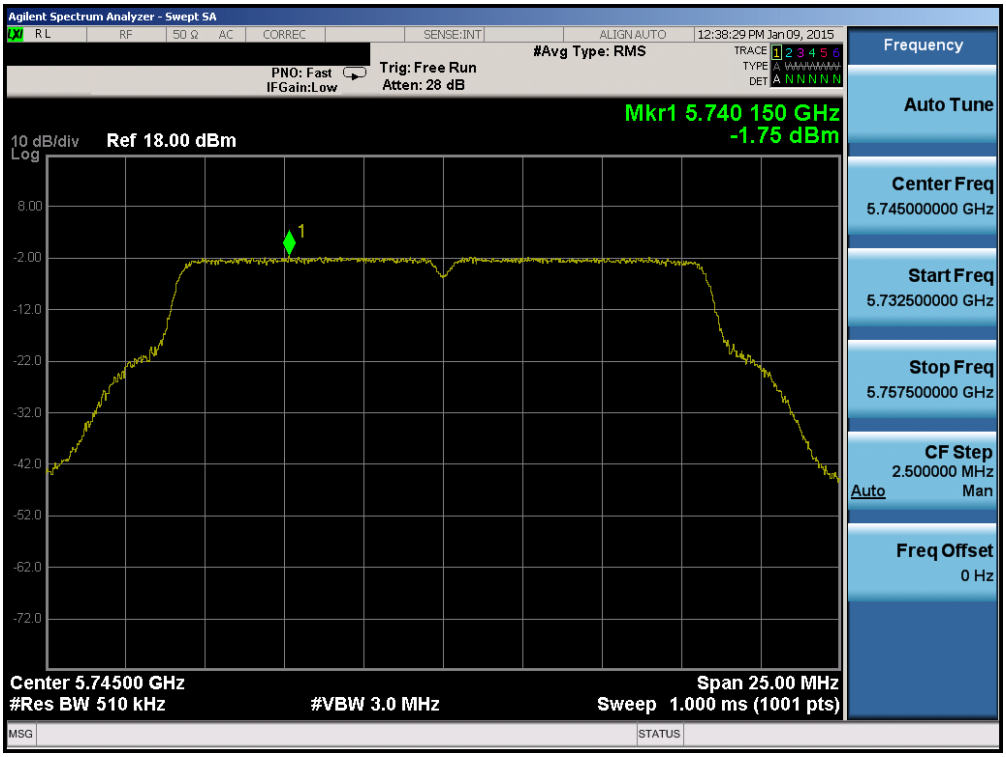
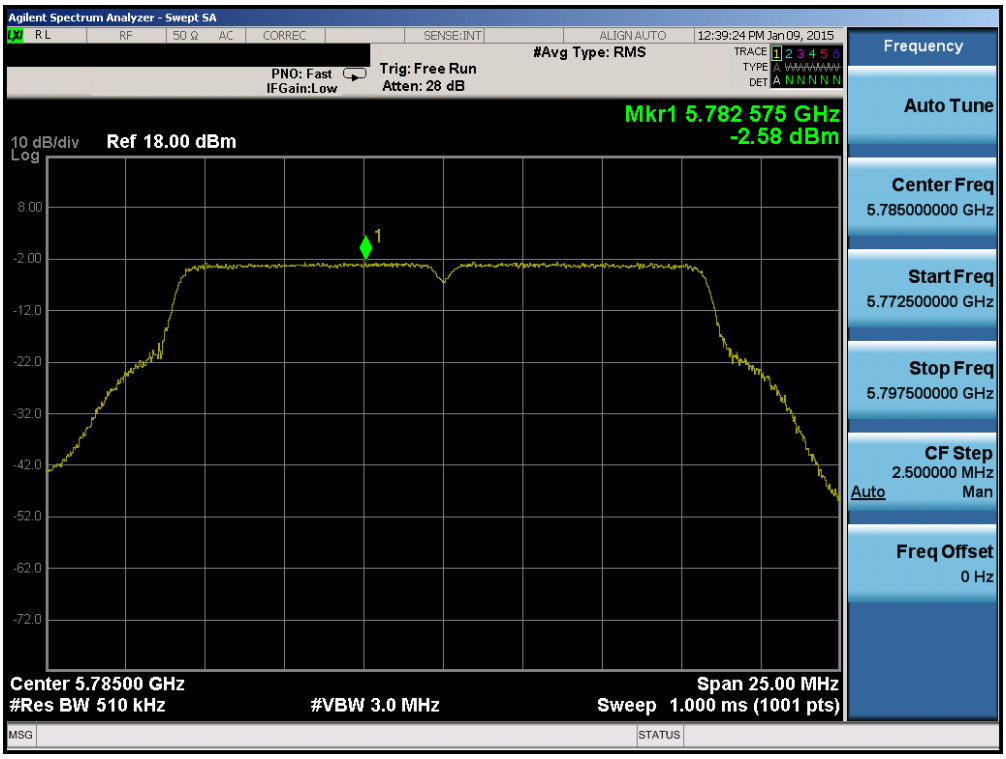
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Pass / Fail
Band 3	5745	149	a	6	-1.75	30.0	-31.75	Pass
	5785	157	a	6	-2.58	30.0	-32.58	Pass
	5825	165	a	6	-1.85	30.0	-31.85	Pass
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	-2.12	30.0	-32.12	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	-2.94	30.0	-32.94	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	-1.99	30.0	-31.99	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	-6.96	30.0	-36.96	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	-7.23	30.0	-37.23	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-7.31	30.0	-37.31	Pass

Table 6-18. Band 3 Conducted Power Spectral Density Measurements

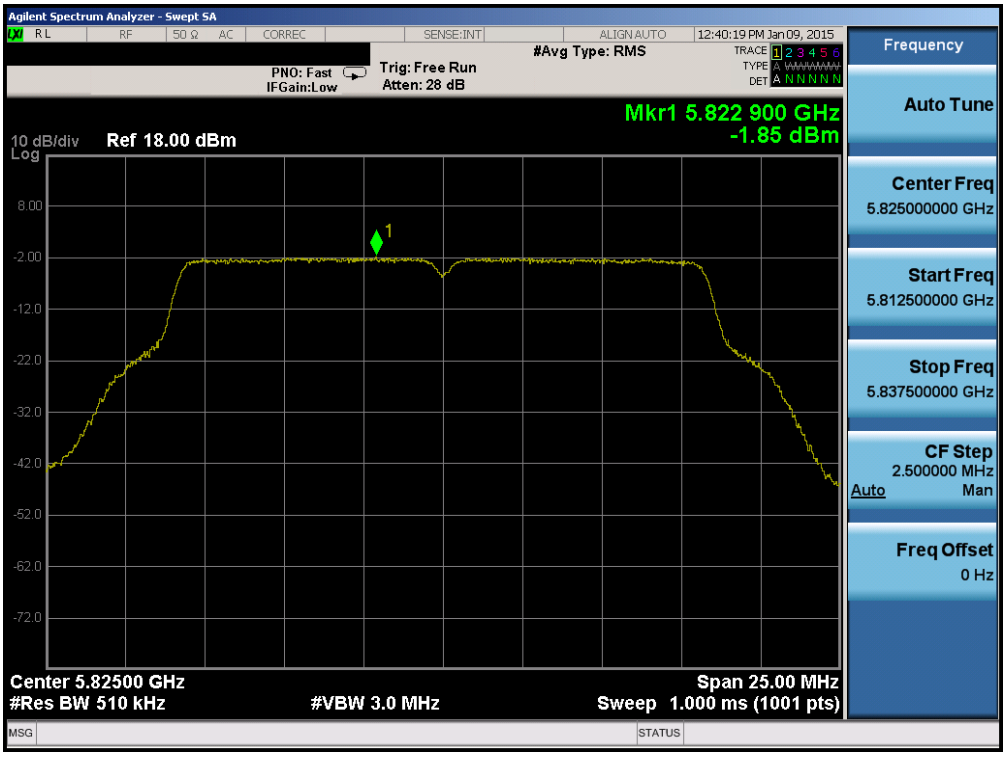


Plot 6-106. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 149)

© 2015 PCTEST Engineering Laboratory, Inc.

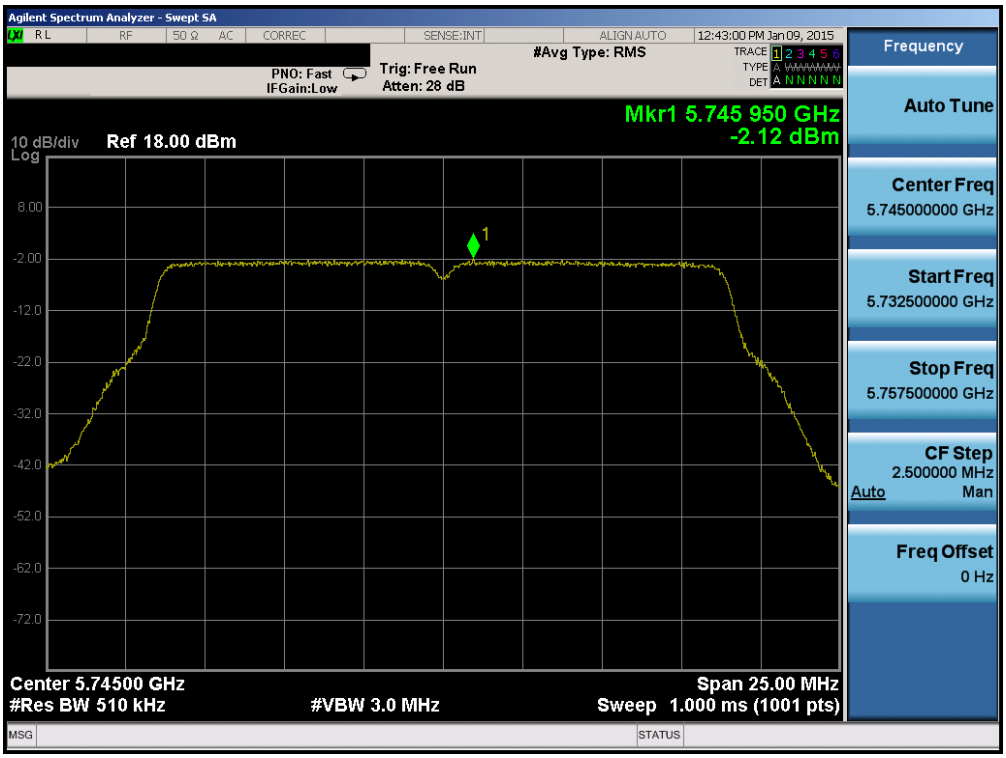


Plot 6-107. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)

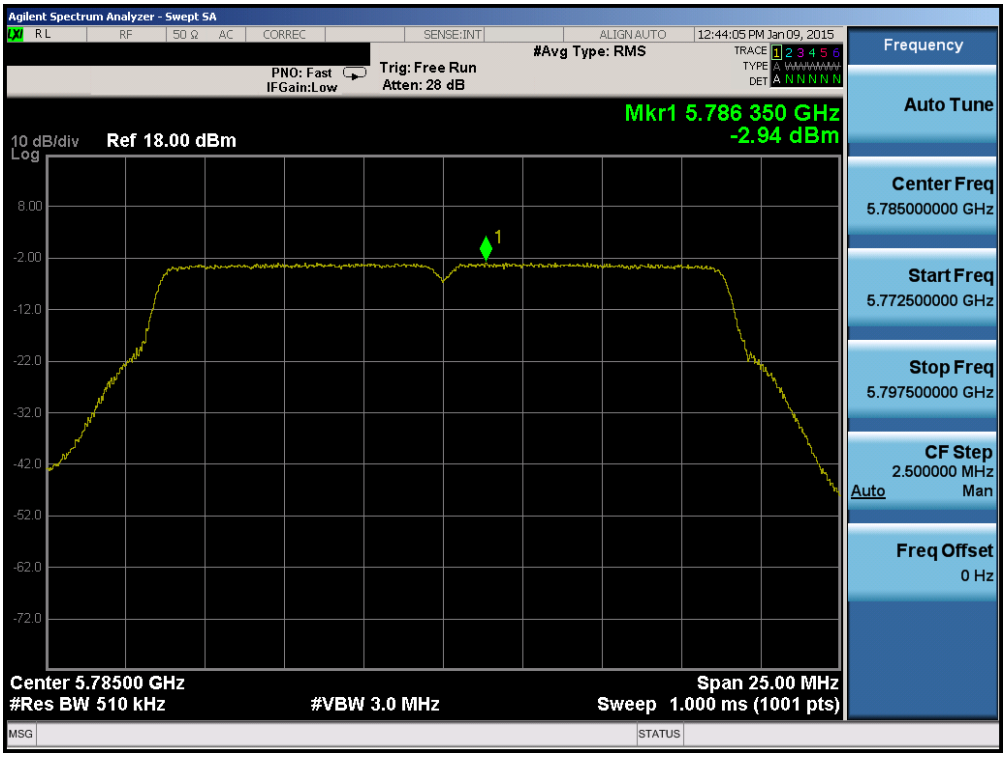


Plot 6-108. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

© 2015 PCTEST Engineering Laboratory, Inc.

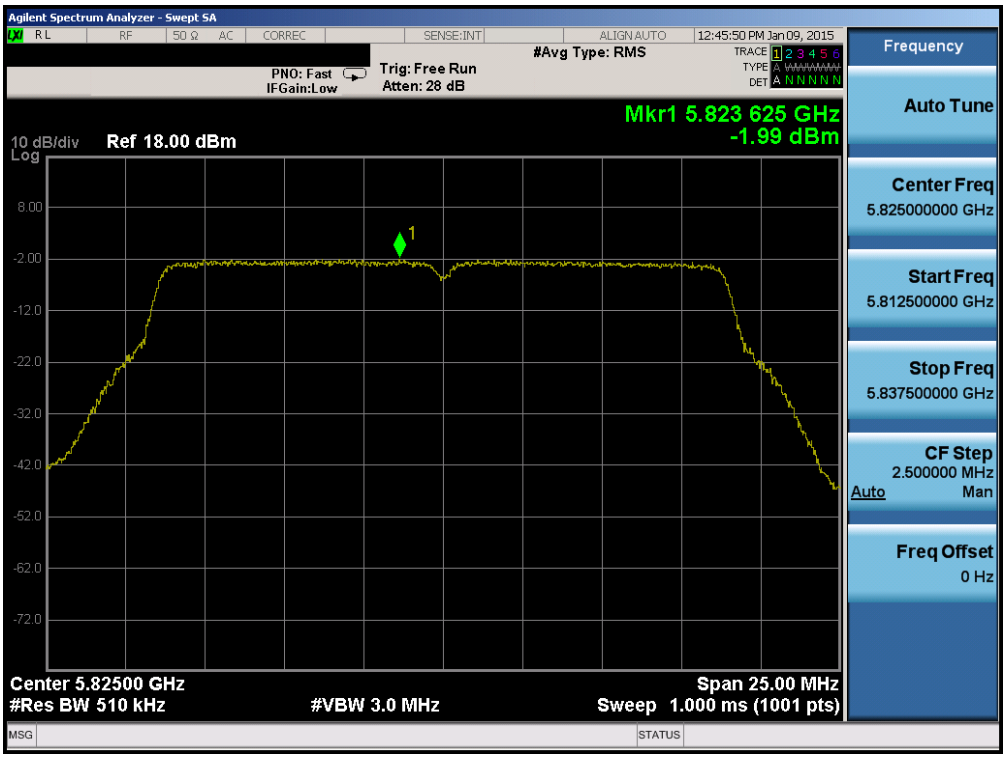


Plot 6-109. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

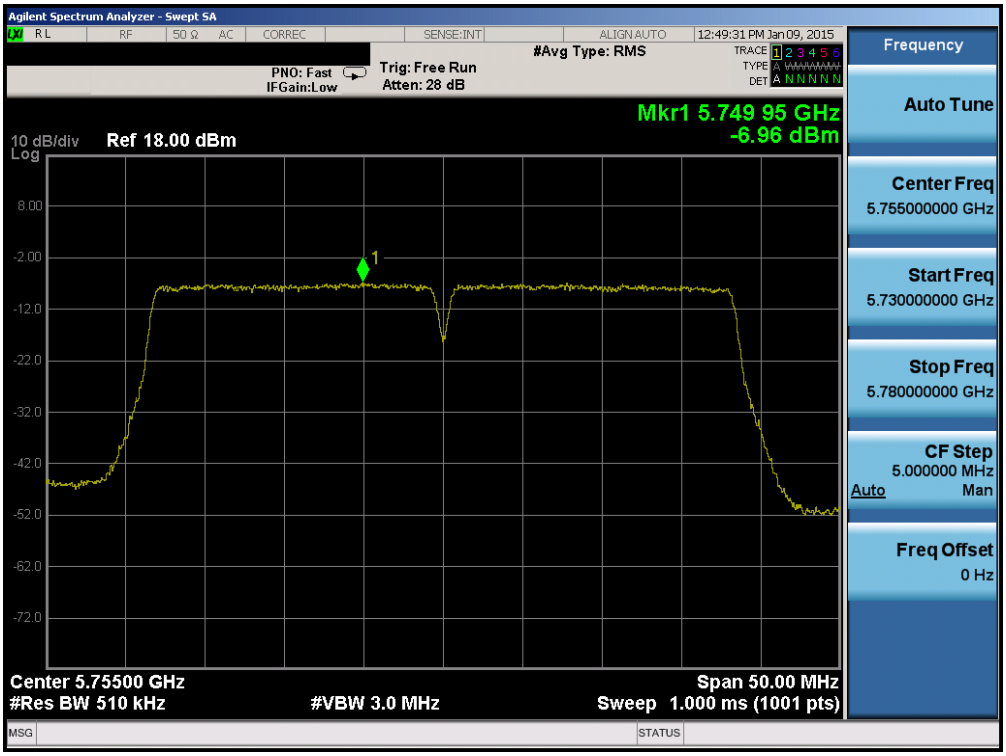


Plot 6-110. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

© 2015 PCTEST Engineering Laboratory, Inc.

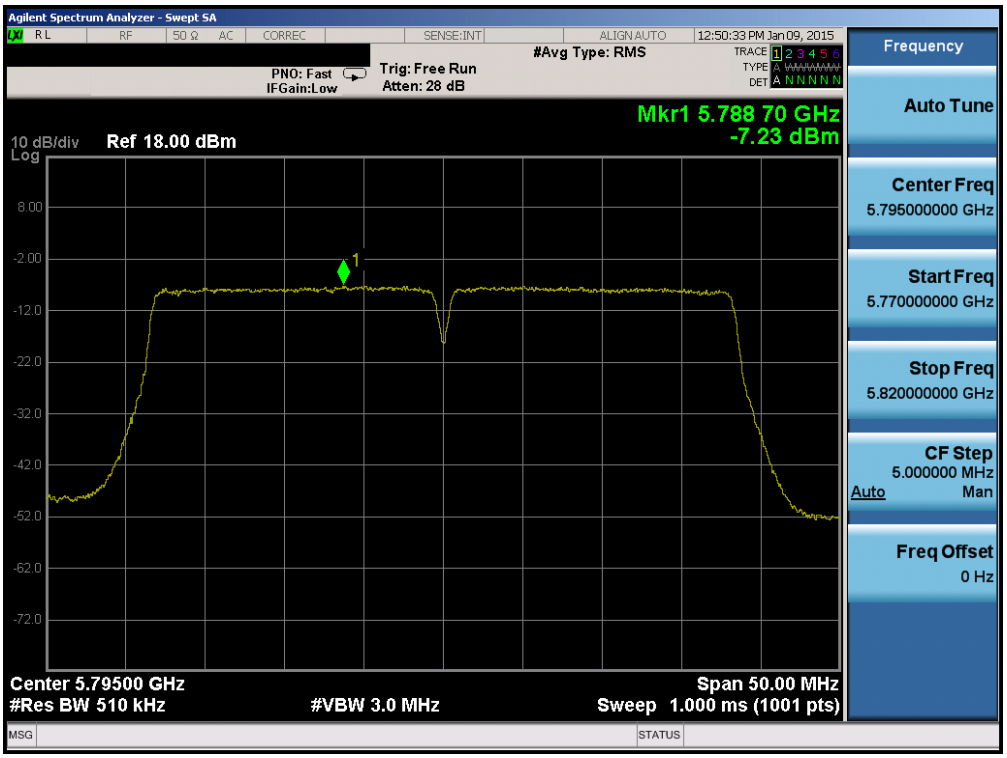


Plot 6-111. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

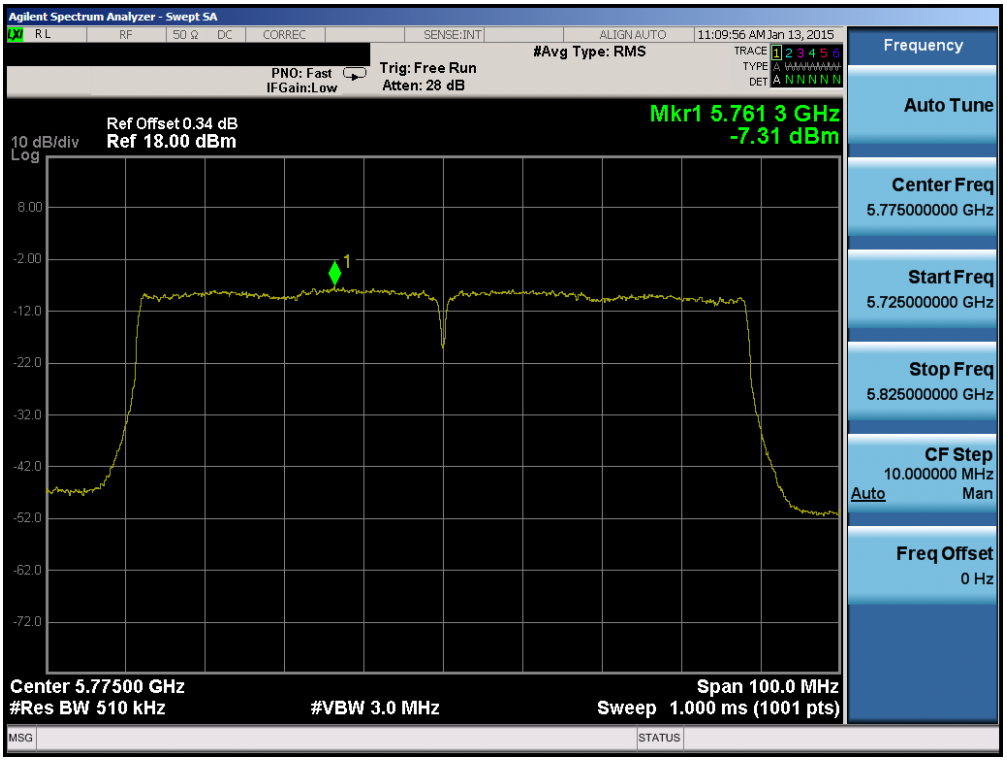


Plot 6-112. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

© 2015 PCTEST Engineering Laboratory, Inc.



Plot 6-113. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 6-114. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

© 2015 PCTEST Engineering Laboratory, Inc.

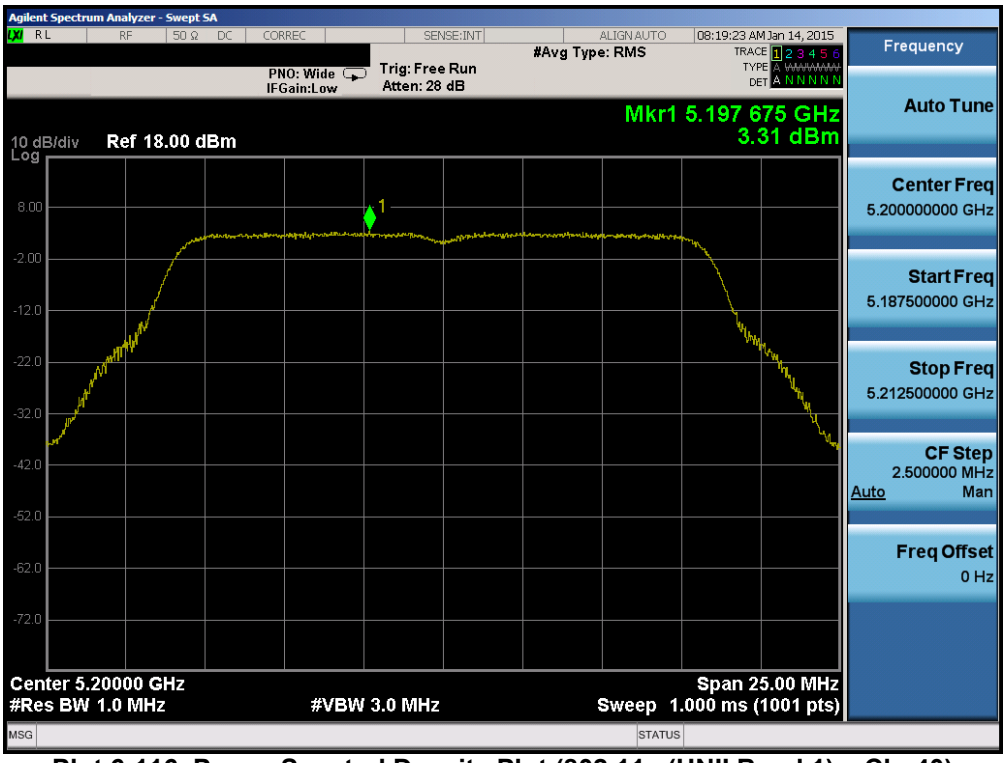
Antenna-2 Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	a	6	3.02	11.0	-7.98	Pass
	5200	40	a	6	3.31	11.0	-7.69	Pass
	5240	48	a	6	3.02	11.0	-7.98	Pass
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	2.67	11.0	-8.33	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	2.66	11.0	-8.34	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	2.50	11.0	-8.50	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	-1.38	11.0	-12.38	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	-0.89	11.0	-11.89	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-5.18	11.0	-16.18	Pass
Band 2A	5260	52	a	6	3.19	11.0	-7.81	Pass
	5280	56	a	6	3.20	11.0	-7.80	Pass
	5320	64	a	6	2.61	11.0	-8.39	Pass
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	2.78	11.0	-8.22	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	2.66	11.0	-8.34	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	2.39	11.0	-8.61	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	-0.70	11.0	-11.70	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	-1.36	11.0	-12.36	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-5.48	11.0	-16.48	Pass
Band 2C	5500	100	a	6	3.34	11.0	-7.66	Pass
	5580	116	a	6	3.11	11.0	-7.89	Pass
	5720	144	a	6	3.11	11.0	-7.89	Pass
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	2.86	11.0	-8.14	Pass
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	1.92	11.0	-9.08	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	3.10	11.0	-7.90	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	-0.06	11.0	-11.06	Pass
	5550	110	n (40MHz)	13.5/15 (MCS0)	-1.79	11.0	-12.79	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	-0.34	11.0	-11.34	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-4.84	11.0	-15.84	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-4.37	11.0	-15.37	Pass

Table 6-19. Conducted Power Spectral Density Measurements

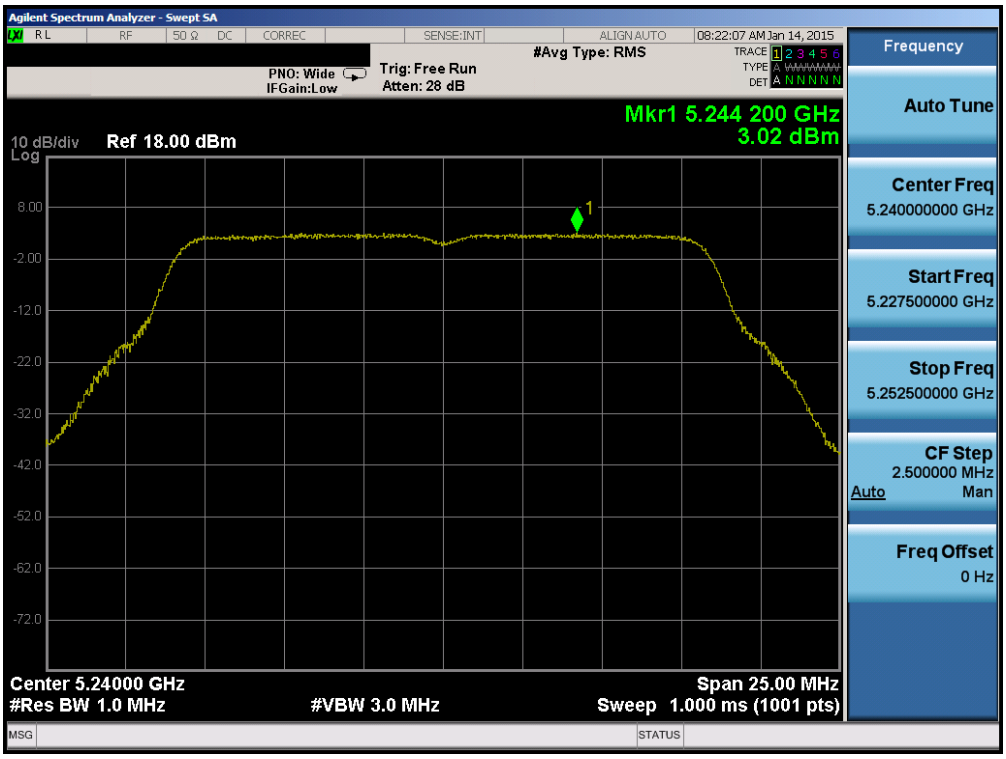
© 2015 PCTEST Engineering Laboratory, Inc.

Plot 6-115. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

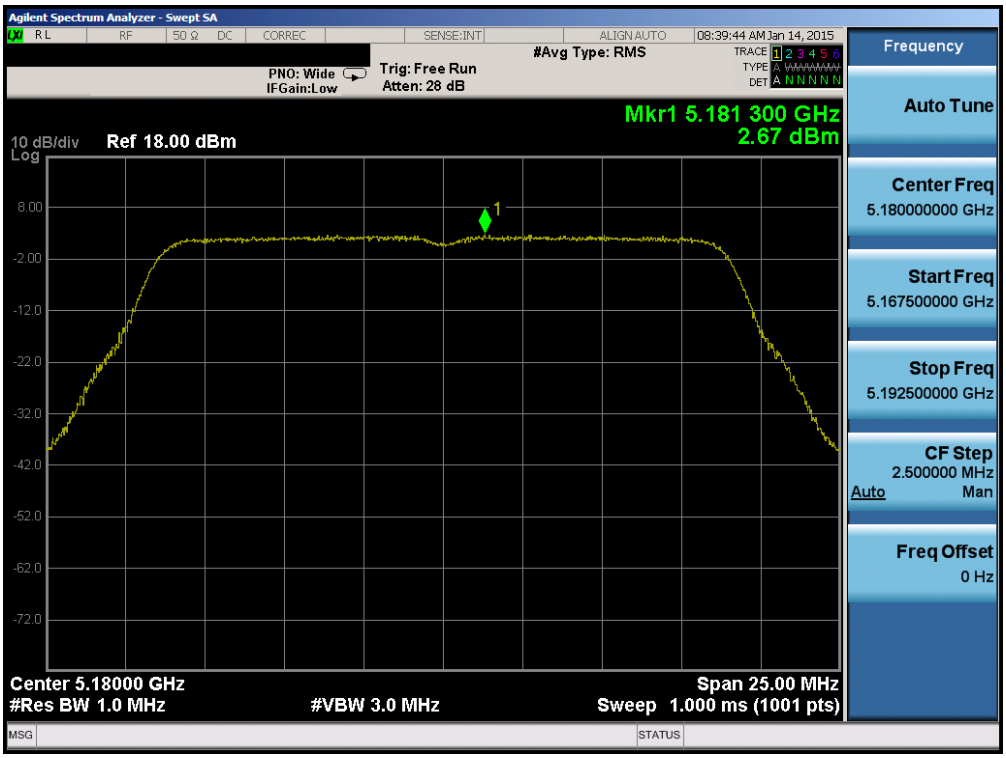


Plot 6-116. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

© 2015 PCTEST Engineering Laboratory, Inc.

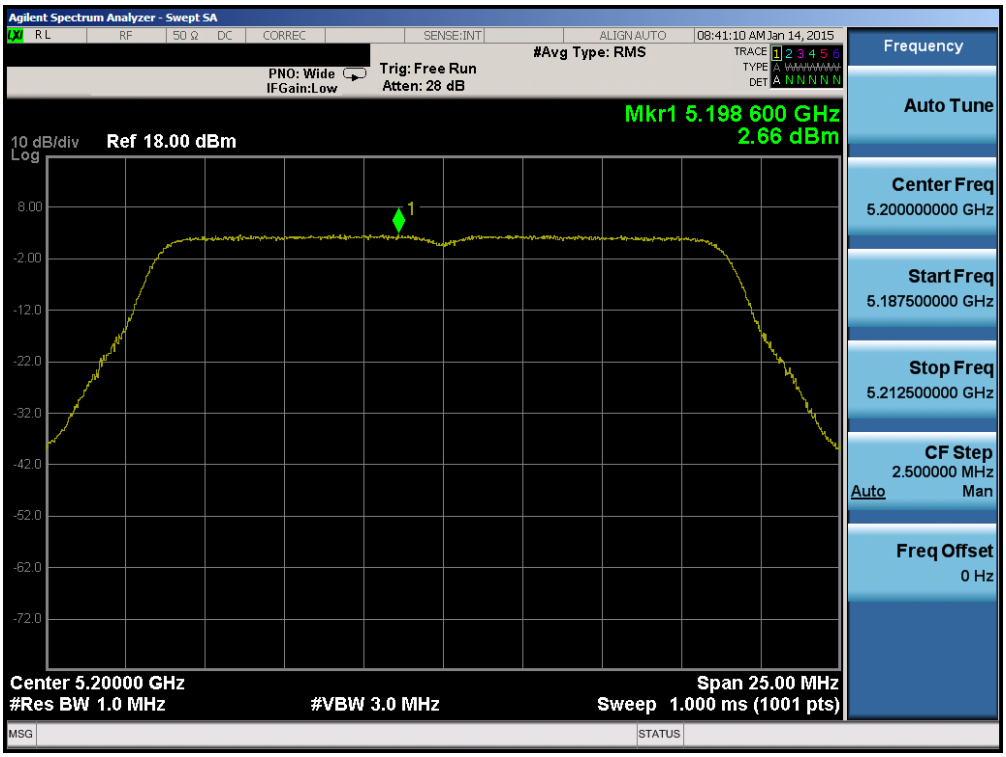


Plot 6-117. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

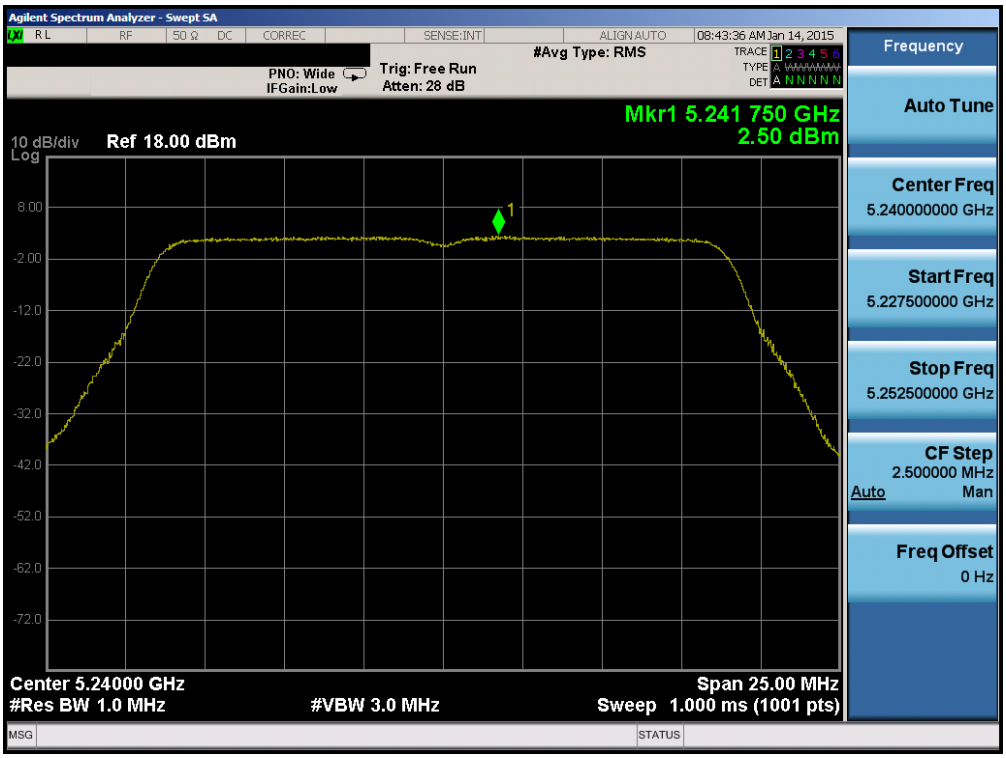


Plot 6-118. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

© 2015 PCTEST Engineering Laboratory, Inc.

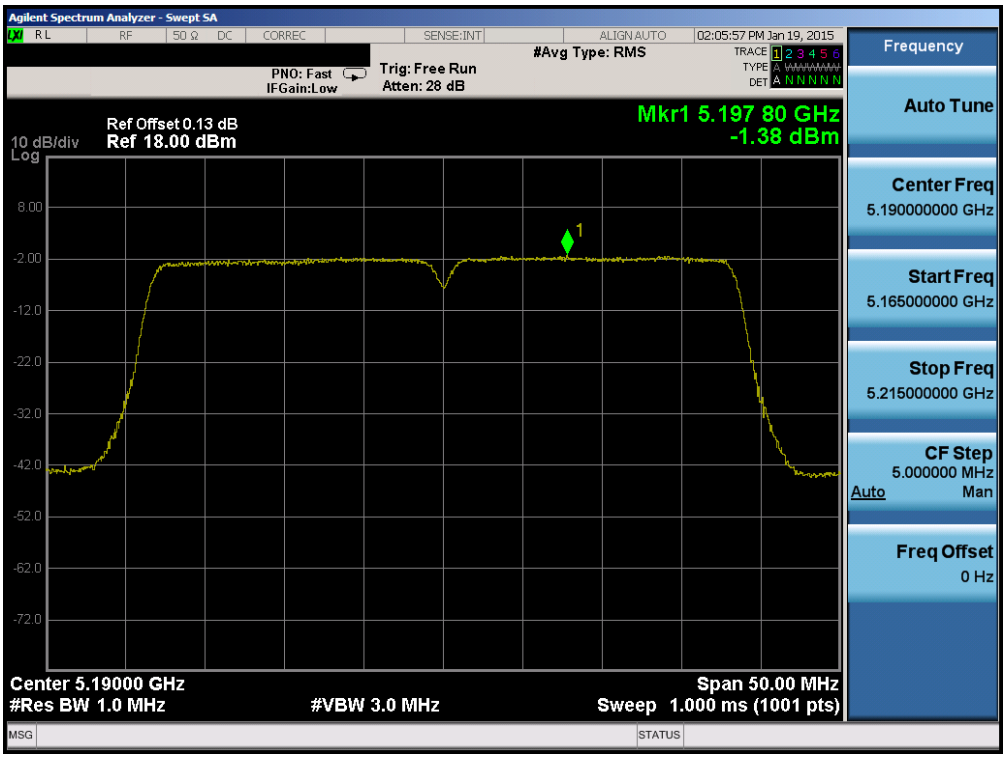


Plot 6-119. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

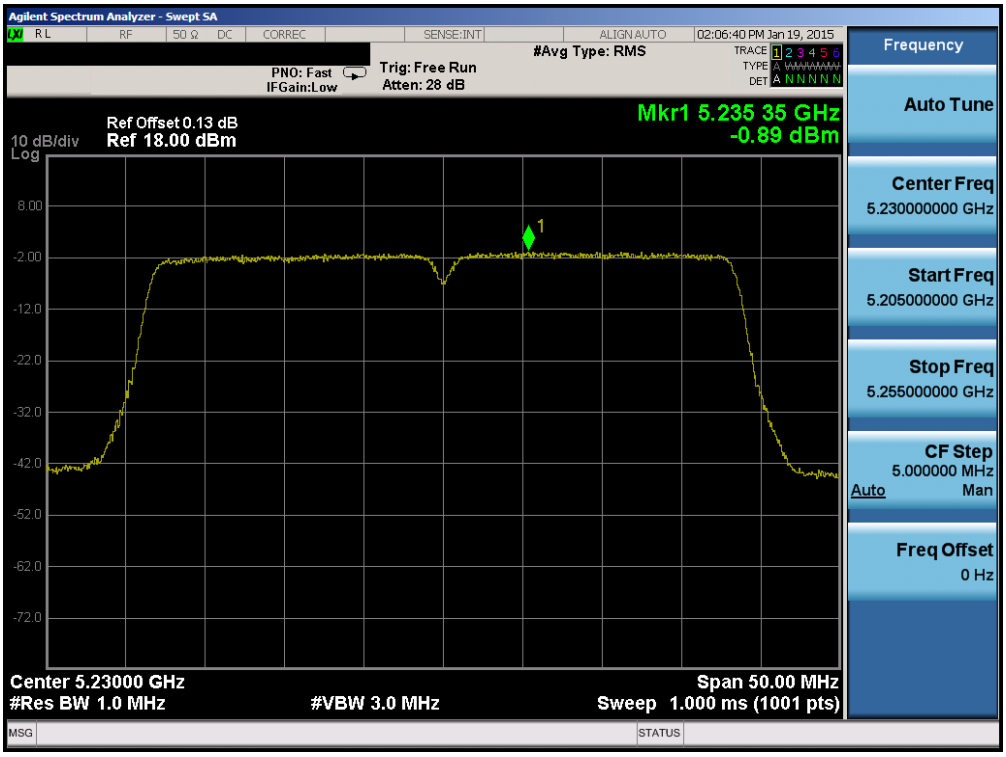


Plot 6-120. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

© 2015 PCTEST Engineering Laboratory, Inc.

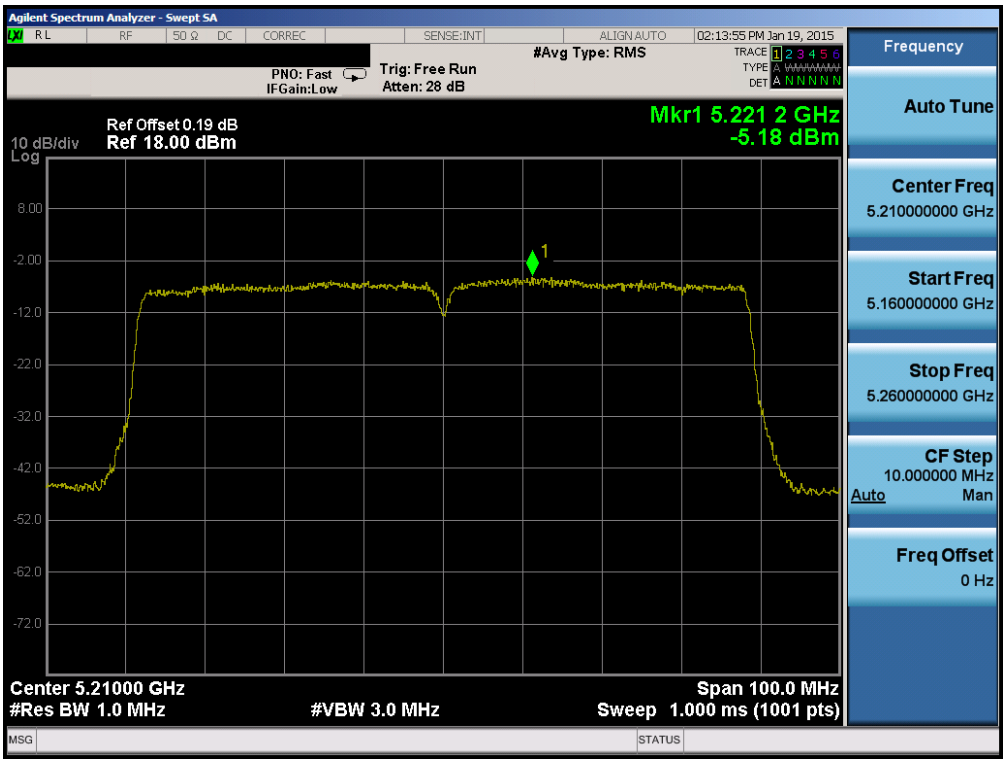


Plot 6-121. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

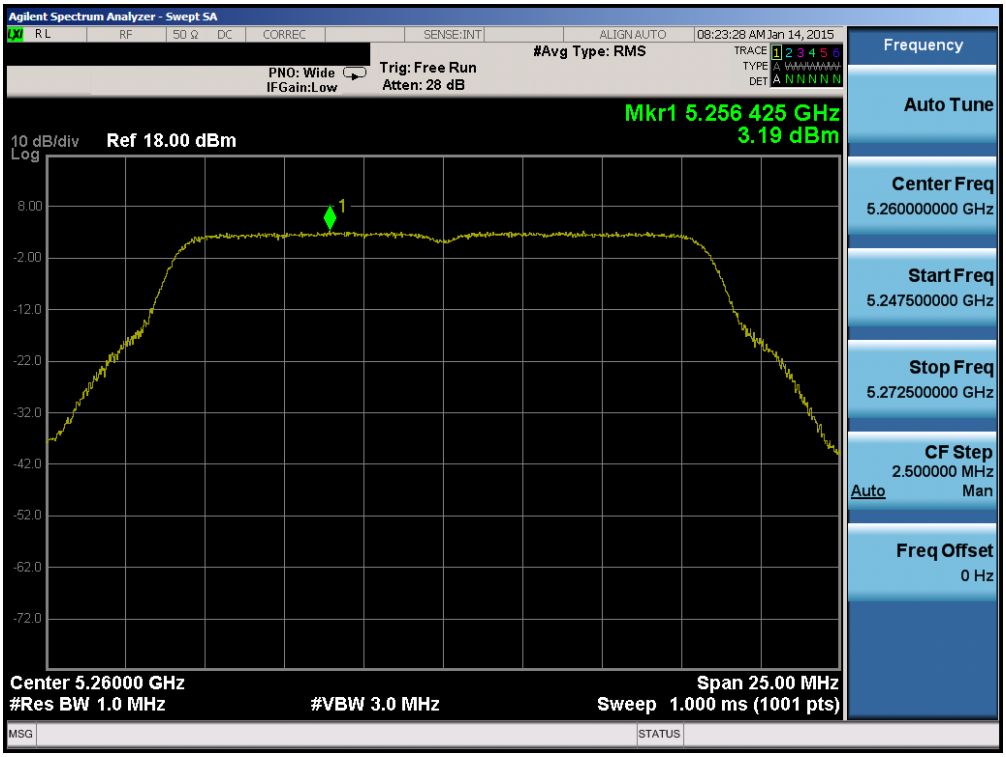


Plot 6-122. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

© 2015 PCTEST Engineering Laboratory, Inc.

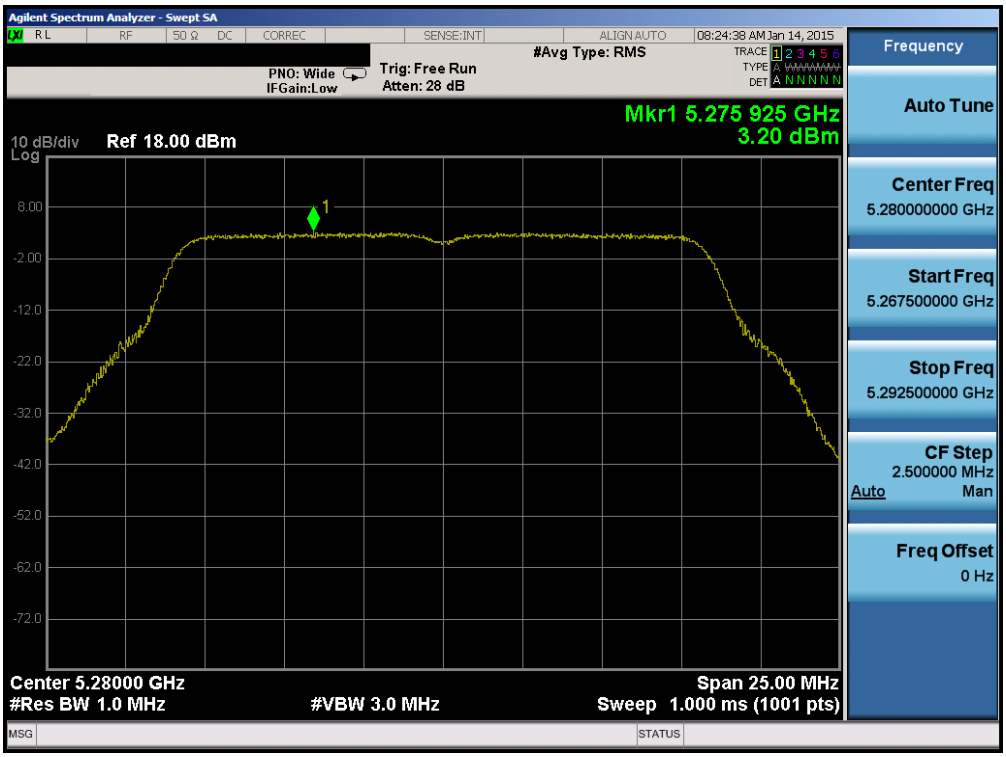


Plot 6-123. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

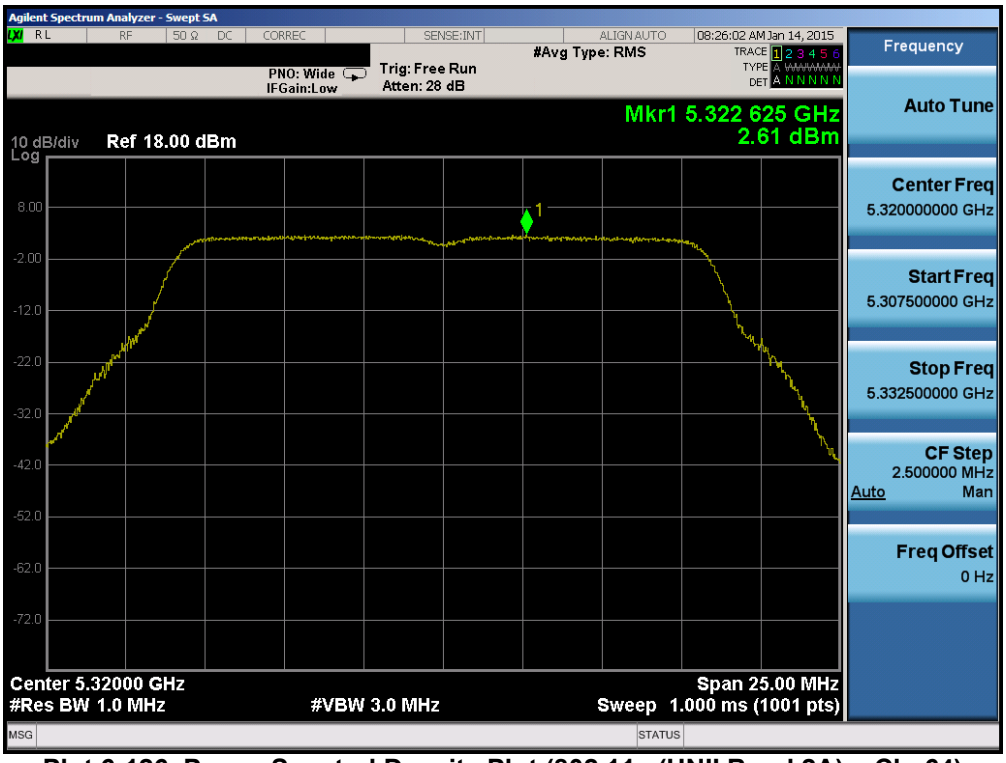


Plot 6-124. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

© 2015 PCTEST Engineering Laboratory, Inc.

