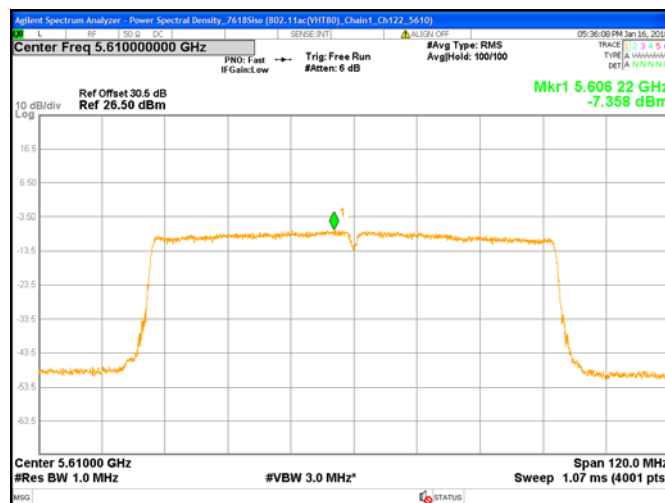
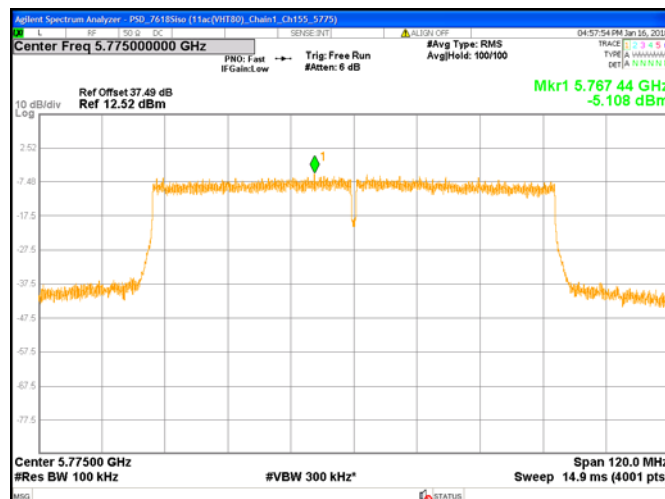


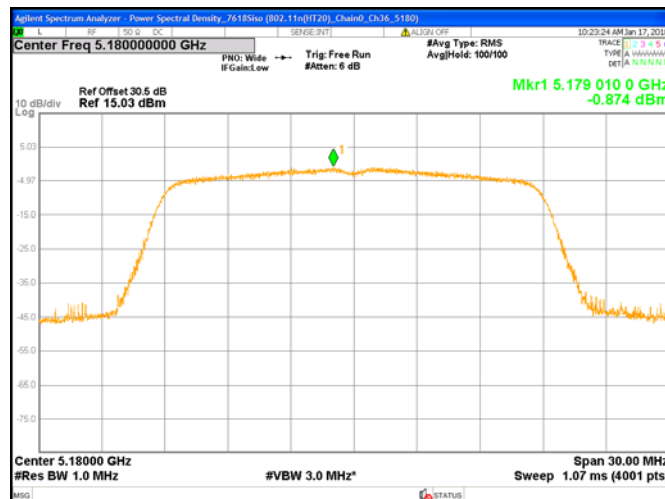
Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch122



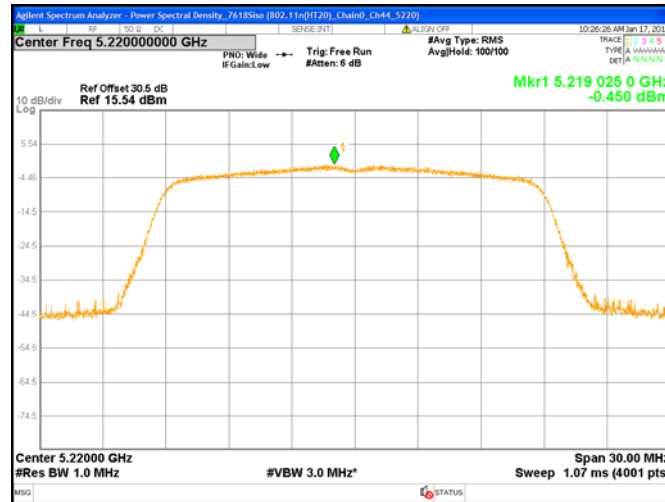
Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch155



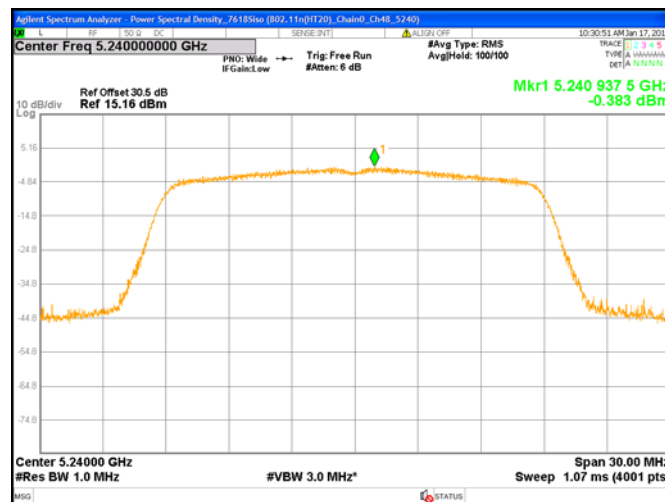
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch36



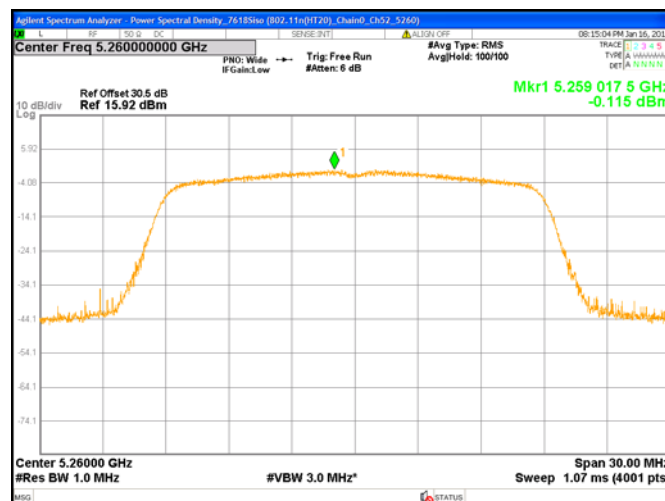
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch44



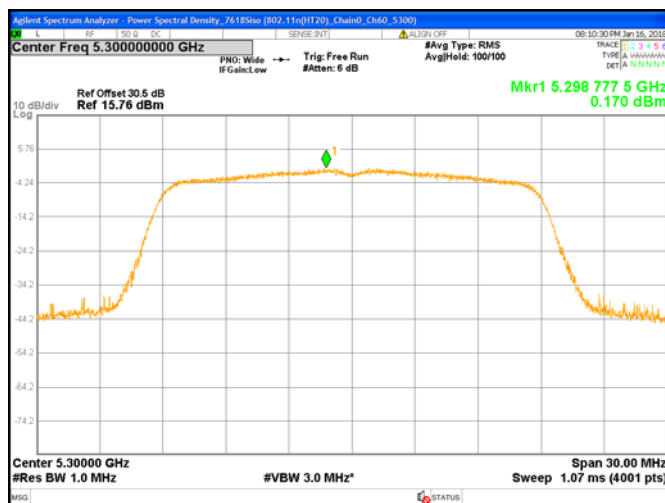
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch48



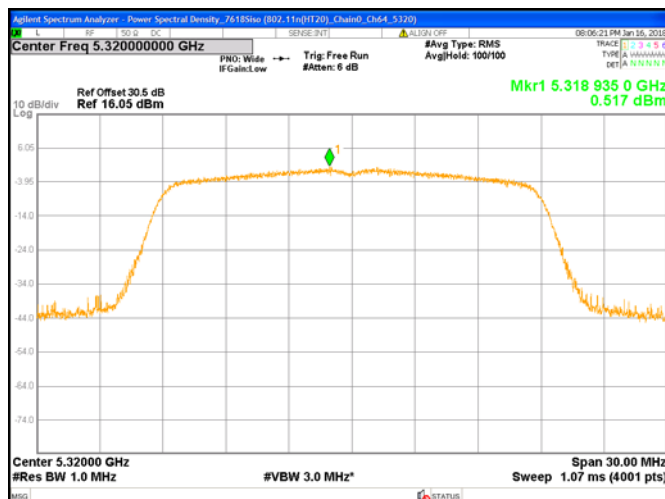
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch52



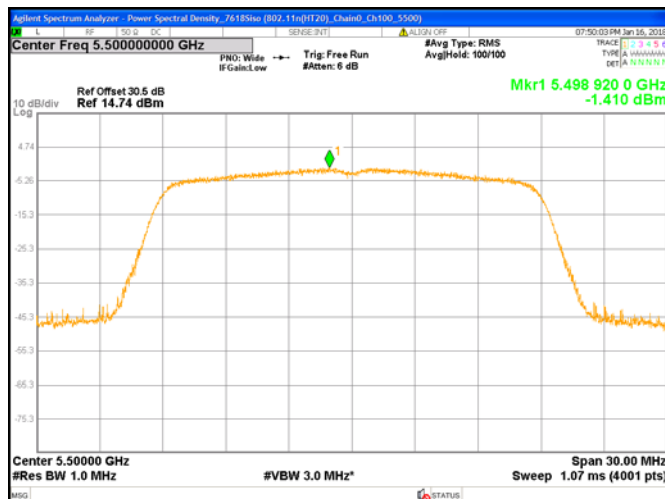
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch60



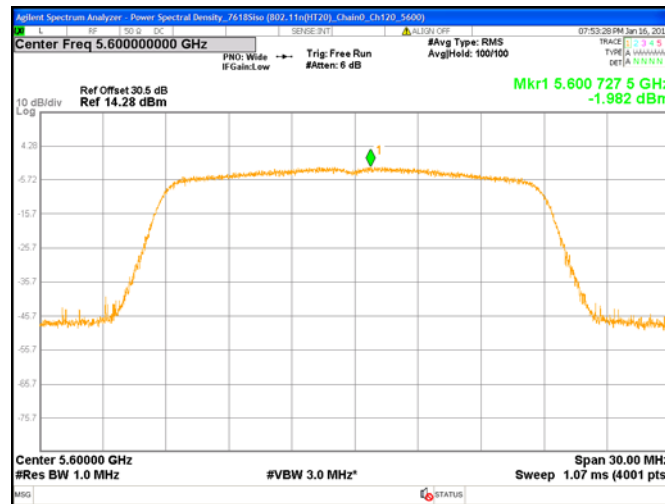
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch64



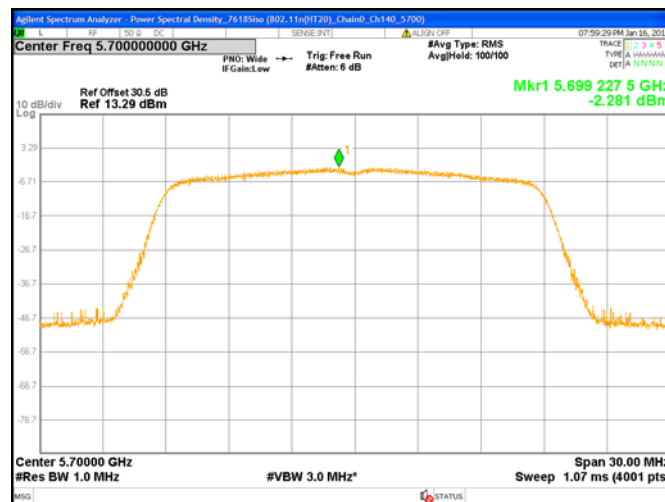
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch100



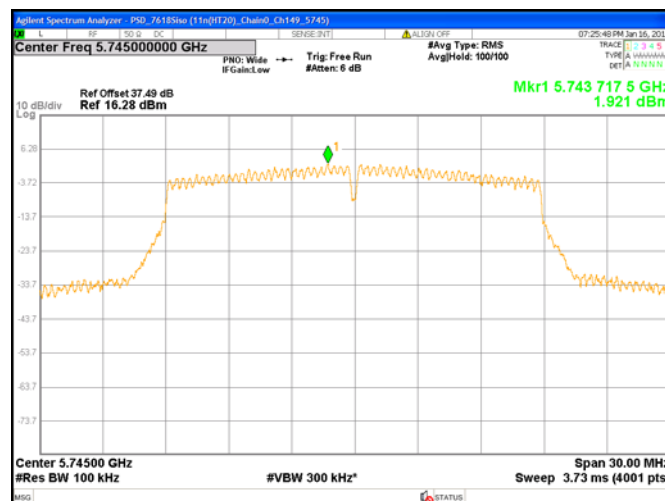
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch120



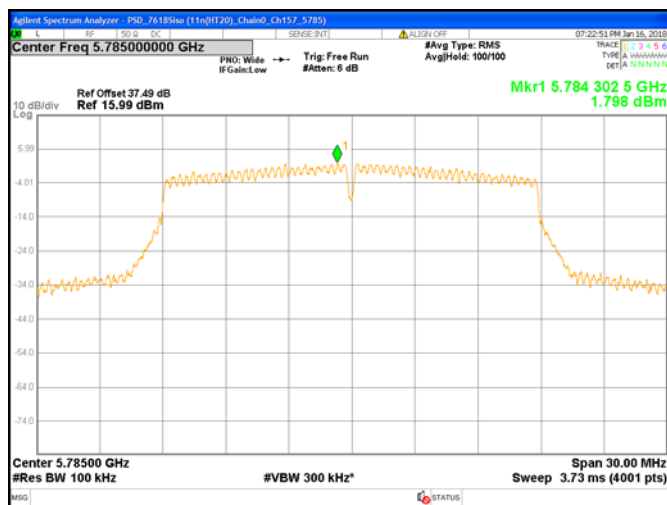
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch140



