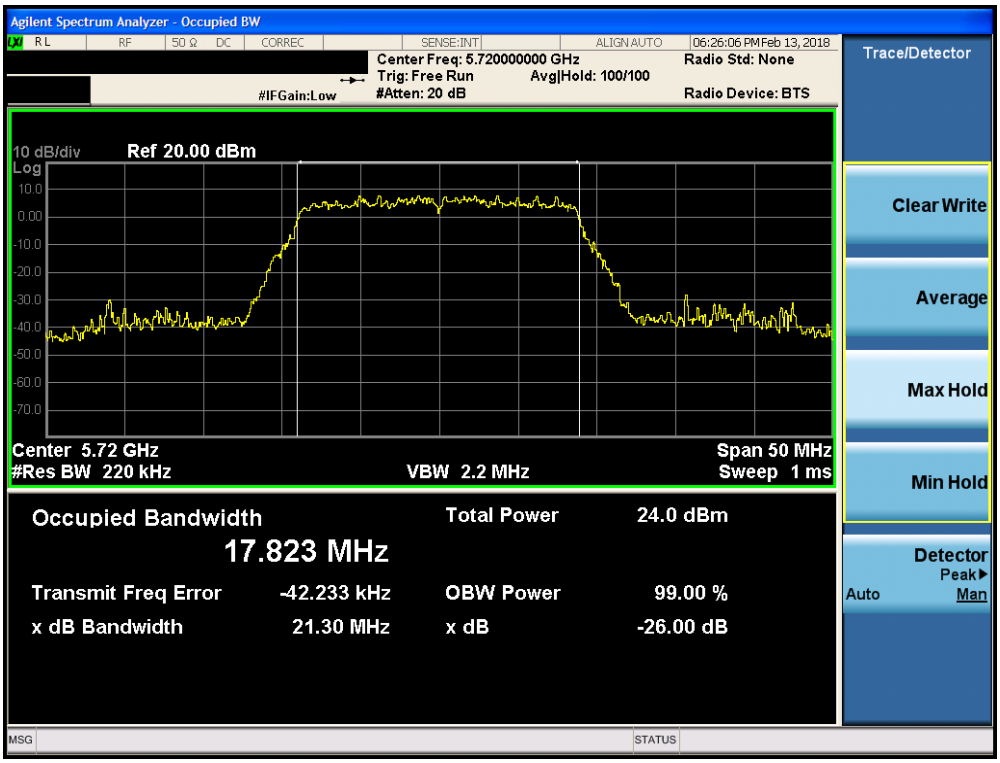
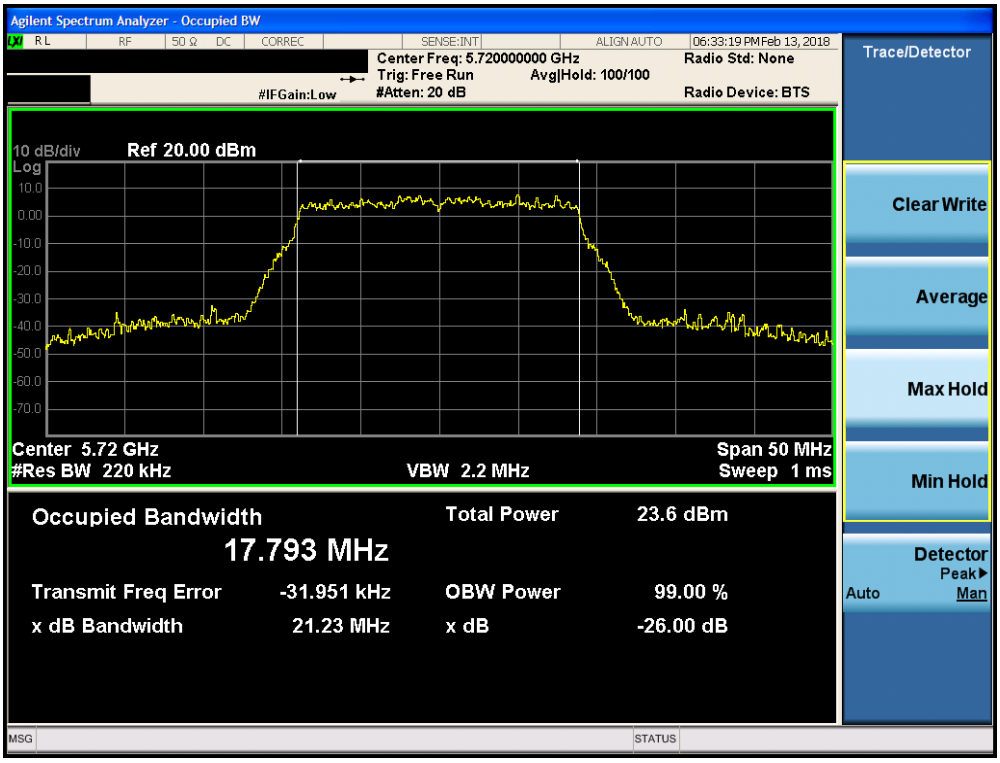
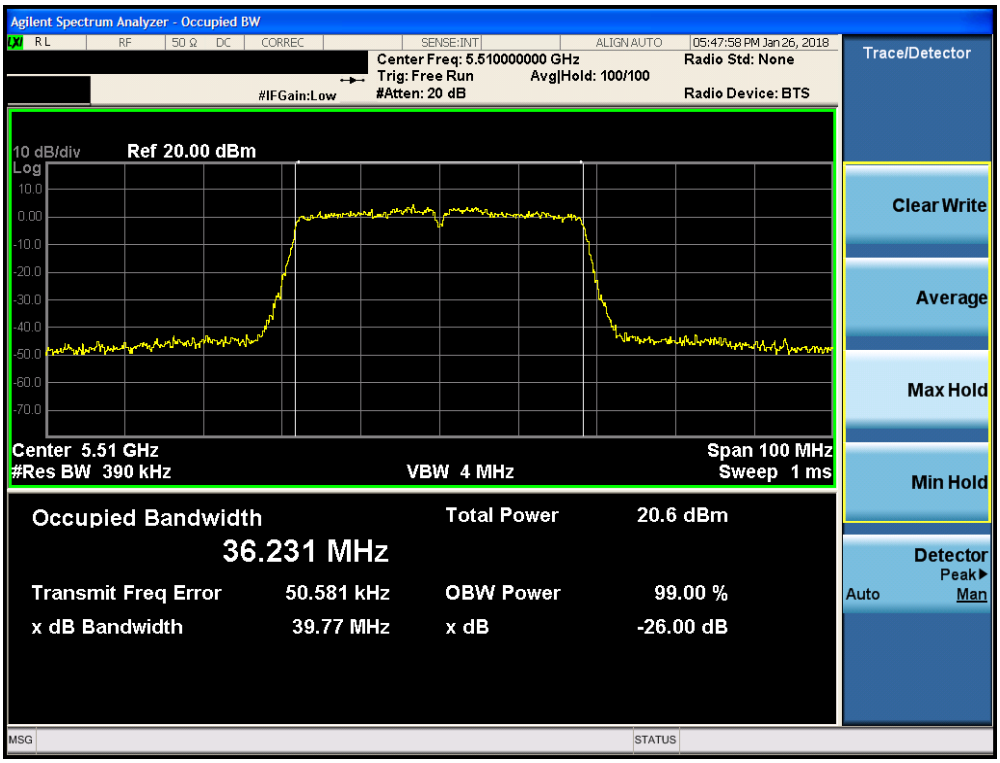


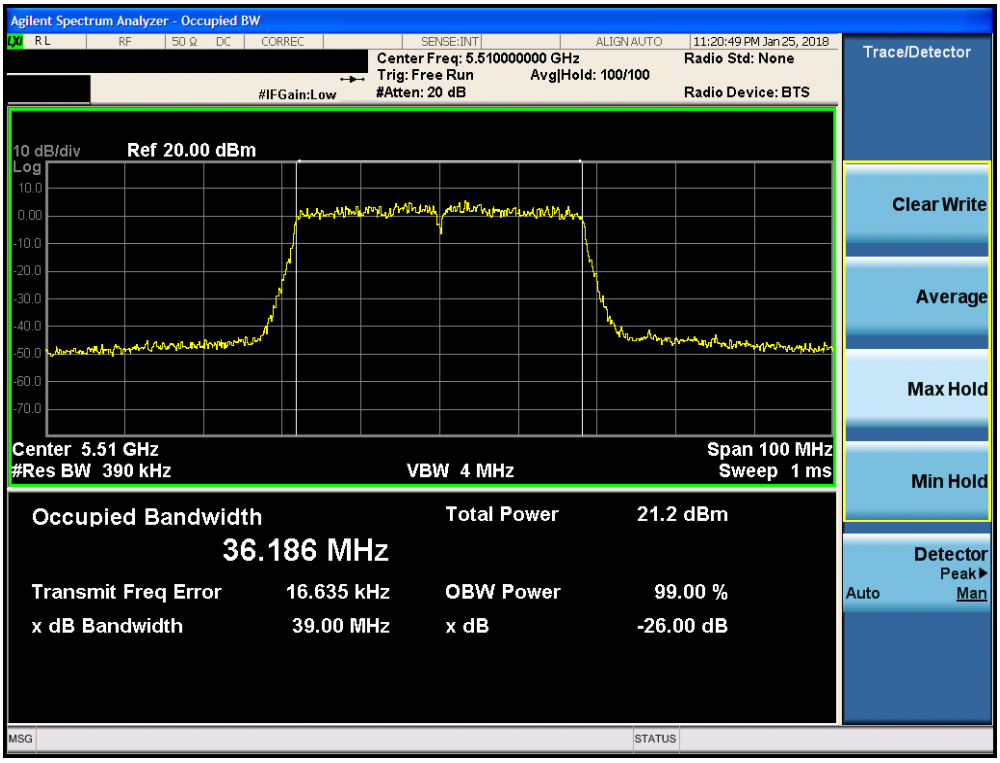
Plot 7-89. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)



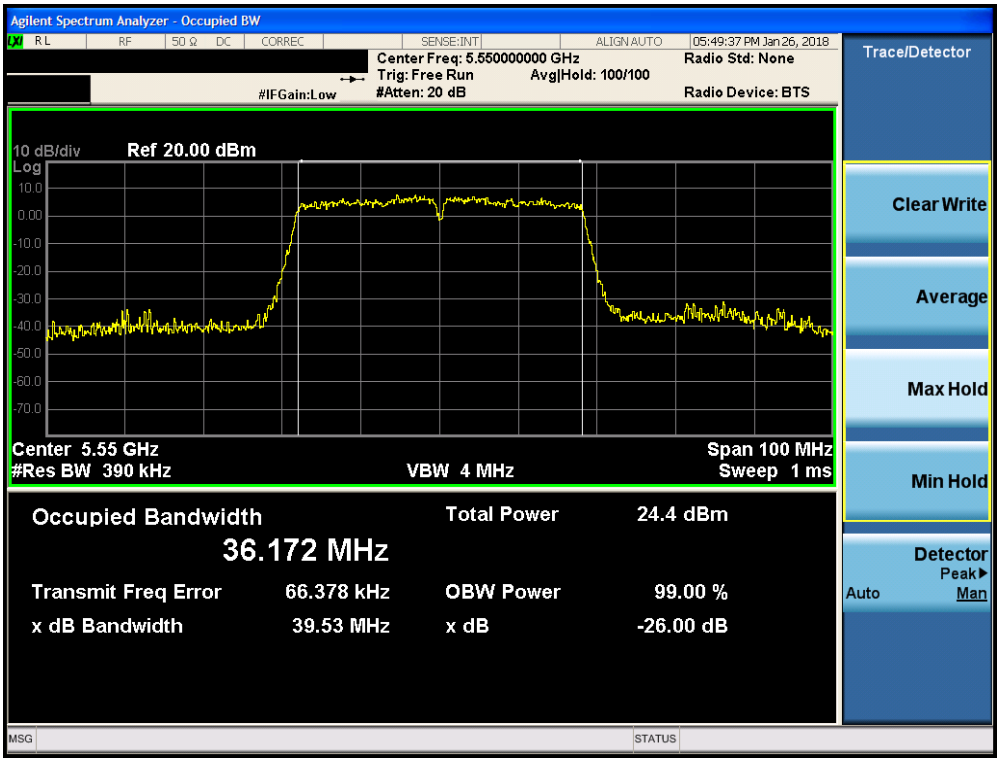
Plot 7-90. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)



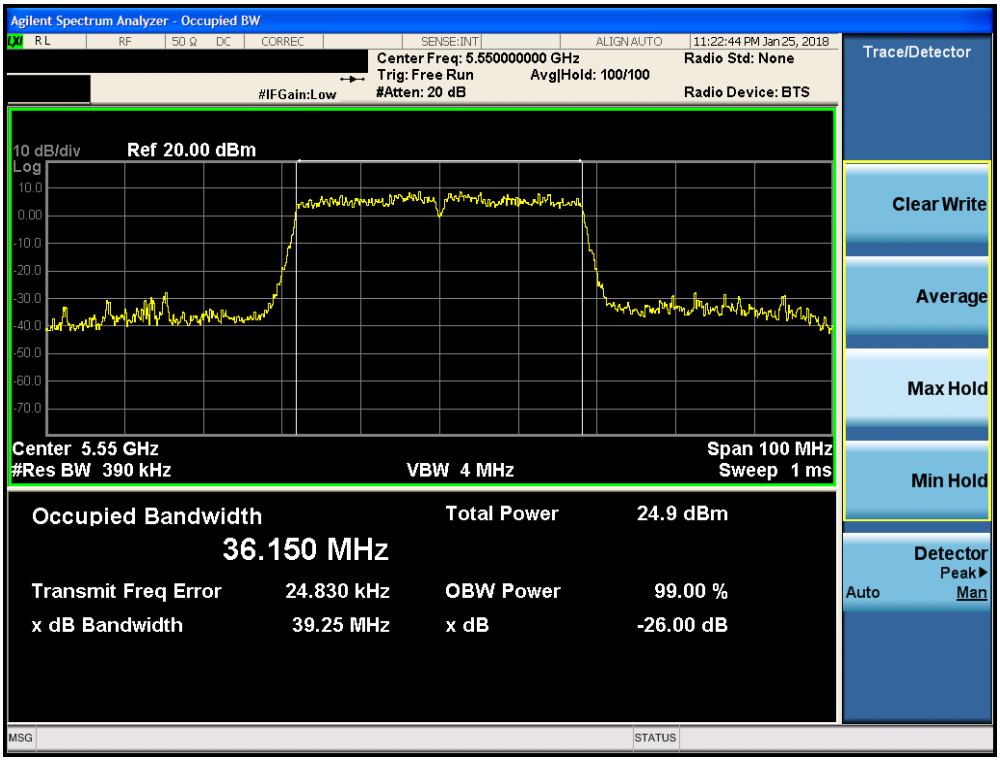
Plot 7-91. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)



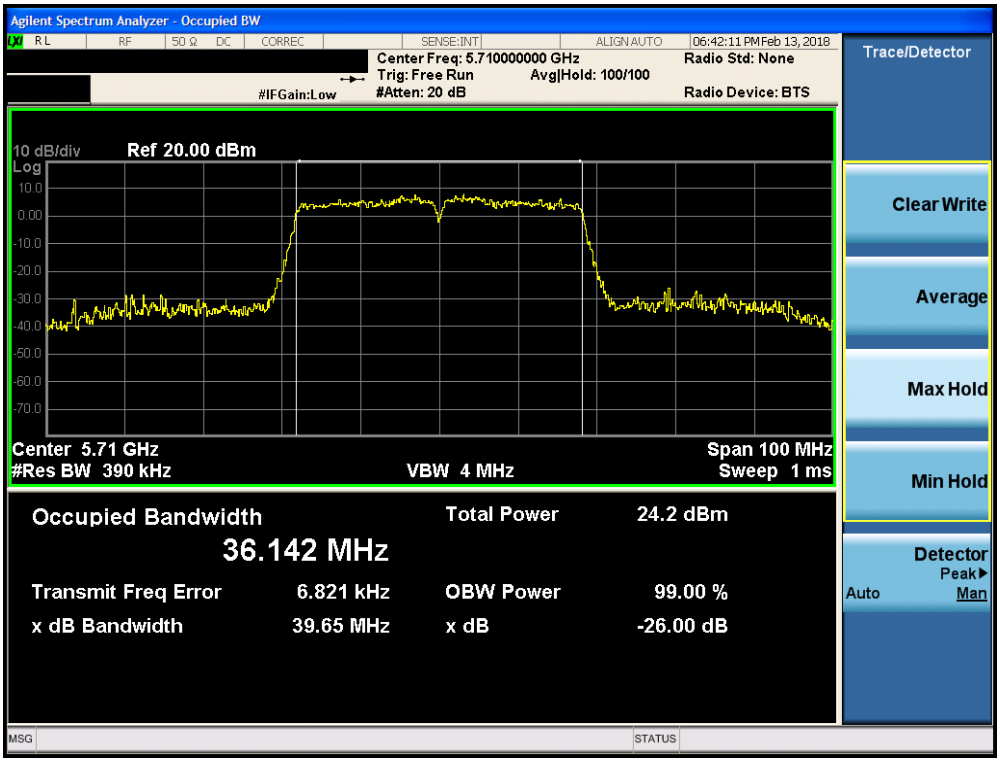
Plot 7-92. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)



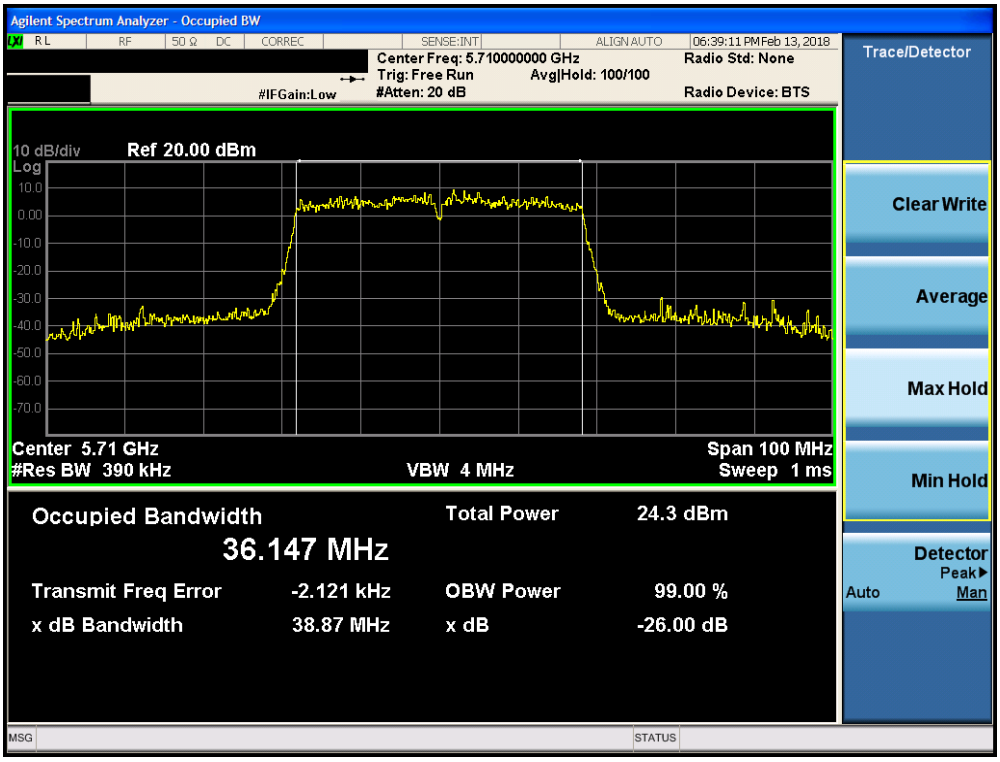
Plot 7-93. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)



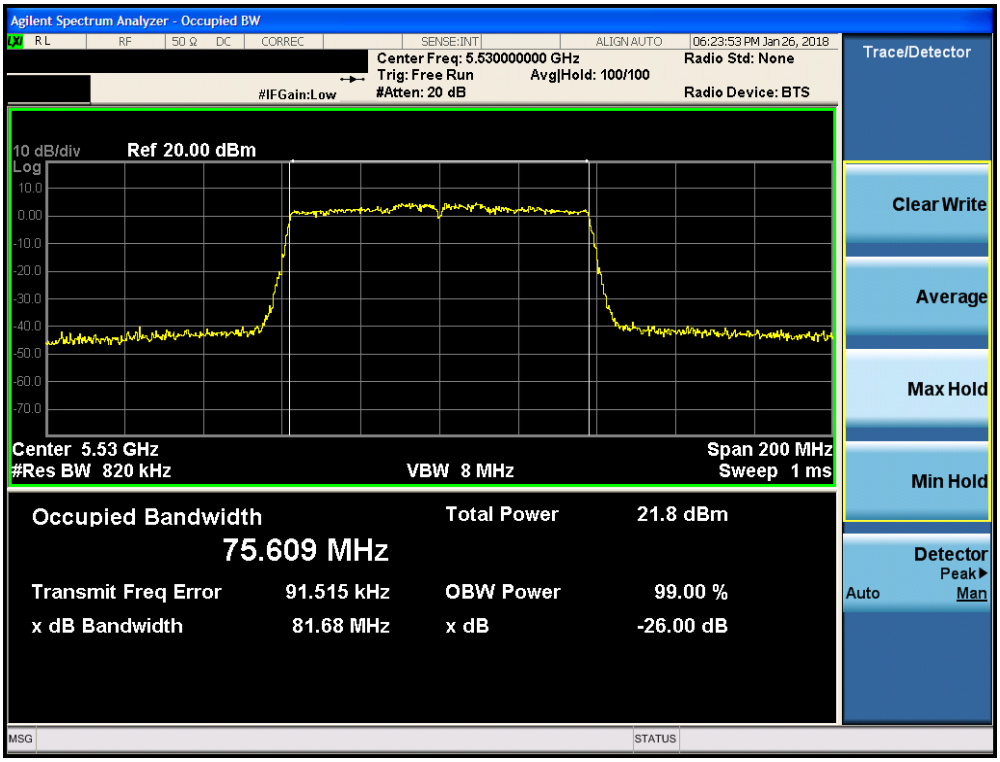
Plot 7-94. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)



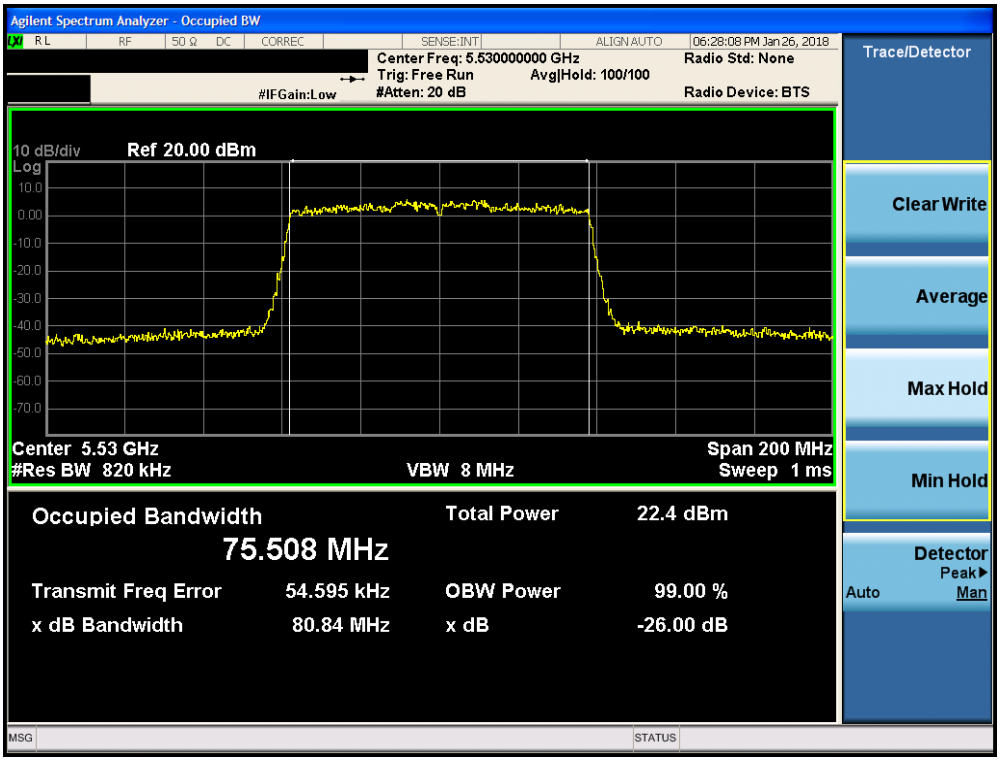
Plot 7-95. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)



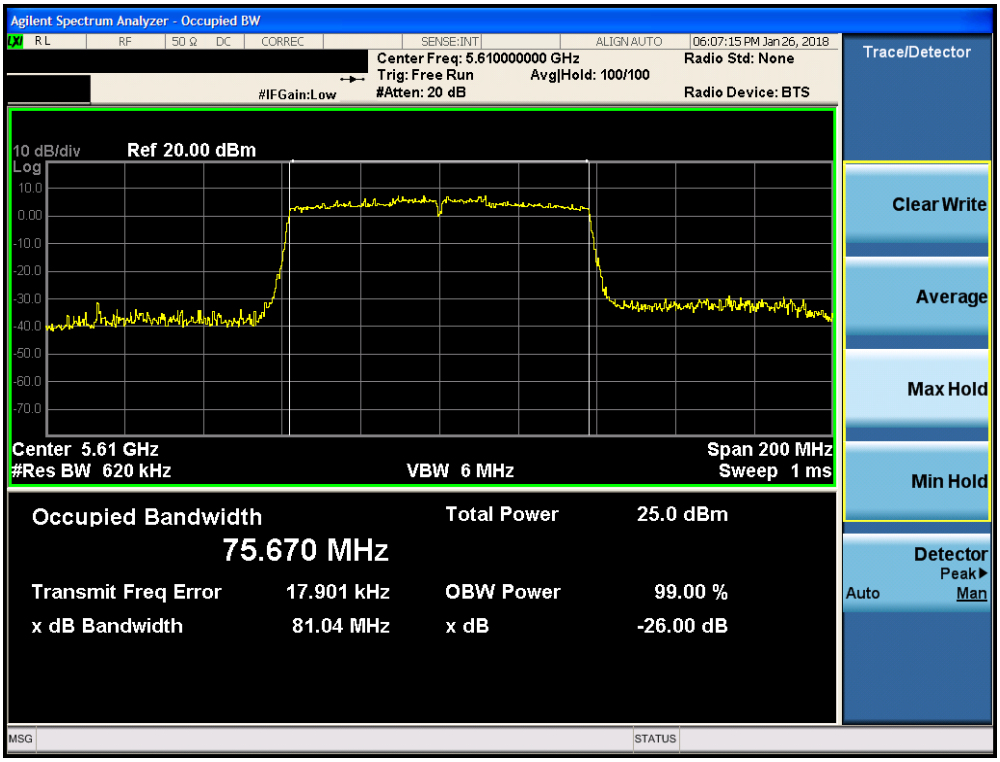
Plot 7-96. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)



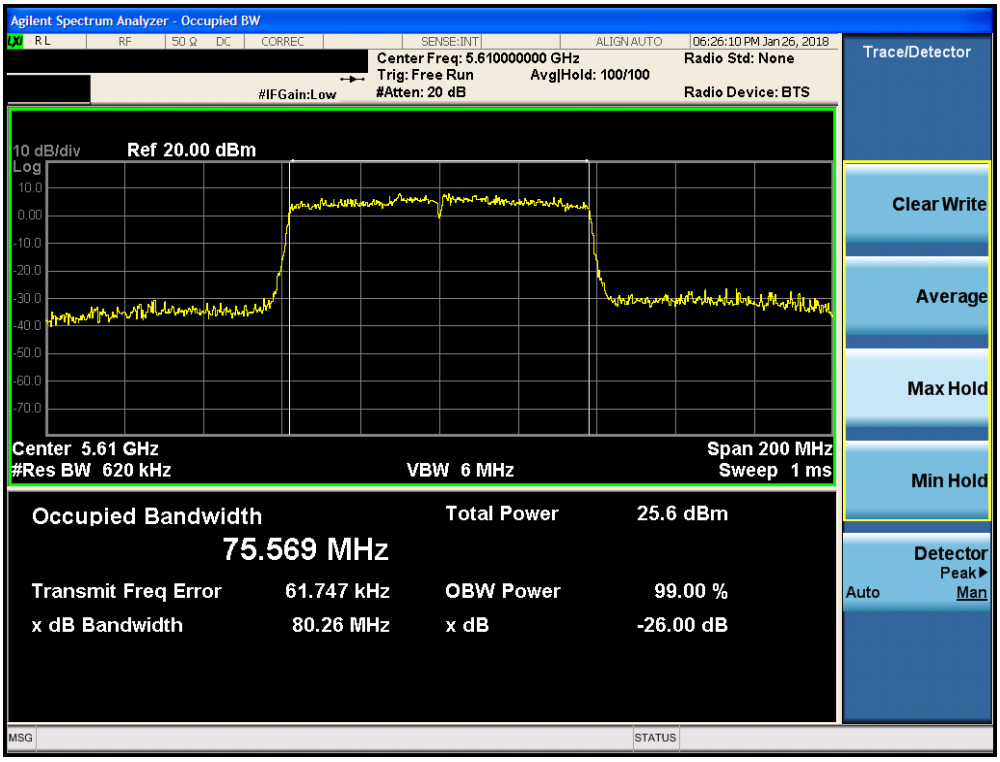
Plot 7-97. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)



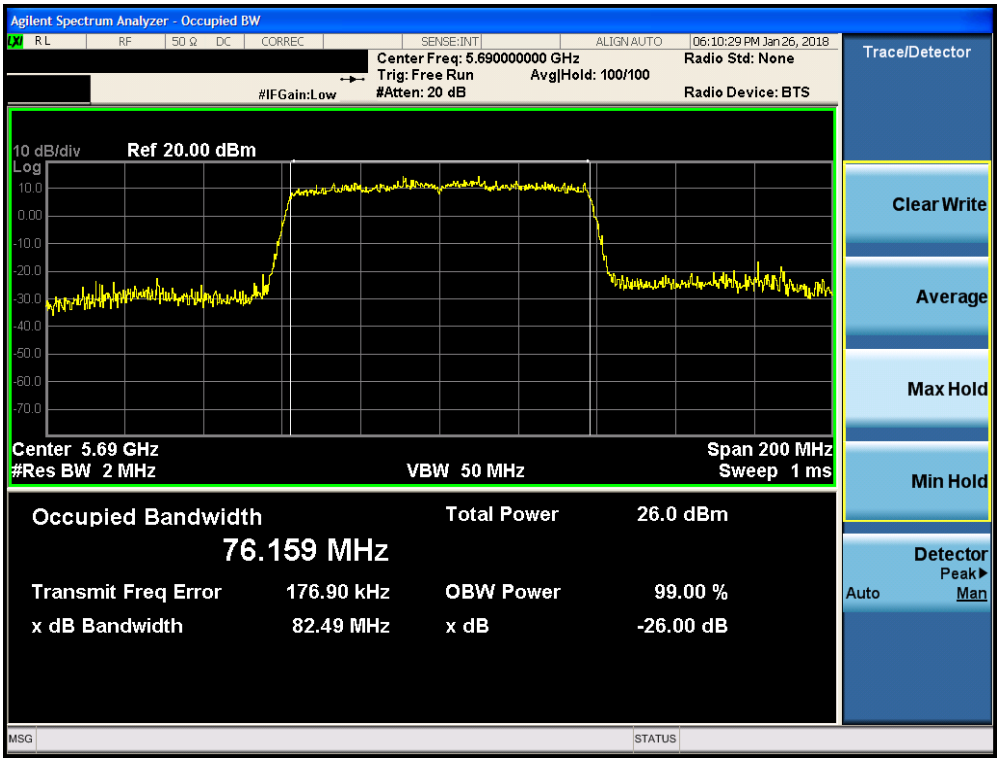
Plot 7-98. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)



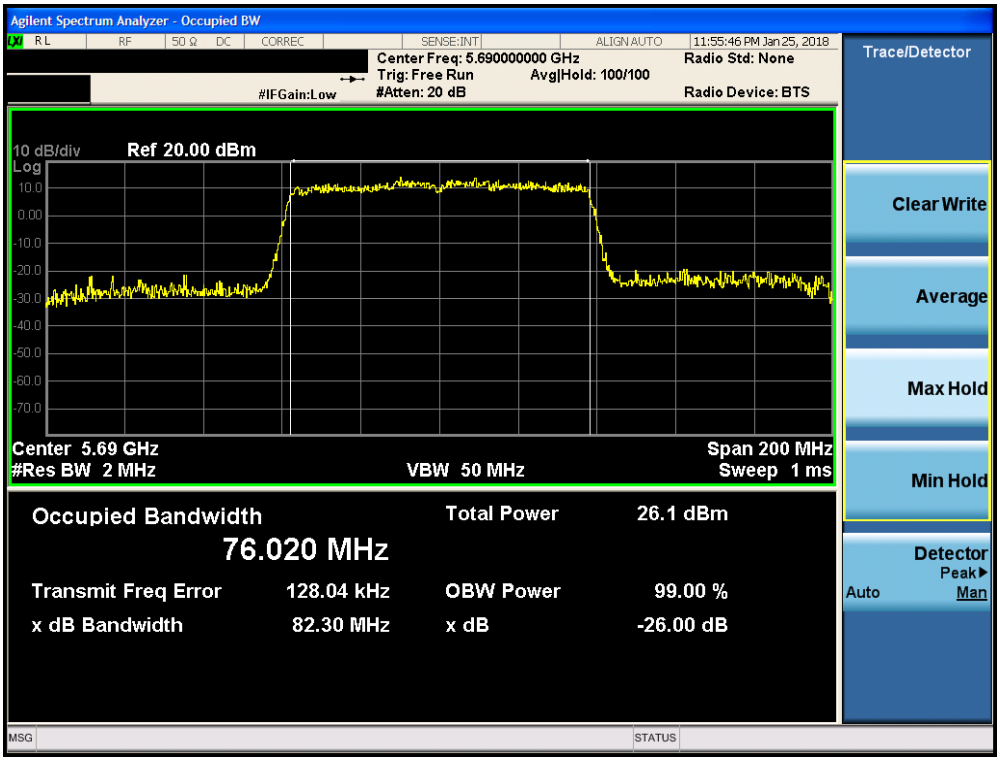
Plot 7-99. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)



Plot 7-100. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)



Plot 7-101. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)



Plot 7-102. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

7.3 6dB Bandwidth Measurement – 802.11a/n/ac

§15.407 (e); RSS-Gen [6.2]

Test Overview and Limit

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 6dB bandwidth.