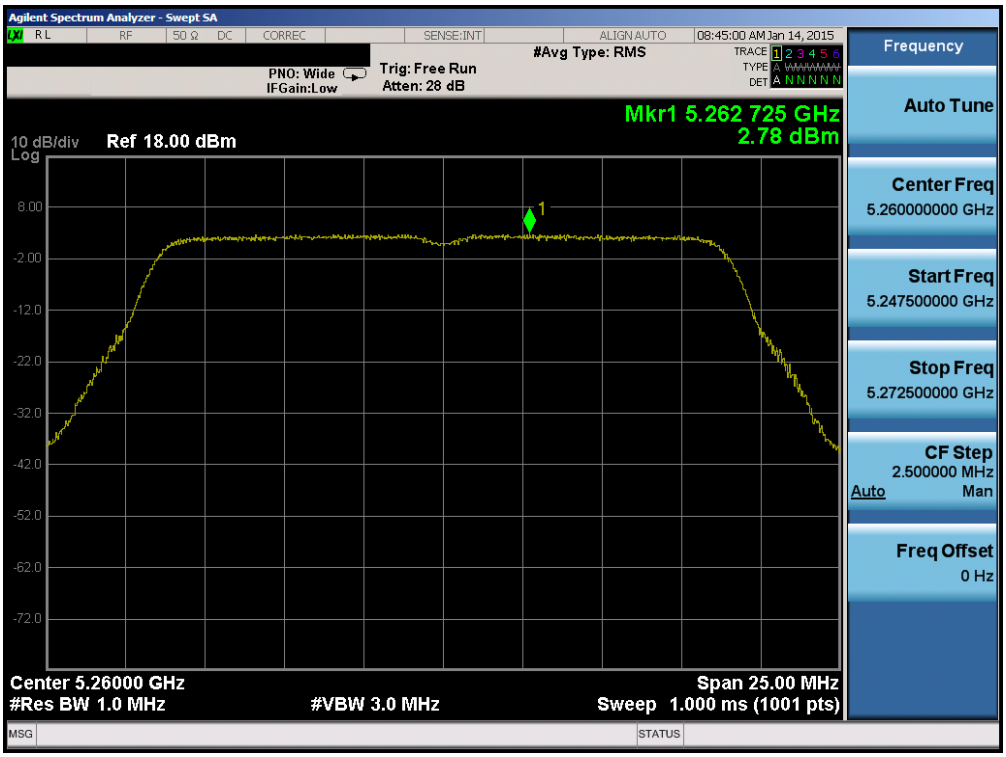


Plot 6-125. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

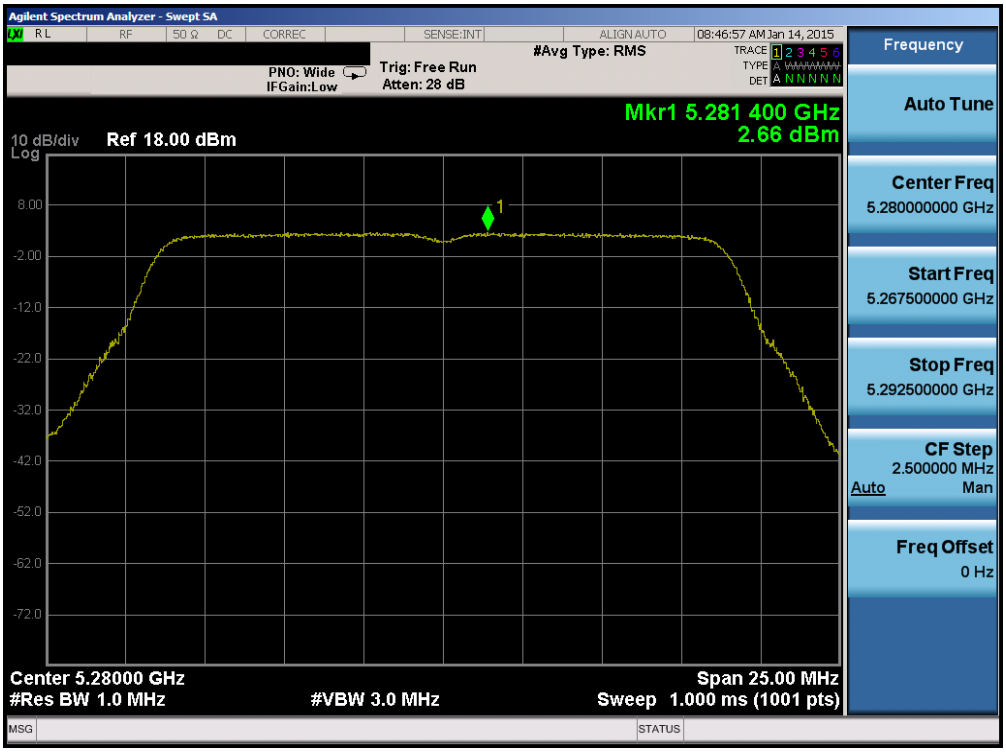


Plot 6-126. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

© 2015 PCTEST Engineering Laboratory, Inc.

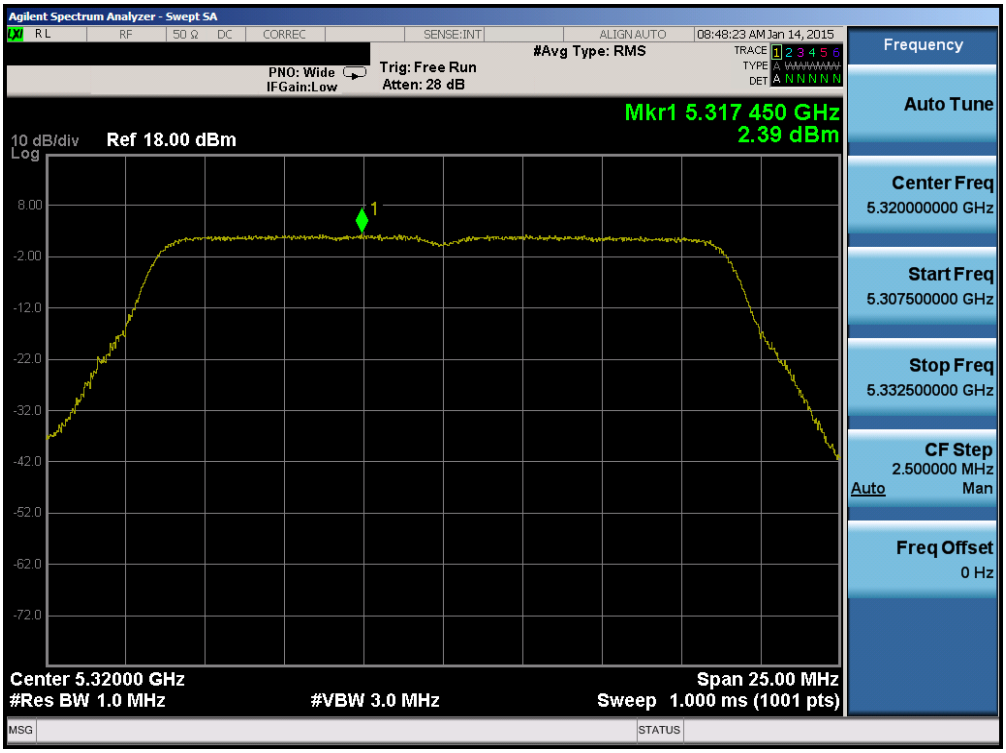


Plot 6-127. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

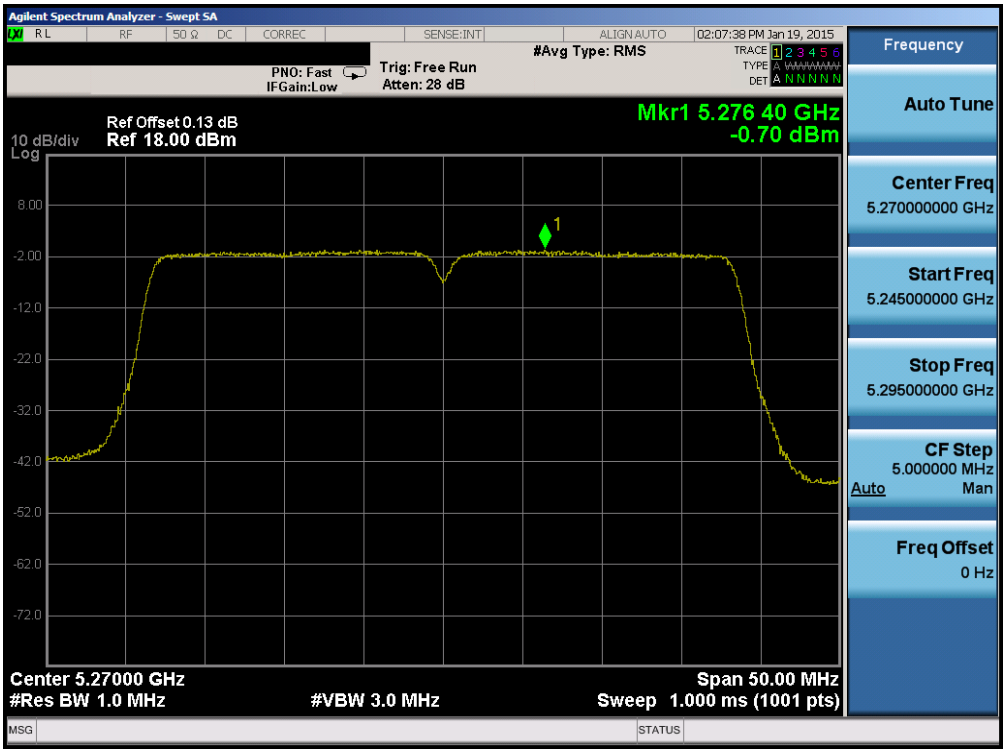


Plot 6-128. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

© 2015 PCTEST Engineering Laboratory, Inc.

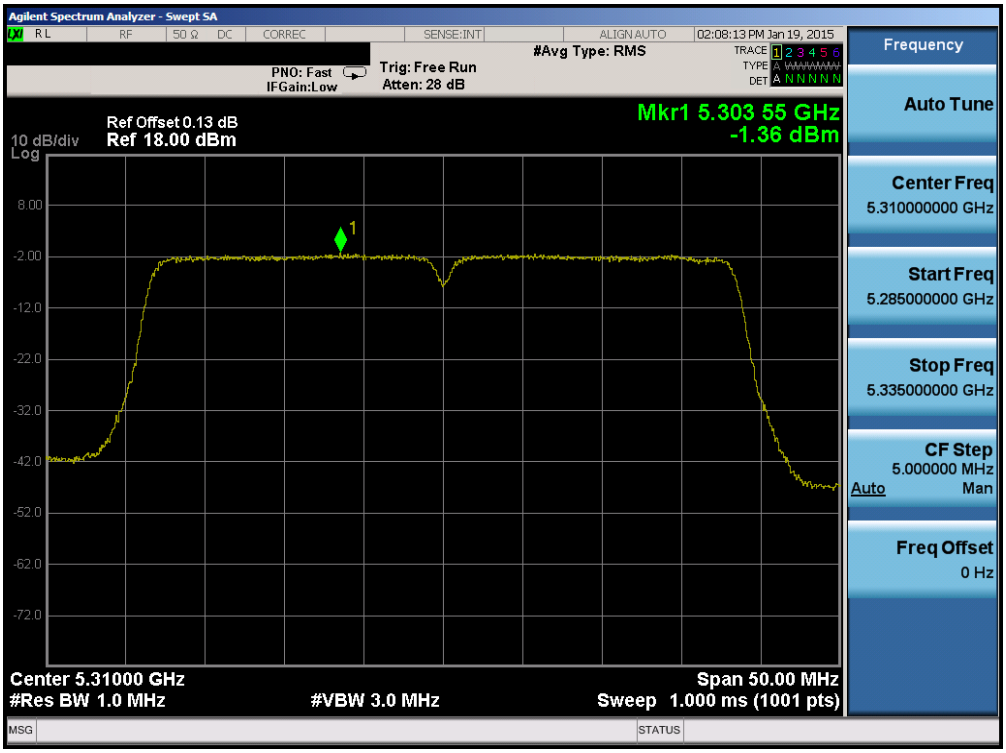


Plot 6-129. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)



Plot 6-130. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

© 2015 PCTEST Engineering Laboratory, Inc.

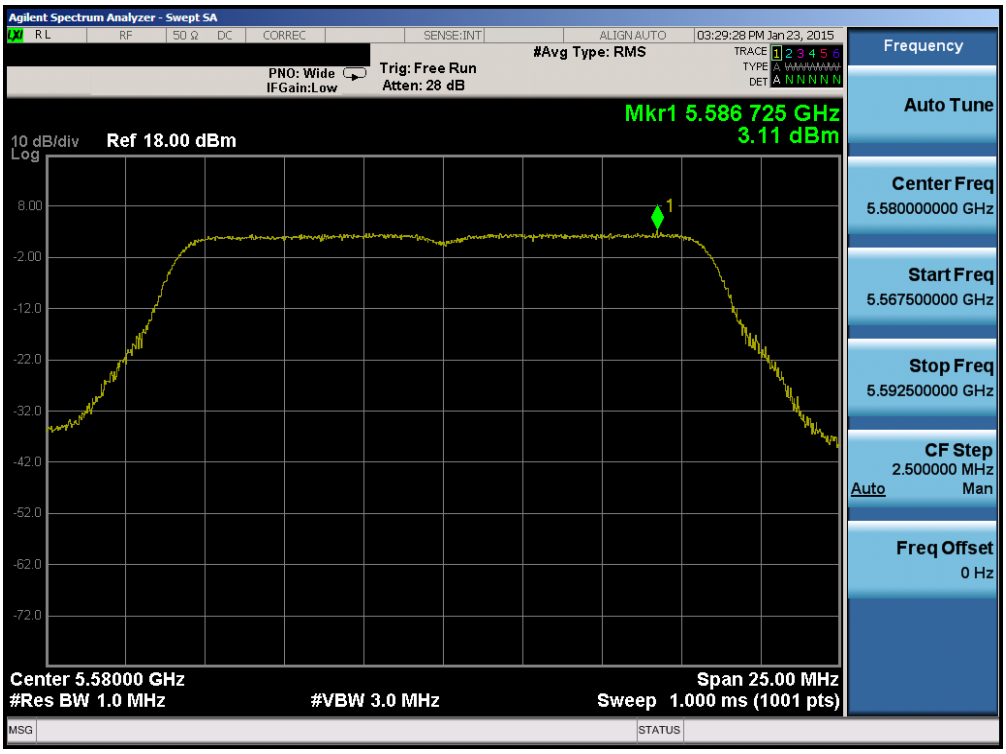


Plot 6-131. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

Plot 6-132. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

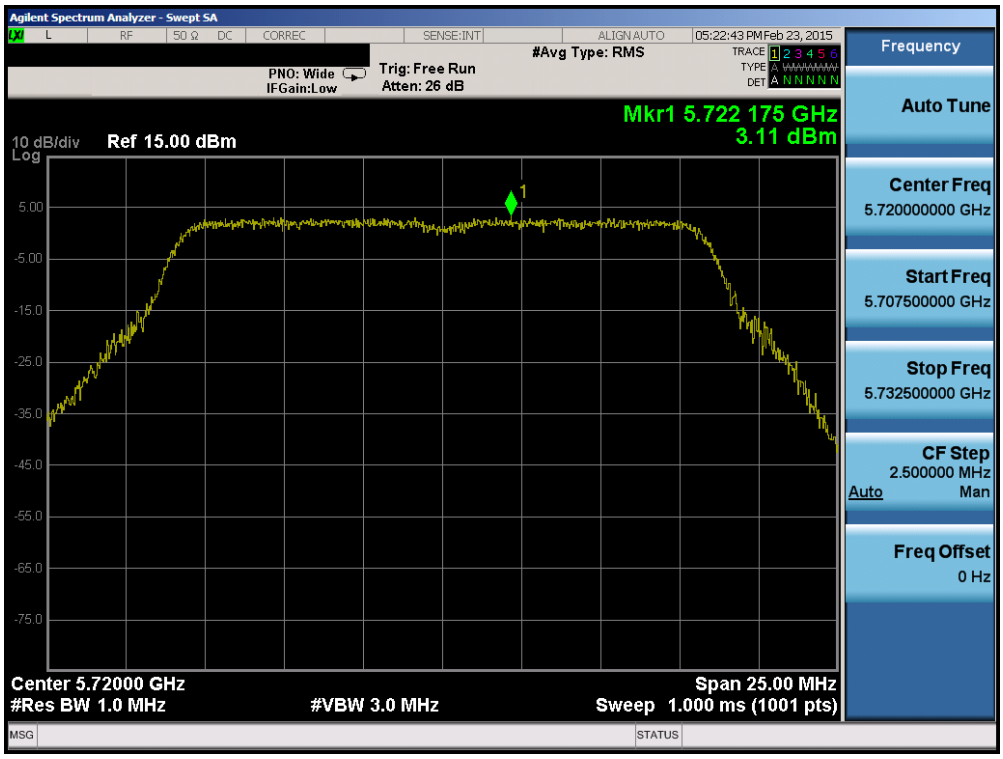
© 2015 PCTEST Engineering Laboratory, Inc.

Plot 6-133. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

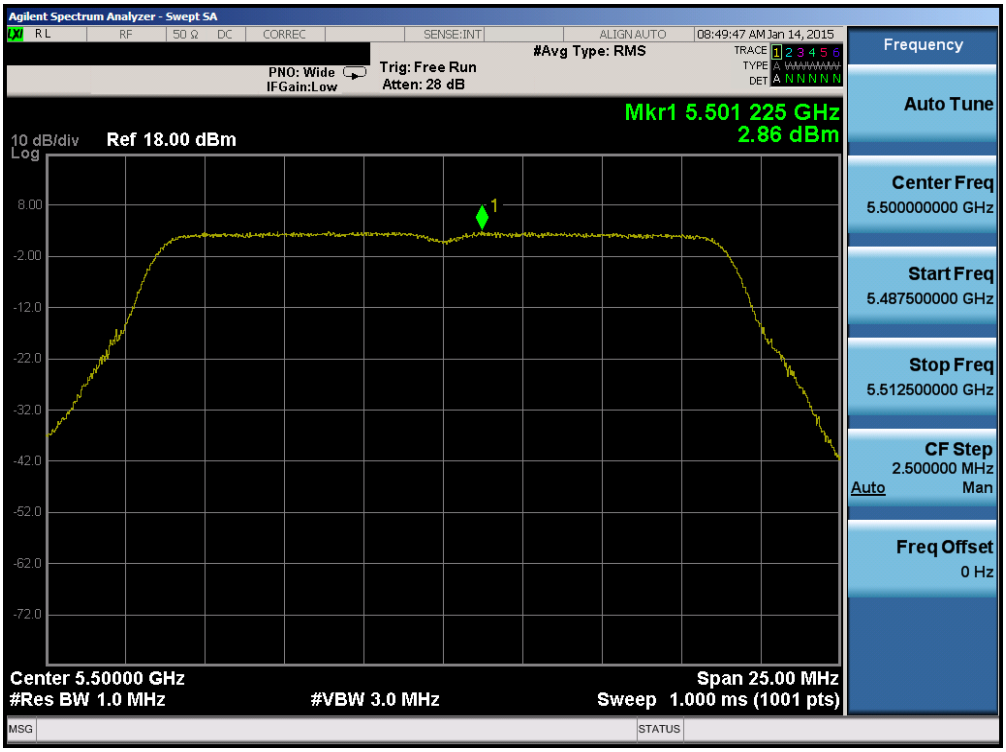


Plot 6-134. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 116)

© 2015 PCTEST Engineering Laboratory, Inc.

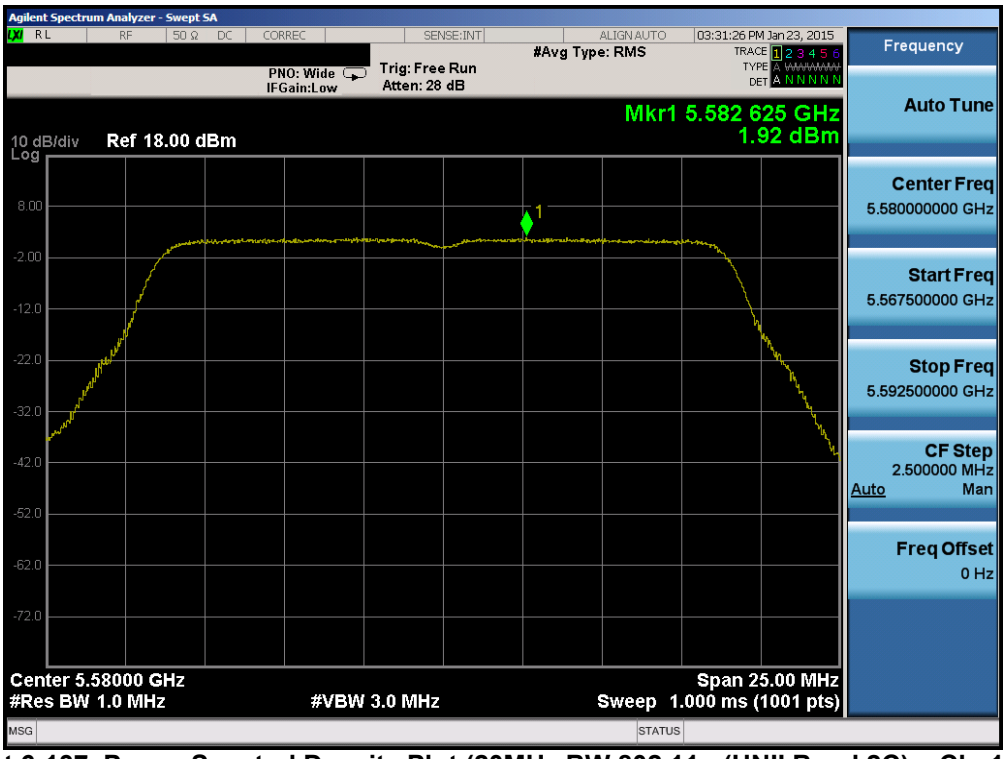


Plot 6-135. Power Spectral Density Plot (802.11a (UNII Band Gap) – Ch. 144)

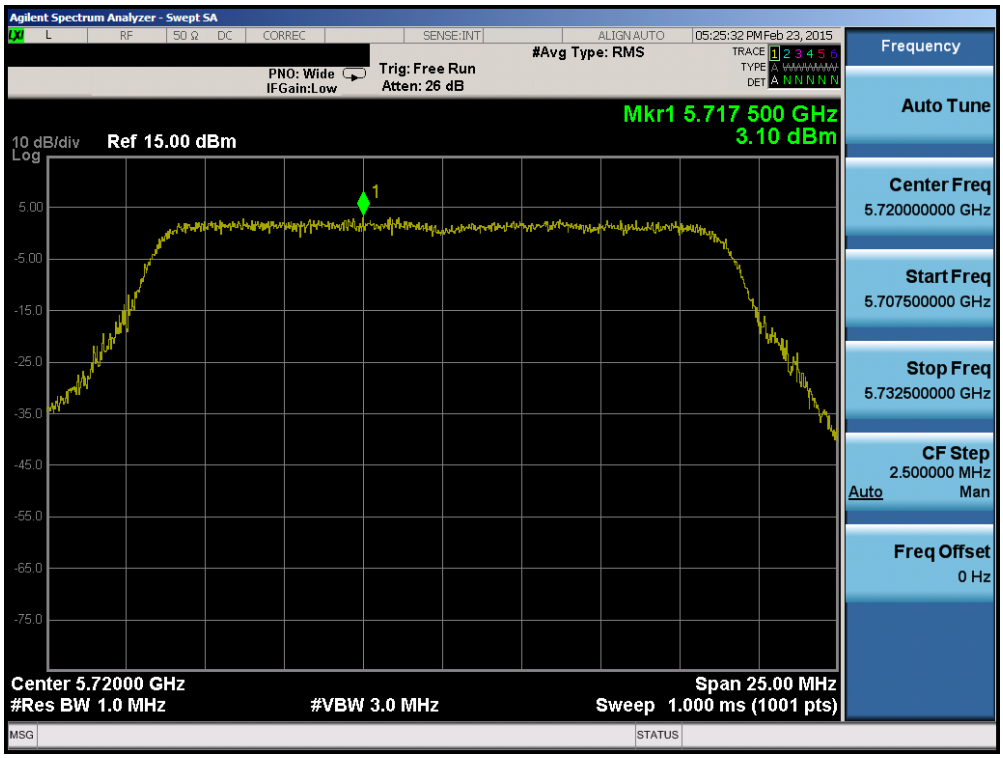


Plot 6-136. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

© 2015 PCTEST Engineering Laboratory, Inc.

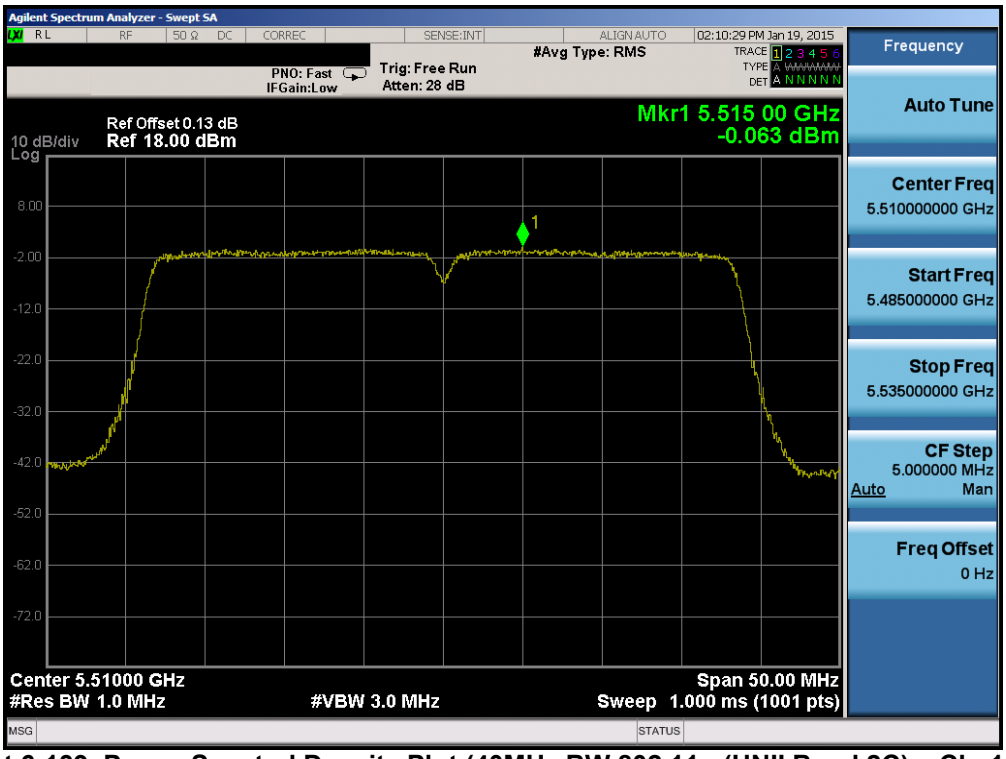


Plot 6-137. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 116)

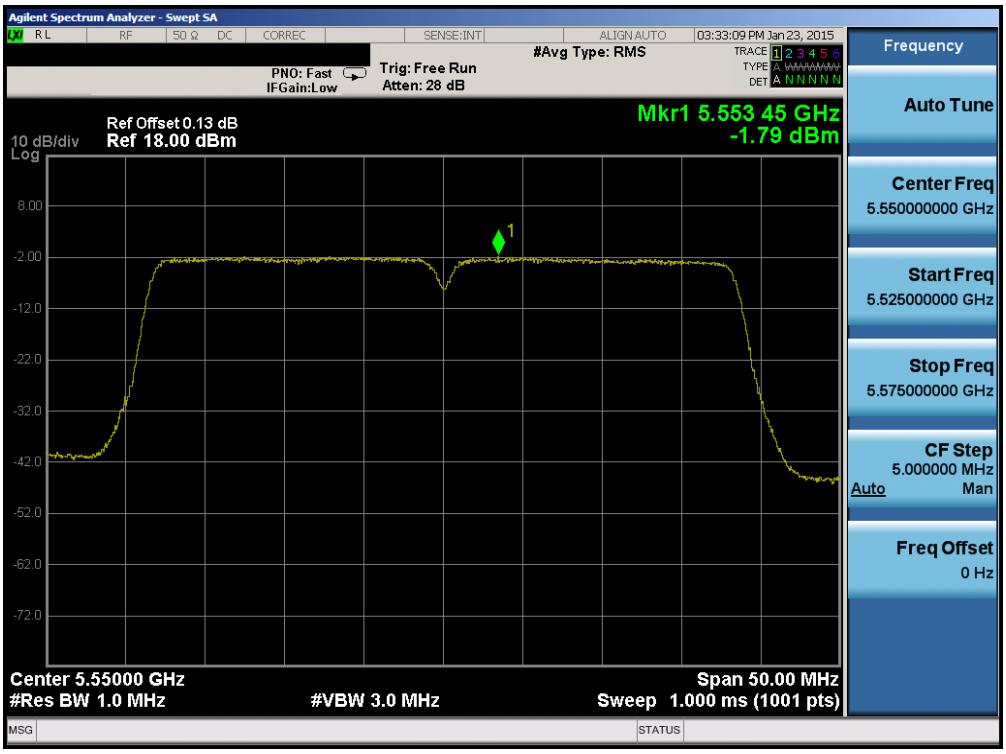


Plot 6-138. Power Spectral Density Plot (20MHz 802.11n (UNII Band Gap) – Ch. 144)

© 2015 PCTEST Engineering Laboratory, Inc.

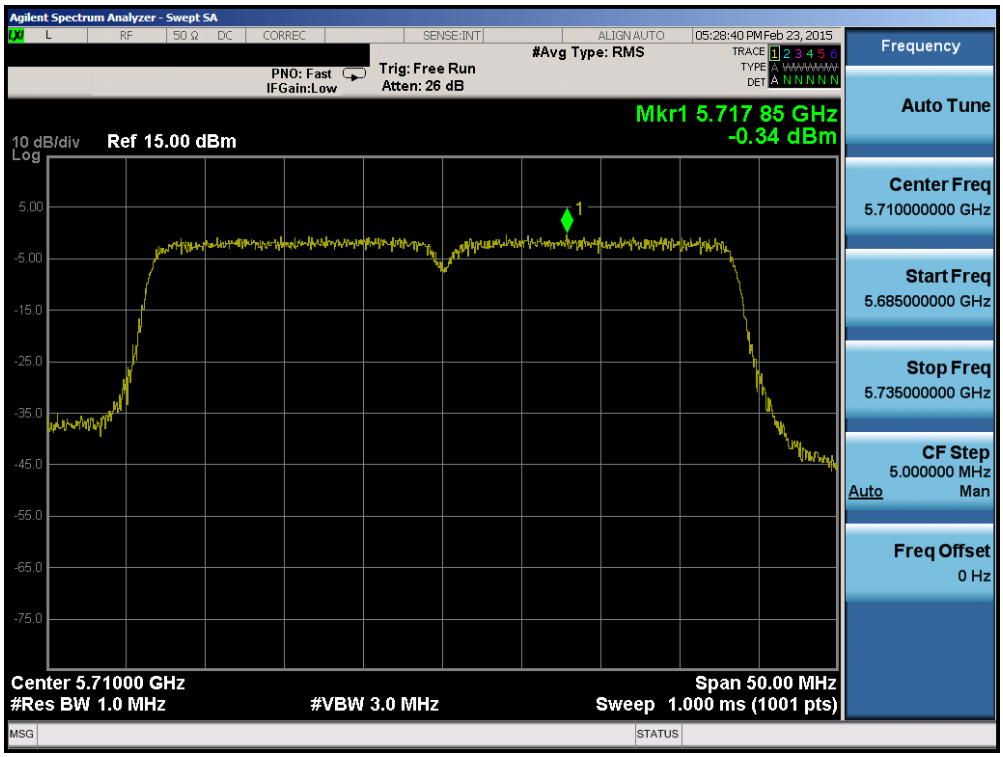


Plot 6-139. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

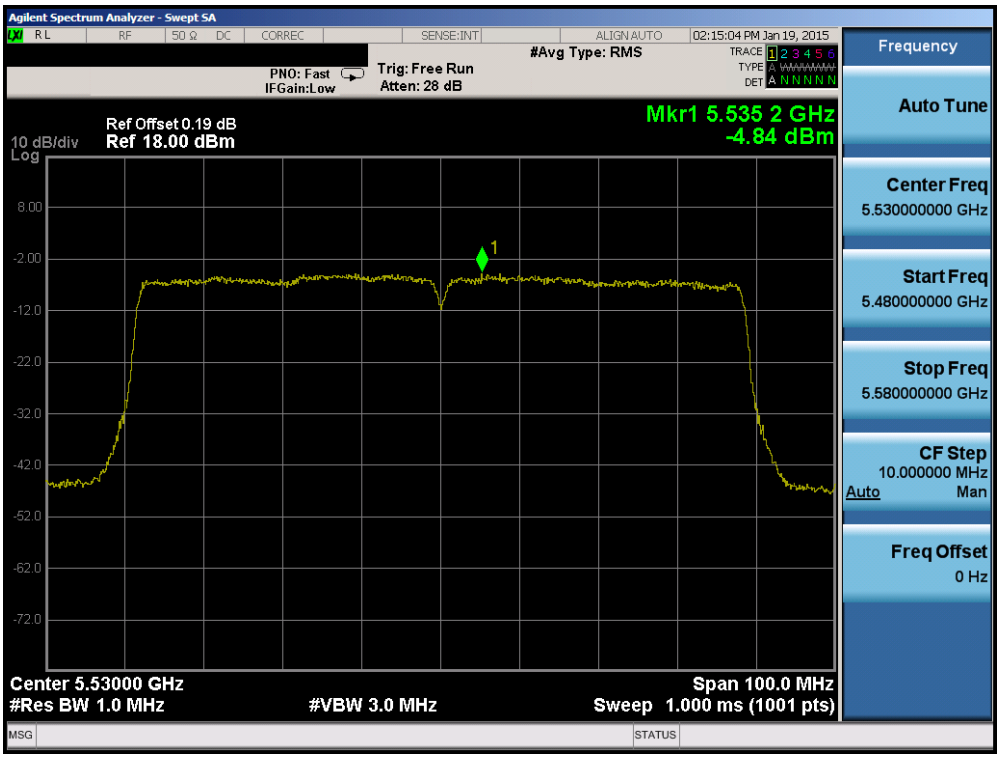


Plot 6-140. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)

© 2015 PCTEST Engineering Laboratory, Inc.

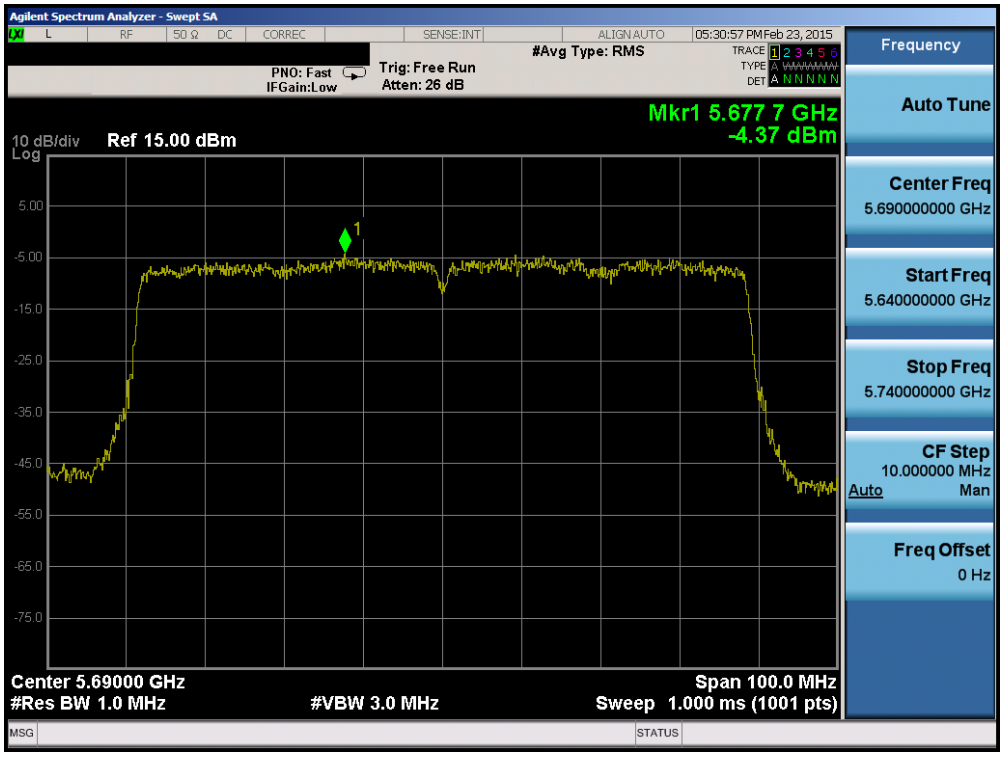


Plot 6-141. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band Gap) – Ch. 142)



Plot 6-142. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

© 2015 PCTEST Engineering Laboratory, Inc.

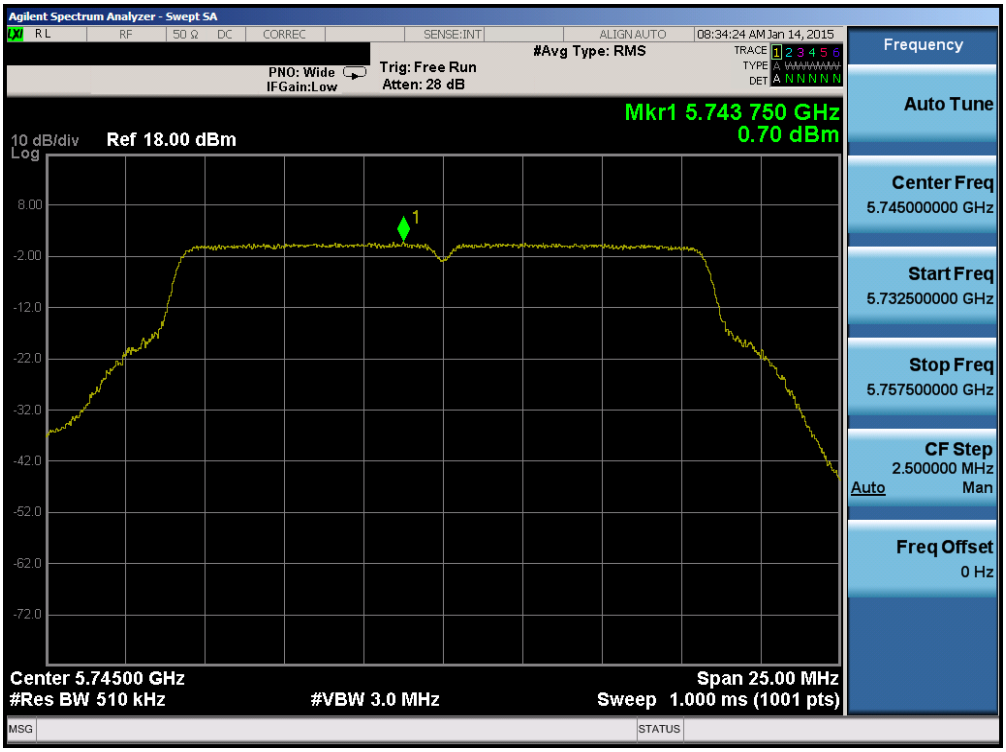


Plot 6-143. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band Gap) – Ch. 138)

© 2015 PCTEST Engineering Laboratory, Inc.

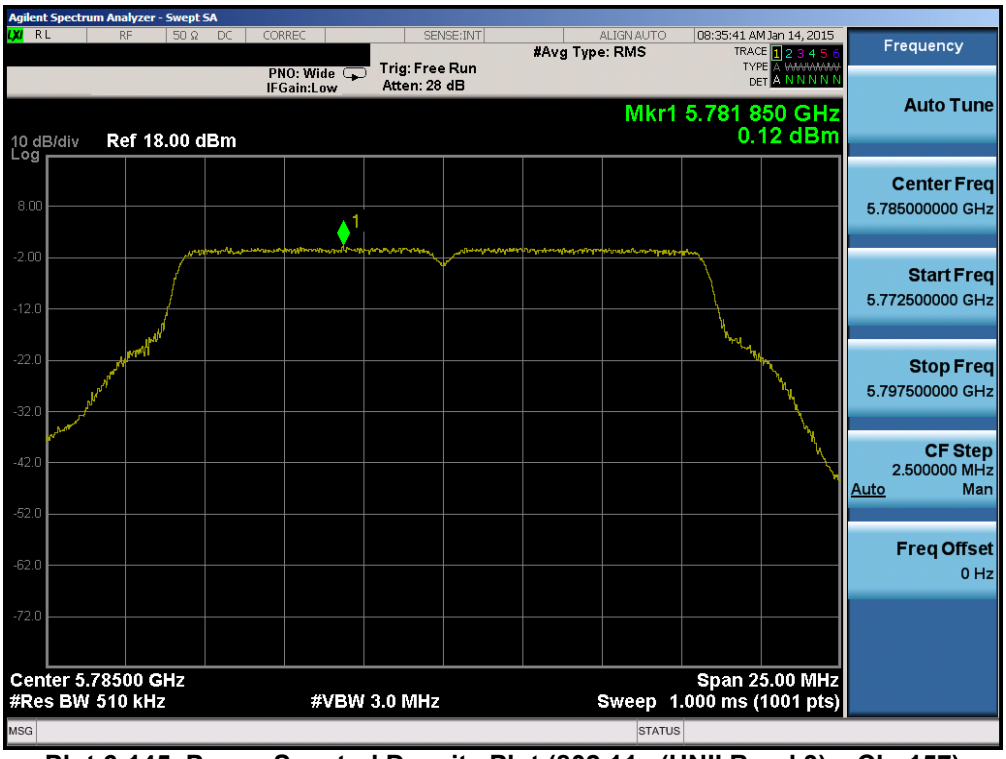
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Pass / Fail
Band 3	5745	149	a	6	0.70	30.0	-29.30	Pass
	5785	157	a	6	0.12	30.0	-29.88	Pass
	5825	165	a	6	0.12	30.0	-29.88	Pass
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	0.37	30.0	-29.63	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	-0.26	30.0	-30.26	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	-0.35	30.0	-30.35	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	-3.35	30.0	-33.35	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	-2.82	30.0	-32.82	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-7.21	30.0	-37.21	Pass

Table 6-20. Band 3 Conducted Power Spectral Density Measurements

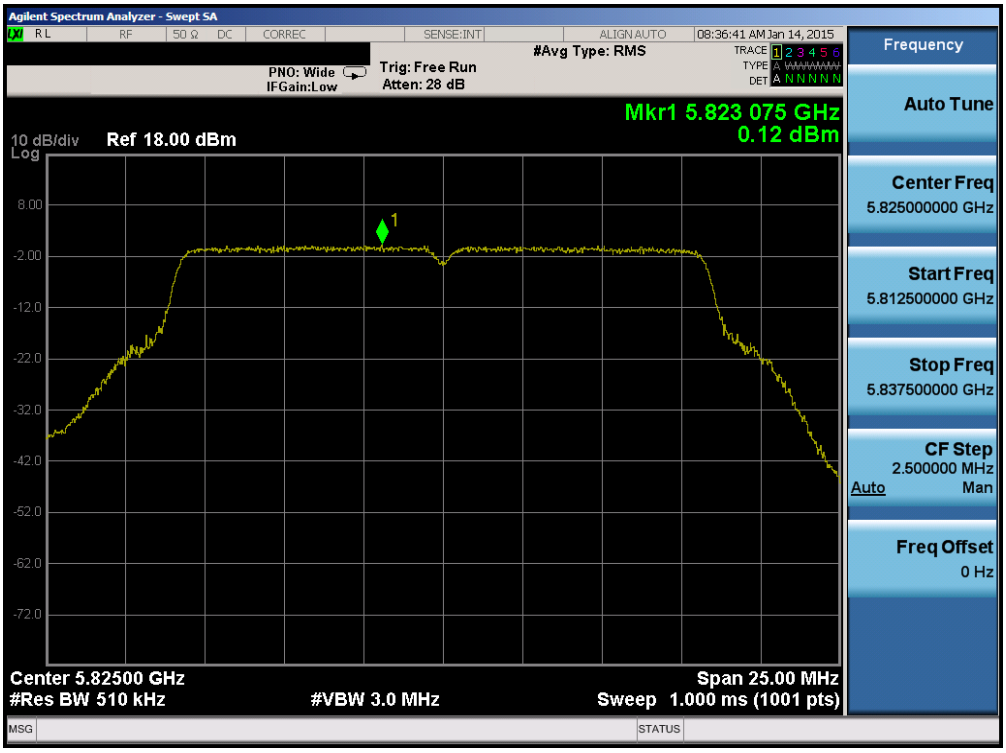


Plot 6-144. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 149)

© 2015 PCTEST Engineering Laboratory, Inc.

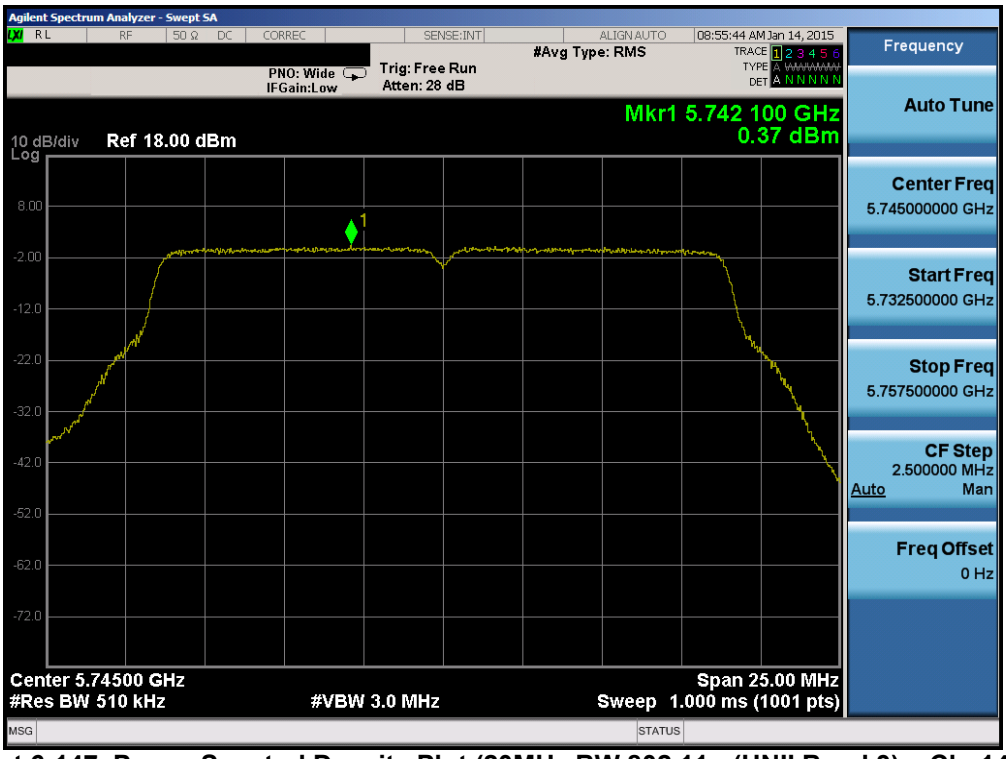


Plot 6-145. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)

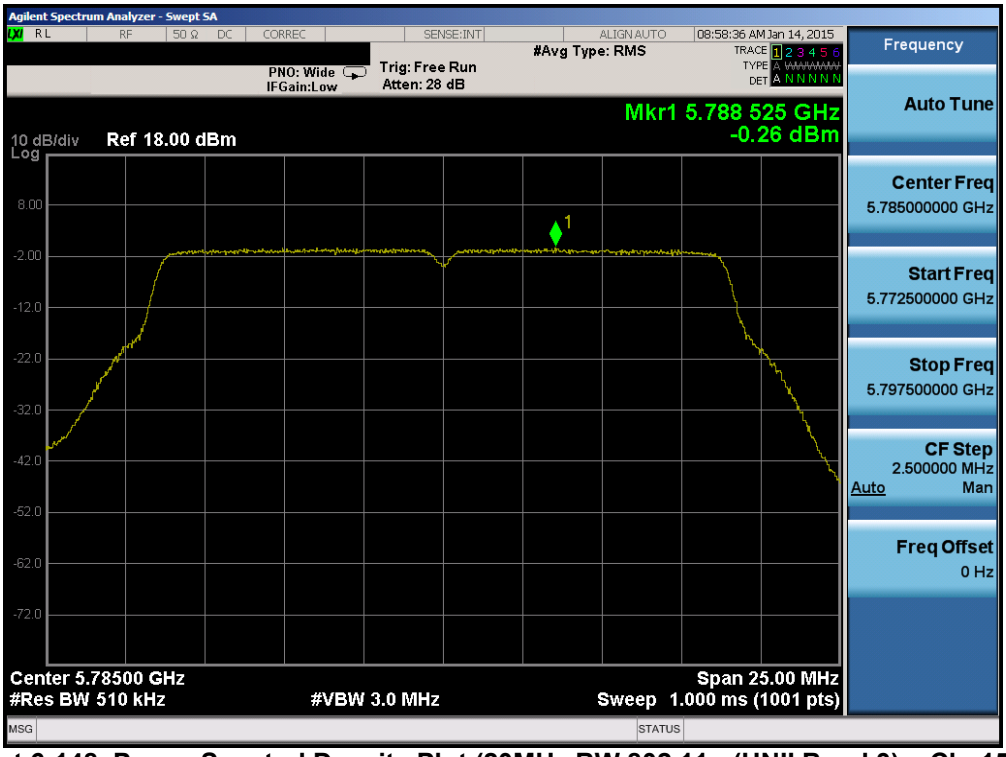


Plot 6-146. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

© 2015 PCTEST Engineering Laboratory, Inc.

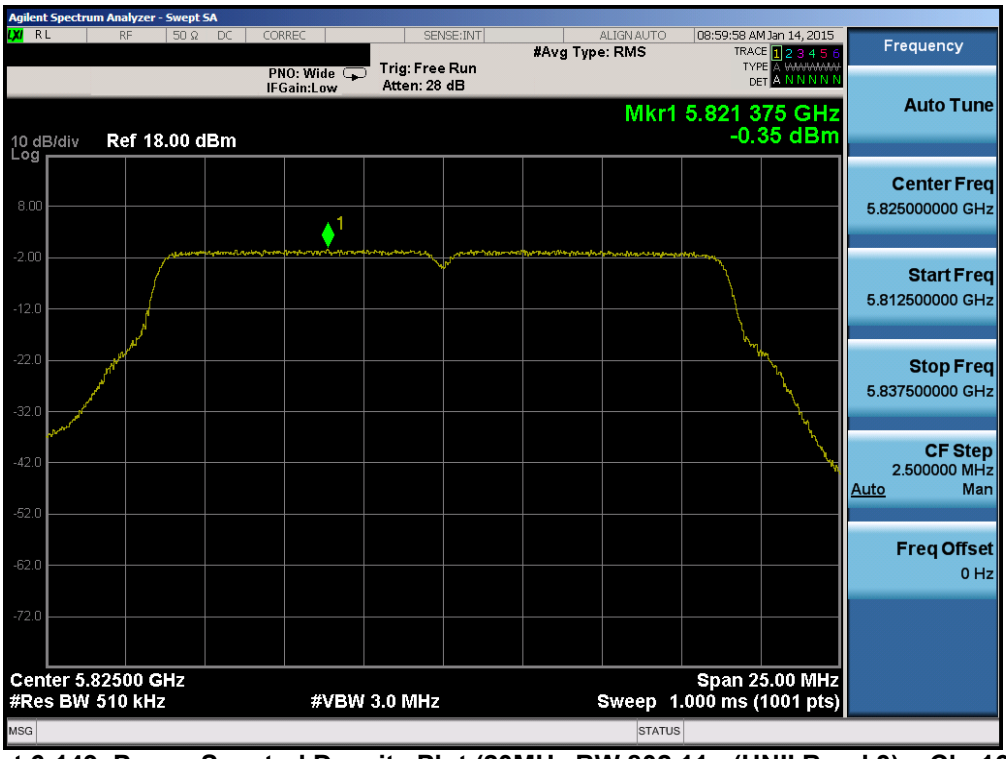


Plot 6-147. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

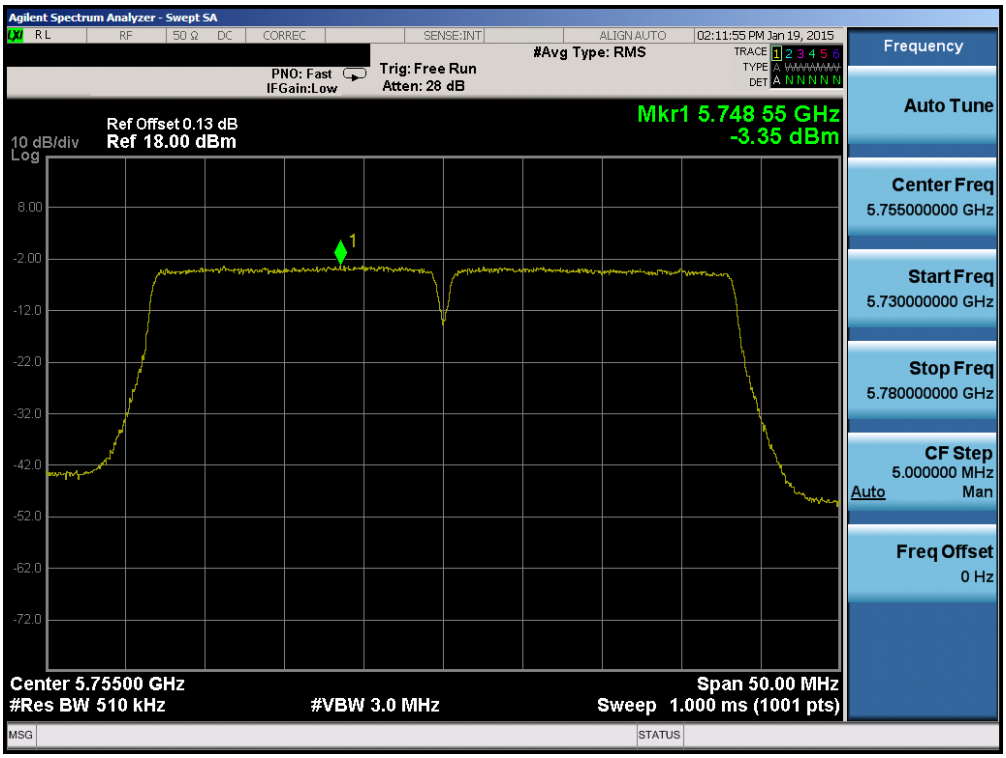


Plot 6-148. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

© 2015 PCTEST Engineering Laboratory, Inc.

