

9.4.5.5 Chain A+B 802.11ac VHT40 Maximum Conducted Output Power

Chain A+B 802.11ac VHT40 Maximum Conducted Output Power						
Channel No.	Frequency (MHz)	Chain A (dBm)	Chain B (dBm)	Total Power (dBm)	15.407 Limit (dBm)	RSS-247 Limit (dBm)
38	5190	8.82	8.50	11.67	24	--
46	5230	8.62	8.34	11.49	24	--
54	5270	8.58	8.21	11.41	24	24
62	5310	8.37	8.17	11.28	24	24
102	5510	7.52	7.67	10.61	24	24
110	5550	7.44	7.91	10.69	24	24
134	5670	8.02	8.11	11.08	24	24
151	5755	7.75	7.96	10.87	30	30
159	5795	7.92	7.59	10.77	30	30

Chain A+B 802.11ac VHT40 E.I.R.P					
Channel No.	Frequency (MHz)	Total Power (dBm)	Antenna Gain	E.I.R.P (dBm)	RSS-247 E.I.R.P Limit (dBm)
38	5190	11.67	5.4	17.07	23
46	5230	11.49	5.4	16.89	23
54	5270	11.41	5.6	17.01	23
62	5310	11.28	5.6	16.88	30
102	5510	10.61	5.7	16.31	30
110	5550	10.69	5.7	16.39	30
134	5670	11.08	5.7	16.78	30
151	5755	10.87	5.6	16.47	30
159	5795	10.77	5.6	16.37	30

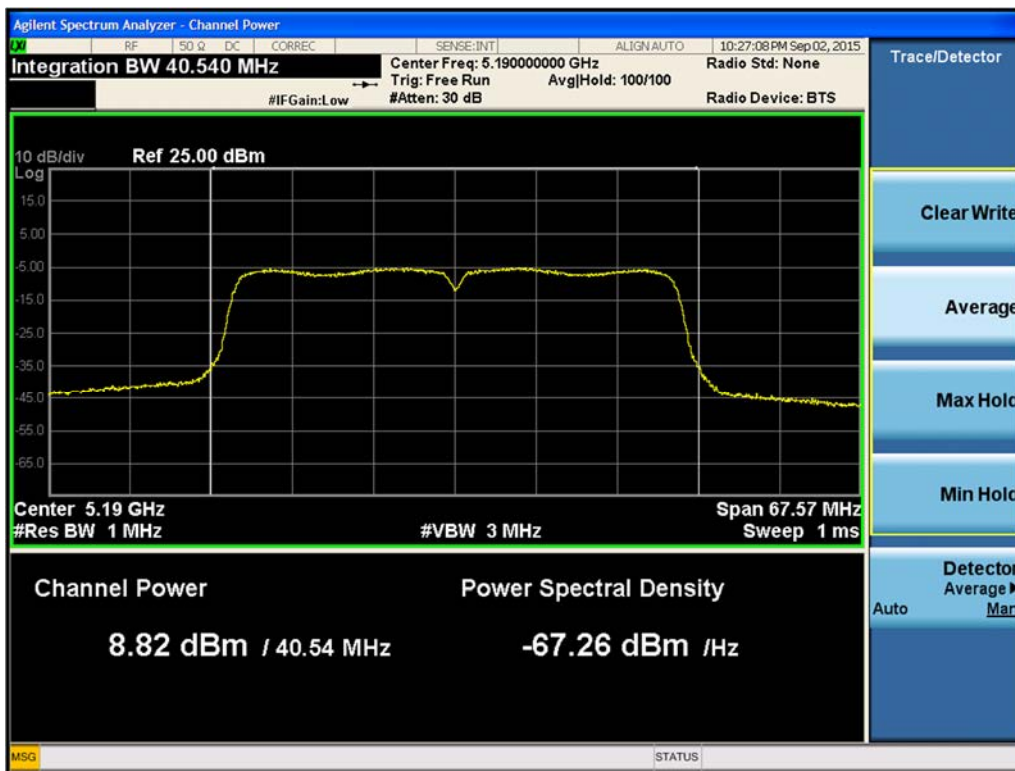


Figure 380. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 38)



Figure 381. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 46)



Figure 382. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 54)



Figure 383. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 62)



Figure 384. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 102)

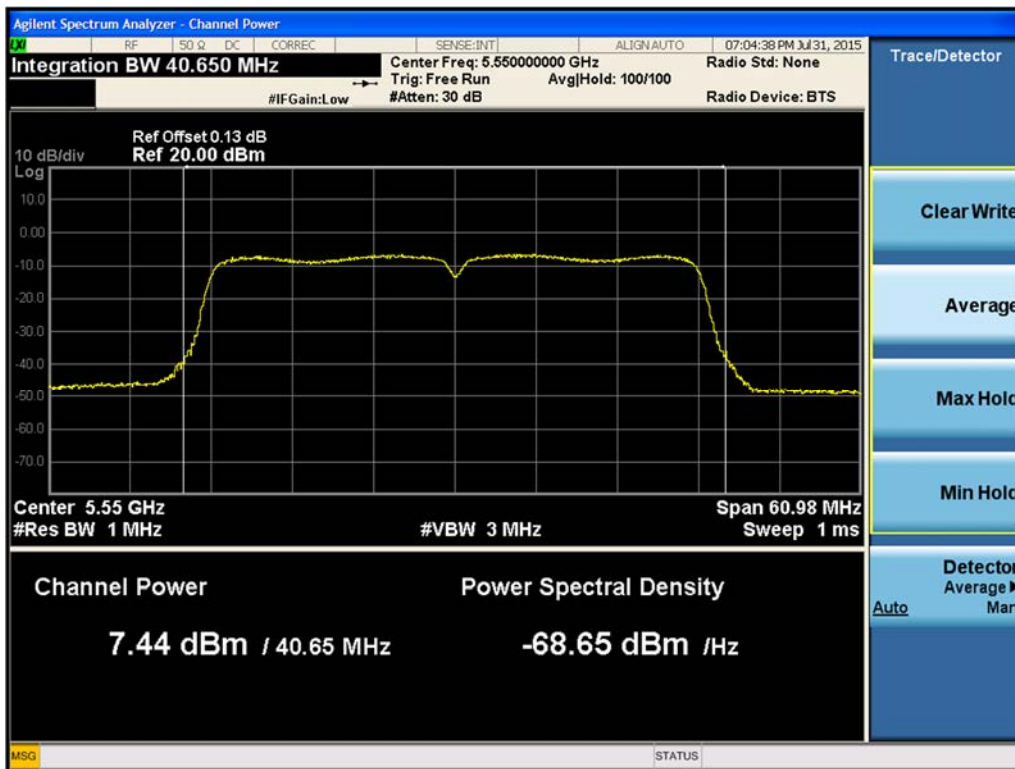


Figure 385. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 110)



Figure 386. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 134)

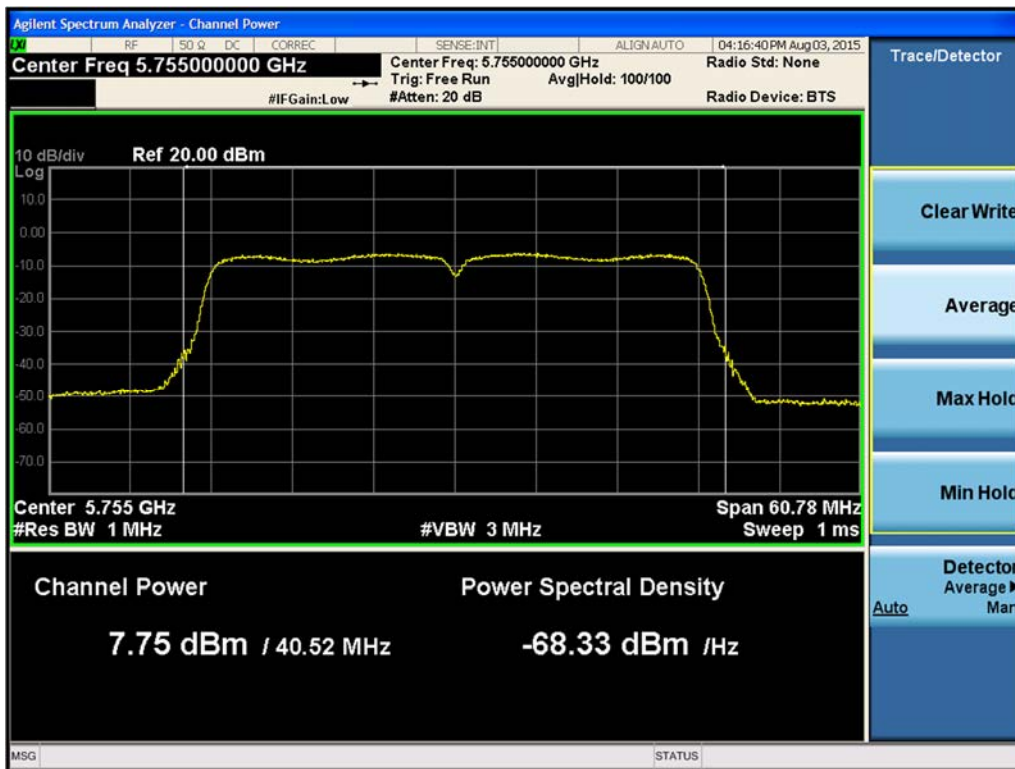


Figure 387. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 151)



Figure 388. Maximum Conducted Output Power Chain A 802.11ac VHT40 (Ch. 159)



Figure 389. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 38)



Figure 390. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 46)



Figure 391. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 54)



Figure 392. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 62)



Figure 393. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 102)



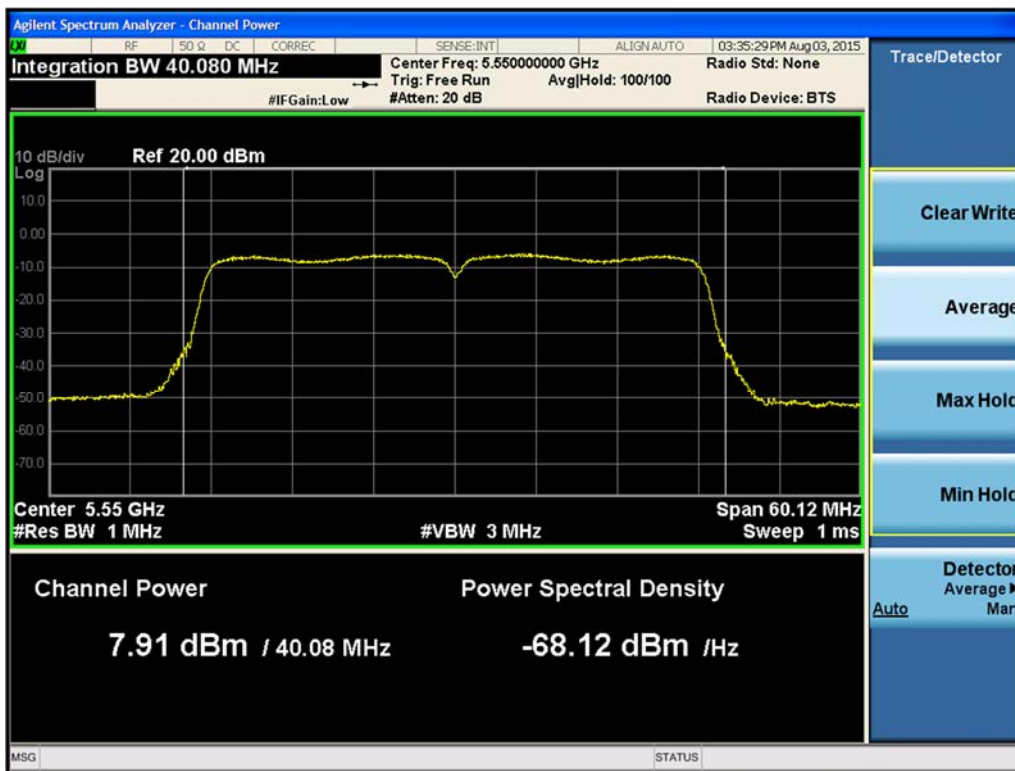


Figure 394. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 110)

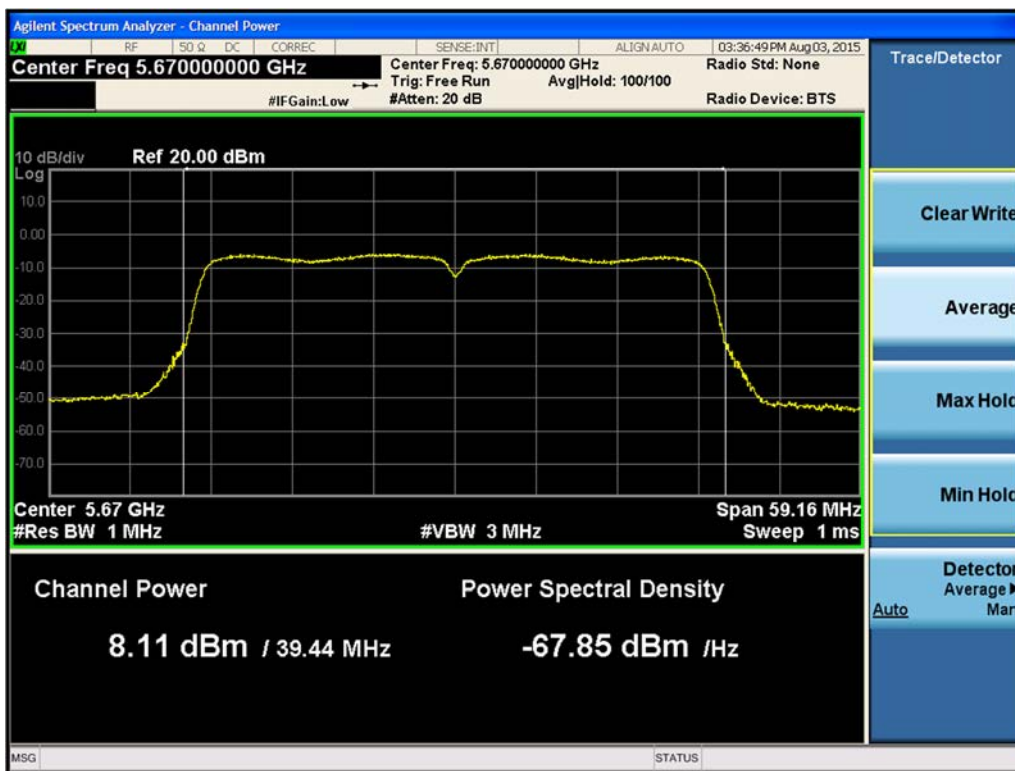


Figure 395. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 134)



