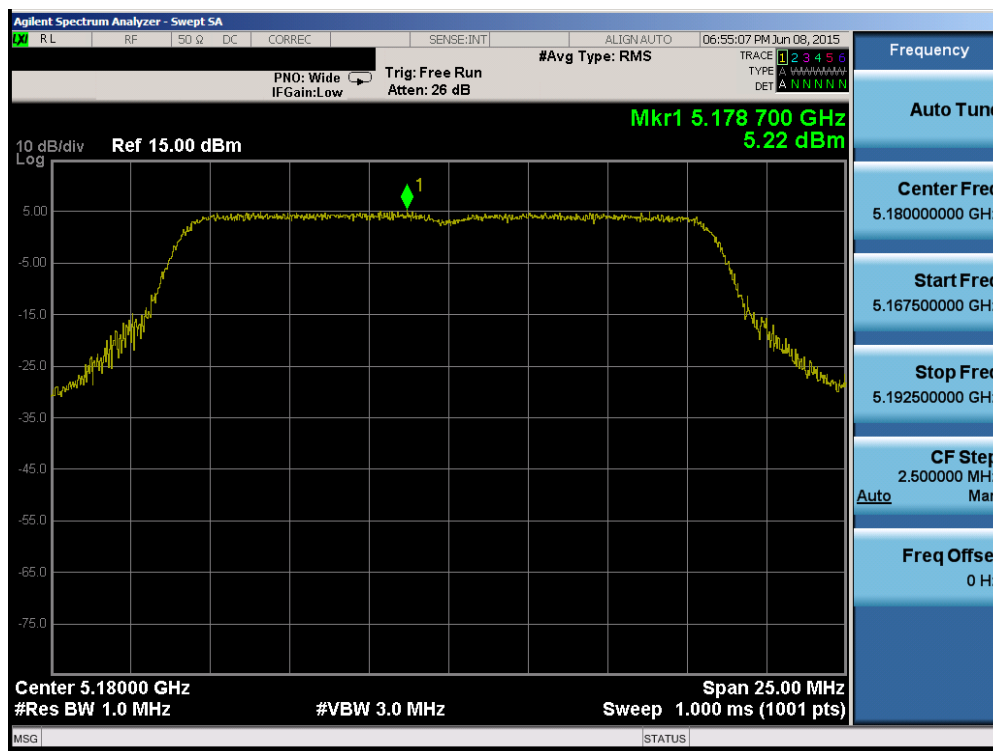


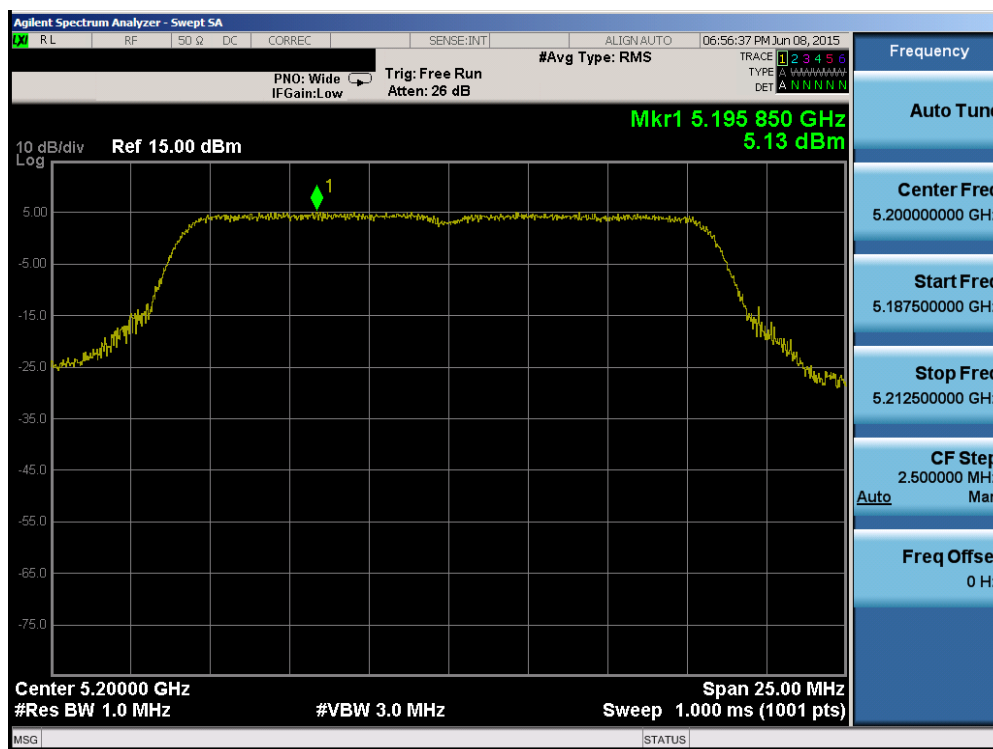
Antenna-2 Power Spectral Density Measurements

	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	5.22	11.0	-5.78	Pass
	5200	40	a	6	5.13	11.0	-5.87	Pass
	5240	48	a	6	5.01	11.0	-5.99	Pass
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	3.10	11.0	-7.90	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	3.06	11.0	-7.94	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	2.72	11.0	-8.28	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	-0.34	11.0	-11.34	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	-0.73	11.0	-11.73	Pass
Band 2A	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-5.00	11.0	-16.00	Pass
	5260	52	a	6	4.74	11.0	-6.27	Pass
	5280	56	a	6	4.96	11.0	-6.04	Pass
	5320	64	a	6	4.58	11.0	-6.42	Pass
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	2.44	11.0	-8.56	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	2.81	11.0	-8.19	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	2.46	11.0	-8.54	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	-0.46	11.0	-11.46	Pass
Band 2C	5310	62	n (40MHz)	13.5/15 (MCS0)	-1.17	11.0	-12.17	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-4.90	11.0	-15.90	Pass
	5500	100	a	6	5.20	11.0	-5.80	Pass
	5580	116	a	6	4.46	11.0	-6.54	Pass
	5720	144	a	6	4.25	11.0	-6.76	Pass
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	2.61	11.0	-8.39	Pass
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	2.57	11.0	-8.43	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	2.78	11.0	-8.22	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	-0.60	11.0	-11.60	Pass
	5550	110	n (40MHz)	13.5/15 (MCS0)	-1.78	11.0	-12.78	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	-1.39	11.0	-12.39	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-5.04	11.0	-16.04	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-5.55	11.0	-16.55	Pass