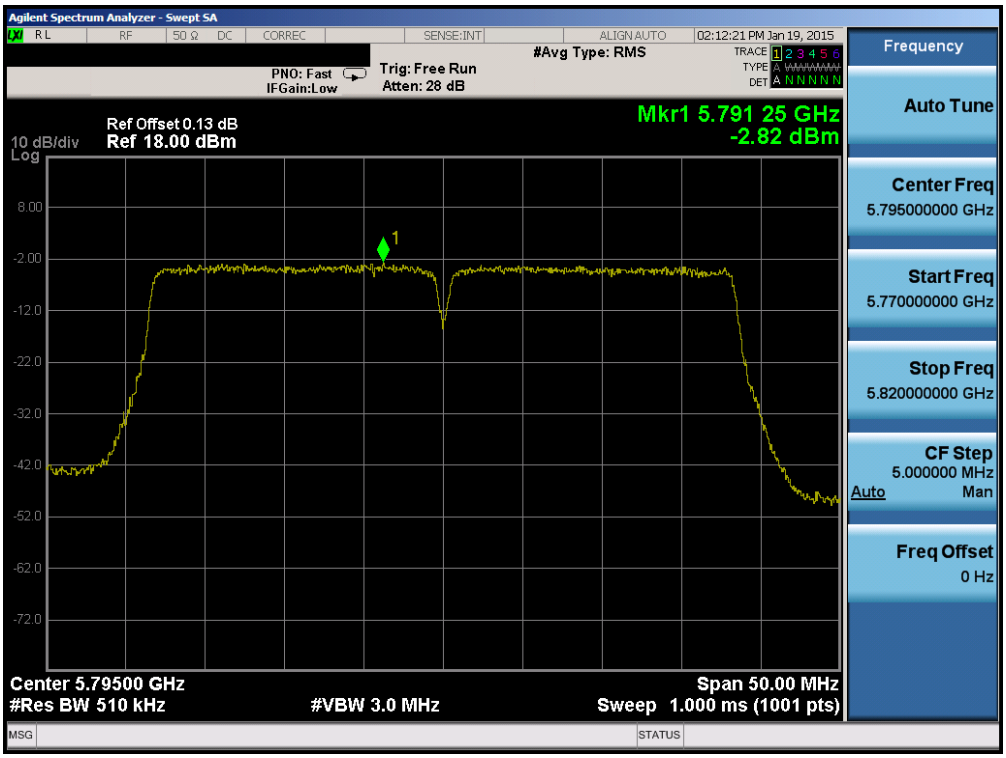


Plot 6-149. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

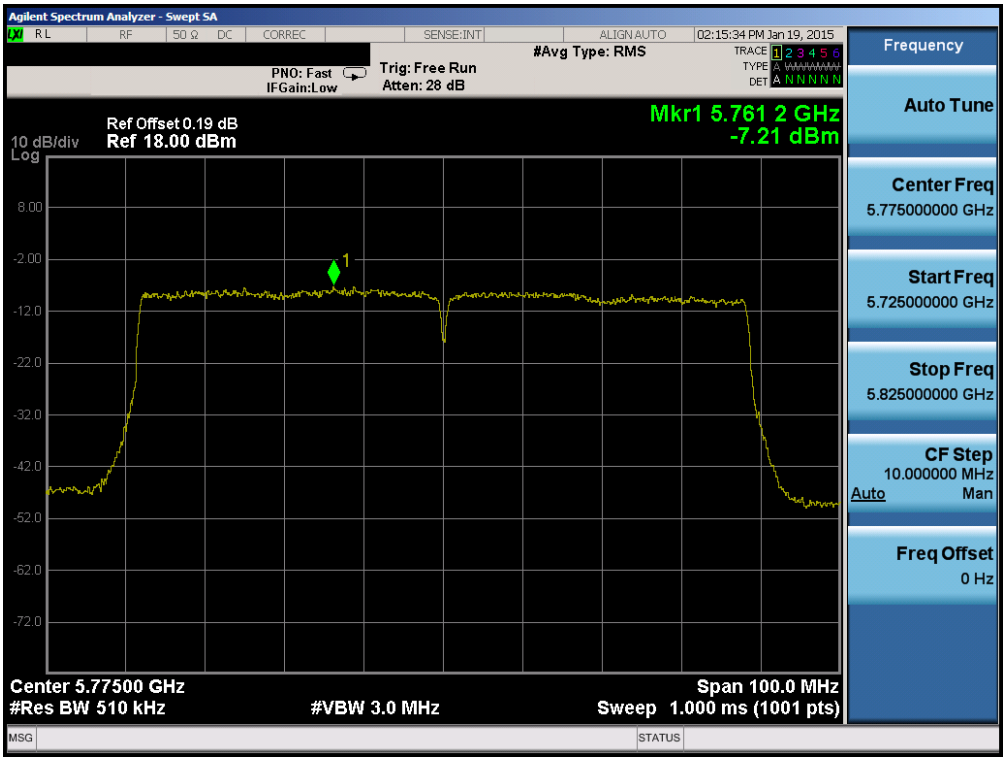


Plot 6-150. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

© 2015 PCTEST Engineering Laboratory, Inc.



Plot 6-151. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 6-152. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

© 2015 PCTEST Engineering Laboratory, Inc.

Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	n (20MHz)	6.5/7.2 (MCS0)	0.87	2.67	4.87	11.0	-6.13	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	0.77	2.66	4.83	11.0	-6.17	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	0.07	2.50	4.47	11.0	-6.53	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	-3.50	-1.38	0.70	11.0	-10.30	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	-4.02	-0.89	0.83	11.0	-10.17	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-4.65	-5.18	-1.89	11.0	-12.89	Pass
Band 2A	5260	52	n (20MHz)	6.5/7.2 (MCS0)	0.30	2.78	4.72	11.0	-6.28	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	-0.78	2.66	4.28	11.0	-6.72	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	0.52	2.39	4.56	11.0	-6.44	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	-4.23	-0.70	0.90	11.0	-10.10	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	-3.90	-1.36	0.56	11.0	-10.44	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-5.01	-5.48	-2.23	11.0	-13.23	Pass
Band 2C	5500	100	n (20MHz)	6.5/7.2 (MCS0)	0.73	2.86	4.93	11.0	-6.07	Pass
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	2.14	1.92	5.04	11.0	-5.96	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	3.93	3.10	6.55	11.0	-4.45	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	-3.56	-0.06	1.54	11.0	-9.46	Pass
	5550	110	n (40MHz)	13.5/15 (MCS0)	-1.50	-1.79	1.37	11.0	-9.63	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	-0.39	-0.34	2.65	11.0	-8.35	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-4.32	-4.84	-1.56	11.0	-12.56	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-4.14	-4.37	-1.24	11.0	-12.24	Pass

Table 6-21. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Pass / Fail
Band 3	5745	149	n (20MHz)	6.5/7.2 (MCS0)	-2.12	0.37	2.31	30.0	-27.69	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	-2.94	-0.26	1.61	30.0	-28.39	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	-1.99	-0.35	1.92	30.0	-28.08	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	-6.96	-3.35	-1.78	30.0	-31.78	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	-7.23	-2.82	-1.48	30.0	-31.48	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-7.31	-7.21	-4.25	30.0	-34.25	Pass

Table 6-22. Band 3 MIMO Conducted Power Spectral Density Measurements

Note:

Per KDB 662911 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Sample MIMO Calculation:

At 5180MHz the average conducted power spectral density was measured to be 0.87 dBm for Antenna-1 and 2.67 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

(0.87 dBm + 2.67 dBm) = (1.22 mW + 1.85 mW) = 3.07 mW = 4.87 dBm

© 2015 PCTEST Engineering Laboratory, Inc.

6.6 Frequency Stability

§15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,180,000,000 Hz

CHANNEL: 36

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,179,999,931	-69	-0.00000133
100 %		- 30	5,180,000,012	12	0.00000023
100 %		- 20	5,180,000,101	101	0.00000195
100 %		- 10	5,180,000,333	333	0.00000643
100 %		0	5,180,000,104	104	0.00000201
100 %		+ 10	5,180,000,001	1	0.00000002
100 %		+ 20	5,179,999,843	-157	-0.00000303
100 %		+ 30	5,179,999,535	-465	-0.00000898
100 %		+ 40	5,180,000,198	198	0.00000382
100 %		+ 50	5,179,999,864	-136	-0.00000263
BATT. ENDPOINT	3.45	+ 20	5,179,999,745	-255	-0.00000492

Table 6-23. Frequency Stability Measurements for UNII Band 1 (Ch. 36)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

© 2015 PCTEST Engineering Laboratory, Inc.

Frequency Stability
§15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,260,000,000 Hz

CHANNEL: 52

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,259,999,988	-12	-0.00000023
100 %		- 30	5,260,000,171	171	0.00000325
100 %		- 20	5,259,999,841	-159	-0.00000302
100 %		- 10	5,260,000,348	348	0.00000662
100 %		0	5,260,000,092	92	0.00000175
100 %		+ 10	5,260,000,006	6	0.00000011
100 %		+ 20	5,259,999,996	-4	-0.00000008
100 %		+ 30	5,259,999,965	-35	-0.00000067
100 %		+ 40	5,260,000,019	19	0.00000036
100 %		+ 50	5,260,000,002	2	0.00000004
BATT. ENDPOINT	3.45	+ 20	5,259,999,733	-267	-0.00000508

Table 6-24. Frequency Stability Measurements for UNII Band 2A (Ch. 52)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

© 2015 PCTEST Engineering Laboratory, Inc.

Frequency Stability
§15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,500,000,000 Hz

CHANNEL: 100

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,500,000,019	19	0.00000035
100 %		- 30	5,500,000,251	251	0.00000456
100 %		- 20	5,500,000,233	233	0.00000424
100 %		- 10	5,499,999,779	-221	-0.00000402
100 %		0	5,499,999,867	-133	-0.00000242
100 %		+ 10	5,500,000,080	80	0.00000145
100 %		+ 20	5,499,999,988	-12	-0.00000022
100 %		+ 30	5,500,000,020	20	0.00000036
100 %		+ 40	5,499,999,585	-415	-0.00000755
100 %		+ 50	5,500,000,085	85	0.00000155
BATT. ENDPOINT	3.45	+ 20	5,499,999,839	-161	-0.00000293

Table 6-25. Frequency Stability Measurements for UNII Band 2C (Ch. 100)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

© 2015 PCTEST Engineering Laboratory, Inc.

Frequency Stability
§15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,745,000,000 Hz

CHANNEL: 149

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,744,999,908	-92	-0.00000160
100 %		- 30	5,744,999,599	-401	-0.00000698
100 %		- 20	5,744,999,904	-96	-0.00000167
100 %		- 10	5,744,999,914	-86	-0.00000150
100 %		0	5,744,999,784	-216	-0.00000376
100 %		+ 10	5,745,000,174	174	0.00000303
100 %		+ 20	5,744,999,790	-210	-0.00000366
100 %		+ 30	5,745,000,026	26	0.00000045
100 %		+ 40	5,745,000,029	29	0.00000050
100 %		+ 50	5,745,000,178	178	0.00000310
BATT. ENDPOINT	3.45	+ 20	5,745,000,306	306	0.00000533

Table 6-26. Frequency Stability Measurements for UNII Band 3 (Ch. 149)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

© 2015 PCTEST Engineering Laboratory, Inc.

6.7 Radiated Spurious Emission Measurements

§15.407(b.1)(b.6) §15.205 §15.209

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in KDB 789033 D02 v01, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11n (20MHz BW) and 802.11n (40MHz BW)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 6-27 per Section 15.209.

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 6-27. Radiated Limits

Test Procedures Used

KDB 789033 D02 v01 – Section G

Test Settings

Average Measurements above 1GHz (Method AD)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be ≥ 2 x span/RBW)
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

© 2015 PCTEST Engineering Laboratory, Inc.

Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Test Setup

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

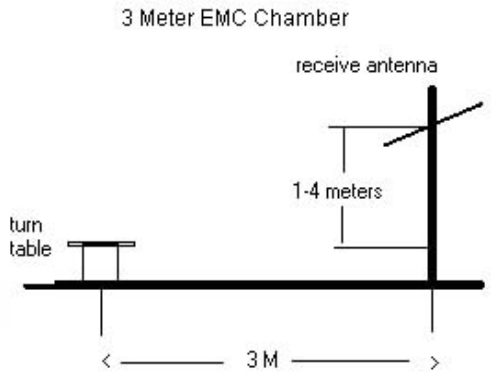


Figure 6-5. Test Instrument & Measurement Setup

Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 D02 v01 Section H.
2. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 are below the limit shown in Table 6-27.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-11. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.

© 2015 PCTEST Engineering Laboratory, Inc.

6. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
8. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
9. Radiated spurious emissions pre-scan plots are also reported at the beginning of the next section. The plots apply the appropriate system corrections, however, they do not show the fully maximized spectrum. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Rohde & Schwarz EMC32, Version 9.15.00 automated test software was used to perform the Radiated Spurious Emissions Pre-Scan testing.

Sample Calculations

Determining Spurious Emissions Levels

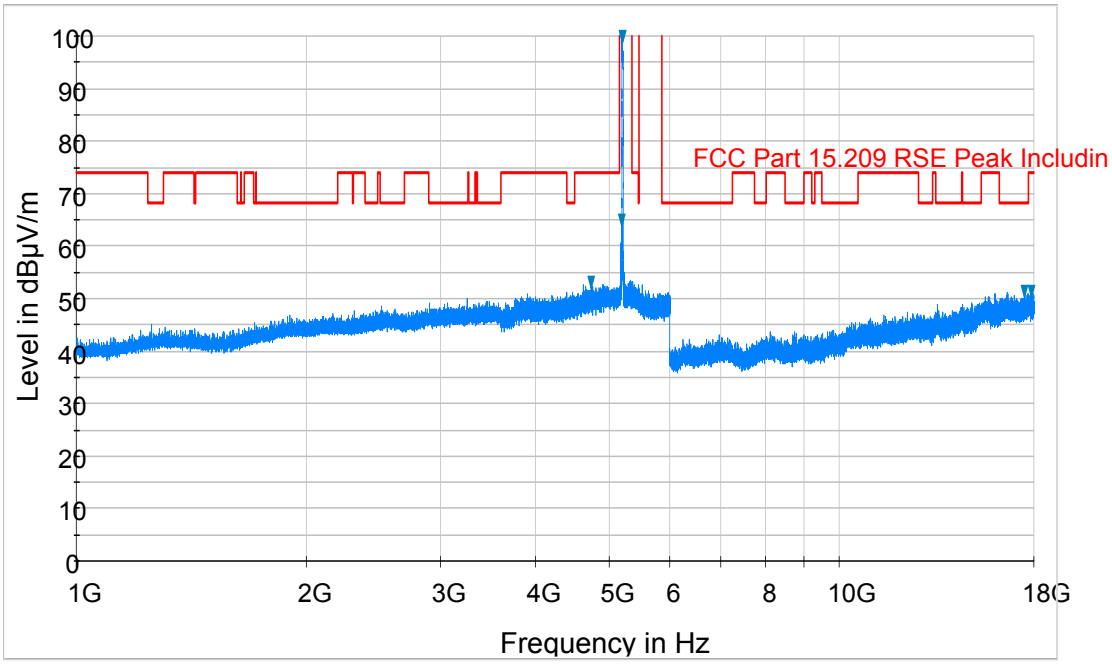
- Field Strength Level $_{[dB\mu V/m]}$ = Analyzer Level $_{[dBm]}$ + 107 + AFCL $_{[dB/m]}$
- AFCL $_{[dB/m]}$ = Antenna Factor $_{[dB/m]}$ + Cable Loss $_{[dB]}$
- Margin $_{[dB]}$ = Field Strength Level $_{[dB\mu V/m]}$ – Limit $_{[dB\mu V/m]}$

Radiated Band Edge Measurement Offset

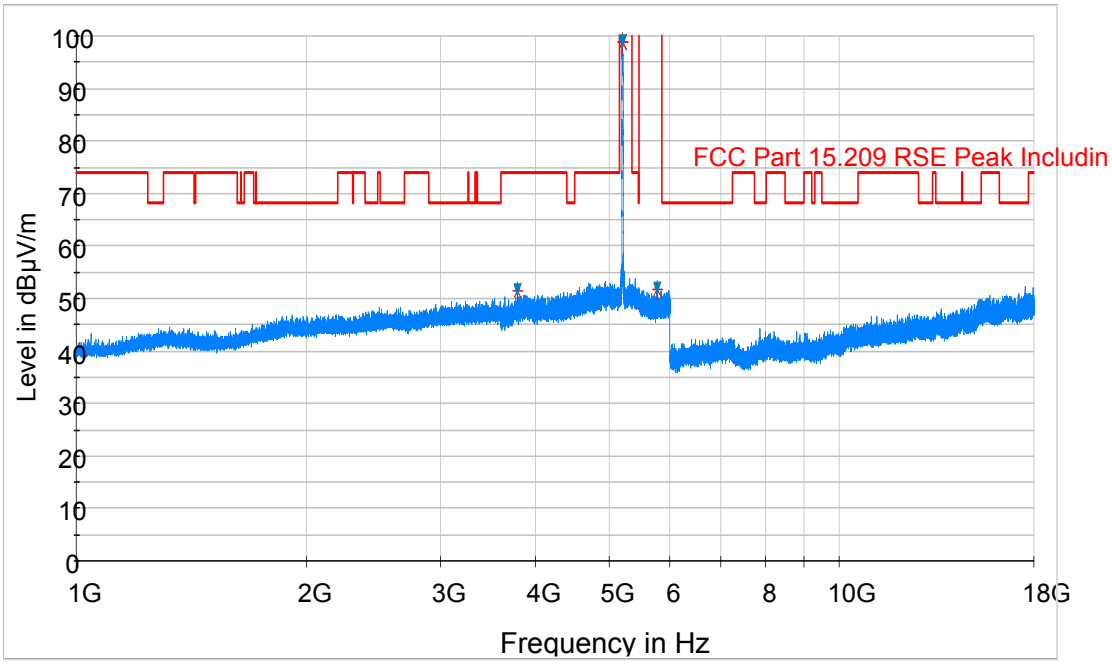
- The amplitude offset shown in the radiated restricted band edge plots in Section 6.8 was calculated using the formula:
  Offset (dB) = (Antenna Factor + Cable Loss + 10 dB Attenuator) – Preamplifier Gain

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.1 Antenna-1 Radiated Spurious Emission Measurements

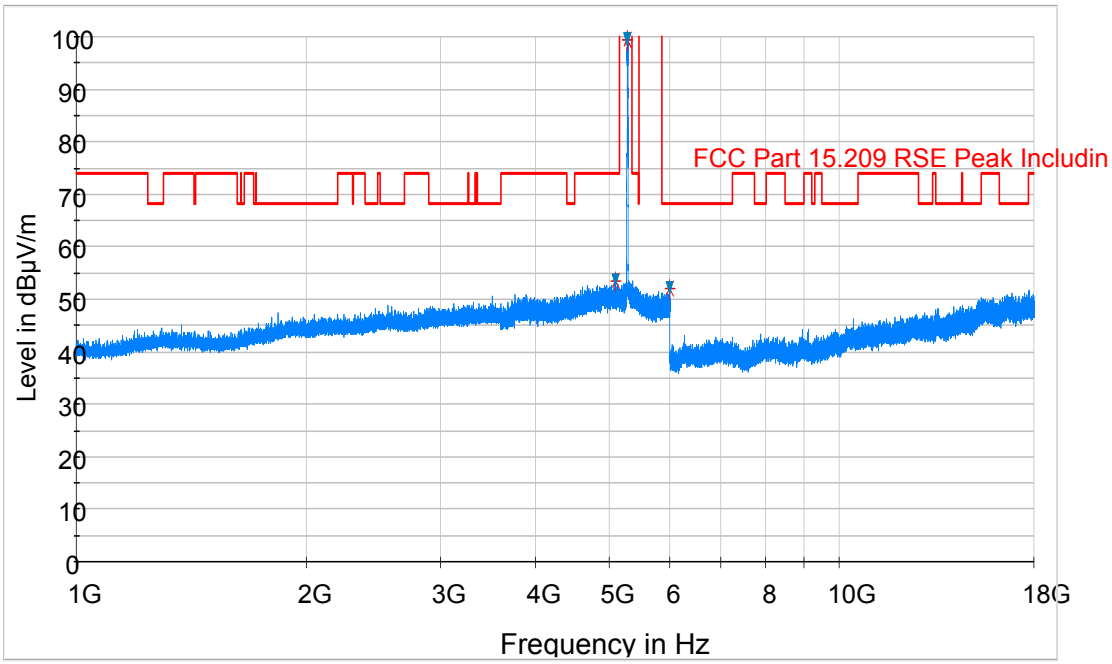


Plot 6-153. Radiated Spurious Plot above 1GHz (802.11a – U1, Ant. Pol. H)

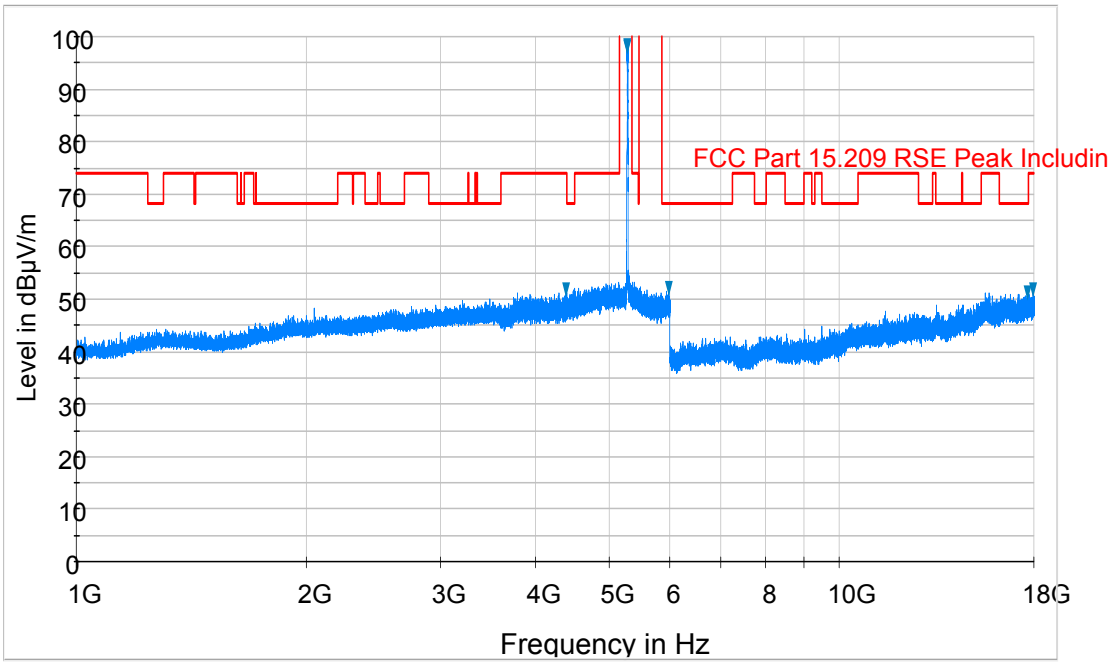


Plot 6-154. Radiated Spurious Plot above 1GHz (802.11a – U1, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.

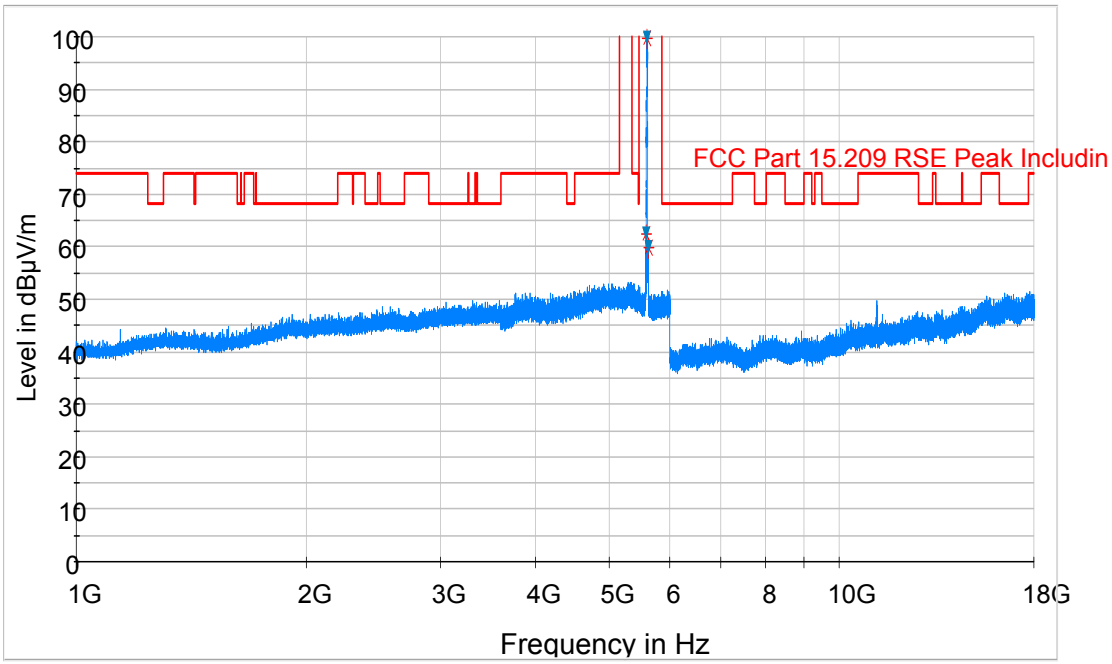


Plot 6-155. Radiated Spurious Plot above 1GHz (802.11a – U2A, Ant. Pol. H)

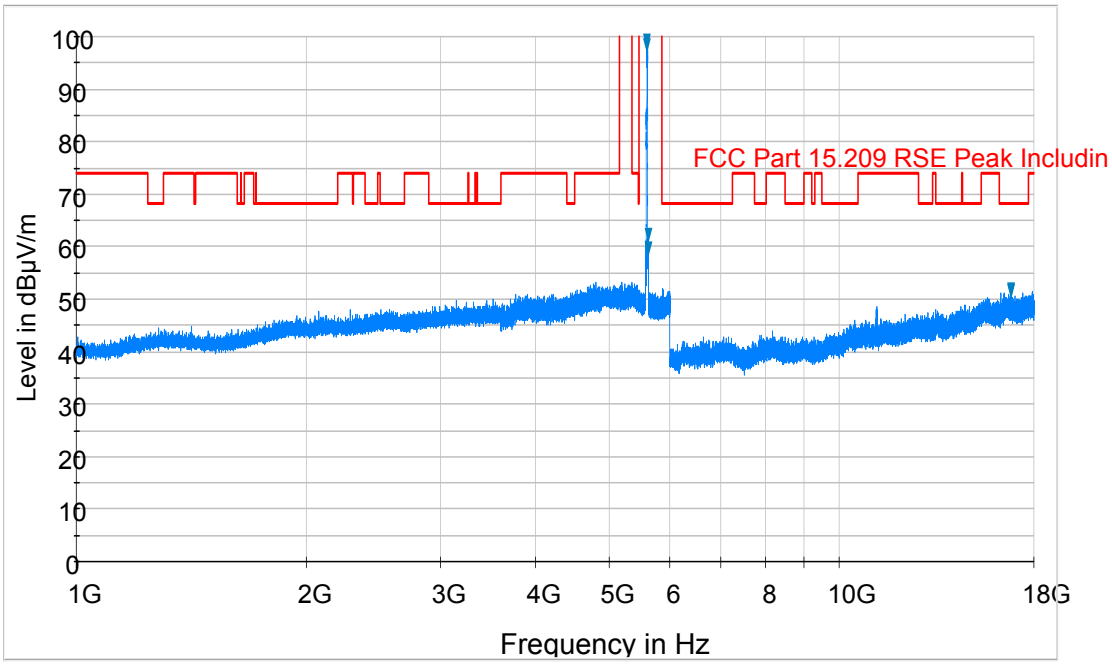


Plot 6-156. Radiated Spurious Plot above 1GHz (802.11a – U2A, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.

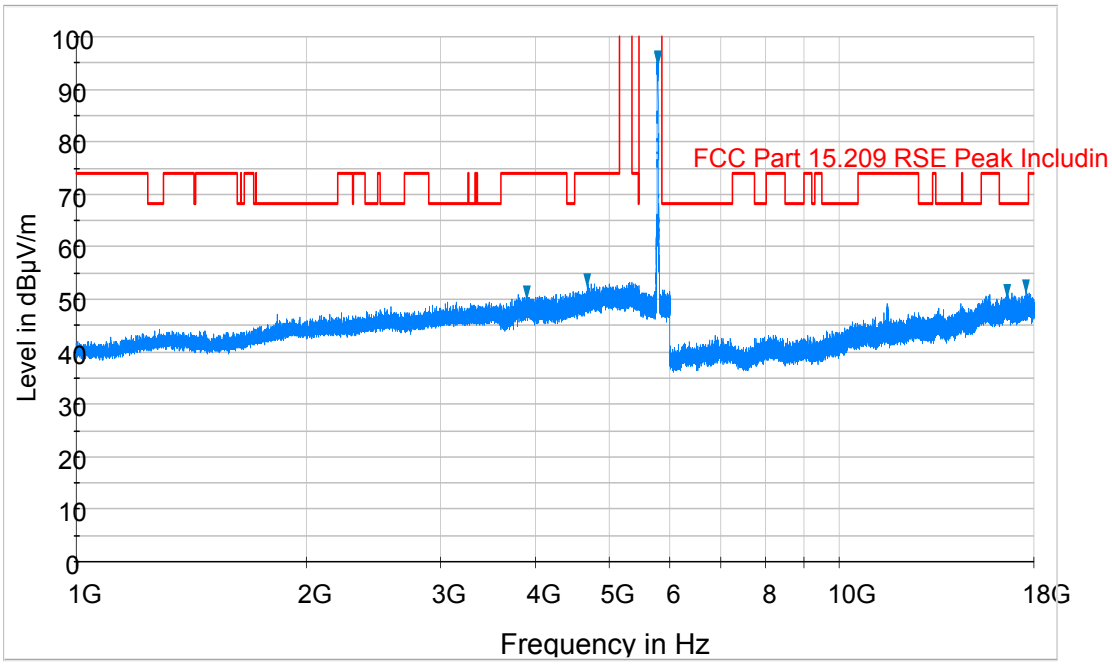


Plot 6-157. Radiated Spurious Plot above 1GHz (802.11a – U2C, Ant. Pol. H)

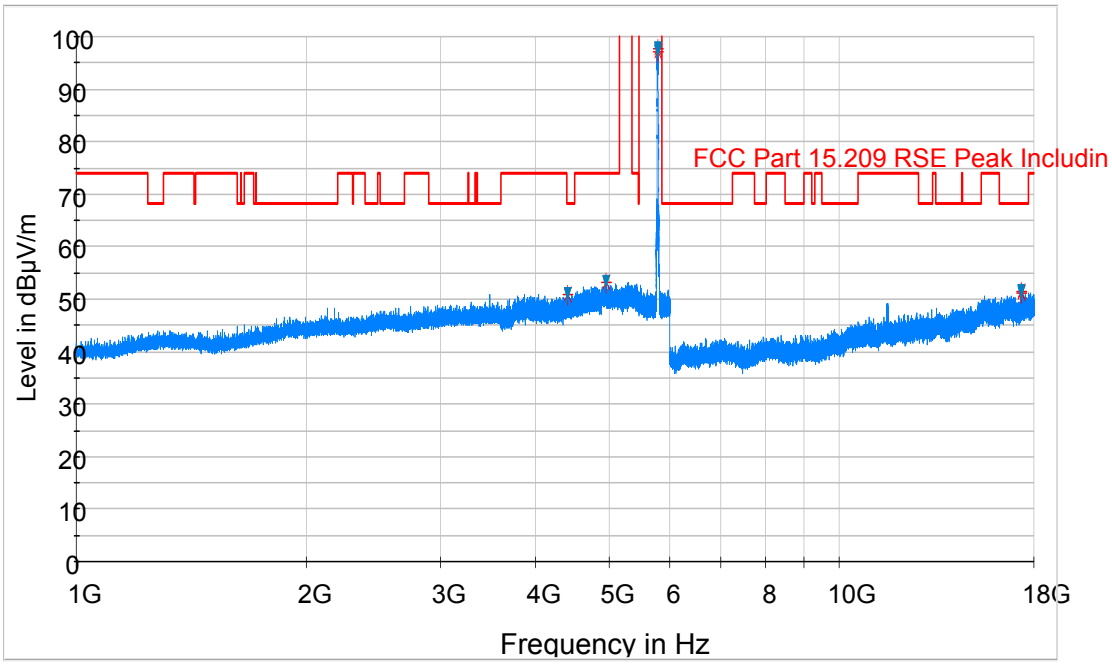


Plot 6-158. Radiated Spurious Plot above 1GHz (802.11a – U2C, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.



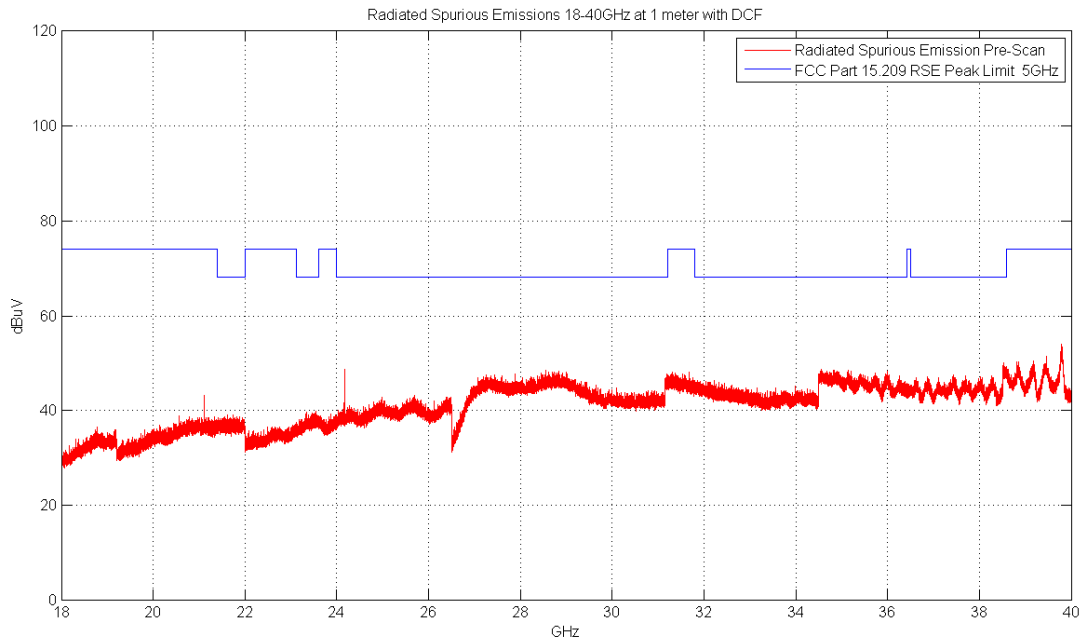
Plot 6-159. Radiated Spurious Plot above 1GHz (802.11a – U3, Ant. Pol. H)



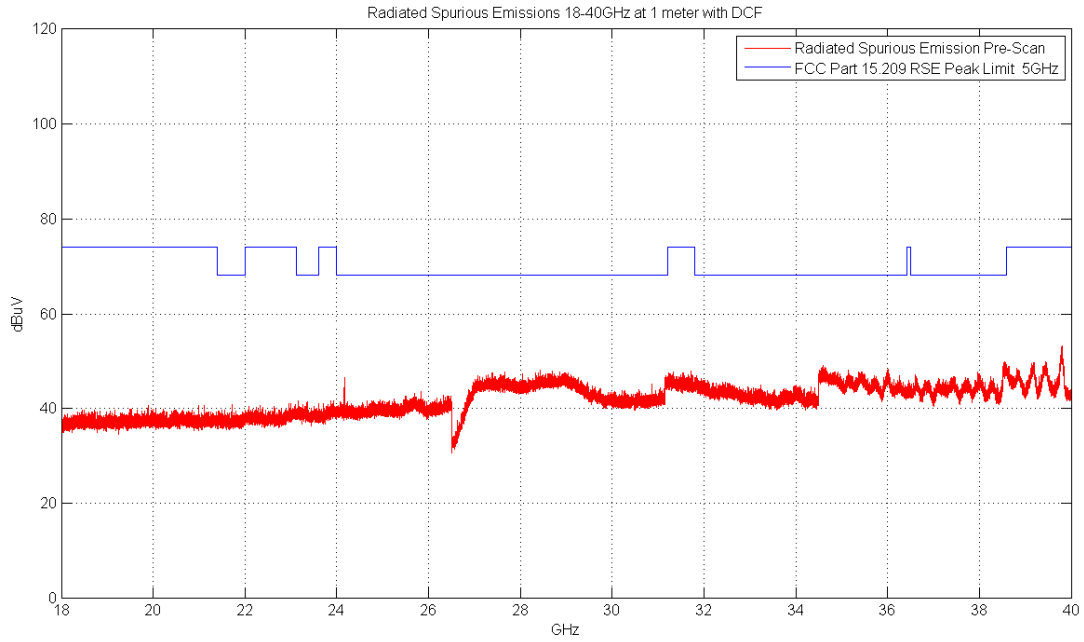
Plot 6-160. Radiated Spurious Plot above 1GHz (802.11a – U3, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)
§15.209



Plot 6-161. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)



Plot 6-162. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5180MHz
Channel: 36

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10360.00	-104.18	Peak	H	44.79	0.00	47.60	68.20	-20.60
*	15540.00	-118.38	Average	H	49.29	0.00	37.91	53.98	-16.07
*	15540.00	-105.49	Peak	H	49.29	0.00	50.80	73.98	-23.18
*	20720.00	-90.87	Average	V	44.20	-9.54	50.78	53.98	-3.20
*	20720.00	-82.80	Peak	V	44.20	-9.54	58.85	73.98	-15.13
	25900.00	-91.11	Peak	V	45.08	-9.54	51.42	68.20	-16.78

Table 6-28. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5200MHz
Channel: 40

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10400.00	-104.07	Peak	H	44.87	0.00	47.81	68.20	-20.39
*	15600.00	-118.35	Average	H	49.31	0.00	37.96	53.98	-16.02
*	15600.00	-105.80	Peak	H	49.31	0.00	50.51	73.98	-23.47
*	20800.00	-90.80	Average	V	44.20	-9.54	50.86	53.98	-3.12
*	20800.00	-84.32	Peak	V	44.20	-9.54	57.34	73.98	-16.64
	26000.00	-94.49	Peak	V	45.11	-9.54	48.08	68.20	-20.12

Table 6-29. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5240MHz
Channel:	48

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	-104.88	Peak	H	45.08	0.00	47.20	68.20	-21.00
*	15720.00	-118.22	Average	H	49.40	0.00	38.18	53.98	-15.80
*	15720.00	-105.41	Peak	H	49.40	0.00	50.99	73.98	-22.99
*	20960.00	-90.71	Average	V	44.19	-9.54	50.93	53.98	-3.05
*	20960.00	-84.52	Peak	V	44.19	-9.54	57.12	73.98	-16.86
	26200.00	-91.19	Peak	V	44.95	-9.54	51.22	68.20	-16.98

Table 6-30. Radiated Measurements

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5260MHz
Channel:	52

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10520.00	-104.55	Peak	H	45.13	0.00	47.58	68.20	-20.62
*	15780.00	-118.85	Average	H	49.46	0.00	37.60	53.98	-16.38
*	15780.00	-105.72	Peak	H	49.46	0.00	50.73	73.98	-23.25
*	21040.00	-90.84	Average	V	44.18	-9.54	50.79	53.98	-3.18
*	21040.00	-84.05	Peak	V	44.18	-9.54	57.58	73.98	-16.39
	26300.00	-89.94	Peak	V	44.95	-9.54	52.46	68.20	-15.74

Table 6-31. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5280MHz
Channel: 56

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10560.00	-105.11	Peak	H	45.13	0.00	47.02	68.20	-21.18
*	15840.00	-119.05	Average	H	49.54	0.00	37.50	53.98	-16.48
*	15840.00	-105.74	Peak	H	49.54	0.00	50.81	73.98	-23.17
*	21120.00	-90.88	Average	V	44.17	-9.54	50.75	53.98	-3.23
*	21120.00	-87.13	Peak	V	44.17	-9.54	54.50	73.98	-19.48
	26400.00	-89.56	Peak	V	45.01	-9.54	52.90	68.20	-15.30

Table 6-32. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5320MHz
Channel: 64

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	10640.00	-116.35	Average	H	45.16	0.00	35.81	53.98	-18.17
*	10640.00	-105.29	Peak	H	45.16	0.00	46.87	73.98	-27.11
*	15960.00	-119.07	Average	H	49.75	0.00	37.68	53.98	-16.30
*	15960.00	-106.43	Peak	H	49.75	0.00	50.32	73.98	-23.66
*	21280.00	-90.77	Average	V	44.18	-9.54	50.86	53.98	-3.11
*	21280.00	-87.16	Peak	V	44.18	-9.54	54.47	73.98	-19.50
	26600.00	-93.38	Peak	V	47.61	-9.54	51.69	68.20	-16.51

Table 6-33. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5500MHz
Channel: 100

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11000.00	-112.84	Average	H	45.24	0.00	39.40	53.98	-14.58
*	11000.00	-99.58	Peak	H	45.24	0.00	52.66	73.98	-21.32
	16500.00	-105.51	Peak	H	50.35	0.00	51.84	68.20	-16.36
	22000.00	-85.20	Peak	V	44.47	-9.54	56.73	68.20	-11.47
	27500.00	-93.92	Peak	V	47.92	-9.54	51.46	68.20	-16.74

Table 6-34. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5580MHz
Channel: 116

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11160.00	-105.20	Average	H	45.23	0.00	47.03	53.98	-6.95
*	11160.00	-91.94	Peak	H	45.23	0.00	60.29	73.98	-13.69
	16740.00	-106.23	Peak	H	50.51	0.00	51.28	68.20	-16.92
*	22320.00	-91.71	Average	V	44.59	-9.54	50.34	53.98	-3.64
*	22320.00	-84.66	Peak	V	44.59	-9.54	57.39	73.98	-16.59
	27900.00	-95.78	Peak	V	48.09	-9.54	49.77	68.20	-18.43

Table 6-35. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5720MHz
Channel: 144

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11440.00	-107.04	Average	H	45.38	0.00	45.34	53.98	-8.64
*	11440.00	-93.56	Peak	H	45.38	0.00	58.82	73.98	-15.16
	17160.00	-106.69	Peak	H	50.43	0.00	50.74	68.20	-17.46
*	22880.00	-91.74	Average	V	44.62	-9.54	50.34	53.98	-3.64
*	22880.00	-82.55	Peak	V	44.62	-9.54	59.53	73.98	-14.45
	28600.00	-97.53	Peak	V	48.35	-9.54	48.28	68.20	-19.92

Table 6-36. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5745MHz
Channel: 149

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11490.00	-107.24	Average	H	45.43	0.00	45.19	53.98	-8.79
*	11490.00	-94.75	Peak	H	45.43	0.00	57.68	73.98	-16.30
	17235.00	-100.86	Peak	H	50.61	0.00	56.75	68.20	-11.45
*	22980.00	-91.82	Average	V	44.64	-9.54	50.27	53.98	-3.71
*	22980.00	-81.65	Peak	V	44.64	-9.54	60.44	73.98	-13.54
	28725.00	-101.54	Peak	V	48.26	-9.54	44.18	68.20	-24.02

Table 6-37. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5785MHz
Channel: 157

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11570.00	-109.85	Average	H	45.55	0.00	42.70	53.98	-11.28
*	11570.00	-96.16	Peak	H	45.55	0.00	56.39	73.98	-17.59
	17355.00	-102.81	Peak	H	51.00	0.00	55.19	68.20	-13.01
	23140.00	-96.84	Peak	H	44.73	-9.54	45.35	68.20	-22.85
	28925.00	-104.24	Peak	H	48.28	-9.54	41.49	68.20	-26.71

Table 6-38. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5825MHz
Channel: 165

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11650.00	-109.89	Average	H	45.67	0.00	42.78	53.98	-11.20
*	11650.00	-96.70	Peak	H	45.67	0.00	55.97	73.98	-18.01
	17475.00	-104.75	Peak	H	51.30	0.00	53.55	68.20	-14.65
	23300.00	-95.10	Peak	H	44.76	-9.54	47.12	68.20	-21.08
	29125.00	-104.51	Peak	H	48.24	-9.54	41.19	68.20	-27.01

Table 6-39. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

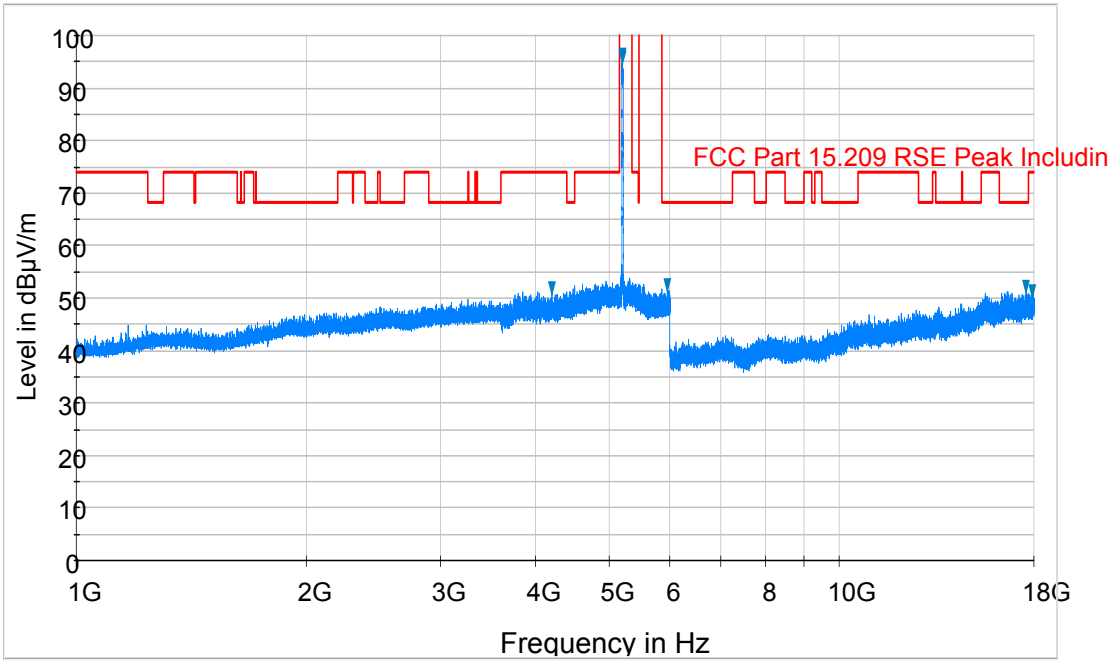
Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5240MHz
Channel:	48

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	-105.32	Peak	H	45.08	0.00	46.76	68.20	-21.44
*	15720.00	-118.22	Average	H	49.40	0.00	38.18	53.98	-15.80
*	15720.00	-109.06	Peak	H	49.40	0.00	47.34	73.98	-26.64
*	20960.00	-100.74	Average	H	44.19	-9.54	40.90	53.98	-13.08
*	20960.00	-94.25	Peak	H	44.19	-9.54	47.39	73.98	-26.59
	26200.00	-97.66	Peak	H	44.95	-9.54	44.75	68.20	-23.45

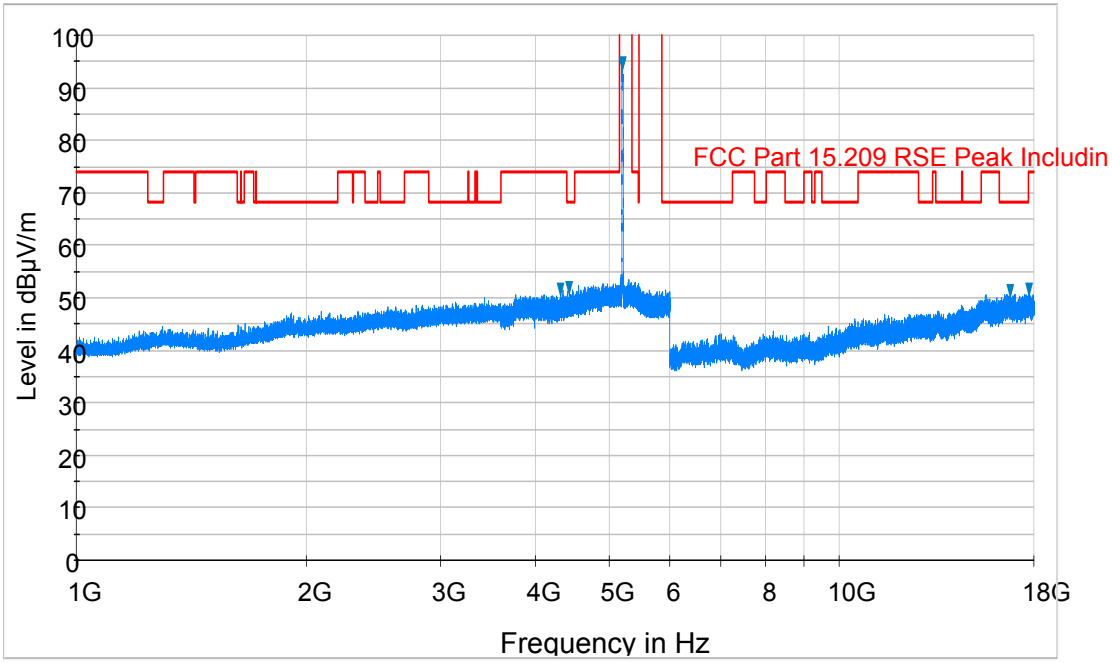
Table 6-40. Radiated Measurements with WCP

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.2 Antenna-2 Radiated Spurious Emission Measurements

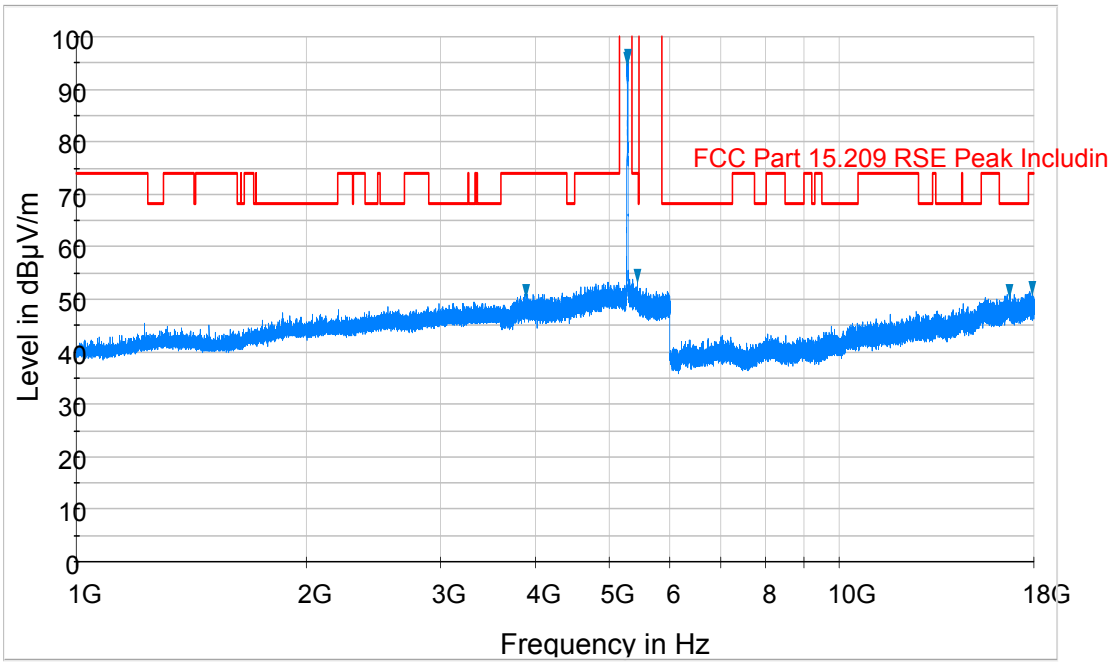


Plot 6-163. Radiated Spurious Plot above 1GHz (802.11a – U1, Ant. Pol. H)

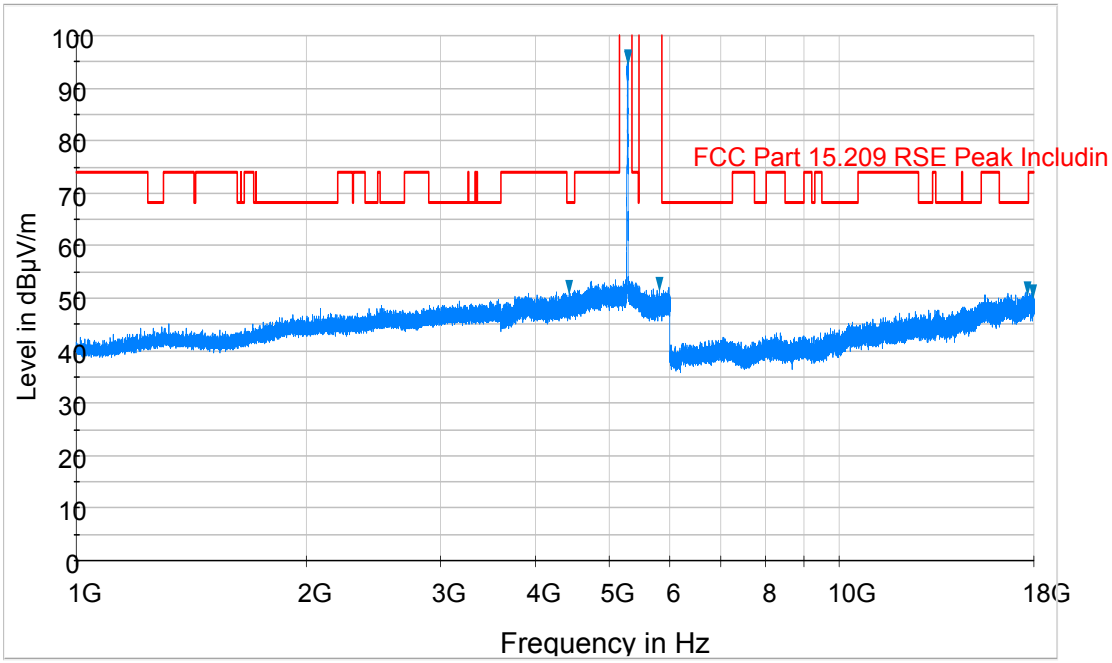


Plot 6-164. Radiated Spurious Plot above 1GHz (802.11a – U1, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.