Figure 396. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 151)



Figure 397. Maximum Conducted Output Power Chain B 802.11ac VHT40 (Ch. 159)

### 9.4.5.6 Chain A+B 802.11ac VHT80 Maximum Conducted Output Power

Chain A+B 802.11ac VHT80 Maximum Conducted Output Power						
Channel No.	Frequency (MHz)	Chain A (dBm)	Chain B (dBm)	Total Power (dBm)	15.407 Limit (dBm)	RSS-247 Limit (dBm)
42	5210	7.98	7.99	11	24	--
58	5290	7.79	7.87	10.84	24	24
106	5530	7.63	7.44	10.55	24	24
138	5690	7.52	7.58	10.56	24	24
155	5775	7.59	6.97	10.3	30	30

Chain A+B 802.11ac VHT80 E.I.R.P					
Channel No.	Frequency (MHz)	Total Power (dBm)	Antenna Gain	E.I.R.P (dBm)	RSS-247 E.I.R.P Limit (dBm)
42	5210	11	5.4	16.4	23
58	5290	10.84	5.6	16.44	23
106	5530	10.55	5.7	16.25	20
138	5690	10.56	5.7	16.26	20
155	5775	10.3	5.6	15.9	30

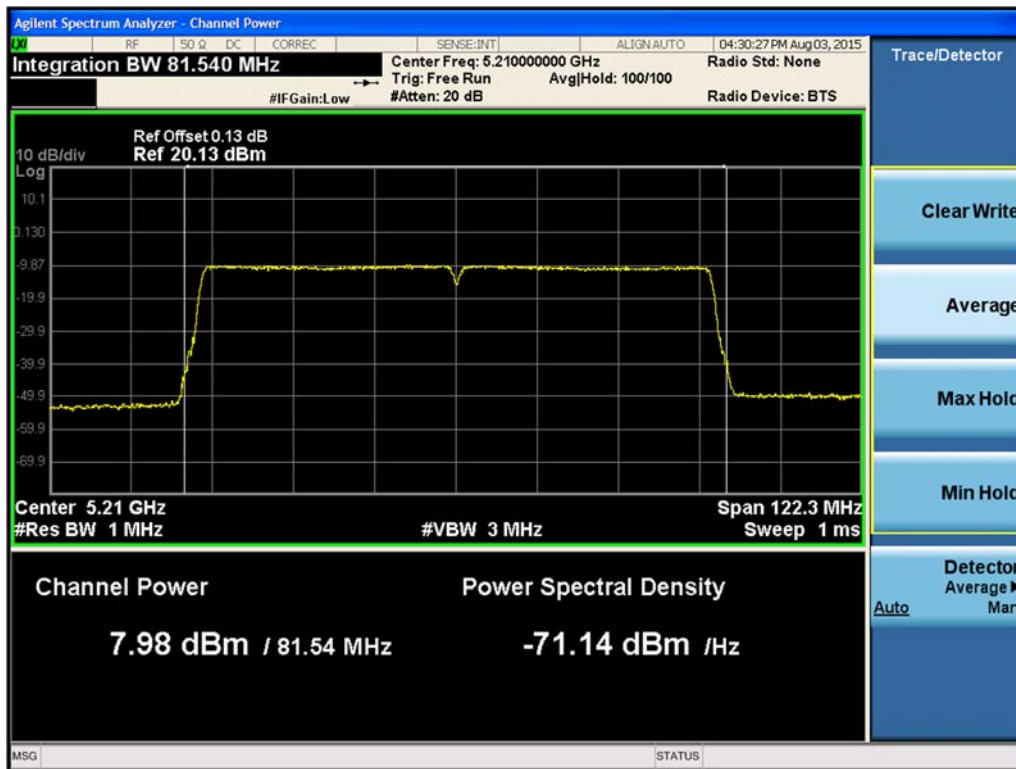


Figure 398. Maximum Conducted Output Power Chain A 802.11ac VHT80 (Ch. 42)



Figure 399. Maximum Conducted Output Power Chain A 802.11ac VHT80 (Ch. 58)

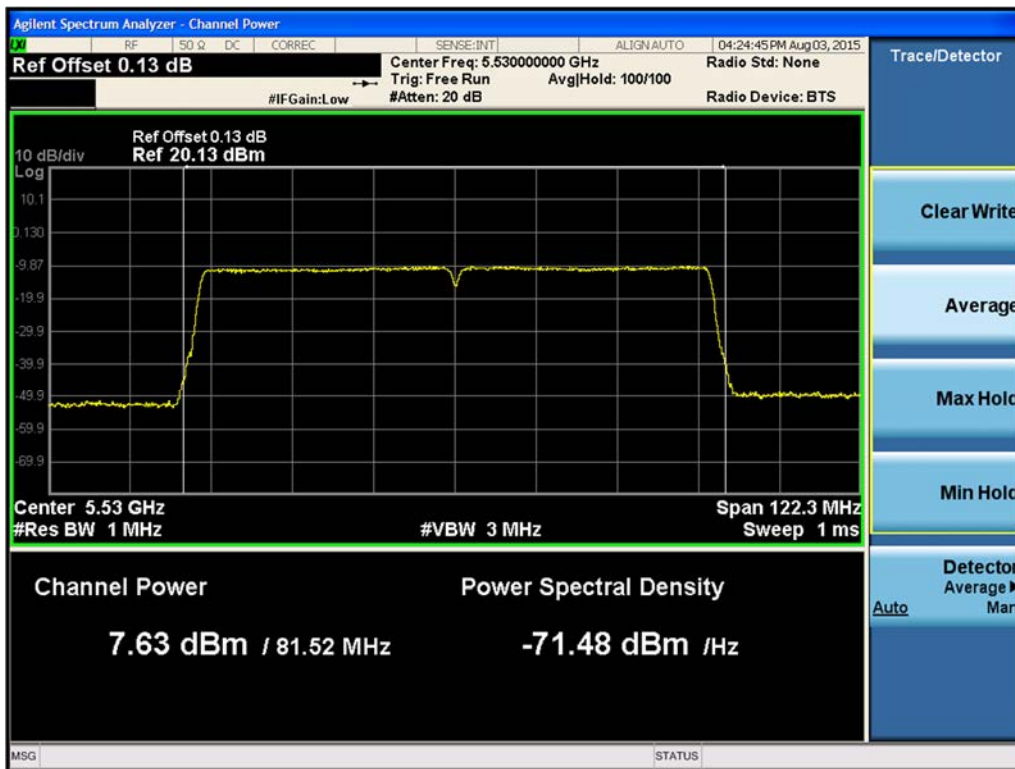


Figure 400. Maximum Conducted Output Power Chain A 802.11ac VHT80 (Ch. 106)



Figure 401. Maximum Conducted Output Power Chain A 802.11ac VHT80 (Ch. 138)



Figure 402. Maximum Conducted Output Power Chain A 802.11ac VHT80 (Ch. 155)



Figure 403. Maximum Conducted Output Power Chain B 802.11ac VHT80 (Ch. 42)



Figure 404. Maximum Conducted Output Power Chain B 802.11ac VHT80 (Ch. 58)



Figure 405. Maximum Conducted Output Power Chain B 802.11ac VHT80 (Ch. 106)



Figure 406. Maximum Conducted Output Power Chain B 802.11ac VHT80 (Ch. 138)



Figure 407. Maximum Conducted Output Power Chain B 802.11ac VHT80 (Ch. 155)



9.4.5.7 Chain A+B 802.11a/n/ac Straddle Channel Maximum Conducted Output Power

Straddle Channel UNII Band 2C Maximum Conducted Output Power							
Channel No.	Frequency (MHz)	Mode	Chain A (dBm)	Chain B (dBm)	Total Power (dBm)	15.407 Limit (dBm)	RSS-247 Limit (dBm)
144	5720	802.11a	7.44	7.07	10.27	24	24
144	5720	802.11n HT20	6.61	7.07	9.86	24	24
144	5720	802.11ac VHT20	6.67	7.03	9.86	24	24
142	5710	802.11n HT40	7.21	7.43	10.33	24	24
142	5710	802.11ac VHT40	7.65	7.59	10.63	24	24
138	5690	802.11ac VHT80	7.16	7.12	10.15	24	24

Straddle Channel UNII Band 2C E.I.R.P						
Channel No.	Frequency (MHz)	Mode	Total Power (dBm)	Antenna Gain	E.I.R.P (dBm)	RSS-247 E.I.R.P Limit (dBm)
144	5720	802.11a	10.27	5.7	15.97	20
144	5720	802.11n HT20	9.86	5.7	15.56	20
144	5720	802.11ac VHT20	9.86	5.7	15.56	20
142	5710	802.11n HT40	10.33	5.7	16.03	30
142	5710	802.11ac VHT40	10.63	5.7	16.33	30
138	5690	802.11ac VHT80	10.15	5.7	15.85	30

Straddle Channel UNII Band 3 Maximum Conducted Output Power							
Channel No.	Frequency (MHz)	Mode	Chain A (dBm)	Chain B (dBm)	Total Power (dBm)	15.407 Limit (dBm)	RSS-247 Limit (dBm)
144	5720	802.11a	1.39	0.89	4.16	24	24
144	5720	802.11n HT20	0.47	1.39	3.96	24	24
144	5720	802.11ac VHT20	0.43	1.39	3.95	24	24
142	5710	802.11n HT40	-4.02	-2.94	-0.44	24	24
142	5710	802.11ac VHT40	-3.75	-4.38	-1.04	24	24
138	5690	802.11ac VHT80	-6.79	-7.54	-4.14	24	24

Straddle Channel UNII Band 3 E.I.R.P						
Channel No.	Frequency (MHz)	Mode	Total Power (dBm)	Antenna Gain	E.I.R.P (dBm)	RSS-247 E.I.R.P Limit (dBm)
144	5720	802.11a	4.16	5.6	9.76	20
144	5720	802.11n HT20	3.96	5.6	9.56	20
144	5720	802.11ac VHT20	3.95	5.6	9.55	20
142	5710	802.11n HT40	-0.44	5.6	5.16	30
142	5710	802.11ac VHT40	-1.04	5.6	4.56	30
138	5690	802.11ac VHT80	-4.14	5.6	1.46	30



Figure 408. UNII 2C Conducted Output Power Chain A 802.11a (Ch. 144)



Figure 409. UNII 2C Conducted Output Power Chain B 802.11a (Ch. 144)

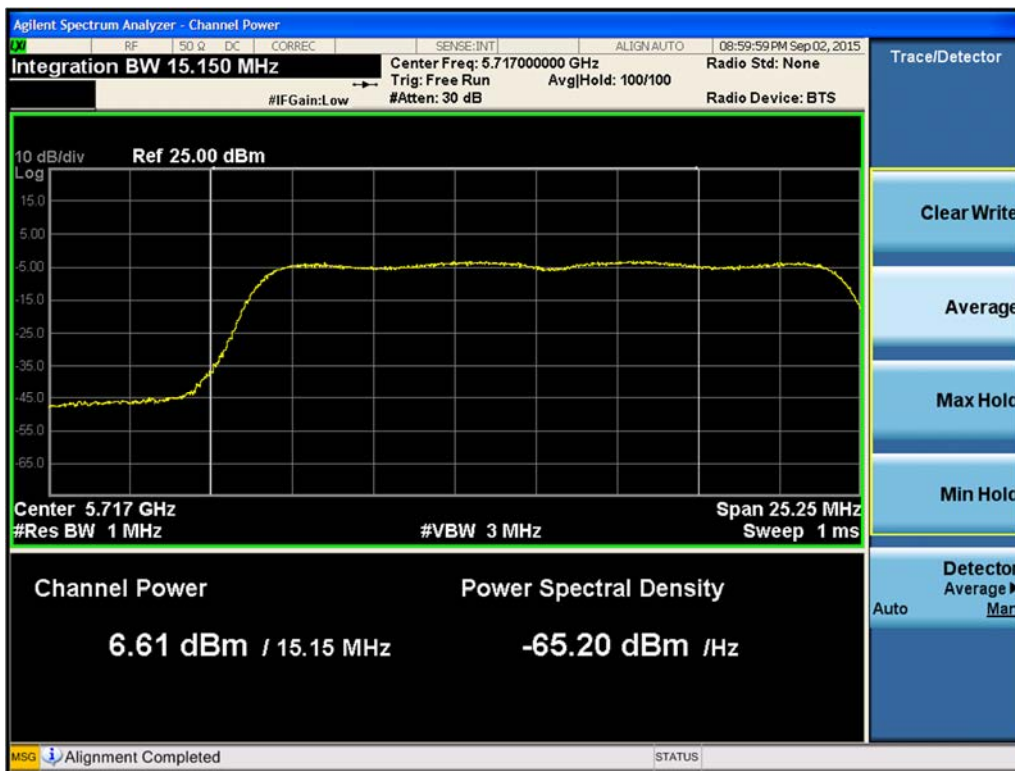


Figure 410. UNII 2C Conducted Output Power Chain A 802.11n HT20 (Ch. 144)



Figure 411. UNII 2C Conducted Output Power Chain B 802.11n HT20 (Ch. 144)

