

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)	5,179,999,737	-263	-0.00000508
100 %		- 30	5,180,000,192	192	0.00000371
100 %		- 20	5,180,000,046	46	0.00000089
100 %		- 10	5,179,999,828	-172	-0.00000332
100 %		0	5,179,999,733	-267	-0.00000515
100 %		+ 10	5,179,999,786	-214	-0.00000413
100 %		+ 20	5,179,999,781	-219	-0.00000423
100 %		+ 30	5,180,000,051	51	0.00000098
100 %		+ 40	5,180,000,299	299	0.00000577
100 %		+ 50	5,179,999,988	-12	-0.00000023
BATT. ENDPOINT	3.45	+ 20	5,179,999,877	-123	-0.00000237

Table 7-24. 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)	5,259,999,998	-2	-0.00000004
100 %		- 30	5,260,000,423	423	0.00000804
100 %		- 20	5,260,000,210	210	0.00000399
100 %		- 10	5,259,999,731	-269	-0.00000511
100 %		0	5,259,999,871	-129	-0.00000245
100 %		+ 10	5,260,000,095	95	0.00000181
100 %		+ 20	5,259,999,995	-5	-0.00000010
100 %		+ 30	5,260,000,068	68	0.00000129
100 %		+ 40	5,259,999,851	-149	-0.00000283
100 %		+ 50	5,259,999,986	-14	-0.00000027
BATT. ENDPOINT	3.45	+ 20	5,259,999,666	-334	-0.00000635

Table 7-25. 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)	5,500,000,253	253	0.00000460
100 %		- 30	5,500,000,011	11	0.00000020
100 %		- 20	5,499,999,792	-208	-0.00000378
100 %		- 10	5,500,000,025	25	0.00000045
100 %		0	5,499,999,892	-108	-0.00000196
100 %		+ 10	5,500,000,154	154	0.00000280
100 %		+ 20	5,500,000,373	373	0.00000678
100 %		+ 30	5,499,999,955	-45	-0.00000082
100 %		+ 40	5,499,999,981	-19	-0.00000035
100 %		+ 50	5,500,000,001	1	0.00000002
BATT. ENDPOINT	3.45	+ 20	5,499,999,816	-184	-0.00000335

Table 7-26. 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)	5,744,999,991	-9	-0.00000016
100 %		- 30	5,745,000,058	58	0.00000101
100 %		- 20	5,744,999,894	-106	-0.00000185
100 %		- 10	5,744,999,671	-329	-0.00000573
100 %		0	5,744,999,901	-99	-0.00000172
100 %		+ 10	5,745,000,100	100	0.00000174
100 %		+ 20	5,745,000,002	2	0.00000003
100 %		+ 30	5,745,000,067	67	0.00000117
100 %		+ 40	5,744,999,867	-133	-0.00000232
100 %		+ 50	5,745,000,047	47	0.00000082
BATT. ENDPOINT	3.45	+ 20	5,745,000,001	1	0.00000002

Table 7-27. 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) §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 v01r04, 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.

For transmitters operating in the 5.15-5.25 GHz and 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of –27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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 7-28 per Section 15.209.

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

Table 7-28. Radiated Limits

Test Procedures Used

KDB 789033 D02 v01r04 – 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

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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

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.

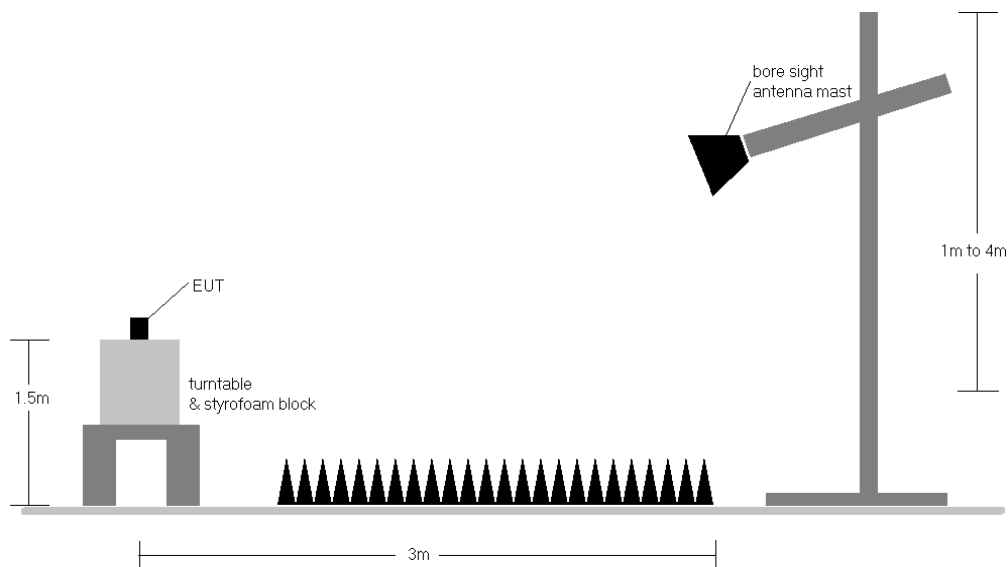


Figure 7-5. Test Instrument & Measurement Setup

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Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 D02 v01r04 Section G.
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 7-28.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-28. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.
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.

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Sample Calculations

Determining Spurious Emissions Levels

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

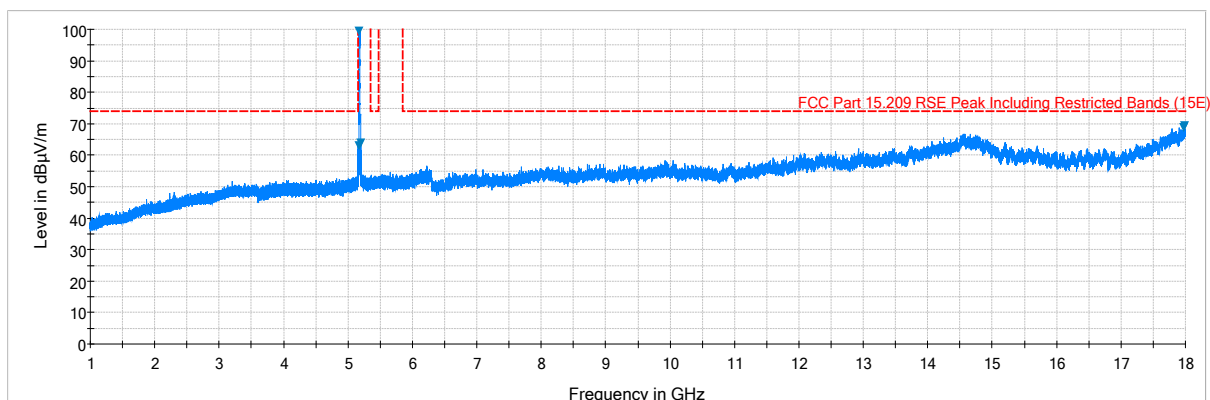
Radiated Band Edge Measurement Offset

- o The amplitude offset shown in the radiated restricted band edge plots in Section 7.7 was calculated using the formula:

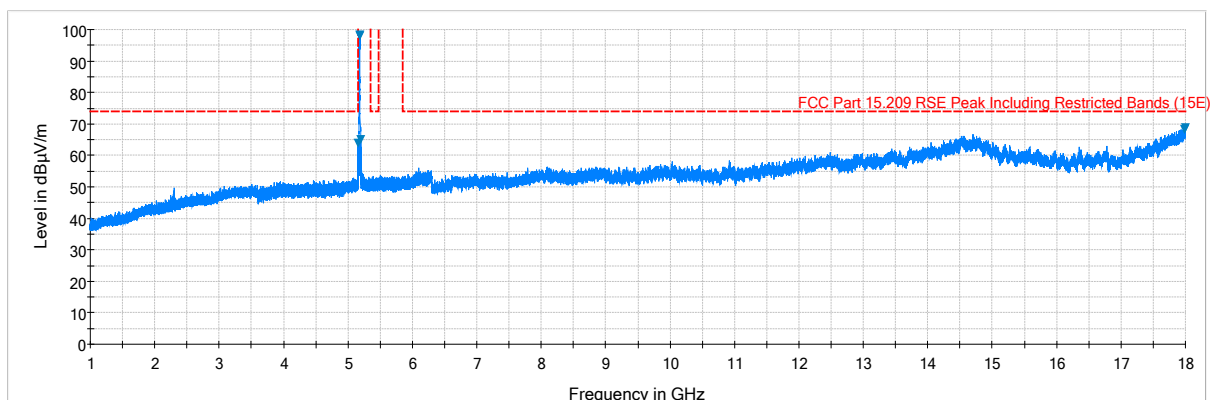
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

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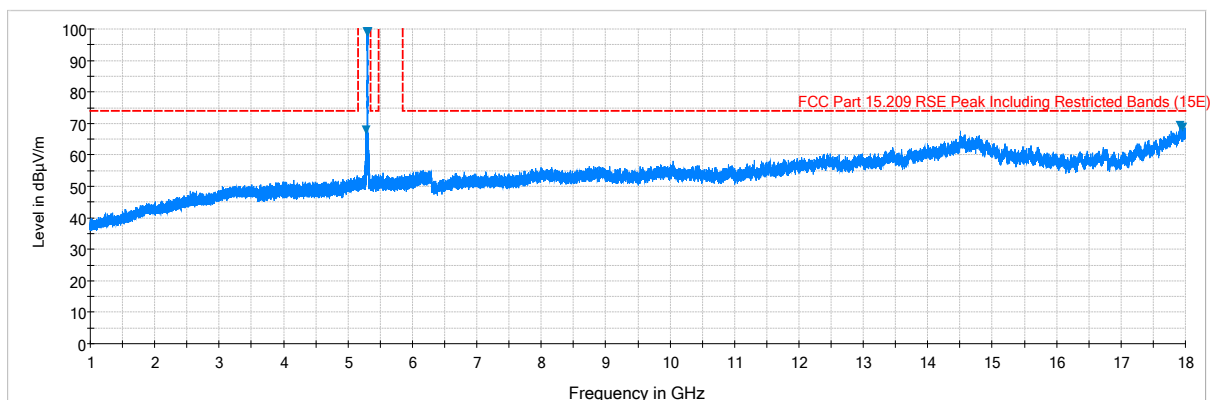
7.7.1 Antenna-1 Radiated Spurious Emission Measurements



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

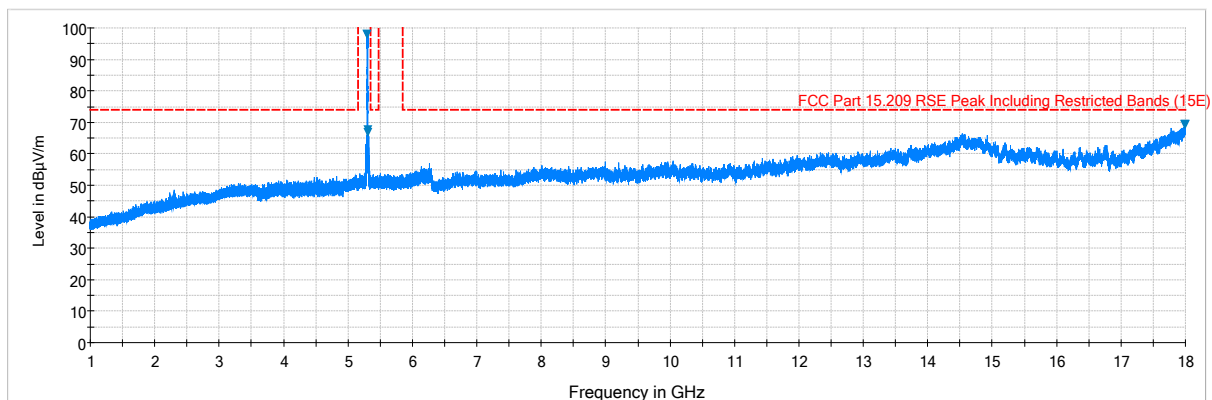


Plot 7-158. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

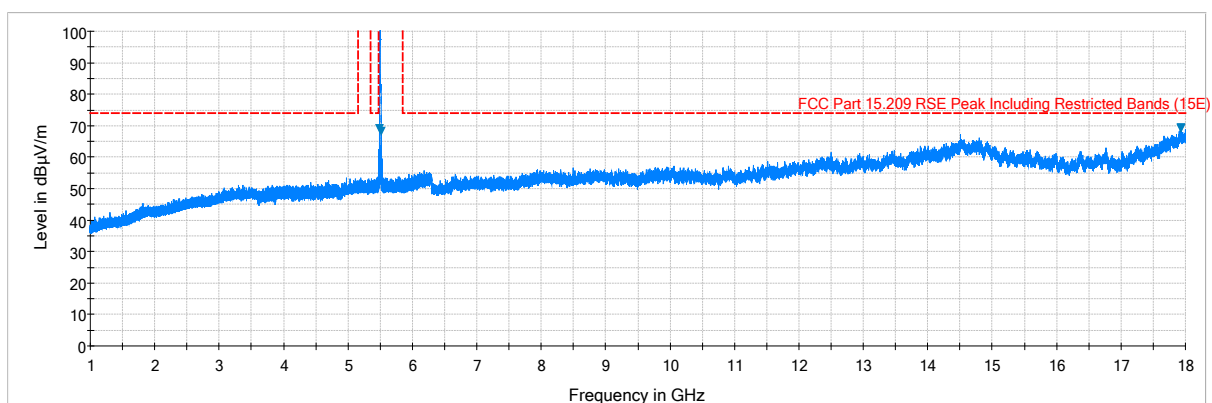


Plot 7-159. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

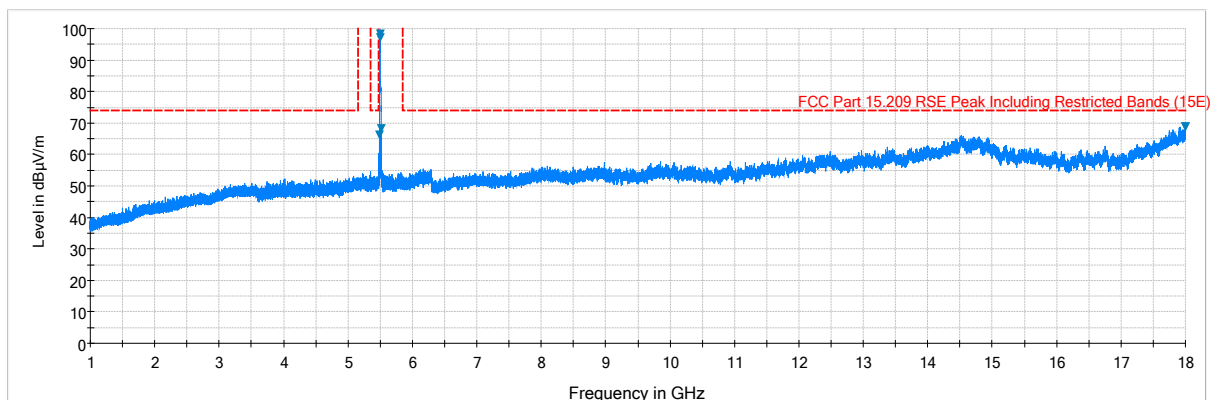
FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-160. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

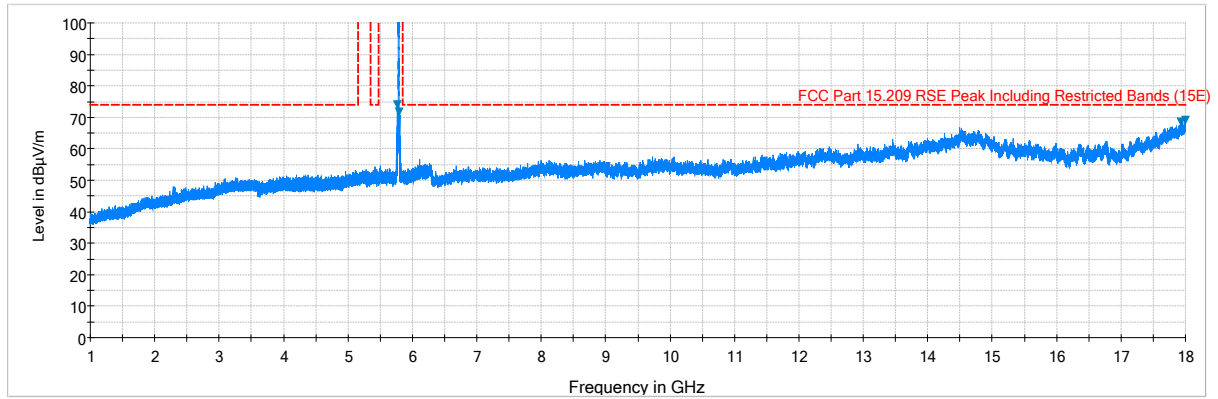


Plot 7-161. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 120, Ant. Pol. H)

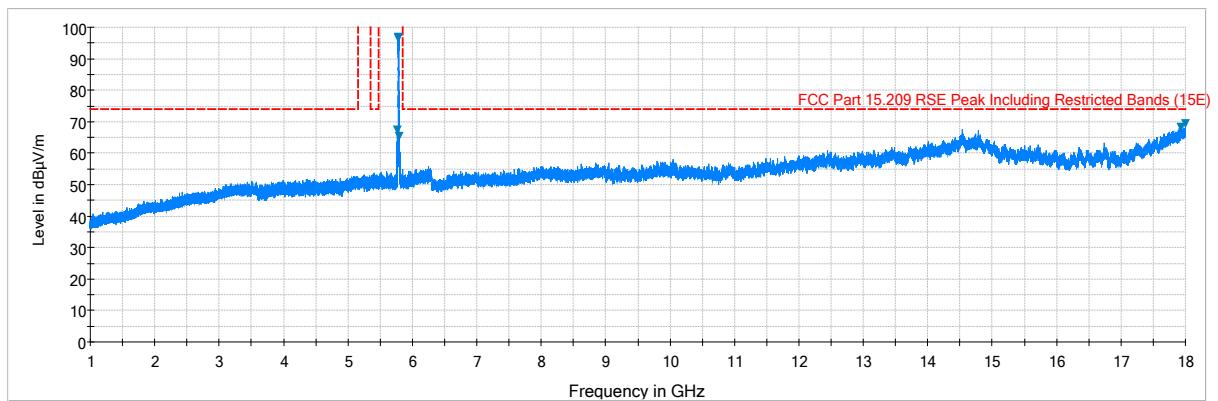


Plot 7-162. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 120, Ant. Pol. V)

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

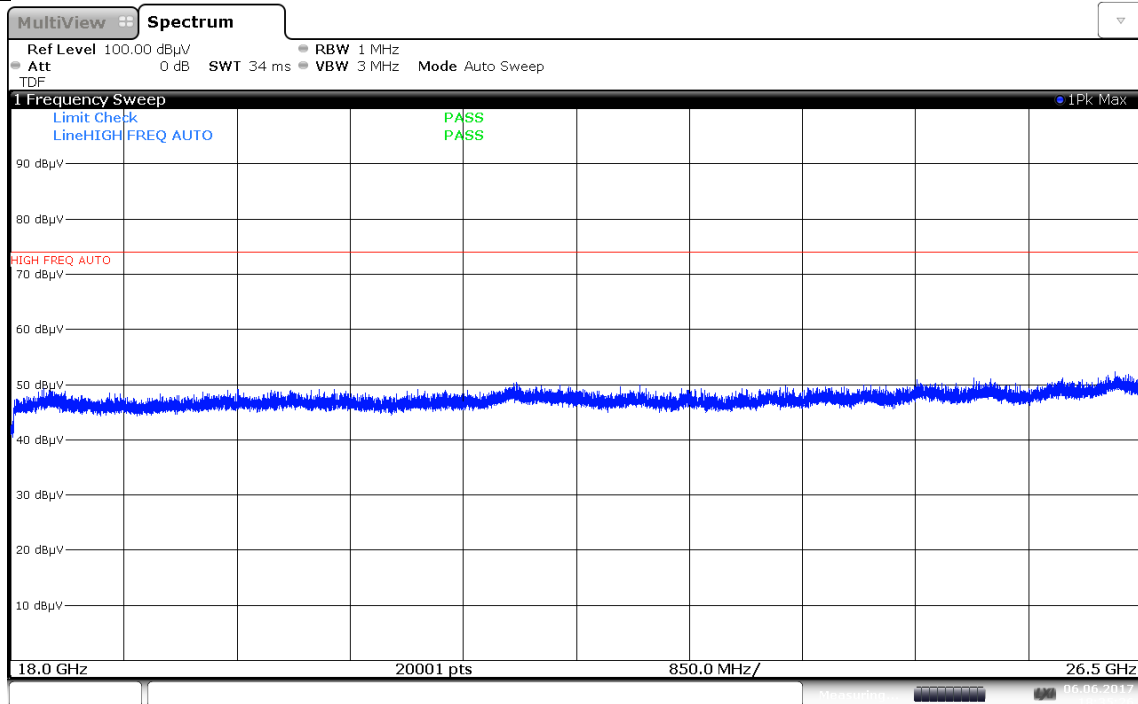


Plot 7-164. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

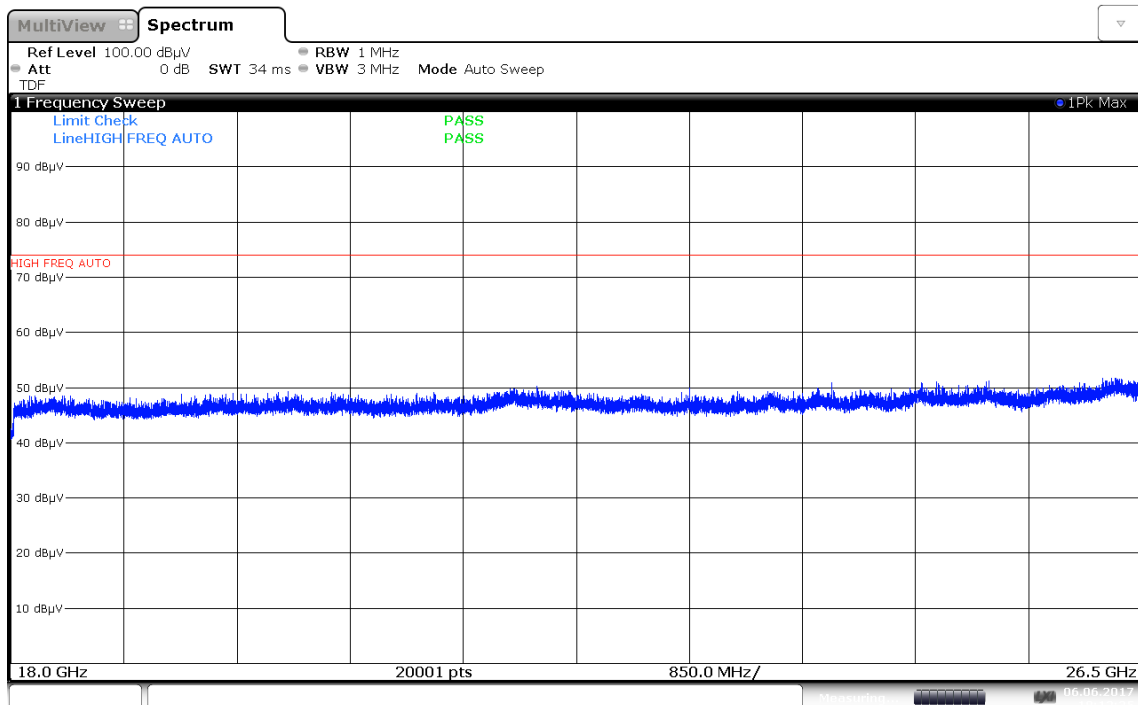
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Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)

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

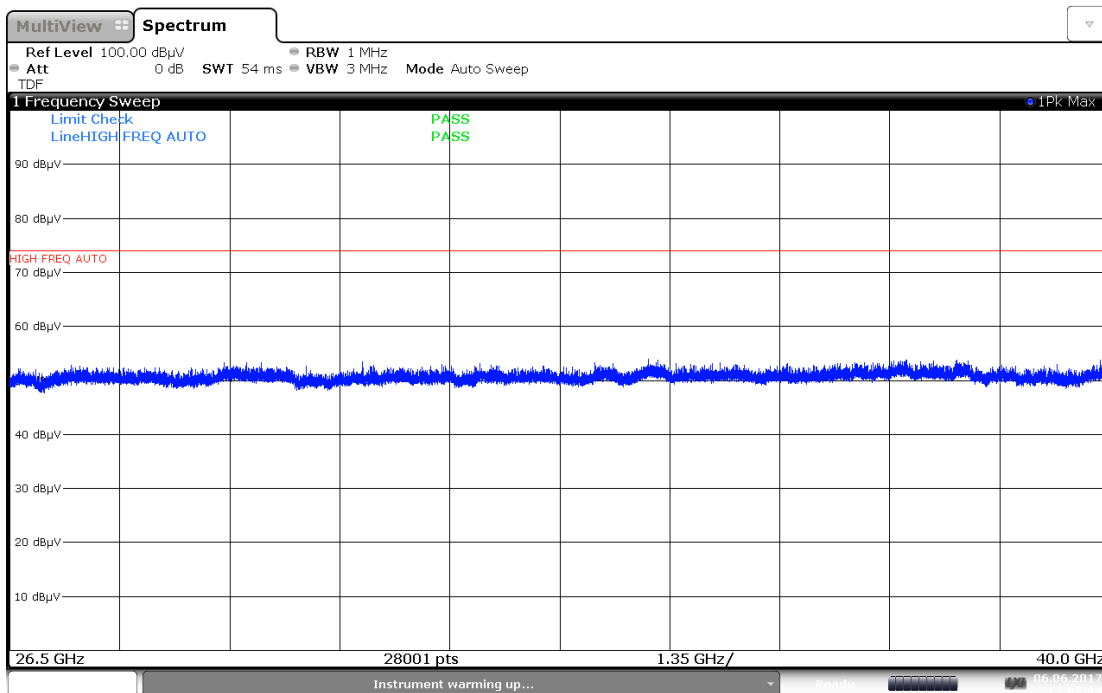


Plot 7-166. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a – Ant. Pol. V)

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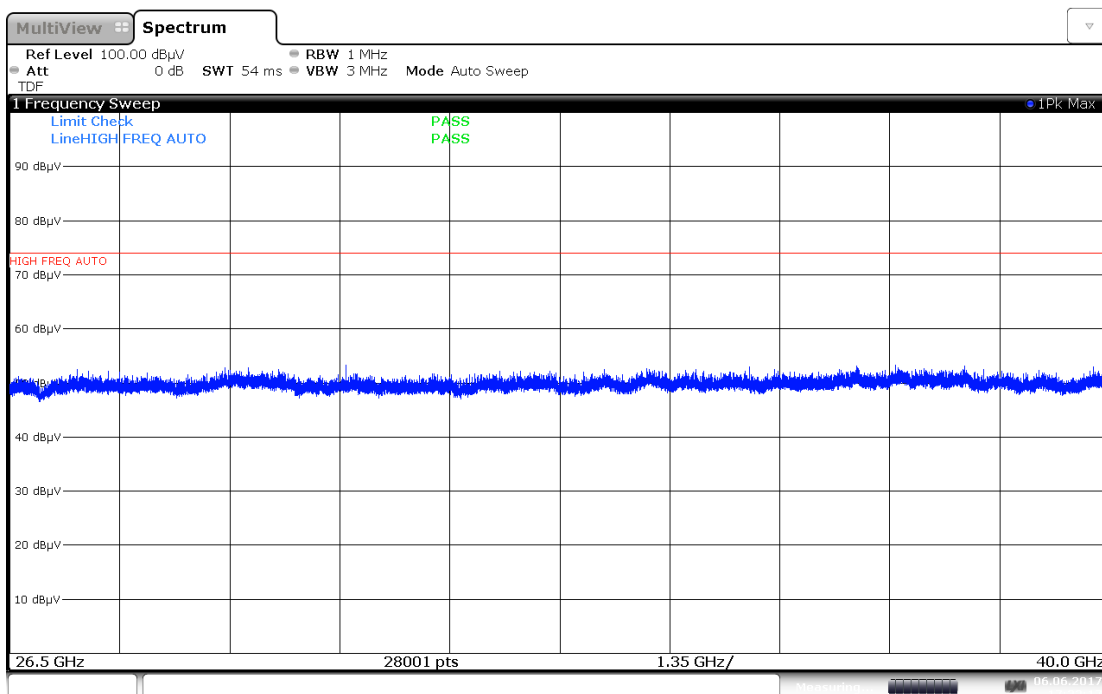
Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)

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17:05:45 06.06.2017

Plot 7-167. Radiated Spurious Plot 26.5GHz - 40GHz (802.11a – Ant. Pol. H)



17:32:18 06.06.2017

Plot 7-168. Radiated Spurious Plot above 26.5GHz - 40GHz (802.11a – Ant. Pol. V)

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Antenna-1 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	52	-63.26	11.80	-9.54	45.99	68.20	-22.21
* 15540.00	Average	H	-	-	-80.20	14.29	-9.54	31.55	53.98	-22.43
* 15540.00	Peak	H	-	-	-68.31	14.29	-9.54	43.44	73.98	-30.54
* 20720.00	Average	H	-	-	-77.75	7.94	-9.54	27.65	53.98	-26.33
* 20720.00	Peak	H	-	-	-66.80	7.94	-9.54	38.60	73.98	-35.38
25900.00	Peak	H	-	-	-64.38	8.46	-9.54	41.54	68.20	-26.66

Table 7-29. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	351	-65.79	11.74	-9.54	43.41	68.20	-24.79
* 15600.00	Average	H	-	-	-79.86	14.25	-9.54	31.85	53.98	-22.13
* 15600.00	Peak	H	-	-	-67.42	14.25	-9.54	44.29	73.98	-29.69
* 20800.00	Average	H	-	-	-76.58	7.95	-9.54	28.83	53.98	-25.15
* 20800.00	Peak	H	-	-	-65.35	7.95	-9.54	40.06	73.98	-33.92
26000.00	Peak	H	-	-	-64.52	8.60	-9.54	41.54	68.20	-26.66

Table 7-30. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	351	-65.26	11.61	-9.54	43.81	68.20	-24.39
* 15720.00	Average	H	-	-	-79.32	14.25	-9.54	32.39	53.98	-21.59
* 15720.00	Peak	H	-	-	-66.78	14.25	-9.54	44.93	73.98	-29.05
* 20960.00	Average	H	-	-	-74.65	7.91	-9.54	30.72	53.98	-23.26
* 20960.00	Peak	H	-	-	-65.31	7.91	-9.54	40.06	73.98	-33.92
26200.00	Peak	H	-	-	-64.23	8.62	-9.54	41.85	68.20	-26.35

Table 7-31. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	V	100	199	-69.82	11.80	-9.54	39.43	68.20	-28.77
* 15540.00	Average	V	-	-	-81.10	14.29	-9.54	30.65	53.98	-23.33
* 15540.00	Peak	V	-	-	-68.33	14.29	-9.54	43.42	73.98	-30.56
* 20720.00	Average	V	-	-	-75.25	7.94	-9.54	30.15	53.98	-23.83
* 20720.00	Peak	V	-	-	-64.75	7.94	-9.54	40.65	73.98	-33.33
25900.00	Peak	V	-	-	-64.21	8.46	-9.54	41.71	68.20	-26.49

Table 7-32. Radiated Measurements with WCP

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 122 of 254

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	49	-66.80	11.65	-9.54	42.31	68.20	-25.89
* 15780.00	Average	H	-	-	-79.48	14.46	-9.54	32.44	53.98	-21.54
* 15780.00	Peak	H	-	-	-66.86	14.46	-9.54	45.06	73.98	-28.92
* 21040.00	Average	H	-	-	-77.47	7.92	-9.54	27.91	53.98	-26.07
* 21040.00	Peak	H	-	-	-66.07	7.92	-9.54	39.31	73.98	-34.67
26300.00	Peak	H	-	-	-63.22	8.73	-9.54	42.97	68.20	-25.23

Table 7-33. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	57	-67.94	11.52	-9.54	41.03	68.20	-27.17
* 15840.00	Average	H	-	-	-79.40	14.94	-9.54	33.00	53.98	-20.98
* 15840.00	Peak	H	-	-	-68.22	14.94	-9.54	44.18	73.98	-29.80
* 21120.00	Average	H	-	-	-76.84	7.96	-9.54	28.58	53.98	-25.40
* 21120.00	Peak	H	-	-	-65.71	7.96	-9.54	39.71	73.98	-34.27
26400.00	Peak	H	-	-	-64.34	8.94	-9.54	42.06	68.20	-26.14

Table 7-34. Radiated Measurements

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 123 of 254

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	45	-79.32	11.51	-9.54	29.64	53.98	-24.34
* 10640.00	Peak	H	100	45	-67.43	11.51	-9.54	41.53	73.98	-32.45
* 15960.00	Average	H	100	73	-79.40	15.78	-9.54	33.83	53.98	-20.15
* 15960.00	Peak	H	100	73	-65.22	15.78	-9.54	48.01	73.98	-25.97
* 21280.00	Average	H	-	-	-76.53	8.04	-9.54	28.97	53.98	-25.01
* 21280.00	Peak	H	-	-	-65.79	8.04	-9.54	39.71	73.98	-34.27
26600.00	Peak	H	-	-	-46.51	-8.30	-9.54	42.64	68.20	-25.56

Table 7-35. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	V	100	204	-66.50	11.65	-9.54	42.61	68.20	-25.59
* 15780.00	Average	V	-	-	-79.64	14.46	-9.54	32.28	53.98	-21.70
* 15780.00	Peak	V	-	-	-67.21	14.46	-9.54	44.71	73.98	-29.27
* 21040.00	Average	V	-	-	-75.56	7.92	-9.54	29.82	53.98	-24.16
* 21040.00	Peak	V	-	-	-65.43	7.92	-9.54	39.95	73.98	-34.03
26300.00	Peak	V	-	-	-65.14	8.73	-9.54	41.05	68.20	-27.15

Table 7-36. Radiated Measurements with WCP

FCC ID: A3LSMN9500			FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset			Page 124 of 254

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	92	-75.21	11.87	-9.54	34.12	53.98	-19.86
* 11000.00	Peak	H	100	92	-62.75	11.87	-9.54	46.58	73.98	-27.40
16500.00	Peak	H	-	-	-67.60	16.91	-9.54	46.77	68.20	-21.43
22000.00	Peak	H	-	-	-64.55	8.43	-9.54	41.33	68.20	-26.87
27500.00	Peak	H	-	-	-45.71	-8.80	-9.54	42.95	68.20	-25.25

Table 7-37. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	91	-73.93	12.08	-9.54	35.61	53.98	-18.37
* 11200.00	Peak	H	100	91	-59.67	12.08	-9.54	49.87	73.98	-24.11
16800.00	Peak	H	100	64	-65.82	16.14	-9.54	47.78	68.20	-20.42
* 22400.00	Average	H	-	-	-77.47	8.11	-9.54	28.10	53.98	-25.88
* 22400.00	Peak	H	-	-	-65.79	8.11	-9.54	39.78	73.98	-34.20
28000.00	Peak	H	-	-	-46.11	-9.26	-9.54	42.09	68.20	-26.11

Table 7-38. Radiated Measurements

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 125 of 254

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	304	-74.35	11.75	-9.54	34.85	53.98	-19.13
* 11440.00	Peak	H	100	304	-61.31	11.75	-9.54	47.89	73.98	-26.09
17160.00	Peak	H	100	75	-62.64	16.91	-9.54	51.73	68.20	-16.47
* 22880.00	Average	H	-	-	-76.56	8.28	-9.54	29.18	53.98	-24.80
* 22880.00	Peak	H	-	-	-65.13	8.28	-9.54	40.61	73.98	-33.37
28600.00	Peak	H	-	-	-45.44	-9.08	-9.54	42.94	68.20	-25.26

Table 7-39. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.0	Average	H	100	50	-75.13	12.08	-9.54	34.41	53.98	-19.57
* 11200.0	Peak	H	100	50	-61.12	12.08	-9.54	48.42	73.98	-25.56
16800.0	Peak	H	-	-	-67.83	16.14	-9.54	45.77	68.20	-22.43
* 22400.0	Average	H	-	-	-75.25	8.11	-9.54	30.32	53.98	-23.66
* 22400.0	Peak	H	-	-	-64.35	8.11	-9.54	41.22	73.98	-32.76
28000.0	Peak	H	-	-	-44.38	-9.26	-9.54	43.82	68.20	-24.38

Table 7-40. Radiated Measurements with WCP

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 126 of 254

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	310	-75.63	11.54	-9.54	33.37	53.98	-20.61
* 11490.00	Peak	H	100	310	-63.10	11.54	-9.54	45.90	73.98	-28.08
17235.00	Peak	H	100	66	-66.19	16.79	-9.54	48.06	68.20	-20.14
* 22980.00	Average	H	-	-	-77.45	8.16	-9.54	28.17	53.98	-25.81
* 22980.00	Peak	H	-	-	-66.02	8.16	-9.54	39.60	73.98	-34.38
28725.00	Peak	H	-	-	-44.98	-9.24	-9.54	43.24	68.20	-24.96

Table 7-41. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	37	-77.70	11.89	-9.54	31.65	53.98	-22.33
* 11570.00	Peak	H	100	37	-65.50	11.89	-9.54	43.85	73.98	-30.13
17355.00	Peak	H	-	-	-66.72	16.28	-9.54	47.02	68.20	-21.18
23140.00	Peak	H	-	-	-65.25	8.37	-9.54	40.58	68.20	-27.62
28925.00	Peak	H	-	-	-45.77	-9.65	-9.54	42.04	68.20	-26.16

Table 7-42. Radiated Measurements

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 127 of 254

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	100	54	-79.27	12.63	-9.54	30.82	53.98	-23.16
* 11650.00	Peak	H	100	54	-64.72	12.63	-9.54	45.37	73.98	-28.61
17475.00	Peak	H	-	-	-65.78	16.17	-9.54	47.85	68.20	-20.35
23300.00	Peak	H	-	-	-64.87	8.50	-9.54	41.08	68.20	-27.12
29125.00	Peak	H	-	-	-44.97	-9.87	-9.54	42.62	68.20	-25.58

Table 7-43. Radiated Measurements

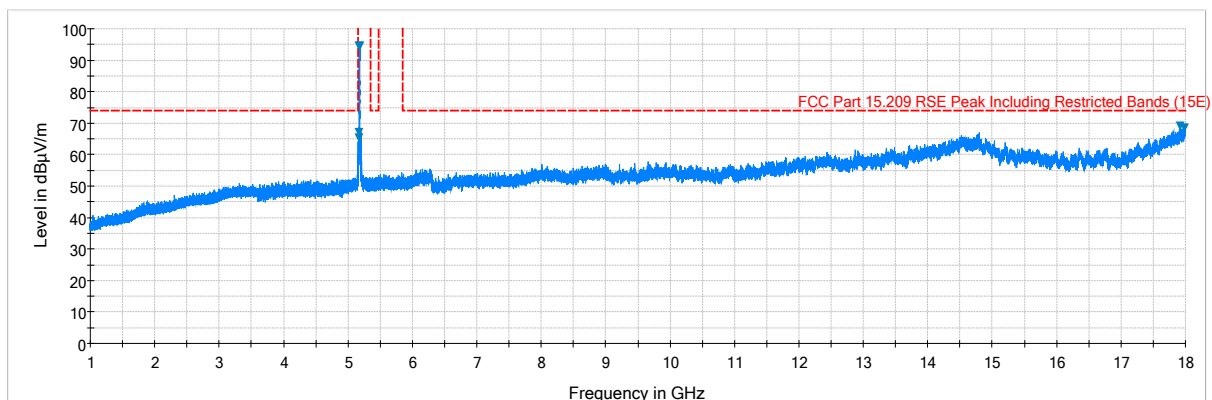
Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	V	100	33	-77.70	11.54	-9.54	31.30	53.98	-22.68
* 11490.00	Peak	V	100	33	-63.96	11.54	-9.54	45.04	73.98	-28.94
17235.00	Peak	V	-	-	-67.33	16.79	-9.54	46.92	68.20	-21.28
* 22980.00	Average	V	-	-	-76.26	8.16	-9.54	29.36	53.98	-24.62
* 22980.00	Peak	V	-	-	-65.79	8.16	-9.54	39.83	73.98	-34.15
28725.00	Peak	V	-	-	-45.28	-9.24	-9.54	42.94	68.20	-25.26

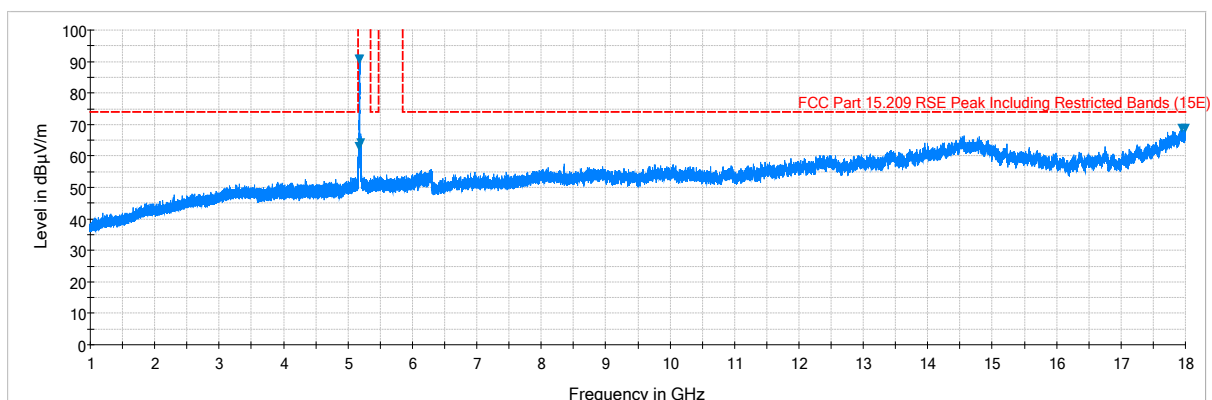
Table 7-44. Radiated Measurements with WCP

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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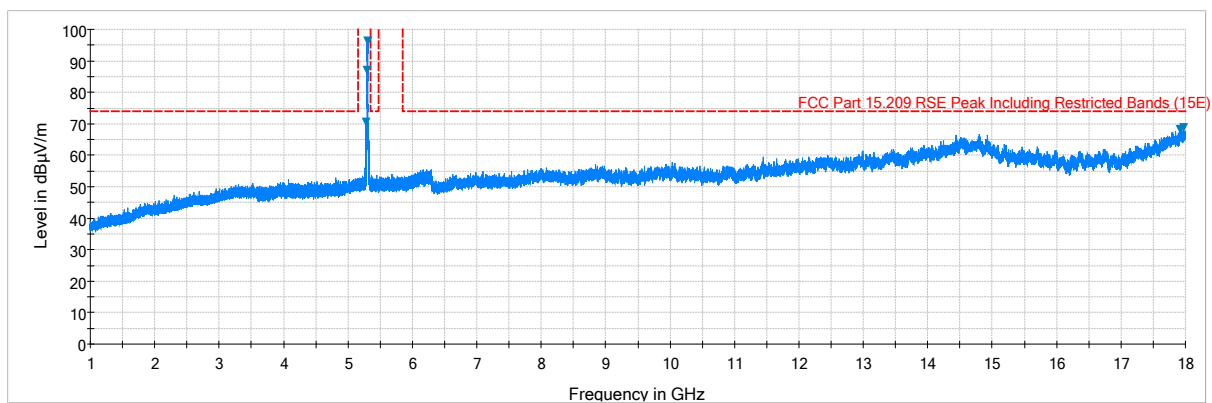
7.7.2 Antenna-2 Radiated Spurious Emission Measurements



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

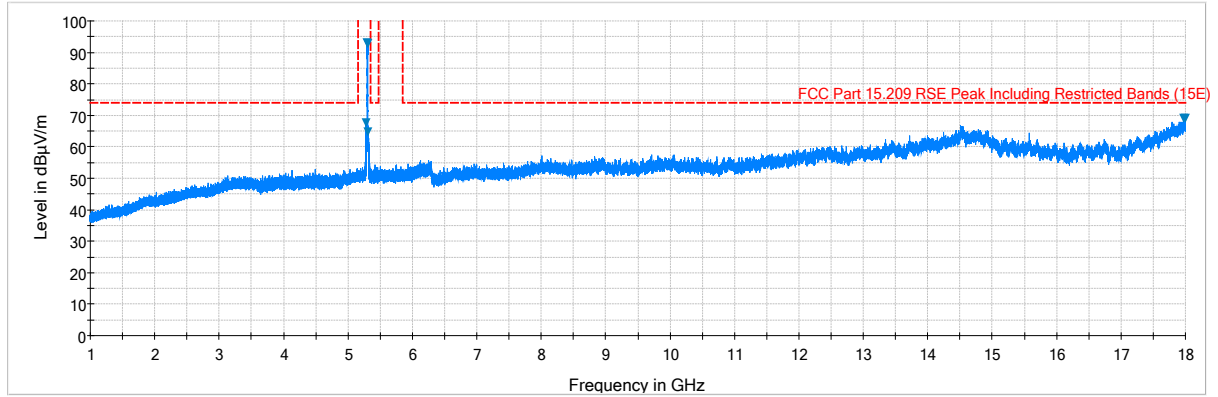


Plot 7-170. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

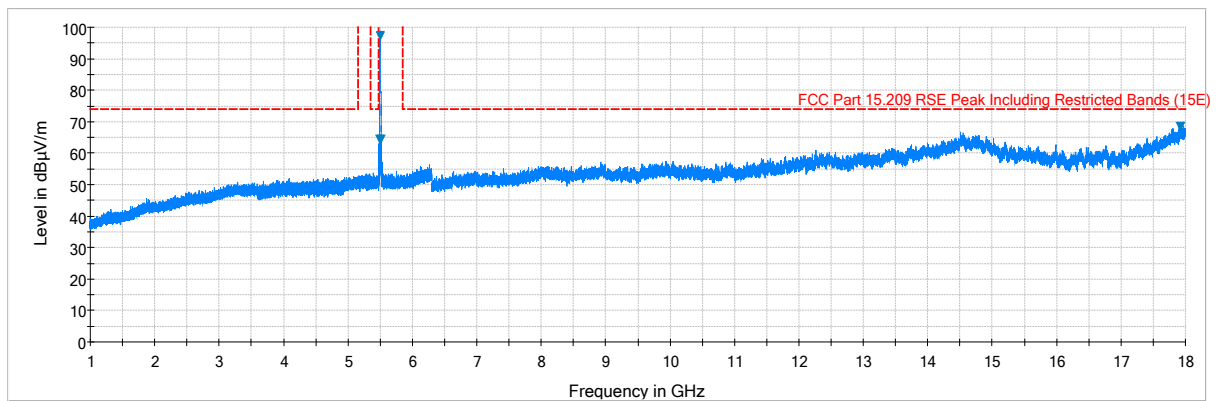


Plot 7-171. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

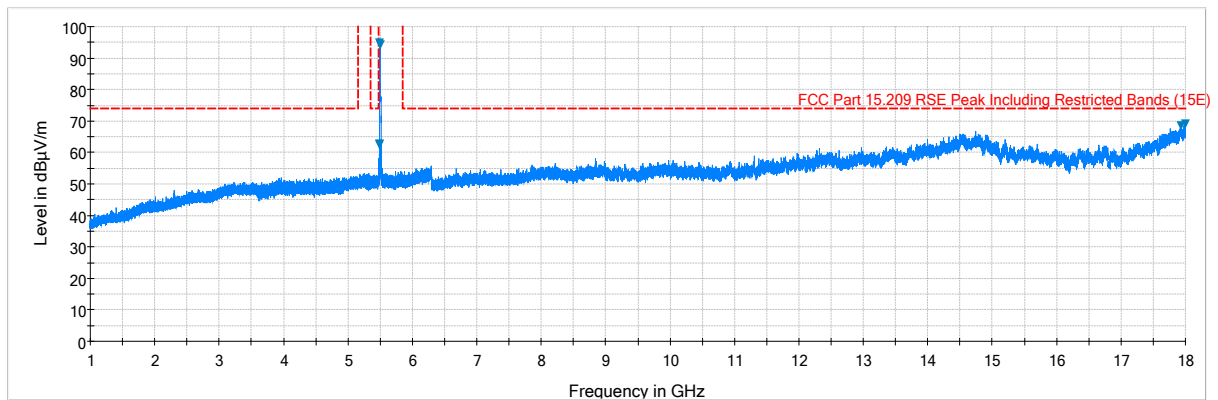
FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 129 of 254



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

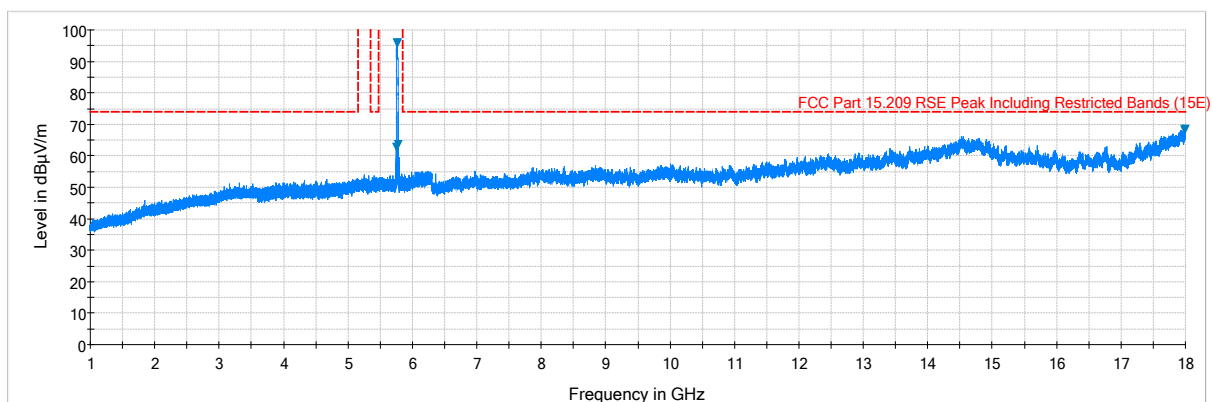


Plot 7-173. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 120, Ant. Pol. H)

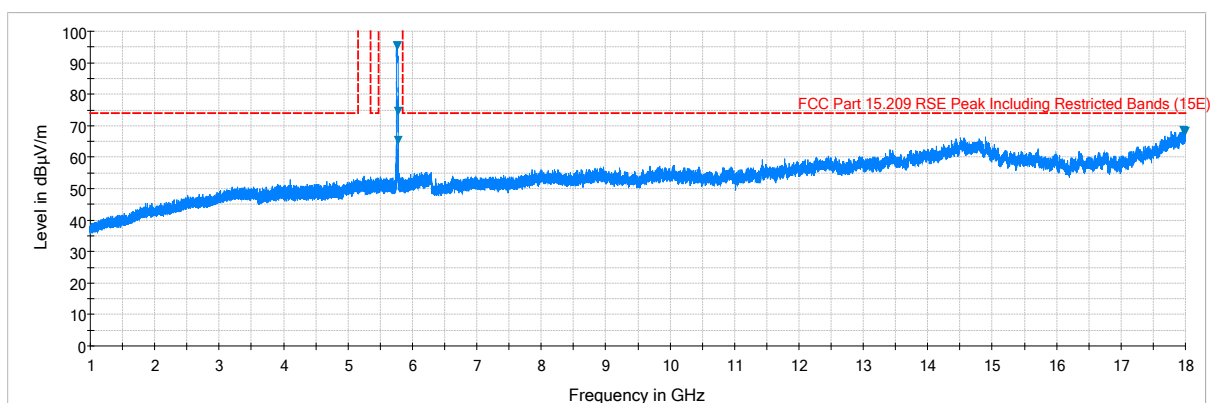


Plot 7-174. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 120, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-175. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