In the 5.725 – 5.850GHz band, the 6dB *bandwidth must be ≥ 500 kHz.*

Test Procedure Used

ANSI C63.10-2013 – Section 6.9.2
KDB 789033 D02 v02r01 – Section C

Test Settings

1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 100 kHz
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

Figure 7-2. Test Instrument & Measurement Setup

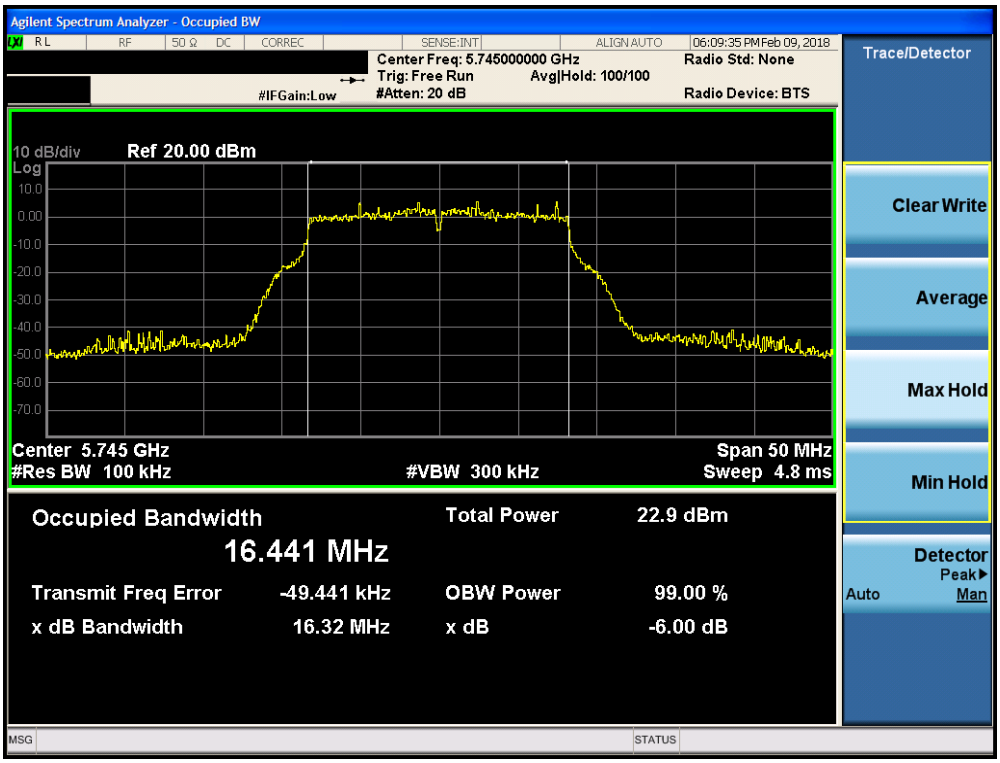
Test Notes

None.

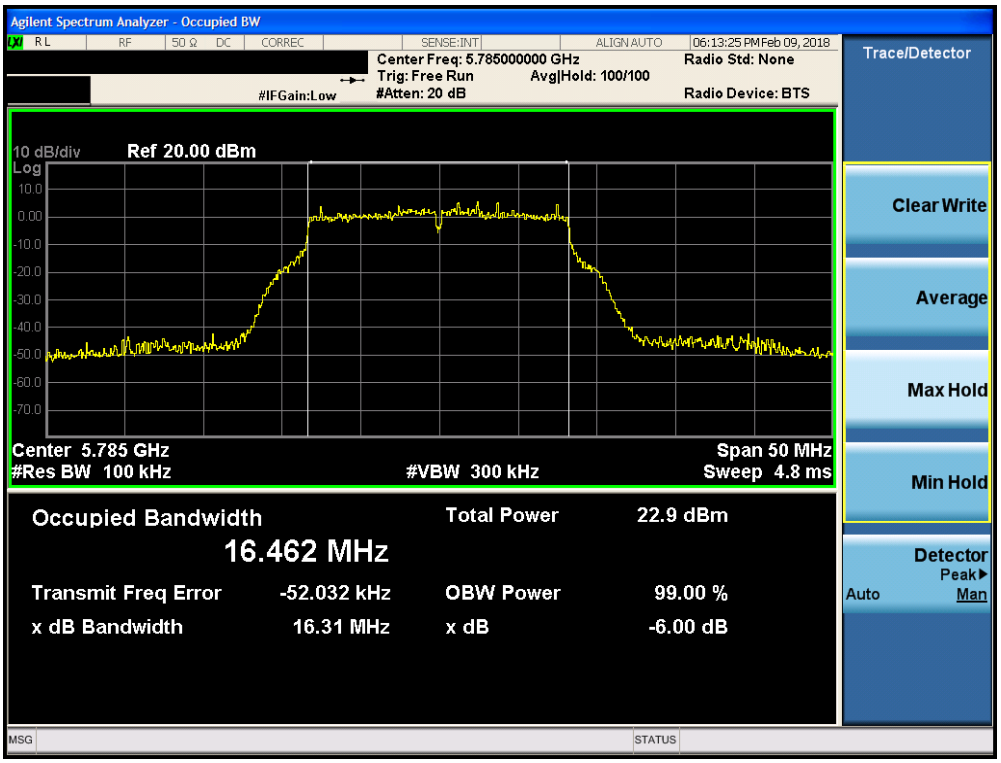
SISO Antenna-1 6 dB Bandwidth Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3	5745	149	a	6	16.32
	5785	157	a	6	16.31
	5825	165	a	6	16.33
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	17.56
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	17.17
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	17.52
	5755	151	n (40MHz)	13.5/15 (MCS0)	35.68
	5795	159	n (40MHz)	13.5/15 (MCS0)	35.53
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	75.49

Table 7-5. Conducted Bandwidth Measurements SISO ANT1

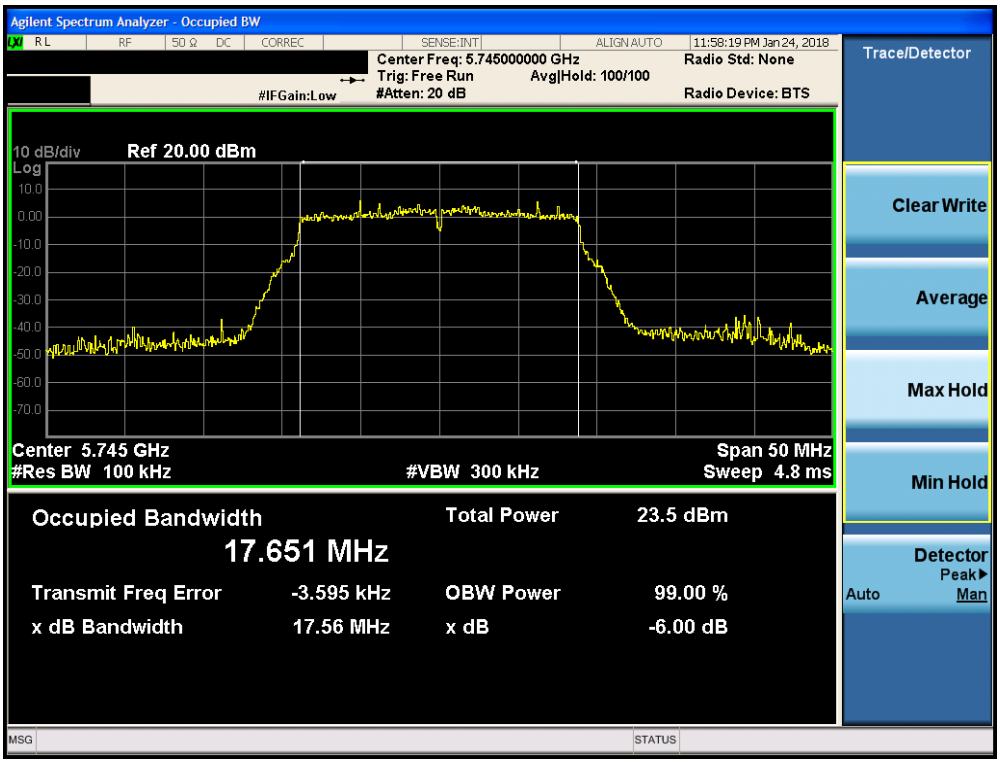


Plot 7-103. 6dB Bandwidth Plot FCC SISO ANT1 (802.11a (UNII Band 3) – Ch. 149)

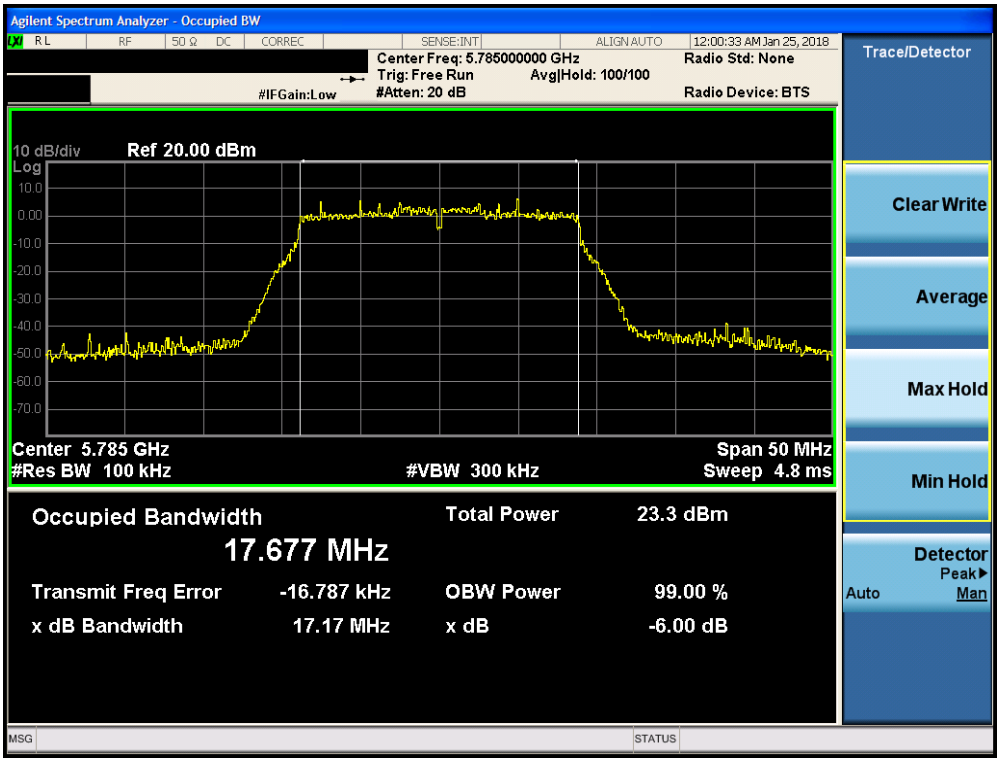


Plot 7-104. 6dB Bandwidth Plot FCC SISO ANT1 (802.11a (UNII Band 3) – Ch. 157)

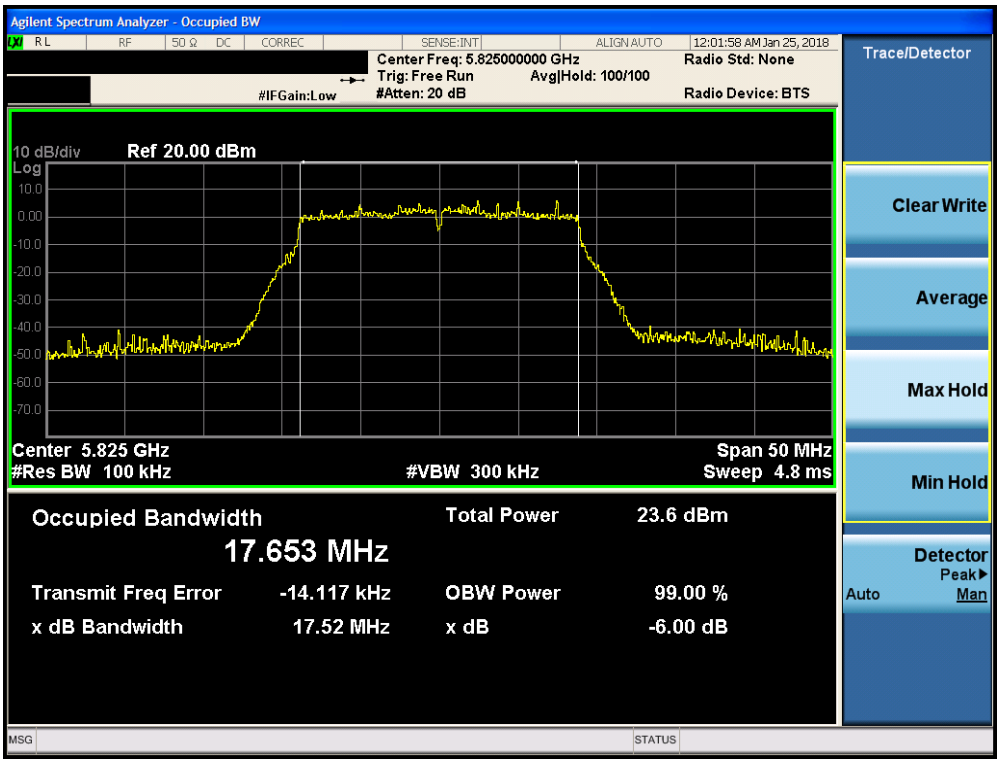
Plot 7-105. 6dB Bandwidth Plot FCC SISO ANT1 (802.11a (UNII Band 3) – Ch. 165)



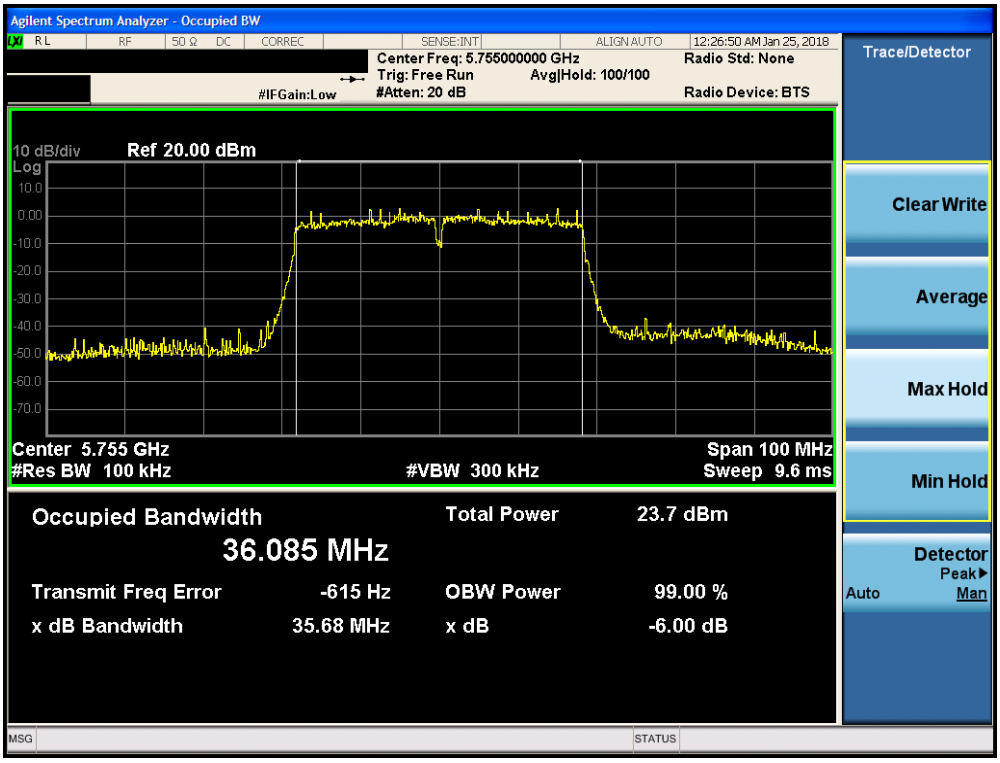
Plot 7-106. 6dB Bandwidth Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



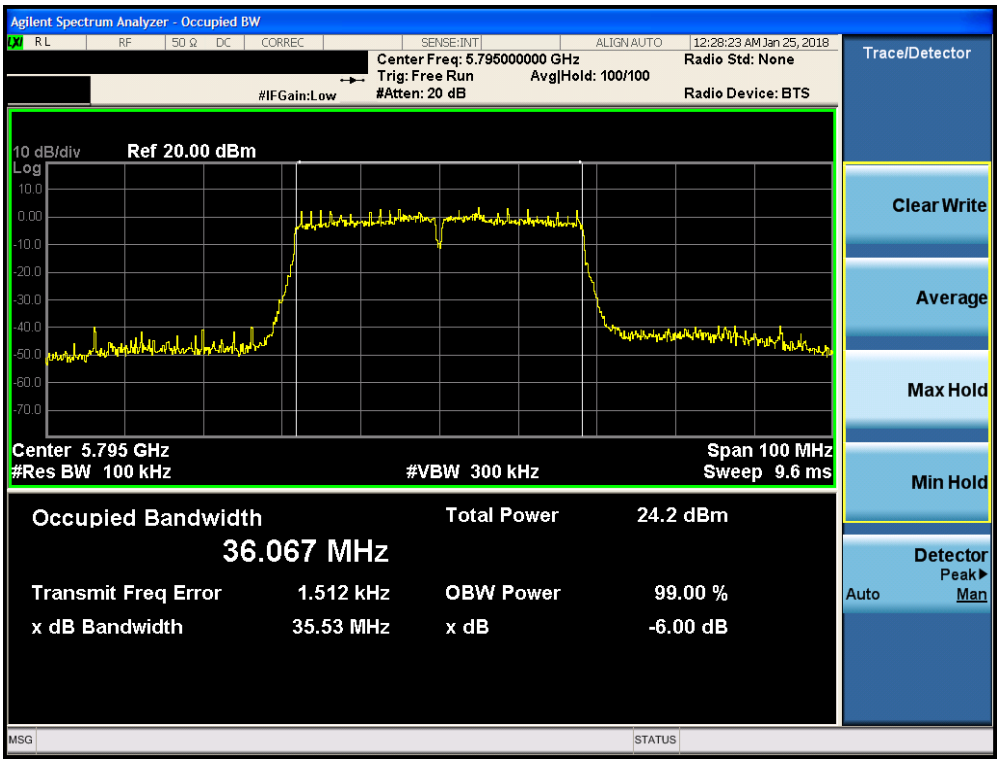
Plot 7-107. 6dB Bandwidth Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)



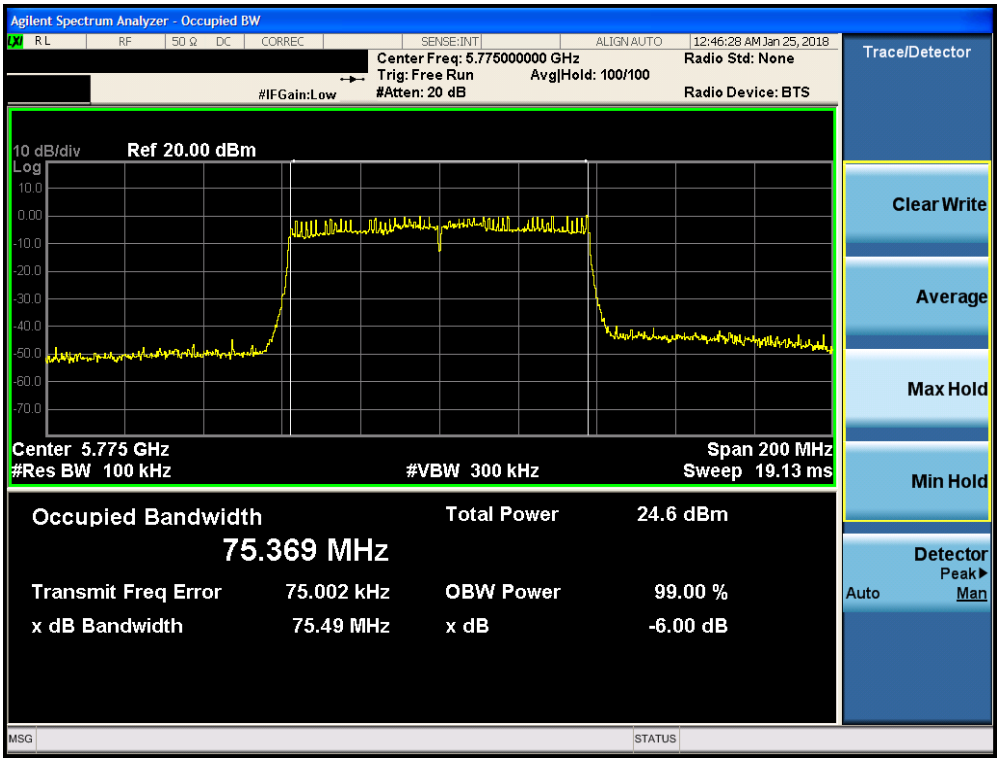
Plot 7-108. 6dB Bandwidth Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)



Plot 7-109. 6dB Bandwidth Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)



Plot 7-110. 6dB Bandwidth Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



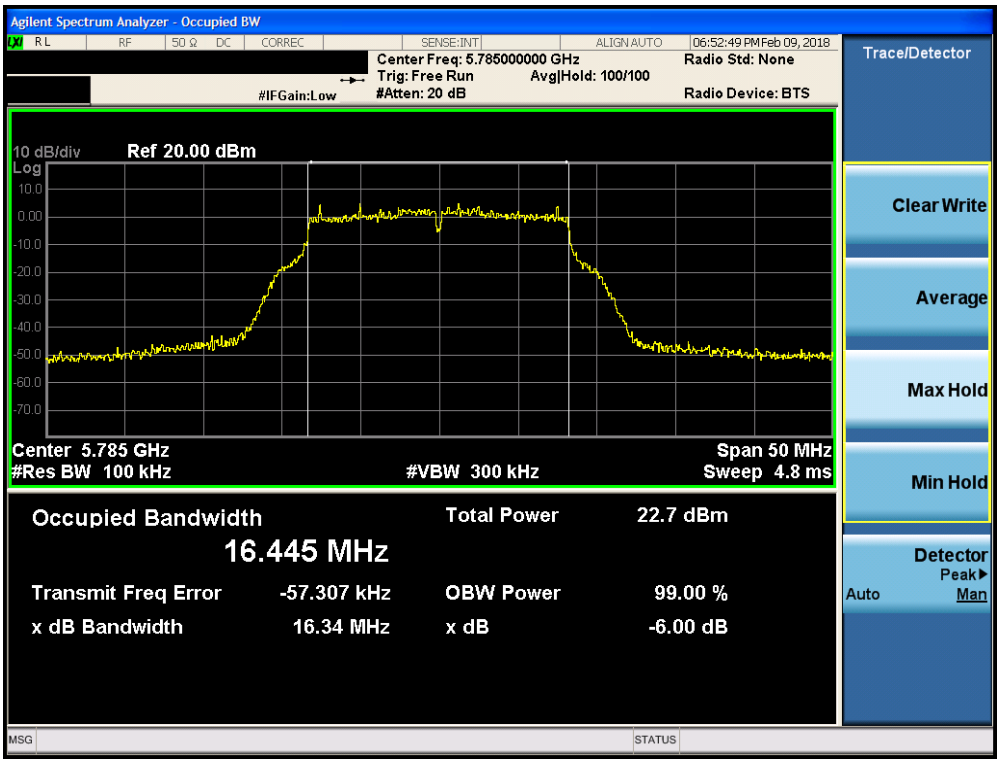
Plot 7-111. 6dB Bandwidth Plot FCC SISO ANT1 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

SISO Antenna-2 6dB Bandwidth Measurements

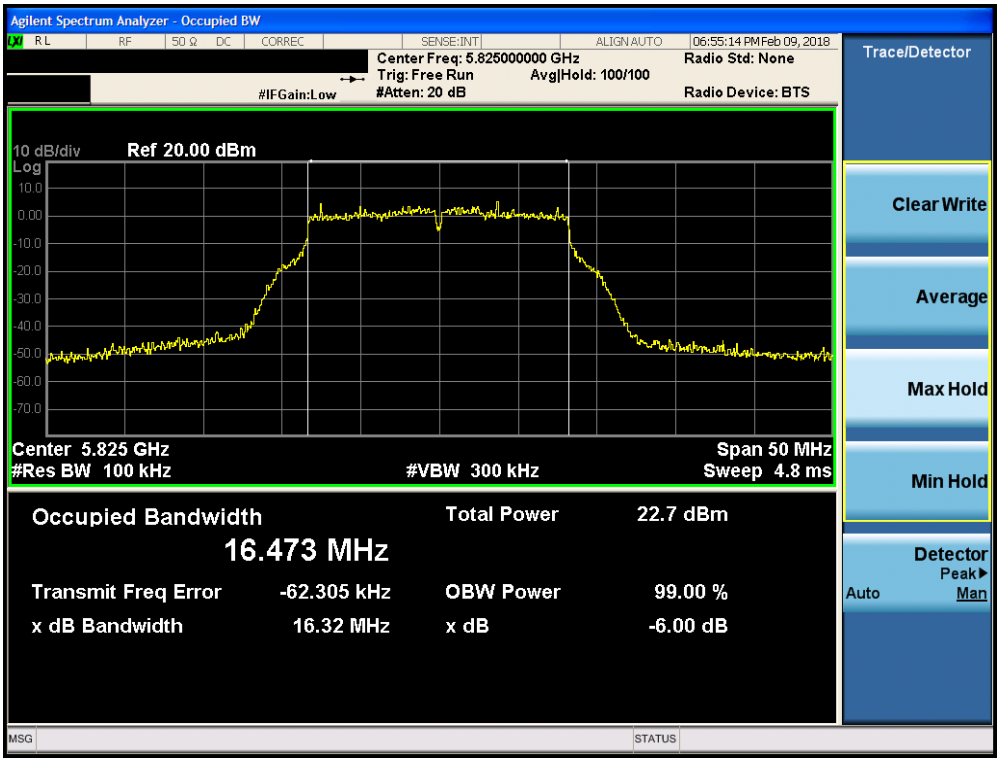
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3	5745	149	a	6	16.09
	5785	157	a	6	16.34
	5825	165	a	6	16.32
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	17.57
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	17.19
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	17.03
	5755	151	n (40MHz)	13.5/15 (MCS0)	35.82
	5795	159	n (40MHz)	13.5/15 (MCS0)	35.58
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	75.72

Table 7-6. Conducted Bandwidth Measurements SISO ANT2

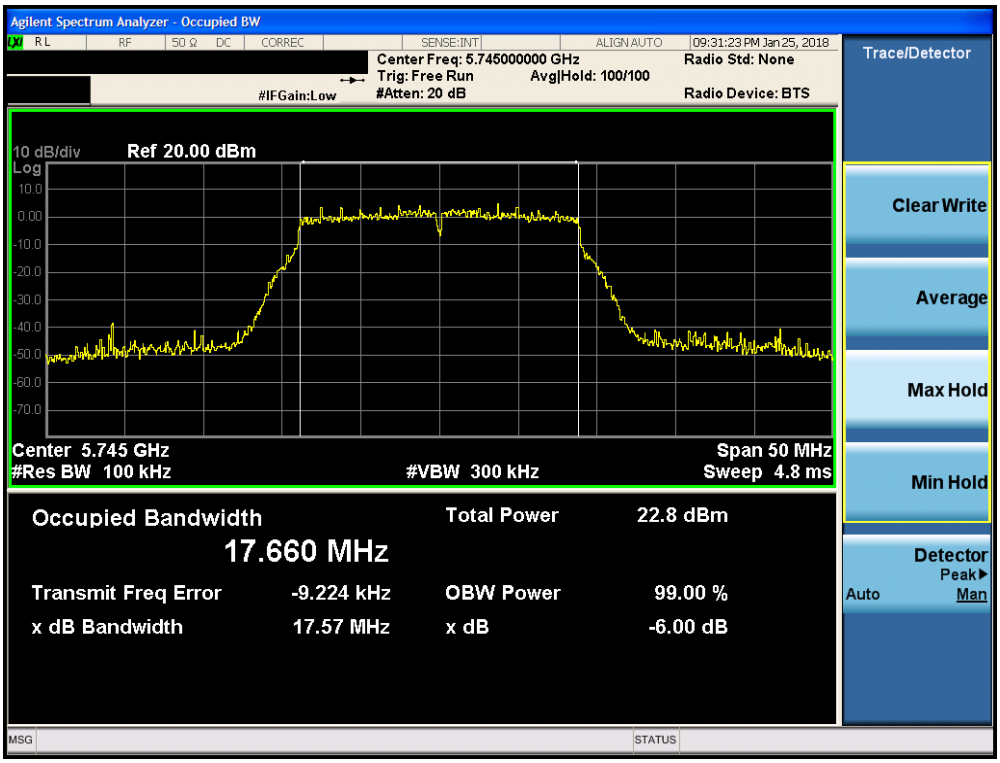
Plot 7-112. 6dB Bandwidth Plot FCC SISO ANT2 (802.11a (UNII Band 3) – Ch. 149)