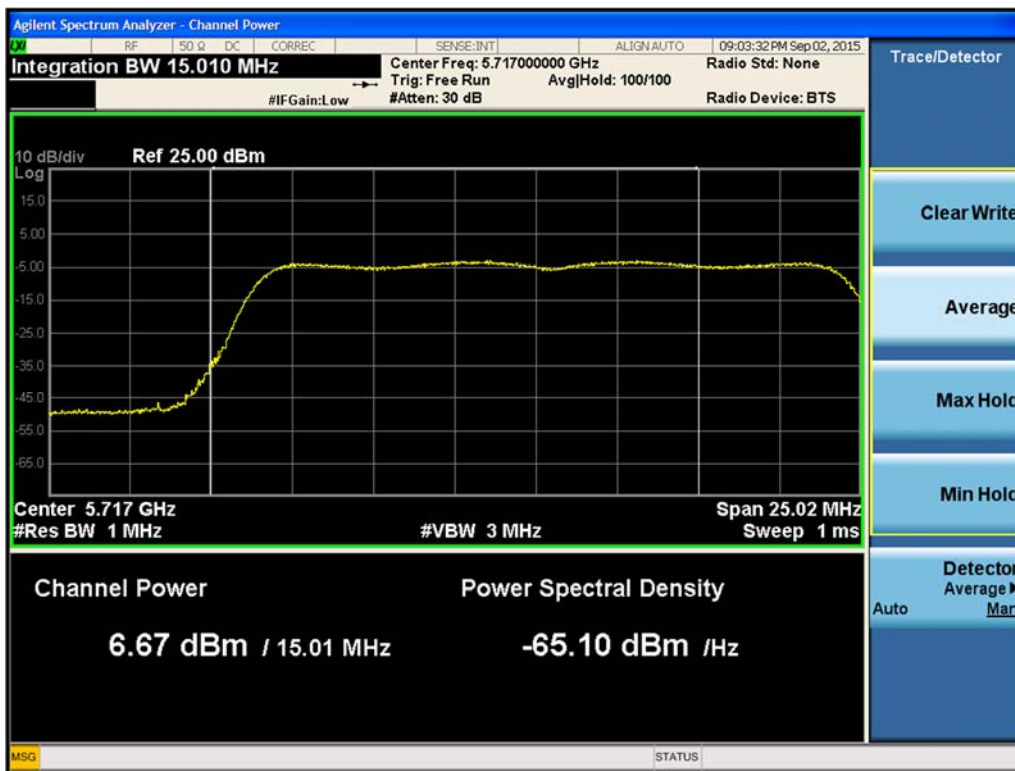


Figure 412. UNII 2C Conducted Output Power Chain A 802.11ac VHT20 (Ch. 144)

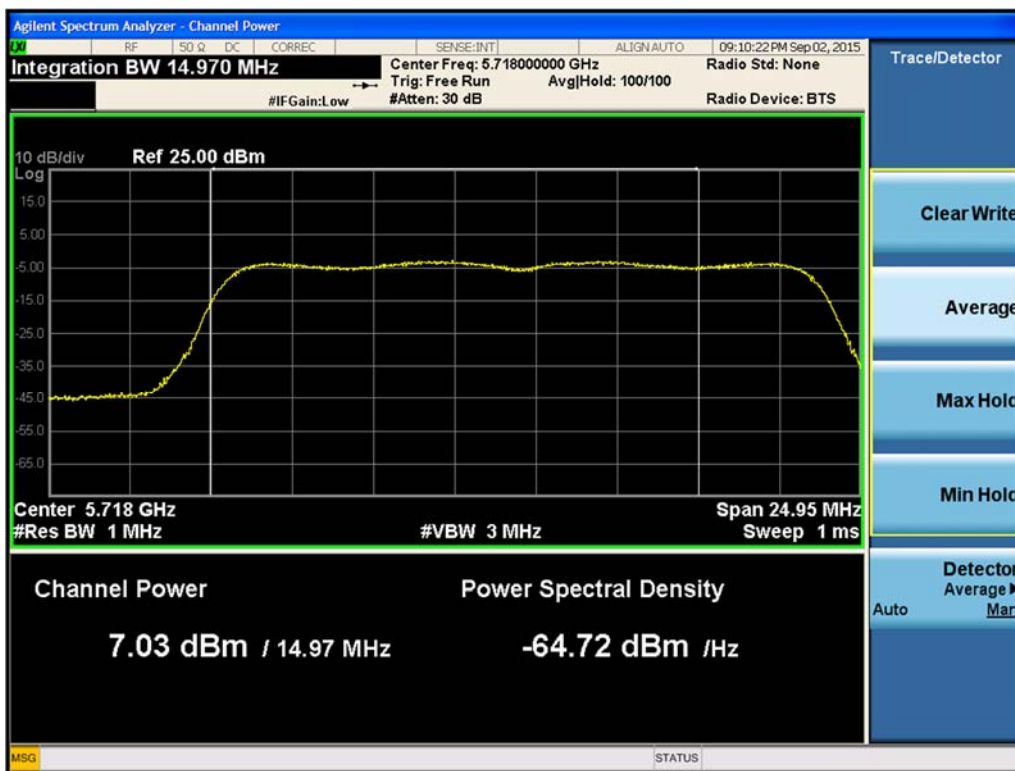


Figure 413. UNII 2C Conducted Output Power Chain B 802.11ac VHT20 (Ch. 144)

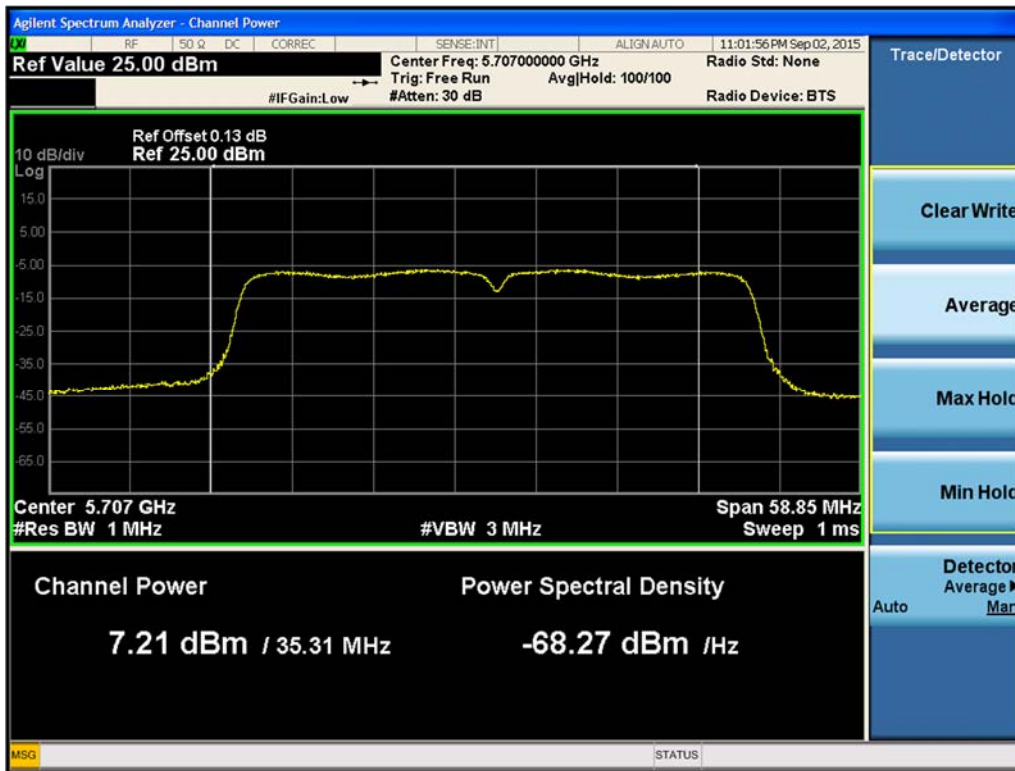


Figure 414. UNII 2C Conducted Output Power Chain A 802.11n HT40 (Ch. 142)



Figure 415. UNII 2C Conducted Output Power Chain B 802.11n HT40 (Ch. 142)

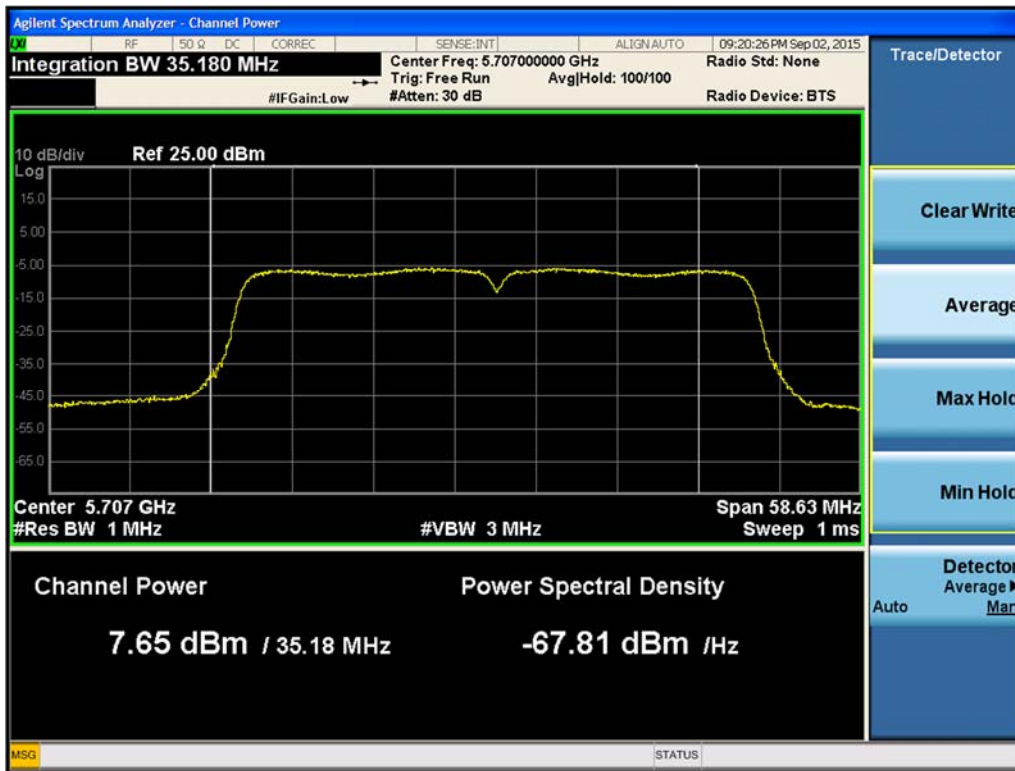


Figure 416. UNII 2C Conducted Output Power Chain A 802.11ac VHT40 (Ch. 142)

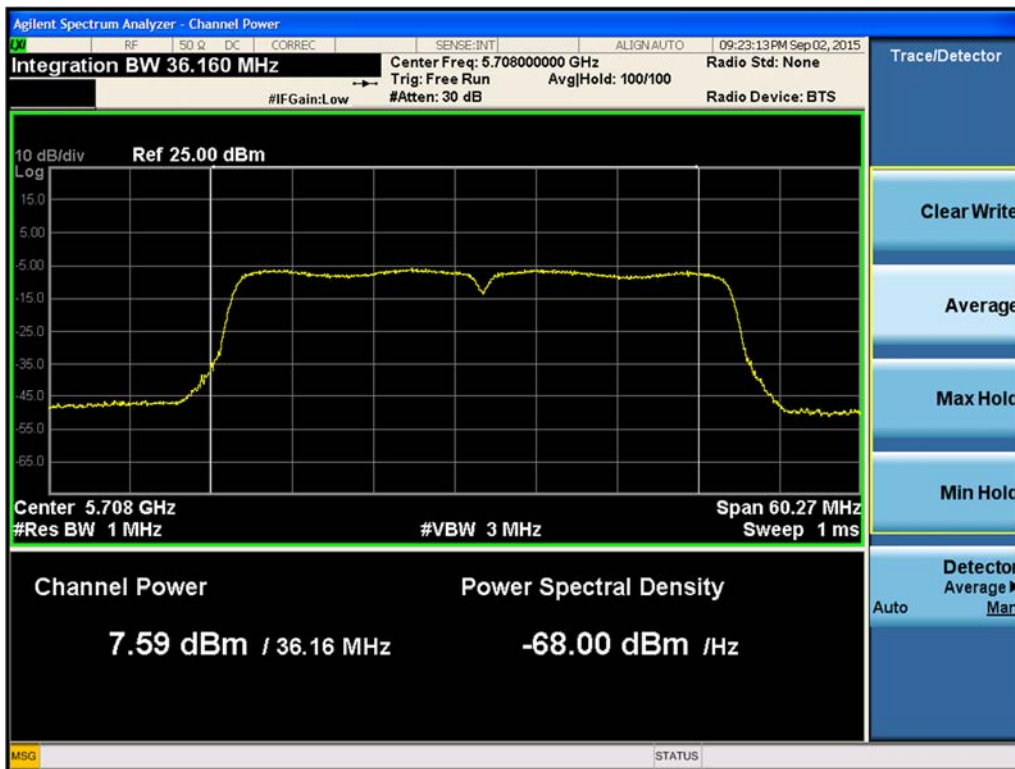


Figure 417. UNII 2C Conducted Output Power Chain B 802.11ac VHT40 (Ch. 142)

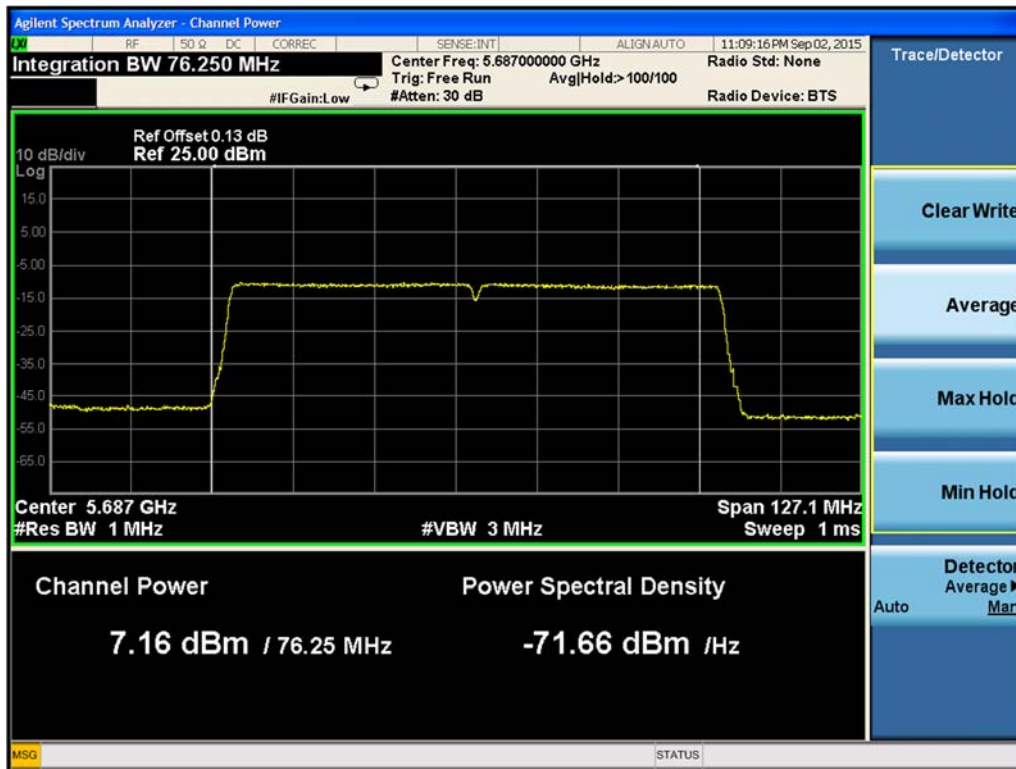


Figure 418. UNII 2C Conducted Output Power Chain A 802.11a VHT80 (Ch. 138)