Table 6-19. Conducted Power Spectral Density Measurements

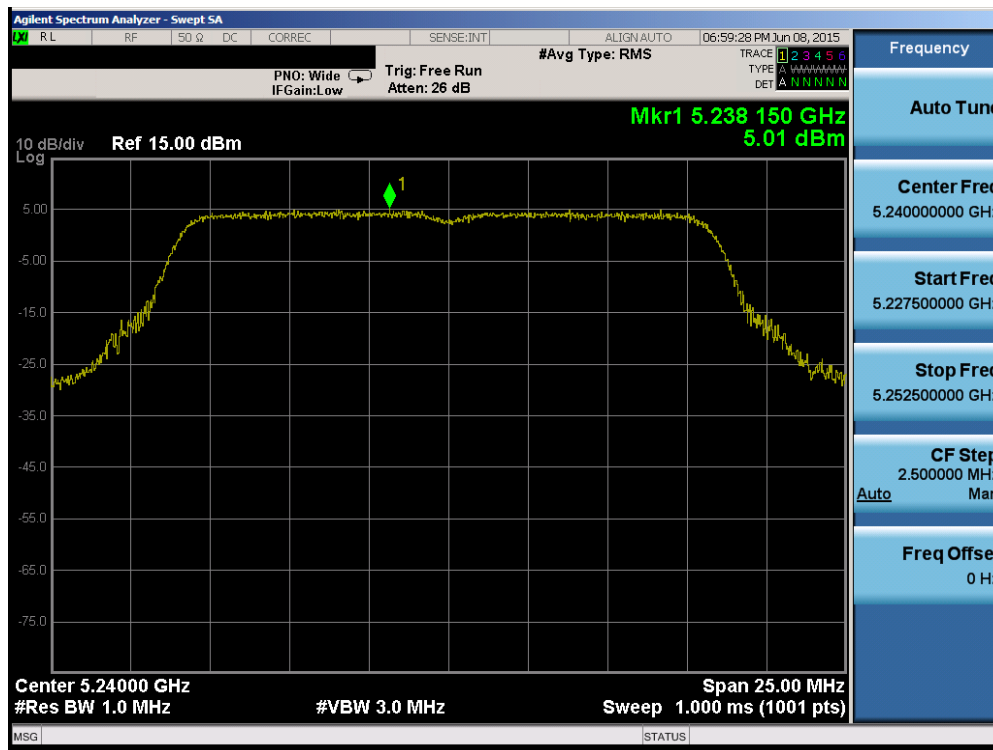


Plot 6-115. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

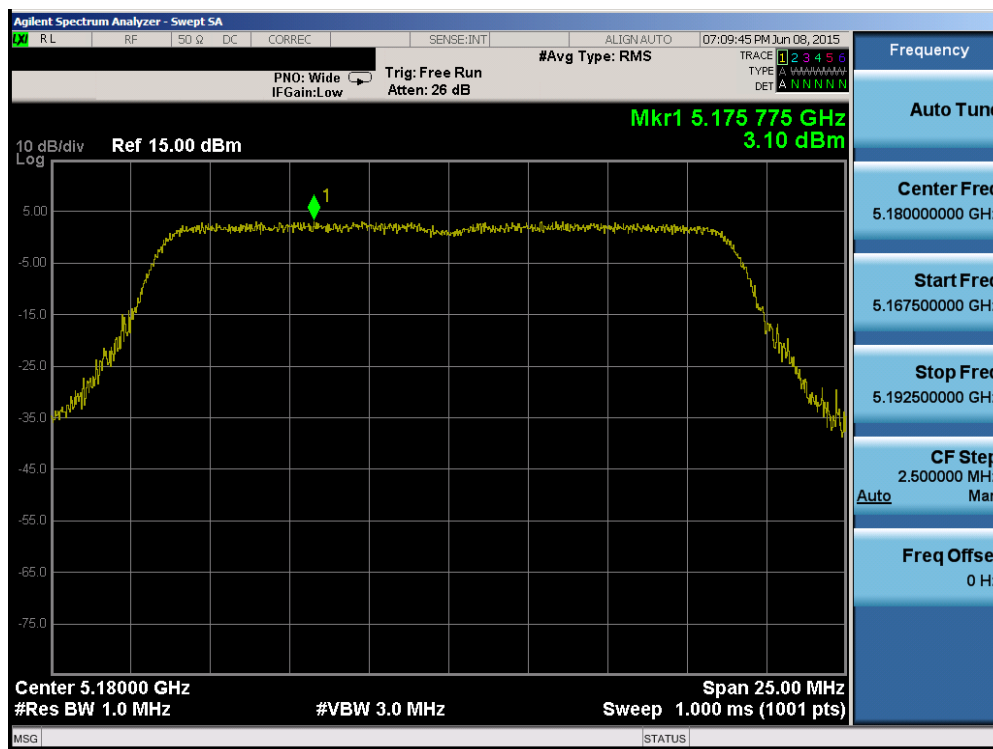


Plot 6-116. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 85 of 194

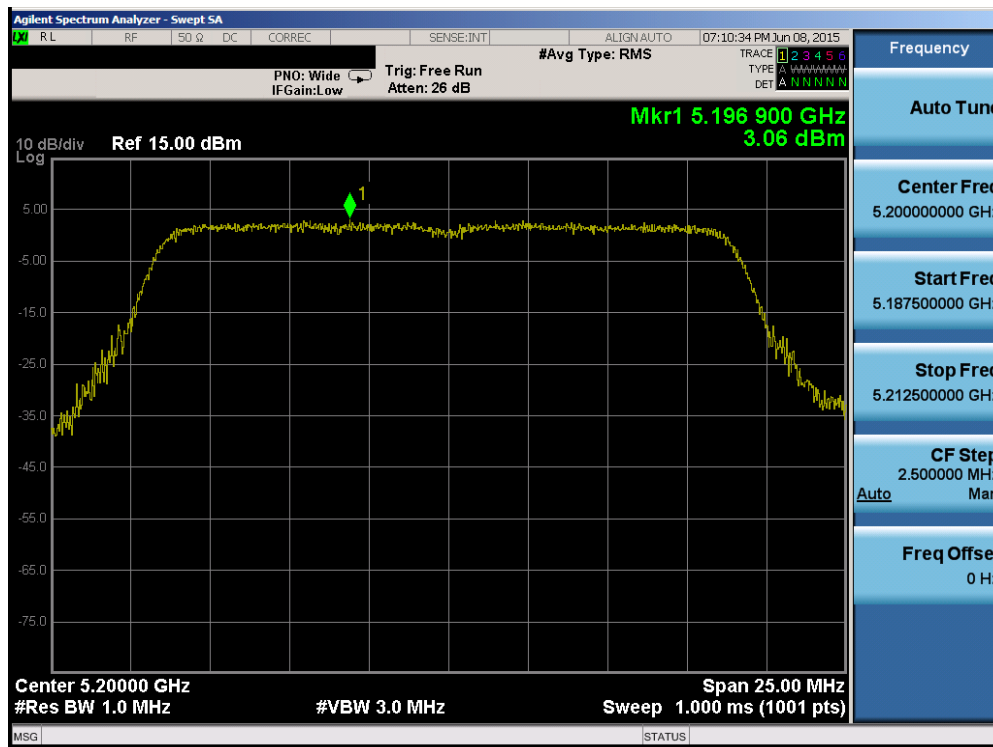


Plot 6-117. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

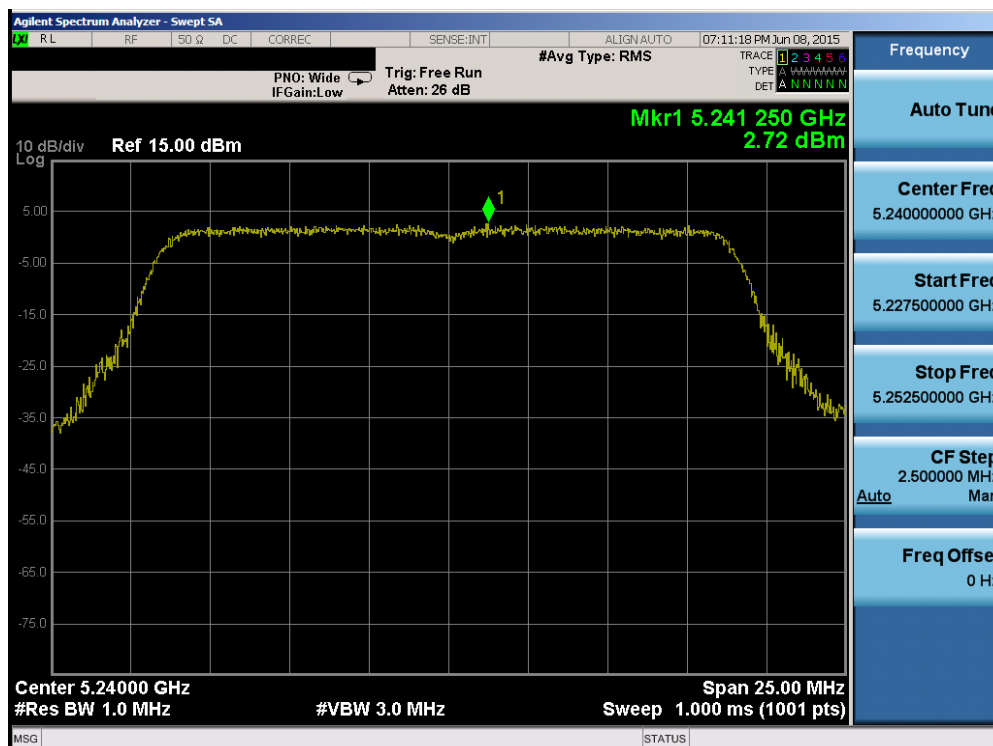


Plot 6-118. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 86 of 194

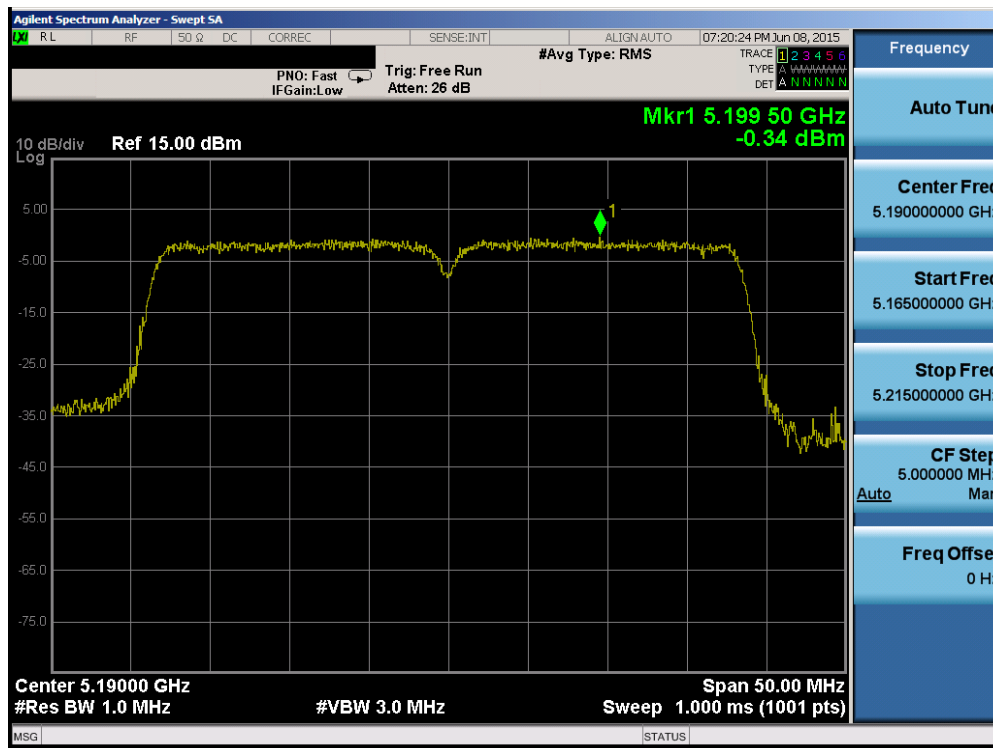


Plot 6-119. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

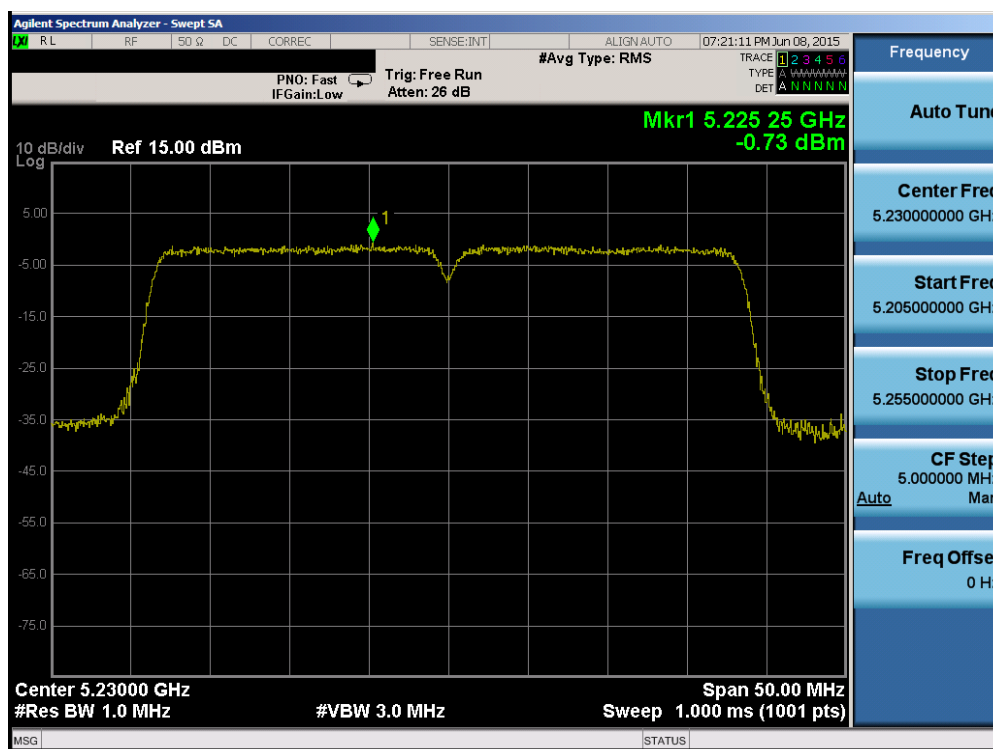


Plot 6-120. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 87 of 194

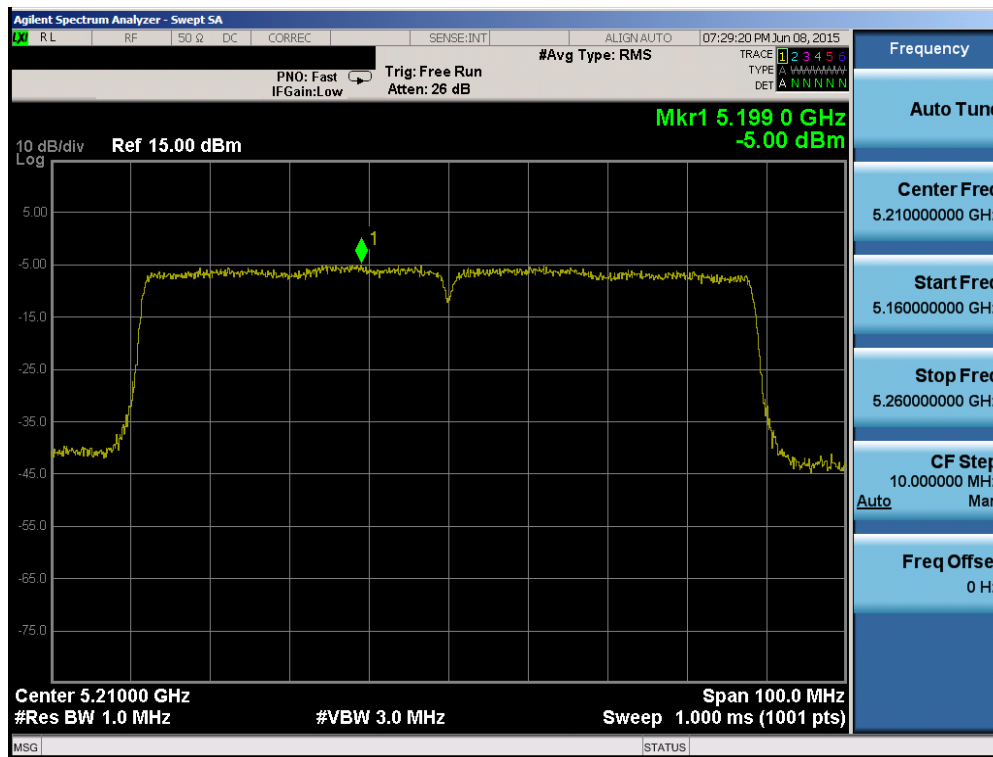


Plot 6-121. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

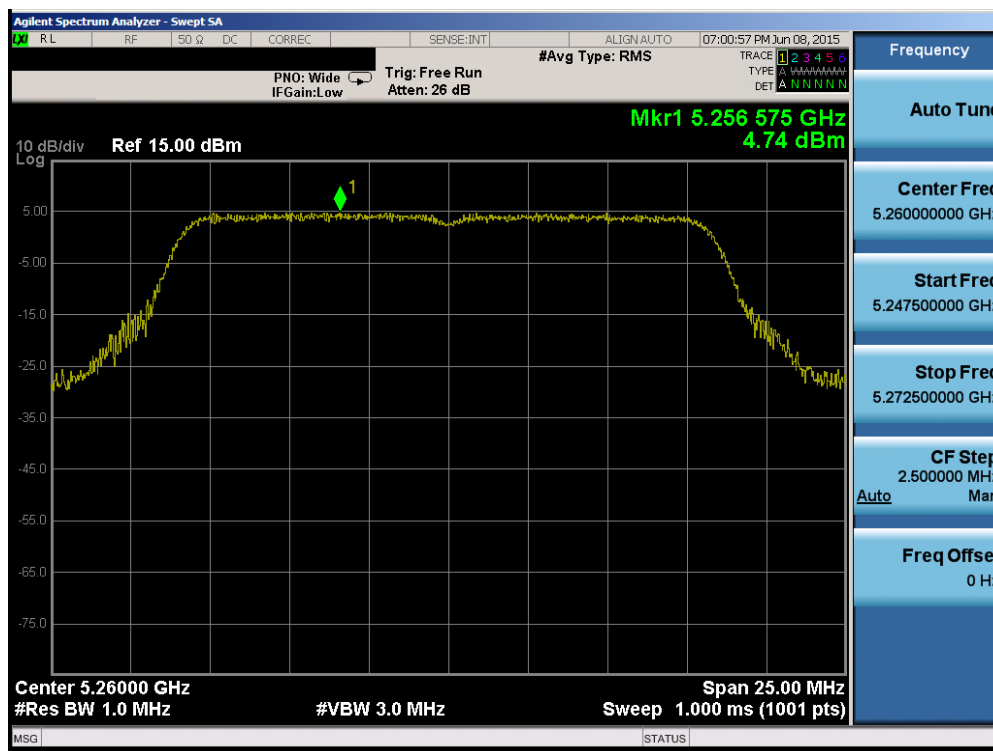


Plot 6-122. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 88 of 194

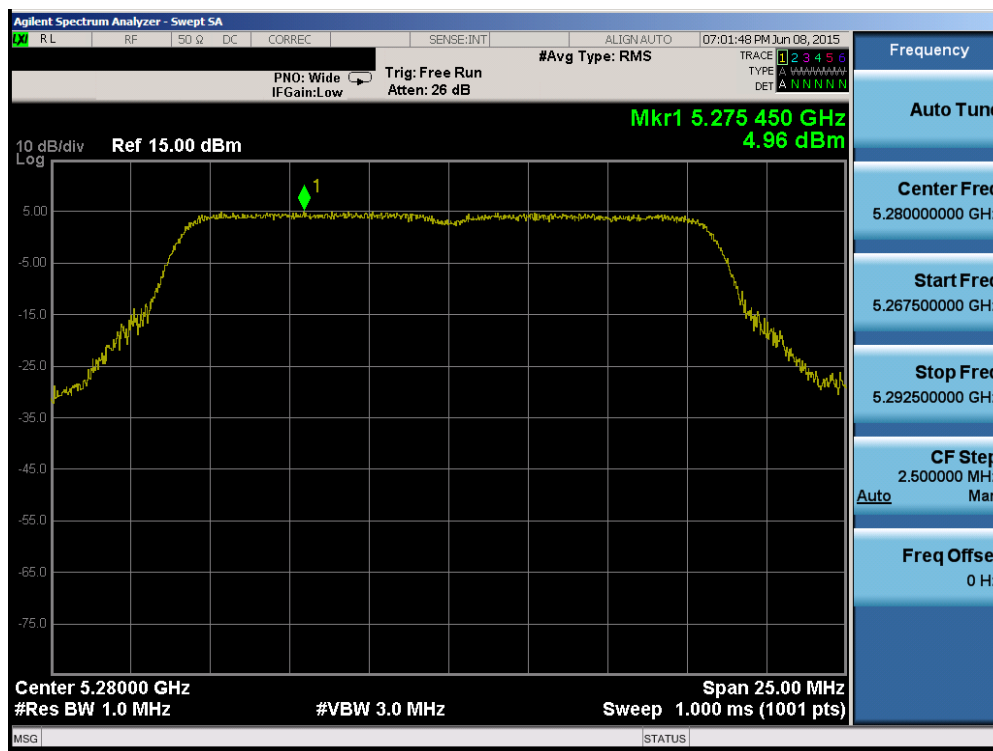


Plot 6-123. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

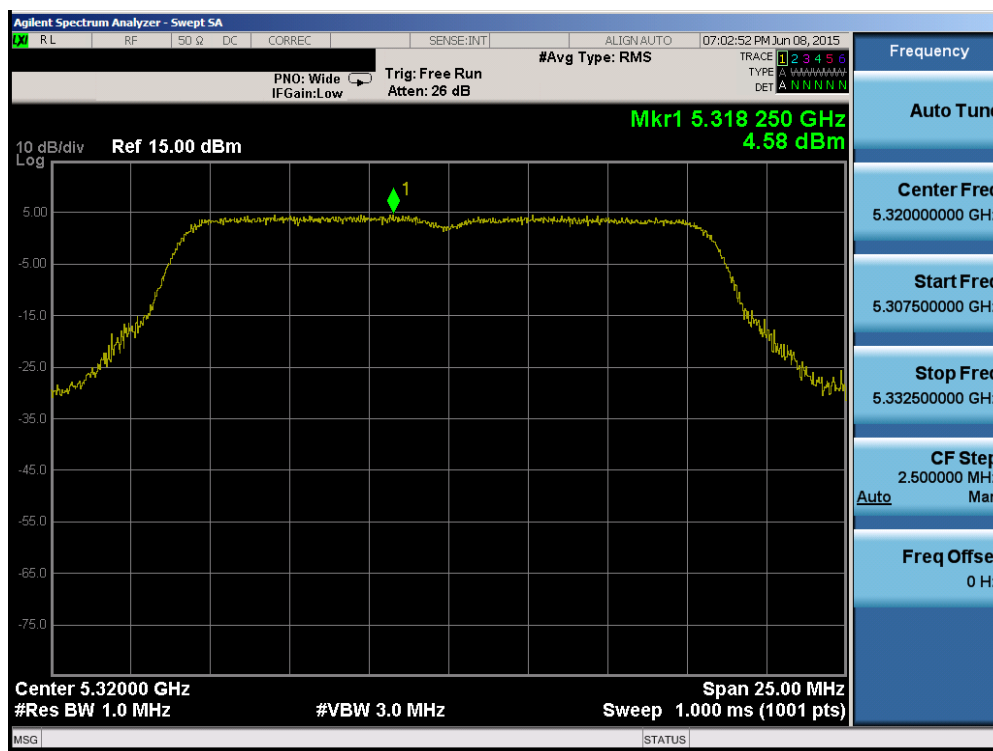


Plot 6-124. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 89 of 194

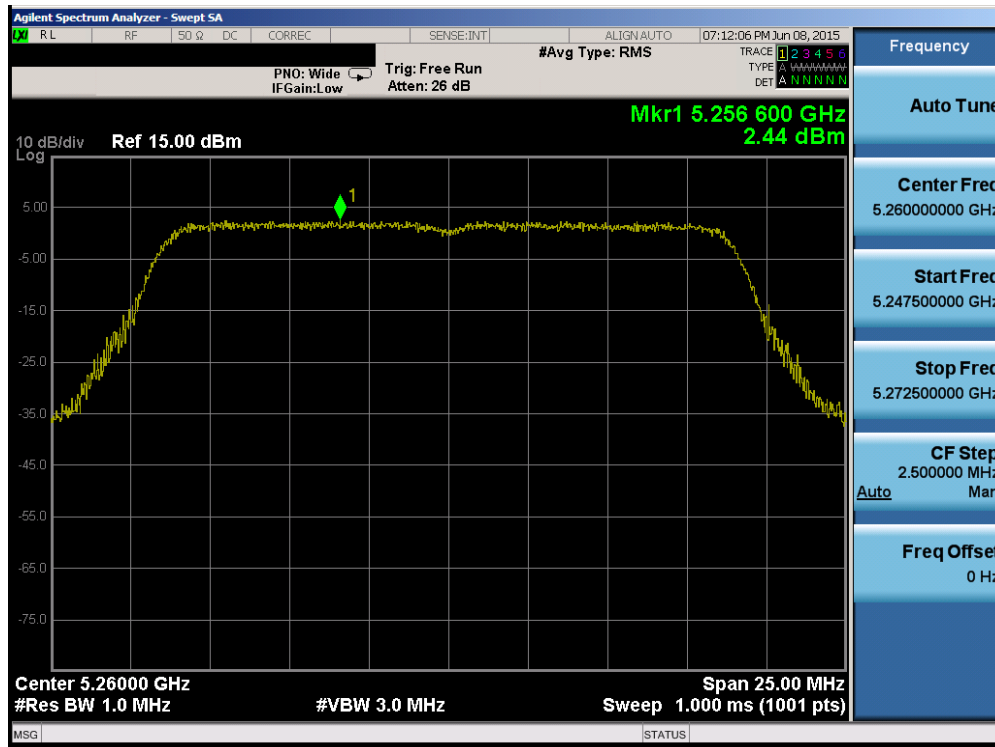


Plot 6-125. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

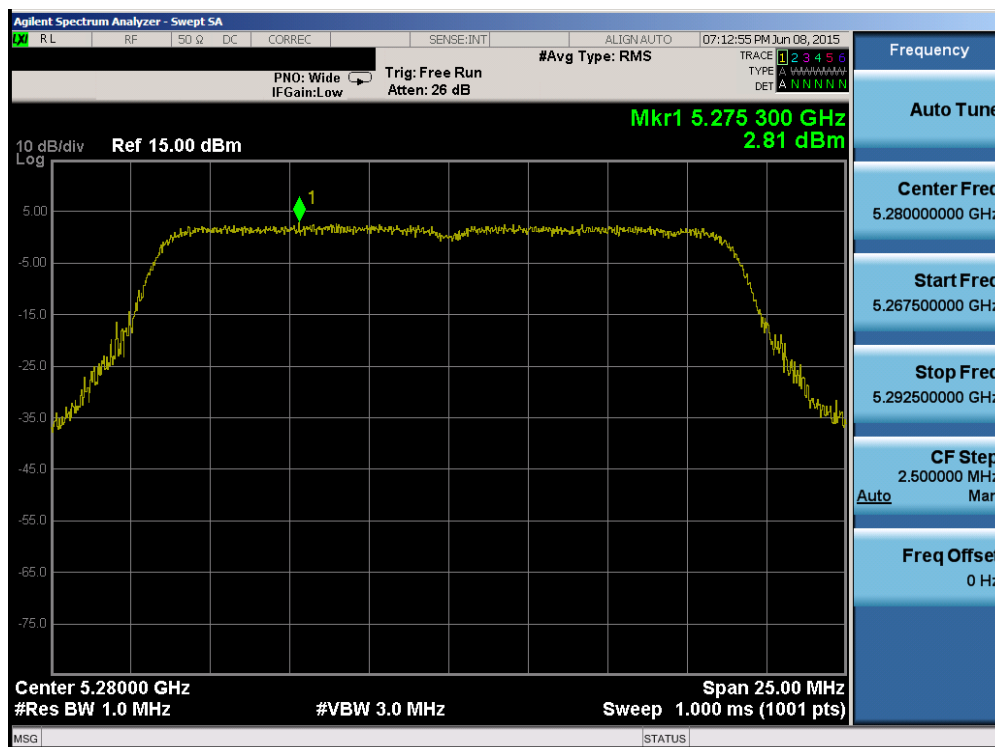


Plot 6-126. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 90 of 194

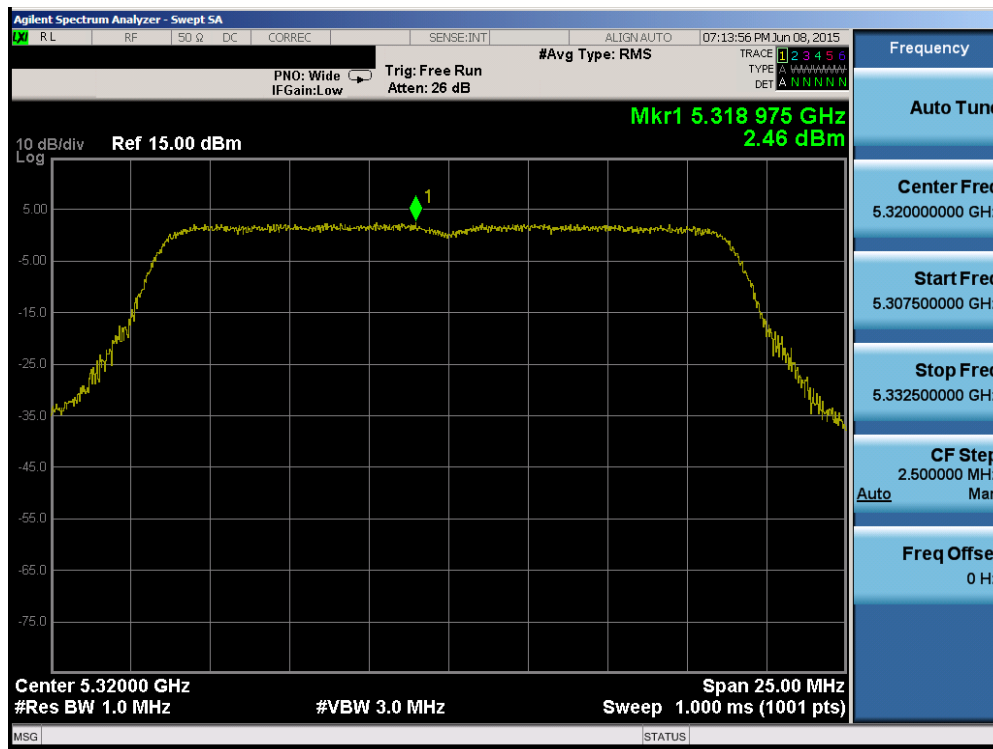


Plot 6-127. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

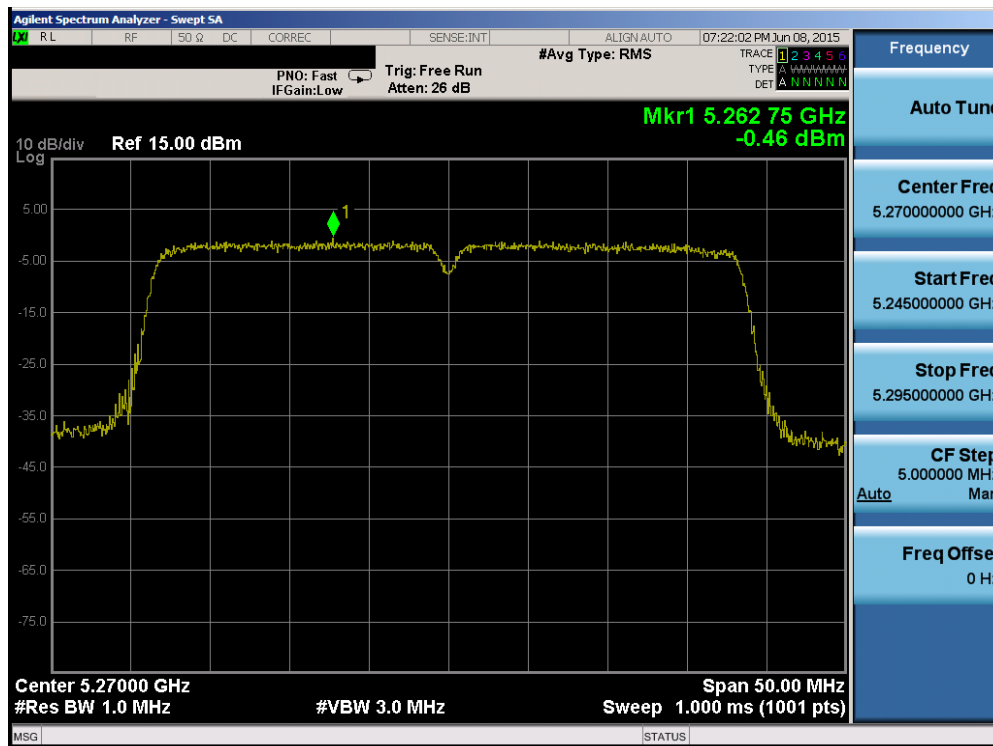


Plot 6-128. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 91 of 194

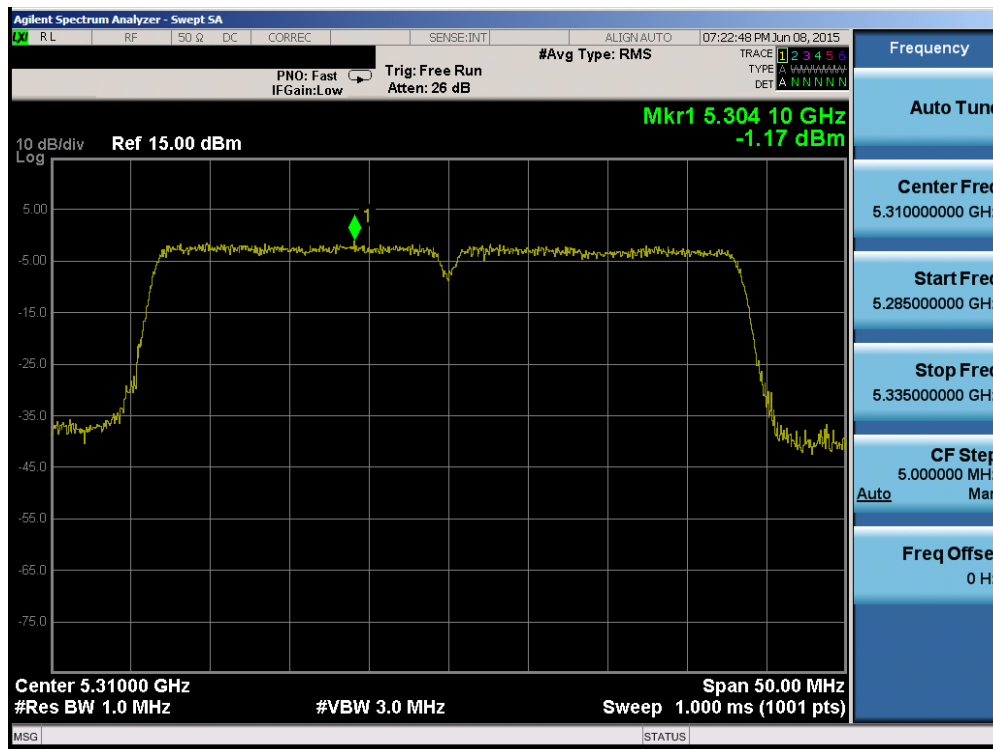


Plot 6-129. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

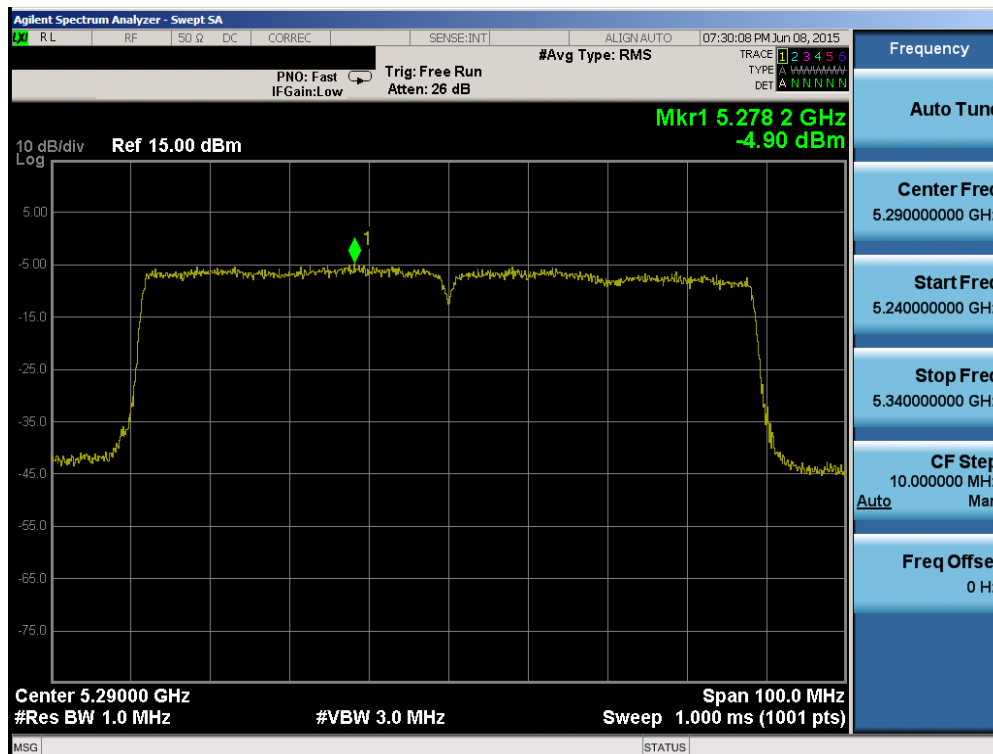


Plot 6-130. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 92 of 194

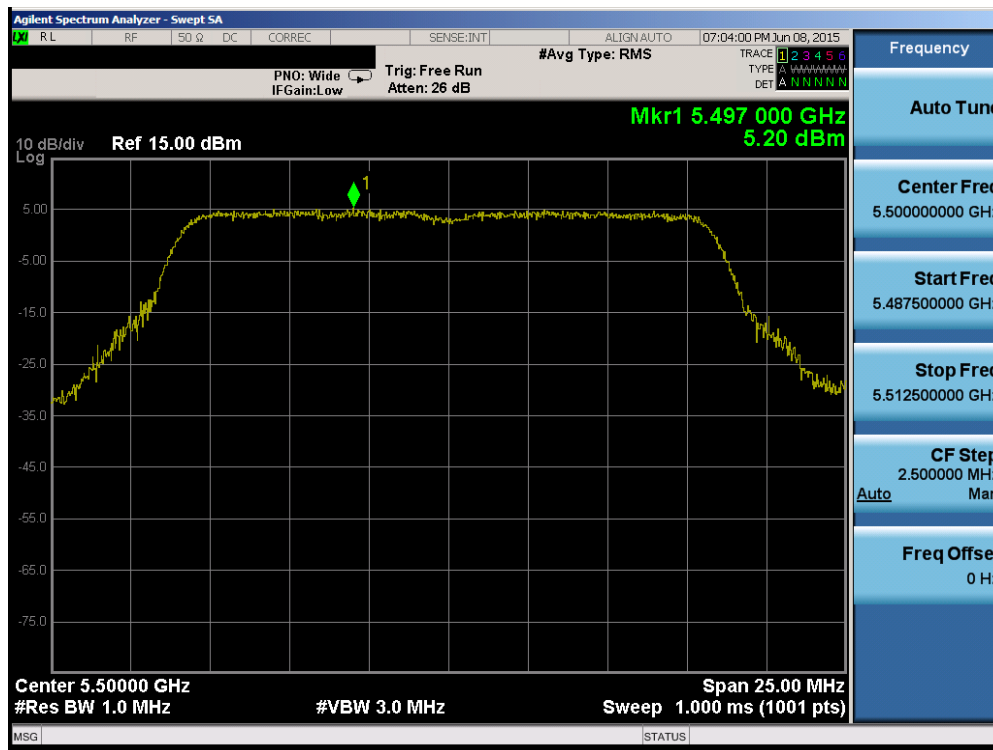


Plot 6-131. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

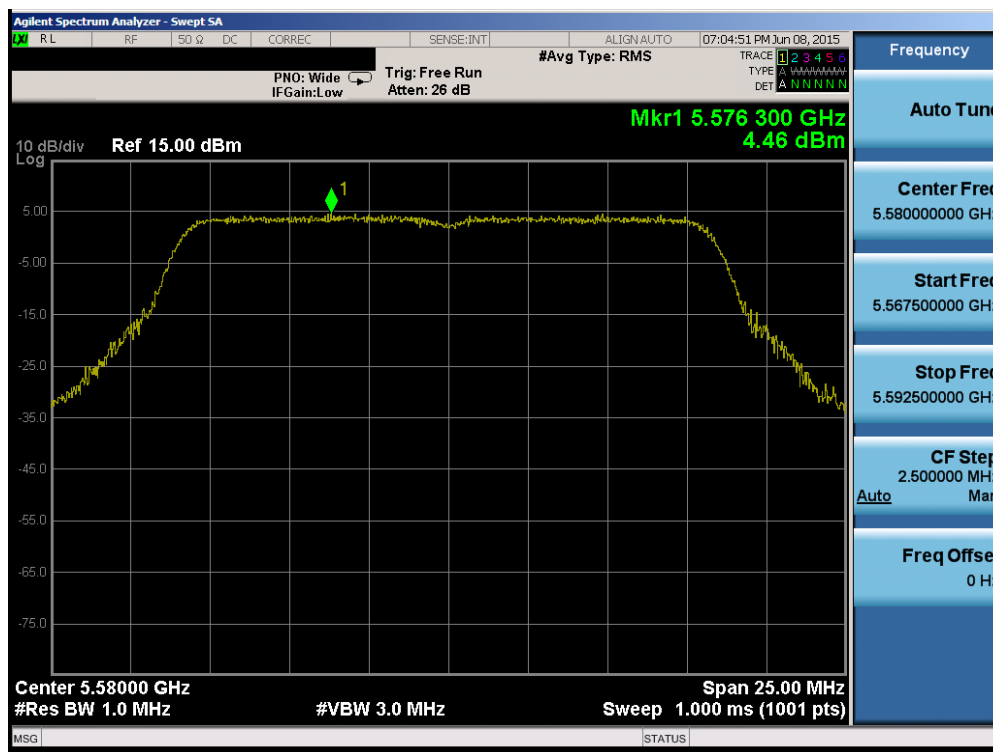


Plot 6-132. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 93 of 194

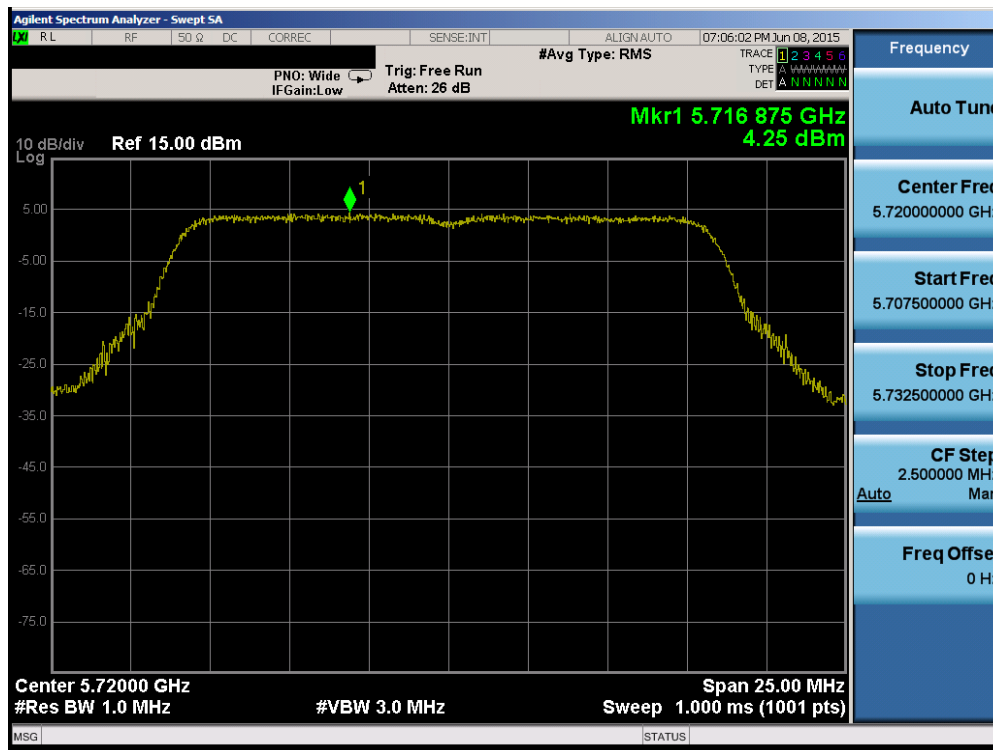


Plot 6-133. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

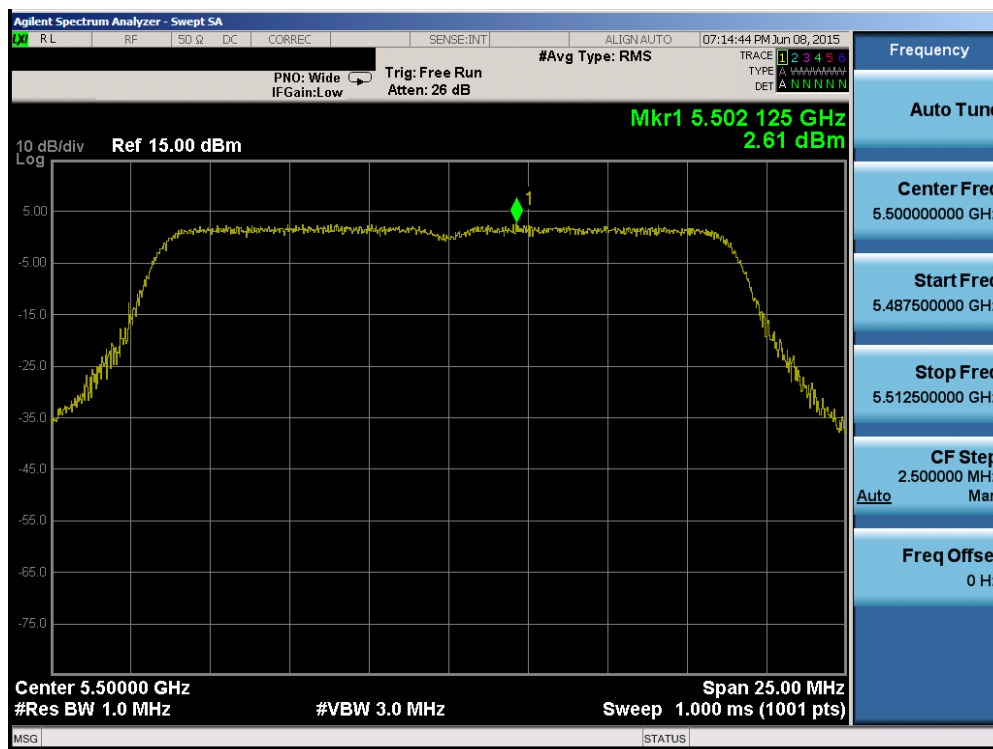


Plot 6-134. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 116)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 94 of 194



Plot 6-135. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

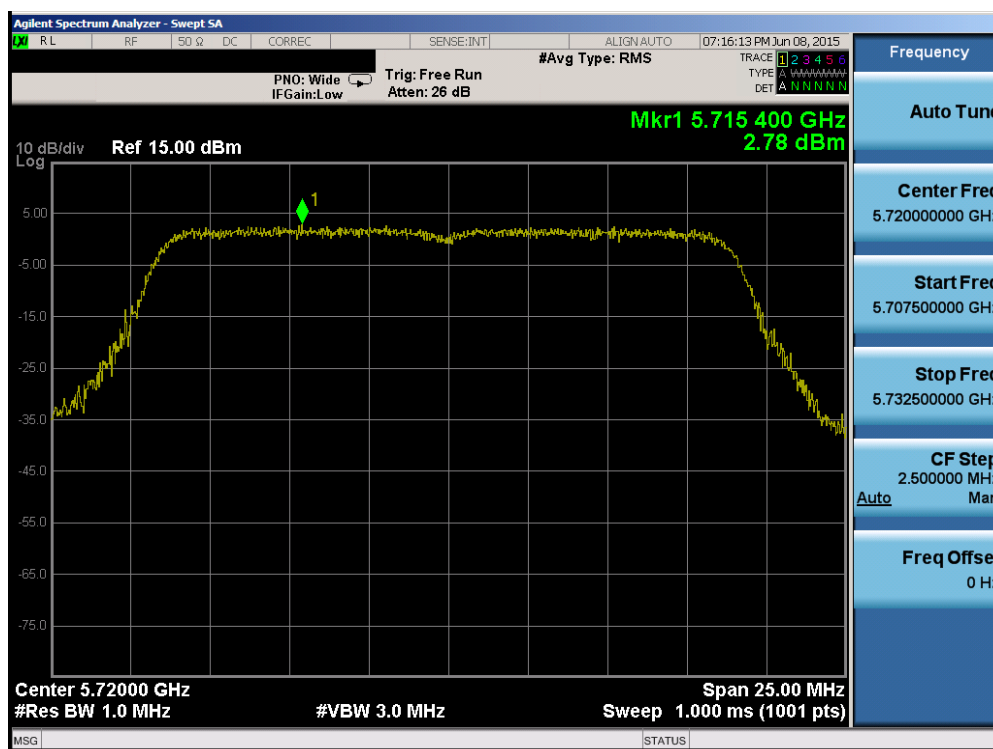


Plot 6-136. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 95 of 194

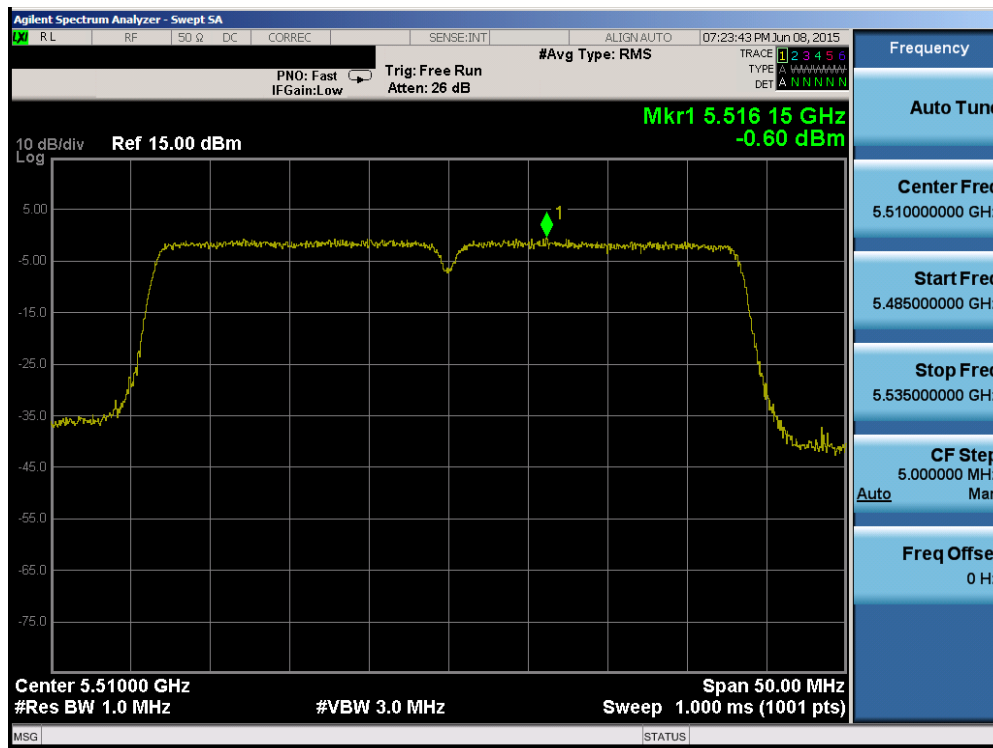


Plot 6-137. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 116)

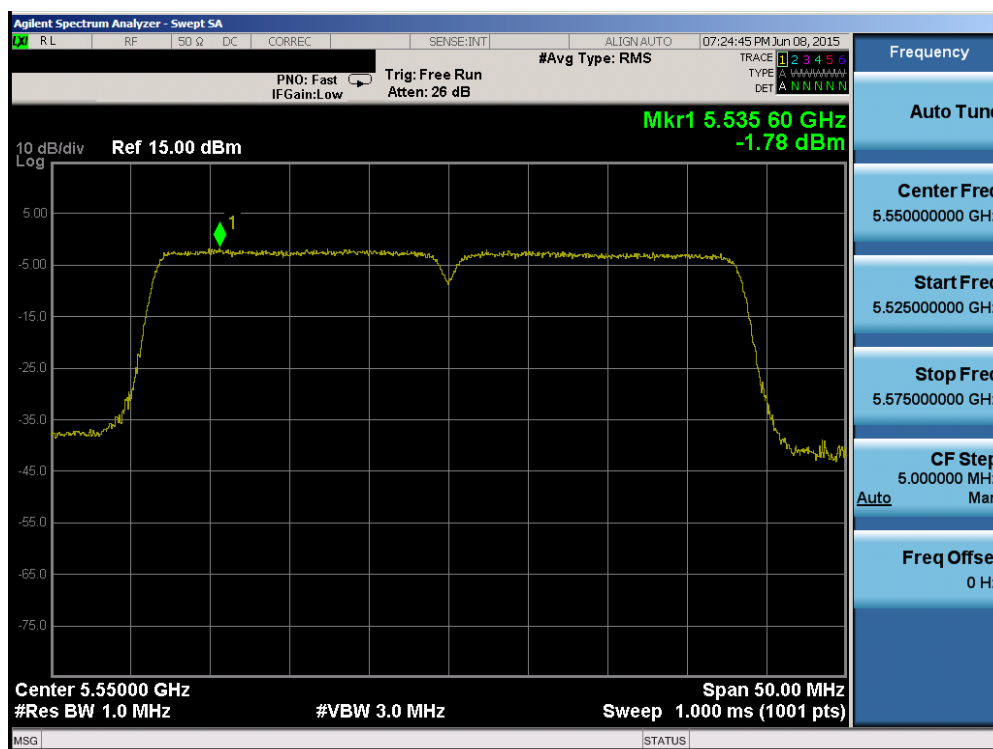


Plot 6-138. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 96 of 194

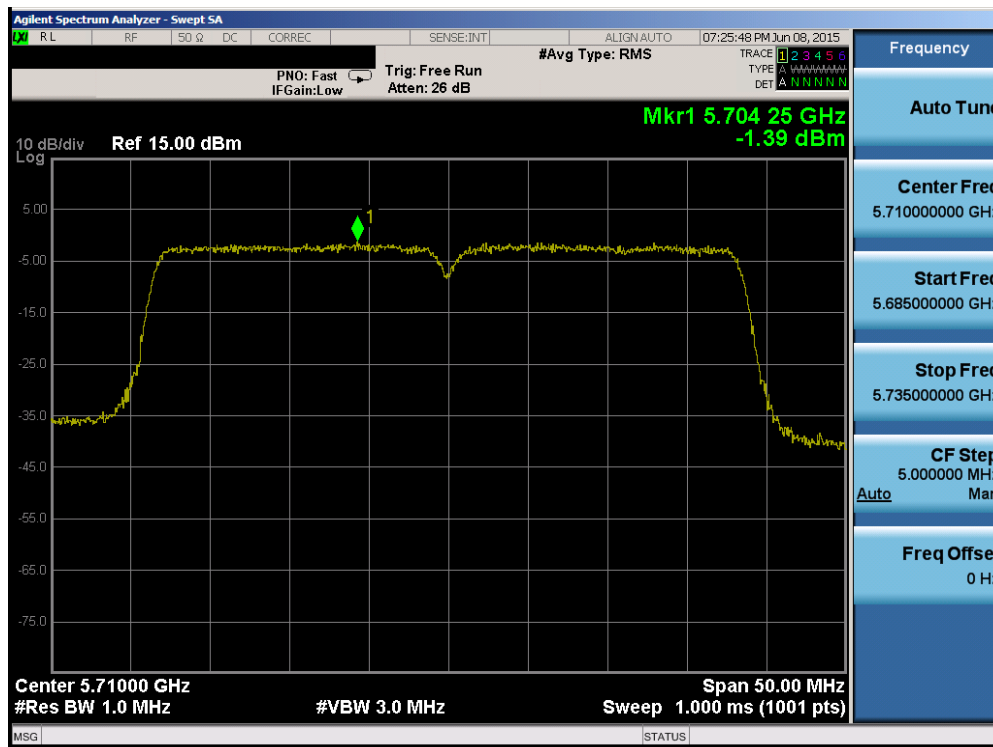


Plot 6-139. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

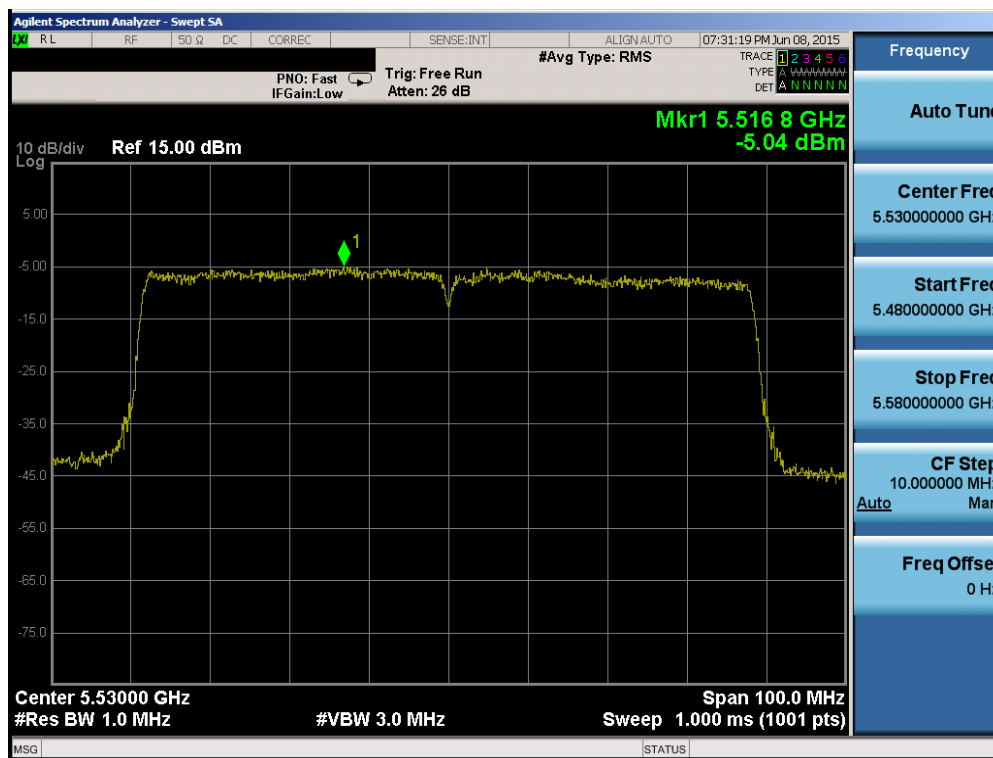


Plot 6-140. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 97 of 194

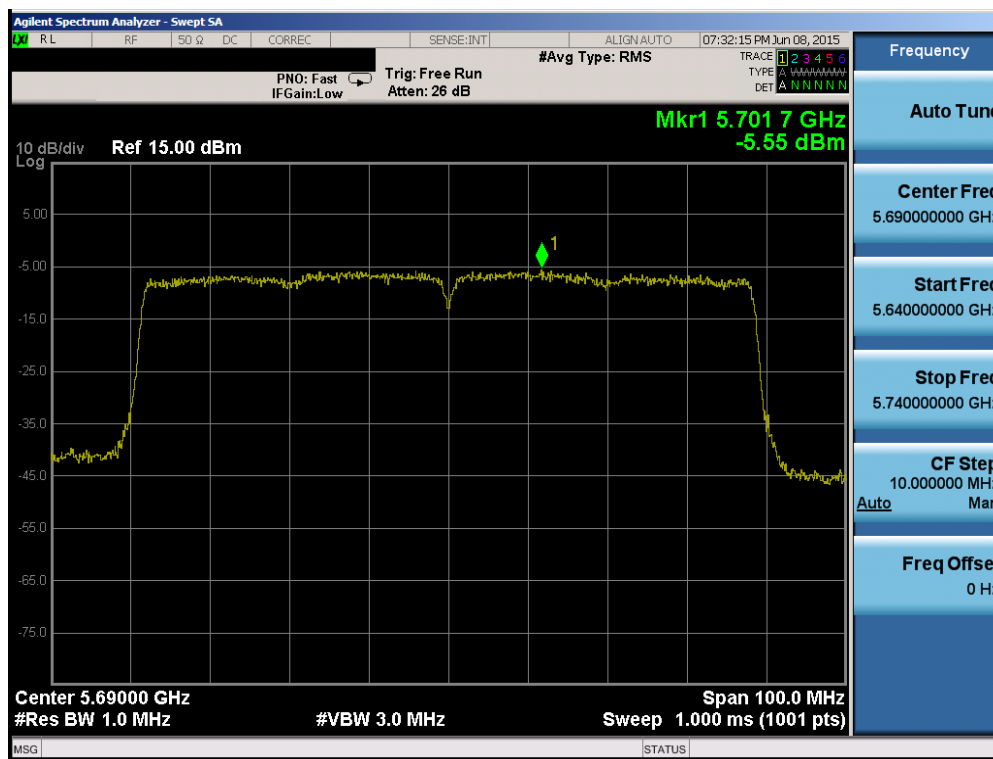


Plot 6-141. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)



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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 98 of 194

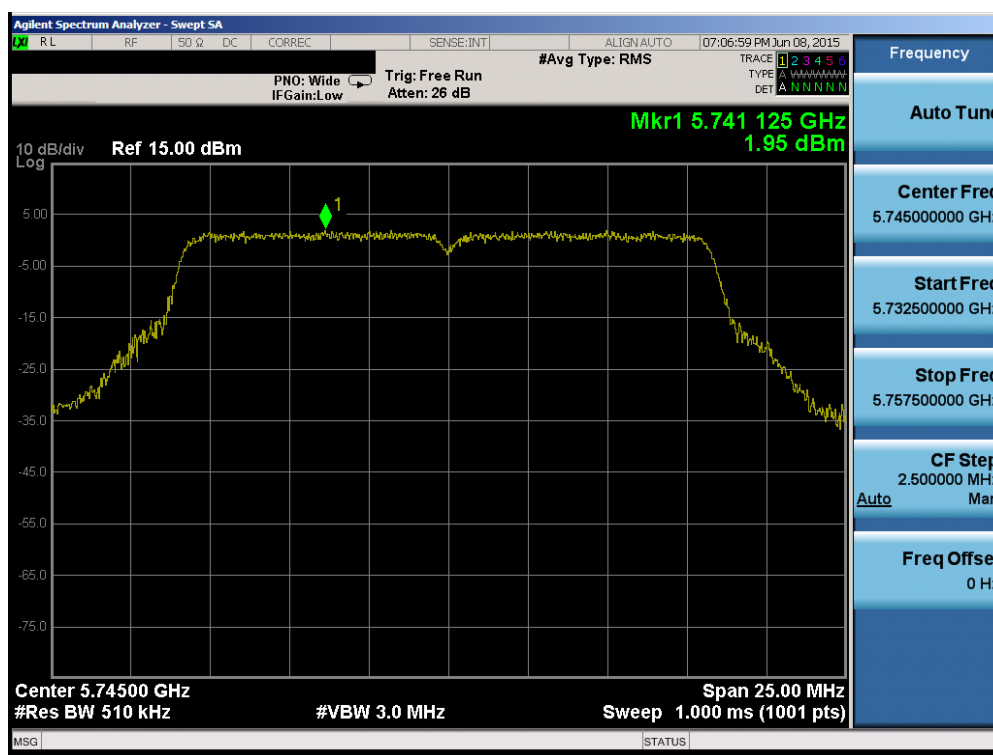


Plot 6-143. Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 99 of 194

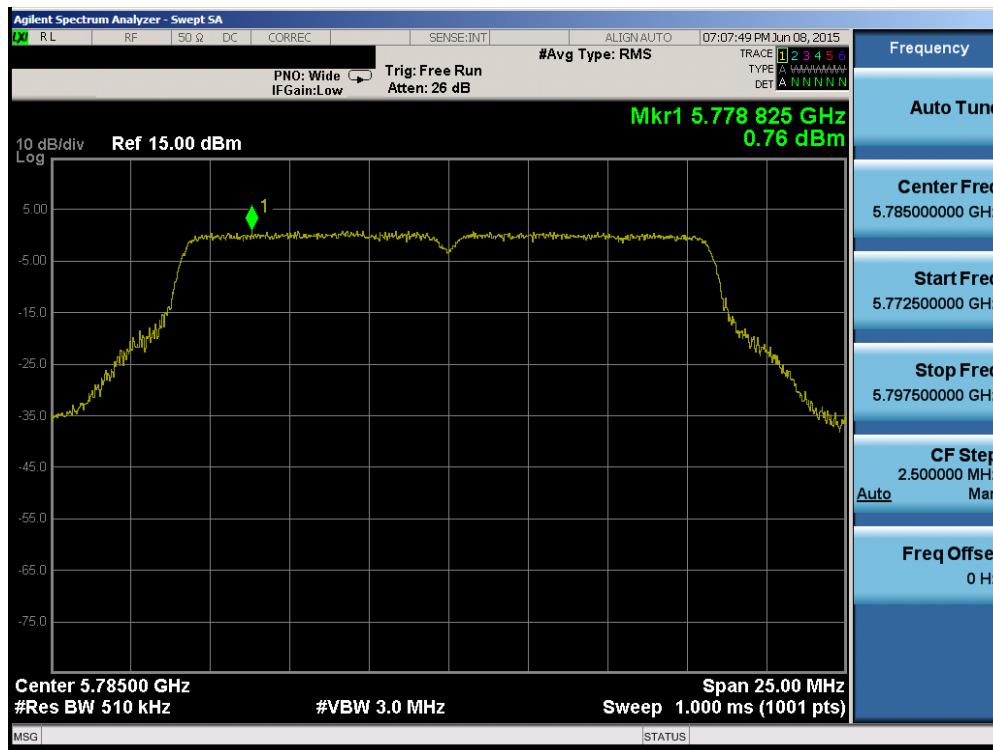
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Pass / Fail
Band 3	5745	149	a	6	1.95	30.0	-28.05	Pass
	5785	157	a	6	0.76	30.0	-29.24	Pass
	5825	165	a	6	1.66	30.0	-28.34	Pass
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	-0.88	30.0	-30.88	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	-0.49	30.0	-30.49	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	-1.24	30.0	-31.24	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	-4.67	30.0	-34.67	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	-4.41	30.0	-34.41	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-8.36	30.0	-38.36	Pass

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

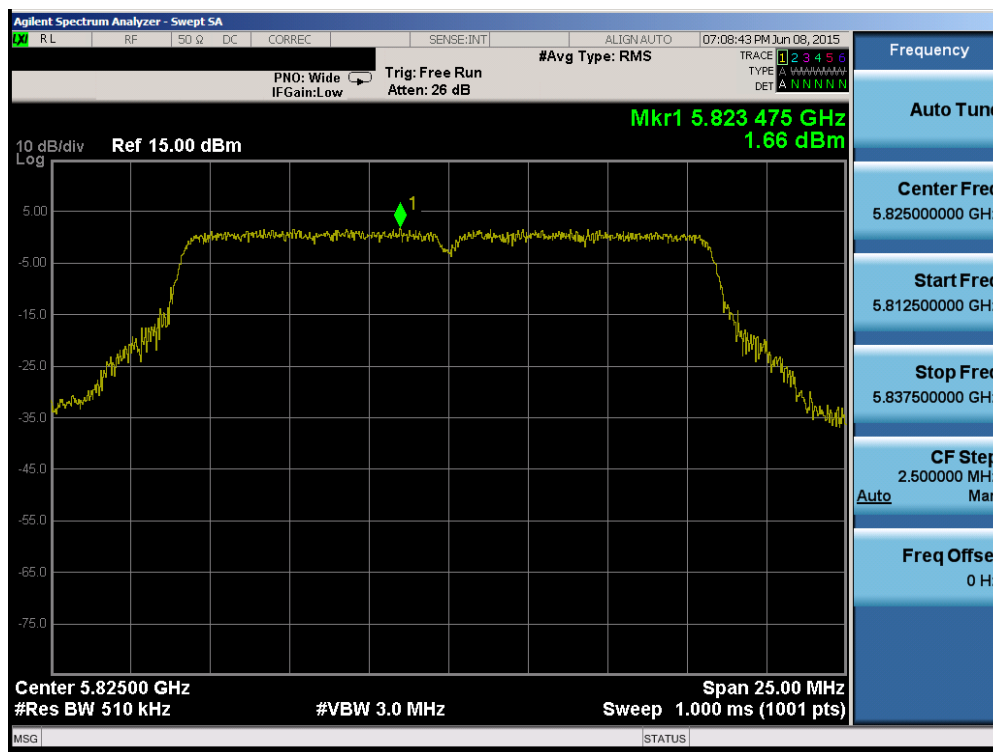


Plot 6-144. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 149)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 100 of 194

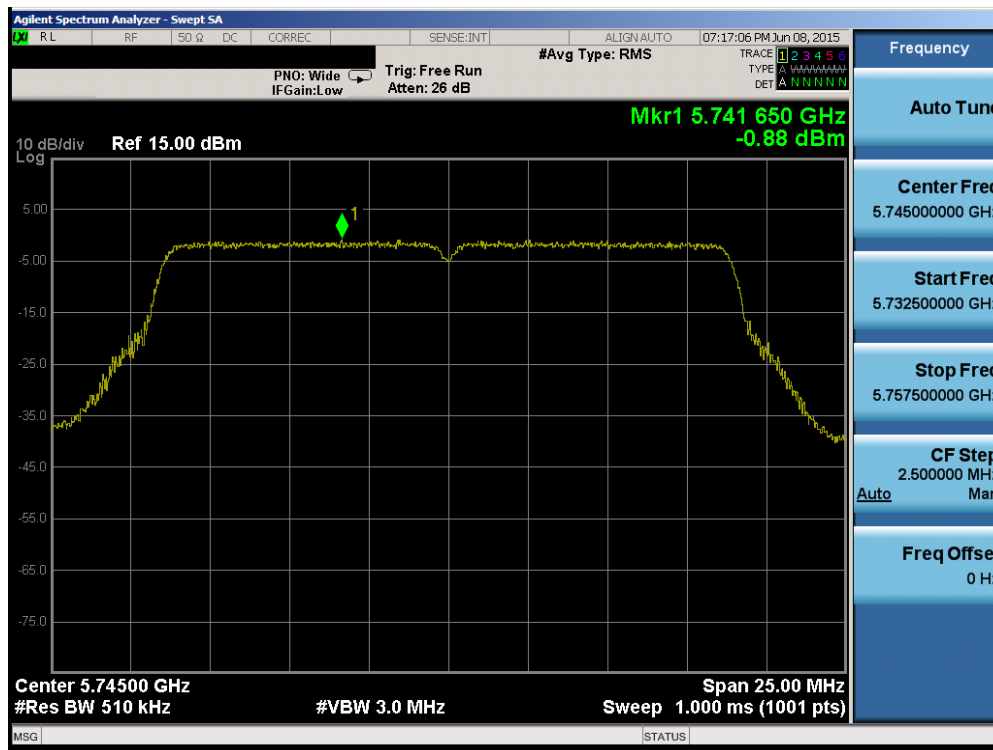


Plot 6-145. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)