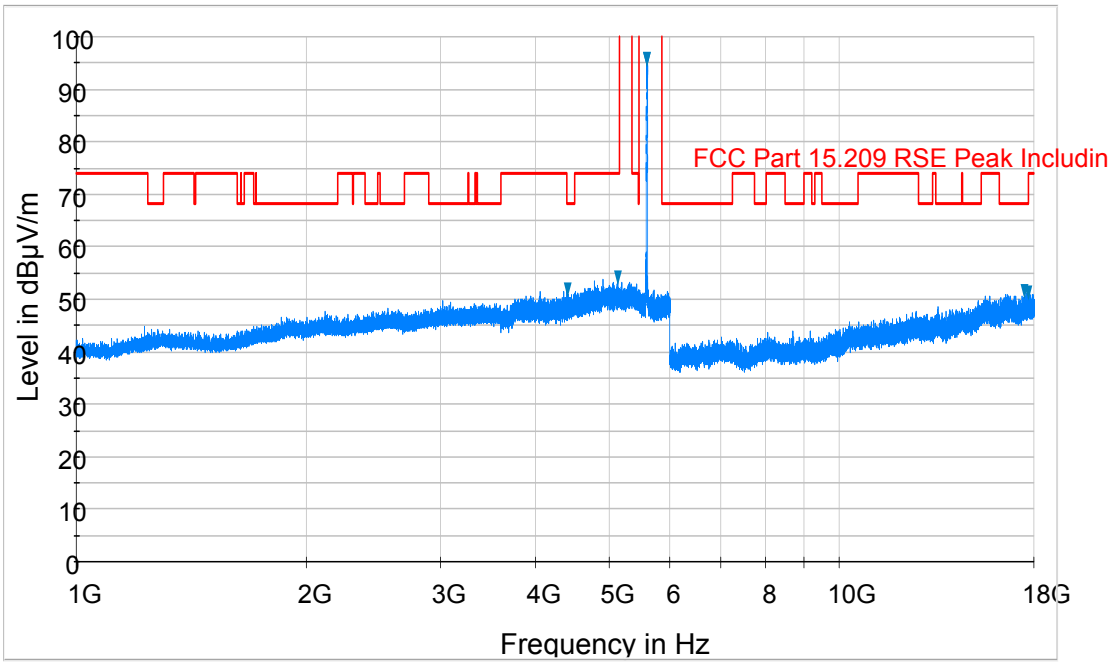


Plot 6-165. Radiated Spurious Plot above 1GHz (802.11a – U2A, Ant. Pol. H)

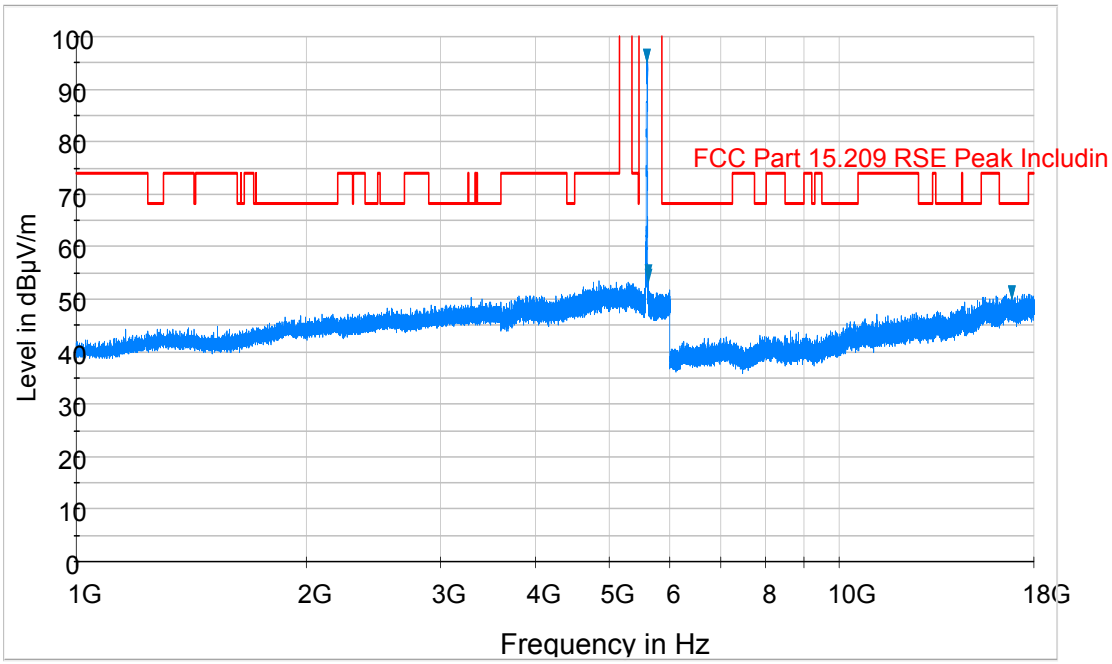


Plot 6-166. Radiated Spurious Plot above 1GHz (802.11a – U2A, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.

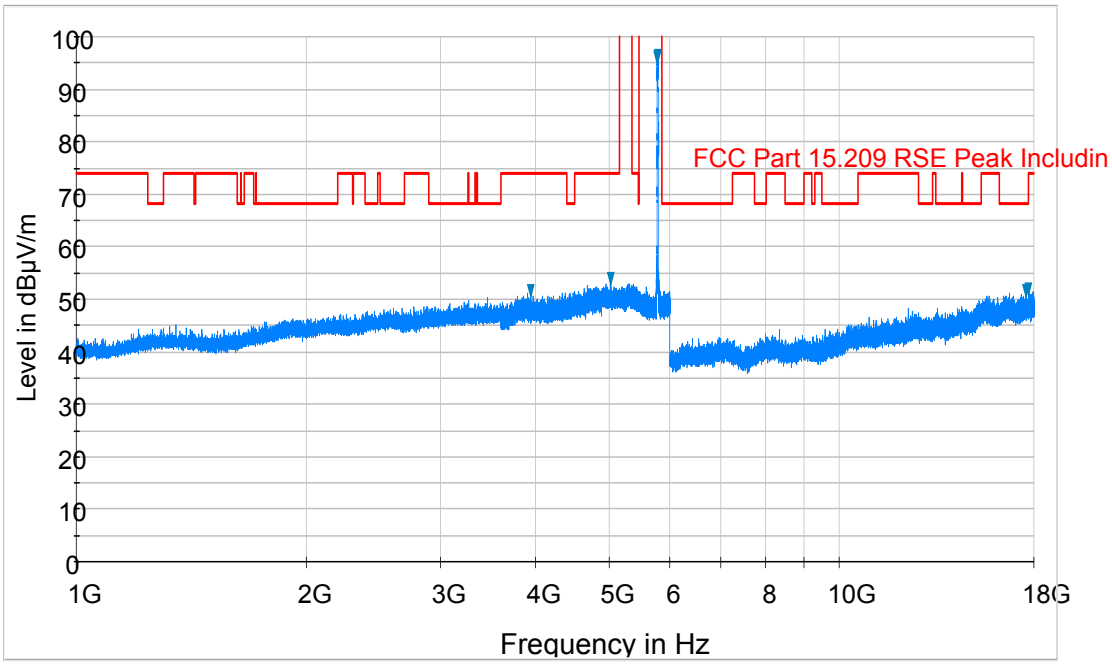


Plot 6-167. Radiated Spurious Plot above 1GHz (802.11a – U2C, Ant. Pol. H)

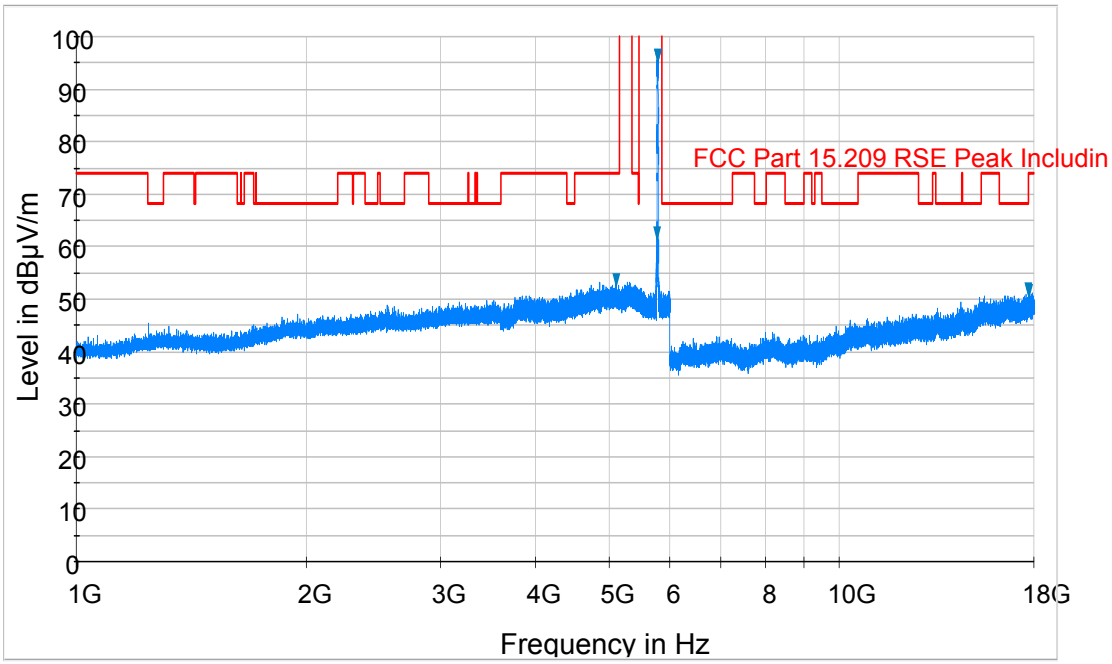


Plot 6-168. Radiated Spurious Plot above 1GHz (802.11a – U2C, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.



Plot 6-169. Radiated Spurious Plot above 1GHz (802.11a – U3, Ant. Pol. H)

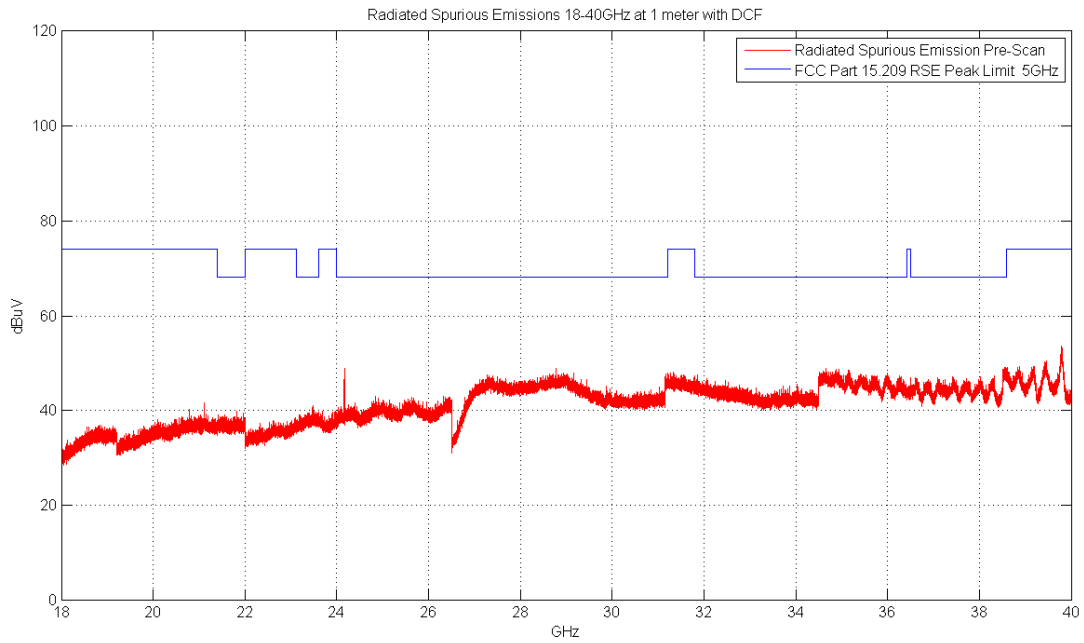


Plot 6-170. Radiated Spurious Plot above 1GHz (802.11a – U3, Ant. Pol. V)

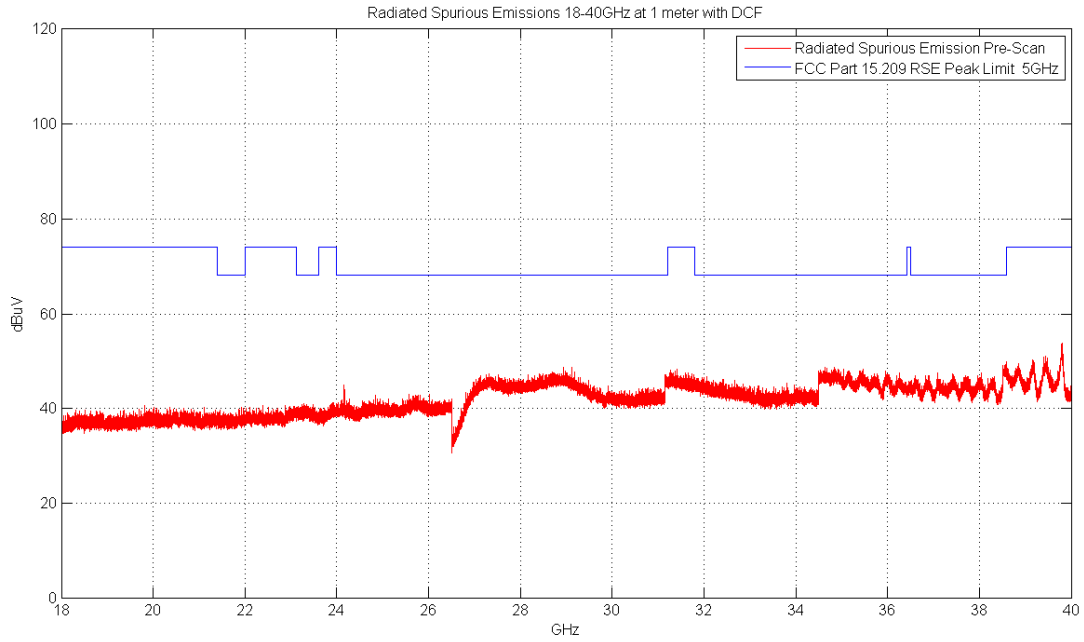
© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209



Plot 6-171. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)



Plot 6-172. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5180MHz
Channel: 36

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10360.00	-98.50	Peak	V	44.79	0.00	53.28	68.20	-14.92
*	15540.00	-111.68	Average	V	49.29	0.00	44.61	53.98	-9.37
*	15540.00	-98.30	Peak	V	49.29	0.00	57.99	73.98	-15.99
*	20720.00	-97.16	Average	V	44.20	-9.54	44.49	53.98	-9.49
*	20720.00	-92.02	Peak	V	44.20	-9.54	49.63	73.98	-24.35
	25900.00	-104.82	Peak	V	45.08	-9.54	37.71	68.20	-30.49

Table 6-41. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5200MHz
Channel: 40

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10400.00	-97.95	Peak	V	44.87	0.00	53.93	68.20	-14.27
*	15600.00	-110.94	Average	V	49.31	0.00	45.37	53.98	-8.61
*	15600.00	-98.35	Peak	V	49.31	0.00	57.96	73.98	-16.02
*	20800.00	-99.12	Average	V	44.20	-9.54	42.54	53.98	-11.44
*	20800.00	-95.31	Peak	V	44.20	-9.54	46.35	73.98	-27.63
	26000.00	-103.62	Peak	V	45.11	-9.54	38.95	68.20	-29.25

Table 6-42. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5240MHz
Channel: 48

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	-98.05	Peak	V	45.08	0.00	54.03	68.20	-14.17
*	15720.00	-111.26	Average	V	49.40	0.00	45.14	53.98	-8.84
*	15720.00	-98.96	Peak	V	49.40	0.00	57.44	73.98	-16.54
*	20960.00	-109.65	Average	V	44.19	-9.54	31.99	53.98	-21.99
*	20960.00	-102.53	Peak	V	44.19	-9.54	39.11	73.98	-34.87
	26200.00	-104.53	Peak	V	44.95	-9.54	37.88	68.20	-30.32

Table 6-43. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5260MHz
Channel: 52

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10520.00	-98.13	Peak	V	45.13	0.00	54.00	68.20	-14.20
*	15780.00	-111.25	Average	V	49.46	0.00	45.20	53.98	-8.78
*	15780.00	-98.70	Peak	V	49.46	0.00	57.75	73.98	-16.23
*	21040.00	-99.97	Average	V	44.18	-9.54	41.66	53.98	-12.31
*	21040.00	-96.18	Peak	V	44.18	-9.54	45.45	73.98	-28.52
	26300.00	-107.93	Peak	V	44.95	-9.54	34.47	68.20	-33.73

Table 6-44. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5280MHz
Channel: 56

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10560.00	-98.29	Peak	V	45.13	0.00	53.84	68.20	-14.36
*	15840.00	-111.29	Average	V	49.54	0.00	45.26	53.98	-8.72
*	15840.00	-99.19	Peak	V	49.54	0.00	57.36	73.98	-16.62
*	21120.00	-99.63	Average	V	44.17	-9.54	42.00	53.98	-11.98
*	21120.00	-94.89	Peak	V	44.17	-9.54	46.74	73.98	-27.24
	26400.00	-107.73	Peak	V	45.01	-9.54	34.73	68.20	-33.47

Table 6-45. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5320MHz
Channel: 64

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	10640.00	-111.16	Average	V	45.16	0.00	41.00	53.98	-12.98
*	10640.00	-98.40	Peak	V	45.16	0.00	53.76	73.98	-20.22
*	15960.00	-110.98	Average	V	49.75	0.00	45.77	53.98	-8.21
*	15960.00	-98.79	Peak	V	49.75	0.00	57.96	73.98	-16.02
*	21280.00	-98.84	Average	V	44.18	-9.54	42.79	53.98	-11.18
*	21280.00	-96.68	Peak	V	44.18	-9.54	44.95	73.98	-29.02
	26600.00	-106.91	Peak	V	47.61	-9.54	38.16	68.20	-30.04

Table 6-46. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5500MHz
Channel: 100

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11000.00	-110.95	Average	V	45.24	0.00	41.29	53.98	-12.69
*	11000.00	-98.23	Peak	V	45.24	0.00	54.01	73.98	-19.97
	16500.00	-98.17	Peak	V	50.35	0.00	59.18	68.20	-9.02
	22000.00	-95.07	Peak	V	44.47	-9.54	46.86	68.20	-21.34
	27500.00	-109.49	Peak	V	47.92	-9.54	35.89	68.20	-32.31

Table 6-47. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5580MHz
Channel: 116

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11160.00	-111.13	Average	V	45.23	0.00	41.10	53.98	-12.88
*	11160.00	-98.31	Peak	V	45.23	0.00	53.92	73.98	-20.06
	16740.00	-99.11	Peak	V	50.51	0.00	58.40	68.20	-9.80
*	22320.00	-99.41	Average	V	44.59	-9.54	42.64	53.98	-11.34
*	22320.00	-96.01	Peak	V	44.59	-9.54	46.04	73.98	-27.94
	27900.00	-108.47	Peak	V	48.09	-9.54	37.08	68.20	-31.12

Table 6-48. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5720MHz
Channel: 144

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
11440.00	-110.60	Average	V	45.38	0.00	41.78	53.98	-12.20
11440.00	-98.33	Peak	V	45.38	0.00	54.05	73.98	-19.93
17160.00	-98.25	Peak	V	50.43	0.00	59.18	68.20	-9.02
22880.00	-99.53	Average	V	44.62	-9.54	42.55	53.98	-11.43
22880.00	-95.77	Peak	V	44.62	-9.54	46.31	73.98	-27.67
28600.00	-110.35	Peak	V	48.35	-9.54	35.46	68.20	-32.74

Table 6-49. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5745MHz
Channel: 149

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11490.00	-110.34	Average	V	45.43	0.00	42.09	53.98	-11.89
*	11490.00	-97.63	Peak	V	45.43	0.00	54.80	73.98	-19.18
	17235.00	-106.65	Peak	V	50.61	0.00	50.96	68.20	-17.24
*	22980.00	-91.41	Average	V	44.64	-9.54	50.68	53.98	-3.30
*	22980.00	-81.36	Peak	V	44.64	-9.54	60.73	73.98	-13.25
	28725.00	-105.29	Peak	V	48.26	-9.54	40.43	68.20	-27.77

Table 6-50. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5785MHz
Channel: 157

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11570.00	-110.93	Average	V	45.55	0.00	41.62	53.98	-12.36
*	11570.00	-97.94	Peak	V	45.55	0.00	54.61	73.98	-19.37
	17355.00	-106.31	Peak	V	51.00	0.00	51.69	68.20	-16.51
	23140.00	-97.64	Peak	V	44.73	-9.54	44.55	68.20	-23.65
	28925.00	-104.14	Peak	V	48.28	-9.54	41.59	68.20	-26.61

Table 6-51. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5825MHz
Channel: 165

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11650.00	-110.95	Average	V	45.67	0.00	41.72	53.98	-12.26
*	11650.00	-98.33	Peak	V	45.67	0.00	54.34	73.98	-19.64
	17475.00	-106.06	Peak	V	51.30	0.00	52.24	68.20	-15.96
	23300.00	-96.06	Peak	V	44.76	-9.54	46.16	68.20	-22.04
	29125.00	-105.84	Peak	V	48.24	-9.54	39.86	68.20	-28.34

Table 6-52. Radiated Measurements

© 2015 PCTEST Engineering Laboratory, Inc.

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5745MHz
Channel:	149

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11490.00	-118.79	Average	H	45.43	0.00	33.64	53.98	-20.34
*	11490.00	-104.56	Peak	H	45.43	0.00	47.87	73.98	-26.11
	17235.00	-106.95	Peak	H	50.61	0.00	50.66	68.20	-17.54
*	22980.00	-98.82	Average	H	44.64	-9.54	43.27	53.98	-10.71
*	22980.00	-92.29	Peak	H	44.64	-9.54	49.80	73.98	-24.18
	28725.00	-106.83	Peak	H	48.26	-9.54	38.89	68.20	-29.31

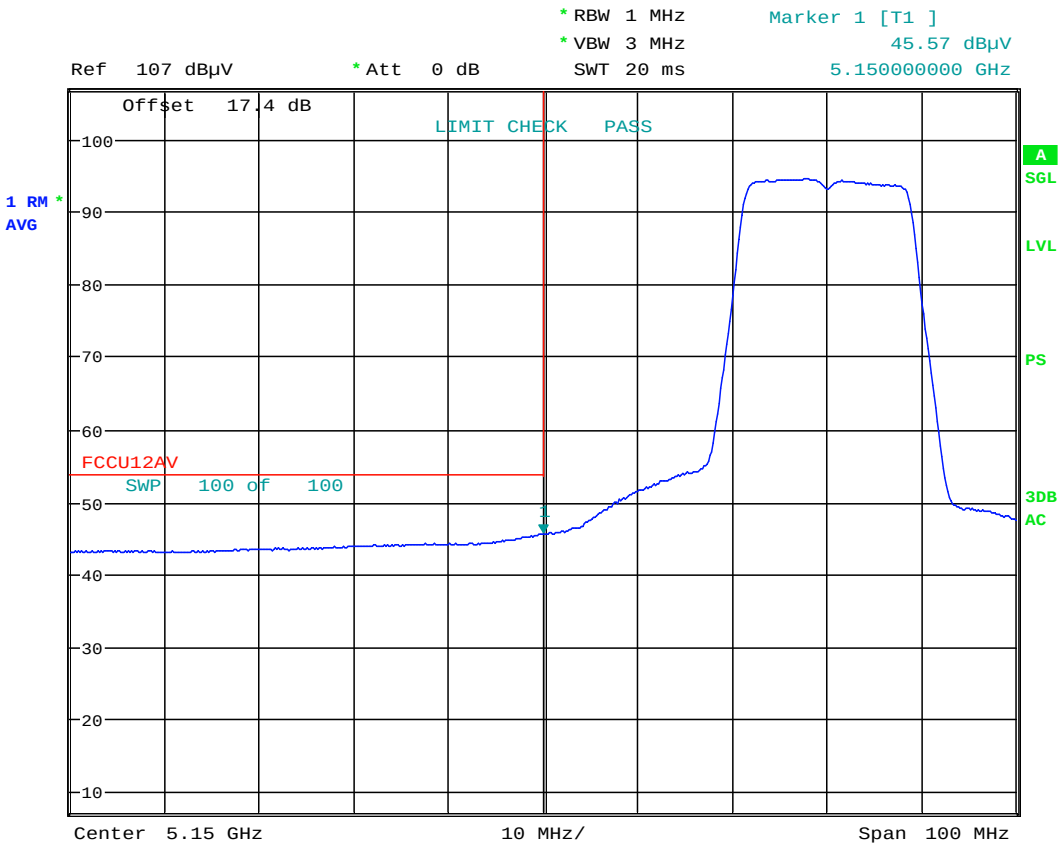
Table 6-53. Radiated Measurements with WCP

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.3 Antenna-1 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36



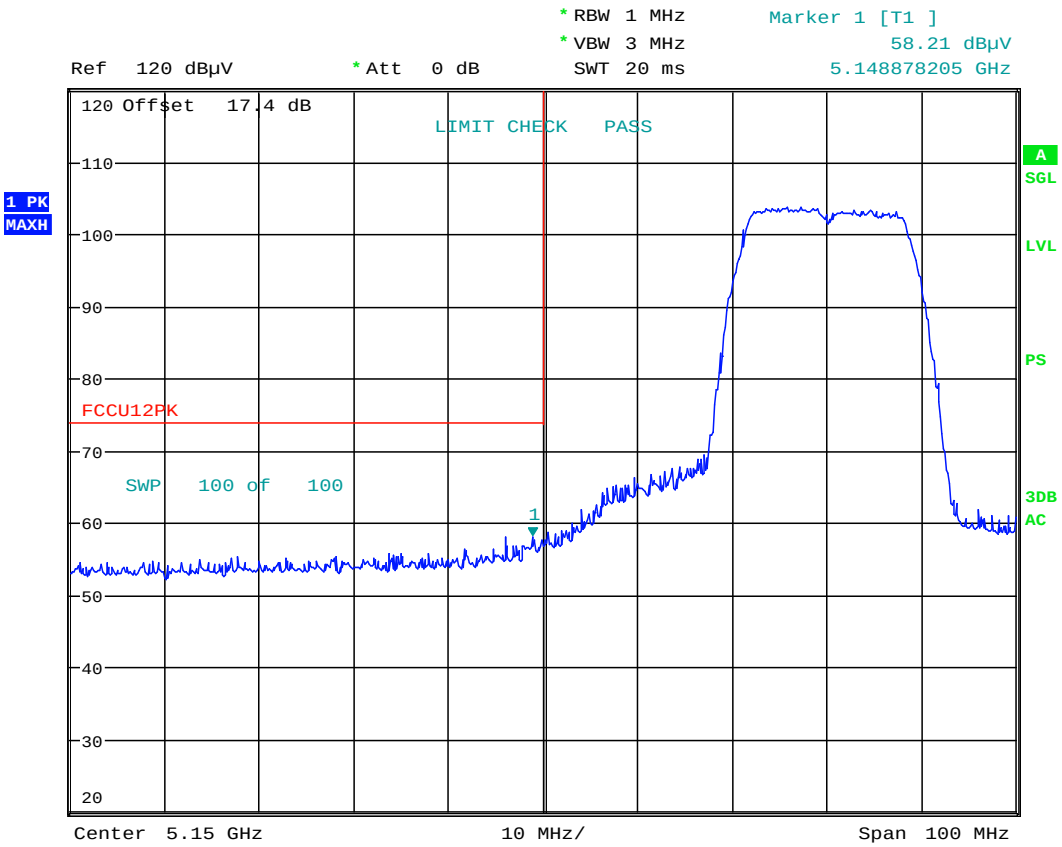
Date: 8.JAN.2015 10:53:08

Plot 6-173. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 10:54:08

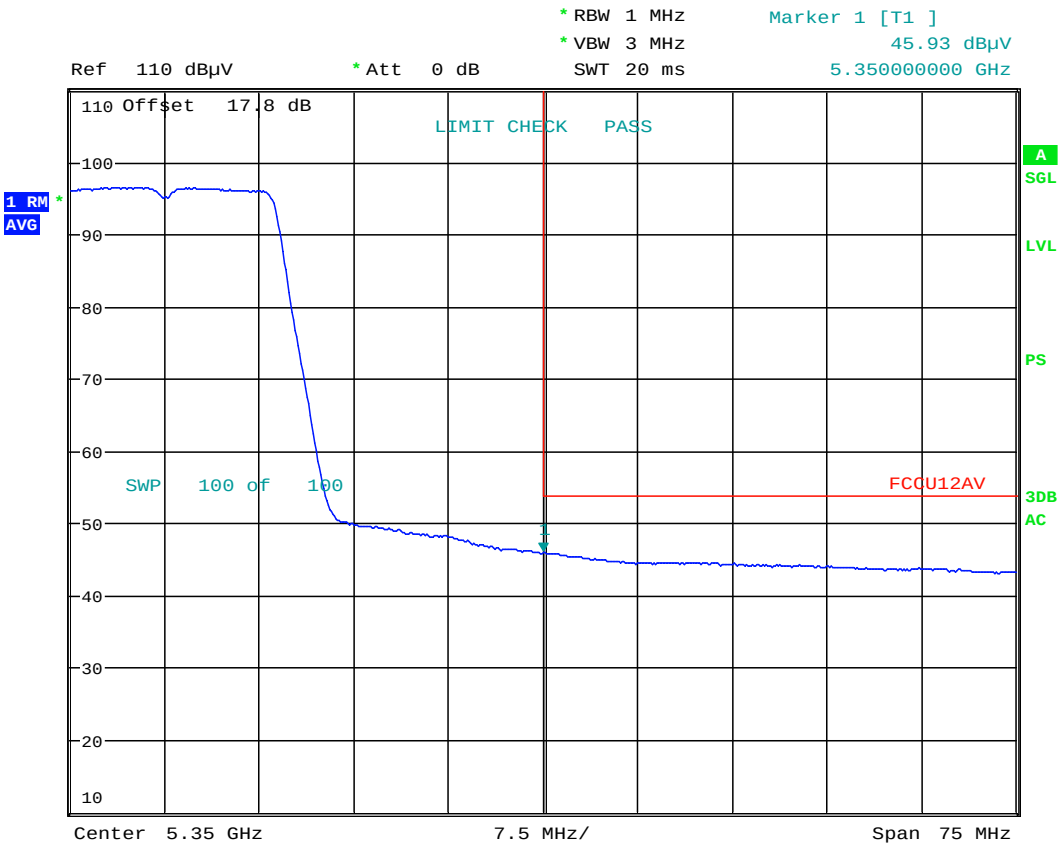
Plot 6-174. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



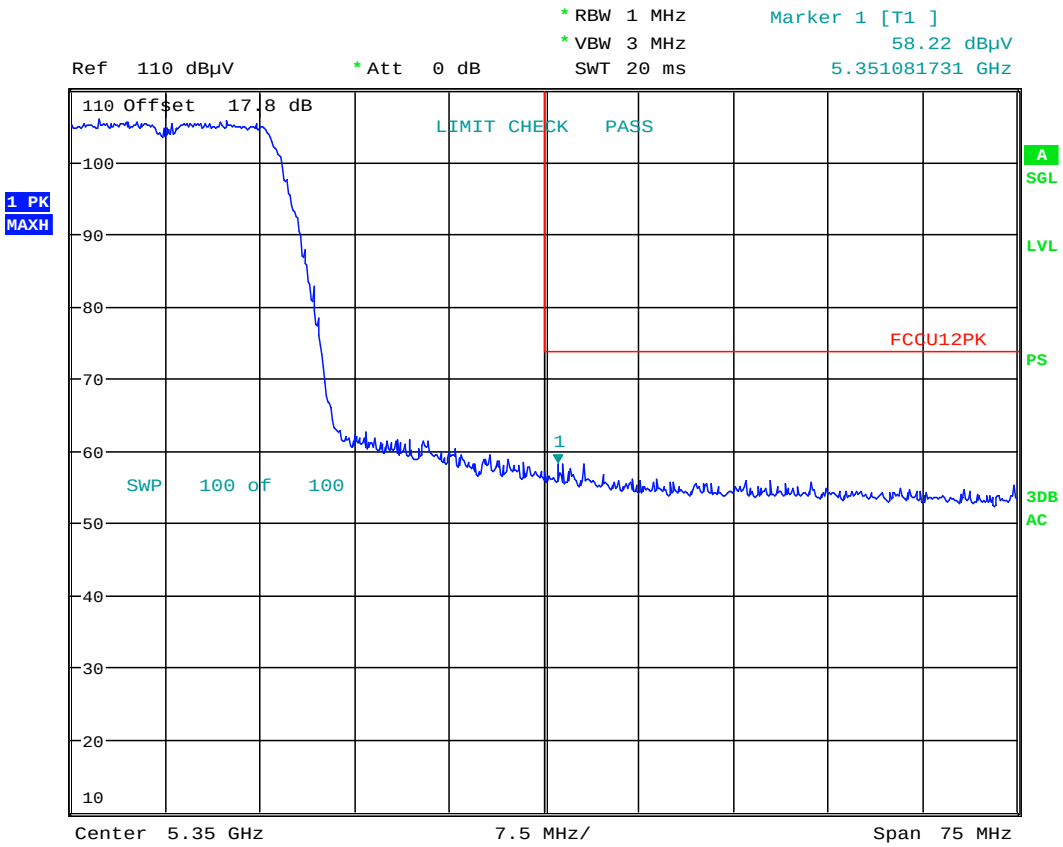
Date: 8.JAN.2015 11:02:55

Plot 6-175. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 11:02:17

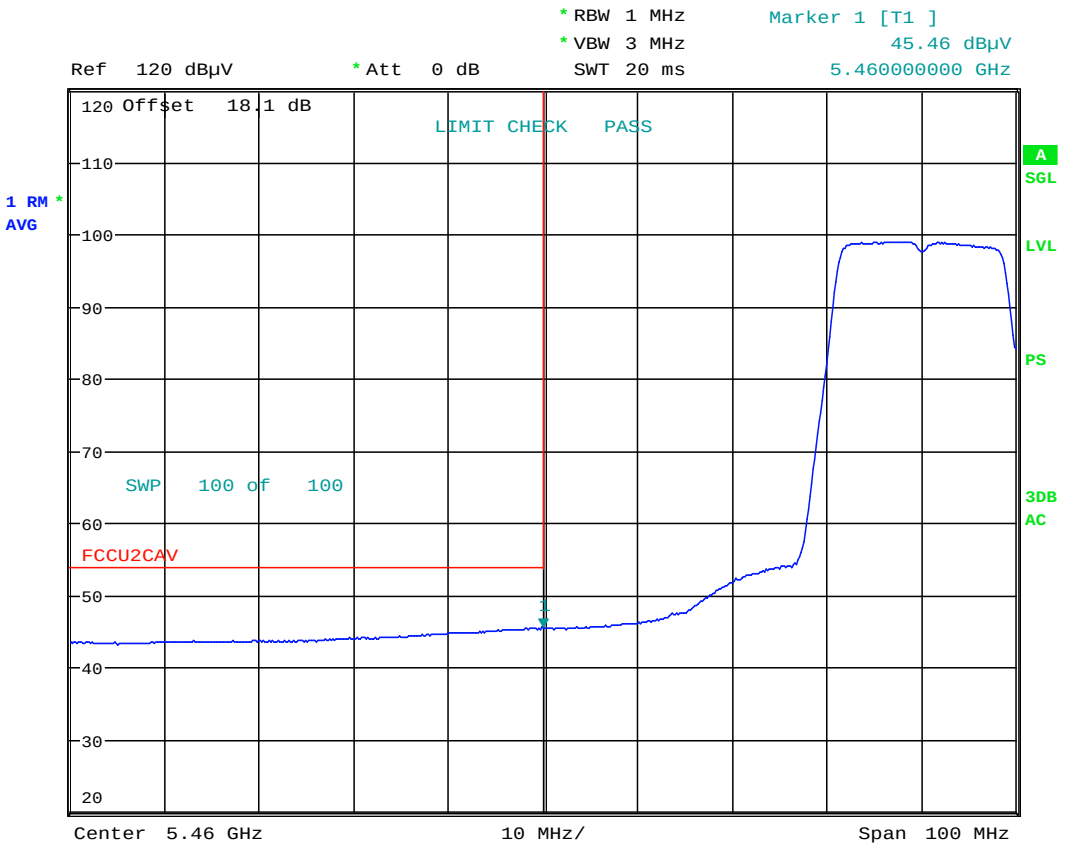
Plot 6-176. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100



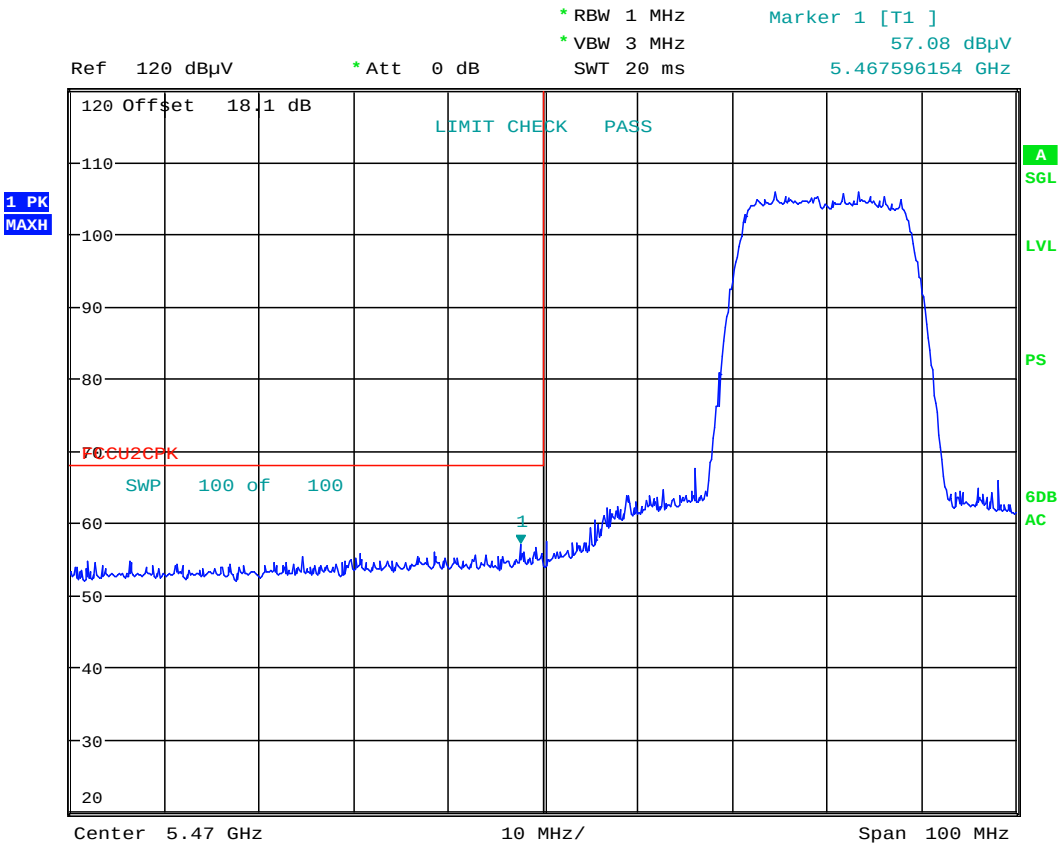
Date: 8.JAN.2015 11:13:14

Plot 6-177. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 11:15:39

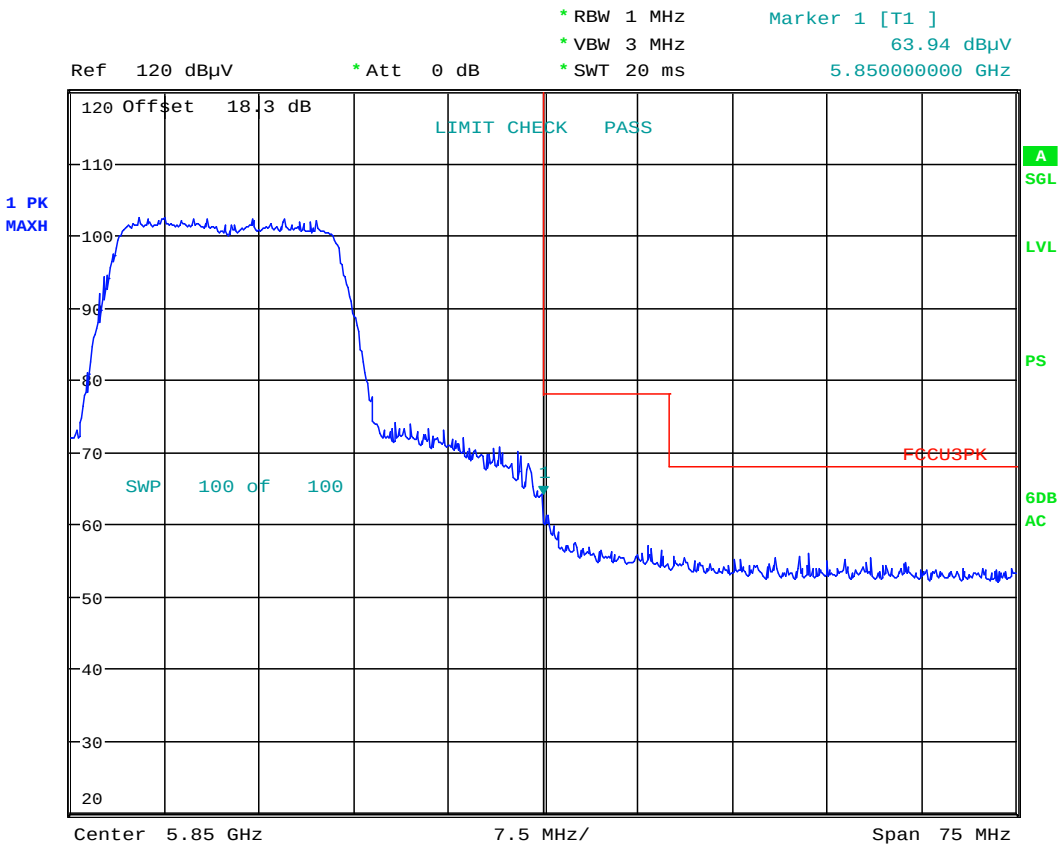
Plot 6-178. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	5825MHz
Channel:	165



Date: 8.JAN.2015 11:41:59

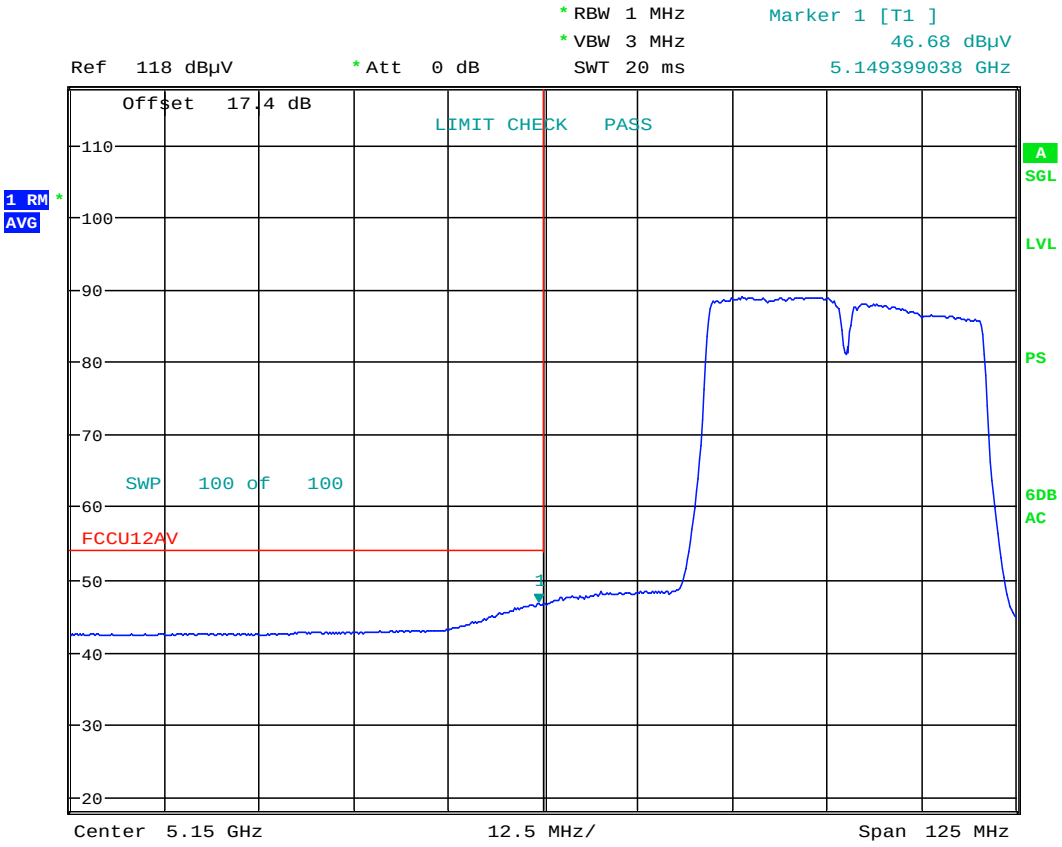
Plot 6-179. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.4 Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38



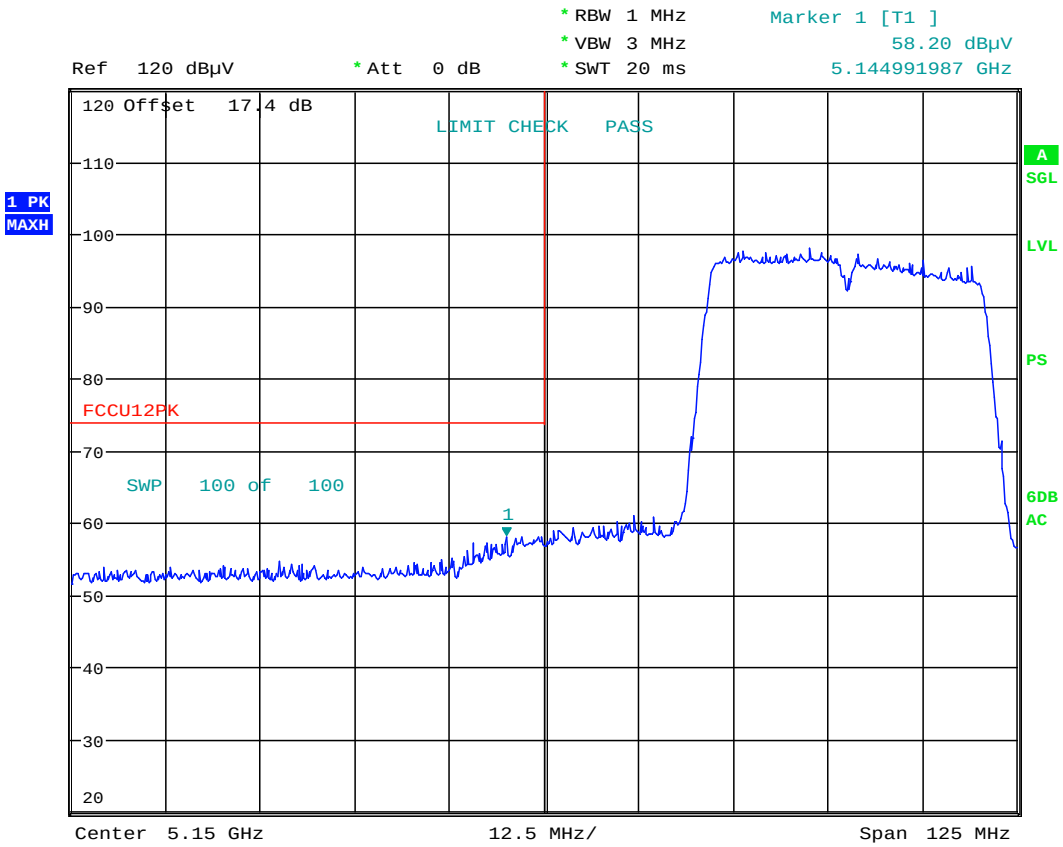
Date: 8.JAN.2015 11:57:35

Plot 6-180. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 11:54:34

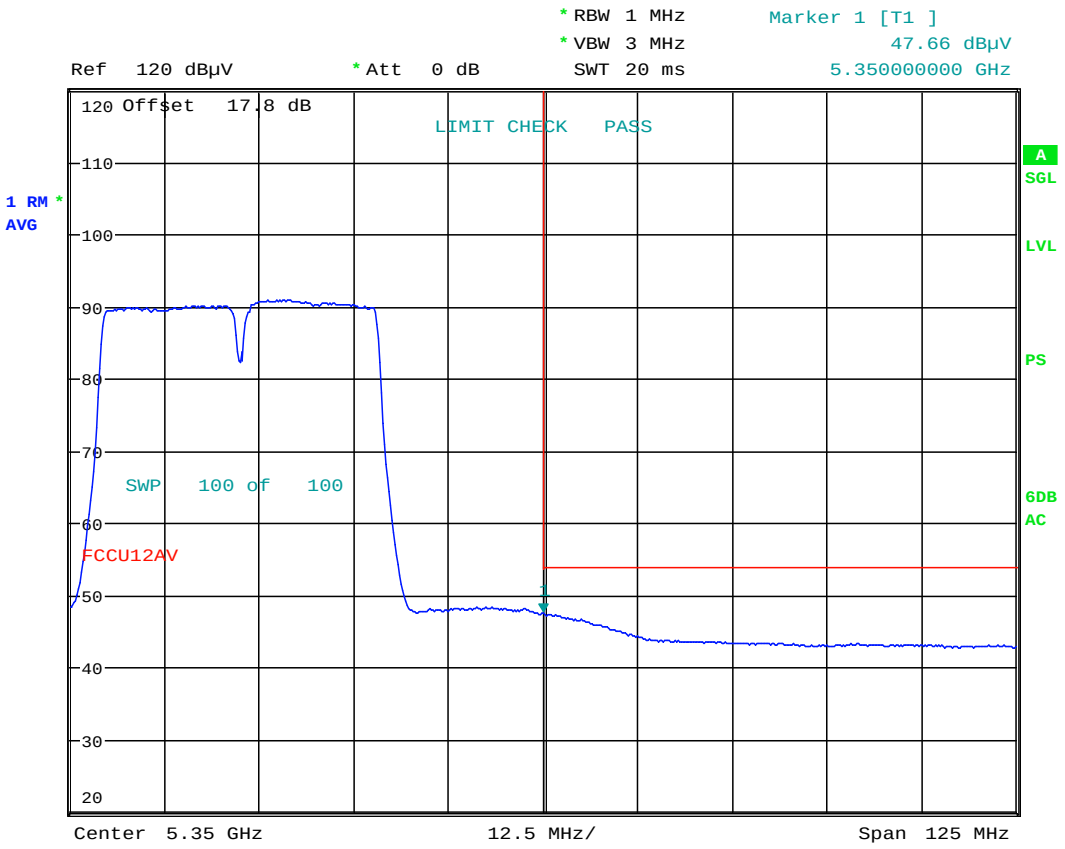
Plot 6-181. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