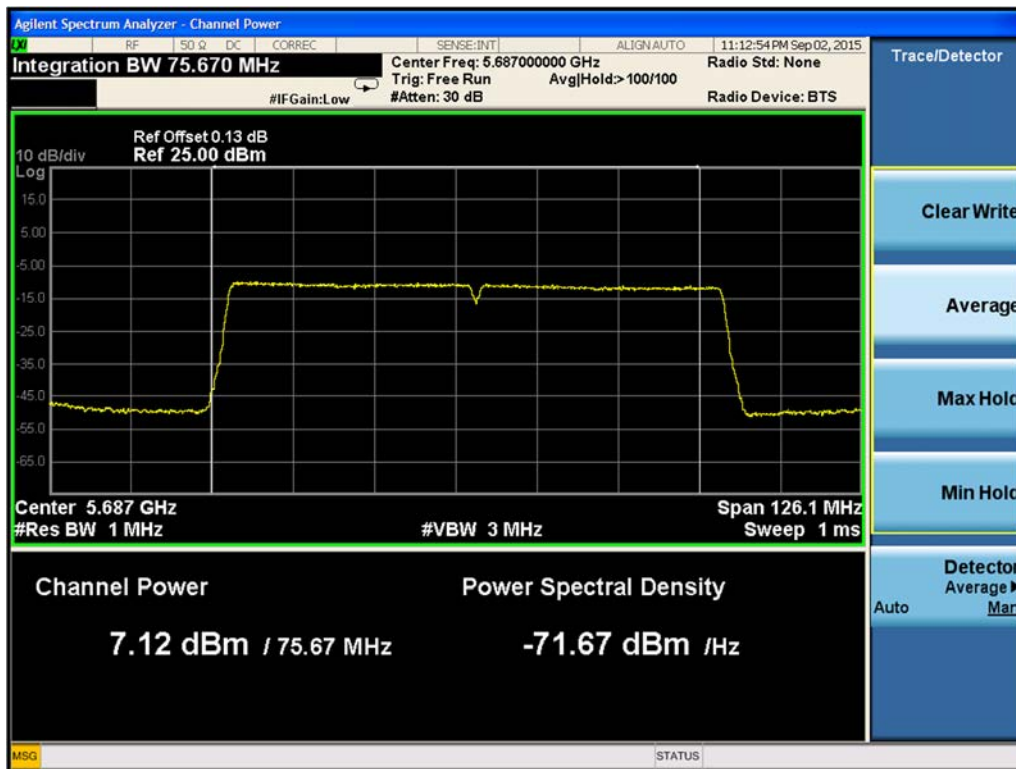


Figure 419. UNII 2C Conducted Output Power Chain B 802.11a VHT80 (Ch. 138)





Figure 420. UNII 3 Conducted Output Power Chain A 802.11a (Ch. 144)



Figure 421. UNII 3 Conducted Output Power Chain B 802.11a (Ch. 144)

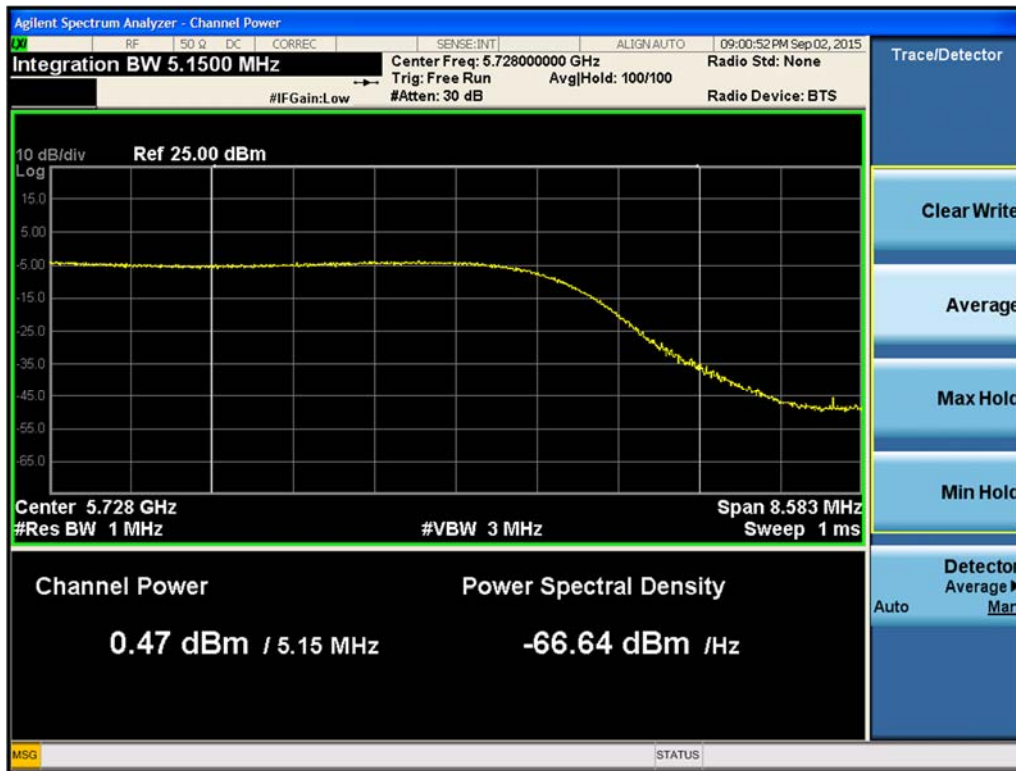


Figure 422. UNII 3 Conducted Output Power Chain A 802.11n HT20 (Ch. 144)



Figure 423. UNII 3 Conducted Output Power Chain B 802.11n HT20 (Ch. 144)



Figure 424. UNII 3 Conducted Output Power Chain A 802.11ac VHT20 (Ch. 144)



Figure 425. UNII 3 Conducted Output Power Chain B 802.11ac VHT20 (Ch. 144)



Figure 426. UNII 3 Conducted Output Power Chain A 802.11n HT40 (Ch. 142)



Figure 427. UNII 3 Conducted Output Power Chain B 802.11n HT40 (Ch. 142)



Figure 428. UNII 3 Conducted Output Power Chain A 802.11ac VHT40 (Ch. 142)



Figure 429. UNII 3 Conducted Output Power Chain B 802.11ac VHT40 (Ch. 142)



Figure 430. UNII 3 Conducted Output Power Chain A 802.11ac VHT80 (Ch. 138)



Figure 431. UNII 3 Conducted Output Power Chain B 802.11ac VHT80 (Ch. 138)

## 9.5 Maximum Power Spectral Density

### 9.5.1 Test Requirement:

FCC CFR 47 Rule Part 15.407 (a)

Industry Canada RSS-247 [6.2]

### 9.5.2 Test Method:

Measurements were performed according to the procedures defined in KDBs 789033- General UNII Test Procedures New Rules v01, 662911 D01 Multiple Transmitter Output v02r01, and ANSI C63.10 2013.

#### Spectrum Analyzer settings:

RBW= 1 MHz

VBW= 3 MHz

Detector = RMS

Trace Mode= Average over 100 traces

Sweep time= Auto

Sweep Point  $\geq 2 \times \text{Span} / \text{RBW}$

Span= large enough to encompass the 26-dB Emission Bandwidth or alternatively the 99% Occupied Bandwidth. Use the peak marker function to identify the Maximum Power Spectral Density

### 9.5.3 Limits:

15.407: The Maximum Power Spectral Density shall not exceed the limits given the following table for antennas that do not exceed a directional gain  $> 6\text{dBi}$ :

Band of Operation (MHz)	15.407 Limits
5150 – 5250	11dBm/MHz
5250 – 5350	11dBm/MHz
5470 – 5725	11dBm/MHz
5725 – 5825	30dBm/500kHz

Band of Operation (MHz)	RSS-247 Limits
5150 – 5250	10dBm/MHz
5250 – 5350	11dBm/MHz
5470 – 5725	11dBm/MHz
5725 – 5825	30dBm/500kHz

### 9.5.4 Test Results:

Pass

## 9.5.5 Test Data:

### 9.5.5.1 Chain A+B 802.11a Maximum Power Spectral Density

Chain A+B 802.11a Maximum Power Spectral Density/MHz						
Channel No.	Frequency (MHz)	Chain A (dBm)	Chain B (dBm)	Total PSD (dBm/MHz)	15.407 Limit (dBm/MHz)	RSS-247 Limit (dBm/MHz)
36	5180	-0.82	-0.79	2.21	11	10
44	5220	-0.98	-1.09	1.98	11	10
48	5240	-1.16	-1.25	1.81	11	10
52	5260	-2.03	-2.57	0.72	11	11
60	5300	-2.07	-2.13	0.91	11	11
64	5320	-2.04	-2.63	0.69	11	11
100	5500	-2.66	-2.51	0.43	11	11
116	5580	-2.60	-2.90	0.26	11	11
140	5700	-2.44	-2.77	0.41	11	11

Chain A+B 802.11a Maximum Power Spectral Density/500kHz						
Channel No.	Frequency (MHz)	Chain A (dBm)	Chain B (dBm)	Total PSD (dBm/500kHz)	15.407 Limit (dBm/500kHz)	RSS-247 Limit (dBm/500kHz)
149	5745	-2.15	-3.40	0.28	30	30
157	5785	-2.86	-2.66	0.25	30	30
165	5825	-3.18	-3.86	-0.5	30	30



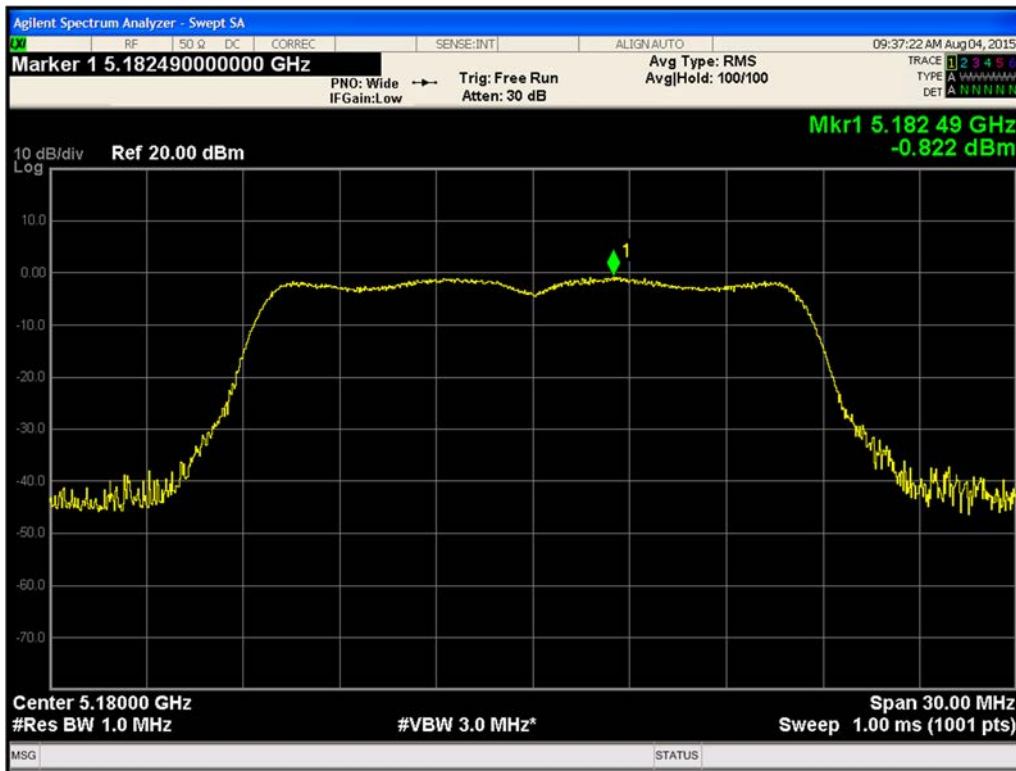


Figure 432. Maximum Power Spectral Density Chain A 802.11a (Ch. 36)

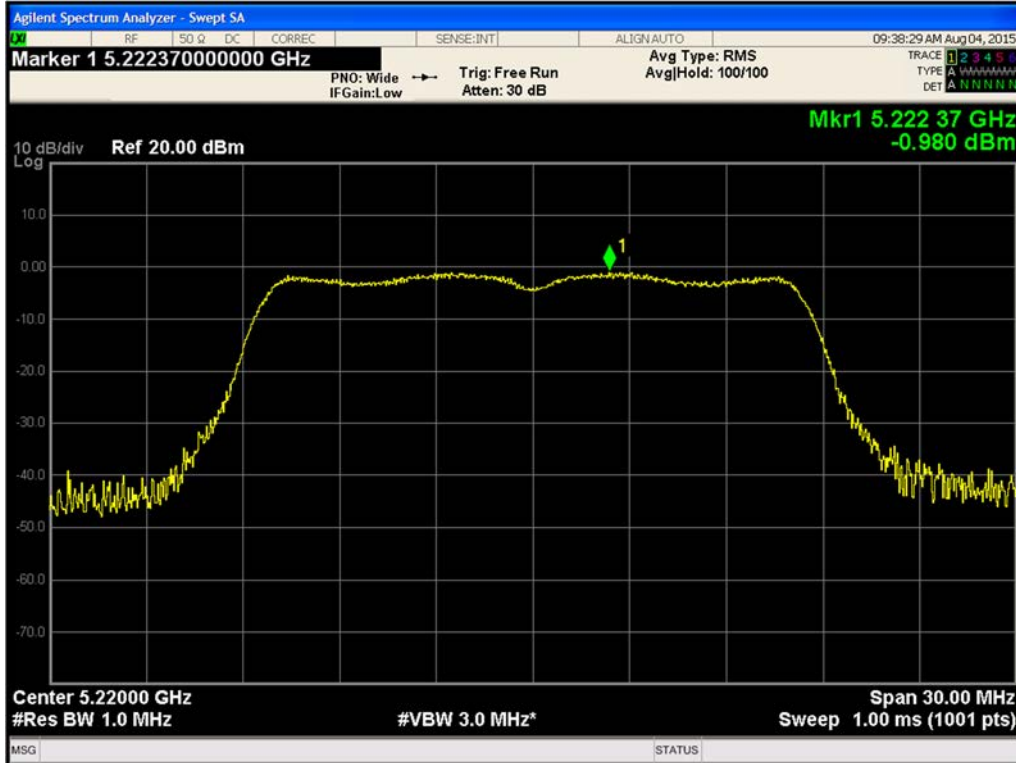


Figure 433. Maximum Power Spectral Density Chain A 802.11a (Ch. 44)