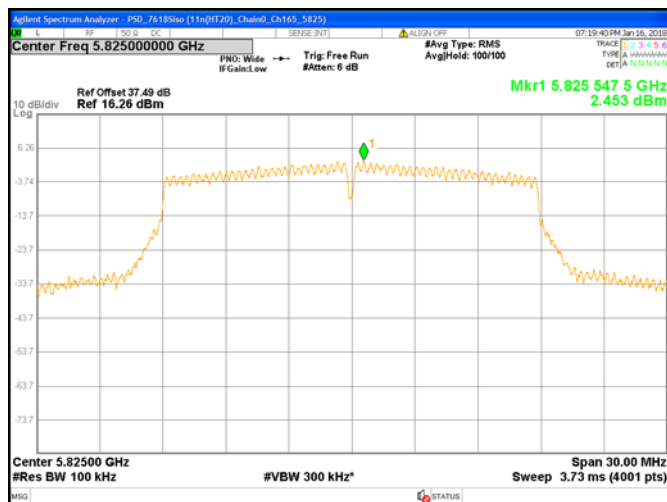
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch149



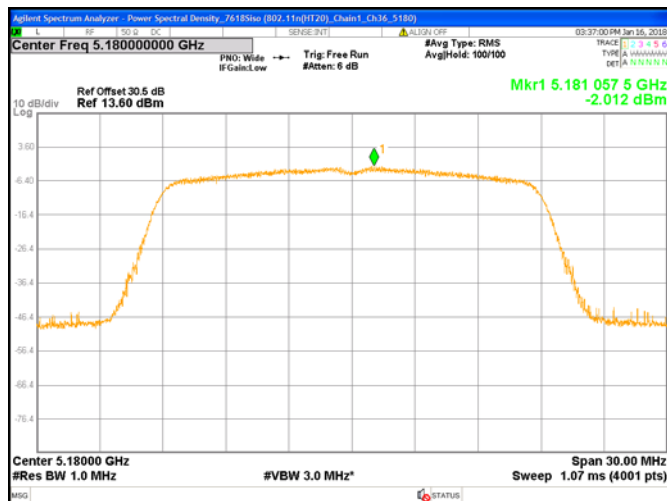
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch157



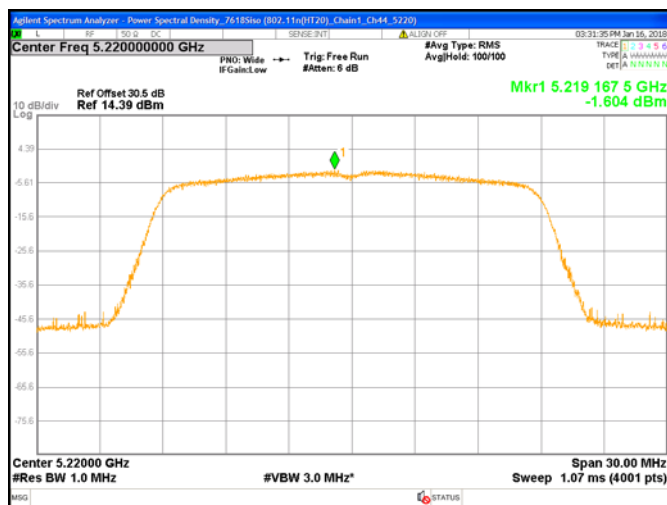
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch165



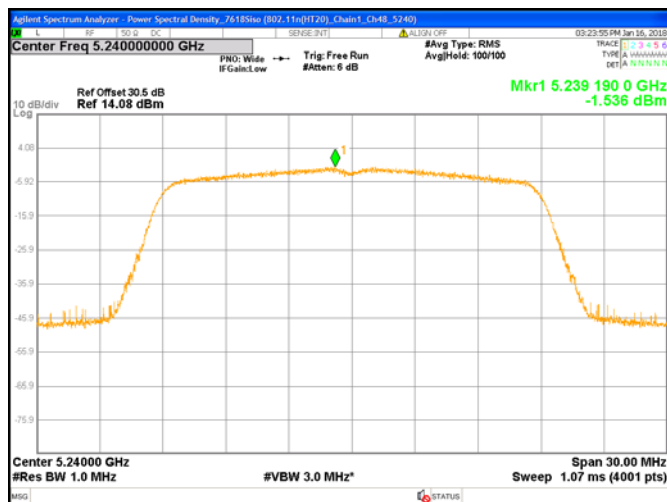
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch36



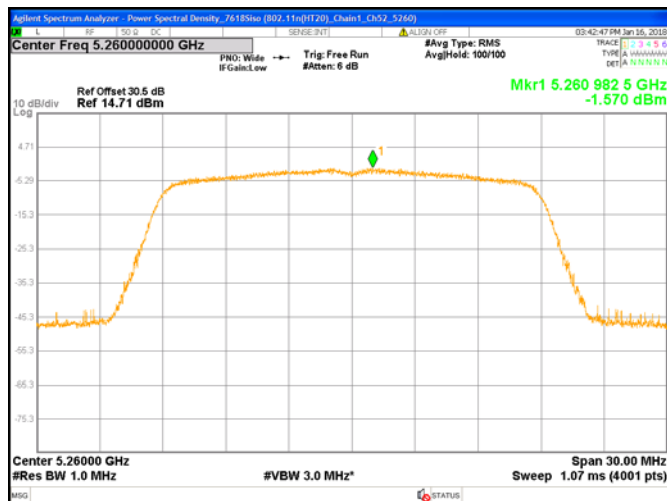
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch44



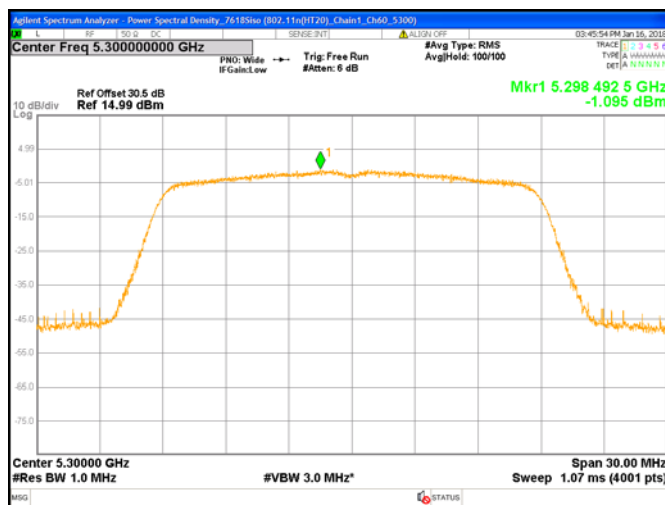
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch48



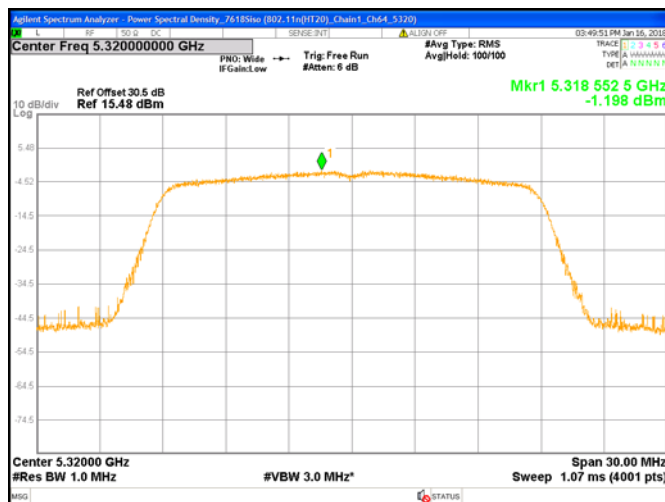
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch52



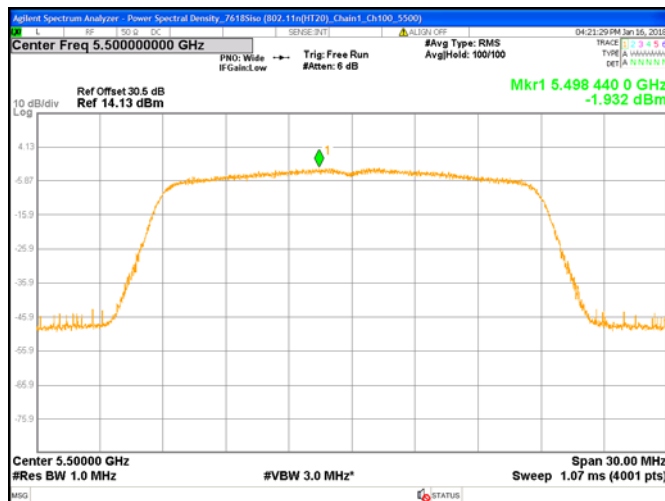
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch60



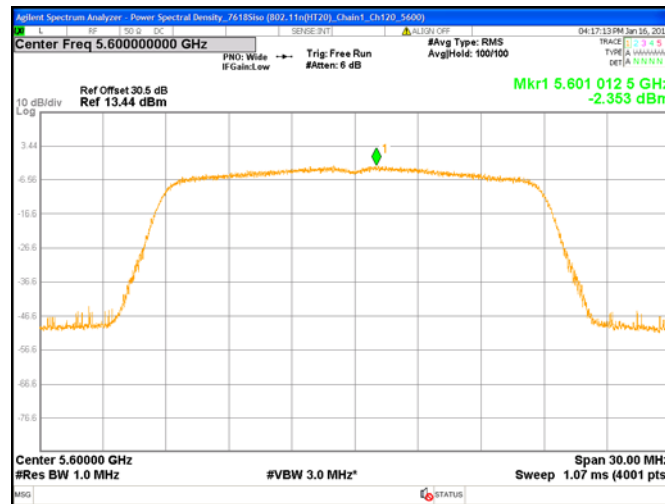
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch64



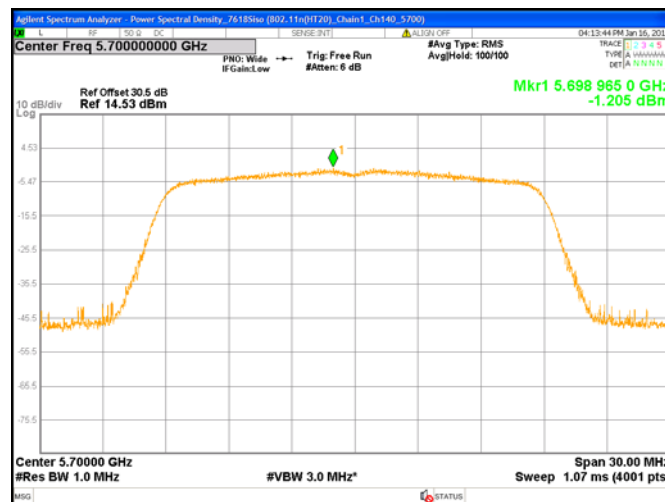
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch100



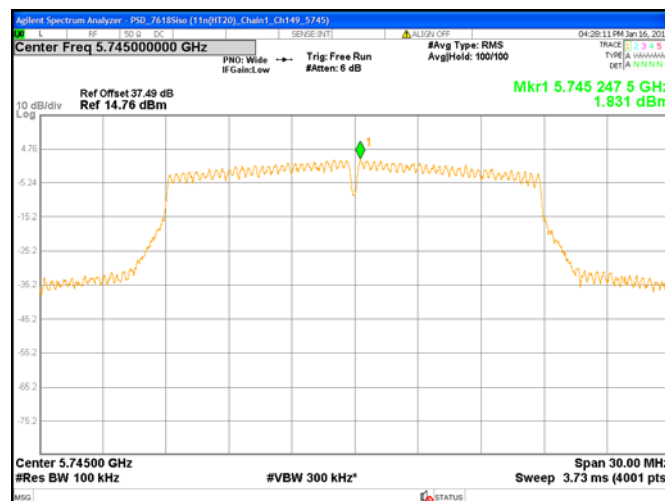
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch120



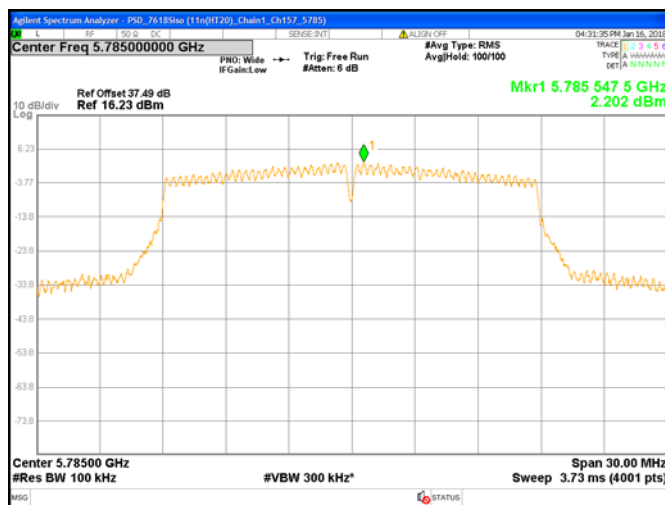
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch140



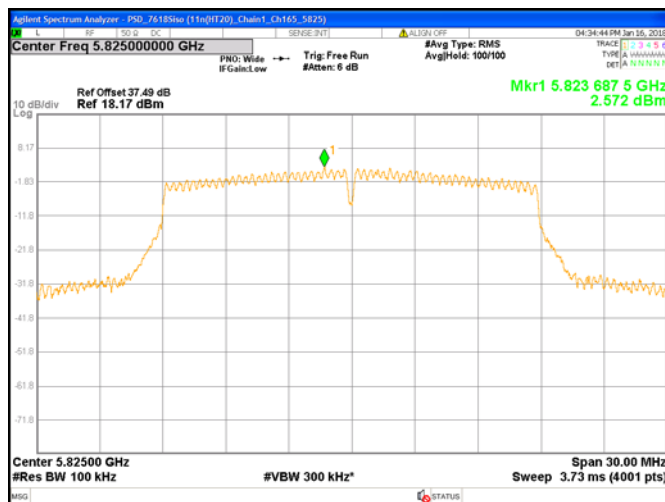
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch149