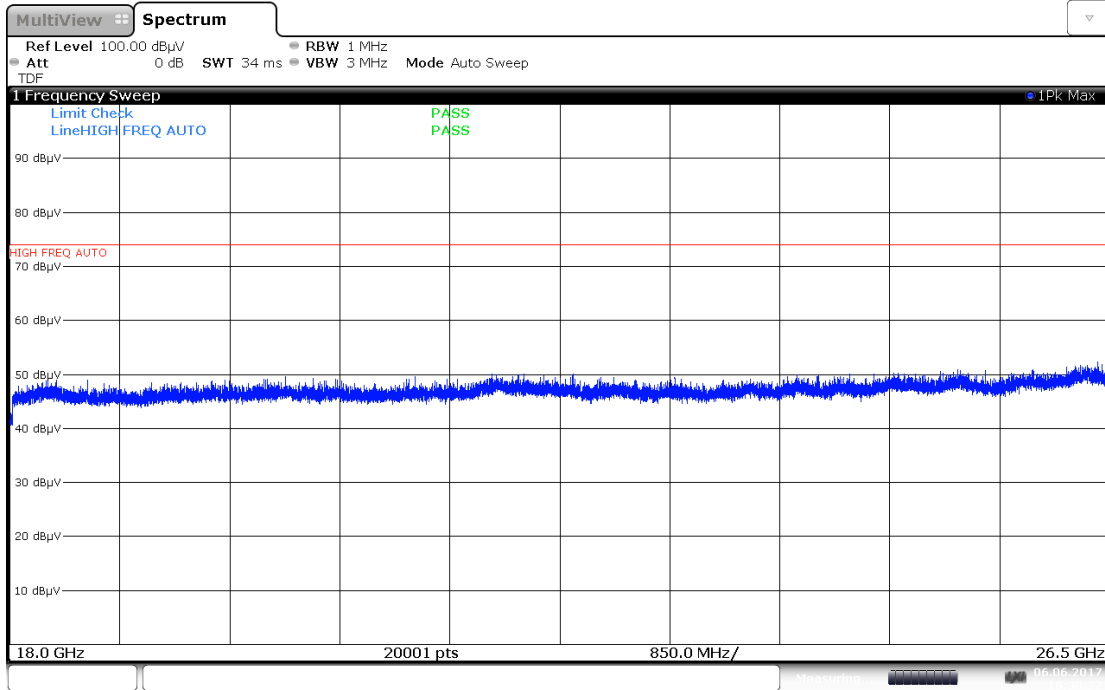


Plot 7-176. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

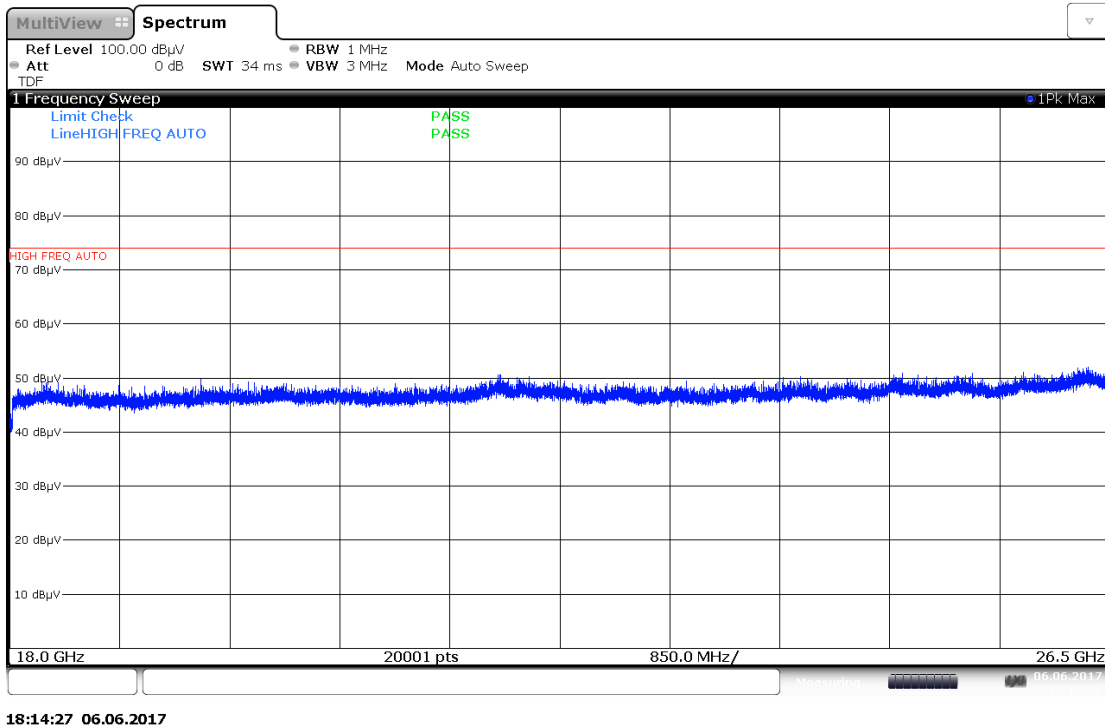
FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 131 of 254

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

\$15.209



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



Plot 7-178. Radiated Spurious Plot above 18GHz - 26.5GHz (802.11a – Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 132 of 254

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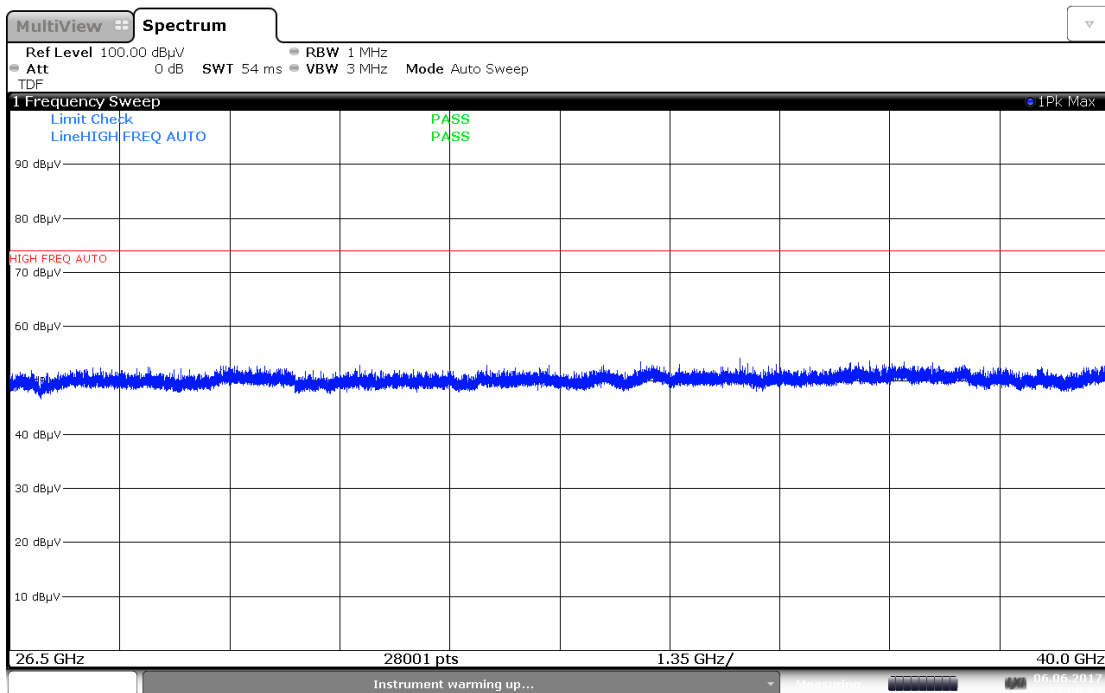
V 6.6

06/06/2017

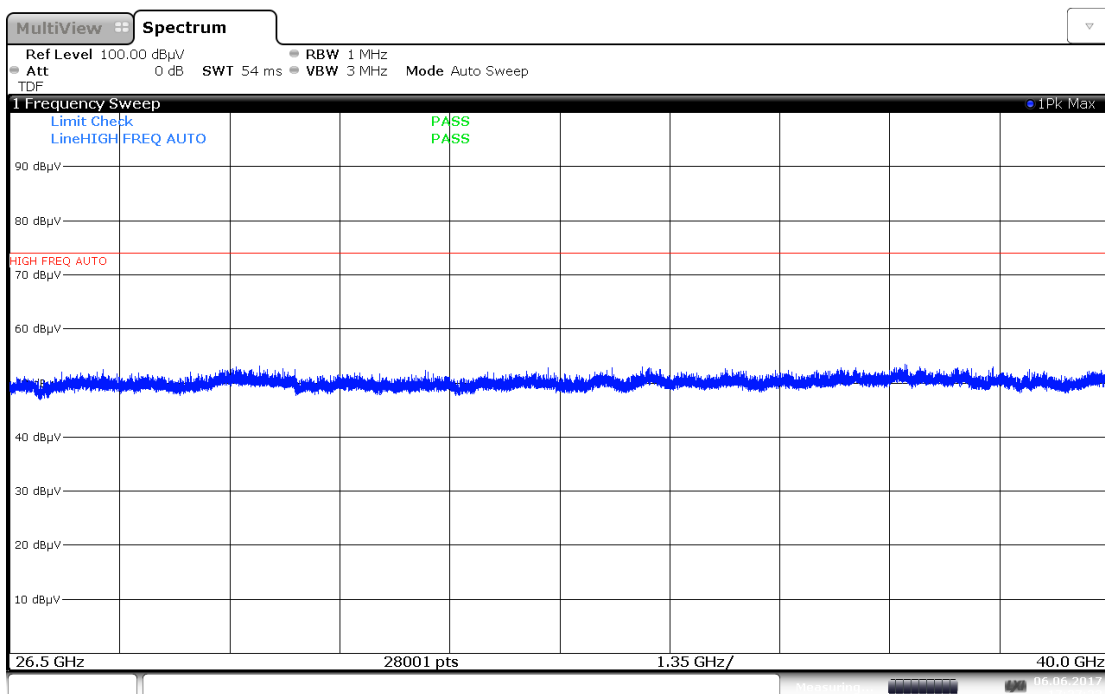
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Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)

S15.209



Plot 7-179. Radiated Spurious Plot 26.5GHz - 40GHz (802.11a – Ant. Pol. H)



Plot 7-180. Radiated Spurious Plot above 26.5GHz - 40GHz (802.11a – Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 133 of 254

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 Meter
Operating Frequency: 5180MHz
Channel: 36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-68.81	11.80	-9.54	40.44	68.20	-27.76
* 15540.00	Average	H	-	-	-80.40	14.29	-9.54	31.35	53.98	-22.63
* 15540.00	Peak	H	-	-	-68.46	14.29	-9.54	43.29	73.98	-30.69
* 20720.00	Average	H	-	-	-77.56	7.94	-9.54	27.84	53.98	-26.14
* 20720.00	Peak	H	-	-	-68.01	7.94	-9.54	37.39	73.98	-36.59
25900.00	Peak	H	-	-	-63.48	8.46	-9.54	42.44	68.20	-25.76

Table 7-45. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-69.02	11.74	-9.54	40.18	68.20	-28.02
* 15600.00	Average	H	-	-	-80.38	14.25	-9.54	31.33	53.98	-22.65
* 15600.00	Peak	H	-	-	-67.98	14.25	-9.54	43.73	73.98	-30.25
* 20800.00	Average	H	-	-	-77.53	7.95	-9.54	27.88	53.98	-26.10
* 20800.00	Peak	H	-	-	-65.60	7.95	-9.54	39.81	73.98	-34.17
26000.00	Peak	H	-	-	-64.30	8.60	-9.54	41.76	68.20	-26.44

Table 7-46. Radiated Measurements

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-68.89	11.61	-9.54	40.18	68.20	-28.02
* 15720.00	Average	H	-	-	-79.91	14.25	-9.54	31.80	53.98	-22.18
* 15720.00	Peak	H	-	-	-67.67	14.25	-9.54	44.04	73.98	-29.94
* 20960.00	Average	H	-	-	-77.58	7.91	-9.54	27.79	53.98	-26.19
* 20960.00	Peak	H	-	-	-66.20	7.91	-9.54	39.17	73.98	-34.81
26200.00	Peak	H	-	-	-63.04	8.62	-9.54	43.04	68.20	-25.16

Table 7-47. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-67.51	11.80	-9.54	41.74	68.20	-26.46
* 15540.00	Average	H	-	-	-79.53	14.29	-9.54	32.22	53.98	-21.76
* 15540.00	Peak	H	-	-	-67.24	14.29	-9.54	44.51	73.98	-29.47
* 20720.00	Average	H	-	-	-76.84	7.94	-9.54	28.56	53.98	-25.42
* 20720.00	Peak	H	-	-	-67.34	7.94	-9.54	38.06	73.98	-35.92
25900.00	Peak	H	-	-	-61.64	8.46	-9.54	44.28	68.20	-23.92

Table 7-48. Radiated Measurements with WCP

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-68.64	11.65	-9.54	40.47	68.20	-27.73
* 15780.00	Average	H	-	-	-79.50	14.46	-9.54	32.42	53.98	-21.56
* 15780.00	Peak	H	-	-	-67.50	14.46	-9.54	44.42	73.98	-29.56
* 21040.00	Average	H	-	-	-77.30	7.92	-9.54	28.08	53.98	-25.90
* 21040.00	Peak	H	-	-	-65.99	7.92	-9.54	39.39	73.98	-34.59
26300.00	Peak	H	-	-	-63.22	8.73	-9.54	42.97	68.20	-25.23

Table 7-49. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-68.55	11.52	-9.54	40.42	68.20	-27.78
* 15840.00	Average	H	-	-	-79.72	14.94	-9.54	32.68	53.98	-21.30
* 15840.00	Peak	H	-	-	-67.70	14.94	-9.54	44.70	73.98	-29.28
* 21120.00	Average	H	-	-	-77.30	7.96	-9.54	28.12	53.98	-25.86
* 21120.00	Peak	H	-	-	-65.94	7.96	-9.54	39.48	73.98	-34.50
26400.00	Peak	H	-	-	-63.62	8.94	-9.54	42.78	68.20	-25.42

Table 7-50. Radiated Measurements

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 136 of 254

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-80.75	11.51	-9.54	28.21	53.98	-25.77
* 10640.00	Peak	H	-	-	-68.36	11.51	-9.54	40.60	73.98	-33.38
* 15960.00	Average	H	-	-	-80.07	15.78	-9.54	33.16	53.98	-20.82
* 15960.00	Peak	H	-	-	-68.33	15.78	-9.54	44.90	73.98	-29.08
* 21280.00	Average	H	-	-	-77.15	8.04	-9.54	28.35	53.98	-25.63
* 21280.00	Peak	H	-	-	-65.09	8.04	-9.54	40.41	73.98	-33.57
26600.00	Peak	H	-	-	-46.34	-8.30	-9.54	42.81	68.20	-25.39

Table 7-51. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-67.16	11.65	-9.54	41.95	68.20	-26.25
* 15780.00	Average	H	-	-	-79.24	14.46	-9.54	32.68	53.98	-21.30
* 15780.00	Peak	H	-	-	-68.16	14.46	-9.54	43.76	73.98	-30.22
* 21040.00	Average	H	-	-	-76.26	7.92	-9.54	29.12	53.98	-24.86
* 21040.00	Peak	H	-	-	-64.46	7.92	-9.54	40.92	73.98	-33.06
26300.00	Peak	H	-	-	-65.34	8.73	-9.54	40.85	68.20	-27.35

Table 7-52. Radiated Measurements with WCP

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 137 of 254

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-80.77	11.87	-9.54	28.56	53.98	-25.42
* 11000.00	Peak	H	-	-	-69.33	11.87	-9.54	40.00	73.98	-33.98
16500.00	Peak	H	-	-	-68.18	16.91	-9.54	46.19	68.20	-22.01
22000.00	Peak	H	-	-	-64.55	8.43	-9.54	41.33	68.20	-26.87
27500.00	Peak	H	-	-	-47.70	-8.80	-9.54	40.96	68.20	-27.24

Table 7-53. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-80.28	12.08	-9.54	29.26	53.98	-24.72
* 11200.00	Peak	H	-	-	-68.82	12.08	-9.54	40.72	73.98	-33.26
16800.00	Peak	H	-	-	-67.71	16.14	-9.54	45.89	68.20	-22.31
* 22400.00	Average	H	-	-	-77.50	8.11	-9.54	28.07	53.98	-25.91
* 22400.00	Peak	H	-	-	-66.29	8.11	-9.54	39.28	73.98	-34.70
28000.00	Peak	H	-	-	-46.24	-9.26	-9.54	41.96	68.20	-26.24

Table 7-54. Radiated Measurements

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 138 of 254

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-80.51	11.75	-9.54	28.69	53.98	-25.29
*	11440.00	Peak	H	-	-	-68.65	11.75	-9.54	40.55	73.98	-33.43
	17160.00	Peak	H	-	-	-67.73	16.91	-9.54	46.64	68.20	-21.56
*	22880.00	Average	H	-	-	-66.12	8.28	-9.54	39.62	53.98	-14.36
*	22880.00	Peak	H	-	-	-77.69	8.28	-9.54	28.05	73.98	-45.93
	28600.00	Peak	H	-	-	-46.98	-9.08	-9.54	41.40	68.20	-26.80

Table 7-55. Radiated Measurements

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-80.77	11.87	-9.54	28.56	53.98	-25.42
*	11000.00	Peak	H	-	-	-69.33	11.87	-9.54	40.00	73.98	-33.98
	16500.00	Peak	H	-	-	-68.18	16.91	-9.54	46.19	68.20	-22.01
	22000.00	Peak	H	-	-	-65.12	8.43	-9.54	40.76	68.20	-27.44
	27500.00	Peak	H	-	-	-46.73	-8.80	-9.54	41.93	68.20	-26.27

Table 7-56. Radiated Measurements with WCP

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-80.32	11.54	-9.54	28.68	53.98	-25.30
* 11490.00	Peak	H	-	-	-68.09	11.54	-9.54	40.91	73.98	-33.07
17235.00	Peak	H	-	-	-68.77	16.79	-9.54	45.48	68.20	-22.72
* 22980.00	Average	H	-	-	-78.54	8.16	-9.54	27.08	53.98	-26.90
* 22980.00	Peak	H	-	-	-65.15	8.16	-9.54	40.47	73.98	-33.51
28725.00	Peak	H	-	-	-42.21	-9.24	-9.54	46.01	68.20	-22.19

Table 7-57. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-80.34	11.89	-9.54	29.01	53.98	-24.97
* 11570.00	Peak	H	-	-	-68.38	11.89	-9.54	40.97	73.98	-33.01
17355.00	Peak	H	-	-	-67.28	16.28	-9.54	46.46	68.20	-21.74
23140.00	Peak	H	-	-	-64.98	8.37	-9.54	40.85	68.20	-27.35
28925.00	Peak	H	-	-	-44.64	-9.65	-9.54	43.17	68.20	-25.03

Table 7-58. Radiated Measurements

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 Meter
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-80.60	12.63	-9.54	29.49	53.98	-24.49
* 11650.00	Peak	H	-	-	-68.90	12.63	-9.54	41.19	73.98	-32.79
17475.00	Peak	H	-	-	-67.29	16.17	-9.54	46.34	68.20	-21.86
23300.00	Peak	H	-	-	-65.47	8.50	-9.54	40.48	68.20	-27.72
29125.00	Peak	H	-	-	-45.26	-9.87	-9.54	42.33	68.20	-25.87

Table 7-59. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	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	-	-	-79.23	11.54	-9.54	29.77	53.98	-24.21
* 11490.00	Peak	H	-	-	-69.04	11.54	-9.54	39.96	73.98	-34.02
17235.00	Peak	H	-	-	-67.15	16.79	-9.54	47.10	68.20	-21.10
* 22980.00	Average	H	-	-	-74.45	8.16	-9.54	31.17	53.98	-22.81
* 22980.00	Peak	H	-	-	-64.54	8.16	-9.54	41.08	73.98	-32.90
28725.00	Peak	H	-	-	-46.51	-9.24	-9.54	41.71	68.20	-26.49

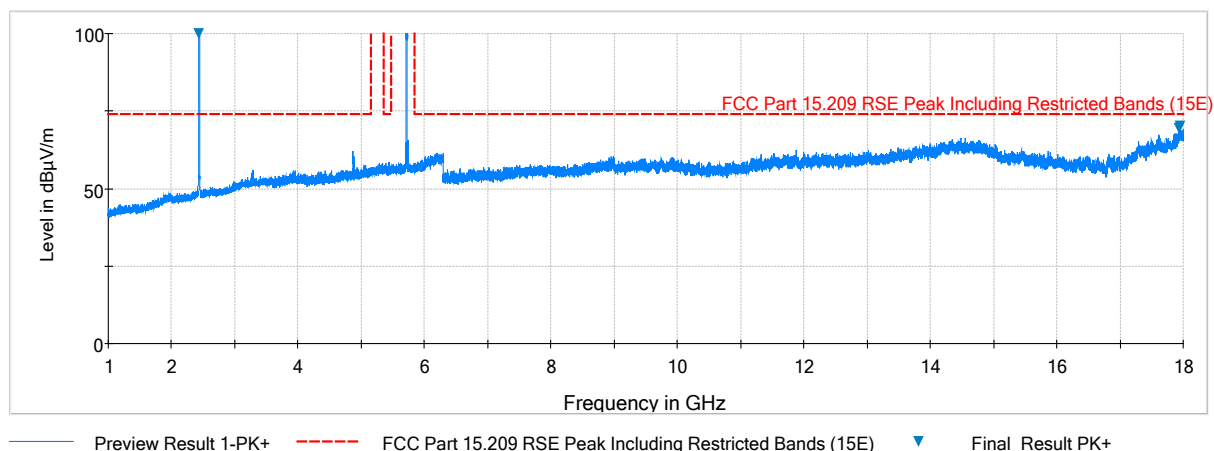
Table 7-60. Radiated Measurements with WCP

7.7.3 Simultaneous Tx Radiated Spurious Emissions Measurements

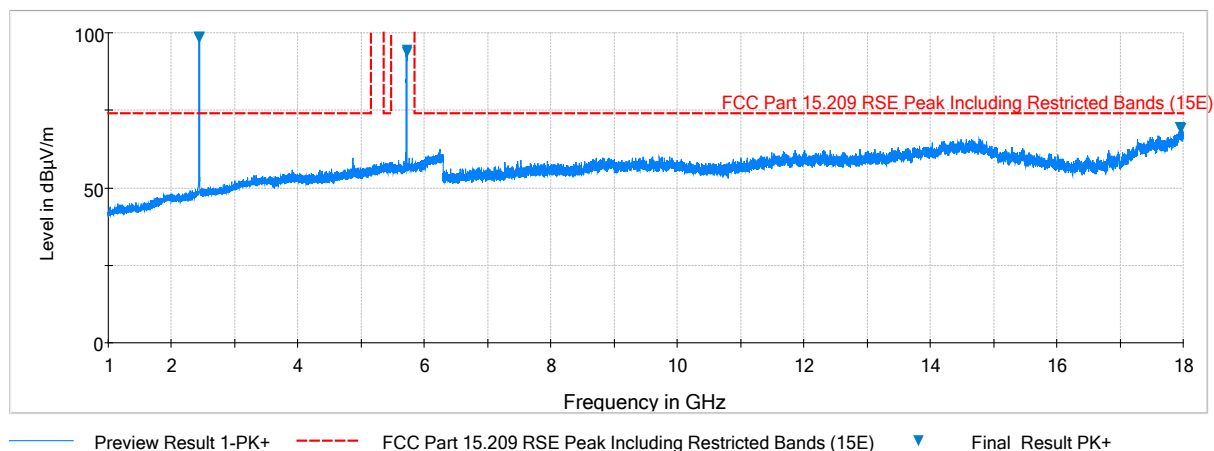
FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 141 of 254

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	11	149
Operating Frequency (MHz)	2462	5745
Data Rate (Mbps)	6	6
Mode	802.11g	802.11a

Table 7-61. Simultaneous Transmission Config-1

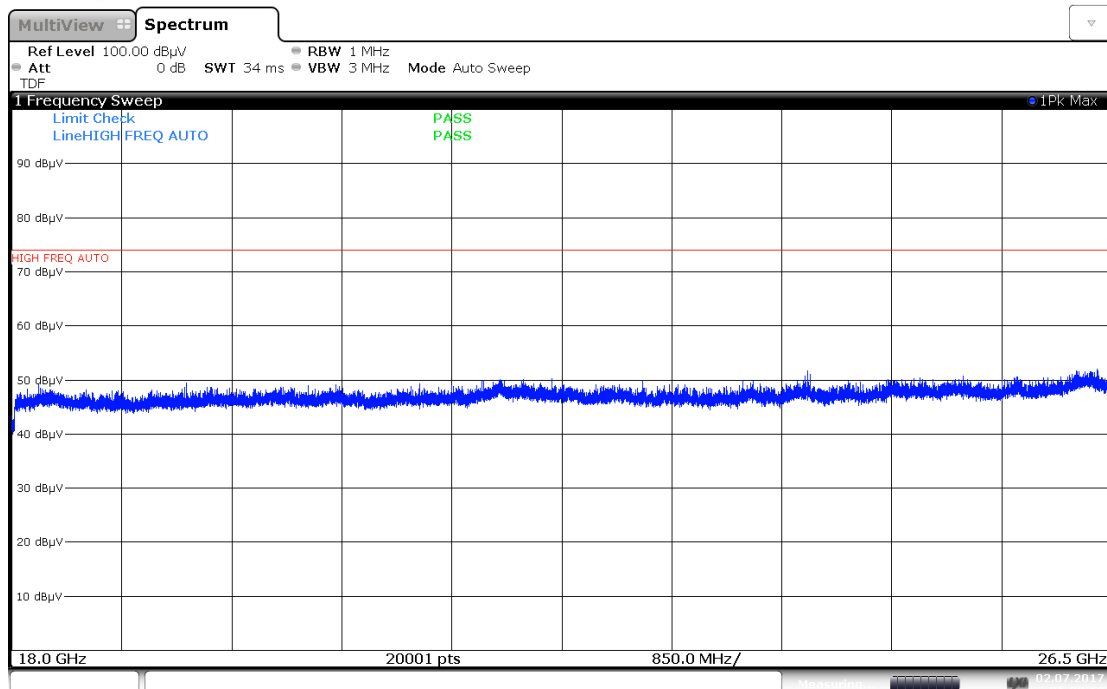


Plot 7-181. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. H)

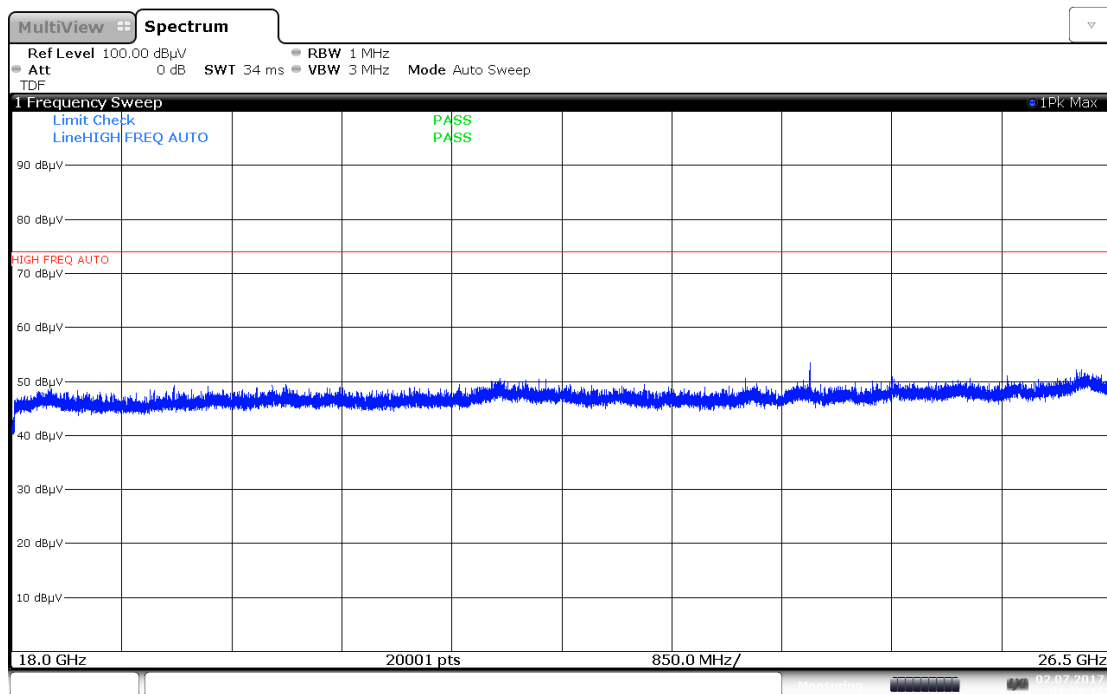


Plot 7-182. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 142 of 254

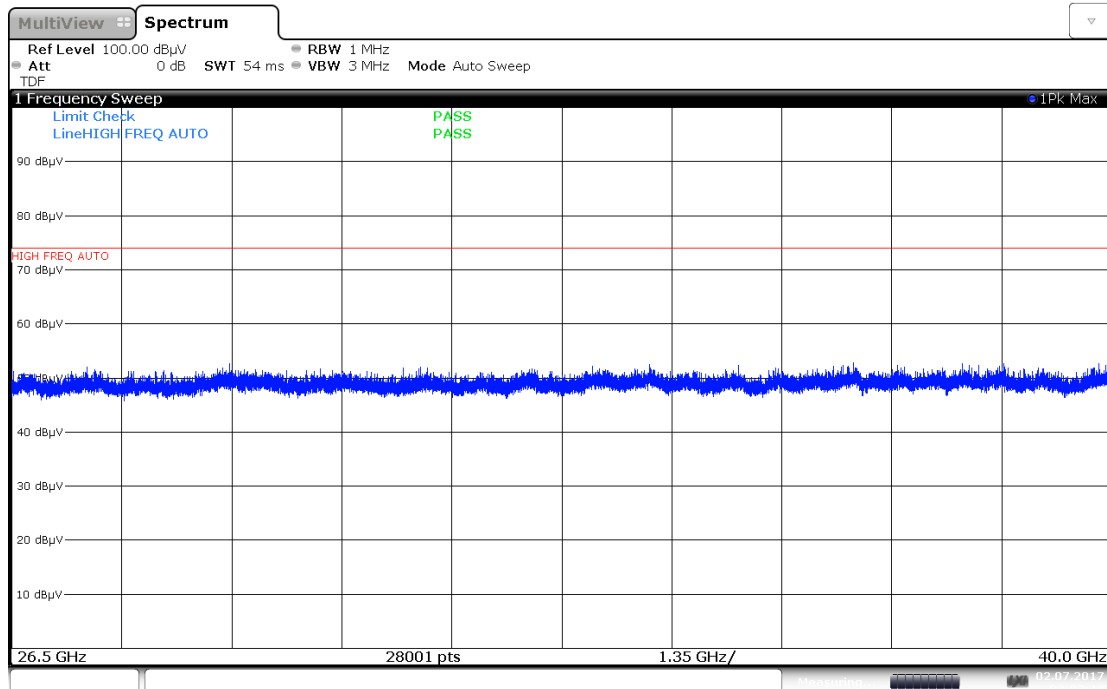


Plot 7-183. Radiated Spurious Plot 18GHz – 26.5GHz (2.4GHz – 5GHz, Ant. Pol. H)



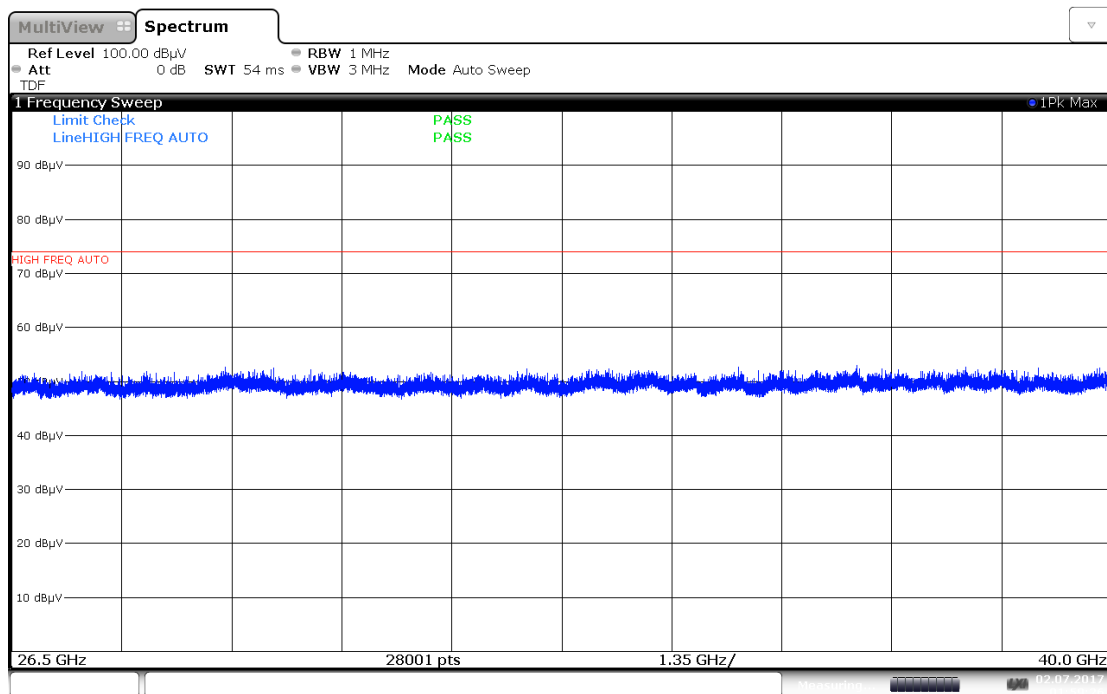
Plot 7-184. Radiated Spurious Plot 18GHz – 26.5GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 143 of 254



02:02:43 02.07.2017

Plot 7-185. Radiated Spurious Plot above 26.5GHz (2.4GHz – 5GHz, Ant. Pol. H)



01:59:27 02.07.2017

Plot 7-186. Radiated Spurious Plot above 26.5GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 144 of 254

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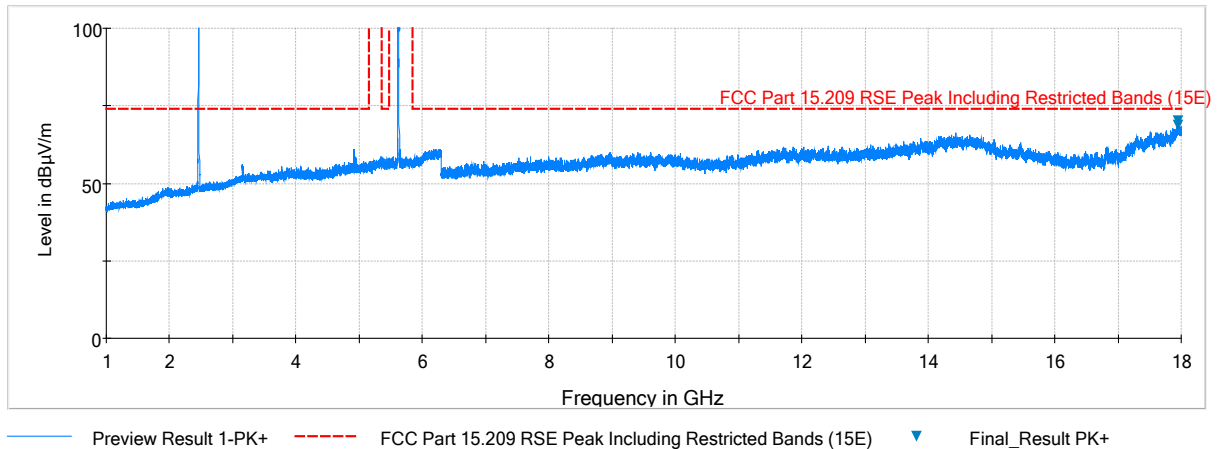
V 6.6

06/06/2017

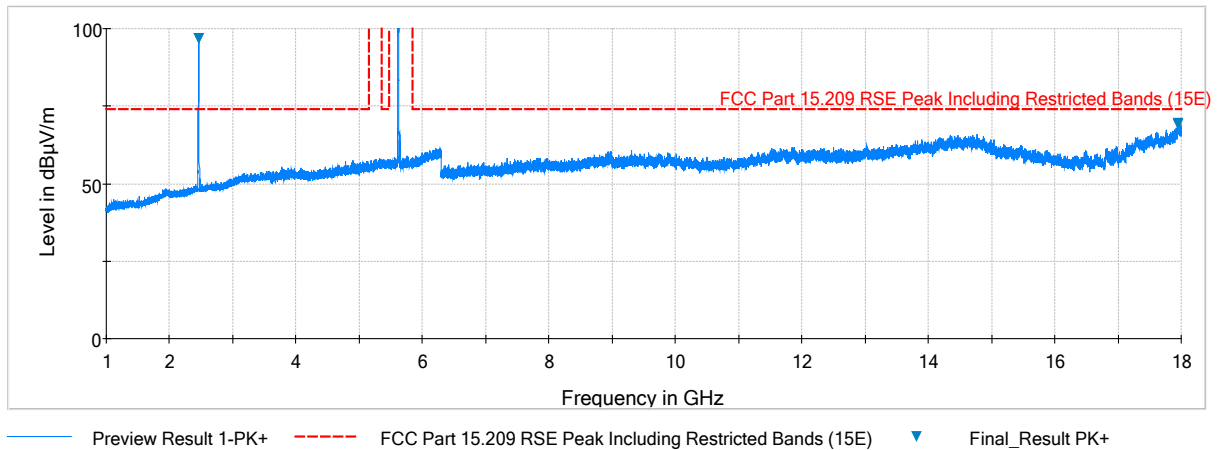
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Description	2.4 GHz Emission	5 GHz Emission
Antenna	2	1
Channel	11	36
Operating Frequency (MHz)	2462	5180
Data Rate (Mbps)	6	6
Mode	802.11g	802.11a

Table 7-62. Simultaneous Transmission Config-2

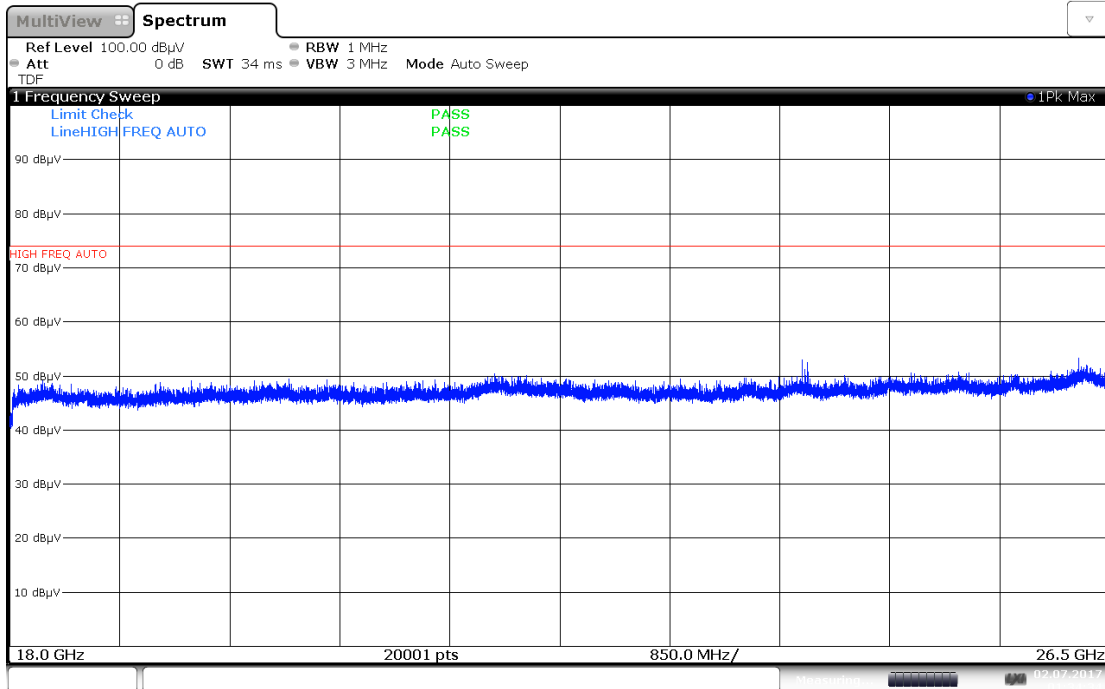


Plot 7-187. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz, Ant. Pol. H)

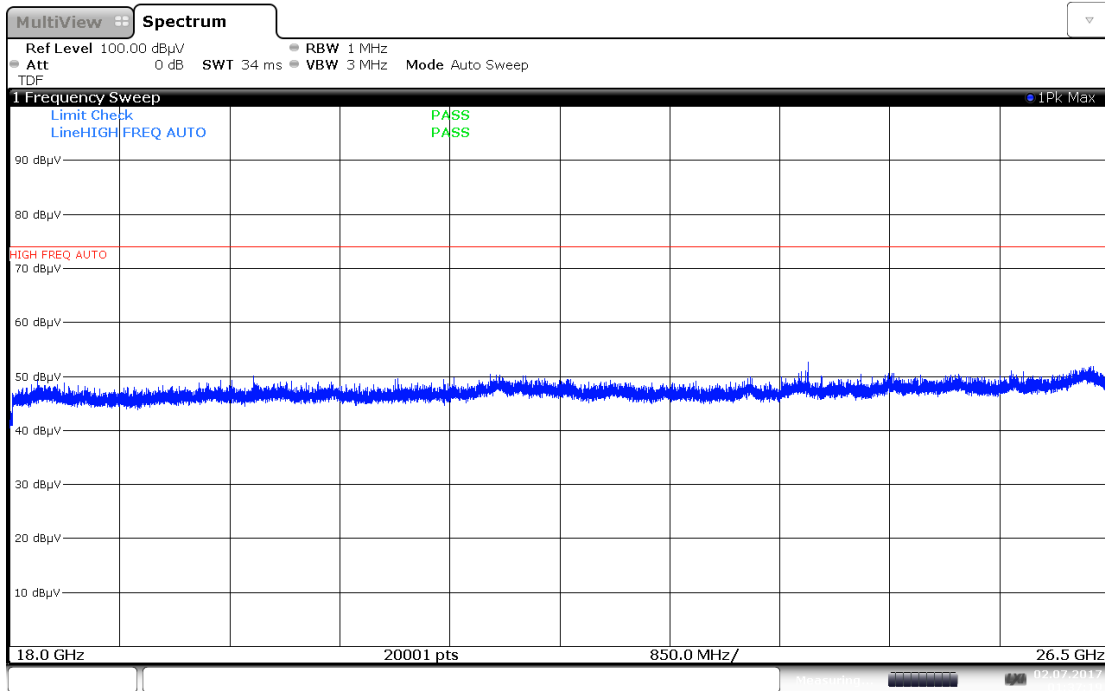


Plot 7-188. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 145 of 254

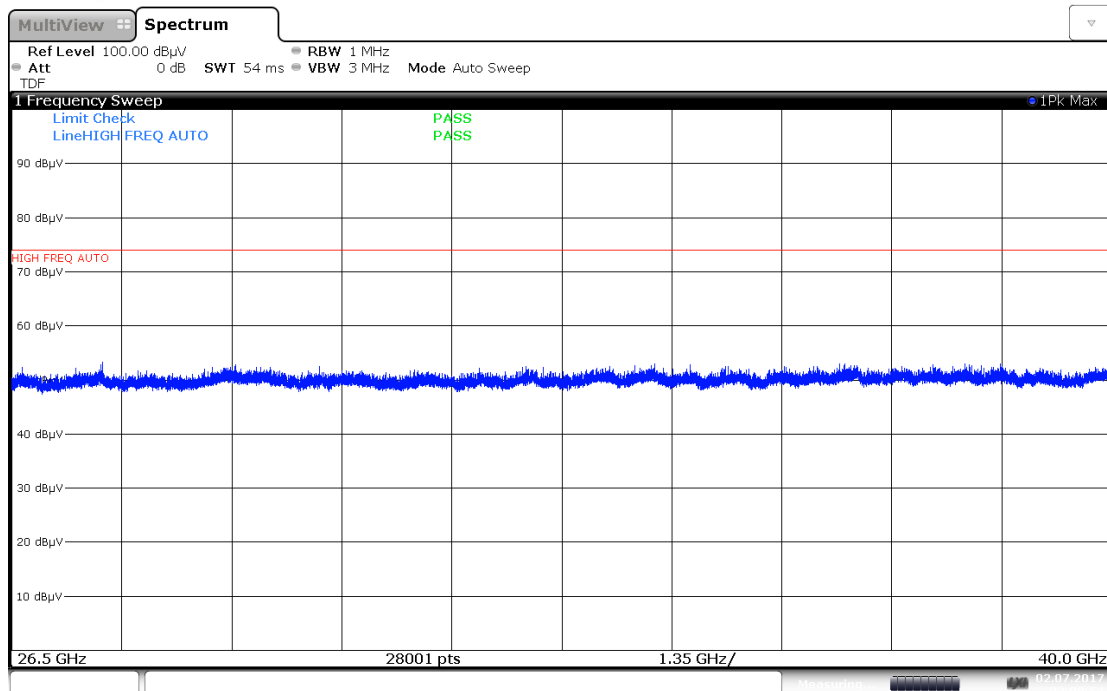


Plot 7-189. Radiated Spurious Plot 18GHz – 26.5GHz (5GHz – 2.4 GHz, Ant. Pol. H)

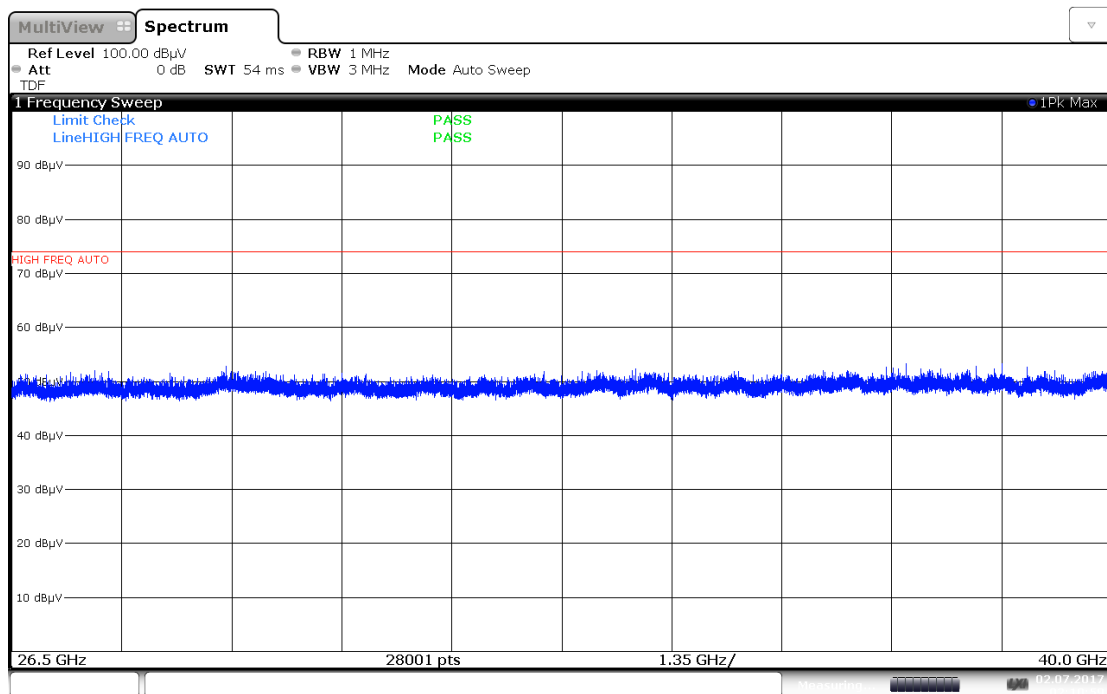


Plot 7-190. Radiated Spurious Plot 18GHz – 26.5GHz (5GHz – 2.4 GHz, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 146 of 254



Plot 7-191. Radiated Spurious Plot above 26.5GHz (5GHz – 2.4 GHz, Ant. Pol. H)

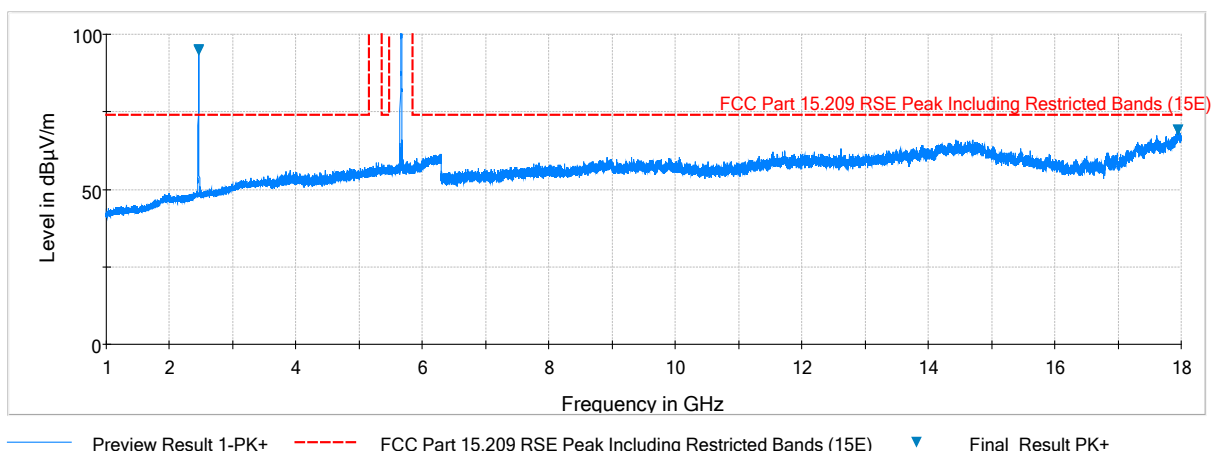


Plot 7-192. Radiated Spurious Plot above 26.5GHz (5GHz – 2.4 GHz, Ant. Pol. V)

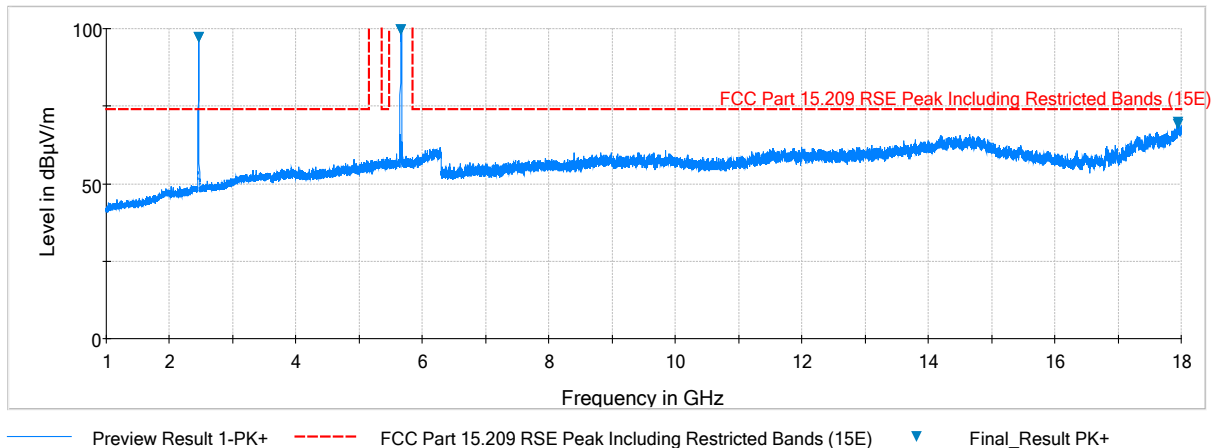
FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 147 of 254

Description	2.4 GHz Emission	5 GHz Emission
Antenna	ALL	ALL
Channel	11	165
Operating Frequency (MHz)	2462	5825
Data Rate (Mbps)	6	6
Mode	802.11g	802.11a

