

7.6 Frequency Stability

§15.407(g)

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

OPERATING FREQUENCY: 5,180,000,000 Hz
 CHANNEL: 36
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,179,999,877	-123	-0.00000237
100 %		- 30	5,179,999,950	-50	-0.00000097
100 %		- 20	5,179,999,894	-106	-0.00000205
100 %		- 10	5,179,999,784	-216	-0.00000417
100 %		0	5,179,999,672	-328	-0.00000633
100 %		+ 10	5,179,999,970	-30	-0.00000058
100 %		+ 20	5,179,999,856	-144	-0.00000278
100 %		+ 30	5,180,000,068	68	0.00000131
100 %		+ 40	5,180,000,274	274	0.00000529
100 %		+ 50	5,179,999,567	-433	-0.00000836
BATT. ENDPOINT	3.45	+ 20	5,179,999,575	-425	-0.00000820

Table 7-23. 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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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)	5,260,000,007	7	0.00000013
100 %		- 30	5,260,000,193	193	0.00000367
100 %		- 20	5,260,000,328	328	0.00000624
100 %		- 10	5,260,000,062	62	0.00000118
100 %		0	5,260,000,341	341	0.00000648
100 %		+ 10	5,260,000,136	136	0.00000259
100 %		+ 20	5,260,000,014	14	0.00000027
100 %		+ 30	5,260,000,043	43	0.00000082
100 %		+ 40	5,259,999,991	-9	-0.00000017
100 %		+ 50	5,259,999,984	-16	-0.00000030
BATT. ENDPOINT	3.45	+ 20	5,260,000,197	197	0.00000375

Table 7-24. 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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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)	5,500,000,194	194	0.00000353
100 %		- 30	5,500,000,108	108	0.00000196
100 %		- 20	5,500,000,090	90	0.00000164
100 %		- 10	5,500,000,014	14	0.00000025
100 %		0	5,499,999,875	-125	-0.00000227
100 %		+ 10	5,499,999,847	-153	-0.00000278
100 %		+ 20	5,500,000,034	34	0.00000062
100 %		+ 30	5,499,999,882	-118	-0.00000215
100 %		+ 40	5,500,000,095	95	0.00000173
100 %		+ 50	5,500,000,255	255	0.00000464
BATT. ENDPOINT	3.45	+ 20	5,499,999,937	-63	-0.00000115

Table 7-25. 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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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)	5,745,000,059	59	0.00000103
100 %		- 30	5,744,999,997	-3	-0.00000005
100 %		- 20	5,744,999,962	-38	-0.00000066
100 %		- 10	5,745,000,018	18	0.00000031
100 %		0	5,745,000,051	51	0.00000089
100 %		+ 10	5,744,999,973	-27	-0.00000047
100 %		+ 20	5,744,999,998	-2	-0.00000003
100 %		+ 30	5,744,999,542	-458	-0.00000797
100 %		+ 40	5,744,999,949	-51	-0.00000089
100 %		+ 50	5,745,000,199	199	0.00000346
BATT. ENDPOINT	3.45	+ 20	5,744,999,992	-8	-0.00000014

Table 7-26. 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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7.7 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 7-27 per Section 15.209.

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

Table 7-27. 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.

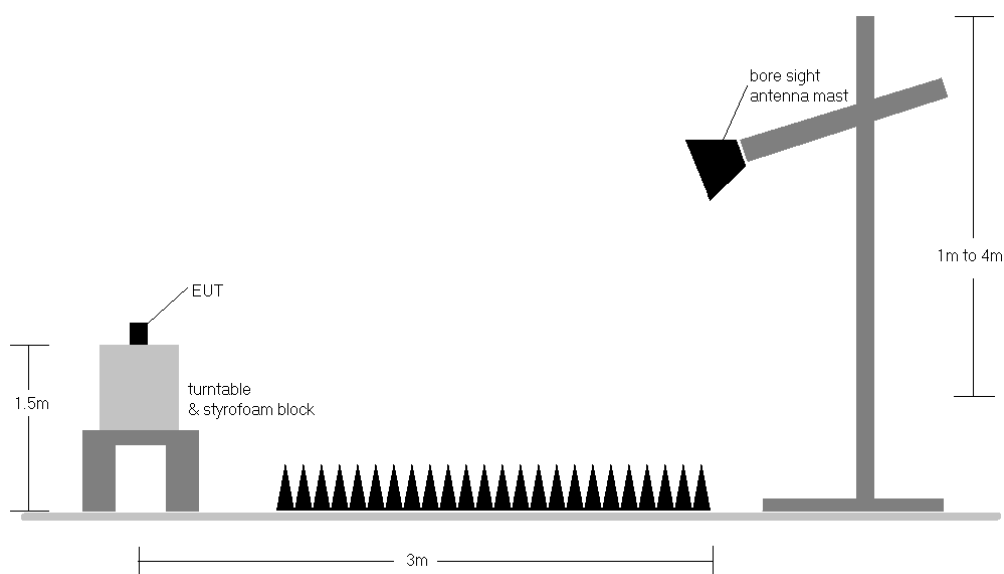


Figure 7-5. Test Instrument & Measurement Setup

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 7-27.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-11. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.

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4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.
6. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
8. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
9. 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.
10. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

Sample Calculations

Determining Spurious Emissions Levels

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

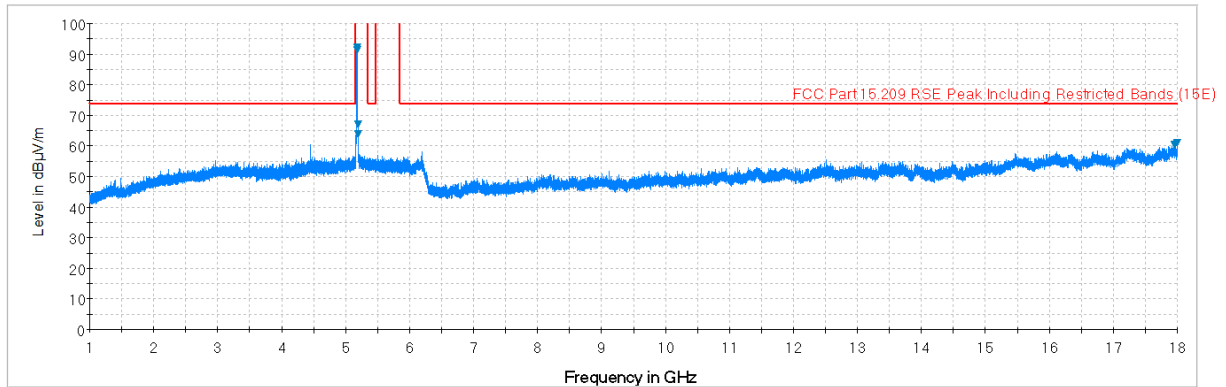
Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 6.8 was calculated using the formula:

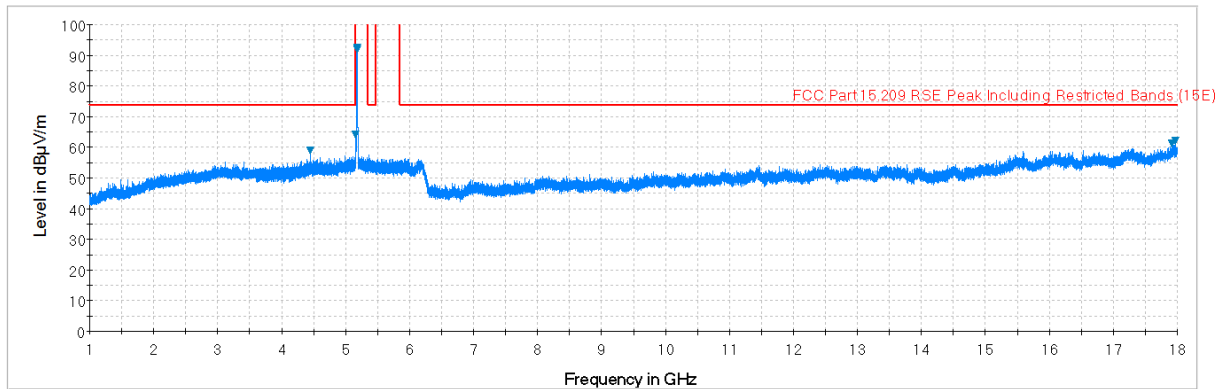
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + 10 \text{ dB Attenuator}) - \text{Preamplifier Gain}$$

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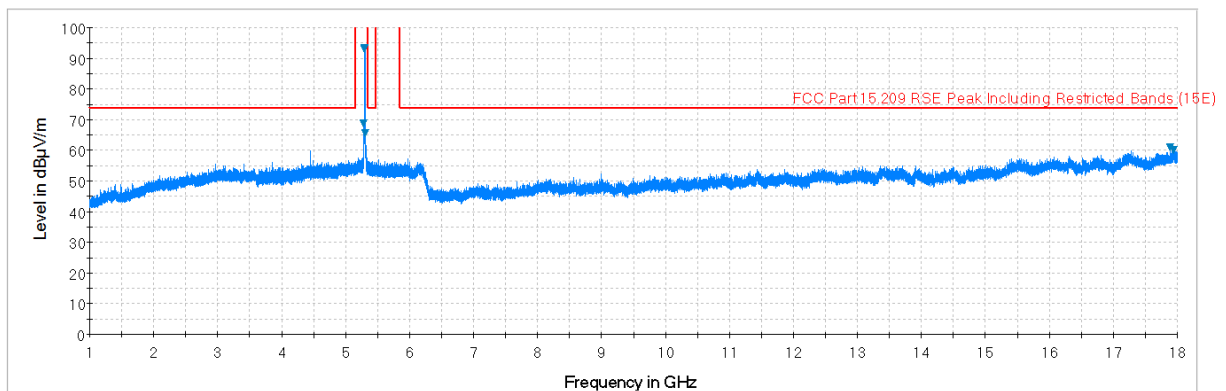
7.7.1 Antenna-1 Radiated Spurious Emission Measurements



Plot 7-157. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)

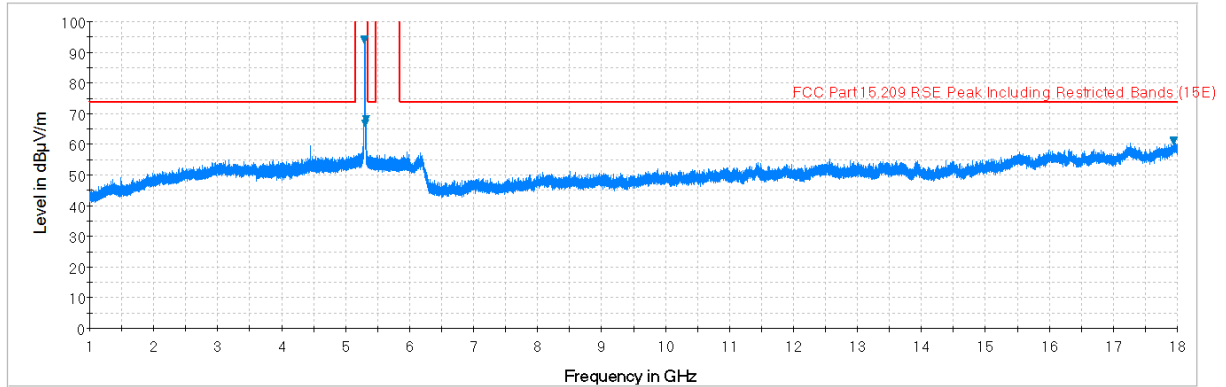


Plot 7-158. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

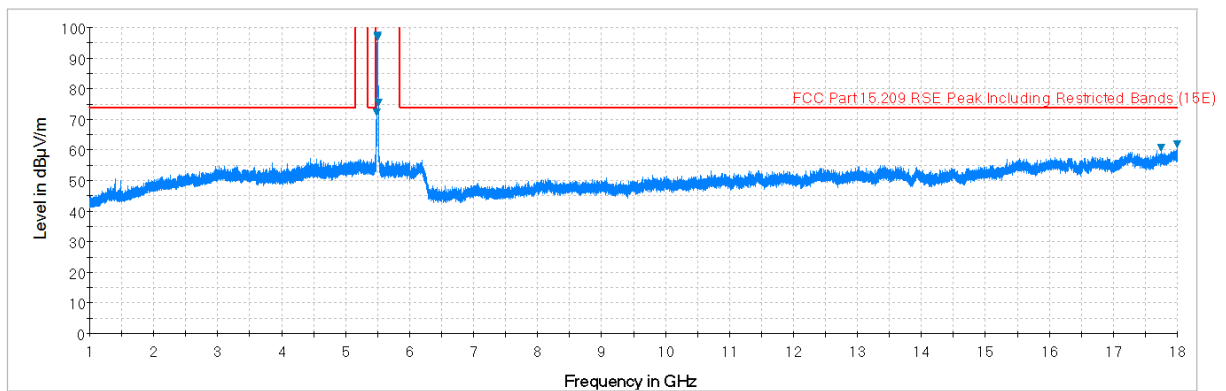


Plot 7-159. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

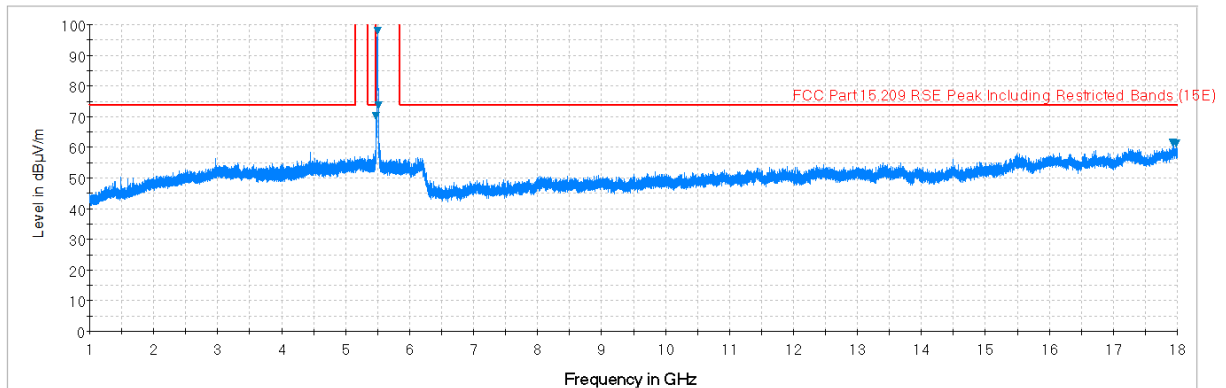
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Plot 7-160. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

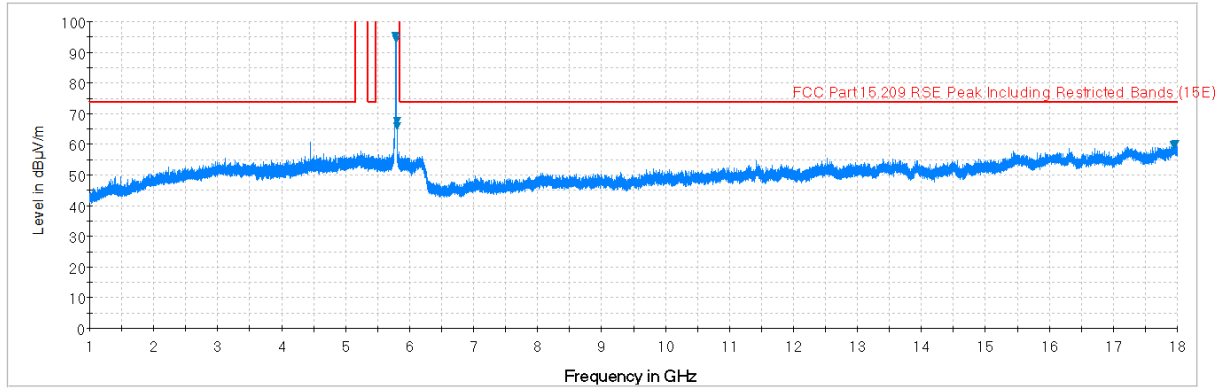


Plot 7-161. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

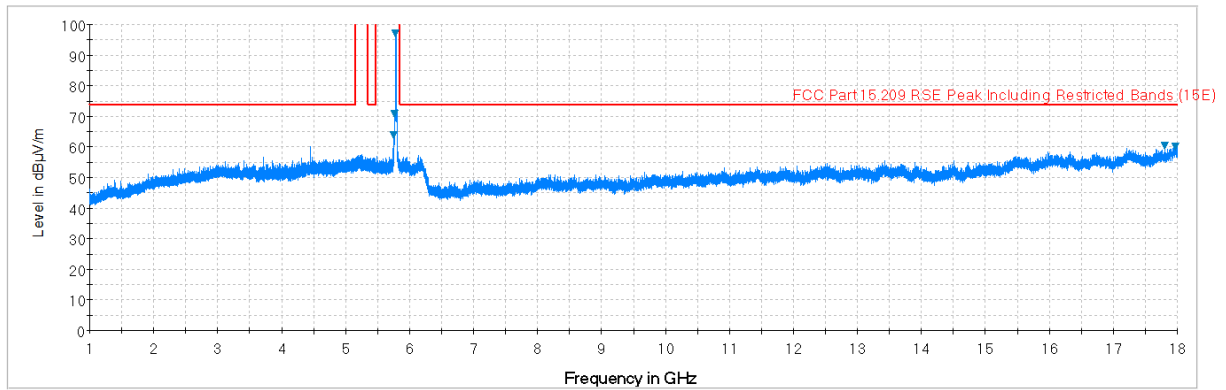


Plot 7-162. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: A3LSMG9350	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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Plot 7-163. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

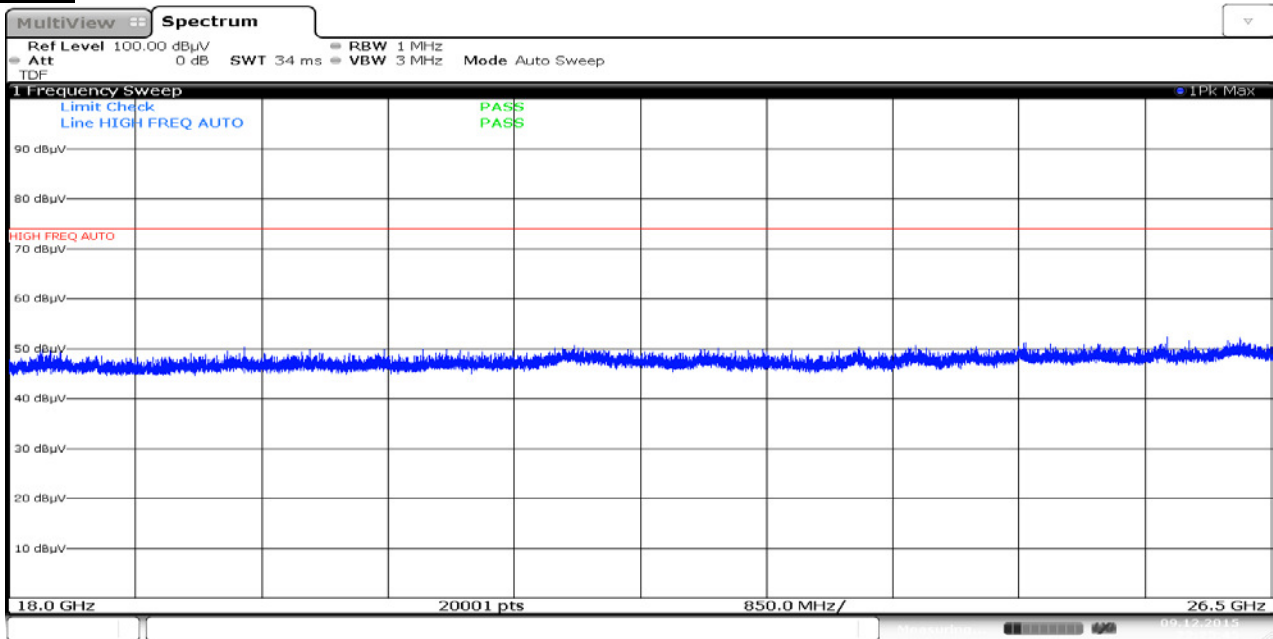


Plot 7-164. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMG9350	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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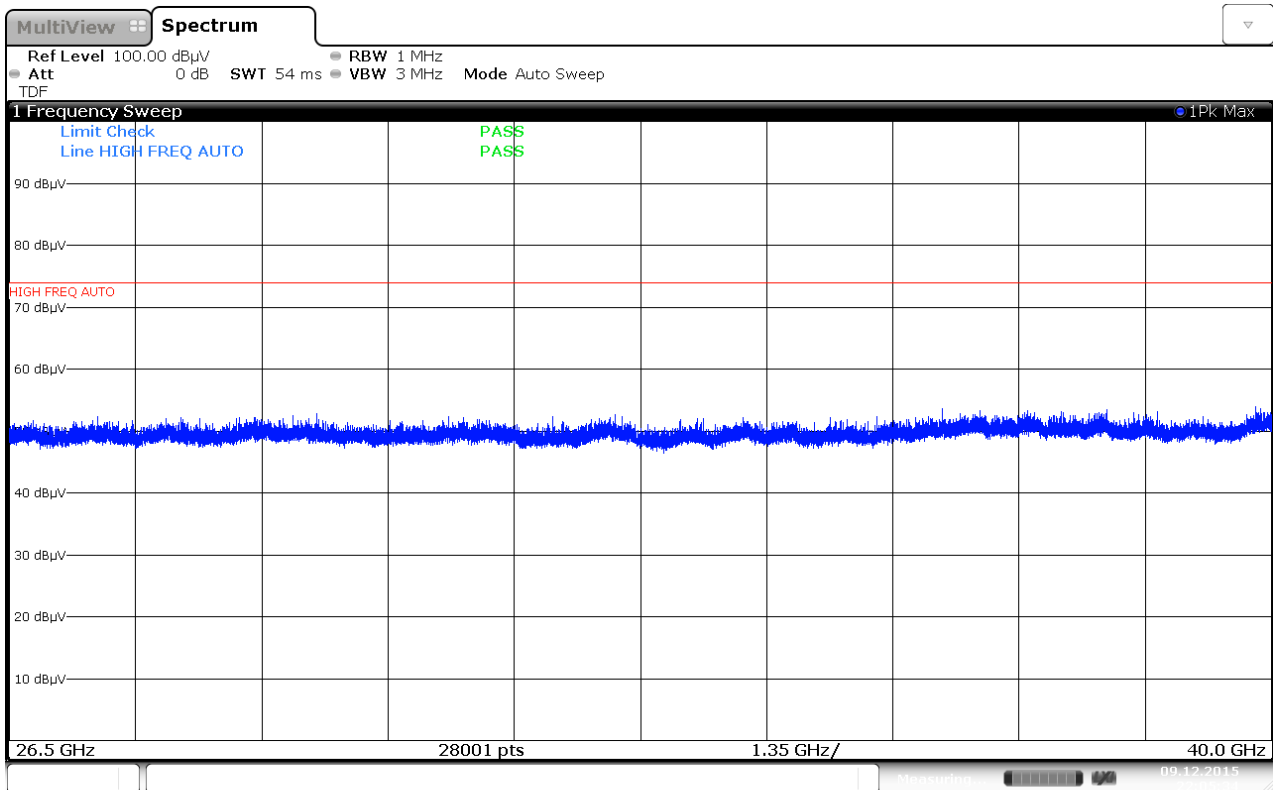
Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209



Date: 9.DEC.2015 22:23:45

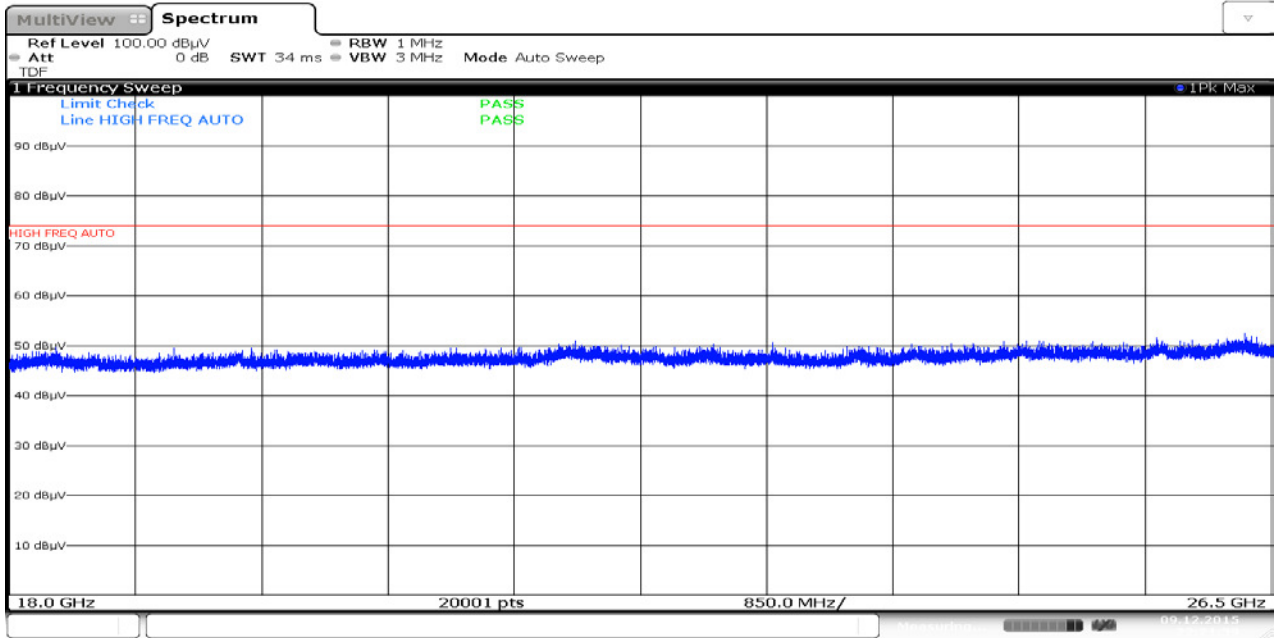
Plot 7-165. Radiated Spurious Plot 18GHz – 26.5GHz (802.11a – Ant. Pol. H)



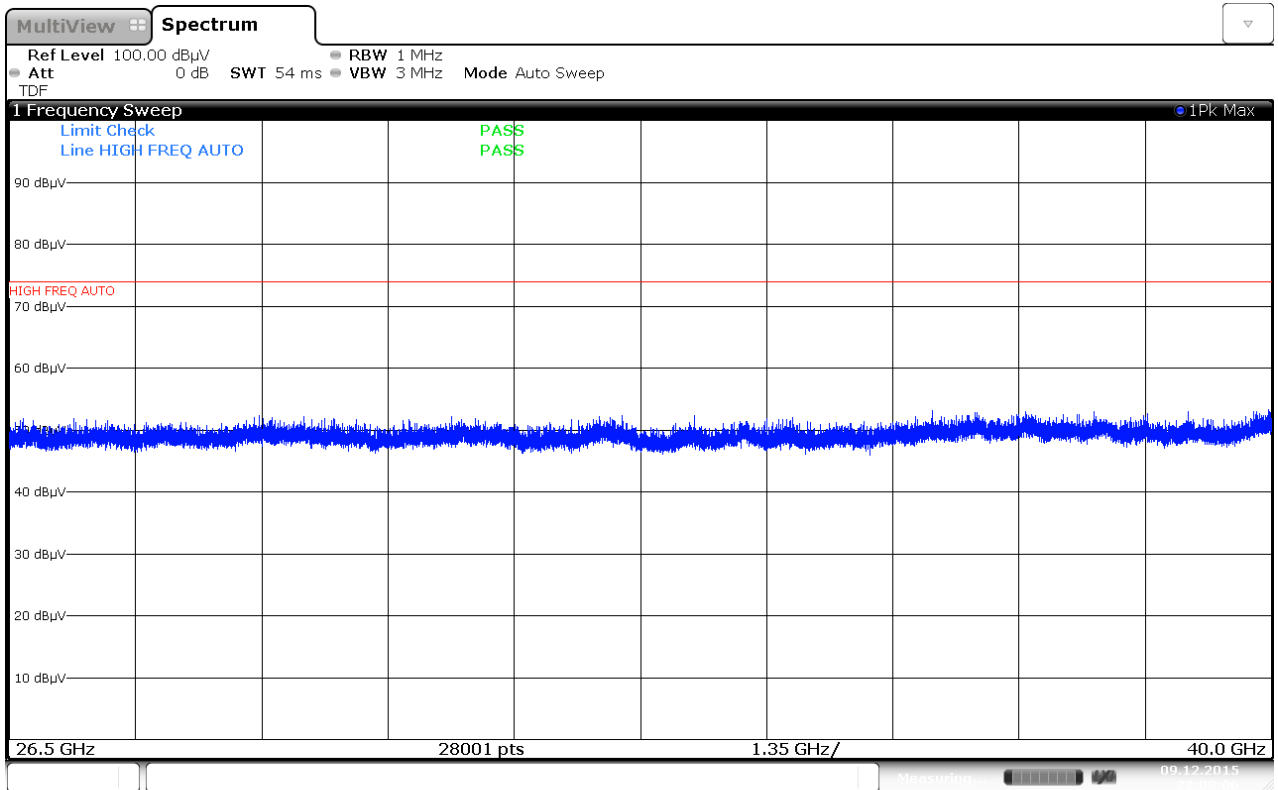
Date: 9.DEC.2015 22:05:34

Plot 7-166. Radiated Spurious Plot above 26.5GHz (802.11a – Ant. Pol. H)

FCC ID: A3LSMG9350	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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Plot 7-167. Radiated Spurious Plot 18GHz – 26.5GHz (802.11a – Ant. Pol. V)



Plot 7-168. Radiated Spurious Plot above 26.5GHz (802.11a – Ant. Pol. H)

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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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-98.30	47.31	0.00	56.01	68.20	-12.19
* 15540.00	Average	H	-	-	-111.67	51.34	0.00	46.67	53.98	-7.31
* 15540.00	Peak	H	-	-	-99.91	51.34	0.00	58.43	73.98	-15.55
* 20720.00	Average	H	1.00	317	-111.56	44.39	-9.54	30.29	53.98	-23.69
* 20720.00	Peak	H	1.00	317	-100.20	44.39	-9.54	41.65	73.98	-32.33
25900.00	Peak	H	1.00	317	-99.92	45.11	-9.54	42.65	68.20	-25.55

Table 7-28. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-98.53	47.33	0.00	55.80	68.20	-12.40
* 15600.00	Average	H	-	-	-111.05	50.86	0.00	46.80	53.98	-7.17
* 15600.00	Peak	H	-	-	-99.01	50.86	0.00	58.84	73.98	-15.13
* 20800.00	Average	H	1.00	304	-110.94	44.39	-9.54	30.91	53.98	-23.07
* 20800.00	Peak	H	1.00	304	-100.27	44.39	-9.54	41.58	73.98	-32.40
26000.00	Peak	H	1.00	304	-100.83	45.12	-9.54	41.74	68.20	-26.46

Table 7-29. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-98.44	47.37	0.00	55.94	68.20	-12.26
* 15720.00	Average	H	-	-	-110.93	50.12	0.00	46.19	53.98	-7.79
* 15720.00	Peak	H	-	-	-99.10	50.12	0.00	58.02	73.98	-15.96
* 20960.00	Average	H	1.00	304	-111.65	44.31	-9.54	30.12	53.98	-23.86
* 20960.00	Peak	H	1.00	304	-100.75	44.31	-9.54	41.02	73.98	-32.96
26200.00	Peak	H	1.00	304	-100.35	45.01	-9.54	42.12	68.20	-26.08

Table 7-30. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-99.71	47.33	0.00	54.62	68.20	-13.58
* 15600.00	Average	H	-	-	-111.30	50.86	0.00	46.55	53.98	-7.42
* 15600.00	Peak	H	-	-	-99.28	50.86	0.00	58.57	73.98	-15.40
* 20800.00	Average	H	1.00	315	-111.05	44.39	-9.54	30.80	53.98	-23.18
* 20800.00	Peak	H	1.00	315	-100.56	44.39	-9.54	41.29	73.98	-32.69
26000.00	Peak	H	1.00	315	-101.72	45.12	-9.54	40.85	68.20	-27.35

Table 7-31. Radiated Measurements with WCP

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 122 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-98.52	47.39	0.00	55.88	68.20	-12.32
* 15780.00	Average	H	-	-	-111.14	49.96	0.00	45.82	53.98	-8.16
* 15780.00	Peak	H	-	-	-98.75	49.96	0.00	58.21	73.98	-15.77
* 21040.00	Average	H	1.00	302	-111.90	44.29	-9.54	29.84	53.98	-24.14
* 21040.00	Peak	H	1.00	302	-99.50	44.29	-9.54	42.24	73.98	-31.74
26300.00	Peak	H	1.00	302	-99.00	45.00	-9.54	43.46	68.20	-24.74

Table 7-32. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-97.76	47.41	0.00	56.64	68.20	-11.56
* 15840.00	Average	H	-	-	-111.01	50.16	0.00	46.15	53.98	-7.83
* 15840.00	Peak	H	-	-	-99.13	50.16	0.00	58.03	73.98	-15.95
* 21120.00	Average	H	1.00	317	-112.37	44.28	-9.54	29.37	53.98	-24.61
* 21120.00	Peak	H	1.00	317	-100.36	44.28	-9.54	41.38	73.98	-32.60
26400.00	Peak	H	1.00	317	-99.72	45.02	-9.54	42.76	68.20	-25.44

Table 7-33. Radiated Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 123 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-110.77	47.46	0.00	43.70	53.98	-10.28
* 10640.00	Peak	H	-	-	-98.08	47.46	0.00	56.39	73.98	-17.59
* 15960.00	Average	H	-	-	-111.08	50.83	0.00	46.75	53.98	-7.23
* 15960.00	Peak	H	-	-	-99.04	50.83	0.00	58.79	73.98	-15.19
* 21280.00	Average	H	1.00	305	-112.13	44.26	-9.54	29.59	53.98	-24.39
* 21280.00	Peak	H	1.00	305	-100.55	44.26	-9.54	41.17	73.98	-32.81
26600.00	Peak	H	1.00	300	-102.66	47.61	-9.54	42.41	68.20	-25.79

Table 7-34. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-111.63	47.46	0.00	42.84	53.98	-11.14
* 10640.00	Peak	H	-	-	-99.14	47.46	0.00	55.33	73.98	-18.65
* 15960.00	Average	H	-	-	-112.02	50.83	0.00	45.81	53.98	-8.17
* 15960.00	Peak	H	-	-	-99.96	50.83	0.00	57.87	73.98	-16.11
* 21280.00	Average	H	1.00	308	-113.19	44.26	-9.54	28.53	53.98	-25.45
* 21280.00	Peak	H	1.00	308	-101.65	44.26	-9.54	40.07	73.98	-33.91
26600.00	Peak	H	1.00	308	-102.47	47.61	-9.54	42.60	68.20	-25.60

Table 7-35. Radiated Measurements with WCP

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 124 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-110.68	47.69	0.00	44.01	53.98	-9.97
* 11000.00	Peak	H	-	-	-98.36	47.69	0.00	56.33	73.98	-17.65
16500.00	Peak	H	-	-	-99.15	52.33	0.00	60.17	68.20	-8.03
22000.00	Peak	H	1.00	295	-99.67	44.50	-9.54	42.28	68.20	-25.92
27500.00	Peak	H	1.00	300	-103.07	47.97	-9.54	42.36	68.20	-25.84

Table 7-36. Radiated Measurements

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6 Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5600MHz
Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	-	-	-110.56	47.91	0.00	44.35	53.98	-9.63
* 11200.00	Peak	H	-	-	-98.38	47.91	0.00	56.53	73.98	-17.45
16800.00	Peak	H	-	-	-98.71	53.93	0.00	62.22	68.20	-5.98
* 22400.00	Average	H	1.00	300	-110.85	44.57	-9.54	31.18	53.98	-22.80
* 22400.00	Peak	H	1.00	300	-100.58	44.57	-9.54	41.45	73.98	-32.53
28000.00	Peak	H	1.00	300	-102.42	48.11	-9.54	43.15	68.20	-25.05

Table 7-37. Radiated Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 125 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-110.54	48.66	0.00	45.12	53.98	-8.86
* 11440.00	Peak	H	-	-	-98.34	48.66	0.00	57.32	73.98	-16.66
17160.00	Peak	H	-	-	-98.47	55.51	0.00	64.05	68.20	-4.15
* 22880.00	Average	H	1.00	1	-107.22	44.61	-9.54	34.85	53.98	-19.13
* 22880.00	Peak	H	1.00	1	-95.98	44.61	-9.54	46.09	73.98	-27.89
28600.00	Peak	H	1.00	300	-102.66	48.29	-9.54	43.09	68.20	-25.11

Table 7-38. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-111.44	48.66	0.00	44.22	53.98	-9.76
* 11440.00	Peak	H	-	-	-99.65	48.66	0.00	56.01	73.98	-17.97
17160.00	Peak	H	-	-	-99.35	55.51	0.00	63.17	68.20	-5.03
* 22880.00	Average	H	1.00	307	-108.21	44.61	-9.54	33.86	53.98	-20.12
* 22880.00	Peak	H	1.00	307	-96.76	44.61	-9.54	45.31	73.98	-28.67
28600.00	Peak	H	1.00	307	-103.32	48.29	-9.54	42.43	68.20	-25.77

Table 7-39. Radiated Measurements with WCP

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 126 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-110.92	48.89	0.00	44.97	53.98	-9.01
* 11490.00	Peak	H	-	-	-98.22	48.89	0.00	57.67	73.98	-16.31
17235.00	Peak	H	-	-	-97.91	56.10	0.00	65.19	68.20	-3.01
* 22980.00	Average	H	1.00	280	-107.04	44.68	-9.54	35.10	53.98	-18.88
* 22980.00	Peak	H	1.00	280	-95.51	44.68	-9.54	46.63	73.98	-27.35
28725.00	Peak	H	1.00	300	-101.83	48.26	-9.54	43.89	68.20	-24.31

Table 7-40. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-111.07	49.13	0.00	45.06	53.98	-8.92
* 11570.00	Peak	H	-	-	-98.66	49.13	0.00	57.47	73.98	-16.51
17355.00	Peak	H	-	-	-98.49	56.44	0.00	64.95	68.20	-3.25
23140.00	Peak	H	1.00	291	-95.17	44.75	-9.54	47.04	68.20	-21.16
28925.00	Peak	H	1.00	300	-102.89	48.29	-9.54	42.86	68.20	-25.34

Table 7-41. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-110.77	49.22	0.00	45.45	53.98	-8.53
* 11650.00	Peak	H	-	-	-98.51	49.22	0.00	57.71	73.98	-16.27
17475.00	Peak	H	-	-	-98.93	57.10	0.00	65.18	68.20	-3.02
23300.00	Peak	H	1.00	300	-95.26	44.75	-9.54	46.94	68.20	-21.26
29125.00	Peak	H	1.00	300	-101.84	48.28	-9.54	43.91	68.20	-24.29

Table 7-42. Radiated Measurements

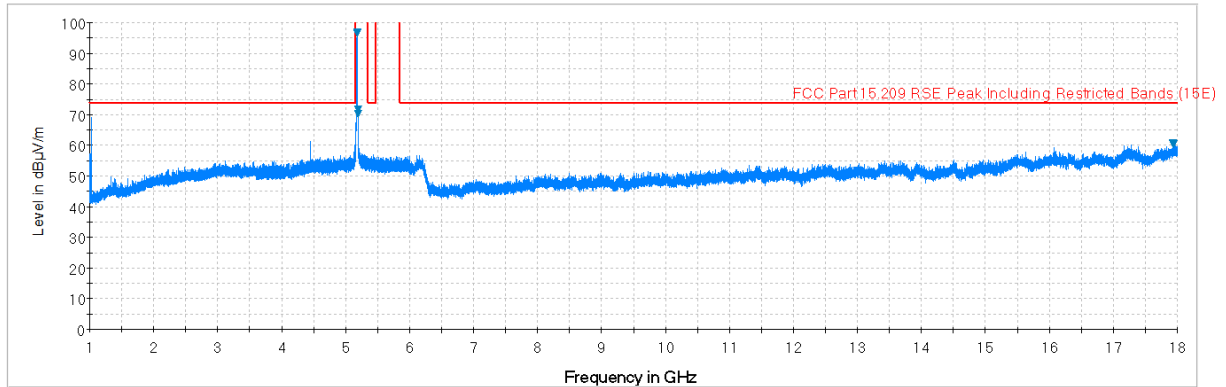
Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-112.04	48.89	0.00	43.85	53.98	-10.13
* 11490.00	Peak	H	-	-	-99.12	48.89	0.00	56.77	73.98	-17.21
17235.00	Peak	H	-	-	-98.93	56.10	0.00	64.17	68.20	-4.03
* 22980.00	Average	H	1.00	280	-107.97	44.68	-9.54	34.17	53.98	-19.81
* 22980.00	Peak	H	1.00	280	-96.10	44.68	-9.54	46.04	73.98	-27.94
28725.00	Peak	H	1.00	300	-102.75	48.26	-9.54	42.97	68.20	-25.23

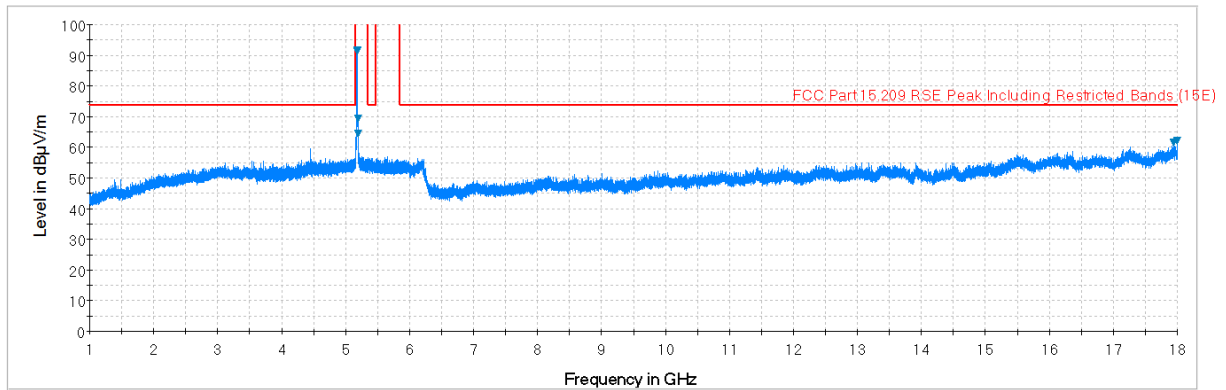
Table 7-43. Radiated Measurements with WCP

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 128 of 258

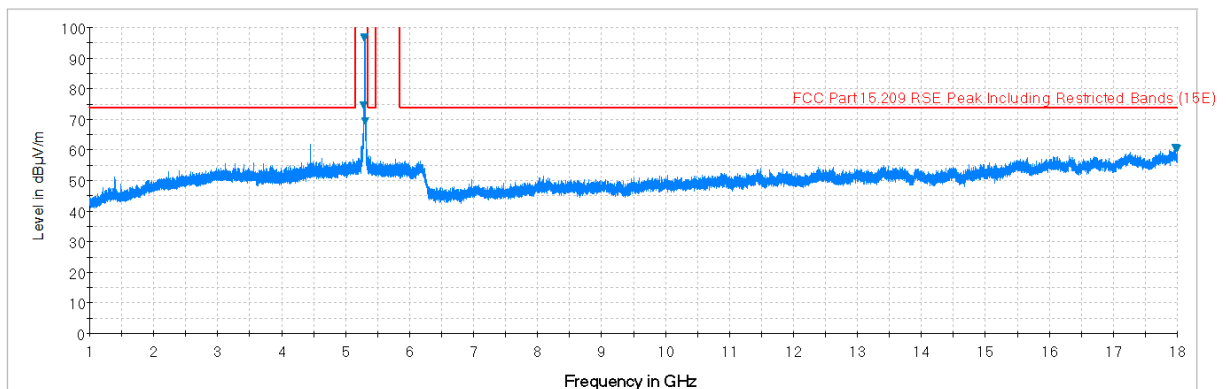
7.7.2 Antenna-2 Radiated Spurious Emission Measurements



Plot 7-169. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. H)

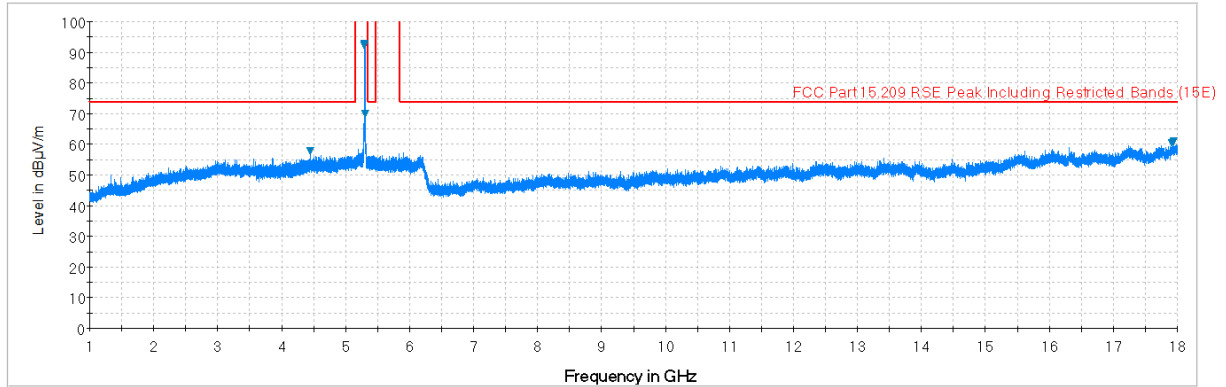


Plot 7-170. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

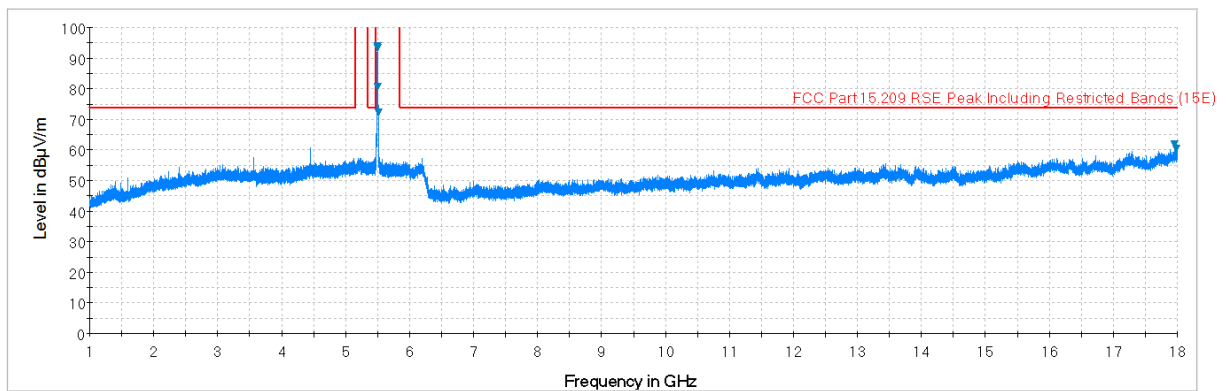


Plot 7-171. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

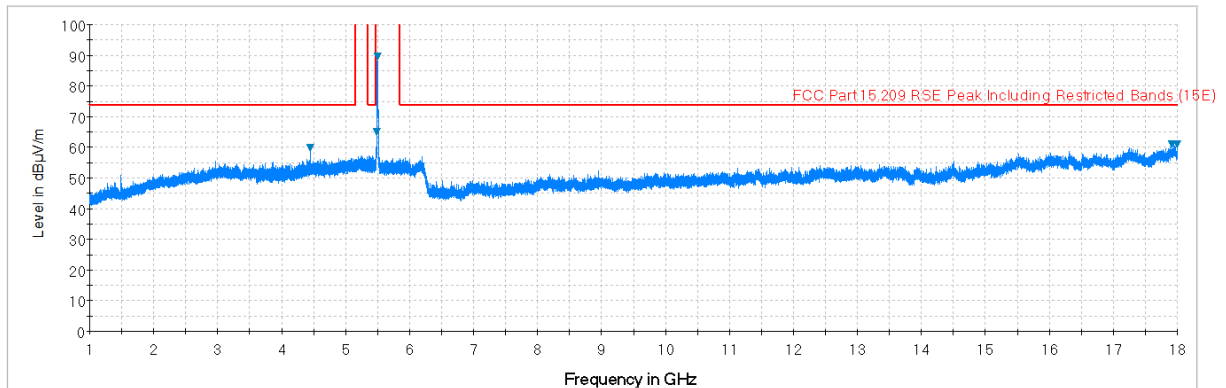
FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 129 of 258