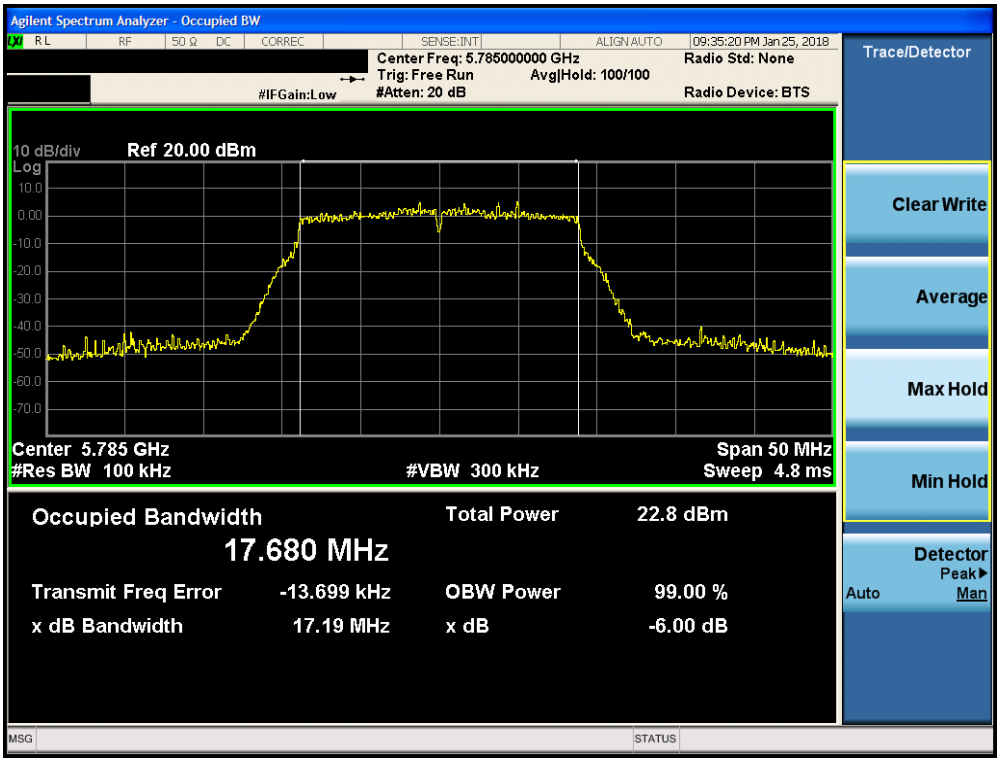
Plot 7-113. 6dB Bandwidth Plot FCC SISO ANT2 (802.11a (UNII Band 3) – Ch. 157)



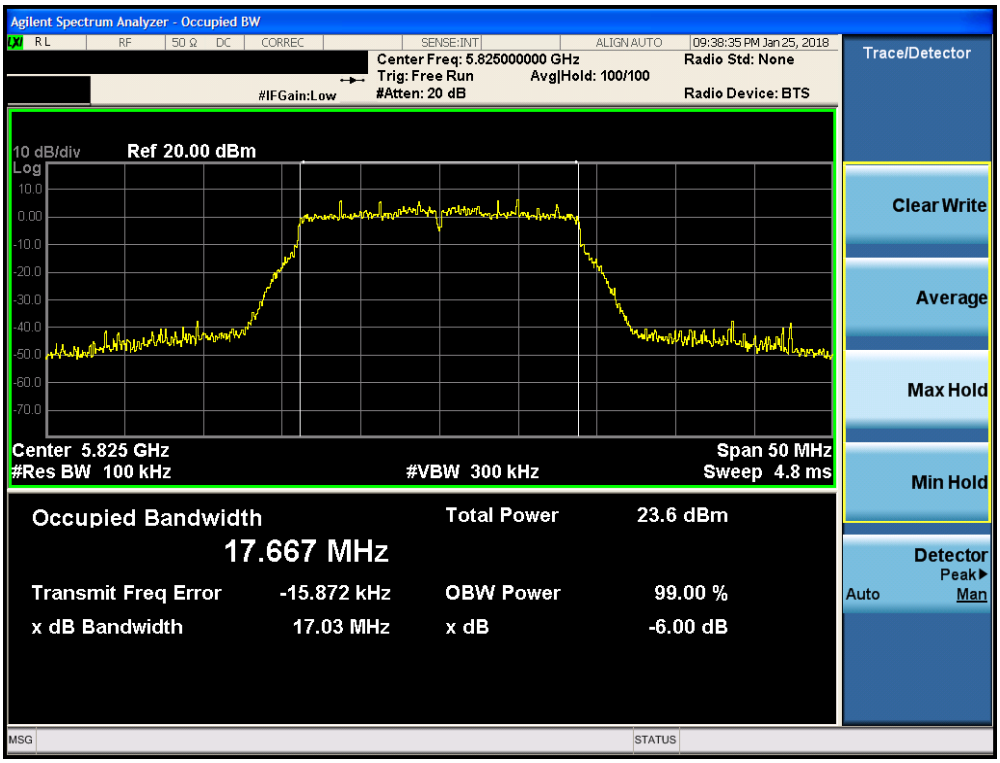
Plot 7-114. 6dB Bandwidth Plot FCC SISO ANT2 (802.11a (UNII Band 3) – Ch. 165)



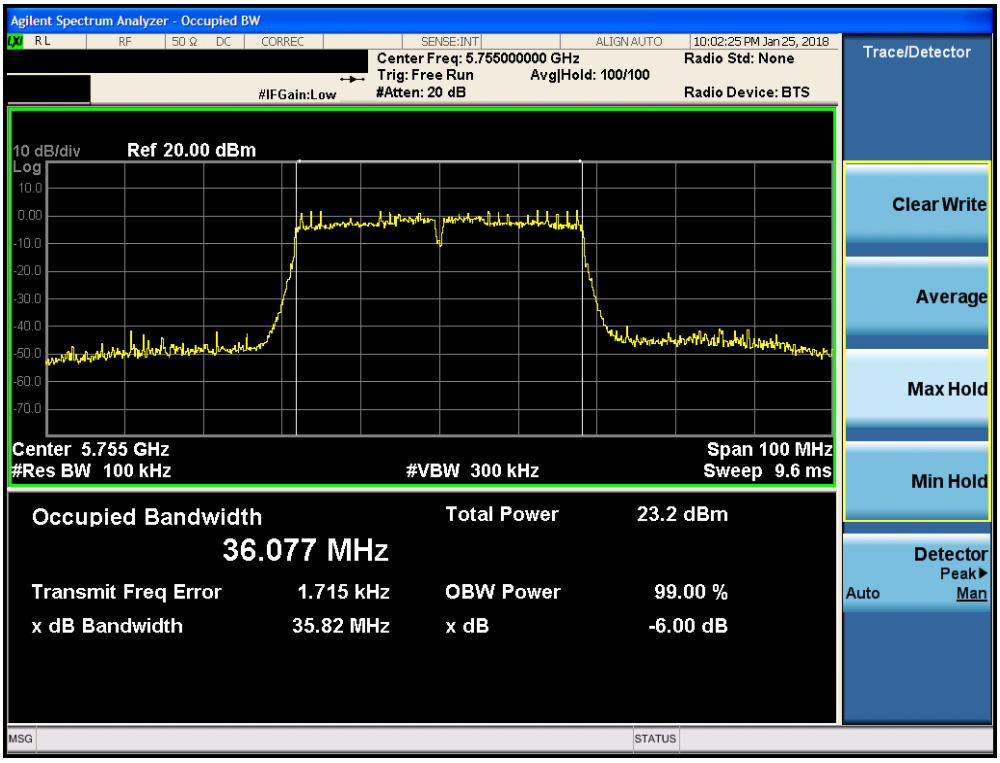
Plot 7-115. 6dB Bandwidth Plot FCC SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



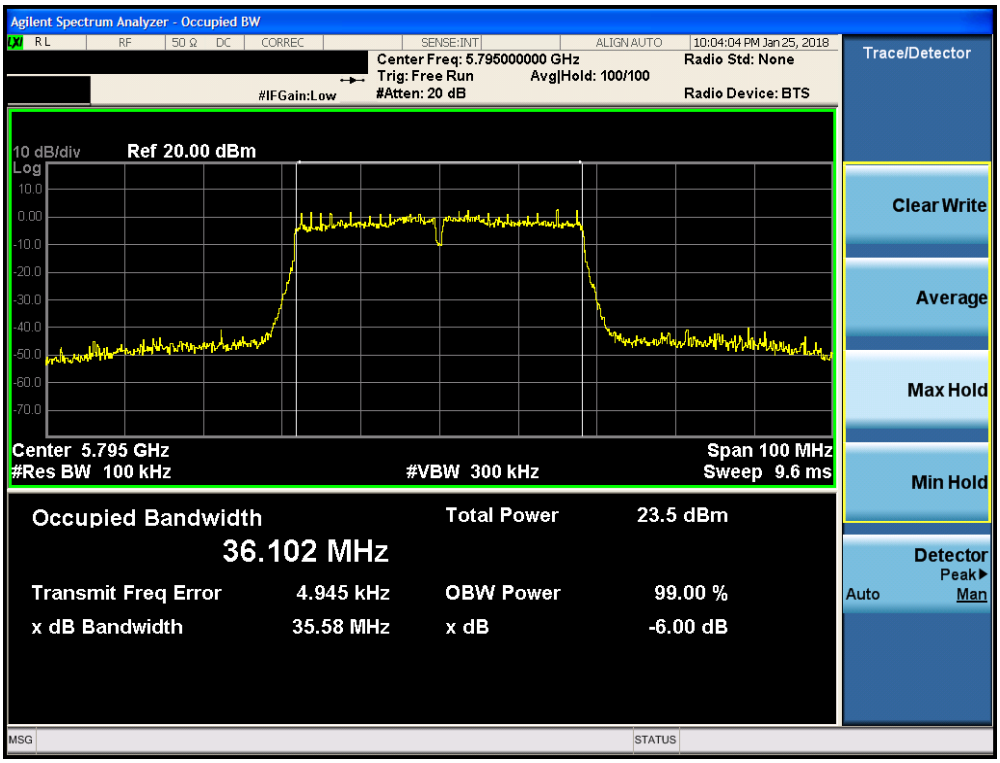
Plot 7-116. 6dB Bandwidth Plot FCC SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)



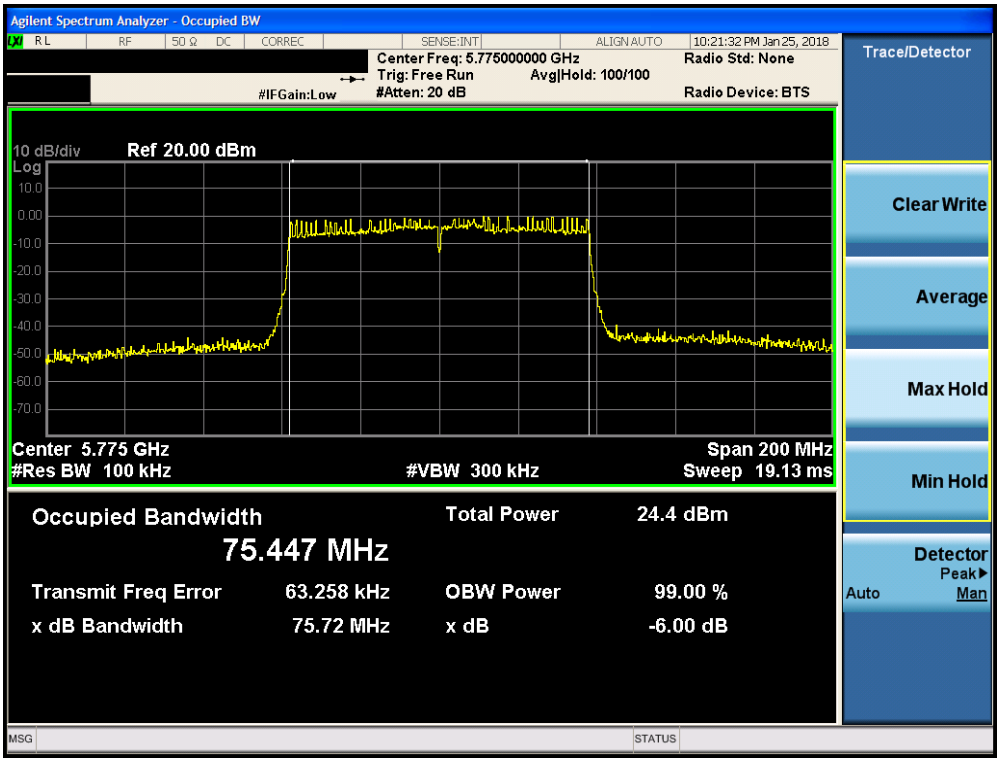
Plot 7-117. 6dB Bandwidth Plot FCC SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)



Plot 7-118. 6dB Bandwidth Plot FCC SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)



Plot 7-119. 6dB Bandwidth Plot FCC SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

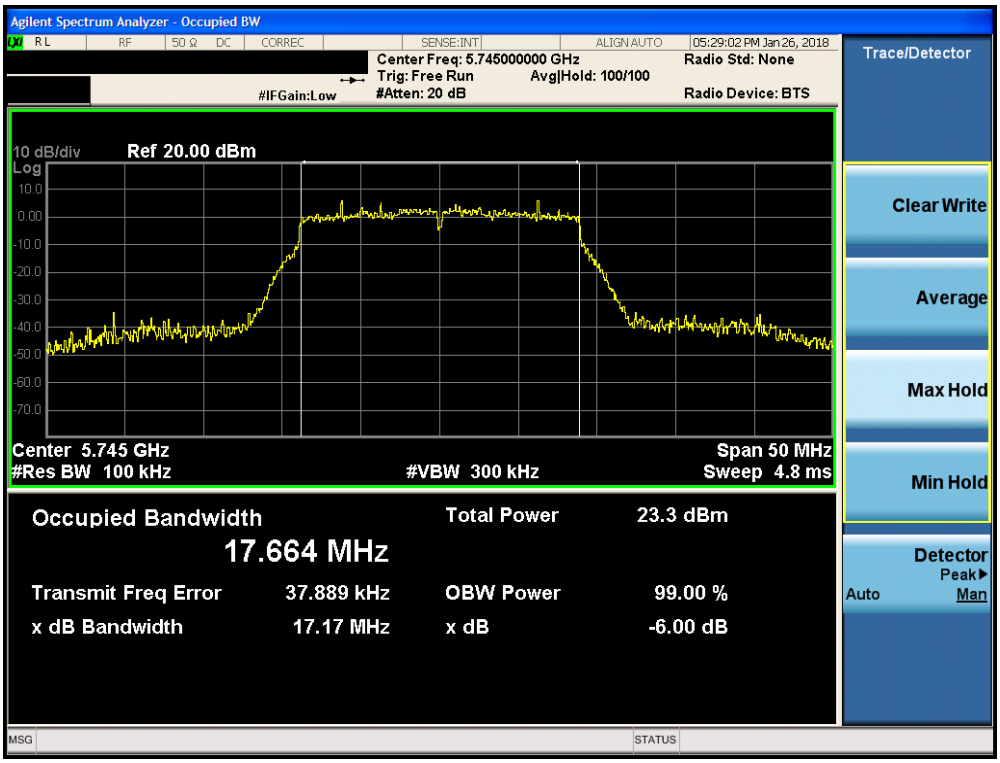


Plot 7-120. 6dB Bandwidth Plot FCC SISO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

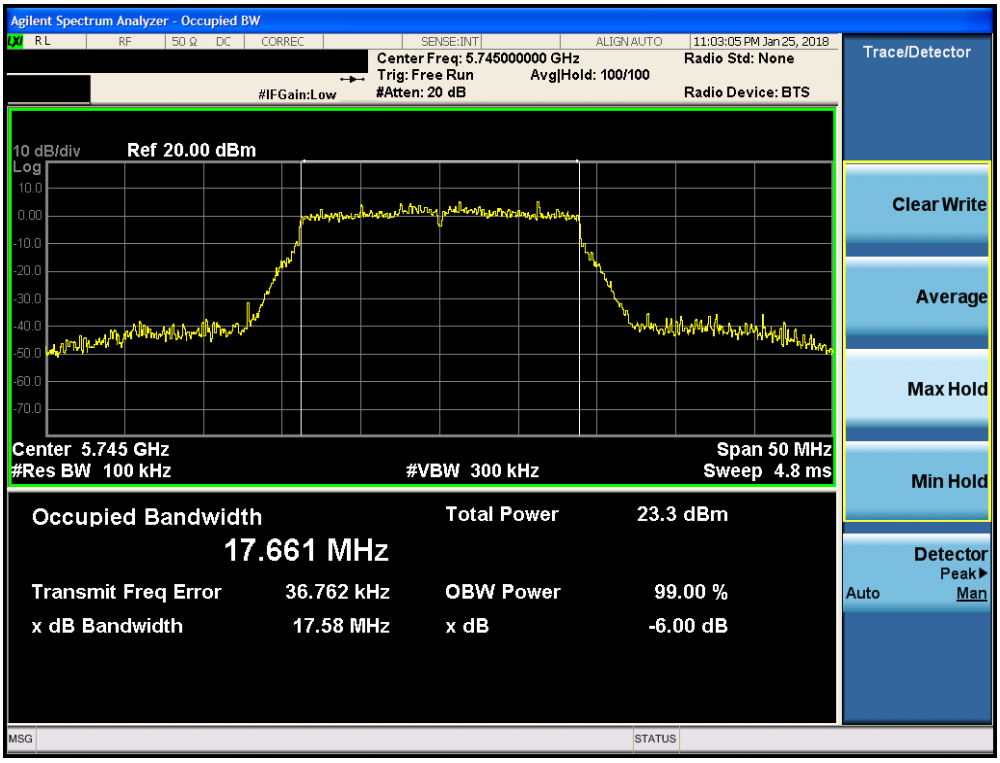
MIMO 6dB Bandwidth Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]	
					ANT1	ANT2
Band 3	5745	149	n (20MHz)	6.5/7.2 (MCS0)	17.17	17.58
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	16.68	17.58
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	16.83	17.61
	5755	151	n (40MHz)	13.5/15 (MCS0)	35.51	36.32
	5795	159	n (40MHz)	13.5/15 (MCS0)	35.91	35.99
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	75.39	75.38

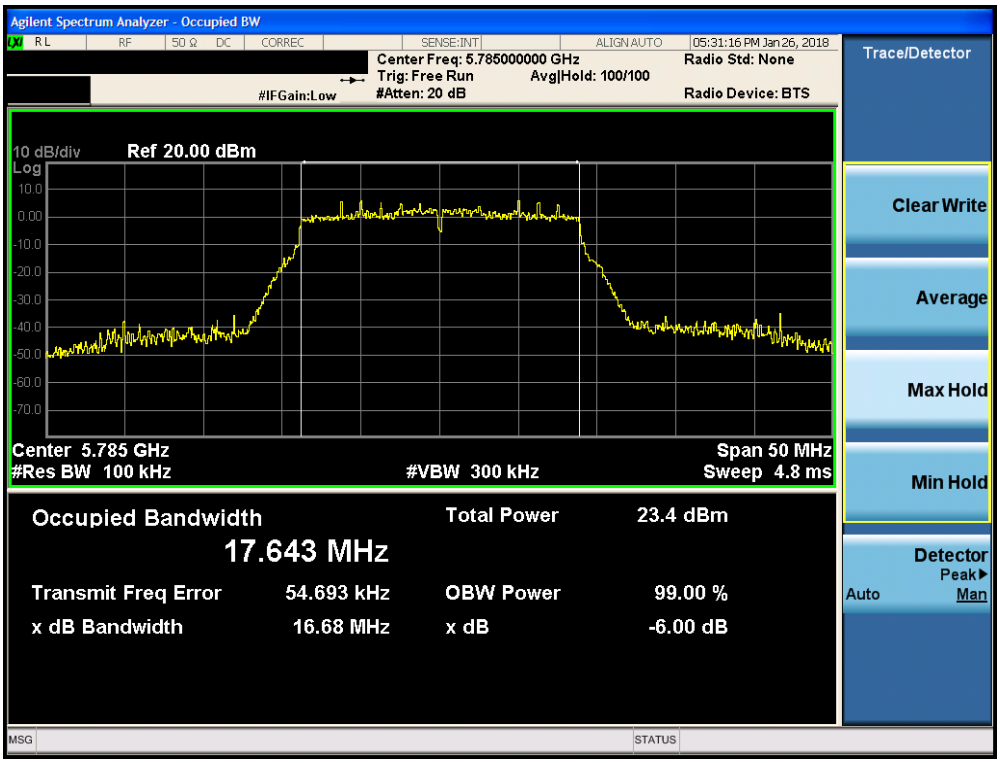
Table 7-7. Conducted Bandwidth Measurements MIMO



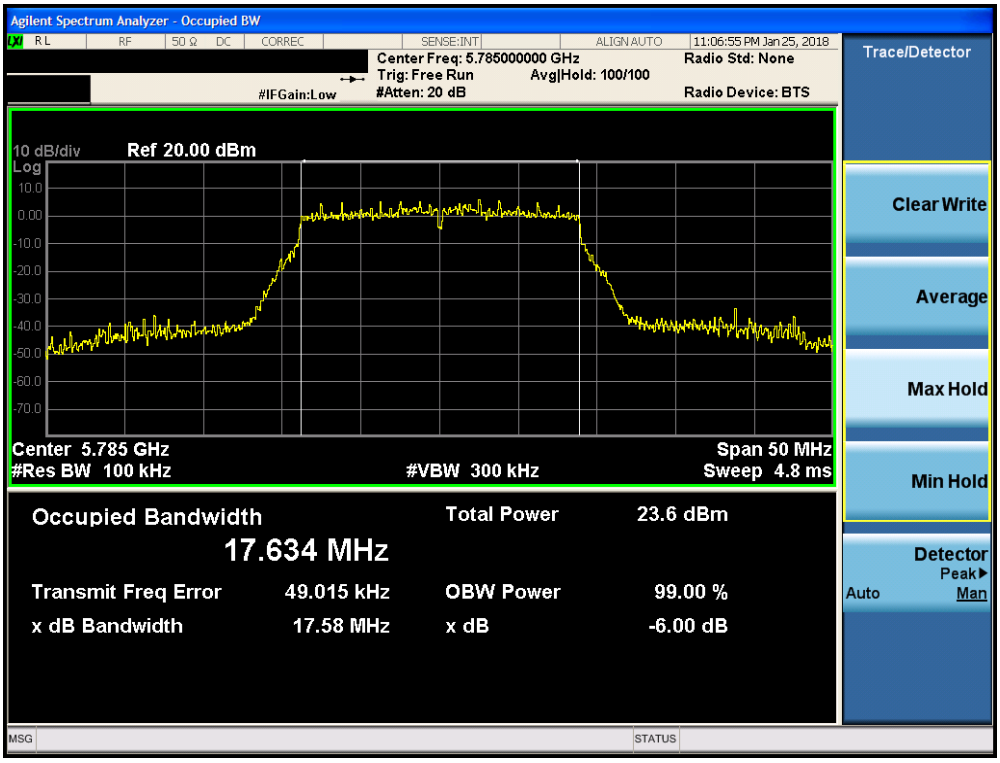
Plot 7-121. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



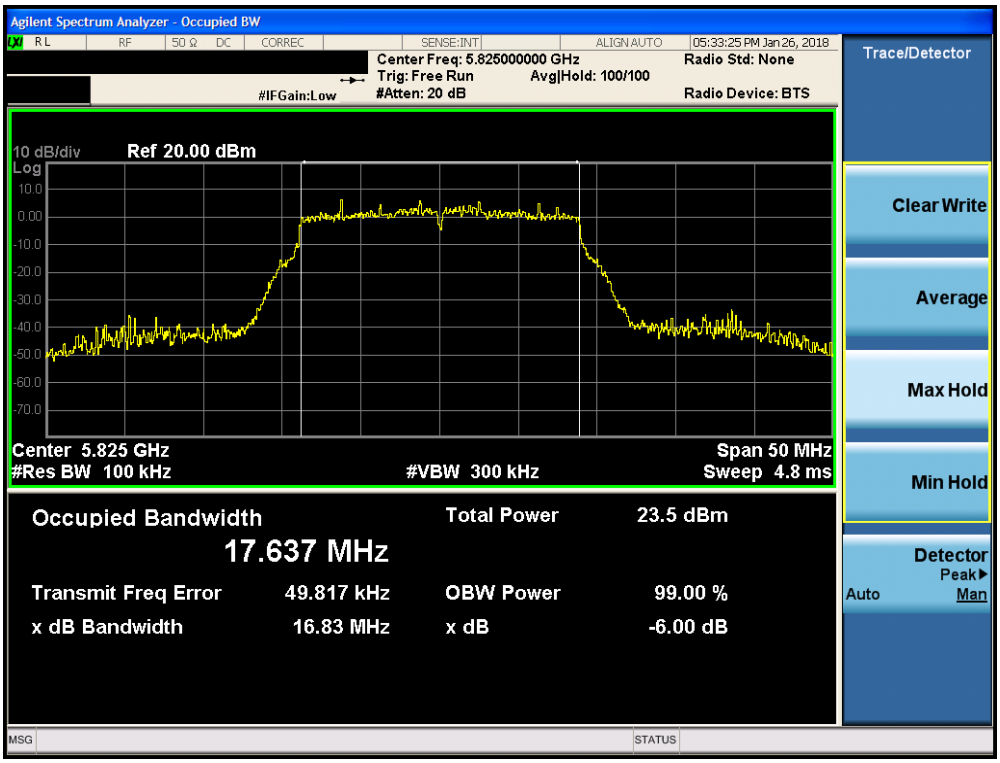
Plot 7-122. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



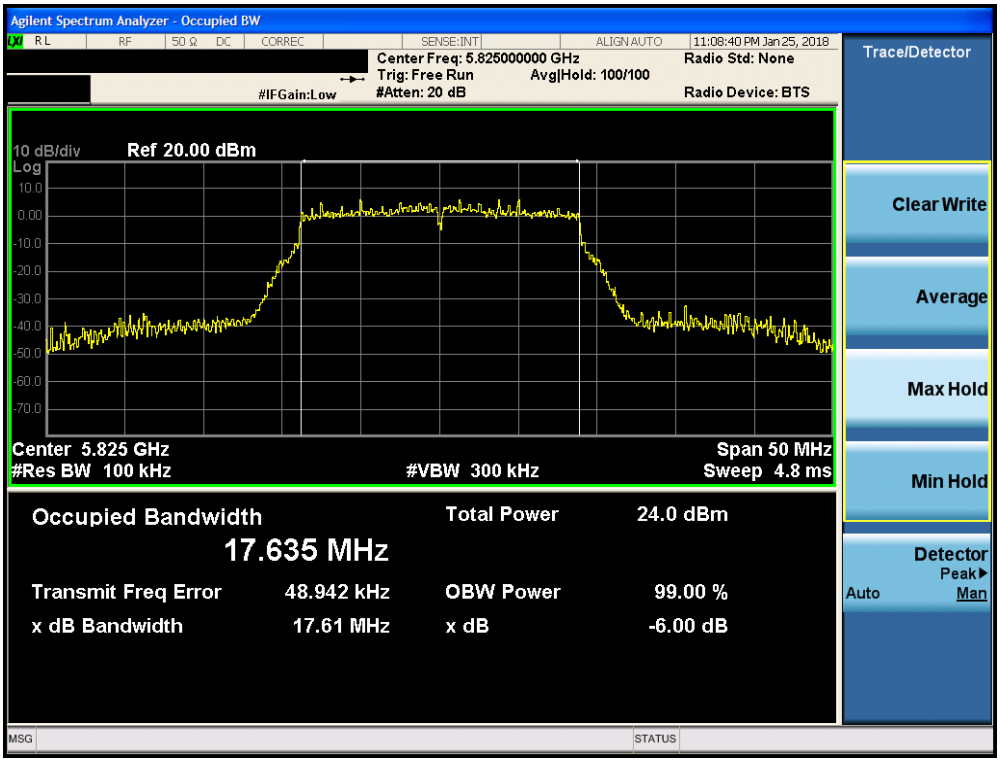
Plot 7-123. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)



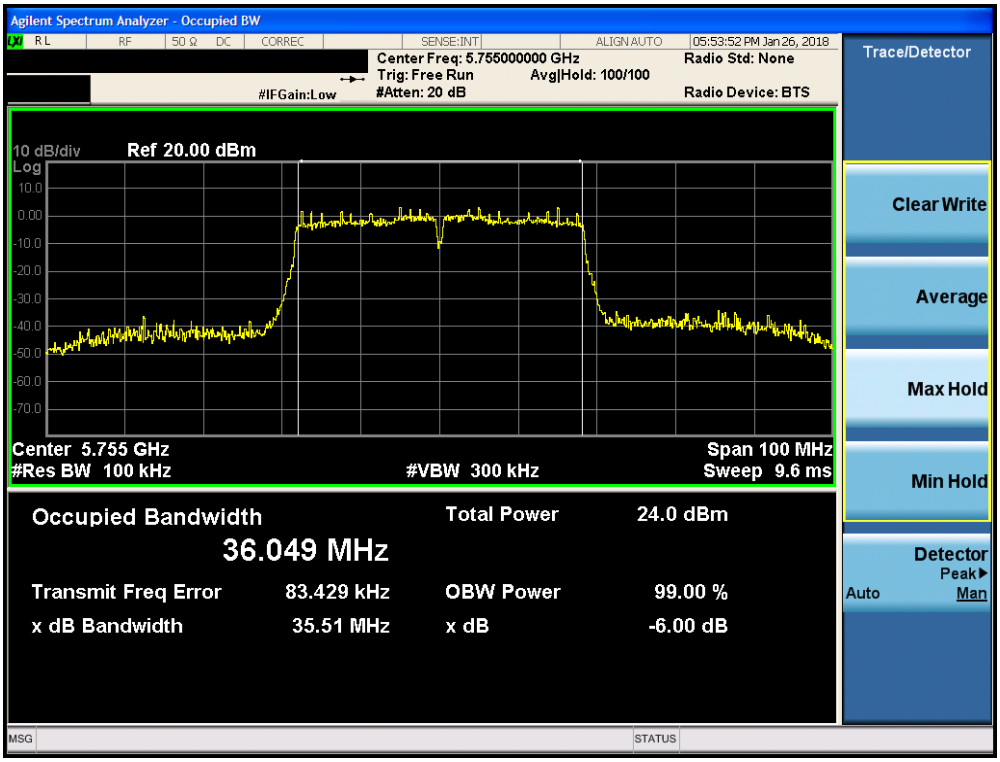
Plot 7-124. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)



