

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)	5,179,999,996	-4	-0.00000008
100 %		- 30	5,180,000,200	200	0.00000386
100 %		- 20	5,180,000,077	77	0.00000149
100 %		- 10	5,179,999,952	-48	-0.00000093
100 %		0	5,180,000,254	254	0.00000490
100 %		+ 10	5,180,000,116	116	0.00000224
100 %		+ 20	5,179,999,854	-146	-0.00000282
100 %		+ 30	5,179,999,879	-121	-0.00000234
100 %		+ 40	5,179,999,958	-42	-0.00000081
100 %		+ 50	5,179,999,714	-286	-0.00000552
BATT. ENDPOINT	3.45	+ 20	5,179,999,811	-189	-0.00000365

Table 7-23. Frequency Stability Measurements for UNII Band 1 (Ch. 36)

Note:

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 113 of 272	

Frequency Stability

§15.407(a)

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)	5,259,999,722	-278	-0.00000529
100 %		- 30	5,260,000,087	87	0.00000165
100 %		- 20	5,259,999,932	-68	-0.00000129
100 %		- 10	5,259,999,789	-211	-0.00000401
100 %		0	5,260,000,170	170	0.00000323
100 %		+ 10	5,260,000,055	55	0.00000105
100 %		+ 20	5,260,000,112	112	0.00000213
100 %		+ 30	5,260,000,140	140	0.00000266
100 %		+ 40	5,259,999,583	-417	-0.00000793
100 %		+ 50	5,259,999,931	-69	-0.00000131
BATT. ENDPOINT	3.45	+ 20	5,260,000,092	92	0.00000175

Table 7-24. Frequency Stability Measurements for UNII Band 2A (Ch. 52)

Note:

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 114 of 272

Frequency Stability

§15.407(a)

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)	5,499,999,978	-22	-0.00000040
100 %		- 30	5,500,000,205	205	0.00000373
100 %		- 20	5,499,999,915	-85	-0.00000155
100 %		- 10	5,500,000,056	56	0.00000102
100 %		0	5,499,999,853	-147	-0.00000267
100 %		+ 10	5,499,999,835	-165	-0.00000300
100 %		+ 20	5,500,000,104	104	0.00000189
100 %		+ 30	5,499,999,964	-36	-0.00000065
100 %		+ 40	5,500,000,168	168	0.00000305
100 %		+ 50	5,499,999,908	-92	-0.00000167
BATT. ENDPOINT	3.45	+ 20	5,500,000,104	104	0.00000189

Table 7-25. Frequency Stability Measurements for UNII Band 2C (Ch. 100)

Note:

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 115 of 272	

Frequency Stability

§15.407(g)

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

OPERATING FREQUENCY: 5,745,000,000 Hz
 CHANNEL: 149
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	5,745,000,075	75	0.00000131
100 %		- 30	5,745,000,271	271	0.00000472
100 %		- 20	5,745,000,164	164	0.00000285
100 %		- 10	5,745,000,149	149	0.00000259
100 %		0	5,744,999,937	-63	-0.00000110
100 %		+ 10	5,744,999,831	-169	-0.00000294
100 %		+ 20	5,745,000,080	80	0.00000139
100 %		+ 30	5,745,000,107	107	0.00000186
100 %		+ 40	5,744,999,927	-73	-0.00000127
100 %		+ 50	5,744,999,802	-198	-0.00000345
BATT. ENDPOINT	3.45	+ 20	5,745,000,192	192	0.00000334

Table 7-26. Frequency Stability Measurements for UNII Band 3 (Ch. 149)

Note:

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 116 of 272

7.7 Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b.1)(b.6) §15.205 §15.209

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in KDB 789033 D02 v01r02, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11n (20MHz BW), 802.11n (40MHz BW), and 802.11ac (80MHz)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 7-27 per Section 15.209.

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-27. Radiated Limits

Test Procedures Used

KDB 789033 D02 v01r02 – Section G

Test Settings

Average Measurements above 1GHz (Method AD)

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

Peak Measurements above 1GHz

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 117 of 272

Peak Measurements below 1GHz

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

Test Setup

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

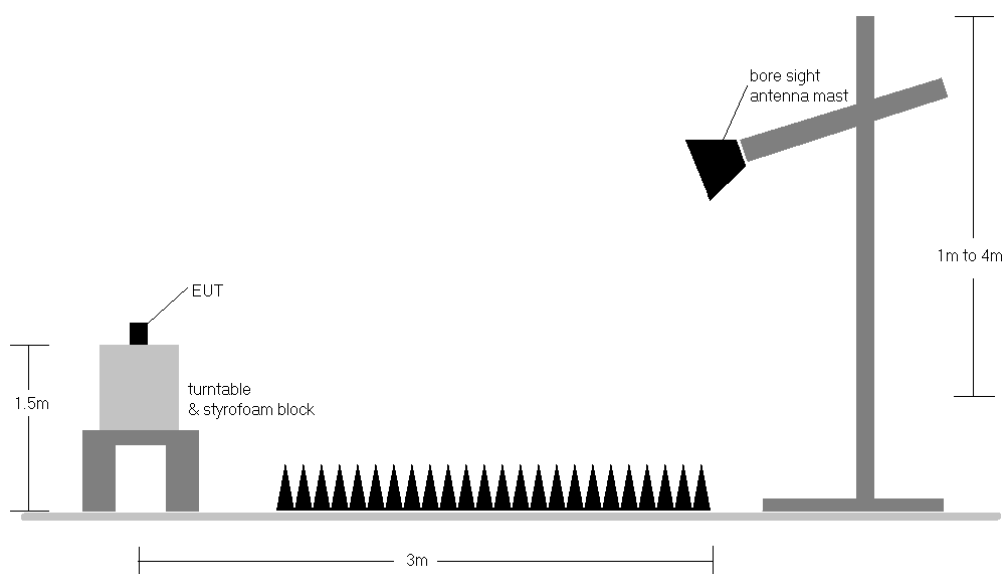


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 D02 v01r02 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 7-27.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-11. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 118 of 272

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. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section. Rohde & Schwarz EMC32, Version 9.15.00 automated test software was used to perform the Radiated Spurious Emissions Pre-Scan testing.
9. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

Sample Calculations

Determining Spurious Emissions Levels

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

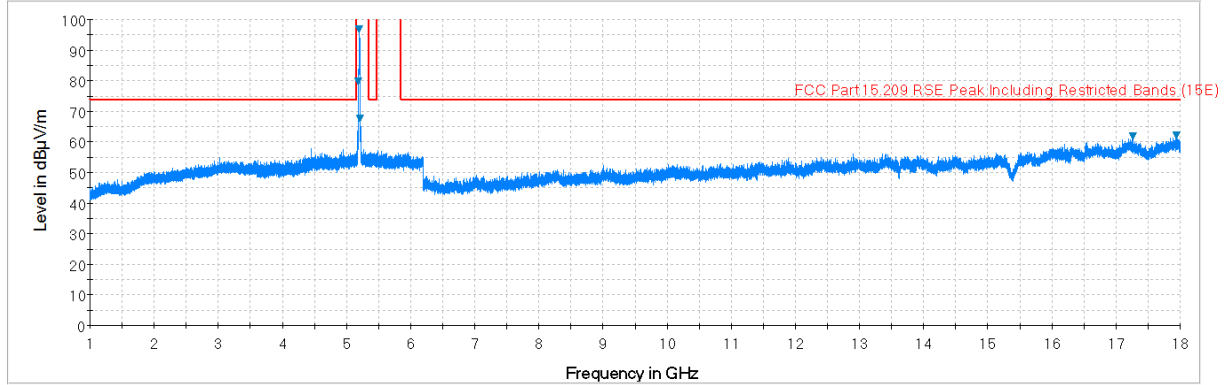
Radiated Band Edge Measurement Offset

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

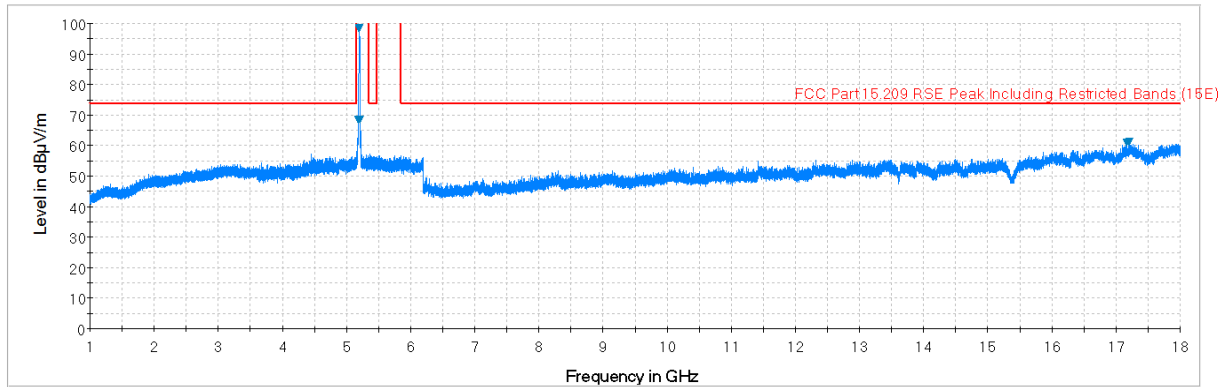
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + 10 \text{ dB Attenuator}) - \text{Preamplifier Gain}$$

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 119 of 272

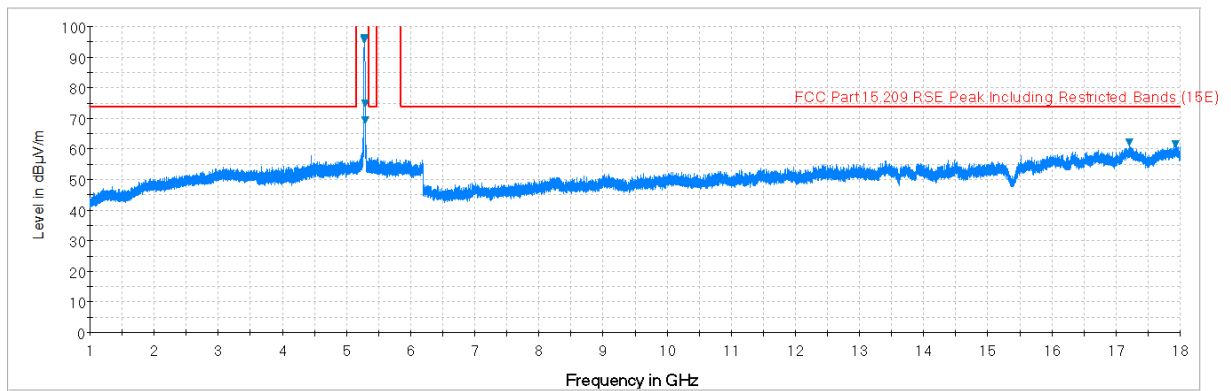
7.7.1 Antenna-1 Radiated Spurious Emission Measurements



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

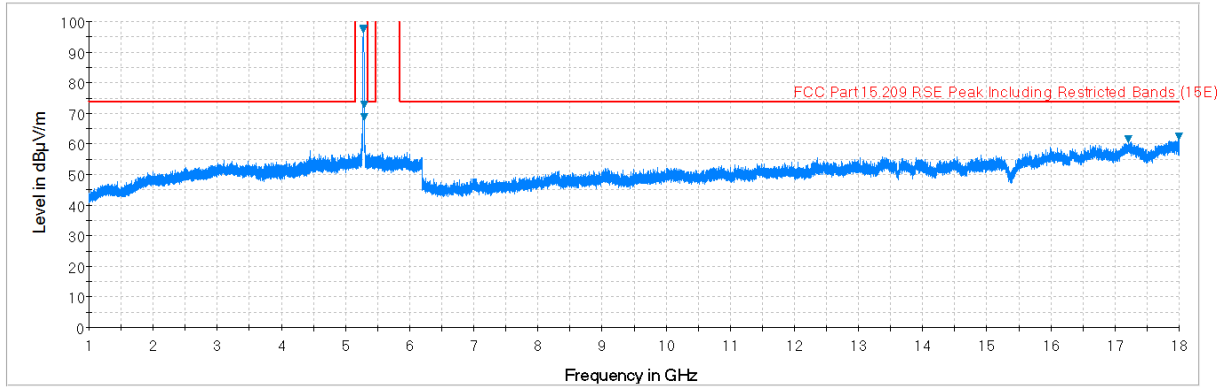


Plot 7-158. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

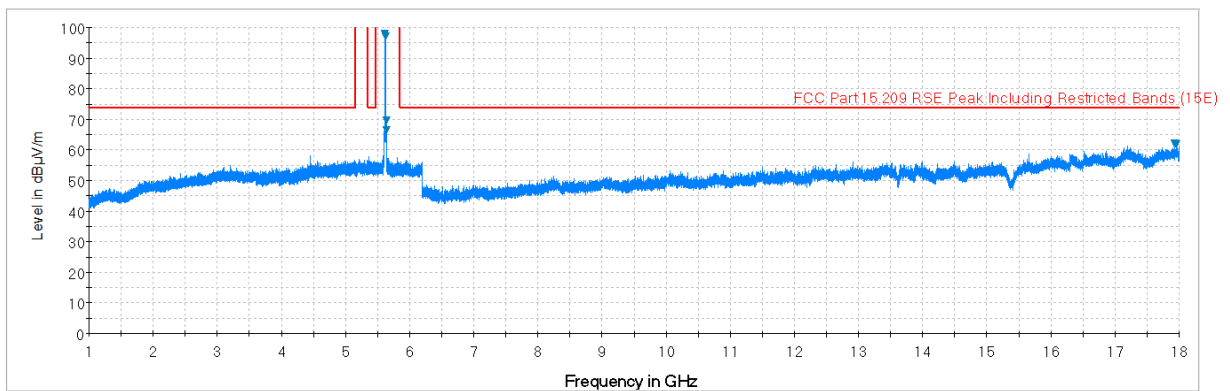


Plot 7-159. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

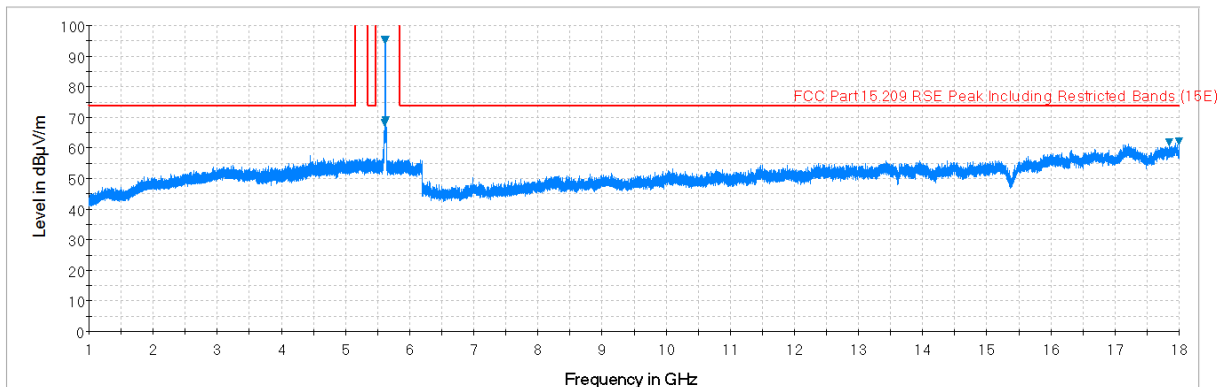
FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 120 of 272



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

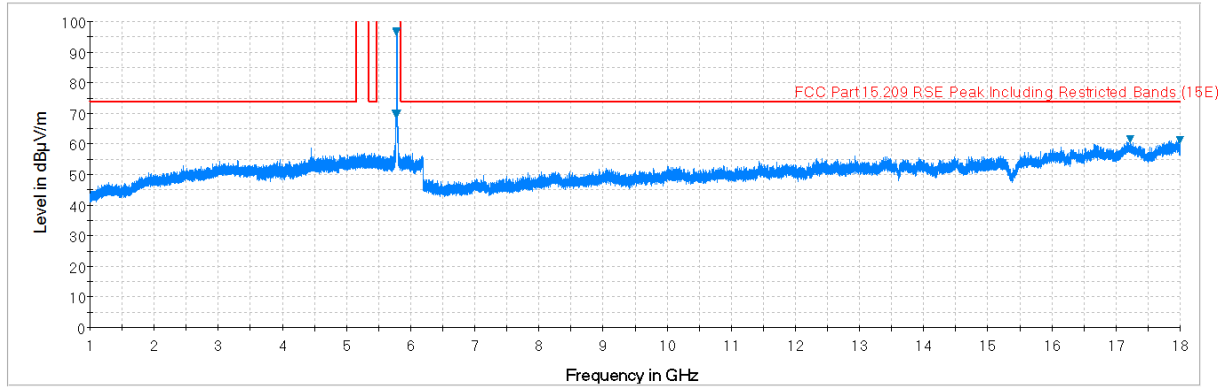


Plot 7-161. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

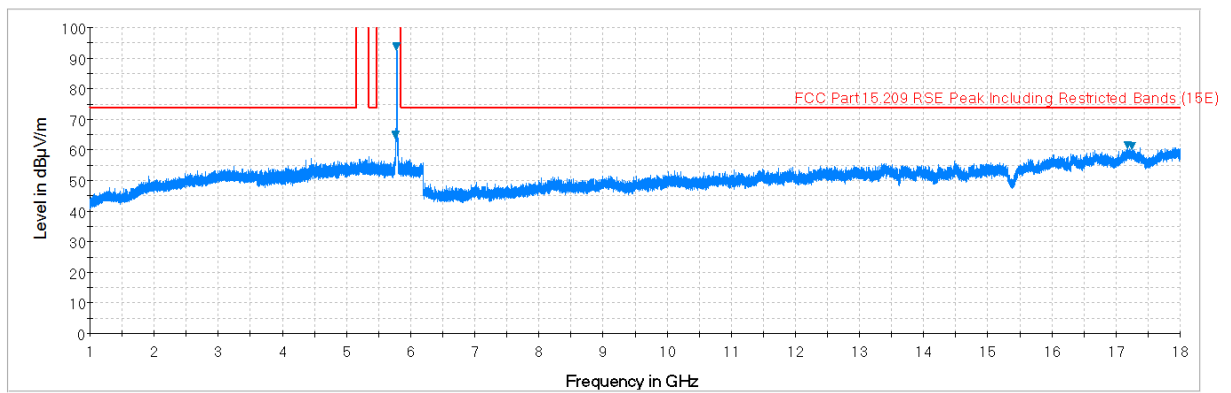


Plot 7-162. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 121 of 272



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

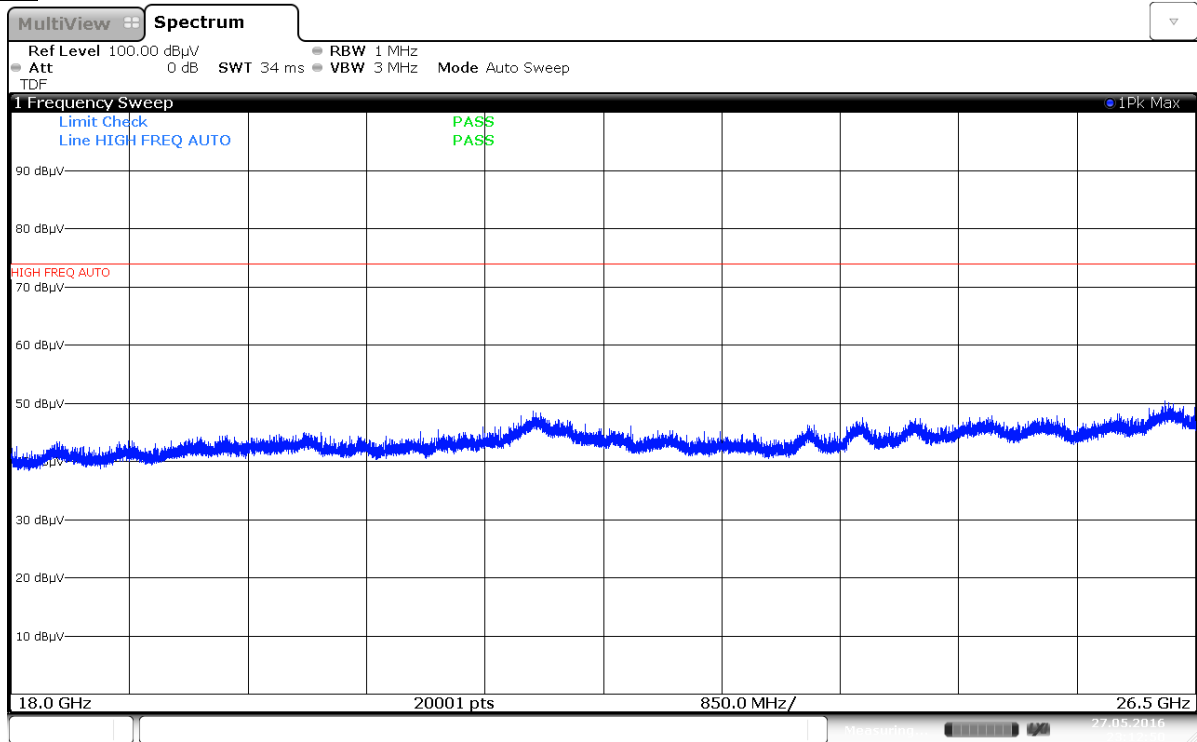


Plot 7-164. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

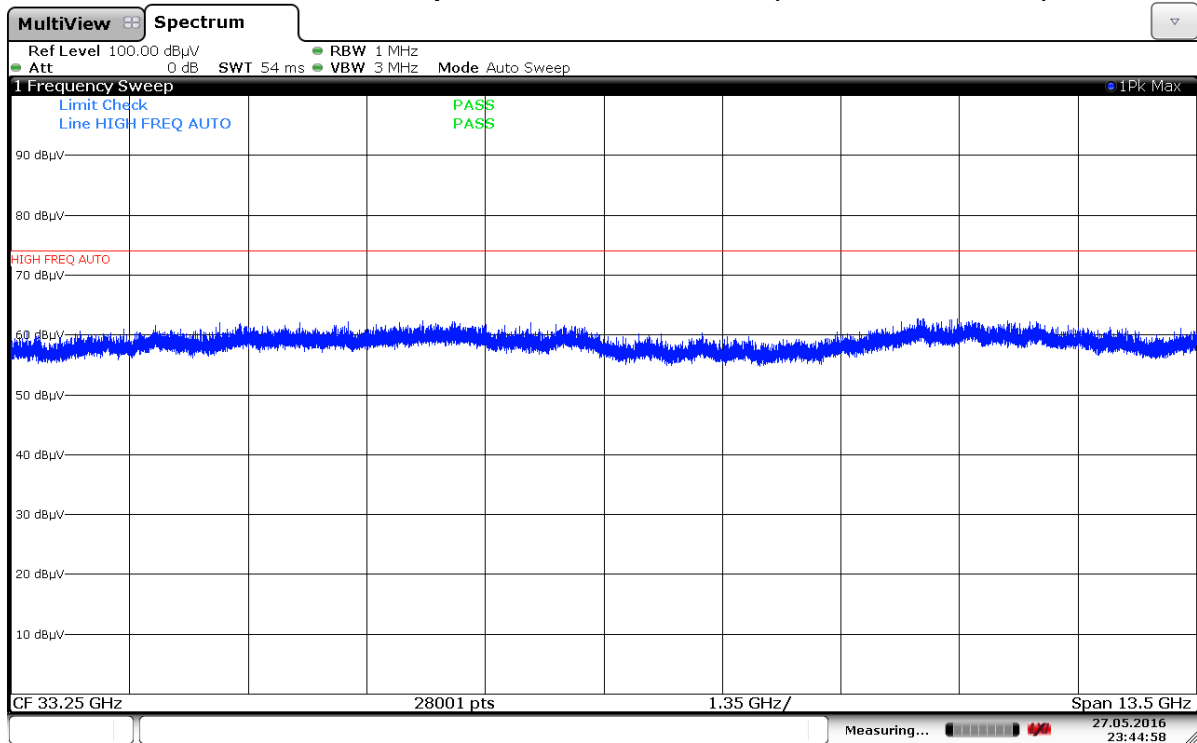
FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 122 of 272

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

§15.209

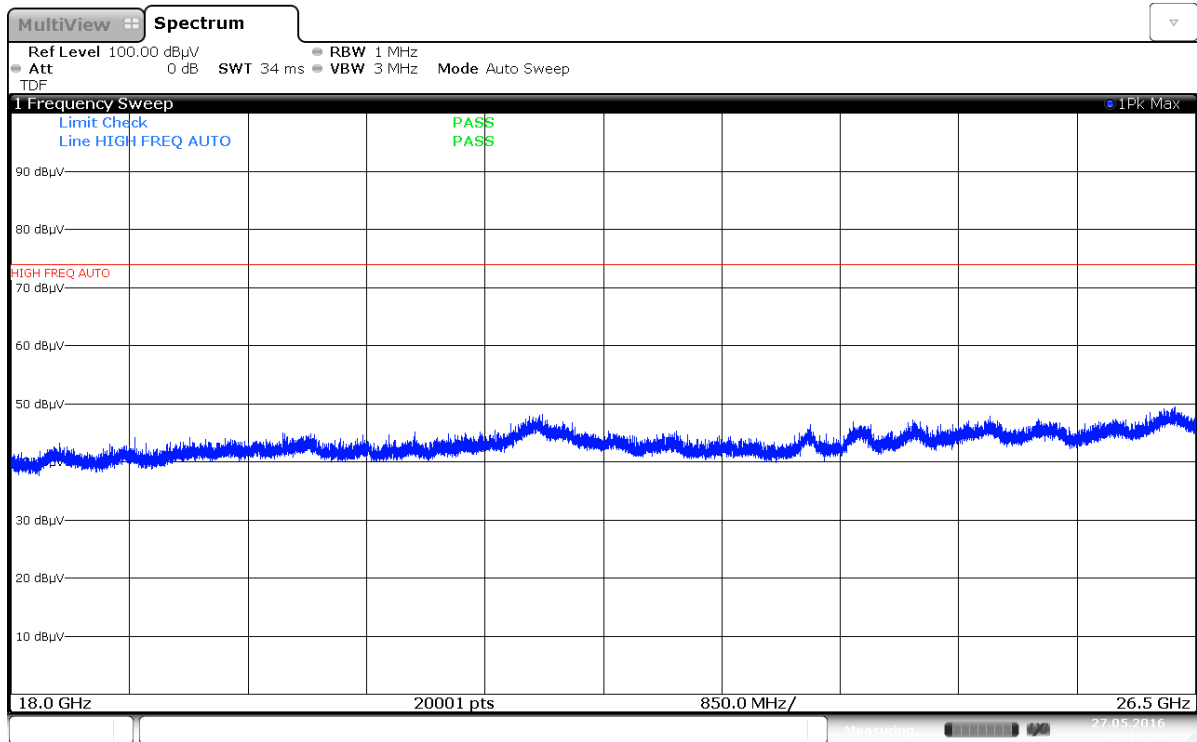


Plot 7-165. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)

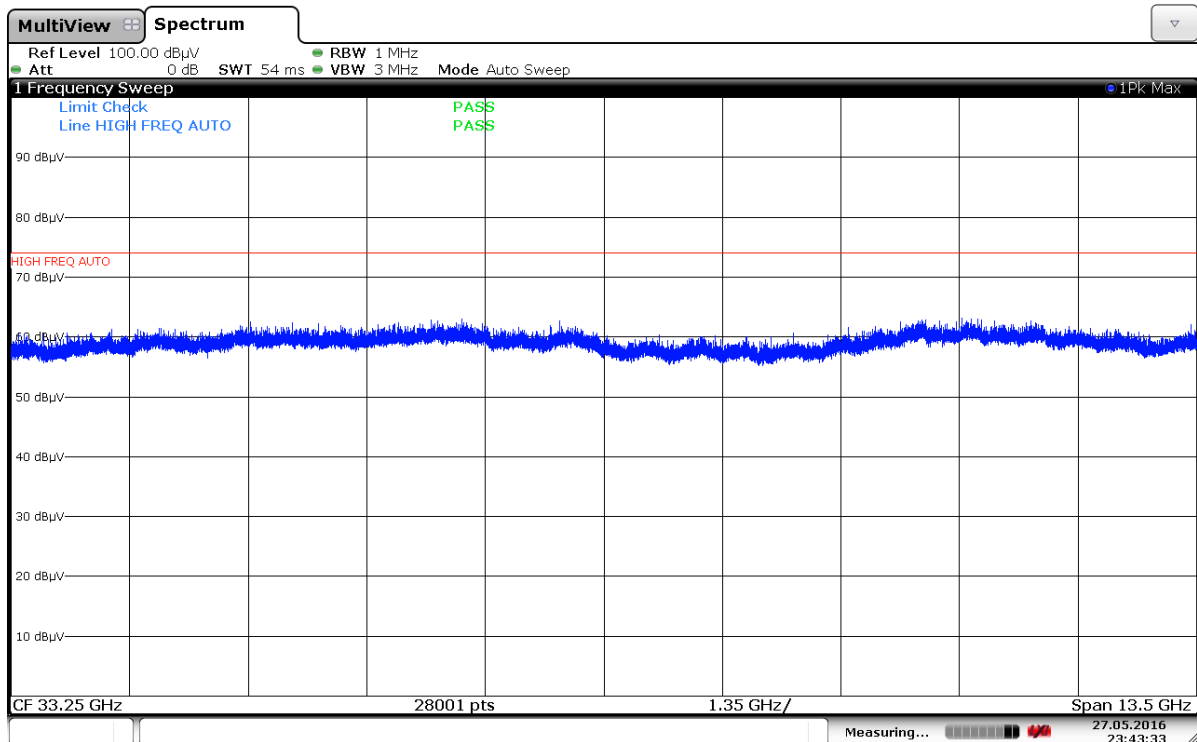


Plot 7-166. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 123 of 272



Plot 7-167. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. V)



Plot 7-168. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. V)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 124 of 272

Antenna-1 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-98.06	48.08	0.00	57.02	68.20	-11.18
* 15540.00	Average	H	-	-	-110.69	53.35	0.00	49.66	53.98	-4.32
* 15540.00	Peak	H	-	-	-98.76	53.35	0.00	61.59	73.98	-12.39
* 20720.00	Average	H	-	-	-113.20	44.39	-9.54	28.64	53.98	-25.34
* 20720.00	Peak	H	-	-	-100.80	44.39	-9.54	41.04	73.98	-32.94
25900.00	Peak	H	-	-	-99.53	45.11	-9.54	43.04	68.20	-25.16

Table 7-28. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	149	185	-98.03	48.05	0.00	57.02	68.20	-11.18
* 15600.00	Average	H	-	-	-111.22	53.44	0.00	49.22	53.98	-4.76
* 15600.00	Peak	H	-	-	-99.58	53.44	0.00	60.85	73.98	-13.13
* 20800.00	Average	H	-	-	-114.24	44.39	-9.54	27.61	53.98	-26.37
* 20800.00	Peak	H	-	-	-100.24	44.39	-9.54	41.61	73.98	-32.37
26000.00	Peak	H	-	-	-99.73	45.12	-9.54	42.84	68.20	-25.36

Table 7-29. Radiated Measurements

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 125 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-97.65	48.21	0.00	57.56	68.20	-10.64
* 15720.00	Average	H	-	-	-111.35	53.84	0.00	49.49	53.98	-4.49
* 15720.00	Peak	H	-	-	-99.05	53.84	0.00	61.79	73.98	-12.19
* 20960.00	Average	H	100	18	-105.08	44.31	-9.54	36.69	53.98	-17.29
* 20960.00	Peak	H	100	18	-90.96	44.31	-9.54	50.81	73.98	-23.17
26200.00	Peak	H	-	-	-99.82	45.01	-9.54	42.65	68.20	-25.55

Table 7-30. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-99.04	48.21	0.00	56.17	68.20	-12.03
* 15720.00	Average	H	-	-	-110.95	53.84	0.00	49.89	53.98	-4.09
* 15720.00	Peak	H	-	-	-99.32	53.84	0.00	61.52	73.98	-12.46
* 20960.00	Average	H	100	18	-111.00	44.31	-9.54	30.77	53.98	-23.21
* 20960.00	Peak	H	100	18	-97.67	44.31	-9.54	44.10	73.98	-29.88
26200.00	Peak	H	-	-	-99.68	45.01	-9.54	42.79	68.20	-25.41

Table 7-31. Radiated Measurements with WCP

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 126 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-98.57	48.22	0.00	56.65	68.20	-11.55
* 15780.00	Average	H	-	-	-111.61	53.85	0.00	49.24	53.98	-4.74
* 15780.00	Peak	H	-	-	-99.36	53.85	0.00	61.49	73.98	-12.49
* 21040.00	Average	H	100	35	-110.19	44.29	-9.54	31.56	53.98	-22.42
* 21040.00	Peak	H	100	35	-95.66	44.29	-9.54	46.09	73.98	-27.89
26300.00	Peak	H	-	-	-98.60	45.00	-9.54	43.85	68.20	-24.35

Table 7-32. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-99.23	48.18	0.00	55.95	68.20	-12.25
* 15840.00	Average	H	-	-	-111.50	53.94	0.00	49.43	53.98	-4.55
* 15840.00	Peak	H	-	-	-100.29	53.94	0.00	60.64	73.98	-13.34
* 21120.00	Average	H	100	107	-108.22	44.28	-9.54	33.51	53.98	-20.47
* 21120.00	Peak	H	100	107	-94.07	44.28	-9.54	47.66	73.98	-26.32
26400.00	Peak	H	-	-	-99.59	45.02	-9.54	42.89	68.20	-25.31

Table 7-33. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-110.26	48.11	0.00	44.84	53.98	-9.14
* 10640.00	Peak	H	-	-	-98.77	48.11	0.00	56.33	73.98	-17.65
* 15960.00	Average	H	-	-	-111.27	54.57	0.00	50.30	53.98	-3.68
* 15960.00	Peak	H	-	-	-98.79	54.57	0.00	62.78	73.98	-11.20
* 21280.00	Average	H	100	109	-109.19	44.26	-9.54	32.53	53.98	-21.44
* 21280.00	Peak	H	100	109	-94.51	44.26	-9.54	47.21	73.98	-26.76
26600.00	Peak	H	-	-	-102.23	47.61	-9.54	42.83	68.20	-25.37

Table 7-34. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	150	0	-96.88	48.18	0.00	58.30	68.20	-9.90
* 15840.00	Average	H	150	0	-111.61	53.94	0.00	49.32	53.98	-4.66
* 15840.00	Peak	H	150	0	-99.69	53.94	0.00	61.24	73.98	-12.74
* 21120.00	Average	H	-	-	-107.70	44.28	-9.54	34.03	53.98	-19.95
* 21120.00	Peak	H	-	-	-96.27	44.28	-9.54	45.46	73.98	-28.52
26400.00	Peak	H	-	-	-92.97	45.02	-9.54	49.51	68.20	-18.69

Table 7-35. Radiated Measurements with WCP

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 128 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-109.72	49.03	0.00	46.31	53.98	-7.67
* 11000.00	Peak	H	-	-	-97.68	49.03	0.00	58.35	73.98	-15.63
16500.00	Peak	H	-	-	-99.18	55.10	0.00	62.91	68.20	-5.29
22000.00	Peak	H	100	0	-99.76	44.50	-9.54	42.20	68.20	-26.00
27500.00	Peak	H	-	-	-103.31	47.97	-9.54	42.12	68.20	-26.08

Table 7-36. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-109.71	48.08	0.00	45.37	53.98	-8.61
* 11200.00	Peak	H	-	-	-97.66	48.08	0.00	57.42	73.98	-16.56
16800.00	Peak	H	-	-	-99.95	56.01	0.00	63.06	68.20	-5.14
* 22400.00	Average	H	100	93	-112.68	44.56	-9.54	29.34	53.98	-24.64
* 22400.00	Peak	H	100	93	-99.66	44.56	-9.54	42.36	73.98	-31.62
28000.00	Peak	H	-	-	-103.73	48.08	-9.54	41.81	68.20	-26.39

Table 7-37. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-109.34	48.92	0.00	46.57	53.98	-7.41
* 11440.00	Peak	H	-	-	-97.62	48.92	0.00	58.29	73.98	-15.69
17160.00	Peak	H	-	-	-99.87	55.26	0.00	62.40	68.20	-5.80
* 22880.00	Average	H	100	322	-112.33	44.56	-9.54	29.69	53.98	-24.29
* 22880.00	Peak	H	100	322	-100.64	44.56	-9.54	41.38	73.98	-32.60
28600.00	Peak	H	-	-	-102.89	48.32	-9.54	42.89	68.20	-25.31

Table 7-38. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11400.00	Average	H	149	162	-109.44	48.92	0.00	46.47	53.98	-7.51
* 11400.00	Peak	H	149	162	-96.64	48.92	0.00	59.27	73.98	-14.71
17100.00	Peak	H	-	-	-100.42	55.26	0.00	61.85	68.20	-6.35
22800.00	Average	H	100	322	-113.47	44.56	-9.54	28.55	53.98	-25.43
22800.00	Peak	H	100	322	-101.28	44.56	-9.54	40.74	73.98	-33.24
28500.00	Peak	H	-	-	-103.45	48.32	-9.54	42.33	68.20	-25.87

Table 7-39. Radiated Measurements with WCP

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 130 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-110.78	50.05	0.00	46.28	53.98	-7.70
* 11490.00	Peak	H	-	-	-98.70	50.05	0.00	58.36	73.98	-15.62
17235.00	Peak	H	-	-	-99.93	57.47	0.00	64.53	68.20	-3.67
* 22980.00	Average	H	100	8	-112.92	44.68	-9.54	29.22	53.98	-24.76
* 22980.00	Peak	H	100	8	-100.98	44.68	-9.54	41.16	73.98	-32.82
28725.00	Peak	H	-	-	-102.62	48.26	-9.54	43.10	68.20	-25.10

Table 7-40. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-110.95	50.28	0.00	46.32	53.98	-7.66
* 11570.00	Peak	H	-	-	-98.54	50.28	0.00	58.73	73.98	-15.25
17355.00	Peak	H	-	-	-99.93	58.13	0.00	65.20	68.20	-3.00
23140.00	Peak	H	100	84	-100.66	44.75	-9.54	41.55	68.20	-26.65
28925.00	Peak	H	-	-	-102.63	48.29	-9.54	43.12	68.20	-25.08

Table 7-41. Radiated Measurements

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 131 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-110.50	50.40	0.00	46.90	53.98	-7.08
* 11650.00	Peak	H	-	-	-99.27	50.40	0.00	58.13	73.98	-15.85
17475.00	Peak	H	-	-	-101.02	59.19	0.00	65.17	68.20	-3.03
23300.00	Peak	H	100	199	-101.16	44.75	-9.54	41.05	68.20	-27.15
29125.00	Peak	H	-	-	-102.61	48.28	-9.54	43.13	68.20	-25.07

Table 7-42. Radiated Measurements

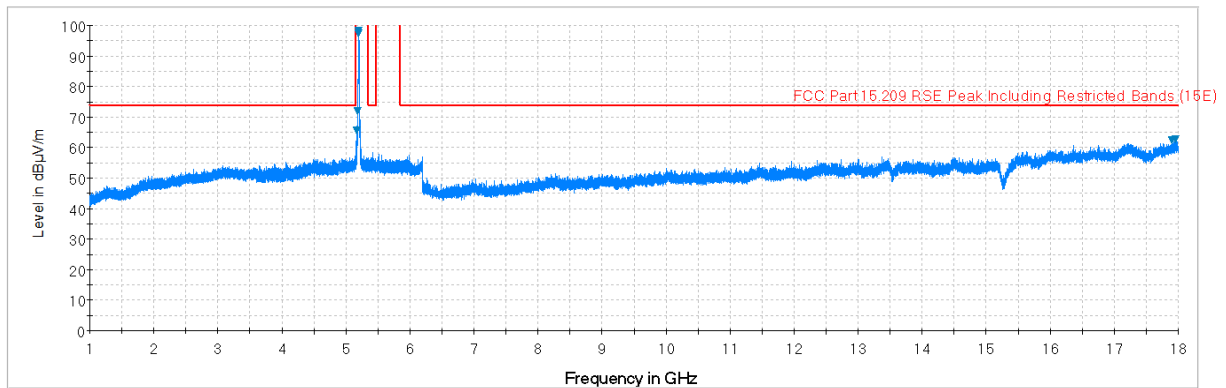
Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-111.08	50.05	0.00	45.98	53.98	-8.00
* 11490.00	Peak	H	-	-	-98.27	50.05	0.00	58.79	73.98	-15.19
17235.00	Peak	H	-	-	-99.72	57.47	0.00	64.74	68.20	-3.46
22980.00	Average	H	-	-	-113.94	44.68	-9.54	29.22	53.98	-24.76
22980.00	Peak	H	-	-	-101.61	44.68	-9.54	41.16	73.98	-32.82
28725.00	Peak	H	-	-	-102.30	48.26	-9.54	43.42	68.20	-24.78

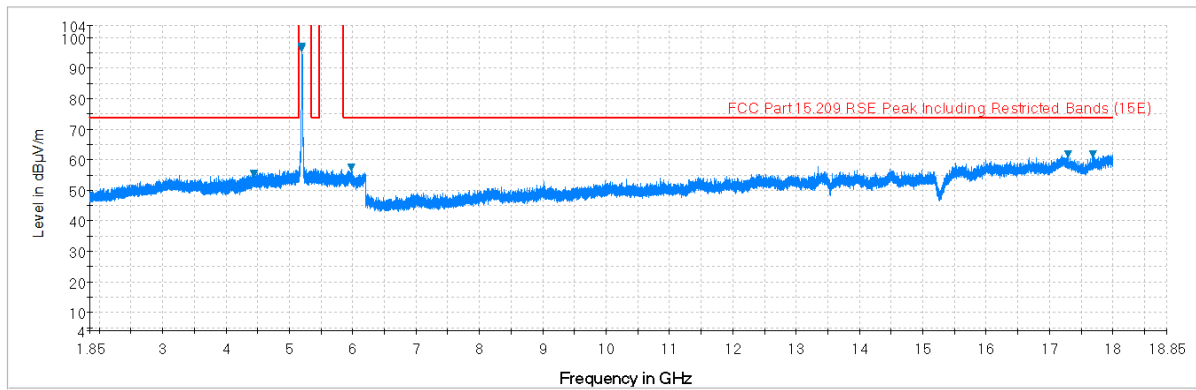
Table 7-43. Radiated Measurements with WCP

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 132 of 272

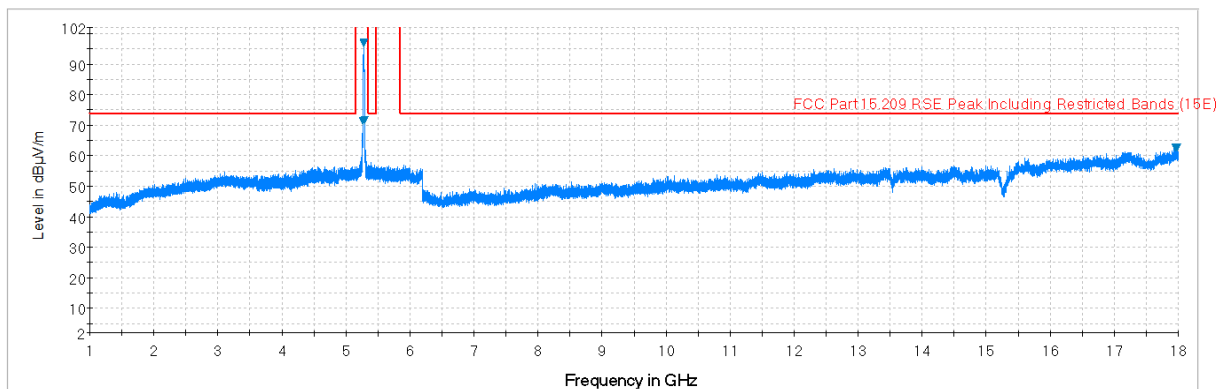
7.7.2 Antenna-2 Radiated Spurious Emission Measurements



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

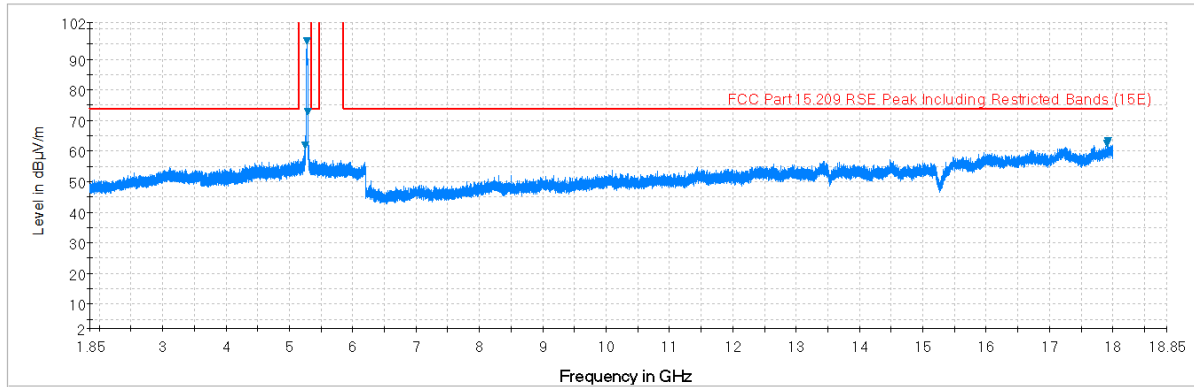


Plot 7-170. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

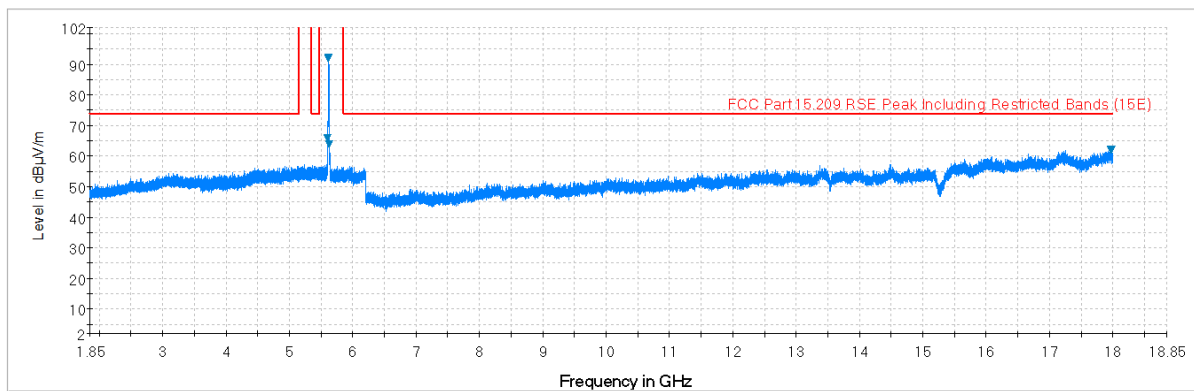


Plot 7-171. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

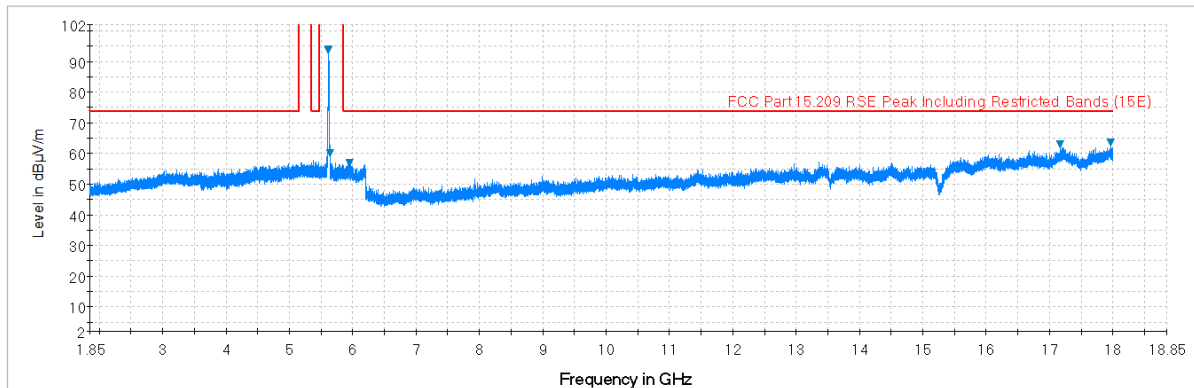
FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 133 of 272



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

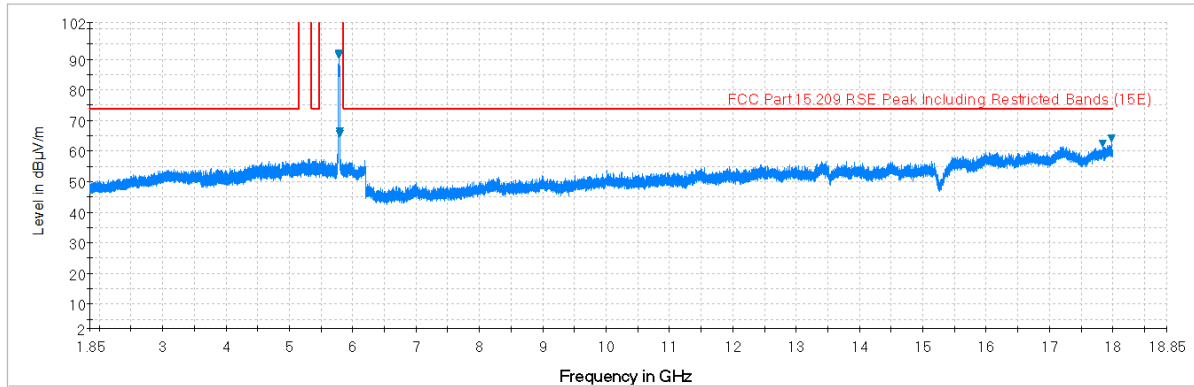


Plot 7-173. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

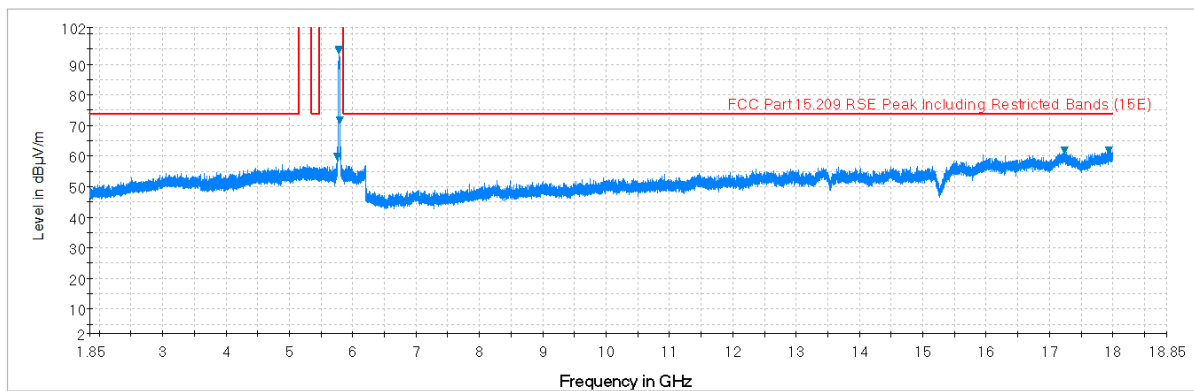


Plot 7-174. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 134 of 272



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

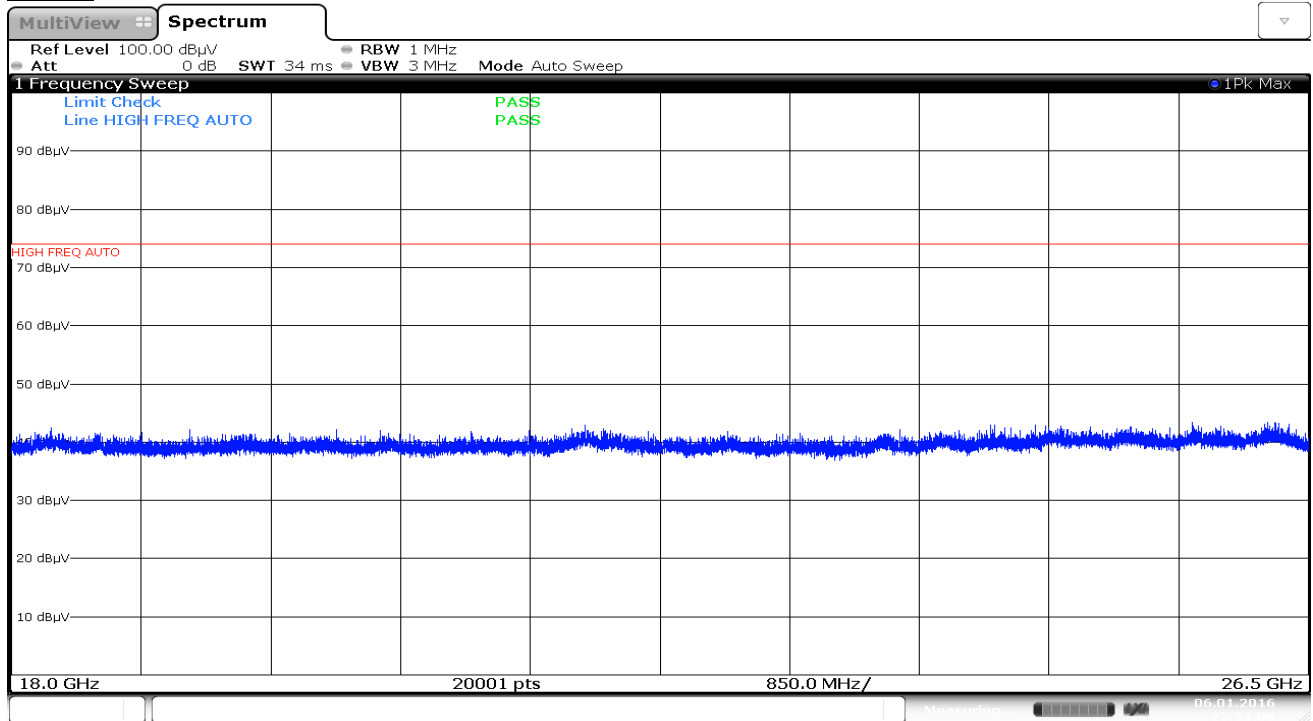


Plot 7-176. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 135 of 272

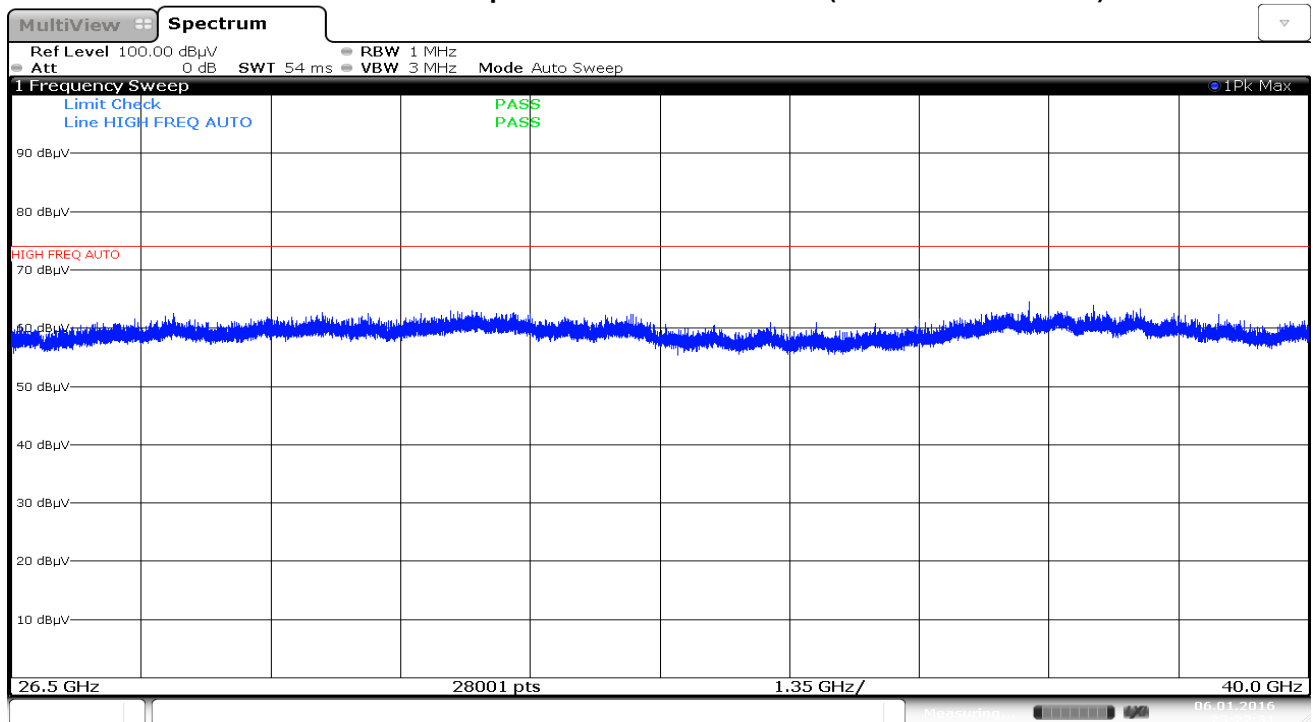
Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)