Plot 7-172. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

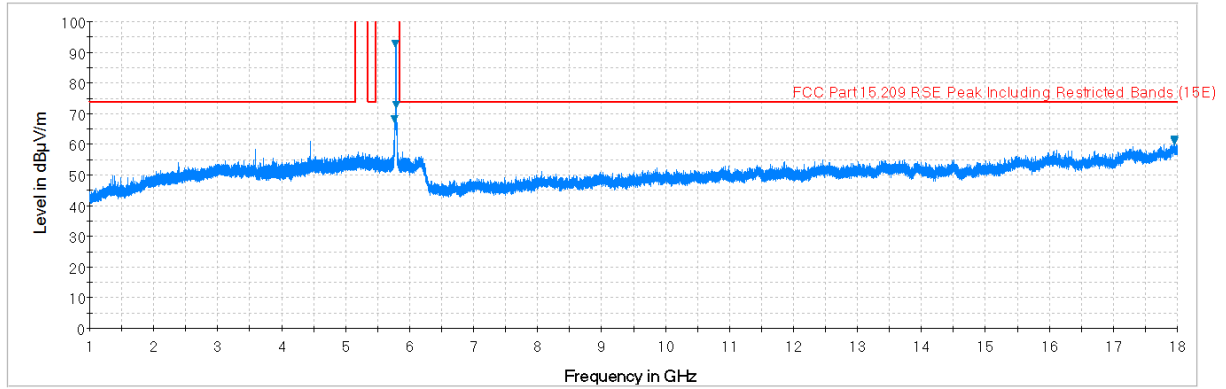


Plot 7-173. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

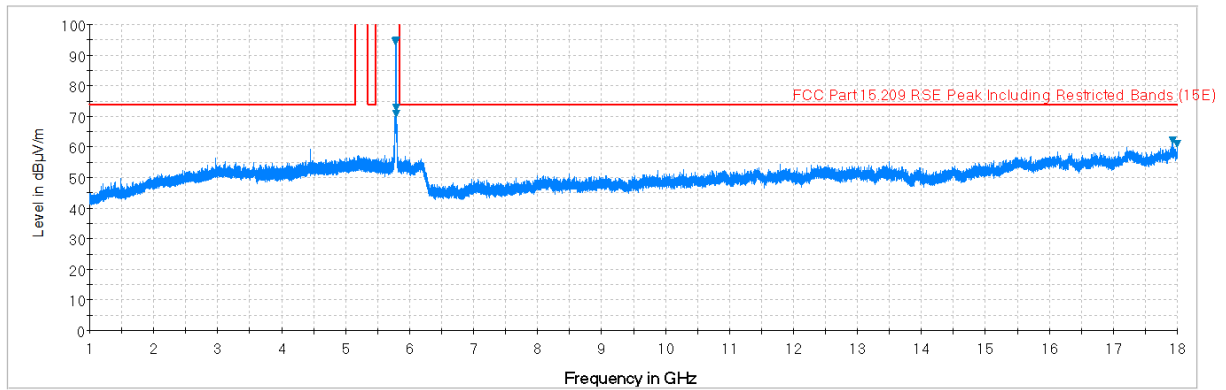


Plot 7-174. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 130 of 258



Plot 7-175. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

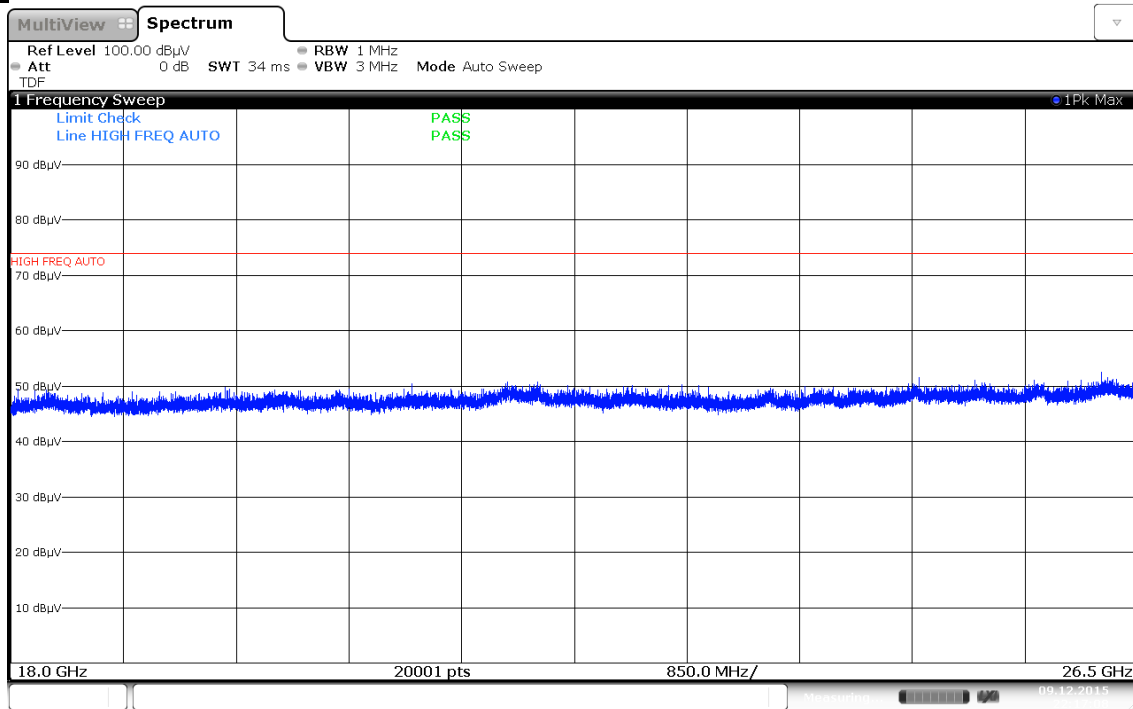


Plot 7-176. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 131 of 258

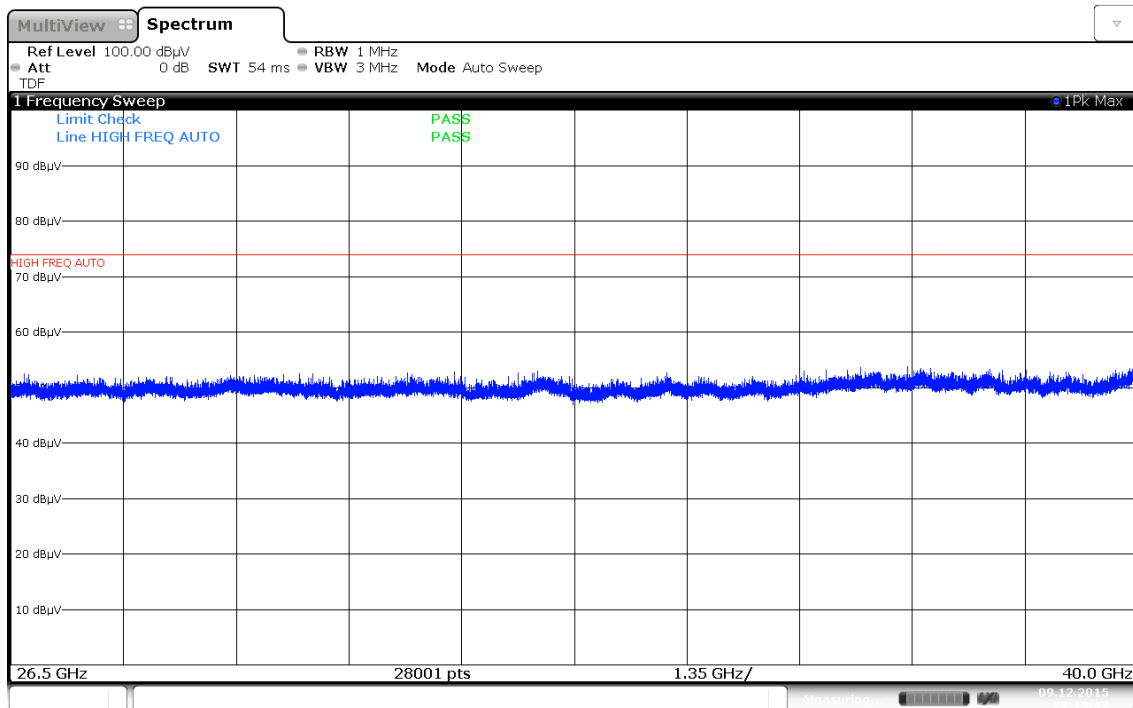
Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209



Date: 9 DEC. 2015 22:17:08

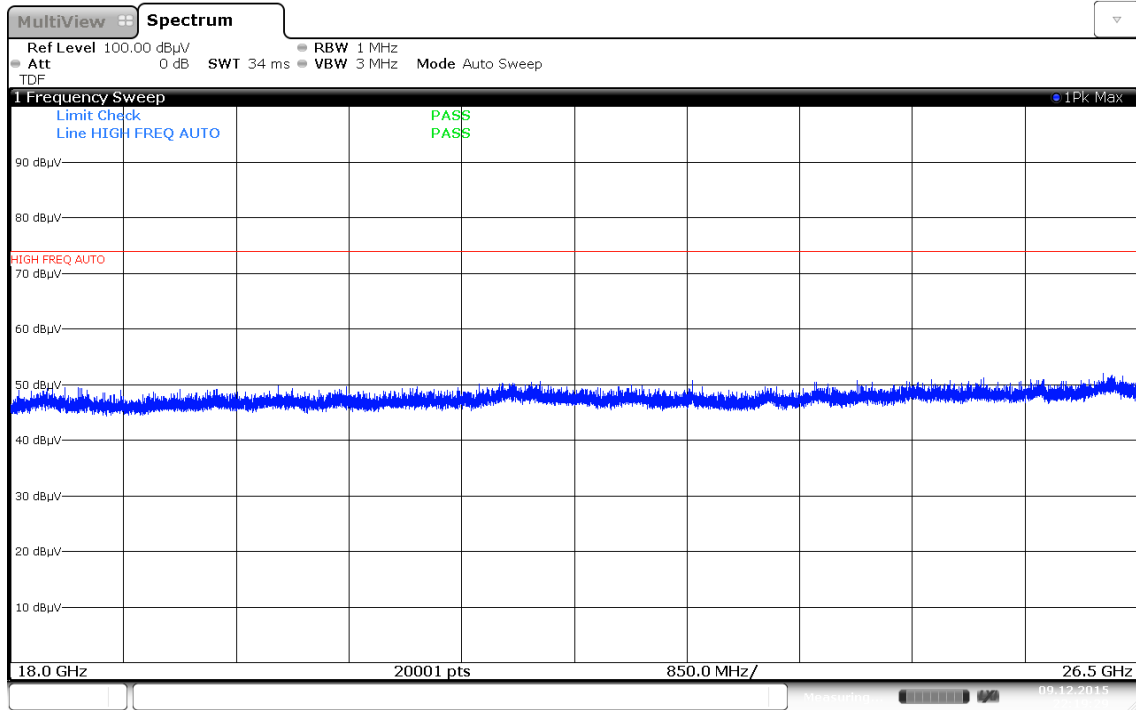
Plot 7-177. Radiated Spurious Plot 18GHz – 26.5GHz (802.11a – Ant. Pol. H)



Date: 9 DEC. 2015 22:13:47

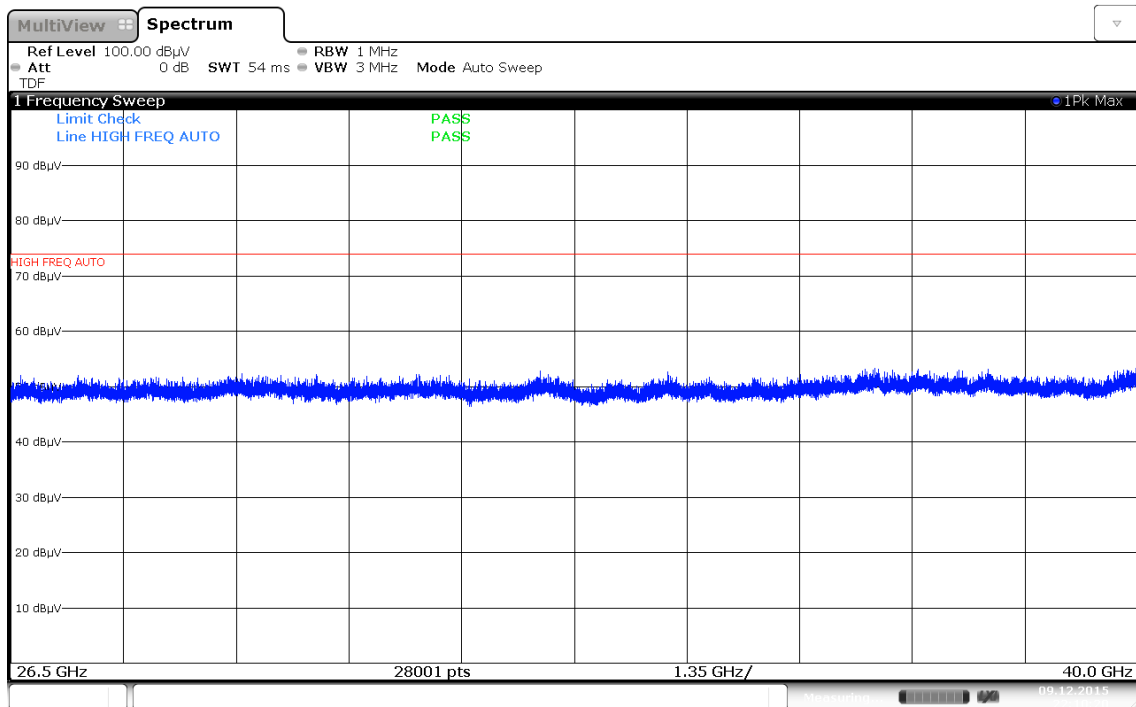
Plot 7-178. Radiated Spurious Plot above 26.5GHz (802.11a – Ant. Pol. H)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 132 of 258



Date: 9 DEC.2015 22:19:28

Plot 7-179. Radiated Spurious Plot 18GHz – 26.5GHz (802.11a – Ant. Pol. V)



Date: 9 DEC.2015 22:10:20

Plot 7-180. Radiated Spurious Plot above 26.5GHz (802.11a – Ant. Pol. H)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 133 of 258

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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-97.78	47.31	0.00	56.53	68.20	-11.67
* 15540.00	Average	H	-	-	-111.66	51.34	0.00	46.68	53.98	-7.30
* 15540.00	Peak	H	-	-	-99.37	51.34	0.00	58.97	73.98	-15.01
* 20720.00	Average	H	1.00	300	-107.70	44.39	-9.54	34.15	53.98	-19.83
* 20720.00	Peak	H	1.00	300	-95.19	44.39	-9.54	46.66	73.98	-27.32
25900.00	Peak	H	1.00	300	-94.52	45.11	-9.54	48.05	68.20	-20.15

Table 7-44. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	1.47	296	-98.17	47.33	0.00	56.16	68.20	-12.04
* 15600.00	Average	H	-	-	-111.11	50.86	0.00	46.74	53.98	-7.23
* 15600.00	Peak	H	-	-	-98.91	50.86	0.00	58.94	73.98	-15.03
* 20800.00	Average	H	1.00	295	-107.92	44.39	-9.54	33.93	53.98	-20.05
* 20800.00	Peak	H	1.00	295	-95.35	44.39	-9.54	46.50	73.98	-27.48
26000.00	Peak	H	1.00	295	-94.71	45.12	-9.54	47.86	68.20	-20.34

Table 7-45. Radiated Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 134 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	1.59	297	-98.03	47.37	0.00	56.35	68.20	-11.85
* 15720.00	Average	H	-	-	-110.97	50.12	0.00	46.15	53.98	-7.83
* 15720.00	Peak	H	-	-	-98.79	50.12	0.00	58.33	73.98	-15.65
* 20960.00	Average	H	1.00	295	-107.51	44.31	-9.54	34.26	53.98	-19.72
* 20960.00	Peak	H	1.00	295	-95.84	44.31	-9.54	45.93	73.98	-28.05
26200.00	Peak	H	1.00	295	-92.97	45.01	-9.54	49.50	68.20	-18.70

Table 7-46. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	1.51	301	-98.42	47.33	0.00	55.91	68.20	-12.29
* 15600.00	Average	H	-	-	-112.18	50.86	0.00	45.67	53.98	-8.30
* 15600.00	Peak	H	-	-	-99.95	50.86	0.00	57.90	73.98	-16.07
* 20800.00	Average	H	1.00	281	-108.89	44.39	-9.54	32.96	53.98	-21.02
* 20800.00	Peak	H	1.00	281	-96.28	44.39	-9.54	45.57	73.98	-28.41
26000.00	Peak	H	1.00	281	-95.03	45.12	-9.54	47.54	68.20	-20.66

Table 7-47. Radiated Measurements with WCP

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 135 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	1.01	287	-98.76	47.39	0.00	55.64	68.20	-12.56
* 15780.00	Average	H	-	-	-111.06	49.96	0.00	45.90	53.98	-8.08
* 15780.00	Peak	H	-	-	-98.69	49.96	0.00	58.27	73.98	-15.71
* 21040.00	Average	H	1.00	304	-107.27	44.29	-9.54	34.47	53.98	-19.51
* 21040.00	Peak	H	1.00	304	-96.00	44.29	-9.54	45.74	73.98	-28.24
26300.00	Peak	H	1.00	304	-92.02	45.00	-9.54	50.44	68.20	-17.76

Table 7-48. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-99.07	47.41	0.00	55.33	68.20	-12.87
* 15840.00	Average	H	-	-	-110.90	50.16	0.00	46.26	53.98	-7.72
* 15840.00	Peak	H	-	-	-98.81	50.16	0.00	58.35	73.98	-15.63
* 21120.00	Average	H	1.00	304	-107.61	44.28	-9.54	34.13	53.98	-19.85
* 21120.00	Peak	H	1.00	304	-95.80	44.28	-9.54	45.94	73.98	-28.04
26400.00	Peak	H	1.00	304	-92.60	45.02	-9.54	49.88	68.20	-18.32

Table 7-49. Radiated Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 136 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-110.77	47.46	0.00	43.70	53.98	-10.28
* 10640.00	Peak	H	-	-	-98.47	47.46	0.00	56.00	73.98	-17.98
* 15960.00	Average	H	-	-	-110.68	50.83	0.00	47.15	53.98	-6.83
* 15960.00	Peak	H	-	-	-99.28	50.83	0.00	58.55	73.98	-15.43
* 21280.00	Average	H	1.00	308	-107.68	44.26	-9.54	34.04	53.98	-19.94
* 21280.00	Peak	H	1.00	308	-94.97	44.26	-9.54	46.75	73.98	-27.23
26600.00	Peak	H	1.00	290	-102.73	47.61	-9.54	42.34	68.20	-25.86

Table 7-50. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-111.58	47.46	0.00	42.89	53.98	-11.09
* 10640.00	Peak	H	-	-	-99.21	47.46	0.00	55.26	73.98	-18.72
* 15960.00	Average	H	-	-	-111.71	50.83	0.00	46.12	53.98	-7.86
* 15960.00	Peak	H	-	-	-99.79	50.83	0.00	58.04	73.98	-15.94
* 21280.00	Average	H	1.00	301	-107.84	44.26	-9.54	33.88	53.98	-20.10
* 21280.00	Peak	H	1.00	301	-95.14	44.26	-9.54	46.58	73.98	-27.40
26600.00	Peak	H	1.00	299	-102.32	47.61	-9.54	42.75	68.20	-25.45

Table 7-51. Radiated Measurements with WCP

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 137 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-110.29	47.69	0.00	44.40	53.98	-9.58
* 11000.00	Peak	H	-	-	-98.10	47.69	0.00	56.59	73.98	-17.39
16500.00	Peak	H	-	-	-99.23	52.33	0.00	60.09	68.20	-8.11
22000.00	Peak	H	1.00	300	-94.06	44.50	-9.54	47.89	68.20	-20.31
27500.00	Peak	H	1.00	290	-102.97	47.97	-9.54	42.46	68.20	-25.74

Table 7-52. Radiated Measurements

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	-	-	-110.52	47.91	0.00	44.39	53.98	-9.59
* 11200.00	Peak	H	-	-	-98.12	47.91	0.00	56.79	73.98	-17.19
16800.00	Peak	H	-	-	-98.86	53.93	0.00	62.07	68.20	-6.13
* 22400.00	Average	H	1.00	290	-107.17	44.57	-9.54	34.86	53.98	-19.12
* 22400.00	Peak	H	1.00	290	-94.42	44.57	-9.54	47.61	73.98	-26.37
28000.00	Peak	H	1.00	290	-103.60	48.11	-9.54	41.97	68.20	-26.23

Table 7-53. Radiated Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 138 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-110.57	48.66	0.00	45.09	53.98	-8.89
* 11440.00	Peak	H	-	-	-98.41	48.66	0.00	57.25	73.98	-16.73
17160.00	Peak	H	-	-	-98.54	55.51	0.00	63.98	68.20	-4.22
* 22880.00	Average	H	1.00	290	-105.34	44.61	-9.54	36.73	53.98	-17.25
* 22880.00	Peak	H	1.00	290	-94.90	44.61	-9.54	47.17	73.98	-26.81
28600.00	Peak	H	1.00	290	-102.80	48.29	-9.54	42.95	68.20	-25.25

Table 7-54. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-111.02	48.66	0.00	44.64	53.98	-9.34
* 11440.00	Peak	H	-	-	-99.04	48.66	0.00	56.62	73.98	-17.36
17160.00	Peak	H	-	-	-99.01	55.51	0.00	63.51	68.20	-4.69
* 22880.00	Average	H	1.00	295	-105.75	44.61	-9.54	36.32	53.98	-17.66
* 22880.00	Peak	H	1.00	295	-95.06	44.61	-9.54	47.01	73.98	-26.97
28600.00	Peak	H	1.00	295	-102.91	48.29	-9.54	42.84	68.20	-25.36

Table 7-55. Radiated Measurements with WCP

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 139 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-110.86	48.89	0.00	45.03	53.98	-8.95
* 11490.00	Peak	H	-	-	-98.68	48.89	0.00	57.21	73.98	-16.77
17235.00	Peak	H	-	-	-98.24	56.10	0.00	64.86	68.20	-3.34
* 22980.00	Average	H	1.00	303	-105.84	44.68	-9.54	36.30	53.98	-17.68
* 22980.00	Peak	H	1.00	303	-94.82	44.68	-9.54	47.32	73.98	-26.66
28725.00	Peak	H	1.00	290	-102.84	48.26	-9.54	42.88	68.20	-25.32

Table 7-56. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-111.07	49.13	0.00	45.06	53.98	-8.92
* 11570.00	Peak	H	-	-	-98.42	49.13	0.00	57.71	73.98	-16.27
17355.00	Peak	H	-	-	-98.28	56.44	0.00	65.16	68.20	-3.04
23140.00	Peak	H	1.00	301	-94.59	44.75	-9.54	47.62	68.20	-20.58
28925.00	Peak	H	1.00	290	-102.94	48.29	-9.54	42.81	68.20	-25.39

Table 7-57. Radiated Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 140 of 258

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-110.70	49.22	0.00	45.52	53.98	-8.46
* 11650.00	Peak	H	-	-	-98.77	49.22	0.00	57.45	73.98	-16.53
17475.00	Peak	H	-	-	-98.93	57.10	0.00	65.18	68.20	-3.02
23300.00	Peak	H	1.00	290	-95.34	44.75	-9.54	46.86	68.20	-21.34
29125.00	Peak	H	1.00	290	-100.95	48.28	-9.54	44.80	68.20	-23.40

Table 7-58. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-111.97	49.22	0.00	44.25	53.98	-9.73
* 11650.00	Peak	H	-	-	-99.83	49.22	0.00	56.39	73.98	-17.59
17475.00	Peak	H	-	-	-99.97	57.10	0.00	64.14	68.20	-4.06
23300.00	Peak	H	1.00	267	-96.53	44.75	-9.54	45.67	68.20	-22.53
29125.00	Peak	H	1.00	267	-101.53	48.28	-9.54	44.22	68.20	-23.98

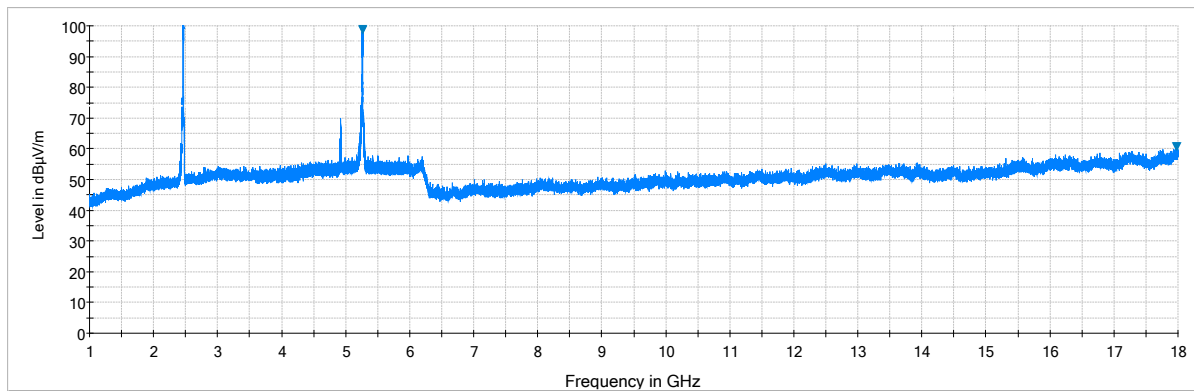
Table 7-59. Radiated Measurements with WCP

7.7.3 Simultaneous Transmission Radiated Spurious Emissions Measurements (Above 1GHz)

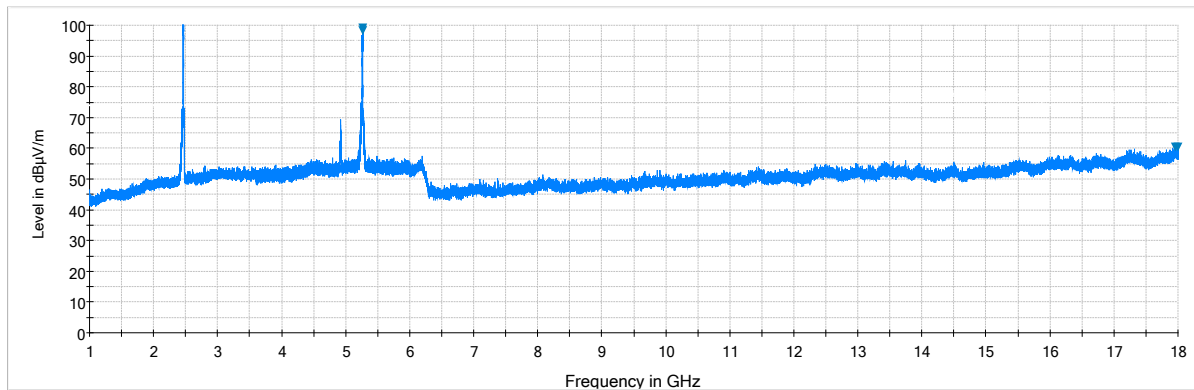
§15.209

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 7-60. Simultaneous Transmission Config-1

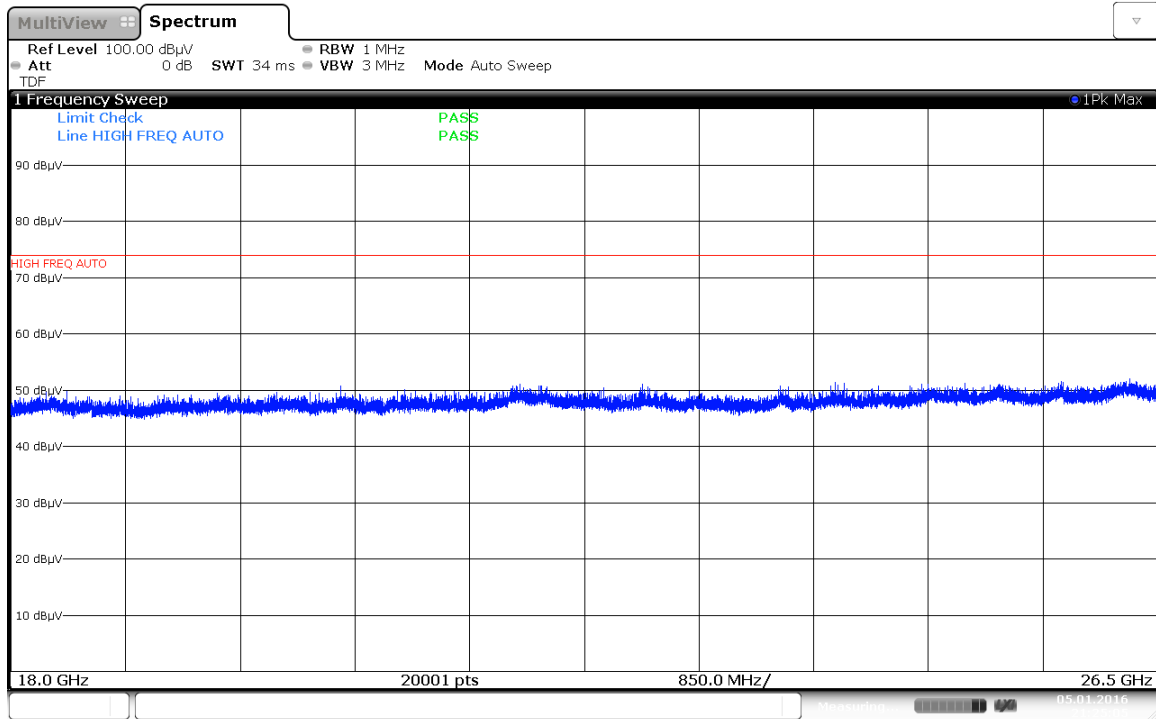


Plot 7-181. Radiated Spurious Plot above 1GHz (Simultaneous Transmission Config-1, Ant. Pol. H)

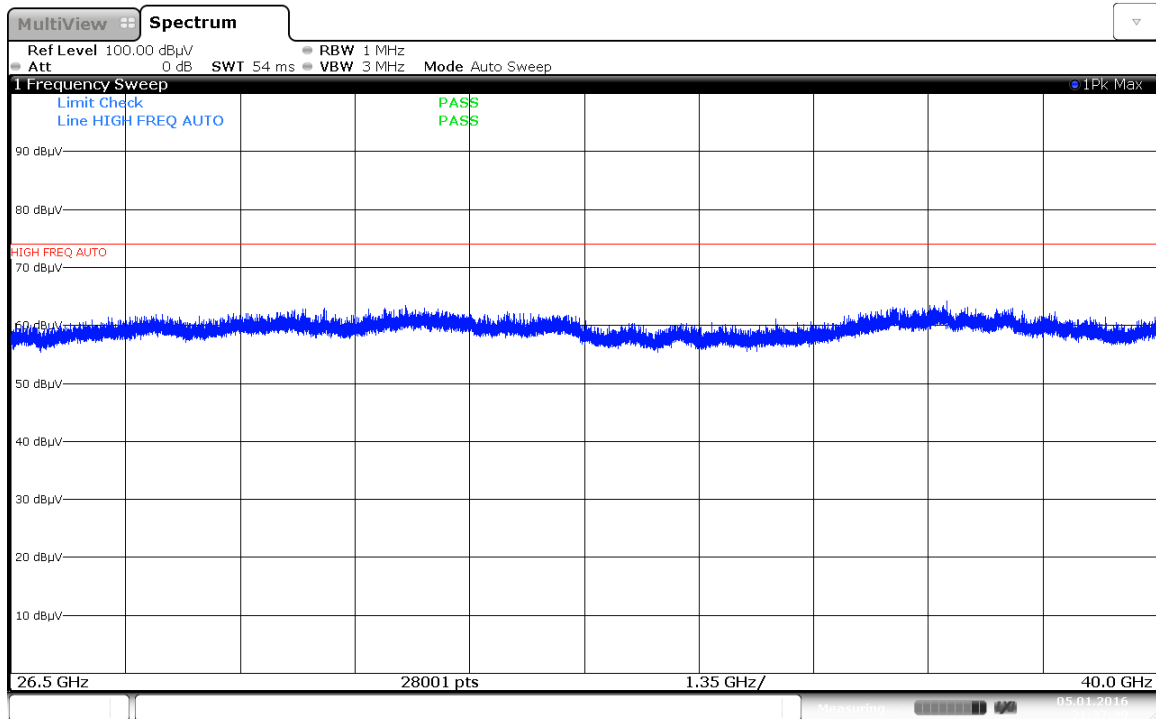


Plot 7-182. Radiated Spurious Plot above 1GHz (Simultaneous Transmission Config-1, Ant. Pol. V)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 142 of 258

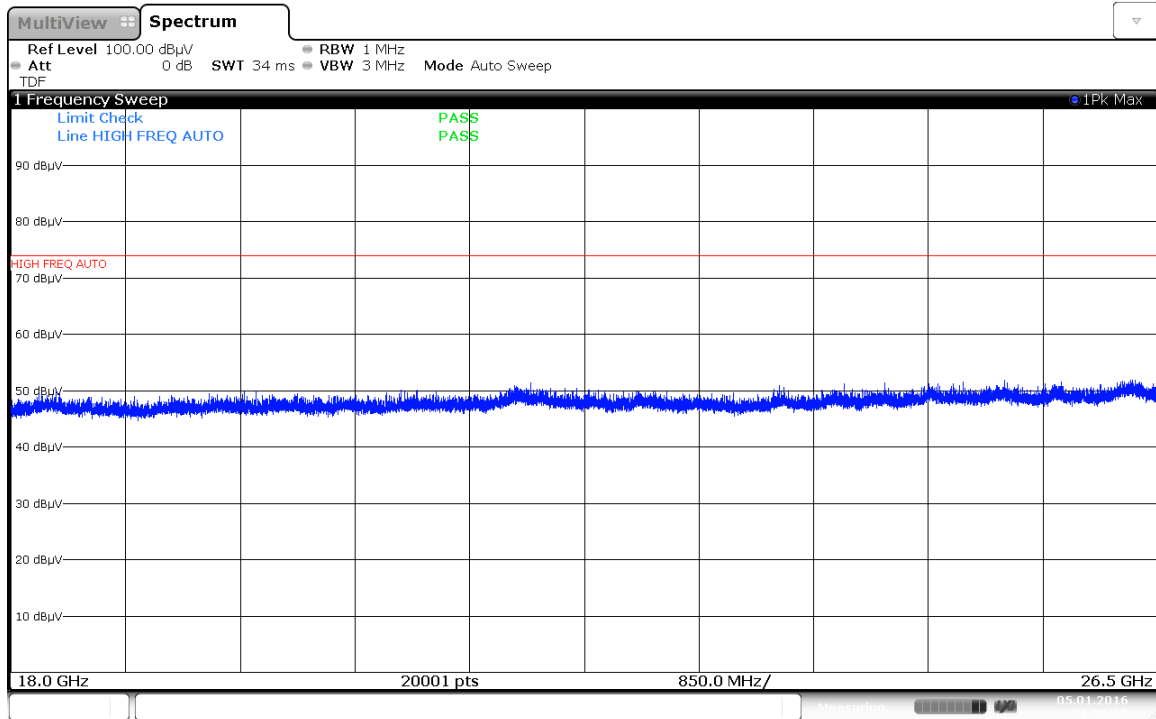


Plot 7-183. Radiated Spurious Plot 18GHz – 26.5GHz (Simultaneous Transmission Config-1 Ant. Pol. H)



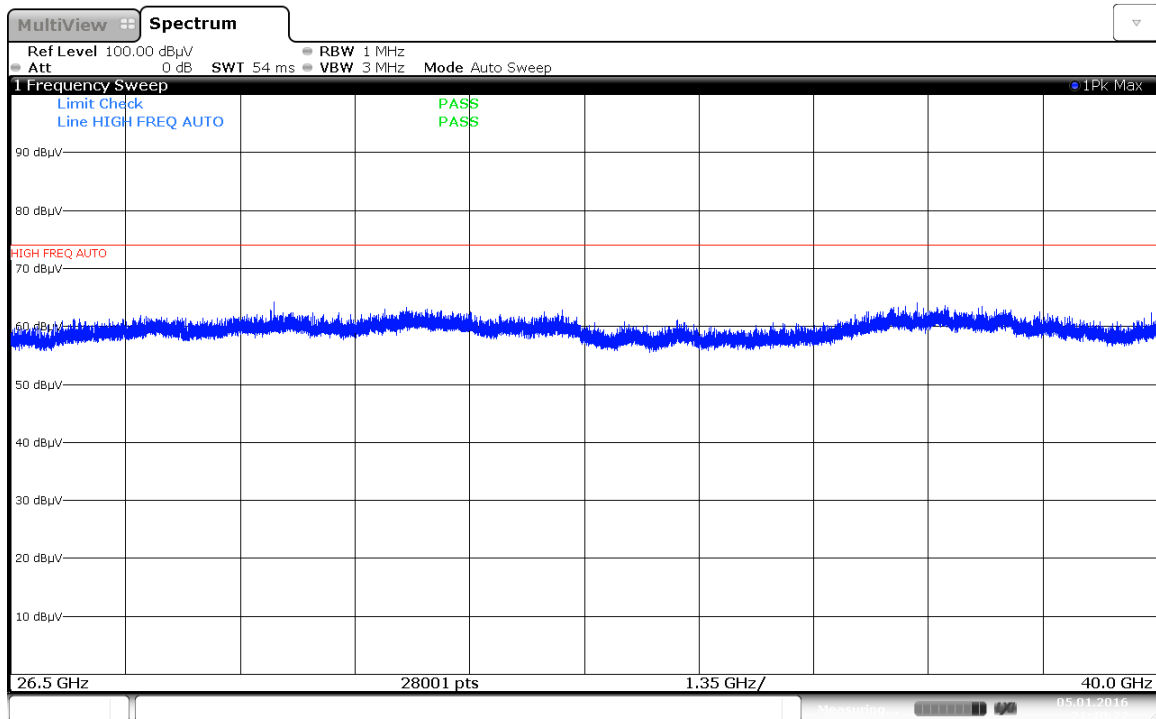
Plot 7-184. Radiated Spurious Plot above 26.5GHz (Simultaneous Transmission Config-1 Ant. Pol. H)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 143 of 258



Date: 5 JAN.2016 21:28:53

Plot 7-185. Radiated Spurious Plot 18GHz – 26.5GHz (Simultaneous Transmission Config-1 Ant. Pol. V)



Date: 5 JAN.2016 21:40:21

Plot 7-186. Radiated Spurious Plot above 26.5GHz (Simultaneous Transmission Config-1 Ant. Pol. H)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 144 of 258

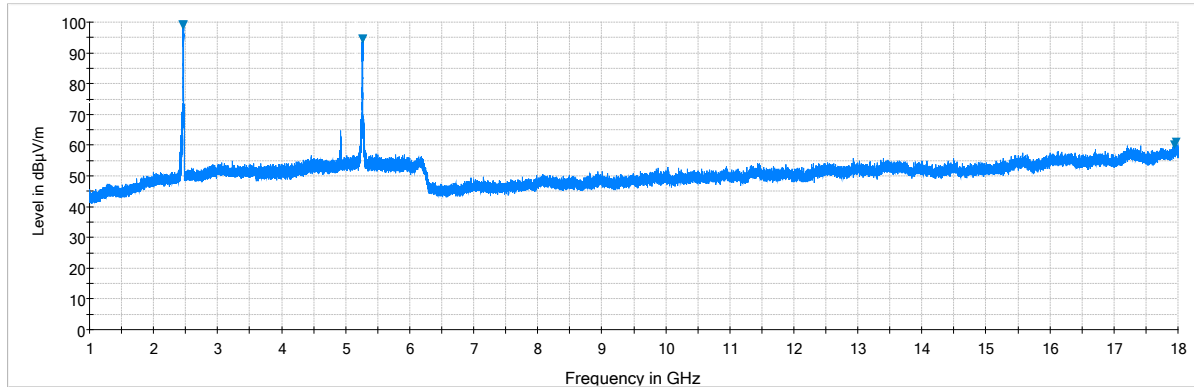
Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
2798.00	-110.47	Avg	V	37.20	33.73	53.98	-20.25
2798.00	-99.45	Peak	V	37.20	44.75	73.98	-29.23
4924.00	-111.54	Avg	V	40.84	36.30	53.98	-17.68
4924.00	-99.68	Peak	V	40.84	48.16	73.98	-25.82
7722.00	-111.61	Avg	V	43.96	39.35	53.98	-14.63
7722.00	-99.70	Peak	V	43.96	51.26	73.98	-22.72
8058.00	-111.24	Avg	V	44.75	40.51	53.98	-13.47
8058.00	-98.79	Peak	V	44.75	52.96	73.98	-21.02
10184.00	-99.87	Peak	V	46.69	53.82	73.98	-20.16
12982.00	-98.62	Peak	V	50.34	58.72	73.98	-15.26

Table 7-61. Radiated Measurements Simultaneous Transmission Config-1

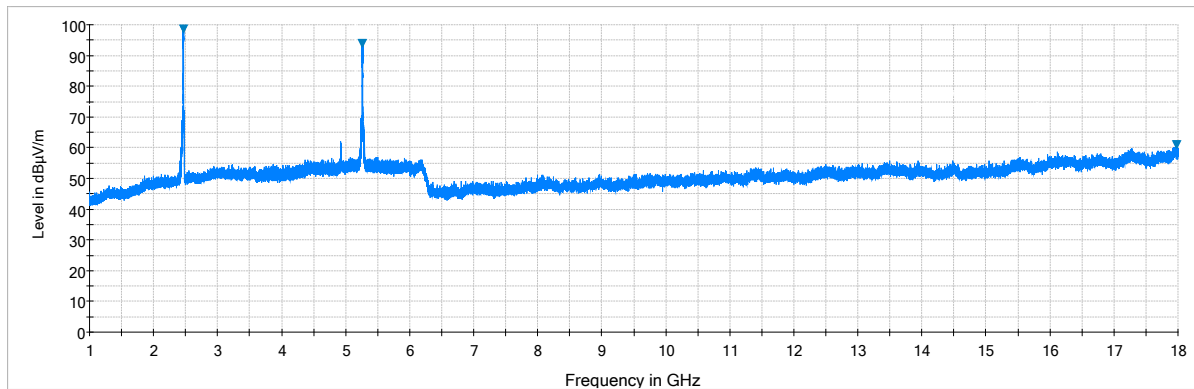
FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 145 of 258

Description	5 GHz Emisison	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 7-62. Simultaneous Transmission Config-2

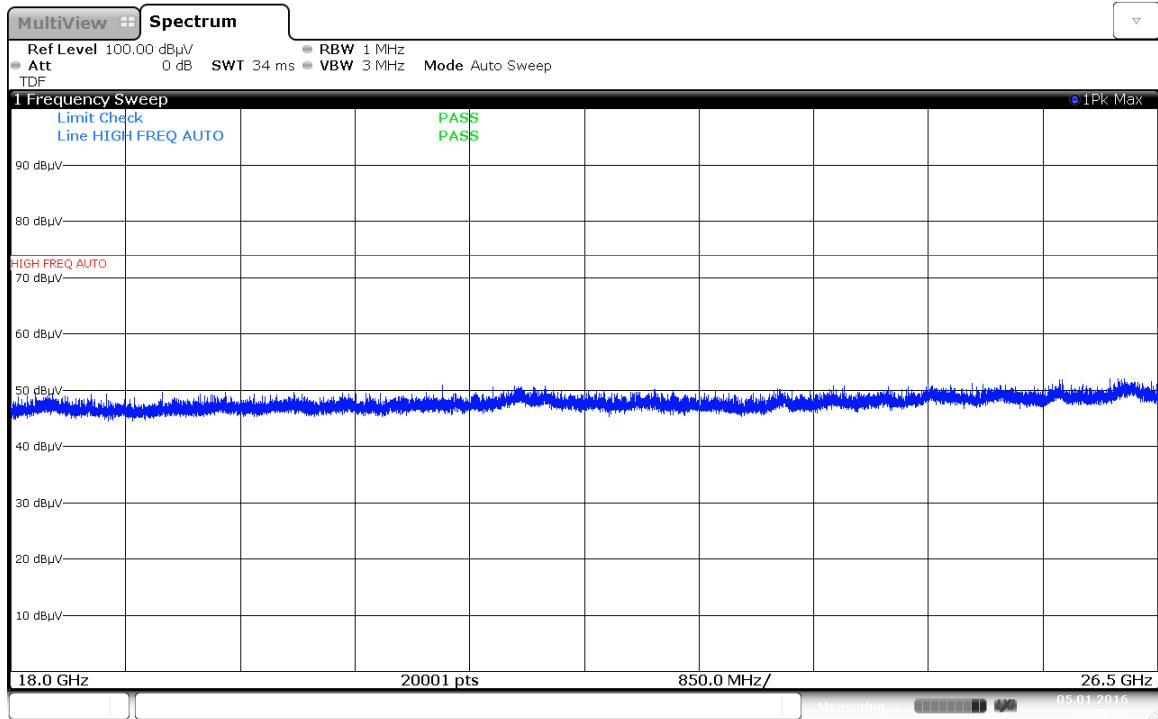


Plot 7-187. Radiated Spurious Plot above 1GHz (Simultaneous Transmission Config-2, Ant. Pol. H)



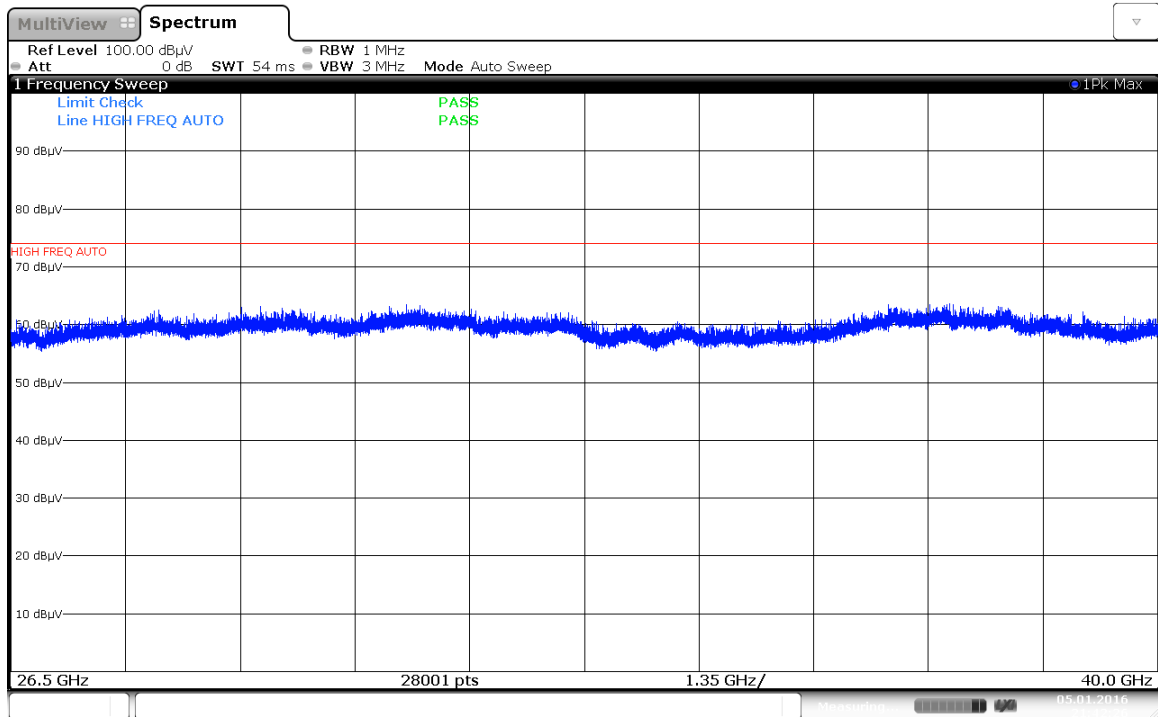
Plot 7-188. Radiated Spurious Plot above 1GHz (Simultaneous Transmission Config-2, Ant. Pol. V)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 146 of 258



Date: 5.JAN.2016 21:30:26

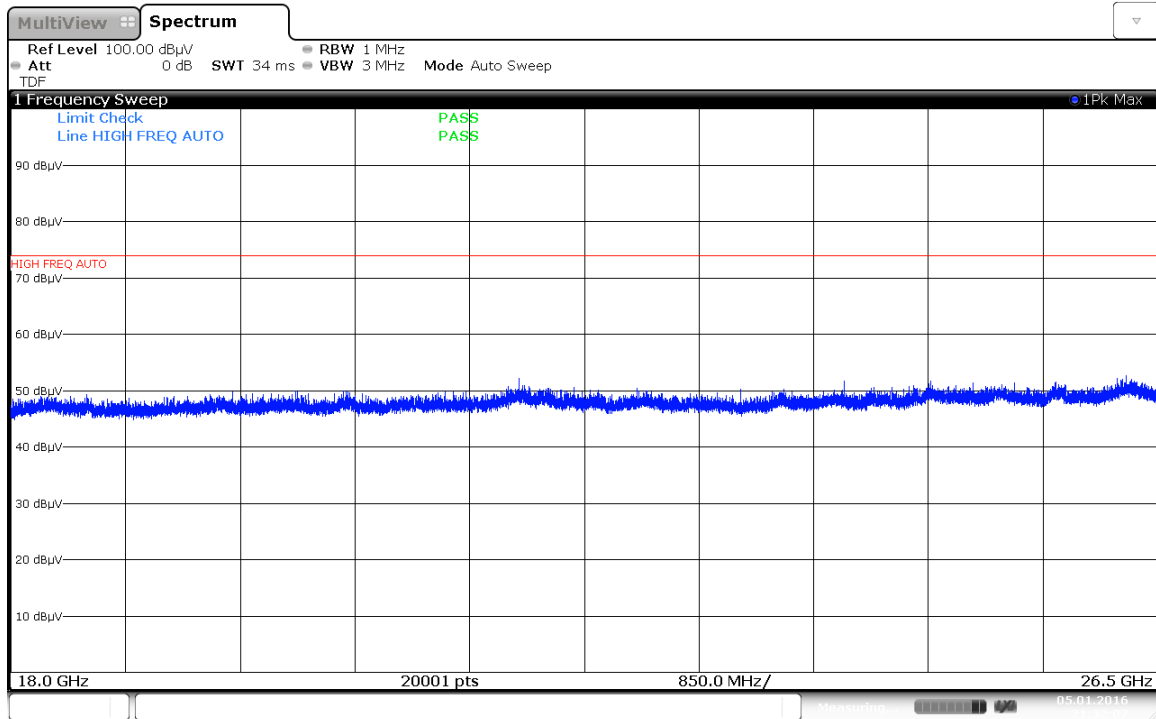
Plot 7-189. Radiated Spurious Plot 18GHz – 26.5GHz (Simultaneous Transmission Config-2 Ant. Pol. H)



Date: 5.JAN.2016 21:42:25

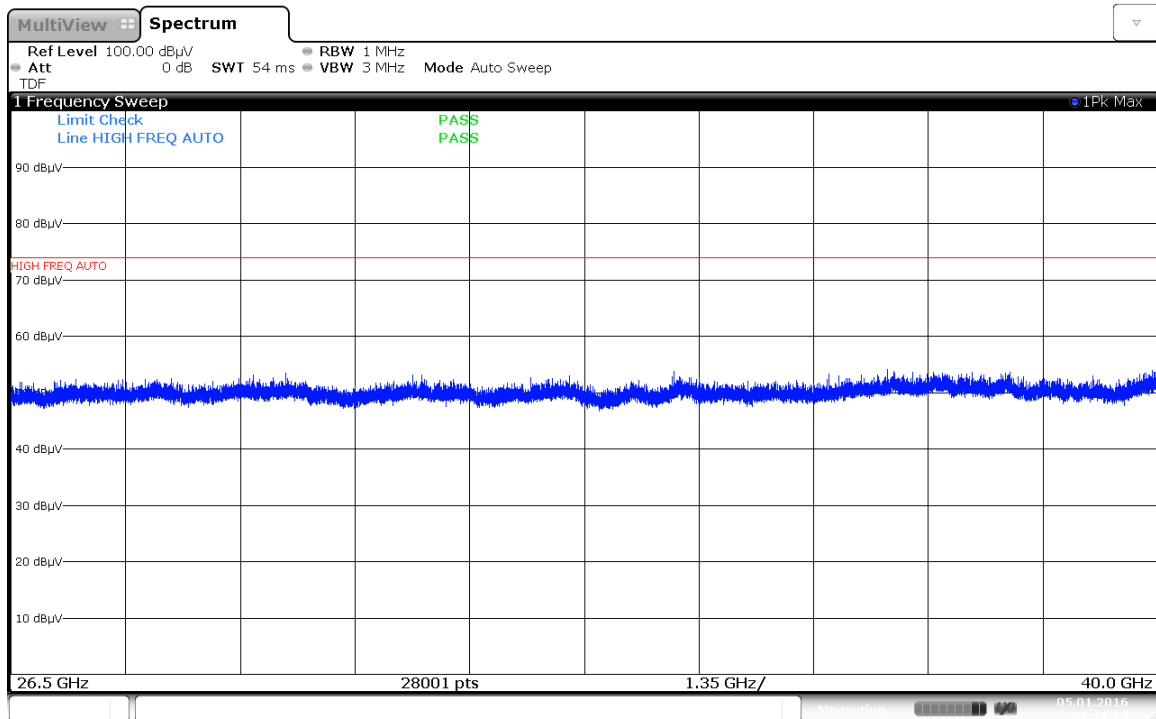
Plot 7-190. Radiated Spurious Plot above 26.5GHz (Simultaneous Transmission Config-2 Ant. Pol. H)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 147 of 258



Date: 5 JAN. 2016 21:32:07

Plot 7-191. Radiated Spurious Plot 18GHz – 26.5GHz (Simultaneous Transmission Config-2 Ant. Pol. V)



Date: 5 JAN. 2016 21:44:17

Plot 7-192. Radiated Spurious Plot above 26.5GHz (Simultaneous Transmission Config-2 Ant. Pol. H)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 148 of 258

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
2798.00	-110.32	Avg	H	37.20	33.88	53.98	-20.10
2798.00	-99.16	Peak	H	37.20	45.04	73.98	-28.94
4924.00	-111.71	Avg	H	40.84	36.13	53.98	-17.85
4924.00	-99.83	Peak	H	40.84	48.01	73.98	-25.97
7722.00	-110.98	Avg	H	43.96	39.98	53.98	-14.00
7722.00	-99.27	Peak	H	43.96	51.69	73.98	-22.29
8058.00	-111.37	Avg	H	44.75	40.38	53.98	-13.60
8058.00	-98.18	Peak	H	44.75	53.57	73.98	-20.41
10184.00	-99.88	Peak	H	46.69	53.81	73.98	-20.17
12982.00	-99.41	Peak	H	50.34	57.93	73.98	-16.05

Table 7-63. Radiated Measurements Simultaneous Transmission Config-2

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 149 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209