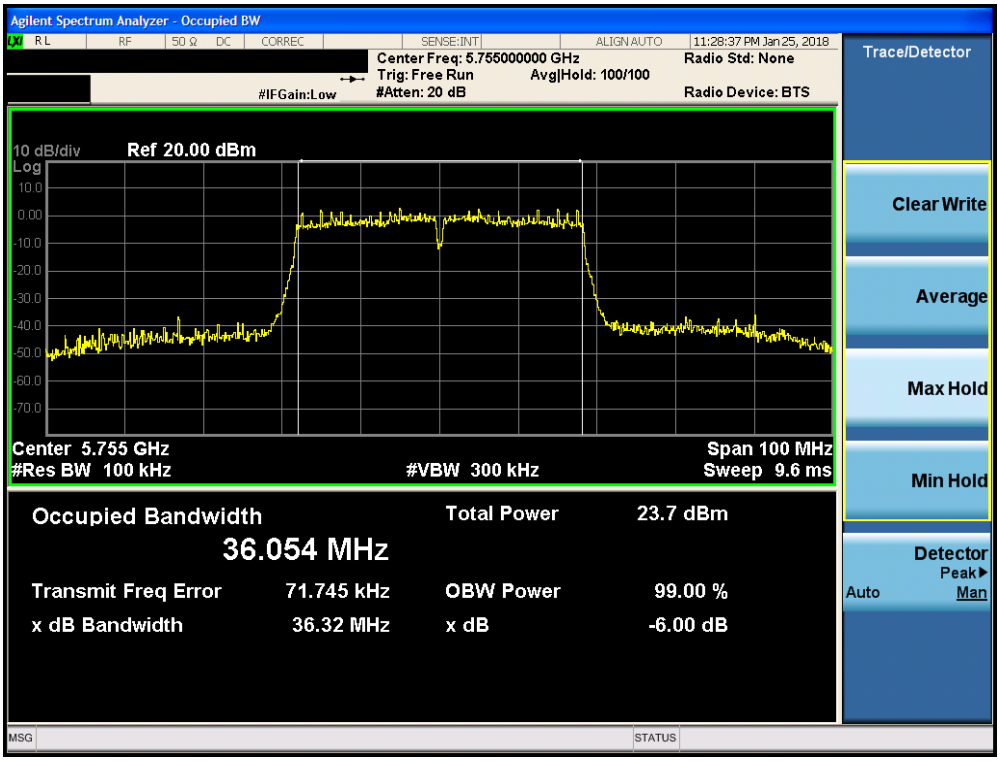
Plot 7-125. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)



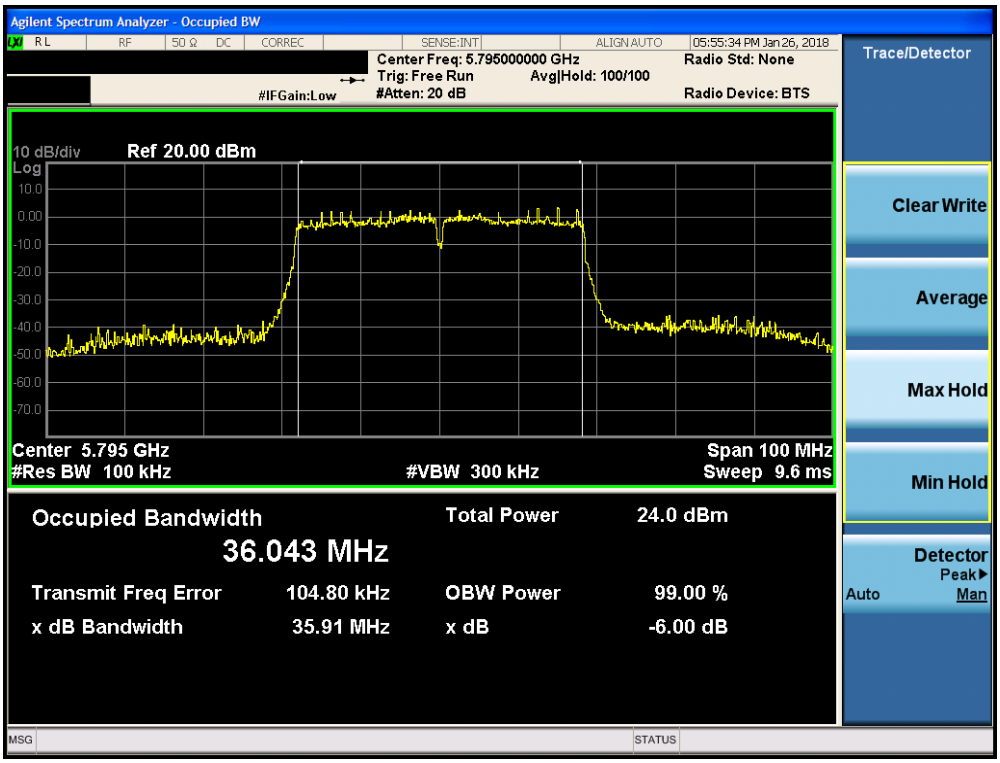
Plot 7-126. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)



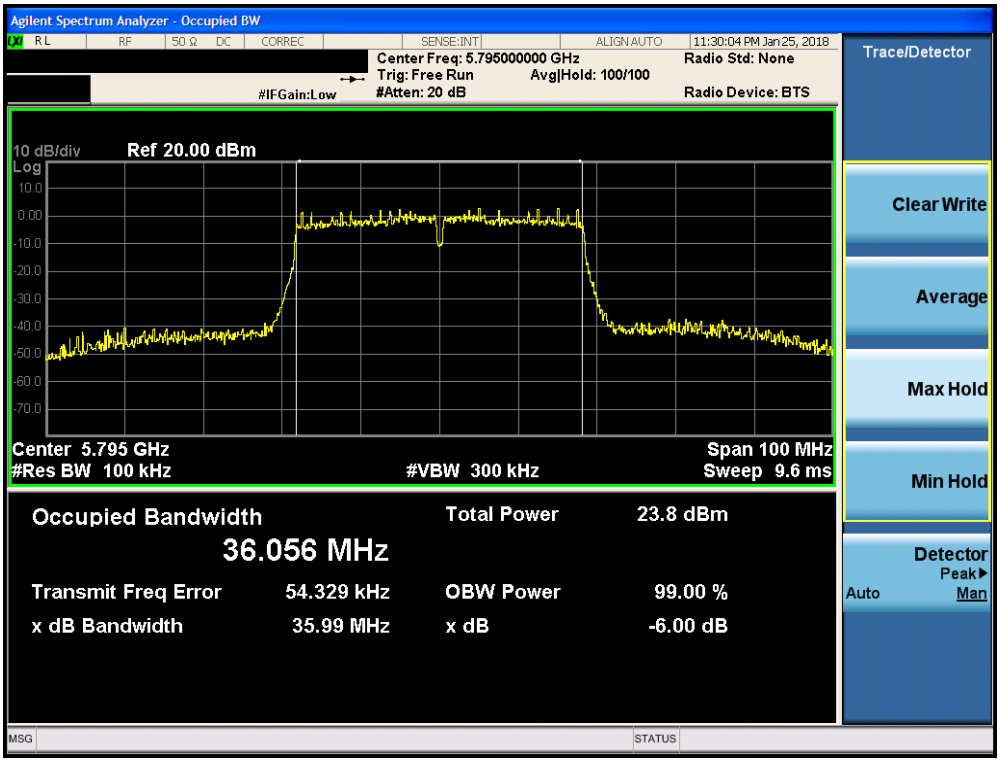
Plot 7-127. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)



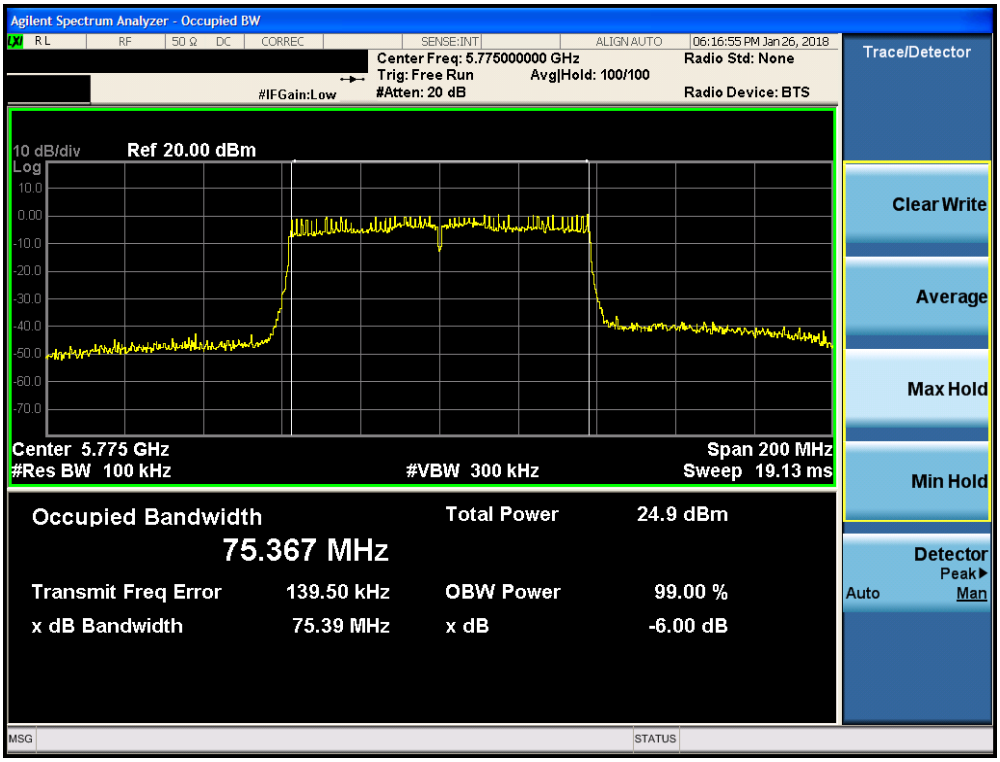
Plot 7-128. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)



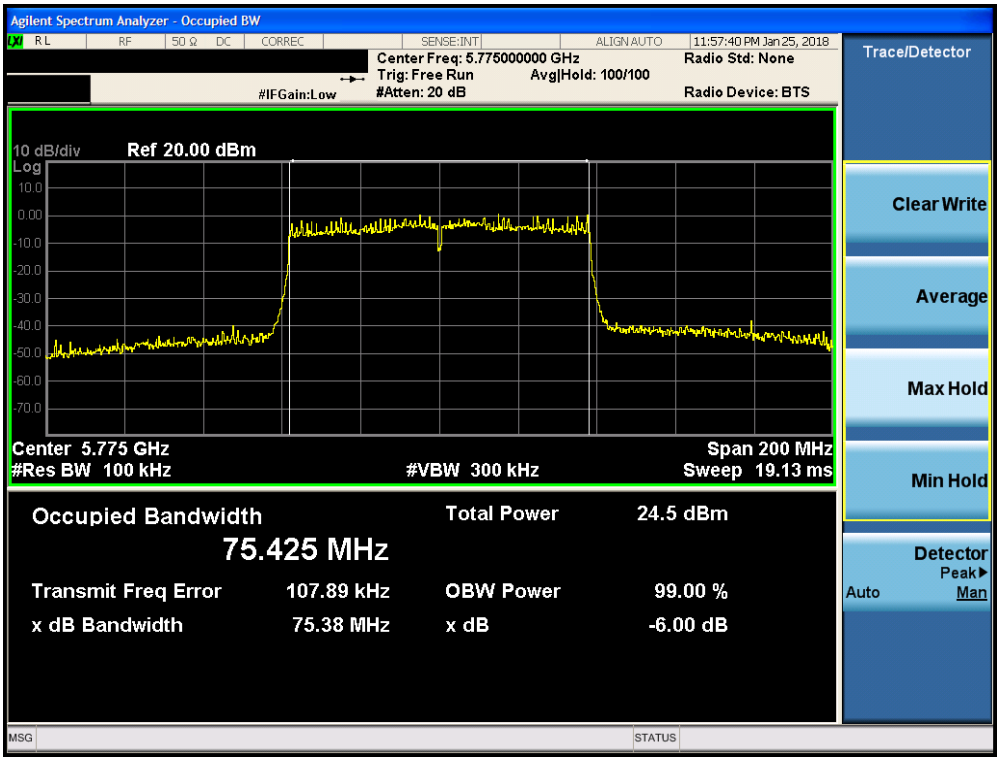
Plot 7-129. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-130. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-131. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)



Plot 7-132. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

7.4 UNII Output Power Measurement – 802.11a/n/ac

§15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies.

In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is 250mW (23.98dBm). The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and 11 dBm + 10log$_{10}$(26dB BW) = 11 dBm + 10log$_{10}$(21.14) = 24.25dBm. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and 11 dBm + 10log$_{10}$(26dB BW) = 11 dBm + 10log$_{10}$(20.92) = 24.21dBm. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less.

In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm). The maximum permissible e.i.r.p is 36dBm

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G
KDB 789033 D02 v02r01 – Section E)3)b) Method PM-G
ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E)1) Measure-and-Sum Technique

Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

Figure 7-3. Test Instrument & Measurement Setup

Test Notes

None

FCC SISO Antenna-1 Conducted Output Power Measurements

Freq [MHz]	Channel	Detector	5GHz (20MHz) Conducted Power [dBm]		Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
			IEEE Transmission Mode			
			802.11a	802.11n		
5180	36	AVG	16.00	16.00	23.98	-7.98
5200	40	AVG	16.50	16.50	23.98	-7.48
5220	44	AVG	16.16	16.50	23.98	-7.48
5240	48	AVG	16.50	16.45	23.98	-7.48
5260	52	AVG	17.00	16.99	23.98	-6.98
5280	56	AVG	17.00	16.98	23.98	-6.98
5300	60	AVG	17.00	16.87	23.98	-6.98
5320	64	AVG	15.95	15.96	23.98	-8.02
5500	100	AVG	14.98	14.91	23.98	-9.00
5520	104	AVG	16.82	16.99	23.98	-6.99
5540	108	AVG	17.00	16.96	23.98	-6.98
5560	112	AVG	16.79	16.91	23.98	-7.07
5580	116	AVG	17.00	16.85	23.98	-6.98
5600	120	AVG	16.99	16.91	23.98	-6.99
5620	124	AVG	17.00	16.98	23.98	-6.98
5640	128	AVG	16.99	16.90	23.98	-6.99
5660	132	AVG	16.99	16.70	23.98	-6.99
5680	136	AVG	16.90	16.85	23.98	-7.08
5700	140	AVG	14.93	15.00	23.98	-8.98
5720	144	AVG	17.00	16.84	23.98	-6.98
5745	149	AVG	16.49	16.34	30.00	-13.51
5765	153	AVG	16.50	16.40	30.00	-13.50
5785	157	AVG	16.49	16.40	30.00	-13.51
5805	161	AVG	16.50	16.44	30.00	-13.50
5825	165	AVG	16.41	16.50	30.00	-13.50

Table 7-8. FCC SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Detector	5GHz (40MHz) Conducted Power [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
			IEEE Transmission		
			802.11n		
5190	38	AVG	13.95	23.98	-10.03
5230	46	AVG	16.40	23.98	-7.58
5270	54	AVG	16.90	23.98	-7.08
5310	62	AVG	14.49	23.98	-9.49
5510	102	AVG	13.91	23.98	-10.07
5550	110	AVG	16.75	23.98	-7.23
5590	118	AVG	16.76	23.98	-7.22
5630	126	AVG	16.96	23.98	-7.02
5670	134	AVG	15.50	23.98	-8.48
5710	142	AVG	17.00	23.98	-6.98
5755	151	AVG	16.41	30.00	-13.59
5795	159	AVG	16.48	30.00	-13.52

Table 7-9. FCC SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (80MHz) Conducted Power [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
				IEEE Transmission		
				802.11ac		
5210	42	AVG	1.27	12.79	23.98	-11.19
5290	58	AVG	1.70	12.85	23.98	-11.13
5530	106	AVG	3.39	13.88	23.98	-10.10
5610	122	AVG	3.10	17.00	23.98	-6.98
5690	138	AVG	3.25	17.00	23.98	-6.98
5775	155	AVG	3.37	16.50	30.00	-13.50

Table 7-10. FCC SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power

ISED SISO Antenna-1 Conducted Output Power Measurements

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (20MHz) Conducted Power [dBm]		Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
				IEEE Transmission Mode						
				802.11a	802.11n					
5180	36	AVG	0.69	14.93	14.99	23.98	-8.99	15.68	23.01	-7.33
5200	40	AVG	0.69	14.91	14.93	23.98	-9.05	15.62	23.01	-7.39
5220	44	AVG	1.27	14.99	15.00	23.98	-8.98	16.27	23.01	-6.74
5240	48	AVG	1.17	14.95	14.94	23.98	-9.03	16.12	23.01	-6.89
5260	52	AVG	1.36	17.00	16.99	23.98	-6.98	18.36	30.00	-11.64
5280	56	AVG	1.54	17.00	16.98	23.98	-6.98	18.54	30.00	-11.46
5300	60	AVG	1.70	17.00	16.87	23.98	-6.98	18.70	30.00	-11.30
5320	64	AVG	2.24	15.95	15.96	23.98	-8.02	18.20	30.00	-11.80
5500	100	AVG	3.20	14.98	14.91	23.98	-9.00	18.18	30.00	-11.82
5520	104	AVG	3.39	16.82	16.99	23.98	-6.99	20.38	30.00	-9.62
5540	108	AVG	3.29	17.00	16.96	23.98	-6.98	20.29	30.00	-9.71
5560	112	AVG	3.38	16.79	16.91	23.98	-7.07	20.29	30.00	-9.71
5580	116	AVG	3.02	17.00	16.85	23.98	-6.98	20.02	30.00	-9.98
5660	132	AVG	3.28	16.99	16.70	23.98	-6.99	20.27	30.00	-9.73
5680	136	AVG	2.91	16.90	16.85	23.98	-7.08	19.81	30.00	-10.19
5700	140	AVG	3.25	14.93	15.00	23.98	-8.98	18.25	30.00	-11.75
5720	144	AVG	3.25	17.00	16.84	23.98	-6.98	20.25	30.00	-9.75
5745	149	AVG	3.18	16.49	16.34	30.00	-13.51	19.67	36.00	-16.33
5765	153	AVG	3.48	16.50	16.40	30.00	-13.50	19.98	36.00	-16.02
5785	157	AVG	3.35	16.49	16.40	30.00	-13.51	19.84	36.00	-16.16
5805	161	AVG	3.25	16.50	16.44	30.00	-13.50	19.75	36.00	-16.25
5825	165	AVG	3.25	16.41	16.50	30.00	-13.50	19.75	36.00	-16.25

Table 7-11. ISED SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (40MHz) Conducted Power [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
				IEEE Transmission					
				802.11n					
5190	38	AVG	0.69	13.95	23.98	-10.03	14.64	23.01	-8.37
5230	46	AVG	1.27	16.40	23.98	-7.58	17.67	23.01	-5.34
5270	54	AVG	1.54	16.90	23.98	-7.08	18.44	30.00	-11.56
5310	62	AVG	2.24	14.49	23.98	-9.49	16.73	30.00	-13.27
5510	102	AVG	3.32	13.91	23.98	-10.07	17.23	30.00	-12.77
5550	110	AVG	3.38	16.75	23.98	-7.23	20.13	30.00	-9.87
5670	134	AVG	3.28	15.50	23.98	-8.48	18.78	30.00	-11.22
5710	142	AVG	3.25	17.00	23.98	-6.98	20.25	30.00	-9.75
5755	151	AVG	3.48	16.41	30.00	-13.59	19.89	36.00	-16.11
5795	159	AVG	3.34	16.48	30.00	-13.52	19.82	36.00	-16.18

Table 7-12. ISED SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (80MHz) Conducted Power [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
				IEEE Transmission					
				802.11ac					
5210	42	AVG	1.27	12.79	23.98	-11.19	14.06	23.01	-8.95
5290	58	AVG	1.70	12.85	23.98	-11.13	14.55	30.00	-15.45
5530	106	AVG	3.39	13.88	23.98	-10.10	17.27	30.00	-12.73
5690	138	AVG	3.25	17.00	23.98	-6.98	20.25	30.00	-9.75
5775	155	AVG	3.37	16.50	30.00	-13.50	19.87	36.00	-16.13

Table 7-13. ISED SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power

FCC SISO Antenna-2 Conducted Output Power Measurements

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (20MHz) Conducted Power [dBm]		Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
				IEEE Transmission Mode			
				802.11a	802.11n		
5180	36	AVG	2.19	15.99	15.90	23.98	-7.99
5200	40	AVG	2.22	16.49	16.40	23.98	-7.49
5220	44	AVG	2.64	16.32	16.39	23.98	-7.59
5240	48	AVG	2.62	16.49	16.40	23.98	-7.49
5260	52	AVG	2.77	16.97	16.94	23.98	-7.01
5280	56	AVG	2.50	16.99	16.95	23.98	-6.99
5300	60	AVG	2.31	16.81	16.99	23.98	-6.99
5320	64	AVG	2.19	15.95	15.85	23.98	-8.03
5500	100	AVG	2.10	14.98	14.90	23.98	-9.00
5520	104	AVG	2.25	17.00	16.86	23.98	-6.98
5540	108	AVG	2.48	16.85	17.00	23.98	-6.98
5560	112	AVG	2.75	16.92	17.00	23.98	-6.98
5580	116	AVG	3.05	16.96	16.83	23.98	-7.02
5600	120	AVG	2.94	17.00	17.00	23.98	-6.98
5620	124	AVG	3.09	17.00	17.00	23.98	-6.98
5640	128	AVG	3.03	16.99	16.99	23.98	-6.99
5660	132	AVG	2.92	17.00	16.95	23.98	-6.98
5680	136	AVG	2.97	16.99	16.76	23.98	-6.99
5700	140	AVG	3.17	14.85	14.98	23.98	-9.00
5720	144	AVG	3.17	17.00	16.95	23.98	-6.98
5745	149	AVG	3.21	16.40	16.50	30.00	-13.50
5765	153	AVG	3.17	16.31	16.46	30.00	-13.54
5785	157	AVG	3.14	16.41	16.50	30.00	-13.50
5805	161	AVG	2.99	16.42	16.49	30.00	-13.51
5825	165	AVG	2.92	16.40	16.42	30.00	-13.58

Table 7-14. FCC SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (40MHz) Conducted Power [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
				IEEE Transmission		
				802.11n		
5190	38	AVG	2.22	14.00	23.98	-9.98
5230	46	AVG	2.64	16.41	23.98	-7.57
5270	54	AVG	2.77	16.92	23.98	-7.06
5310	62	AVG	2.31	14.50	23.98	-9.48
5510	102	AVG	2.25	13.90	23.98	-10.08
5550	110	AVG	2.75	16.85	23.98	-7.13
5590	118	AVG	3.05	16.89	23.98	-7.09
5630	126	AVG	3.09	16.85	23.98	-7.13
5670	134	AVG	2.97	15.40	23.98	-8.58
5710	142	AVG	3.17	16.80	23.98	-7.18
5755	151	AVG	3.21	16.35	30.00	-13.65
5795	159	AVG	3.14	16.45	30.00	-13.55

Table 7-15. FCC SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Detector	5GHz (80MHz) Conducted Power [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
			IEEE Transmission		
			802.11ac		
5210	42	AVG	12.91	23.98	-11.07
5290	58	AVG	12.93	23.98	-11.05
5530	106	AVG	13.99	23.98	-9.99
5610	122	AVG	17.00	23.98	-6.98
5690	138	AVG	16.99	23.98	-6.99
5775	155	AVG	16.40	30.00	-13.60

Table 7-16. FCC SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power

ISED SISO Antenna-2 Conducted Output Power Measurements

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (20MHz) Conducted Power [dBm]		Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
				IEEE Transmission Mode						
				802.11a	802.11n					
5180	36	AVG	2.19	15.00	14.97	23.98	-8.98	17.19	23.01	-5.82
5200	40	AVG	2.22	15.00	14.82	23.98	-8.98	17.22	23.01	-5.79
5220	44	AVG	2.64	15.00	15.00	23.98	-8.98	17.64	23.01	-5.37
5240	48	AVG	2.62	14.99	14.99	23.98	-8.99	17.61	23.01	-5.40
5260	52	AVG	2.77	16.97	16.94	23.98	-7.01	19.74	30.00	-10.26
5280	56	AVG	2.50	16.99	16.95	23.98	-6.99	19.49	30.00	-10.51
5300	60	AVG	2.31	16.81	16.99	23.98	-6.99	19.30	30.00	-10.70
5320	64	AVG	2.19	15.95	15.85	23.98	-8.03	18.14	30.00	-11.86
5500	100	AVG	2.10	14.98	14.90	23.98	-9.00	17.08	30.00	-12.92
5520	104	AVG	2.25	17.00	16.86	23.98	-6.98	19.25	30.00	-10.75
5540	108	AVG	2.48	16.85	17.00	23.98	-6.98	19.48	30.00	-10.52
5560	112	AVG	2.75	16.92	17.00	23.98	-6.98	19.75	30.00	-10.25
5580	116	AVG	3.05	16.96	16.83	23.98	-7.02	20.01	30.00	-9.99
5660	132	AVG	2.92	17.00	16.95	23.98	-6.98	19.92	30.00	-10.08
5680	136	AVG	2.97	16.99	16.76	23.98	-6.99	19.96	30.00	-10.04
5700	140	AVG	3.17	14.85	14.98	23.98	-9.00	18.15	30.00	-11.85
5720	144	AVG	3.17	17.00	16.95	23.98	-6.98	20.17	30.00	-9.83
5745	149	AVG	3.21	16.40	16.50	30.00	-13.50	19.71	36.00	-16.29
5765	153	AVG	3.17	16.31	16.46	30.00	-13.54	19.63	36.00	-16.37
5785	157	AVG	3.14	16.41	16.50	30.00	-13.50	19.64	36.00	-16.36
5805	161	AVG	2.99	16.42	16.49	30.00	-13.51	19.48	36.00	-16.52
5825	165	AVG	2.92	16.40	16.42	30.00	-13.58	19.34	36.00	-16.66

Table 7-17. ISED SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (40MHz) Conducted Power [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
				IEEE Transmission					
				802.11n					
5190	38	AVG	2.22	14.00	23.98	-9.98	16.22	23.01	-6.79
5230	46	AVG	2.64	16.41	23.98	-7.57	19.05	23.01	-3.96
5270	54	AVG	2.77	16.92	23.98	-7.06	19.69	30.00	-10.31
5310	62	AVG	2.31	14.50	23.98	-9.48	16.81	30.00	-13.19
5510	102	AVG	2.25	13.90	23.98	-10.08	16.15	30.00	-13.85
5550	110	AVG	2.75	16.85	23.98	-7.13	19.60	30.00	-10.40
5670	134	AVG	2.97	15.40	23.98	-8.58	18.37	30.00	-11.63
5710	142	AVG	3.17	16.80	23.98	-7.18	19.97	30.00	-10.03
5755	151	AVG	3.21	16.35	30.00	-13.65	19.56	36.00	-16.44
5795	159	AVG	3.14	16.45	30.00	-13.55	19.59	36.00	-16.41

Table 7-18. ISED SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Detector	Ant. Gain [dBi]	5GHz (80MHz) Conducted Power [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
				IEEE Transmission					
				802.11ac					
5210	42	AVG	2.64	12.91	23.98	-11.07	15.55	23.01	-7.46
5290	58	AVG	2.50	12.93	23.98	-11.05	15.43	30.00	-14.57
5530	106	AVG	2.48	13.99	23.98	-9.99	16.47	30.00	-13.53
5690	138	AVG	3.17	16.99	23.98	-6.99	20.16	30.00	-9.84
5775	155	AVG	3.17	16.40	30.00	-13.60	19.57	36.00	-16.43

Table 7-19. ISED SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power

FCC MIMO Maximum Conducted Output Power Measurements

Freq [MHz]	Channel	Mode	Detector	Directional Ant. Gain [dBi]	5GHz (20MHz) Conducted Power [dBm]		MIMO [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					IEEE Transmission Mode				
					ANT1	ANT2			
5180	36	CDD	AVG	4.48	14.40	14.50	17.46	23.98	-6.52
5200	40	CDD	AVG	4.50	16.46	16.50	19.49	23.98	-4.49
5220	44	CDD	AVG	4.99	16.40	16.33	19.38	23.98	-4.60
5240	48	CDD	AVG	4.94	16.41	16.30	19.37	23.98	-4.61
5260	52	SDM	AVG	5.10	16.93	16.93	19.94	23.98	-4.04
5280	56	SDM	AVG	5.04	16.90	16.90	19.30	23.98	-4.68
5300	60	SDM	AVG	5.02	16.80	16.99	19.91	23.98	-4.07
5320	64	CDD	AVG	5.23	14.45	14.42	17.45	23.98	-6.53
5500	100	CDD	AVG	5.68	14.39	14.48	17.45	23.98	-6.53
5520	104	SDM	AVG	5.85	16.90	16.88	19.90	23.98	-4.08
5540	108	SDM	AVG	5.90	16.88	16.80	19.85	23.98	-4.13
5560	112	SDM	AVG	6.08	16.90	16.90	18.50	23.98	-5.48
5580	116	SDM	AVG	6.05	16.90	16.88	19.90	23.98	-4.08
5600	120	SDM	AVG	6.03	16.86	16.82	19.85	23.98	-4.13
5620	124	SDM	AVG	6.09	16.80	16.86	19.84	23.98	-4.14
5640	128	SDM	AVG	6.00	16.88	16.90	19.90	23.98	-4.08
5660	132	SDM	AVG	6.11	16.90	16.90	18.50	23.98	-5.48
5680	136	SDM	AVG	5.95	16.88	16.77	19.84	23.98	-4.14
5700	140	CDD	AVG	6.22	14.00	13.95	16.99	23.98	-6.99
5720	144	CDD	AVG	6.22	17.00	17.00	20.00	23.98	-3.98
5745	149	CDD	AVG	6.21	16.35	16.41	19.39	30.00	-10.61
5765	153	CDD	AVG	6.34	16.50	16.26	19.39	30.00	-10.61
5785	157	CDD	AVG	6.26	16.49	16.45	19.48	30.00	-10.52
5805	161	CDD	AVG	6.13	16.36	16.49	19.44	30.00	-10.56
5825	165	CDD	AVG	6.10	16.49	16.50	19.50	30.00	-10.50

Table 7-20. FCC MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Mode	Detector	Directional Ant. Gain [dBi]	5GHz (40MHz) Conducted Power [dBm]		MIMO [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					IEEE Transmission Mode				
					ANT1	ANT2			
5190	38	CDD	AVG	4.50	12.43	12.45	15.45	23.98	-8.53
5230	46	CDD	AVG	4.99	16.40	16.50	19.46	23.98	-4.52
5270	54	CDD	AVG	5.19	16.95	16.89	19.93	23.98	-4.05
5310	62	CDD	AVG	5.29	13.41	13.50	16.47	23.98	-7.51
5510	102	CDD	AVG	5.81	12.96	12.99	15.99	23.98	-7.99
5550	110	CDD	AVG	6.08	17.00	16.97	20.00	23.98	-3.98
5590	118	CDD	AVG	6.09	17.00	16.81	19.92	23.98	-4.06
5630	126	CDD	AVG	6.09	16.98	17.00	20.00	23.98	-3.98
5670	134	CDD	AVG	6.14	13.89	13.82	16.87	23.98	-7.11
5710	142	CDD	AVG	6.22	16.99	16.80	19.91	23.98	-4.07
5755	151	CDD	AVG	6.36	16.50	16.46	19.49	30.00	-10.51
5795	159	CDD	AVG	6.25	16.50	16.40	19.46	30.00	-10.54

Table 7-21. FCC MIMO 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Mode	Detector	Directional Ant. Gain [dBi]	5GHz (80MHz) Conducted Power [dBm]		MIMO [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					IEEE Transmission Mode				
					ANT1	ANT2			
5210	42	CDD	AVG	4.99	11.90	12.00	14.96	23.98	-9.02
5290	58	CDD	AVG	5.12	11.85	11.80	14.84	23.98	-9.14
5530	106	CDD	AVG	5.96	12.90	13.00	15.96	23.98	-8.02
5610	122	CDD	AVG	6.11	17.00	17.00	20.00	23.98	-3.98
5690	138	CDD	AVG	6.22	17.00	16.94	19.98	23.98	-4.00
5775	155	CDD	AVG	6.28	16.00	15.91	18.97	30.00	-11.03

