

低功率射頻電機試驗報告

申請廠商	研華股份有限公司 114臺北市內湖區瑞光路26巷20弄1號
製造廠商	研華股份有限公司
產品名稱	WiFi AP/Client
廠牌	Advantech
型號	EKI-6331AN-BE
發射功率	請見本報告第1.1章節產品描述
工作頻率	請見本報告第1.1章節產品描述
調變方式	OFDM
使用規範	LP0002 4.7節

實驗室資訊

台灣檢驗科技股份有限公司 電子通訊實驗室
 新北市新北產業園區五工路134號
 認證有效期間：104年06月14日起至107年06月13日止
 受理日期 民國107年04月13日
 完成日期 民國107年05月22日

張俊卿



報告簽署人
張俊卿簽章

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測試標準

國家通訊傳播委員會低功率射頻電機技術規範

民國 107 年 1 月 10 日版本

待測裝置已於台灣檢驗科技股份有限公司電子通訊實驗室，依據國家通訊傳播委員會於中華民國一百零七年一月頒佈之低功率射頻電機技術規範測試。

台灣檢驗科技股份有限公司根據此條文規範項目測試，測試各項數據皆能符合此規範規定之限度值。

台灣檢驗科技股份有限公司依低功率射頻電機技術規範審驗要點規範製作測試結果報告，測試結果評判為合格。

備註：

1. 報告中所描述之測試結果和待測設備的架構組合，均根據實際量測情況作詳實的記錄，且本測試報告僅對上述待測設備樣品負責。
2. 此份報告未經本公司同意，不得部份摘錄複製使用。

測試人員：

呂建伸

日期：

05/22/2018

呂建伸 / 工程師

報告製作：

蔡志剛

日期：

05/22/2018

蔡志剛 / 工程師

報告審核：

張俊卿

日期：

05/22/2018

張俊卿 / 經理

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測試實驗室資料:

實驗室認可登錄：中華民國實驗室認證體系

認可編號：TAF 0513，認可頻率範圍9kHz ~ 40GHz

認證有效期間：104年6月14日起至107年6月13日止

測試場地：桃園市龜山區(華亞科技園區)科技一路2號

實驗室名稱：台灣檢驗科技股份有限公司
電子通訊實驗室

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電話：886-2-22993939

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實驗室之量測不確定度

量測項目	量測不確定度 (擴充不確定度)		
傳導干擾量測	電源線	0.15-30MHz	2.586 dB
輻射干擾量測 (3m測距)	水平極化	9kHz - 30MHz	2.3dB
		30-167MHz	4.22dB
		167-500MHz	3.44dB
		0.5-1GHz	3.39dB
		1-18GHz	4.08dB
		18-40GHz	4.08dB
	垂直極化	9kHz - 30MHz	2.3dB
		30-180MHz	3.37dB
		180-417MHz	3.19dB
		0.417-1GHz	3.19dB
		1-18GHz	4.04dB
		18-40GHz	4.04dB
輸出功率	傳導方式	2.4 GHz	1.3 dB
		5 GHz	1.55 dB
有效輻射功率 (輻射方式)	水平極化	2.4GHz	4.21 dB
		5 GHz	4.62 dB
	垂直極化	2.4 GHz	4.42 dB
		5 GHz	4.74 dB
功率頻譜密度	傳導方式	2.4GHz	1.3dB
		5GHz	1.67dB
鄰頻道功率量測 (輻射方式)	水平極化	30-167MHz	4.22dB
		167-500MHz	3.44dB
		0.5-1GHz	3.39dB
	垂直極化	30-180MHz	3.37dB
		180-417MHz	3.19dB
		0.417-1GHz	3.19dB

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目錄	頁次
1 一般資料	6
2 適用規範	10
3 受測裝置之系統說明	16
4 量測儀器設備	17
5 電源線傳導干擾之量測	19
6 不必要發射限制之量測	22
7 天線增益之要求	99
8 26dB & 6dB 頻寬之測試	100
9 輸出峰值功率之量測	109
10 功率密度之限制	114
11 功率控制與動態頻率選擇	120
12 最大暴露允許值 (Maximum Permissible Exposure, MPE)	124

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1 一般資料

1.1 產品描述

產品名稱	WiFi AP/Client	
型號	EKI-6331AN-BE	
產品商標	Advantech	
SW version:	N/A	
HW version:	N/A	
Pole Mounting Ring:	Model No.: N/A, Supplier: N/A	
Ferrite Suppression Core:	Model No.: N/A, Supplier: N/A	
Grounding Wire:	Model No.: N/A, Supplier: N/A	
使用電源	24Vdc from Power Cord & PoE Injector	
	Adapter:	Model No.: DSA-42PFC-24 2, Supplier: DVE

調變	發射頻帶 (MHz)	輸出功率 (dBm)	頻道數 (Channels)
802.11 a mode	5150 ~5250	17.15	4
	5725 ~5850	12.53	5
802.11n HT20 mode	5150 ~5250	17.99	4
	5725 ~5850	17.89	5
802.11n HT40 mode	5150 ~5250	17.77	2
	5725 ~5850	17.72	2
調變方式	64QAM, 16QAM, QPSK, BPSK for OFDM		

天線型式/天線增益

天線型式	Supplier	Model No.	發射頻帶(MHz)	天線增益(dBi)
Dipole	JOYMAX ELECTRONICS CO., LTD.	IWX-1551RSX9-999	5150~5250 5725~5850	5 (Main)
			5150~5250 5725~5850	5 (Aux)

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1.2 產品特性

此裝置符合IEEE Std 802.11a/ac/n 標準。其發射頻率落於5150MHz至5250MHz, 5725MHz至5850MHz。

802.11a/n/ac mode 採用正交分頻多工OFDM調變技術之發射頻率全段：落於5150-5250MHz共有4個頻道, 及5725MHz及5850MHz共有5個頻道。

Operated band in 5150 MHz ~5250 MHz:

802.11a / n HT20 Mode	
Channel	Frequency
36	5180
40	5200
44	5220
48	5240

802.11 n HT40 Mode	
channel	Frequency
38	5190
46	5230

Operated band in 5470 MHz ~5725 MHz:

802.11a / n HT20 Mode	
Channel	Frequency
149	5745
153	5765
157	5785
161	5805
165	5825

802.11 n HT40 Mode	
channel	Frequency
151	5755
159	5795

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1.3 最差測試模式:

經評估後，比較所有調變、data rate 及 H, E1 & E2 Plan 測試值後，依據下表附上最差模式數據。

RADIATED EMISSION TEST (BELOW 1 GHz)							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT	Plan
802.11a	5180~5240	36 to 48	44	OFDM	6	Main	E2
802.11a	5745~5825	149 to 165	157	OFDM	6	Main	
802.11n_HT40	5190~5230	38 to 46	38	OFDM	MCS8	MIMO	
802.11n_HT40	5755~5795	151 to 159	151	OFDM	MCS8	MIMO	
RADIATED EMISSION TEST (ABOVE 1 GHz)							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT	Plan
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	Main	E2
802.11n_HT20				OFDM	MCS8	MIMO	
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO	
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	Main	
802.11n_HT20				OFDM	MCS8	MIMO	
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS8	MIMO	

ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	2TX
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	2TX
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS8	MIMO

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1.4 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(LP0002, 107.1.10 版本) 如無國家標準可適用者，得依美國 EIA、IEEE ANSI 檢驗法檢驗，及美國 FCC 47 CFR Part 2 有關檢驗之規定及參考 ANSI 63.10:2013、FCC CFR 47 15.407、FCC 14-30、KDB 789033D02 之檢驗法。

低功率射頻電機技術規範4.7節及FCC Part 15.407

項次	測試項目	適用規範	測試結果	量測設備	備註
1	不必要發射之限制	低功率射頻電機技術規範 4.7.4	請參閱6.5節	請參閱 4.2; 4.3節	合格
2	電源線傳導干擾	低功率射頻電機技術規範 2.3節	請參閱5.5節	請參閱4.1節	合格
3	天線增益之要求	低功率射頻電機技術規範 4.7.2 (1), (2), (3)	請參閱7.2節	-----	合格
4	26 dB& 6dB頻寬	低功率射頻電機技術規範 4.7.3 ,4	請參閱8.4節	請參閱4.3節	合格
5	最大輸出功率	低功率射頻電機技術規範 4.7.3	請參閱9.4節	請參閱4.3節	合格
6	功率密度	低功率射頻電機技術規範 4.7.3	請參閱10.4節	請參閱4.3節	合格
7	發射功率控制(TPC) 及動態頻率選擇 (DFS)	低功率射頻電機技術規範 4.7.7	請參閱11.6節	請參閱11.4節	合格

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2 適用規範

2.1 規範要求 (一般規定)

(1) 傳導之規定

依據NCC低功率射頻電機技術規範之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 150 kHz 至 30MHz 之射頻電壓 (在電源端子每一電源線對接地點) 不得超過下表所列之限值。測量時應經過 50 μ H 及50 Ω 之電源線阻抗模據網路 (LISN)。頻率重疊處，以較低限值為準。

頻率(MHz)	傳導限制值 (dBuV)	
	準峰值 (Quasi – peak)	平均值 (Average)
0.15 – 0.5	66 – 56	56 - 46
0.5 – 5	56	46
5 - 30	60	50

(2) 輻射之規定

依據NCC低功率射頻電機技術規範3.10.5節之要求，其他開放頻帶外不必要之輻射需符合2.8節之一般限制要求，其電場強度不得超過下表之限值，且其不必要之發射皆不得大於主波發射強度。各頻段重疊處，以較嚴格之限制值為準。

頻率 MHz	測試距離 m	干擾限制 μ V/m	干擾限制 dB μ V/m
0.009 – 0.490	300	2,400/頻率 (kHz)	
0.490 – 1.705	30	24,000/頻率 (kHz)	
1.705 - 30	30	30	
30 - 88	3	100	40.0
88 – 216	3	150	43.5
216 – 960	3	200	46.0
960以上	3	500	54.0

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(3) 禁用頻帶限制之規定

依據NCC低功率射頻電機技術規範2.7節之要求，任何低功率射頻電機之主波皆不得使用下表所列各頻帶內之頻率；低功率射頻電機落於下表所列頻帶內之混附發射，其電場強度必須符合第2.8節的限制規定。

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

(4) 依據NCC低功率射頻電機技術規範2.11節之要求，收、發信機為成套銷售者，收、發信機應一併送審或提供經型式認證合格之對應收、發信機之送審資料；送信機之輻射電場強度不得超過第2.8節之發射規定，且不得接收、解調第2.7節所列之頻率。

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2.2 規範要求

依據NCC低功率射頻電機技術規範4.7節無線資訊傳輸設備規範之規定如下

(A) 最大輸出功率與功率頻譜密度及天線增益，以及發射限制之要求限制

依據NCC低功率射頻電機技術規範4.7.3節之要求，使用於5.15 GHz~5.25 GHz 頻段

(1) 供戶外操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。
- (D) 在水平面仰角超過30 度時，其最大EIRP 應小於或等於21 dBm。

(2) 供室內操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

(3) 供固定式點對點操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過23 dBi方向增益之指向性天線時，應依超過23 dBi天線方向增益的dBi總量，等量減少最大傳導輸出功率及最大功率頻譜密度。
- (D) 固定式點對點操作，不包括點對多點系統、全方向性應用及多台共站發射機傳送相同資訊。

(4) 供用戶端裝置(Client Device)操作使用：

- (A) 最大傳導輸出功率應小於或等於250 mW。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於11 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

使用頻率於5.25 GHz~5.35 GHz 與5.470 GHz~5.725 GHz 頻段

- (1) 最大傳導輸出功率應小於或等於250 mW或11dBm+10log B (B是26 dB發射頻寬，單位MHz)之較小者。
- (2) 最大功率頻譜密度在任何1 MHz 頻帶中應小於或等於11 dBm。
- (3) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

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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。

(B) 不必要發射之限制

依據NCC低功率射頻電機技術規範4.7.4節之要求，在5.15 GHz~5.35 GHz 及5.470 GHz~5.725 GHz 頻段操作的發射器：帶外發射之有效等向輻射功率(EIRP) ≤ -27 dBm/MHz。

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35(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。

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBuV/m)
5150 – 5250	-27	68.3
5250 – 5350	-27	68.3
5470 - 5725	-27	68.3
5725 - 5850	-27	68.3

Limit derivation in terms of Field Strength:

$EIRP = (E \cdot d)^2 / 30$, where E is the field in V/m, d is the measurement distance (3m),

EIRP is the equivalent isotropically radiated power in Watts.

$E = 1000000 \cdot (30 \cdot EIRP)^{(1/2)} / 3$ uV/m

= 68.3dBuV/m

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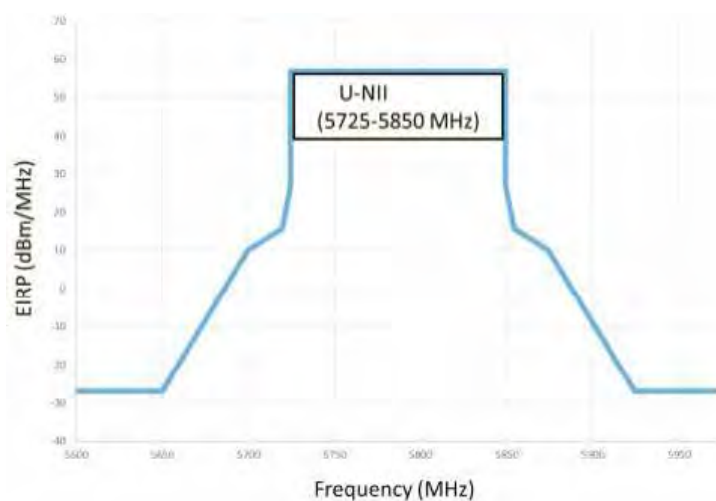


圖 1

(C) 依據 NCC 低功率射頻電機技術規範 4.7.7 節之要求，發射功率控制(TPC)及動態頻率選擇

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

動態頻率選擇(DFS):操作於5.25 GHz~5.35 GHz與5.470 GHz~5.725 GHz頻段之設備應具備動態頻率選擇雷達偵測功能並啟動之，以完整偵測使用頻帶內之雷達訊號，避免與雷達系統同頻道操作。相關規定如下：

(1) 最低動態頻率選擇的偵測門檻

- (A) 最大EIRP 為200 mW~1 W之設備，其最低動態頻率選擇的偵測門檻值為-64dBm。
- (B) 最大EIRP 低於200 mW，且功率頻譜密度小於10 dBm/MHz 之設備，其最低動態頻率選擇的偵測門檻值為-62 dBm。
- (C) 最大EIRP 低於200 mW，且功率頻譜密度大於或等於10 dBm/MHz 之設備，其最低動態頻率選擇的偵測門檻值為-64 dBm。
- (D) 此偵測門檻值為1 微秒內之平均接收功率，並以0 dBi 天線為參考基準。頻道初始設定得由系統隨機選取或使用者手動選取。

(2) 操作模式：動態頻率選擇之規定適用於以下之操作模式：

- (A) 頻道可用性檢查時間之規定，適用於主控運作模式。
- (B) 頻道移動時間之規定，適用於主控及受控運作模式。

(3) 頻道可用性檢查時間：設備必須檢查其可在某一頻道上起始傳送之前是否有雷達系統已經操作在該頻道上，以及何時其必須移動到另一新的頻道，在60 秒內若沒有偵測到功率位準大過上述之干擾門檻值的雷達訊號時，設備才可開始使用該頻道。

(4) 頻道移動時間：在偵測到雷達的存在後，所有在該操作頻道上的所有傳輸須在10秒內停止，在

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偵測到雷達訊號後，該期間內的傳輸應維持最多200 毫秒的正常通訊。
另外，間歇性的管理與控制訊號可在剩餘的時間中傳送，以便撤離該操作頻道。

(5) 不可佔用期間：某一頻道已被頻道可用性檢查或”服務中”監視顯示含有雷達系統，至少須有30分鐘的不可佔用期間。不可佔用期間起始於偵測到雷達系統的當時。

(D) 依據 NCC 低功率射頻電機技術規範 4.7.3.4 節之要求，26dB & 6dB 發射頻寬之測試

(1) 5.15 GHz~5.25 GHz、5.25 GHz~5.35 GHz 及 5.47 GHz~5.725 GHz 頻段，測試儀器之頻寬應設定為1 MHz 頻寬或待測物之26 dB發射頻寬，兩者取較小者。

(2) 5.725 GHz~5.850 GHz 頻段，測試儀器之頻寬應設定為500 kHz 或待測物之26dB發射頻寬，兩者取較小者。

解析頻寬小於(1)或(2)時，應以補償方式計算總功率頻譜密度。

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3 受測裝置之系統說明

裝置名稱	製造者/申請者	型號
* WiFi AP/Client	研華股份有限公司/ 研華股份有限公司	EKI-6331AN-BE

標記：“*”表欲申請之受測物。

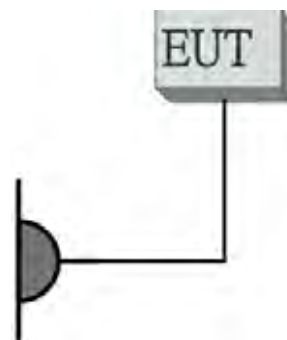
3.1 待測物與測試設備系統圖

3.1.1 量測配置圖

Conducted (Antenna Port) Emission



Radiated & Conduction (AC Power Line) Emission



3.2 輔助測試週邊設備名稱描述

編號	產品別	商標	型號	序號	信號線線長(米)	電源線長(米)
1.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L412	S0011357	Shielded	Un-shielded

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4 量測儀器設備

4.1 AC 電源端傳導干擾之量測儀器

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCI 7	100950	12/24/2017	12/23/2018
Coaxial Cables	N/A	N30N30-1042-150cm	N/A	08/30/2017	08/29/2018
LISN	Schwarzbeck	NSLK 8127	8127-648	06/18/2017	06/17/2018
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

4.2 天線端傳導測試之量測儀器

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018
Coaxial Cable 30cm	WOKEN	00100A1F1A195C	RF01	12/24/2017	12/23/2018
DC Block	PASTERNAK	PE8210	RF29	12/24/2017	12/23/2018
Splitter	RF-LAMBDA	RFLT2W1G18G	RF35	12/24/2017	12/23/2018
Attenuator	WOKEN	218FS-10	RF23	12/24/2017	12/23/2018
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2018	05/01/2019

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4.3 量測場強輻射之量測儀器

966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESU 40	100363	04/11/2018	04/10/2019
Loop Antenna	ETS-Lindgren	6502	00143303	12/23/2017	12/22/2018
Broadband Antenna	TESEQ	CBL 6112D	35240	11/03/2017	11/02/2018
Horn Antenna	ETS-Lindgren	3117	00143272	12/15/2017	12/16/2018
Horn Antenna	Schwarzbeck	BBHA9170	185	08/01/2017	07/31/2018
Pre Amplifier	EMC Instruments	EMC330	980096	12/24/2017	12/23/2018
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/24/2017	12/23/2018
Pre Amplifier	R&S	SCU-18	10204	12/24/2017	12/23/2018
Pre Amplifier	R&S	SCU-26	100780	12/24/2017	12/23/2018
Coaxial Cable	Huber+Suhner	RG 214/U	966Rx 9K-30M	12/24/2017	12/23/2018
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/24/2017	12/23/2018
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/24/2017	12/23/2018
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	966Rx 18G-40G	12/24/2017	12/23/2018
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/24/2017	12/23/2018
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/24/2017	12/23/2018
Attenuator	WOKEN	218FS-10	RF27	12/24/2017	12/23/2018
Site NSA	SGS	966 Chamber C	SAC-C	03/02/2018	03/01/2019
Site VSWR	SGS	966 Chamber C	SAC-C	03/02/2018	03/01/2019
DC Power Supply	HOLA	DP-3003	D7070035	05/04/2018	05/03/2019
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.

註：以上部份設備跟量測值沒有影響，且沒有直接關聯，因此不需要進行校正。

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5 電源線傳導干擾之量測

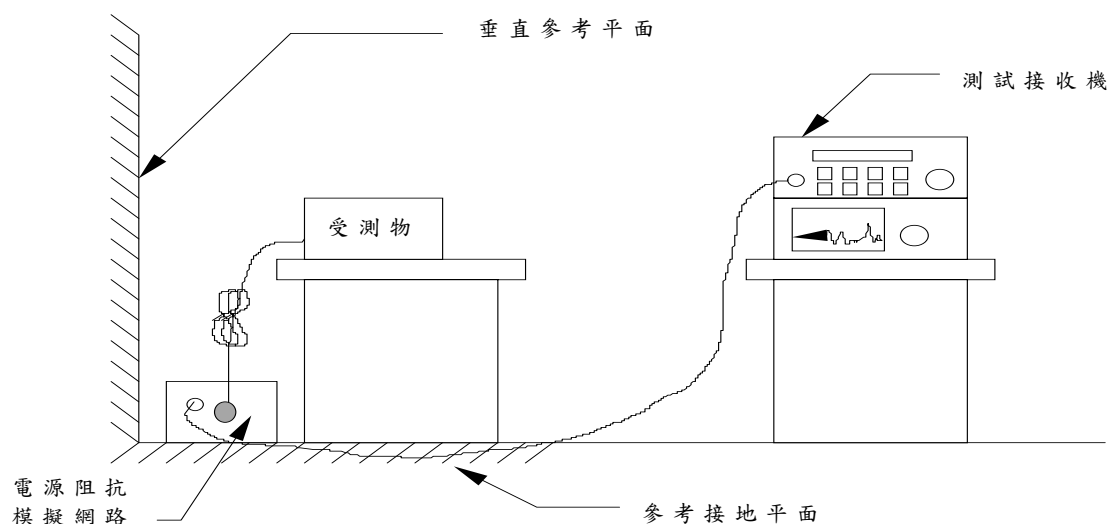
5.1 適用標準

依據NCC低功率射頻電機技術規範2.3節之要求。

5.2 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 之間之電源線傳導放射強度。

5.3 測試配置



5.4 干擾值之計算

電源傳導干擾電壓之計算公式如下

結果值 = 儀器讀值(QP/AV) + 校正因子

其中校正因子為：

饋線損失 + 電源阻抗模擬網路損失

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5.5 傳導干擾之量測結果

測試設備: WiFi AP/Client

6dB 頻寬: 10 kHz

量測天線: N/A

測試者:

王連伸

型號:

EKI-6331AN-BE

視訊頻寬:

10 kHz

檢測器:

Average/Quasi-Peak

Site : Conduction Room

Limit: CNS 13438 (QP)

Mode:

Note:

Phase: L1

Power: AC 110V/60Hz

Temperature: 20 °C

Humidity: 48 %

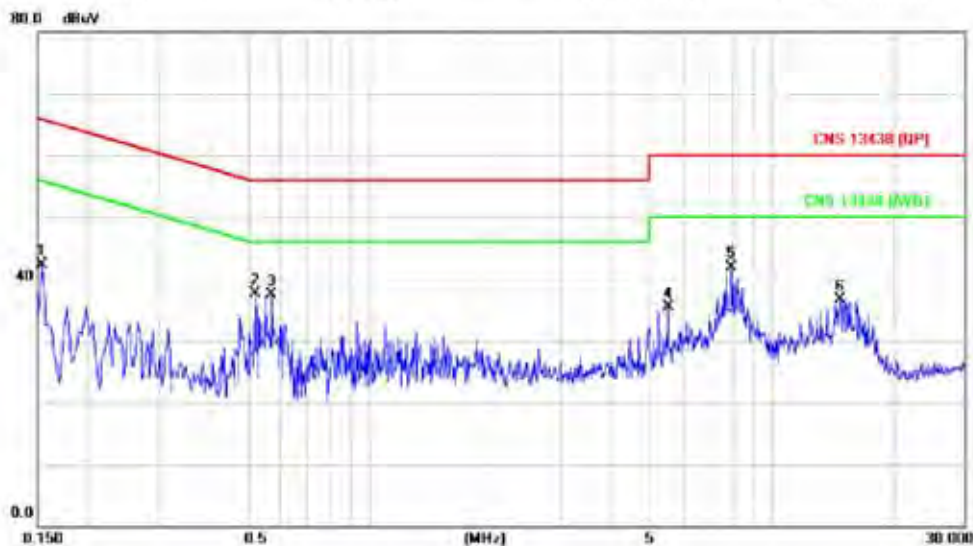
Conducted Emission

File :Conduction

Data :#946

Date: 2018/5/14

Time: 上午 08:52:55



No.	Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measure- ment dBμV	Limit dBμV	Over dB	Detector	Comment
1		0.1540	22.64	19.65	42.29	65.78	-23.49	peak	
2		0.5220	17.65	20.12	37.77	56.00	-18.23	peak	
3		0.5740	17.43	20.09	37.52	56.00	-18.48	peak	
4		5.5060	15.39	20.09	35.48	60.00	-24.52	peak	
5 *		7.9700	21.79	20.07	41.86	60.00	-18.14	peak	
6		14.7740	16.63	20.08	36.71	60.00	-23.29	peak	

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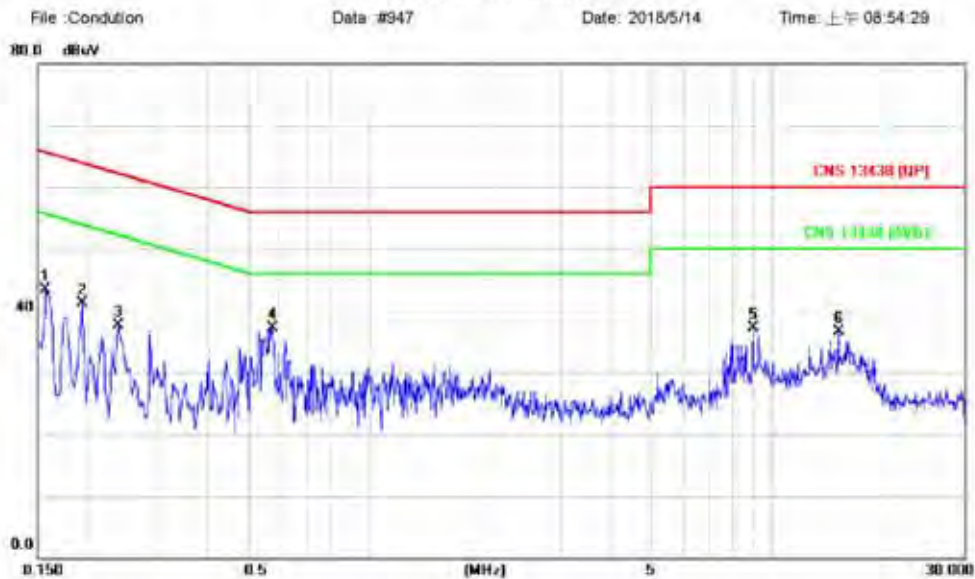
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Site : Conduction Room
Limit: CNS 13438 (QP)
Mode:
Note:

Phase: **N**
Power: AC 110V/60Hz

Temperature: 20 °C
Humidity: 48 %

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1580	23.58	19.64	43.22	65.57	-22.35	peak	
2		0.1940	21.58	19.62	41.20	63.86	-22.66	peak	
3		0.2380	17.79	19.68	37.47	62.17	-24.70	peak	
4 *		0.5780	16.99	20.07	37.06	56.00	-18.94	peak	
5		8.9940	17.14	20.05	37.19	60.00	-22.81	peak	
6		14.6140	16.43	20.10	36.53	60.00	-23.47	peak	

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6 不必要發射限制之量測

6.1 適用標準

依據NCC低功率射頻電機技術規範4.7.4節之要求，在5.15 GHz~5.35 GHz 及5.470 GHz~5.725 GHz 頻段操作的發射器：帶外發射之有效等向輻射功率(EIRP) ≤ -27 dBm/MHz。

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35(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。

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBuV/m)
5150 – 5250	-27	68.3
5250 – 5350	-27	68.3
5470 - 5725	-27	68.3
5725 - 5850	-27	68.3

Limit derivation in terms of Field Strength:

$EIRP = (E \cdot d)^2 / 30$, where E is the field in V/m, d is the measurement distance (3m), EIRP is the equivalent isotropically radiated power in Watts.

$E = 1000000 \cdot (30 \cdot EIRP)^{(1/2)} / 3$ uV/m
= 68.3dBuV/m

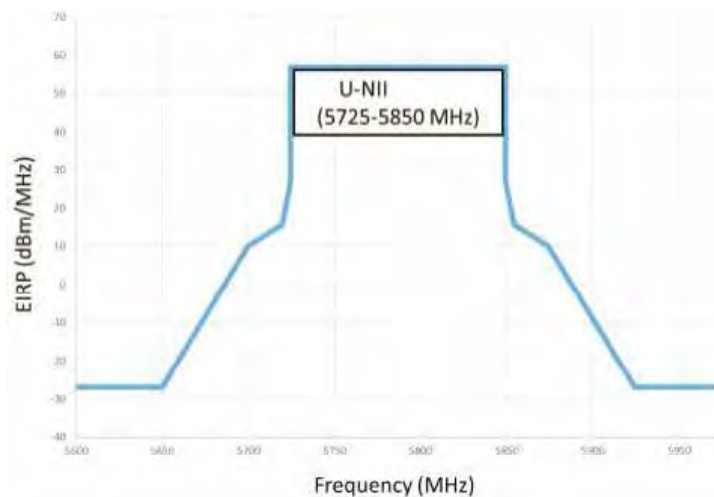


圖1

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LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
V	FIELD STRENGTH AT 3m (dB μ V/m)	
	PK	AV
	74	54
	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dB μ V/m)
	PK	PK
	-27	68.3

6.26.2 量測方法

輻射場強量測

將待測物置於非金屬桌面，測試頻率1GHz以下時，使用桌高0.8 米，1GHz以上時，使用桌高1.5米，使其在工作狀態，接收天線置於 3 米外相同的高度。待測物分別要垂直或水平放置，而且桌面要 360 度旋轉，另外接收天線也要從 1.0 米至 4.0 米升降變化，以找出最大的輻射電場強度，接收天線置於水平、垂直極向各執行測試一次。

幅射傳導量測

將發射機之天線埠經由適當之衰減直接連至測試儀器。設定儀器之解析頻寬為1MHz,視訊頻寬>=解析頻寬,將待測物天線增益offset至測試儀器。

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9kHz~150kHz 測試

解析頻寬:	300Hz	視訊頻寬:	300Hz
量測天線:	6502	檢測器:	Quasi-Peak

150kHz~30MHz 測試

解析頻寬:	10kHz	視訊頻寬:	10kHz
量測天線:	6502	檢測器:	Quasi-Peak

1GHz 以下測試

解析頻寬:	100kHz	視訊頻寬:	100kHz
量測天線:	CBL 6112D	檢測器:	Quasi-Peak

1GHz 以上測試

量測天線:	3117	檢測器:	Peak, Average
頻譜分析儀設定	Peak: RBW: 1MHz ; VBW: 1MHz , Average: RBW: 1MHz ; VBW: 10Hz		

註: 輻射量測僅放最差模式 (30MHz 以上)。

6.3 場強度之計算

場強之計算公式如

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

其中校正因子為：

天線因子+ 饋線損失 + 濾波器損失 (若有使用) - 放大器增益 (若有使用)

量測結果請見下頁。

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

Note: “F”: denotes Fundamental Frequency; “H”: denotes Harmonic Frequency.

“E”: denotes Band Edge Frequency; “S”: denotes Spurious Frequency.

“---”: denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we've employed is peak detector.

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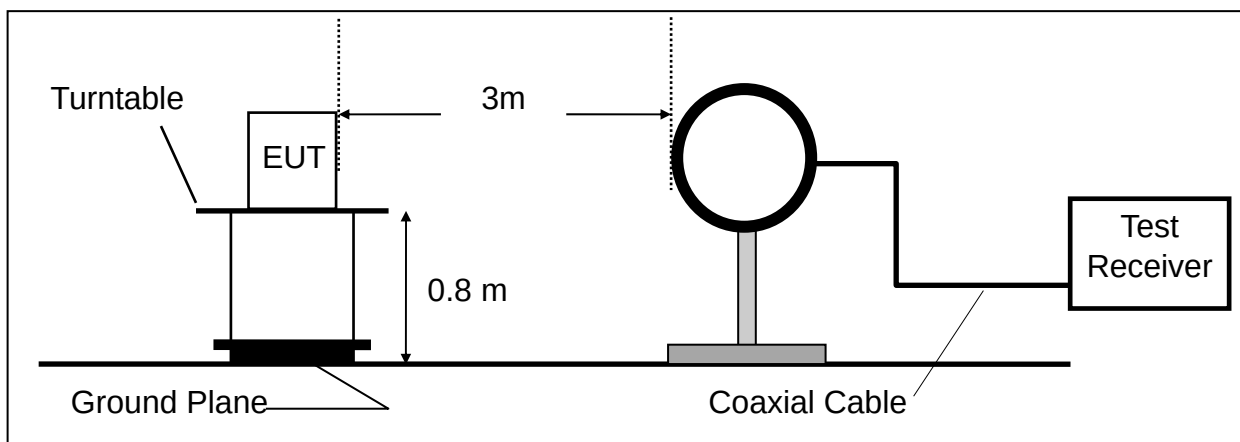
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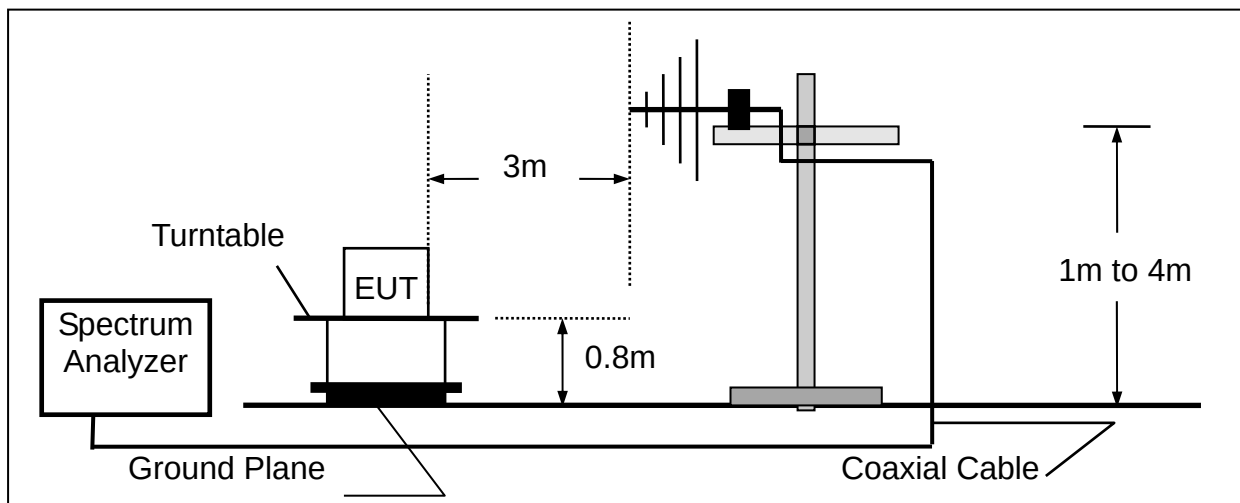
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6.4 輻射之測試配置

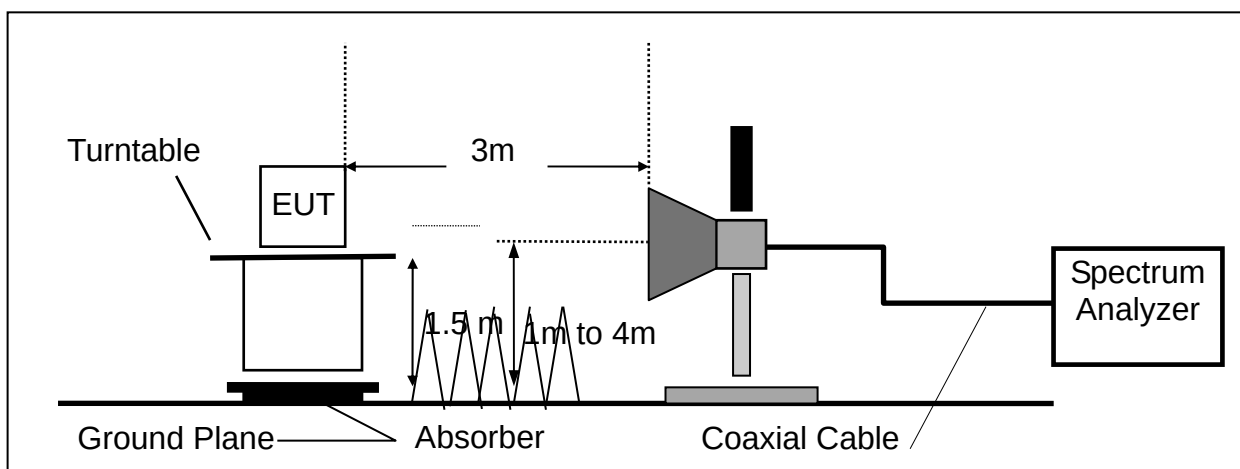
(A) 量測頻率低於 30MHz 以下之測試配置



(B) 量測頻率 30MHz 至 1000MHz 之測試配置



(C) 量測頻率 1000MHz 以上之測試配置

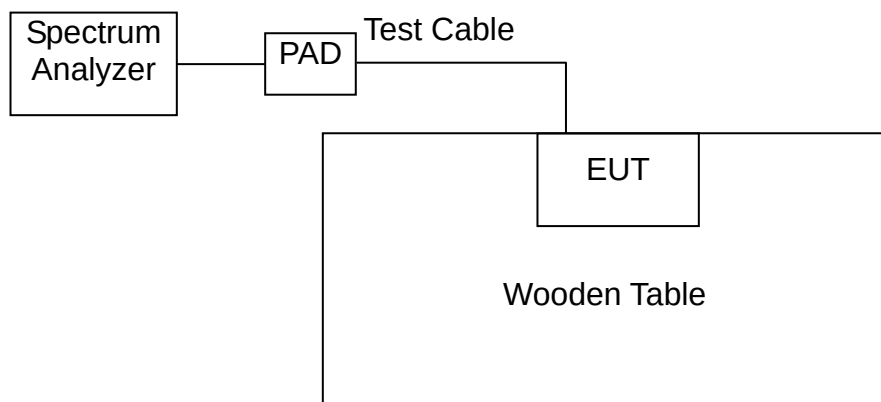


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(D) 傳導之測試配置圖



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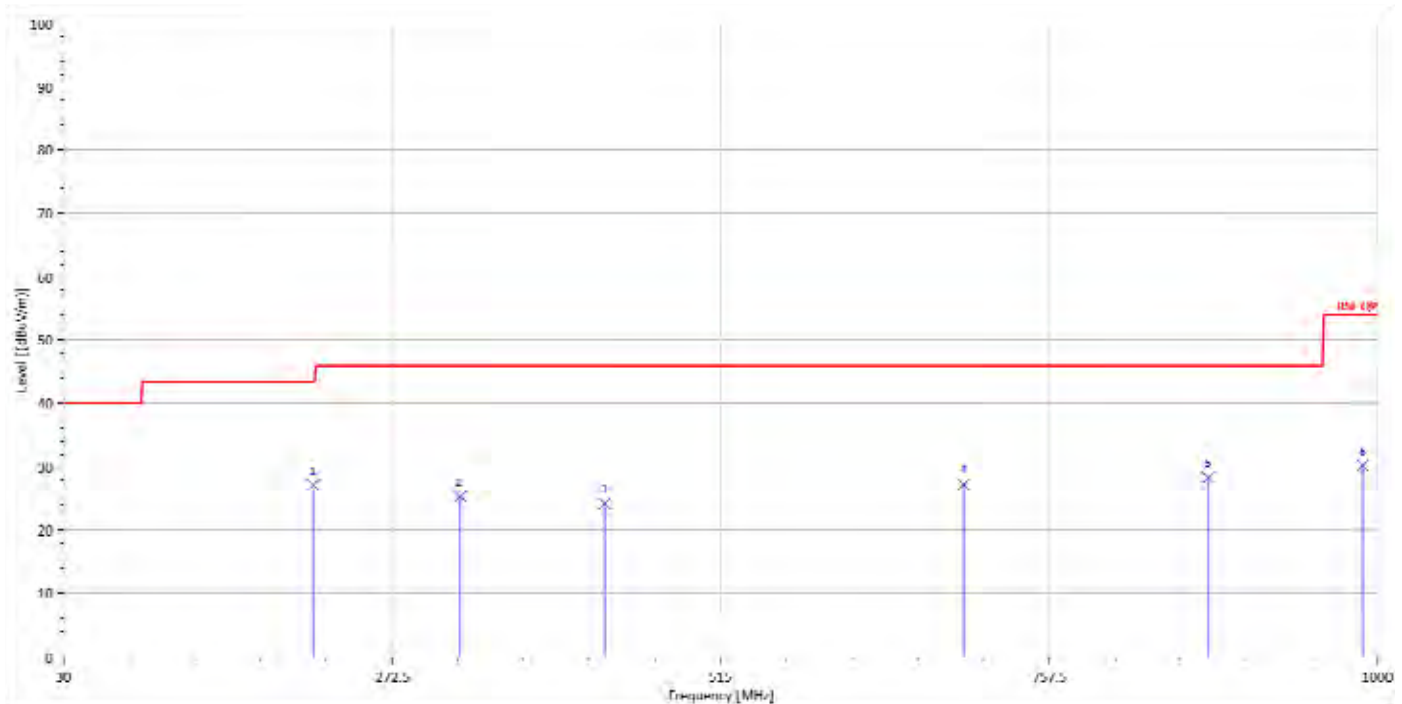
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6.5 場強輻射之量測結果

發射模式 1GHz 以下測試

Operation Mode :	802.11aB1	Test Date :	2018/5/8
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
214.30	S	Peak	44.28	-17.15	27.13	43.5	-16.37
322.94	S	Peak	37.30	-11.99	25.31	46	-20.69
429.64	S	Peak	33.47	-9.29	24.18	46	-21.82
694.45	S	Peak	32.47	-5.28	27.19	46	-18.81
874.87	S	Peak	31.10	-2.78	28.32	46	-17.68
989.33	S	Peak	30.90	-0.66	30.24	54	-23.76

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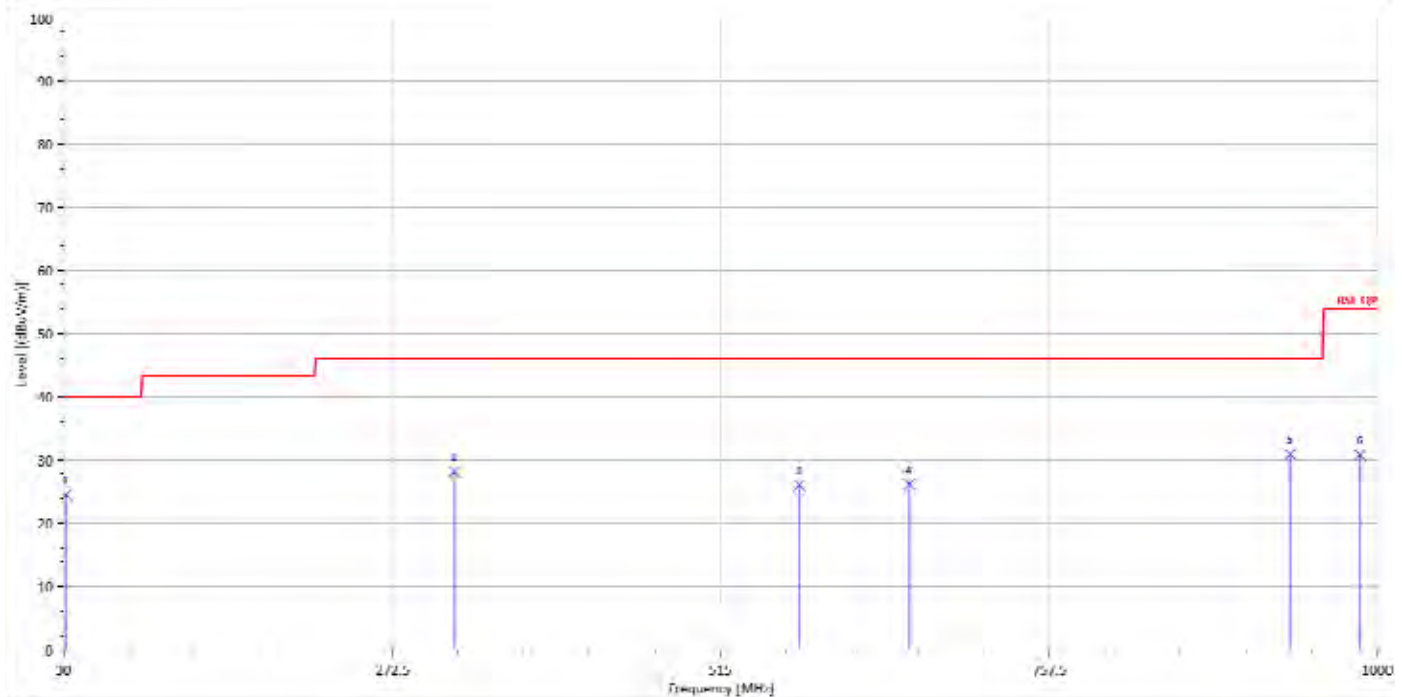
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Operation Mode :	802.11aB1	Test Date :	2018/5/8
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
31.94	S	Peak	32.78	-8.22	24.56	40	-15.44
319.06	S	Peak	40.56	-12.31	28.25	46	-17.75
573.20	S	Peak	32.21	-6.14	26.07	46	-19.93
654.68	S	Peak	31.43	-5.19	26.23	46	-19.77
935.98	S	Peak	32.55	-1.66	30.89	46	-15.11
987.39	S	Peak	31.35	-0.57	30.78	54	-23.22

