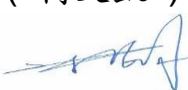




NCC

低功率射頻電機型式試驗報告

產品名稱 : 802.11ac Dual Band Module
主型號 : WLE600VX
系列型號 : WLE600VX-I
廠牌 : COMPEX
申請者 : Compex Systems Pte Ltd
申請者地址 : No:9 Harrison Road, Harrison Industrial Building,
#05-01, Singapore 369651
測試標準 : LP0002 (107 年版) 4.7 章節
參考法規 : ANSI C63.10-2013
測試結果 : 符合
測試日期 : 2018/9/25 ~ 2018/10/18

測試工程師 : 
(柯文凱)
報告審核人 : 
(陳柏均)
報告簽屬人 : 
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修訂紀錄

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1. 一般資訊

申請者	Compex Systems Pte Ltd
申請者地址	No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651
製造商	Compex Systems Pte Ltd
製造商地址	No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651
實驗室	台灣曼瑞檢測科技有限公司
實驗室地址	33377 台灣桃園市龜山區復興二路 38 號
實驗室資訊	1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Film. 2. MRT facility is an IC registered (MRT Reg. No. 21723-1) test laboratory with the site description on file at Industry Canada. 3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Taiwan, EU and TELEC Rules.
實驗室測試環境條件	溫度 (°C) : 20-35 / 濕度 (%RH) : 30-65

2. 產品資訊

2.1. 待測物裝置資料

產品名稱	802.11ac Dual Band Module
主型號	WLE600VX
系列型號	WLE600VX-I
廠牌	COMPEX
天線樣式	Refer to the table "Antenna List"
天線規格	Refer to the table "Antenna List"
調變模式	OFDM
頻率範圍	For 802.11a/n-HT20/ac-VHT20: 5180~5320 MHz, 5500~5720 MHz, 5745~5825 MHz For 802.11n-HT40/ac-VHT40: 5190~5310 MHz, 5510~5710 MHz, 5755~5795 MHz For 802.11ac-VHT80: 5210 MHz, 5290 MHz, 5530 MHz, 5610 MHz, 5690 MHz, 5775 MHz
傳輸速率	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.6Mbps

2.2. 系列差異說明

系列型號與主型號差異僅做為市場行銷管理區隔，其硬體電路及軟體與主型號相同。該產品亦符合同系列產品技術規格及射頻性能相同。

2.3. 通道清單

802.11a/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz
128	5640 MHz	132	5660 MHz	136	5680 MHz
140	5700 MHz	144	5720 MHz	149	5745 MHz
153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz	--	--	--	--

802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550 MHz
118	5590 MHz	126	5630 MHz	134	5670 MHz
142	5710 MHz	151	5755 MHz	159	5795 MHz

802.11ac-VHT80

Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz	106	5530 MHz
122	5610 MHz	138	5690 MHz	155	5775 MHz

2.4. 測試模式

Test Mode	Mode 1: Transmit by 802.11a
	Mode 2: Transmit by 802.11n-HT20
	Mode 3: Transmit by 802.11n-HT40
	Mode 4: Transmit by 802.11ac-VHT20
	Mode 5: Transmit by 802.11ac-VHT40
	Mode 6: Transmit by 802.11ac-VHT80

5GHz Test Mode	Antenna		
	Ant 0	Ant 1	Ant 0+1
802.11a	√	√	×
802.11n-HT20	×	×	√
802.11n-HT40	×	×	√
802.11ac-VHT20	×	×	√
802.11ac-VHT40	×	×	√
802.11ac-VHT80	×	×	√

2.5. 待測裝置測試時之典型操作程式

1.	Turn on the power of all equipment.
2.	Execute "artgui.exe Version 2.3" software in the notebook to control the EUT by LAN cable.
3.	Configure the test channel and the data rate.
4.	Start test.

2. 6. 測試軟體描述

The test utility software used during testing was “artgui.exe”, and the version was “2.3”.

Test Mode	Channel No.	Frequency (MHz)	Power Parameter Value		
			Ant 0	Ant 1	Ant 0+1
802.11a	36	5180	18	18	--
	44	5220	20	19	--
	48	5240	20	19.5	--
	52	5260	20	20	--
	60	5300	20	20	--
	64	5320	18.5	18.5	--
	100	5500	20	20	--
	120	5600	20	20	--
	140	5700	19	20	--
	144	5720	20	20	--
	149	5745	16.5	20	--
	157	5785	20	20	--
	165	5825	20	20	--
802.11 n-HT20	36	5180	--	--	17
	44	5220	--	--	17
	48	5240	--	--	16.5
	52	5260	--	--	18
	60	5300	--	--	18
	64	5320	--	--	18
	100	5500	--	--	18.5
	120	5600	--	--	18
	140	5700	--	--	18.5
	144	5720	--	--	20
	149	5745	--	--	18.5
	157	5785	--	--	20
	165	5825	--	--	20

Test Mode	Channel No.	Frequency (MHz)	Power Parameter Value		
			Ant 0	Ant 1	Ant 0+1
802.11 n-HT40	38	5190	--	--	15
	46	5230	--	--	18
	54	5270	--	--	20
	62	5310	--	--	14.5
	102	5510	--	--	15
	118	5590	--	--	20
	134	5670	--	--	20
	142	5710	--	--	20
	151	5755	--	--	16
	159	5795	--	--	20
802.11 ac-VHT20	36	5180	--	--	17
	44	5220	--	--	17
	48	5240	--	--	16.5
	52	5260	--	--	17.5
	60	5300	--	--	17.5
	64	5320	--	--	17
	100	5500	--	--	18
	120	5600	--	--	17.5
	140	5700	--	--	17
	144	5720	--	--	19
	149	5745	--	--	18
	157	5785	--	--	20
	165	5825	--	--	20

Test Mode	Channel No.	Frequency (MHz)	Power Parameter Value		
			Ant 0	Ant 1	Ant 0+1
802.11 ac-VHT40	38	5190	--	--	14
	46	5230	--	--	18
	54	5270	--	--	20
	62	5310	--	--	14
	102	5510	--	--	13.5
	118	5590	--	--	20
	134	5670	--	--	20
	142	5710	--	--	20
	151	5755	--	--	16
	159	5795	--	--	20
802.11 ac-VHT80	42	5210	--	--	13.5
	58	5290	--	--	13.5
	106	5530	--	--	12
	122	5610	--	--	20
	138	5690	--	--	20
	155	5775	--	--	12

3. 量測不確定度

電源端點干擾量測 - SR2
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 150kHz~30MHz: 3.46dB
輻射干擾量測 - AC1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB
混附發射之 RF 傳導發射量測 - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.78dB
峰值傳導輸出功率量測 - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.13dB
發射電功率密度量測 - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.15dB
佔用頻道寬度量測 - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.28%

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

4. 測試設備明細

電源傳導 - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTTWA00045	1 year	2019/03/16
Two-Line V-Network	R&S	ENV216	MRTTWA00019	1 year	2019/03/23
Two-Line V-Network	R&S	ENV216	MRTTWA00020	1 year	2019/03/23
Conducted Cable	Rosnol	N1C50-RG400-B1C50-500CM	MRTTWE00013	1 year	2019/05/20

輻射干擾 - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2019/03/02
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2019/03/16
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2019/04/06
Broadband Amplifier	SCHWARZBECK	BBV 9721	MRTTWA00006	1 year	2019/04/06
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	MRTTWA00002	1 year	2019/04/06
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2019/04/06
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2019/04/06
Breitband Hornantenna	SCHWARZBECK	BBHA 9170	MRTTWA00004	1 year	2019/04/06
Antenna Cable	HUBERSUHNER	SF106	MRTTWE00010	1 year	2019/05/20
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2019/06/08

傳導量測 - SR1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2019/07/11
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00014	1 year	2019/03/18
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2019/03/18
Programmable Temperature & Humidity Chamber	TEN BILLION	TTH-B3UP	MRTTWA00036	1 year	2019/03/16
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2019/06/08

測試軟體

Software	Version	Function
e3	Audix	9.160520a
EMI	Quietek	V3

5. 測試結果

產品名稱 802.11ac Dual Band Module
型號 WLE600VX

章節	量測項目	限制值	測試結果	測試數據
2.3	電源傳導	低功率射頻電機技術規範 2.3 節	符合	第 5.1 章節
2.2 及 4.7.8	天線之要求	低功率射頻電機技術規範 2.2 節及 4.7.8 節	符合	第 5.2 章節
4.7.2(1)(2)(3)	峰值傳導輸出功率	參考第 5.3 章節	符合	第 5.3 章節
4.7.5	6dB 佔用頻寬	$\geq 500\text{KHz}$	符合	第 5.4 章節
4.7.2(1)(2)(3)	功率頻譜密度	參考第 5.5 章節	符合	第 5.5 章節
4.7.3	操作頻帶外的峰值 發射	低功率射頻電機技術規範 4.7.3 節	符合	第 5.6 章節
2.8 及 4.7.3	輻射電場強度	低功率射頻電機技術規範 2.8 節	符合	第 5.7 章節
4.7.7	發射功率控制	至少具有 6dB 低於平均 EIRP 值 30dBm 的能力	符合	第 5.8 章節
4.7.7	頻率穩定性	操作頻帶	符合	第 5.9 章節

5.1. 電源端點干擾測試

5.1.1. 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之第 2.3 節，以市電為電源之低功率射頻電機，其傳導回電源線上頻率自 150kHz 至 30MHz 之射頻電壓(在電源端子每一電源線對接地點)應小於或等於下表所列之限值。測量時應經過 50 微亨利(μH)及 50 歐姆(Ω)之電源線阻抗模擬網路(LISN)。頻率重疊處，以較低限值為準。

Frequency 頻率範圍 MHz	傳導限制值(dBuV)	
	準尖峰值	平均值
0.15 - 0.50	66 - 56 _(註)	56 - 46 _(註)
0.50 - 5.0	56	46
5.0 - 30	60	50