\$15.209



Date: 6. JAN. 2016 22:54:09

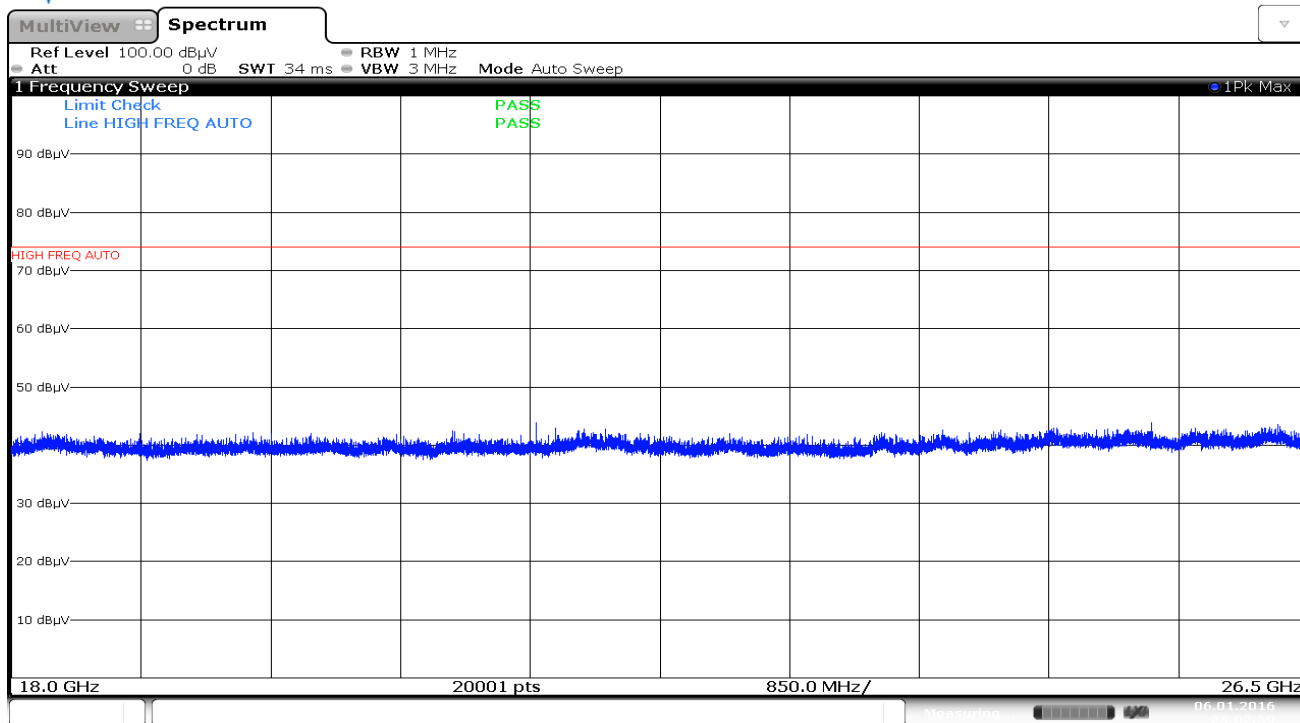
Plot 7-177. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)



Date: 6. JAN. 2016 23:22:31

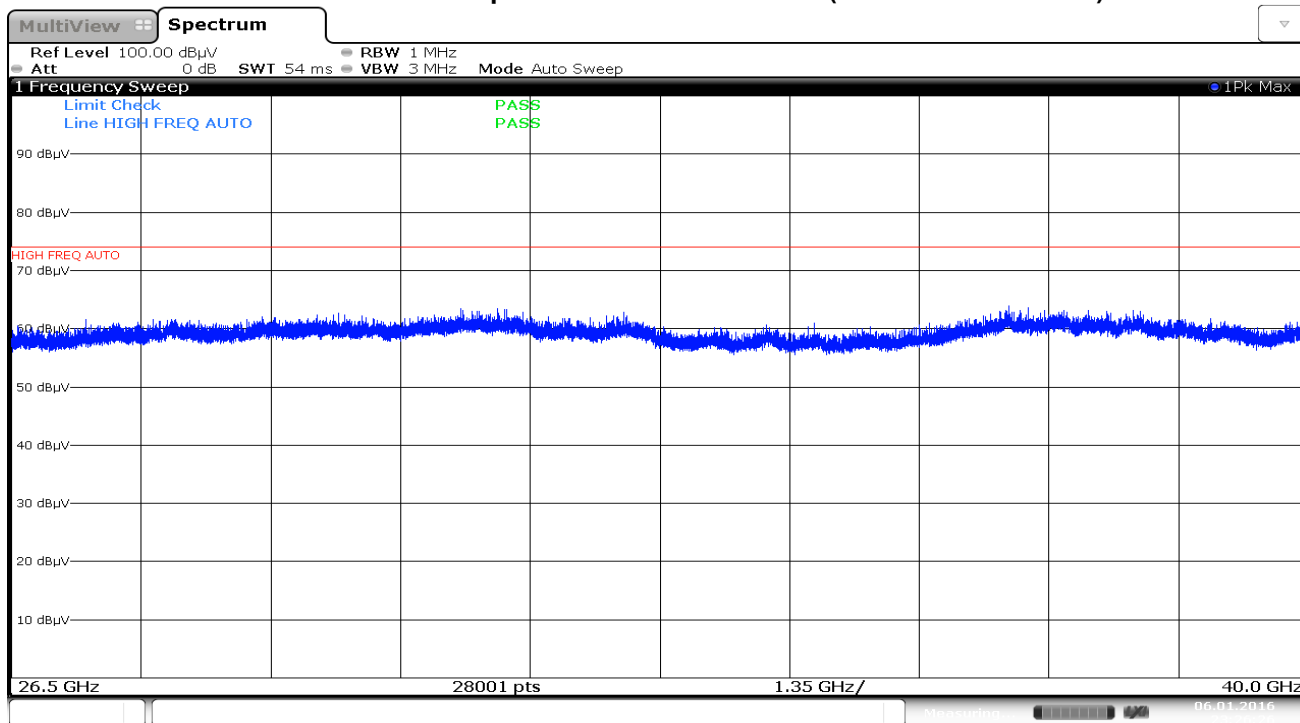
Plot 7-178. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 136 of 272



Date: 6. JAN. 2016 23:02:59

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



Date: 6. JAN. 2016 23:26:25

Plot 7-180. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. V)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 137 of 272

Antenna-2 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-98.64	48.08	0.00	56.44	68.20	-11.76
* 15540.00	Average	H	-	-	-111.01	53.35	0.00	49.34	53.98	-4.64
* 15540.00	Peak	H	-	-	-99.09	53.35	0.00	61.26	73.98	-12.72
* 20720.00	Average	H	-	-	-113.98	44.39	-9.54	27.86	53.98	-26.12
* 20720.00	Peak	H	-	-	-101.38	44.39	-9.54	40.46	73.98	-33.52
25900.00	Peak	H	-	-	-99.68	45.11	-9.54	42.89	68.20	-25.31

Table 7-44. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-99.26	48.05	0.00	55.79	68.20	-12.41
* 15600.00	Average	H	-	-	-111.22	53.44	0.00	49.21	53.98	-4.77
* 15600.00	Peak	H	-	-	-98.44	53.44	0.00	61.99	73.98	-11.99
* 20800.00	Average	H	-	-	-113.51	44.39	-9.54	28.34	53.98	-25.64
* 20800.00	Peak	H	-	-	-101.44	44.39	-9.54	40.41	73.98	-33.57
26000.00	Peak	H	-	-	-99.76	45.12	-9.54	42.81	68.20	-25.39

Table 7-45. Radiated Measurements

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 138 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-98.48	48.21	0.00	56.73	68.20	-11.47
* 15720.00	Average	H	-	-	-111.62	53.84	0.00	49.22	53.98	-4.76
* 15720.00	Peak	H	-	-	-99.36	53.84	0.00	61.48	73.98	-12.50
* 20960.00	Average	H	-	-	-113.42	44.31	-9.54	28.35	53.98	-25.63
* 20960.00	Peak	H	-	-	-101.21	44.31	-9.54	40.56	73.98	-33.42
26200.00	Peak	H	-	-	-100.16	45.01	-9.54	42.31	68.20	-25.89

Table 7-46. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-98.87	48.08	0.00	56.21	68.20	-11.99
* 15540.00	Average	H	-	-	-111.07	53.35	0.00	49.28	53.98	-4.70
* 15540.00	Peak	H	-	-	-99.15	53.35	0.00	61.20	73.98	-12.78
* 20720.00	Average	H	-	-	-113.92	44.39	-9.54	27.92	53.98	-26.06
* 20720.00	Peak	H	-	-	-101.31	44.39	-9.54	40.53	73.98	-33.45
25900.00	Peak	H	-	-	-99.89	45.11	-9.54	42.68	68.20	-25.52

Table 7-47. Radiated Measurements with WCP

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 139 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-99.43	48.22	0.00	55.79	68.20	-12.41
* 15780.00	Average	H	-	-	-111.24	53.85	0.00	49.61	53.98	-4.37
* 15780.00	Peak	H	-	-	-99.23	53.85	0.00	61.62	73.98	-12.36
* 21040.00	Average	H	100	62	-112.55	44.29	-9.54	29.20	53.98	-24.78
* 21040.00	Peak	H	100	62	-100.10	44.29	-9.54	41.65	73.98	-32.33
26300.00	Peak	H	-	-	-99.41	45.00	-9.54	43.04	68.20	-25.16

Table 7-48. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-99.18	48.18	0.00	56.00	68.20	-12.20
* 15840.00	Average	H	-	-	-111.40	53.94	0.00	49.53	53.98	-4.45
* 15840.00	Peak	H	-	-	-99.11	53.94	0.00	61.82	73.98	-12.16
* 21120.00	Average	H	100	0	-113.07	44.28	-9.54	28.66	53.98	-25.32
* 21120.00	Peak	H	100	0	-101.23	44.28	-9.54	40.50	73.98	-33.48
26400.00	Peak	H	-	-	-99.92	45.02	-9.54	42.56	68.20	-25.64

Table 7-49. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-110.32	48.11	0.00	44.78	53.98	-9.20
* 10640.00	Peak	H	-	-	-98.76	48.11	0.00	56.34	73.98	-17.64
* 15960.00	Average	H	-	-	-111.49	54.57	0.00	50.08	53.98	-3.90
* 15960.00	Peak	H	-	-	-100.01	54.57	0.00	61.56	73.98	-12.42
* 21280.00	Average	H	100	40	-112.09	44.26	-9.54	29.63	53.98	-24.34
* 21280.00	Peak	H	100	40	-100.77	44.26	-9.54	40.95	73.98	-33.02
26600.00	Peak	H	-	-	-102.42	47.61	-9.54	42.64	68.20	-25.56

Table 7-50. Radiated Measurements

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

Frequency [MHz]	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	-	-	-99.48	48.22	0.00	55.74	68.20	-12.46
* 15780.00	Average	H	-	-	-111.26	53.85	0.00	49.59	53.98	-4.39
* 15780.00	Peak	H	-	-	-100.26	53.85	0.00	60.59	73.98	-13.39
* 21040.00	Average	H	-	-	-113.64	44.29	0.00	37.65	53.98	-16.33
* 21040.00	Peak	H	-	-	-101.22	44.29	-9.54	40.53	73.98	-33.45
26300.00	Peak	H	-	-	-99.35	45.00	-9.54	43.10	68.20	-25.10

Table 7-51. Radiated Measurements with WCP

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 141 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-109.86	49.03	0.00	46.17	53.98	-7.81
* 11000.00	Peak	H	-	-	-98.19	49.03	0.00	57.84	73.98	-16.14
16500.00	Peak	H	-	-	-99.15	55.10	0.00	62.94	68.20	-5.26
22000.00	Peak	H	100	56	-101.21	44.50	-9.54	40.75	68.20	-27.45
27500.00	Peak	H	-	-	-103.28	47.97	-9.54	42.15	68.20	-26.05

Table 7-52. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-109.58	48.08	0.00	45.50	53.98	-8.48
* 11200.00	Peak	H	-	-	-97.77	48.08	0.00	57.31	73.98	-16.67
16800.00	Peak	H	-	-	-100.22	56.01	0.00	62.79	68.20	-5.41
* 22400.00	Average	H	100	32	-110.84	44.56	-9.54	31.18	53.98	-22.80
* 22400.00	Peak	H	100	32	-100.71	44.56	-9.54	41.31	73.98	-32.67
28000.00	Peak	H	-	-	-102.83	48.08	-9.54	42.71	68.20	-25.49

Table 7-53. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-109.83	48.92	0.00	46.08	53.98	-7.90
* 11440.00	Peak	H	-	-	-98.17	48.92	0.00	57.74	73.98	-16.24
17160.00	Peak	H	-	-	-99.98	55.26	0.00	62.29	68.20	-5.91
* 22880.00	Average	H	100	32	-111.80	44.56	-9.54	30.22	53.98	-23.76
* 22880.00	Peak	H	100	32	-100.45	44.56	-9.54	41.57	73.98	-32.41
28600.00	Peak	H	-	-	-102.39	48.32	-9.54	43.39	68.20	-24.81

Table 7-54. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-109.65	48.08	0.00	45.43	53.98	-8.55
* 11200.00	Peak	H	-	-	-97.38	48.08	0.00	57.70	73.98	-16.28
16800.00	Peak	H	-	-	-100.23	56.01	0.00	62.78	68.20	-5.42
* 22400.00	Average	H	100	32	-111.70	44.56	-9.54	30.32	53.98	-23.66
* 22400.00	Peak	H	100	32	-101.79	44.56	-9.54	40.23	73.98	-33.75
28000.00	Peak	H	-	-	-103.15	48.08	-9.54	42.39	68.20	-25.81

Table 7-55. Radiated Measurements with WCP

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 143 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-111.21	50.05	0.00	45.85	53.98	-8.13
* 11490.00	Peak	H	-	-	-99.45	50.05	0.00	57.61	73.98	-16.37
17235.00	Peak	H	-	-	-99.34	57.47	0.00	65.12	68.20	-3.08
* 22980.00	Average	H	100	174	-113.14	44.68	-9.54	29.00	53.98	-24.98
* 22980.00	Peak	H	100	174	-100.47	44.68	-9.54	41.67	73.98	-32.31
28725.00	Peak	H	-	-	-103.21	48.26	-9.54	42.51	68.20	-25.69

Table 7-56. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-110.81	50.28	0.00	46.46	53.98	-7.52
* 11570.00	Peak	H	-	-	-99.09	50.28	0.00	58.18	73.98	-15.80
17355.00	Peak	H	-	-	-100.25	58.13	0.00	64.88	68.20	-3.32
23140.00	Peak	H	100	0	-100.89	44.75	-9.54	41.32	68.20	-26.88
28925.00	Peak	H	-	-	-103.45	48.29	-9.54	42.30	68.20	-25.90

Table 7-57. Radiated Measurements

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 144 of 272

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-110.96	50.40	0.00	46.44	53.98	-7.54
* 11650.00	Peak	H	-	-	-98.15	50.40	0.00	59.25	73.98	-14.73
17475.00	Peak	H	-	-	-101.05	59.19	0.00	65.14	68.20	-3.06
23300.00	Peak	H	100	340	-100.60	44.75	-9.54	41.61	68.20	-26.59
29125.00	Peak	H	-	-	-102.25	48.28	-9.54	43.49	68.20	-24.71

Table 7-58. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [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	-	-	-110.97	50.40	0.00	46.43	53.98	-7.55
* 11650.00	Peak	H	-	-	-98.18	50.40	0.00	59.22	73.98	-14.76
17475.00	Peak	H	-	-	-100.99	59.19	0.00	65.20	68.20	-3.00
23300.00	Peak	H	100	35	-101.40	44.75	-9.54	40.81	68.20	-27.39
29125.00	Peak	H	-	-	-102.62	48.28	-9.54	43.12	68.20	-25.08

Table 7-59. Radiated Measurements with WCP

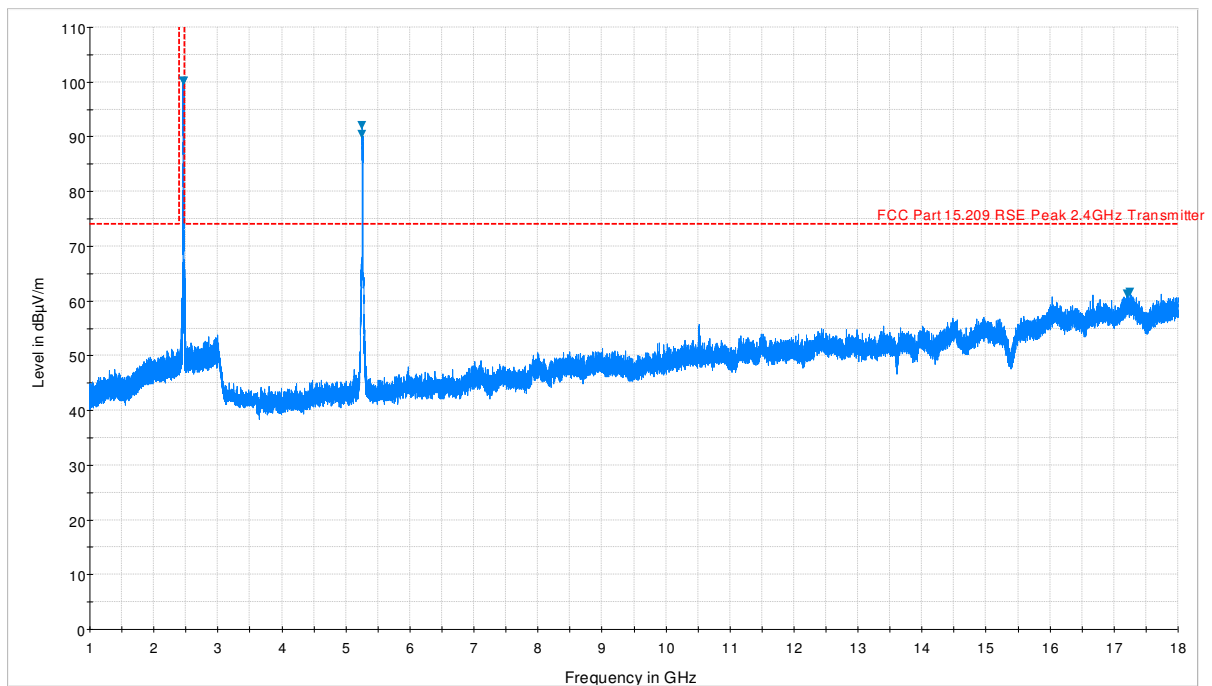
FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 145 of 272

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

§15.209

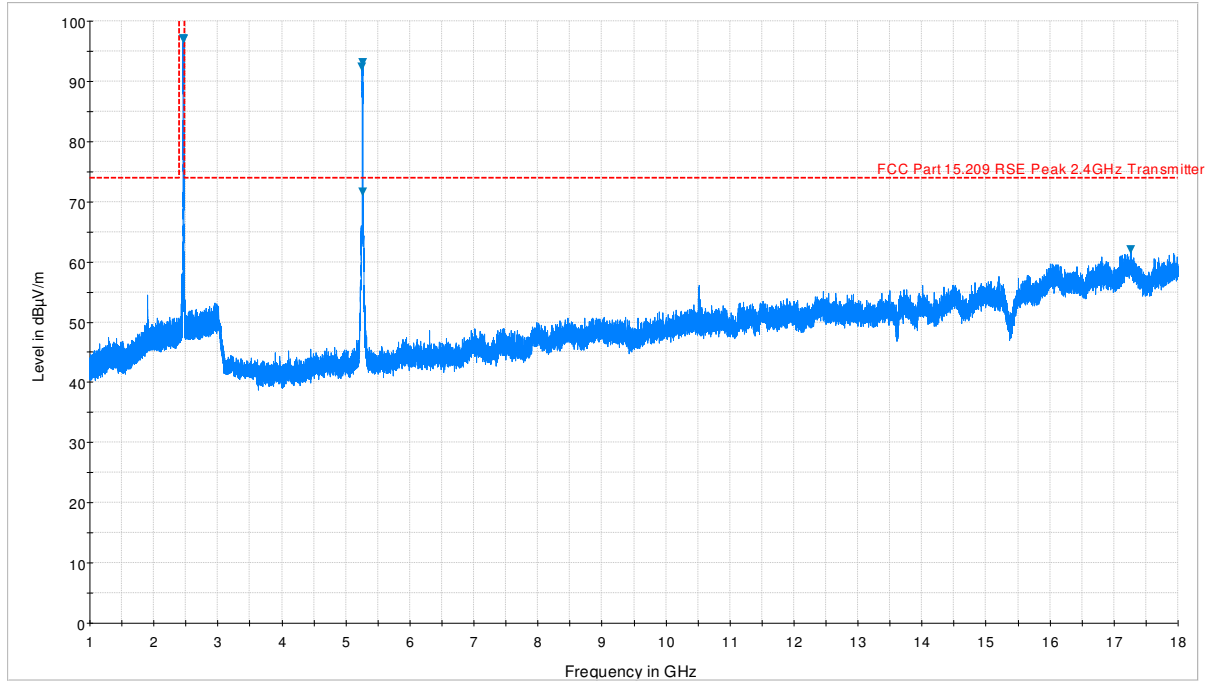
Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	11	100
Operating Frequency(MHz)	2462	5500
Data Rate (Mbps)	1	6
Mode	802.11b	802.11a

Table 7-60. Simultaneous Transmission Config-1

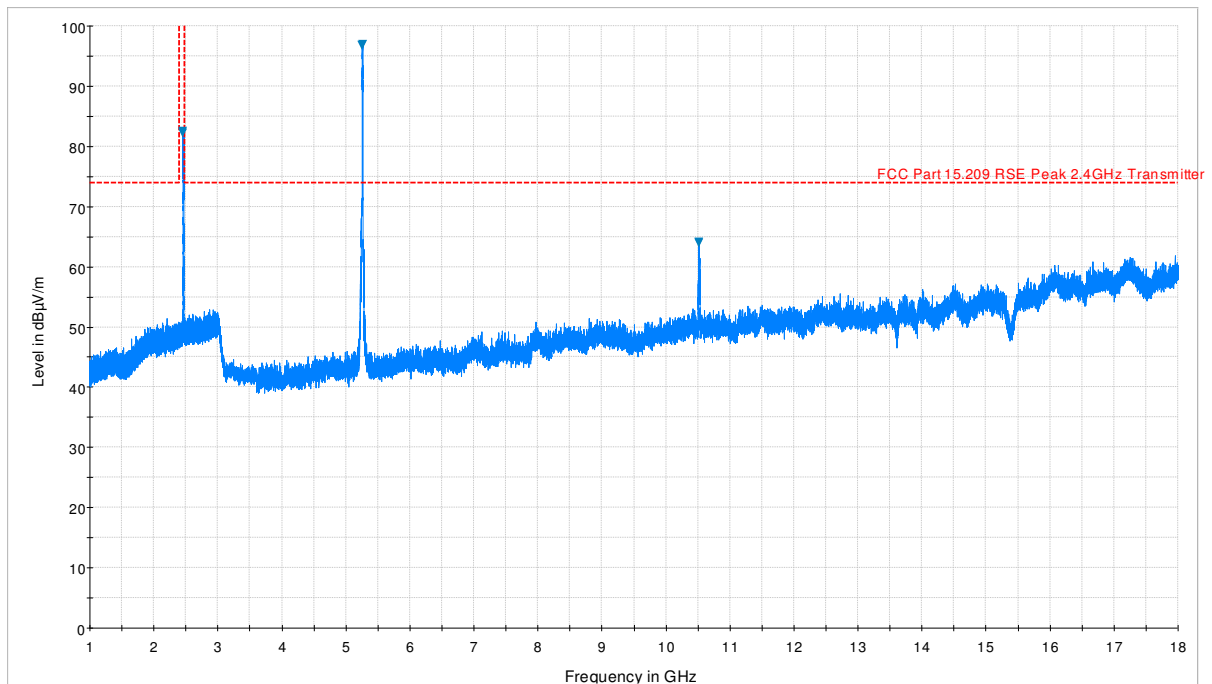


Plot 7-181. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. H)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 146 of 272	

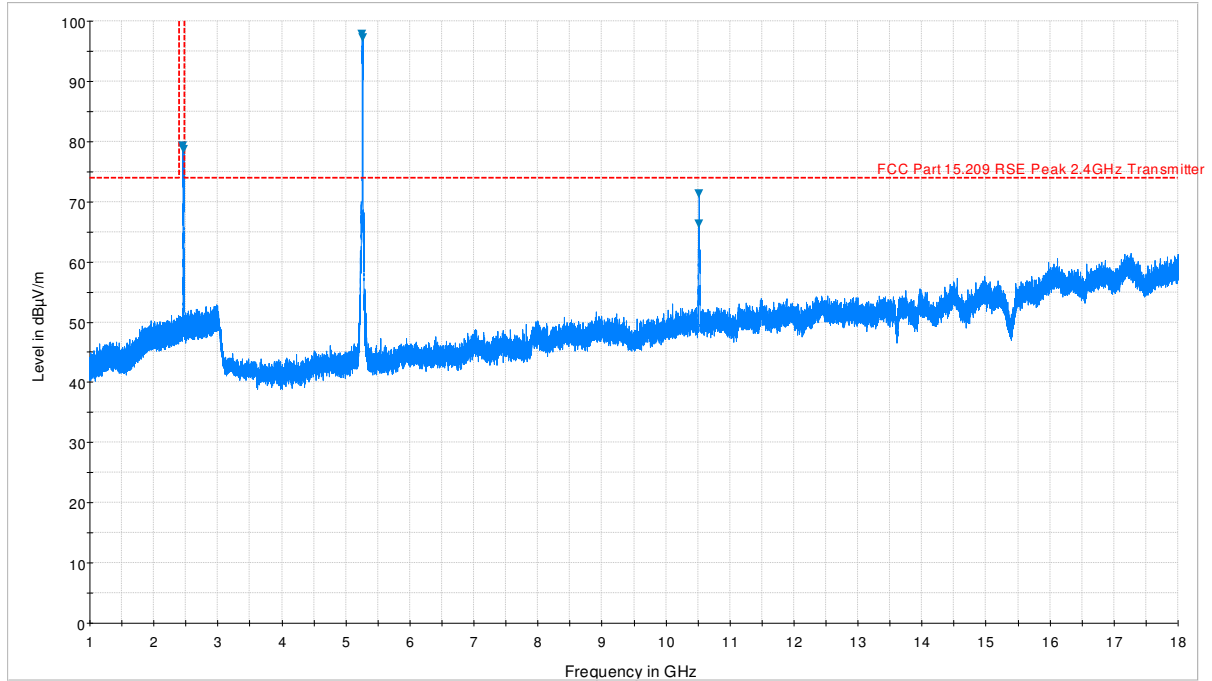


Plot 7-182. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. V)

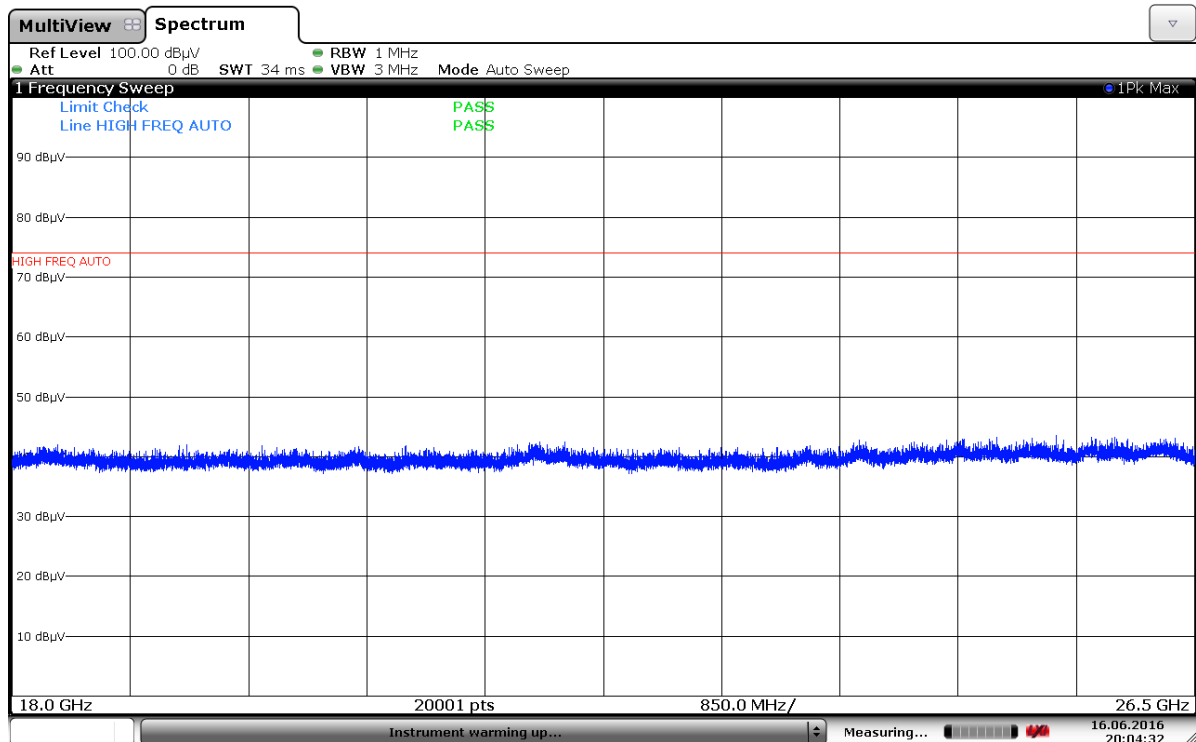


Plot 7-183. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz, Ant. Pol. H)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 147 of 272

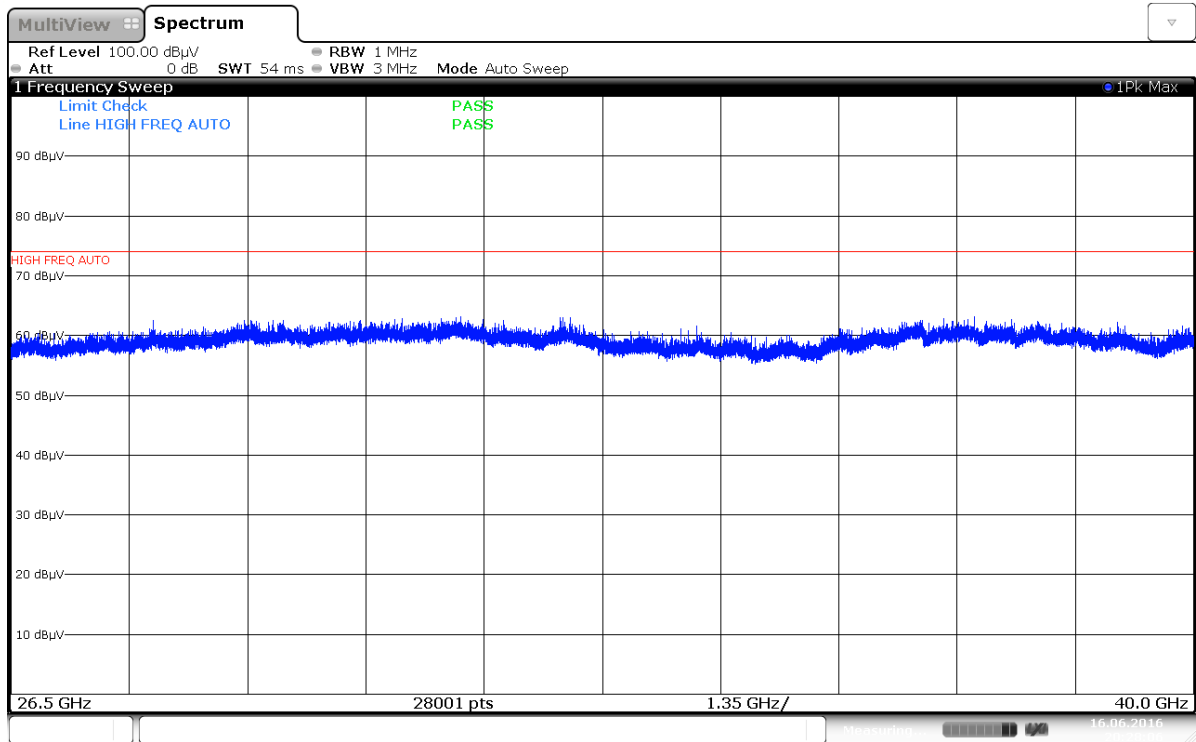


Plot 7-184. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz, Ant. Pol. V)

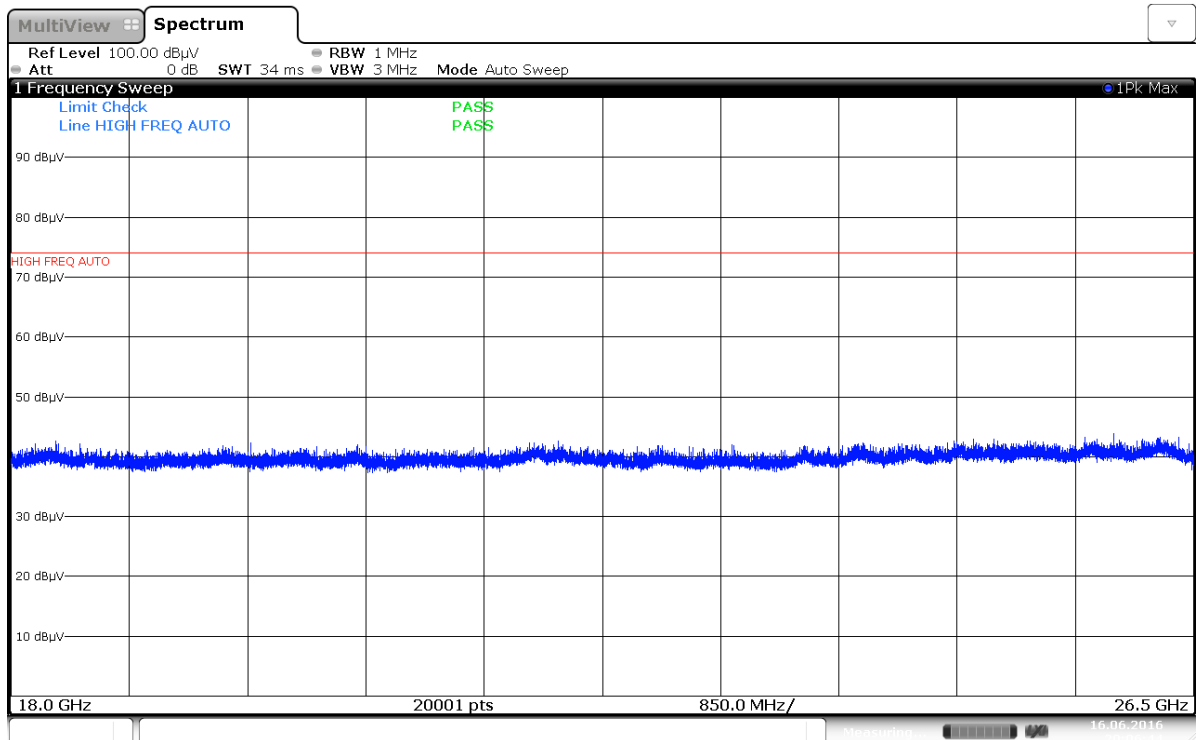


Plot 7-185. Radiated Spurious Plot above 18GHz (2.4 GHz – 5 GHz, Ant. Pol. H)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 148 of 272

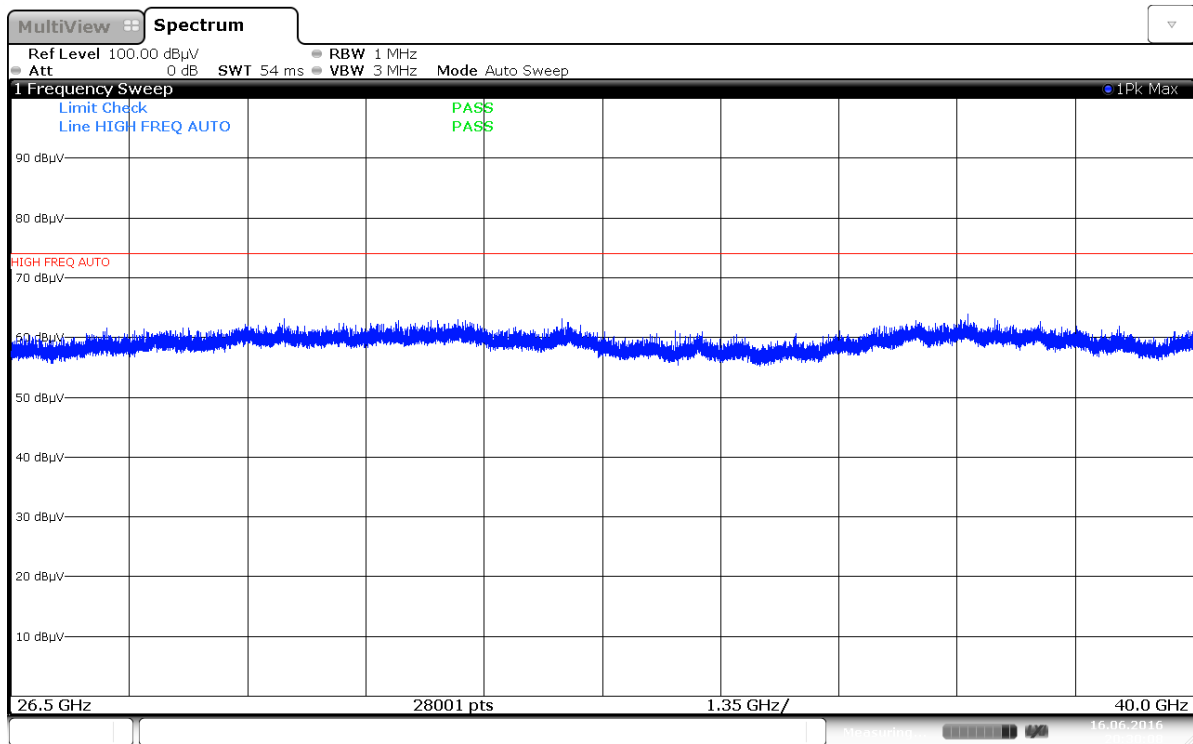


Plot 7-186. Radiated Spurious Plot above 18GHz (2.4 GHz – 5 GHz, Ant. Pol. H)

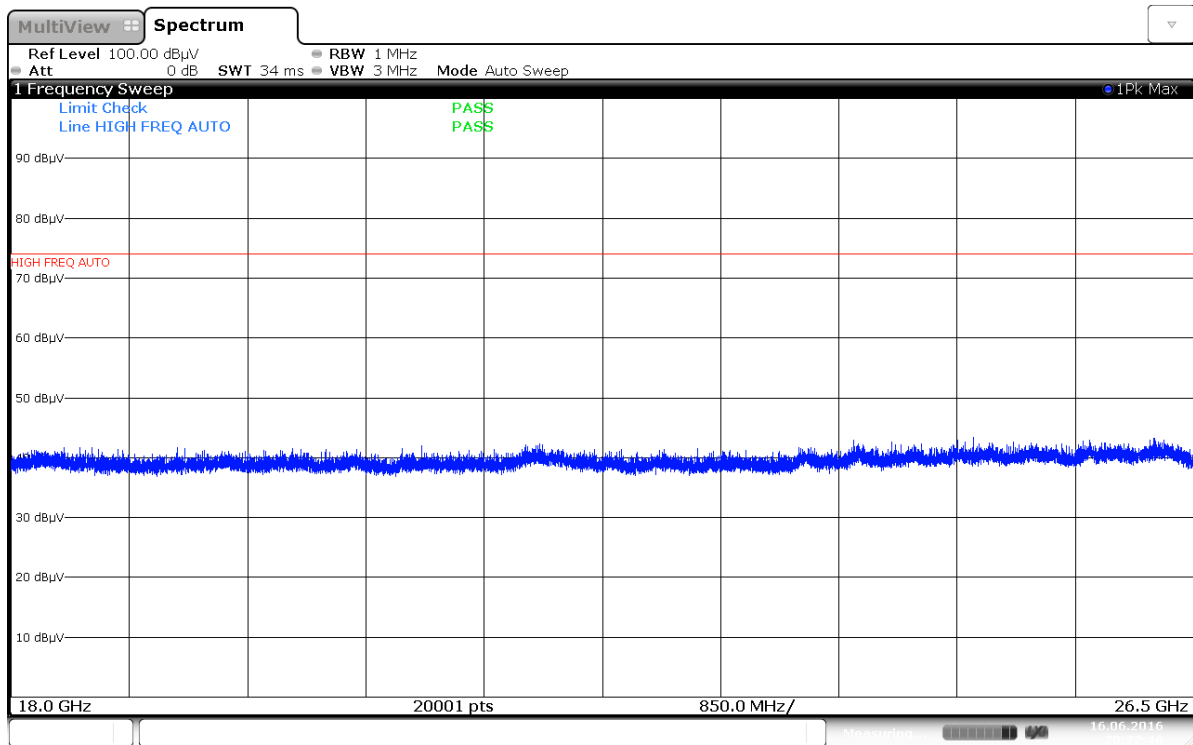


Plot 7-187. Radiated Spurious Plot above 18GHz (2.4 GHz – 5 GHz, Ant. Pol. V)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 149 of 272

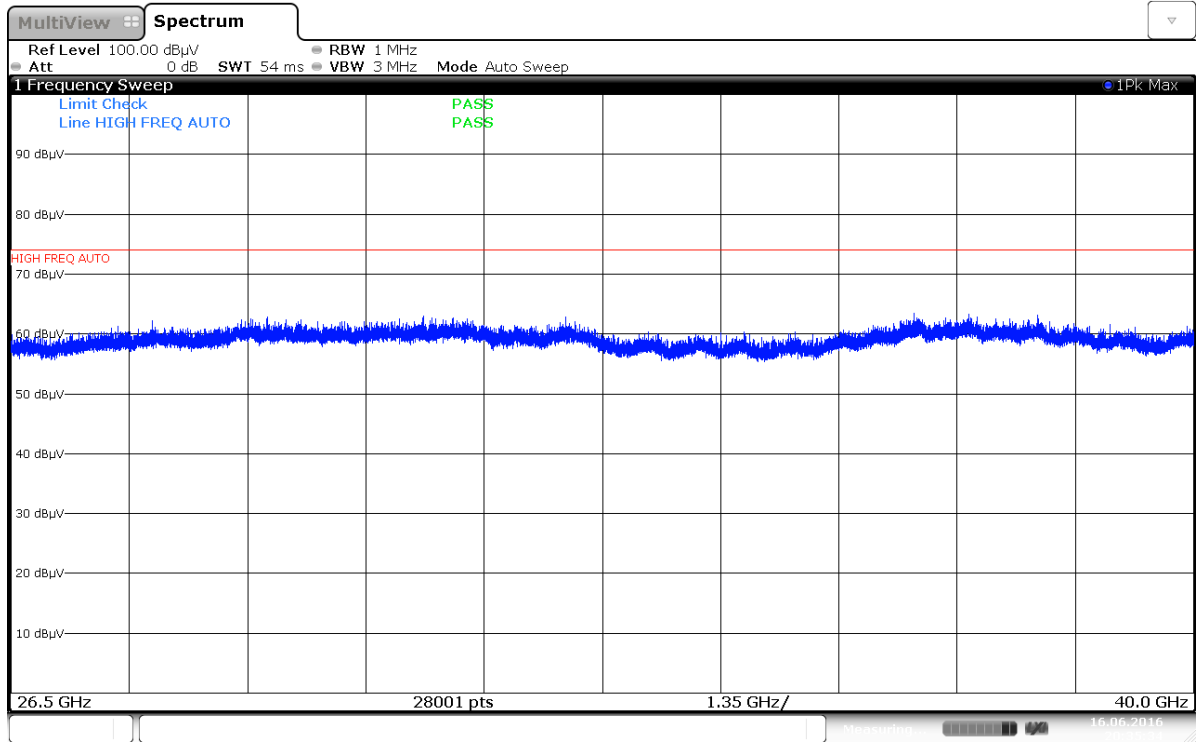


Plot 7-188. Radiated Spurious Plot above 18GHz (2.4 GHz – 5 GHz, Ant. Pol. V)

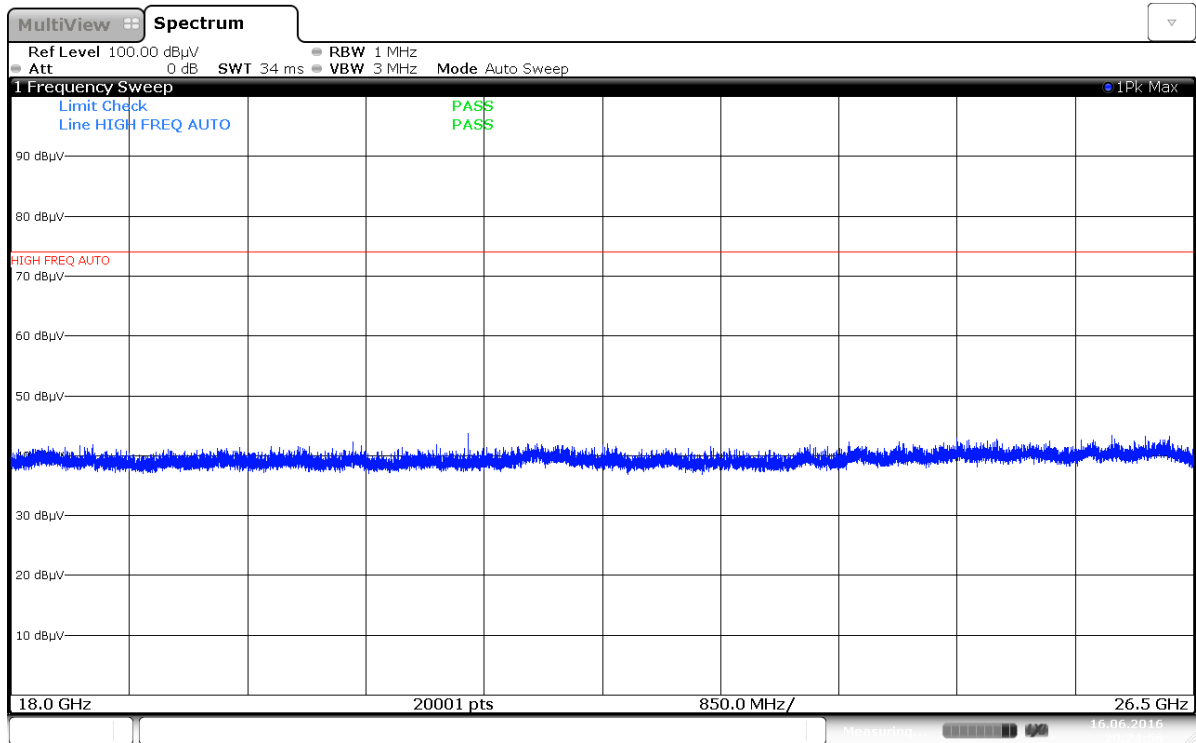


Plot 7-189. Radiated Spurious Plot above 18GHz (5 GHz – 2.4 GHz, Ant. Pol. H)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 150 of 272

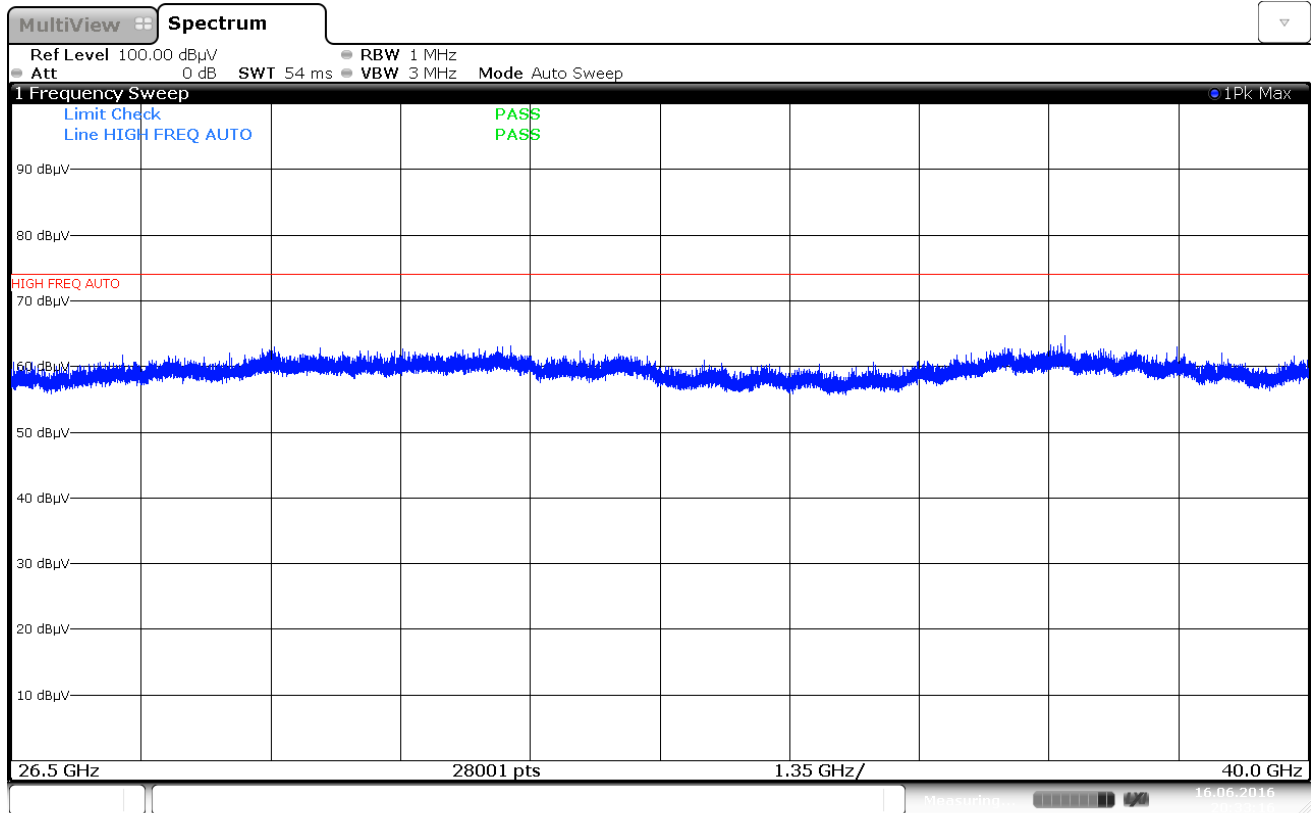


Plot 7-190. Radiated Spurious Plot above 18GHz (5 GHz – 2.4 GHz, Ant. Pol. H)



Plot 7-191. Radiated Spurious Plot above 18GHz (5 GHz – 2.4 GHz, Ant. Pol. V)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 151 of 272



Plot 7-192. Radiated Spurious Plot above 18GHz (5 GHz – 2.4 GHz, Ant. Pol. V)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 152 of 272

Simultaneous Tx Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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]
* 2798.00	Peak	H	-	-	-99.16	46.78	0.00	54.62	73.98	-19.36
* 2798.00	Average	H	-	-	-110.52	46.78	0.00	43.26	53.98	-10.72
* 4924.00	Peak	H	-	-	-98.48	50.62	0.00	59.14	73.98	-14.84
* 4924.00	Average	H	-	-	-109.95	50.62	0.00	47.67	53.98	-6.31
* 7722.00	Peak	H	-	-	-98.47	44.04	0.00	52.58	73.98	-21.40
* 7722.00	Average	H	-	-	-110.36	44.04	0.00	40.69	53.98	-13.29
* 8058.00	Peak	H	-	-	-99.39	44.81	0.00	52.42	73.98	-21.56
* 8058.00	Average	H	-	-	-110.75	44.81	0.00	41.06	53.98	-12.92
10184.00	Average	H	-	-	-109.60	46.95	0.00	44.35	53.98	-9.63
11490.00	Average	H	-	-	-110.03	49.21	0.00	46.18	53.98	-7.80
12982.00	Peak	H	-	-	-98.79	50.41	0.00	58.61	73.98	-15.37
* 21040.00	Average	H	-	-	-115.46	44.29	-9.54	26.29	53.98	-27.69
* 21040.00	Peak	H	-	-	-103.80	44.29	-9.54	37.95	73.98	-36.03

Table 7-61. Radiated Measurements (ANT1 2.4GHz – ANT2 5GHz)

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 153 of 272

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]
* 2798.00	Peak	H	-	-	-99.37	46.78	0.00	54.41	73.98	-19.57
* 2798.00	Average	H	-	-	-111.04	46.78	0.00	42.74	53.98	-11.24
* 4924.00	Peak	H	-	-	-98.23	50.62	0.00	59.39	73.98	-14.59
* 4924.00	Average	H	-	-	-110.04	50.62	0.00	47.58	53.98	-6.40
* 7722.00	Peak	H	-	-	-99.12	44.04	0.00	51.93	73.98	-22.05
* 7722.00	Average	H	-	-	-109.49	44.04	0.00	41.56	53.98	-12.42
* 8058.00	Peak	H	-	-	-98.60	44.81	0.00	53.21	73.98	-20.77
* 8058.00	Average	H	-	-	-110.68	44.81	0.00	41.13	53.98	-12.85
10184.00	Average	H	-	-	-109.76	46.95	0.00	44.19	53.98	-9.79
11490.00	Average	H	-	-	-109.91	49.21	0.00	46.30	53.98	-7.68
12982.00	Peak	H	-	-	-99.18	50.41	0.00	58.22	73.98	-15.76
* 21040.00	Average	H	-	-	-115.76	44.29	-9.54	25.99	53.98	-27.99
* 21040.00	Peak	H	-	-	-102.87	44.29	-9.54	38.88	73.98	-35.10

Table 7-62. Radiated Measurements (ANT1 5GHz – ANT2 2.4GHz)

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 154 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