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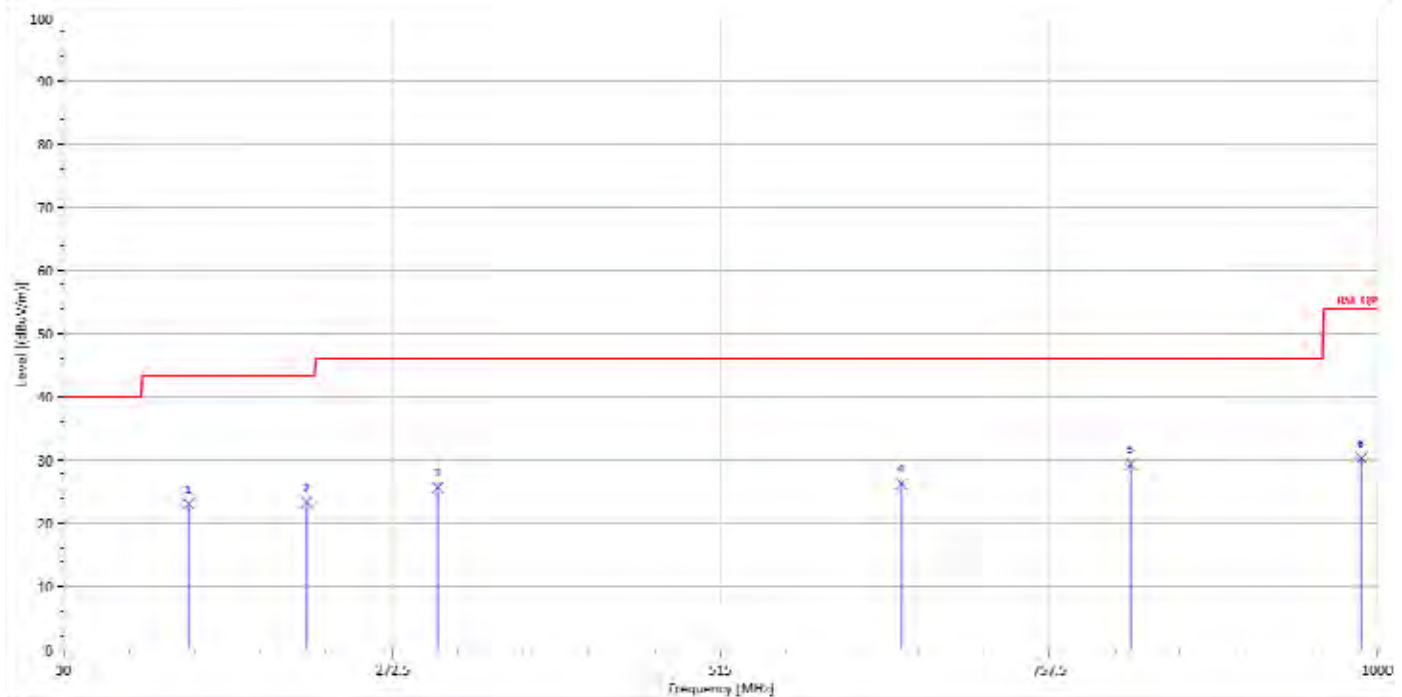
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Operation Mode :	802.11aB4	Test Date :	2018/5/8
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
122.15	S	Peak	38.88	-15.77	23.10	43.5	-20.40
209.45	S	Peak	40.48	-17.13	23.35	43.5	-20.15
306.45	S	Peak	38.54	-12.79	25.76	46	-20.24
648.86	S	Peak	31.40	-5.07	26.34	46	-19.66
817.64	S	Peak	32.45	-3.10	29.35	46	-16.65
988.36	S	Peak	30.88	-0.57	30.31	54	-23.69

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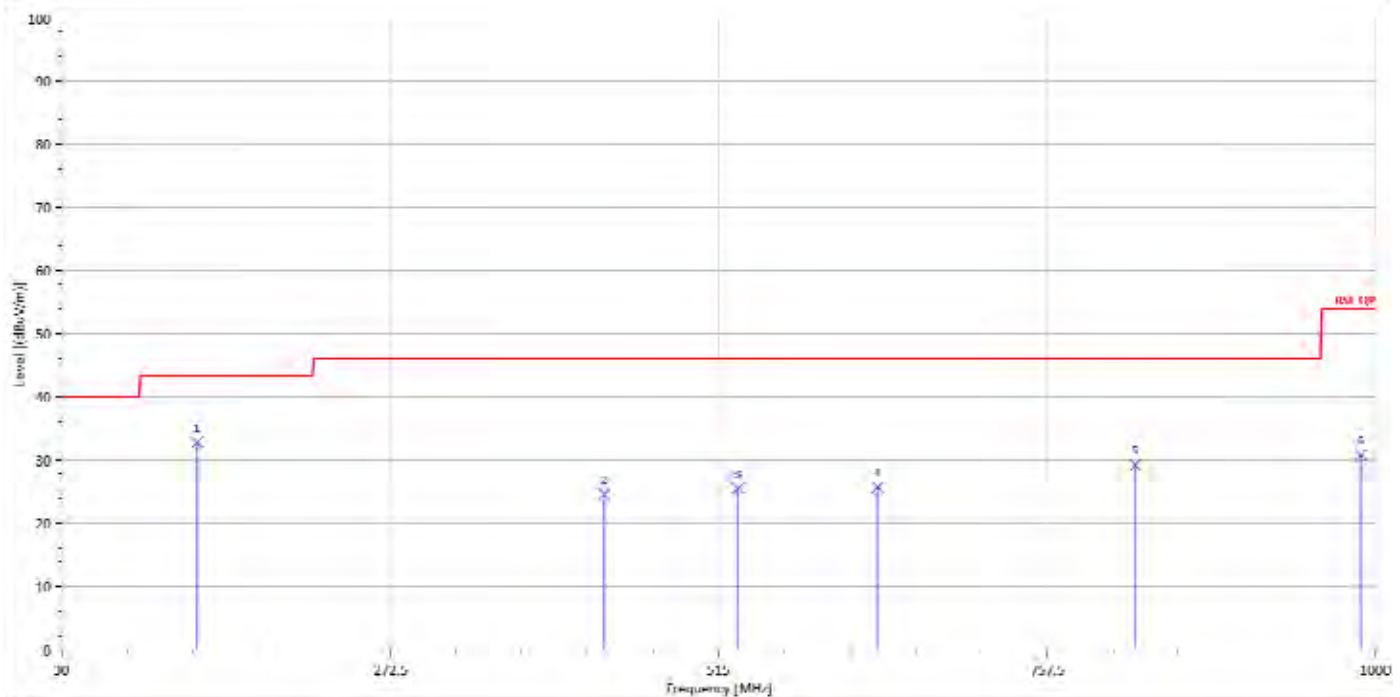
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Operation Mode :	802.11aB4	Test Date :	2018/5/8
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
129.91	S	Peak	48.44	-15.67	32.77	43.5	-10.73
430.61	S	Peak	34.01	-9.39	24.62	46	-21.38
529.55	S	Peak	32.78	-7.21	25.56	46	-20.44
632.37	S	Peak	31.57	-5.80	25.77	46	-20.23
822.49	S	Peak	31.81	-2.59	29.22	46	-16.78
989.33	S	Peak	31.46	-0.66	30.80	54	-23.20

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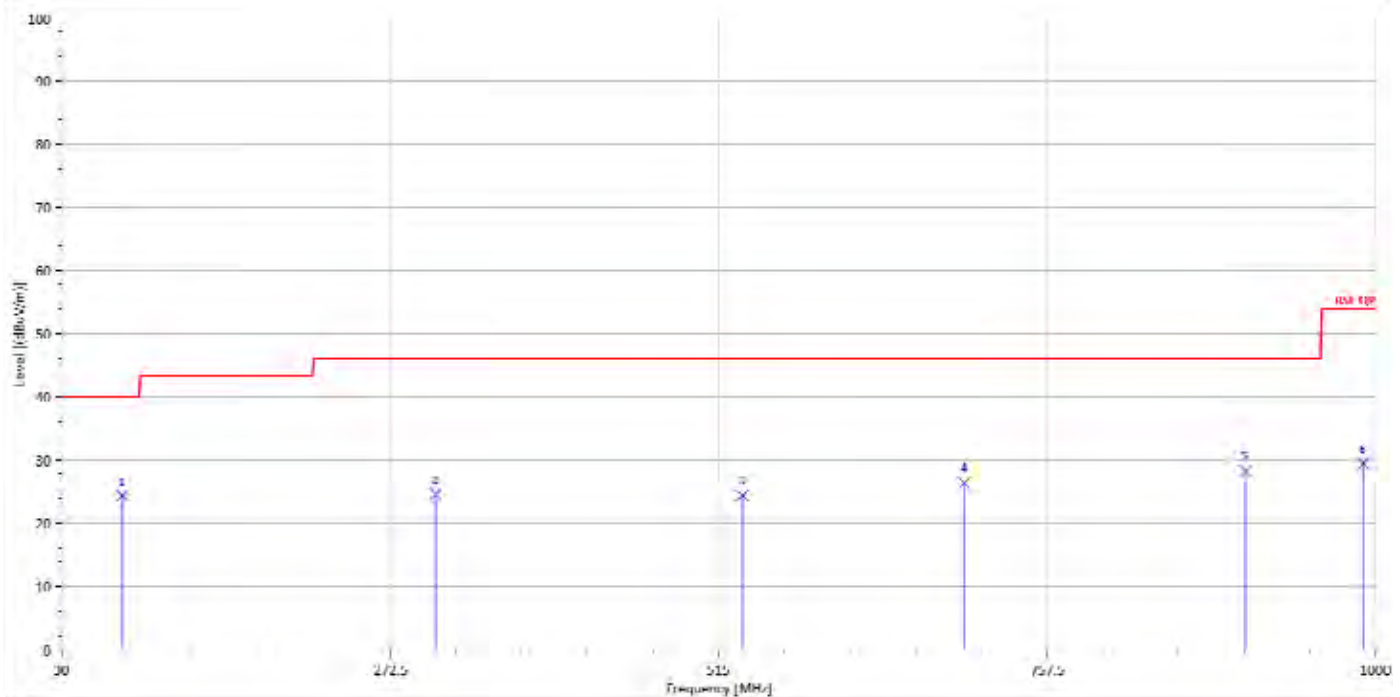
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Operation Mode :	802.11n40B1	Test Date :	2018/5/8
Fundamental Frequency :	5190 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
74.62	S	Peak	45.84	-21.43	24.41	40	-15.59
306.45	S	Peak	37.41	-12.79	24.63	46	-21.37
532.46	S	Peak	31.54	-7.09	24.44	46	-21.56
696.39	S	Peak	31.54	-5.10	26.44	46	-19.56
903.97	S	Peak	30.13	-1.79	28.33	46	-17.67
991.27	S	Peak	30.15	-0.67	29.48	54	-24.52

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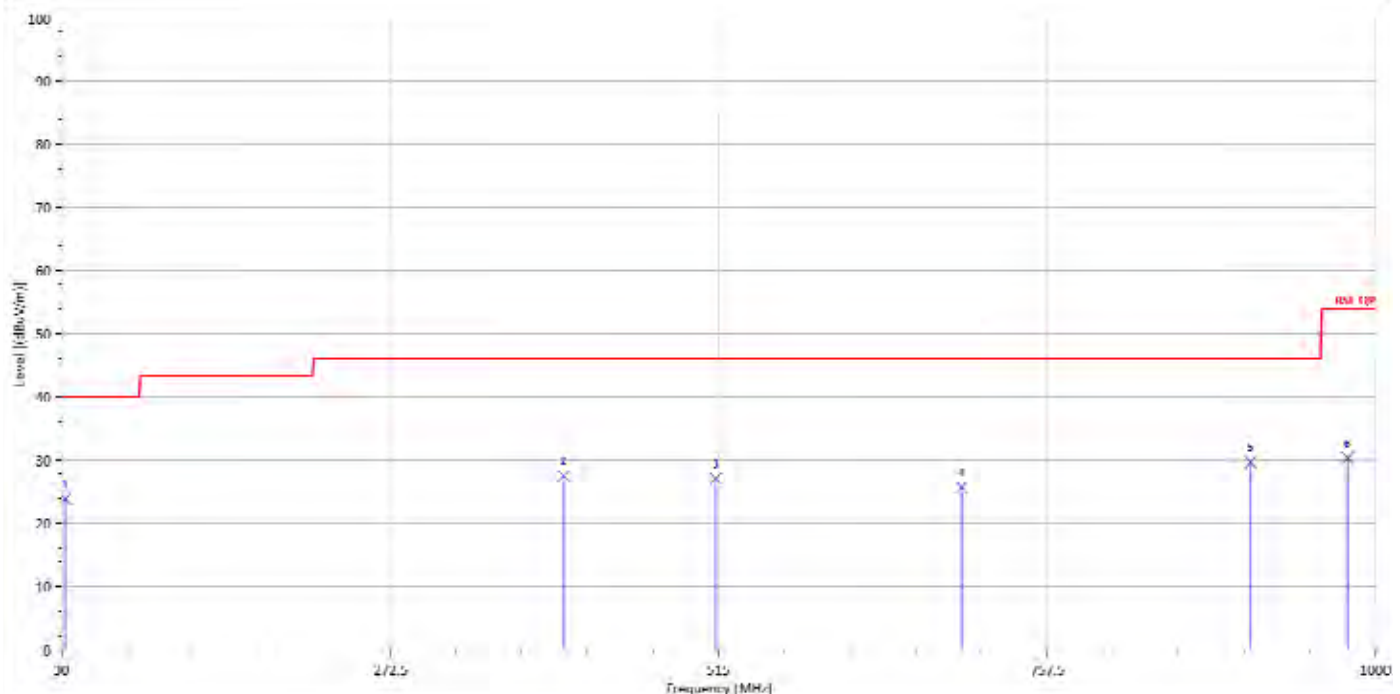
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Operation Mode :	802.11n40B1	Test Date :	2018/5/8
Fundamental Frequency :	5190 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
32.91	S	Peak	32.66	-8.75	23.92	40	-16.08
400.54	S	Peak	37.36	-9.76	27.59	46	-18.41
513.06	S	Peak	34.81	-7.67	27.14	46	-18.86
694.45	S	Peak	31.04	-5.28	25.76	46	-20.24
907.85	S	Peak	31.51	-1.86	29.66	46	-16.34
979.63	S	Peak	31.18	-0.90	30.28	54	-23.72

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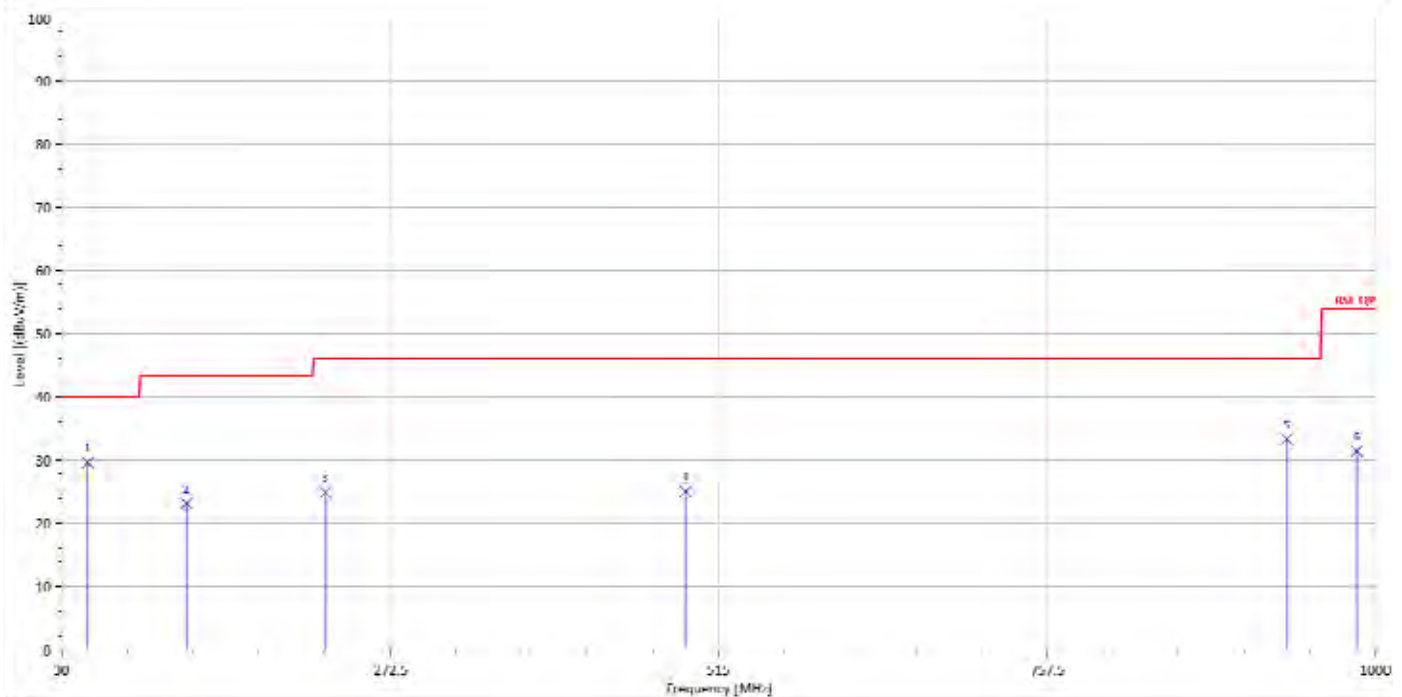
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Operation Mode :	802.11n40B4	Test Date :	2018/5/8
Fundamental Frequency :	5755 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
49.40	S	Peak	48.64	-19.04	29.60	40	-10.40
122.15	S	Peak	38.94	-15.77	23.17	43.5	-20.33
224.97	S	Peak	41.67	-16.74	24.92	46	-21.08
490.75	S	Peak	32.73	-7.68	25.05	46	-20.95
935.01	S	Peak	34.88	-1.59	33.29	46	-12.71
986.42	S	Peak	32.06	-0.65	31.40	54	-22.60

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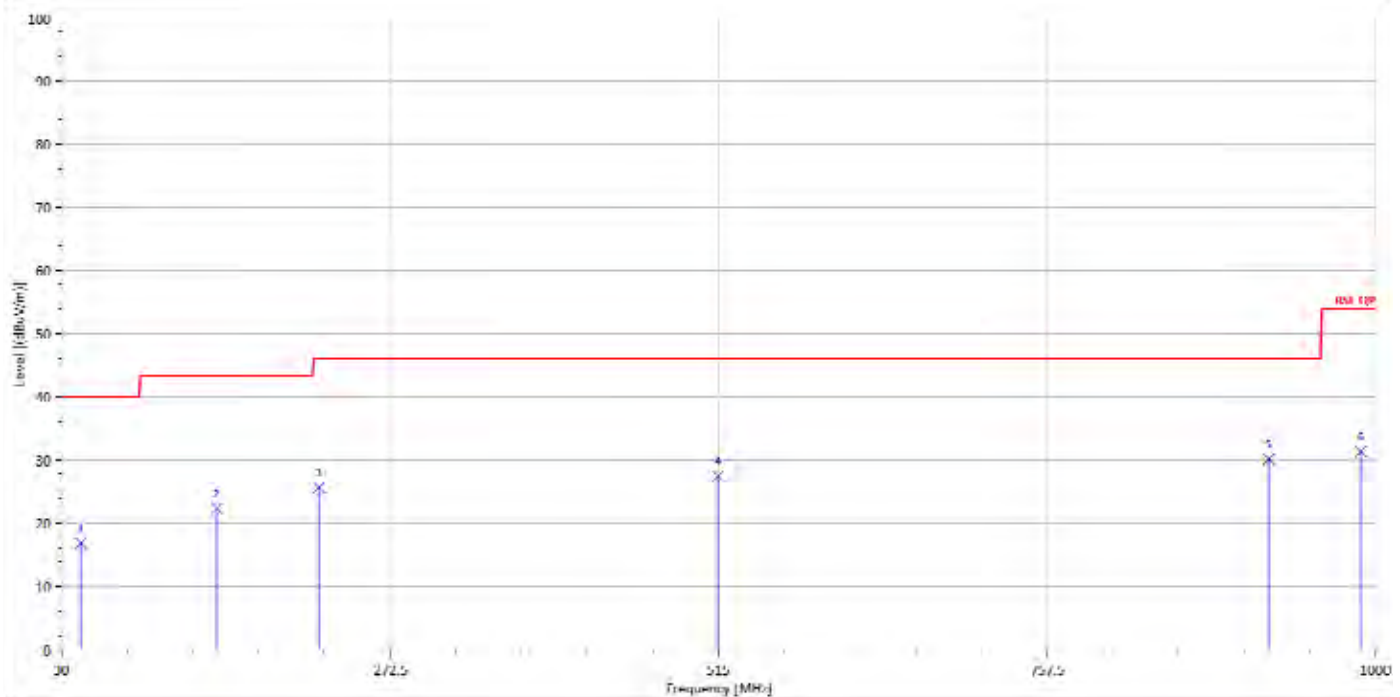
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Operation Mode :	802.11n40B4	Test Date :	2018/5/8
Fundamental Frequency :	5755 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
44.55	S	Peak	32.87	-16.05	16.82	40	-23.18
144.46	S	Peak	38.80	-16.39	22.40	43.5	-21.10
220.12	S	Peak	42.80	-17.09	25.71	46	-20.29
515.00	S	Peak	35.12	-7.58	27.53	46	-18.47
921.43	S	Peak	31.93	-1.80	30.13	46	-15.87
989.33	S	Peak	32.01	-0.66	31.34	54	-22.66

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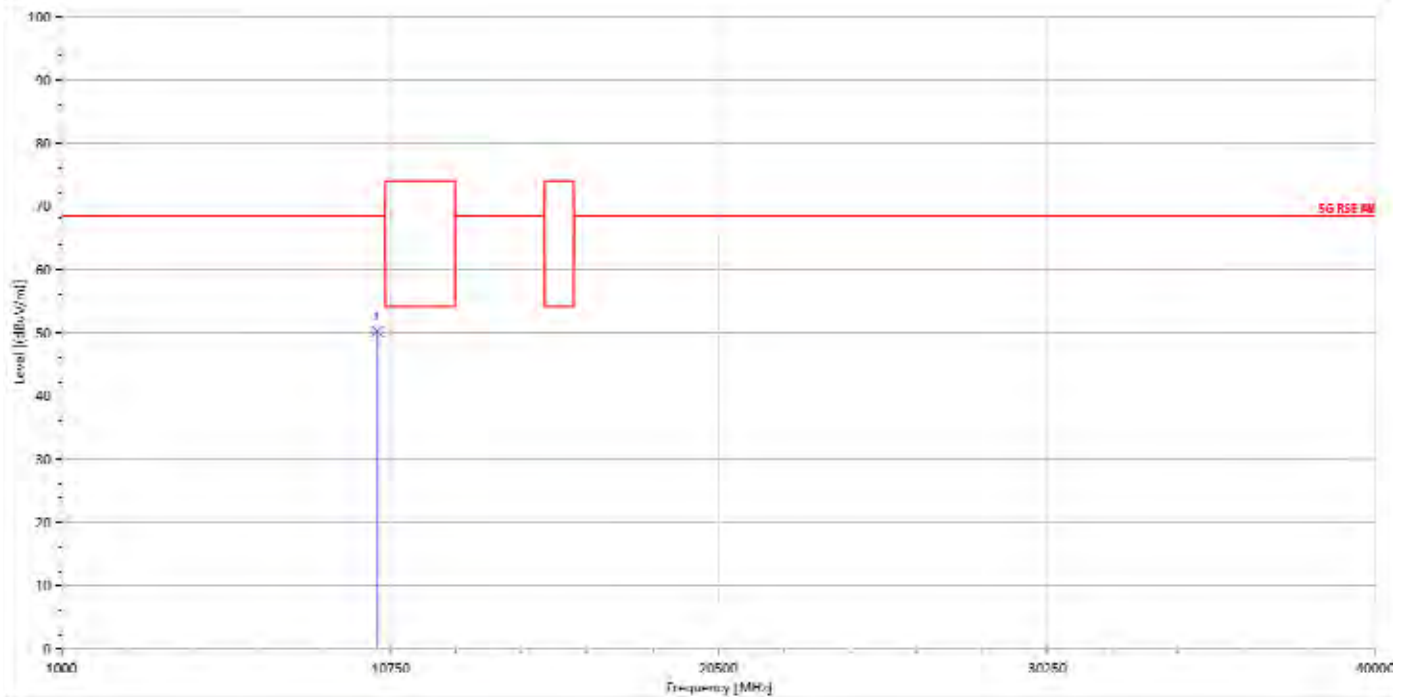
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發射模式 1GHz 以上測試

Operation Mode :	802.11aB1	Test Date :	2018/5/5
Fundamental Frequency :	5180 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
		PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10360.00	H	Peak	30.05	20.18	50.23	68.3	-18.07

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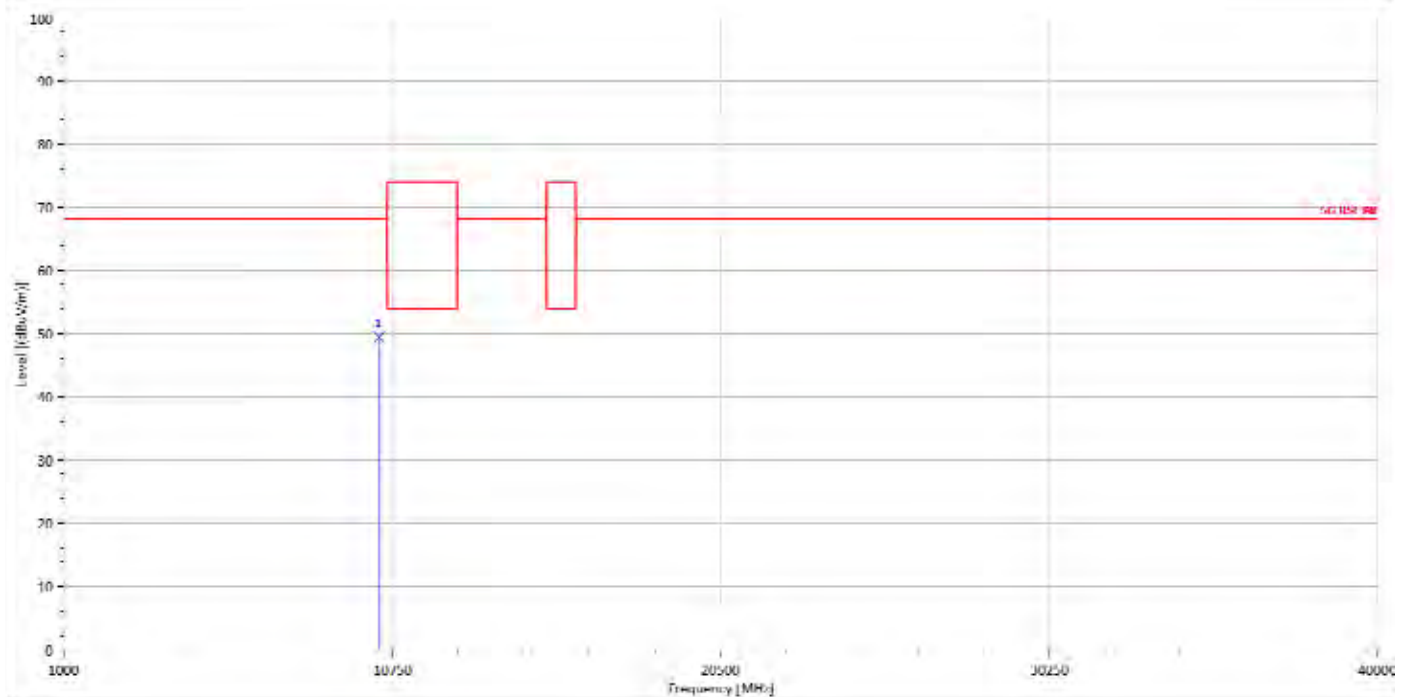
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Operation Mode :	802.11aB1	Test Date :	2018/5/5
Fundamental Frequency :	5180 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10360.00	H	Peak	29.28	20.18	49.46	68.3	-18.84

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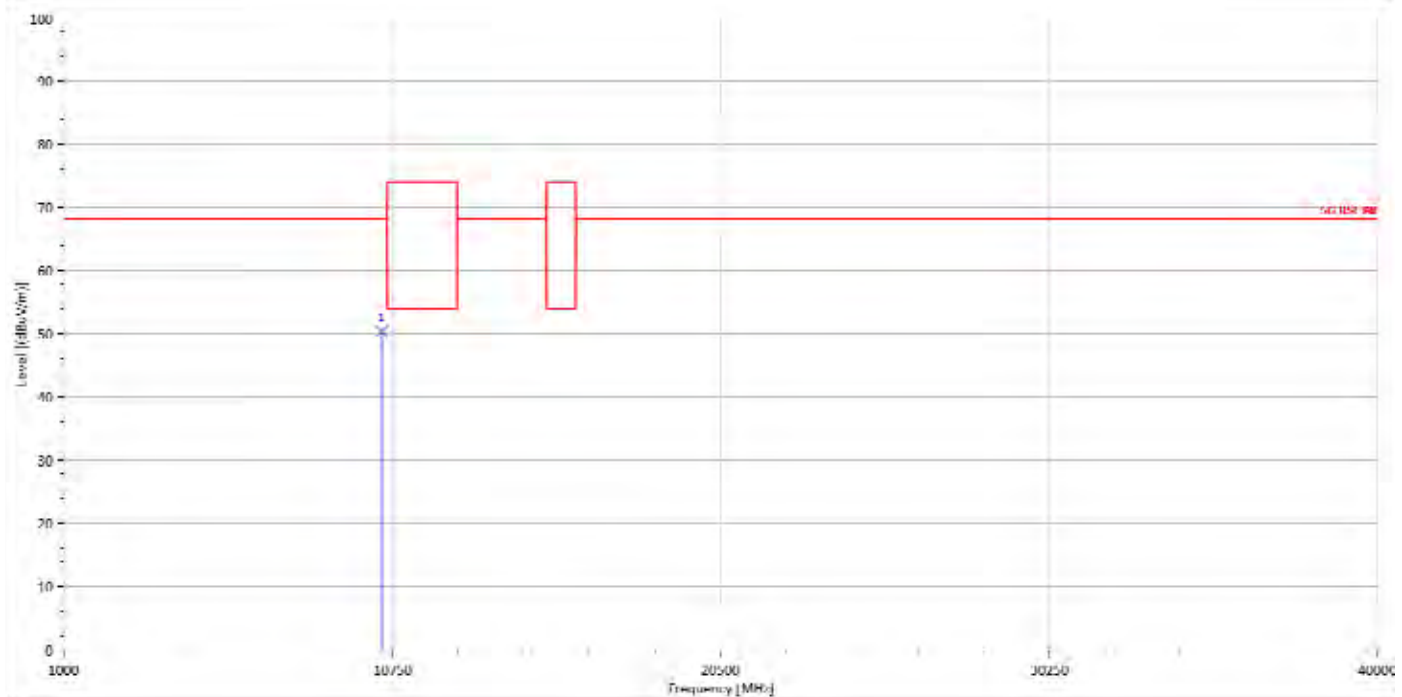
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Operation Mode :	802.11aB1	Test Date :	2018/5/5
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10440.00	H	Peak	30.05	20.29	50.35	68.3	-17.95

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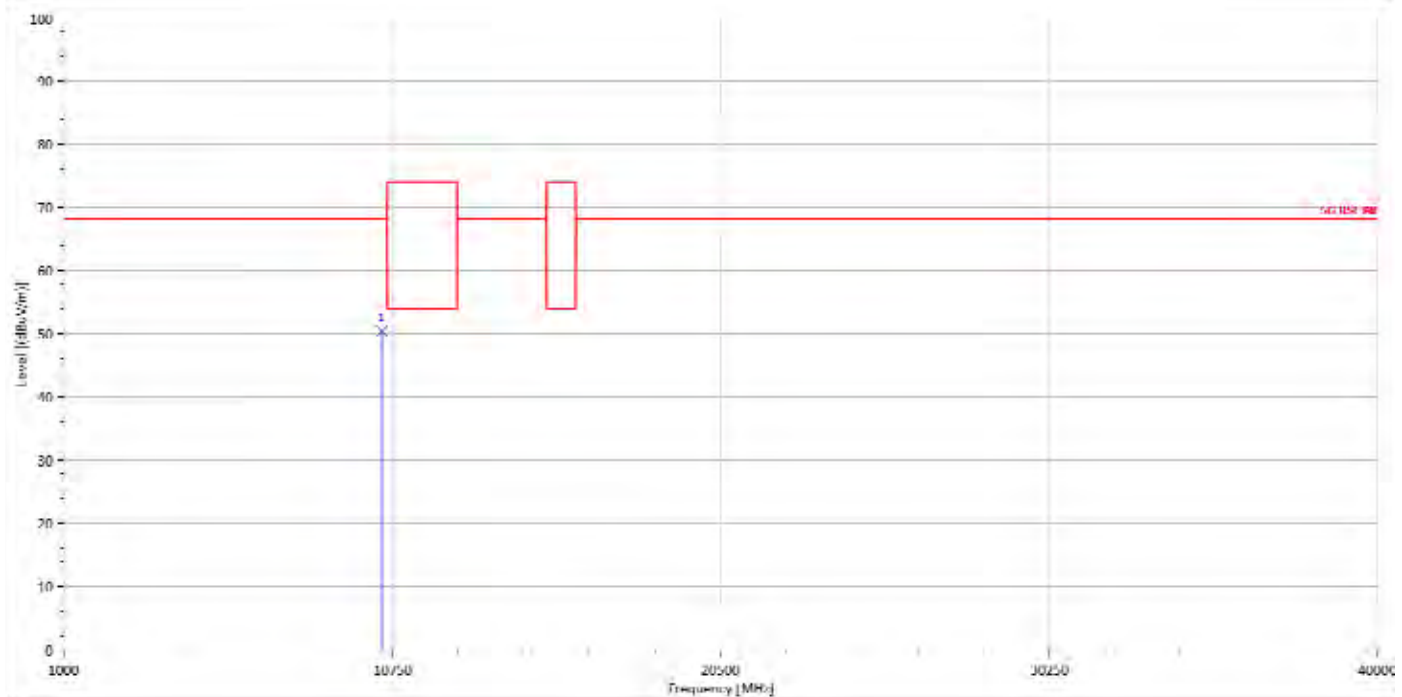
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Operation Mode :	802.11aB1	Test Date :	2018/5/5
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10440.00	H	Peak	30.12	20.29	50.41	68.3	-17.89

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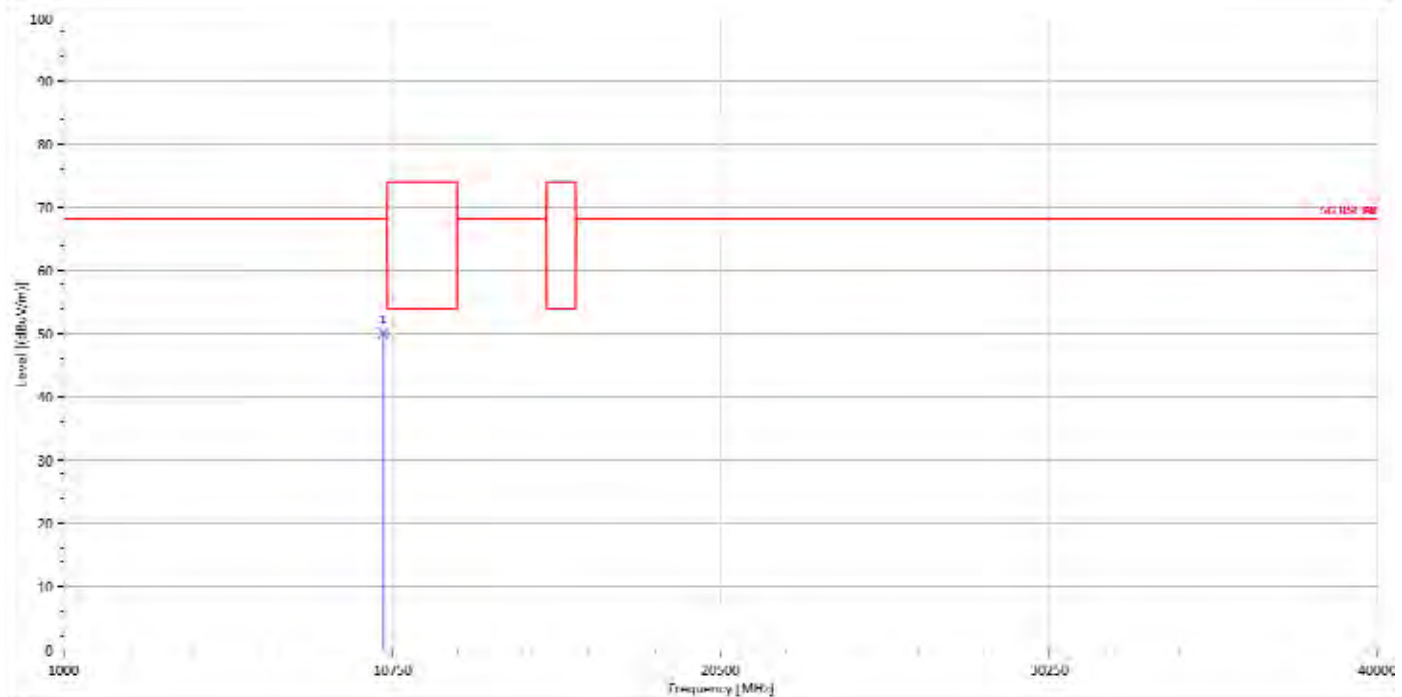
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Operation Mode :	802.11aB1	Test Date :	2018/5/5
Fundamental Frequency :	5240 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10480.00	H	Peak	29.39	20.68	50.07	68.3	-18.23

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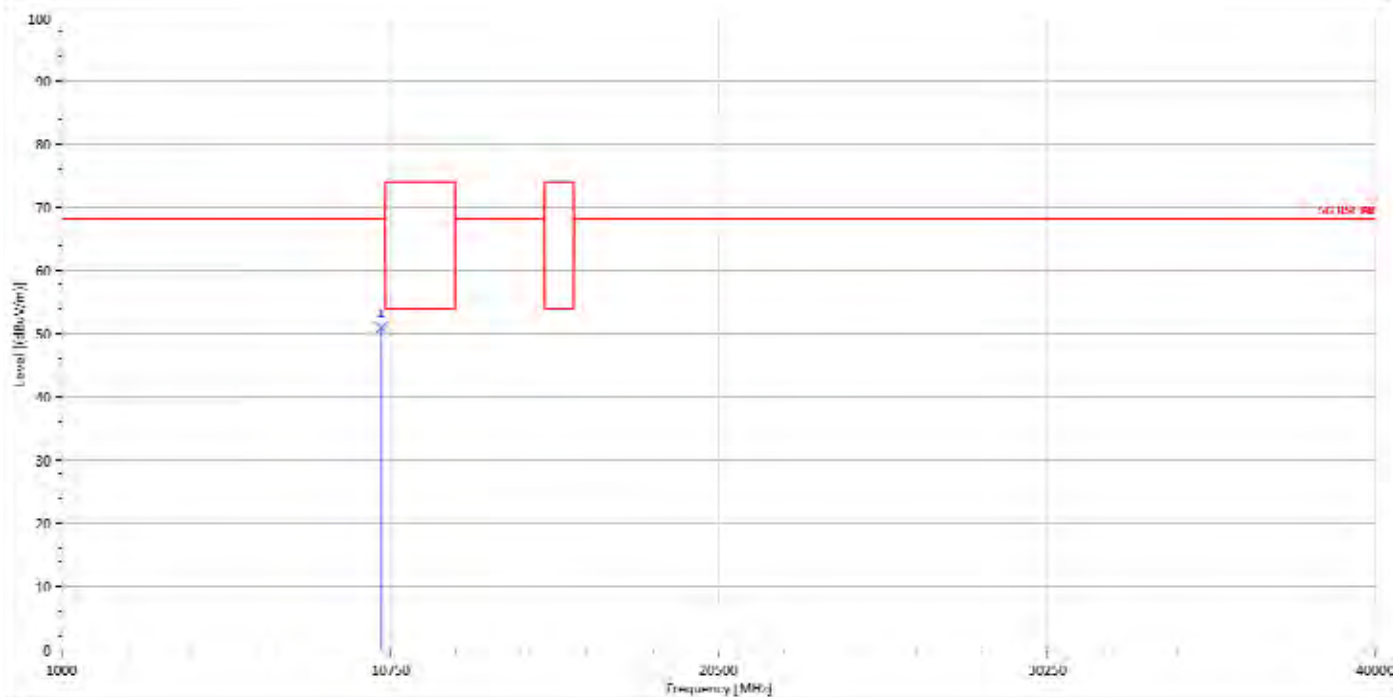
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Operation Mode :	802.11aB1	Test Date :	2018/5/5
Fundamental Frequency :	5240 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10480.00	H	Peak	30.31	20.68	50.99	68.3	-17.31

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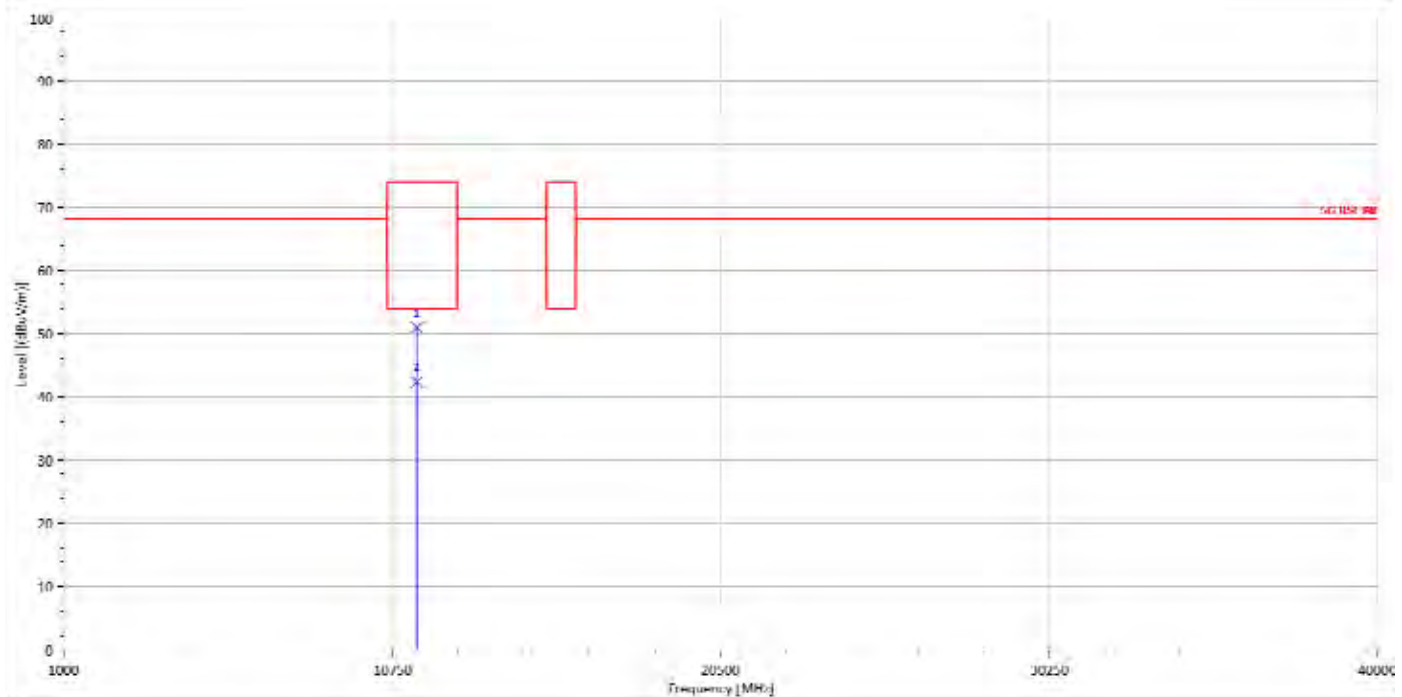
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Operation Mode :	802.11aB4	Test Date :	2018/5/5
Fundamental Frequency :	5745 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11490.00	H	Peak	30.32	20.70	51.03	74	-22.97
11490.00	H	Peak	21.75	20.70	42.45	74	-31.55