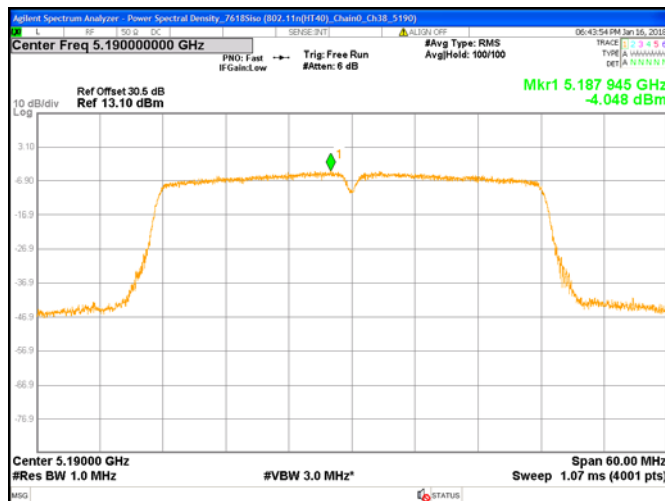
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch157



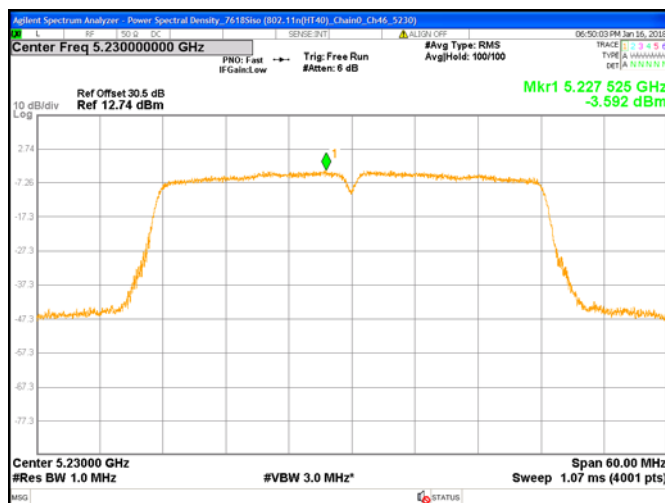
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch165



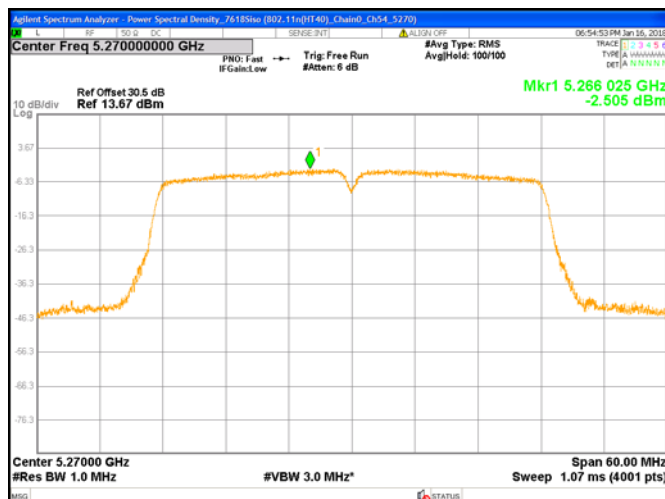
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch38



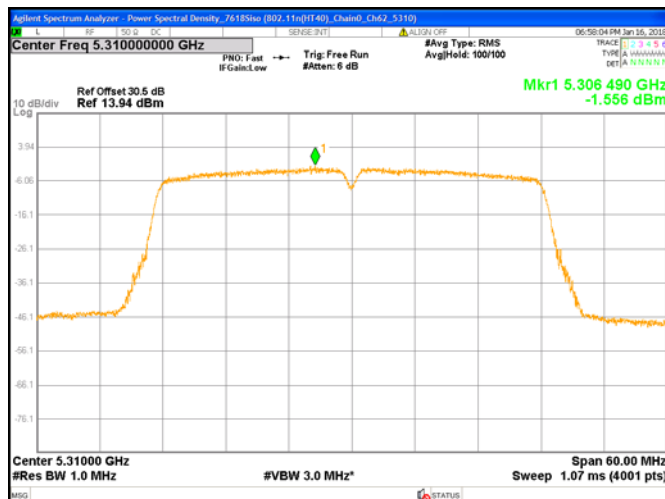
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch46



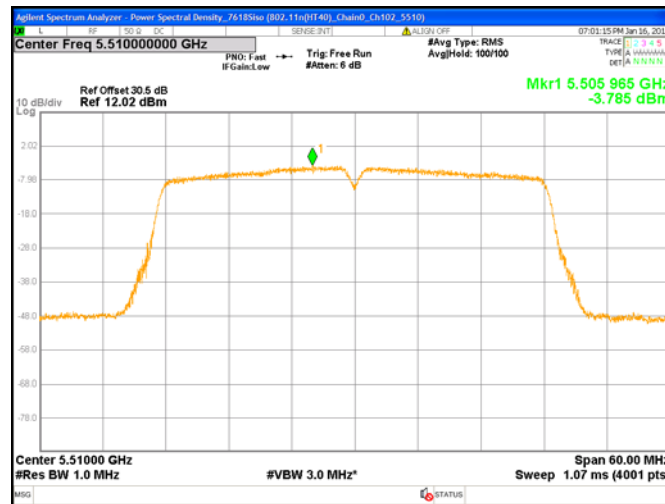
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch54



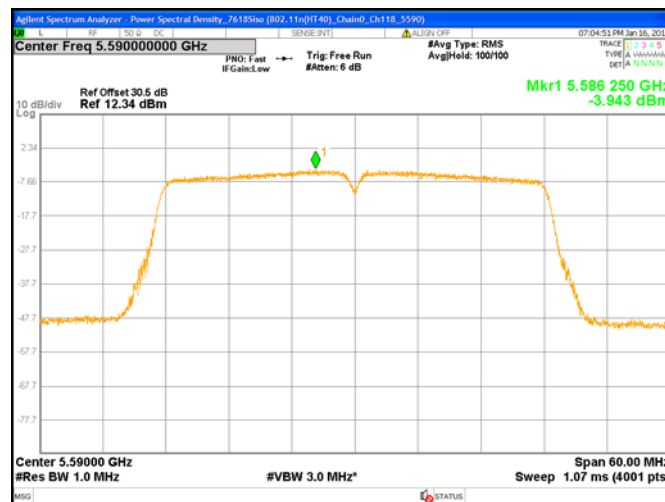
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch62



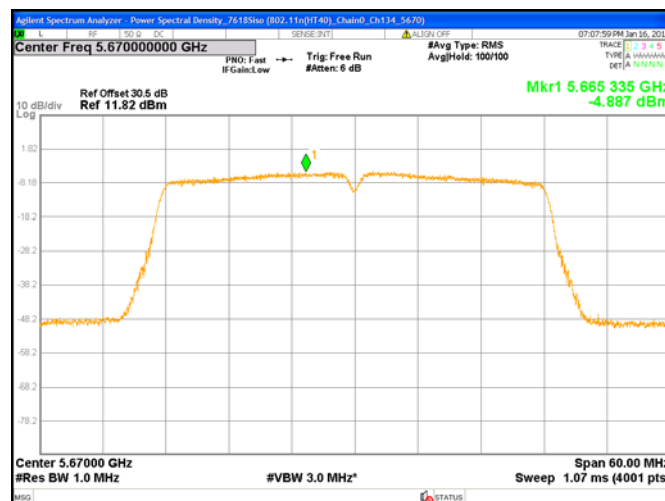
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch102



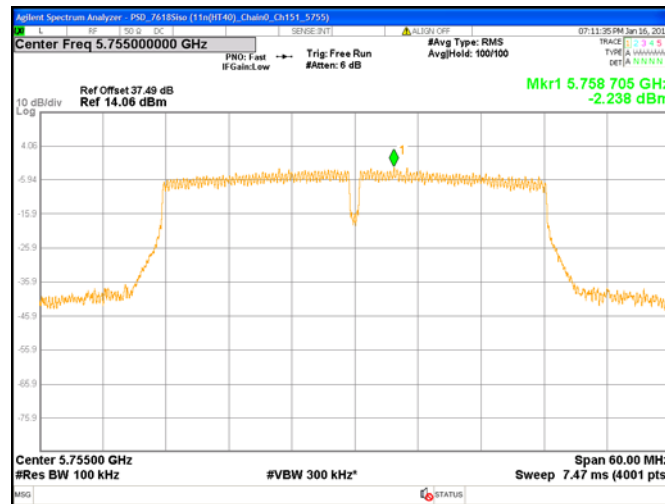
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch118



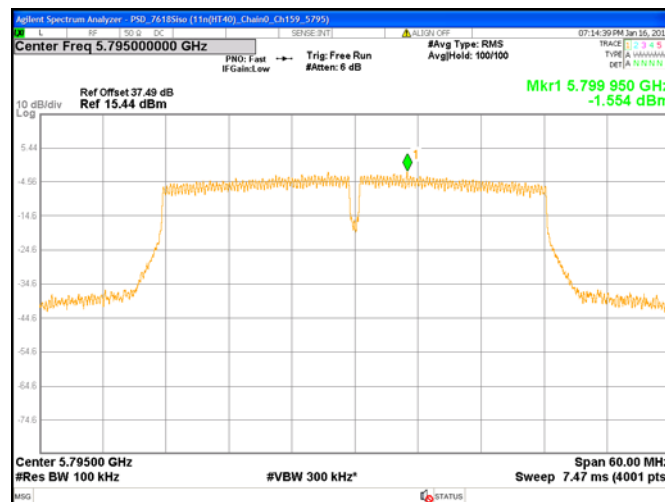
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch134



Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch151



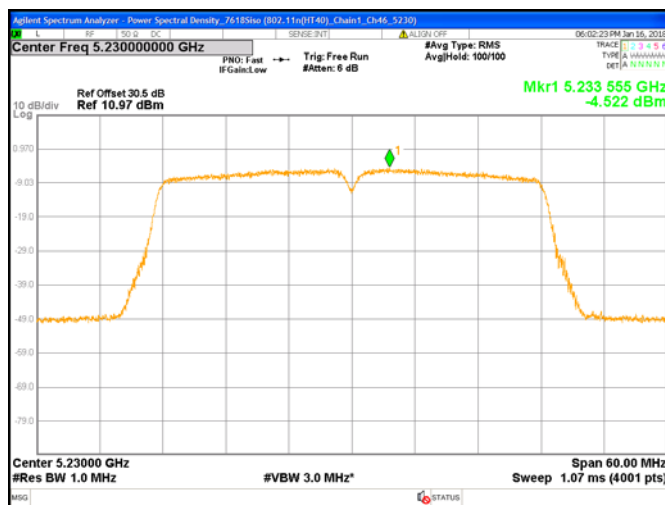
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch159



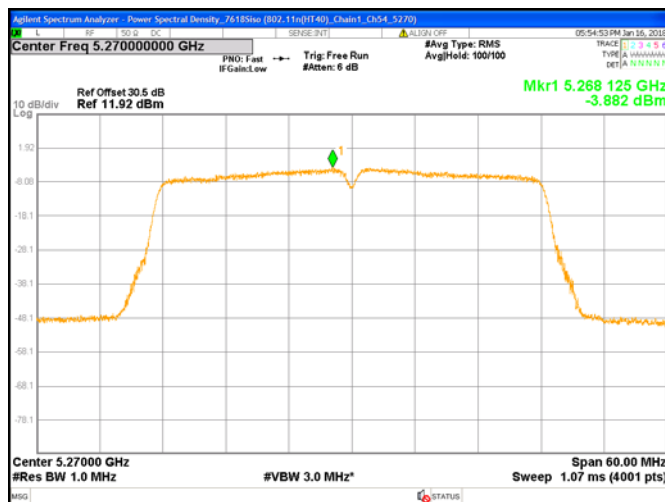
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch38



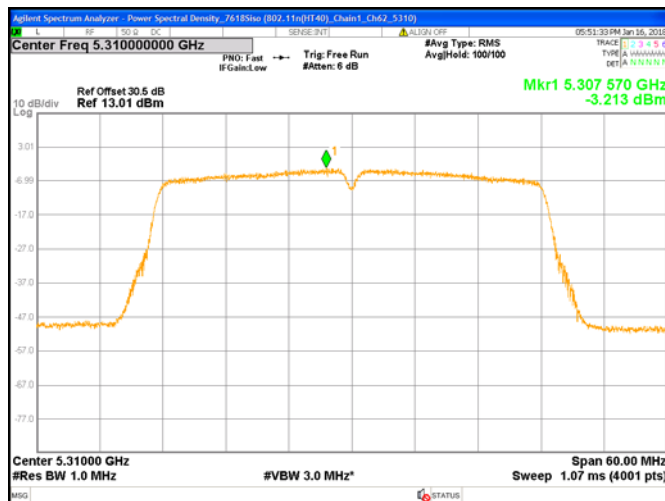
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch46



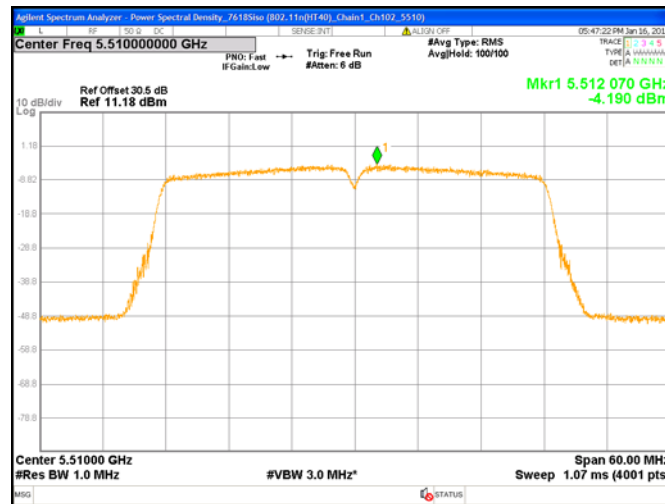
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch54