Table 7-63. Dual Band Simultaneous Transmission

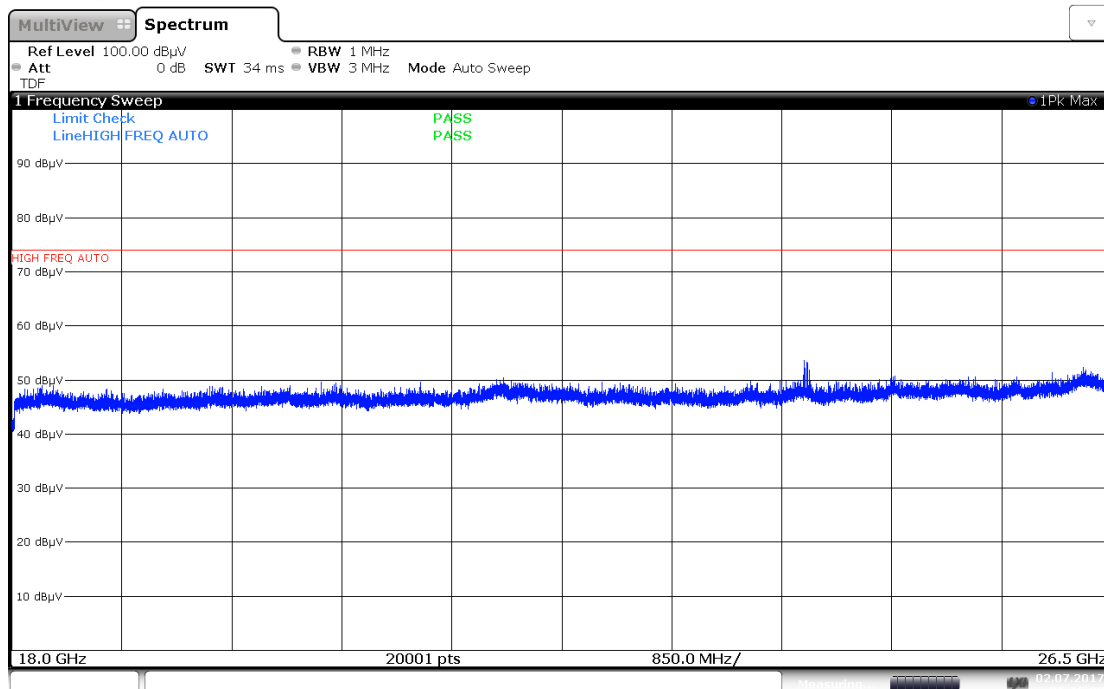


Plot 7-193. Radiated Spurious Plot above 1GHz (Dual Band Simult. Tx, Ant. Pol. H)

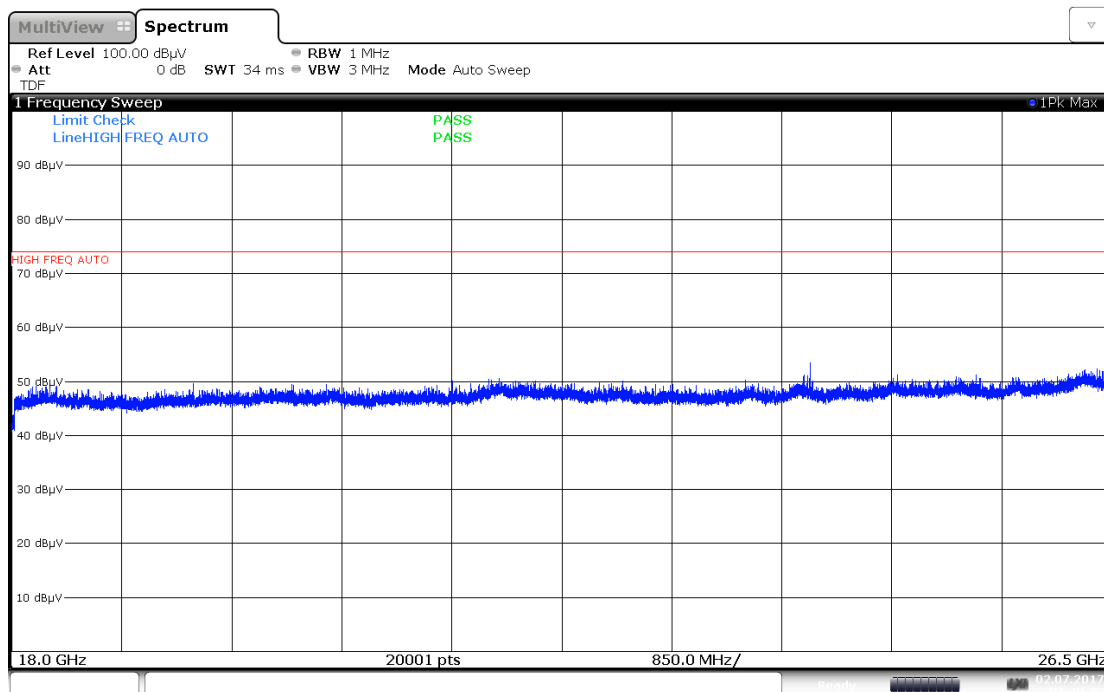


Plot 7-194. Radiated Spurious Plot above 1GHz (Dual Band Simult. Tx, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 148 of 254

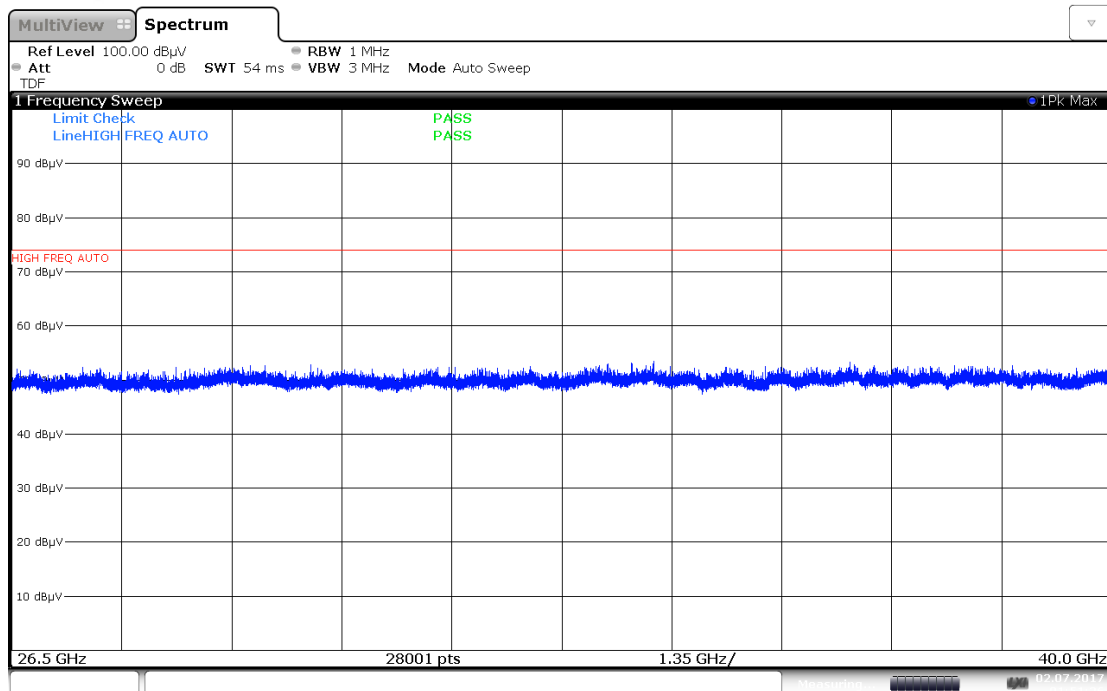


Plot 7-195. Radiated Spurious Plot 18GHz – 26.5GHz (Dual Band Simult. Tx, Ant. Pol. H)

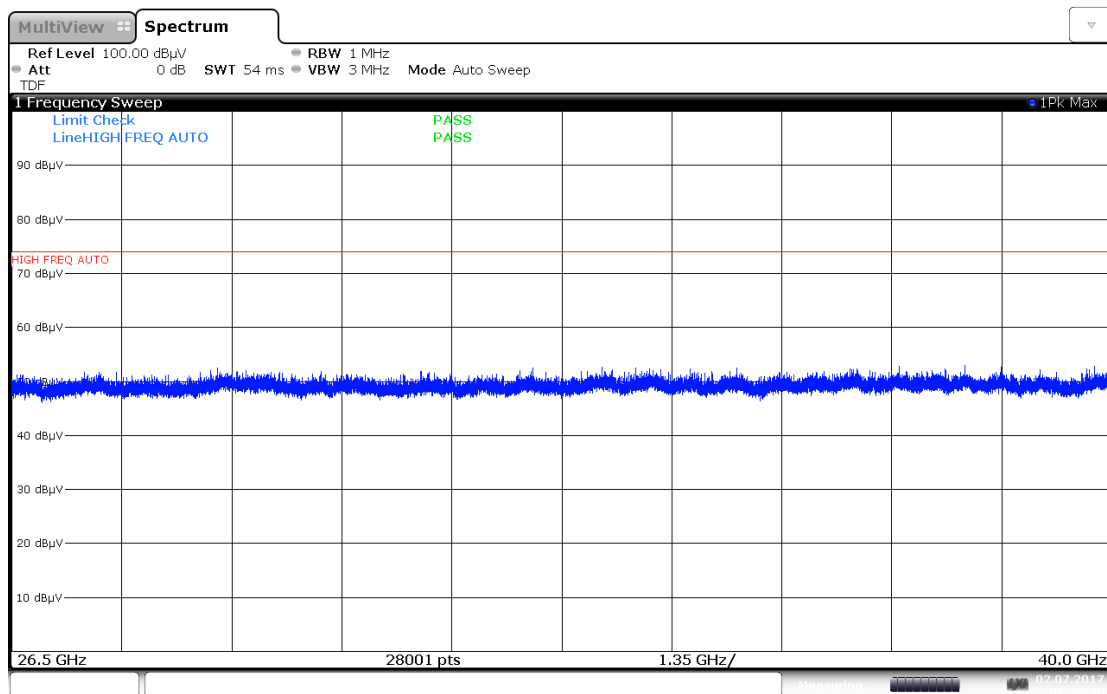


Plot 7-196. Radiated Spurious Plot 18GHz – 26.5GHz (Dual Band Simult. Tx, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 149 of 254



Plot 7-197. Radiated Spurious Plot above 26.5GHz (Dual Band Simult. Tx, Ant. Pol. H)



Plot 7-198. Radiated Spurious Plot above 26.5GHz (Dual Band Simult. Tx, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 150 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

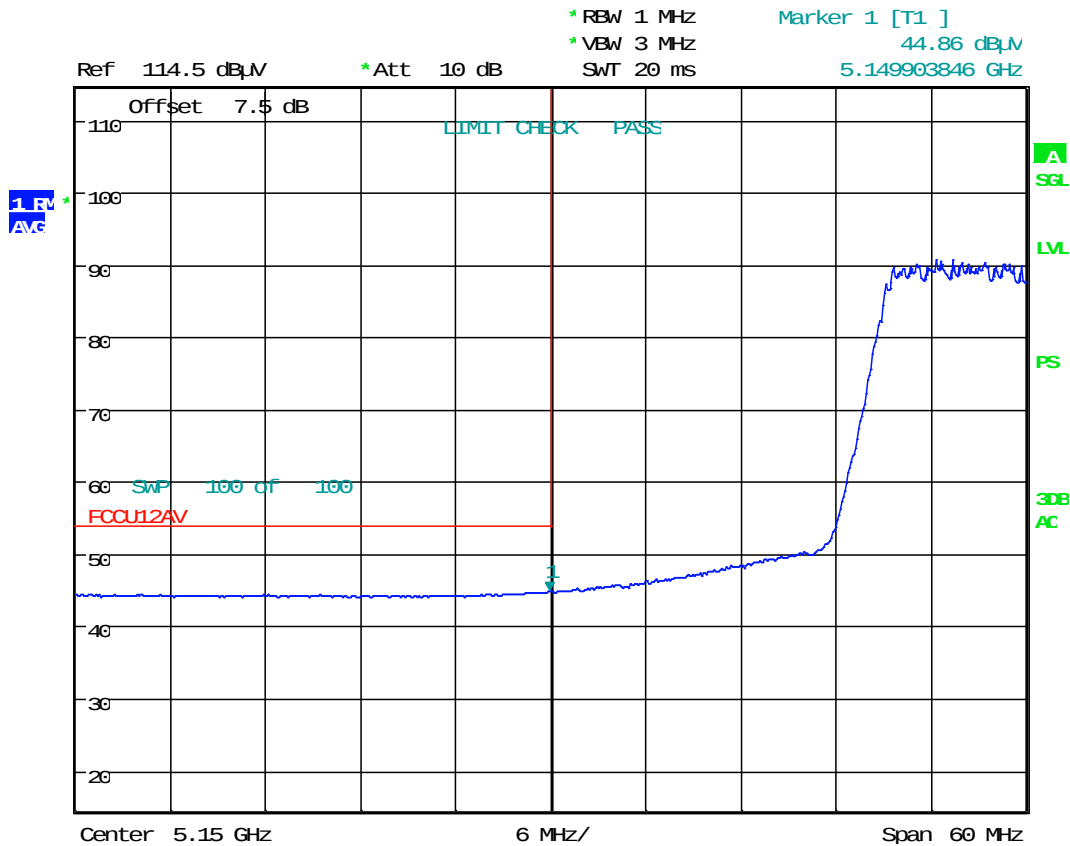
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



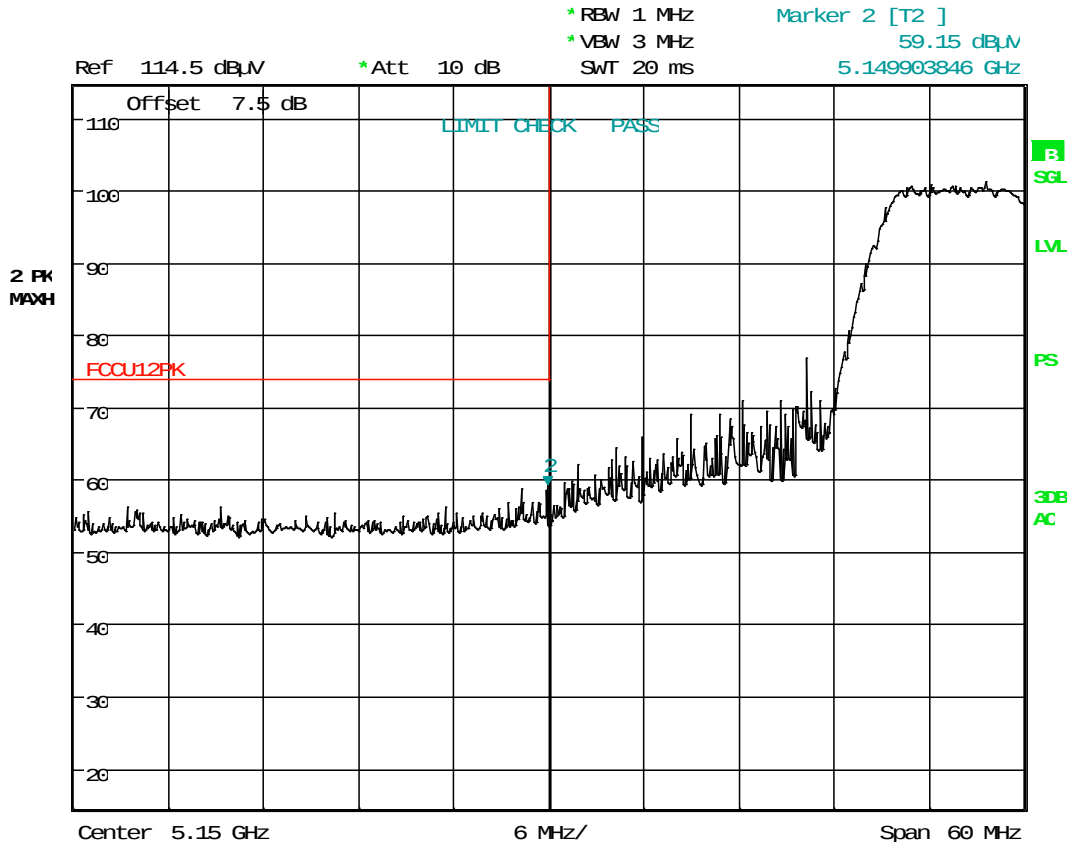
Date: 9.JUN.2017 21:27:48

Plot 7-199. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 151 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:28:06

Plot 7-200. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 152 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

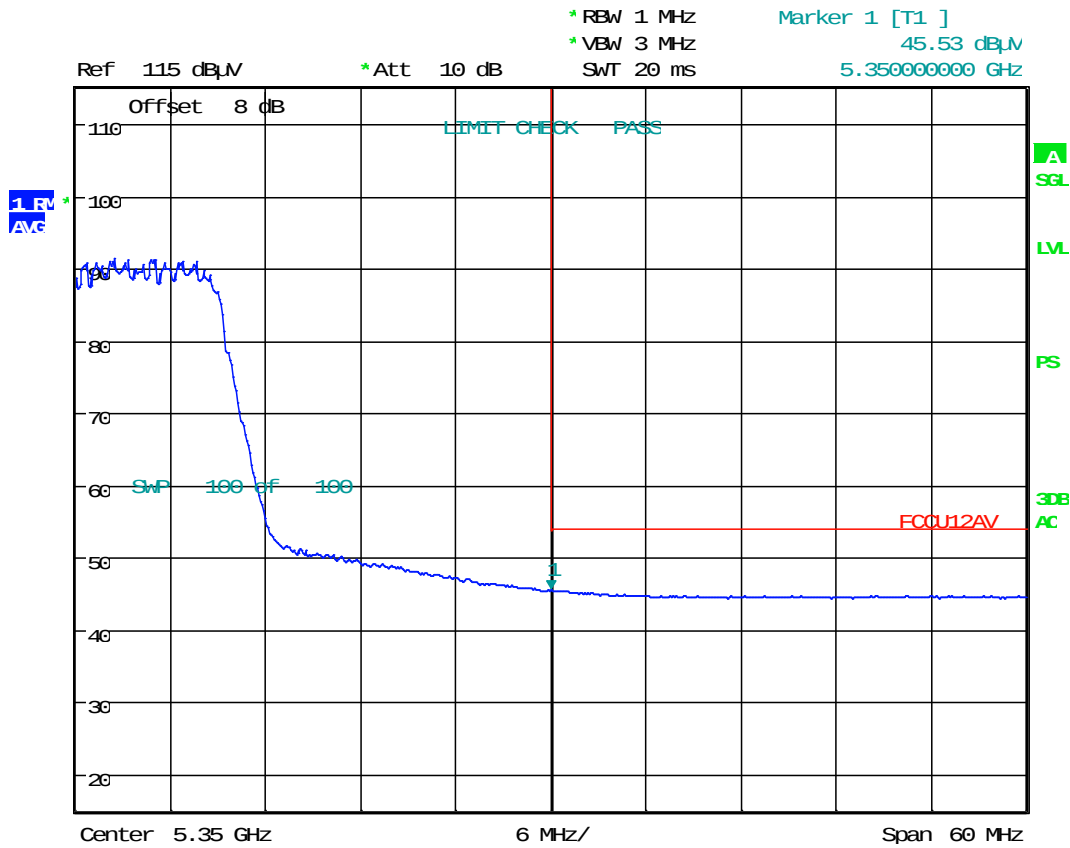
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



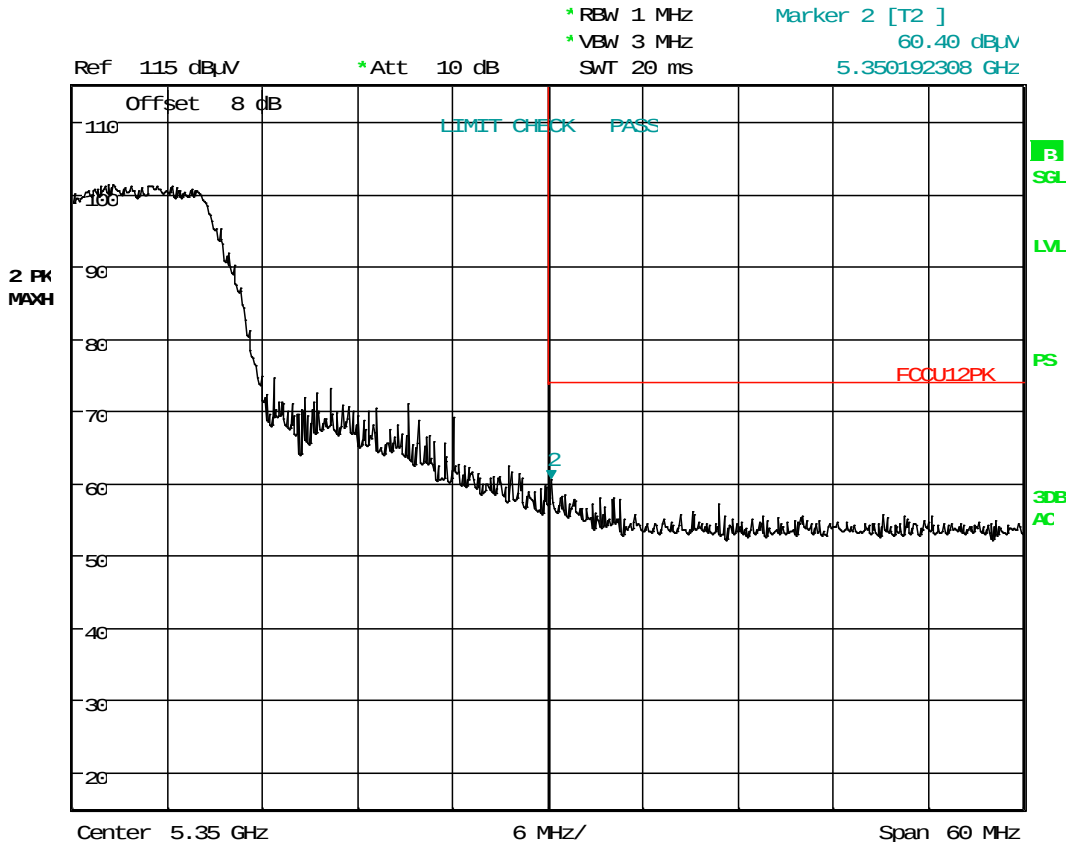
Date: 9.JUN.2017 21:38:13

Plot 7-201. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 153 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:38:30

Plot 7-202. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 154 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

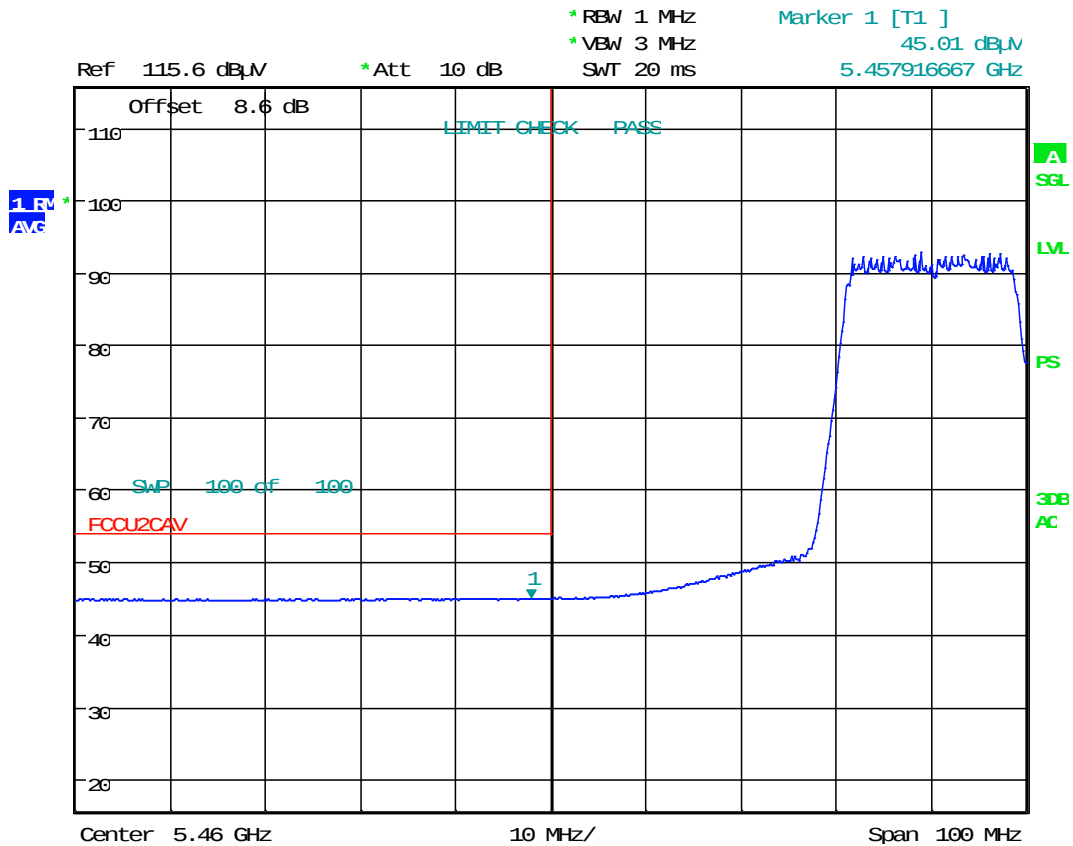
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



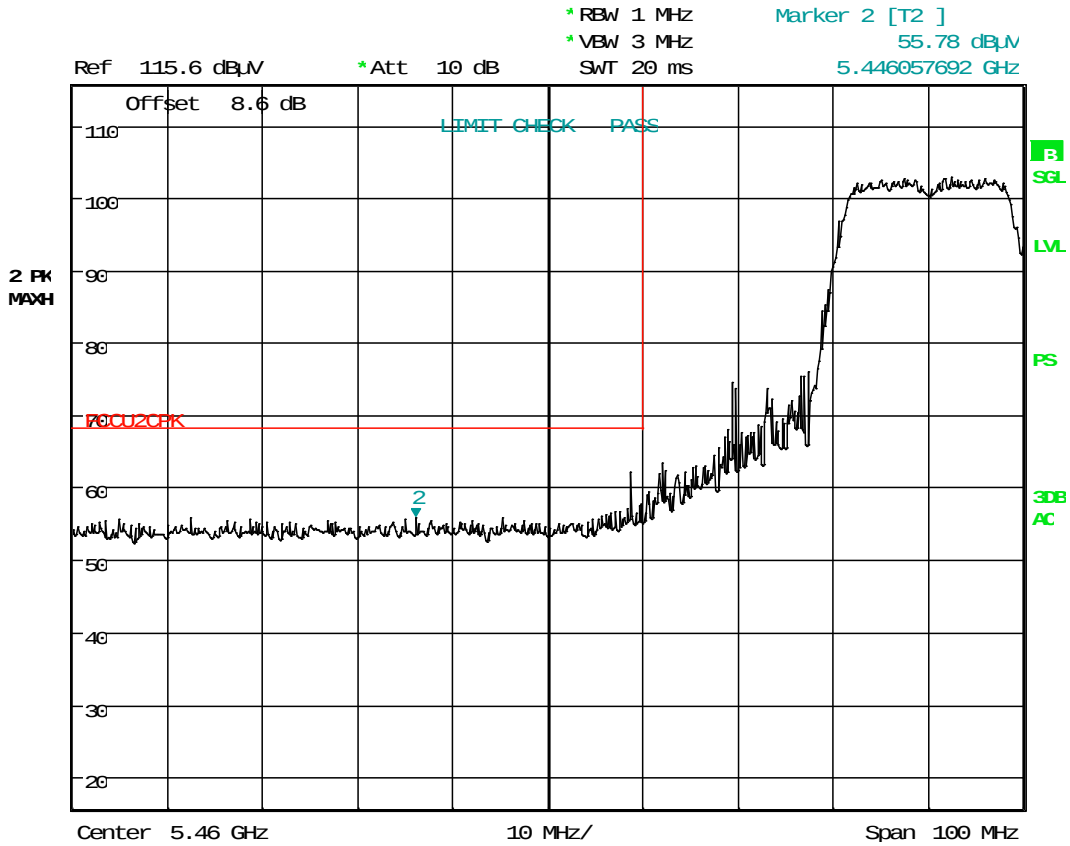
Date: 9.JUN.2017 21:45:25

Plot 7-203. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 155 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:45:51

Plot 7-204. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 156 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

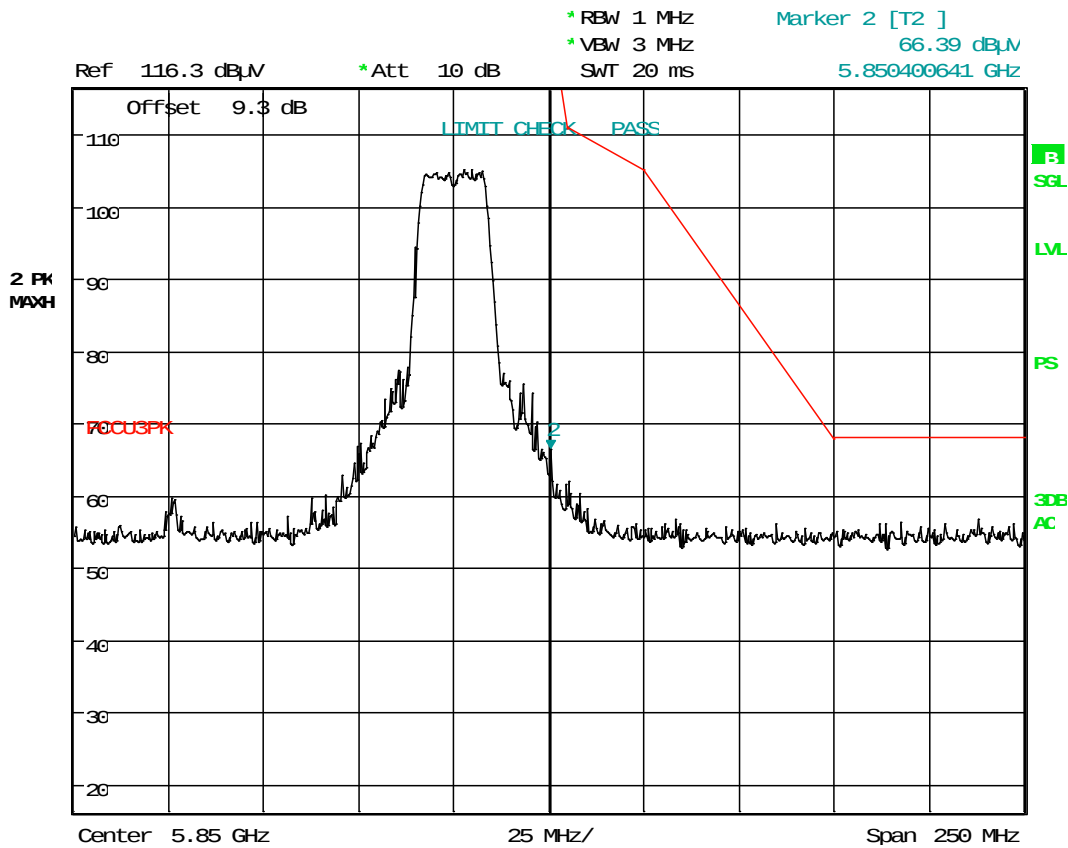
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 9.JUN.2017 21:53:03

Plot 7-205. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 157 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

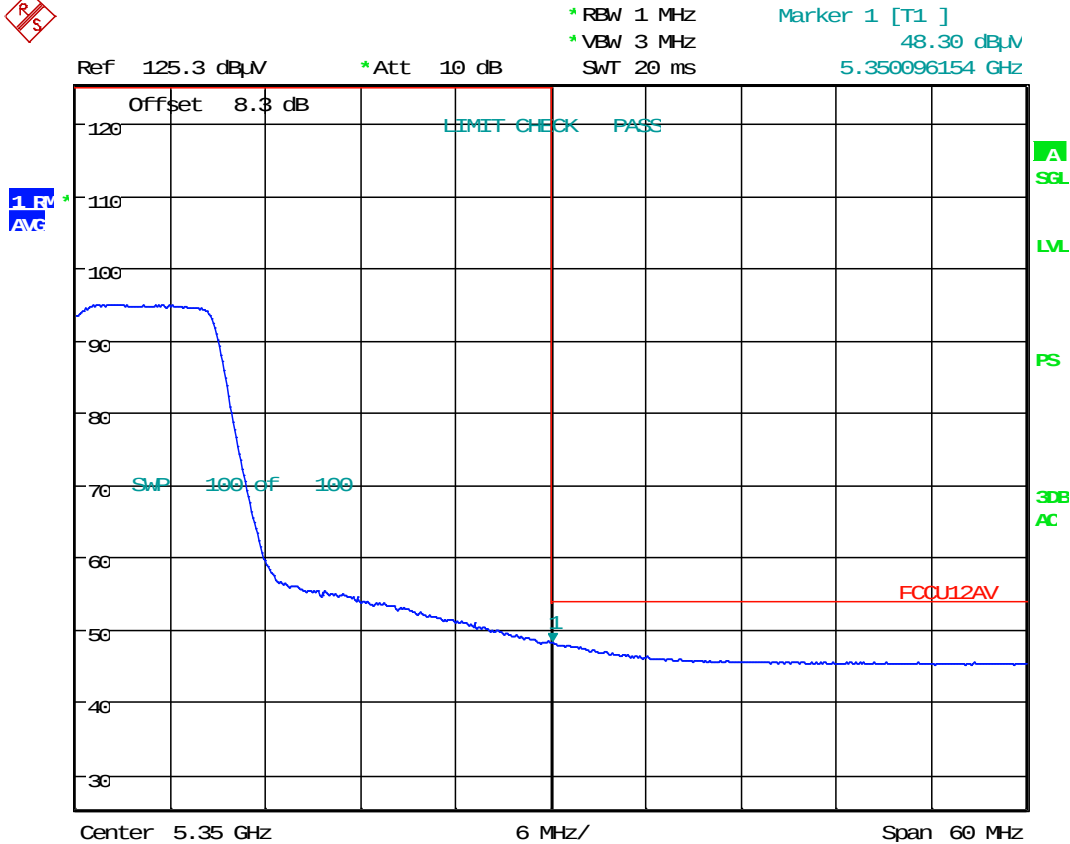
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 13. JUN. 2017 10:40:28

Plot 7-206. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 158 of 254

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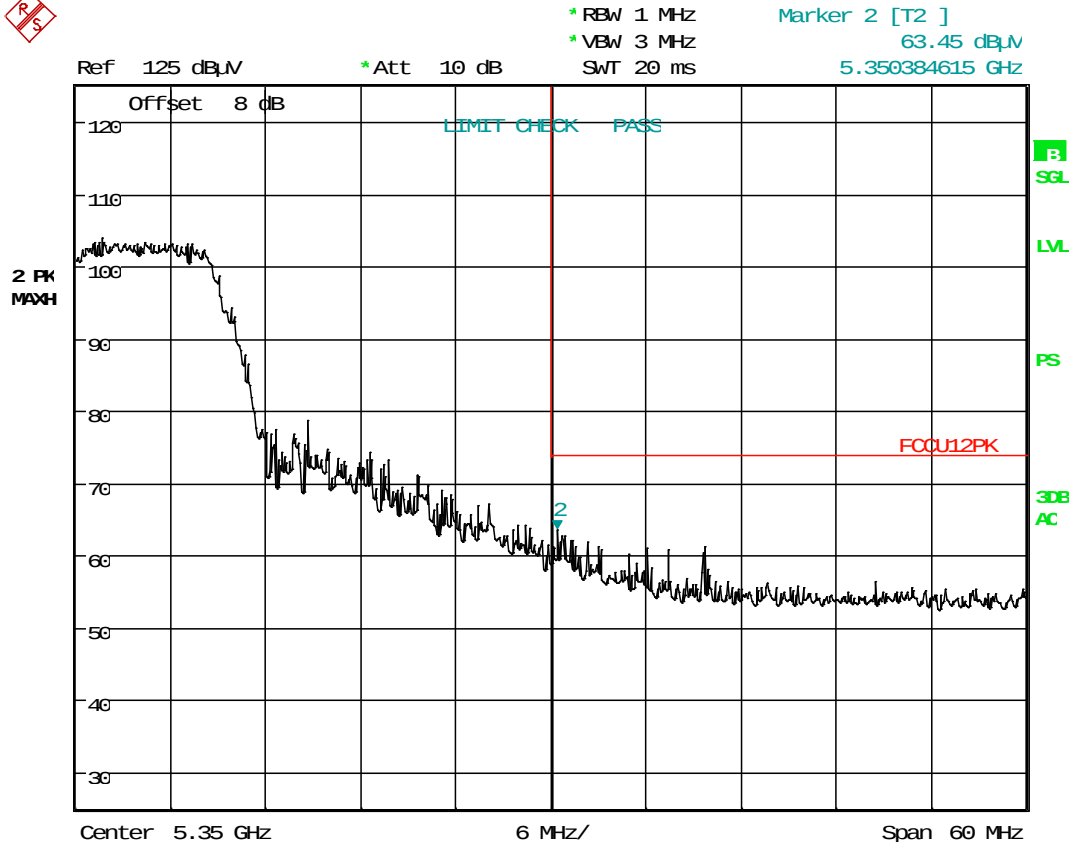
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Antenna-1 WCP Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 13.JUN.2017 10:40:47

Plot 7-207. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 159 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

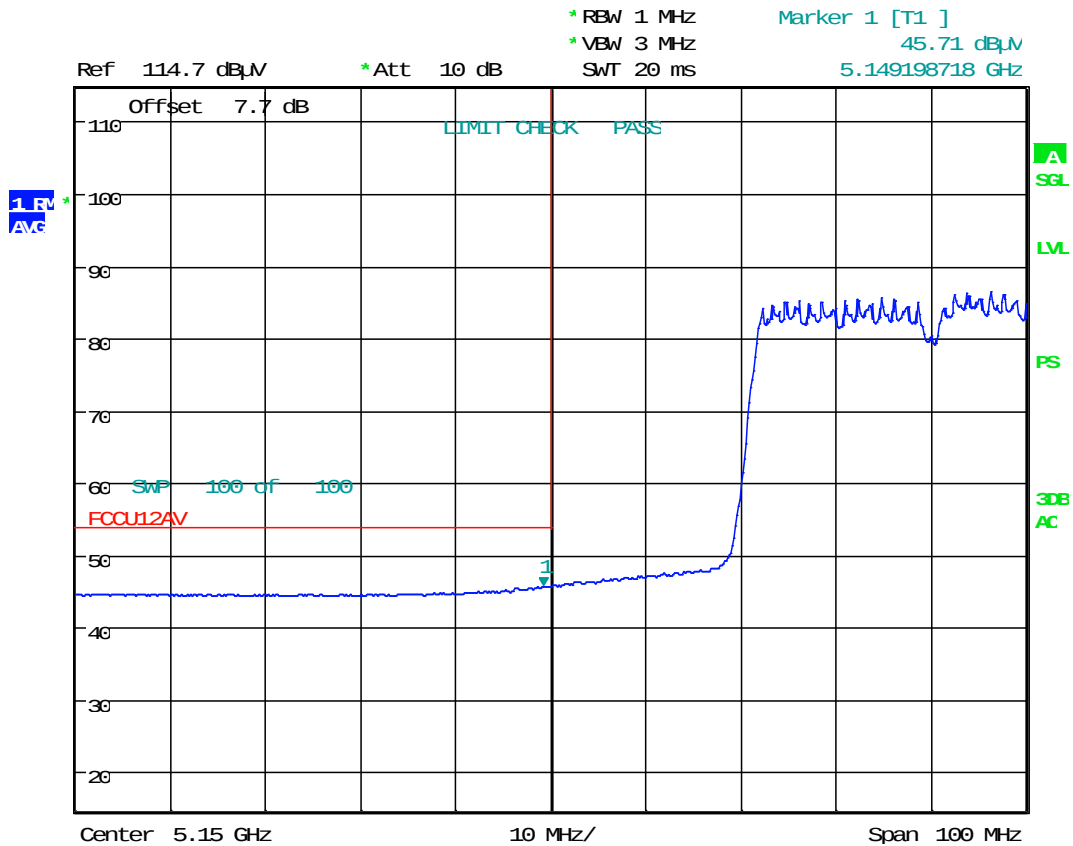
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



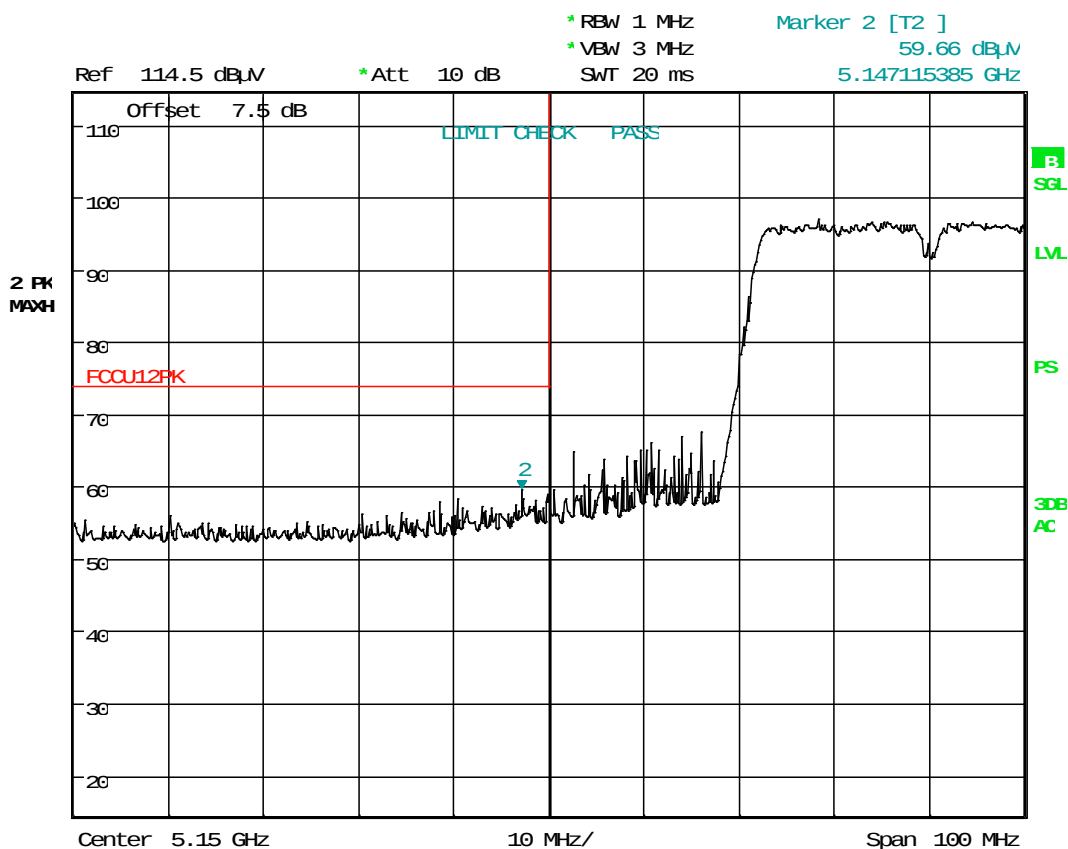
Date: 9.JUN.2017 21:34:06

Plot 7-208. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 160 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:30:54

Plot 7-209. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 161 of 254

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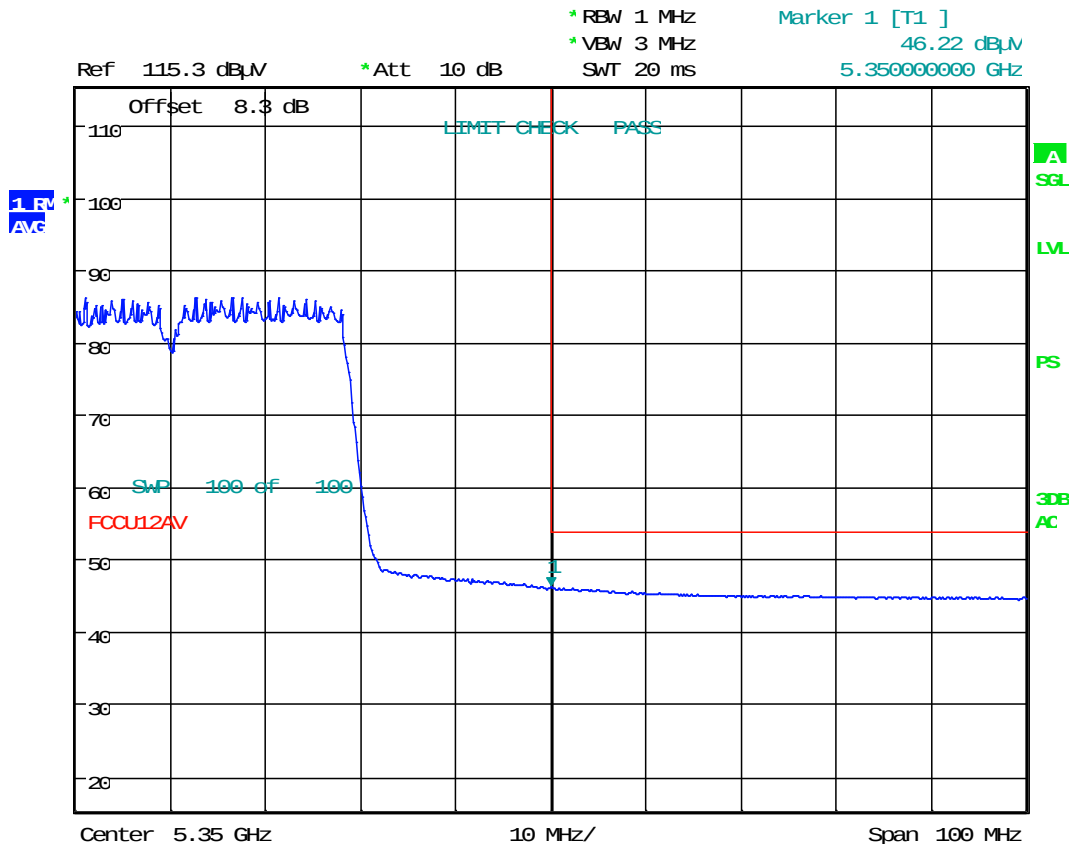
06/06/2017

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

§15.407(b.1)(b.2) §15.205 §15.209

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



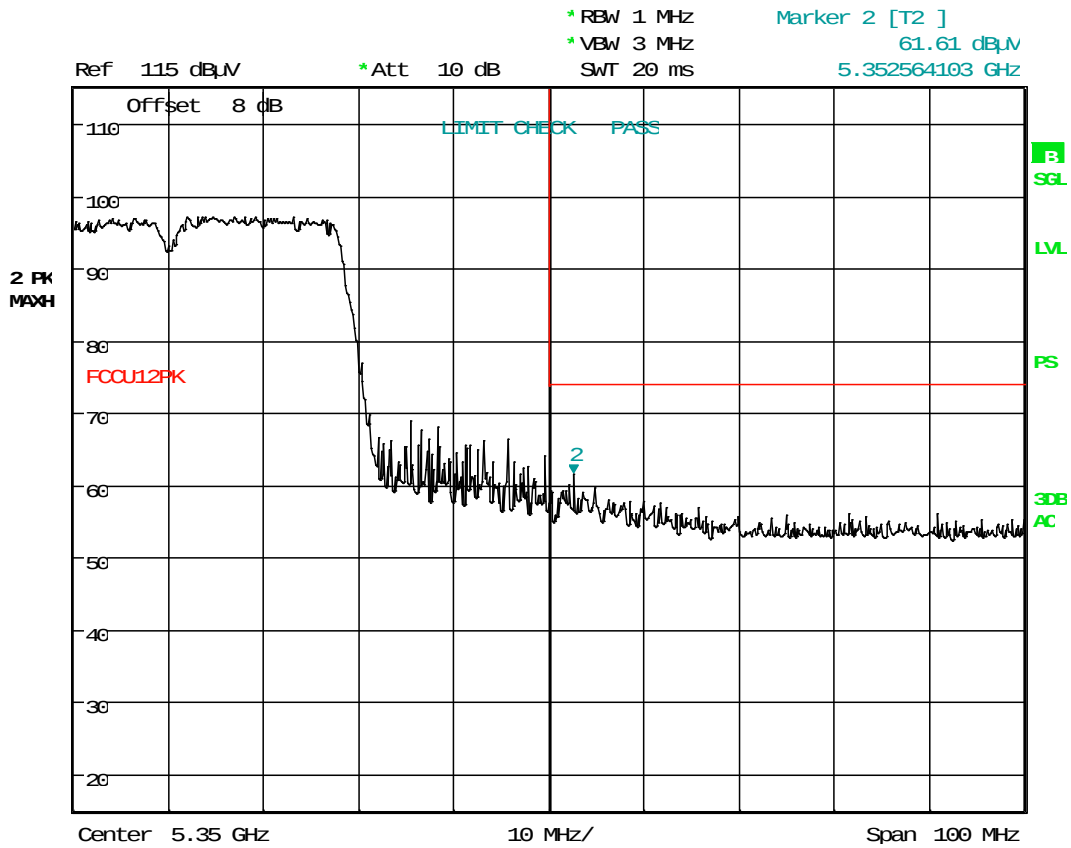
Date: 9.JUN.2017 21:39:27

Plot 7-210. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 162 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:39:41

Plot 7-211. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 163 of 254

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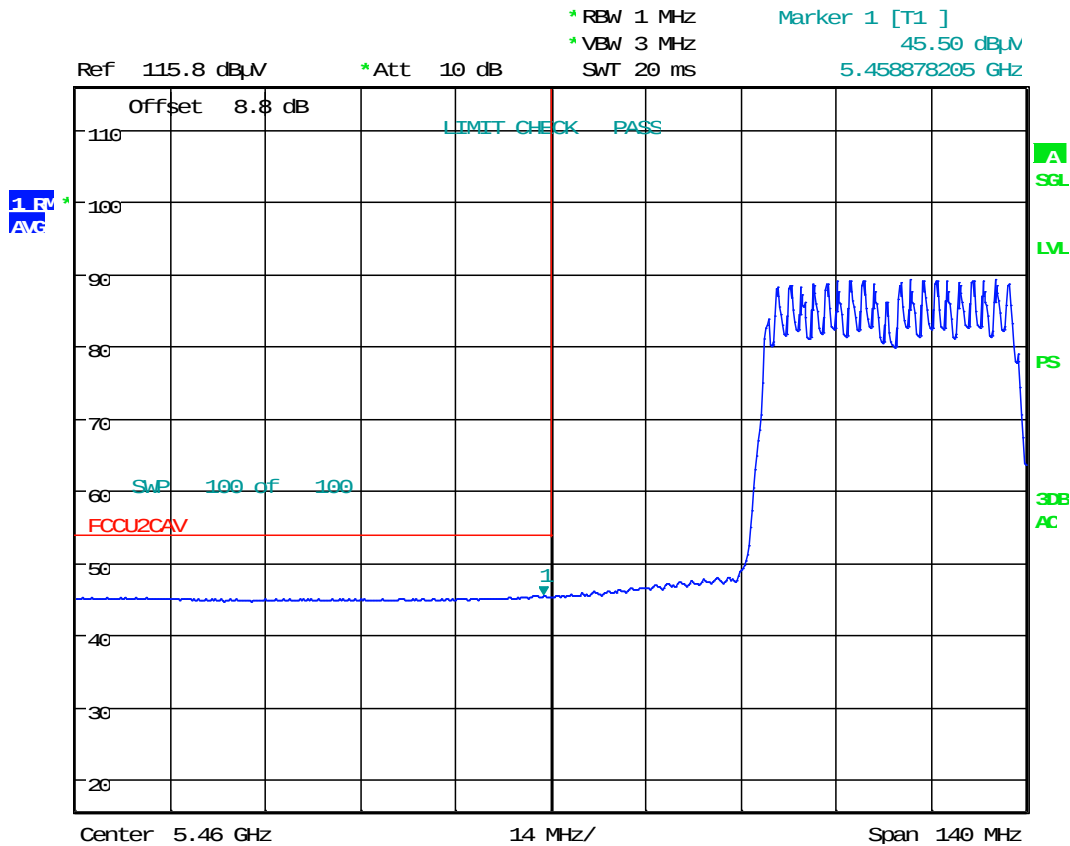
06/06/2017