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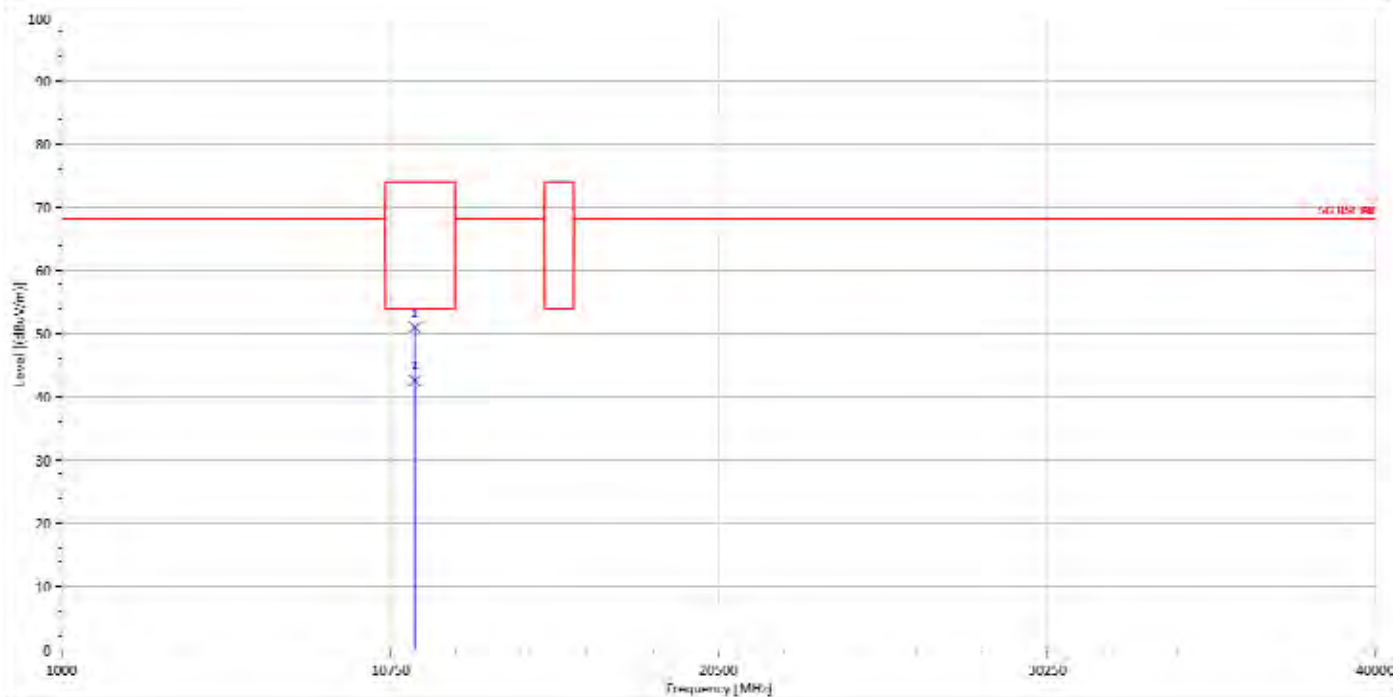
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Operation Mode :	802.11aB4	Test Date :	2018/5/5
Fundamental Frequency :	5745 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11490.00	H	Peak	30.34	20.70	51.05	74	-22.95
11490.00	H	Average	21.95	20.70	42.65	54	-11.35

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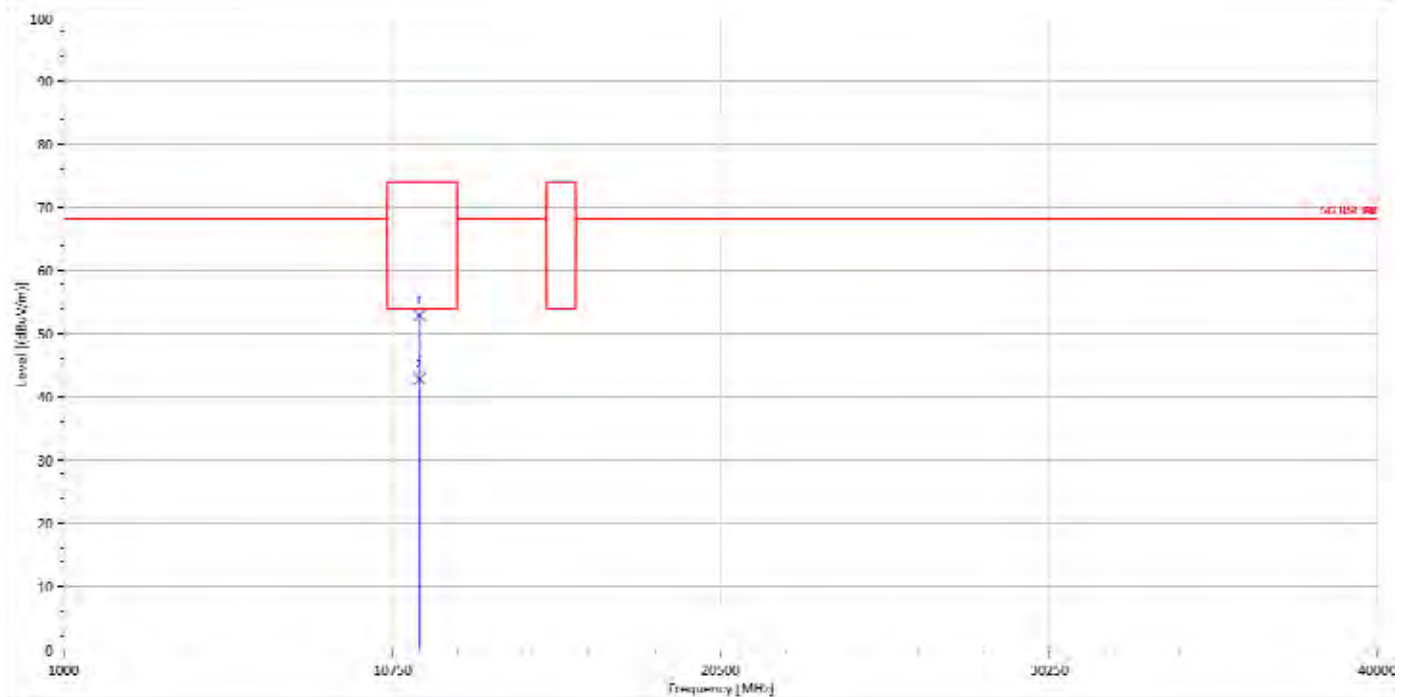
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Operation Mode :	802.11aB4	Test Date :	2018/5/5
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11570.00	H	Peak	31.50	21.44	52.94	74	-21.06
11570.00	H	Average	21.49	21.44	42.93	54	-11.07

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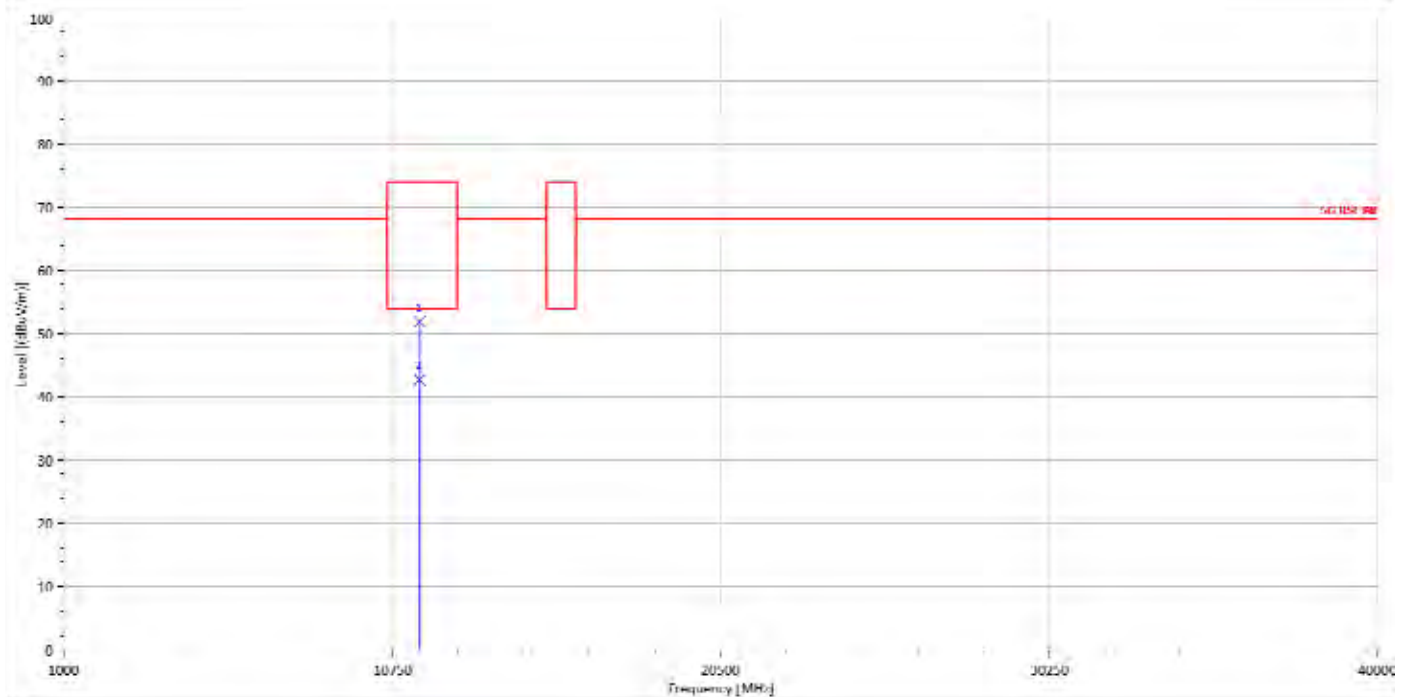
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Operation Mode :	802.11aB4	Test Date :	2018/5/5
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11570.00	H	Peak	30.50	21.44	51.95	74	-22.05
11570.00	H	Average	21.34	21.44	42.78	54	-11.22

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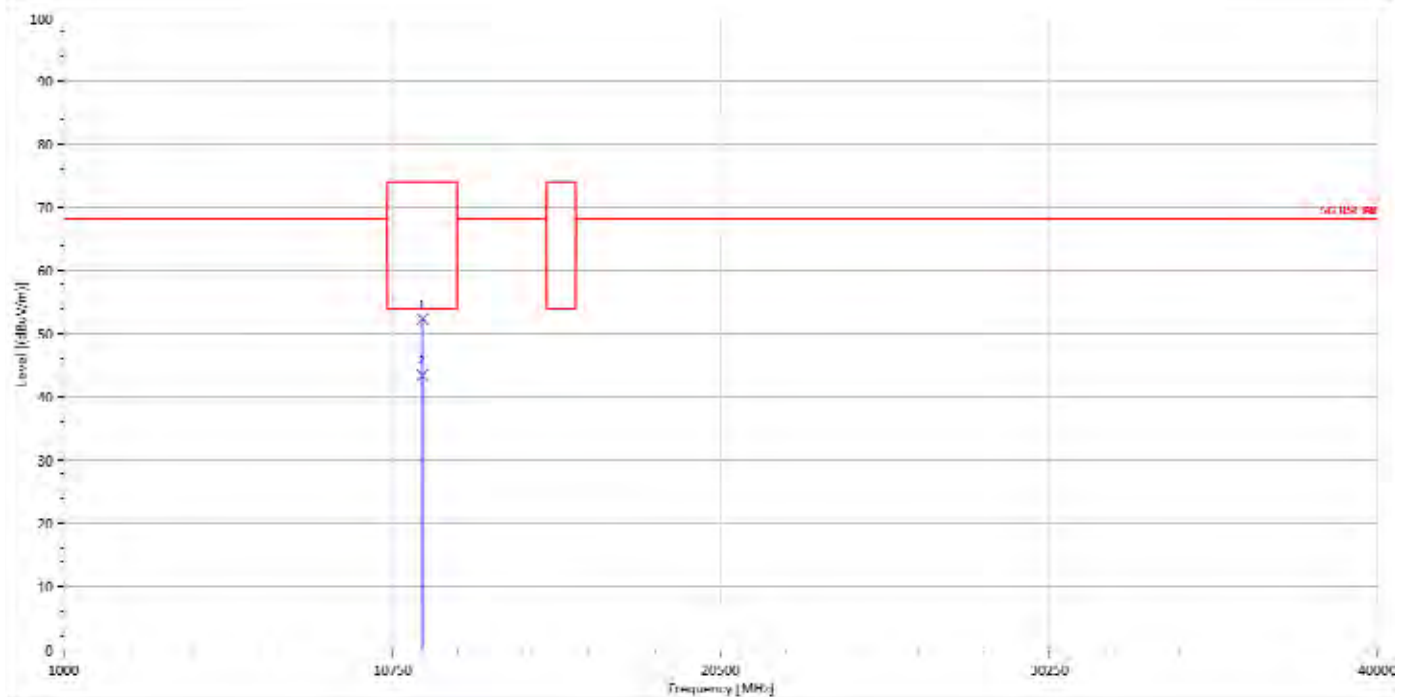
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Operation Mode :	802.11aB4	Test Date :	2018/5/5
Fundamental Frequency :	5825 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11650.00	H	Peak	30.37	22.02	52.39	74	-21.61
11650.00	H	Average	21.42	22.02	43.44	54	-10.56

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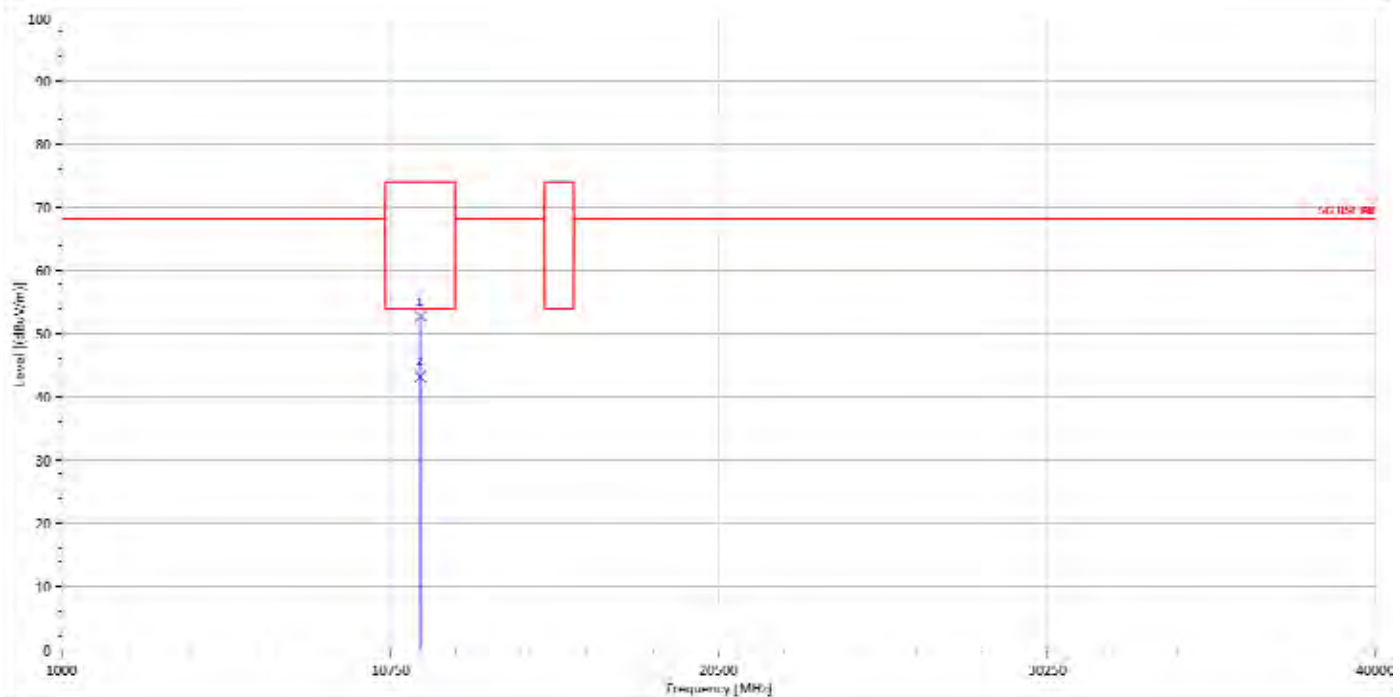
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Operation Mode :	802.11aB4	Test Date :	2018/5/5
Fundamental Frequency :	5825 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11650.00	H	Peak	30.77	22.02	52.79	74	-21.21
11650.00	H	Average	21.25	22.02	43.27	54	-10.73

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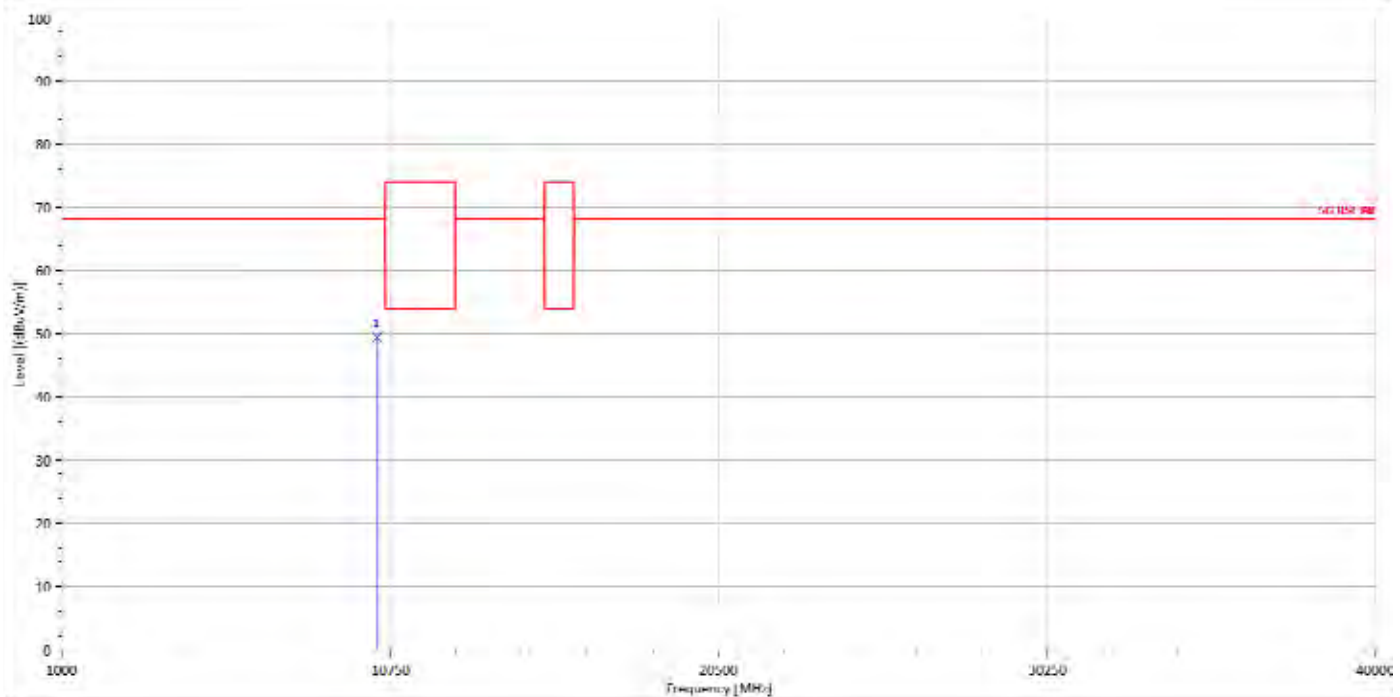
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Operation Mode :	802.11n20B1	Test Date :	2018/5/5
Fundamental Frequency :	5180 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10360.00	H	Peak	29.24	20.18	49.41	68.3	-18.89

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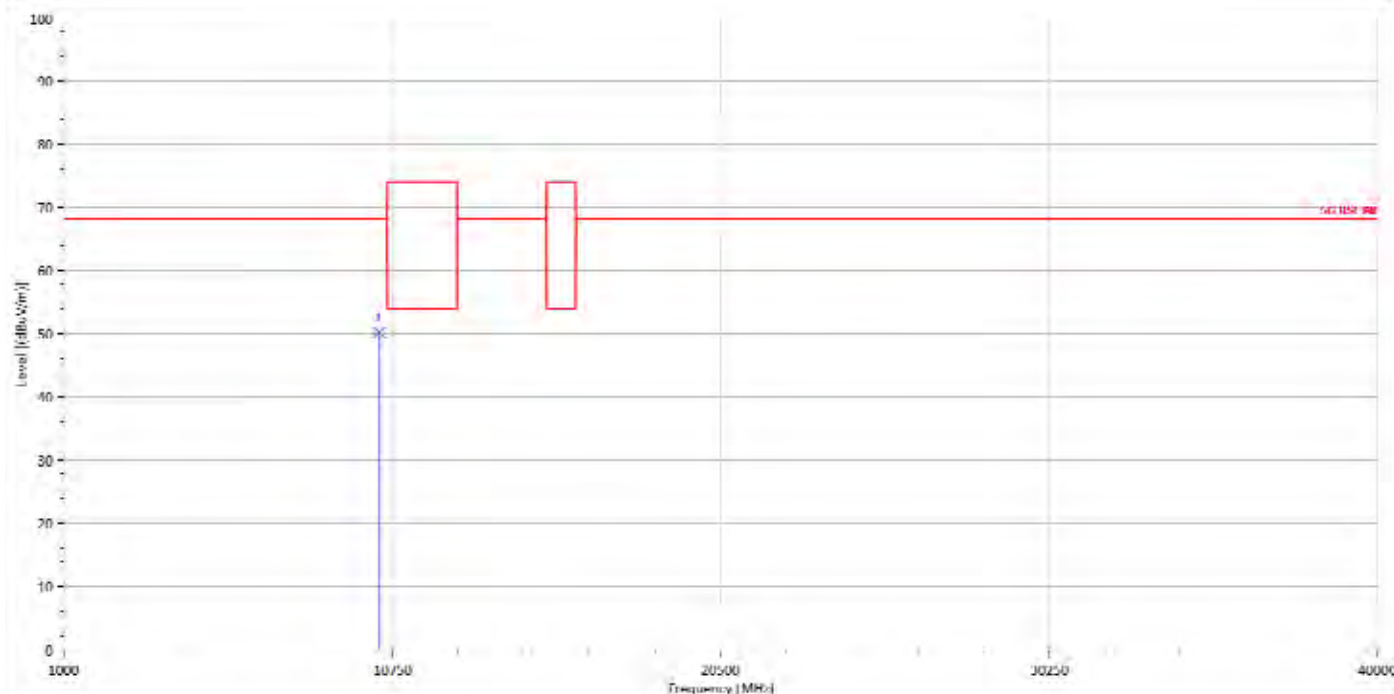
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Fundamental Frequency :	5180 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10360.00	H	Peak	30.03	20.18	50.20	68.3	-18.10

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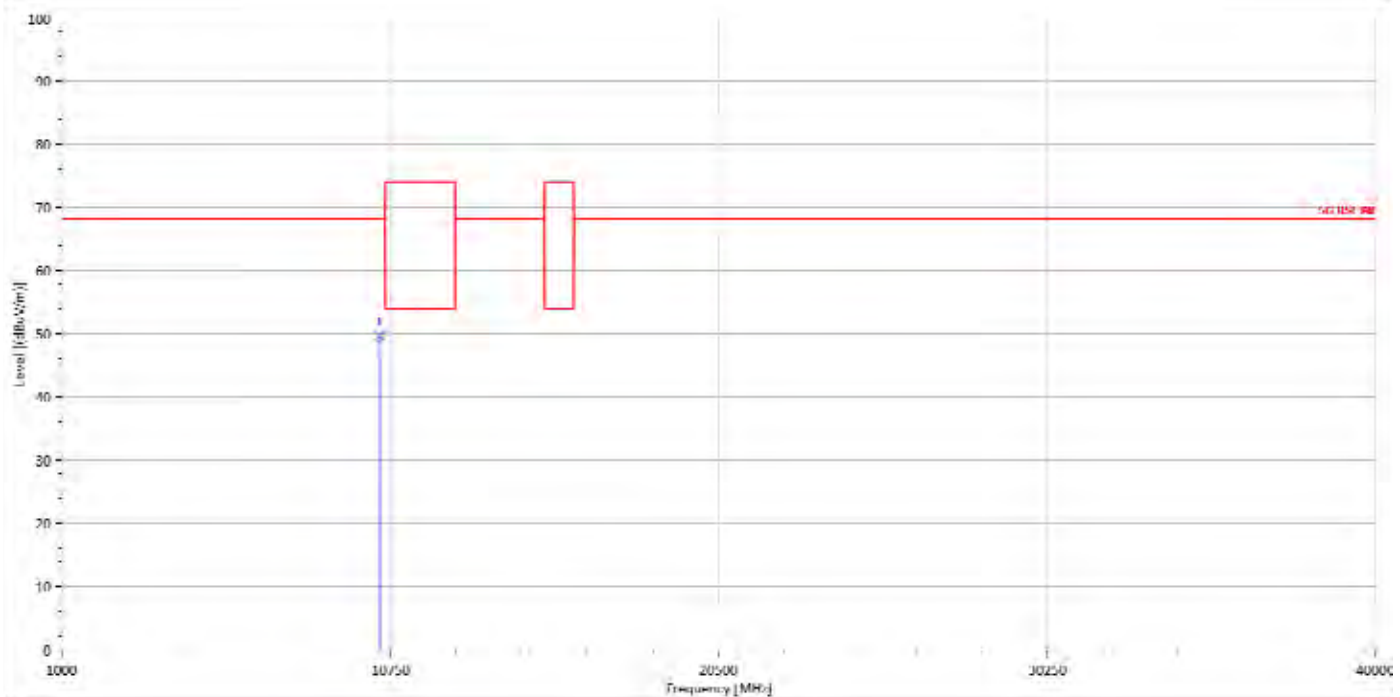
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Operation Mode :	802.11n20B1	Test Date :	2018/5/5
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10440.00	H	Peak	29.38	20.29	49.68	68.3	-18.62

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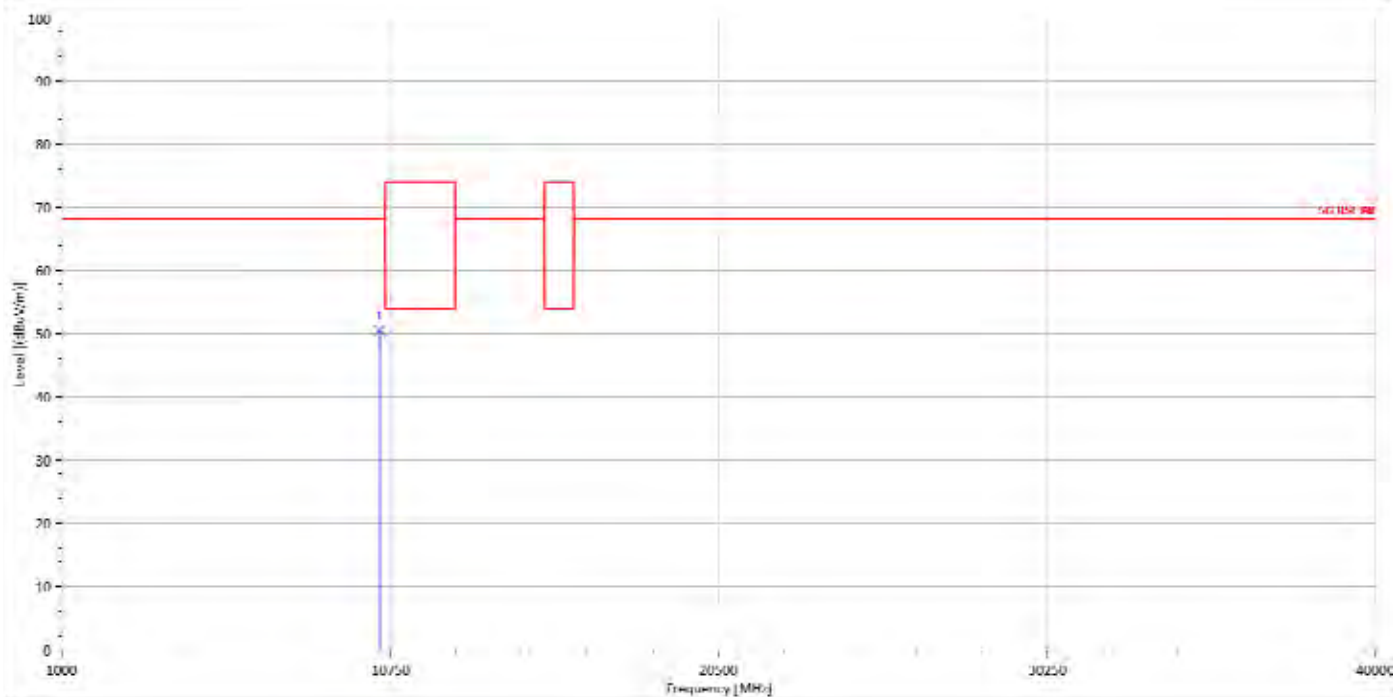
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Operation Mode :	802.11n20B1	Test Date :	2018/5/5
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10440.00	H	Peak	30.25	20.29	50.54	68.3	-17.76

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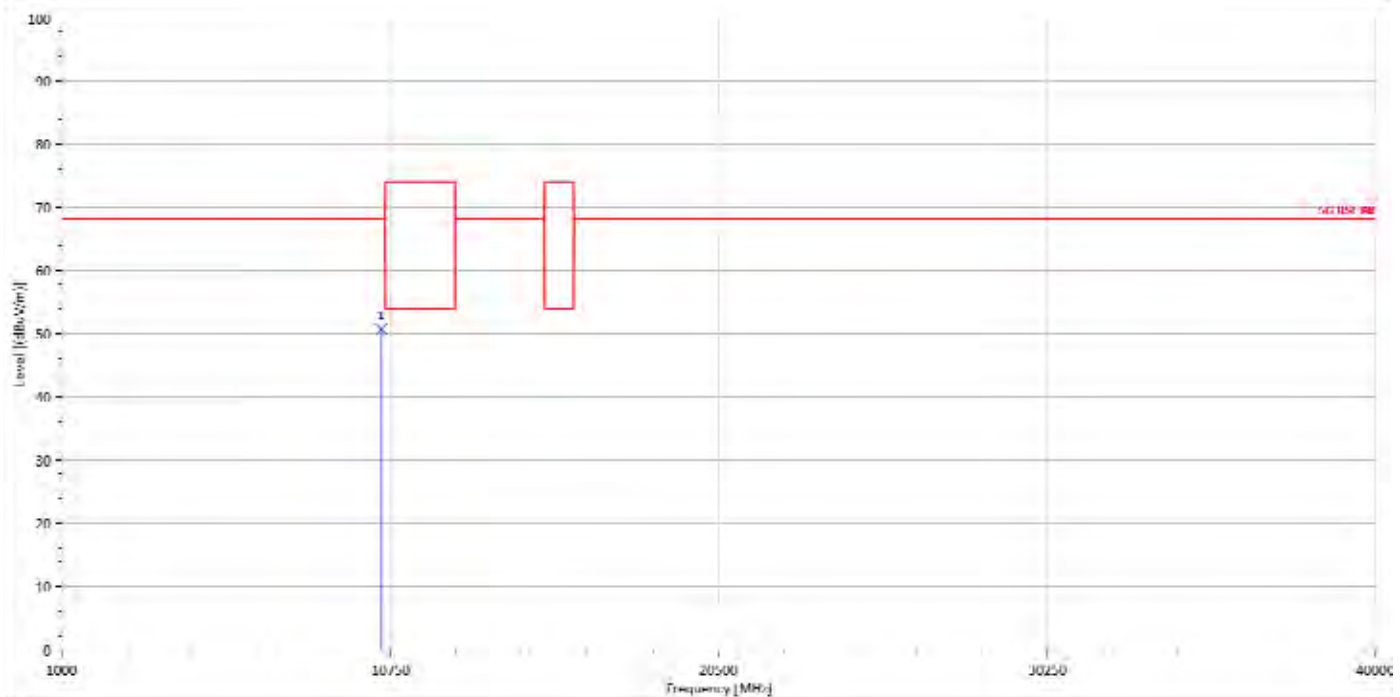
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Operation Mode :	802.11n20B1	Test Date :	2018/5/5
Fundamental Frequency :	5240 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10480.00	H	Peak	30.06	20.68	50.74	68.3	-17.56

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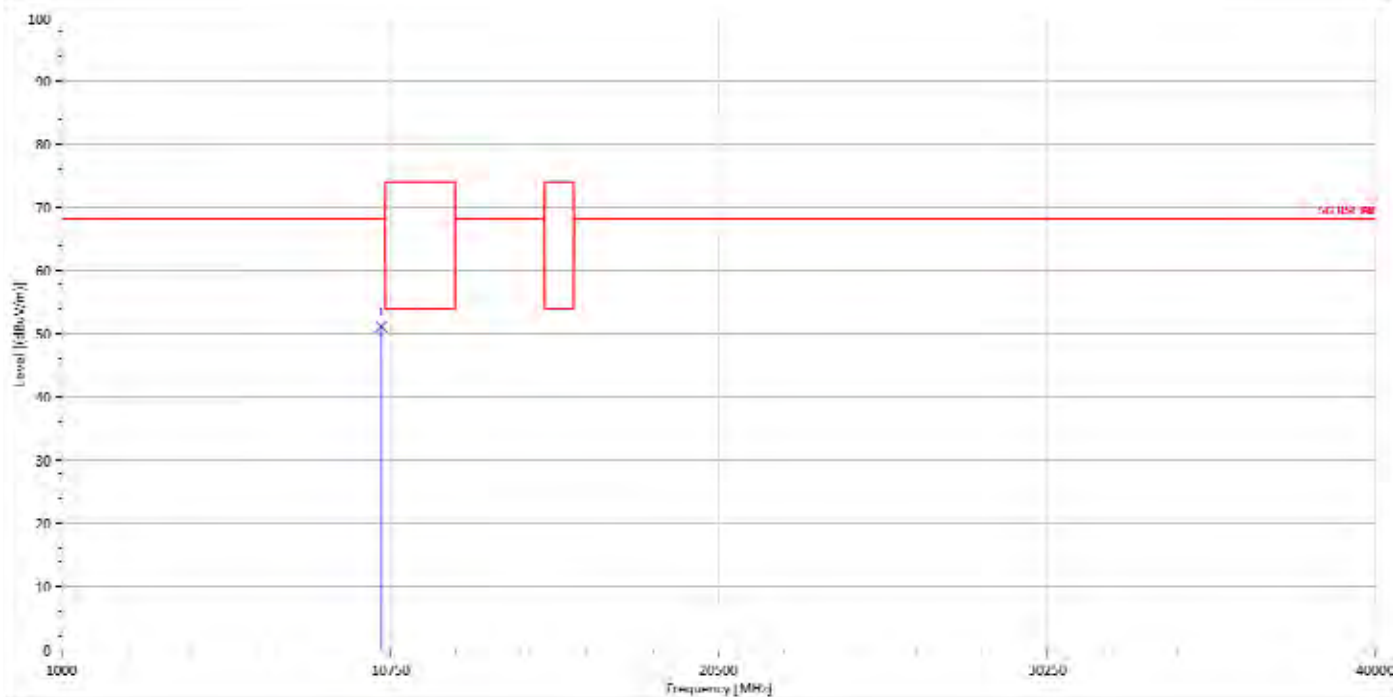
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Operation Mode : 802.11n20B1 Test Date : 2018/5/5
 Fundamental Frequency : 5240 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : Tx CH High Test Engineer : Ashton
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10480.00	H	Peak	30.46	20.68	51.13	68.3	-17.17

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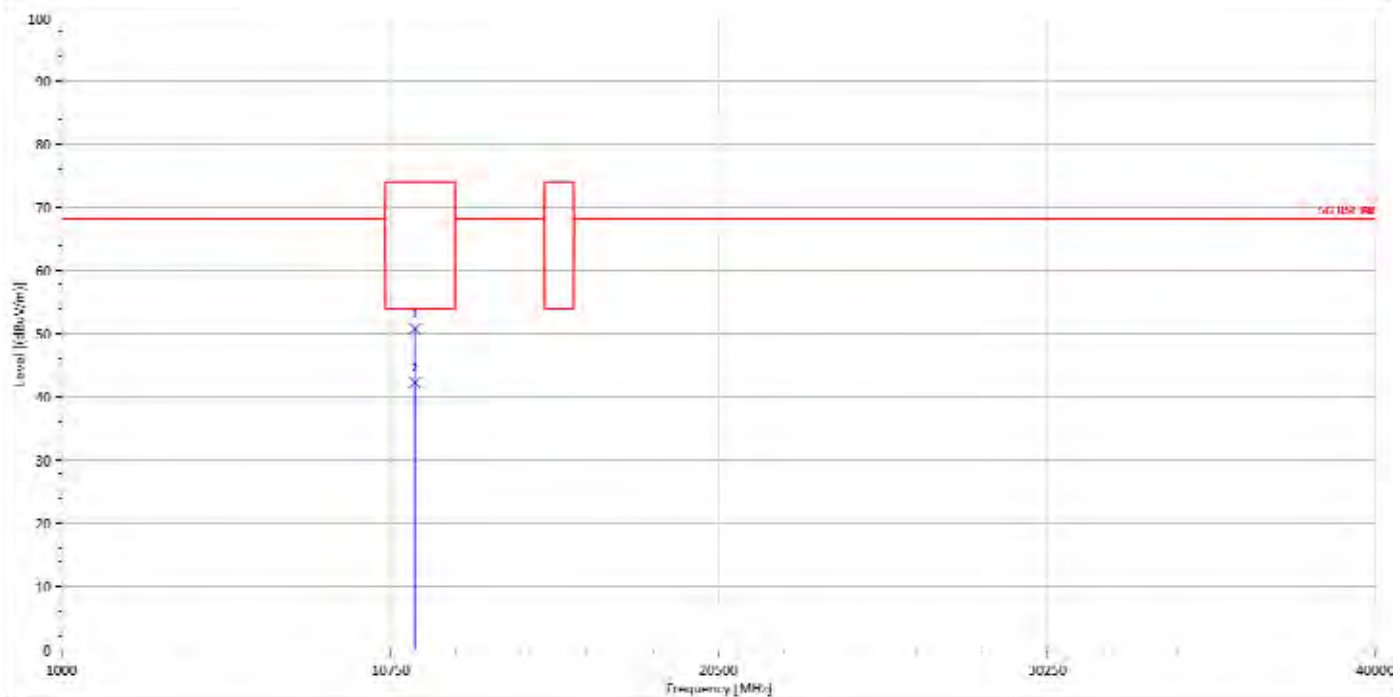
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Operation Mode :	802.11n20B4	Test Date :	2018/5/5
Fundamental Frequency :	5745 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11490.00	H	Peak	30.07	20.70	50.77	74	-23.23
11490.00	H	Average	21.62	20.70	42.32	54	-11.68

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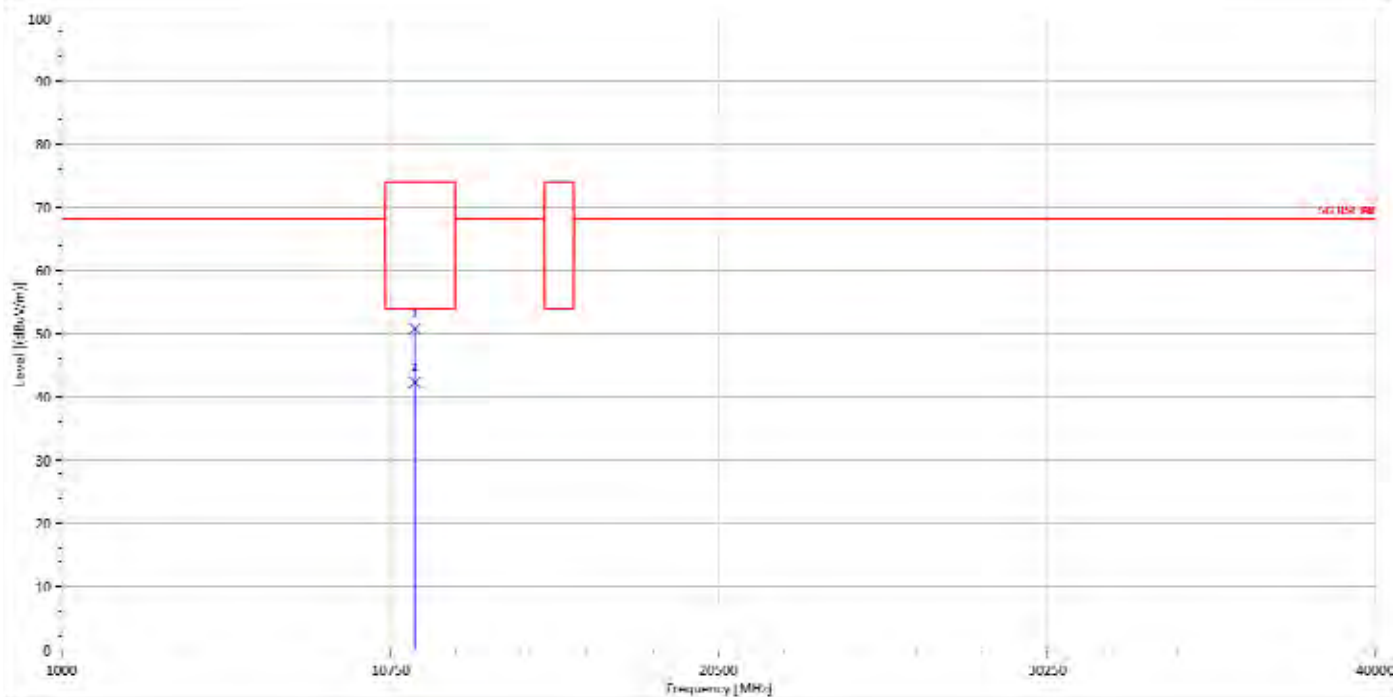
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Operation Mode :	802.11n20B4	Test Date :	2018/5/5
Fundamental Frequency :	5745 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11490.00	H	Peak	30.09	20.70	50.79	74	-23.21
11490.00	H	Average	21.66	20.70	42.36	54	-11.64

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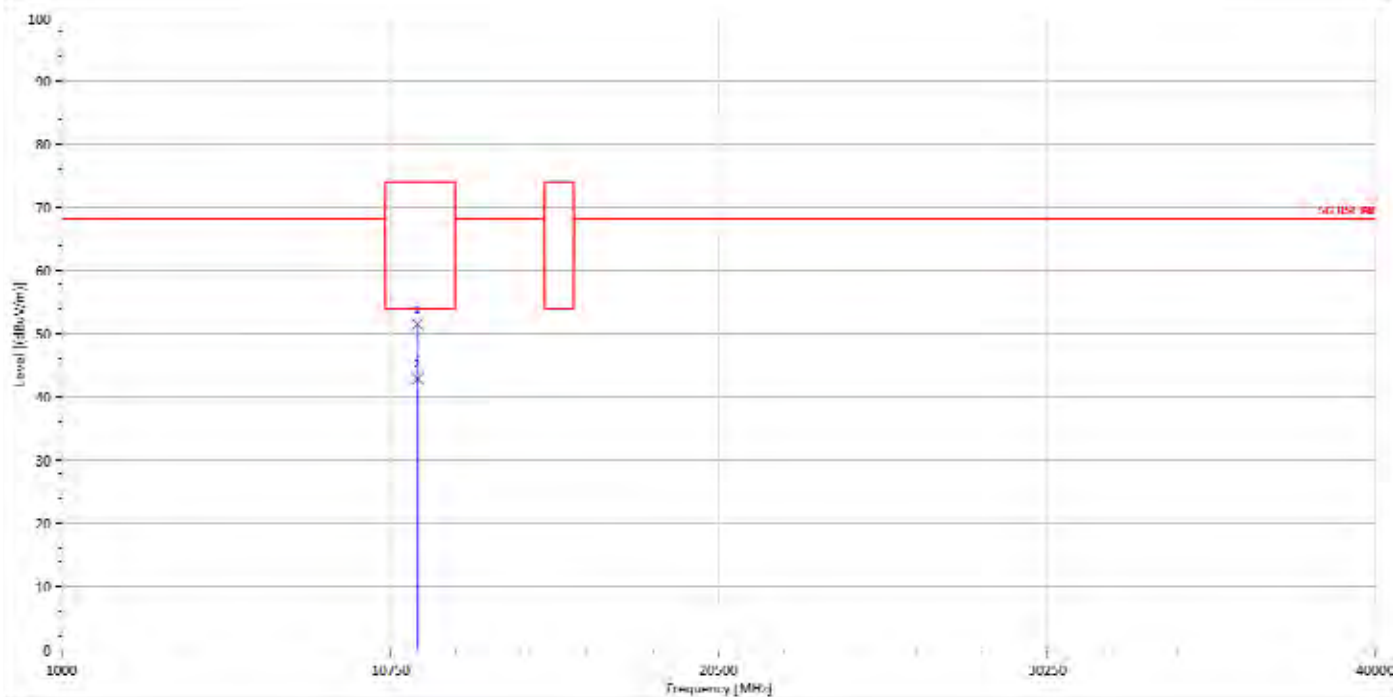
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Operation Mode :	802.11n20B4	Test Date :	2018/5/5
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11570.00	H	Peak	30.10	21.44	51.54	74	-22.46
11570.00	H	Average	21.51	21.44	42.95	54	-11.05