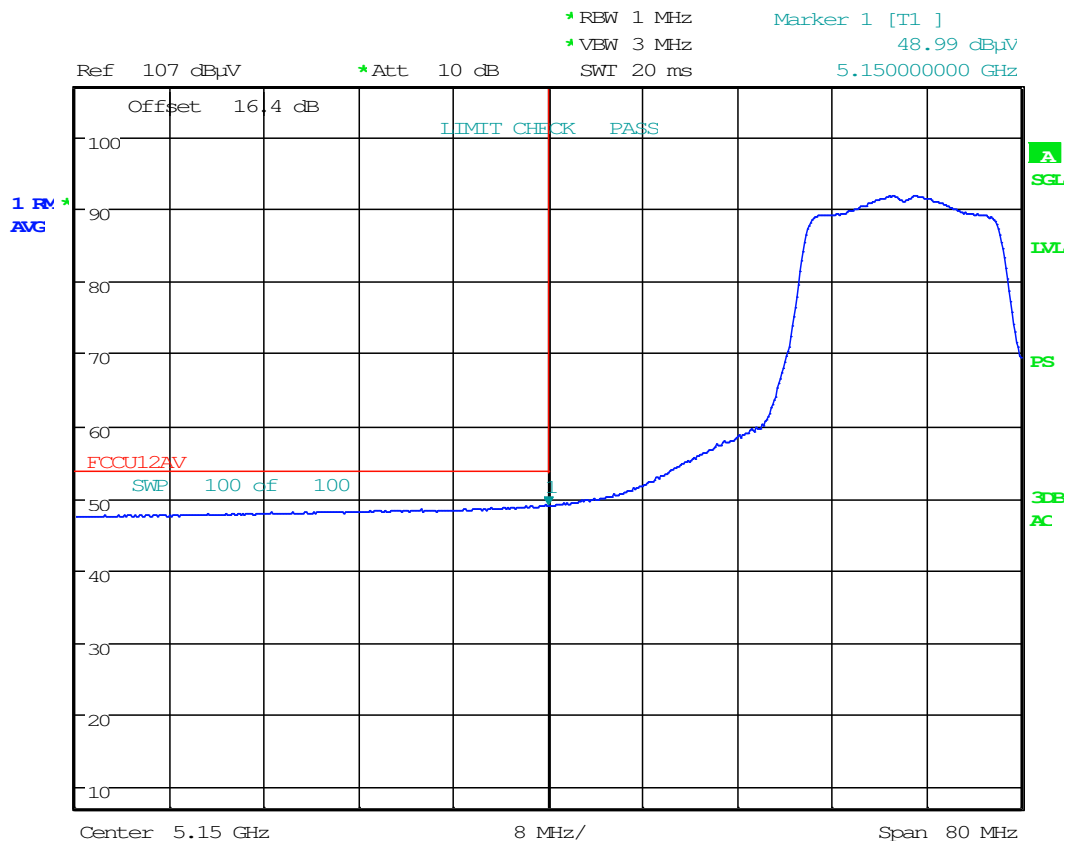
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



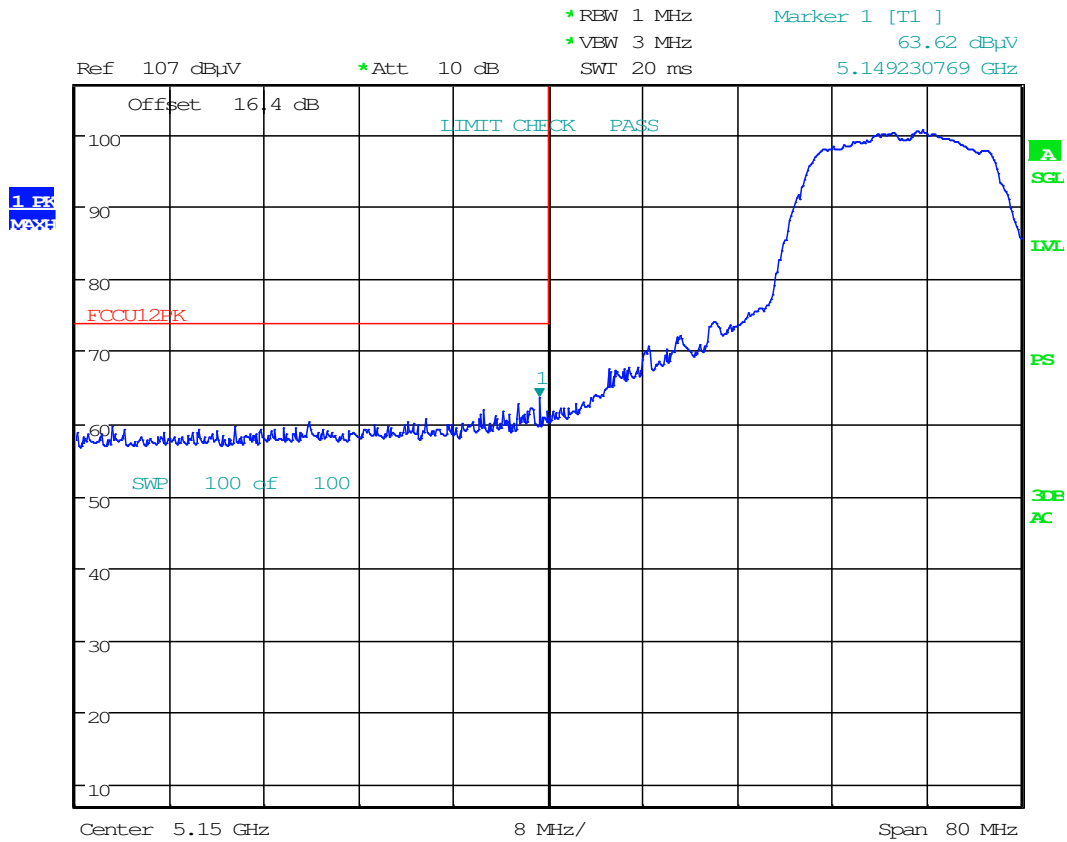
Date: 5.DEC.2015 14:18:35

Plot 7-193. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset	Page 150 of 258	

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 5.DEC.2015 14:19:00

Plot 7-194. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 151 of 258

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

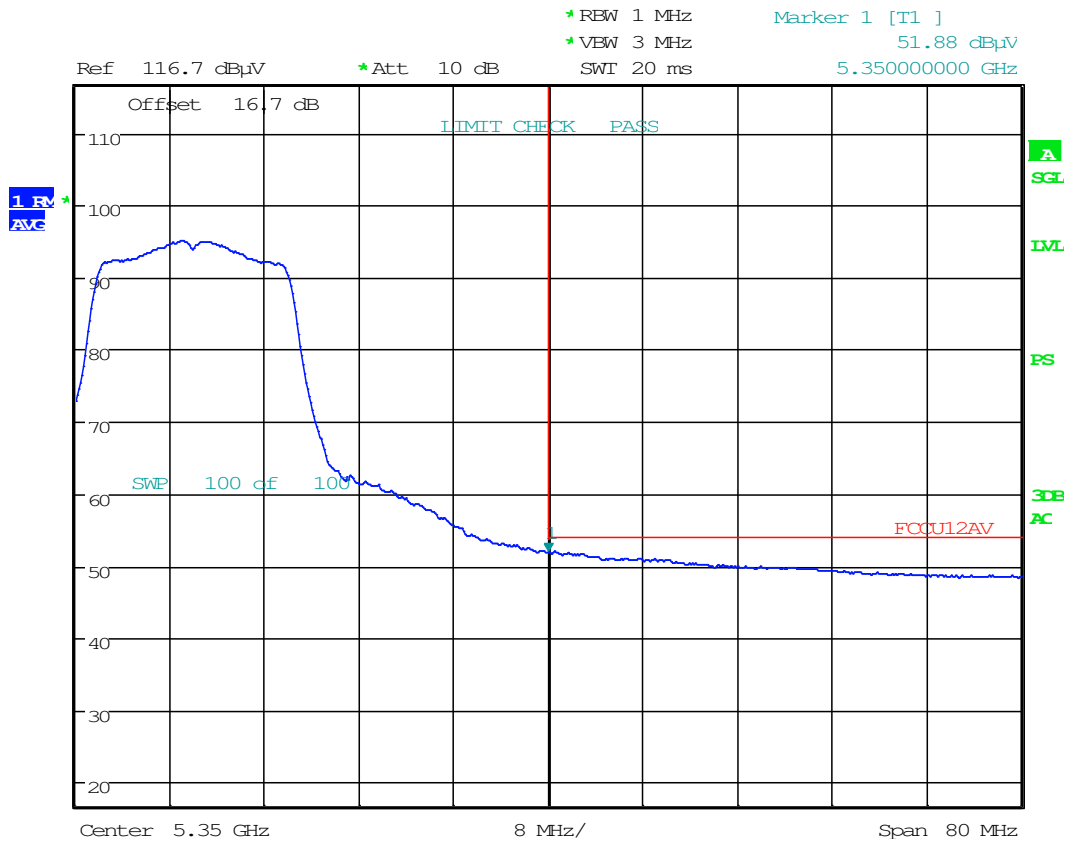
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



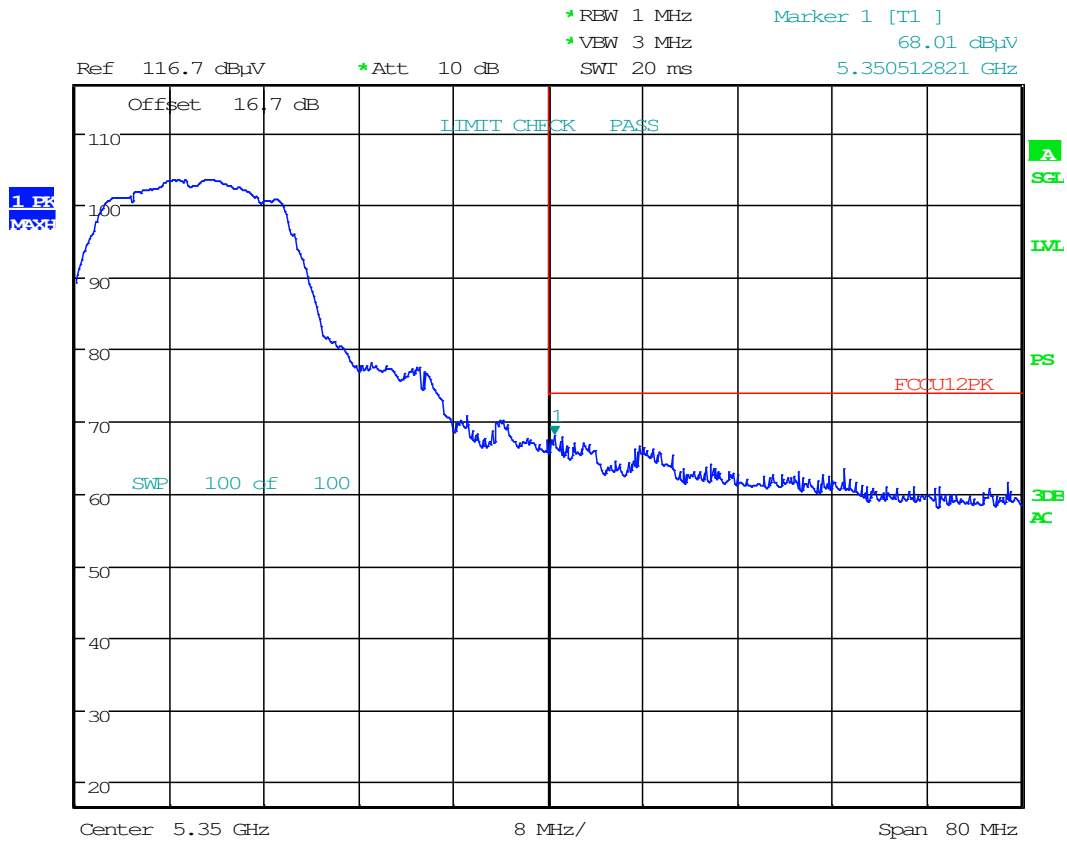
Date: 5.DEC.2015 14:52:13

Plot 7-195. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 152 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 5.DEC.2015 14:52:36

Plot 7-196. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 153 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209

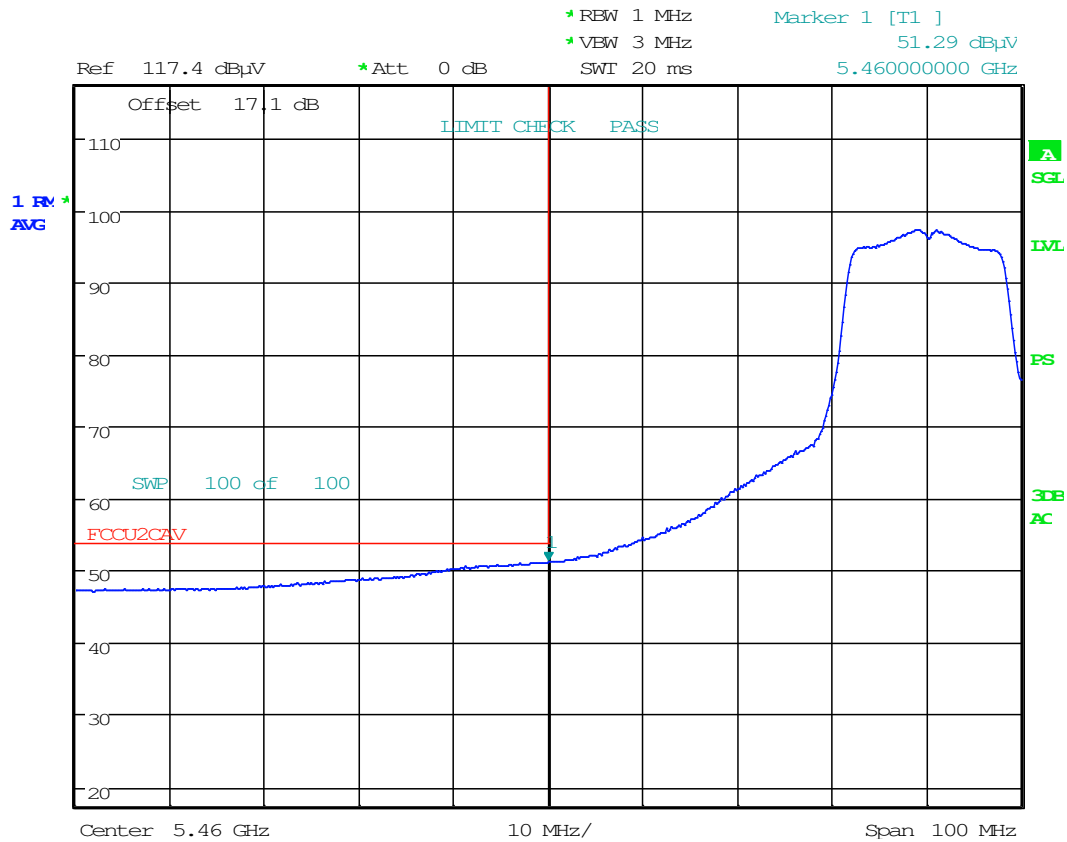
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



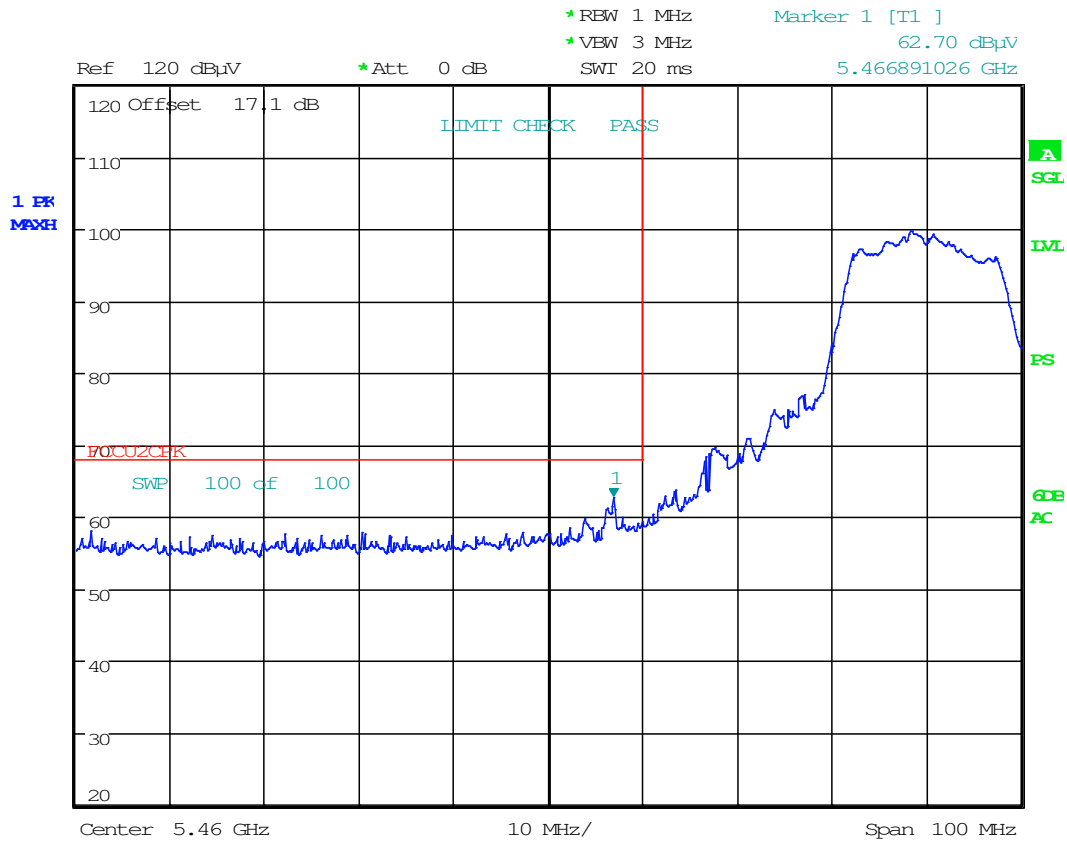
Date: 5.DEC.2015 15:13:50

Plot 7-197. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 154 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.DEC.2015 12:30:10

Plot 7-198. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 155 of 258

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

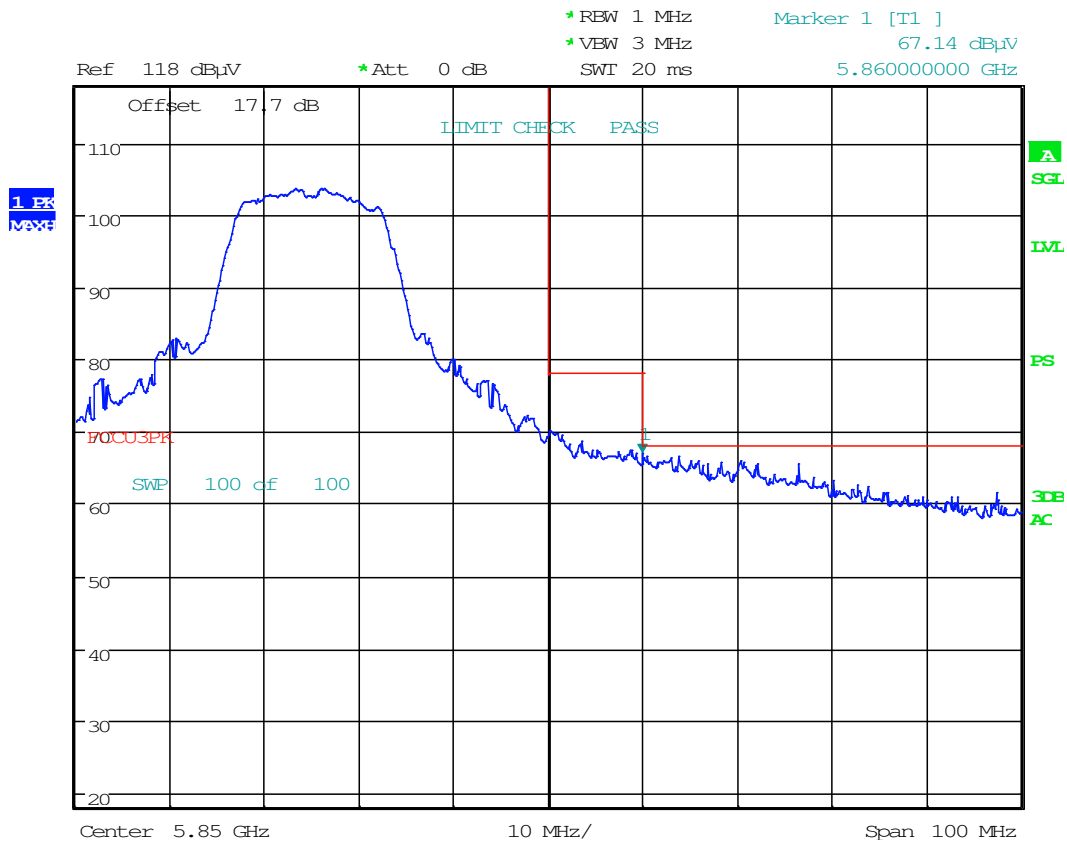
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 5.DEC.2015 15:49:21

Plot 7-199. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 156 of 258

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

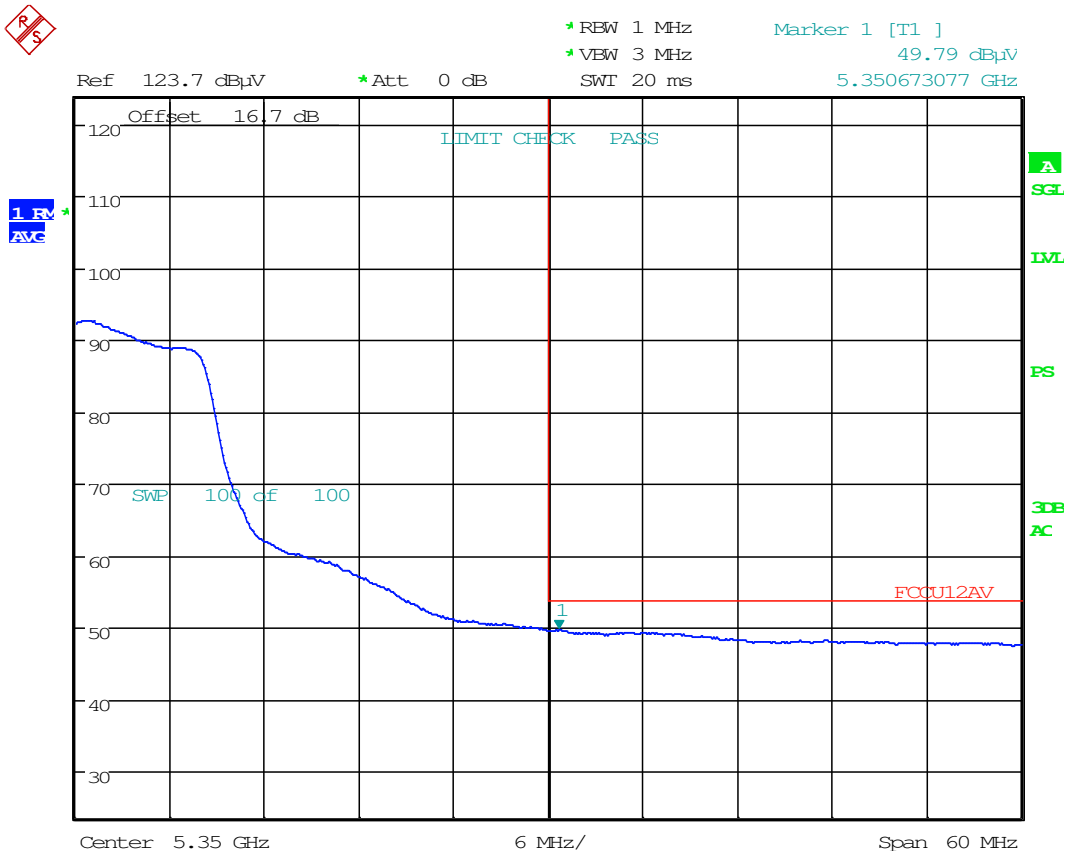
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



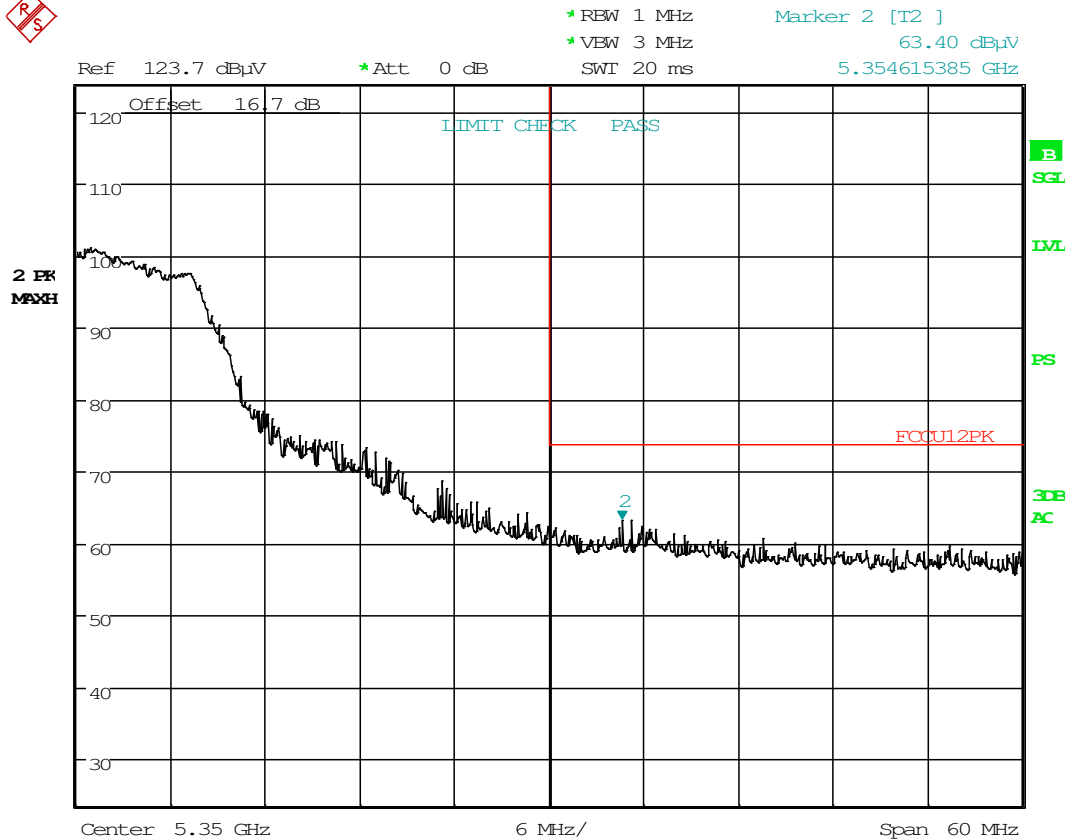
Date: 29.DEC.2015 23:11:24

Plot 7-200. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 157 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 29.DEC.2015 23:11:56

Plot 7-201. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 158 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209

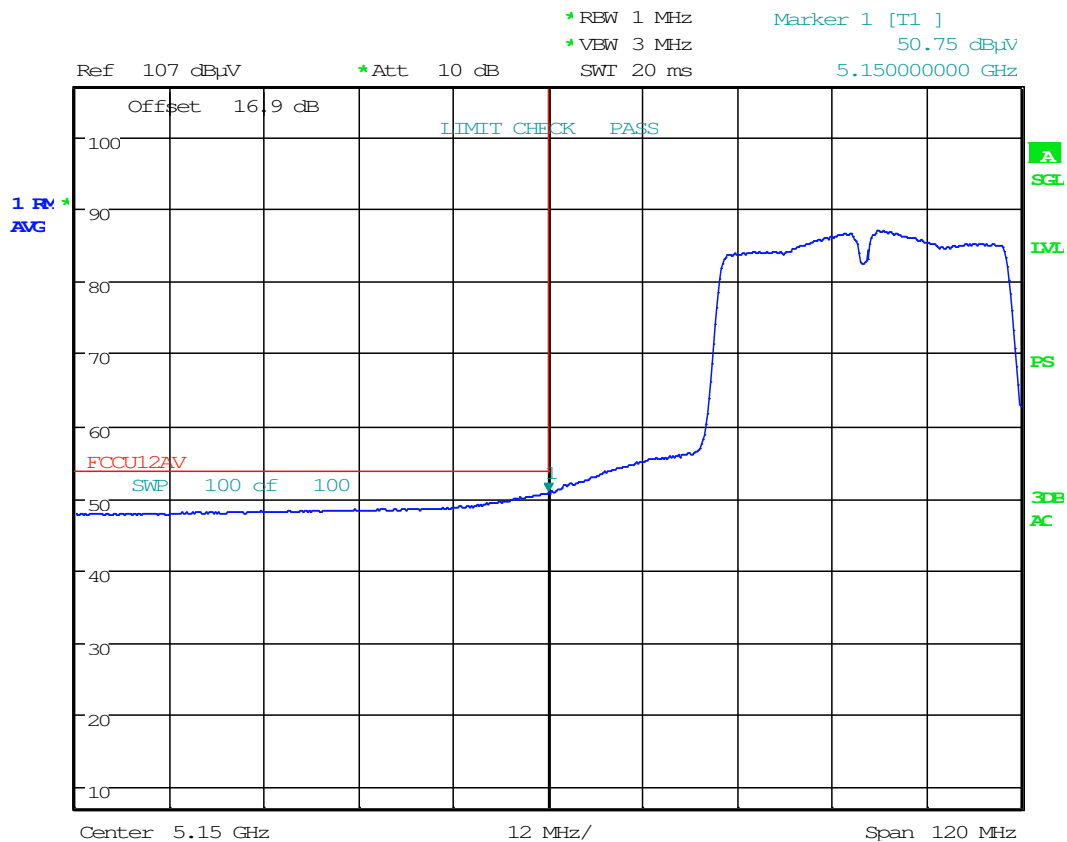
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



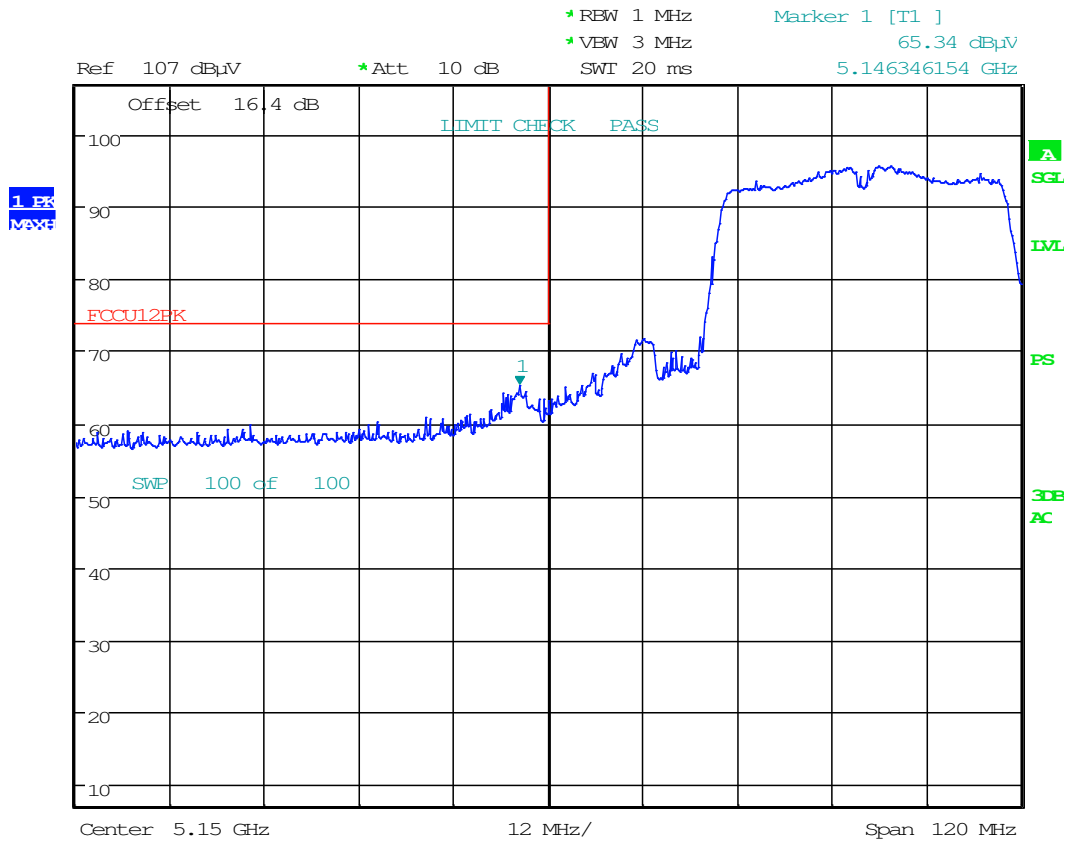
Date: 5.DEC.2015 14:36:15

Plot 7-202. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 159 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 5.DEC.2015 14:37:20

Plot 7-203. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 160 of 258

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

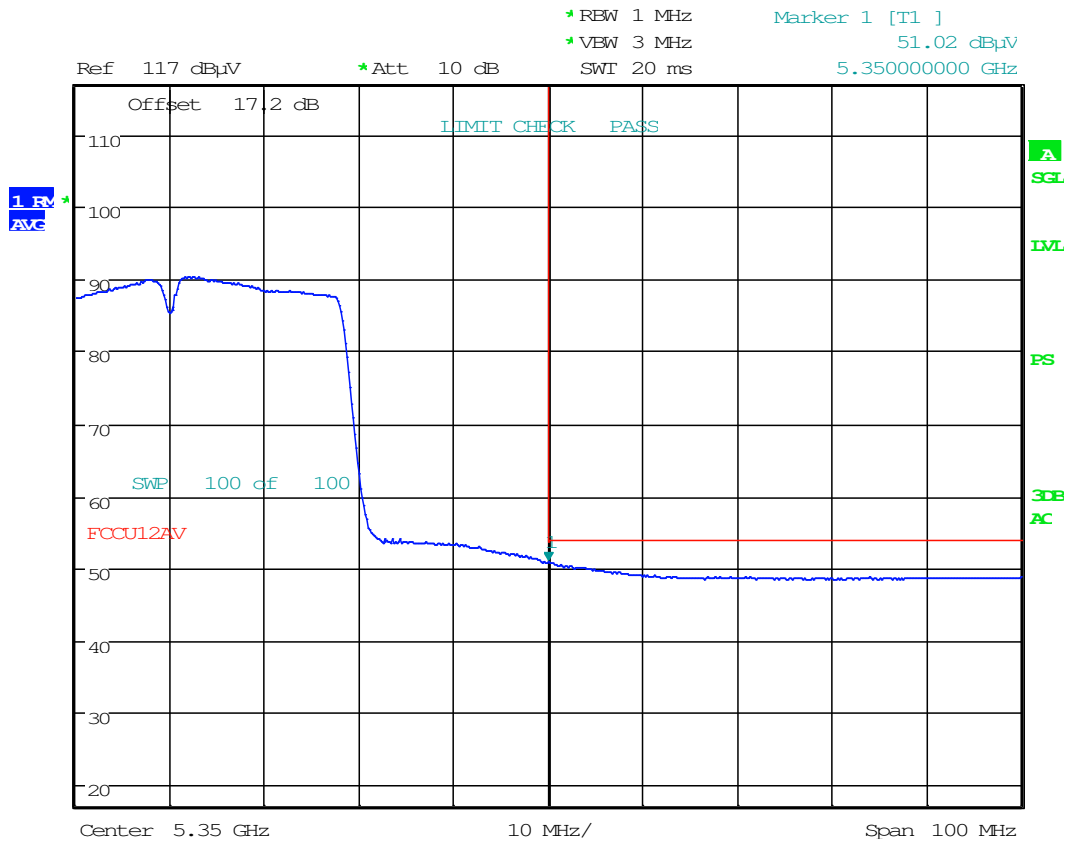
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



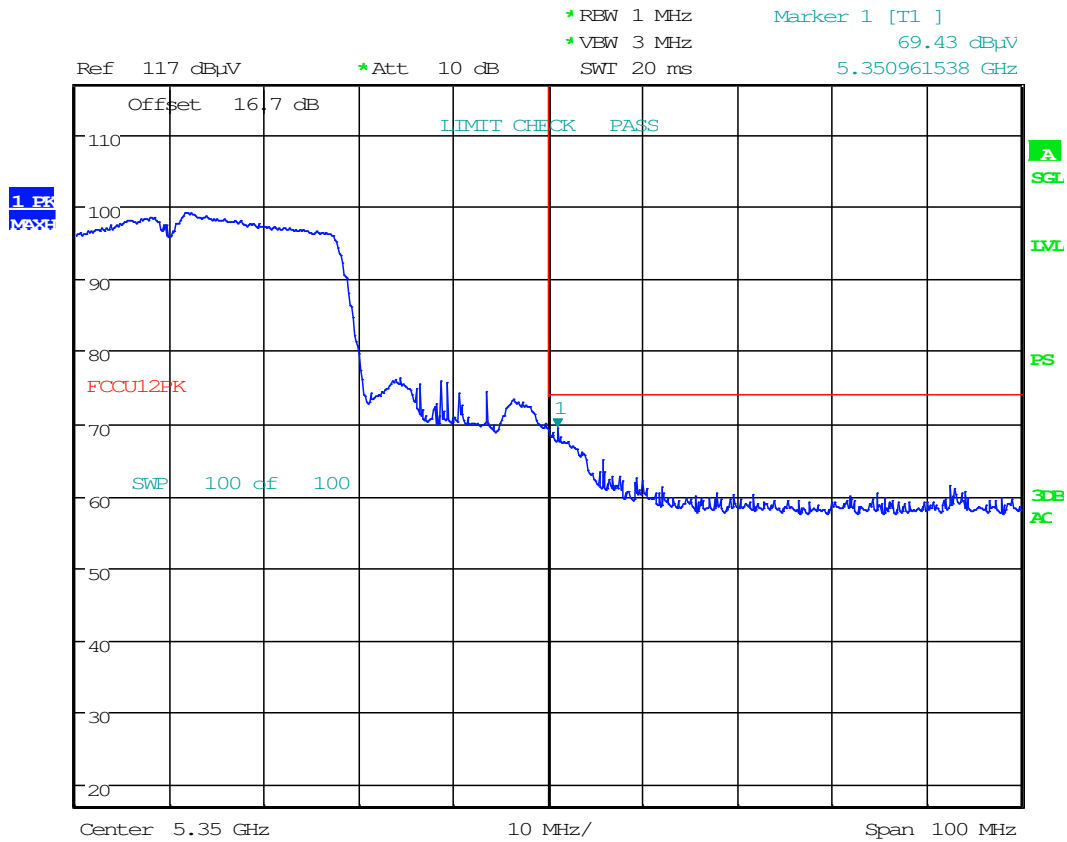
Date: 5.DEC.2015 14:57:38

Plot 7-204. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 161 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 5.DEC.2015 14:58:25

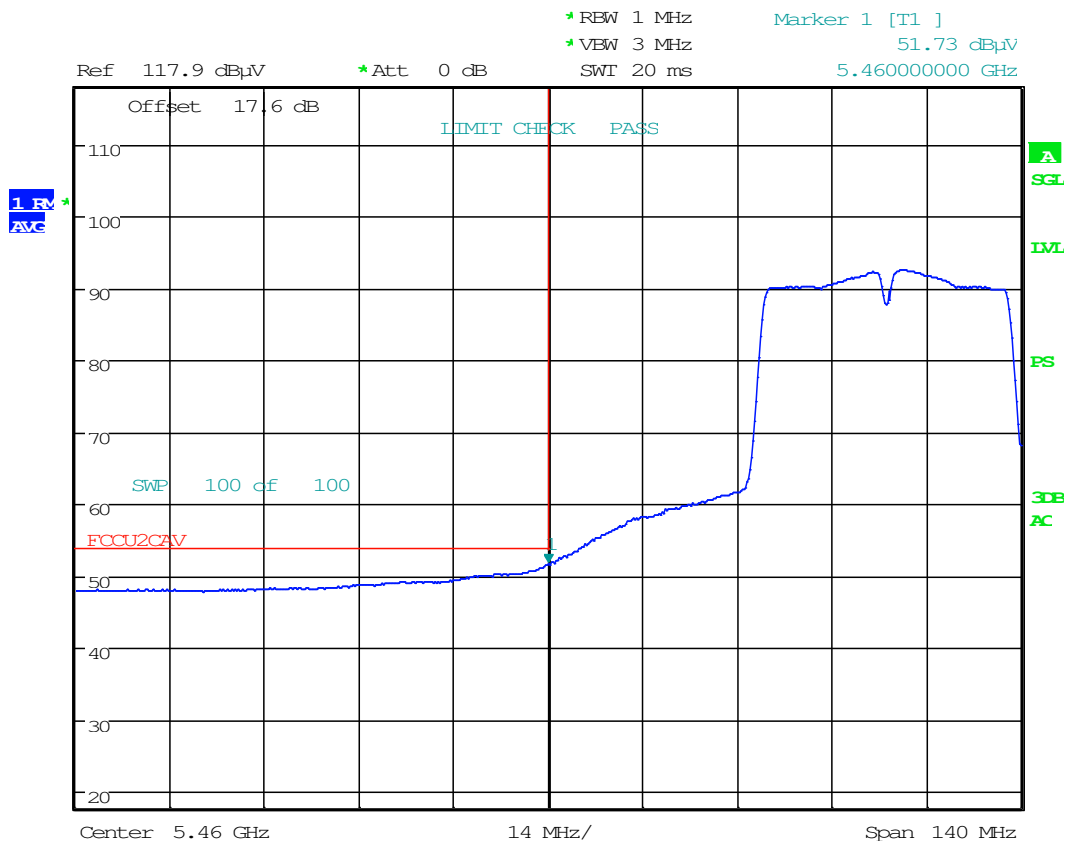
Plot 7-205. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 162 of 258

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



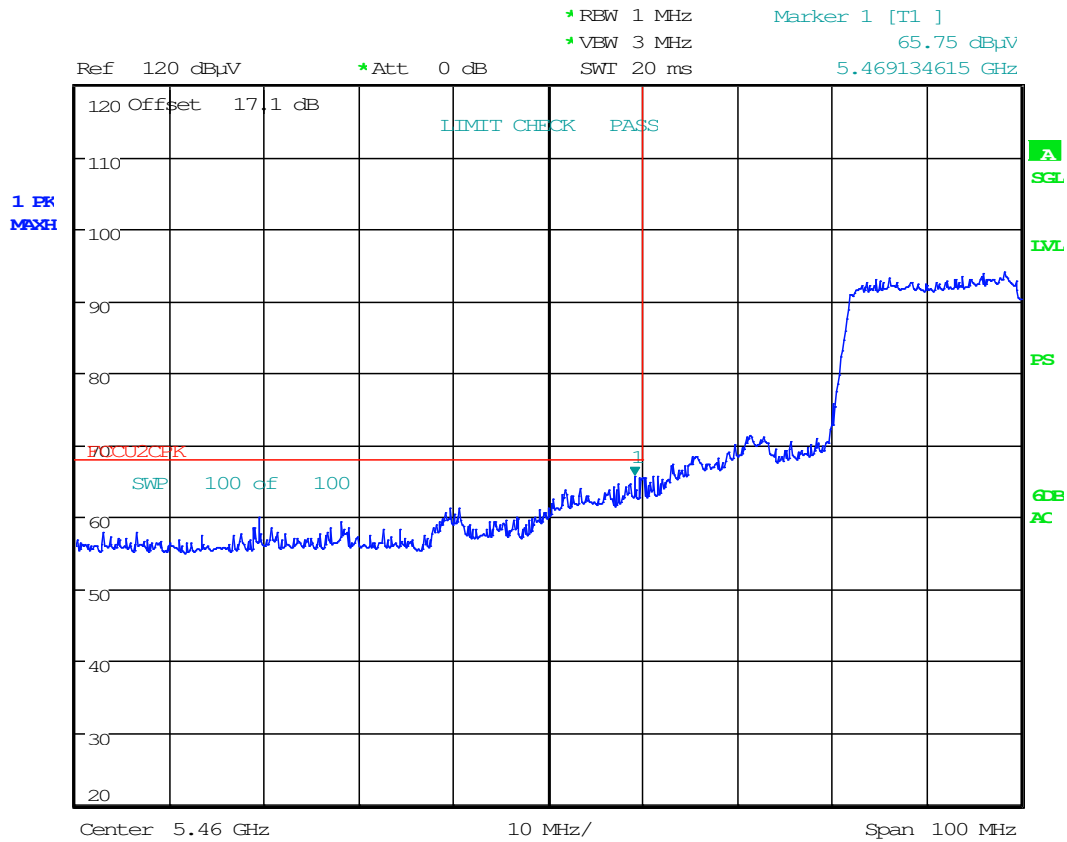
Date: 5.DEC.2015 15:23:22

Plot 7-206. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 163 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.DEC.2015 12:33:54

Plot 7-207. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 164 of 258

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

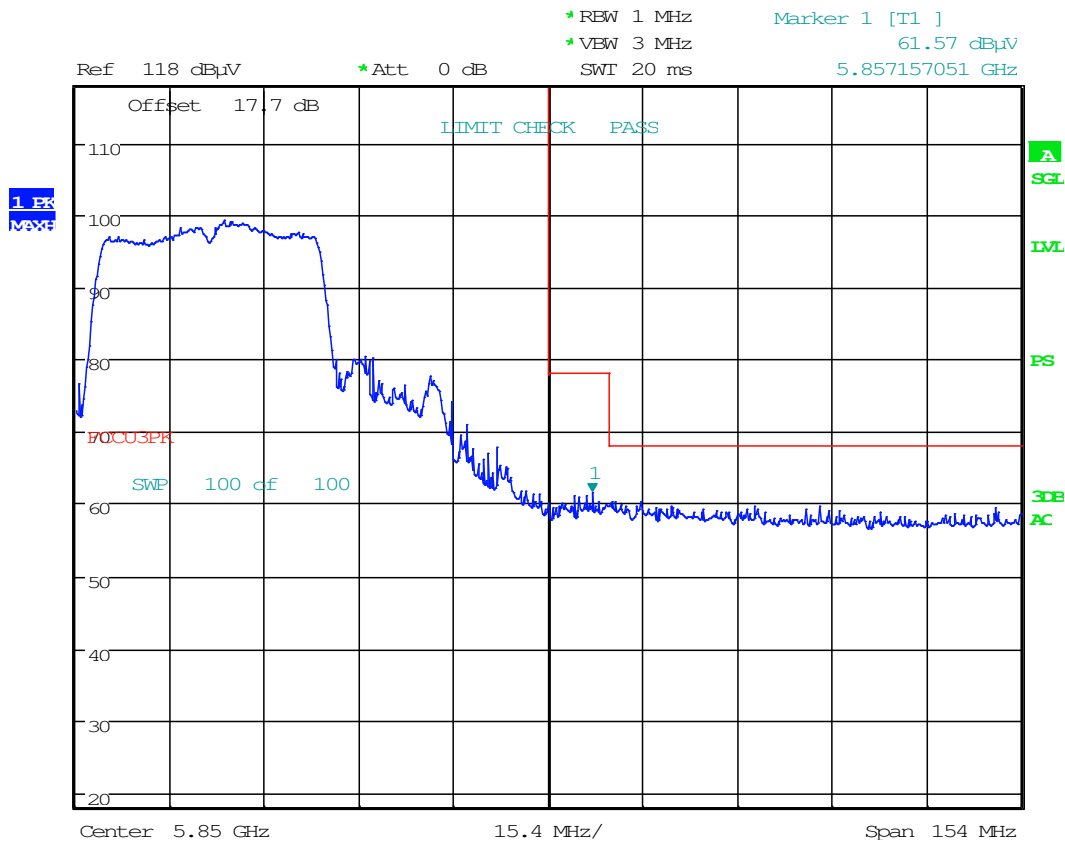
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



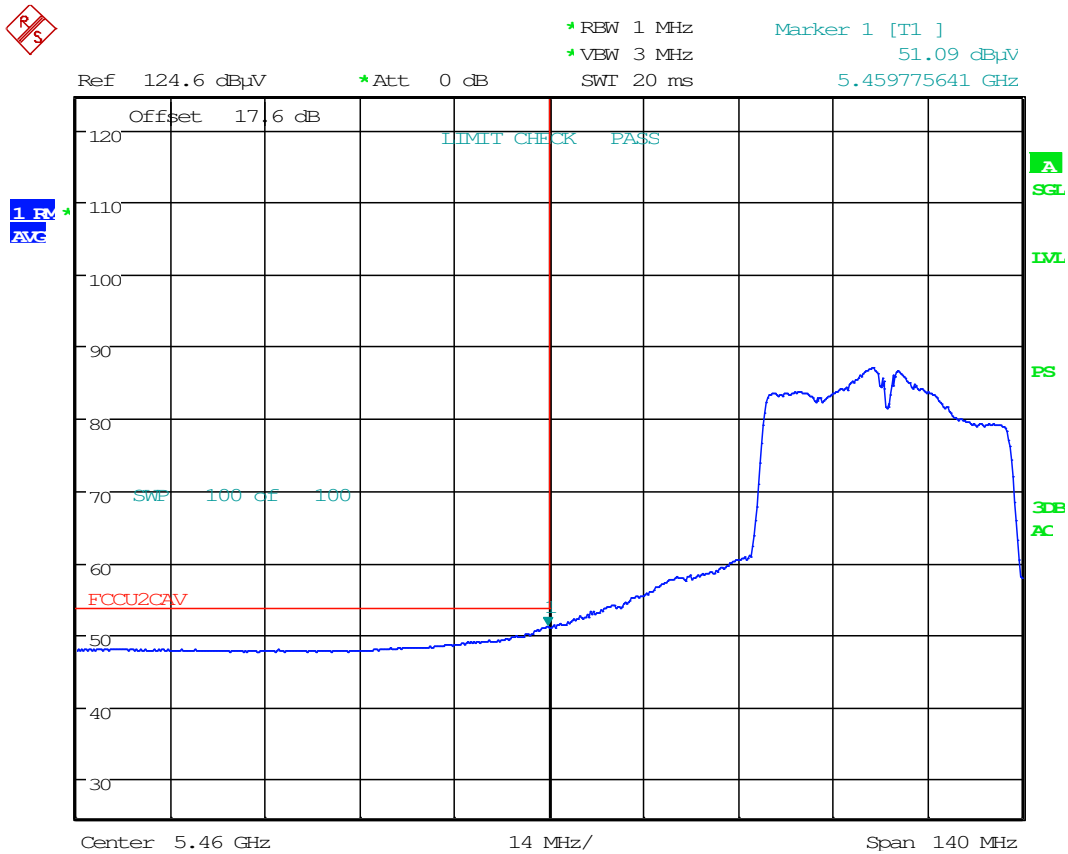
Date: 5.DEC.2015 15:51:58

Plot 7-208. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 165 of 258

Antenna-1 WCP Radiated Band Edge Measurements (40MHz 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: 5510MHz
Channel: 102