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

§15.407(b.1)(b.2) §15.205 §15.209

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



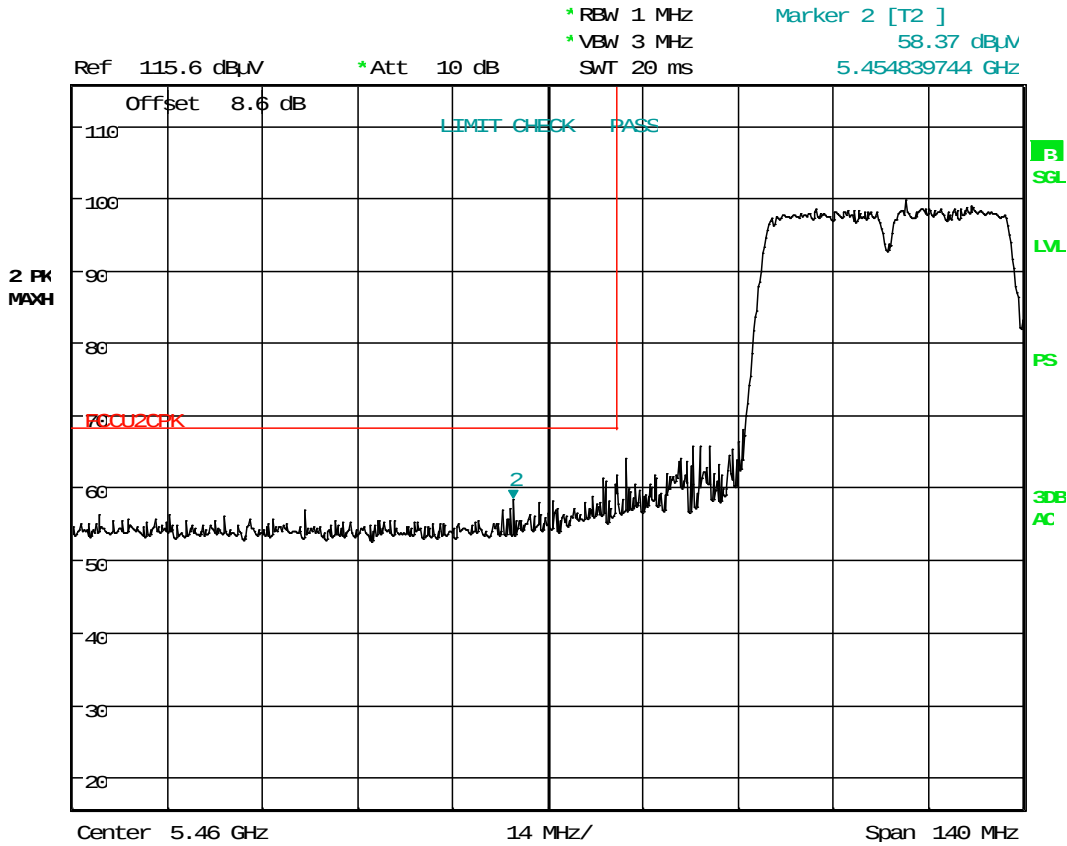
Date: 9.JUN.2017 21:46:55

Plot 7-212. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 164 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:47:13

Plot 7-213. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 165 of 254

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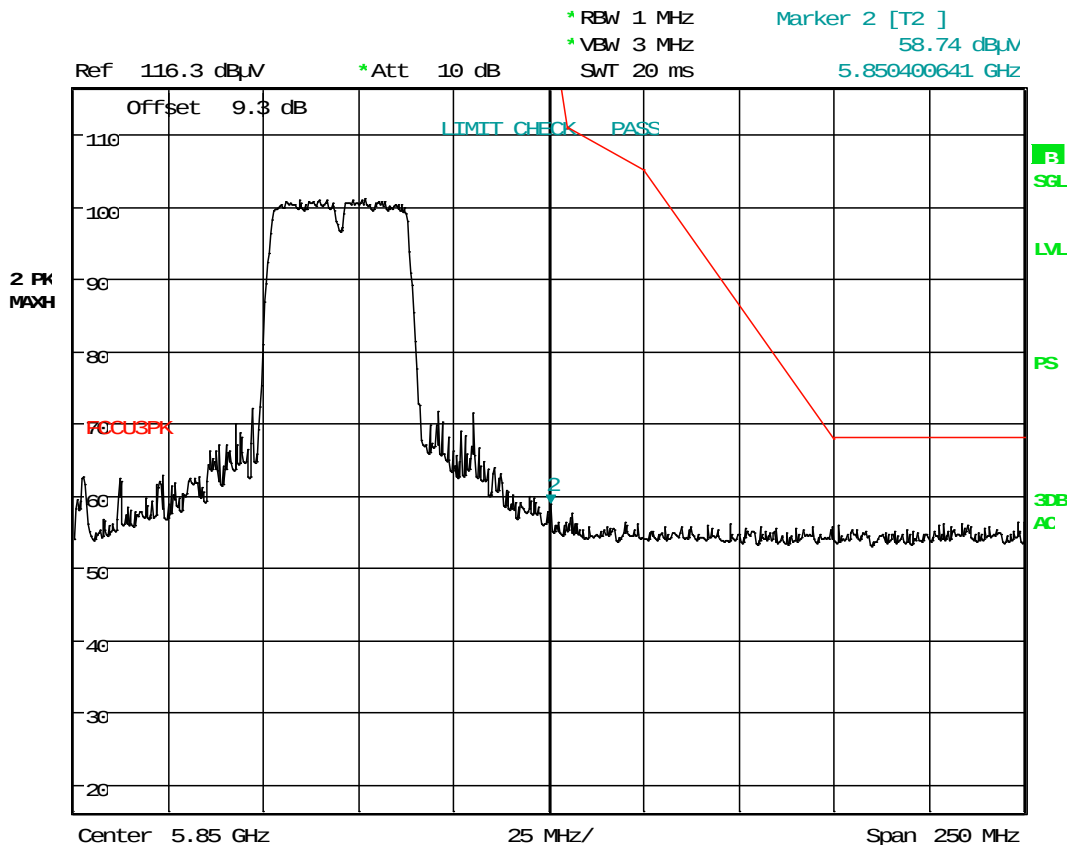
06/06/2017

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

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

Worst Case Mode: 802.11n (40MHz)
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5795MHz
Channel: 159



Date: 9.JUN.2017 21:55:17

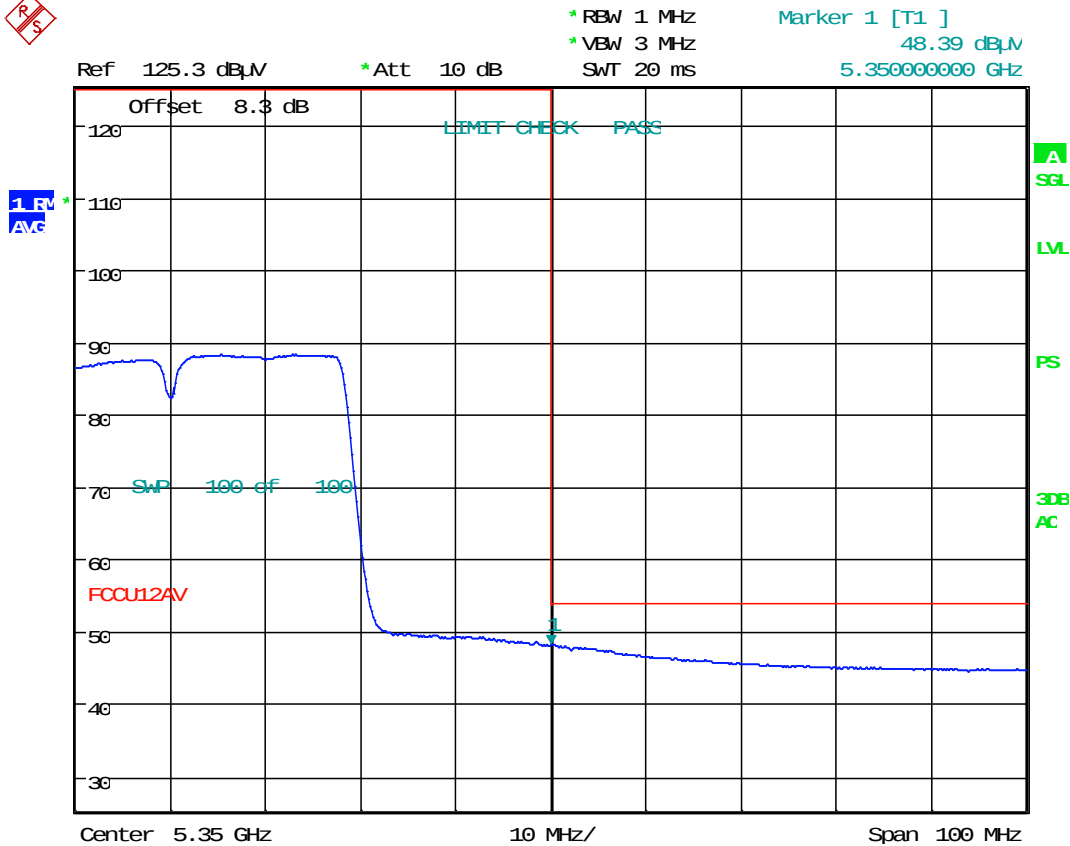
Plot 7-214. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 166 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

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



Date: 13. JUN. 2017 10:46:48

Plot 7-215. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 167 of 254

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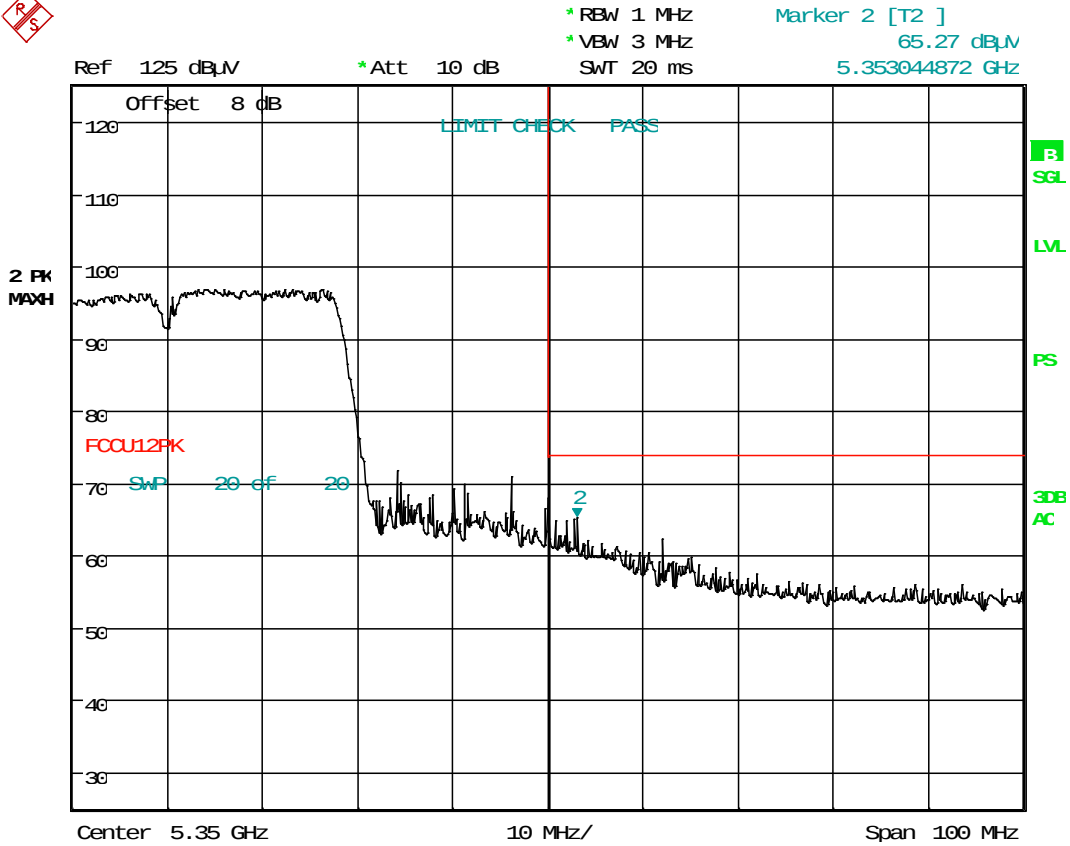
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Antenna-1 WCP Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 13.JUN.2017 10:46:20

Plot 7-216. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 168 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

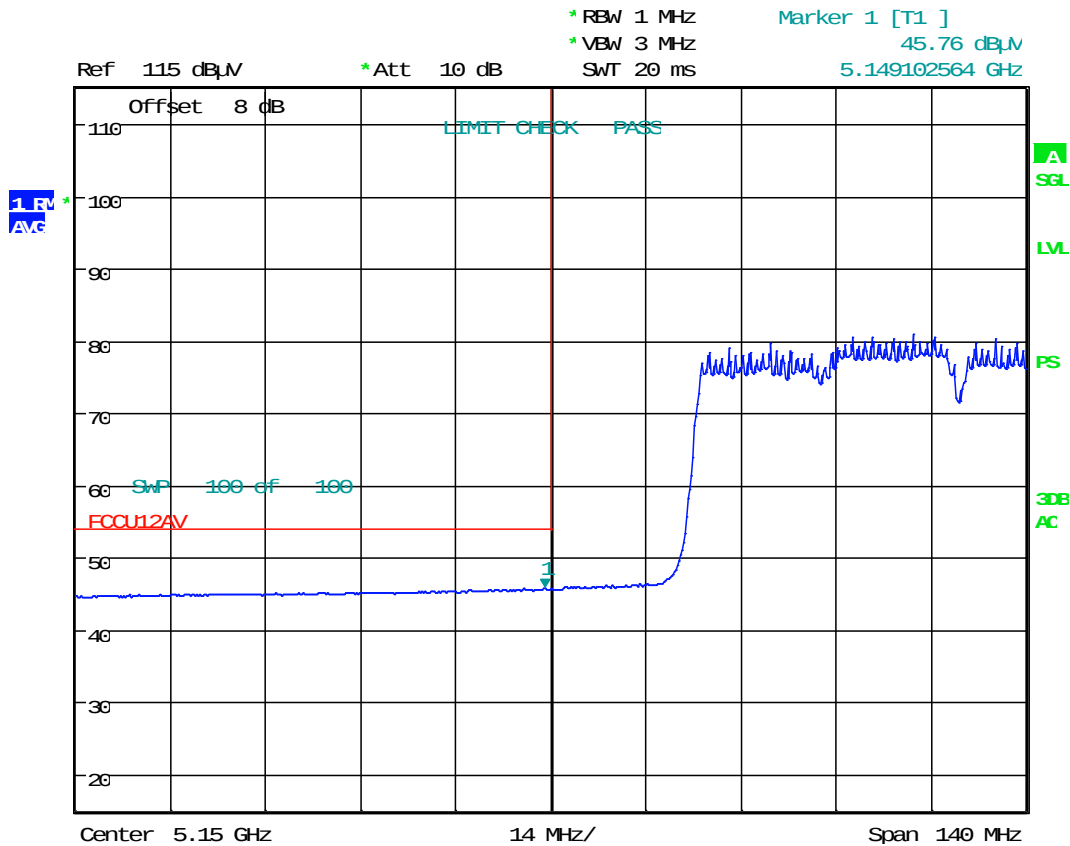
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



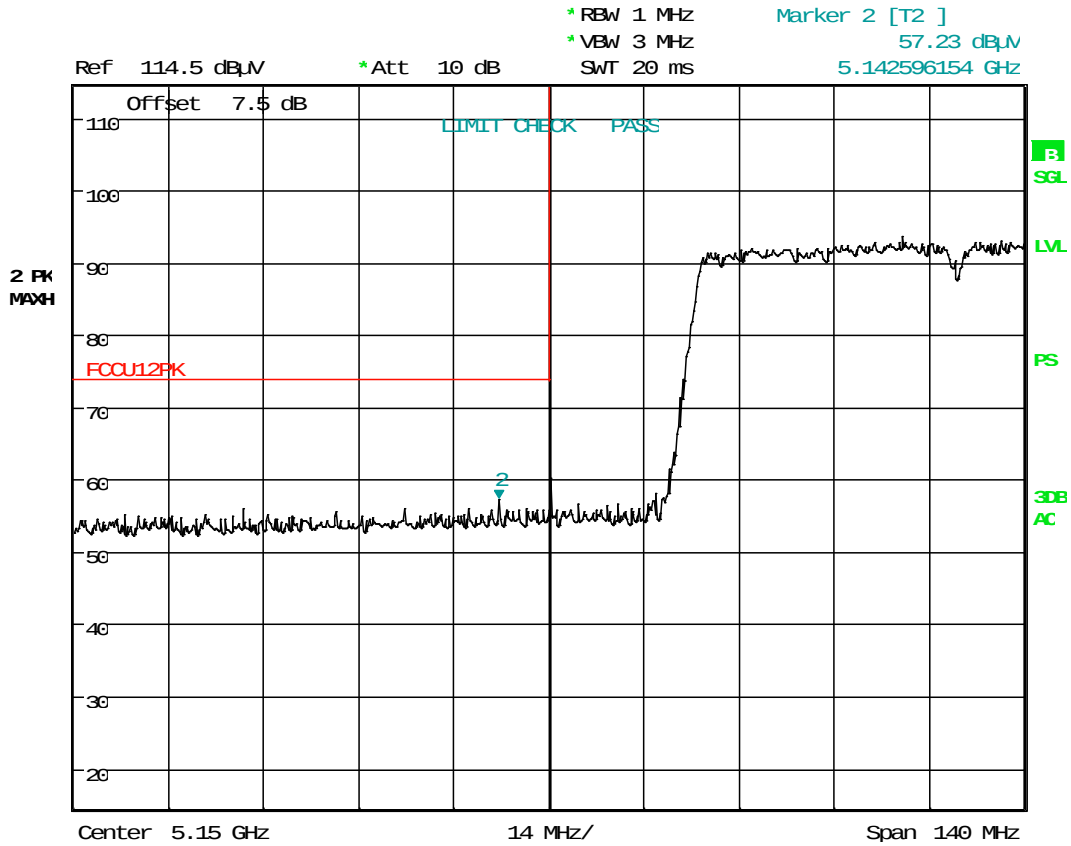
Date: 9.JUN.2017 21:32:47

Plot 7-217. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 169 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:33:05

Plot 7-218. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 170 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

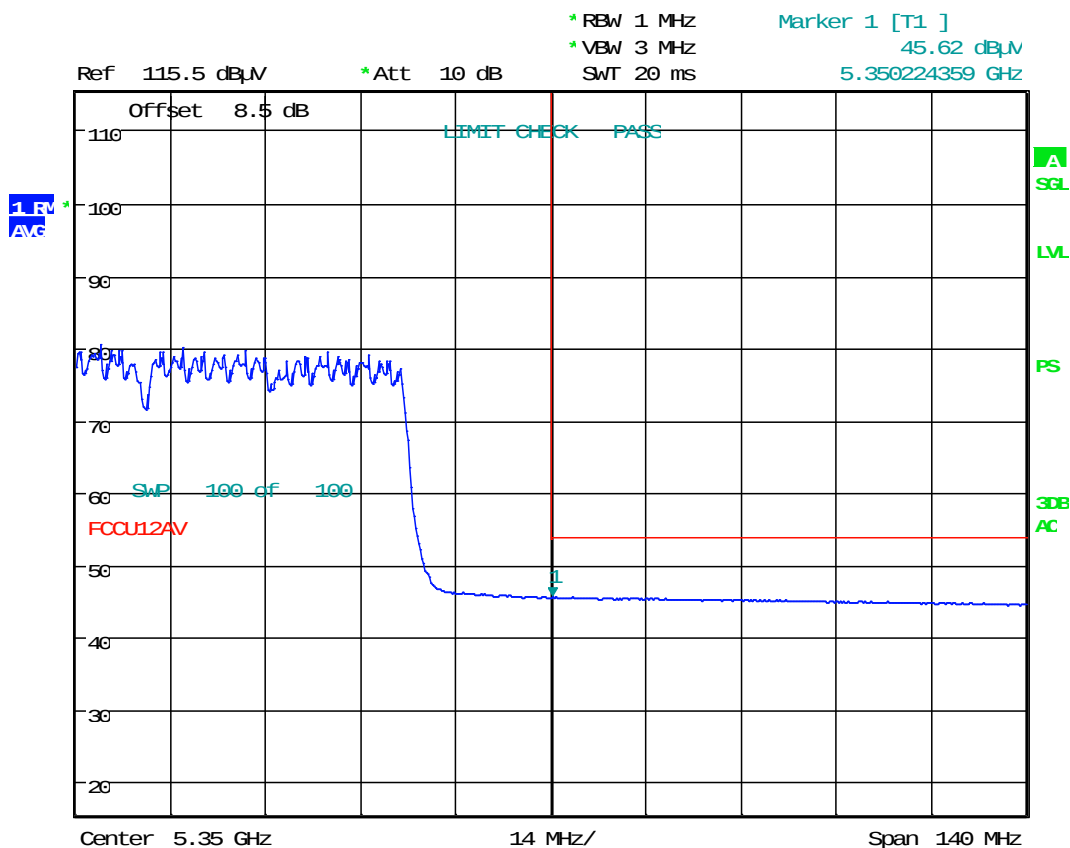
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



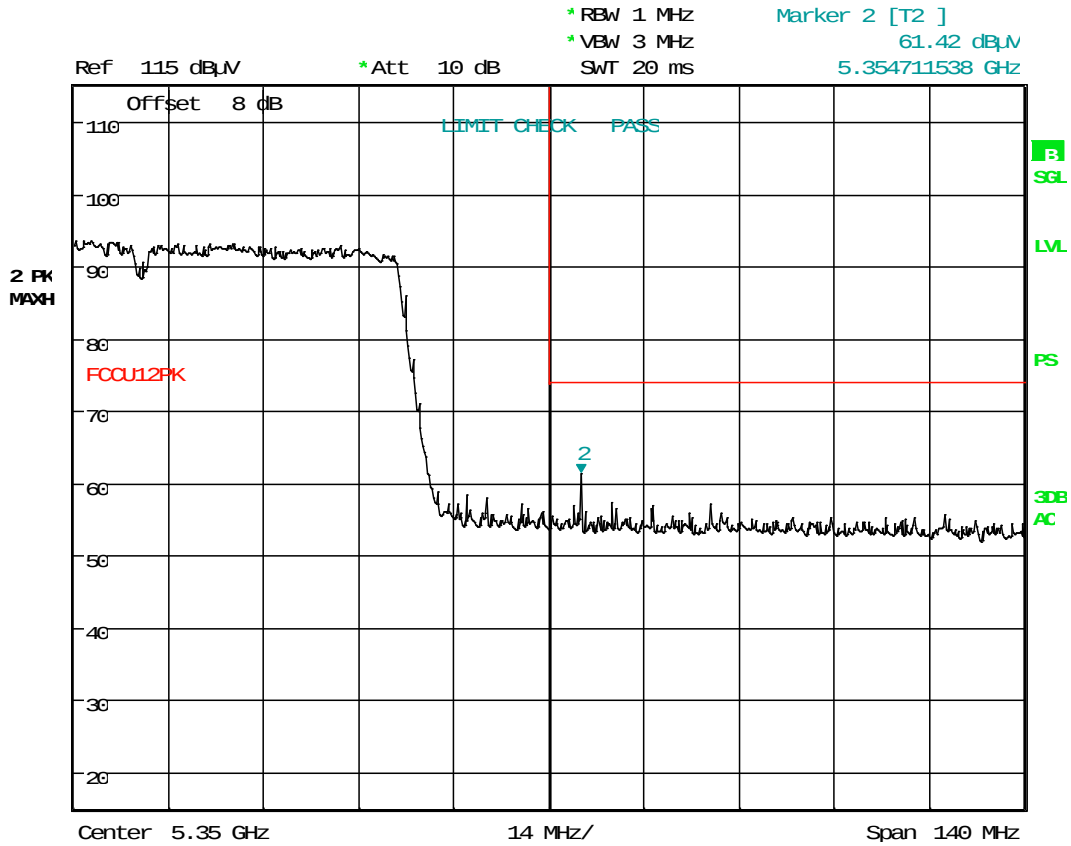
Date: 9.JUN.2017 21:40:42

Plot 7-219. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 171 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:40:58

Plot 7-220. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 172 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

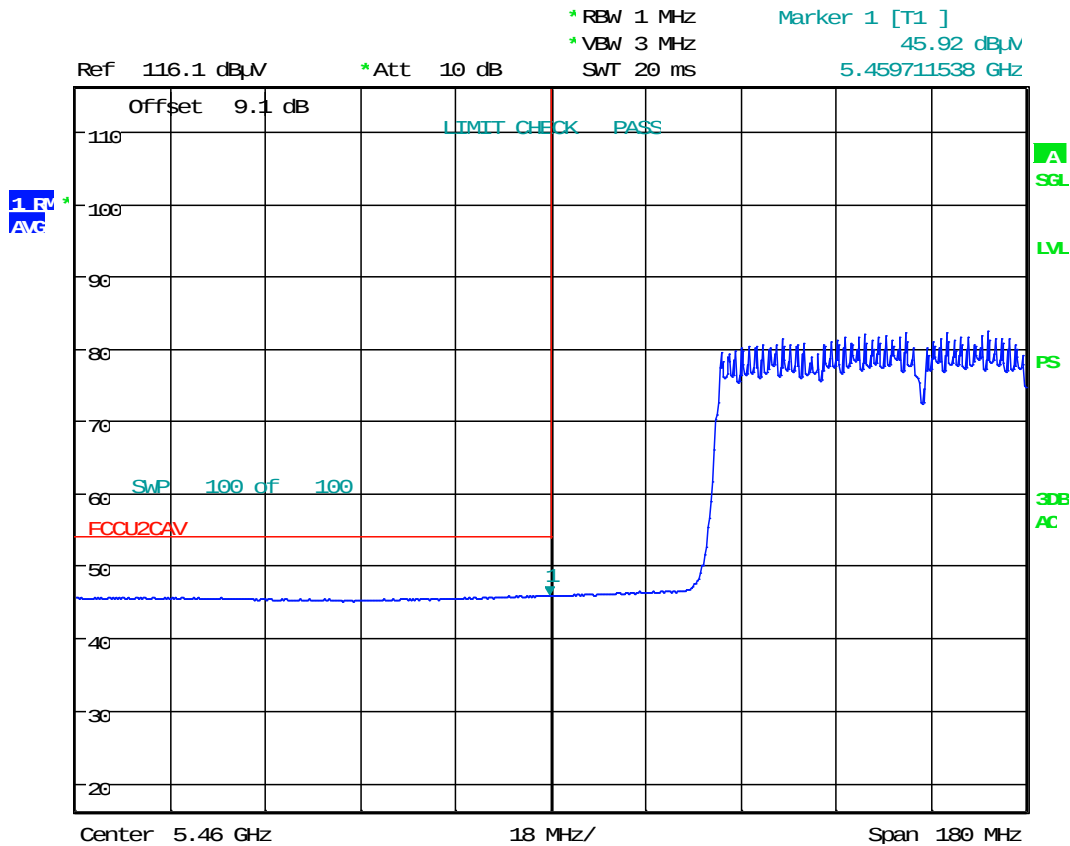
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



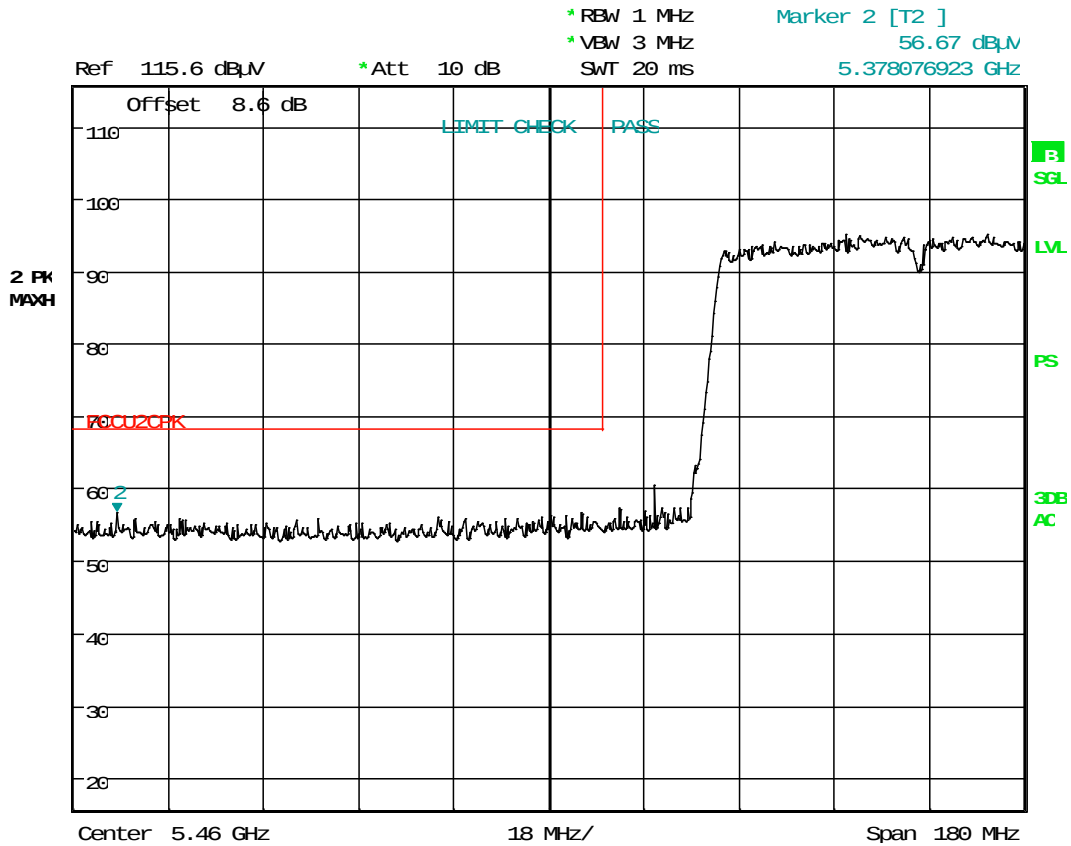
Date: 9.JUN.2017 21:48:20

Plot 7-221. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 173 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 9.JUN.2017 21:48:39

Plot 7-222. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 174 of 254

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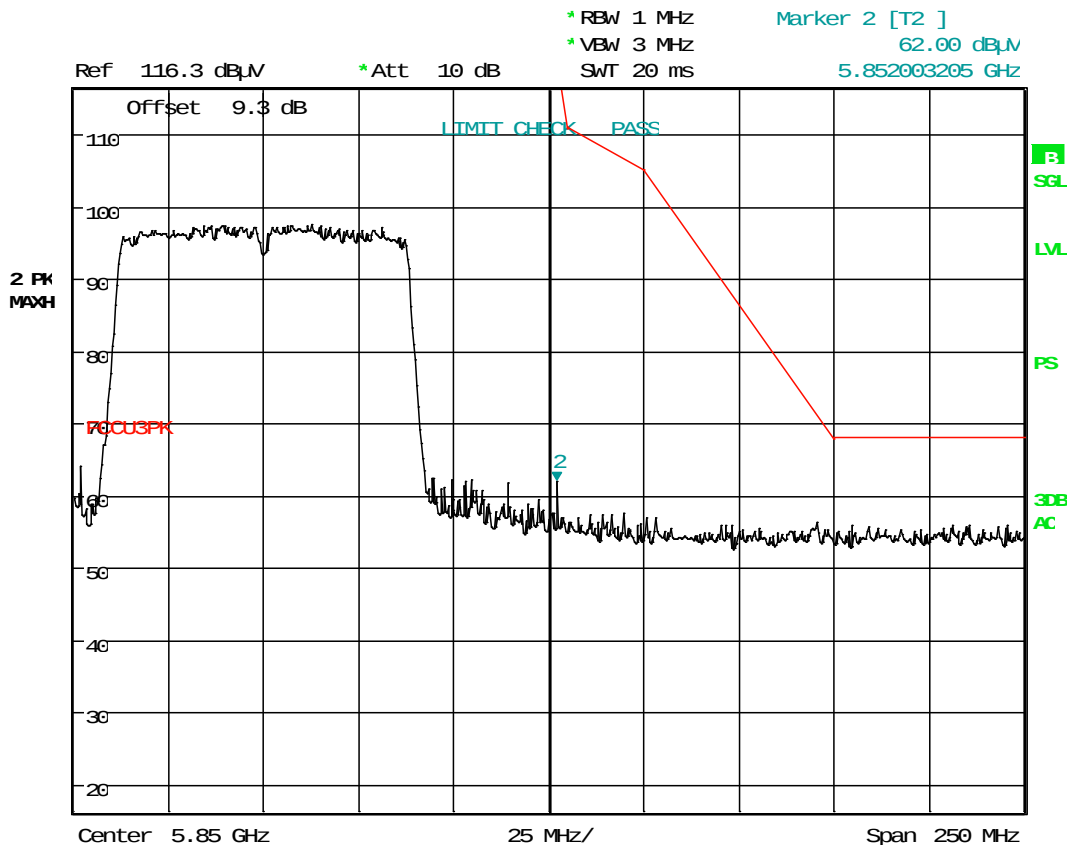
06/06/2017

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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: 9.JUN.2017 21:56:31

Plot 7-223. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 175 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

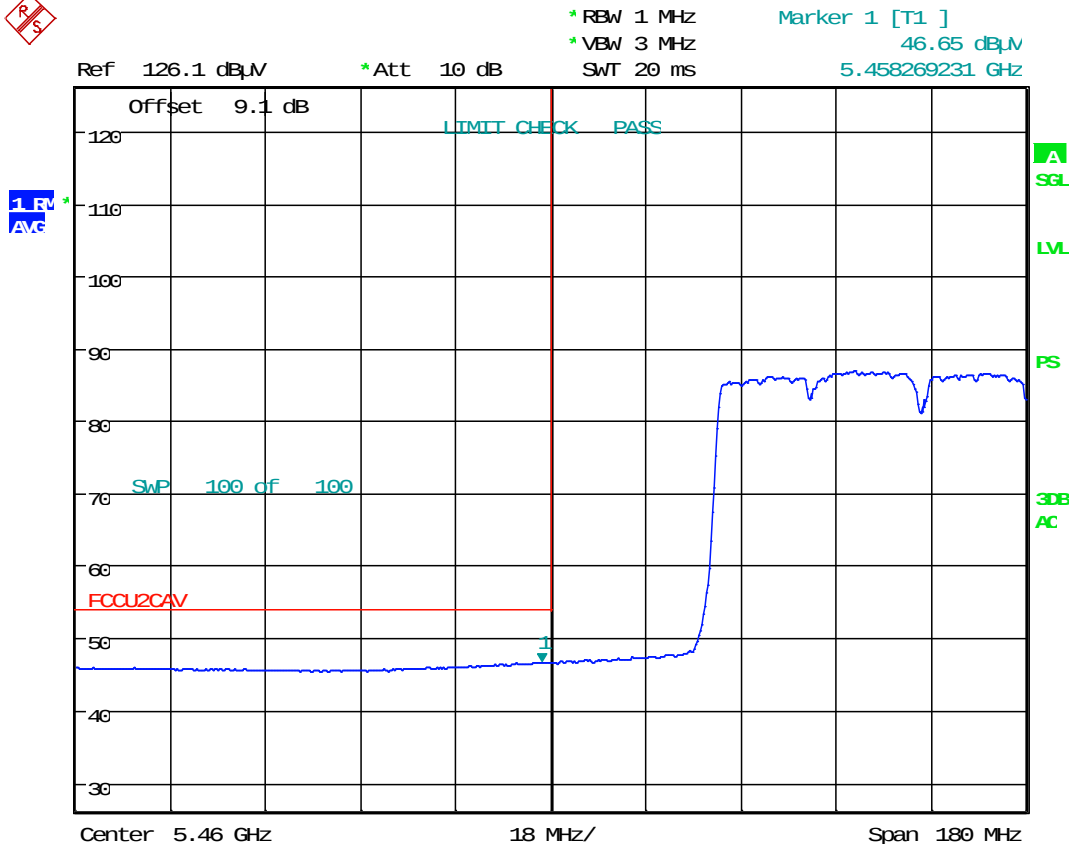
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



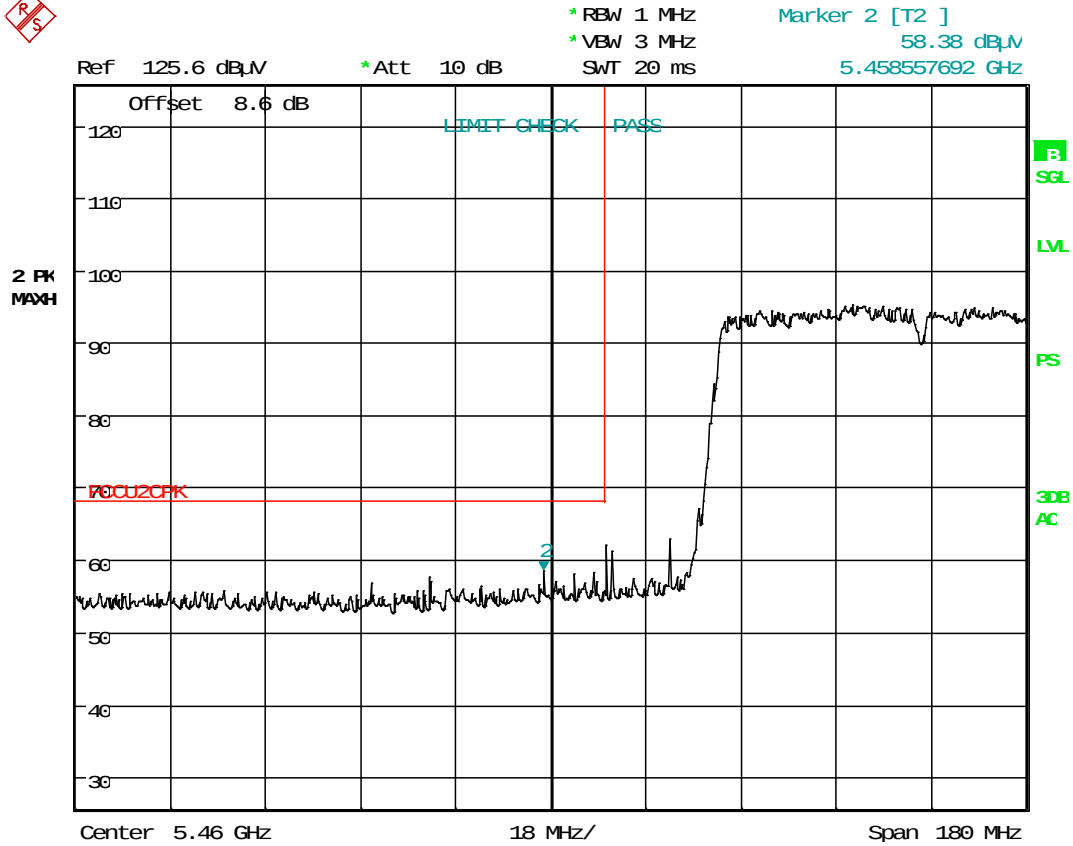
Date: 13. JUN. 2017 10:52:05

Plot 7-224. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 176 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 13.JUN.2017 10:52:22

Plot 7-225. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 177 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

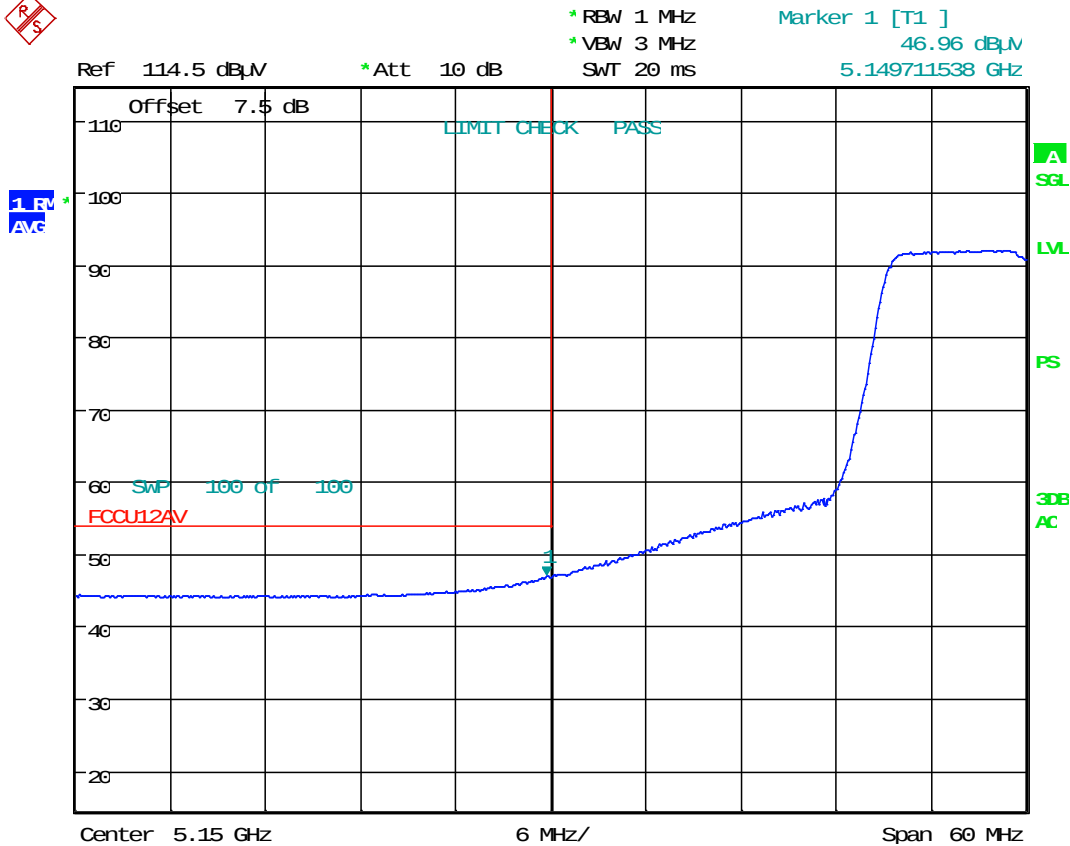
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



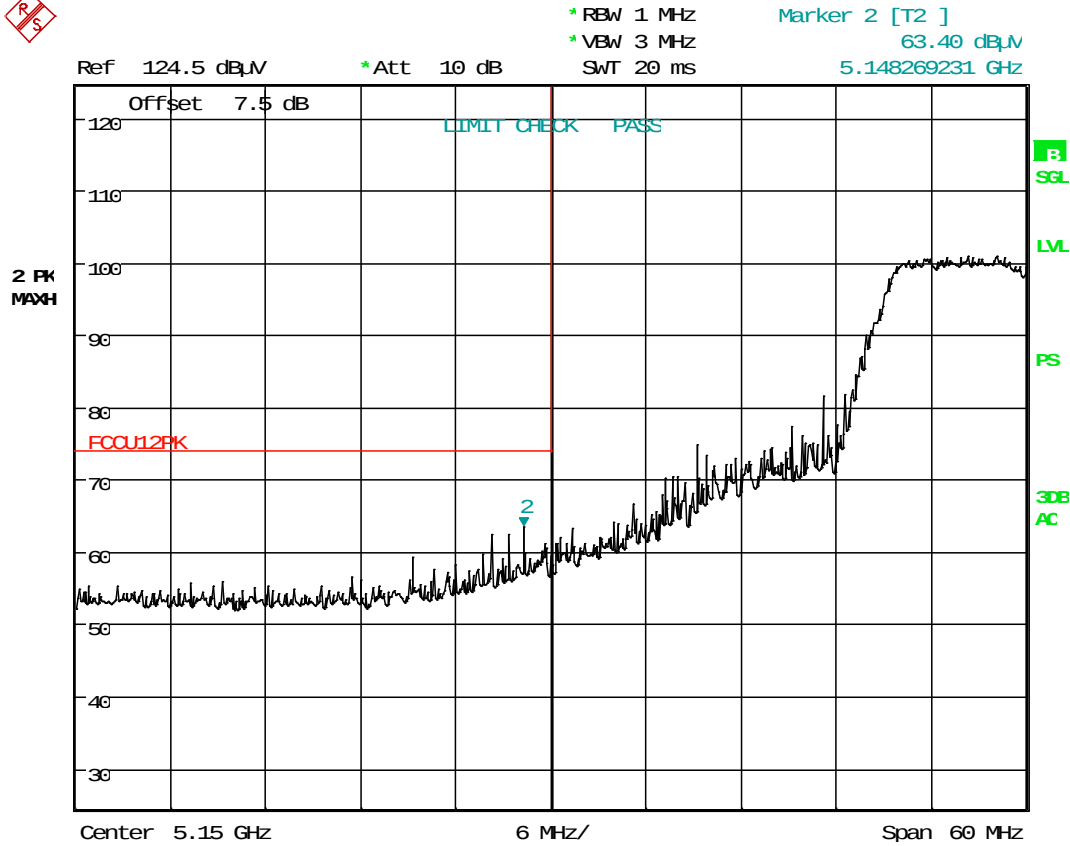
Date: 12.JUN.2017 13:38:12

Plot 7-226. Radiated Restricted Lower Band Edge Plot (Average - UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 - 7/15/2017	EUT Type: Portable Handset		Page 178 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 13:39:47

Plot 7-227. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 179 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

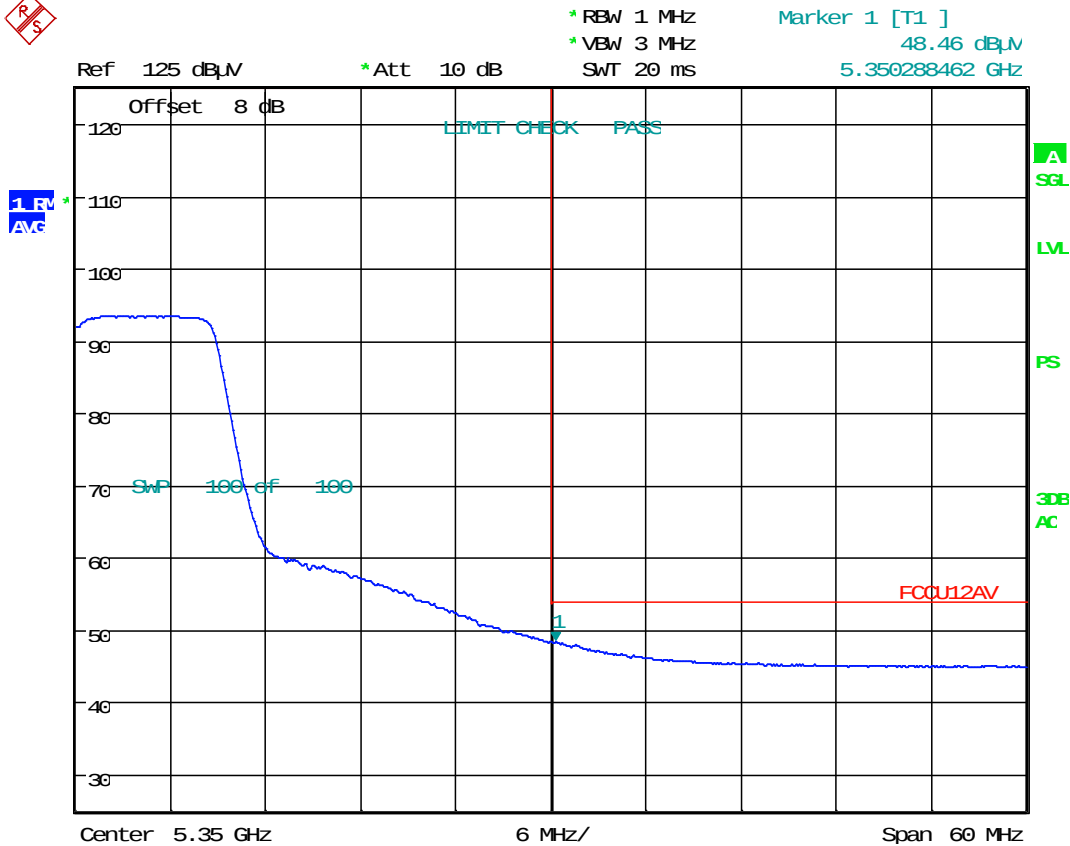
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64

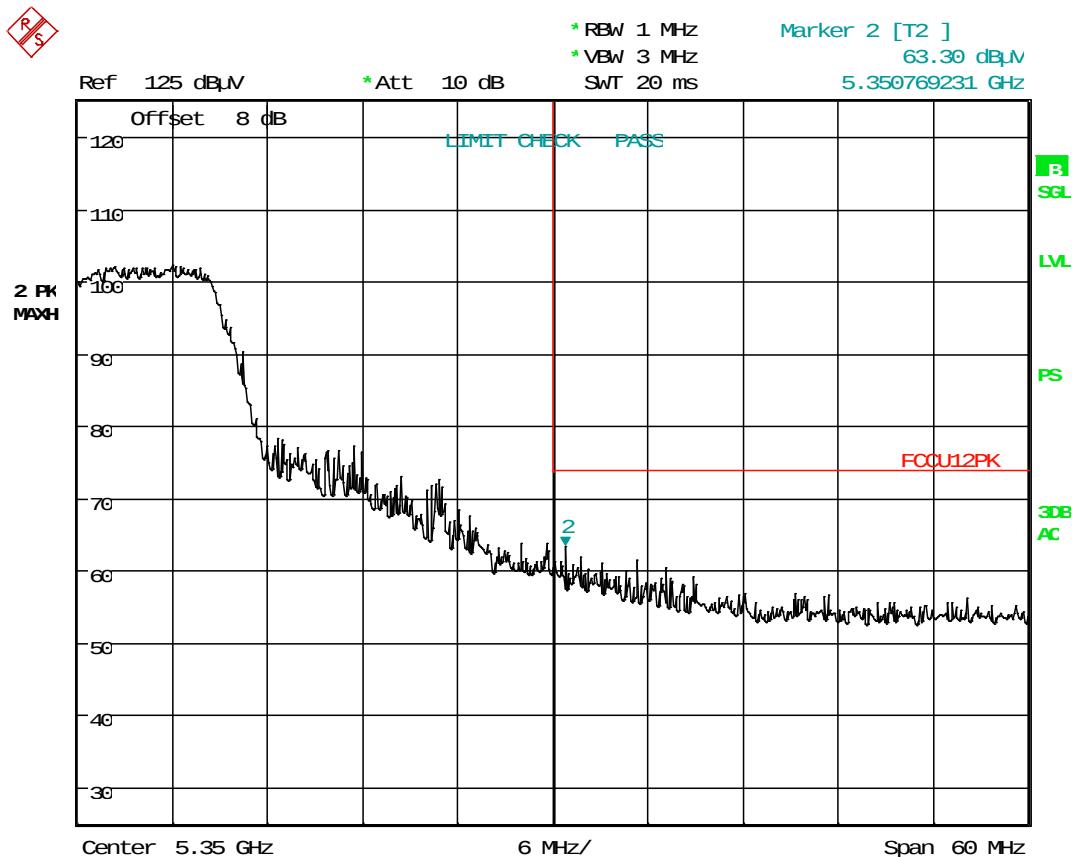


Date: 12. JUN. 2017 13:48:38

Plot 7-228. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 180 of 254

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



Date: 12.JUN.2017 13:48:52

Plot 7-229. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset	Page 181 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

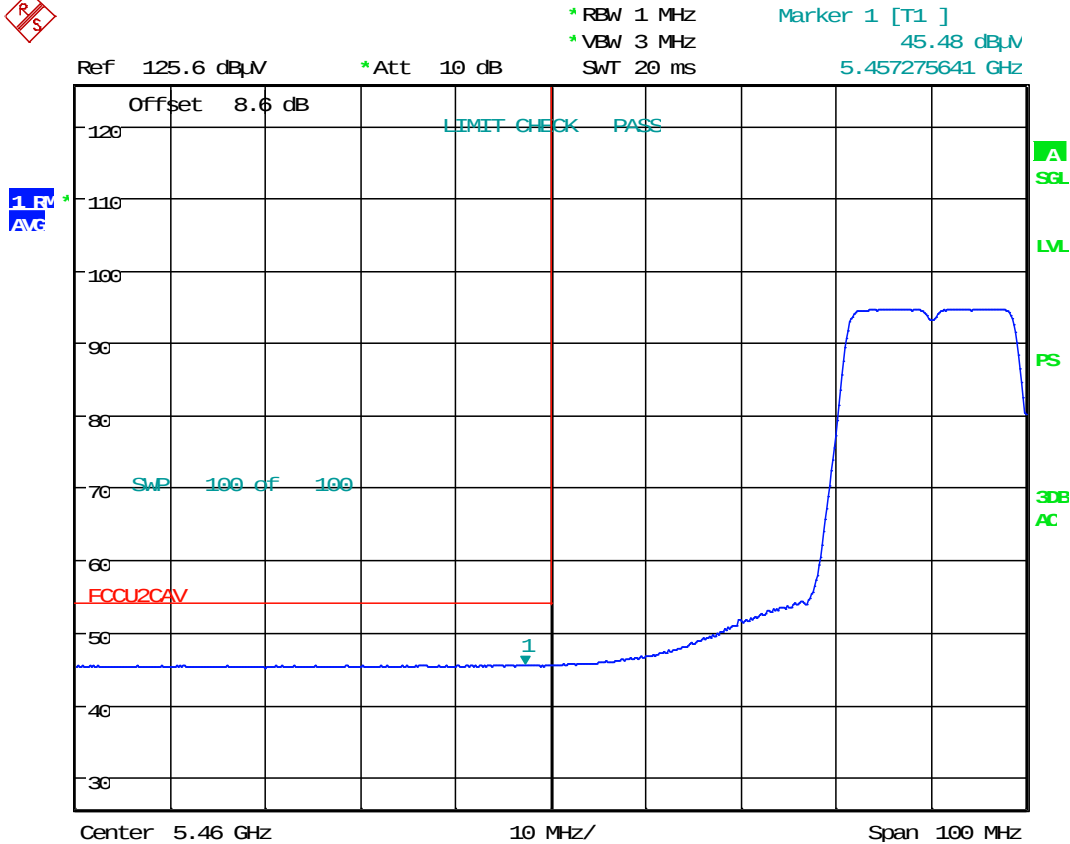
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