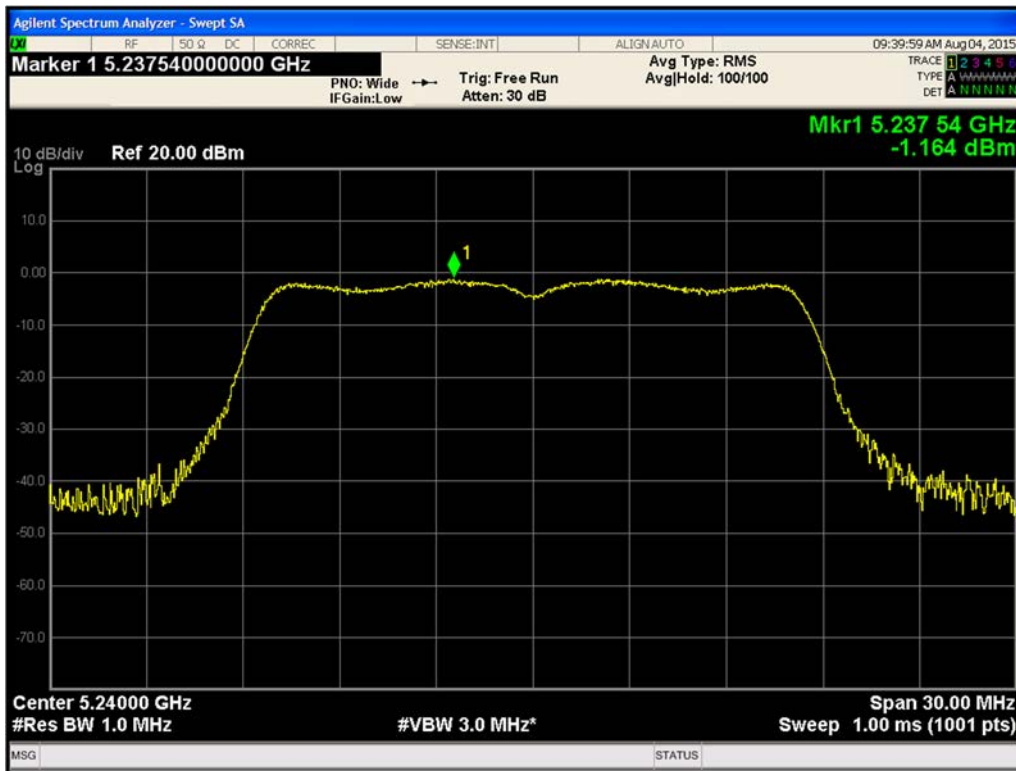


Figure 434. Maximum Power Spectral Density Chain A 802.11a (Ch. 48)

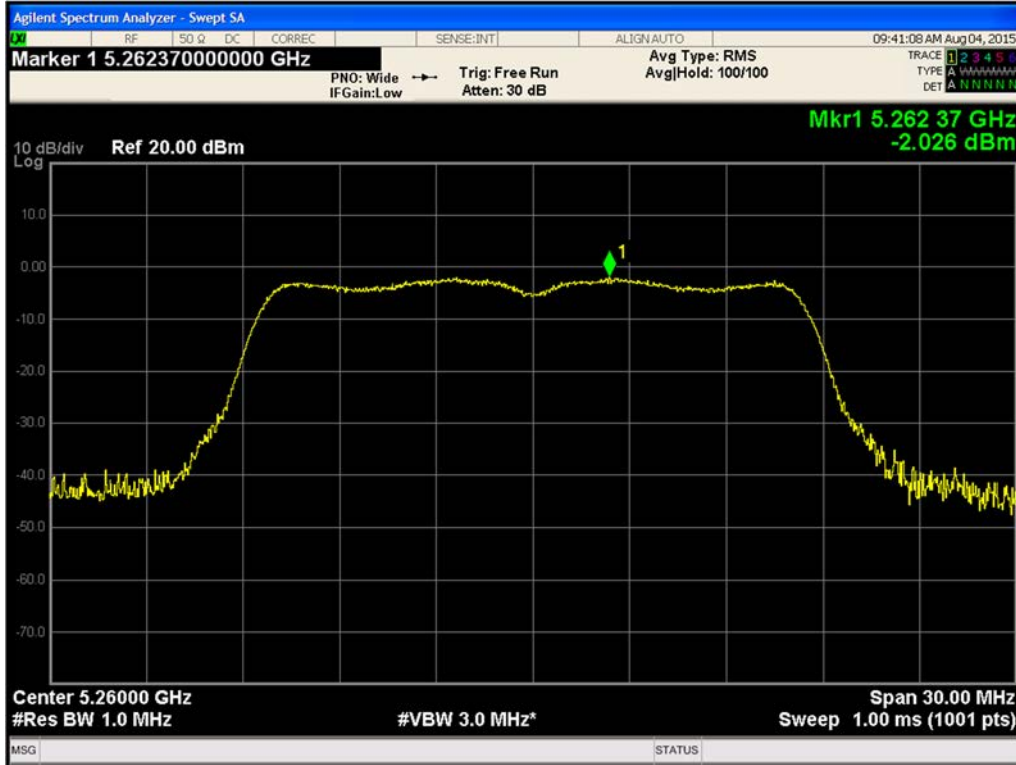


Figure 435. Maximum Power Spectral Density Chain A 802.11a (Ch. 52)

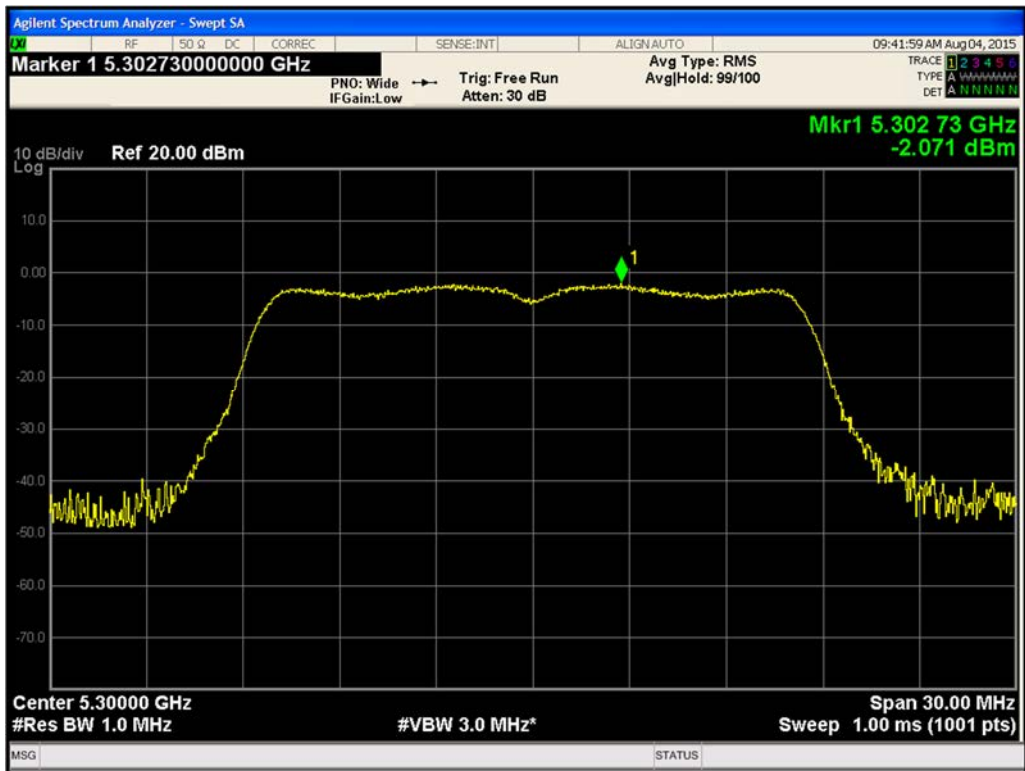


Figure 436. Maximum Power Spectral Density Chain A 802.11a (Ch. 60)

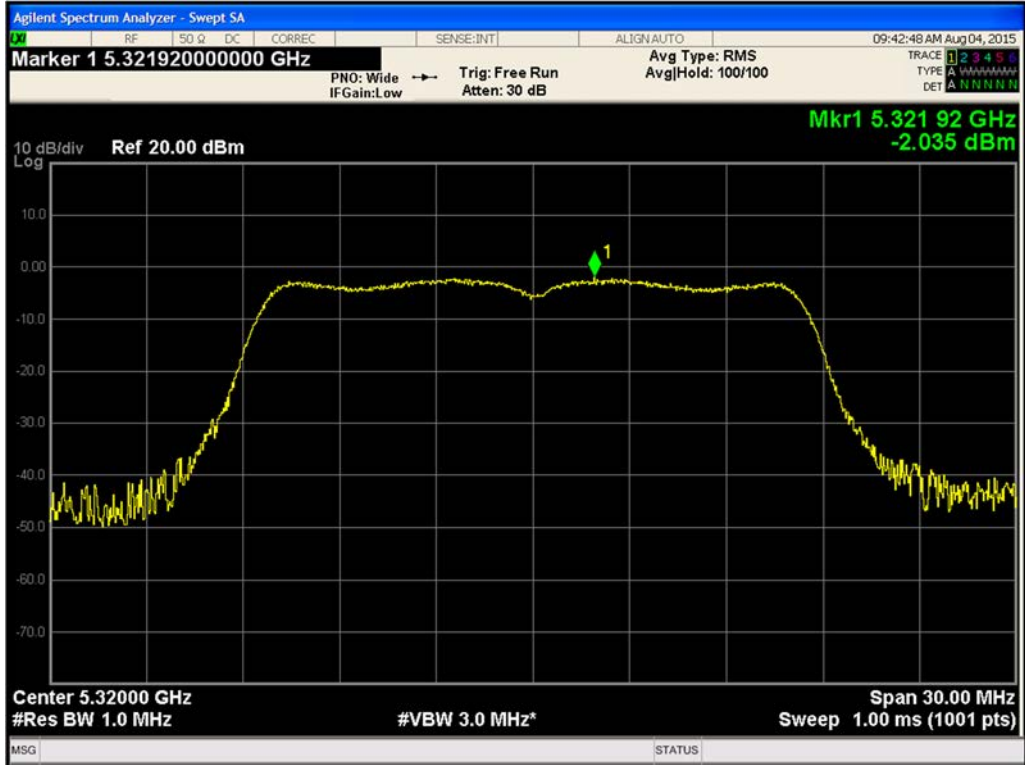


Figure 437. Maximum Power Spectral Density Chain A 802.11a (Ch. 64)

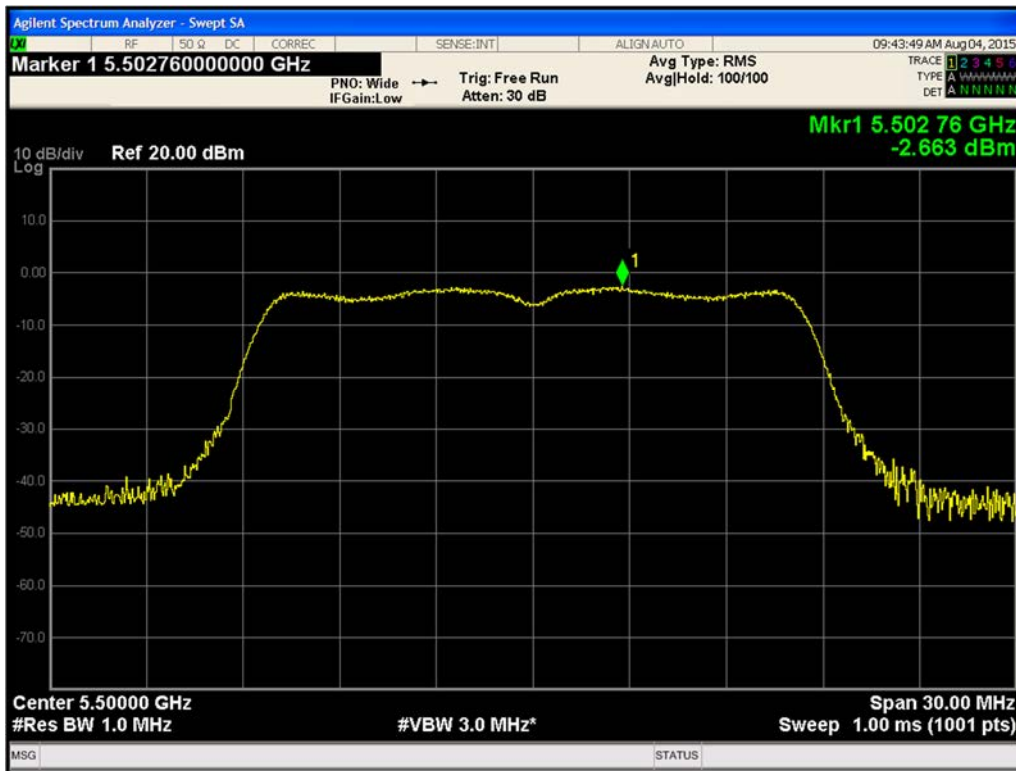


Figure 438. Maximum Power Spectral Density Chain A 802.11a (Ch. 100)