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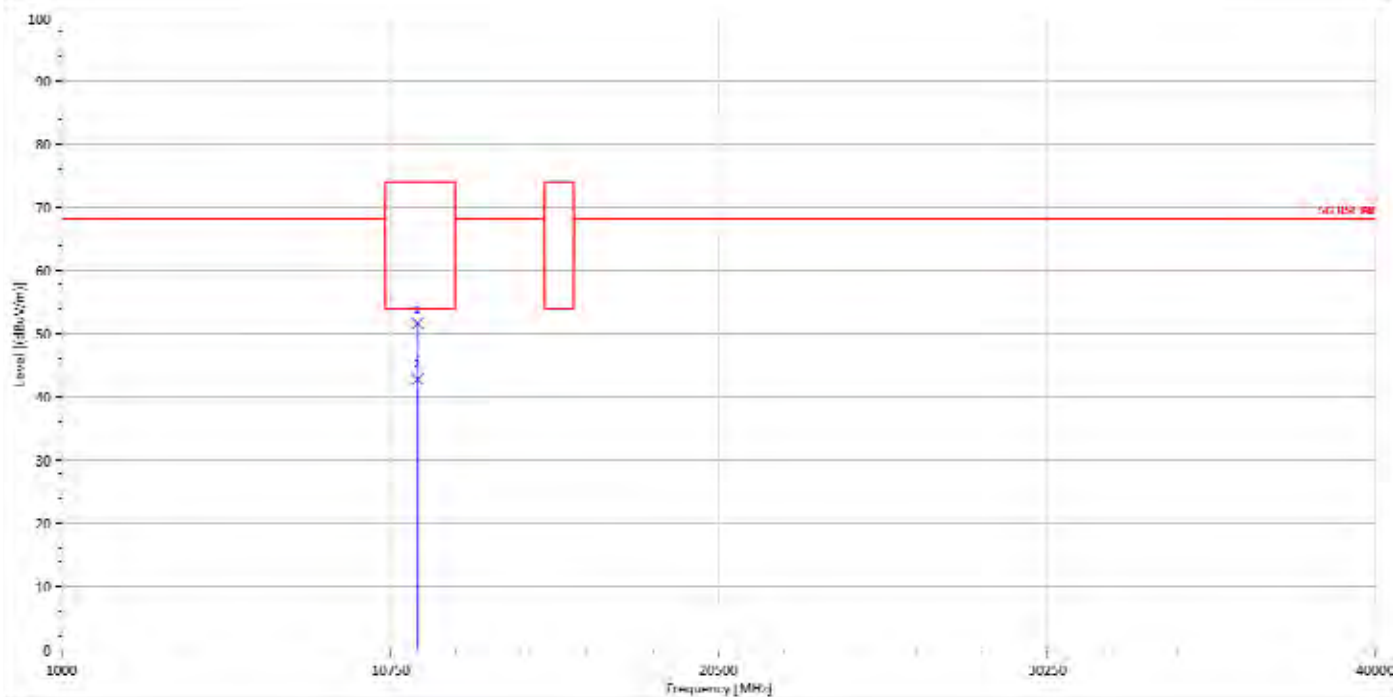
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Operation Mode : 802.11n20B4 Test Date : 2018/5/5
 Fundamental Frequency : 5785 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : Tx CH Mid Test Engineer : Ashton
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11570.00	H	Peak	30.22	21.44	51.66	74	-22.34
11570.00	H	Average	21.45	21.44	42.89	54	-11.11

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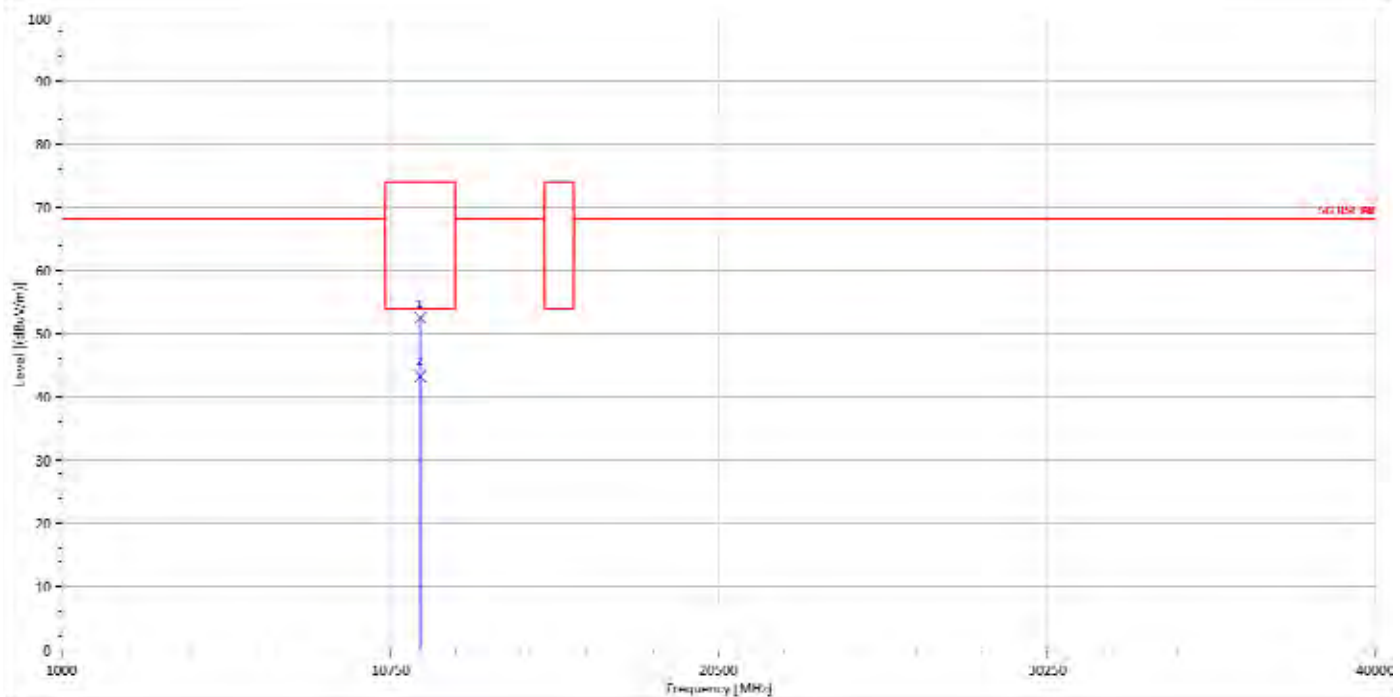
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Operation Mode :	802.11n20B4	Test Date :	2018/5/5
Fundamental Frequency :	5825 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11650.00	H	Peak	30.53	22.02	52.55	74	-21.45
11650.00	H	Average	21.27	22.02	43.29	54	-10.71

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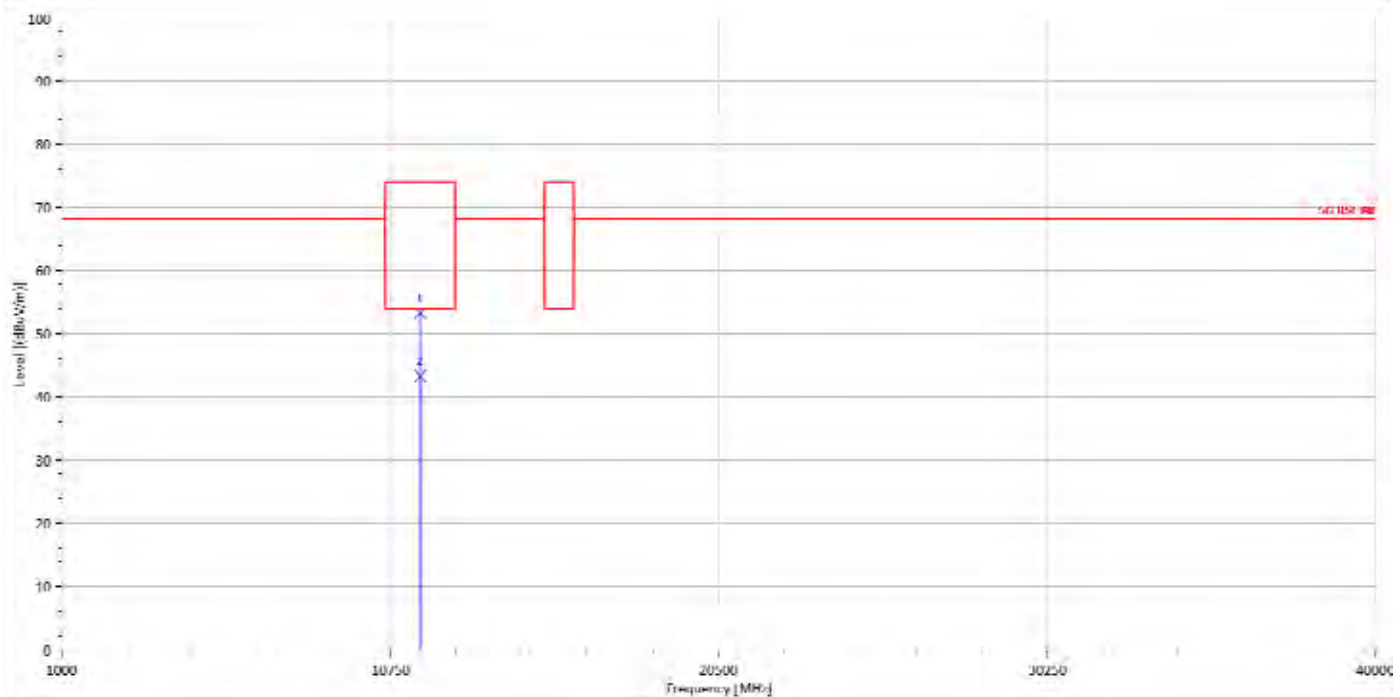
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Operation Mode :	802.11n20B4	Test Date :	2018/5/5
Fundamental Frequency :	5825 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11650.00	H	Peak	31.29	22.02	53.31	74	-20.69
11650.00	H	Average	21.31	22.02	43.33	54	-10.67

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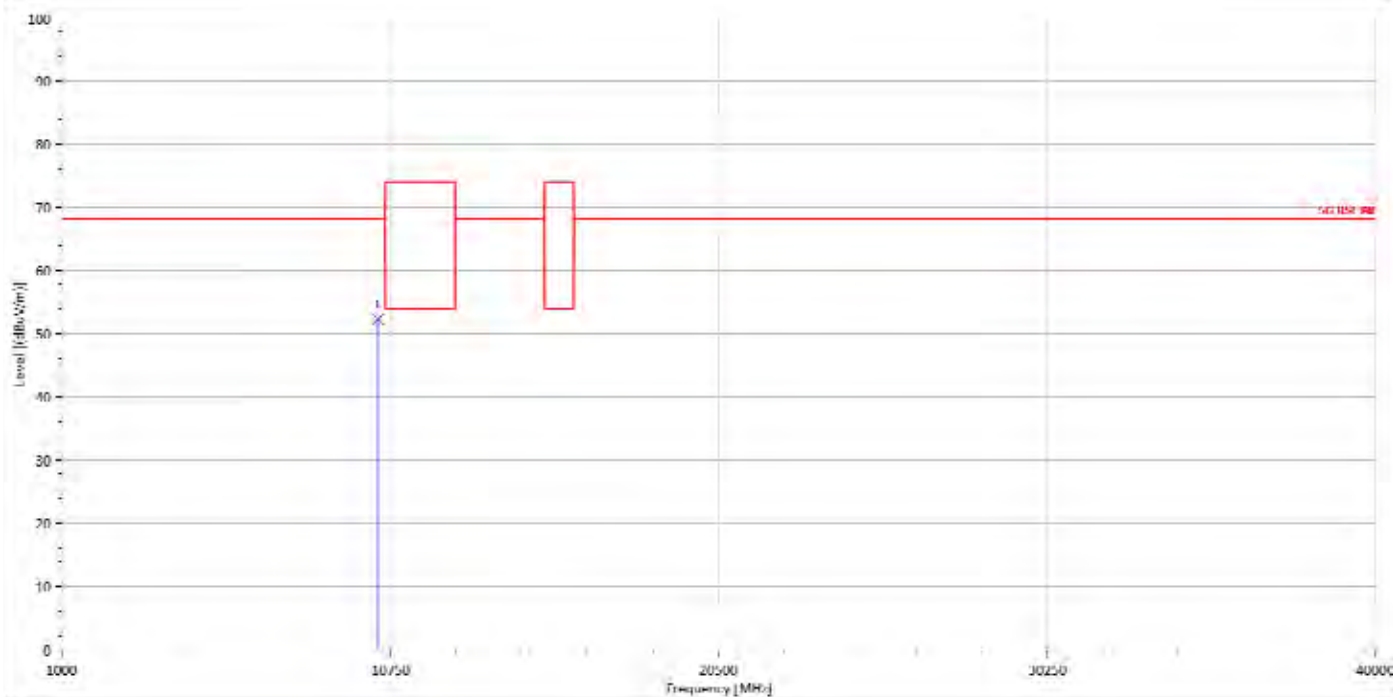
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Operation Mode :	802.11n40B1	Test Date :	2018/5/5
Fundamental Frequency :	5190 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10380.00	H	Peak	31.37	20.95	52.33	68.3	-15.97

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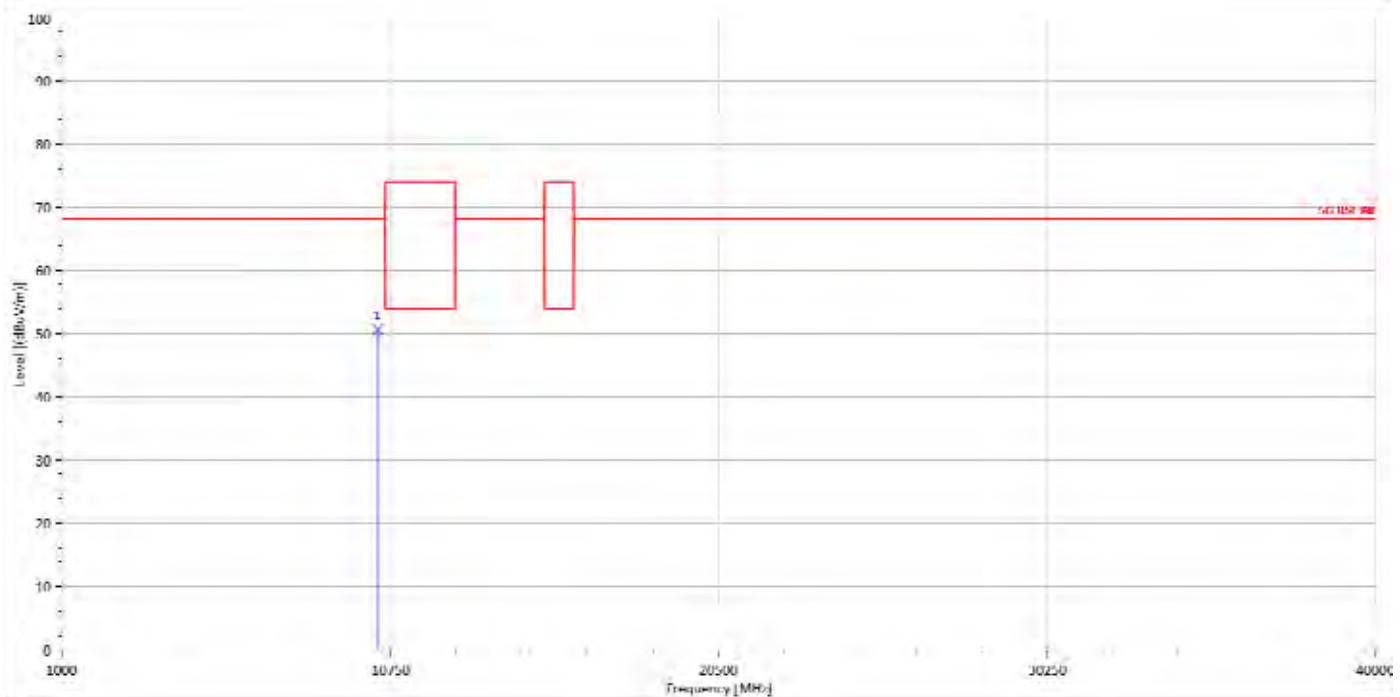
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Operation Mode :	802.11n40B1	Test Date :	2018/5/5
Fundamental Frequency :	5190 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10380.00	H	Peak	29.74	20.95	50.70	68.3	-17.60

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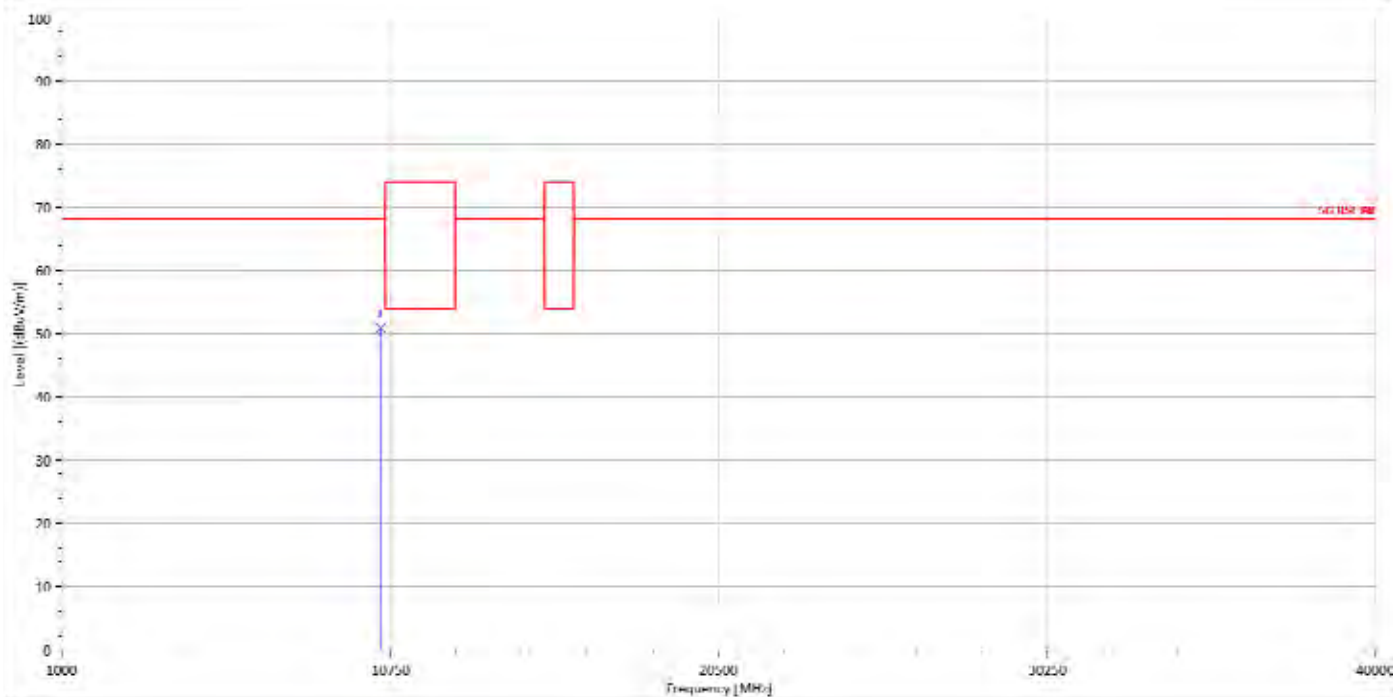
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Operation Mode :	802.11n40B1	Test Date :	2018/5/5
Fundamental Frequency :	5230 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10460.00	H	Peak	29.96	20.95	50.91	68.3	-17.39

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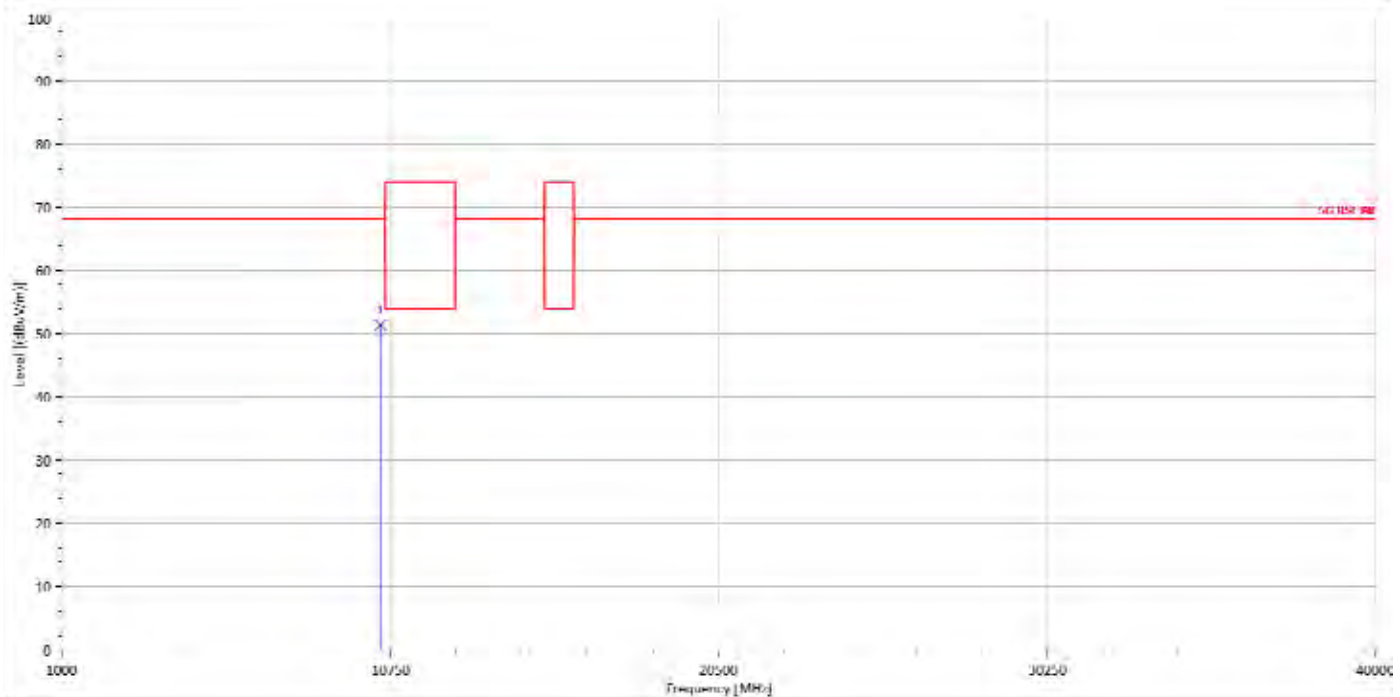
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Operation Mode :	802.11n40B1	Test Date :	2018/5/5
Fundamental Frequency :	5230 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10460.00	H	Peak	30.44	20.95	51.39	68.3	-16.91

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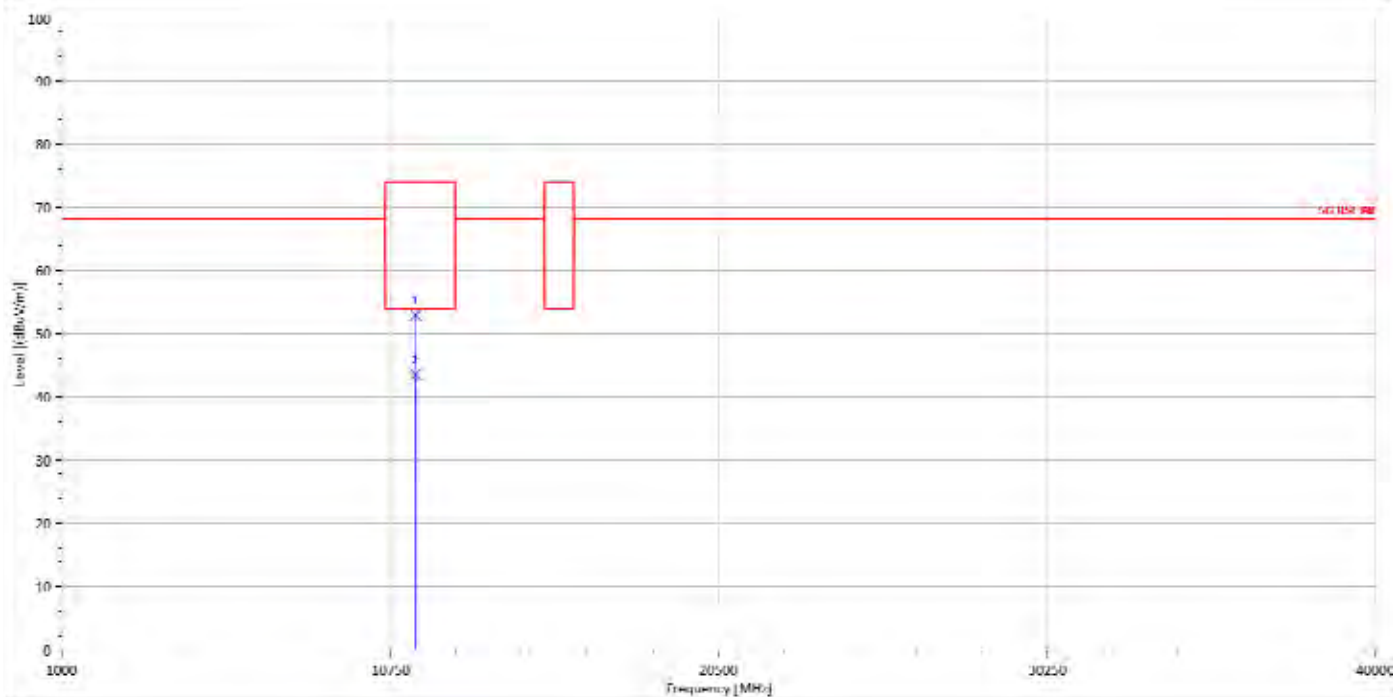
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Operation Mode :	802.11n40B4	Test Date :	2018/5/5
Fundamental Frequency :	5755 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11510.00	H	Peak	30.80	22.17	52.97	74	-21.03
11510.00	H	Average	21.40	22.17	43.57	54	-10.43

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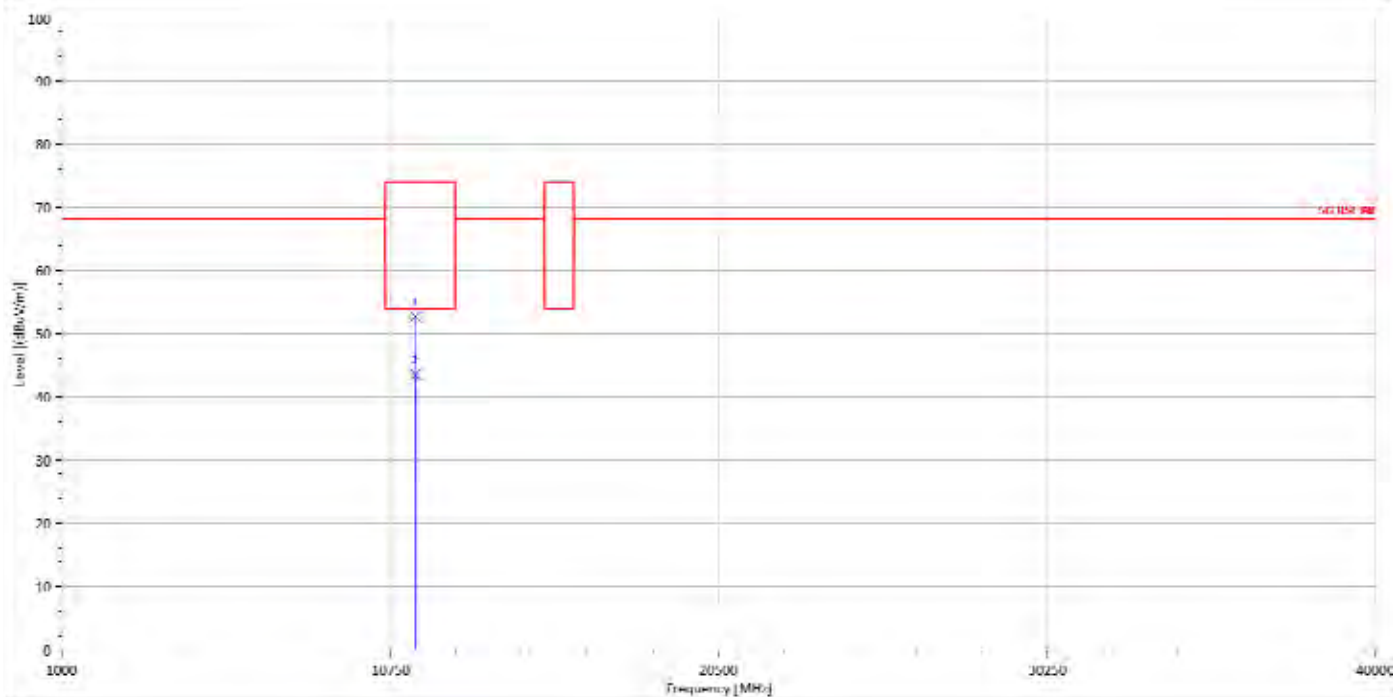
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Operation Mode : 802.11n40B4 Test Date : 2018/5/5
 Fundamental Frequency : 5755 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : Tx CH Low Test Engineer : Ashton
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11510.00	H	Peak	30.56	22.17	52.72	74	-21.28
11510.00	H	Average	21.38	22.17	43.55	54	-10.45

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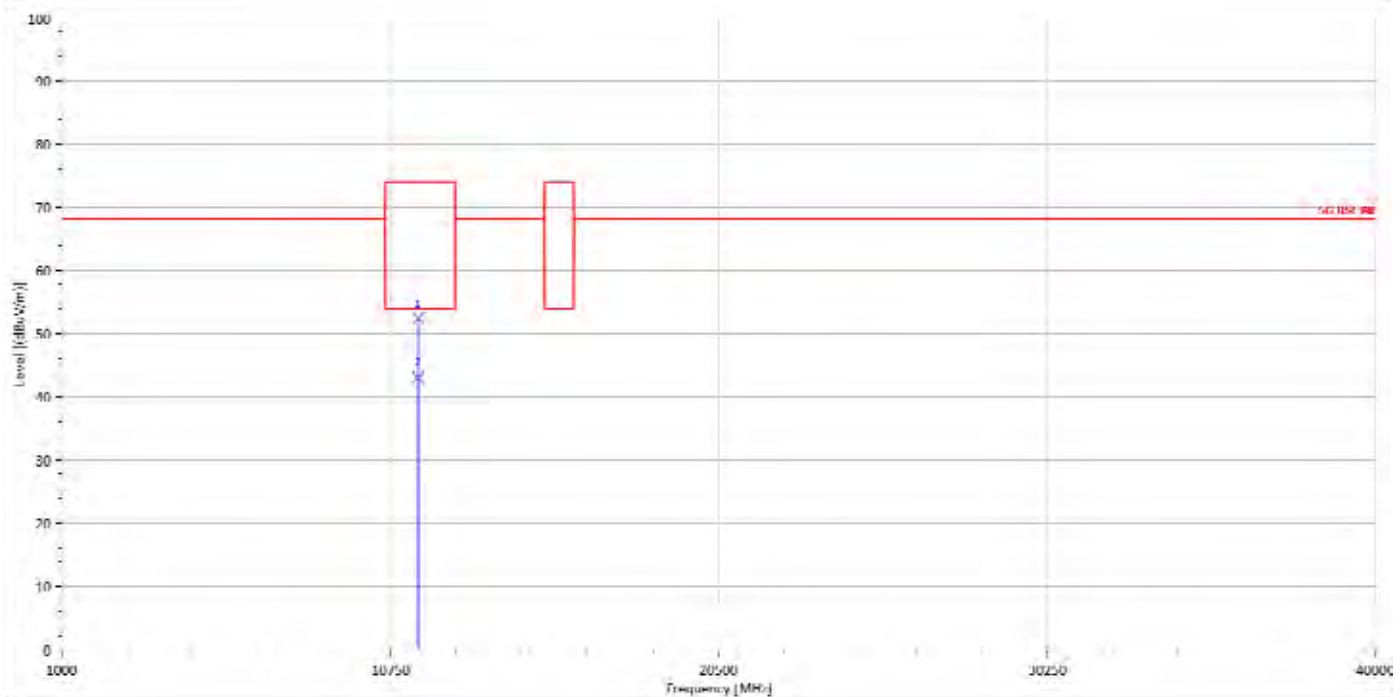
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Operation Mode :	802.11n40B4	Test Date :	2018/5/5
Fundamental Frequency :	5795 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH High	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11590.00	H	Peak	30.64	21.84	52.49	74	-21.51
11590.00	H	Average	21.27	21.84	43.11	54	-10.89

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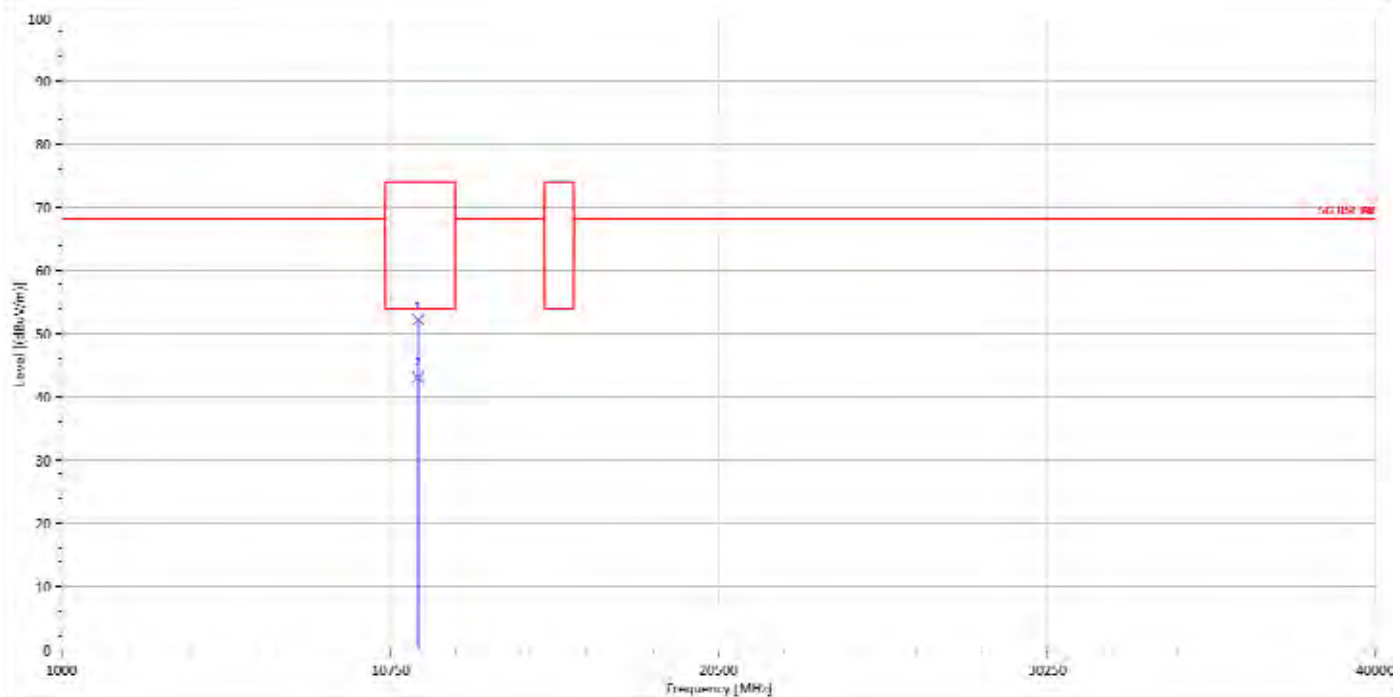
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Operation Mode : 802.11n40B4 Test Date : 2018/5/5
 Fundamental Frequency : 5795 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : Tx CH High Test Engineer : Ashton
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11590.00	H	Peak	30.37	21.84	52.21	74	-21.79
11590.00	H	Average	21.29	21.84	43.13	54	-10.87

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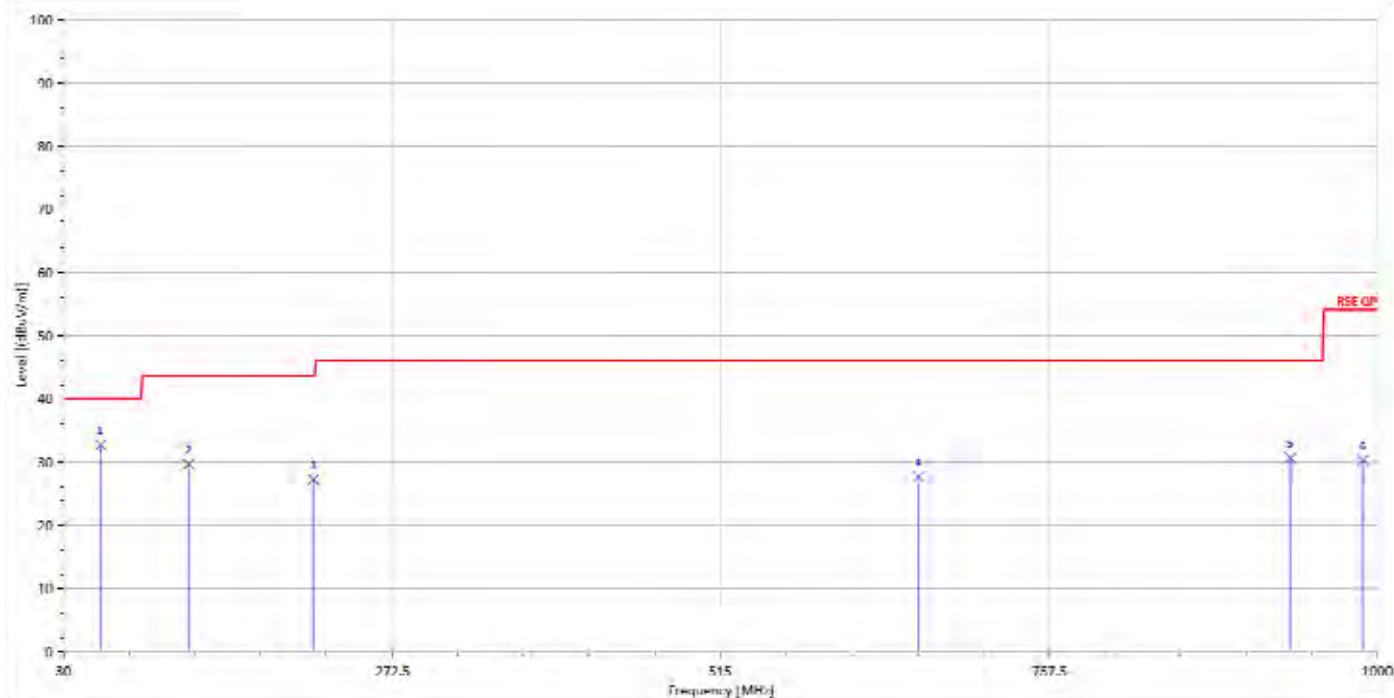
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接收模式 1GHz 以下測試 (最差模式)

Operation Mode :	802.11aB1	Test Date :	2018/5/7
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Rx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
57.16	S	Peak	54.68	-21.98	32.70	40	-7.30
122.15	S	Peak	45.40	-15.77	29.62	43.5	-13.88
214.30	S	Peak	44.28	-17.15	27.13	43.5	-16.37
661.47	S	Peak	33.32	-5.70	27.62	46	-18.38
935.98	S	Peak	32.25	-1.66	30.59	46	-15.41
989.33	S	Peak	30.90	-0.66	30.24	54	-23.76

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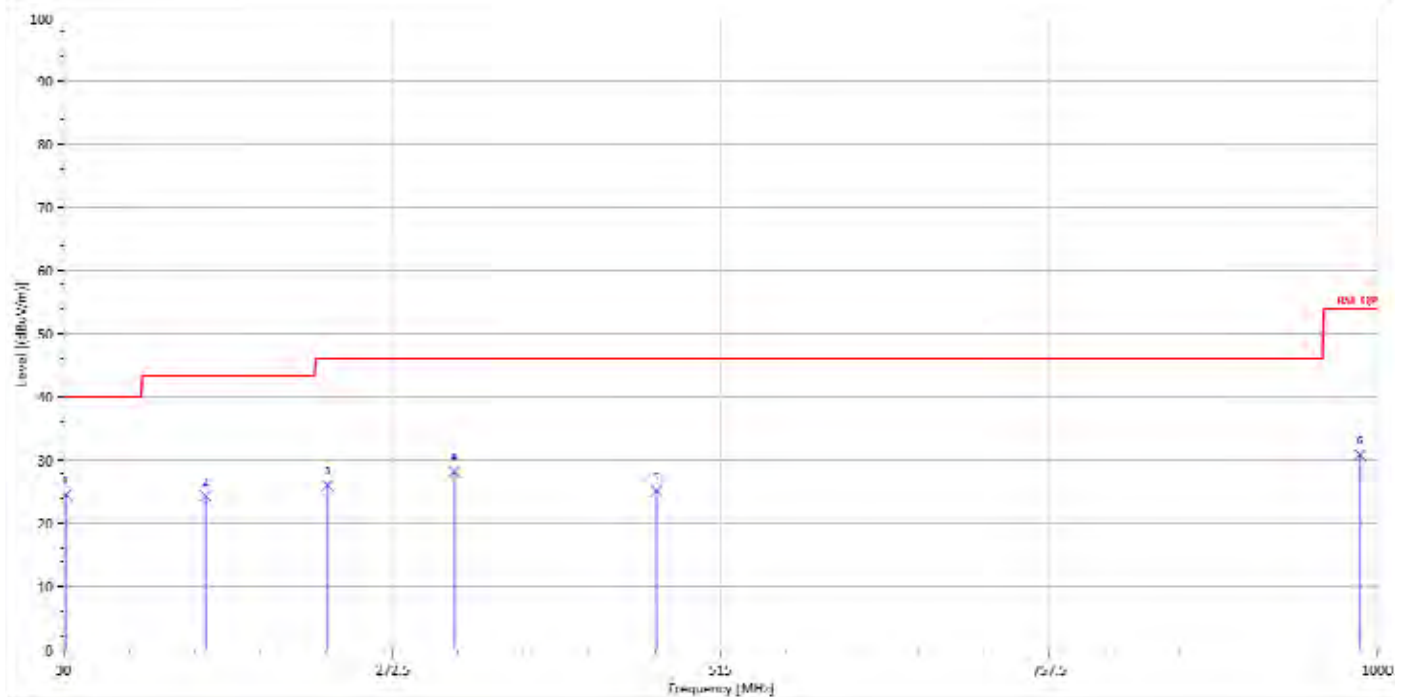
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Operation Mode :	802.11aB1	Test Date :	2018/5/7
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Rx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
31.94	S	Peak	32.78	-8.22	24.56	40	-15.44
134.76	S	Peak	40.11	-15.77	24.34	43.5	-19.16
224.97	S	Peak	42.82	-16.74	26.07	46	-19.93
319.06	S	Peak	40.56	-12.31	28.25	46	-17.75
467.47	S	Peak	32.92	-7.73	25.19	46	-20.81
987.39	S	Peak	31.35	-0.57	30.78	54	-23.22

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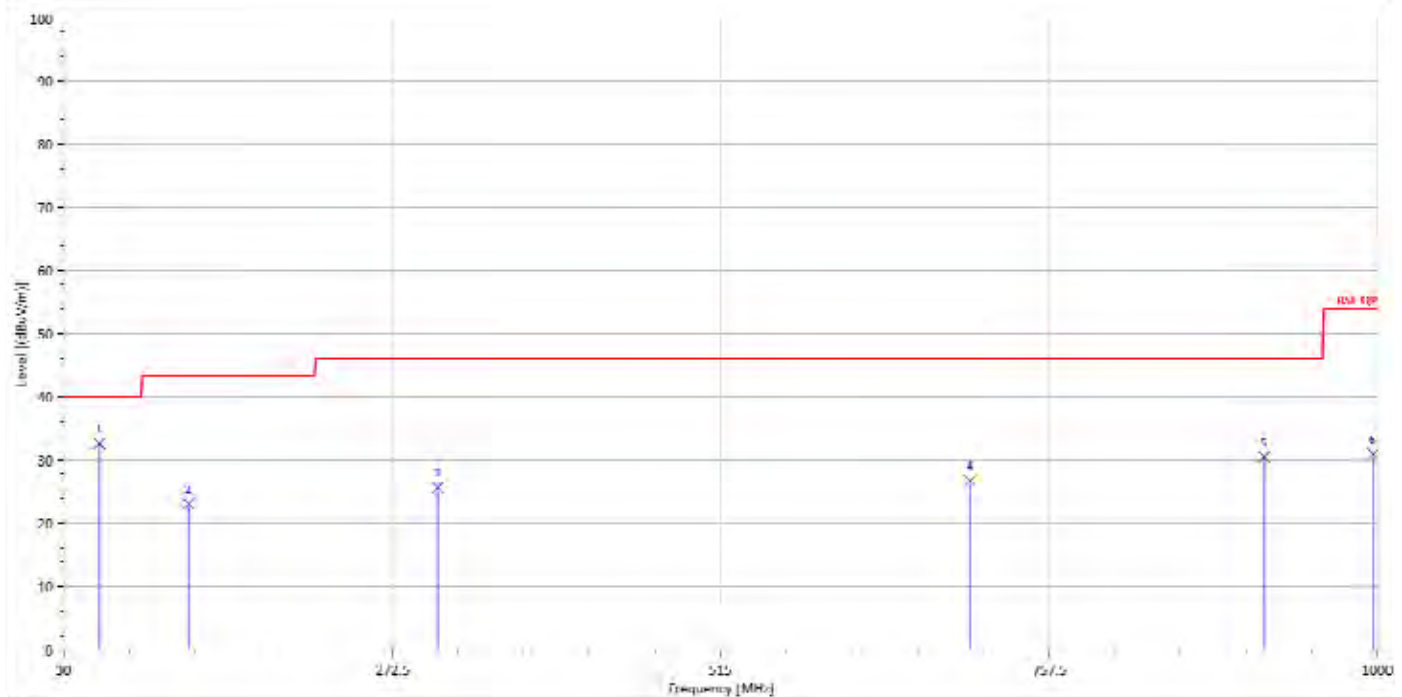
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Operation Mode :	802.11aB4	Test Date :	2018/5/7
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Rx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
56.19	S	Peak	54.19	-21.59	32.61	40	-7.39
122.15	S	Peak	38.88	-15.77	23.10	43.5	-20.40
306.45	S	Peak	38.54	-12.79	25.76	46	-20.24
699.30	S	Peak	31.83	-5.09	26.74	46	-19.26
916.58	S	Peak	32.16	-1.70	30.46	46	-15.54
997.09	S	Peak	31.59	-0.66	30.94	54	-23.06

