

6.7 Radiated Spurious Emission Measurements

§15.407(b.1)(b.6) §15.205 §15.209

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum power control level, as defined in KDB 789033 v01r04, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11n (20MHz BW) and 802.11n (40MHz BW)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 6-26 per Section 15.209.

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

Table 6-26. Radiated Limits

Test Procedures Used

KDB 789033 v01r04 – Section H

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

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 97 of 181

Peak Measurements above 1GHz

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

Peak Measurements below 1GHz

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

Test Setup

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

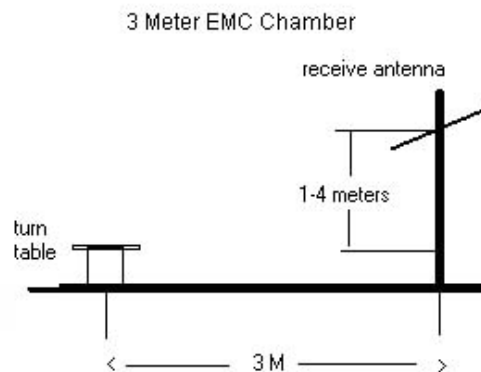


Figure 6-5. Test Instrument & Measurement Setup

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 98 of 181

Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 v01r04 Section H.
2. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 are below the limit shown in Table 6-26.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-11. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. The battery used with this device for testing (Model: EB-BN916BBC) contains an embedded NFC antenna.
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.

Sample Calculations

Determining Spurious Emissions Levels

- o Field Strength Level $_{[dB\mu V/m]} = \text{Analyzer Level}_{[dBm]} + 107 + \text{AFCL}_{[dB/m]} + \text{DCCF}_{[dB\mu V/m]}$
- o $\text{AFCL}_{[dB/m]} = \text{Antenna Factor}_{[dB/m]} + \text{Cable Loss}_{[dB]}$
- o $\text{DCCF}_{[dB\mu V/m]} = 20 \log (1/x)$, where x is the duty cycle
- o $\text{Margin}_{[dB]} = \text{Field Strength Level}_{[dB\mu V/m]} - \text{Limit}_{[dB\mu V/m]}$

Radiated Band Edge Measurement Offset

- o The amplitude offset shown in the radiated restricted band edge plots in Section 6.8 was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + 10 dB Attenuator + DCCF) – Preamplifier Gain
- o $\text{DCCF} = 20 \log (1/x)$, where x is the duty cycle

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 99 of 181

Antenna-1 Radiated Spurious Emission Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	-103.07	Peak	H	H2	44.50	0.00	48.43	68.20	-19.77
* 15540.00	-115.21	Average	H	H2	48.84	0.00	40.63	53.98	-13.35
* 15540.00	-105.12	Peak	H	H2	48.84	0.00	50.72	73.98	-23.26
* 20720.00	-100.82	Average	H	H2	44.05	-9.54	40.68	53.98	-13.30
* 20720.00	-94.45	Peak	H	H2	44.05	-9.54	47.05	73.98	-26.93
25900.00	-100.62	Peak	H	H2	44.95	-9.54	41.79	68.20	-26.41

Table 6-27. Radiated Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	-103.28	Peak	H	H2	44.55	0.00	48.27	68.20	-19.93
* 15600.00	-115.13	Average	H	H2	48.84	0.00	40.70	53.98	-13.28
* 15600.00	-103.56	Peak	H	H2	48.84	0.00	52.27	73.98	-21.71
* 20800.00	-98.03	Average	H	H2	44.04	-9.54	43.46	53.98	-10.52
* 20800.00	-94.27	Peak	H	H2	44.04	-9.54	47.22	73.98	-26.76
26000.00	-100.45	Peak	H	H2	45.00	-9.54	42.01	68.20	-26.19

Table 6-28. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 100 of 181

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	-103.33	Peak	H	H2	44.67	0.00	48.34	68.20	-19.86
* 15720.00	-115.83	Average	H	H2	48.87	0.00	40.04	53.98	-13.94
* 15720.00	-104.64	Peak	H	H2	48.87	0.00	51.23	73.98	-22.75
* 20960.00	-101.23	Average	H	H2	43.96	-9.54	40.19	53.98	-13.79
* 20960.00	-97.21	Peak	H	H2	43.96	-9.54	44.21	73.98	-29.77
26200.00	-101.90	Peak	H	H2	44.84	-9.54	40.39	68.20	-27.81

Table 6-29. Radiated Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	-103.19	Peak	H	H2	44.70	0.00	48.51	68.20	-19.69
* 15780.00	-116.11	Average	H	H2	48.90	0.00	39.79	53.98	-14.19
* 15780.00	-105.60	Peak	H	H2	48.90	0.00	50.30	73.98	-23.68
* 21040.00	-100.53	Average	H	H2	43.89	-9.54	40.82	53.98	-13.16
* 21040.00	-95.75	Peak	H	H2	43.89	-9.54	45.60	73.98	-28.38
26300.00	-101.77	Peak	H	H2	44.80	-9.54	40.49	68.20	-27.71

Table 6-30. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 101 of 181

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	-103.55	Peak	H	H2	44.72	0.00	48.16	68.20	-20.04
* 15840.00	-115.86	Average	H	H2	48.98	0.00	40.12	53.98	-13.86
* 15840.00	-103.32	Peak	H	H2	48.98	0.00	52.66	73.98	-21.32
* 21120.00	-100.81	Average	H	H2	43.79	-9.54	40.44	53.98	-13.54
* 21120.00	-96.26	Peak	H	H2	43.79	-9.54	44.99	73.98	-28.99
26400.00	-99.75	Peak	H	H2	44.80	-9.54	42.50	68.20	-25.70

Table 6-31. Radiated Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	-114.84	Average	H	H2	44.78	0.00	36.94	53.98	-17.04
* 10640.00	-102.96	Peak	H	H2	44.78	0.00	48.82	73.98	-25.16
* 15960.00	-116.43	Average	H	H2	49.16	0.00	39.72	53.98	-14.26
* 15960.00	-105.13	Peak	H	H2	49.16	0.00	51.02	73.98	-22.96
* 21280.00	-101.11	Average	H	H2	43.66	-9.54	40.01	53.98	-13.97
* 21280.00	-95.68	Peak	H	H2	43.66	-9.54	45.44	73.98	-28.54
26600.00	-103.01	Peak	H	H2	47.32	-9.54	41.77	68.20	-26.43

Table 6-32. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 102 of 181

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

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11000.00	-114.97	Average	H	H2	44.63	0.00	36.66	53.98	-17.32
*	11000.00	-103.48	Peak	H	H2	44.63	0.00	48.15	73.98	-25.83
	16500.00	-104.69	Peak	H	H2	50.51	0.00	52.82	68.20	-15.38
	22000.00	-95.70	Peak	H	H2	43.97	-9.54	45.72	68.20	-22.48
	27500.00	-103.26	Peak	H	H2	48.36	-9.54	42.56	68.20	-25.64

Table 6-33. Radiated Measurements

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

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11160.00	-103.64	Average	H	H2	44.72	0.00	48.09	53.98	-5.89
*	11160.00	-103.64	Peak	H	H2	44.72	0.00	48.09	73.98	-25.89
	16740.00	-104.84	Peak	H	H2	50.00	0.00	52.16	68.20	-16.04
*	22320.00	-99.10	Average	H	H2	44.45	-9.54	42.81	53.98	-11.17
*	22320.00	-92.51	Peak	H	H2	44.45	-9.54	49.40	73.98	-24.58
	27900.00	-104.19	Peak	H	H2	48.05	-9.54	41.32	68.20	-26.88

Table 6-34. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 103 of 181

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5700MHz
 Channel: 140

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11400.00	-115.01	Average	H	H2	45.03	0.00	37.02	53.98	-16.96
* 11400.00	-103.36	Peak	H	H2	45.03	0.00	48.67	73.98	-25.31
17100.00	-116.20	Peak	H	H2	49.99	0.00	40.78	68.20	-27.42
* 22800.00	-99.60	Average	H	H2	44.45	-9.54	42.32	53.98	-11.66
* 22800.00	-91.37	Peak	H	H2	44.45	-9.54	50.54	73.98	-23.44
28500.00	-102.73	Peak	H	H2	48.01	-9.54	42.74	68.20	-25.46

Table 6-35. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 104 of 181

Antenna-2 Radiated Spurious Emission Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	-101.83	Peak	H	H2	44.50	0.00	49.67	68.20	-18.53
* 15540.00	-114.51	Average	H	H2	48.84	0.00	41.33	53.98	-12.65
* 15540.00	-101.33	Peak	H	H2	48.84	0.00	54.51	73.98	-19.47
* 20720.00	-97.56	Average	V	H2	44.05	-9.54	43.94	53.98	-10.03
* 20720.00	-86.53	Peak	V	H2	44.05	-9.54	54.97	73.98	-19.01
25900.00	-89.38	Peak	V	H2	44.95	-9.54	53.03	68.20	-15.17

Table 6-36. Radiated Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	-102.55	Peak	H	H2	44.55	0.00	49.00	68.20	-19.20
* 15600.00	-115.51	Average	H	H2	48.84	0.00	40.32	53.98	-13.66
* 15600.00	-103.09	Peak	H	H2	48.84	0.00	52.74	73.98	-21.24
* 20800.00	-96.30	Average	V	H2	44.04	-9.54	45.19	53.98	-8.79
* 20800.00	-87.87	Peak	V	H2	44.04	-9.54	53.62	73.98	-20.36
26000.00	-92.38	Peak	V	H2	45.00	-9.54	50.08	68.20	-18.12

Table 6-37. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 105 of 181

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	-102.43	Peak	H	H2	44.67	0.00	49.24	68.20	-18.96
* 15720.00	-113.07	Average	H	H2	48.87	0.00	42.80	53.98	-11.18
* 15720.00	-99.05	Peak	H	H2	48.87	0.00	56.82	73.98	-17.16
* 20960.00	-94.48	Average	V	H2	43.96	-9.54	46.94	53.98	-7.04
* 20960.00	-88.68	Peak	V	H2	43.96	-9.54	52.74	73.98	-21.24
26200.00	-96.53	Peak	V	H2	44.84	-9.54	45.76	68.20	-22.44

Table 6-38. Radiated Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	-103.61	Peak	H	H2	44.70	0.00	48.09	68.20	-20.11
* 15780.00	-115.00	Average	H	H2	48.90	0.00	40.90	53.98	-13.08
* 15780.00	-103.14	Peak	H	H2	48.90	0.00	52.76	73.98	-21.22
* 21040.00	-94.82	Average	V	H2	43.89	-9.54	46.53	53.98	-7.45
* 21040.00	-89.79	Peak	V	H2	43.89	-9.54	51.56	73.98	-22.42
26300.00	-100.19	Peak	V	H2	44.80	-9.54	42.07	68.20	-26.13

Table 6-39. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 106 of 181

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	-104.31	Peak	H	H2	44.72	0.00	47.40	68.20	-20.80
* 15840.00	-114.39	Average	H	H2	48.98	0.00	41.59	53.98	-12.39
* 15840.00	-101.02	Peak	H	H2	48.98	0.00	54.96	73.98	-19.02
* 21120.00	-95.22	Average	V	H2	43.79	-9.54	46.03	53.98	-7.95
* 21120.00	-89.45	Peak	V	H2	43.79	-9.54	51.80	73.98	-22.18
26400.00	-99.76	Peak	V	H2	44.80	-9.54	42.49	68.20	-25.71

Table 6-40. Radiated Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	-116.32	Average	H	H2	44.78	0.00	35.46	53.98	-18.52
* 10640.00	-103.91	Peak	H	H2	44.78	0.00	47.87	73.98	-26.11
* 15960.00	-115.76	Average	H	H2	49.16	0.00	40.39	53.98	-13.59
* 15960.00	-102.29	Peak	H	H2	49.16	0.00	53.86	73.98	-20.12
* 21280.00	-95.54	Average	V	H2	43.66	-9.54	45.58	53.98	-8.40
* 21280.00	-90.80	Peak	V	H2	43.66	-9.54	50.32	73.98	-23.66
26600.00	-103.25	Peak	V	H2	47.32	-9.54	41.53	68.20	-26.67

Table 6-41. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 107 of 181

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	-115.73	Average	H	H2	44.63	0.00	35.90	53.98	-18.08
* 11000.00	-104.70	Peak	H	H2	44.63	0.00	46.93	73.98	-27.05
16500.00	-104.58	Peak	H	H2	50.51	0.00	52.93	68.20	-15.27
22000.00	-92.78	Peak	V	H2	43.97	-9.54	48.64	68.20	-19.56
27500.00	-102.81	Peak	V	H2	48.36	-9.54	43.01	68.20	-25.19

Table 6-42. Radiated Measurements

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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11160.00	-116.28	Average	H	H2	44.72	0.00	35.45	53.98	-18.53
* 11160.00	-104.45	Peak	H	H2	44.72	0.00	47.28	73.98	-26.70
16740.00	-105.18	Peak	H	H2	50.00	0.00	51.82	68.20	-16.38
* 22320.00	-99.69	Average	V	H2	44.45	-9.54	42.22	53.98	-11.76
* 22320.00	-95.64	Peak	V	H2	44.45	-9.54	46.27	73.98	-27.71
27900.00	-103.91	Peak	V	H2	48.05	-9.54	41.60	68.20	-26.60

Table 6-43. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 108 of 181

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5700MHz
 Channel: 140

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11400.00	-116.56	Average	H	H2	45.03	0.00	35.47	53.98	-18.51
*	11400.00	-105.40	Peak	H	H2	45.03	0.00	46.63	73.98	-27.35
	17100.00	-105.02	Peak	H	H2	49.99	0.00	51.96	68.20	-16.24
*	22800.00	-101.56	Average	V	H2	44.45	-9.54	40.35	53.98	-13.63
*	22800.00	-96.27	Peak	V	H2	44.45	-9.54	45.64	73.98	-28.34
	28500.00	-102.59	Peak	V	H2	48.01	-9.54	42.88	68.20	-25.32

Table 6-44. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 109 of 181

MIMO Radiated Spurious Emission Measurements

Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS8
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5180MHz
 Channel: 36

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	-104.83	Peak	H	H	44.50	0.00	46.67	68.20	-21.53
* 15540.00	-117.58	Average	H	H	48.84	0.00	38.26	53.98	-15.72
* 15540.00	-106.28	Peak	H	H	48.84	0.00	49.56	73.98	-24.42
* 20720.00	-99.51	Average	H	H	44.05	-9.54	41.99	53.98	-11.99
* 20720.00	-87.28	Peak	H	H	44.05	-9.54	54.22	73.98	-19.76
25900.00	-95.96	Peak	H	H	44.95	-9.54	46.45	68.20	-21.75

Table 6-45. Radiated Measurements

Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS8
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5200MHz
 Channel: 40

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	-104.78	Peak	H	H	44.55	0.00	46.77	68.20	-21.43
* 15600.00	-117.72	Average	H	H	48.84	0.00	38.11	53.98	-15.87
* 15600.00	-105.32	Peak	H	H	48.84	0.00	50.51	73.98	-23.47
* 20800.00	-97.97	Average	H	H	44.04	-9.54	43.53	53.98	-10.45
* 20800.00	-88.04	Peak	H	H	44.04	-9.54	53.45	73.98	-20.53
26000.00	-95.86	Peak	H	H	45.00	-9.54	46.60	68.20	-21.60

Table 6-46. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 110 of 181

Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS8
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5240MHz
Channel: 48

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	-104.24	Peak	H	H	44.67	0.00	47.43	68.20	-20.77
* 15720.00	-116.88	Average	H	H	48.87	0.00	38.99	53.98	-14.99
* 15720.00	-104.13	Peak	H	H	48.87	0.00	51.74	73.98	-22.24
* 20960.00	-98.29	Average	H	H	43.96	-9.54	43.13	53.98	-10.85
* 20960.00	-88.66	Peak	H	H	43.96	-9.54	52.76	73.98	-21.22
26200.00	-96.10	Peak	H	H	44.84	-9.54	46.19	68.20	-22.01

Table 6-47. Radiated Measurements

Worst Case Mode: 802.11n
Worst Case Transfer Rate: MCS8
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5260MHz
Channel: 52

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	-104.81	Peak	H	H	44.70	0.00	46.89	68.20	-21.31
* 15780.00	-117.03	Average	H	H	48.90	0.00	38.87	53.98	-15.11
* 15780.00	-105.40	Peak	H	H	48.90	0.00	50.50	73.98	-23.48
* 21040.00	-102.94	Average	H	H	43.89	-9.54	38.41	53.98	-15.57
* 21040.00	-92.18	Peak	H	H	43.89	-9.54	49.17	73.98	-24.81
26300.00	-93.16	Peak	H	H	44.80	-9.54	49.10	68.20	-19.10

Table 6-48. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 111 of 181

Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS8
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	-104.85	Peak	H	H	44.72	0.00	46.86	68.20	-21.34
* 15840.00	-117.15	Average	H	H	48.98	0.00	38.83	53.98	-15.15
* 15840.00	-104.76	Peak	H	H	48.98	0.00	51.22	73.98	-22.76
* 21120.00	-99.45	Average	H	H	43.79	-9.54	41.80	53.98	-12.18
* 21120.00	-90.19	Peak	H	H	43.79	-9.54	51.06	73.98	-22.92
26400.00	-94.01	Peak	H	H	44.80	-9.54	48.24	68.20	-19.96

Table 6-49. Radiated Measurements

Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS8
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	-116.83	Average	H	H	44.78	0.00	34.95	53.98	-19.03
* 10640.00	-104.16	Peak	H	H	44.78	0.00	47.62	73.98	-26.36
* 15960.00	-117.66	Average	H	H	49.16	0.00	38.49	53.98	-15.49
* 15960.00	-105.46	Peak	H	H	49.16	0.00	50.69	73.98	-23.29
* 21280.00	-99.14	Average	H	H	43.66	-9.54	41.97	53.98	-12.01
* 21280.00	-91.71	Peak	H	H	43.66	-9.54	49.41	73.98	-24.57
26600.00	-104.06	Peak	H	H	47.32	-9.54	40.72	68.20	-27.48

Table 6-50. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 112 of 181

Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS8
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11000.00	-115.76	Average	H	H	44.63	0.00	35.87	53.98	-18.11
*	11000.00	-103.81	Peak	H	H	44.63	0.00	47.82	73.98	-26.16
	16500.00	-105.76	Peak	H	H	50.51	0.00	51.75	68.20	-16.45
	22000.00	-93.96	Peak	H	H	43.97	-9.54	47.46	68.20	-20.74
	27500.00	-105.69	Peak	H	H	48.36	-9.54	40.13	68.20	-28.07

Table 6-51. Radiated Measurements

Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS8
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5580MHz
 Channel: 116

