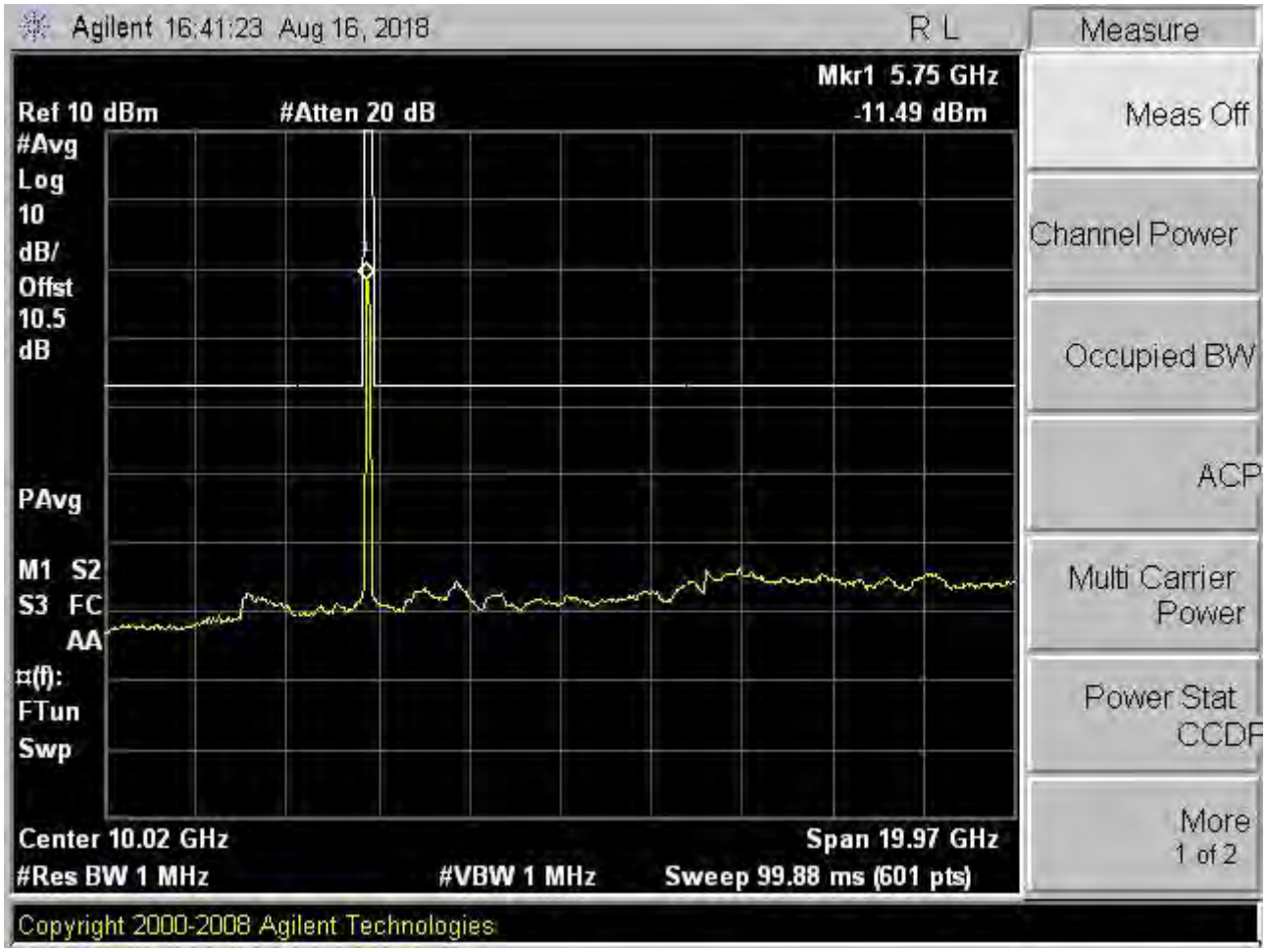
9.4.4.1 CHAIN 0

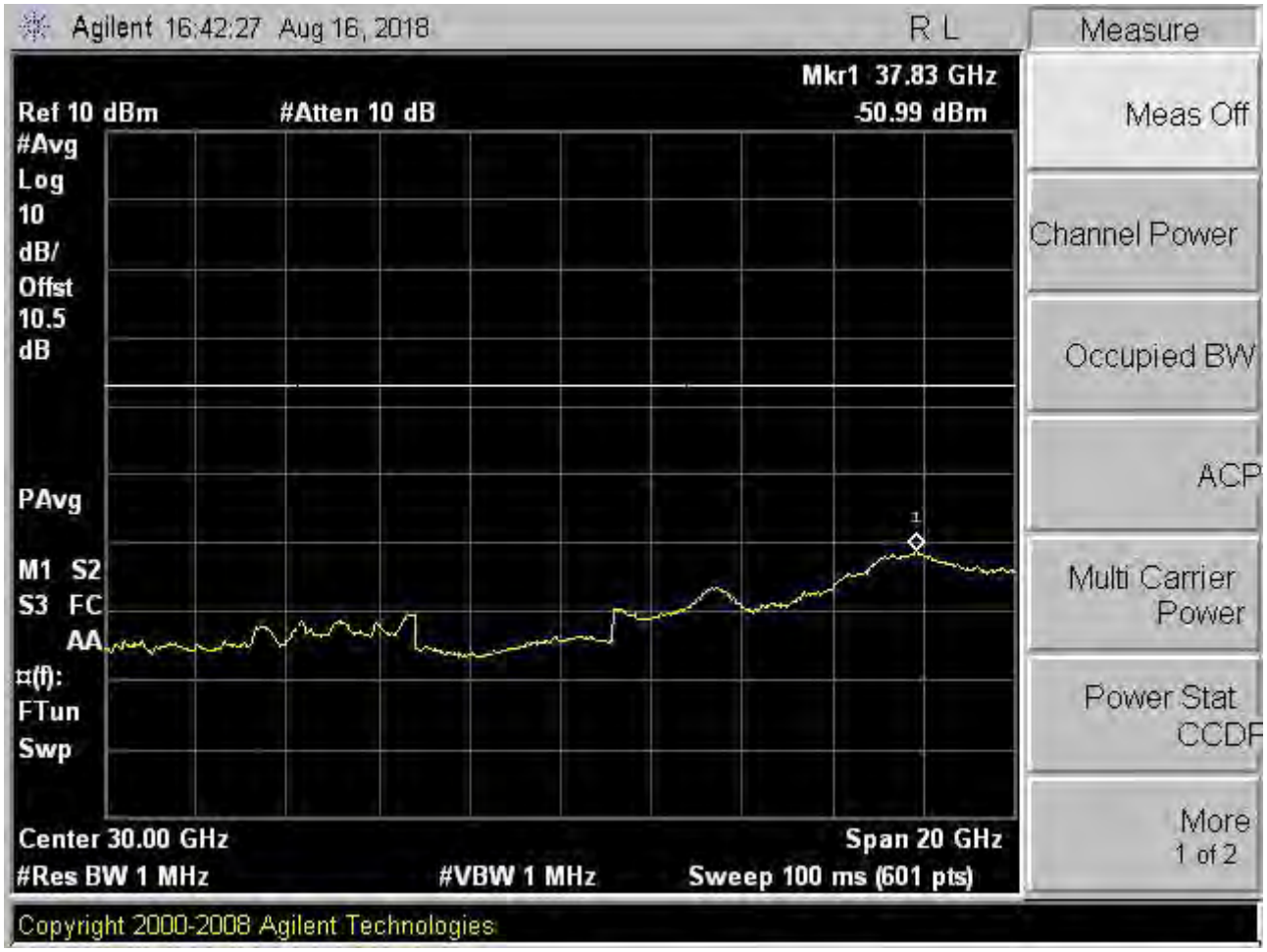
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

註：1. 繪圖資料請參考第 161-164 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)


Agilent 16:43:03 Aug 16, 2018
R L
Measure
Mkr1 5.764 6 GHz
Ref 10 dBm
#Atten 10 dB
-4.60 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.640 0 GHz
Span 280 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 16:43:42 Aug 16, 2018
R L
Measure
Mkr1 5.801 0 GHz
-7.02 dBm
Ref 10 dBm
#Atten 10 dB
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.900 0 GHz
Span 200 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 16:41:23 Aug 16, 2018
R L
Measure
Mkr1 5.75 GHz
Ref 10 dBm
#Atten 20 dB
-11.49 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 16:42:27 Aug 16, 2018
R L
Measure
Mkr1 37.83 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

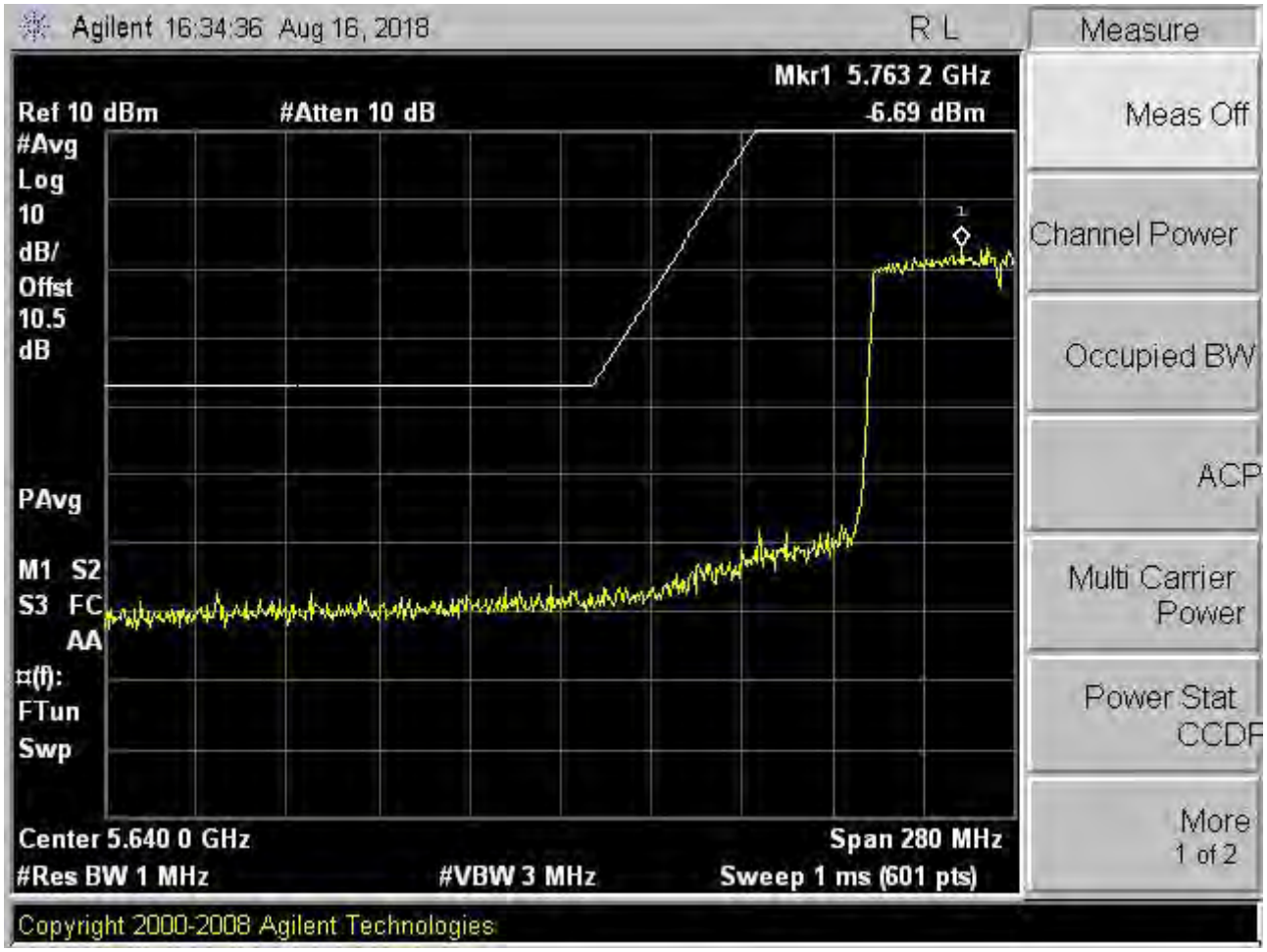
9.4.4.2 CHAIN 1

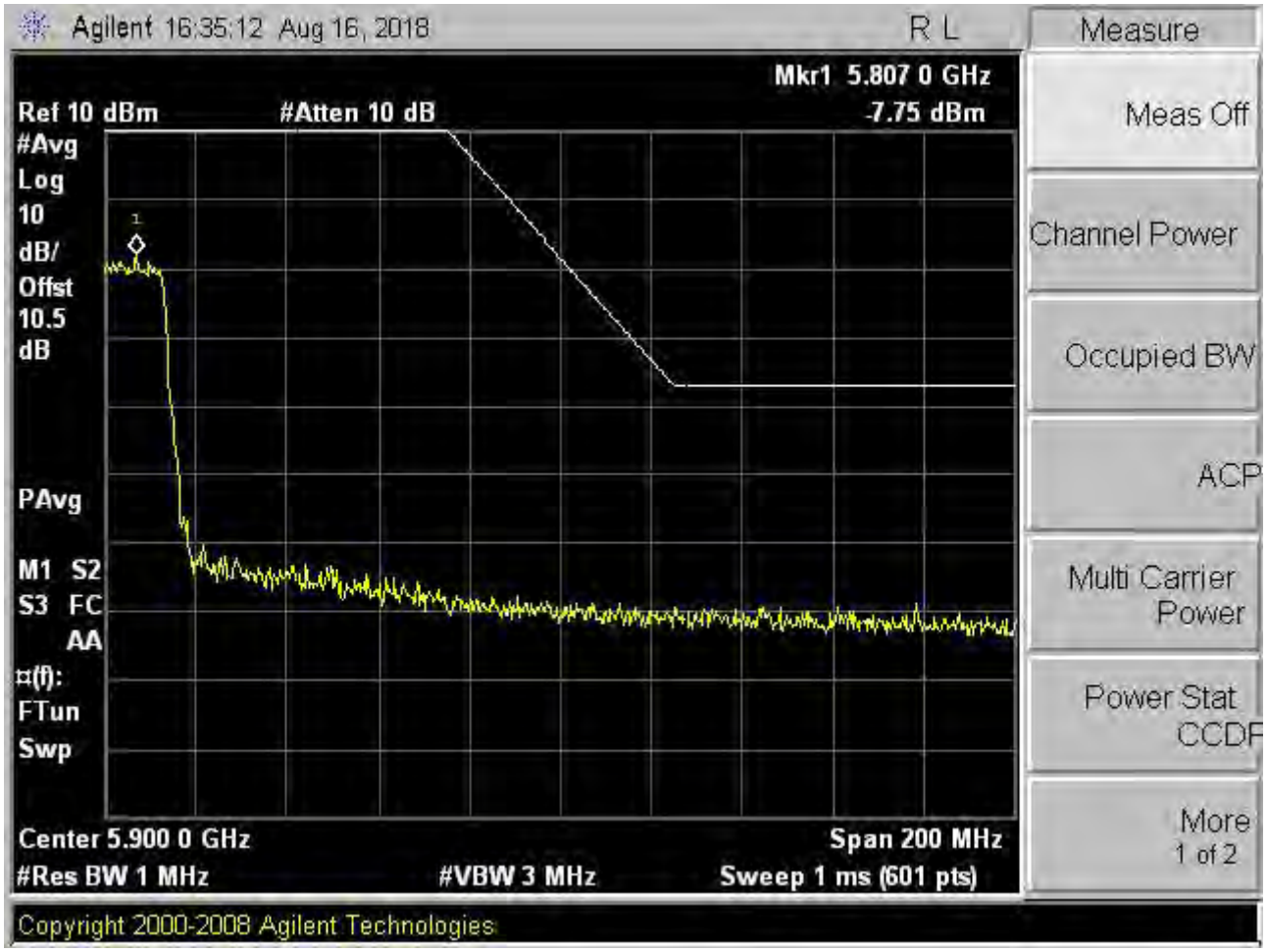
測試日期: Aug. 16, 2018 環境溫度: 24℃ 環境濕度: 60%

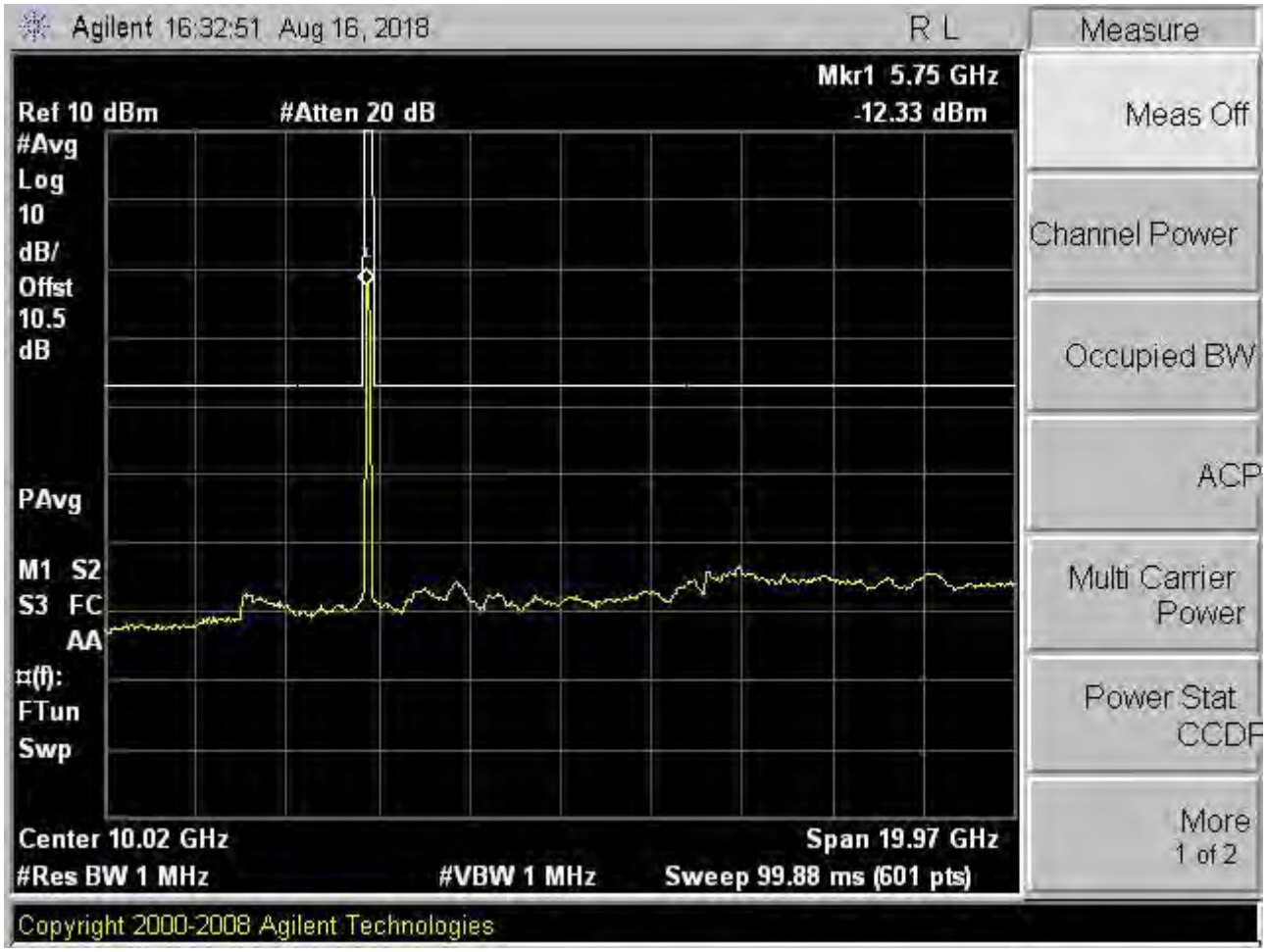
註：1. 繪圖資料請參考第 166-169 頁。
2. 量測不準確度:±1.5dB(1GHz≦f≦18GHz)

9.5 結果判定

混附波之發射皆低於使用頻帶內最高的射頻功率20dB以上，符合標準規定。


Agilent 16:34:36 Aug 16, 2018
R L
Measure
Mkr1 5.763 2 GHz
Ref 10 dBm
#Atten 10 dB
-6.69 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.640 0 GHz
Span 280 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 16:35:12 Aug 16, 2018
R L
Measure
Mkr1 5.807 0 GHz
Ref 10 dBm
#Atten 10 dB
-7.75 dBm
#Avg
Log
10
dB/
Offst
10.5
dB
PAvg
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 5.900 0 GHz
Span 200 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 16:32:51 Aug 16, 2018
R L
Measure
Mkr1 5.75 GHz
Ref 10 dBm
#Atten 20 dB
-12.33 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 16:34:00 Aug 16, 2018
R L
Measure
Mkr1 37.80 GHz
Ref 10 dBm
#Atten 10 dB
-51.19 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4.7.4.6節之要求，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。

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

10.5.1.1 調變技術: IEEE 802.11a

a. Channel Low

操作模式 :發射接收

基本波頻率 :5745 MHz

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

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)
11490.0000	H	---	---	4.69	---	---	74.0	54.0	---
11490.0000	V	---	---	4.69	---	---	74.0	54.0	---
17235.0000	H	---	---	9.10	---	---	74.0	54.0	---
17235.0000	V	---	---	9.10	---	---	74.0	54.0	---
22980.0000	H	---	---	12.01	---	---	74.0	54.0	---
22980.0000	V	---	---	12.01	---	---	74.0	54.0	---
28725.0000	H	---	---	13.86	---	---	74.0	54.0	---
28725.0000	V	---	---	13.86	---	---	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)

b. Channel Mid

操作模式 ：發射接收
基本波頻率 ：5785MHz
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
11570.0000	H	---	---	4.71	---	---	74.0	54.0	---
11570.0000	V	---	---	4.71	---	---	74.0	54.0	---
17355.0000	H	---	---	9.87	---	---	74.0	54.0	---
17355.0000	V	---	---	9.87	---	---	74.0	54.0	---
23140.0000	H	---	---	11.89	---	---	74.0	54.0	---
23140.0000	V	---	---	11.89	---	---	74.0	54.0	---
28925.0000	H	---	---	13.82	---	---	74.0	54.0	---
28925.0000	V	---	---	13.82	---	---	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)

c. Channel High

操作模式 ：發射接收
基本波頻率 ：5825MHz
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
11650.0000	H	---	---	4.73	---	---	74.0	54.0	---
11650.0000	V	---	---	4.73	---	---	74.0	54.0	---
17475.0000	H	---	---	10.64	---	---	74.0	54.0	---
17475.0000	V	---	---	10.64	---	---	74.0	54.0	---
23300.0000	H	---	---	11.76	---	---	74.0	54.0	---
23300.0000	V	---	---	11.76	---	---	74.0	54.0	---
29125.0000	H	---	---	13.86	---	---	74.0	54.0	---
29125.0000	V	---	---	13.86	---	---	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

操作模式 ：發射接收
基本波頻率 ：5745 MHz
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
11490.0000	H	---	---	4.69	---	---	74.0	54.0	---
11490.0000	V	---	---	4.69	---	---	74.0	54.0	---
17235.0000	H	---	---	9.10	---	---	74.0	54.0	---
17235.0000	V	---	---	9.10	---	---	74.0	54.0	---
22980.0000	H	---	---	12.01	---	---	74.0	54.0	---
22980.0000	V	---	---	12.01	---	---	74.0	54.0	---
28725.0000	H	---	---	13.86	---	---	74.0	54.0	---
28725.0000	V	---	---	13.86	---	---	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)

b. Channel Mid

操作模式 ：發射接收
基本波頻率 ：5785MHz
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
11570.0000	H	---	---	4.71	---	---	74.0	54.0	---
11570.0000	V	---	---	4.71	---	---	74.0	54.0	---
17355.0000	H	---	---	9.87	---	---	74.0	54.0	---
17355.0000	V	---	---	9.87	---	---	74.0	54.0	---
23140.0000	H	---	---	11.89	---	---	74.0	54.0	---
23140.0000	V	---	---	11.89	---	---	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)

c. Channel High

操作模式 ：發射接收
基本波頻率 ：5825MHz
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
11650.0000	H	---	---	4.73	---	---	74.0	54.0	---
11650.0000	V	---	---	4.73	---	---	74.0	54.0	---
17475.0000	H	---	---	10.64	---	---	74.0	54.0	---
17475.0000	V	---	---	10.64	---	---	74.0	54.0	---
23300.0000	H	---	---	11.76	---	---	74.0	54.0	---
23300.0000	V	---	---	11.76	---	---	74.0	54.0	---
29125.0000	H	---	---	13.86	---	---	74.0	54.0	---
29125.0000	V	---	---	13.86	---	---	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

操作模式 ：發射接收
基本波頻率 ：5755 MHz
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
11510.0000	H	---	---	4.70	---	---	74.0	54.0	---
11510.0000	V	---	---	4.70	---	---	74.0	54.0	---
17265.0000	H	---	---	9.30	---	---	74.0	54.0	---
17265.0000	V	---	---	9.30	---	---	74.0	54.0	---
23020.0000	H	---	---	11.98	---	---	74.0	54.0	---
23020.0000	V	---	---	11.98	---	---	74.0	54.0	---
28775.0000	H	---	---	13.85	---	---	74.0	54.0	---
28775.0000	V	---	---	13.85	---	---	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)

b. Channel High

操作模式 ：發射接收
基本波頻率 ：5795 MHz
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
11590.0000	H	---	---	4.72	---	---	74.0	54.0	---
11590.0000	V	---	---	4.72	---	---	74.0	54.0	---
17385.0000	H	---	---	10.06	---	---	74.0	54.0	---
17385.0000	V	---	---	10.06	---	---	74.0	54.0	---
23180.0000	H	---	---	11.86	---	---	74.0	54.0	---
23180.0000	V	---	---	11.86	---	---	74.0	54.0	---
28975.0000	H	---	---	13.81	---	---	74.0	54.0	---
28975.0000	V	---	---	13.81	---	---	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 調變技術: IEEE 802.11ac HT80

操作模式 ：發射接收
基本波頻率 ：5785 MHz
測試日期: Aug. 24, 2018 環境溫度: 21℃ 環境濕度: 63%

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)
11550.0000	H	---	---	4.71	---	---	74.0	54.0	---
11550.0000	V	---	---	4.71	---	---	74.0	54.0	---
17325.0000	H	---	---	9.68	---	---	74.0	54.0	---
17325.0000	V	---	---	9.68	---	---	74.0	54.0	---
23100.0000	H	---	---	11.92	---	---	74.0	54.0	---
23100.0000	V	---	---	11.92	---	---	74.0	54.0	---
28875.0000	H	---	---	13.83	---	---	74.0	54.0	---
28875.0000	V	---	---	13.83	---	---	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)

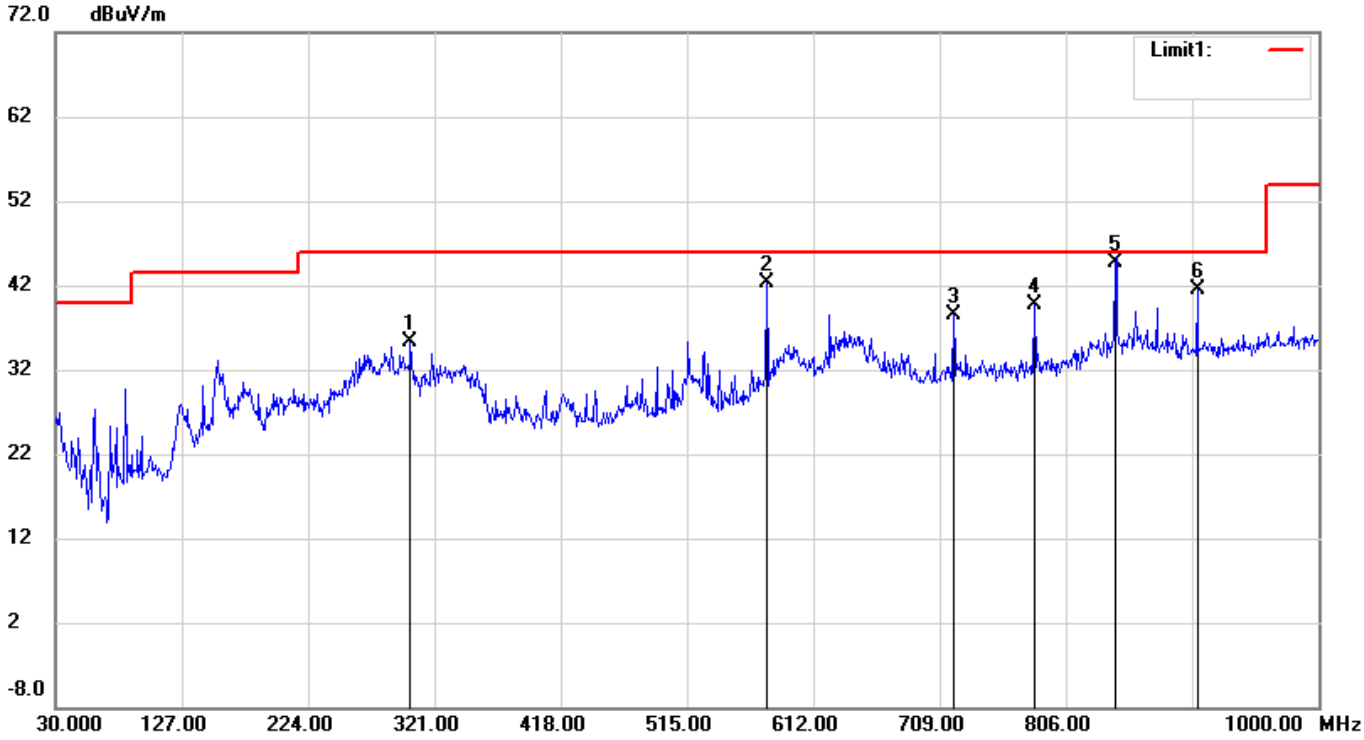
10.5.2 其它不必要之訊號

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 **#27** **Date:** 2018/8/24 **Temperature:** 21 ℃