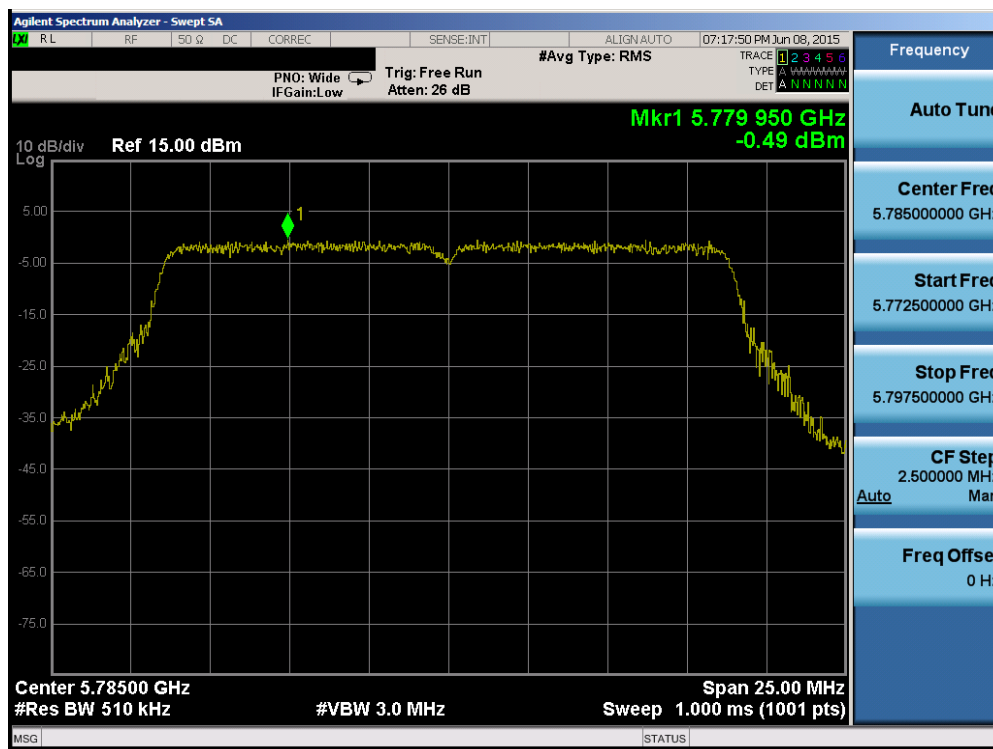


Plot 6-146. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 101 of 194

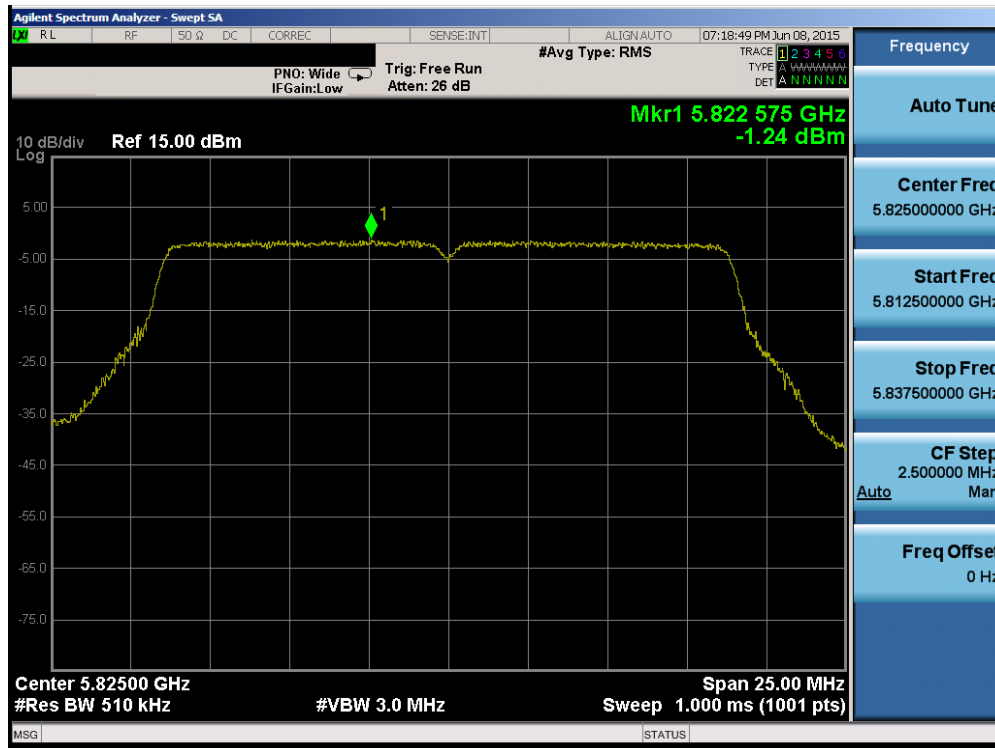


Plot 6-147. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

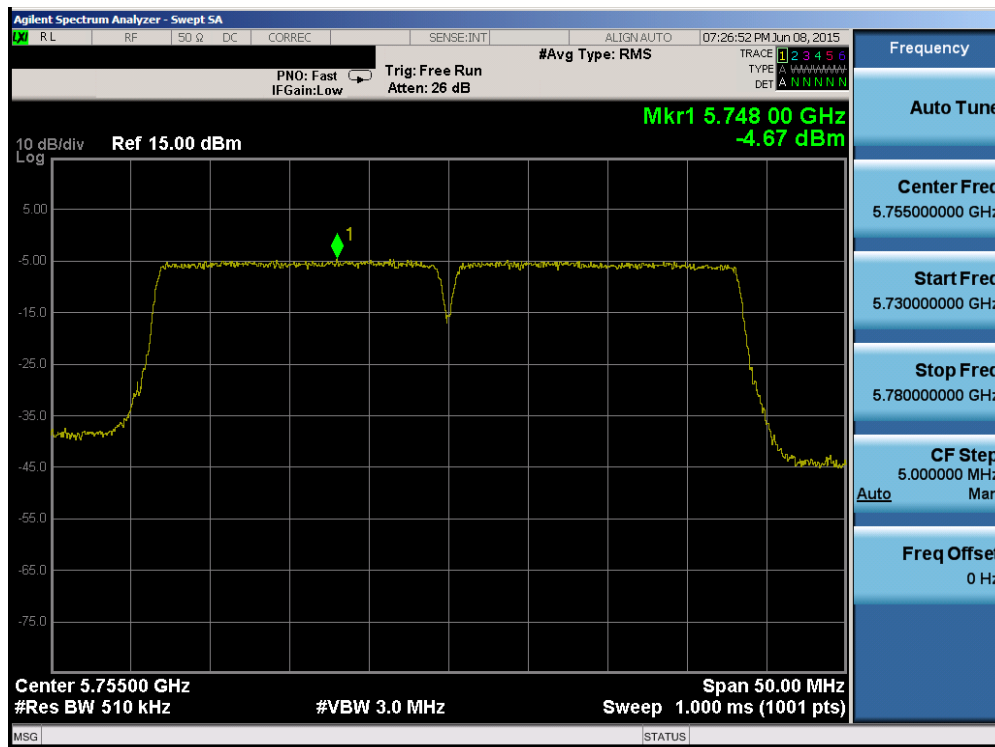


Plot 6-148. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 102 of 194

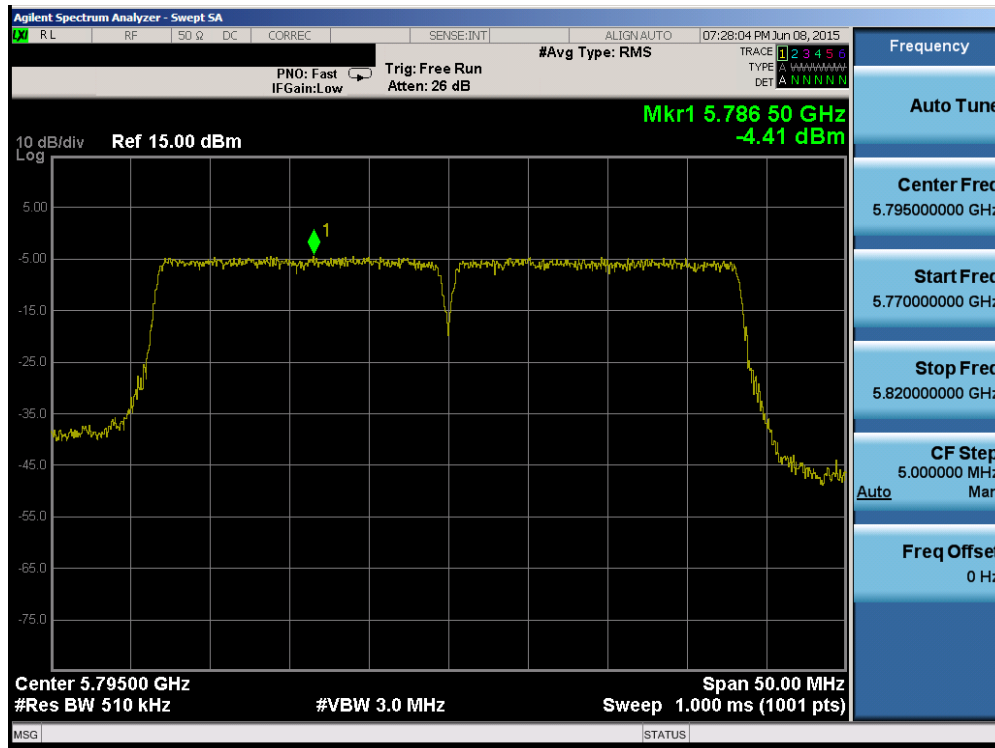


Plot 6-149. Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

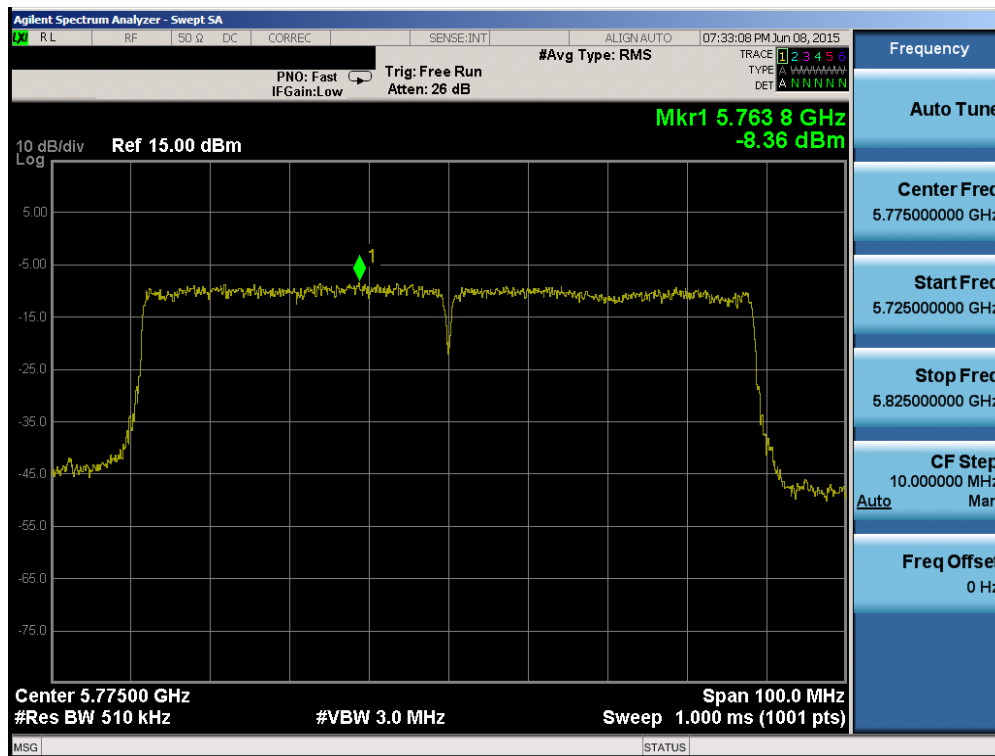


Plot 6-150. Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 103 of 194



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)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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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)	2.72	3.10	5.93	11.0	-5.07	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	2.59	3.06	5.84	11.0	-5.16	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	2.28	2.73	5.52	11.0	-5.48	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	-1.35	-0.34	2.20	11.0	-8.80	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	-0.78	-0.73	2.25	11.0	-8.75	Pass
Band 2A	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-3.93	-5.00	-1.42	11.0	-12.42	Pass
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	2.68	2.44	5.57	11.0	-5.43	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	2.54	2.81	5.69	11.0	-5.31	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	2.25	2.46	5.36	11.0	-5.64	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	-0.66	-0.46	2.45	11.0	-8.55	Pass
Band 2C	5310	62	n (40MHz)	13.5/15 (MCS0)	-1.47	-1.17	1.69	11.0	-9.31	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-3.98	-4.90	-1.41	11.0	-12.41	Pass
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	2.49	2.61	5.56	11.0	-5.44	Pass
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	1.82	2.57	5.22	11.0	-5.78	Pass
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	1.76	2.78	5.31	11.0	-5.69	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	-1.51	-0.60	1.98	11.0	-9.02	Pass
	5550	110	n (40MHz)	13.5/15 (MCS0)	-1.45	-1.78	1.40	11.0	-9.60	Pass
	5710	142	n (40MHz)	13.5/15 (MCS0)	-2.03	-1.39	1.31	11.0	-9.69	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-4.35	-5.05	-1.67	11.0	-12.67	Pass
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-5.55	-5.55	-2.54	11.0	-13.54	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)	0.46	-0.88	2.85	30.0	-27.15	Pass
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	-0.39	-0.50	2.57	30.0	-27.43	Pass
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	-0.40	-1.24	2.21	30.0	-27.79	Pass
	5755	151	n (40MHz)	13.5/15 (MCS0)	-3.26	-4.67	-0.90	30.0	-30.90	Pass
	5795	159	n (40MHz)	13.5/15 (MCS0)	-4.03	-4.41	-1.21	30.0	-31.21	Pass
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-7.27	-8.36	-4.77	30.0	-34.77	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 2.72 dBm for Antenna-1 and 3.10 dBm for Antenna-2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

$$(2.72 \text{ dBm} + 3.10 \text{ dBm}) = (1.87 \text{ mW} + 2.04 \text{ mW}) = 3.91 \text{ mW} = 5.93 \text{ dBm}$$

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6.6 Frequency Stability

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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)	5,180,000,140	140	0.00000270
100 %		- 30	5,179,999,850	-150	-0.00000290
100 %		- 20	5,179,999,795	-205	-0.00000396
100 %		- 10	5,179,999,781	-219	-0.00000423
100 %		0	5,180,000,035	35	0.00000068
100 %		+ 10	5,179,999,840	-160	-0.00000309
100 %		+ 20	5,180,000,017	17	0.00000033
100 %		+ 30	5,179,999,819	-181	-0.00000349
100 %		+ 40	5,180,000,047	47	0.00000091
100 %		+ 50	5,180,000,231	231	0.00000446
BATT. ENDPOINT	3.45	+ 20	5,180,000,089	89	0.00000172

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.

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Frequency Stability

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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)	5,259,999,818	-182	-0.00000346
100 %		- 30	5,259,999,552	-448	-0.00000852
100 %		- 20	5,260,000,024	24	0.00000046
100 %		- 10	5,260,000,045	45	0.00000086
100 %		0	5,260,000,169	169	0.00000321
100 %		+ 10	5,260,000,079	79	0.00000150
100 %		+ 20	5,259,999,803	-197	-0.00000375
100 %		+ 30	5,260,000,102	102	0.00000194
100 %		+ 40	5,260,000,054	54	0.00000103
100 %		+ 50	5,260,000,048	48	0.00000091
BATT. ENDPOINT	3.45	+ 20	5,260,000,071	71	0.00000135

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.

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Frequency Stability

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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)	5,500,000,433	433	0.00000787
100 %		- 30	5,499,999,952	-48	-0.00000087
100 %		- 20	5,500,000,319	319	0.00000580
100 %		- 10	5,499,999,978	-22	-0.00000040
100 %		0	5,499,999,949	-51	-0.00000093
100 %		+ 10	5,500,000,390	390	0.00000709
100 %		+ 20	5,500,000,228	228	0.00000415
100 %		+ 30	5,500,000,168	168	0.00000305
100 %		+ 40	5,500,000,005	5	0.00000009
100 %		+ 50	5,500,000,222	222	0.00000404
BATT. ENDPOINT	3.45	+ 20	5,500,000,213	213	0.00000387

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.

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Frequency Stability

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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)	5,745,000,103	103	0.00000179
100 %		- 30	5,745,000,206	206	0.00000359
100 %		- 20	5,745,000,491	491	0.00000855
100 %		- 10	5,745,000,230	230	0.00000400
100 %		0	5,745,000,062	62	0.00000108
100 %		+ 10	5,745,000,221	221	0.00000385
100 %		+ 20	5,745,000,041	41	0.00000071
100 %		+ 30	5,745,000,040	40	0.00000070
100 %		+ 40	5,744,999,761	-239	-0.00000416
100 %		+ 50	5,745,000,020	20	0.00000035
BATT. ENDPOINT	3.45	+ 20	5,745,000,019	19	0.00000033

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.

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6.7 Radiated Spurious Emission Measurements – Above 1GHz

§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), 802.11n (40MHz BW), and 802.11ac (80MHz)), 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 $\geq 2 \times \text{span/RBW}$)
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

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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.

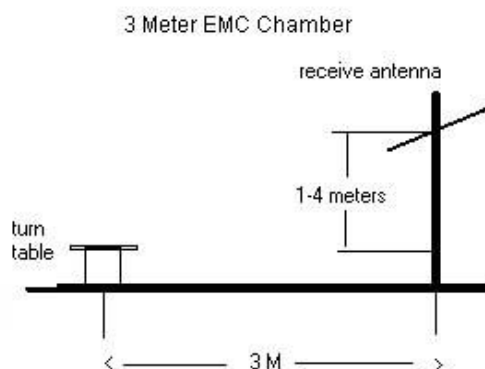


Figure 6-5. Test Instrument & Measurement Setup

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 dB μ V/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 68.2dB μ V/m.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. 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

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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.

6. 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.
7. 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.
8. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section. Rohde & Schwarz EMC32, Version 9.15.00 automated test software was used to perform the Radiated Spurious Emissions Pre-Scan testing.
9. This unit was tested with its standard battery.
10. The emission at 23GHz seen in Plots 161, 162, 171, and 172 was investigated and determined to be from an ambient source.

Sample Calculations

Determining Spurious Emissions Levels

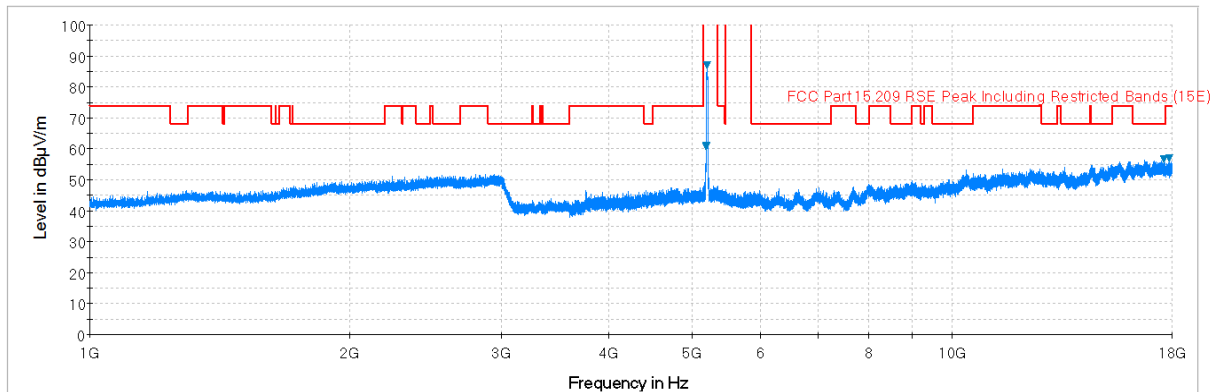
- Field Strength Level $_{[dB\mu V/m]} = \text{Analyzer Level}_{[dBm]} + 107 + \text{AFCL}_{[dB/m]}$
- $\text{AFCL}_{[dB/m]} = \text{Antenna Factor}_{[dB/m]} + \text{Cable Loss}_{[dB]}$
- $\text{Margin}_{[dB]} = \text{Field Strength Level}_{[dB\mu V/m]} - \text{Limit}_{[dB\mu V/m]}$

Radiated Band Edge Measurement Offset

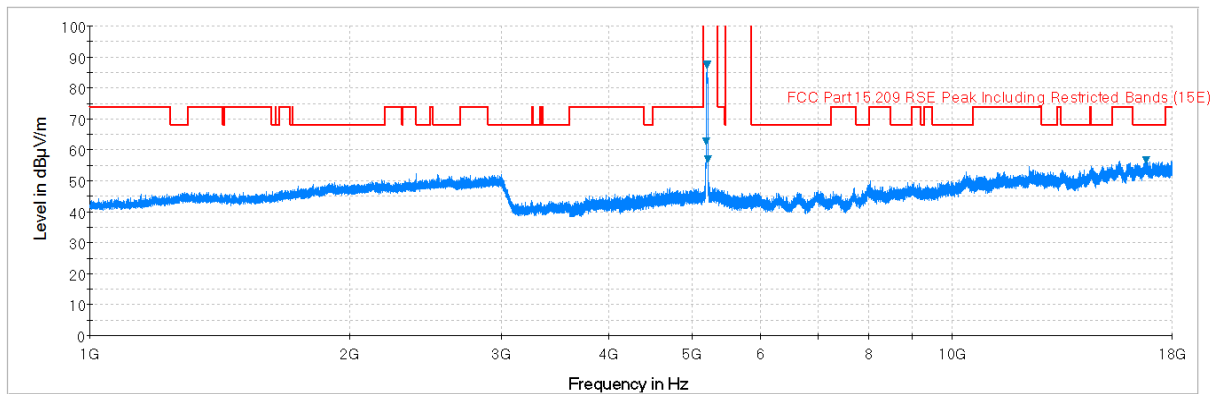
- The amplitude offset shown in the radiated restricted band edge plots in Section 6.8 was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + 10 dB Attenuator) – Preamplifier Gain

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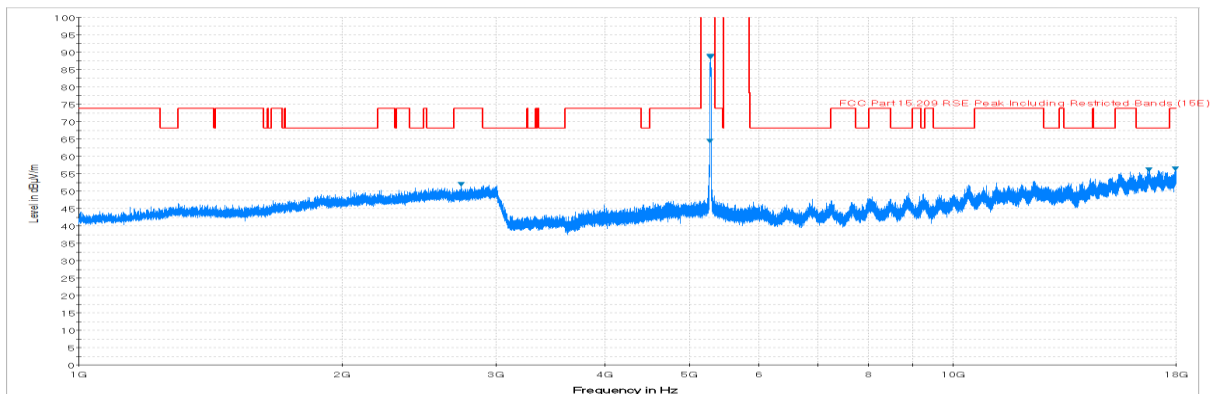
6.7.1 Antenna-1 Radiated Spurious Emission Measurements



Plot 6-153. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)

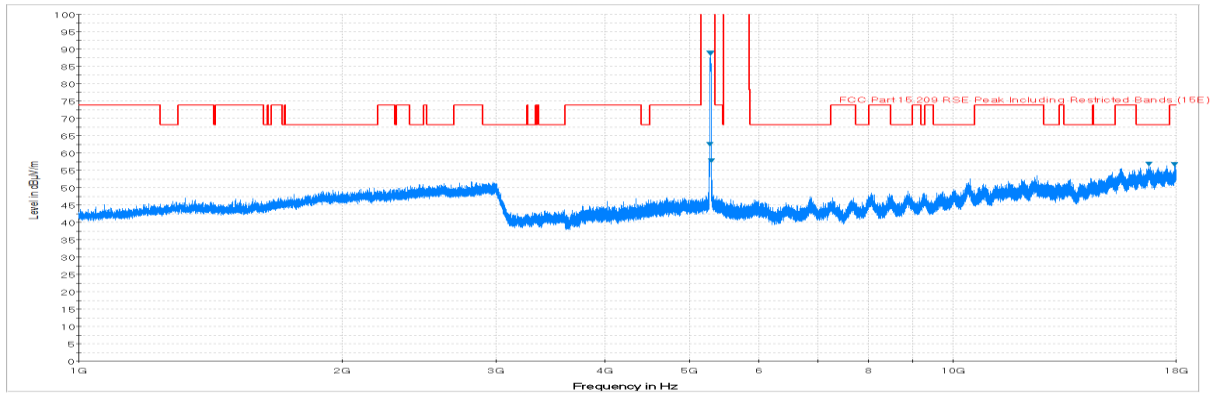


Plot 6-154. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

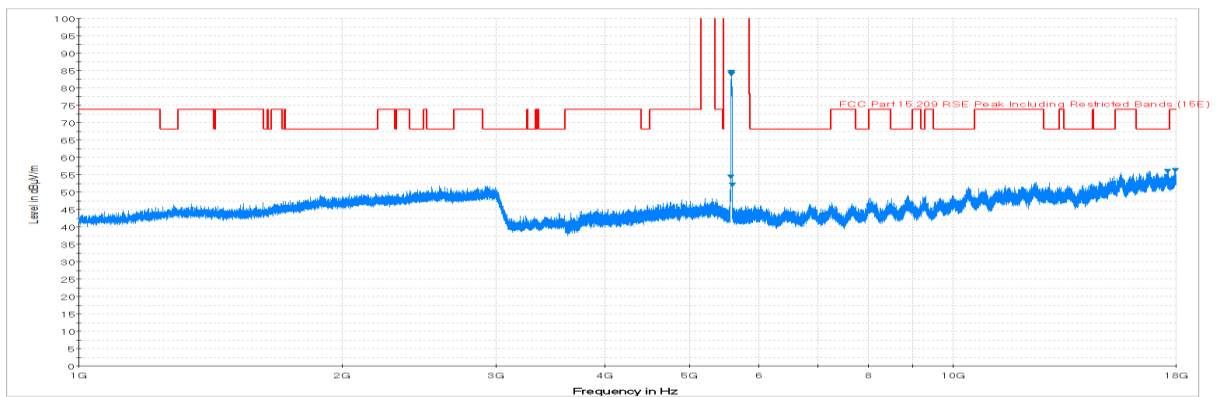


Plot 6-155. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

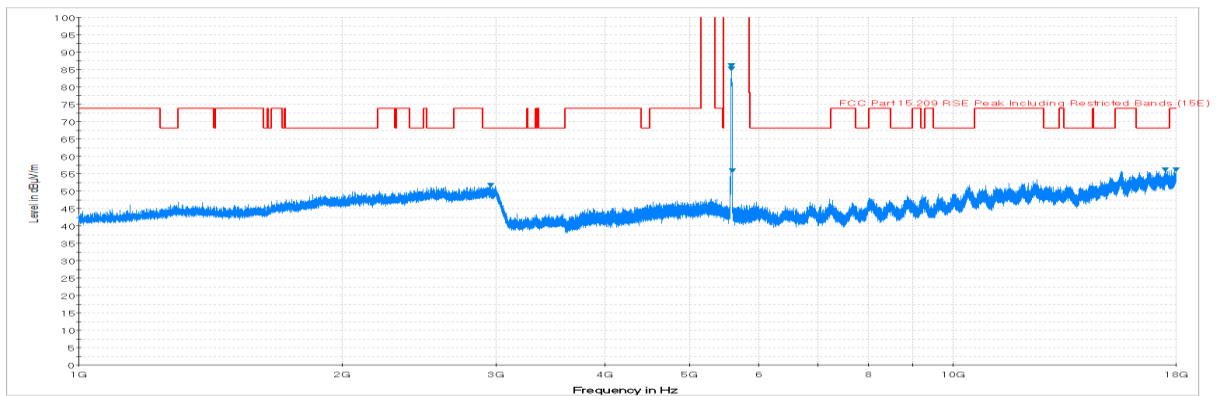
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Plot 6-156. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

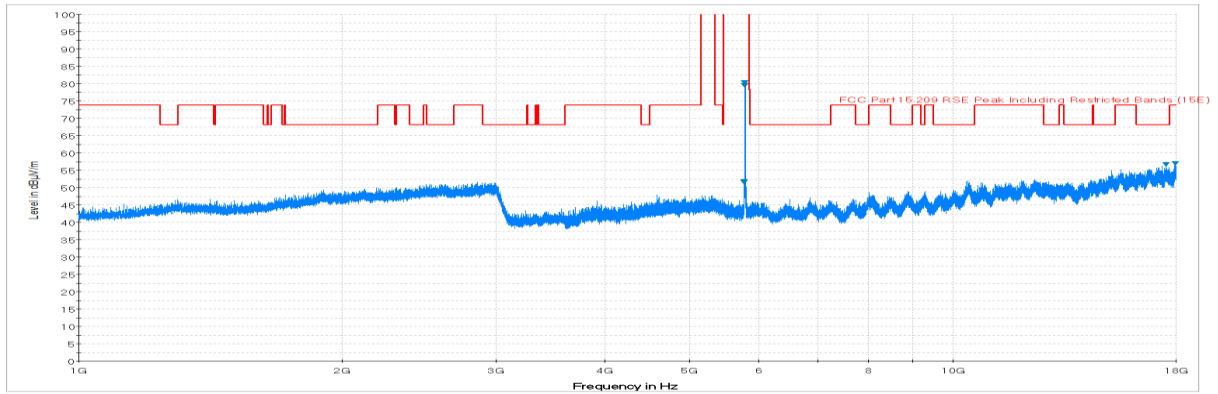


Plot 6-157. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

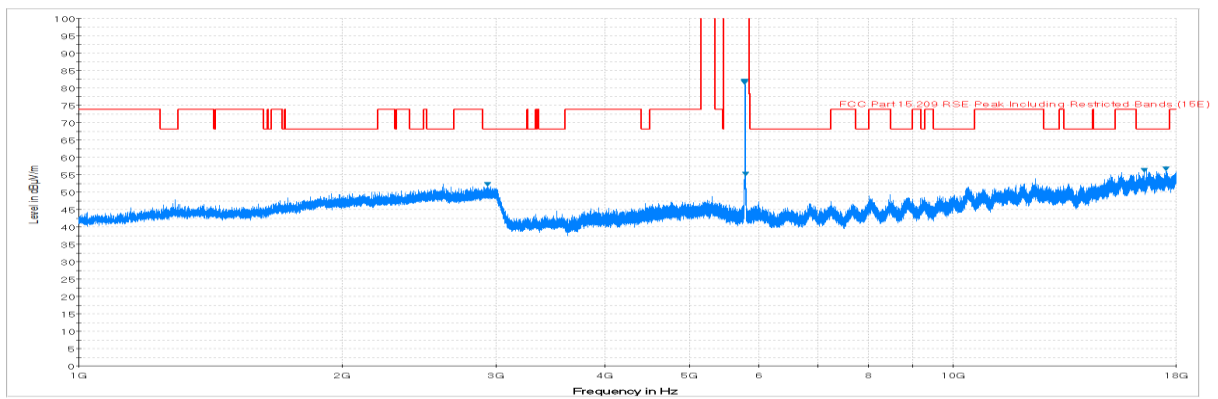


Plot 6-158. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

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Plot 6-159. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

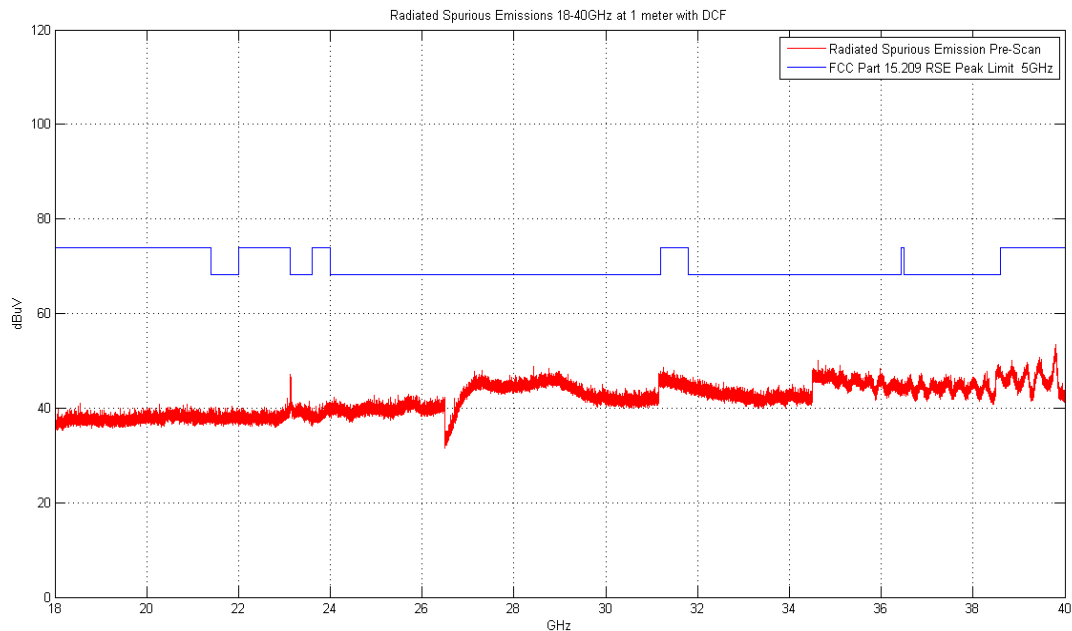


Plot 6-160. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

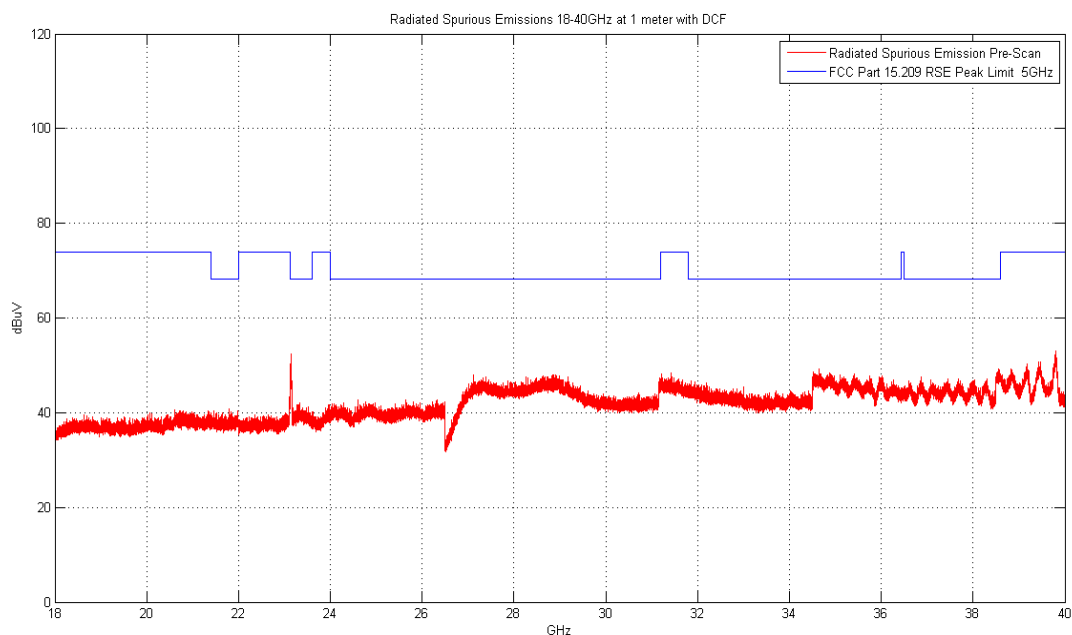
FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)

§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)

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Antenna-1 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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	-94.56	Peak	H	47.01	0.00	59.45	68.20	-8.75
* 15540.00	-112.09	Average	H	50.31	0.00	45.22	53.98	-8.76
* 15540.00	-99.89	Peak	H	50.31	0.00	57.42	73.98	-16.56
* 20720.00	-111.15	Average	H	48.79	-9.54	35.09	53.98	-18.89
* 20720.00	-103.80	Peak	H	48.79	-9.54	42.44	73.98	-31.54
25900.00	-104.71	Peak	H	50.98	-9.54	43.73	68.20	-24.47

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	-94.99	Peak	H	46.83	0.00	58.84	68.20	-9.36
* 15600.00	-111.73	Average	H	50.36	0.00	45.63	53.98	-8.35
* 15600.00	-99.30	Peak	H	50.36	0.00	58.06	73.98	-15.92
* 20800.00	-110.52	Average	H	48.90	-9.54	35.84	53.98	-18.14
* 20800.00	-104.29	Peak	H	48.90	-9.54	42.07	73.98	-31.91
26000.00	-105.75	Peak	H	51.05	-9.54	42.75	68.20	-25.45

Table 6-29. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 117 of 194

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	-94.29	Peak	H	47.01	0.00	59.73	68.20	-8.47
* 15720.00	-113.06	Average	H	49.45	0.00	43.39	53.98	-10.59
* 15720.00	-100.43	Peak	H	49.45	0.00	56.02	73.98	-17.96
* 20960.00	-111.02	Average	H	49.09	-9.54	35.52	53.98	-18.46
* 20960.00	-104.11	Peak	H	49.09	-9.54	42.43	73.98	-31.55
26200.00	-105.16	Peak	H	51.19	-9.54	43.48	68.20	-24.72

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	-93.56	Peak	H	47.08	0.00	60.52	68.20	-7.68
* 15780.00	-111.68	Average	H	49.15	0.00	44.47	53.98	-9.51
* 15780.00	-98.99	Peak	H	49.15	0.00	57.16	73.98	-16.82
* 21040.00	-110.73	Average	H	49.17	-9.54	35.90	53.98	-18.08
* 21040.00	-104.60	Peak	H	49.17	-9.54	42.03	73.98	-31.95
26300.00	-105.38	Peak	H	51.26	-9.54	43.33	68.20	-24.87

Table 6-31. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 118 of 194

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	-93.46	Peak	H	47.12	0.00	60.65	68.20	-7.55
* 15840.00	-111.76	Average	H	49.25	0.00	44.49	53.98	-9.48
* 15840.00	-99.23	Peak	H	49.25	0.00	57.02	73.98	-16.95
* 21120.00	-112.10	Average	H	49.24	-9.54	34.60	53.98	-19.38
* 21120.00	-104.19	Peak	H	49.24	-9.54	42.51	73.98	-31.47
26400.00	-104.70	Peak	H	51.33	-9.54	44.09	68.20	-24.11

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	-104.40	Average	H	47.16	0.00	49.77	53.98	-4.21
* 10640.00	-92.69	Peak	H	47.16	0.00	61.48	73.98	-12.50
* 15960.00	-111.69	Average	H	49.89	0.00	45.20	53.98	-8.78
* 15960.00	-98.67	Peak	H	49.89	0.00	58.22	73.98	-15.76
* 21280.00	-109.00	Average	H	49.36	-9.54	37.81	53.98	-16.16
* 21280.00	-102.96	Peak	H	49.36	-9.54	43.85	73.98	-30.12
26600.00	-108.38	Peak	H	47.61	-9.54	36.69	68.20	-31.51

Table 6-33. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 119 of 194

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	-103.33	Average	H	47.30	0.00	50.97	53.98	-3.01
*	11000.00	-94.25	Peak	H	47.30	0.00	60.05	73.98	-13.93
	16500.00	-99.35	Peak	H	52.15	0.00	59.80	68.20	-8.40
	22000.00	-102.32	Peak	H	49.39	-9.54	44.53	68.20	-23.67
	27500.00	-108.76	Peak	H	47.97	-9.54	36.67	68.20	-31.53

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	-104.38	Average	H	47.72	0.00	50.34	53.98	-3.64
*	11160.00	-95.56	Peak	H	47.72	0.00	59.16	73.98	-14.82
	16740.00	-98.81	Peak	H	52.70	0.00	60.89	68.20	-7.31
*	22320.00	-108.73	Average	H	49.84	-9.54	38.57	53.98	-15.41
*	22320.00	-103.22	Peak	H	49.84	-9.54	44.08	73.98	-29.90
	27900.00	-107.75	Peak	H	48.08	-9.54	37.79	68.20	-30.41