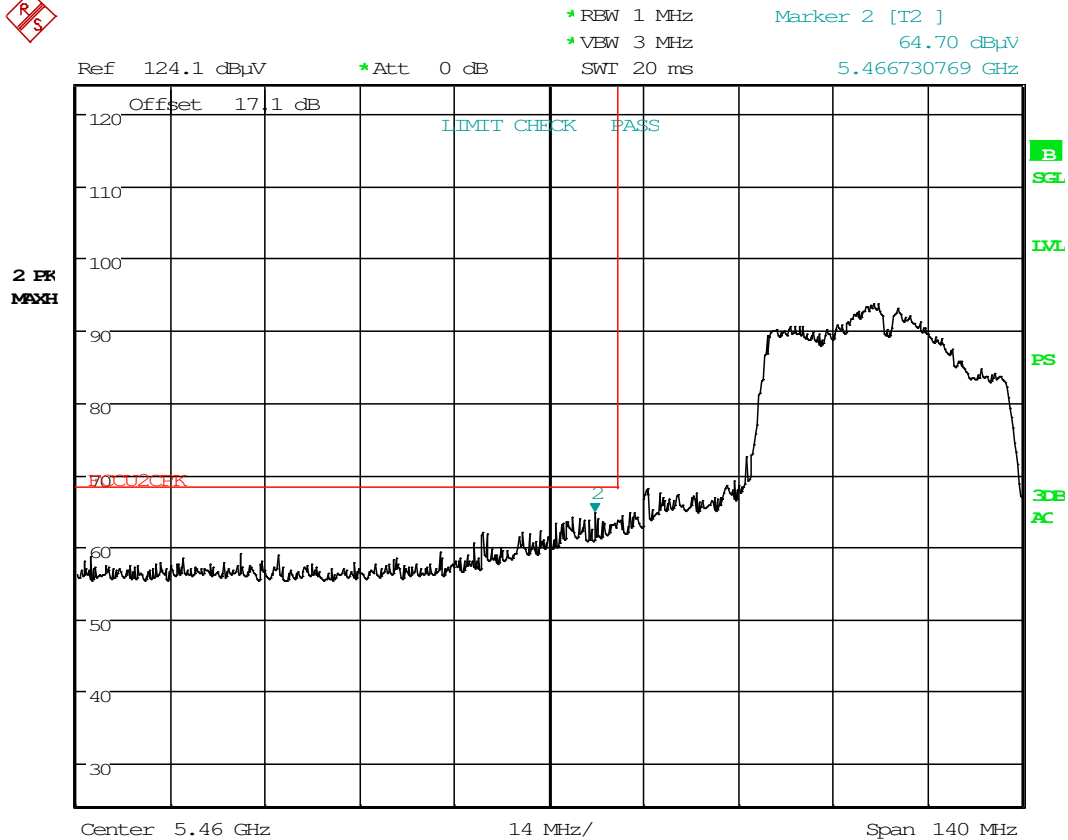
Date: 29.DEC.2015 23:20:46

Plot 7-209. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 166 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 29.DEC.2015 23:21:47

Plot 7-210. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 167 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209

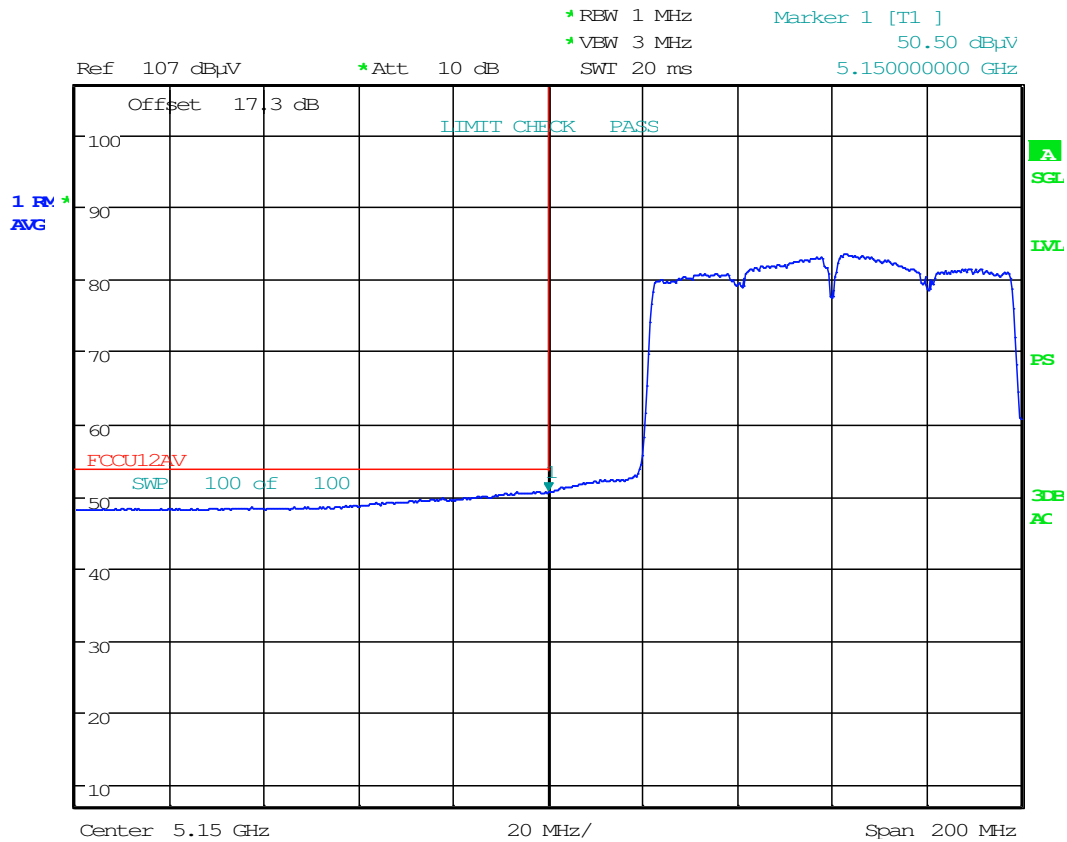
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



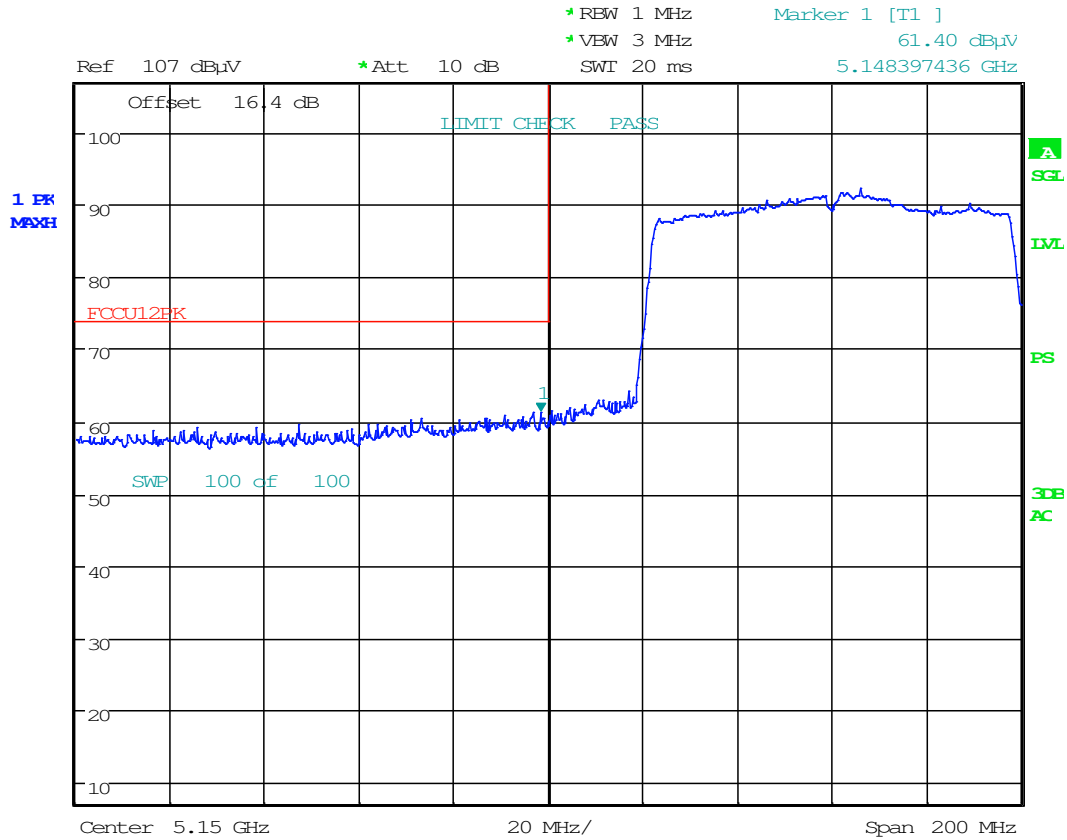
Date: 5.DEC.2015 14:40:35

Plot 7-211. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 168 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 5.DEC.2015 14:42:12

Plot 7-212. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 169 of 258

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

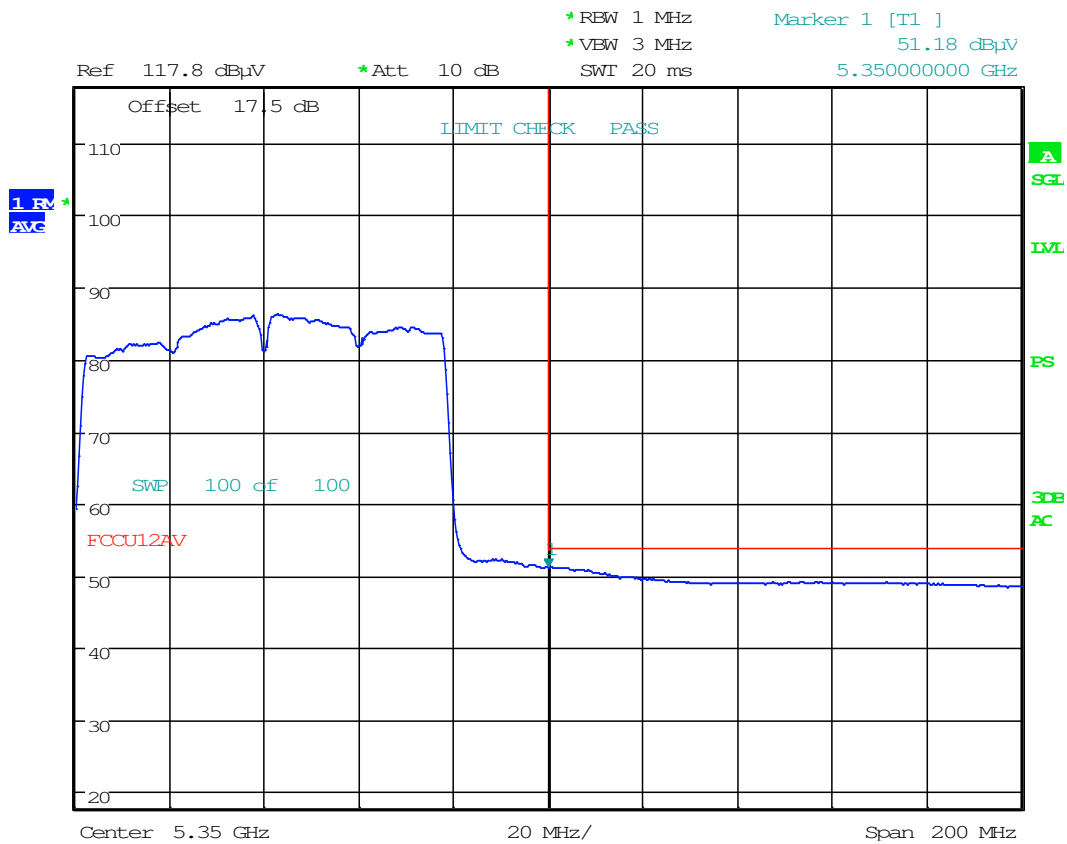
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



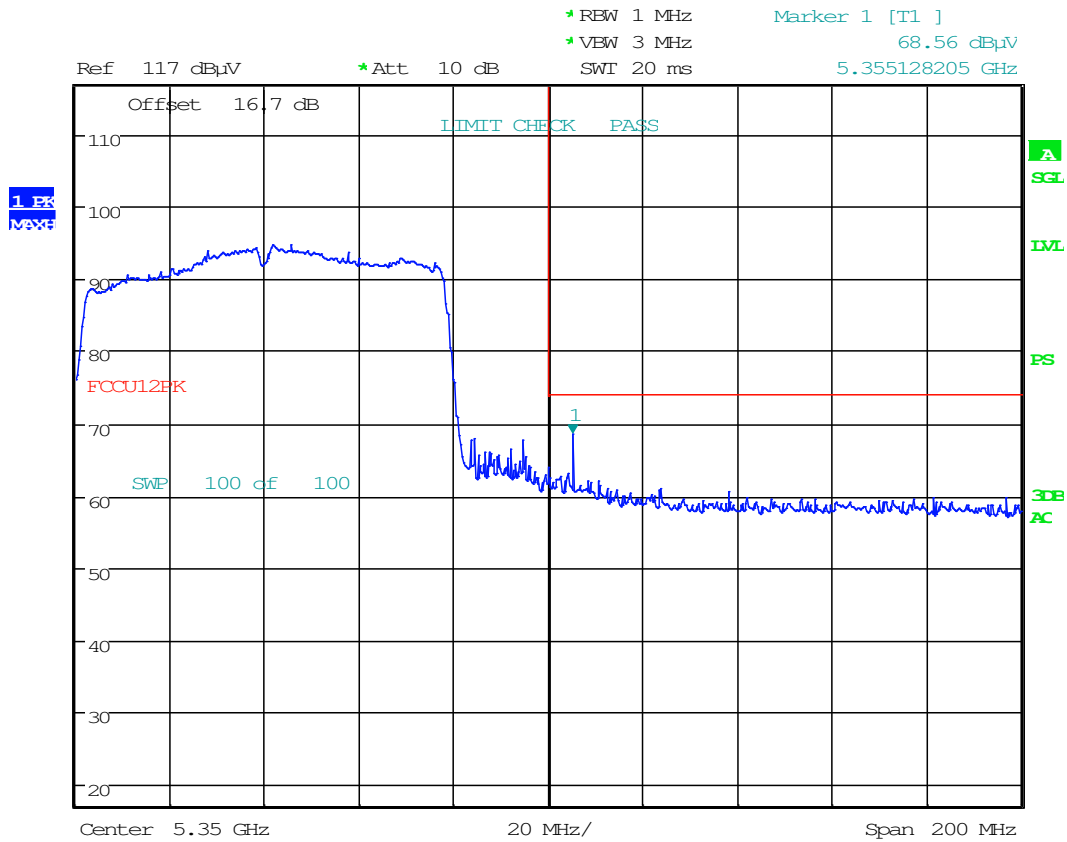
Date: 5.DEC.2015 15:01:37

Plot 7-213. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 170 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 5.DEC.2015 15:02:08

Plot 7-214. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 171 of 258

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

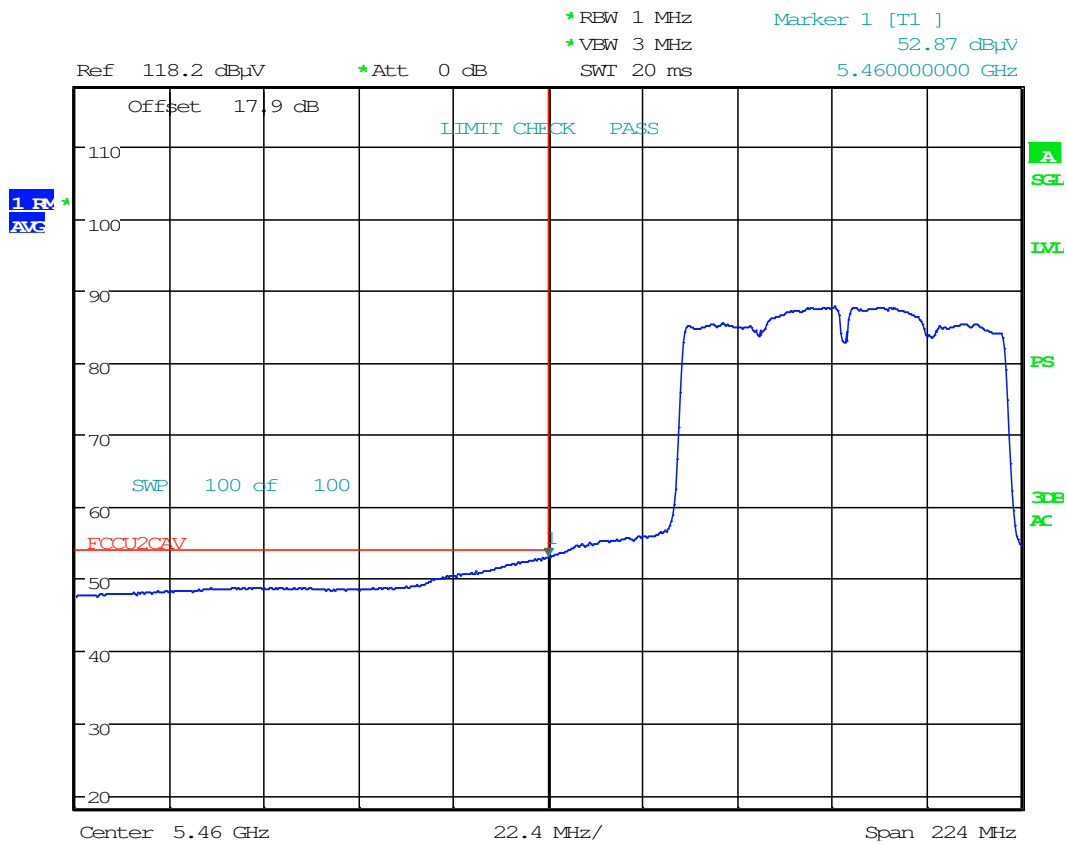
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



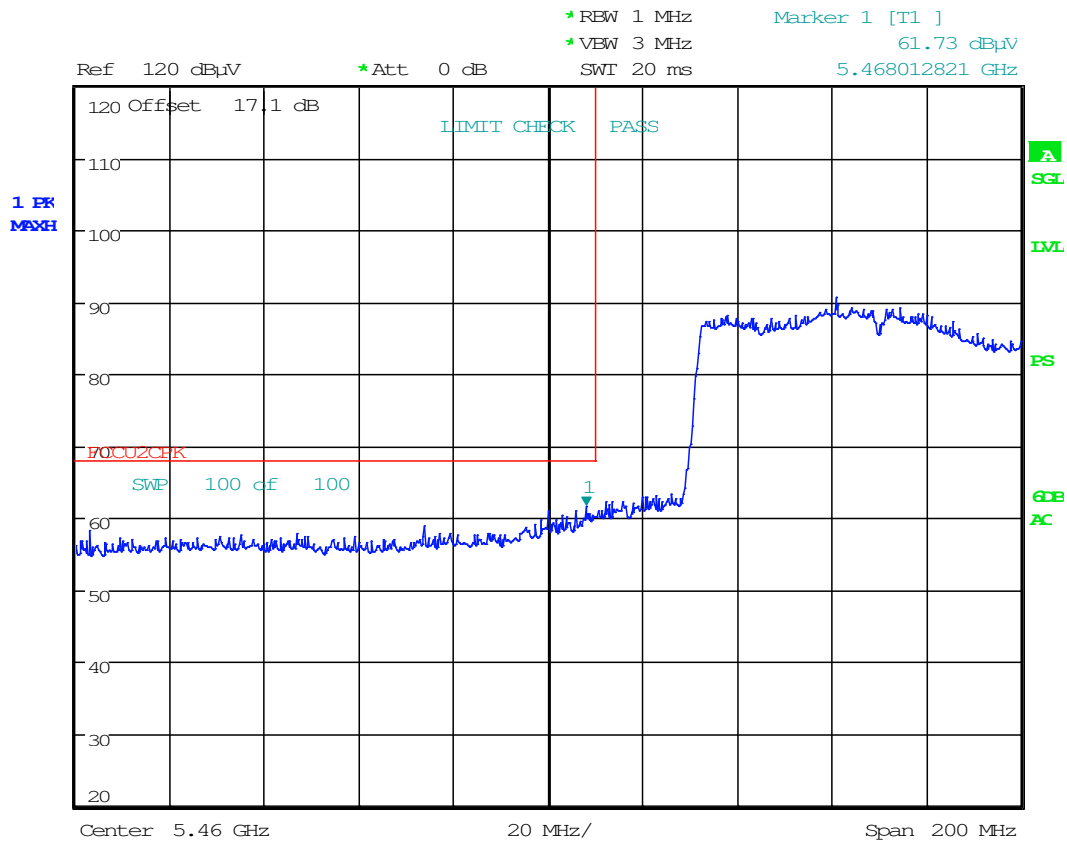
Date: 5.DEC.2015 15:28:36

Plot 7-215. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 172 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.DEC.2015 12:37:04

Plot 7-216. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 173 of 258

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

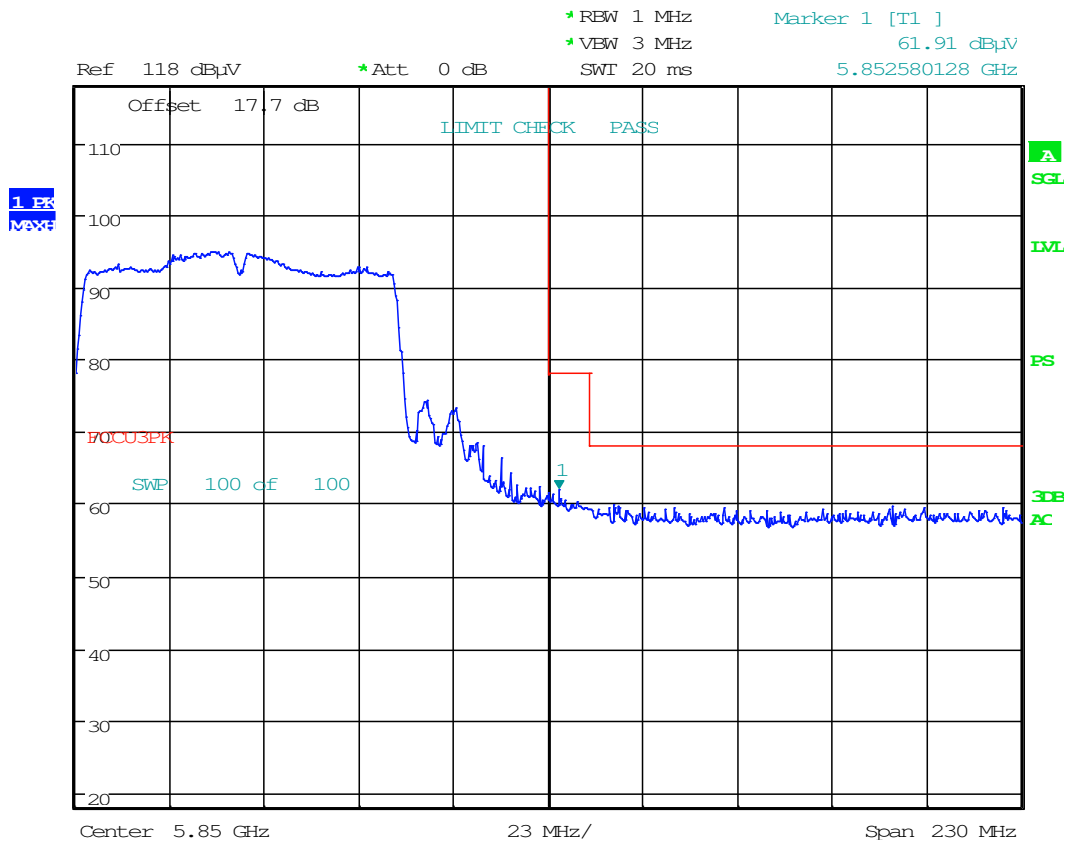
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



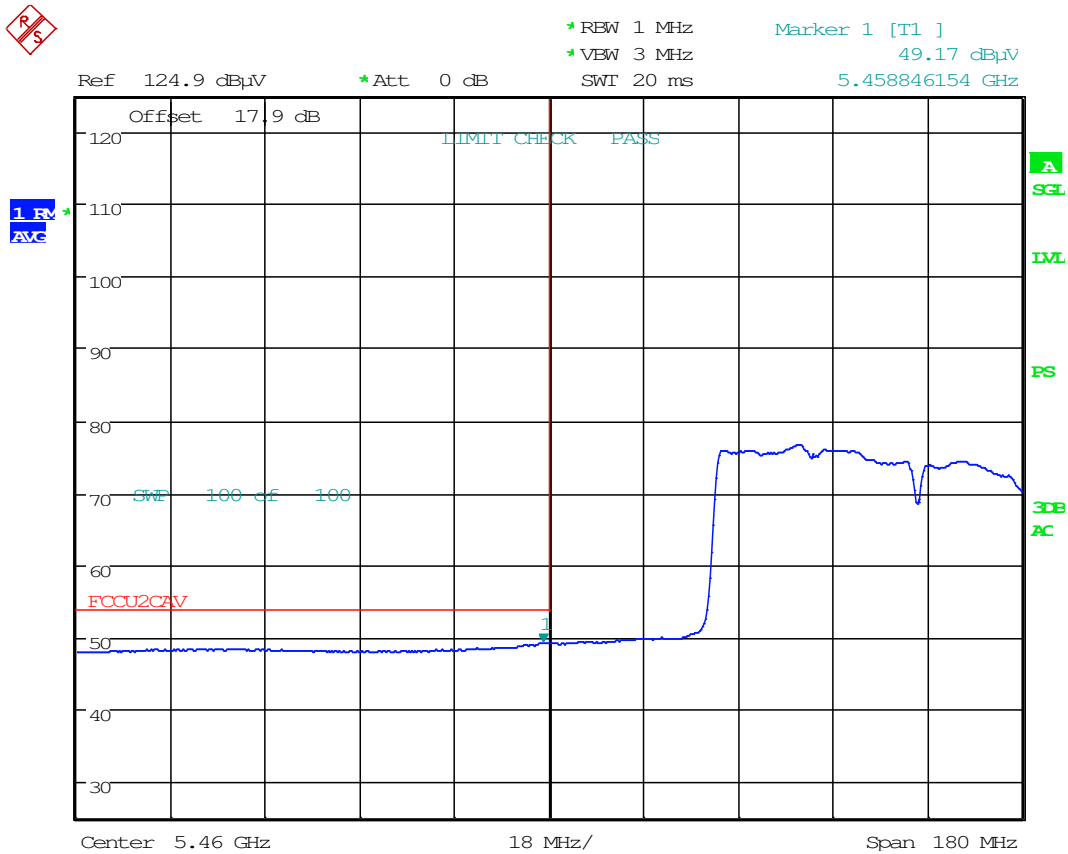
Date: 5.DEC.2015 15:54:17

Plot 7-217. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 174 of 258

Antenna-1 WCP Radiated Band Edge Measurements (80MHz 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: 5530MHz
Channel: 106



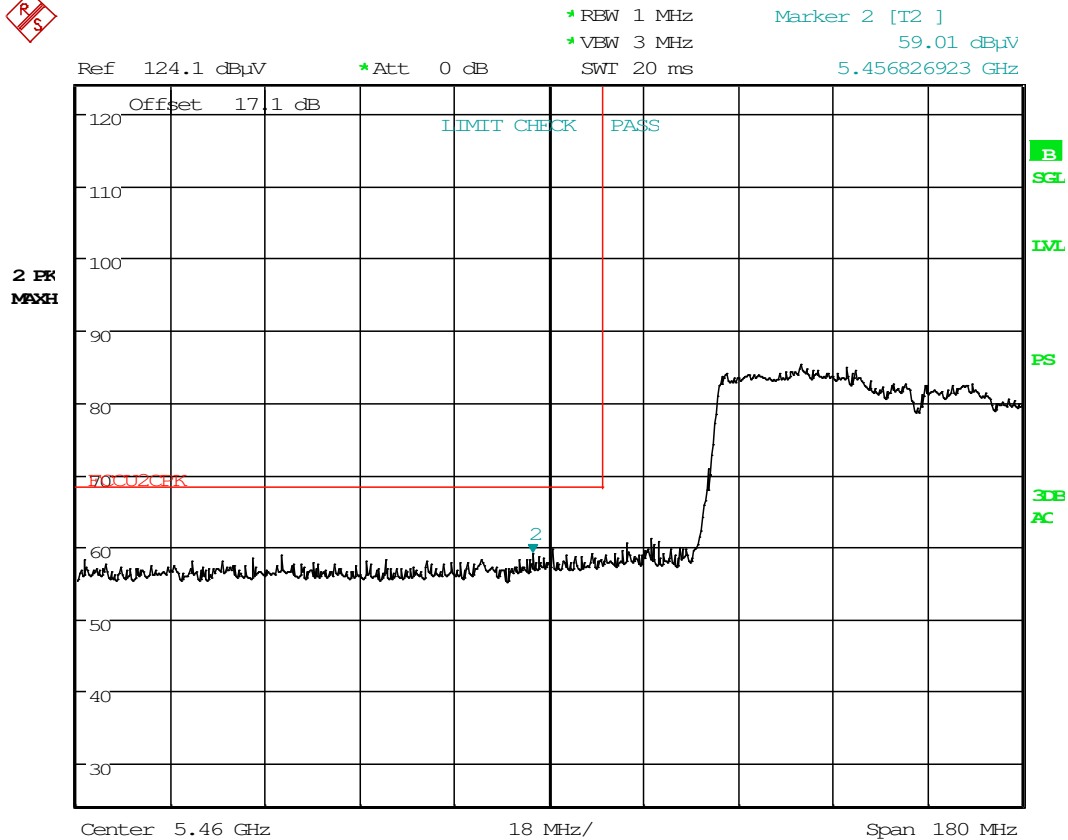
Date: 29.DEC.2015 23:25:50

Plot 7-218. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 175 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 29.DEC.2015 23:26:05

Plot 7-219. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 176 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209

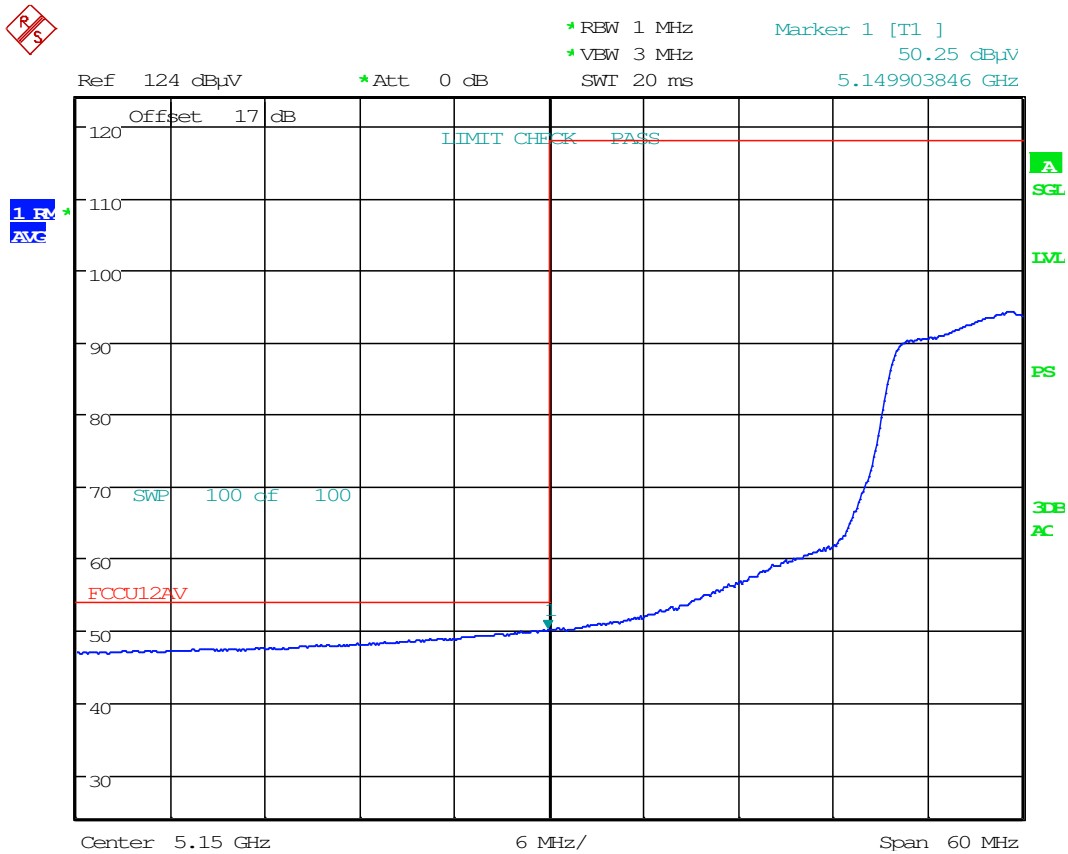
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



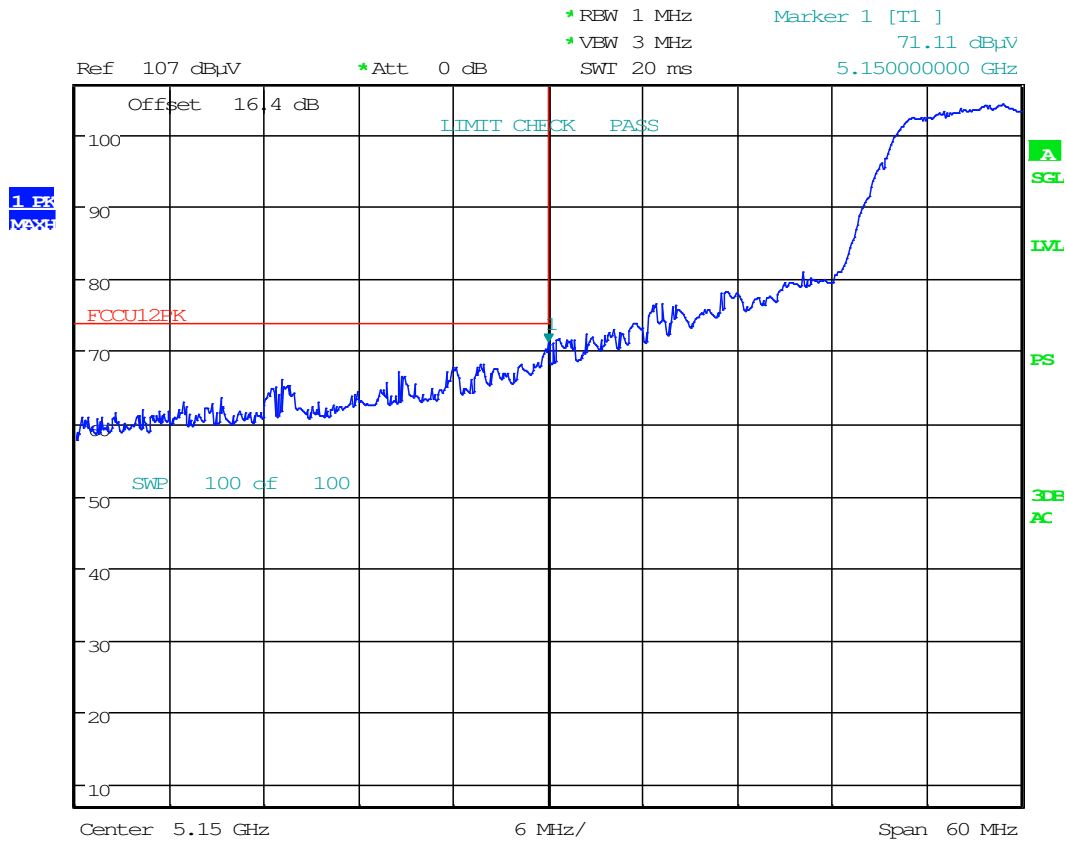
Date: 22.DEC.2015 06:50:15

Plot 7-220. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 177 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 7.DEC.2015 11:32:47

Plot 7-221. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 178 of 258

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

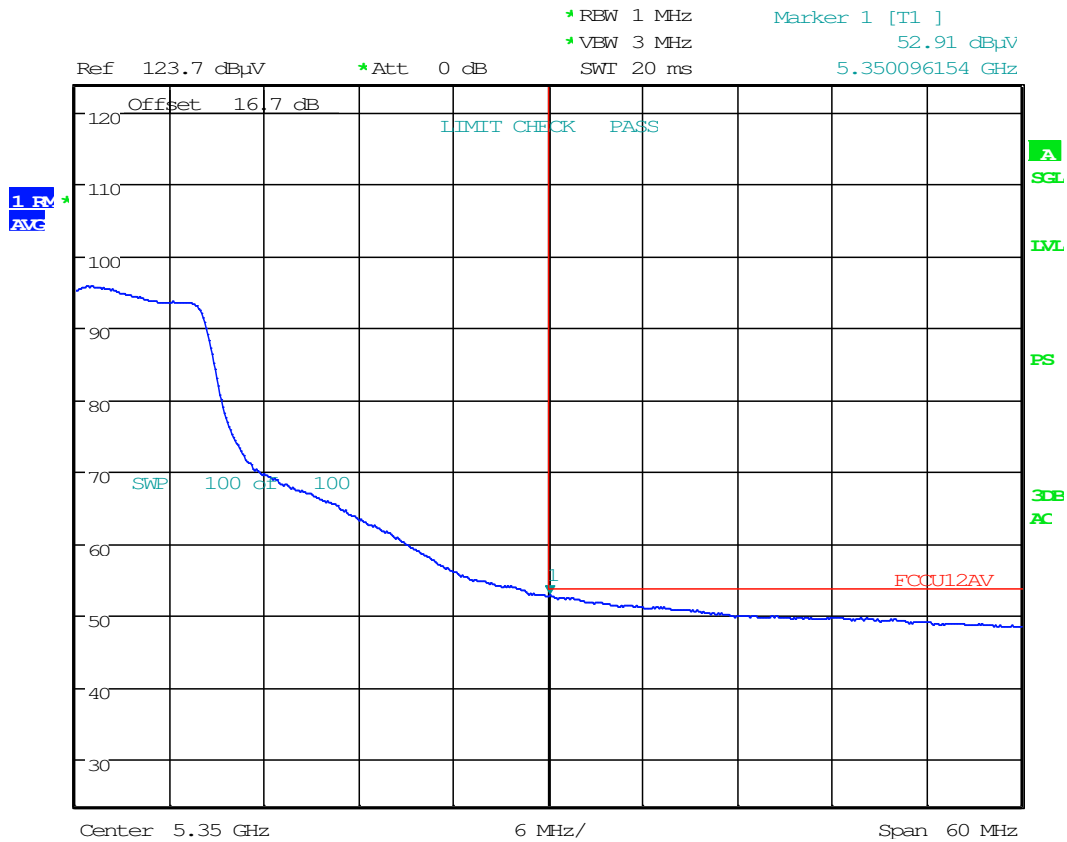
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



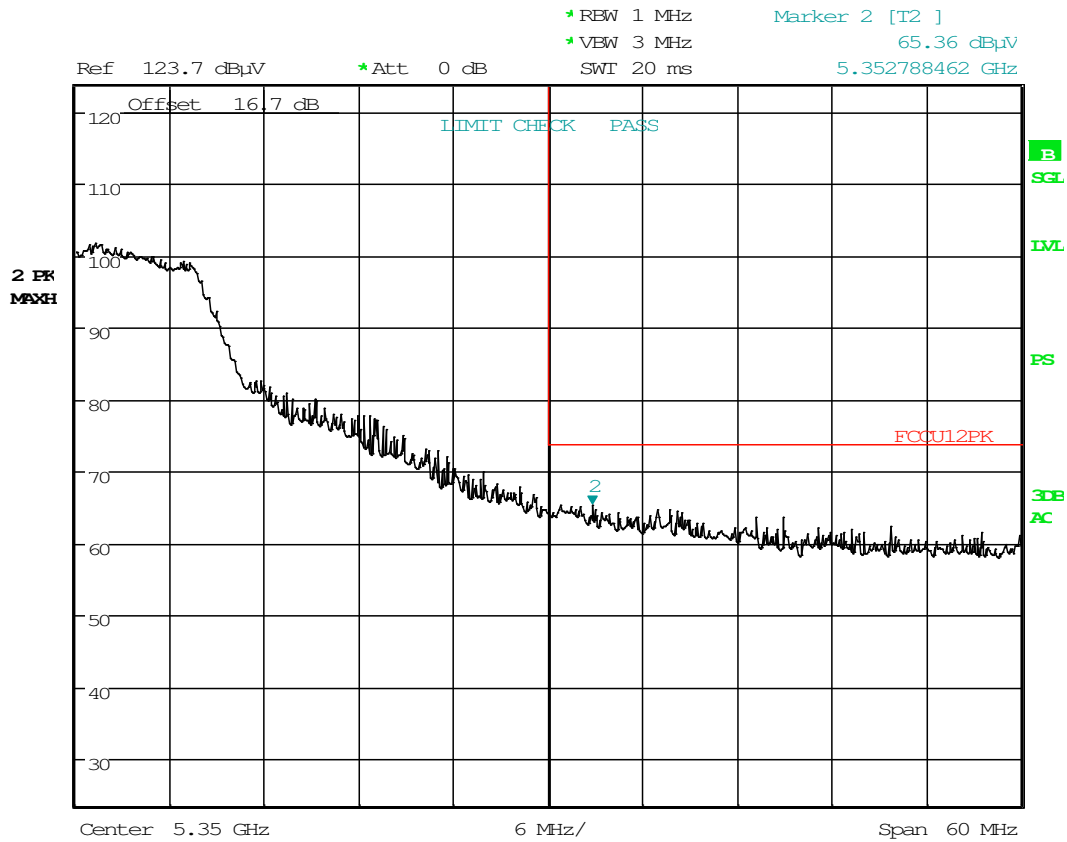
Date: 6.DEC.2015 21:15:21

Plot 7-222. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 179 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 6.DEC.2015 17:33:50

Plot 7-223. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 180 of 258

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

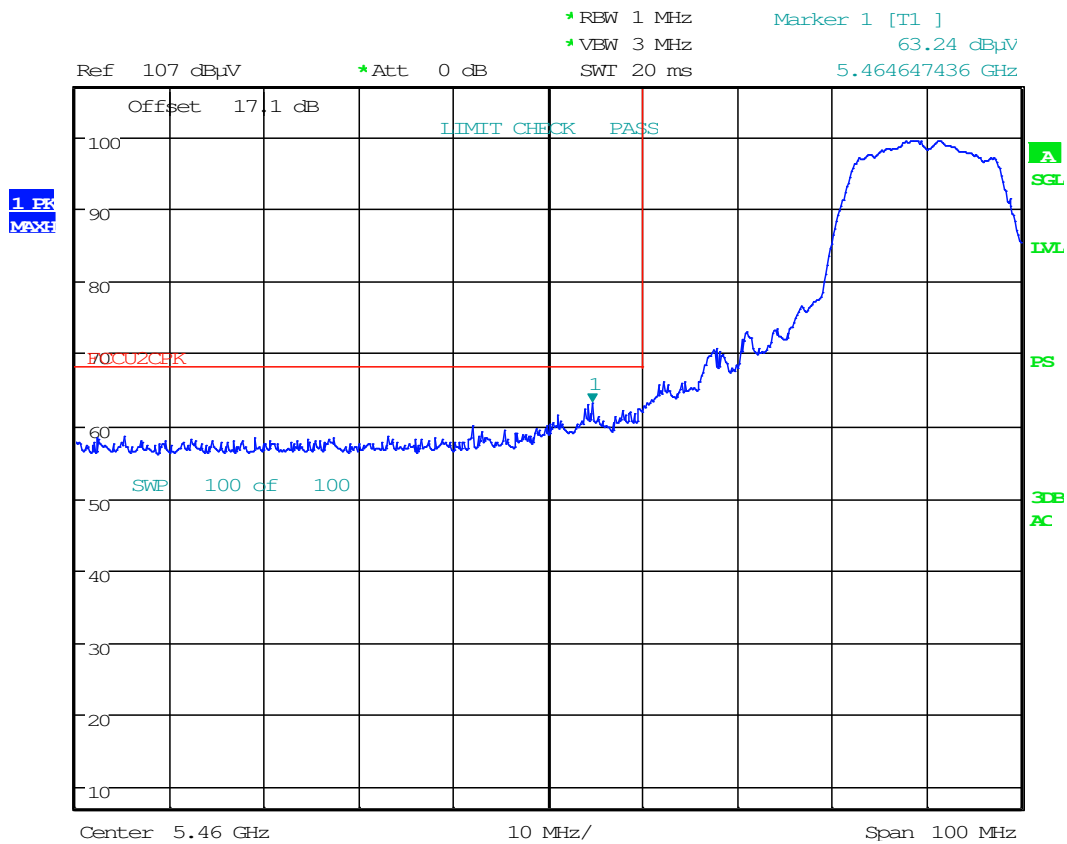
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



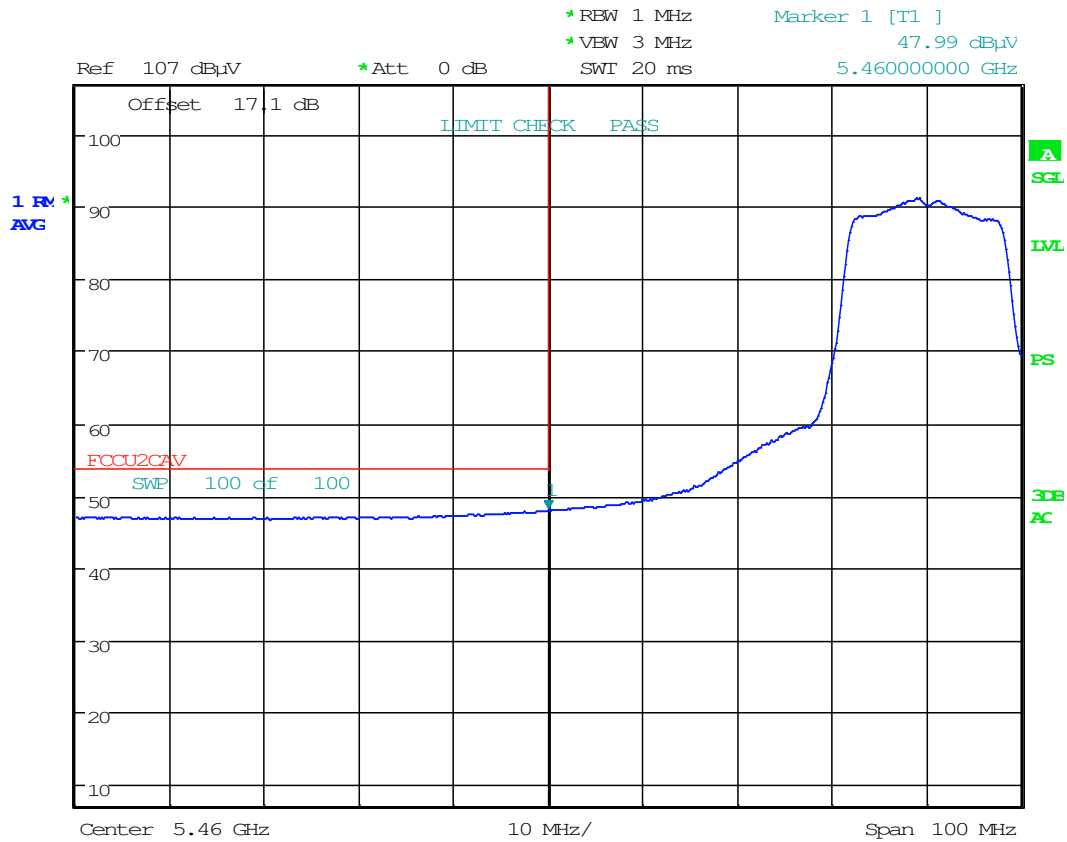
Date: 7.DEC.2015 11:45:56

Plot 7-224. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 181 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 7.DEC.2015 11:43:25

Plot 7-225. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 182 of 258

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

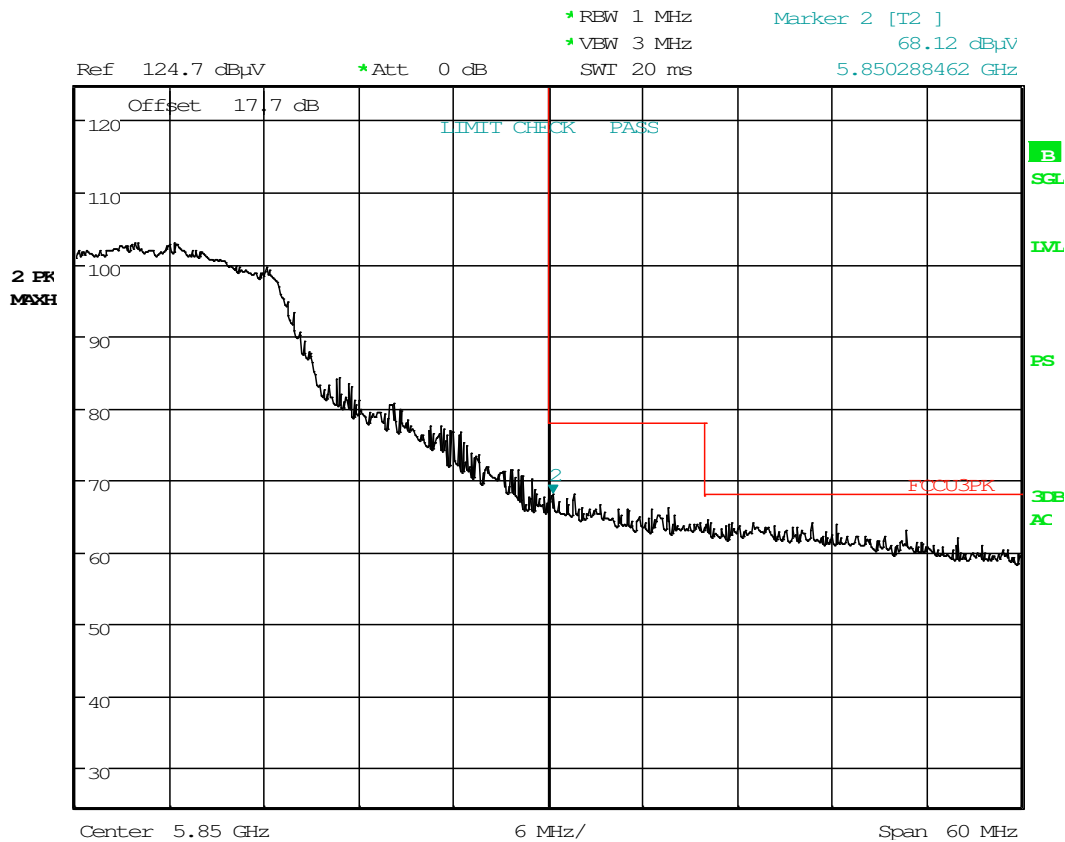
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