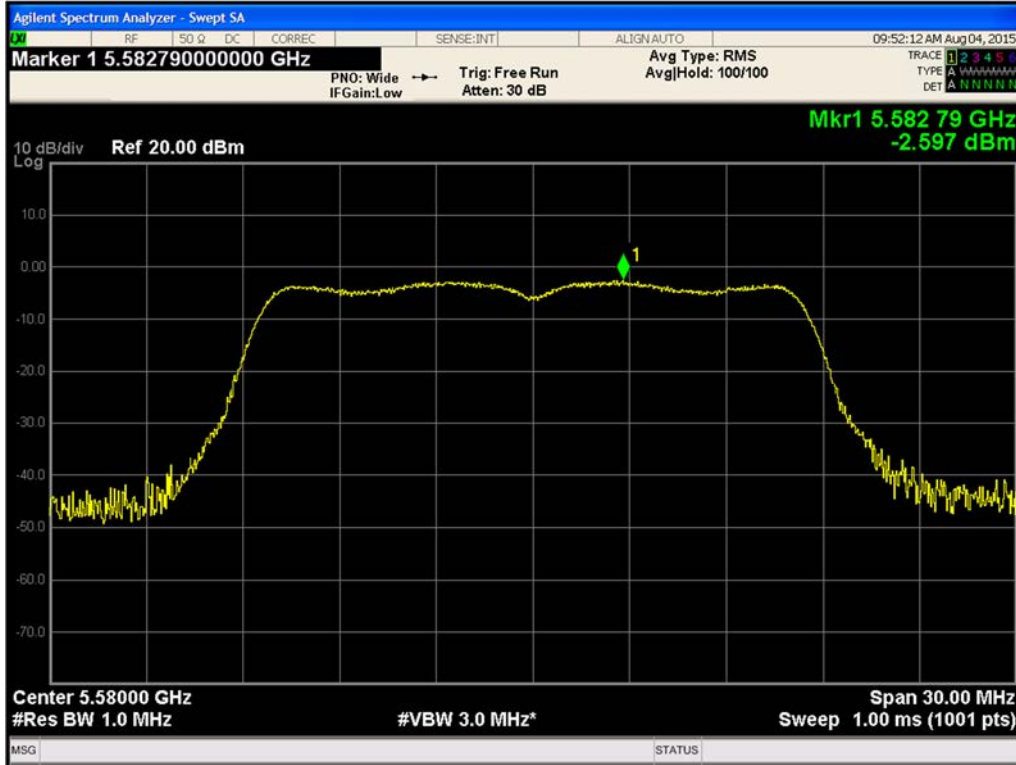


Figure 439. Maximum Power Spectral Density Chain A 802.11a (Ch. 116)

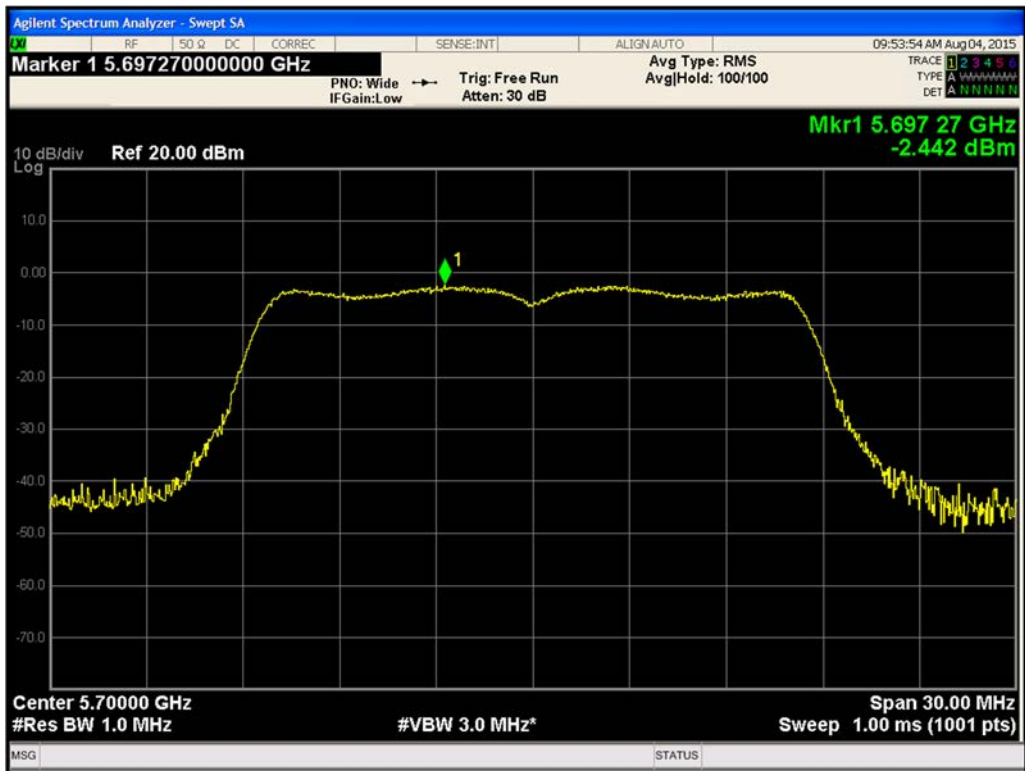


Figure 440. Maximum Power Spectral Density Chain A 802.11a (Ch. 140)

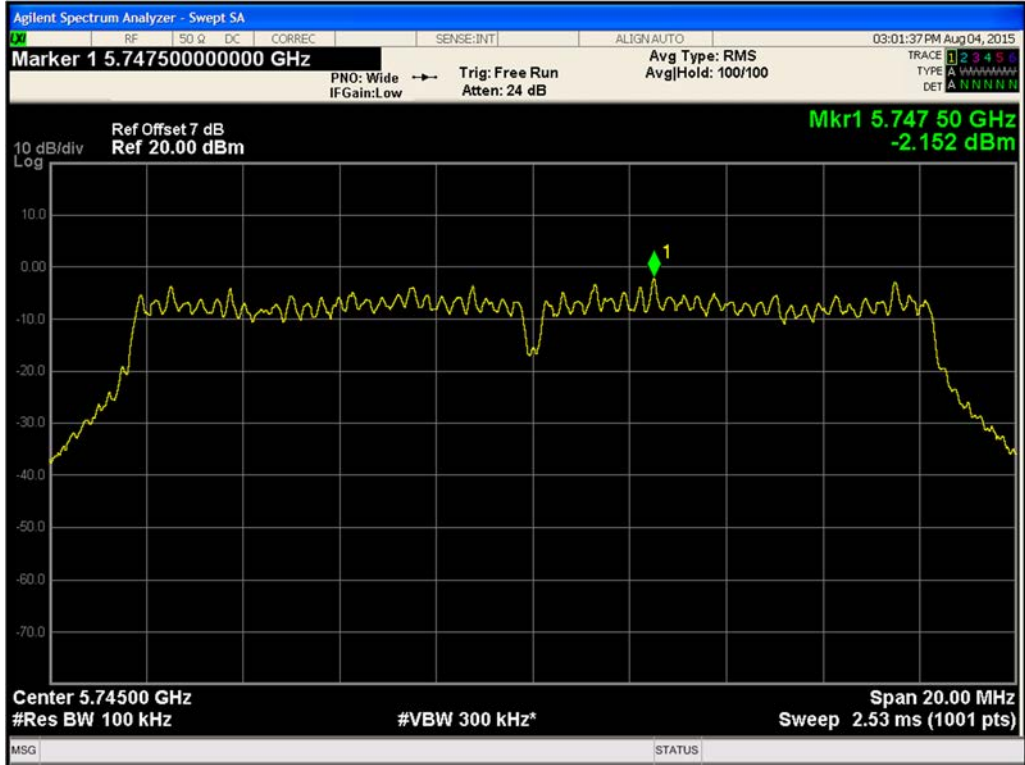


Figure 441. Maximum Power Spectral Density Chain A 802.11a (Ch. 149)

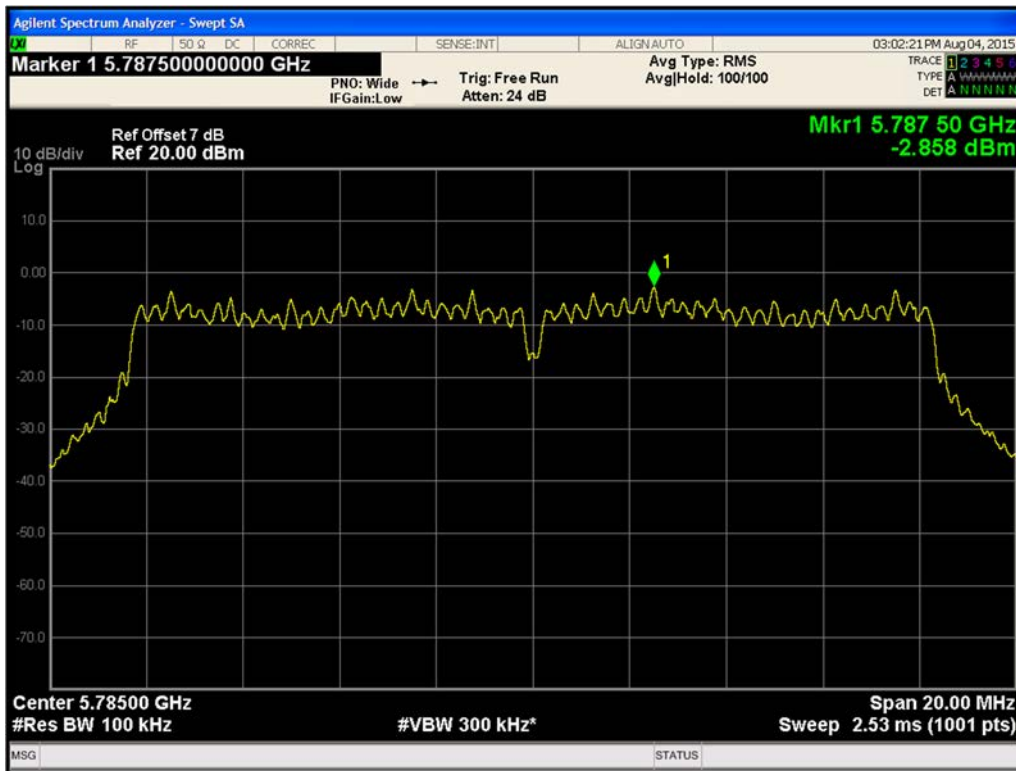


Figure 442. Maximum Power Spectral Density Chain A 802.11a (Ch. 157)

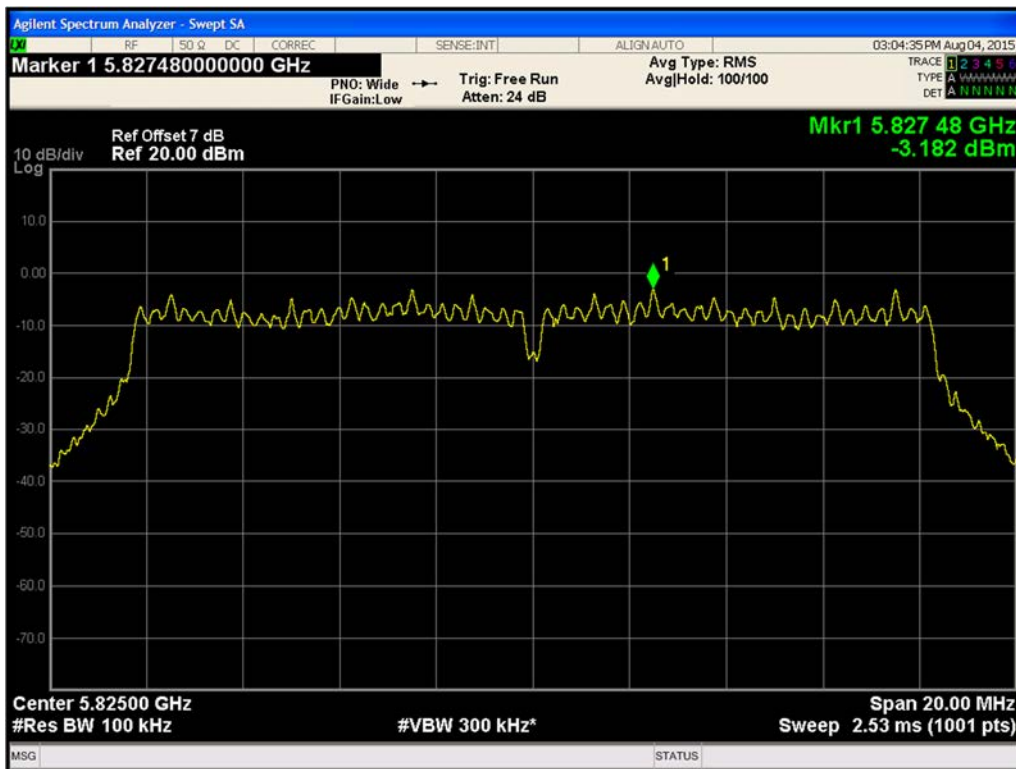


Figure 443. Maximum Power Spectral Density Chain A 802.11a (Ch. 165)

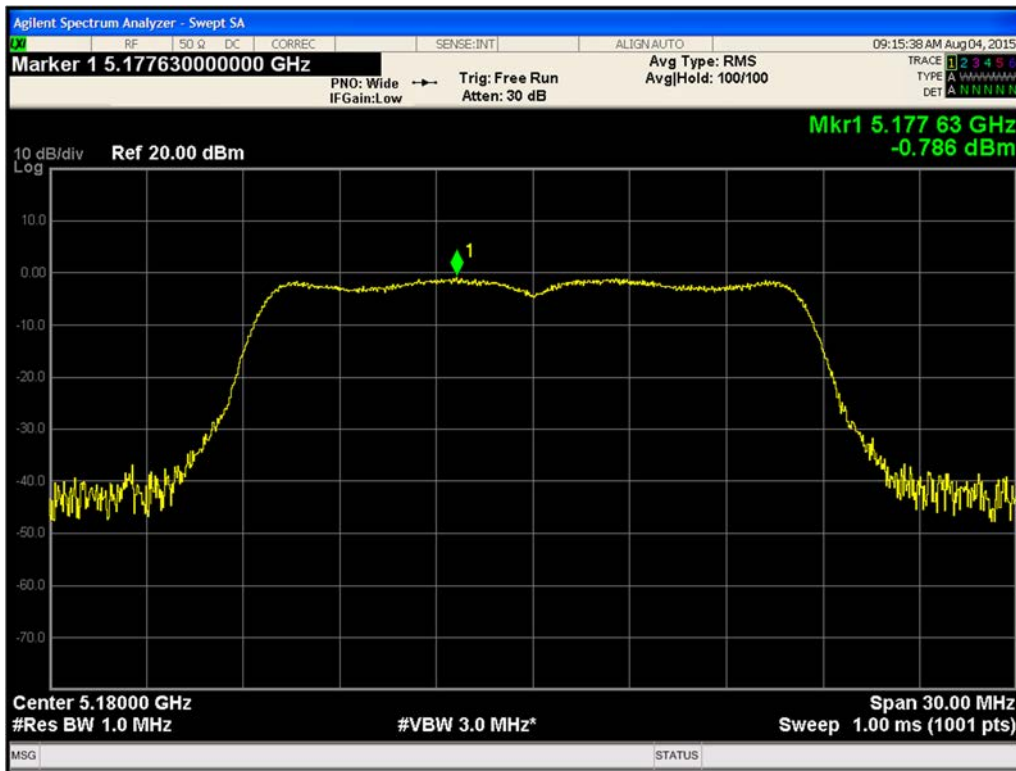


Figure 444. Maximum Power Spectral Density Chain B 802.11a (Ch. 36)

