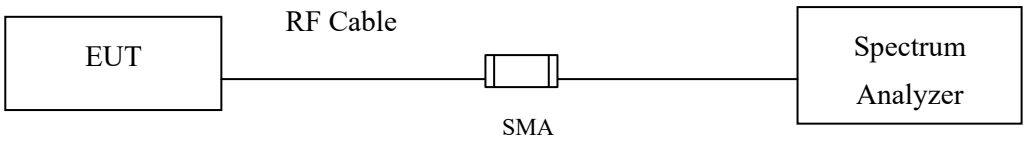
11. 佔用頻帶寬度

11.1. 測試架構圖



11.2. 適用標準

依據國家通訊傳播委員會低功率射頻電機技術規範之第 4.7.5 節，在 5.725 GHz～5.850 GHz 頻段操作之設備，其 6 dB 頻寬至少應有 500 kHz。

11.3. 量測方法

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

11.4. 量測不確定度

此項測試之量測不確定度為± 681.6Hz

11.5. 佔用頻帶寬度測試結果

待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 25 日

測試項目：佔用頻帶寬度
測試模式：Mode 1: SISO A: 發射器 802.11a
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	16450	>500	Pass
157	5785	16450	>500	Pass
165	5825	16450	>500	Pass

Figure Channel 149

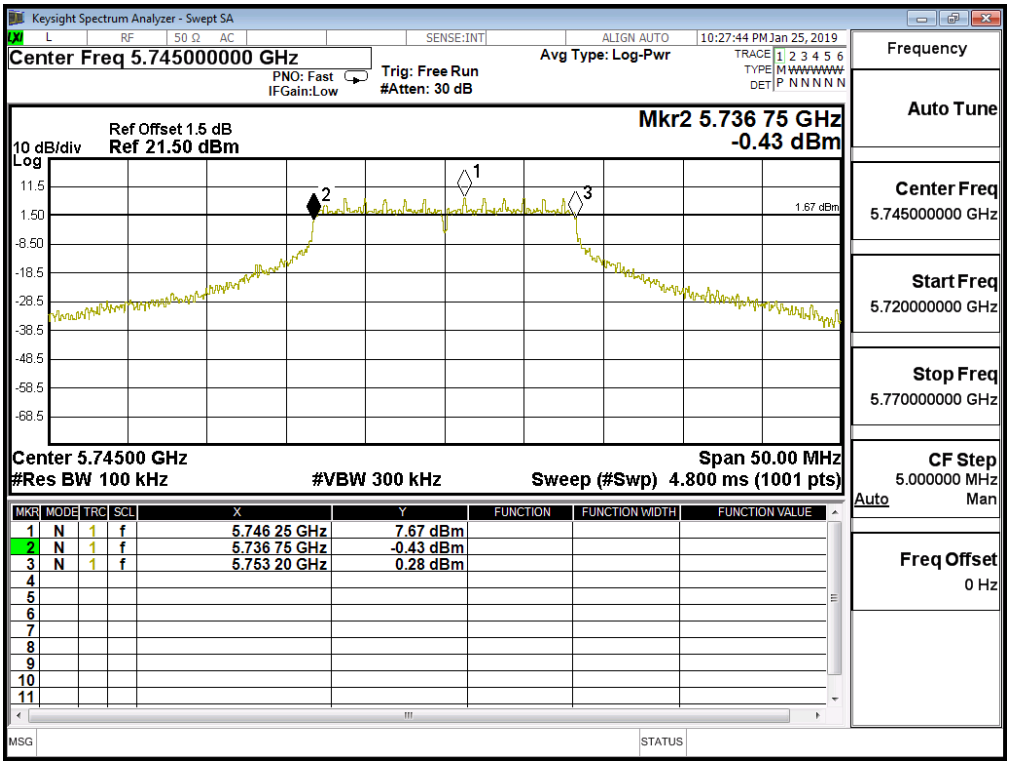


Figure Channel 157

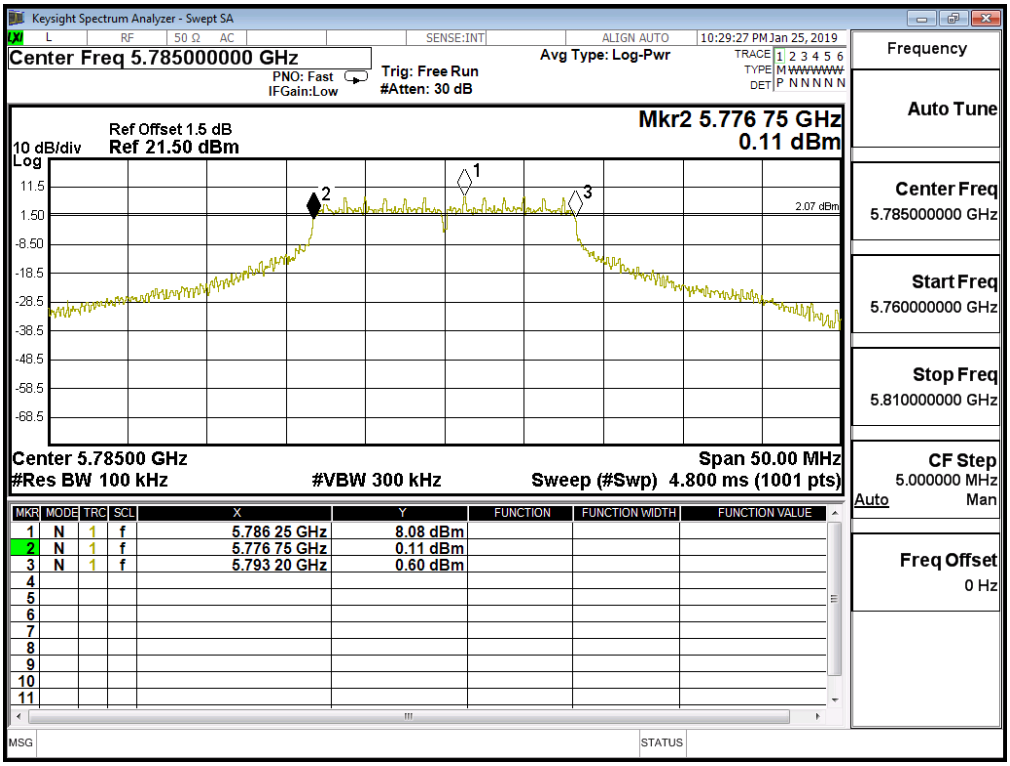
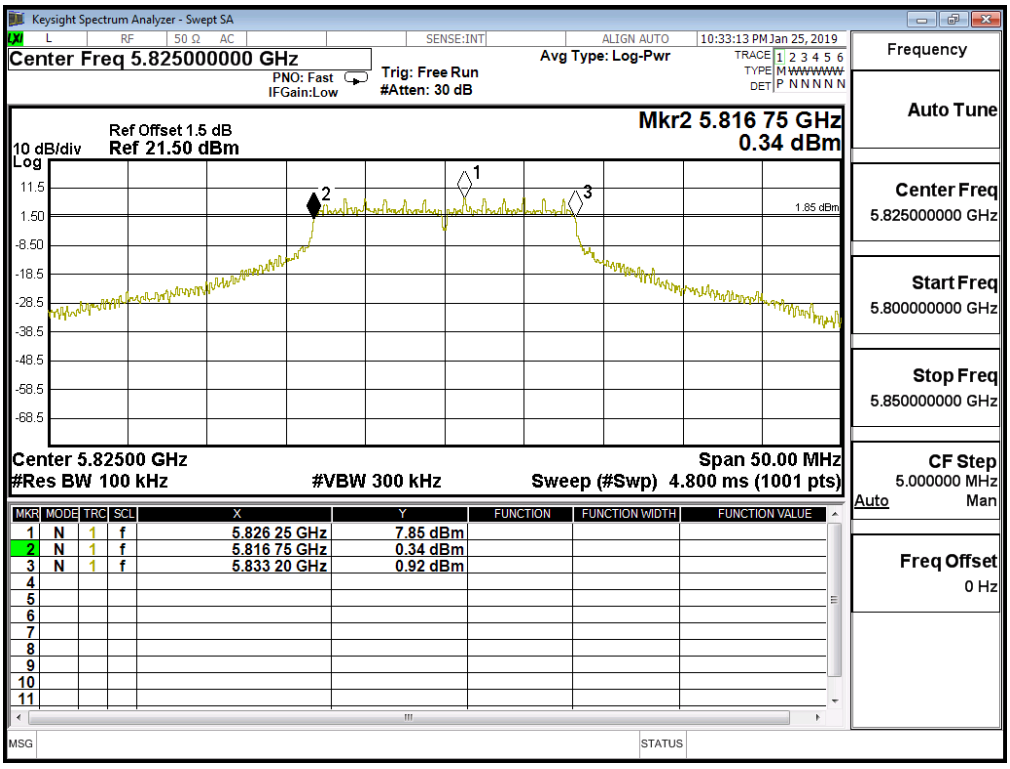


Figure Channel 165



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 25 日

測試項目：佔用頻帶寬度
測試模式：Mode 1: SISO A: 發射器 802.11n-20BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	17650	>500	Pass
157	5785	17650	>500	Pass
165	5825	17600	>500	Pass

Figure Channel 149

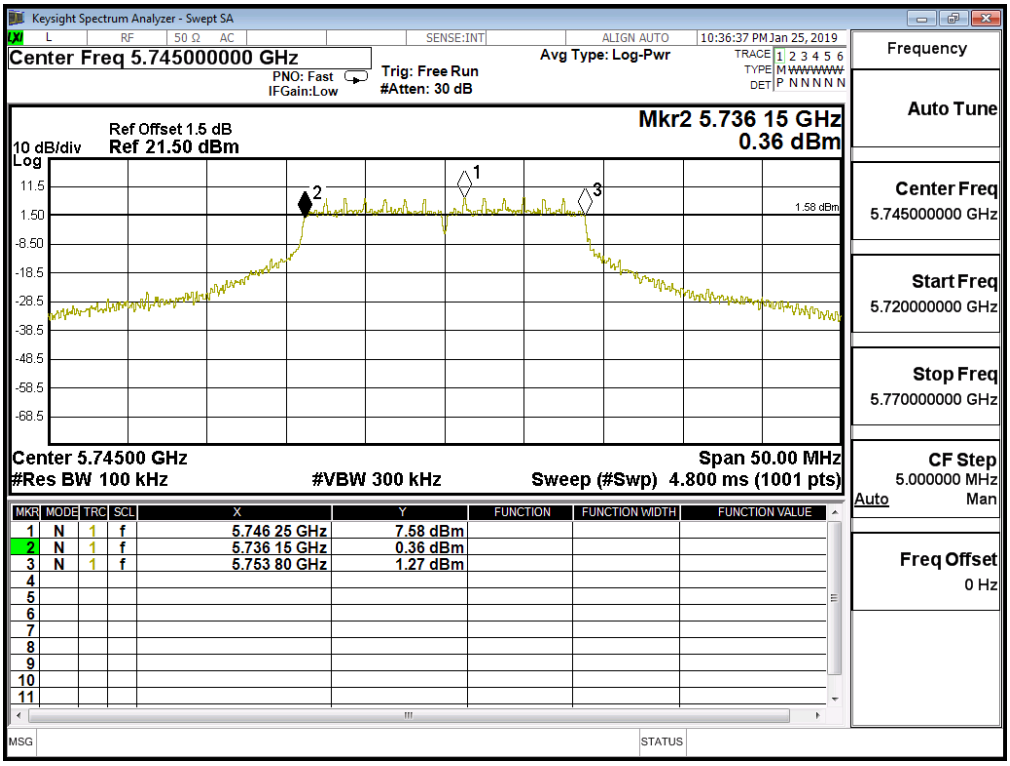


Figure Channel 157

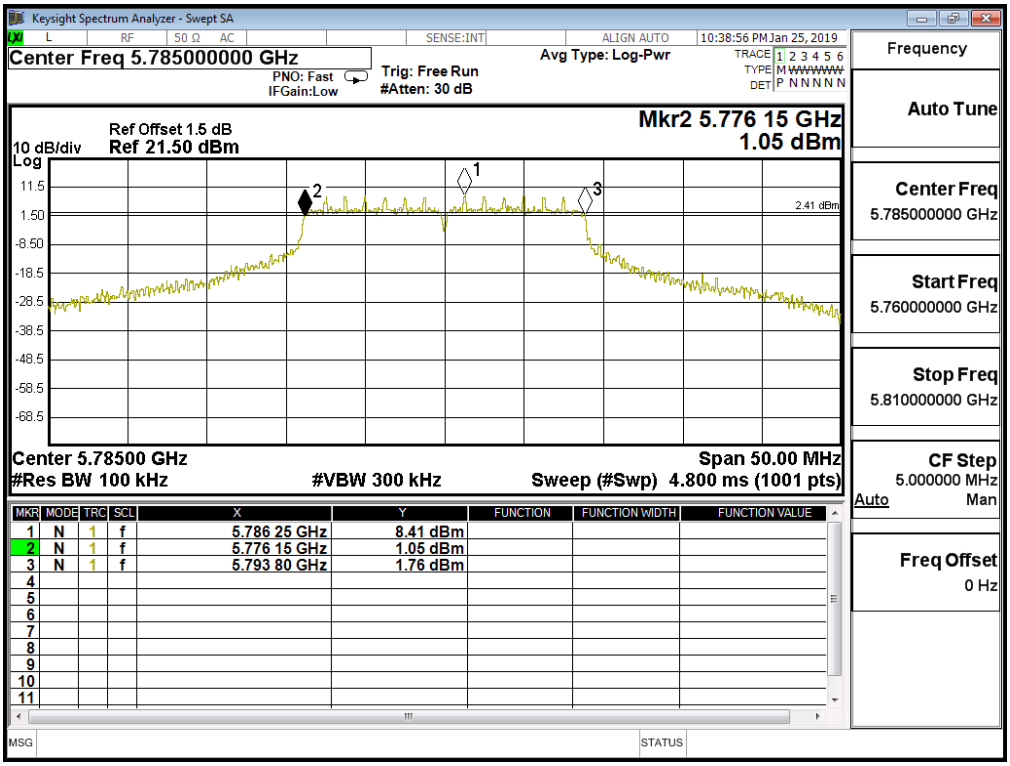
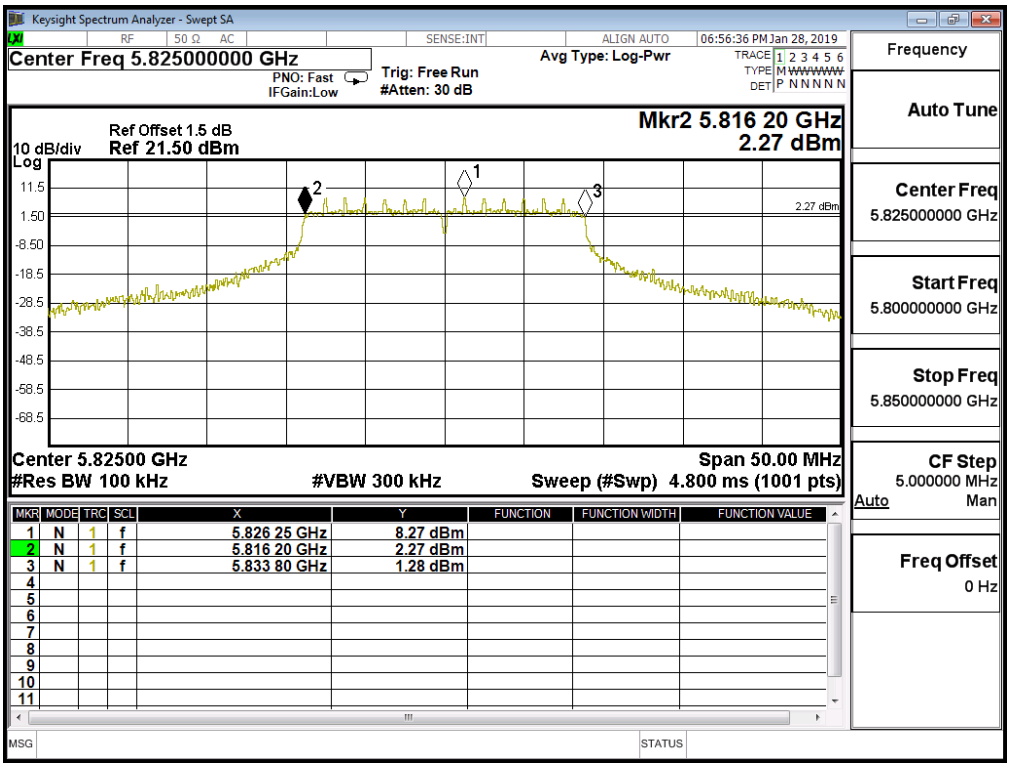


Figure Channel 165



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 25 日

測試項目：佔用頻帶寬度
測試模式：Mode 1: SISO A: 發射器 802.11n-40BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755	36500	>500	Pass
159	5795	36500	>500	Pass

Figure Channel 151

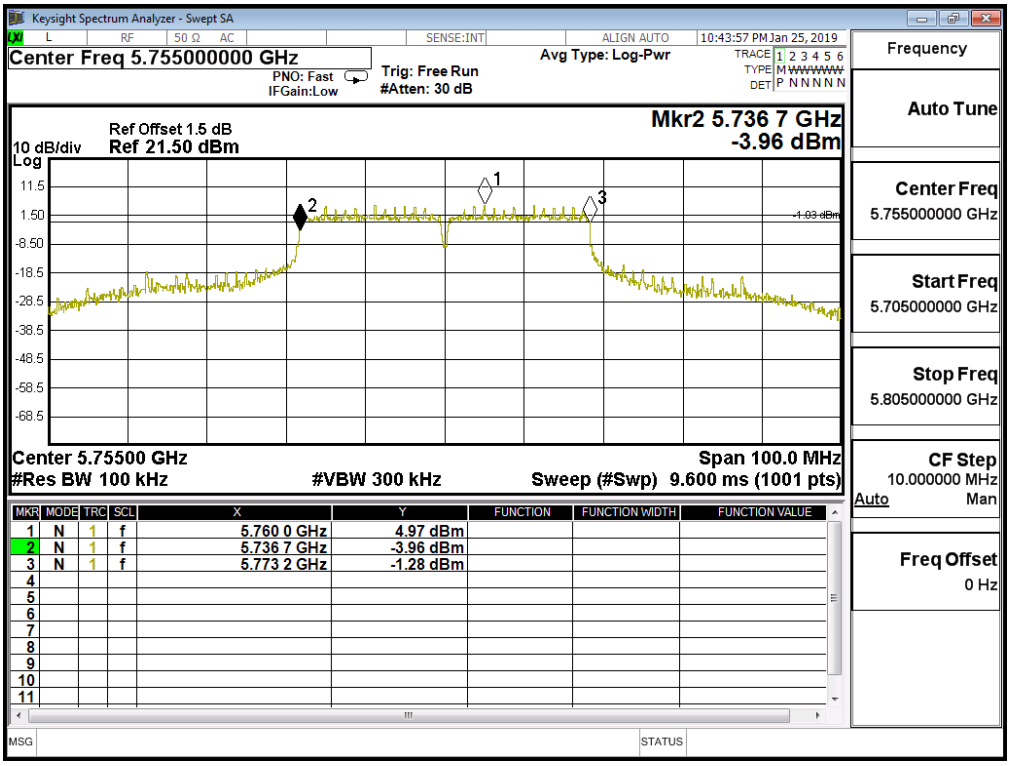
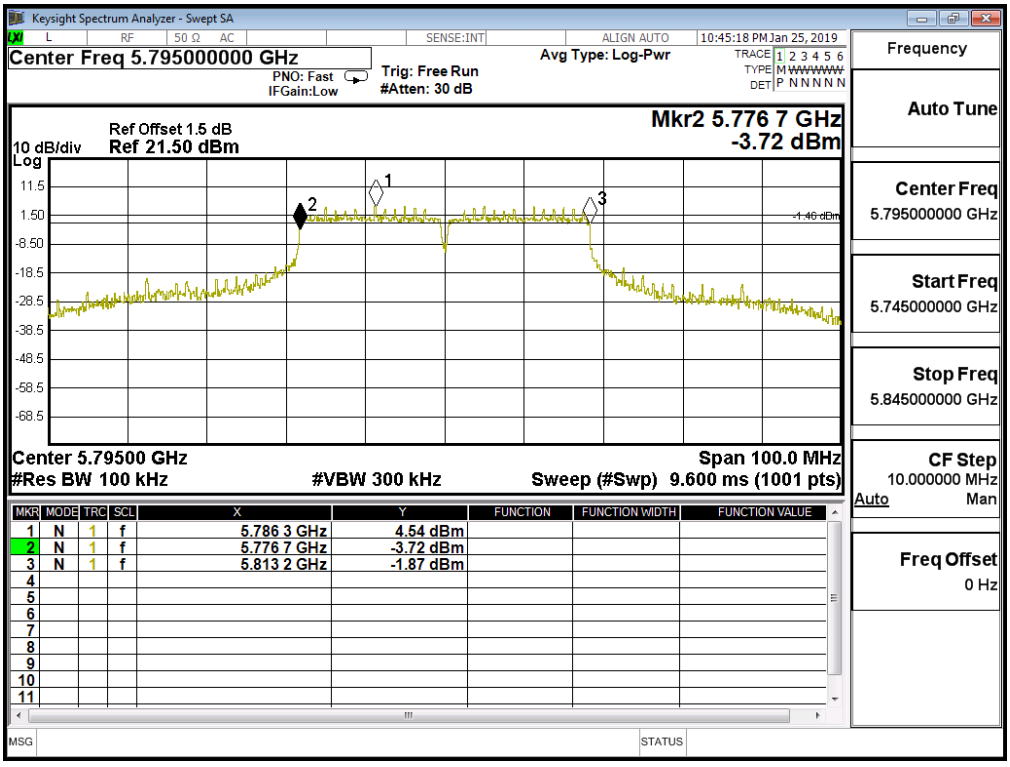


Figure Channel 159

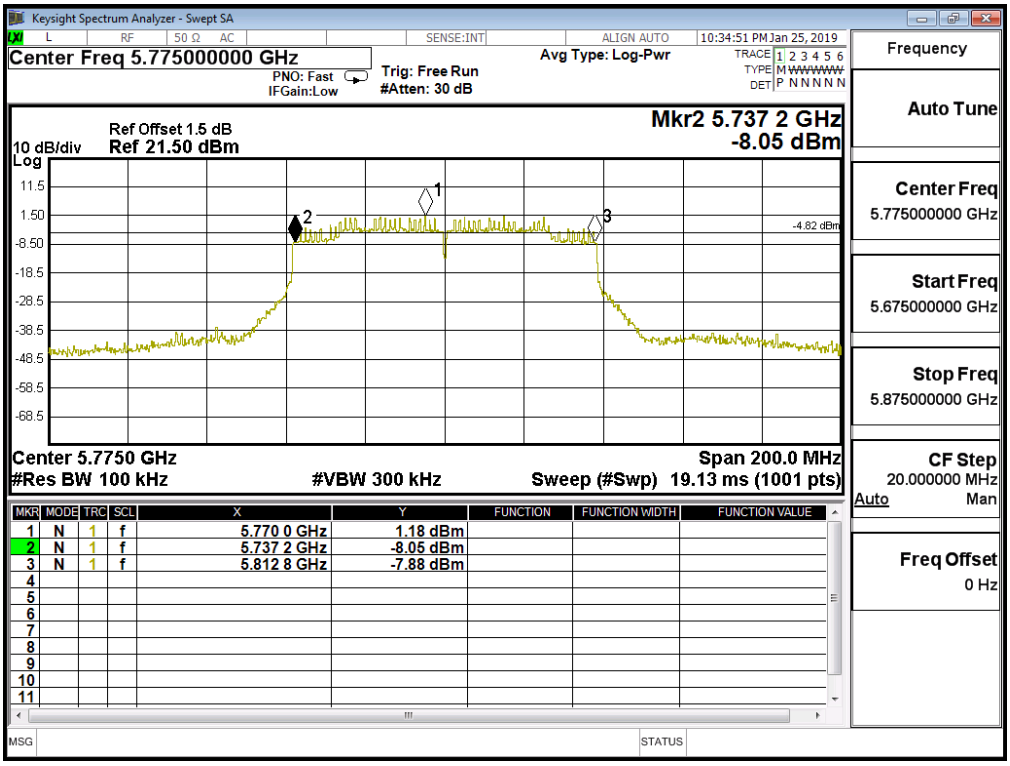


待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 25 日

測試項目：佔用頻帶寬度
測試模式：Mode 1: SISO A: 發射器 802.11ac-80BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775	75600	>500	Pass

Figure Channel 155



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 2: SISO B: 發射器 802.11a
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	16450	>500	Pass
157	5785	16450	>500	Pass
165	5825	16450	>500	Pass