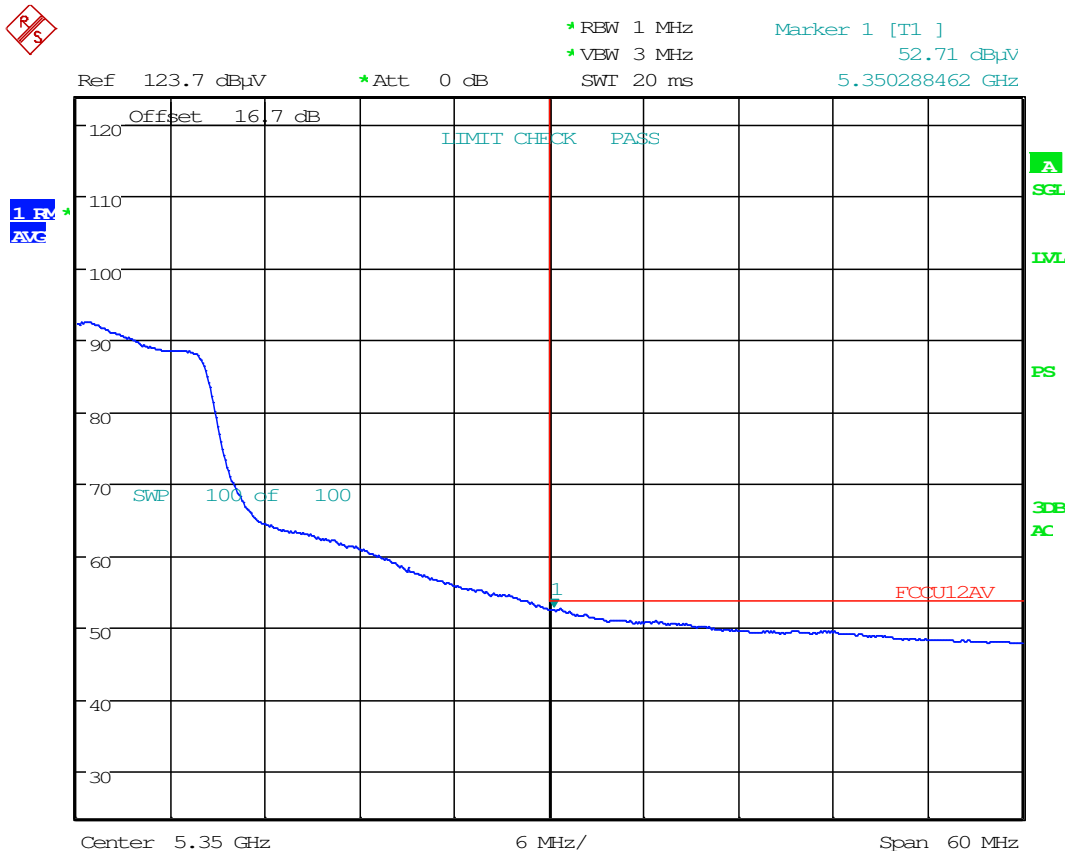
Date: 6.DEC.2015 17:51:01

Plot 7-226. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 183 of 258

Antenna-2 WCP 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



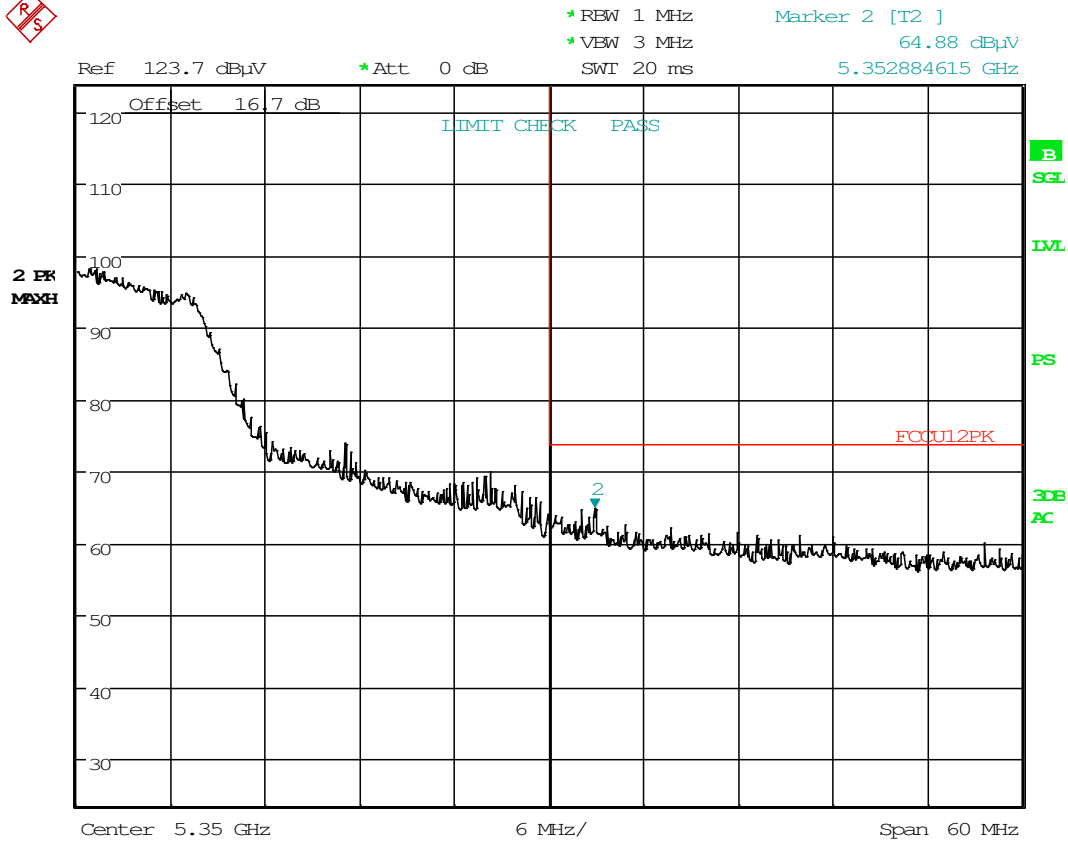
Date: 29.DEC.2015 23:53:56

Plot 7-227. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 184 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 29.DEC.2015 23:55:33

Plot 7-228. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 185 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209

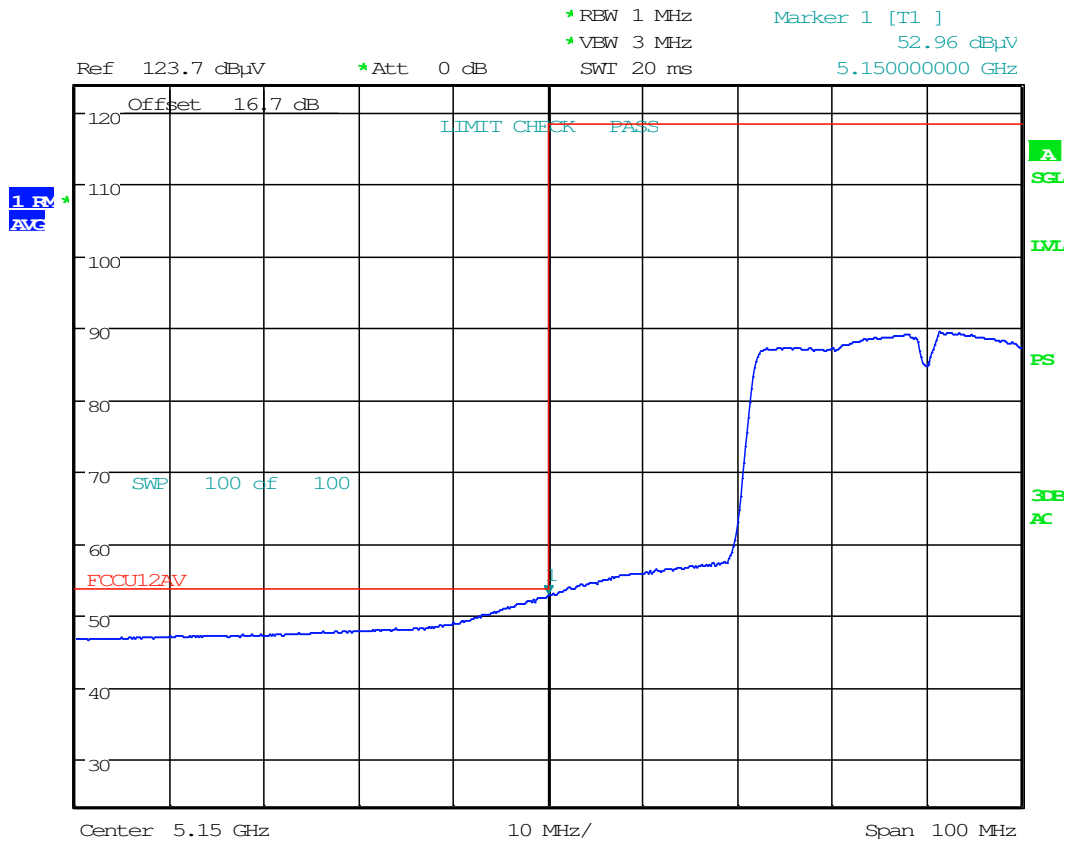
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



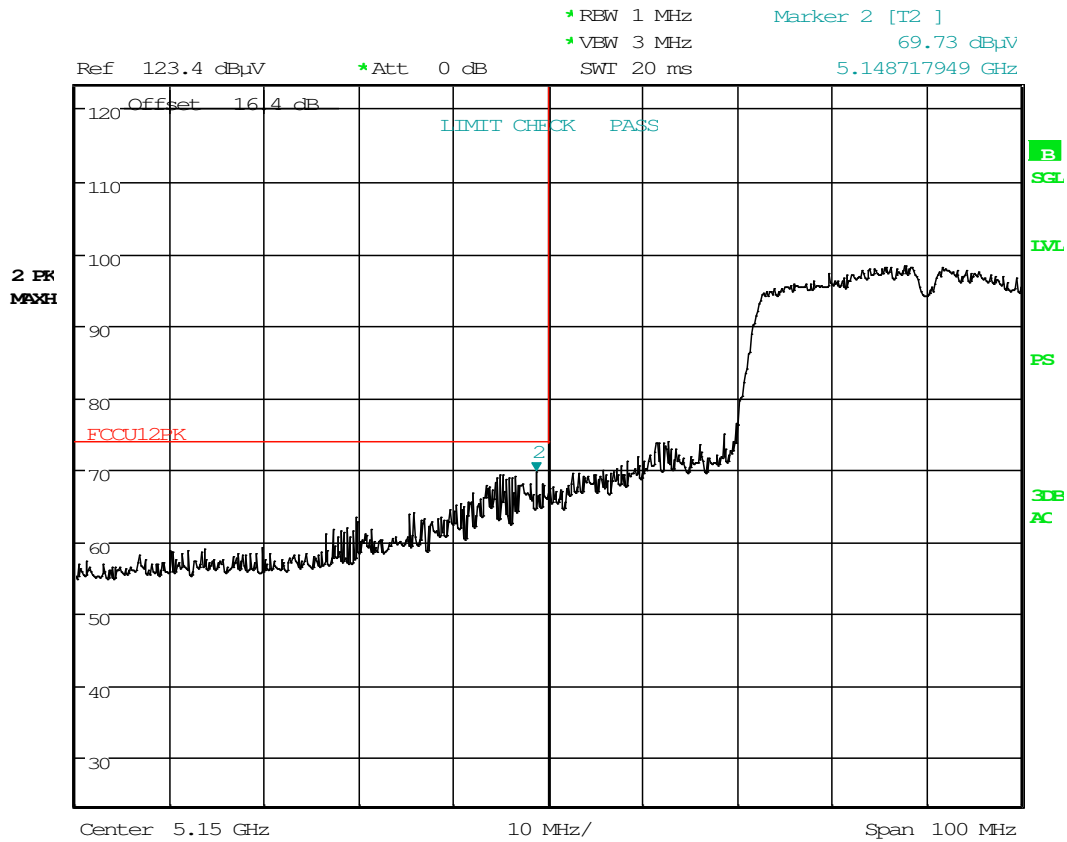
Date: 6.DEC.2015 19:36:23

Plot 7-229. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 186 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 6.DEC.2015 18:27:08

Plot 7-230. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset	Page 187 of 258	

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

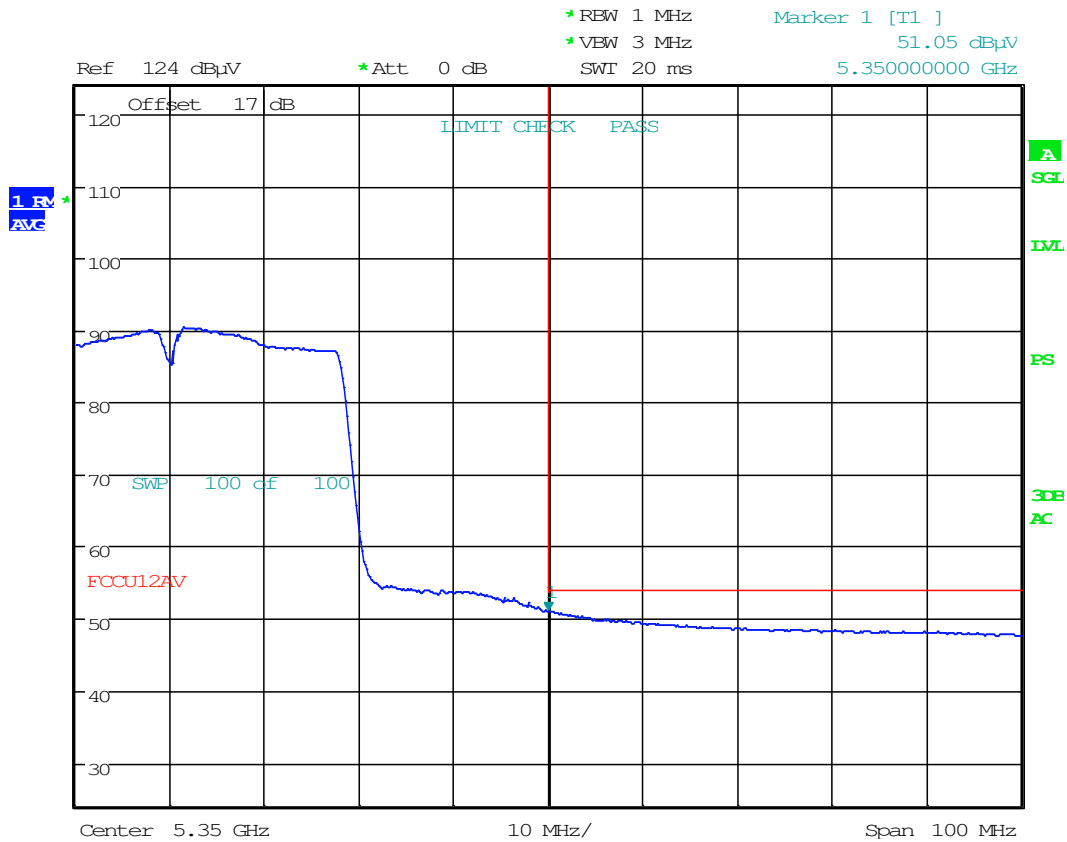
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



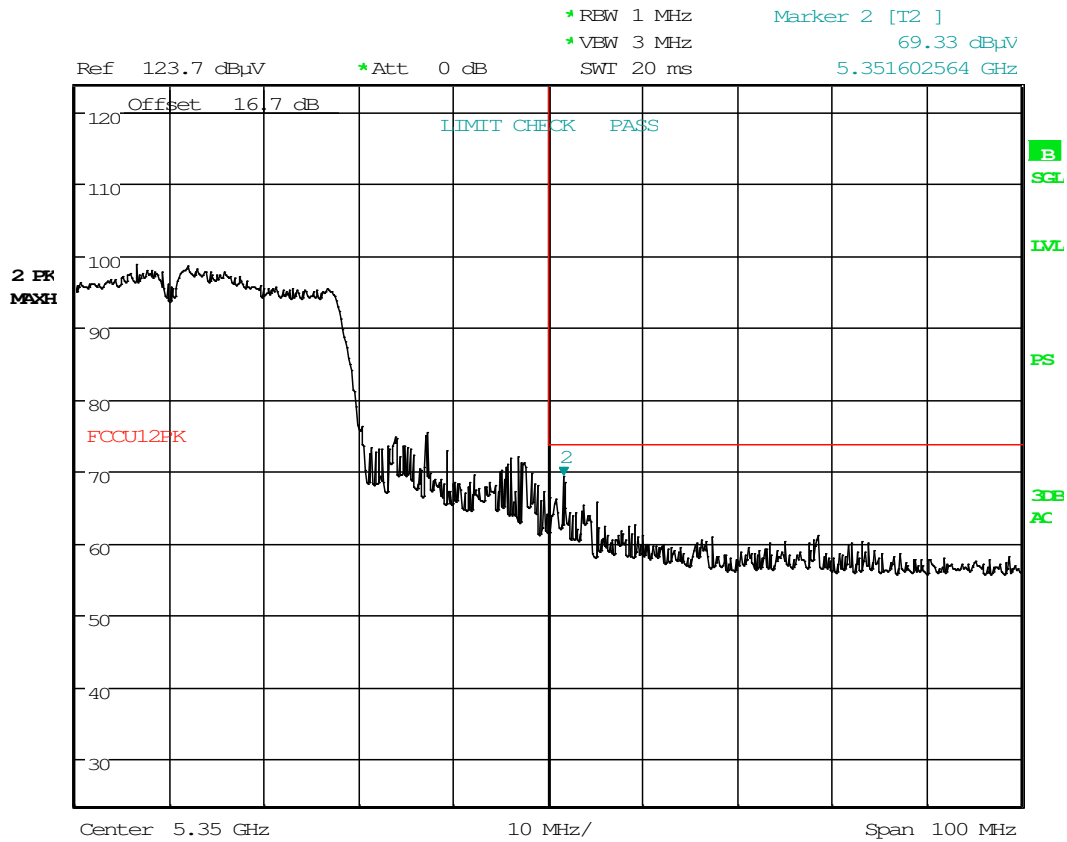
Date: 6.DEC.2015 19:56:42

Plot 7-231. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 188 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 6.DEC.2015 19:14:11

Plot 7-232. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 189 of 258

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

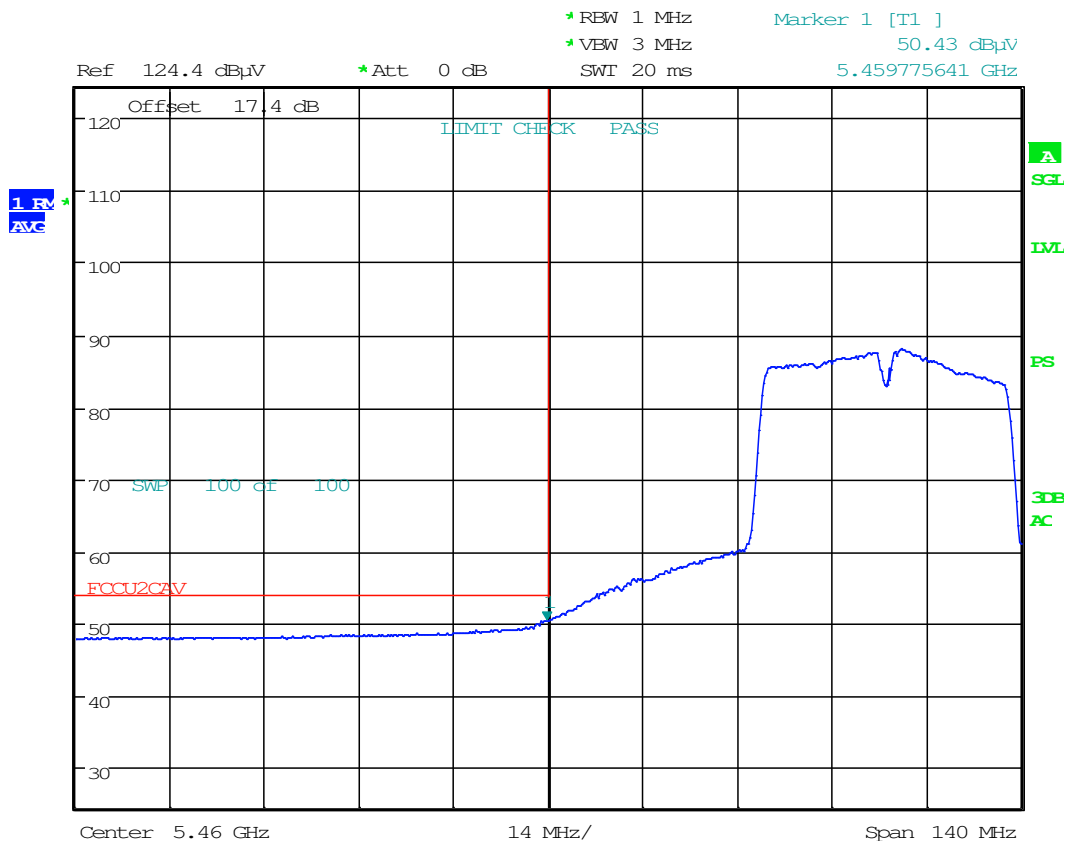
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



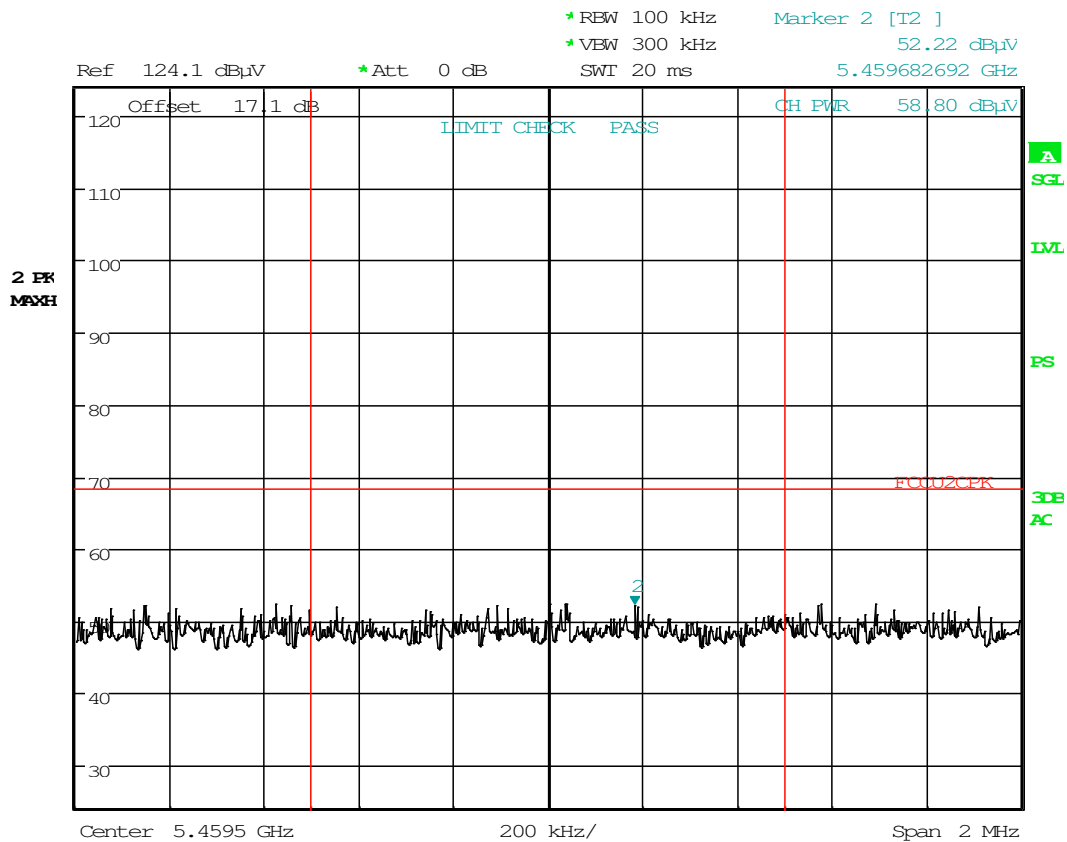
Date: 6.DEC.2015 19:59:59

Plot 7-233. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 190 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 6.DEC.2015 21:00:52

Plot 7-234. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

Note: Per Section II(G)3)d)ii) of KDB 789033, the Integration method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 191 of 258

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

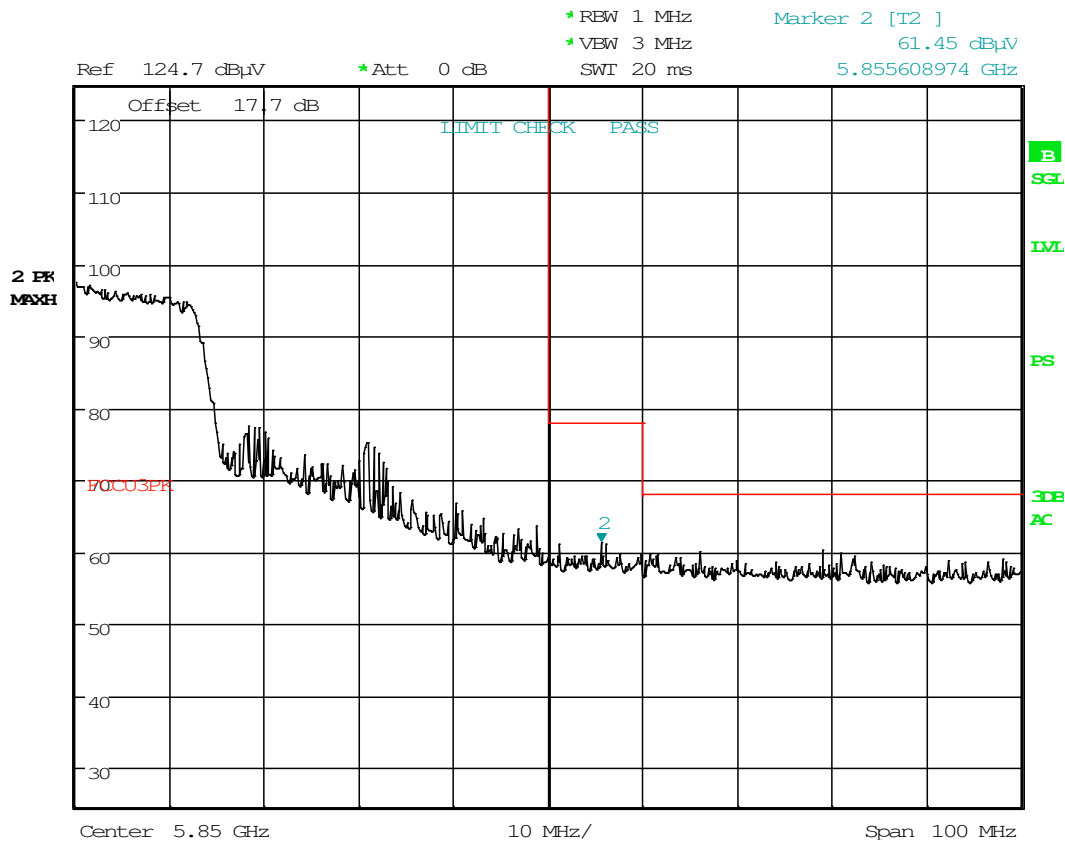
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 6.DEC.2015 20:05:20

Plot 7-235. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 192 of 258

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

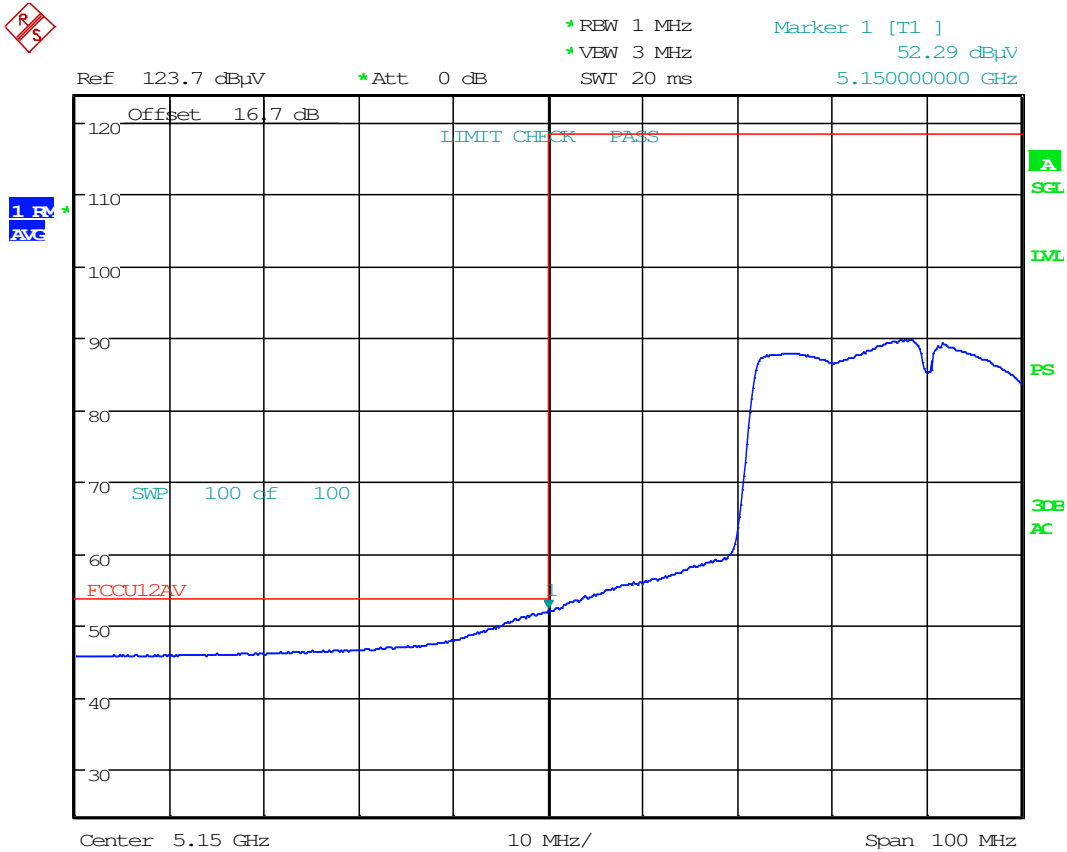
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



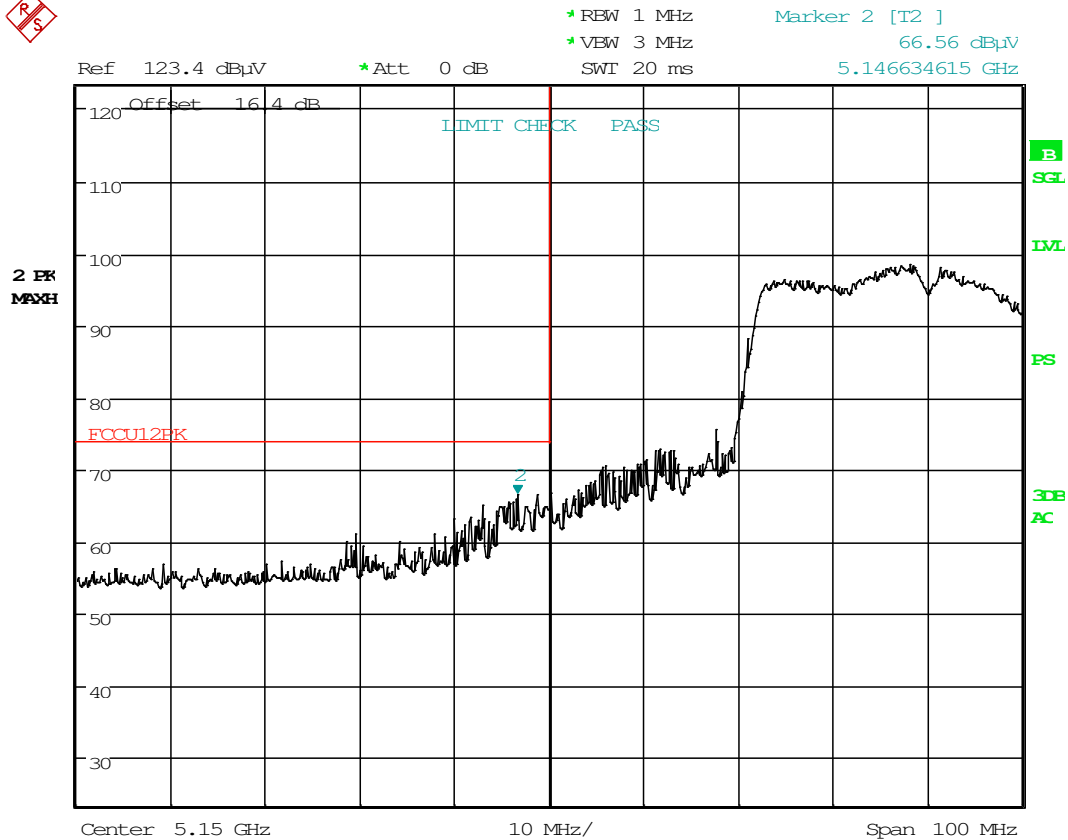
Date: 30.DEC.2015 00:01:50

Plot 7-236. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 193 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 30.DEC.2015 00:02:27

Plot 7-237. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 194 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209

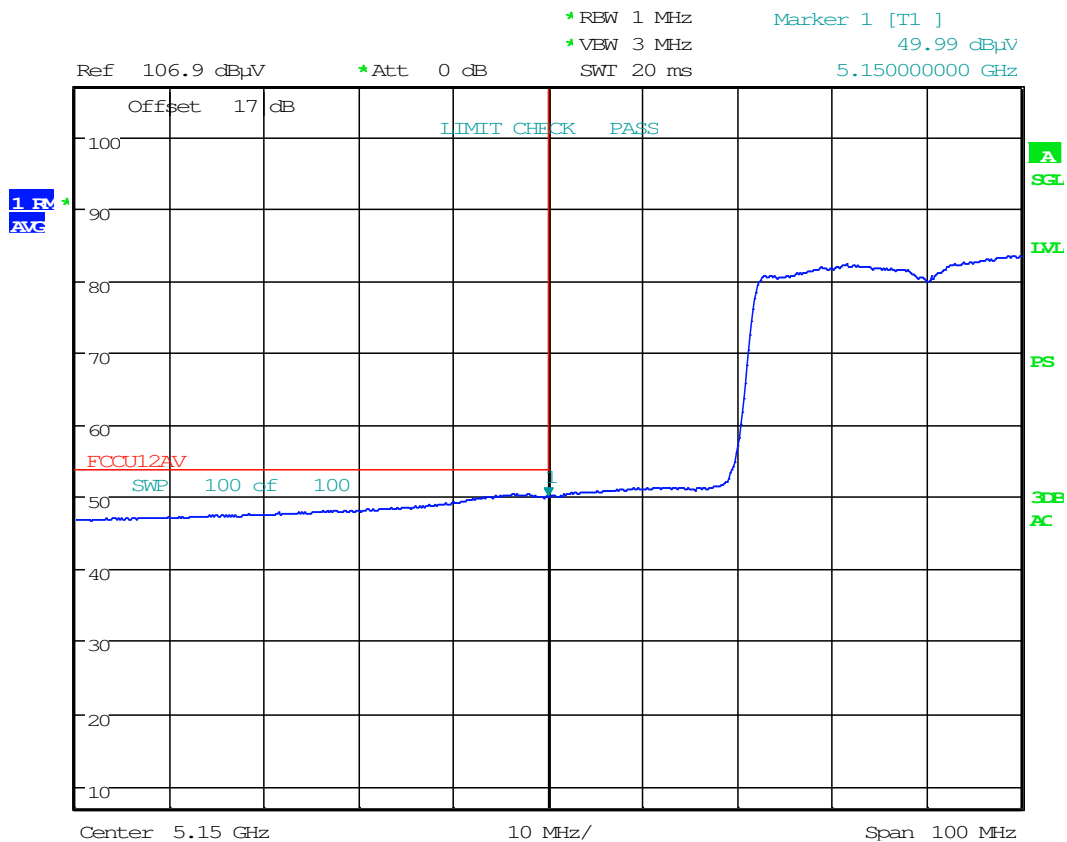
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



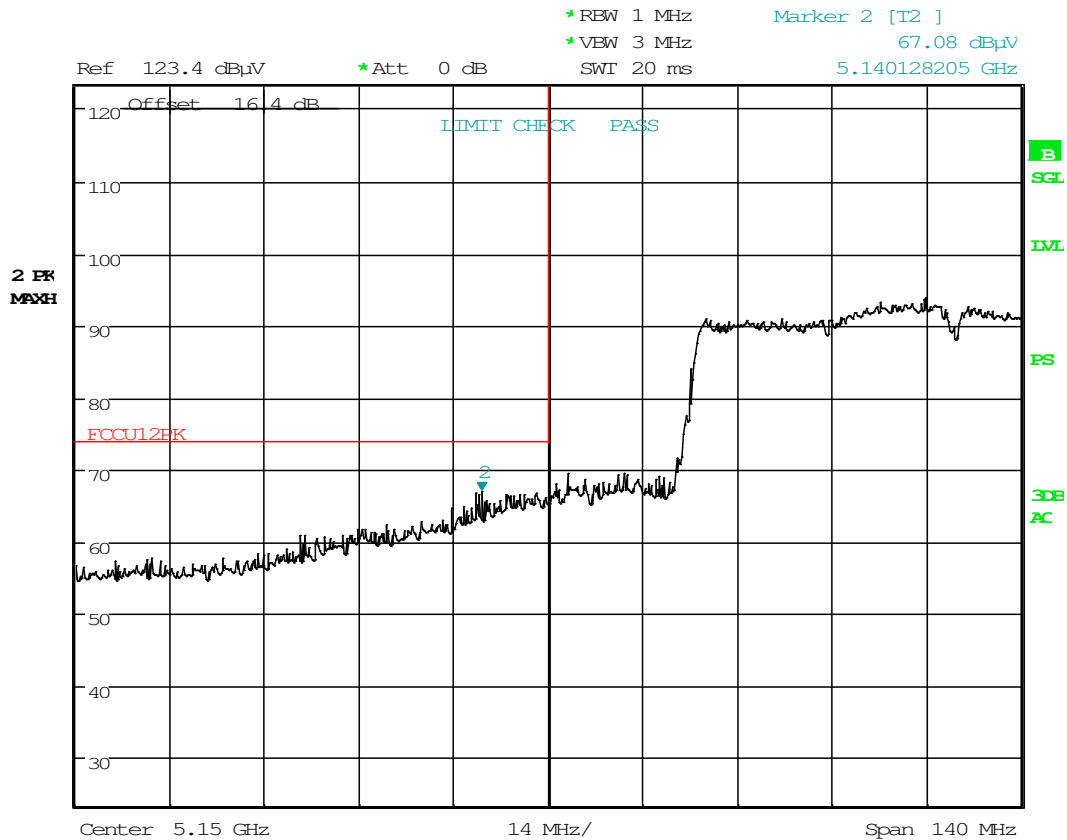
Date: 7.DEC.2015 12:09:33

Plot 7-238. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 195 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 6.DEC.2015 20:11:18

Plot 7-239. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 196 of 258

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

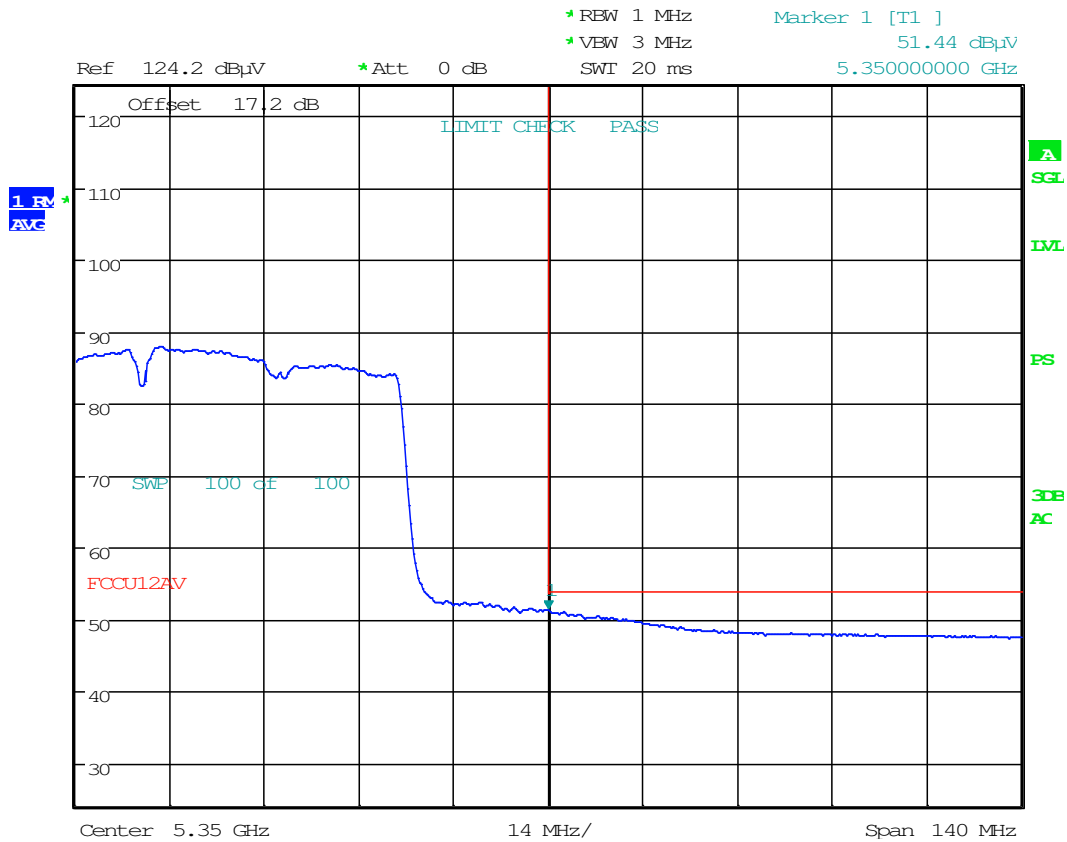
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



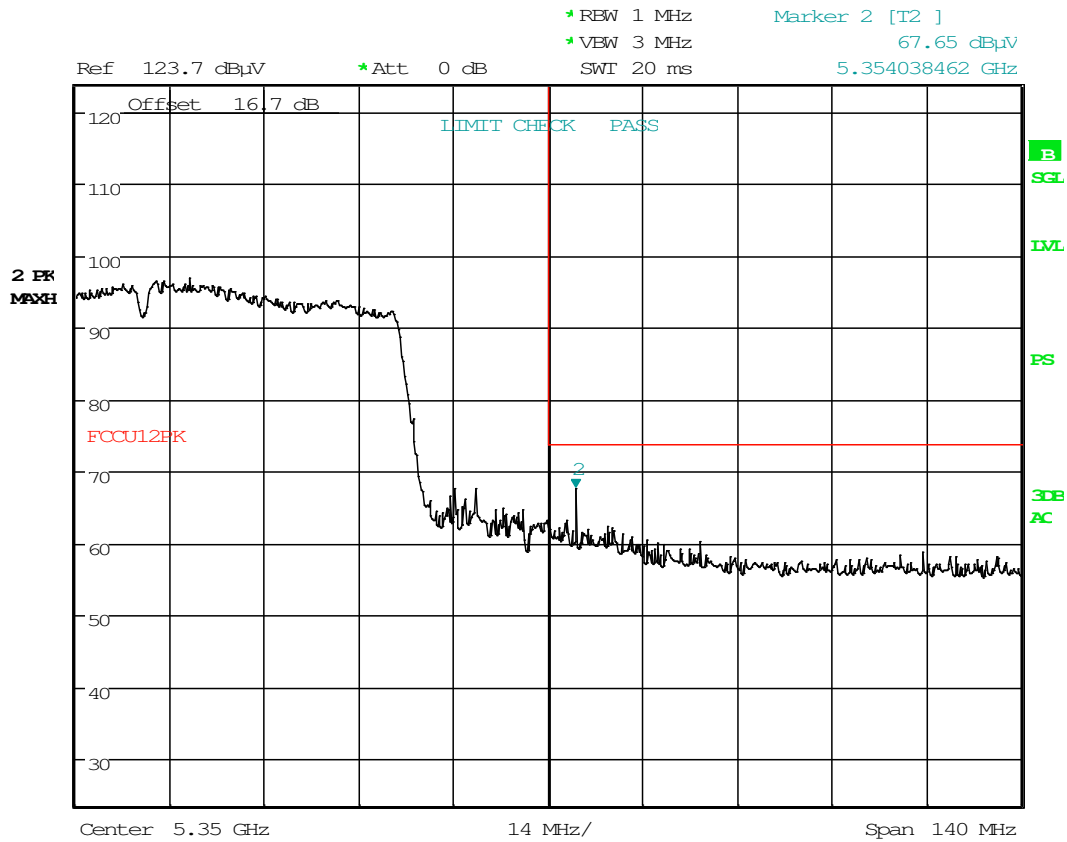
Date: 6.DEC.2015 20:16:57

Plot 7-240. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 197 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 6.DEC.2015 20:17:14

Plot 7-241. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 198 of 258

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

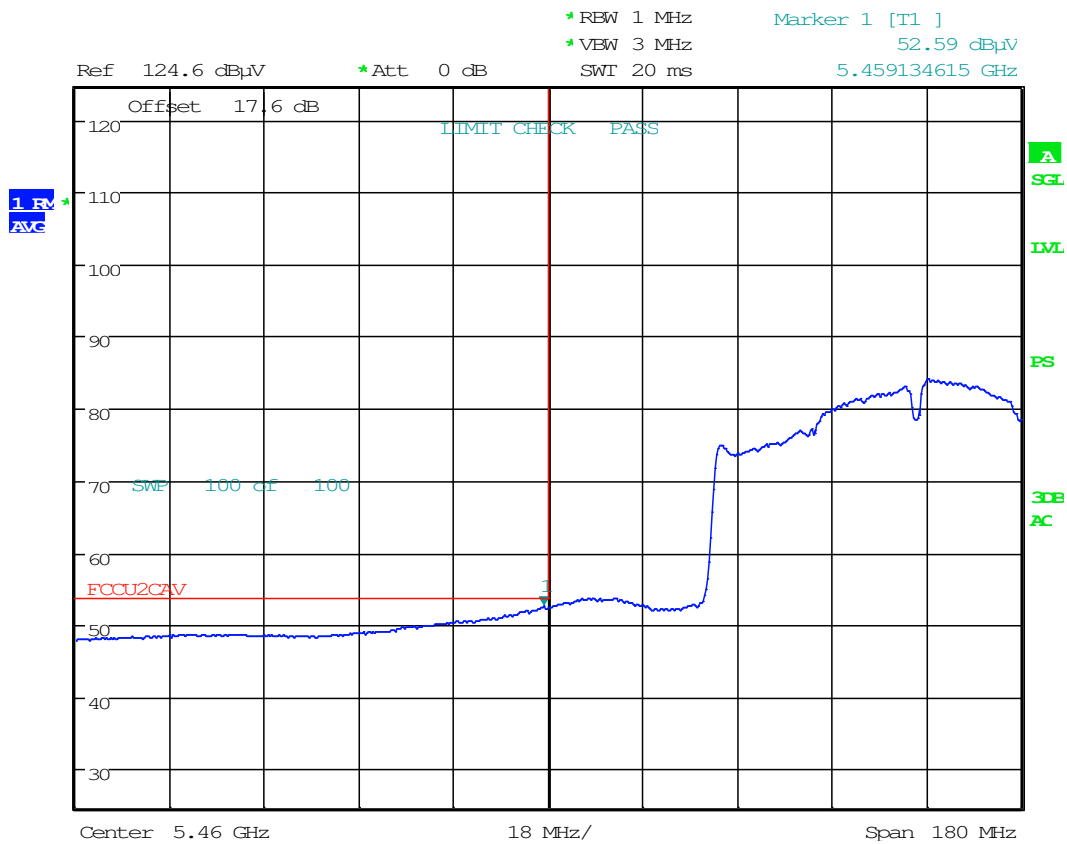
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



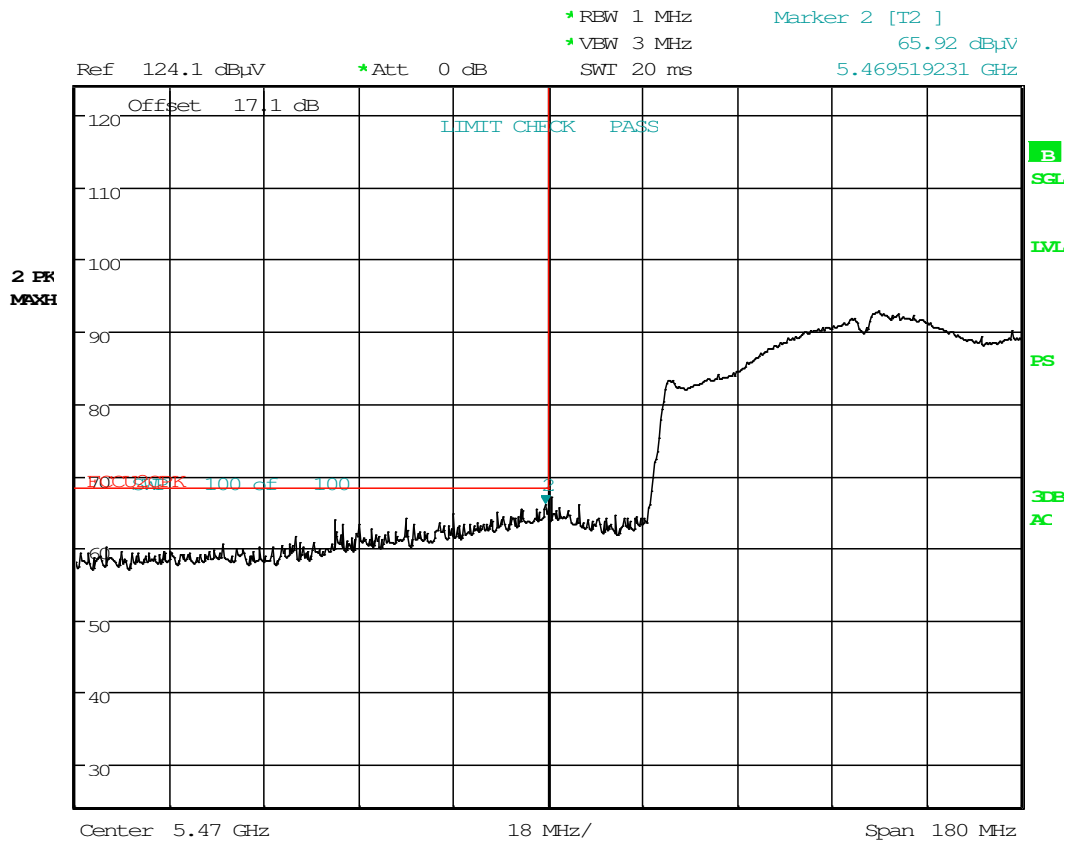
Date: 6.DEC.2015 20:22:25

Plot 7-242. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 199 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 6.DEC.2015 20:24:43

Plot 7-243. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 200 of 258

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

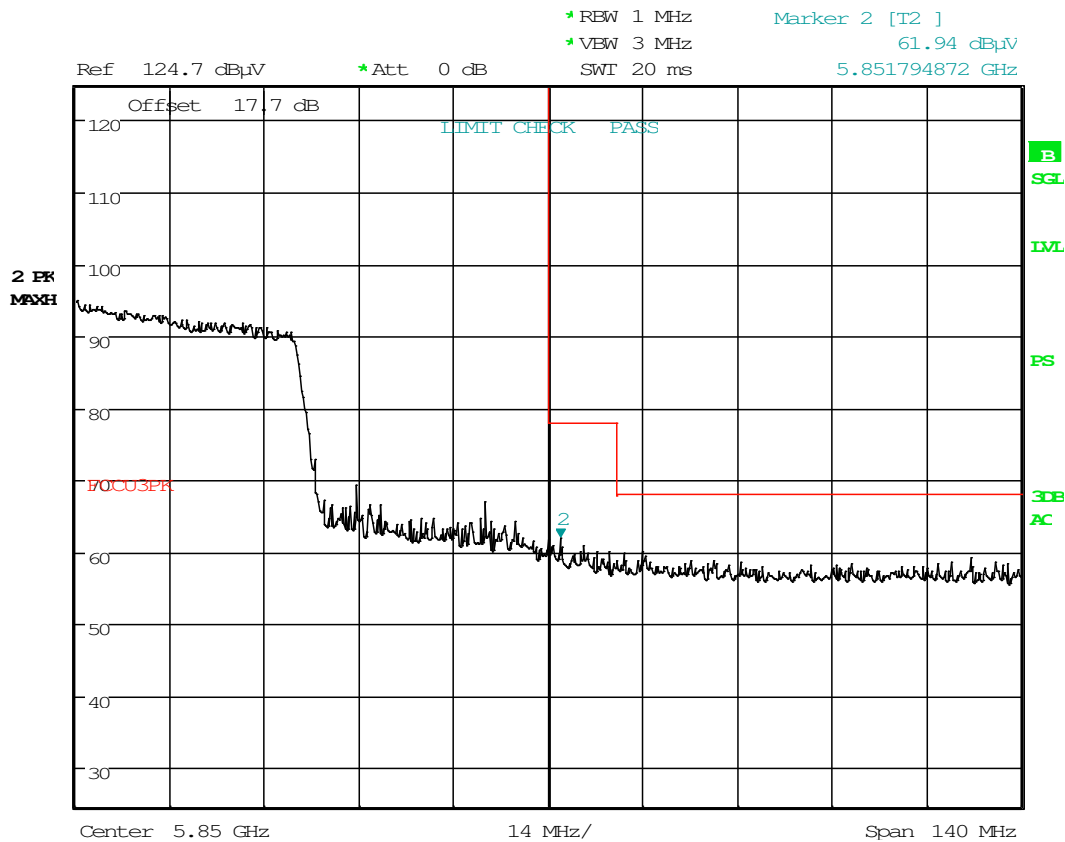
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 6.DEC.2015 20:26:50