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11160.00	-115.12	Average	H	H	44.72	0.00	36.61	53.98	-17.37
*	11160.00	-103.96	Peak	H	H	44.72	0.00	47.77	73.98	-26.21
	16740.00	-105.67	Peak	H	H	50.00	0.00	51.33	68.20	-16.87
*	22320.00	-103.68	Average	H	H	44.45	-9.54	38.23	53.98	-15.75
*	22320.00	-95.81	Peak	H	H	44.45	-9.54	46.10	73.98	-27.88
	27900.00	-104.68	Peak	H	H	48.05	-9.54	40.83	68.20	-27.37

Table 6-52. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 113 of 181

Worst Case Mode: 802.11n
 Worst Case Transfer Rate: MCS8
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5700MHz
 Channel: 140

Frequency [MHz]	Analyzer Level [dBm]	Detector	Ant. Pol. [H/V]	EUT Pol. [H/H2/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11400.00	-116.89	Average	H	H	45.03	0.00	35.14	53.98	-18.84
* 11400.00	-103.92	Peak	H	H	45.03	0.00	48.11	73.98	-25.87
17100.00	-104.82	Peak	H	H	49.99	0.00	52.16	68.20	-16.04
* 22800.00	-104.32	Average	H	H	44.45	-9.54	37.60	53.98	-16.38
* 22800.00	-96.49	Peak	H	H	44.45	-9.54	45.42	73.98	-28.56
28500.00	-106.01	Peak	H	H	48.01	-9.54	39.46	68.20	-28.74

Table 6-53. Radiated Measurements

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 114 of 181

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

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

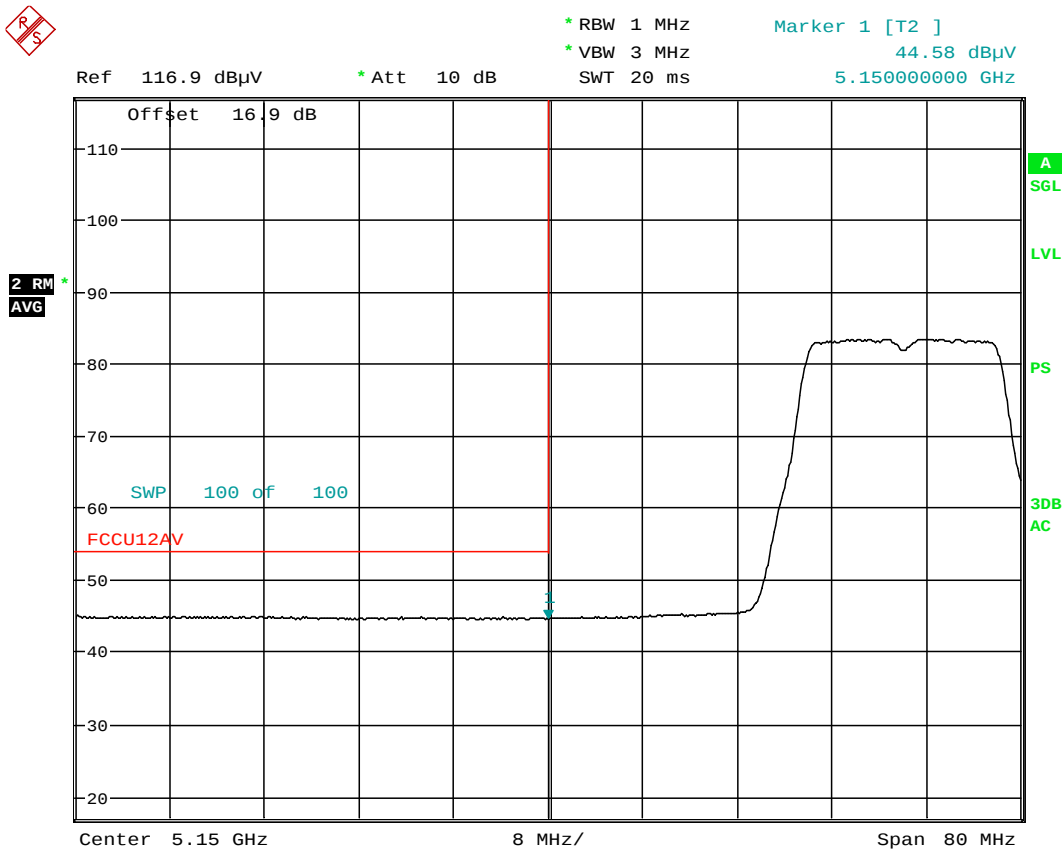
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36

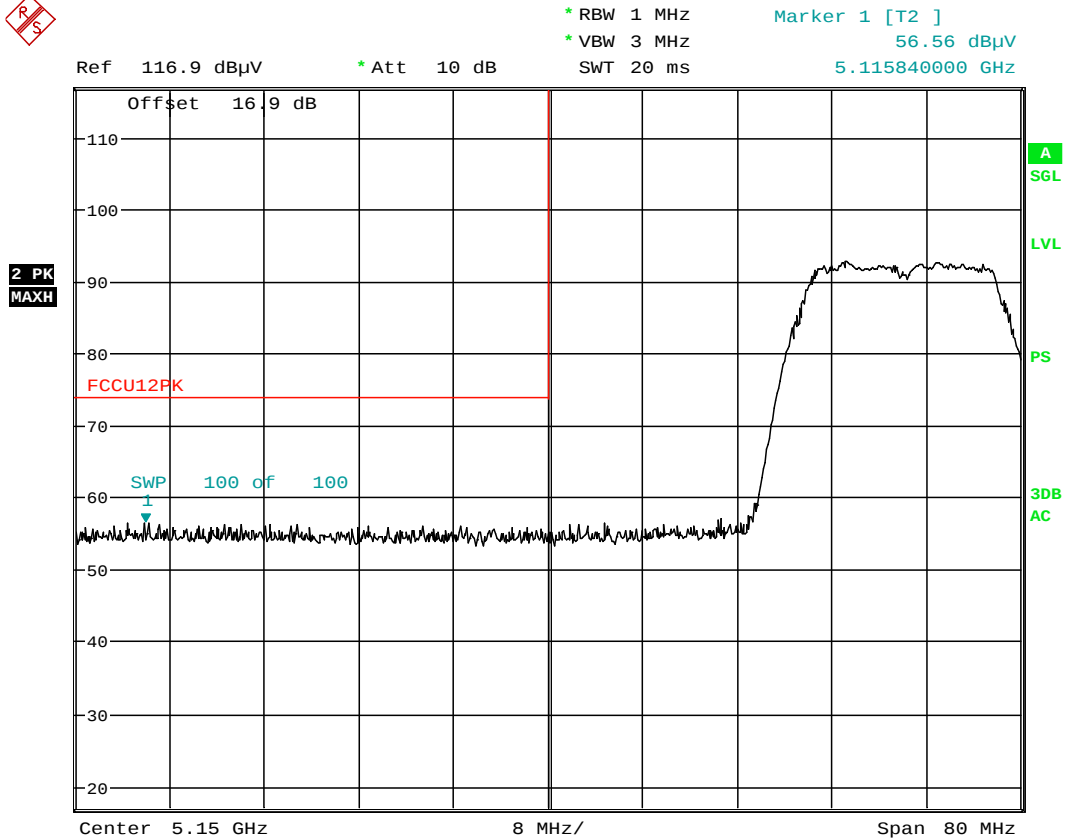


Date: 13.AUG.2014 00:32:52

Plot 6-130. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 115 of 181

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



Date: 13.AUG.2014 00:33:33

Plot 6-131. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 116 of 181

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

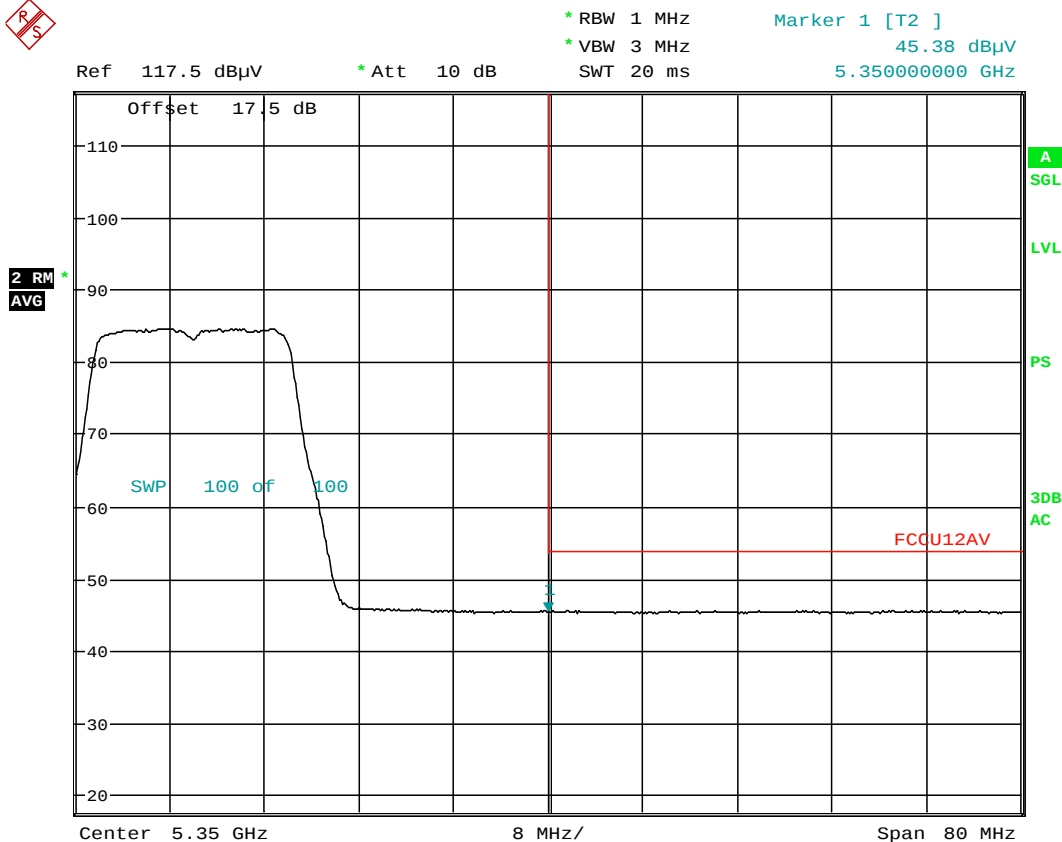
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64

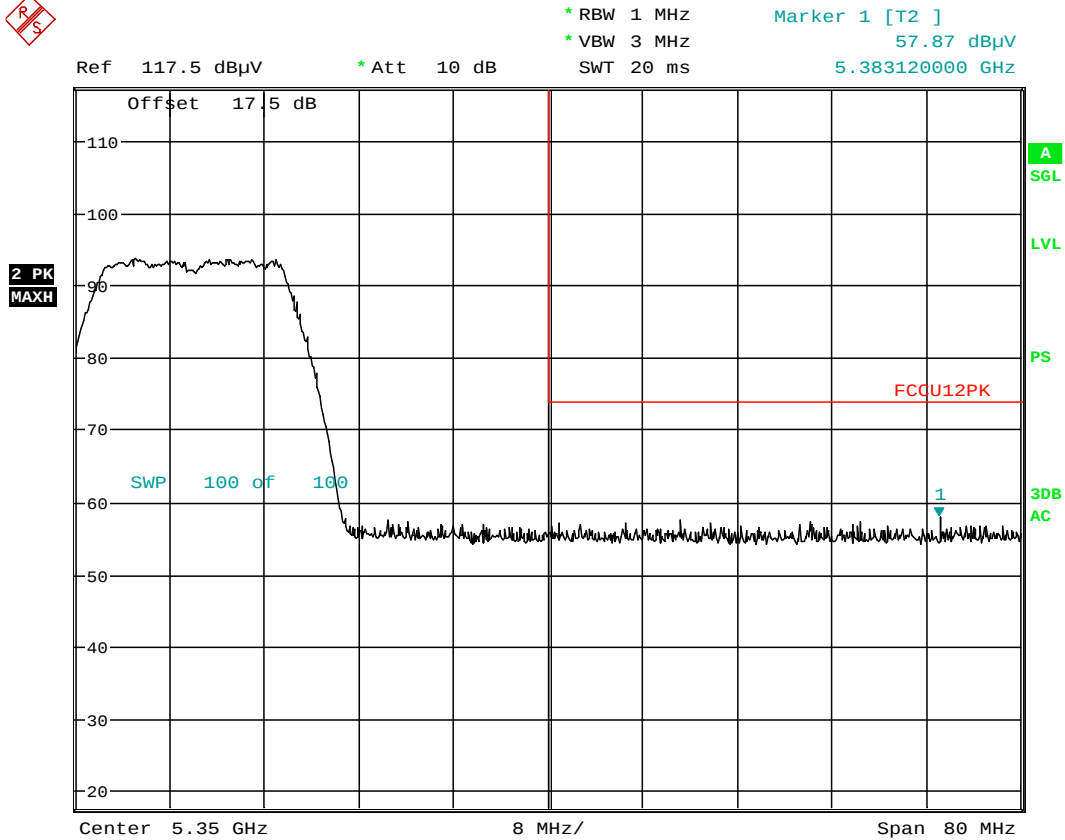


Date: 13.AUG.2014 00:52:40

Plot 6-132. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 117 of 181

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



Date: 13.AUG.2014 00:53:23

Plot 6-133. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 118 of 181

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

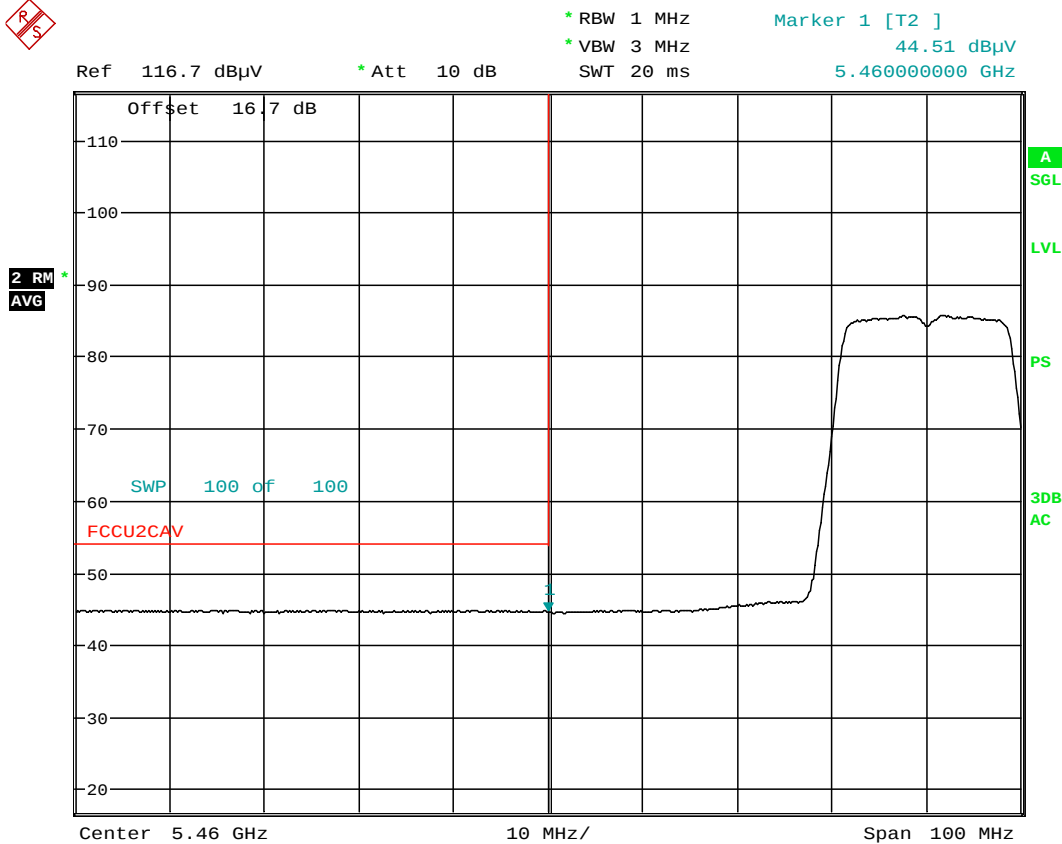
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100