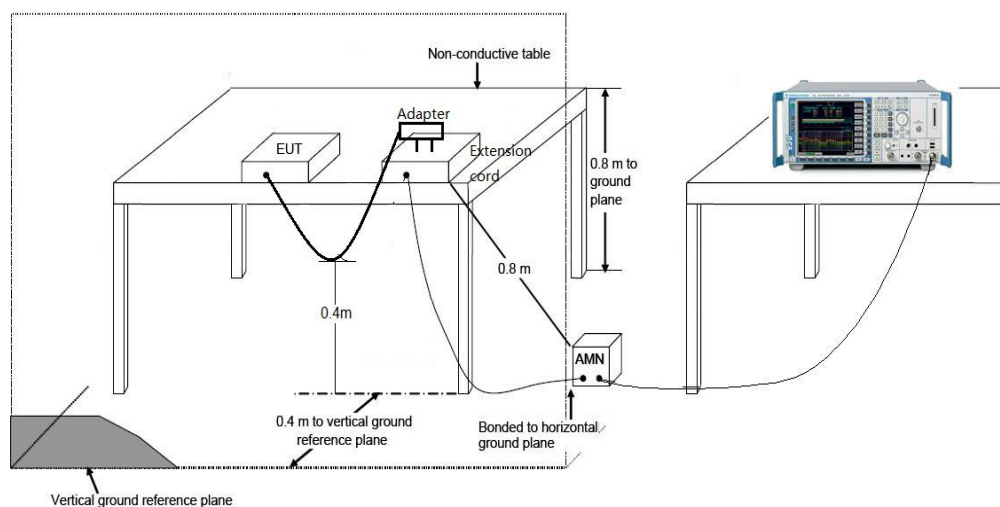
註:隨頻率之對數遞減

5.1.2. 量測方法

待測物置於高 80 公分之非導體桌面（落地型產品置於地上），將待測物之電源線接至電源阻抗網路器(LISN)，同時保持待測物至 LISN 距 80 公分，並將電源線多餘部份以 30 至 40 公分之八字形捆綁於電源線中央並離地 40cm，於在正常工作狀態下，執行待測物之火線(Line)及地線(neutral)各一次量測。電源端點場強之測量範圍由 0.15MHz - 30MHz，所量測之讀值皆為準尖峰值(Quasi-Peak Value)及平均值(Average Value)。場強接收機之解析頻寬為 9kHz。

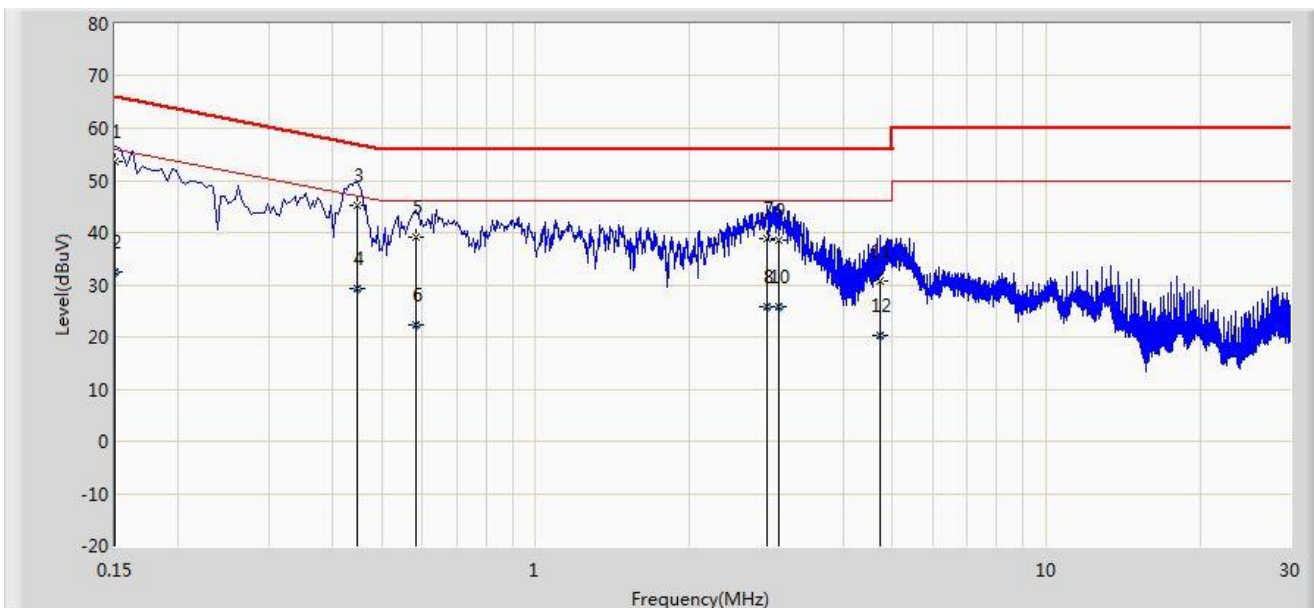
備 註: 經初測驗證過，電源端點干擾測試對測試頻道數並無差異，因此檢附其中一個測試頻道之測試數。

5.1.3. 測試架構圖



5.1.4. 電源端點測試結果

Site: SR2	Time: 2018/10/09 - 10:08
Limit: NCC LP0002_CE_0.15MHz-30MHz	Engineer: Kevin Ker
Probe: CE_ENV216-L1 (Filter ON)	Polarity: Neutral
EUT: 802.11ac Dual Band Module	Power: AC 110V/60Hz
Test Mode 1	

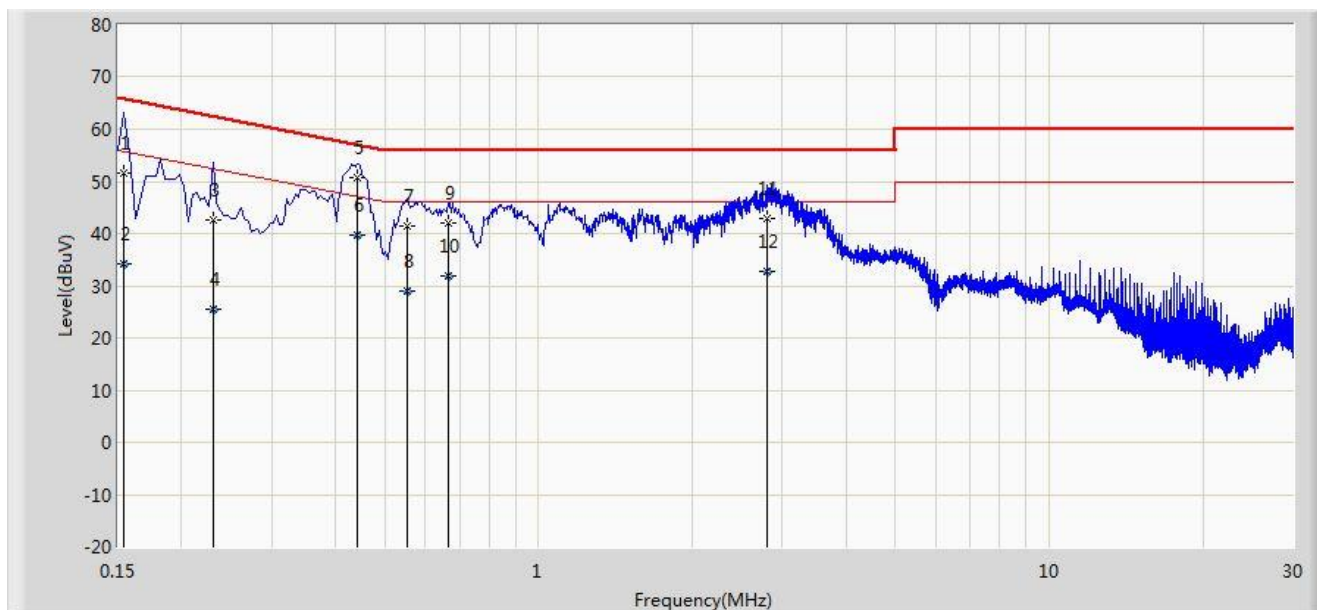


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.150	53.500	42.332	-12.500	66.000	11.168	QP
2			0.150	32.510	21.341	-23.490	56.000	11.168	AV
3			0.446	45.315	35.192	-11.634	56.949	10.123	QP
4			0.446	29.170	19.047	-17.779	46.949	10.123	AV
5			0.582	39.014	28.890	-16.986	56.000	10.124	QP
6		*	0.582	22.288	12.164	-23.712	46.000	10.124	AV
7			2.834	38.940	29.094	-17.060	56.000	9.846	QP
8			2.834	25.818	15.972	-20.182	46.000	9.846	AV
9			2.986	38.606	28.745	-17.394	56.000	9.861	QP
10			2.986	25.714	15.853	-20.286	46.000	9.861	AV
11			4.718	30.827	20.816	-25.173	56.000	10.011	QP
12			4.718	20.220	10.209	-25.780	46.000	10.011	AV

Note: Measure Level (dBuV) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2018/10/09 - 10:12
Limit: NCC LP0002_CE_0.15MHz-30MHz	Engineer: Kevin Ker
Probe: CE_ENV216-L1 (Filter ON)	Polarity: Line
EUT: 802.11ac Dual Band Module	Power: AC 110V/60Hz
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	51.616	40.900	-14.166	65.781	10.716	QP
2			0.154	34.116	23.400	-21.666	55.781	10.716	AV
3			0.230	42.740	32.754	-19.710	62.450	9.985	QP
4			0.230	25.465	15.480	-26.984	52.450	9.985	AV
5			0.442	50.744	40.600	-6.280	57.024	10.144	QP
6			0.442	39.744	29.600	-7.280	47.024	10.144	AV
7			0.554	41.578	31.421	-14.422	56.000	10.157	QP
8		*	0.554	28.893	18.736	-17.107	46.000	10.157	AV
9			0.666	42.105	32.010	-13.895	56.000	10.094	QP
10			0.666	31.991	21.897	-14.009	46.000	10.094	AV
11			2.806	43.043	33.192	-12.957	56.000	9.852	QP
12			2.806	32.806	22.955	-13.194	46.000	9.852	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