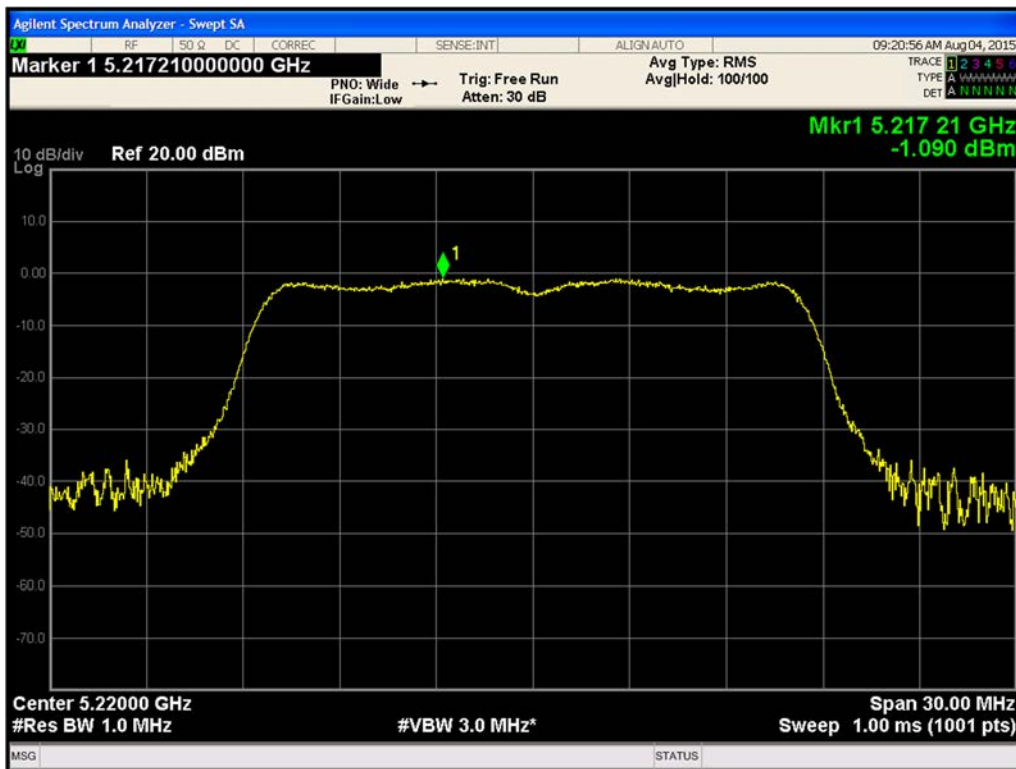


Figure 445. Maximum Power Spectral Density Chain B 802.11a (Ch. 44)

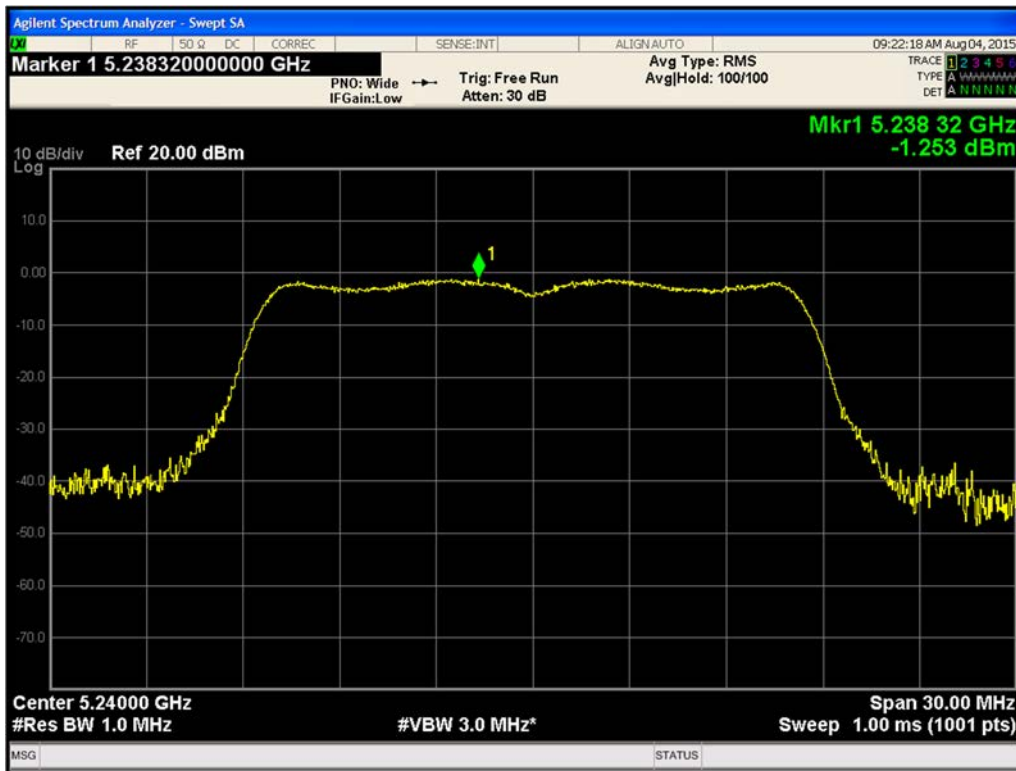


Figure 446. Maximum Power Spectral Density Chain B 802.11a (Ch. 48)

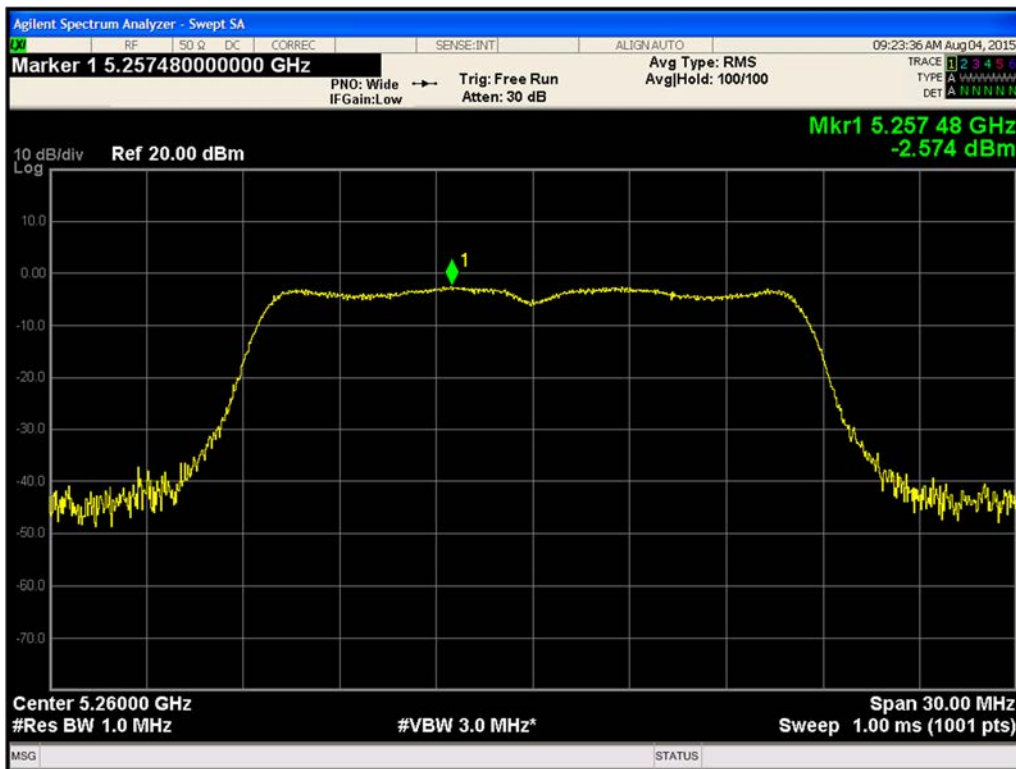


Figure 447. Maximum Power Spectral Density Chain B 802.11a (Ch. 52)



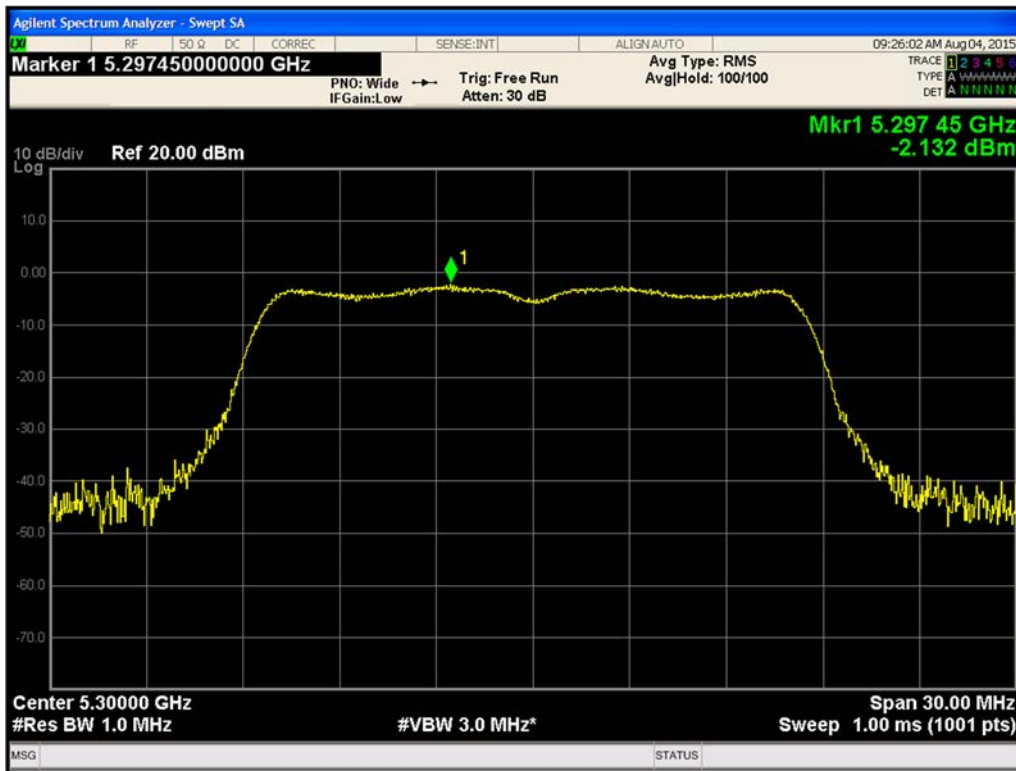


Figure 448. Maximum Power Spectral Density Chain B 802.11a (Ch. 60)

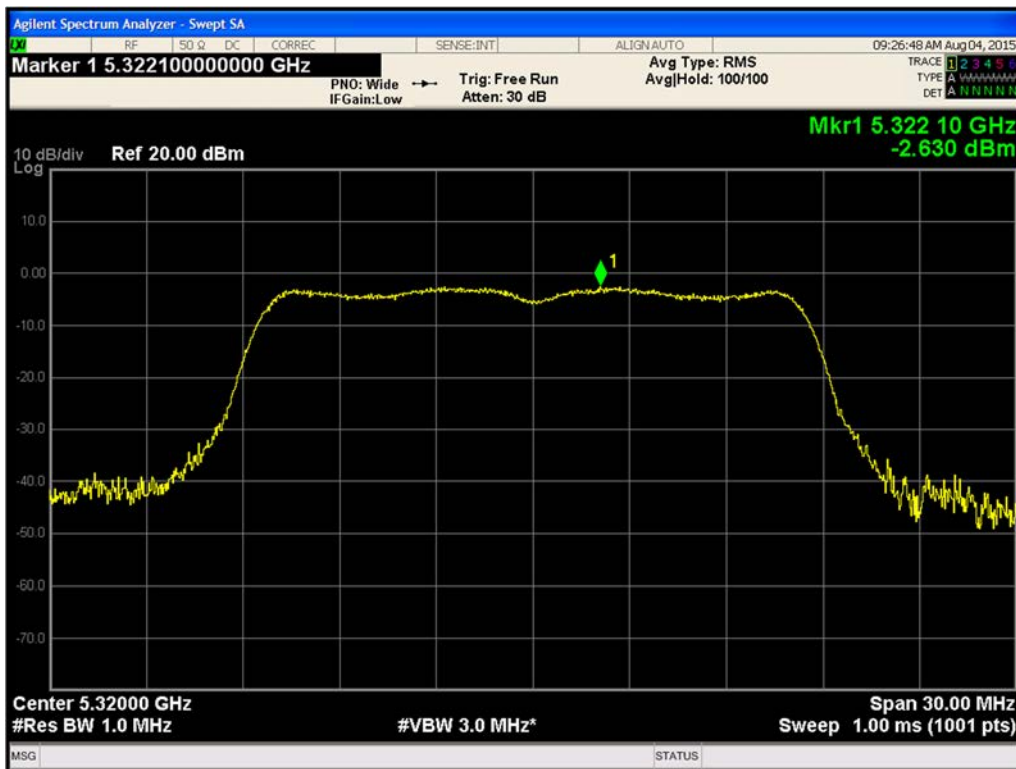


Figure 449. Maximum Power Spectral Density Chain B 802.11a (Ch. 62)