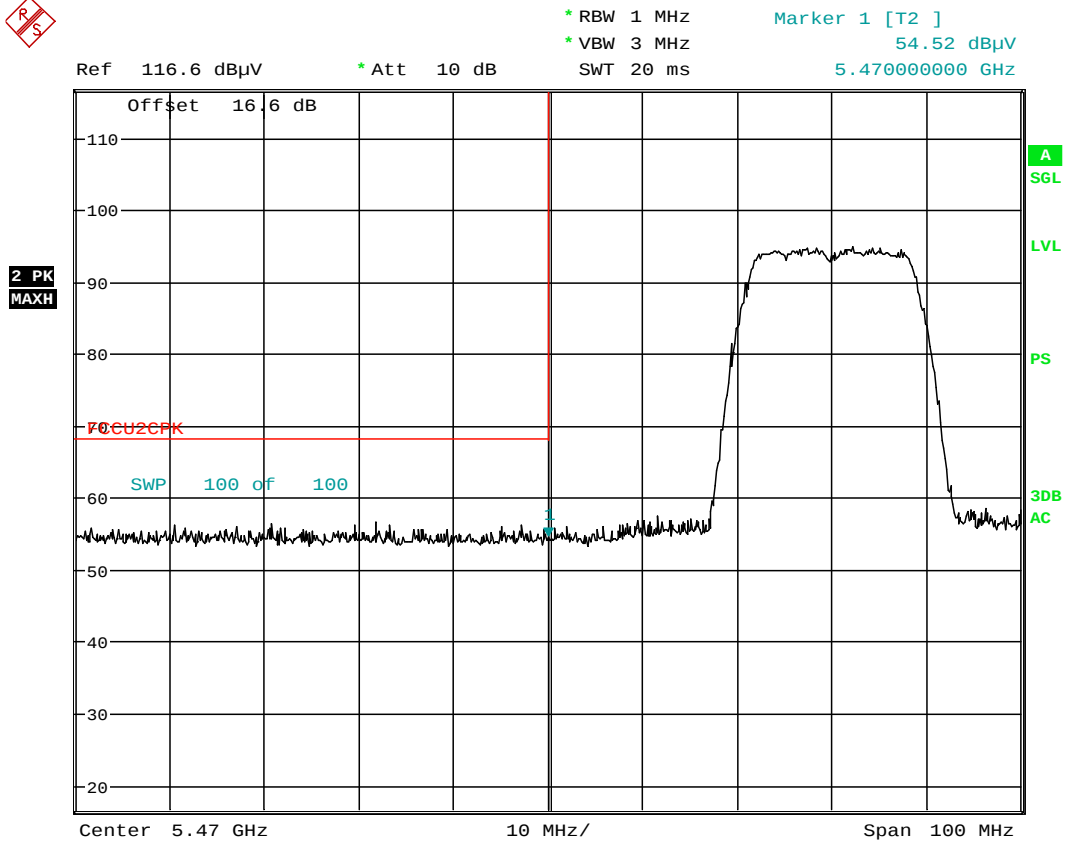


Date: 13.AUG.2014 01:08:18

Plot 6-134. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 119 of 181

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



Date: 13.AUG.2014 01:10:04

Plot 6-135. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 120 of 181

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

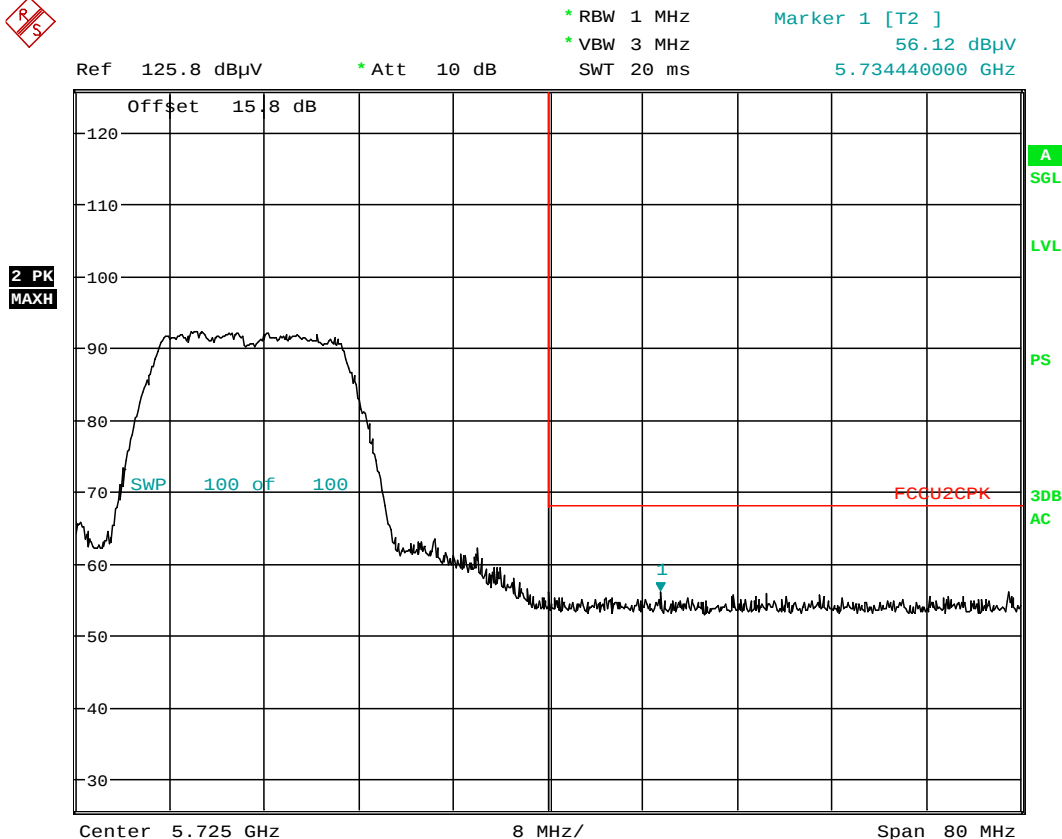
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5700MHz

Channel: 140



Date: 13.AUG.2014 01:23:14

Plot 6-136. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 121 of 181

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

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

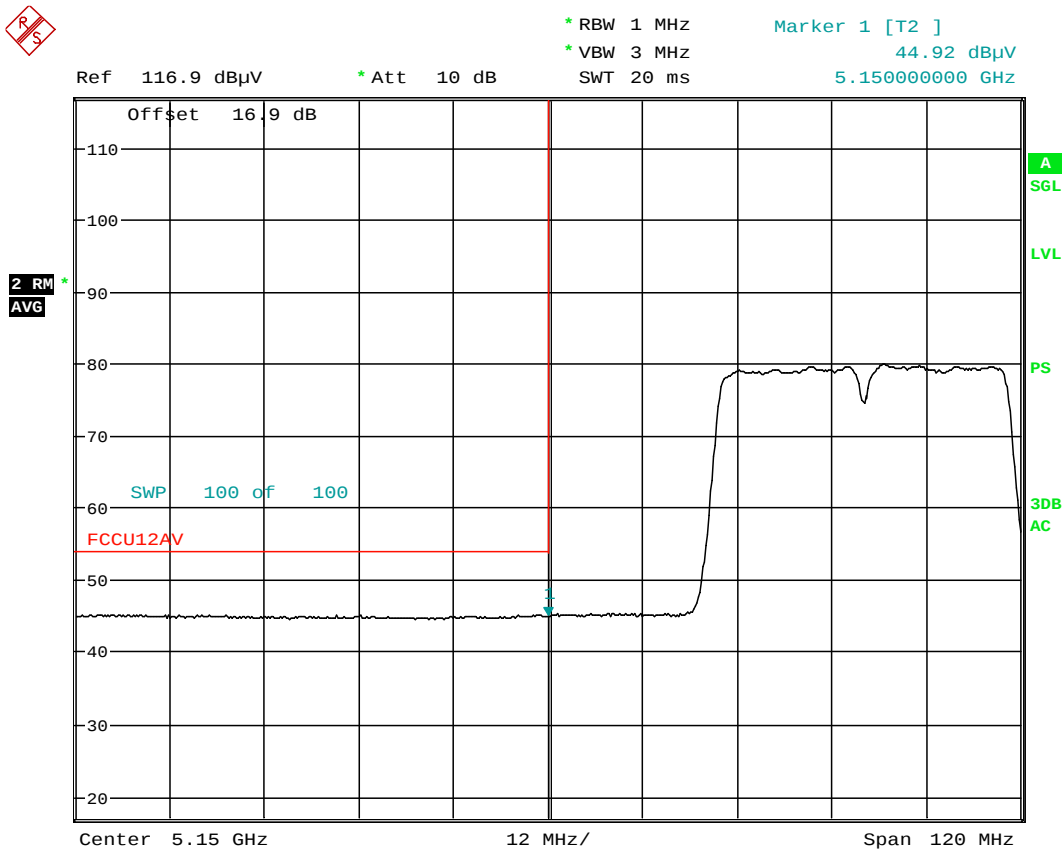
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 13.AUG.2014 00:36:09

Plot 6-137. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 122 of 181

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

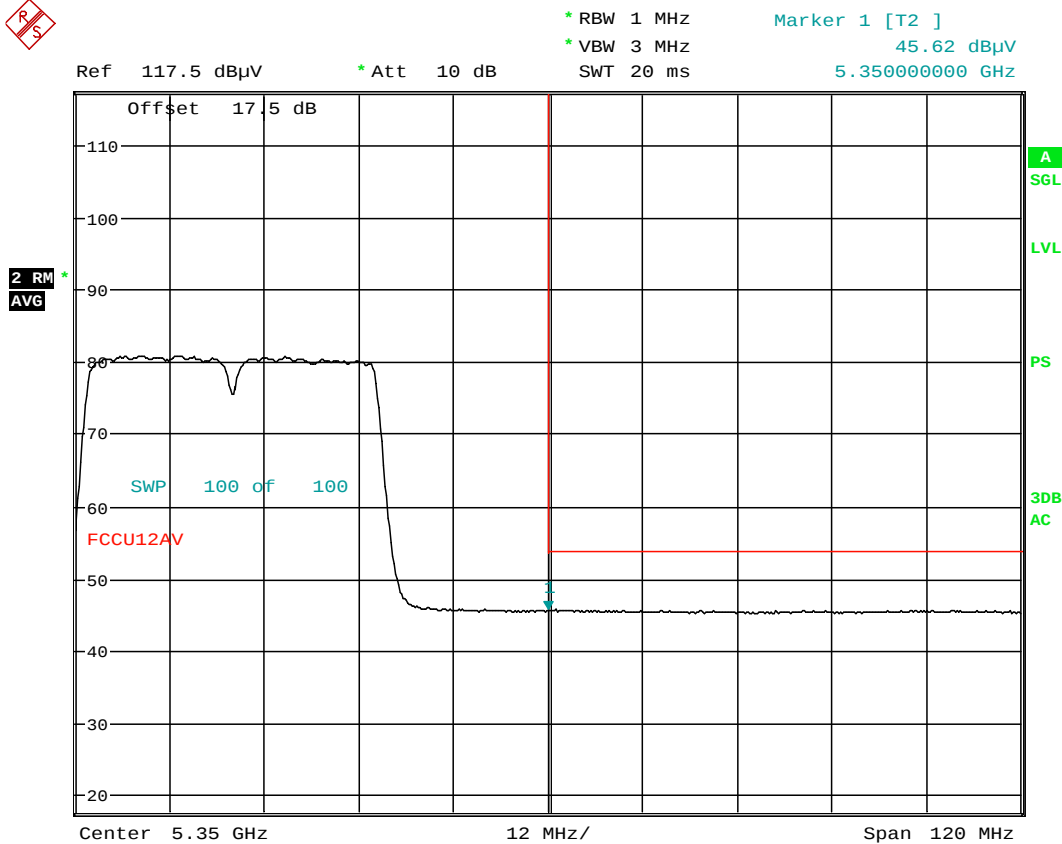
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62

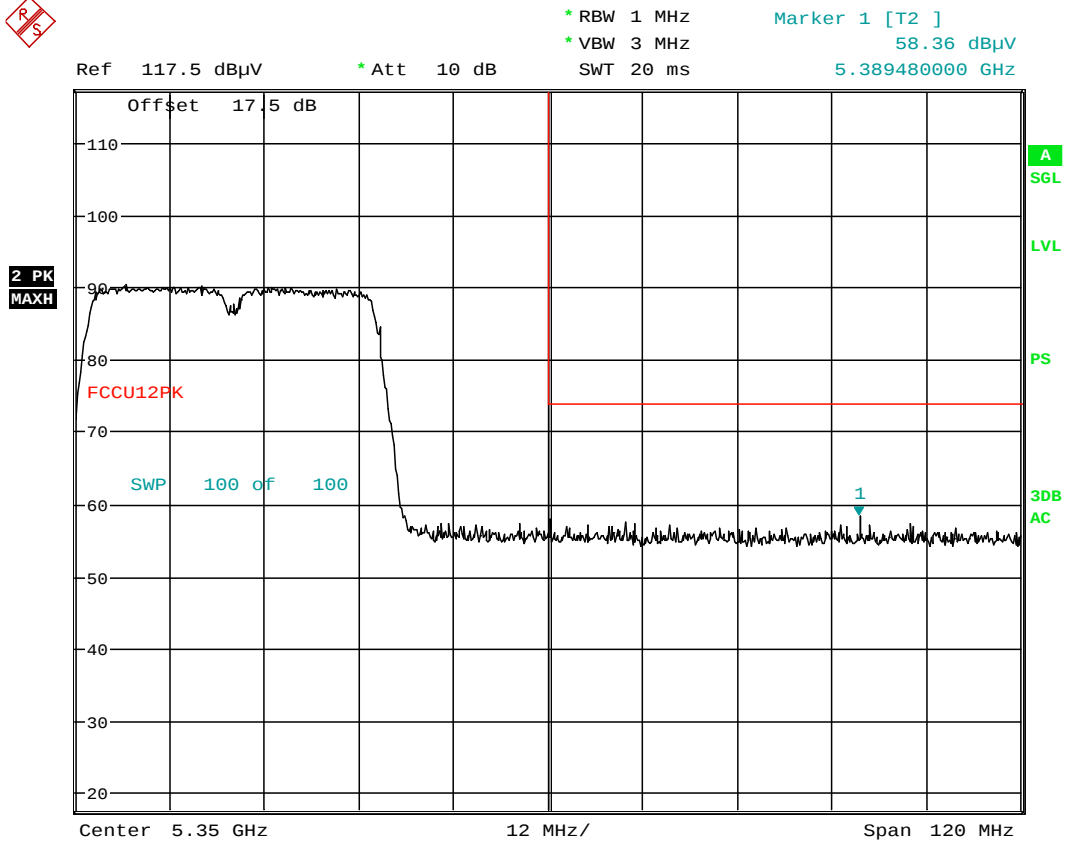


Date: 13.AUG.2014 00:56:33

Plot 6-139. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 124 of 181

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



Date: 13.AUG.2014 00:55:44

Plot 6-140. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 125 of 181

Radiated Band Edge Measurements (40MHz BW)

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

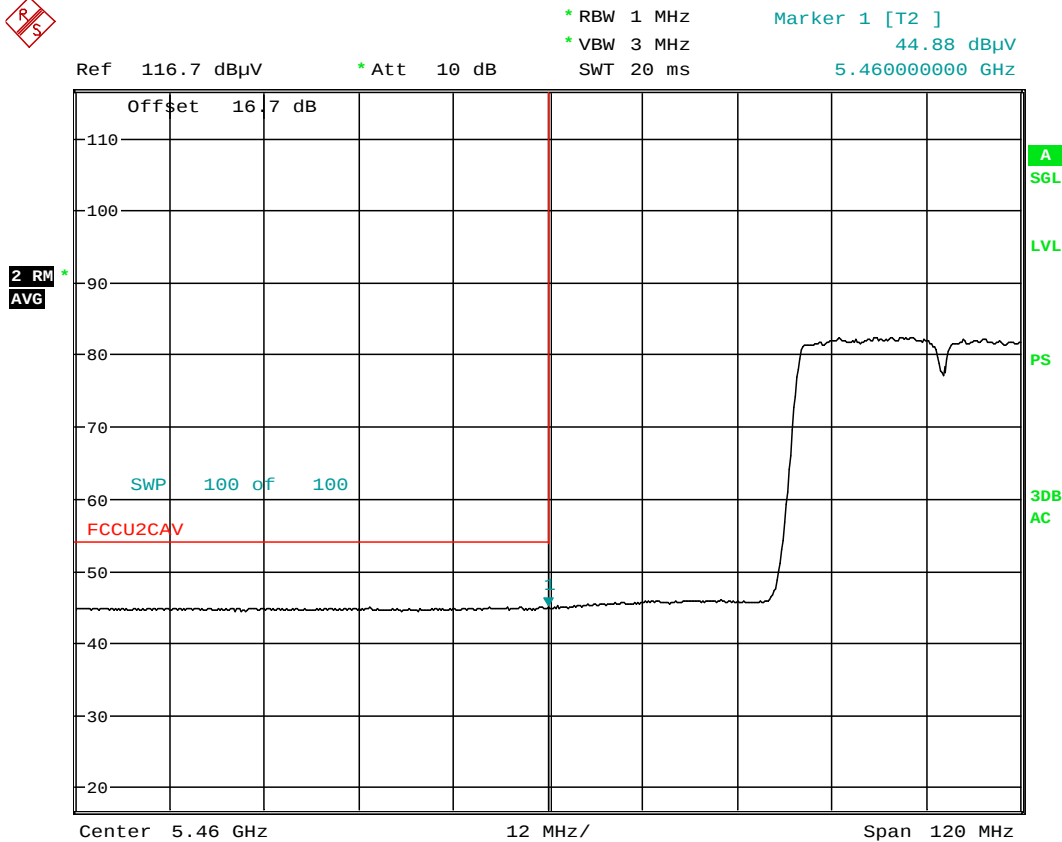
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102

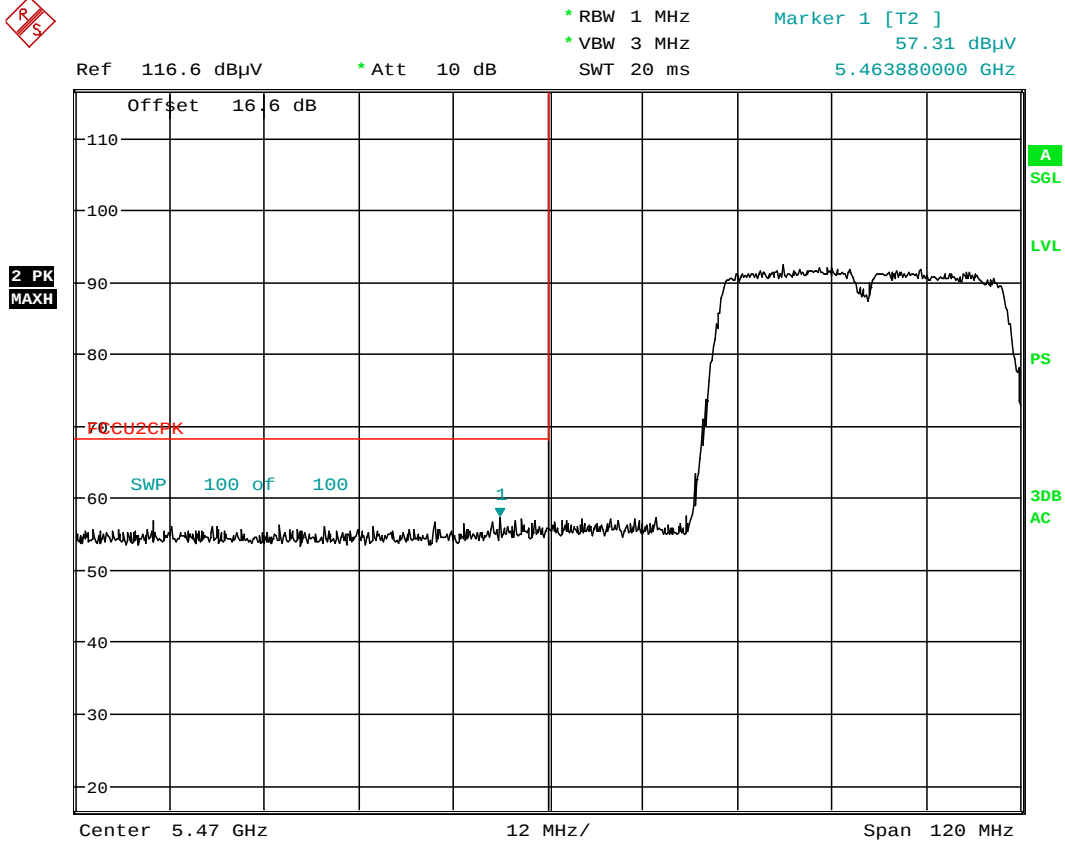


Date: 13.AUG.2014 01:13:17

Plot 6-141. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 126 of 181

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



Date: 13.AUG.2014 01:12:18

Plot 6-142. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 127 of 181

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

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

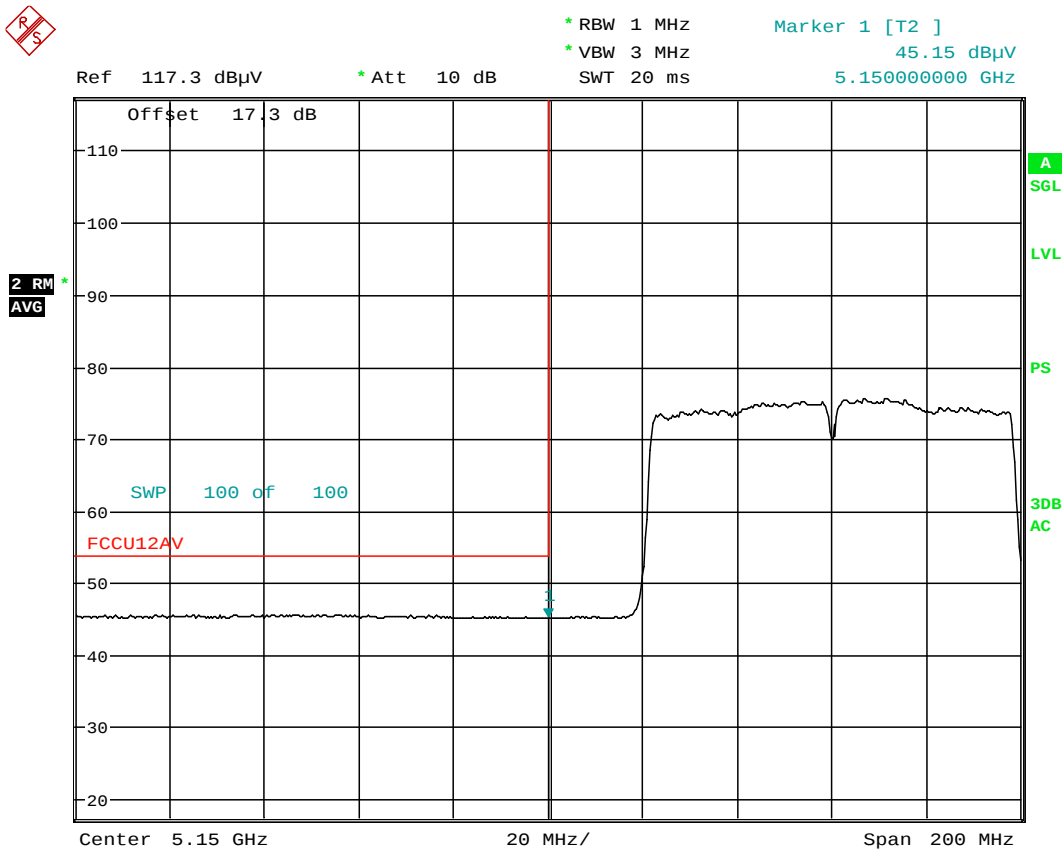
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 13.AUG.2014 00:44:18