5.2. 天線之要求

5.2.1. 適用標準

低功率射頻電機之發射機或收發信機所使用之天線，應為全固定、半固定式或以獨特之耦合(unique coupling)方式連接機體。製造者可設計供使用者因損壞而替換之天線，但不得設計或使用原認證以外之天線或可供引接各類電纜之標準天線插座或電氣連接頭，如：BNC、F type、N type、M type、UG type、RCA、SMA、SMB...等及其他各類工業或通訊標準接頭。

依據國家通訊傳播委員會低功率射頻電機技術規範之第 4.7.3.3 節，使用頻率於 5.725 GHz~5.850 GHz 頻段

- (1) 最大傳導輸出功率應小於或等於 1 W。
- (2) 在任何 500 kHz 頻帶中最大功率頻譜密度應小於或等於 30 dBm。
- (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。

5.2.2. 天線樣式

Frequency Band (MHz)	Antennal Type	Manufacturer	Model	Max Antenna Gain (dBi)
2400 ~ 2483	Omni	Smart Ant Inc	SAA04-22008A	4.5
5150 ~ 5875				7.0

5.3. 功率限制值

5.3.1. 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之第 4.7.3 節：

使用於 5.15 GHz ~ 5.25 GHz 頻段，供用戶端裝置(Client Device)，最大傳導輸出功率應小於或等於 250mW。

使用頻率於 5.25 GHz ~ 5.35 GHz 與 5.470 GHz ~ 5.725 GHz 頻段，最大傳導輸出功率應小於或等於 250 mW 或 $11\text{dBm} + 10\log B$ (B 是 26 dB 發射頻寬，單位 MHz)之較小者。

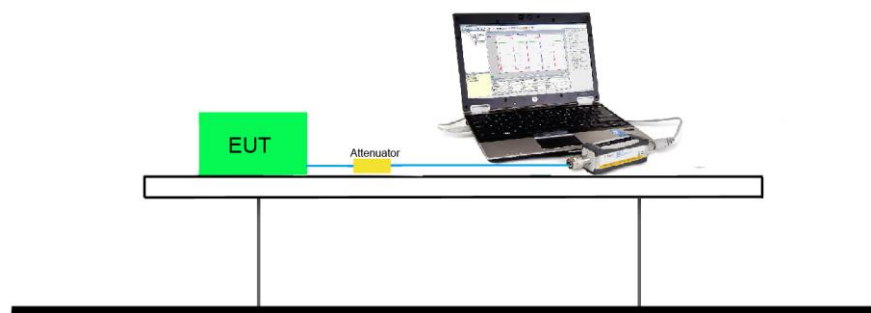
使用頻率於 5.725 GHz ~ 5.850 GHz 頻段，最大傳導輸出功率應小於或等於 1 W。

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。

5.3.2. 量測方法

待測物之天線埠經由適當之衰減直接連至頻譜分析儀 RF 輸入端，峰值發射功率必須使用依據均方根等效電壓校準之儀器量測於任何連續傳輸之時段，量測結果須依儀器限制(如偵測器反應時間、相較於發射頻寬有限之解析頻寬能力，靈敏度等)調整得出正確之峰值量測或使用峰值功率表，當使用最大傳導輸出功率量測時，可連接至平均值功率表量測。

5.3.3. 測試架構圖



5.3.4. 功率限制值測試結果

待測物名稱	802.11ac Dual Band Module	溫度	24°C
測試工程師	Kevin Ker	濕度	58%
測試場地	SR1	測試日期	2018/09/26

Power output test was verified over all data rates of each mode shown as below table.

Test Mode	Bandwidth	Tx Path	Channel	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11a	20	1	36	5180	6Mbps	17.78
					24Mbps	17.73
					54Mbps	17.69
802.11n	20	2	36	5180	MCS0	16.70
					MCS4	16.63
					MCS7	16.59
802.11n	40	2	38	5190	MCS0	14.30
					MCS4	14.26
					MCS7	14.19
802.11ac	20	2	36	5180	MCS0	16.65
					MCS4	16.61
					MCS8	16.57
802.11ac	40	2	38	5190	MCS0	13.19
					MCS5	13.14
					MCS9	13.10
802.11ac	80	2	42	5210	MCS0	12.70
					MCS5	12.64
					MCS9	12.59

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Average Power (dBm)	Power Limit (dBm)	Result
1TX-Ant 0						
11a	6Mbps	36	5180	17.78	≤ 22.98	Pass
11a	6Mbps	44	5220	19.50	≤ 22.98	Pass
11a	6Mbps	48	5240	19.35	≤ 22.98	Pass
11a	6Mbps	52	5260	19.68	≤ 22.98	Pass
11a	6Mbps	60	5300	19.94	≤ 22.98	Pass
11a	6Mbps	64	5320	18.96	≤ 22.98	Pass
11a	6Mbps	100	5500	19.23	≤ 22.98	Pass
11a	6Mbps	120	5600	20.54	≤ 22.98	Pass
11a	6Mbps	140	5700	19.32	≤ 22.98	Pass
11a	6Mbps	144	5720	19.81	≤ 22.98	Pass
11a	6Mbps	149	5745	16.86	≤ 29.00	Pass
11a	6Mbps	157	5785	19.85	≤ 29.00	Pass
11a	6Mbps	165	5825	19.12	≤ 29.00	Pass
1TX-Ant 1						
11a	6Mbps	36	5180	17.84	≤ 22.98	Pass
11a	6Mbps	44	5220	19.60	≤ 22.98	Pass
11a	6Mbps	48	5240	19.20	≤ 22.98	Pass
11a	6Mbps	52	5260	19.82	≤ 22.98	Pass
11a	6Mbps	60	5300	19.86	≤ 22.98	Pass
11a	6Mbps	64	5320	18.71	≤ 22.98	Pass
11a	6Mbps	100	5500	18.87	≤ 22.98	Pass
11a	6Mbps	120	5600	19.43	≤ 22.98	Pass
11a	6Mbps	140	5700	19.27	≤ 22.98	Pass
11a	6Mbps	144	5720	19.27	≤ 22.98	Pass
11a	6Mbps	149	5745	19.17	≤ 29.00	Pass
11a	6Mbps	157	5785	19.32	≤ 29.00	Pass
11a	6Mbps	165	5825	18.15	≤ 29.00	Pass

Note 1: Average Power Limit Calculation as below:

For 5150 - 5350MHz, 5470 - 5725MHz, Limit = 23.98 dBm - (7 dBi - 6 dBi) = 22.98dBm.

For 5725-5850 MHz, Limit = 30.00 dBm - (7 dBi - 6 dBi) = 29.00dBm.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Average Power Ant 0(dBm)	Average Power Ant 1(dBm)	Average Power Ant0+1(dBm)	Power Limit (dBm)	Result
2TX-Ant 0 + 1								
11n-HT20	MCS0	36	5180	16.70	16.59	19.66	≤ 22.98	Pass
11n-HT20	MCS0	44	5220	16.62	16.75	19.70	≤ 22.98	Pass
11n-HT20	MCS0	48	5240	16.05	16.32	19.20	≤ 22.98	Pass
11n-HT20	MCS0	52	5260	18.25	17.91	21.09	≤ 22.98	Pass
11n-HT20	MCS0	60	5300	18.01	18.08	21.06	≤ 22.98	Pass
11n-HT20	MCS0	64	5320	18.29	17.94	21.13	≤ 22.98	Pass
11n-HT20	MCS0	100	5500	17.53	16.93	20.25	≤ 22.98	Pass
11n-HT20	MCS0	120	5600	18.16	17.11	20.68	≤ 22.98	Pass
11n-HT20	MCS0	140	5700	18.32	17.27	20.84	≤ 22.98	Pass
11n-HT20	MCS0	144	5720	19.07	18.15	21.64	≤ 22.98	Pass
11n-HT20	MCS0	149	5745	18.23	17.05	20.69	≤ 29.00	Pass
11n-HT20	MCS0	157	5785	18.56	18.06	21.33	≤ 29.00	Pass
11n-HT20	MCS0	165	5825	18.11	17.33	20.75	≤ 29.00	Pass
11n-HT40	MCS0	38	5190	14.30	14.17	17.25	≤ 22.98	Pass
11n-HT40	MCS0	46	5230	17.06	17.10	20.09	≤ 22.98	Pass
11n-HT40	MCS0	54	5270	18.84	18.84	21.85	≤ 22.98	Pass
11n-HT40	MCS0	62	5310	14.06	14.17	17.13	≤ 22.98	Pass
11n-HT40	MCS0	102	5510	13.60	13.12	16.38	≤ 22.98	Pass
11n-HT40	MCS0	118	5590	18.36	17.89	21.14	≤ 22.98	Pass
11n-HT40	MCS0	134	5670	18.16	17.76	20.97	≤ 22.98	Pass
11n-HT40	MCS0	142	5710	17.76	17.35	20.57	≤ 22.98	Pass
11n-HT40	MCS0	151	5755	14.65	14.01	17.35	≤ 29.00	Pass
11n-HT40	MCS0	159	5795	18.19	17.61	20.92	≤ 29.00	Pass
11ac-VHT20	MCS0	36	5180	16.65	16.54	19.61	≤ 22.98	Pass
11ac-VHT20	MCS0	44	5220	16.46	16.84	19.66	≤ 22.98	Pass
11ac-VHT20	MCS0	48	5240	16.02	16.25	19.15	≤ 22.98	Pass
11ac-VHT20	MCS0	52	5260	17.70	17.67	20.70	≤ 22.98	Pass
11ac-VHT20	MCS0	60	5300	17.83	17.58	20.72	≤ 22.98	Pass
11ac-VHT20	MCS0	64	5320	17.28	17.13	20.22	≤ 22.98	Pass
11ac-VHT20	MCS0	100	5500	17.01	16.55	19.80	≤ 22.98	Pass
11ac-VHT20	MCS0	120	5600	17.78	16.72	20.29	≤ 22.98	Pass
11ac-VHT20	MCS0	140	5700	17.20	16.26	19.77	≤ 22.98	Pass
11ac-VHT20	MCS0	144	5720	18.28	17.58	20.95	≤ 22.98	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Average Power Ant 0(dBm)	Average Power Ant 1(dBm)	Average Power Ant0+1(dBm)	Power Limit (dBm)	Result
11ac-VHT20	MCS0	149	5745	17.85	16.51	20.24	≤ 29.00	Pass
11ac-VHT20	MCS0	157	5785	19.45	18.45	21.99	≤ 29.00	Pass
11ac-VHT20	MCS0	165	5825	18.02	17.15	20.62	≤ 29.00	Pass
11ac-VHT40	MCS0	38	5190	13.19	13.12	16.17	≤ 22.98	Pass
11ac-VHT40	MCS0	46	5230	17.03	17.10	20.08	≤ 22.98	Pass
11ac-VHT40	MCS0	54	5270	18.65	19.28	21.99	≤ 22.98	Pass
11ac-VHT40	MCS0	62	5310	13.53	13.82	16.69	≤ 22.98	Pass
11ac-VHT40	MCS0	102	5510	12.25	11.70	14.99	≤ 22.98	Pass
11ac-VHT40	MCS0	118	5590	18.74	17.88	21.34	≤ 22.98	Pass
11ac-VHT40	MCS0	134	5670	18.27	17.51	20.92	≤ 22.98	Pass
11ac-VHT40	MCS0	142	5710	17.37	17.28	20.34	≤ 22.98	Pass
11ac-VHT40	MCS0	151	5755	14.38	13.65	17.04	≤ 29.00	Pass
11ac-VHT40	MCS0	159	5795	17.85	18.25	21.06	≤ 29.00	Pass
11ac-VHT80	MCS0	42	5210	12.70	12.74	15.73	≤ 22.98	Pass
11ac-VHT80	MCS0	58	5290	13.03	13.23	16.14	≤ 22.98	Pass
11ac-VHT80	MCS0	106	5530	10.87	10.16	13.54	≤ 22.98	Pass
11ac-VHT80	MCS0	122	5610	18.72	18.06	21.41	≤ 22.98	Pass
11ac-VHT80	MCS0	138	5690	18.21	17.77	21.01	≤ 22.98	Pass
11ac-VHT80	MCS0	155	5775	10.85	10.45	13.66	≤ 29.00	Pass