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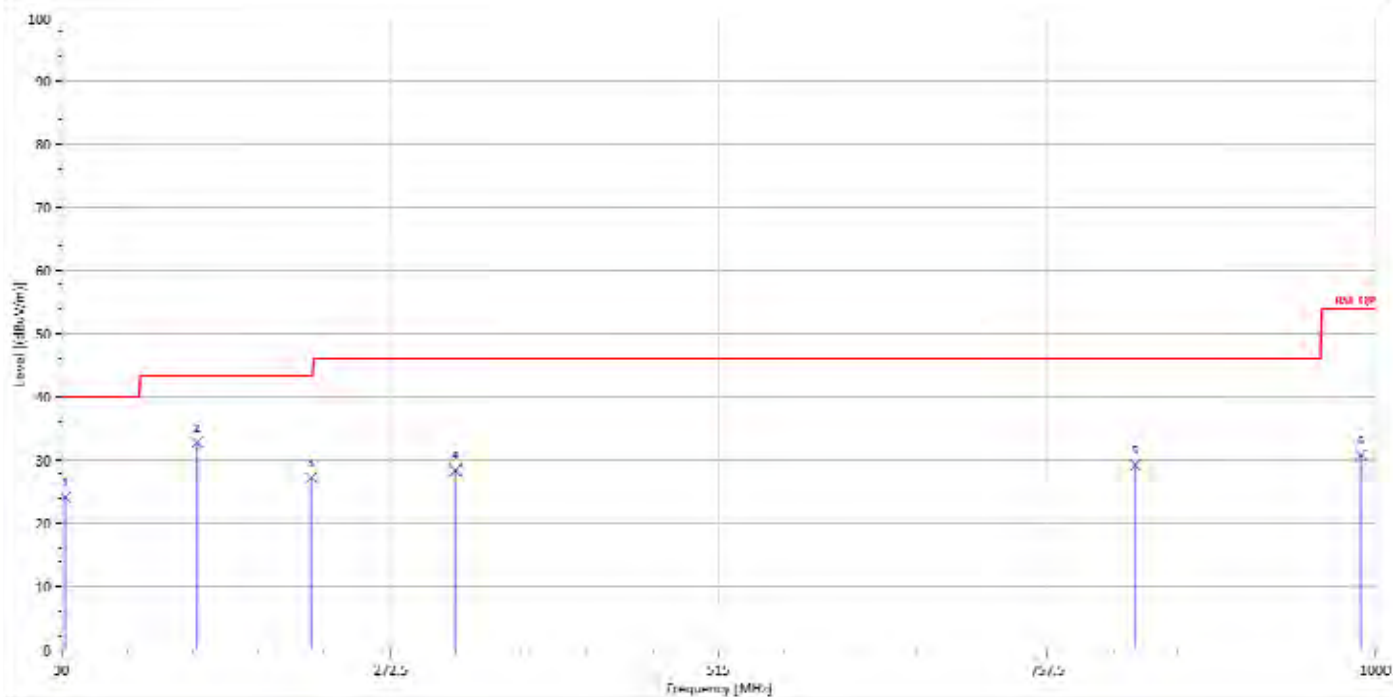
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Operation Mode :	802.11aB4	Test Date :	2018/5/7
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Rx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
32.91	S	Peak	32.92	-8.75	24.17	40	-15.83
129.91	S	Peak	48.44	-15.67	32.77	43.5	-10.73
214.30	S	Peak	44.43	-17.15	27.29	43.5	-16.21
321.00	S	Peak	40.70	-12.27	28.43	46	-17.57
822.49	S	Peak	31.81	-2.59	29.22	46	-16.78
989.33	S	Peak	31.46	-0.66	30.80	54	-23.20

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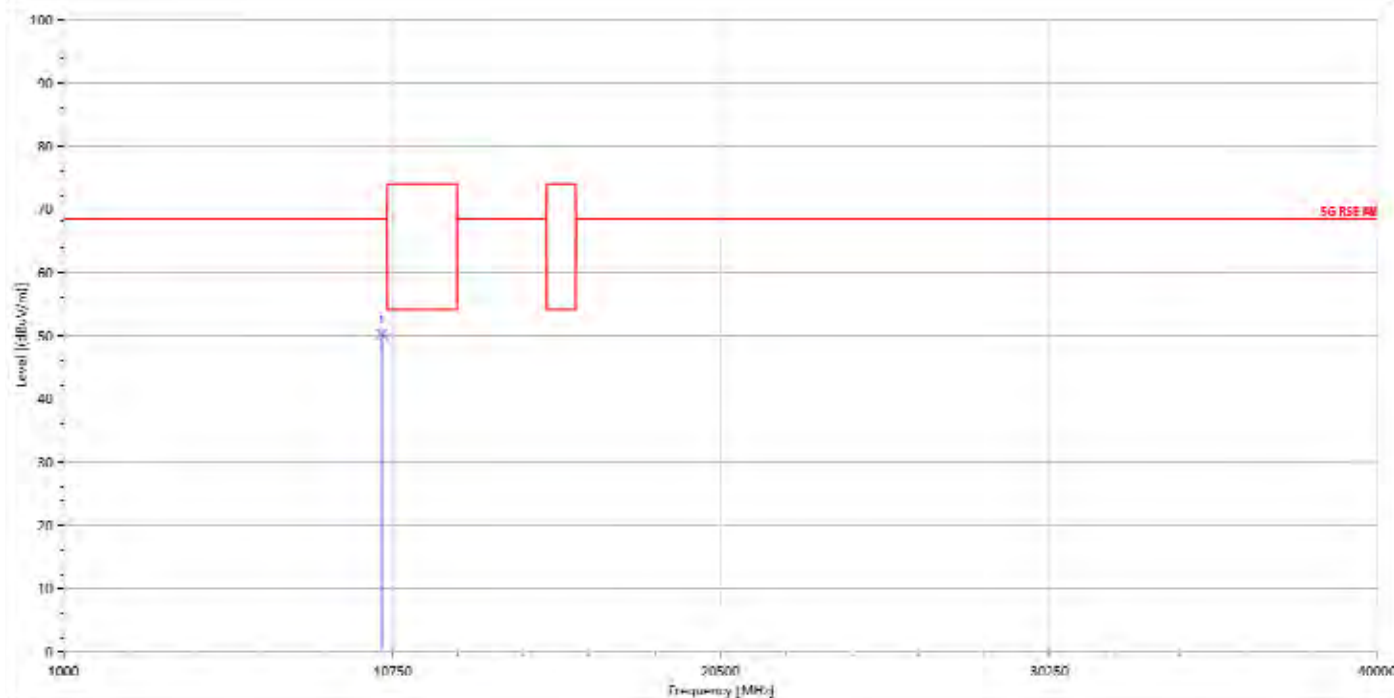
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接收模式 1GHz 以上測試 (最差模式)

Operation Mode :	802.11aB1	Test Date :	2018/5/8
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Rx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
		PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10440.00	H	Peak	29.96	20.29	50.25	68.3	-18.05

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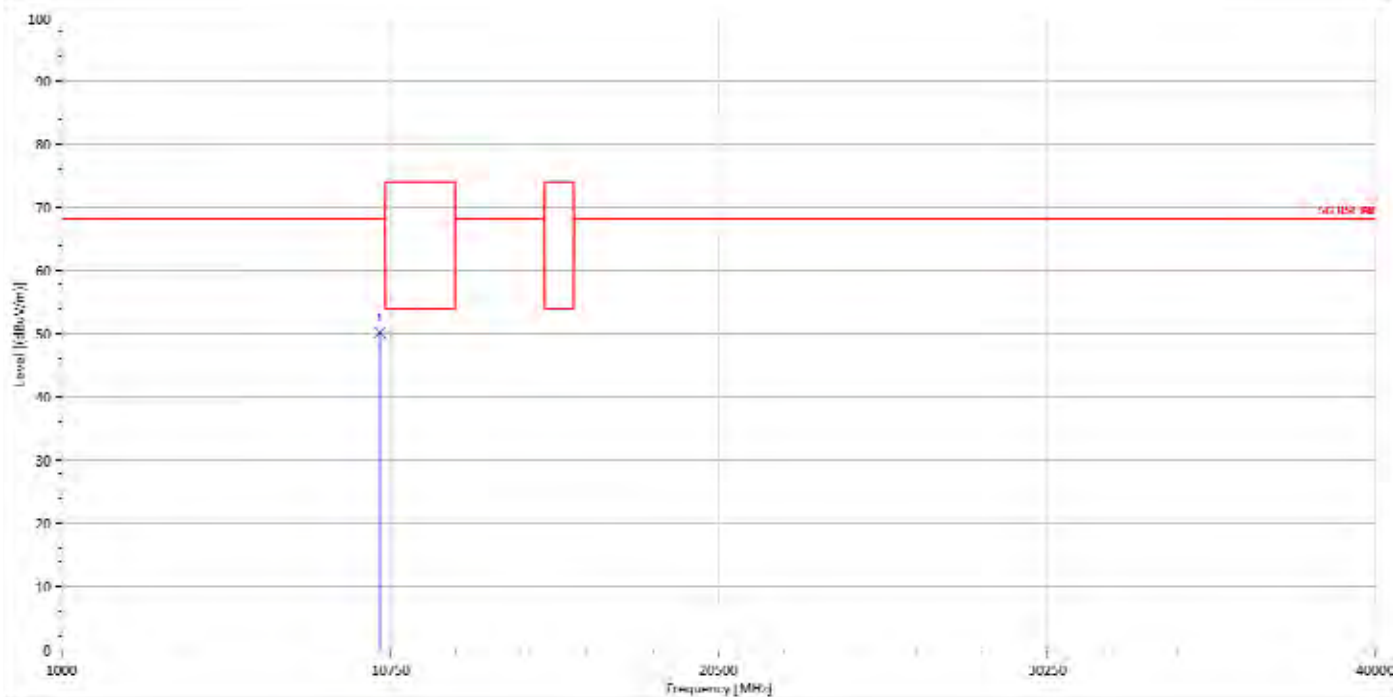
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Operation Mode :	802.11aB1	Test Date :	2018/5/8
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Rx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10440.00	H	Peak	29.93	20.29	50.22	68.3	-18.08

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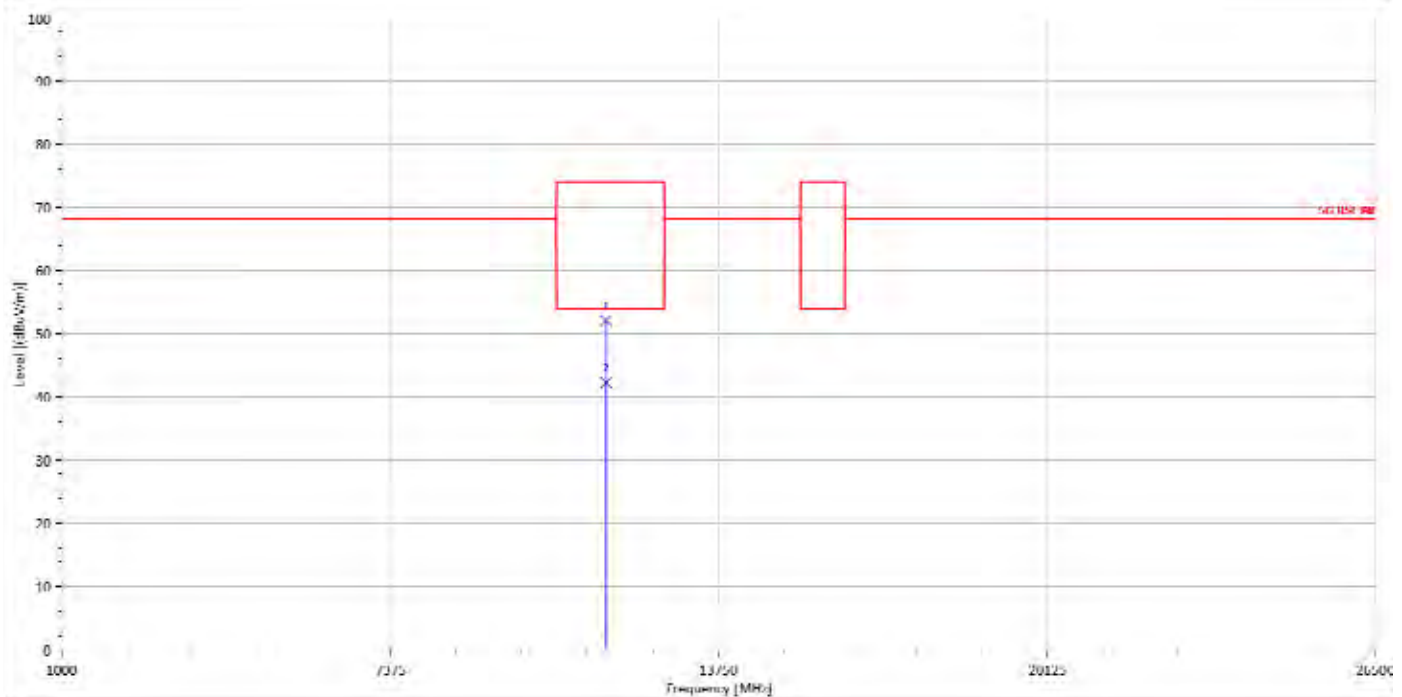
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Operation Mode :	802.11aB4	Test Date :	2018/5/8
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Rx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11570.00	H	Peak	30.67	21.44	52.12	74	-21.88
11570.00	H	Average	20.89	21.44	42.33	54	-11.67

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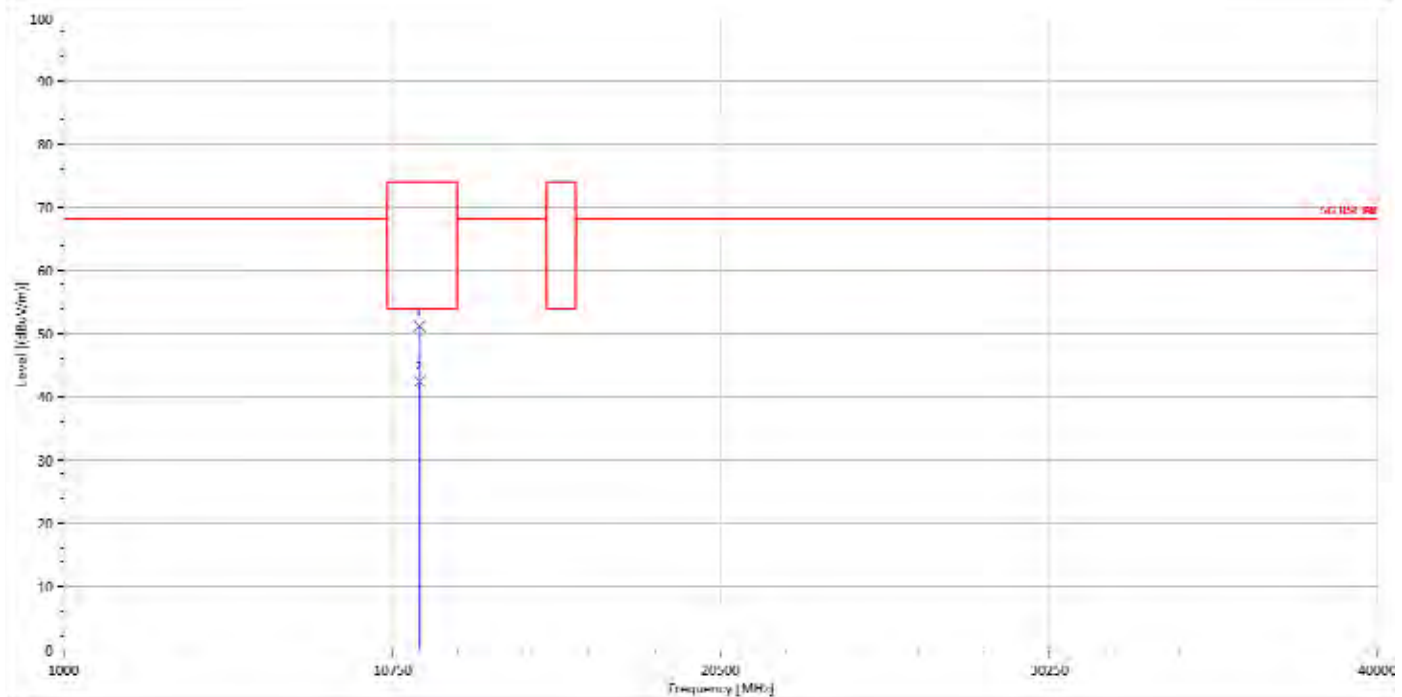
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Operation Mode :	802.11aB4	Test Date :	2018/5/8
Fundamental Frequency :	5785 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Rx CH Mid	Test Engineer :	Ashton
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11570.00	H	Peak	29.78	21.44	51.22	74	-22.78
11570.00	H	Average	21.08	21.44	42.52	54	-11.48

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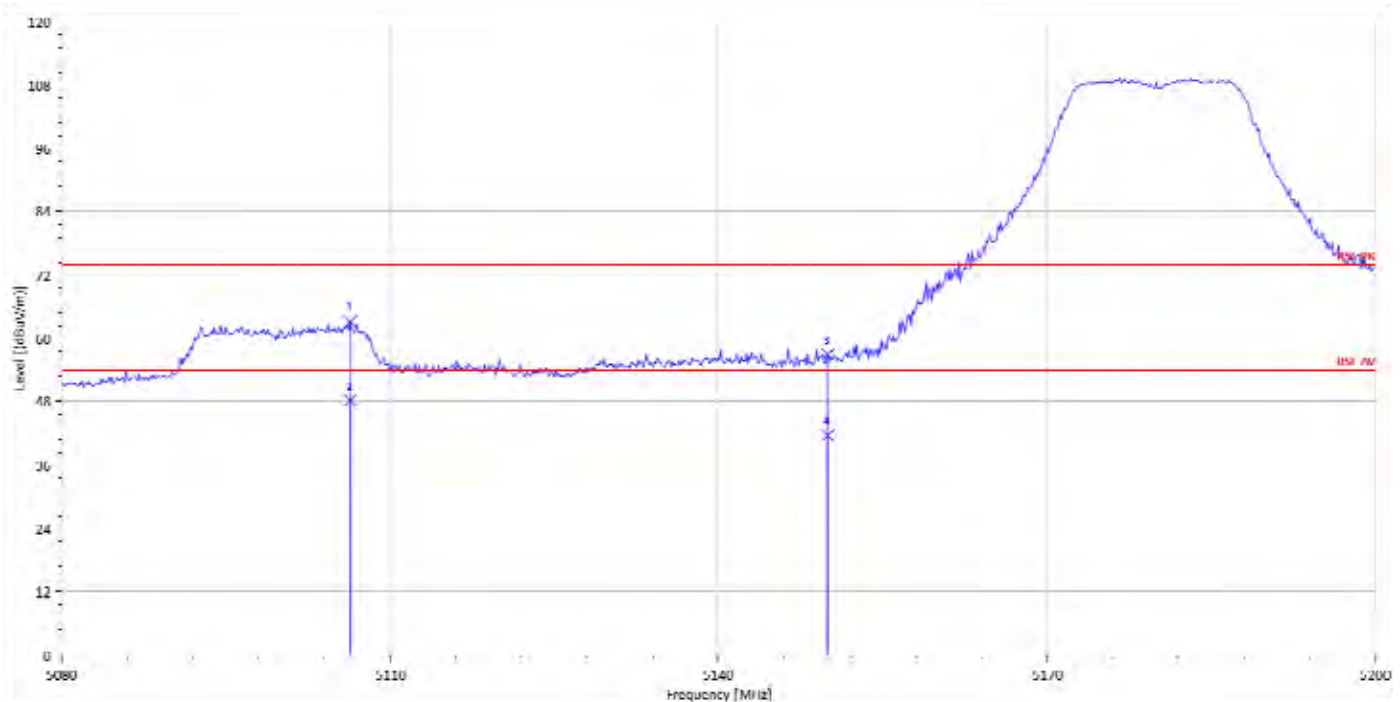
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6.6 開放頻帶邊緣量測結果

Operation Mode : 802.11aB1 Test Date : 2018/5/4
 Fundamental Frequency : 5180 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH LOW Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5106.40	S	Peak	55.23	8.01	63.24	74	-10.76
5106.40	S	Average	40.18	8.01	48.19	54	-5.81
5150.00	E	Peak	48.77	8.19	56.97	74	-17.03
5150.00	E	Average	33.47	8.19	41.66	54	-12.34

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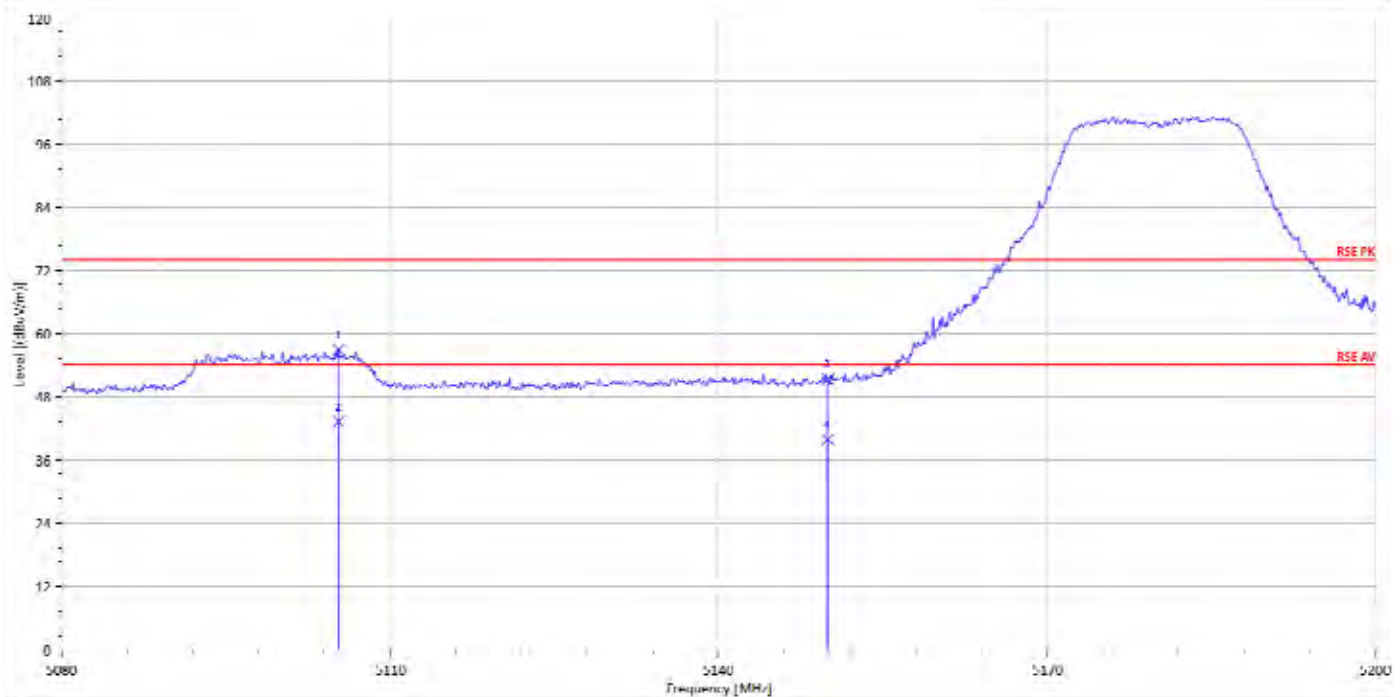
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Operation Mode :	802.11aB1	Test Date :	2018/5/4
Fundamental Frequency :	5180 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH LOW	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5105.32	S	Peak	48.90	8.00	56.91	74	-17.09
5105.32	S	Average	35.31	8.00	43.31	54	-10.69
5150.00	E	Peak	43.23	8.19	51.43	74	-22.57
5150.00	E	Average	31.72	8.19	39.91	54	-14.09

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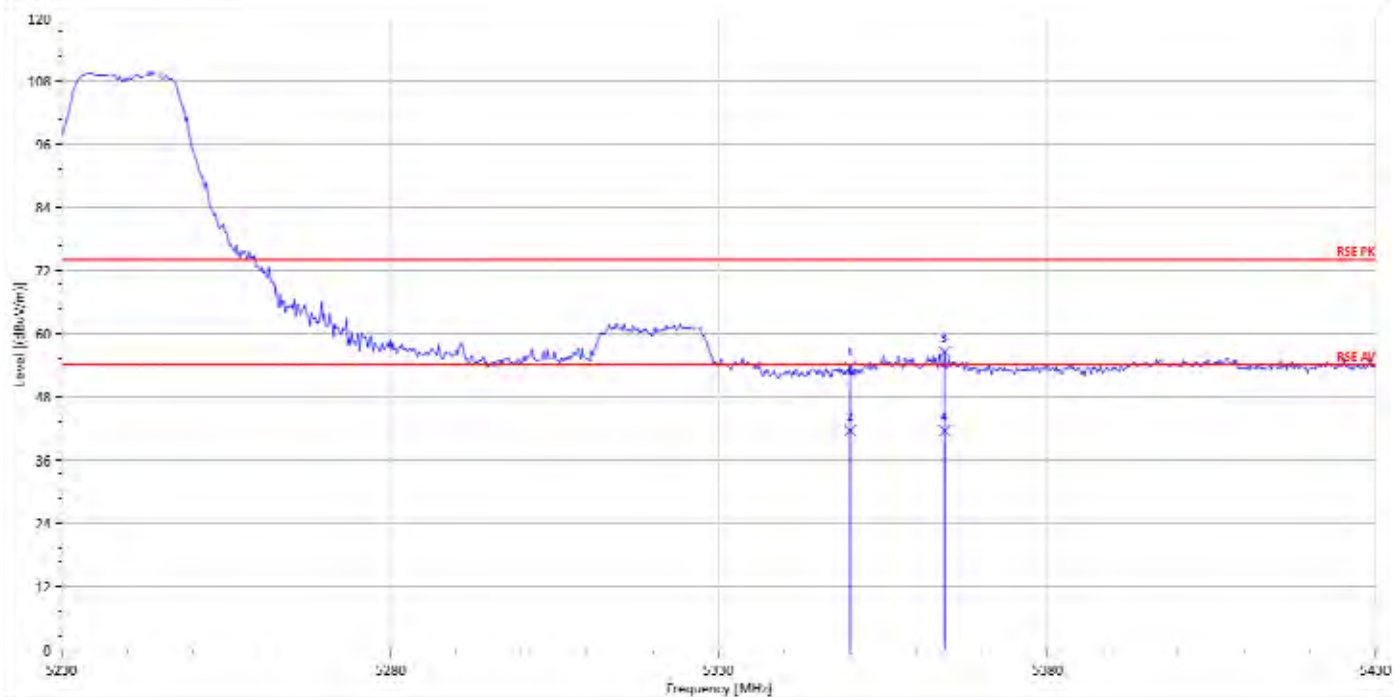
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Operation Mode : 802.11aB1 Test Date : 2018/5/4
 Fundamental Frequency : 5240 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH HIGH Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Peak	44.62	8.96	53.58	74	-20.42
5350.00	E	Average	32.61	8.96	41.57	54	-12.43
5364.40	S	Peak	47.62	8.87	56.49	74	-17.51
5364.40	S	Average	32.71	8.87	41.58	54	-12.42

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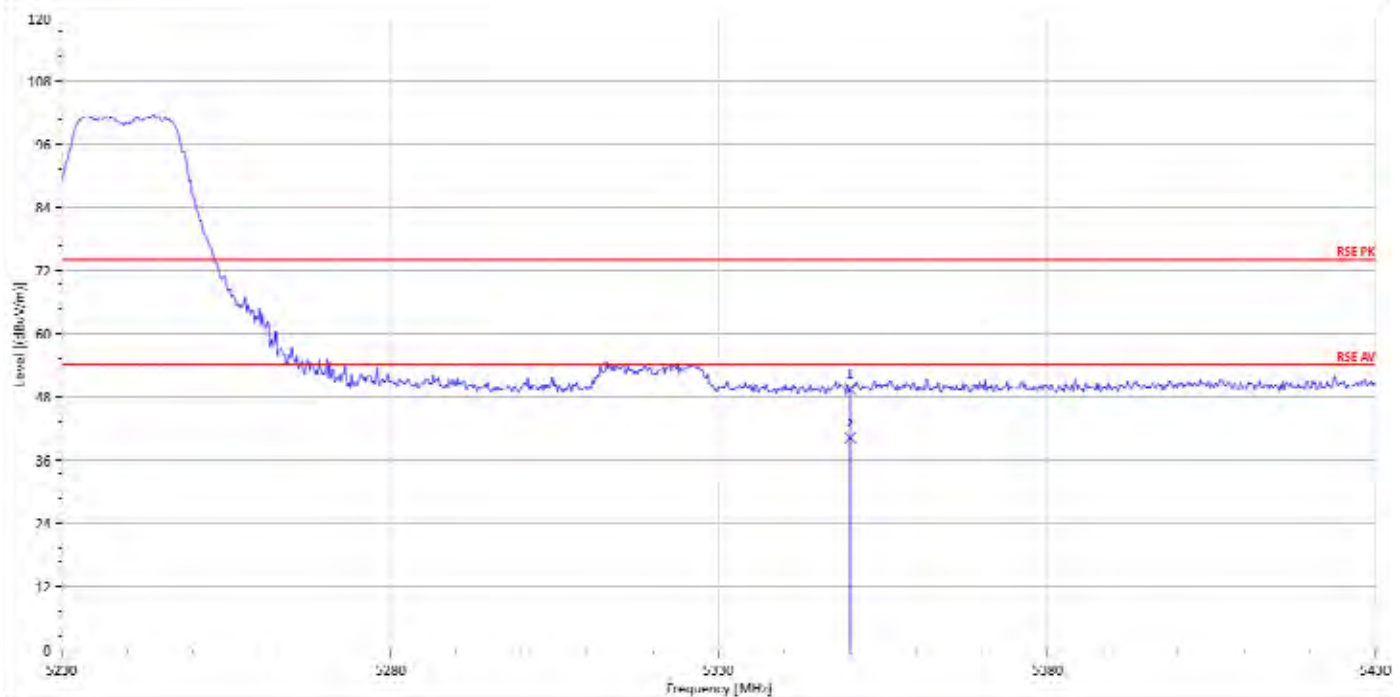
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Operation Mode :	802.11aB1	Test Date :	2018/5/4
Fundamental Frequency :	5240 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH HIGH	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	40.60	8.96	49.56	74	-24.44
5350.00	E	Average	31.27	8.96	40.23	54	-13.77

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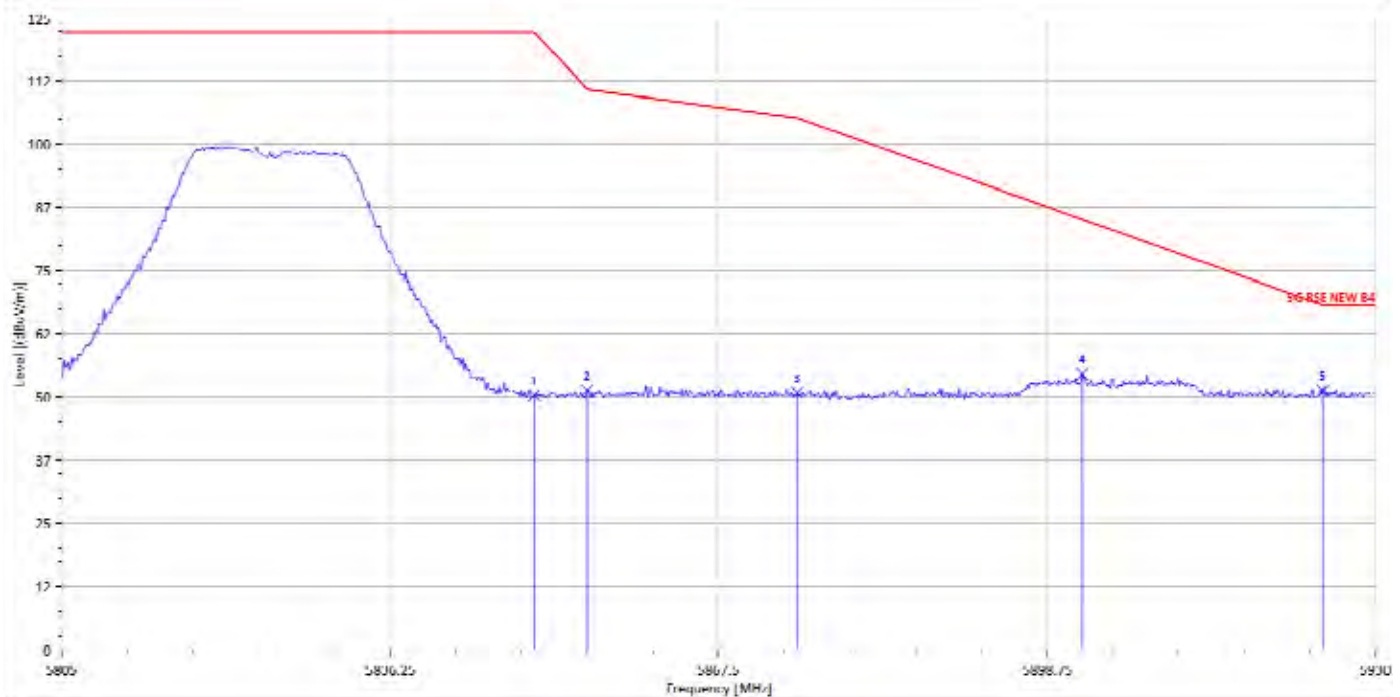
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Operation Mode : 802.11aB4 Test Date : 2018/5/4
 Fundamental Frequency : 5745 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH LOW Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	S	Peak	40.67	9.33	50.00	68.23	-18.23
5662.82	S	Peak	45.15	9.21	54.36	77.71667	-23.35
5700.00	S	Peak	41.01	9.44	50.45	105.23	-54.78
5720.00	S	Peak	40.13	9.28	49.41	110.83	-61.42
5725.00	E	Peak	42.68	9.30	51.98	122.23	-70.25

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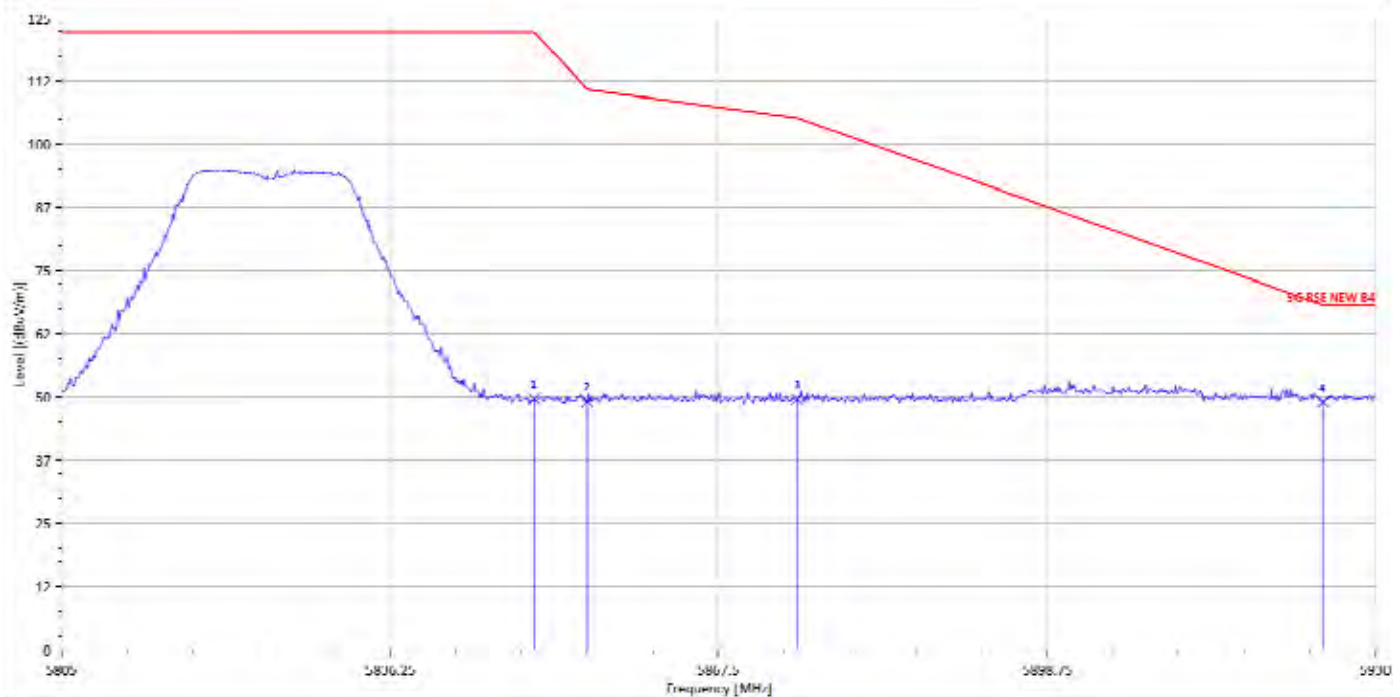
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Operation Mode : 802.11aB4 Test Date : 2018/5/4
 Fundamental Frequency : 5745 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH LOW Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	S	Peak	40.23	9.33	49.56	68.23	-18.67
5659.30	S	Peak	44.21	9.24	53.45	75.11186	-21.66
5700.00	S	Peak	40.38	9.44	49.82	105.23	-55.41
5720.00	S	Peak	40.55	9.28	49.83	110.83	-61.00
5725.00	E	Peak	41.50	9.30	50.80	122.23	-71.43

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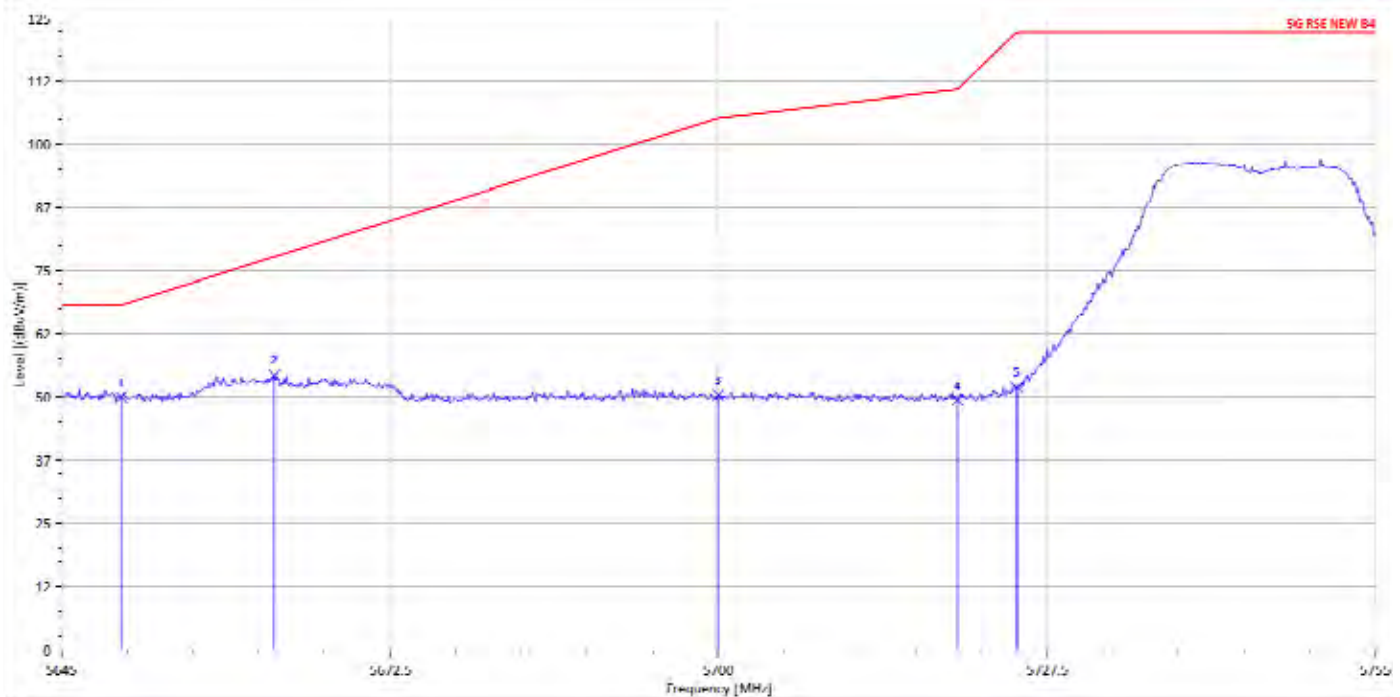
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Operation Mode : 802.11aB4 Test Date : 2018/5/4
 Fundamental Frequency : 5825 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH HIGH Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	40.90	9.49	50.39	122.23	-71.84
5855.00	S	Peak	41.75	9.58	51.33	110.83	-59.50
5875.00	S	Peak	41.28	9.63	50.91	105.23	-54.32
5902.13	S	Peak	44.78	9.75	54.53	85.1575	-30.63
5925.00	S	Peak	41.25	10.01	51.27	68.23	-16.96

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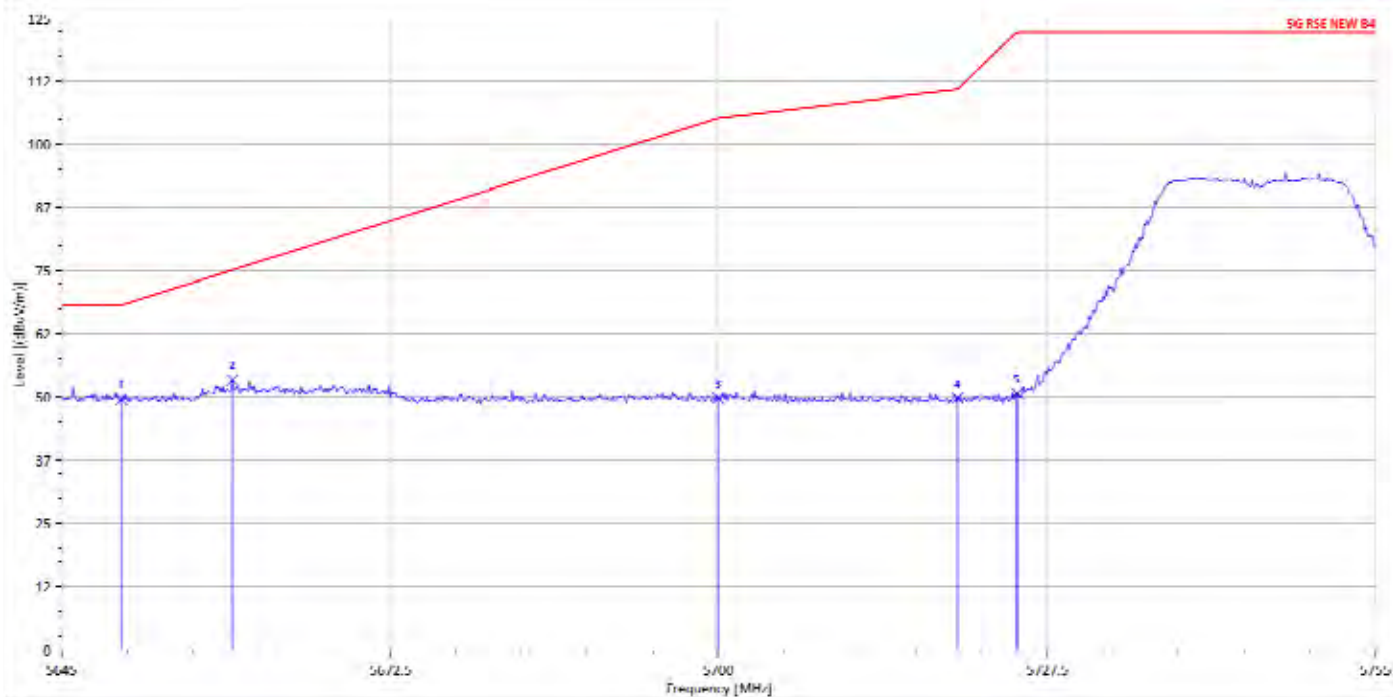
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 Fundamental Frequency : 5825 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH HIGH Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	40.20	9.49	49.69	122.23	-72.54
5855.00	S	Peak	39.59	9.58	49.17	110.83	-61.66
5875.00	S	Peak	39.96	9.63	49.60	105.23	-55.63
5925.00	S	Peak	39.08	10.01	49.09	68.23	-19.14