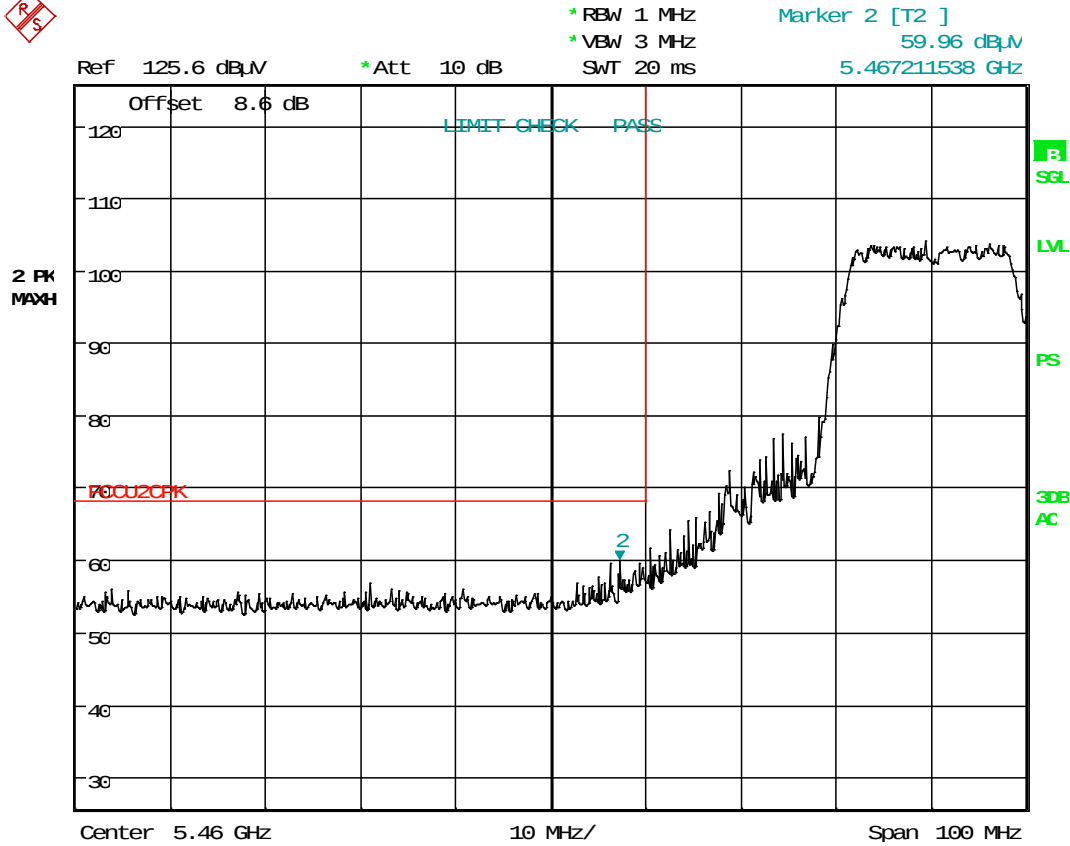
Date: 12. JUN. 2017 13:54:25

Plot 7-230. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 182 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 13:54:47

Plot 7-231. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 183 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

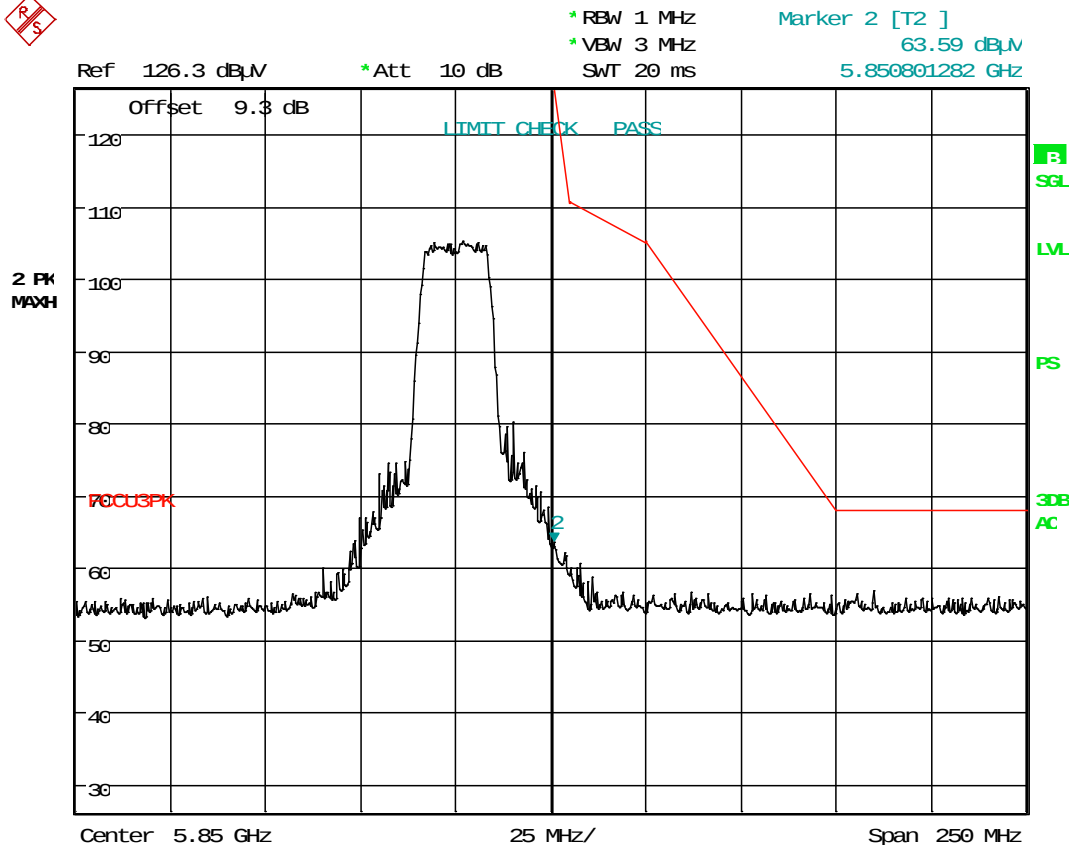
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 12. JUN. 2017 13:59:05

Plot 7-232. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 184 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

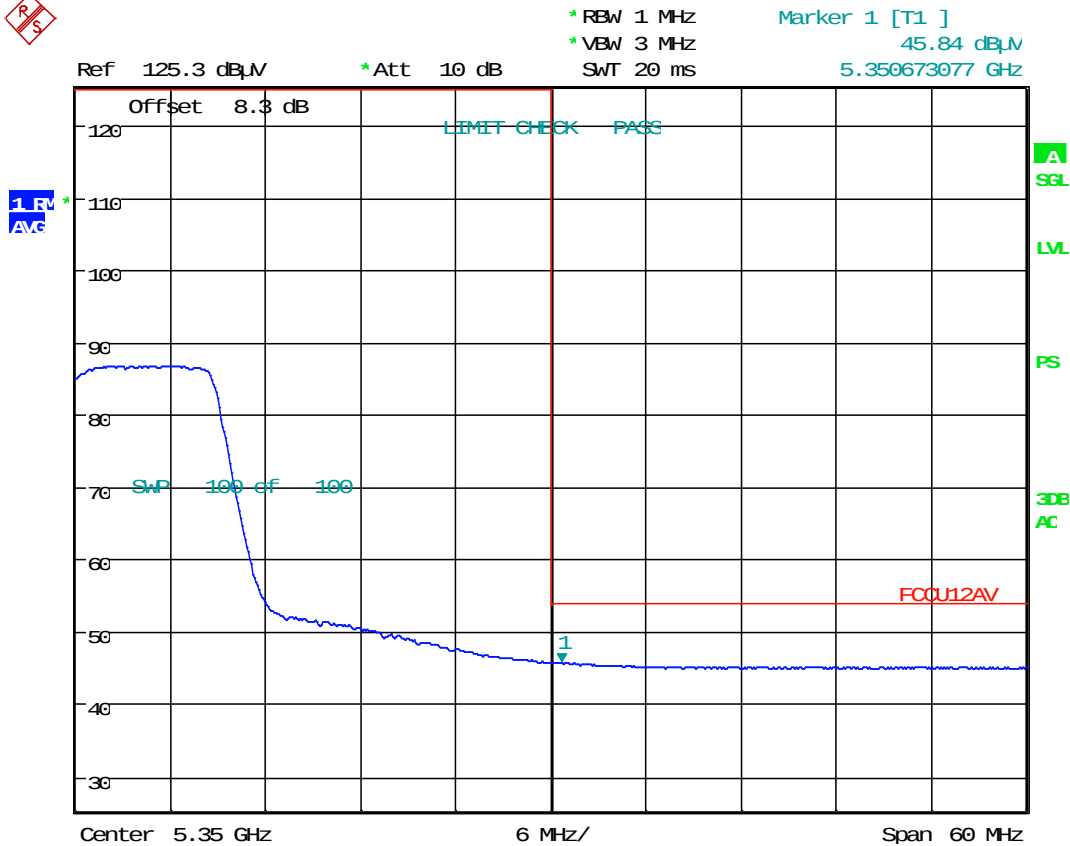
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



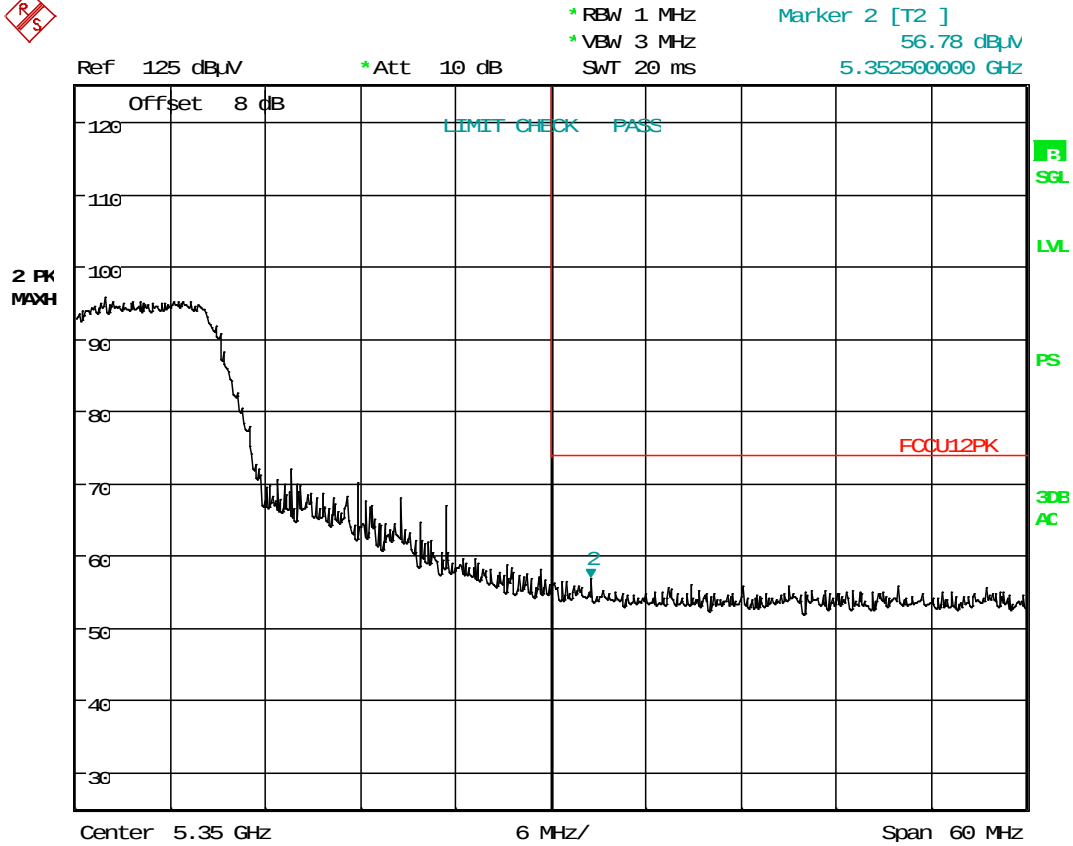
Date: 13. JUN. 2017 11:03:34

Plot 7-233. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 185 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 13.JUN.2017 11:04:03

Plot 7-234. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 186 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

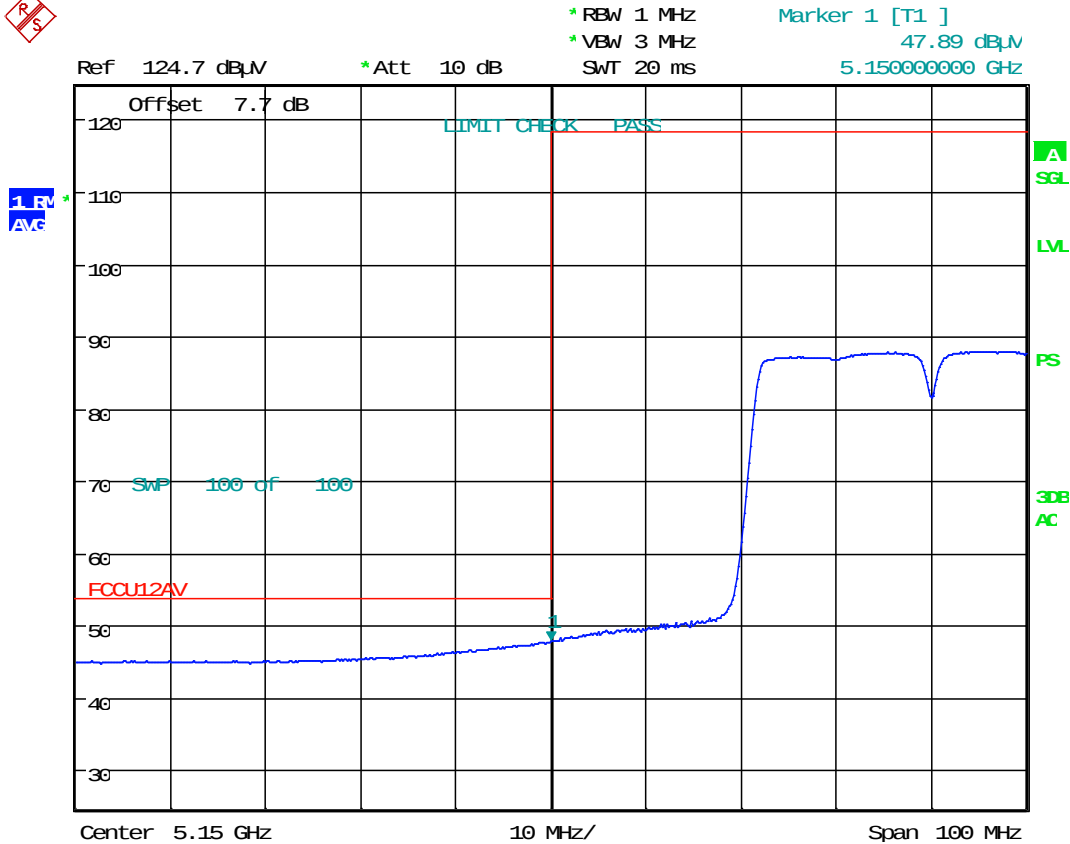
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



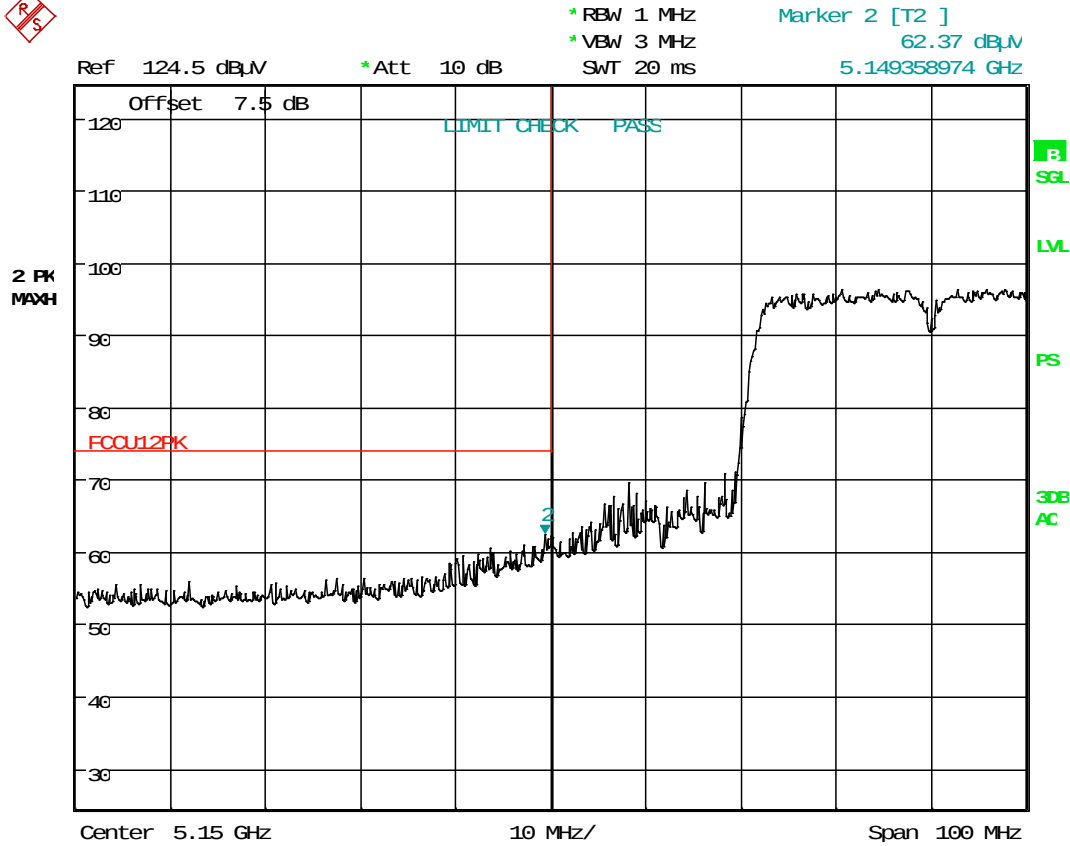
Date: 12. JUN. 2017 14:14:54

Plot 7-235. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 187 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 14:15:22

Plot 7-236. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 188 of 254

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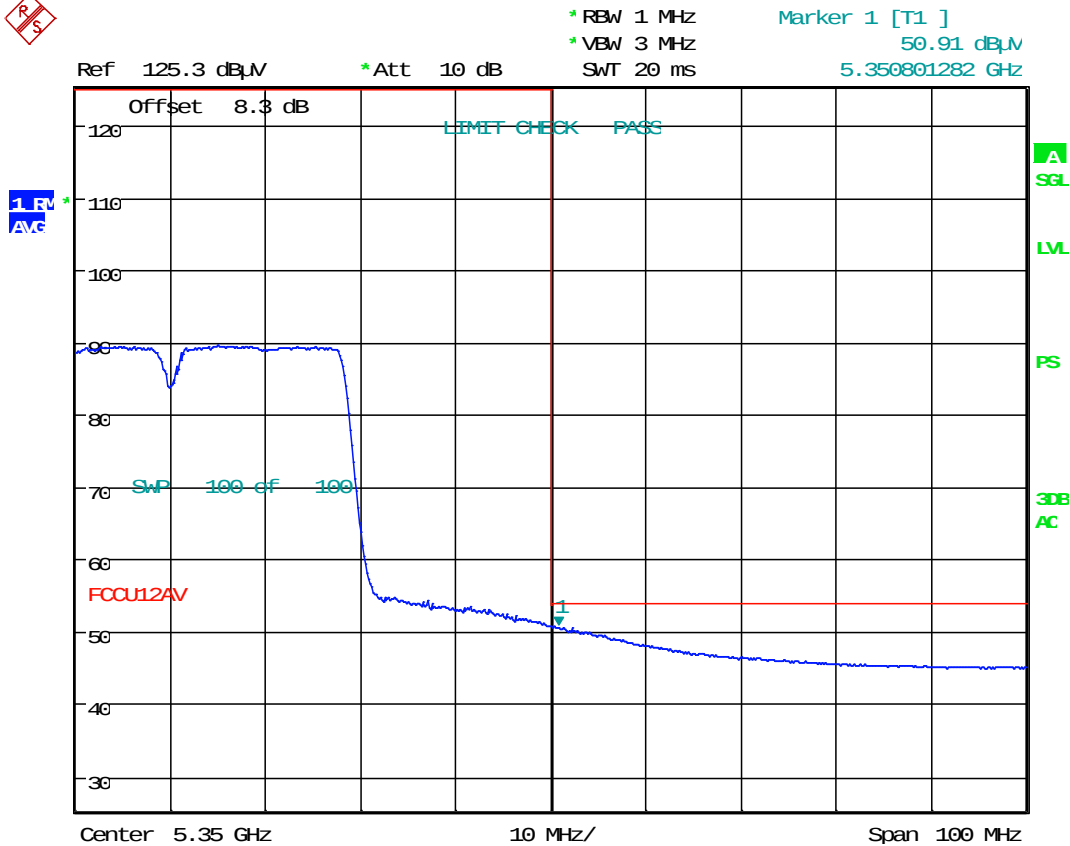
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Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§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: 12.JUN.2017 14:18:35

Plot 7-237. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 189 of 254

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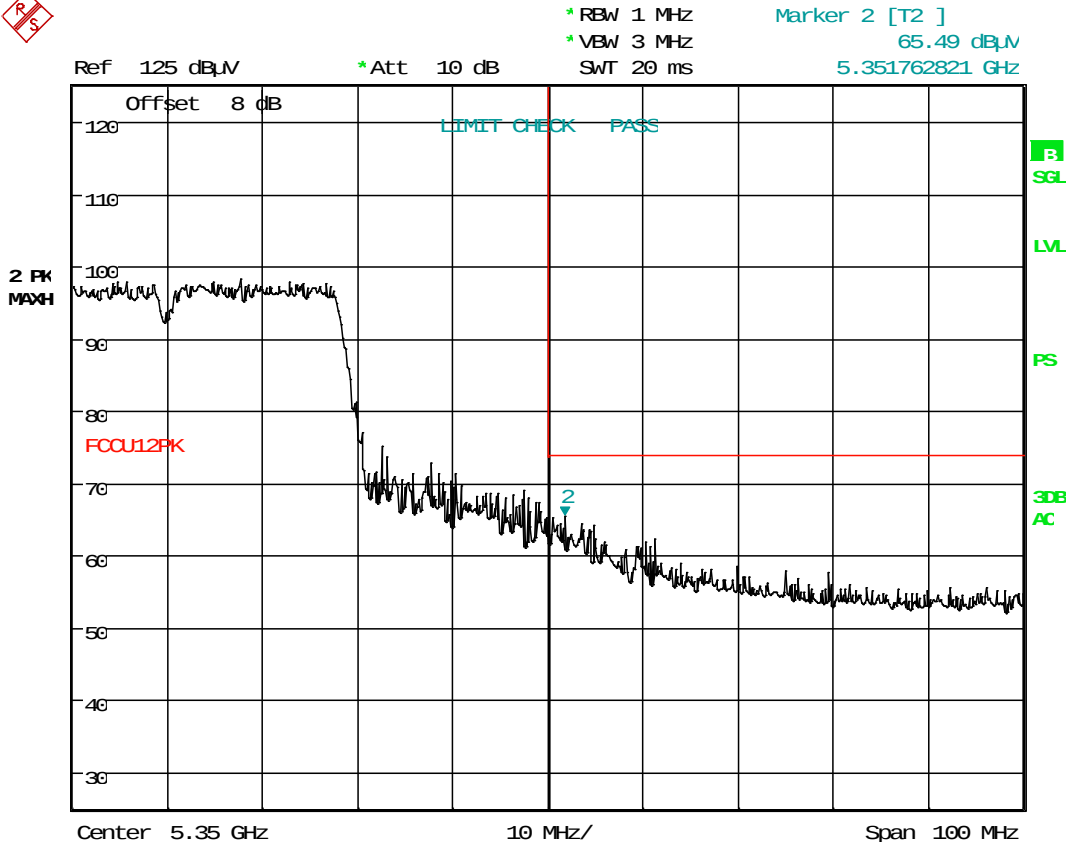
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Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 14:18:48

Plot 7-238. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 190 of 254

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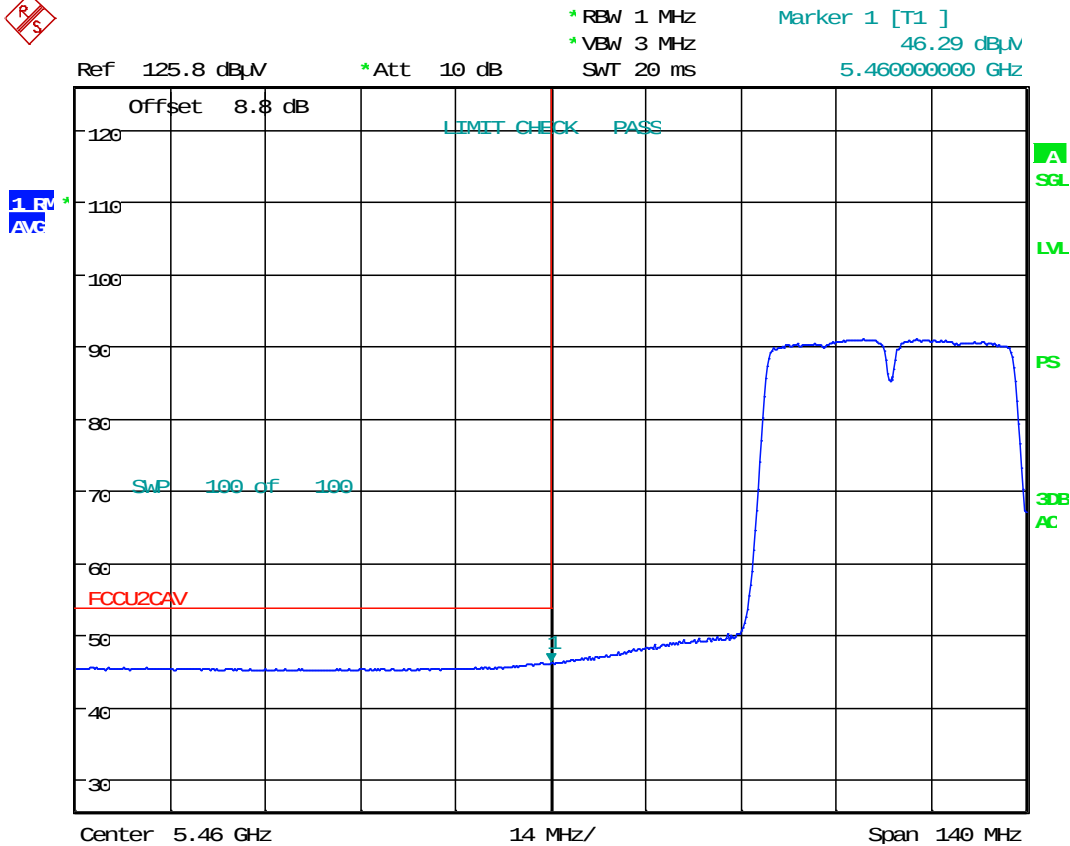
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Antenna-2 Radiated Band Edge Measurements (40MHz BW)

\$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



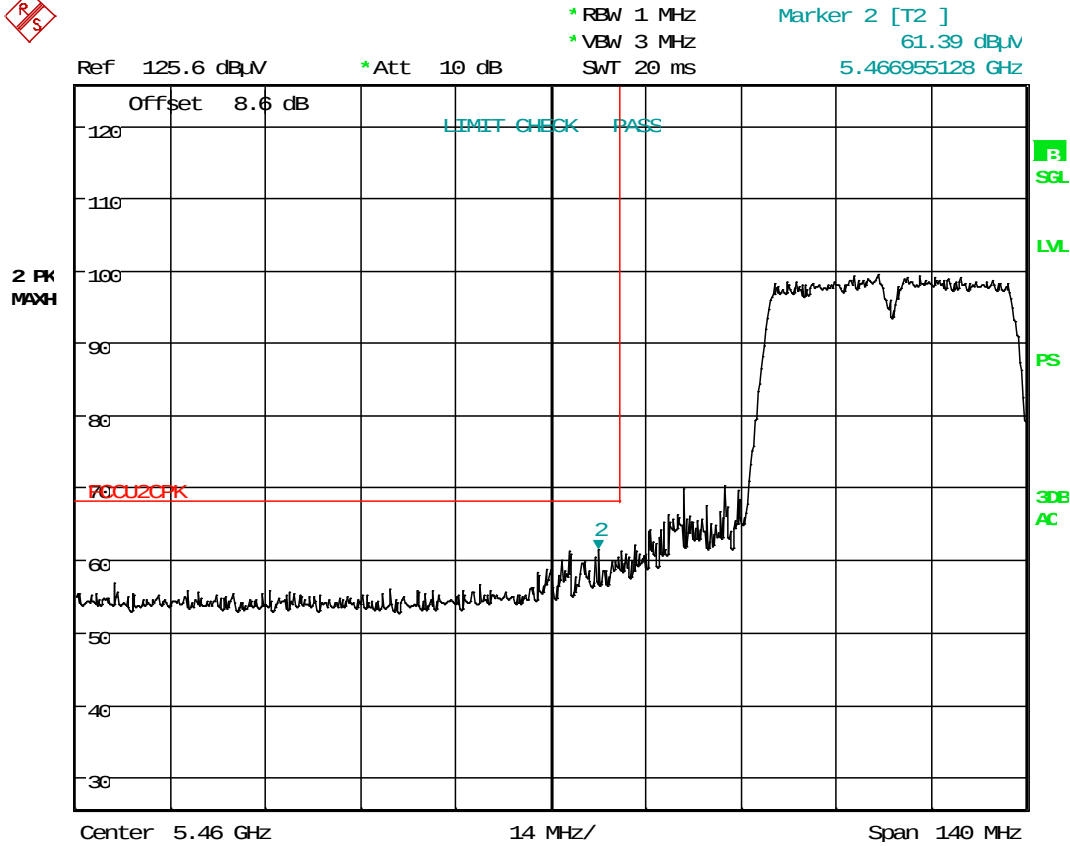
Date: 12. JUN. 2017 14:22:03

Plot 7-239. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 191 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 14:22:21

Plot 7-240. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 192 of 254

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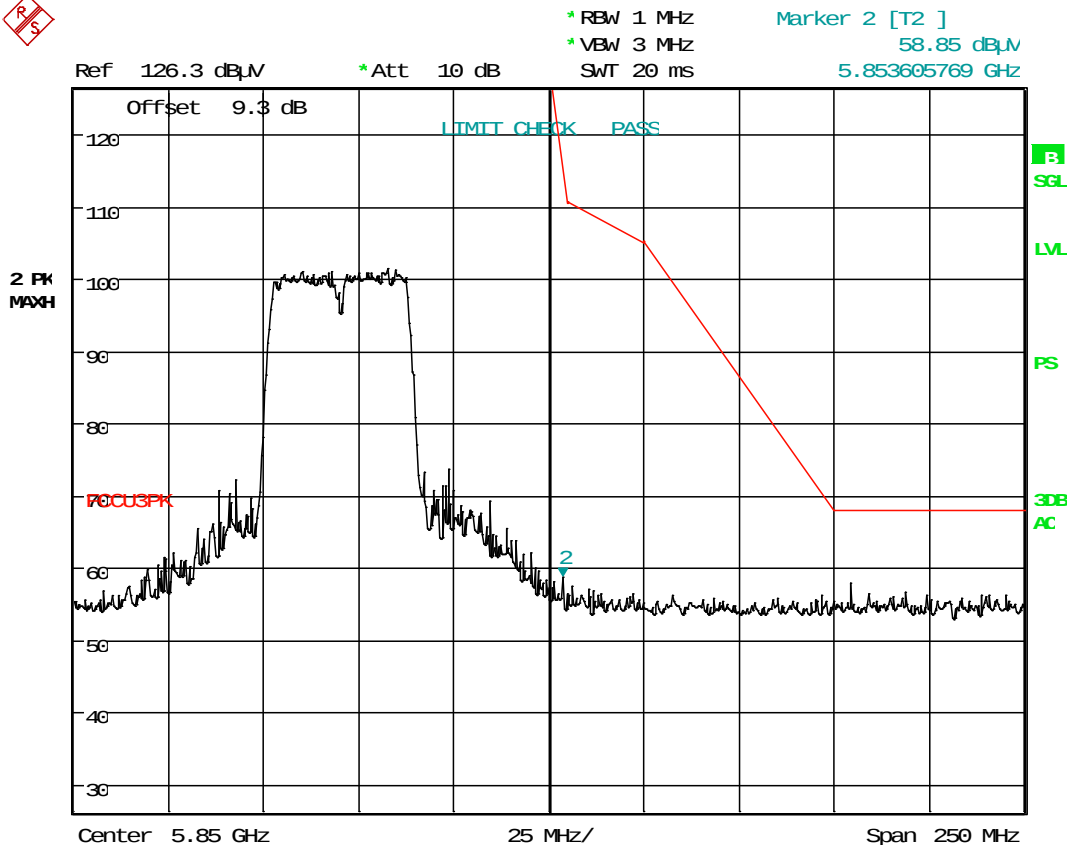
06/06/2017

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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: 12. JUN. 2017 14:25:43

Plot 7-241. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 193 of 254

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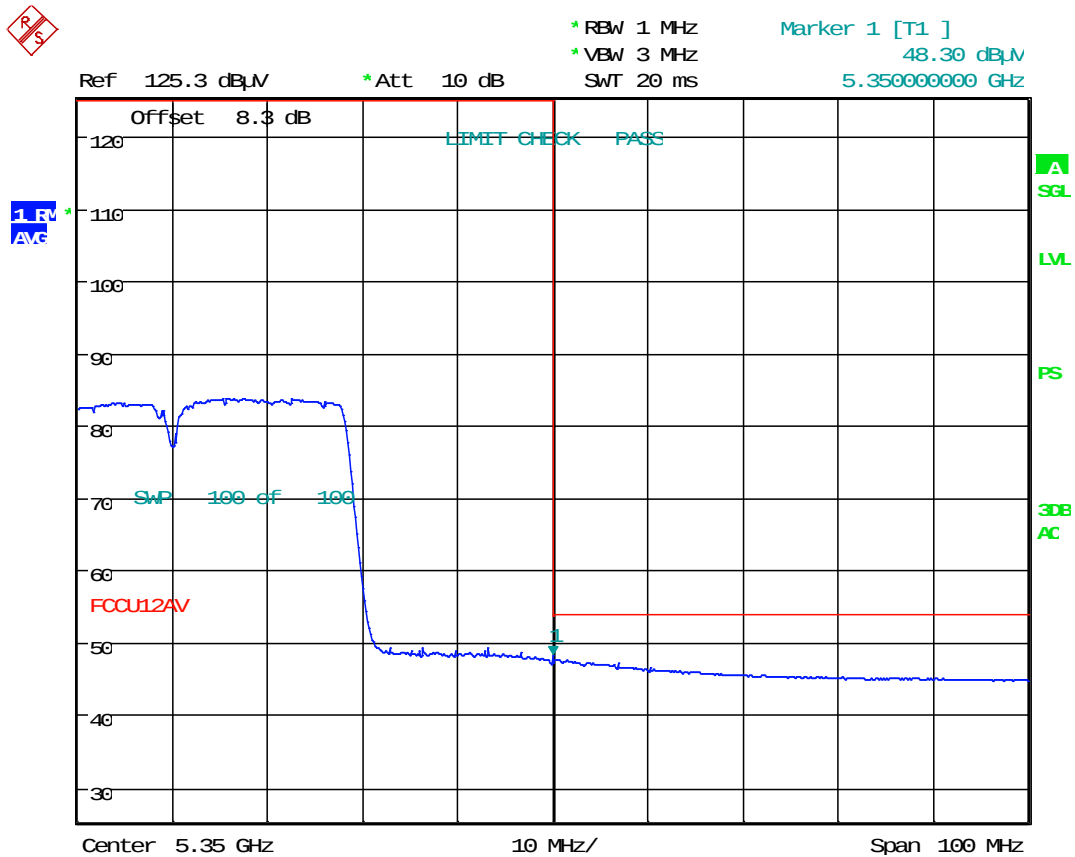
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Antenna-2 WCP Radiated Band Edge Measurements (40MHz BW)
§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode:	<u>802.11n</u>
Worst Case Transfer Rate:	<u>MCS0</u>
Distance of Measurements:	<u>3 Meters</u>
Operating Frequency:	<u>5310MHz</u>
Channel:	<u>62</u>



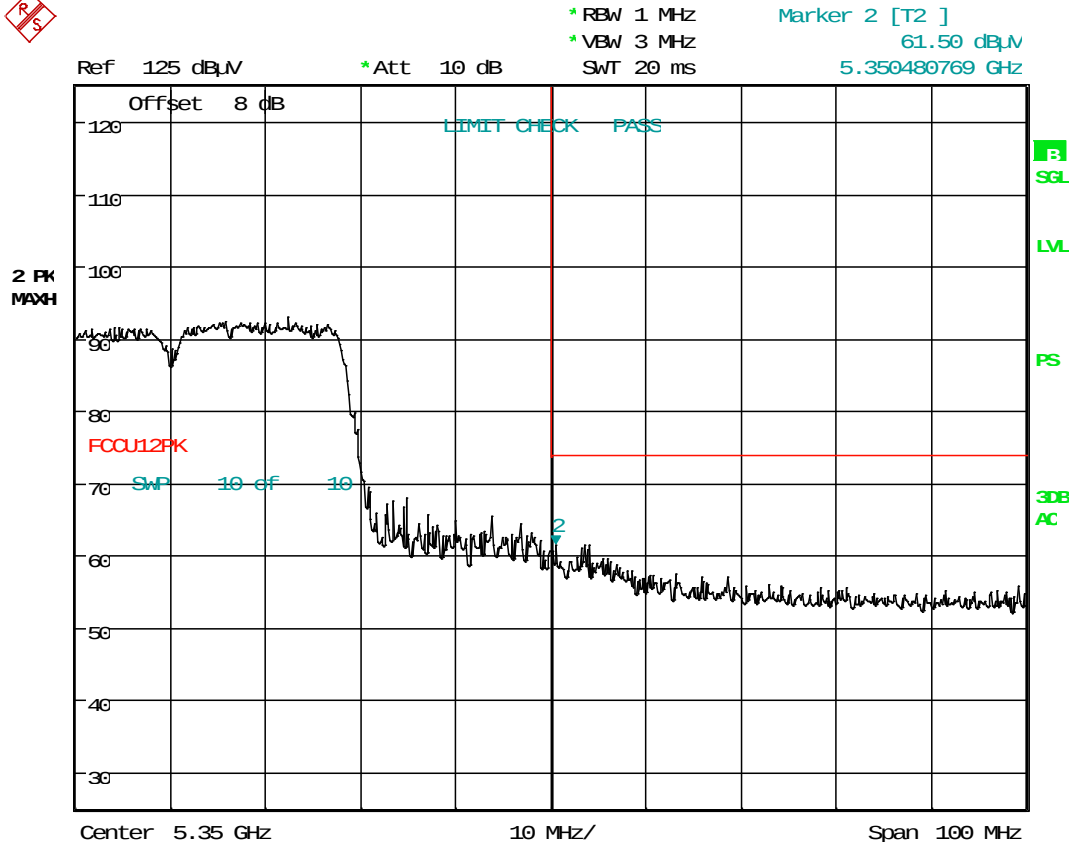
Date: 13.JUN.2017 11:30:53

Plot 7-242. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset	Page 194 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 13.JUN.2017 11:31:30

Plot 7-243. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 195 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

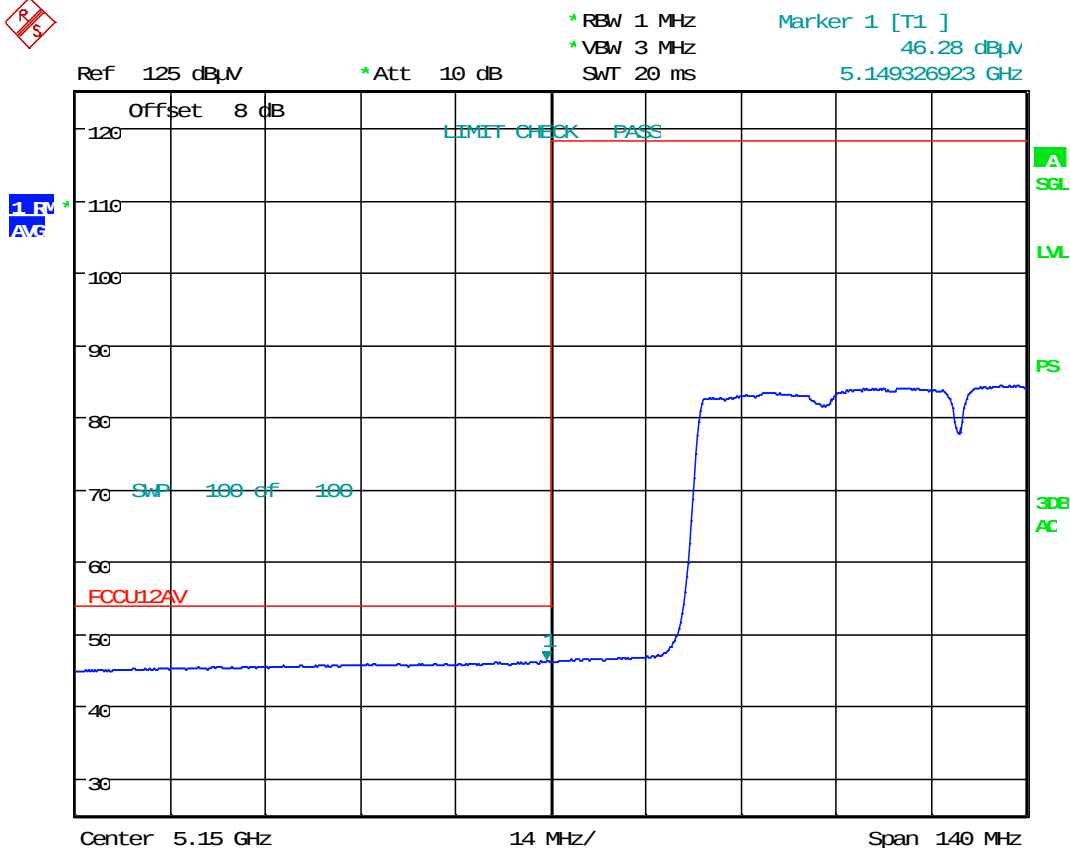
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



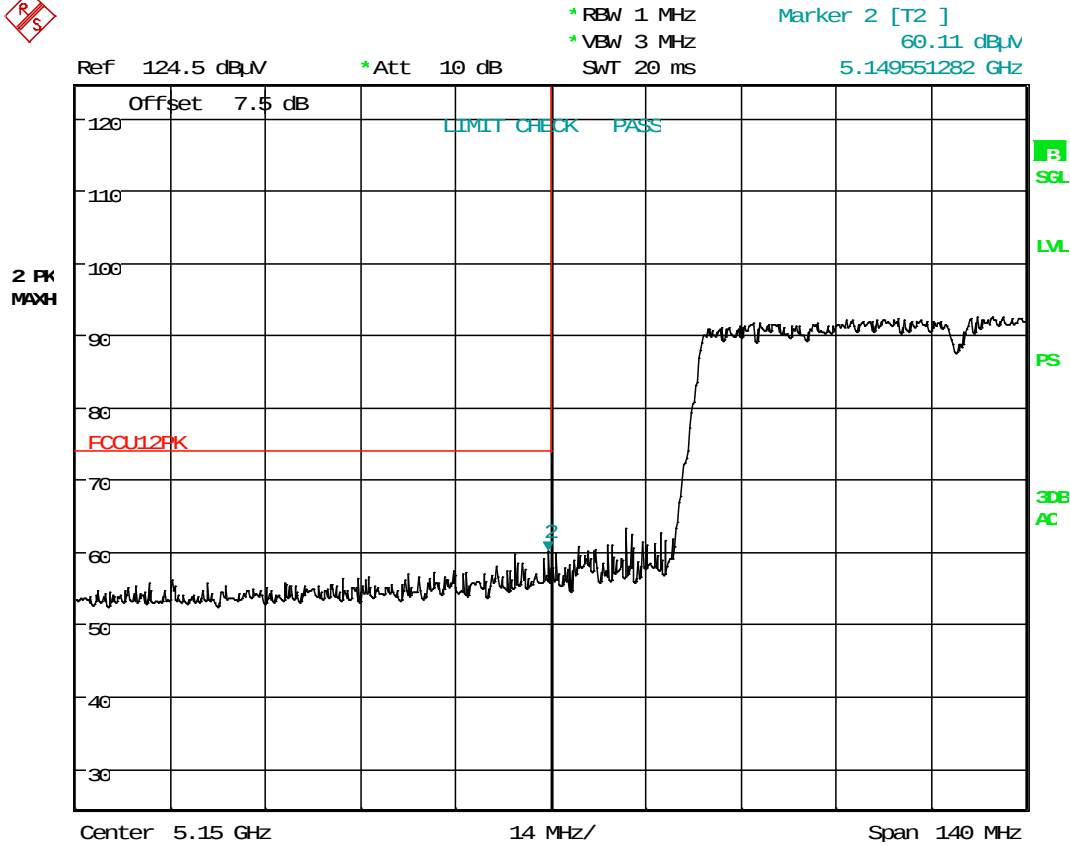
Date: 12. JUN. 2017 14:32:37

Plot 7-244. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 196 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 14:32:52

Plot 7-245. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 197 of 254

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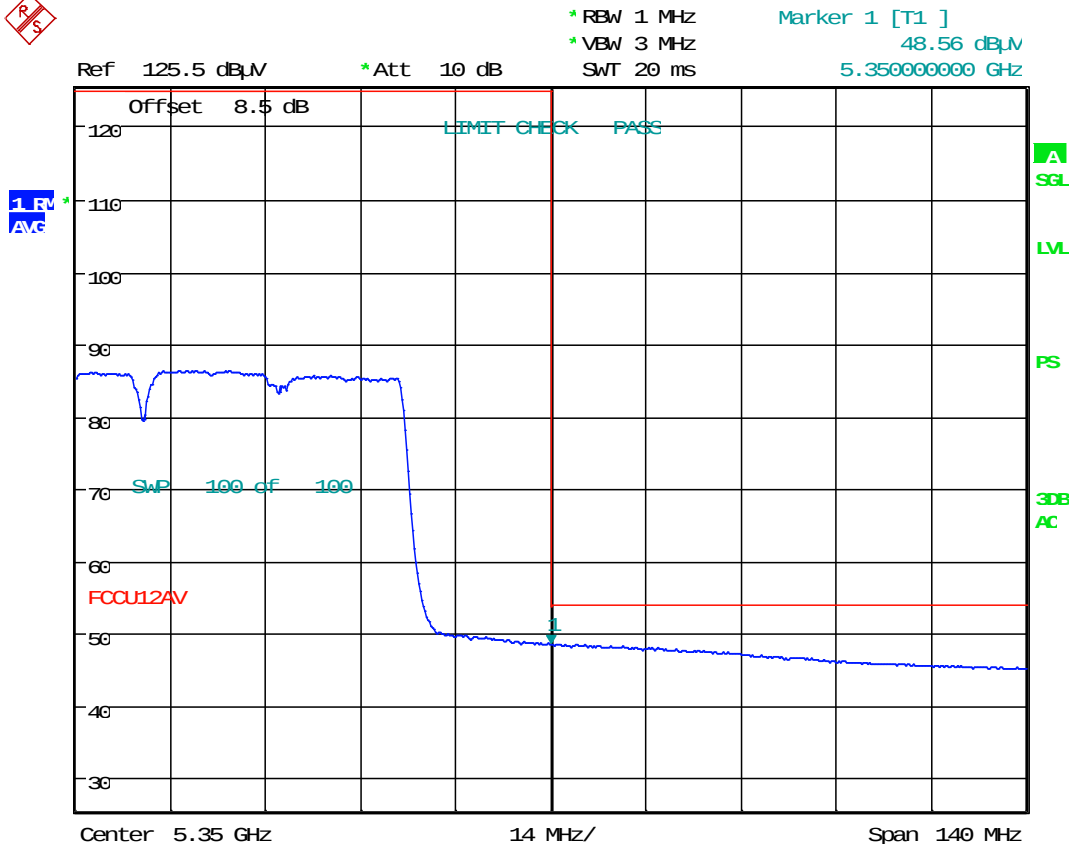
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Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§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



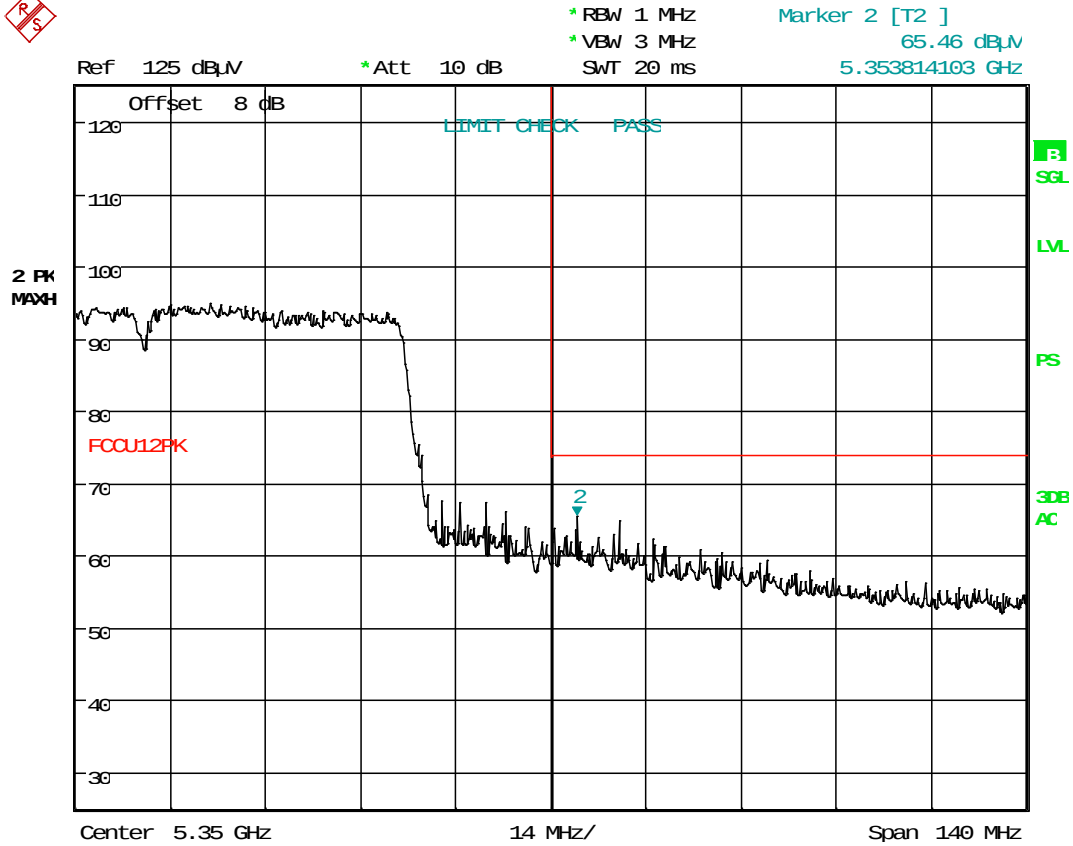
Date: 12. JUN. 2017 14:36:32

Plot 7-246. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 198 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 14:36:45