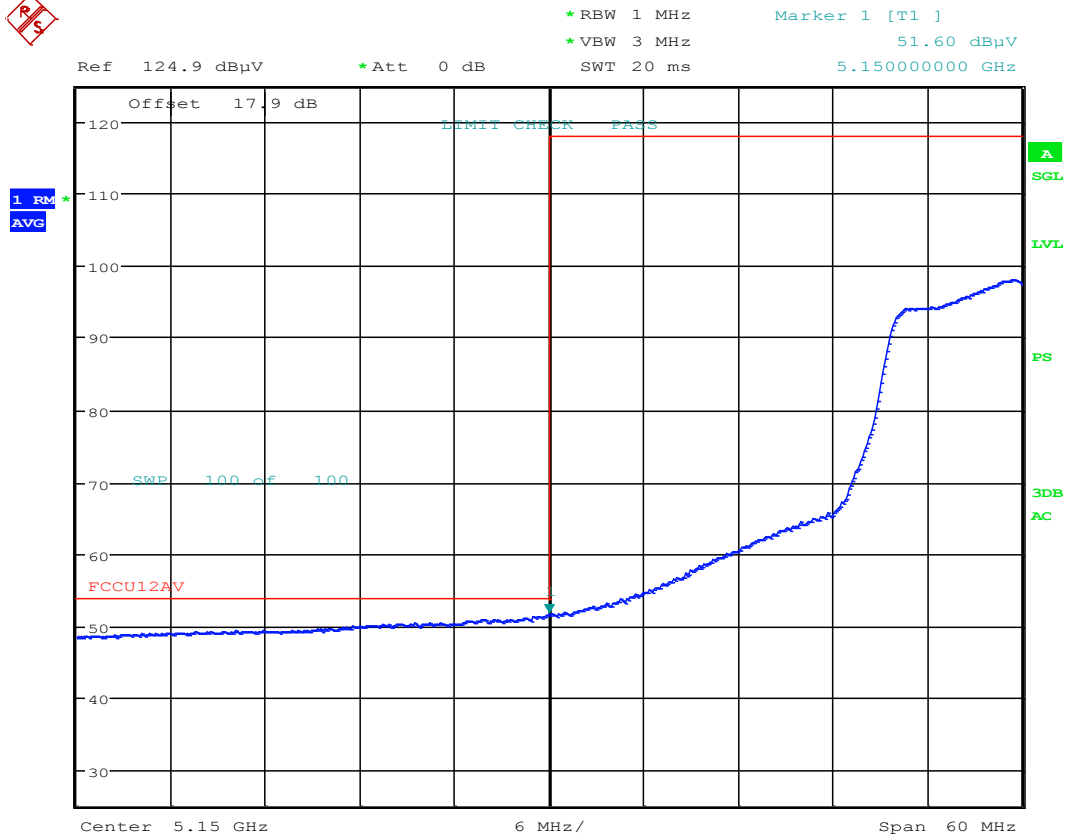
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



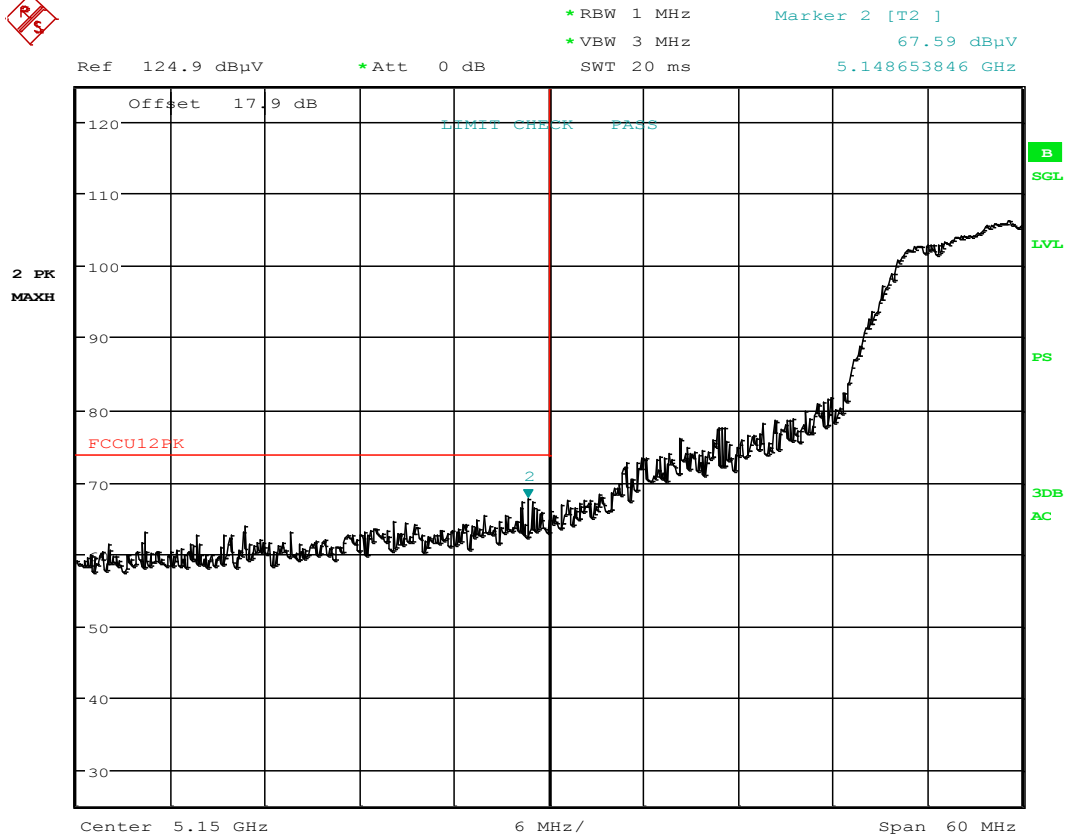
Date: 31.MAY.2016 20:06:08

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 155 of 272

Radiated Band Edge Measurements (20MHz BW)

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



Date: 31.MAY.2016 20:06:35

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 156 of 272

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

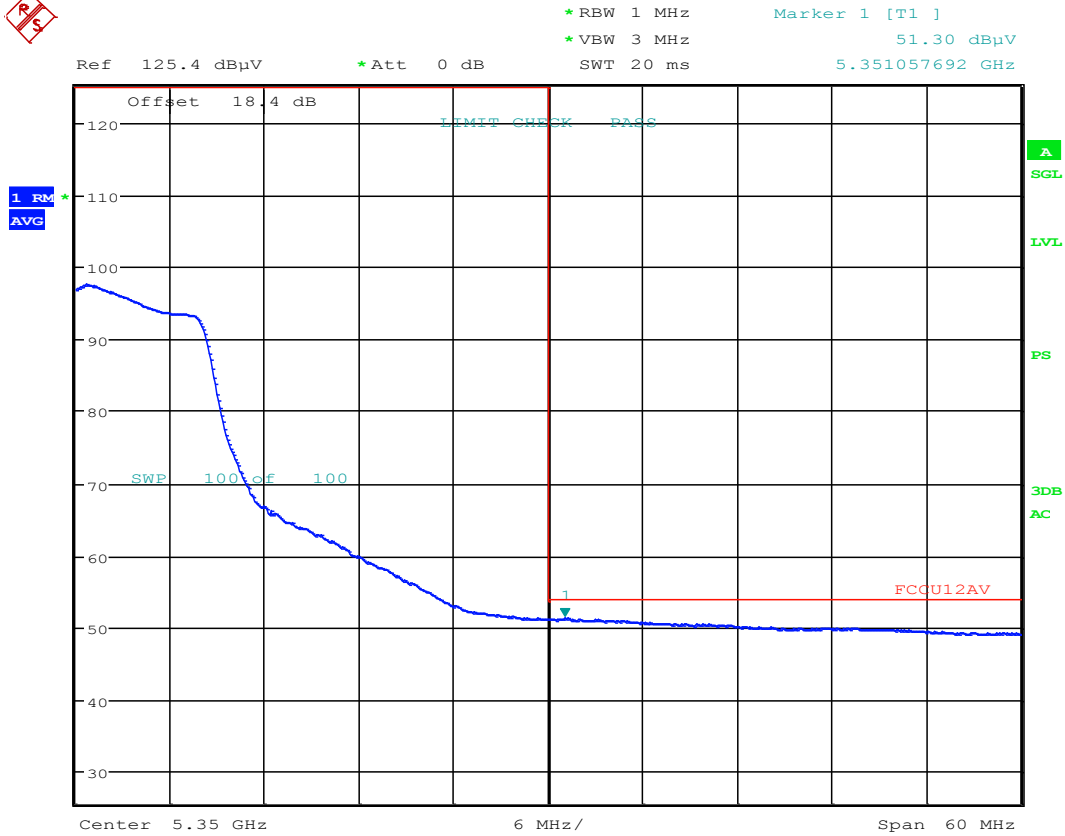
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



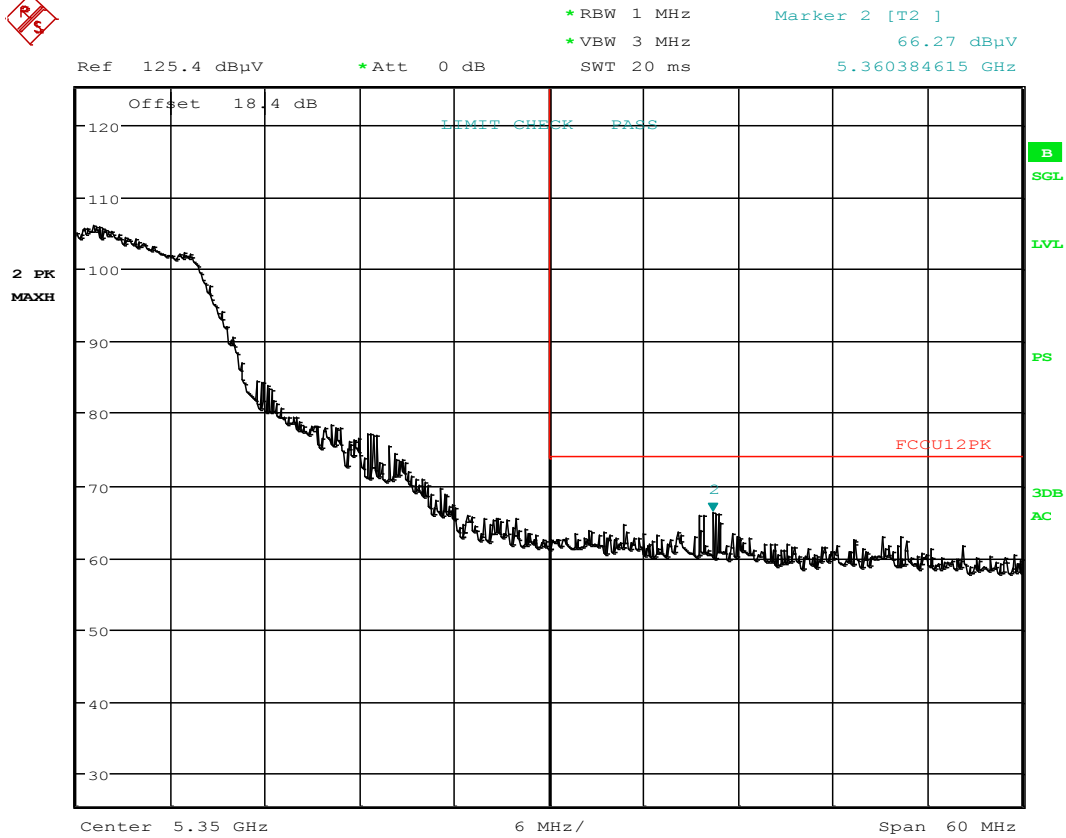
Date: 31.MAY.2016 20:12:50

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 157 of 272

Radiated Band Edge Measurements (20MHz BW)

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



Date: 31.MAY.2016 20:13:06

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 158 of 272

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

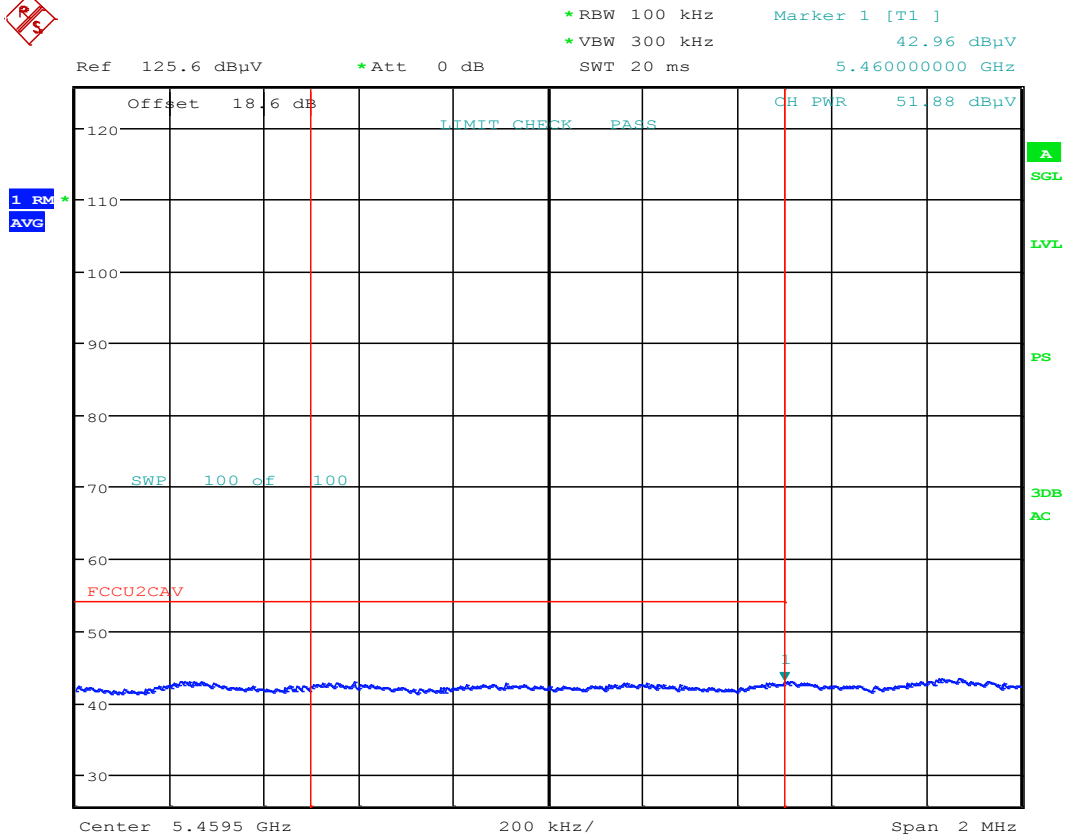
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 31.MAY.2016 20:27:46

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

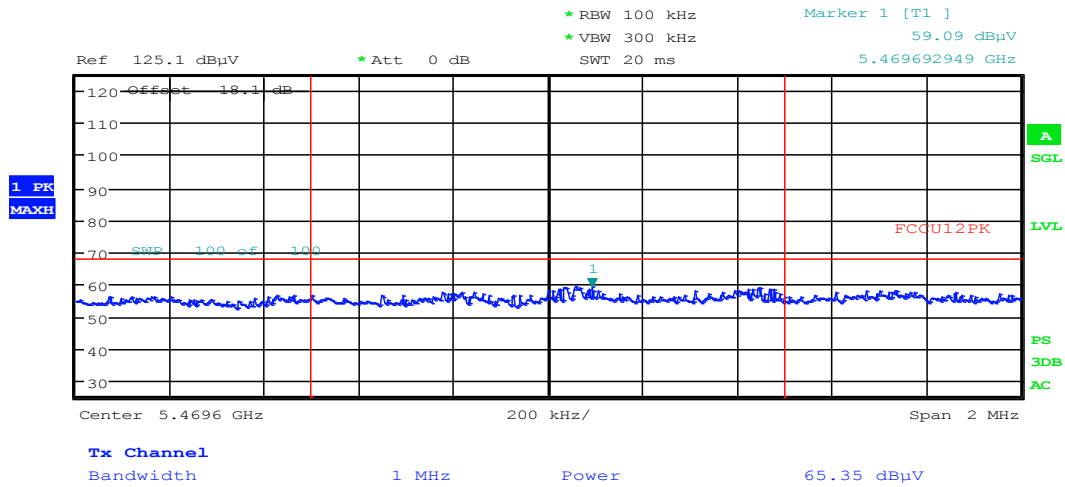
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 159 of 272

Radiated Band Edge Measurements (20MHz BW)

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



Date: 14.JUN.2016 00:55:07

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

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 160 of 272

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

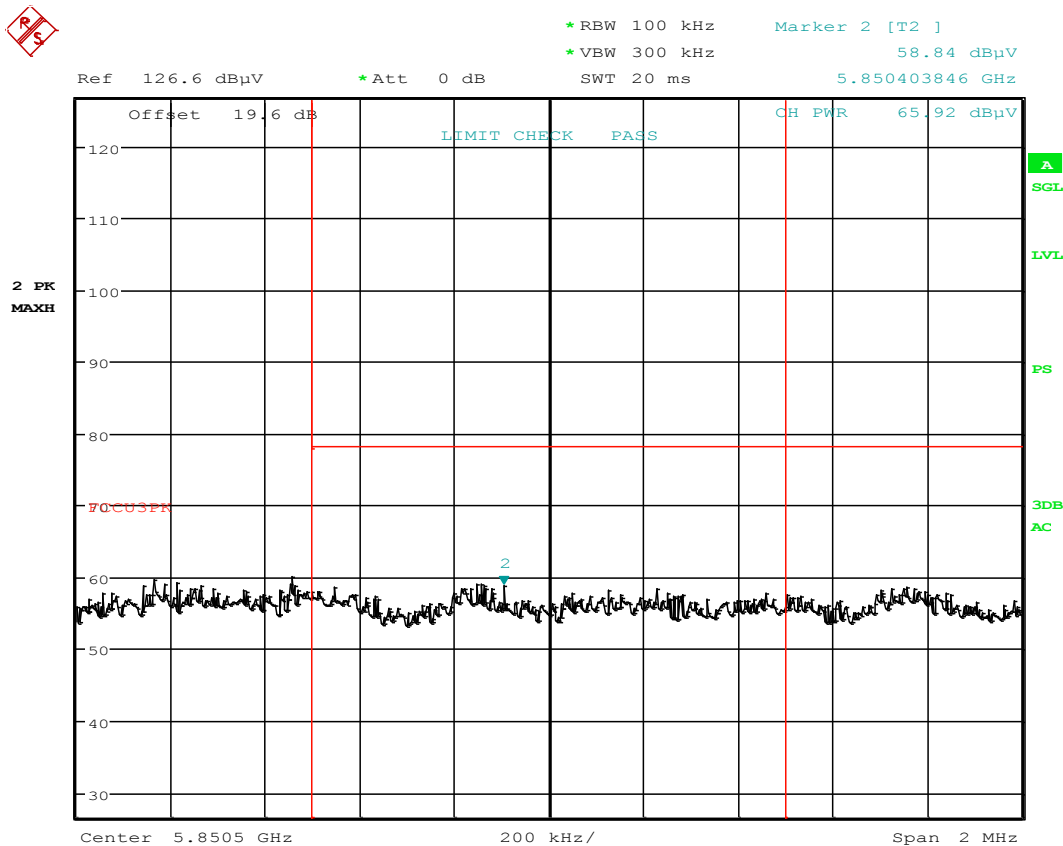
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 31.MAY.2016 20:36:57

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

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 161 of 272

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

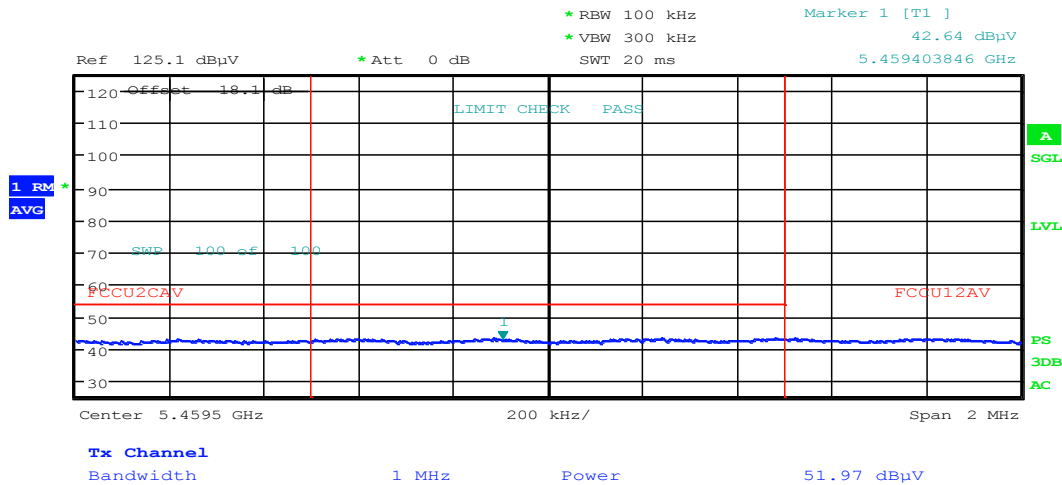
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 14.JUN.2016 00:39:41

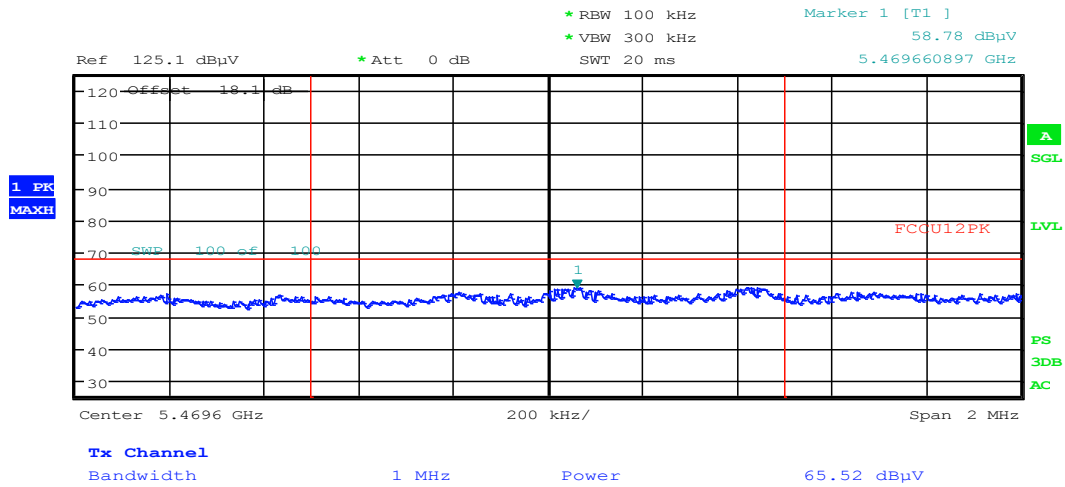
Plot 7-200. Radiated Restricted Band Edge Plot with WCP

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 162 of 272

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



Date: 14.JUN.2016 00:52:23

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

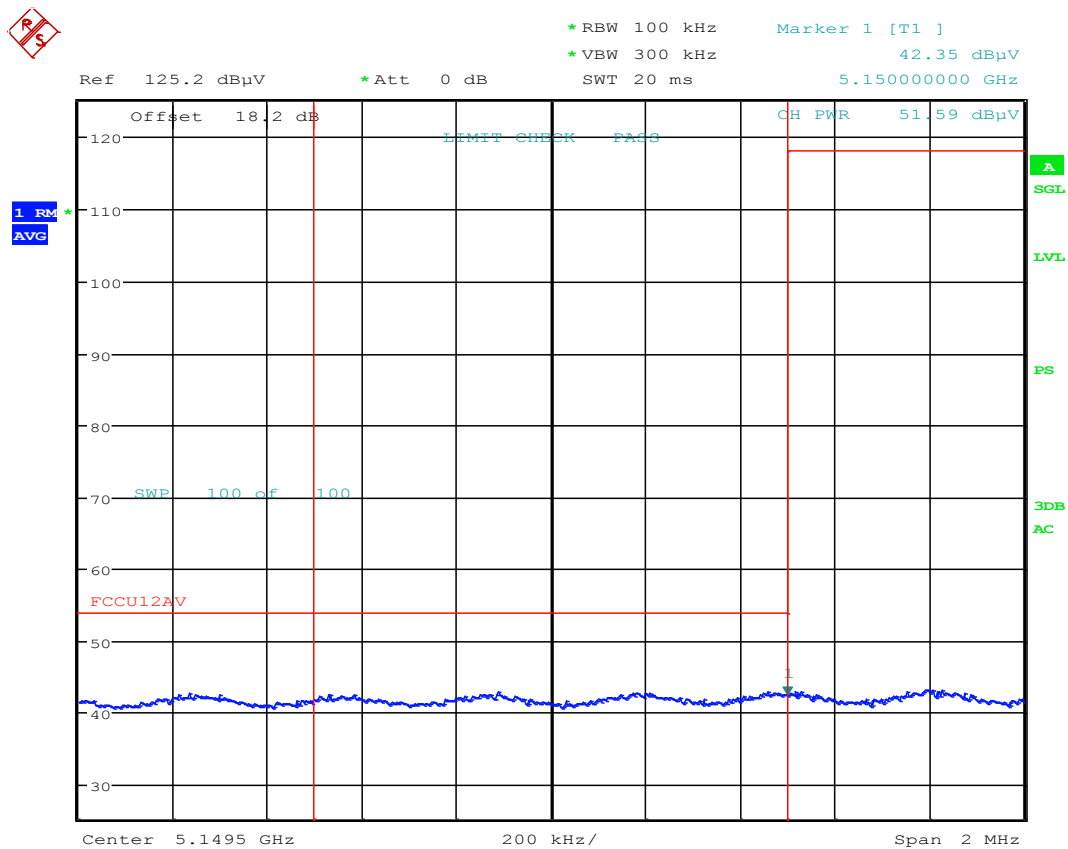
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 163 of 272

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

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



Date: 31.MAY.2016 20:54:43

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

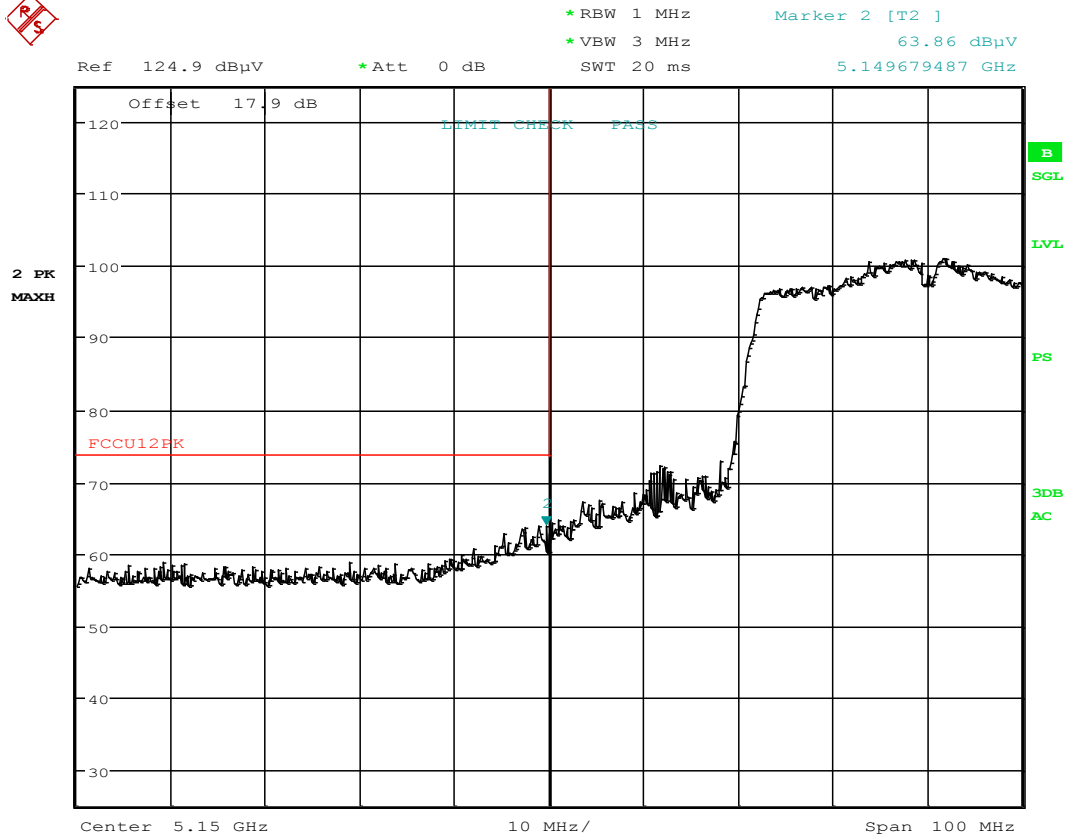
Note:

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 164 of 272

Radiated Band Edge Measurements (40MHz BW)

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



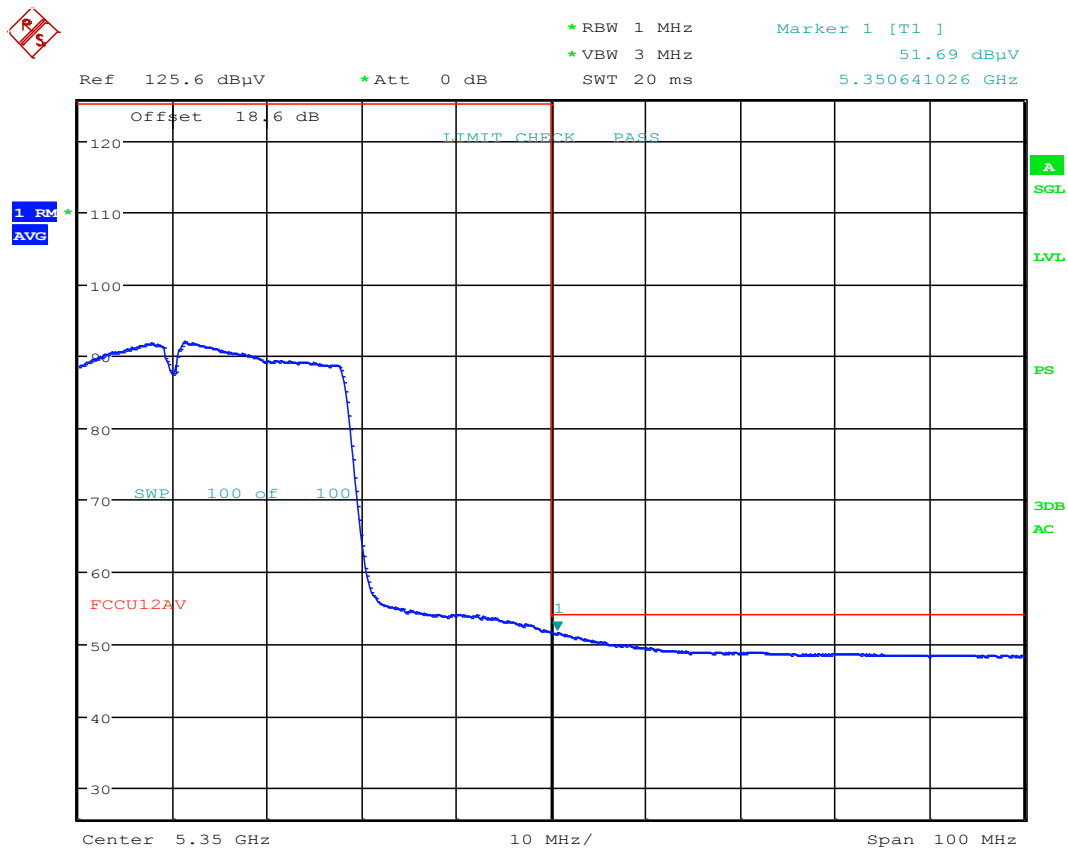
Date: 31.MAY.2016 20:55:08

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 165 of 272

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

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



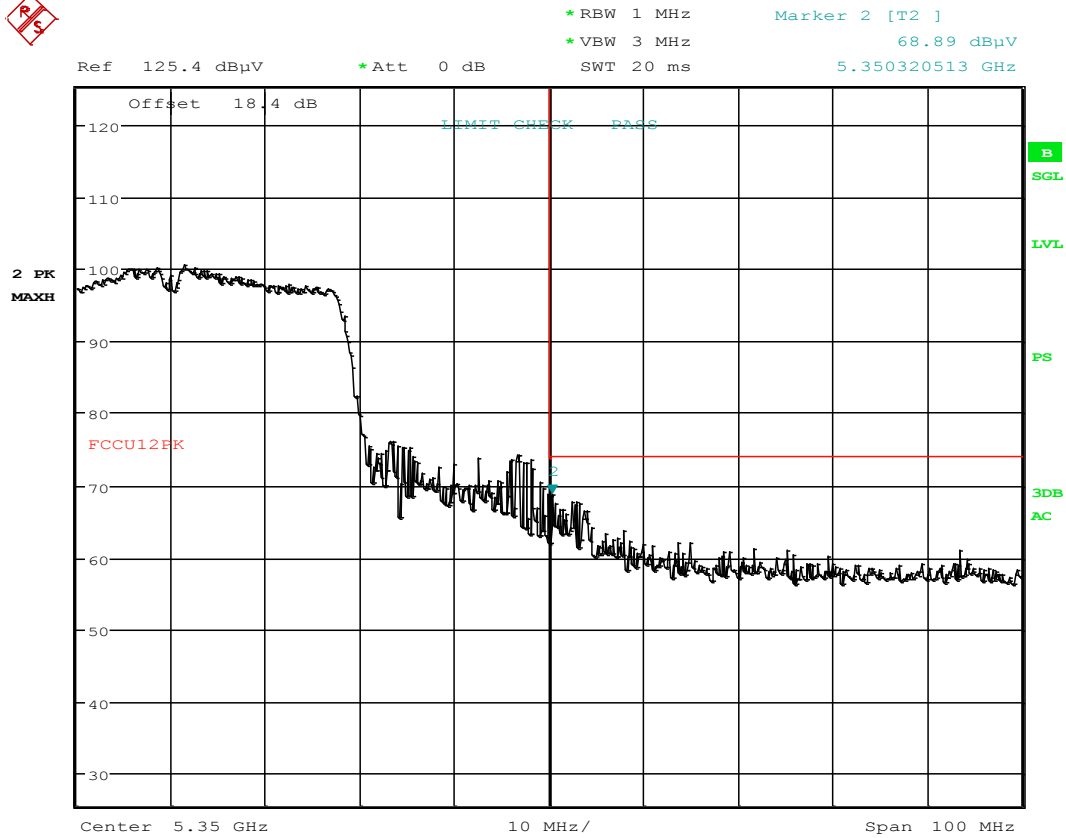
Date: 31.MAY.2016 21:02:14

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 166 of 272

Radiated Band Edge Measurements (40MHz BW)

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



Date: 31.MAY.2016 21:03:34

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 167 of 272

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

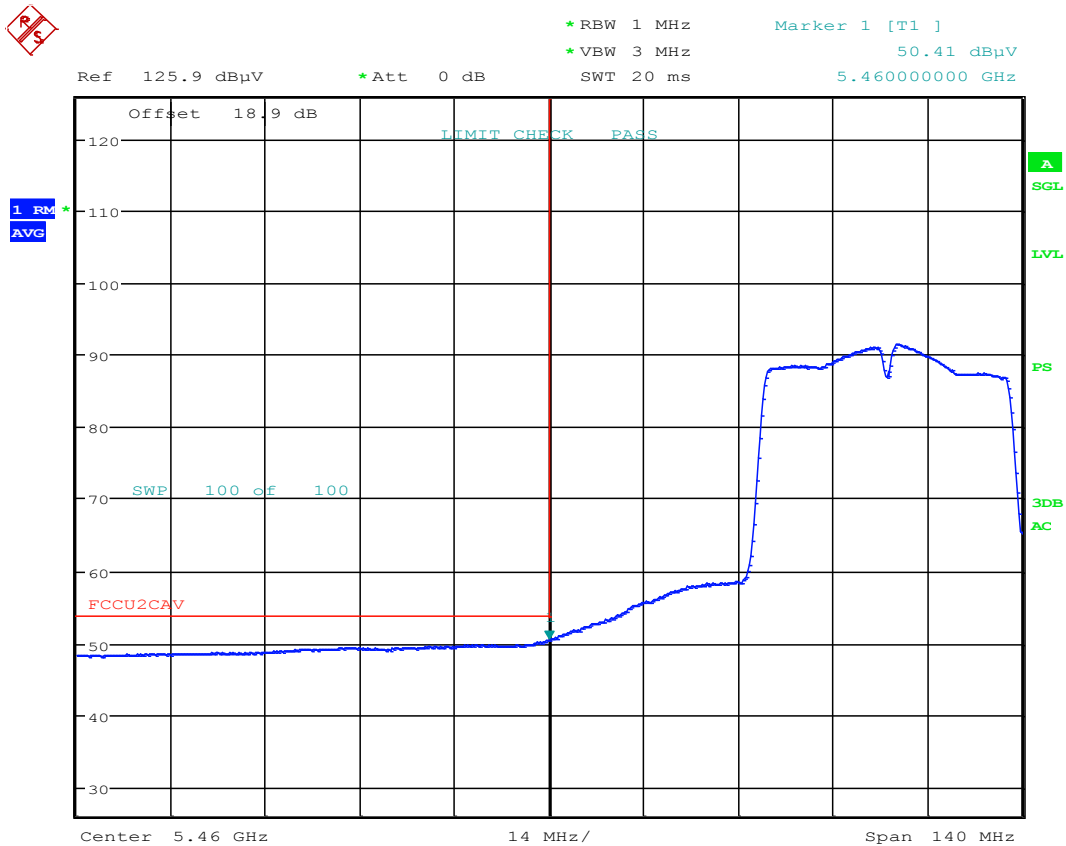
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



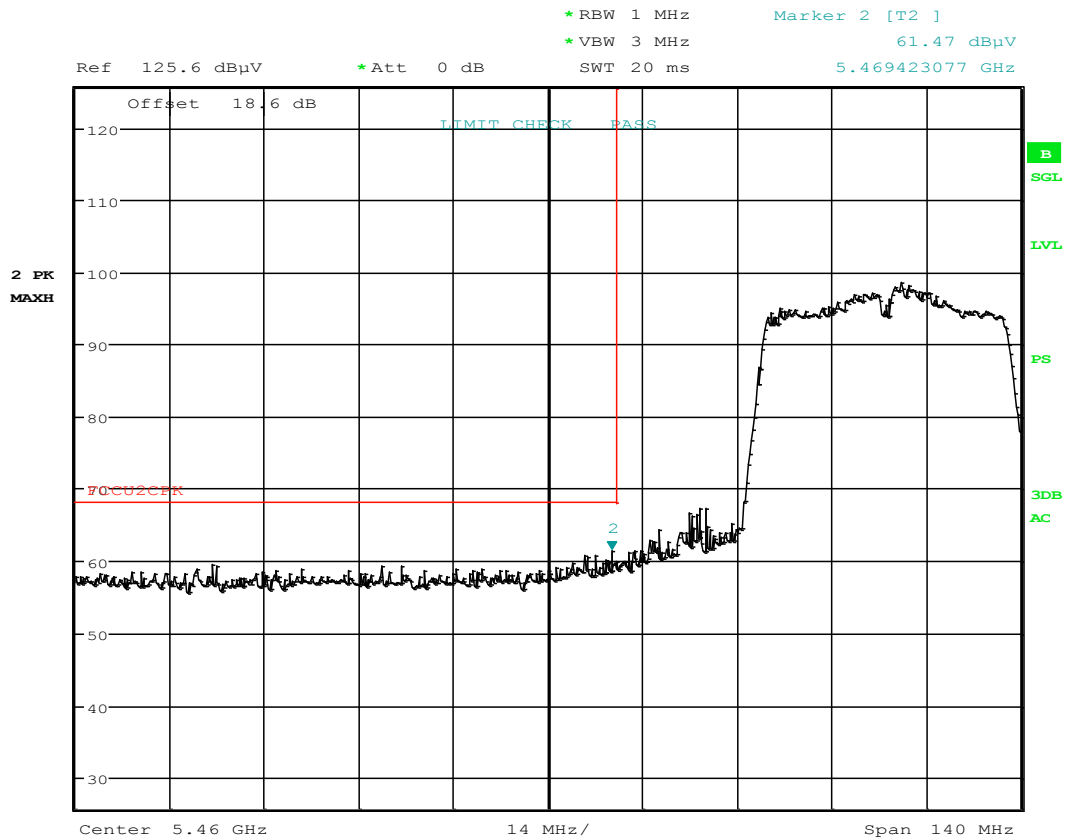
Date: 31.MAY.2016 21:15:02

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 168 of 272

Radiated Band Edge Measurements (40MHz BW)

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



Date: 16.JUN.2016 20:29:22

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

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 169 of 272

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

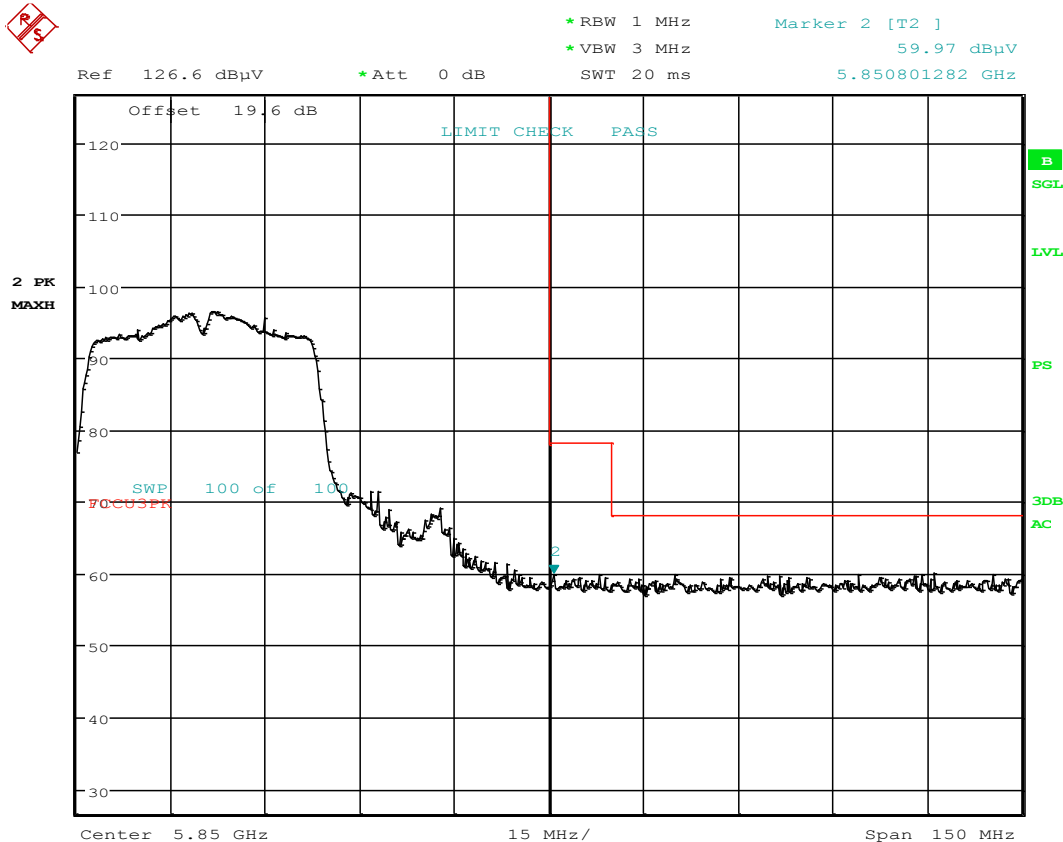
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 31.MAY.2016 21:37:19

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 170 of 272

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

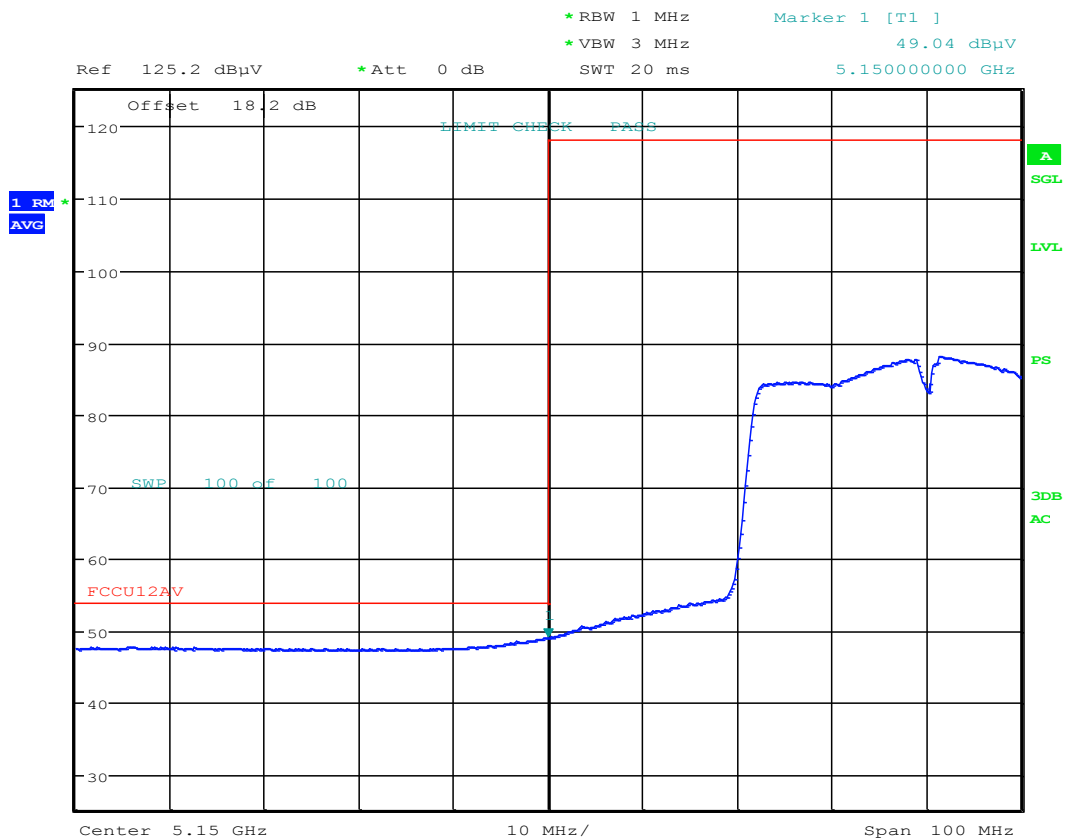
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 16.JUN.2016 20:46:38

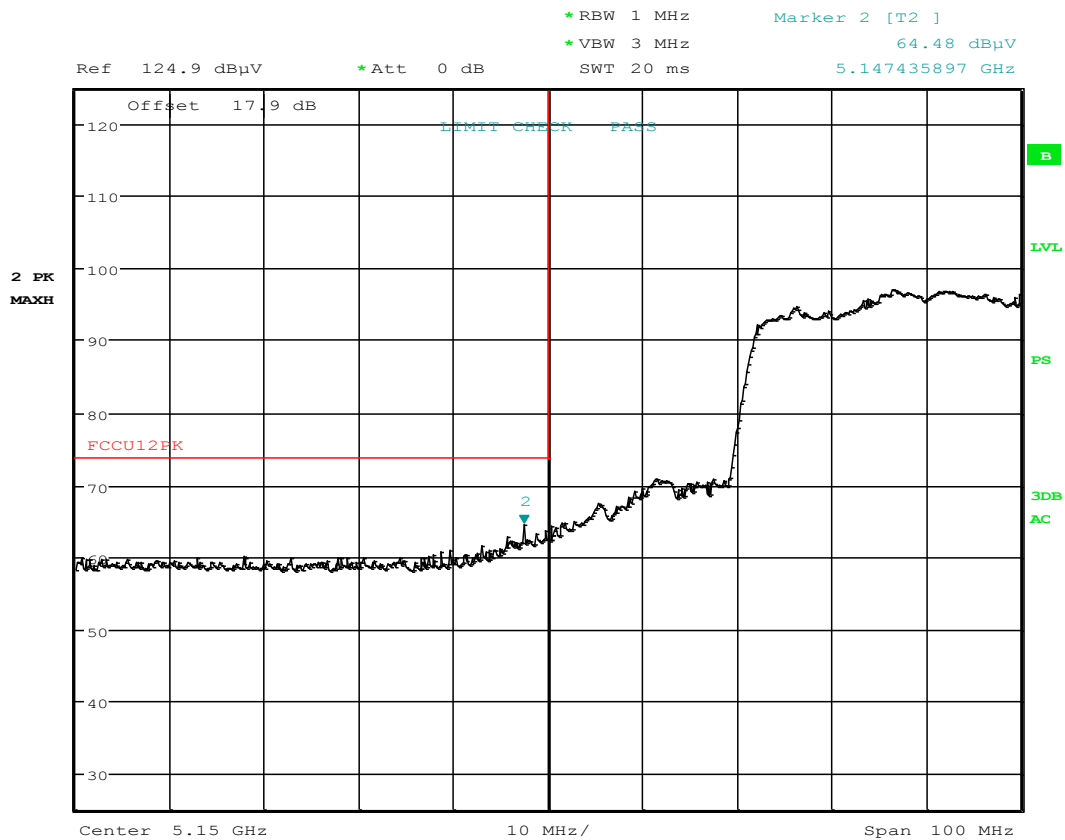
Plot 7-209. Radiated Restricted Band Edge Plot with WCP

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 171 of 272

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



Date: 16.JUN.2016 20:49:28

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 172 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

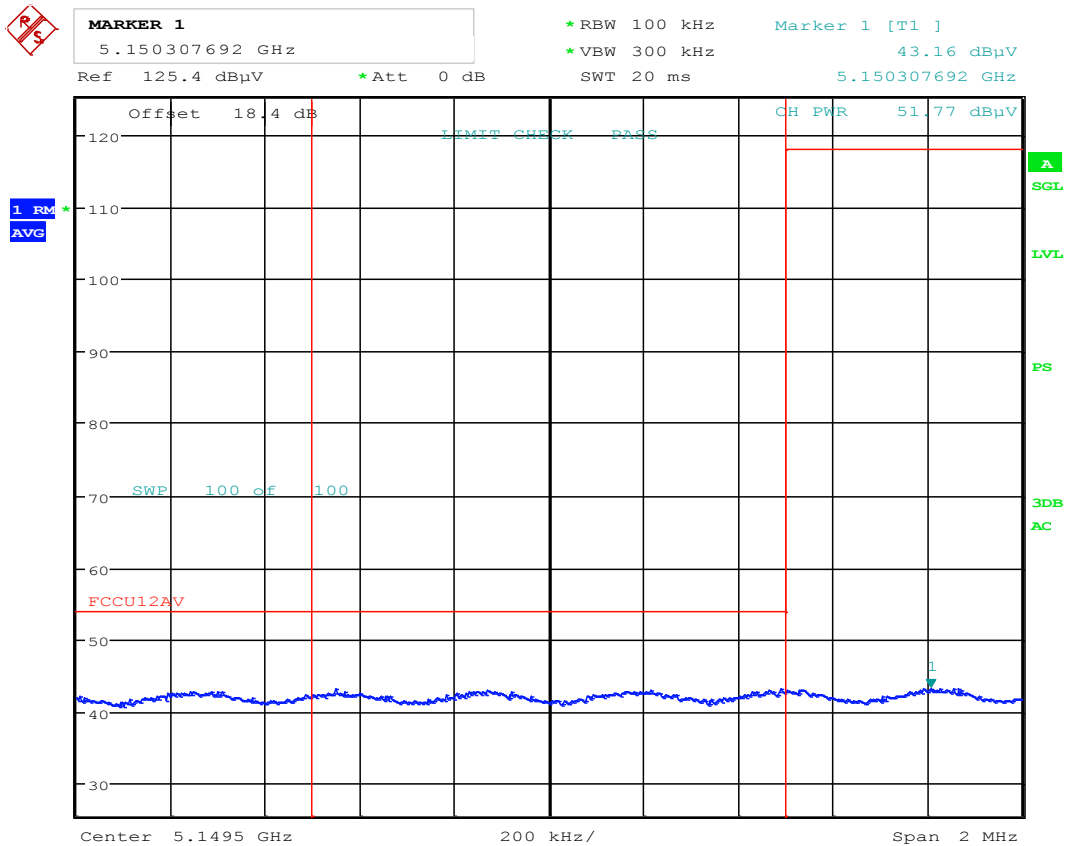
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 31.MAY.2016 21:50:53

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

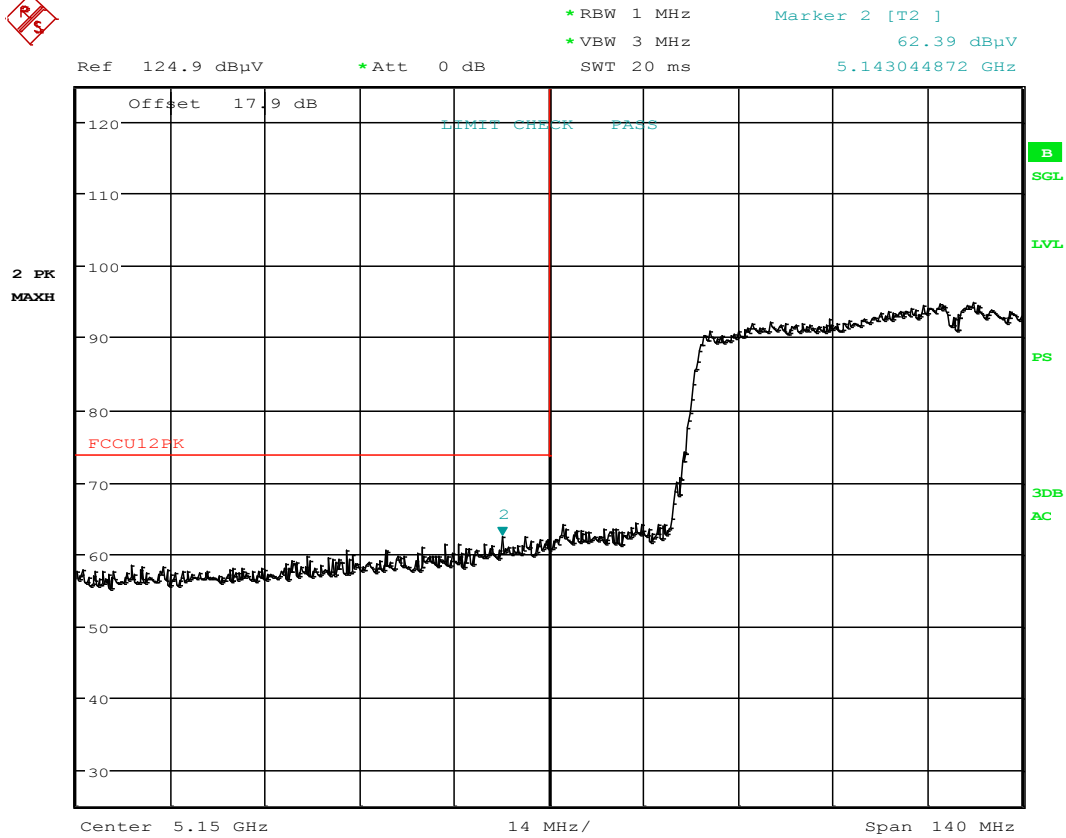
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 173 of 272

Radiated Band Edge Measurements (80MHz BW)