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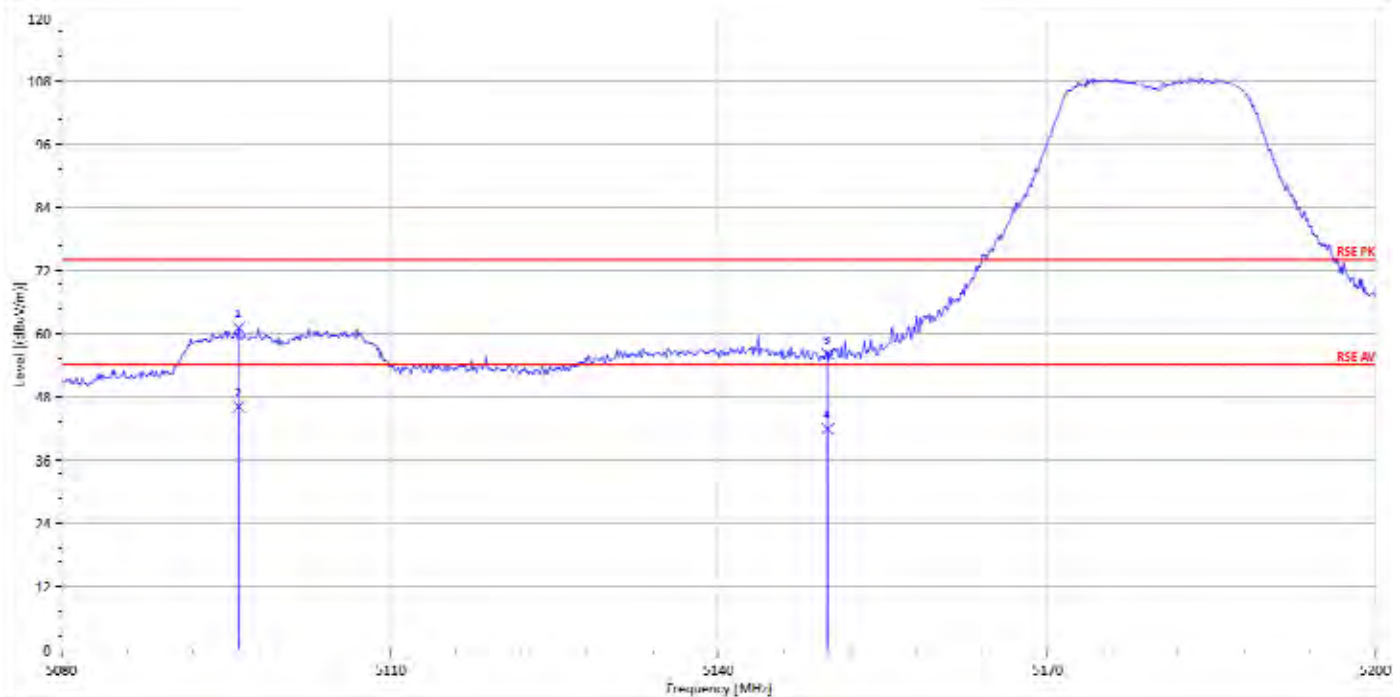
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Operation Mode :	802.11n20B1	Test Date :	2018/5/4
Fundamental Frequency :	5180 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH LOW	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5096.20	S	Peak	53.17	7.94	61.11	74	-12.89
5096.20	S	Average	38.26	7.94	46.20	54	-7.80
5150.00	E	Peak	47.90	8.19	56.09	74	-17.91
5150.00	E	Average	33.74	8.19	41.93	54	-12.07

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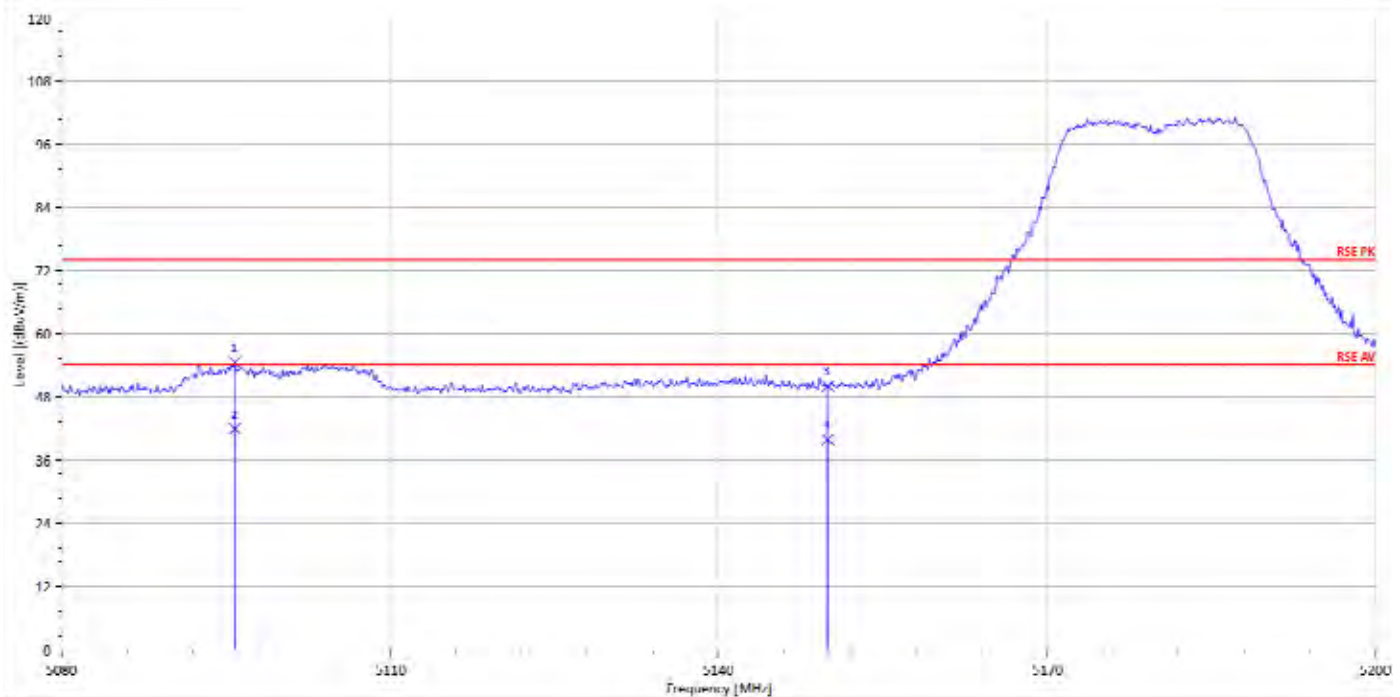
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Operation Mode :	802.11n20B1	Test Date :	2018/5/4
Fundamental Frequency :	5180 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH LOW	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5095.84	S	Peak	46.56	7.94	54.50	74	-19.50
5095.84	S	Average	33.98	7.94	41.92	54	-12.08
5150.00	E	Peak	41.93	8.19	50.12	74	-23.88
5150.00	E	Average	31.69	8.19	39.88	54	-14.12

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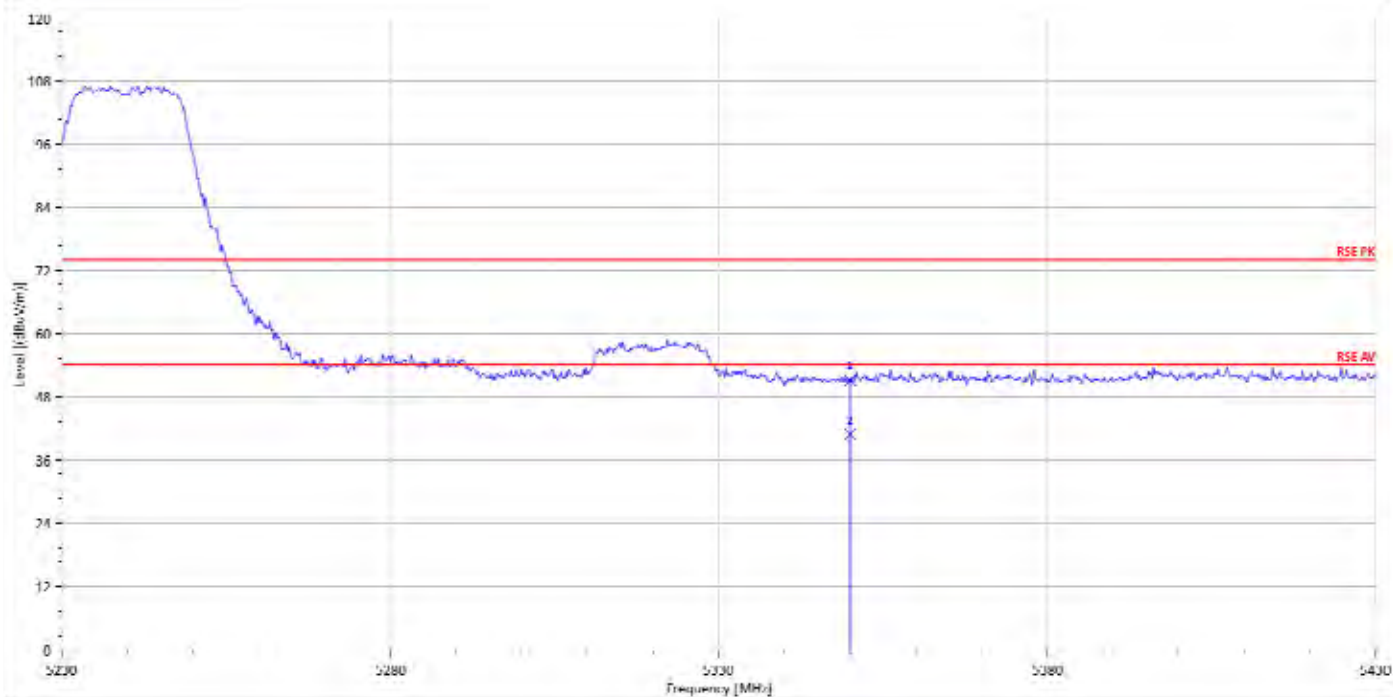
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Operation Mode : 802.11n20B1 Test Date : 2018/5/4
 Fundamental Frequency : 5240 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH HIGH Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	42.25	8.96	51.21	74	-22.79
5350.00	E	Average	31.92	8.96	40.88	54	-13.12

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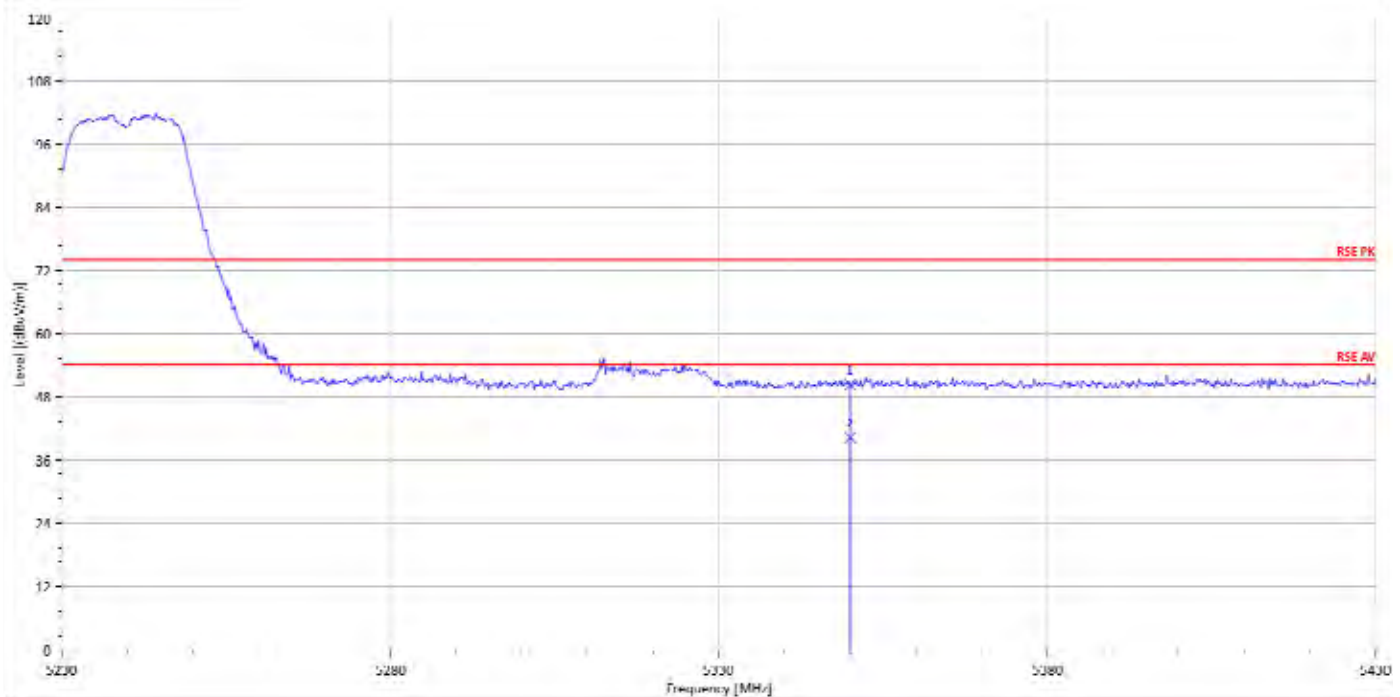
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Operation Mode : 802.11n20B1 Test Date : 2018/5/4
 Fundamental Frequency : 5240 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH HIGH Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Peak	41.39	8.96	50.35	74	-23.65
5350.00	E	Average	31.31	8.96	40.27	54	-13.73

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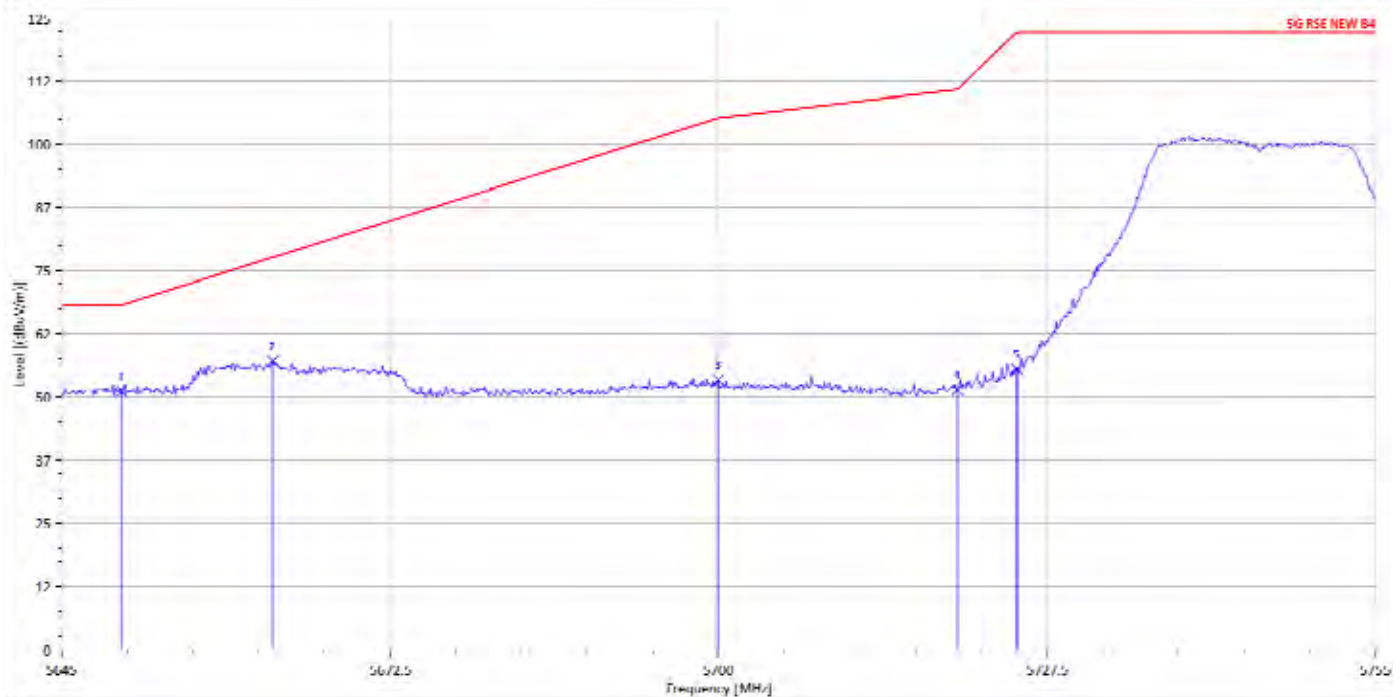
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Operation Mode :	802.11n20B4	Test Date :	2018/5/4
Fundamental Frequency :	5745 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH LOW	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	S	Peak	41.86	9.33	51.19	68.23	-17.04
5662.71	S	Peak	47.89	9.21	57.10	77.63538	-20.54
5700.00	S	Peak	44.05	9.44	53.49	105.23	-51.74
5720.00	S	Peak	42.25	9.28	51.53	110.83	-59.30
5725.00	E	Peak	46.15	9.30	55.45	122.23	-66.78

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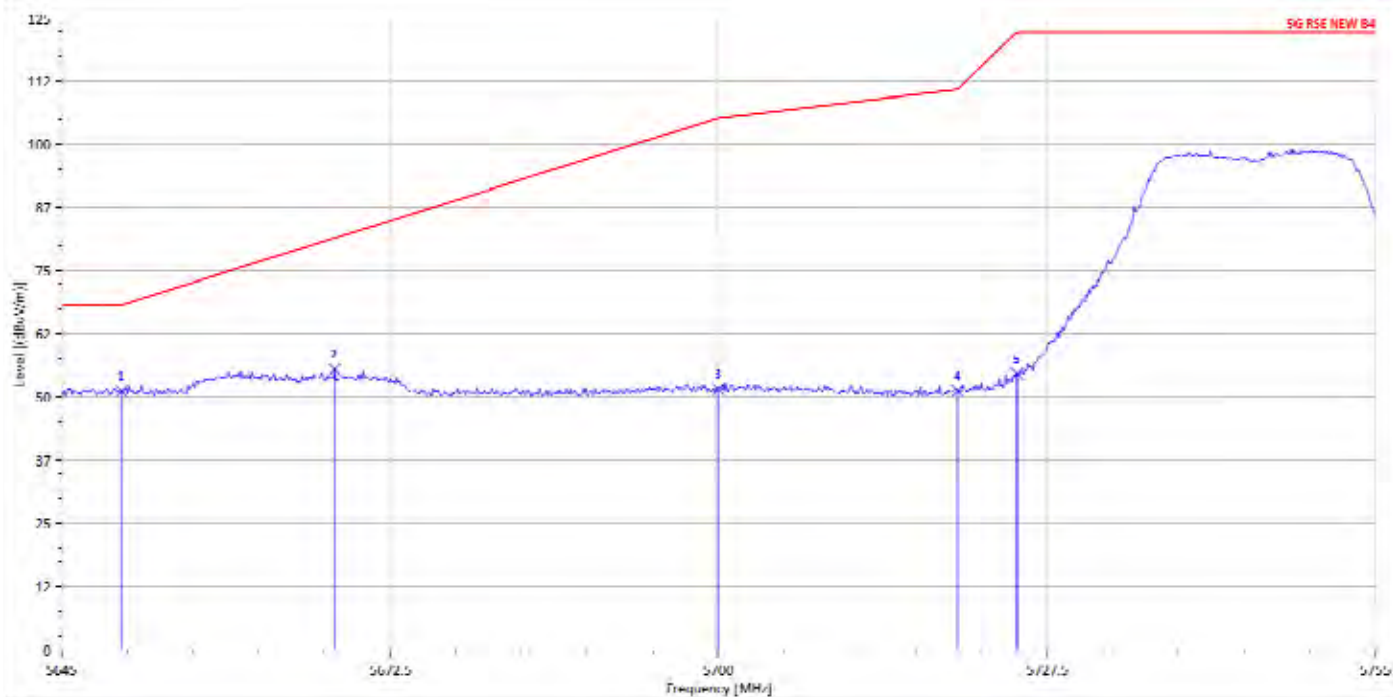
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Operation Mode : 802.11n20B4 Test Date : 2018/5/4
 Fundamental Frequency : 5745 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH LOW Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	S	Peak	41.89	9.33	51.23	68.23	-17.00
5667.88	S	Peak	46.26	9.17	55.43	81.46111	-26.03
5700.00	S	Peak	42.16	9.44	51.59	105.23	-53.64
5720.00	S	Peak	42.01	9.28	51.29	110.83	-59.54
5725.00	E	Peak	45.30	9.30	54.60	122.23	-67.63

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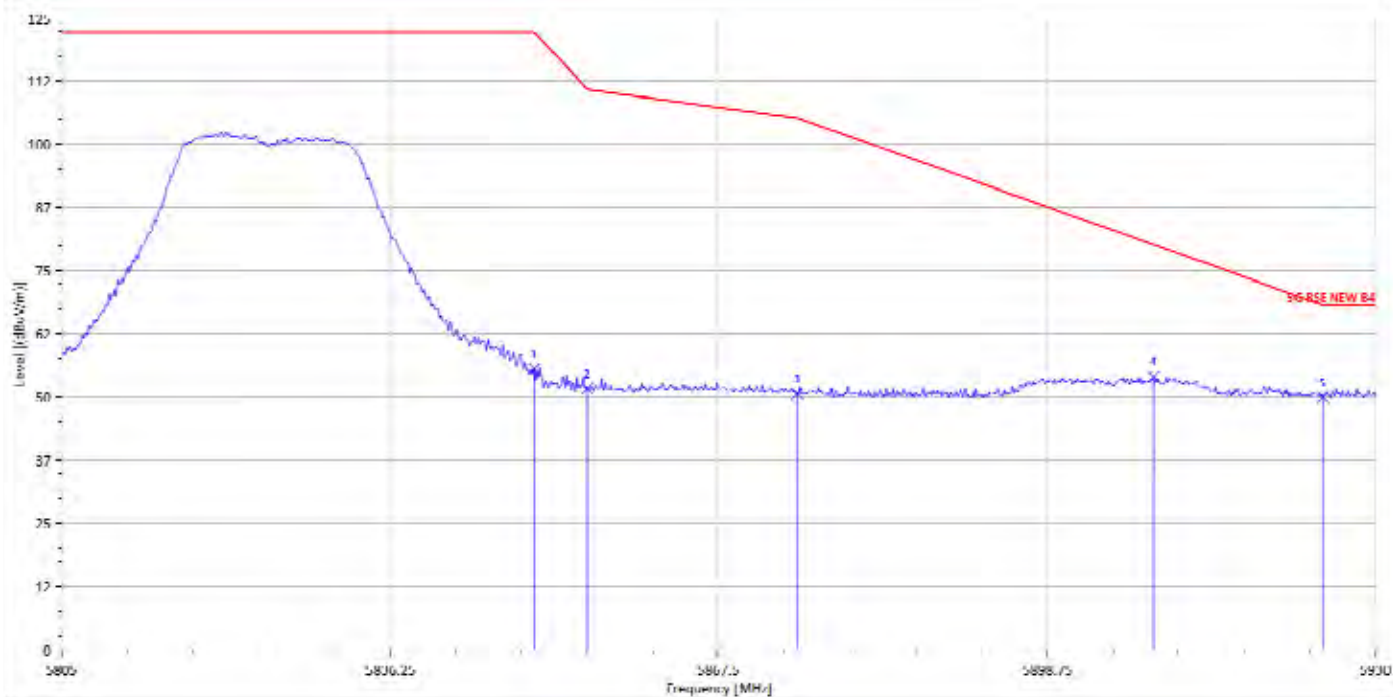
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Operation Mode :	802.11n20B4	Test Date :	2018/5/4
Fundamental Frequency :	5825 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH HIGH	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	E	Peak	45.99	9.49	55.48	122.23	-66.75
5855.00	S	Peak	42.16	9.58	51.74	110.83	-59.09
5875.00	S	Peak	41.14	9.63	50.77	105.23	-54.46
5908.88	S	Peak	44.20	9.83	54.03	80.16251	-26.13
5925.00	S	Peak	40.01	10.01	50.03	68.23	-18.20

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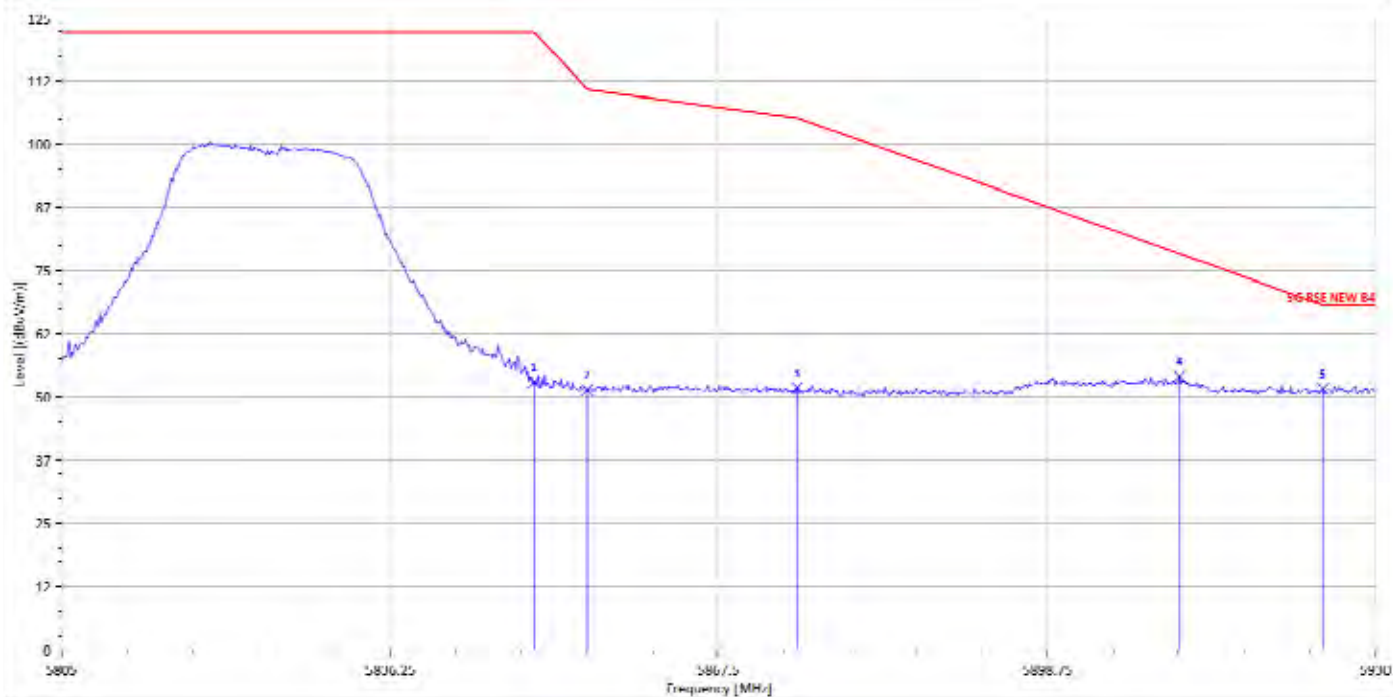
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Operation Mode :	802.11n20B4	Test Date :	2018/5/4
Fundamental Frequency :	5825 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH HIGH	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	43.48	9.49	52.97	122.23	-69.26
5855.00	S	Peak	41.90	9.58	51.48	110.83	-59.35
5875.00	S	Peak	42.27	9.63	51.90	105.23	-53.33
5911.38	S	Peak	44.24	9.86	54.09	78.3125	-24.22
5925.00	S	Peak	41.65	10.01	51.66	68.23	-16.57

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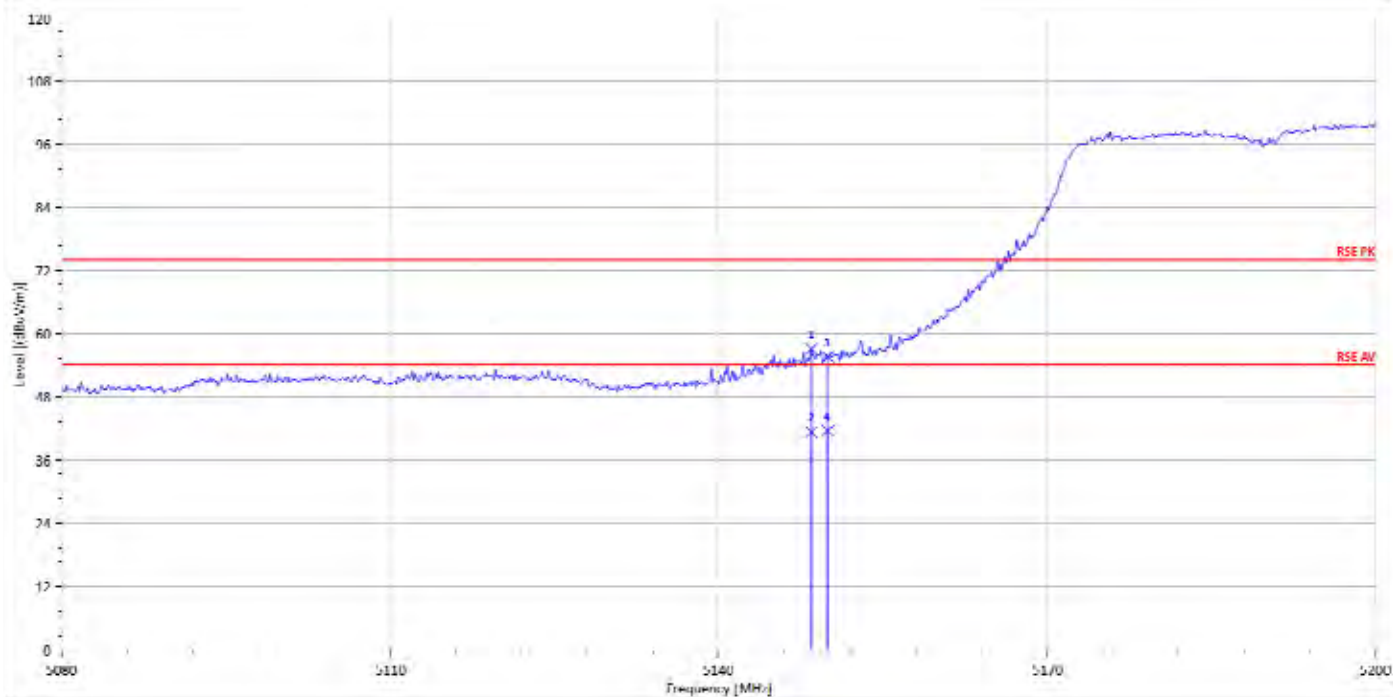
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Operation Mode : 802.11n40B1 Test Date : 2018/5/4
 Fundamental Frequency : 5190 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH LOW Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5148.52	S	Peak	48.92	8.18	57.11	74	-16.89
5148.52	S	Average	33.14	8.18	41.32	54	-12.68
5150.00	E	Peak	47.38	8.19	55.57	74	-18.43
5150.00	E	Average	33.38	8.19	41.57	54	-12.43

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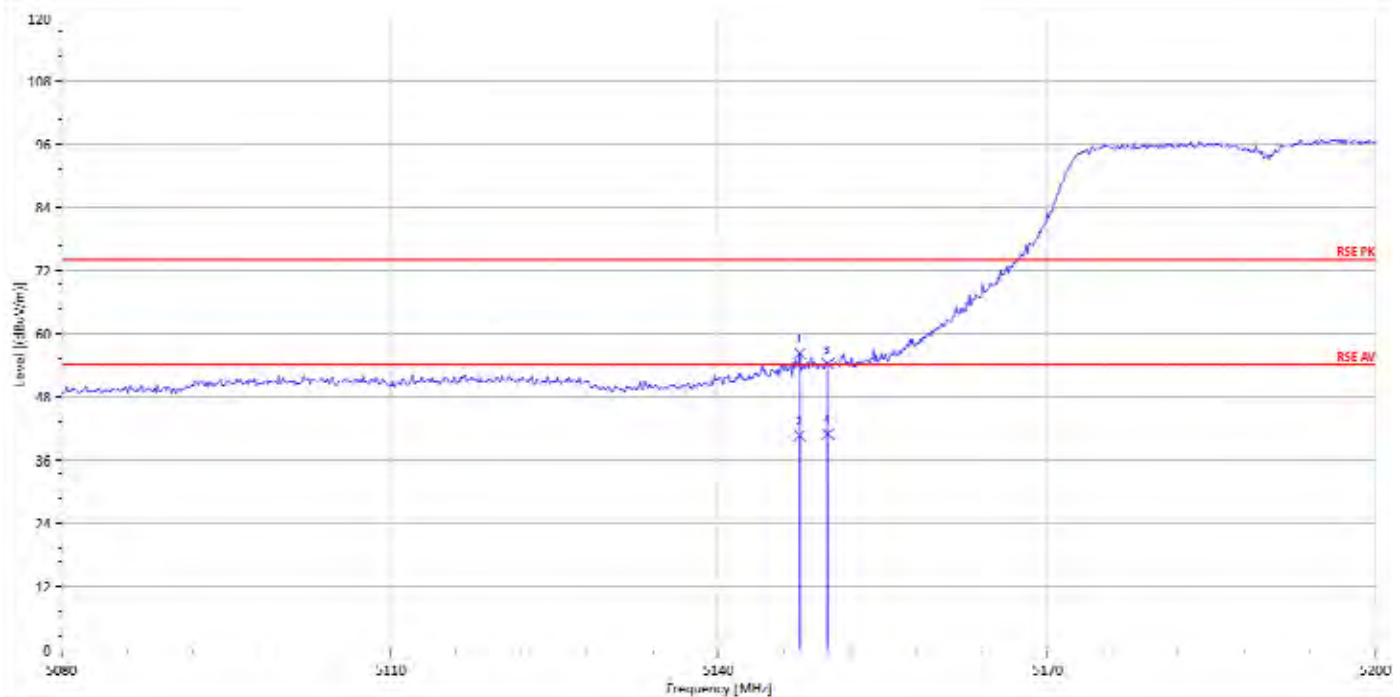
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Operation Mode : 802.11n40B1 Test Date : 2018/5/4
 Fundamental Frequency : 5190 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH LOW Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5177.44	S	Peak	48.08	8.18	56.26	74	-17.74
5177.44	S	Average	32.49	8.18	40.67	54	-13.33
5150.00	E	Peak	46.06	8.19	54.25	74	-19.75
5150.00	E	Average	32.74	8.19	40.93	54	-13.07

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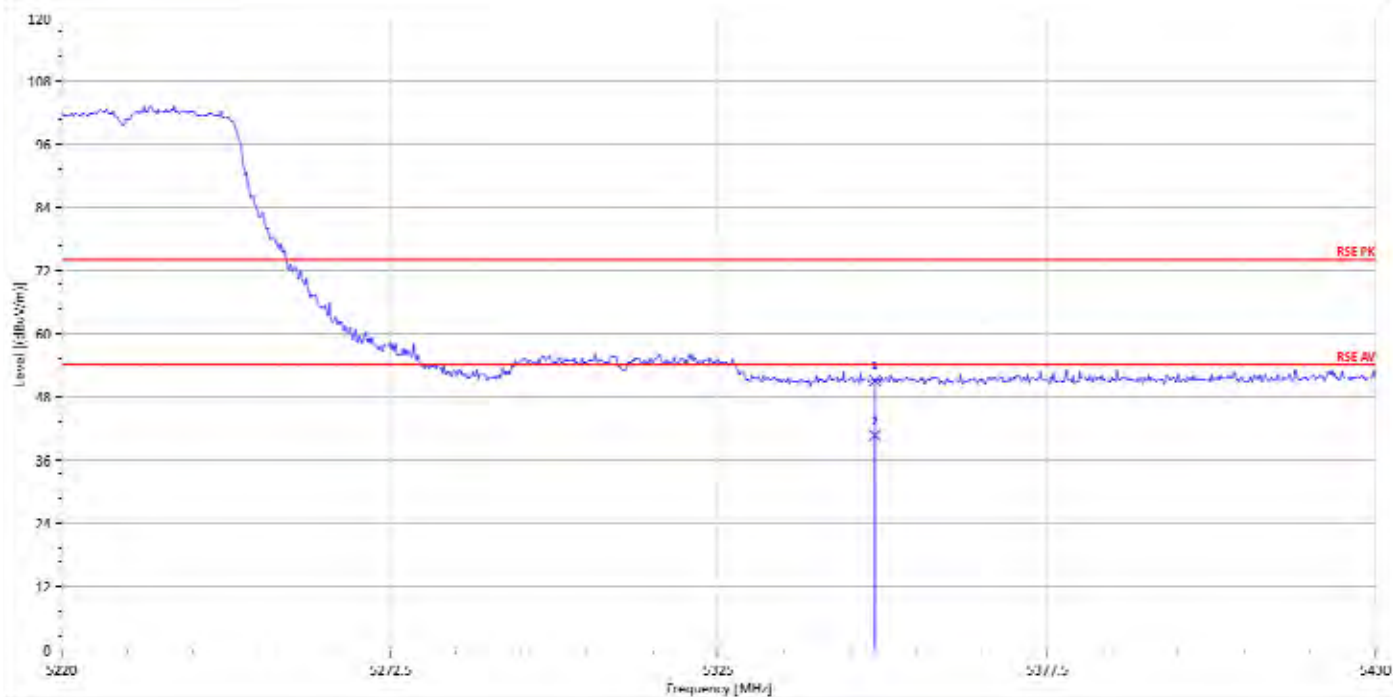
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Operation Mode :	802.11n40B1	Test Date :	2018/5/4
Fundamental Frequency :	5230 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH HIGH	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Vertical



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	42.27	8.96	51.23	74	-22.77
5350.00	E	Average	31.73	8.96	40.69	54	-13.31

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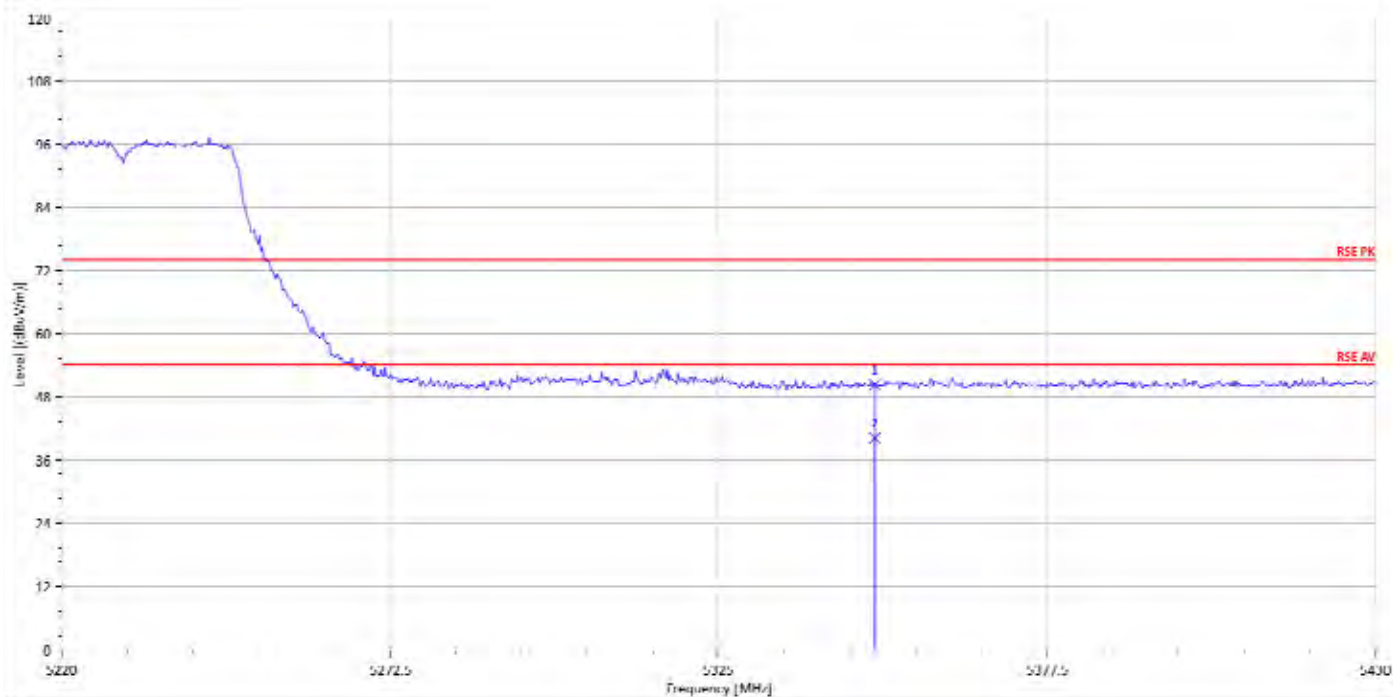
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Operation Mode :	802.11n40B1	Test Date :	2018/5/4
Fundamental Frequency :	5230 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH HIGH	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	41.39	8.96	50.36	74	-23.64
5350.00	E	Average	31.21	8.96	40.17	54	-13.83

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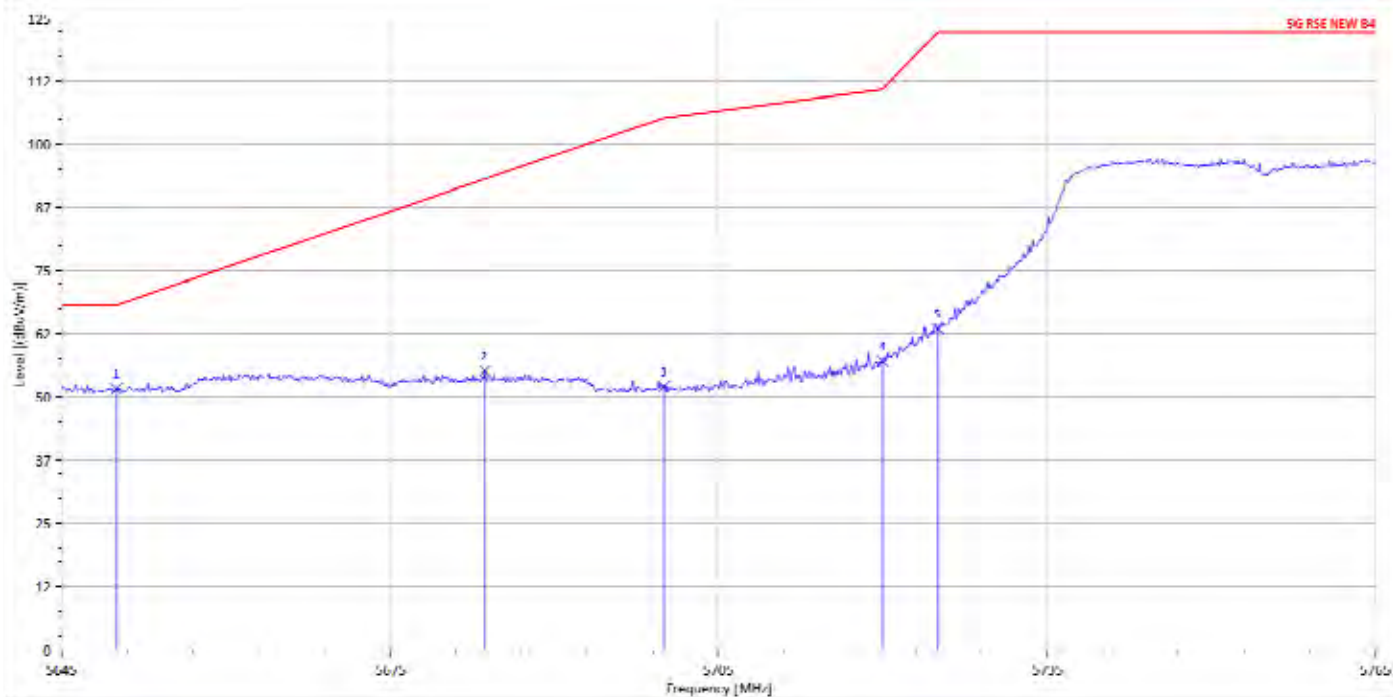
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Operation Mode : 802.11n40B4 Test Date : 2018/5/4
 Fundamental Frequency : 5755 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH LOW Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	S	Peak	42.32	9.33	51.65	68.23	-16.58
5683.64	S	Peak	45.77	9.37	55.14	93.1237	-37.98
5700.00	S	Peak	42.66	9.44	52.10	105.23	-53.13
5720.00	S	Peak	47.82	9.28	57.10	110.83	-53.73
5725.00	E	Peak	54.17	9.30	63.47	122.23	-58.76