Table 6-35. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 120 of 194

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	-104.24	Average	H	48.16	0.00	50.91	53.98	-3.07
*	11440.00	-95.45	Peak	H	48.16	0.00	59.70	73.98	-14.28
	17160.00	-98.51	Peak	H	54.84	0.00	63.33	68.20	-4.87
*	22880.00	-108.97	Average	H	50.02	-9.54	38.50	53.98	-15.47
*	22880.00	-104.04	Peak	H	50.02	-9.54	43.43	73.98	-30.54
	28600.00	-107.93	Peak	H	48.32	-9.54	37.85	68.20	-30.35

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	-106.87	Average	H	48.41	0.00	48.55	53.98	-5.43
*	11490.00	-95.93	Peak	H	48.41	0.00	59.49	73.98	-14.49
	17235.00	-98.23	Peak	H	55.55	0.00	64.32	68.20	-3.88
*	22980.00	-109.39	Average	H	50.04	-9.54	38.10	53.98	-15.88
*	22980.00	-101.67	Peak	H	50.04	-9.54	45.82	73.98	-28.16
	28725.00	-108.69	Peak	H	48.26	-9.54	37.03	68.20	-31.17

Table 6-37. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 121 of 194

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	-106.07	Average	H	48.72	0.00	49.65	53.98	-4.33
* 11570.00	-95.55	Peak	H	48.72	0.00	60.17	73.98	-13.81
17355.00	-99.00	Peak	H	56.11	0.00	64.10	68.20	-4.10
23140.00	-102.51	Peak	H	50.11	-9.54	45.06	68.20	-23.14
28925.00	-109.08	Peak	H	48.29	-9.54	36.67	68.20	-31.53

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	-106.21	Average	H	48.84	0.00	49.64	53.98	-4.34
* 11650.00	-96.03	Peak	H	48.84	0.00	59.82	73.98	-14.16
17475.00	-102.31	Peak	H	59.84	0.00	64.53	68.20	-3.67
23300.00	-102.72	Peak	H	50.13	-9.54	44.87	68.20	-23.33
29125.00	-109.24	Peak	H	48.28	-9.54	36.51	68.20	-31.69

Table 6-39. Radiated Measurements

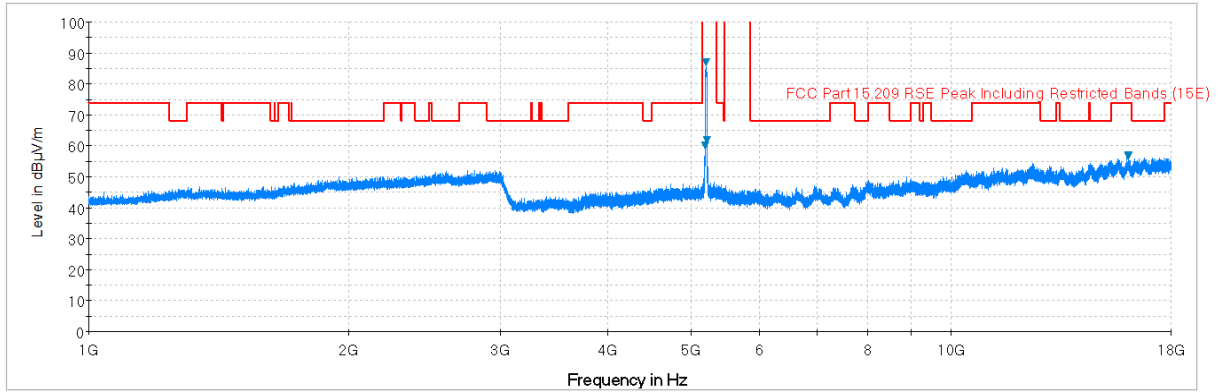
FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 122 of 194

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

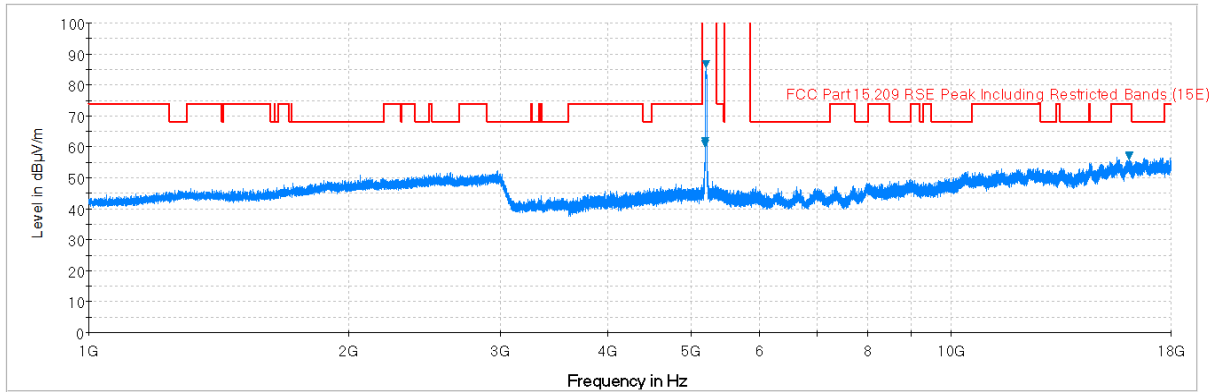
Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
11650.00	-105.56	Average	H	48.84	0.00	50.29	53.98	-3.69
11650.00	-96.18	Peak	H	48.84	0.00	59.67	73.98	-14.31
17475.00	-100.18	Peak	H	57.52	0.00	64.34	68.20	-3.86
23300.00	-96.87	Peak	H	50.13	-9.54	50.72	68.20	-17.48
29125.00	-103.64	Peak	H	48.28	-9.54	42.11	68.20	-26.09

Table 6-40. Radiated Measurements with WCP

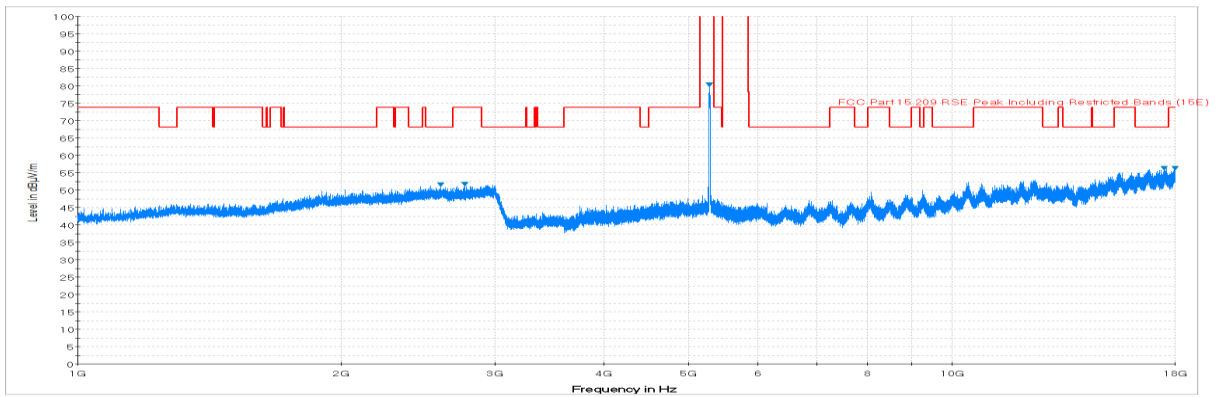
6.7.2 Antenna-2 Radiated Spurious Emission Measurements



Plot 6-163. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)

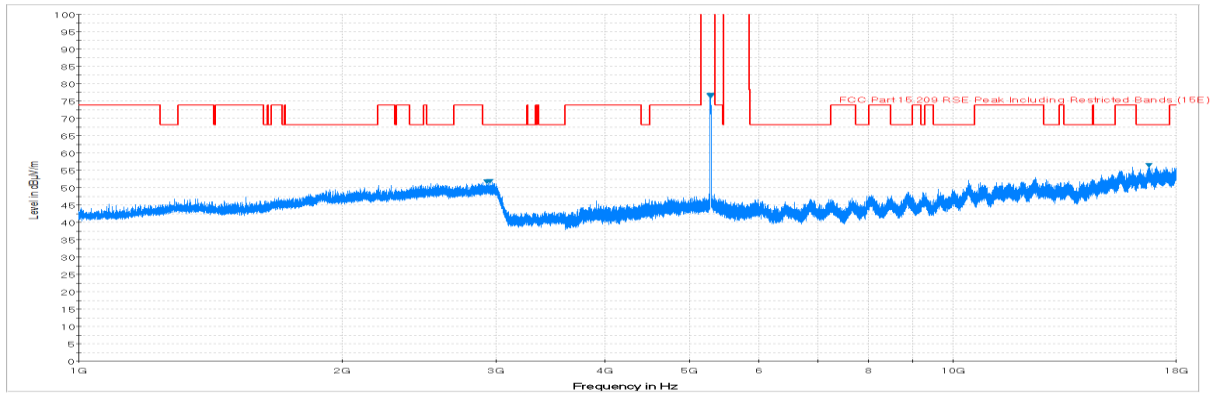


Plot 6-164. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

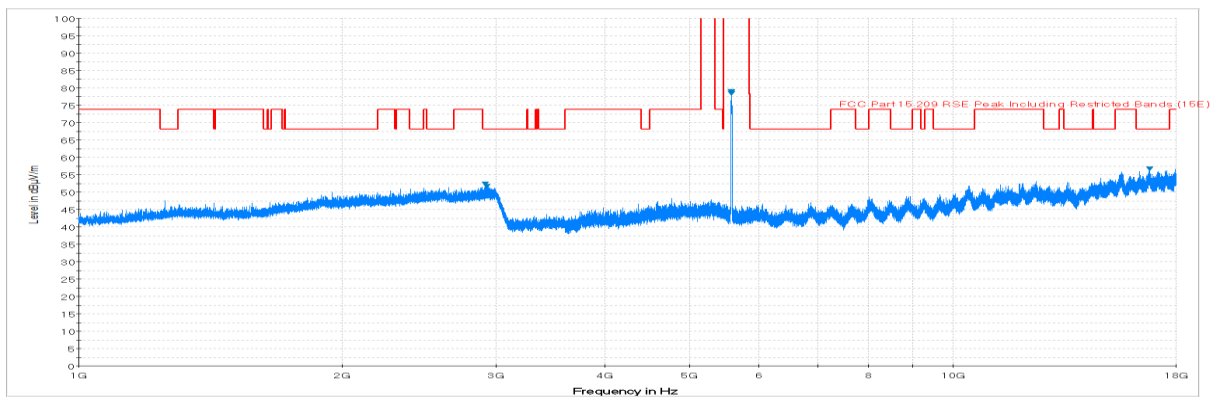


Plot 6-165. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

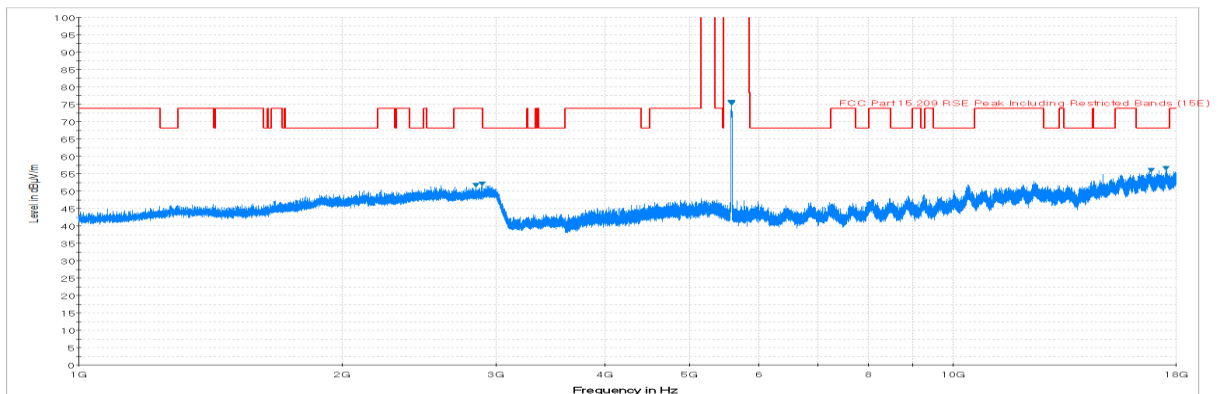
FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 124 of 194



Plot 6-166. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

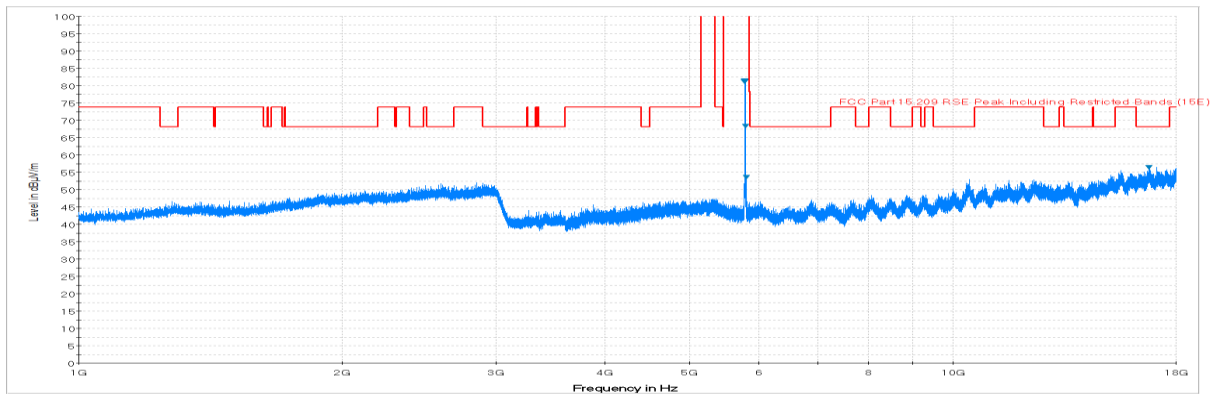


Plot 6-167. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

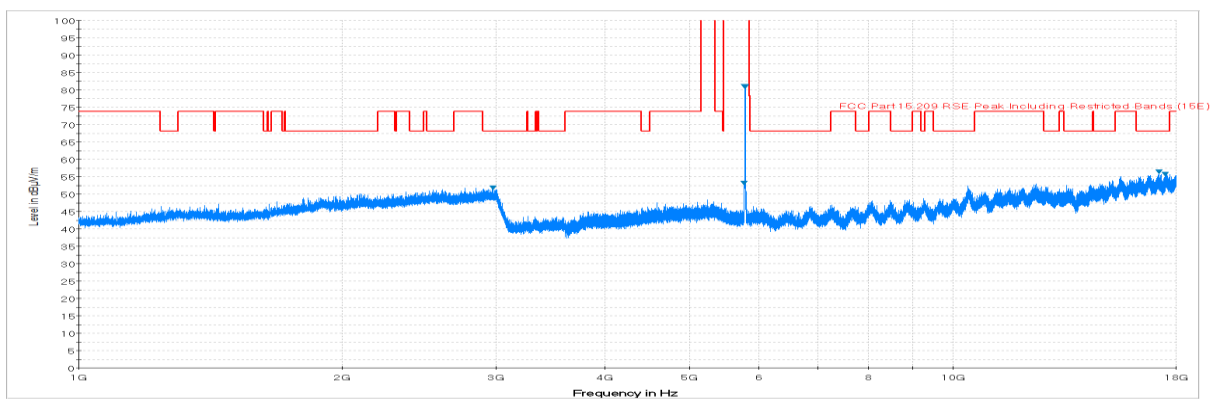


Plot 6-168. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 125 of 194



Plot 6-169. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

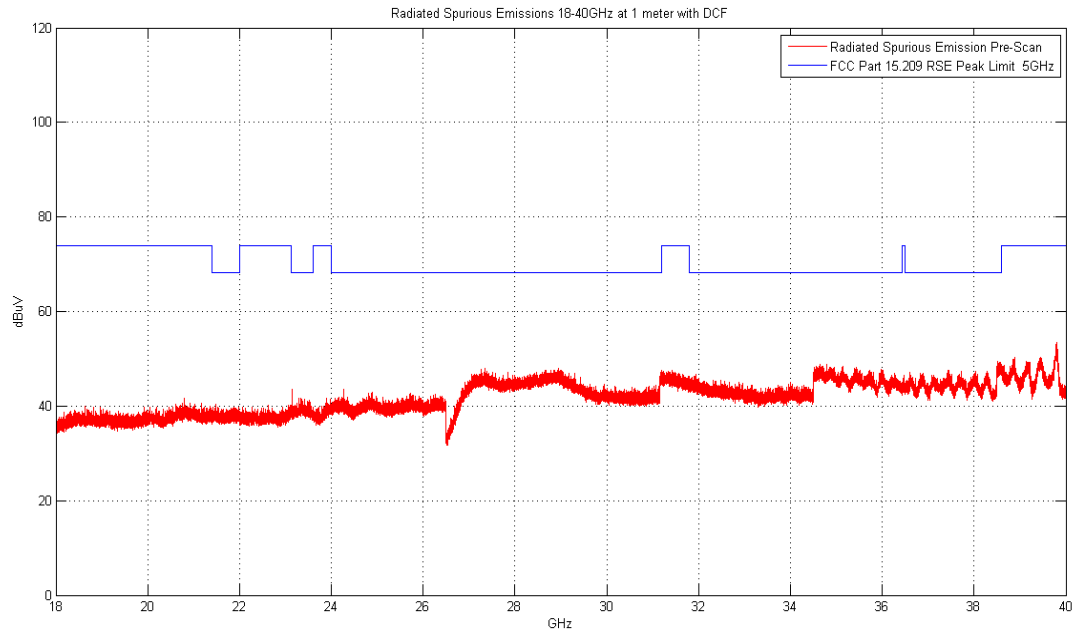


Plot 6-170. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

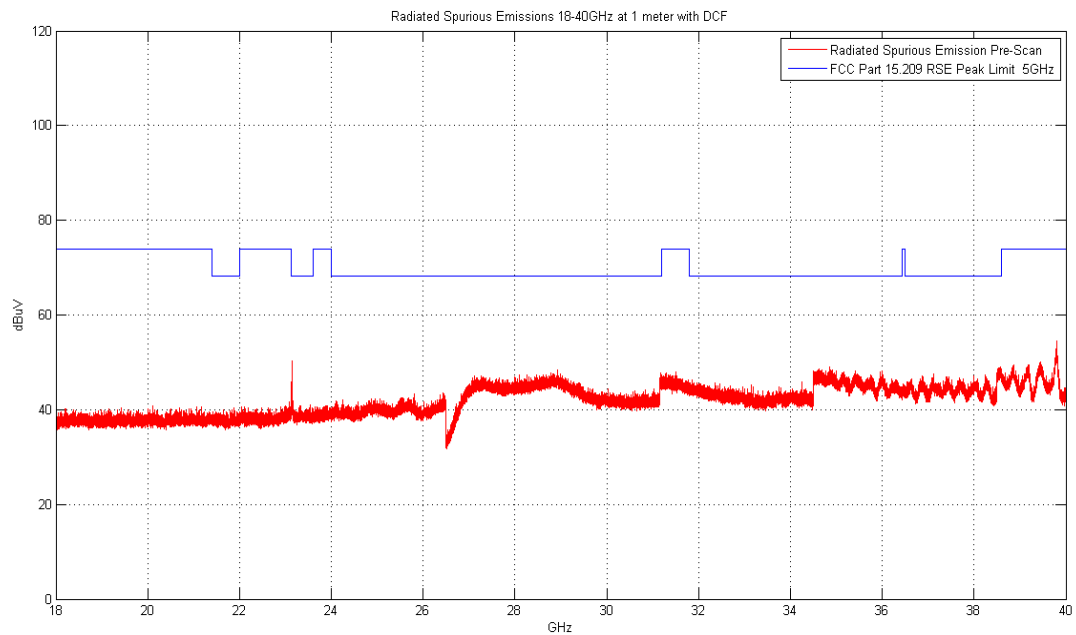
FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 126 of 194

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)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 127 of 194

Antenna-2 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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	-94.70	Peak	H	47.01	0.00	59.31	68.20	-8.89
* 15540.00	-109.77	Average	H	50.31	0.00	47.54	53.98	-6.44
* 15540.00	-95.56	Peak	H	50.31	0.00	61.75	73.98	-12.23
* 20720.00	-110.93	Average	H	48.79	-9.54	35.31	53.98	-18.67
* 20720.00	-103.58	Peak	H	48.79	-9.54	42.66	73.98	-31.32
25900.00	-104.35	Peak	H	50.98	-9.54	44.09	68.20	-24.11

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	-92.87	Peak	H	46.83	0.00	60.96	68.20	-7.24
* 15600.00	-111.39	Average	H	50.36	0.00	45.97	53.98	-8.01
* 15600.00	-99.36	Peak	H	50.36	0.00	58.00	73.98	-15.98
* 20800.00	-111.38	Average	H	48.90	-9.54	34.98	53.98	-19.00
* 20800.00	-103.80	Peak	H	48.90	-9.54	42.56	73.98	-31.42
26000.00	-104.57	Peak	H	51.05	-9.54	43.93	68.20	-24.27

Table 6-42. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 128 of 194

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	-92.26	Peak	H	47.01	0.00	61.76	68.20	-6.44
* 15720.00	-109.05	Average	H	49.45	0.00	47.40	53.98	-6.58
* 15720.00	-95.07	Peak	H	49.45	0.00	61.38	73.98	-12.60
* 20960.00	-110.75	Average	H	49.09	-9.54	35.79	53.98	-18.19
* 20960.00	-103.71	Peak	H	49.09	-9.54	42.83	73.98	-31.15
26200.00	-103.91	Peak	H	51.19	-9.54	44.73	68.20	-23.47

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	-92.19	Peak	H	47.08	0.00	61.89	68.20	-6.31
* 15780.00	-109.07	Average	H	49.15	0.00	47.08	53.98	-6.90
* 15780.00	-95.39	Peak	H	49.15	0.00	60.76	73.98	-13.22
* 21040.00	-110.96	Average	H	49.17	-9.54	35.67	53.98	-18.31
* 21040.00	-104.21	Peak	H	49.17	-9.54	42.42	73.98	-31.56
26300.00	-105.78	Peak	H	51.26	-9.54	42.93	68.20	-25.27

Table 6-44. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 129 of 194

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	-93.18	Peak	H	47.12	0.00	60.93	68.20	-7.27
* 15840.00	-108.83	Average	H	49.25	0.00	47.42	53.98	-6.55
* 15840.00	-94.40	Peak	H	49.25	0.00	61.85	73.98	-12.12
* 21120.00	-110.77	Average	H	49.24	-9.54	35.93	53.98	-18.05
* 21120.00	-102.67	Peak	H	49.24	-9.54	44.03	73.98	-29.95
26400.00	-104.47	Peak	H	51.33	-9.54	44.32	68.20	-23.88

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	-103.52	Average	H	47.16	0.00	50.65	53.98	-3.33
* 10640.00	-95.17	Peak	H	47.16	0.00	59.00	73.98	-14.98
* 15960.00	-108.93	Average	H	49.89	0.00	47.96	53.98	-6.02
* 15960.00	-95.06	Peak	H	49.89	0.00	61.83	73.98	-12.15
* 21280.00	-109.54	Average	H	49.36	-9.54	37.27	53.98	-16.70
* 21280.00	-101.93	Peak	H	49.36	-9.54	44.88	73.98	-29.09
26600.00	-108.19	Peak	H	47.61	-9.54	36.88	68.20	-31.32

Table 6-46. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 130 of 194

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	-103.97	Average	H	47.30	0.00	50.33	53.98	-3.65
* 11000.00	-92.22	Peak	H	47.30	0.00	62.08	73.98	-11.90
16500.00	-94.76	Peak	H	52.15	0.00	64.39	68.20	-3.81
22000.00	-102.63	Peak	H	49.39	-9.54	44.22	68.20	-23.98
27500.00	-107.42	Peak	H	47.97	-9.54	38.01	68.20	-30.19

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	-104.31	Average	H	47.72	0.00	50.41	53.98	-3.57
11160.00	-93.06	Peak	H	47.72	0.00	61.66	73.98	-12.32
16740.00	-95.11	Peak	H	52.70	0.00	64.59	68.20	-3.61
22320.00	-108.94	Average	H	49.84	-9.54	38.36	53.98	-15.62
22320.00	-103.70	Peak	H	49.84	-9.54	43.60	73.98	-30.38
27900.00	-107.62	Peak	H	48.08	-9.54	37.92	68.20	-30.28

Table 6-48. Radiated Measurements

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	-107.34	Average	H	48.16	0.00	47.81	53.98	-6.17
* 11440.00	-94.88	Peak	H	48.16	0.00	60.27	73.98	-13.71
17160.00	-97.51	Peak	H	54.84	0.00	64.33	68.20	-3.87
* 22880.00	-108.83	Average	H	50.02	-9.54	38.64	53.98	-15.33
* 22880.00	-103.04	Peak	H	50.02	-9.54	44.43	73.98	-29.54
28600.00	-108.80	Peak	H	48.32	-9.54	36.98	68.20	-31.22

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	-105.54	Average	H	48.41	0.00	49.88	53.98	-4.10
* 11490.00	-95.70	Peak	H	48.41	0.00	59.72	73.98	-14.26
17235.00	-97.95	Peak	H	55.55	0.00	64.60	68.20	-3.60
* 22980.00	-109.63	Average	H	50.04	-9.54	37.86	53.98	-16.12
* 22980.00	-102.95	Peak	H	50.04	-9.54	44.54	73.98	-29.44
28725.00	-108.73	Peak	H	48.26	-9.54	36.99	68.20	-31.21

Table 6-50. Radiated Measurements

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 132 of 194

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	-105.22	Average	H	48.72	0.00	50.50	53.98	-3.48
* 11570.00	-94.83	Peak	H	48.72	0.00	60.89	73.98	-13.09
17355.00	-98.60	Peak	H	56.11	0.00	64.50	68.20	-3.70
23140.00	-102.03	Peak	H	50.11	-9.54	45.54	68.20	-22.66
28925.00	-109.20	Peak	H	48.29	-9.54	36.55	68.20	-31.65

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	-105.07	Average	H	48.84	0.00	50.78	53.98	-3.20
* 11650.00	-91.95	Peak	H	48.84	0.00	63.90	73.98	-10.08
17475.00	-97.15	Peak	H	54.61	0.00	64.46	68.20	-3.74
23300.00	-102.62	Peak	H	50.13	-9.54	44.97	68.20	-23.23
29125.00	-109.75	Peak	H	48.28	-9.54	36.00	68.20	-32.20

Table 6-52. 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	-105.10	Average	H	48.84	0.00	50.75	53.98	-3.23
*	11650.00	-95.03	Peak	H	48.84	0.00	60.82	73.98	-13.16
	17475.00	-101.24	Peak	H	57.52	0.00	63.28	68.20	-4.92
	23300.00	-97.41	Peak	H	50.13	-9.54	50.18	68.20	-18.02
	29125.00	-103.89	Peak	H	48.28	-9.54	41.86	68.20	-26.34

Table 6-53. Radiated Measurements with WCP

6.7.3 SIMULTANEOUS TX Radiated Spurious Emissions Measurements

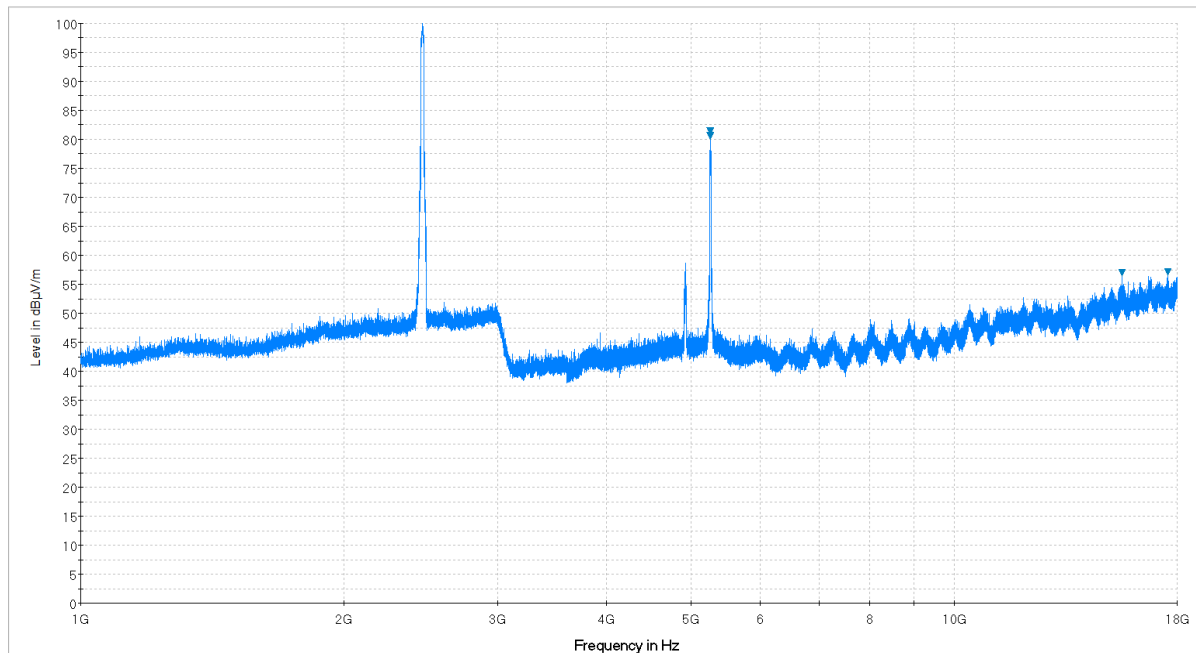
§15.209

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	11	100
Operating Frequency(MHz)	2462	5500
Data Rate (Mbps)	1	6
Mode	802.11b	802.11a

Table 6-54. SIMULTANEOUS TX Config-1

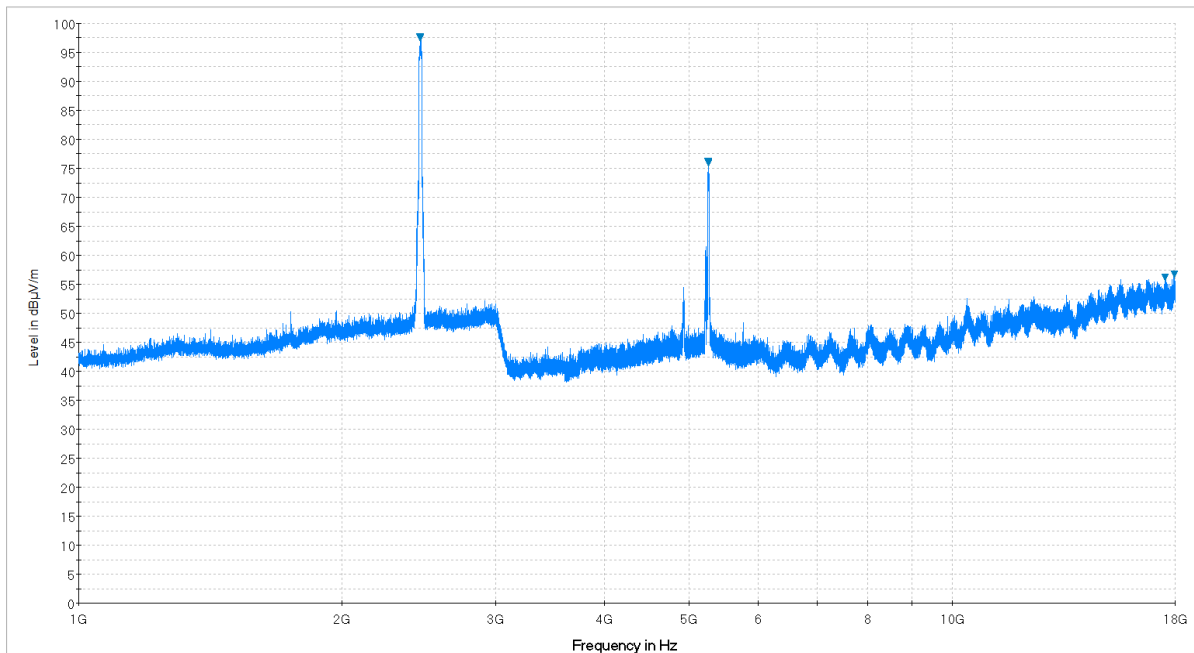
Description	5 GHz Emission	2.4 GHz Emission
Antenna	1	2
Channel	100	11
Operating Frequency(MHz)	5500	2462
Data Rate (Mbps)	6	1
Mode	802.11a	802.11b

Table 6-55. SIMULTANEOUS TX Config-2

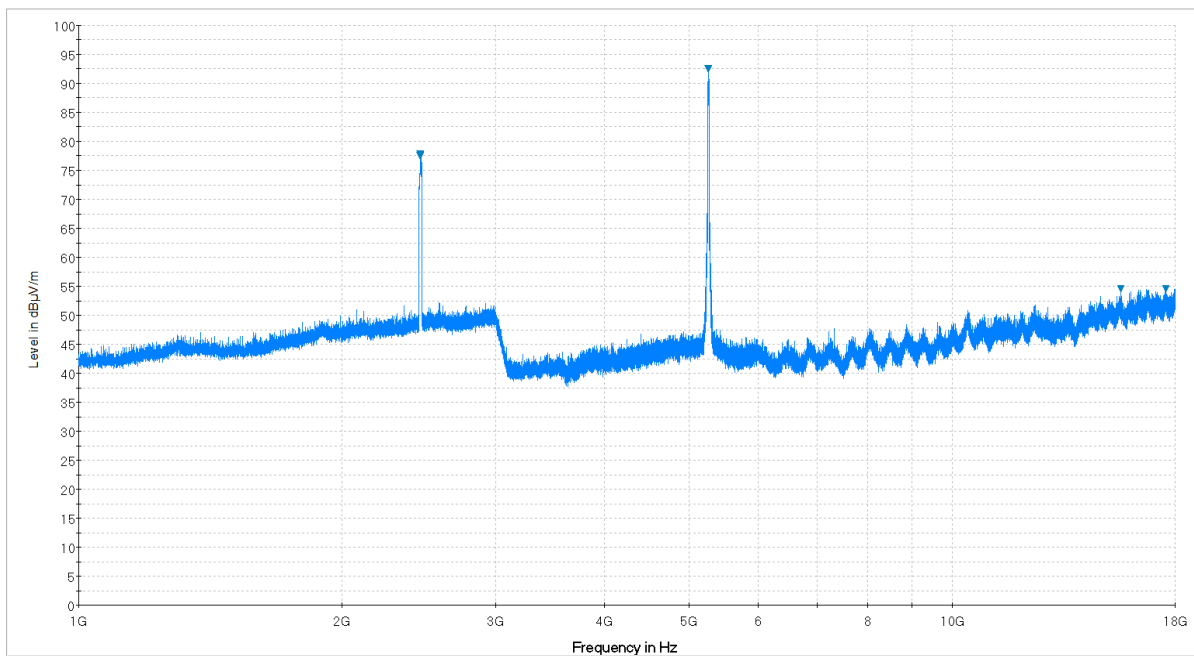


Plot 6-173. Radiated Spurious Plot above 1GHz (SIMULTANEOUS TX Config-1, Ant. Pol. H)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset	Page 135 of 194	

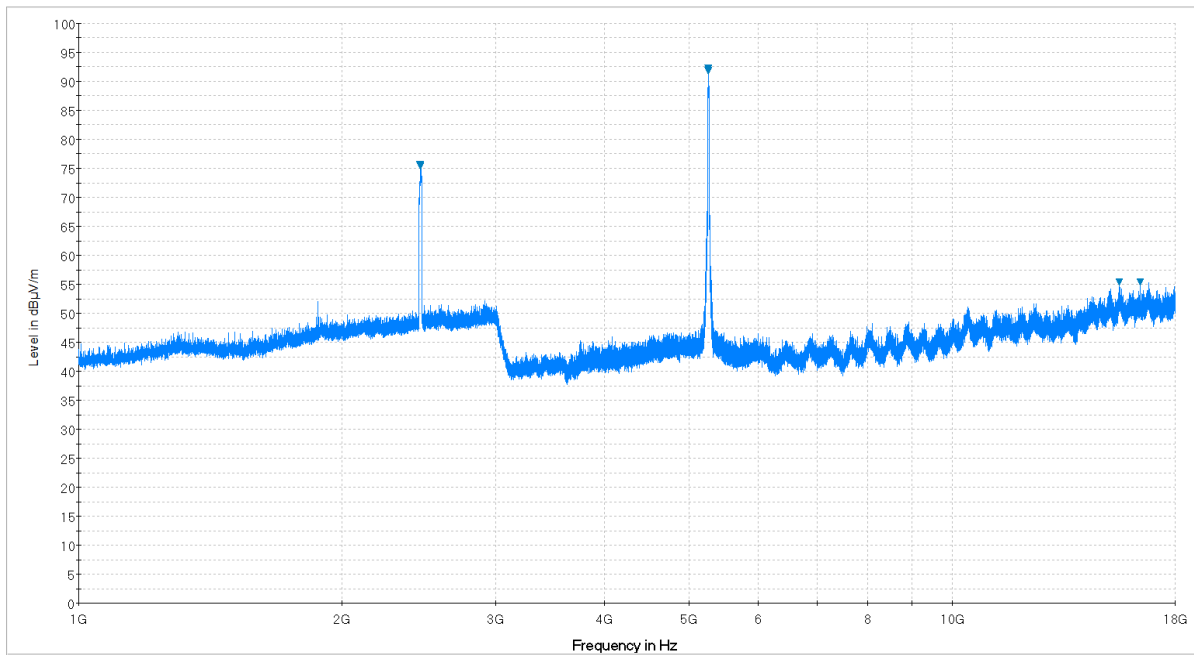


Plot 6-174. Radiated Spurious Plot above 1GHz (SIMULTANEOUS TX Config-1, Ant. Pol. V)



Plot 6-175. Radiated Spurious Plot above 1GHz (SIMULTANEOUS TX Config-2, Ant. Pol. H)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 136 of 194



Plot 6-176. Radiated Spurious Plot above 1GHz (SIMULTANEOUS TX Config-2, Ant. Pol. V)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 137 of 194

SIMULTANEOUS TX Radiated Spurious Emissions Measurements

§15.247(d) §15.205 §15.209

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]
* 2798.00	-103.59	Avg	H	41.70	0.00	37.45	53.98	-16.53
* 2798.00	-95.92	Peak	H	41.70	0.00	49.25	73.98	-24.73
* 4924.00	-101.32	Avg	H	41.05	0.00	37.02	53.98	-16.96
* 4924.00	-94.00	Peak	H	41.05	0.00	49.90	73.98	-24.08
* 7722.00	-111.68	Avg	H	44.56	0.00	40.36	53.98	-13.62
* 7722.00	-99.88	Peak	H	44.56	0.00	53.22	73.98	-20.76
* 8058.00	-101.32	Avg	H	45.13	0.00	41.19	53.98	-12.79
* 8058.00	-94.00	Peak	H	45.13	0.00	53.73	73.98	-20.25
10184.00	-111.68	Peak	H	47.22	0.00	56.17	68.20	-12.03
12982.00	-99.88	Peak	H	50.87	0.00	59.17	68.20	-9.03
* 21040.00	-110.73	Avg	V	49.17	-9.54	50.57	53.98	-3.41
* 21040.00	-104.60	Peak	V	49.17	-9.54	61.39	73.98	-12.59

Table 6-56. Radiated Measurements SIMULTANEOUS TX (Config-1)

	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]
*	2798.00	-103.59	Avg	H	41.70	0.00	36.30	53.98	-17.68
*	2798.00	-95.92	Peak	H	41.70	0.00	48.73	73.98	-25.25
*	4924.00	-101.32	Avg	H	41.05	0.00	37.13	53.98	-16.85
*	4924.00	-94.00	Peak	H	41.05	0.00	49.32	73.98	-24.66
*	7722.00	-111.68	Avg	H	44.56	0.00	40.41	53.98	-13.57
*	7722.00	-99.88	Peak	H	44.56	0.00	53.02	73.98	-20.96
*	8058.00	-101.32	Avg	H	45.13	0.00	41.63	53.98	-12.35
*	8058.00	-94.00	Peak	H	45.13	0.00	54.34	73.98	-19.64
	10184.00	-111.68	Peak	H	47.22	0.00	54.43	68.20	-13.77
	12982.00	-99.88	Peak	H	50.87	0.00	58.41	68.20	-9.79
*	21040.00	-110.73	Avg	V	49.17	-9.54	50.87	53.98	-3.11
*	21040.00	-104.60	Peak	V	49.17	-9.54	62.52	73.98	-11.46