Figure Channel 149

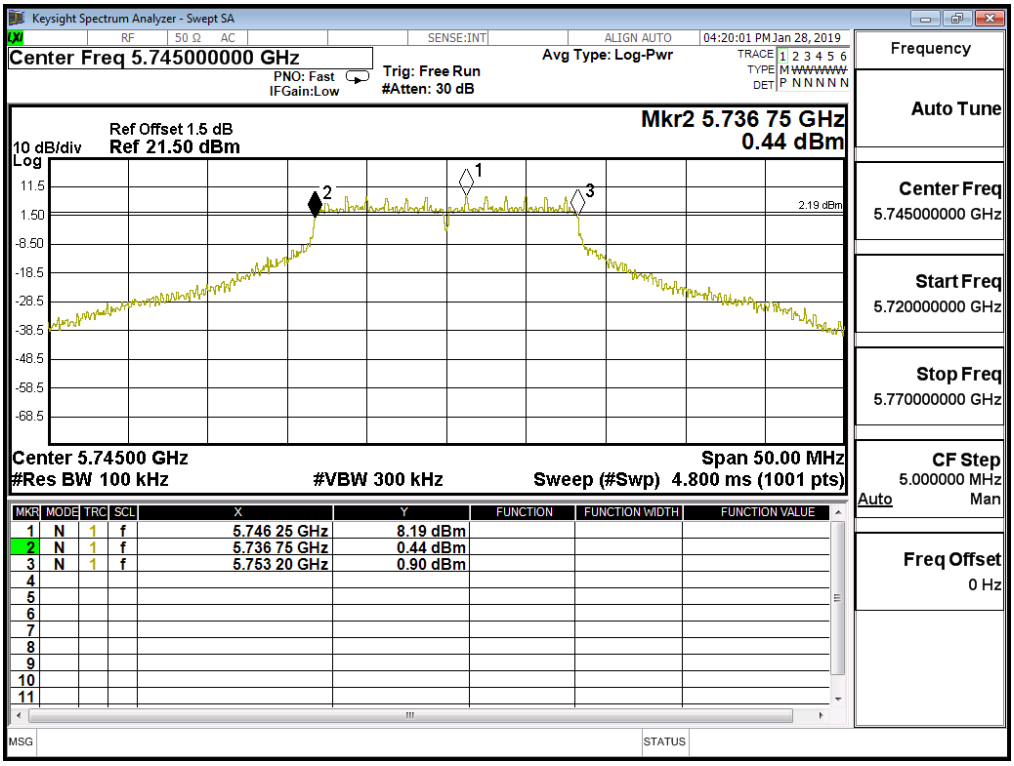


Figure Channel 157

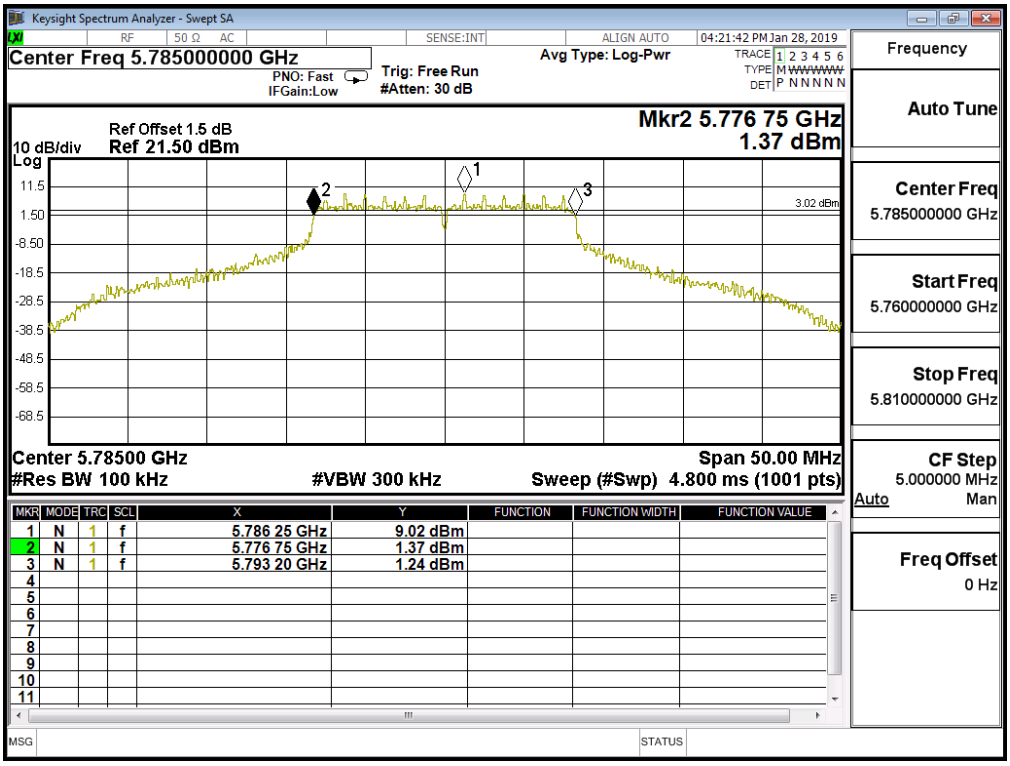
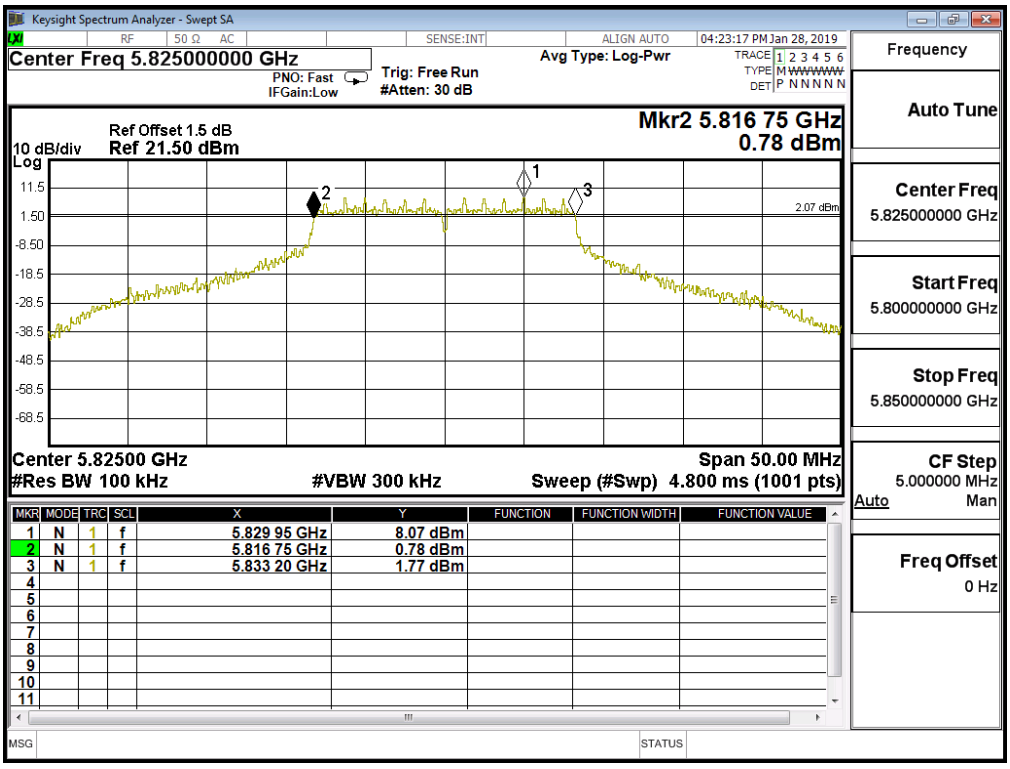


Figure Channel 165



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日
測試項目：佔用頻帶寬度
測試模式：Mode 2: SISO B: 發射器 802.11n-20BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	17650	>500	Pass
157	5785	17650	>500	Pass
165	5825	17650	>500	Pass

Figure Channel 149

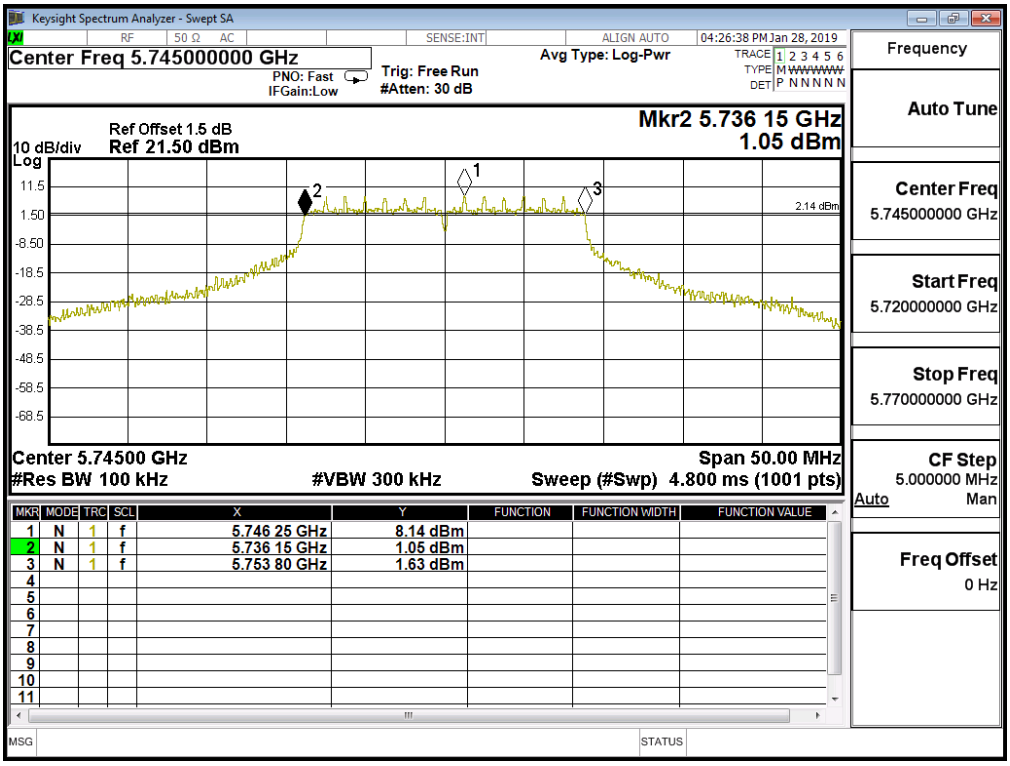


Figure Channel 157

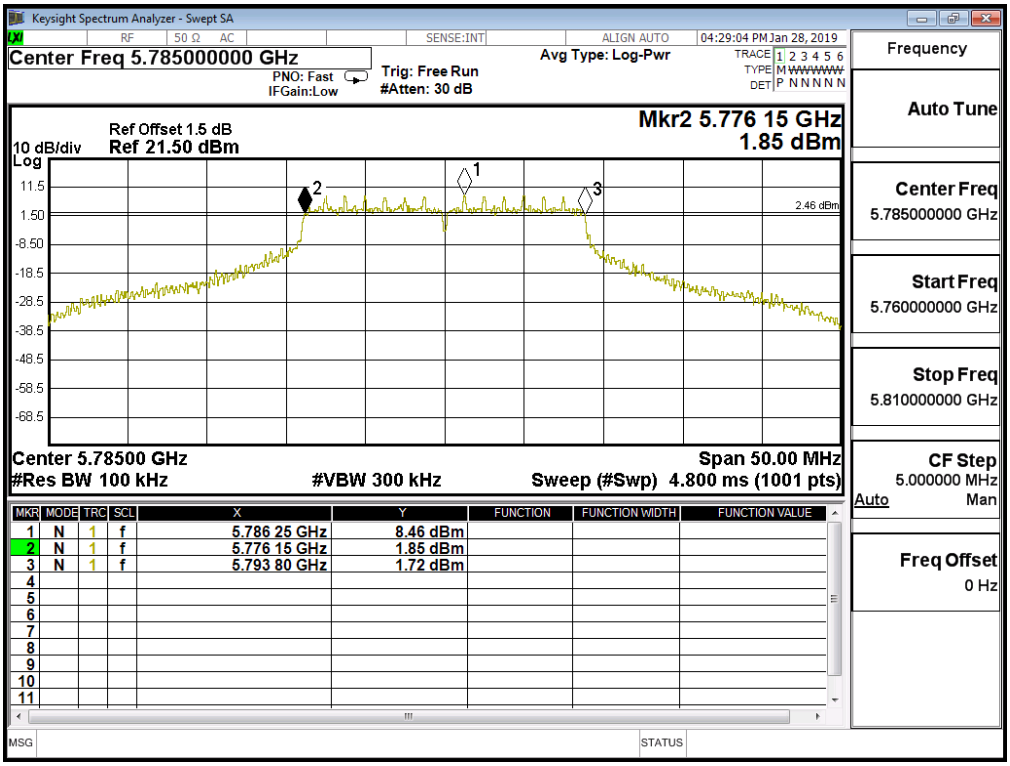
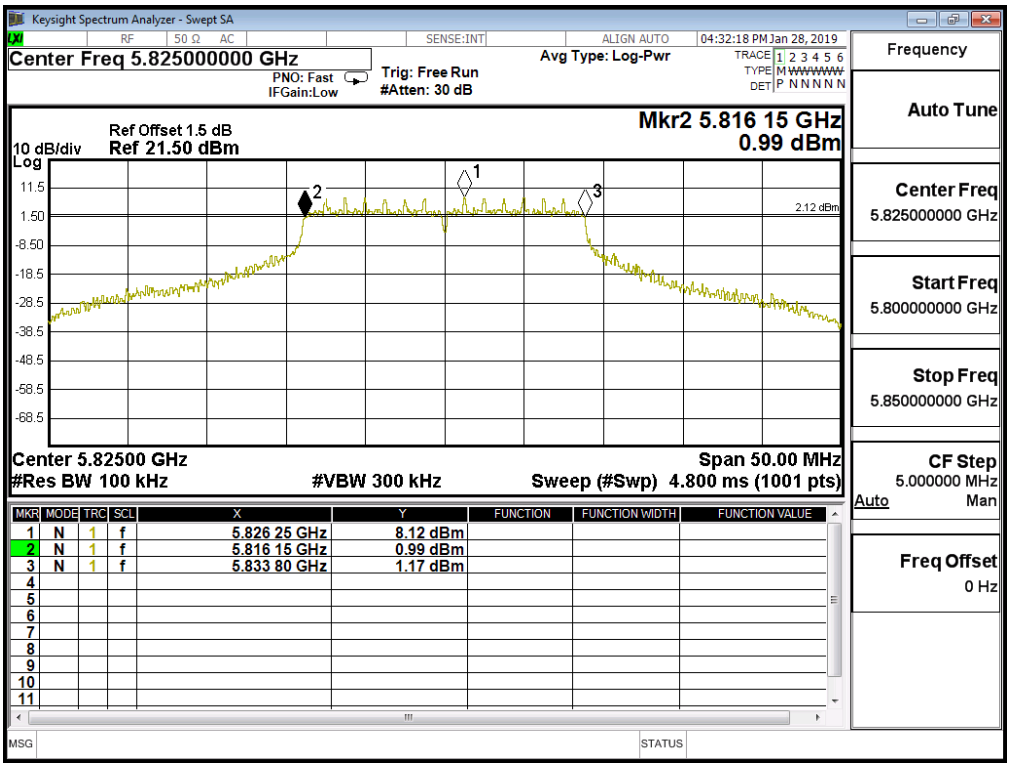


Figure Channel 165



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 2: SISO B: 發射器 802.11n-40BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755	36500	>500	Pass
159	5795	36500	>500	Pass

Figure Channel 151

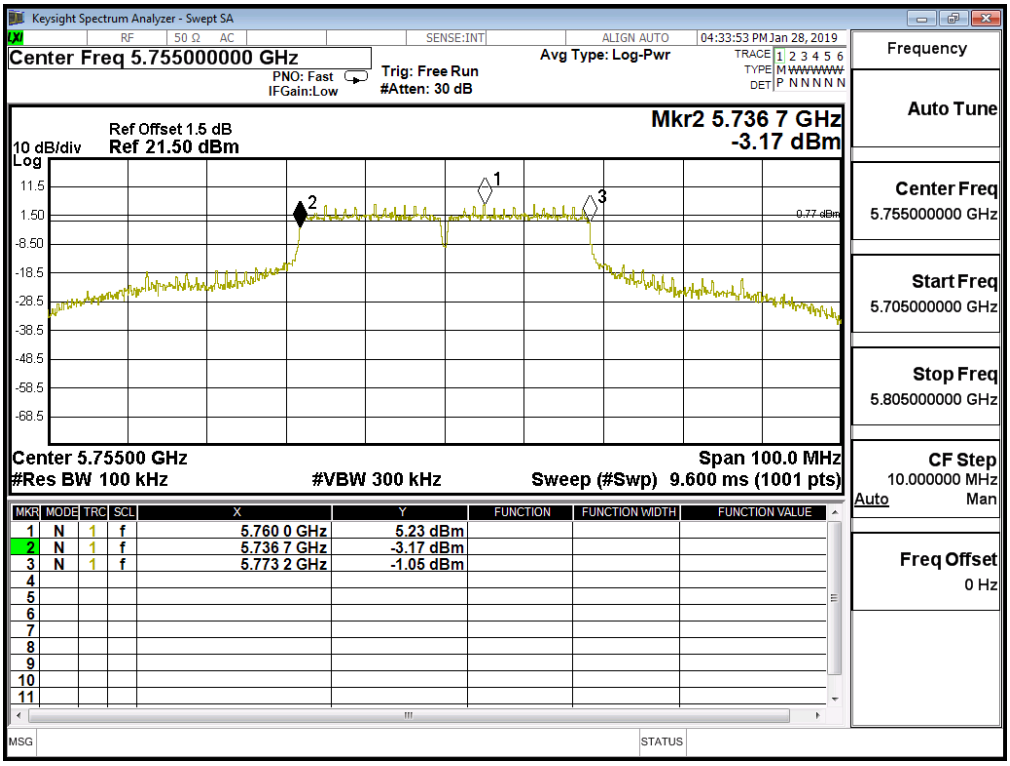
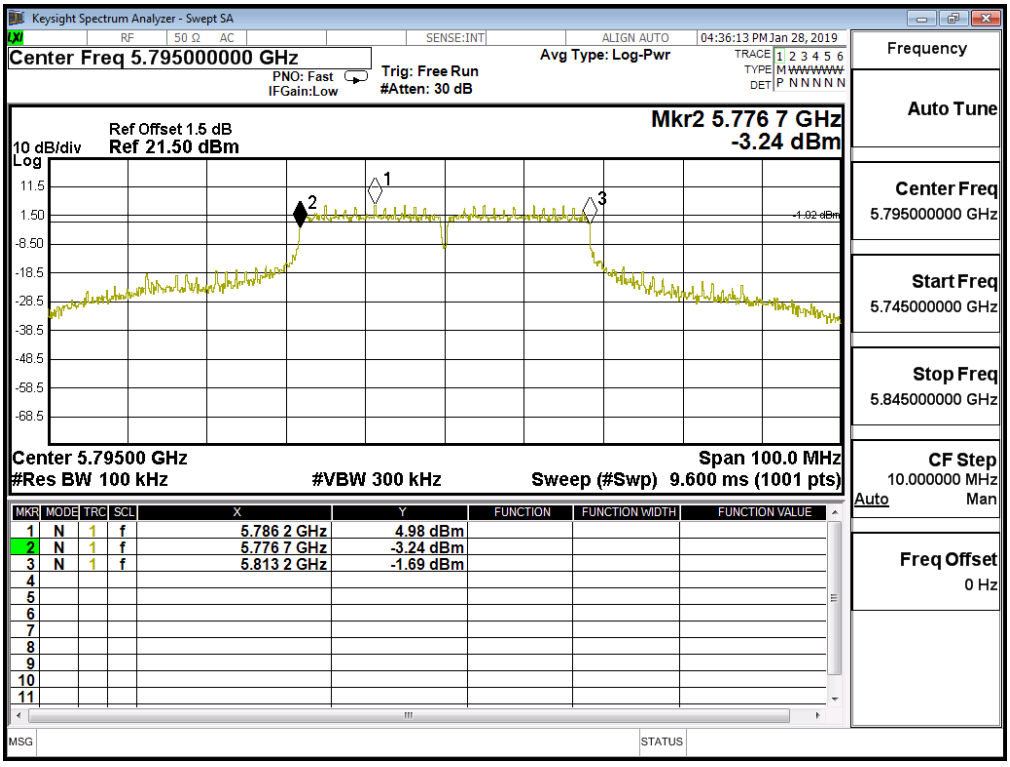


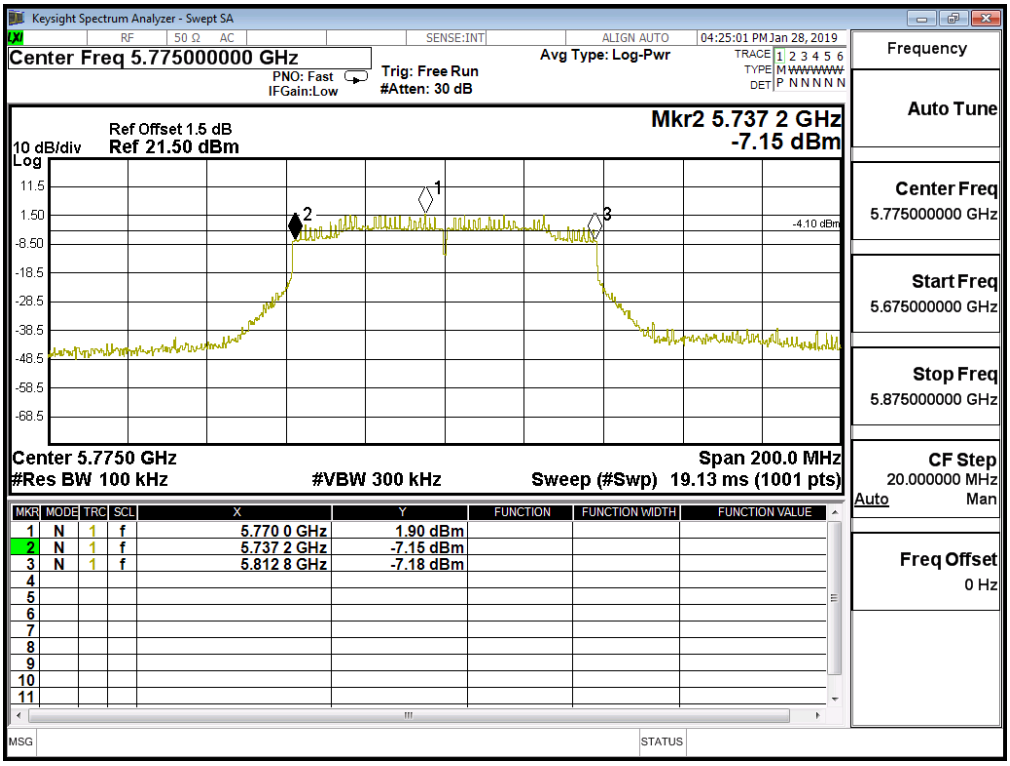
Figure Channel 159



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW　　測試項目：佔用頻帶寬度
測試頻道：--　　測試模式：Mode 2: SISO B: 發射器 802.11ac-80BW
6 dB 頻寬：100kHz　　視頻頻寬：300kHz
量測天線：--　　測試距離：Conducted
檢測器：峰值　　環境溫度：20 ℃
測試日期：108 年 01 月 28 日　　環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775	75600	>500	Pass

Figure Channel 155



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日
測試項目：佔用頻帶寬度
測試模式：Mode 3: MIMO: 發射器 802.11n-20BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Chain	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	A	17700	>500	Pass
157	5785	A	17650	>500	Pass
165	5825	A	17700	>500	Pass
149	5745	B	17650	>500	Pass
157	5785	B	17650	>500	Pass
165	5825	B	17650	>500	Pass

Figure Channel 149 (Chain A)

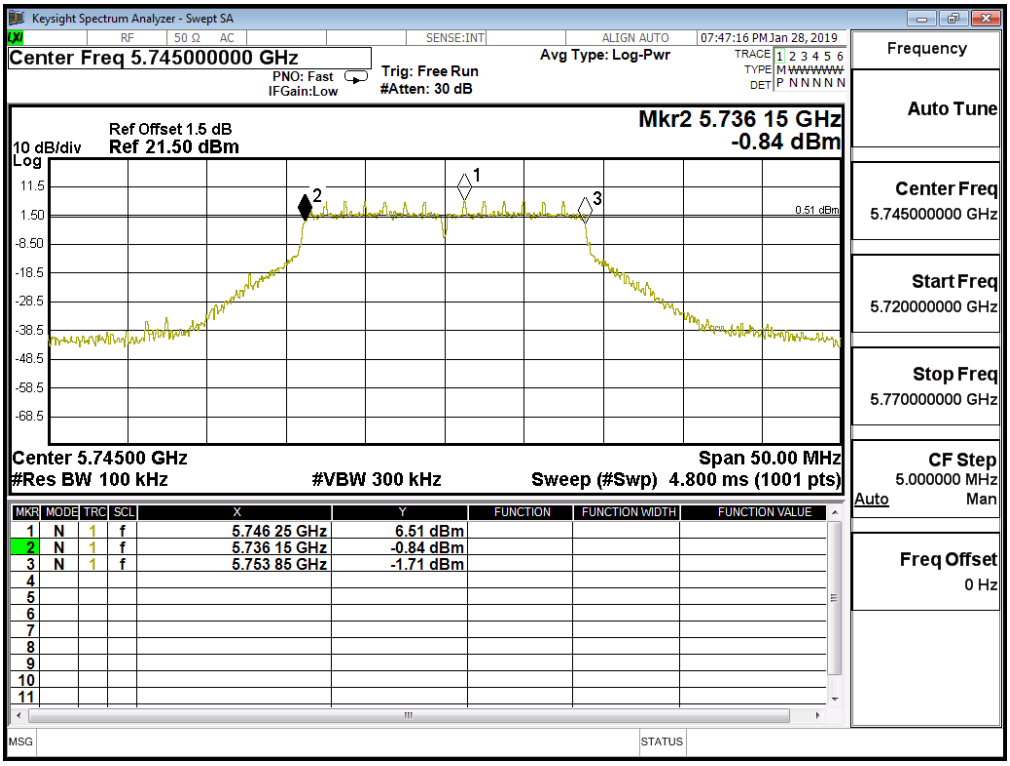


Figure Channel 149 (Chain B)

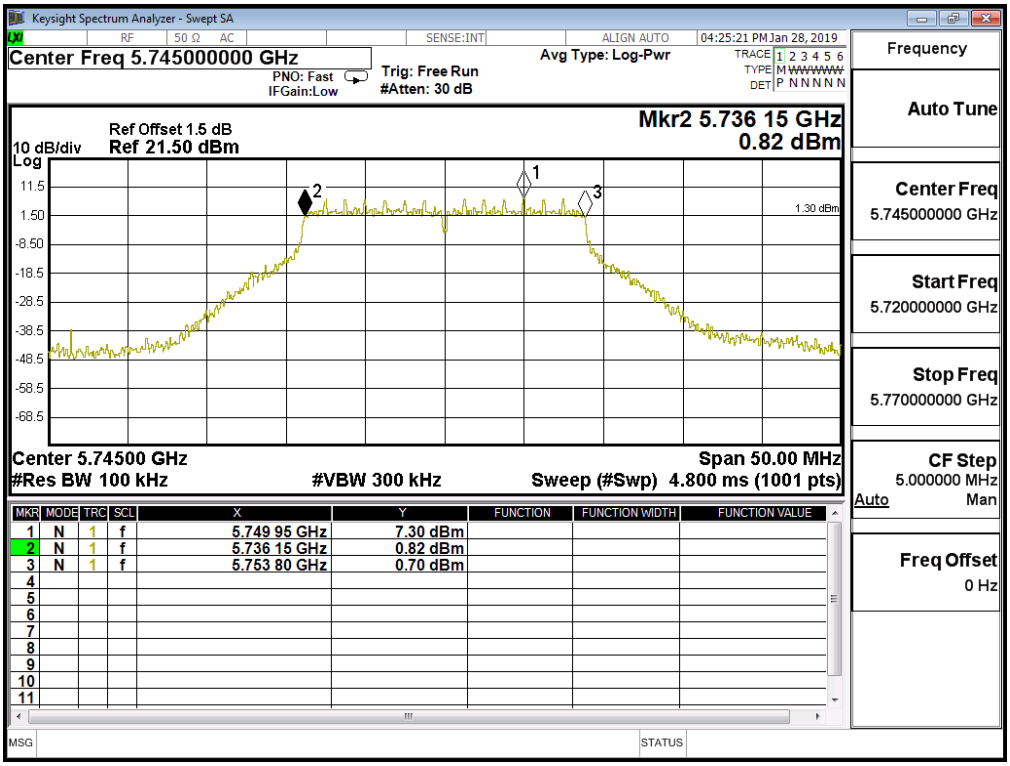


Figure Channel 157 (Chain A)