Table 7-22. FCC MIMO 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

ISED MIMO Maximum Conducted Output Power Measurements

Freq [MHz]	Channel	Mode	Detector	Directional Ant. Gain [dBi]	5GHz (20MHz) Conducted Power [dBm]		MIMO [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					IEEE Transmission Mode							
					ANT1	ANT2						
5180	36	CDD	AVG	4.48	11.98	12.00	15.00	23.98	-8.98	19.48	23.01	-3.53
5200	40	CDD	AVG	4.50	11.90	11.89	14.91	23.98	-9.07	19.40	23.01	-3.61
5220	44	CDD	AVG	4.99	11.99	11.80	14.91	23.98	-9.07	19.90	23.01	-3.11
5240	48	CDD	AVG	4.94	12.00	11.97	15.00	23.98	-8.98	19.93	23.01	-3.08
5260	52	SDM	AVG	5.10	16.93	16.93	19.94	23.98	-4.04	25.04	30.00	-4.96
5280	56	SDM	AVG	5.04	16.90	16.90	19.30	23.98	-4.68	24.34	30.00	-5.66
5300	60	SDM	AVG	5.02	16.80	16.99	19.91	23.98	-4.07	24.93	30.00	-5.07
5320	64	CDD	AVG	5.23	14.45	14.42	17.45	23.98	-6.53	22.67	30.00	-7.33
5500	100	CDD	AVG	5.68	14.39	14.48	17.45	23.98	-6.53	23.12	30.00	-6.88
5520	104	SDM	AVG	5.85	16.90	16.88	19.90	23.98	-4.08	25.75	30.00	-4.25
5540	108	SDM	AVG	5.90	16.88	16.80	19.85	23.98	-4.13	25.76	30.00	-4.24
5560	112	SDM	AVG	6.08	16.90	16.90	18.50	23.98	-5.48	24.58	29.92	-5.34
5580	116	SDM	AVG	6.05	16.90	16.88	19.90	23.98	-4.08	25.95	29.95	-4.01
5660	132	SDM	AVG	6.11	16.90	16.90	18.50	23.98	-5.48	24.61	29.89	-5.28
5680	136	SDM	AVG	5.95	16.88	16.77	19.84	23.98	-4.14	25.79	30.00	-4.21
5700	140	CDD	AVG	6.22	14.00	13.95	16.99	23.98	-6.99	23.21	29.78	-6.57
5720	144	CDD	AVG	6.22	17.00	17.00	20.00	23.98	-3.98	26.22	29.78	-3.56
5745	149	SDM	AVG	6.21	16.35	16.41	19.39	30.00	-10.61	25.60	36.00	-10.40
5765	153	SDM	AVG	6.34	16.50	16.26	19.39	30.00	-10.61	25.73	36.00	-10.27
5785	157	SDM	AVG	6.26	16.49	16.45	19.48	30.00	-10.52	25.74	36.00	-10.26
5805	161	SDM	AVG	6.13	16.36	16.49	19.44	30.00	-10.56	25.57	36.00	-10.43
5825	165	SDM	AVG	6.10	16.49	16.50	19.50	30.00	-10.50	25.60	36.00	-10.40

Table 7-23. ISED MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Mode	Detector	Directional Ant. Gain [dBi]	5GHz (40MHz) Conducted Power [dBm]		MIMO [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					IEEE Transmission Mode							
					ANT1	ANT2						
5190	38	CDD	AVG	4.50	12.43	12.45	15.45	23.98	-8.53	19.95	23.01	-3.06
5230	46	CDD	AVG	4.99	13.95	14.00	16.99	23.98	-6.99	21.98	23.01	-1.03
5270	54	CDD	AVG	5.19	16.95	16.92	19.95	23.98	-4.03	25.13	30.00	-4.87
5310	62	CDD	AVG	5.29	13.41	13.40	16.42	23.98	-7.56	21.70	30.00	-8.30
5510	102	CDD	AVG	5.81	12.96	12.99	15.99	23.98	-7.99	21.80	30.00	-8.20
5550	110	CDD	AVG	6.08	17.00	16.97	20.00	23.98	-3.98	26.08	29.92	-3.84
5670	134	CDD	AVG	6.14	13.89	13.82	16.87	23.98	-7.11	23.00	29.86	-6.86
5710	142	CDD	AVG	6.22	16.99	16.80	19.91	23.98	-4.07	26.13	29.78	-3.65
5755	151	CDD	AVG	6.36	16.50	16.46	19.49	30.00	-10.51	25.85	36.00	-10.15
5795	159	CDD	AVG	6.25	16.50	16.40	19.46	30.00	-10.54	25.71	36.00	-10.29

Table 7-24. ISED MIMO 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

Freq [MHz]	Channel	Mode	Detector	Directional Ant. Gain [dBi]	5GHz (80MHz) Conducted Power [dBm]		MIMO [dBm]	Max Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p [dBm]	Max e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					IEEE Transmission Mode							
					ANT1	ANT2						
5210	42	CDD	AVG	4.99	11.90	12.00	14.96	23.98	-9.02	19.95	23.01	-3.06
5290	58	CDD	AVG	5.12	11.85	11.80	14.84	23.98	-9.14	19.95	30.00	-10.05
5530	106	CDD	AVG	5.96	12.90	13.00	15.96	23.98	-8.02	21.92	30.00	-8.08
5690	138	CDD	AVG	6.22	17.00	16.94	19.98	23.98	-4.00	26.20	29.78	-3.58
5775	155	CDD	AVG	6.28	16.00	15.91	18.97	30.00	-11.03	25.25	36.00	-10.75

Table 7-25. ISED MIMO 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

Note:

Per ANSI C63.10-2013 and KDB 662911 v02r01 Section E)1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where G_N is the gain of the nth antenna and N_{ANT}, the total number of antennas used.

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}] \text{ dBi}$$

Sample MIMO Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 14.40 dBm for Antenna-1 and 14.50 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

(14.40 dBm + 14.50 dBm) = (27.54 mW + 28.18mW) = 55.72 mW = 17.46 dBm

Sample e.i.r.p. Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO conducted power was calculated to be 15.00 dBm with directional gain of 4.48 dBi.

e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

15.00 dBm + 4.48 dBi = 19.48 dBm

7.5 Maximum Power Spectral Density – 802.11a/n/ac

§15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

In the 5.15 – 5.25GHz, 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2
KDB 789033 D02 v02r01 – Section F
ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points $\geq$ 2 x (span/RBW)
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

Figure 7-4. Test Instrument & Measurement Setup

Test Notes

None

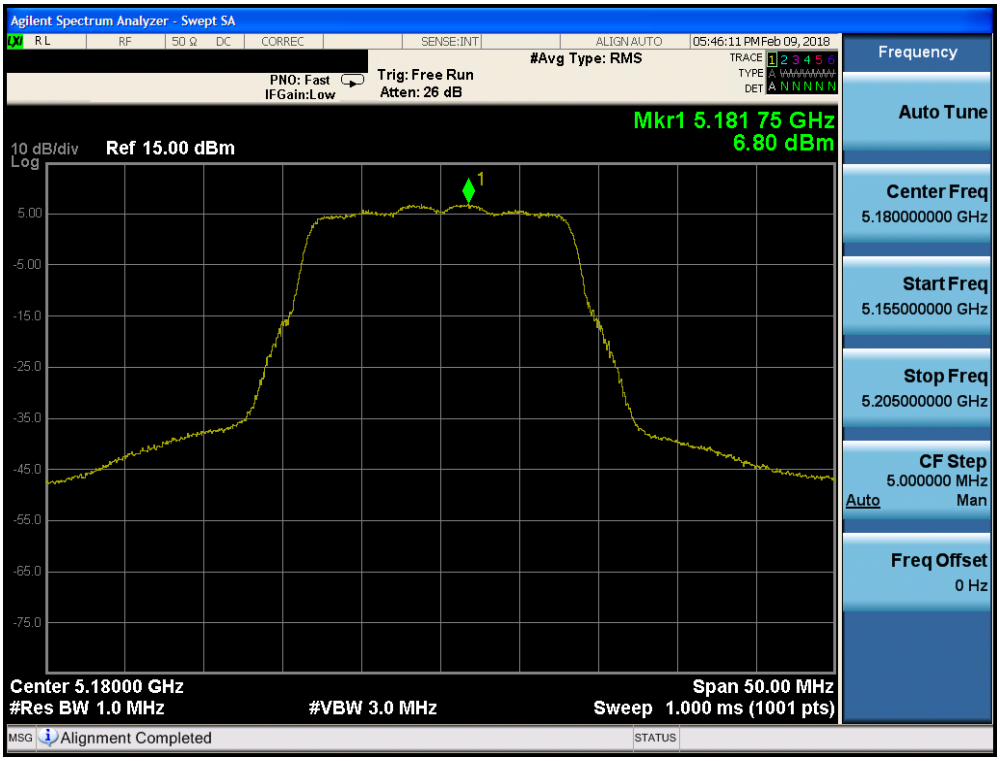
SISO Antenna-1 Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	6.80	11.0	-4.20
	5200	40	a	6	7.60	11.0	-3.40
	5240	48	a	6	7.66	11.0	-3.34
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	5.94	11.0	-5.06
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.92	11.0	-4.08
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.68	11.0	-4.32
	5190	38	n (40MHz)	13.5/15 (MCS0)	1.74	11.0	-9.26
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.86	11.0	-7.14
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.62	11.0	-13.62
Band 2A	5260	52	a	6	8.33	11.0	-2.67
	5280	56	a	6	8.32	11.0	-2.68
	5320	64	a	6	6.77	11.0	-4.23
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	7.58	11.0	-3.42
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	7.63	11.0	-3.37
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	6.25	11.0	-4.75
	5270	54	n (40MHz)	13.5/15 (MCS0)	4.04	11.0	-6.96
	5310	62	n (40MHz)	13.5/15 (MCS0)	1.53	11.0	-9.47
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-3.31	11.0	-14.31
Band 2C	5500	100	a	6	6.38	11.0	-4.62
	5580	116	a	6	8.02	11.0	-2.98
	5720	144	a	6	7.49	11.0	-3.51
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	6.01	11.0	-4.99
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	7.61	11.0	-3.39
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	7.03	11.0	-3.97
	5510	102	n (40MHz)	13.5/15 (MCS0)	1.28	11.0	-9.72
	5550	110	n (40MHz)	13.5/15 (MCS0)	4.08	11.0	-6.92
	5710	142	n (40MHz)	13.5/15 (MCS0)	4.28	11.0	-6.72
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-1.35	11.0	-12.35
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	1.27	11.0	-9.73
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	1.02	11.0	-9.98

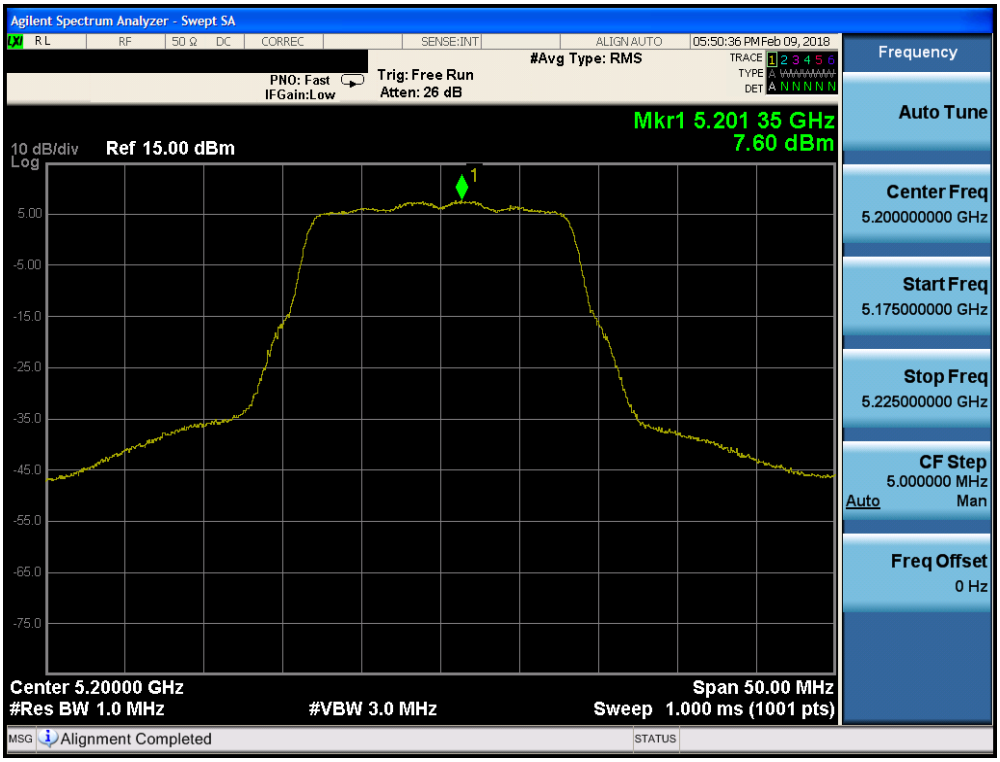
Table 7-26. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT1

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p Power Density [dBm/MHz]	Max e.i.r.p Power Density [dBm/MHz]	e.i.r.p Power Density Margin [dB]
Band 1	5180	36	a	6	6.80	0.69	7.5	10.00	-2.5
	5200	40	a	6	7.60	0.69	8.3	10.00	-1.7
	5240	48	a	6	7.66	1.17	8.8	10.00	-1.2
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	5.94	0.69	6.6	10.00	-3.4
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.92	0.69	7.6	10.00	-2.4
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.68	1.17	7.9	10.00	-2.2
	5190	38	n (40MHz)	13.5/15 (MCS0)	1.74	0.69	2.4	10.00	-7.6
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.86	1.27	5.1	10.00	-4.9
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.62	1.27	-1.4	10.00	-11.4

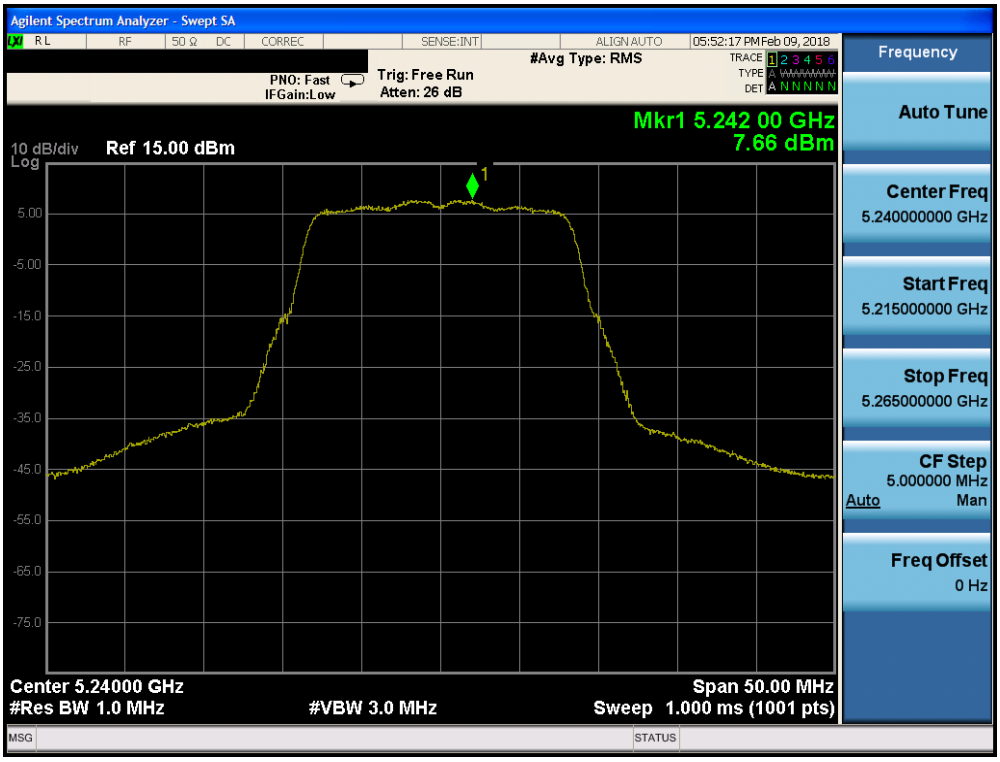
Table 7-27. Band 1 e.i.r.p. Conducted Power Spectral Density Measurements (ISED) SISO ANT1



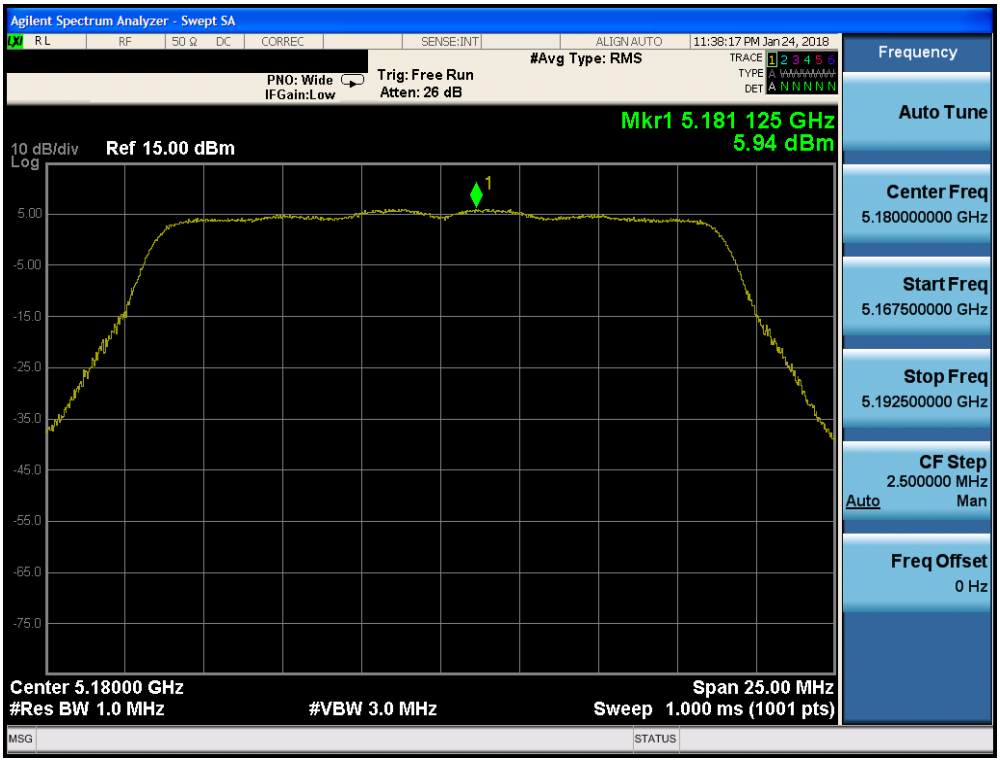
Plot 7-133. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 1) – Ch. 36)



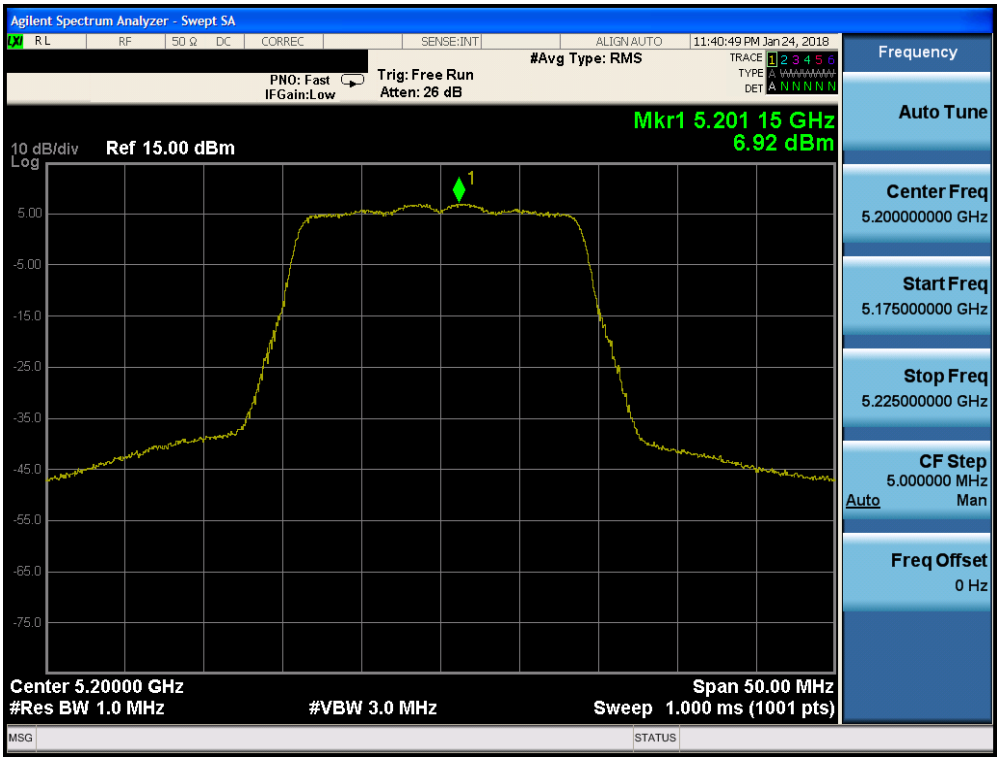
Plot 7-134. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 1) – Ch. 40)



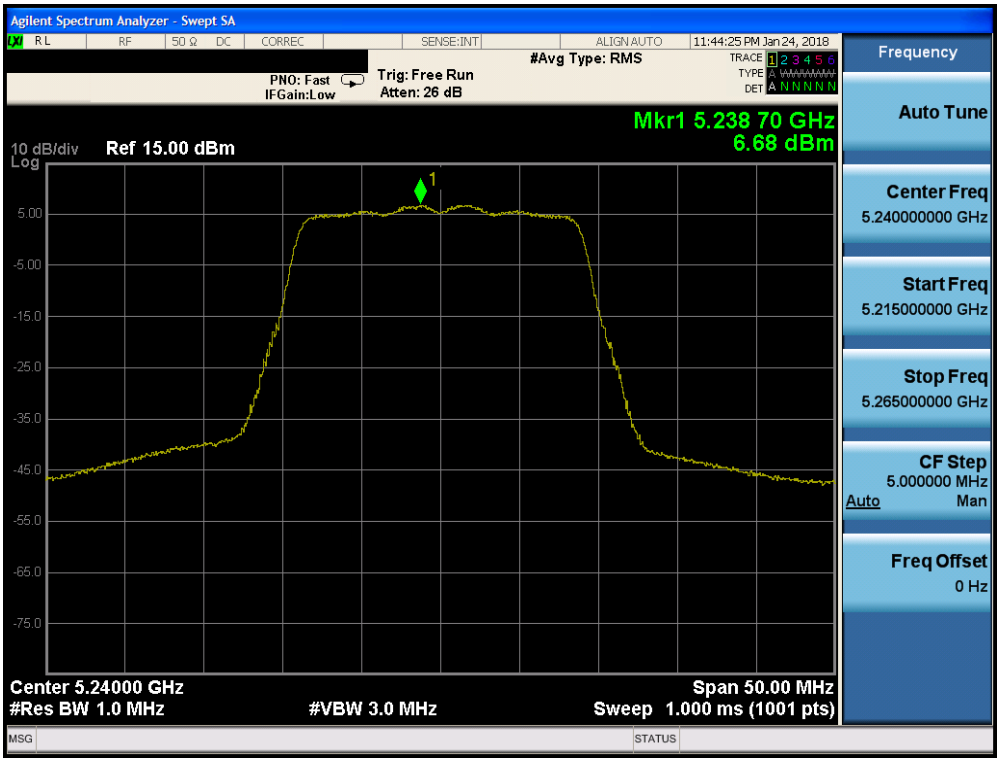
Plot 7-135. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 1) – Ch. 48)



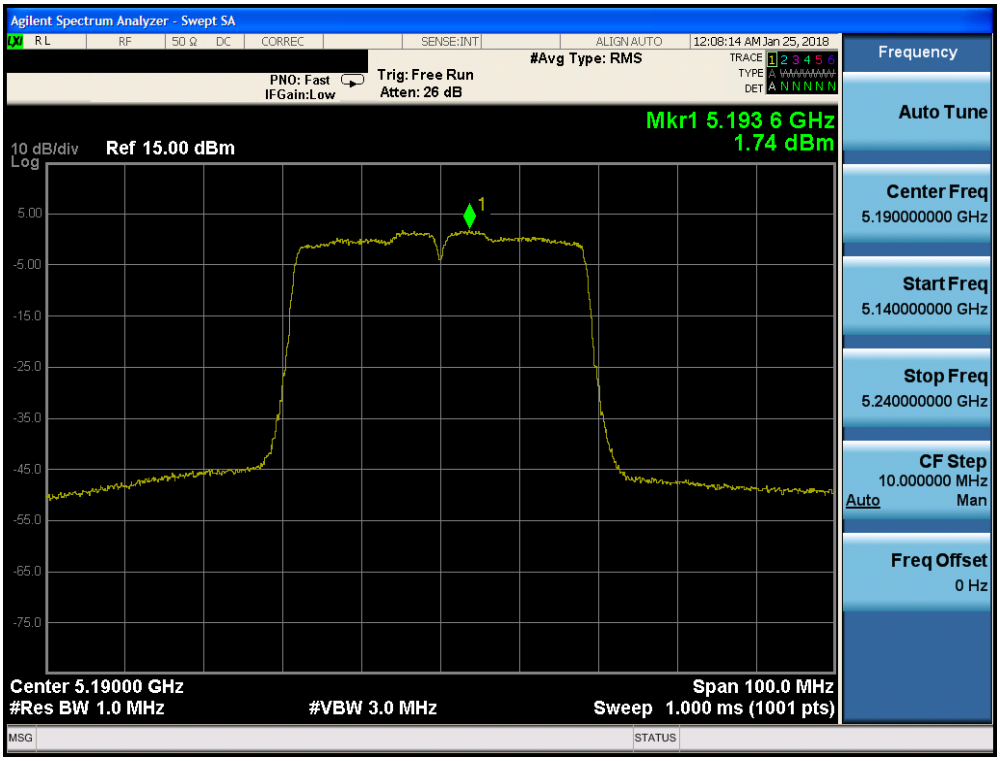
Plot 7-136. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)



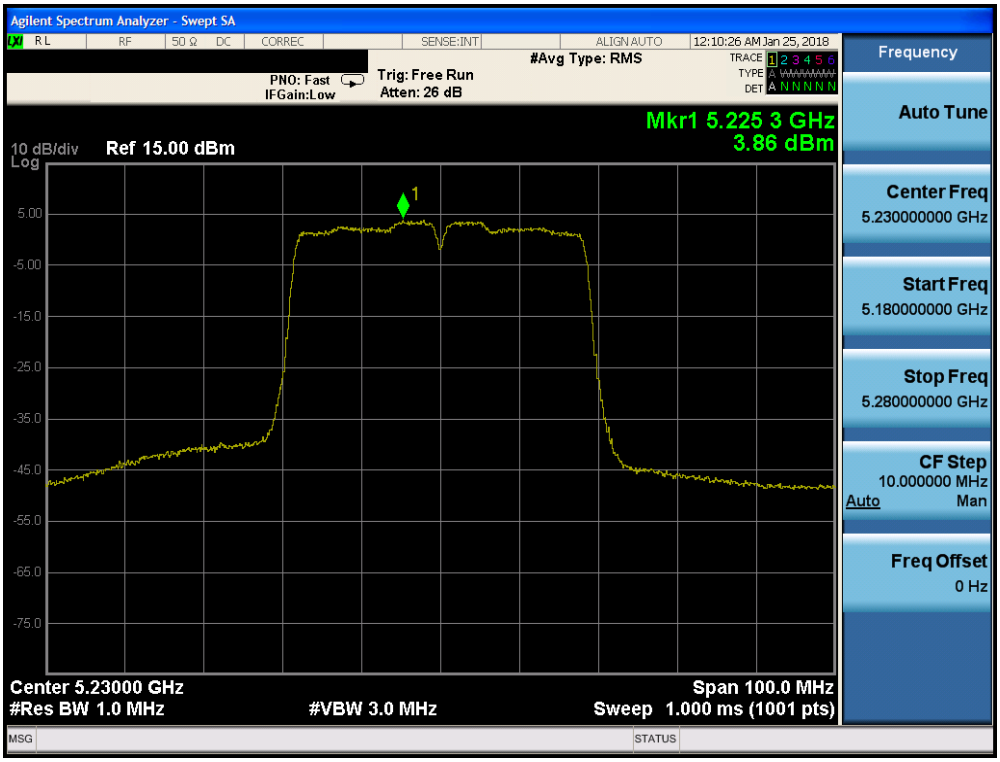
Plot 7-137. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)



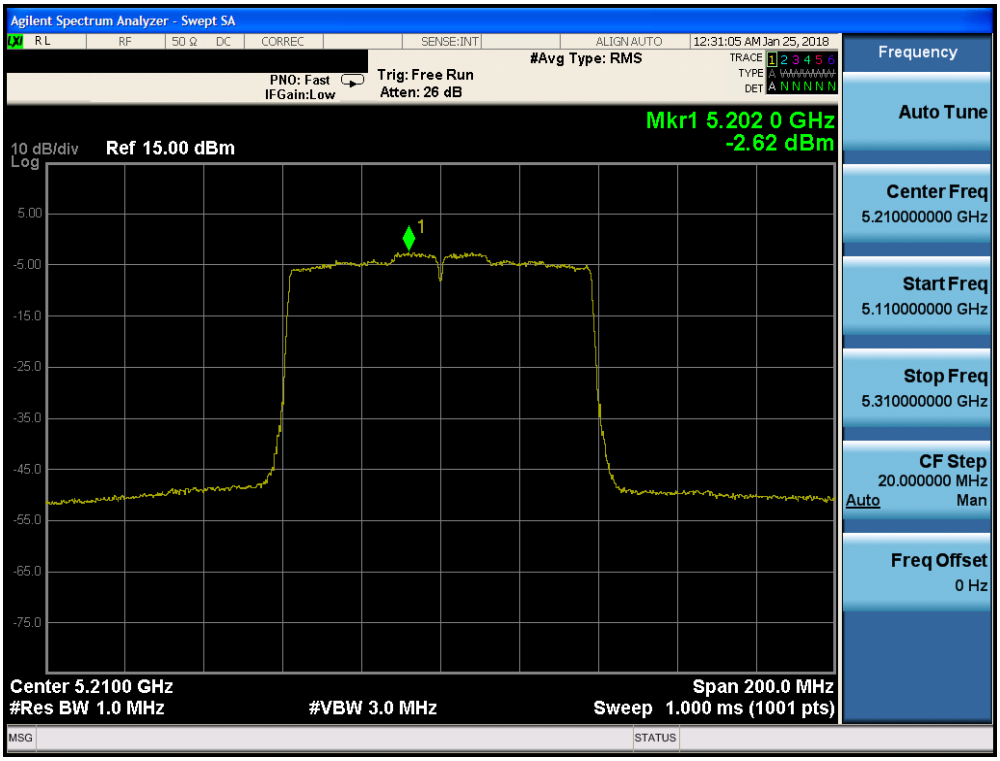
Plot 7-138. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)