Plot 6-144. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 129 of 181

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

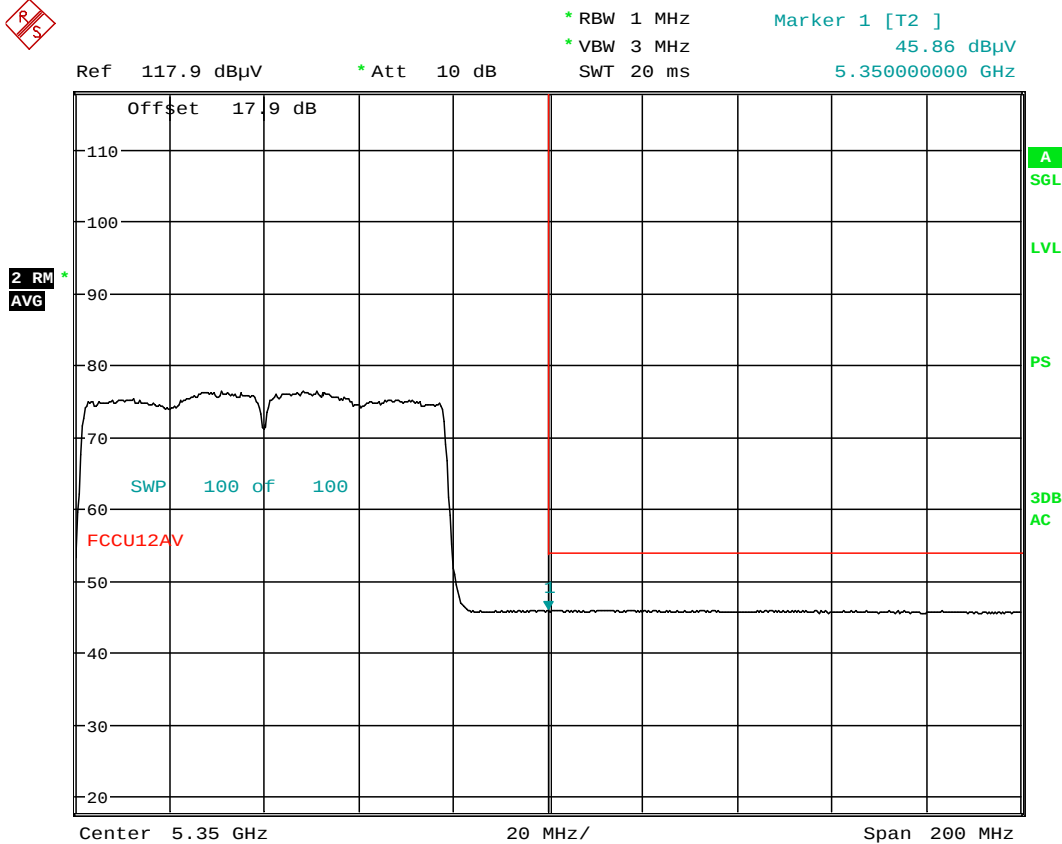
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58

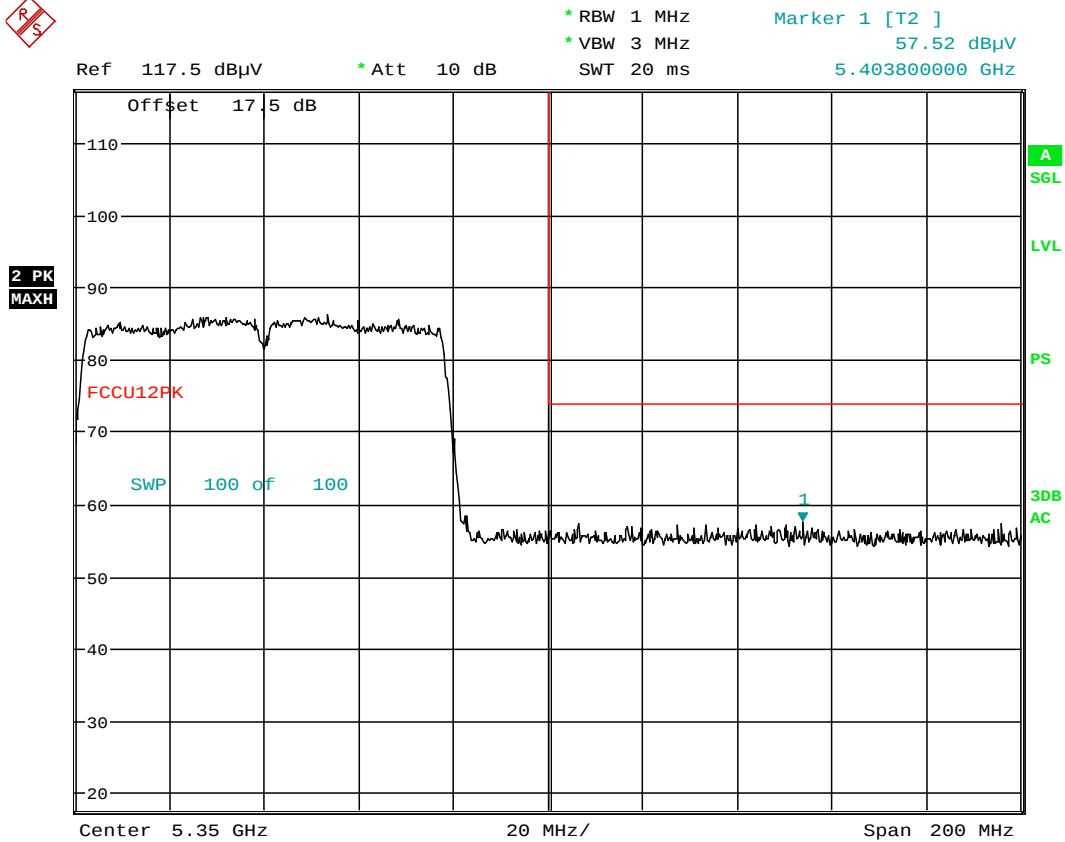


Date: 13.AUG.2014 01:00:25

Plot 6-146. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 131 of 181

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



Date: 13.AUG.2014 00:59:07

Plot 6-147. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 132 of 181

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

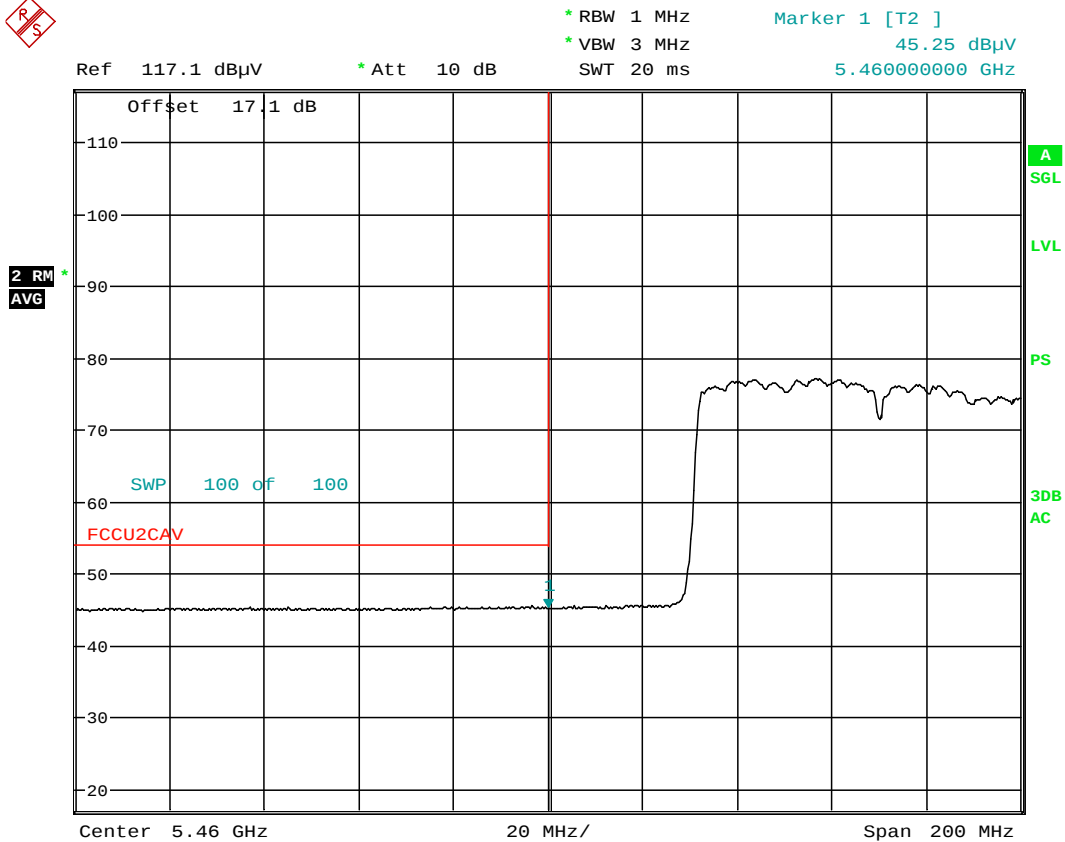
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106