Plot 7-247. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 199 of 254

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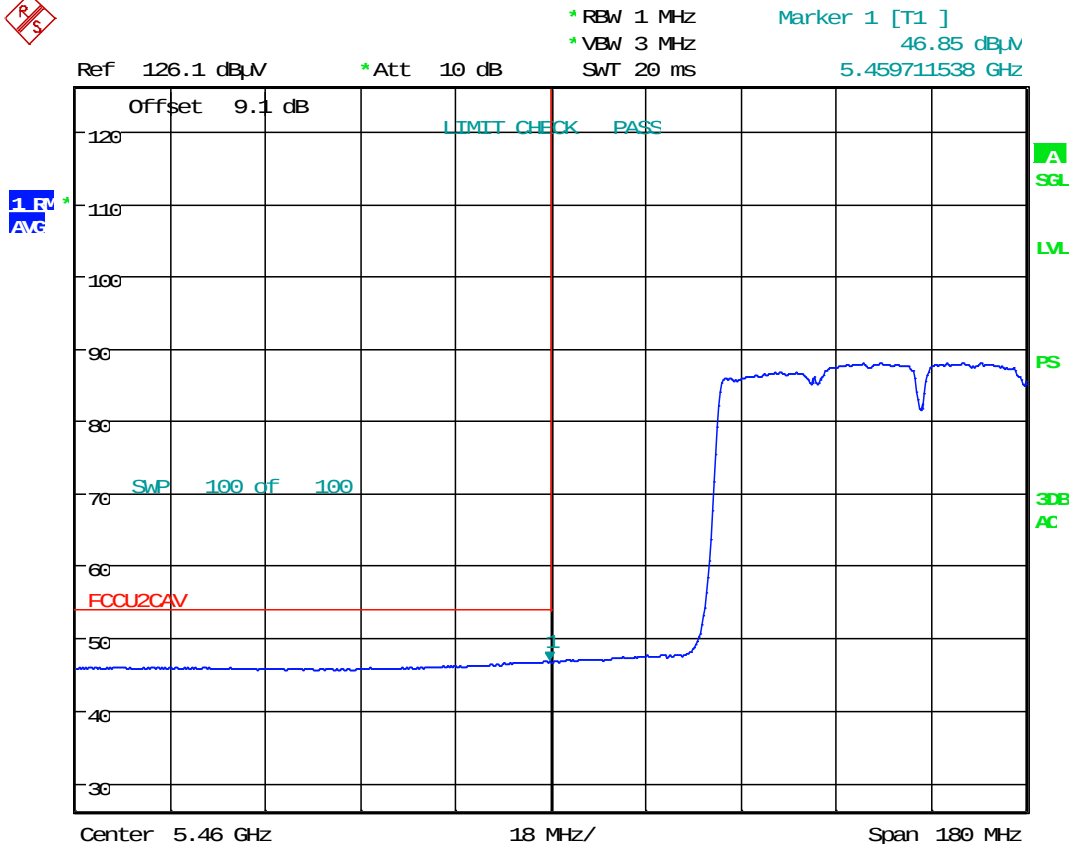
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Antenna-2 Radiated Band Edge Measurements (80MHz BW)

\$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: 12. JUN. 2017 14:40:02

Plot 7-248. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 200 of 254

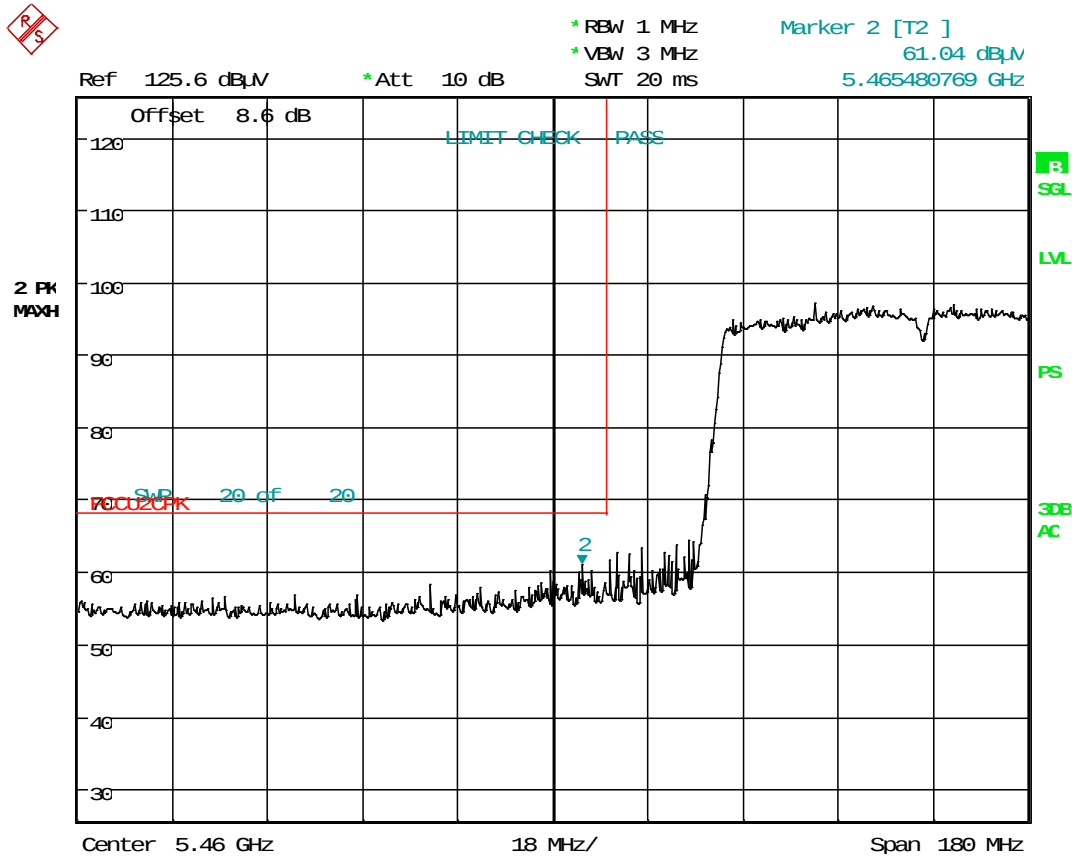
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Antenna-2 Radiated Band Edge Measurements (80MHz BW)
§15.407(b.1)(b.2) §15.205 §15.209



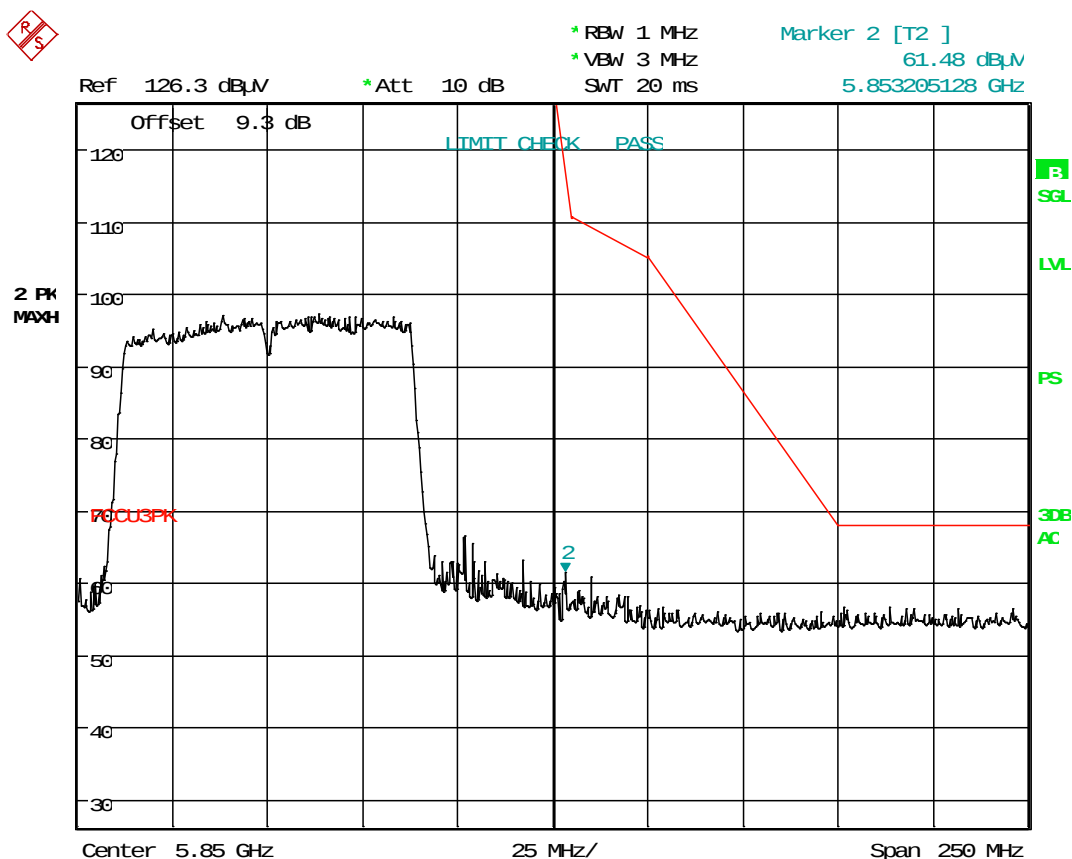
Date: 12.JUN.2017 14:40:26

Plot 7-249. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset	Page 201 of 254

Antenna-2 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>5775MHz</u>
Channel:	155



Date: 12.JUN.2017 14:43:51

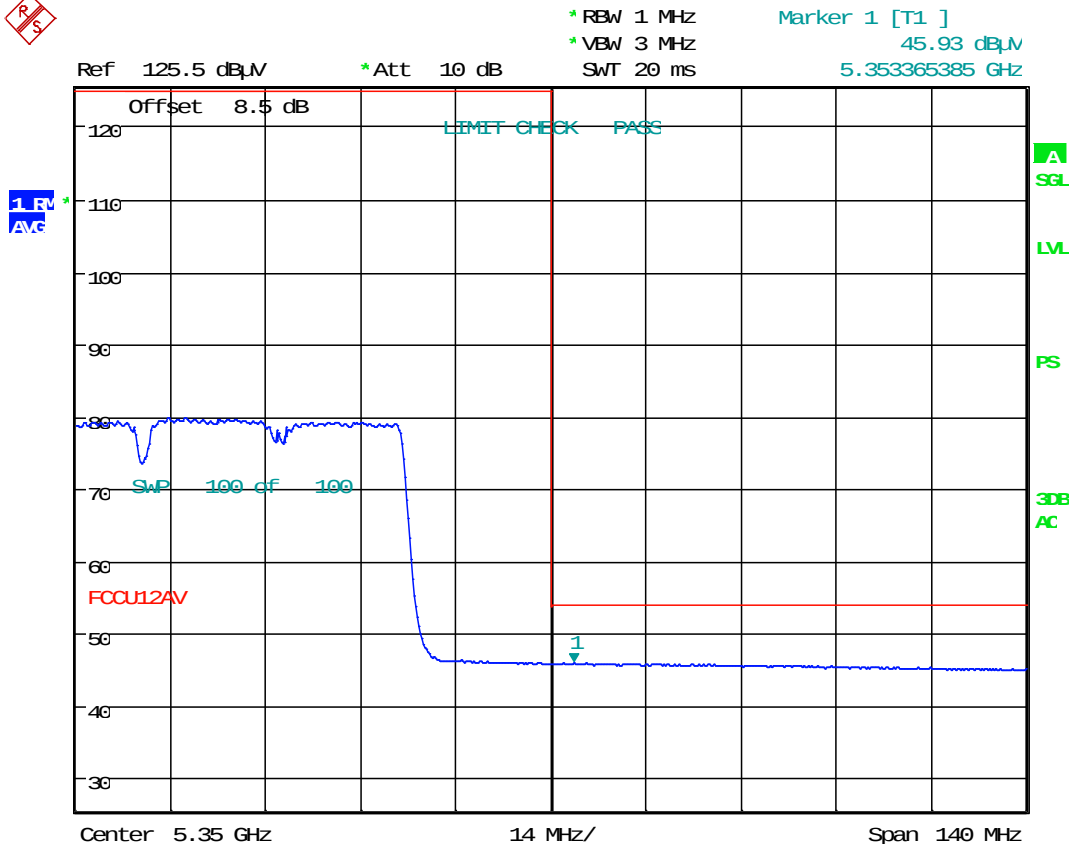
Plot 7-250. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset	Page 202 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209

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



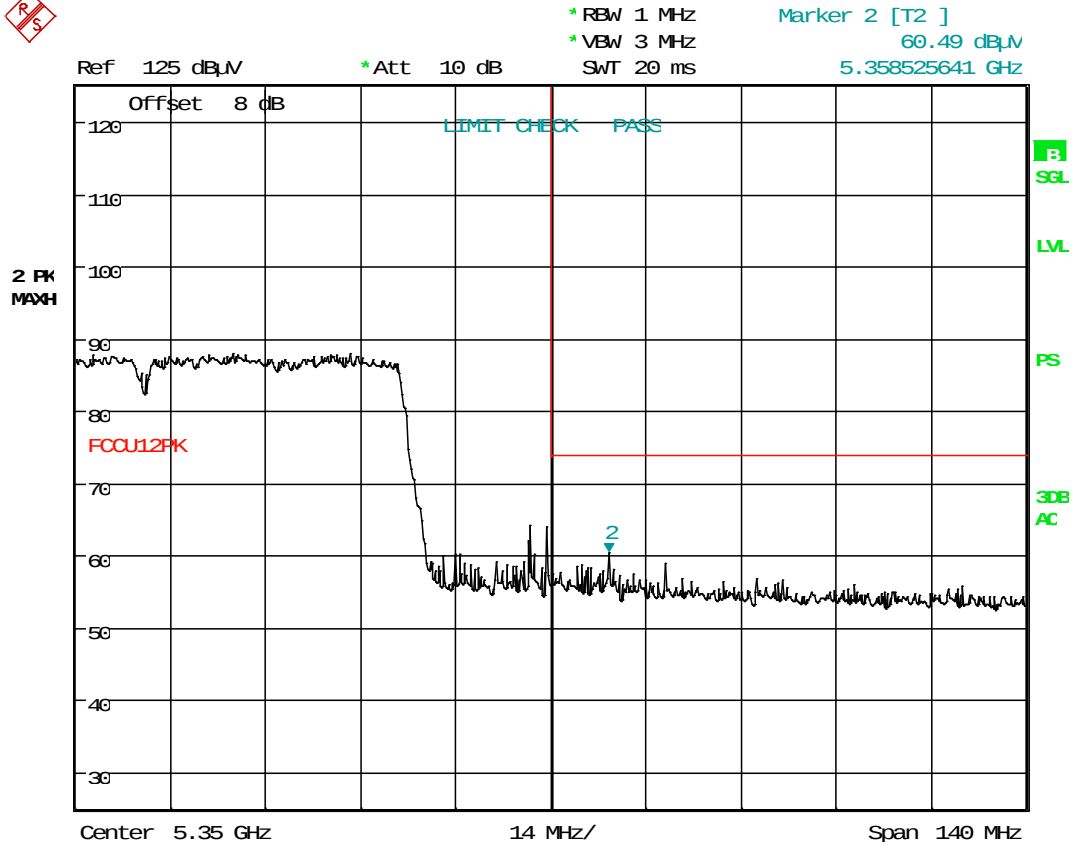
Date: 13. JUN. 2017 11:37:25

Plot 7-251. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 203 of 254

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 13.JUN.2017 11:33:50

Plot 7-252. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 204 of 254

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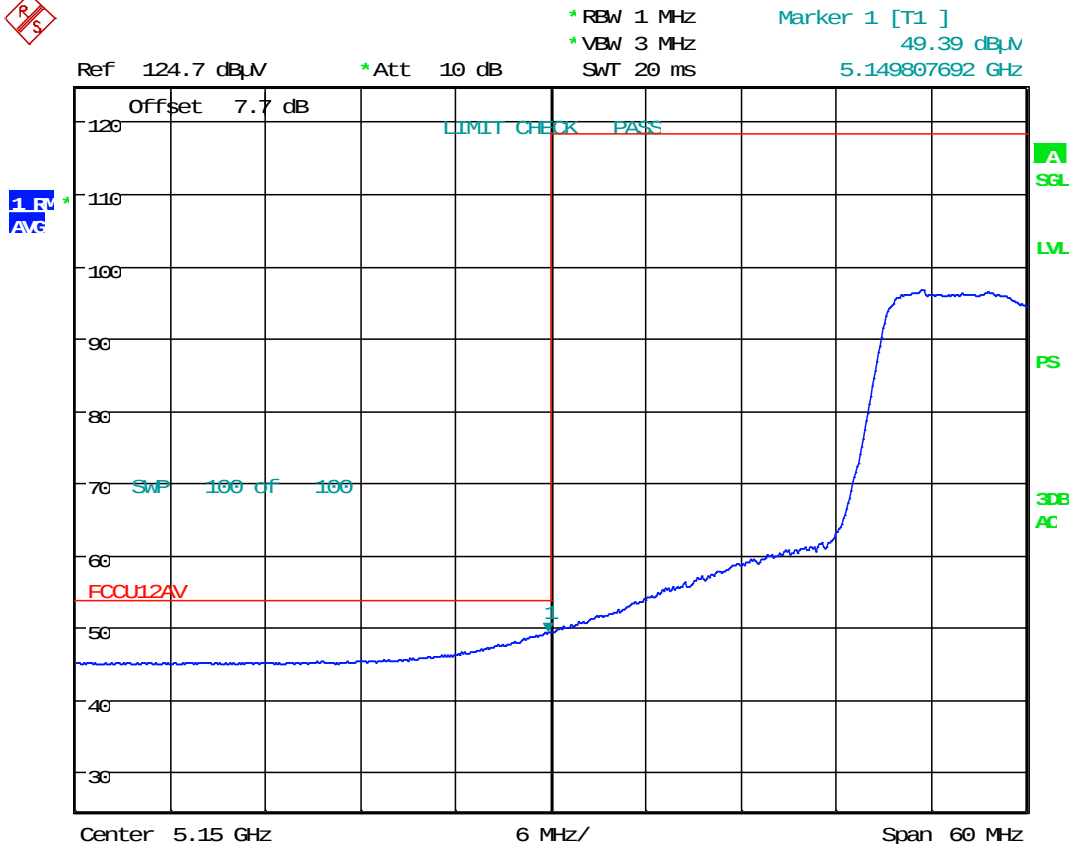
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7.7.10 MIMO Radiated Band Edge Measurements (20MHz BW)

§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: 12. JUN. 2017 15:18:29

Plot 7-253. Radiated Restricted Lower Band Edge Plot (Average - UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 - 7/15/2017	EUT Type: Portable Handset		Page 205 of 254

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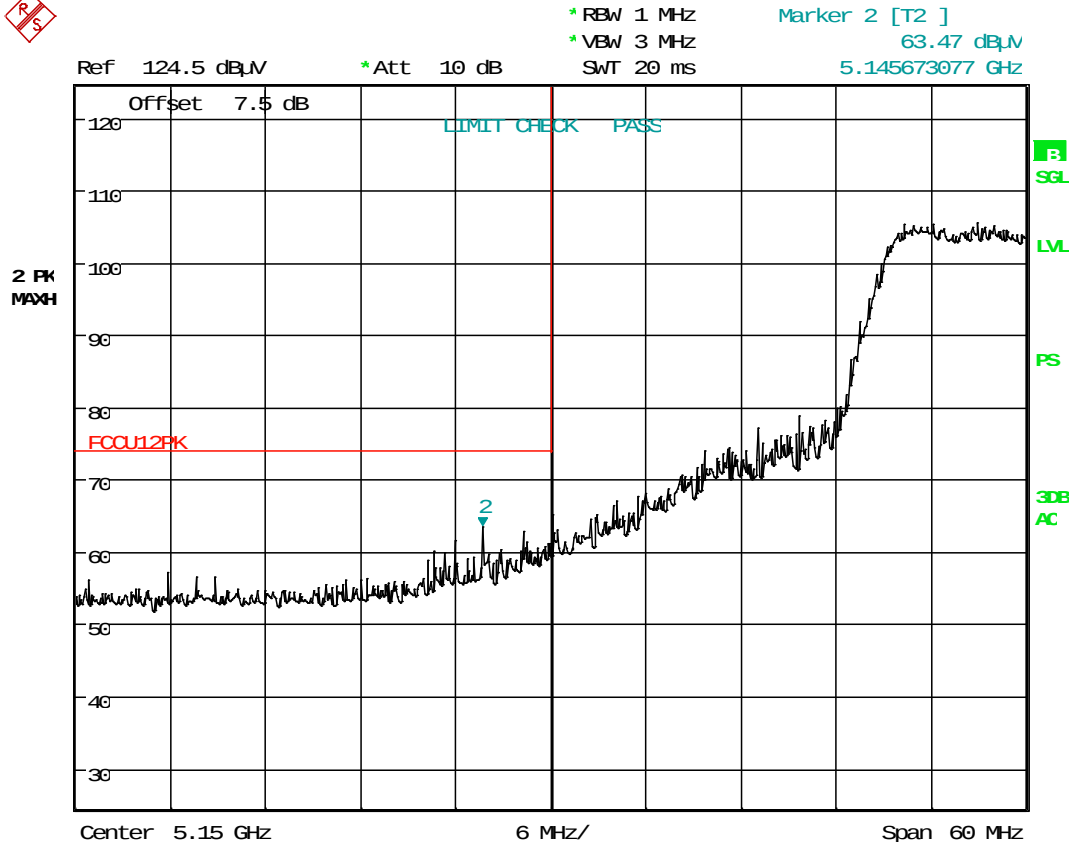
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MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:18:45

Plot 7-254. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 206 of 254

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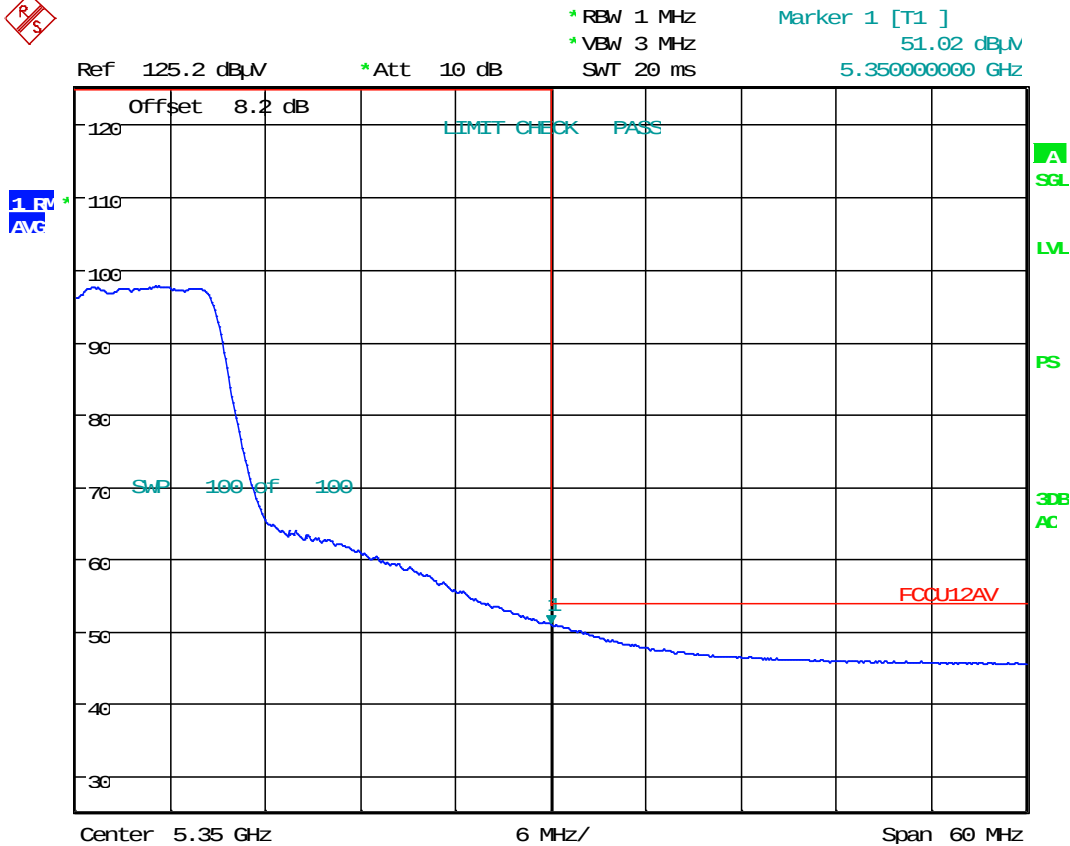
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MIMO Radiated Band Edge Measurements (20MHz BW)

§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



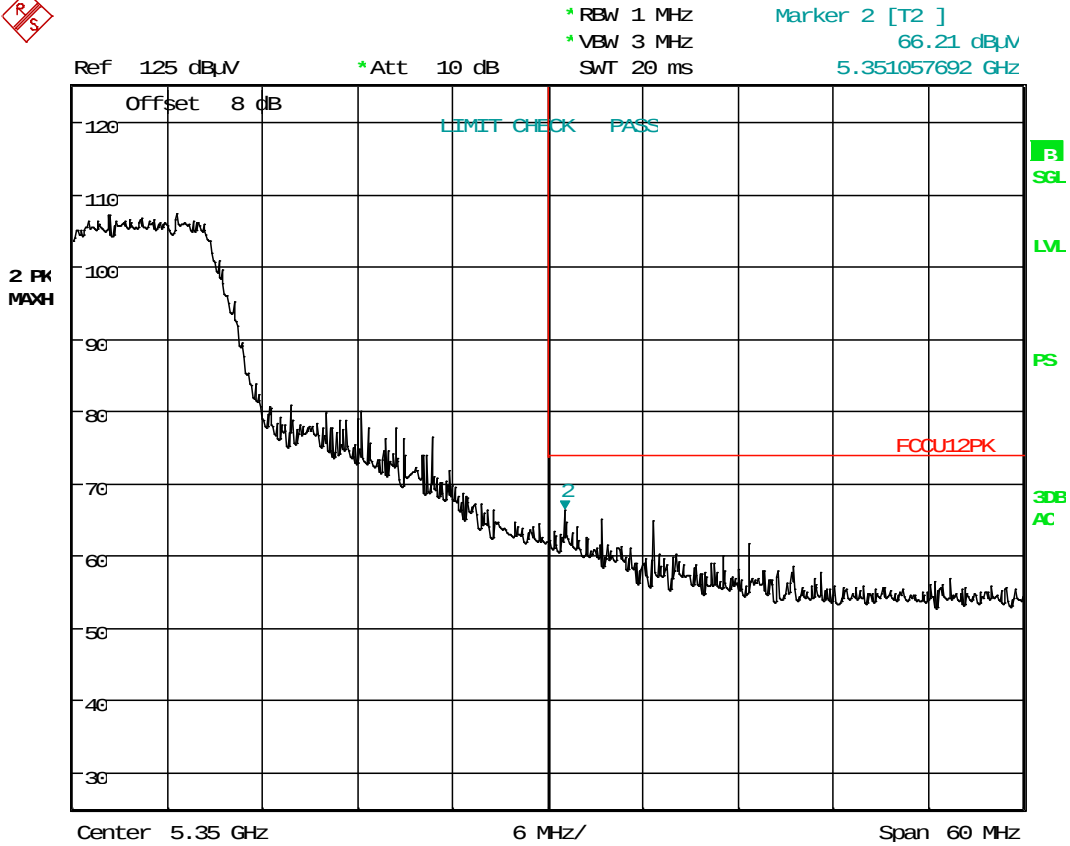
Date: 12. JUN. 2017 15:28:15

Plot 7-255. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 207 of 254

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:28:31

Plot 7-256. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 208 of 254

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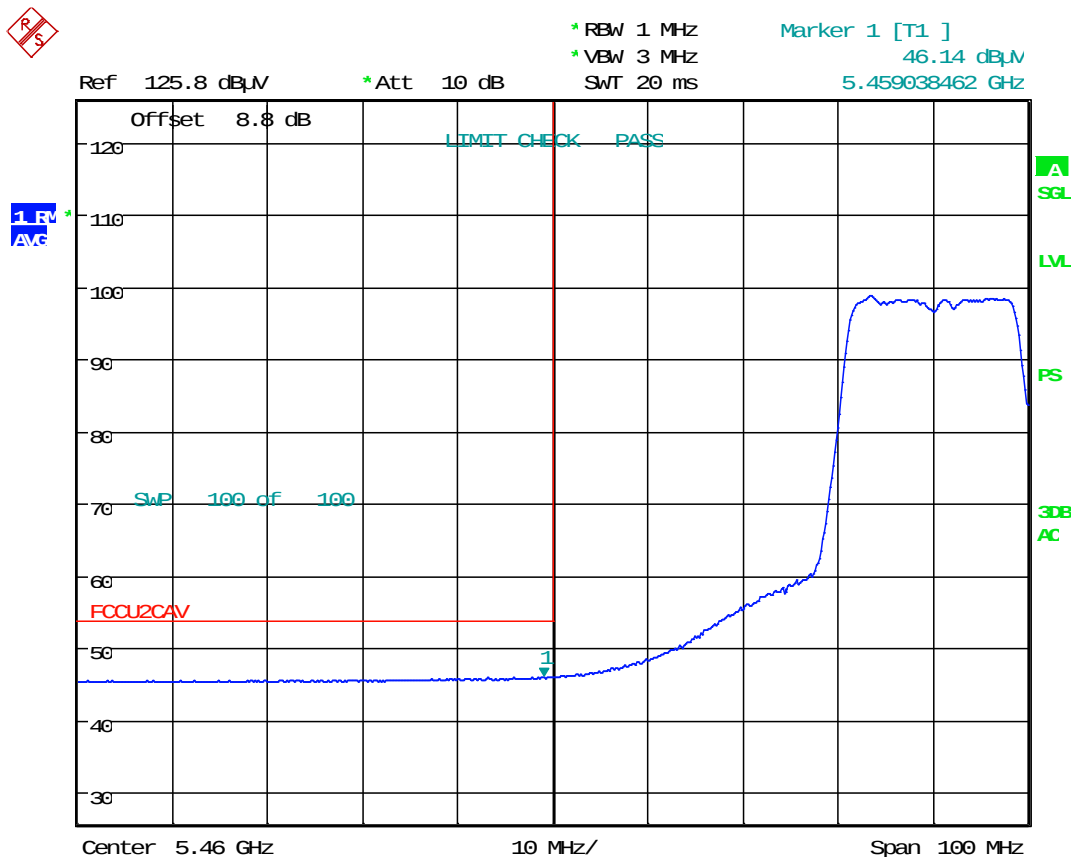
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MIMO Radiated Band Edge Measurements (20MHz BW)
§15.407(b.1)(b.2) §15.205 §15.209

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



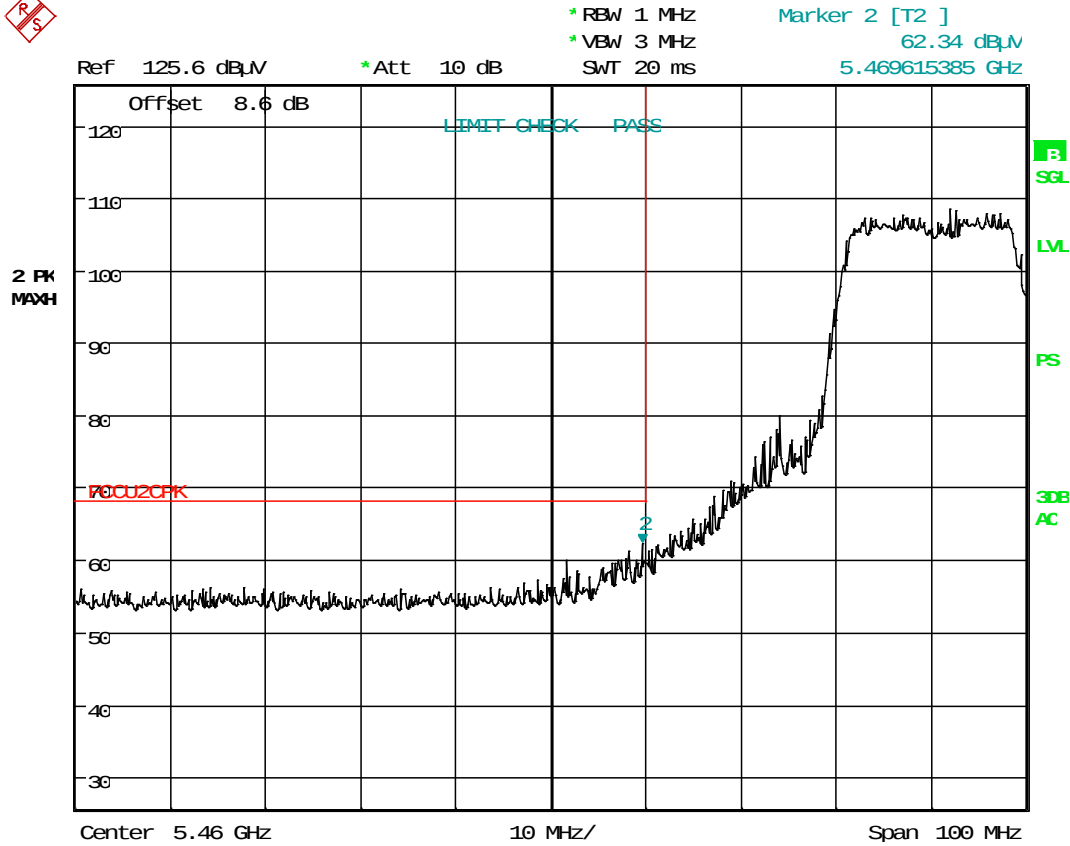
Date: 12.JUN.2017 15:48:18

Plot 7-257. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset	Page 209 of 254

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:48:41

Plot 7-258. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 210 of 254

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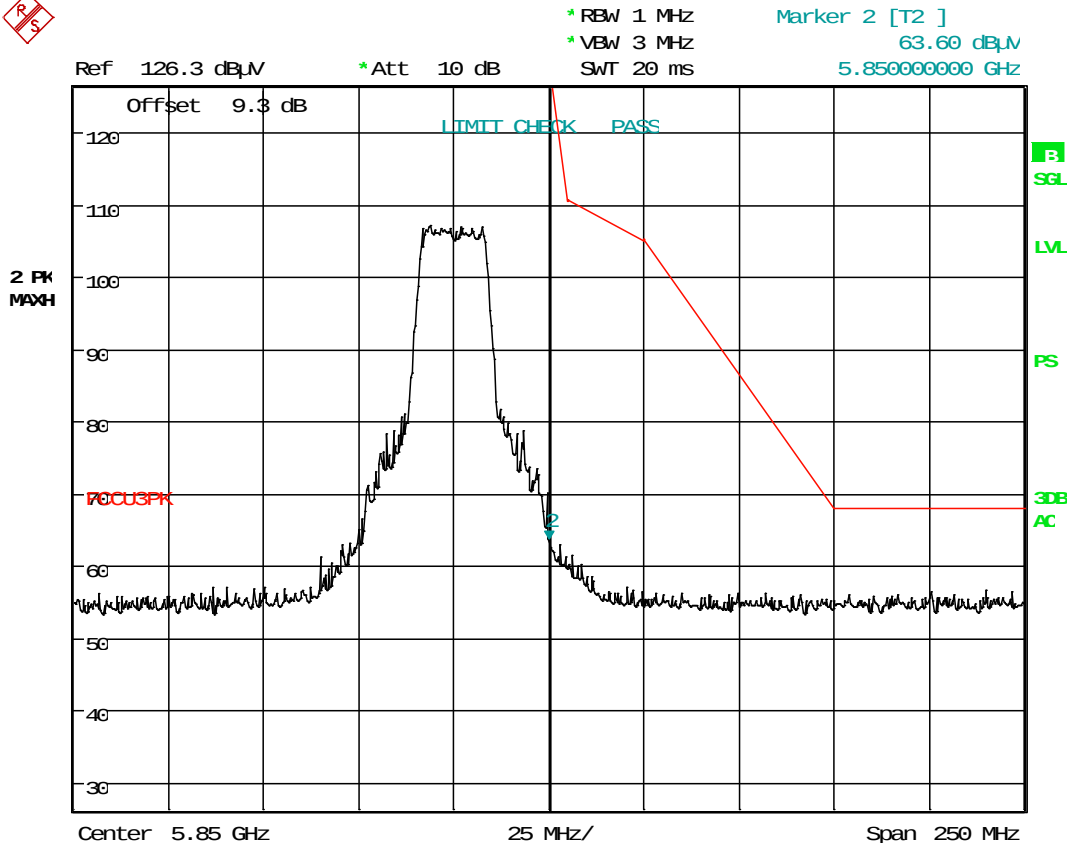
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MIMO Radiated Band Edge Measurements (20MHz BW)

§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: 12. JUN. 2017 15:58:31

Plot 7-259. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 211 of 254

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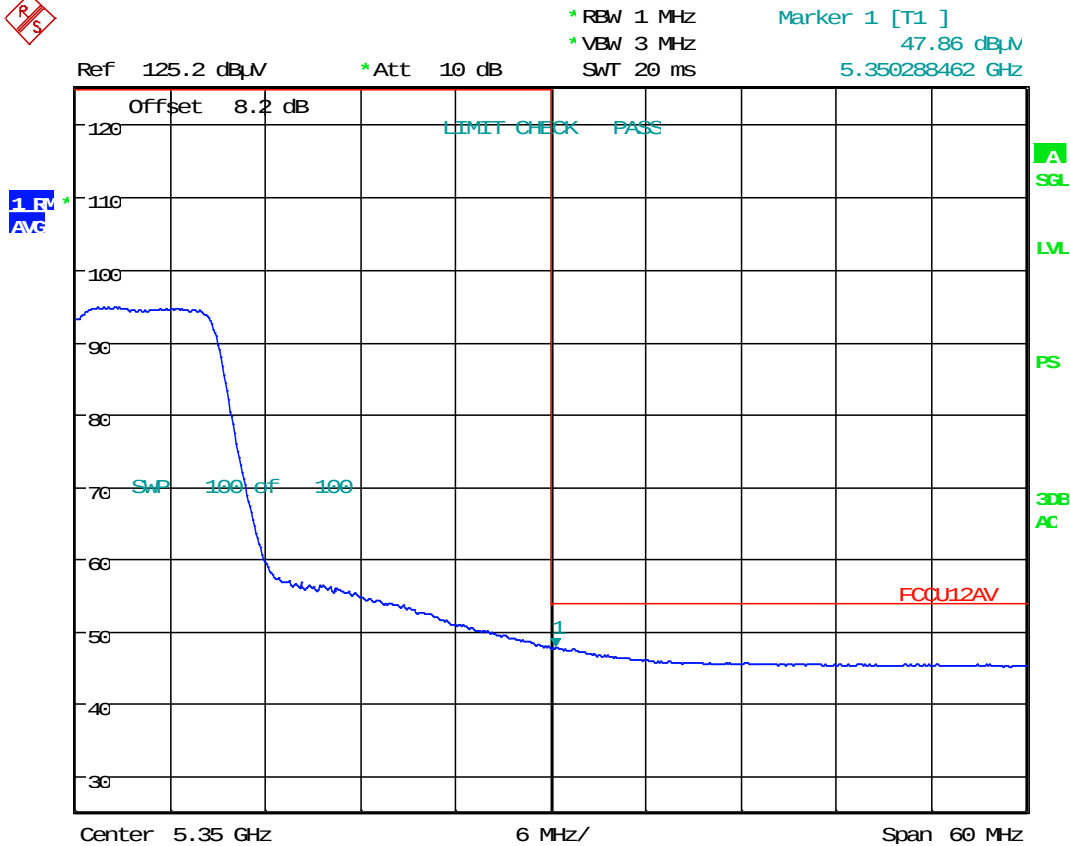
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MIMO WCP Radiated Band Edge Measurements (20MHz BW)

§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: 14. JUN. 2017 09:33:28

Plot 7-260. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 212 of 254

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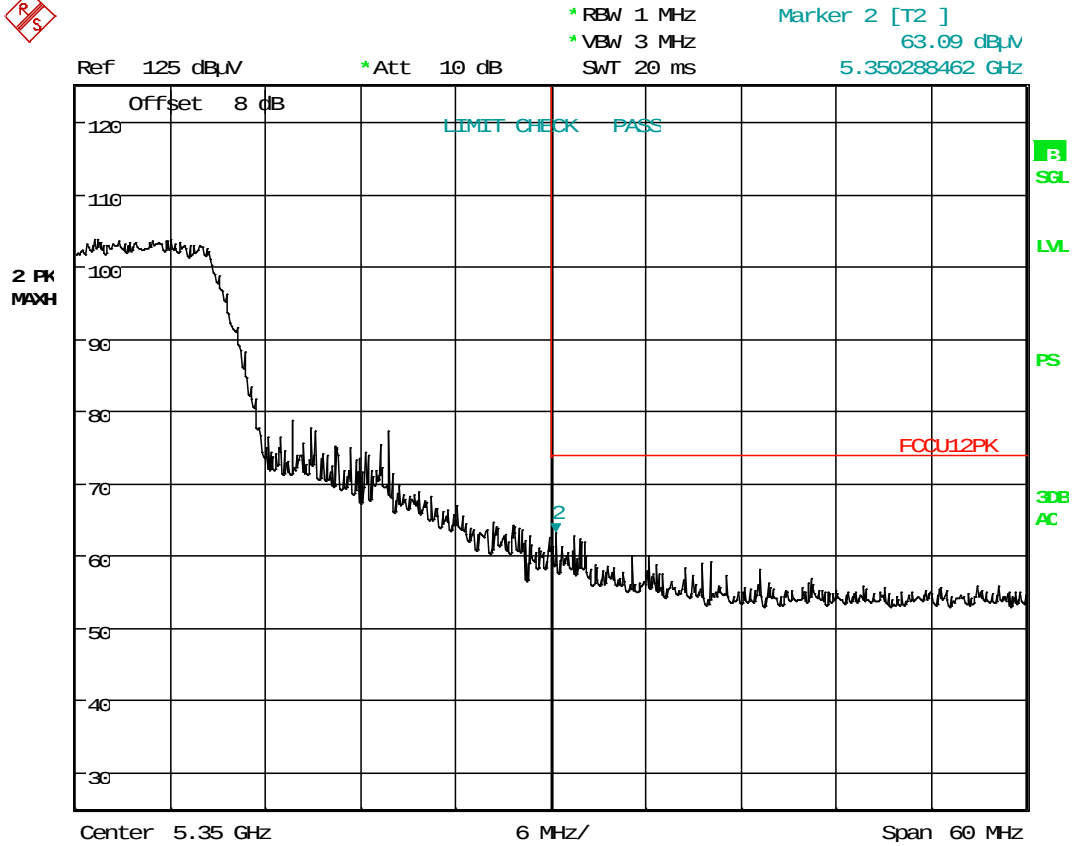
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MIMO WCP Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2017 09:34:03

Plot 7-261. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 213 of 254

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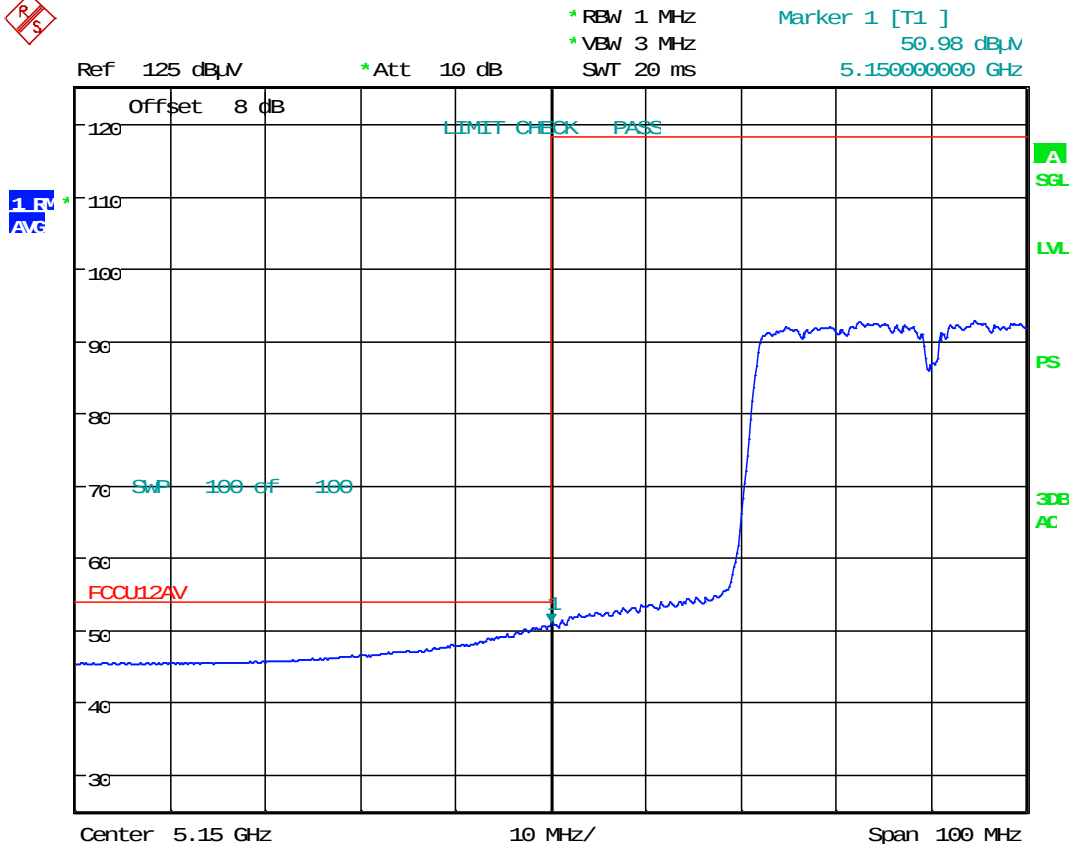
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7.7.11 MIMO Radiated Band Edge Measurements (40MHz BW)

§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: 12. JUN. 2017 15:21:28

Plot 7-262. Radiated Restricted Lower Band Edge Plot (Average - UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 - 7/15/2017	EUT Type: Portable Handset		Page 214 of 254

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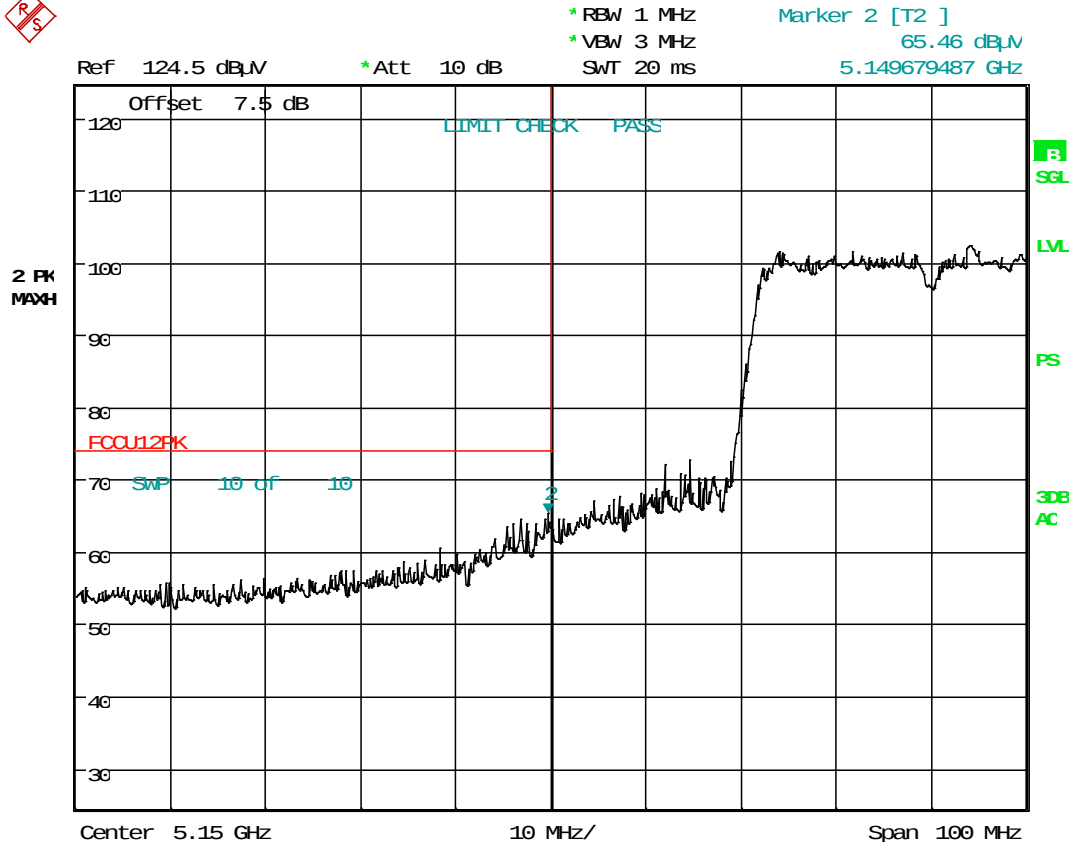
V 6.6

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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:22:04

Plot 7-263. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 215 of 254

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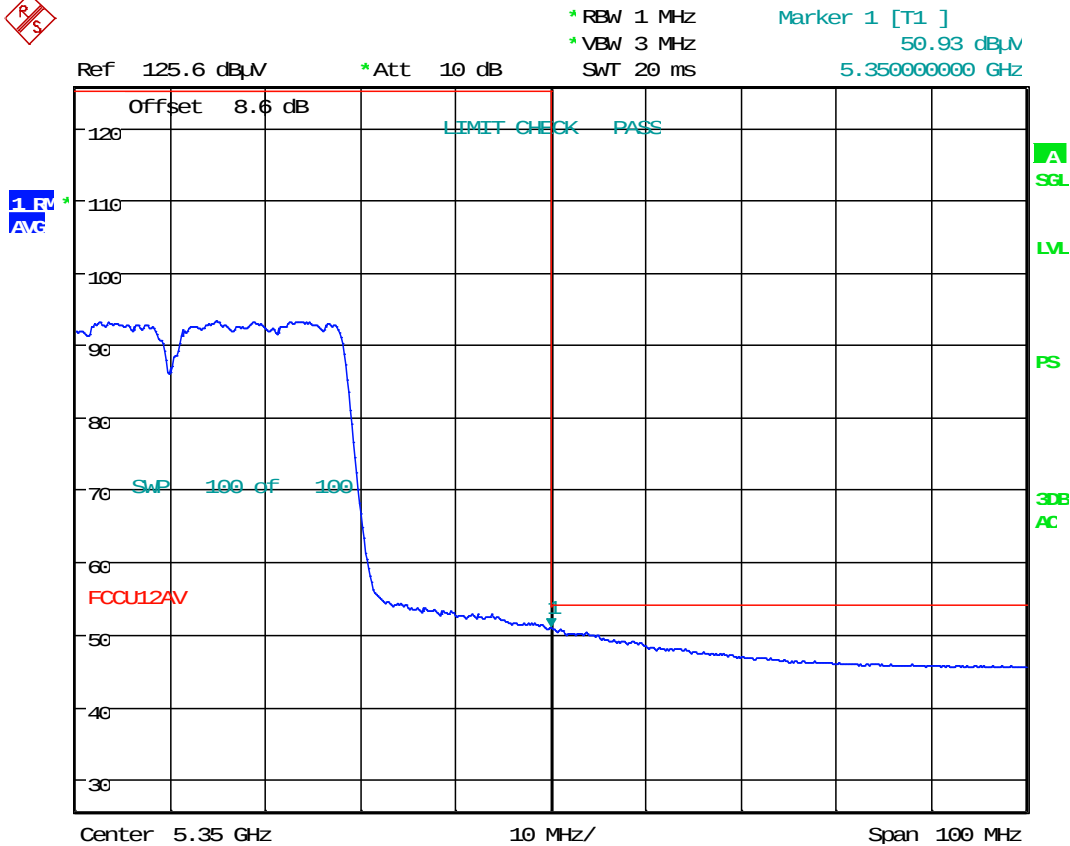
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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