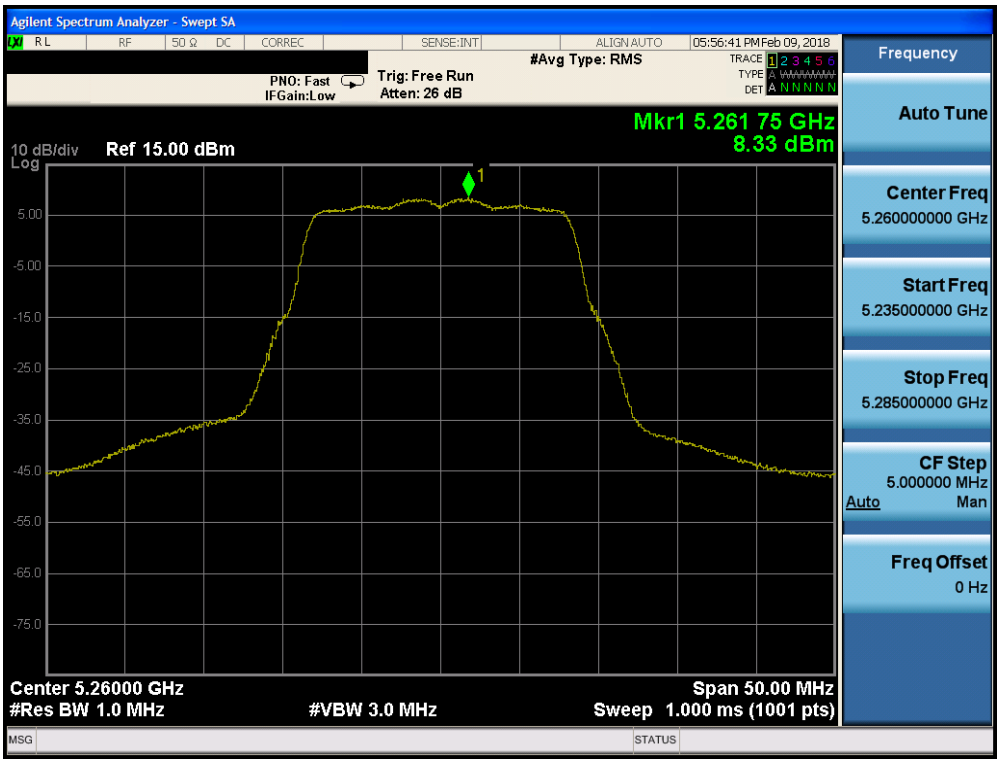
Plot 7-139. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 1) – Ch. 38)



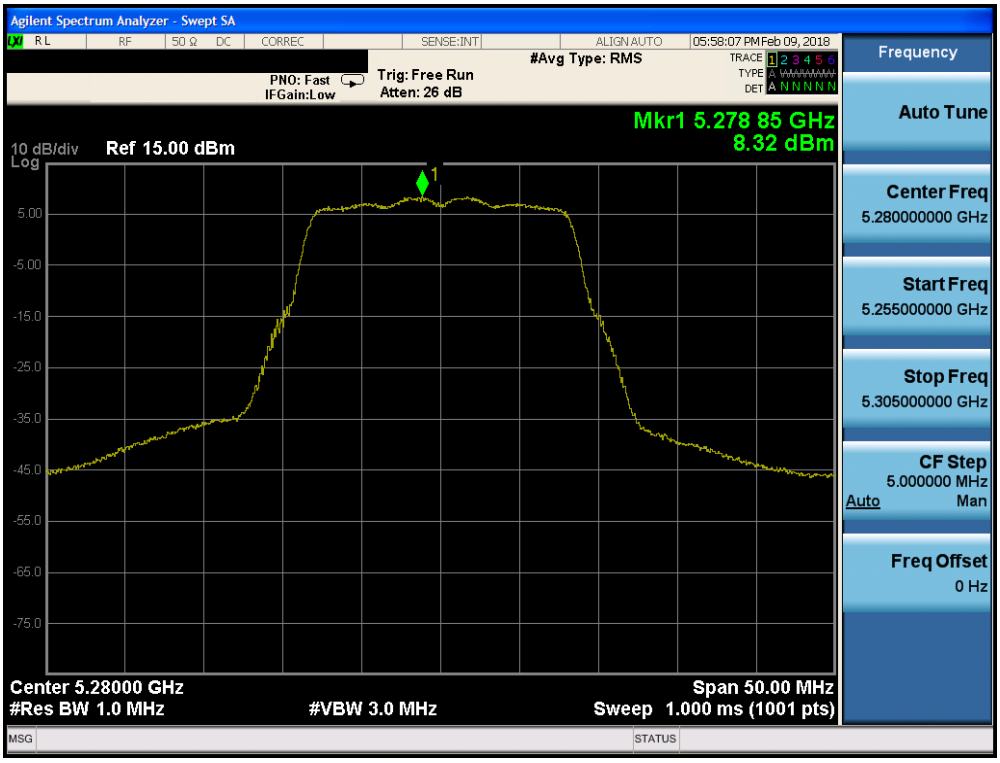
Plot 7-140. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 1) – Ch. 46)



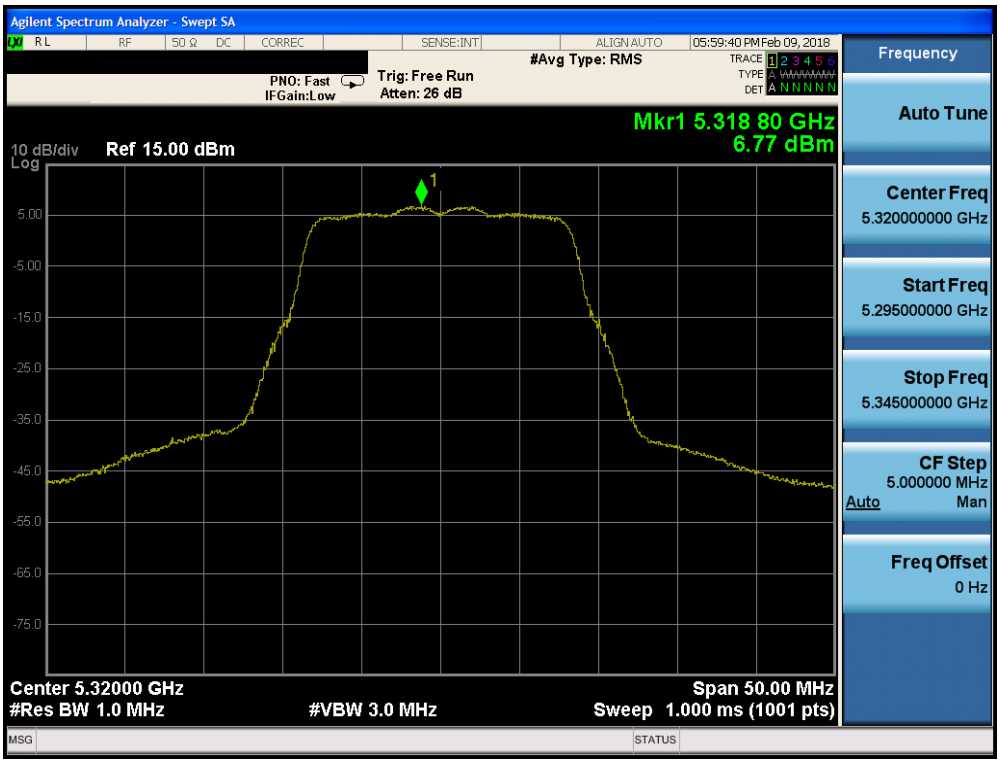
Plot 7-141. Power Spectral Density Plot FCC SISO ANT1 (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)



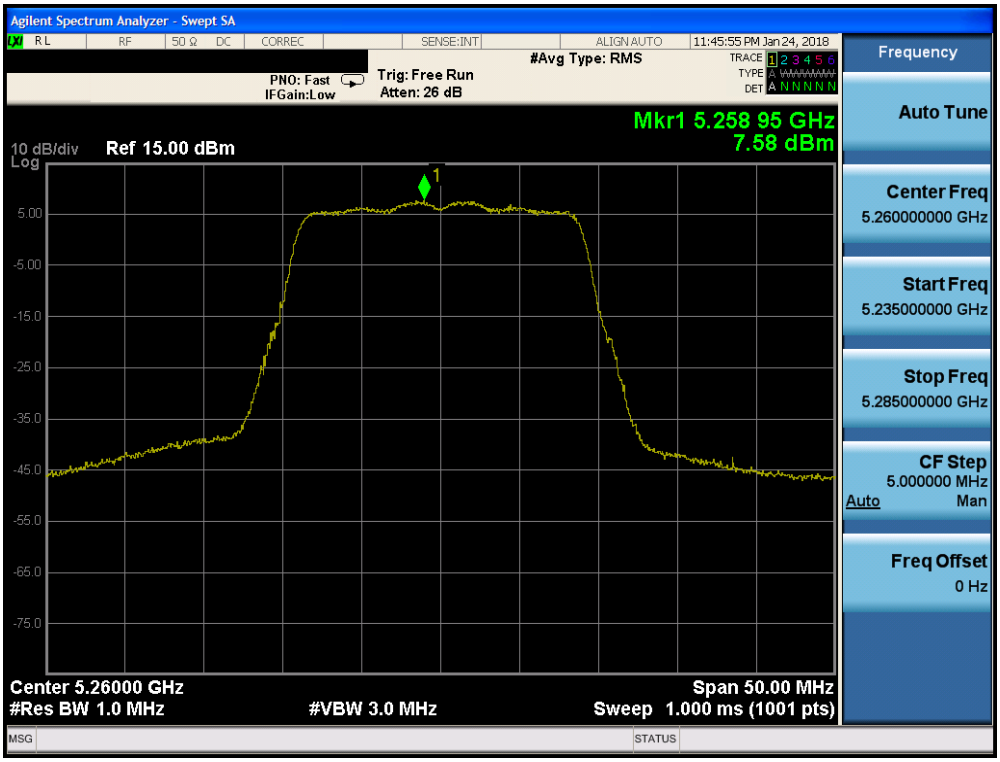
Plot 7-142. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 2A) – Ch. 52)



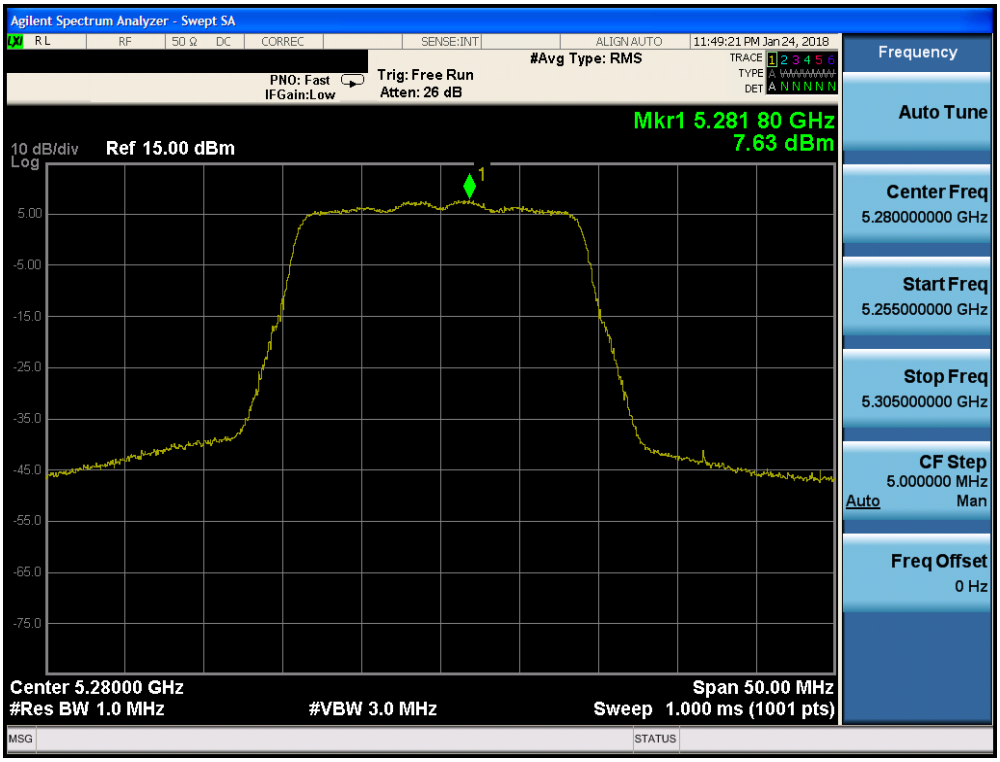
Plot 7-143. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 2A) – Ch. 56)



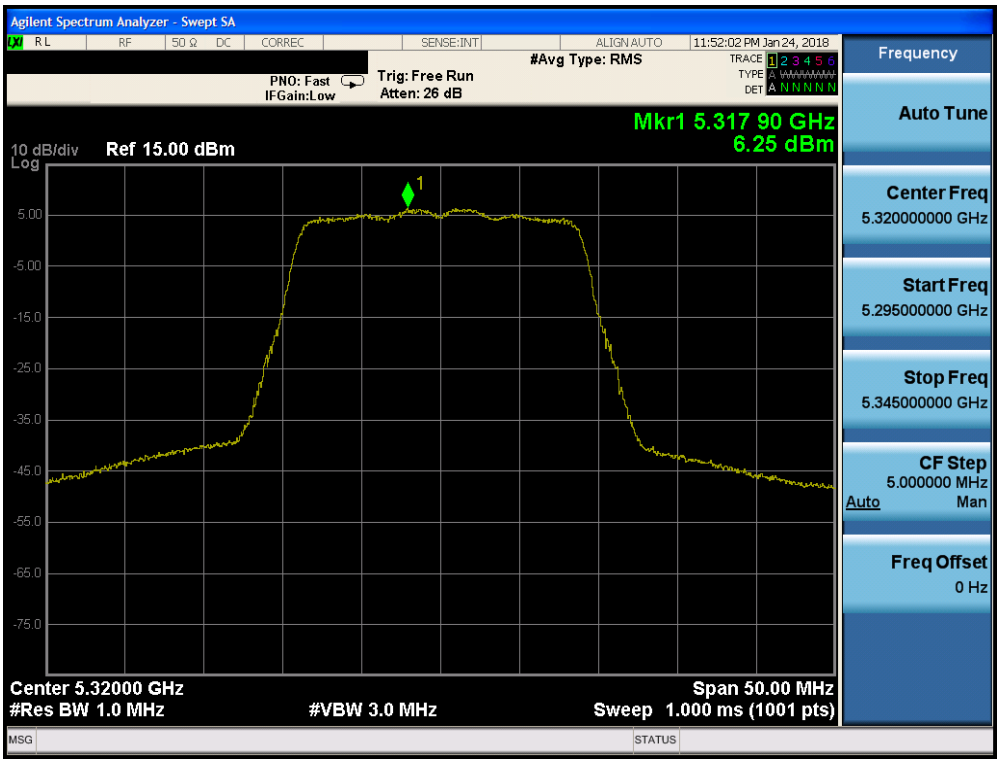
Plot 7-144. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 2A) – Ch. 64)



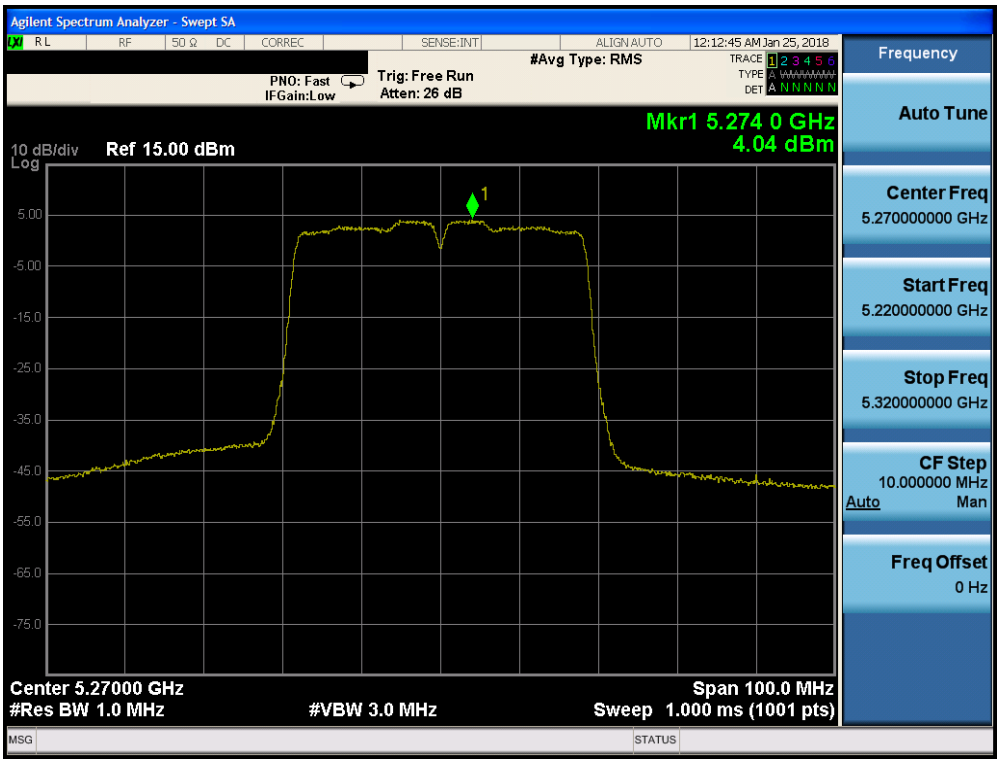
Plot 7-145. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)



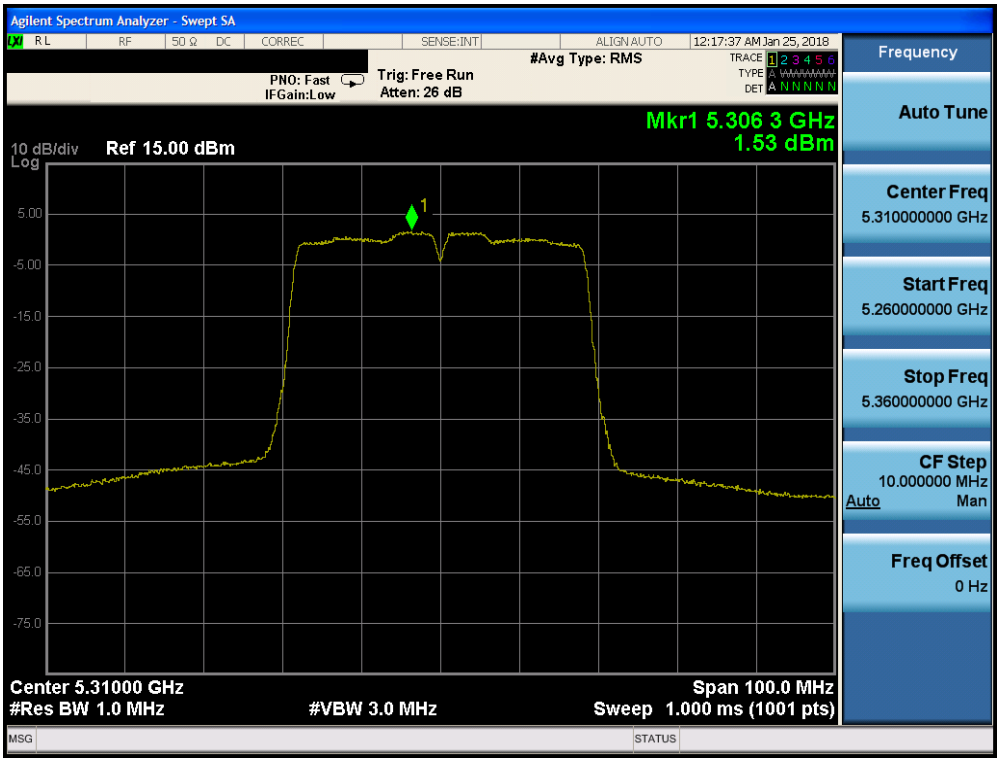
Plot 7-146. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)



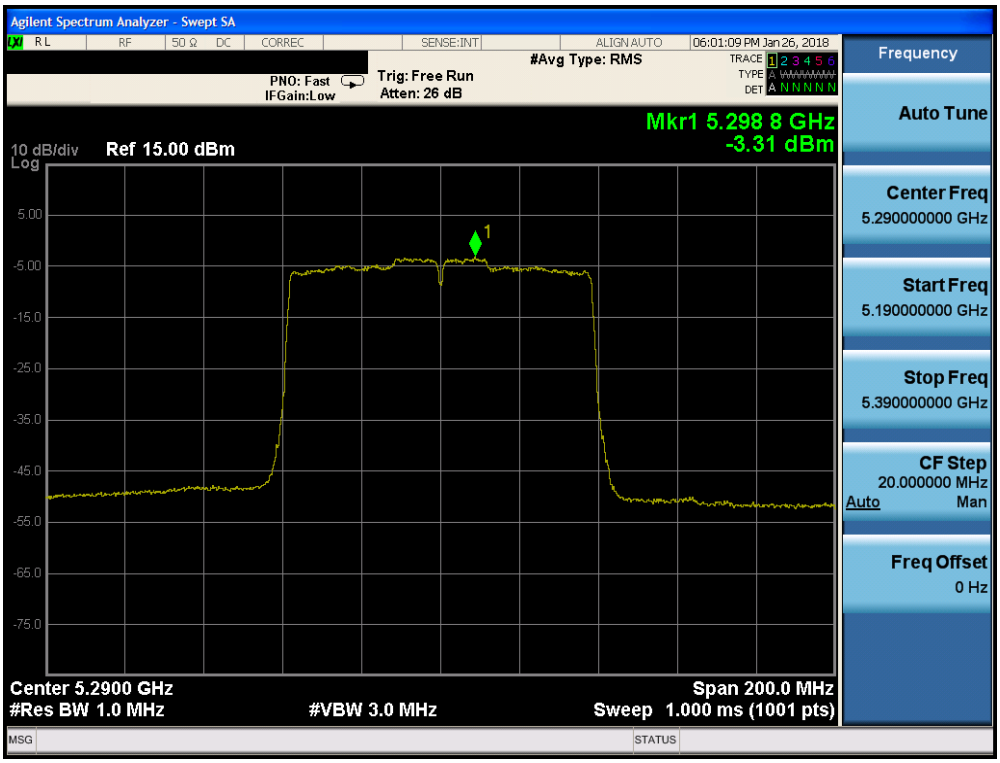
Plot 7-147. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)



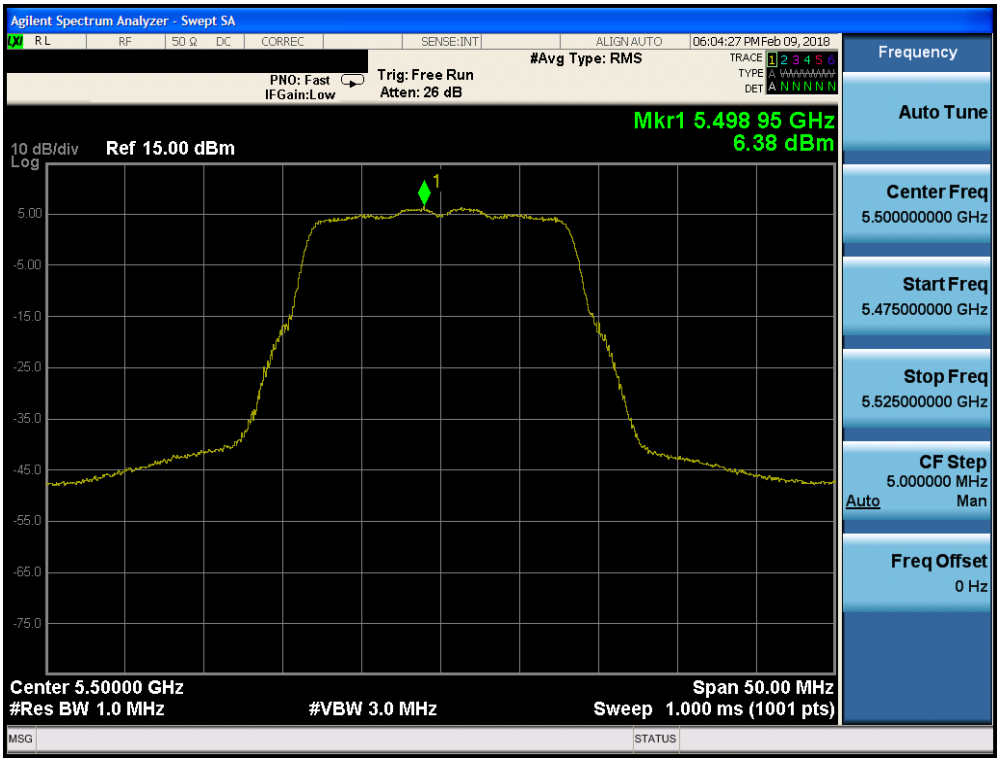
Plot 7-148. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)



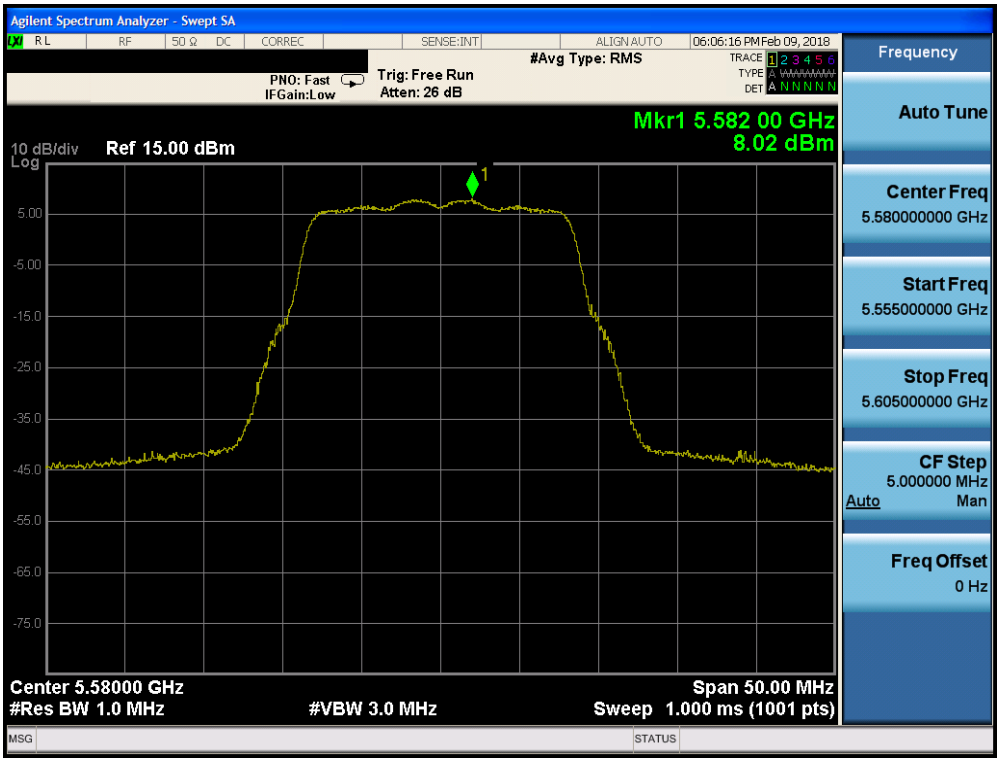
Plot 7-149. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)



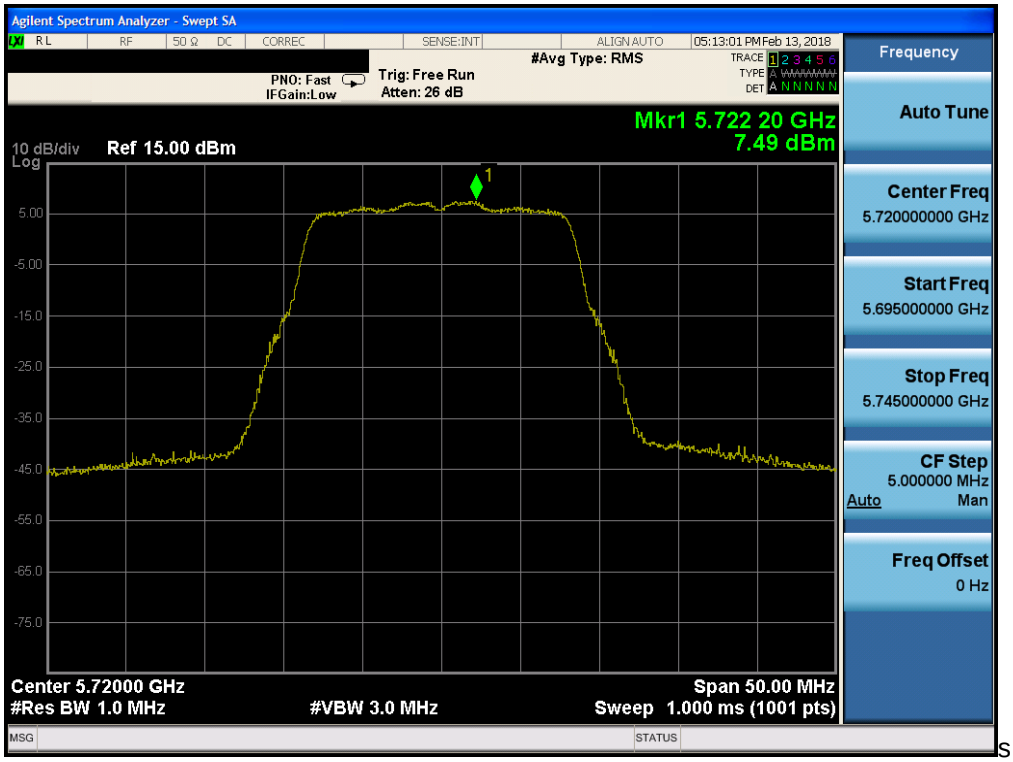
Plot 7-150. Power Spectral Density Plot FCC SISO ANT1 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)



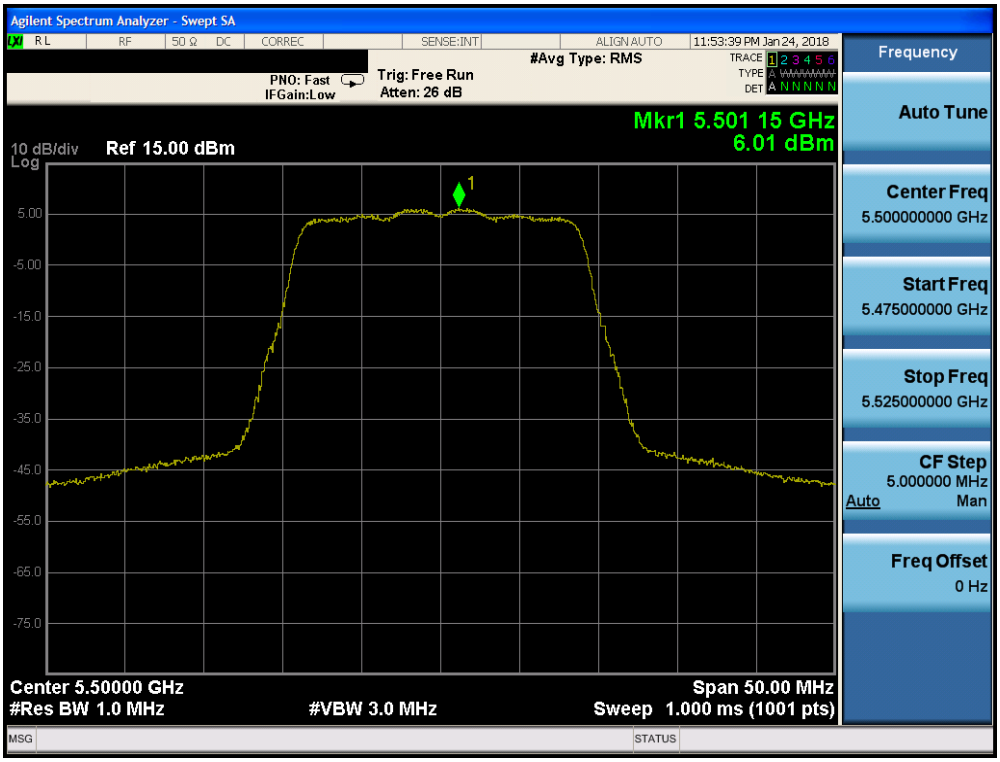
Plot 7-151. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 2C) – Ch. 100)