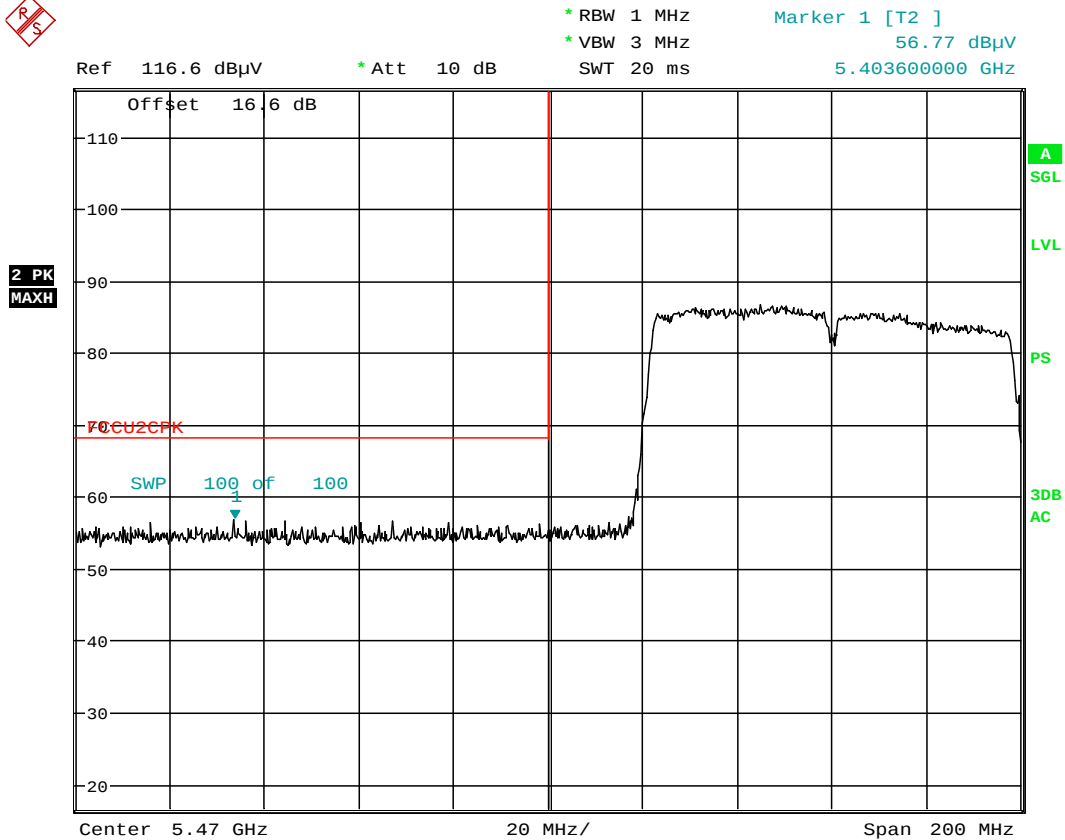


Date: 13.AUG.2014 01:17:10

Plot 6-148. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 133 of 181

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



Date: 13.AUG.2014 01:15:45

Plot 6-149. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 134 of 181

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

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

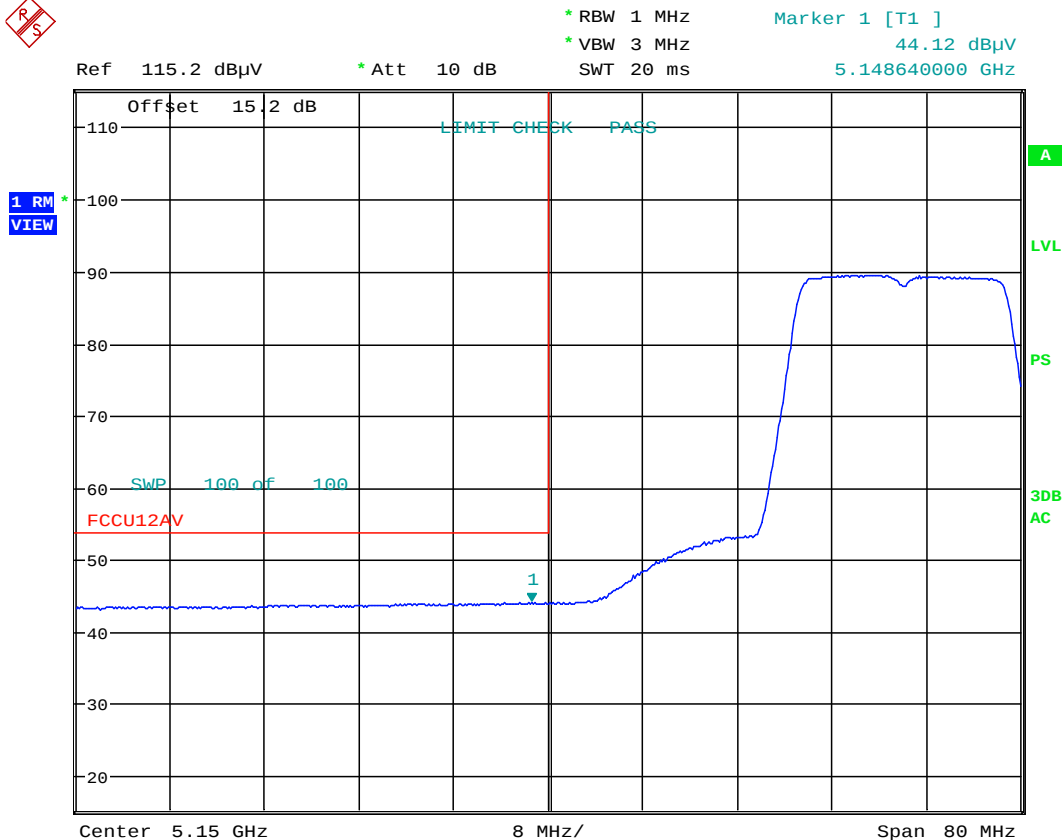
Worst Case Mode: 802.11n

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36

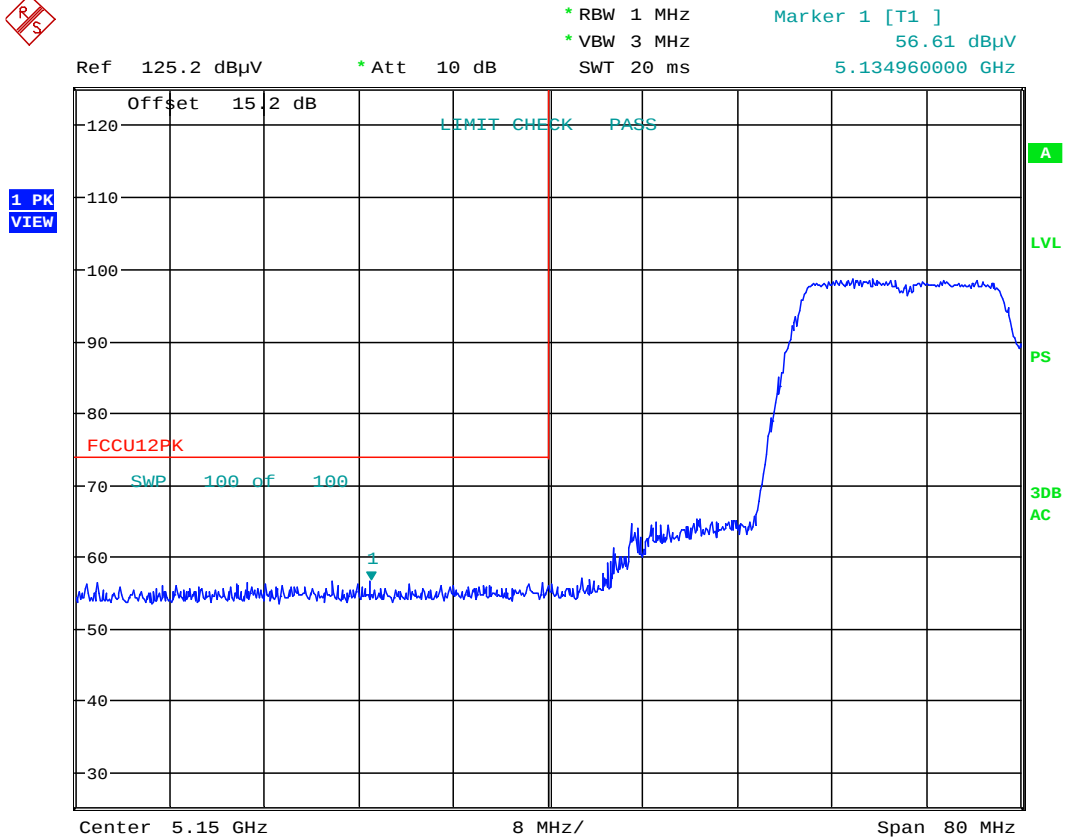


Date: 13.AUG.2014 01:56:36

Plot 6-150. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 135 of 181

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



Date: 13.AUG.2014 01:57:49

Plot 6-151. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 136 of 181

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

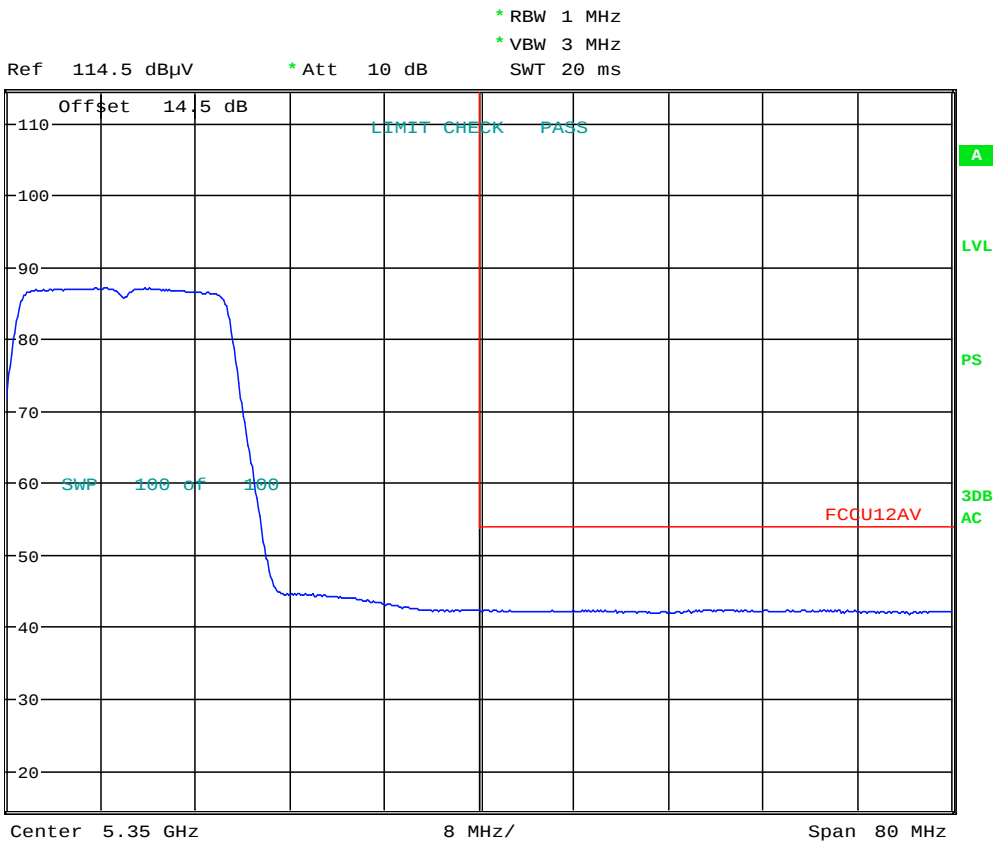
Worst Case Mode: 802.11n

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64

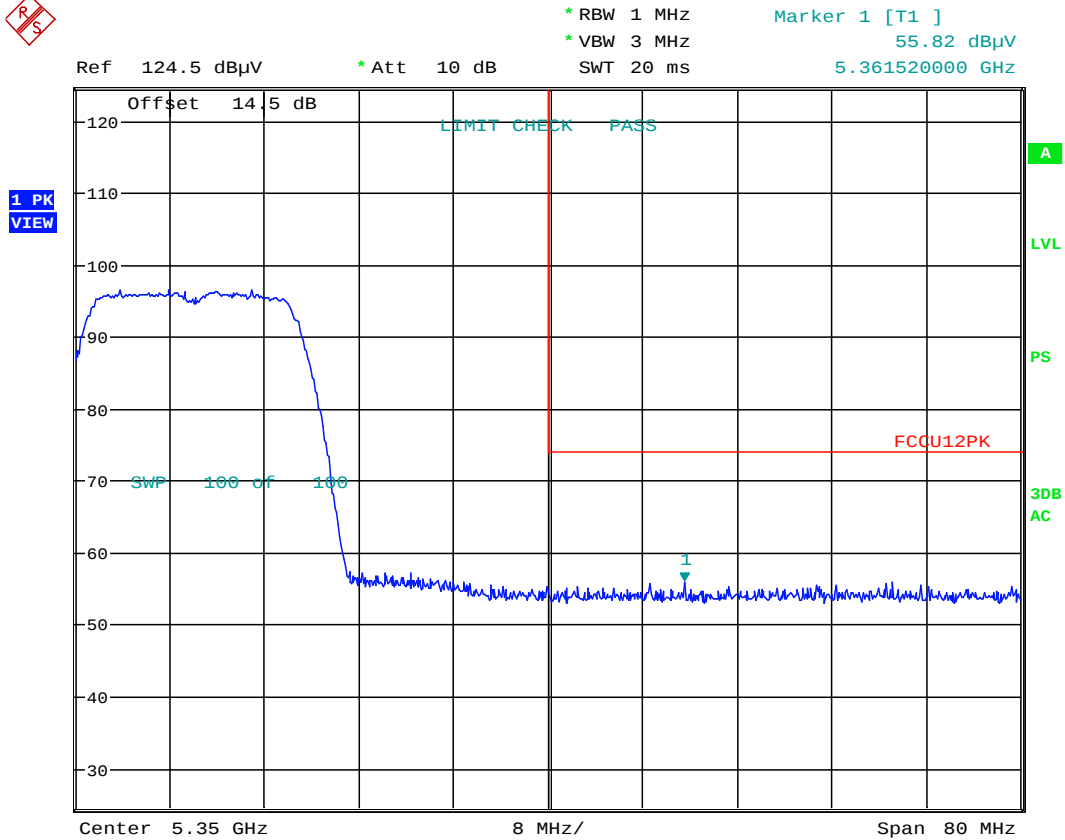


Date: 13.AUG.2014 02:41:01

Plot 6-152. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 137 of 181

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



Date: 13.AUG.2014 02:32:59

Plot 6-153. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 138 of 181

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

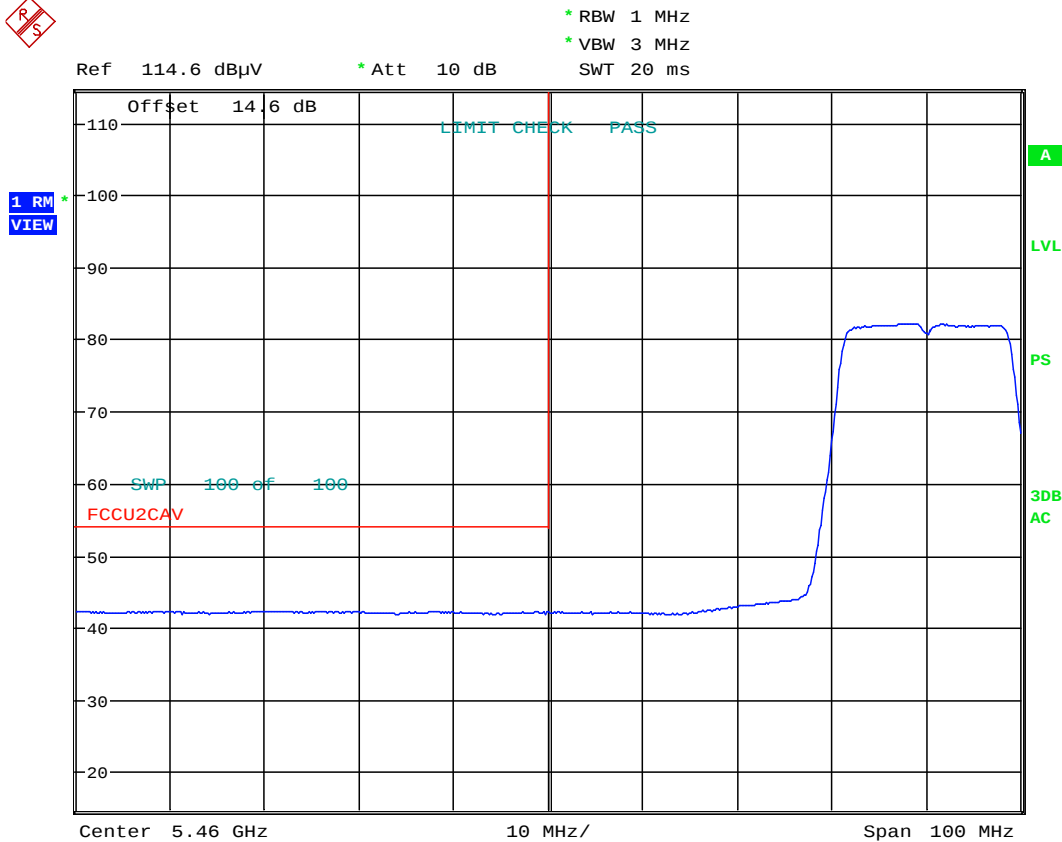
Worst Case Mode: 802.11n

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100

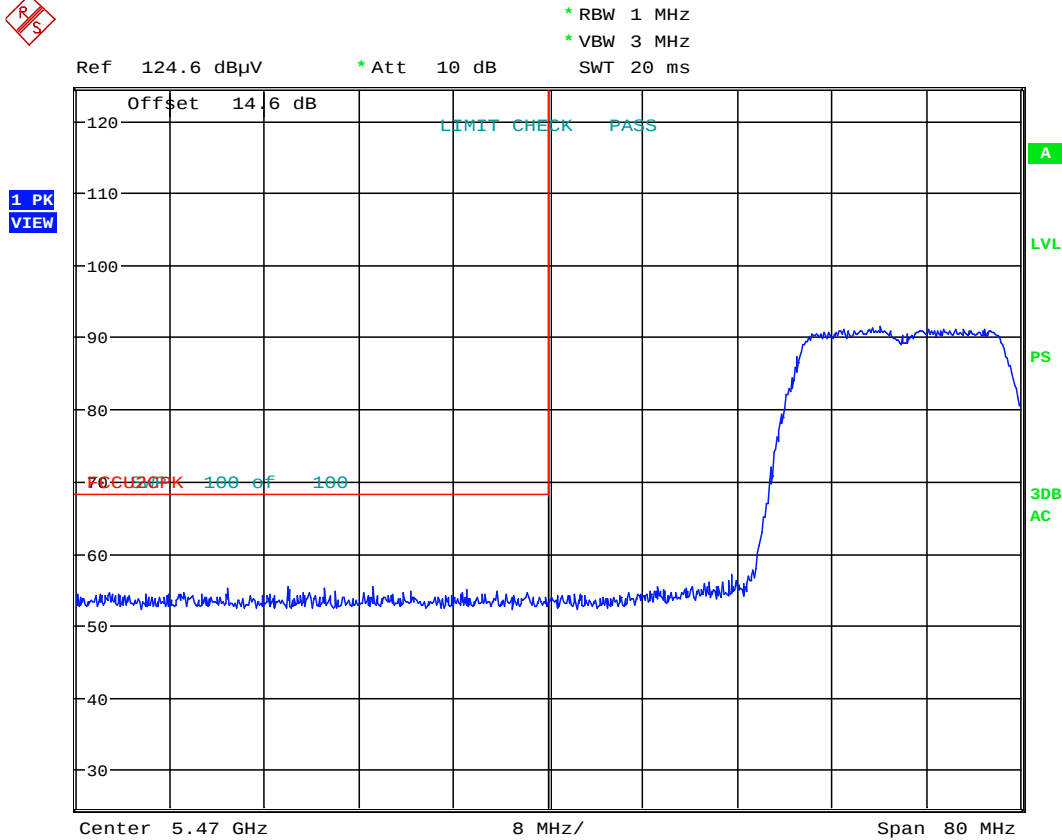


Date: 13.AUG.2014 02:58:02

Plot 6-154. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 139 of 181

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



Date: 13.AUG.2014 03:00:25

Plot 6-155. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 140 of 181

Radiated Band Edge Measurements (20MHz BW)

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

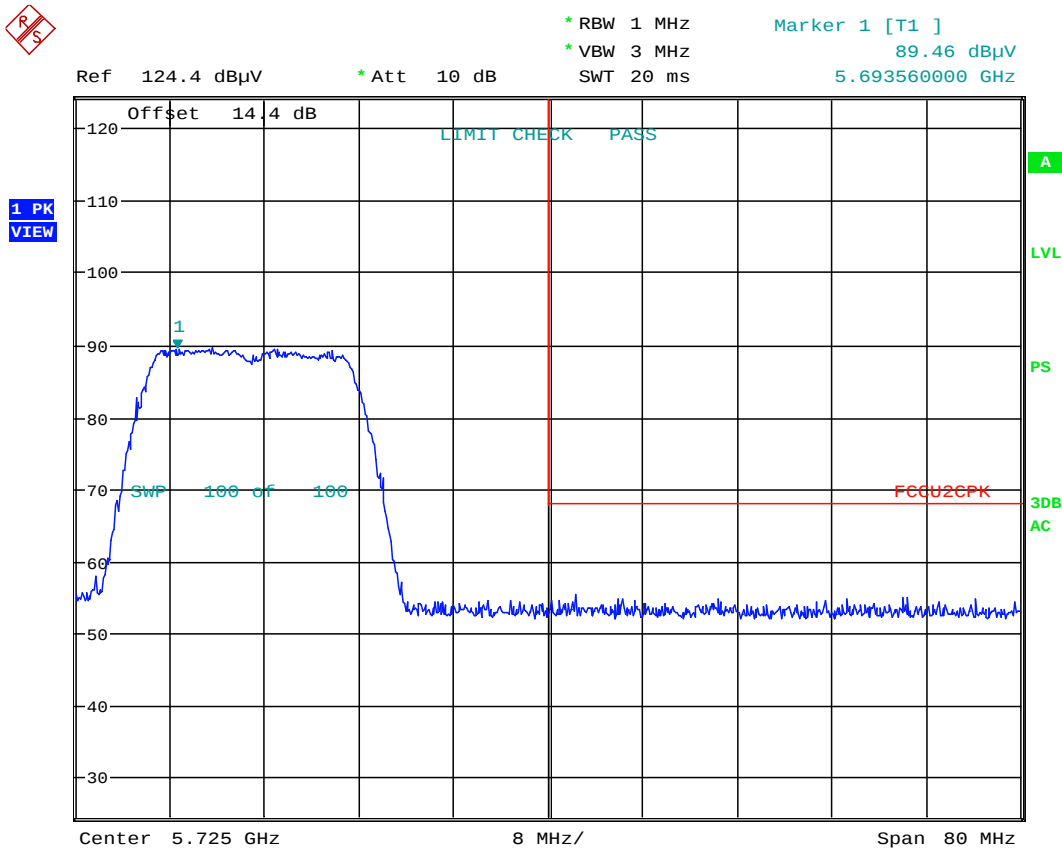
Worst Case Mode: 802.11n

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5700MHz

Channel: 140



Date: 13.AUG.2014 03:18:34

Plot 6-156. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 141 of 181

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

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

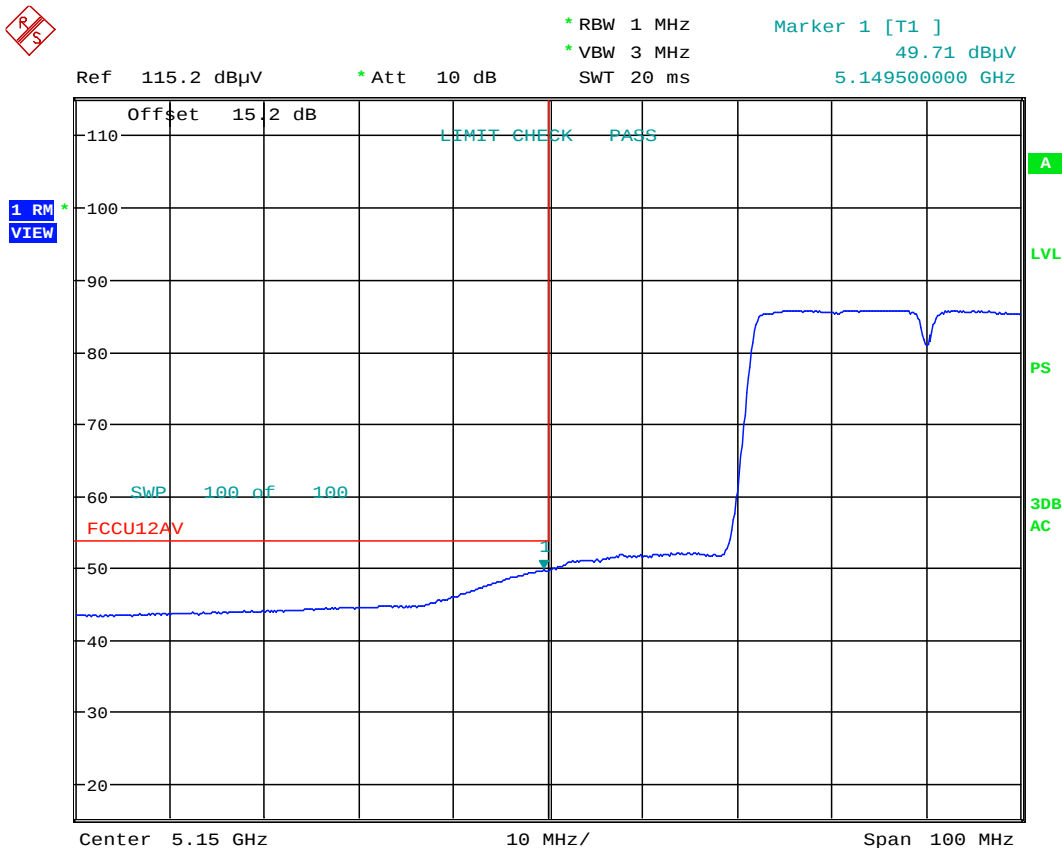
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38