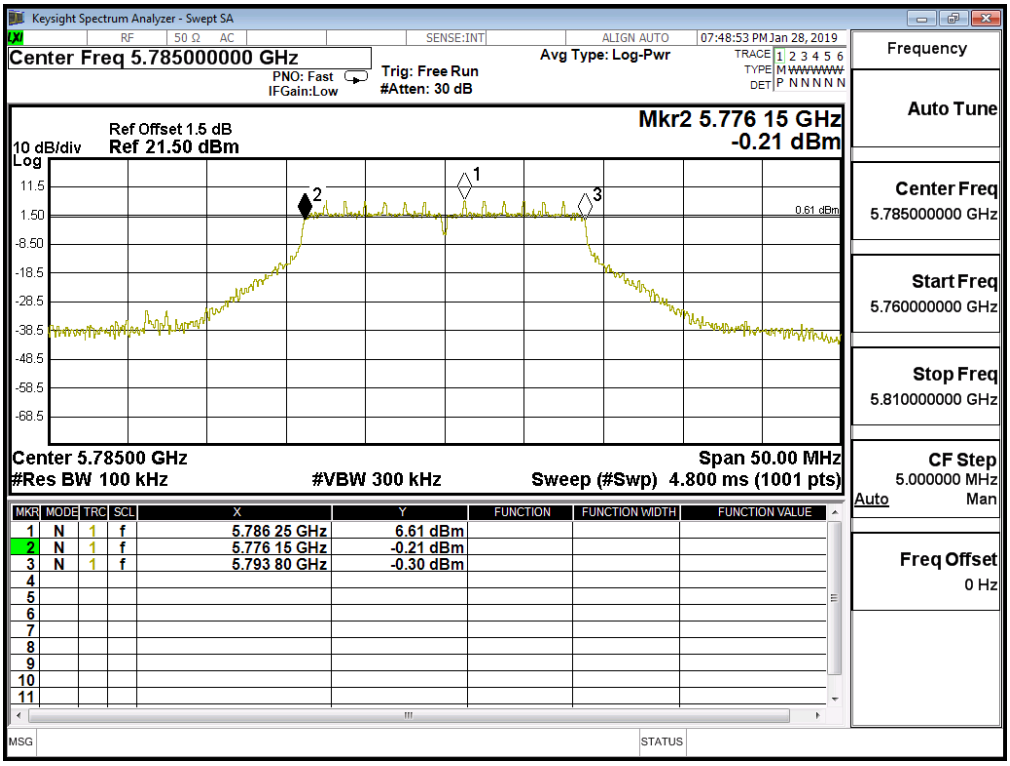


Figure Channel 157 (Chain B)

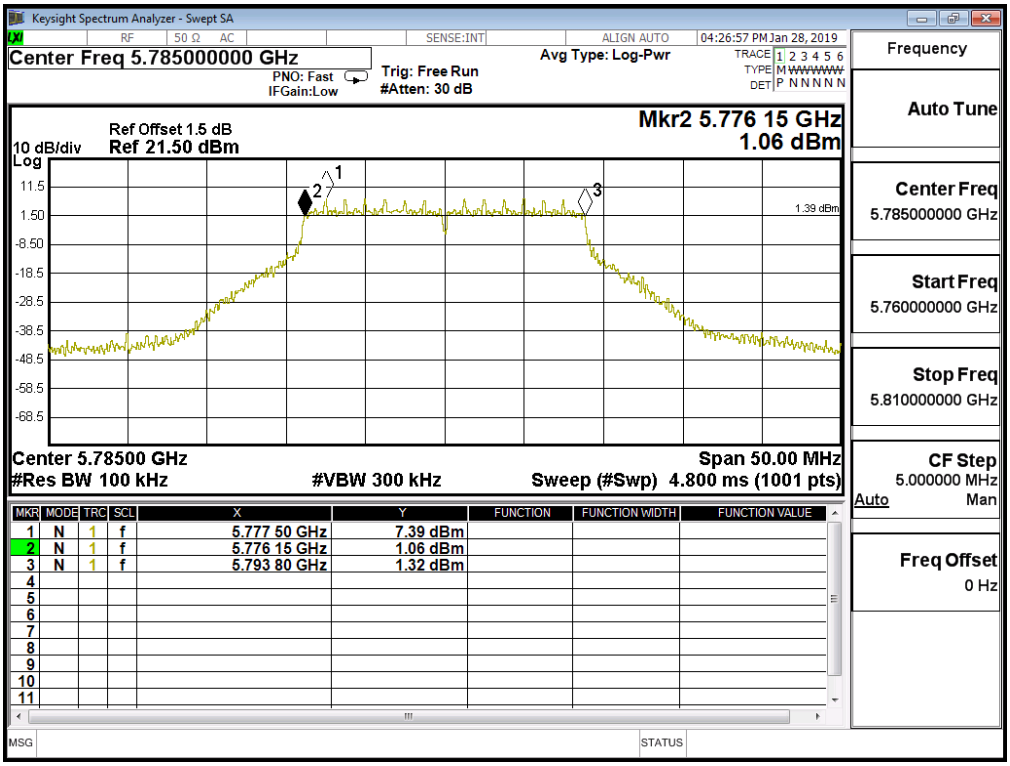


Figure Channel 165 (Chain A)

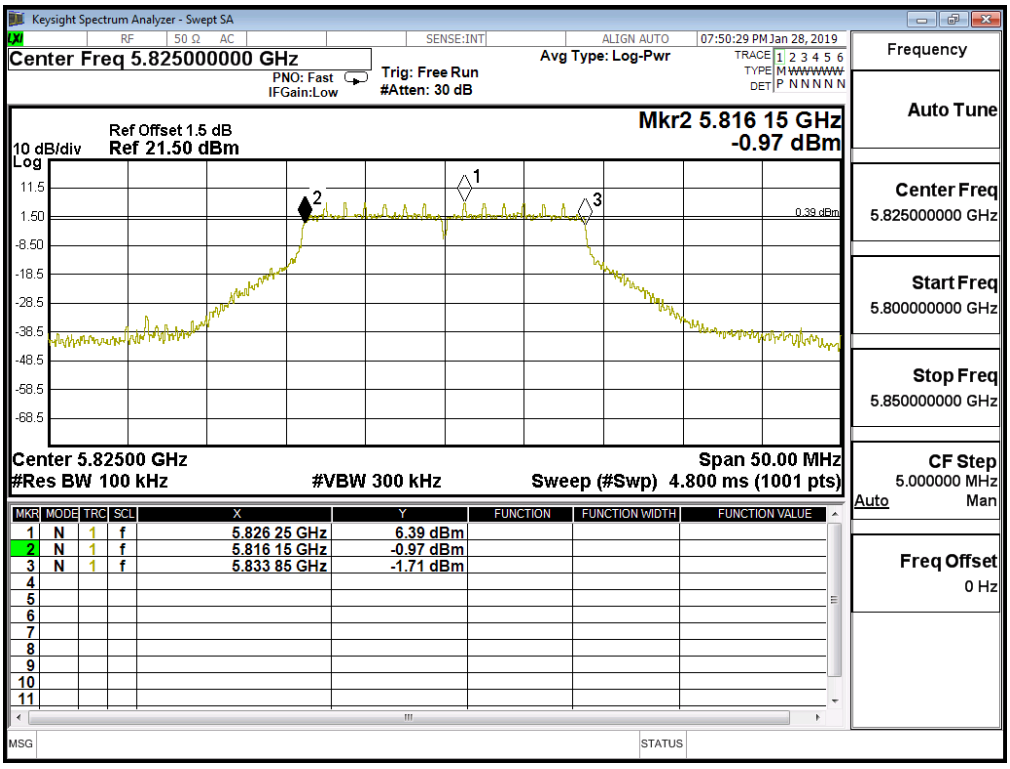
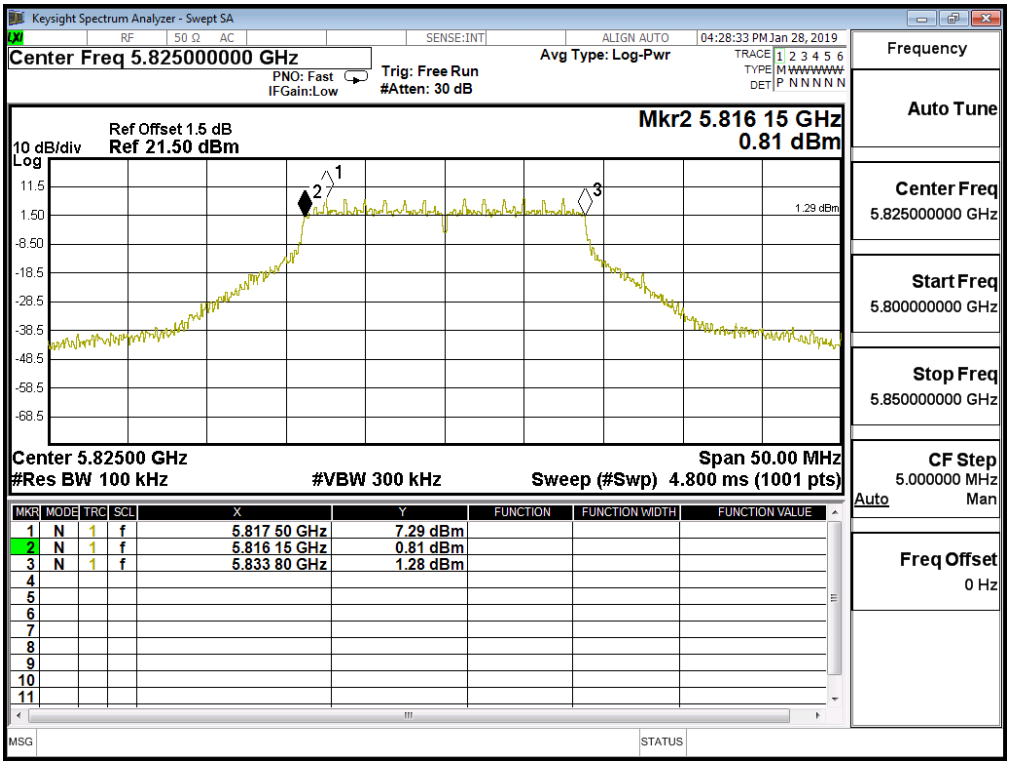


Figure Channel 165 (Chain B)



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 3: MIMO: 發射器 802.11n-40BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Chain	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755	A	36500	>500	Pass
159	5795	A	36500	>500	Pass
151	5755	B	36600	>500	Pass
159	5795	B	36600	>500	Pass

Figure Channel 151 (Chain A)

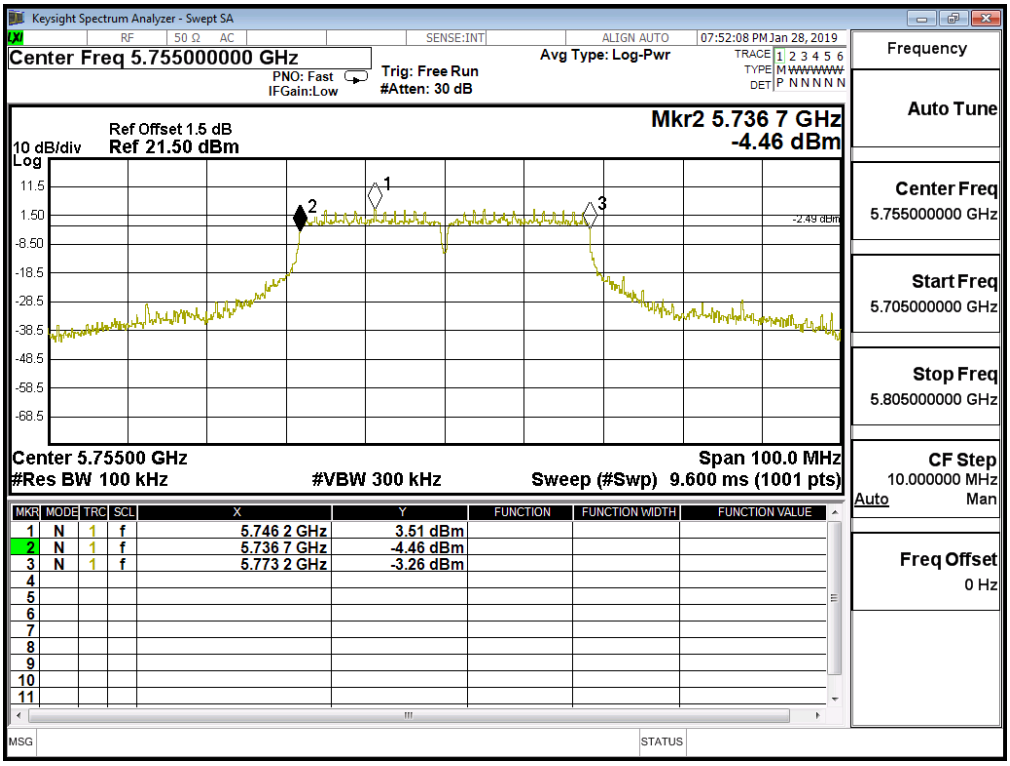


Figure Channel 151 (Chain B)

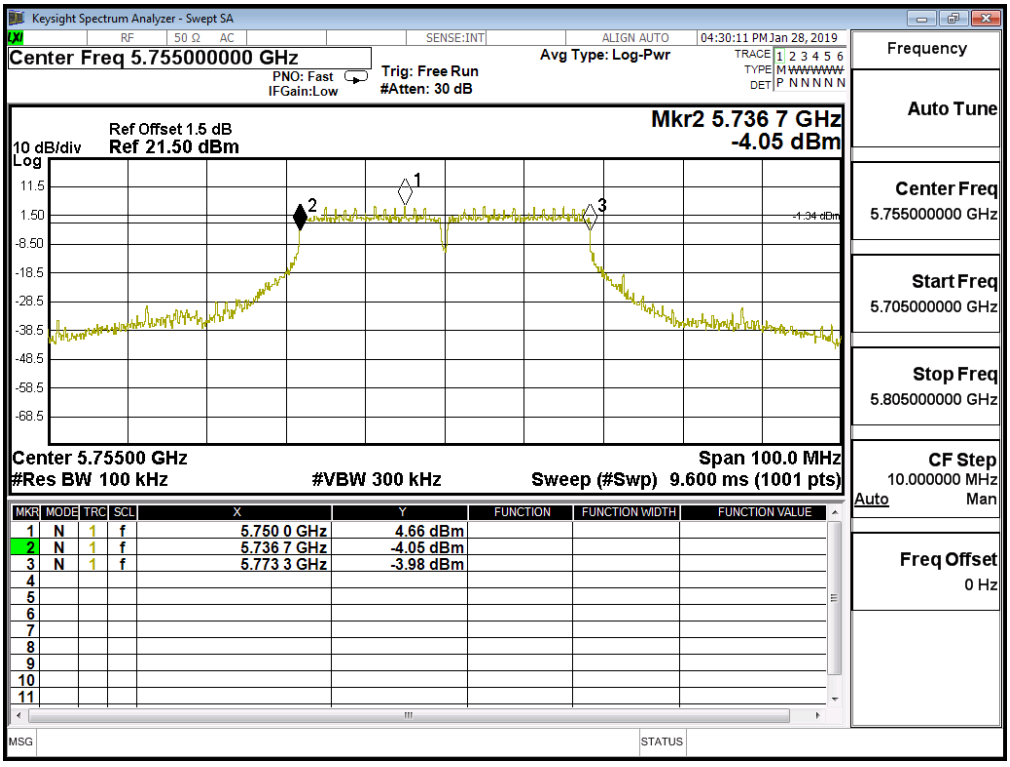


Figure Channel 159 (Chain A)

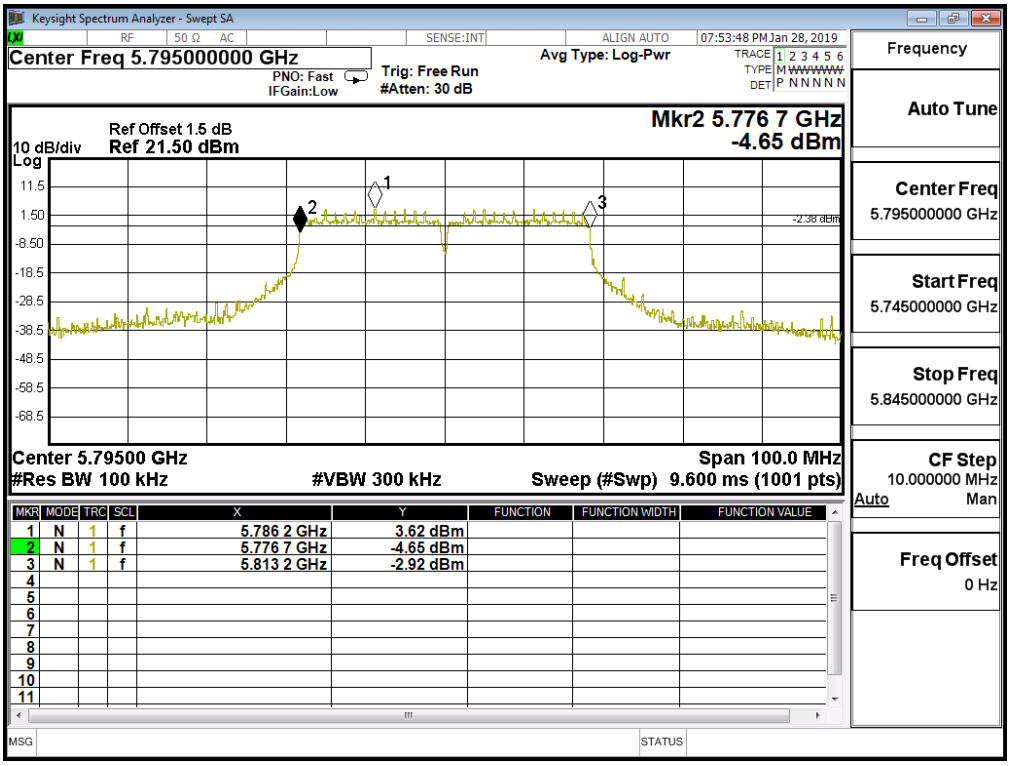
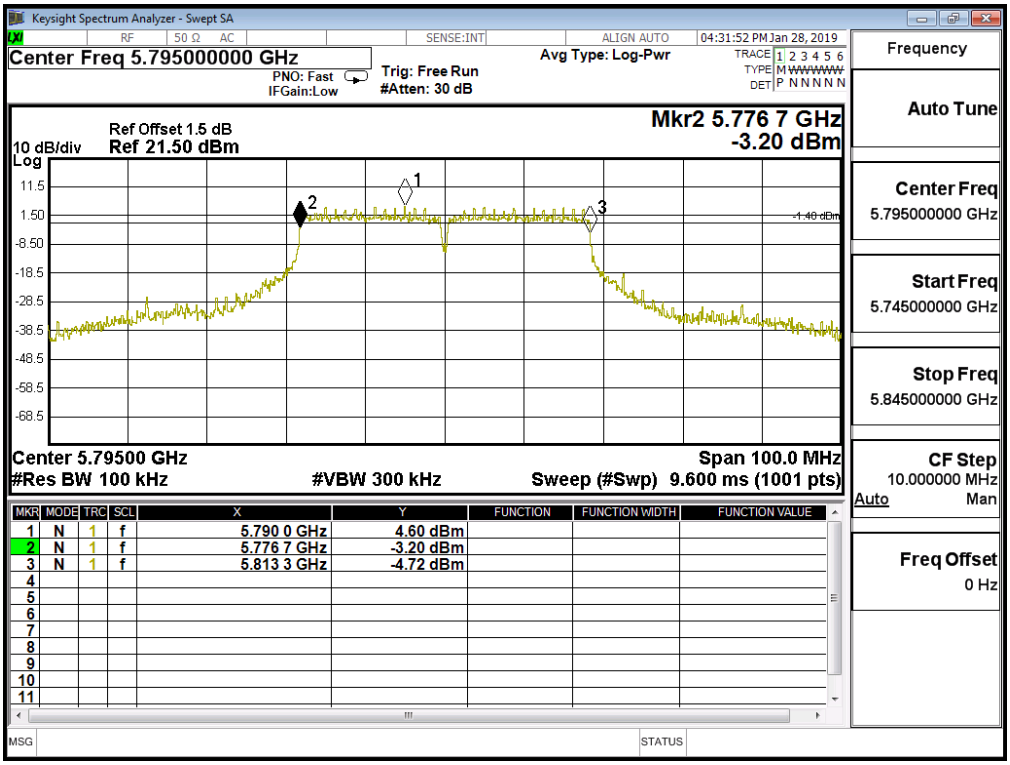


Figure Channel 159 (Chain B)



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 3: MIMO: 發射器 802.11ac-80BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Chain	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775	A	75600	>500	Pass
155	5775	B	75400	>500	Pass

Figure Channel 155 (Chain A)

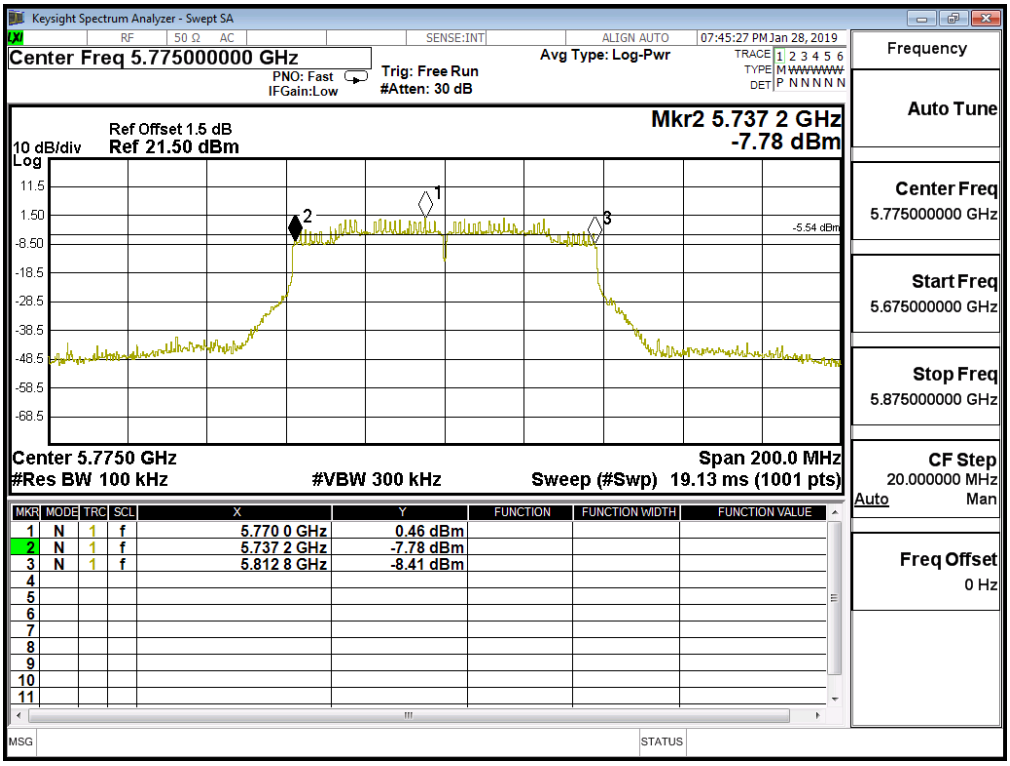
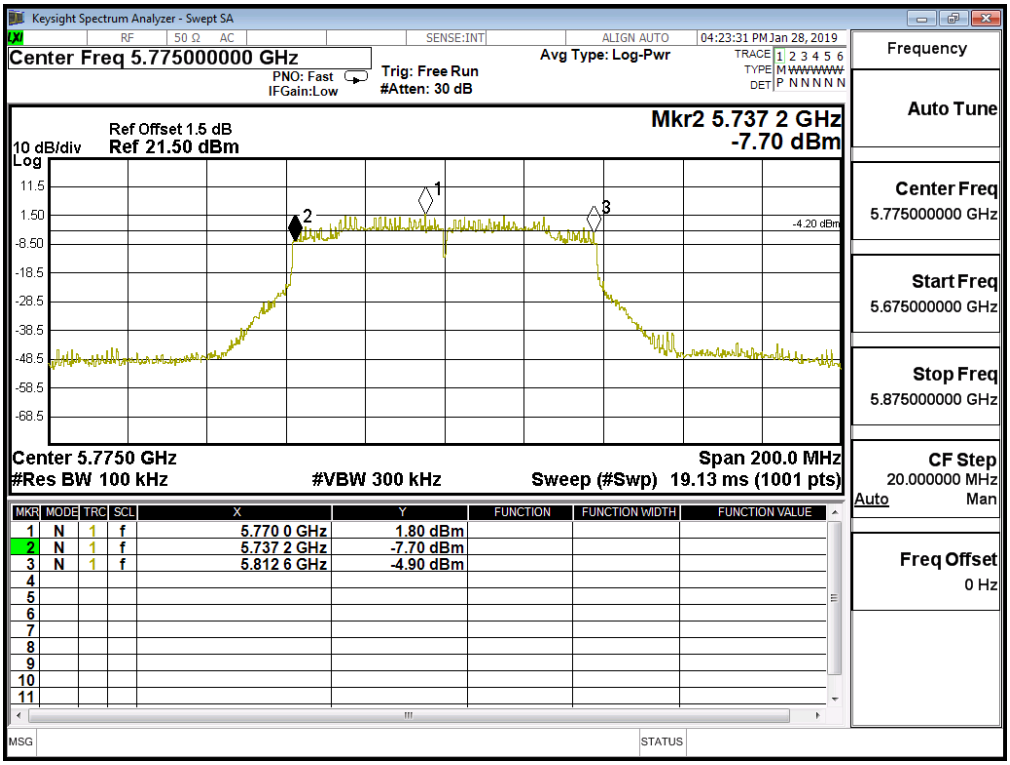


Figure Channel 155 (Chain B)



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 1: SISO A: 發射器 802.11ax-20BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	18900	>500	Pass
157	5785	18800	>500	Pass
165	5825	18850	>500	Pass