Plot 7-244. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 201 of 258

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

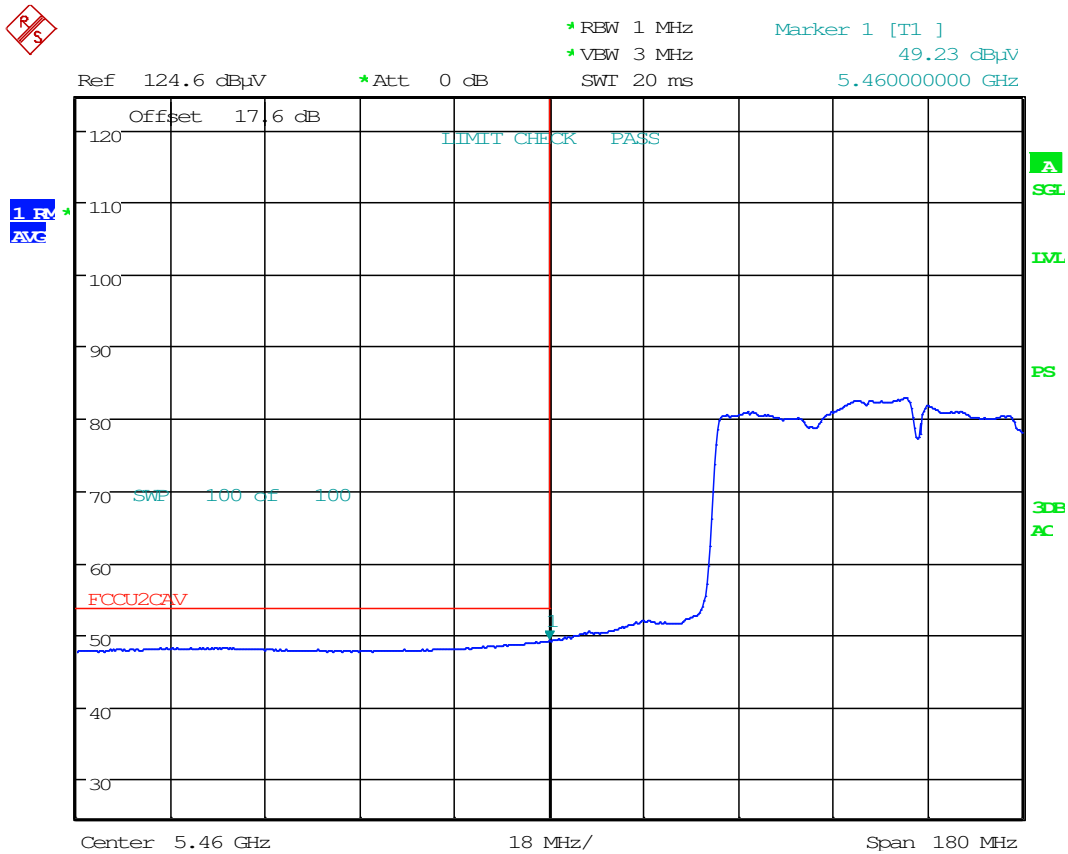
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



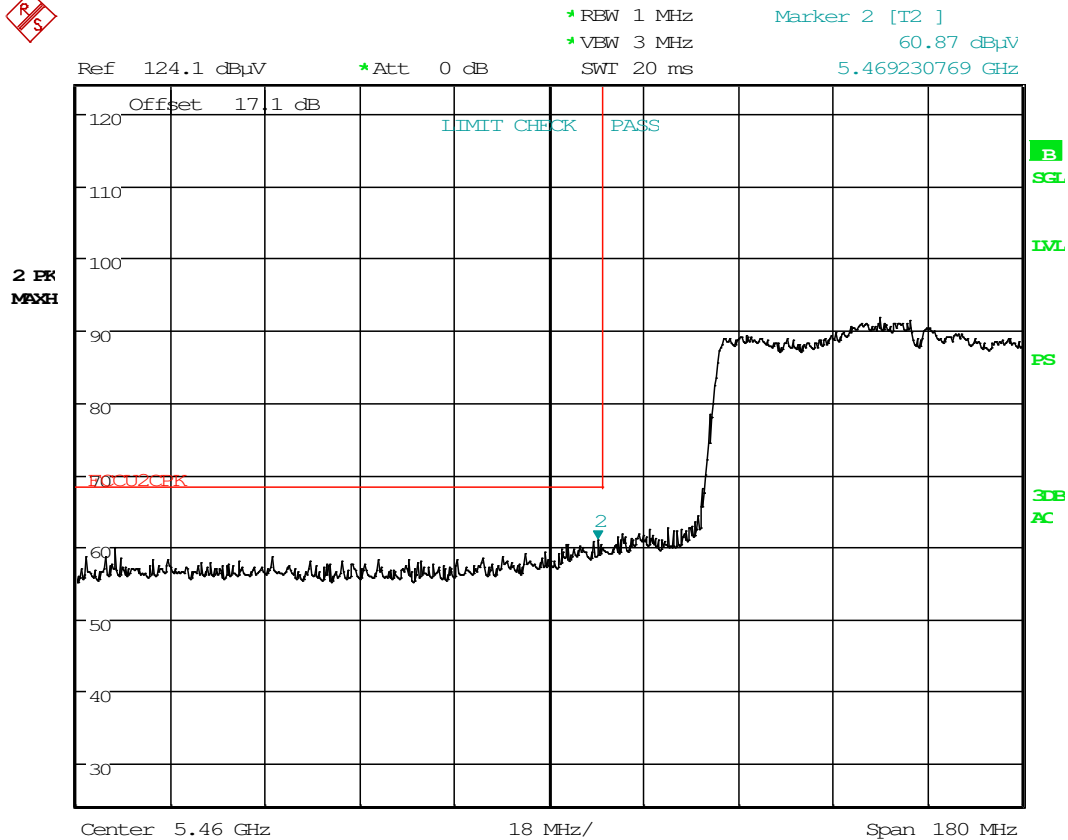
Date: 30.DEC.2015 00:18:17

Plot 7-245. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 202 of 258

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 30.DEC.2015 00:19:10

Plot 7-246. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 203 of 258

7.7.10 MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

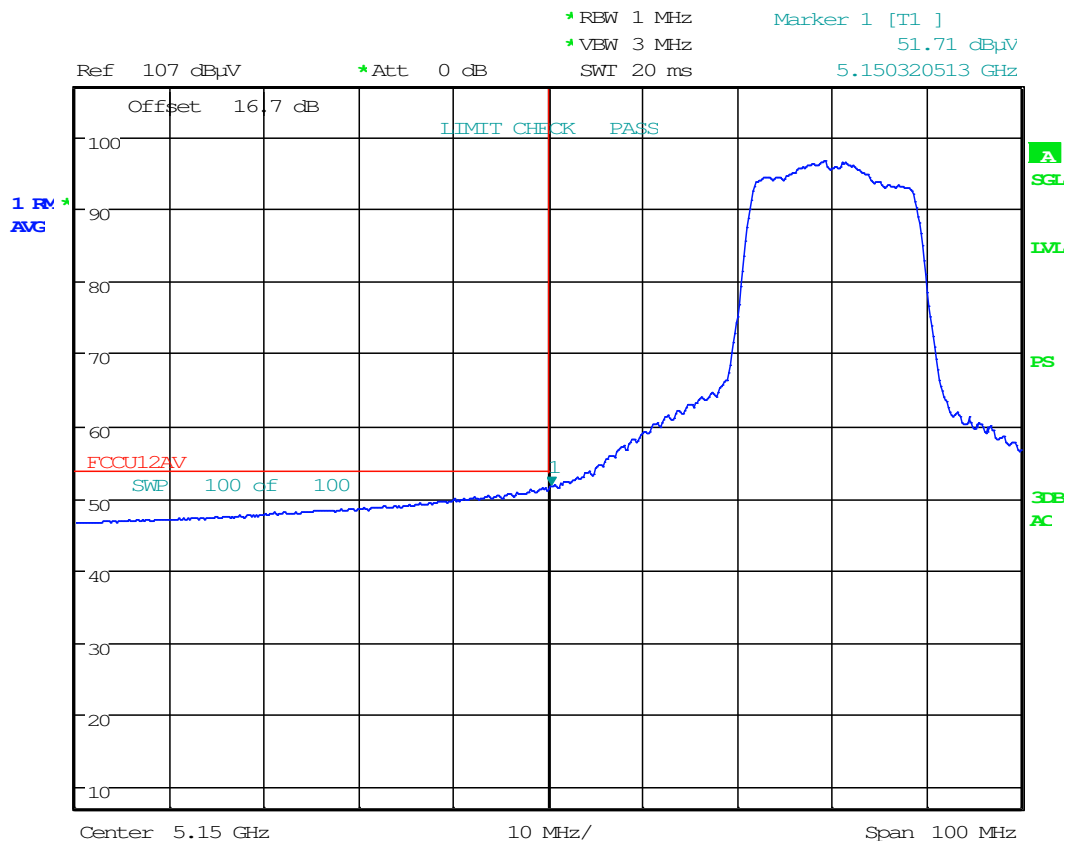
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



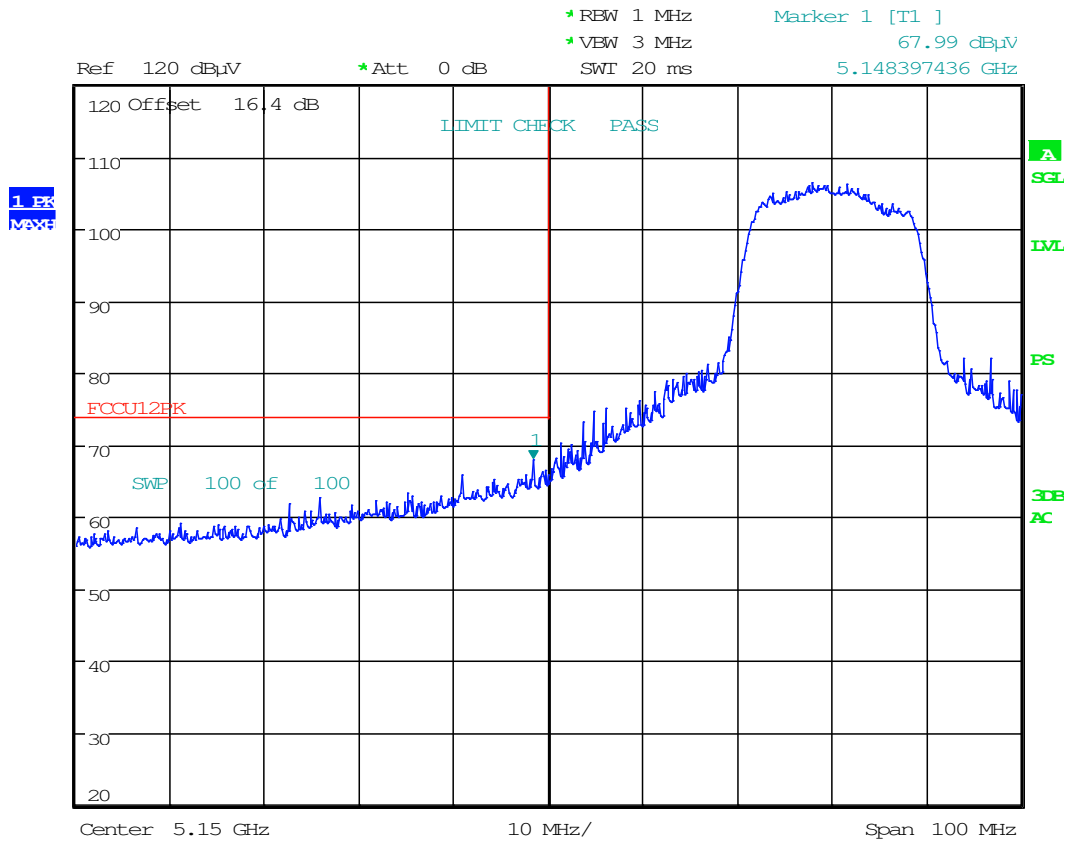
Date: 7.DEC.2015 15:05:36

Plot 7-247. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 204 of 258

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 7.DEC.2015 15:07:05

Plot 7-248. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 205 of 258

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

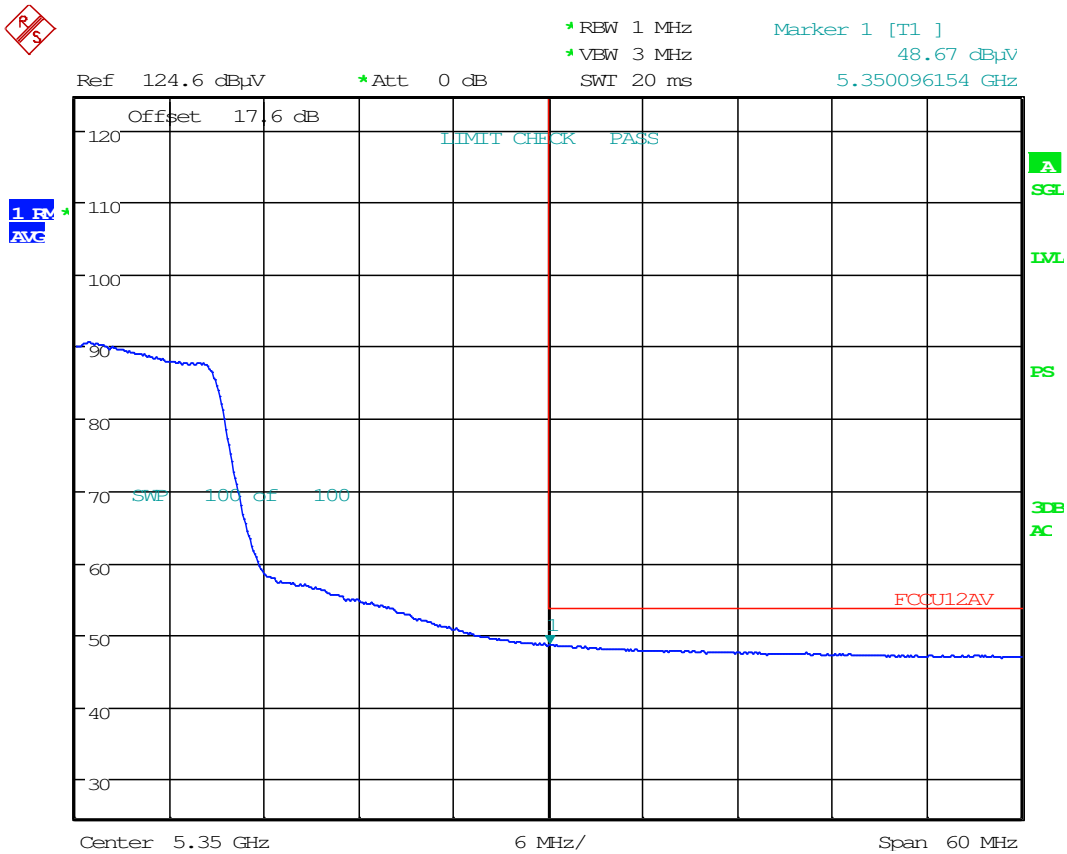
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



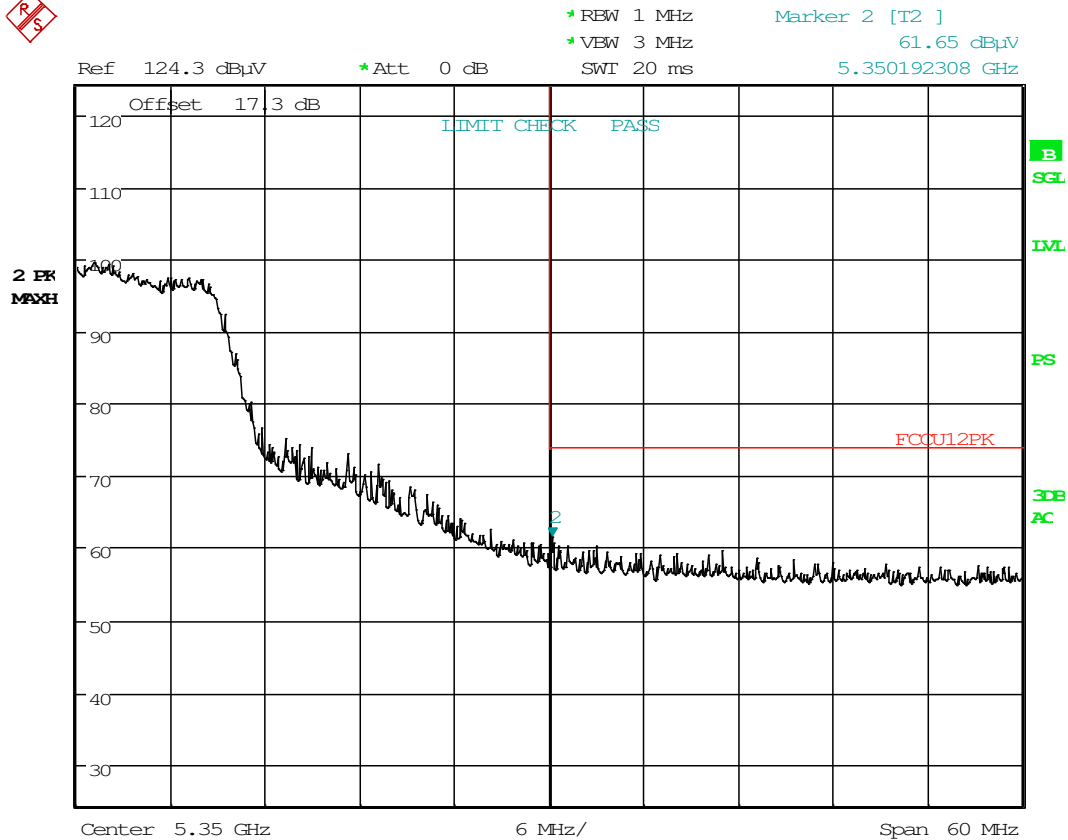
Date: 8.DEC.2015 01:10:24

Plot 7-249. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 206 of 258

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.DEC.2015 01:10:53

Plot 7-250. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 207 of 258

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

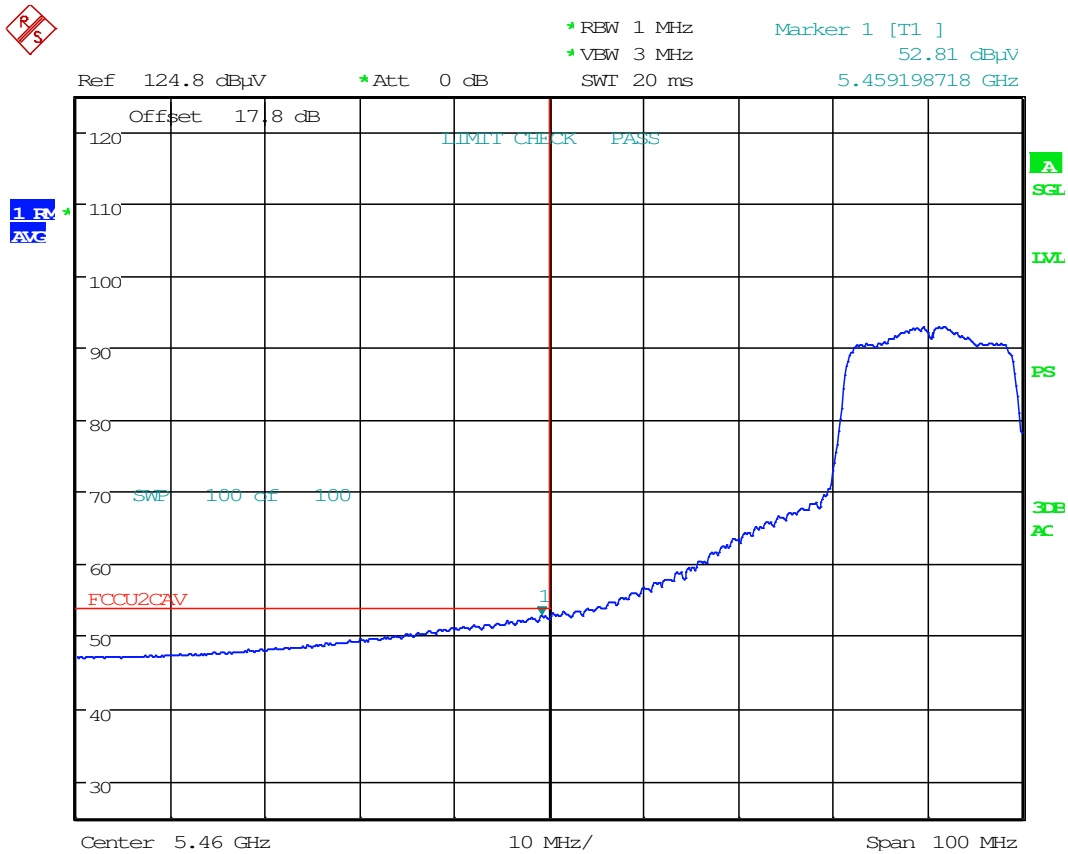
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



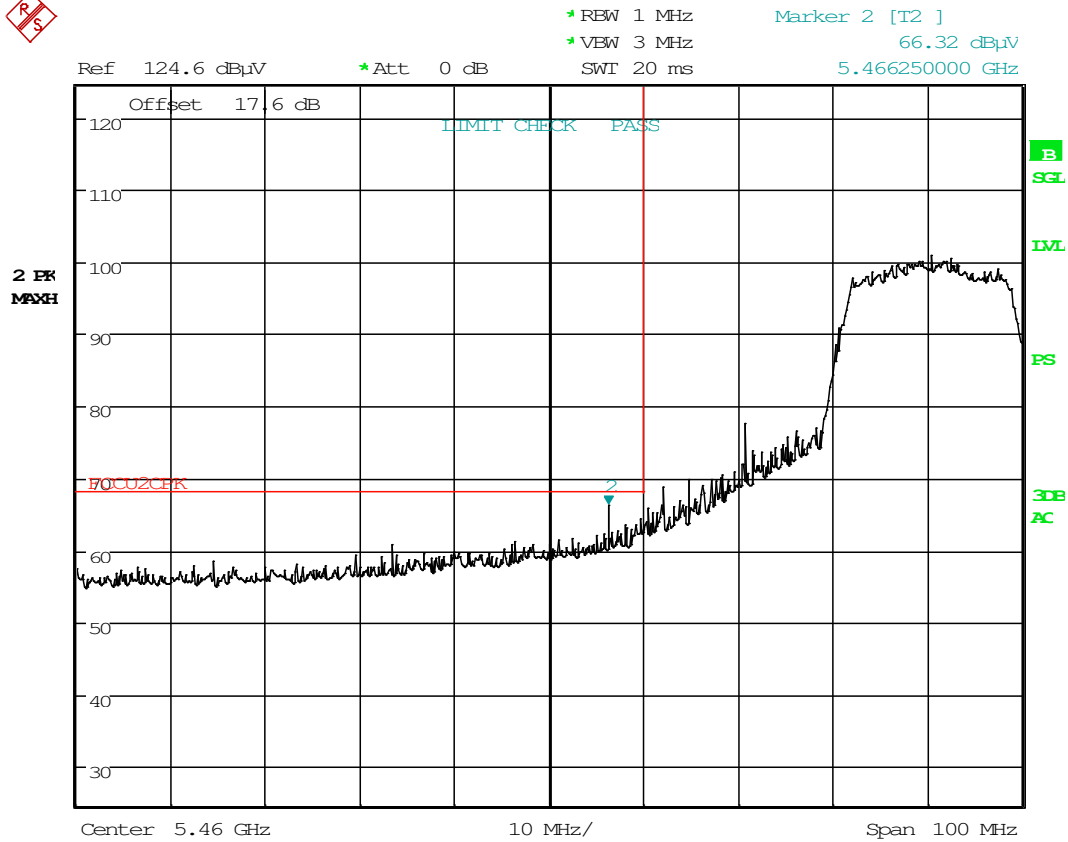
Date: 8.DEC.2015 01:37:51

Plot 7-251. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 208 of 258

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.DEC.2015 01:43:41

Plot 7-252. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 209 of 258

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

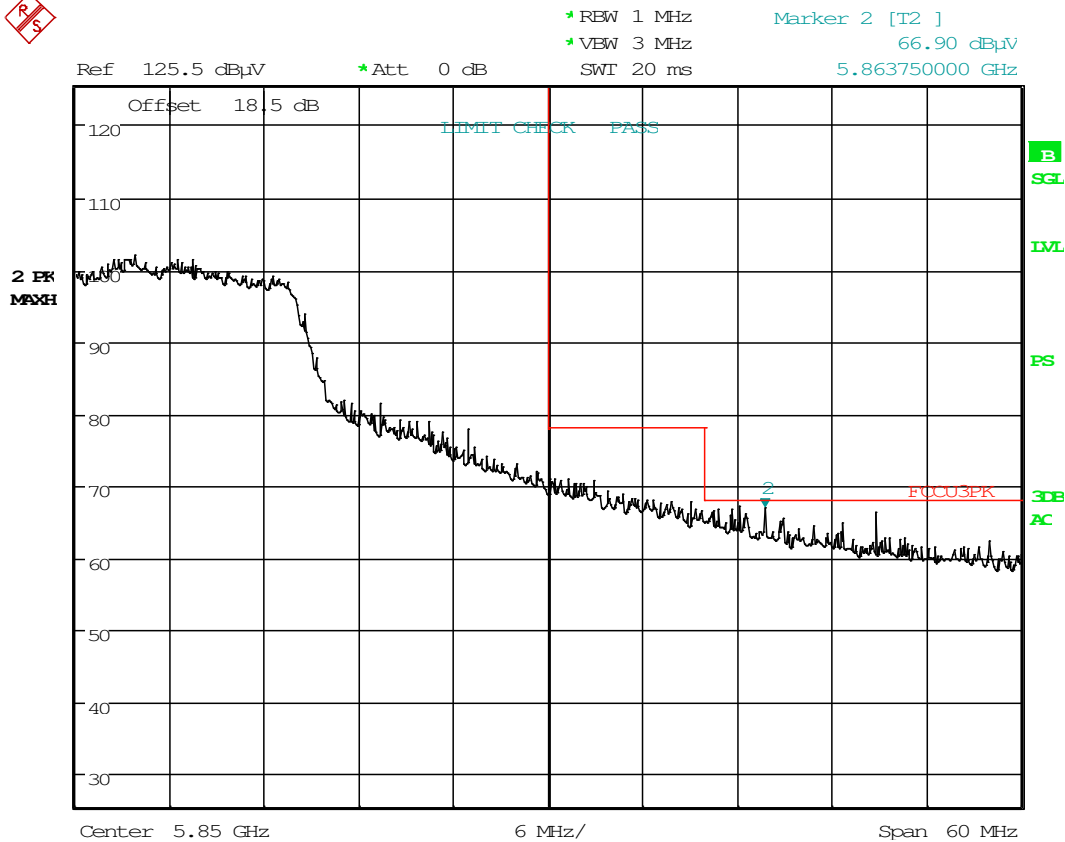
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 8.DEC.2015 02:06:43

Plot 7-253. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 210 of 258

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

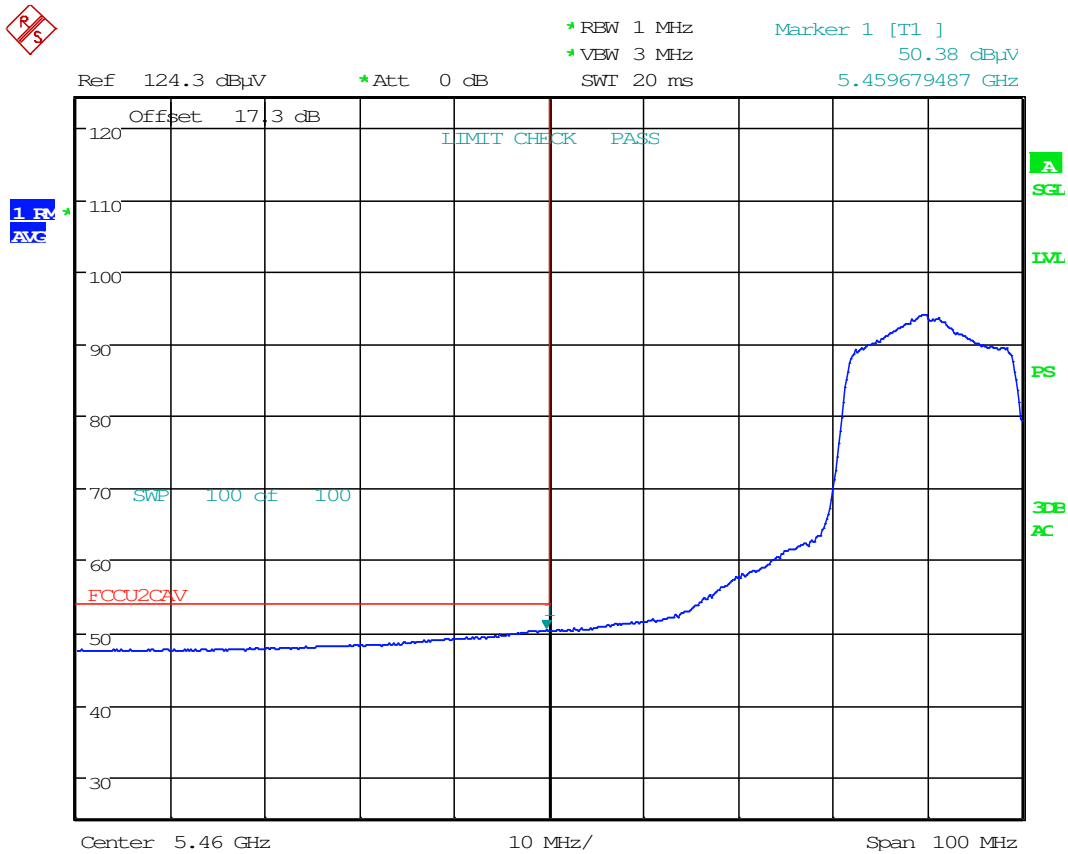
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



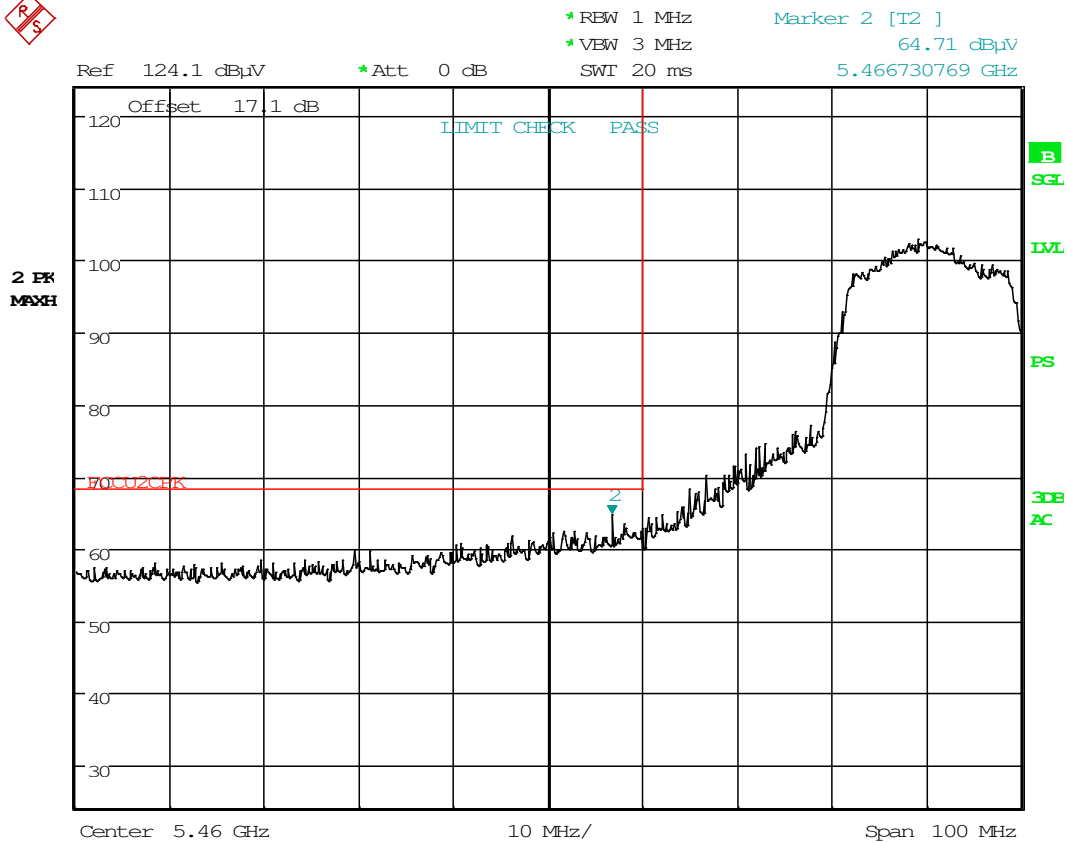
Date: 30.DEC.2015 00:42:21

Plot 7-254. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 211 of 258

MIMO WCP Radiated Band Edge Measurements (20MHz BW)

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Date: 30.DEC.2015 00:42:57

Plot 7-255. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 212 of 258

7.7.11 MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

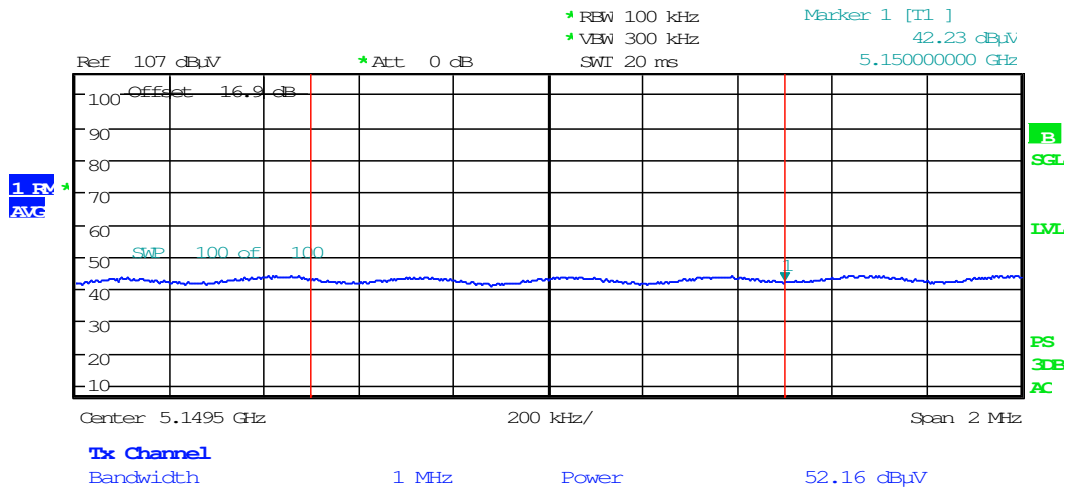
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 7.DEC.2015 15:24:01

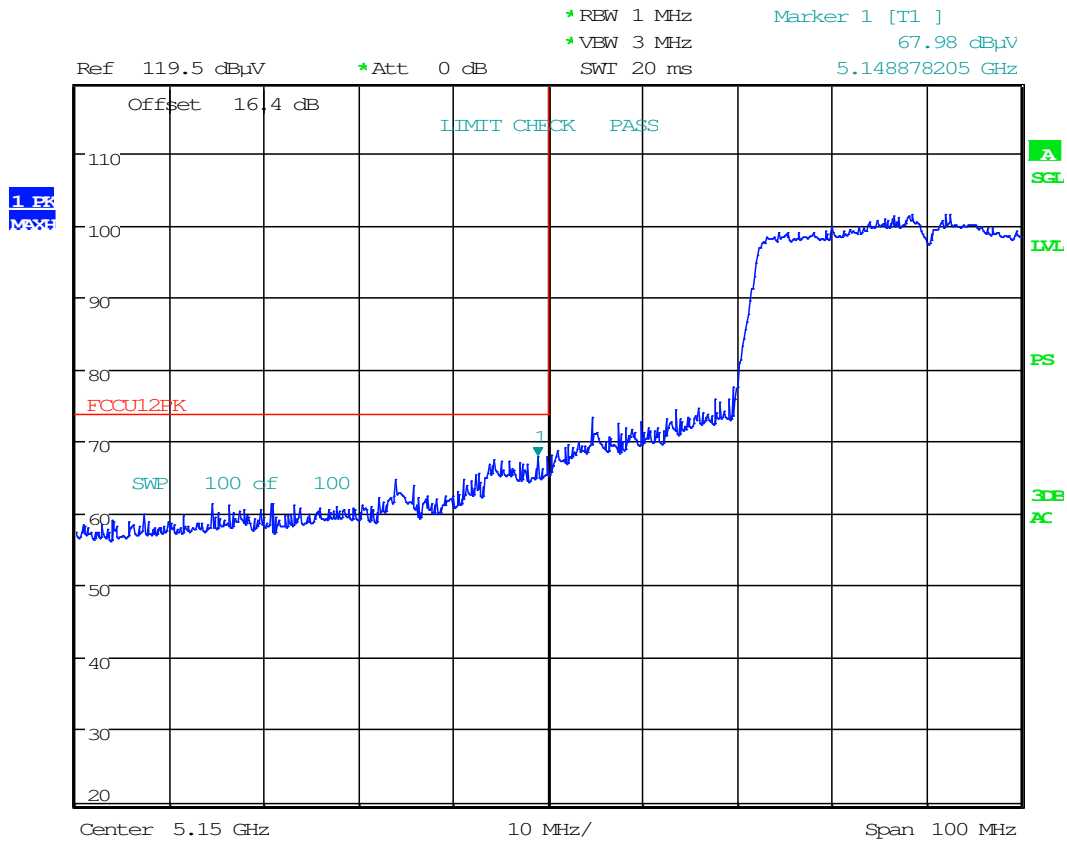
Plot 7-256. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

Note: Per Section II(G)3)d)ii) of KDB 789033, the Integration method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 213 of 258

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 7.DEC.2015 15:25:52

Plot 7-257. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 214 of 258

MIMO Radiated Band Edge Measurements (40MHz BW) **§15.407(b.1)(b.2) §15.205 §15.209**

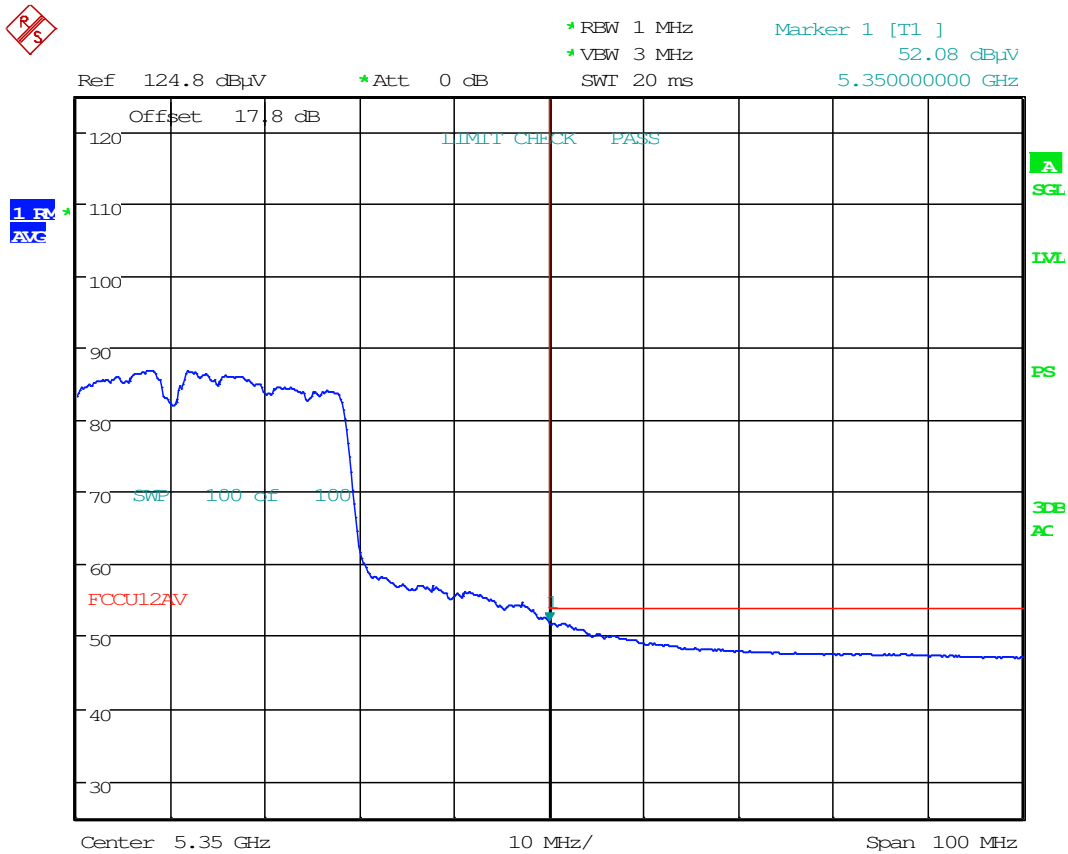
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



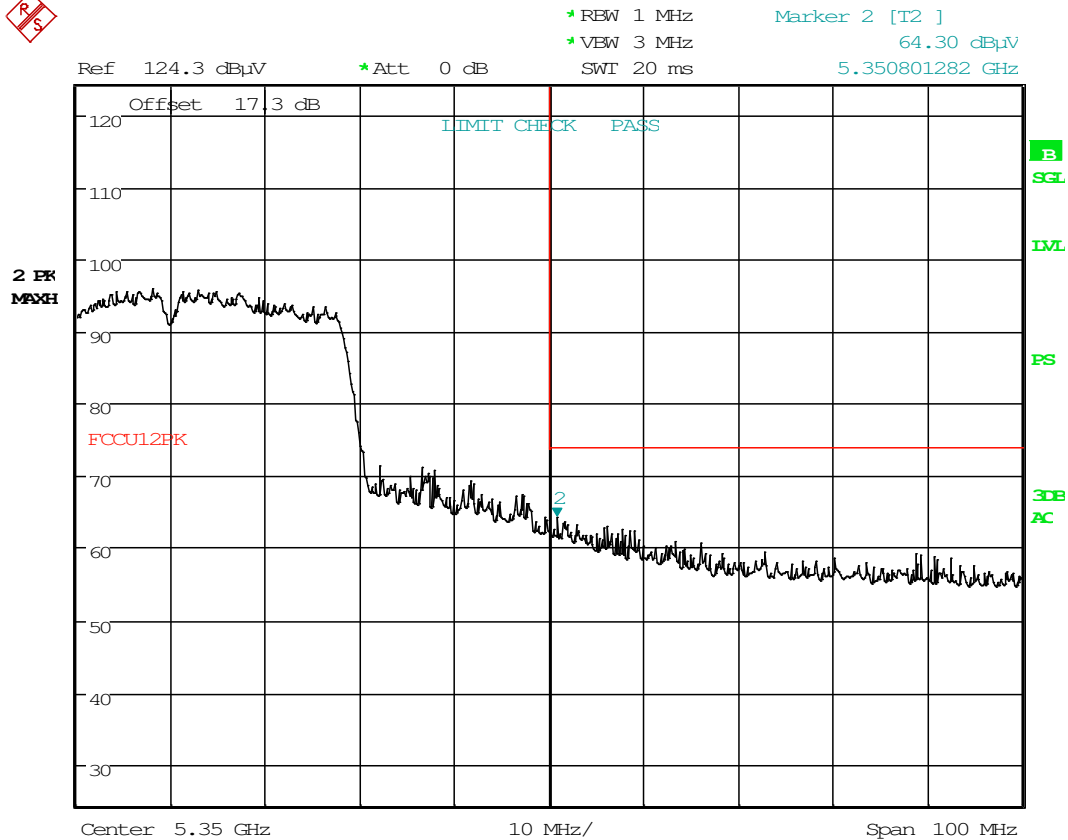
Date: 8.DEC.2015 01:13:42

Plot 7-258. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 215 of 258

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.DEC.2015 01:14:14

Plot 7-259. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 216 of 258

MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209

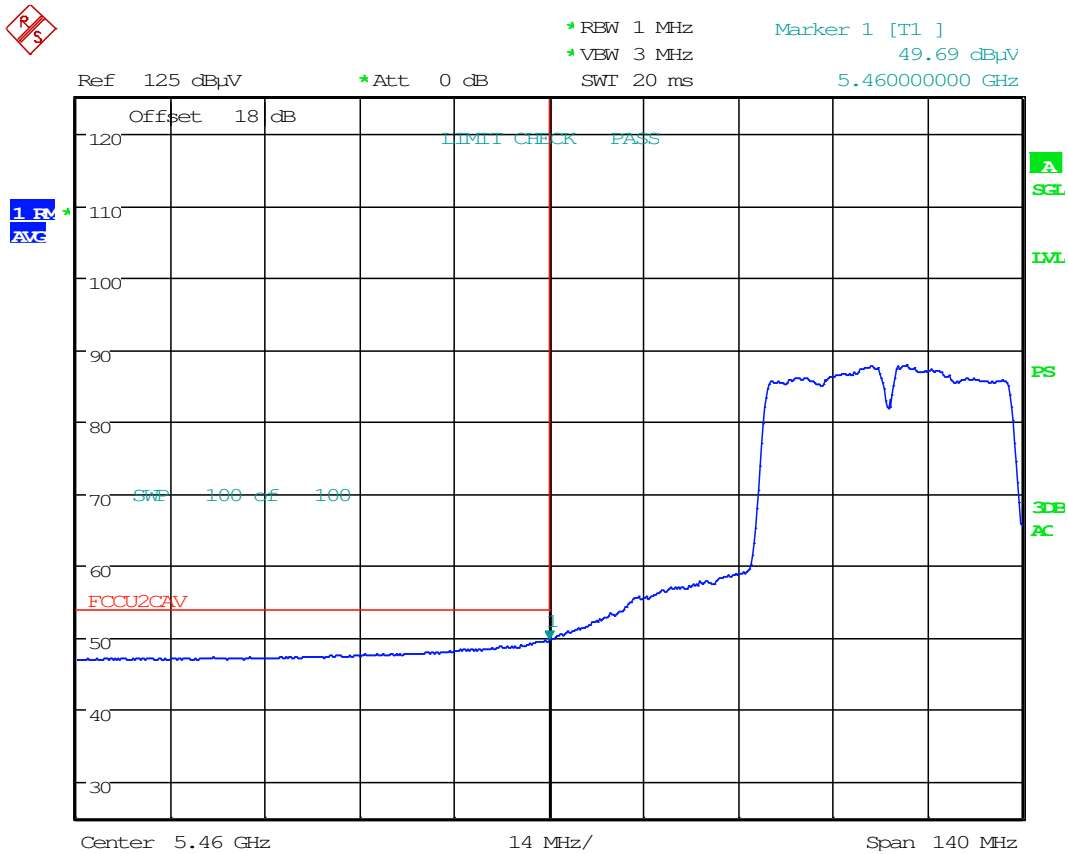
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



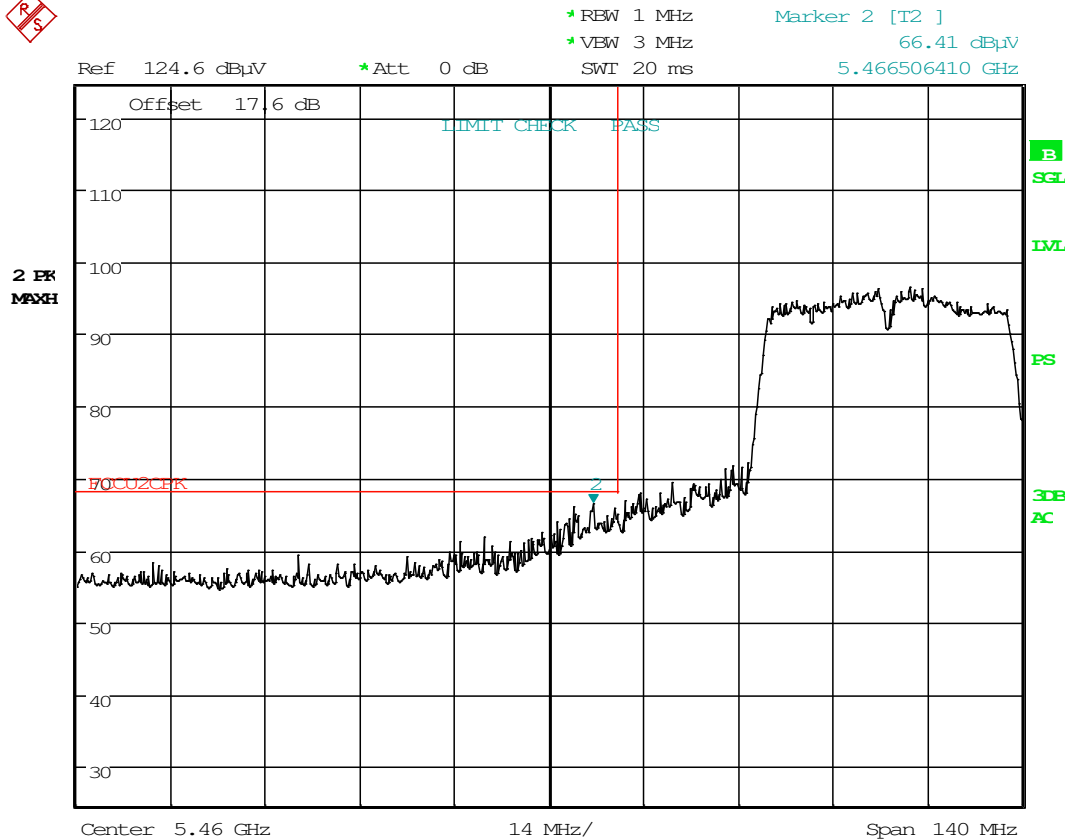
Date: 8.DEC.2015 03:47:11

Plot 7-260. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset	Page 217 of 258	

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.DEC.2015 03:45:49

Plot 7-261. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 218 of 258

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

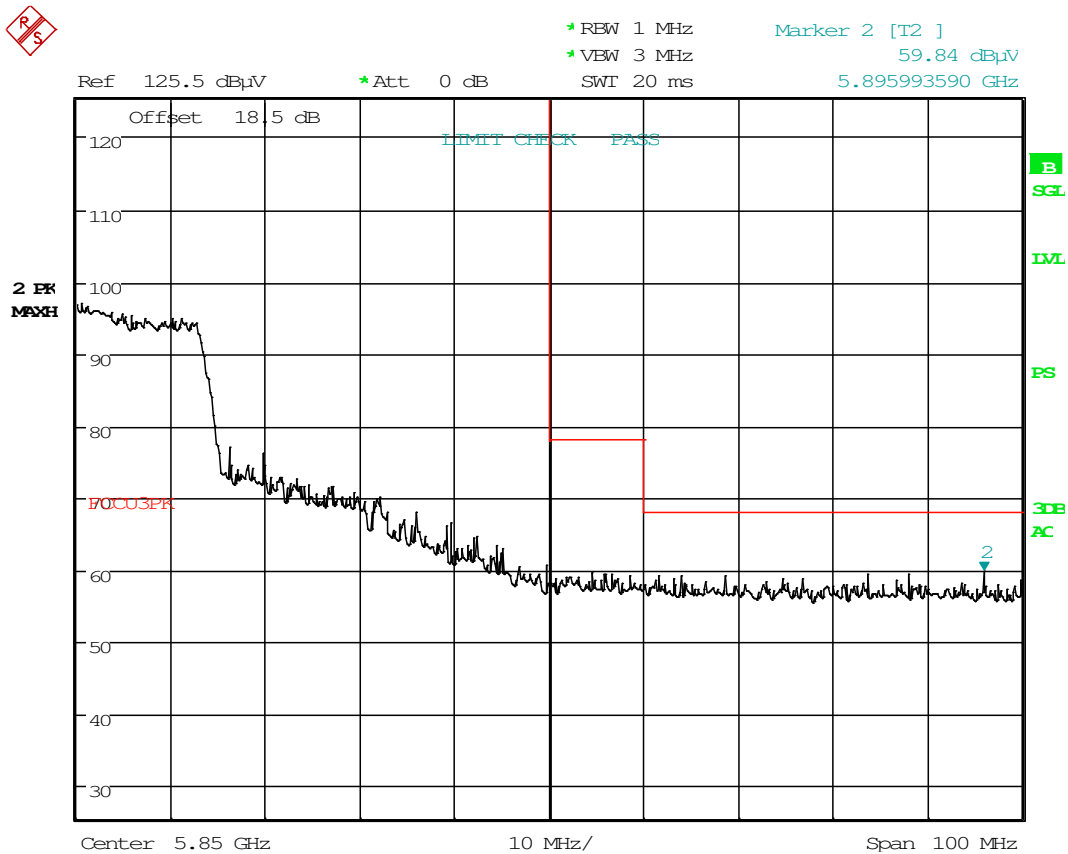
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 8.DEC.2015 02:08:34