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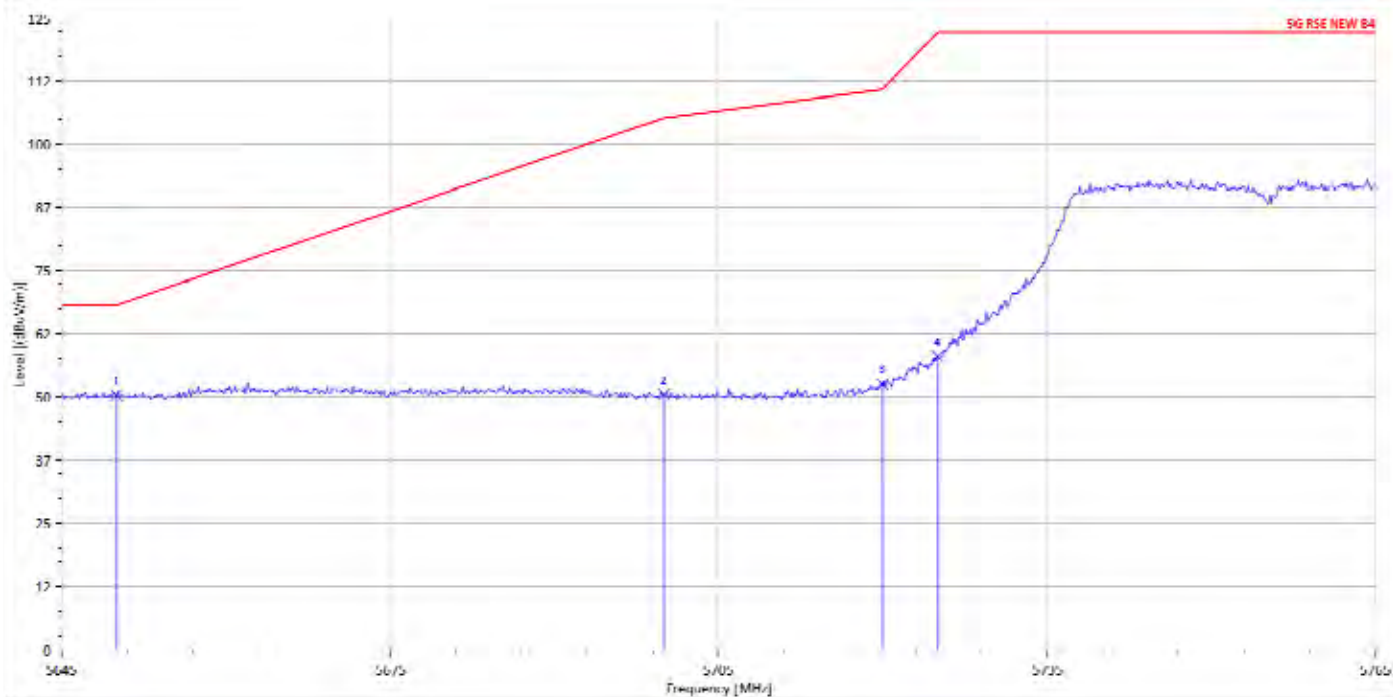
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Operation Mode : 802.11n40B4 Test Date : 2018/5/4
 Fundamental Frequency : 5755 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH LOW Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	S	Peak	41.05	9.33	50.39	68.23	-17.84
5700.00	S	Peak	41.12	9.44	50.55	105.23	-54.68
5720.00	S	Peak	43.32	9.28	52.60	110.83	-58.23
5725.00	E	Peak	48.68	9.30	57.99	122.23	-64.24

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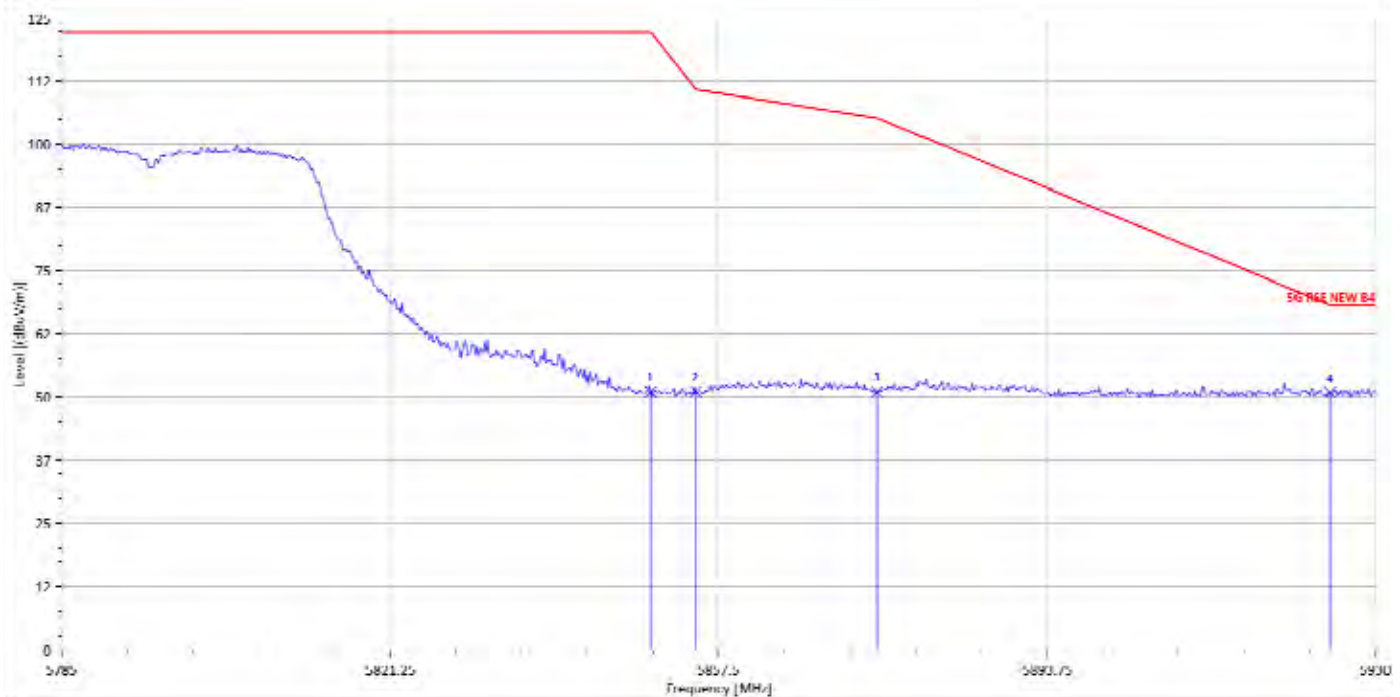
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Operation Mode : 802.11n40B4 Test Date : 2018/5/4
 Fundamental Frequency : 5795 MHz Temp. / Humi. : 22.7deg_C/57RH
 Operation Band : BE CH HIGH Test Engineer : Enzo
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	41.60	9.49	51.09	122.23	-71.14
5855.00	S	Peak	41.53	9.58	51.11	110.83	-59.72
5875.00	S	Peak	41.46	9.63	51.10	105.23	-54.13
5925.00	S	Peak	40.91	10.01	50.93	68.23	-17.30

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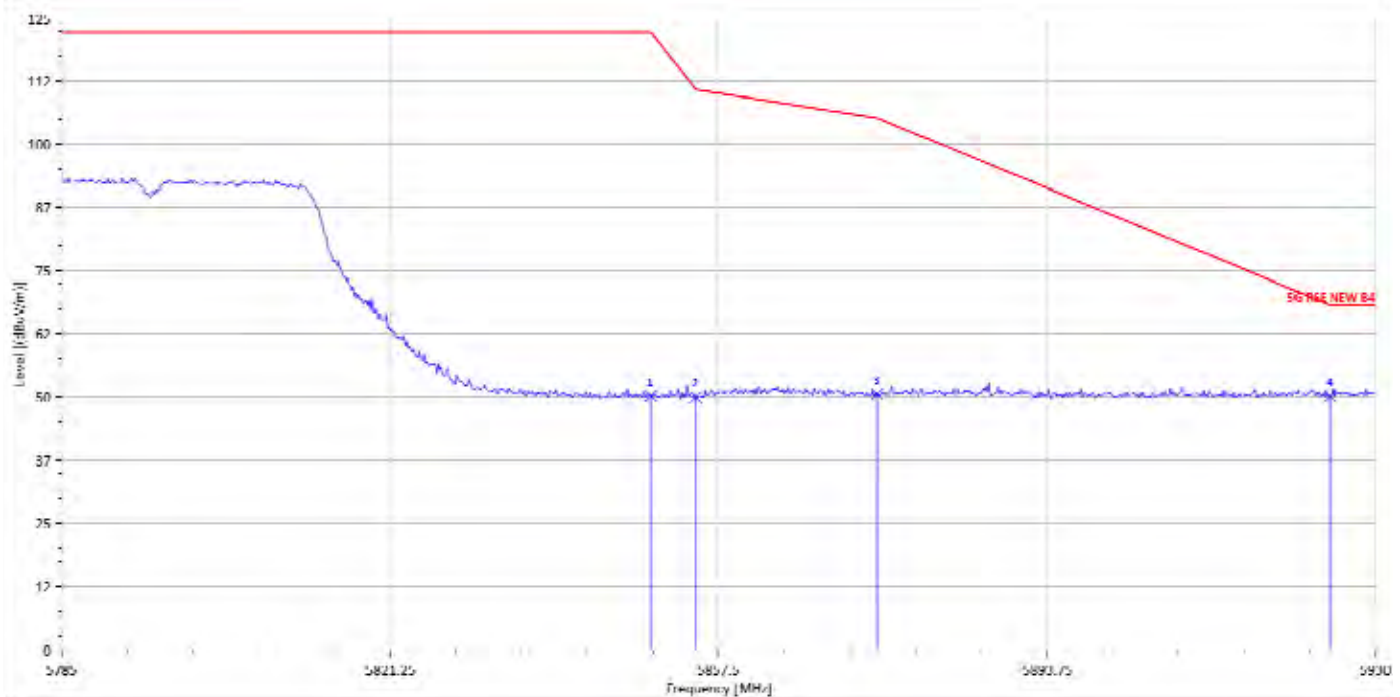
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Operation Mode :	802.11n40B4	Test Date :	2018/5/4
Fundamental Frequency :	5795 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	BE CH HIGH	Test Engineer :	Enzo
EUT Pol. :	E2	Measurement Antenna Pol. :	Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	40.73	9.49	50.22	122.23	-72.01
5855.00	S	Peak	40.42	9.58	50.00	110.83	-60.83
5875.00	S	Peak	40.98	9.63	50.61	105.23	-54.62
5925.00	S	Peak	40.16	10.01	50.17	68.23	-18.06

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7 天線增益之要求

7.1 適用標準

依據NCC低功率射頻電機技術規範4.7.3節之要求，

4.7.3.1 使用於5.15 GHz~5.25 GHz 頻段

(1) 供戶外操作使用：

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

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

(2) 供室內操作使用：

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

(3) 供固定式點對點操作使用：

(C) 使用超過23 dBi方向增益之指向性天線時，應依超過23 dBi天線方向增益的dBi總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

(D) 固定式點對點操作，不包括點對多點系統、全方向性應用及多台共站發射機傳送相同資訊。

(4) 供用戶端裝置(Client Device)操作使用：

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

4.7.3.3 使用頻率於5.725 GHz~5.850 GHz 頻段

(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。

7.2 天線增益

此裝置使用天線如下，詳細規格請參考附件天線規格書。

天線型式	Supplier	Model No.	發射頻帶(MHz)	天線增益(dBi)
Dipole	JOYMAX ELECTRONICS CO., LTD.	IWX-1551RSX9- 999	5150~5250 5725~5850	5 (Main)
			5150~5250 5725~5850	5 (Aux)

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8 26DB & 6DB 頻寬之測試

8.1 適用標準

(1) 5.15 GHz~5.25 GHz、5.25 GHz~5.35 GHz 及 5.47 GHz~5.725 GHz 頻段，測試儀器之頻寬應設定為 1 MHz 頻寬或待測物之 26 dB 發射頻寬，兩者取較小者。

(2) 5.725 GHz~5.850 GHz 頻段，測試儀器之頻寬應設定為 500 kHz 或待測物之 26dB 發射頻寬，兩者取較小者。

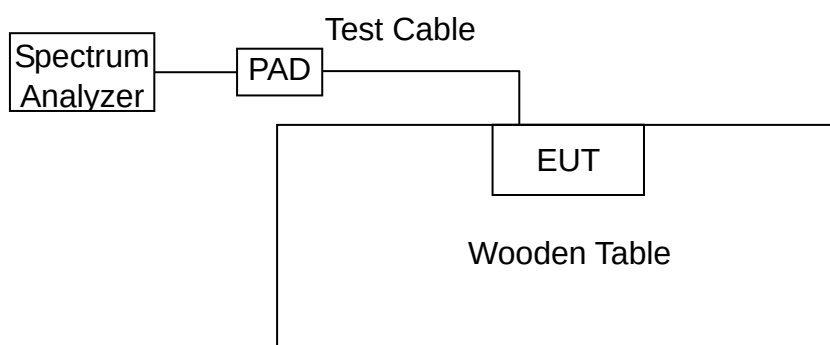
解析頻寬小於(1)或(2)時，應以補償方式計算總功率頻譜密度。

8.2 量測方法

將發射機之天線埠經由適當之衰減直接連至測試儀器。

設定儀器之解析頻寬為 100KHz, 視訊頻寬 $\geq$ 解析頻寬, 頻率掃描範圍(span)大於解析頻寬

8.3 測試配置



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8.4 量測結果

測試設備: WiFi AP/Client

型號: EKI-6331AN-BE

解析頻寬: 100 kHz

視頻頻寬: 300 kHz

Span: a/n20: 50MHz, n40: 60MHz,

測試日期: 05/04/2018

環境溫度: 25°C

環境濕度: 60%

測試者:

呂建伸

8.4.1 26dB Bandwidth

802.11a_Main

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.78	12.9629215
5220	19.00	12.7873074
5240	19.52	12.9052431

802.11a_Aux1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.40	12.878465
5220	18.97	12.7809022
5240	19.72	12.9490691

802.11n_HT20_Main

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	20.51	13.1198683
5220	20.19	13.0513632
5240	20.28	13.0704654

802.11n_HT20_Aux1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	20.53	13.1243126
5220	19.95	12.999429
5240	20.04	13.0189772

802.11n_HT40_Main

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	38.55	15.8606944
5230	39.68	15.9856072

802.11n_HT40_Aux1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.48	15.9639914
5230	38.84	15.8923449

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8.4.2 6dB Bandwidth

802.11a_Main

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.49	12.1722066
5785	16.51	12.1761553
5825	16.56	12.1898165

802.11a_Aux1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.52	12.1801004
5785	16.52	12.1798375
5825	16.51	12.1764184

802.11n_HT20_Main

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.76	12.4951632
5785	17.69	12.4775238
5825	17.70	12.4792419

802.11n_HT20_Aux1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.67	12.4711364
5785	17.66	12.4686772
5825	17.72	12.4853724

802.11n_HT40_Main

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	36.26	15.5940384
5795	36.13	15.5787998

802.11n_HT40_Aux1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	36.28	15.5971516
5795	36.36	15.6067165

8.4.3 Cross Band

802.11a_Main

Frequency (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.13	< 5250
5745	5736.60	> 5725

802.11a_Aux1

Frequency (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.13	< 5250
5745	5736.66	> 5725

802.11n_HT20_Main

Frequency (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.73	< 5250
5745	5736.03	> 5725

802.11n_HT20_Aux1

Frequency (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.73	< 5250
5745	5736.06	> 5725

802.11n_HT40_Main

Frequency (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.05	< 5250
5755	5736.80	> 5725

802.11n_HT40_Aux1

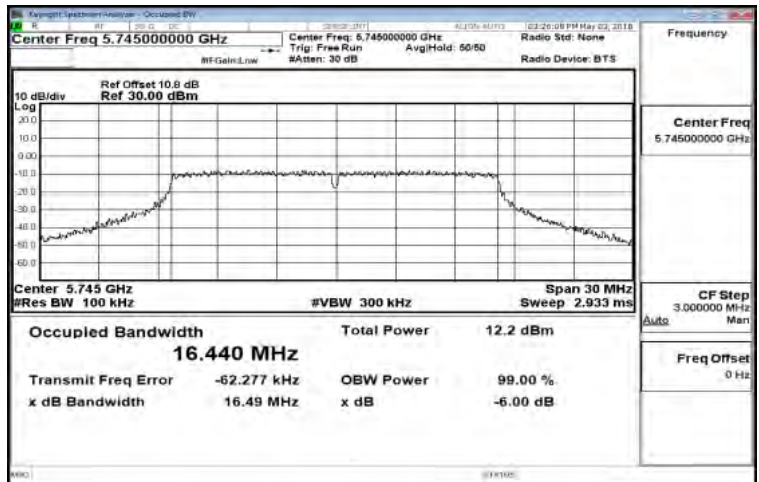
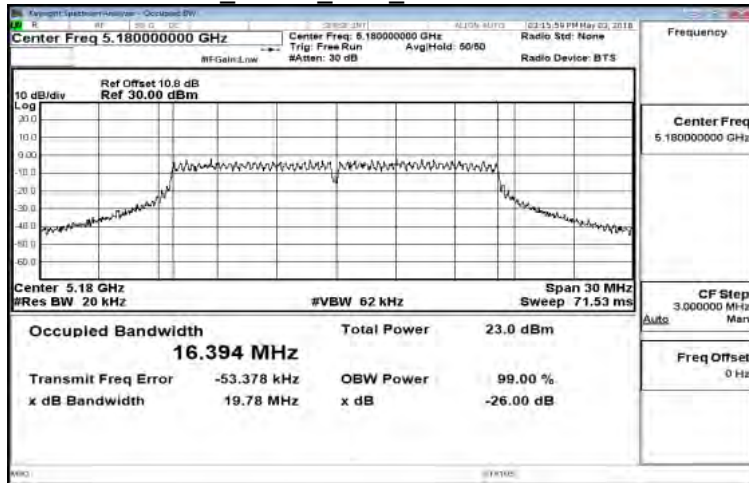
Frequency (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.05	< 5250
5755	5736.85	> 5725

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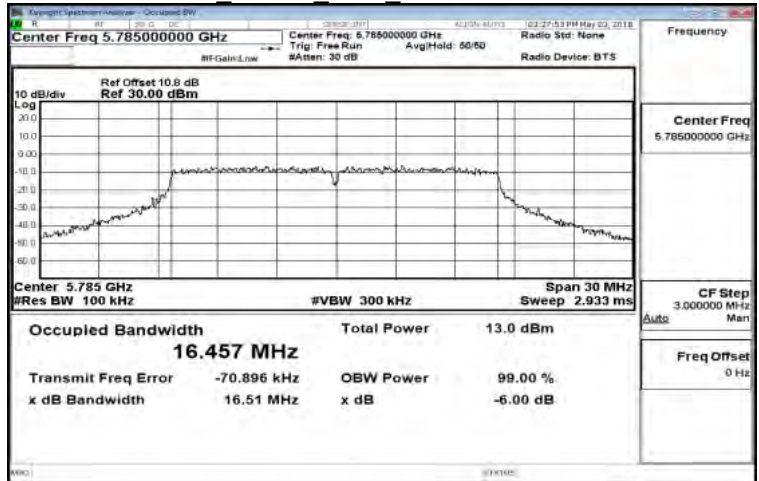
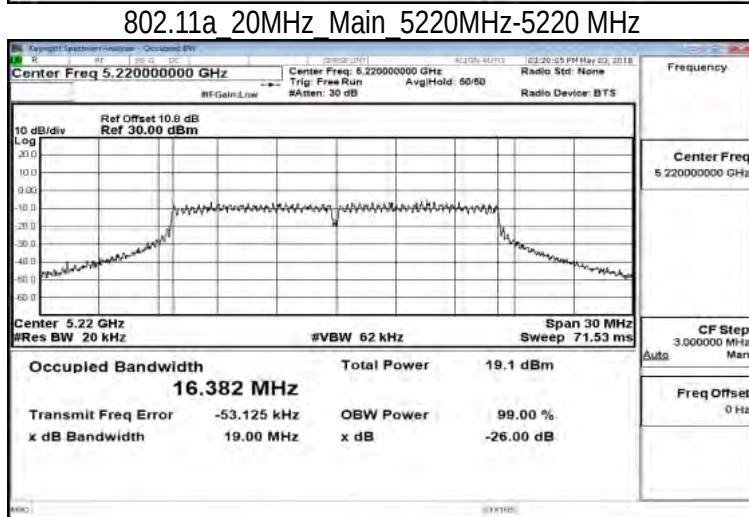
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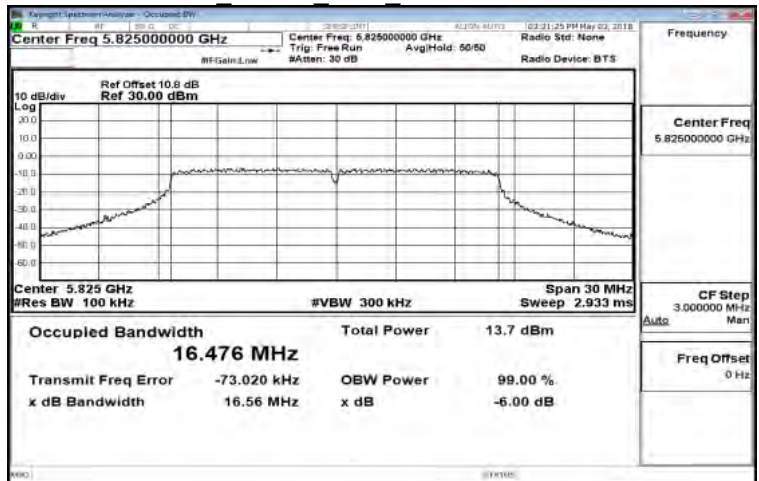
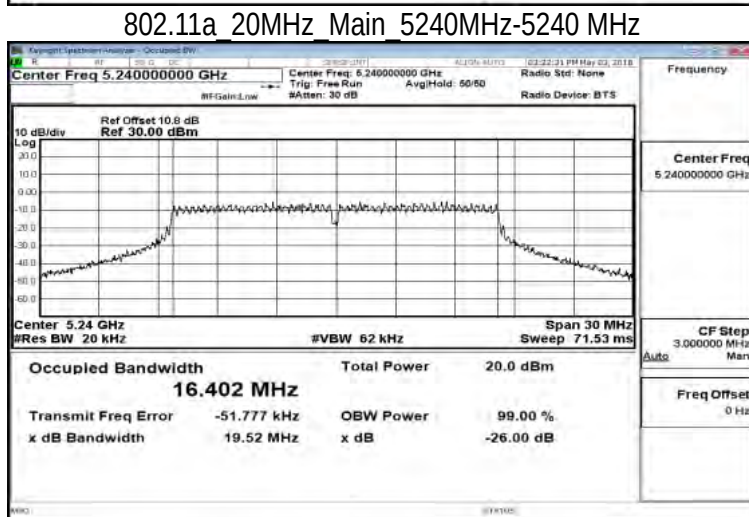
802.11a 20MHz Main 5180MHz-5180MHz



802.11a 20MHz Main 5785MHz-5785 MHz



802.11a 20MHz Main 5825MHz-5825 MHz



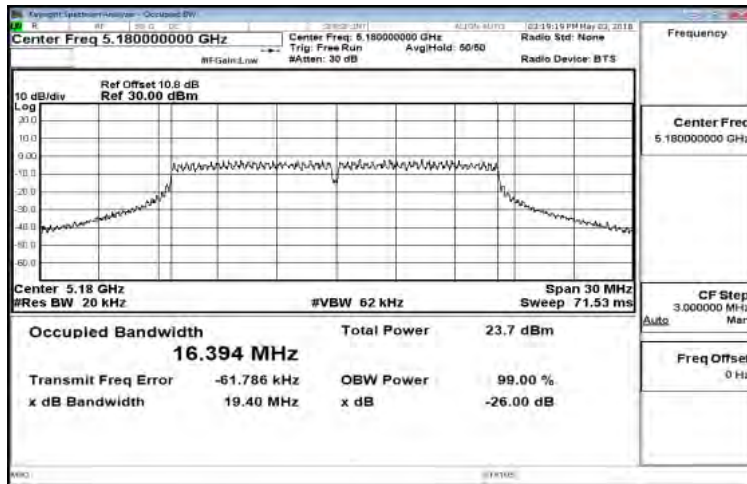
802.11a_20MHz_Aux 1_MHz-5180MHz

802.11a_20MHz_Main_5745MHz-5745 MHz

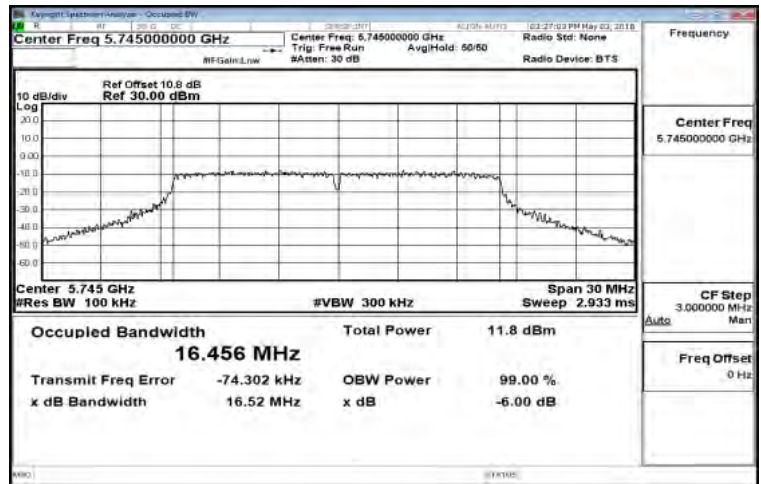
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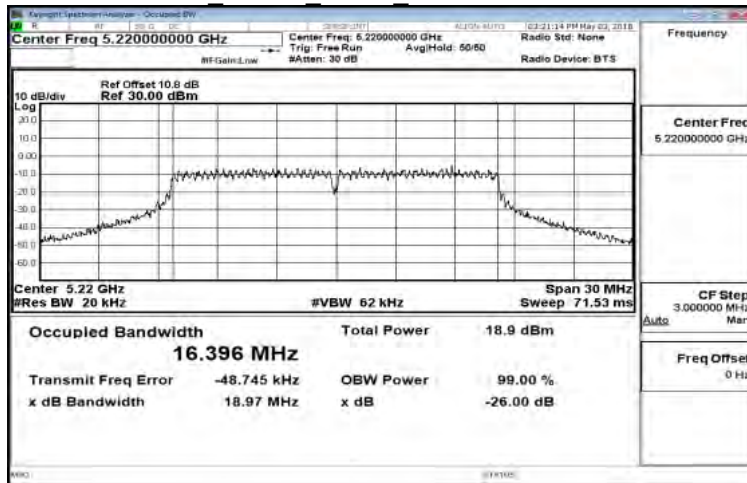
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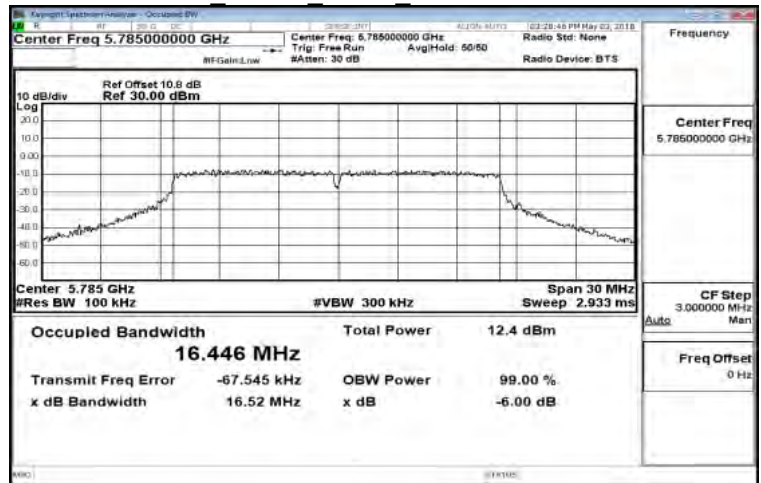
802.11a 20MHz Aux 1 5220MHz-5220 MHz



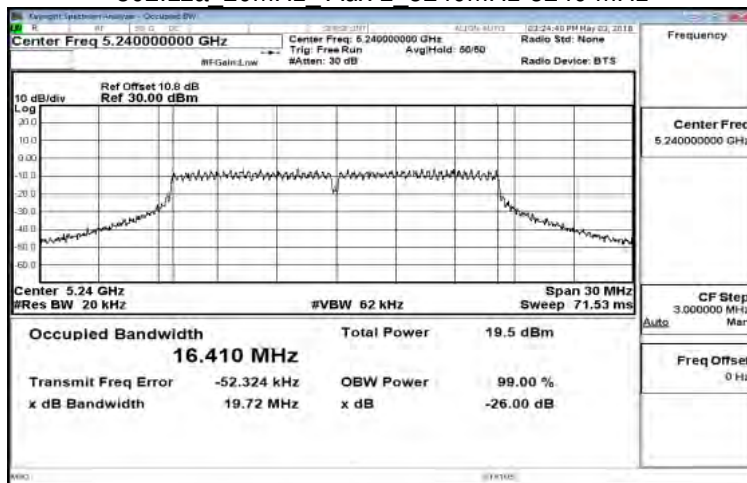
802.11a 20MHz Aux 1 5785MHz-5785 MHz



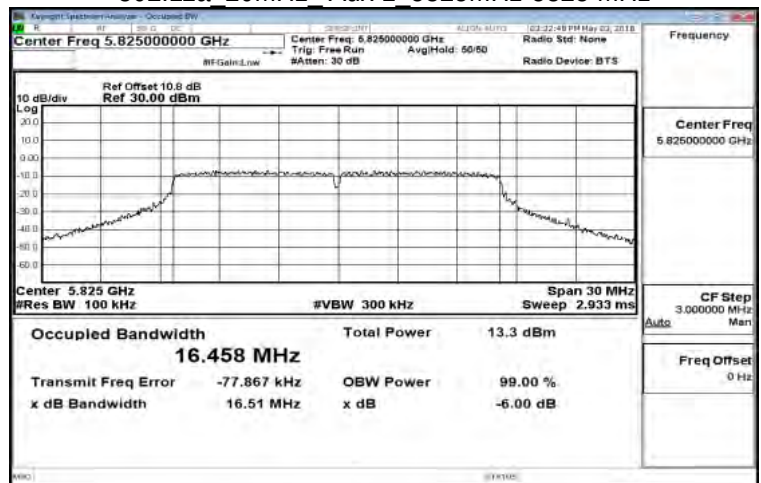
802.11a 20MHz Aux 1 5240MHz-5240 MHz



802.11a 20MHz Aux 1 5825MHz-5825 MHz



802.11a 20MHz Aux 1 5745MHz-5745 MHz



802.11n 20MHz Main 5180MHz-5180 MHz

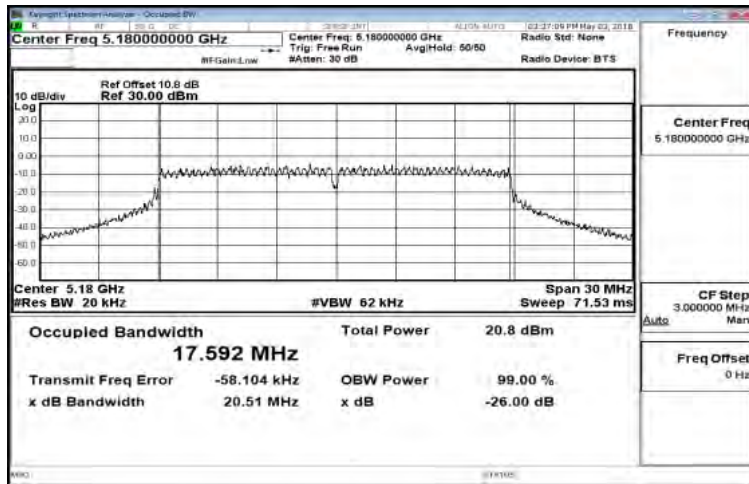
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802.11n_20MHz_Main_5180MHz-5180 MHz

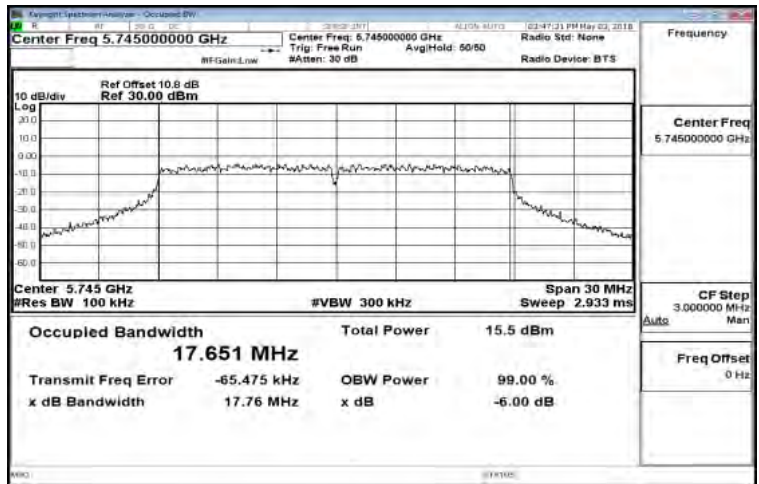
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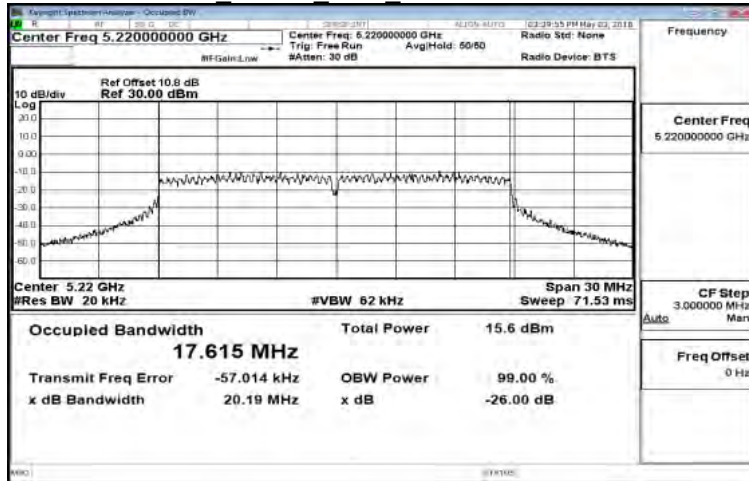
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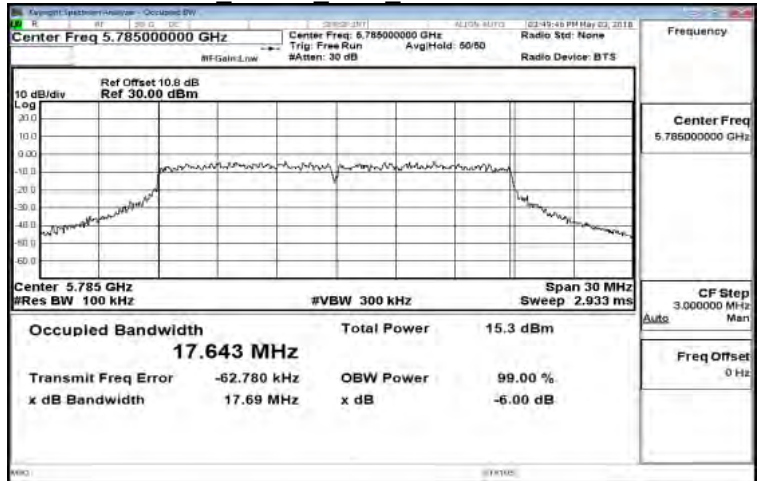
802.11n 20MHz Main 5220MHz-5220 MHz



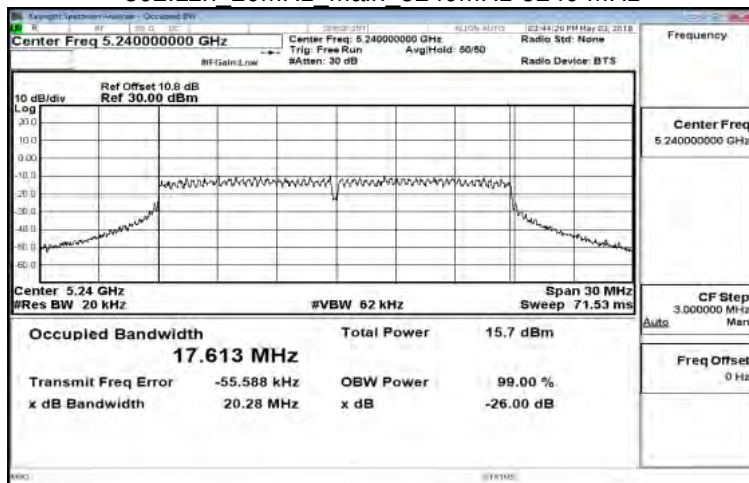
802.11n 20MHz Main 5785MHz-5785 MHz



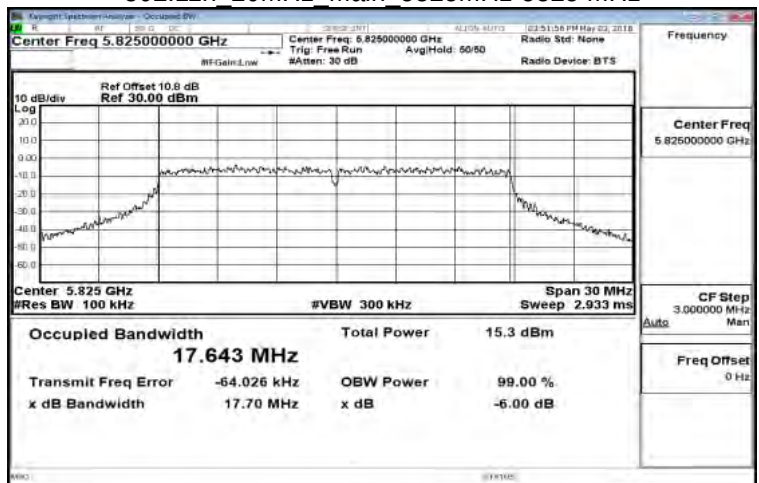
802.11n 20MHz Main 5240MHz-5240 MHz



802.11n 20MHz Main 5825MHz-5825 MHz



802.11n 20MHz Main 5745MHz-5745 MHz

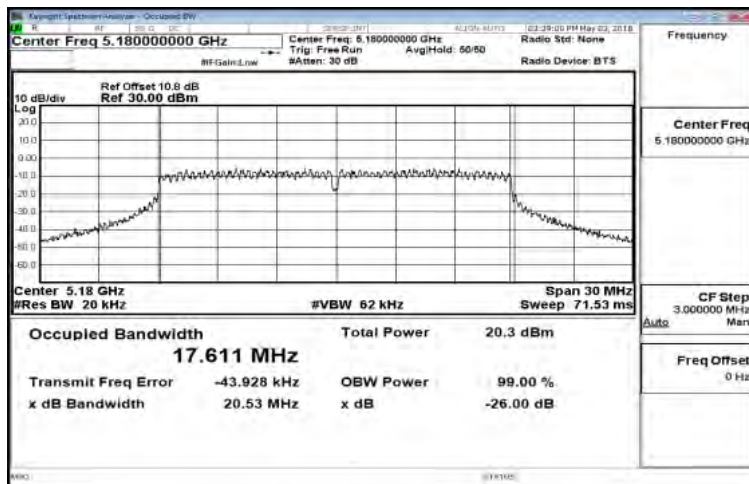


802.11n 20MHz AUX1 5180MHz-5180 MHz

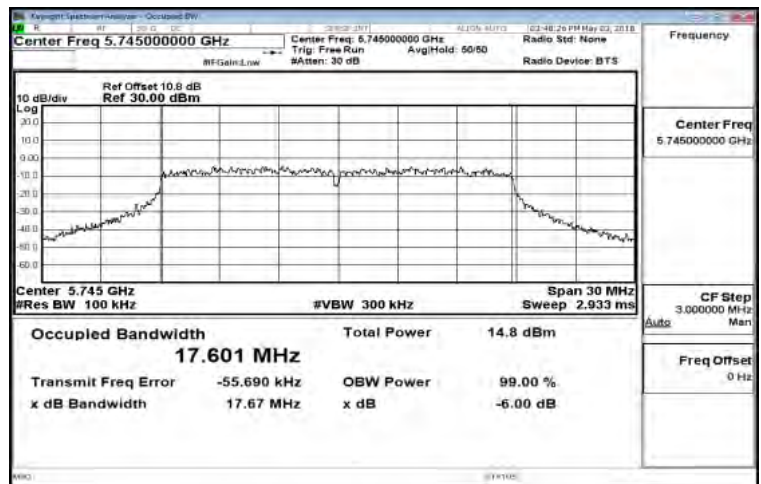
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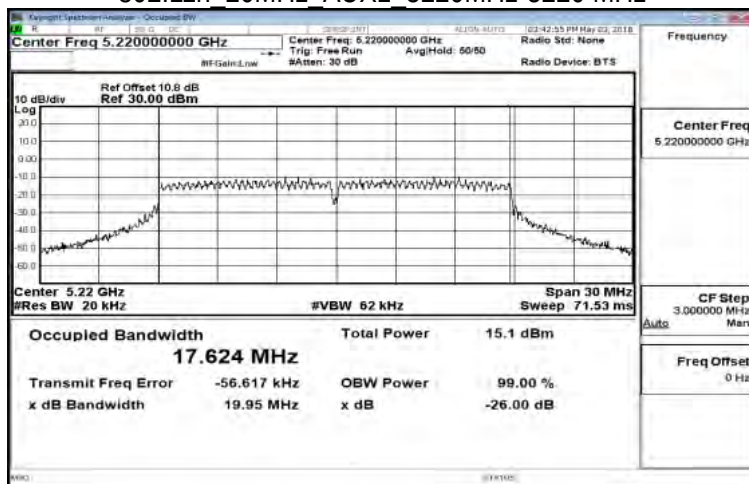
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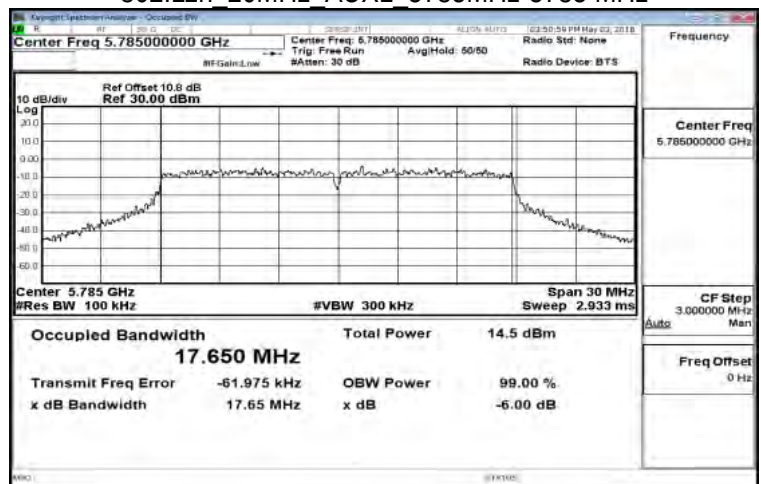
802.11n 20MHz AUX1 5220MHz-5220 MHz