Figure Channel 149

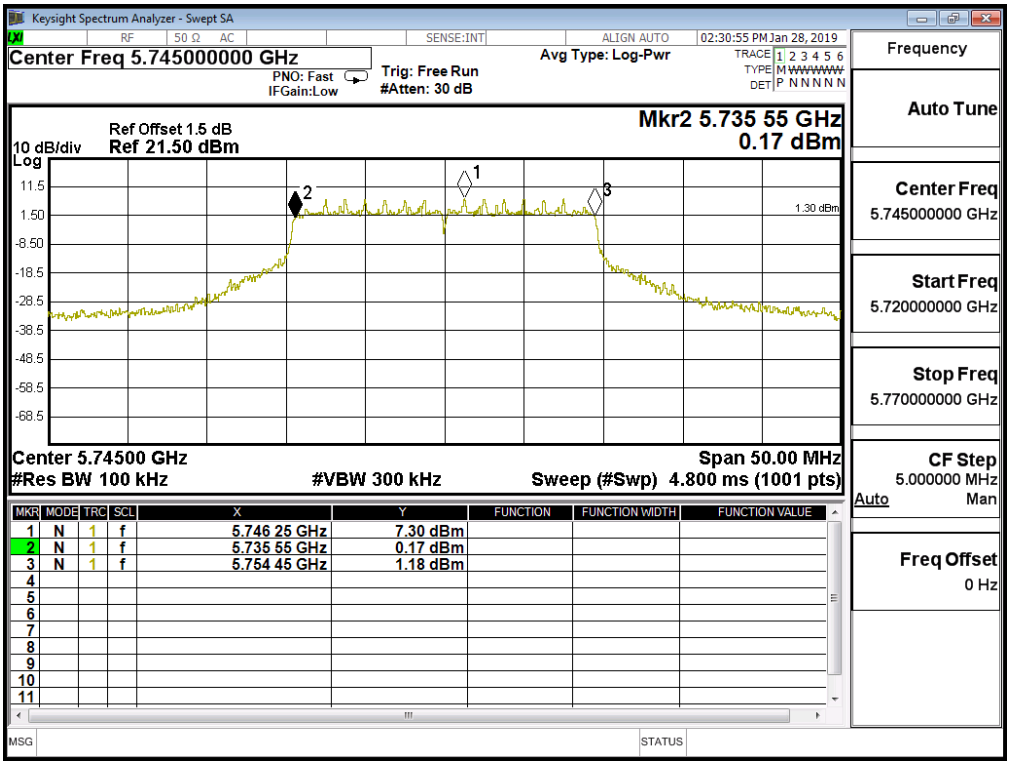


Figure Channel 157

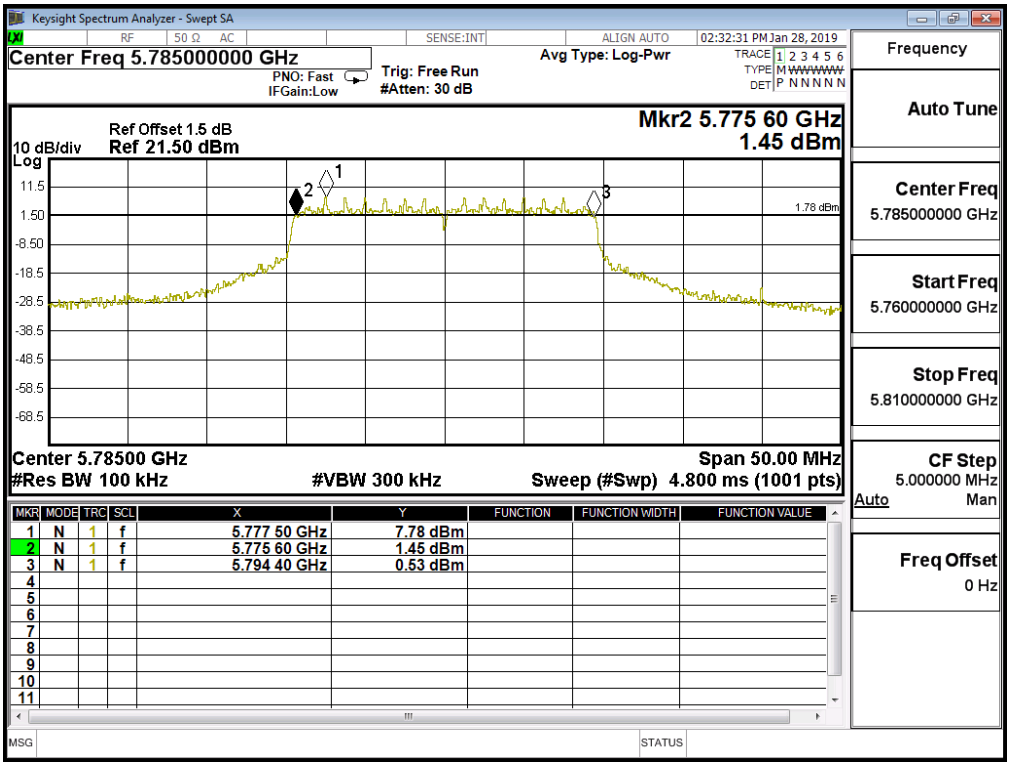
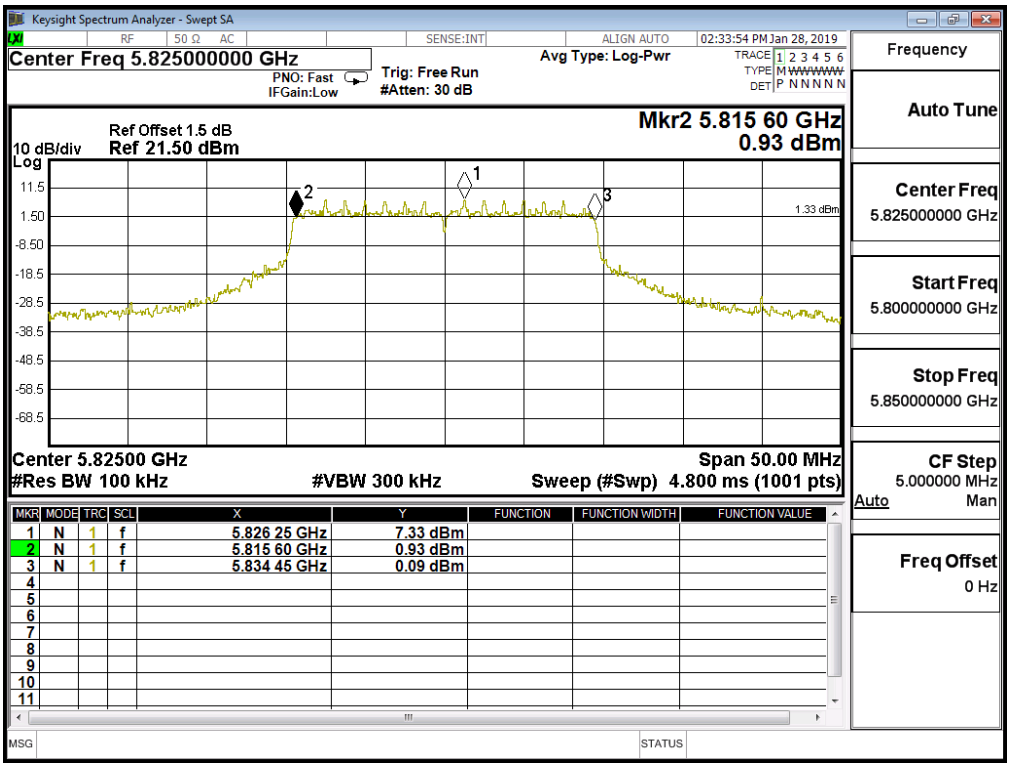


Figure Channel 165



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 1: SISO A: 發射器 802.11ax-40BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755	37900	>500	Pass
159	5795	38000	>500	Pass

Figure Channel 151

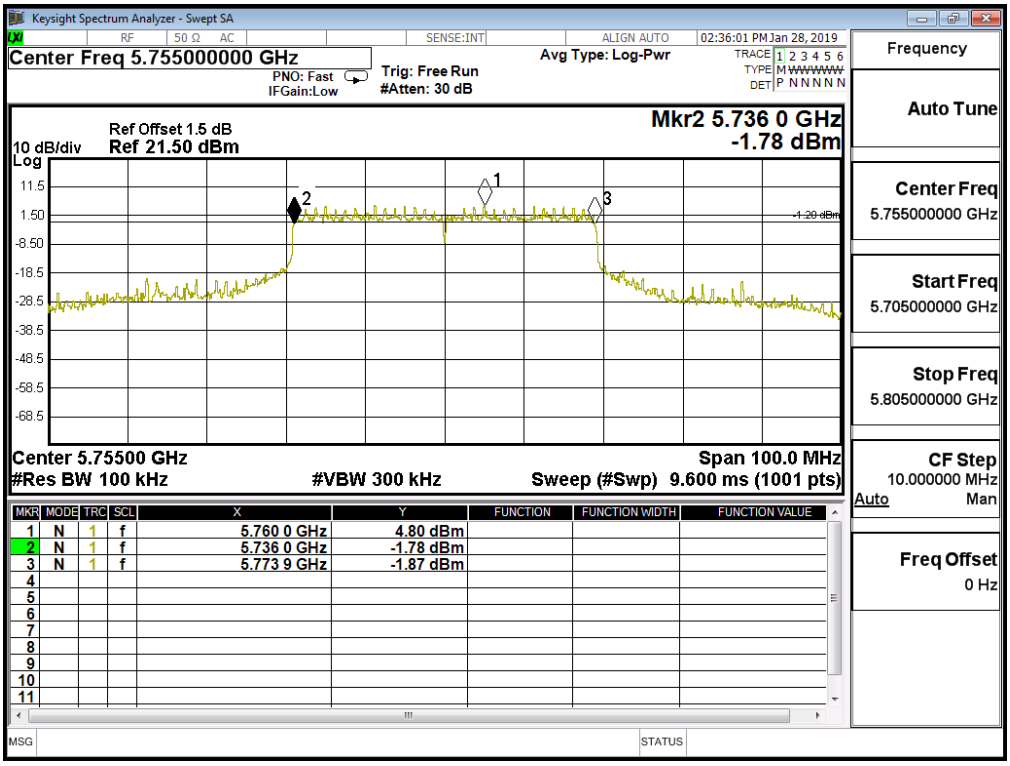
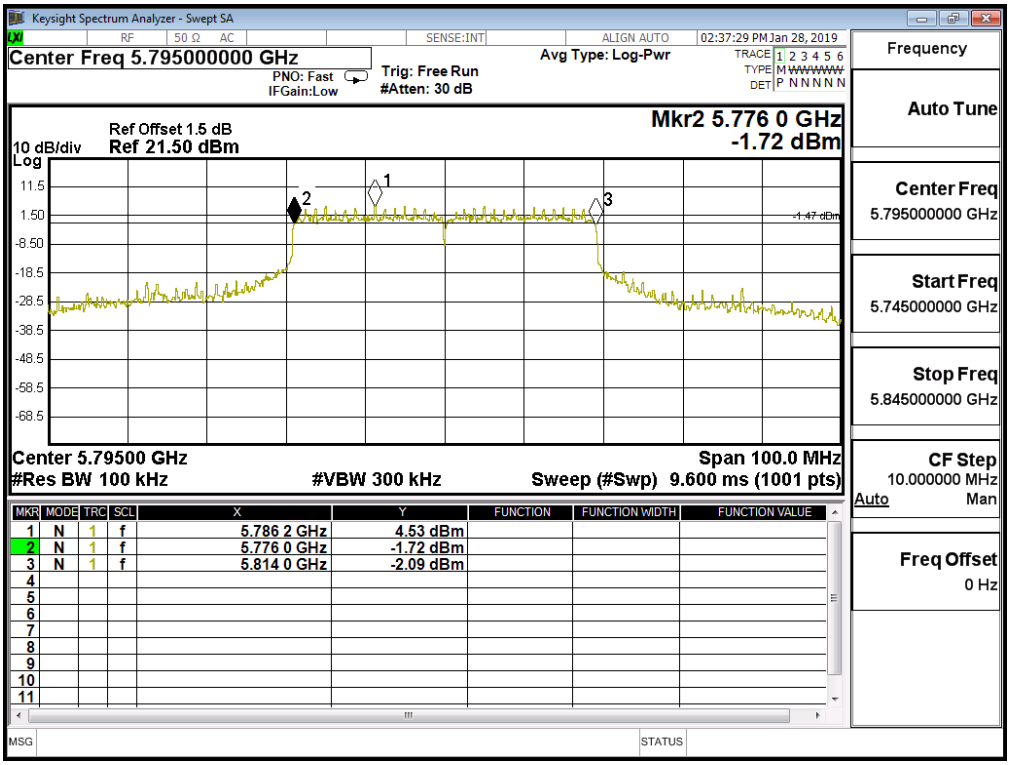


Figure Channel 159

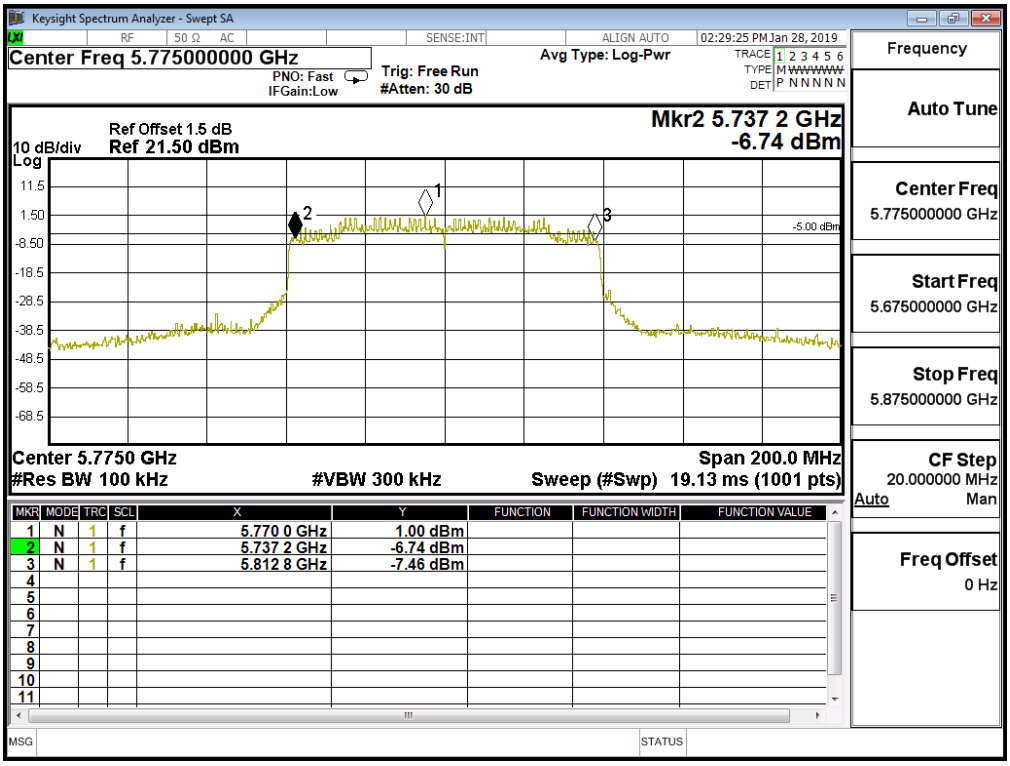


待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 1: SISO A: 發射器 802.11ax-80BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775	75600	>500	Pass

Figure Channel 155



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日
測試項目：佔用頻帶寬度
測試模式：Mode 2: SISO B: 發射器 802.11ax-20BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	18800	>500	Pass
157	5785	18700	>500	Pass
165	5825	18850	>500	Pass

Figure Channel 149

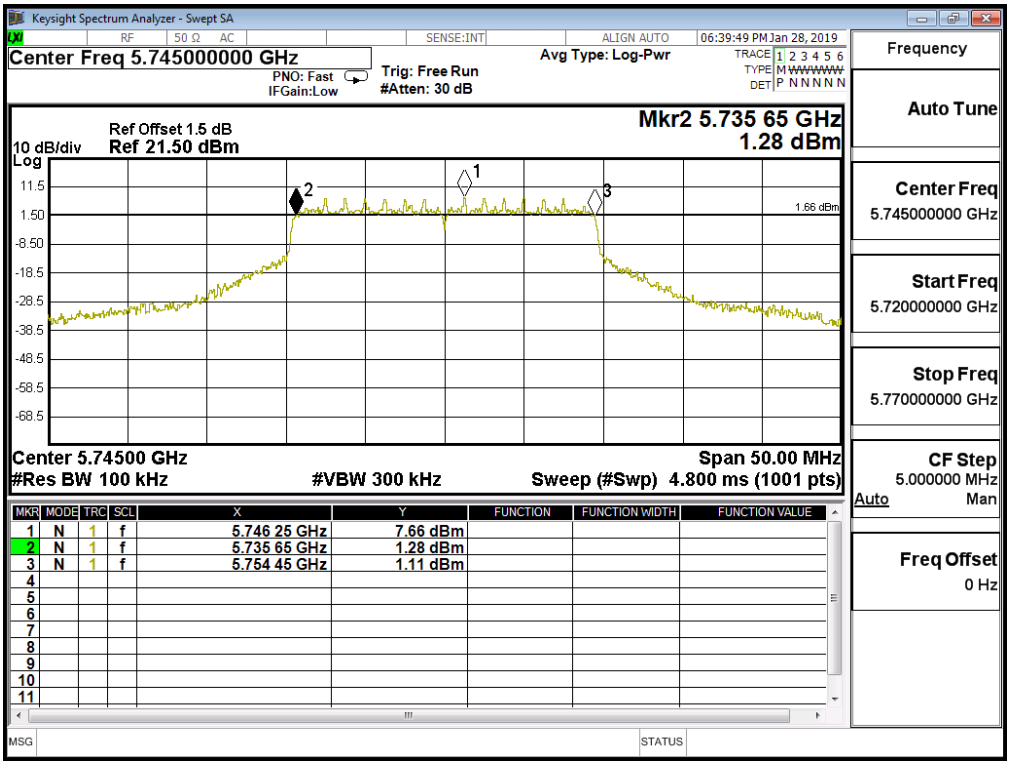


Figure Channel 157

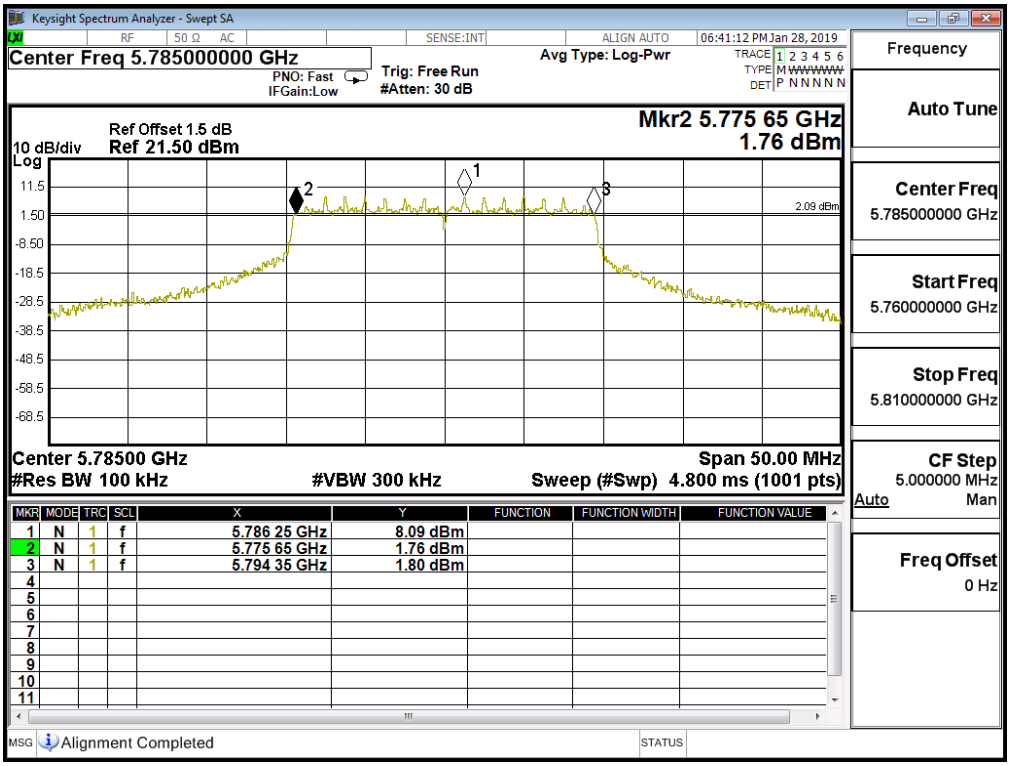
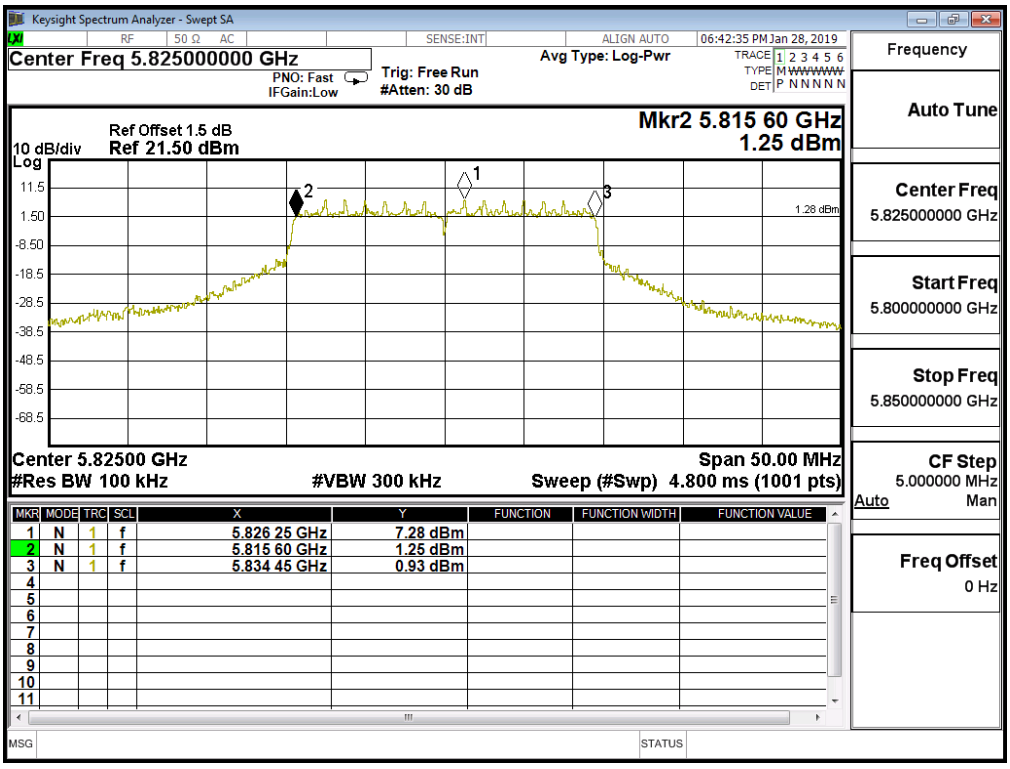


Figure Channel 165



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 2: SISO B: 發射器 802.11ax-40BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755	38000	>500	Pass
159	5795	37900	>500	Pass

Figure Channel 151

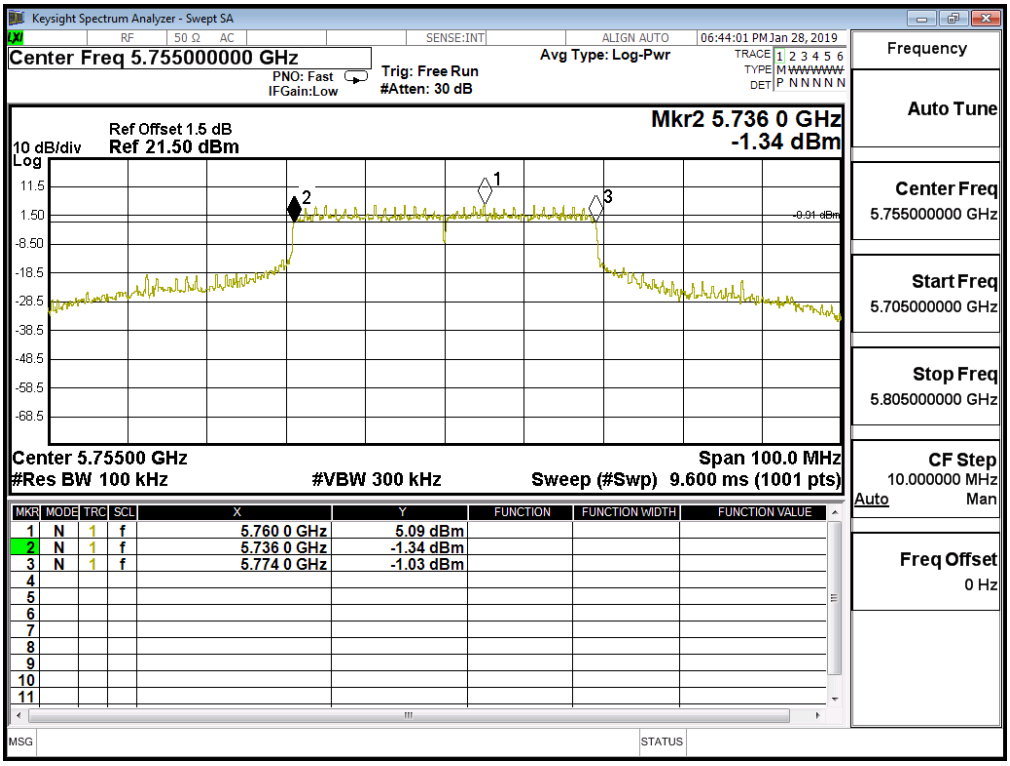
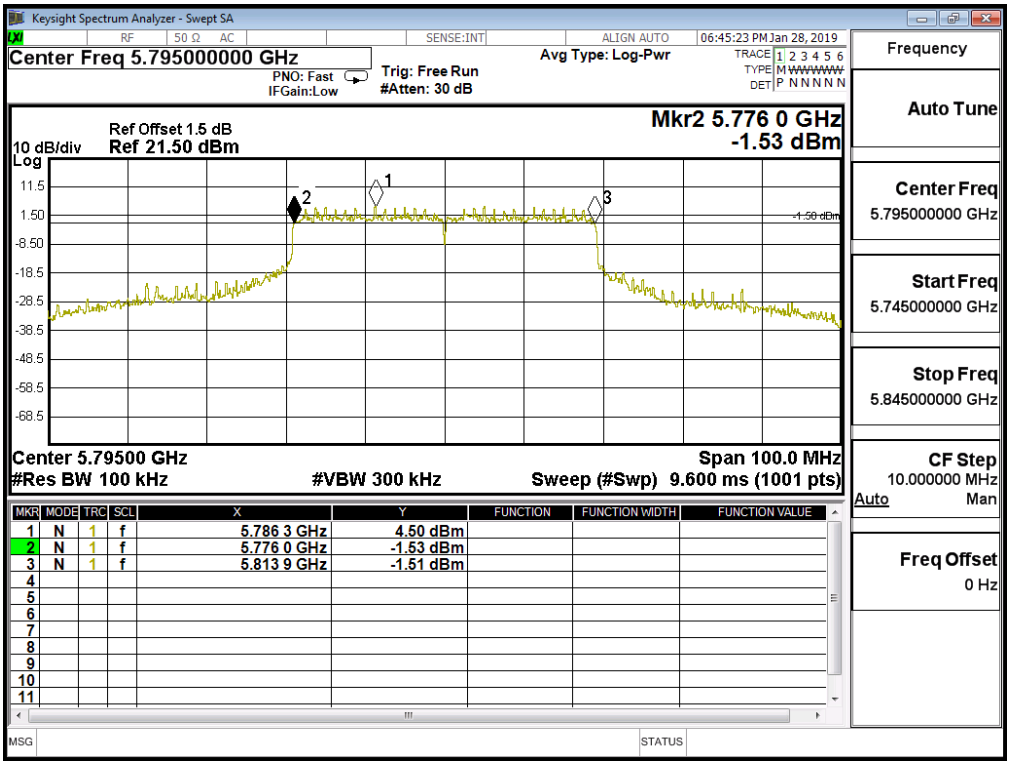