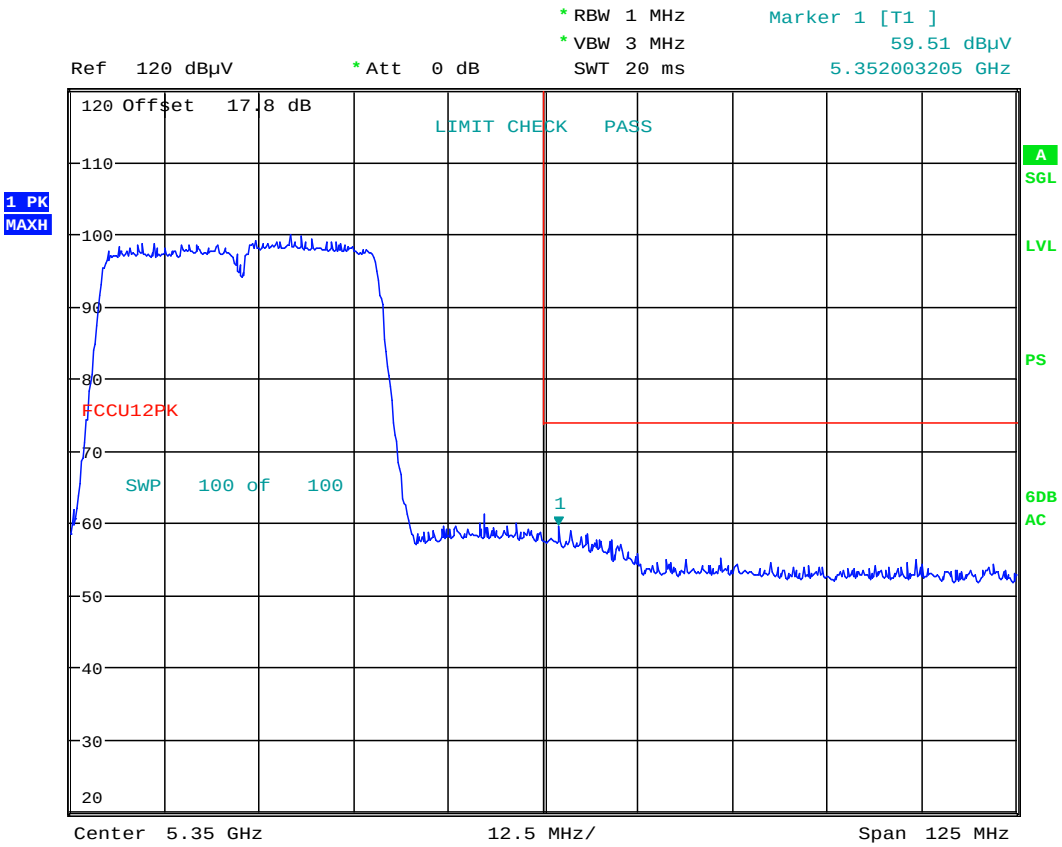
Date: 8.JAN.2015 12:01:56

Plot 6-182. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 12:02:31

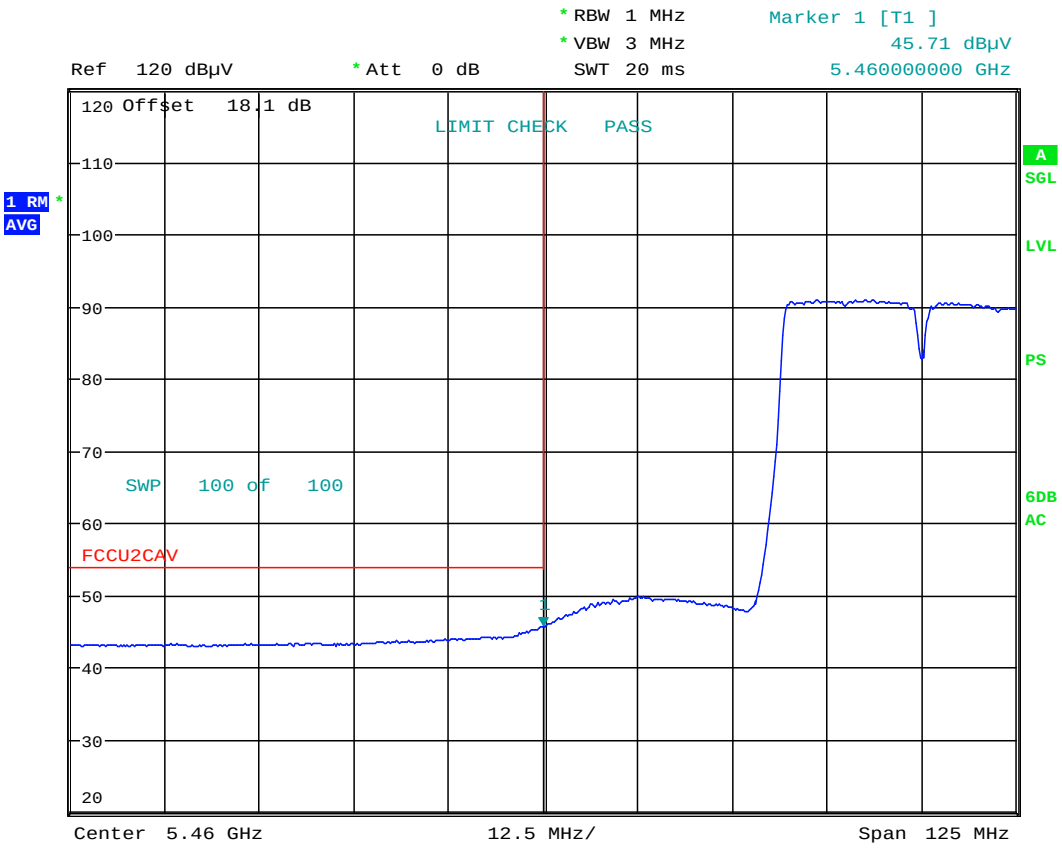
Plot 6-183. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5510MHz
Channel:	102



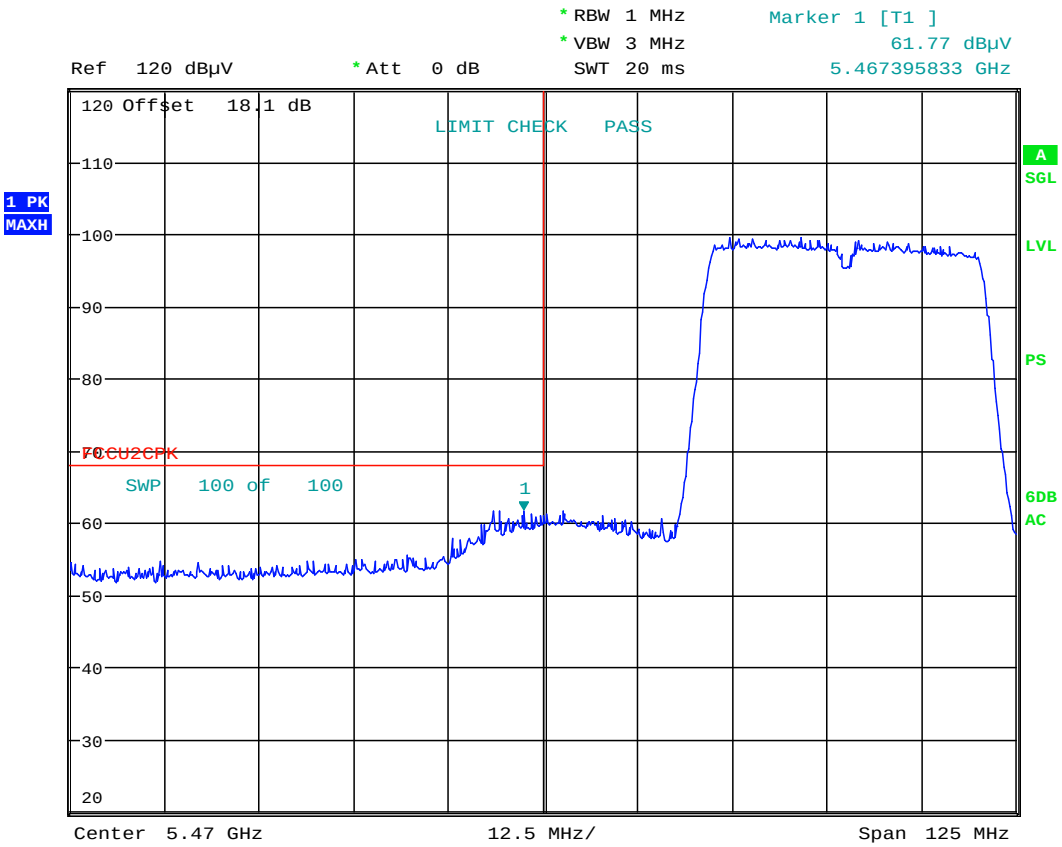
Date: 8.JAN.2015 12:07:13

Plot 6-184. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 12:07:48

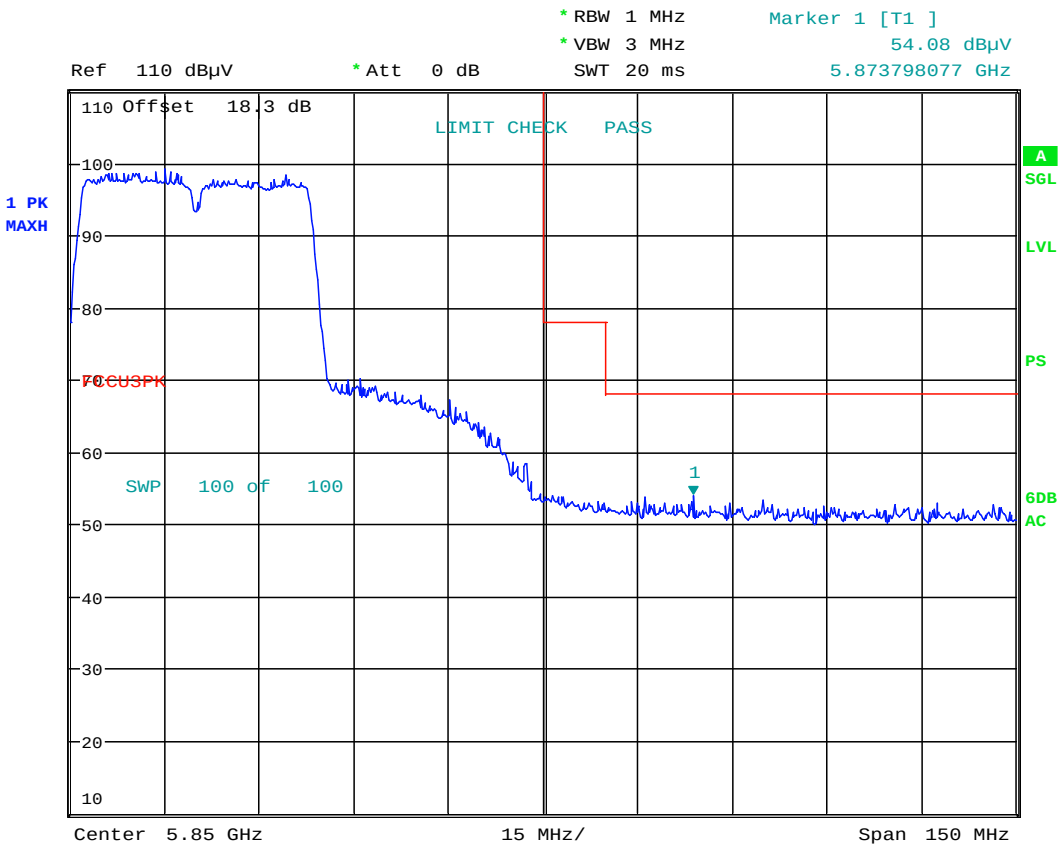
Plot 6-185. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5815MHz
Channel:	163



Date: 8.JAN.2015 12:34:38

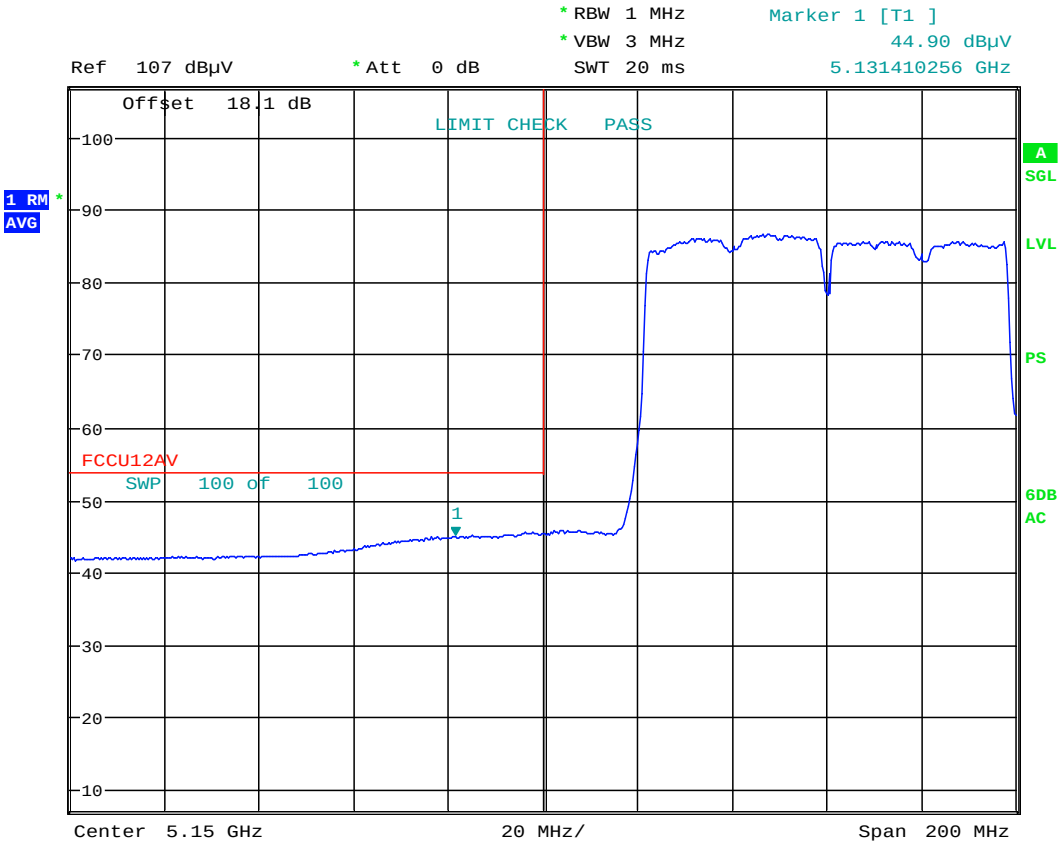
Plot 6-186. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.5 Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42



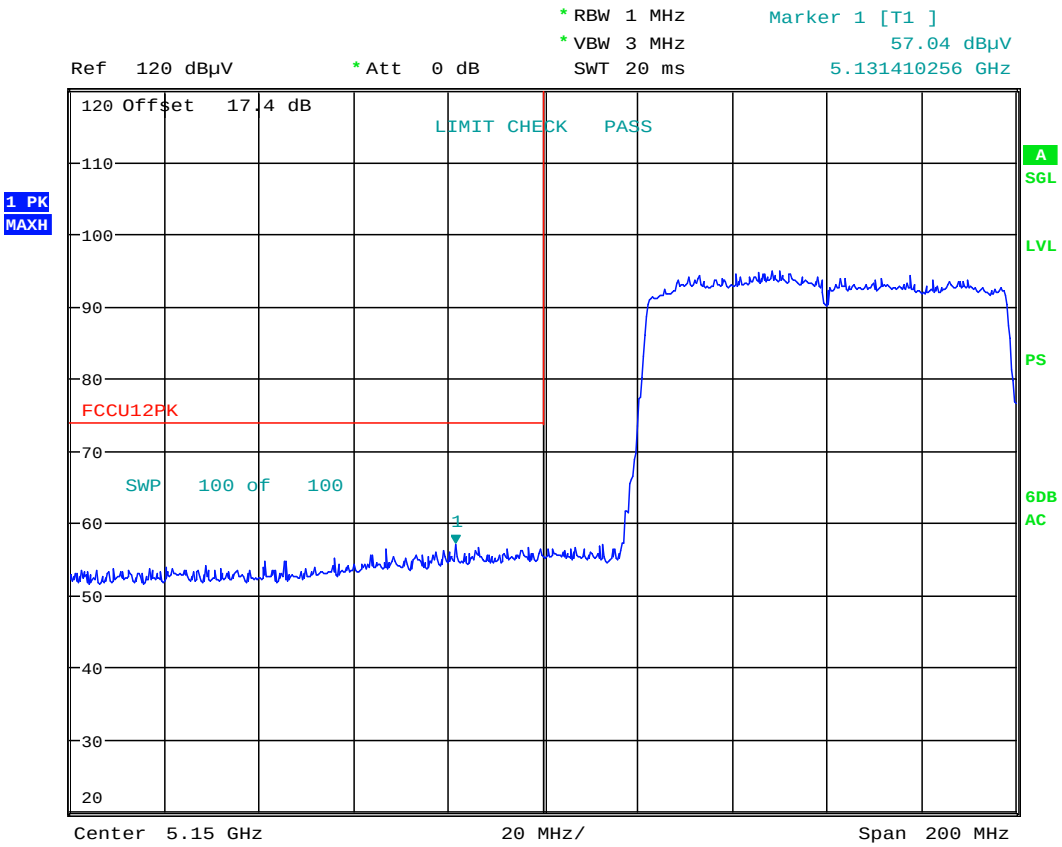
Date: 8.JAN.2015 12:53:57

Plot 6-187. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 12:52:02

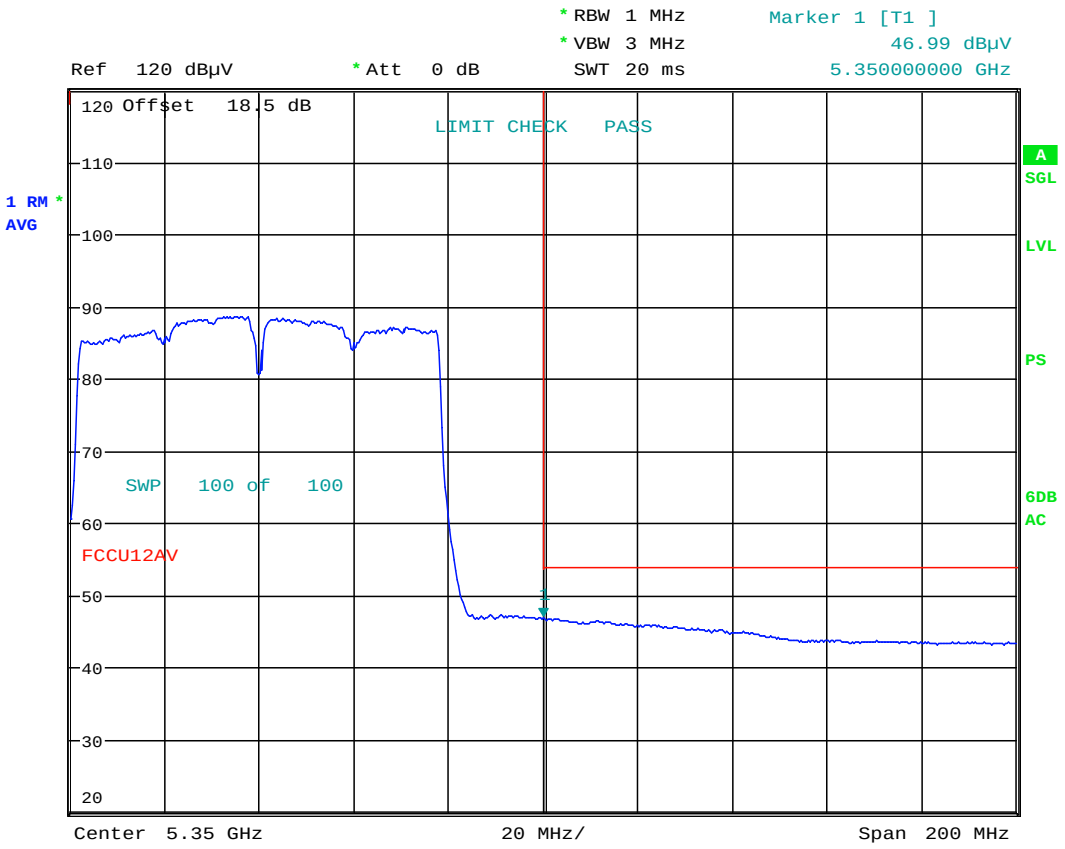
Plot 6-188. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



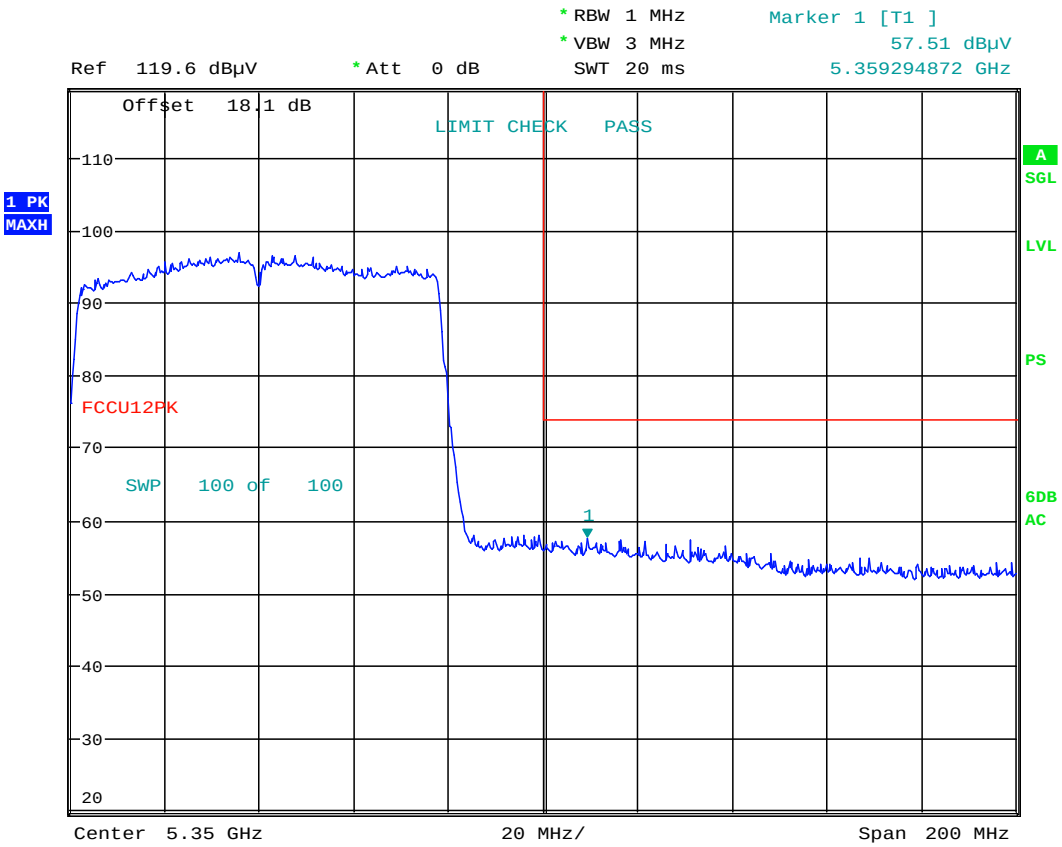
Date: 8.JAN.2015 12:58:37

Plot 6-189. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 12:59:19

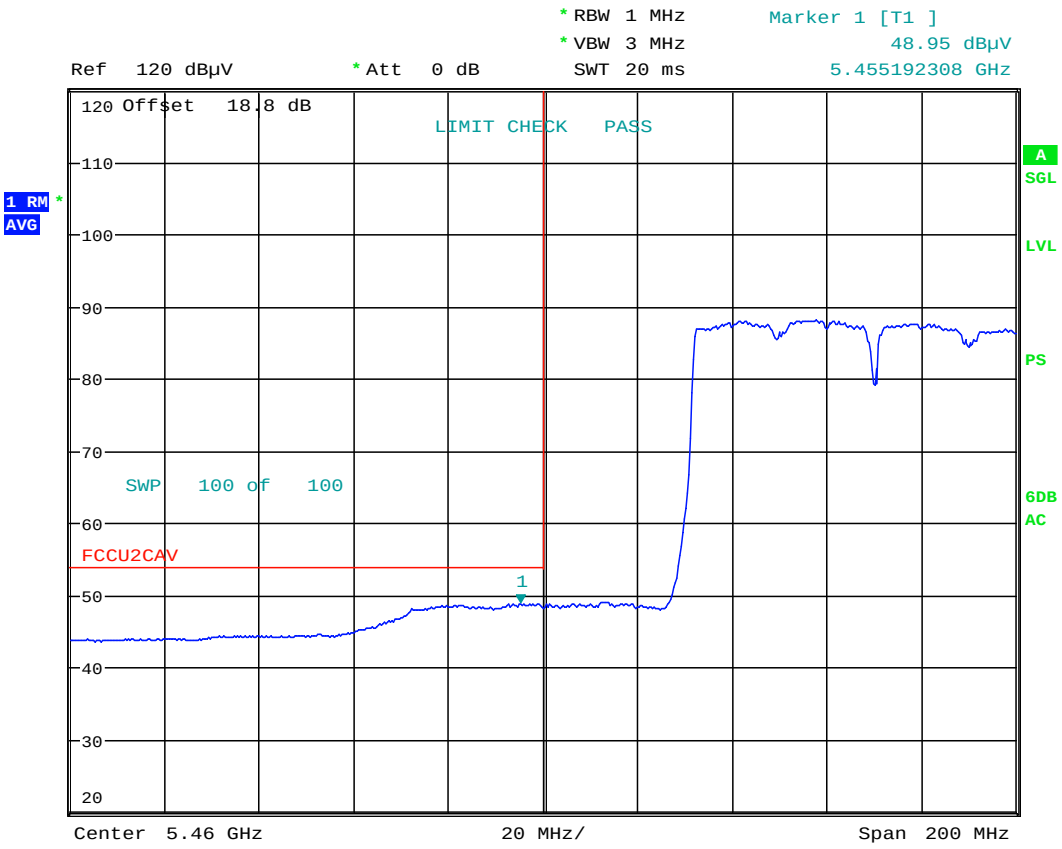
Plot 6-190. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5530MHz
Channel:	106



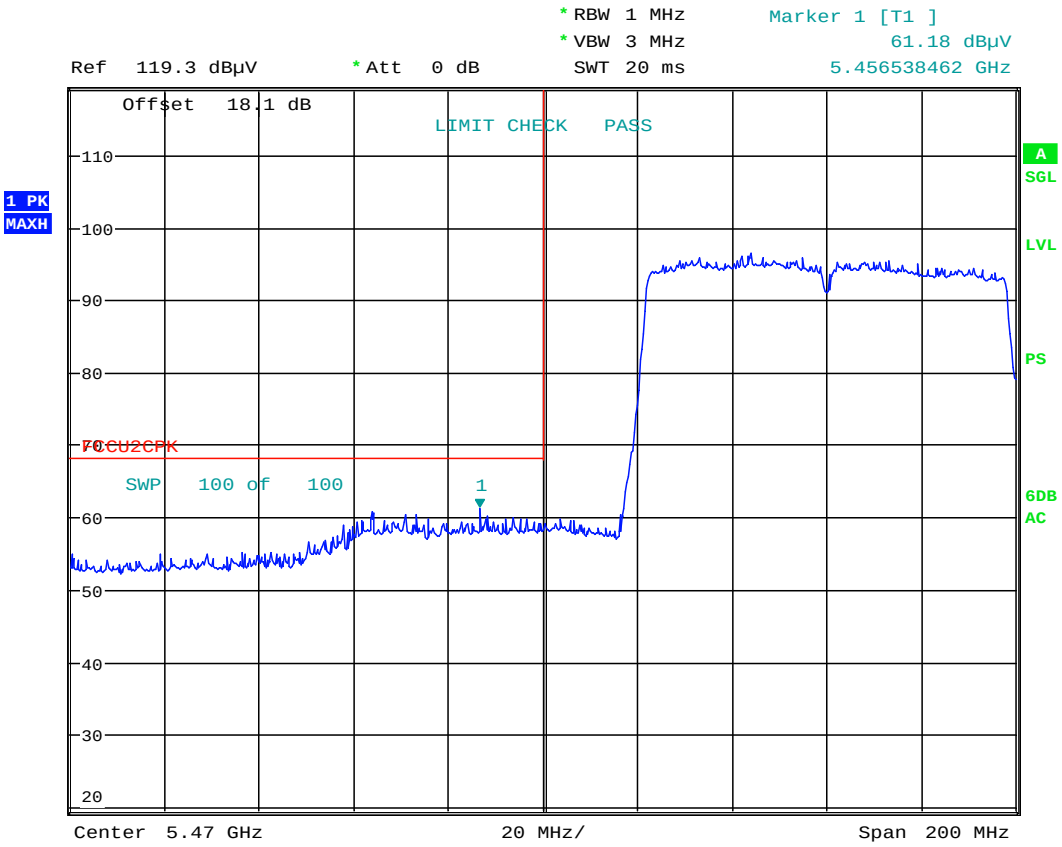
Date: 8.JAN.2015 13:04:55

Plot 6-191. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2015 13:05:46

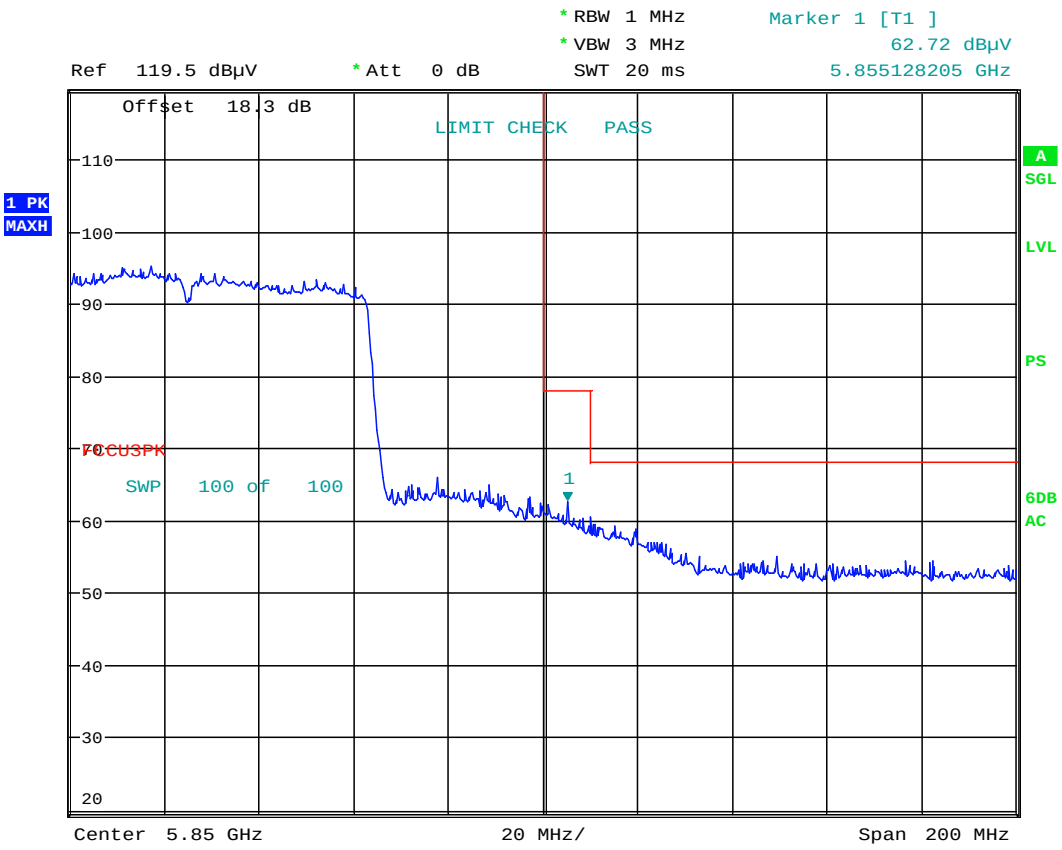
Plot 6-192. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5775MHz
Channel:	155



Date: 8.JAN.2015 13:17:25

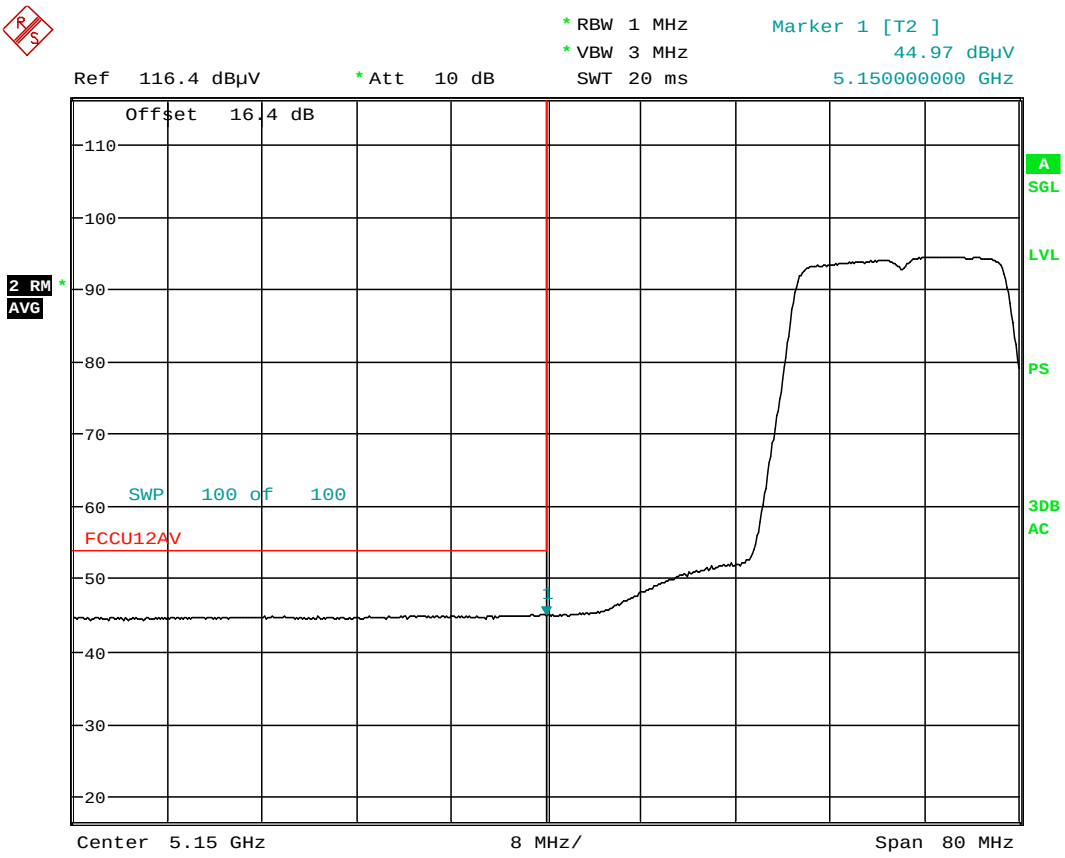
Plot 6-193. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.6 Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36



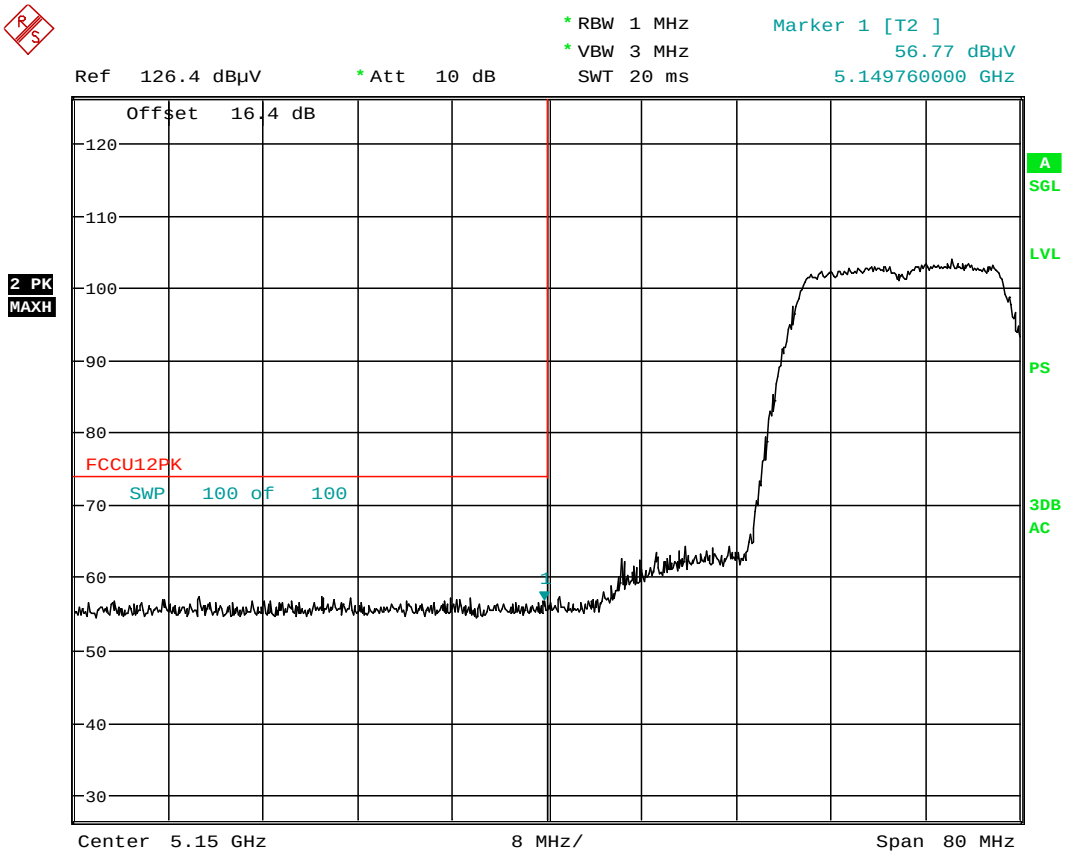
Date: 9.JAN.2015 03:50:23

Plot 6-194. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 03:51:06

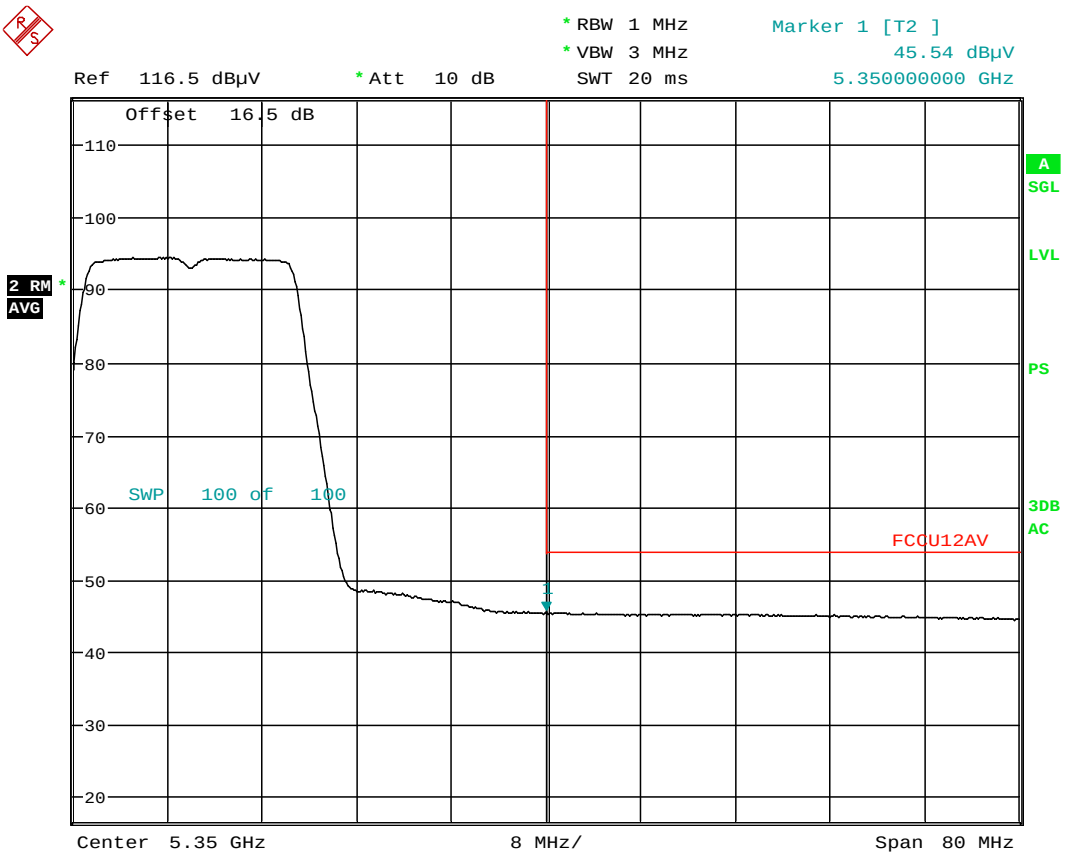
Plot 6-195. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



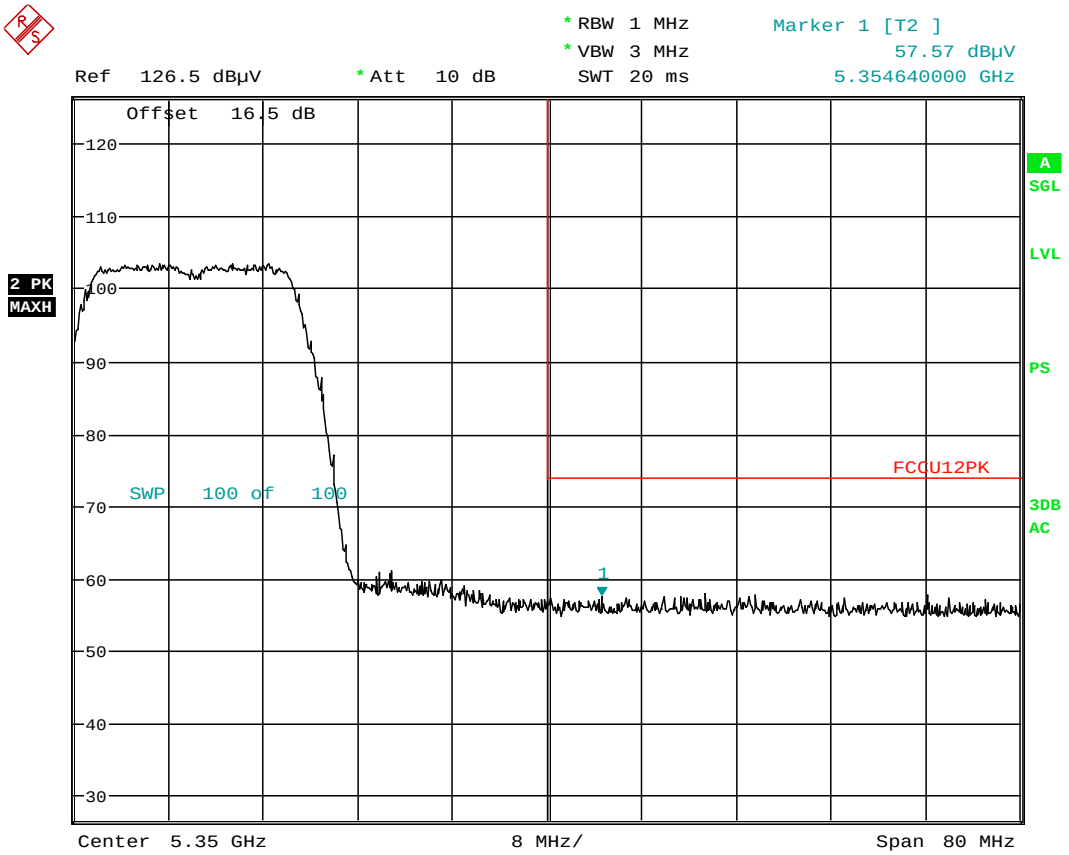
Date: 9.JAN.2015 04:15:37

Plot 6-196. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 04:16:29

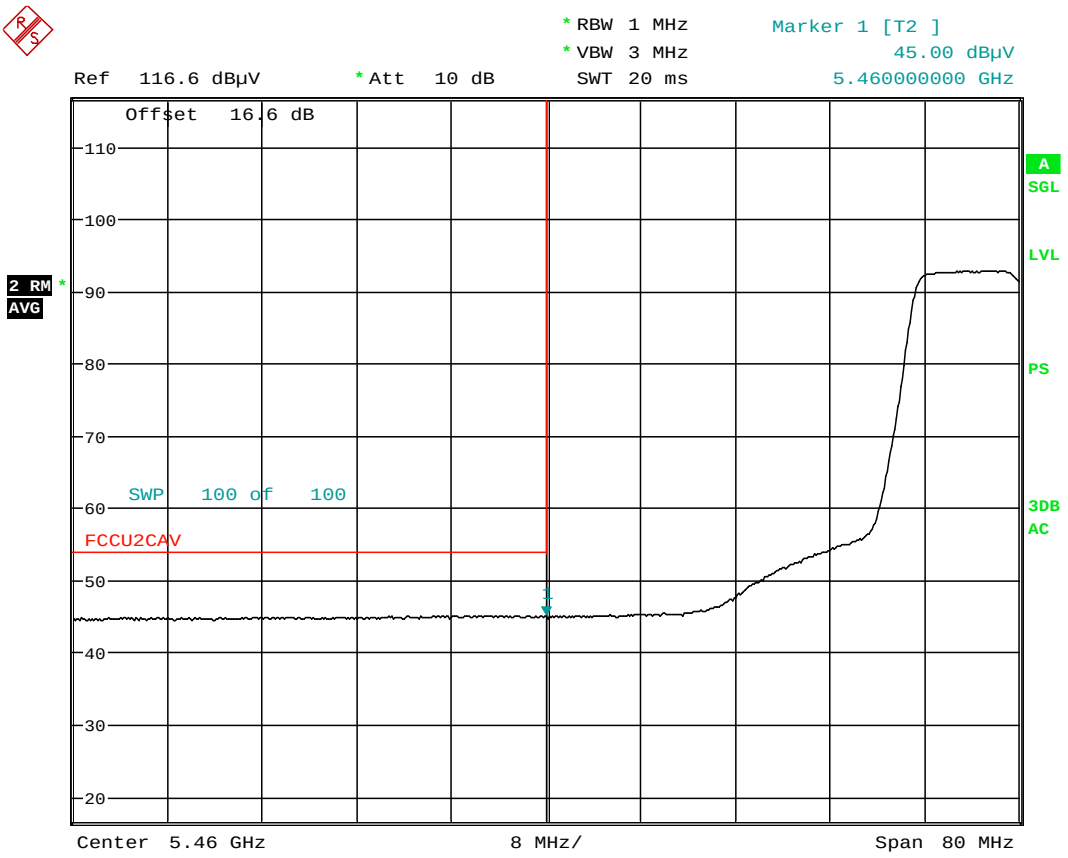
Plot 6-197. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100



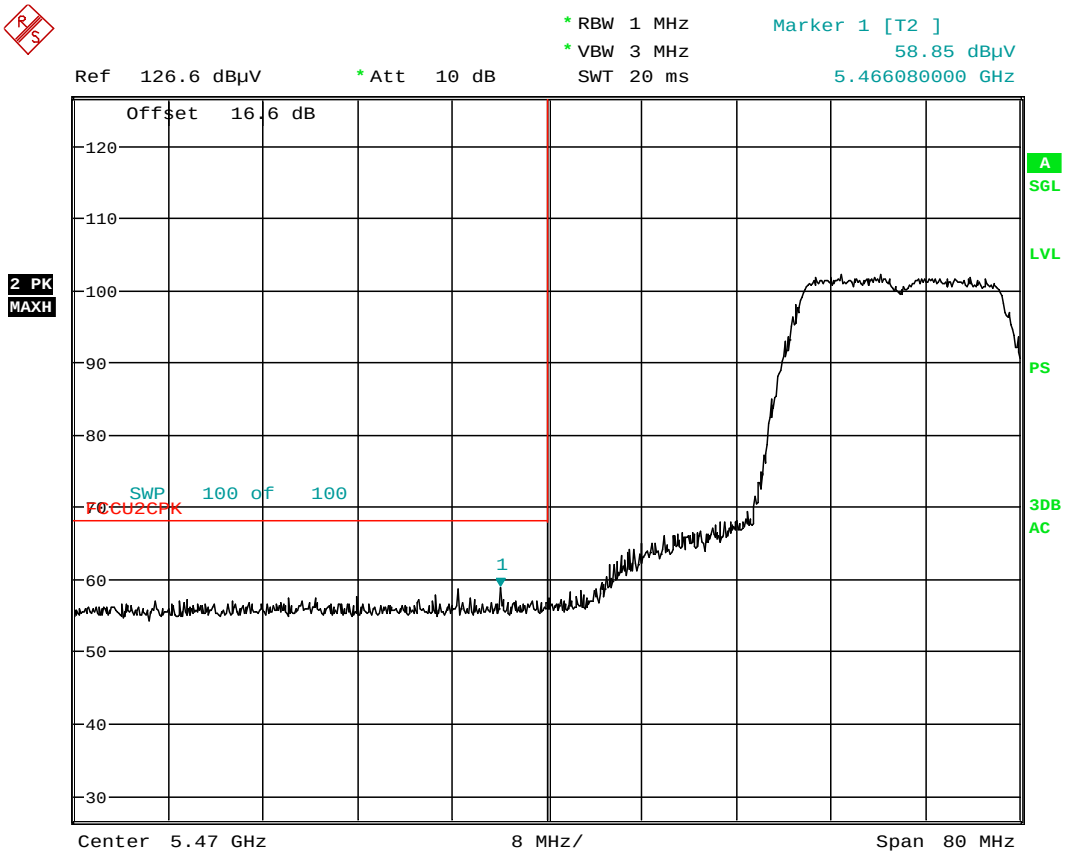
Date: 9.JAN.2015 04:31:20

Plot 6-198. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 04:32:06

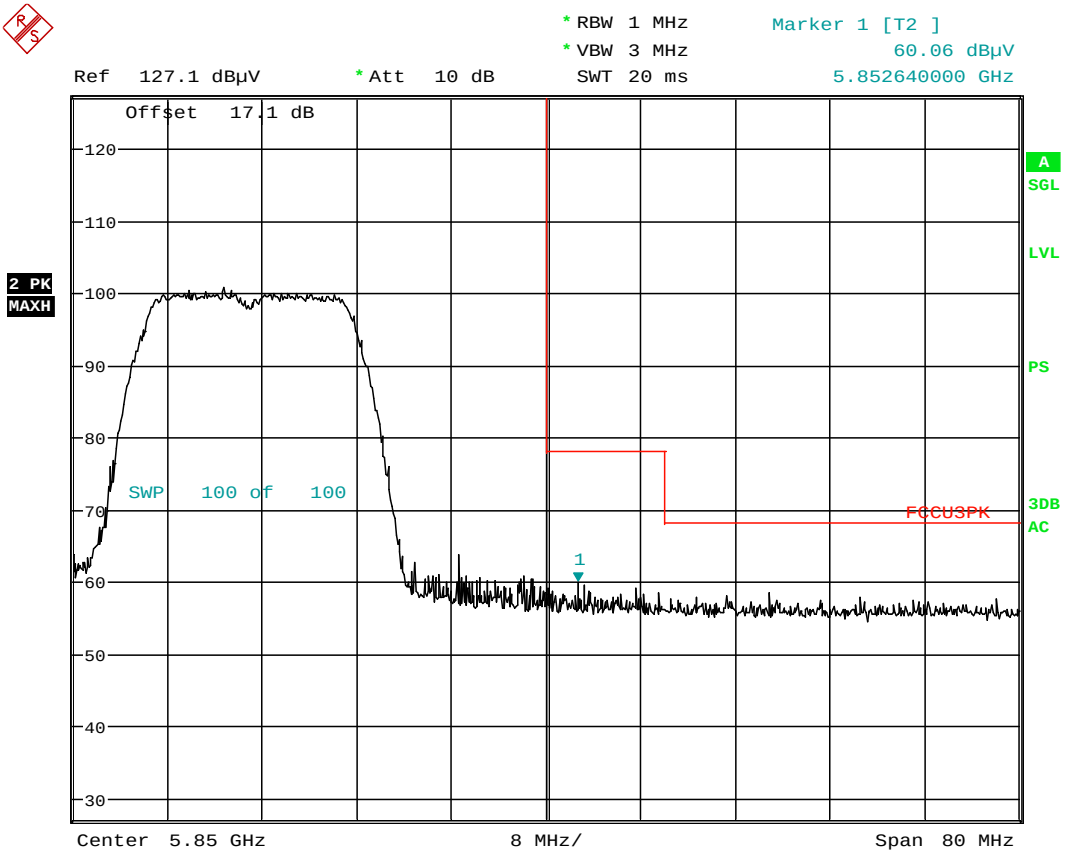
Plot 6-199. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6 Mbps
Distance of Measurements:	3 Meters
Operating Frequency:	5825MHz
Channel:	165