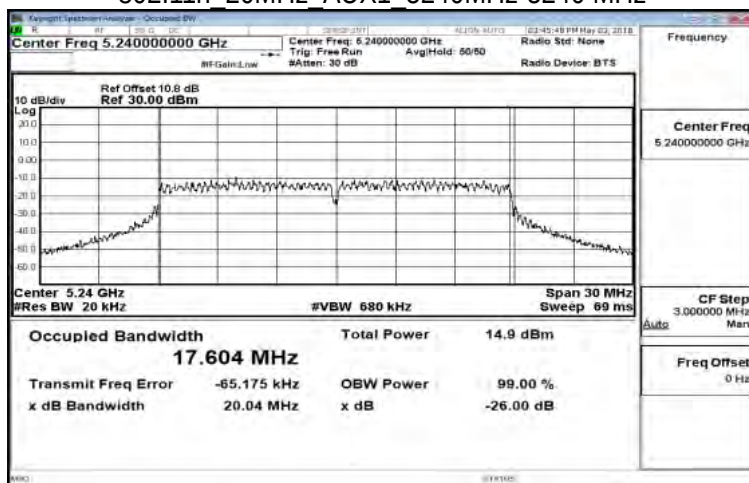
802.11n 20MHz AUX1 5785MHz-5785 MHz



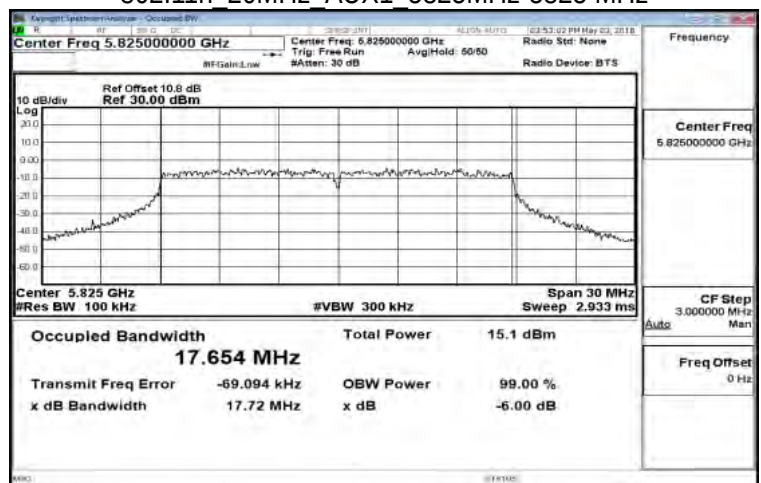
802.11n 20MHz AUX1 5240MHz-5240 MHz



802.11n 20MHz AUX1 5825MHz-5825 MHz



802.11n 20MHz AUX1 5745MHz-5745 MHz

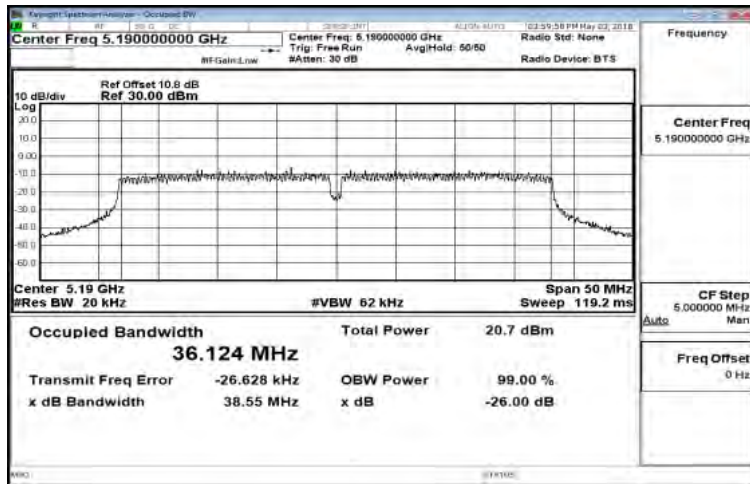


802.11n 40MHz Main 5190MHz-5190 MHz

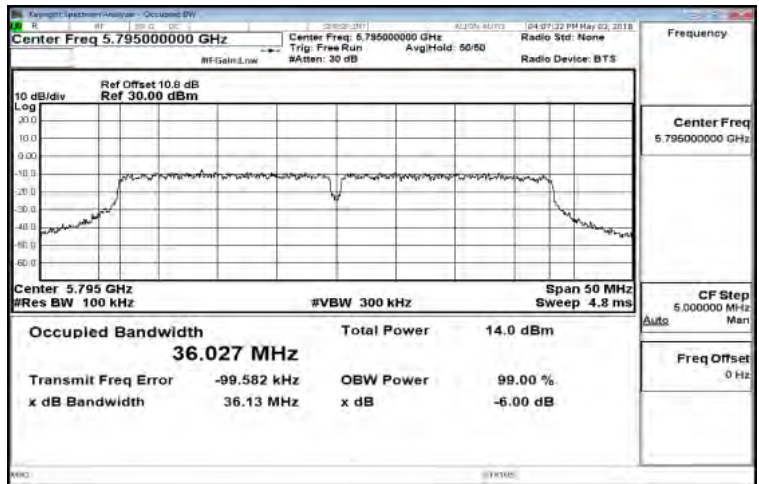
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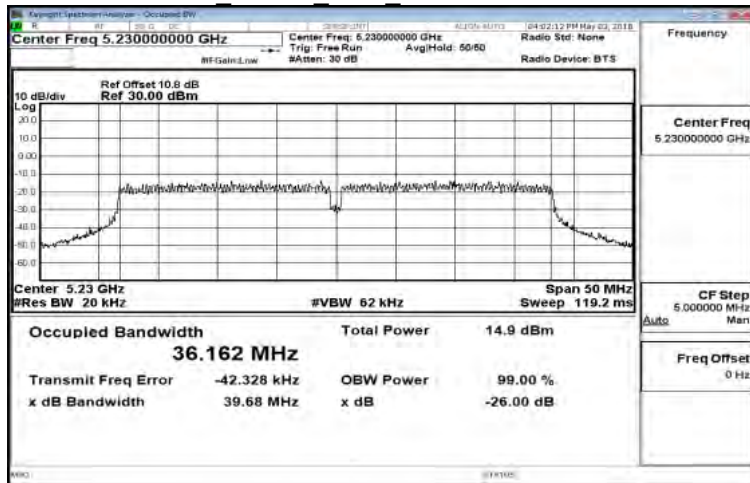
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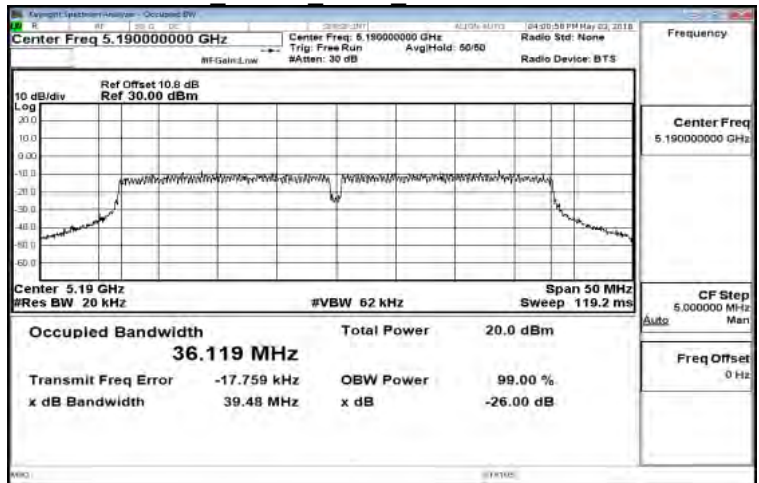
802.11n 40MHz Main 5230MHz-5230 MHz



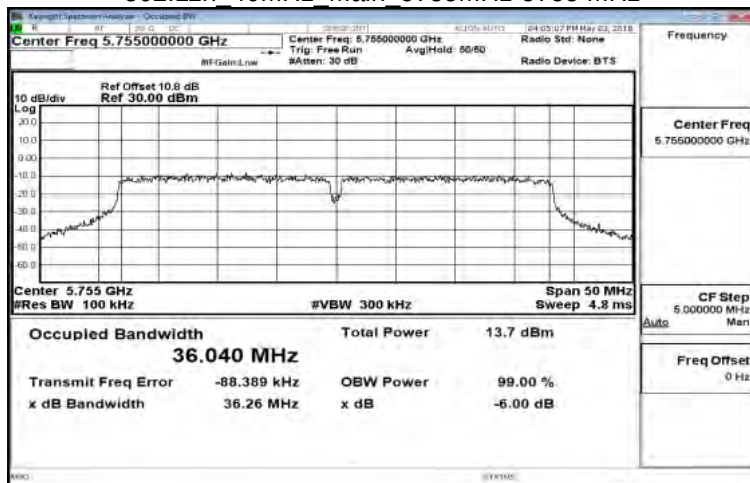
802.11n 40MHz AUX1 5190MHz-5190 MHz



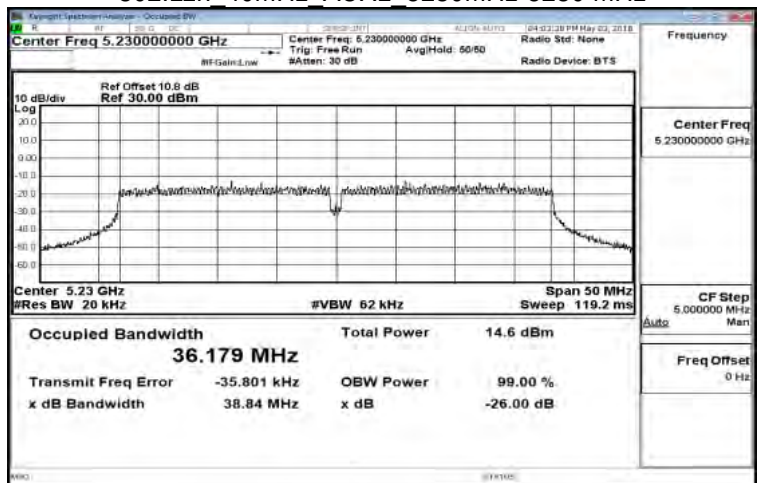
802.11n 40MHz Main 5755MHz-5755 MHz



802.11n 40MHz AUX1 5230MHz-5230 MHz



802.11n 40MHz Main 5795MHz-5795 MHz

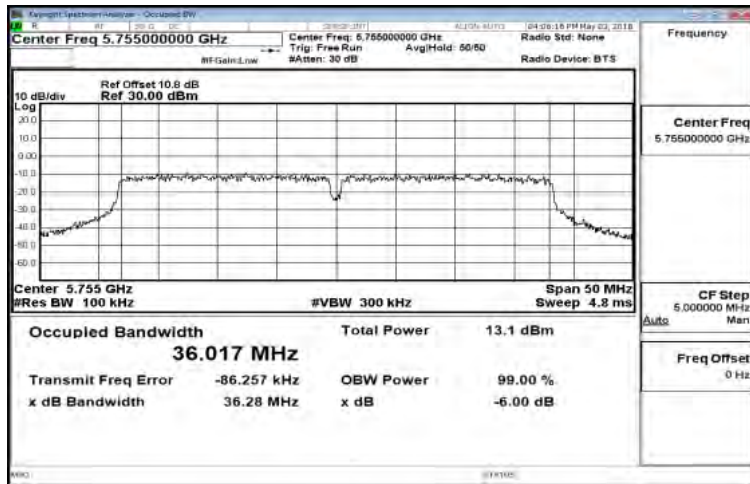


802.11n 40MHz AUX1 5755MHz-5755 MHz

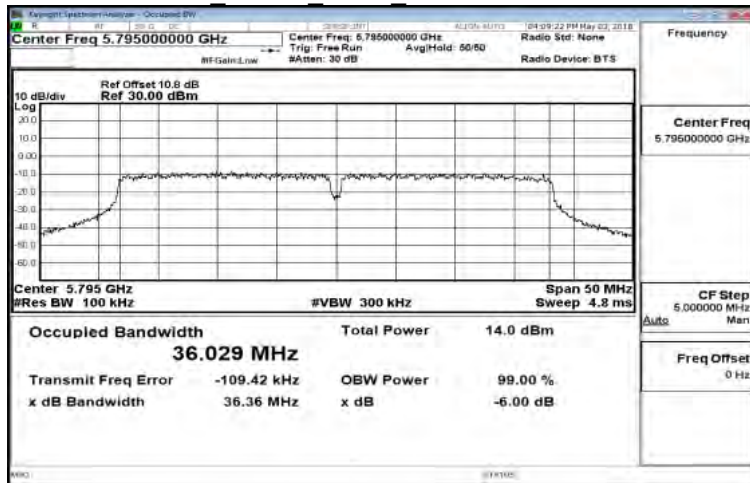
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802.11n 40MHz AUX1 5795MHz-5795 MHz



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9 輸出峰值功率之量測

9.1 適用標準

依據NCC低功率射頻電機技術規範4.7.3節之要求，使用於5.15 GHz~5.25 GHz 頻段

(1) 供戶外操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。
- (D) 在水平面仰角超過30 度時，其最大EIRP 應小於或等於21 dBm。

(2) 供室內操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

(3) 供固定式點對點操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過23 dBi方向增益之指向性天線時，應依超過23 dBi天線方向增益的dBi總量，等量減少最大傳導輸出功率及最大功率頻譜密度。
- (D) 固定式點對點操作，不包括點對多點系統、全方向性應用及多台共站發射機傳送相同資訊。

(4) 供用戶端裝置(Client Device)操作使用：

- (A) 最大傳導輸出功率應小於或等於250 mW。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於11 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

使用頻率於5.25 GHz~5.35 GHz 與5.470 GHz~5.725 GHz 頻段

- (1) 最大傳導輸出功率應小於或等於250 mW或11dBm+10log B (B是26 dB發射頻寬，單位MHz)之較小者。
- (2) 最大功率頻譜密度在任何1 MHz 頻帶中應小於或等於11 dBm。
- (3) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

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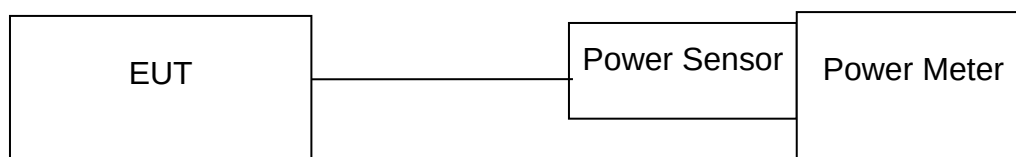
使用頻率於5.725 GHz~5.850 GHz 頻段

- (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。

9.2 測試方法

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
3. Set the offset $10 \cdot \log(1/x)$ ($x=0.99$), 0.04 approximately
4. Record the max. reading.
5. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

9.3 輸出功率之測試配置



9.4 量測儀器設備

同本報告 4.3 節傳導配置圖

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9.5 輸出功率之量測結果

測試設備: WiFi AP/Client

6dB 頻寬: 1MHz

Span: 30MHz/60MHz

環境溫度: 25°C

測試者:

吳建伸

型號: EKI-6331AN-BE

視頻頻寬: 3MHz

測試日期: 05/04/2018

環境濕度: 60%

802.11a_Main

CH	Freq. (MHz)	Data Rate	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	17.15	30	PASS
44	5220	6	16.80	30	PASS
48	5240	6	16.85	30	PASS
149	5745	6	11.78	30	PASS
157	5785	6	12.30	30	PASS
165	5825	6	12.53	30	PASS

802.11a_AUX1

CH	Freq. (MHz)	Data Rate	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	17.02	30	PASS
44	5220	6	16.74	30	PASS
48	5240	6	16.78	30	PASS
149	5745	6	11.75	30	PASS
157	5785	6	12.23	30	PASS
165	5825	6	12.44	30	PASS

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802.11n_HT20_Main

CH	Freq. (MHz)	Data Rate	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	14.61	30	PASS
44	5220	MCS0	14.93	30	PASS
48	5240	MCS0	14.77	30	PASS
149	5745	MCS0	14.83	30	PASS
157	5785	MCS0	14.71	30	PASS
165	5825	MCS0	14.60	30	PASS

802.11n_HT20_AUX1

CH	Freq. (MHz)	Data Rate	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	15.13	30	PASS
44	5220	MCS0	15.05	30	PASS
48	5240	MCS0	15.17	30	PASS
149	5745	MCS0	15.61	30	PASS
157	5785	MCS0	14.92	30	PASS
165	5825	MCS0	15.06	30	PASS

802.11n_HT20_MIMO

CH	Freq. (MHz)	Data Rate	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
			CH0	CH1			
36	5180	MCS8	14.81	14.57	17.99	21.97	PASS
44	5220	MCS8	14.74	14.52	17.93	21.97	PASS
48	5240	MCS8	14.73	14.14	17.74	21.97	PASS
149	5745	MCS8	15.45	13.52	17.89	27.99	PASS
157	5785	MCS8	15.41	13.18	17.73	27.99	PASS
165	5825	MCS8	15.41	13.44	17.83	27.99	PASS

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802.11n_HT40_Main

CH	Freq. (MHz)	Data Rate	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	14.69	30	PASS
46	5230	MCS0	14.62	30	PASS
151	5755	MCS0	13.78	30	PASS
159	5795	MCS0	14.54	30	PASS

802.11n_HT40_AUX1

CH	Freq. (MHz)	Data Rate	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	15.03	30	PASS
46	5230	MCS0	14.74	30	PASS
151	5755	MCS0	14.17	30	PASS
159	5795	MCS0	14.84	30	PASS

802.11n_HT40_MIMO

CH	Freq. (MHz)	Data Rate	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
			CH0	CH1			
38	5190	MCS8	14.41	14.26	17.76	21.97	PASS
46	5230	MCS8	14.56	14.14	17.77	21.97	PASS
151	5755	MCS8	14.39	12.48	16.96	27.99	PASS
159	5795	MCS8	15.29	13.02	17.72	27.99	PASS

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10 功率密度之限制

10.1 適用標準

依據NCC低功率射頻電機技術規範4.7.3節之要求，使用於5.15 GHz~5.25 GHz 頻段

(1) 供戶外操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。
- (D) 在水平面仰角超過30 度時，其最大EIRP 應小於或等於21 dBm。

(2) 供室內操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

(3) 供固定式點對點操作使用：

- (A) 最大傳導輸出功率應小於或等於1 W。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於17 dBm。
- (C) 使用超過23 dBi方向增益之指向性天線時，應依超過23 dBi天線方向增益的dBi總量，等量減少最大傳導輸出功率及最大功率頻譜密度。
- (D) 固定式點對點操作，不包括點對多點系統、全方向性應用及多台共站發射機傳送相同資訊。

(4) 供用戶端裝置(Client Device)操作使用：

- (A) 最大傳導輸出功率應小於或等於250 mW。
- (B) 在任何1 MHz 頻帶中最大功率頻譜密度應小於或等於11 dBm。
- (C) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

使用頻率於5.25 GHz~5.35 GHz 與5.470 GHz~5.725 GHz 頻段

- (1) 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。
- (2) 最大功率頻譜密度在任何1 MHz 頻帶中應小於或等於11 dBm。
- (3) 使用超過6 dBi 方向增益之發射天線時，應依超過6 dBi 天線方向增益的dBi 總量，等量減少最大傳導輸出功率及最大功率頻譜密度。

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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。

10.2 測試方式

將發射機之天線埠經由適當之衰減直接連至測試儀器。找出發射峰值並擴展於通帶內，設定解析頻寬為 1 MHz，視訊頻寬大於解析頻寬，掃描時間為頻率掃描範圍除以 1 MHz。

10.3 測試配置

同本報告 8.3 節傳導配置圖

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10.4 功率密度量測結果

測試設備: WiFi AP/Client

解析頻寬: 1MHz

Span: 50MHz/80MHz/160MHz

環境溫度: 25°C

測試者:

吳建伸

型號: EKI-6331AN-BE

視頻頻寬: 3MHz

測試日期: 05/04/2018

環境濕度: 60%

POWER DENSITY 802.11a MODE				
Frequency (MHz)	PPSD (dBm)	Offset	Limit (dBm)	Margin (dB)
5180	4.04	10.80	17	-12.96
5220	0.49	10.80	17	-16.51
5240	0.89	10.80	17	-16.11
5745	0.18	10.80	30	-29.82
5785	0.07	10.80	30	-29.93
5825	-0.06	10.80	30	-30.06

POWER DENSITY 802.11n HT20 MODE				
Frequency (MHz)	PPSD (dBm)	Offset	Limit (dBm)	Margin (dB)
5180	3.59	10.80	14.99	-11.40
5220	-0.97	10.80	14.99	-15.96
5240	-0.85	10.80	14.99	-15.84
5745	7.01	10.80	27.99	-20.98
5785	5.17	10.80	27.99	-22.82
5825	5.34	10.80	27.99	-22.65

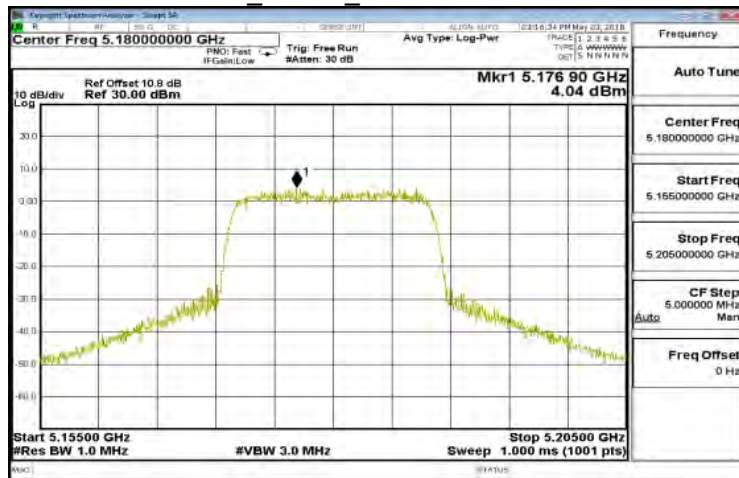
POWER DENSITY 802.11n HT40 MODE				
Frequency (MHz)	PPSD (dBm)	Offset	Limit (dBm)	Margin (dB)
5190	0.25	10.80	14.99	-14.74
5230	-5.08	10.80	14.99	-20.07
5755	1.67	10.80	27.99	-26.32
5795	1.29	10.80	27.99	-26.70

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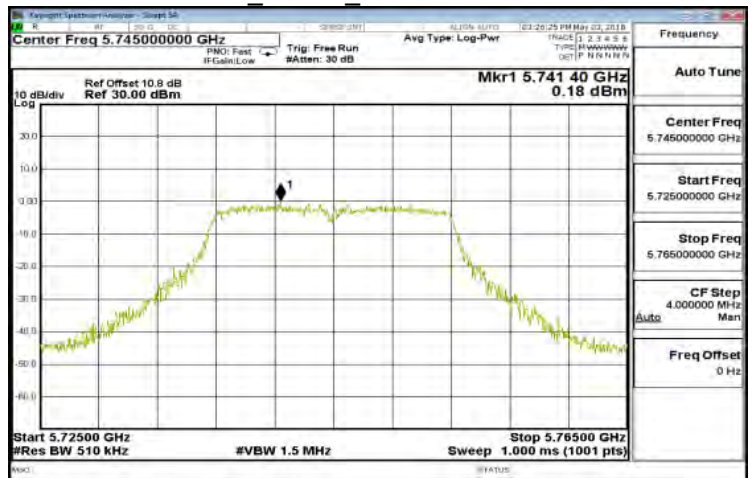
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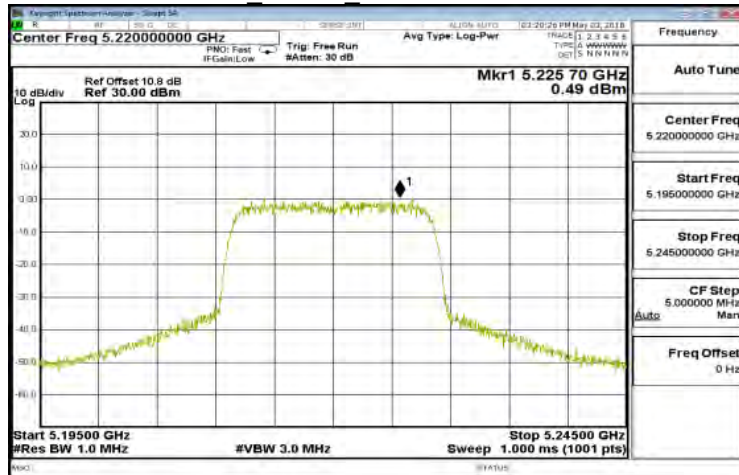
802.11a 20MHz 5180MHz-5180 MHz



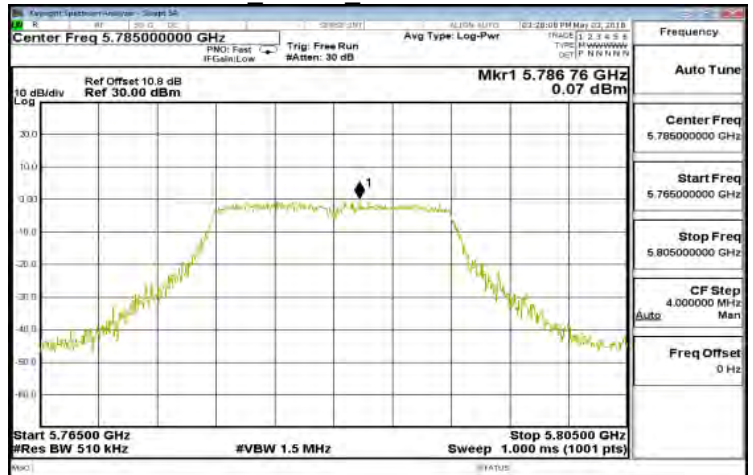
802.11a 20MHz 5745MHz-5745 MHz



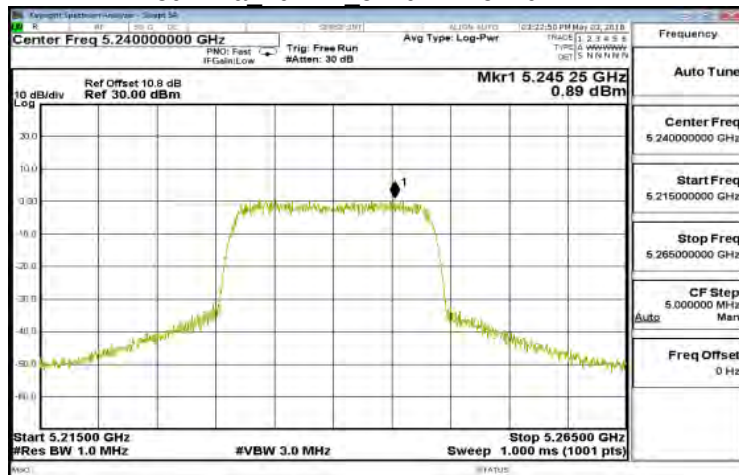
802.11a 20MHz 5220MHz-5220 MHz



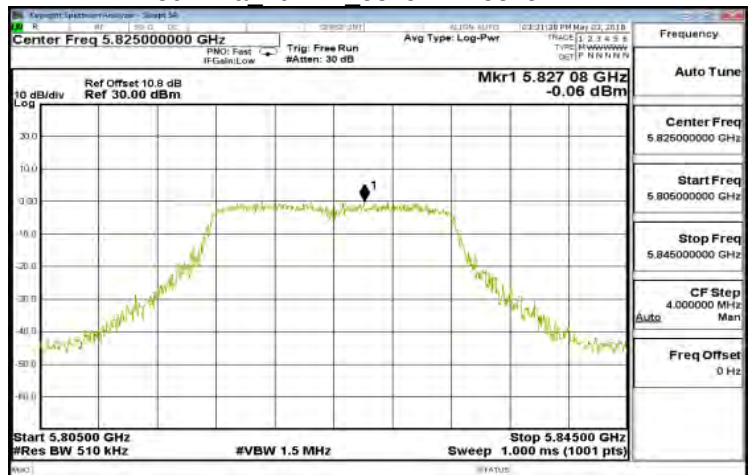
802.11a 20MHz 5785MHz-5785 MHz



802.11a 20MHz 5240MHz-5240 MHz



802.11a 20MHz 5825MHz-5825 MHz

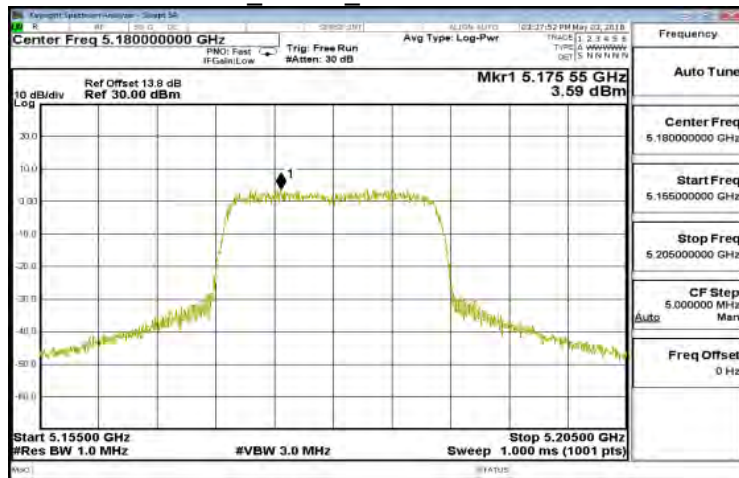


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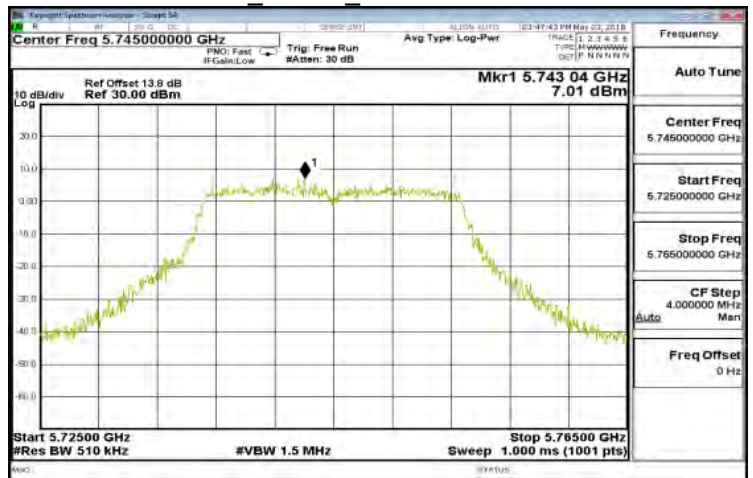
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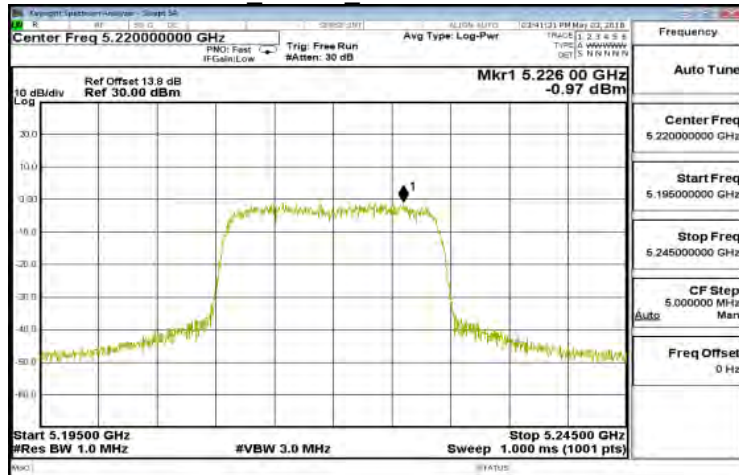
802.11n 20MHz 5180MHz-5180 MHz



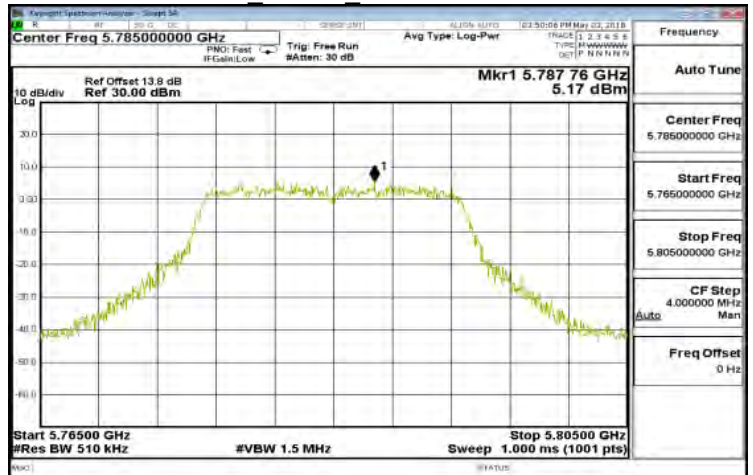
802.11n 20MHz 5745MHz-5745 MHz



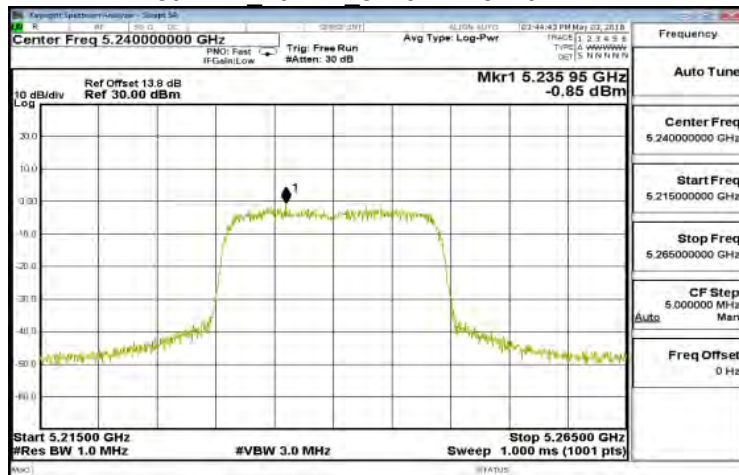
802.11n 20MHz 5220MHz-5220 MHz



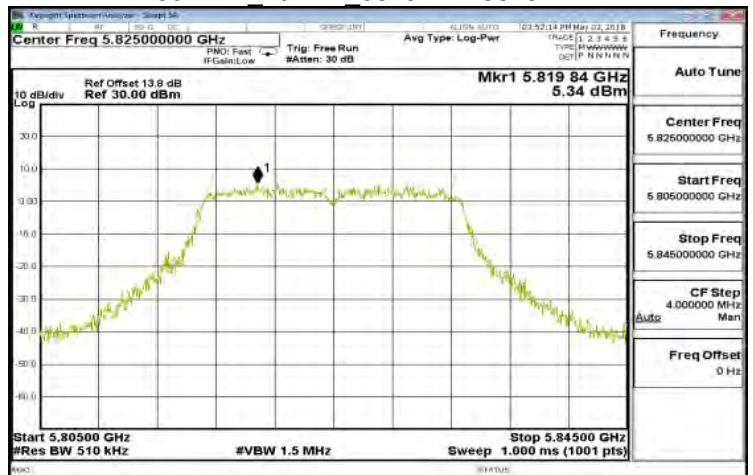
802.11n 20MHz 5785MHz-5785 MHz



802.11n 20MHz 5240MHz-5240 MHz



802.11n 20MHz 5825MHz-5825 MHz



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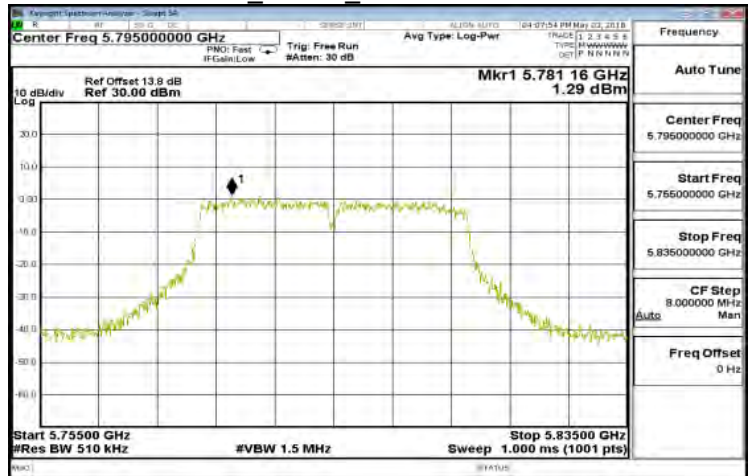
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802.11n 40MHz 5190MHz-5190 MHz



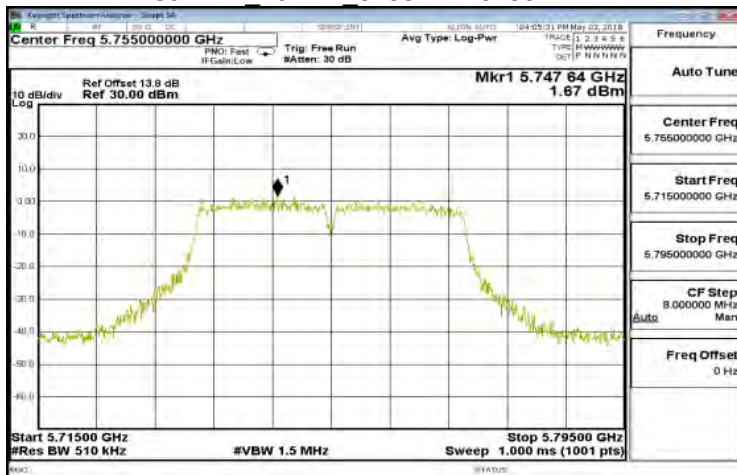
802.11n 40MHz 5795MHz-5795 MHz



802.11n 40MHz 5230MHz-5230 MHz



802.11n 40MHz 5755MHz-5755 MHz



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11 功率控制與動態頻率選擇

11.1 適用標準

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

動態頻率選擇(DFS):操作於5.25 GHz~5.35 GHz與5.470 GHz~5.725 GHz頻段之設備應具備動態頻率選擇雷達偵測功能並啟動之，以完整偵測使用頻帶內之雷達訊號，避免與雷達系統同頻道操作。相關規定如下：

(1) 最低動態頻率選擇的偵測門檻

- (A) 最大EIRP 為200 mW~1 W之設備，其最低動態頻率選擇的偵測門檻值為-64dBm。
- (B) 最大EIRP 低於200 mW，且功率頻譜密度小於10 dBm/MHz 之設備，其最低動態頻率選擇的偵測門檻值為-62 dBm。
- (C) 最大EIRP 低於200 mW，且功率頻譜密度大於或等於10 dBm/MHz 之設備，其最低動態頻率選擇的偵測門檻值為-64 dBm。
- (D) 此偵測門檻值為1 微秒內之平均接收功率，並以0 dBi 天線為參考基準。頻道初始設定得由系統隨機選取或使用使用者手動選取。

(2) 操作模式：動態頻率選擇之規定適用於以下之操作模式：

- (A) 頻道可用性檢查時間之規定，適用於主控運作模式。
- (B) 頻道移動時間之規定，適用於主控及受控運作模式。

(3) 頻道可用性檢查時間：設備必須檢查其可在某一頻道上起始傳送之前是否有雷達系統已經操作在該頻道上，以及何時其必須移動到另一新的頻道，在60 秒內若沒有偵測到功率位準大過上述之干擾門檻值的雷達訊號時，設備才可開始使用該頻道。

(4) 頻道移動時間：在偵測到雷達的存在後，所有在該操作頻道上的所有傳輸須在10秒內停止，在偵測到雷達訊號後，該期間內的傳輸應維持最多200 毫秒的正常通訊。 另外，間歇性的管理與控制訊號可在剩餘的時間中傳送，以便撤離該操作頻道。

(5) 不可佔用期間：某一頻道已被頻道可用性檢查或“服務中”監視顯示含有雷達系統，至少須有30 分鐘的不可佔用期間。不可佔用期間起始於偵測到雷達系統的當時。

11.2 測試方式

將發射機之天線埠經由適當之衰減直接連至測試儀器。設定於待測物正常使用頻將功率設置於最小位準,將其紀錄

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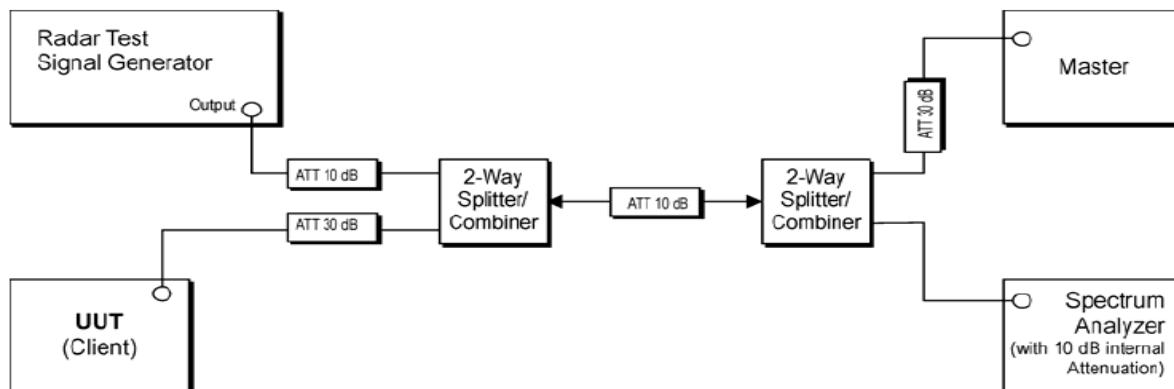
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11.3 測試配置

裝置為 slave 無雷達偵測功能



11.4 測試設備

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	06/20/2017	06/19/2018
Power Meter	Anritsu	ML2496A	1326001	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315048	06/23/2017	06/22/2018
Power Sensor	Anritsu	MA2411B	1315049	06/23/2017	06/22/2018
Coaxial Cable 30cm	WOKEN	00100A1F1A19 5C	RF01	12/24/2017	12/23/2018
DC Block	PASTERNAK	PE8210	RF29	12/24/2017	12/23/2018
Splitter	RF-LAMBDA	RFLT2W1G18G	RF35	12/24/2017	12/23/2018
Attenuator	WOKEN	218FS-10	RF23	12/24/2017	12/23/2018
DC Power Supply	Agilent	E3640A	MY53140006	05/02/2018	05/01/2019

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11.5 動態頻率測試限制

1. 操作模式，動態頻率選擇的規定適用於以下之操作模式：

(I)頻道可用性檢查時間的規定，適用於主控運作模式。

(II)頻道移動時間的規定，適用於主控及受控運作模式。

2. 頻道可用性檢查時間：設備必須檢查其可在某一頻道上起始傳送之前是否有雷達系統已經操作在該頻道上，以及何時其必須移動到另一新的頻道，在 60 秒內若沒有偵測到功率位準大過上述之干擾門檻值的雷達信號時，設備才可開始使用該頻道。

3. 頻道移動時間：在偵測到雷達的存在後，所有在該操作頻道上的所有傳輸須在 10 秒內停止，在偵測到雷達信號後，該期間內的傳輸應維持最多 200 毫秒的正常通訊。另外，間歇性的管理與控制信號可在剩餘的時間中傳送，以便撤離該操作頻道。

4. 不可佔用期間：某一頻道已被頻道可用性檢查或“服務中”監視顯示含有雷達系統，至少須有 30 分鐘的不可佔用期間。不可佔用期間起始於偵測到雷達系統的當時。

11.6 功率控制與動態頻率選擇量測結果

11.6.1 功率小於 500mW 不需有功率控制功能

11.6.2 動態頻率選擇測試結果

N/A, 此裝置不支援 UNII-2A & UNII-2C 頻段。

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11.6.3 功率控制與動態頻率選擇量測結果

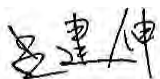
測試設備: WiFi AP/Client

型號: EKI-6331AN-BE

環境溫度: 25°C

環境濕度: 60%

測試者:



測試日期: 05/04/2018

測試項目	測試結果	結果判定
頻道移動/結束時間	請參閱12.6節	合格
不可佔用期間	請參閱12.6節	合格
功率控制	EIRP值<500mW	不須具備TPC機能

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12 最大暴露允許值 (MAXIMUM PERMISSIBLE EXPOSURE, MPE)

規範要求

依據 NCC 低功率射頻電機技術規範之 5.20.2，其發射機距離人體 20 公分以上者，需證明其符合電波暴露量之要求，限制值如下：

(1) 職業性/可控制之暴露

頻率範圍 (MHz)	電場強度 (V/m)	磁場強度 (A/m)	功率密度 (mW/cm ²)	平均時間 (minutes)
0.3-3.0	614	1.63	*100	6
3-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500	-----	-----	f/300	6
1,500-100,000	-----	-----	5.0	6

註 1：標記*表平面波等效功率密度。

註 2：f 表測試頻率，單位：百萬赫(MHz)。

(2) 一般人/不可控制之暴露

頻率範圍 (MHz)	電場強度 (V/m)	磁場強度 (A/m)	功率密度 (mW/cm ²)	平均時間 (minutes)
0.3-3.0	614	1.63	*100	30
3-30	1842/f	4.89/f	*180/f ²	30
30-300	27.5	0.073	1.0	30
300-1,500	-----	-----	f/1500	30
1,500-100,000	-----	-----	1.0	30

註 1：標記*表平面波等效功率密度。

註 2：f 表測試頻率，單位：百萬赫(MHz)。

適用種類

此待測物，為一般市面上販售，固適用表 2)之限制值

最大暴露允許值之評估

僅以最差模式進行評估，評估結果請見下頁。

天線種類：

天線型式	Supplier	Model No.	發射頻帶(MHz)	天線增益(dBi)
Dipole	JOYMAX ELECTRONICS CO., LTD.	IWX-1551RSX9-999	5150~5250 5725~5850	5 (Main)
			5150~5250 5725~5850	5 (Aux)

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802.11a_Main

CH	Freq. (MHz)	Data Rate	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	17.15	23.98	PASS
44	5220	6	16.80	23.98	PASS
48	5240	6	16.85	23.98	PASS
149	5745	6	11.78	30	PASS
157	5785	6	12.30	30	PASS
165	5825	6	12.53	30	PASS

模式: (802.11a) (最差模式)

導入之公式: page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

S = 功率密度 P = 傳導功率 G = 天線增益值 R = 人體與天線之距離

Max. output power including tune-up tolerancel:	17.15	(dBm)
Max. output power including tune-up tolerancel:	51.88000389	(mW)
Duty cycle:	100	(%)
Maximum Pav :	51.88000389	(mW)
Peak Antenna gain (Maximum):	5	(dBi)
Peak Antenna gain (linear):	3.16227766	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5180	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm ²)
Power density at predication frequency at 20 (cm) distance	0.033	(mW/cm ²)

運算之結果:

當功率密度在 20 cm, 其最大暴露值為 0.033 mW/cm².

註:工作頻率為頻率範圍1,500-100,000 (MHz), 固其對應之限制值為1.0mW/cm².

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802.11n_HT20_MIMO

CH	Freq. (MHz)	Data Rate	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
			CH0	CH1			
36	5180	MCS8	14.81	14.57	17.99	21.97	PASS
44	5220	MCS8	14.74	14.52	17.93	21.97	PASS
48	5240	MCS8	14.73	14.14	17.74	21.97	PASS
149	5745	MCS8	15.45	13.52	17.89	27.99	PASS
157	5785	MCS8	15.41	13.18	17.73	27.99	PASS
165	5825	MCS8	15.41	13.44	17.83	27.99	PASS

模式: (802.11n 20M MIMO) (最差模式)

導入之公式: page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

S = 功率密度 P = 傳導功率 G = 天線增益值 R = 人體與天線之距離

MIMO 模式 gain 值計算 = $G + (10 \log N) = 5 + 3.01 = 8.01 \text{ dBm}$

Max. output power including tune-up tolerancel:	17.99	(dBm)
Max. output power including tune-up tolerancel:	62.95061829	(mW)
Duty cycle:	100	(%)
Maximum Pav :	62.95061829	(mW)
Peak Antenna gain (Maximum):	8.01	(dBi)
Peak Antenna gain (linear):	6.324118514	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5180	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm ²)
Power density at predication frequency at 20 (cm) distance	0.079	(mW/cm ²)
運算之結果: 當功率密度在 20 cm, 其最大暴露值為 0.079 mW/cm ² . 註:工作頻率為頻率範圍1,500-100,000 (MHz), 固其對應之限制值為1.0mW/cm ² .		

~ End of Report ~

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