Figure Channel 159

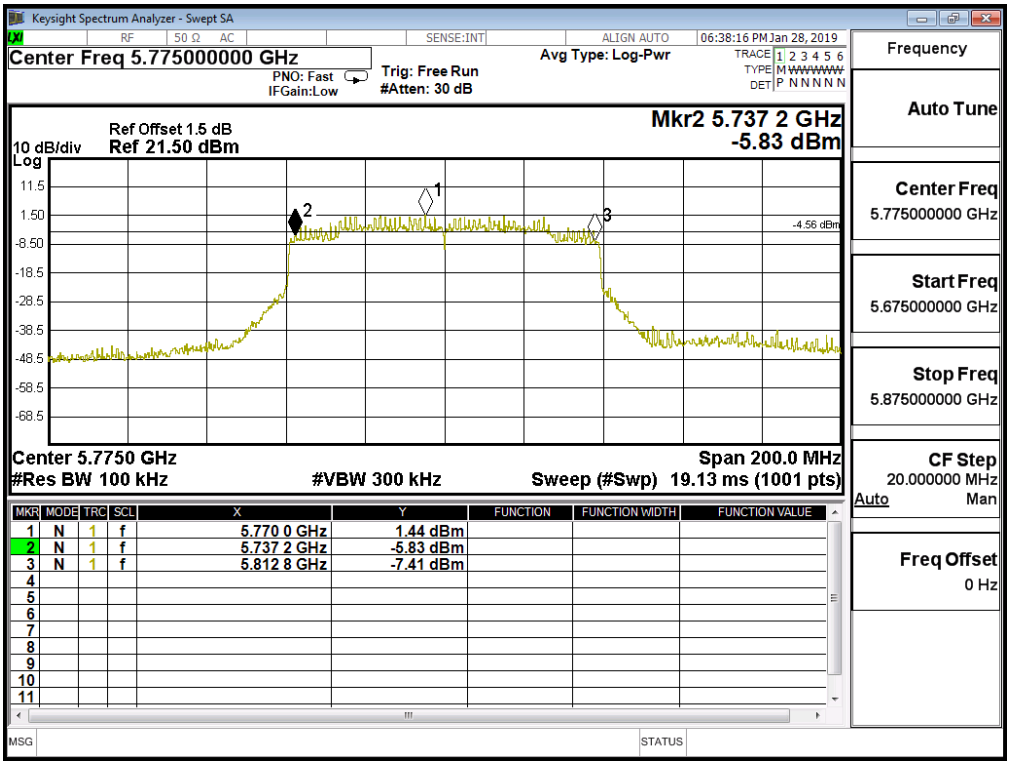


待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 2: SISO B: 發射器 802.11ax-80BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775	75600	>500	Pass

Figure Channel 155



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 3: MIMO: 發射器 802.11ax-20BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Chain	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	A	18550	>500	Pass
157	5785	A	18750	>500	Pass
165	5825	A	19000	>500	Pass
149	5745	B	18750	>500	Pass
157	5785	B	18750	>500	Pass
165	5825	B	18750	>500	Pass

Figure Channel 149 (Chain A)

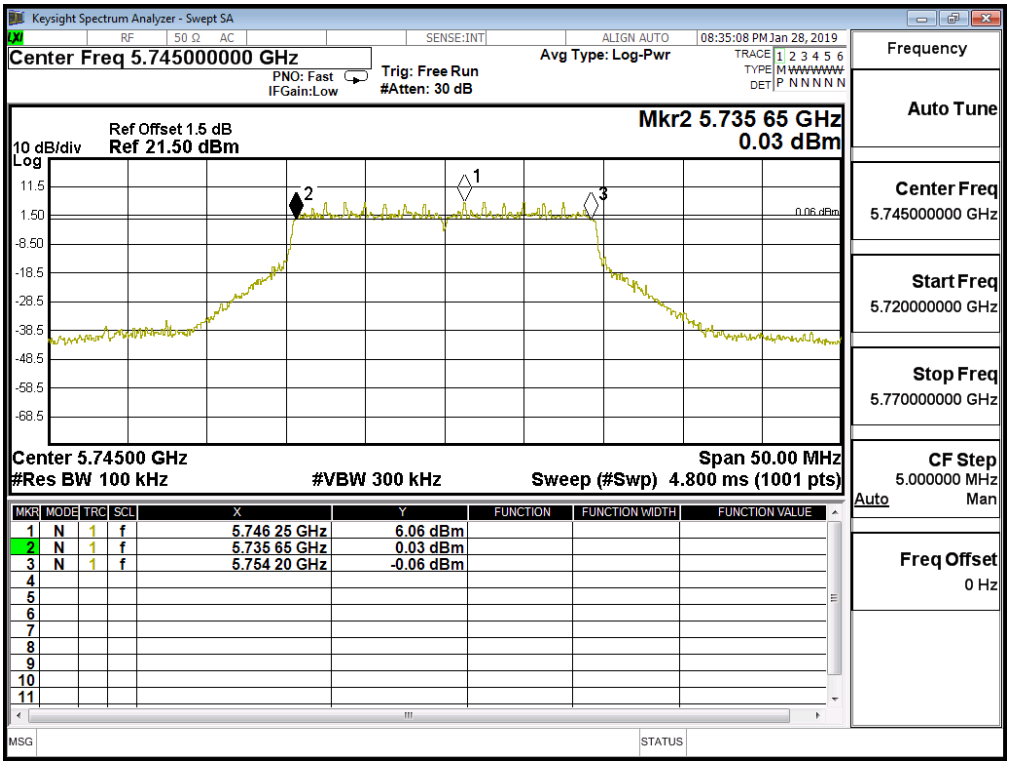


Figure Channel 149 (Chain B)

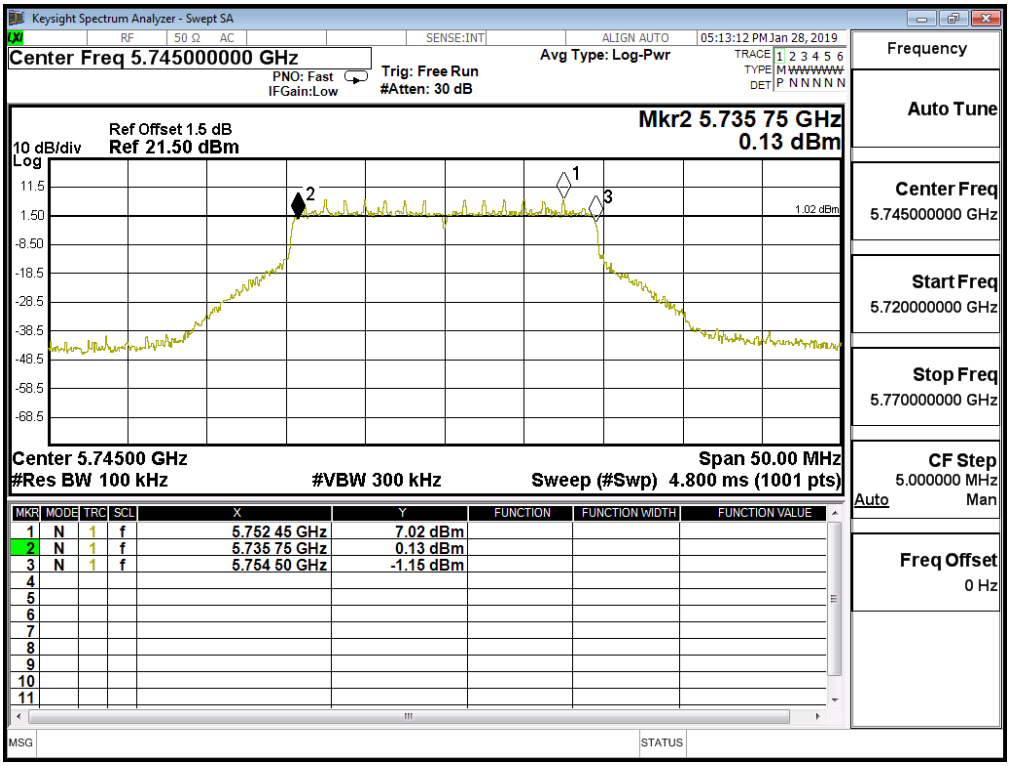


Figure Channel 157 (Chain A)

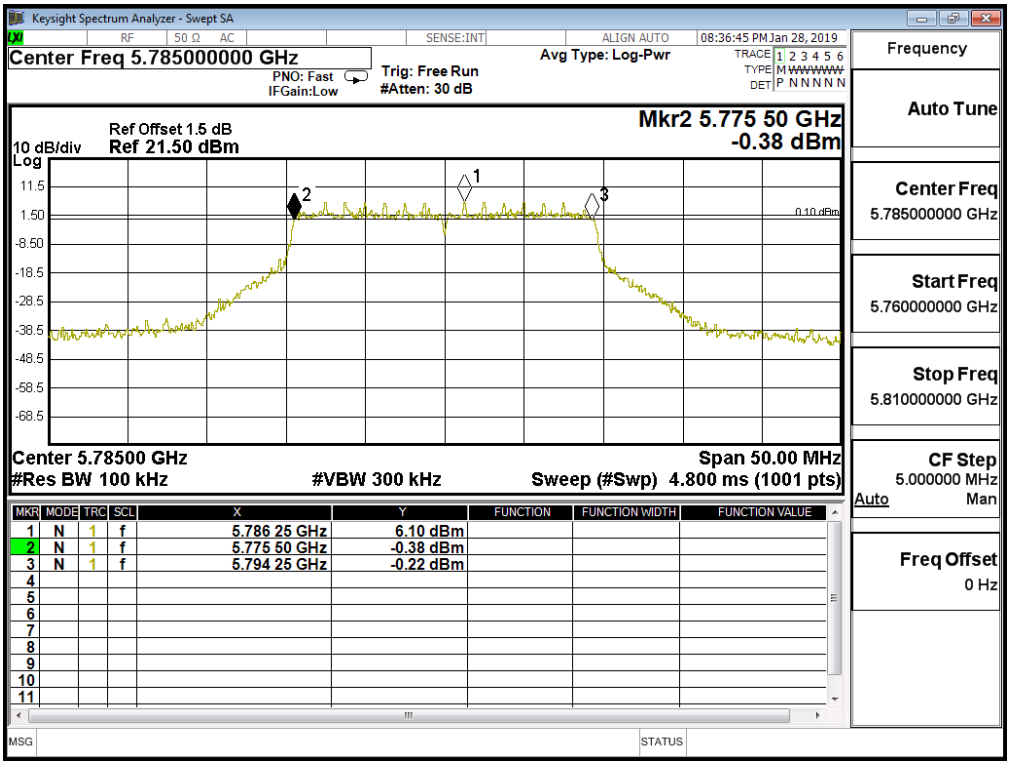


Figure Channel 157 (Chain B)

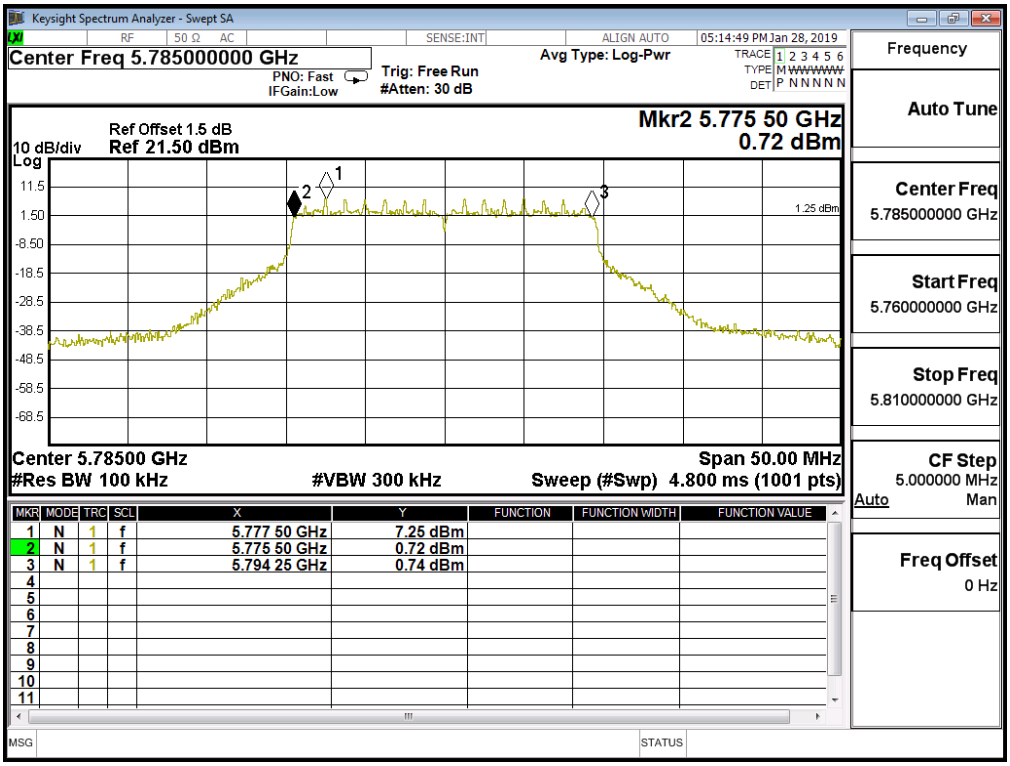


Figure Channel 165 (Chain A)

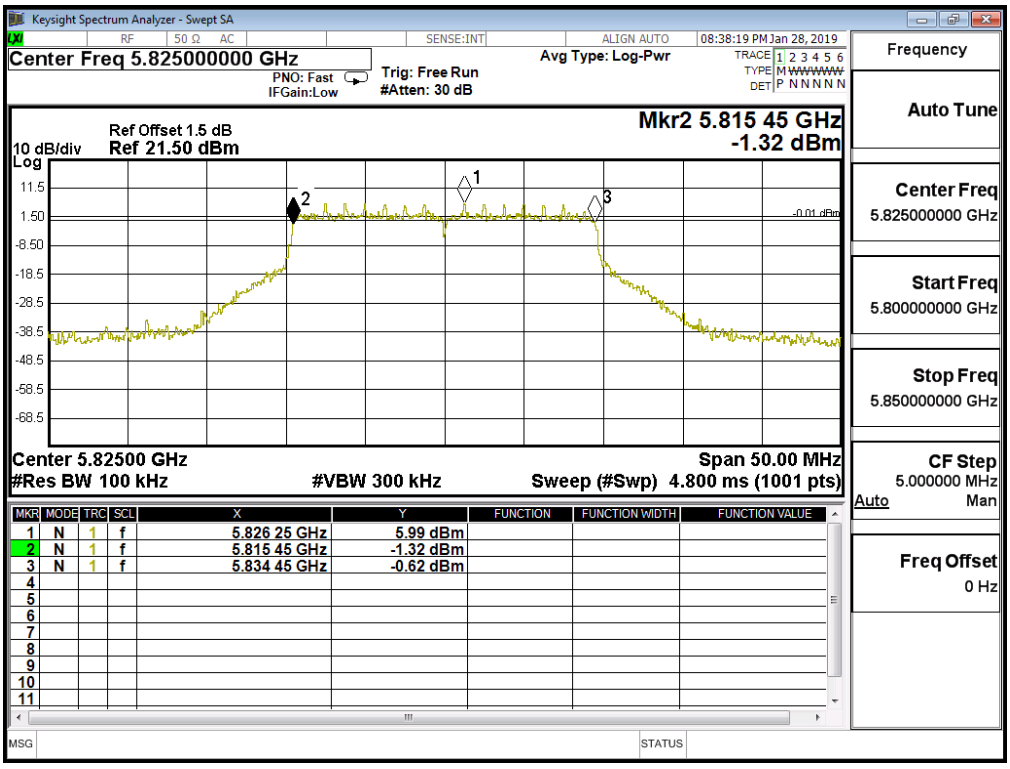
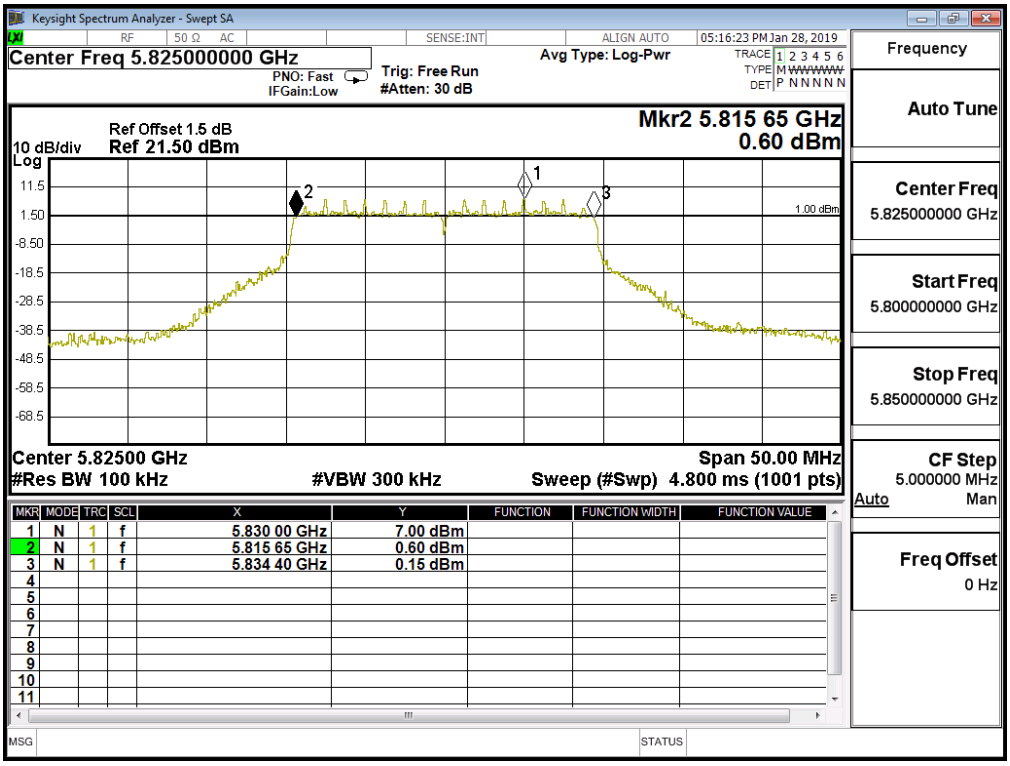


Figure Channel 165 (Chain B)



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 3: MIMO: 發射器 802.11ax-40BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Chain	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755	A	38200	>500	Pass
159	5795	A	38200	>500	Pass
151	5755	B	37900	>500	Pass
159	5795	B	37900	>500	Pass

Figure Channel 151 (Chain A)

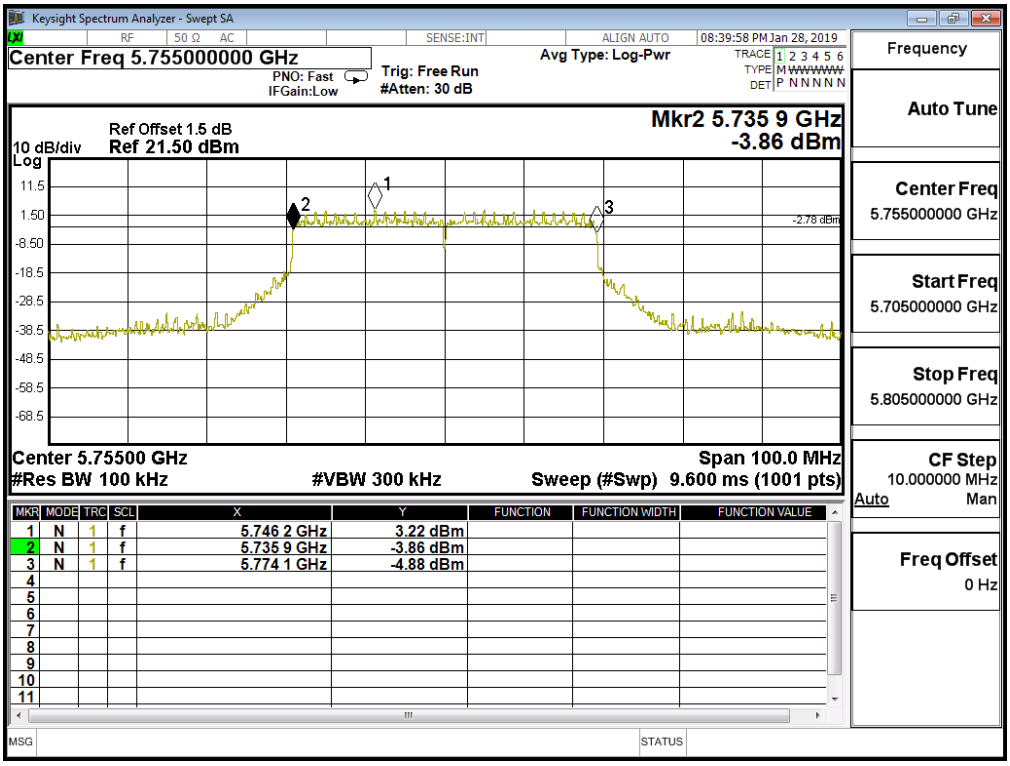


Figure Channel 151 (Chain B)

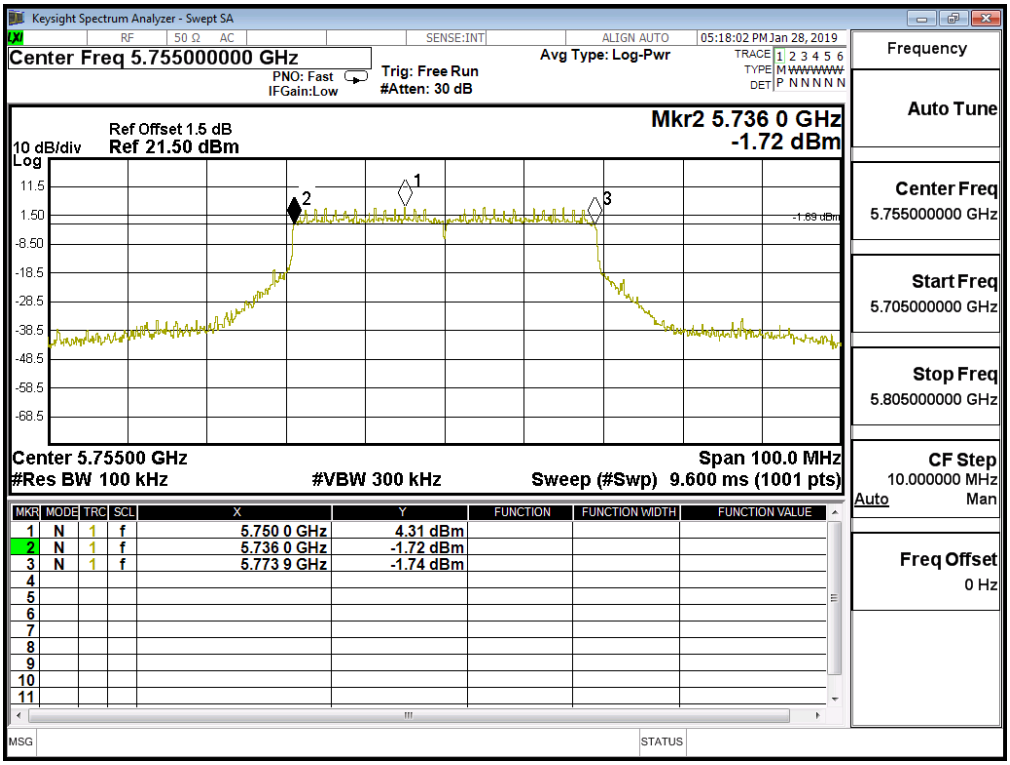


Figure Channel 159 (Chain A)

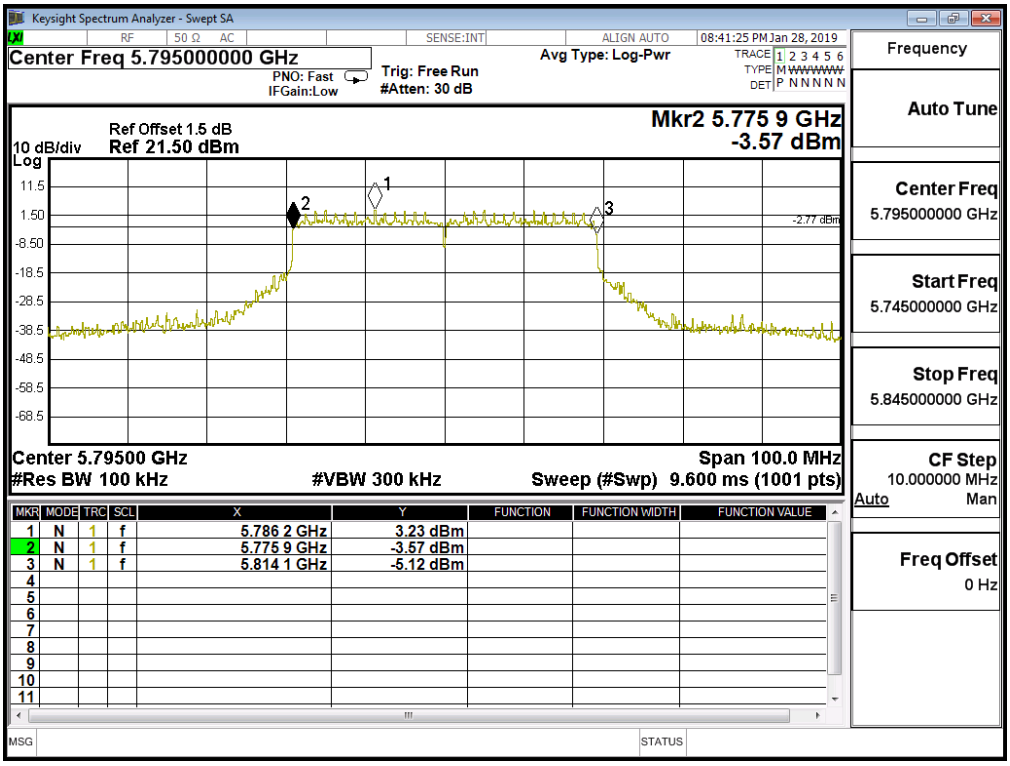
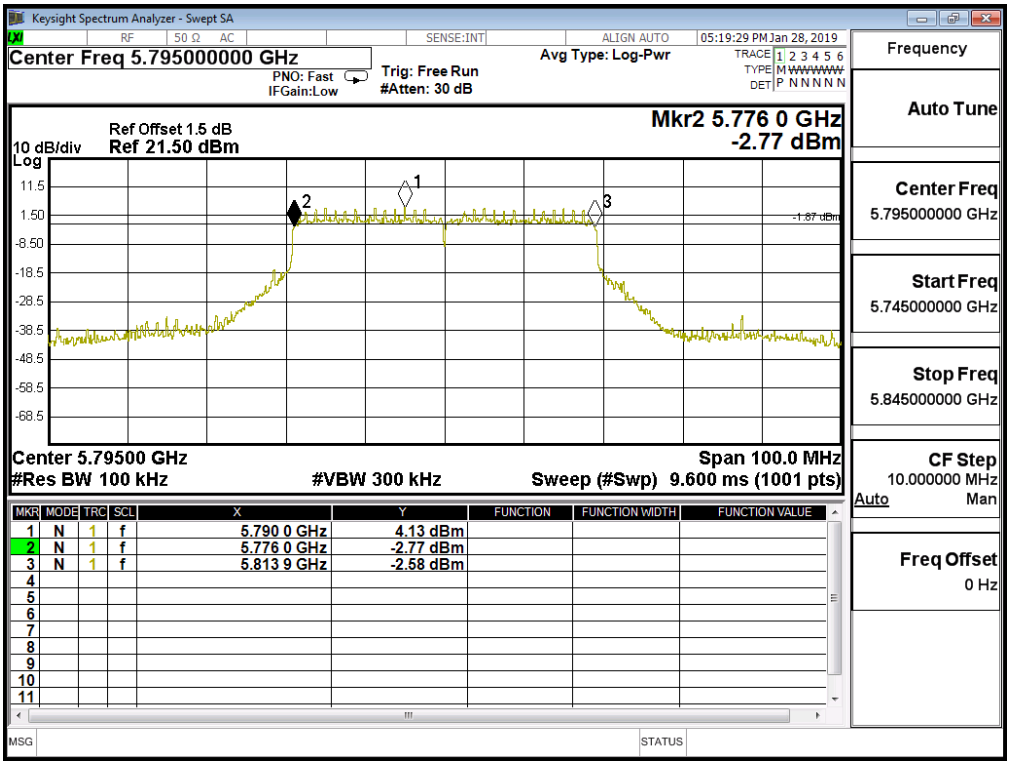