Date: 9.JAN.2015 05:16:16

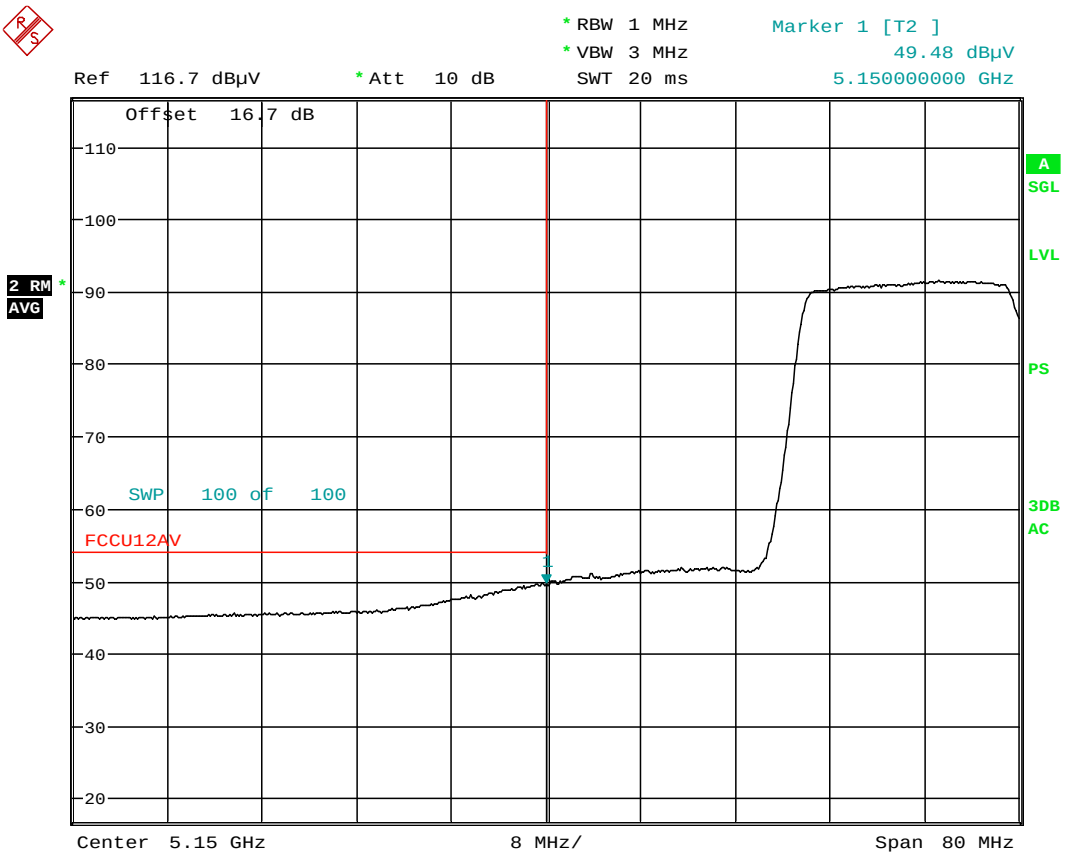
Plot 6-200. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.7 Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38



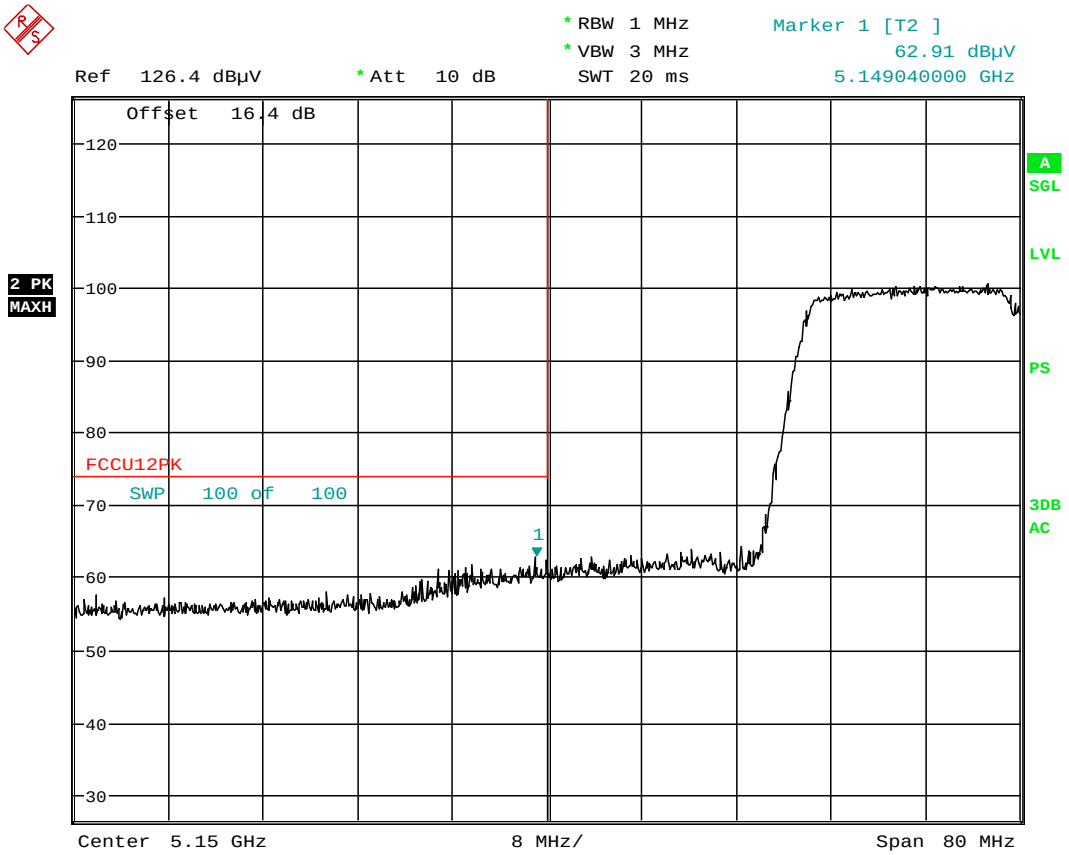
Date: 9.JAN.2015 04:00:05

Plot 6-201. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 04:00:42

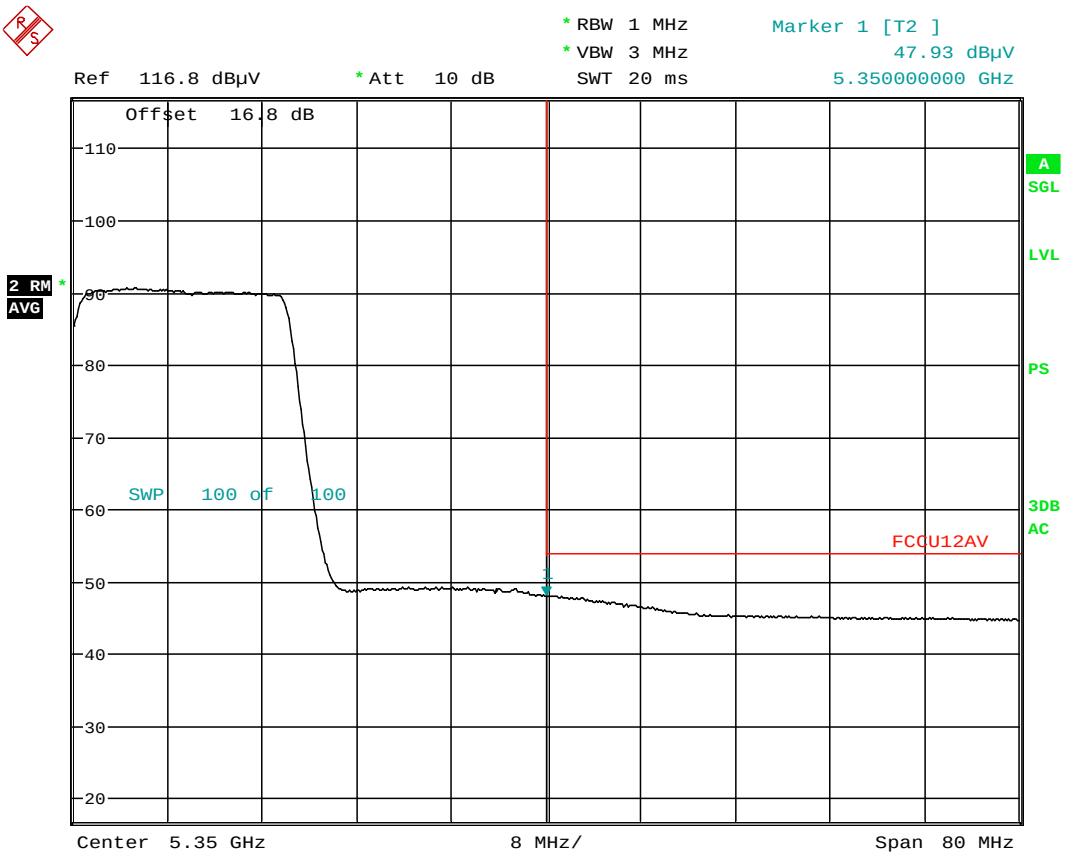
Plot 6-202. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



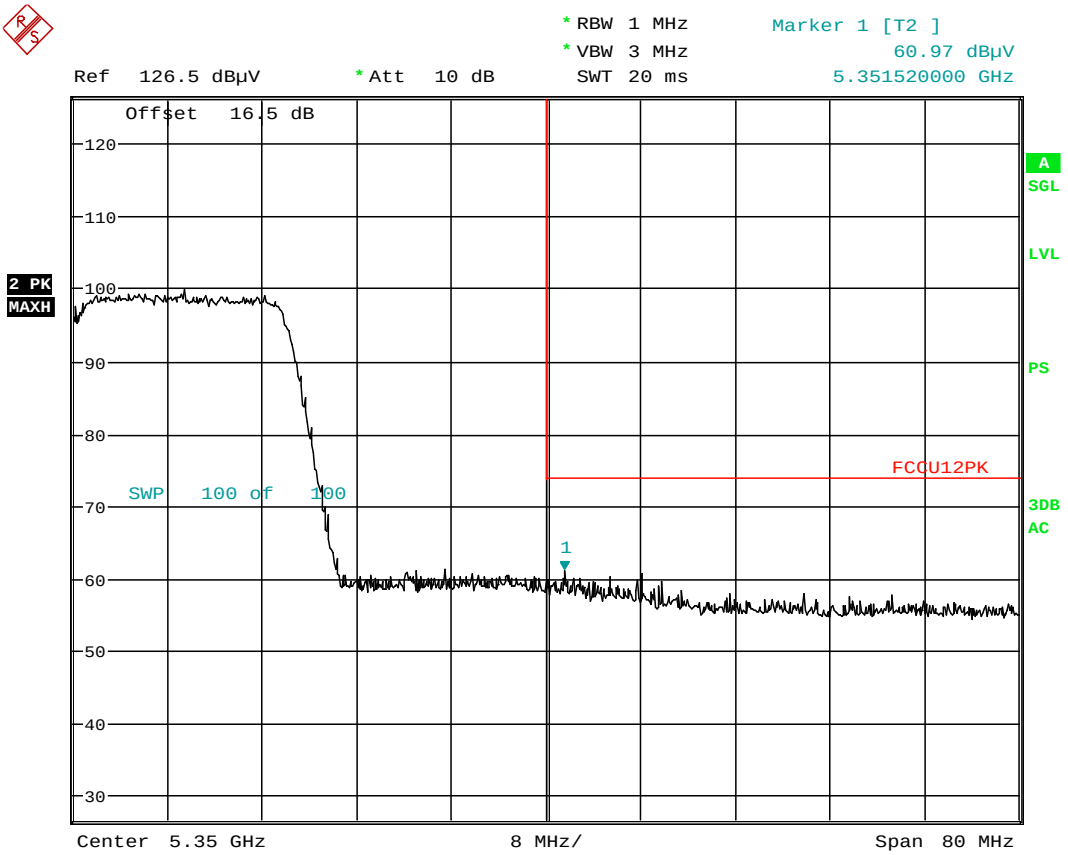
Date: 9.JAN.2015 04:18:26

Plot 6-203. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 04:19:05

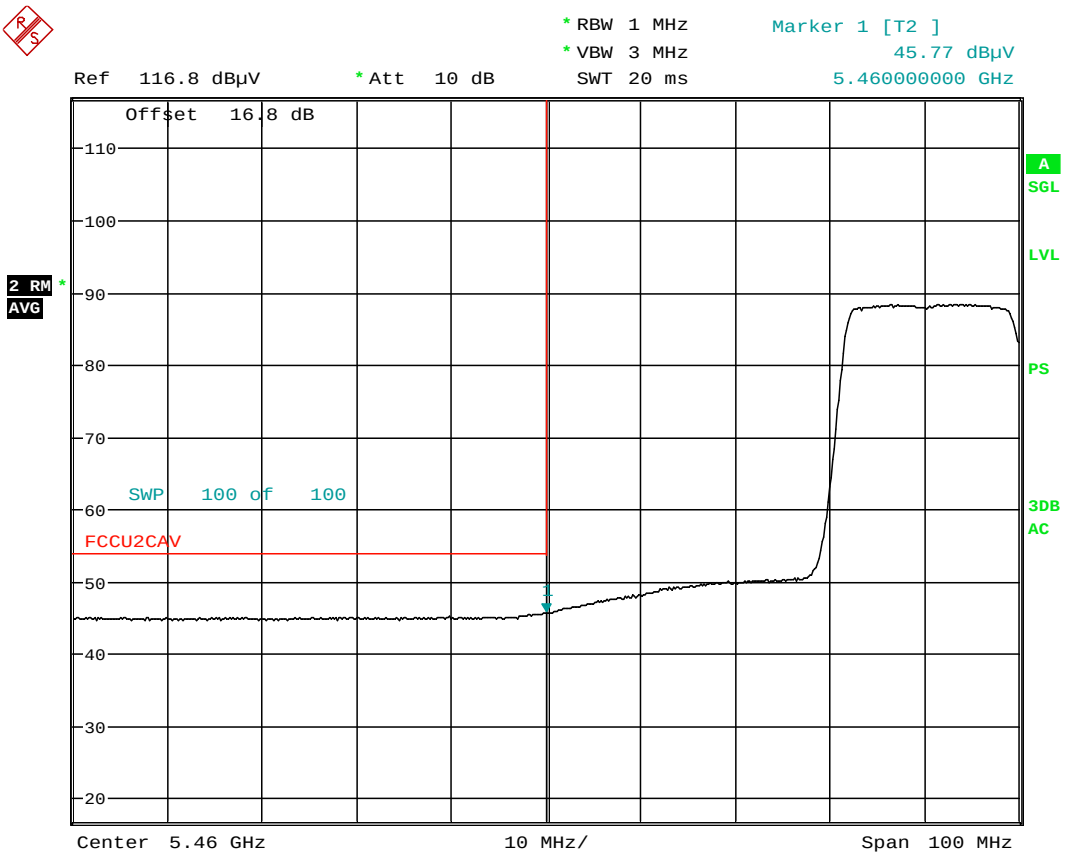
Plot 6-204. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5510MHz
Channel:	102



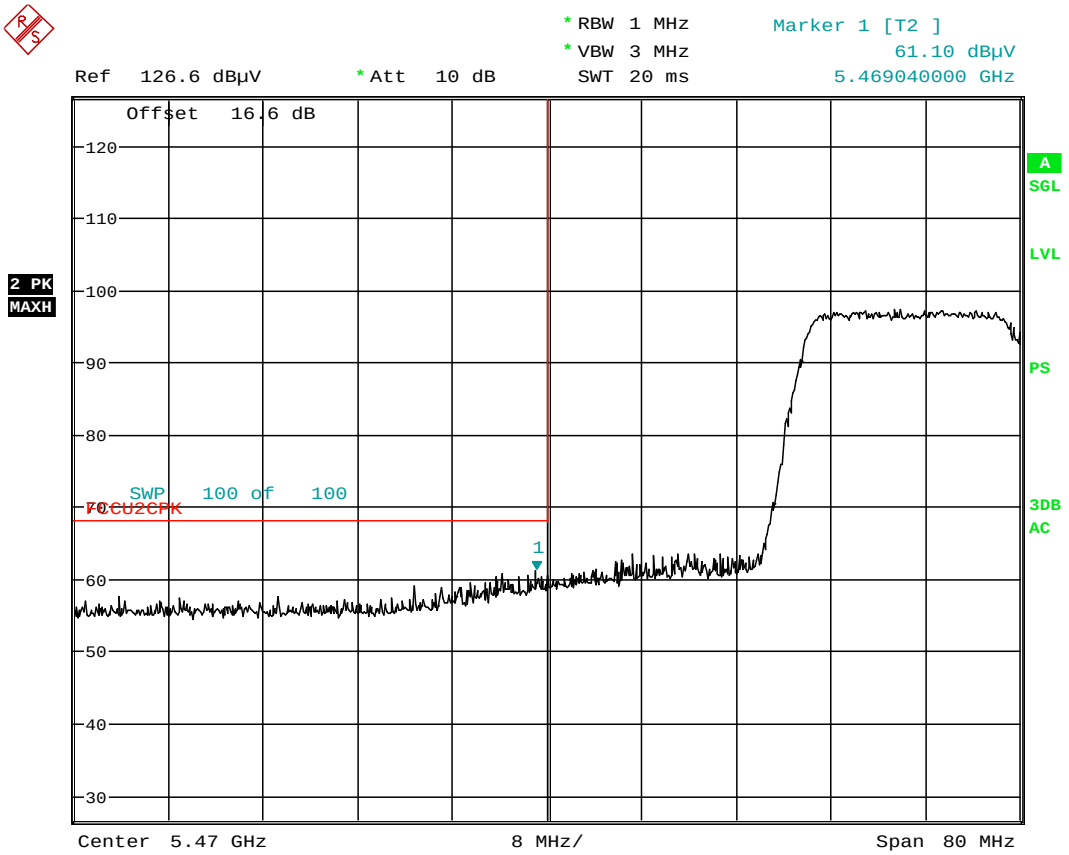
Date: 9.JAN.2015 04:34:31

Plot 6-205. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 04:35:17

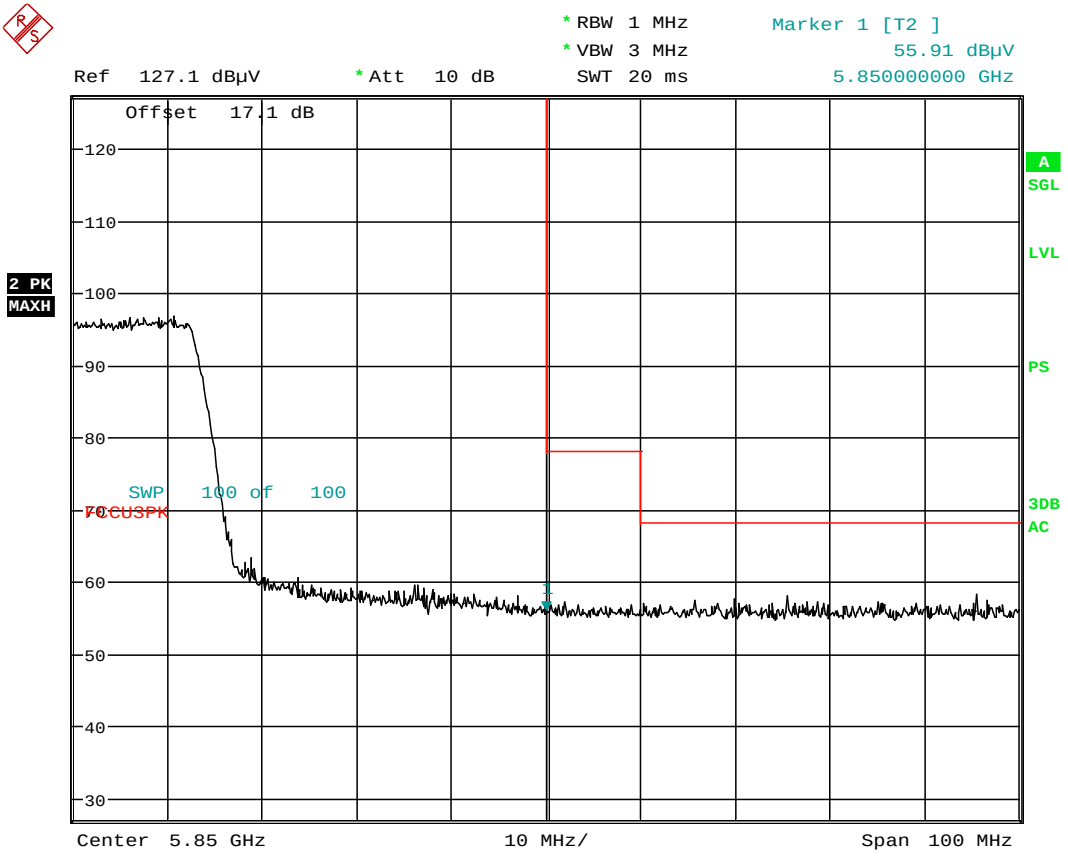
Plot 6-206. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5815MHz
Channel:	163



Date: 9.JAN.2015 05:25:47

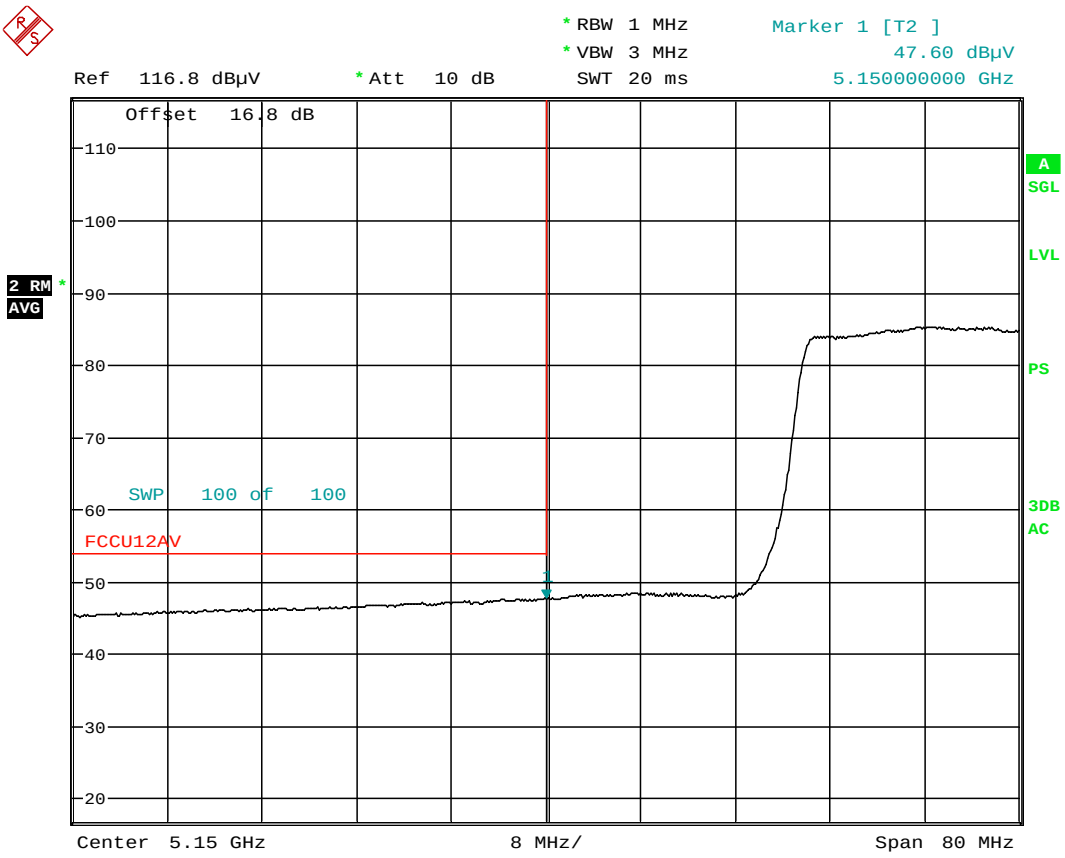
Plot 6-207. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.8 Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42



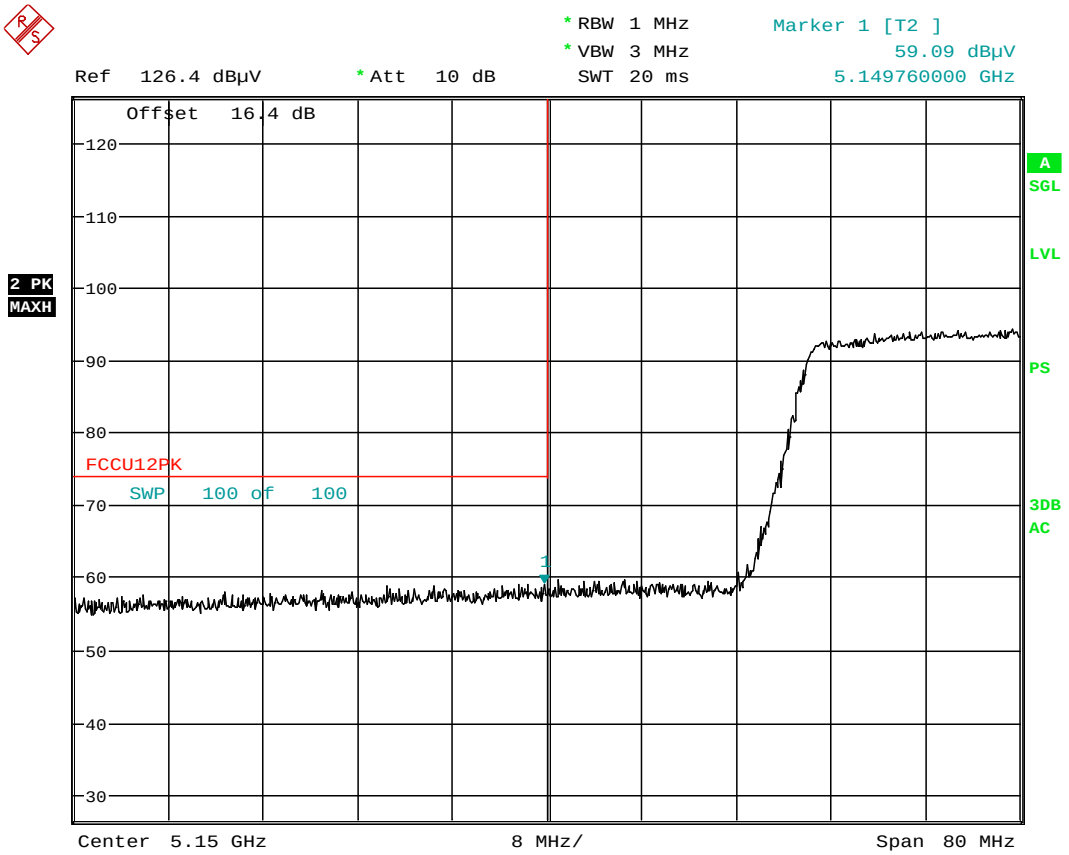
Date: 9.JAN.2015 04:09:40

Plot 6-208. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 04:10:13

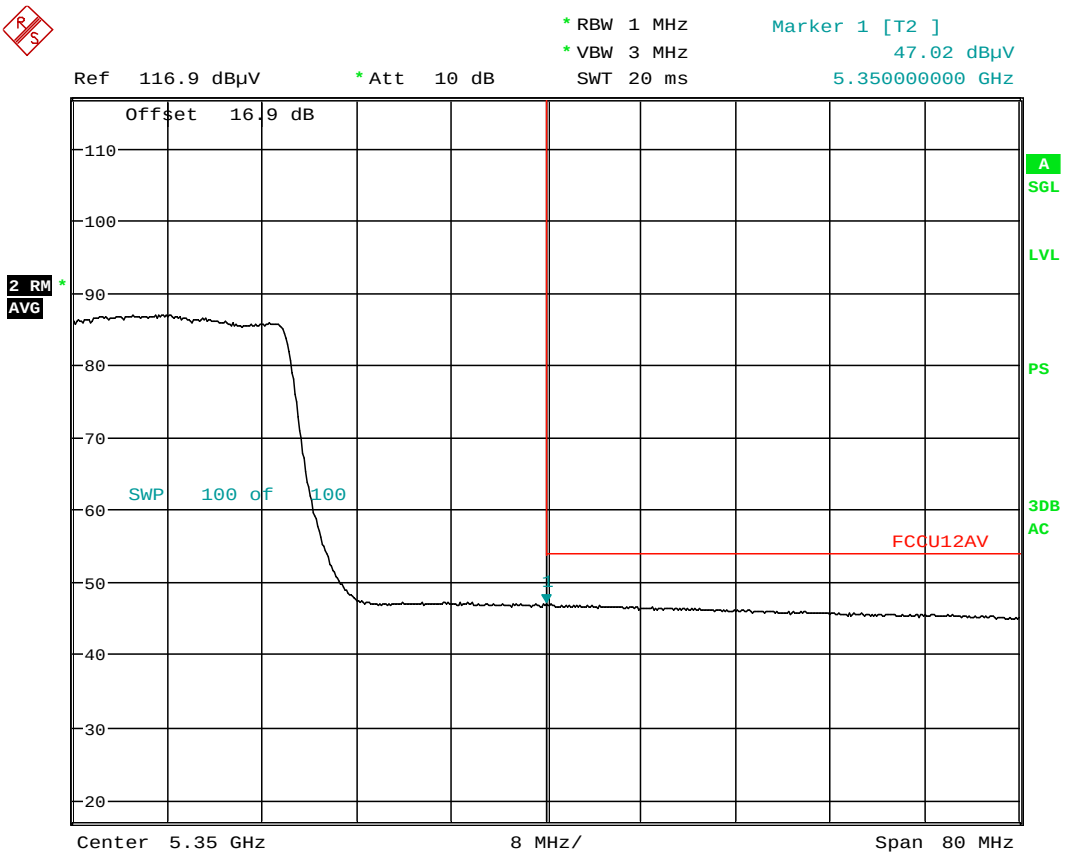
Plot 6-209. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



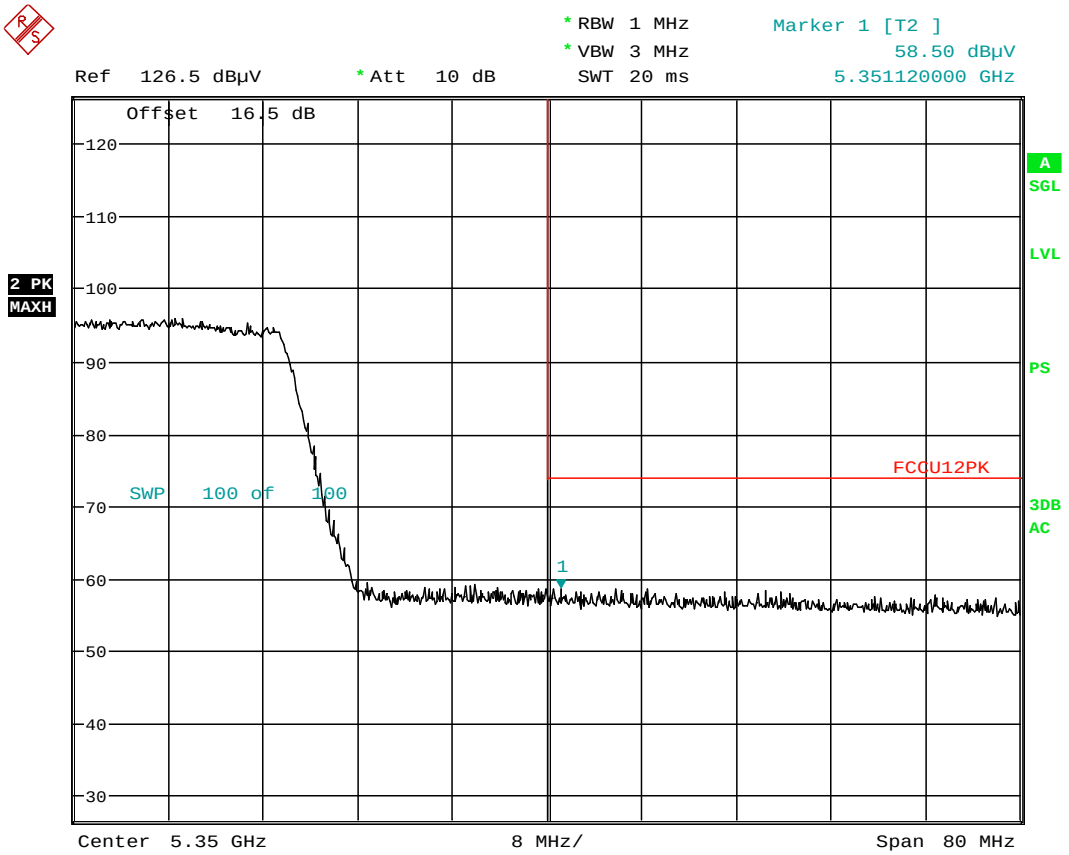
Date: 9.JAN.2015 04:25:12

Plot 6-210. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 04:26:00

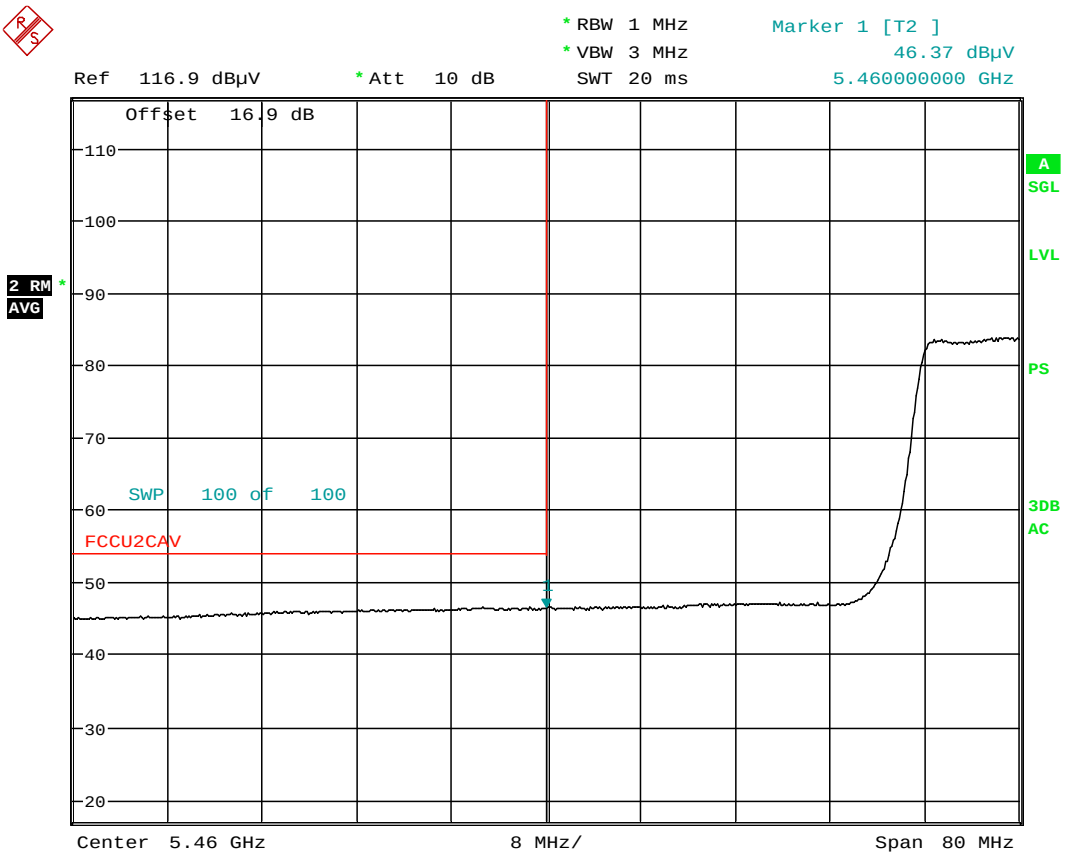
Plot 6-211. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5530MHz
Channel:	106



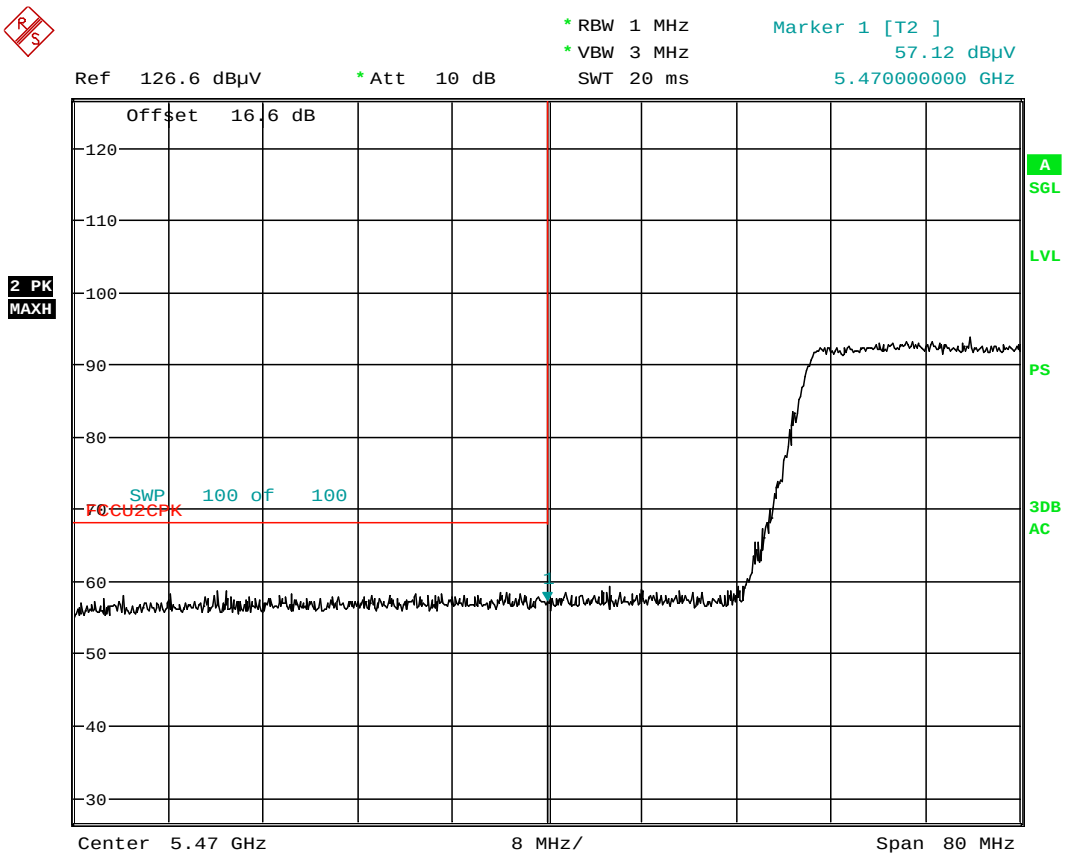
Date: 9.JAN.2015 04:37:41

Plot 6-212. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 04:38:33

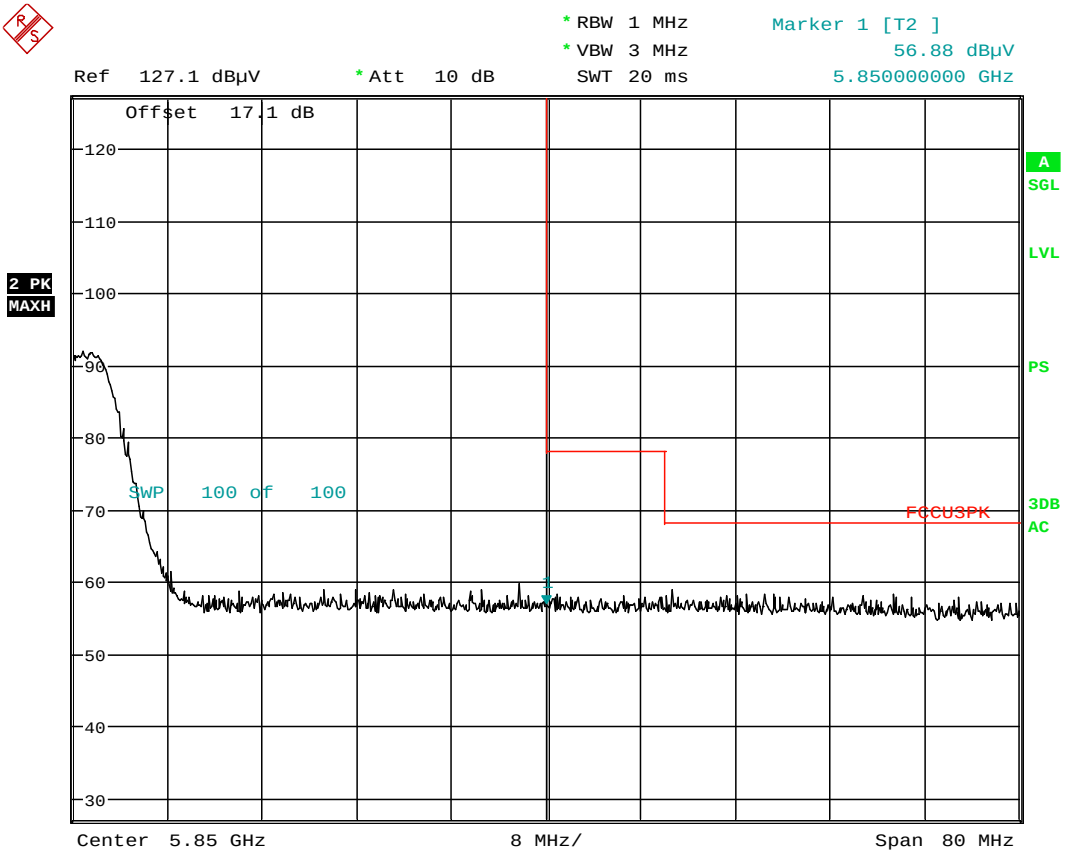
Plot 6-213. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5775MHz
Channel:	155



Date: 9.JAN.2015 05:33:03

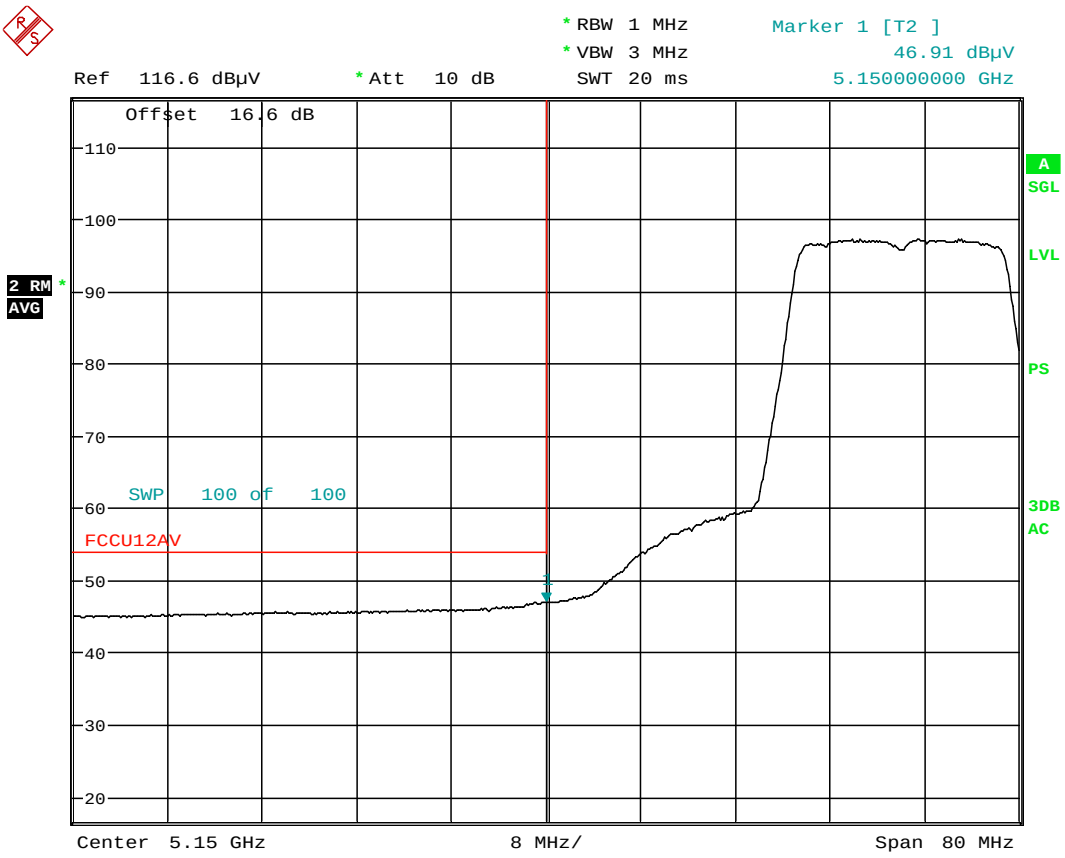
Plot 6-214. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.9 MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (20MHz)
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36



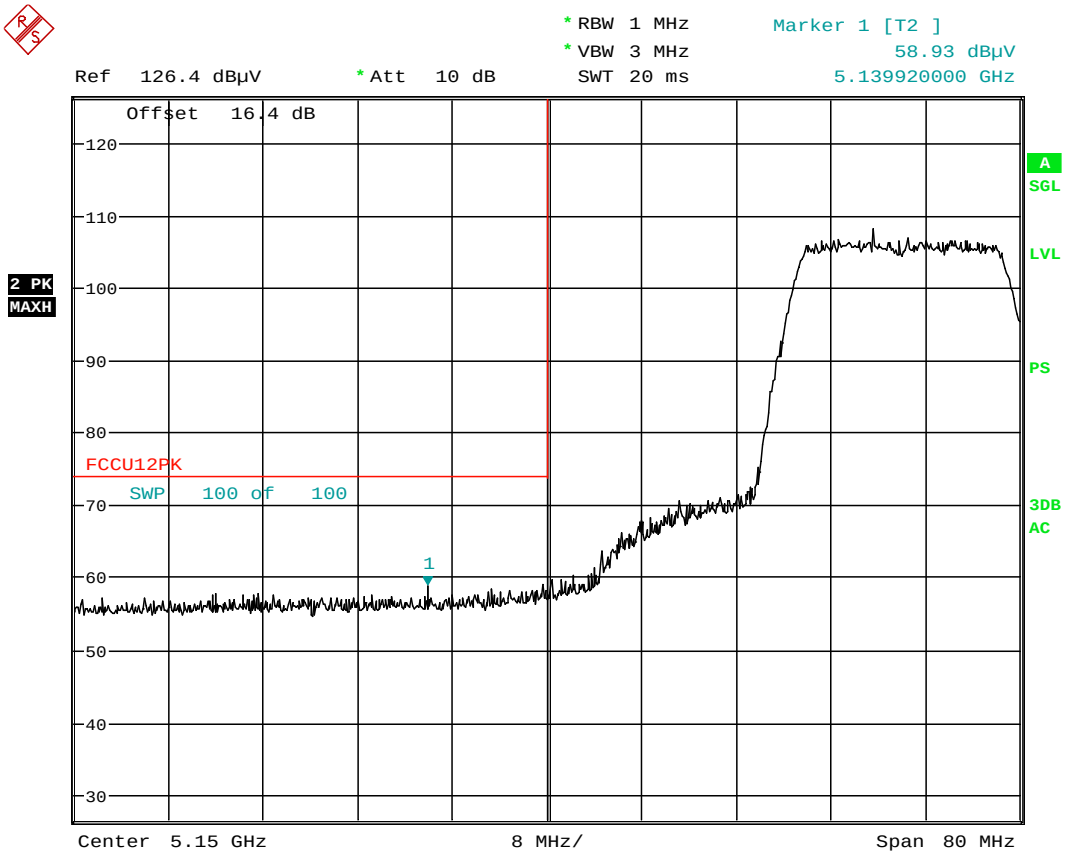
Date: 9.JAN.2015 06:37:11

Plot 6-215. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 06:37:45

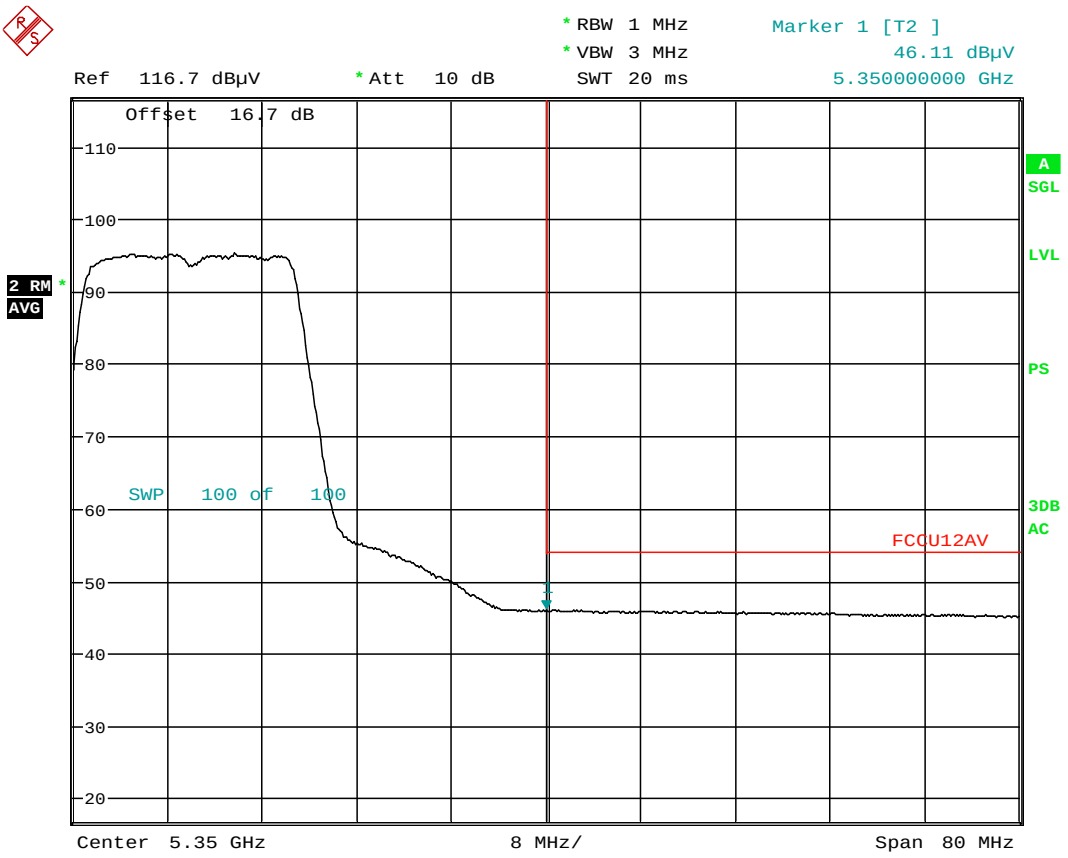
Plot 6-216. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (20MHz)
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