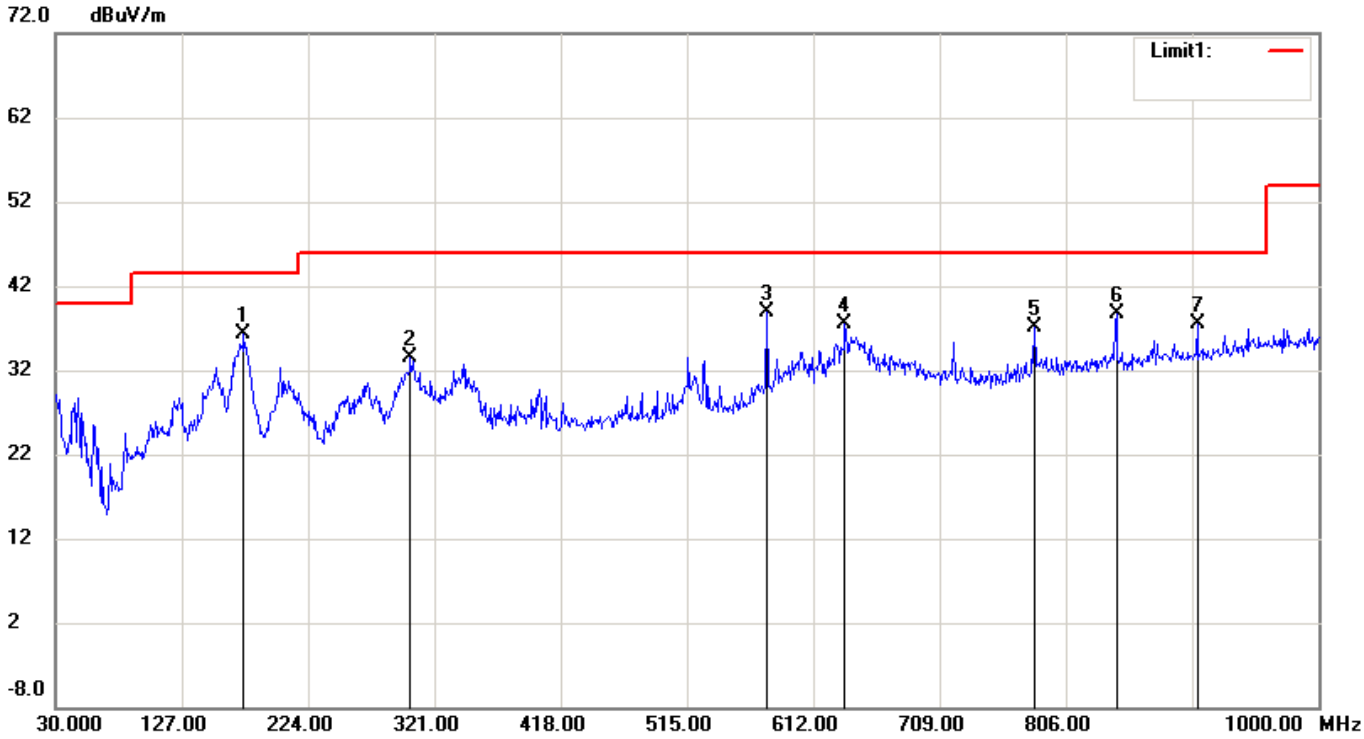
Time: 下午 01:10:20 **Humidity:** 63 %



Condition: NCC_LP0002_30-1000MHz **Polarization:** Horizontal
EUT: **Distance:** 3m
Model:
Test Mode: 1TB HGST
Note: 5-8

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	302.5700	38.95	QP	-3.69	35.26	46.00	-10.74
2	576.1100	41.65	QP	0.61	42.26	46.00	-3.74
3	719.6700	35.14	QP	3.45	38.59	46.00	-7.41
4	781.7500	35.19	QP	4.48	39.67	46.00	-6.33
5	843.7610	38.75	QP	6.02	44.77	46.00	-1.23
6	906.8800	34.22	QP	7.27	41.49	46.00	-4.51

File:	**18-07-MAS-037_Below 1G**	**#28**	**Date: 2018/8/24**	**Temperature:**	**21 ℃**
			Time: 下午 01:14:58	**Humidity:**	**63 %**



Condition:	**NCC_LP0002_30-1000MHz**	**Polarization:**	**Vertical**
EUT:		**Distance:**	**3m**
Model:			
Test Mode:	**1TB HGST**		
Note:	**5-8**		

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	174.5300	45.46	QP	-9.17	36.29	43.50	-7.21
2	302.5700	37.14	QP	-3.69	33.45	46.00	-12.55
3	576.1100	38.34	QP	0.61	38.95	46.00	-7.05
4	636.2500	35.11	QP	2.31	37.42	46.00	-8.58
5	781.7500	32.53	QP	4.48	37.01	46.00	-8.99
6	844.8000	32.61	QP	6.05	38.66	46.00	-7.34
7	906.8800	30.24	QP	7.27	37.51	46.00	-8.49

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 : 5745 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)
1075.8813	H	54.1	---	-13.00	41.1	---	74	54	-12.9
1075.8813	H	53.5	---	-13.00	40.5	---	74	54	-13.5
1174.5271	H	55.1	---	-12.50	42.6	---	74	54	-11.4
1174.5271	V	53.5	---	-12.50	41.0	---	74	54	-13.0
1371.8188	V	53.5	---	-11.40	42.1	---	74	54	-11.9
1424.9358	V	55.0	---	-11.20	43.8	---	74	54	-10.2
1432.5240	H	54.3	---	-11.10	43.2	---	74	54	-10.8
1485.6410	V	53.8	---	-10.90	42.9	---	74	54	-11.1
2745.2723	H	51.8	---	-5.50	46.3	---	74	54	-7.7
2843.9182	V	50.6	---	-5.20	45.4	---	74	54	-8.6
3063.9744	H	51.3	---	-4.40	46.9	---	74	54	-7.1
3238.5016	H	51.3	---	-3.90	47.4	---	74	54	-6.6

10.5.2.1.2.1.2 操作頻率 : 5785 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)
1075.8813	H	54.2	---	-13.00	41.2	---	74	54	-12.8
1091.0577	V	53.6	---	-12.90	40.7	---	74	54	-13.3
1174.5271	H	55.0	---	-12.50	42.5	---	74	54	-11.5
1174.5271	V	54.0	---	-12.50	41.5	---	74	54	-12.5
1227.6441	H	54.7	---	-12.20	42.5	---	74	54	-11.5
1386.9952	V	54.7	---	-11.40	43.3	---	74	54	-10.7
1432.5240	H	55.1	---	-11.10	44.0	---	74	54	-10.0
1440.1122	V	53.3	---	-11.10	42.2	---	74	54	-11.8
2745.2723	H	53.1	---	-5.50	47.6	---	74	54	-6.4
2745.2723	V	50.6	---	-5.50	45.1	---	74	54	-8.9
2843.9182	V	50.3	---	-5.20	45.1	---	74	54	-8.9
2942.5641	H	51.6	---	-4.80	46.8	---	74	54	-7.2
6868.2452	H	48.3	---	2.30	50.6	---	74	54	-3.4

10.5.2.1.2.1.3 操作頻率 ：5825 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)
1075.8813	H	54.5	---	-13.00	41.5	---	74	54	-12.5
1075.8813	V	54.5	---	-13.00	41.5	---	74	54	-12.5
1128.9983	V	53.2	---	-12.70	40.5	---	74	54	-13.5
1182.1153	H	54.8	---	-12.50	42.3	---	74	54	-11.7
1326.2900	H	54.2	---	-11.70	42.5	---	74	54	-11.5
1394.5833	V	53.1	---	-11.30	41.8	---	74	54	-12.2
1440.1122	H	54.6	---	-11.10	43.5	---	74	54	-10.5
2092.6923	V	50.3	---	-7.30	43.0	---	74	54	-11.0
2745.2723	H	52.2	---	-5.50	46.7	---	74	54	-7.3
2745.2723	V	50.5	---	-5.50	45.0	---	74	54	-9.0
2851.5064	V	50.2	---	-5.20	45.0	---	74	54	-9.0
3139.8557	H	51.5	---	-4.20	47.3	---	74	54	-6.7

註：1. 繪圖資料請參考第 192-209 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)
+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 ：5745 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)
1075.8813	H	54.1	---	-13.00	41.1	---	74	54	-12.9
1075.8813	V	55.3	---	-13.00	42.3	---	74	54	-11.7
1182.1153	H	54.3	---	-12.50	41.8	---	74	54	-12.2
1394.5833	V	54.3	---	-11.30	43.0	---	74	54	-11.0
1424.9358	V	54.9	---	-11.20	43.7	---	74	54	-10.3
1440.1122	H	55.2	---	-11.10	44.1	---	74	54	-9.9
2092.6923	V	49.4	---	-7.30	42.1	---	74	54	-11.9
2737.6842	V	50.2	---	-5.50	44.7	---	74	54	-9.3
2745.2723	H	52.0	---	-5.50	46.5	---	74	54	-7.5
2859.0945	H	51.1	---	-5.10	46.0	---	74	54	-8.0
2881.8590	V	50.0	---	-5.10	44.9	---	74	54	-9.1
3124.6795	H	52.1	---	-4.30	47.8	---	74	54	-6.2

10.5.2.1.2.2.2 操作頻率 ：5785 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)
1053.1170	V	53.6	---	-13.10	40.5	---	74	54	-13.5
1075.8813	H	54.7	---	-13.00	41.7	---	74	54	-12.3
1182.1153	H	54.9	---	-12.50	42.4	---	74	54	-11.6
1182.1153	V	54.6	---	-12.50	42.1	---	74	54	-11.9
1386.9952	V	53.6	---	-11.40	42.2	---	74	54	-11.8
1440.1122	H	54.4	---	-11.10	43.3	---	74	54	-10.7
2745.2723	H	51.3	---	-5.50	45.8	---	74	54	-8.2
2745.2723	V	50.2	---	-5.50	44.7	---	74	54	-9.3
2965.3285	V	50.2	---	-4.80	45.4	---	74	54	-8.6
3063.9744	H	51.6	---	-4.40	47.2	---	74	54	-6.8
3124.6795	V	50.4	---	-4.30	46.1	---	74	54	-7.9
3238.5016	H	50.7	---	-3.90	46.8	---	74	54	-7.2

10.5.2.1.2.2.3 操作頻率 ：5825 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)
1083.4695	H	54.1	---	-13.00	41.1	---	74	54	-12.9
1083.4695	V	53.8	---	-13.00	40.8	---	74	54	-13.2
1166.9391	H	54.9	---	-12.50	42.4	---	74	54	-11.6
1174.5271	V	53.2	---	-12.50	40.7	---	74	54	-13.3
1379.4070	V	53.4	---	-11.40	42.0	---	74	54	-12.0
1440.1122	H	54.4	---	-11.10	43.3	---	74	54	-10.7
2024.3990	H	51.3	---	-7.50	43.8	---	74	54	-10.2
2737.6842	H	51.7	---	-5.50	46.2	---	74	54	-7.8
2745.2723	V	50.3	---	-5.50	44.8	---	74	54	-9.2
2927.3877	V	50.1	---	-4.90	45.2	---	74	54	-8.8
3117.0913	V	50.3	---	-4.30	46.0	---	74	54	-8.0
3238.5016	H	51.8	---	-3.90	47.9	---	74	54	-6.1

註：1. 繪圖資料請參考第 210-227 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)
+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 : 5755 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)
1068.2933	H	54.8	---	-13.00	41.8	---	74	54	-12.2
1098.6458	V	53.5	---	-12.90	40.6	---	74	54	-13.4
1174.5271	V	53.9	---	-12.50	41.4	---	74	54	-12.6
1182.1153	H	54.3	---	-12.50	41.8	---	74	54	-12.2
1432.5240	H	55.6	---	-11.10	44.5	---	74	54	-9.5
1440.1122	V	53.5	---	-11.10	42.4	---	74	54	-11.6
2130.6330	V	50.0	---	-7.20	42.8	---	74	54	-11.2
2745.2723	V	50.1	---	-5.50	44.6	---	74	54	-9.4
2752.8605	H	51.6	---	-5.50	46.1	---	74	54	-7.9
2851.5064	H	52.9	---	-5.20	47.7	---	74	54	-6.3
2866.6826	V	49.6	---	-5.10	44.5	---	74	54	-9.5
3094.3270	H	51.6	---	-4.30	47.3	---	74	54	-6.7

10.5.2.1.2.3.2 操作頻率 ：5795 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)
1075.8813	H	54.4	---	-13.00	41.4	---	74	54	-12.6
1075.8813	V	54.2	---	-13.00	41.2	---	74	54	-12.8
1174.5271	H	55.0	---	-12.50	42.5	---	74	54	-11.5
1174.5271	V	54.8	---	-12.50	42.3	---	74	54	-11.7
1402.1714	V	54.2	---	-11.30	42.9	---	74	54	-11.1
1432.5240	H	54.5	---	-11.10	43.4	---	74	54	-10.6
1834.6955	H	51.5	---	-8.60	42.9	---	74	54	-11.1
2737.6842	H	51.5	---	-5.50	46.0	---	74	54	-8.0
2745.2723	V	50.6	---	-5.50	45.1	---	74	54	-8.9
2859.0945	H	52.1	---	-5.10	47.0	---	74	54	-7.0
2934.9760	V	49.7	---	-4.90	44.8	---	74	54	-9.2
3071.5625	V	49.9	---	-4.40	45.5	---	74	54	-8.5

註：1. 繪圖資料請參考第 228-239 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)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)

10.5.2.1.2.4 調變技術: IEEE 802.11ac HT80

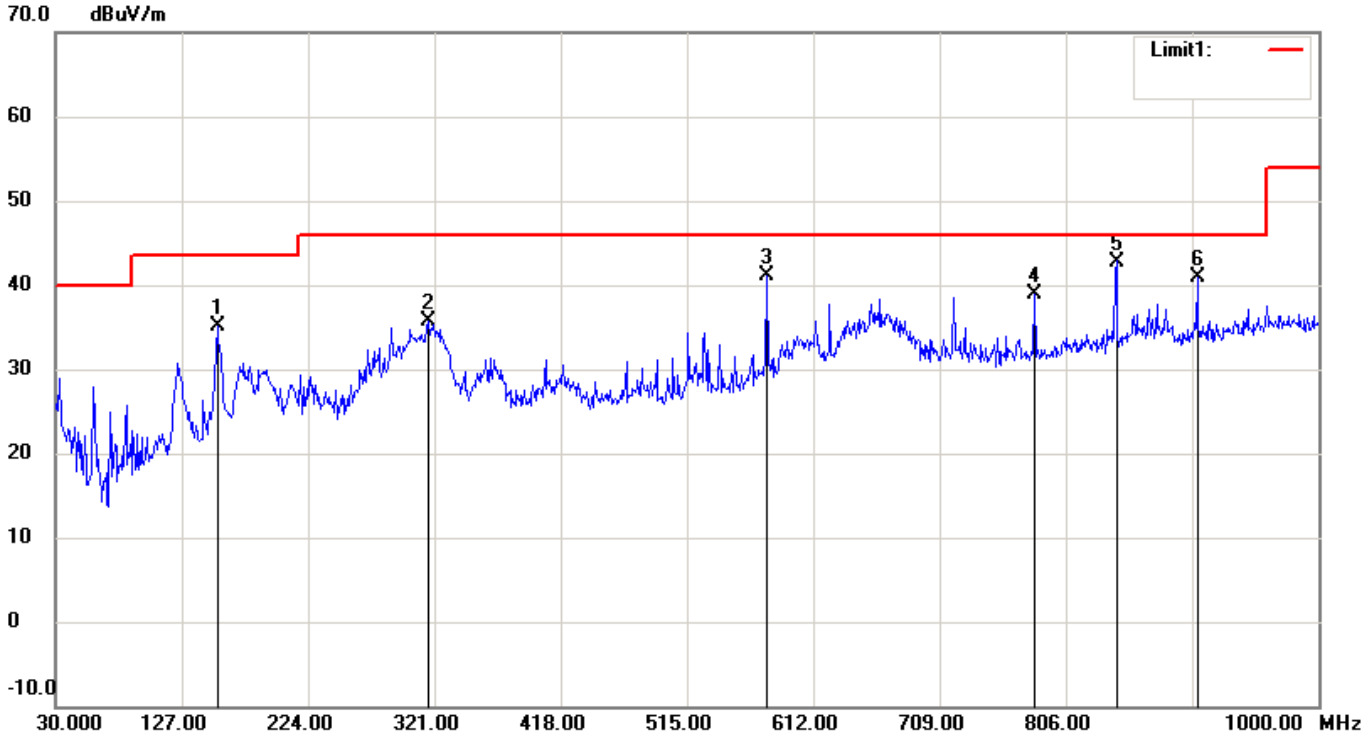
輻射頻率	天線極性	機器讀值 (dBuV/m)@3m		校正因子	結果值 (dBuV/m)@3m		限制值 (dBuV/m)@3m		餘裕值 (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1075.8813	H	54.3	---	-13.00	41.3	---	74	54	-12.7
1083.4695	V	54.0	---	-13.00	41.0	---	74	54	-13.0
1166.9391	H	54.9	---	-12.50	42.4	---	74	54	-11.6
1220.0561	H	54.5	---	-12.30	42.2	---	74	54	-11.8
1349.0544	V	53.3	---	-11.60	41.7	---	74	54	-12.3
1386.9952	V	53.0	---	-11.40	41.6	---	74	54	-12.4
1432.5240	H	54.0	---	-11.10	42.9	---	74	54	-11.1
2745.2723	V	49.9	---	-5.50	44.4	---	74	54	-9.6
2874.2707	H	51.4	---	-5.10	46.3	---	74	54	-7.7
2950.1521	V	50.1	---	-4.80	45.3	---	74	54	-8.7
3041.2098	H	51.8	---	-4.50	47.3	---	74	54	-6.7
3079.1505	V	50.3	---	-4.40	45.9	---	74	54	-8.1

註：1. 繪圖資料請參考第 240-245 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)
+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 **#1** **Date:** 2018/8/23 **Temperature:** 21 ℃

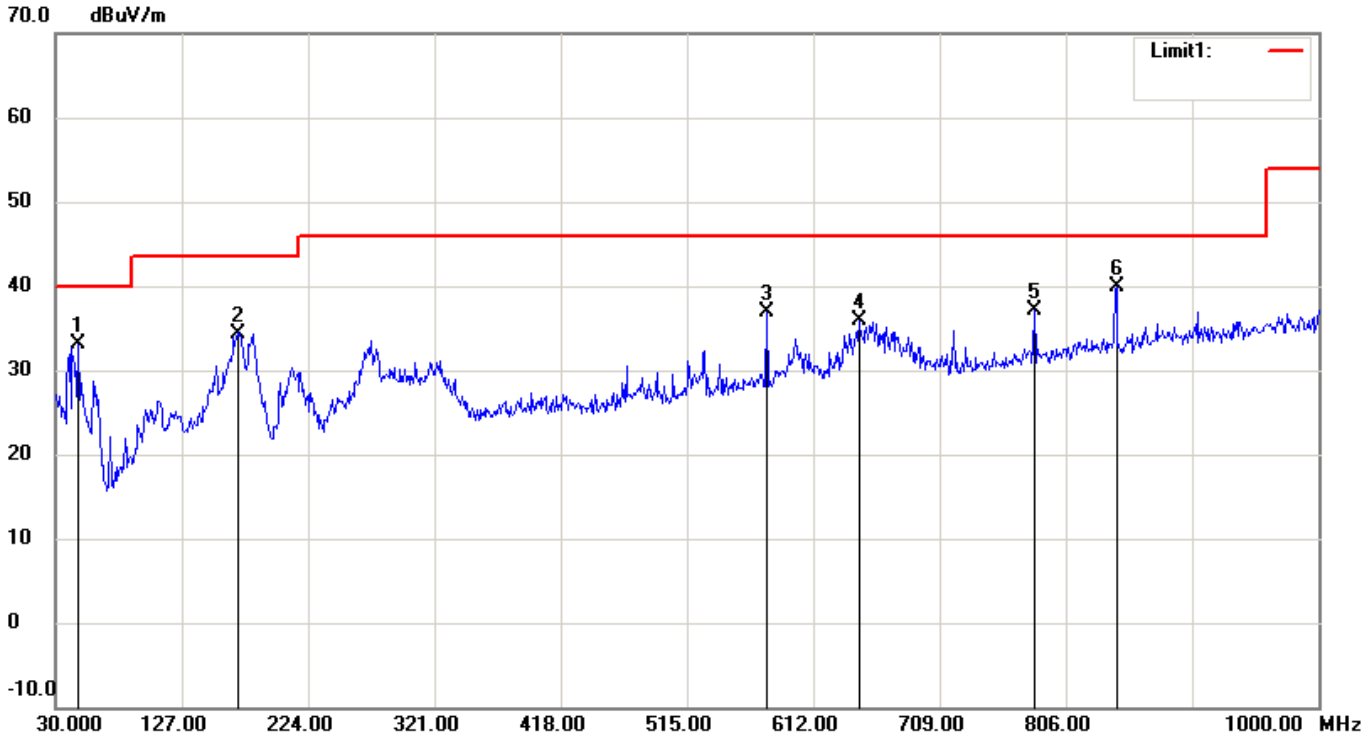
Time: 下午 06:57:20 **Humidity:** 63 %



Condition: NCC_LP0002_30-1000MHz **Polarization:** Horizontal
EUT: **Distance:** 3m
Model:
Test Mode: 1TB TOSHIBA
Note: 5-8

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	154.1600	43.44	QP	-8.34	35.10	43.50	-8.40
2	316.1500	39.03	QP	-3.40	35.63	46.00	-10.37
3	576.1100	40.54	QP	0.61	41.15	46.00	-4.85
4	781.7500	34.33	QP	4.48	38.81	46.00	-7.19
5	844.8000	36.75	QP	6.05	42.80	46.00	-3.20
6	906.8800	33.69	QP	7.27	40.96	46.00	-5.04

File:	**18-07-MAS-037_Below 1G**	**#2**	**Date: 2018/8/23**	**Temperature:**	**21 ℃**
			Time: 下午 07:01:58	**Humidity:**	**63 %**



Condition:	**NCC_LP0002_30-1000MHz**	**Polarization:**	**Vertical**
EUT:		**Distance:**	**3m**
Model:			
Test Mode:	**1TB TOSHIBA**		
Note:	**5-8**		

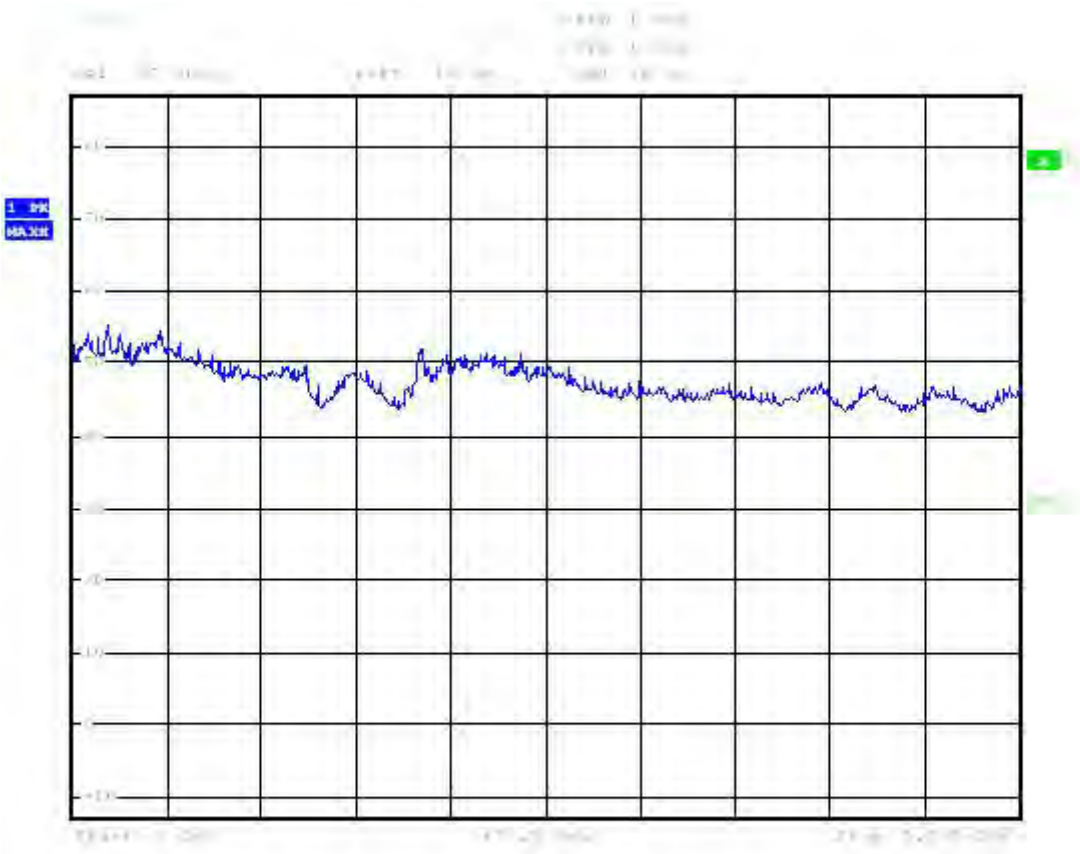
No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	47.4600	43.89	QP	-10.88	33.01	40.00	-6.99
2	170.6500	43.27	QP	-8.87	34.40	43.50	-9.10
3	576.1100	36.37	QP	0.61	36.98	46.00	-9.02
4	646.9200	33.06	QP	2.75	35.81	46.00	-10.19
5	781.7500	32.71	QP	4.48	37.19	46.00	-8.81
6	844.8000	33.81	QP	6.05	39.86	46.00	-6.14

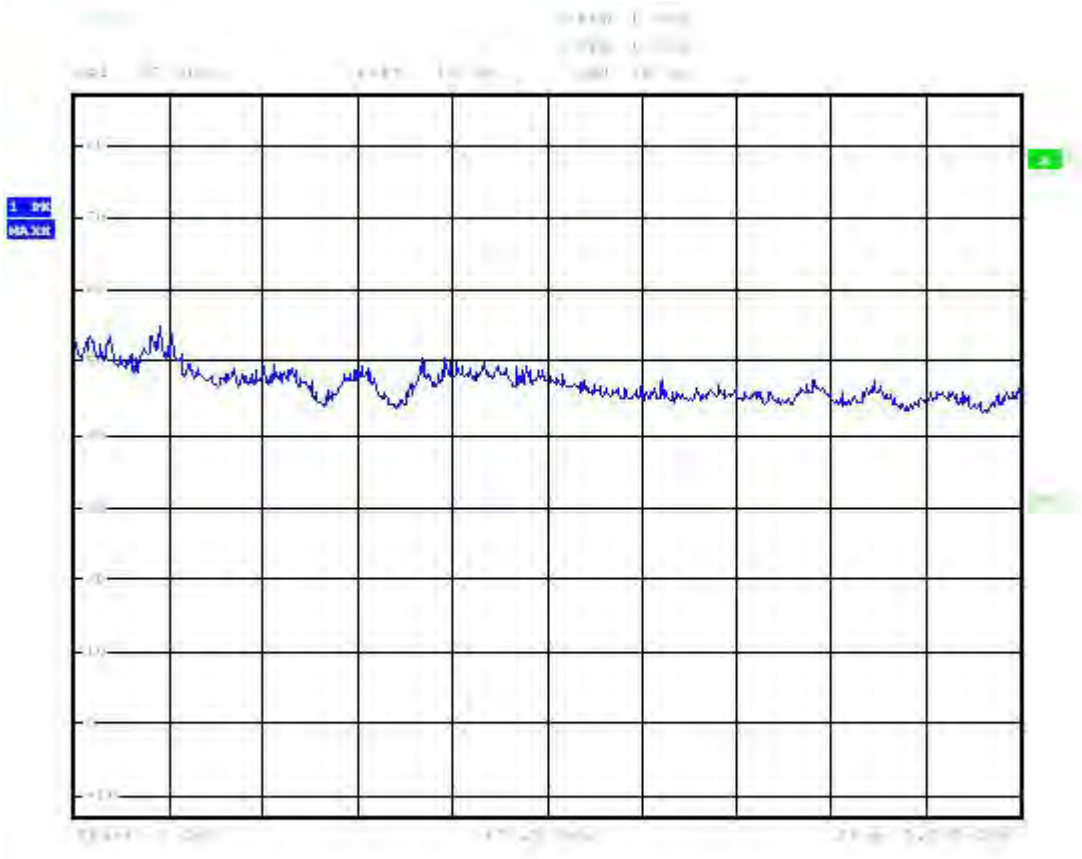
註：
1. 〝#〞，表示干擾值很低，記錄其峰值。
2. 標記”---“表發射之訊號太弱而儀器無法量測。
3. 量測不準確度: +4.20dB/ -4.24 dB (30MHz≦f<1GHz)
+4.10dB/ -4.10 dB (1GHz≦f<18GHz)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)
+4.40dB/ -4.42 dB (18GHz≦f≦40GHz)