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



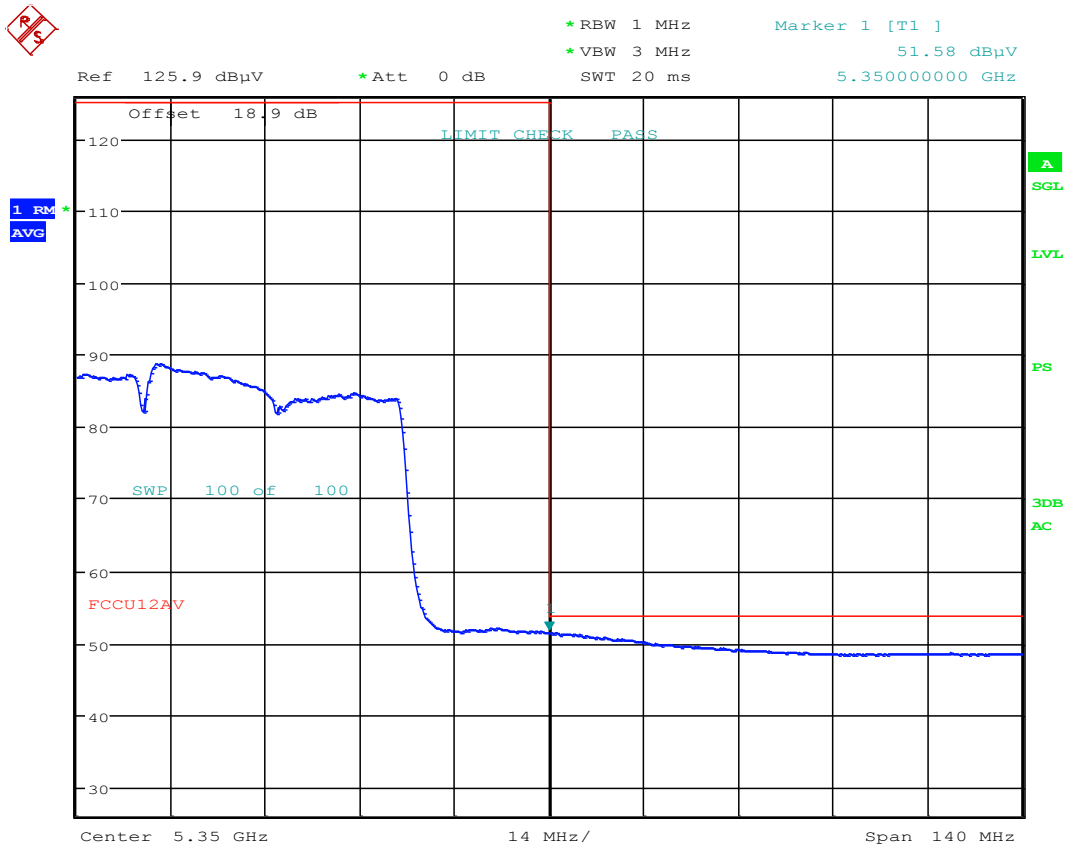
Date: 31.MAY.2016 21:49:22

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 174 of 272

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



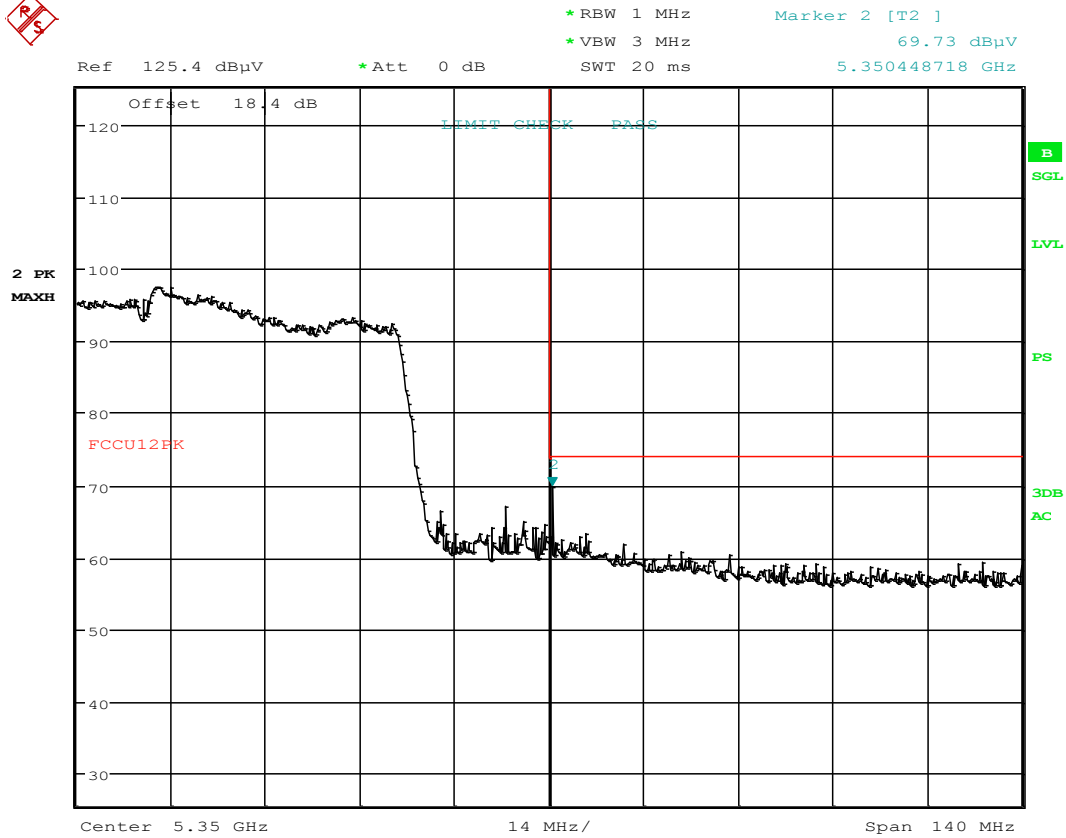
Date: 31.MAY.2016 21:59:24

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 175 of 272

Radiated Band Edge Measurements (80MHz BW)

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



Date: 31.MAY.2016 21:59:44

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 176 of 272

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

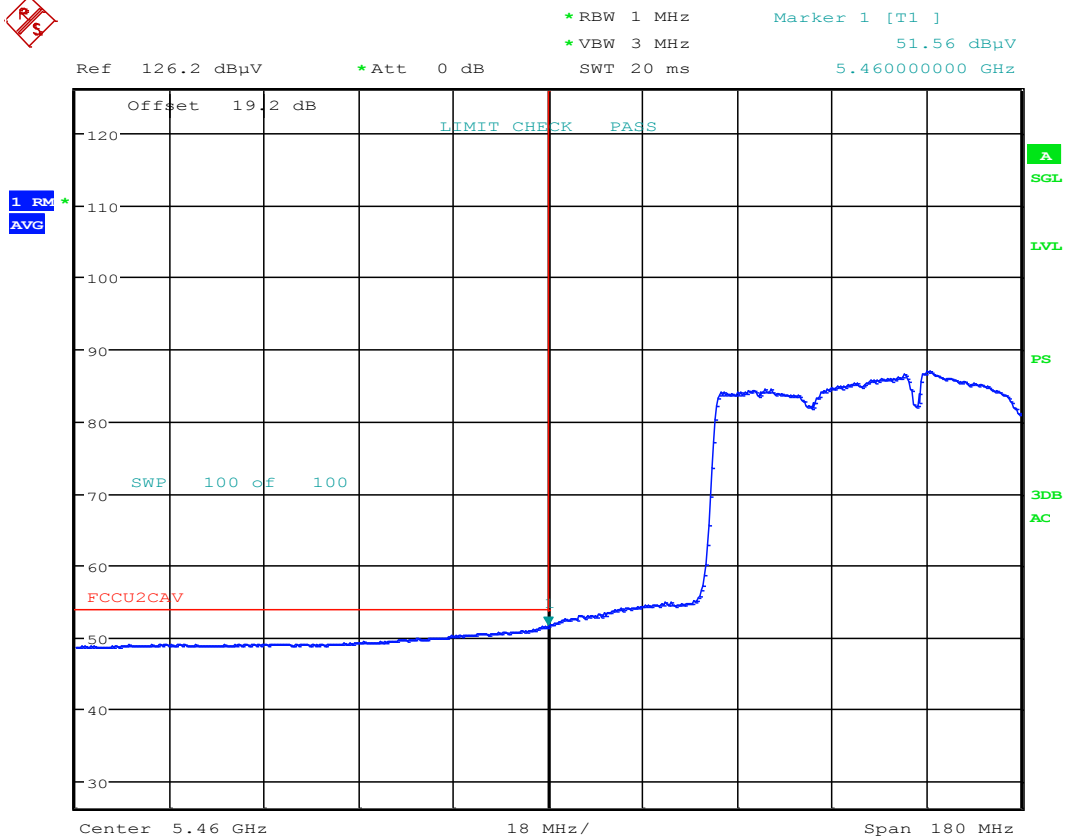
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



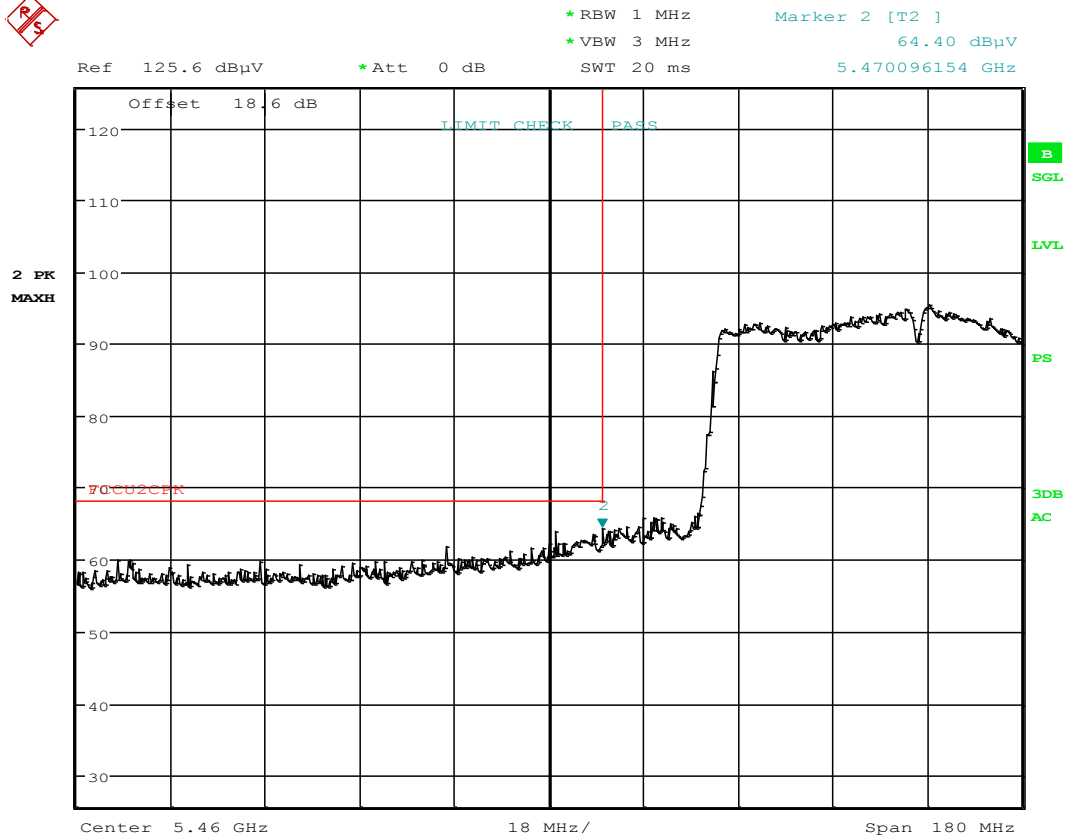
Date: 31.MAY.2016 22:08:17

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 177 of 272

Radiated Band Edge Measurements (80MHz BW)

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



Date: 31.MAY.2016 22:09:09

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 178 of 272

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

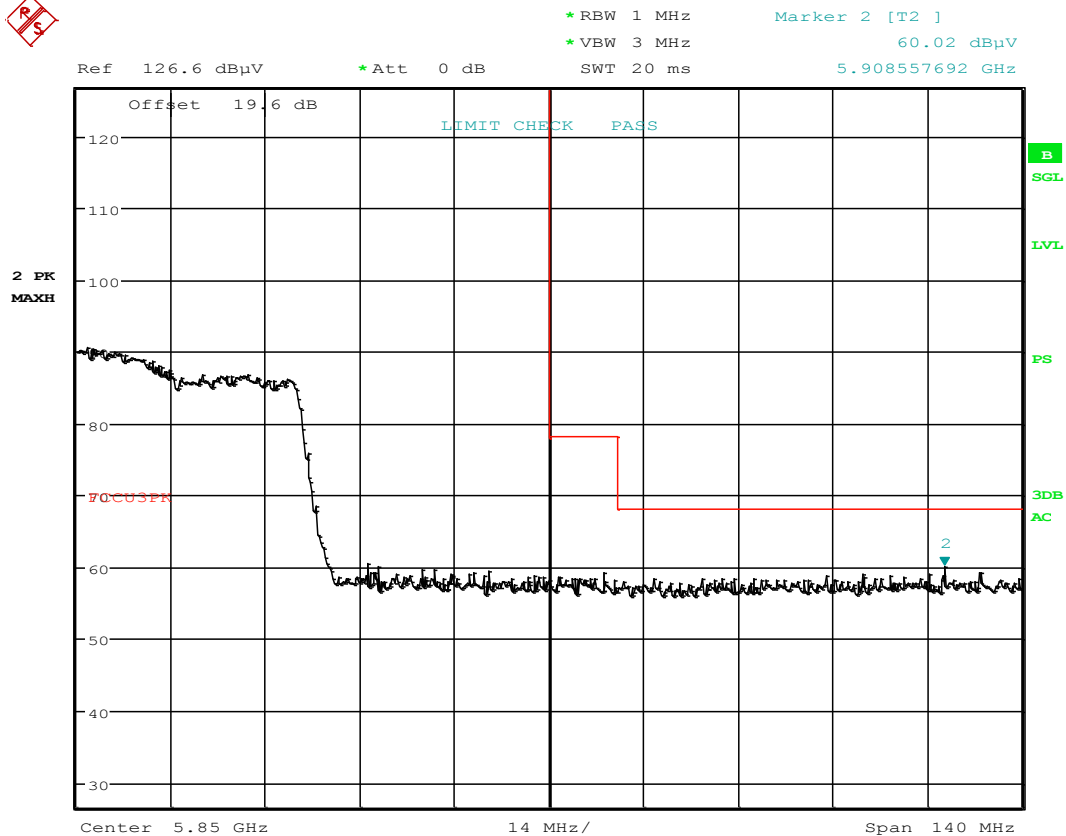
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 31.MAY.2016 22:16:51

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 179 of 272

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

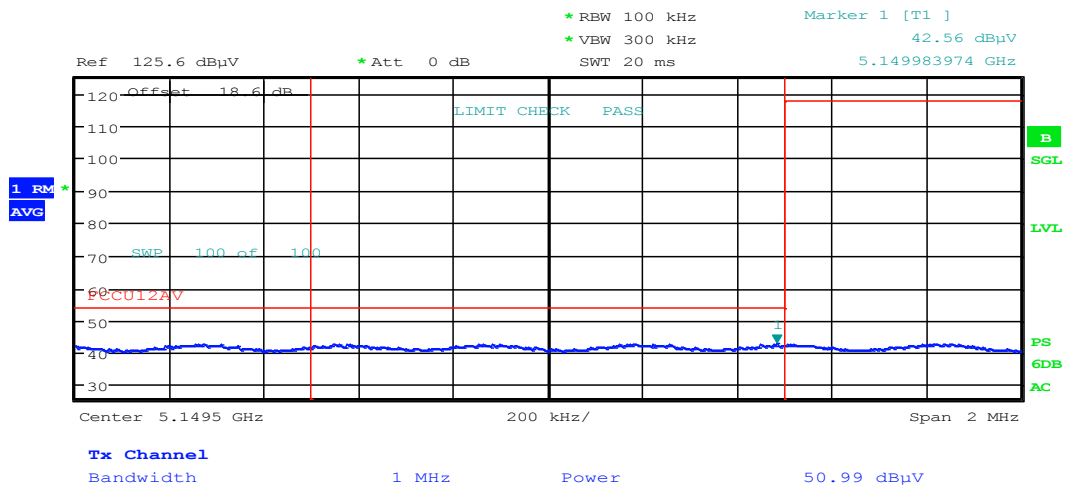
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 14.JUN.2016 01:39:43

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

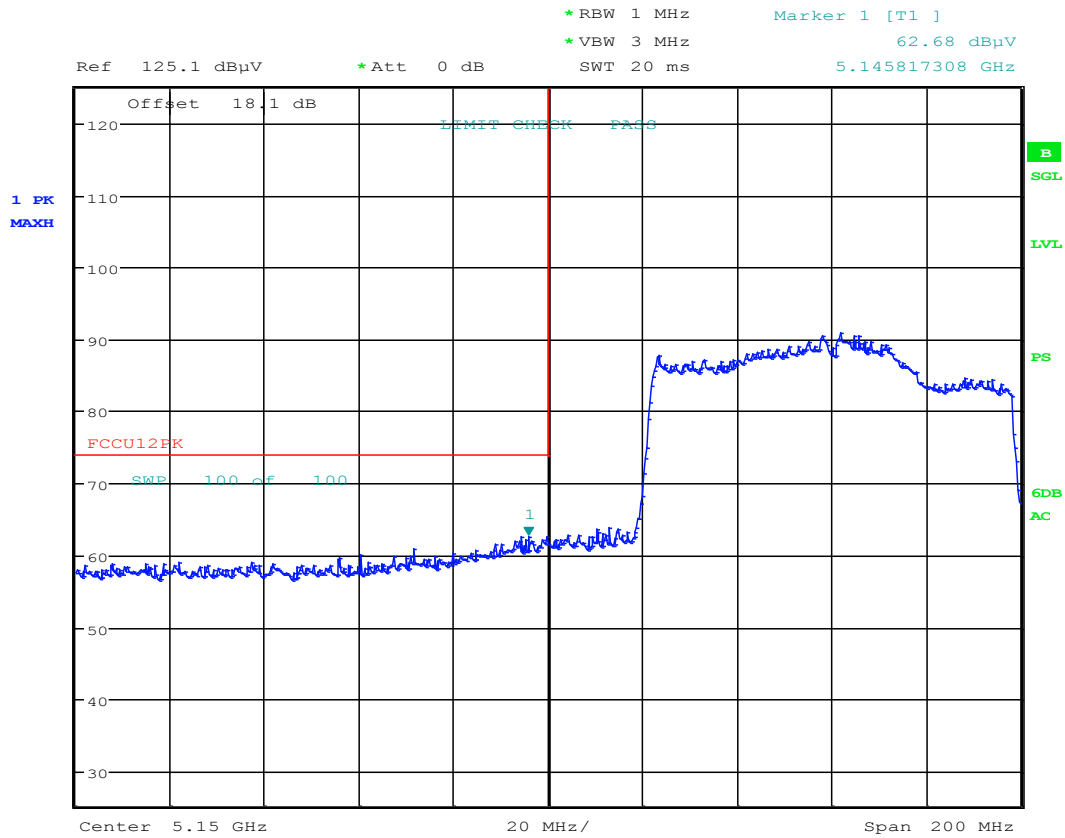
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 180 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2016 01:41:47

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 181 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

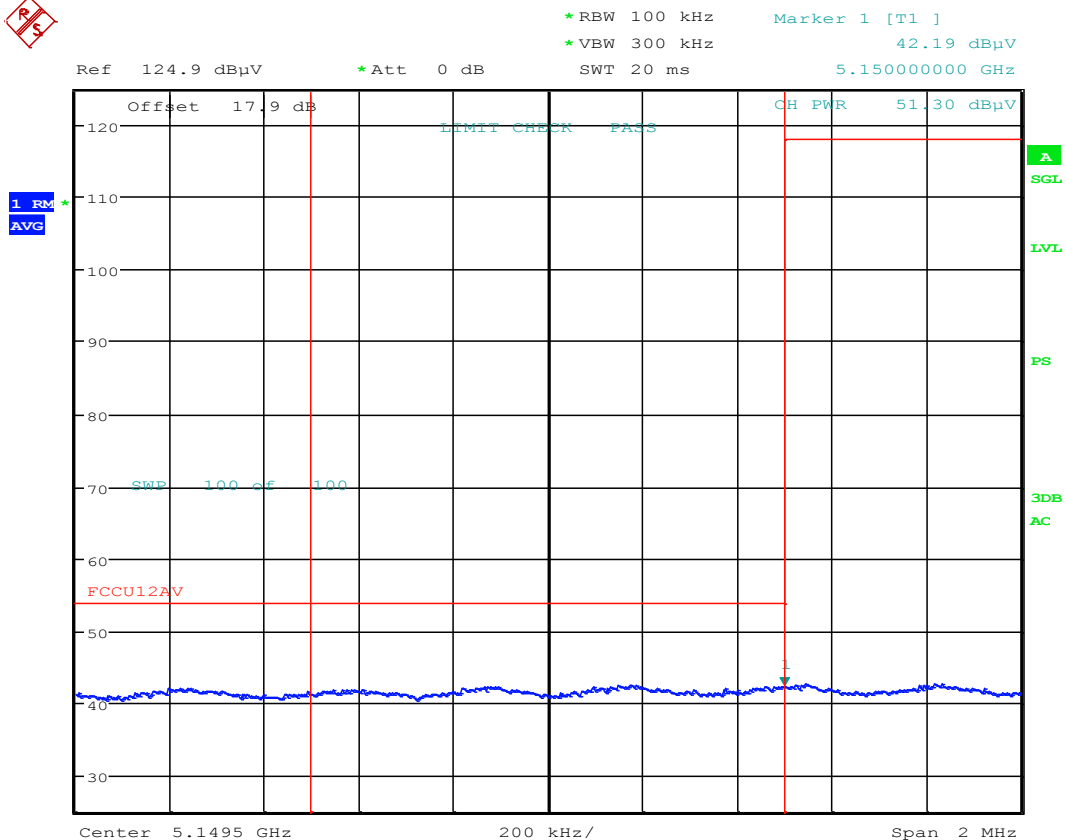
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



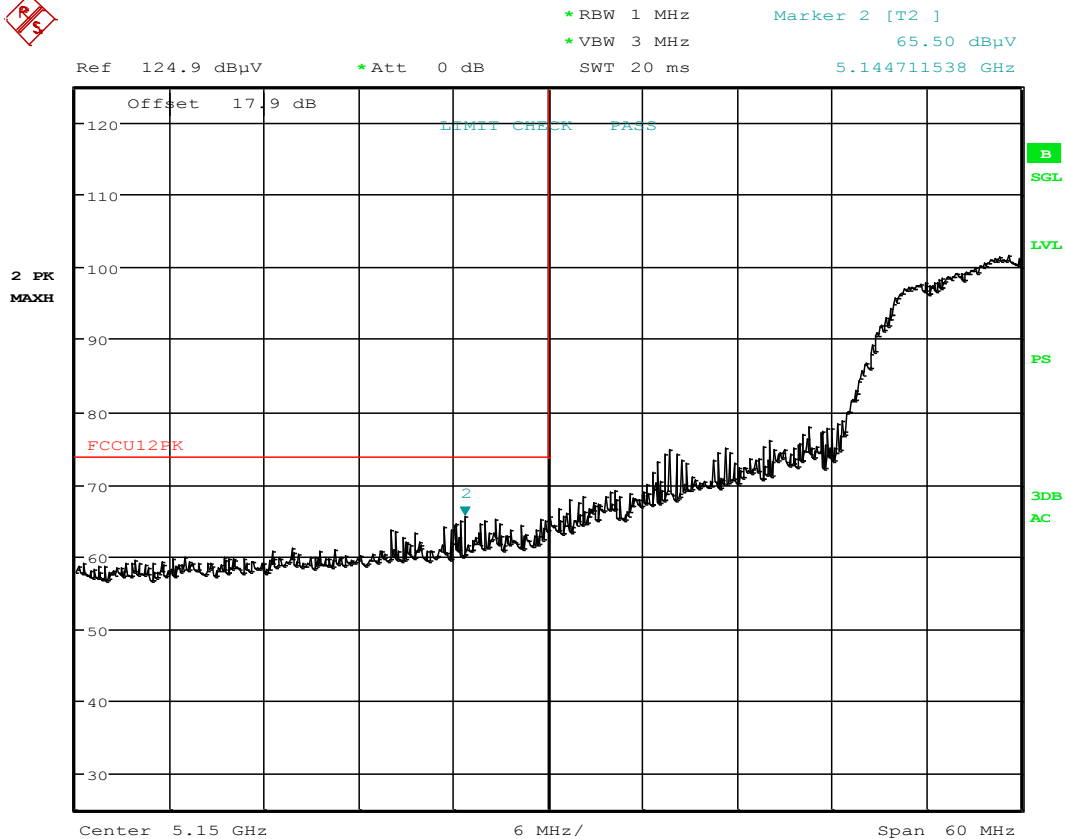
Date: 31.MAY.2016 22:24:42

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

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 182 of 272



Date: 31.MAY.2016 22:23:54

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 183 of 272

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

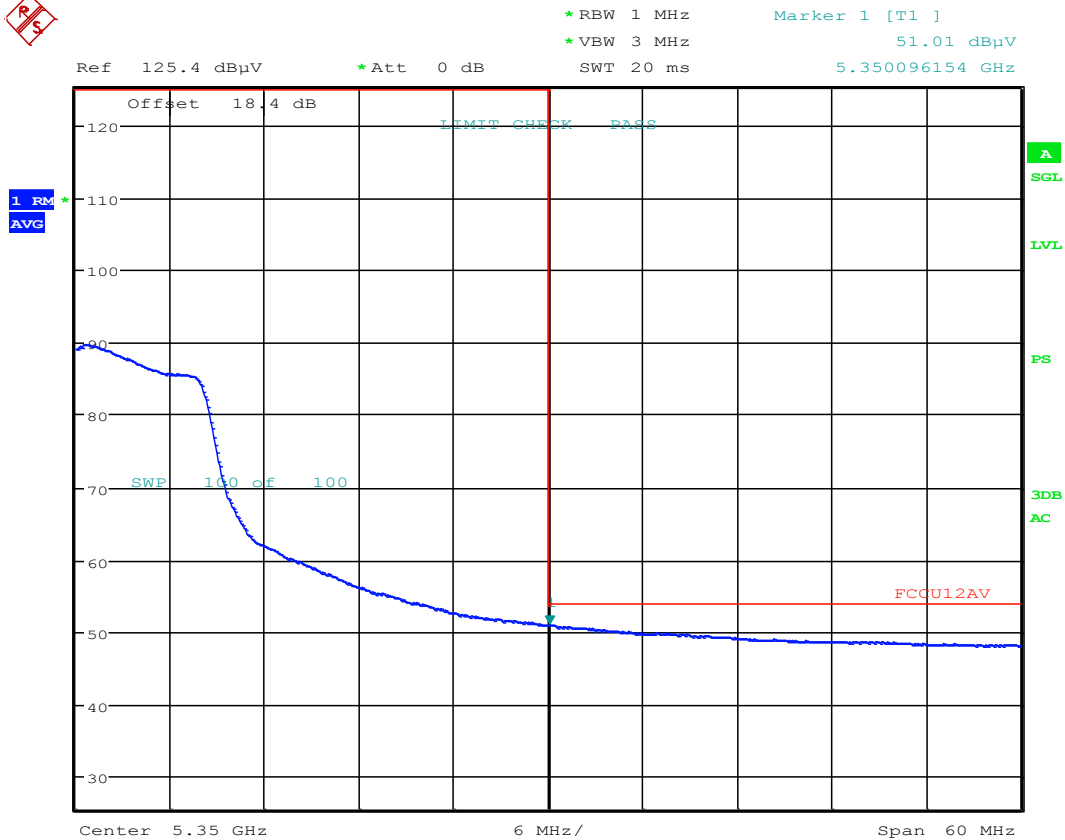
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



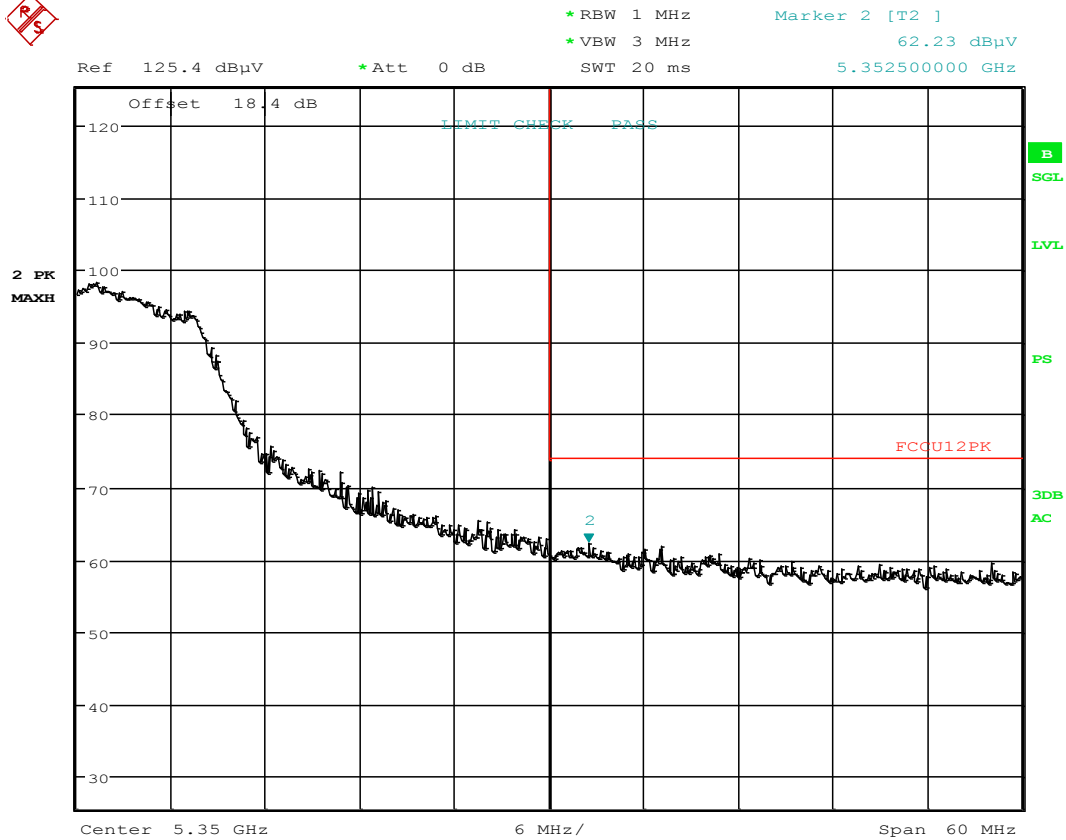
Date: 31.MAY.2016 22:53:26

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 184 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 31.MAY.2016 22:54:01

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 185 of 272

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

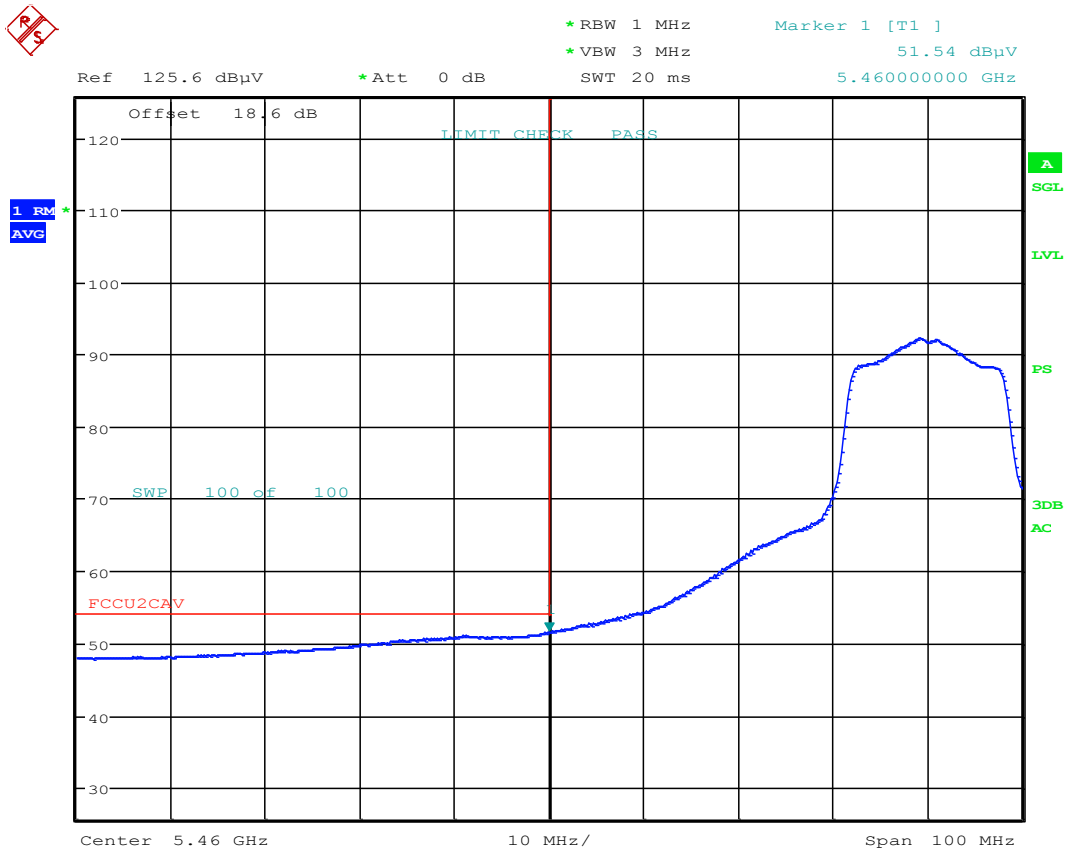
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



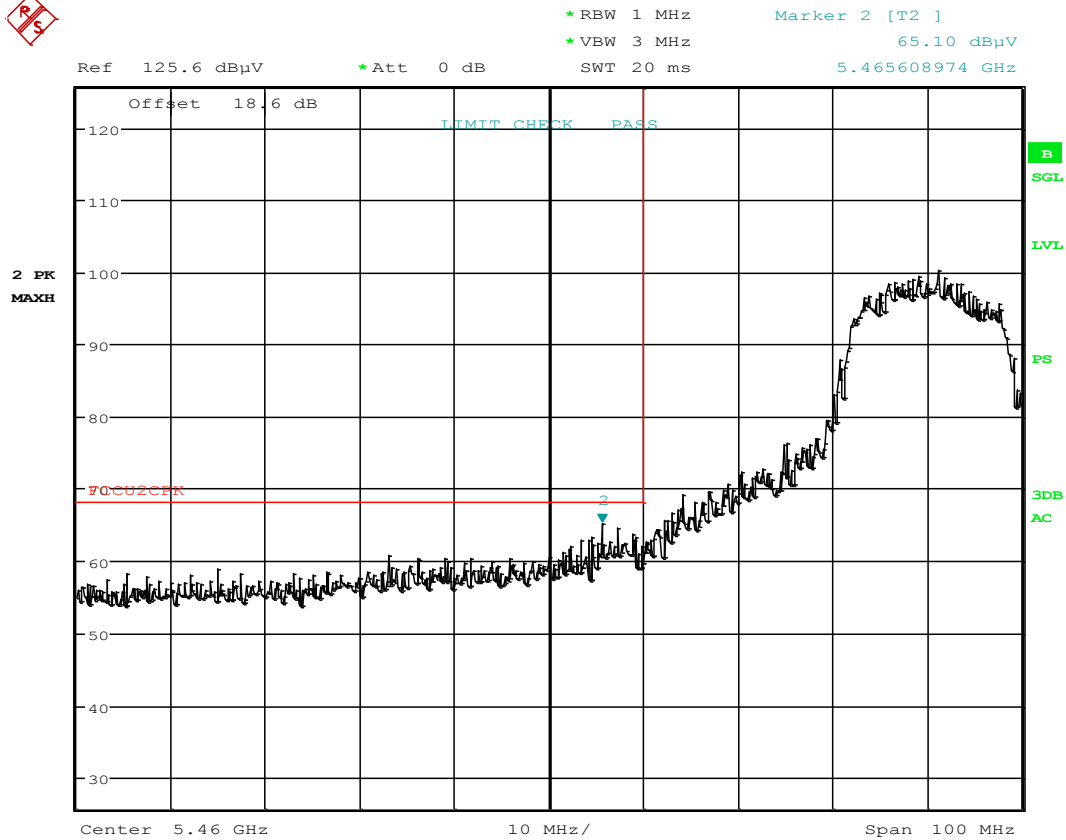
Date: 31.MAY.2016 23:17:38

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 186 of 272

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

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



Date: 31.MAY.2016 23:19:54

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 187 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

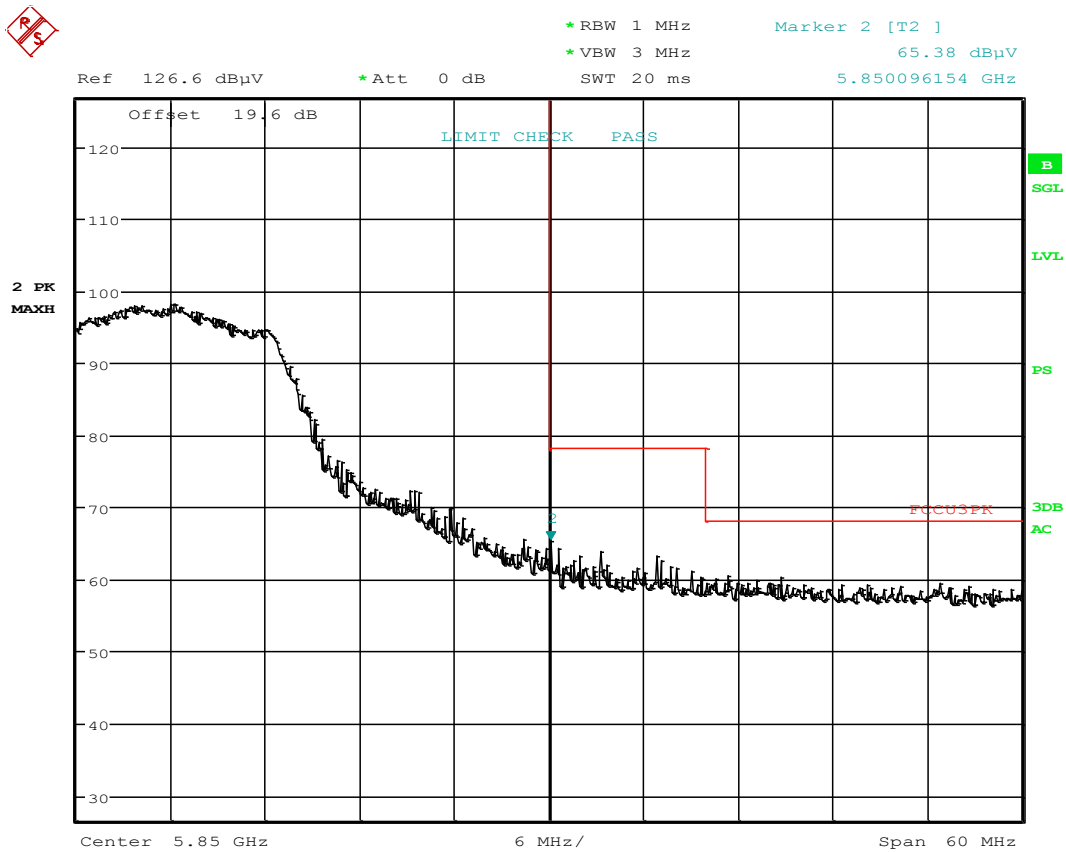
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 31.MAY.2016 23:44:32

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 188 of 272

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

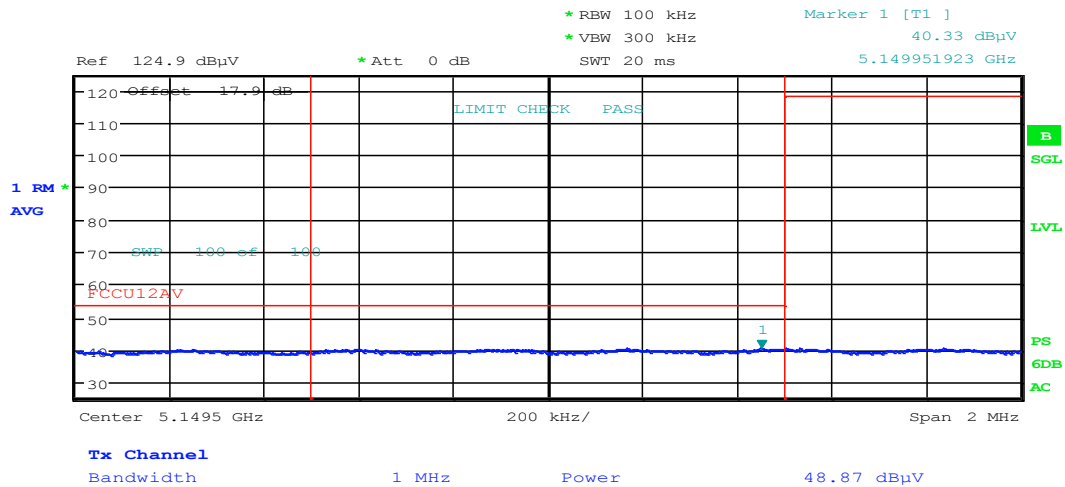
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 14.JUN.2016 01:57:00

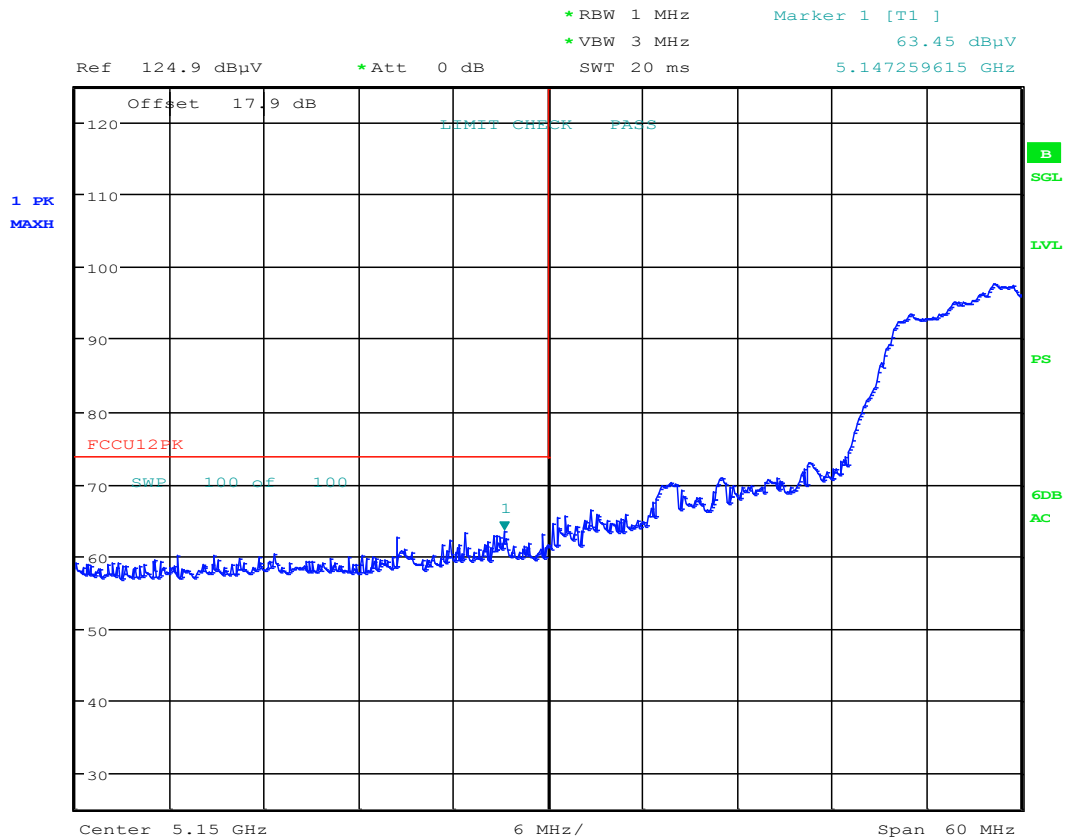
Plot 7-227. Radiated Restricted Band Edge Plot with WCP

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 189 of 272

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



Date: 14.JUN.2016 01:58:35

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 190 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

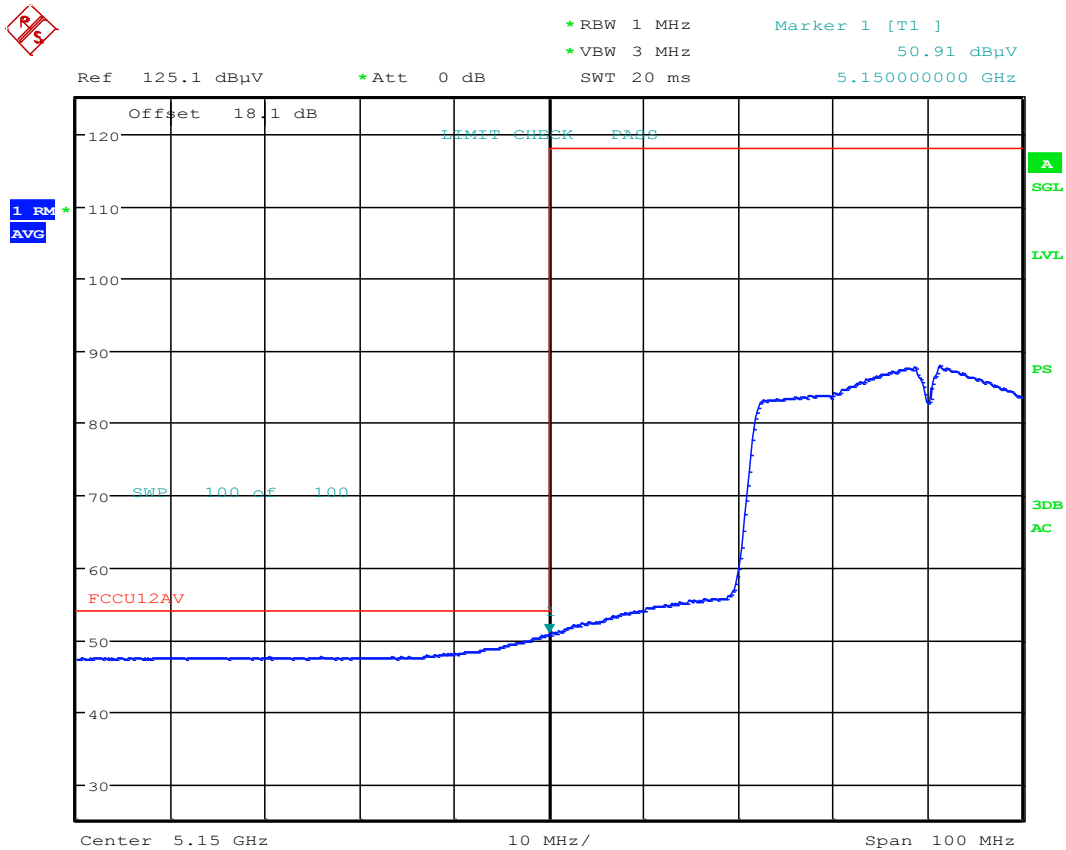
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



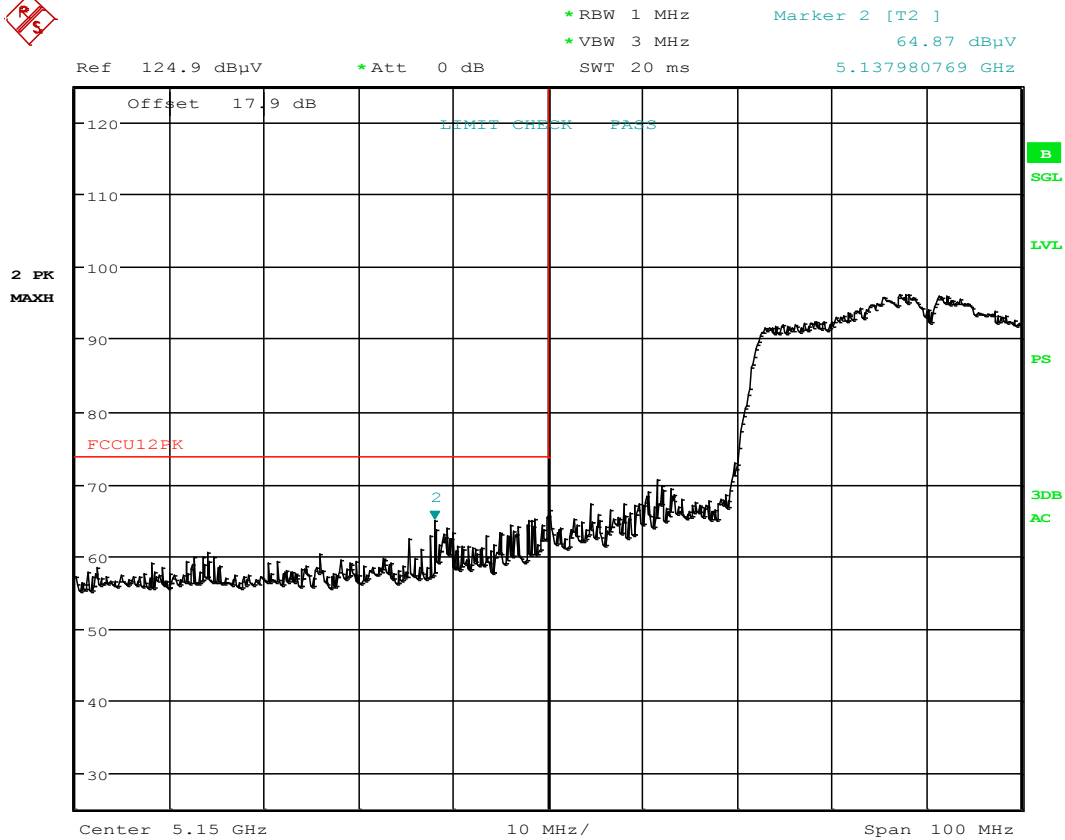
Date: 31.MAY.2016 22:36:16

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 191 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 31.MAY.2016 22:36:34

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 192 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

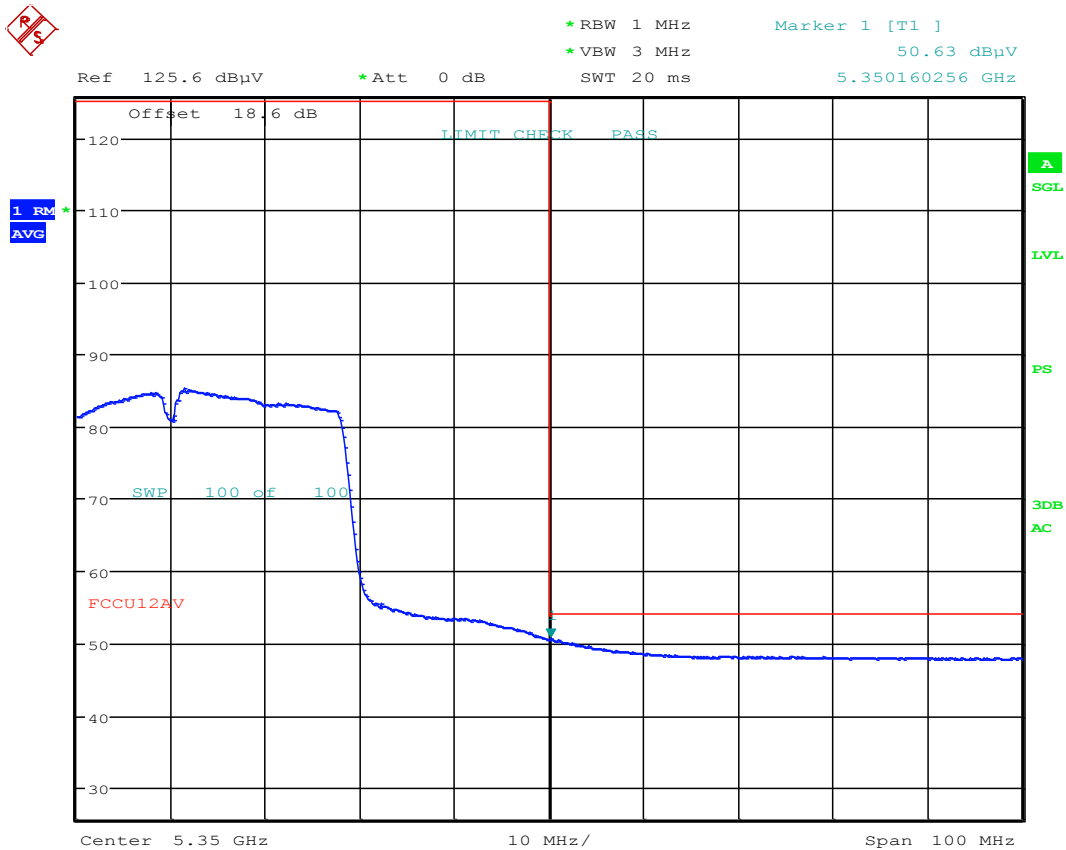
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



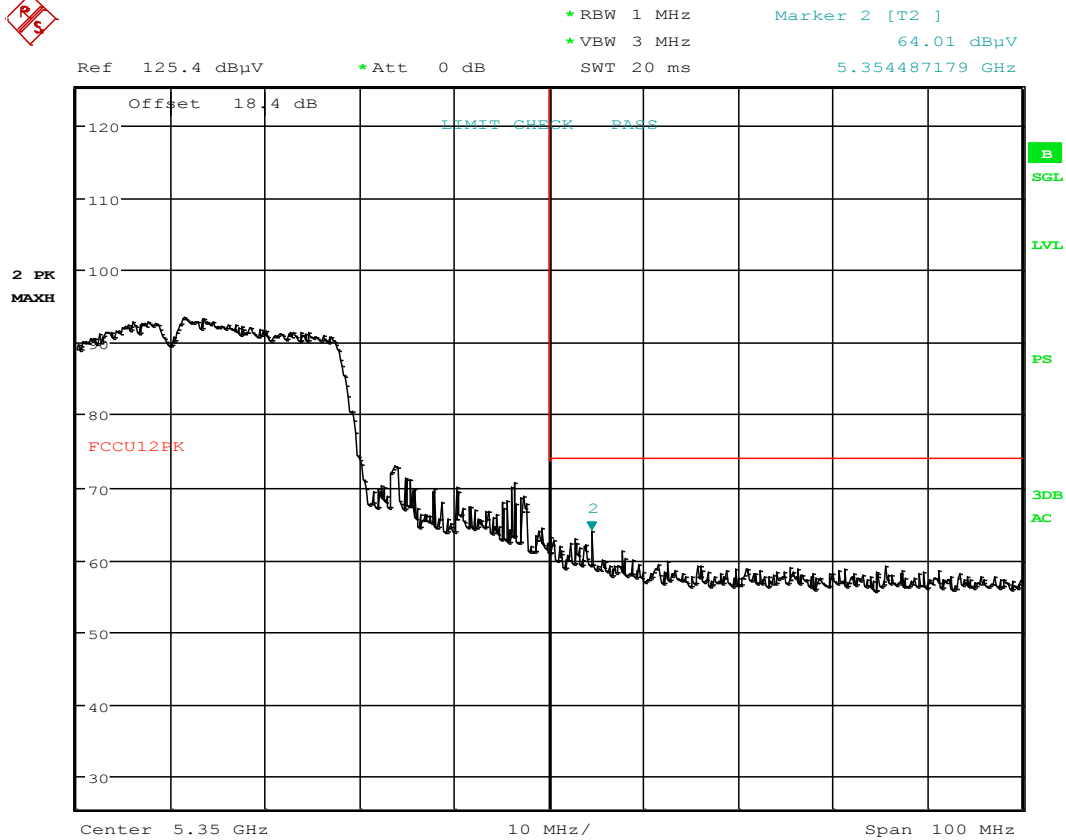
Date: 31.MAY.2016 22:59:31

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 193 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 31.MAY.2016 22:59:54

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 194 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

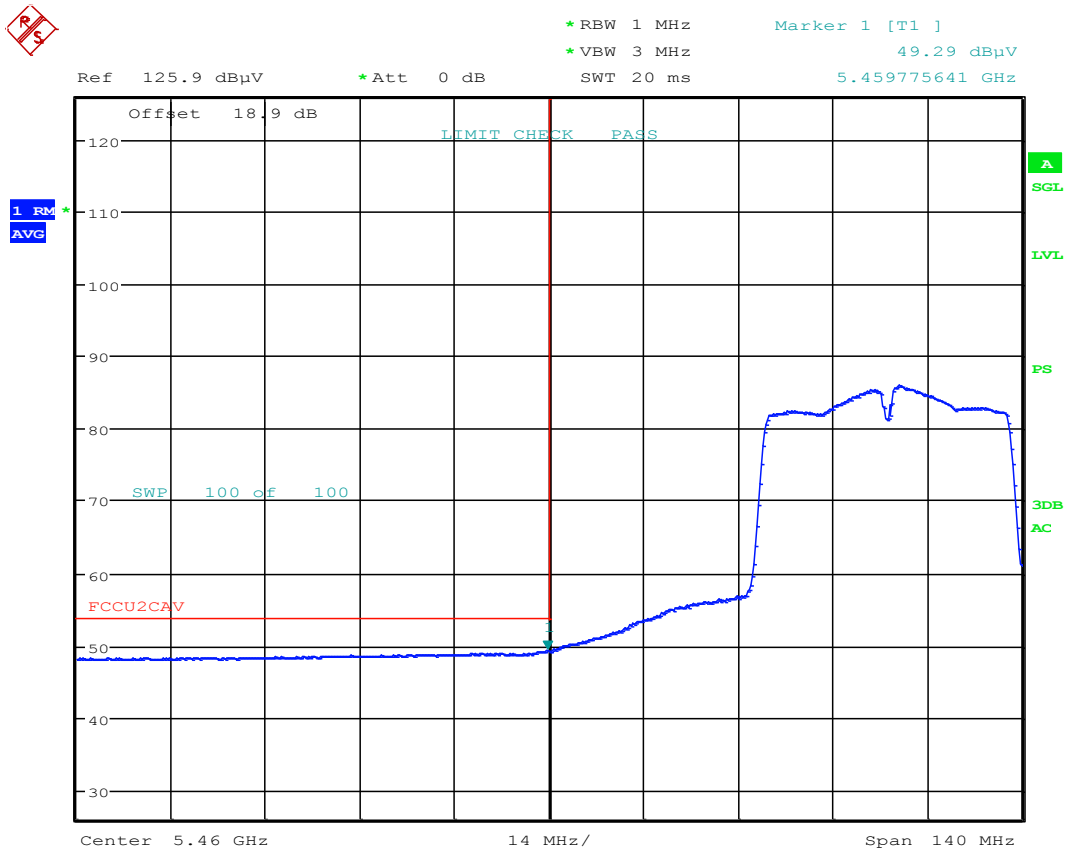
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