Table 6-57. Radiated Measurements SIMULTANEOUS TX (Config-2)

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 139 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

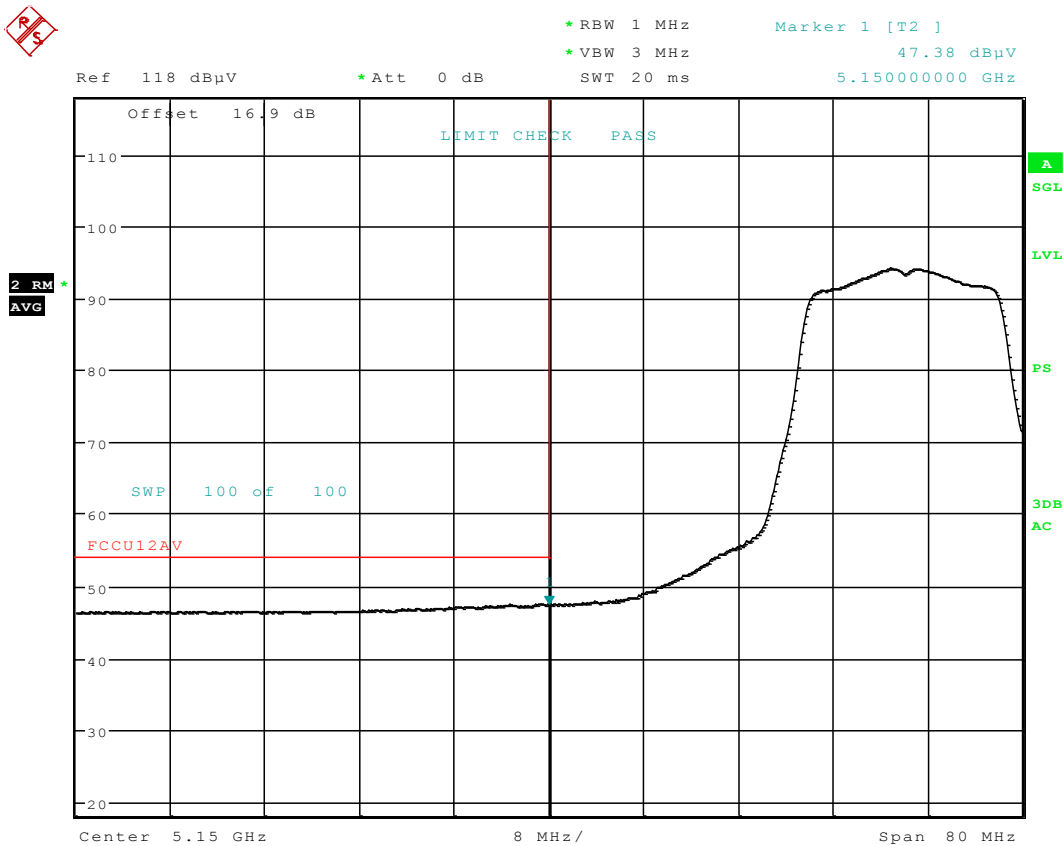
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



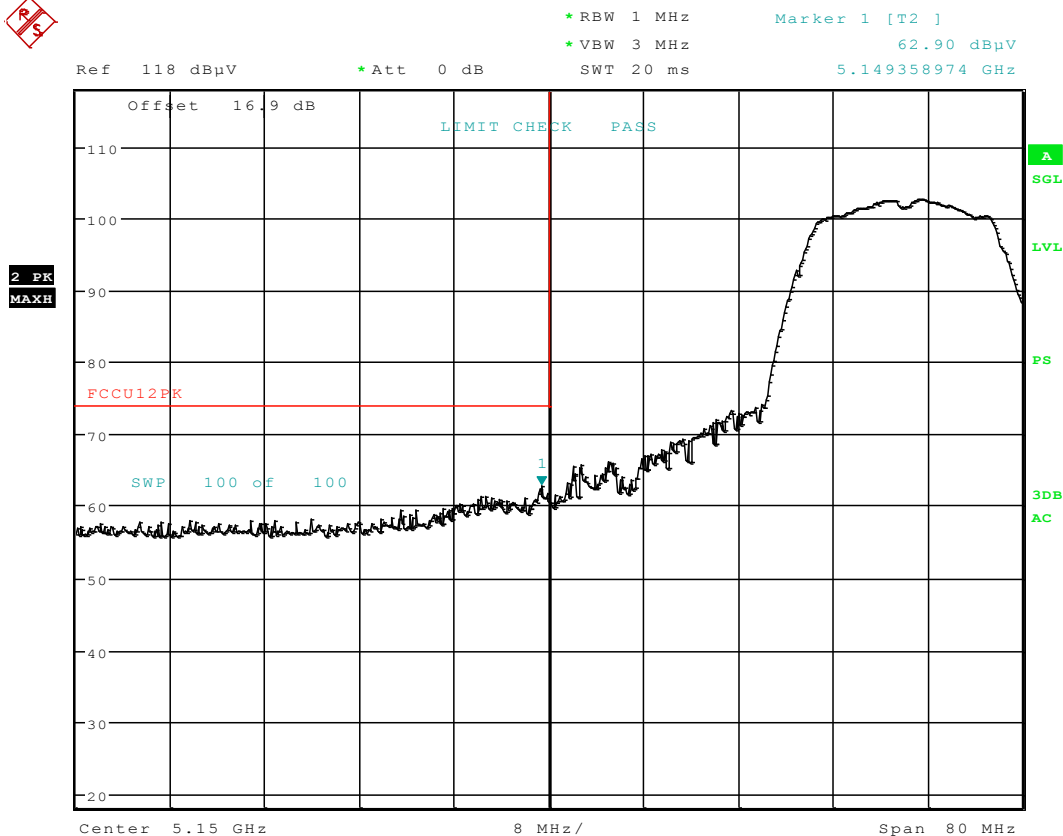
Date: 9.JUN.2015 01:40:01

Plot 6-177. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 140 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2015 01:40:57

Plot 6-178. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 141 of 194

Antenna-1 Radiated Band Edge Measurements (20MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

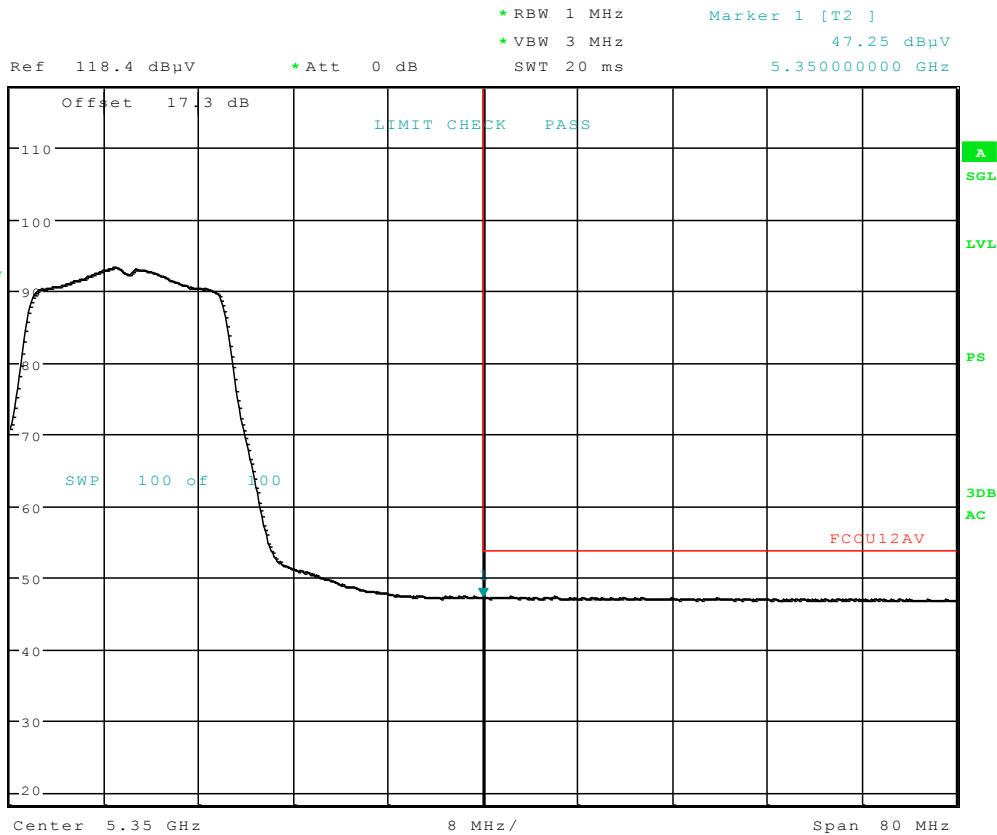
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64

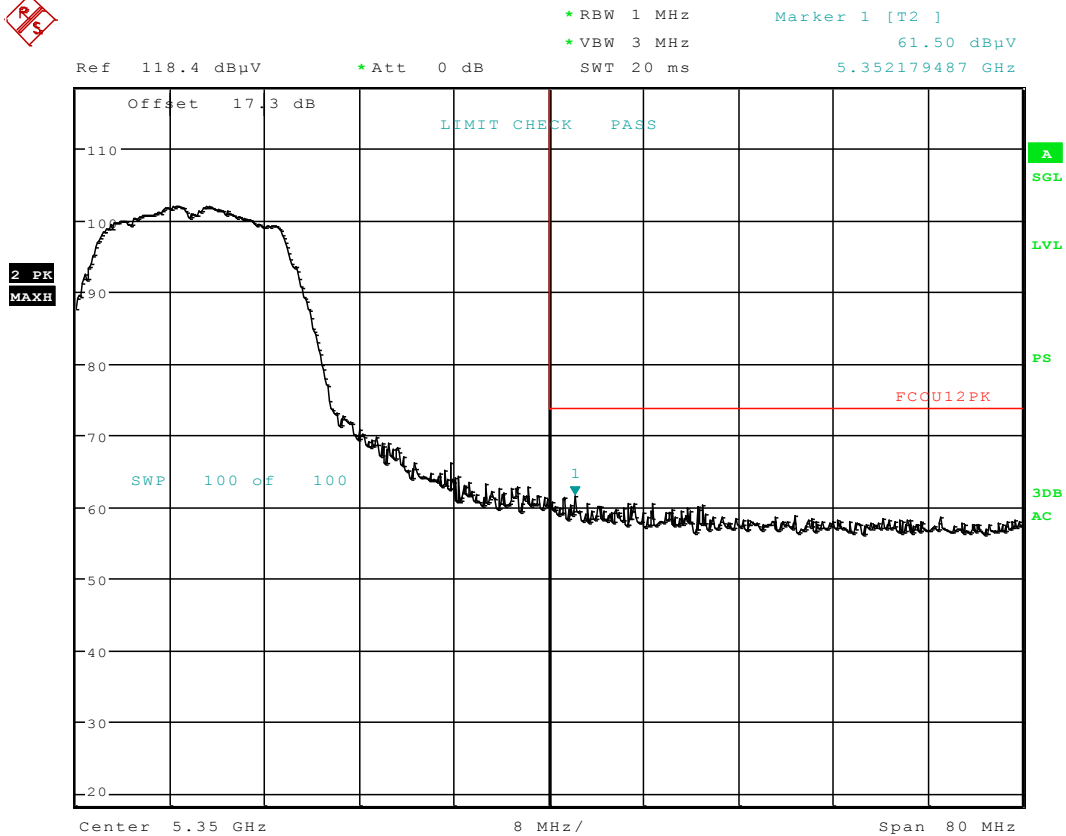


Date: 9.JUN.2015 01:52:33

Plot 6-179. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 142 of 194

Antenna-1 Radiated Band Edge Measurements (20MHz BW) **§15.407(b.1)(b.2) §15.205 §15.209**



Date: 9.JUN.2015 01:51:56

Plot 6-180. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 143 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

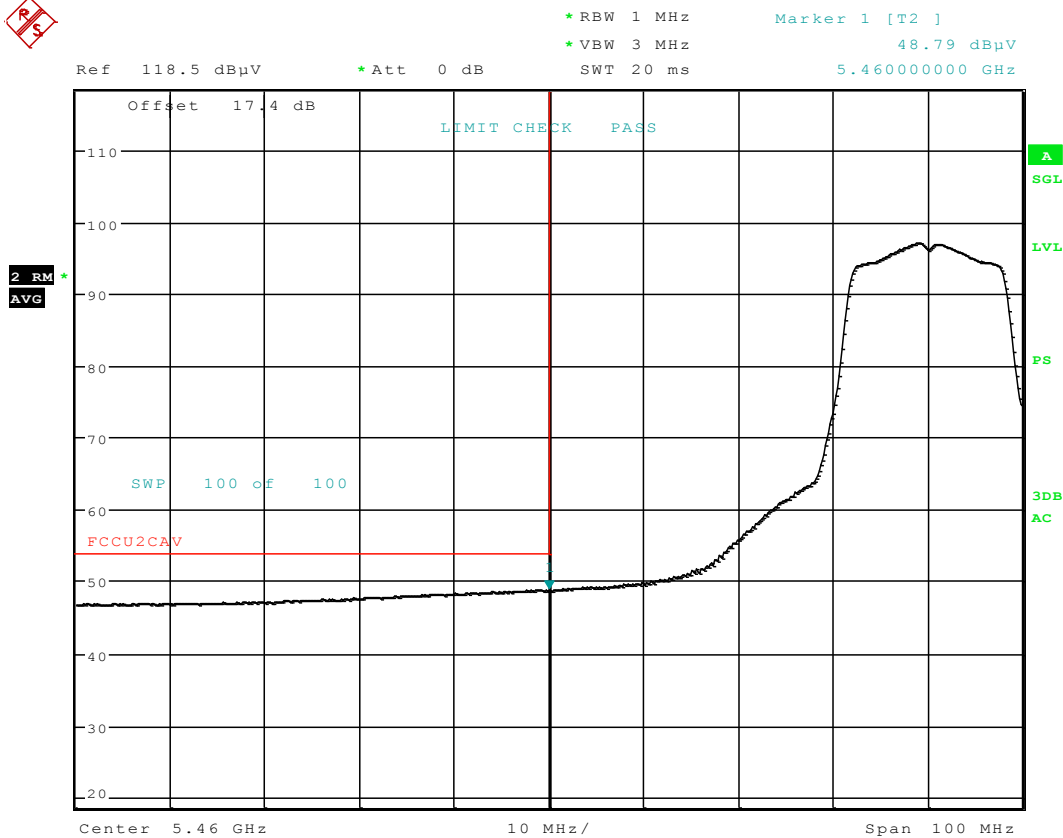
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100

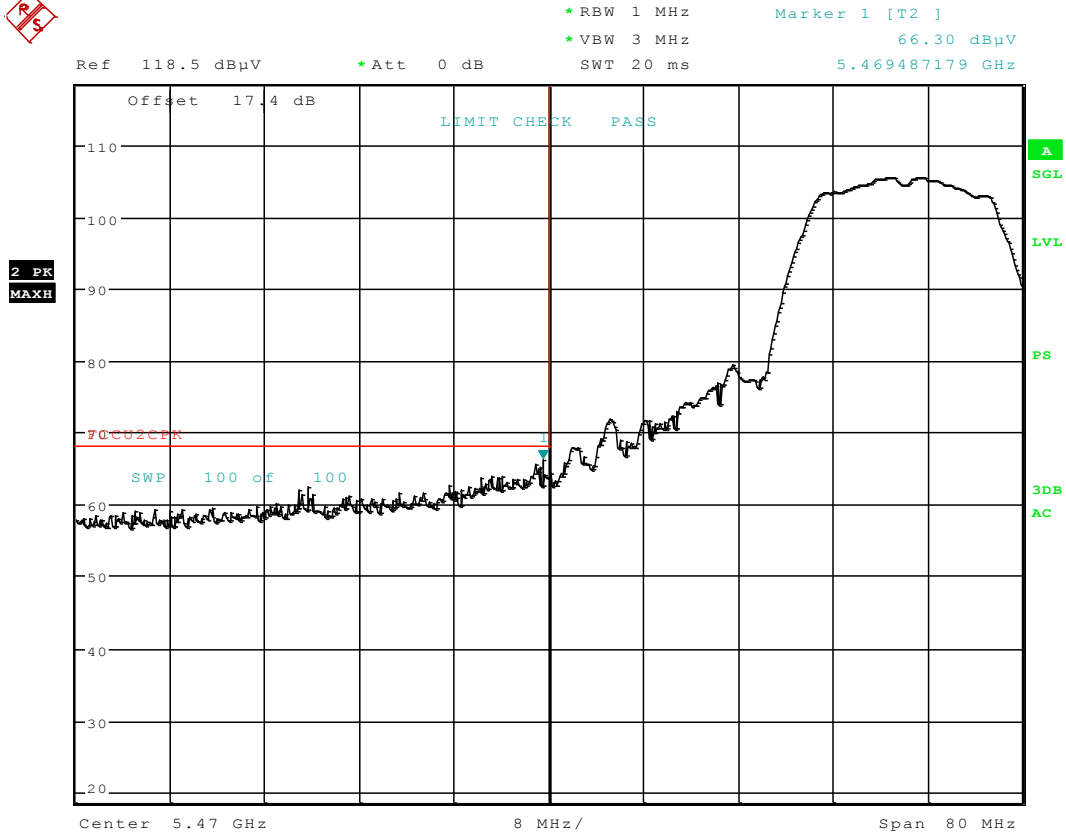


Date: 9.JUN.2015 02:00:33

Plot 6-181. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 144 of 194

Antenna-1 Radiated Band Edge Measurements (20MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**



Date: 9.JUN.2015 02:02:57

Plot 6-182. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 145 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

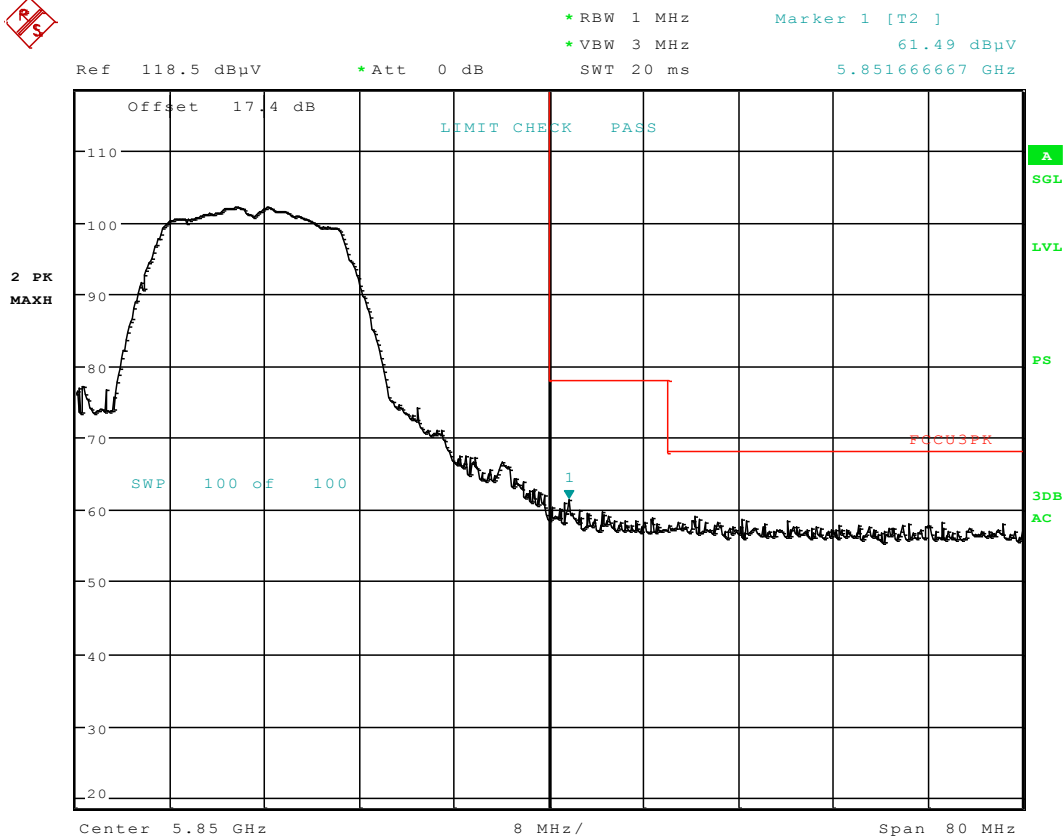
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 9.JUN.2015 02:15:52

Plot 6-183. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 146 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

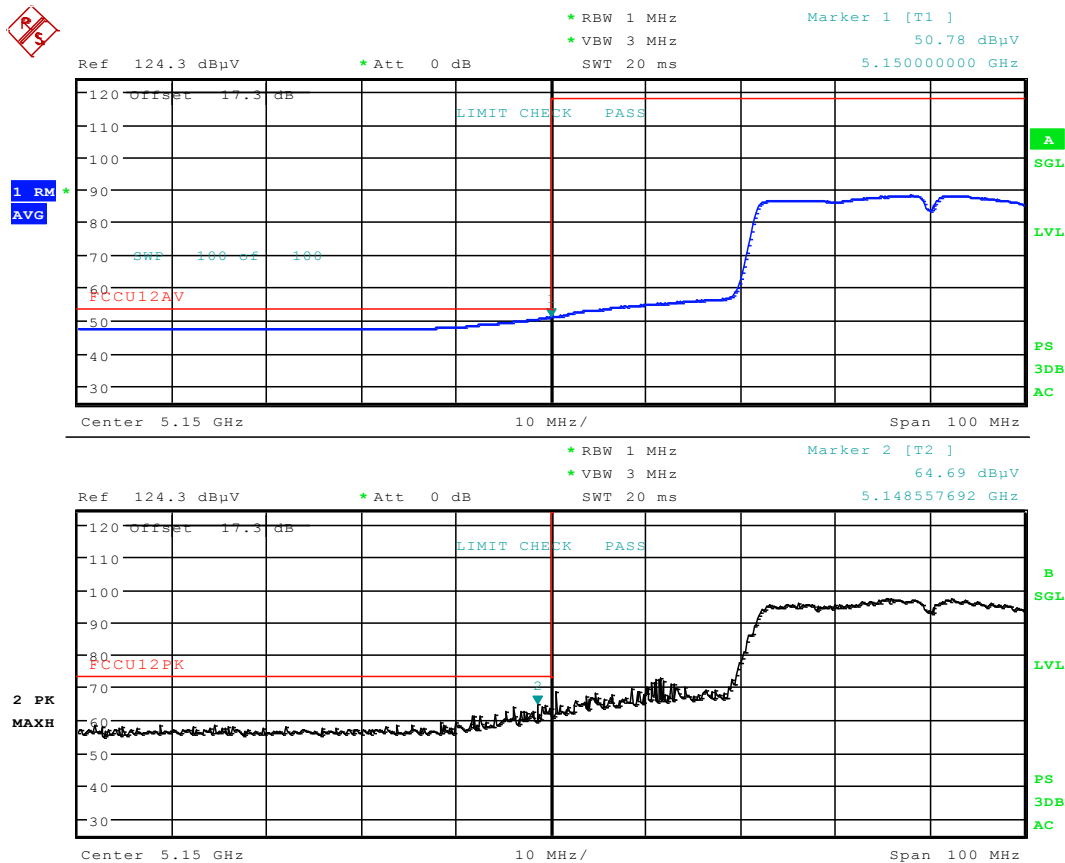
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 9.JUN.2015 03:01:00

Plot 6-184. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 1)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 147 of 194

Antenna-1 Radiated Band Edge Measurements (40MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

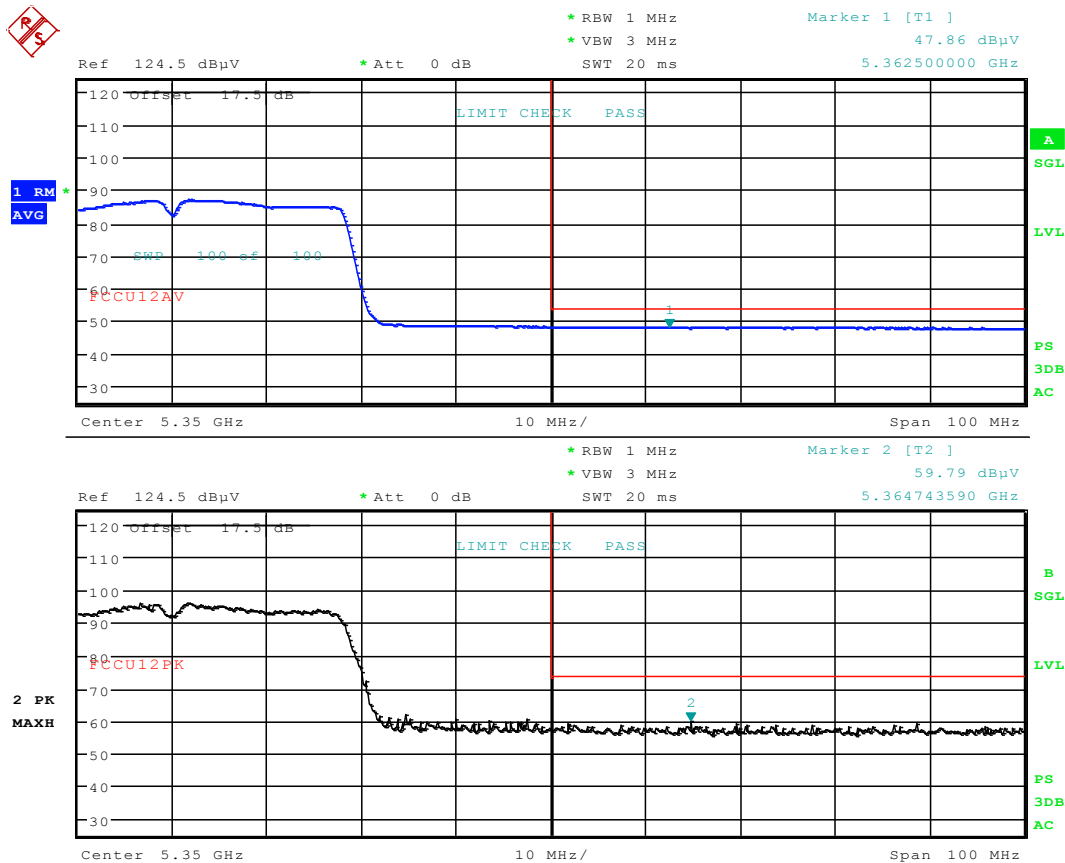
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 9.JUN.2015 03:08:47

Plot 6-185. Radiated Restricted Upper Band Edge Plot (Average/Peak – UNII Band 2A)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 148 of 194

Antenna-1 Radiated Band Edge Measurements (40MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

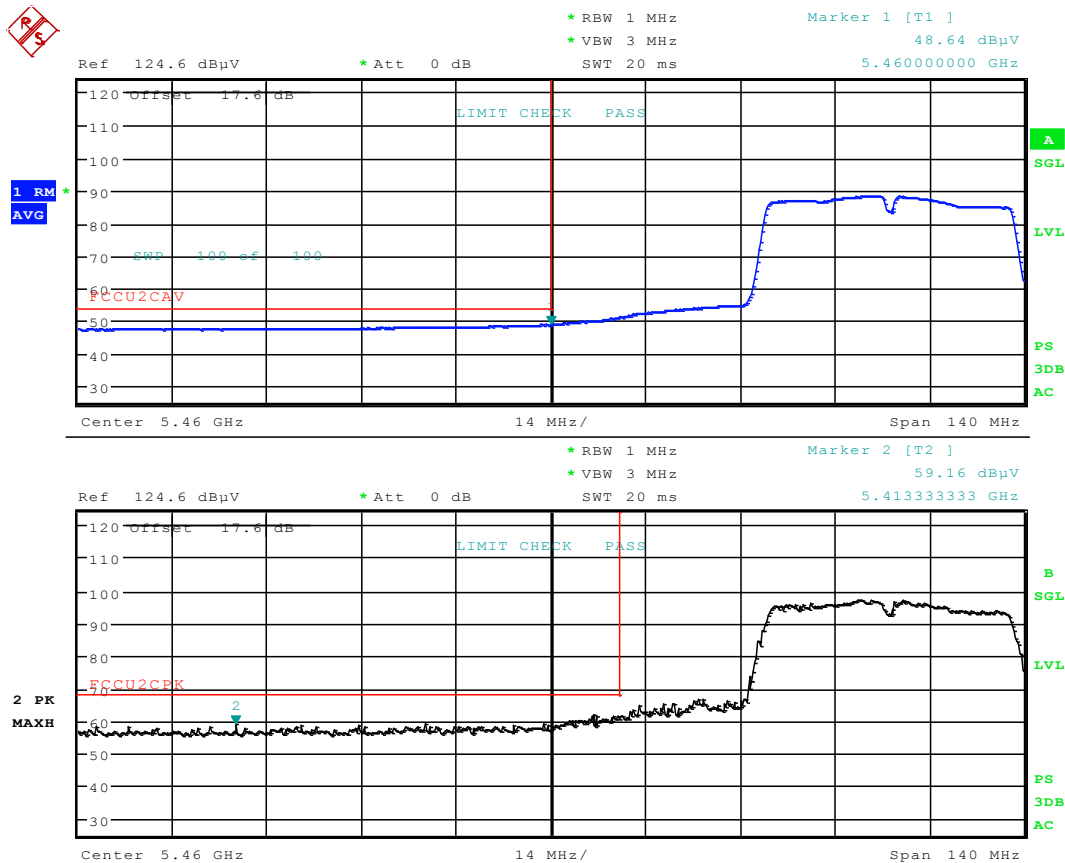
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 9.JUN.2015 03:15:20

Plot 6-186. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 149 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

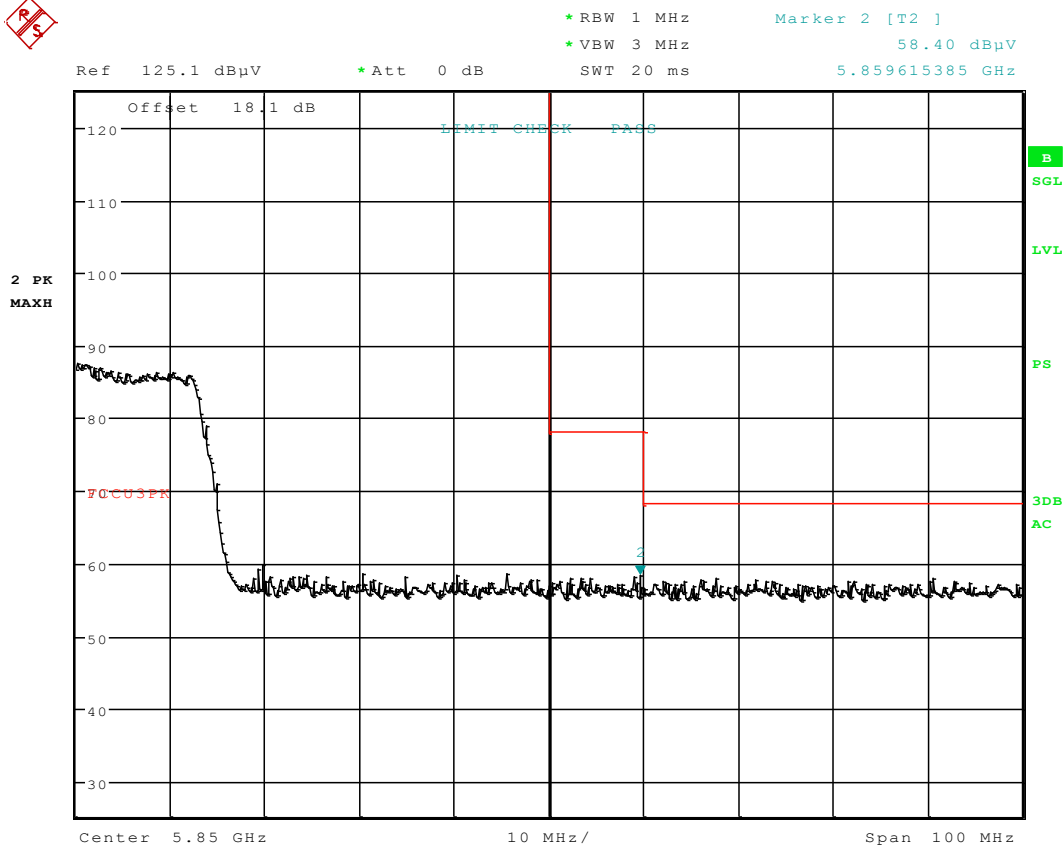
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 9.JUN.2015 03:32:10

Plot 6-187. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 150 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

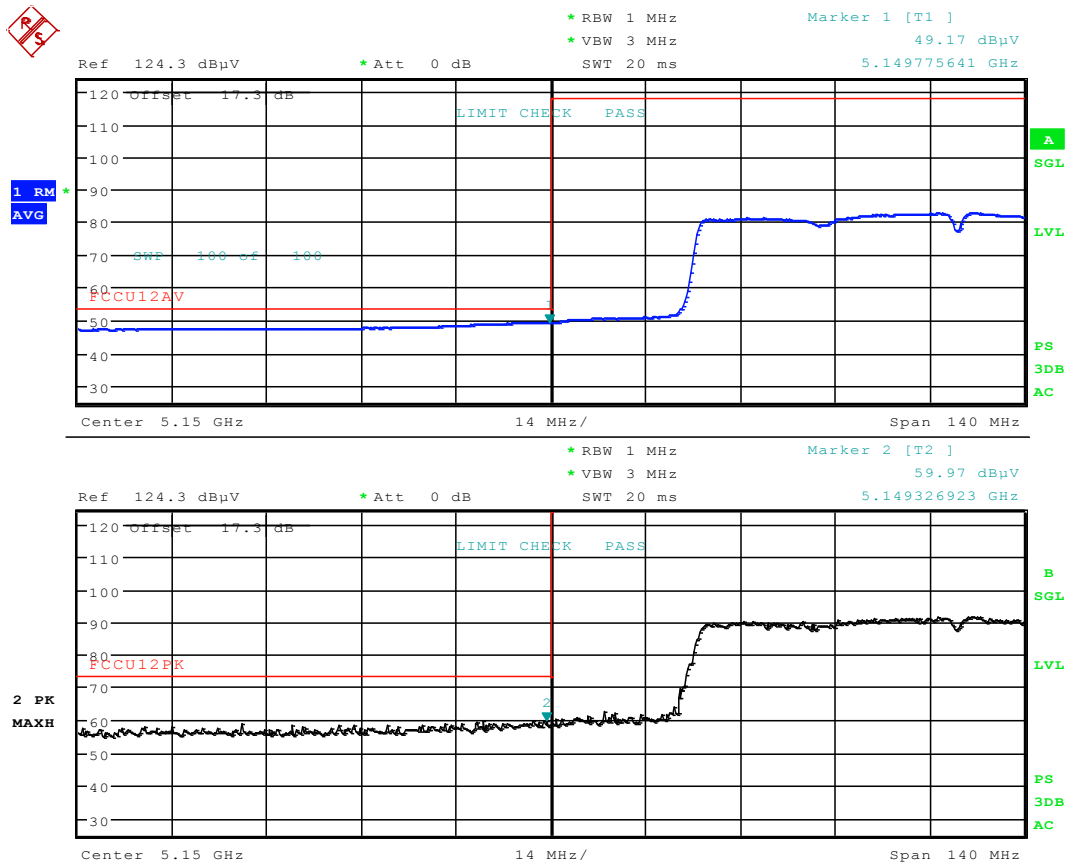
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 9.JUN.2015 03:39:39

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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 151 of 194

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

\$15.407(b.1)(b.2) \$15.205 \$15.209

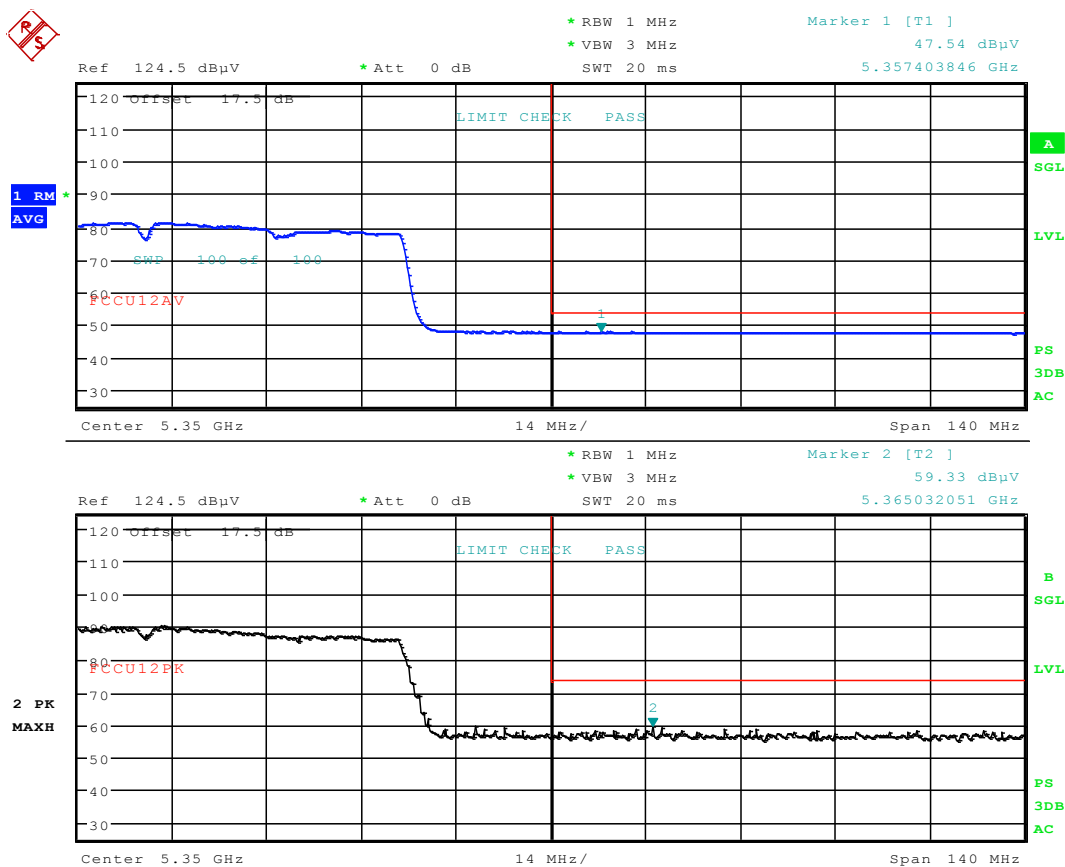
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 9.JUN.2015 03:46:07

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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 152 of 194