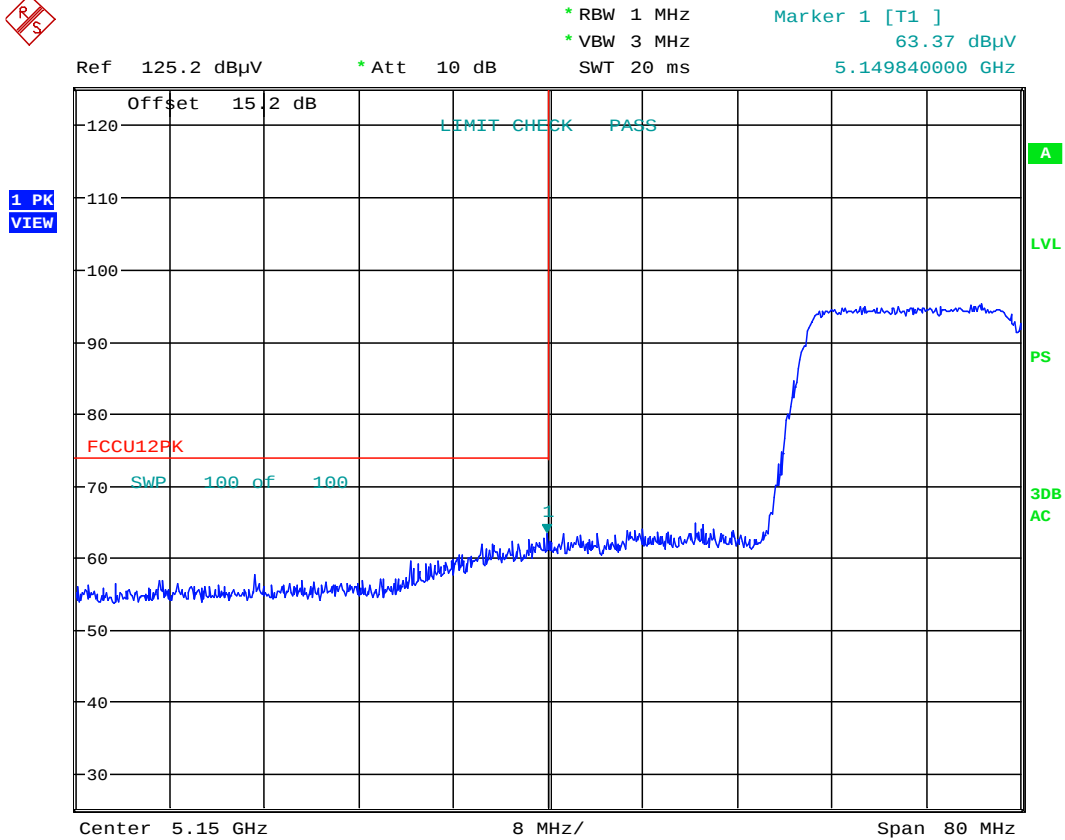


Date: 13.AUG.2014 02:04:44

Plot 6-157. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 142 of 181

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



Date: 13.AUG.2014 02:05:17

Plot 6-158. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 143 of 181

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

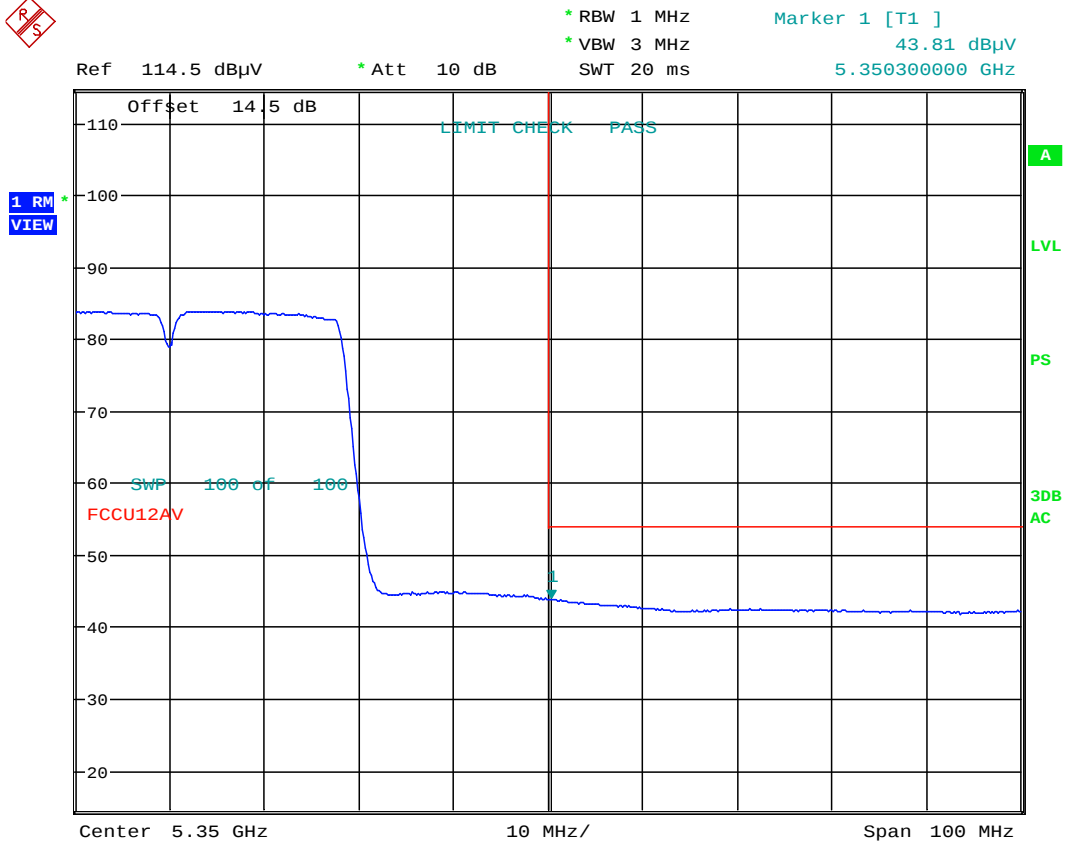
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62

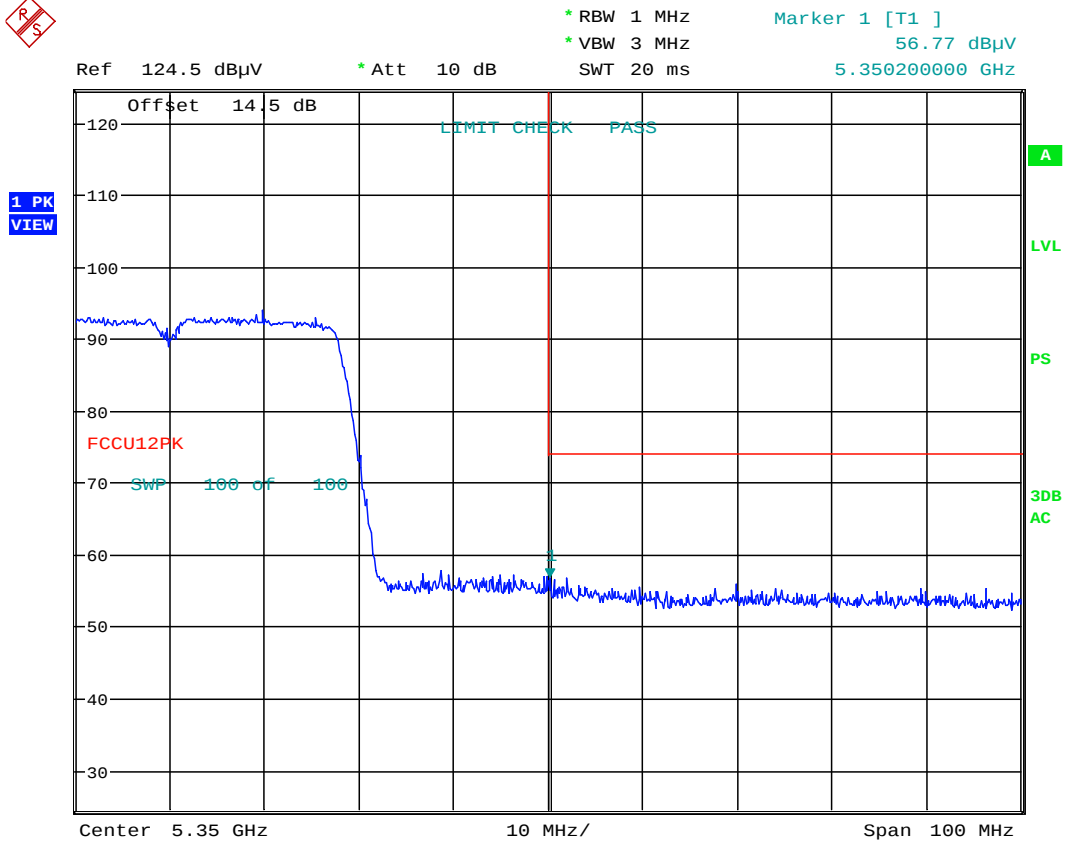


Date: 13.AUG.2014 02:37:31

Plot 6-159. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 144 of 181

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



Date: 13.AUG.2014 02:38:18

Plot 6-160. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 145 of 181

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

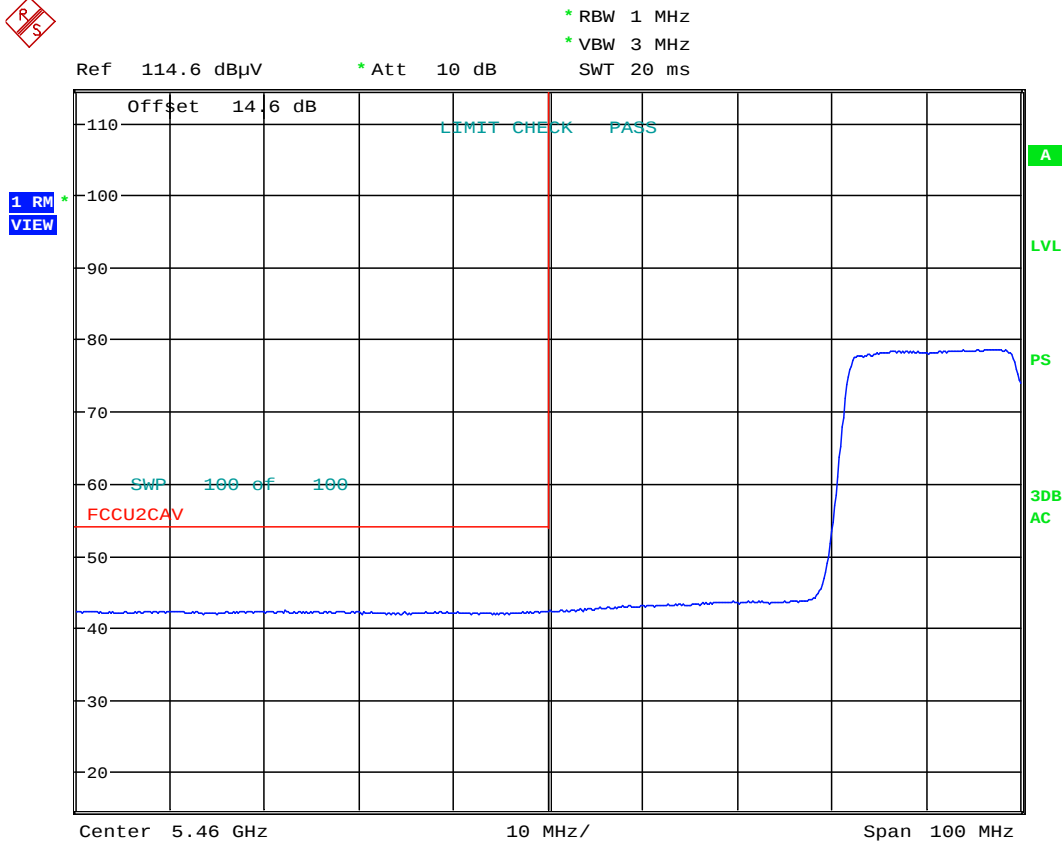
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102

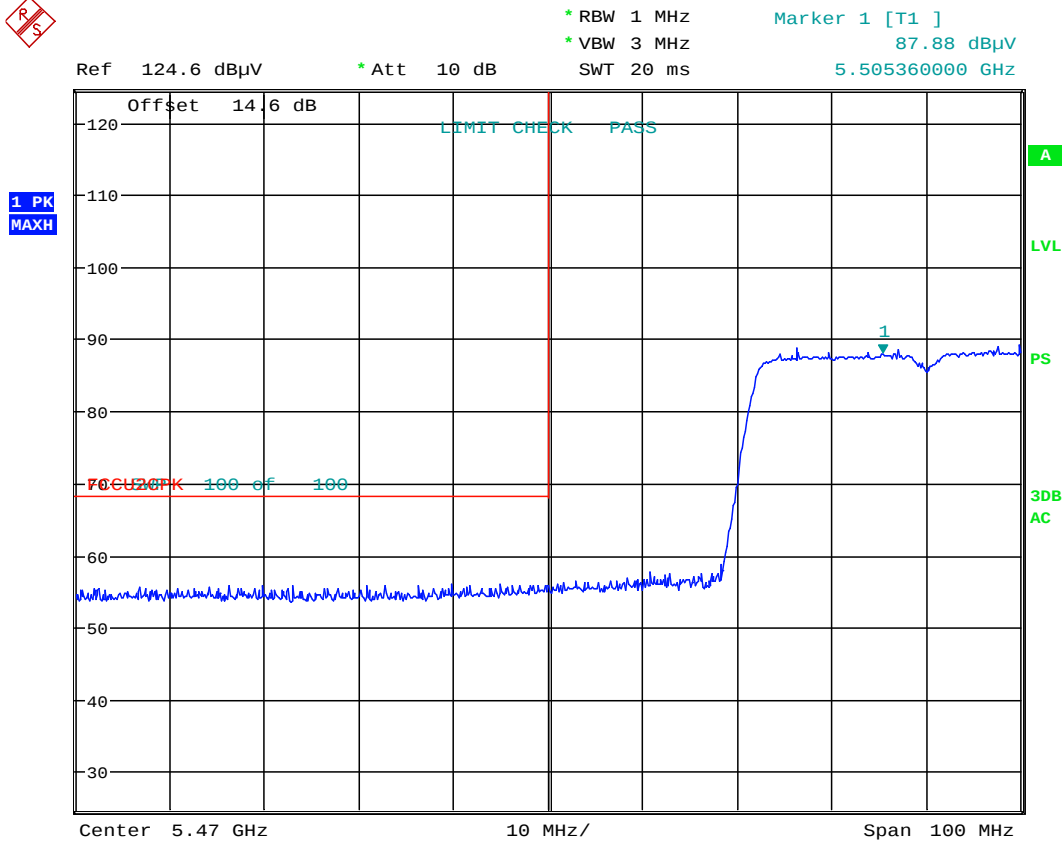


Date: 13.AUG.2014 03:04:52

Plot 6-161. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 146 of 181

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



Date: 13.AUG.2014 03:03:49

Plot 6-162. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 147 of 181

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

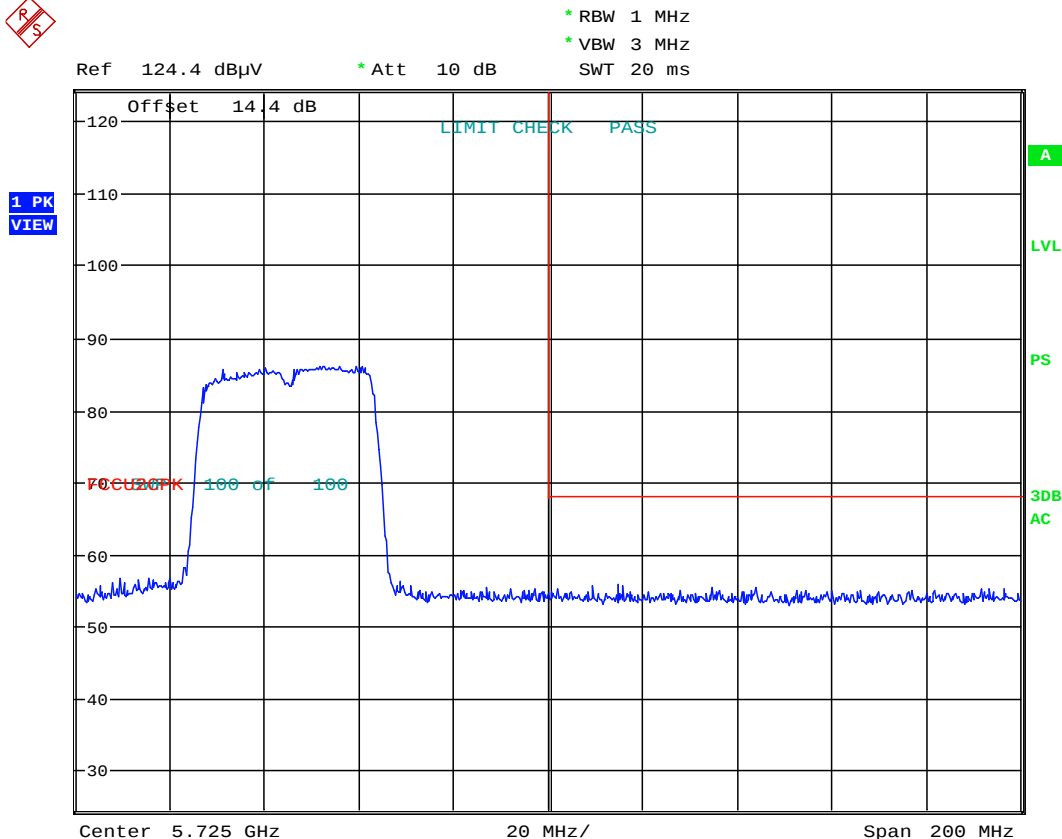
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5670MHz