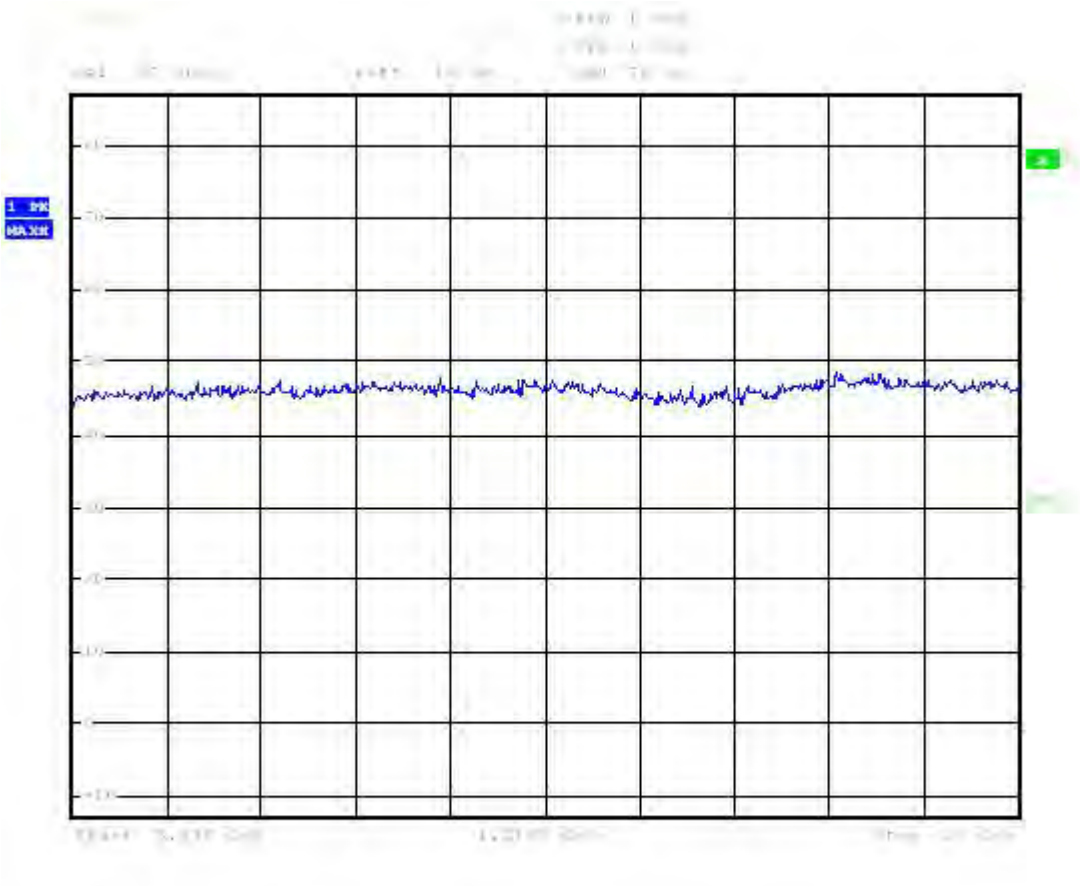
10.6 結果判定

以上之場強輻射測試結果皆低於限制值，合乎標準規定。

調變技術: IEEE 802.11a



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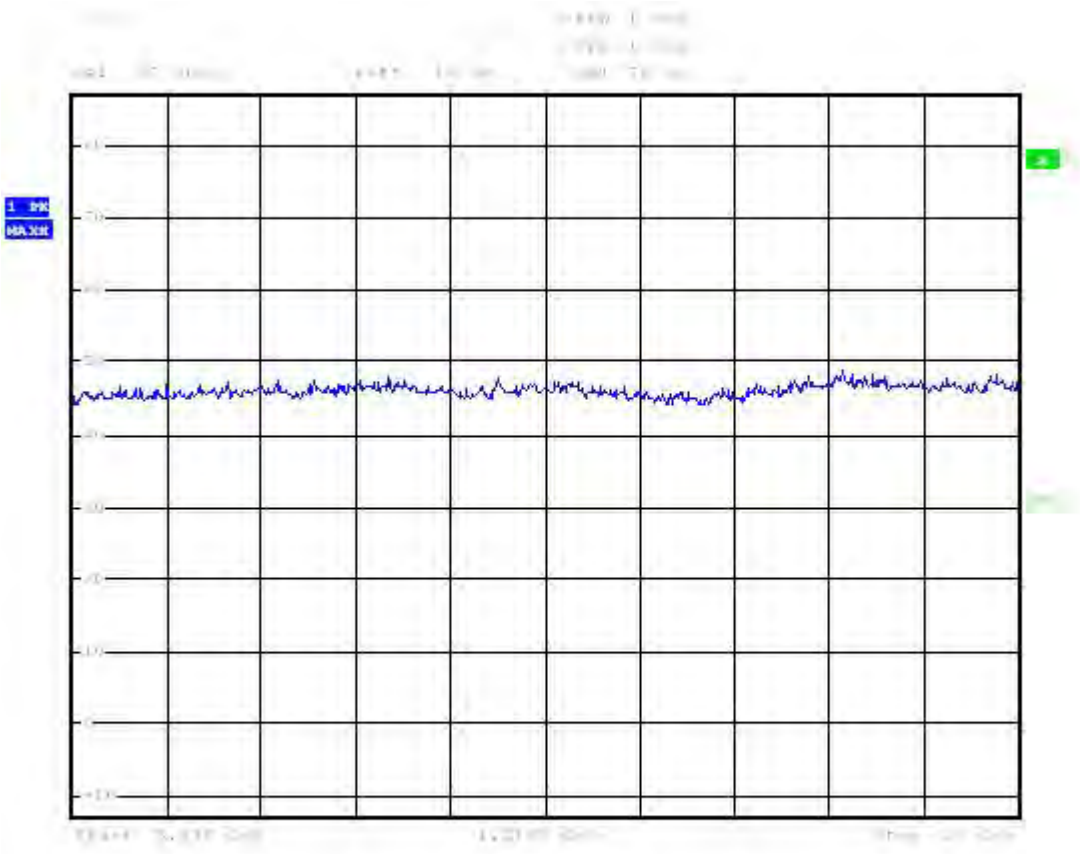
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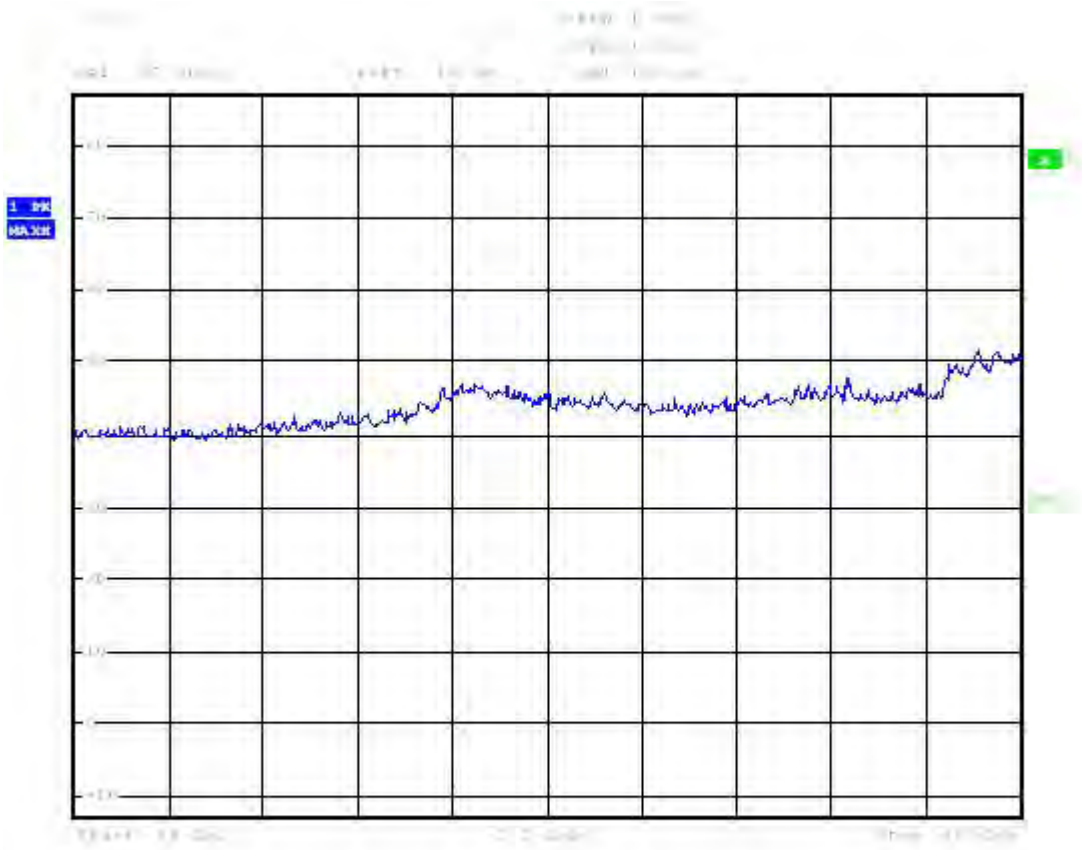

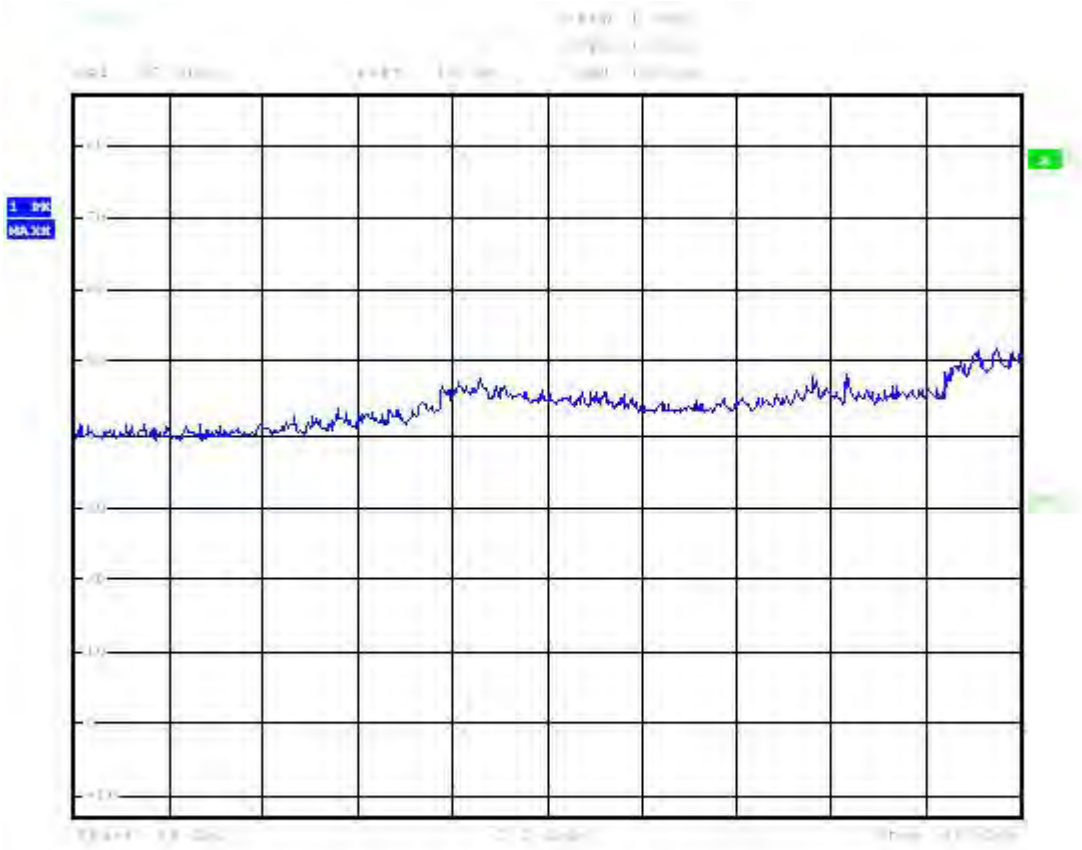
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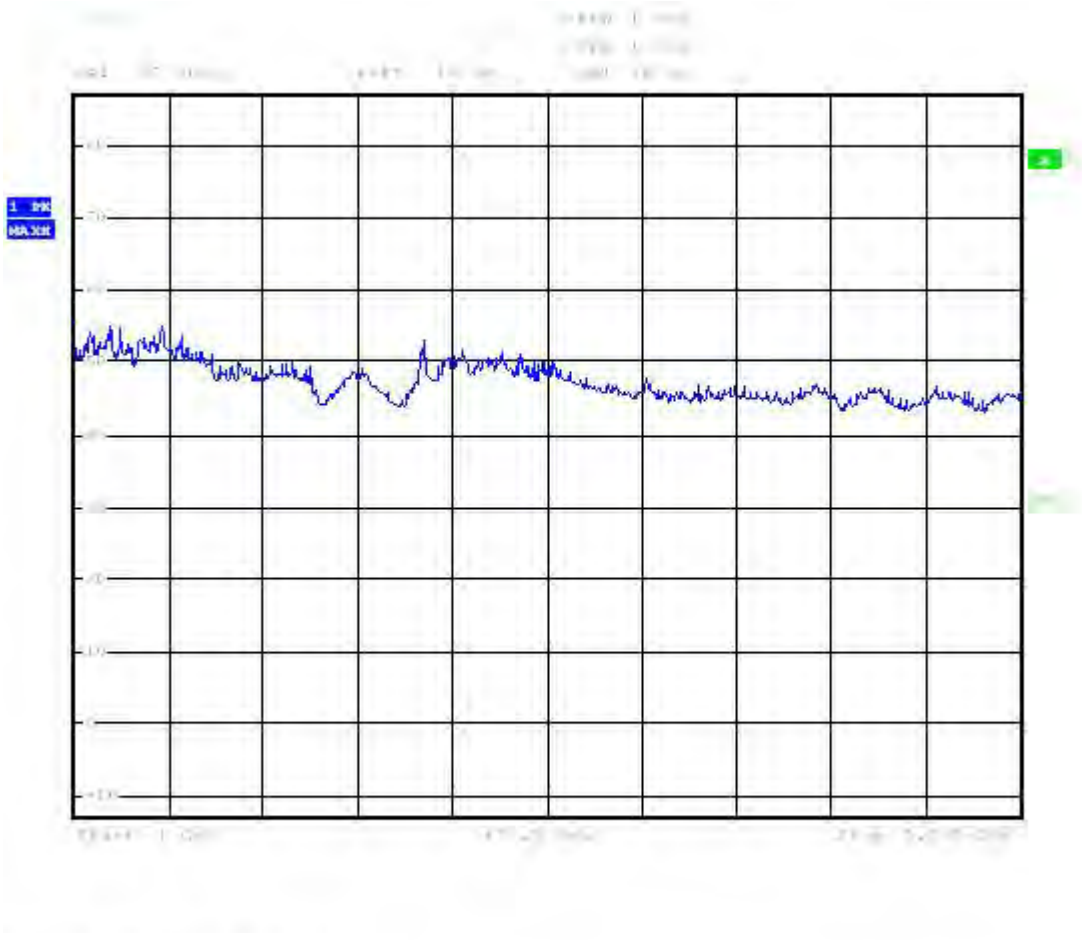
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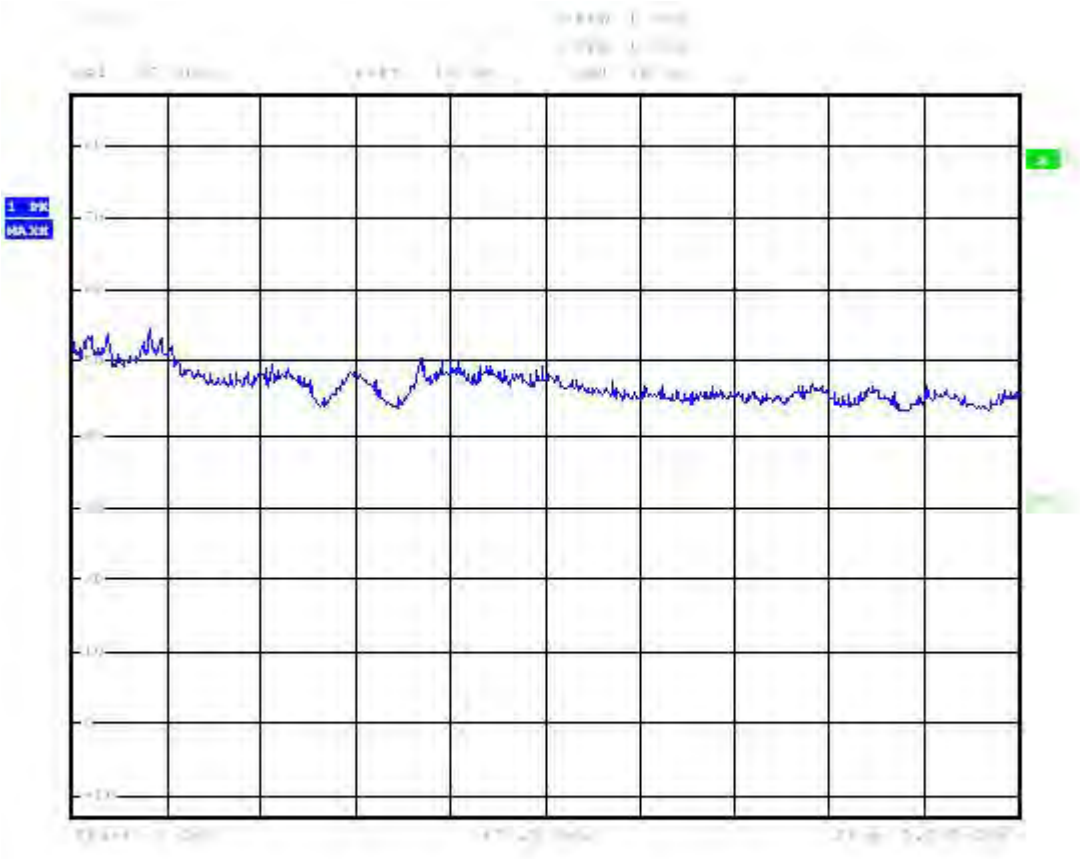

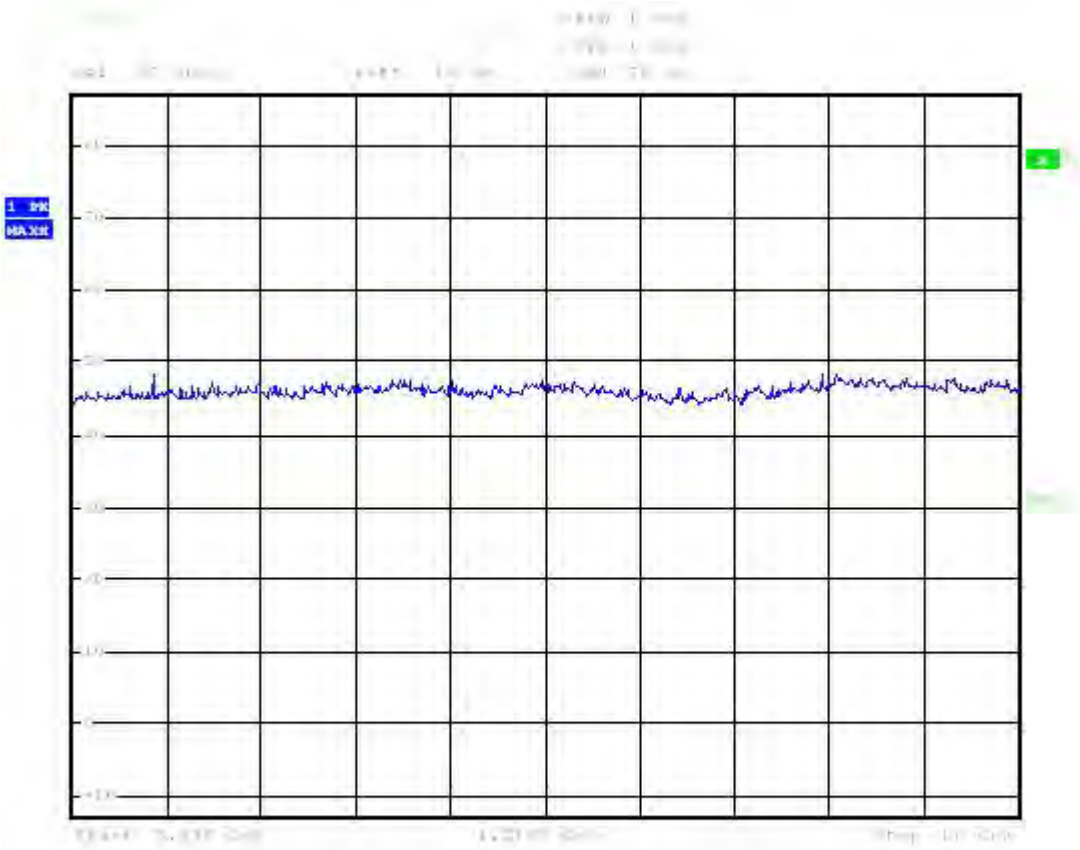
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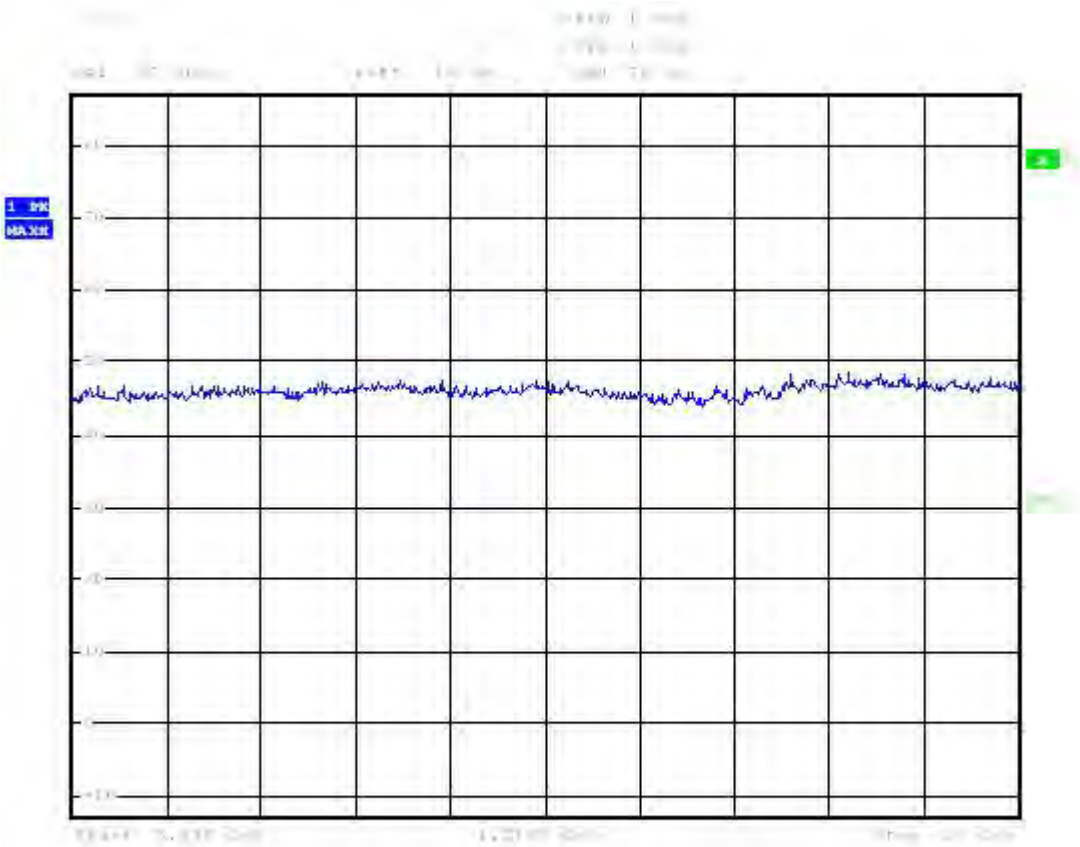
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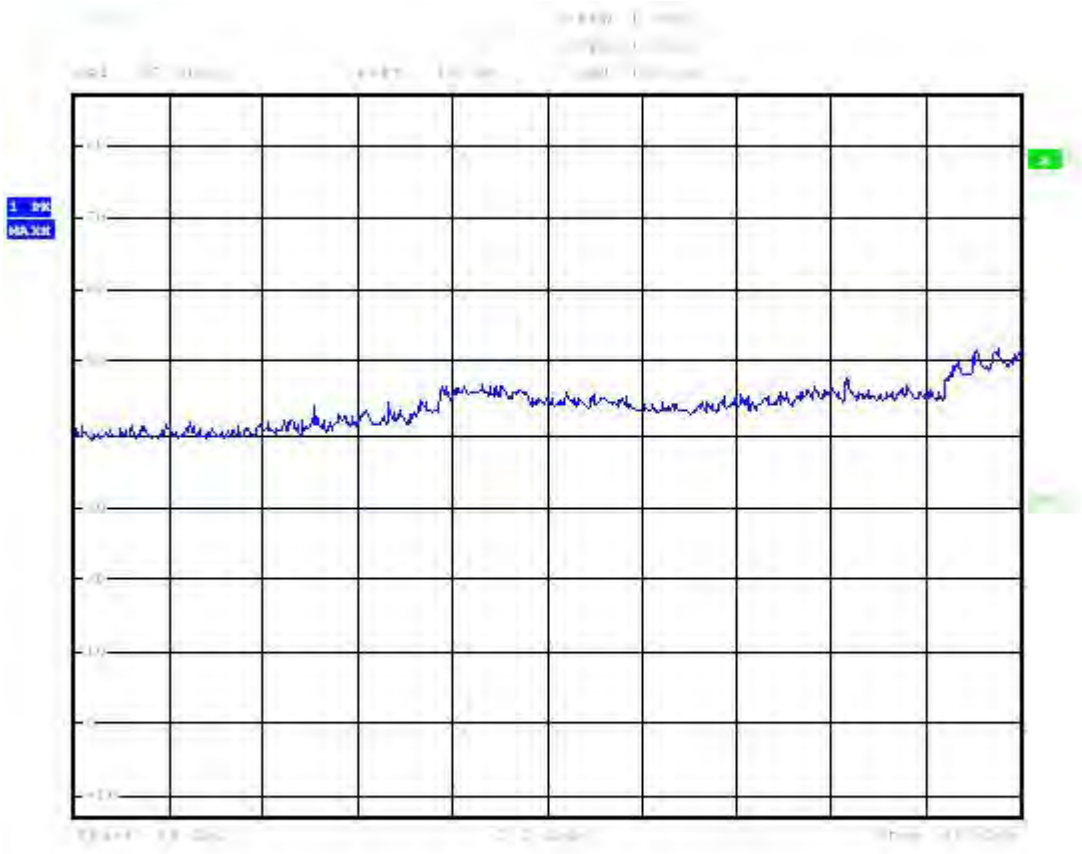