Figure Channel 159 (Chain B)



待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
6 dB 頻寬：100kHz
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 28 日

測試項目：佔用頻帶寬度
測試模式：Mode 3: MIMO: 發射器 802.11ax-80BW
視頻頻寬：300kHz
測試距離：Conducted
環境溫度：20 ℃
環境濕度：48 %

Channel No.	Frequency (MHz)	Chain	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775	A	75600	>500	Pass
155	5775	B	75400	>500	Pass

Figure Channel 155 (Chain A)

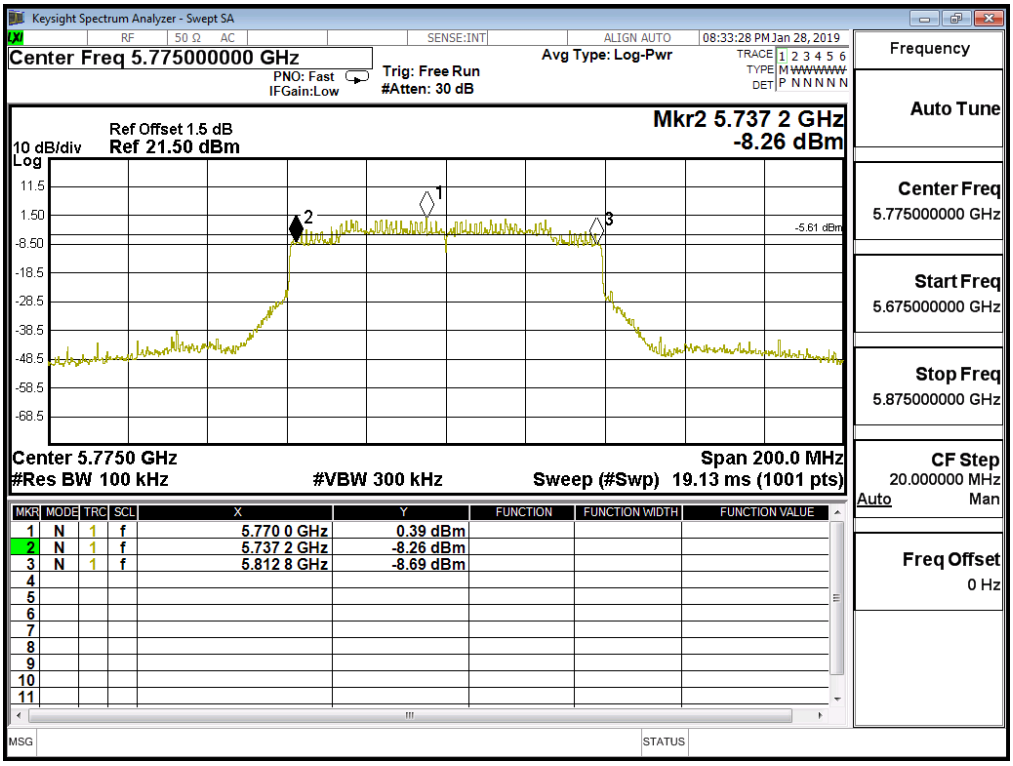
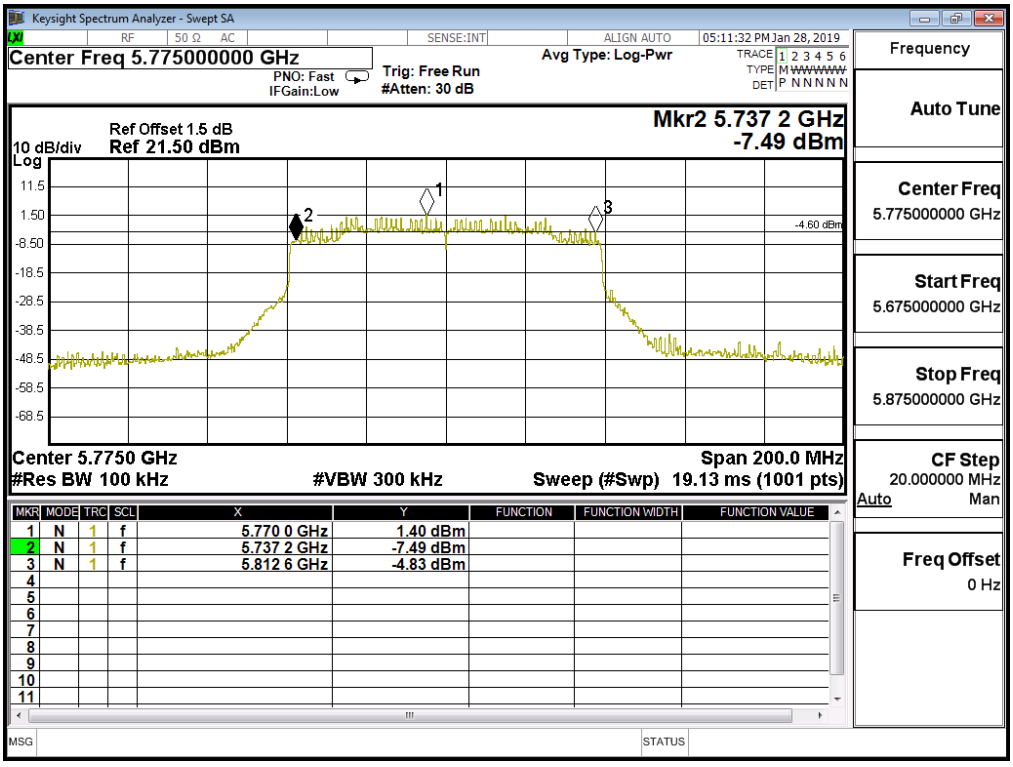


Figure Channel 155 (Chain B)



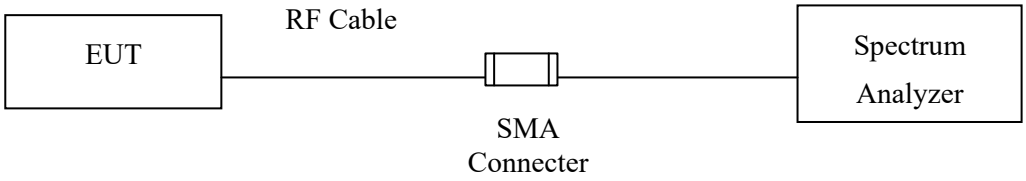
佔用頻帶寬度測試結果:	**PASS**

12. Duty Cycle

12.1. 量測方法

待測物之天線埠經由適當之衰減直接連至頻譜分析儀RF輸入端，
待測物應在正常發射狀態下量測。

12.2. 測試架構圖



12.3. 量測不確定度

此項測試之量測不確定度為± 2.31msec

12.4. Duty Cycle 測試結果

待測物名稱：Intel® Wi-Fi 6 AX200
待測物型號：AX200NGW
測試頻道：--
量測天線：--
檢測器：峰值
測試日期：108 年 01 月 18 日

測試項目：Duty Cycle
測試模式：--
測試距離：Conducted
環境溫度：20 ℃
環境濕度：50 %

Duty Cycle Formula:
Duty Cycle = Ton / (Ton + Toff)
Duty Factor = 10 Log (1/Duty Cycle)

Results:

SISO A

5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11a	0.2116	0.2580	82.02	0.86
802.11n20	0.2319	0.2812	82.47	0.84
802.11n40	0.2435	0.2899	84.00	0.76
802.11ac80	0.2290	0.2754	83.16	0.80
802.11ac160	0.2304	0.2768	83.24	0.80
802.11ax20	0.2319	0.2812	82.47	0.84
802.11ax40	0.2348	0.2812	83.51	0.78
802.11ax80	0.2493	0.2957	84.32	0.74
802.11ax160	0.2362	0.2826	83.59	0.78

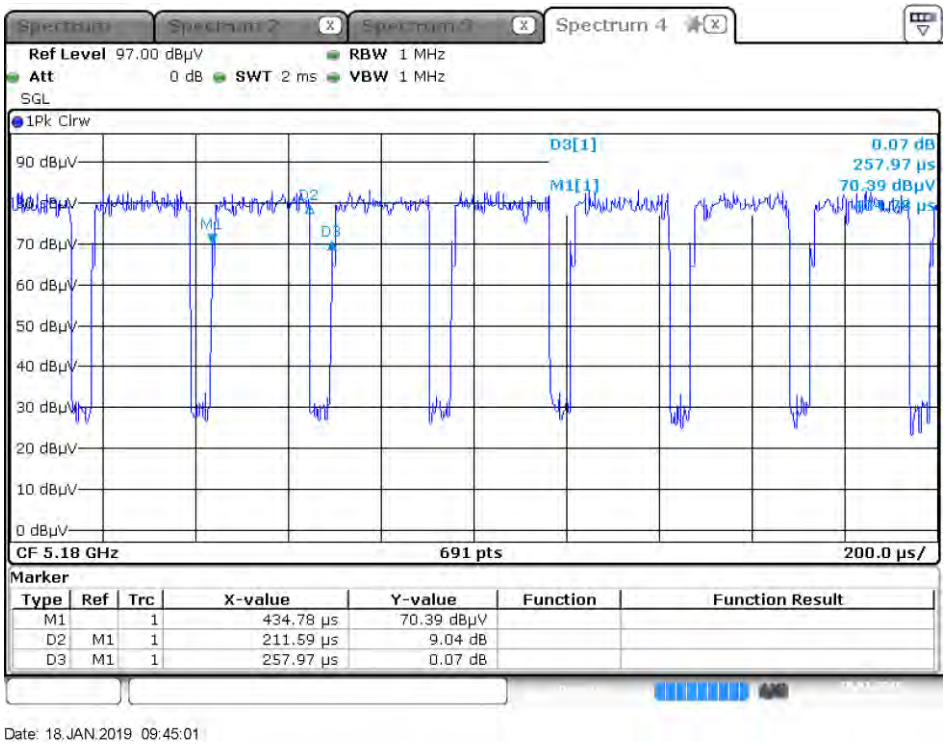
SISO B

5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11a	0.2116	0.2609	81.11	0.91
802.11n20	0.2319	0.2783	83.33	0.79
802.11n40	0.2232	0.2928	76.24	1.18
802.11ac80	0.2261	0.2754	82.11	0.86
802.11ac160	0.2290	0.2754	83.16	0.80
802.11ax20	0.2348	0.2812	83.50	0.78
802.11ax40	0.2319	0.2812	82.47	0.84
802.11ax80	0.2493	0.2957	84.32	0.74
802.11ax160	0.2261	0.2812	80.41	0.95

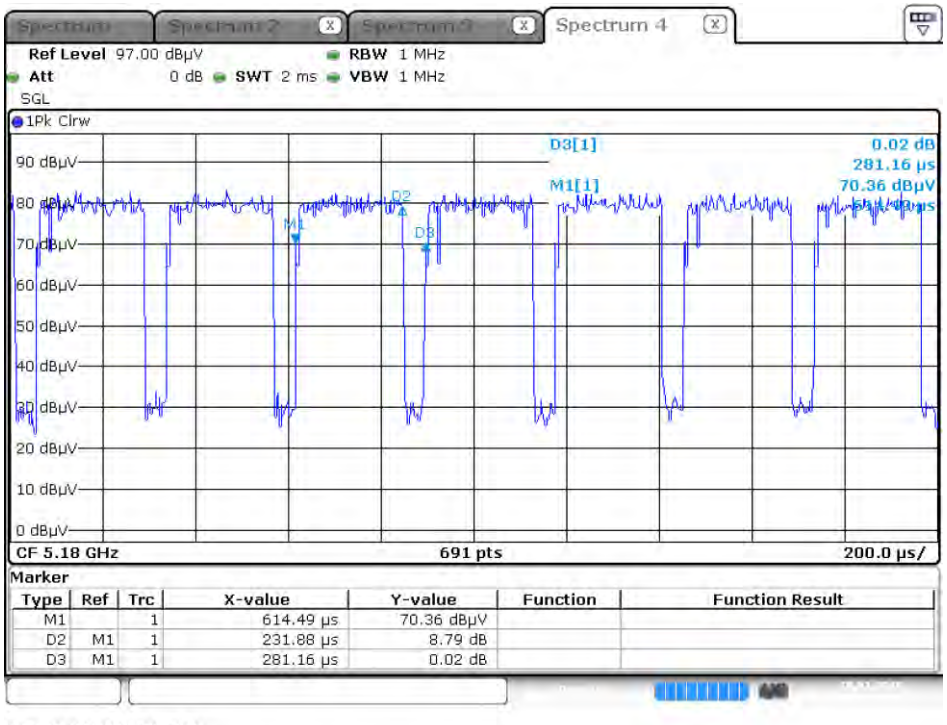
MIMO

5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11n20	0.2493	0.2957	84.32	0.74
802.11n40	0.2464	0.2957	83.34	0.79
802.11ac80	0.2319	0.2783	83.33	0.79
802.11ac160	0.2290	0.2754	83.16	0.80
802.11ax20	0.2290	0.2754	83.16	0.80
802.11ax40	0.2406	0.2899	83.00	0.81
802.11ax80	0.2290	0.2754	83.16	0.80
802.11ax160	0.2290	0.2754	83.16	0.80

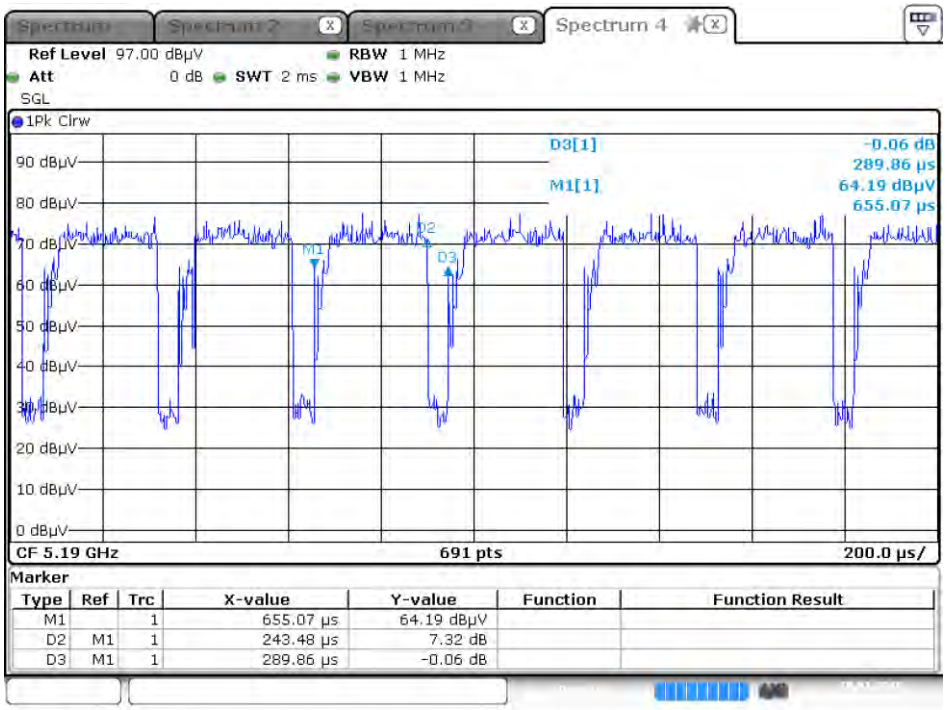
802.11a (SISO A)



802.11n20 (SISO A)

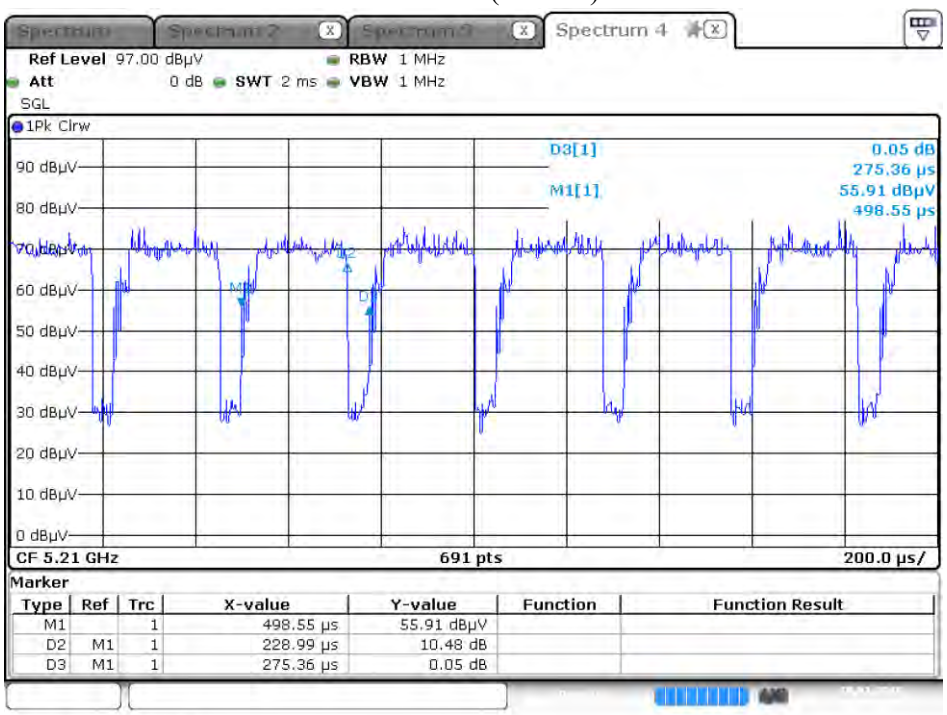


802.11n40 (SISO A)



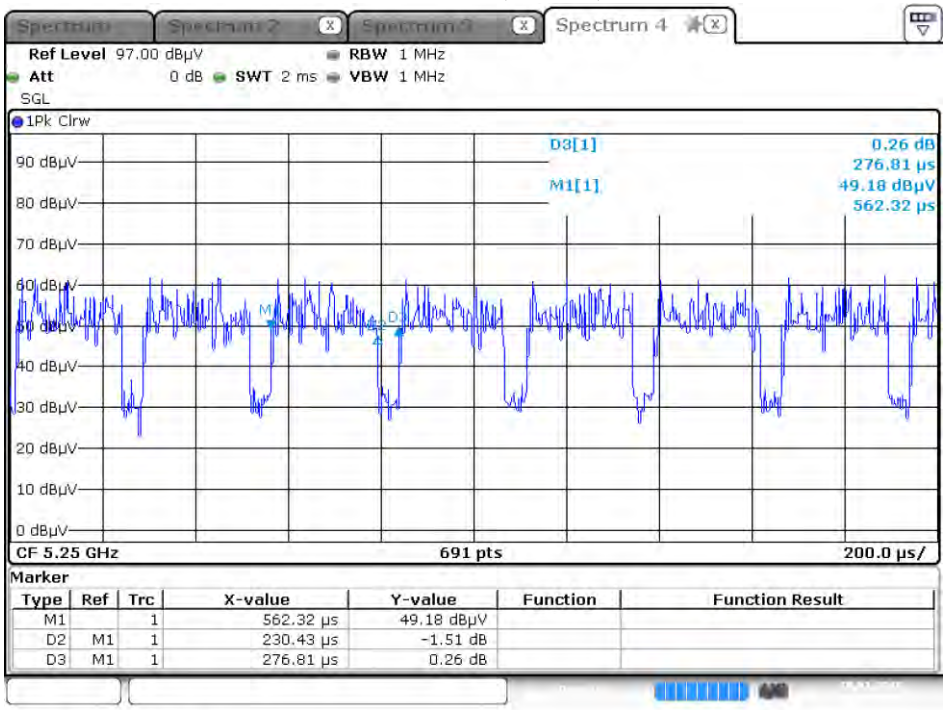
Date: 18.JAN.2019 09:49:44

802.11ac80 (SISO A)



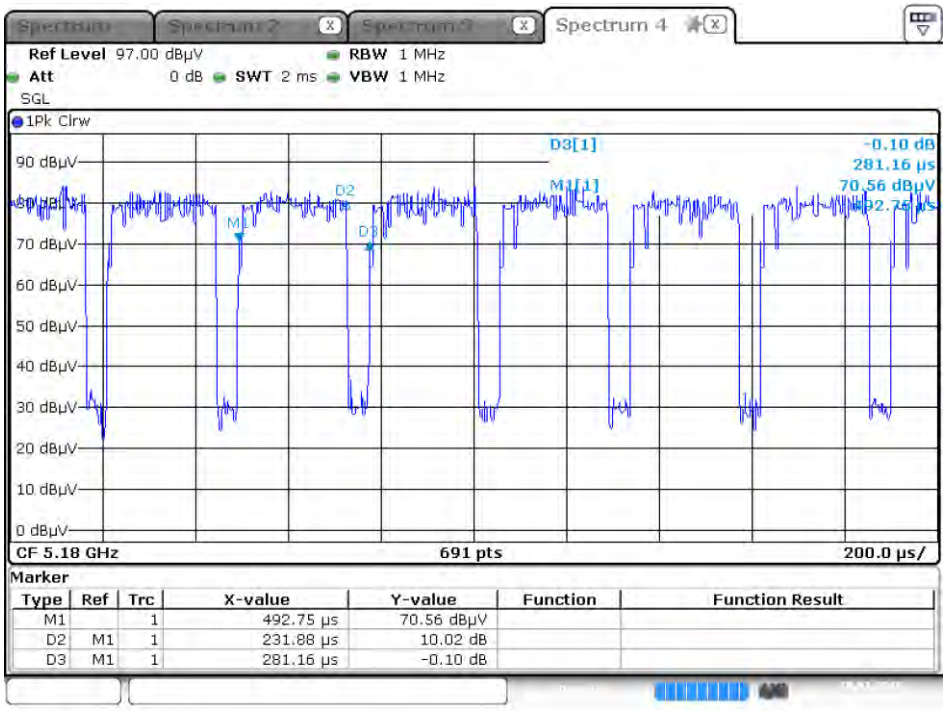
Date: 18.JAN.2019 10:12:26

802.11ac160 (SISO A)



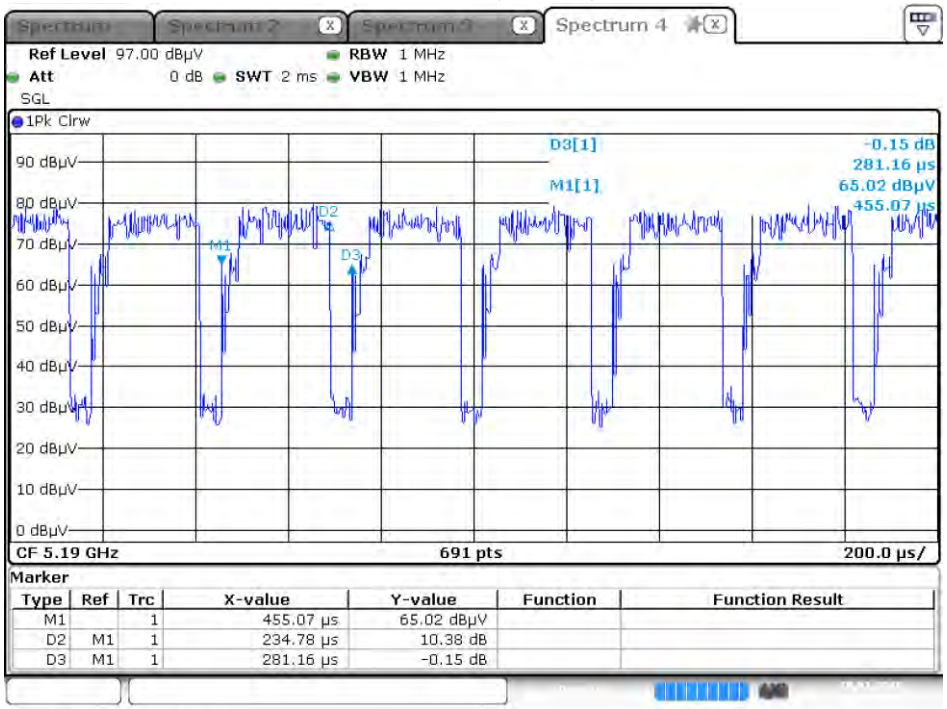
Date: 18.JAN.2019 17:04:51

802.11ax20 (SISO A)



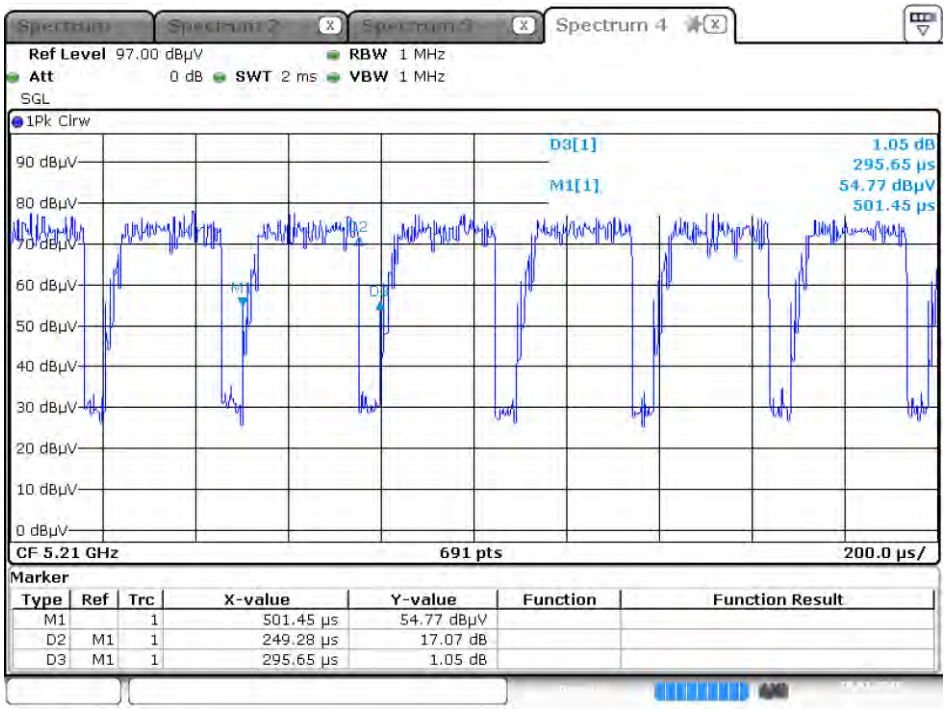
Date: 18.JAN.2019 10:23:59

802.11ax40 (SISO A)