Note 1: Average Power Limit Calculation as below:

For 5150 - 5350MHz, 5470 - 5725MHz, Limit = 23.98 dBm - (7 dBi - 6 dBi) = 22.98dBm.

For 5725-5850 MHz, Limit = 30.00 dBm - (7 dBi - 6 dBi) = 29.00dBm.

Note 2: Total Average Power (dBm) = $10 \cdot \log \{ 10^{(\text{Ant 0 Average Power} / 10)} + 10^{(\text{Ant 1 Average Power} / 10)} \}$.

5.4. 6dB 佔用頻寬

5.4.1. 適用標準

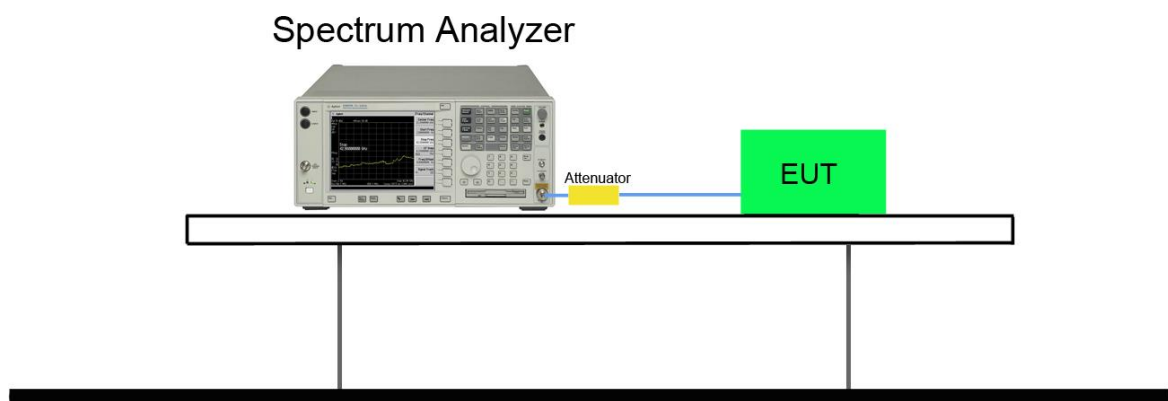
在5.725 GHz ~ 5.850 GHz 頻段操作之設備，其6 dB頻寬至少應有500 kHz。

5.4.2. 量測方法

待測物之天線埠經由適當之衰減直接連至頻譜分析儀RF輸入端，設定頻譜分析儀之解析度頻寬為100kHz，視訊頻寬不小於解析度頻寬，頻率掃瞄範圍(SPAN)遠大於解析度頻寬。

待測物應在正常發射狀態下量測。

5.4.3. 測試架構圖



5.4.4. 6dB 佔用頻寬測試結果

待測物名稱	802.11ac Dual Band Module	溫度	24°C
測試工程師	Kevin Ker	濕度	58%
測試場地	SR1	測試日期	2018/09/27

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
Ant 0						
802.11a	6Mbps	149	5745	16.37	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.32	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.35	≥ 0.5	Pass
Ant 1						
802.11a	6Mbps	149	5745	16.37	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.33	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.37	≥ 0.5	Pass
Ant 0 / Ant 0+1						
802.11n-HT20	MCS0	149	5745	17.60	≥ 0.5	Pass
802.11n-HT20	MCS0	157	5785	17.59	≥ 0.5	Pass
802.11n-HT20	MCS0	165	5825	16.66	≥ 0.5	Pass
802.11n-HT40	MCS0	151	5755	35.75	≥ 0.5	Pass
802.11n-HT40	MCS0	159	5795	36.34	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	17.53	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	17.57	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	17.60	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	35.73	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	35.94	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	73.35	≥ 0.5	Pass

802.11a 6dB Bandwidth - Ant 0

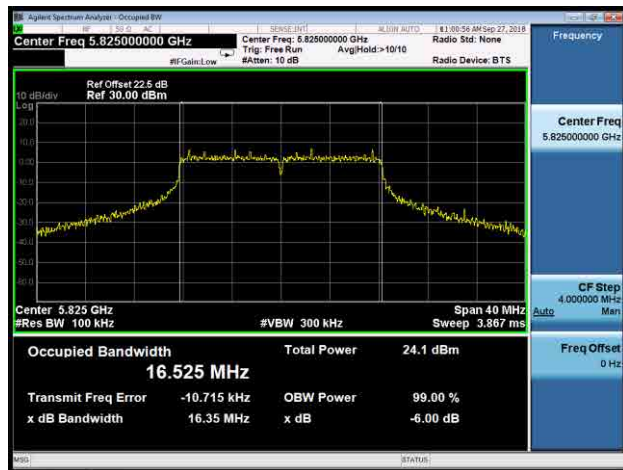
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



802.11a 6dB Bandwidth - Ant 1

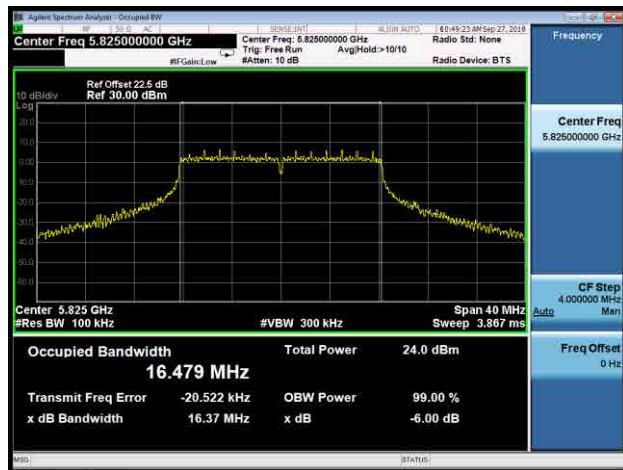
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



802.11n-HT20 6dB Bandwidth - Ant 0 / Ant 0+1

Channel 149 (5745MHz)



Channel 157 (5785MHz)

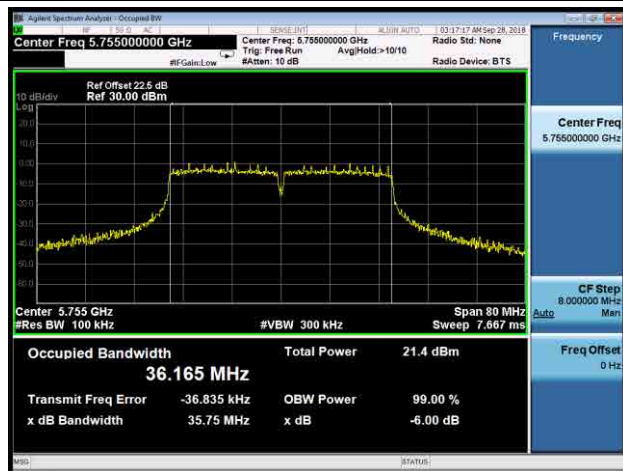


Channel 165 (5825MHz)

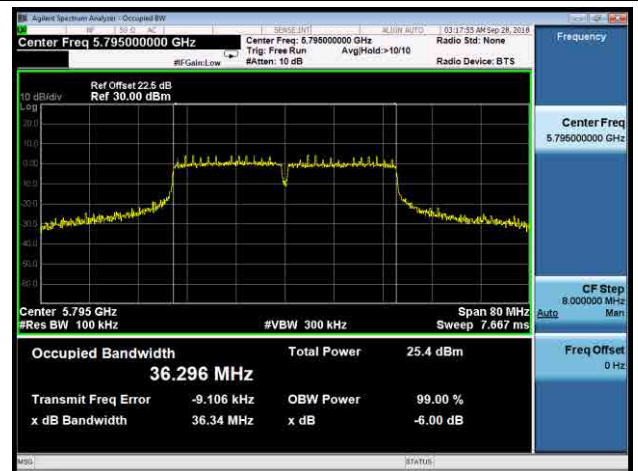


802.11n-HT40 6dB Bandwidth - Ant 0 / Ant 0+1

Channel 151 (5755MHz)