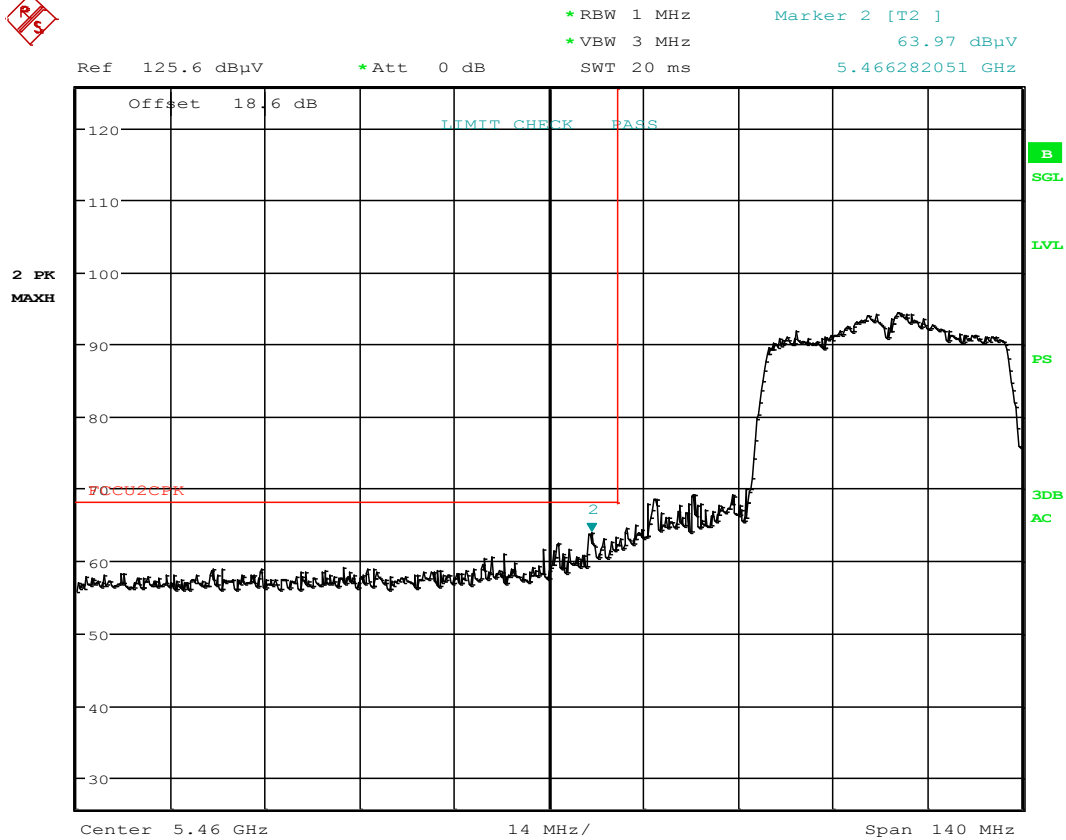
Date: 31.MAY.2016 23:26:26

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 195 of 272

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

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



Date: 31.MAY.2016 23:25:53

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 196 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

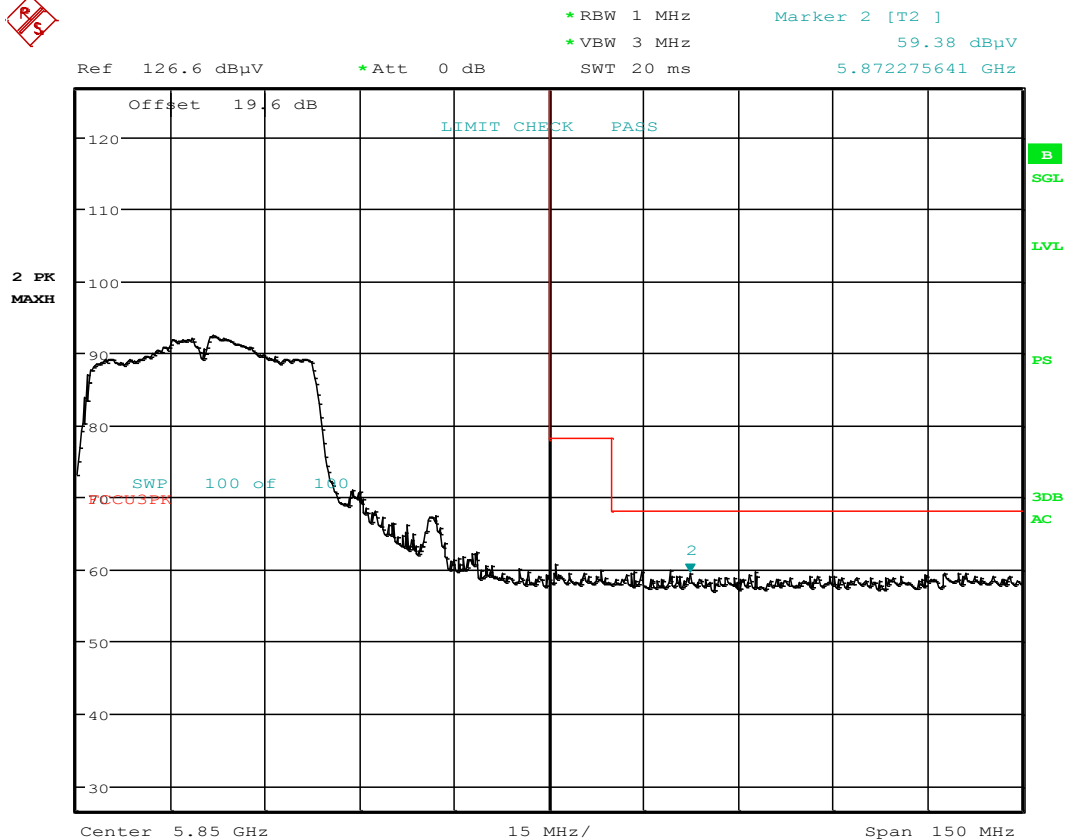
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



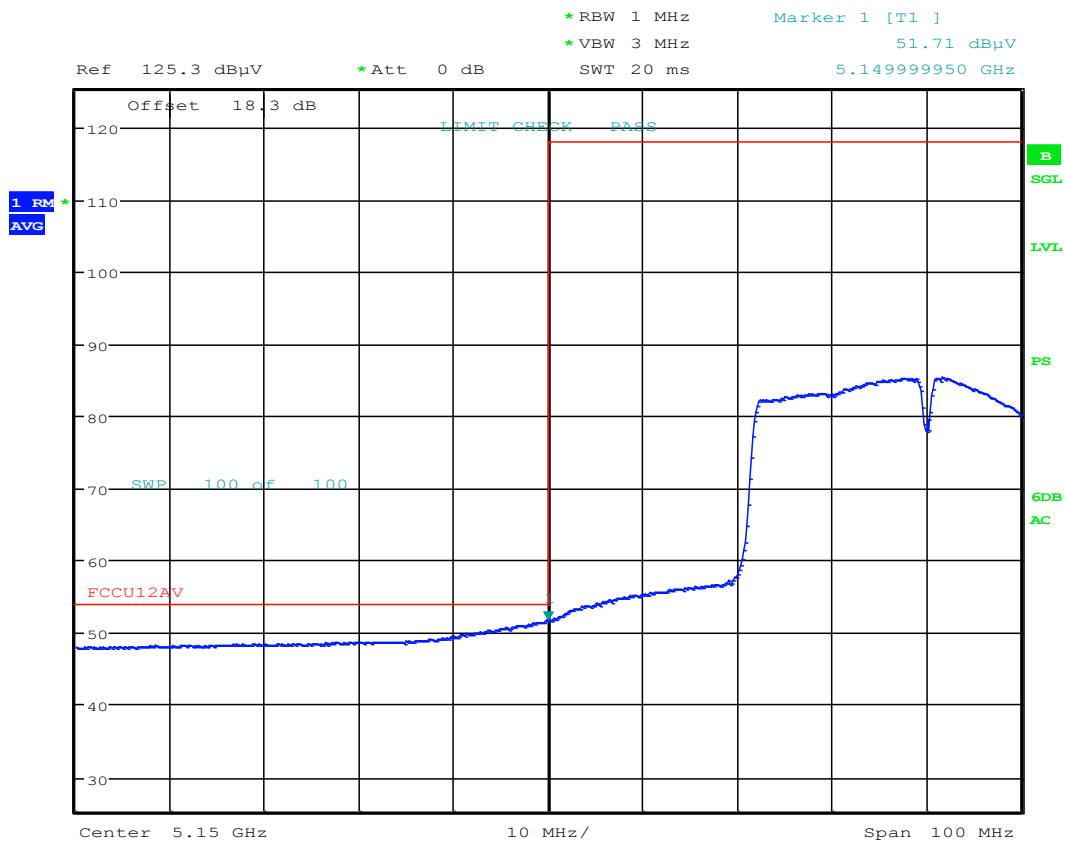
Date: 31.MAY.2016 23:47:04

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 197 of 272

Antenna-2 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: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5190MHz
Channel: 38



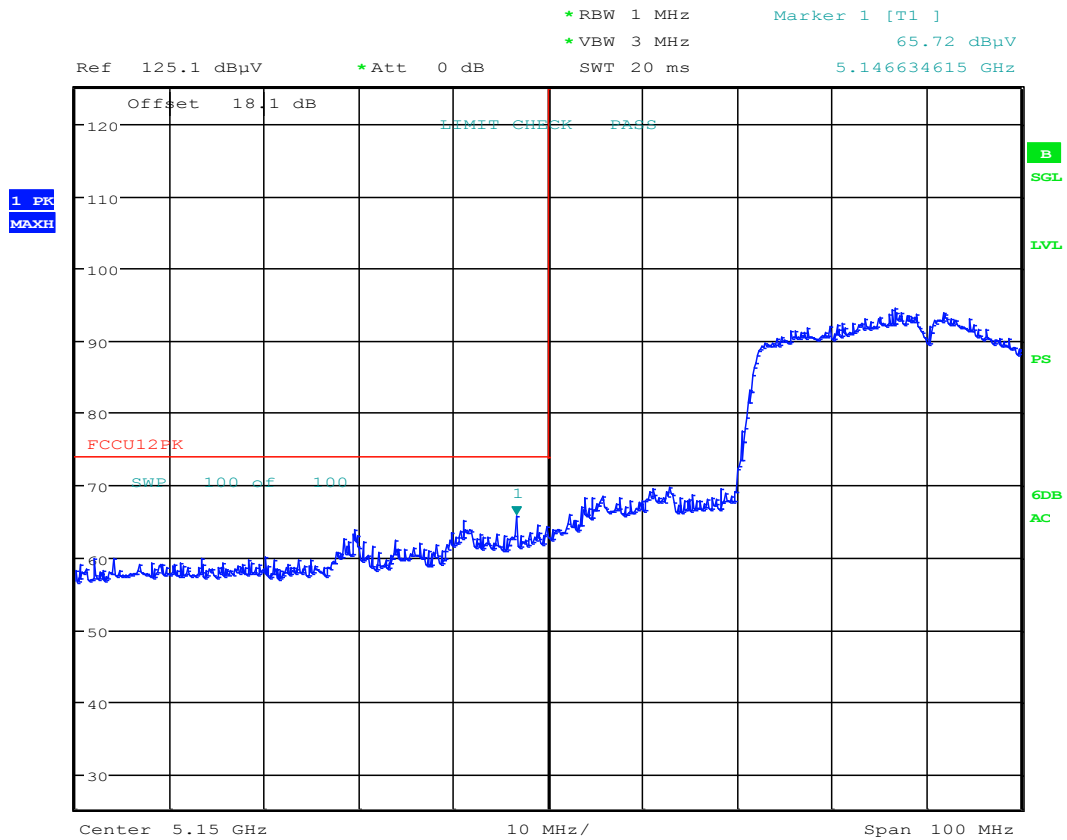
Date: 14.JUN.2016 02:09:30

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 198 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2016 02:13:39

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 199 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209

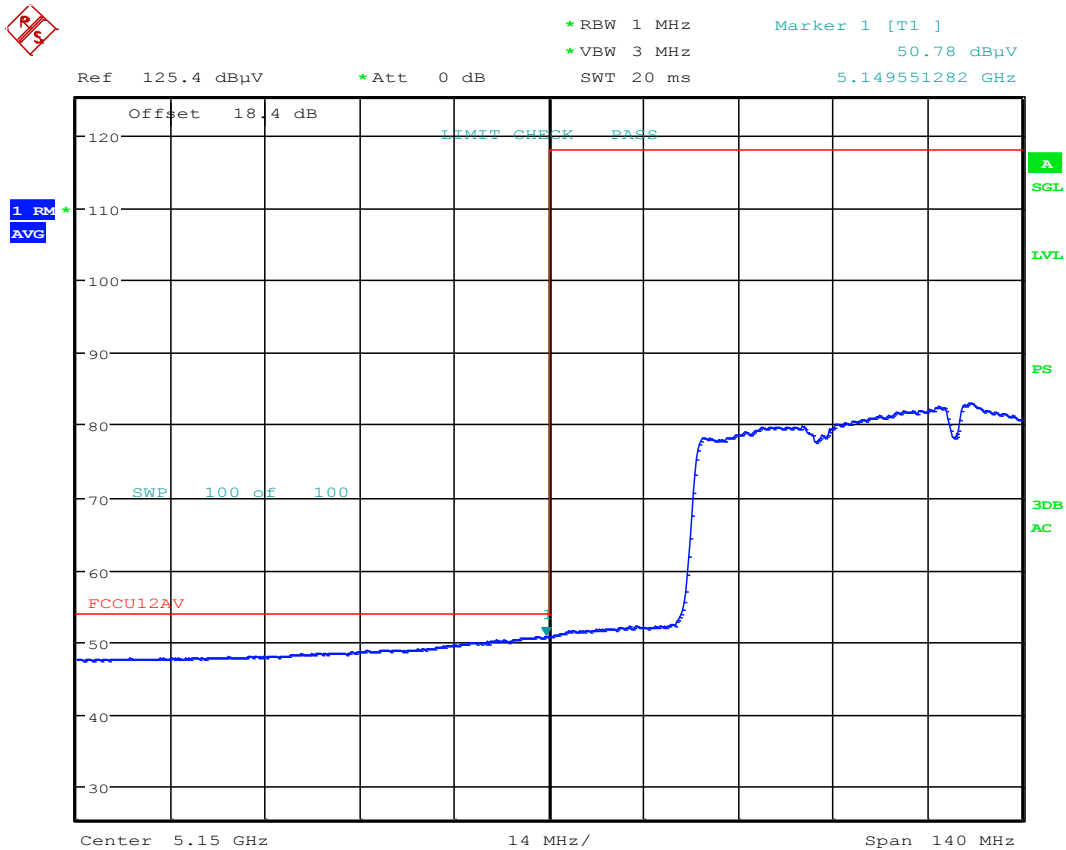
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



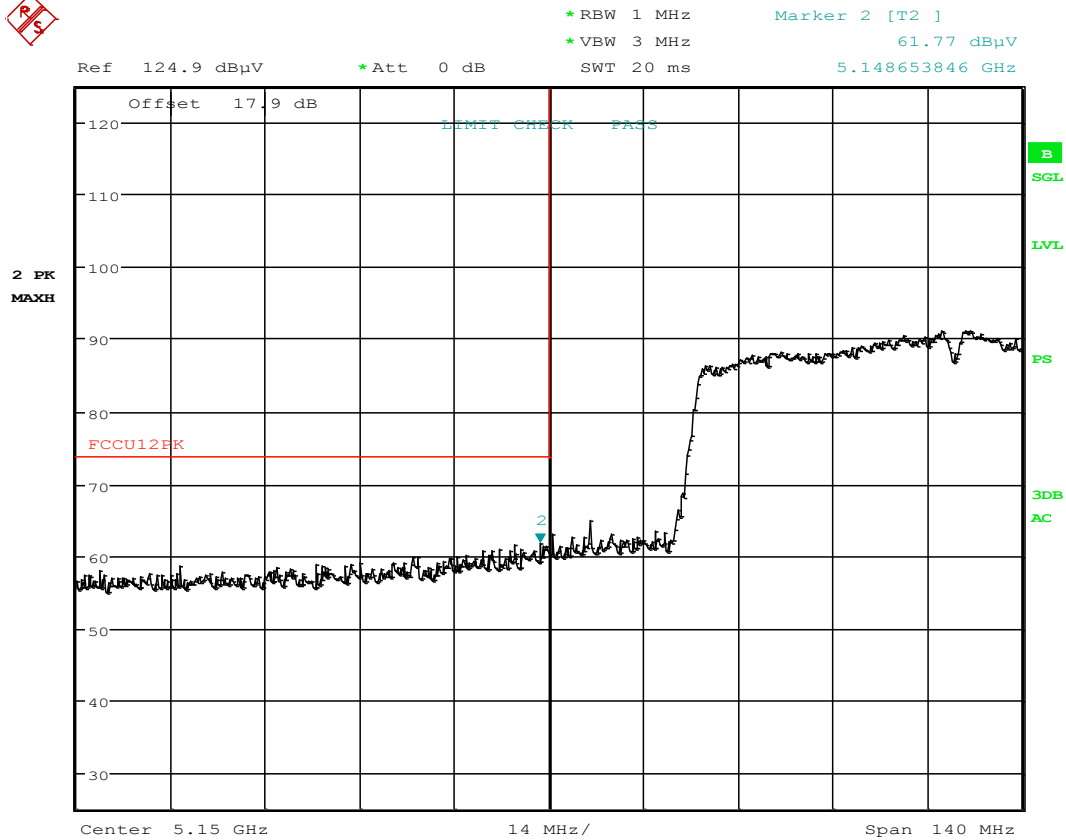
Date: 31.MAY.2016 22:43:28

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 200 of 272

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

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



Date: 31.MAY.2016 22:43:05

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 201 of 272

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

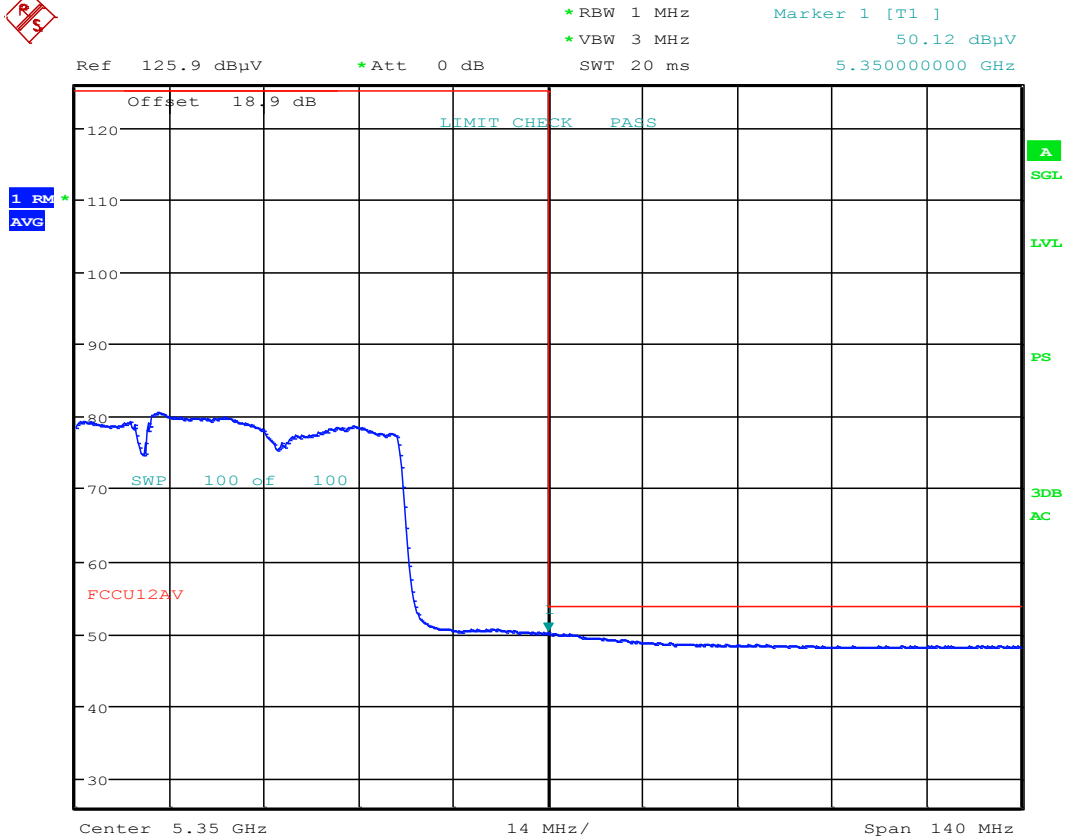
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



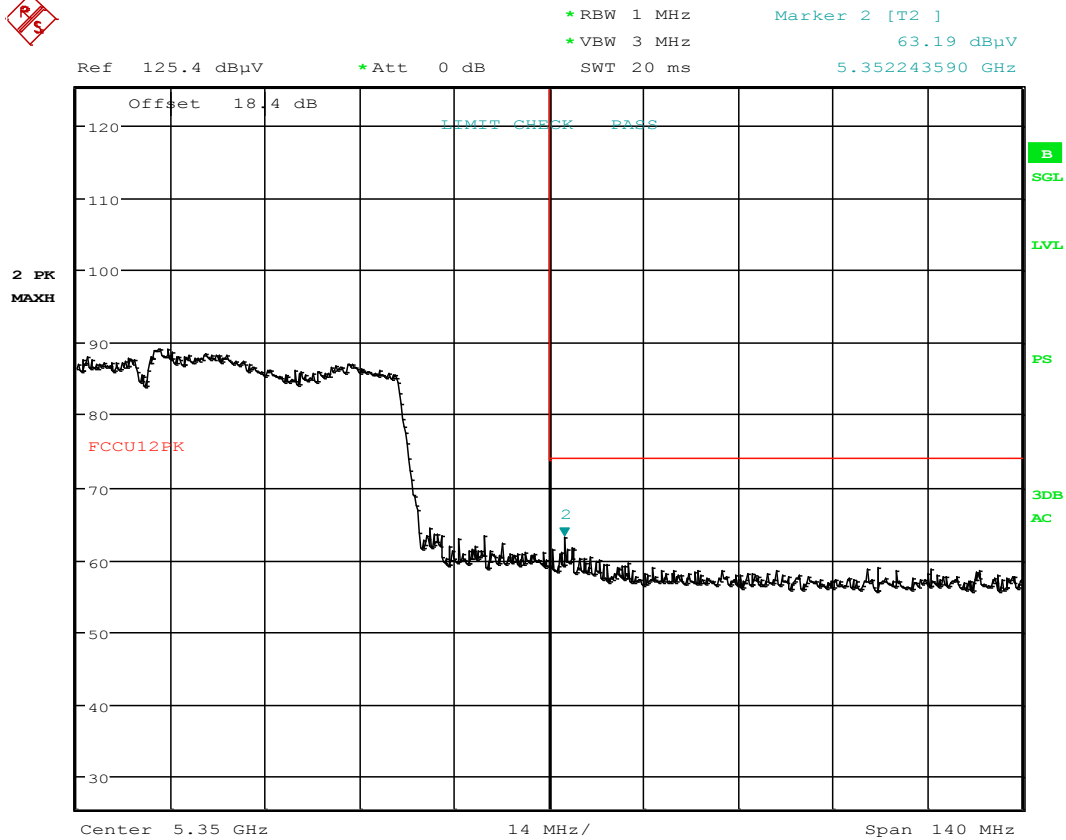
Date: 31.MAY.2016 23:10:06

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 202 of 272

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 31.MAY.2016 23:10:49

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 203 of 272

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

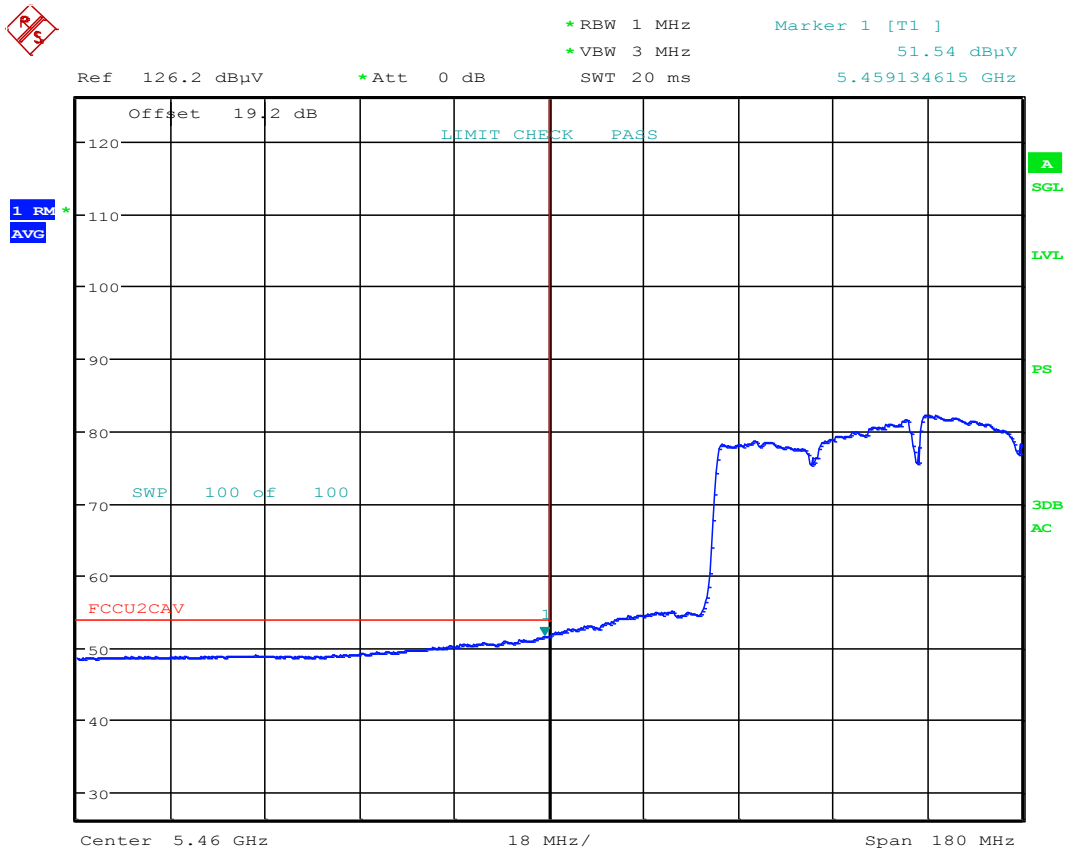
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106

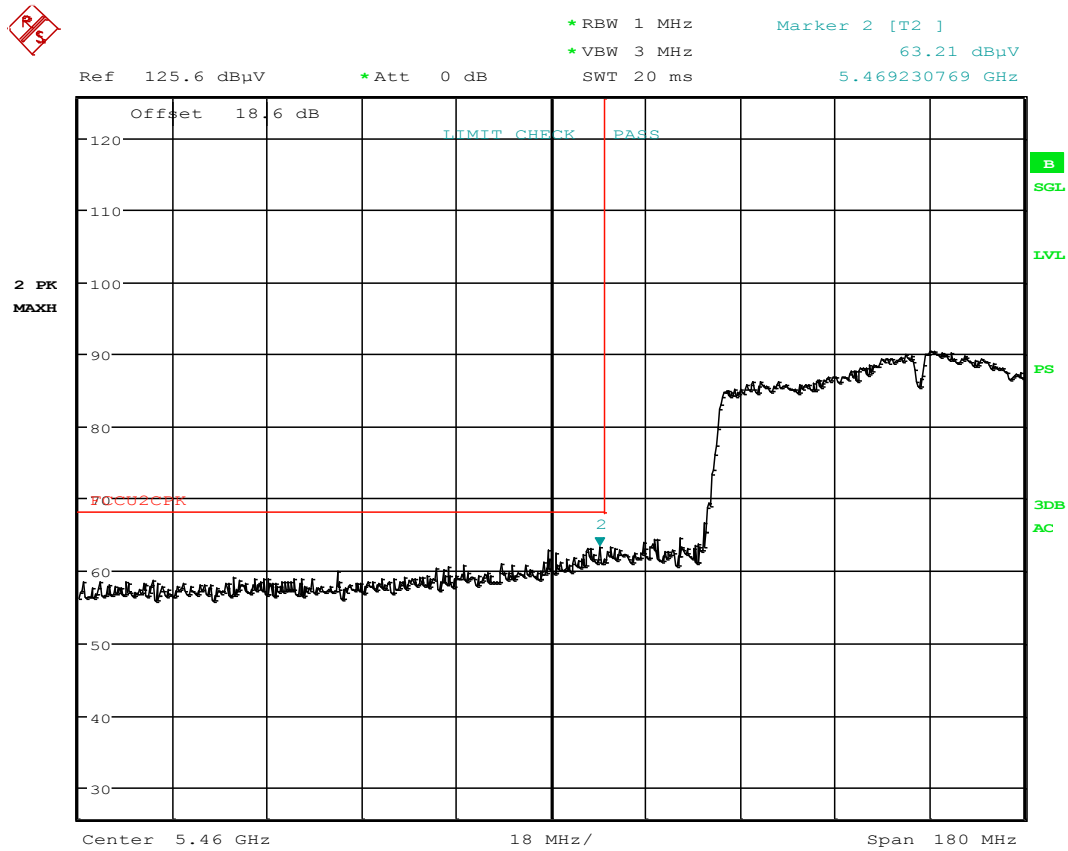


Date: 31.MAY.2016 23:37:30

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 204 of 272

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



Date: 31.MAY.2016 23:29:50

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 205 of 272

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

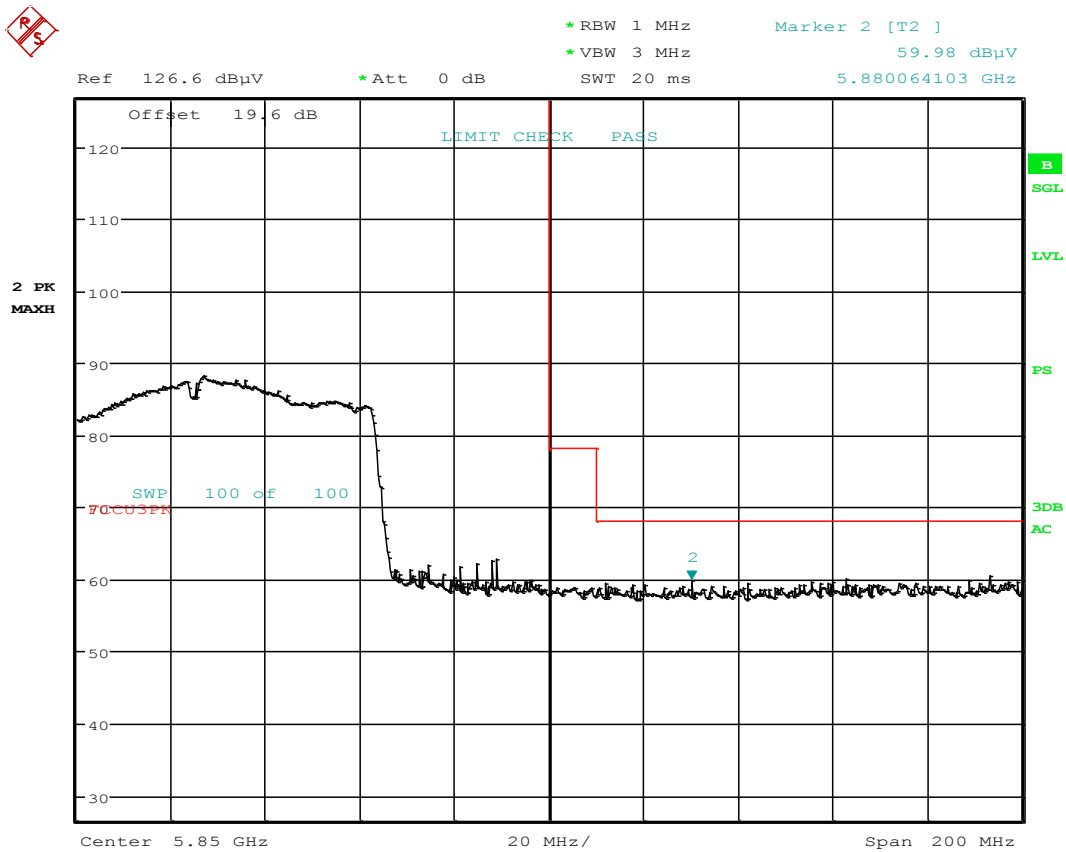
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



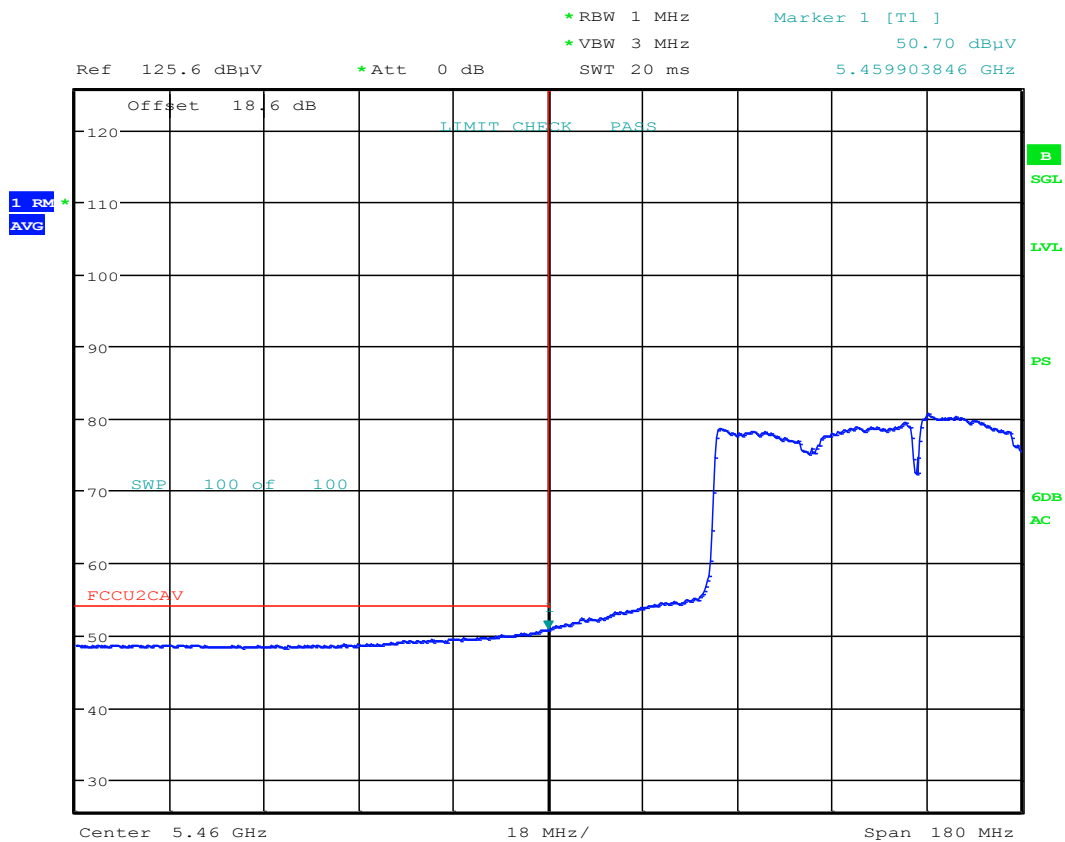
Date: 31.MAY.2016 23:49:49

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 206 of 272

Antenna-2 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: 5530MHz
Channel: 106

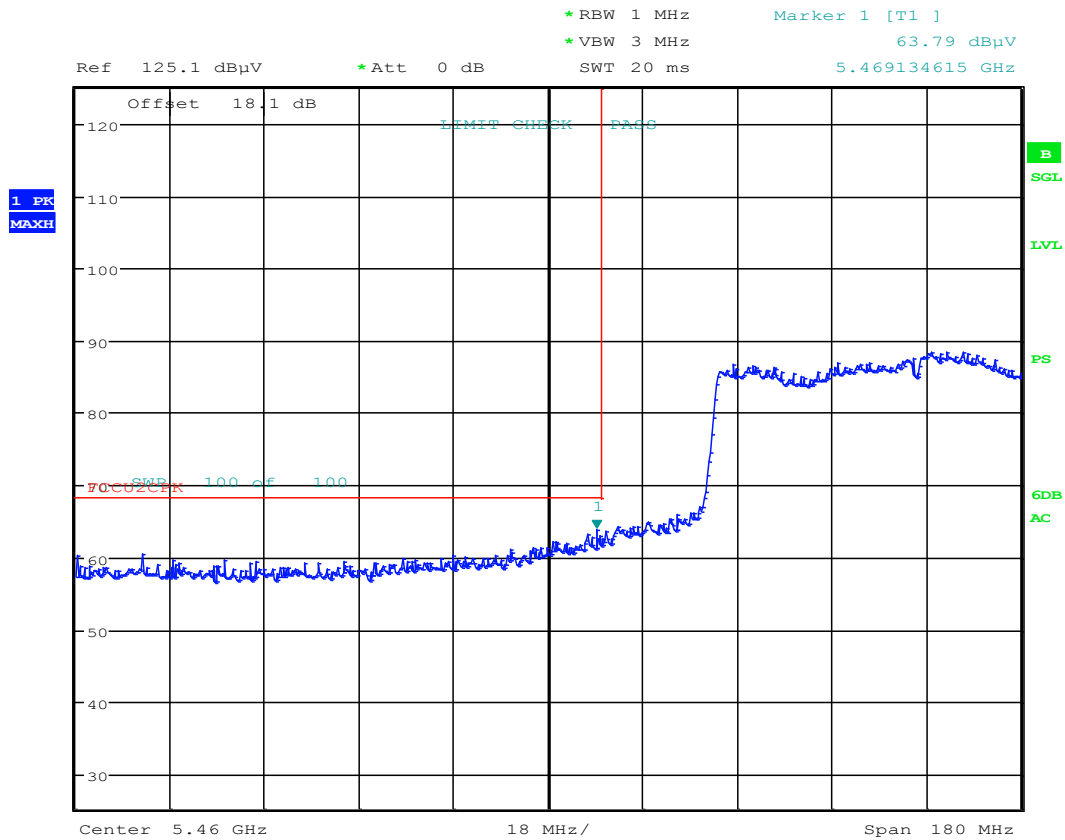


Date: 14.JUN.2016 02:21:04

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 207 of 272

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



Date: 14.JUN.2016 02:24:44

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 208 of 272

7.7.9 MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

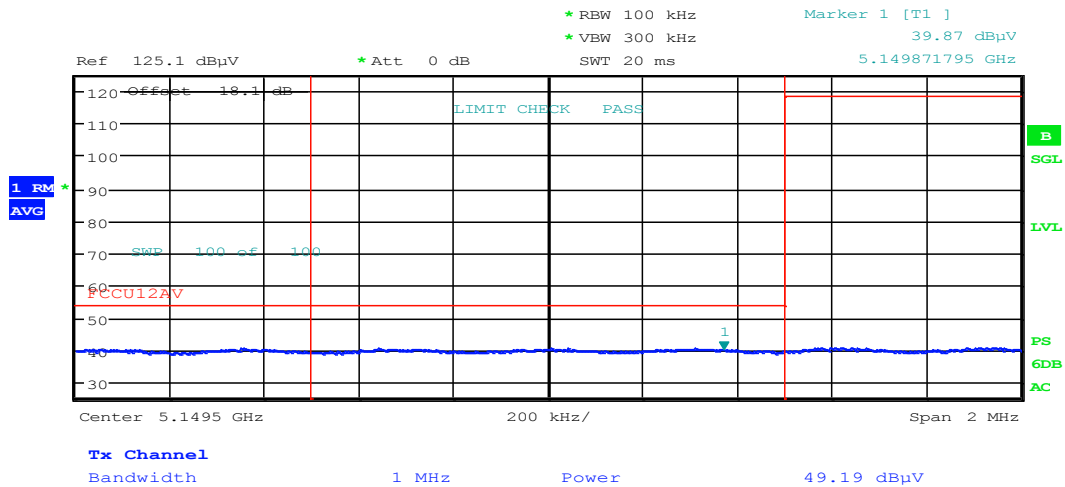
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 14.JUN.2016 02:45:20

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

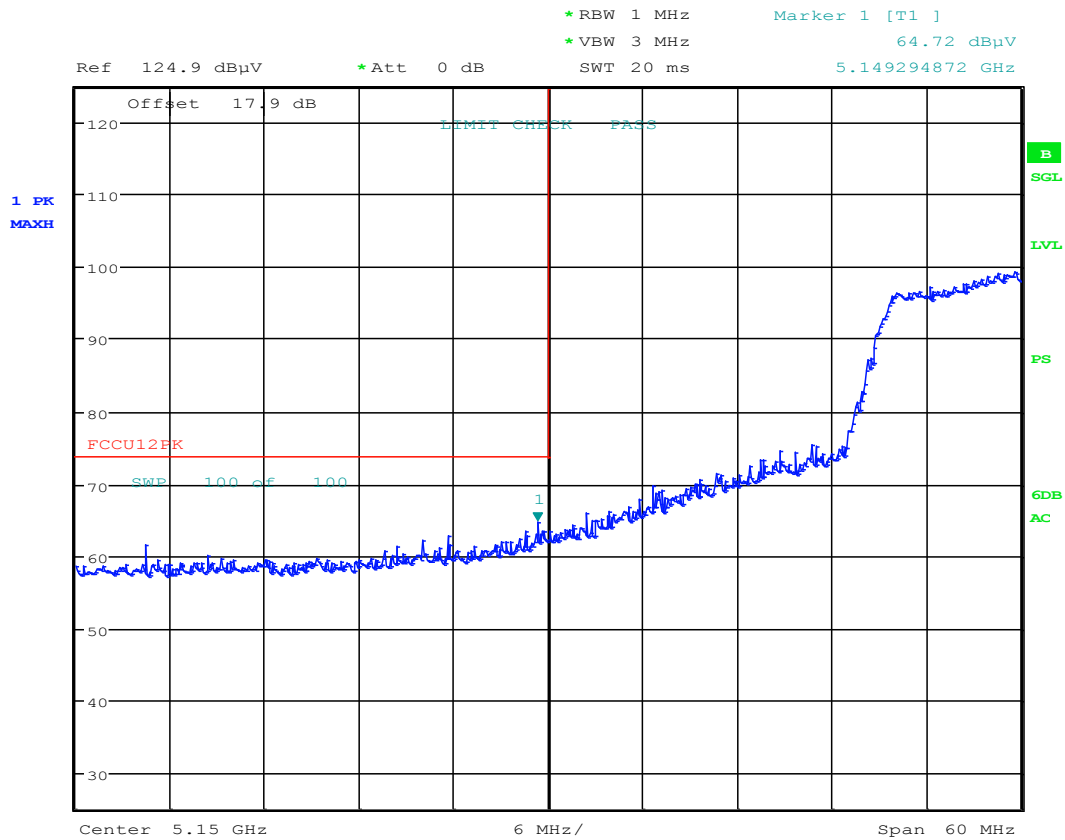
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 209 of 272

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2016 02:51:52

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 210 of 272

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

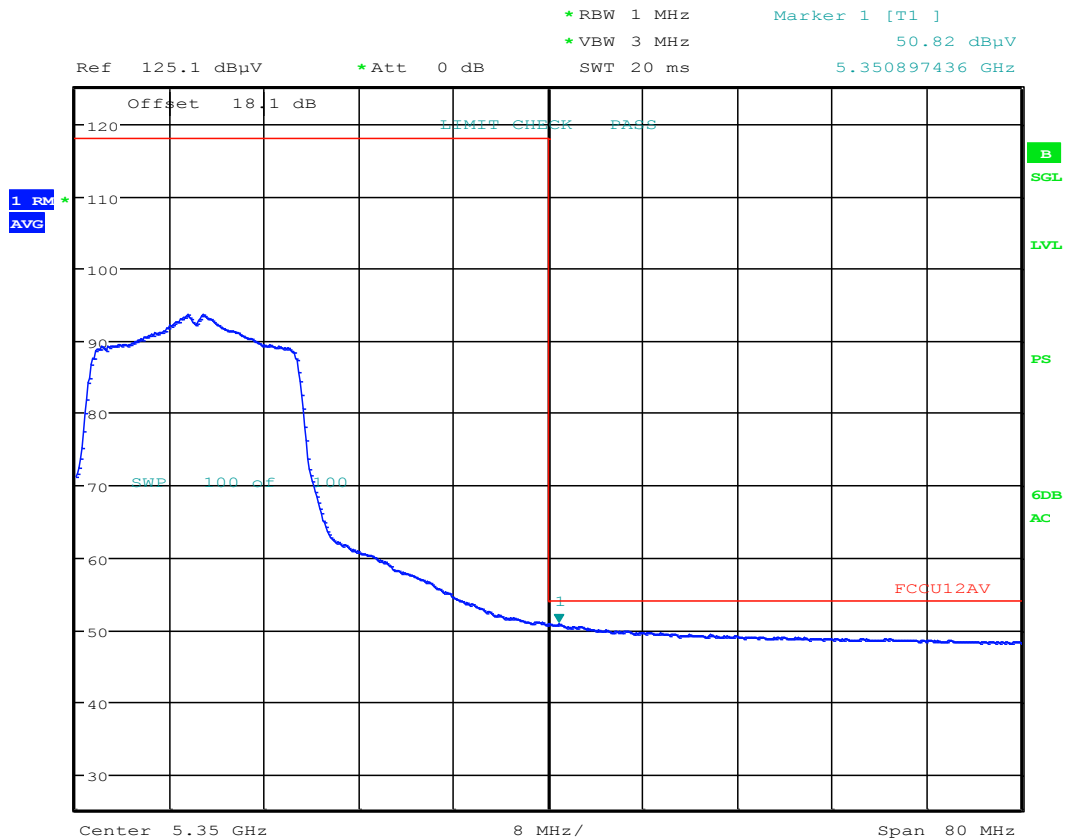
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



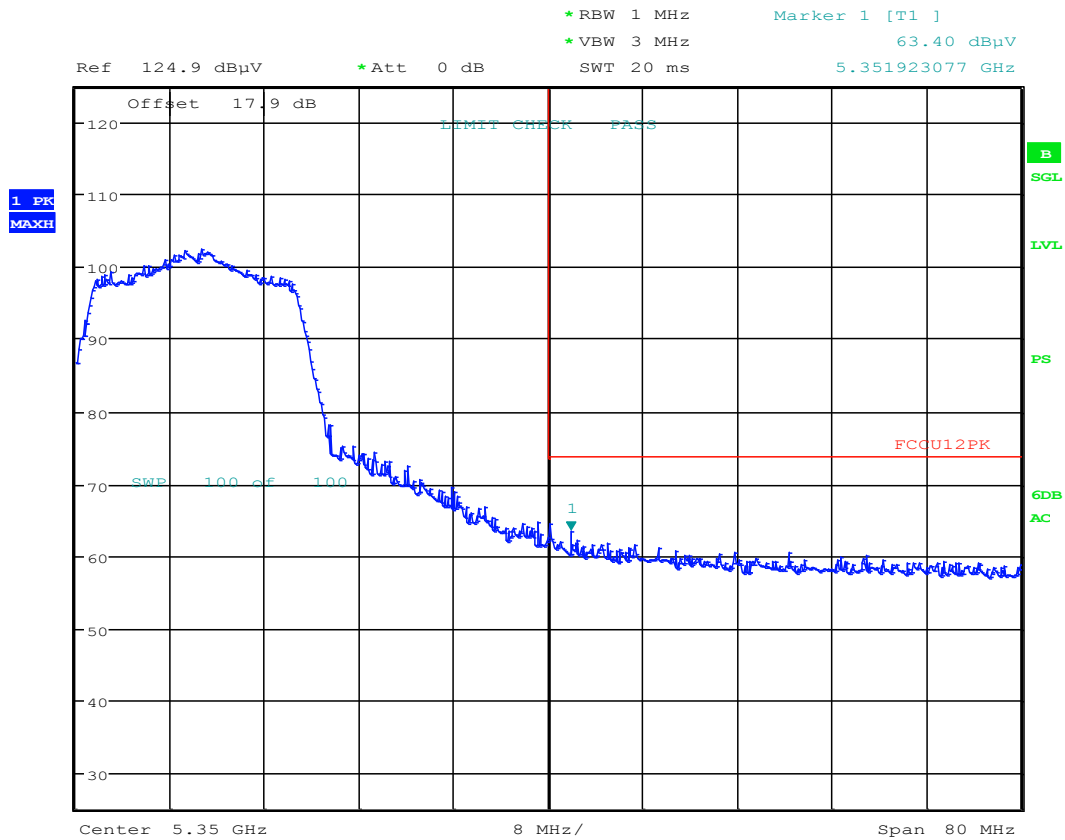
Date: 14.JUN.2016 03:01:00

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 211 of 272

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2016 03:03:46

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 212 of 272

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

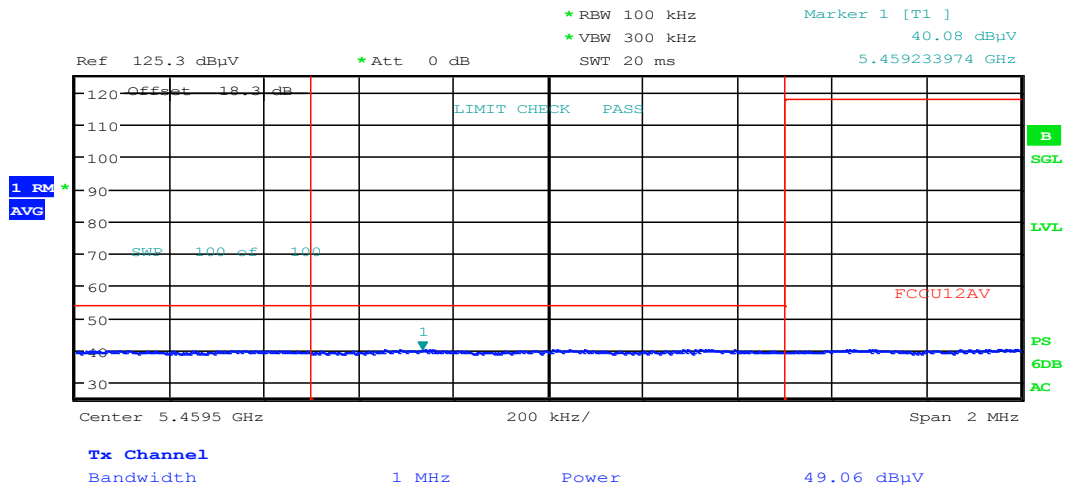
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 14.JUN.2016 03:09:59

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

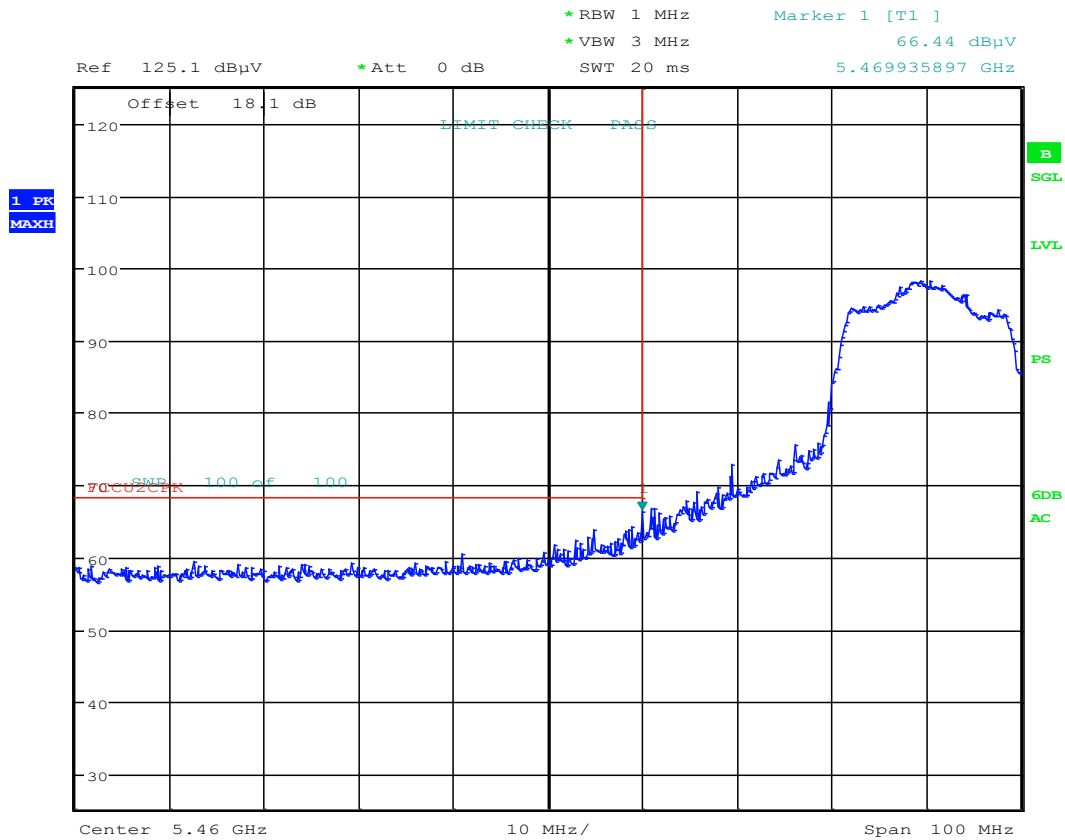
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 213 of 272

MIMO Radiated Band Edge Measurements (20MHz BW)

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



Date: 14.JUN.2016 03:19:12

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 214 of 272

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

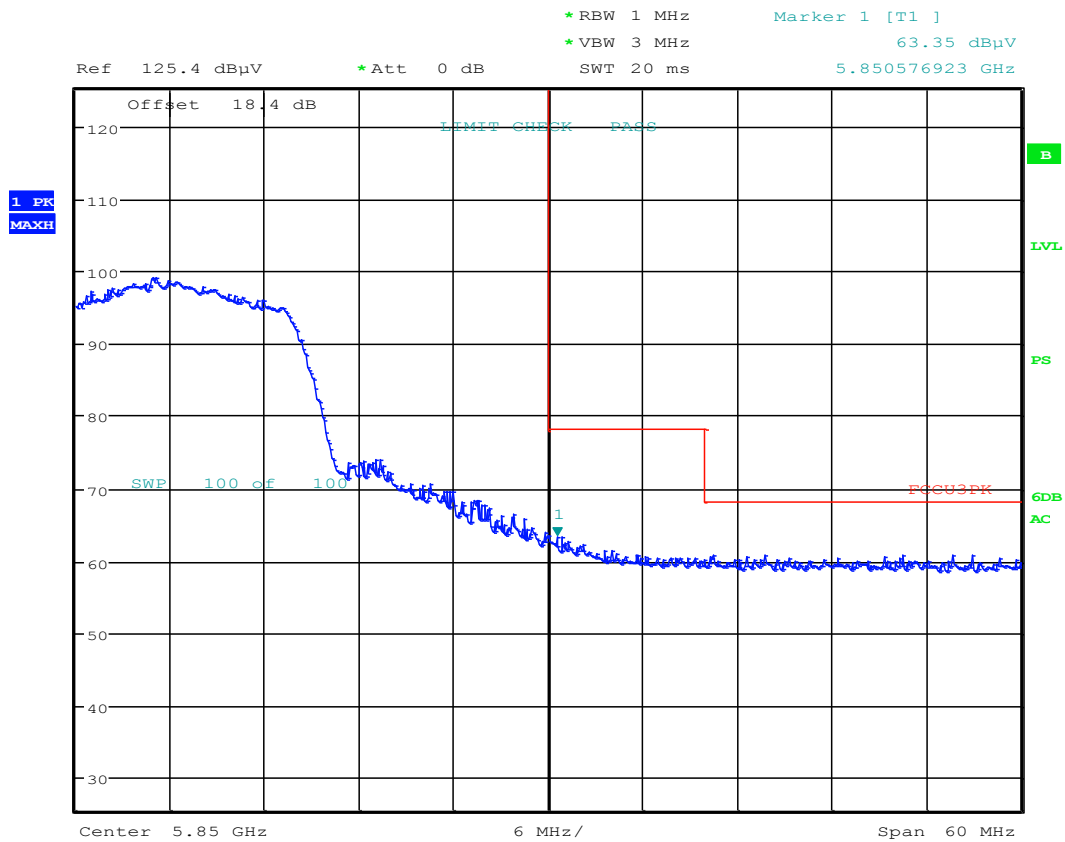
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