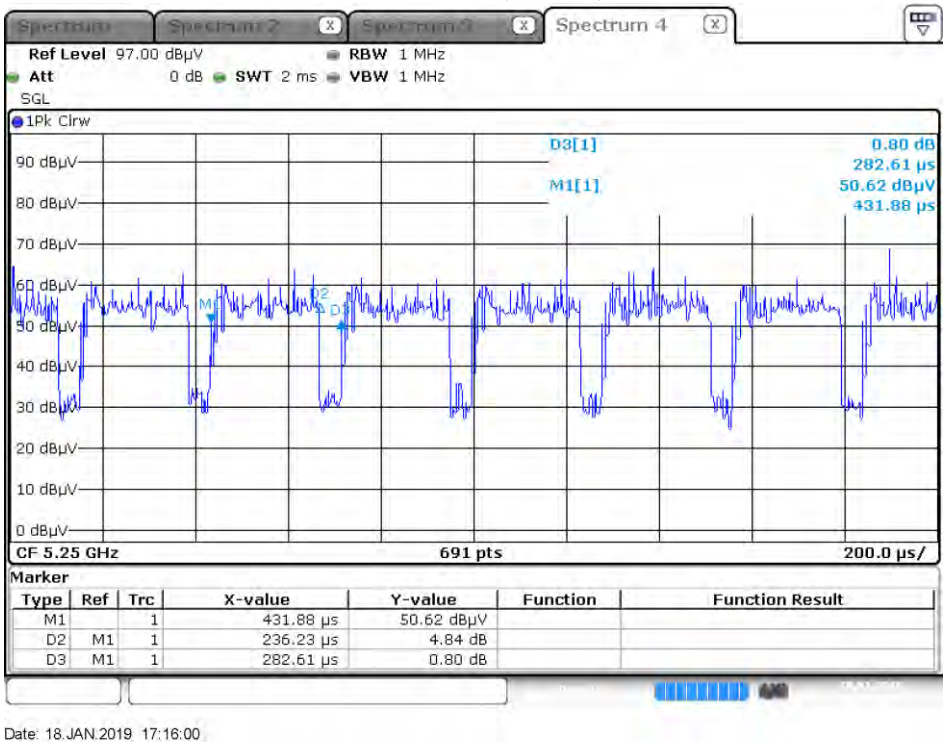
Date: 18.JAN.2019 10:26:08

802.11ax80 (SISO A)

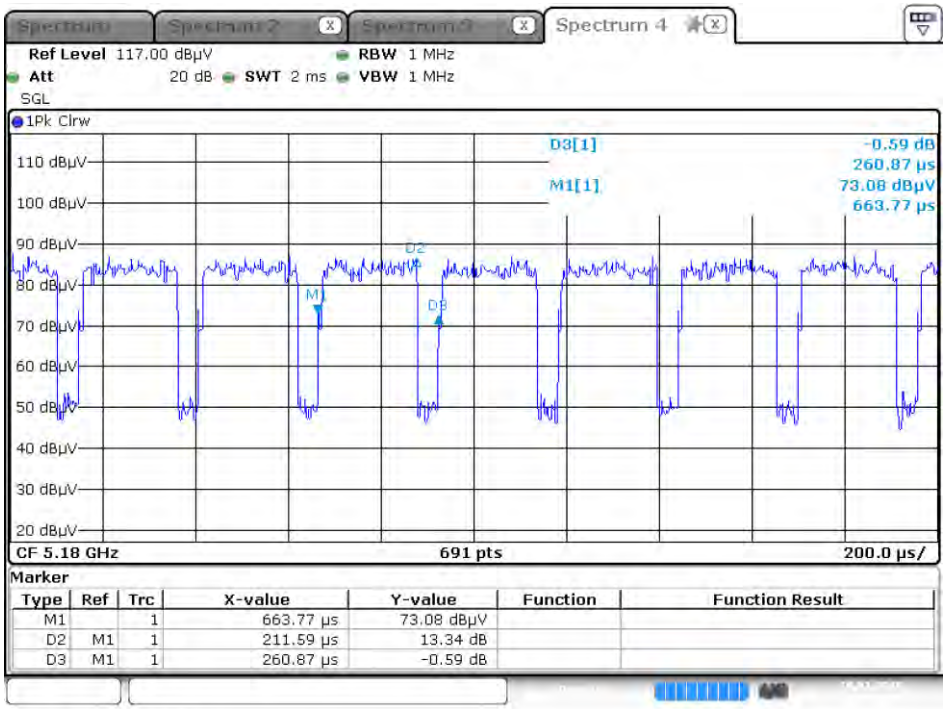


Date: 18.JAN.2019 10:35:13

802.11ax160 (SISO A)

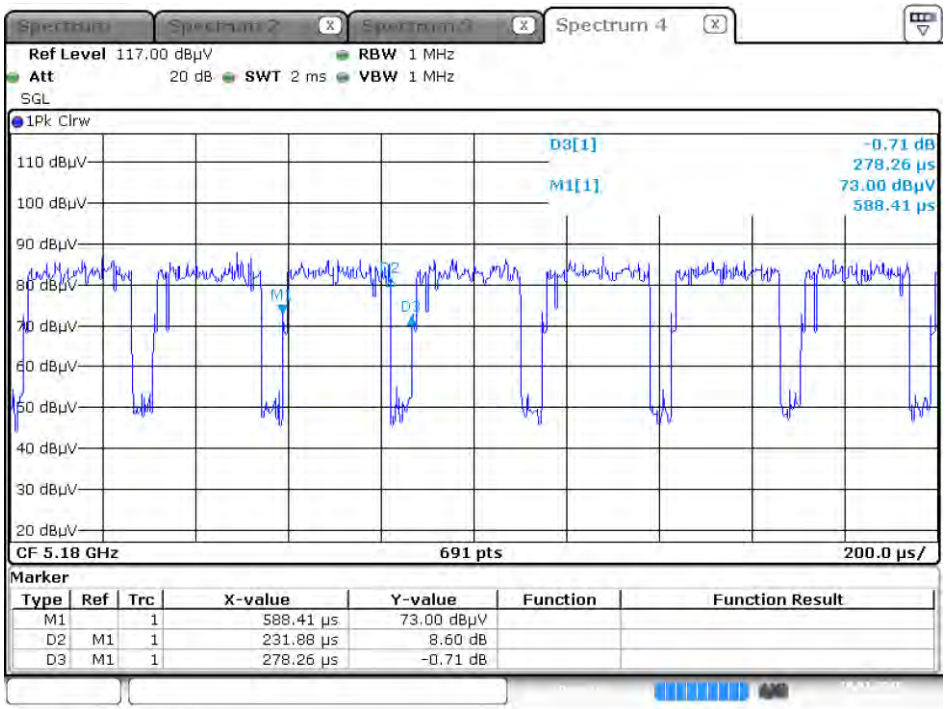


802.11a (SISO B)



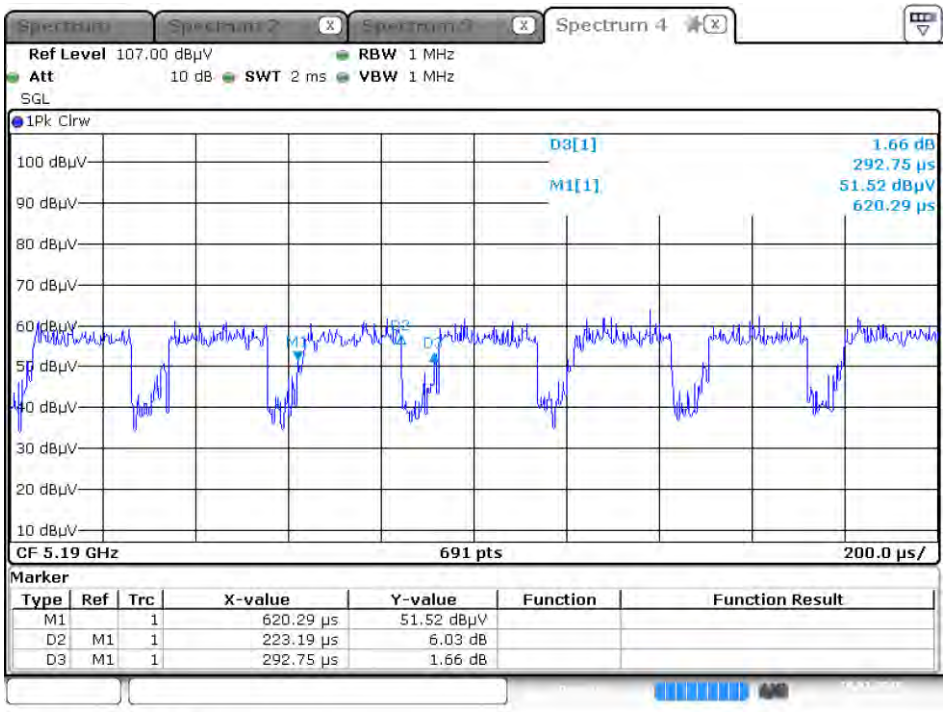
Date: 19.JAN.2019 13:36:49

802.11n20 (SISO B)



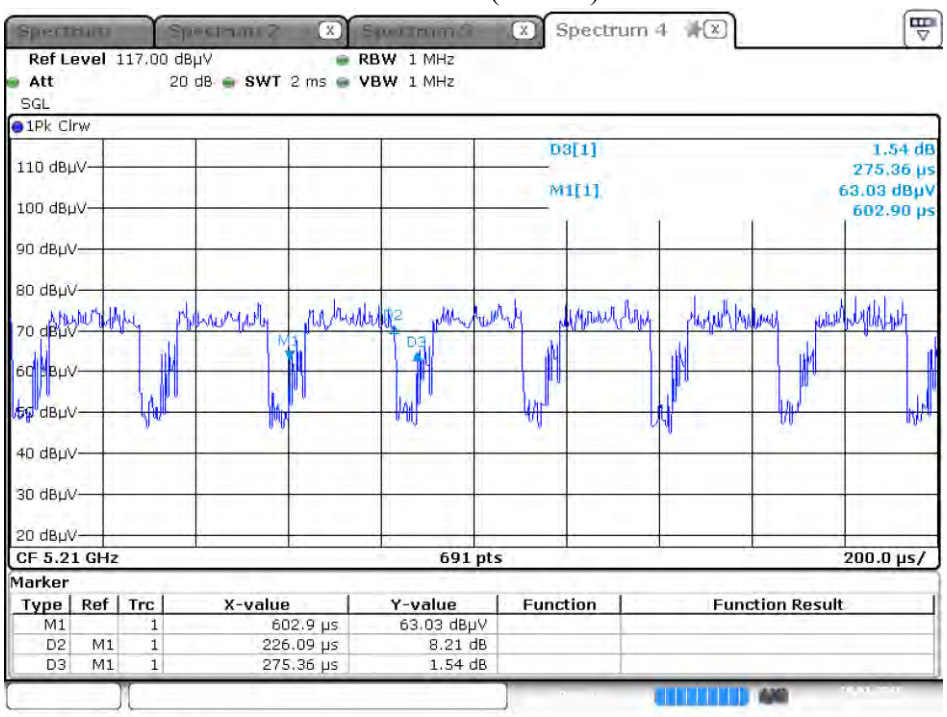
Date: 19.JAN.2019 15:29:56

802.11n40 (SISO B)



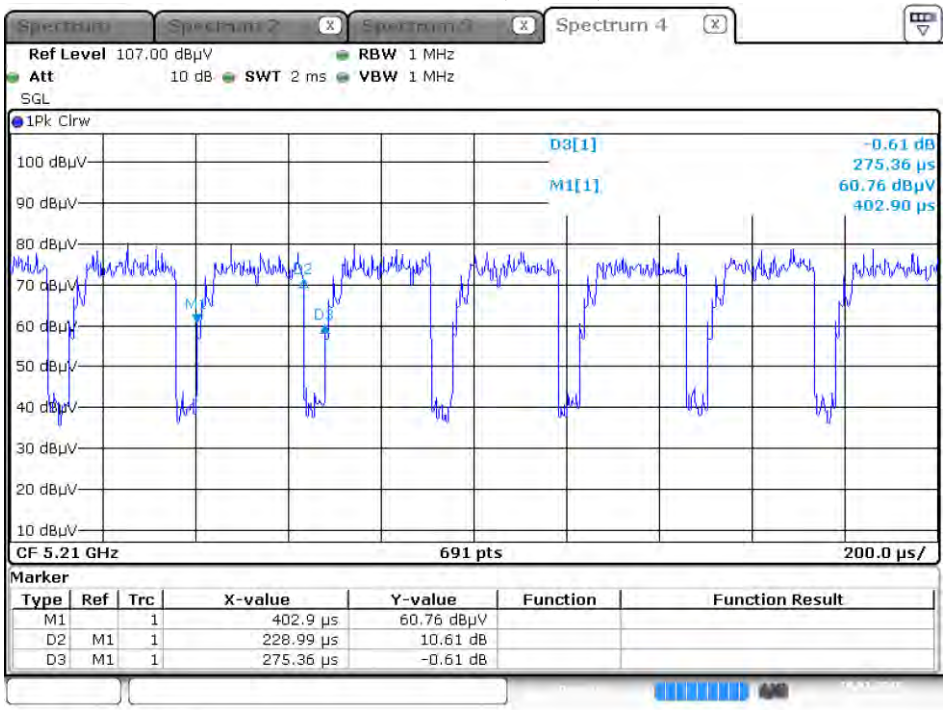
Date: 19.JAN.2019 15:38:47

802.11ac80 (SISO B)



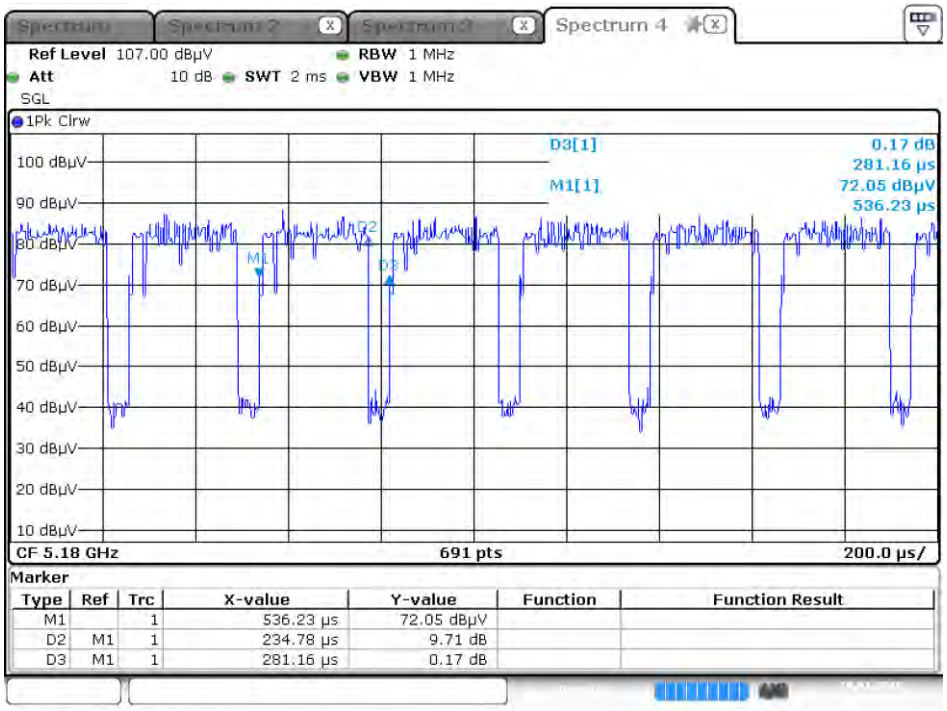
Date: 19.JAN.2019 15:34:03

802.11ac160 (SISO B)



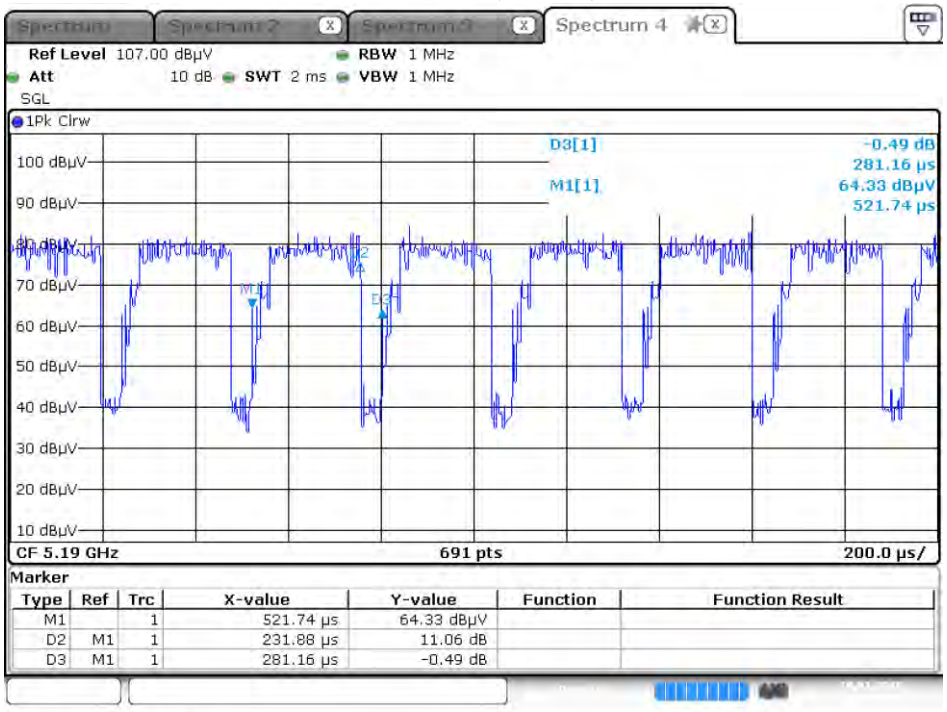
Date: 19.JAN.2019 17:55:15

802.11ax20 (SISO B)



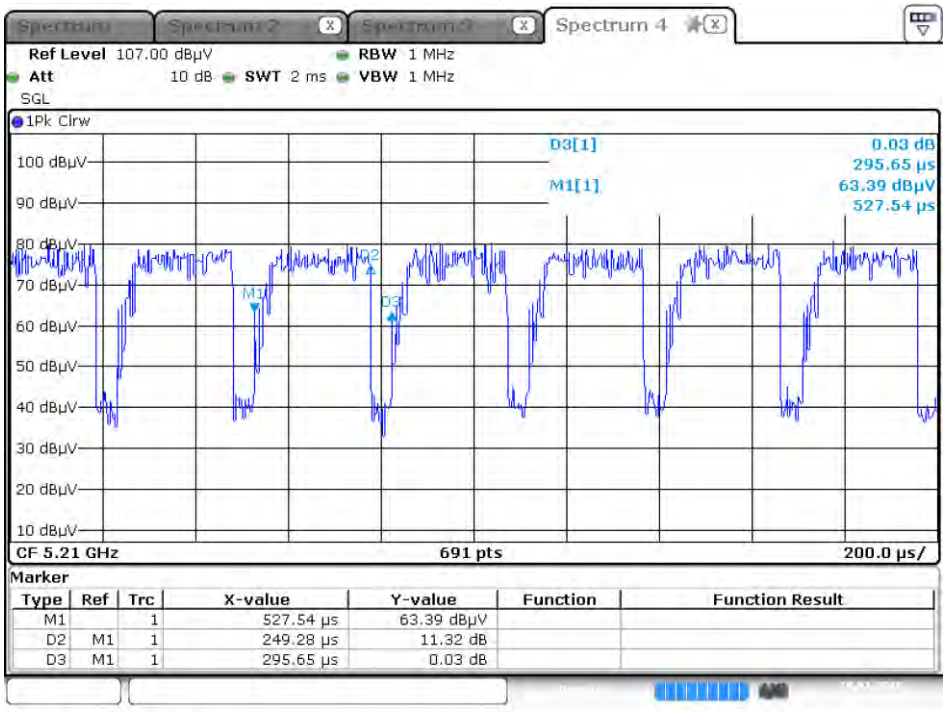
Date: 19.JAN.2019 15:46:43

802.11ax40 (SISO B)



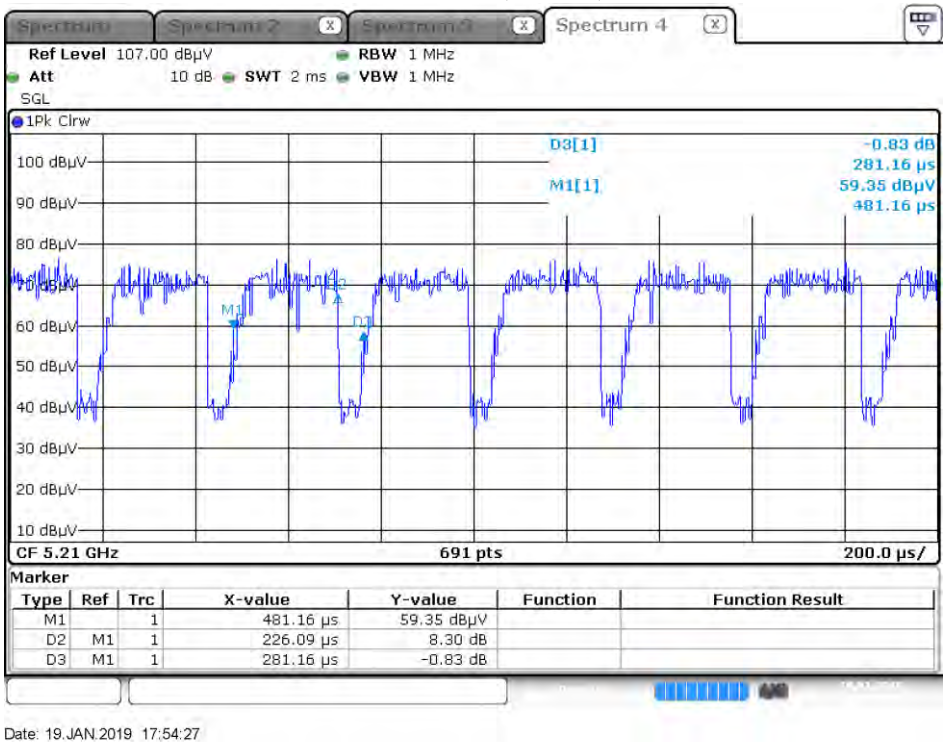
Date: 19.JAN.2019 15:48:28

802.11ax80 (SISO B)

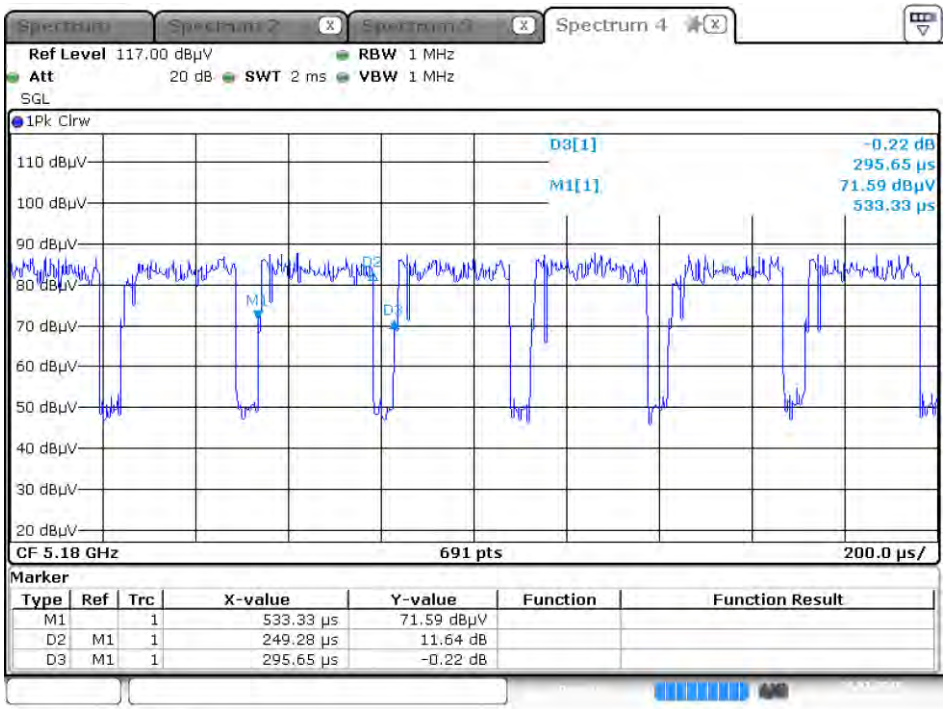


Date: 19.JAN.2019 15:50:17

802.11ax160 (SISO B)

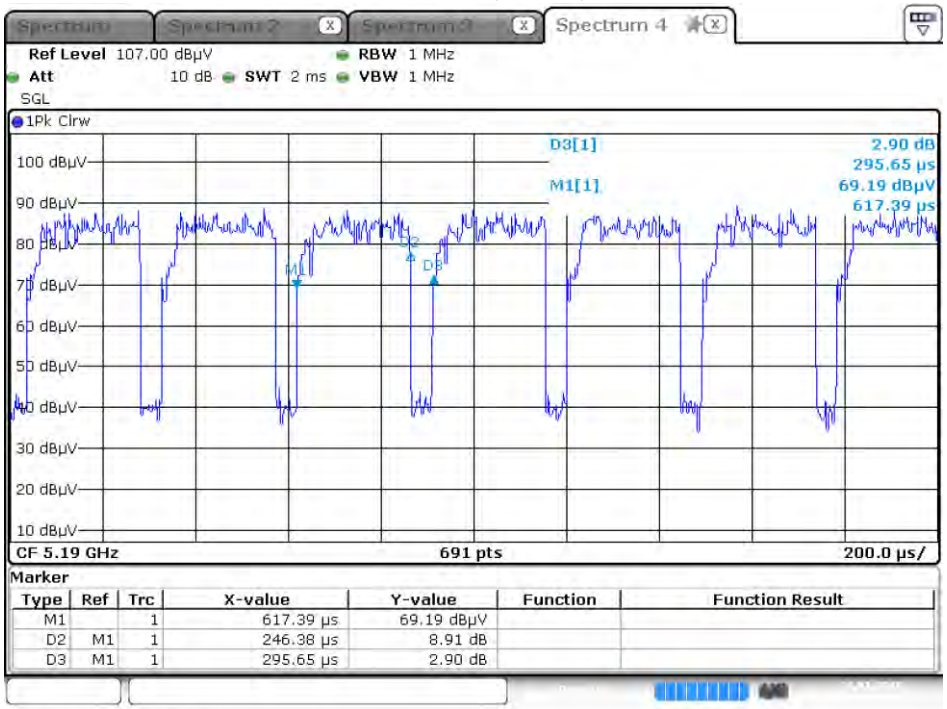


802.11n20 (MIMO)



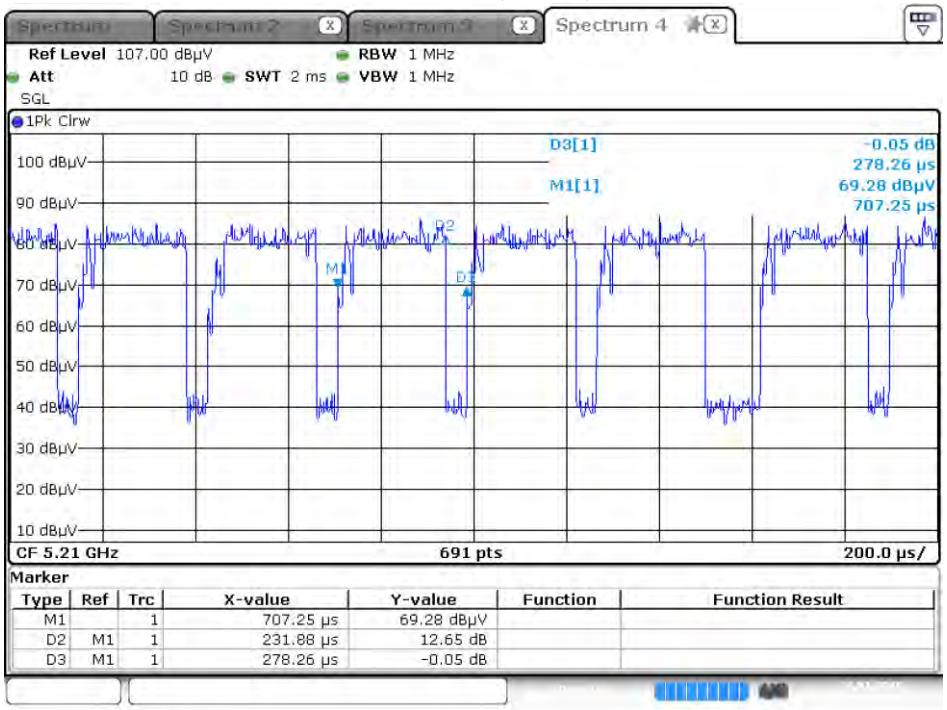
Date: 21.JAN.2019 15:46:17

802.11n40 (MIMO)