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

\$15.407(b.1)(b.2) \$15.205 \$15.209

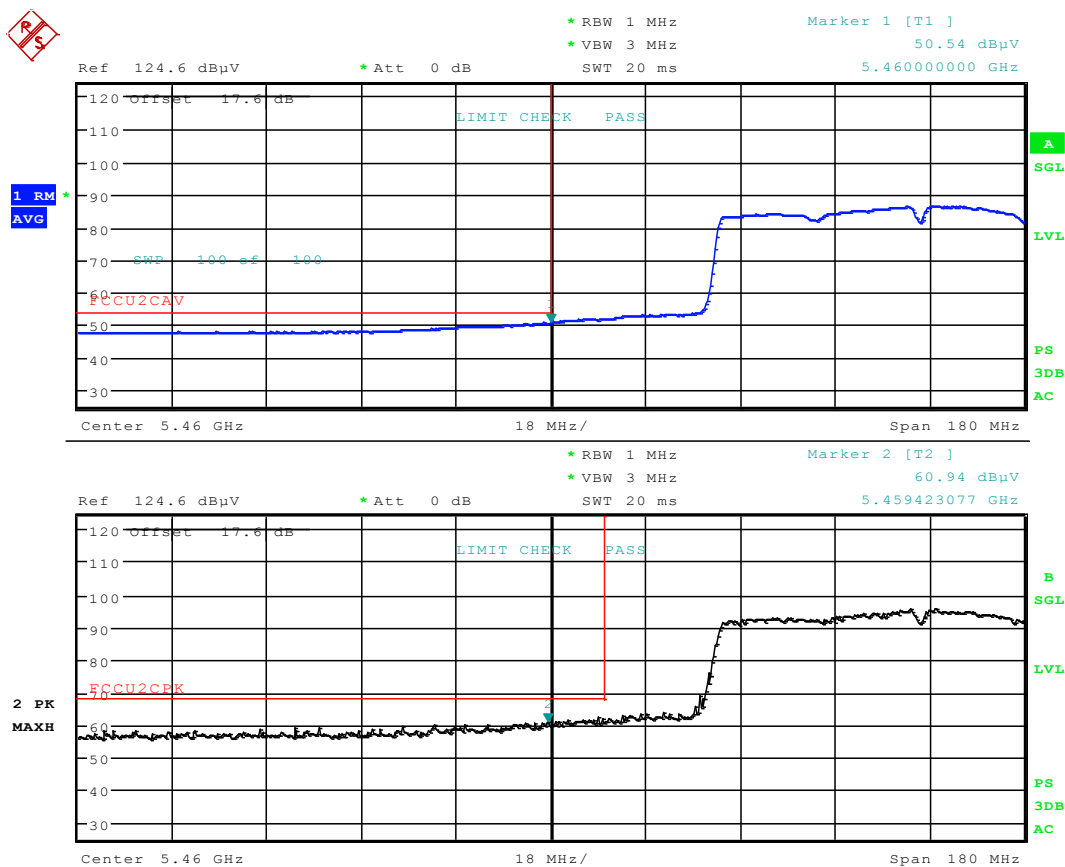
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 9.JUN.2015 03:53:39

Plot 6-190. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 153 of 194

Antenna-1 Radiated Band Edge Measurements (80MHz BW) **§15.407(b.1)(b.2) §15.205 §15.209**

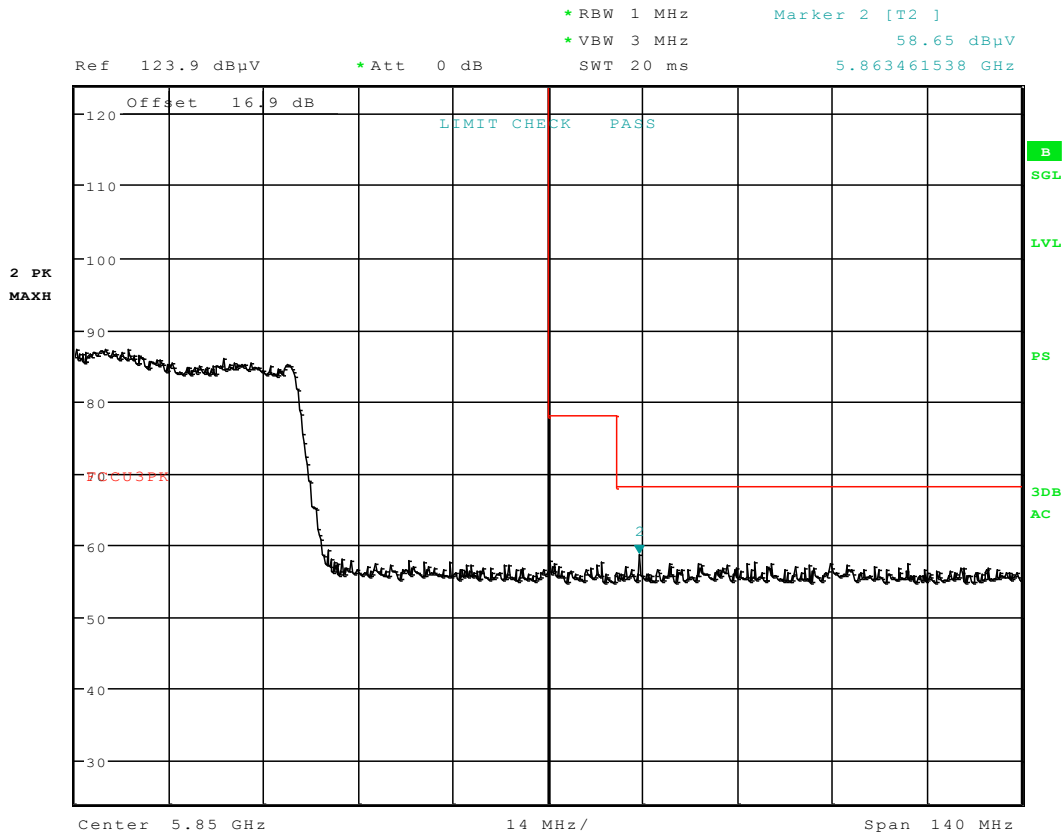
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 29.JUN.2015 19:17:37

Plot 6-191. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 154 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

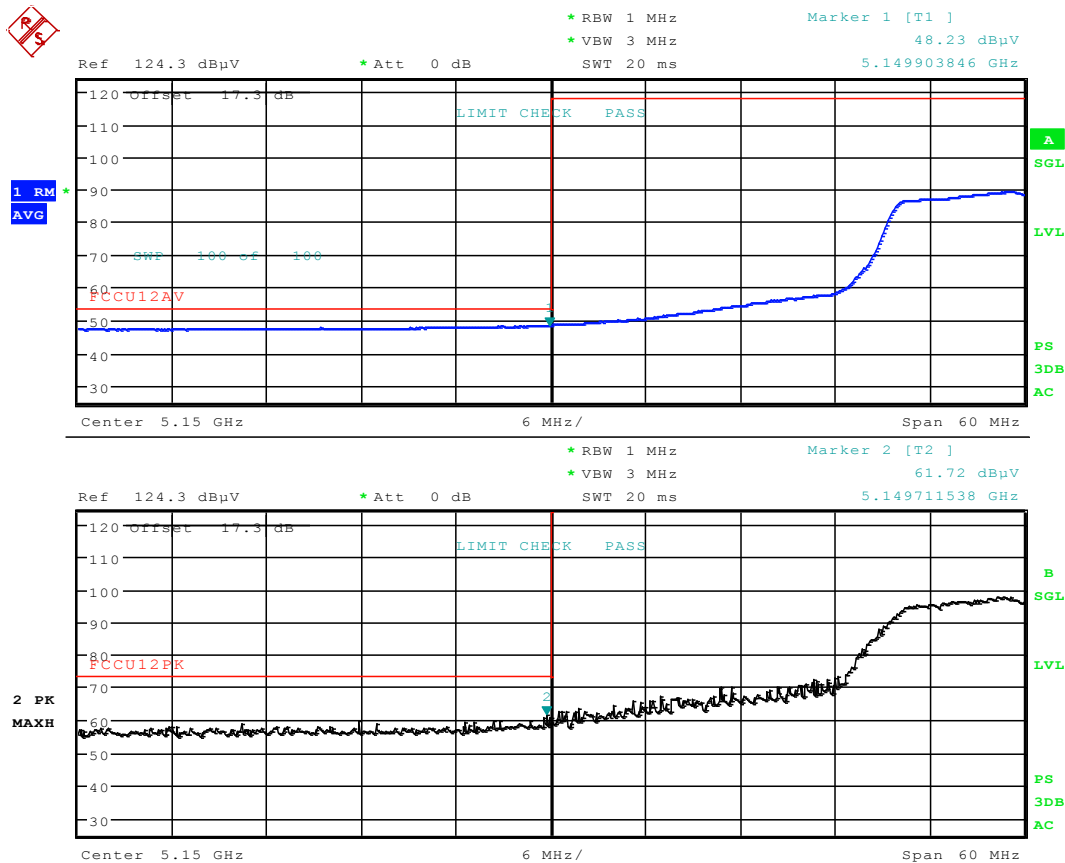
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 9.JUN.2015 04:18:57

Plot 6-192. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 1)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 155 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

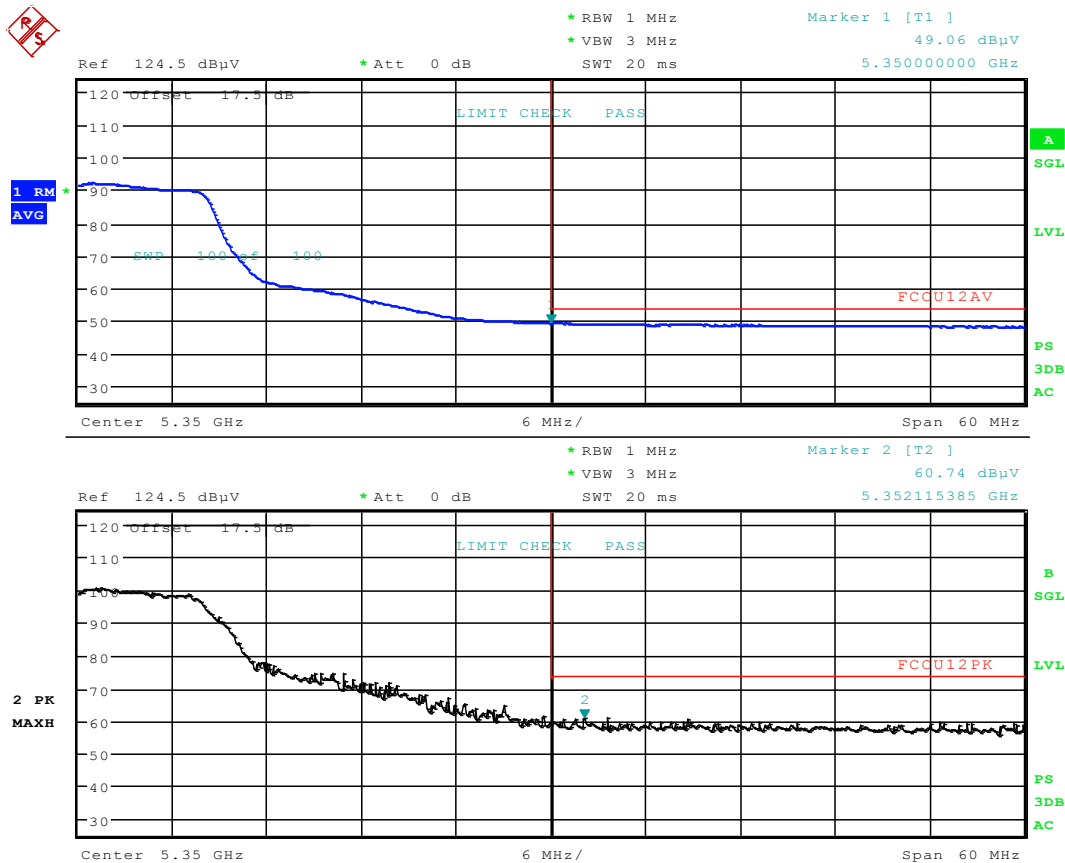
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 9.JUN.2015 04:29:48

Plot 6-193. Radiated Restricted Upper Band Edge Plot (Average/Peak – UNII Band 2A)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 156 of 194

Antenna-2 Radiated Band Edge Measurements (20MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

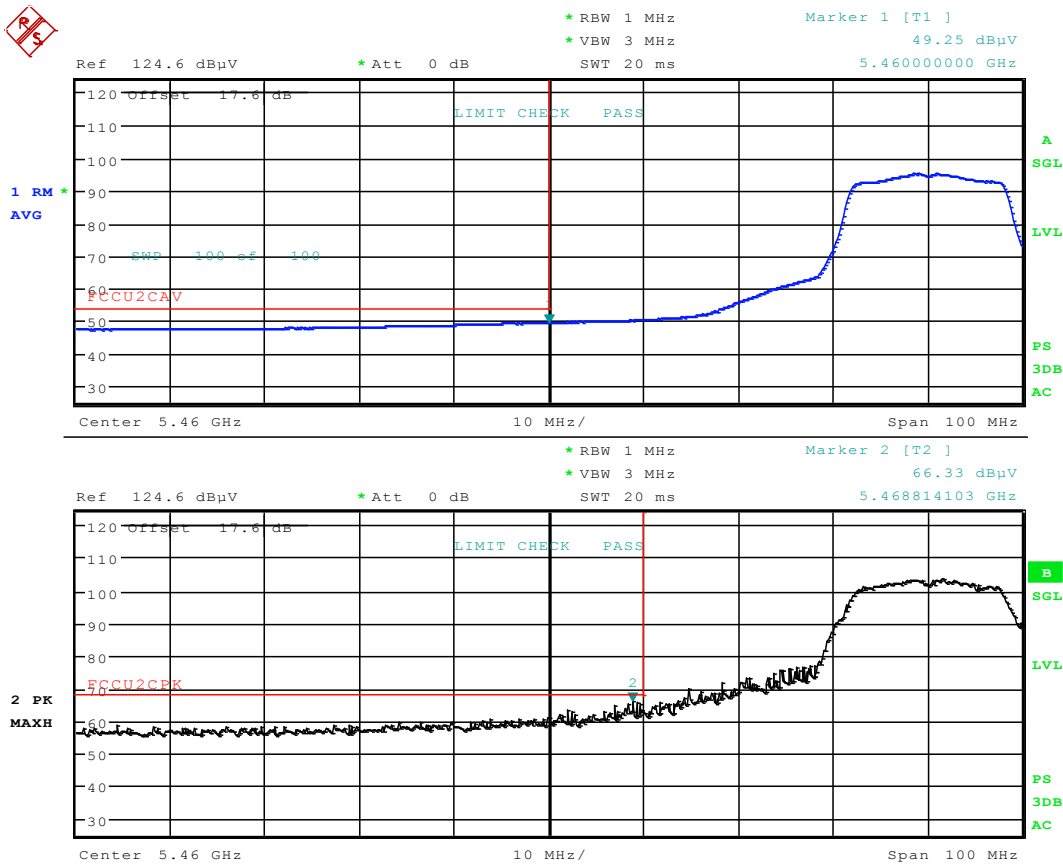
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 9.JUN.2015 04:36:16

Plot 6-194. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 157 of 194

Antenna-2 Radiated Band Edge Measurements (20MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

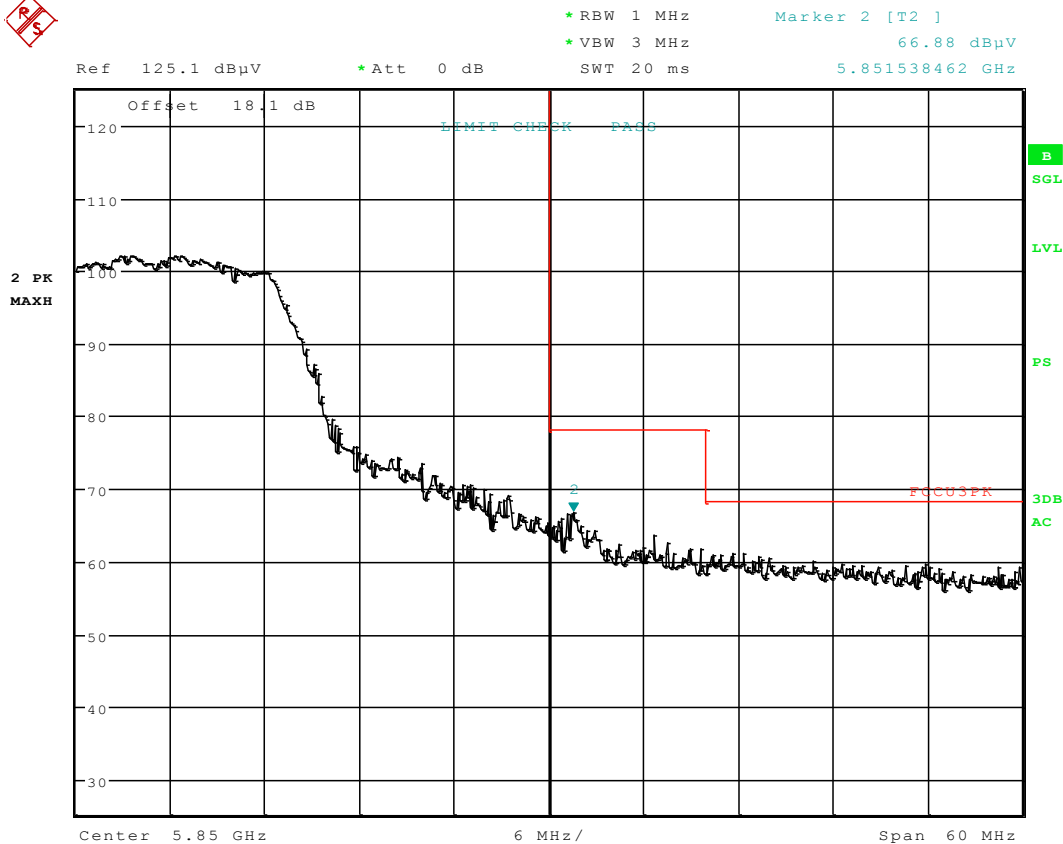
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 9.JUN.2015 04:58:29

Plot 6-195. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 158 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

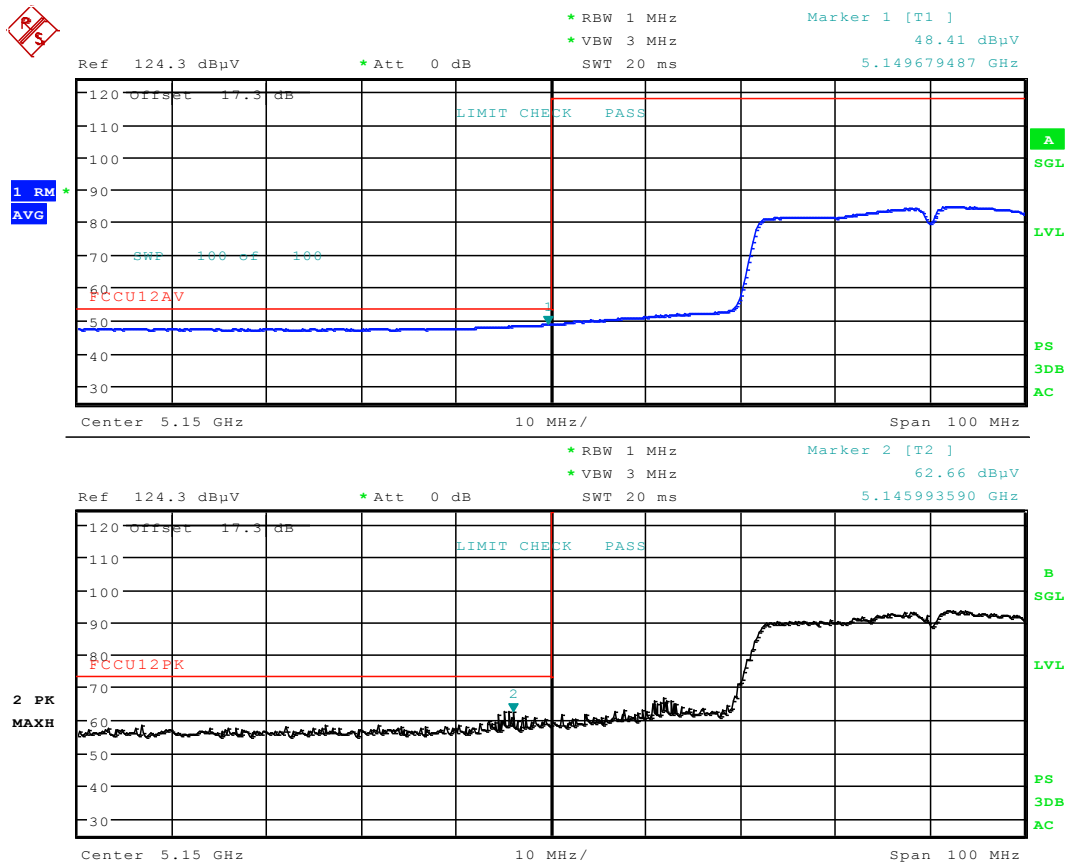
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 9.JUN.2015 05:17:29

Plot 6-196. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 1)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 159 of 194

Antenna-2 Radiated Band Edge Measurements (40MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

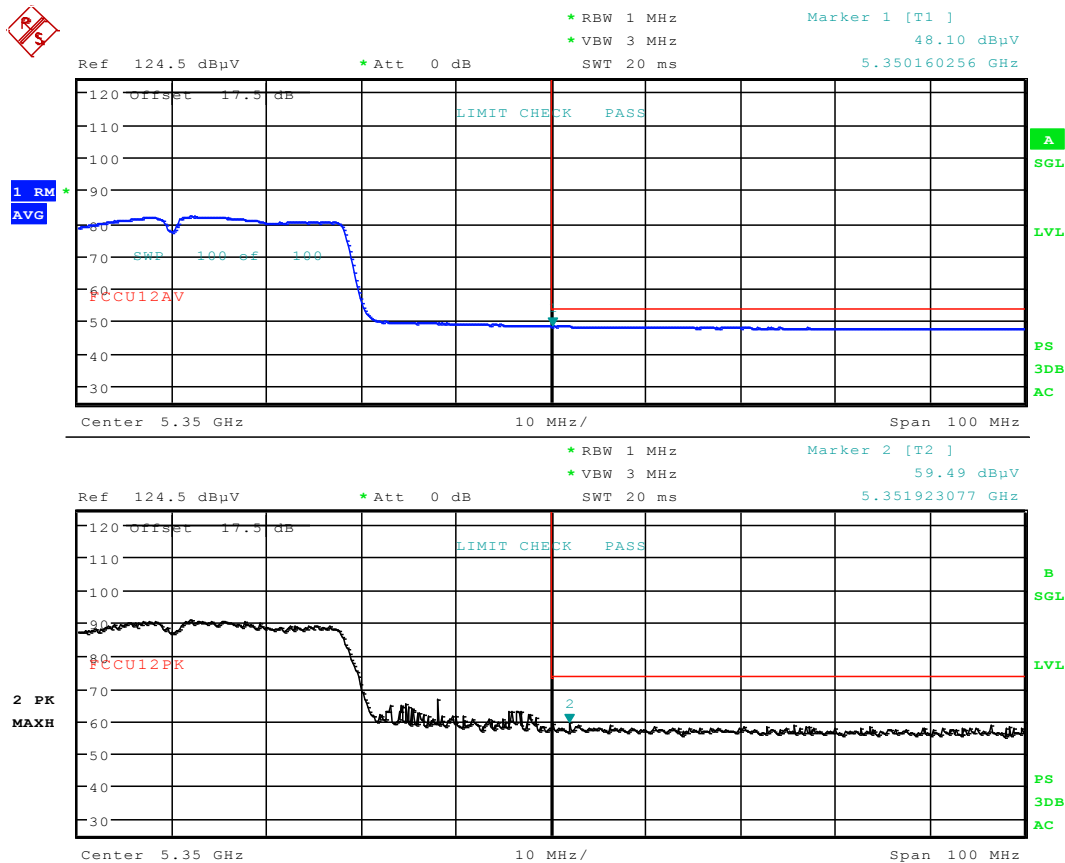
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 9.JUN.2015 05:29:21

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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 160 of 194

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

\$15.407(b.1)(b.2) \$15.205 \$15.209

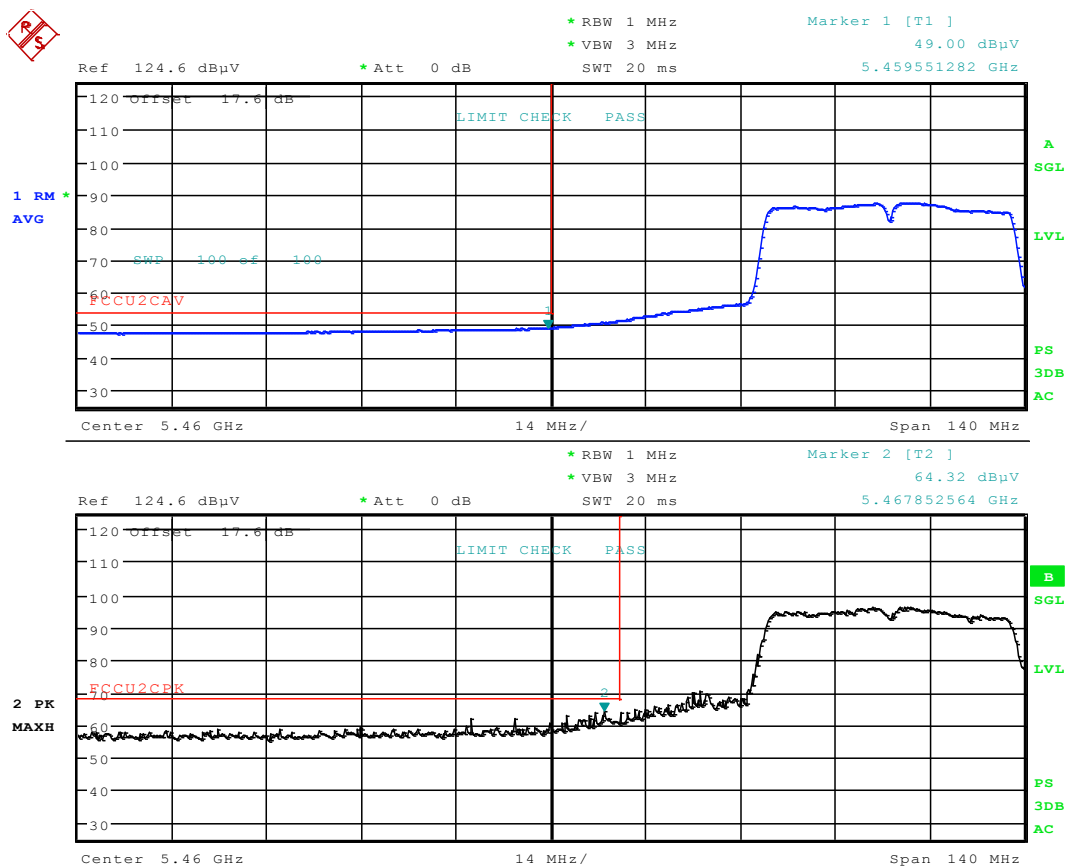
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 9.JUN.2015 05:40:41

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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 161 of 194

Antenna-2 Radiated Band Edge Measurements (40MHz BW) **\$15.407(b.1)(b.2) \$15.205 \$15.209**

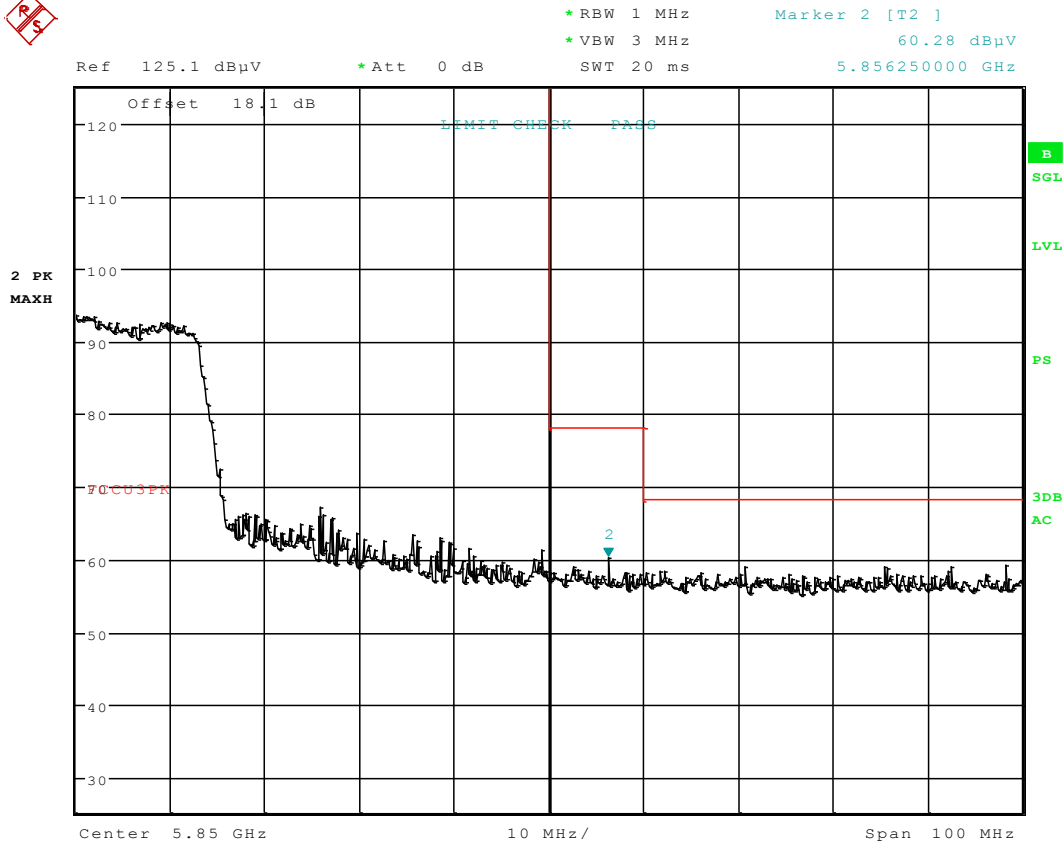
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 9.JUN.2015 05:49:13

Plot 6-199. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 162 of 194

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

§15.407(b.1)(b.2) §15.205 §15.209

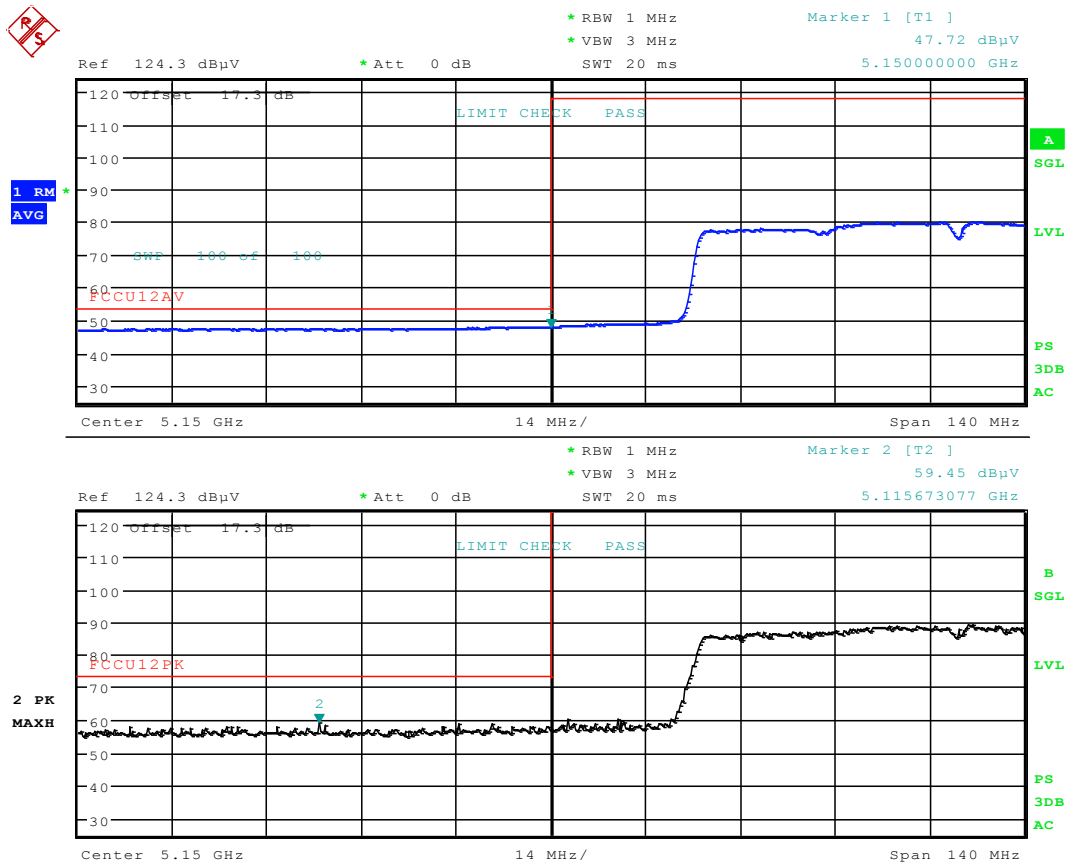
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 9.JUN.2015 05:56:30

Plot 6-200. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 1)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 163 of 194

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

\$15.407(b.1)(b.2) \$15.205 \$15.209

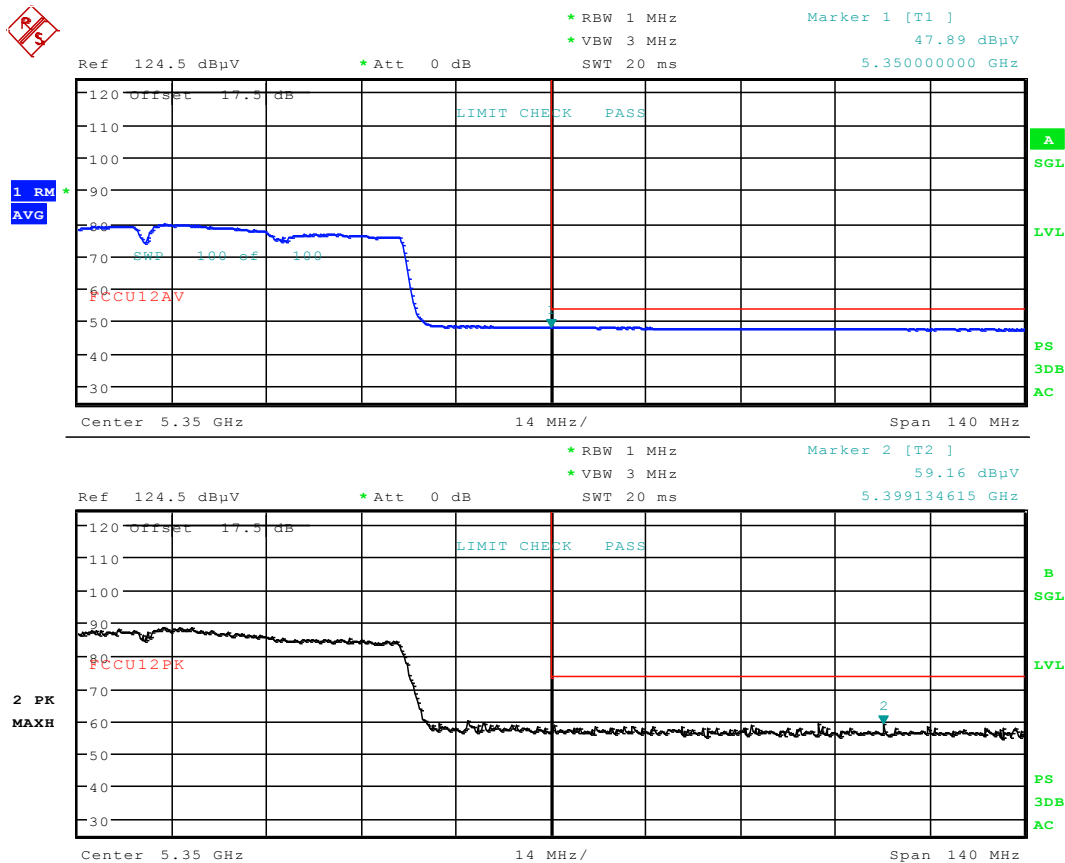
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 9.JUN.2015 06:03:33

Plot 6-201. Radiated Restricted Upper Band Edge Plot (Average/Peak – UNII Band 2A)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 164 of 194

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

\$15.407(b.1)(b.2) \$15.205 \$15.209

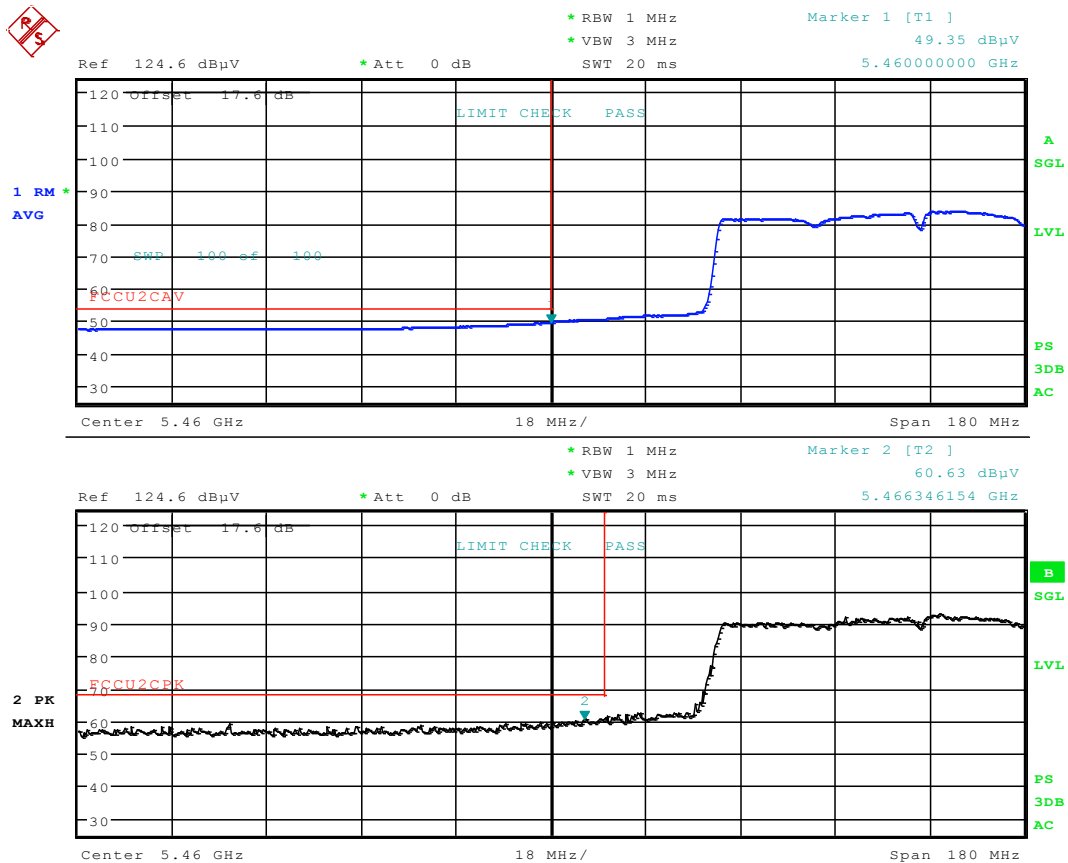
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 9.JUN.2015 06:11:17