Channel: 134



Date: 13.AUG.2014 03:23:04

Plot 6-163. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 148 of 181

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

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

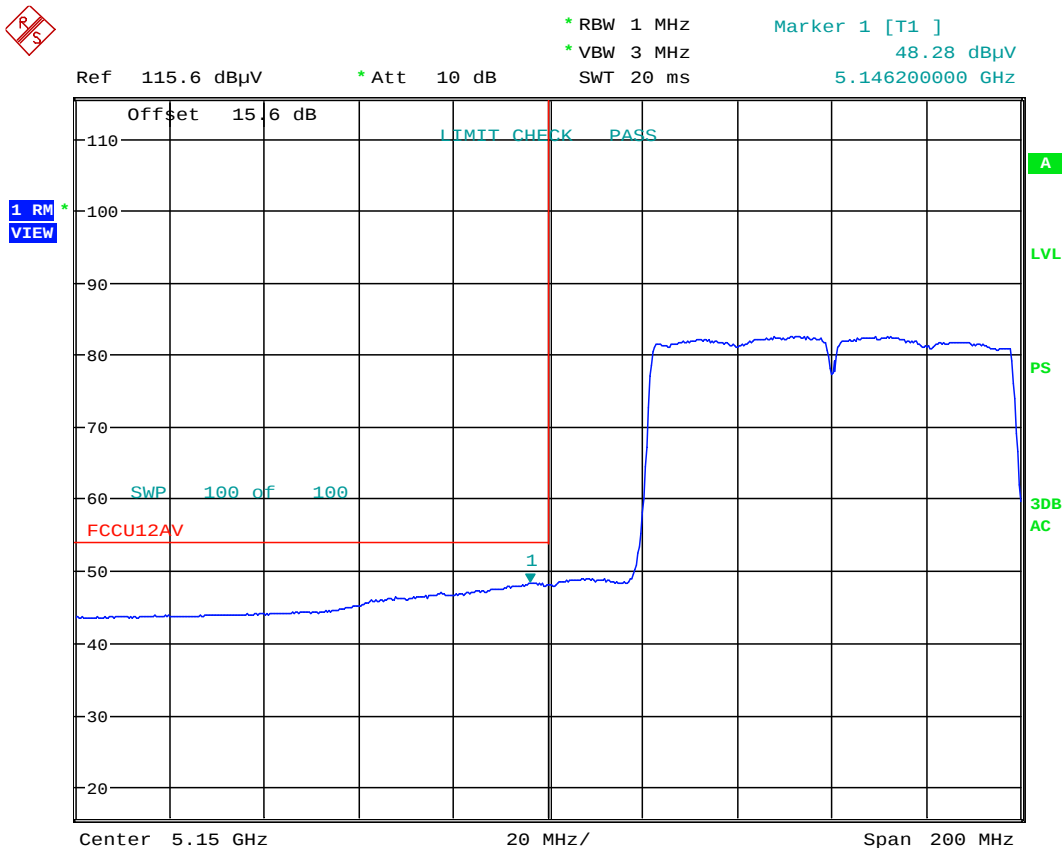
Worst Case Mode: 802.11n (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42

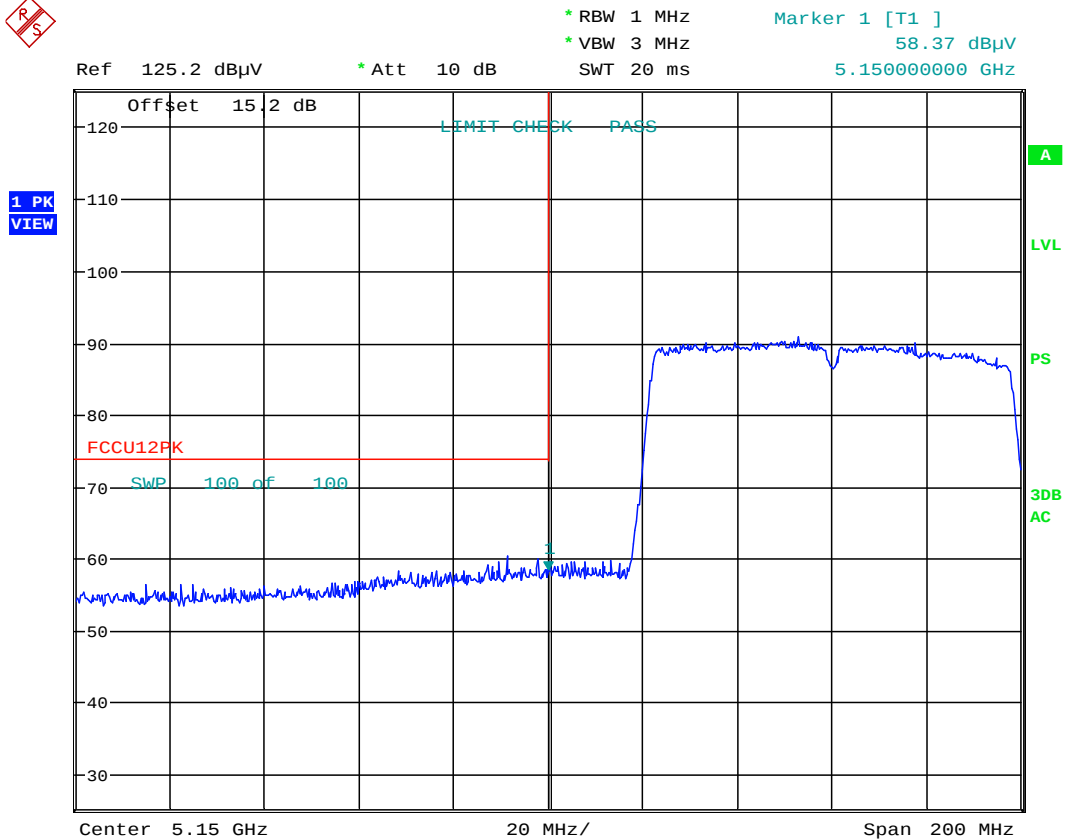


Date: 13.AUG.2014 02:26:42

Plot 6-164. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 149 of 181

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



Date: 13.AUG.2014 02:09:42

Plot 6-165. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 150 of 181

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

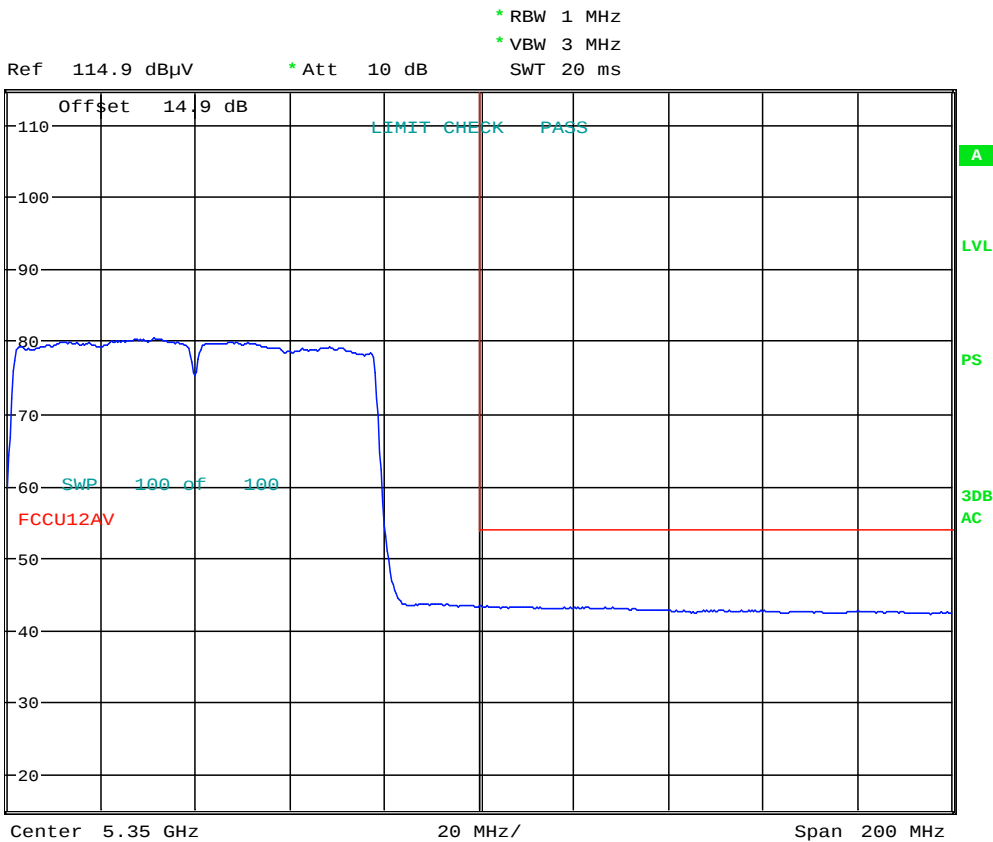
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58

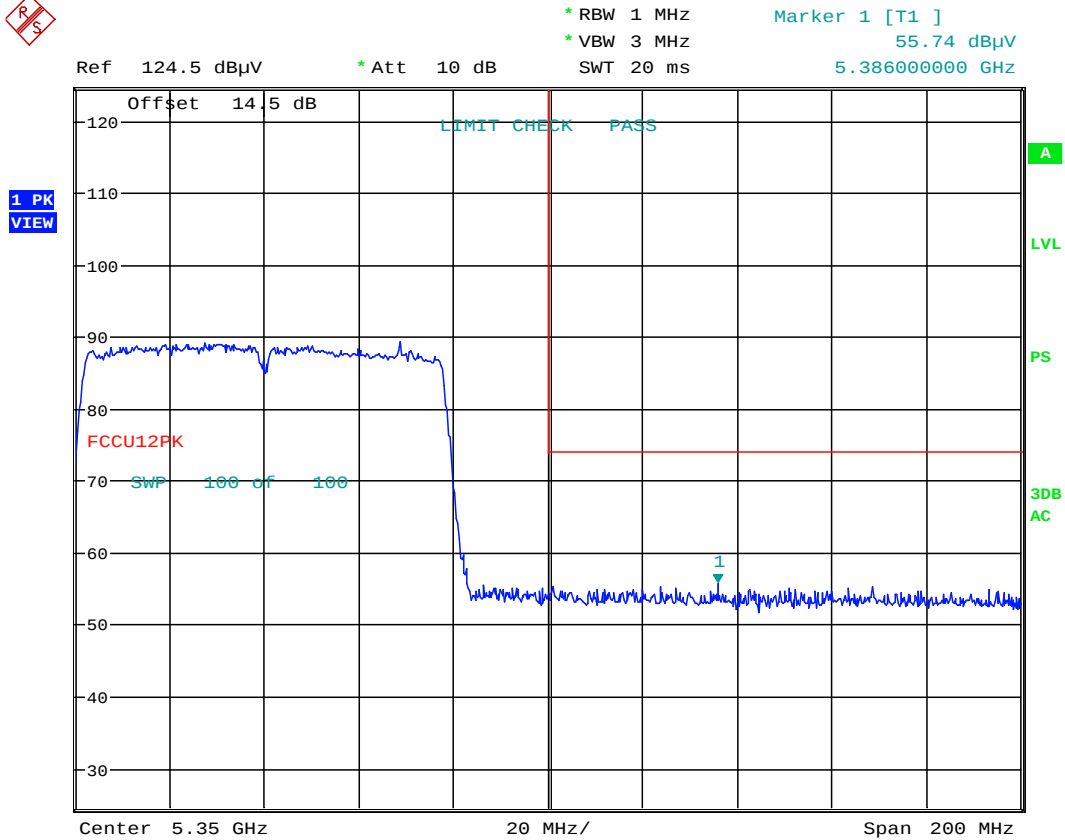


Date: 13.AUG.2014 02:47:37

Plot 6-166. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 151 of 181

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



Date: 13.AUG.2014 02:50:21

Plot 6-167. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 152 of 181

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

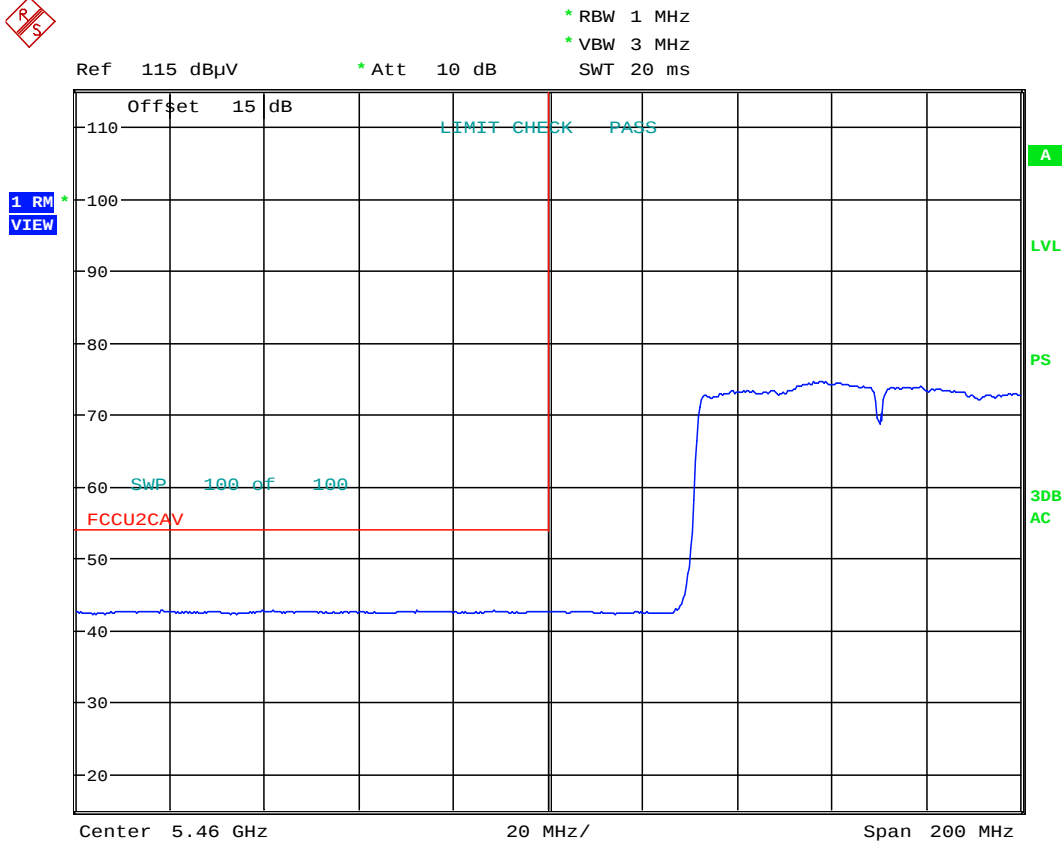
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106

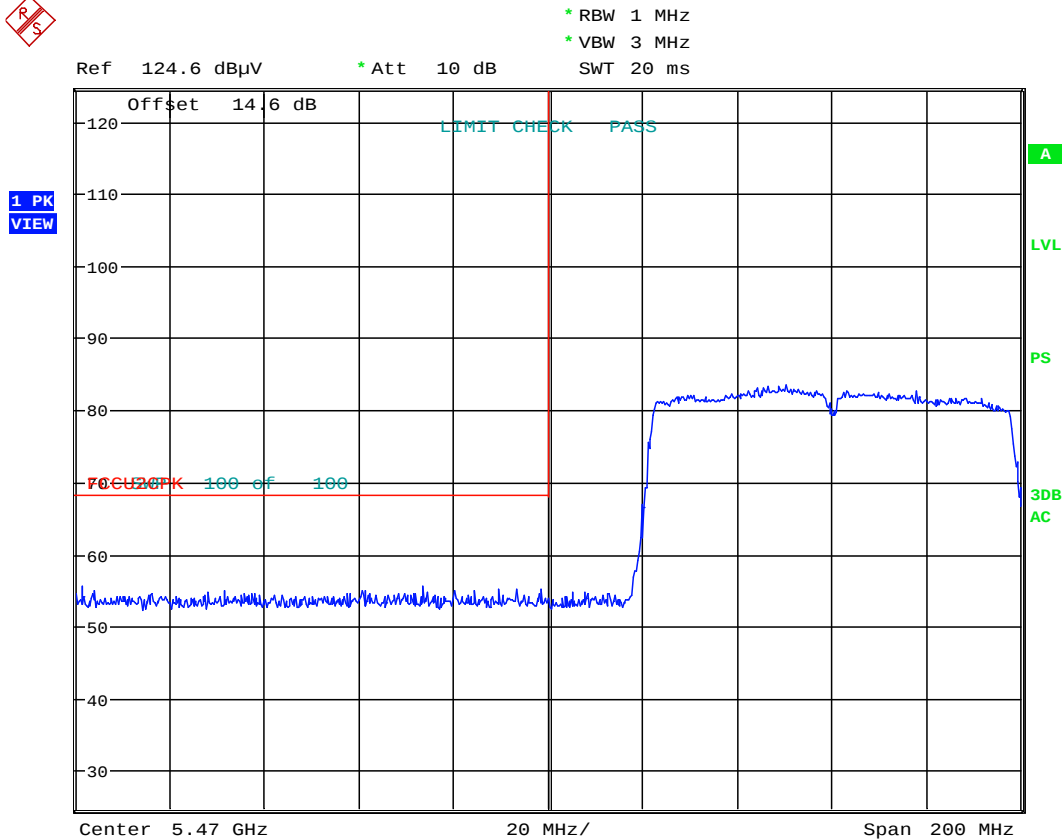


Date: 13.AUG.2014 03:09:32

Plot 6-168. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 153 of 181

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



Date: 13.AUG.2014 03:11:29

Plot 6-169. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 154 of 181

6.14 MIMO Radiated Band Edge Measurements (20MHz BW)

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

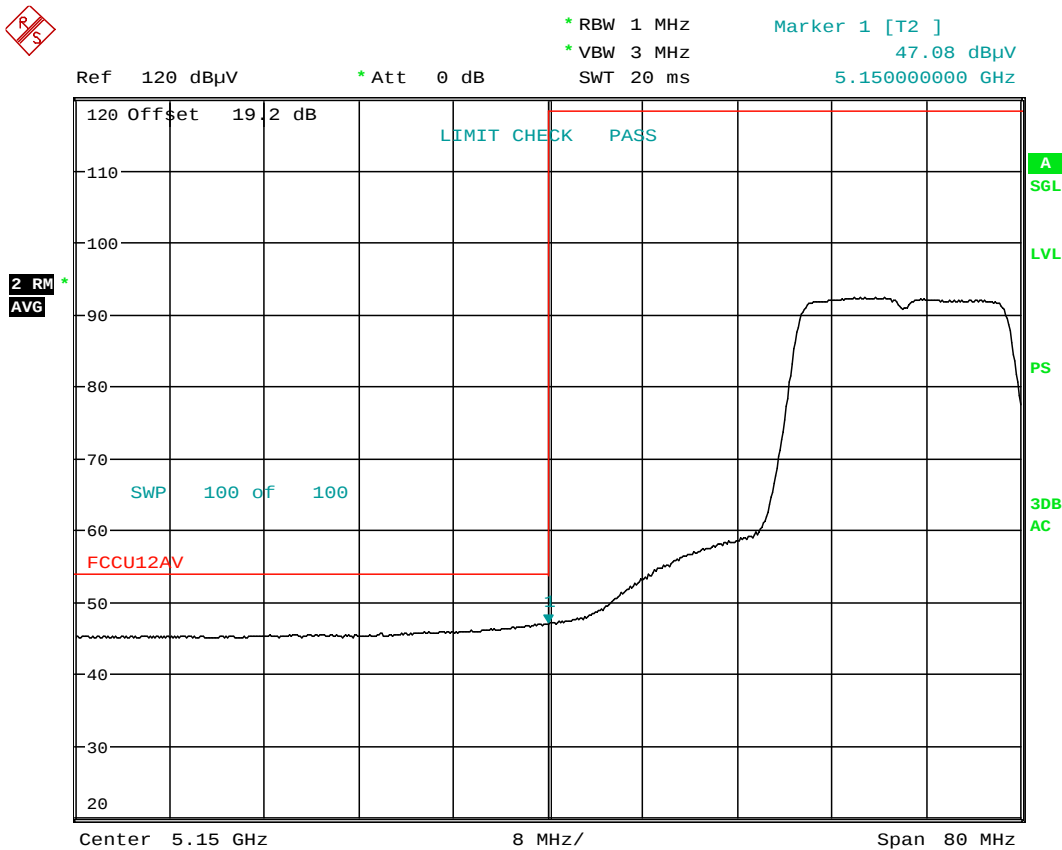
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36