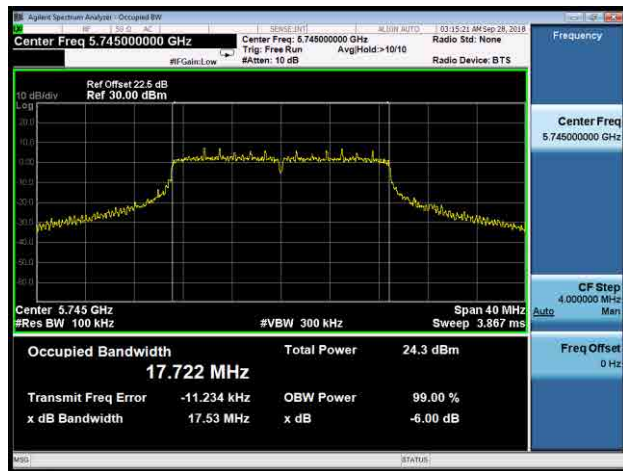


Channel 159 (5795MHz)



802.11ac-VHT20 6dB Bandwidth - Ant 0 / Ant 0+1

Channel 149 (5745MHz)



Channel 157 (5785MHz)

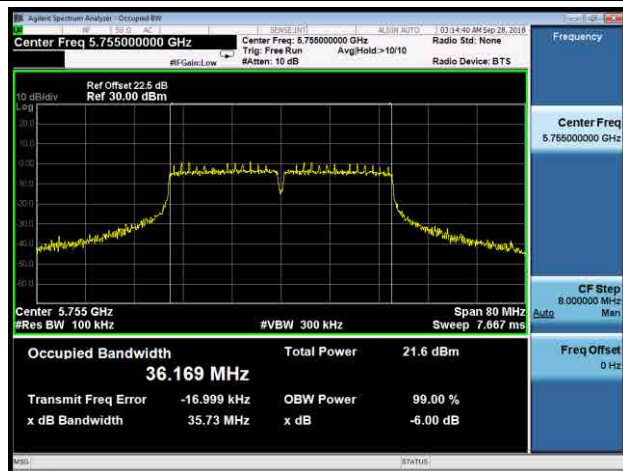


Channel 165 (5825MHz)



802.11ac-VHT40 6dB Bandwidth - Ant 0 / Ant 0+1

Channel 151 (5755MHz)

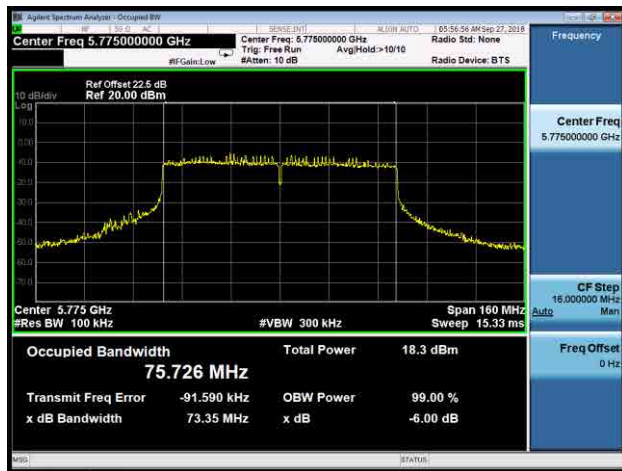


Channel 159 (5795MHz)



802.11ac-VHT80 6dB Bandwidth – Ant 0 / Ant 0+1

Channel 155 (5775MHz)



5.5. 最大功率頻譜密度

5.5.1. 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之第4.7.3節

使用於5.15 GHz ~ 5.25 GHz 頻段，供用戶端裝置(Client Device)操作使用，在任何 1 MHz 頻帶中最大功率頻譜密度應小於或等於 11 dBm。

使用頻率於5.25 GHz ~ 5.35 GHz 與5.470 GHz ~ 5.725 GHz 頻段，最大功率頻譜密度在任何1 MHz 頻帶中應小於或等於11 dBm。

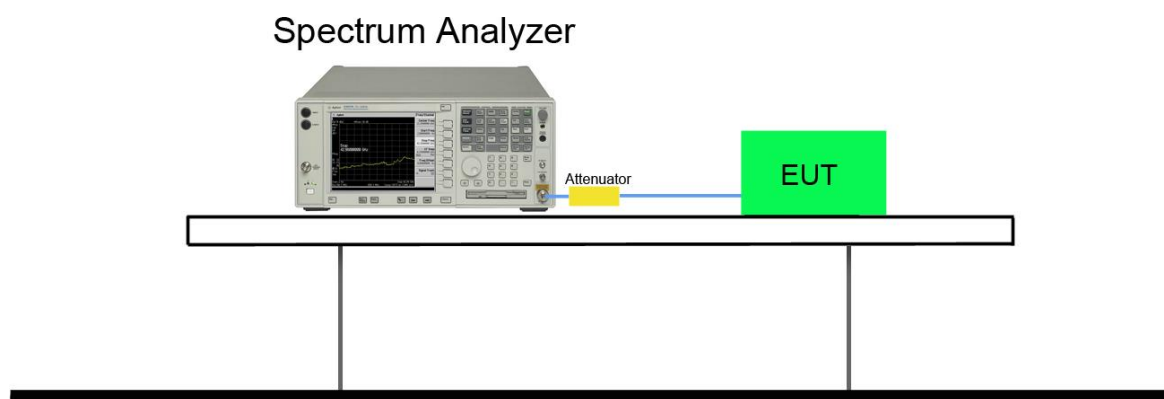
使用頻率於5.725 GHz ~ 5.850 GHz 頻段，在任何500 kHz 頻帶中最大功率頻譜密度應小於或等於30 dBm。

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，等量減少最大功率頻譜密度。

5.5.2. 量測方法

待測物之天線埠經由適當之衰減直接連至頻譜分析儀RF輸入端，量測定於1MHz/500kHz頻寬。

5.5.3. 測試架構圖



5.5.4. 峰值功率頻譜密度測試結果

待測物名稱	802.11ac Dual Band Module	溫度	24°C
測試工程師	Kevin Ker	濕度	58%
測試場地	SR1	測試日期	2018/09/26
測試項目	Power Spectral Density (UNII-Band 1 & UNII-2A & UNII-2C& UNII-3)		

1Tx (U-NII-1 & U-NII-2A & U-NII-2C)											
Test Mode	N _{Tx}	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Duty Cycle (%)	Ant 0 Final PSD (dBm/MHz)	Ant 1 Final PSD (dBm/MHz)	Limit (dBm /MHz)	Result
11a	1	6	36	5180	6.42	6.23	95.27	6.63	6.44	≤ 10	Pass
11a	1	6	44	5220	8.73	7.62	95.27	8.94	7.83	≤ 10	Pass
11a	1	6	48	5240	7.71	8.56	95.27	7.92	8.77	≤ 10	Pass
11a	1	6	52	5260	8.65	8.98	95.27	8.86	9.19	≤ 10	Pass
11a	1	6	60	5300	8.91	8.89	95.27	9.12	9.10	≤ 10	Pass
11a	1	6	64	5320	7.84	7.64	95.27	8.05	7.85	≤ 10	Pass
11a	1	6	100	5500	8.43	8.12	95.27	8.64	8.33	≤ 10	Pass
11a	1	6	120	5600	9.59	8.94	95.27	9.80	9.15	≤ 10	Pass
11a	1	6	140	5700	7.99	7.93	95.27	8.20	8.14	≤ 10	Pass
11a	1	6	144	5720	8.42	7.77	95.27	8.63	7.98	≤ 10	Pass

Note 1: When EUT duty cycle ≥ 98%, Final PSD (dBm/ MHz) = PSD (dBm/ MHz).

Note 2: When EUT duty cycle < 98%, Final PSD (dBm/ MHz) = PSD (dBm/ MHz) + 10*log (1/Duty Cycle).

Note 3: PSD Limit Calculation as below:

For 5150-5250MHz & For 5250-5350MHz & 5470-5725MHz:

Limit (dBm/MHz) = 11 dBm/MHz - (7 dBi – 6 dBi) = 10 dBm/MHz

2Tx (U-NII-1 & U-NII-2A & U-NII-2C)										
Test Mode	N _{Tx}	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Duty Cycle (%)	Total Final PSD (dBm/MHz)	Limit (dBm/MHz)	Result
11n-HT20	2	6.5	36	5180	4.95	4.96	95.42	8.17	≤ 10	Pass
11n-HT20	2	6.5	44	5220	5.54	5.42	95.42	8.69	≤ 10	Pass
11n-HT20	2	6.5	48	5240	4.99	5.23	95.42	8.32	≤ 10	Pass
11n-HT20	2	6.5	52	5260	6.64	6.45	95.42	9.76	≤ 10	Pass
11n-HT20	2	6.5	60	5300	6.56	6.69	95.42	9.84	≤ 10	Pass
11n-HT20	2	6.5	64	5320	6.79	6.52	95.42	9.87	≤ 10	Pass
11n-HT20	2	6.5	100	5500	7.11	5.96	95.42	9.79	≤ 10	Pass
11n-HT20	2	6.5	120	5600	7.16	6.13	95.42	9.89	≤ 10	Pass
11n-HT20	2	6.5	140	5700	6.54	5.38	95.42	9.21	≤ 10	Pass
11n-HT20	2	6.5	144	5720	7.19	6.03	95.42	9.86	≤ 10	Pass
11n-HT40	2	13.5	38	5190	-0.20	-0.49	91.76	3.04	≤ 10	Pass
11n-HT40	2	13.5	46	5230	3.12	2.85	91.76	6.37	≤ 10	Pass
11n-HT40	2	13.5	54	5270	5.15	4.92	91.76	8.42	≤ 10	Pass
11n-HT40	2	13.5	62	5310	-0.15	-0.49	91.76	3.07	≤ 10	Pass
11n-HT40	2	13.5	102	5510	-0.70	-1.15	91.76	2.46	≤ 10	Pass
11n-HT40	2	13.5	118	5590	4.89	4.11	91.76	7.90	≤ 10	Pass
11n-HT40	2	13.5	134	5670	3.36	3.01	91.76	6.57	≤ 10	Pass
11n-HT40	2	13.5	142	5710	3.01	2.58	91.76	6.18	≤ 10	Pass
11ac-VHT20	2	6.5	36	5180	5.04	4.76	90.10	8.37	≤ 10	Pass
11ac-VHT20	2	6.5	44	5220	5.70	5.22	90.10	8.93	≤ 10	Pass
11ac-VHT20	2	6.5	48	5240	5.52	5.17	90.10	8.81	≤ 10	Pass
11ac-VHT20	2	6.5	52	5260	6.44	6.40	90.10	9.88	≤ 10	Pass
11ac-VHT20	2	6.5	60	5300	6.33	6.23	90.10	9.74	≤ 10	Pass
11ac-VHT20	2	6.5	64	5320	6.17	5.59	90.10	9.35	≤ 10	Pass
11ac-VHT20	2	6.5	100	5500	5.95	5.30	90.10	9.10	≤ 10	Pass
11ac-VHT20	2	6.5	120	5600	6.70	5.82	90.10	9.75	≤ 10	Pass
11ac-VHT20	2	6.5	140	5700	5.32	4.28	90.10	8.29	≤ 10	Pass
11ac-VHT20	2	6.5	144	5720	6.84	5.65	90.10	9.75	≤ 10	Pass
11ac-VHT40	2	13.5	38	5190	-1.27	-1.48	91.41	2.03	≤ 10	Pass
11ac-VHT40	2	13.5	46	5230	2.87	2.77	91.41	6.22	≤ 10	Pass
11ac-VHT40	2	13.5	54	5270	4.87	4.90	91.41	8.29	≤ 10	Pass
11ac-VHT40	2	13.5	62	5310	-0.37	-0.87	91.41	2.79	≤ 10	Pass
11ac-VHT40	2	13.5	102	5510	-1.98	-2.29	91.41	1.27	≤ 10	Pass

11ac-VHT40	2	13.5	118	5590	4.83	3.86	91.41	7.77	≤ 10	Pass
11ac-VHT40	2	13.5	134	5670	3.81	3.01	91.41	6.83	≤ 10	Pass
11ac-VHT40	2	13.5	142	5710	2.95	2.46	91.41	6.11	≤ 10	Pass
11ac-VHT80	2	29.3	42	5210	-5.00	-4.74	79.63	-0.87	≤ 10	Pass
11ac-VHT80	2	29.3	58	5290	-4.61	-4.88	79.63	-0.74	≤ 10	Pass
11ac-VHT80	2	29.3	106	5530	-6.69	-7.53	79.63	-3.09	≤ 10	Pass
11ac-VHT80	2	29.3	122	5610	1.27	0.34	79.63	4.83	≤ 10	Pass
11ac-VHT80	2	29.3	138	5690	-0.12	-0.66	79.63	3.62	≤ 10	Pass

Note 1: When EUT duty cycle $\geq 98\%$, Total PSD (dBm/ MHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$ (dBm/ MHz).

Note 2: When EUT duty cycle $< 98\%$, Final PSD (dBm/ MHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$ (dBm/ MHz) + $10 \cdot \log (1/\text{Duty Cycle})$.

Note 3: PSD Limit Calculation as below:

For 5150-5250MHz & For 5250-5350MHz & 5470-5725MHz:

Limit (dBm/MHz) = 11 dBm/MHz - (7 dBi – 6 dBi) = 10 dBm/MHz

1Tx (U-NII-3)												
Test Mode	N _{TX}	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/100kHz)	Ant 1 PSD (dBm/100kHz)	Duty Cycle (%)	Factor (dB)	Ant 0 Final PSD (dBm/500kHz)	Ant 1 Final PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
11a	1	6	149	5745	-3.54	-1.21	95.27	6.99	3.66	5.99	≤ 29	Pass
11a	1	6	157	5785	-0.41	-1.61	95.27	6.99	6.79	5.59	≤ 29	Pass
11a	1	6	165	5825	-1.29	-2.04	95.27	6.99	5.91	5.16	≤ 29	Pass

Note 1: When EUT duty cycle ≥ 98%, Final PSD (dBm/ 500kHz) = PSD (dBm/ 100kHz) + Constant Factor (dB).

Note 2: When EUT duty cycle < 98%, Final PSD (dBm/ 500kHz) = PSD (dBm/ 100kHz) + Constant Factor (dB) + 10*log (1/Duty Cycle).

Note 3: PSD Limit Calculation as below:

Limit (dBm/500kHz) = 30 dBm/500kHz - (7 dBi – 6 dBi) = 29 dBm/500kHz.

2Tx (U-NII-3)											
Test Mode	N _{Tx}	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/100kHz)	Ant 1 PSD (dBm/100kHz)	Duty Cycle (%)	Factor (dB)	Total Final PSD (dBm/500KHz)	Limit (dBm /MHz)	Result
11n-HT20	2	6.5	149	5745	-3.20	-3.60	95.42	6.99	6.81	≤ 29	Pass
11n-HT20	2	6.5	157	5785	-2.16	-2.42	95.42	6.99	7.92	≤ 29	Pass
11n-HT20	2	6.5	165	5825	-2.66	-2.57	95.42	6.99	7.59	≤ 29	Pass
11n-HT40	2	13.5	151	5755	-8.95	-9.38	91.76	6.99	1.21	≤ 29	Pass
11n-HT40	2	13.5	159	5795	-5.04	-5.19	91.76	6.99	5.26	≤ 29	Pass
11ac-VHT20	2	6.5	149	5745	-3.66	-4.25	90.10	6.99	6.51	≤ 29	Pass
11ac-VHT20	2	6.5	157	5785	-1.94	-1.77	90.10	6.99	8.60	≤ 29	Pass
11ac-VHT20	2	6.5	165	5825	-2.37	-2.73	90.10	6.99	7.91	≤ 29	Pass
11ac-VHT40	2	13.5	151	5755	-9.19	-8.87	91.41	6.99	1.36	≤ 29	Pass
11ac-VHT40	2	13.5	159	5795	-5.06	-5.41	91.41	6.99	5.16	≤ 29	Pass
11ac-VHT80	2	29.3	155	5775	-15.81	-16.13	79.63	6.99	-4.98	≤ 29	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/ 500kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$. (dBm/ 100kHz) + Constant Factor (dB).

Note 2: When EUT duty cycle < 98%, Final PSD (dBm/ 500kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$ (dBm/ 100kHz) + $10 \cdot \log (1/\text{Duty Cycle})$ + Constant Factor (dB).

Note 3: PSD Limit Calculation as below:

Limit (dBm/500kHz) = 30 dBm/500kHz - (7 dBi – 6 dBi) = 29 dBm/500kHz.

802.11a Power Spectral Density - Ant 0

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Channel 52 (5260MHz)



Channel 60 (5300MHz)



Channel 64 (5320MHz)



Channel 100 (5500MHz)



Channel 120 (5600MHz)



Channel 140 (5700MHz)



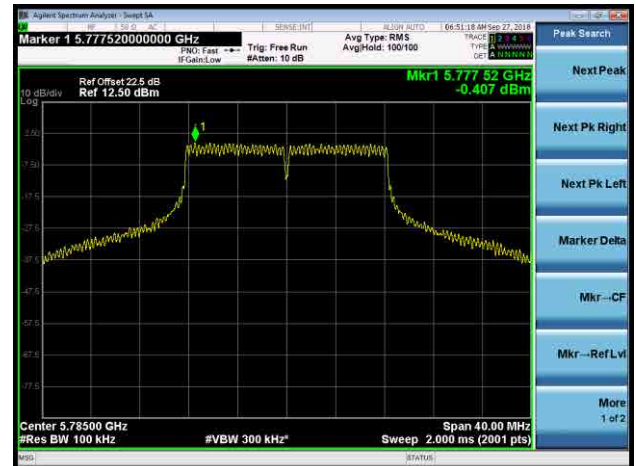
Channel 144 (5720MHz)



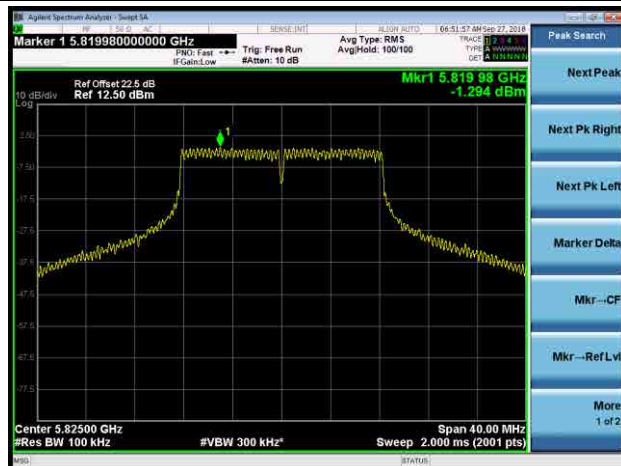
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



802.11a Power Spectral Density - Ant 1

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Channel 52 (5260MHz)



Channel 60 (5300MHz)



Channel 64 (5320MHz)



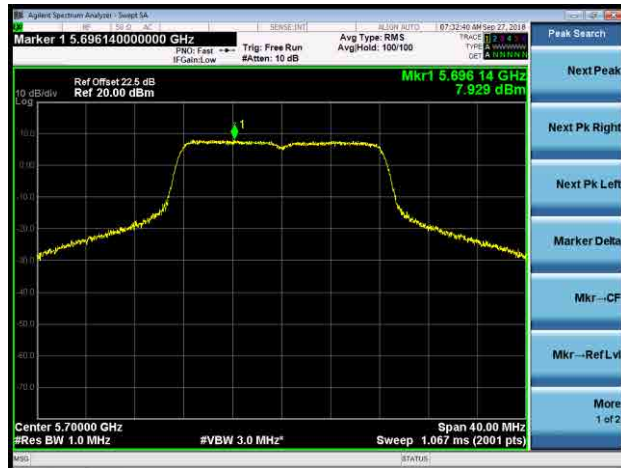
Channel 100 (5500MHz)