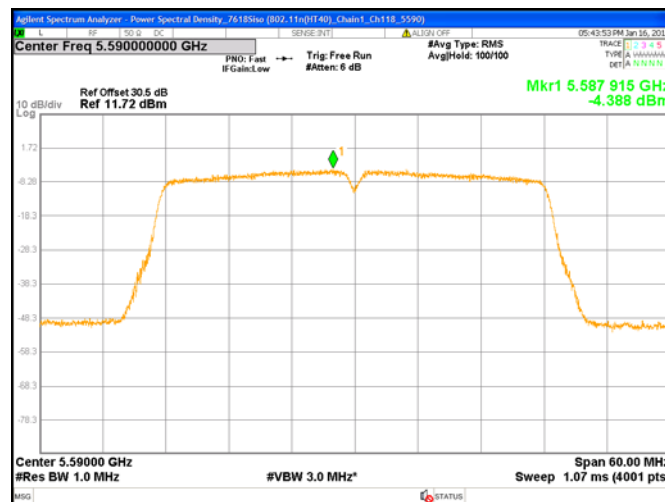
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch62



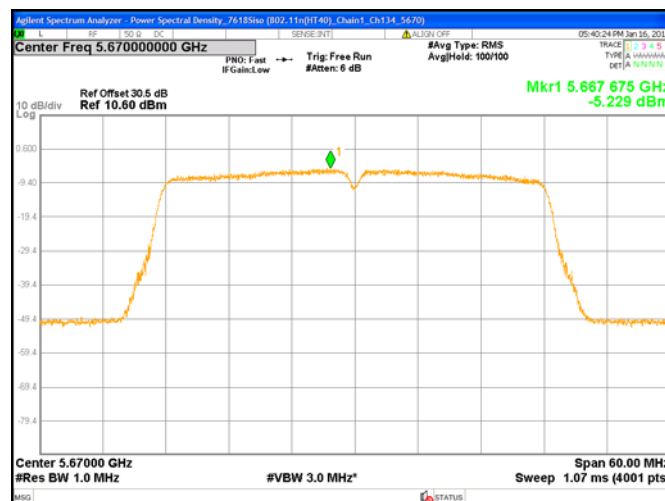
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch102



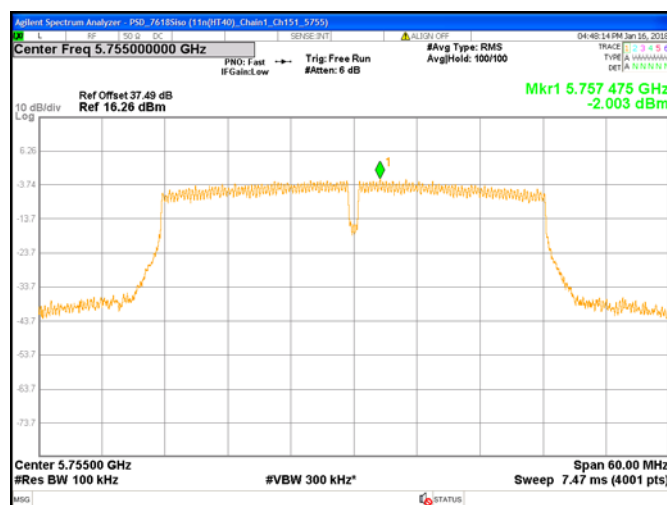
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch118



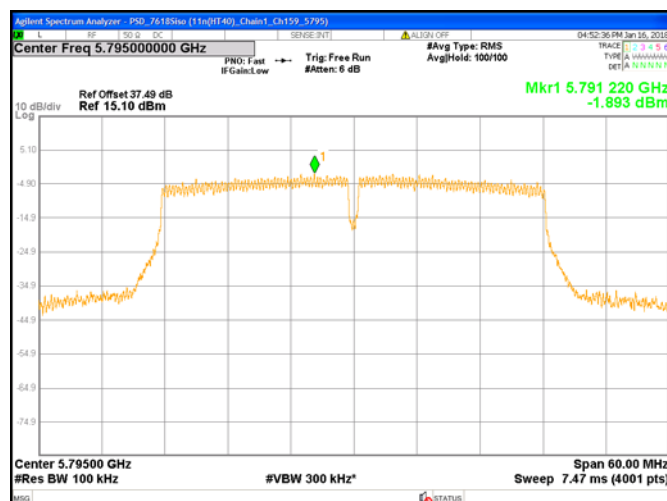
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch134



Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch151

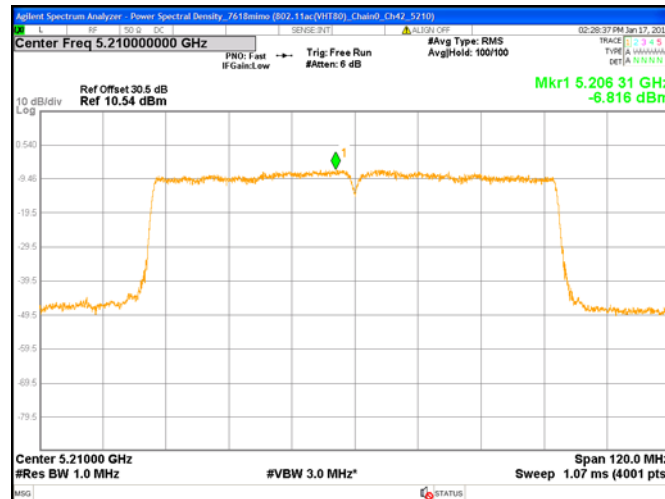


Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch159

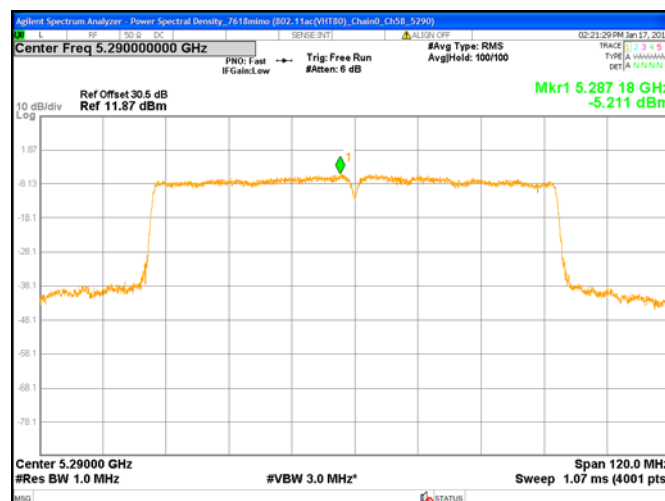


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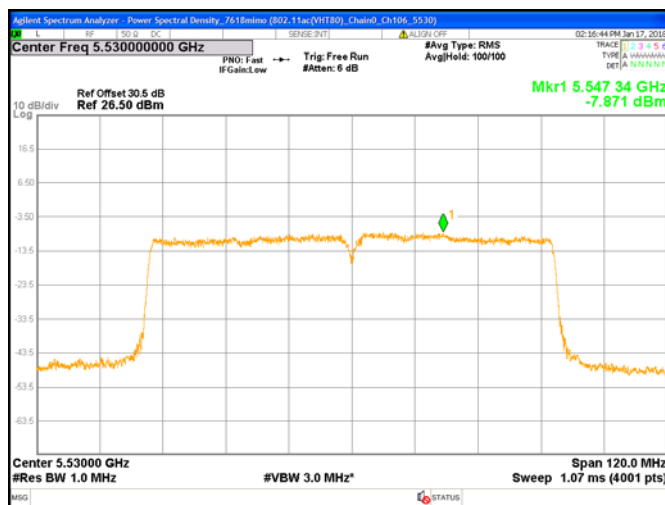
Chain0 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch42



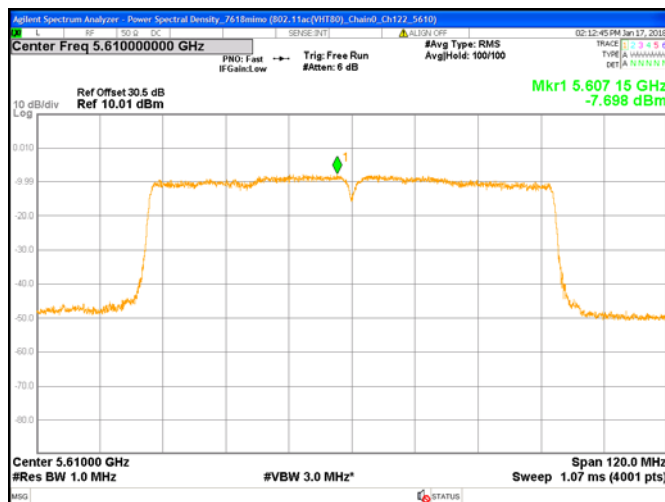
Chain0 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch58



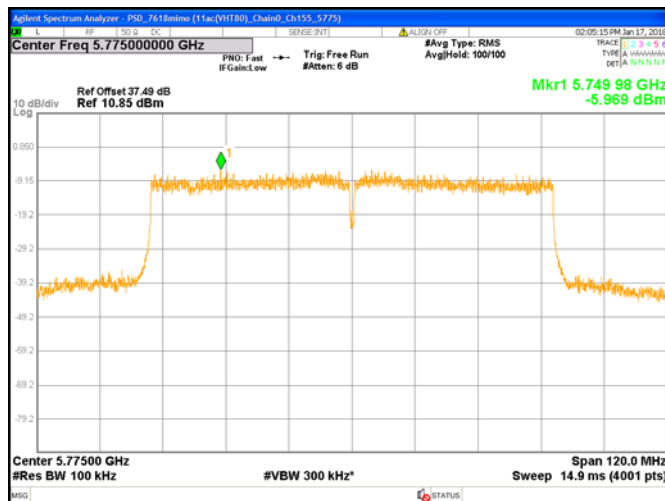
Chain0 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch106



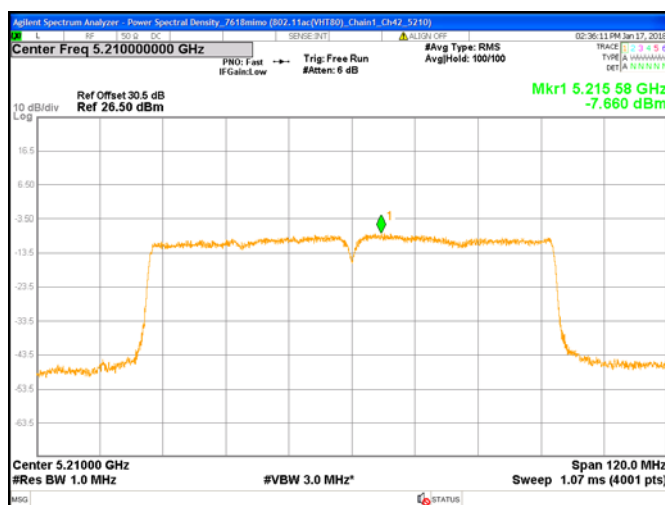
Chain0 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch122



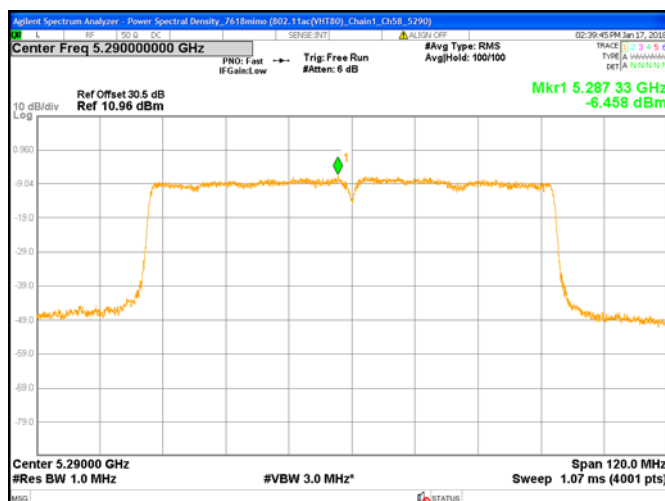
Chain0 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch155



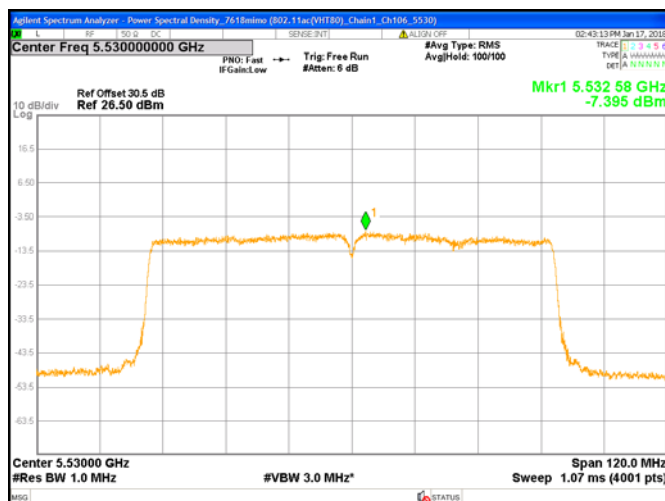
Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch42



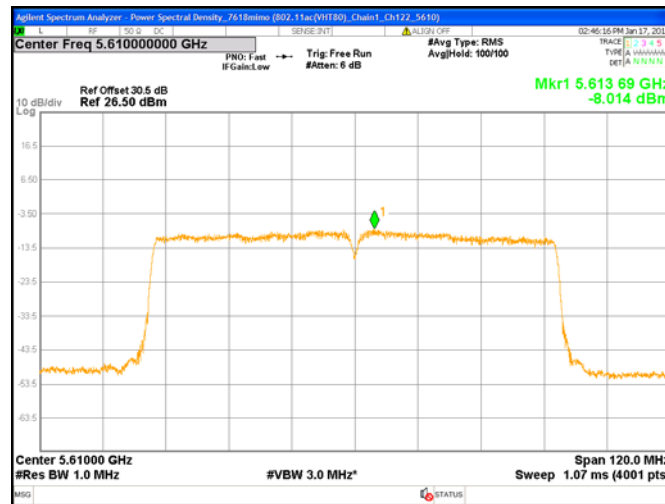
Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch58



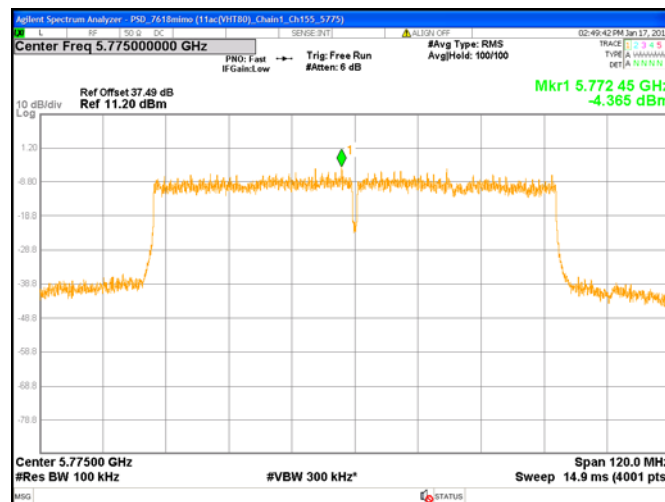
Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch106