Plot 6-202. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 165 of 194

6.7.10 MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

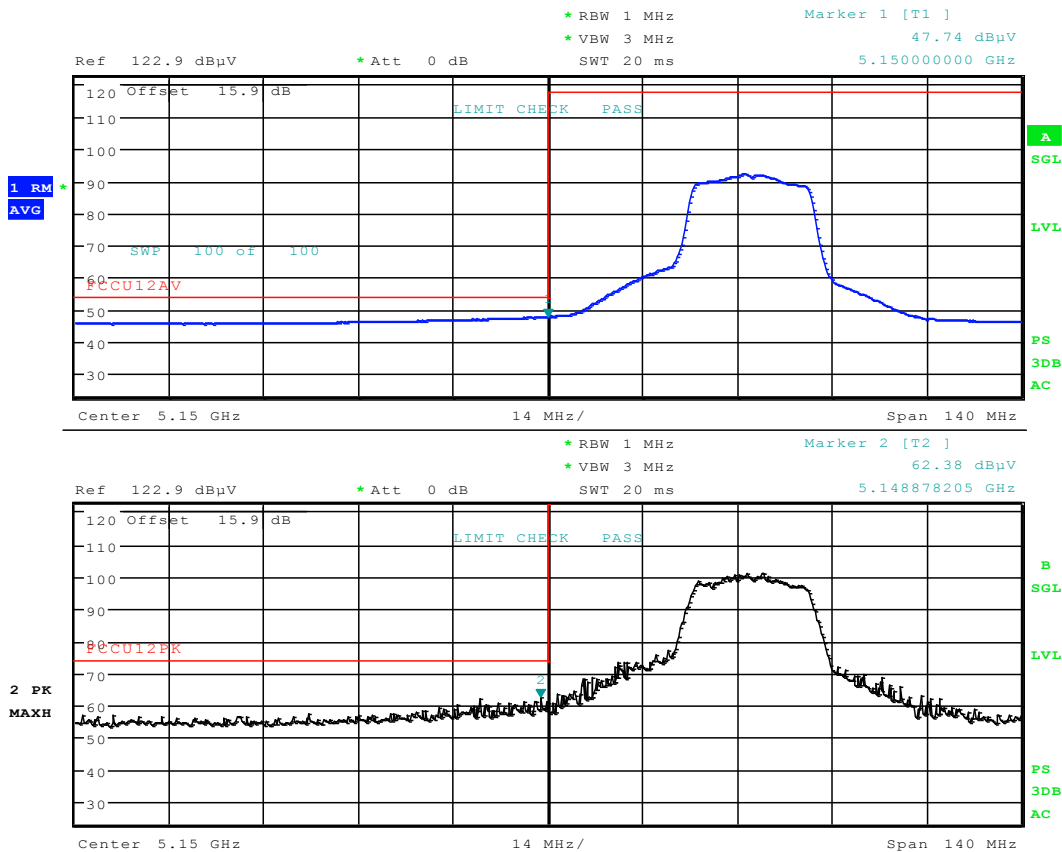
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 29.JUN.2015 19:21:39

Plot 6-204. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 1)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 167 of 194

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

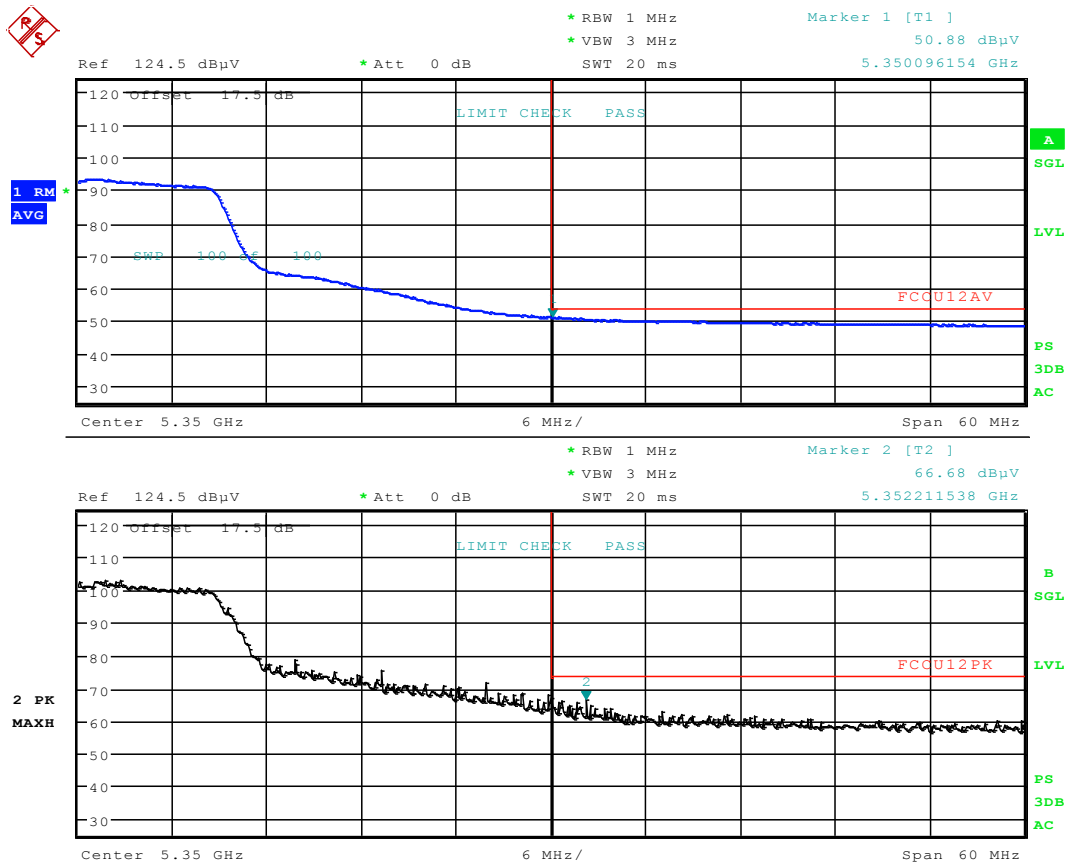
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 9.JUN.2015 07:12:36

Plot 6-205. Radiated Restricted Upper Band Edge Plot (Average/Peak – UNII Band 2A)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 168 of 194

MIMO Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

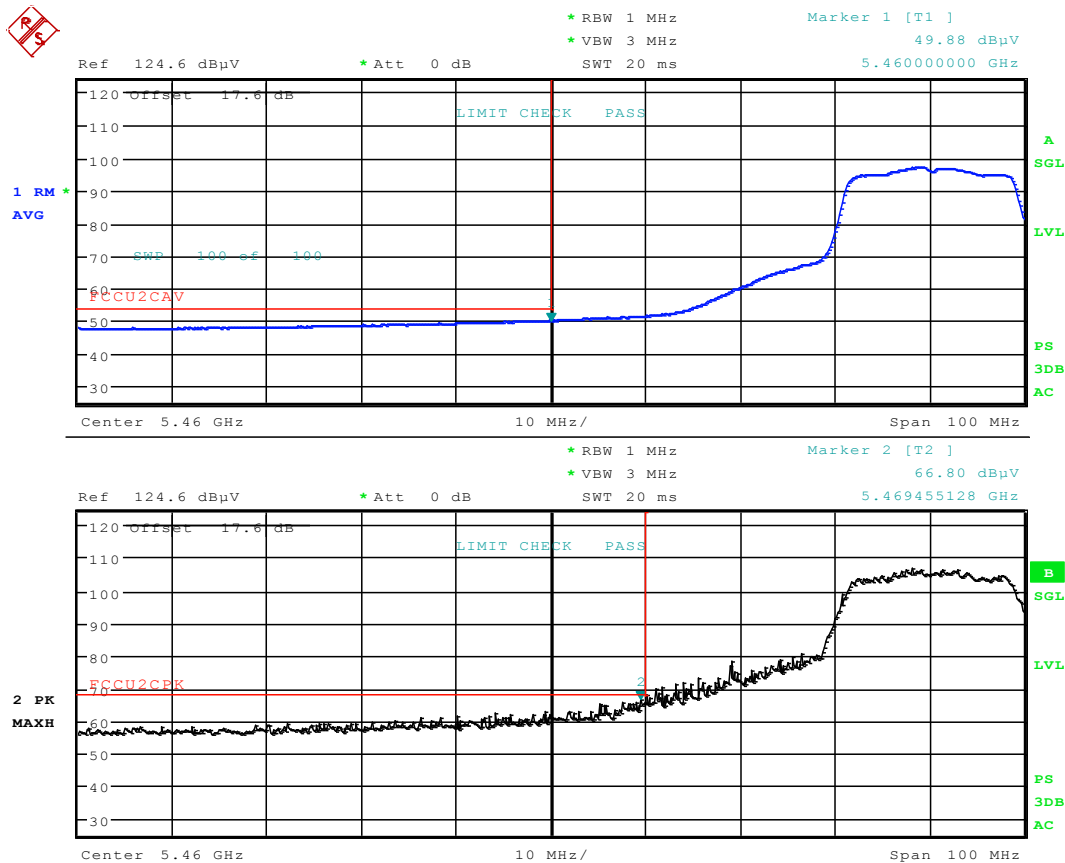
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 9.JUN.2015 07:25:39

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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 169 of 194

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

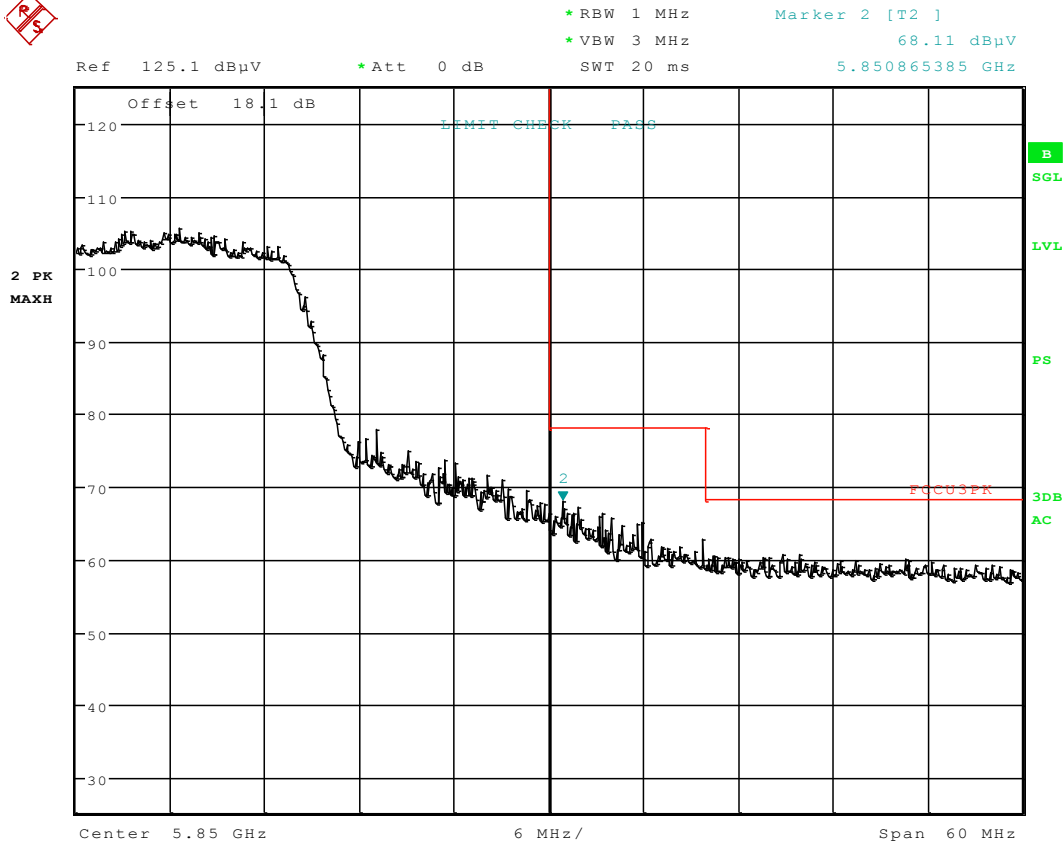
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



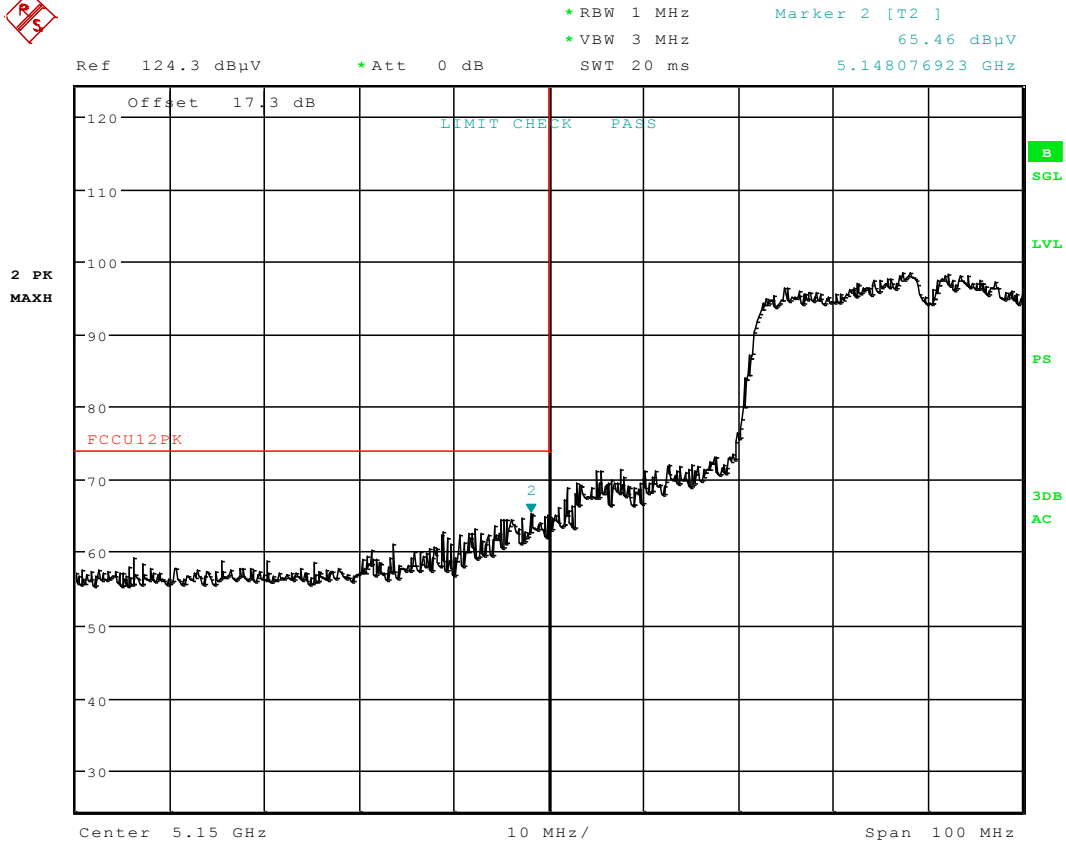
Date: 9.JUN.2015 07:32:31

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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 170 of 194

MIMO Radiated Band Edge Measurements (40MHz BW)

\$15.407(b.1)(b.2) \$15.205 \$15.209



Date: 9.JUN.2015 07:44:05

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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 172 of 194

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

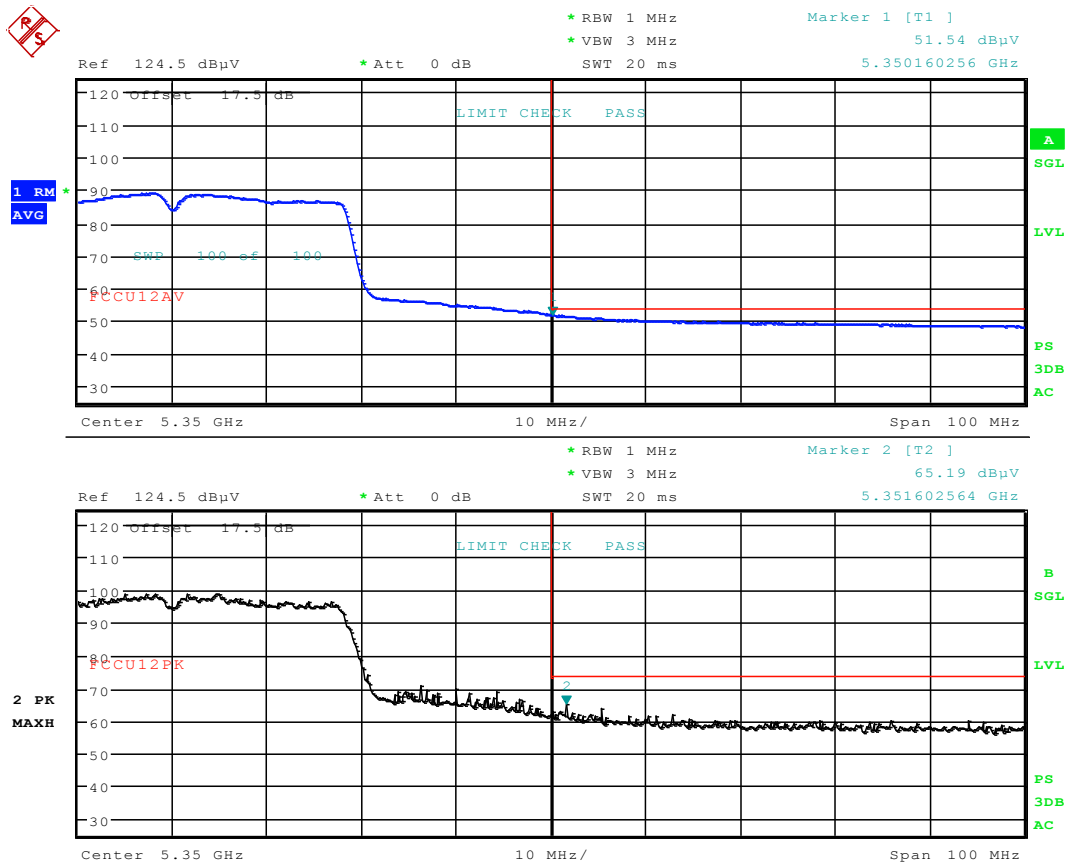
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 9.JUN.2015 07:50:16

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

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 173 of 194

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

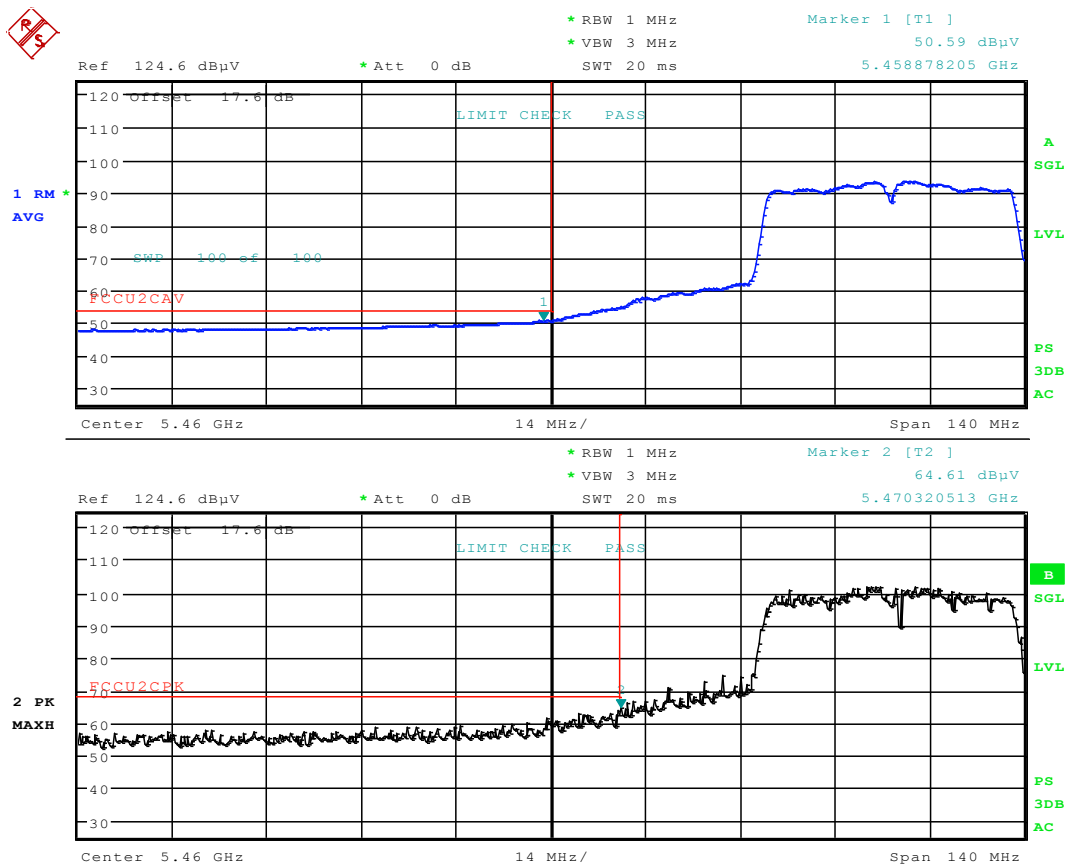
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 9.JUN.2015 07:55:36

Plot 6-211. Radiated Restricted Lower Band Edge Plot (Average/Peak – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

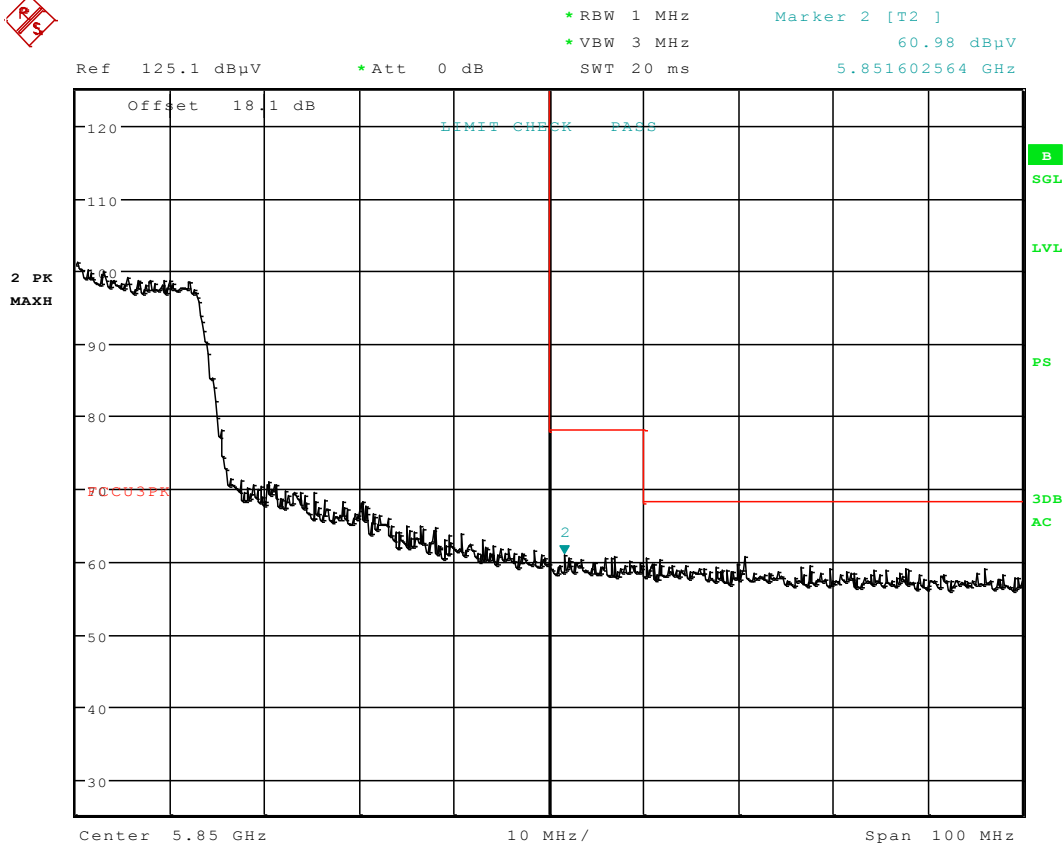
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



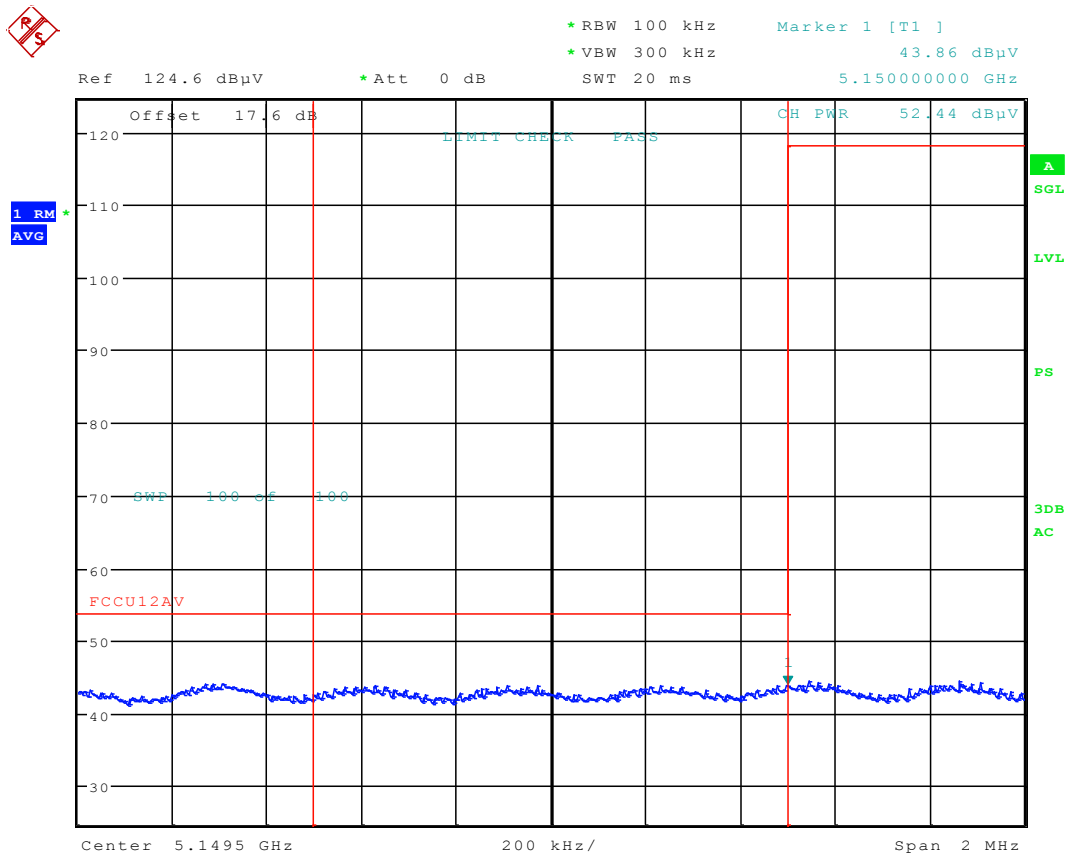
Date: 9.JUN.2015 08:00:25

Plot 6-212. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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6.7.12 MIMO Radiated Band Edge Measurements (80MHz BW)
§15.407(b.1)(b.2) §15.205 §15.209

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



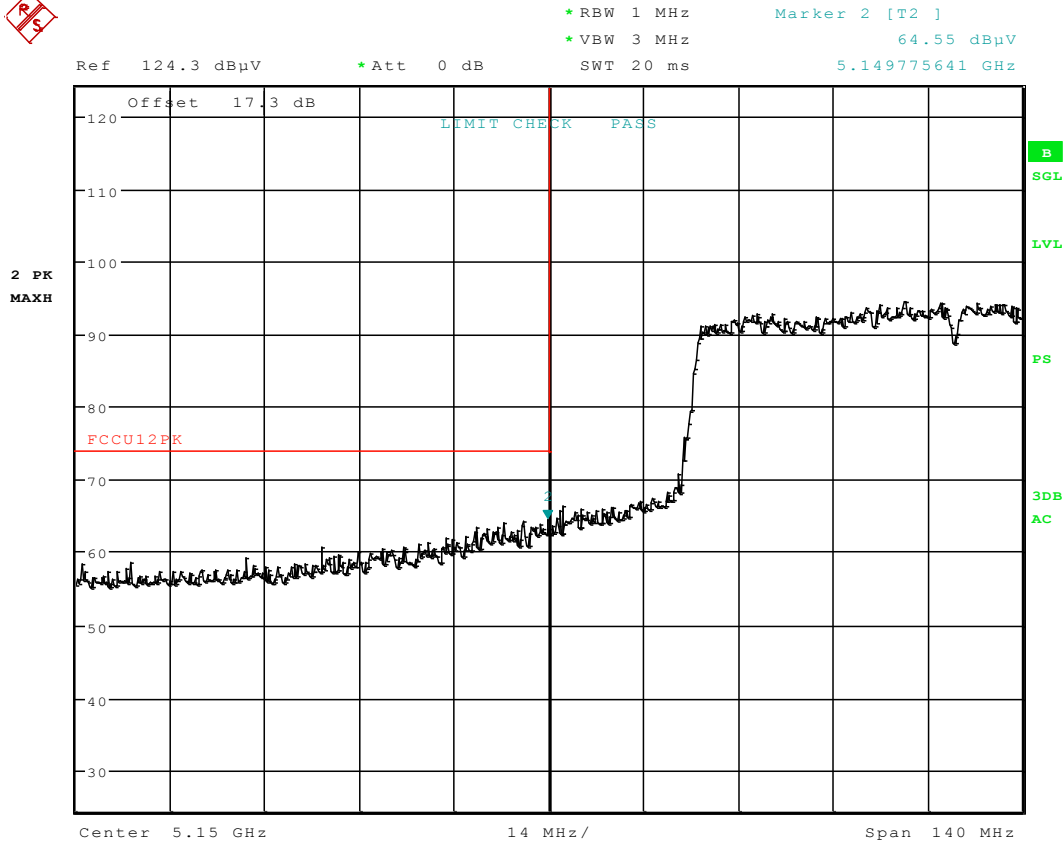
Date: 9.JUN.2015 08:18:08

Plot 6-213. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN920P	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2015 08:18:30

Plot 6-214. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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MIMO Radiated Band Edge Measurements (80MHz BW)

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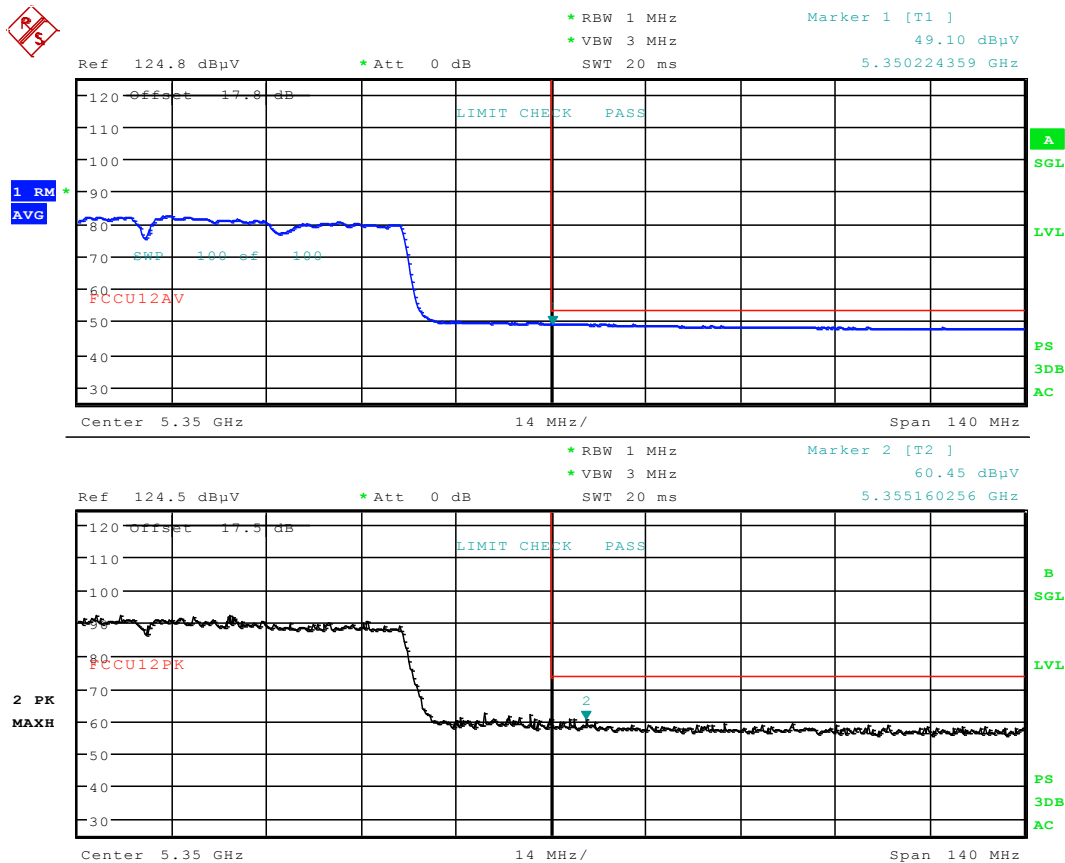
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



Date: 9.JUN.2015 08:27:21

Plot 6-215. Radiated Restricted Upper Band Edge Plot (Average/Peak – UNII Band 2A)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 178 of 194

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

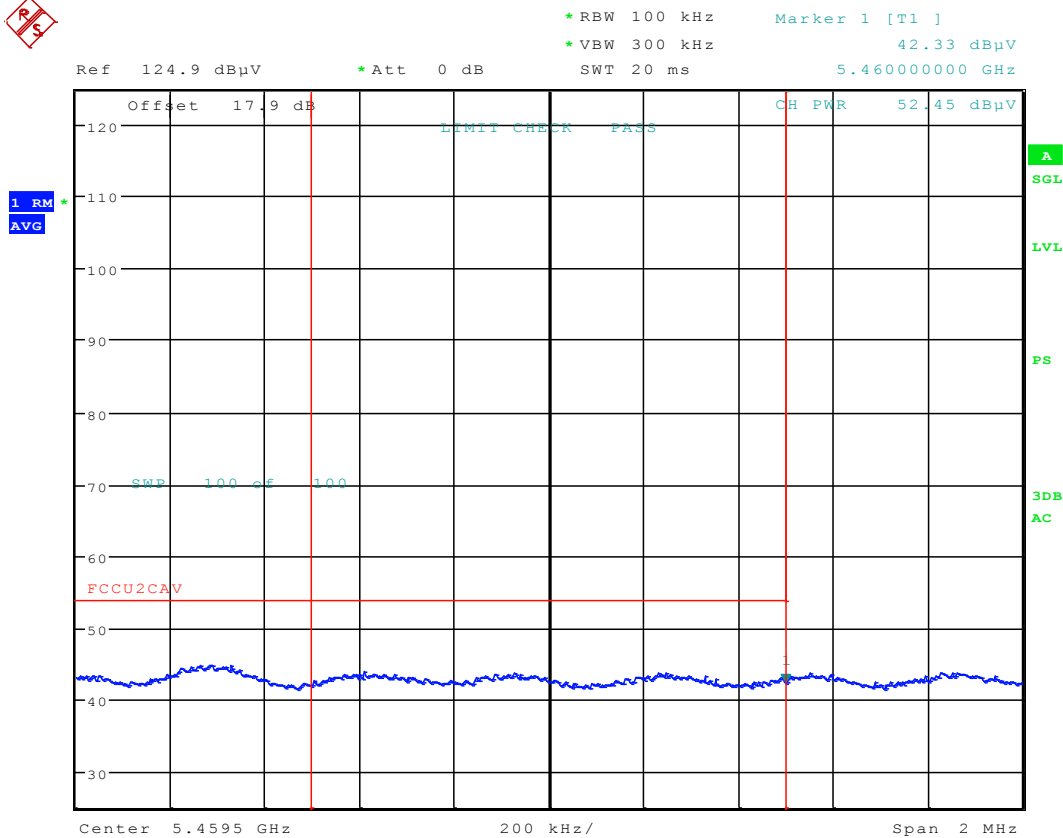
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



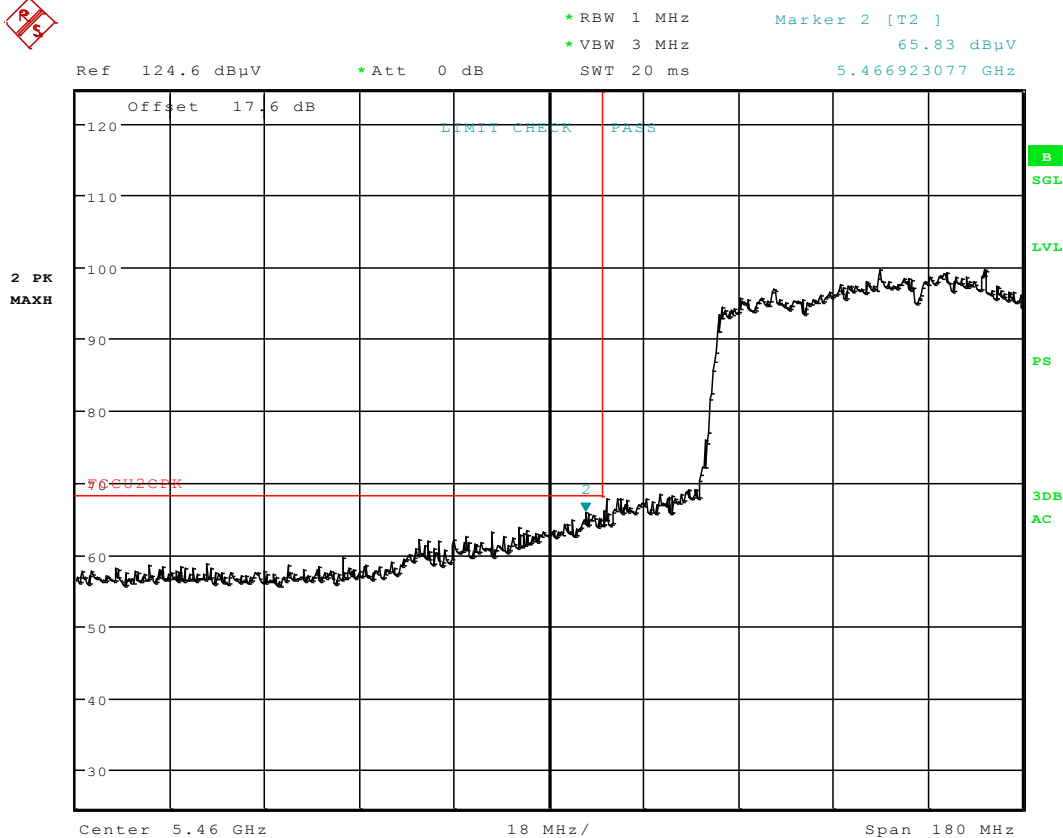
Date: 9.JUN.2015 08:35:40

Plot 6-216. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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MIMO Radiated Band Edge Measurements (80MHz BW)

\$15.407(b.1)(b.2) \$15.205 \$15.209



Date: 9.JUN.2015 08:36:02

Plot 6-217. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

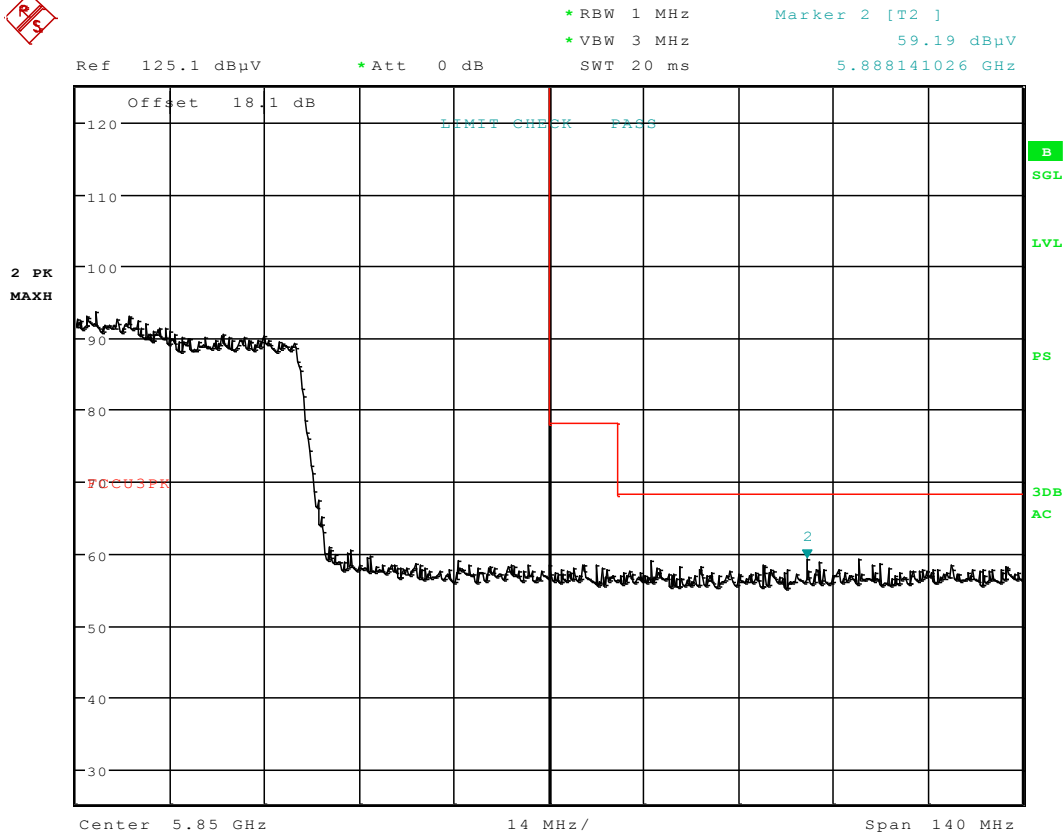
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 9.JUN.2015 08:41:31

Plot 6-218. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 181 of 194

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 6-58 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 6-58. 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

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Test Setup

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

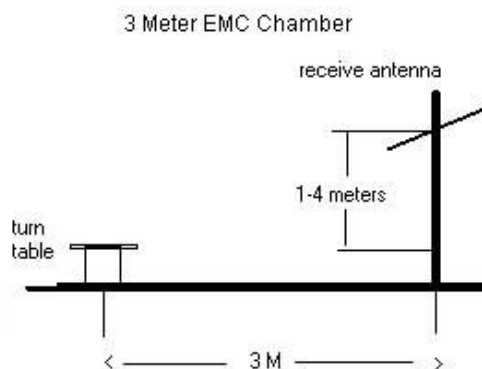


Figure 6-6. Test Instrument & Measurement Setup

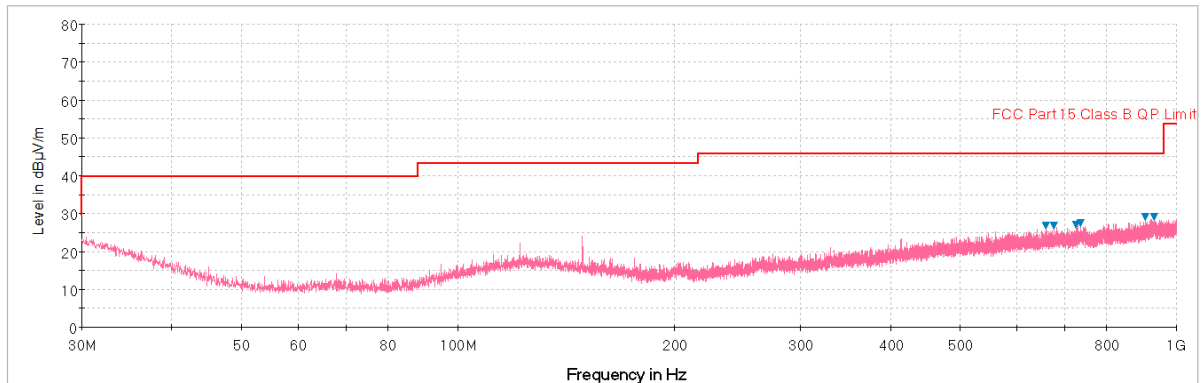
Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-56.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. 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.
4. Emissions were measured at a 3 meter test distance.
5. 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.
6. No spurious emissions were detected within 20dB of the limit below 30MHz.
7. 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.
8. 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.
9. This unit was tested with its standard battery.