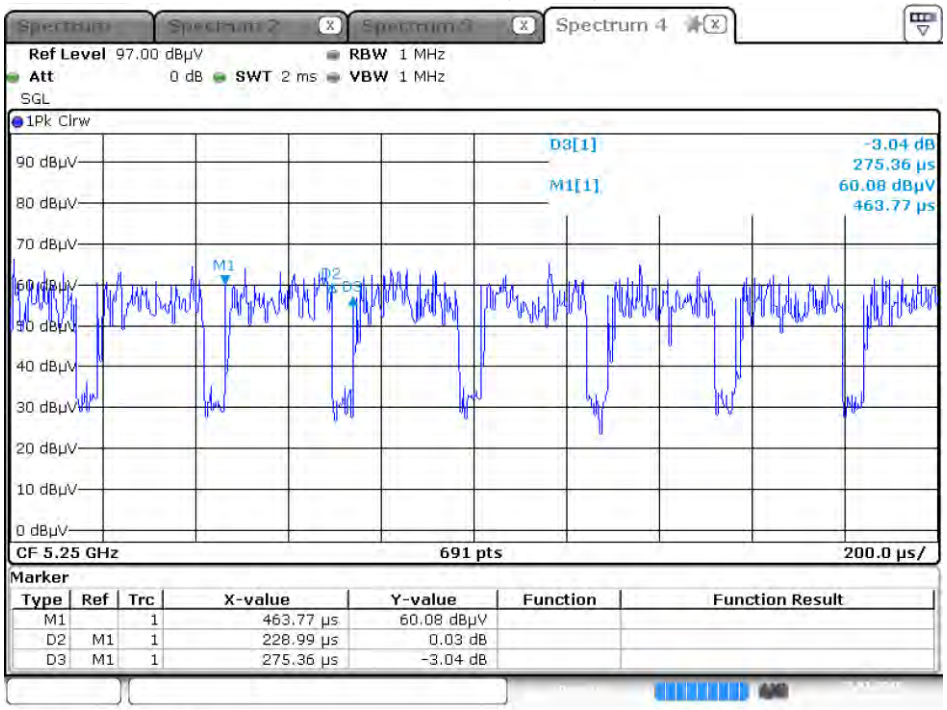
Date: 21.JAN.2019 16:00:51

802.11ac80 (MIMO)



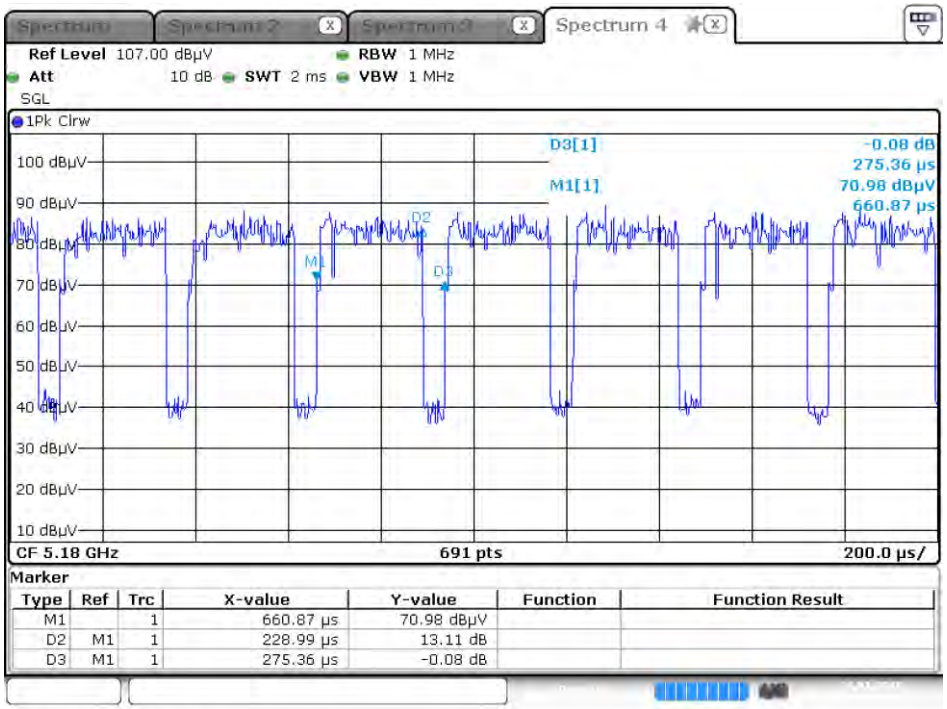
Date: 21.JAN.2019 16:03:59

802.11ac160 (MIMO)



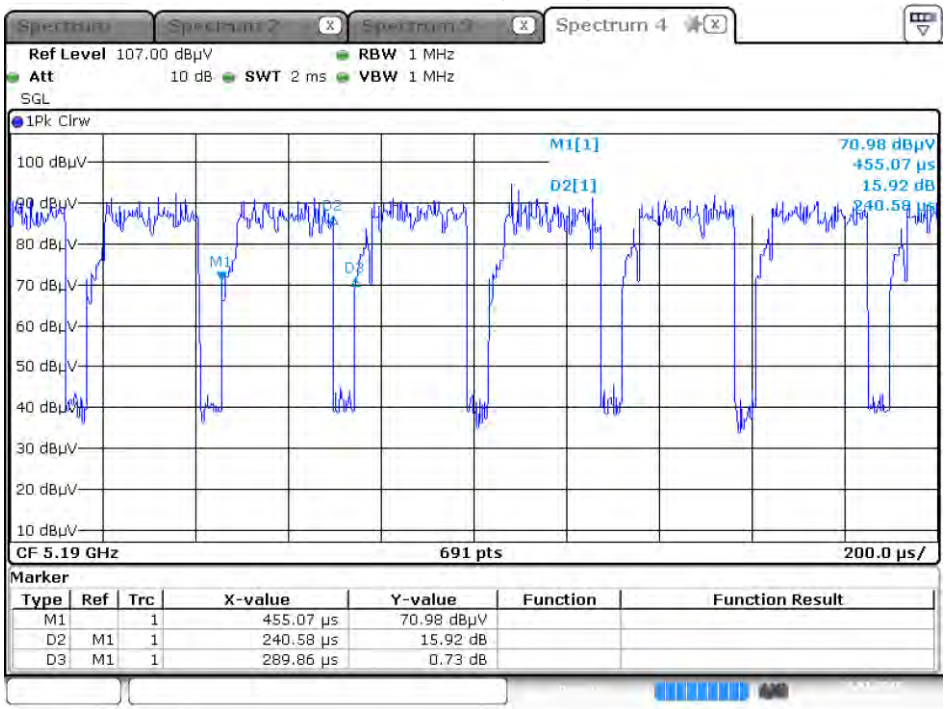
Date: 22.JAN.2019 10:24:47

802.11ax20 (MIMO)



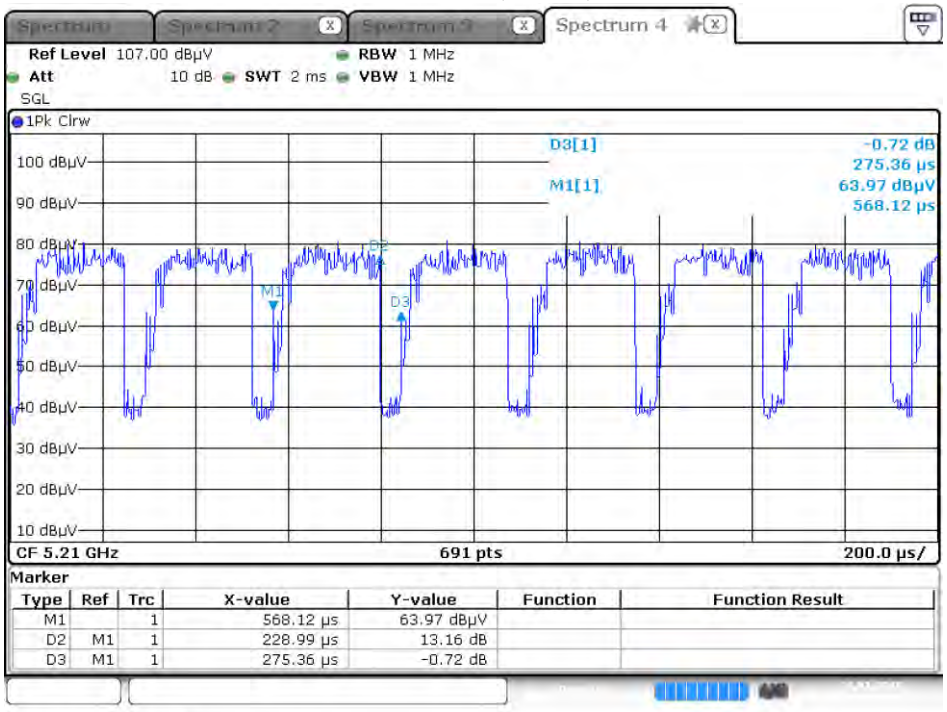
Date: 21.JAN.2019 17:34:53

802.11ax40 (MIMO)



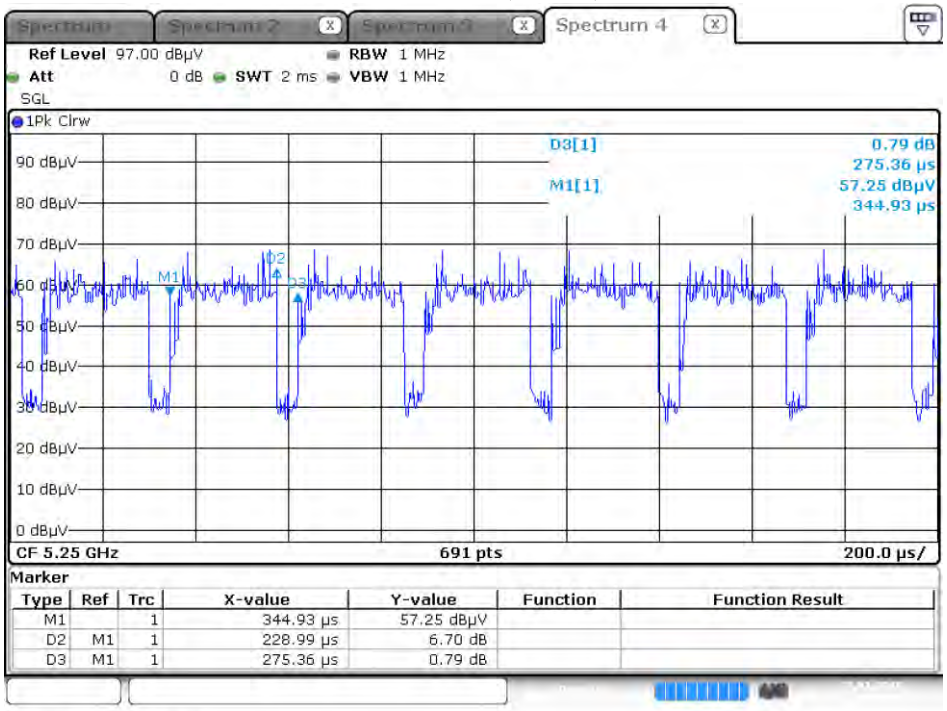
Date: 21.JAN.2019 17:37:37

802.11ax80 (MIMO)



Date: 21.JAN.2019 17:43:02

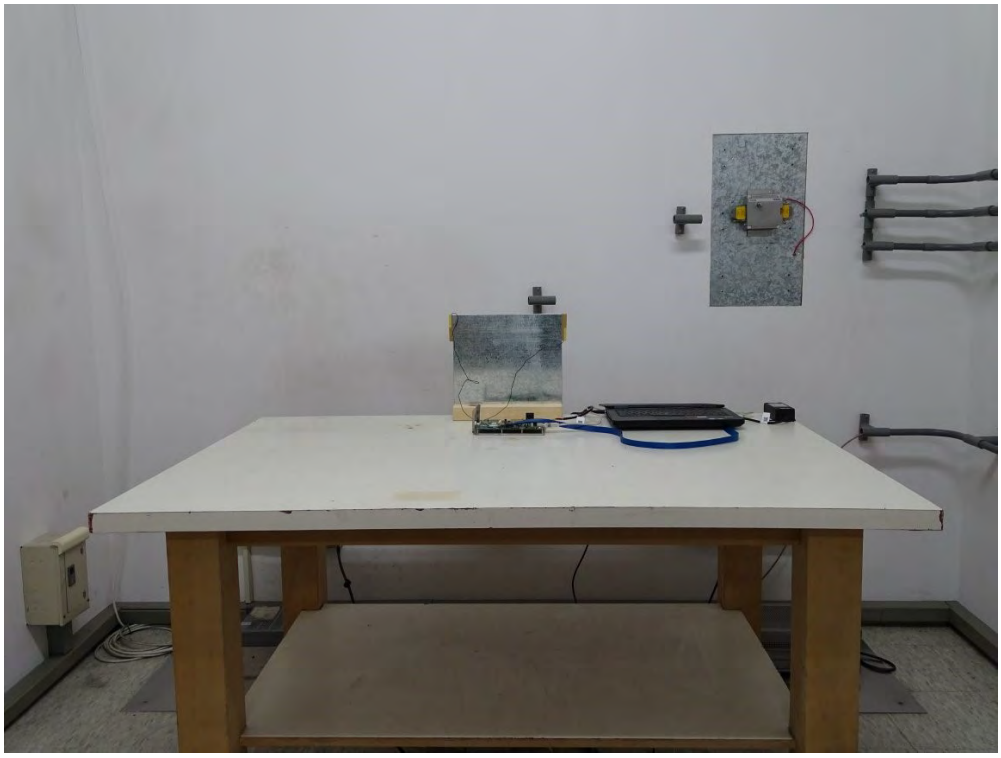
802.11ax160 (MIMO)



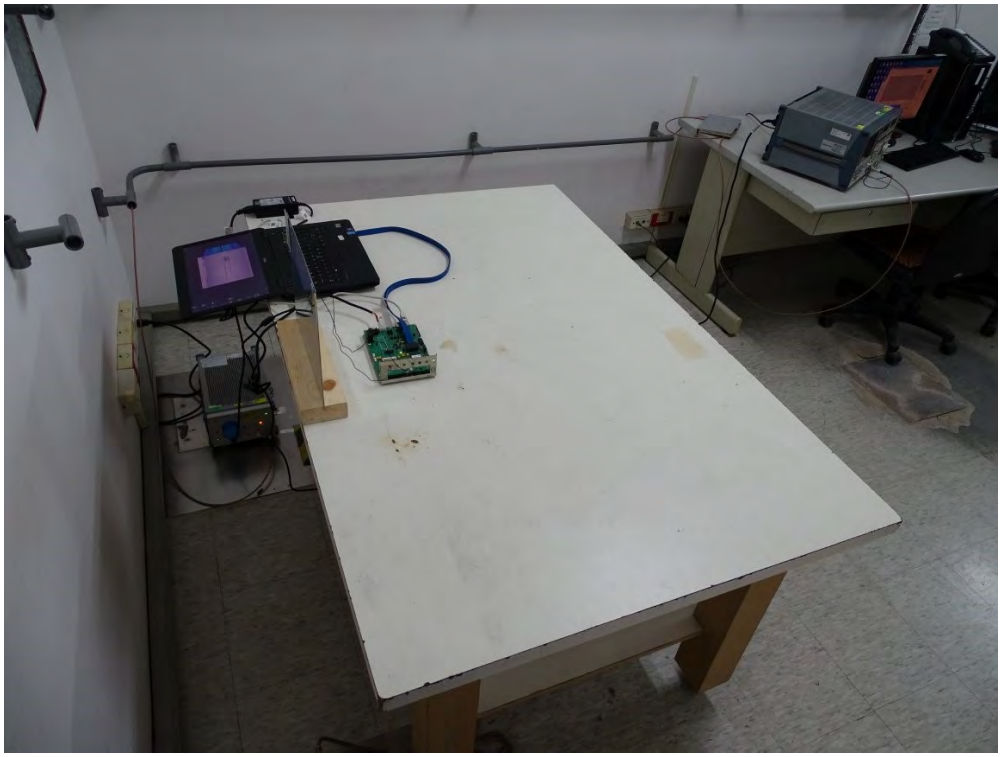
Date: 22.JAN.2019 10:30:16

附件 1: 待測物測試擺設相片

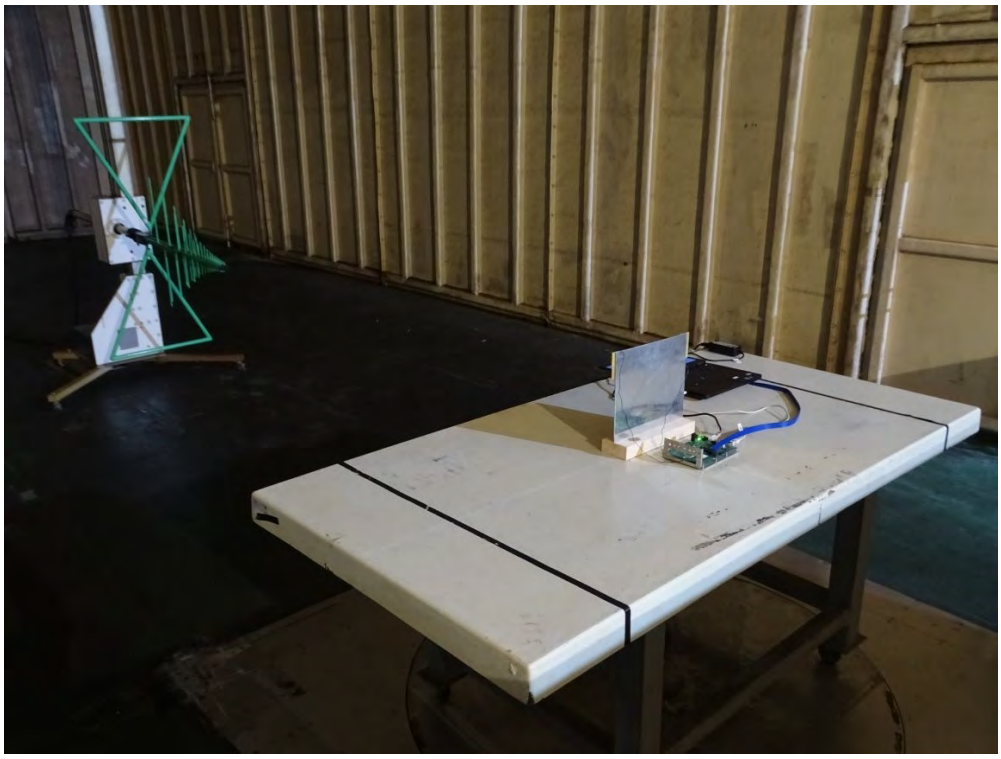
測試相片 ： 電源端點測試 正面相片



測試相片 ： 電源端點測試 背面相片

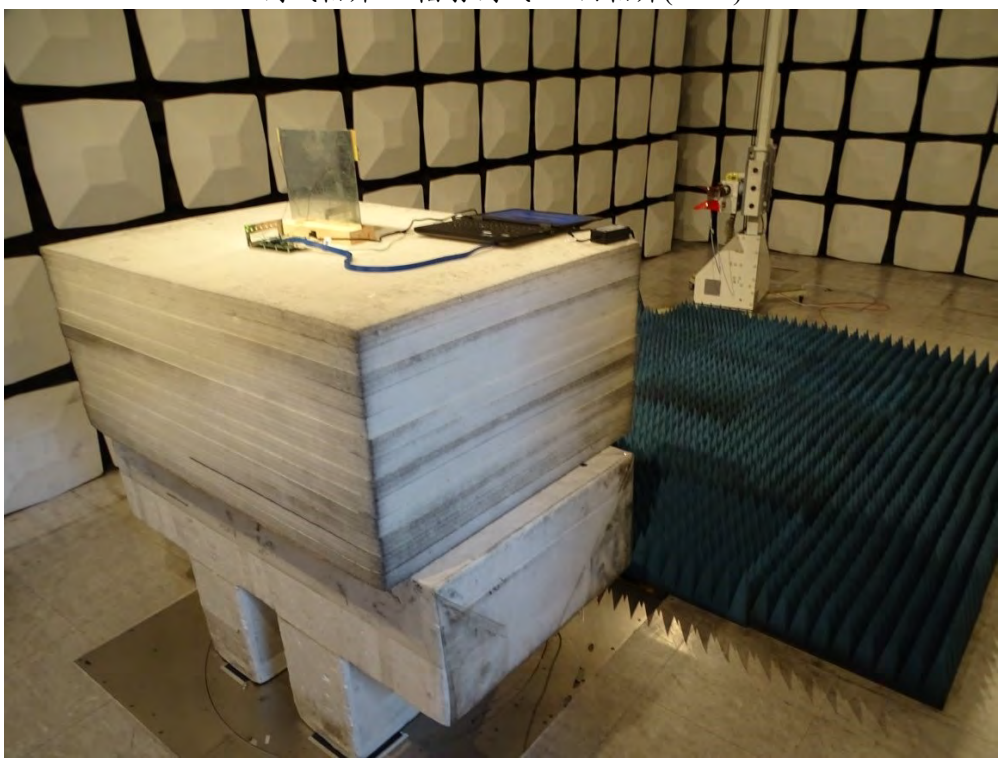


測試相片 ： 輻射測試 正面相片

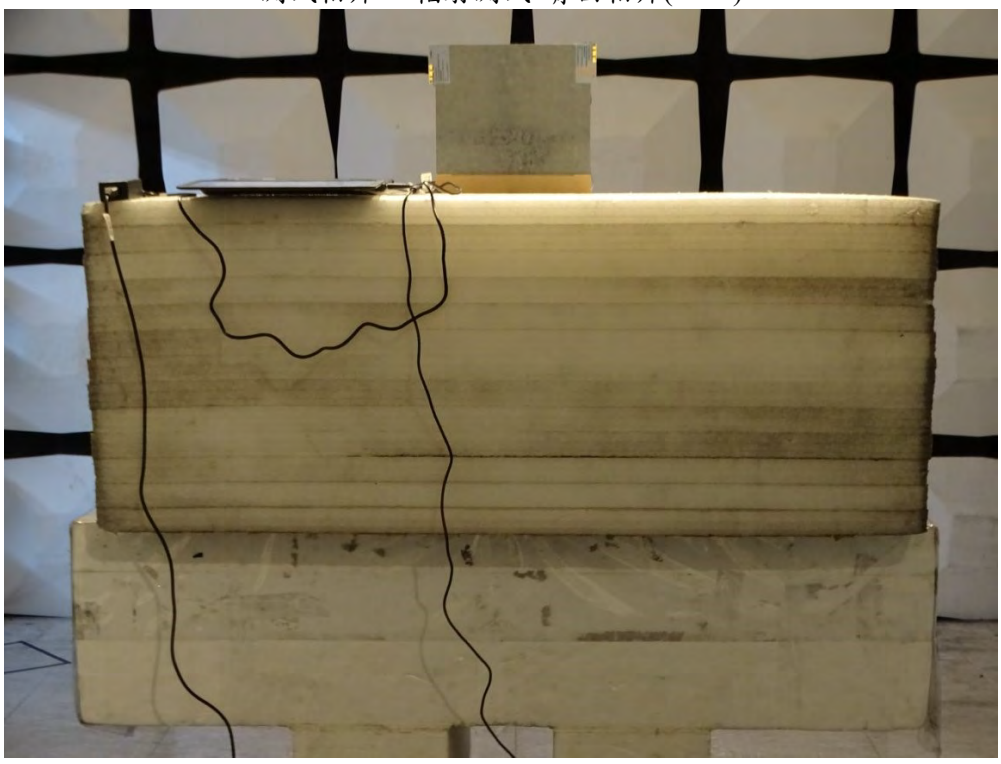


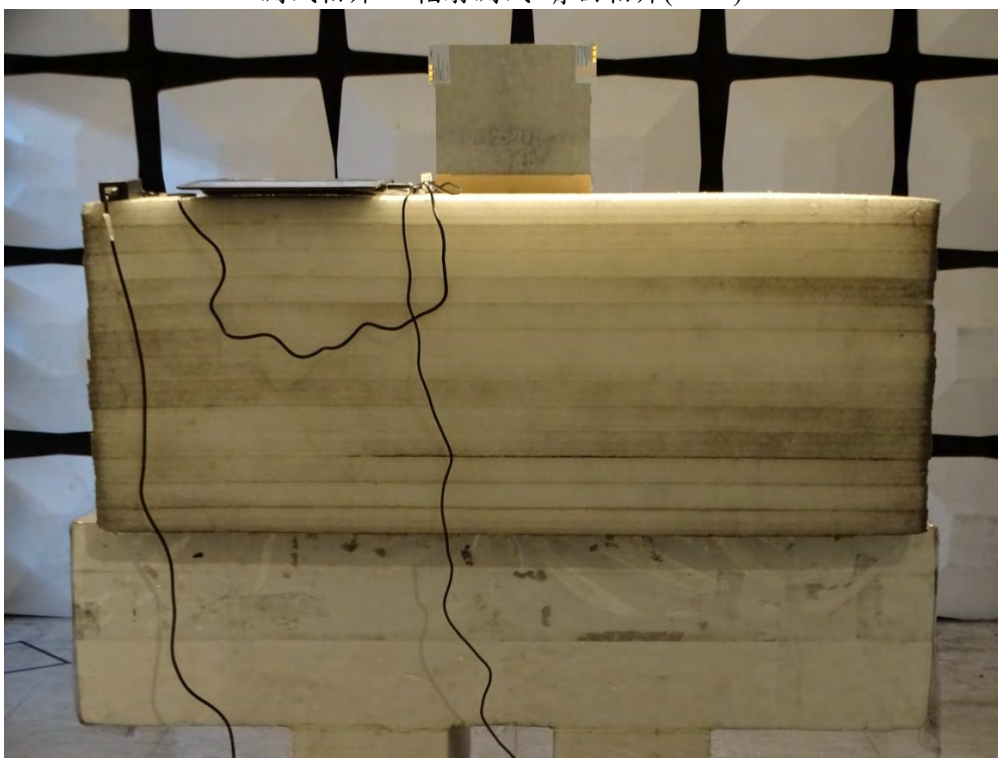
測試相片 ： 輻射測試 背面相片

測試相片 ： 輻射測試 正面相片(Horn)



測試相片 ： 輻射測試 背面相片(Horn)



測試相片 ： 輻射測試 正面相片(Horn)

測試相片 ： 輻射測試 背面相片(Horn)