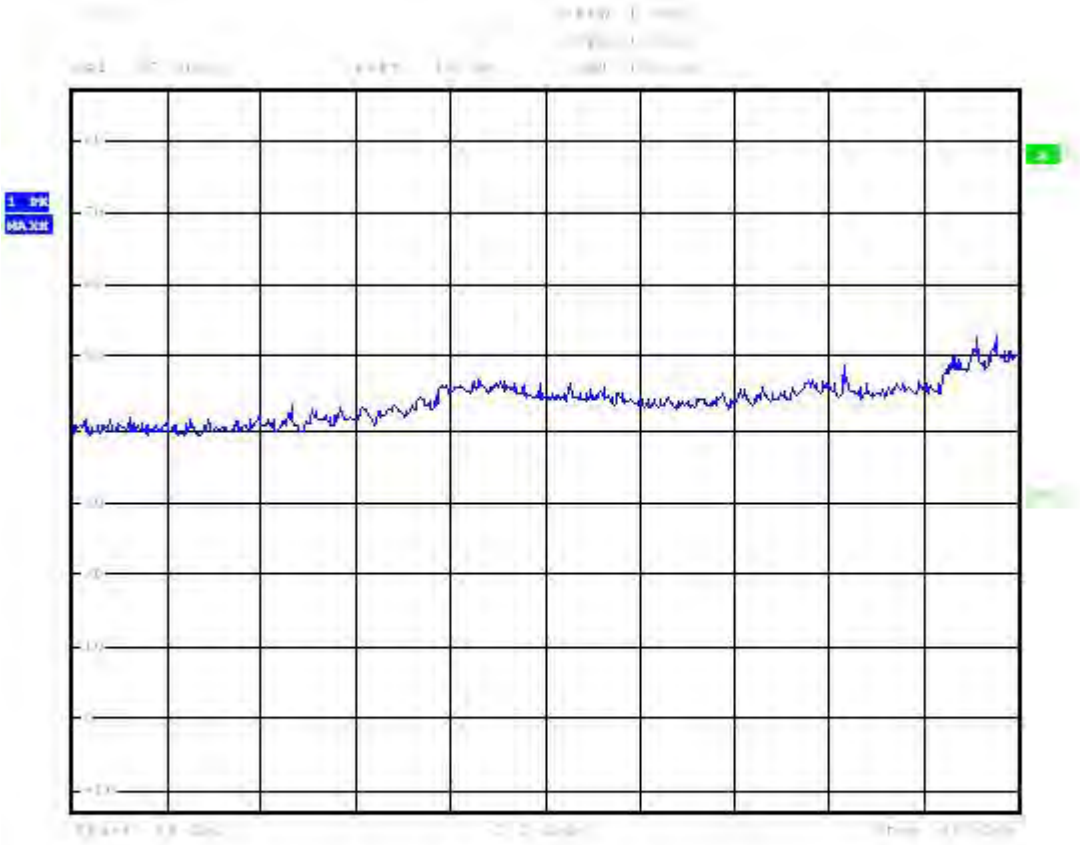

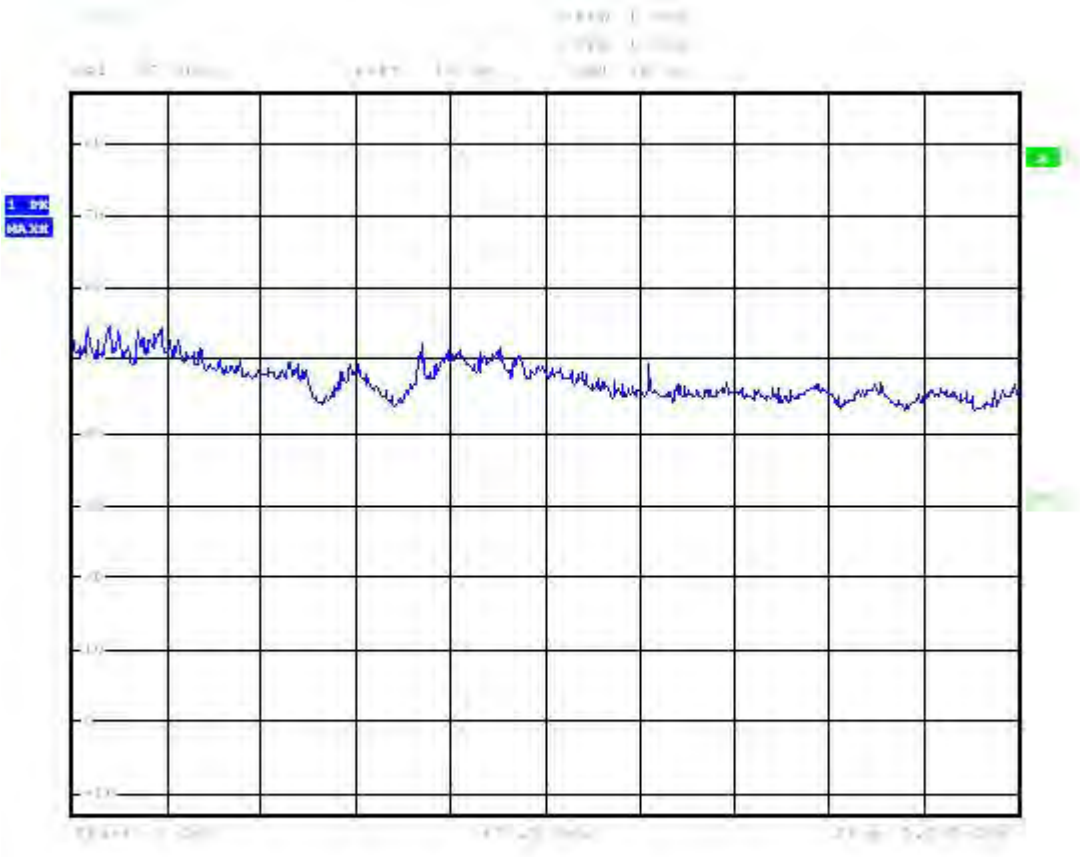

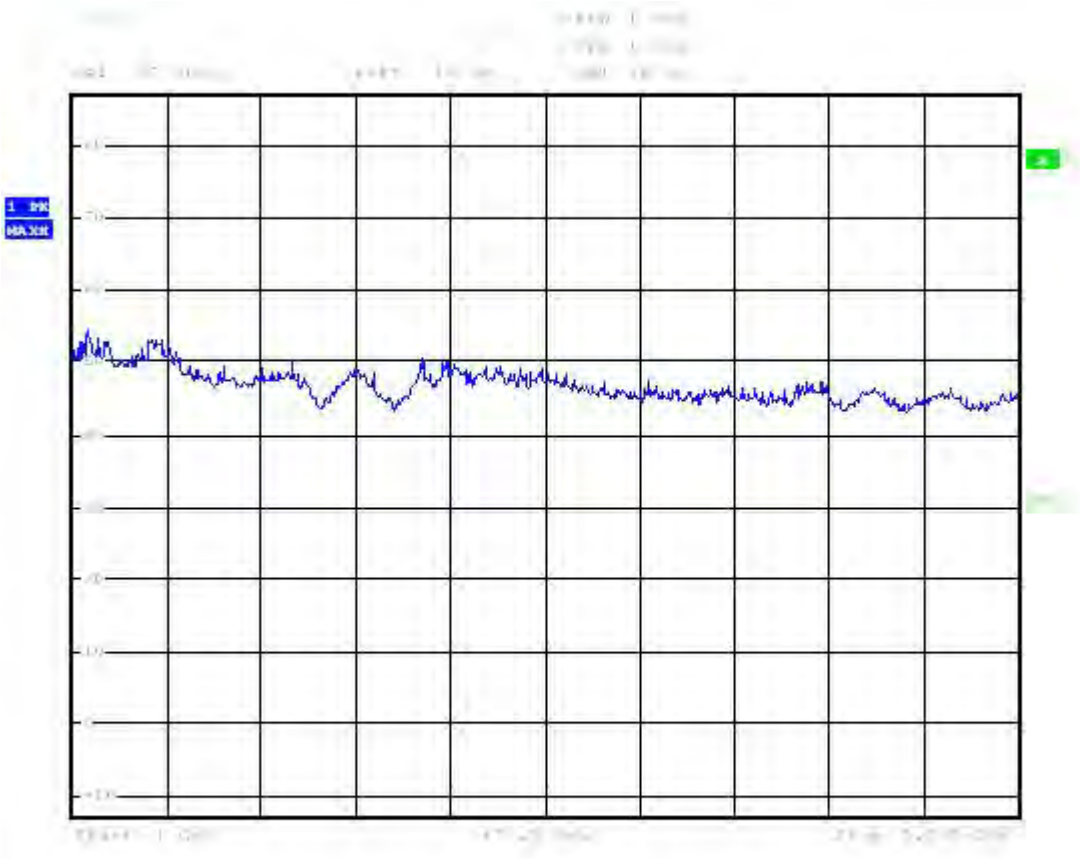
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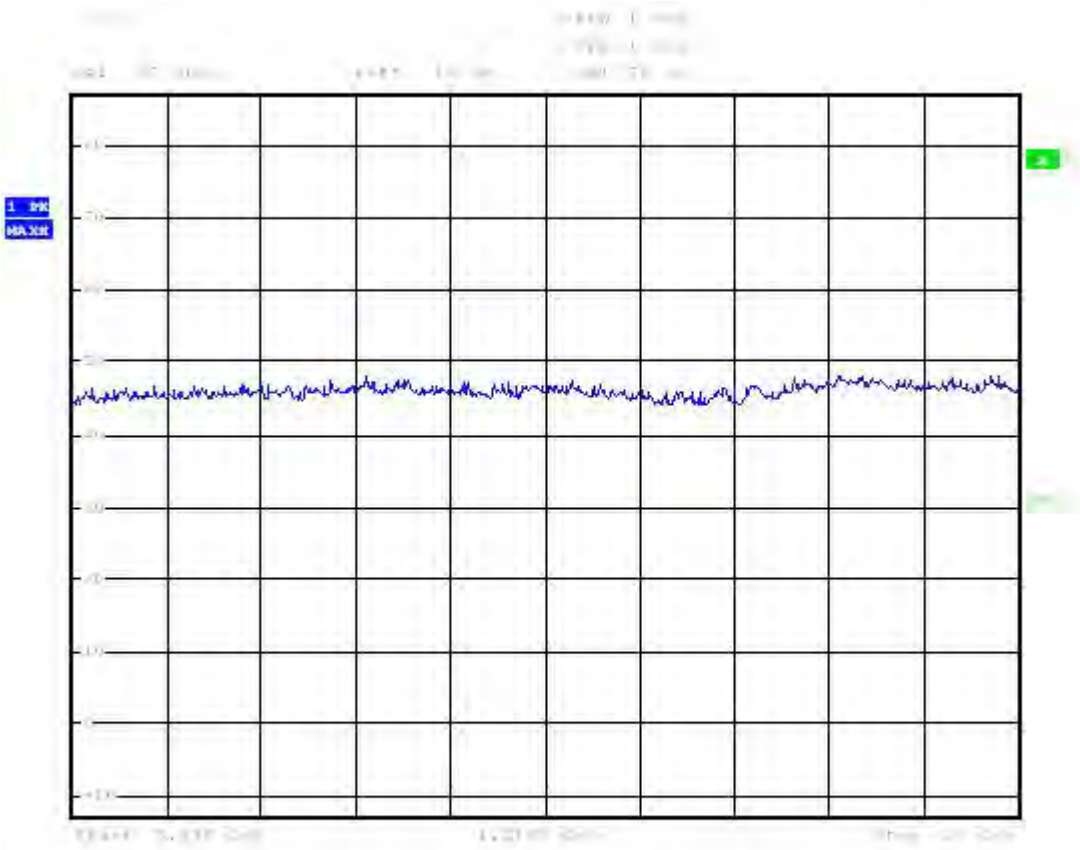
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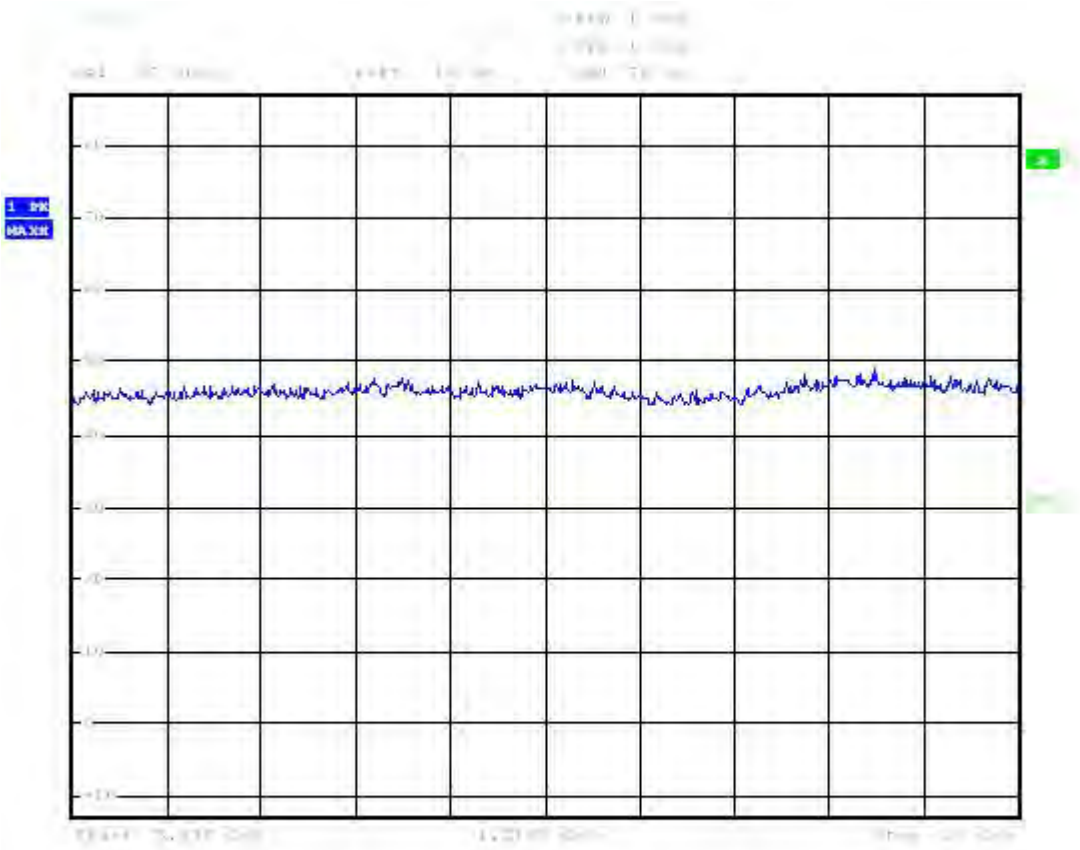
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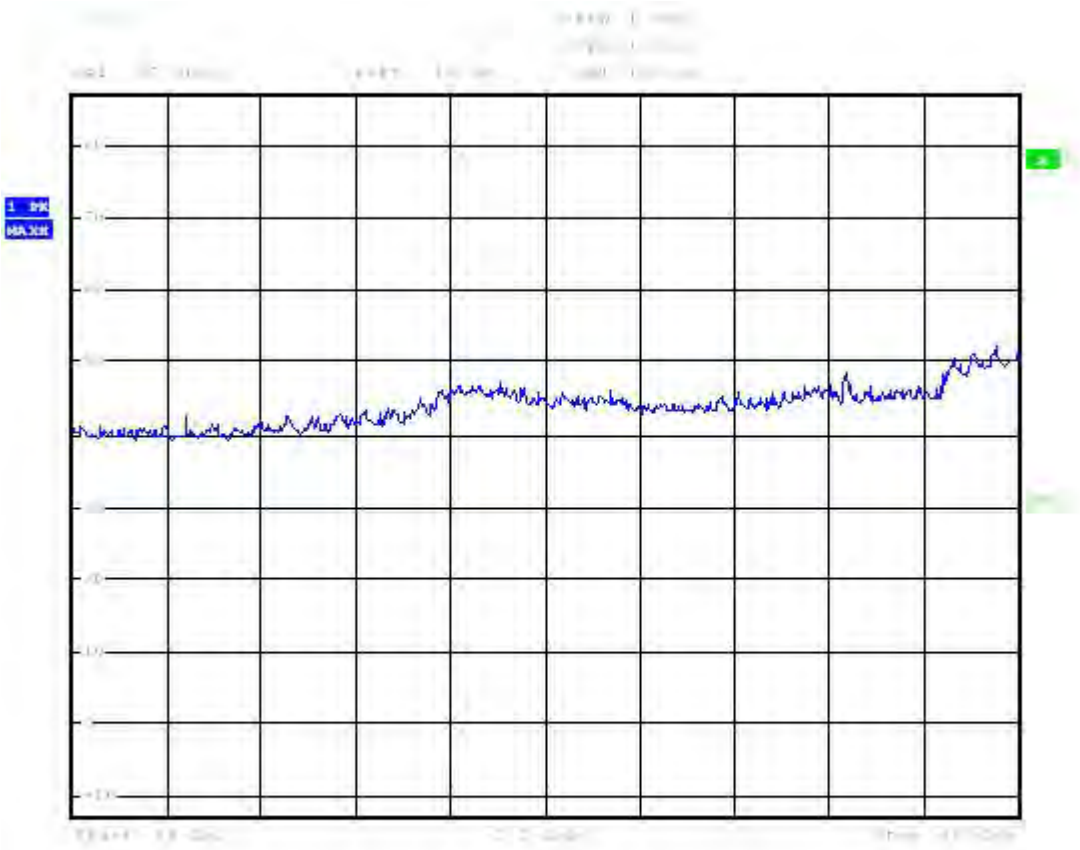
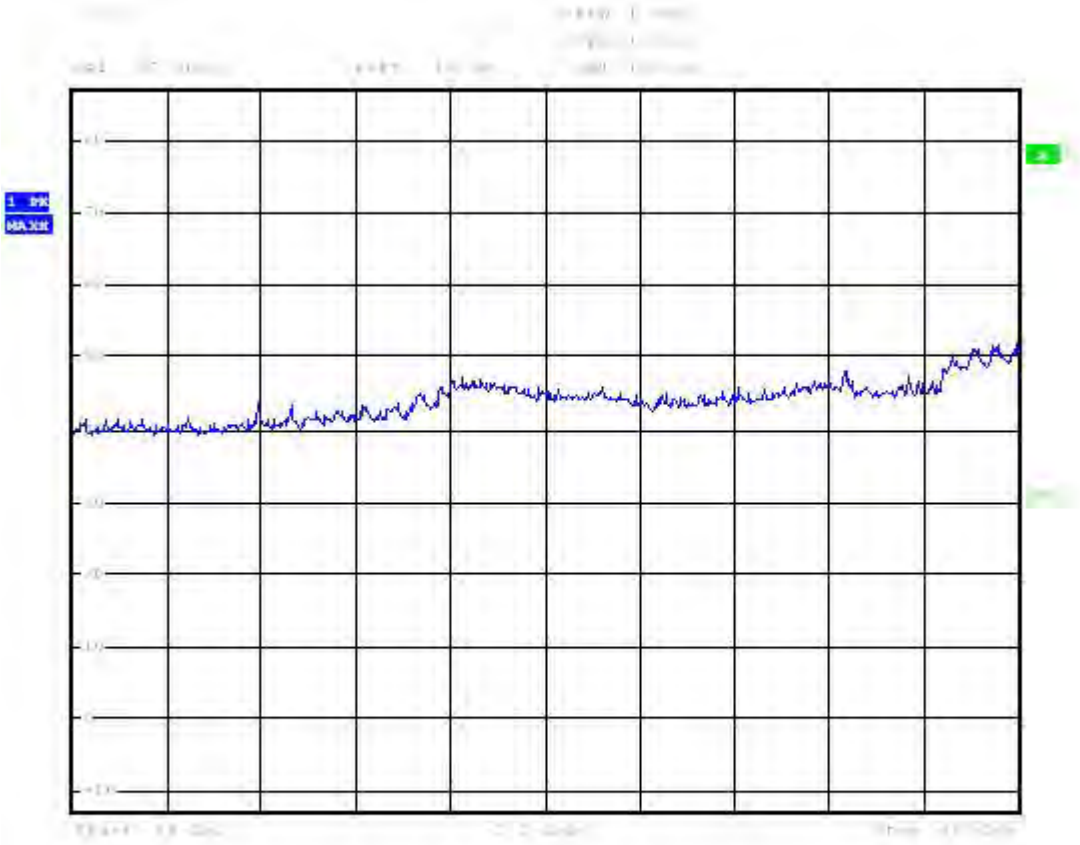
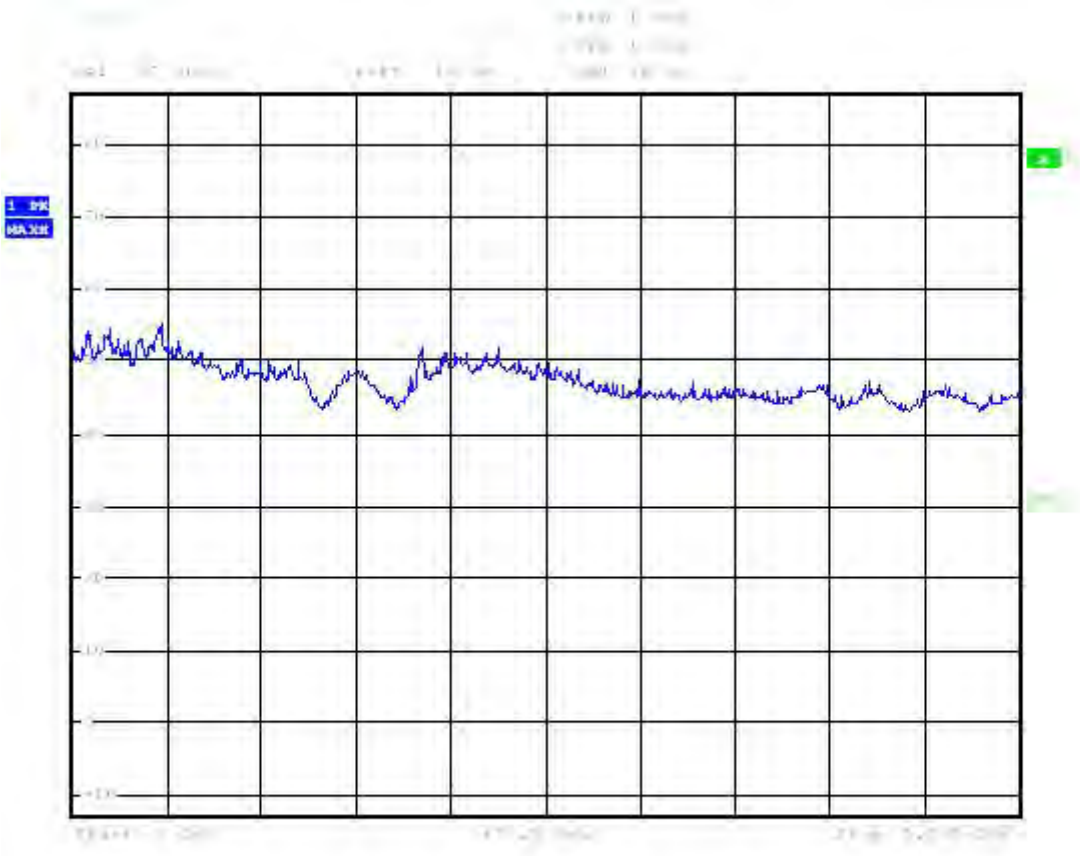
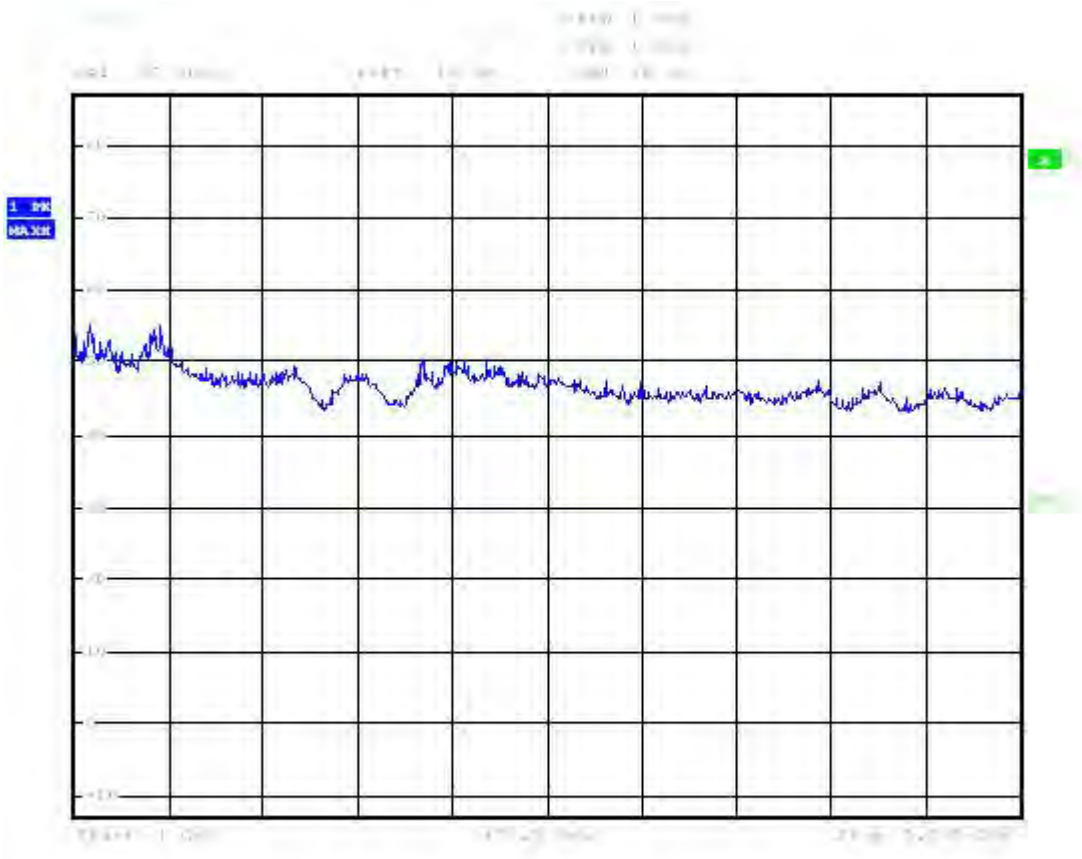




調變技術:IEEE 802.11an HT20

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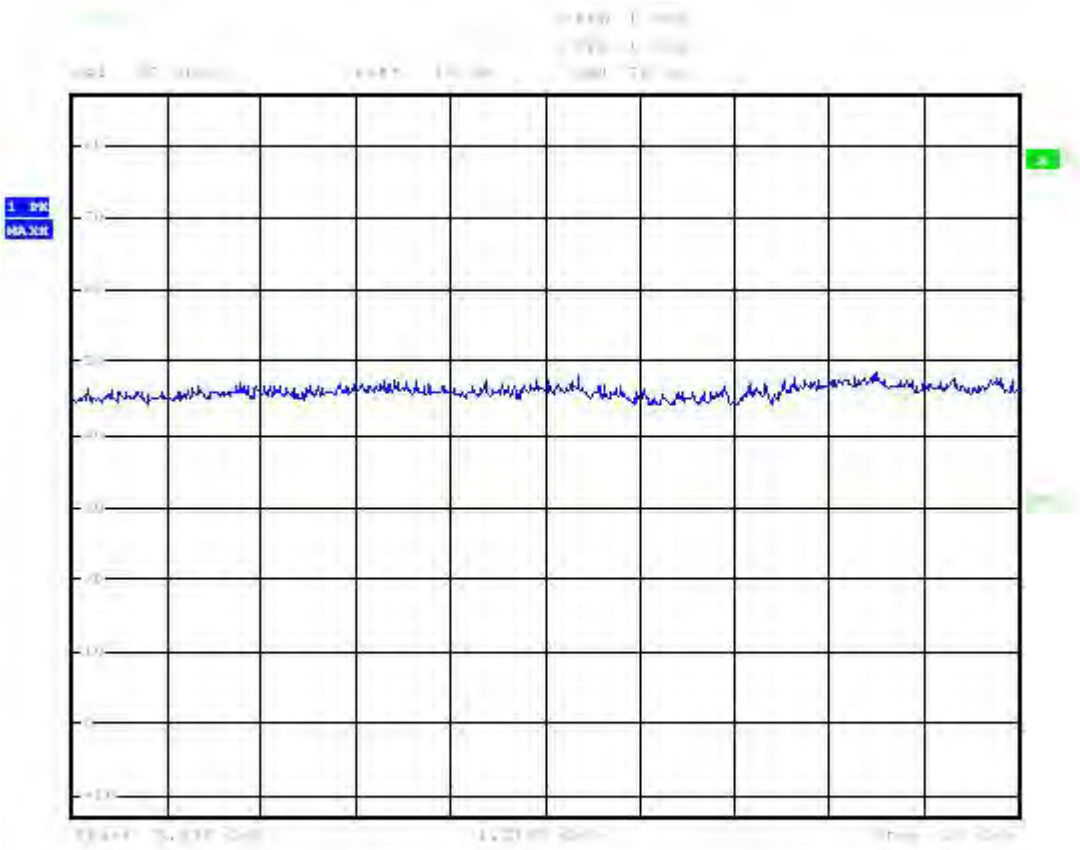
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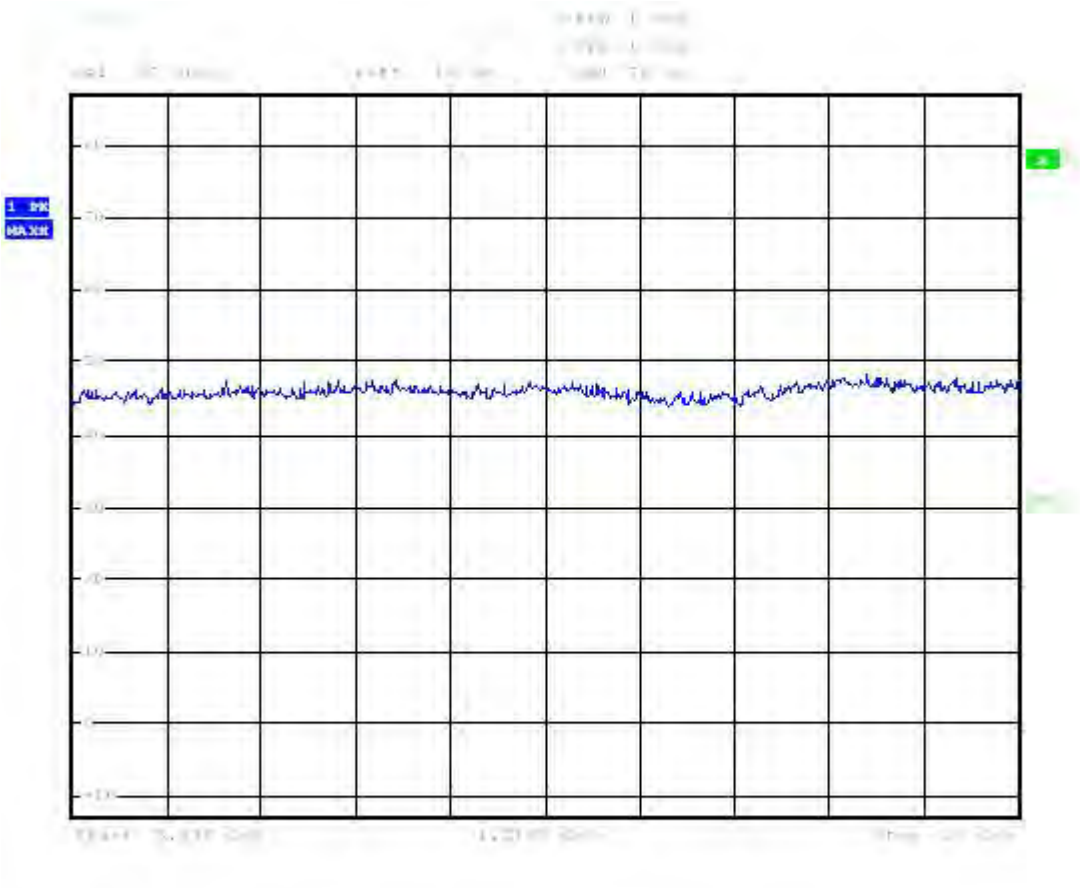
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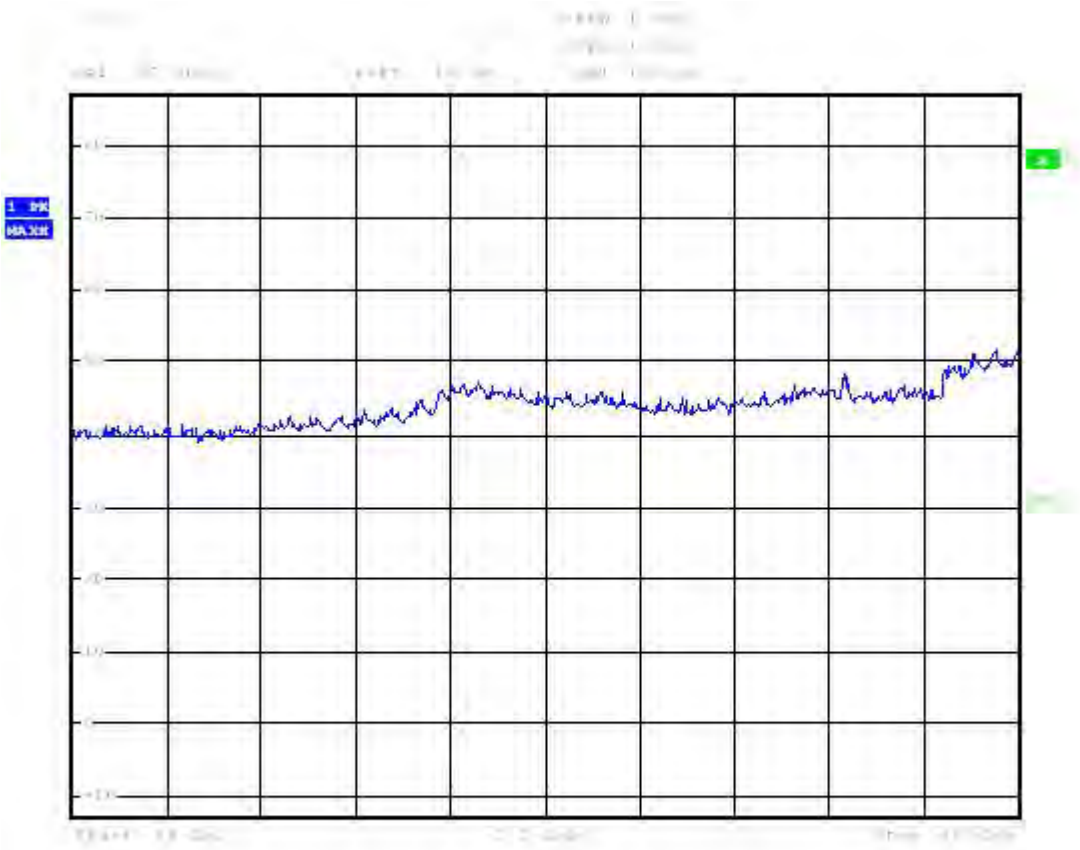
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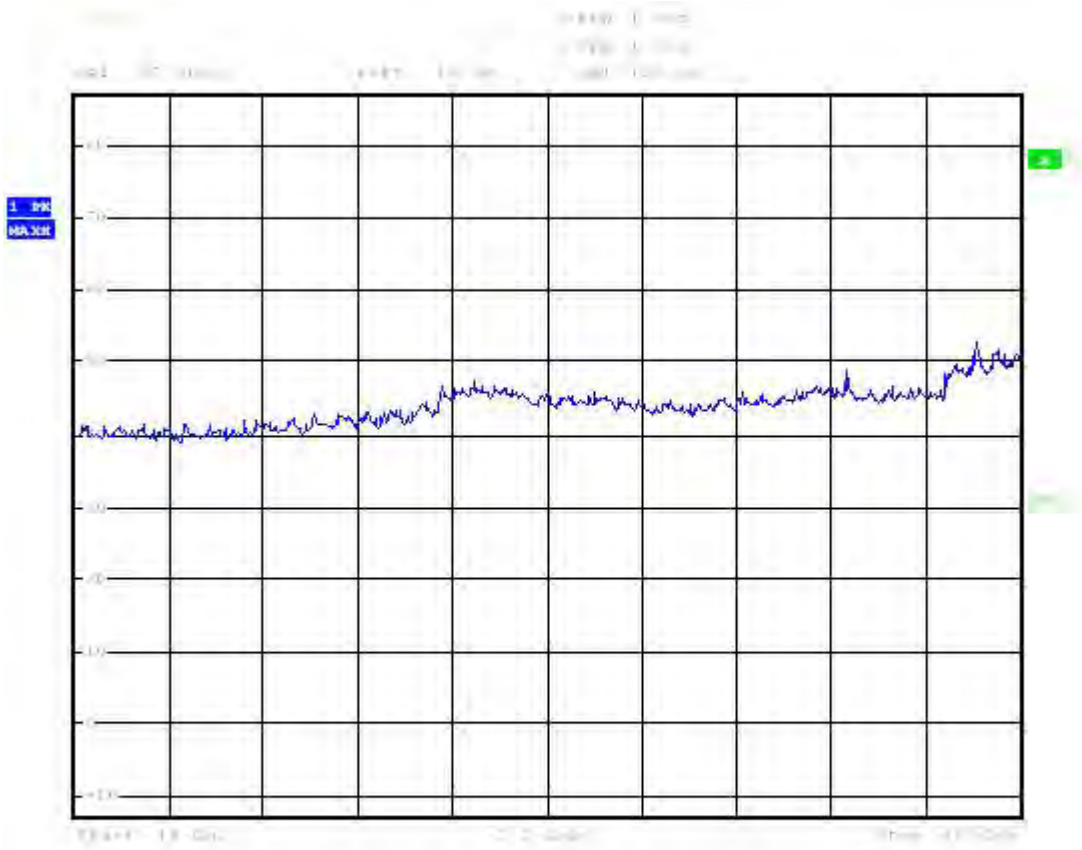
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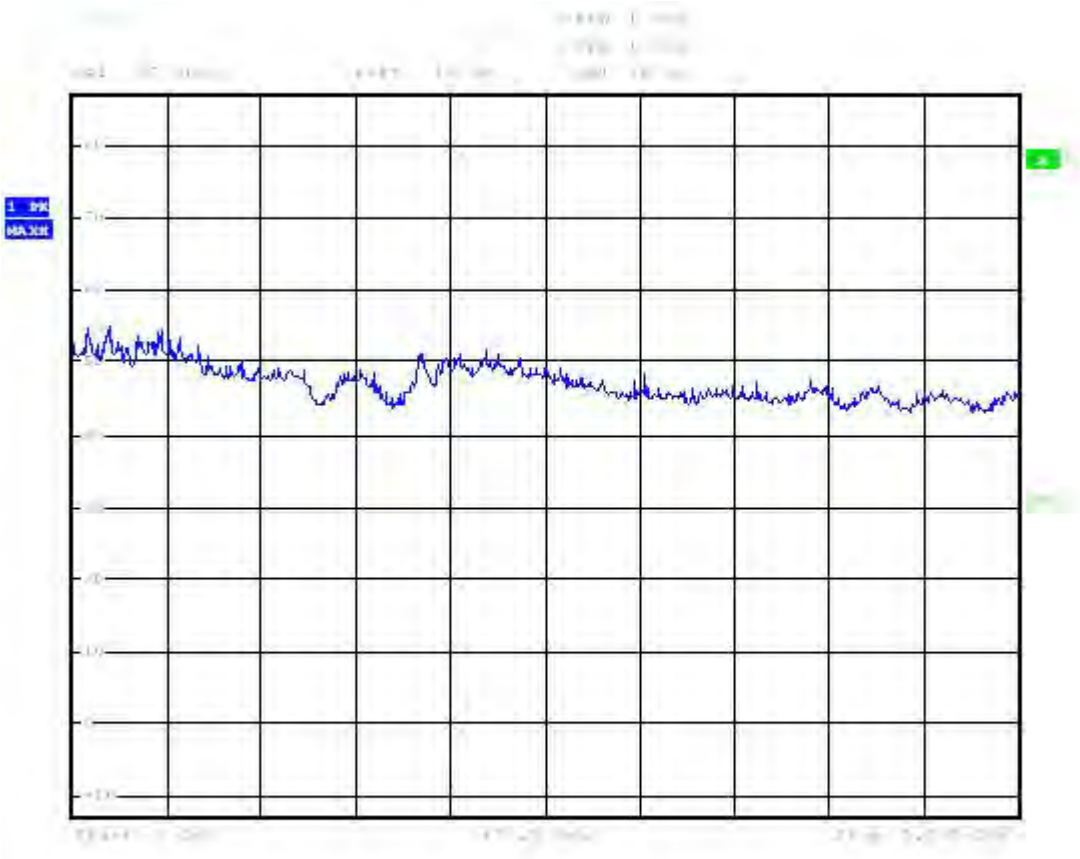