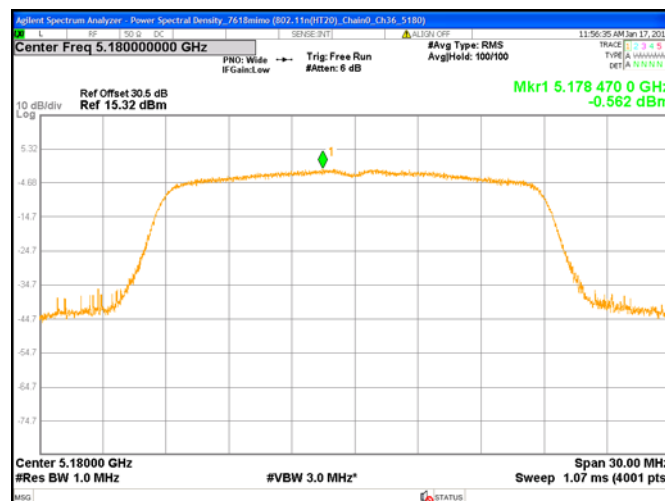
Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch122



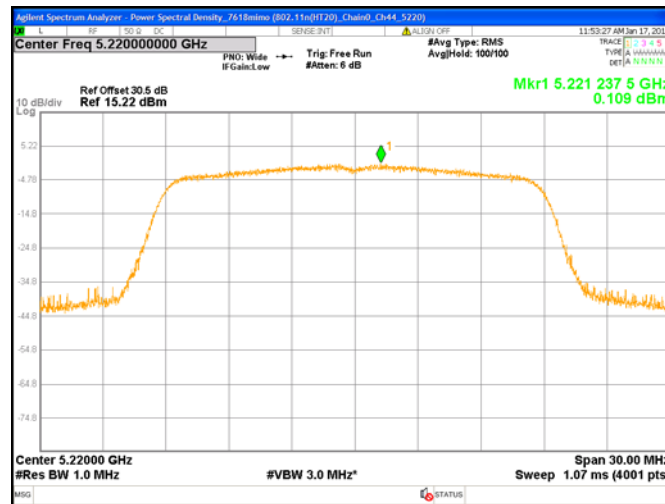
Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch155



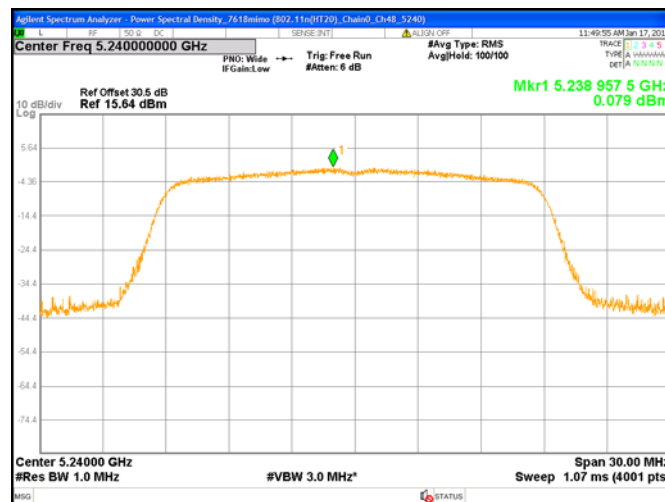
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch36



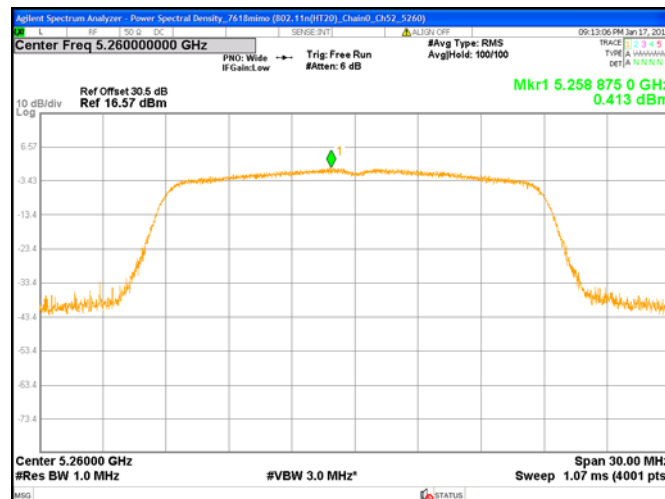
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch44



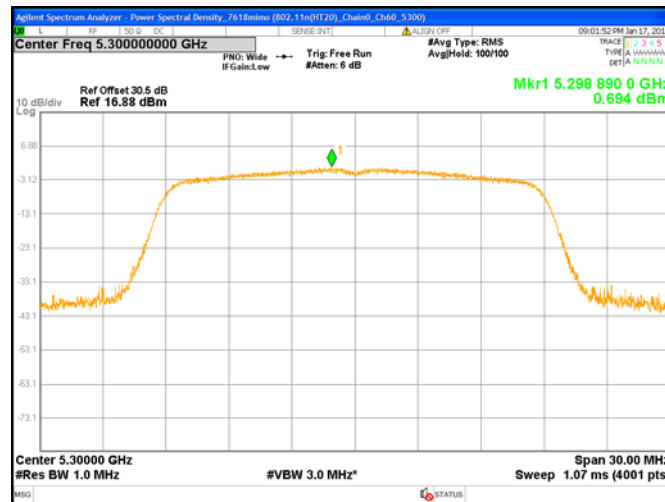
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch48



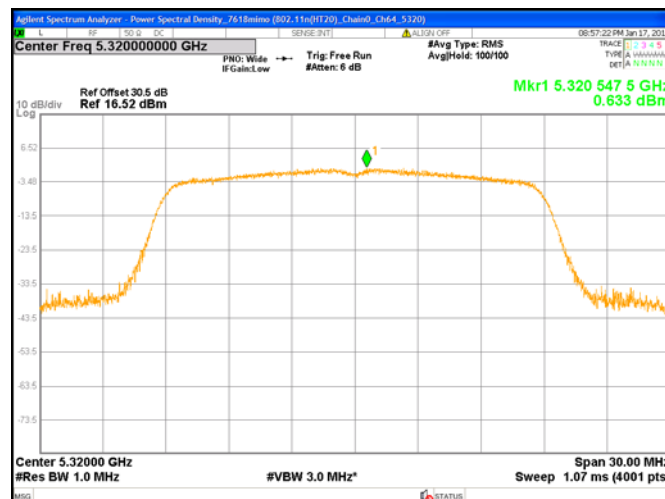
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch52



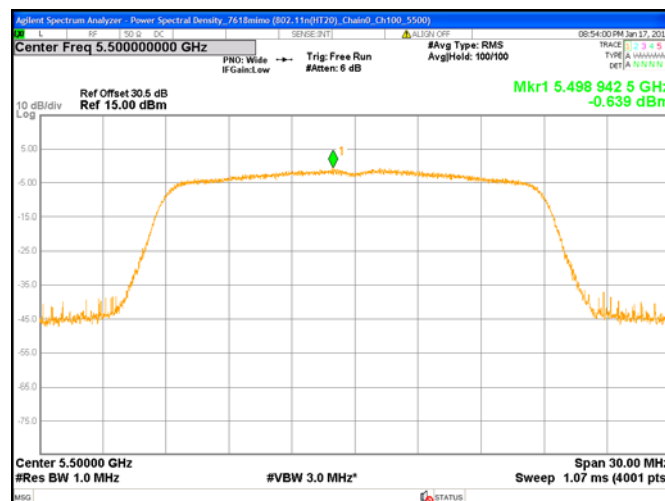
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch60



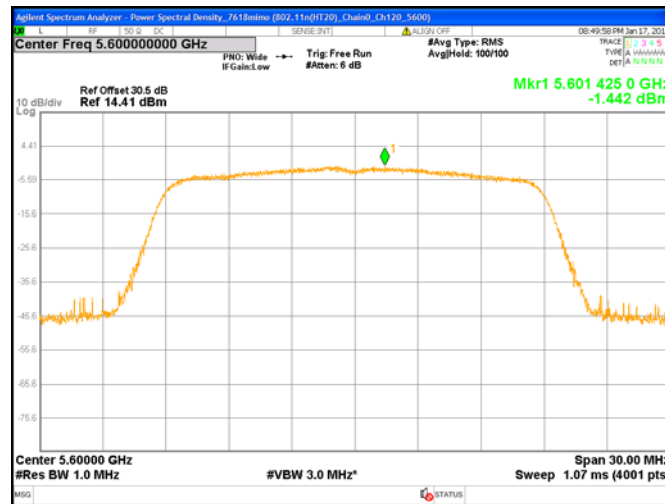
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch64



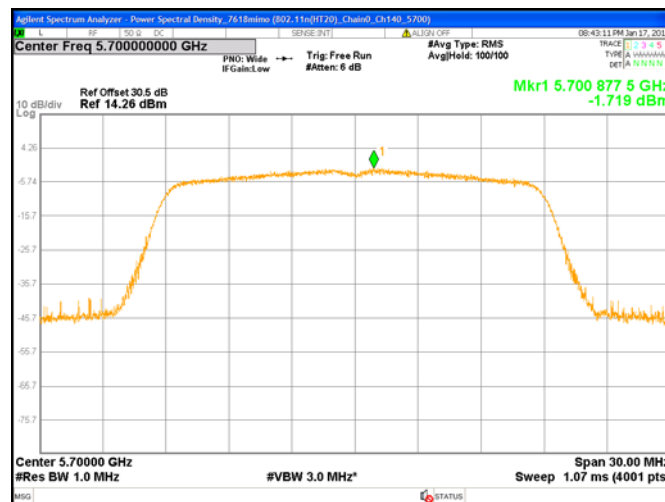
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch100



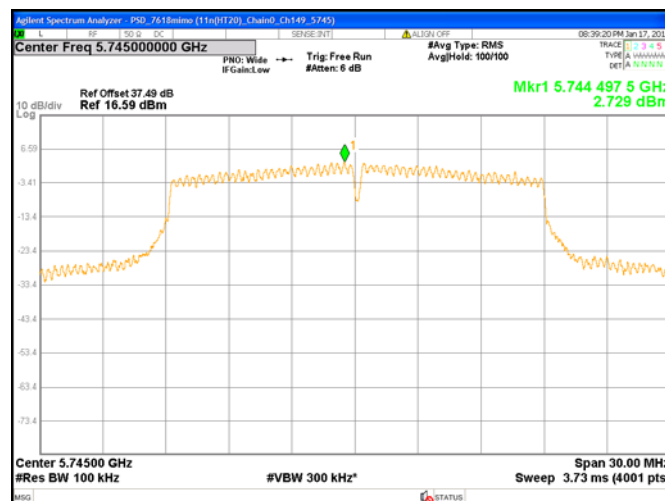
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch120



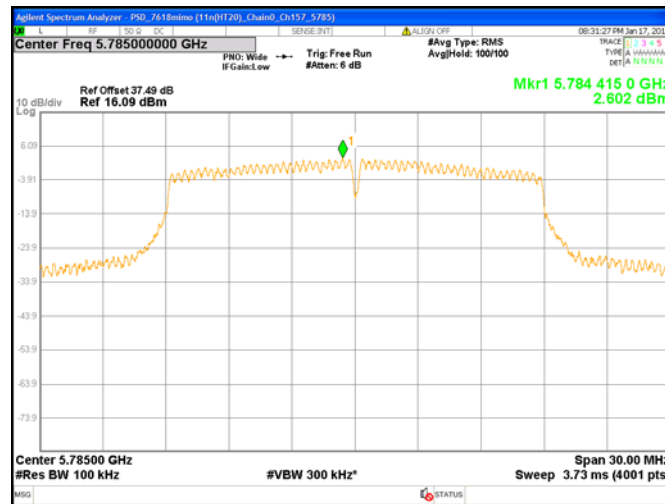
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch140



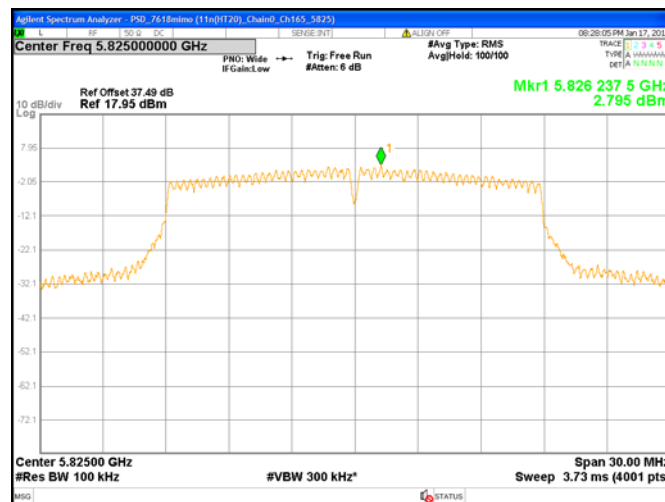
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch149



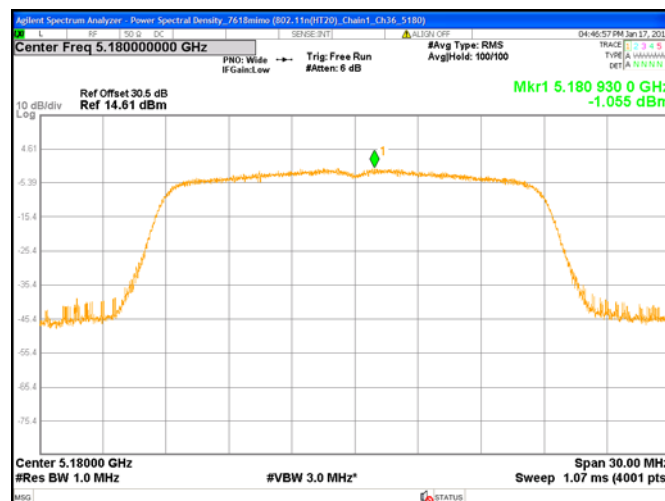
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch157