Plot 7-262. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 219 of 258

MIMO WCP Radiated Band Edge Measurements (40MHz BW) **§15.407(b.1)(b.2) §15.205 §15.209**

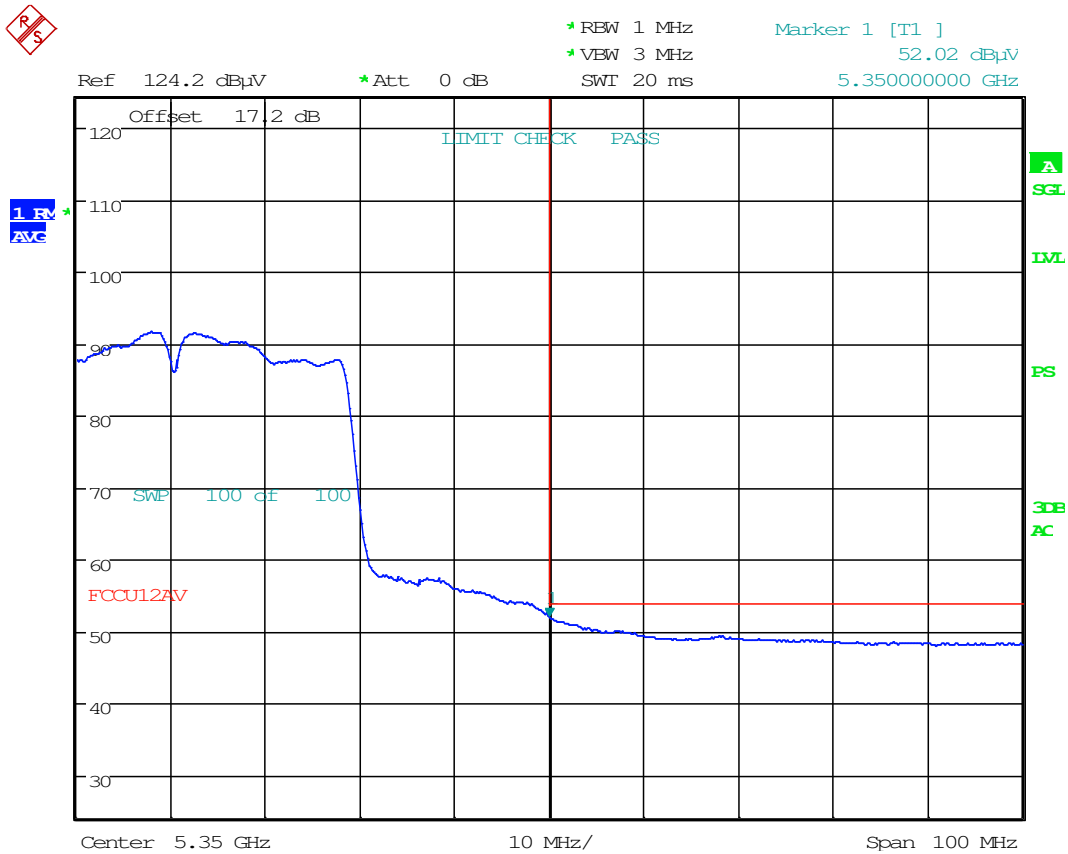
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



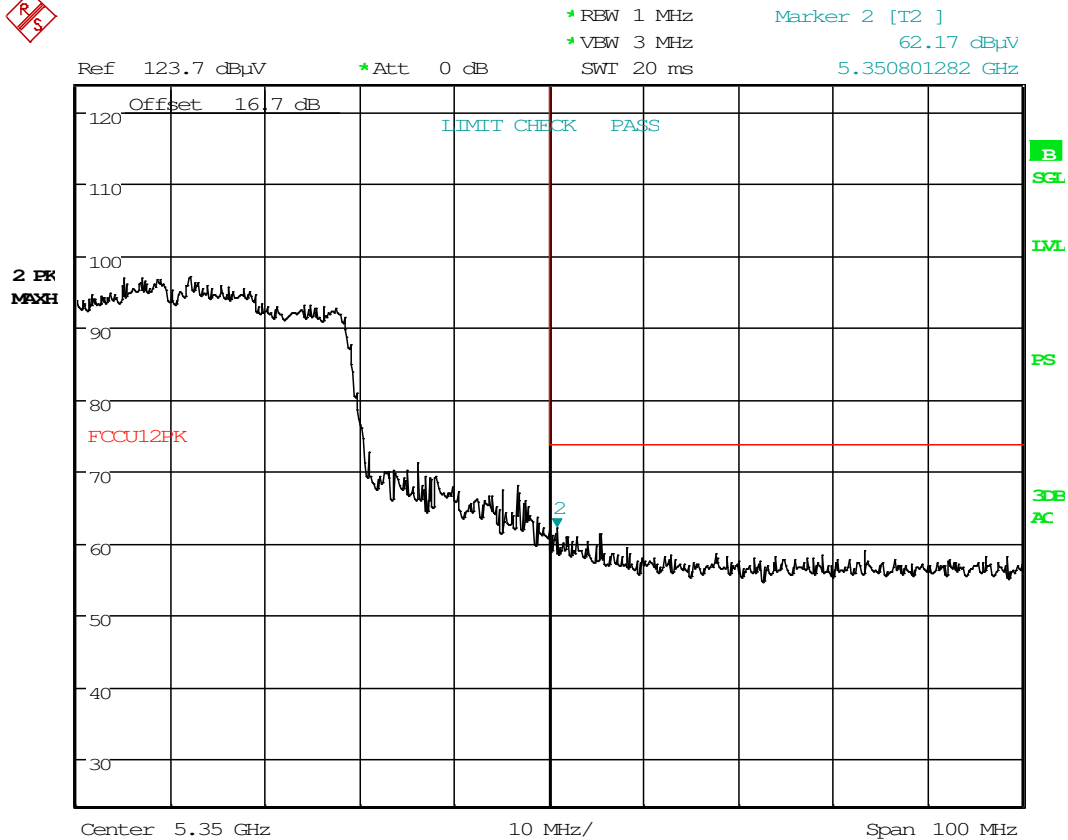
Date: 30.DEC.2015 00:57:56

Plot 7-263. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 220 of 258

MIMO WCP Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 30.DEC.2015 00:58:50

Plot 7-264. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 221 of 258

7.7.12 MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

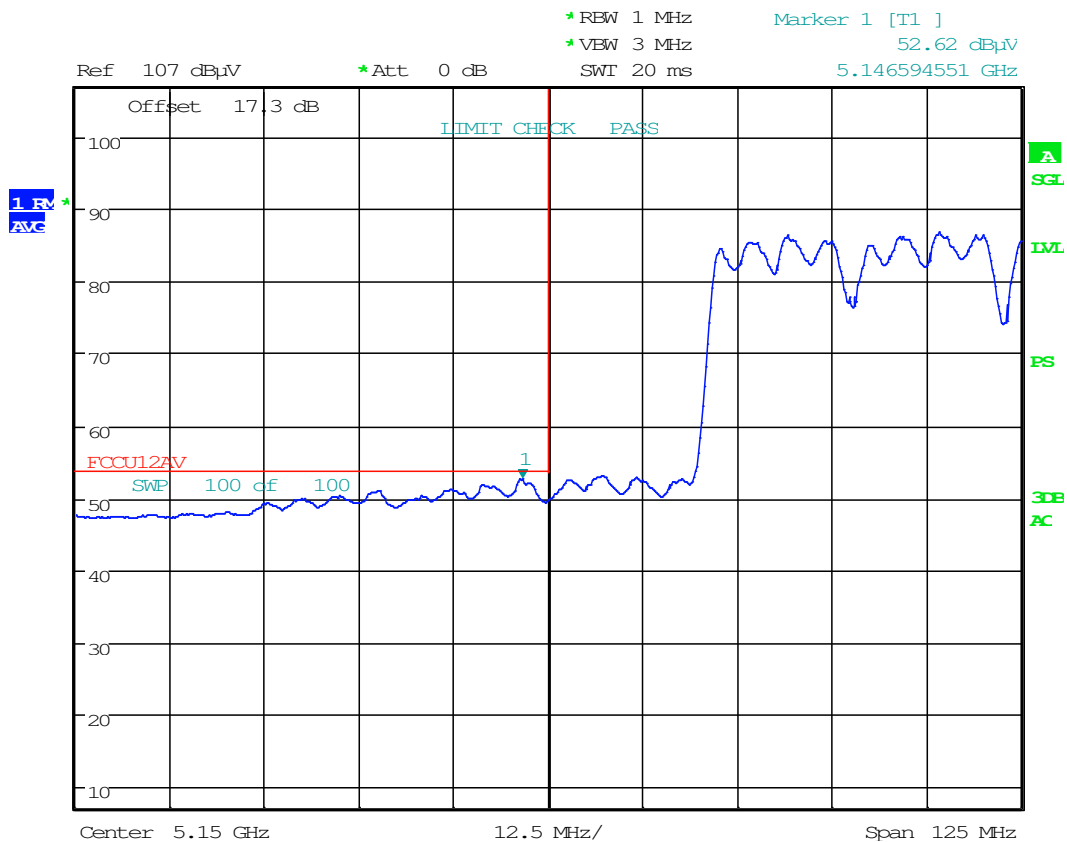
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42

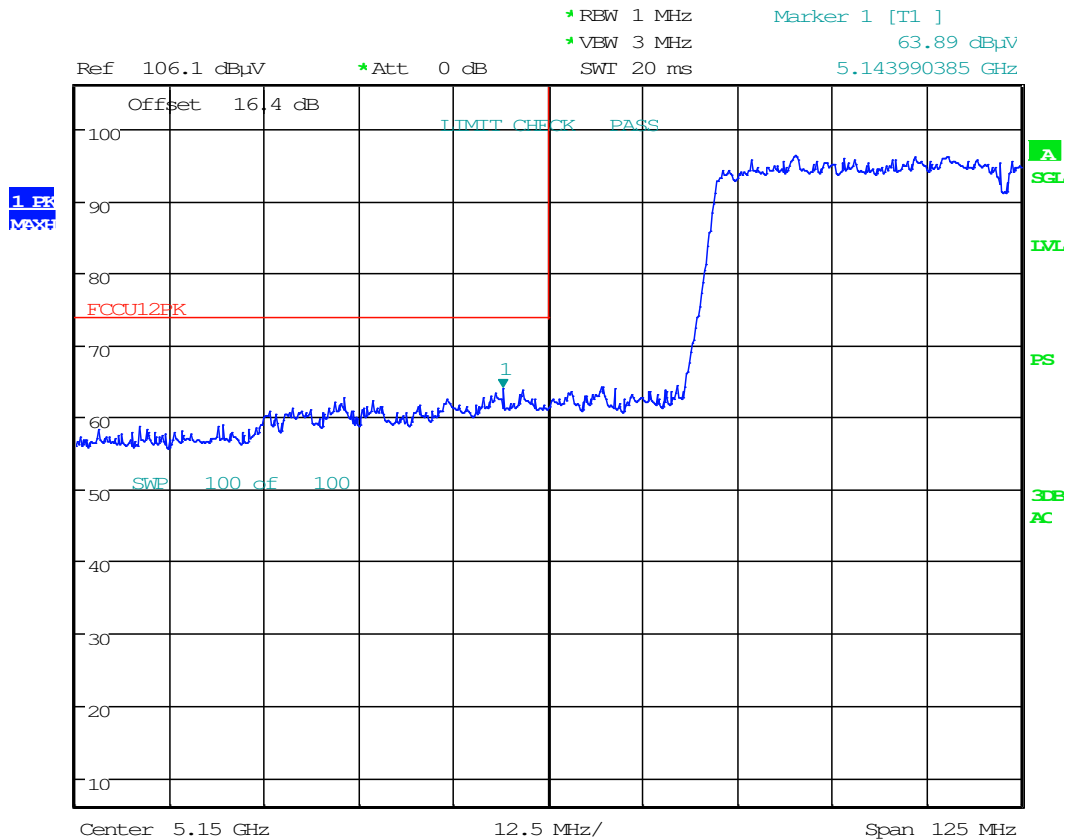


Date: 7.DEC.2015 15:55:54

Plot 7-265. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 222 of 258

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



Date: 7.DEC.2015 15:52:55

Plot 7-266. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG9350	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset	Page 223 of 258

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

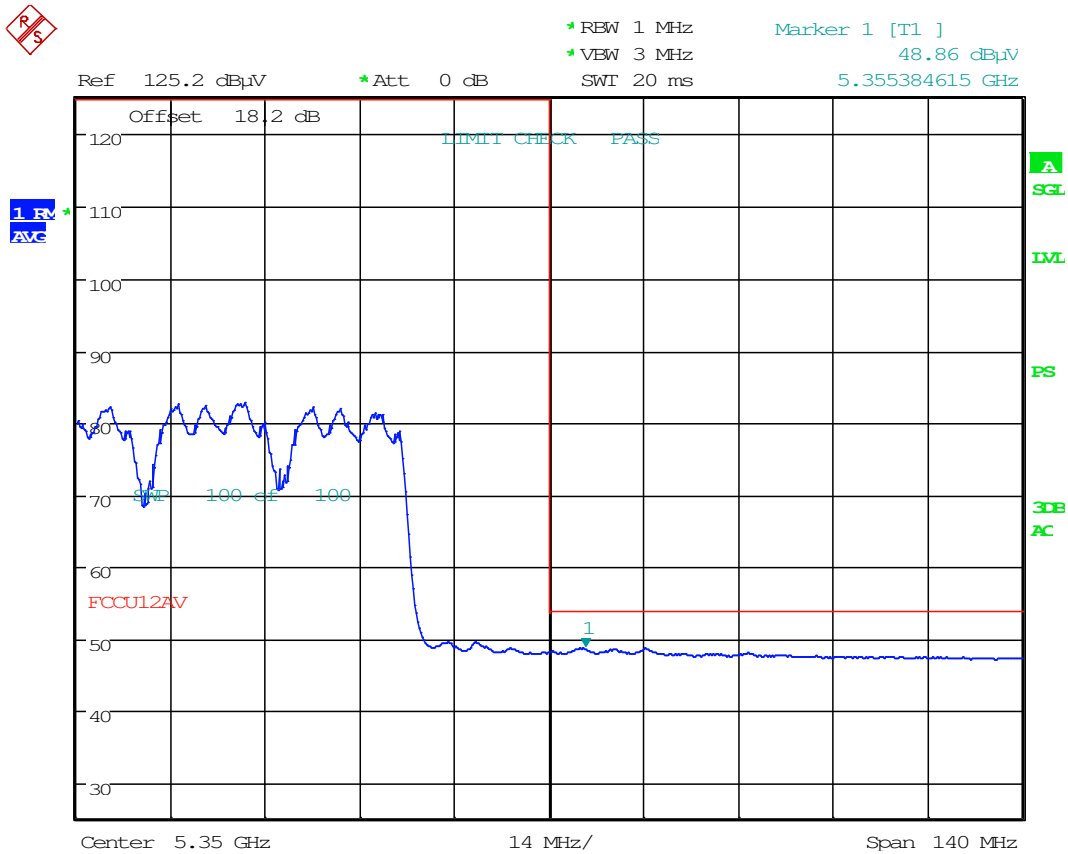
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



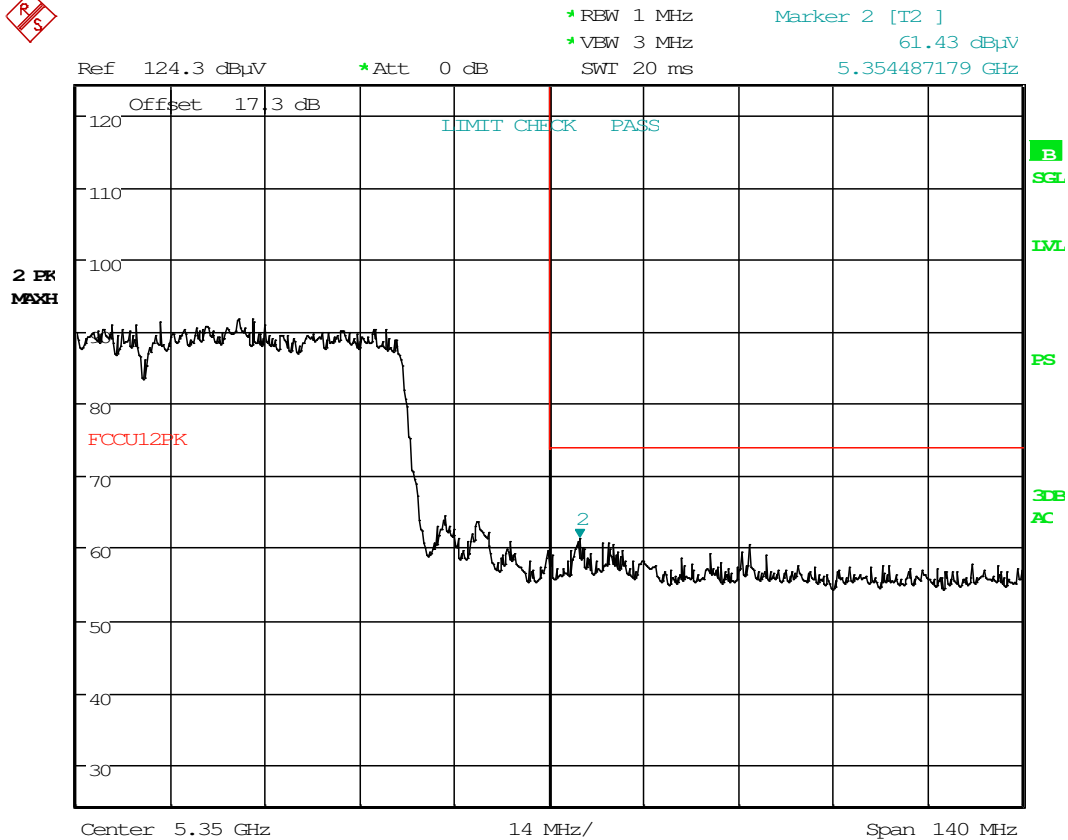
Date: 8.DEC.2015 01:27:37

Plot 7-267. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 224 of 258

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.DEC.2015 01:28:06

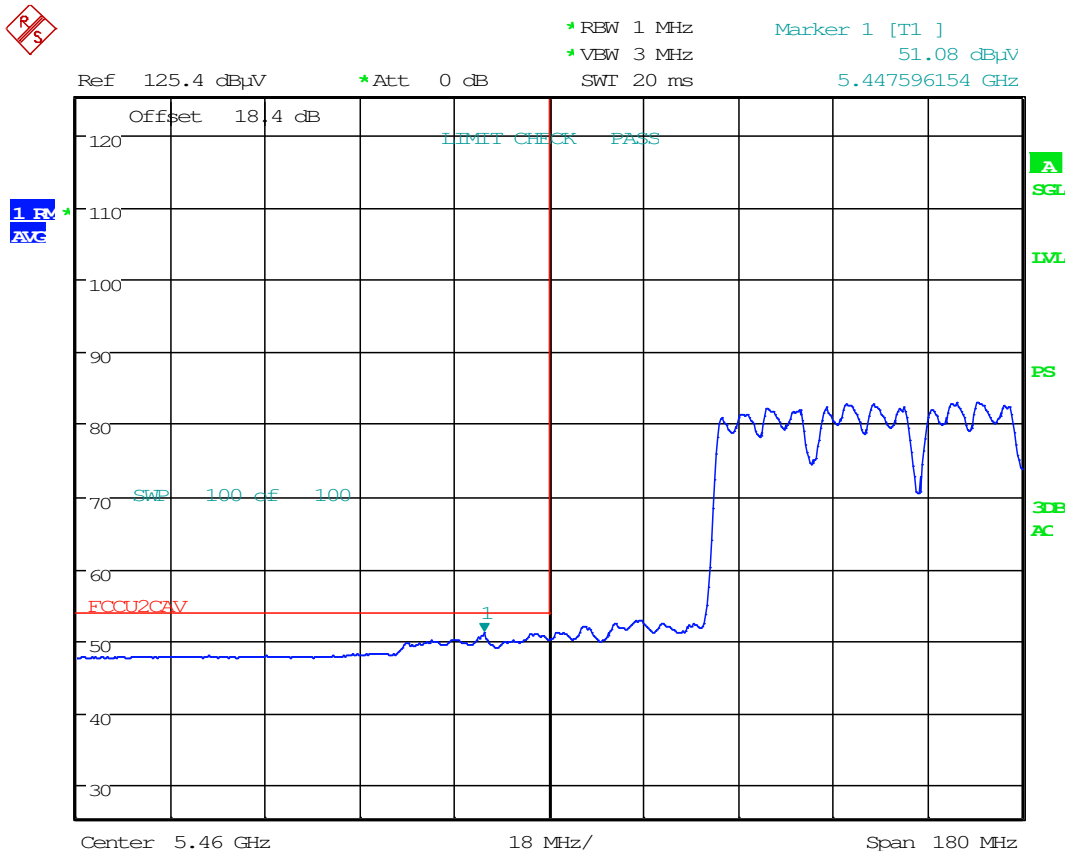
Plot 7-268. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 225 of 258

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



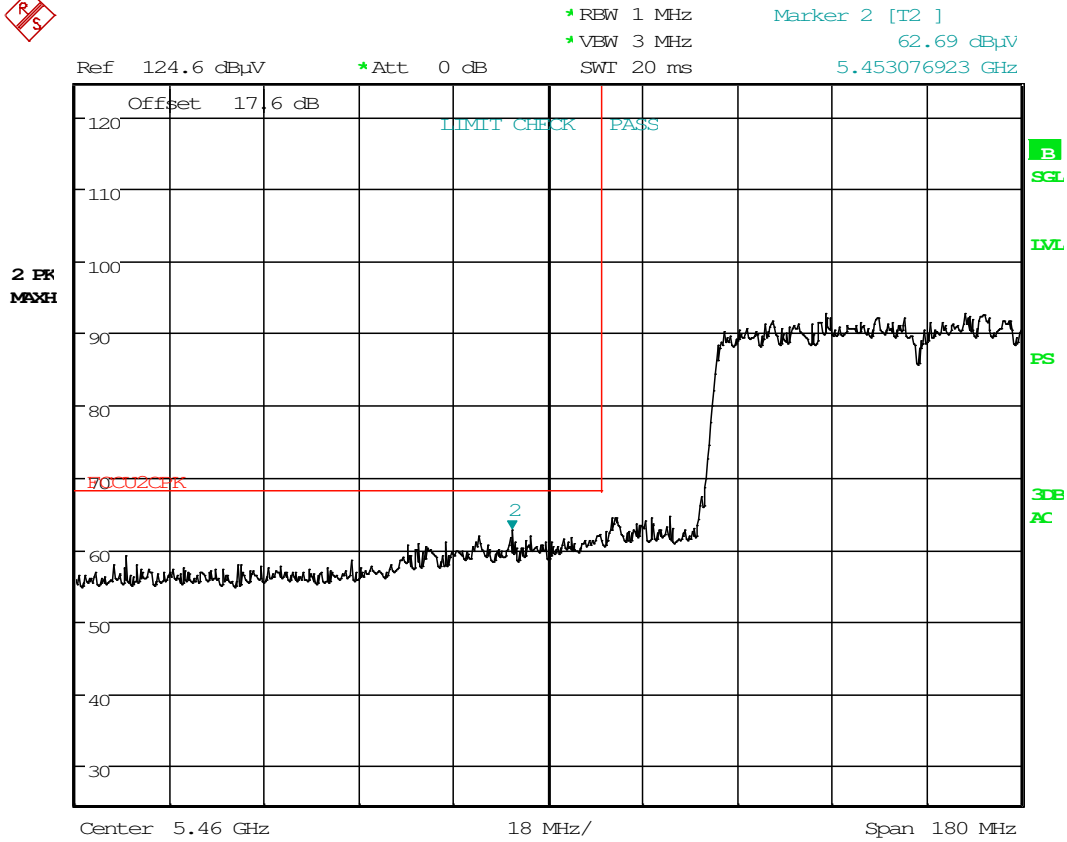
Date: 8.DEC.2015 01:55:22

Plot 7-269. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 226 of 258

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.DEC.2015 01:56:11

Plot 7-270. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 227 of 258

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

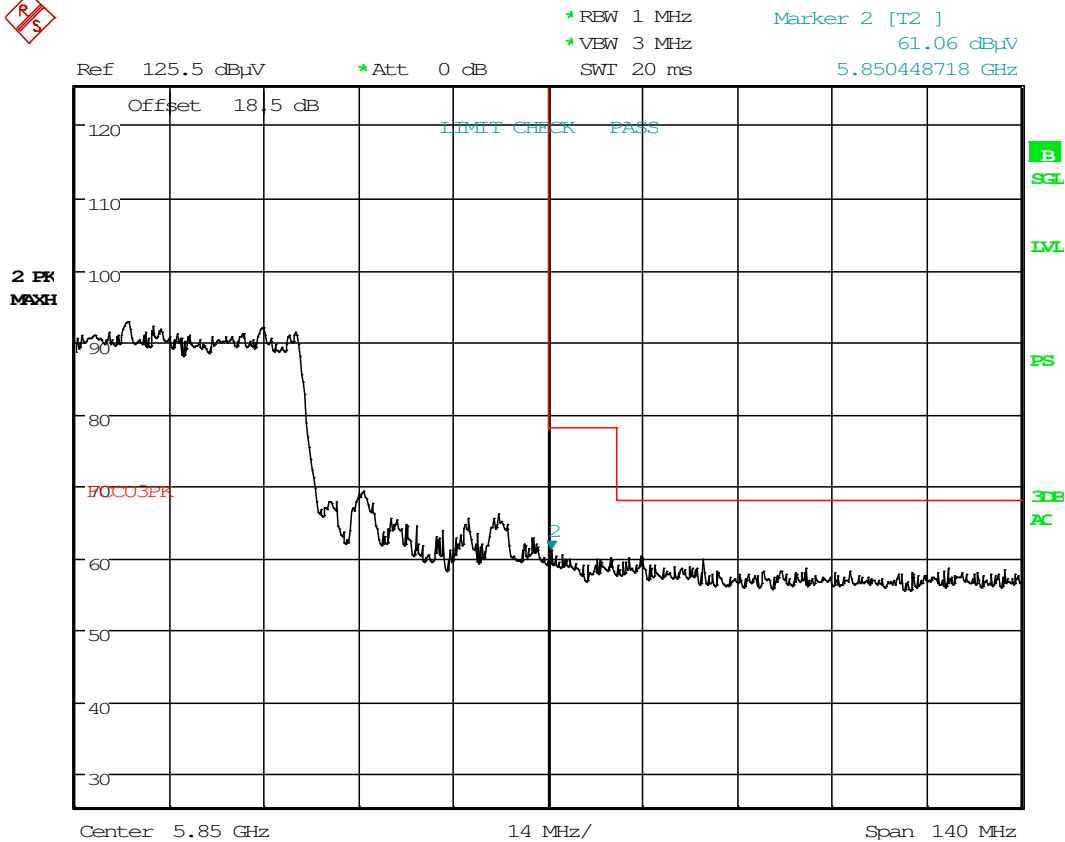
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



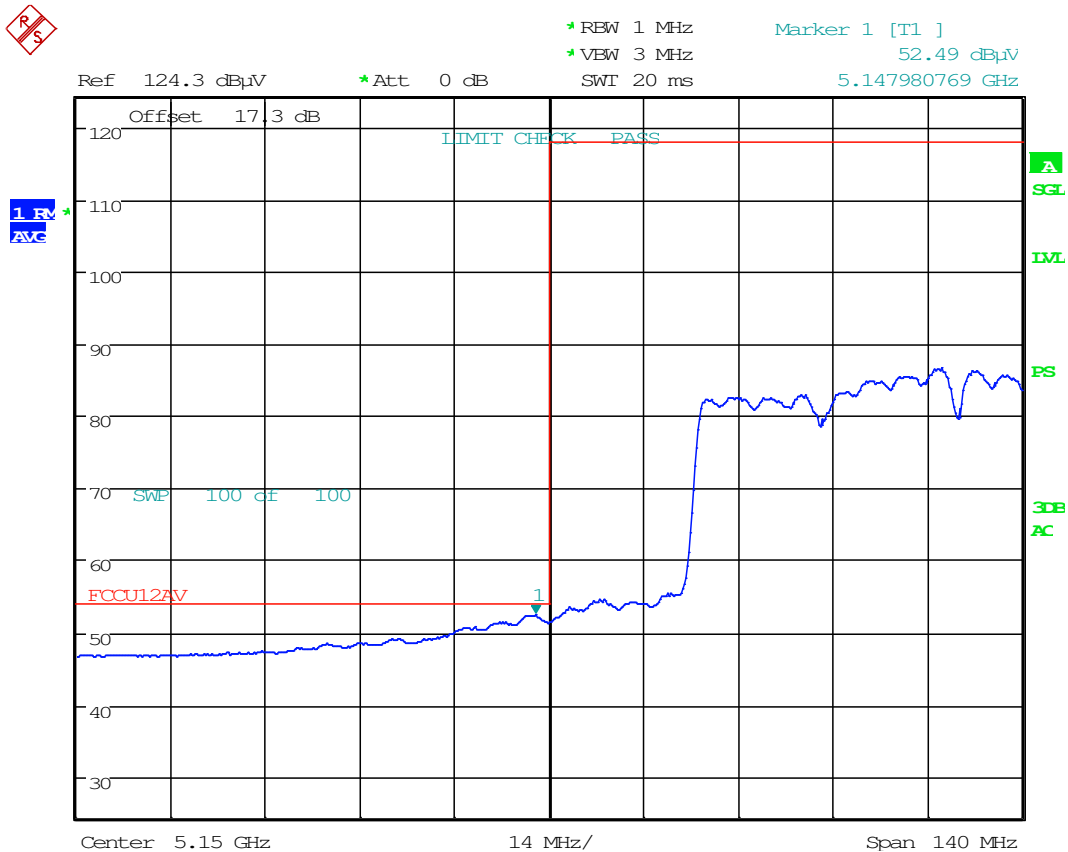
Date: 8.DEC.2015 02:09:48

Plot 7-271. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 228 of 258

MIMO WCP Radiated Band Edge Measurements (80MHz BW)
§15.407(b.1)(b.2) §15.205 §15.209

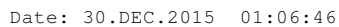
Worst Case Mode:	<u>802.11ac (80MHz)</u>
Worst Case Transfer Rate:	<u>MCS0</u>
Distance of Measurements:	<u>3 Meters</u>
Operating Frequency:	<u>5210MHz</u>
Channel:	<u>42</u>



Date: 30.DEC.2015 01:06:18

Plot 7-272. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset	Page 229 of 258



Plot 7-273. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMG9350	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset	Page 230 of 258

7.8 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 7-64 per Section 15.209.

Frequency	Field Strength [$\mu\text{V}/\text{m}$]	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 7-64. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

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 Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 231 of 258

Test Setup

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

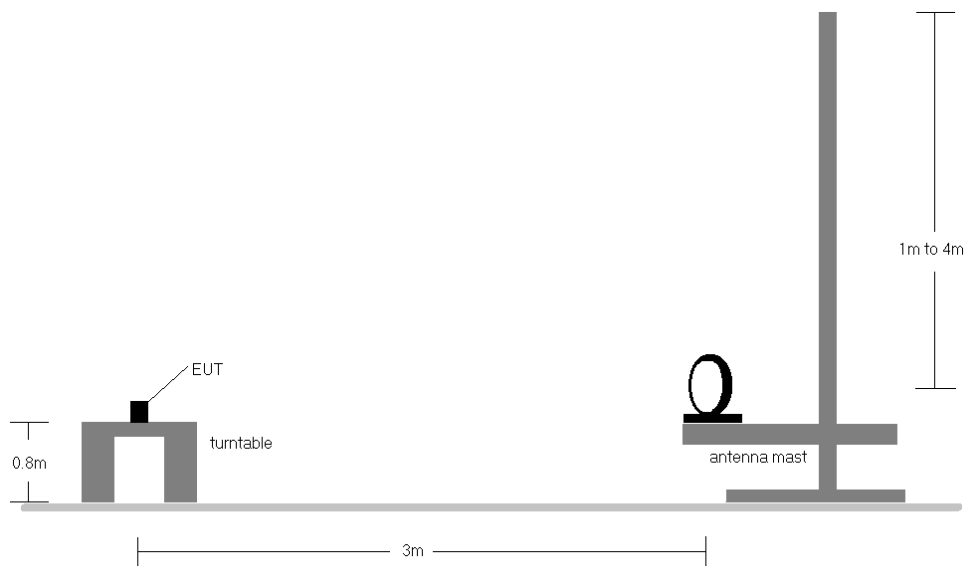


Figure 7-6. Radiated Test Setup < 30MHz

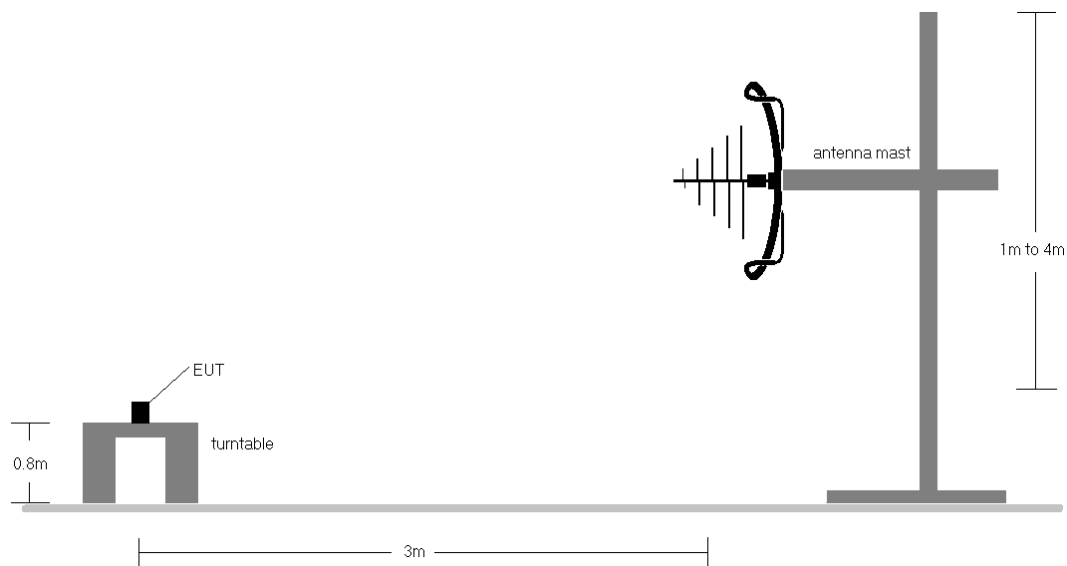


Figure 7-7. Radiated Test Setup < 1GHz

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 232 of 258

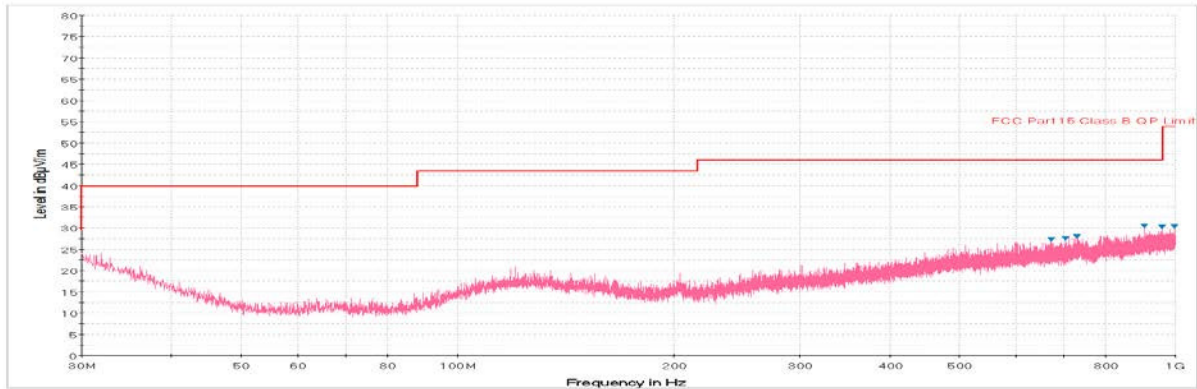
Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-64.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. 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.

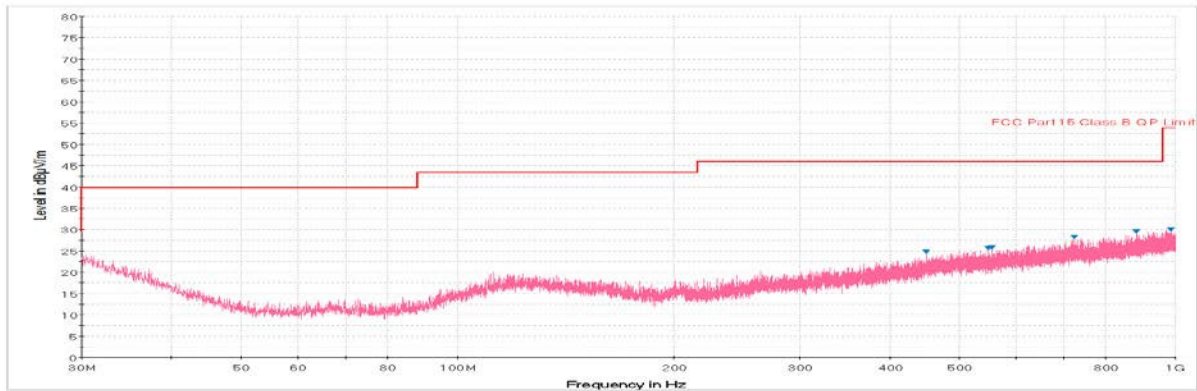
FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 233 of 258

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

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Plot 7-274. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

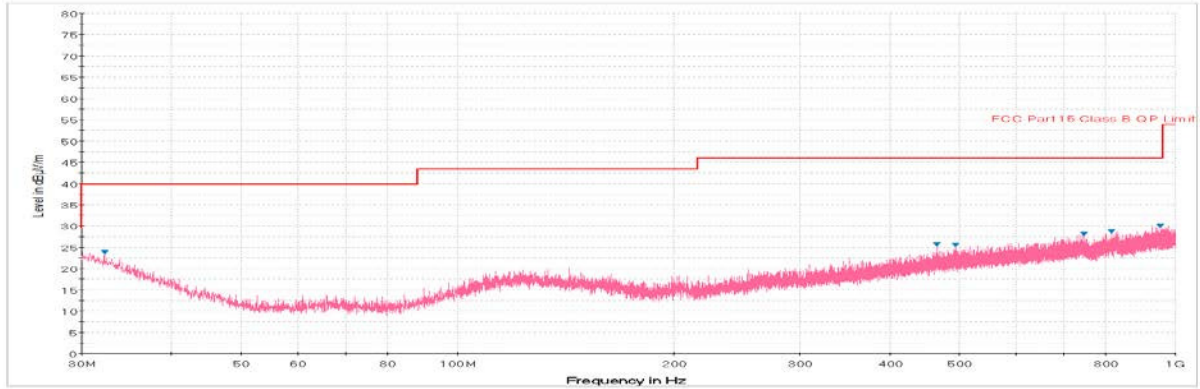


Plot 7-275. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

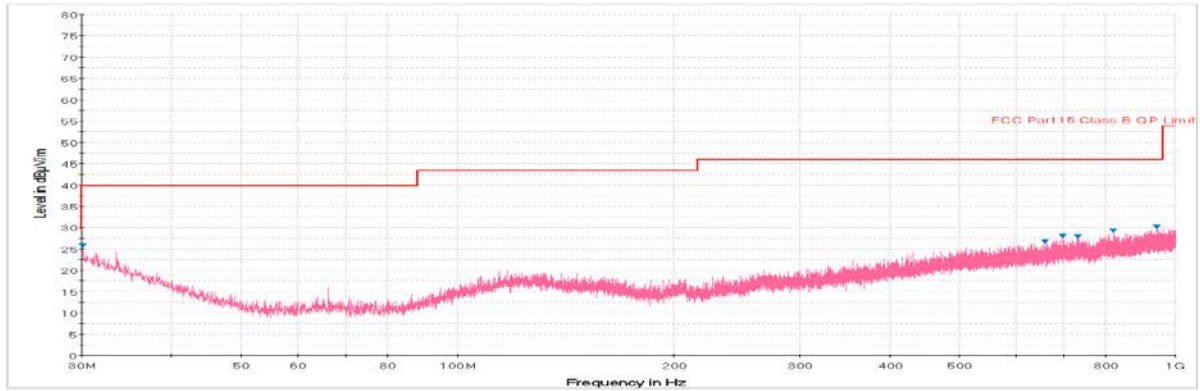
FCC ID: A3LSMG9350	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 234 of 258

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

§15.209



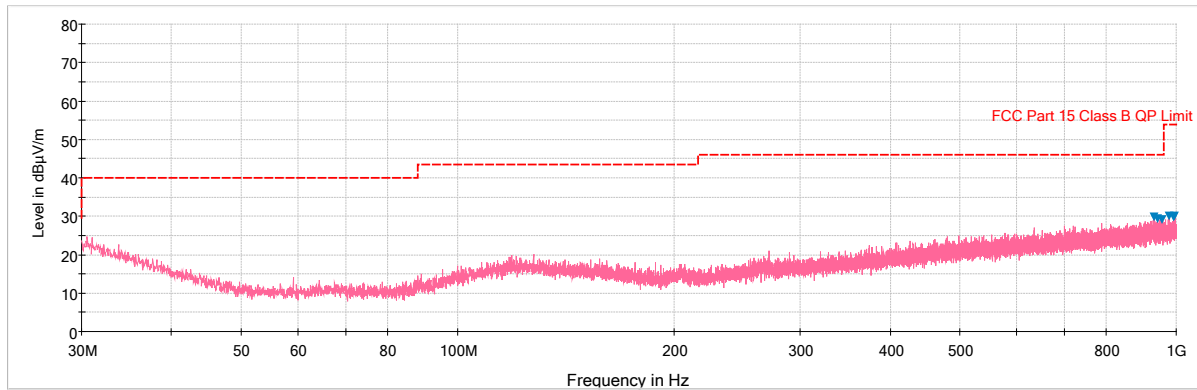
Plot 7-276. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)



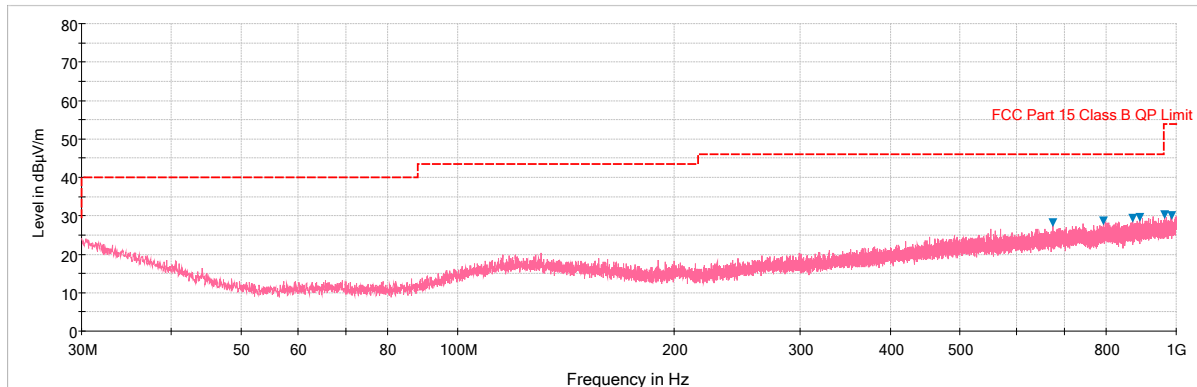
Plot 7-277. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 235 of 258

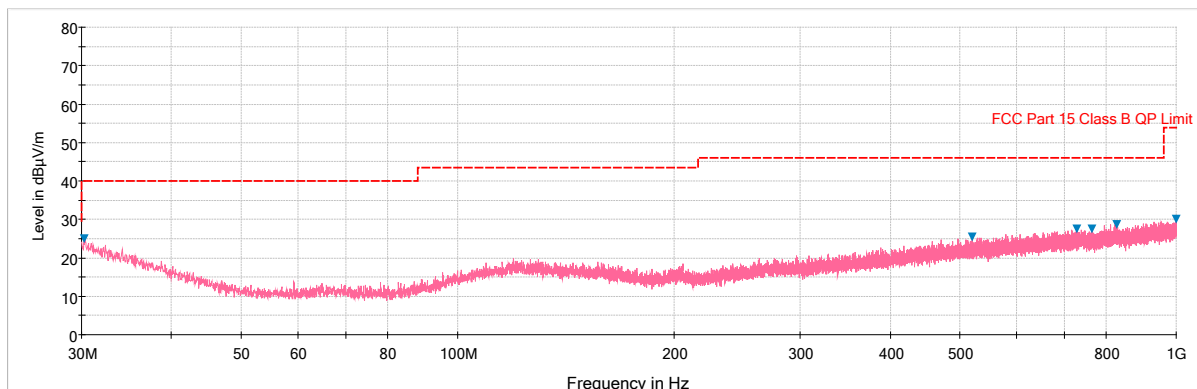
Simultaneous Transmission Radiated Spurious Emissions Measurements (Below 1GHz) §15.209



Plot 7-278. Radiated Spurious Plot below 1GHz (Simultaneous Transmission Config-1, Ant. Pol. H)

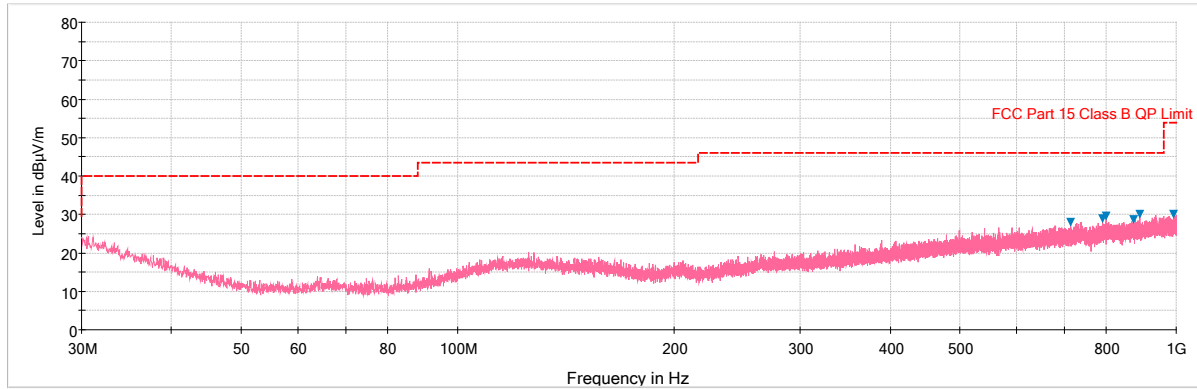


Plot 7-279. Radiated Spurious Plot below 1GHz (Simultaneous Transmission Config-1, Ant. Pol. V)



Plot 7-280. Radiated Spurious Plot below 1GHz (Simultaneous Transmission Config-2, Ant. Pol. H)

FCC ID: A3LSMG9350	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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Plot 7-281. Radiated Spurious Plot below 1GHz (Simultaneous Transmission Config-2, Ant. Pol. V)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 237 of 258

7.9 Line-Conducted Test Data

§15.407

Test Overview and Limit

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN 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 conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

All conducted emissions must not exceed the limits shown in the table below, per Section 15.207.

Frequency of emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

Table 7-65. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013, Section 6.2

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = RMS
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.