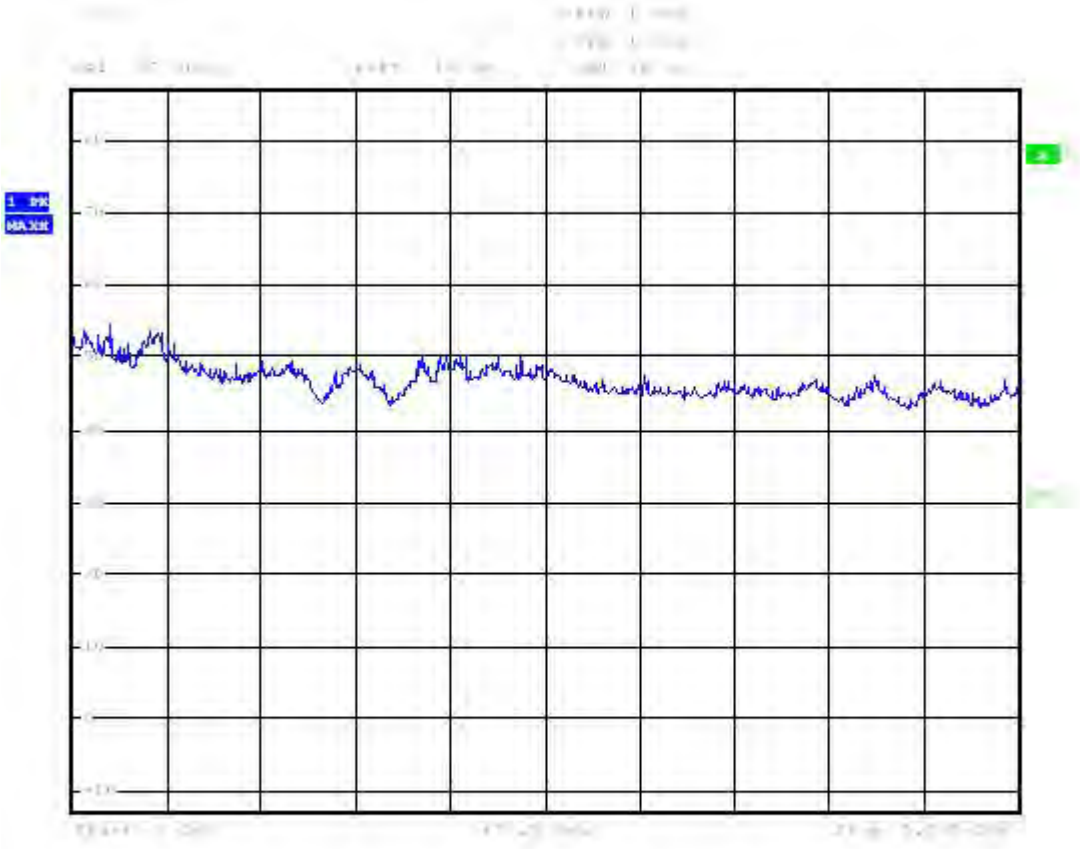

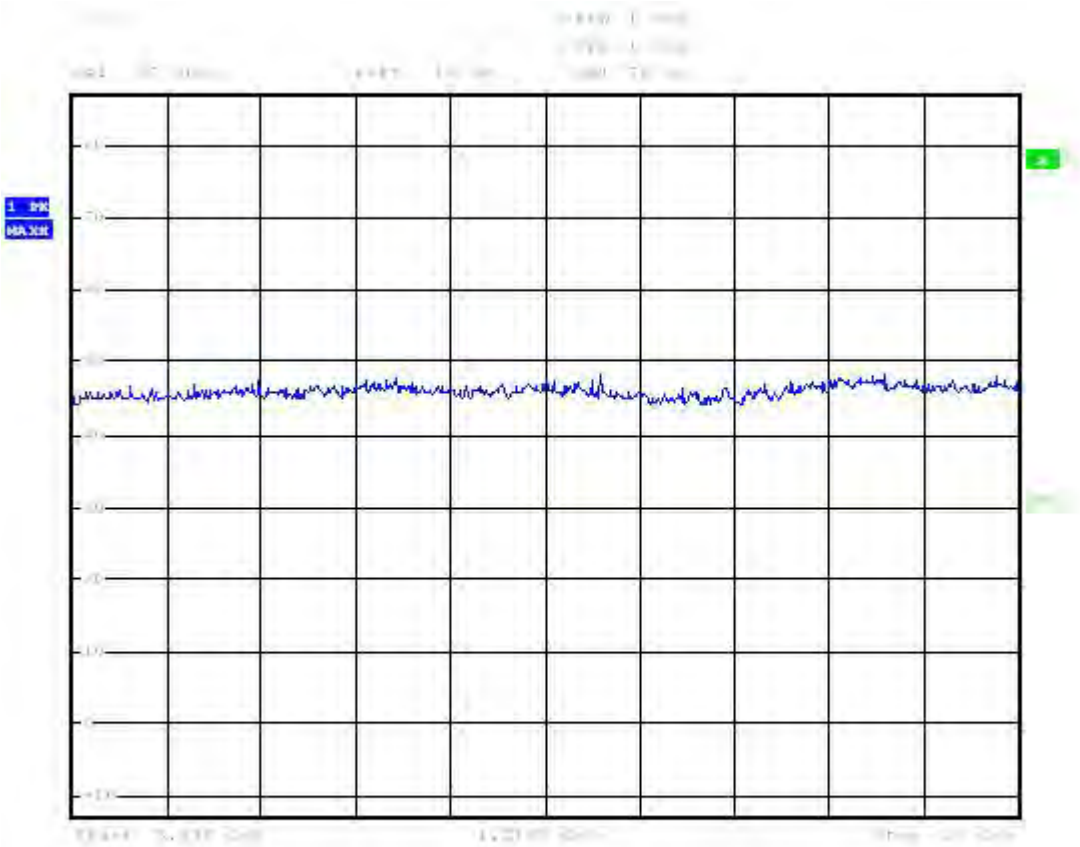

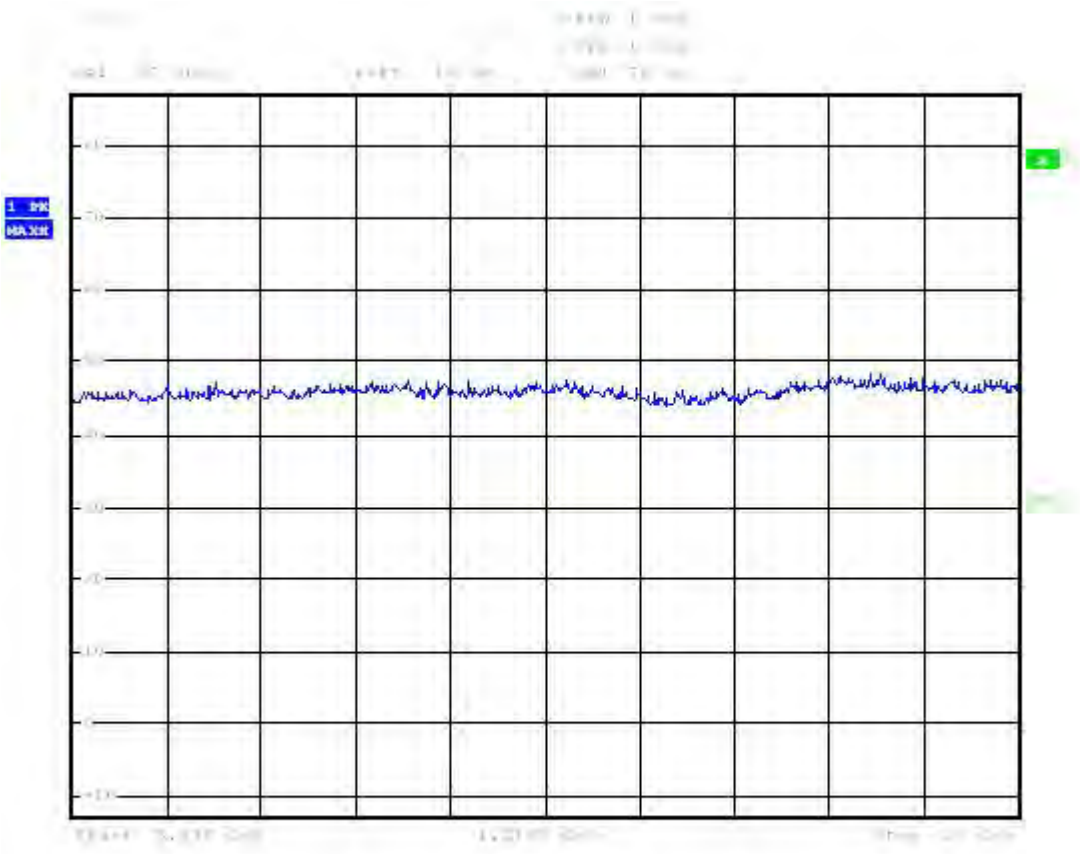
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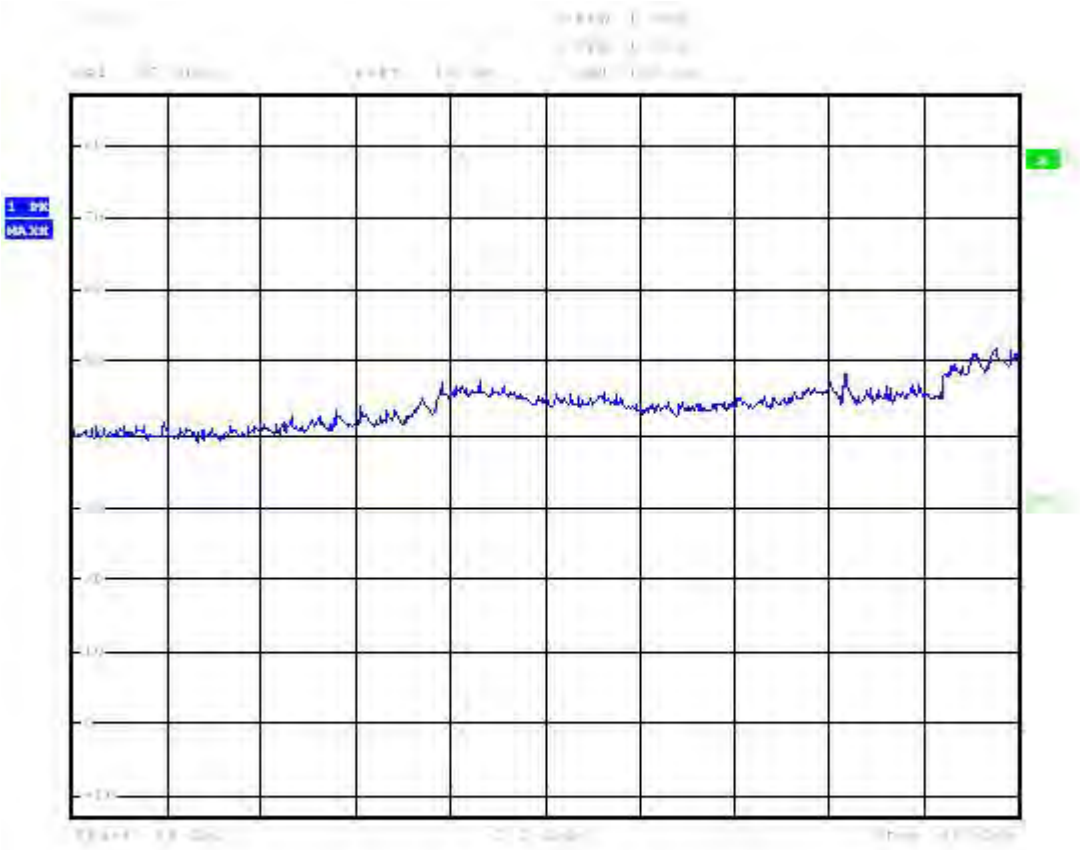
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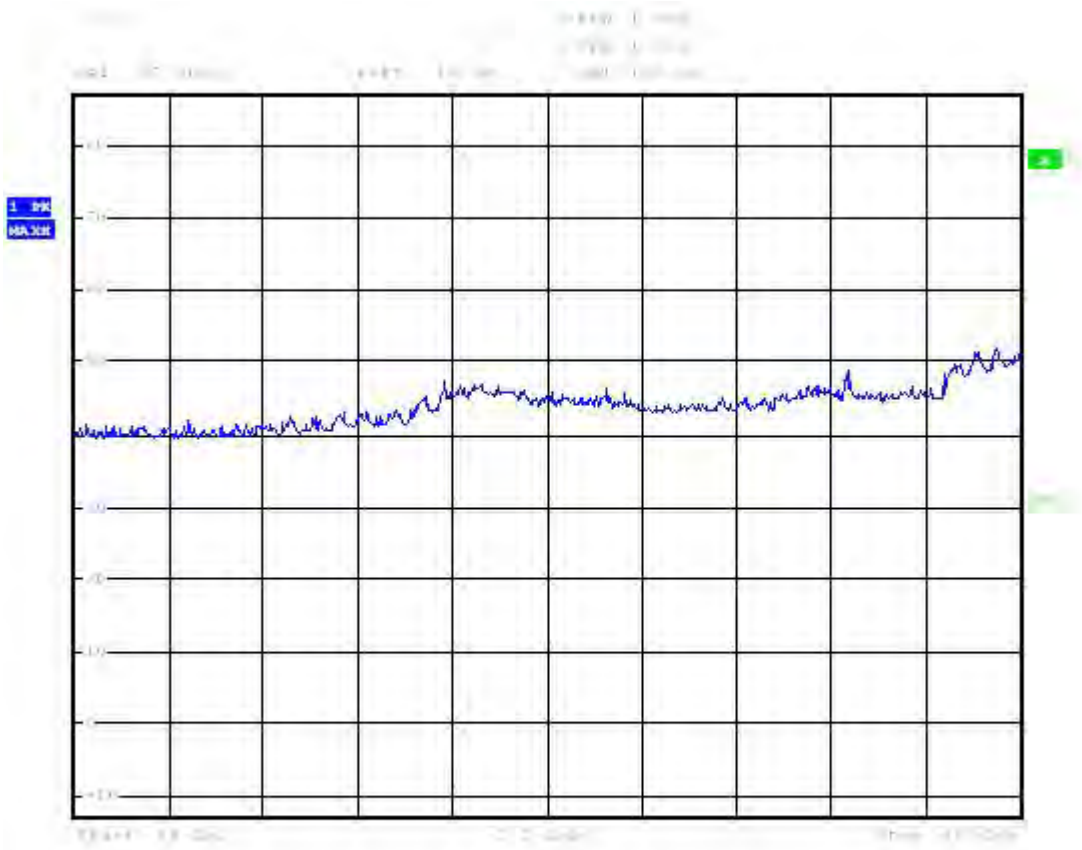

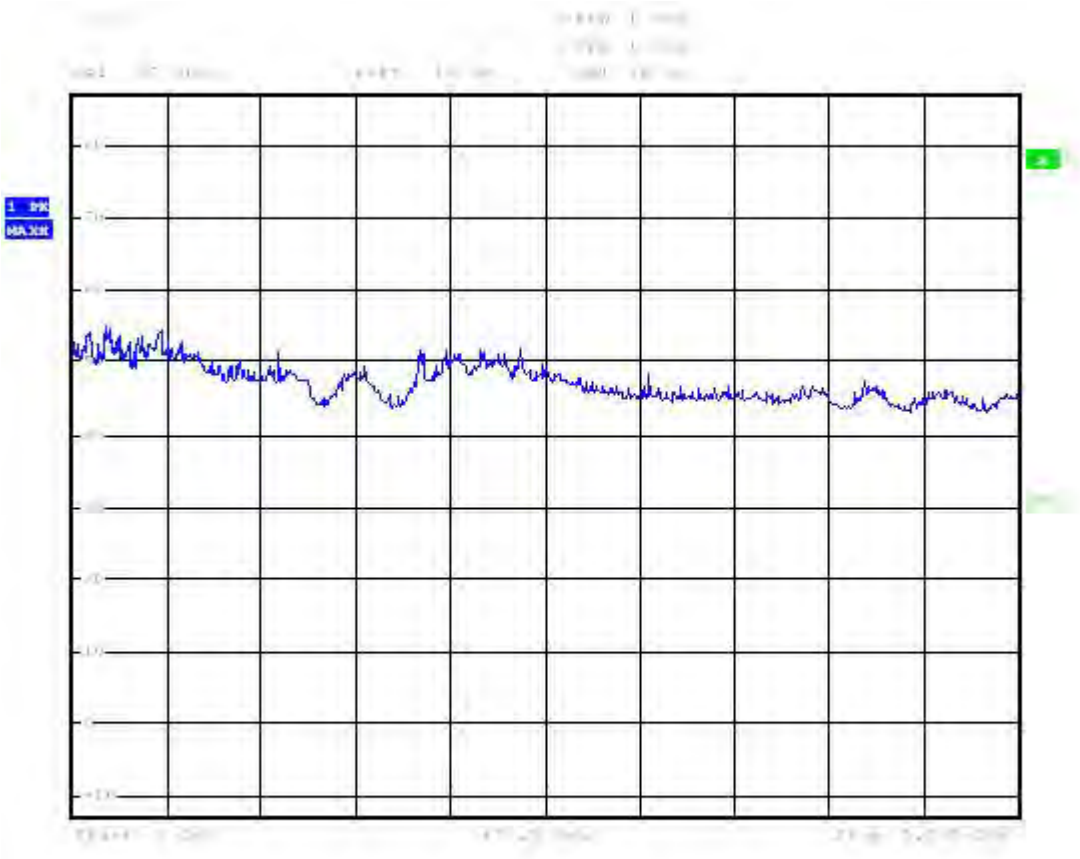
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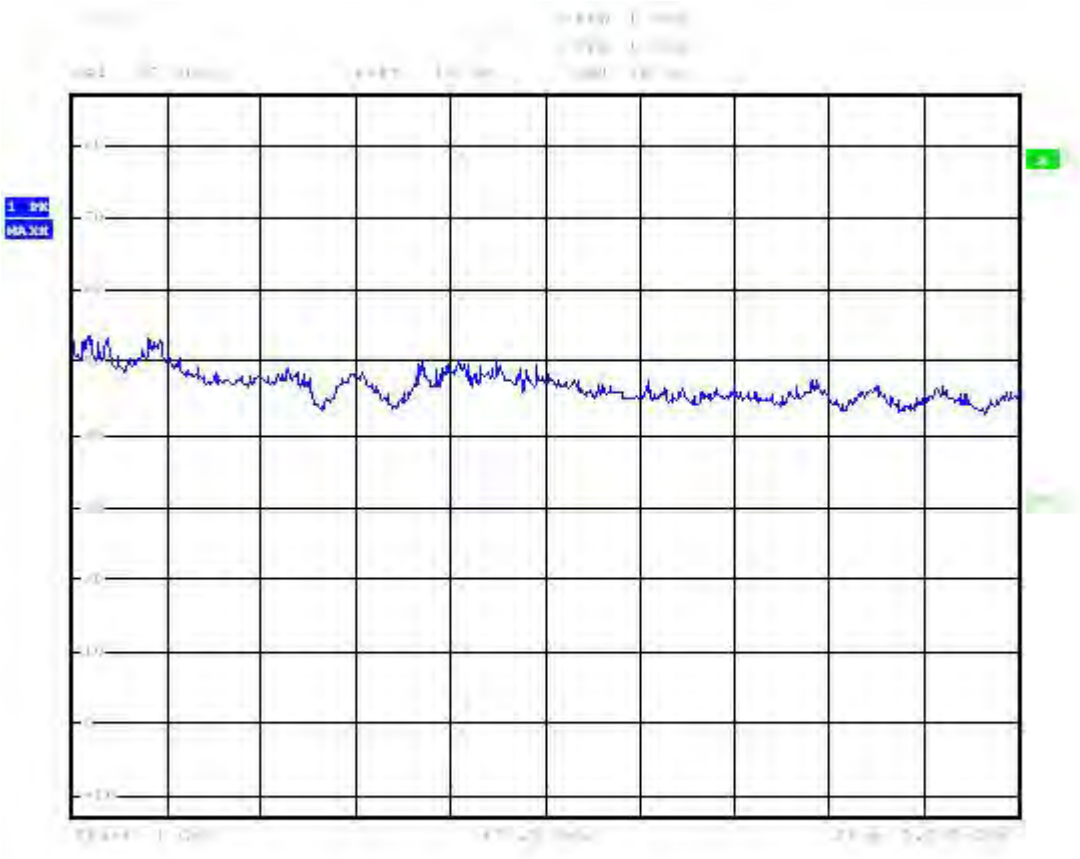