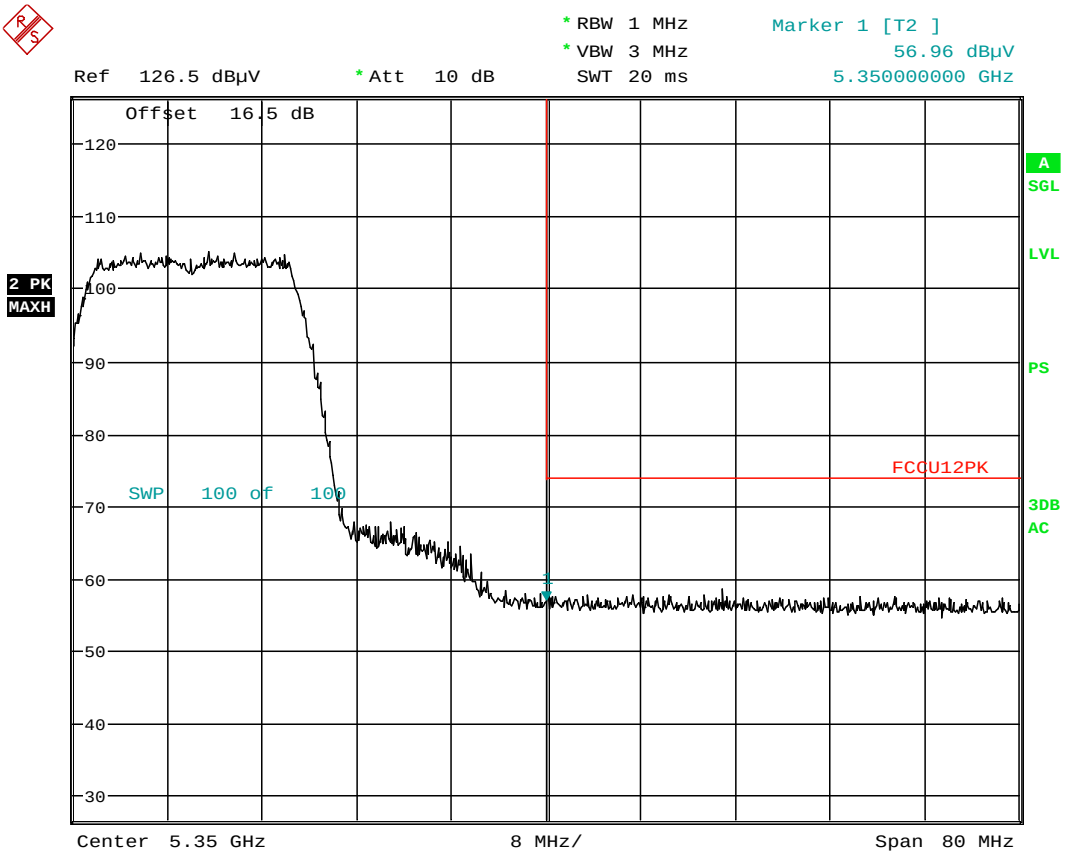
Date: 9.JAN.2015 07:05:23

Plot 6-217. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 07:04:43

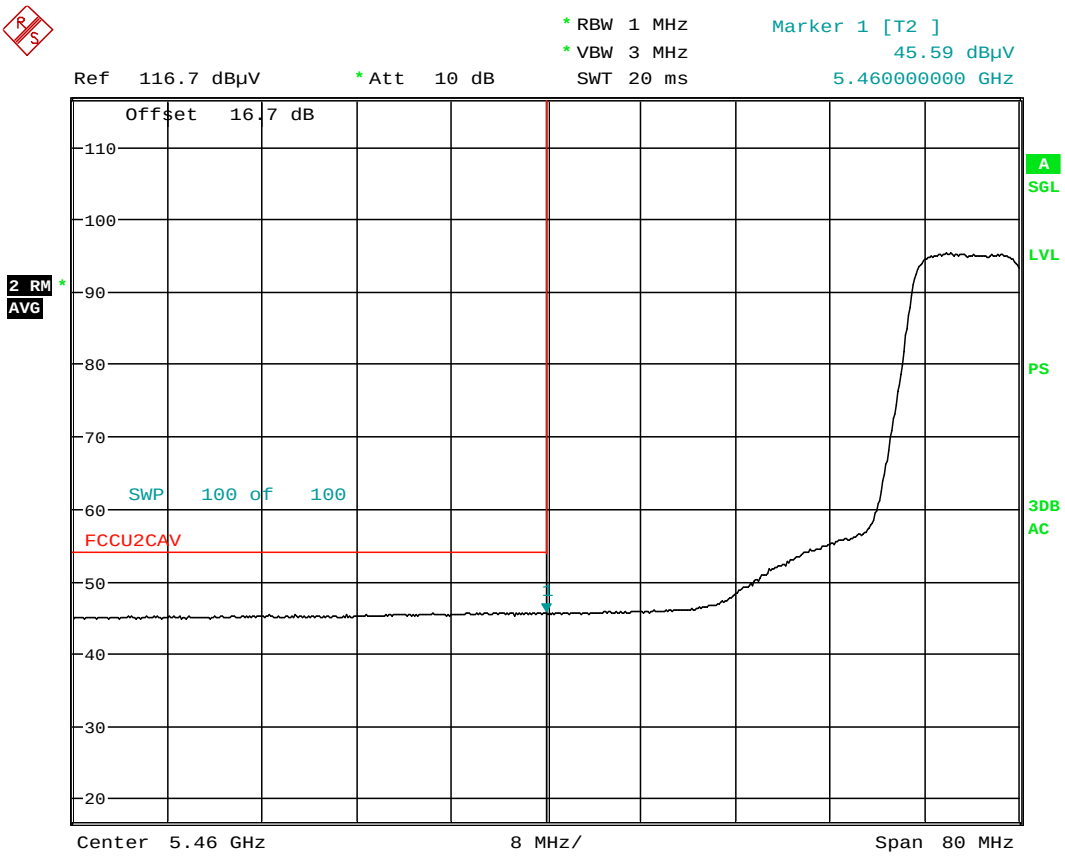
Plot 6-218. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (20MHz)
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100



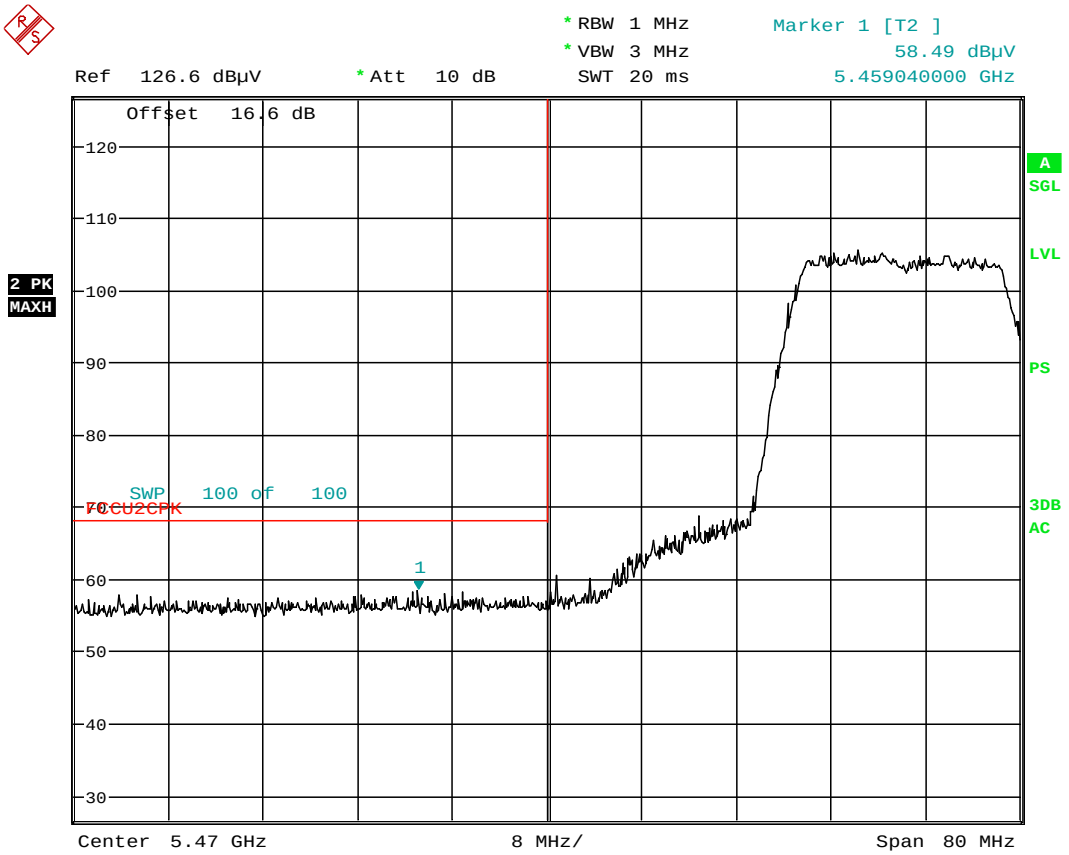
Date: 9.JAN.2015 07:22:37

Plot 6-219. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 07:23:25

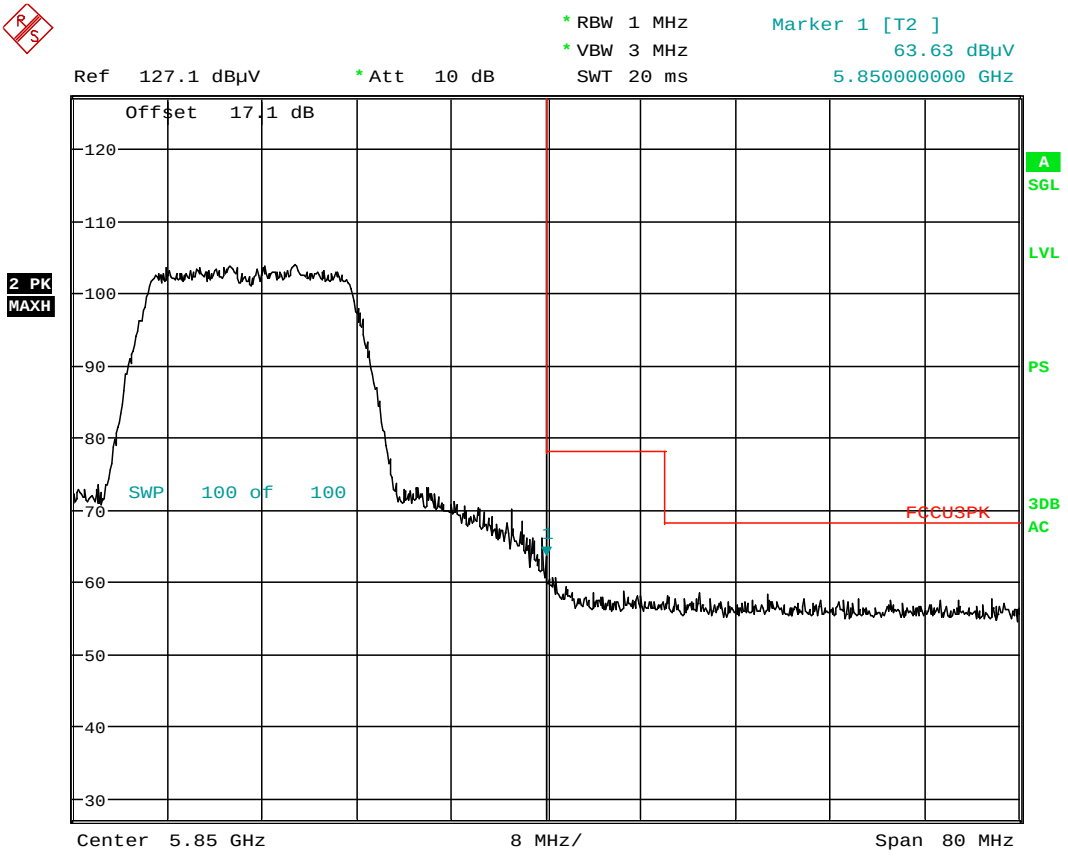
Plot 6-220. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (20MHz)
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5825MHz
Channel:	165



Date: 9.JAN.2015 08:42:33

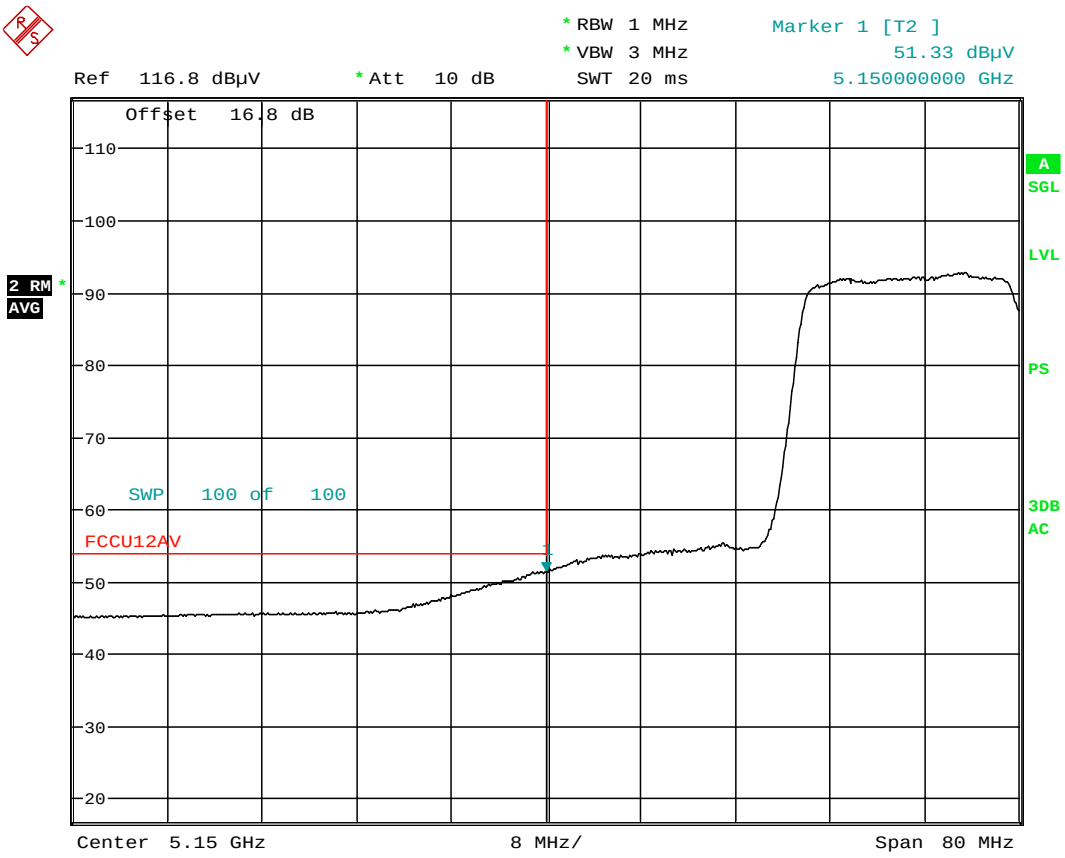
Plot 6-221. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.10 MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38



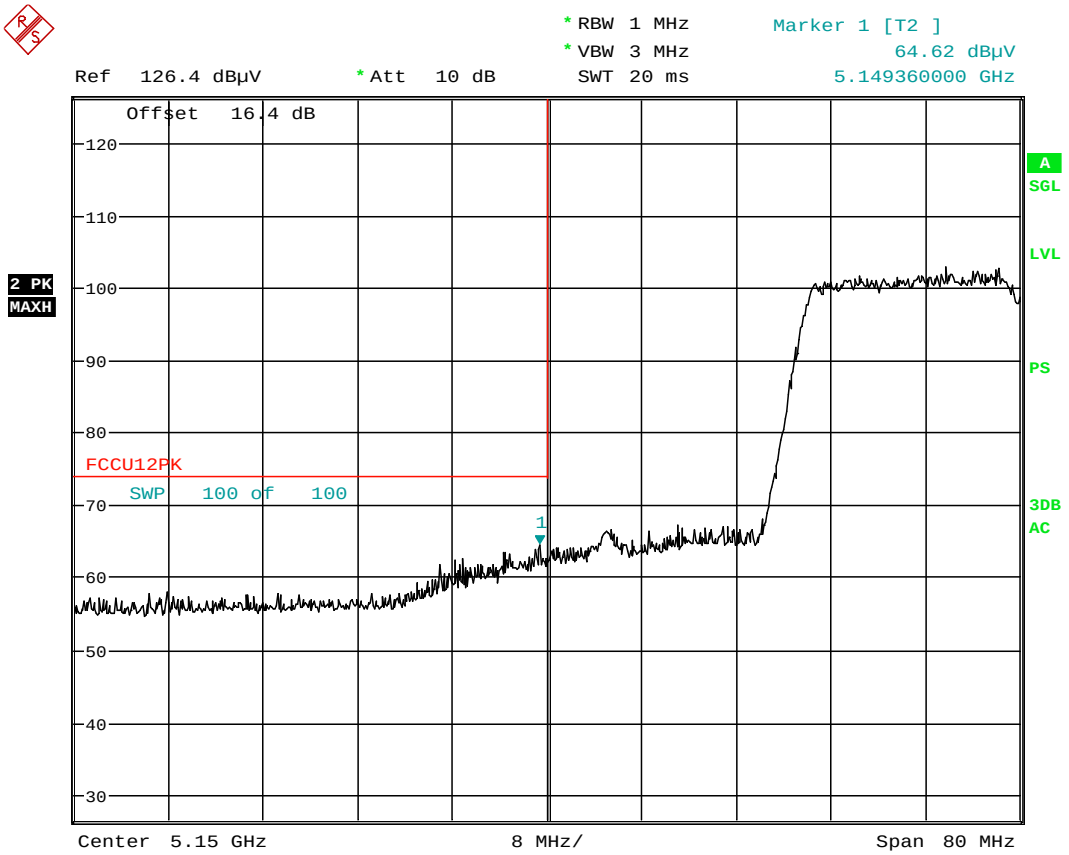
Date: 9.JAN.2015 06:46:17

Plot 6-222. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 06:46:55

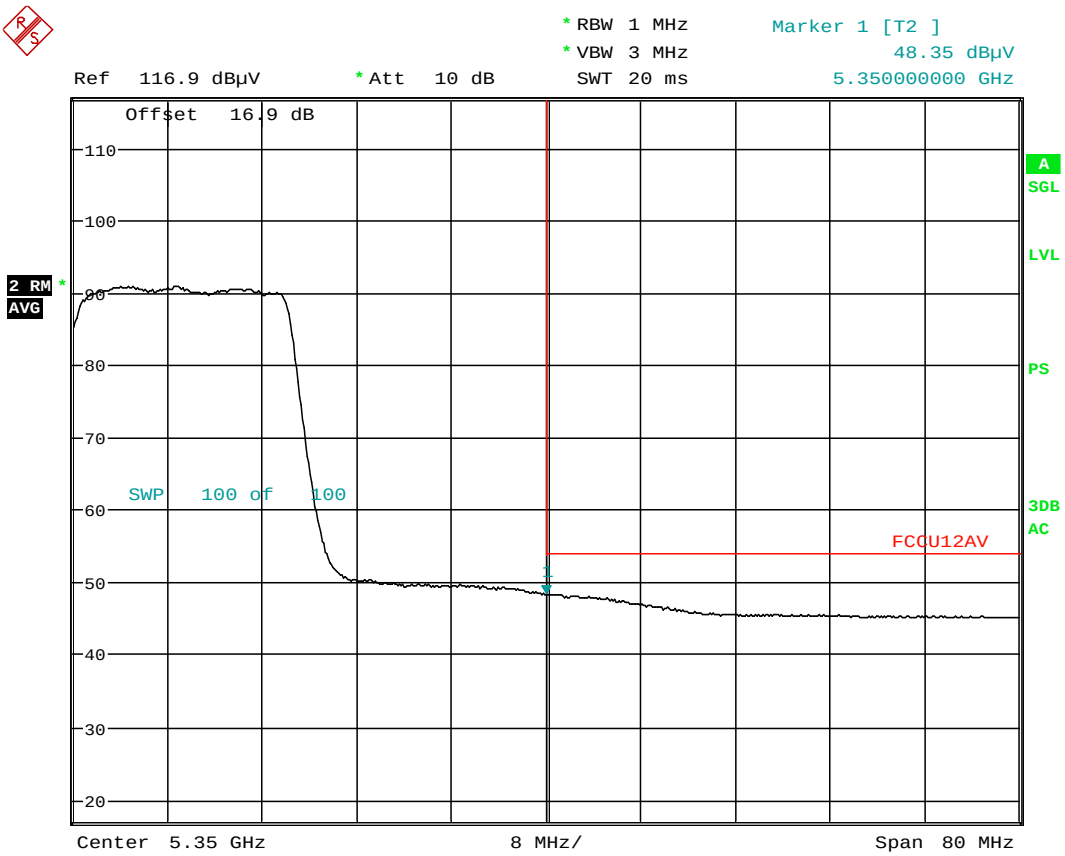
Plot 6-223. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



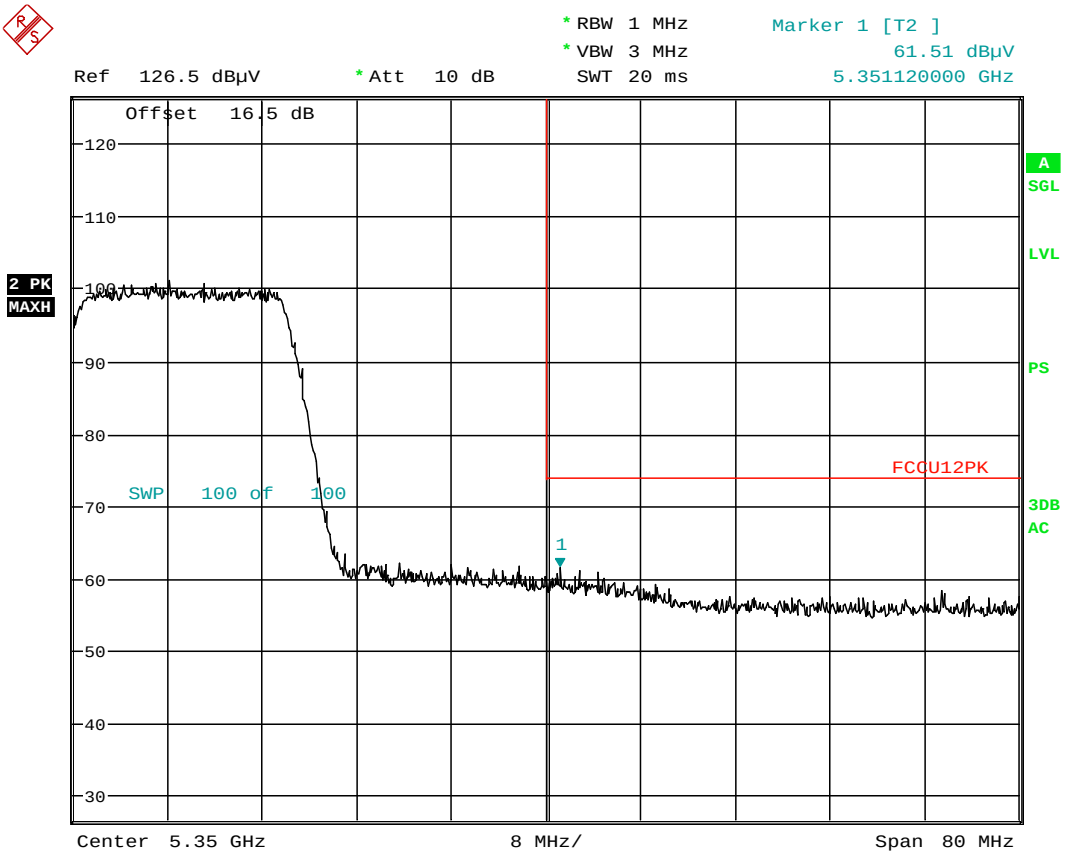
Date: 9.JAN.2015 07:08:17

Plot 6-224. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 07:09:05

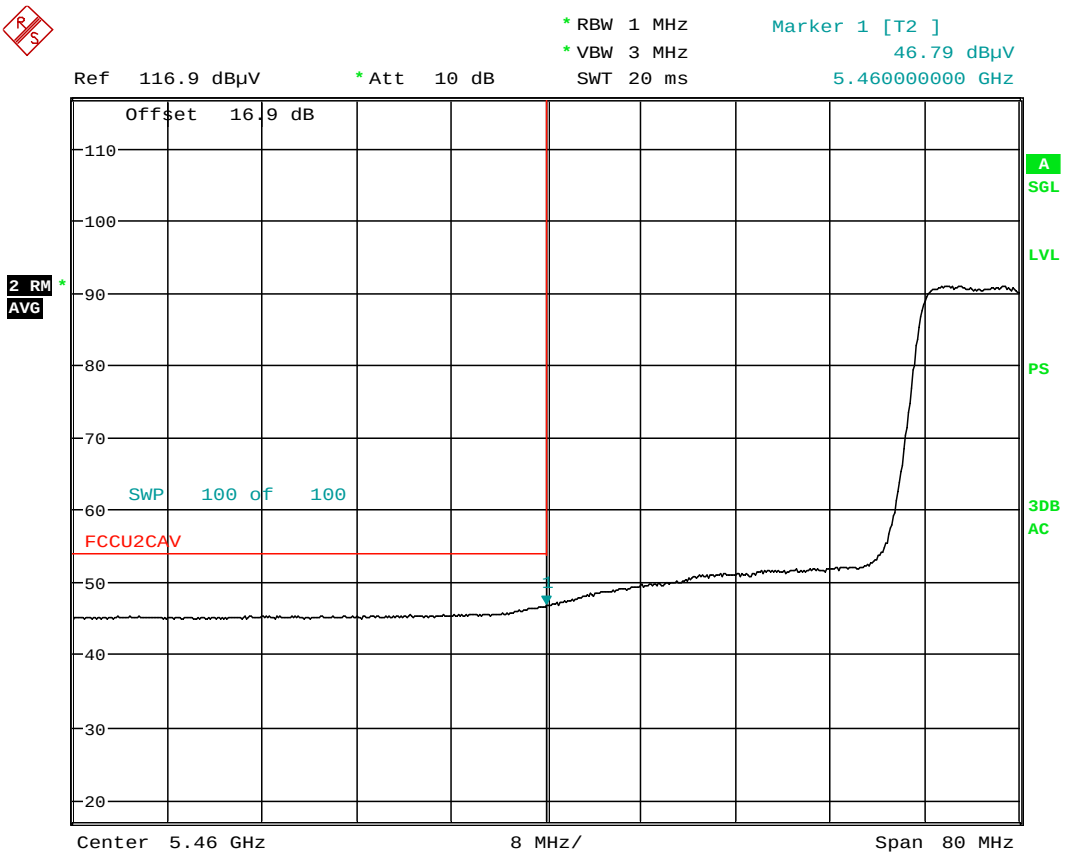
Plot 6-225. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5510MHz
Channel:	102



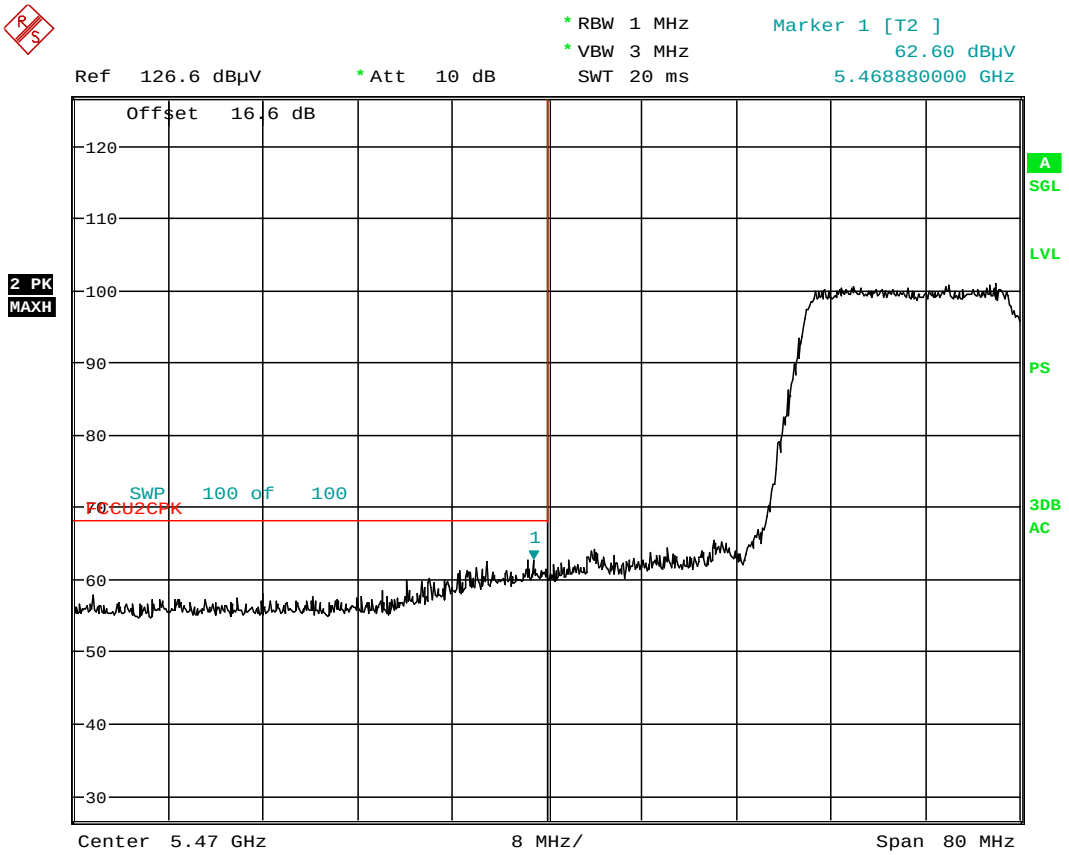
Date: 9.JAN.2015 07:26:52

Plot 6-226. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 07:27:32

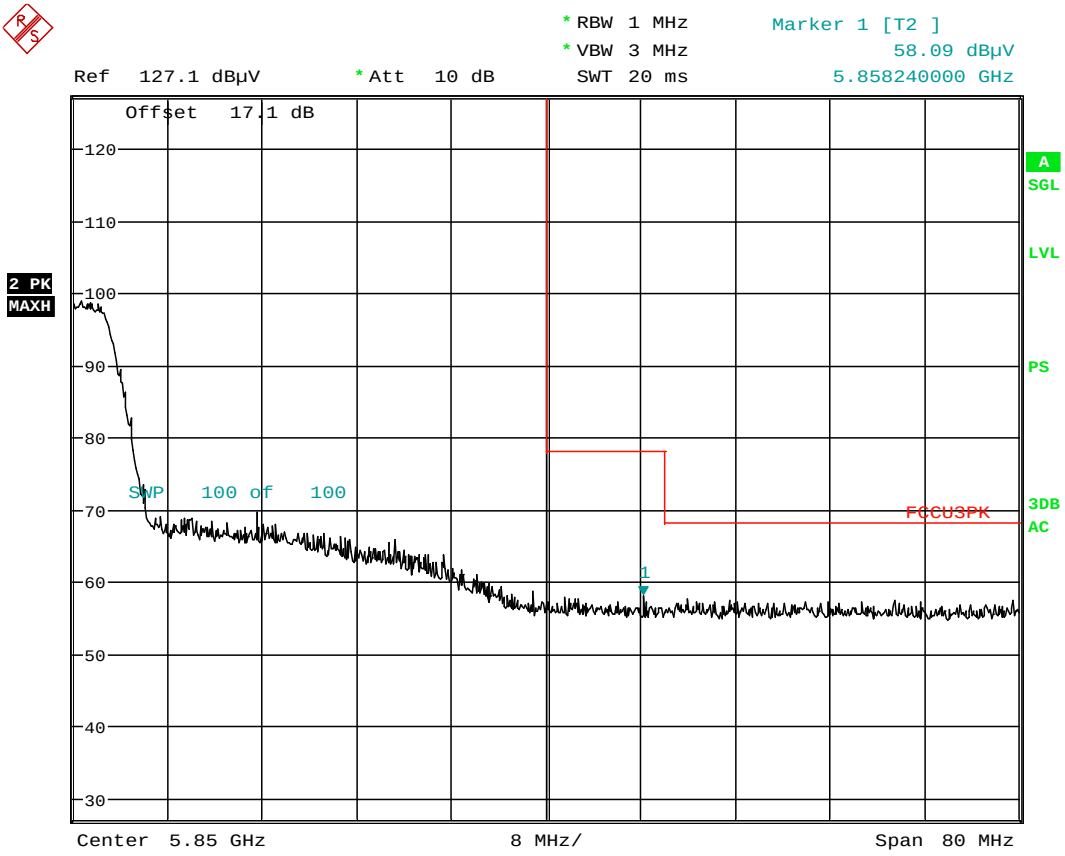
Plot 6-227. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11n (40MHz)
Worst Case Transfer Rate:	MCS8
Distance of Measurements:	3 Meters
Operating Frequency:	5815MHz
Channel:	163



Date: 9.JAN.2015 08:54:40

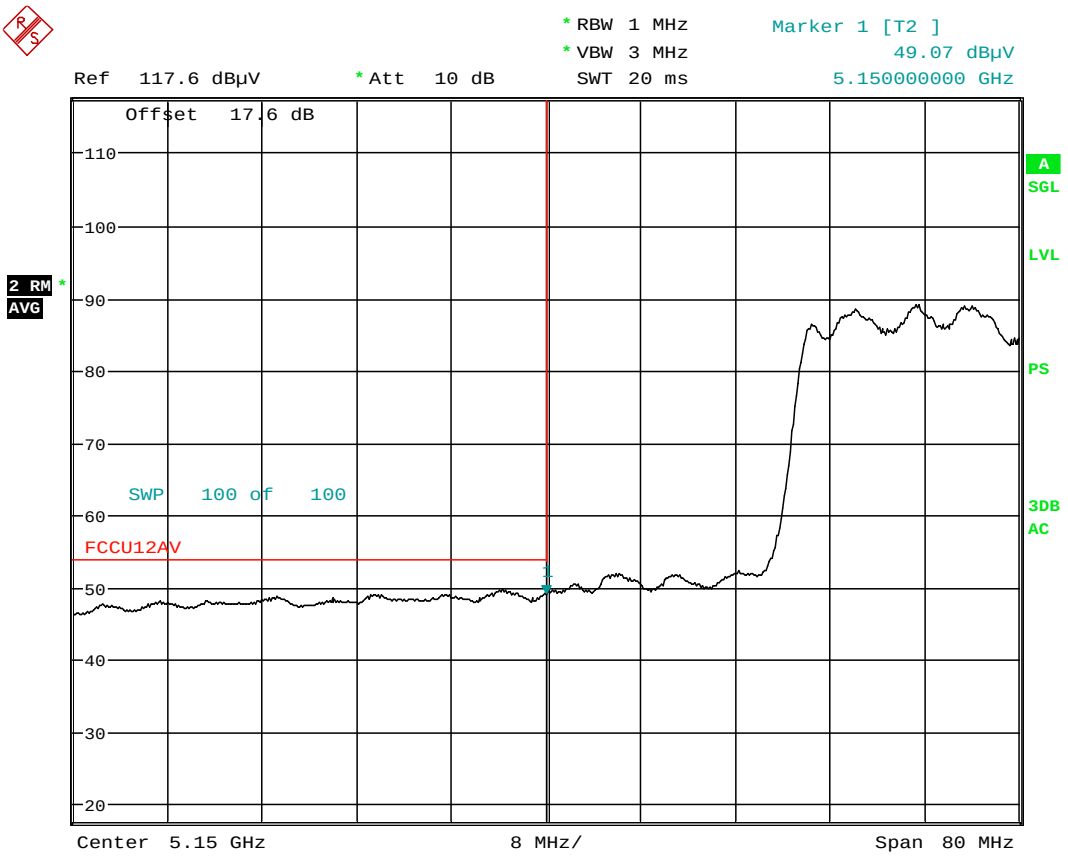
Plot 6-228. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.7.11 MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42



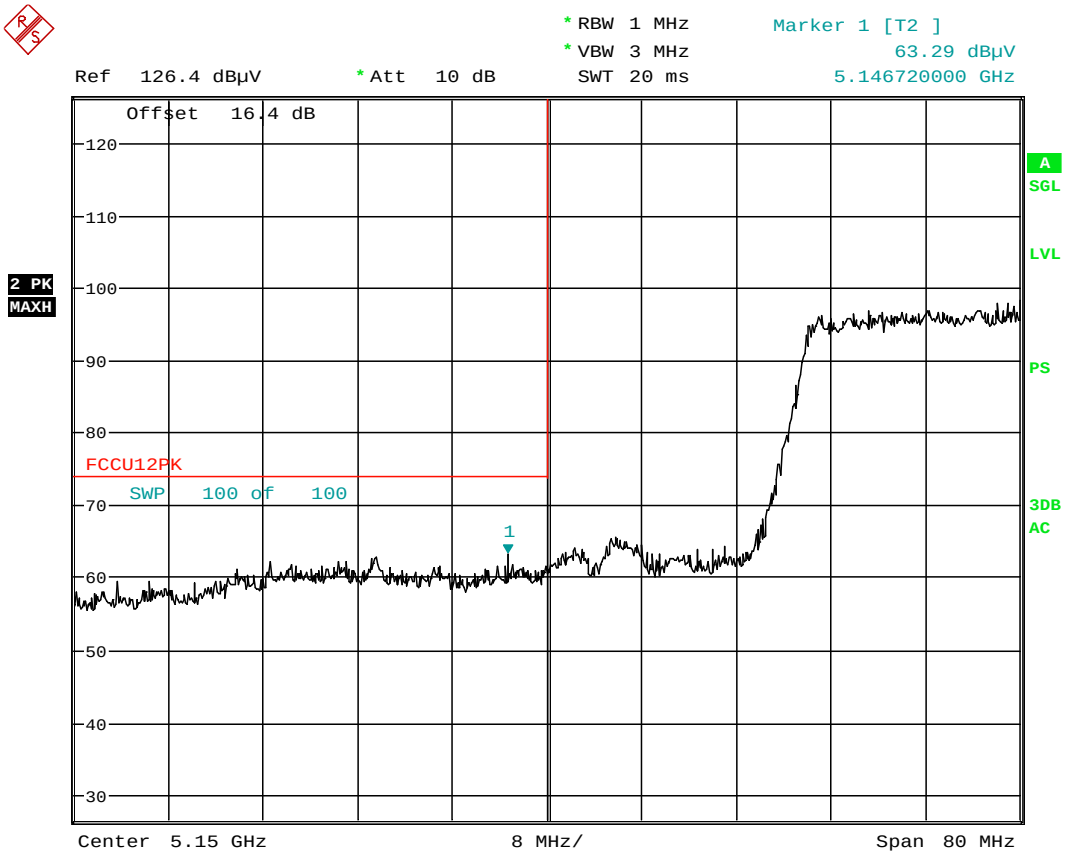
Date: 9.JAN.2015 06:56:18

Plot 6-229. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 06:56:54

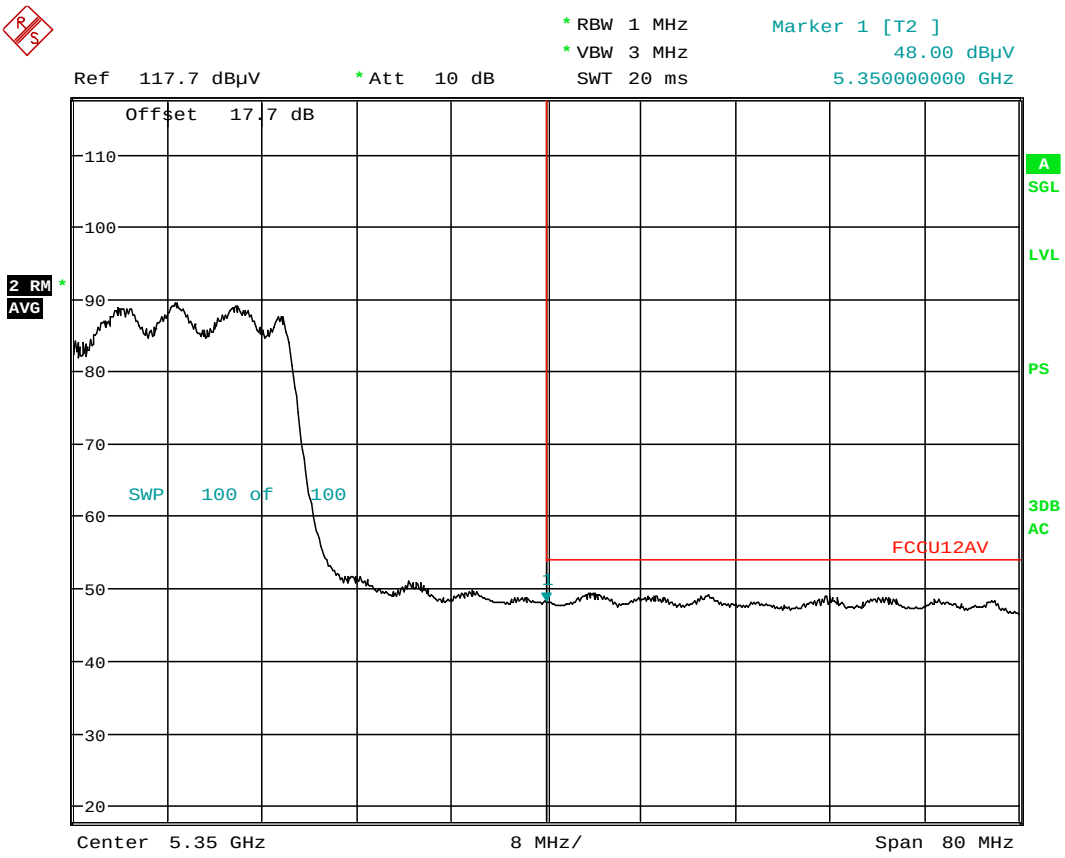
Plot 6-230. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



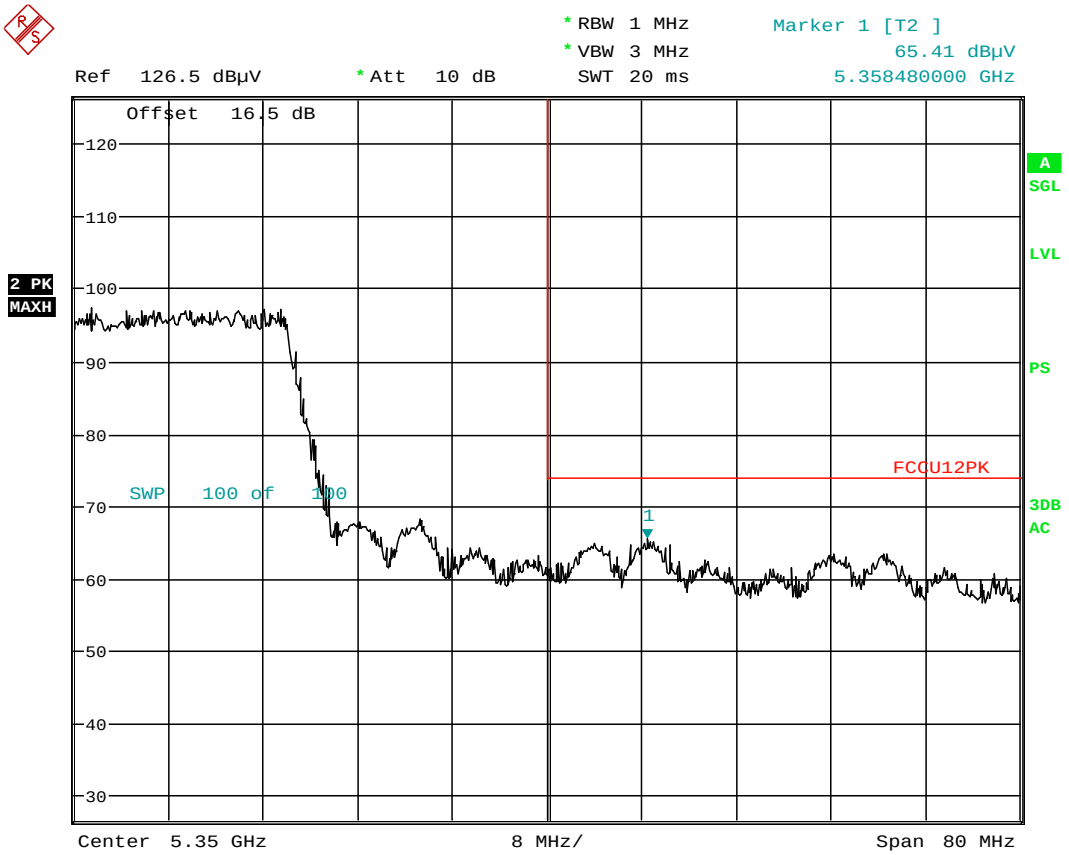
Date: 9.JAN.2015 07:15:08

Plot 6-231. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 07:16:01

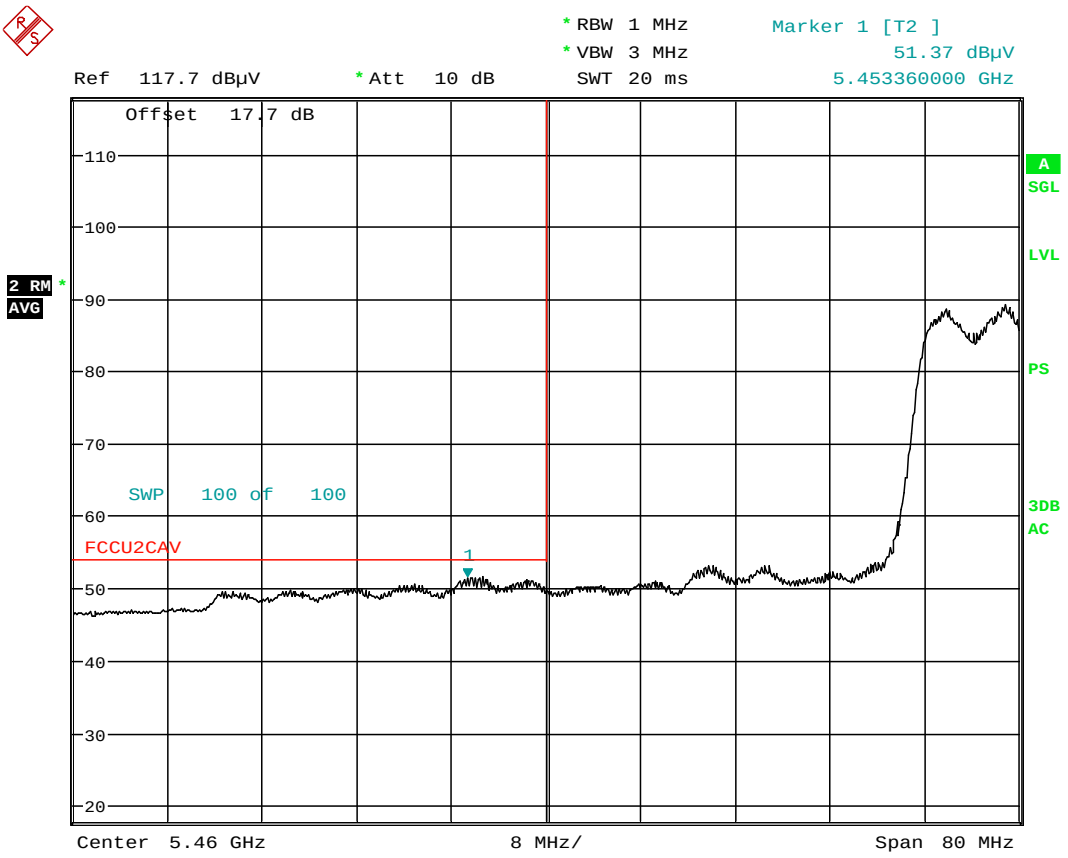
Plot 6-232. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5530MHz
Channel:	106



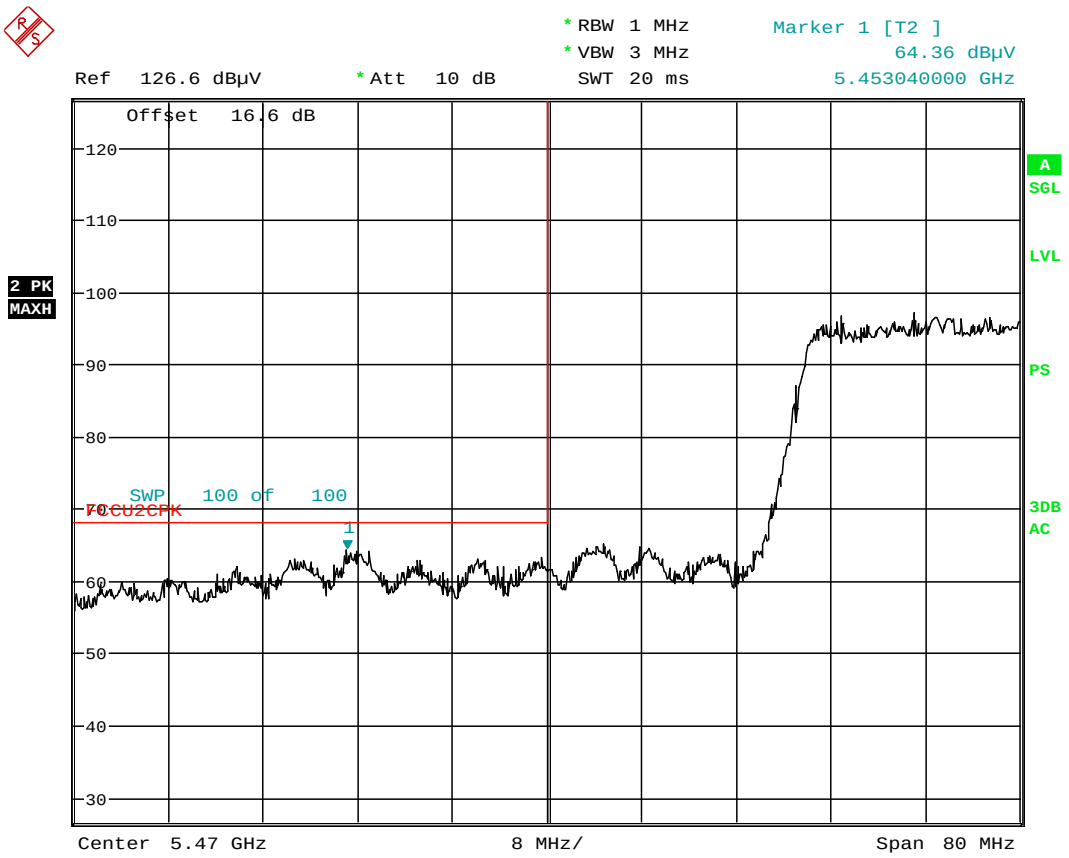
Date: 9.JAN.2015 08:14:05

Plot 6-233. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JAN.2015 08:16:40

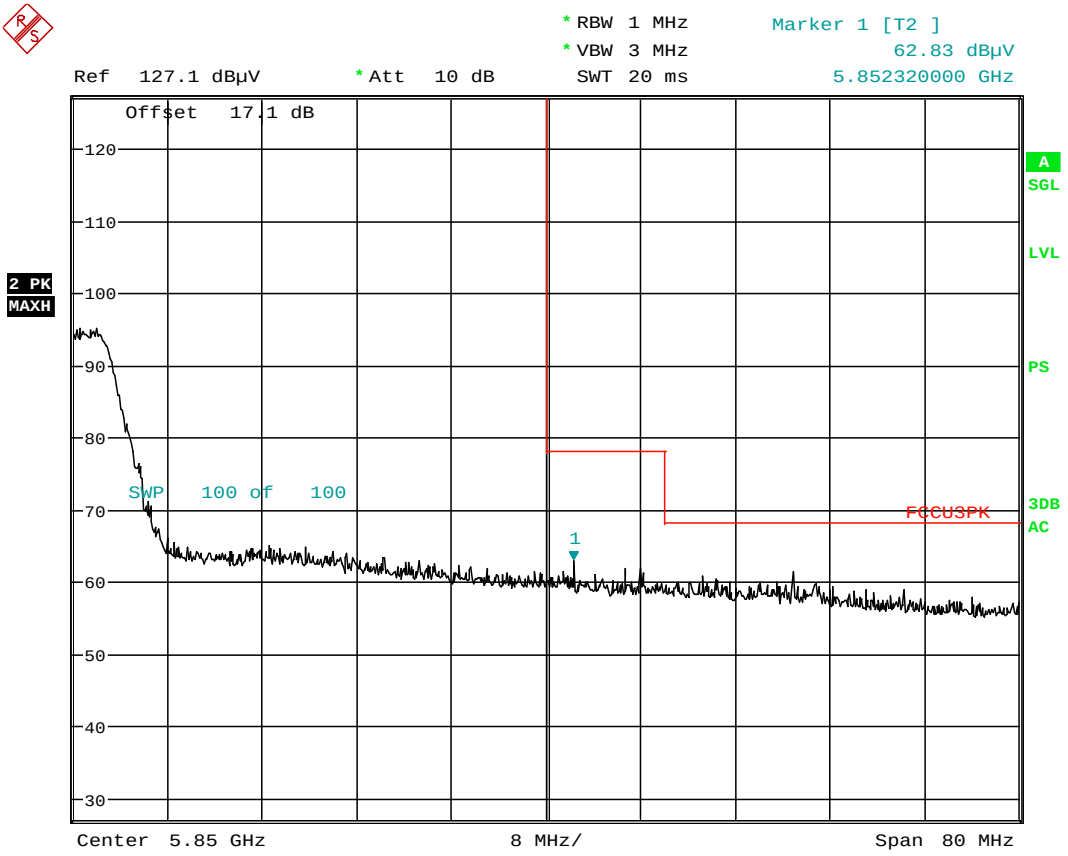
Plot 6-234. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

© 2015 PCTEST Engineering Laboratory, Inc.