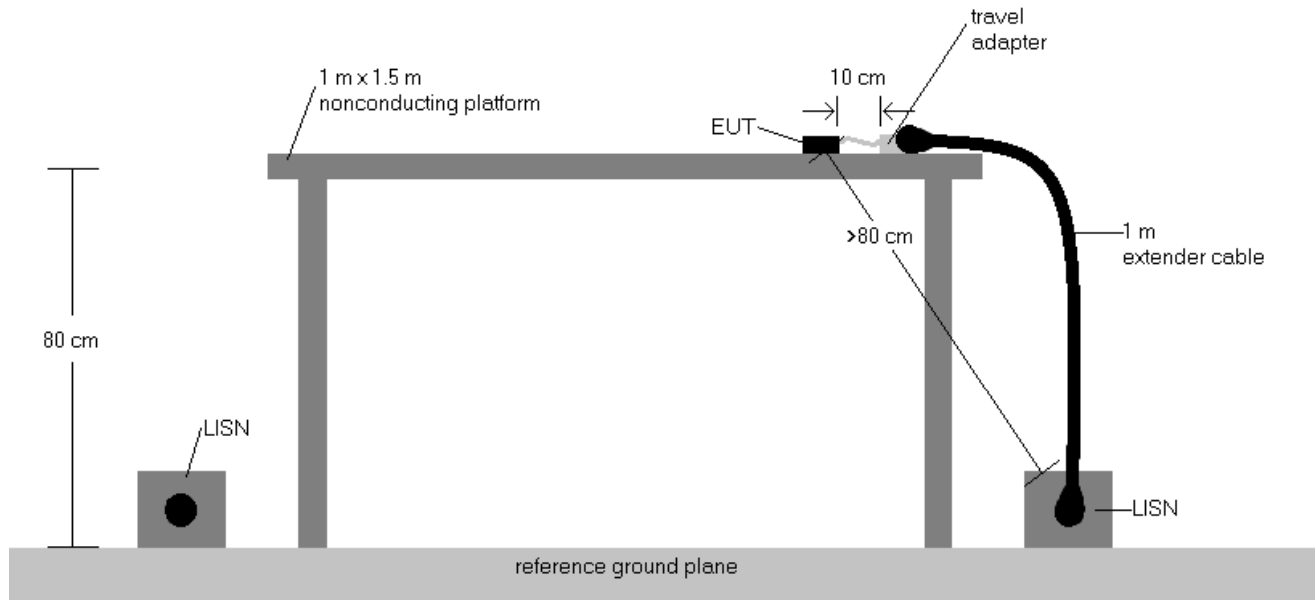


Figure 7-8. Test Instrument & Measurement Setup

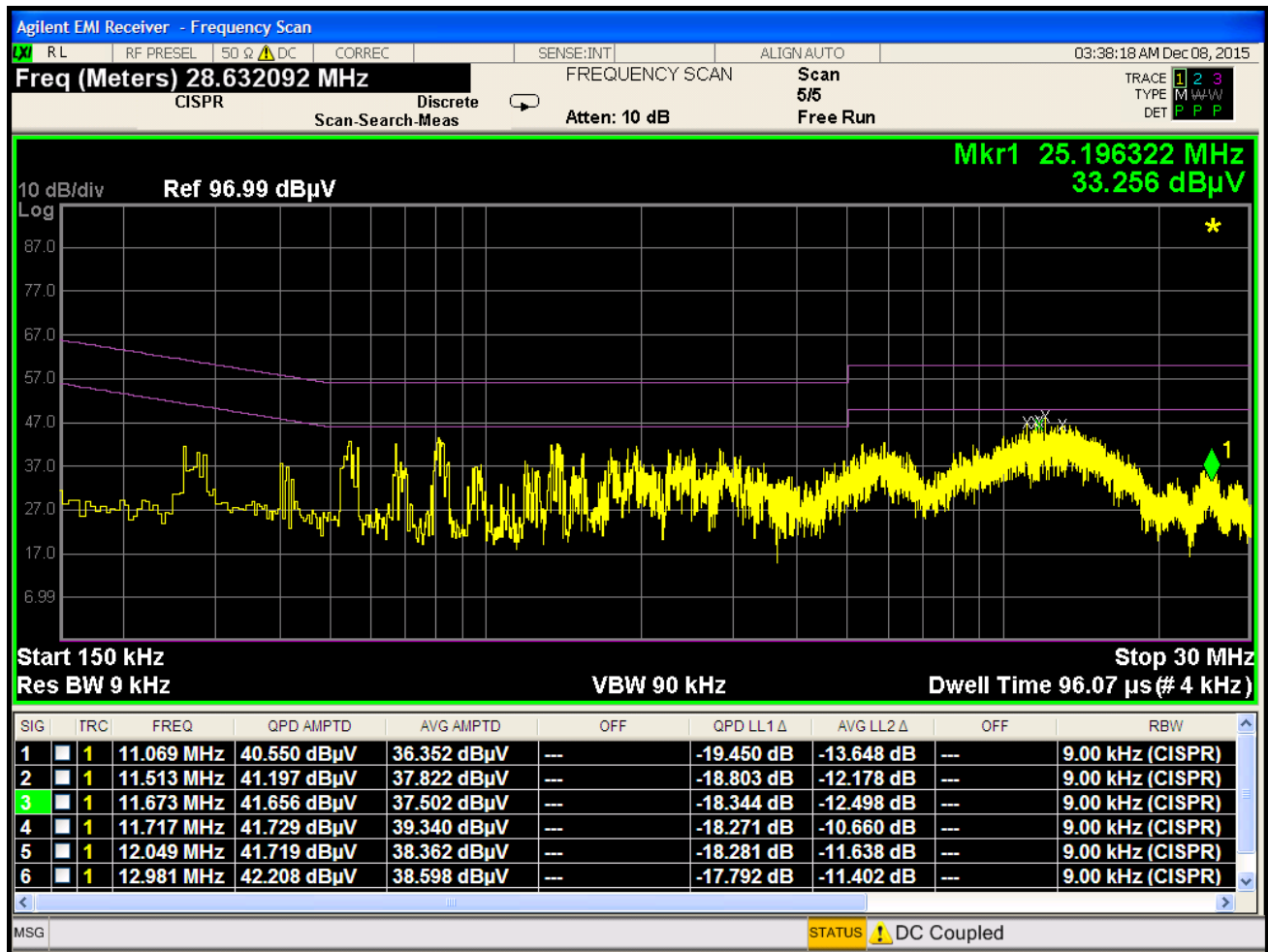
Test Notes

1. All modes of operation were investigated and the worst-case emissions are reported using mid channel. The emissions found were not affected by the choice of channel used during testing.
2. The limit for an intentional radiator from 150kHz to 30MHz are specified in 15.207.
3. $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
4. $\text{QP/AV Level (dB}\mu\text{V)} = \text{QP/AV Analyzer/Receiver Level (dB}\mu\text{V)} + \text{Corr. (dB)}$
5. $\text{Margin (dB)} = \text{QP/AV Limit (dB}\mu\text{V)} - \text{QP/AV Level (dB}\mu\text{V)}$
6. Traces shown in plot are made using a peak detector.
7. Deviations to the Specifications: None.

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Line-Conducted Test Data

\$15.407

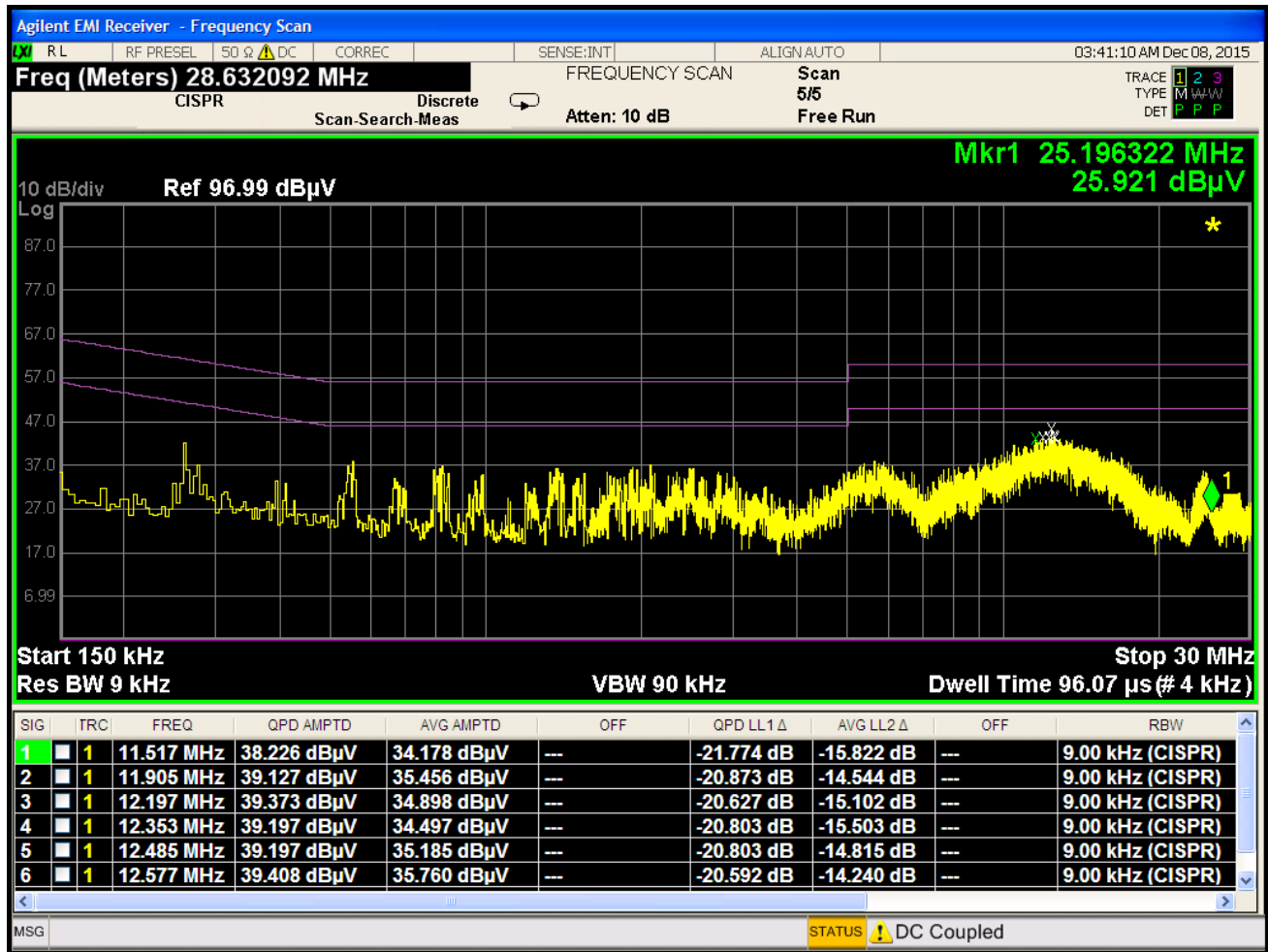


Plot 7-282. Line Conducted Plot with 802.11a UNII Band 1 (L1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 240 of 258

Line-Conducted Test Data

\$15.407

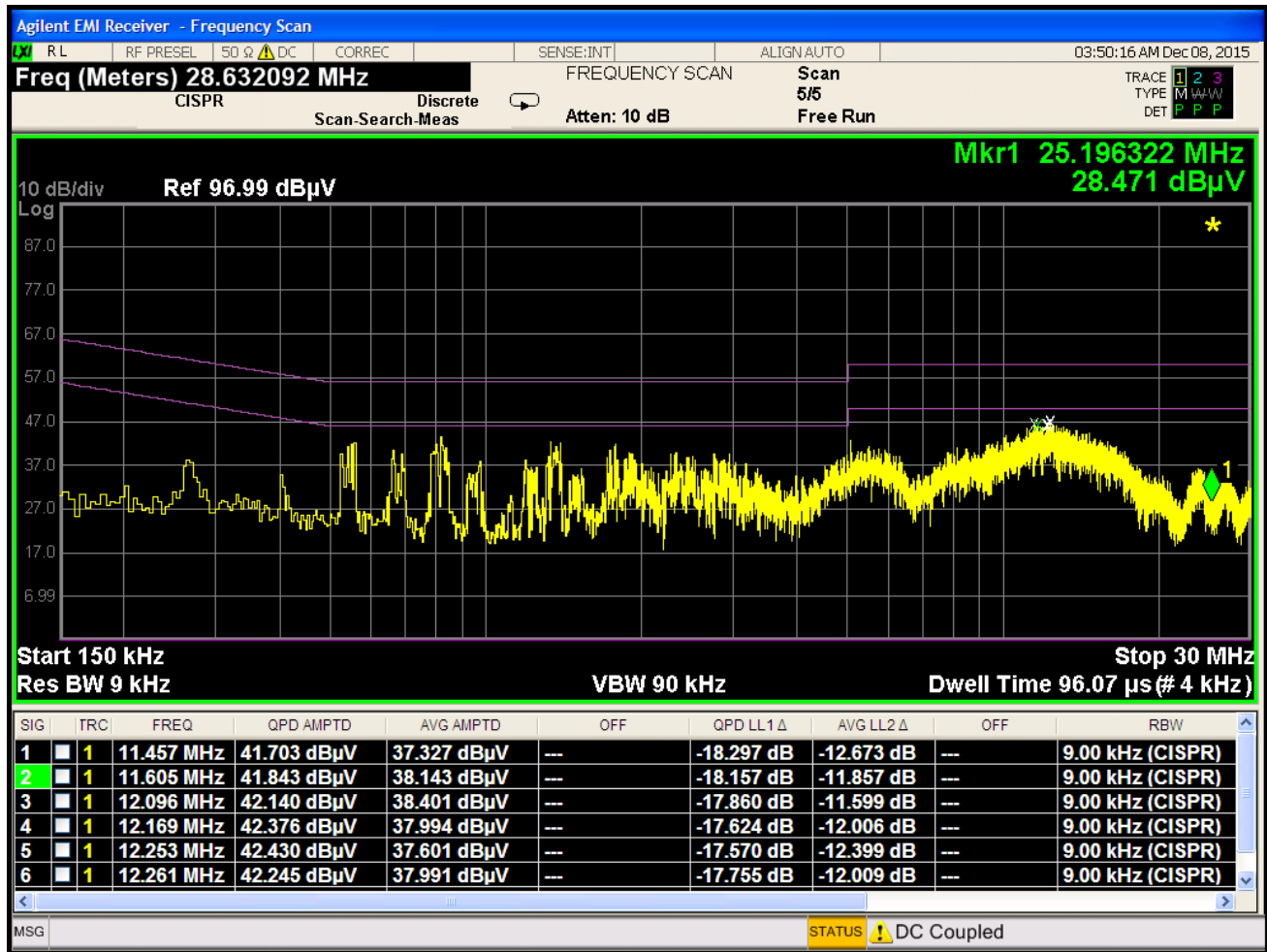


Plot 7-283. Line Conducted Plot with 802.11a UNII Band 1 (N)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 241 of 258

Line-Conducted Test Data

\$15.407

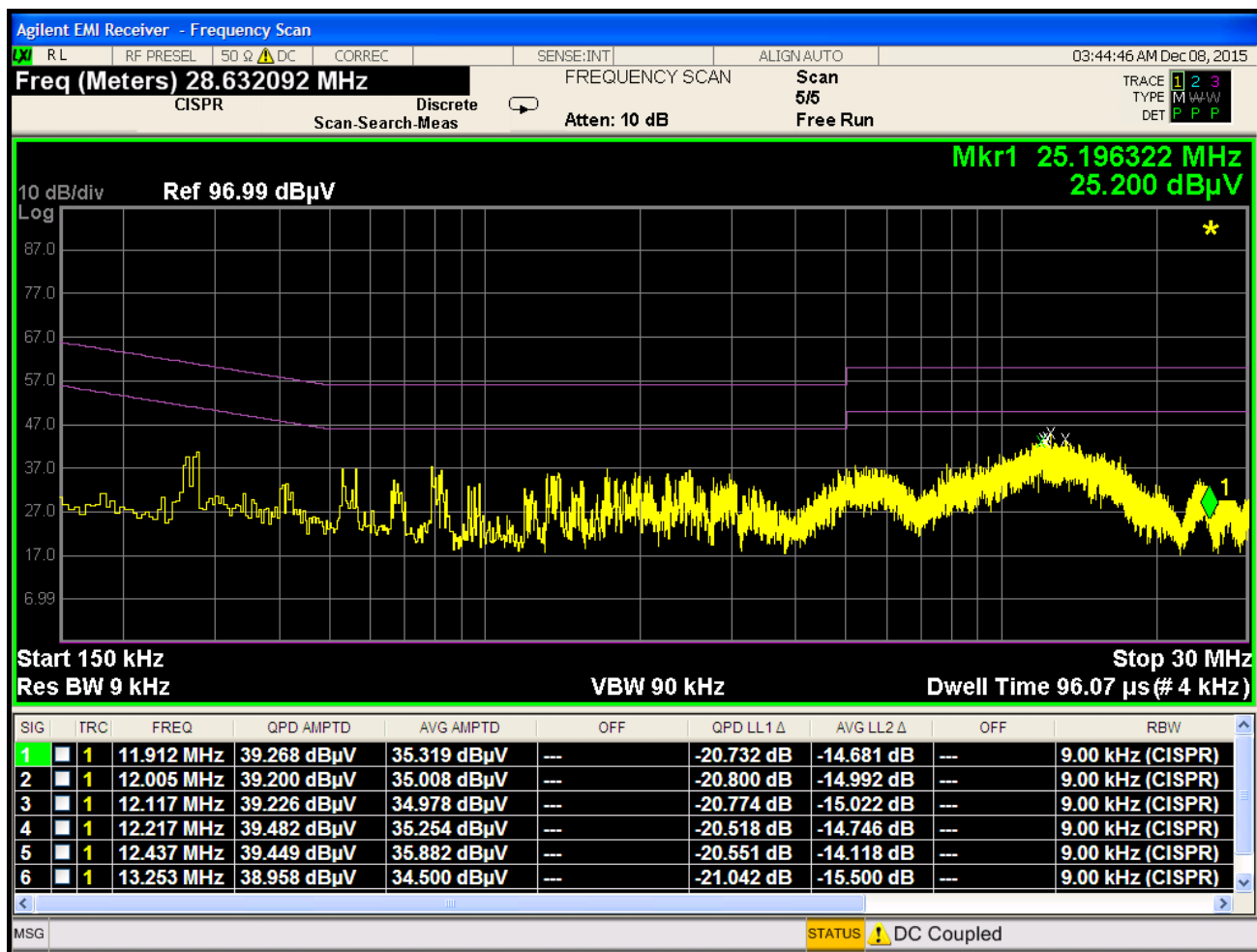


Plot 7-284. Line Conducted Plot with 802.11a UNII Band 2A (L1)

FCC ID: A3LSMG9350	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

\$15.407

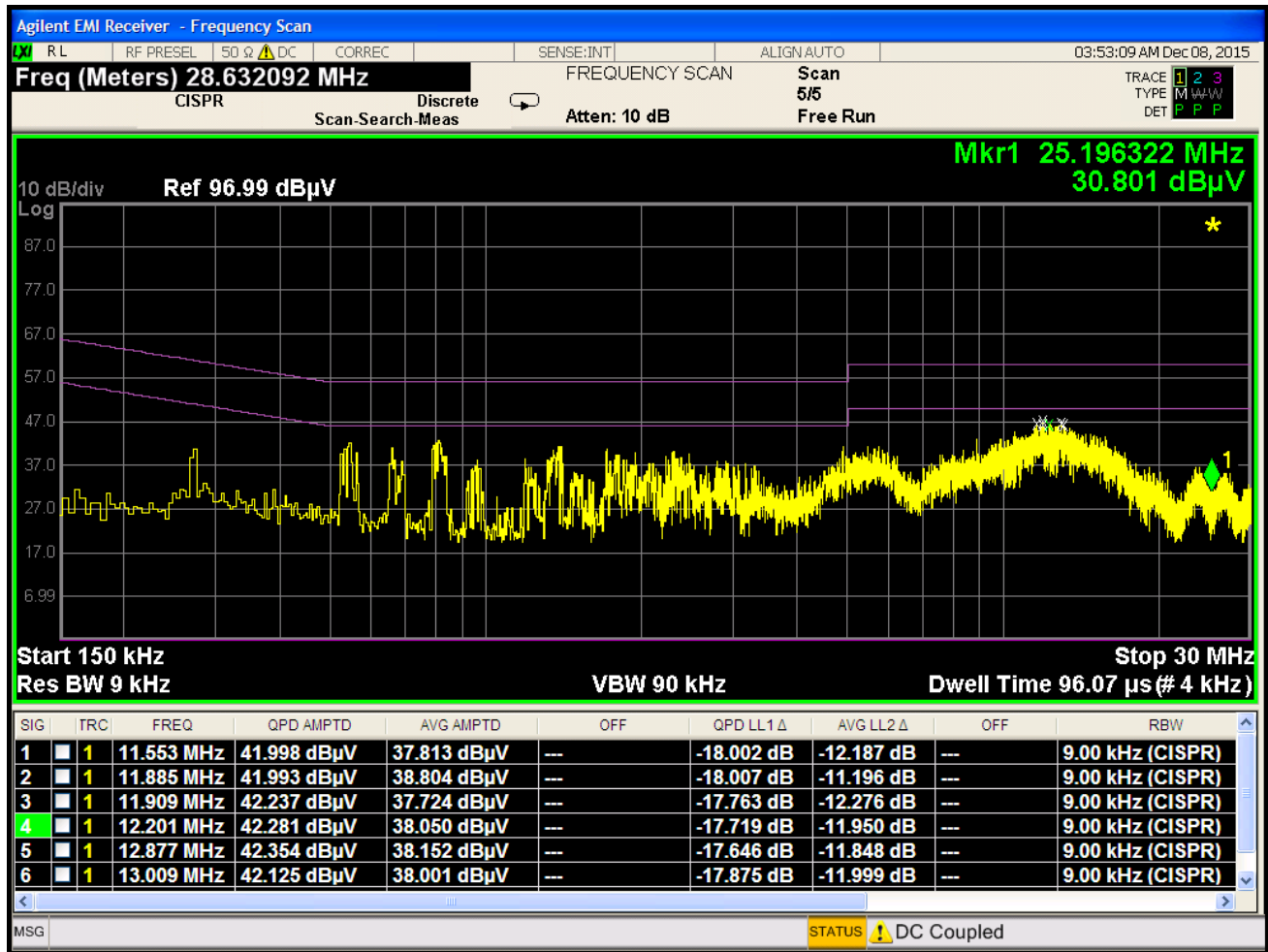


Plot 7-285. Line Conducted Plot with 802.11a UNII Band 2A (N)

FCC ID: A3LSMG9350	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

\$15.407

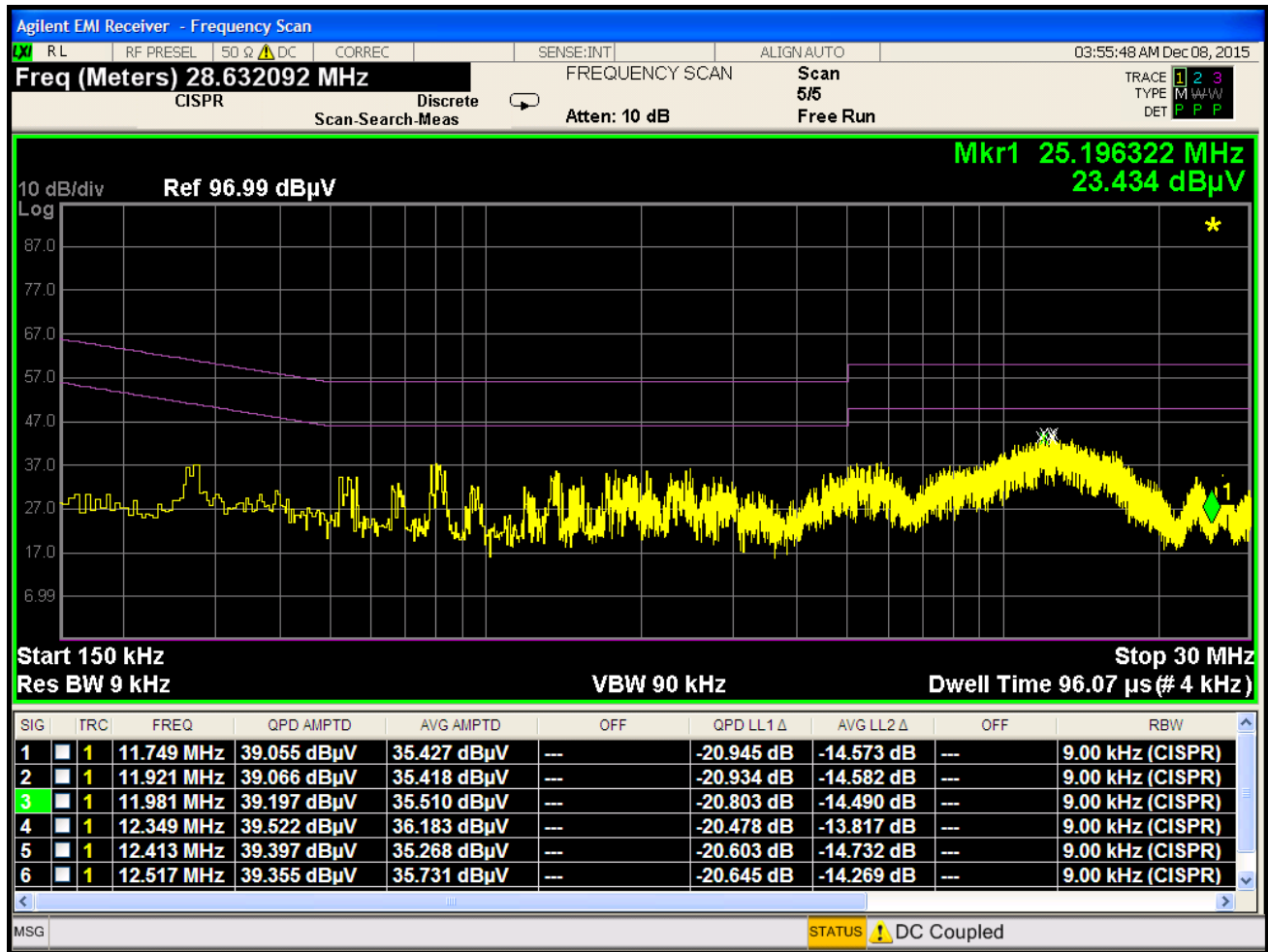


Plot 7-286. Line Conducted Plot with 802.11a UNII Band 2C (L1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 244 of 258

Line-Conducted Test Data

\$15.407

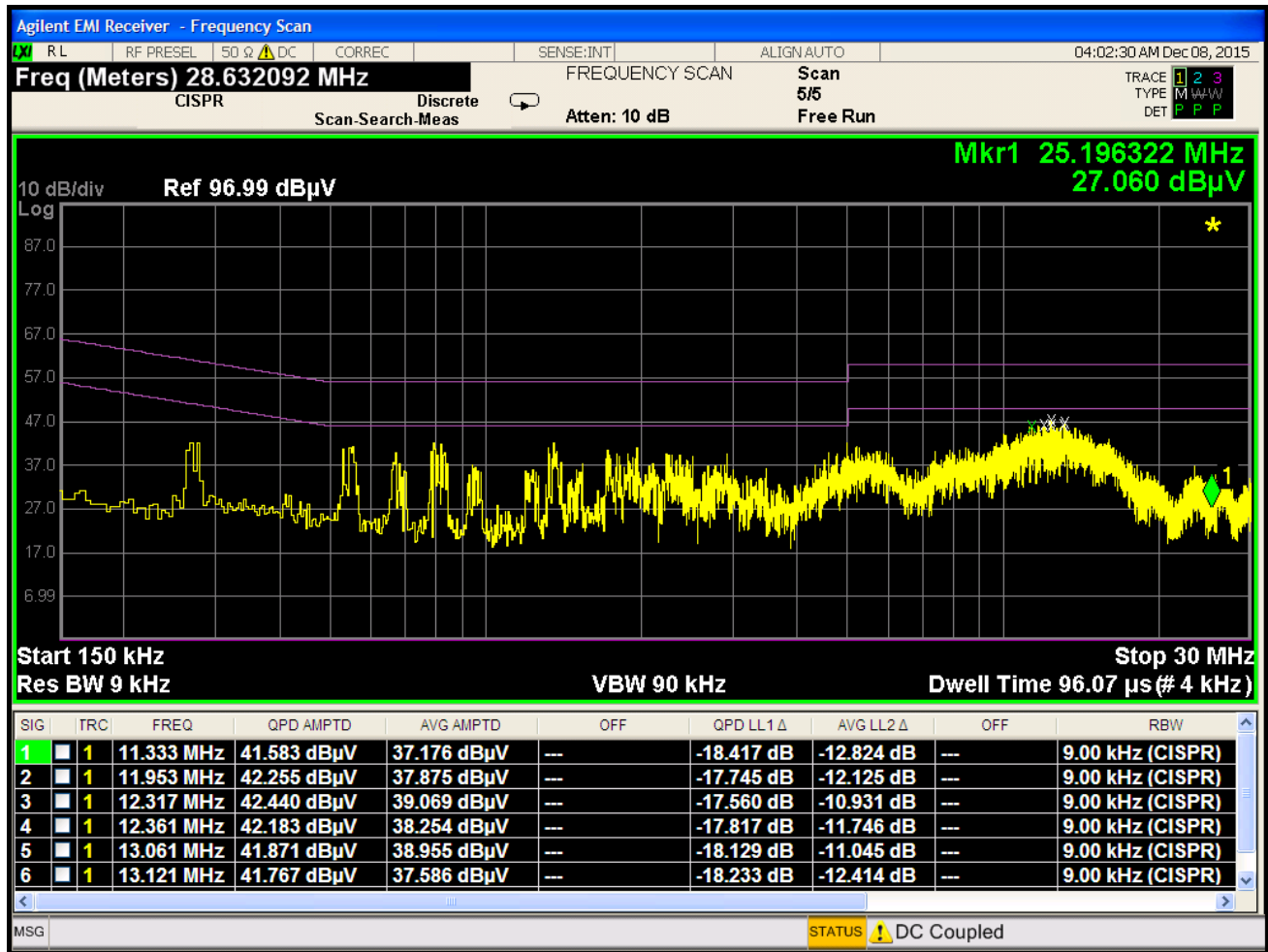


Plot 7-287. Line Conducted Plot with 802.11a UNII Band 2C (N)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 245 of 258

Line-Conducted Test Data

\$15.407

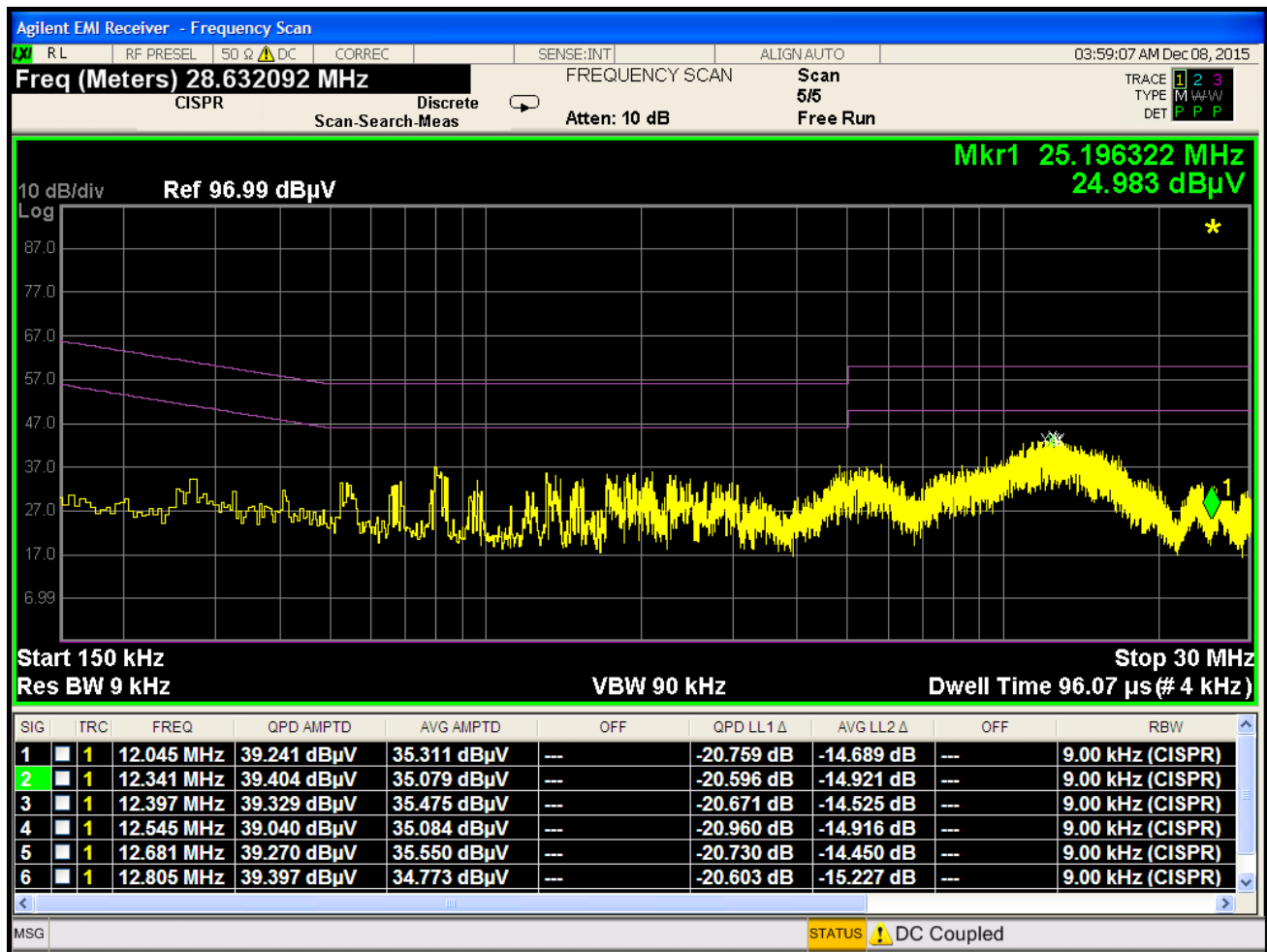


Plot 7-288. Line Conducted Plot with 802.11a UNII Band 3 (L1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 246 of 258

Line-Conducted Test Data

\$15.407



Plot 7-289. Line Conducted Plot with 802.11a UNII Band 3 (N)

FCC ID: A3LSMG9350	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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8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG9350** is in compliance with Part 15E of the FCC Rules.

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APPENDIX A. 802.11A DUAL TX

A.1 Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)					
15.407 (a.1)	Maximum Conducted Output Power	< 250mW (23.98dBm) (5150-5250MHz) < 250mW (5250-5350MHz) < 250mW (5470-5725MHz) < 1W (30dBm) (5725-5850MHz)	CONDUCTED	PASS	Section A.2
15.407 (a.1), (5)	Maximum Power Spectral Density	< 11 dBm/MHz (5150-5250MHz, 5250-5350MHz, 5470-5725MHz) < 30 dBm/500kHz (5725-5850MHz)		PASS	Section A.3
15.205, 15.407(b.1),(5),(6)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS	Section A.4

Table A.1-1. Summary of Test Results

Notes:

- 1) This device employs dual transmission in 802.11a and 802.11g modes using Cyclic Delay Diversity. For all test cases, the device was set to transmit from both antennas simultaneously. The data in this section demonstrates compliance to the dual-transmission requirements specified in KDB 662911 v02r01.
- 2) All data found in this section is compiled from plots found in the main body of this test report.
- 3) Since this device is able to transmit the same data through both of its antennas in a given symbol period, then, by the definition specified in KDB 662911 v02r01 Section F)1), the transmission symbols are correlated.
- 4) Since two antennas are supported in this device and a minimum of $N_{ss} = 1$ antenna can operate at any given time, the maximum array gain for two correlated signals is $10\log_{10}(N_{ant}/N_{ss}) = 3\text{dB}$, where N_{ss} is the number of spatial streams and N_{ant} is the total number of antennas.
- 5) For conducted spurious emissions, per KDB 662911 v02r01 Section E)3)b), the emissions on each individual output complied with its corresponding relative limit for that output, so additional testing was not required for dual transmission operation.

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A.2 Output Power Measurement

§15.247(b.3)

Test Overview

Using the “Measure and Sum” technique, the measured conducted power values were summed in linear power units then converted back to dBm. Original measured values are found in Section 7.4 of this report.

Freq [MHz]	Channel	Detector	5GHz (20MHz) Conducted Power [dBm]
			IEEE Transmission Mode
			802.11a
5180	36	AVG	15.99
5200	40	AVG	17.09
5220	44	AVG	16.94
5240	48	AVG	17.05
5260	52	AVG	17.34
5280	56	AVG	17.31
5300	60	AVG	17.38
5320	64	AVG	17.15
5500	100	AVG	16.59
5560	112	AVG	17.33
5580	116	AVG	17.37
5600	120	AVG	17.09
5620	124	AVG	17.01
5640	128	AVG	17.04
5660	132	AVG	16.98
5700	140	AVG	17.06
5720	144	AVG	16.89
5745	149	AVG	17.16
5785	157	AVG	17.05
5825	165	AVG	17.12

Table A2-1. 802.11a Antenna-1 Conducted Output Power Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Freq [MHz]	Channel	Detector	5GHz (20MHz) Conducted Power [dBm]
			IEEE Transmission Mode
			802.11a
5180	36	AVG	16.01
5200	40	AVG	17.33
5220	44	AVG	17.25
5240	48	AVG	17.32
5260	52	AVG	17.01
5280	56	AVG	17.11
5300	60	AVG	17.06
5320	64	AVG	17.05
5500	100	AVG	16.65
5560	112	AVG	17.45
5580	116	AVG	17.44
5600	120	AVG	17.41
5620	124	AVG	17.33
5640	128	AVG	17.39
5660	132	AVG	17.40
5700	140	AVG	17.41
5720	144	AVG	17.46
5745	149	AVG	17.49
5785	157	AVG	17.33
5825	165	AVG	17.43

Table A2-2. 802.11a Antenna-2 Conducted Output Power Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Freq [MHz]	Channel	Detector	5GHz (20MHz) Conducted Power [dBm]		
			IEEE Transmission Mode		
			ANT1	ANT2	MIMO
5180	36	AVG	15.99	16.01	19.01
5200	40	AVG	17.09	17.33	20.22
5220	44	AVG	16.94	17.25	20.11
5240	48	AVG	17.05	17.32	20.20
5260	52	AVG	17.34	17.01	20.19
5280	56	AVG	17.31	17.11	20.22
5300	60	AVG	17.38	17.06	20.23
5320	64	AVG	17.15	17.05	20.11
5500	100	AVG	16.59	16.65	19.63
5560	112	AVG	17.33	17.45	20.40
5580	116	AVG	17.37	17.44	20.42
5600	120	AVG	17.09	17.41	20.26
5620	124	AVG	17.01	17.33	20.18
5640	128	AVG	17.04	17.39	20.23
5660	132	AVG	16.98	17.40	20.21
5700	140	AVG	17.06	17.41	20.25
5720	144	AVG	16.89	17.46	20.19
5745	149	AVG	17.16	17.49	20.34
5785	157	AVG	17.05	17.33	20.20
5825	165	AVG	17.12	17.43	20.29

Table A2-3. Dual Tx 802.11a-mode Conducted Output Power Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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A.3 Power Spectral Density

§15.247(e)

Test Overview

Using the “Measure and Sum” technique, the measured conducted power density values were summed in linear power units then converted back to dBm. Original measured values are found in Section 7.5 of this report.

	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	6.61	11.0	-4.39	Pass
	5200	40	a	6	6.41	11.0	-4.59	Pass
	5240	48	a	6	6.34	11.0	-4.66	Pass
Band 2A	5260	52	a	6	6.71	11.0	-4.29	Pass
	5280	56	a	6	6.90	11.0	-4.10	Pass
	5320	64	a	6	6.64	11.0	-4.37	Pass
Band 2C	5500	100	a	6	7.32	11.0	-3.68	Pass
	5600	120	a	6	7.13	11.0	-3.87	Pass
	5720	144	a	6	6.53	11.0	-4.47	Pass
Band 3	5745	149	a	6	4.21	30.0	-25.79	Pass
	5785	157	a	6	4.33	30.0	-25.67	Pass
	5825	165	a	6	4.10	30.0	-25.90	Pass

Table A3-1. 802.11a Antenna-1 Conducted Power 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	7.52	11.0	-3.48	Pass
	5200	40	a	6	7.65	11.0	-3.35	Pass
	5240	48	a	6	7.56	11.0	-3.44	Pass
Band 2A	5260	52	a	6	8.11	11.0	-2.89	Pass
	5280	56	a	6	7.84	11.0	-3.16	Pass
	5320	64	a	6	7.94	11.0	-3.06	Pass
Band 2C	5500	100	a	6	8.29	11.0	-2.71	Pass
	5600	120	a	6	8.20	11.0	-2.80	Pass
	5720	144	a	6	7.92	11.0	-3.08	Pass
Band 3	5745	149	a	6	5.54	30.0	-24.46	Pass
	5785	157	a	6	5.54	30.0	-24.46	Pass
	5825	165	a	6	5.35	30.0	-24.65	Pass

Table A3-2. 802.11a Antenna-1 Conducted Power Density Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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	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	a (20MHz)	6	6.61	7.52	10.10	11.0	-0.90	Pass
	5200	40	a (20MHz)	6	6.41	7.65	10.09	11.0	-0.91	Pass
	5240	48	a (20MHz)	6	6.34	7.56	10.00	11.0	-1.00	Pass
Band 2A	5260	52	a (20MHz)	6	6.71	8.11	10.48	11.0	-0.52	Pass
	5280	56	a (20MHz)	6	6.90	7.84	10.40	11.0	-0.60	Pass
	5320	64	a (20MHz)	6	6.64	7.94	10.35	11.0	-0.65	Pass
Band 2C	5500	100	a (20MHz)	6	7.32	8.29	10.84	11.0	-0.16	Pass
	5580	116	a (20MHz)	6	7.13	8.20	10.71	11.0	-0.29	Pass
	5600	120	a (20MHz)	6	6.53	7.92	10.29	11.0	-0.71	Pass
Band 3	5745	149	a (20MHz)	6	4.21	5.54	7.93	30.0	-22.07	Pass
	5785	157	a (20MHz)	6	4.33	5.54	7.99	30.0	-22.01	Pass
	5825	165	a (20MHz)	6	4.10	5.35	7.78	30.0	-22.22	Pass

Table A3-3.802.11a Dual Tx Conducted Power Density Measurements

FCC ID: A3LSMG9350		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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A.4 Dual Tx Radiated Restricted Band Edge Measurements

§15.205 §15.209

The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting on both outputs in 802.11a mode.

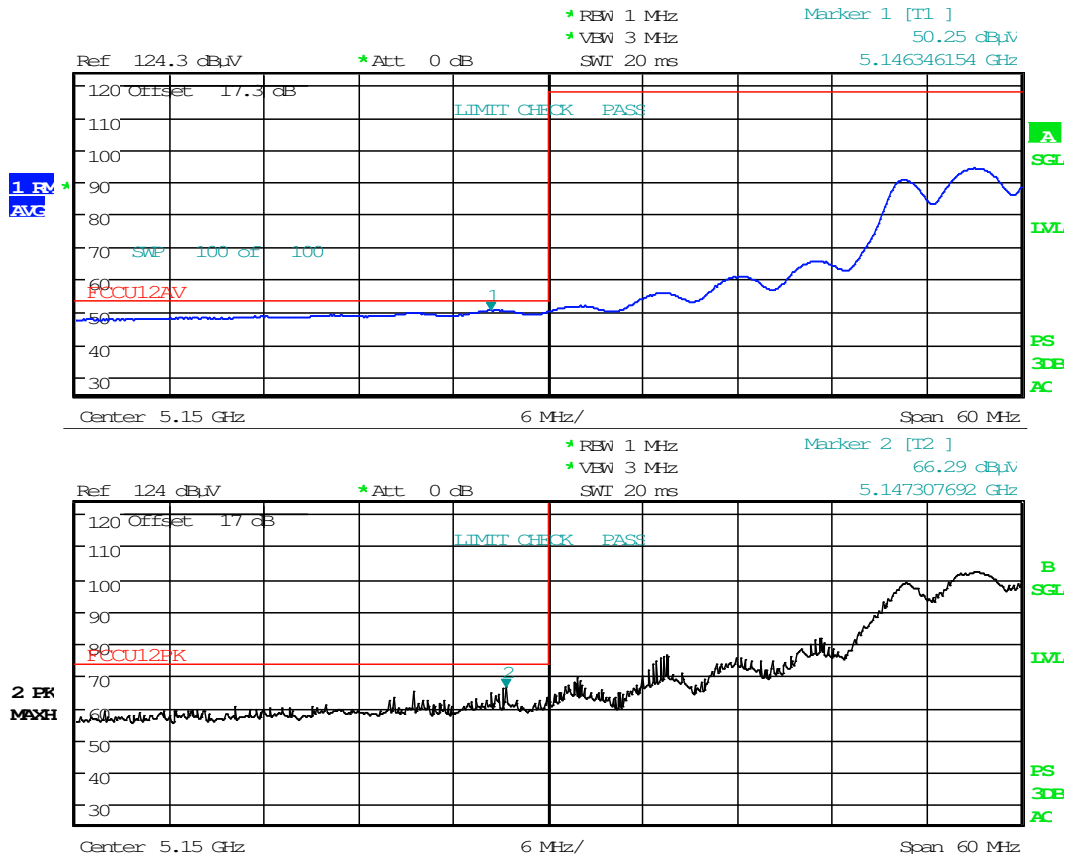
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 24.DEC.2015 07:11:57

Plot A.4-1. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 255 of 258

Dual Tx Radiated Restricted Band Edge Measurements

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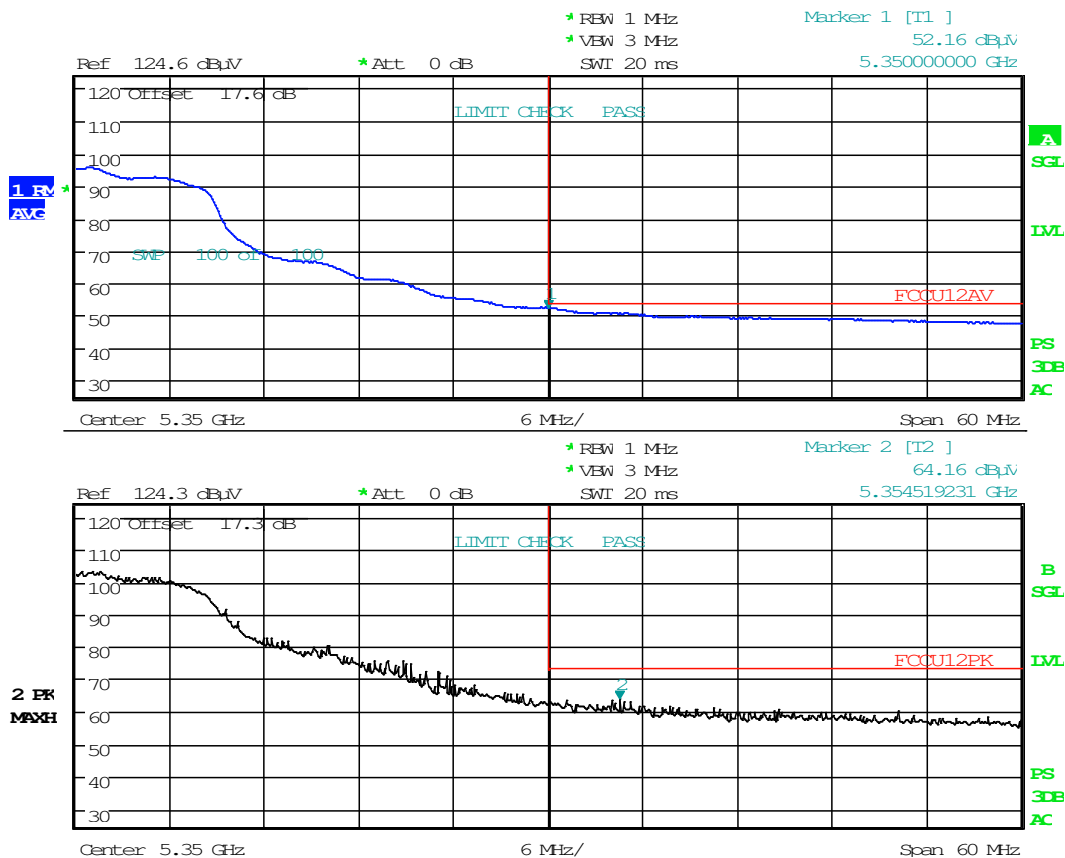
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 24.DEC.2015 07:20:11

Plot A.4-3. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMG9350	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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Dual Tx Radiated Restricted Band Edge Measurements

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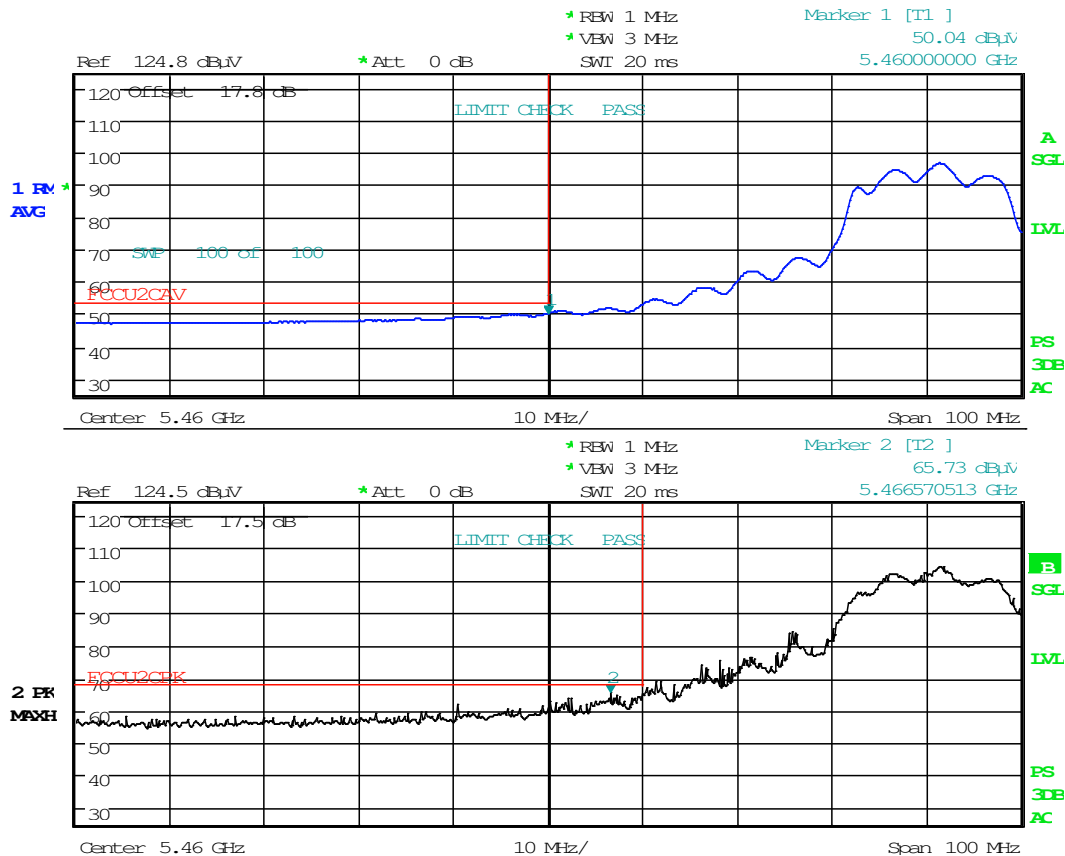
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



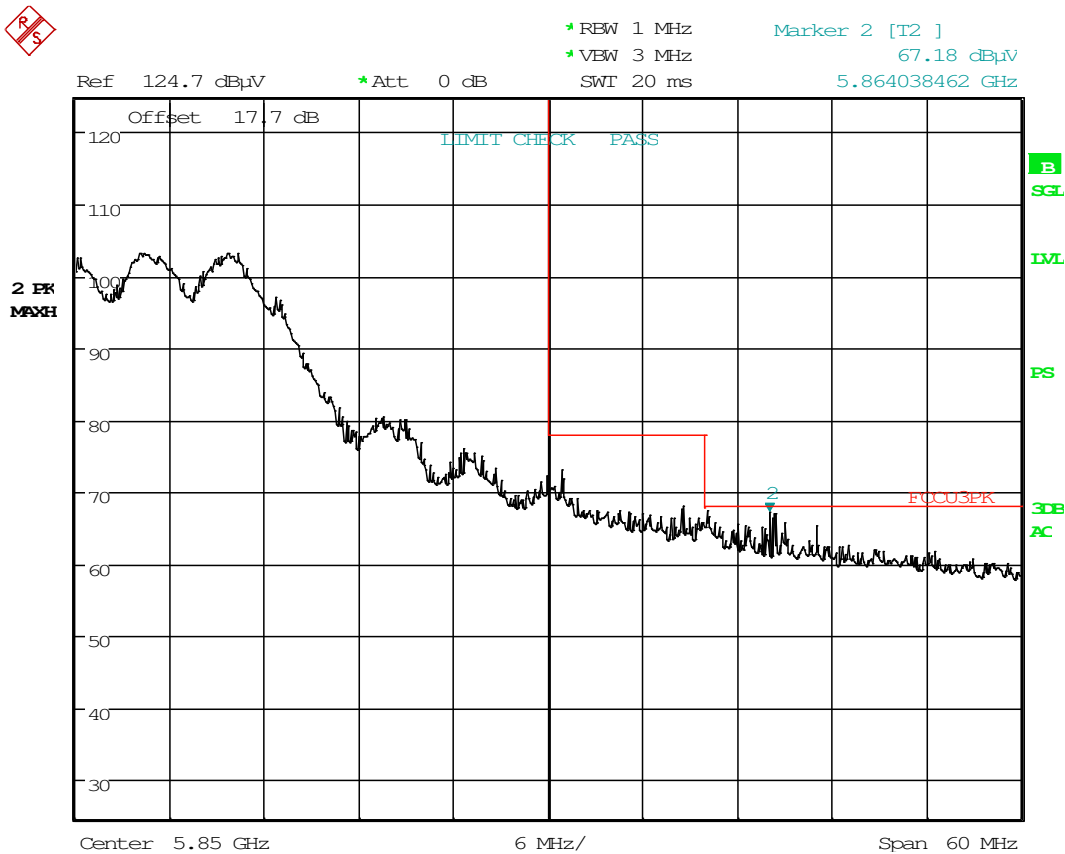
Date: 24.DEC.2015 07:35:47

Plot A.4-5. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMG9350	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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Dual Tx Radiated Restricted Band Edge Measurements §15.407(b.1)(b.2) §15.205 §15.209

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



Date: 31.DEC.2015 00:32:47

Plot A.4-9. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMG9350	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: 0Y1512242244.A3L	Test Dates: 12/3/2015 - 1/13/2016	EUT Type: Portable Handset		Page 258 of 258