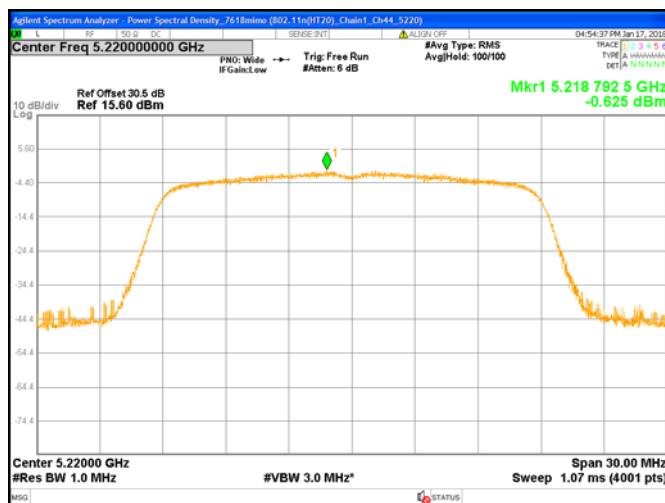
Chain0 : Power Spectral Density @ 802.11n(HT20) Mode Ch165



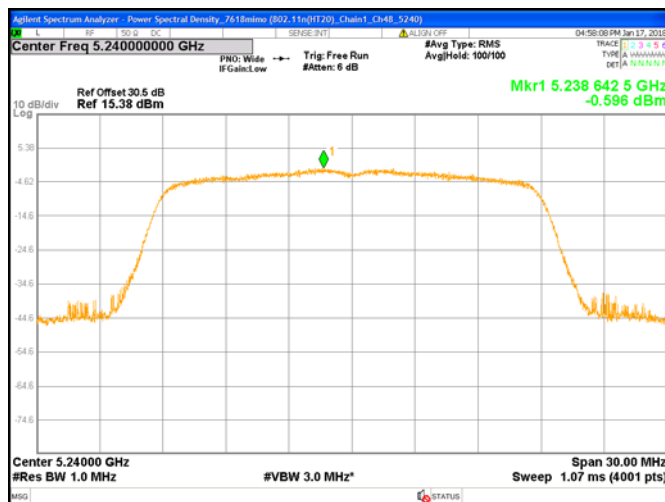
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch36



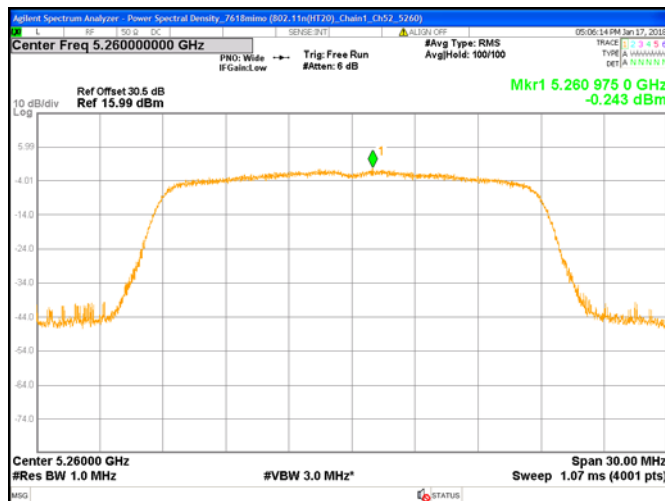
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch44



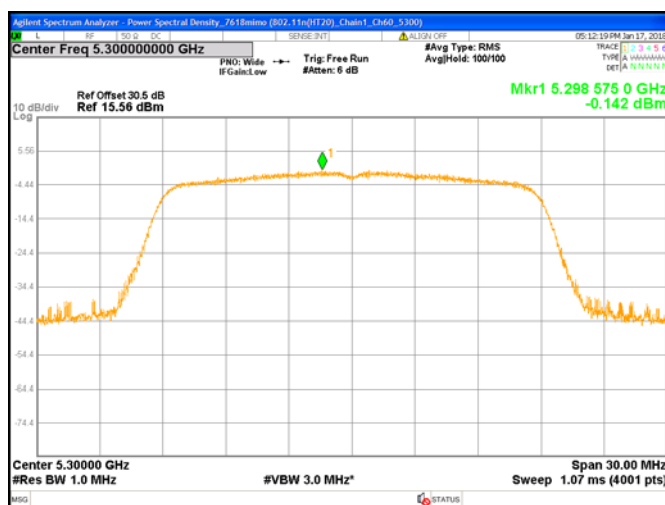
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch48



Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch52



Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch60



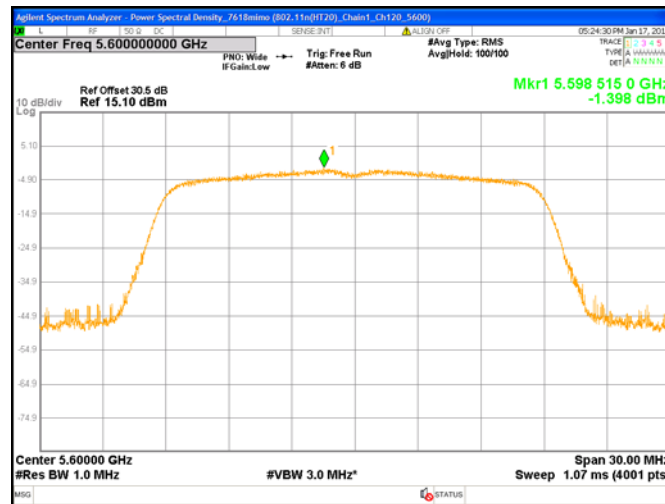
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch64



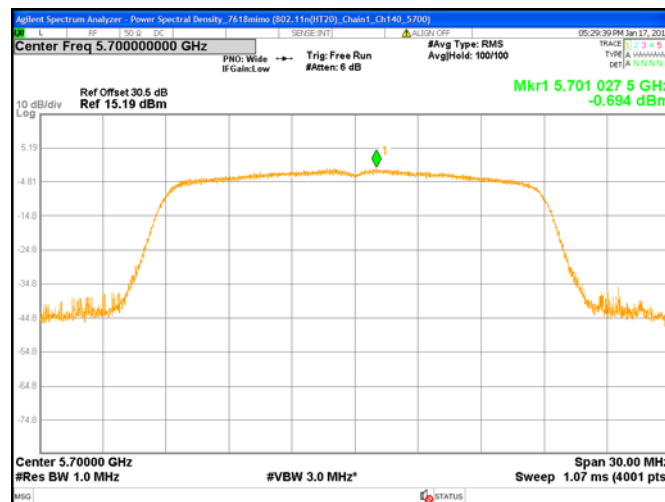
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch100



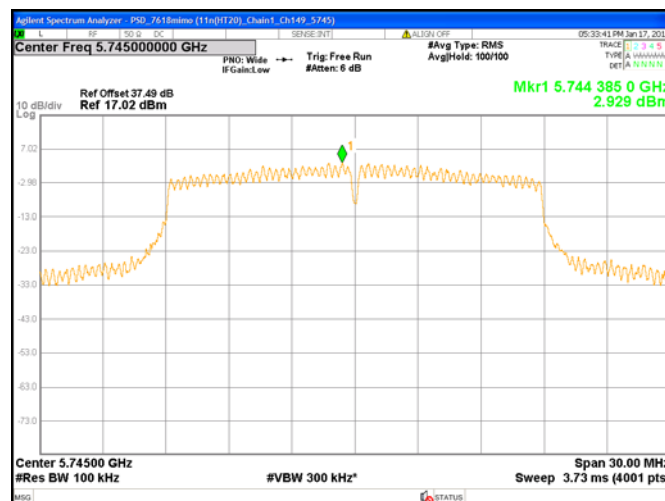
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch120



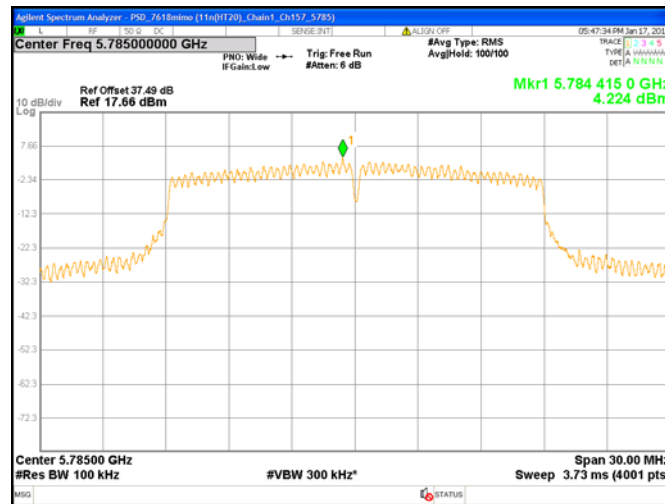
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch140



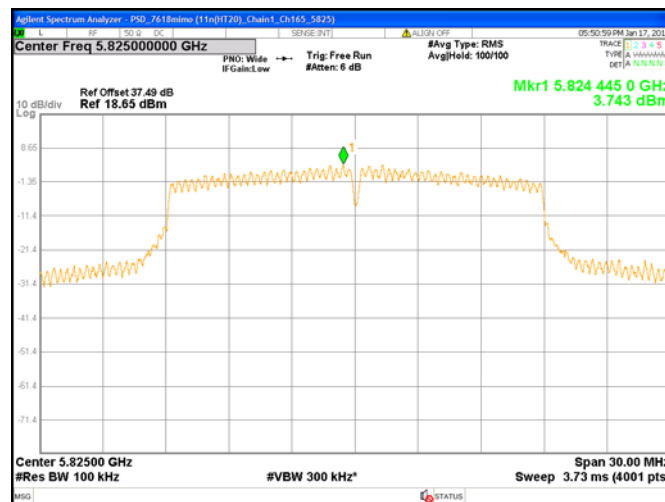
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch149



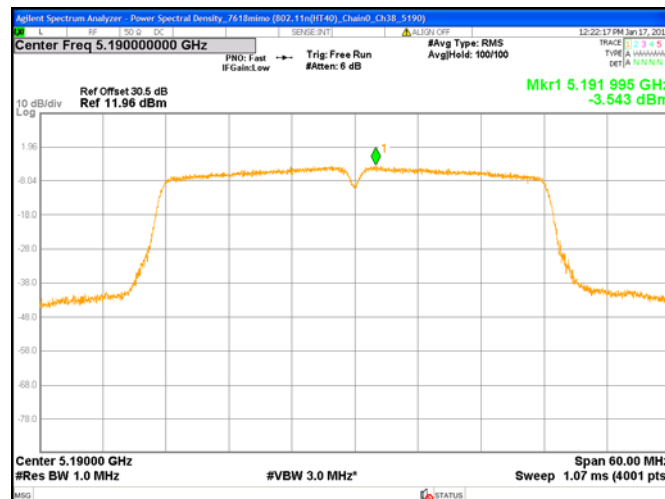
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch157



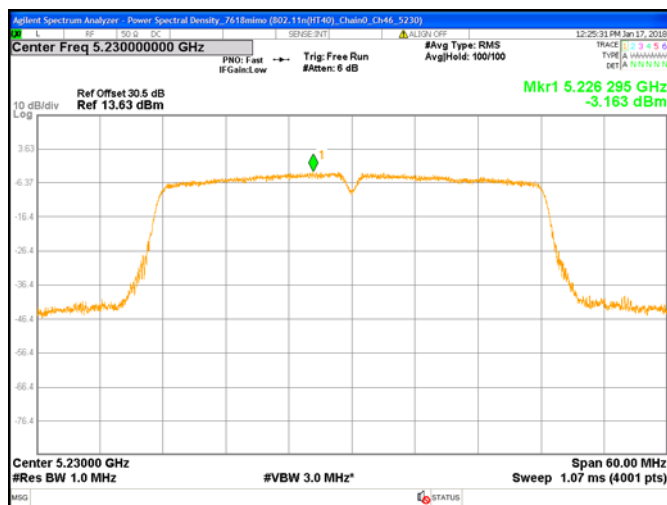
Chain1 : Power Spectral Density @ 802.11n(HT20) Mode Ch165



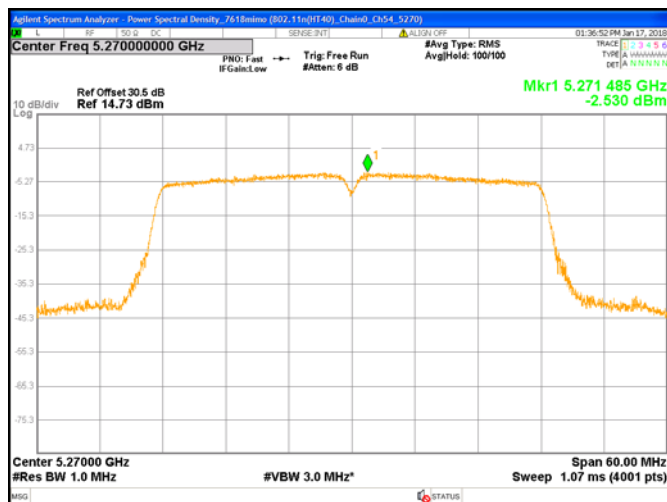
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch38



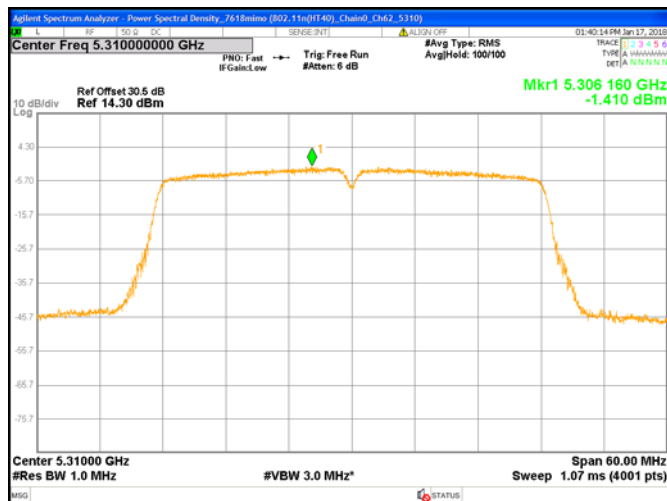
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch46