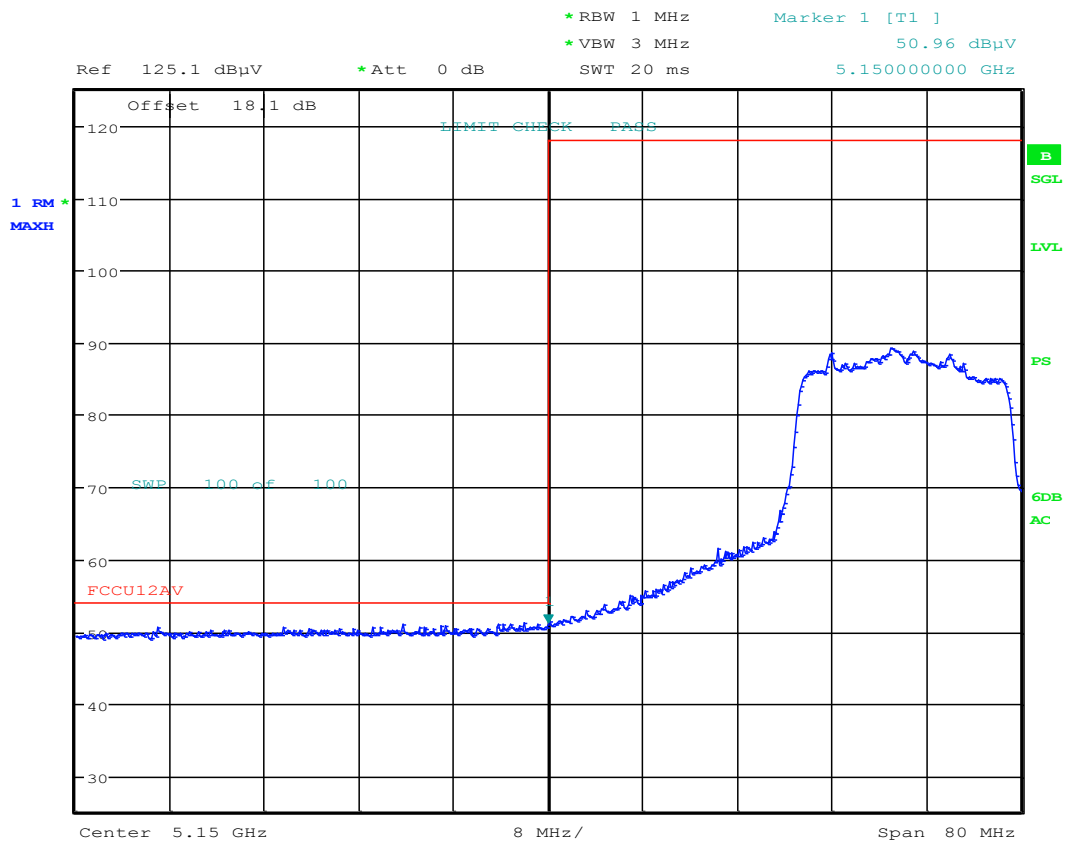
Date: 14.JUN.2016 03:28:28

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 215 of 272

MIMO WCP 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>5180MHz</u>
Channel:	<u>36</u>



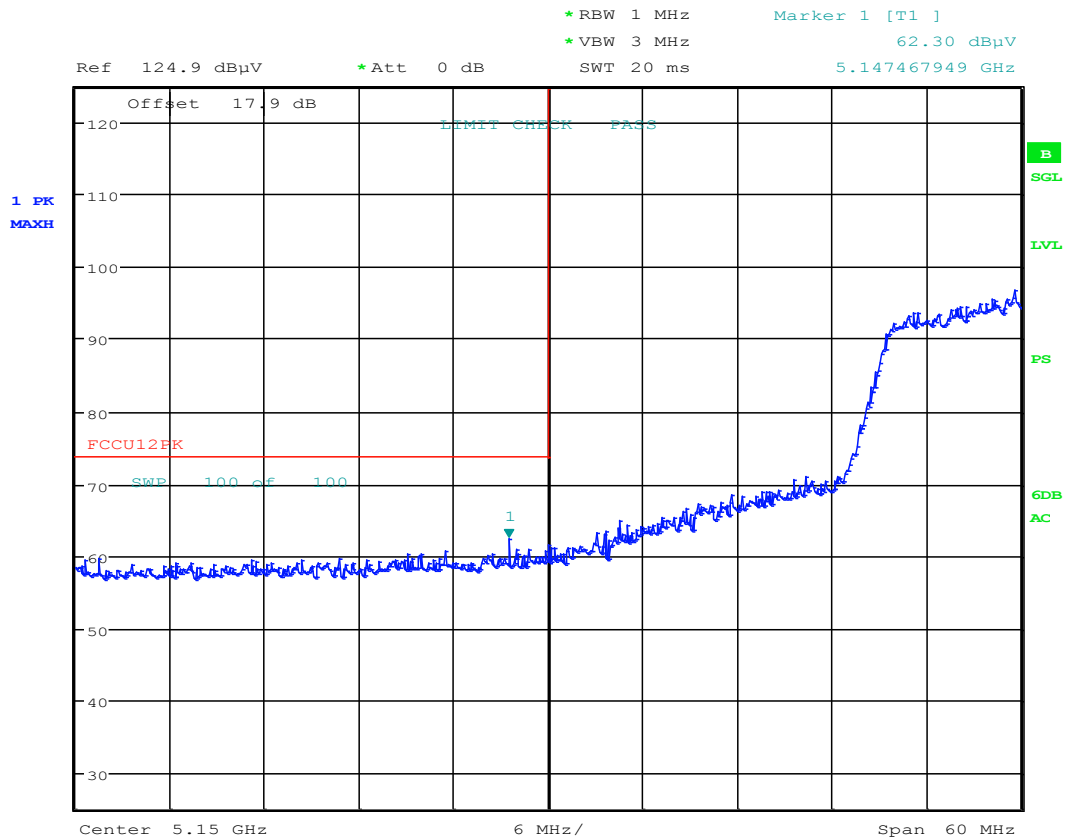
Date: 14.JUN.2016 02:39:56

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 216 of 272

MIMO WCP Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2016 02:52:27

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 217 of 272

7.7.10 MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

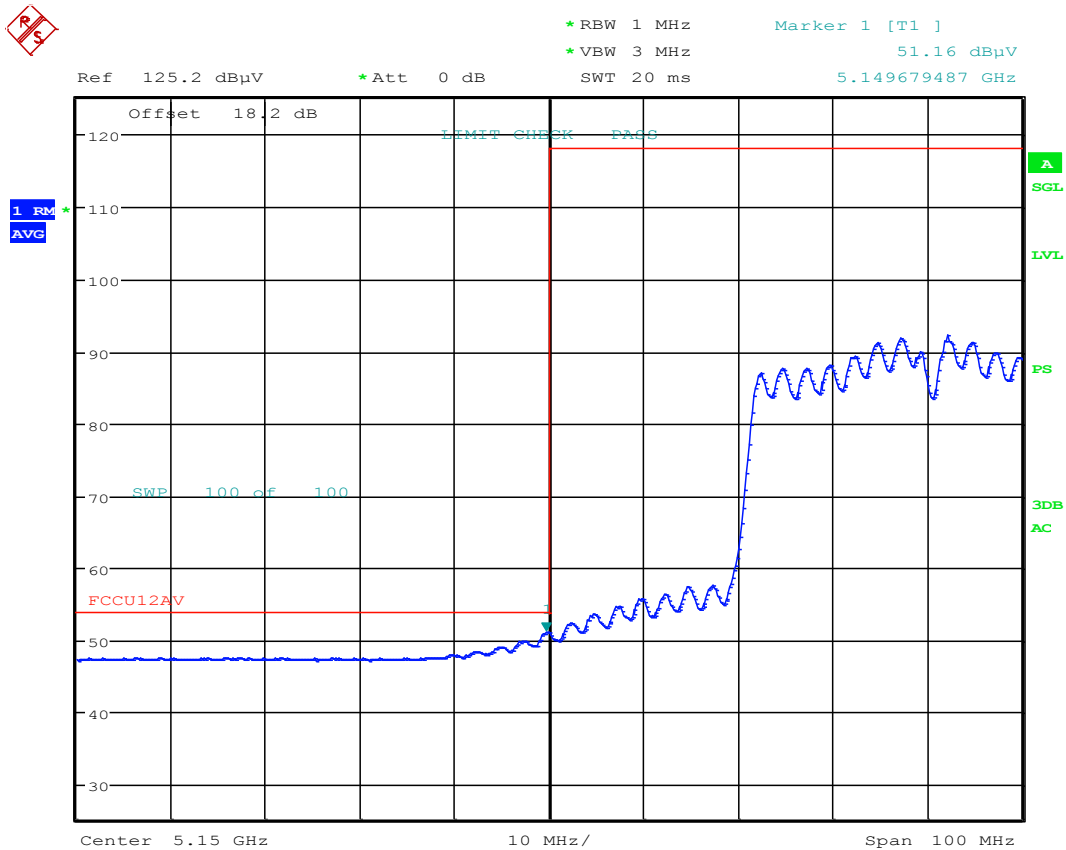
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



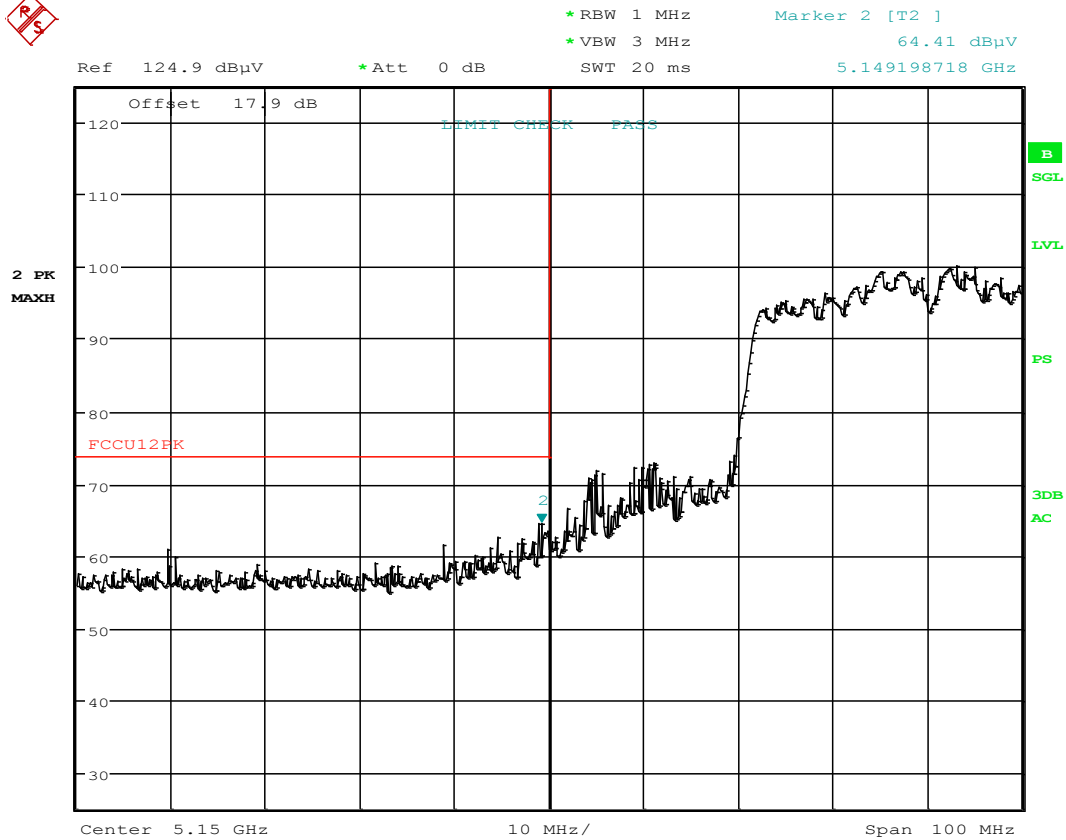
Date: 1.JUN.2016 02:27:07

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 218 of 272

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 1.JUN.2016 02:27:34

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 219 of 272

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

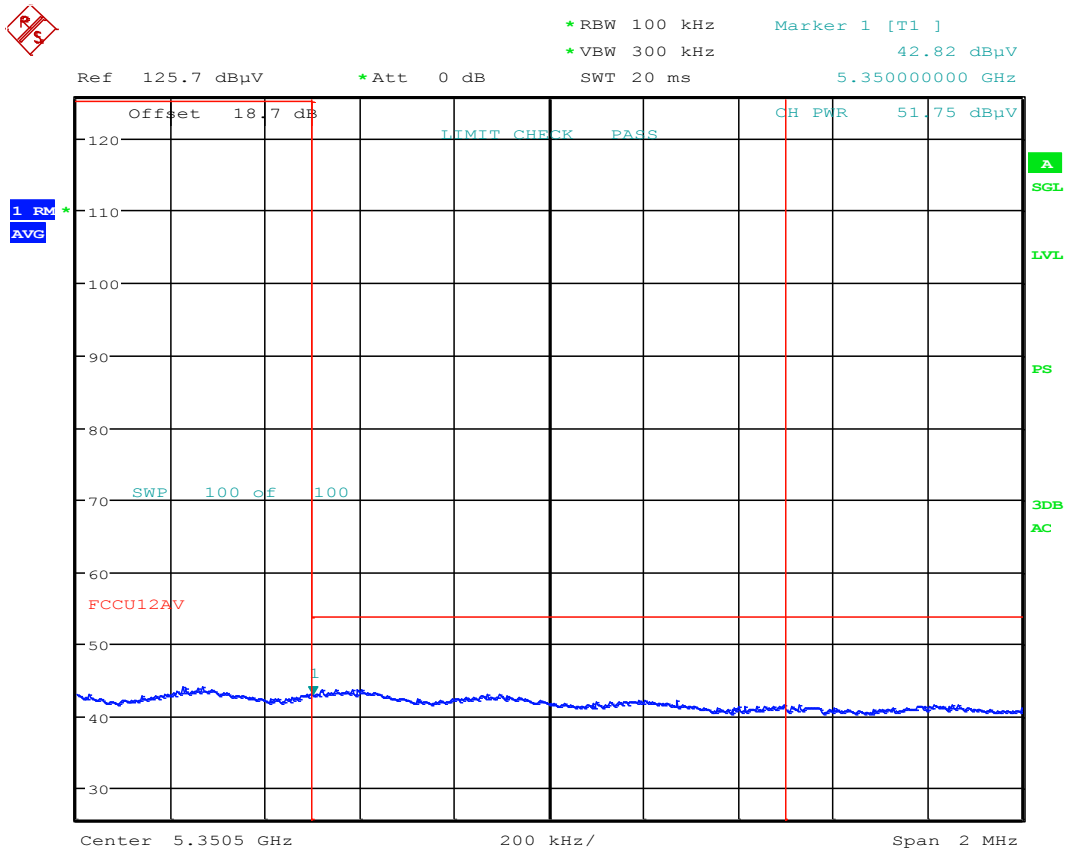
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 1.JUN.2016 02:36:01

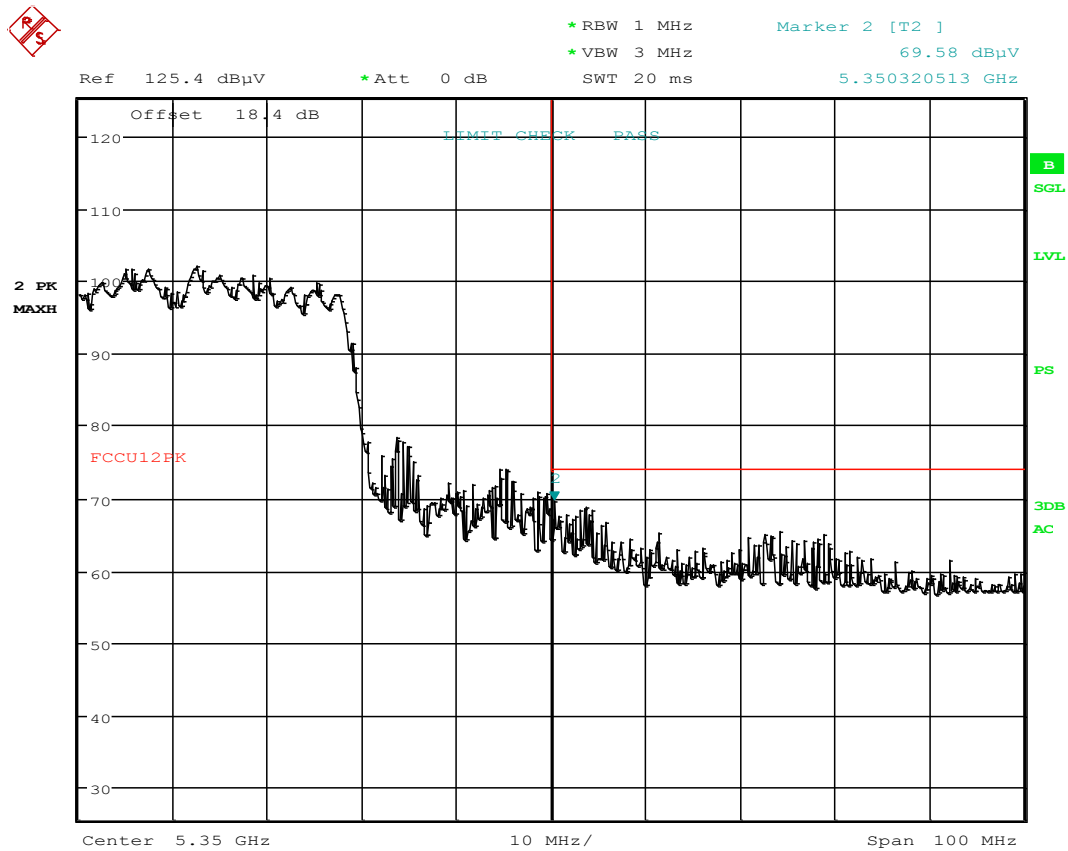
Plot 7-258. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 220 of 272

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



Date: 1.JUN.2016 02:36:33

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 221 of 272

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

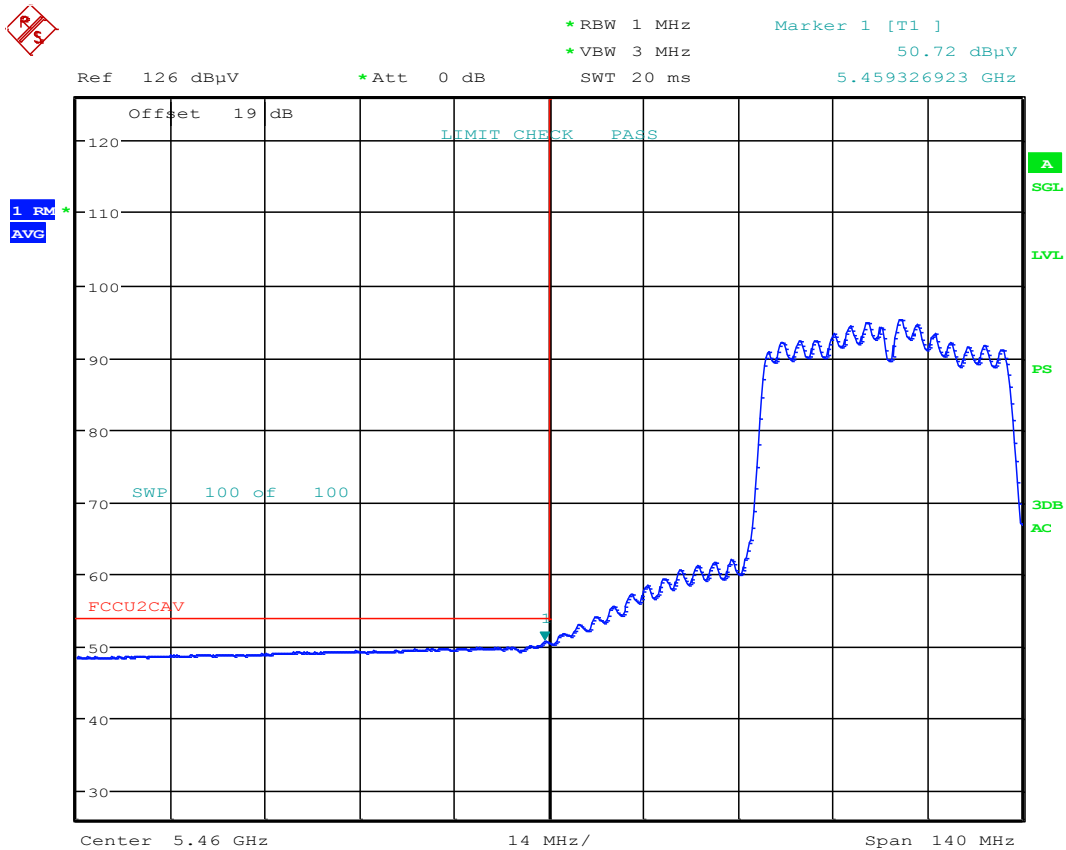
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102

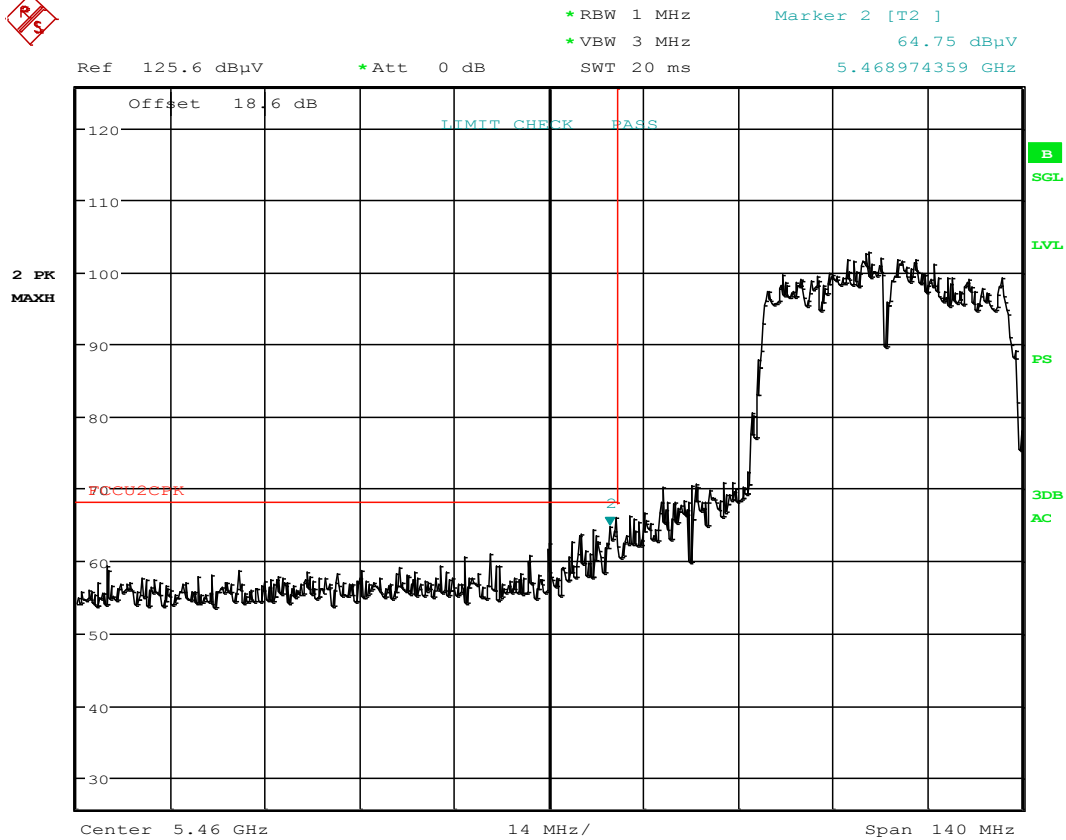


Date: 1.JUN.2016 02:41:51

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 222 of 272

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



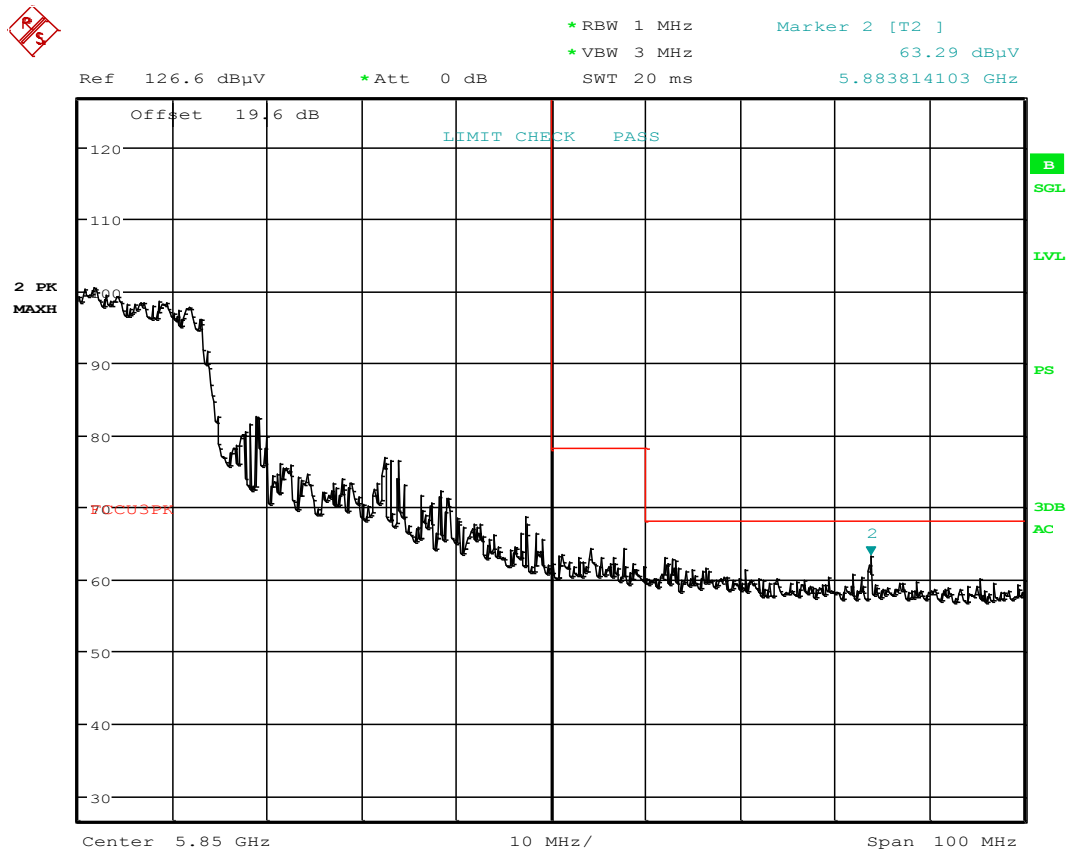
Date: 1.JUN.2016 02:44:36

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 223 of 272

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

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



Date: 1.JUN.2016 02:48:46

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 224 of 272

MIMO WCP Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

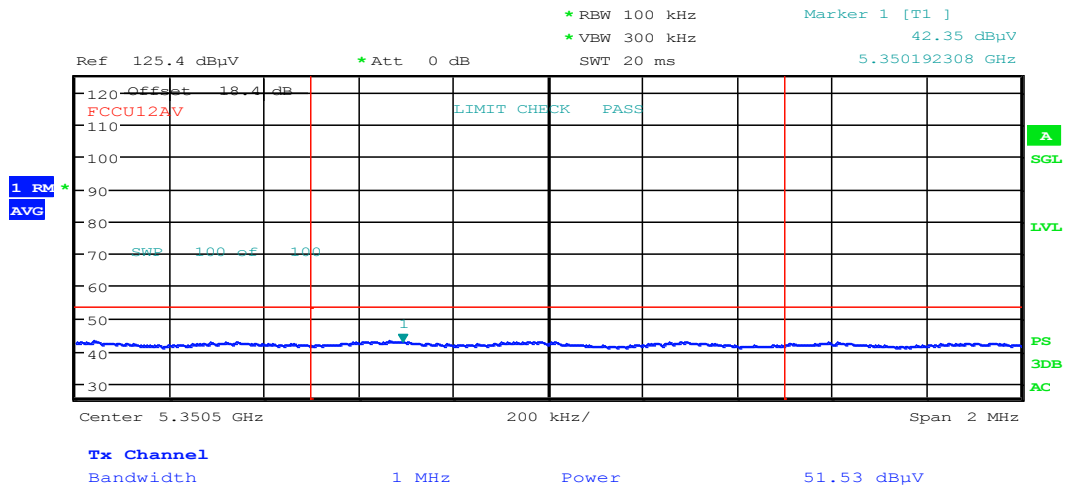
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 14.JUN.2016 03:52:48

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

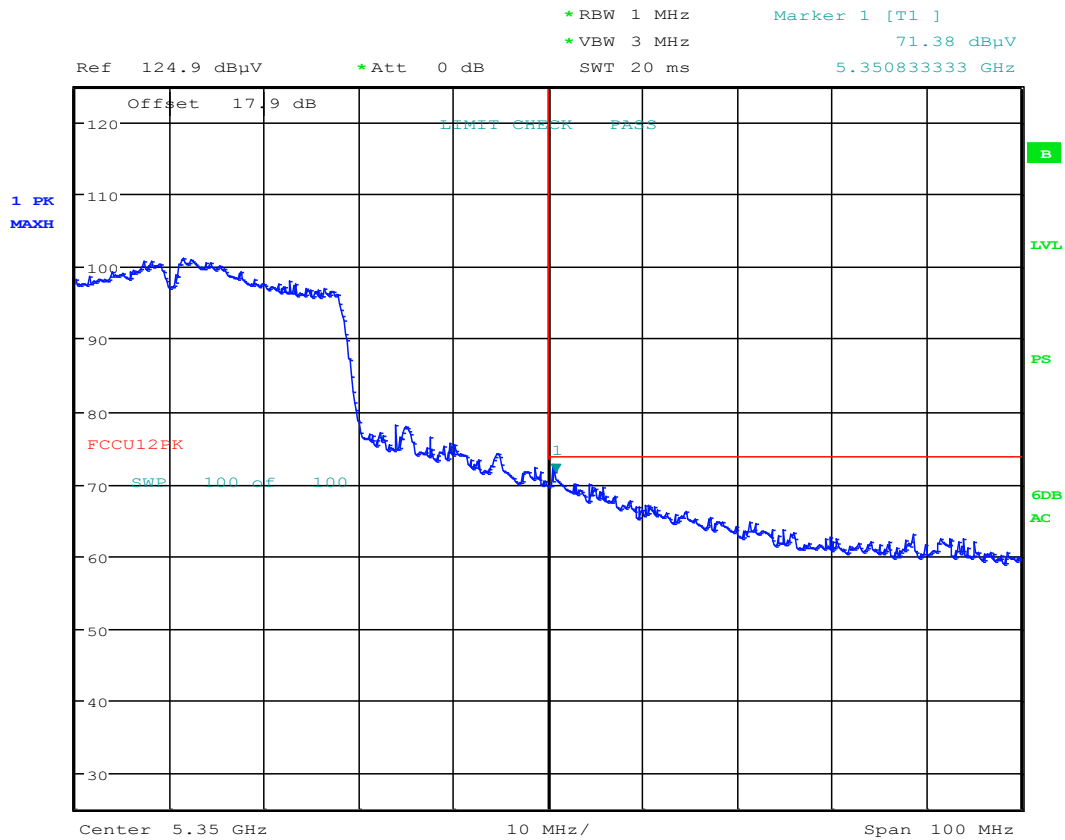
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 225 of 272

MIMO WCP Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 14.JUN.2016 03:37:18

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 226 of 272

7.7.11 MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

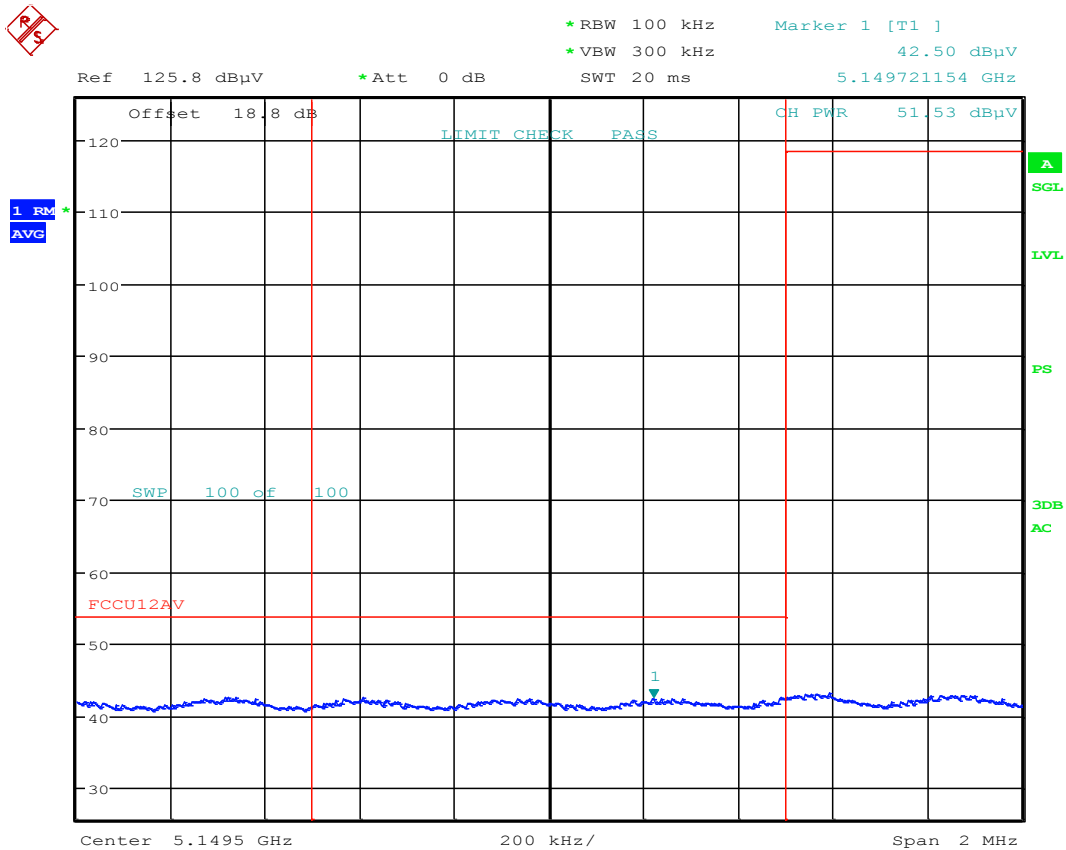
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 1.JUN.2016 02:59:18

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

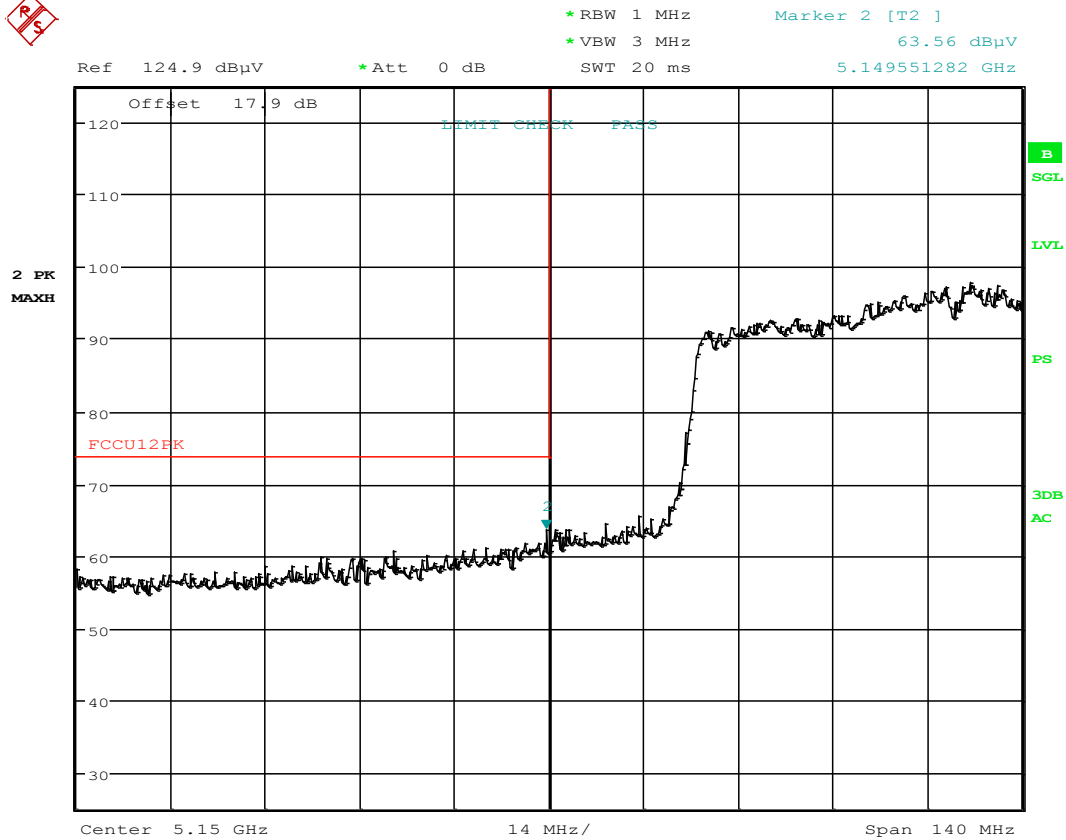
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 227 of 272

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 1.JUN.2016 03:00:32

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 228 of 272

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

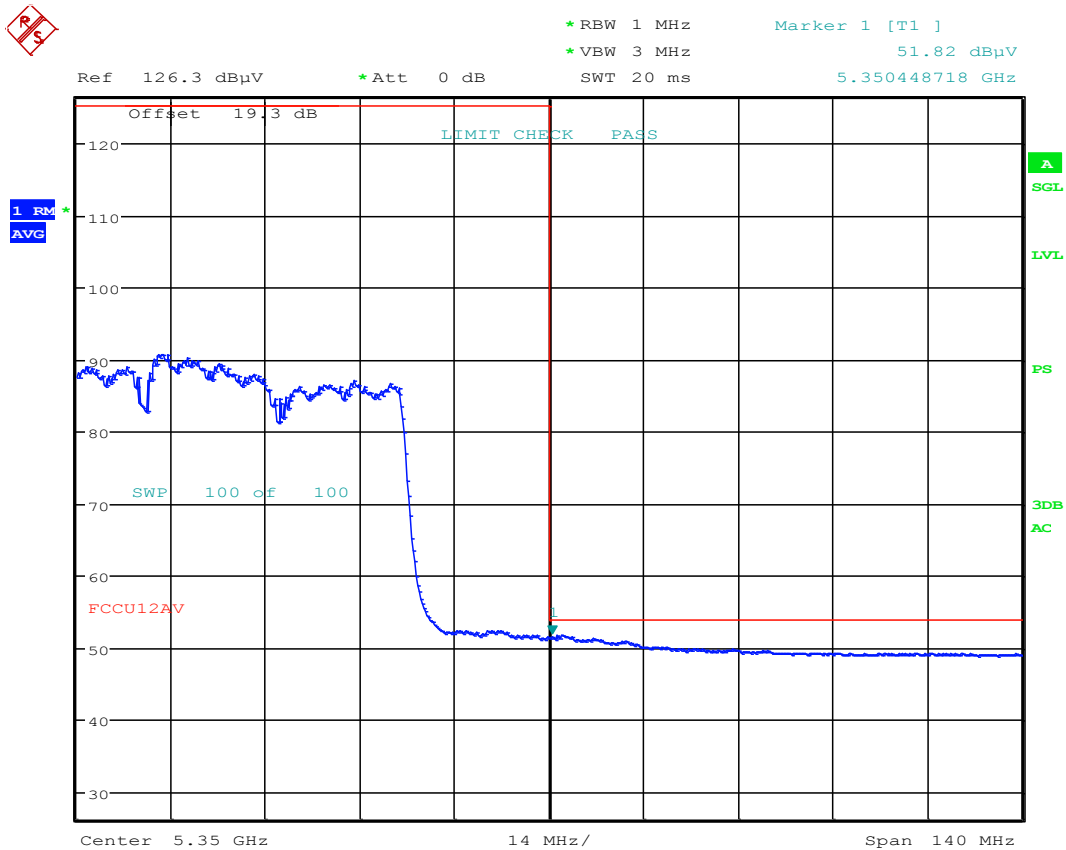
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



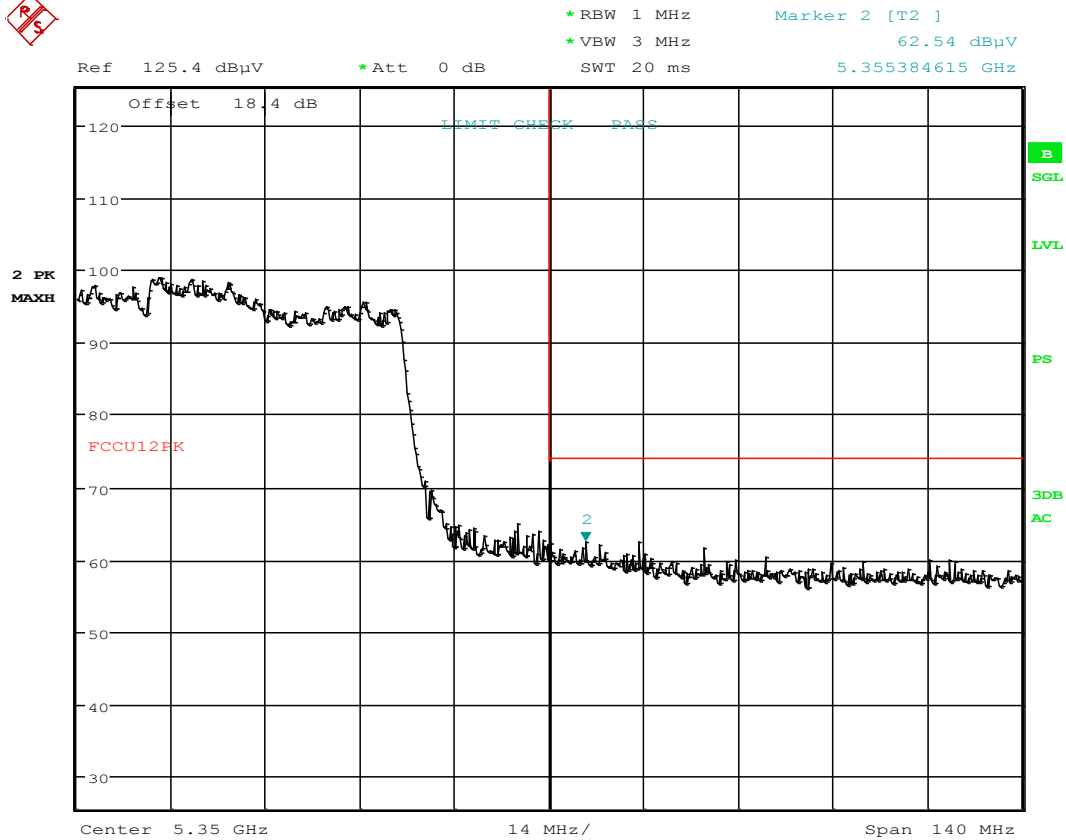
Date: 1.JUN.2016 03:06:56

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 229 of 272

MIMO Radiated Band Edge Measurements (80MHz BW)

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



Date: 1.JUN.2016 03:06:25

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 230 of 272

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

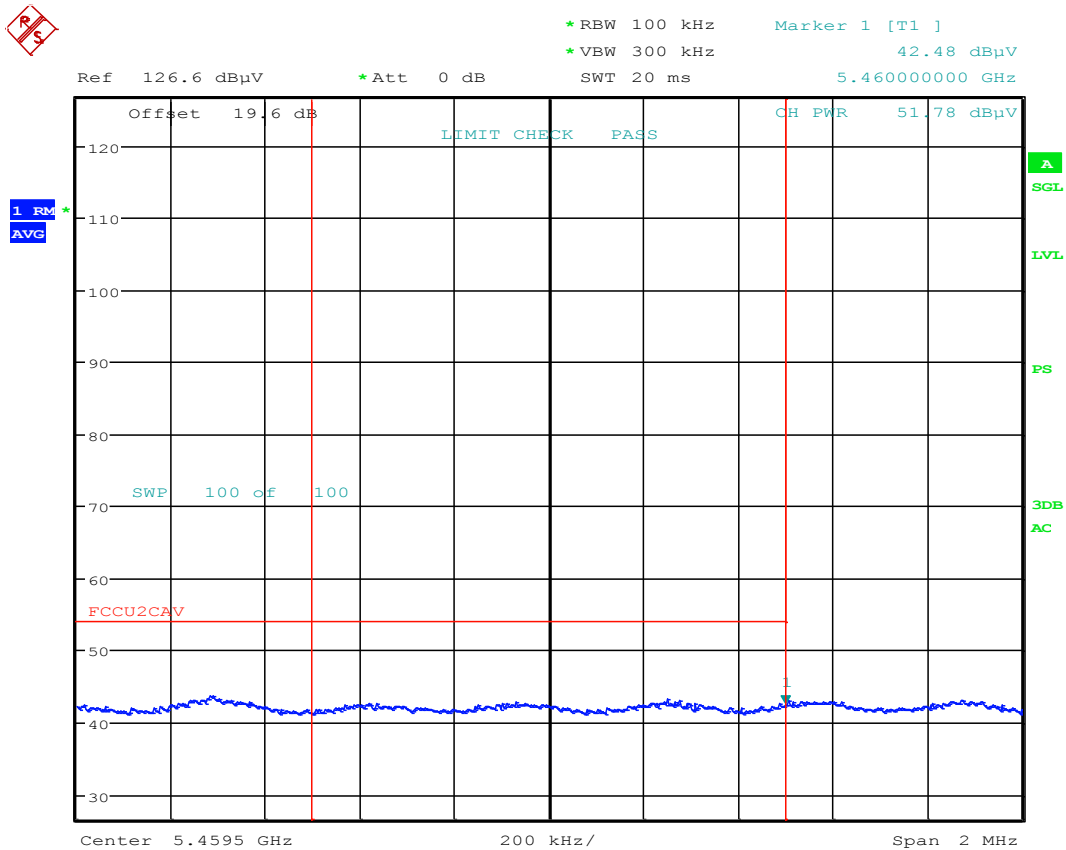
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 1.JUN.2016 03:16:19

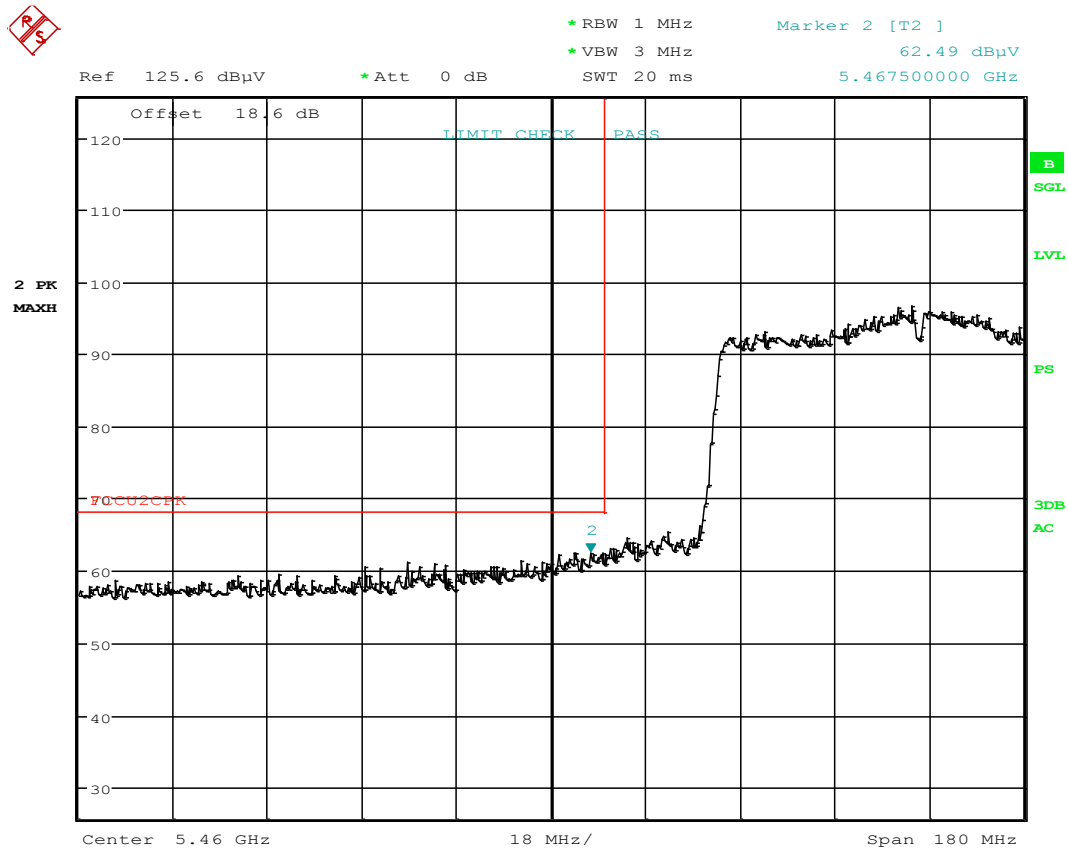
Plot 7-269. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 231 of 272

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



Date: 1.JUN.2016 03:16:56

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 232 of 272

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

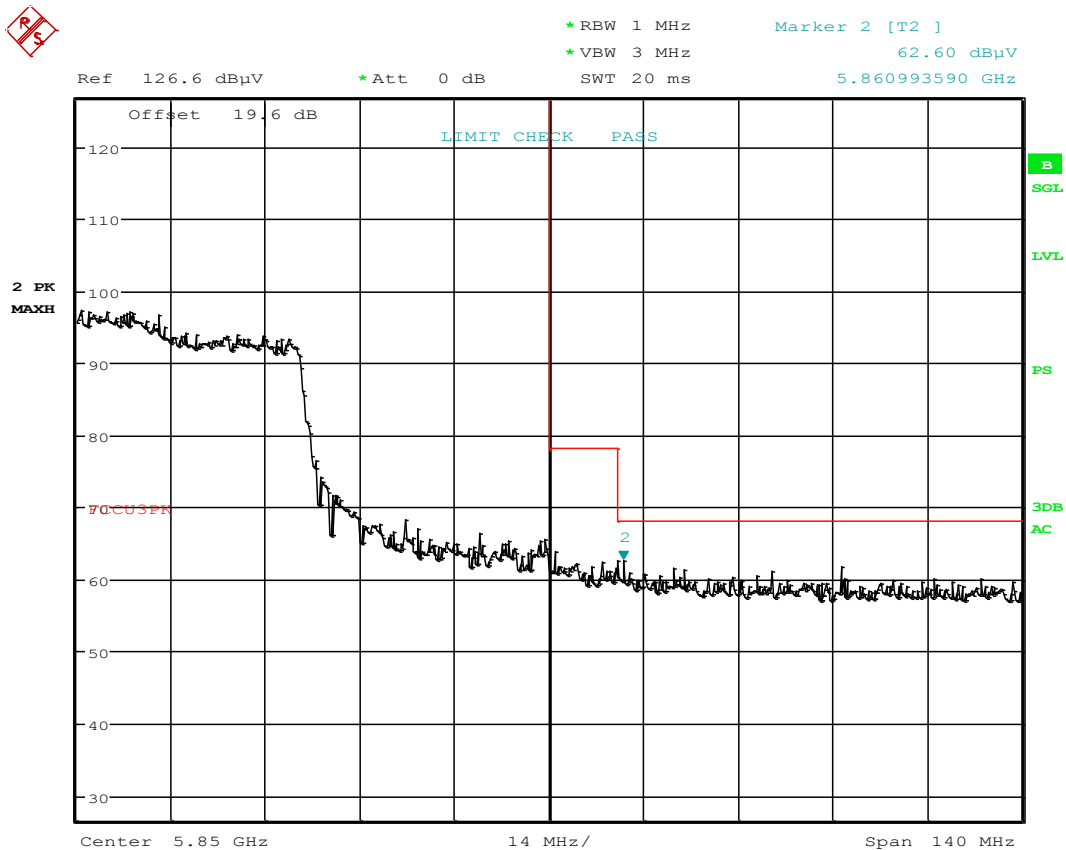
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 1.JUN.2016 03:20:59

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 233 of 272

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

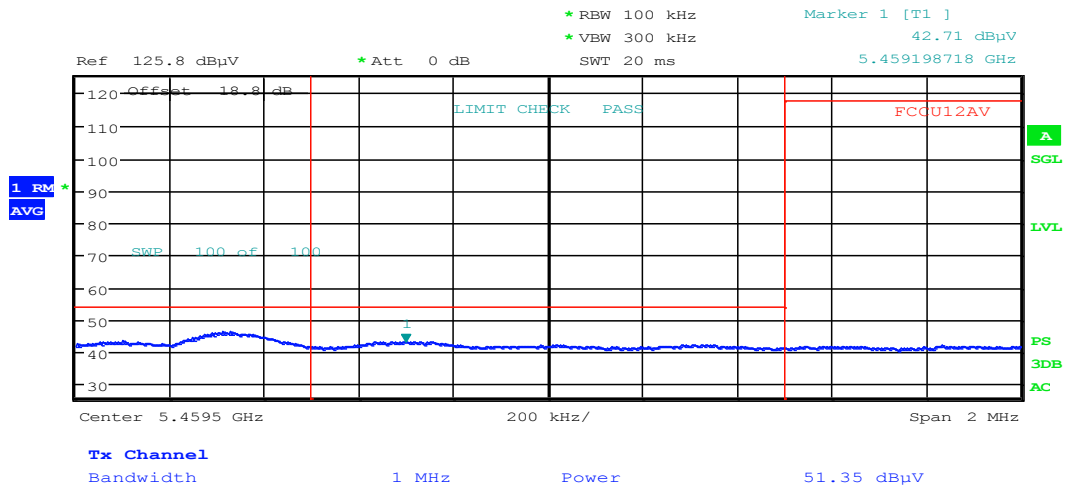
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 14.JUN.2016 03:56:52

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

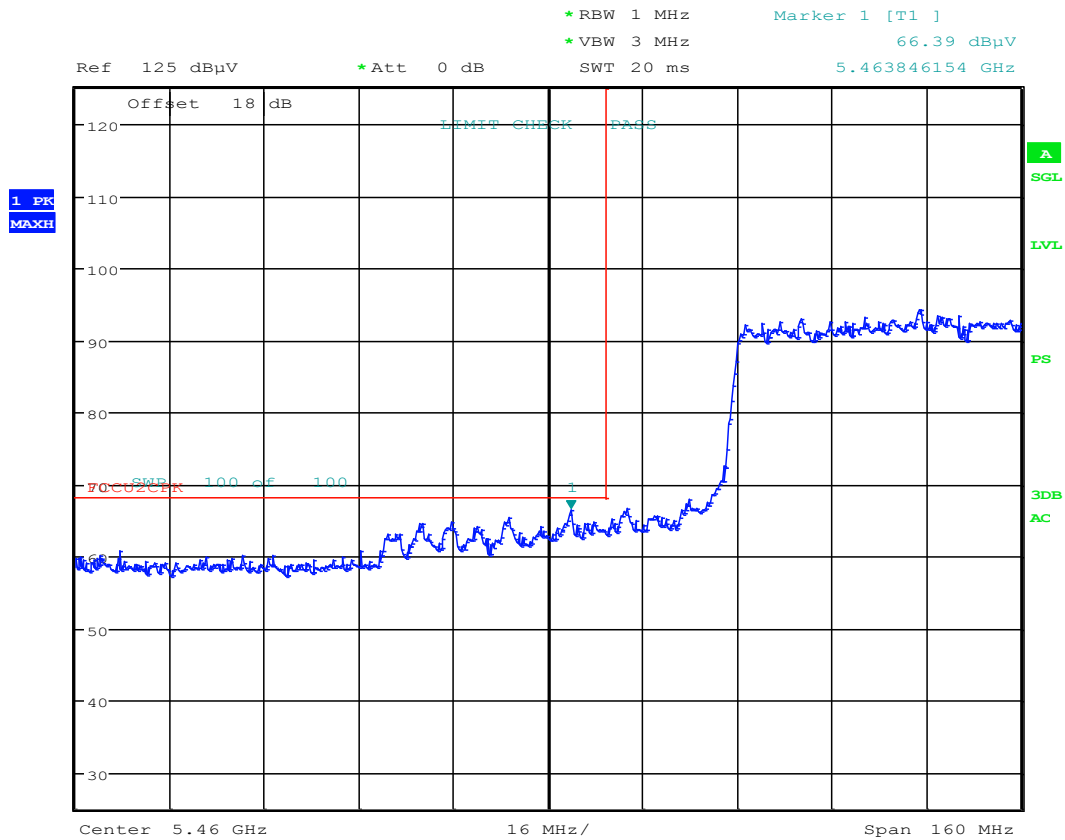
Note:

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 234 of 272

MIMO WCP Radiated Band Edge Measurements (80MHz BW)

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



Date: 14.JUN.2016 04:10:40

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 235 of 272

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 7-63 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 7-63. Radiated Limits

Test Procedures Used

ANSI C63.4-2014

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: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 236 of 272

Test Setup

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

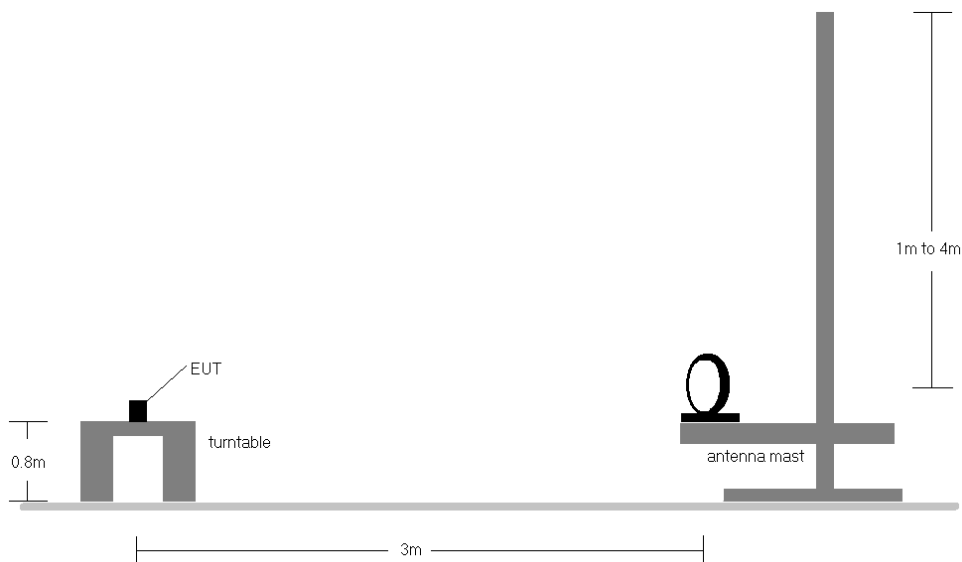


Figure 7-6. Radiated Test Setup < 30MHz

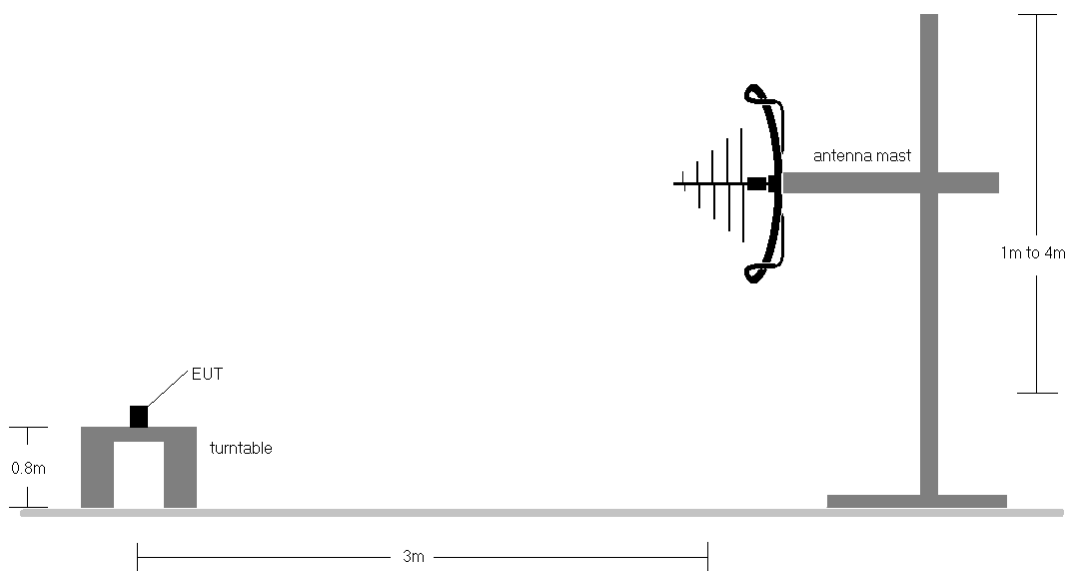


Figure 7-7. Radiated Test Setup < 1GHz

Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-63.
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.