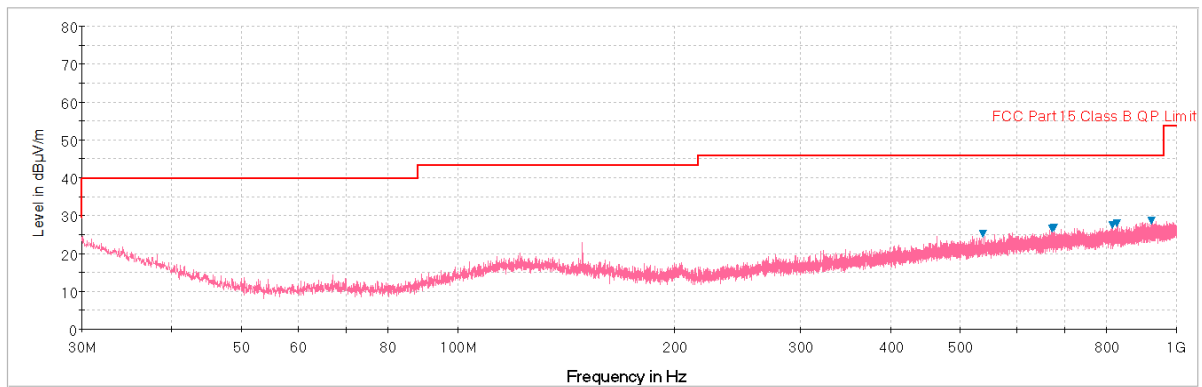
FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Antenna-1 Radiated Spurious Emissions Measurements (Below 1GHz)

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Plot 6-219. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

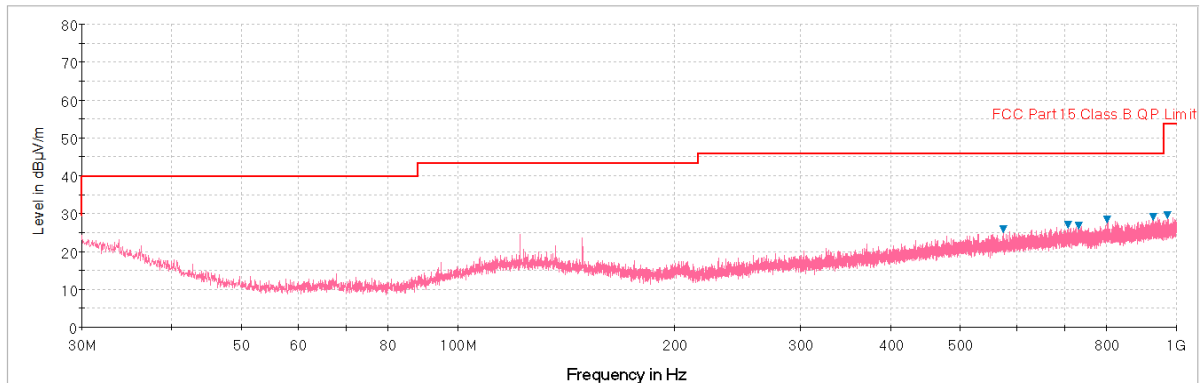


Plot 6-220. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

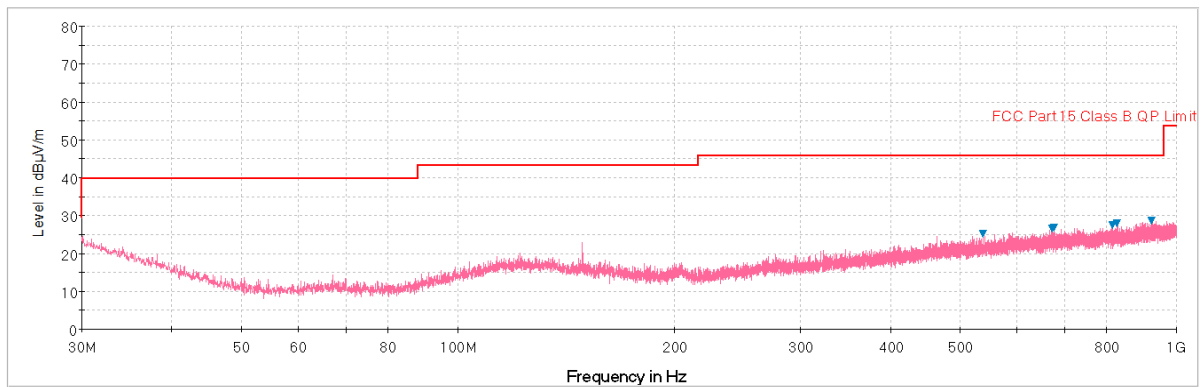
FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Antenna-2 Radiated Spurious Emissions Measurements (Below 1GHz)

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Plot 6-221. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

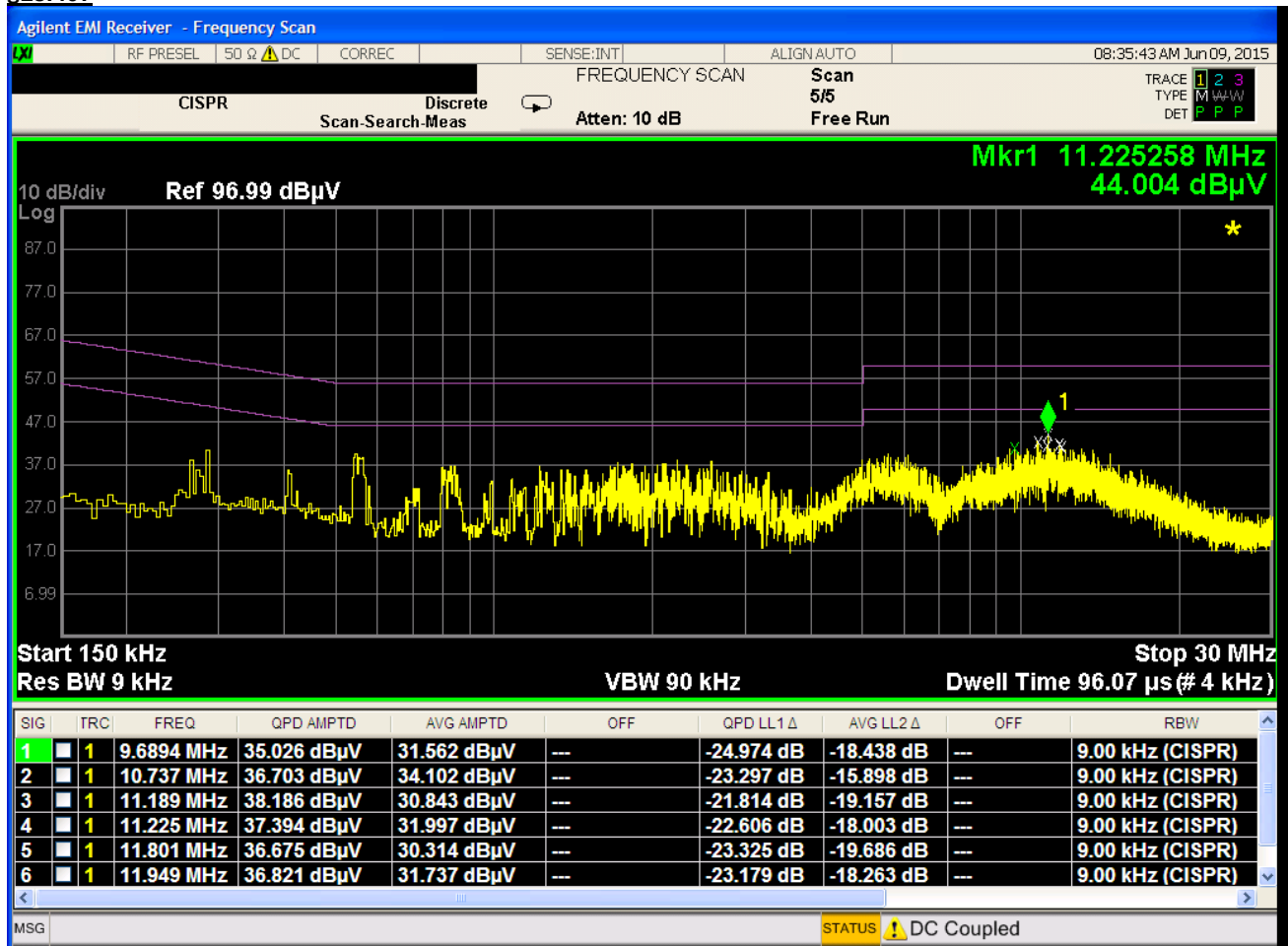


Plot 6-222. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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6.9 Line-Conducted Test Data

\$15.407



Plot 6-223. Line Conducted Plot with 802.11a UNII Band 1 (L1)

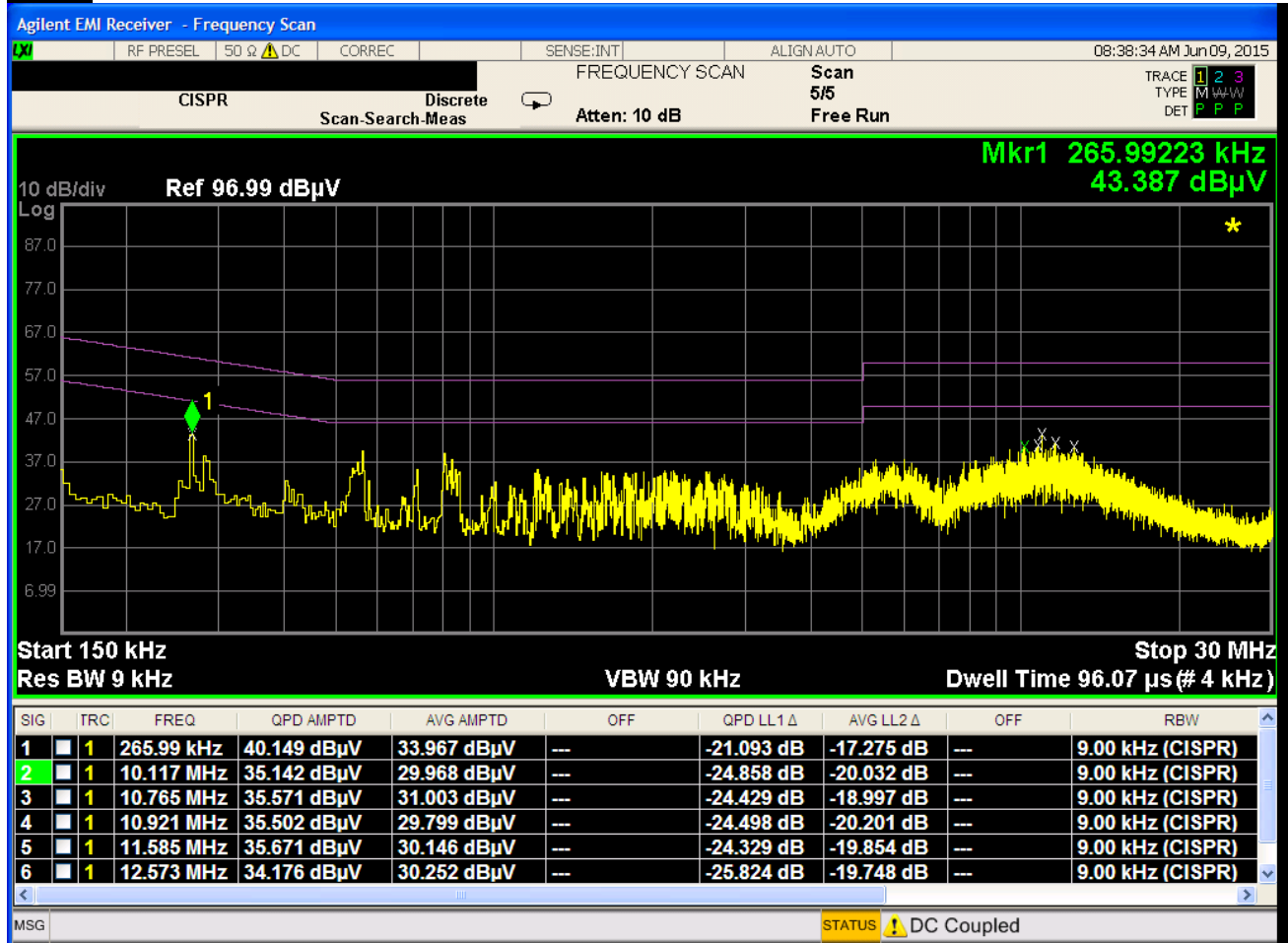
Notes:

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.

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Line-Conducted Test Data

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Plot 6-224. Line Conducted Plot with 802.11a UNII Band 1 (N)

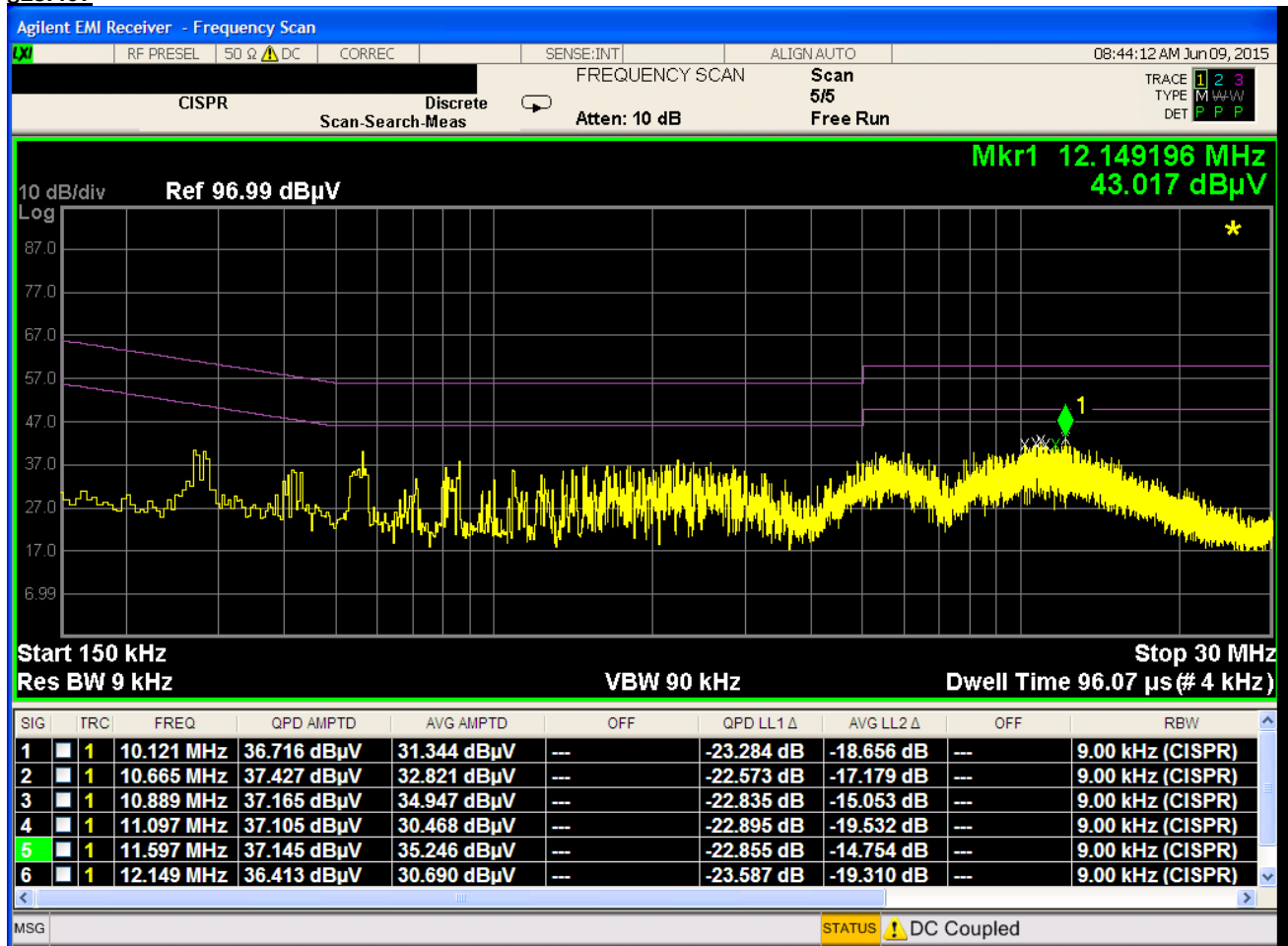
Notes:

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.

FCC ID: A3LSMN920P	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Line-Conducted Test Data

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Plot 6-225. Line Conducted Plot with 802.11a UNII Band 2A (L1)

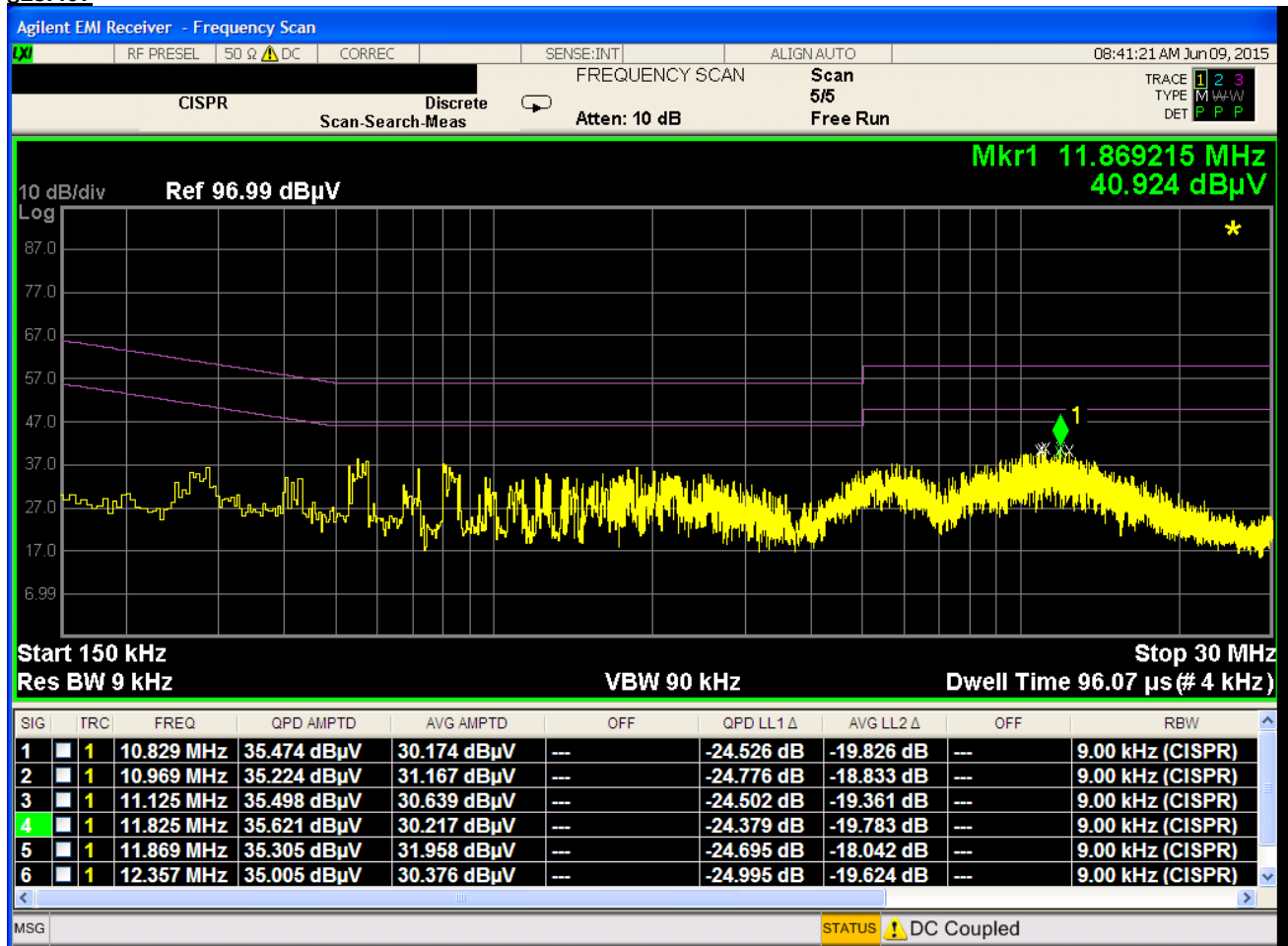
Notes:

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.

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Line-Conducted Test Data

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Plot 6-226. Line Conducted Plot with 802.11a UNII Band 2A (N)

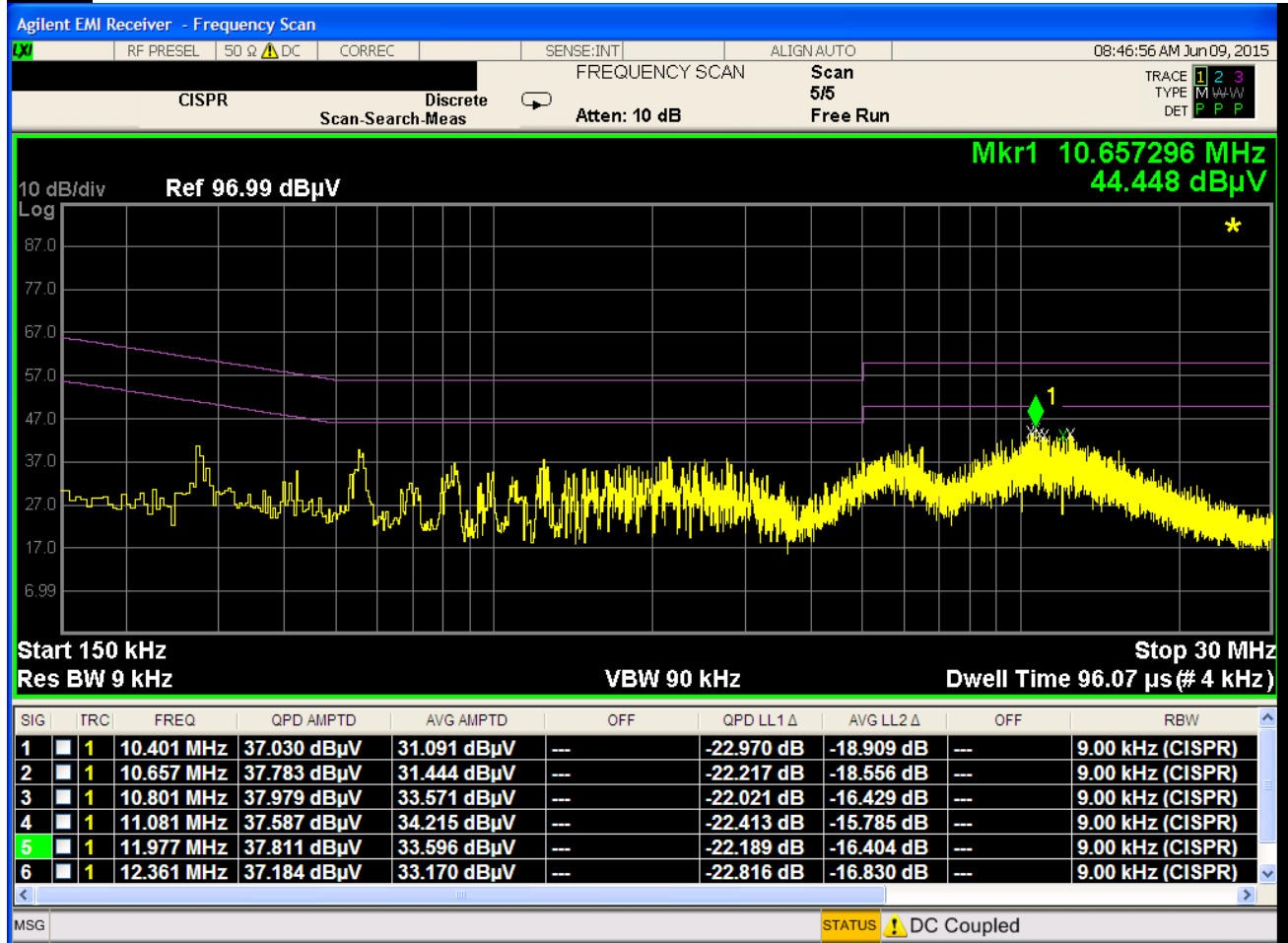
Notes:

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.

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Line-Conducted Test Data

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Plot 6-227. Line Conducted Plot with 802.11a UNII Band 2C (L1)

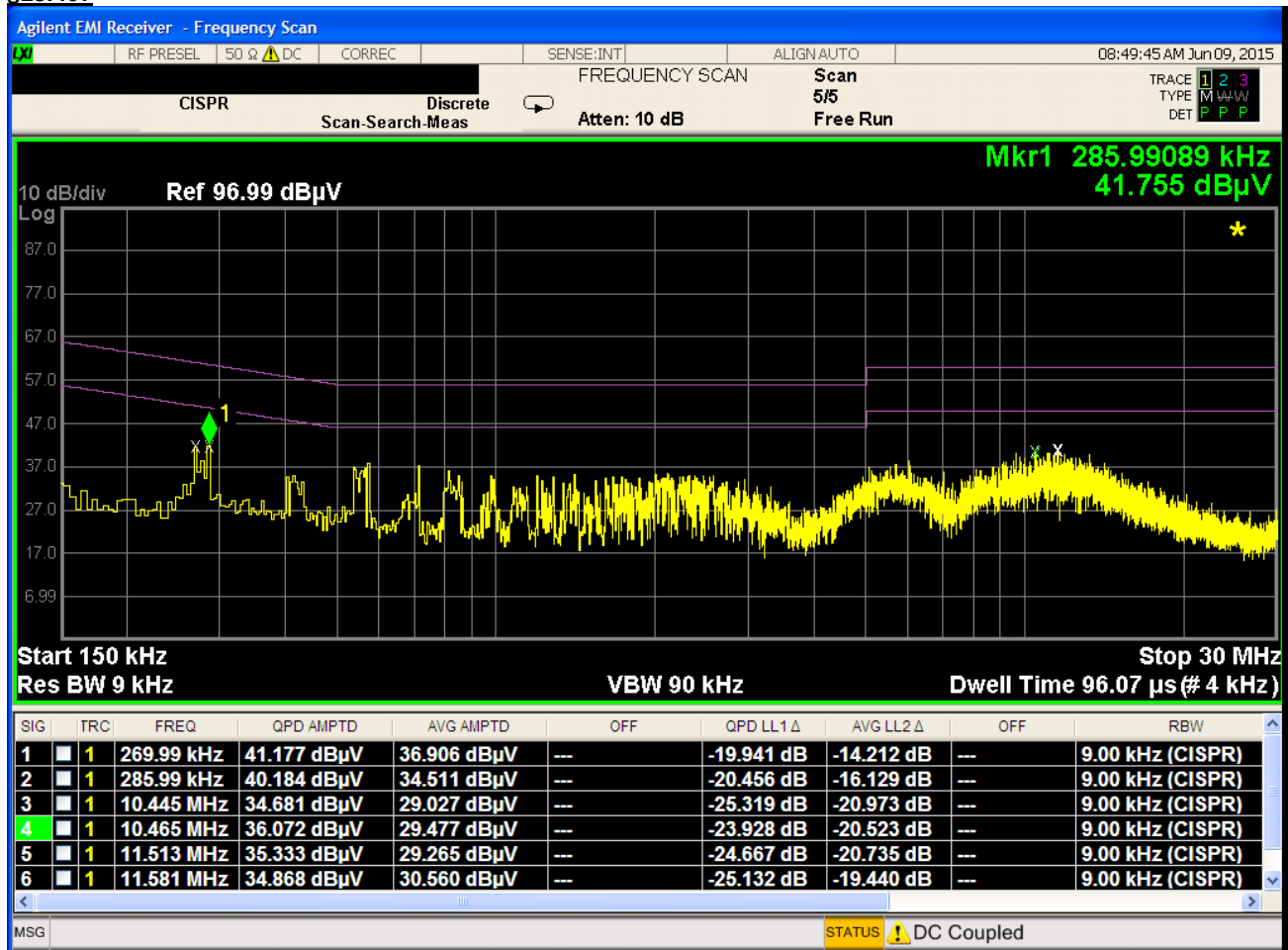
Notes:

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.

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Line-Conducted Test Data

\$15.407



Plot 6-228. Line Conducted Plot with 802.11a UNII Band 2C (N)

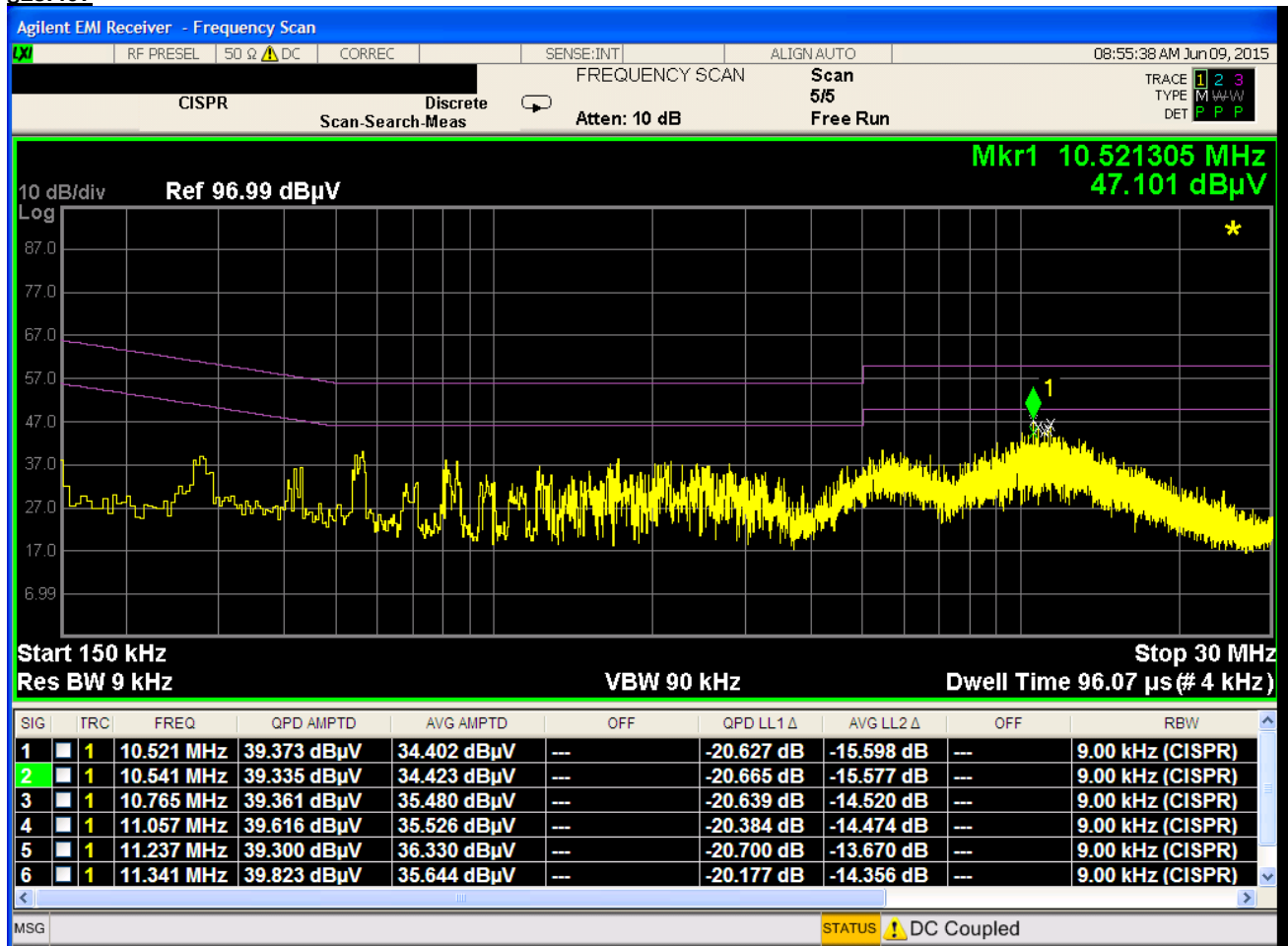
Notes:

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.

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Line-Conducted Test Data

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Plot 6-229. Line Conducted Plot with 802.11a UNII Band 3 (L1)

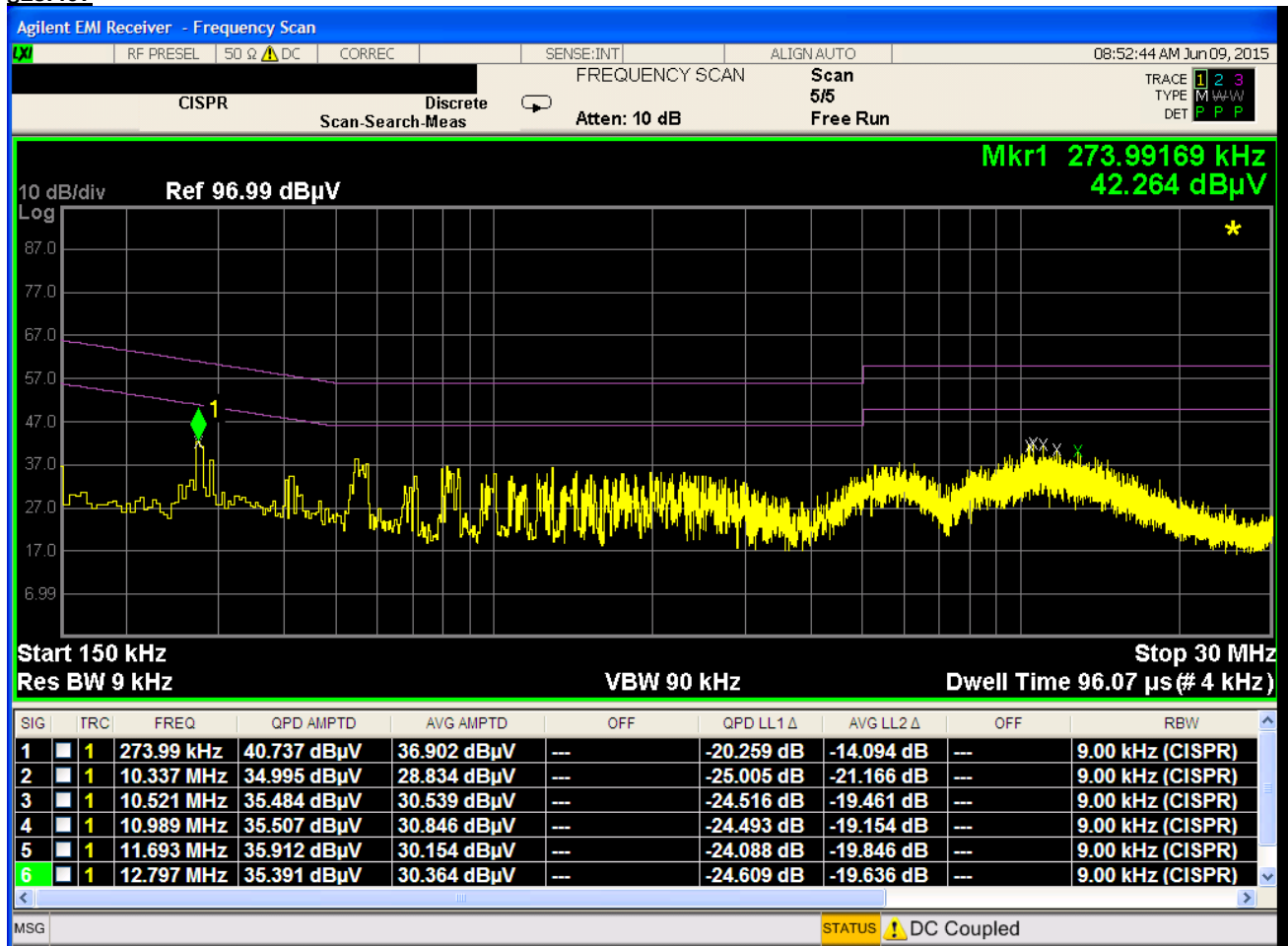
Notes:

- 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 149. The emissions found were not affected by the choice of channel used during testing.
- The limit for Class B device(s) from 150kHz to 30MHz are specified in Section 15.207 of the Title 47 CFR.
- L1 = Phase; N = Neutral
- Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
- QP/AV Level (dBμV) = QP/AV Analyzer/Receiver Level (dBμV) + Corr. (dB)
- Margin (dB) = QP/AVLimit (dBμV) - QP/AV Level (dBμV)
- Traces shown in plot are made using a peak detector.
- Deviations to the Specifications: None.

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Line-Conducted Test Data

\$15.407



Plot 6-230. 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 149. 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.

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7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN920P** is in compliance with Part 15E of the FCC Rules.

FCC ID: A3LSMN920P		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506081047.A3L-R1	Test Dates: 6/8/2015 - 6/29/2015	EUT Type: Portable Handset		Page 194 of 194