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	802.11ac (80MHz)
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5775MHz
Channel:	155



Date: 9.JAN.2015 08:59:30

Plot 6-235. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

© 2015 PCTEST Engineering Laboratory, Inc.

6.8 Radiated Spurious Emissions Measurements – Below 1GHz

§15.209

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 6-54 per Section 15.209.

Frequency	Field Strength [µV/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 6-54. Radiated Limits

Test Procedures Used

ANSI C63.4-2009

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

© 2015 PCTEST Engineering Laboratory, Inc.

Test Setup

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

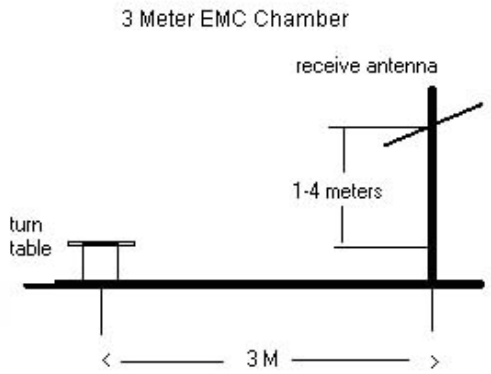


Figure 6-6. Test Instrument & Measurement Setup

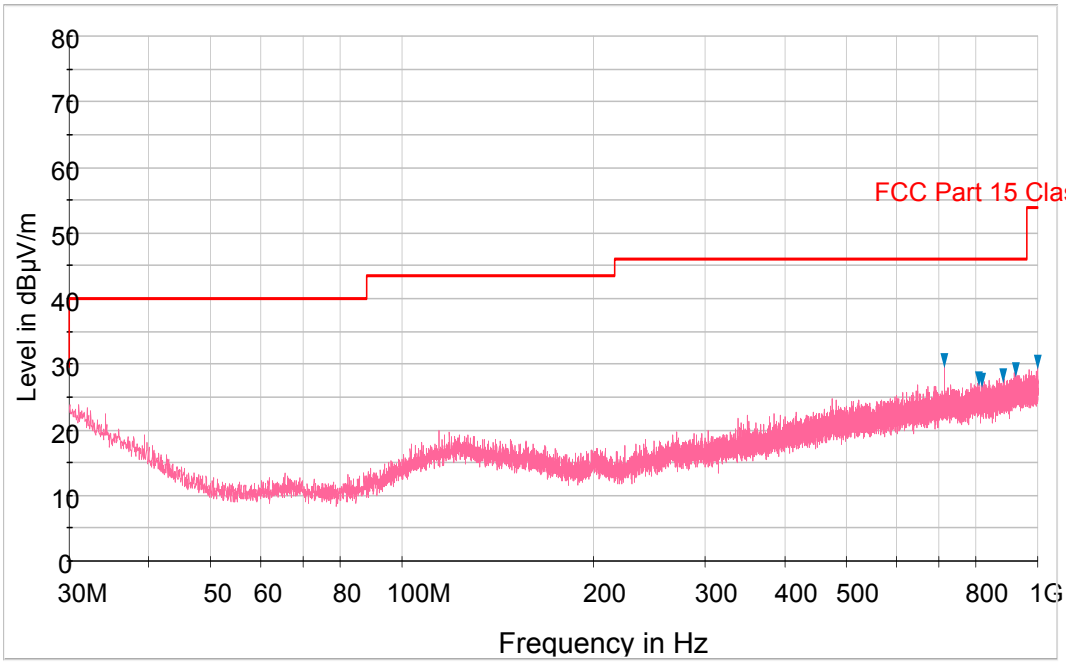
Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-10.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.

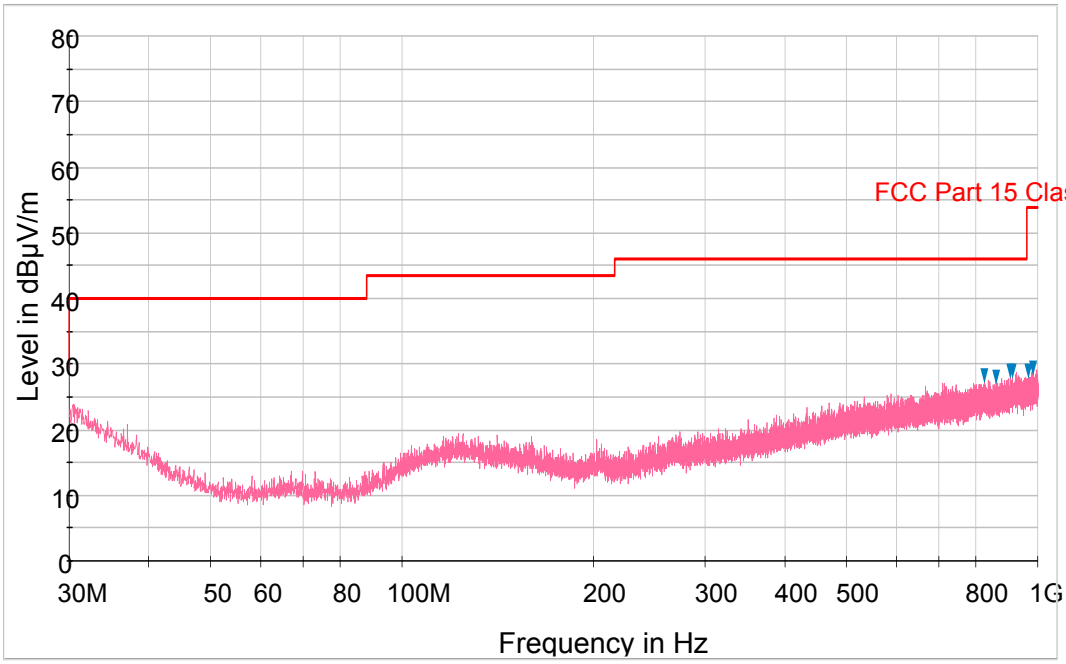
© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-1 Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209



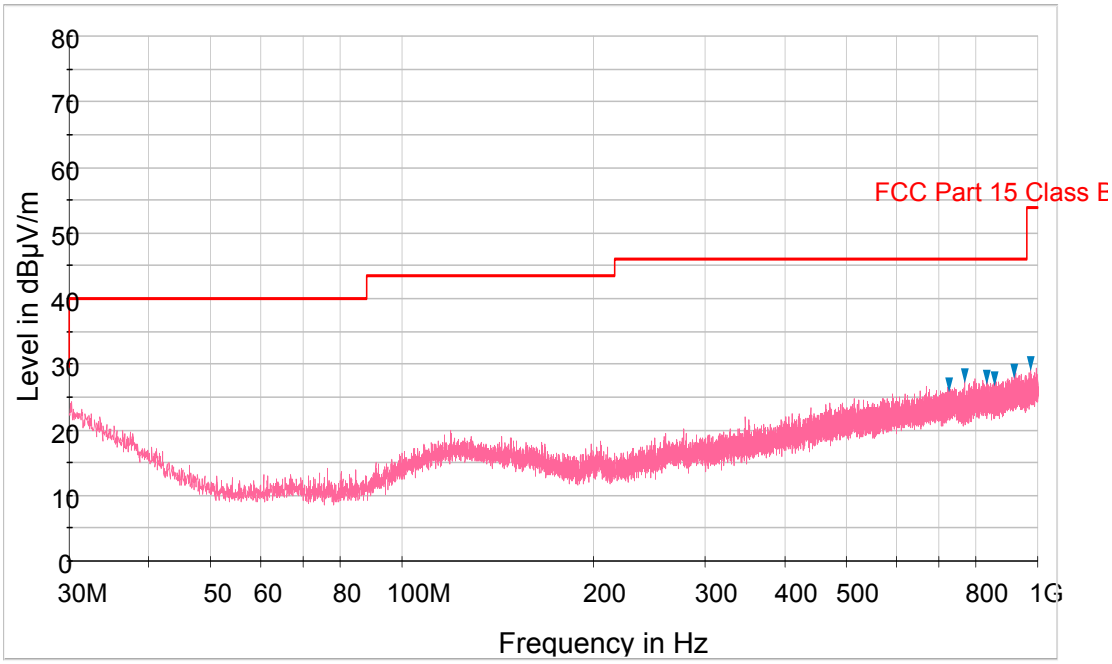
Plot 6-236. Radiated Spurious Plot below 1GHz (802.11a – U3, Ant. Pol. H)



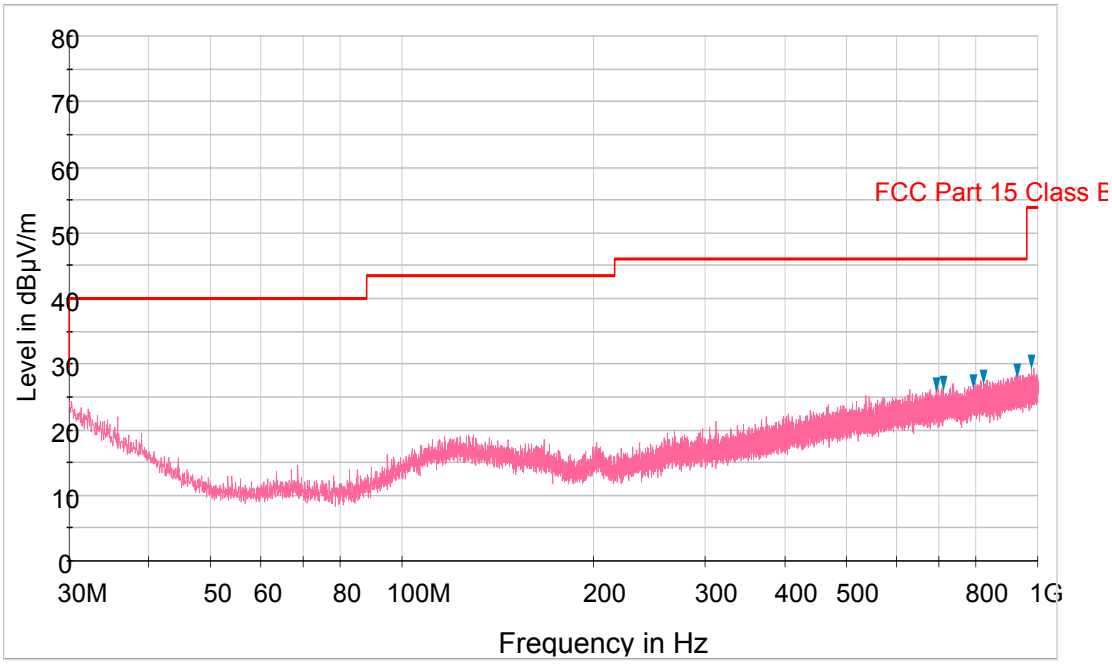
Plot 6-237. Radiated Spurious Plot below 1GHz (802.11a – U3, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.

Antenna-2 Radiated Spurious Emissions Measurements (Below 1GHz)
§15.209

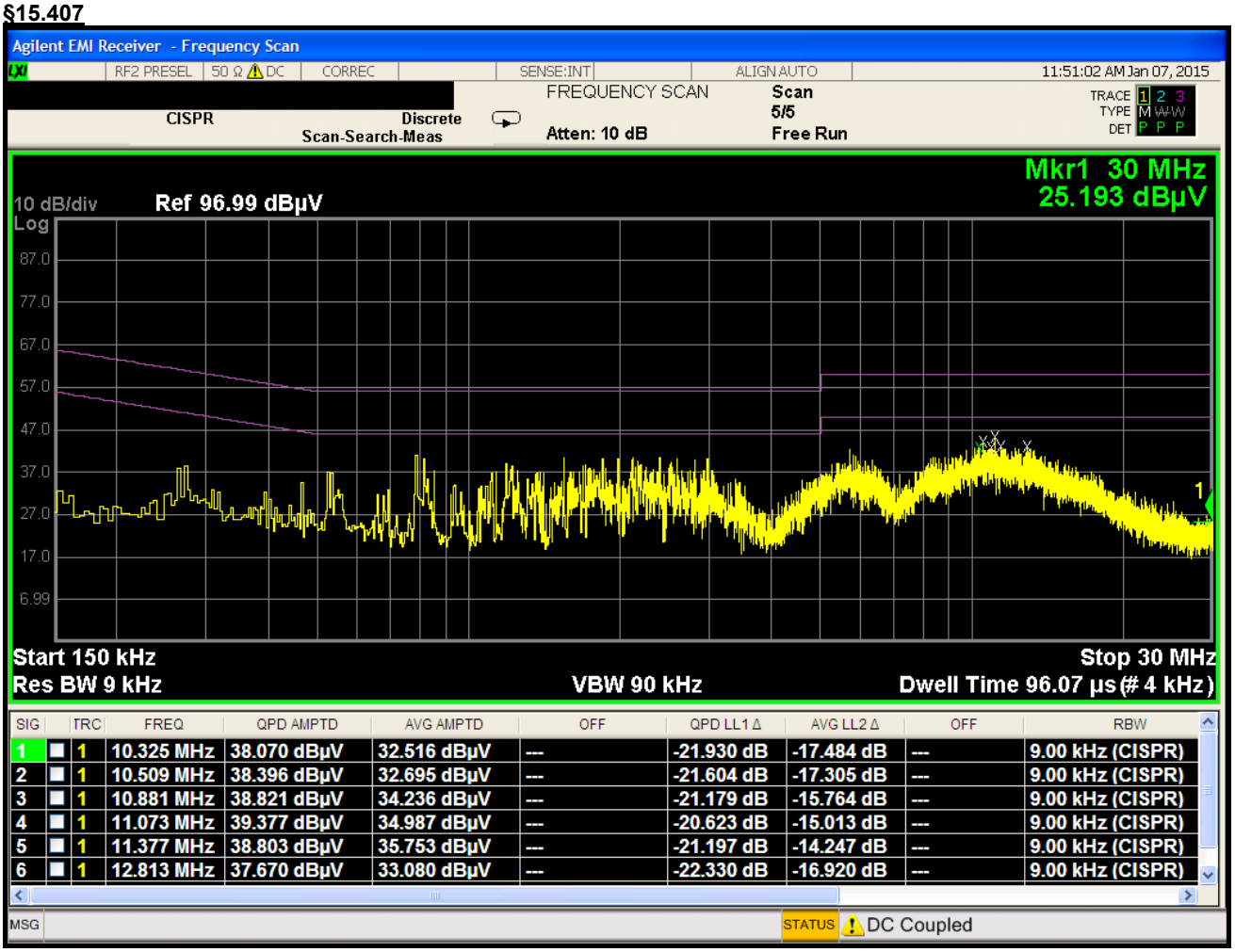


Plot 6-238. Radiated Spurious Plot below 1GHz (802.11a – U3, Ant. Pol. H)



Plot 6-239. Radiated Spurious Plot below 1GHz (802.11a – U3, Ant. Pol. V)

© 2015 PCTEST Engineering Laboratory, Inc.



SIG	TRC	FREQ	QPD AMPTD	AVG AMPTD	OFF	QPD LL1 Δ	AVG LL2 Δ	OFF	RBW
1	1	10.325 MHz	38.070 dBµV	32.516 dBµV	---	-21.930 dB	-17.484 dB	---	9.00 kHz (CISPR)
2	1	10.509 MHz	38.396 dBµV	32.695 dBµV	---	-21.604 dB	-17.305 dB	---	9.00 kHz (CISPR)
3	1	10.881 MHz	38.821 dBµV	34.236 dBµV	---	-21.179 dB	-15.764 dB	---	9.00 kHz (CISPR)
4	1	11.073 MHz	39.377 dBµV	34.987 dBµV	---	-20.623 dB	-15.013 dB	---	9.00 kHz (CISPR)
5	1	11.377 MHz	38.803 dBµV	35.753 dBµV	---	-21.197 dB	-14.247 dB	---	9.00 kHz (CISPR)
6	1	12.813 MHz	37.670 dBµV	33.080 dBµV	---	-22.330 dB	-16.920 dB	---	9.00 kHz (CISPR)

Plot 6-240. Line Conducted Plot with 802.11a UNII Band 1 (L1)

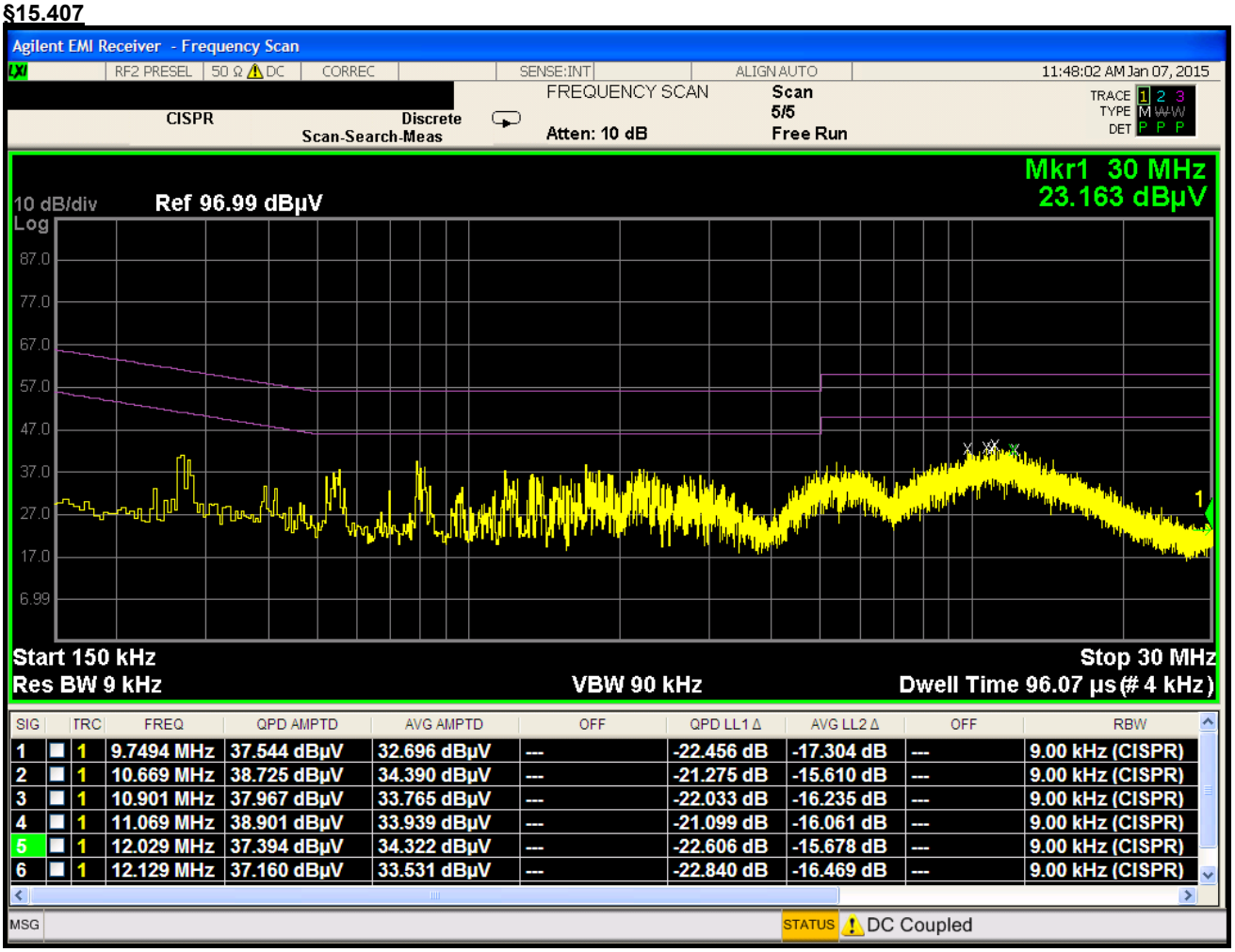
Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. L1 = Phase; N = Neutral
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Corr. (dB)
6. Margin (dB) = QP/AVLimit (dBµV) - QP/AV Level (dBµV)
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.

© 2015 PCTEST Engineering Laboratory, Inc.

Line-Conducted Test Data

§15.407



SIG	TRC	FREQ	QPD AMPTD	AVG AMPTD	OFF	QPD LL1 Δ	AVG LL2 Δ	OFF	RBW
1	1	9.7494 MHz	37.544 dBµV	32.696 dBµV	---	-22.456 dB	-17.304 dB	---	9.00 kHz (CISPR)
2	1	10.669 MHz	38.725 dBµV	34.390 dBµV	---	-21.275 dB	-15.610 dB	---	9.00 kHz (CISPR)
3	1	10.901 MHz	37.967 dBµV	33.765 dBµV	---	-22.033 dB	-16.235 dB	---	9.00 kHz (CISPR)
4	1	11.069 MHz	38.901 dBµV	33.939 dBµV	---	-21.099 dB	-16.061 dB	---	9.00 kHz (CISPR)
5	1	12.029 MHz	37.394 dBµV	34.322 dBµV	---	-22.606 dB	-15.678 dB	---	9.00 kHz (CISPR)
6	1	12.129 MHz	37.160 dBµV	33.531 dBµV	---	-22.840 dB	-16.469 dB	---	9.00 kHz (CISPR)

Plot 6-241. Line Conducted Plot with 802.11a UNII Band 1 (N)

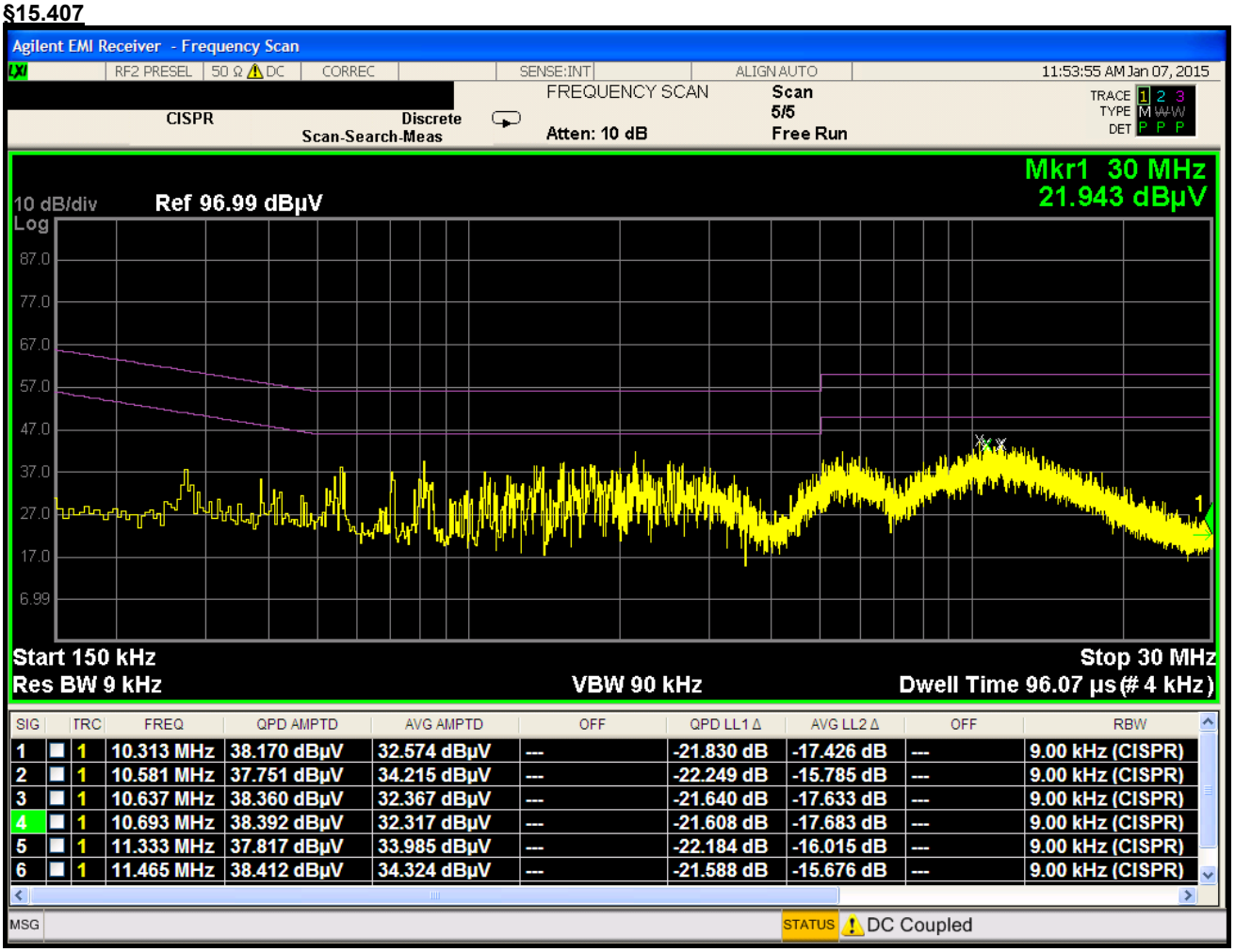
Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 36. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. L1 = Phase; N = Neutral
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Corr. (dB)
6. Margin (dB) = QP/AVLimit (dBµV) - QP/AV Level (dBµV)
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.

© 2015 PCTEST Engineering Laboratory, Inc.

Line-Conducted Test Data

§15.407



SIG	TRC	FREQ	QPD AMPTD	AVG AMPTD	OFF	QPD LL1 Δ	AVG LL2 Δ	OFF	RBW
1	1	10.313 MHz	38.170 dBµV	32.574 dBµV	---	-21.830 dB	-17.426 dB	---	9.00 kHz (CISPR)
2	1	10.581 MHz	37.751 dBµV	34.215 dBµV	---	-22.249 dB	-15.785 dB	---	9.00 kHz (CISPR)
3	1	10.637 MHz	38.360 dBµV	32.367 dBµV	---	-21.640 dB	-17.633 dB	---	9.00 kHz (CISPR)
4	1	10.693 MHz	38.392 dBµV	32.317 dBµV	---	-21.608 dB	-17.683 dB	---	9.00 kHz (CISPR)
5	1	11.333 MHz	37.817 dBµV	33.985 dBµV	---	-22.184 dB	-16.015 dB	---	9.00 kHz (CISPR)
6	1	11.465 MHz	38.412 dBµV	34.324 dBµV	---	-21.588 dB	-15.676 dB	---	9.00 kHz (CISPR)

Plot 6-242. Line Conducted Plot with 802.11a UNII Band 2A (L1)

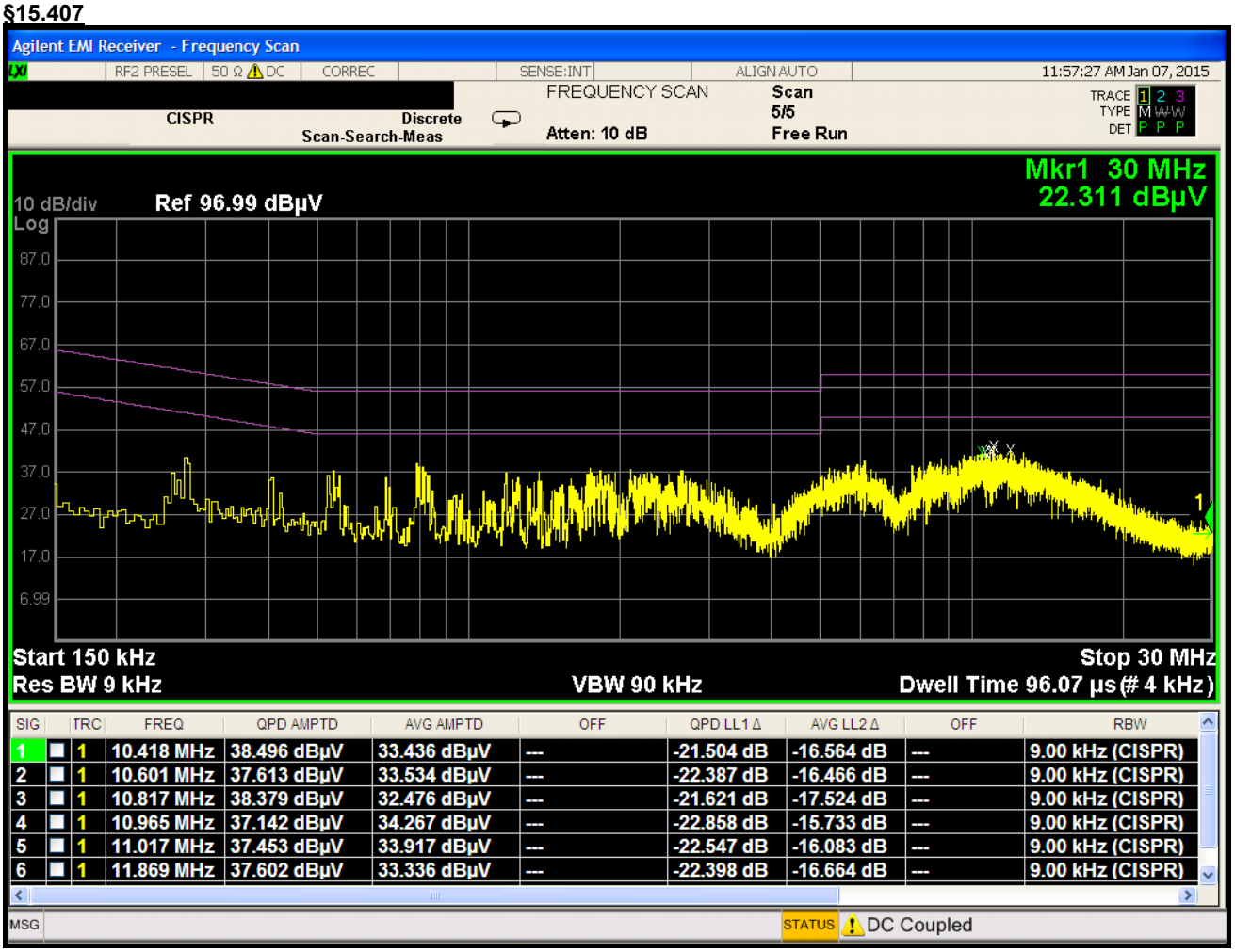
Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 52. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. L1 = Phase; N = Neutral
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Corr. (dB)
6. Margin (dB) = QP/AVLimit (dBµV) - QP/AV Level (dBµV)
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.

© 2015 PCTEST Engineering Laboratory, Inc.

Line-Conducted Test Data

§15.407



SIG	TRC	FREQ	QPD AMPTD	AVG AMPTD	OFF	QPD LL1 Δ	AVG LL2 Δ	OFF	RBW
1	1	10.418 MHz	38.496 dBµV	33.436 dBµV	---	-21.504 dB	-16.564 dB	---	9.00 kHz (CISPR)
2	1	10.601 MHz	37.613 dBµV	33.534 dBµV	---	-22.387 dB	-16.466 dB	---	9.00 kHz (CISPR)
3	1	10.817 MHz	38.379 dBµV	32.476 dBµV	---	-21.621 dB	-17.524 dB	---	9.00 kHz (CISPR)
4	1	10.965 MHz	37.142 dBµV	34.267 dBµV	---	-22.858 dB	-15.733 dB	---	9.00 kHz (CISPR)
5	1	11.017 MHz	37.453 dBµV	33.917 dBµV	---	-22.547 dB	-16.083 dB	---	9.00 kHz (CISPR)
6	1	11.869 MHz	37.602 dBµV	33.336 dBµV	---	-22.398 dB	-16.664 dB	---	9.00 kHz (CISPR)

Plot 6-243. Line Conducted Plot with 802.11a UNII Band 2A (N)

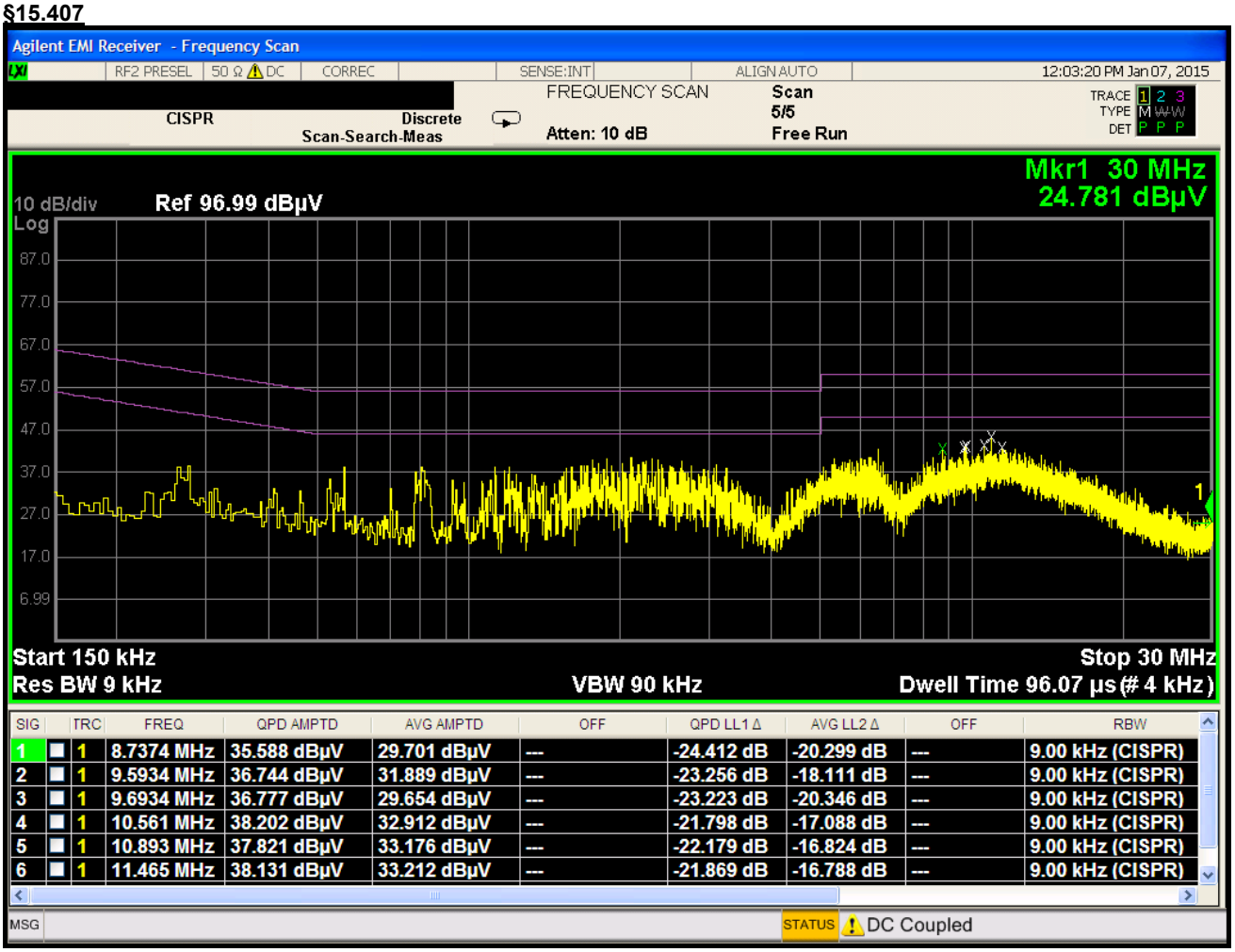
Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 52. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. L1 = Phase; N = Neutral
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Corr. (dB)
6. Margin (dB) = QP/AVLimit (dBµV) - QP/AV Level (dBµV)
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.

© 2015 PCTEST Engineering Laboratory, Inc.

Line-Conducted Test Data

§15.407



SIG	TRC	FREQ	QPD AMPTD	AVG AMPTD	OFF	QPD LL1 Δ	AVG LL2 Δ	OFF	RBW
1	1	8.7374 MHz	35.588 dBµV	29.701 dBµV	---	-24.412 dB	-20.299 dB	---	9.00 kHz (CISPR)
2	1	9.5934 MHz	36.744 dBµV	31.889 dBµV	---	-23.256 dB	-18.111 dB	---	9.00 kHz (CISPR)
3	1	9.6934 MHz	36.777 dBµV	29.654 dBµV	---	-23.223 dB	-20.346 dB	---	9.00 kHz (CISPR)
4	1	10.561 MHz	38.202 dBµV	32.912 dBµV	---	-21.798 dB	-17.088 dB	---	9.00 kHz (CISPR)
5	1	10.893 MHz	37.821 dBµV	33.176 dBµV	---	-22.179 dB	-16.824 dB	---	9.00 kHz (CISPR)
6	1	11.465 MHz	38.131 dBµV	33.212 dBµV	---	-21.869 dB	-16.788 dB	---	9.00 kHz (CISPR)

Plot 6-244. Line Conducted Plot with 802.11a UNII Band 2C (L1)

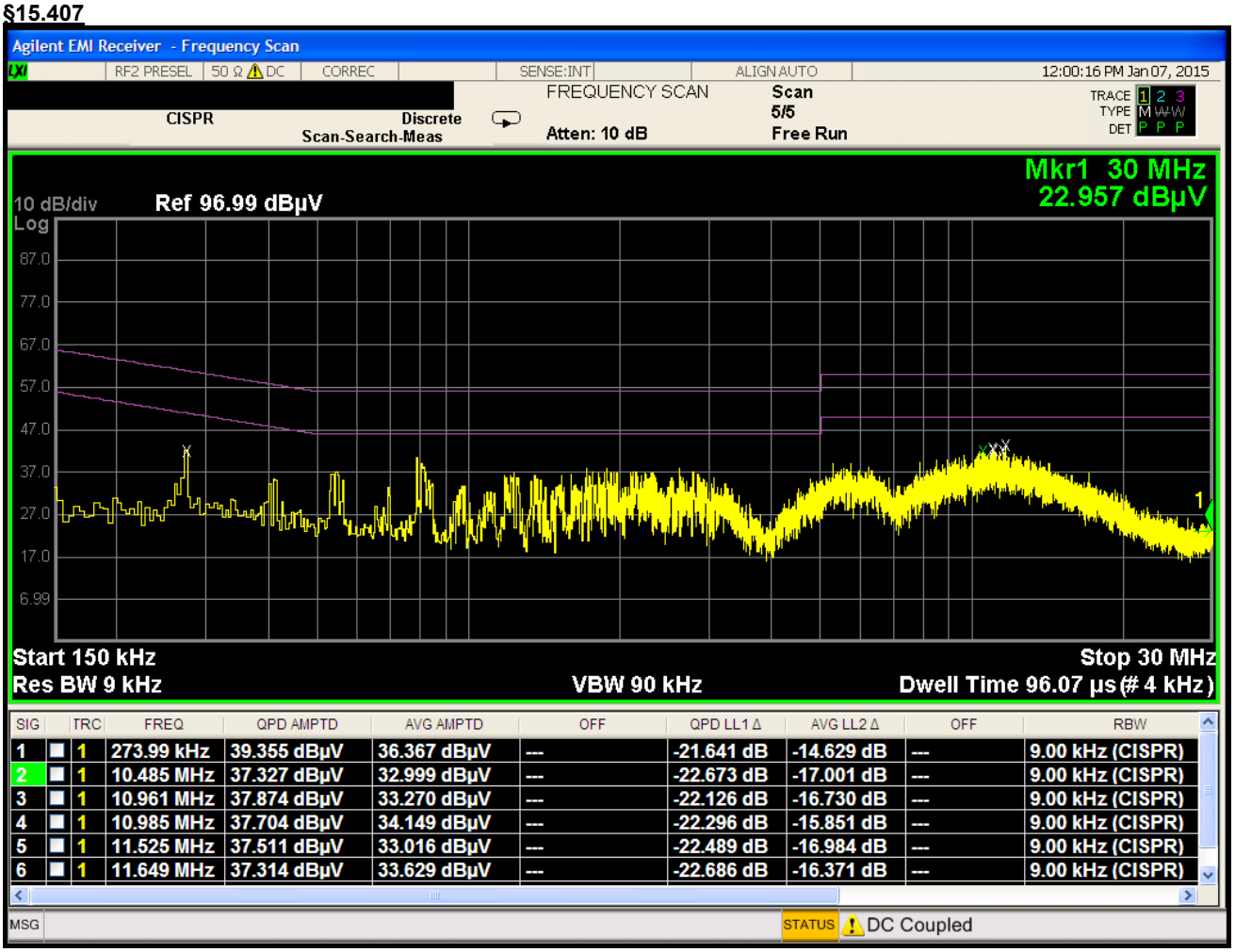
Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 100. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. L1 = Phase; N = Neutral
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Corr. (dB)
6. Margin (dB) = QP/AVLimit (dBµV) - QP/AV Level (dBµV)
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.

© 2015 PCTEST Engineering Laboratory, Inc.

Line-Conducted Test Data

§15.407



SIG	TRC	FREQ	QPD AMPTD	AVG AMPTD	OFF	QPD LL1 Δ	AVG LL2 Δ	OFF	RBW
1	1	273.99 kHz	39.355 dBµV	36.367 dBµV	---	-21.641 dB	-14.629 dB	---	9.00 kHz (CISPR)
2	1	10.485 MHz	37.327 dBµV	32.999 dBµV	---	-22.673 dB	-17.001 dB	---	9.00 kHz (CISPR)
3	1	10.961 MHz	37.874 dBµV	33.270 dBµV	---	-22.126 dB	-16.730 dB	---	9.00 kHz (CISPR)
4	1	10.985 MHz	37.704 dBµV	34.149 dBµV	---	-22.296 dB	-15.851 dB	---	9.00 kHz (CISPR)
5	1	11.525 MHz	37.511 dBµV	33.016 dBµV	---	-22.489 dB	-16.984 dB	---	9.00 kHz (CISPR)
6	1	11.649 MHz	37.314 dBµV	33.629 dBµV	---	-22.686 dB	-16.371 dB	---	9.00 kHz (CISPR)

Plot 6-245. Line Conducted Plot with 802.11a UNII Band 2C (N)

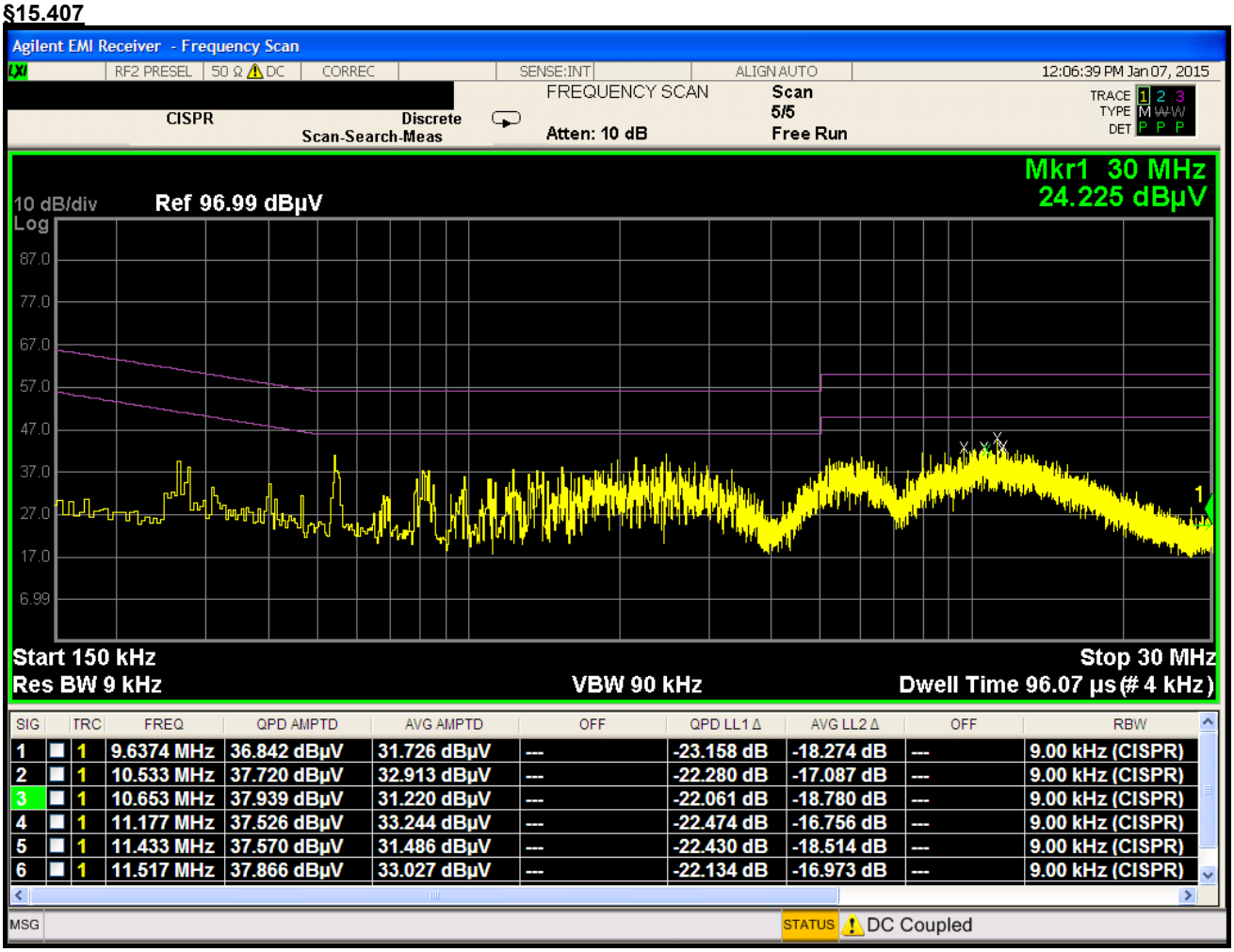
Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 100. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. L1 = Phase; N = Neutral
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Corr. (dB)
6. Margin (dB) = QP/AVLimit (dBµV) - QP/AV Level (dBµV)
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.

© 2015 PCTEST Engineering Laboratory, Inc.

Line-Conducted Test Data

§15.407



SIG	TRC	FREQ	QPD AMPTD	AVG AMPTD	OFF	QPD LL1 Δ	AVG LL2 Δ	OFF	RBW
1	1	9.6374 MHz	36.842 dBµV	31.726 dBµV	---	-23.158 dB	-18.274 dB	---	9.00 kHz (CISPR)
2	1	10.533 MHz	37.720 dBµV	32.913 dBµV	---	-22.280 dB	-17.087 dB	---	9.00 kHz (CISPR)
3	1	10.653 MHz	37.939 dBµV	31.220 dBµV	---	-22.061 dB	-18.780 dB	---	9.00 kHz (CISPR)
4	1	11.177 MHz	37.526 dBµV	33.244 dBµV	---	-22.474 dB	-16.756 dB	---	9.00 kHz (CISPR)
5	1	11.433 MHz	37.570 dBµV	31.486 dBµV	---	-22.430 dB	-18.514 dB	---	9.00 kHz (CISPR)
6	1	11.517 MHz	37.866 dBµV	33.027 dBµV	---	-22.134 dB	-16.973 dB	---	9.00 kHz (CISPR)

Plot 6-246. Line Conducted Plot with 802.11a UNII Band 3 (L1)

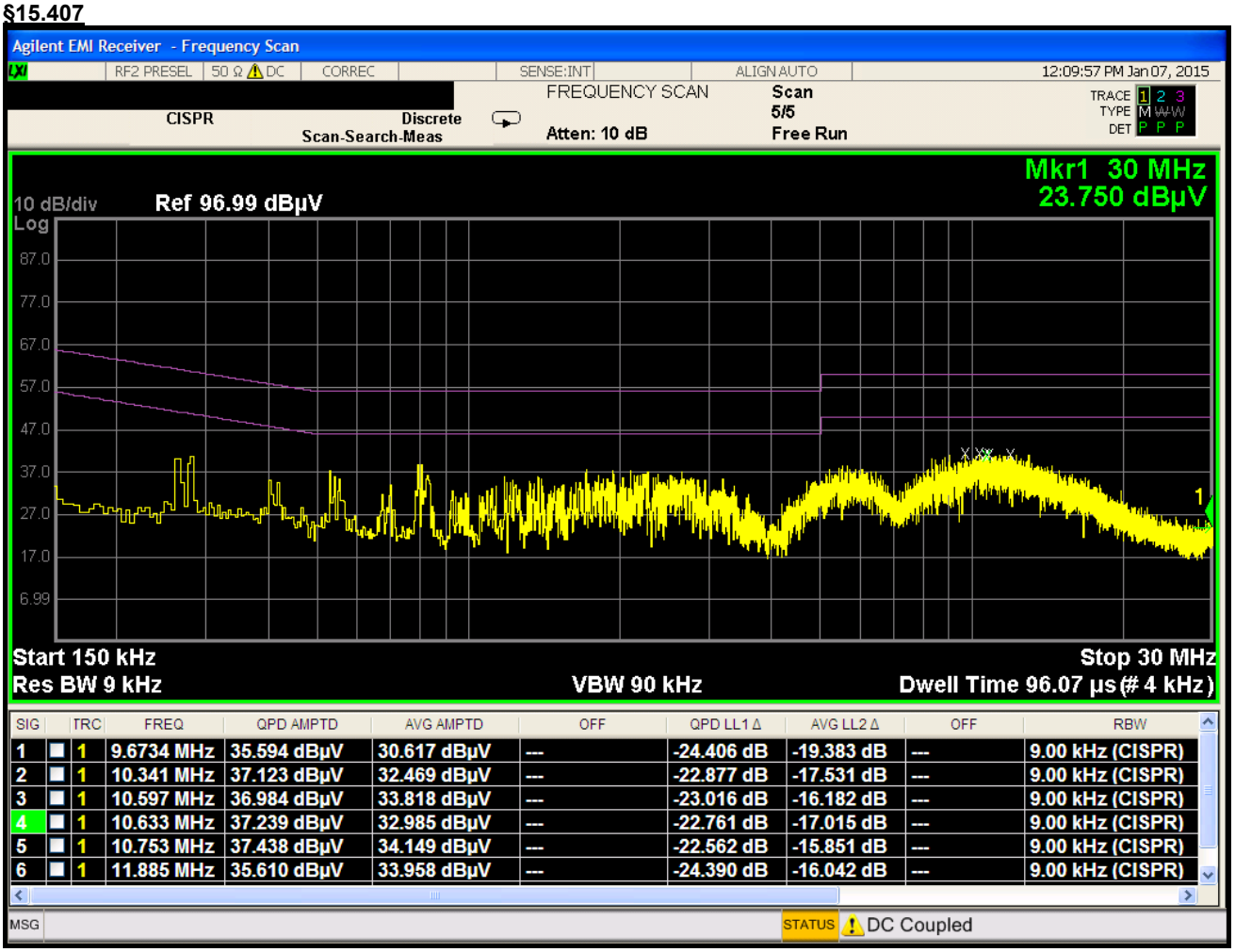
Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 100. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. L1 = Phase; N = Neutral
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Corr. (dB)
6. Margin (dB) = QP/AVLimit (dBµV) - QP/AV Level (dBµV)
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.

© 2015 PCTEST Engineering Laboratory, Inc.

Line-Conducted Test Data

§15.407



SIG	TRC	FREQ	QPD AMPTD	AVG AMPTD	OFF	QPD LL1 Δ	AVG LL2 Δ	OFF	RBW
1	1	9.6734 MHz	35.594 dBµV	30.617 dBµV	---	-24.406 dB	-19.383 dB	---	9.00 kHz (CISPR)
2	1	10.341 MHz	37.123 dBµV	32.469 dBµV	---	-22.877 dB	-17.531 dB	---	9.00 kHz (CISPR)
3	1	10.597 MHz	36.984 dBµV	33.818 dBµV	---	-23.016 dB	-16.182 dB	---	9.00 kHz (CISPR)
4	1	10.633 MHz	37.239 dBµV	32.985 dBµV	---	-22.761 dB	-17.015 dB	---	9.00 kHz (CISPR)
5	1	10.753 MHz	37.438 dBµV	34.149 dBµV	---	-22.562 dB	-15.851 dB	---	9.00 kHz (CISPR)
6	1	11.885 MHz	35.610 dBµV	33.958 dBµV	---	-24.390 dB	-16.042 dB	---	9.00 kHz (CISPR)

Plot 6-247. Line Conducted Plot with 802.11a UNII Band 3 (N)

Notes:

1. All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 100. The emissions found were not affected by the choice of channel used during testing.
2. The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
3. L1 = Phase; N = Neutral
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBµV) = QP/AV Analyzer/Receiver Level (dBµV) + Corr. (dB)
6. Margin (dB) = QP/AVLimit (dBµV) - QP/AV Level (dBµV)
7. Traces shown in plot are made using a peak detector.
8. Deviations to the Specifications: None.

© 2015 PCTEST Engineering Laboratory, Inc.

7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG925X** is in compliance with Part 15E of the FCC Rules.

© 2015 PCTEST Engineering Laboratory, Inc.