Date: 12. JUN. 2017 15:35:22

Plot 7-264. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 216 of 254

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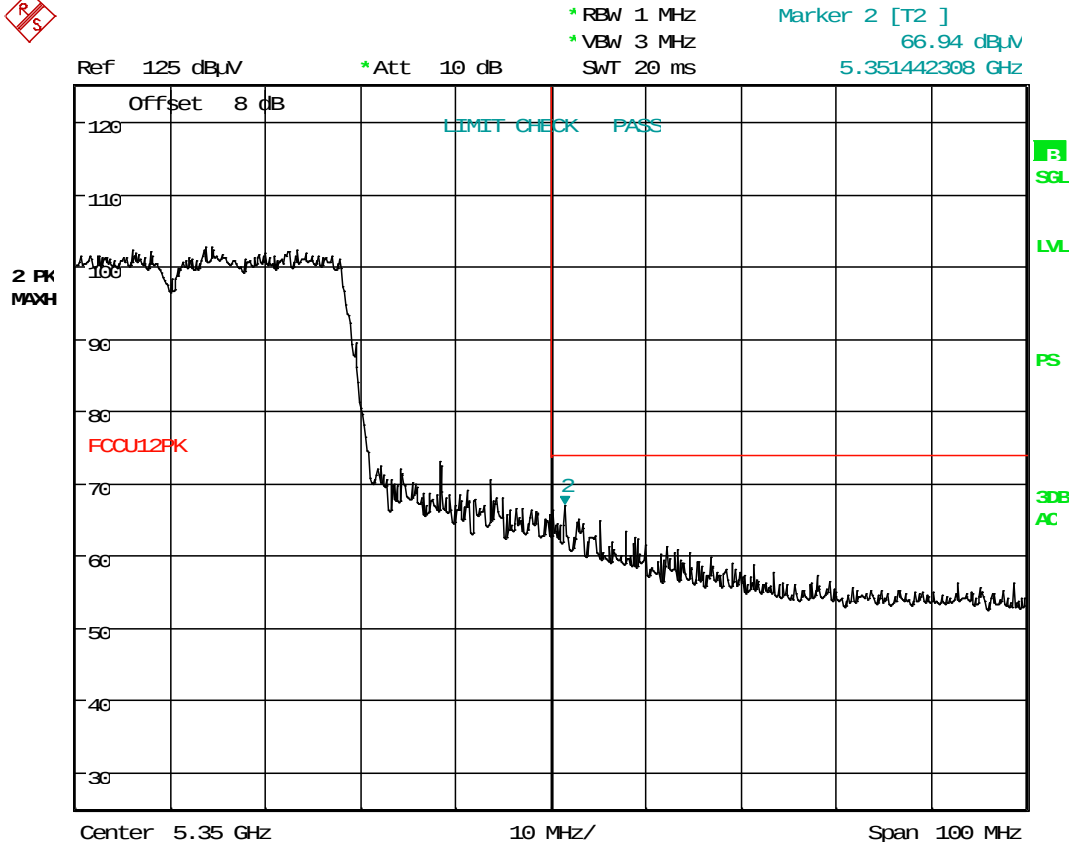
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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:39:45

Plot 7-265. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 217 of 254

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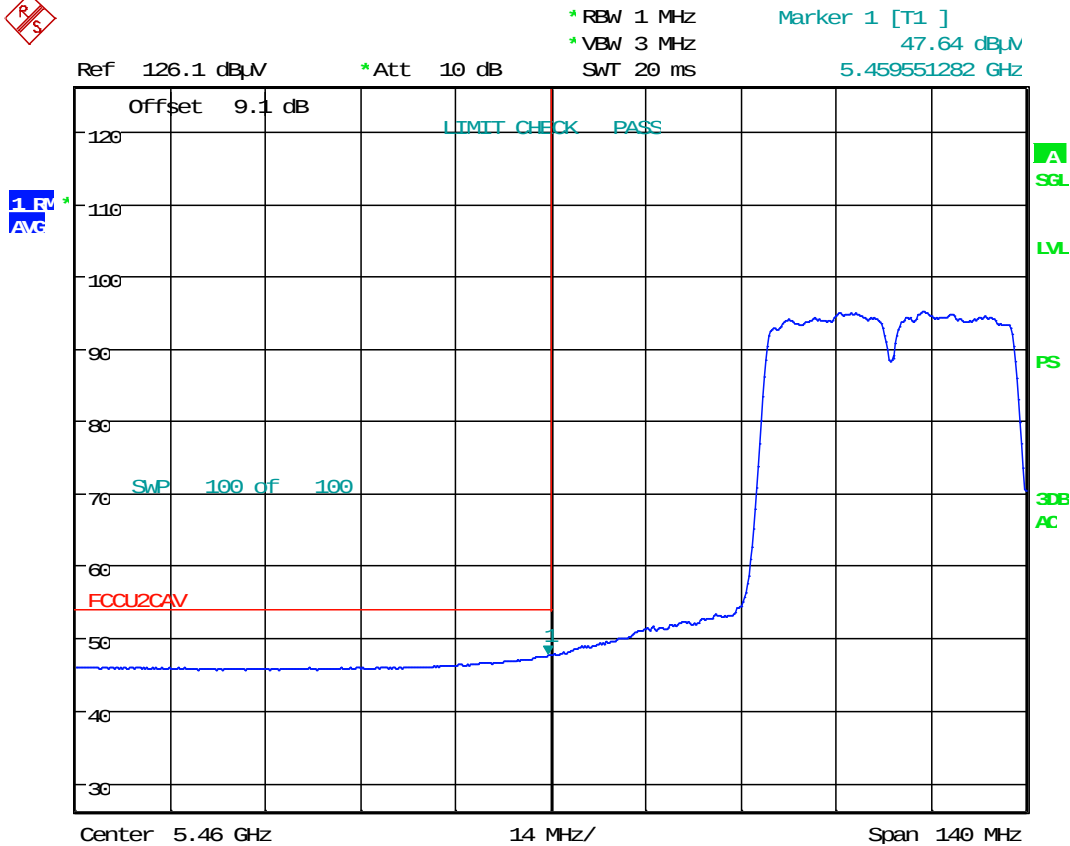
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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



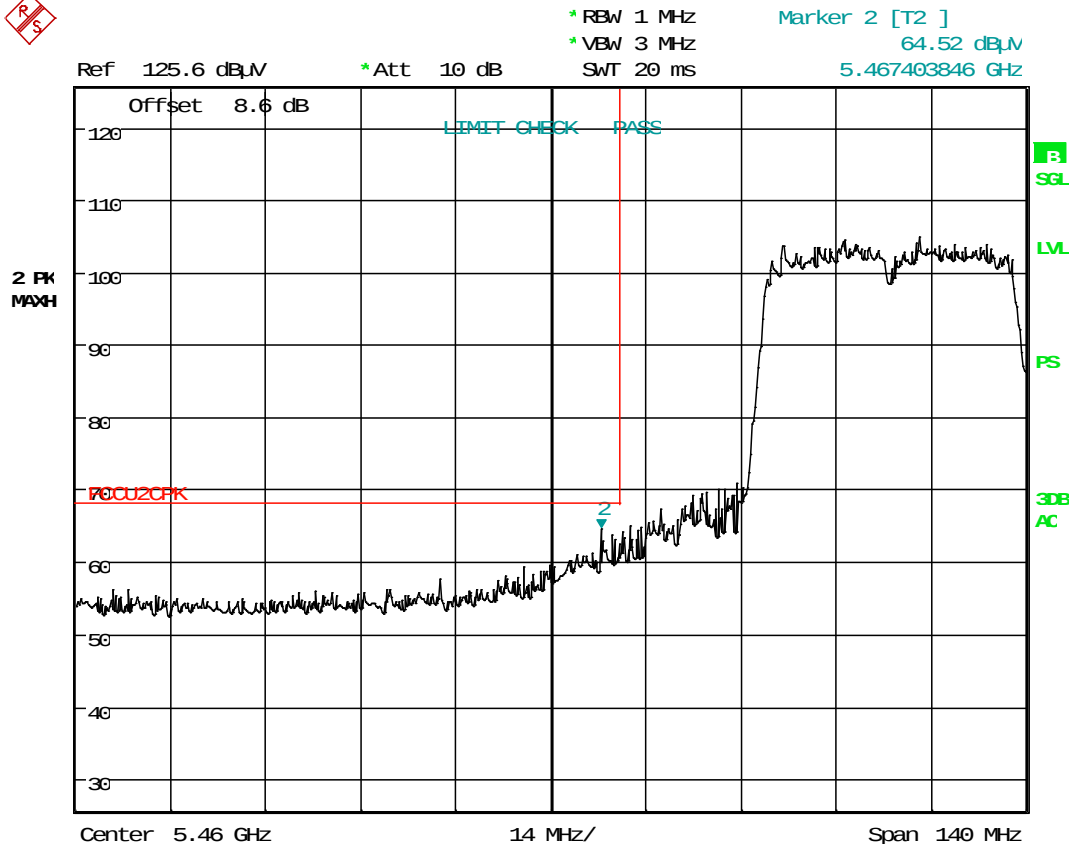
Date: 12. JUN. 2017 15:50:23

Plot 7-266. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 218 of 254

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:50:06

Plot 7-267. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 219 of 254

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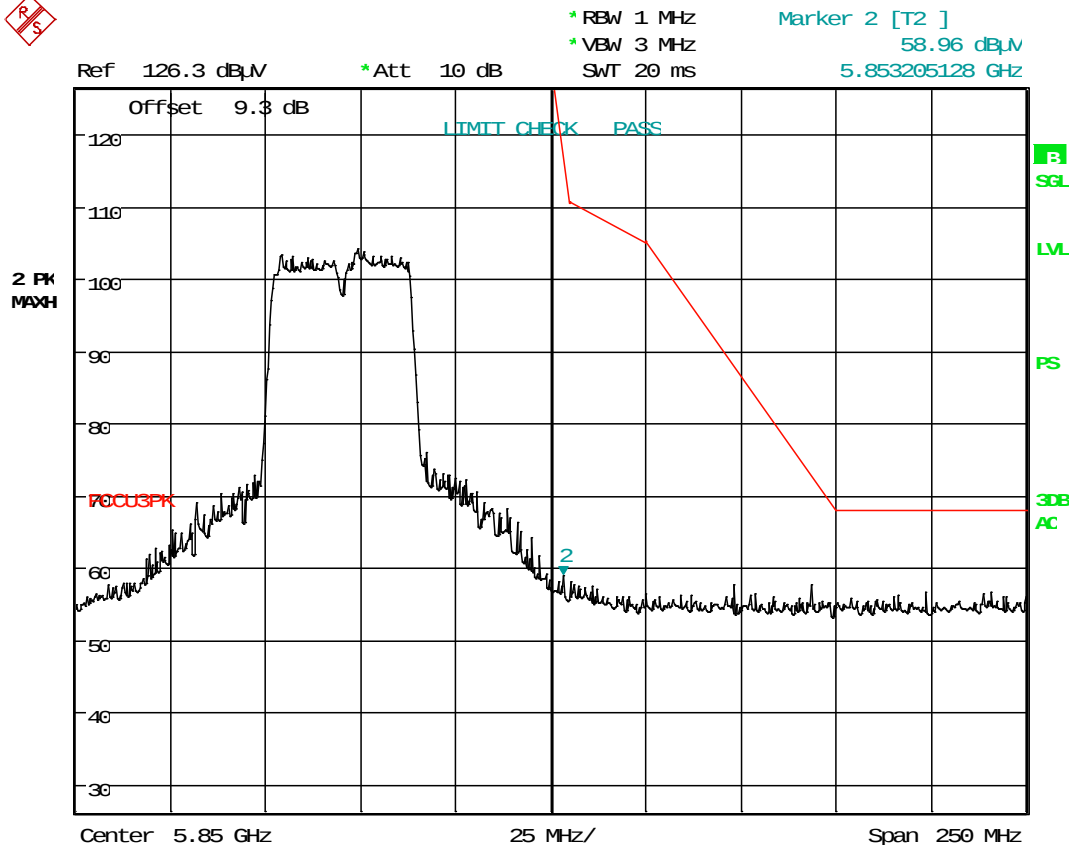
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MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n (40MHz)
Worst Case Transfer Rate: MCS8
Distance of Measurements: 3 Meters
Operating Frequency: 5795MHz
Channel: 159



Date: 12. JUN. 2017 15:59:39

Plot 7-268. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 220 of 254

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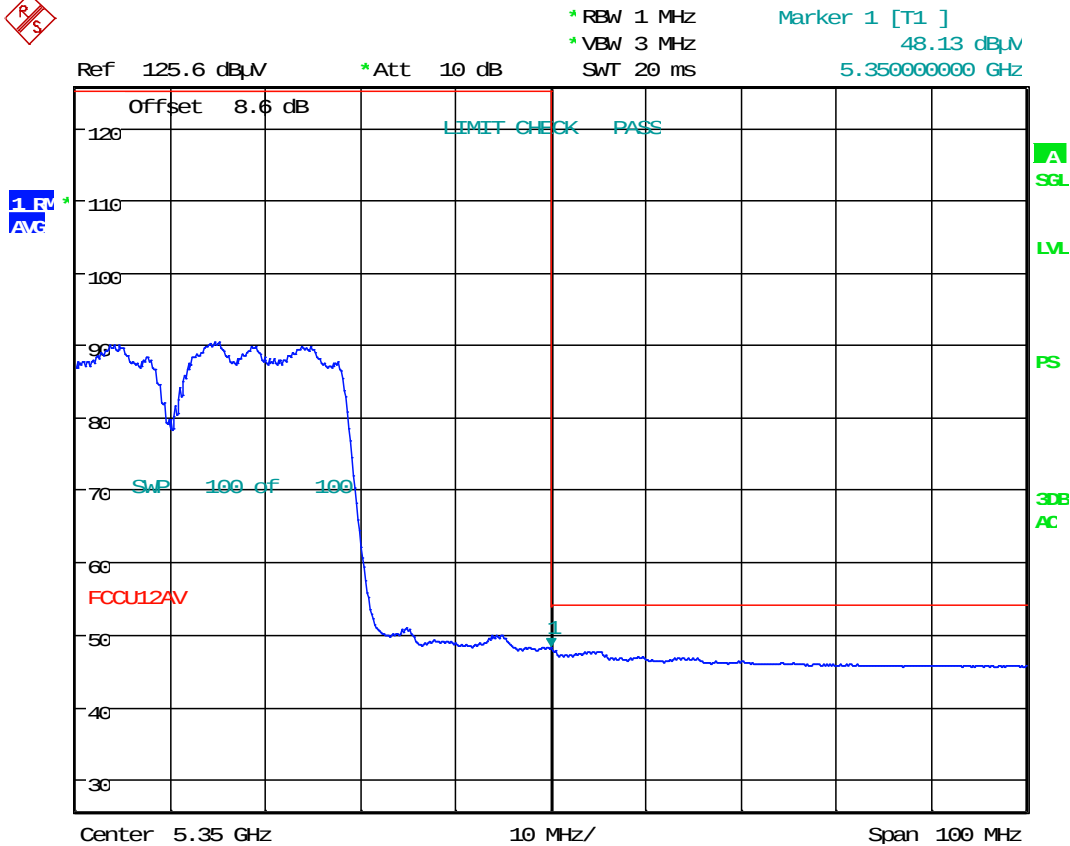
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MIMO WCP Radiated Band Edge Measurements (40MHz BW)

§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



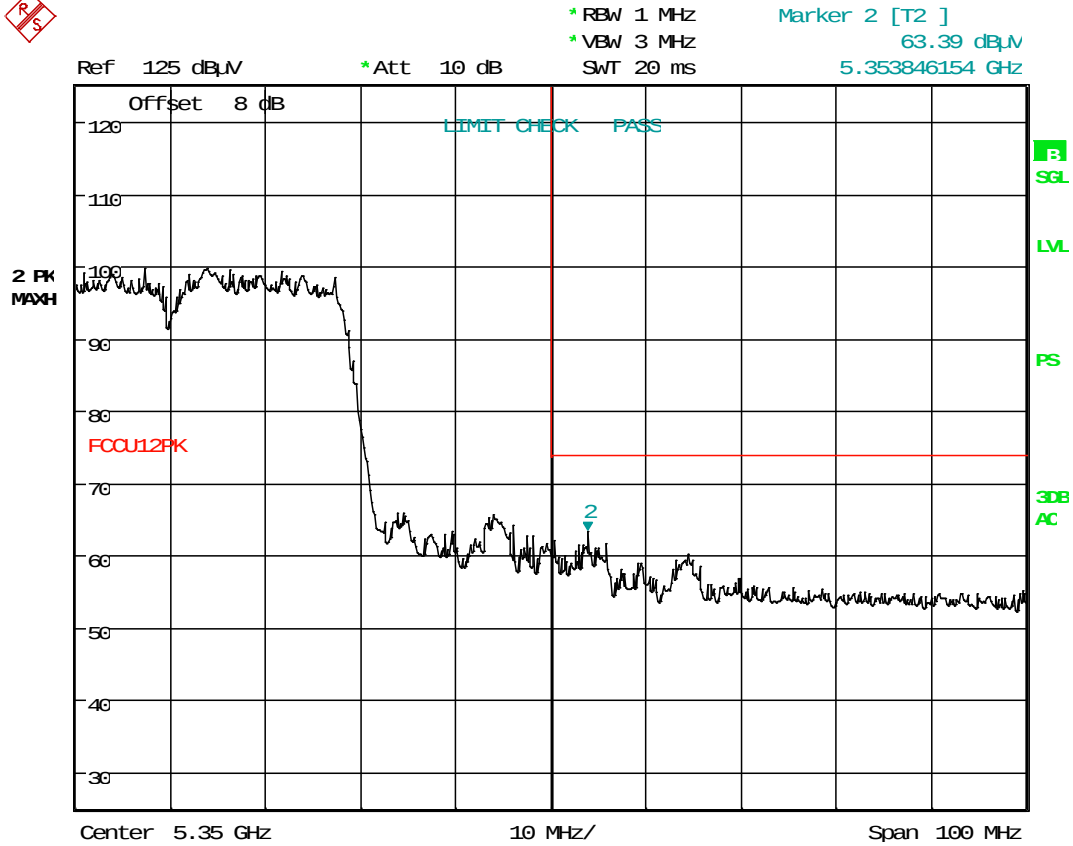
Date: 14. JUN. 2017 09:41:20

Plot 7-269. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 221 of 254

MIMO WCP Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2017 09:41:46

Plot 7-270. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 222 of 254

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7.7.12 MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

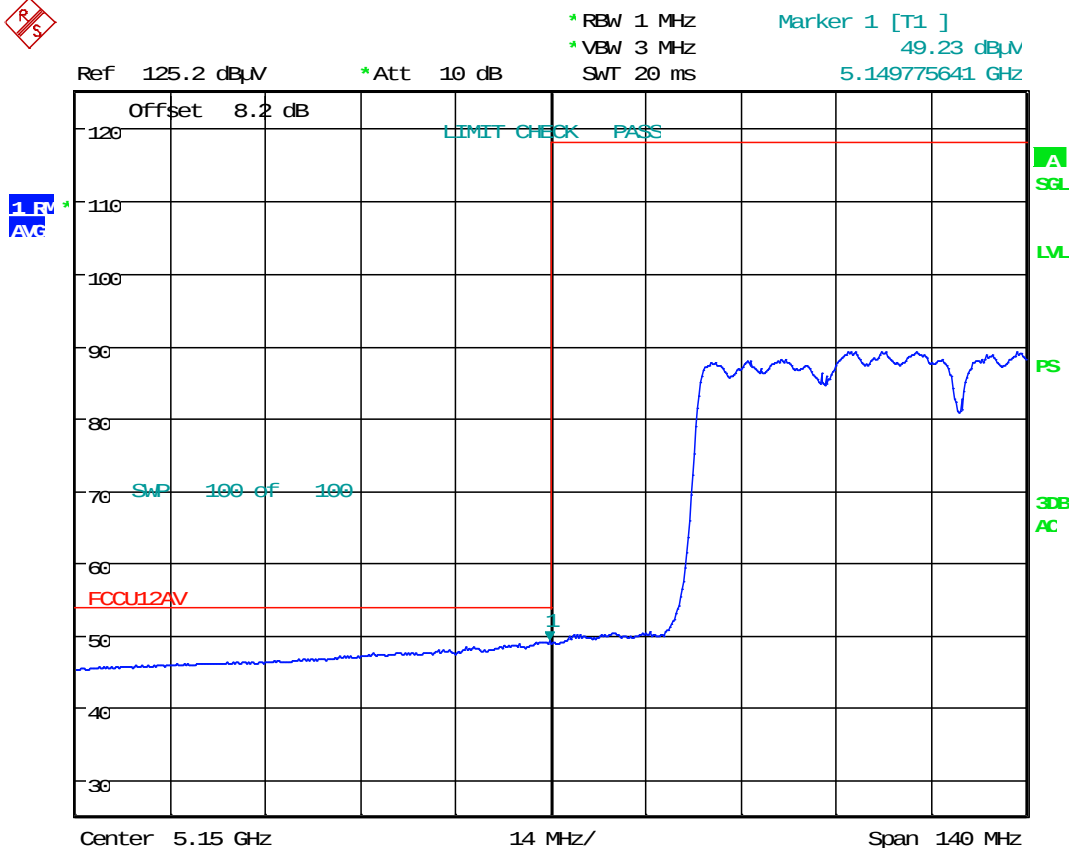
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



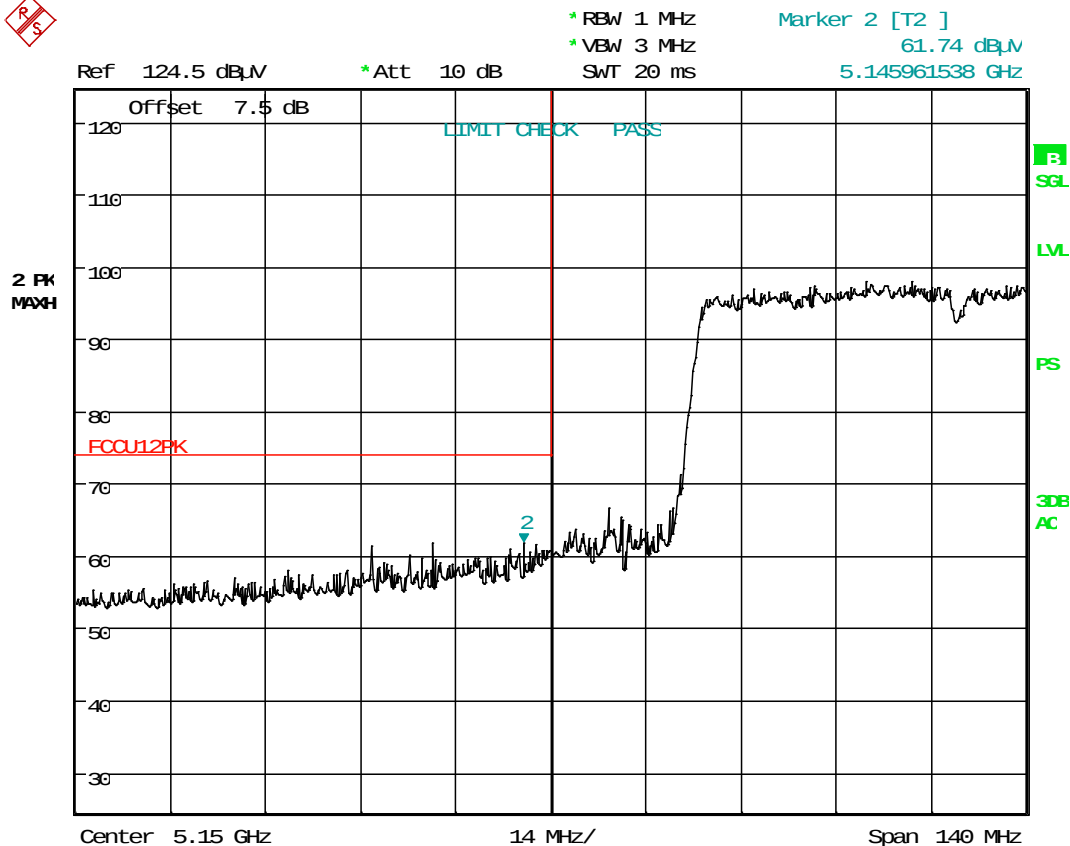
Date: 12. JUN. 2017 15:24:10

Plot 7-271. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

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Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 223 of 254

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:23:54

Plot 7-272. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 224 of 254

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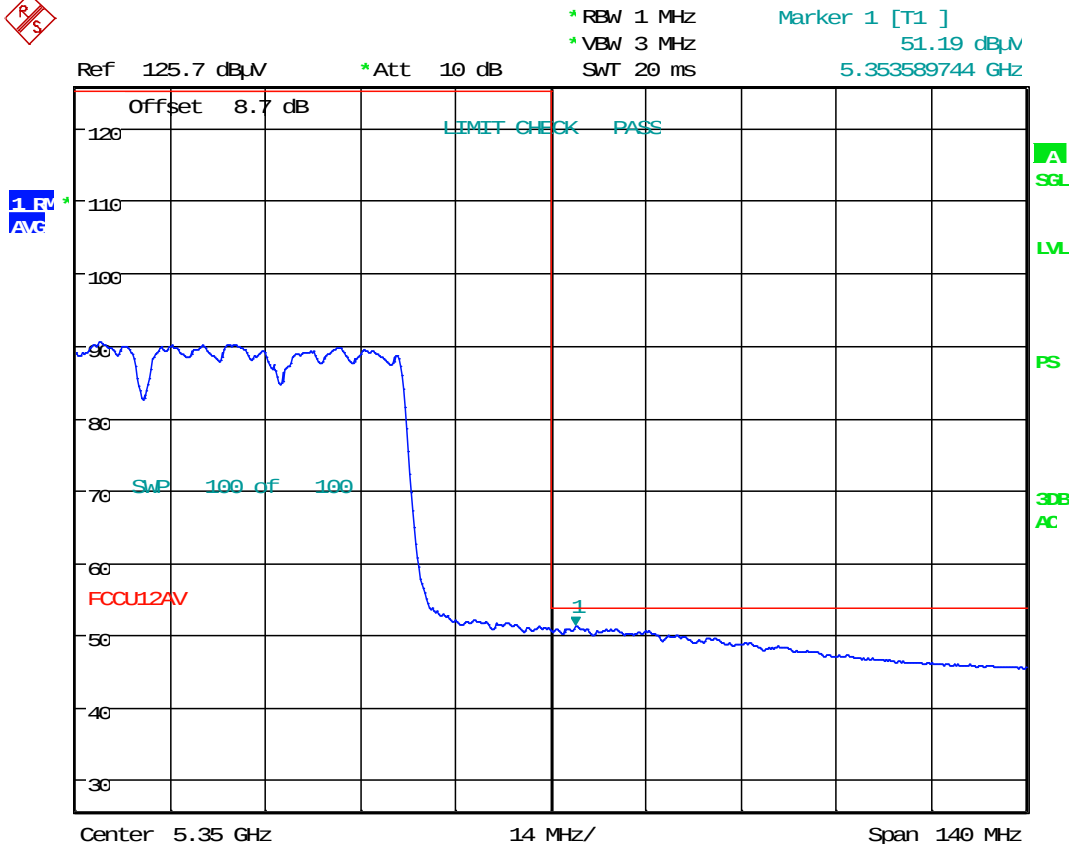
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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



Date: 12. JUN. 2017 15:41:29

Plot 7-273. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 225 of 254

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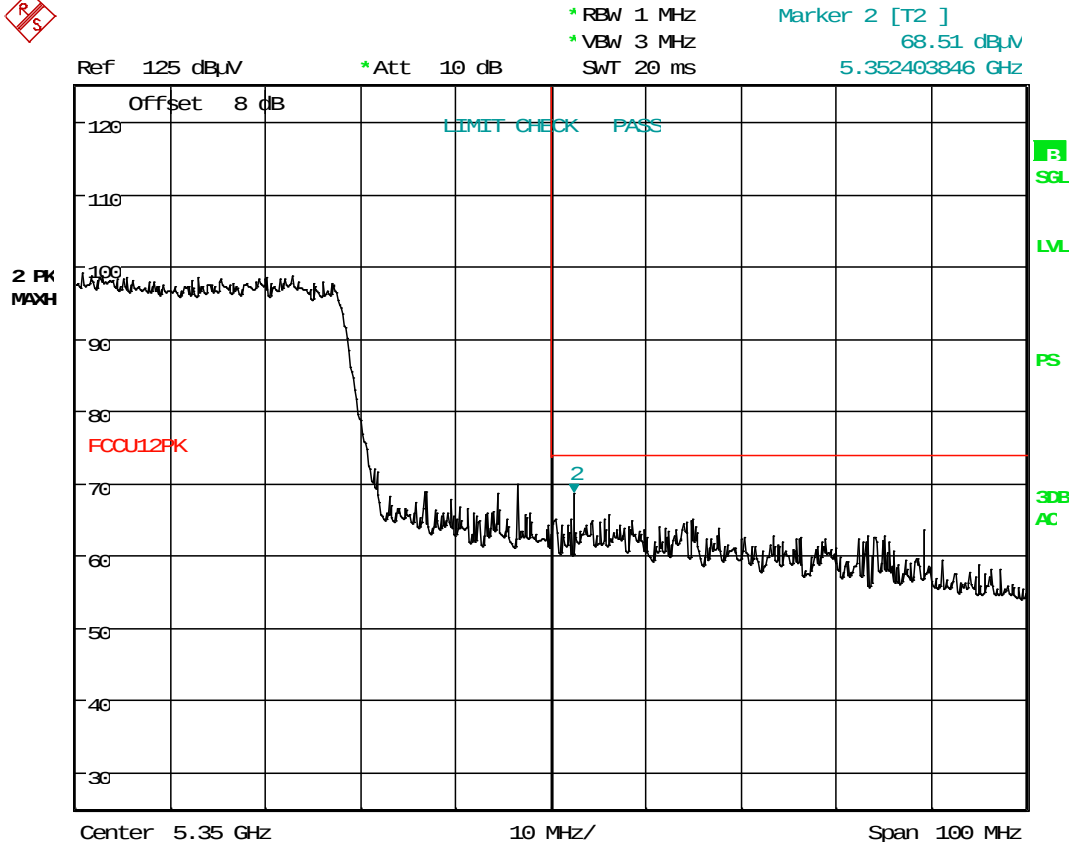
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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:41:10

Plot 7-274. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 226 of 254

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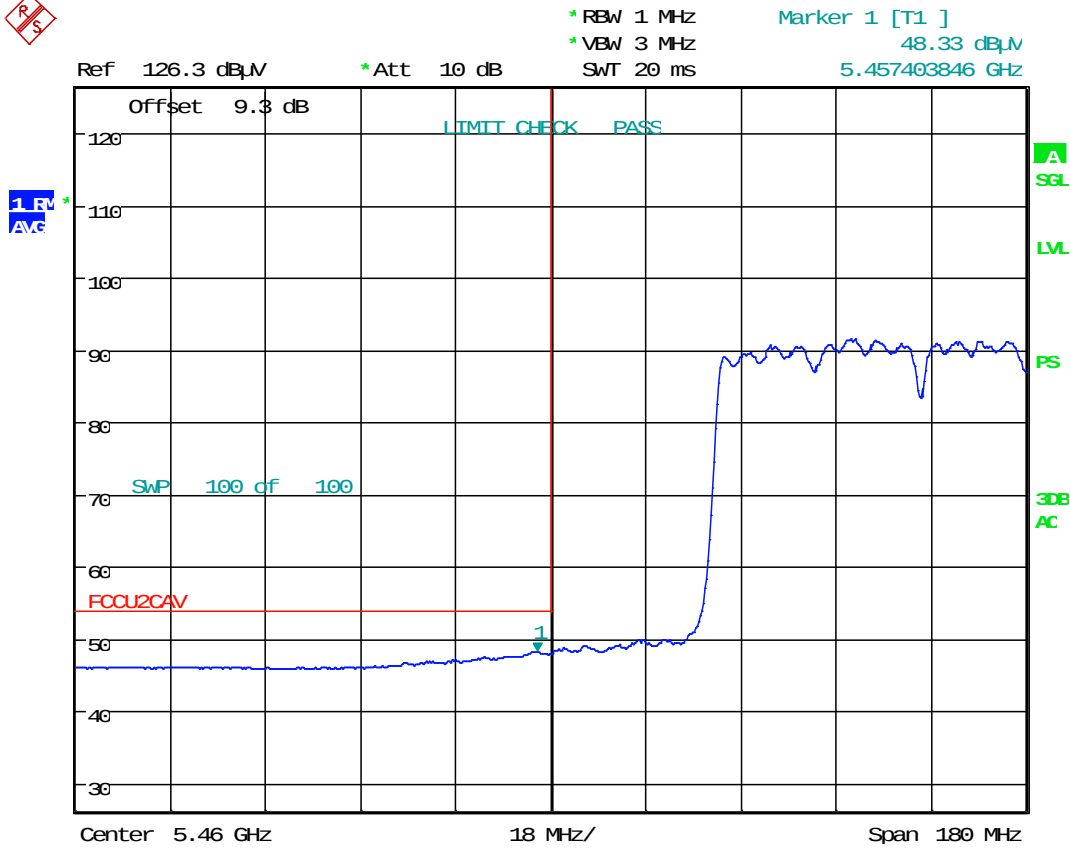
06/06/2017

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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



Date: 12. JUN. 2017 15:53:33

Plot 7-275. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 227 of 254

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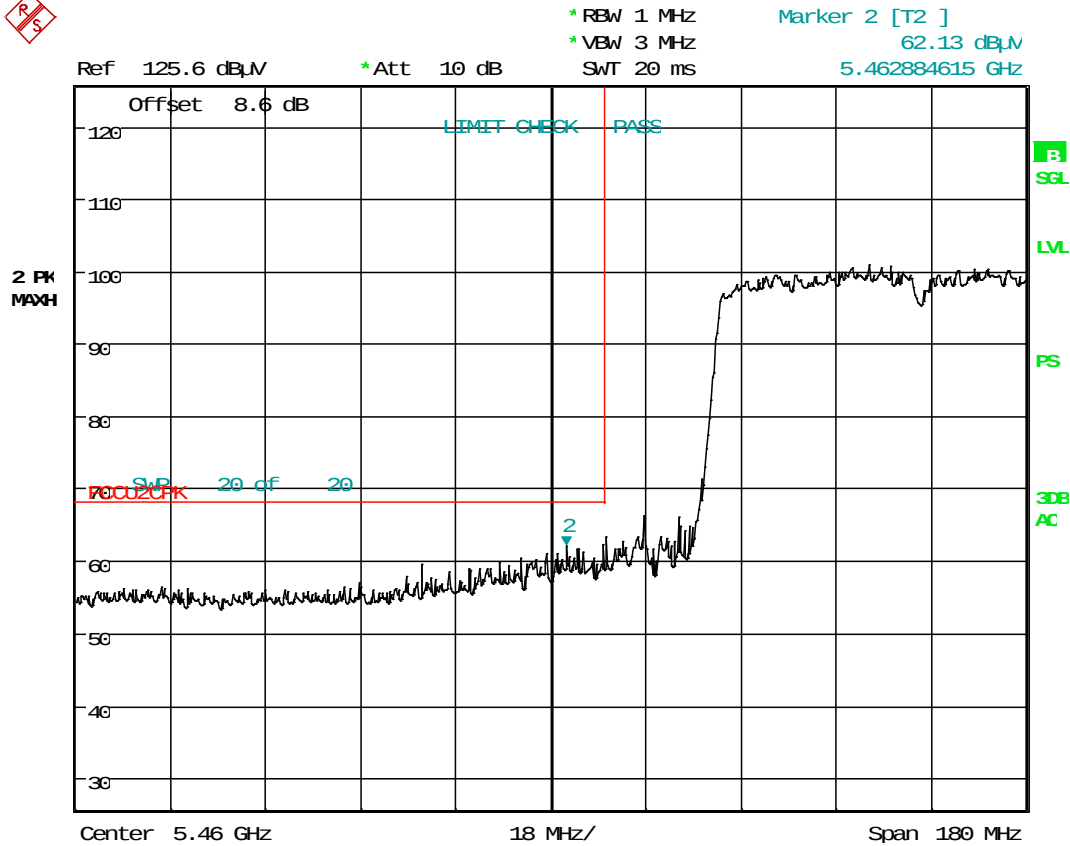
V 6.6

06/06/2017

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MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 12.JUN.2017 15:53:56

Plot 7-276. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 228 of 254

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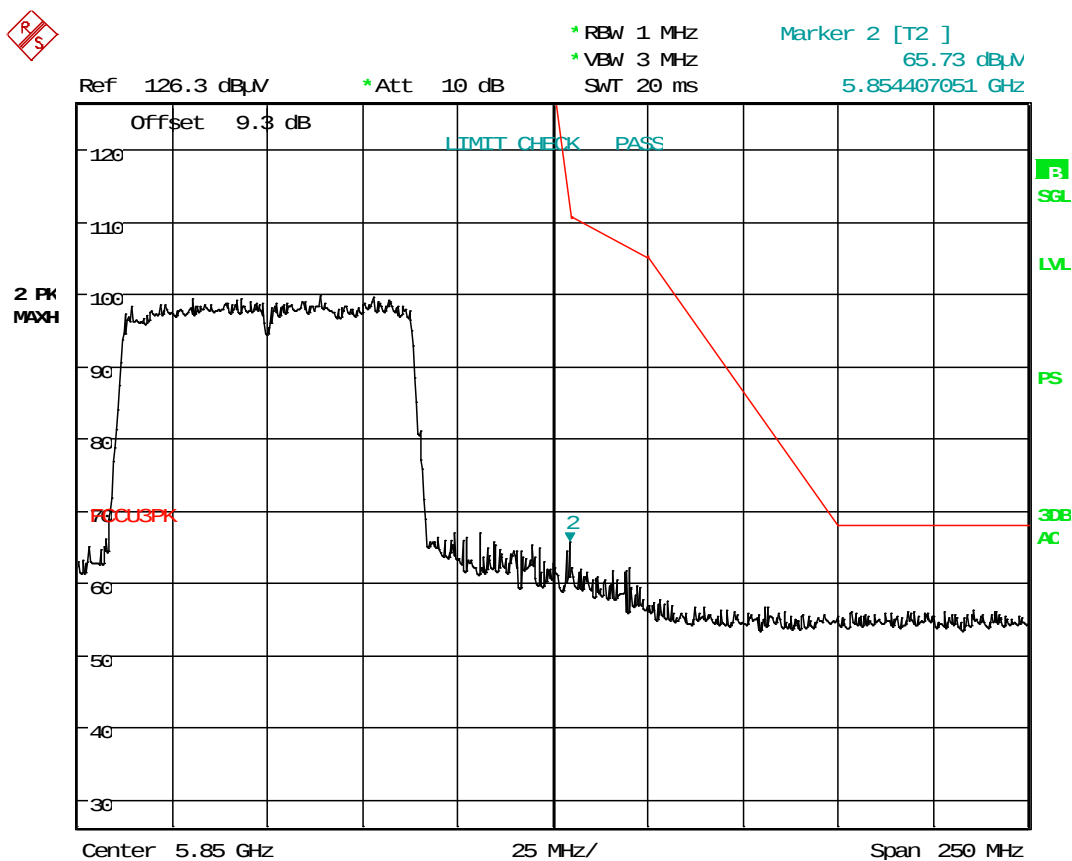
V 6.6

06/06/2017

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

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



Date: 12.JUN.2017 16:00:46

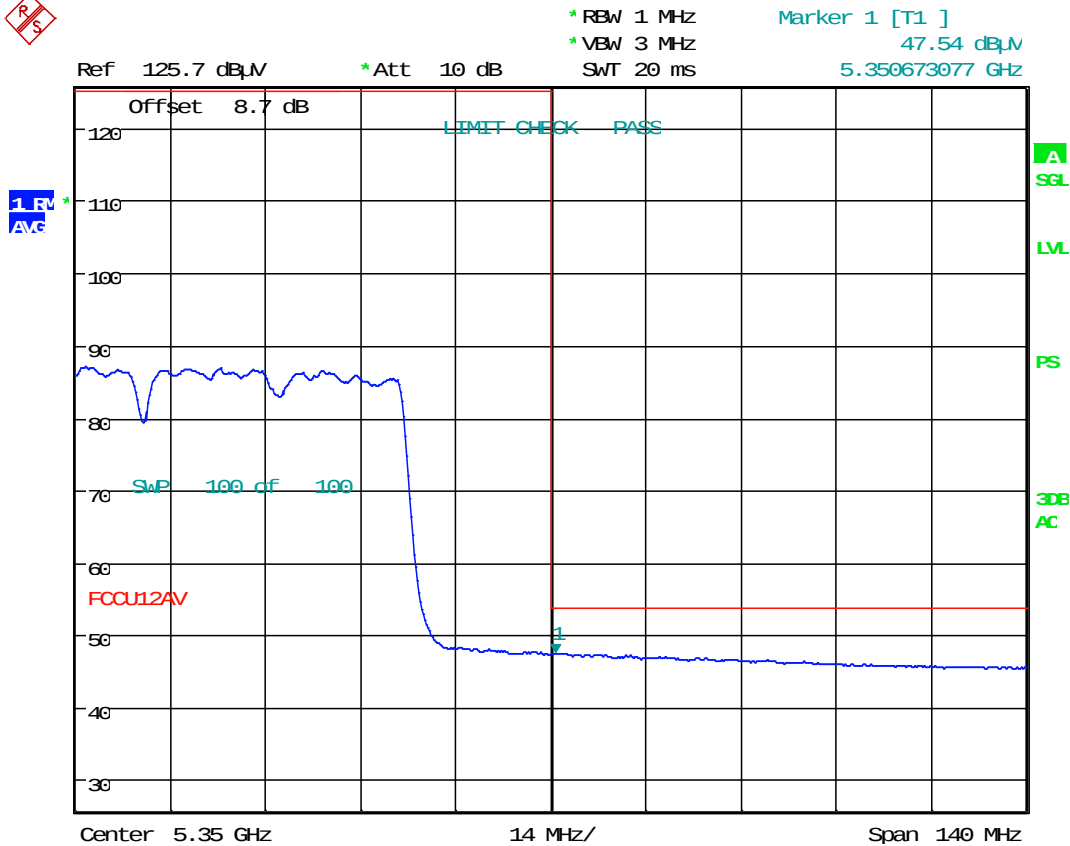
Plot 7-277. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

FCC ID: A3LSMN9500	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset	Page 229 of 254

MIMO WCP 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



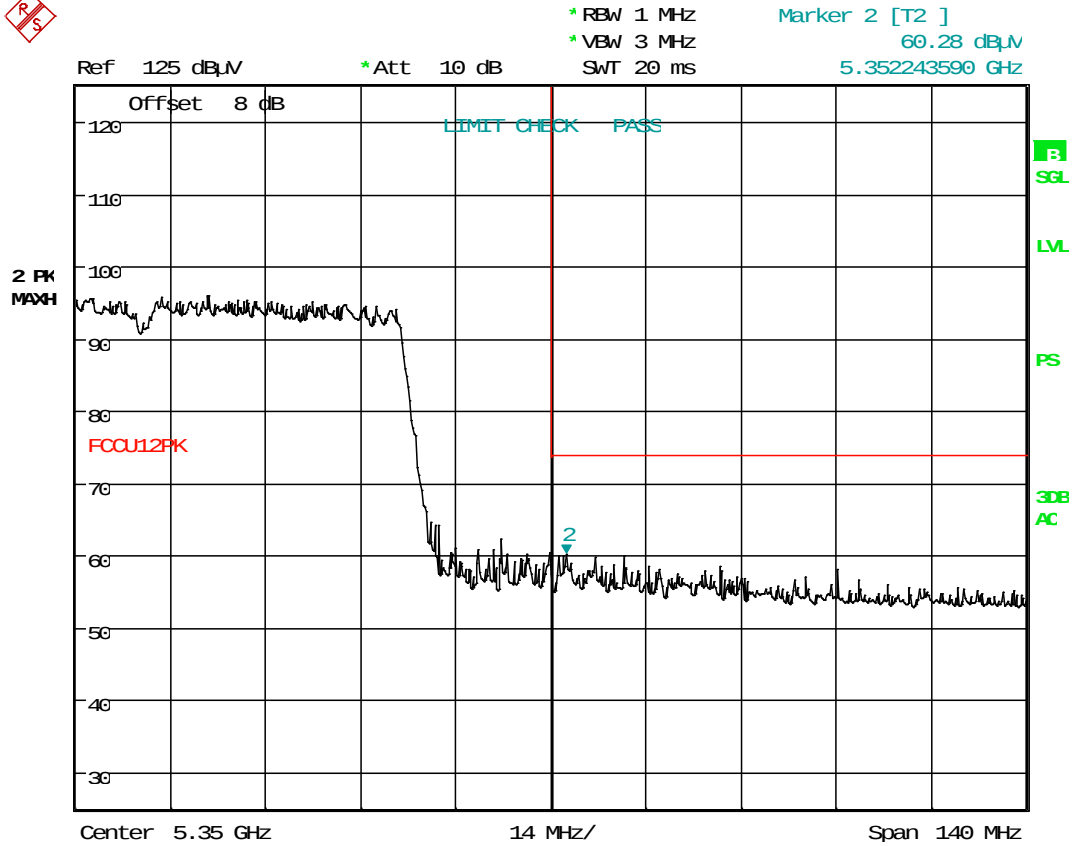
Date: 14. JUN. 2017 09:44:58

Plot 7-278. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 230 of 254

MIMO WCP Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2017 09:43:57

Plot 7-279. Radiated Restricted Band Edge Plot with WCP

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 231 of 254

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V 6.6

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

Table 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

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 232 of 254

Test Setup

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

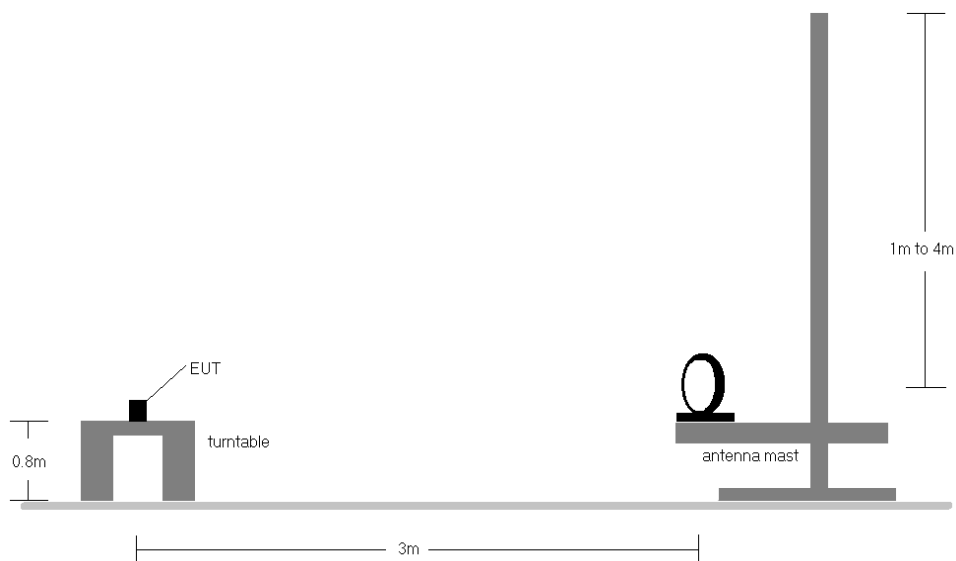


Figure 7-6. Radiated Test Setup < 30MHz

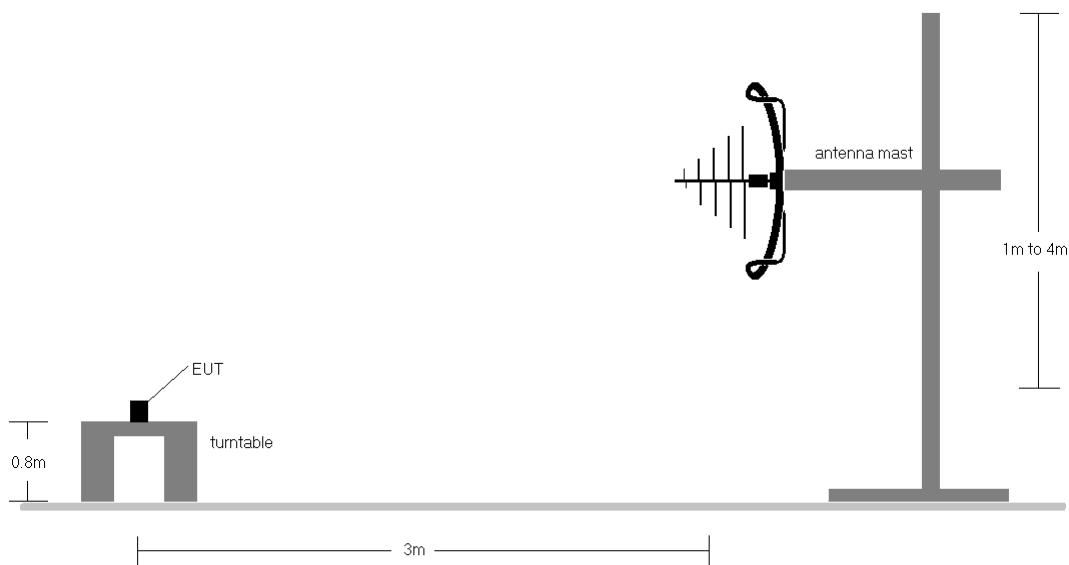


Figure 7-7. Radiated Test Setup < 1GHz

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 233 of 254

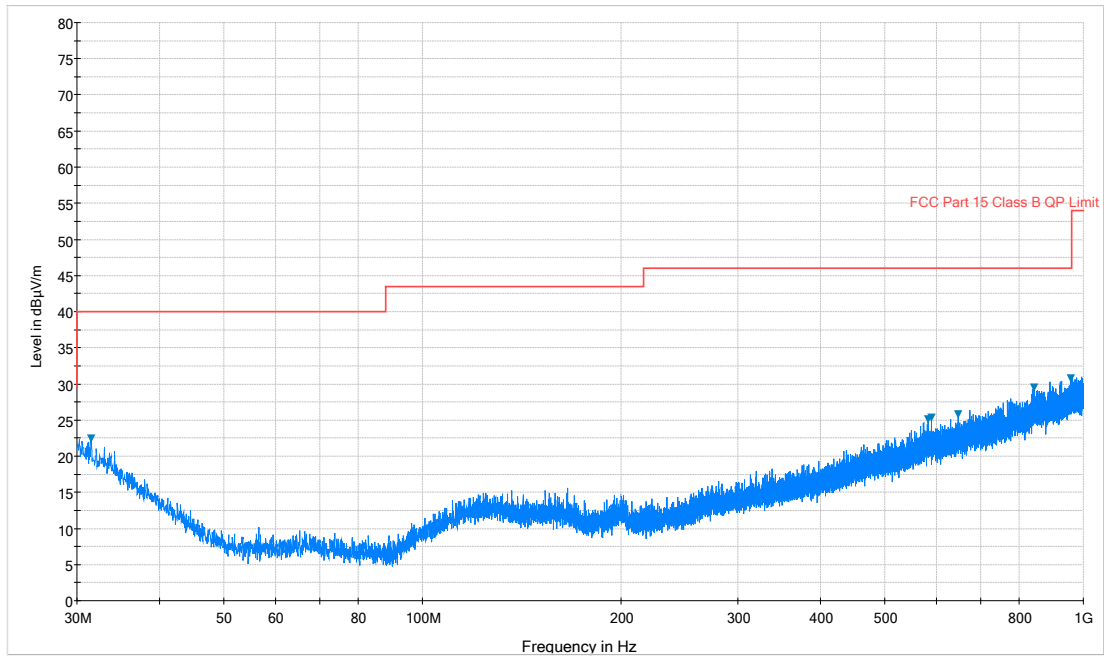
Test Notes

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.