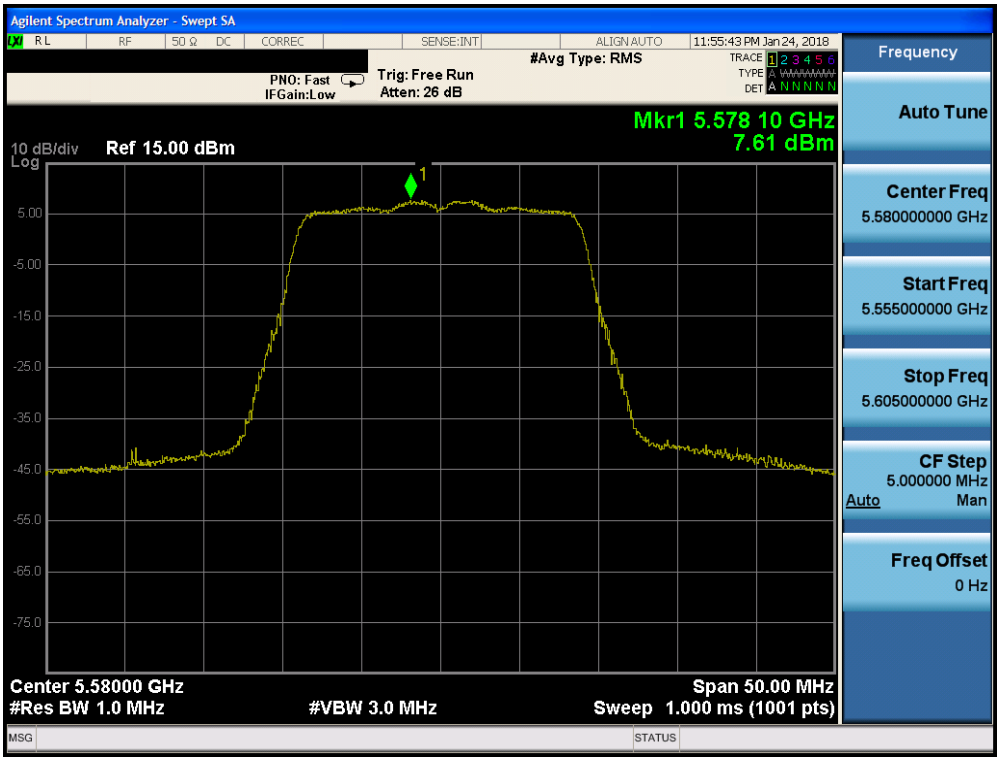
Plot 7-152. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 2C) – Ch. 116)



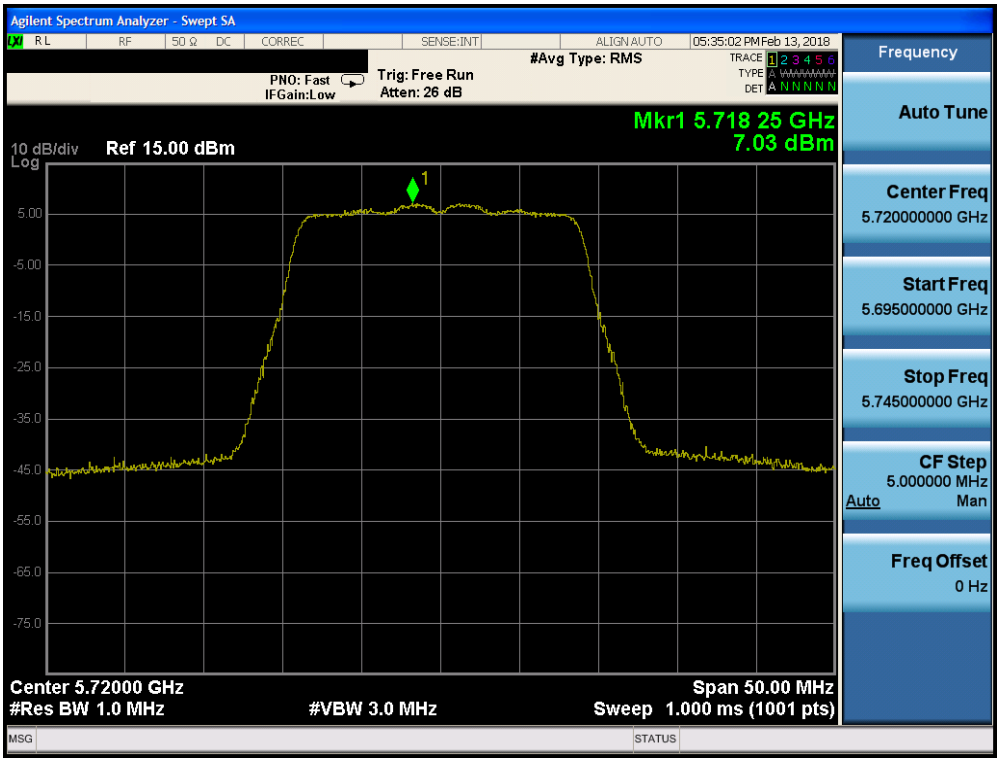
Plot 7-153. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 2C) – Ch. 144)



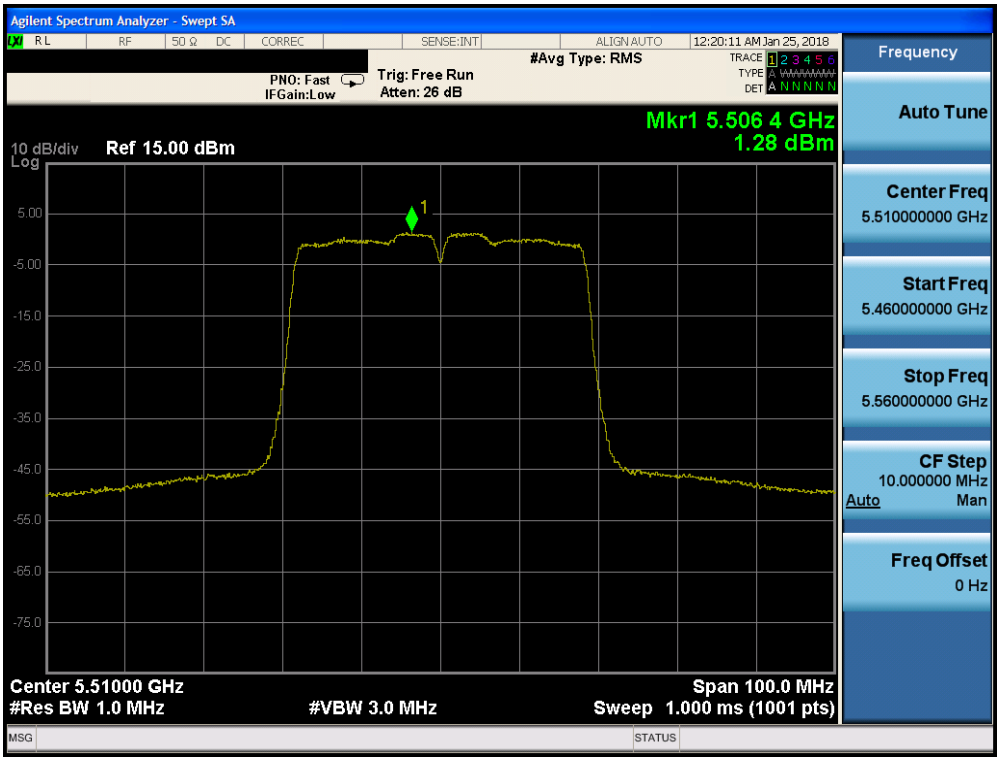
Plot 7-154. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)



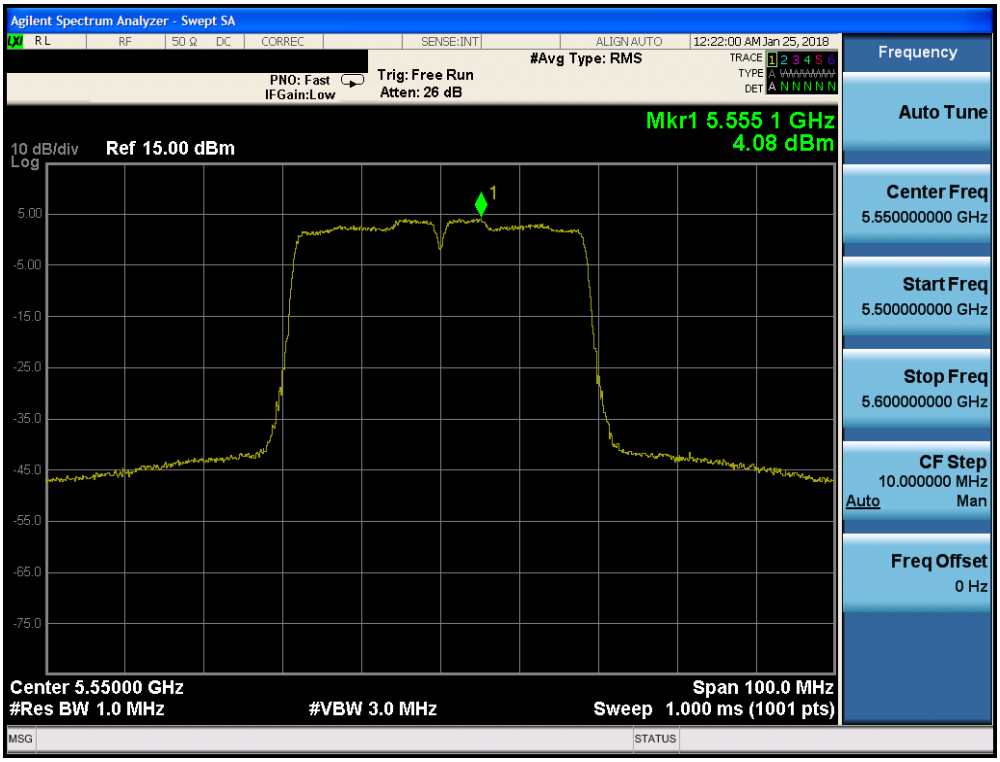
Plot 7-155. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 116)



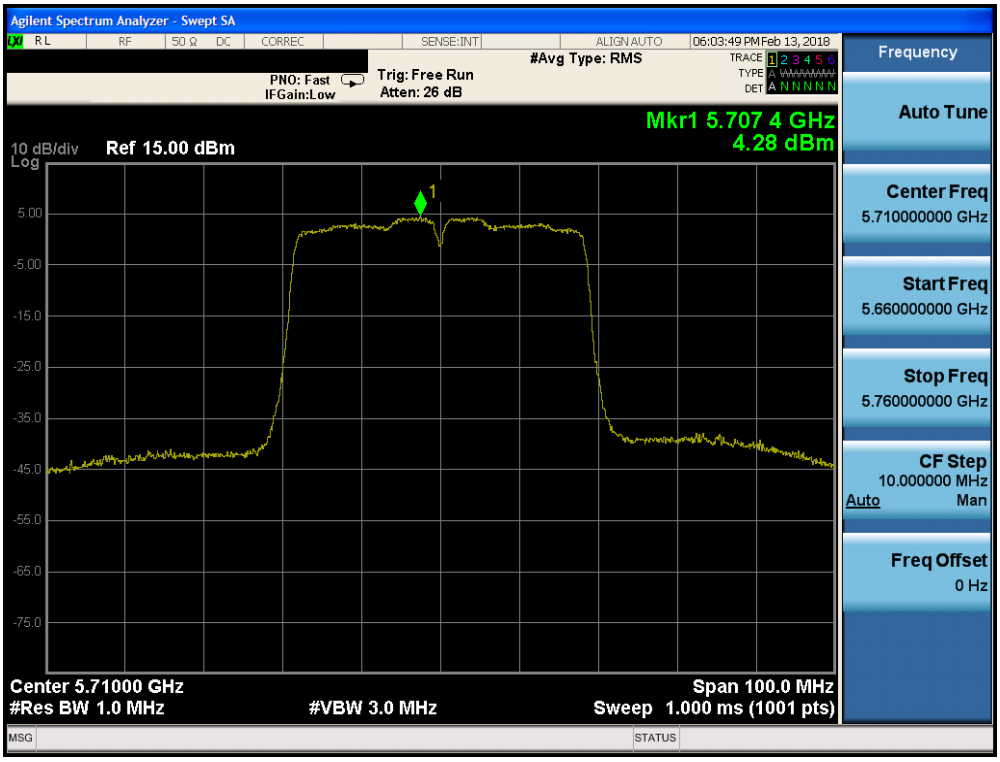
Plot 7-156. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)



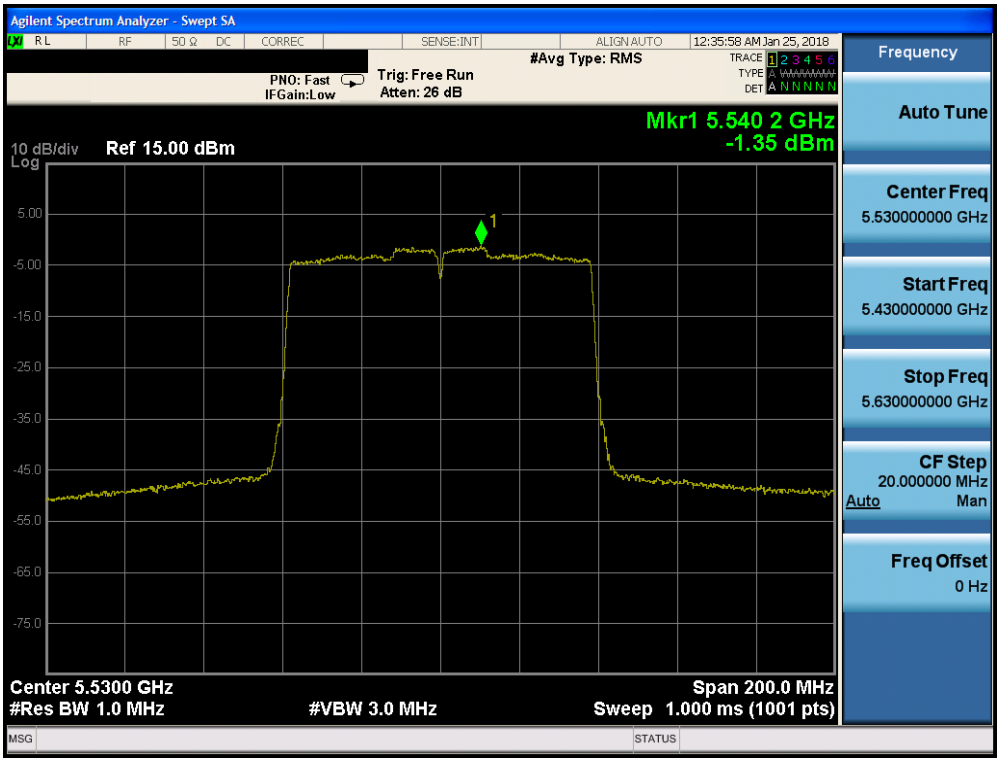
Plot 7-157. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)



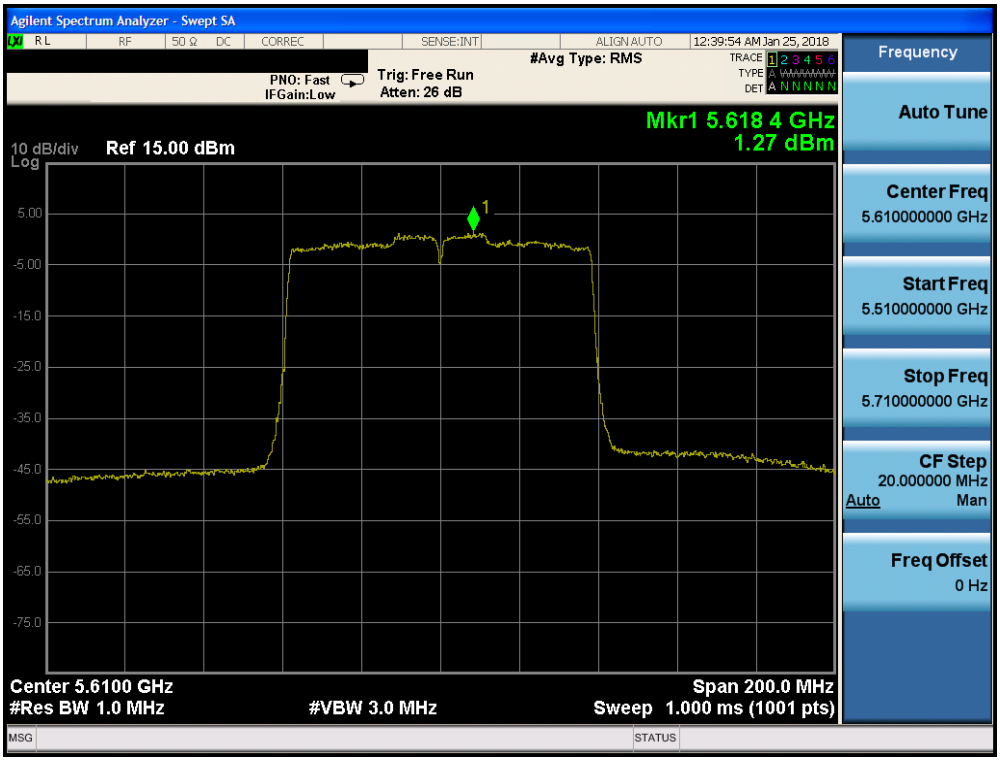
Plot 7-158. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)



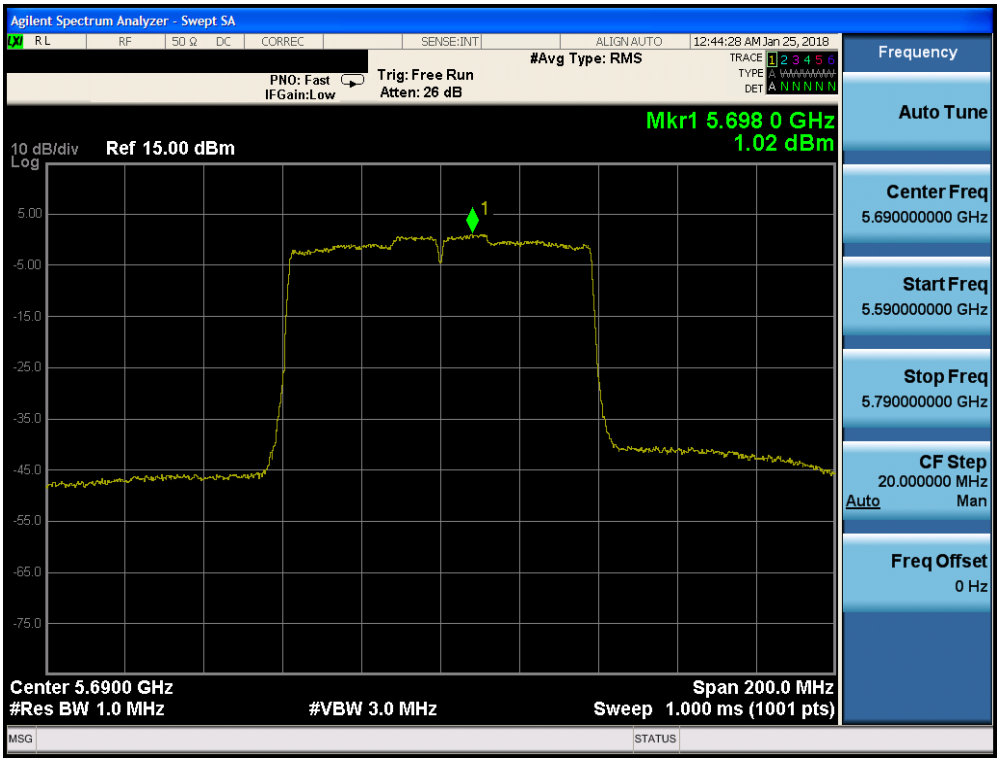
Plot 7-159. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)



Plot 7-160. Power Spectral Density Plot FCC SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)



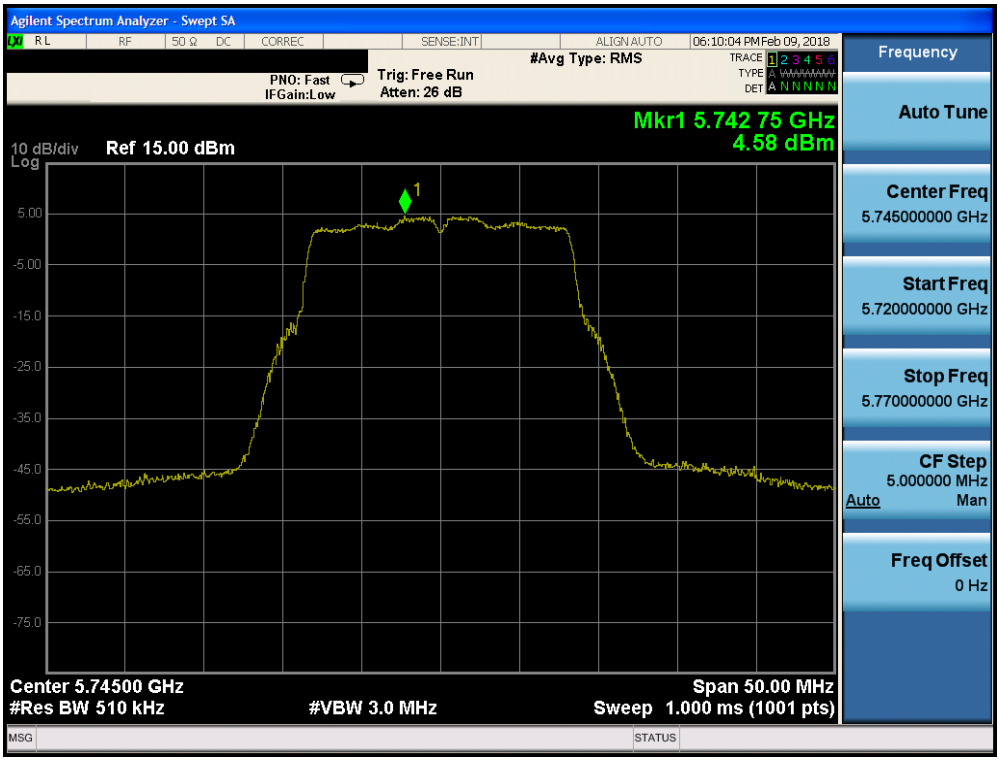
Plot 7-161. Power Spectral Density Plot FCC SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)



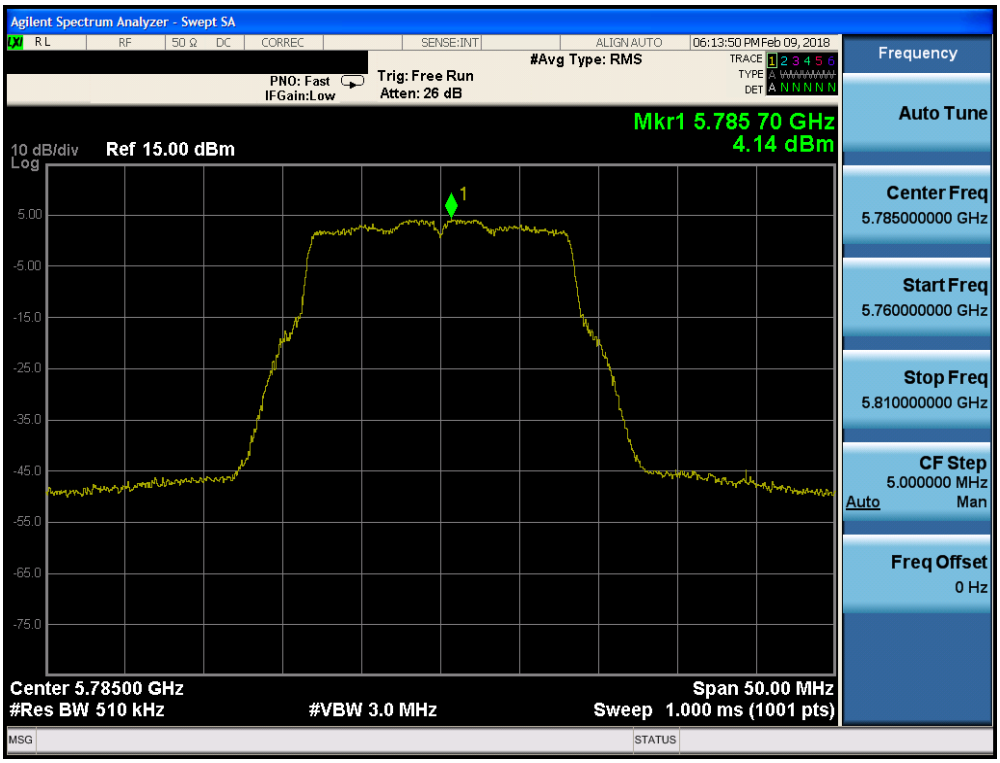
Plot 7-162. Power Spectral Density Plot FCC SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6	4.58	30.0	-25.42
	5785	157	a	6	4.14	30.0	-25.86
	5825	165	a	6	3.89	30.0	-26.11
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	4.74	30.0	-25.26
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	4.07	30.0	-25.93
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	4.00	30.0	-26.00
	5755	151	n (40MHz)	13.5/15 (MCS0)	1.28	30.0	-28.72
	5795	159	n (40MHz)	13.5/15 (MCS0)	0.93	30.0	-29.07
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	0.36	30.0	-29.64

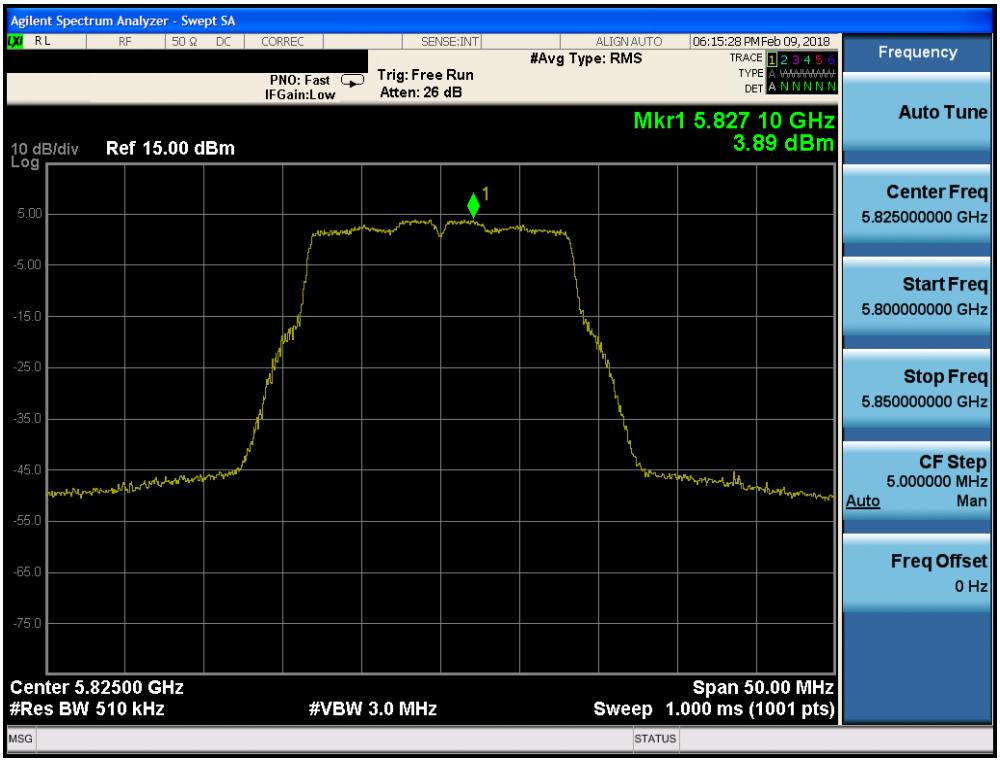
Table 7-28. Band 3 Conducted Power Spectral Density Measurements SISO ANT1



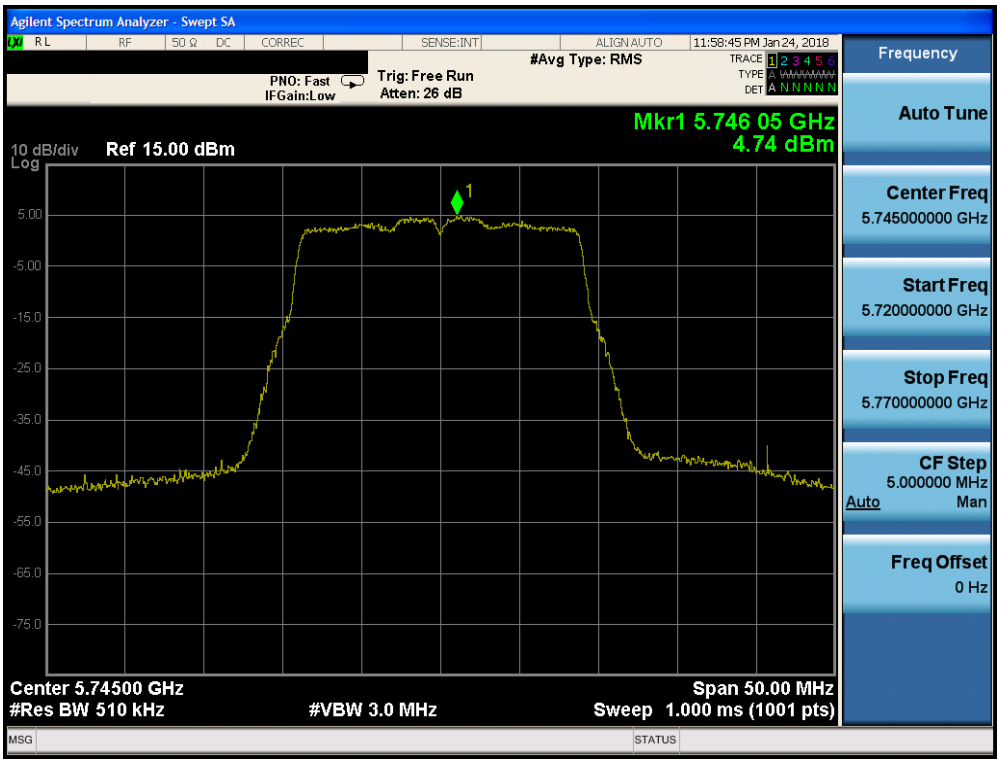
Plot 7-163. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 3) – Ch. 149)



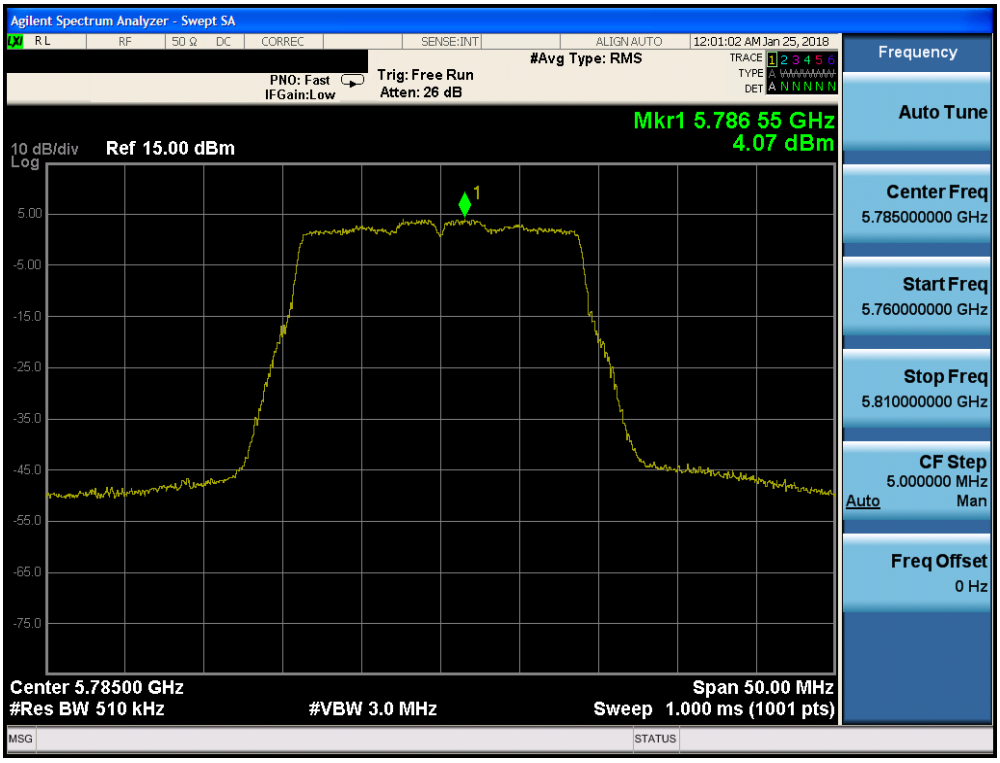
Plot 7-164. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 3) – Ch. 157)