Channel 120 (5600MHz)



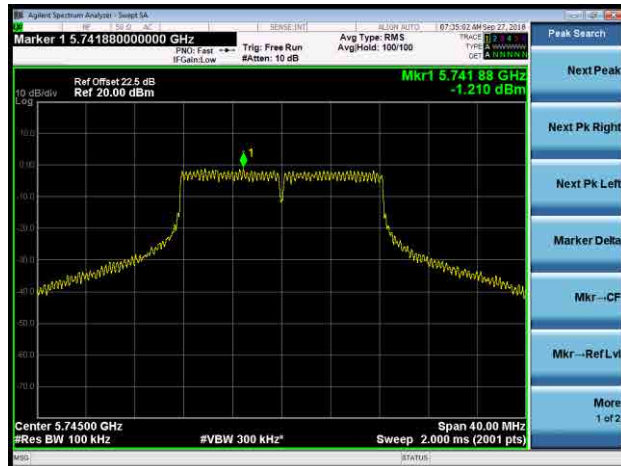
Channel 140 (5700MHz)



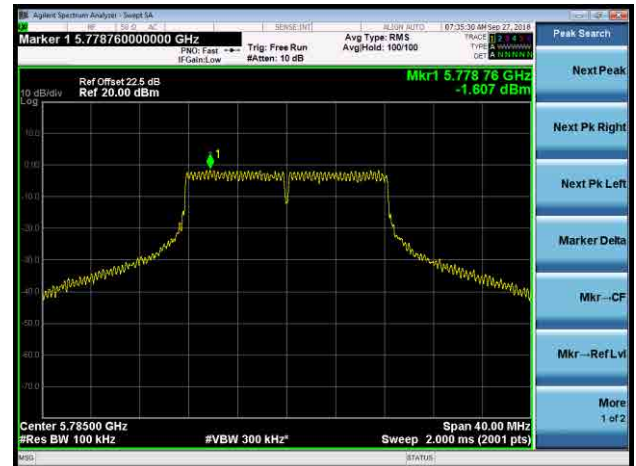
Channel 144 (5720MHz)



Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



802.11n-HT20 Power Spectral Density - Ant 0 / Ant 0+1

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Channel 52 (5260MHz)



Channel 60 (5300MHz)



Channel 64 (5320MHz)



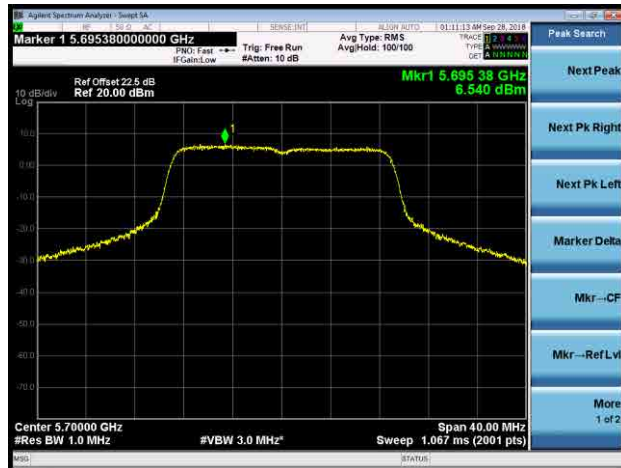
Channel 100 (5500MHz)



Channel 120 (5600MHz)



Channel 140 (5700MHz)



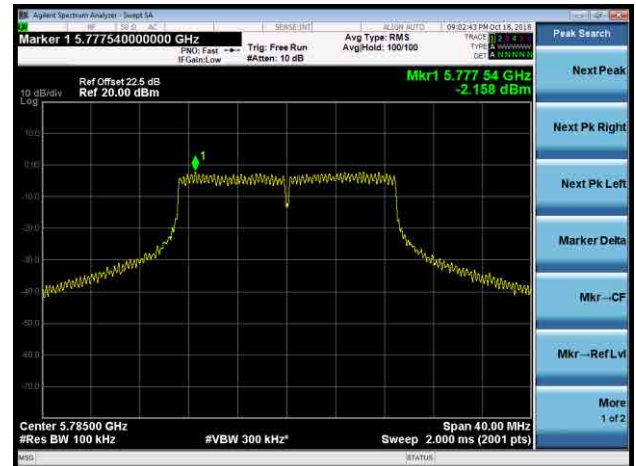
Channel 144 (5720MHz)



Channel 149 (5745MHz)



Channel 157 (5785MHz)

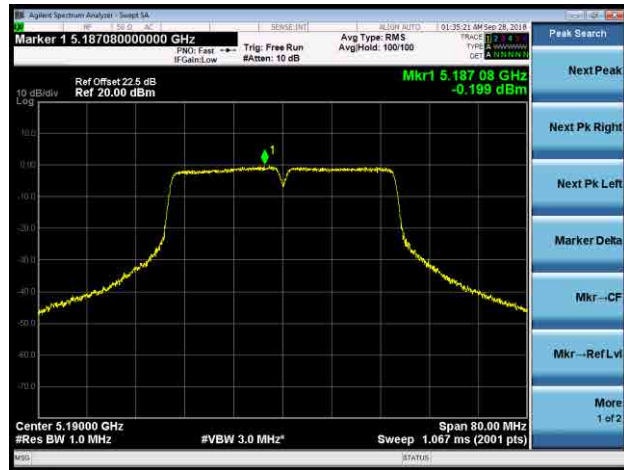


Channel 165 (5825MHz)



802.11n-HT40 Power Spectral Density - Ant 0 / Ant 0+1

Channel 38 (5190MHz)



Channel 46 (5230MHz)



Channel 54 (5270MHz)



Channel 62 (5310MHz)



Channel 102 (5510MHz)



Channel 118 (5590MHz)



Channel 134 (5670MHz)



Channel 142 (5710MHz)



Channel 151 (5755MHz)

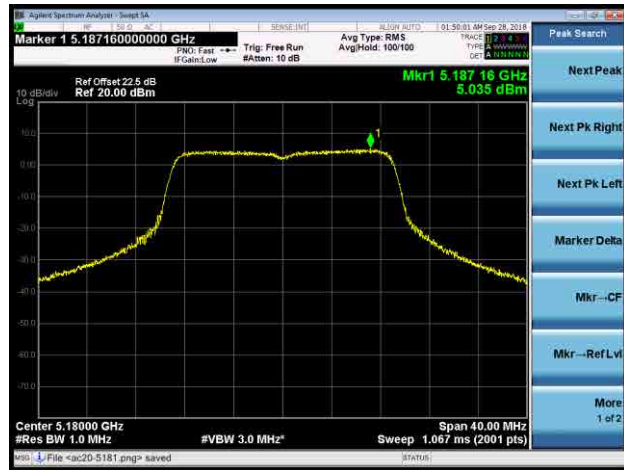


Channel 159 (5795MHz)



802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0+1

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Channel 52 (5260MHz)



Channel 60 (5300MHz)



Channel 64 (5320MHz)



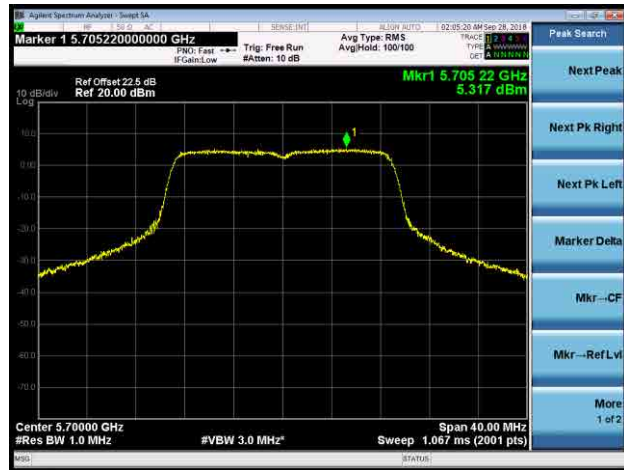
Channel 100 (5500MHz)



Channel 120 (5600MHz)



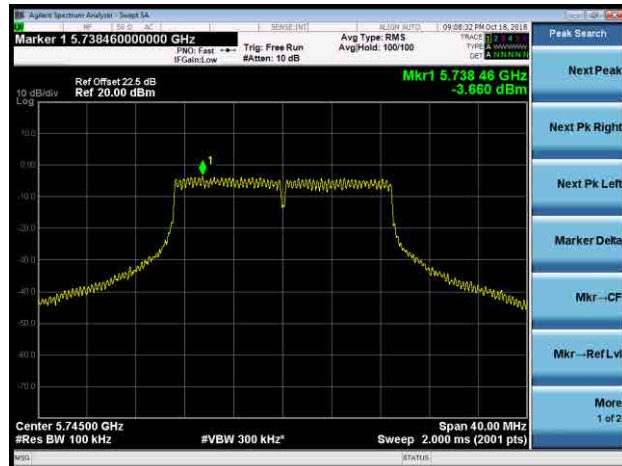
Channel 140 (5700MHz)



Channel 144 (5720MHz)



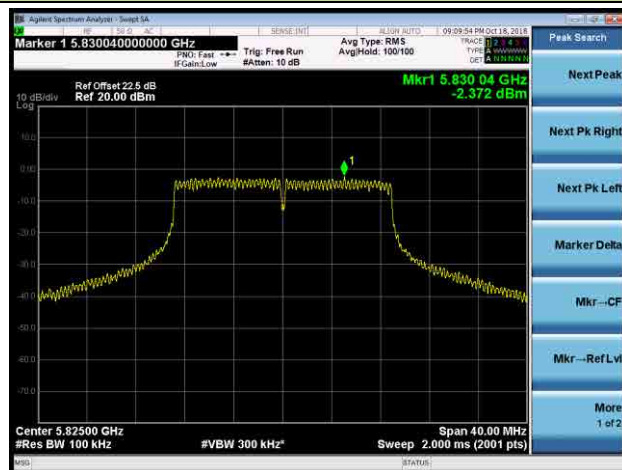
Channel 149 (5745MHz)