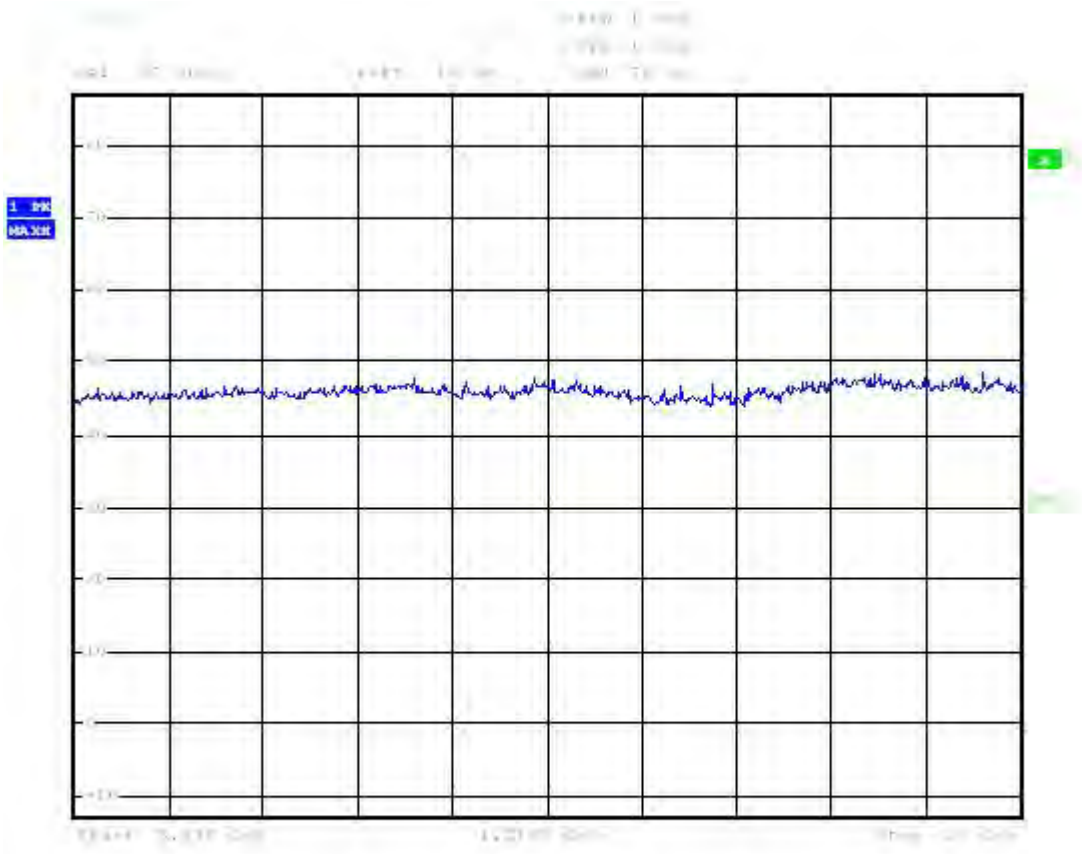
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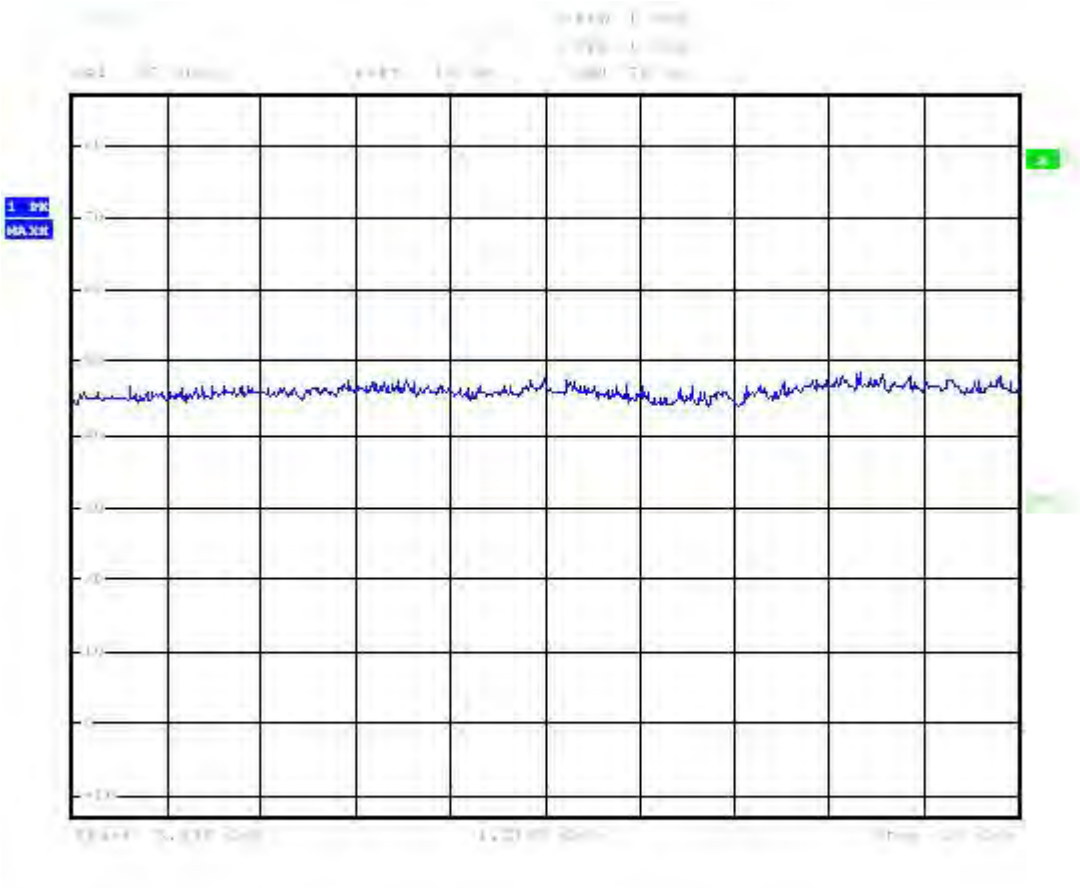
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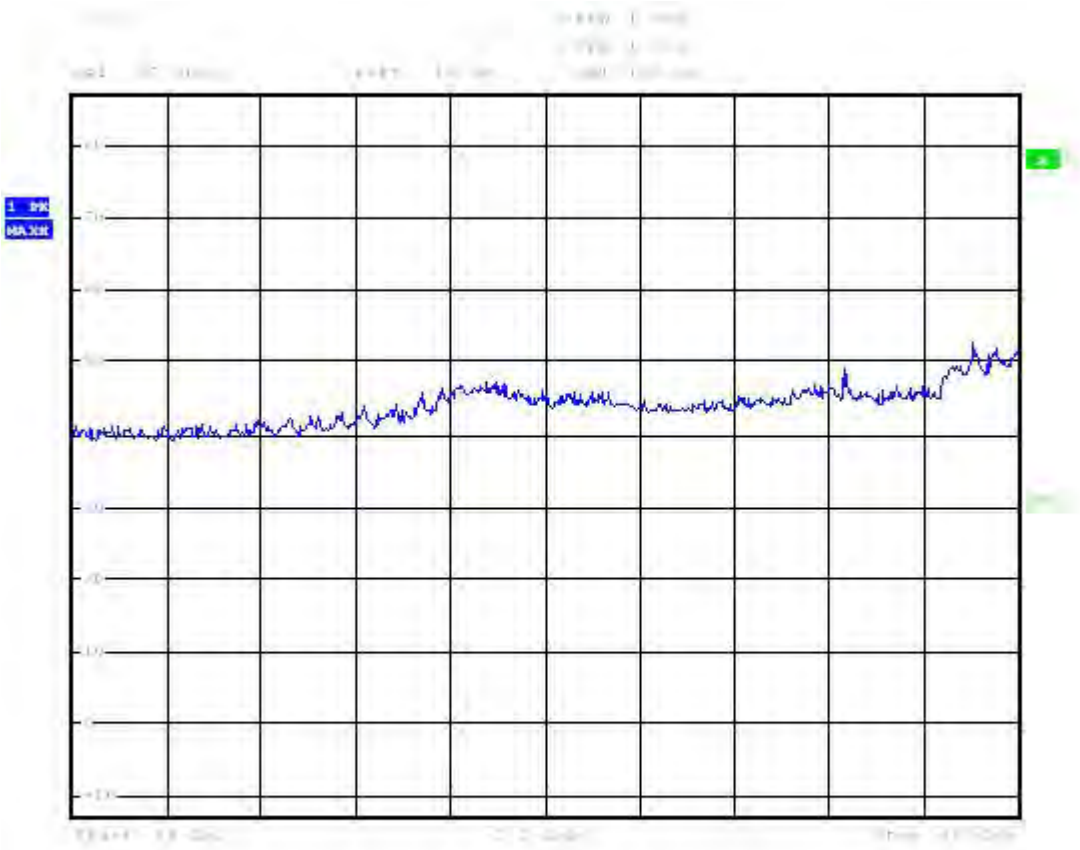
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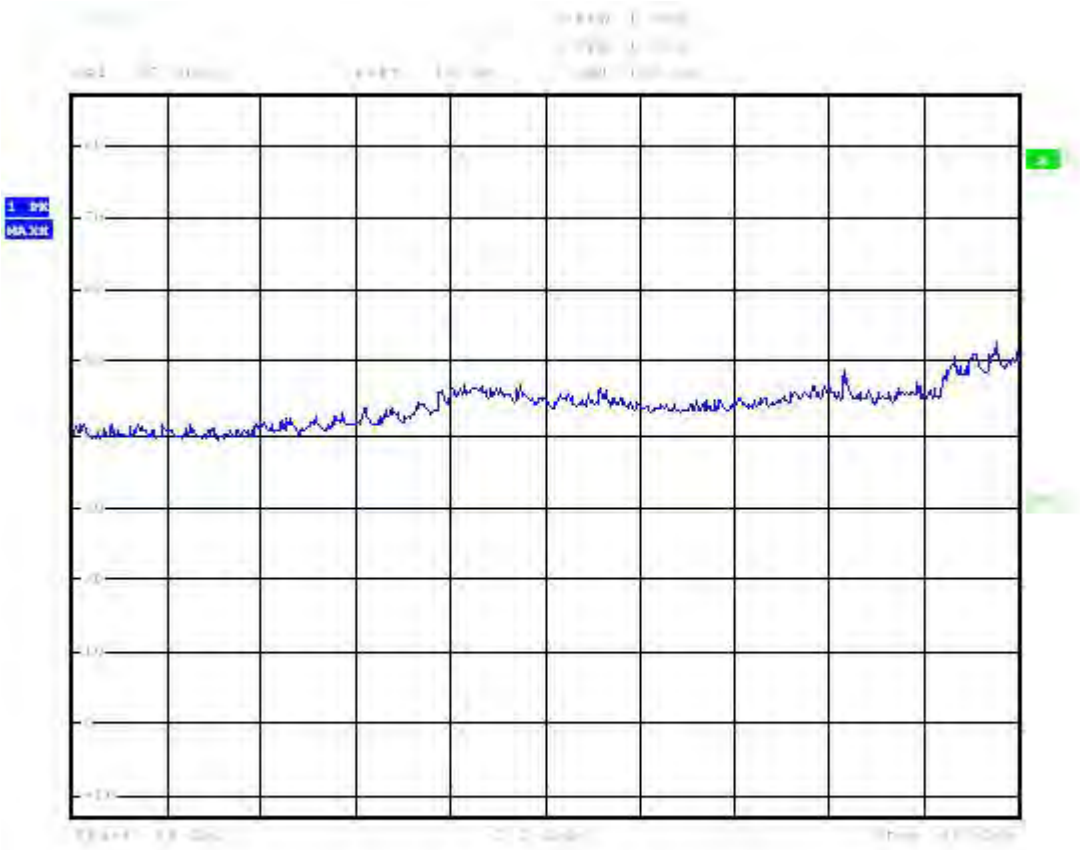
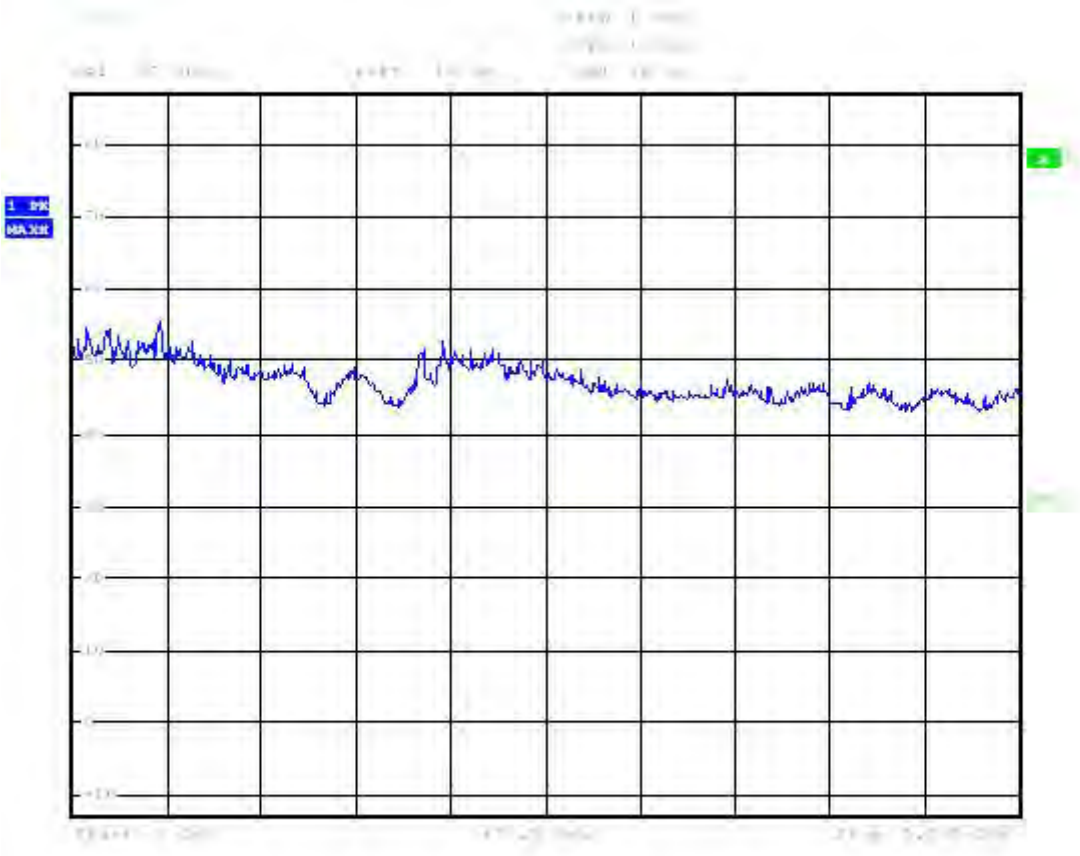
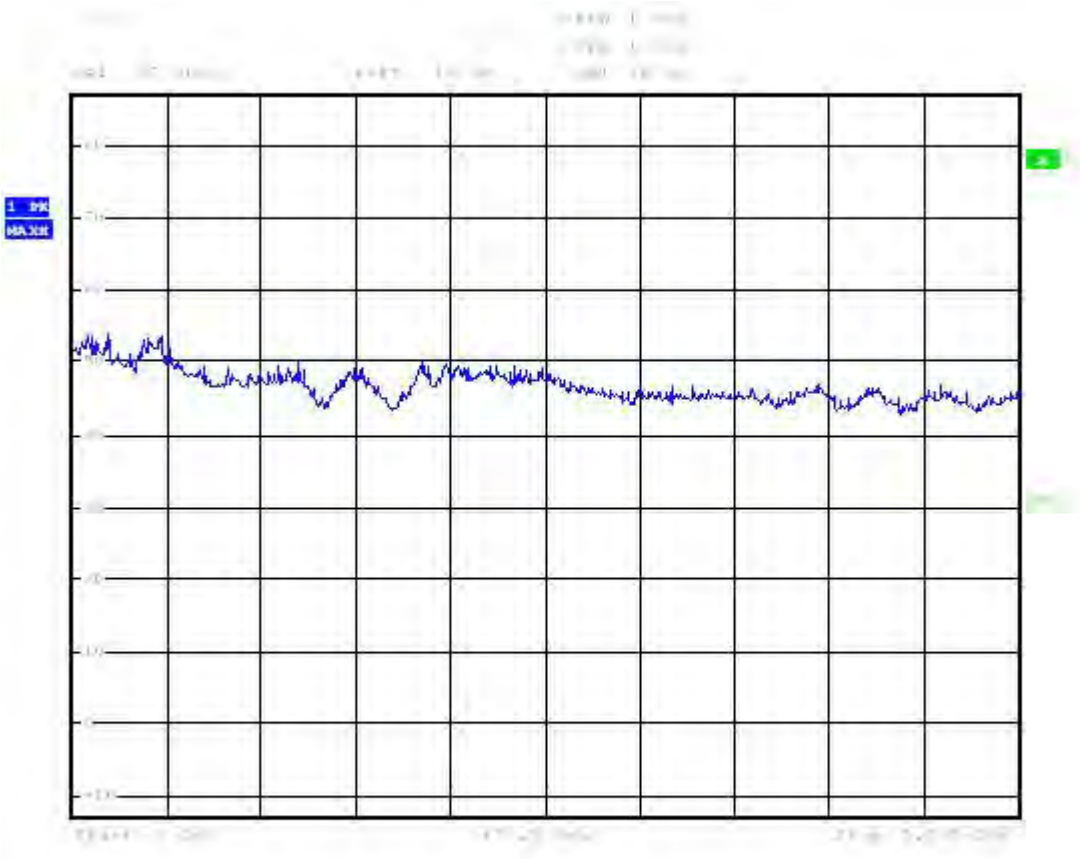
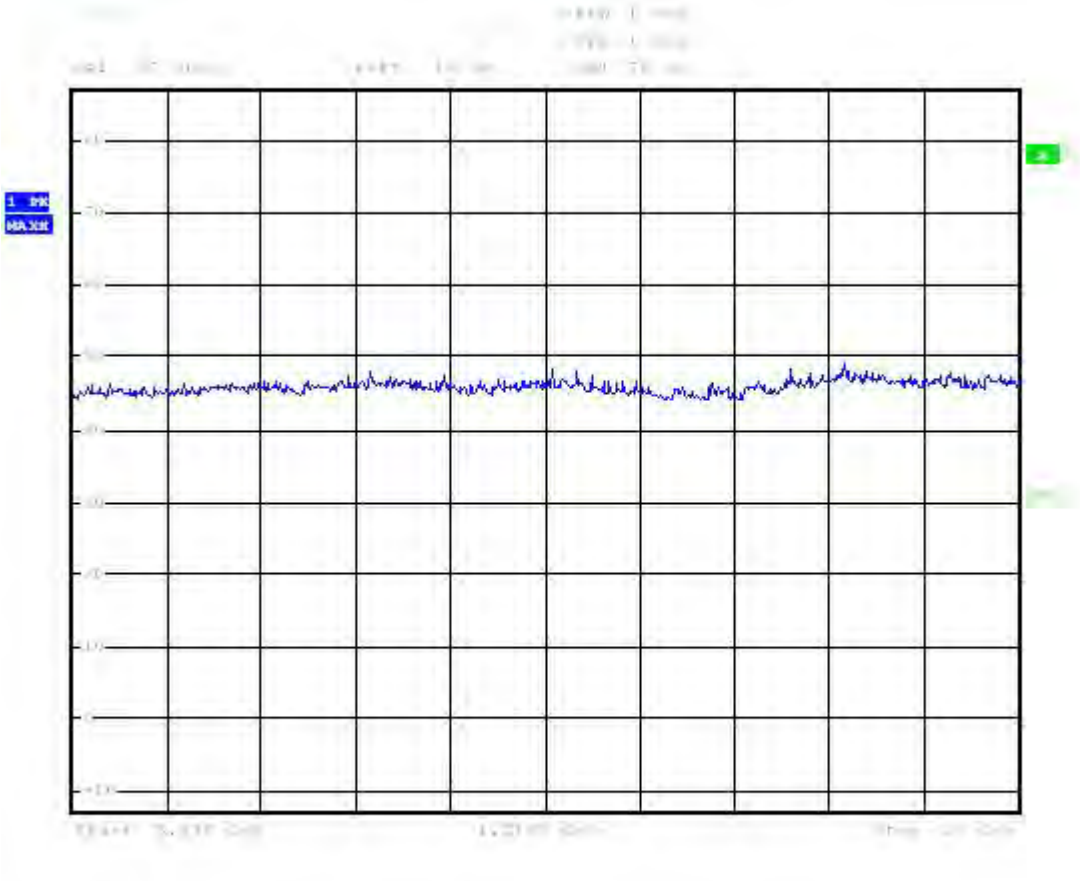


調變技術:IEEE 802.11an HT40



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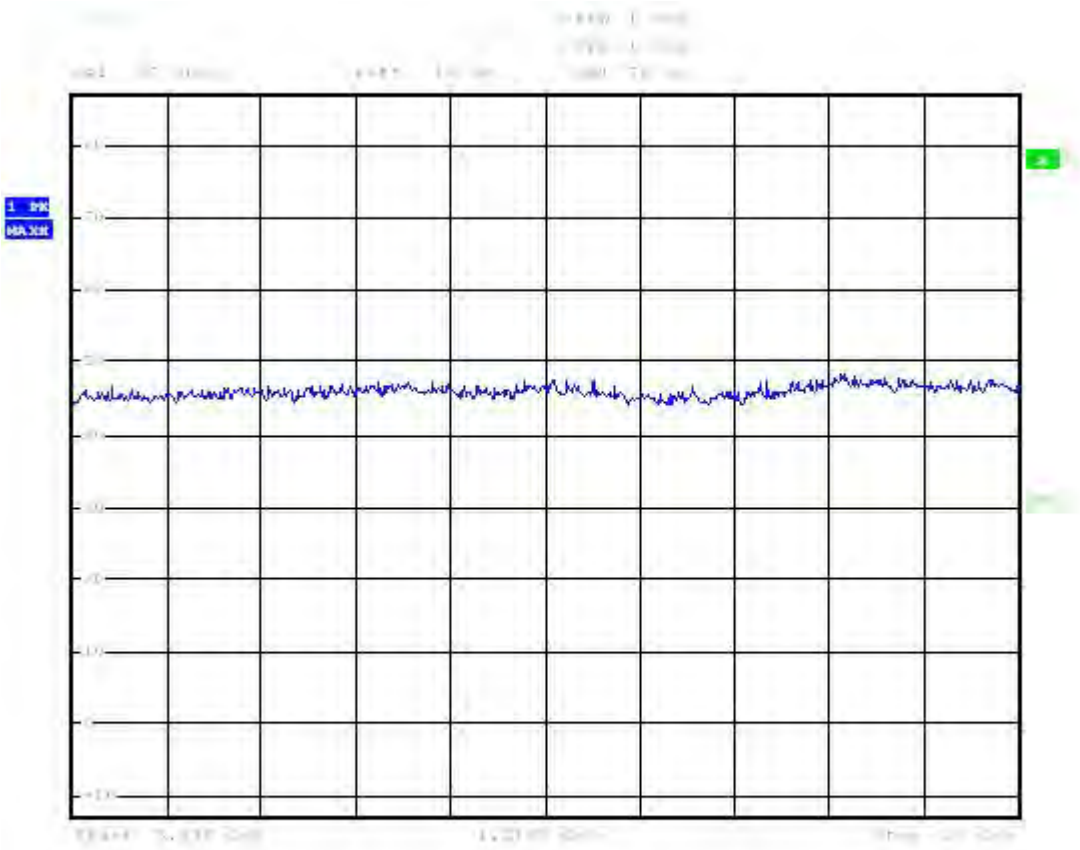
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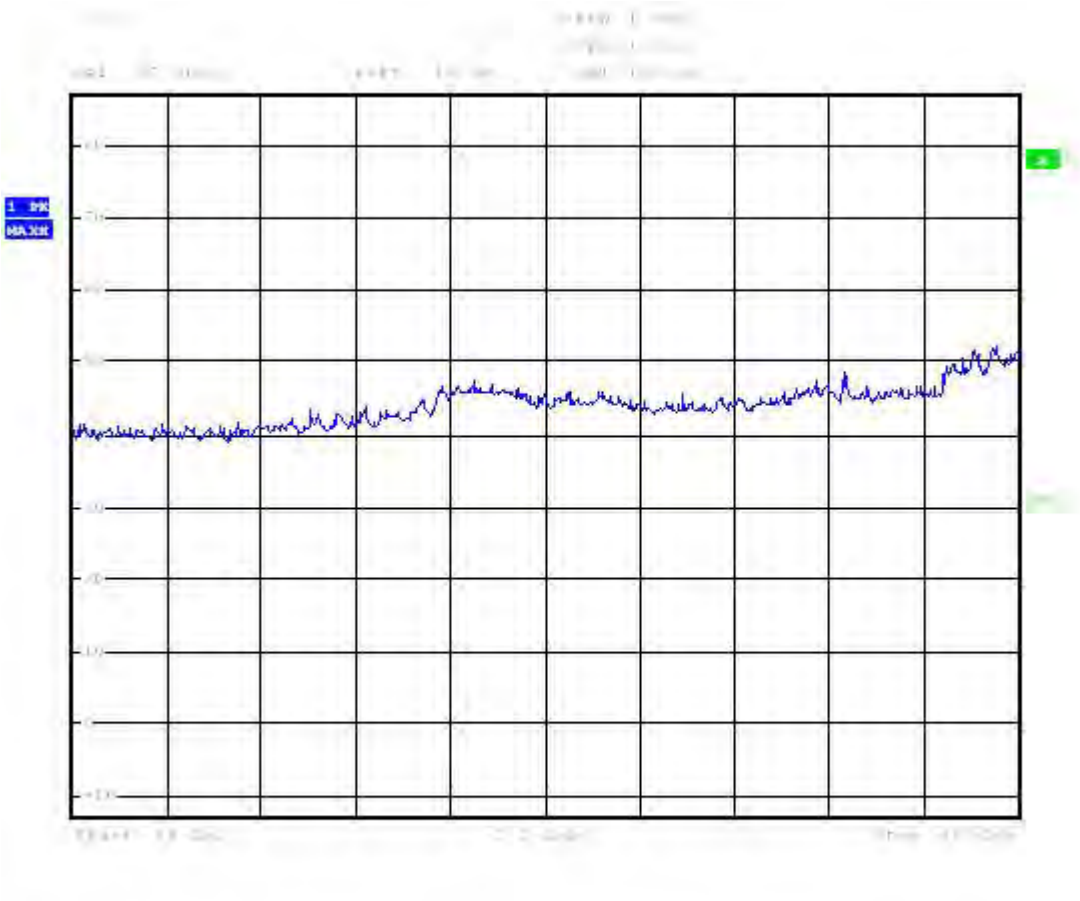
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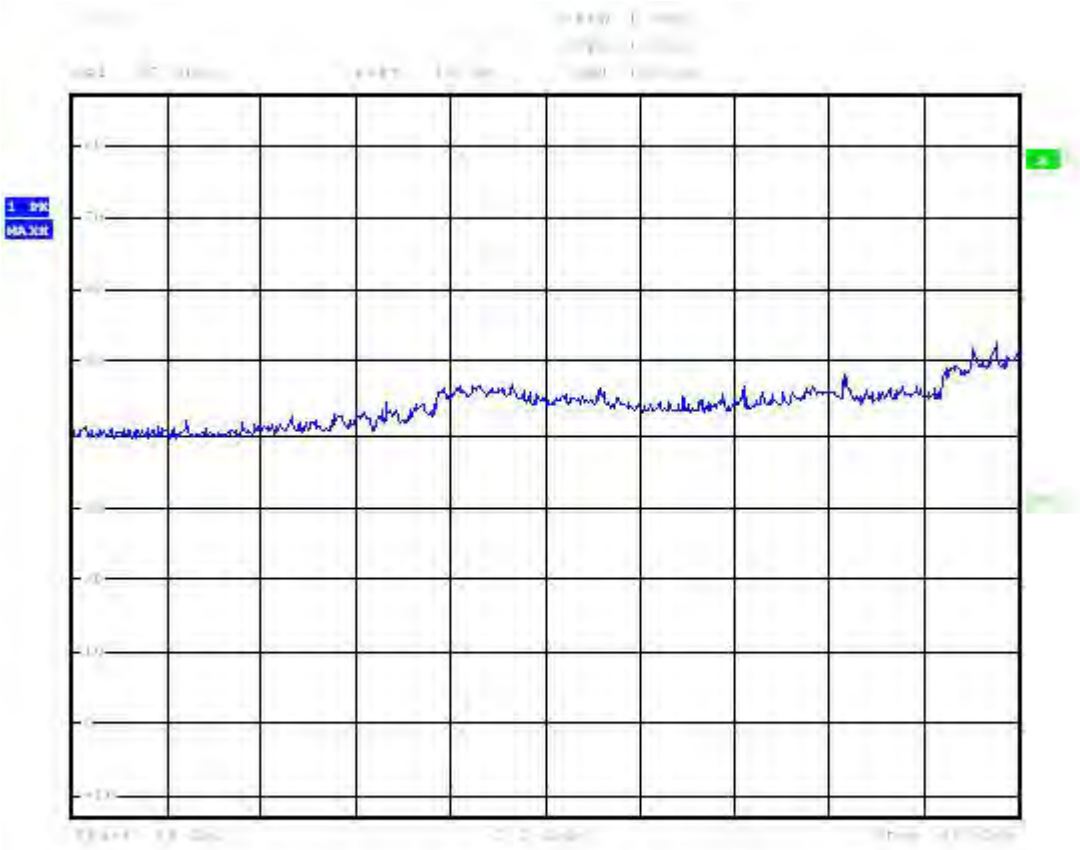
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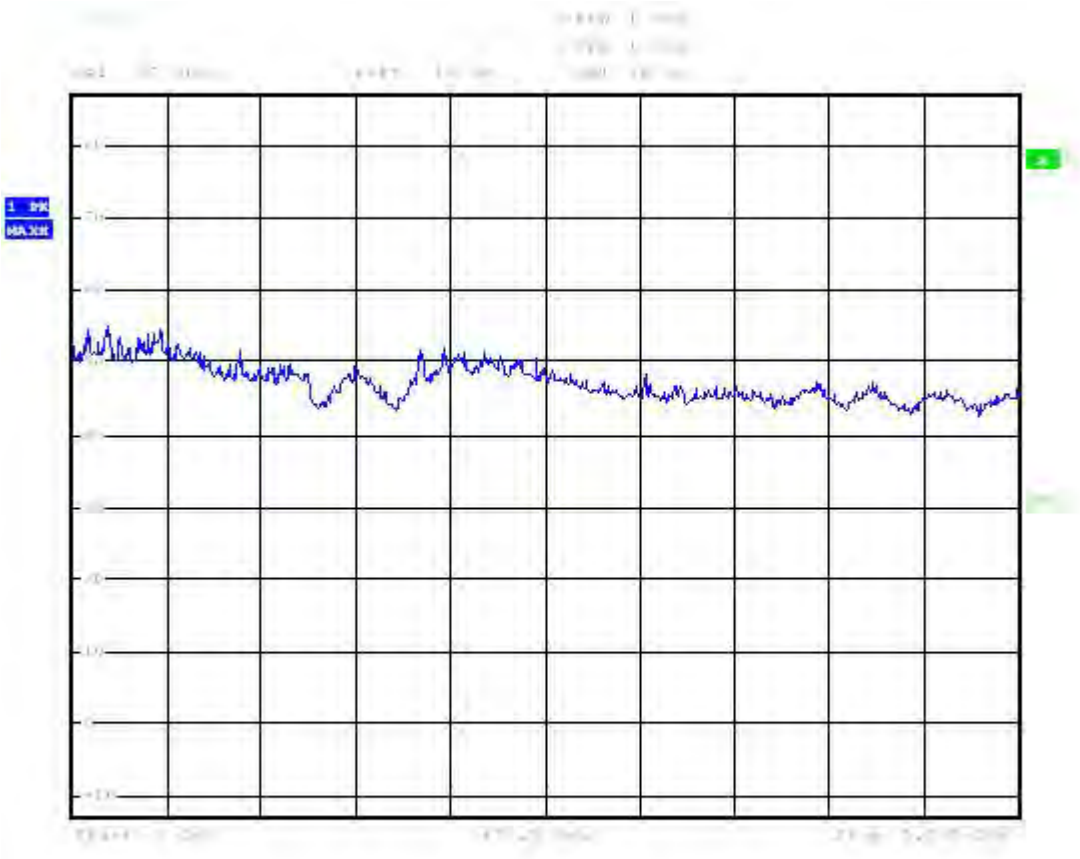