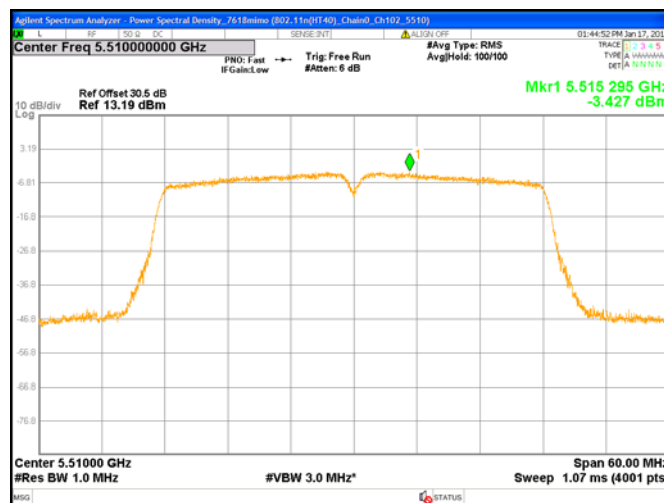
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch54



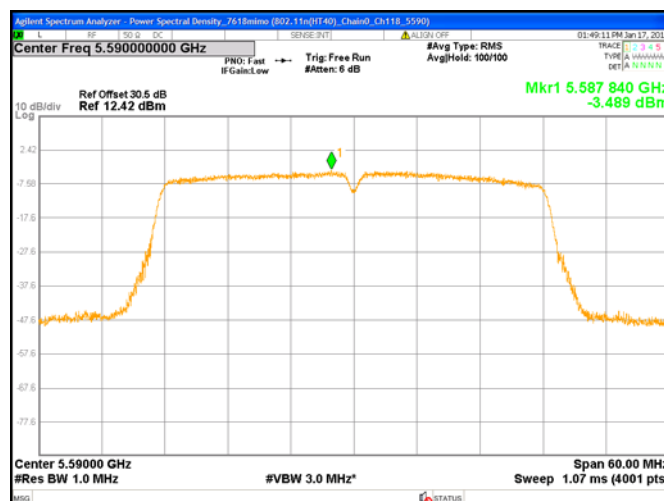
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch62



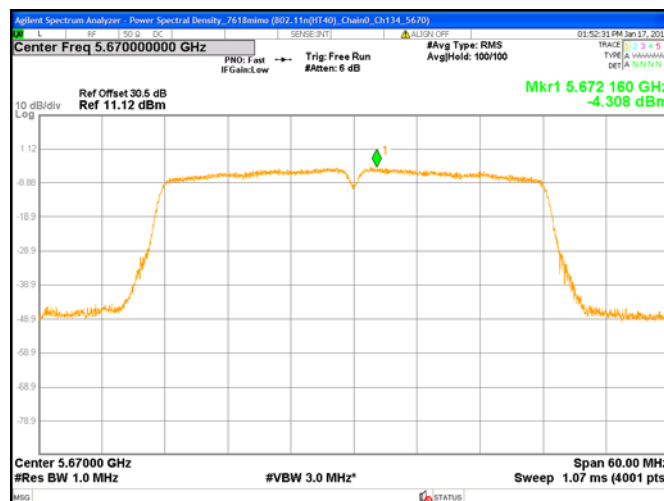
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch102



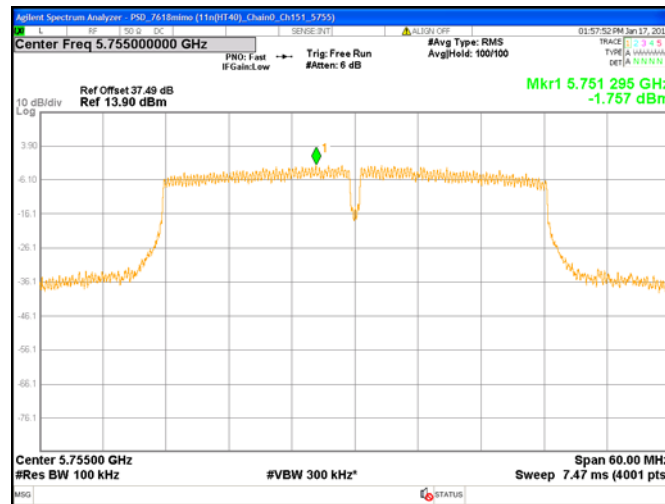
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch118



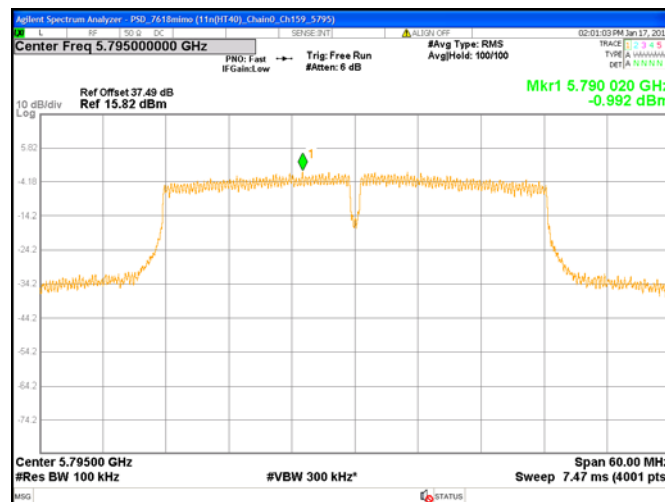
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch134



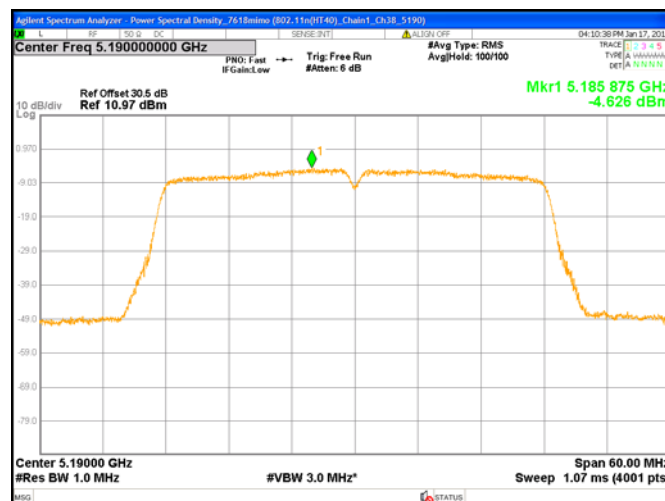
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch151



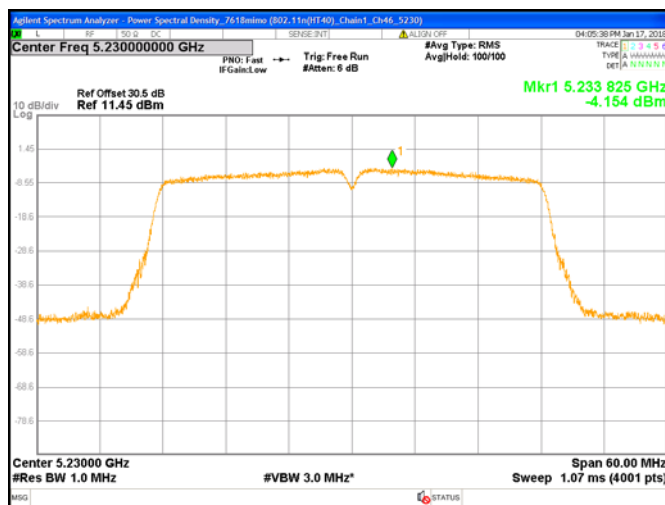
Chain0 : Power Spectral Density @ 802.11n(HT40) Mode Ch159



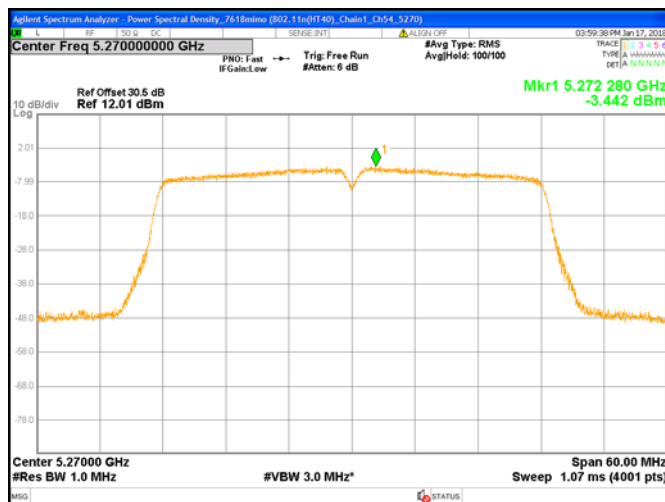
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch38



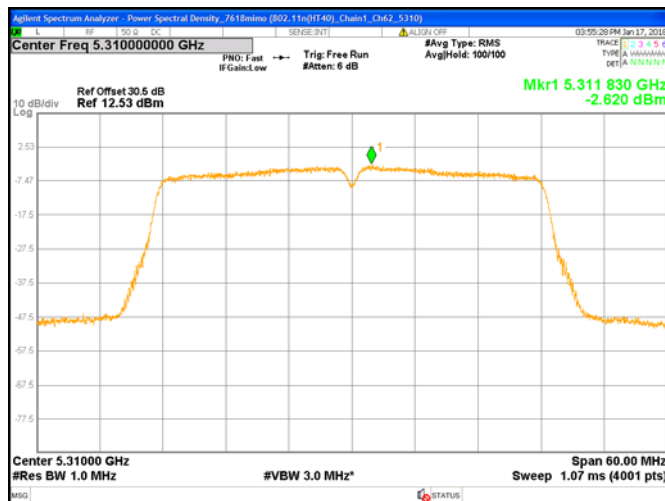
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch46



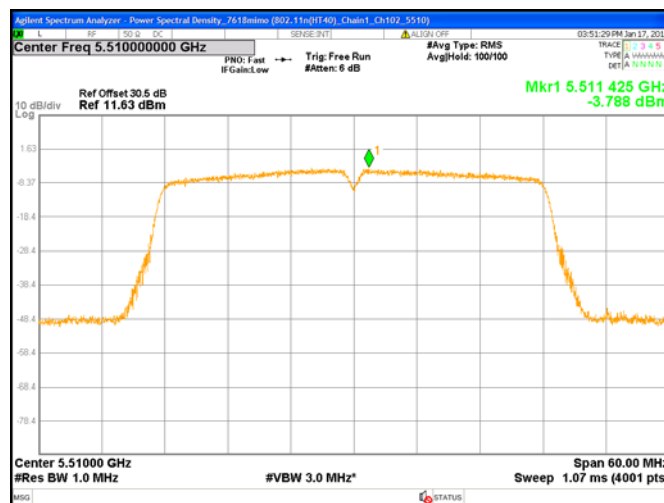
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch54



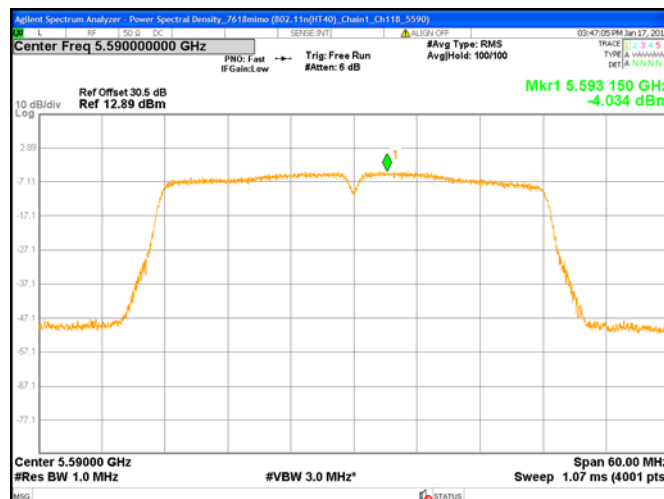
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch62



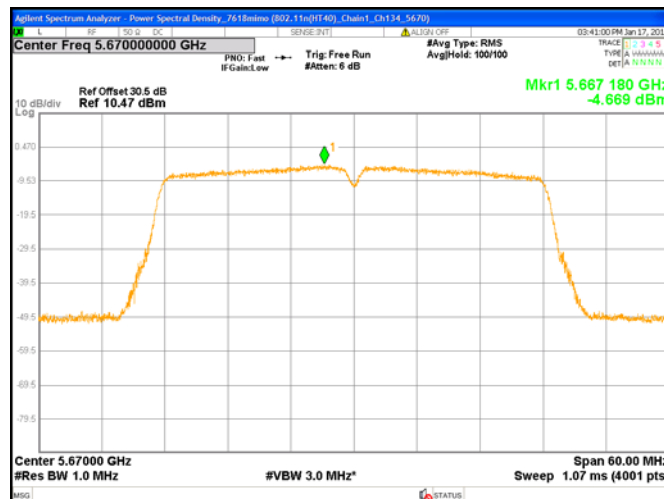
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch102



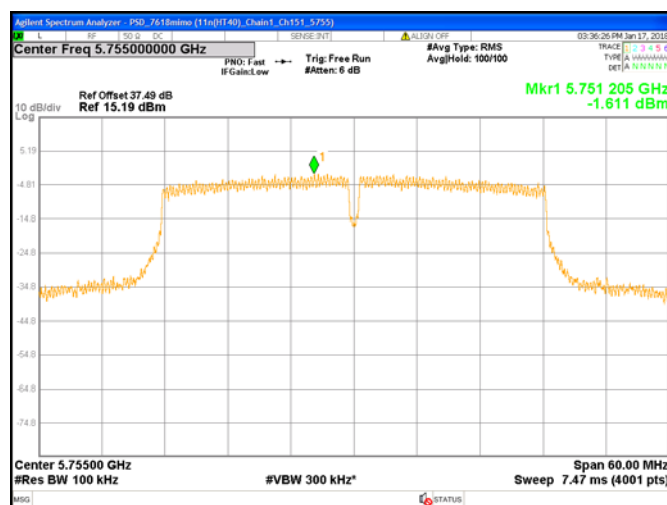
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch118