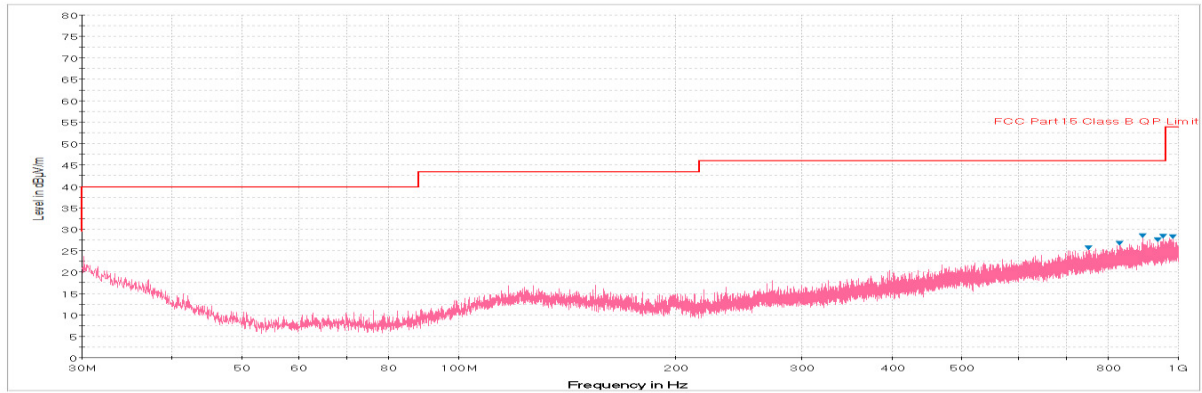
FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 237 of 272

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.

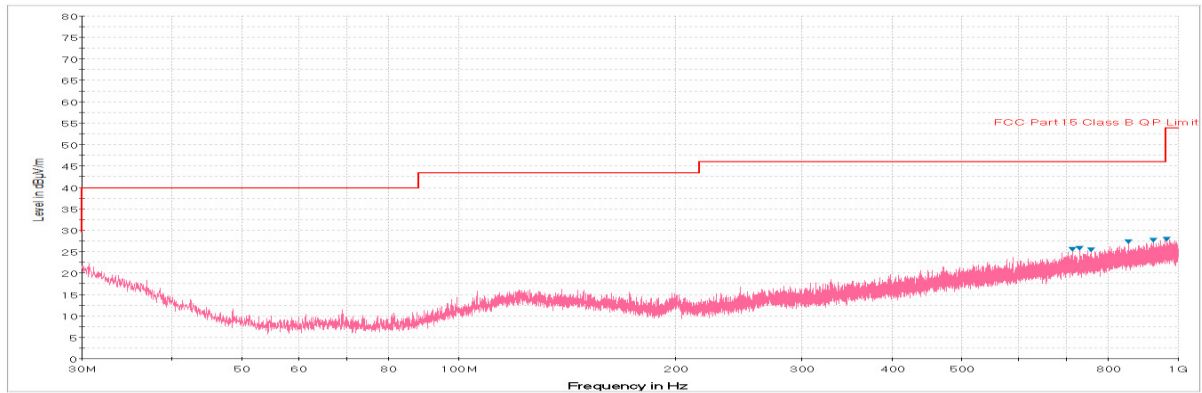
FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 238 of 272

Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209



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



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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 239 of 272

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 7-64. 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: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 240 of 272

Test Setup

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

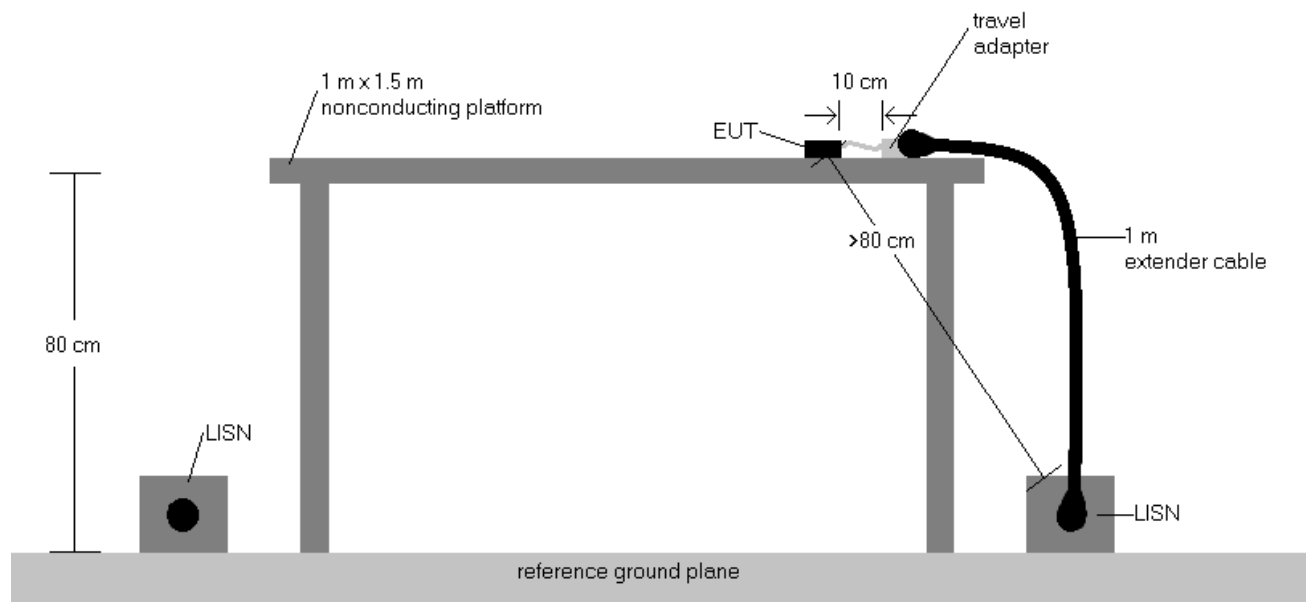


Figure 7-8. Test Instrument & Measurement Setup

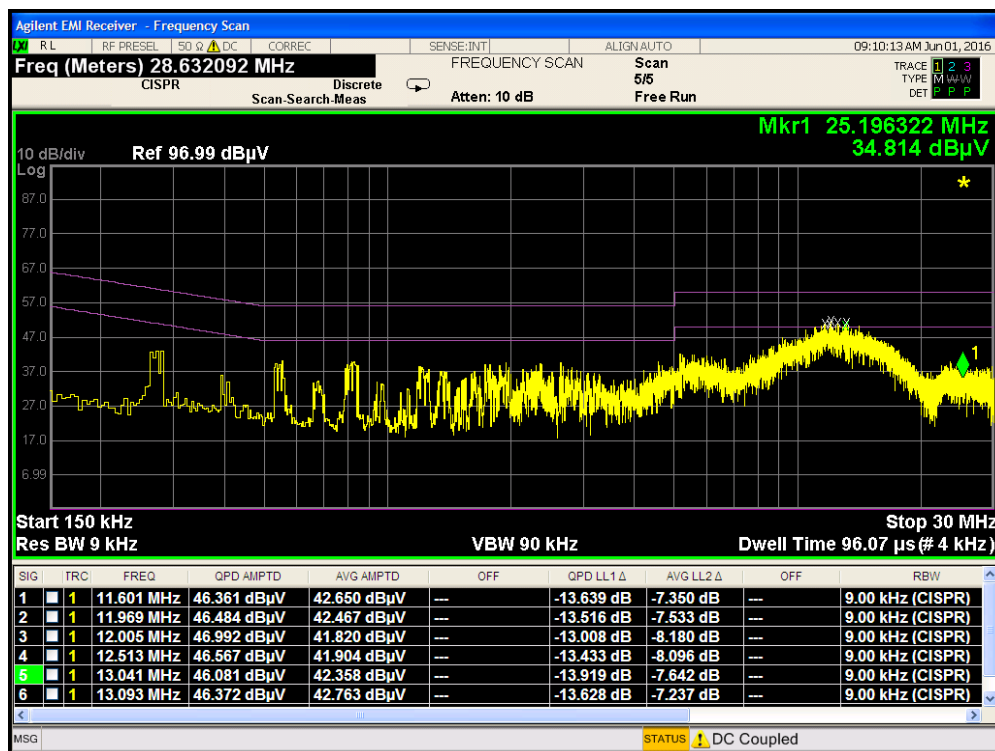
Test Notes

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: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 241 of 272

Line-Conducted Test Data

\$15.407

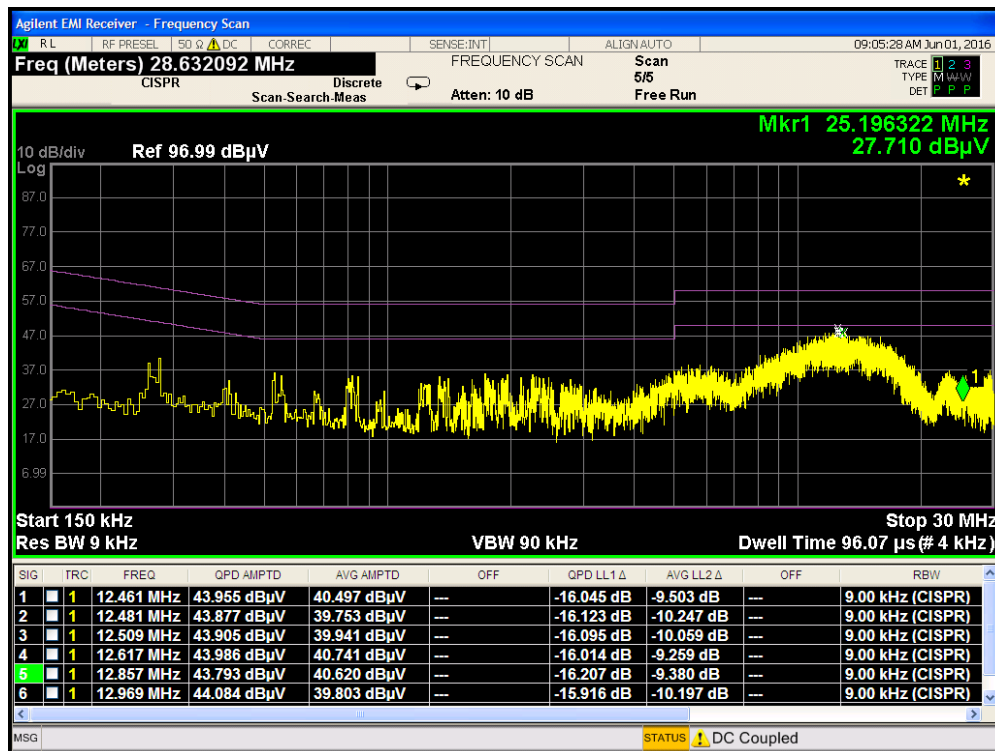


Plot 7-276. Line Conducted Plot with 802.11a UNII Band 1 (L1)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 242 of 272

Line-Conducted Test Data

\$15.407

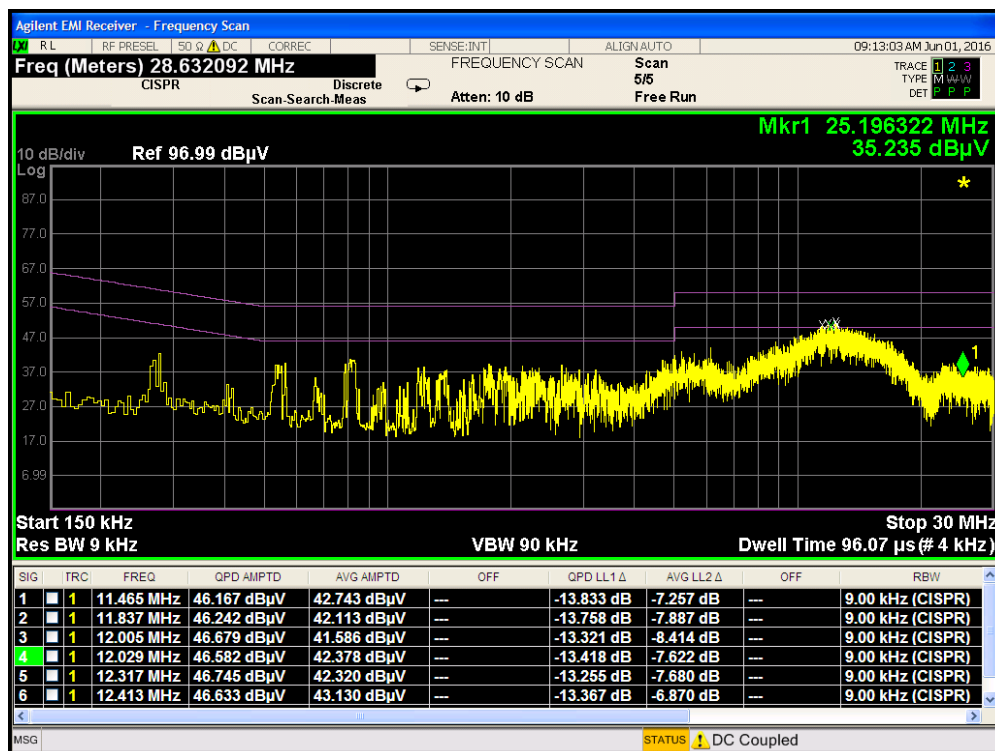


Plot 7-277. Line Conducted Plot with 802.11a UNII Band 1 (N)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 243 of 272

Line-Conducted Test Data

\$15.407

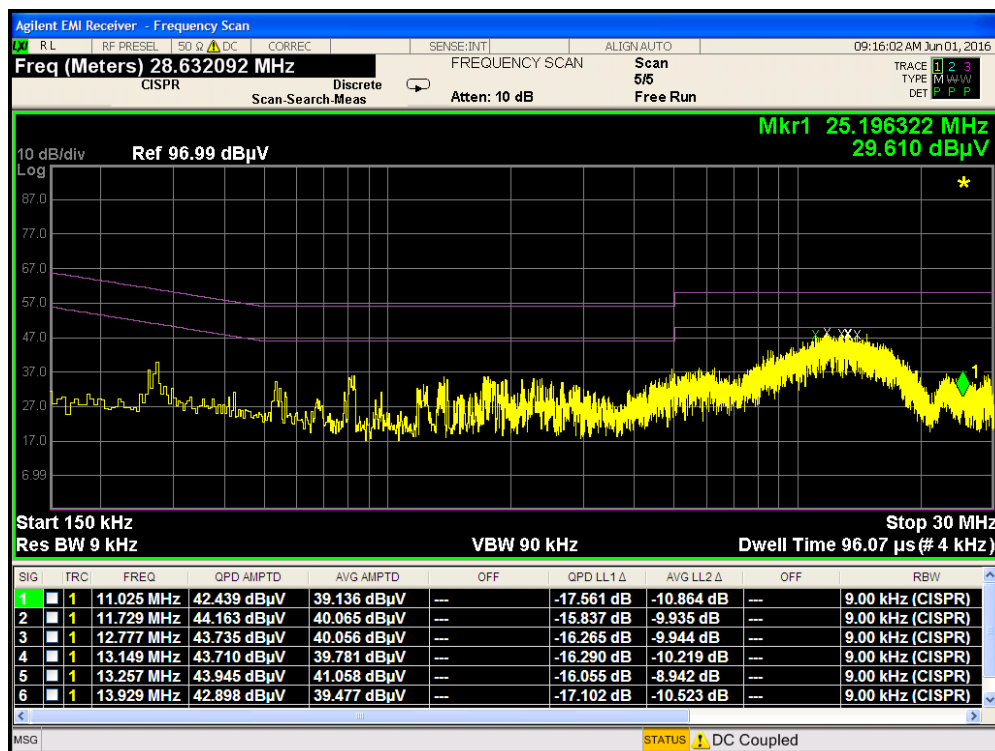


Plot 7-278. Line Conducted Plot with 802.11a UNII Band 2A (L1)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 244 of 272

Line-Conducted Test Data

\$15.407

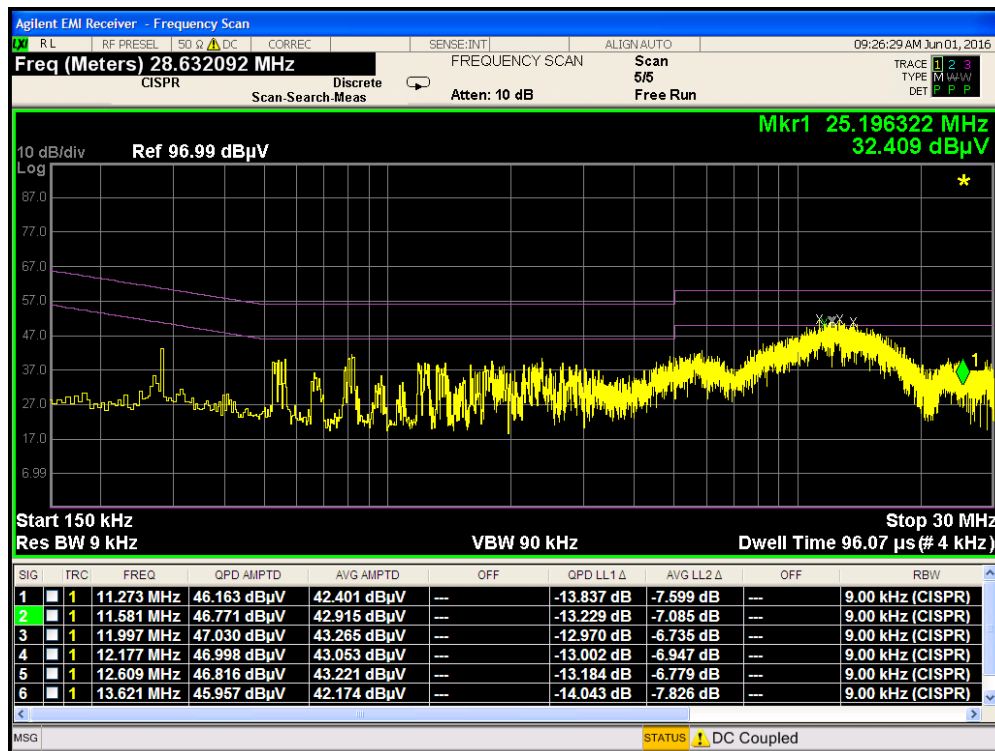


Plot 7-279. Line Conducted Plot with 802.11a UNII Band 2A (N)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 245 of 272

Line-Conducted Test Data

\$15.407

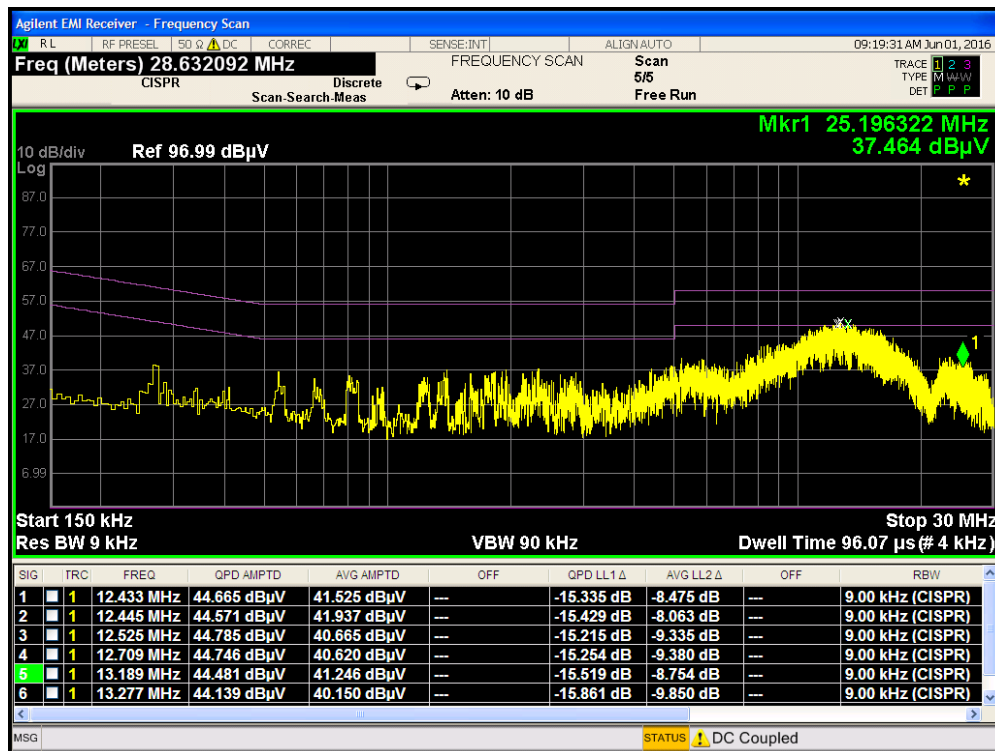


Plot 7-280. Line Conducted Plot with 802.11a UNII Band 2C (L1)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 246 of 272

Line-Conducted Test Data

\$15.407

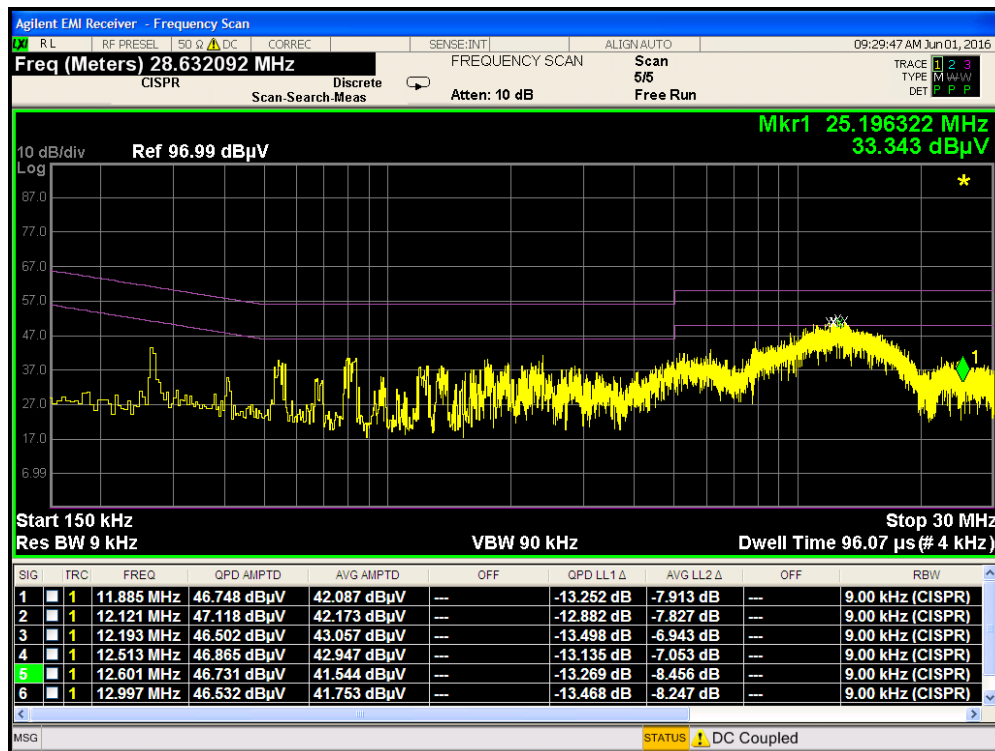


Plot 7-281. Line Conducted Plot with 802.11a UNII Band 2C (N)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 247 of 272

Line-Conducted Test Data

\$15.407

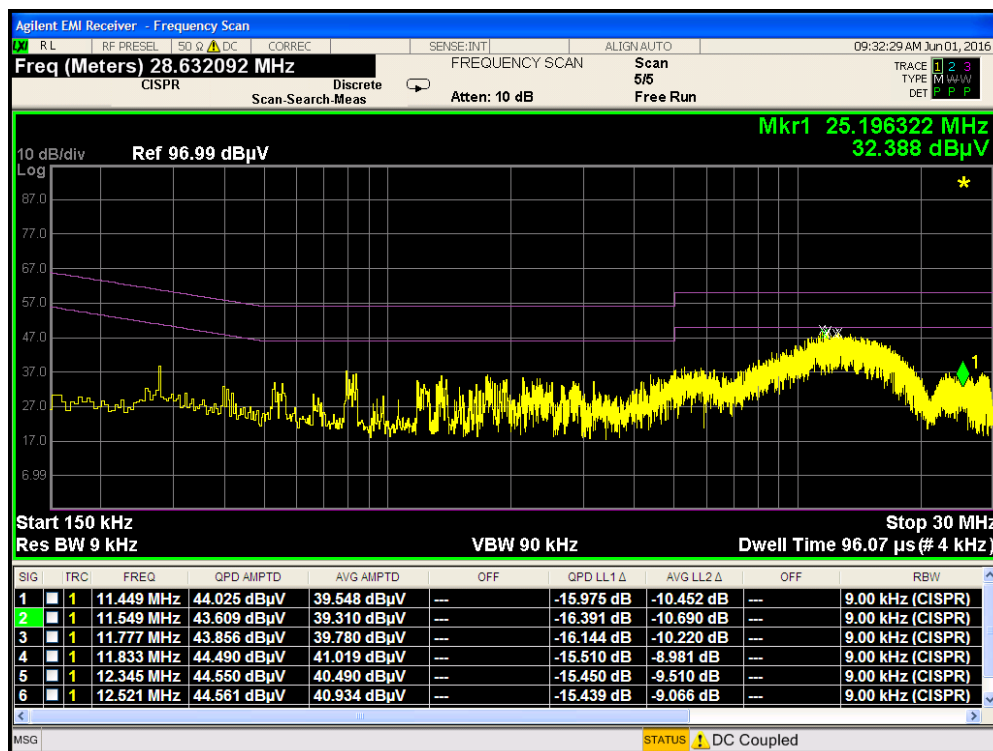


Plot 7-282. Line Conducted Plot with 802.11a UNII Band 3 (L1)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 248 of 272

Line-Conducted Test Data

\$15.407



Plot 7-283. Line Conducted Plot with 802.11a UNII Band 3 (N)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 249 of 272

8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN930F** is in compliance with Part 15E of the FCC Rules.

FCC ID: A3LSMN930F	 PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 250 of 272

APPENDIX A. 802.11A DUAL TX

A.1 Summary

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

Table A.1-1. Summary of Test Results

Notes:

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 251 of 272

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	Detector	5GHz (20MHz) Conducted Power [dBm]		
			ANT1	ANT2	MIMO
5180	36	AVG	11.38	15.40	16.85
5200	40	AVG	11.50	15.45	16.92
5220	44	AVG	11.37	15.43	16.87
5240	48	AVG	11.33	15.16	16.66
5260	52	AVG	11.05	15.00	16.47
5280	56	AVG	13.69	14.48	17.11
5300	60	AVG	13.56	15.19	17.46
5320	64	AVG	13.61	14.87	17.30
5500	100	AVG	13.24	13.33	16.30
5520	104	AVG	13.22	13.41	16.33
5540	108	AVG	13.02	13.51	16.28
5560	112	AVG	13.12	13.59	16.37
5580	116	AVG	13.61	13.34	16.49
5600	120	AVG	13.29	13.31	16.31
5620	124	AVG	12.95	13.47	16.23
5640	128	AVG	13.09	14.15	16.66
5660	132	AVG	13.15	14.26	16.75
5680	136	AVG	12.97	14.42	16.77
5700	140	AVG	12.81	14.22	16.58
5720	144	AVG	12.93	14.28	16.67
5745	149	AVG	13.43	13.45	16.45
5765	153	AVG	13.28	13.55	16.43
5785	157	AVG	13.16	13.62	16.41
5805	161	AVG	13.78	14.29	17.05
5825	165	AVG	13.88	14.31	17.11

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 252 of 272

A.3 Power Spectral Density

§15.247(e)

Test Overview

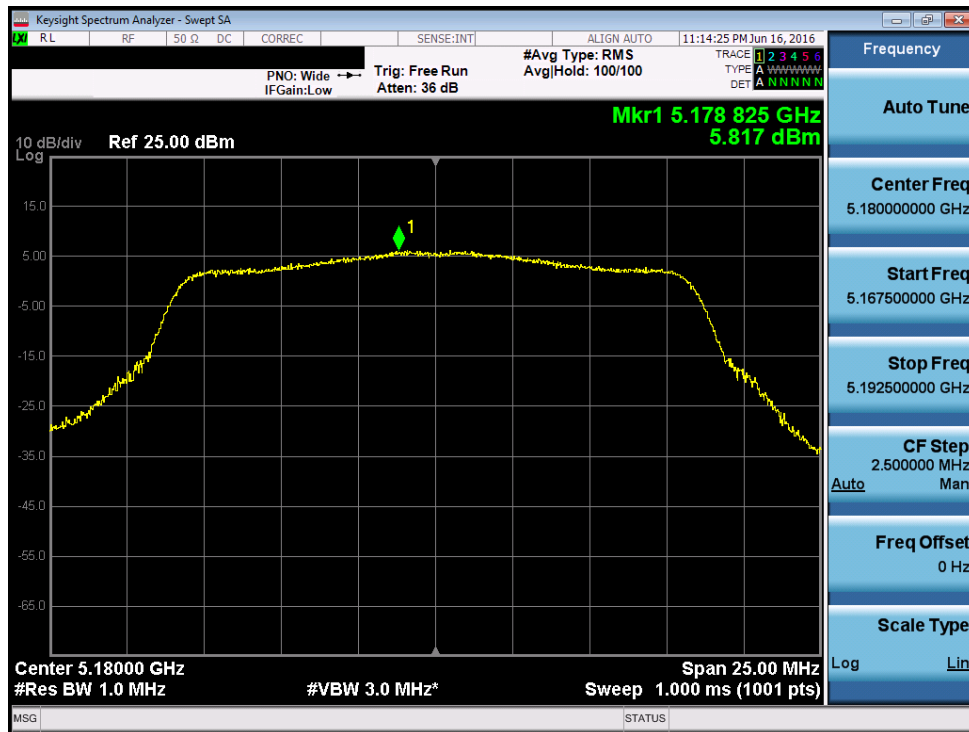
Using the “Measure and Sum” technique, the measured conducted power density values were summed in linear power units then converted back to dBm. Original measured values are found in Section 7.5 of this report.

	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]	Pass / Fail
Band 1	5180	36	a	6	5.82	7.71	9.87	11.0	-1.13	Pass
	5200	40	a	6	6.01	7.50	9.83	11.0	-1.17	Pass
	5240	48	a	6	6.92	7.99	10.50	11.0	-0.50	Pass
Band 2A	5260	52	a	6	6.51	7.91	10.28	11.0	-0.72	Pass
	5280	56	a	6	6.24	7.26	9.79	11.0	-1.21	Pass
	5320	64	a	6	5.82	7.15	9.54	11.0	-1.46	Pass
Band 2C	5500	100	a	6	6.41	7.68	10.10	11.0	-0.90	Pass
	5600	120	a	6	5.52	6.67	9.14	11.0	-1.86	Pass
	5720	144	a	6	5.68	6.84	9.31	11.0	-1.69	Pass
Band 3	5745	149	a	6	3.37	4.33	6.88	11.0	-4.12	Pass
	5785	157	a	6	2.90	4.06	6.53	11.0	-4.47	Pass
	5825	165	a	6	2.50	3.26	5.91	11.0	-5.09	Pass

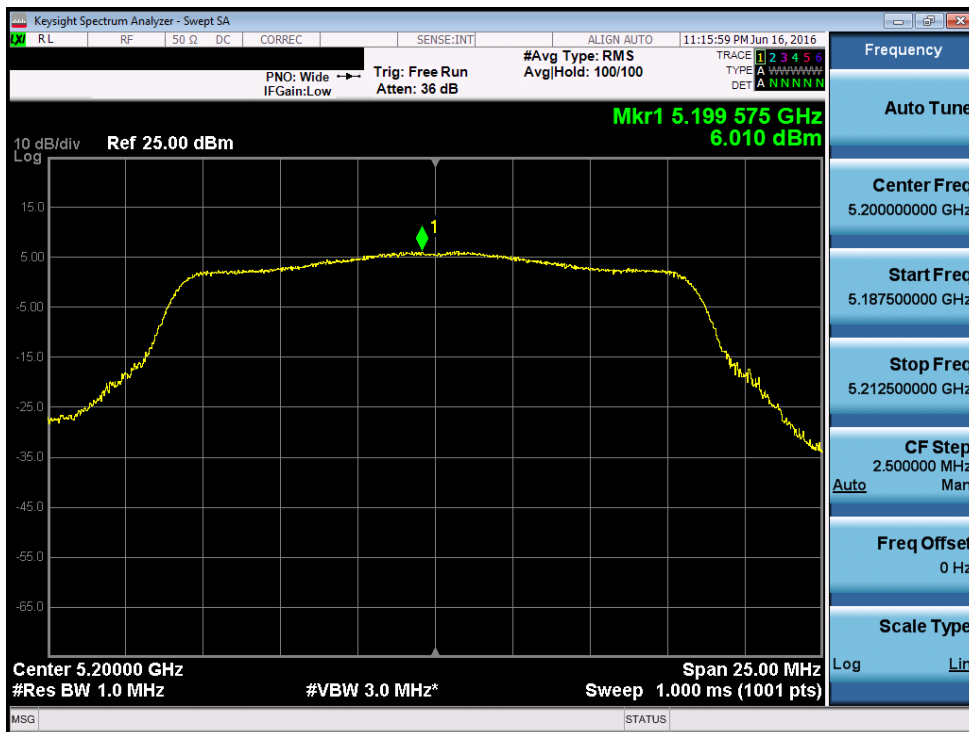
Table A3-1.802.11a Dual Tx Conducted Power Density Measurements

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 253 of 272

Antenna-1 Power Spectral Density Measurements

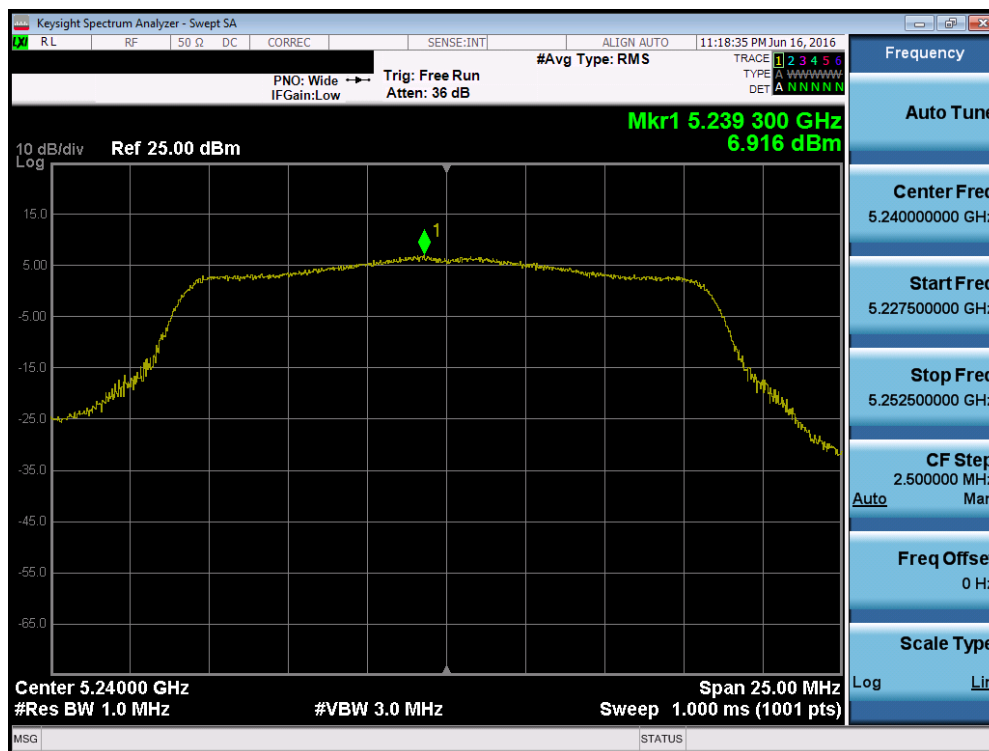


Plot A3-1. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

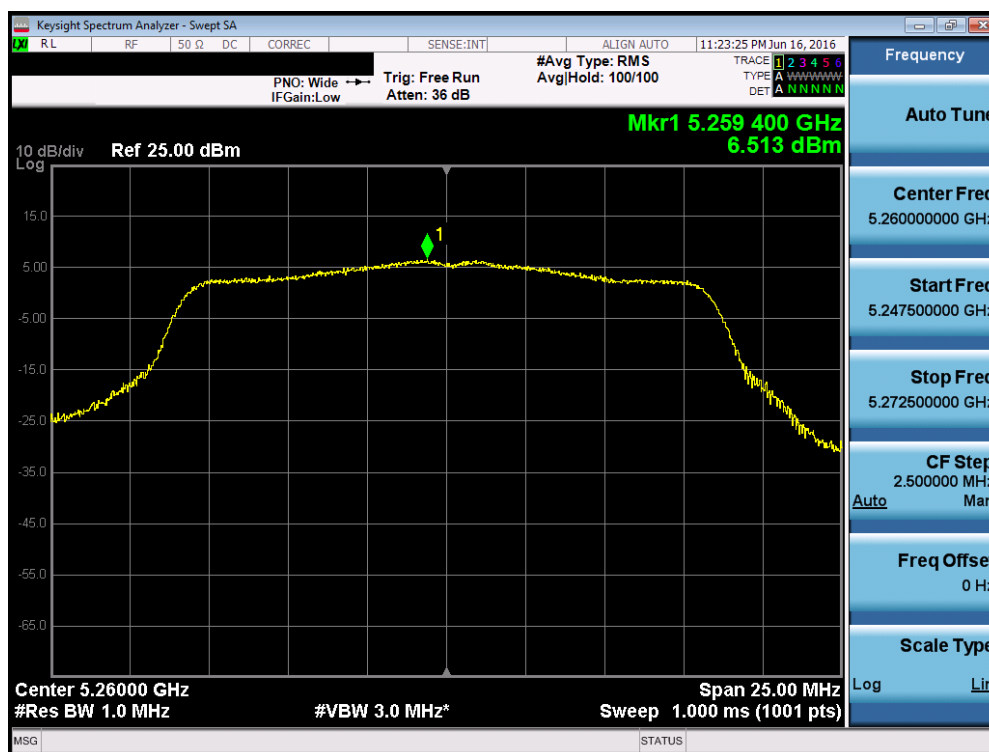


Plot A3-2. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 254 of 272

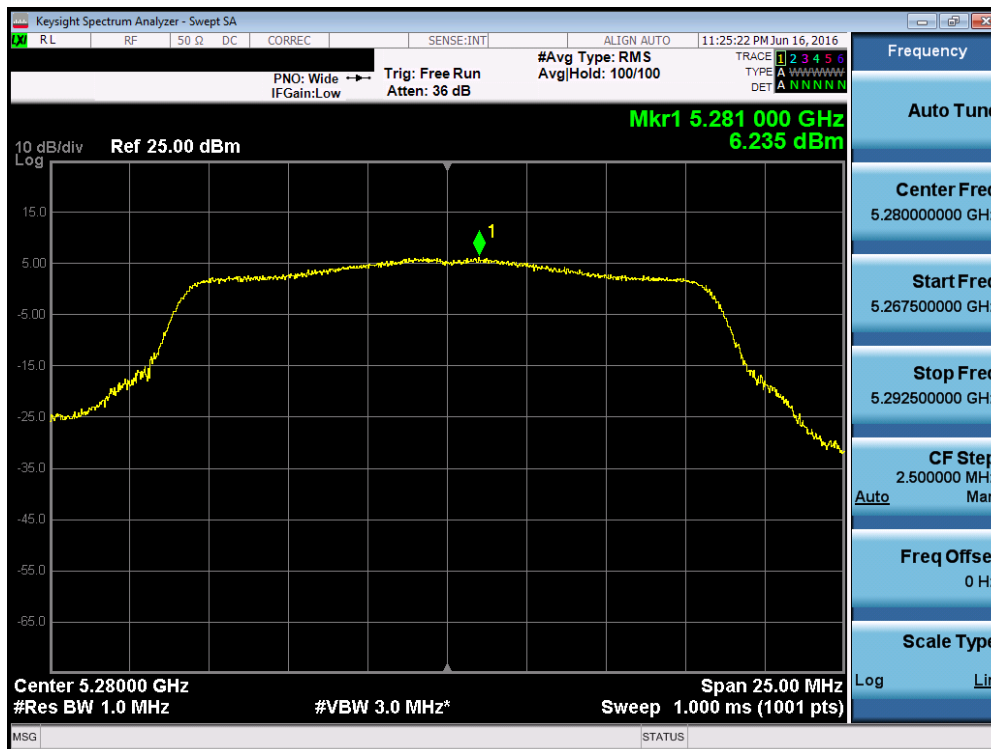


Plot A3-3. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

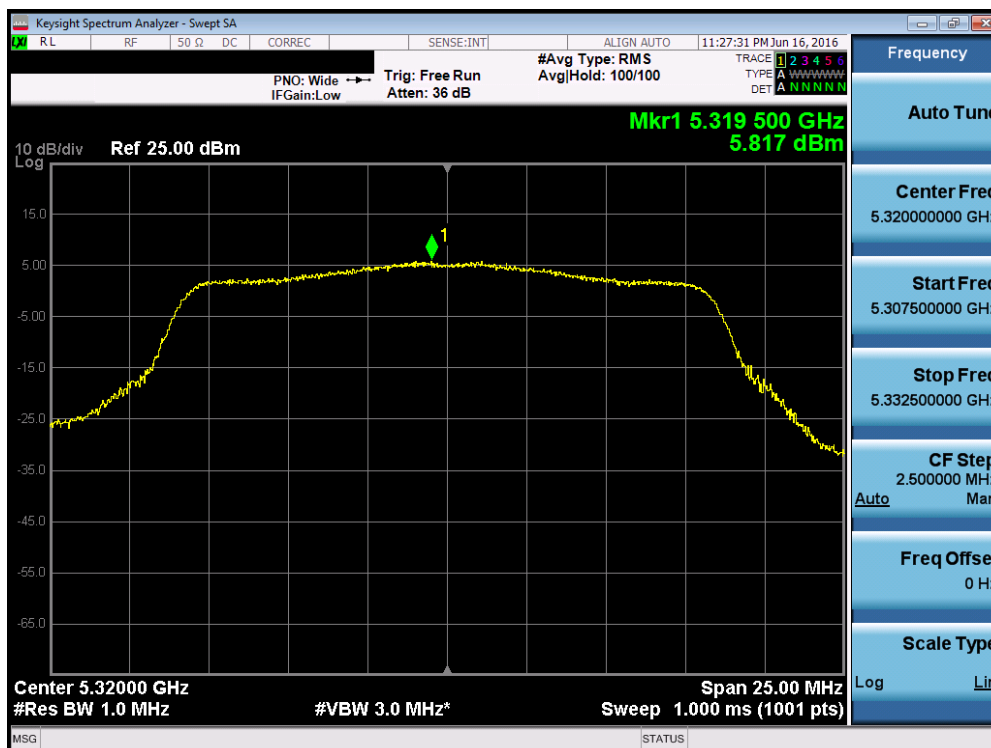


Plot A3-4. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 255 of 272

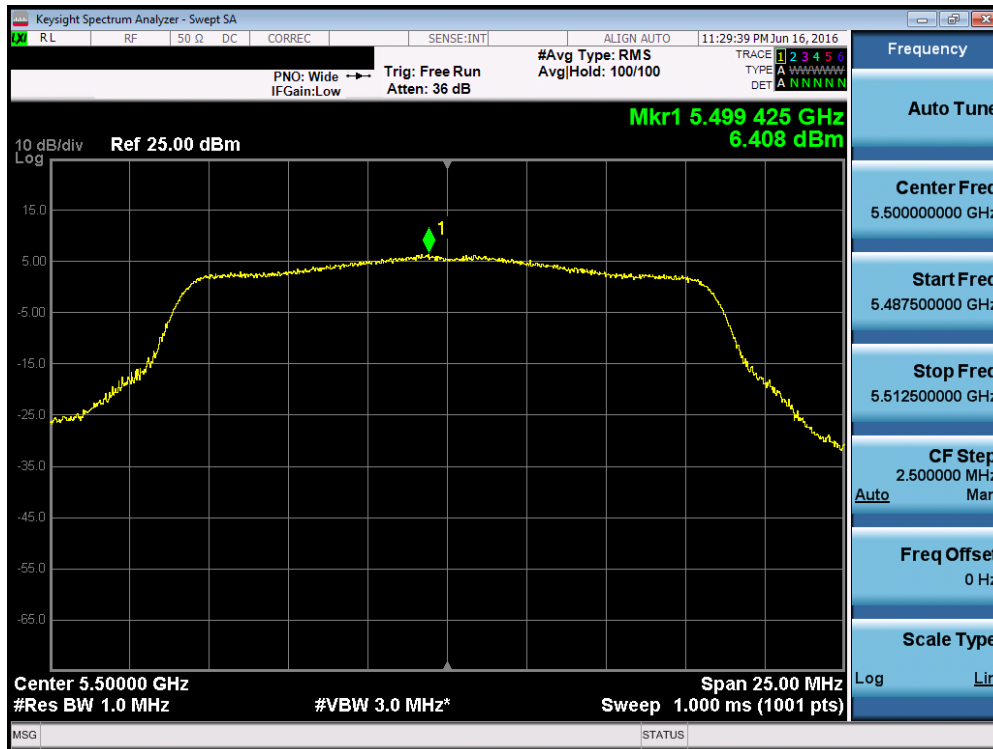


Plot A3-5. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

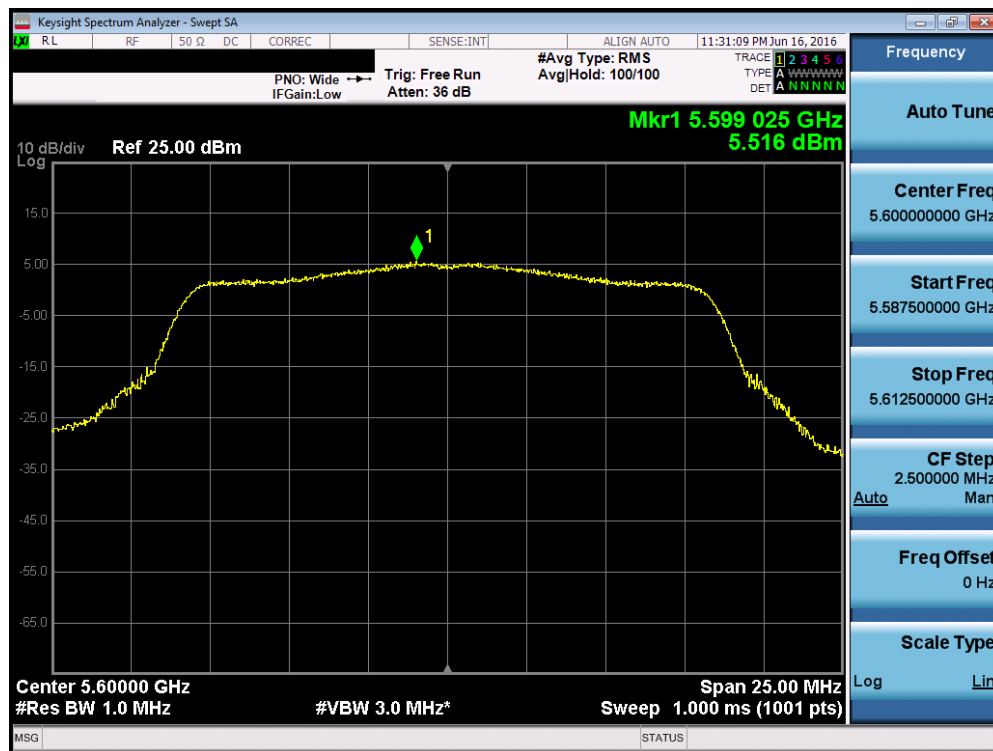


Plot A3-6. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 256 of 272

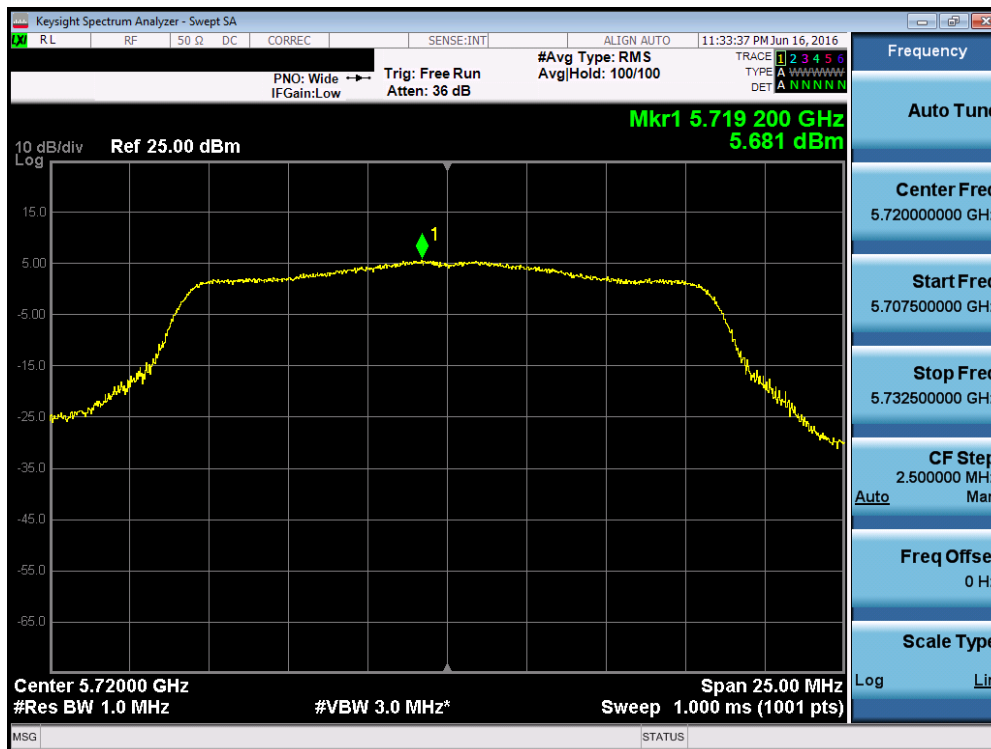


Plot A3-7. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

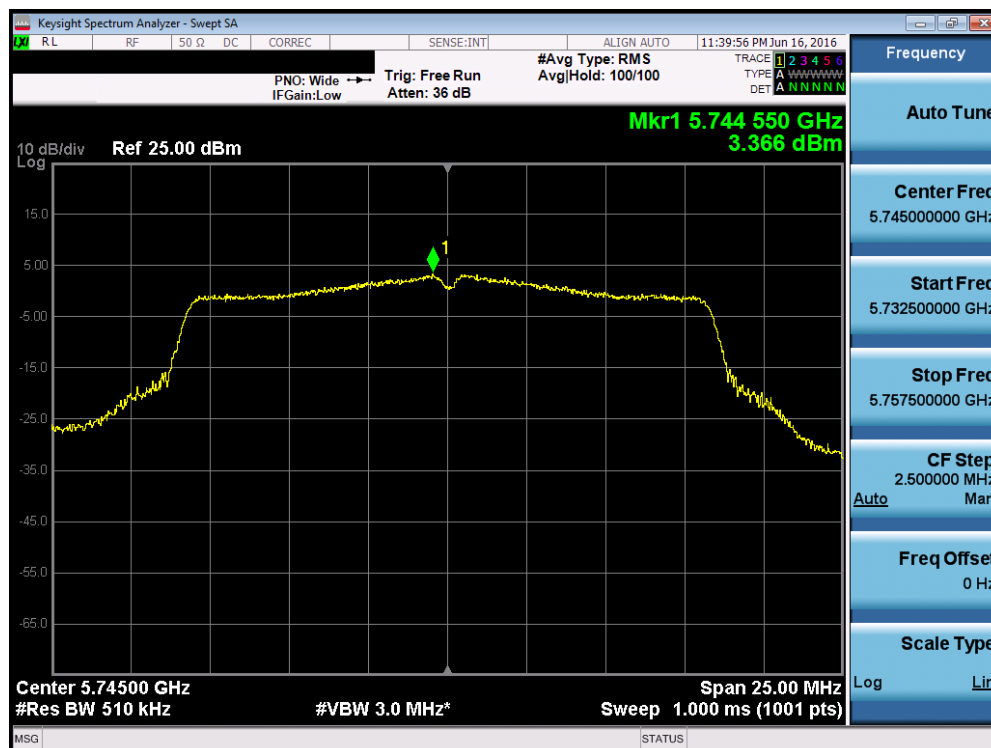


Plot A3-8. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 257 of 272

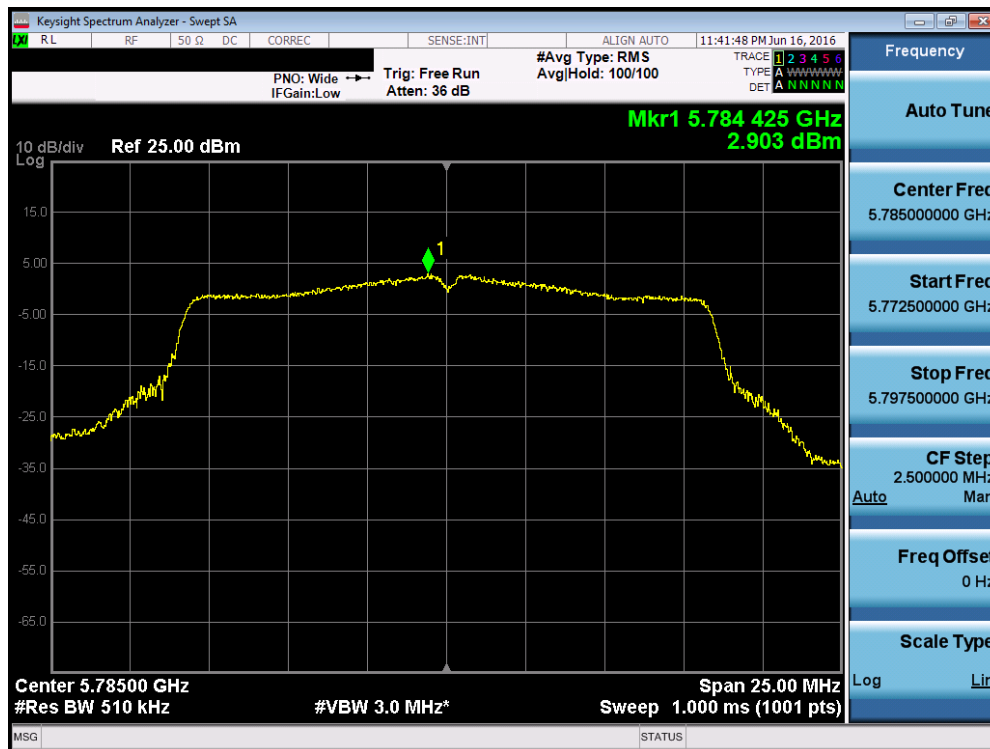


Plot A3-9. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

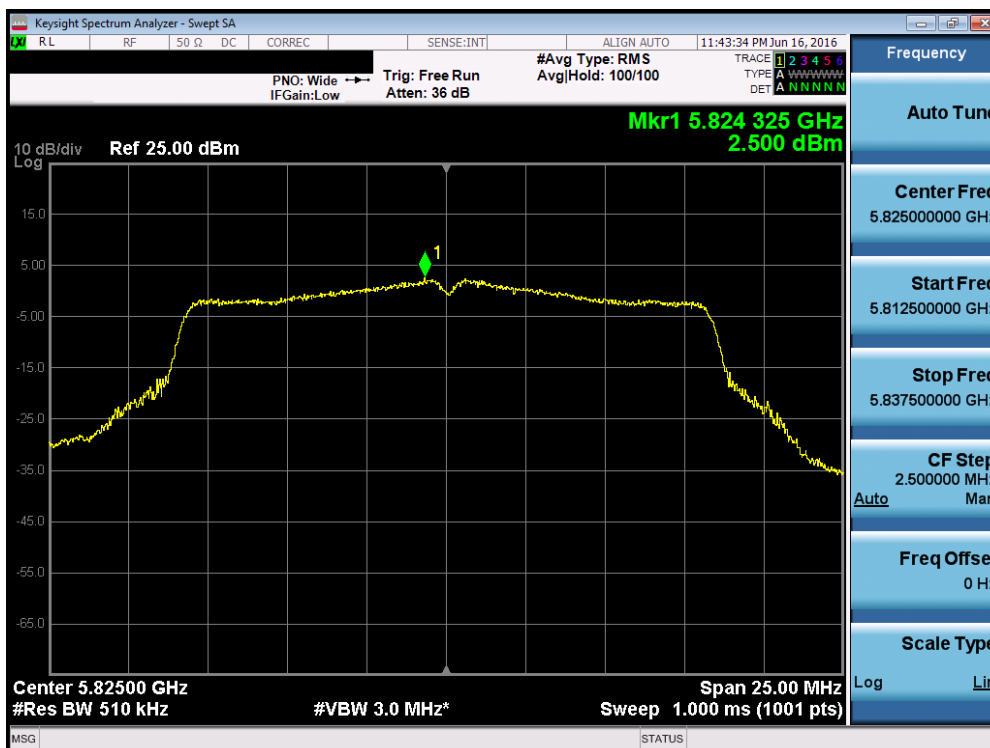


Plot A3-10. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 149)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 258 of 272