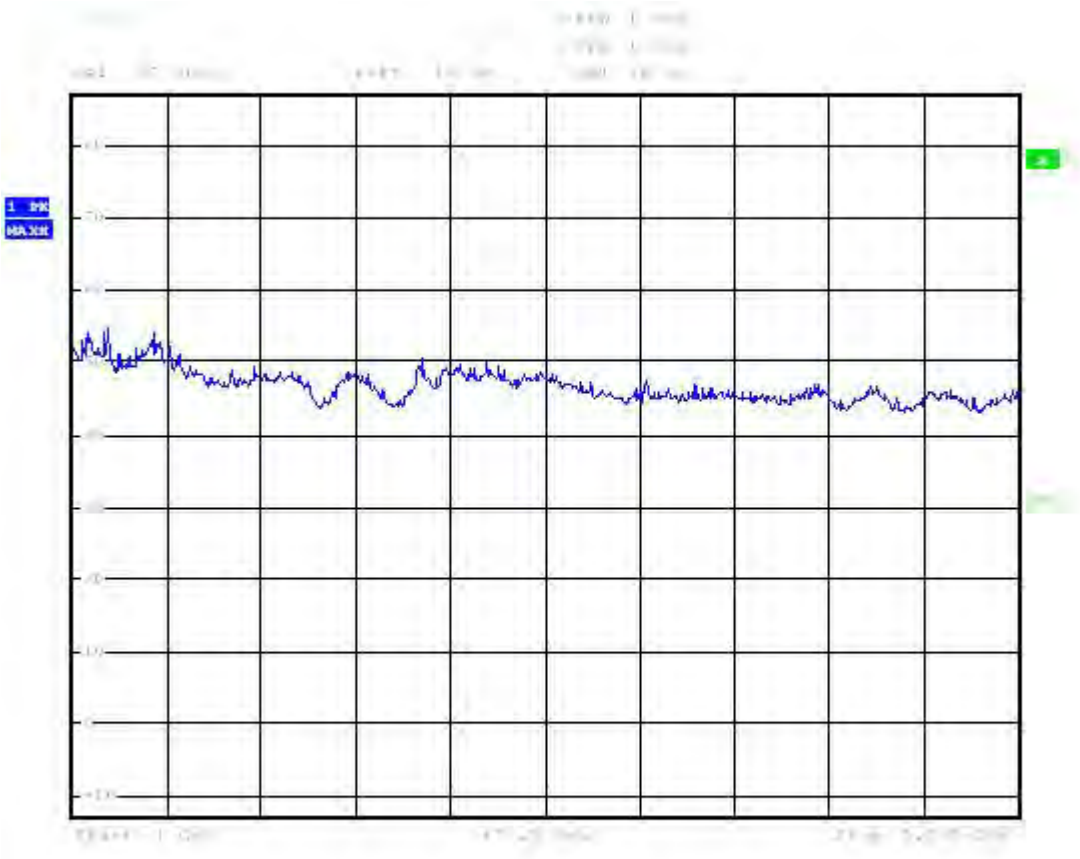
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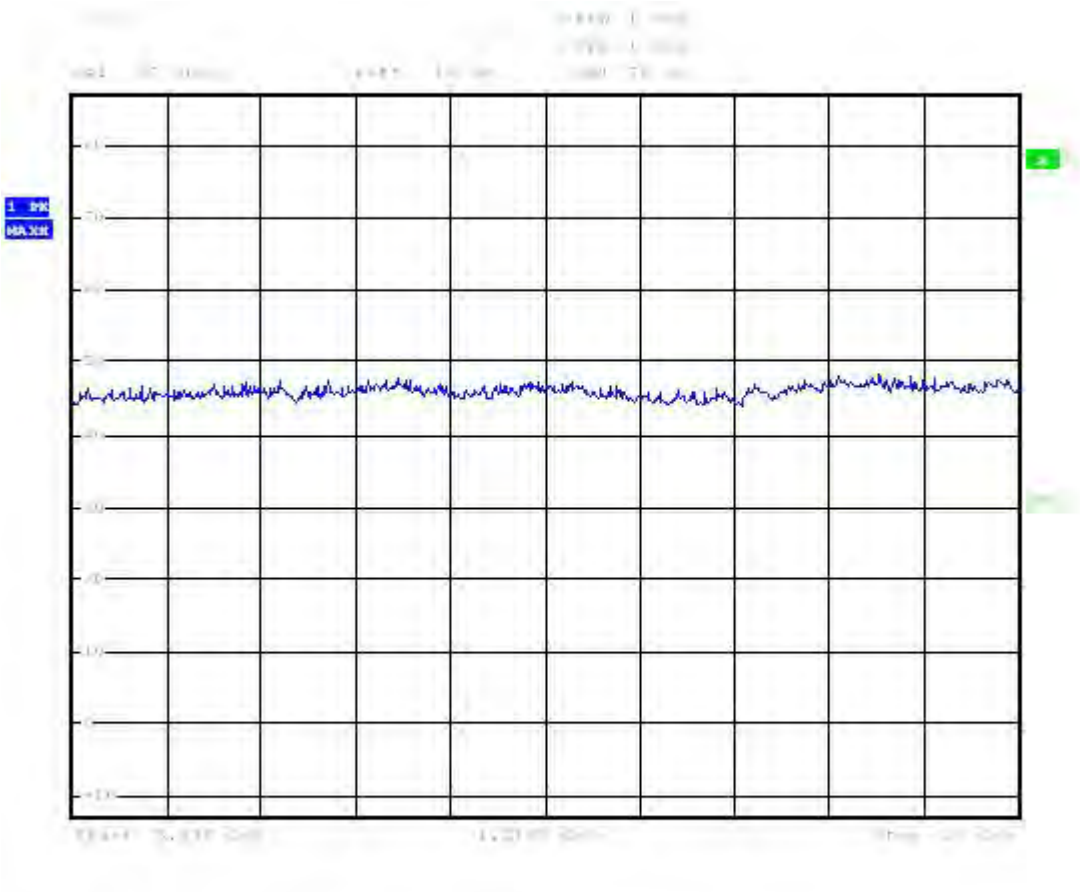
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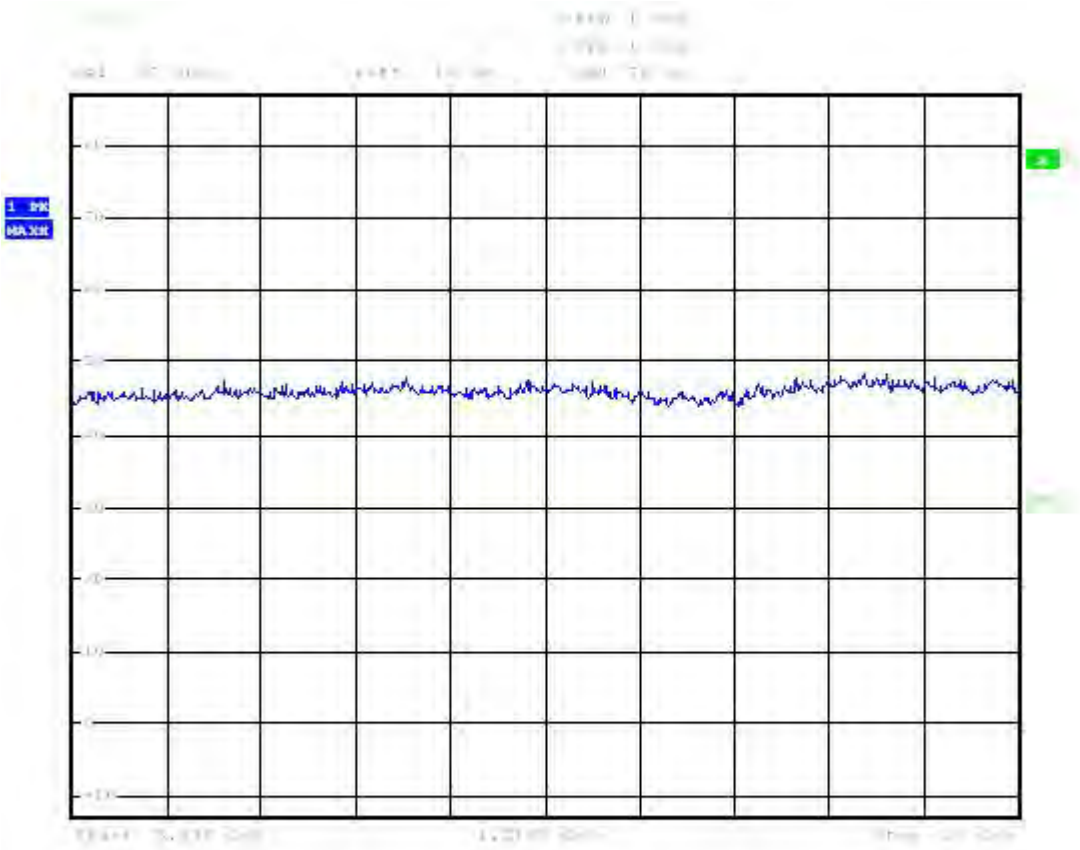
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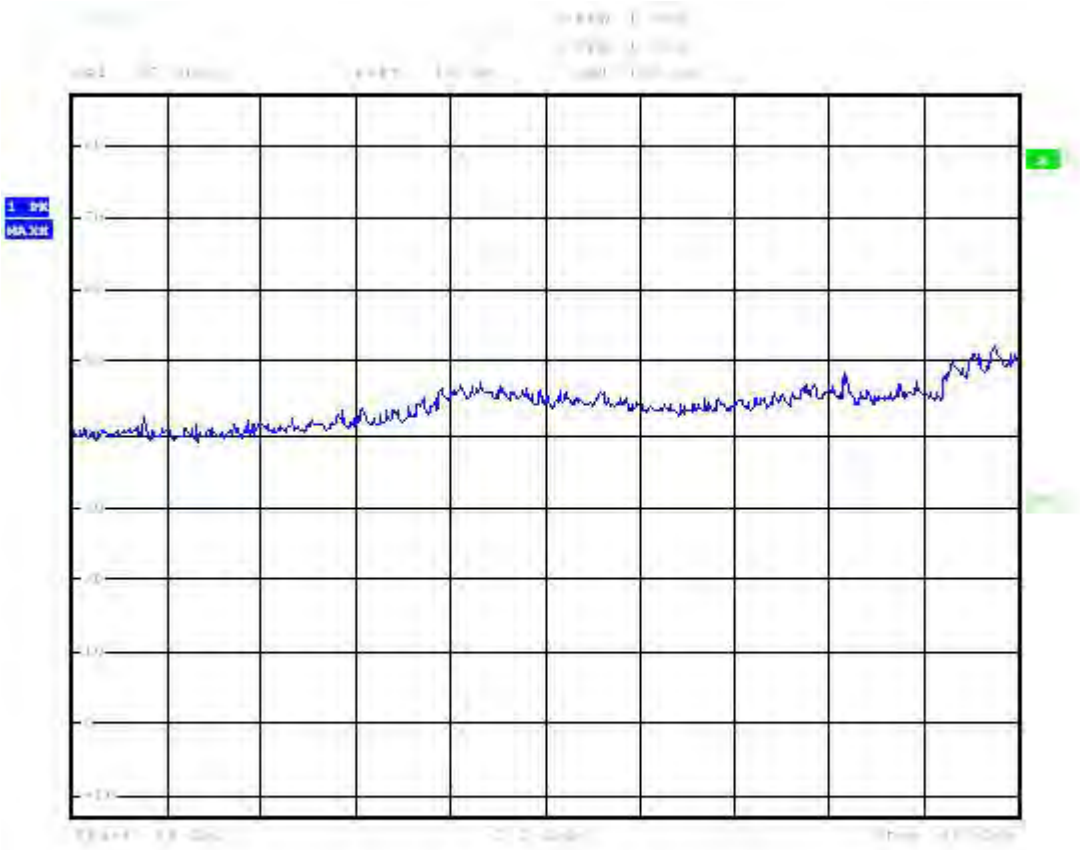
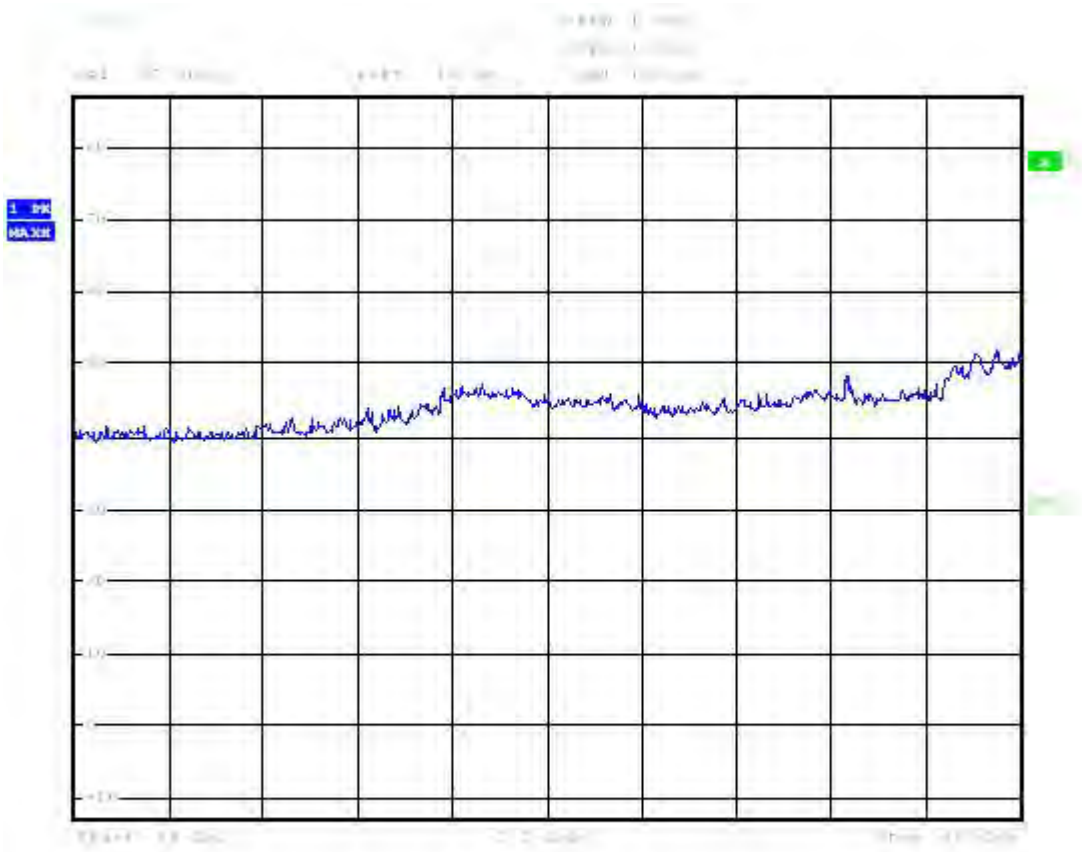
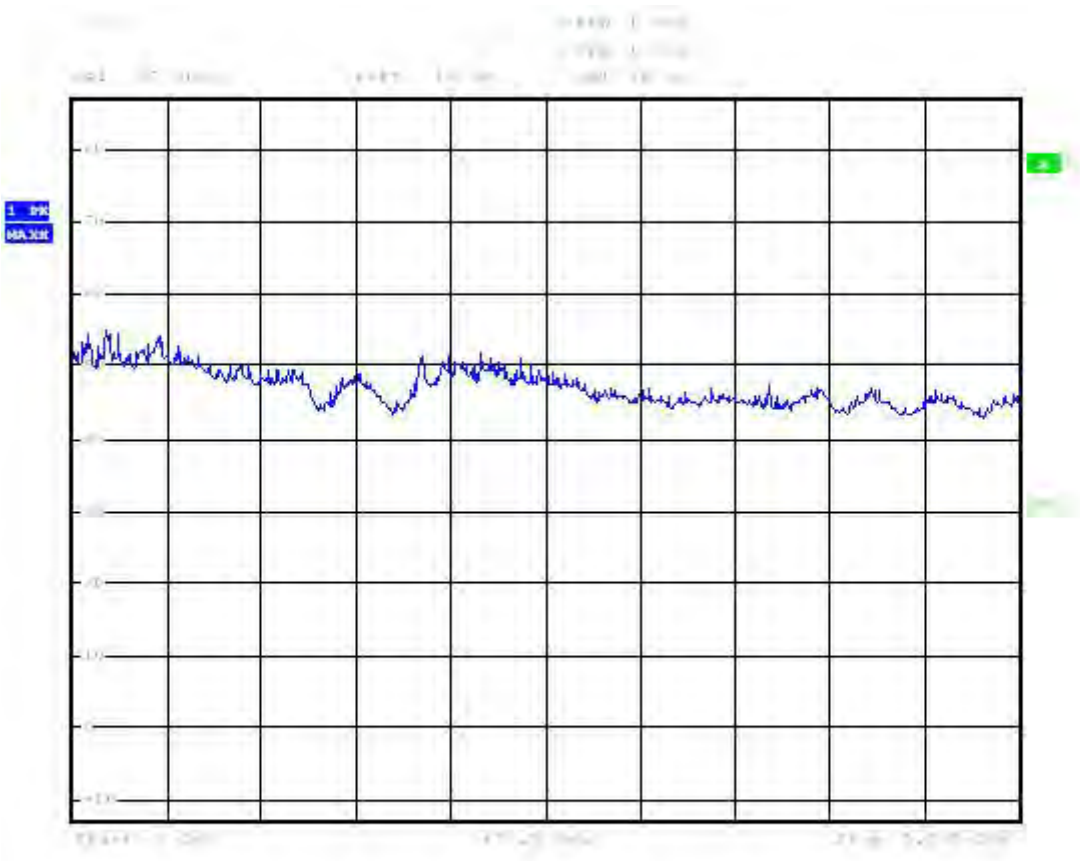
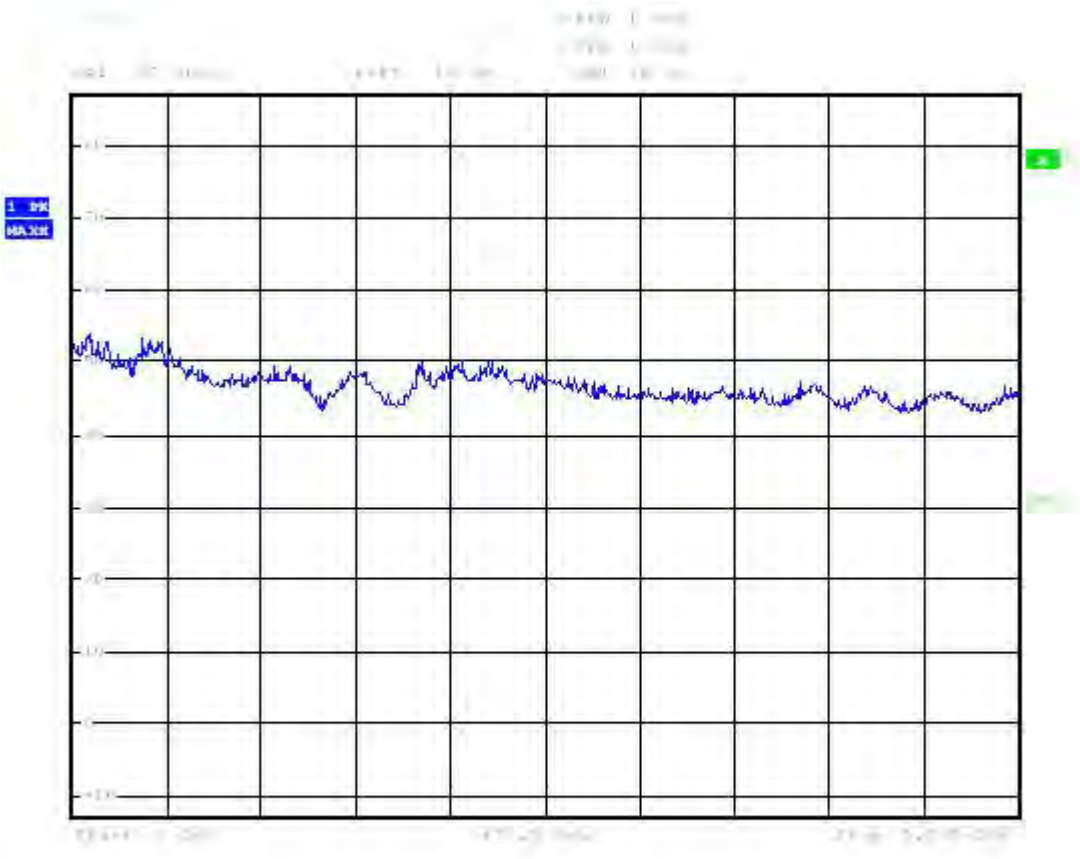
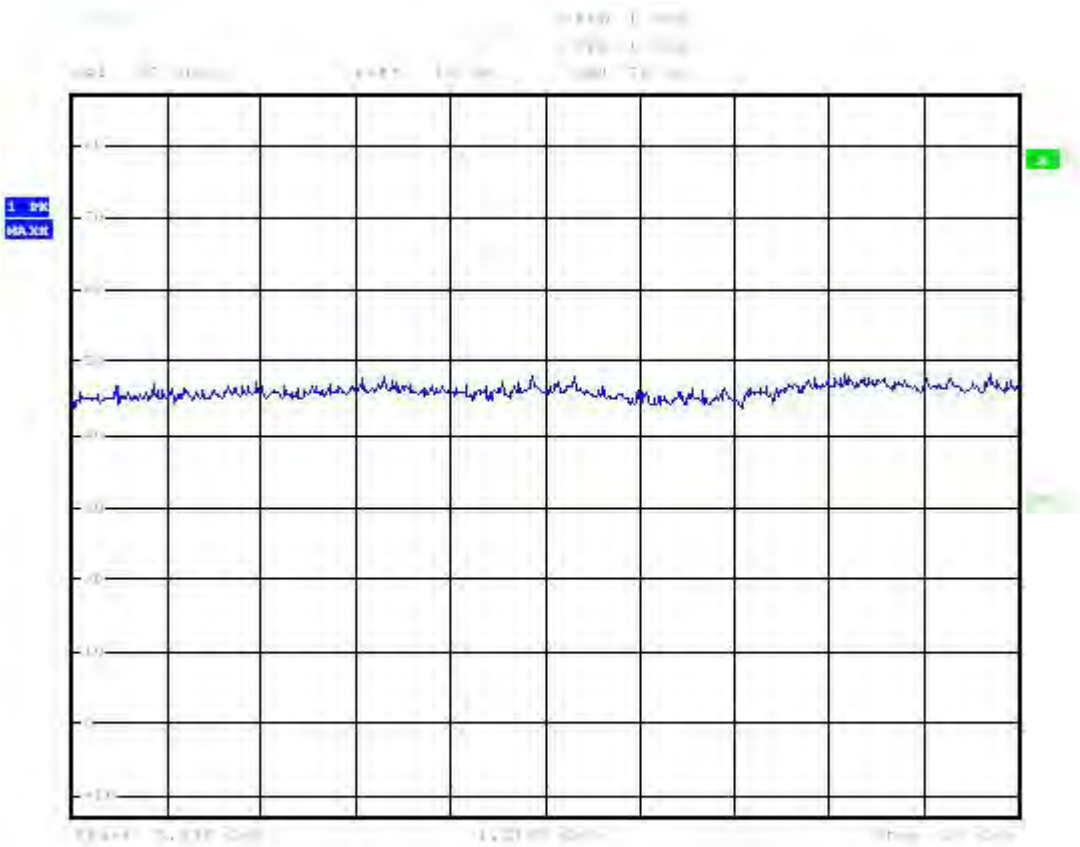




調變技術:IEEE 802.11ac HT80



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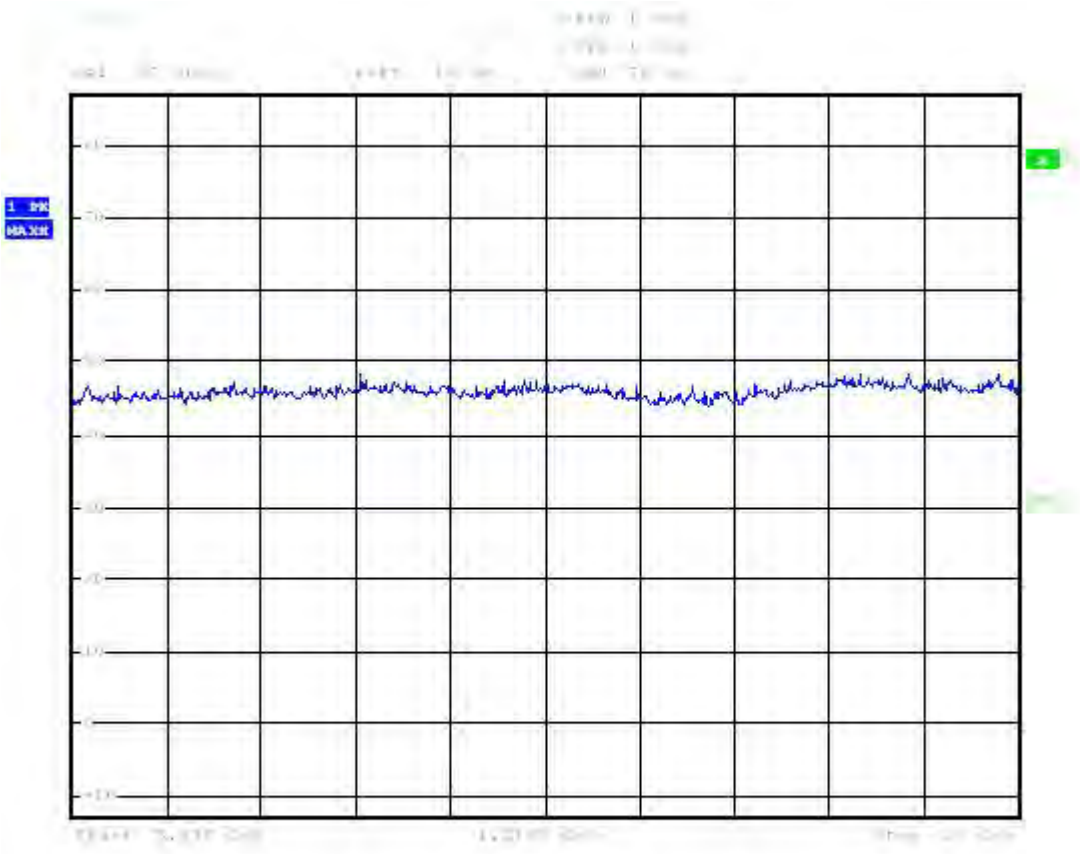
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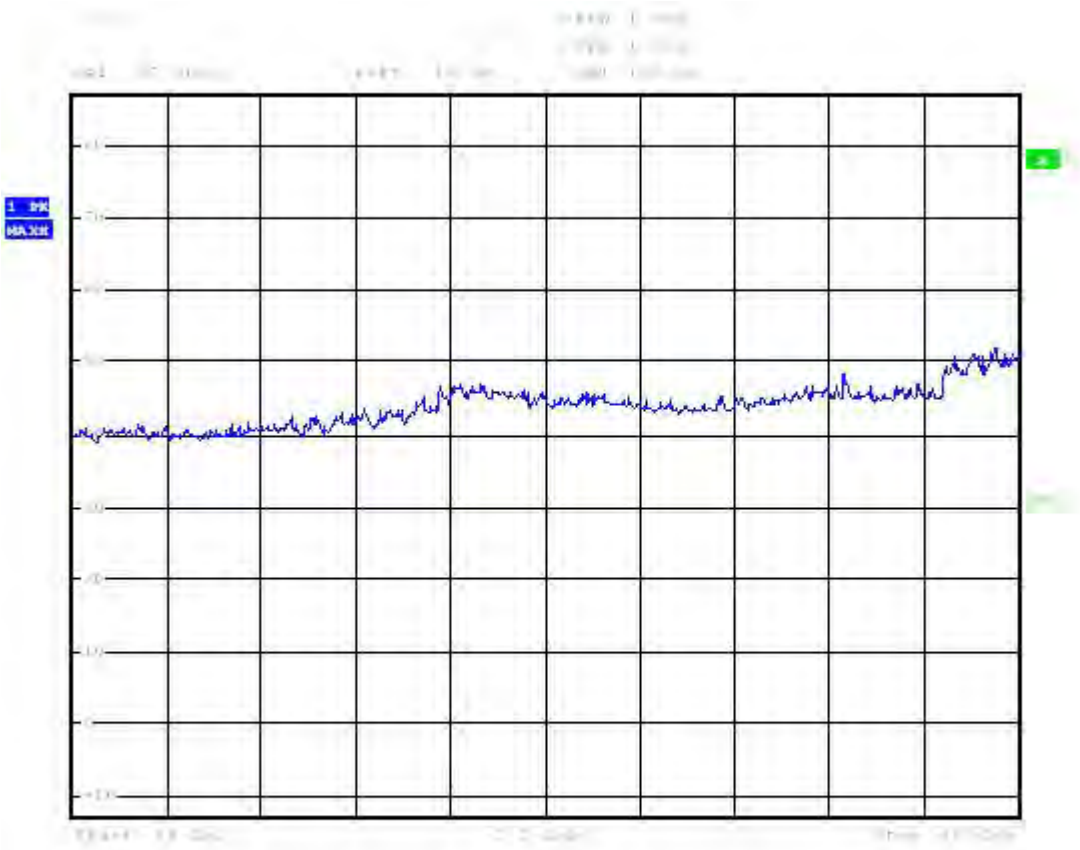
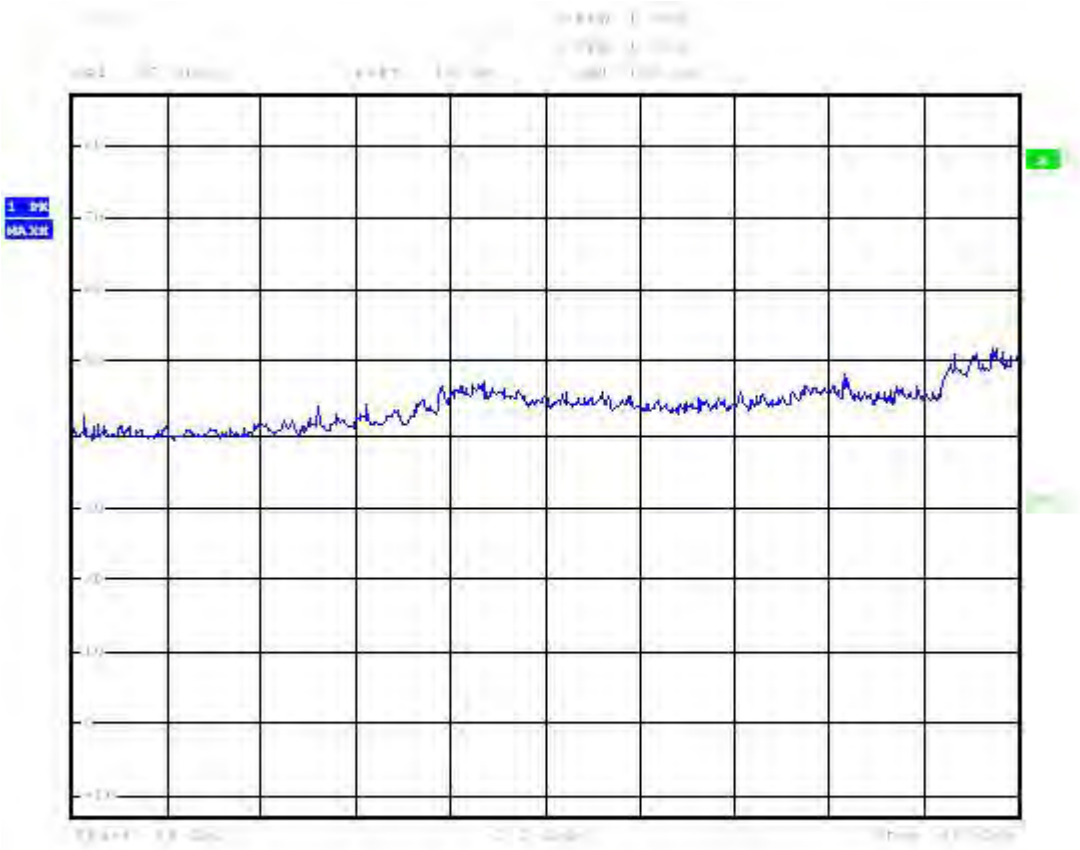


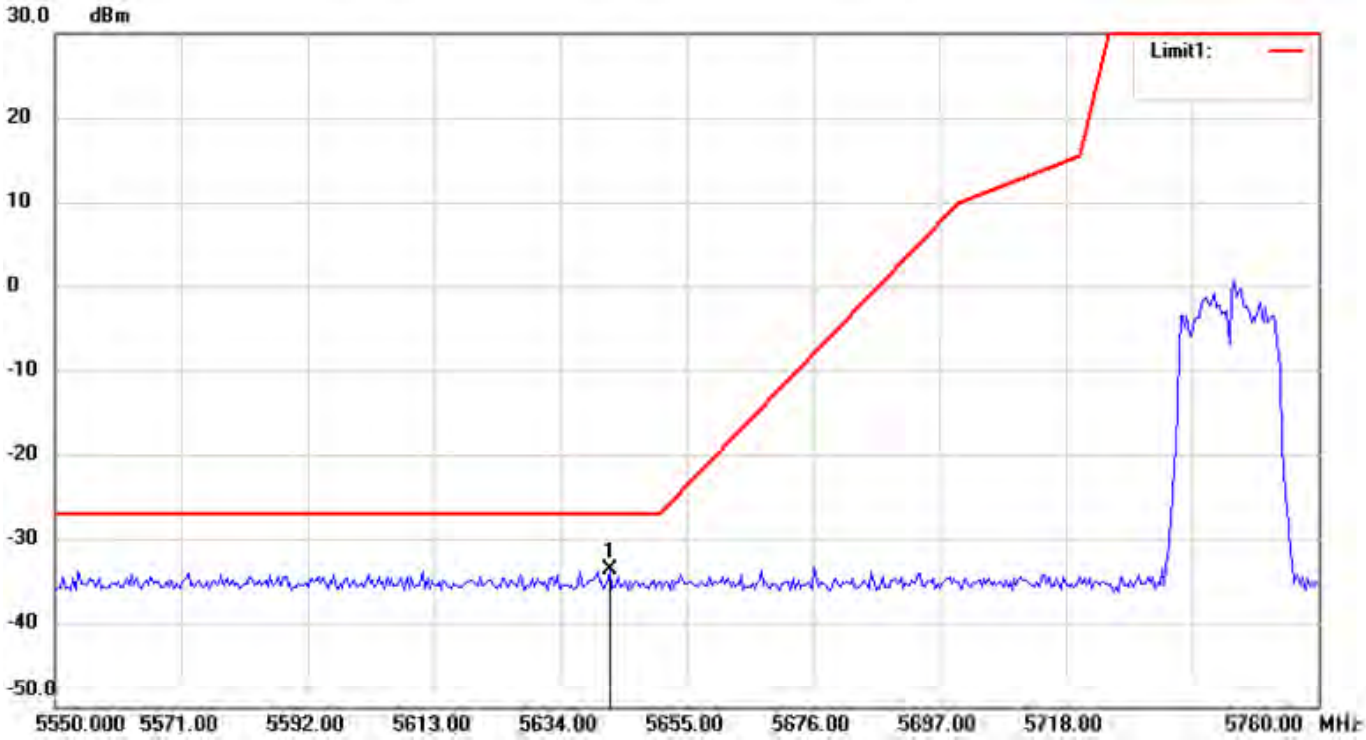


10.7 頻帶外邊輻射量測之量測結果

調變技術: IEEE 802.11a

File: 18-07-MAS-037_5-8a **Data:** #16 **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 06:01:26 **Humidity:** 63 %