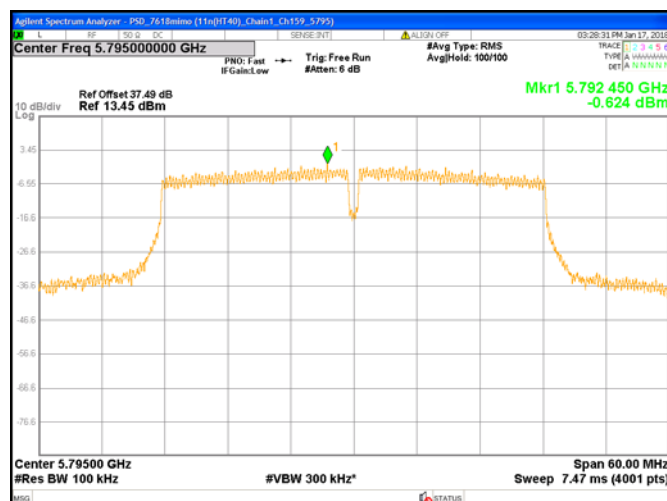
Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch134



Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch151



Chain1 : Power Spectral Density @ 802.11n(HT40) Mode Ch159



12. 不必要之發射

12.1 適用規範

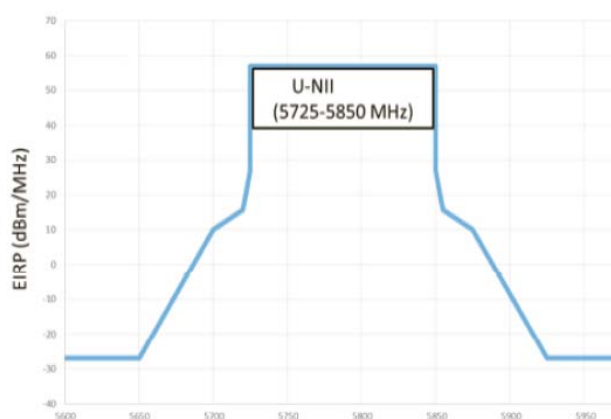
依據國家通訊傳播委員會低功率射頻電機技術規範之 4.7.4 節之要求，在操作頻帶外的峰值發射應衰減至符合下列限值：

(1) 在 5.15-5.35GHz 及 5.47-5.725GHz 頻帶操作的發射器：

所有在 5.15-5.35GHz、5.47-5.725GHz 頻率以外的發射，其有效等向輻射功率 (EIRP) 不應超過 -27dBm/MHz。

(2) 在 5.725-5.850GHz 頻帶操作的發射器：

所有頻帶邊緣向外 5 MHz 內頻率之發射，有效等向輻射功率(EIRP) ≤ 27 dBm/MHz ~ 15.6 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣向外 5 MHz ~ 25 MHz，有效等向輻射功率(EIRP) ≤ 15.6 dBm/MHz ~ 10 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣外 25 MHz ~ 75 MHz，有效等向輻射功率(EIRP) ≤ 10 dBm/MHz ~ -27 dBm/MHz (以線性法計算對應之限制值)；所有頻帶邊緣外 ≥ 75 MHz 的頻率之發射，有效等向輻射功率(EIRP) ≤ -27 dBm/MHz；有關遮罩限制值詳如下圖。



(3) 應符合標準第 2.7 及 2.8 章節的規定。

12.2 測試方法

參考本報告第 6.2 章節

12.3 測試配置圖

參考本報告第 6.3 章節

12.4 場強度之計算

有效等向輻射功率限制值轉換場強值如下：

頻率 (MHz)	有效等向輻射功率限制值 (dBm)	相對於 3m 之場強 (dBμV/m)
Out of 5150~5350	- 27	68.2
Out of 5470~5725		
Out of 5715~5835		

備註:

有效等向輻射功率限制值轉換場強之公式如下:

$$E = \sqrt{30PG}/d$$

E: 以最寬解析頻寬所測得之最大場強值，單位:V/m。

G: 發射天線相對於全向性輻射器之數值增益。

d: 測試場強的距離，單位: m。

P: 求得之功率，單位:W。

12.5 測試結果

12.5.1 頻率範圍低於 1GHz

溫度 : 25 °C
相對濕度 : 50 %
大氣壓力 : 1008 hPa
測 試 日 期 : 2018/02/07

儀器設定

Detector	QP
RBW	9-150 kHz ; 200-300 Hz 0.15-30 MHz; 9-10 kHz 30-1000 MHz; 100-120 kHz
VBW	$\geq 3 \times \text{RBW}$

待測物在 802.11a 之測試模式下執行測試，經本實驗室證實，待測物在 802.11a mode Tx Chain 0 Channel 165 為 EMI 最差之模式，故將其最差之讀值記錄於報告中。

Chain 0

頻率 (MHz)	檢測值	修正因子 (dB/m)	讀值 (dBμV)	實際值 (dBμV/m)	限制值 @ 3m (dBμV/m)	容差 (dB)
0.01	PK	19.64	42.24	61.88	127.60	-65.72
0.03	PK	20.40	36.11	56.51	118.06	-61.55
0.06	PK	19.56	38.55	58.11	112.04	-53.93
0.09	PK	19.22	31.92	51.14	108.52	-57.38
0.13	PK	19.11	30.37	49.48	105.33	-55.85
0.15	PK	19.09	29.99	49.08	104.08	-55.00
0.75	QP	19.01	21.91	40.92	70.10	-29.18
0.93	QP	19.08	21.87	40.95	68.23	-27.28
1.7	QP	18.94	16.22	35.16	63.00	-27.84
4.75	QP	20.11	11.65	31.76	69.54	-37.78
8.57	QP	20.35	12.70	33.05	69.54	-36.49

備註：

1. 實際值=讀值+修正因子
2. 修正因子=天線因子 + 傳輸線損耗
3. 以上測試結果符合規範

Chain 0

極性	頻率 (MHz)	檢測值	修正 因子 (dB/m)	讀值 (dBμV)	實際值 (dBμV/m)	限制值 @ 3m (dBμV/m)	容差 (dB)
Vertical	33.88	QP	19.35	11.84	31.19	40.00	-8.81
Vertical	156.10	QP	20.64	10.81	31.45	43.50	-12.05
Vertical	224.00	QP	18.85	10.20	29.05	46.00	-16.95
Vertical	239.52	QP	19.61	16.71	36.32	46.00	-9.68
Vertical	326.82	QP	22.44	12.86	35.30	46.00	-10.70
Vertical	338.46	QP	22.74	12.19	34.93	46.00	-11.07
Horizontal	134.76	QP	19.67	11.26	30.93	43.50	-12.57
Horizontal	152.22	QP	20.58	10.74	31.32	43.50	-12.18
Horizontal	241.46	QP	19.69	17.92	37.61	46.00	-8.39
Horizontal	299.66	QP	21.74	12.88	34.62	46.00	-11.38
Horizontal	322.94	QP	22.34	13.81	36.15	46.00	-9.85
Horizontal	355.92	QP	23.19	12.32	35.51	46.00	-10.49

備註：

1. 實際值=讀值+修正因子
2. 修正因子=天線因子 + 傳輸線損耗
3. 以上測試結果符合規範

12.5.2 頻率範圍大於 1GHz

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preampl. Gain (dB)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
802.11a , Ch36 , Chain0	10360	PK	H	35.77	20.38	31.99	52.37	68.20	-15.83
	10360	PK	V	35.77	20.38	32.54	52.92	68.20	-15.28
802.11a , Ch44 , Chain0	10440	PK	H	35.73	20.90	32.50	53.40	68.20	-14.80
	10440	PK	V	35.73	20.90	32.39	53.29	68.20	-14.91
802.11a , Ch48 , Chain0	10480	PK	H	35.71	21.16	32.11	53.27	68.20	-14.93
	10480	PK	V	35.71	21.16	33.13	54.29	68.20	-13.91
802.11a , Ch52 , Chain0	10520	PK	H	35.70	21.37	33.76	55.13	68.20	-13.07
	10520	PK	V	35.70	21.37	34.22	55.59	68.20	-12.61
802.11a , Ch60 , Chain0	10600	AV	H	35.71	21.68	23.93	45.61	54.00	-8.39
	10600	PK	H	35.71	21.68	33.55	55.23	74.00	-18.77
	10600	AV	V	35.71	21.68	22.88	44.56	54.00	-9.44
	10600	PK	V	35.71	21.68	32.93	54.61	74.00	-19.39
802.11a , Ch64 , Chain0	10295	PK	H	35.80	19.96	35.17	55.13	68.20	-13.07
	10272	PK	V	35.81	19.81	36.92	56.73	68.20	-11.47
802.11a , Ch100 , Chain0	11000	AV	H	35.73	23.22	23.01	46.23	54.00	-7.77
	11000	PK	H	35.73	23.22	32.98	56.20	74.00	-17.80
	11000	AV	V	35.73	23.22	24.79	48.01	54.00	-5.99
	11000	PK	V	35.73	23.22	34.49	57.71	74.00	-16.29
802.11a , Ch120 , Chain0	11200	AV	H	35.74	23.22	23.33	46.55	54.00	-7.45
	11200	PK	H	35.74	23.22	32.81	56.03	74.00	-17.97
	11200	AV	V	35.74	23.22	23.66	46.88	54.00	-7.12
	11200	PK	V	35.74	23.22	32.85	56.07	74.00	-17.93
802.11a , Ch140 , Chain0	11400	AV	H	35.75	23.22	24.65	47.87	54.00	-6.13
	11400	PK	H	35.75	23.22	33.35	56.57	74.00	-17.43
	11400	AV	V	35.75	23.22	23.60	46.82	54.00	-7.18
	11400	PK	V	35.75	23.22	34.08	57.30	74.00	-16.70
802.11a , Ch149 , Chain0	11490	AV	H	35.76	23.22	24.89	48.11	54.00	-5.89
	11490	PK	H	35.76	23.22	34.22	57.44	74.00	-16.56
	11490	AV	V	35.76	23.22	26.80	50.02	54.00	-3.98
	11490	PK	V	35.76	23.22	36.46	59.68	74.00	-14.32
802.11a , Ch157 , Chain0	11570	AV	H	35.74	23.10	23.67	46.77	54.00	-7.23
	11570	PK	H	35.74	23.10	33.80	56.90	74.00	-17.10
	11560	AV	V	35.75	23.12	28.03	51.15	54.00	-2.85
	11560	PK	V	35.75	23.12	37.72	60.84	74.00	-13.16

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preampl. Gain (dB)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
802.11a , Ch165 , Chain0	11650	AV	H	35.72	22.96	24.18	47.14	54.00	-6.86
	11650	PK	H	35.72	22.96	33.82	56.78	74.00	-17.22
	11650	AV	V	35.72	22.96	27.03	49.99	54.00	-4.01
	11650	PK	V	35.72	22.96	36.92	59.88	74.00	-14.12
802.11a , Ch36 , Chain1	10360	PK	H	35.77	20.38	33.00	53.38	68.20	-14.82
	10360	PK	V	35.77	20.38	32.72	53.10	68.20	-15.10
802.11a , Ch44 , Chain1	10440	PK	H	35.73	20.90	32.63	53.53	68.20	-14.67
	10440	PK	V	35.73	20.90	32.55	53.45	68.20	-14.75
802.11a , Ch48 , Chain1	10480	PK	H	35.71	21.16	33.03	54.19	68.20	-14.01
	10480	PK	V	35.71	21.16	33.20	54.36	68.20	-13.84
802.11a , Ch52 , Chain1	10520	PK	H	35.70	21.37	33.85	55.22	68.20	-12.98
	10520	PK	V	35.70	21.37	33.73	55.10	68.20	-13.10
802.11a , Ch60 , Chain1	10600	AV	H	35.71	21.68	24.43	46.11	54.00	-7.89
	10600	PK	H	35.71	21.68	33.63	55.31	74.00	-18.69
	10600	AV	V	35.71	21.68	24.17	45.85	54.00	-8.15
	10600	PK	V	35.71	21.68	33.67	55.35	74.00	-18.65
802.11a , Ch64 , Chain1	10502	PK	H	35.70	21.30	34.92	56.22	68.20	-11.98
	10318	PK	V	35.79	20.11	35.55	55.66	68.20	-12.54
802.11a , Ch100 , Chain1	11000	AV	H	35.73	23.22	23.90	47.12	54.00	-6.88
	11000	PK	H	35.73	23.22	33.33	56.55	74.00	-17.45
	11000	AV	V	35.73	23.22	24.07	47.29	54.00	-6.71
	11000	PK	V	35.73	23.22	34.25	57.47	74.00	-16.53
802.11a , Ch120 , Chain1	11200	AV	H	35.74	23.22	23.89	47.11	54.00	-6.89
	11200	PK	H	35.74	23.22	33.44	56.66	74.00	-17.34
	11200	AV	V	35.74	23.22	24.09	47.31	54.00	-6.69
	11200	PK	V	35.74	23.22	33.73	56.95	74.00	-17.05
802.11a , Ch140 , Chain1	11400	AV	H	35.75	23.22	24.39	47.61	54.00	-6.39
	11400	PK	H	35.75	23.22	33.89	57.11	74.00	-16.89
	11400	AV	V	35.75	23.22	24.91	48.13	54.00	-5.87
	11400	PK	V	35.75	23.22	34.07	57.29	74.00	-16.71
802.11a , Ch149 , Chain1	11490	AV	H	35.76	23.22	23.77	46.99	54.00	-7.01
	11490	PK	H	35.76	23.22	34.09	57.31	74.00	-16.69
	11490	AV	V	35.76	23.22	26.67	49.89	54.00	-4.11
	11490	PK	V	35.76	23.22	36.47	59.69	74.00	-14.31
802.11a , Ch157 , Chain1	11570	AV	H	35.74	23.10	25.21	48.31	54.00	-5.69
	11570	PK	H	35.74	23.10	34.34	57.44	74.00	-16.56
	11570	AV	V	35.74	23.10	27.16	50.26	54.00	-3.74
	11570	PK	V	35.74	23.10	37.38	60.48	74.00	-13.52