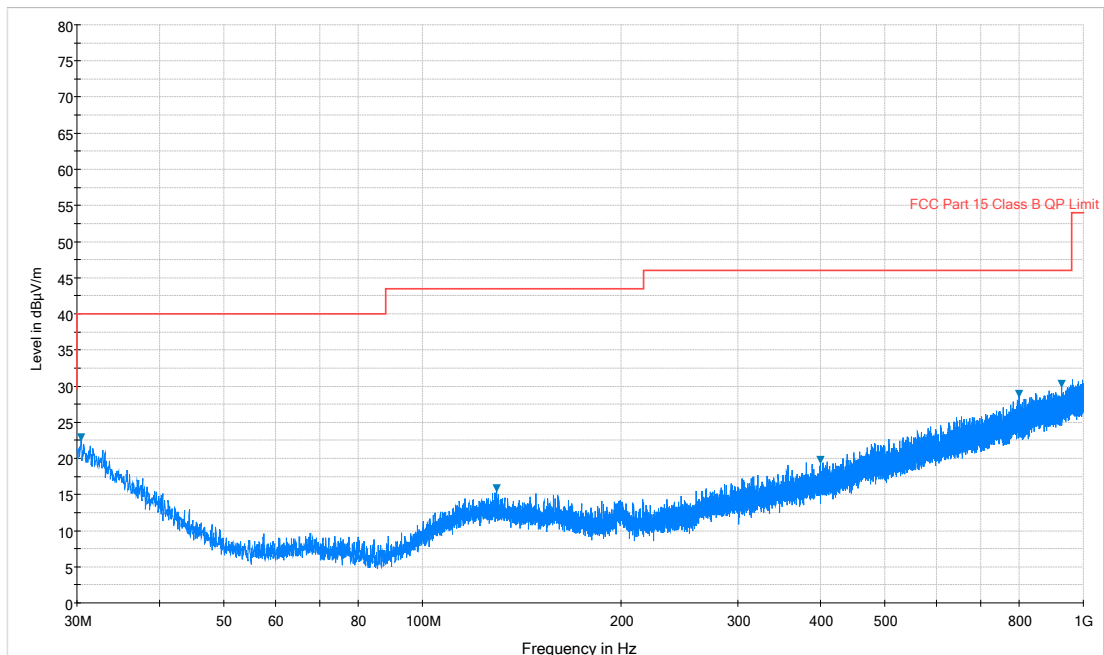
FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 234 of 254

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

§15.209



Plot 7-280. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

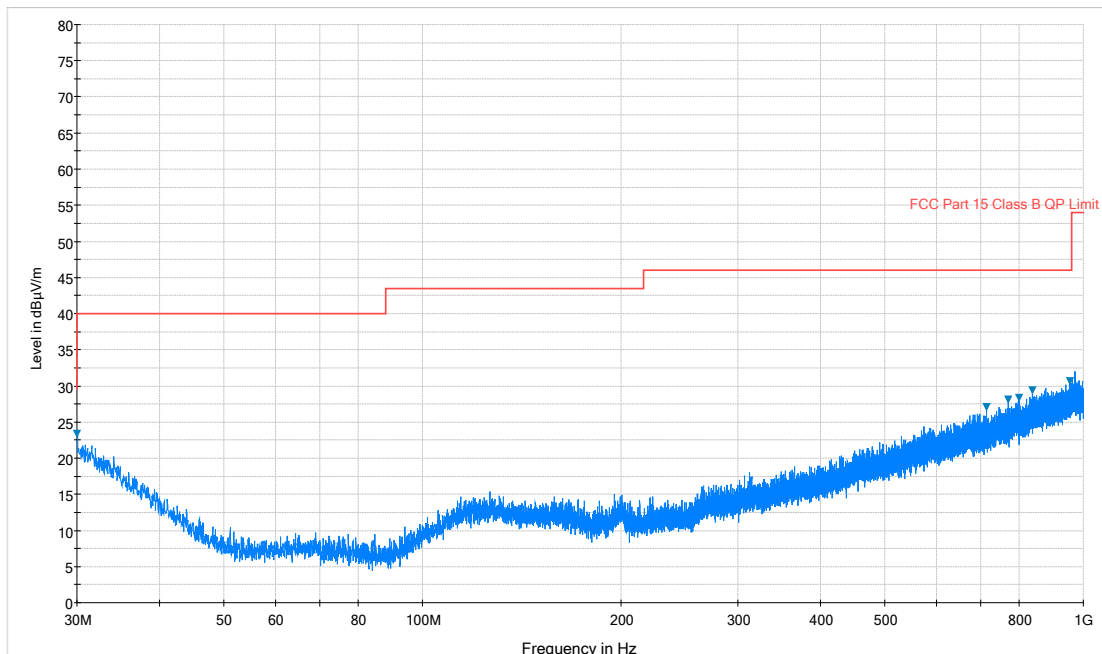


Plot 7-281. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

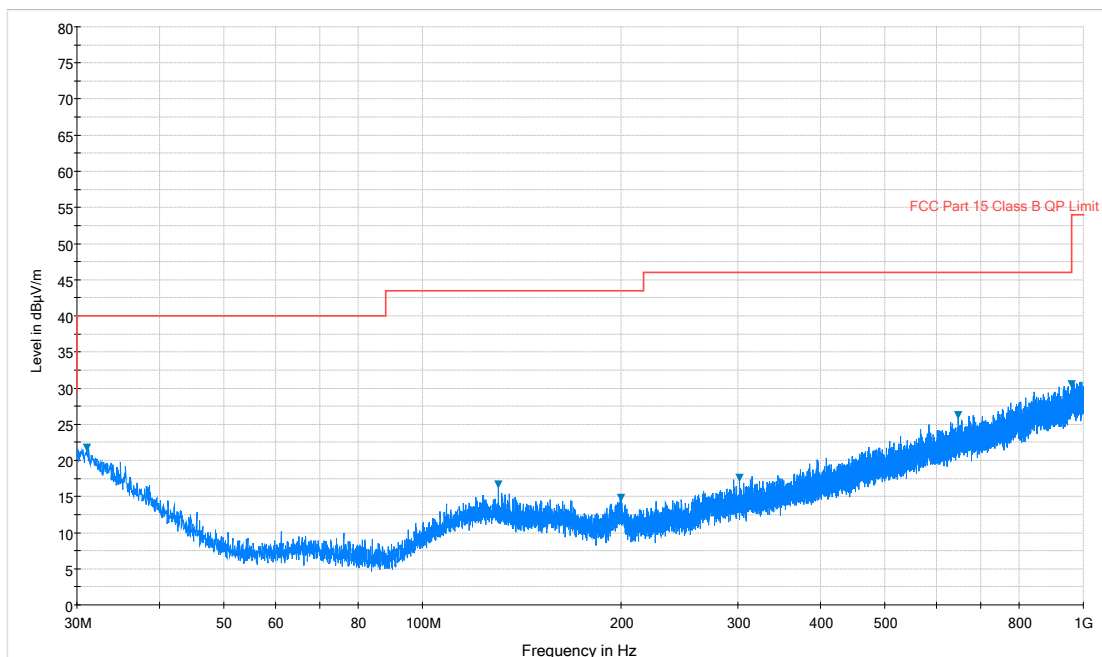
FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 235 of 254

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

§15.209



Plot 7-282. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)



Plot 7-283. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 236 of 254

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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

FCC ID: A3LSMN9500		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Setup

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

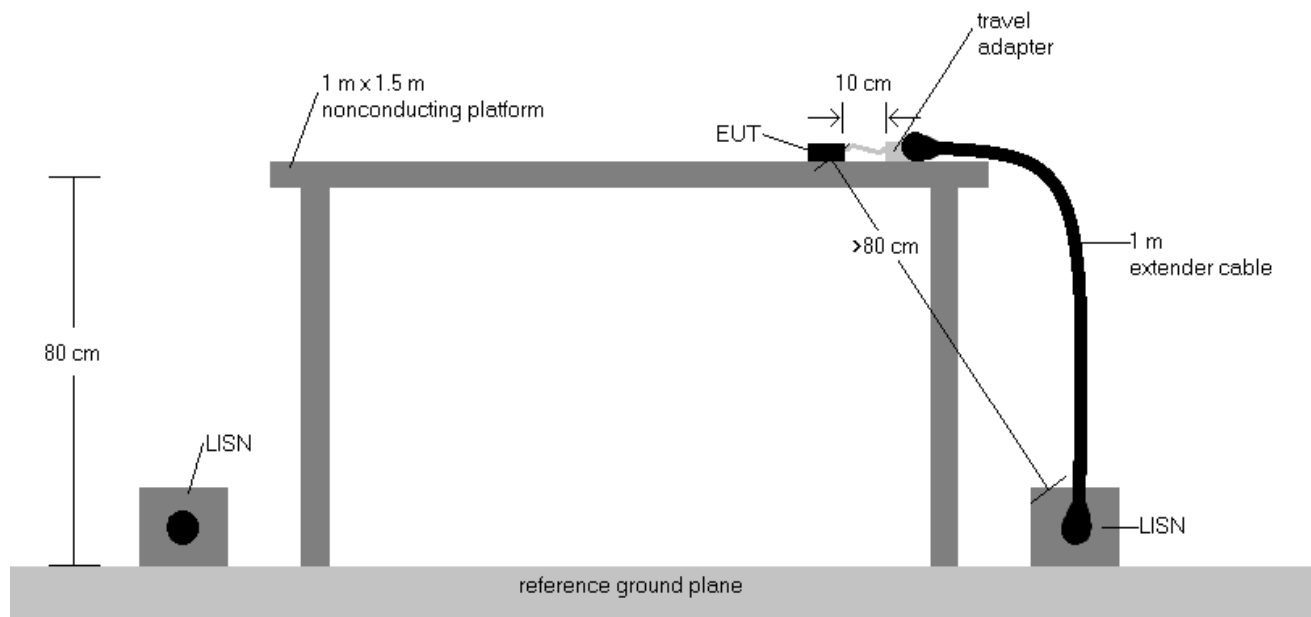
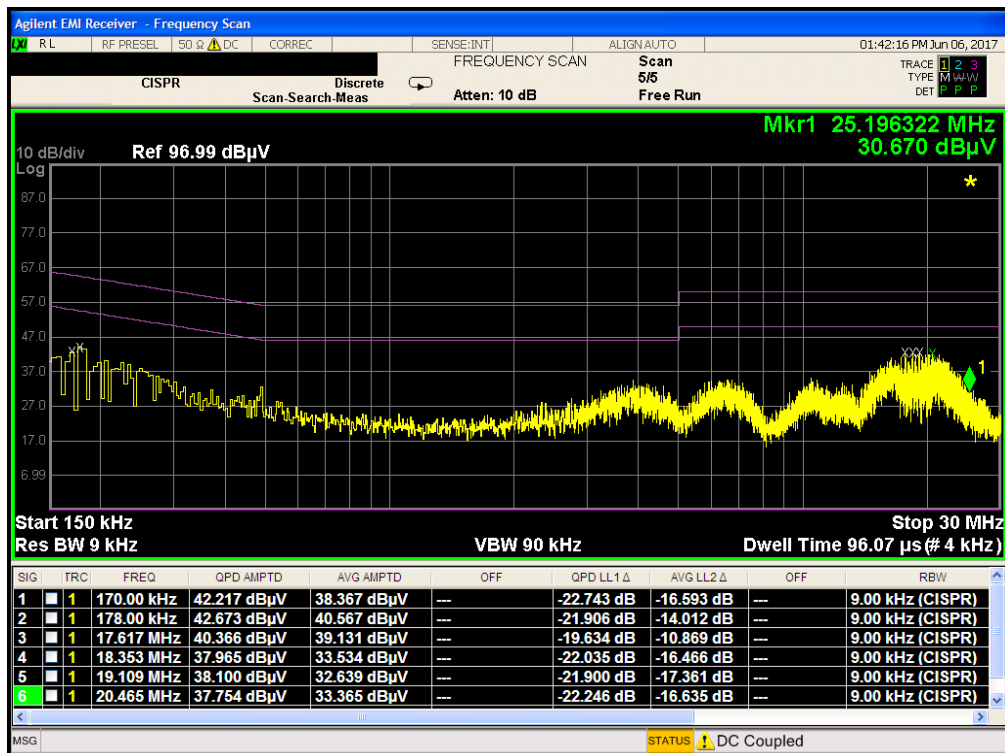


Figure 7-8. Test Instrument & Measurement Setup

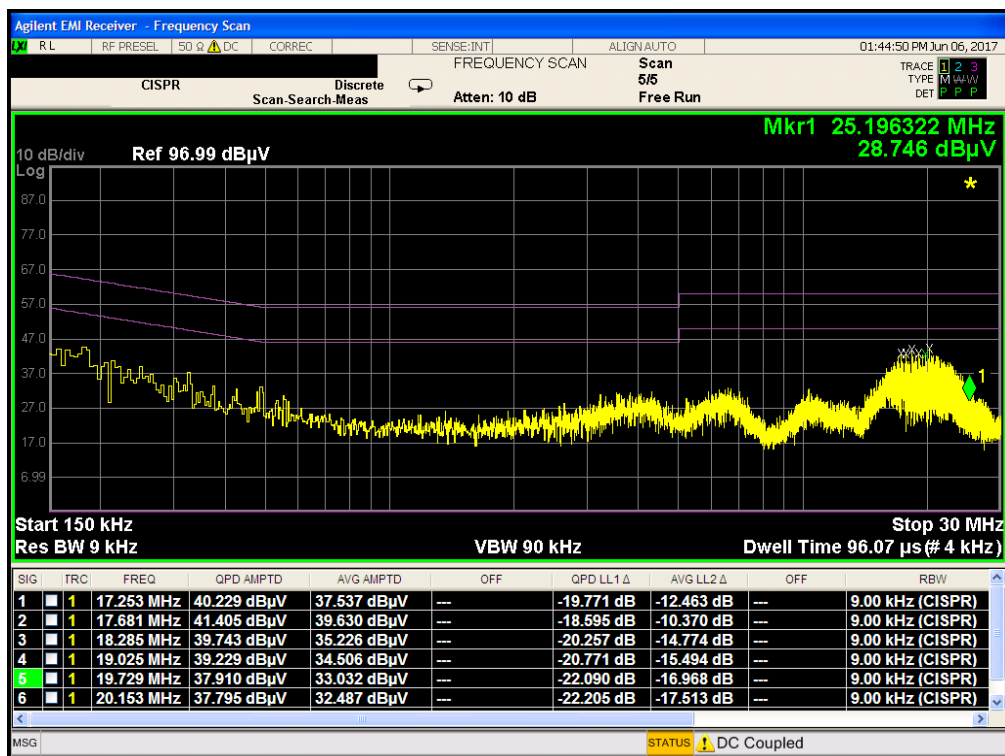
Test Notes

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.

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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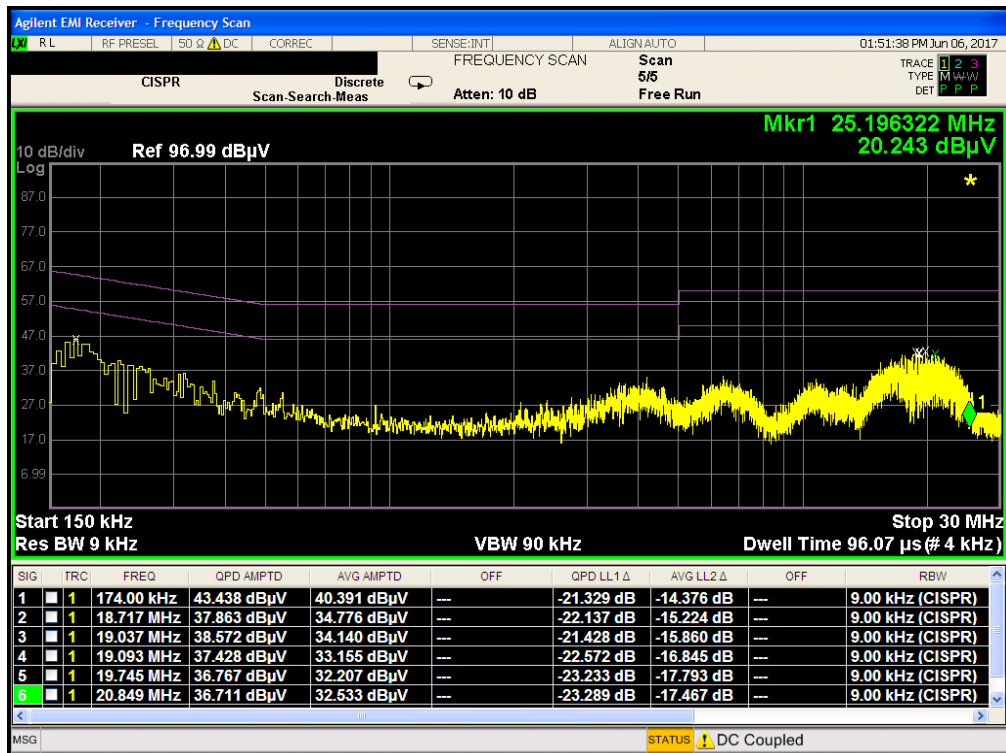


Plot 7-284. Line Conducted Plot with 802.11a UNII Band 1 (L1)

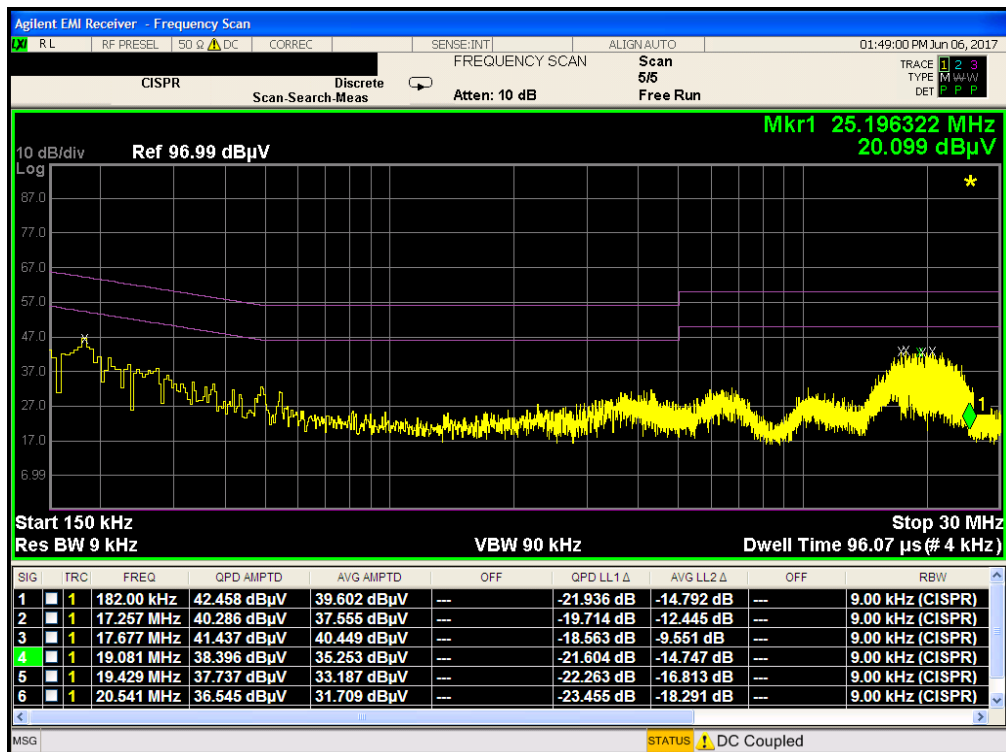


Plot 7-285. Line Conducted Plot with 802.11a UNII Band 1 (N)

FCC ID: A3LSMN9500	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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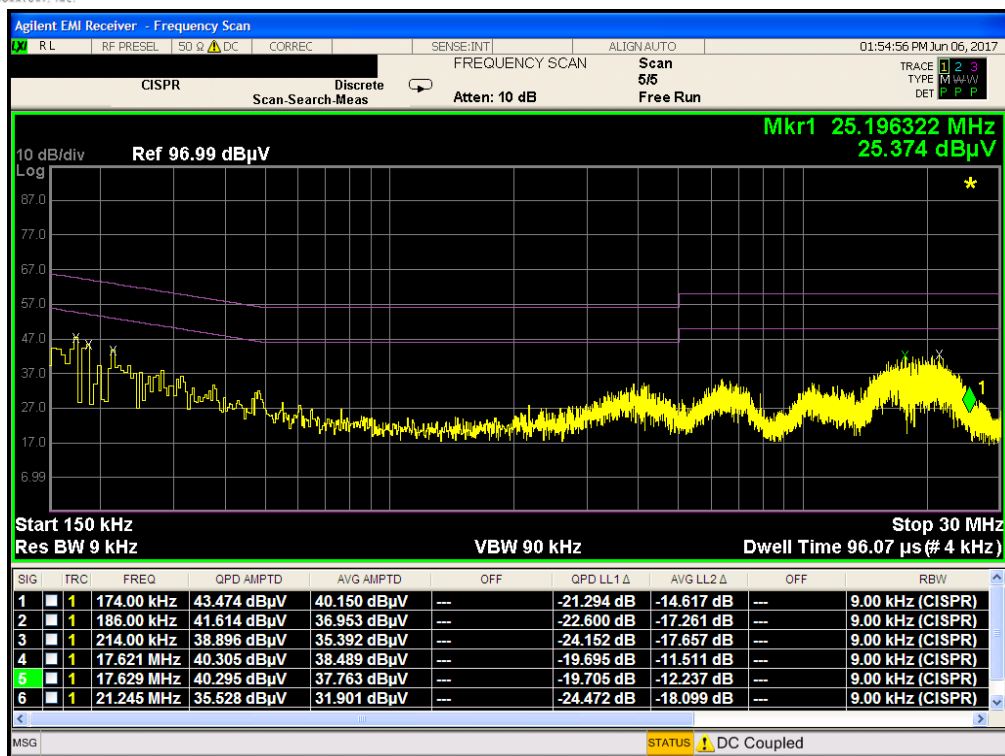


Plot 7-286. Line Conducted Plot with 802.11a UNII Band 2A (L1)

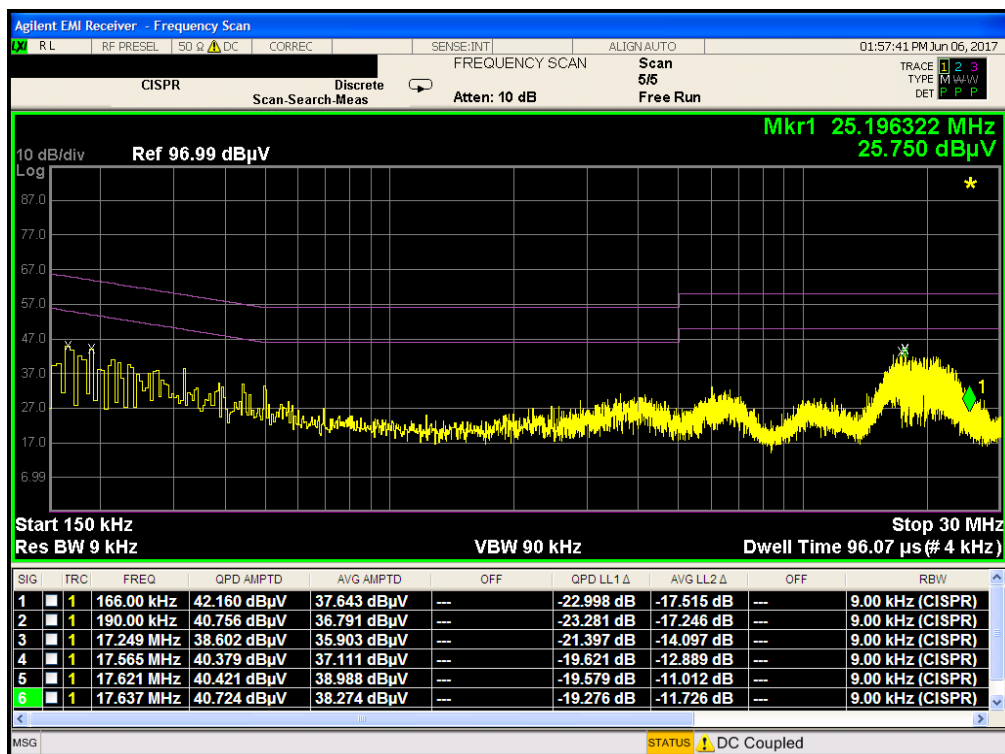


Plot 7-287. Line Conducted Plot with 802.11a UNII Band 2A (N)

FCC ID: A3LSMN9500	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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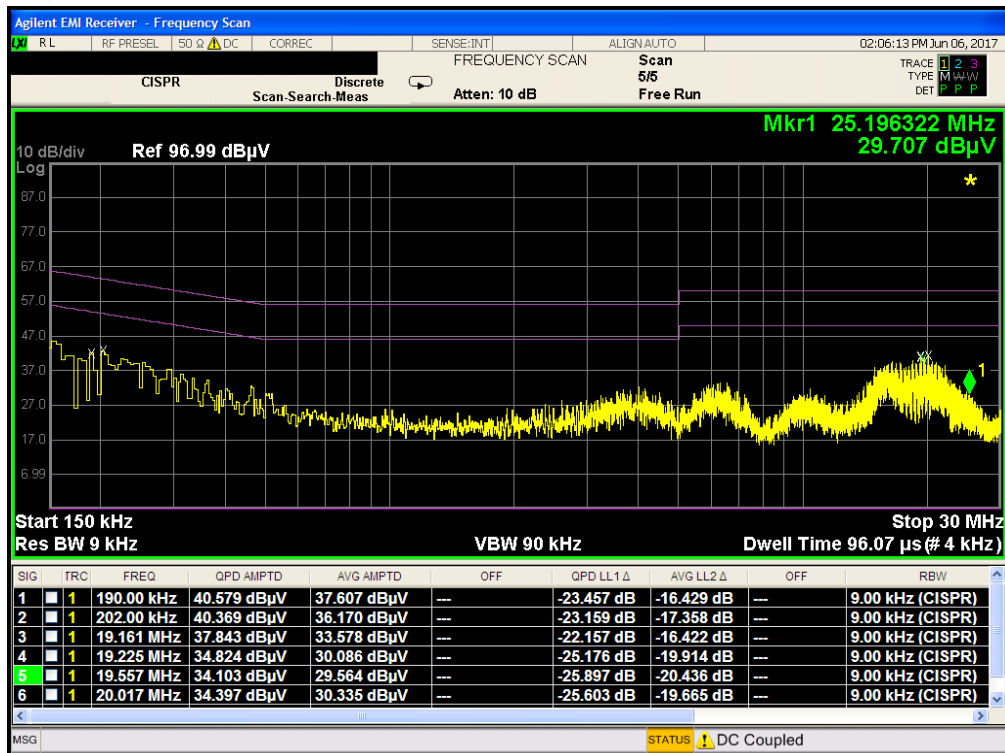


Plot 7-288. Line Conducted Plot with 802.11a UNII Band 2C (L1)

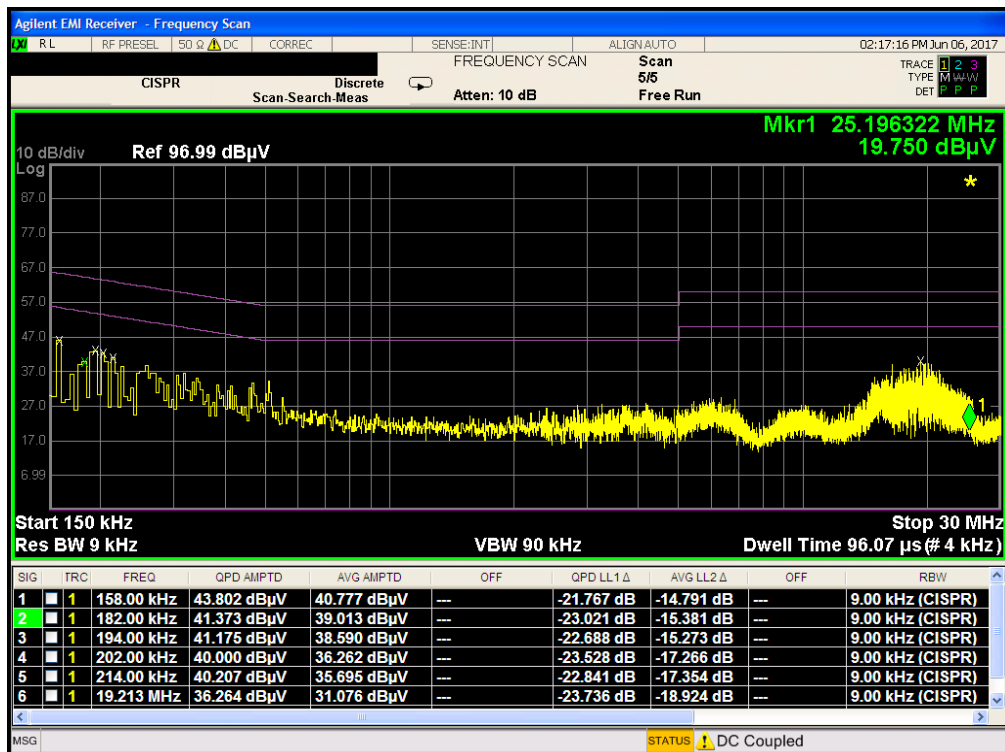


Plot 7-289. Line Conducted Plot with 802.11a UNII Band 2C (N)

FCC ID: A3LSMN9500	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-290. Line Conducted Plot with 802.11a UNII Band 3 (L1)



Plot 7-291. Line Conducted Plot with 802.11a UNII Band 3 (N)

FCC ID: A3LSMN9500	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Approved 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: A3LSMN9500** 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.iv), (a.2), (a.3)	Maximum Conducted Output Power	Maximum conducted powers must meet the limits detailed in 15.407 (a)	CONDUCTED	PASS	Section A.2
15.407 (a.1.iv), (a.2), (a.3)	Maximum Power Spectral Density	Maximum power spectral density must meet the limits detailed in 15.407 (a)	RADIATED	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.

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		ANT1	ANT2	CDD
5180	36	15.88	16.03	18.97
5200	40	15.86	16.02	18.95
5220	44	15.91	16.23	19.08
5240	48	15.85	16.07	18.97
5260	52	15.74	16.13	18.95
5280	56	15.78	16.09	18.95
5300	60	15.72	16.09	18.92
5320	64	15.74	16.11	18.94
5500	100	15.88	16.00	18.95
5580	116	16.09	16.16	19.14
5600	120	16.03	16.21	19.13
5620	124	16.12	16.24	19.19
5660	132	16.02	16.31	19.18
5720	144	16.04	16.34	19.20
5745	149	15.98	16.21	19.11
5765	153	16.05	16.26	19.17
5785	157	15.82	16.23	19.04
5805	161	15.93	16.23	19.09
5825	165	15.79	16.21	19.02

Table A2-1. Dual Tx 802.11a-mode Conducted Output Power Measurements

Note:

Per KDB 662911 D01 v02r01 Section E)1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Sample CDD Calculation:

At 5180MHz the average conducted output power was measured to be 15.88 dBm for Antenna-1 and 16.03 dBm for Antenna-2.

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

$$(15.88 \text{ dBm} + 16.03 \text{ dBm}) = (38.73 \text{ mW} + 40.09 \text{ mW}) = 78.82 \text{ mW} = 18.97 \text{ dBm}$$

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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]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6.5/7.2 (MCS0)	2.72	3.78	6.30	11.0	-4.70
	5200	40	a	6.5/7.2 (MCS0)	3.06	4.27	6.72	11.0	-4.28
	5240	48	a	6.5/7.2 (MCS0)	3.12	4.60	6.93	11.0	-4.07
Band 2A	5260	52	a	6.5/7.2 (MCS0)	1.36	4.42	6.17	11.0	-4.83
	5280	56	a	6.5/7.2 (MCS0)	2.68	4.63	6.77	11.0	-4.23
	5320	64	a	6.5/7.2 (MCS0)	3.27	5.07	7.27	11.0	-3.73
Band 2C	5500	100	a	6.5/7.2 (MCS0)	4.06	4.78	7.44	11.0	-3.56
	5600	120	a	6.5/7.2 (MCS0)	2.83	4.55	6.78	11.0	-4.22
	5720	144	a	6.5/7.2 (MCS0)	4.03	3.79	6.92	11.0	-4.08

Table A3-1.802.11a Dual Tx Conducted Power Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6.5/7.2 (MCS0)	1.10	0.93	4.02	30.0	-25.98
	5785	157	a	6.5/7.2 (MCS0)	1.11	0.86	3.99	30.0	-26.01
	5825	165	a	6.5/7.2 (MCS0)	0.76	0.69	3.74	30.0	-26.26

Table A3-2.802.11a Dual Tx Conducted Power Density Measurements

Note:

Per KDB 662911 D01 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Sample CDD Calculation:

At 5180MHz the average conducted power spectral density was measured to be 2.72dBm for Antenna-1 and 3.78 dBm for Antenna-2.

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

$$(2.72 \text{ dBm} + 3.78 \text{ dBm}) = (1.87 \text{ mW} + 2.39 \text{ mW}) = 4.26 \text{ mW} = 6.30 \text{ dBm}$$

A.4 Dual Tx Radiated Restricted Band Edge Measurements

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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.

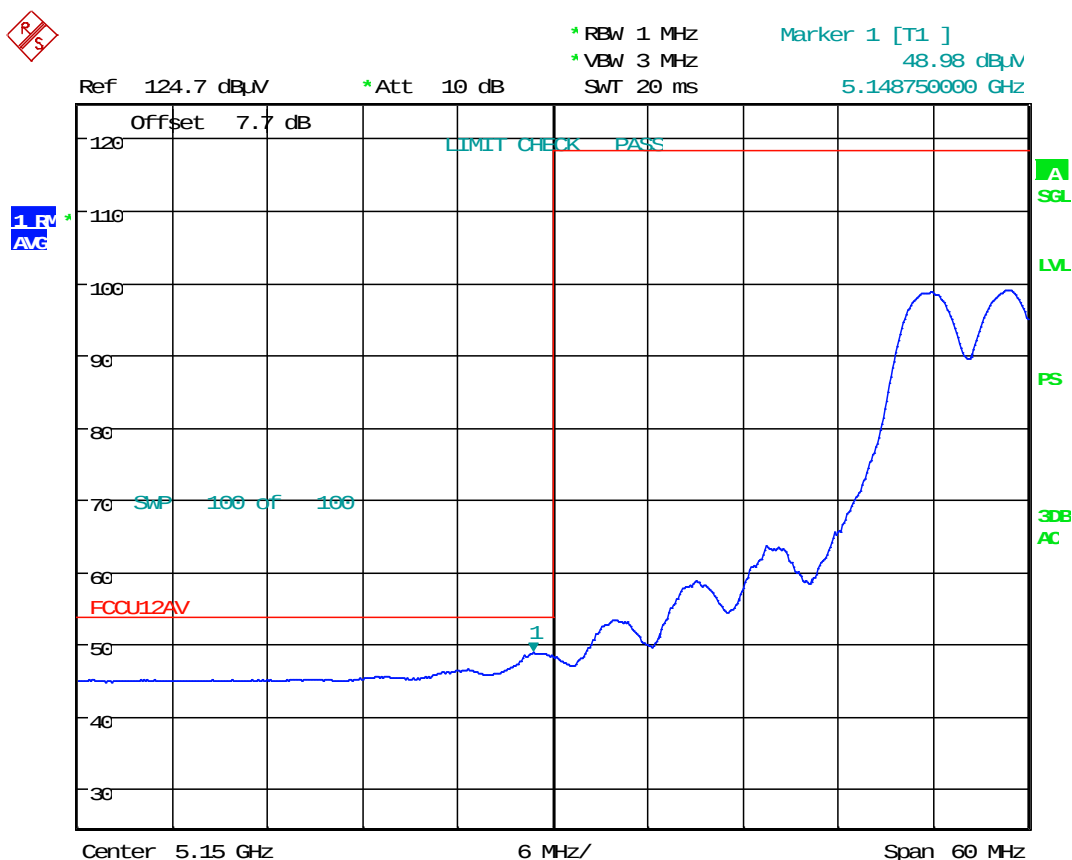
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



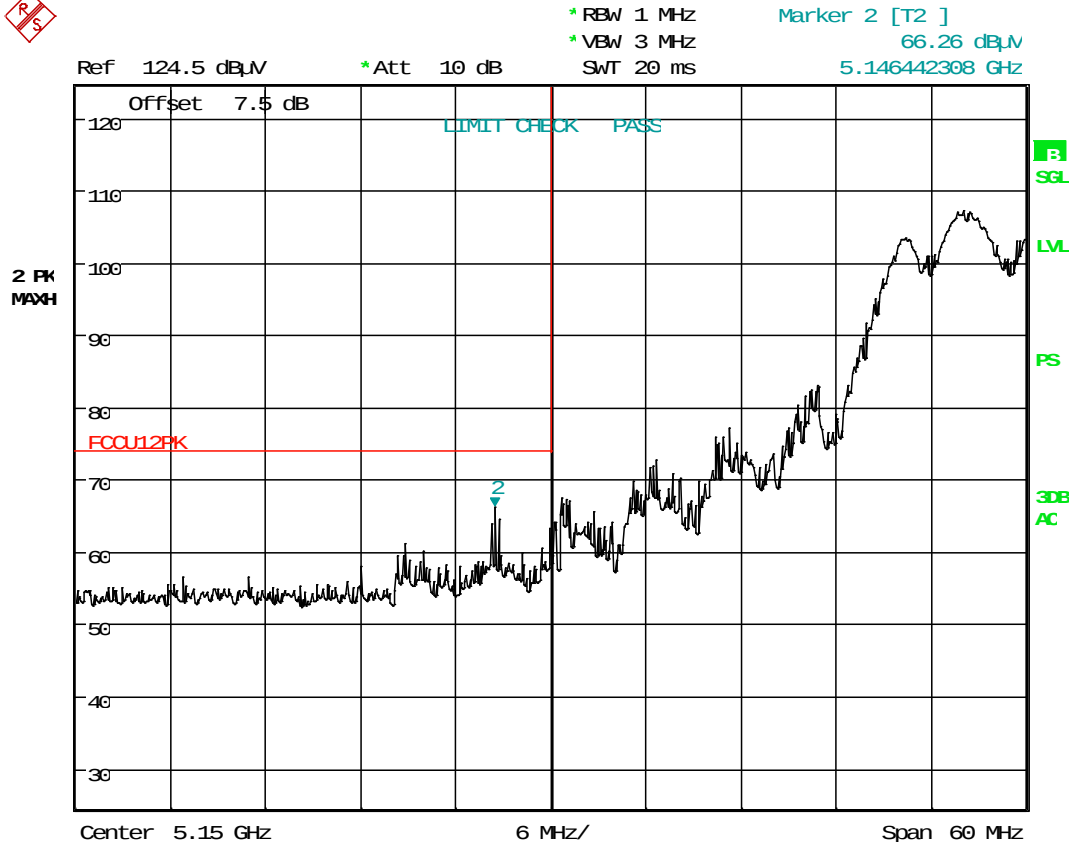
Date: 12.JUN.2017 16:32:41

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

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Dual Tx Radiated Restricted Band Edge Measurements

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Date: 12.JUN.2017 16:51:27

Plot A.4-2. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 249 of 254

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Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

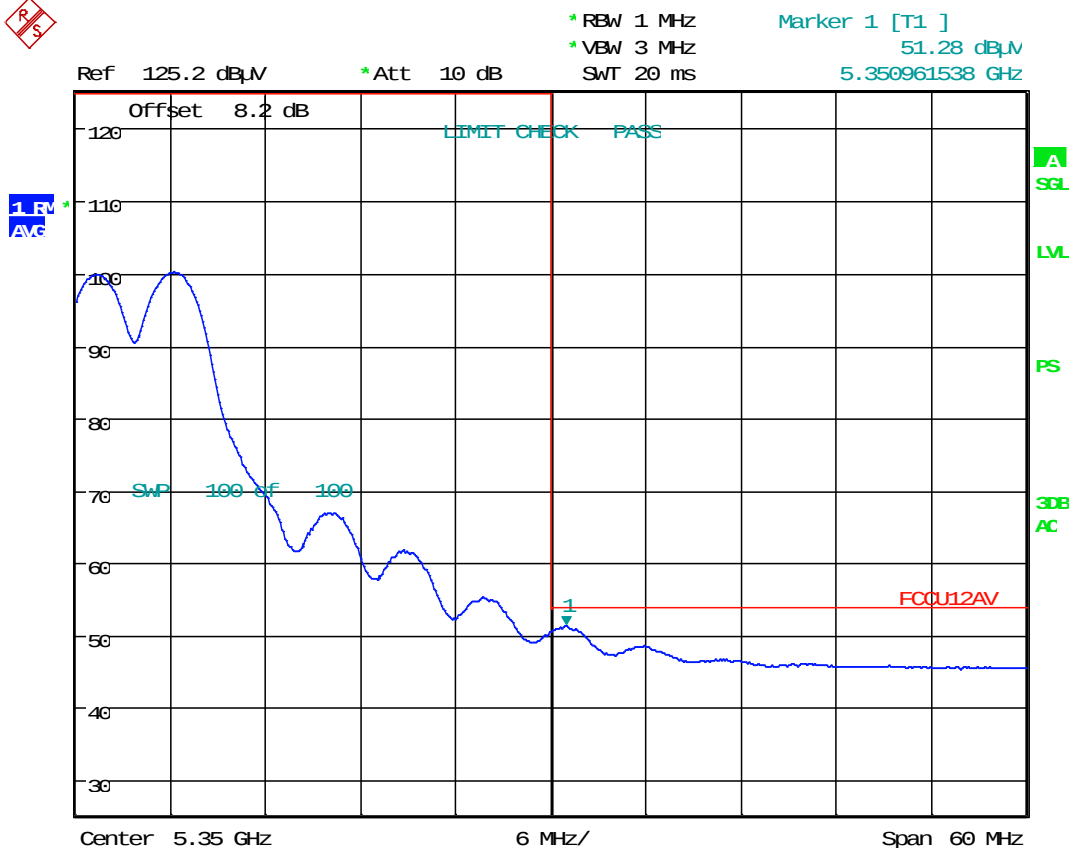
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



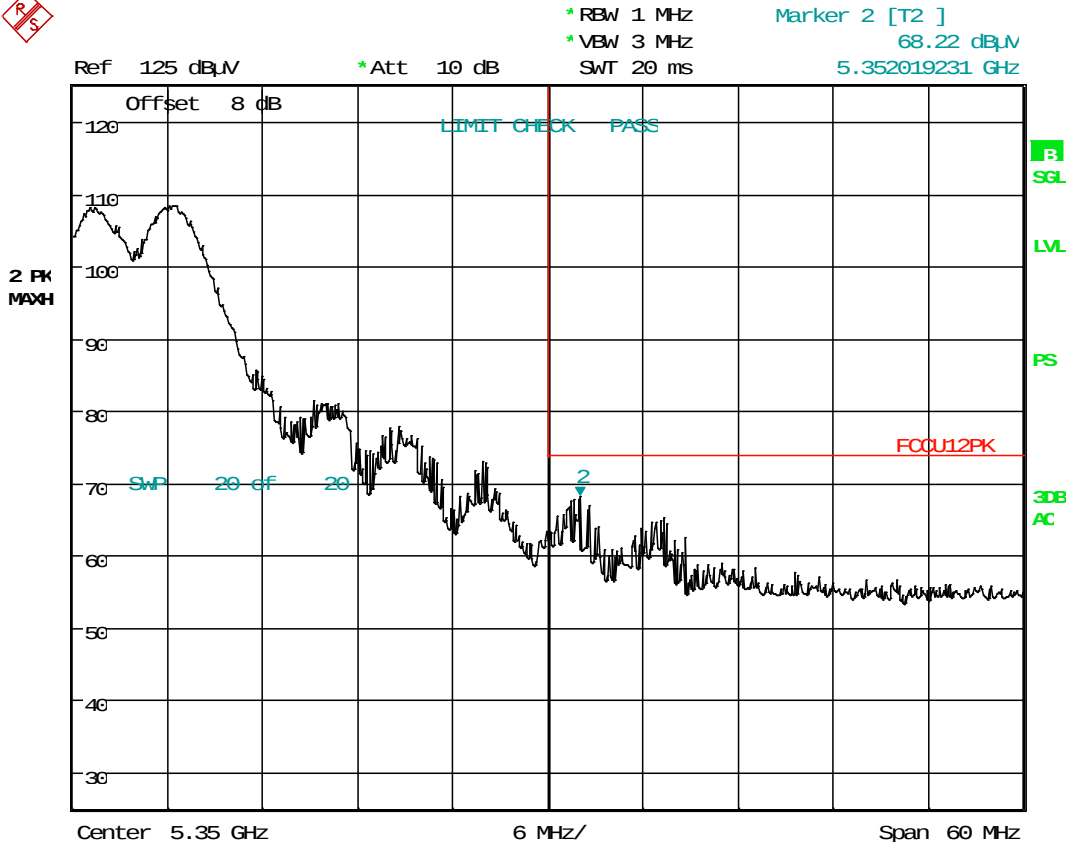
Date: 12. JUN. 2017 16:35:46

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

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 250 of 254

Dual Tx Radiated Restricted Band Edge Measurements

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Date: 12.JUN.2017 16:39:51

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

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1706190199-07.A3L	Test Dates: 5/22 – 7/15/2017	EUT Type: Portable Handset		Page 251 of 254

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Dual Tx Radiated Restricted Band Edge Measurements

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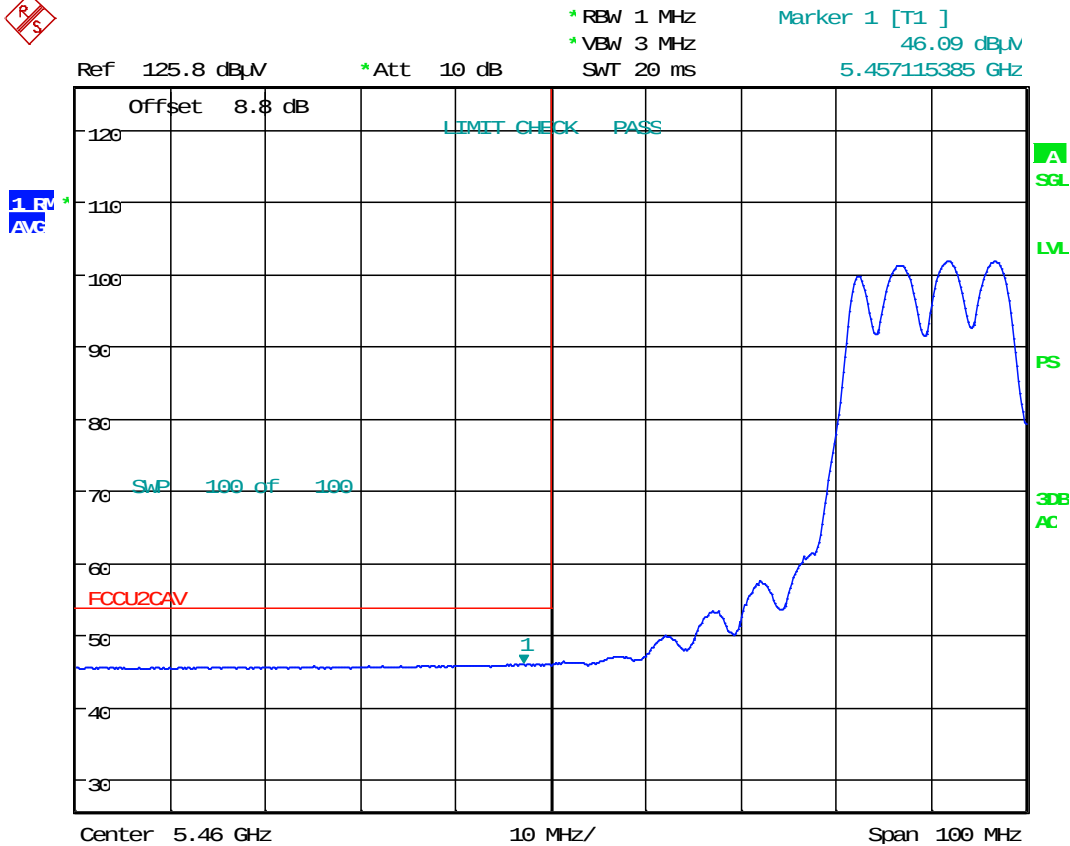
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 12. JUN. 2017 16:43:53

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

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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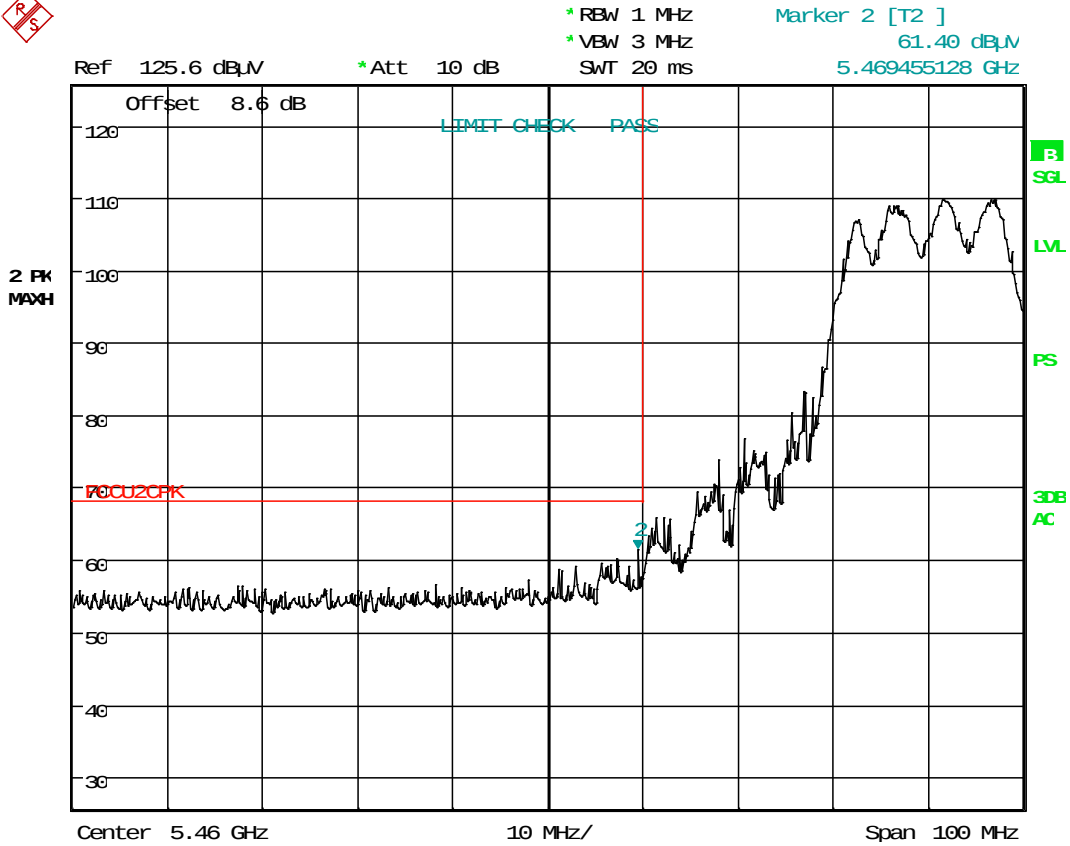
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Dual Tx Radiated Restricted Band Edge Measurements

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Date: 12.JUN.2017 16:44:31

Plot A.4-6. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

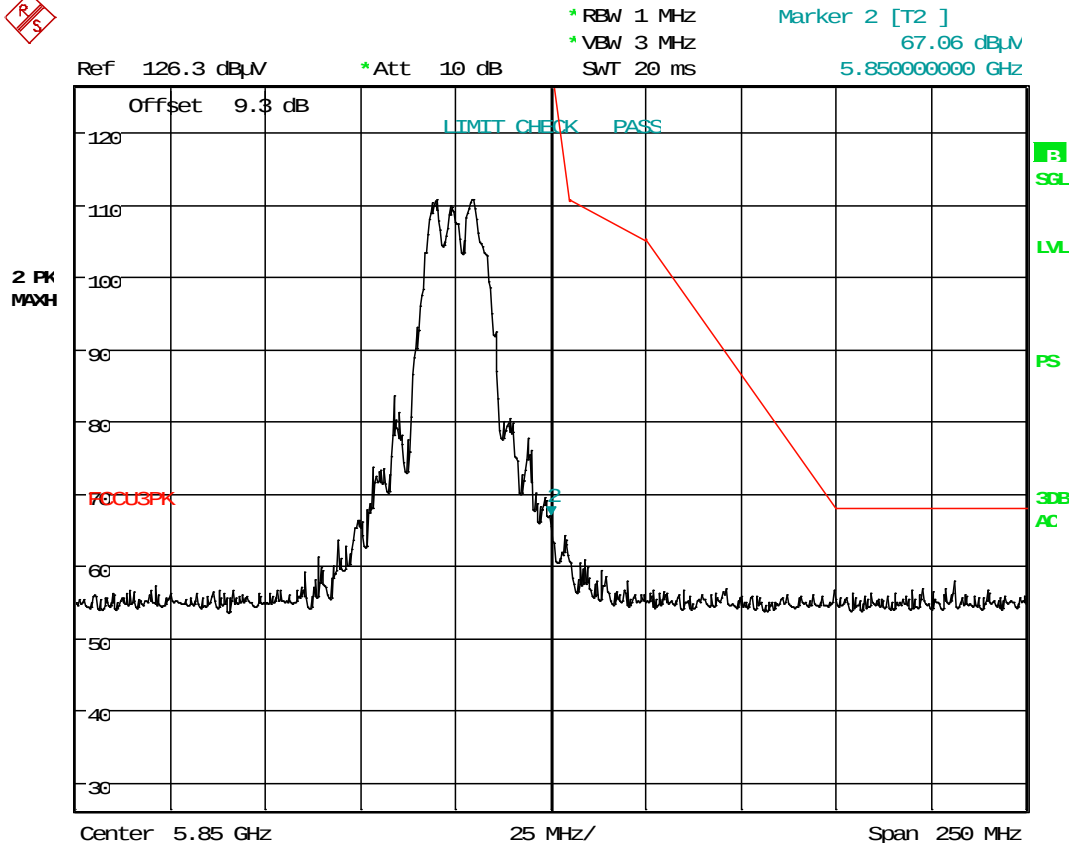
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 12. JUN. 2017 16:48:11

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

FCC ID: A3LSMN9500	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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