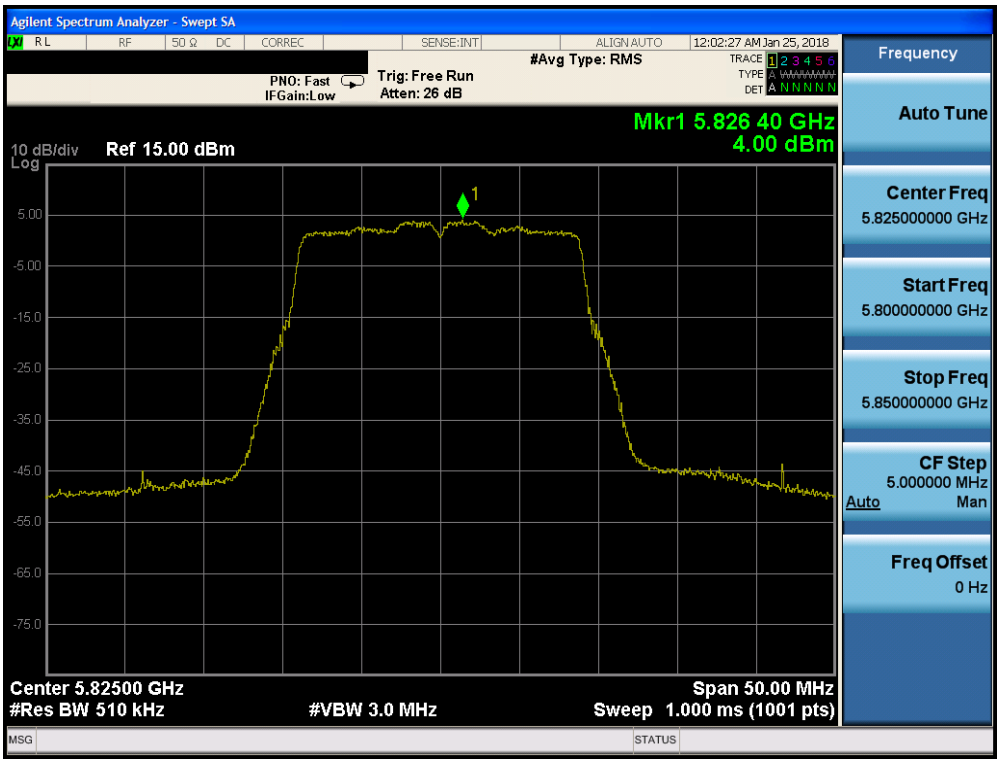
Plot 7-165. Power Spectral Density Plot FCC SISO ANT1 (802.11a (UNII Band 3) – Ch. 165)



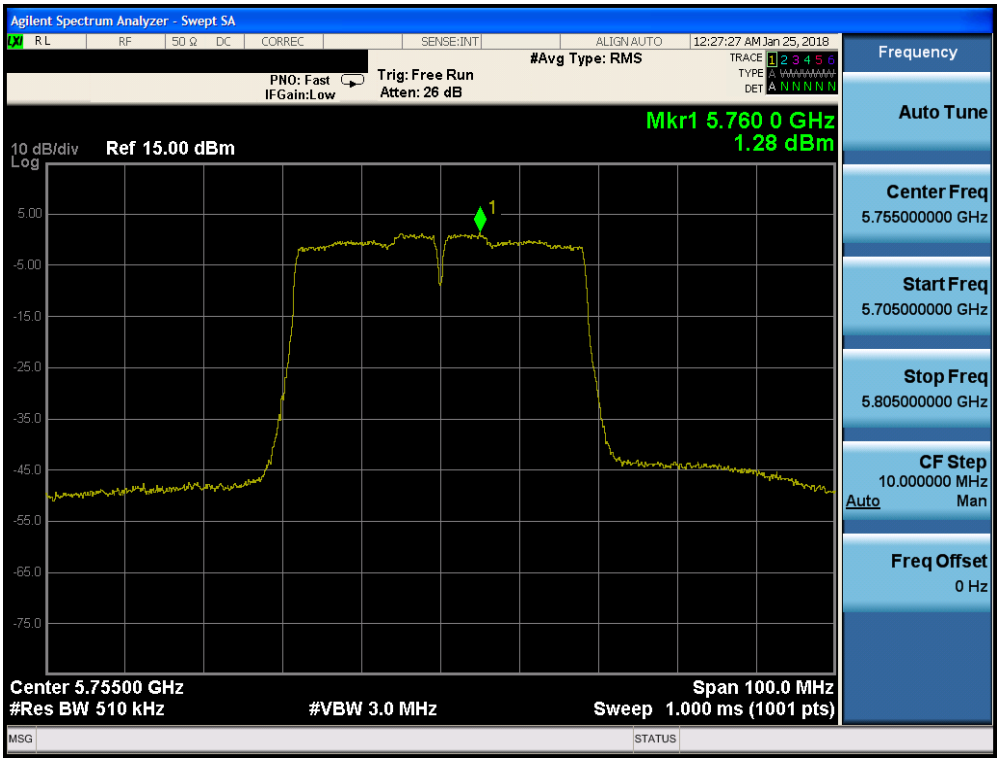
Plot 7-166. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



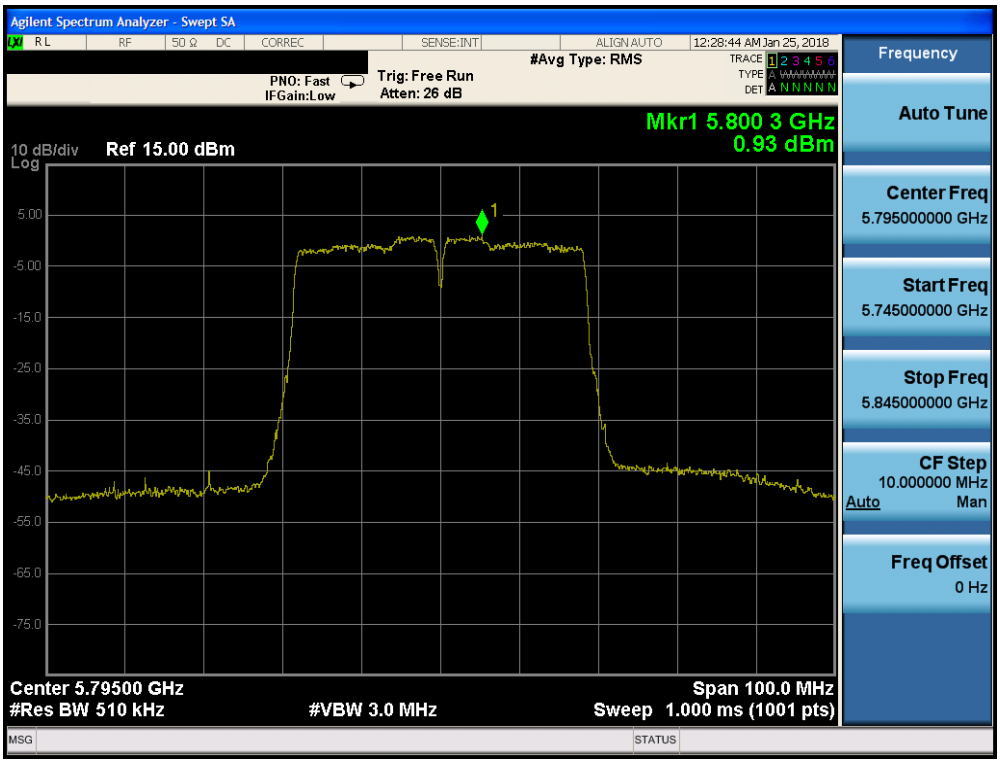
Plot 7-167. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)



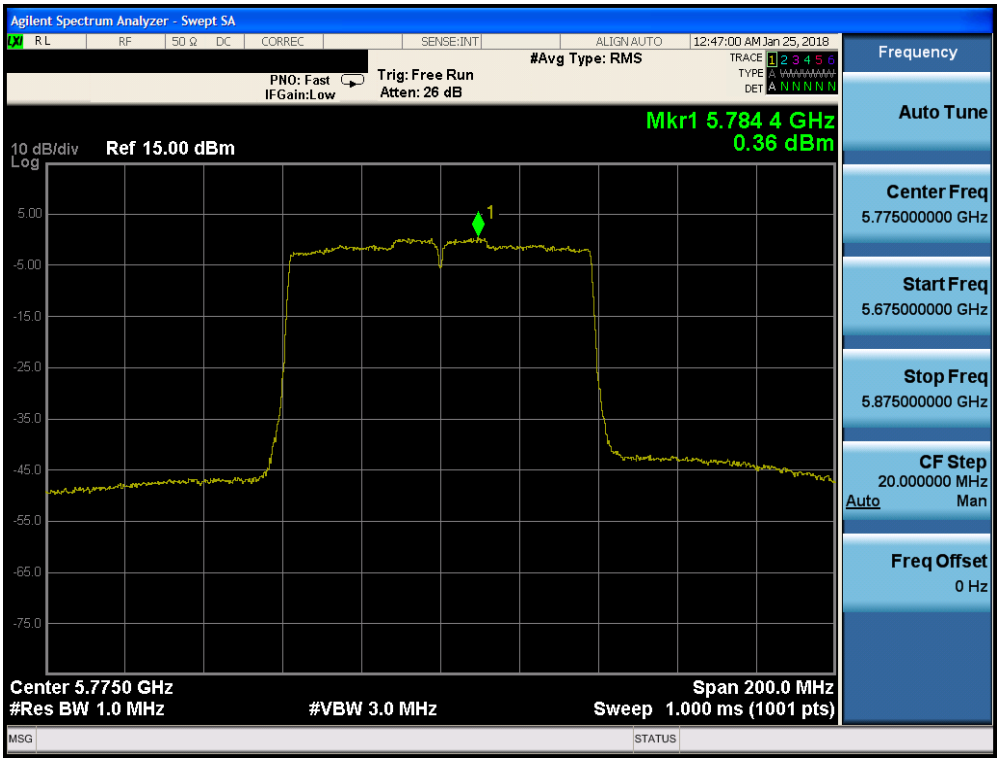
Plot 7-168. Power Spectral Density Plot FCC SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)



Plot 7-169. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)



Plot 7-170. Power Spectral Density Plot FCC SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 161)



Plot 7-171. Power Spectral Density Plot FCC SISO ANT1 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

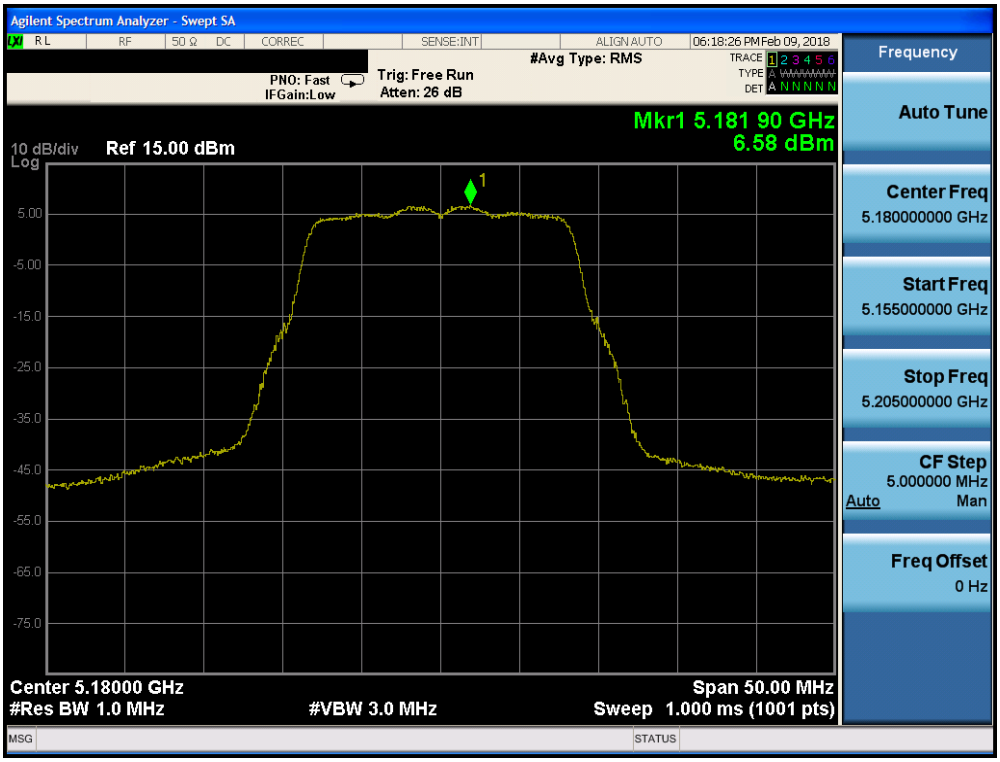
SISO Antenna-2 Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	6.58	11.0	-4.42
	5200	40	a	6	7.35	11.0	-3.65
	5240	48	a	6	7.18	11.0	-3.82
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	5.73	11.0	-5.27
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.65	11.0	-4.35
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	7.00	11.0	-4.00
	5190	38	n (40MHz)	13.5/15 (MCS0)	1.79	11.0	-9.21
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.75	11.0	-7.25
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.90	11.0	-13.90
Band 2A	5260	52	a	6	8.14	11.0	-2.86
	5280	56	a	6	8.07	11.0	-2.93
	5320	64	a	6	6.81	11.0	-4.19
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	7.79	11.0	-3.21
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	7.83	11.0	-3.17
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	6.26	11.0	-4.74
	5270	54	n (40MHz)	13.5/15 (MCS0)	4.28	11.0	-6.72
	5310	62	n (40MHz)	13.5/15 (MCS0)	1.78	11.0	-9.22
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-2.55	11.0	-13.55
Band 2C	5500	100	a	6	6.16	11.0	-4.84
	5580	116	a	6	7.52	11.0	-3.48
	5720	144	a	6	7.38	11.0	-3.62
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	5.87	11.0	-5.13
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	7.41	11.0	-3.59
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.89	11.0	-4.11
	5510	102	n (40MHz)	13.5/15 (MCS0)	1.65	11.0	-9.35
	5550	110	n (40MHz)	13.5/15 (MCS0)	4.16	11.0	-6.84
	5710	142	n (40MHz)	13.5/15 (MCS0)	3.48	11.0	-7.52
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-1.85	11.0	-12.85
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	1.42	11.0	-9.58
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	1.12	11.0	-9.88

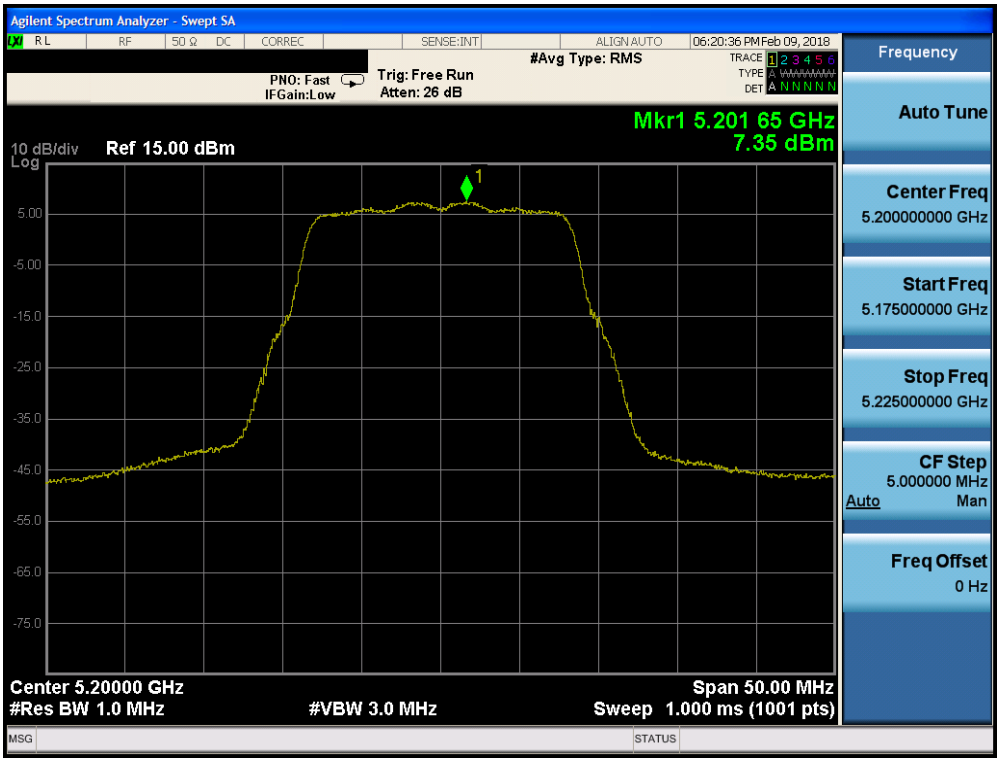
Table 7-29. Conducted Power Spectral Density Measurements SISO ANT2

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p Power Density [dBm/MHz]	Max e.i.r.p Power Density [dBm/MHz]	e.i.r.p Power Density Margin [dB]
Band 1	5180	36	a	6	6.58	2.19	8.8	10.00	-1.2
	5200	40	a	6	7.35	2.22	9.6	10.00	-0.4
	5240	48	a	6	7.18	2.62	9.8	10.00	-0.2
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	5.73	2.19	7.9	10.00	-2.1
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.65	2.22	8.9	10.00	-1.1
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	7.00	2.62	9.6	10.00	-0.4
	5190	38	n (40MHz)	13.5/15 (MCS0)	1.79	2.22	4.0	10.00	-6.0
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.75	2.64	6.4	10.00	-3.6
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.90	2.64	-0.3	10.00	-10.3

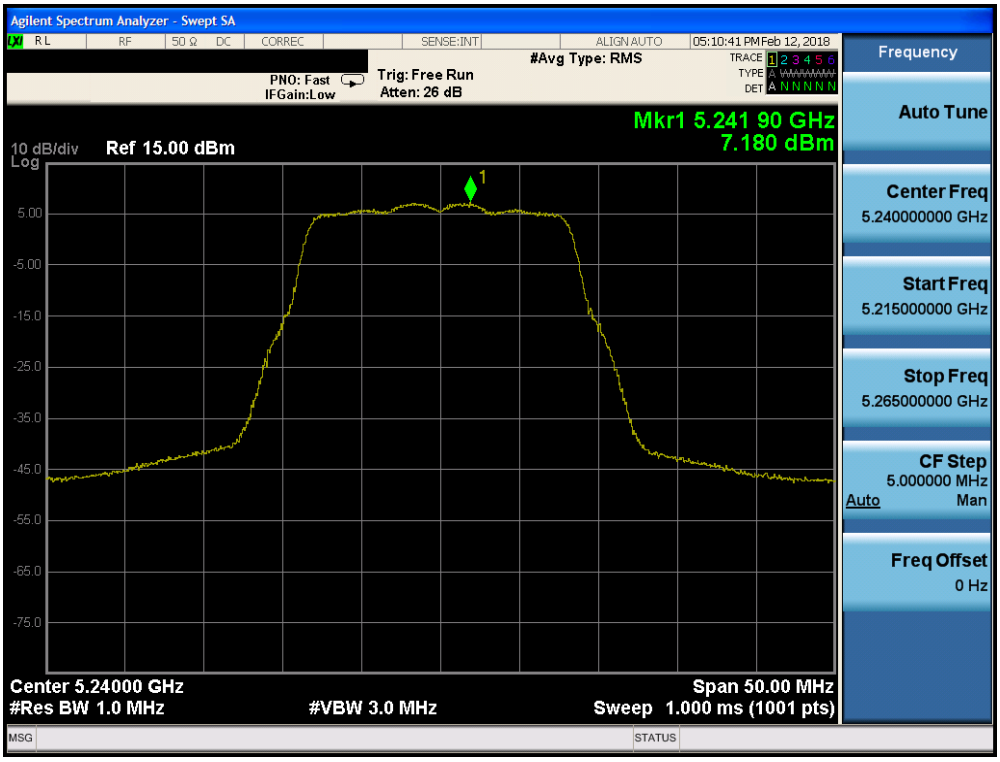
Table 7-30. Band 1 e.i.r.p. Conducted Power Spectral Density Measurements (ISED) SISO ANT2



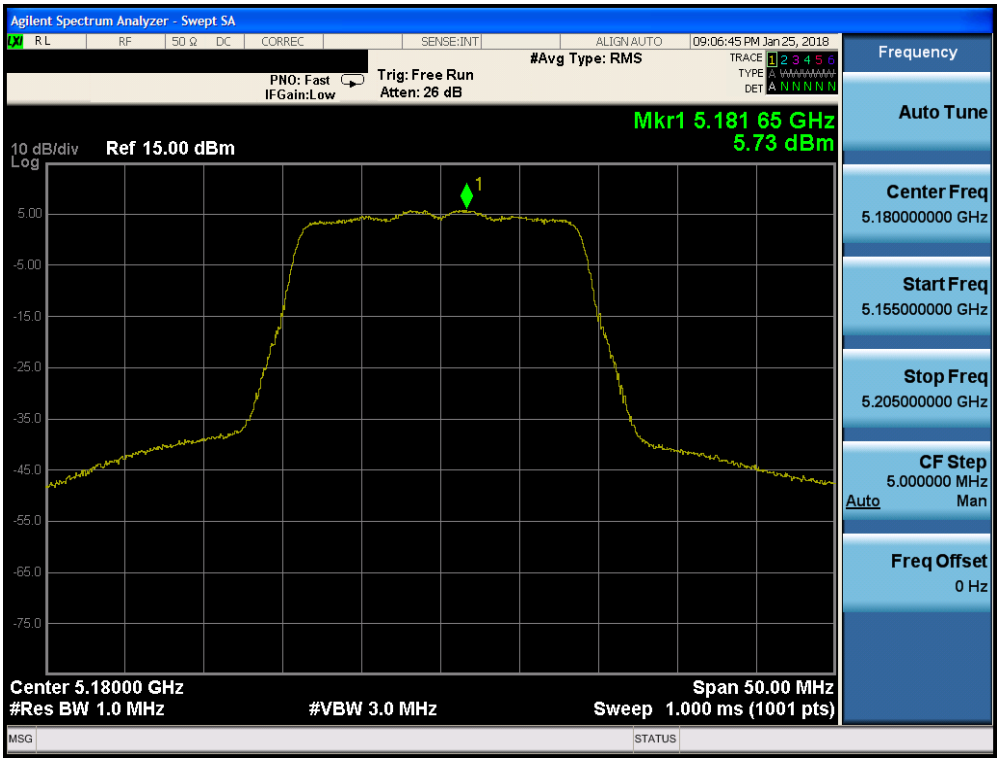
Plot 7-172. Power Spectral Density Plot FCC SISO ANT2 (802.11a (UNII Band 1) – Ch. 36)



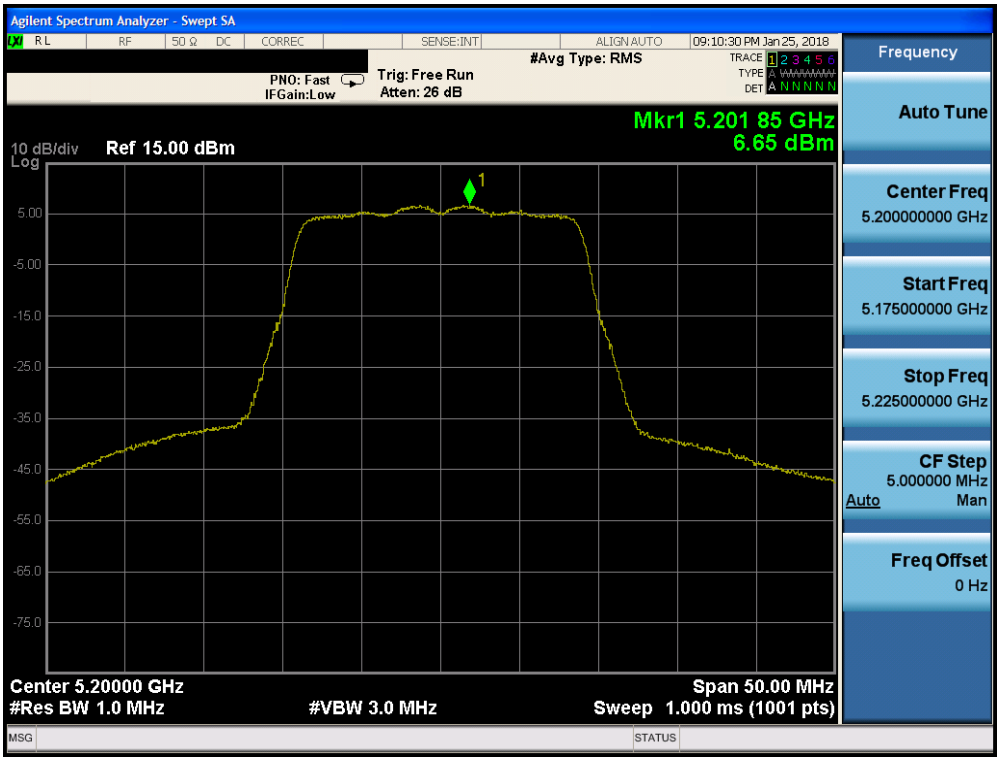
Plot 7-173. Power Spectral Density Plot FCC SISO ANT2 (802.11a (UNII Band 1) – Ch. 40)



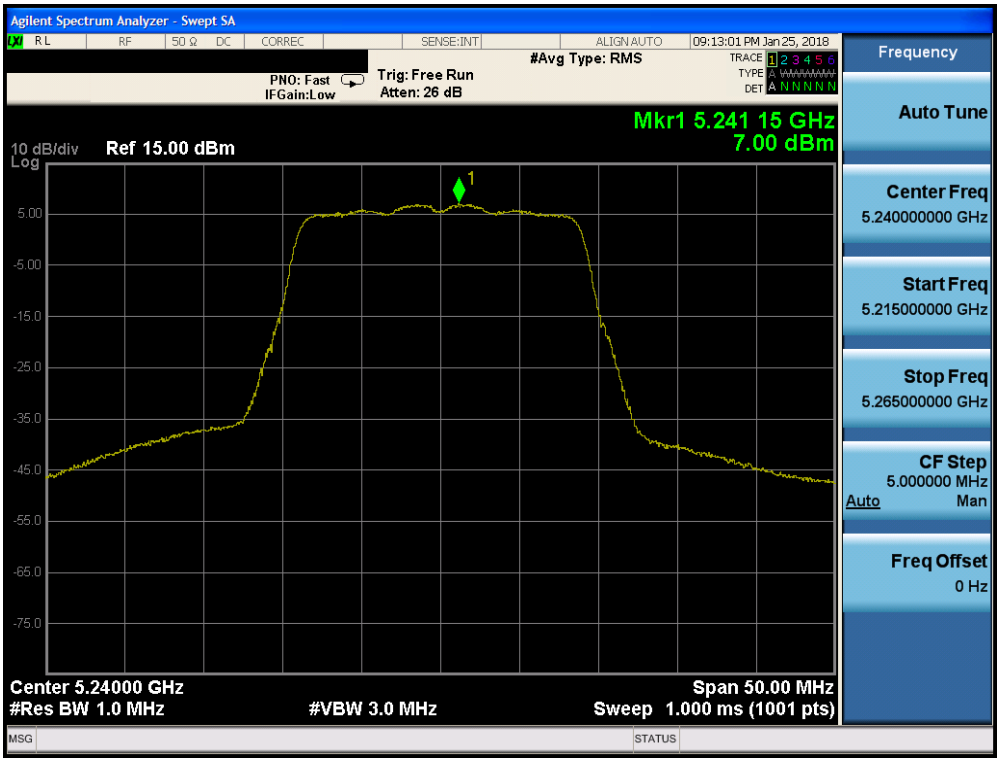
Plot 7-174. Power Spectral Density Plot FCC SISO ANT2 (802.11a (UNII Band 1) – Ch. 48)



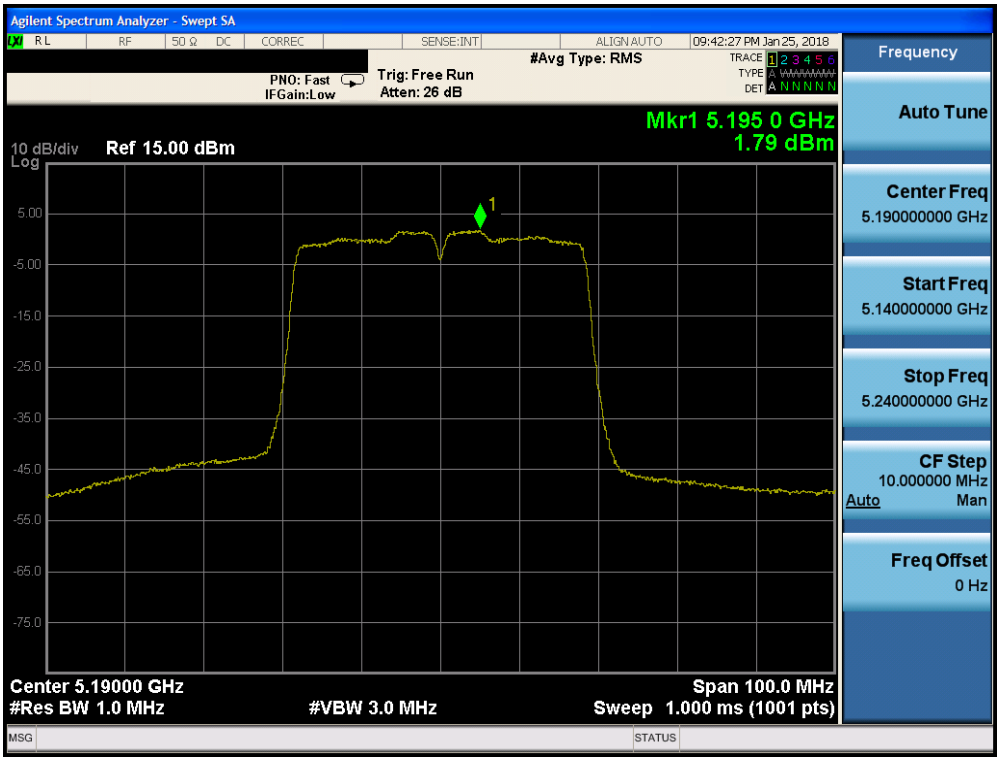
Plot 7-175. Power Spectral Density Plot FCC SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)



Plot 7-176. Power Spectral Density Plot FCC SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)



Plot 7-177. Power Spectral Density Plot FCC SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)



Plot 7-178. Power Spectral Density Plot FCC SISO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 38)