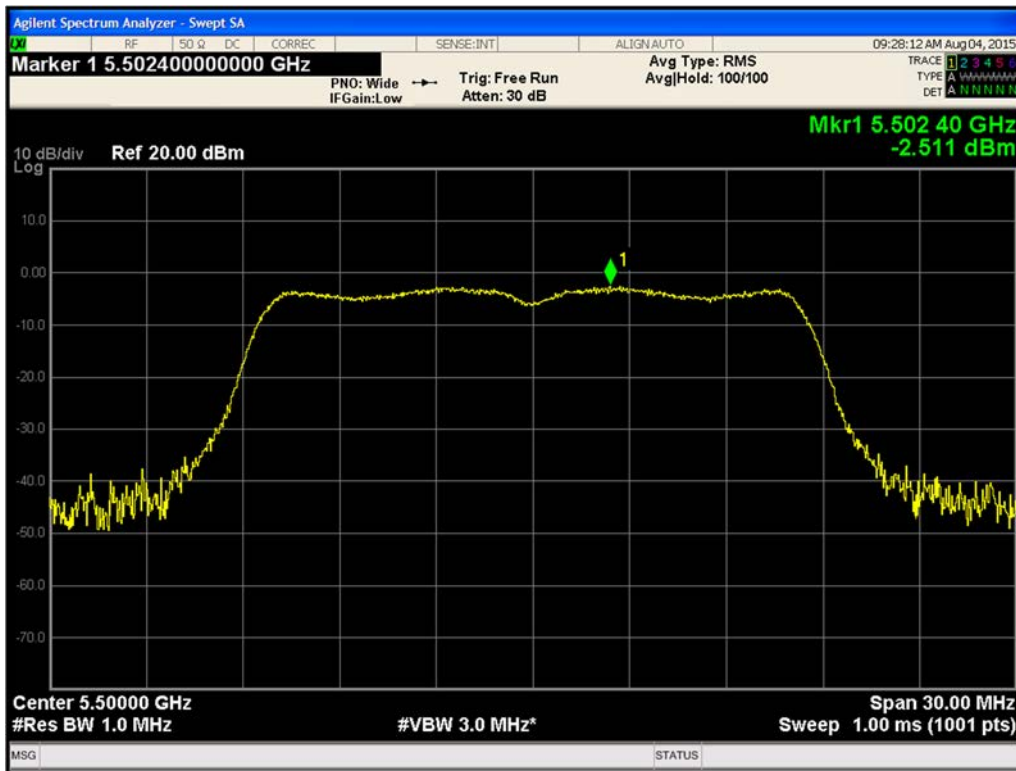


Figure 450. Maximum Power Spectral Density Chain B 802.11a (Ch. 100)

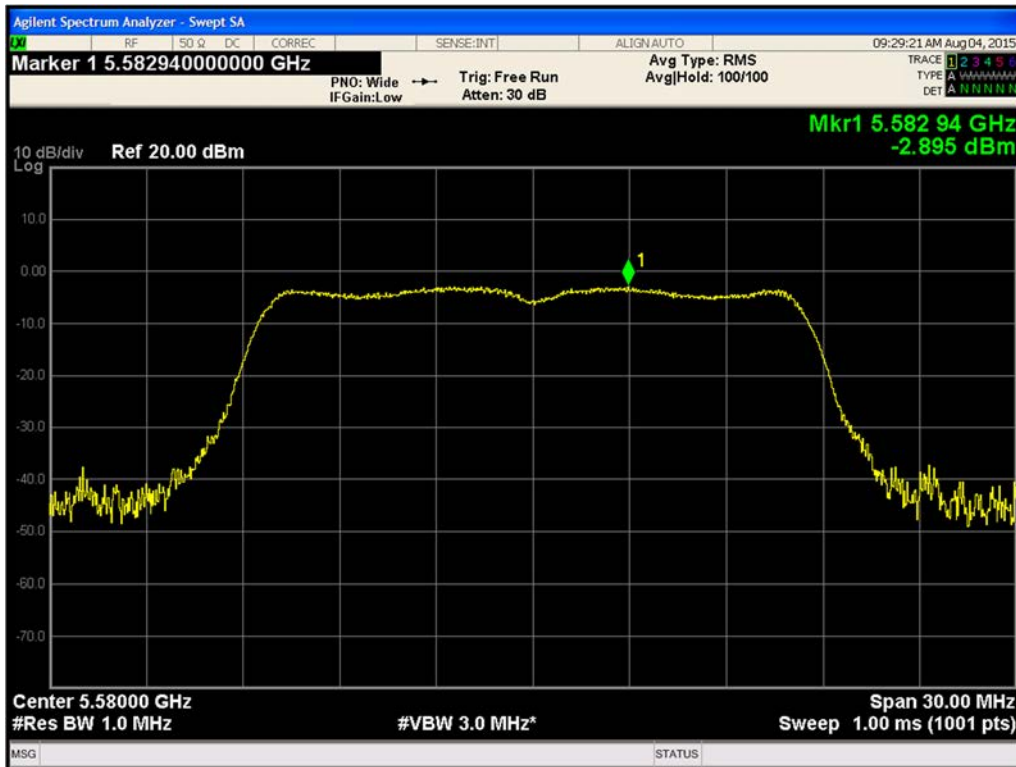


Figure 451. Maximum Power Spectral Density Chain B 802.11a (Ch. 116)

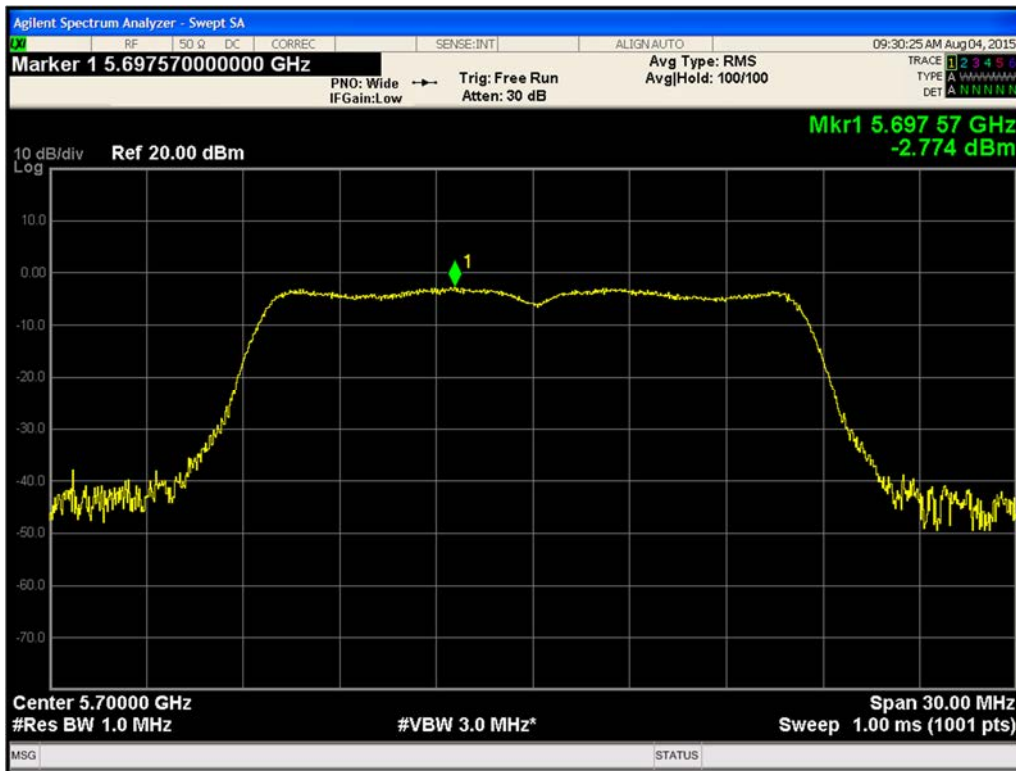


Figure 452. Maximum Power Spectral Density Chain B 802.11a (Ch. 140)

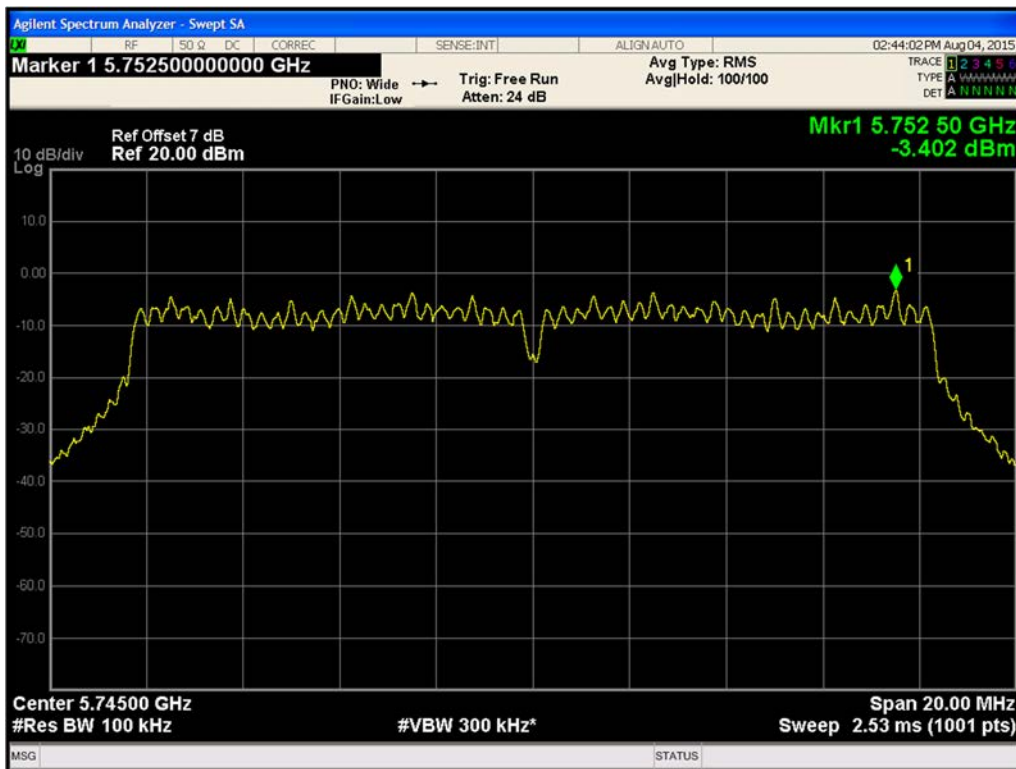


Figure 453. Maximum Power Spectral Density Chain B 802.11a (Ch. 149)

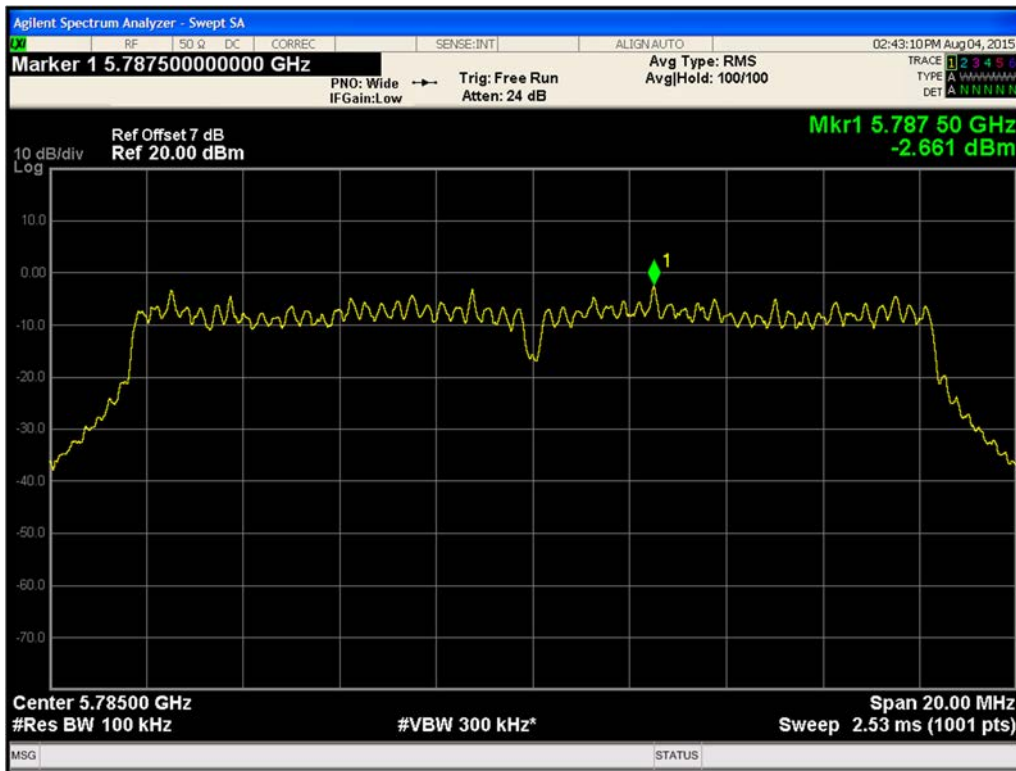


Figure 454. Maximum Power Spectral Density Chain B 802.11a (Ch. 157)

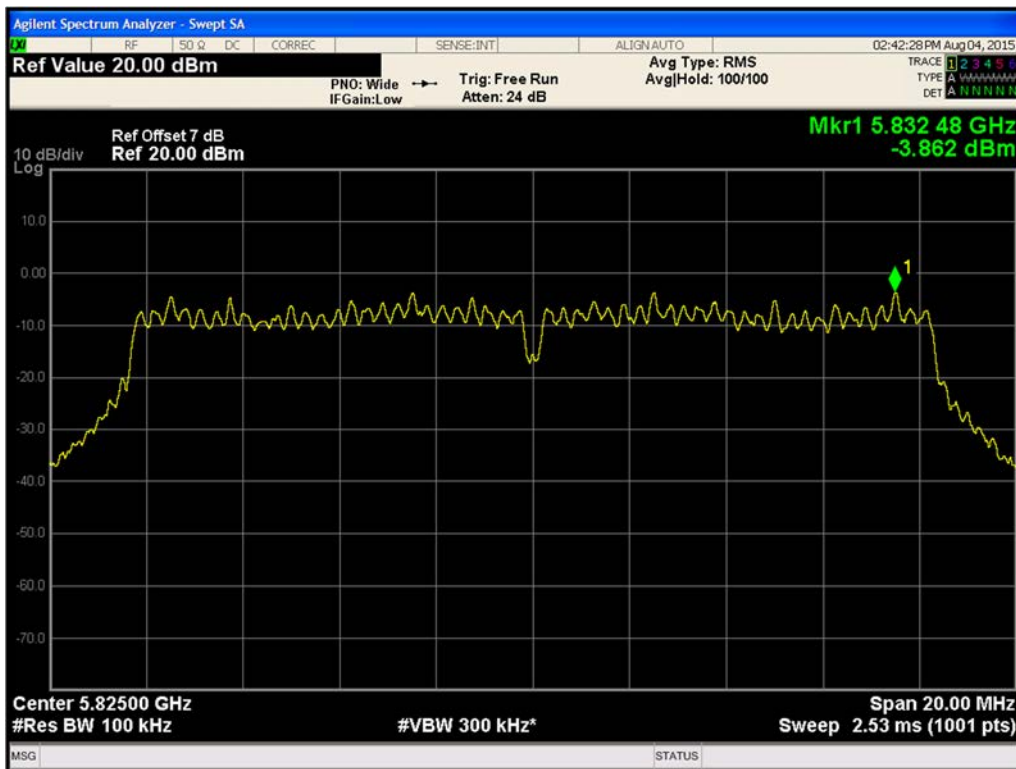


Figure 455. Maximum Power Spectral Density Chain B 802.11a (Ch. 165)