Channel 157 (5785MHz)

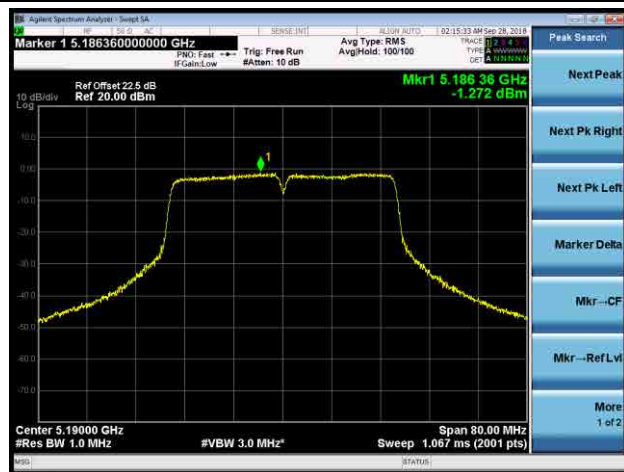


Channel 165 (5825MHz)



802.11ac-VHT40 Power Spectral Density - Ant 0 / Ant 0+1

Channel 38 (5190MHz)



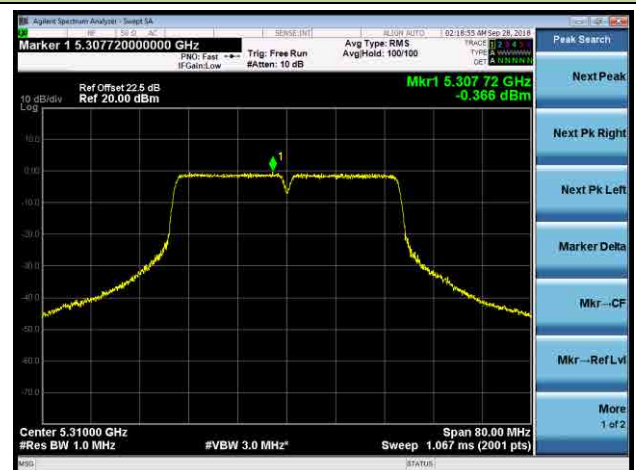
Channel 46 (5230MHz)



Channel 54 (5270MHz)



Channel 62 (5310MHz)



Channel 102 (5510MHz)



Channel 118 (5590MHz)



Channel 134 (5670MHz)



Channel 142 (5710MHz)



Channel 151 (5755MHz)



Channel 159 (5795MHz)



802.11ac-VHT80 Power Spectral Density - Ant 0 / Ant 0+1

Channel 42 (5210MHz)



Channel 58 (5290MHz)



Channel 106 (5530MHz)



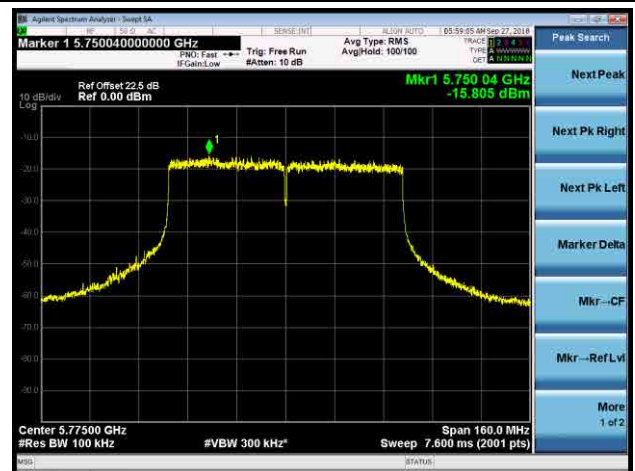
Channel 122 (5610MHz)



Channel 138 (5690MHz)



Channel 155 (5775MHz)



802.11n-HT20 Power Spectral Density - Ant 1 / Ant 0+1

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Channel 52 (5260MHz)



Channel 60 (5300MHz)



Channel 64 (5320MHz)



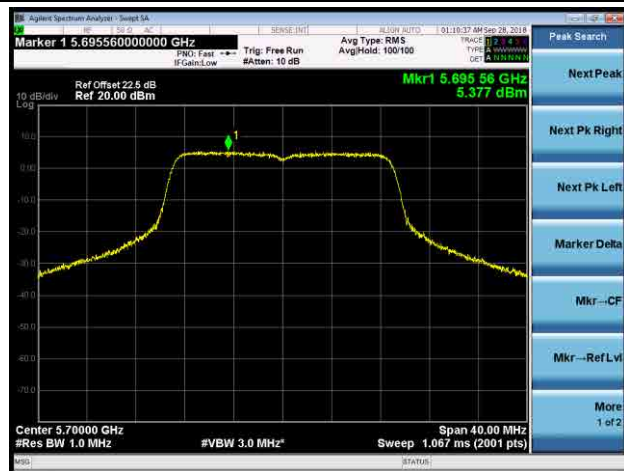
Channel 100 (5500MHz)



Channel 120 (5600MHz)



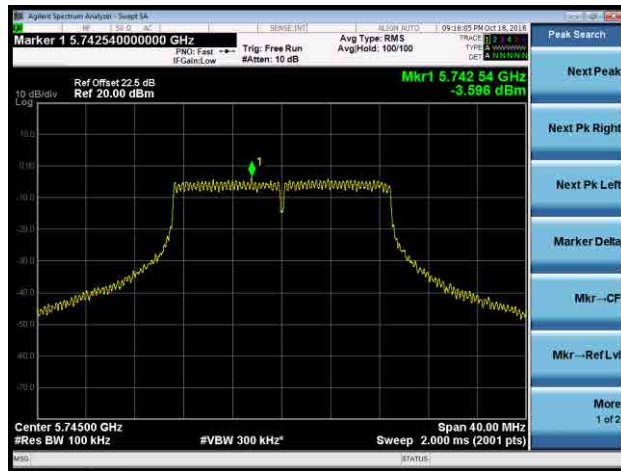
Channel 140 (5700MHz)



Channel 144 (5720MHz)



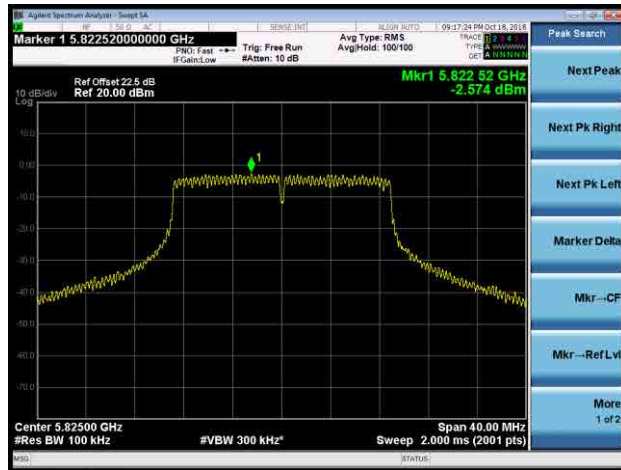
Channel 149 (5745MHz)



Channel 157 (5785MHz)

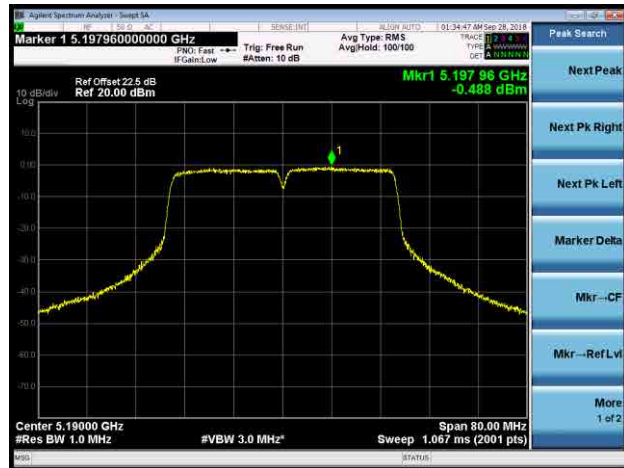


Channel 165 (5825MHz)



802.11n-HT40 Power Spectral Density - Ant 1 / Ant 0+1

Channel 38 (5190MHz)



Channel 46 (5230MHz)



Channel 54 (5270MHz)



Channel 62 (5310MHz)



Channel 102 (5510MHz)



Channel 118 (5590MHz)



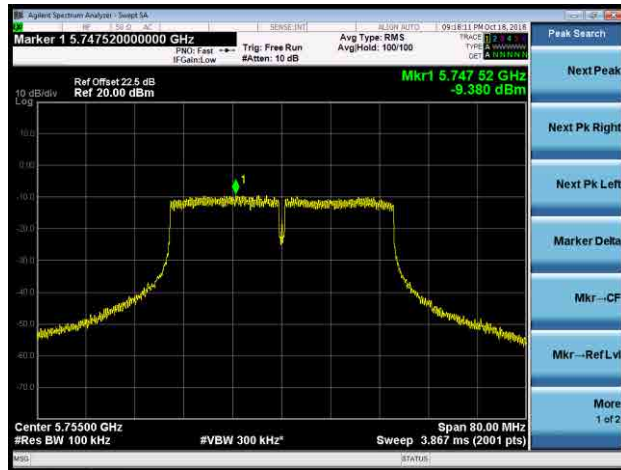
Channel 134 (5670MHz)



Channel 142 (5710MHz)



Channel 151 (5755MHz)



Channel 159 (5795MHz)



802.11ac-VHT20 Power Spectral Density - Ant 1 / Ant 0+1

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Channel 52 (5260MHz)



Channel 60 (5300MHz)



Channel 64 (5320MHz)