Condition: 5.8G Bandedge **Polarization:** Vertical

EUT: **Distance:** 3m

Model:

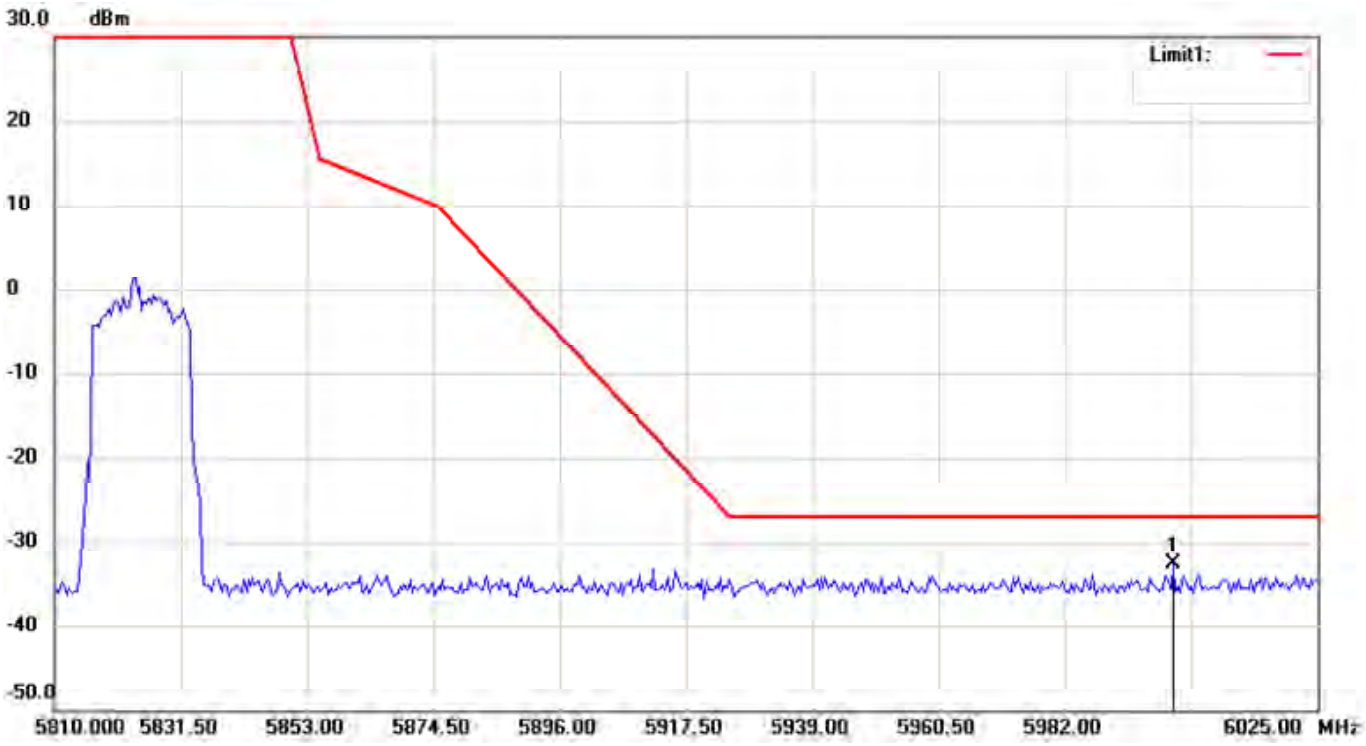
Test Mode:

Note:

No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comment
	(MHz)	(dBm)		Factor(dB)	(dBm)	(dBm)	(dB)	(cm)	(°)	
1	5642.2115	-83.58	peak	49.84	-33.74	-27.00	-6.74	---	---	

File: 18-07-MAS-037_5-8a **Data:** #21 **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 06:30:34 **Humidity:** 63 %



Condition: 5.8G Bandedge **Polarization:** Vertical

EUT: **Distance:** 3m

Model:

Test Mode:

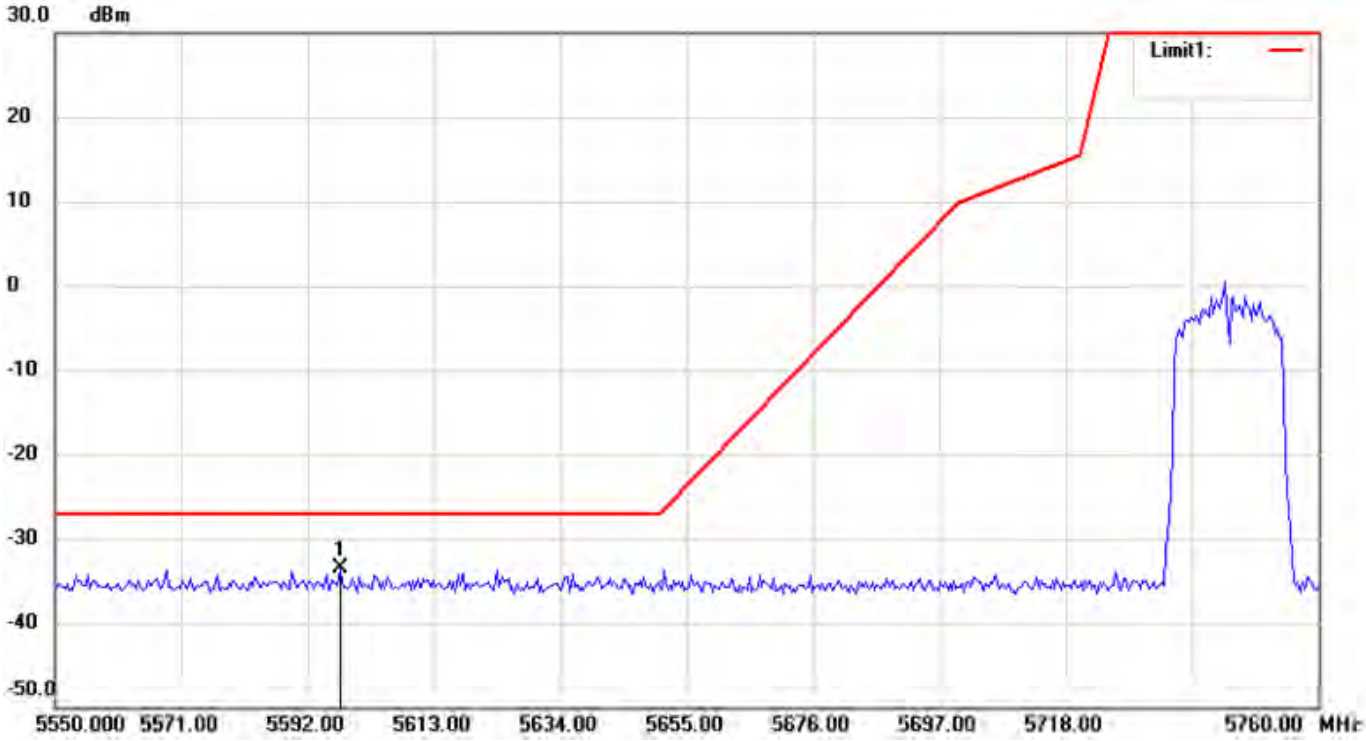
Note:

No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comment
	(MHz)	(dBm)		Factor(dB)	(dBm)	(dBm)	(dB)	(cm)	(°)	
1	6000.5370	-82.91	peak	50.14	-32.77	-27.00	-5.77	---	---	

調變技術: IEEE 802.11an HT20

File: 18-07-MAS-037_5-8an20 **Data:** #15 **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 04:09:13 **Humidity:** 63 %



Condition: 5.8G Bandedge **Polarization:** Vertical

EUT: **Distance:** 3m

Model:

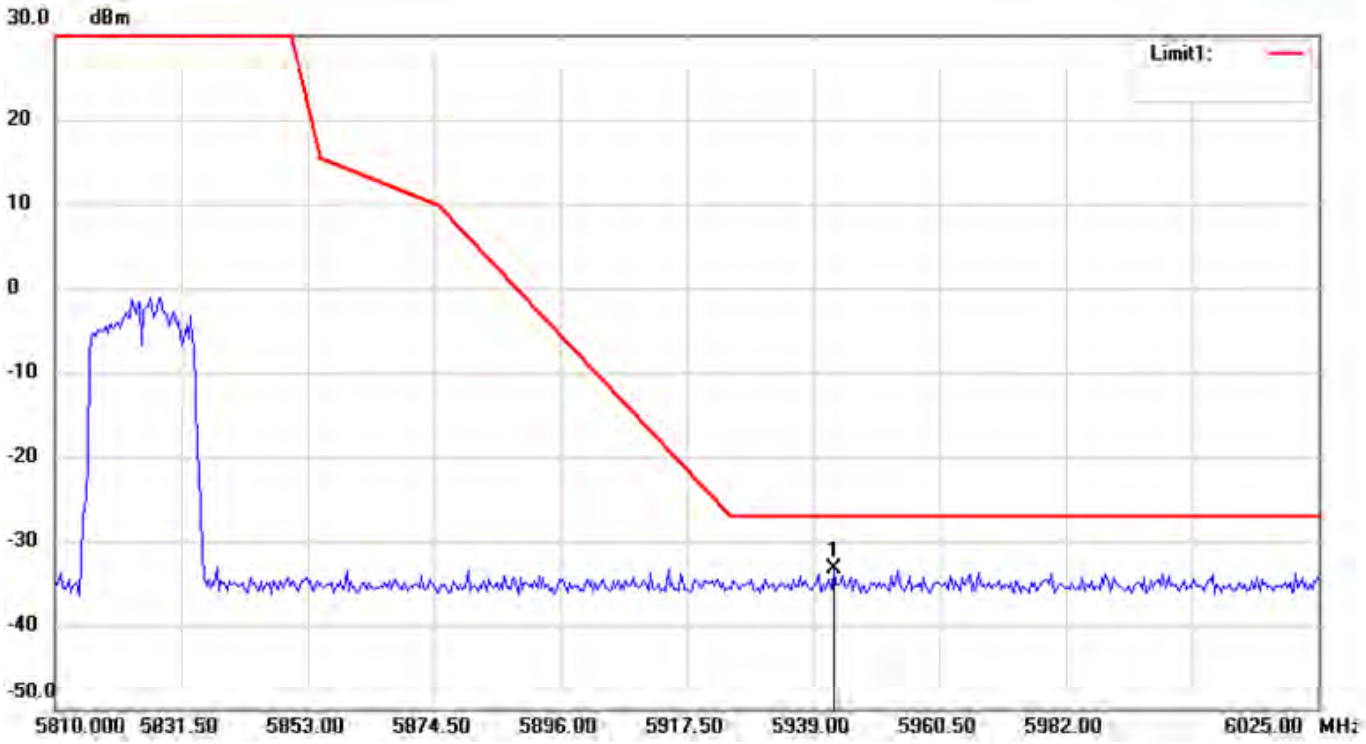
Test Mode:

Note:

No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comment
	(MHz)	(dBm)		Factor(dB)	(dBm)	(dBm)	(dB)	(cm)	(°)	
1	5597.4520	-83.33	peak	49.79	-33.54	-27.00	-6.54	---	---	

File: 18-07-MAS-037_5-8an20 **Data:** #22 **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 05:17:16 **Humidity:** 63 %



Condition: 5.8G Bandedge **Polarization:** Vertical

EUT: **Distance:** 3m

Model:

Test Mode:

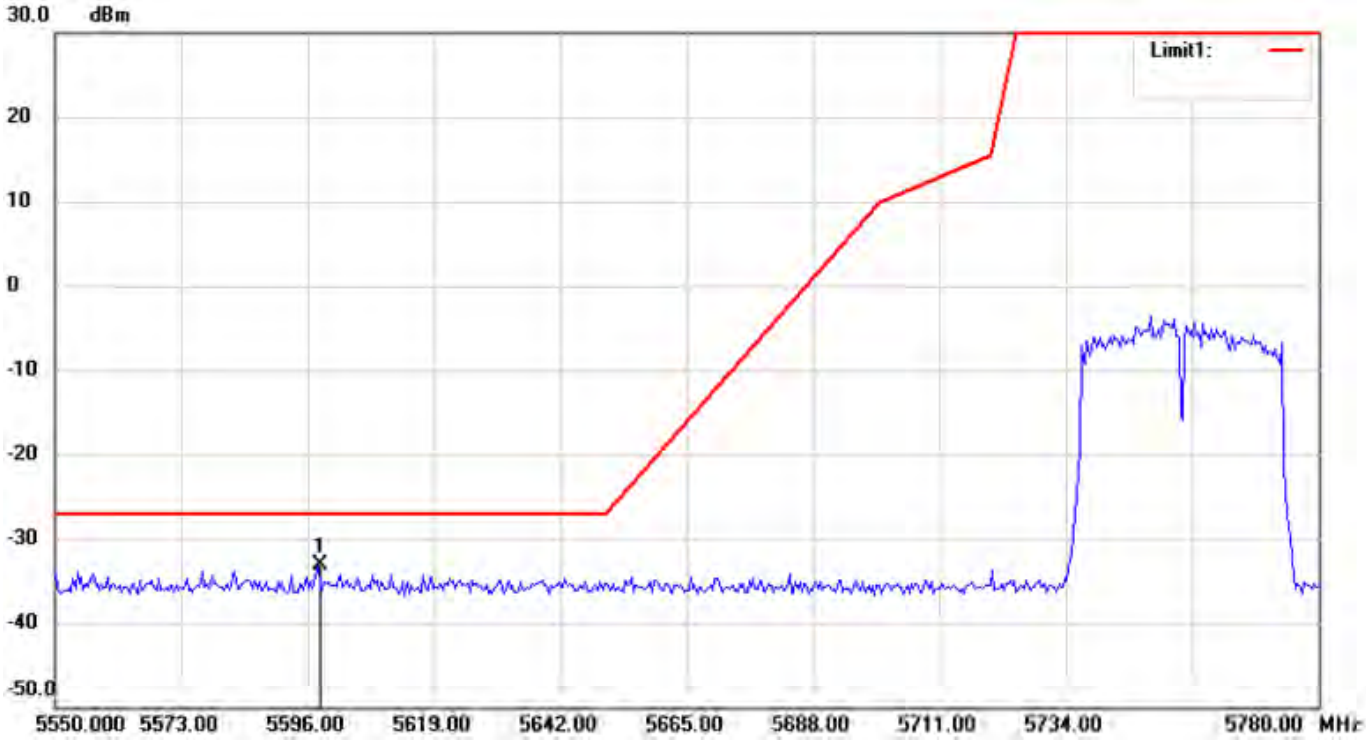
Note:

No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comment
	(MHz)	(dBm)		Factor(dB)	(dBm)	(dBm)	(dB)	(cm)	(°)	
1	5942.6522	-83.42	peak	50.09	-33.33	-27.00	-6.33	---	---	

調變技術: IEEE 802.11an HT40

File: 18-07-MAS-037_5-8an40 **Data:** #12 **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 02:53:26 **Humidity:** 63 %



Condition: 5.8G Bandedge **Polarization:** Vertical

EUT: **Distance:** 3m

Model:

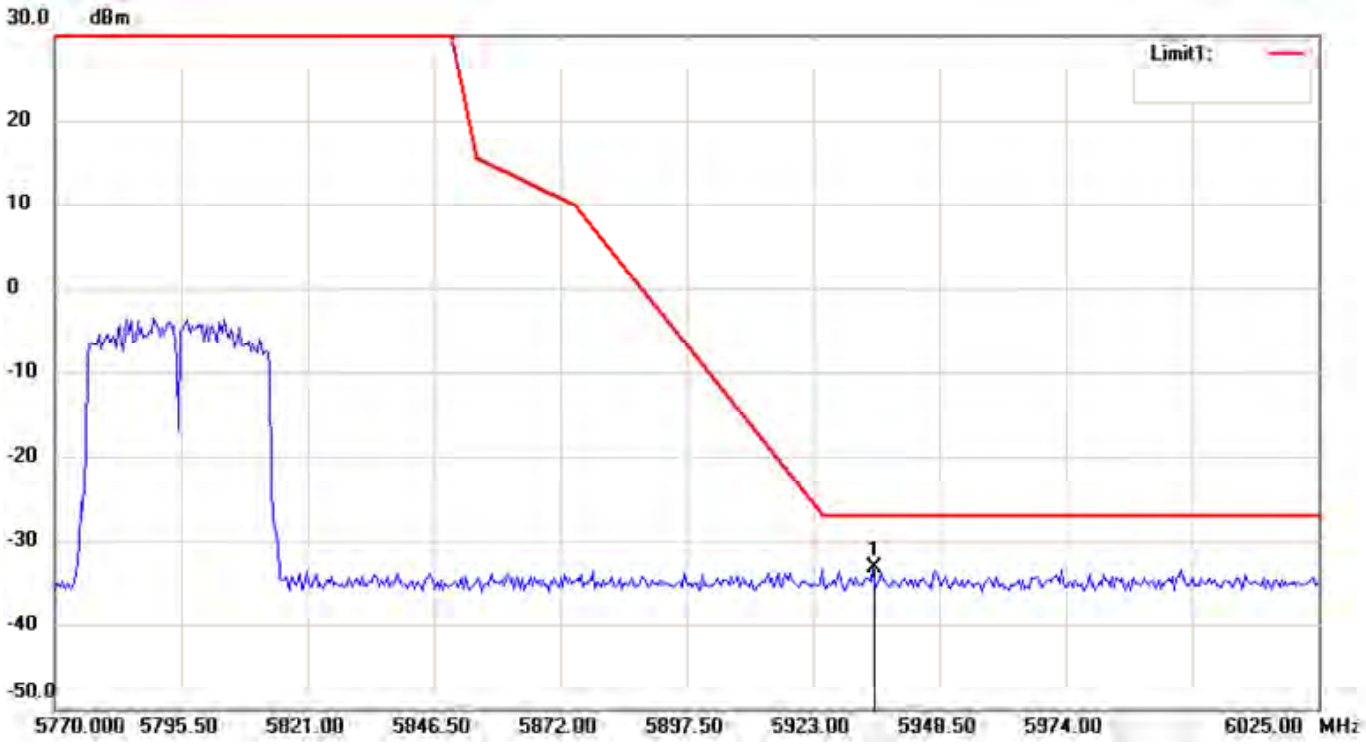
Test Mode:

Note:

No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comment
	(MHz)	(dBm)		Factor(dB)	(dBm)	(dBm)	(dB)	(cm)	(°)	
1	5597.9167	-82.84	peak	49.80	-33.04	-27.00	-6.04	---	---	

File: 18-07-MAS-037_5-8an40 **Data:** #17 **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 03:20:33 **Humidity:** 63 %



Condition: 5.8G Bandedge **Polarization:** Vertical

EUT: **Distance:** 3m

Model:

Test Mode:

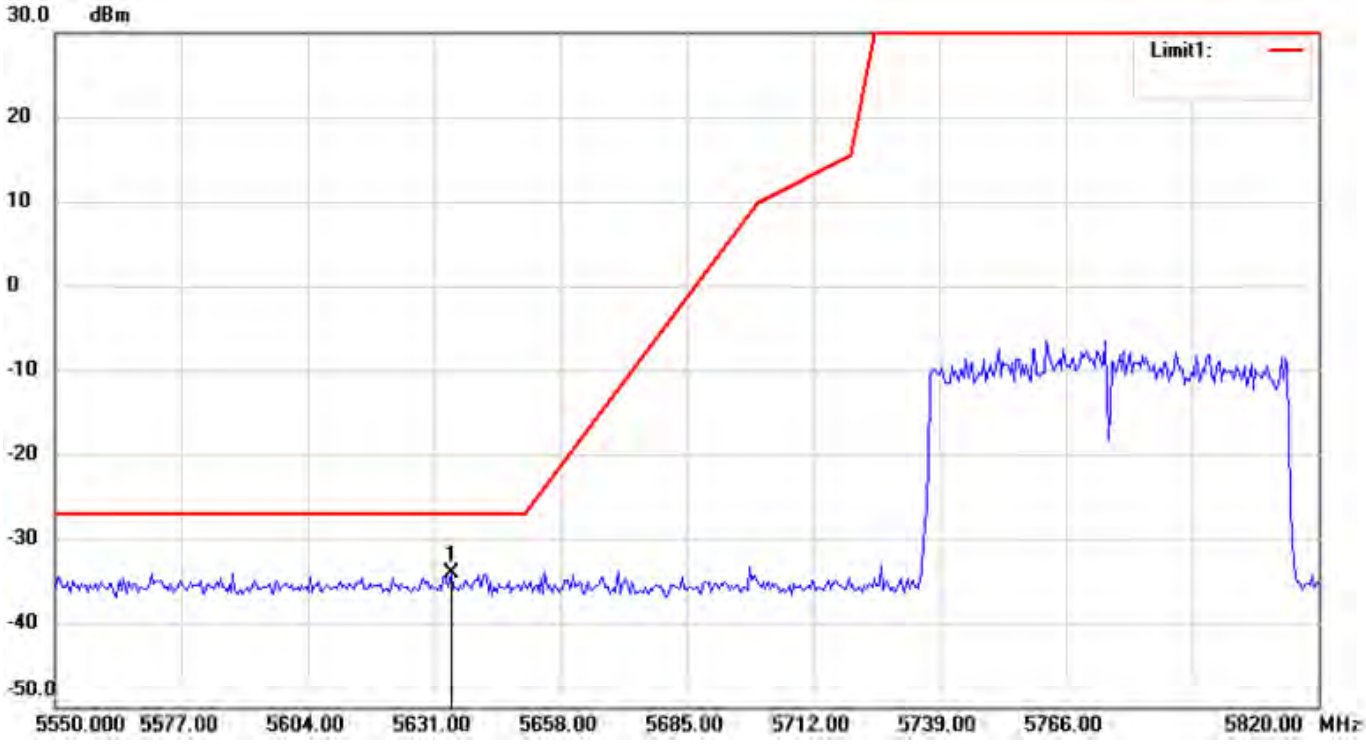
Note:

No.	Frequency (MHz)	Reading (dBm)	Detector	Corrected Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Degree (°)	Comment
1	5935.0962	-83.35	peak	50.08	-33.27	-27.00	-6.27	---	---	

調變技術: IEEE 802.11ac80

File: 18-07-MAS-037_5-8ac80 **Data:** #6 **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 02:04:29 **Humidity:** 63 %



Condition: 5.8G Bandedge **Polarization:** Vertical

EUT: **Distance:** 3m

Model:

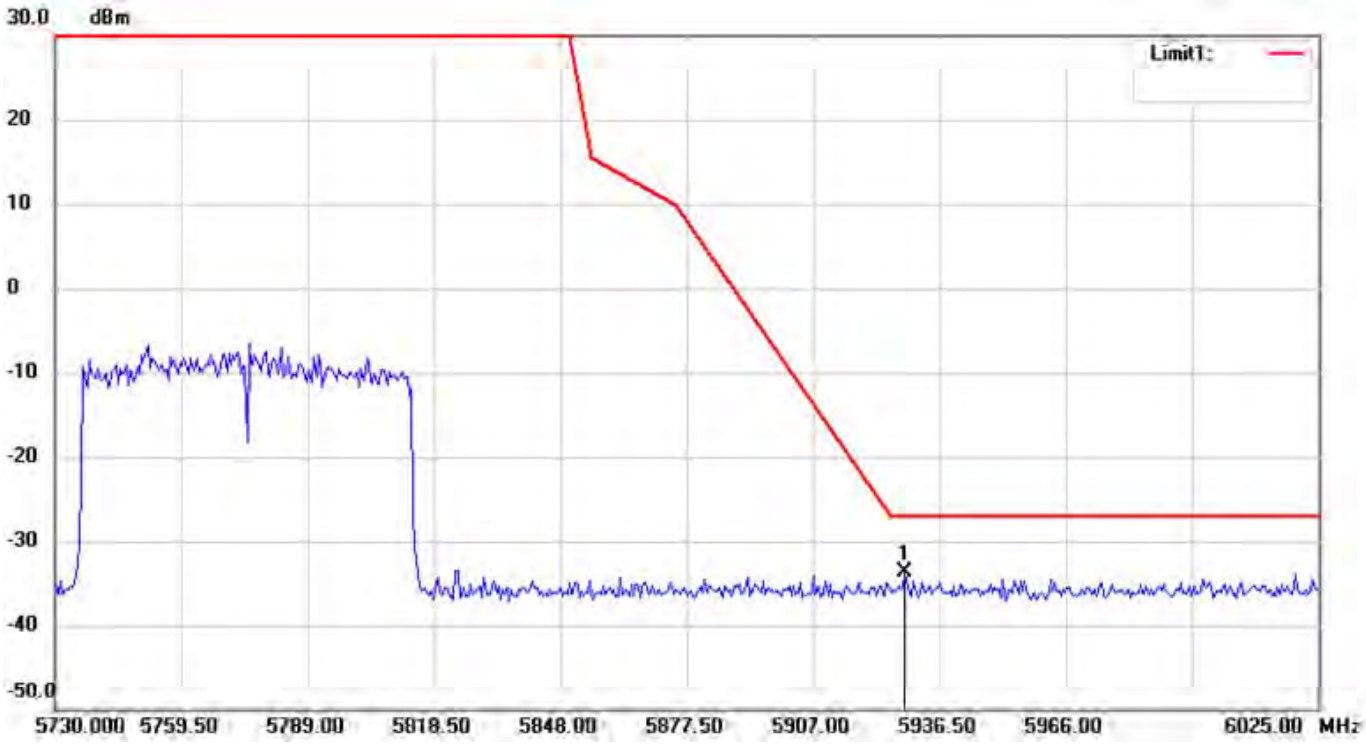
Test Mode:

Note: OK

No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comment
	(MHz)	(dBm)		Factor(dB)	(dBm)	(dBm)	(dB)	(cm)	(°)	
1	5634.8077	-83.96	peak	49.82	-34.14	-27.00	-7.14	150	298	

File: 18-07-MAS-037_5-8ac80 **Data:** #7 **Date:** 2018/8/23 **Temperature:** 21 ℃

Time: 下午 02:25:10 **Humidity:** 63 %



Condition: 5.8G Bandedge **Polarization:** Vertical

EUT: **Distance:** 3m

Model:

Test Mode:

Note: OK

No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree	Comment
	(MHz)	(dBm)		Factor(dB)	(dBm)	(dBm)	(dB)	(cm)	(°)	
1	5928.5577	-83.76	peak	50.08	-33.68	-27.00	-6.68	---	---	

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 4: 量測頻率低於1GHz之測試配置

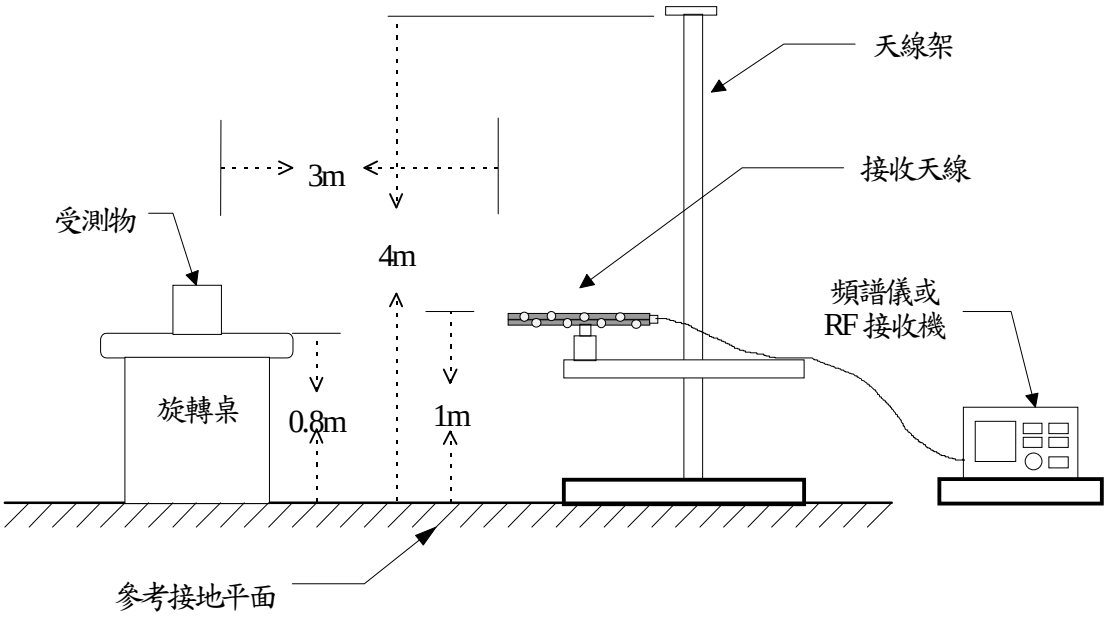
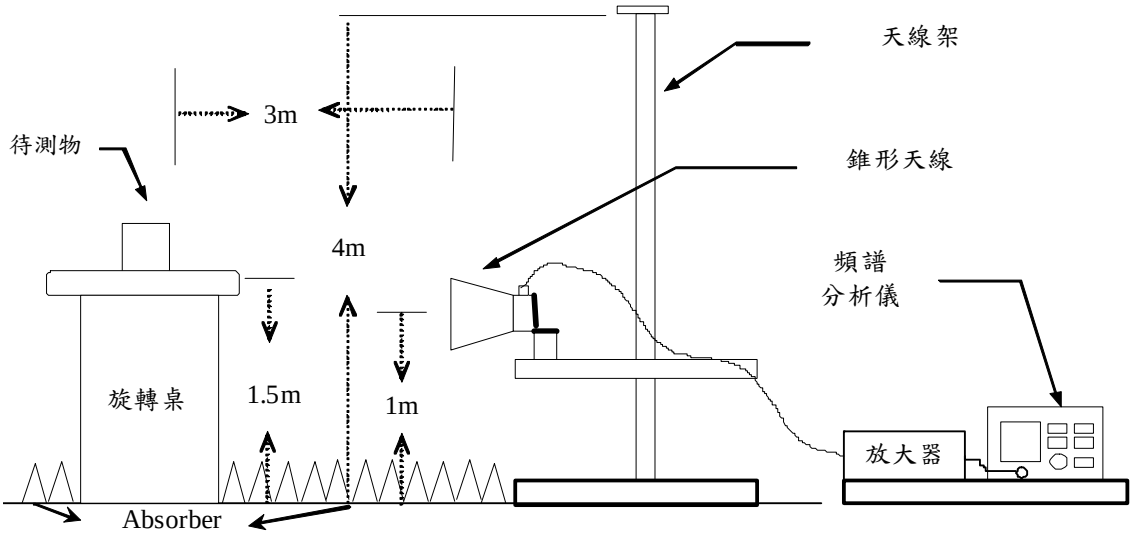


圖 5: 量測頻率高於1GHz之測試配置



10.10 輻射量測之配置照片

請參考產品照片

11 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