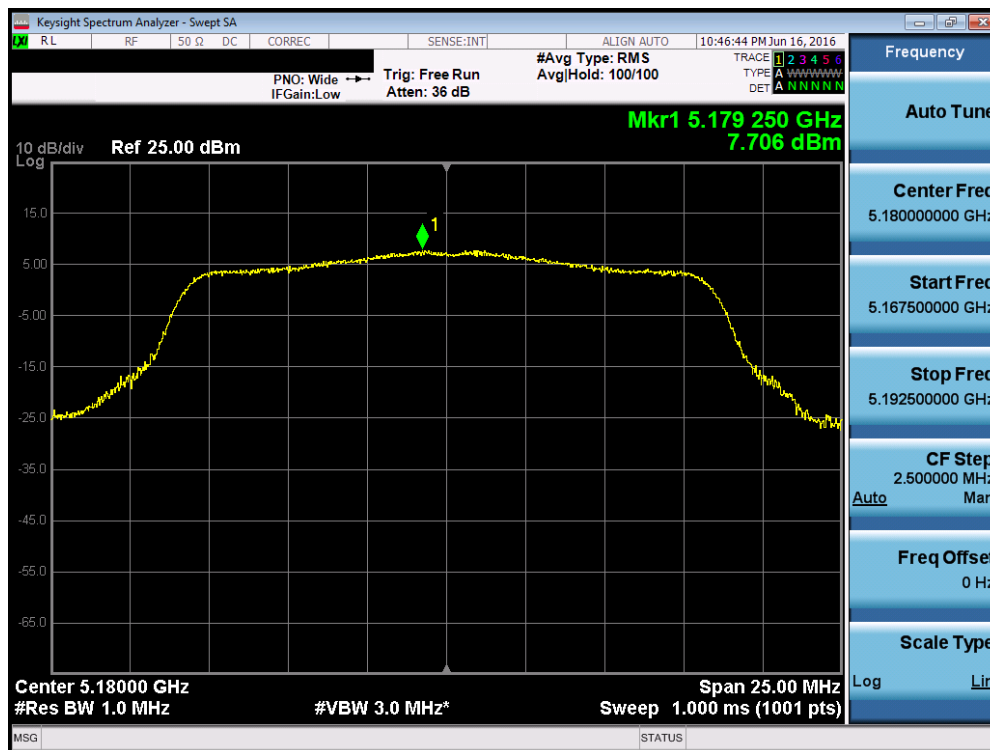
Plot A3-11. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)



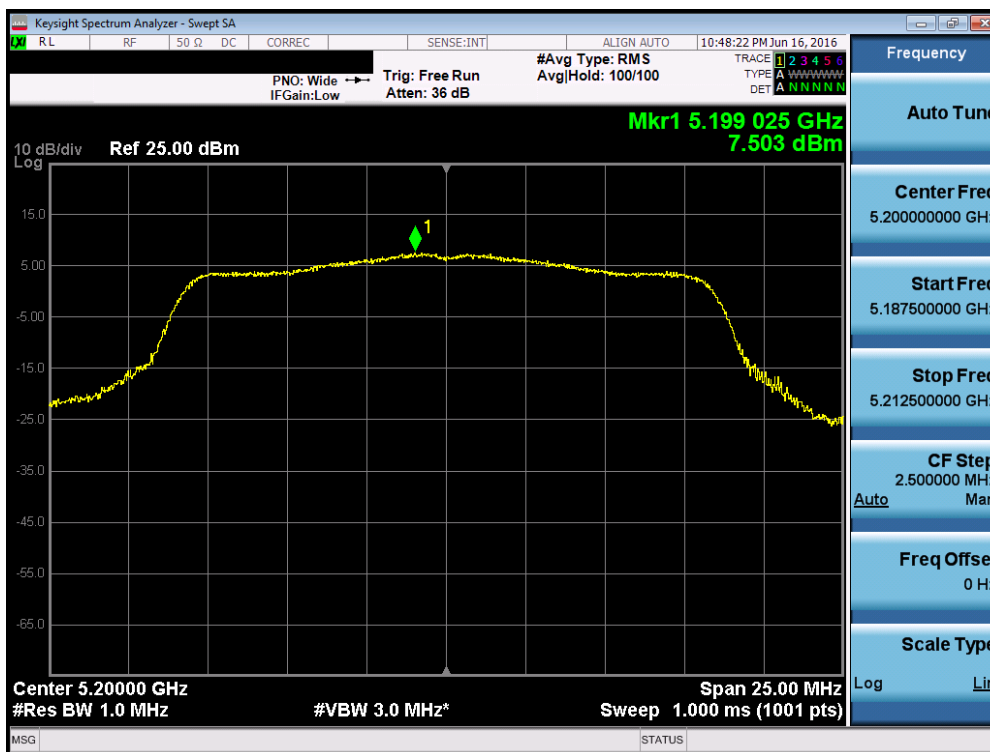
Plot A3-12. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 259 of 272

Antenna-2 Power Spectral Density Measurements

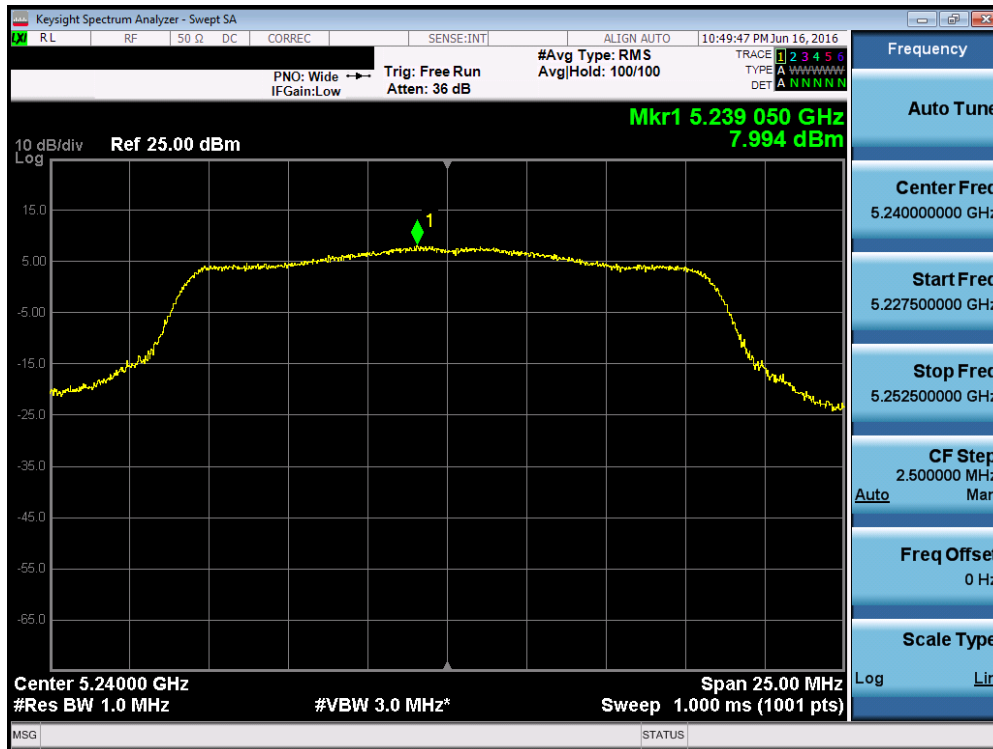


Plot A3-13. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

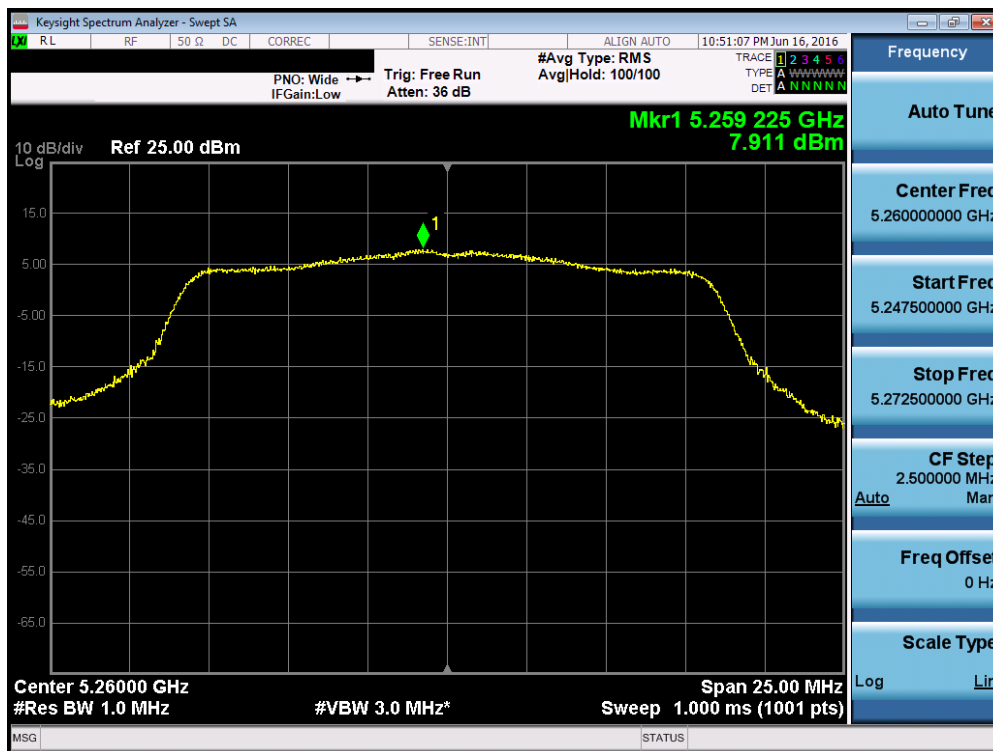


Plot A3-14. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 260 of 272

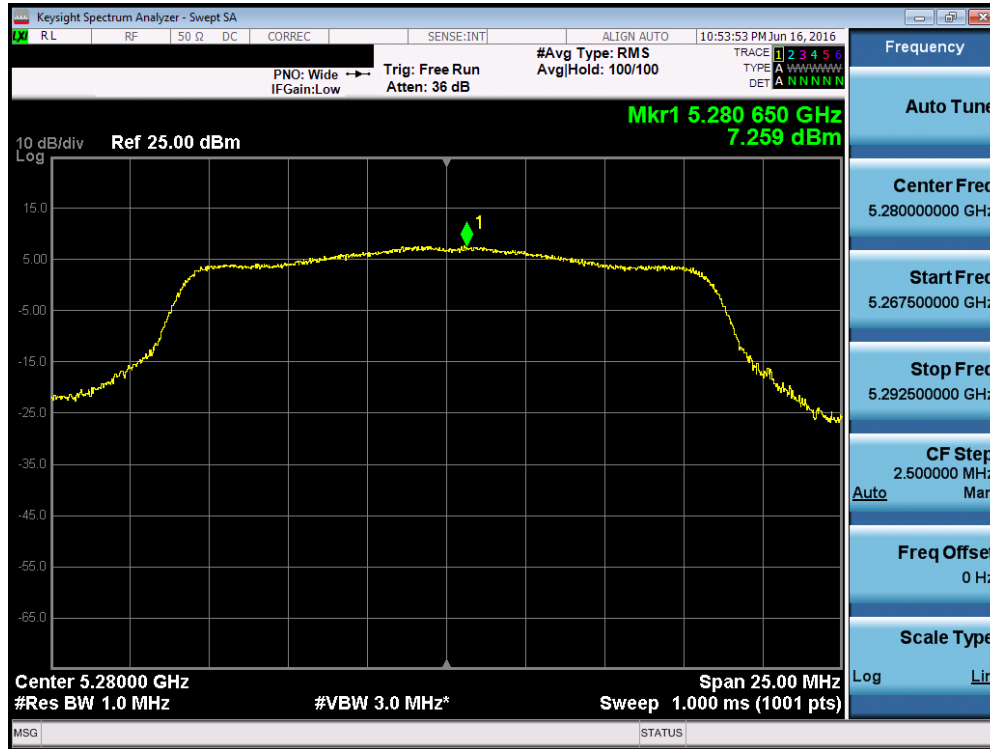


Plot A3-15. Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

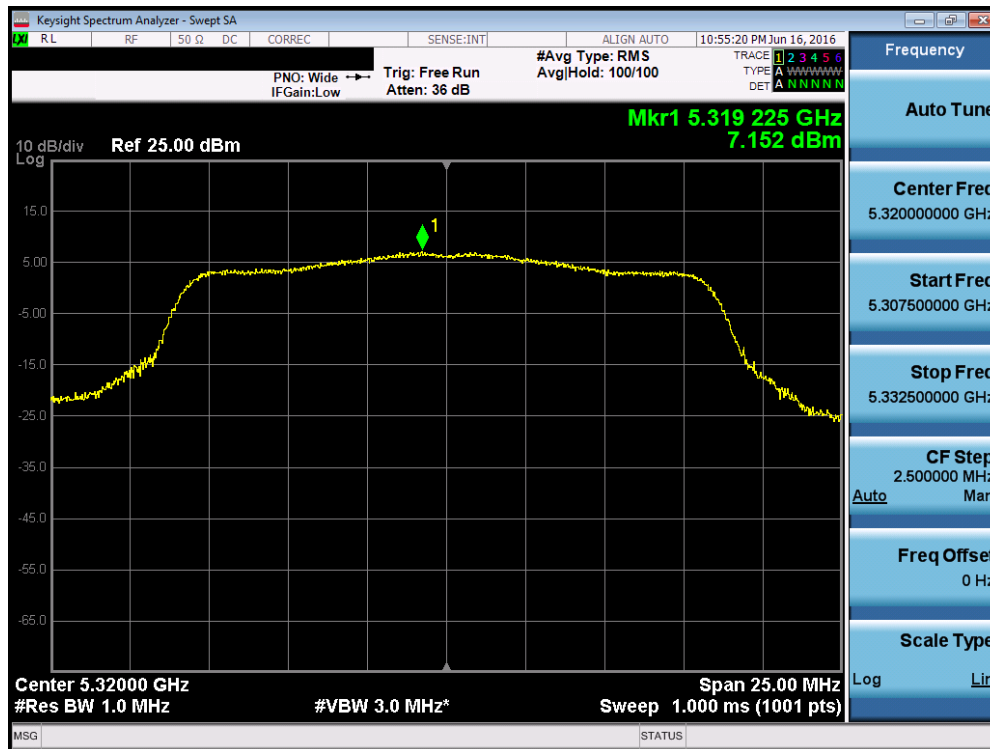


Plot A3-16. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 261 of 272

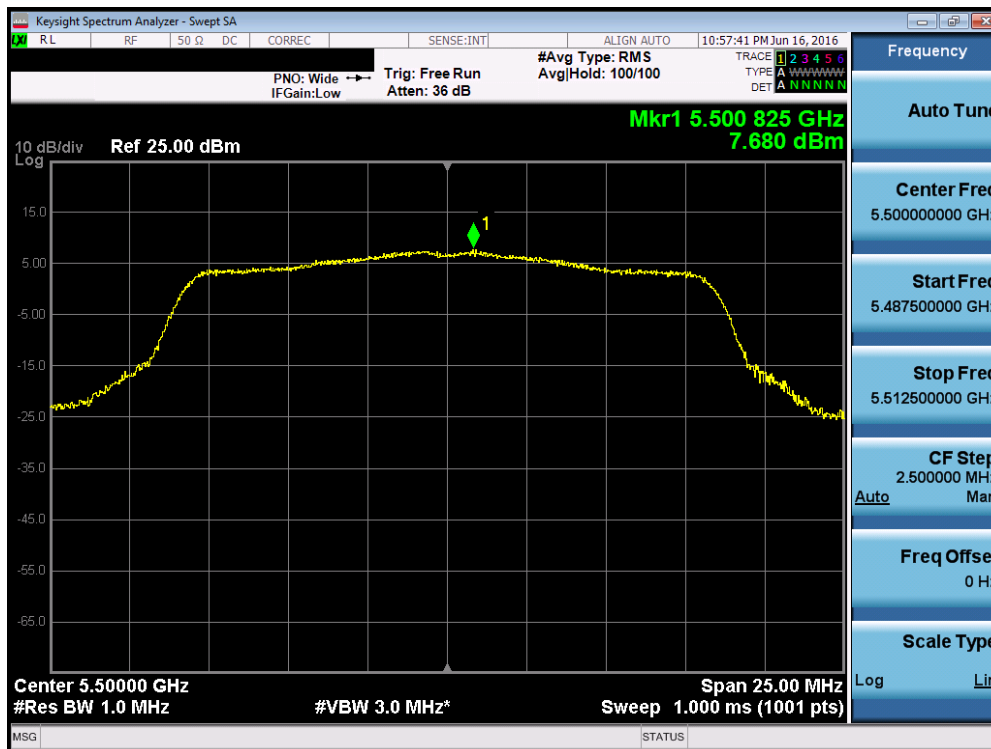


Plot A3-17. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

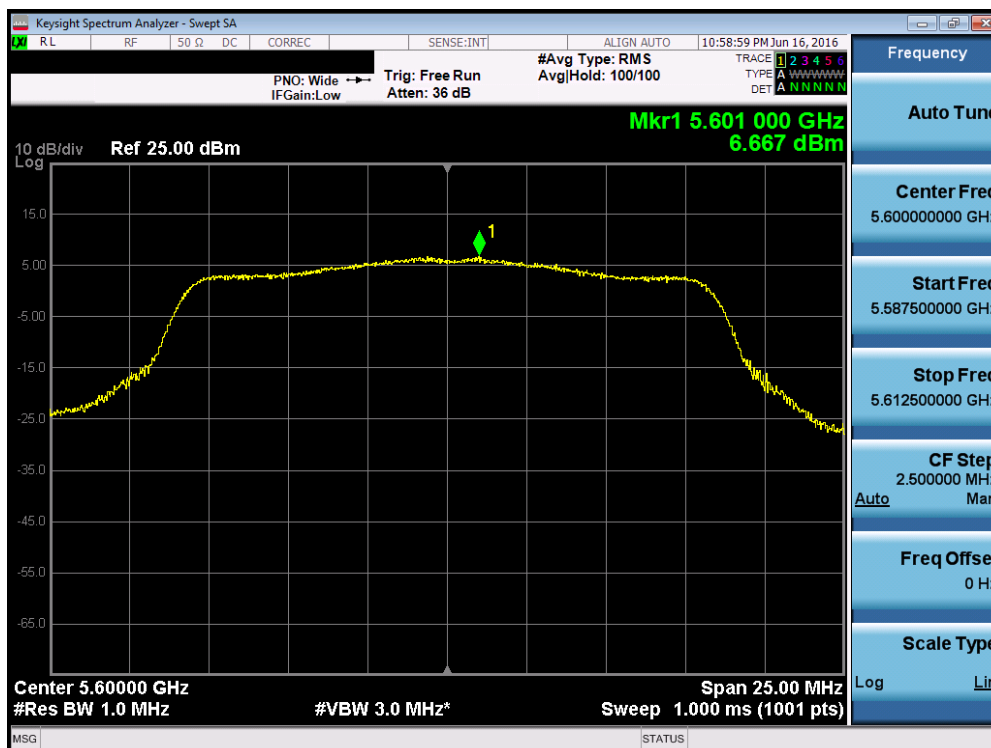


Plot A3-18. Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 262 of 272

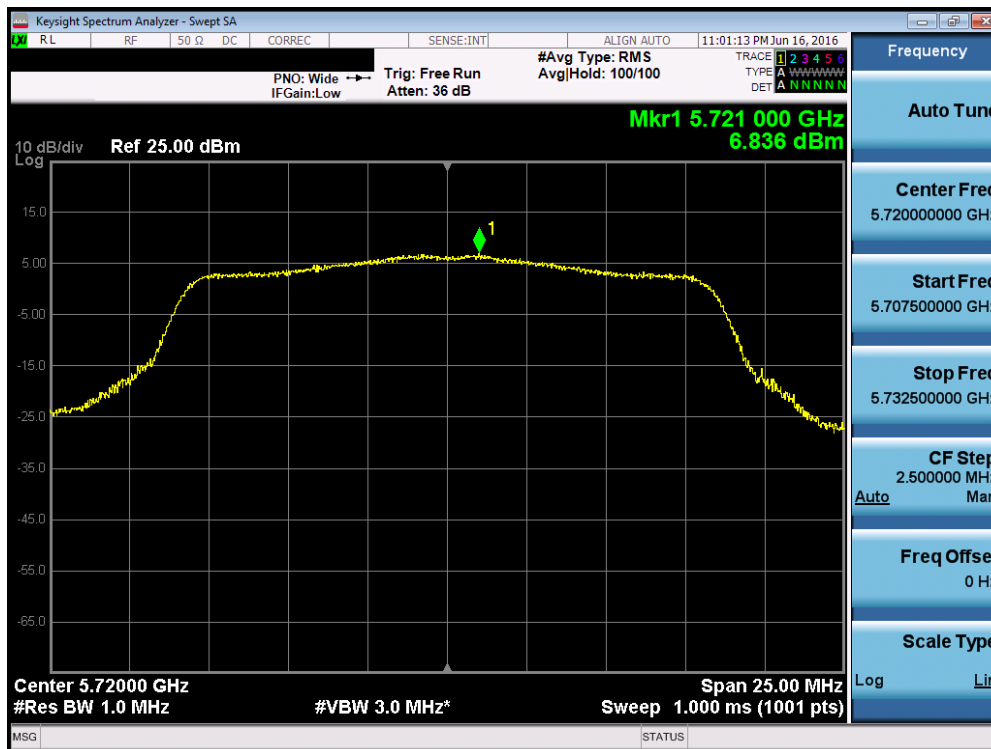


Plot A3-19. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

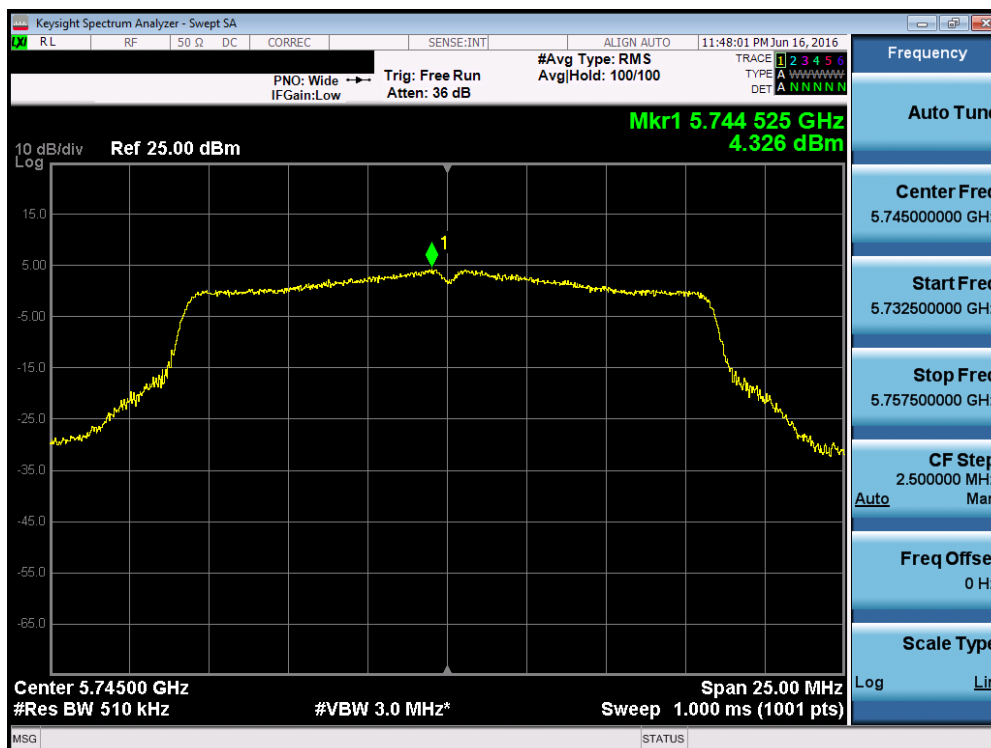


Plot A3-20. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 263 of 272

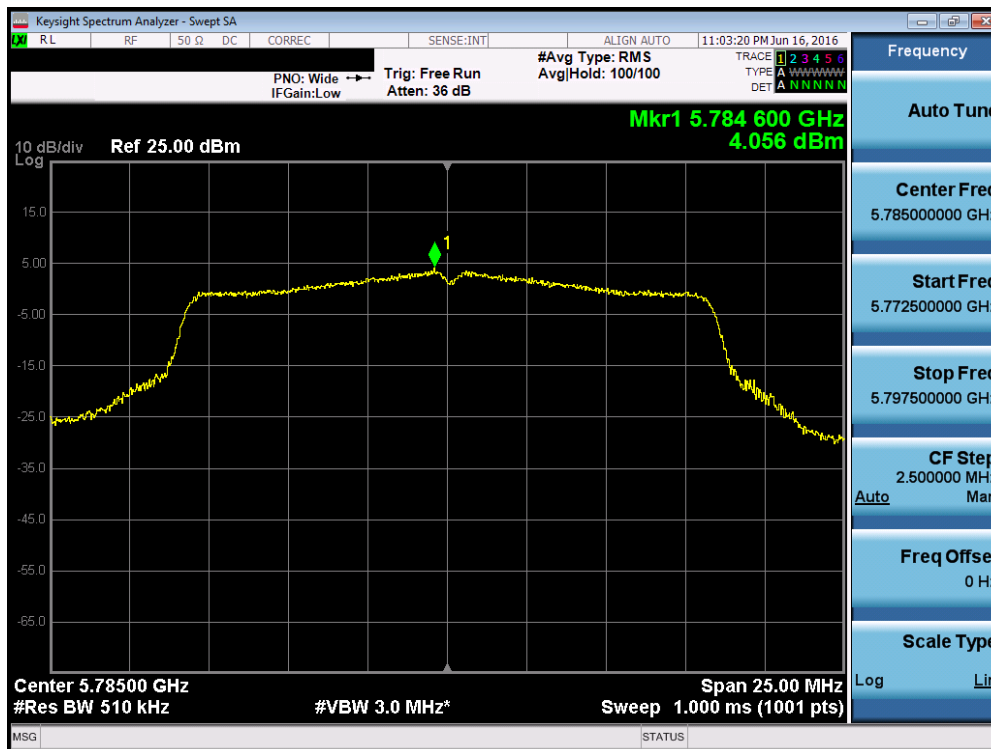


Plot A3-21. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 144)

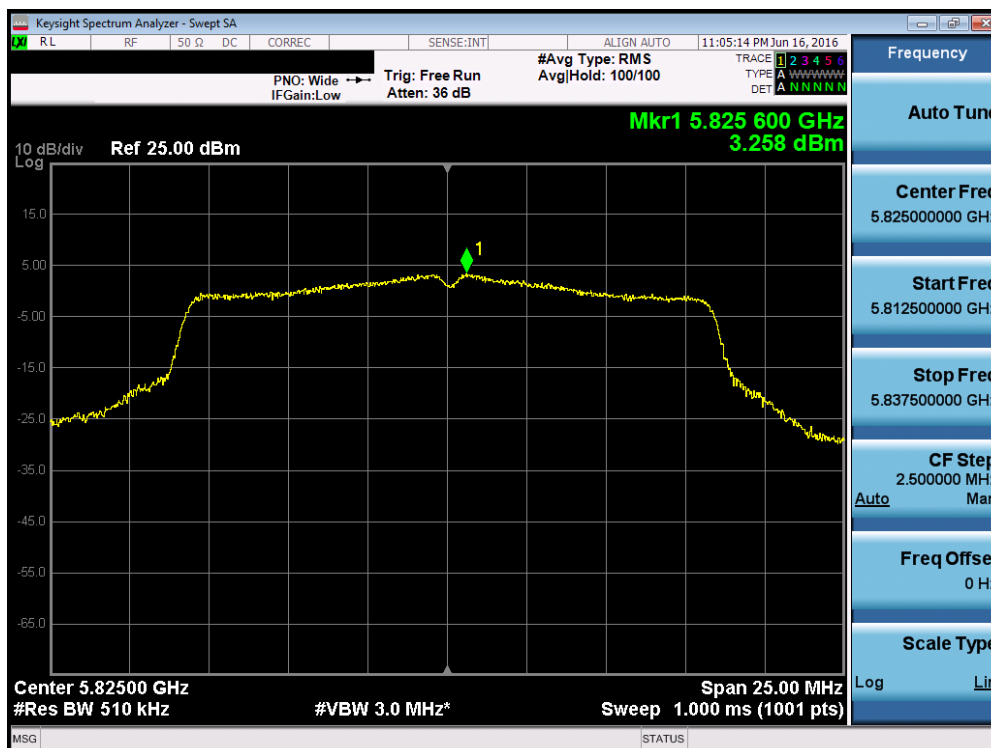


Plot A3-22. Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 149)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 264 of 272



Plot A3-23. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 157)



Plot A3-24. Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 265 of 272

A.4 Dual Tx Radiated Restricted Band Edge Measurements

§15.205 §15.209

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

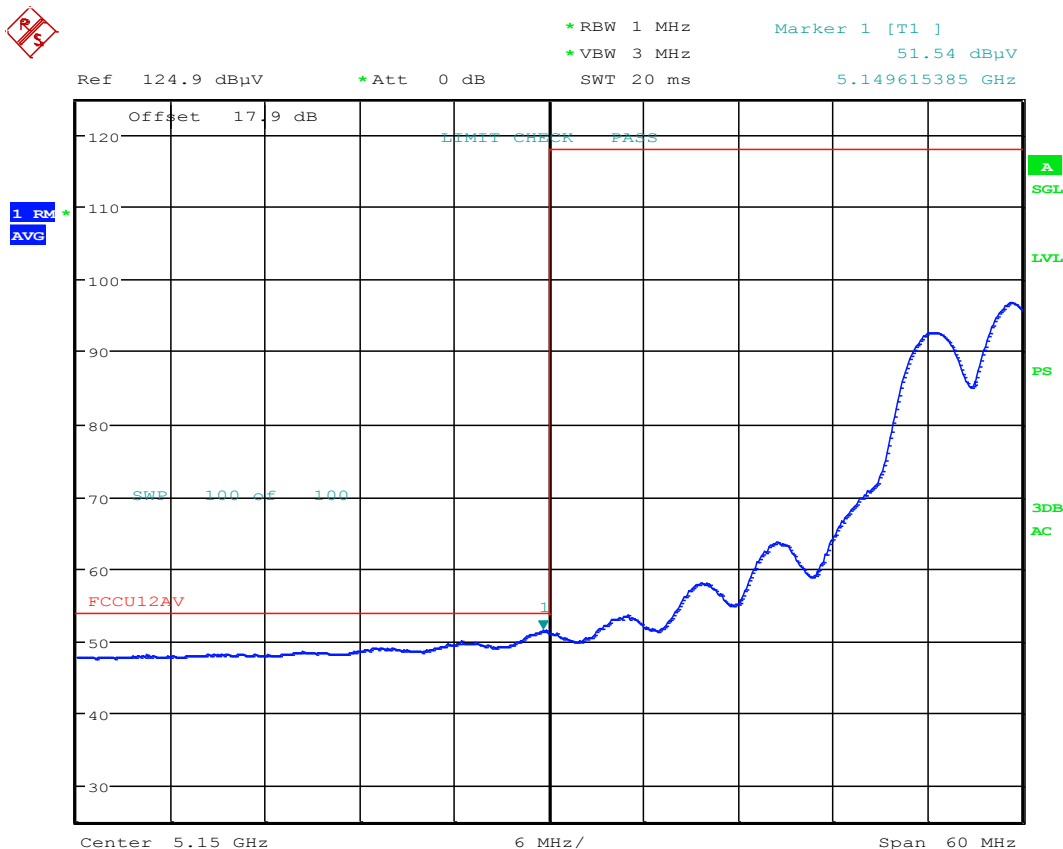
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



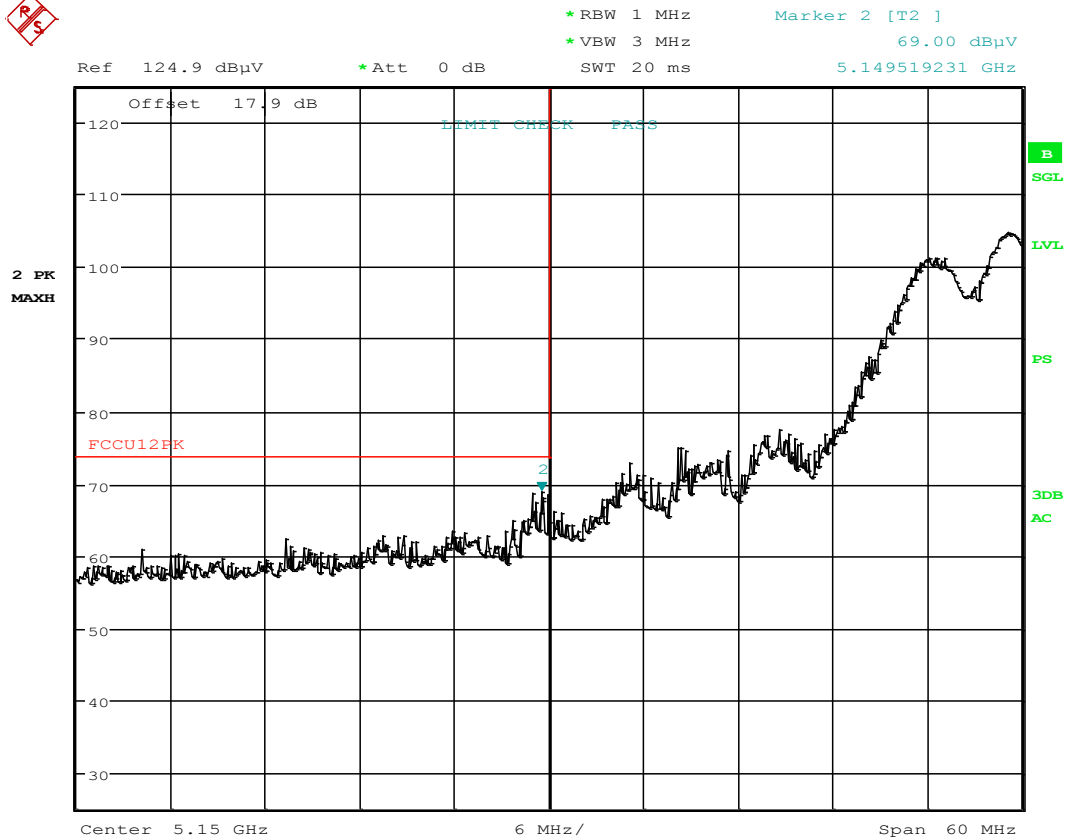
Date: 1.JUN.2016 01:36:20

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 266 of 272

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209



Date: 1.JUN.2016 01:36:45

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

FCC ID: A3LSMN930F		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 267 of 272

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

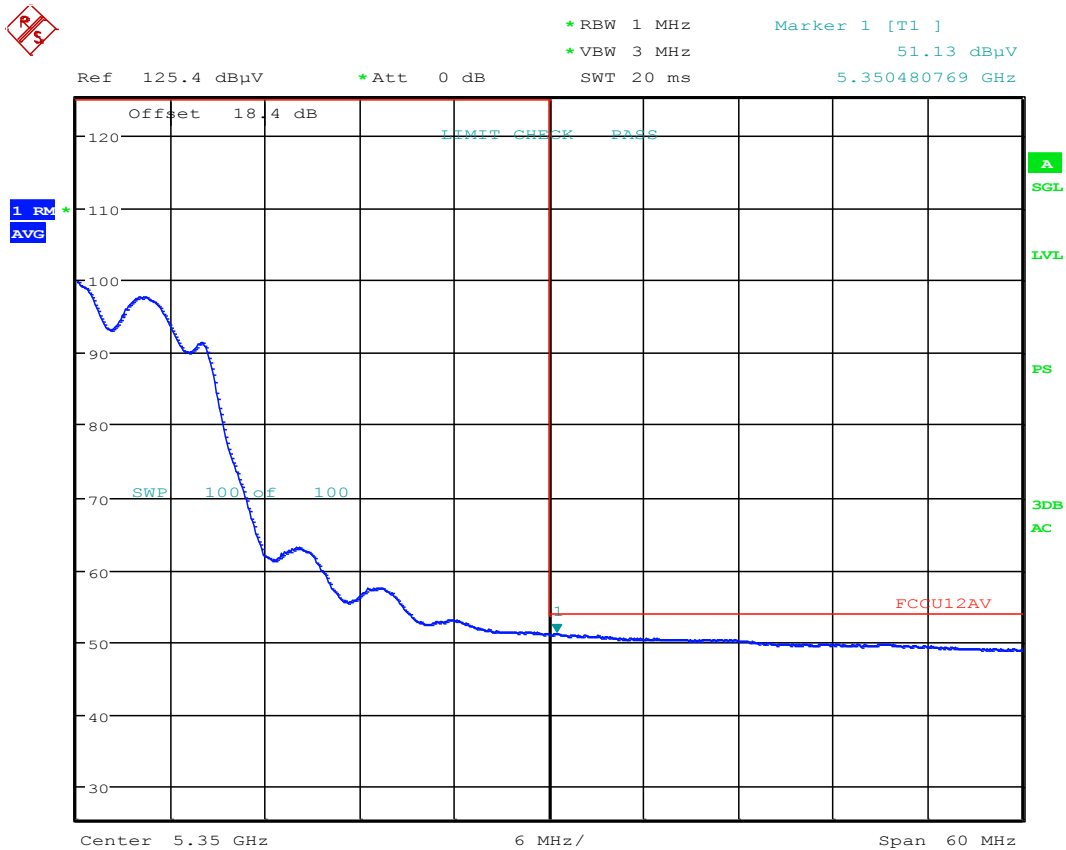
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64

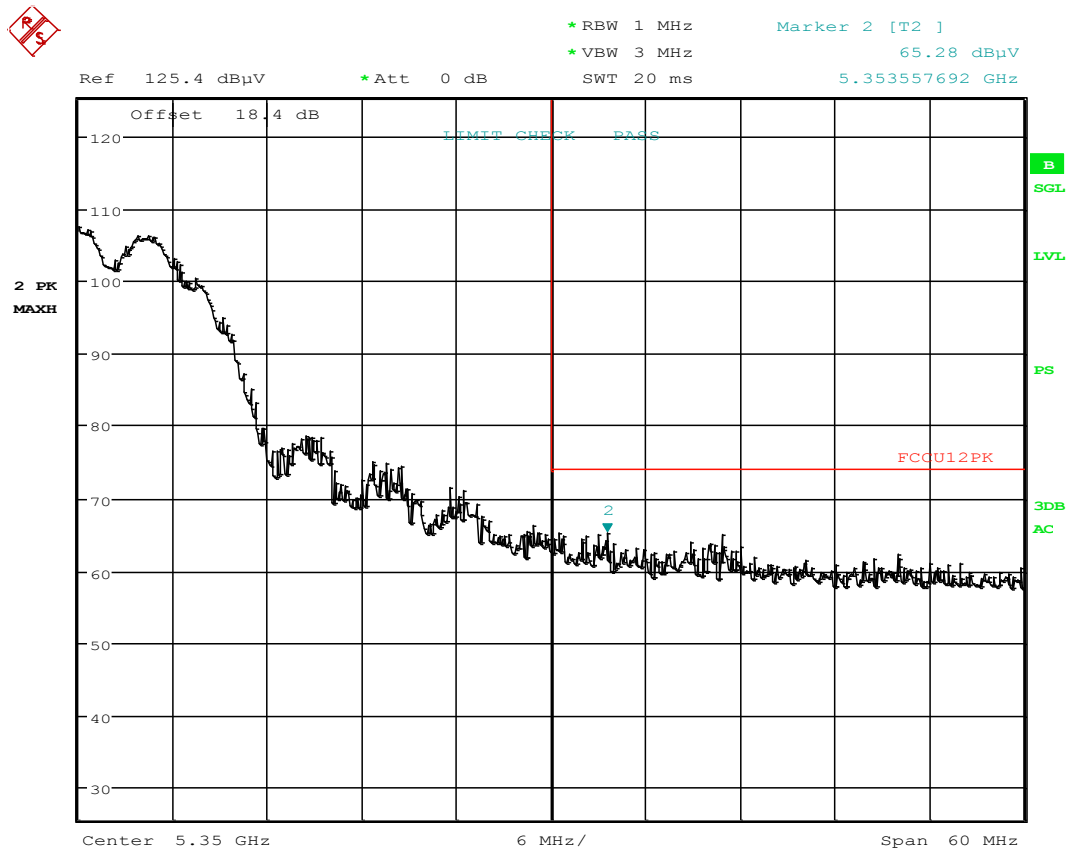


Date: 1.JUN.2016 01:43:01

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 268 of 272

Dual Tx Radiated Restricted Band Edge Measurements



Date: 1.JUN.2016 01:42:17

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

FCC ID: A3LSMN930F	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset	Page 269 of 272

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

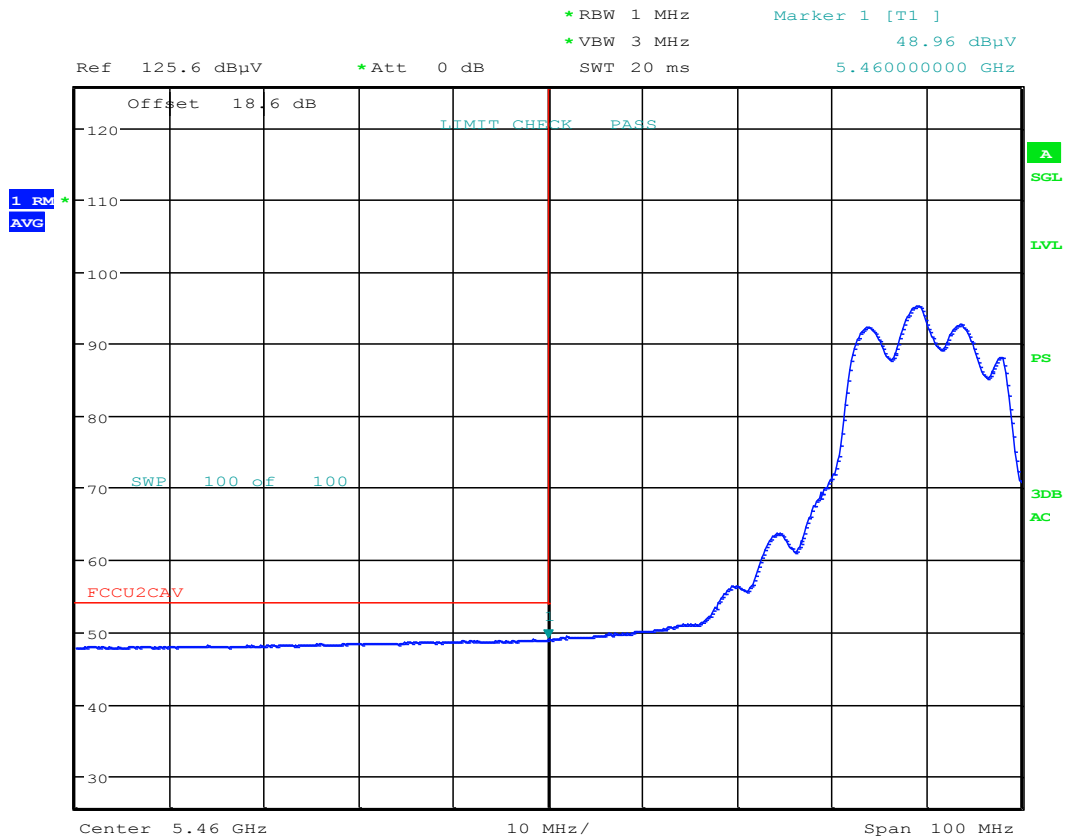
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



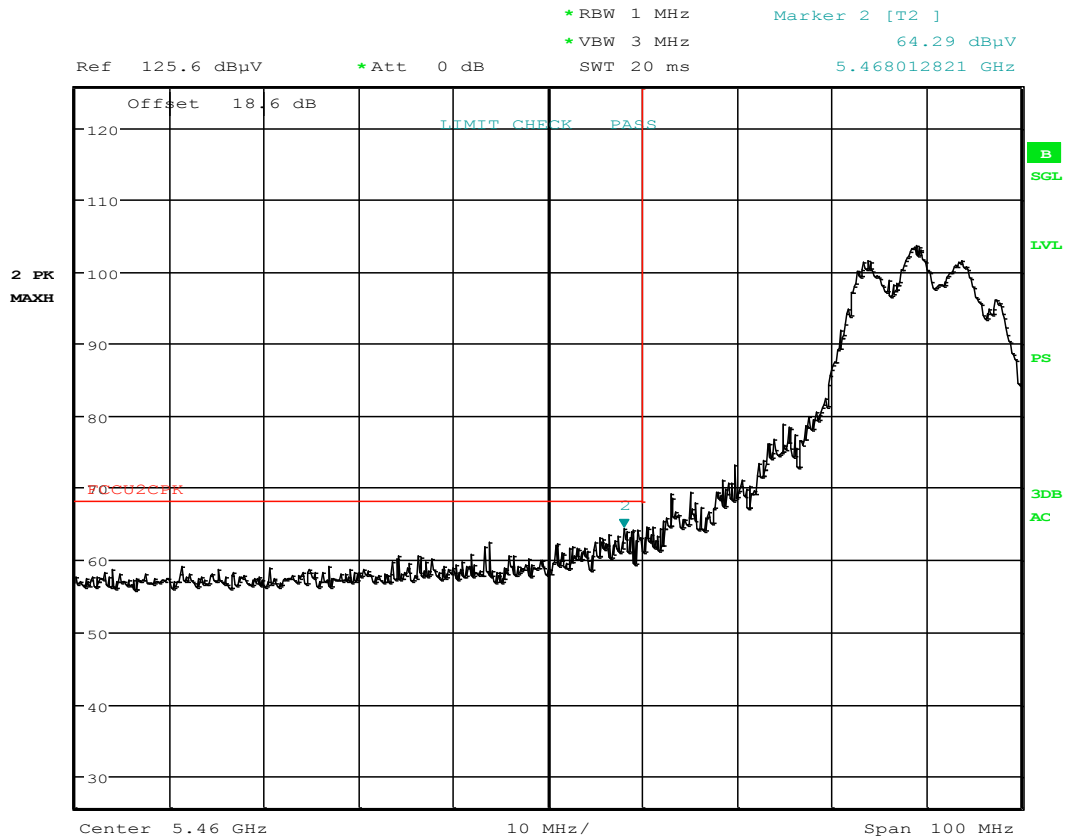
Date: 16.JUN.2016 21:02:06

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 270 of 272

Dual Tx Radiated Restricted Band Edge Measurements

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



Date: 16.JUN.2016 21:01:47

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 271 of 272

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

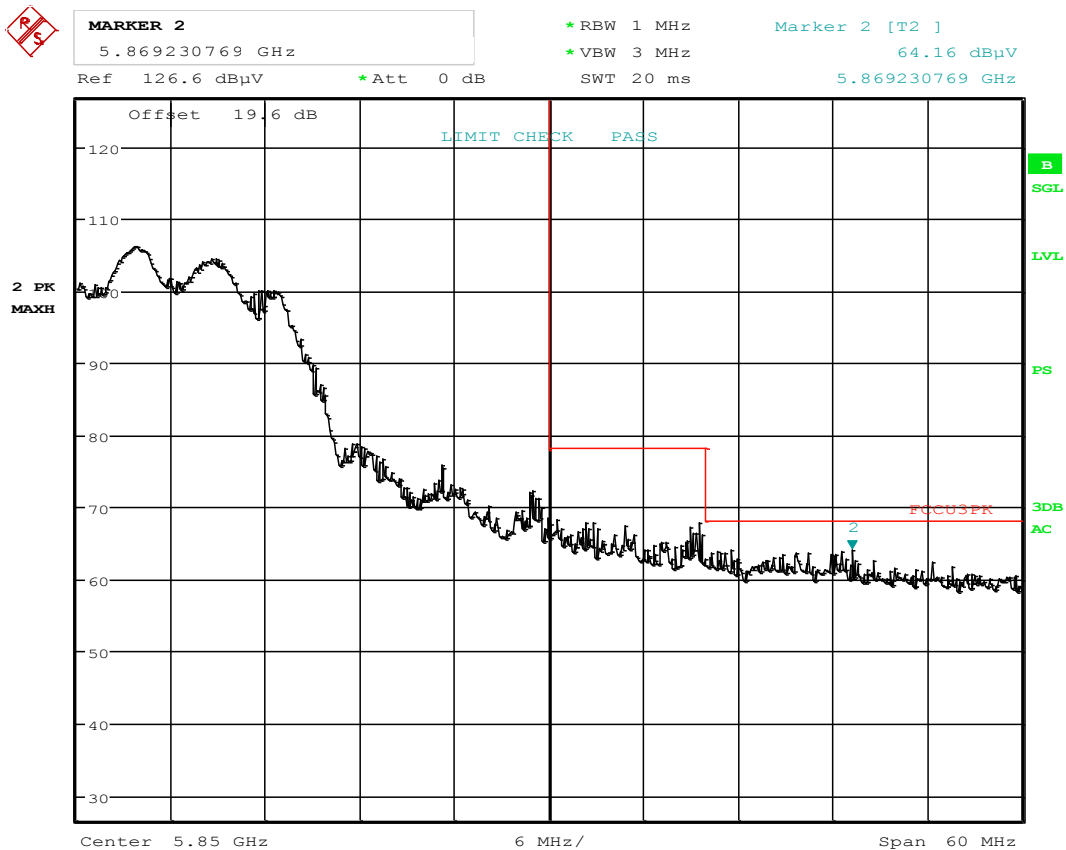
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 1.JUN.2016 01:57:31

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

FCC ID: A3LSMN930F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1605250973.A3L	Test Dates: 5/25-6/16/2016	EUT Type: Portable Handset		Page 272 of 272