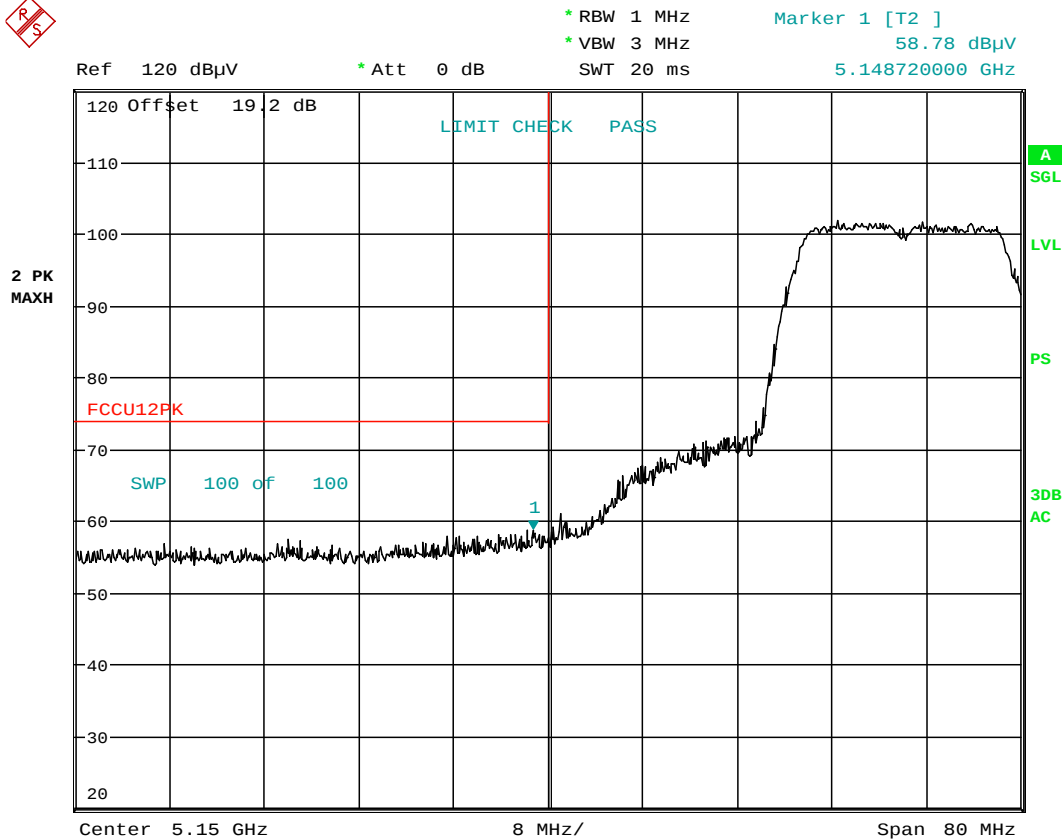


Date: 13.AUG.2014 11:55:01

Plot 6-170. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 155 of 181

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



Date: 13.AUG.2014 11:53:51

Plot 6-171. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 156 of 181

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

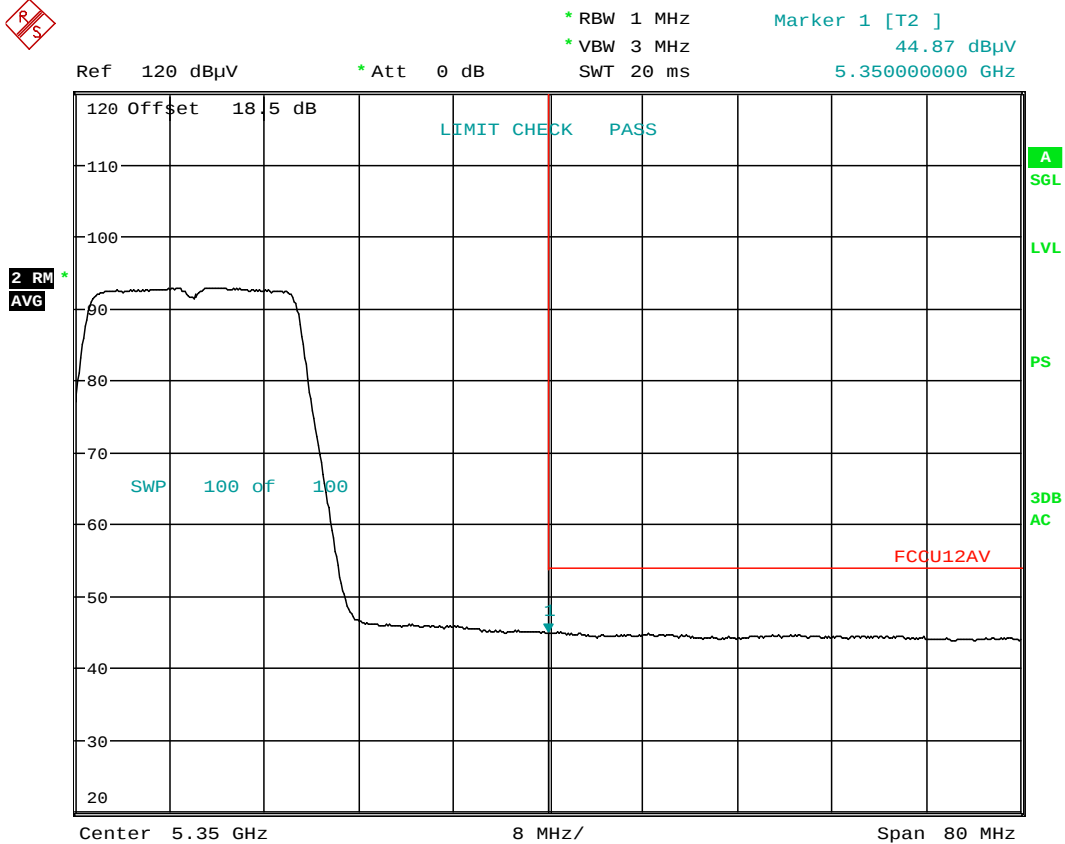
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64

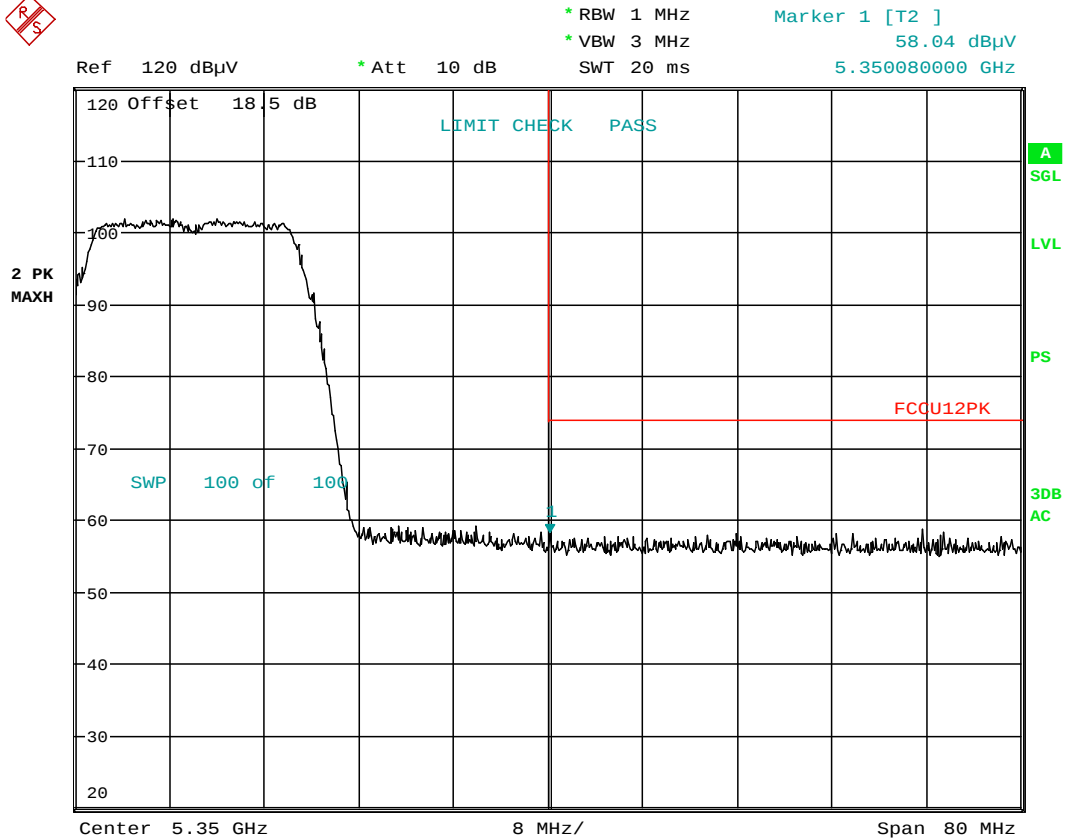


Date: 13.AUG.2014 12:52:15

Plot 6-172. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 157 of 181

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



Date: 13.AUG.2014 12:51:08

Plot 6-173. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 158 of 181

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

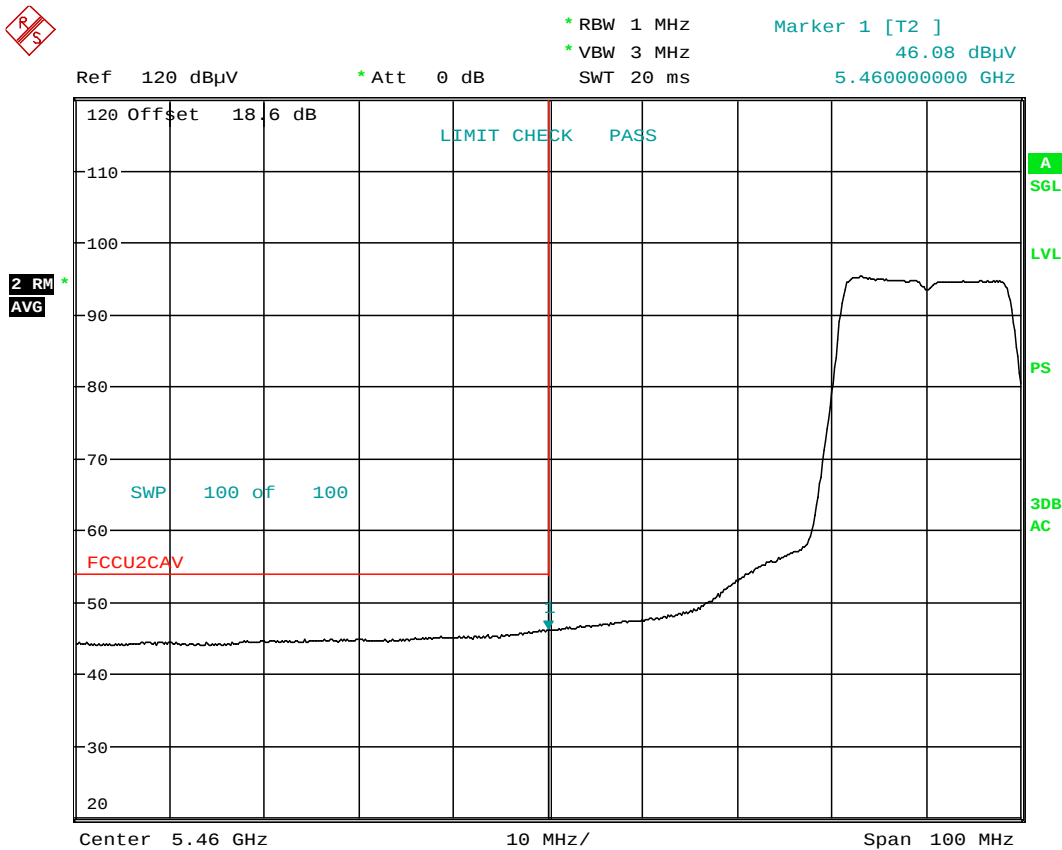
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100

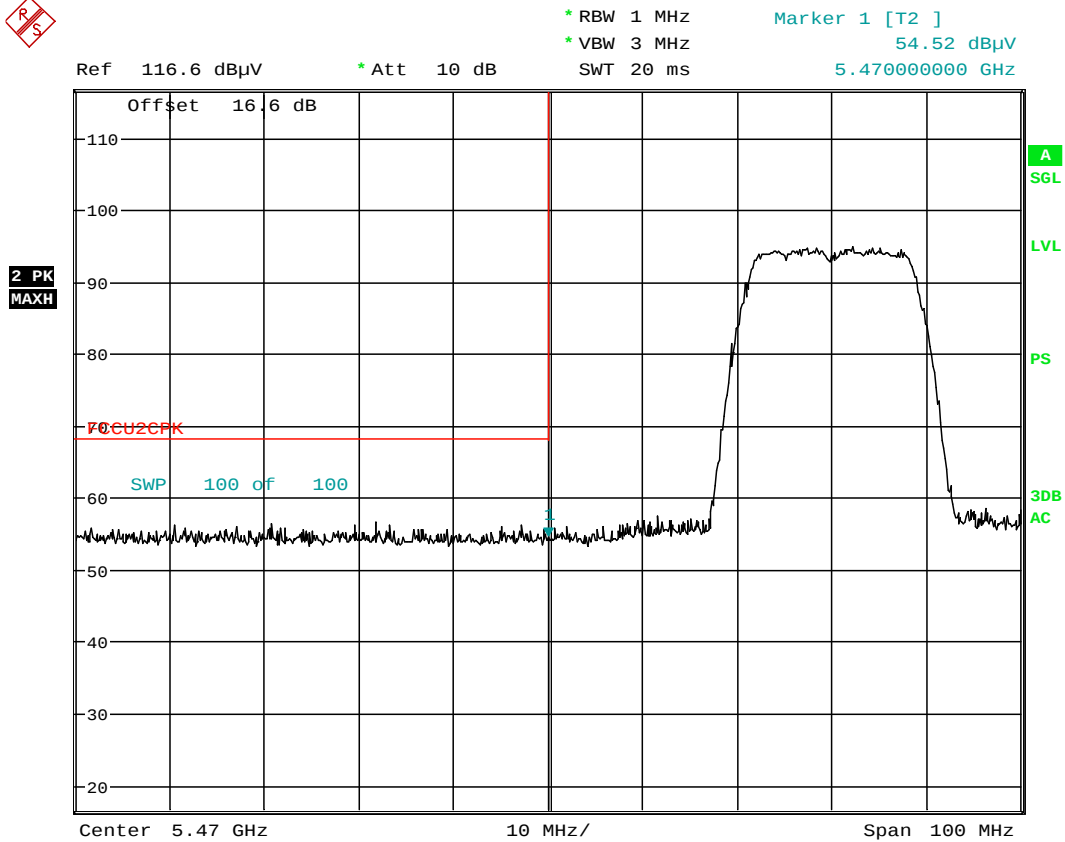


Date: 13.AUG.2014 13:07:40

Plot 6-174. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 159 of 181

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



Date: 13.AUG.2014 01:10:04

Plot 6-175. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 160 of 181

Radiated Band Edge Measurements (20MHz BW)

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

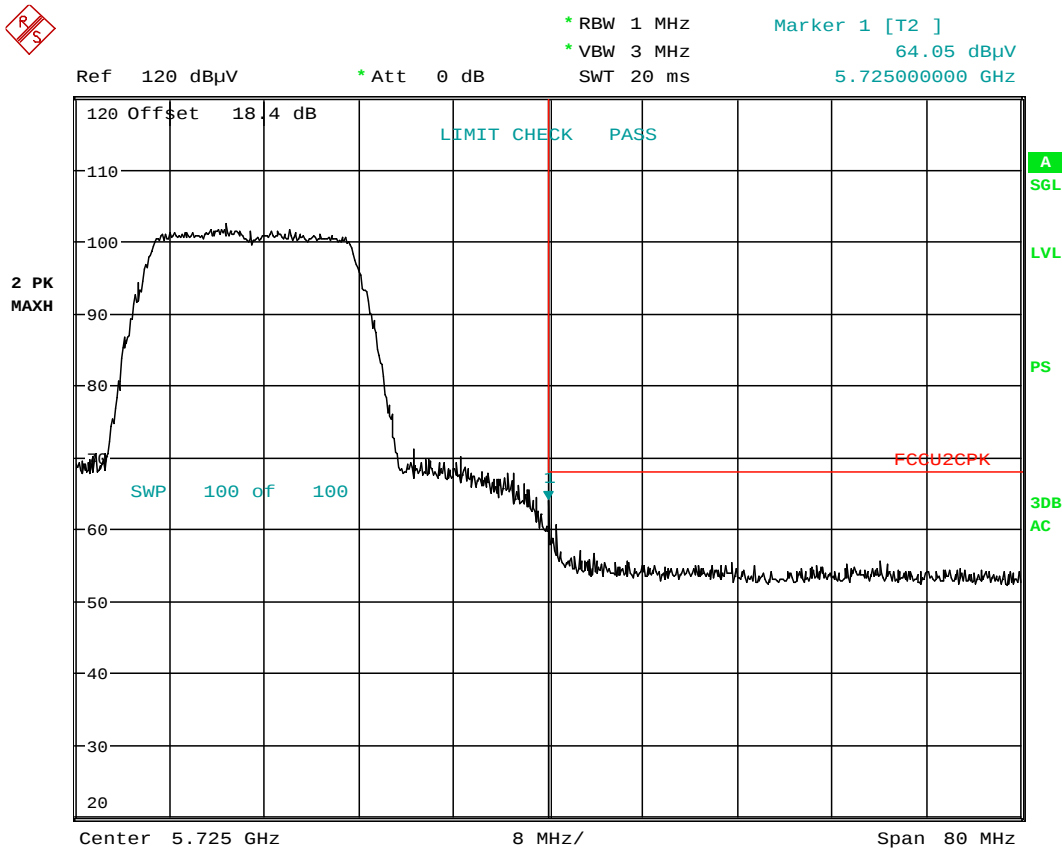
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5700MHz

Channel: 140



Date: 13.AUG.2014 13:35:42

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 161 of 181

6.15 MIMO Radiated Band Edge Measurements (40MHz BW)

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

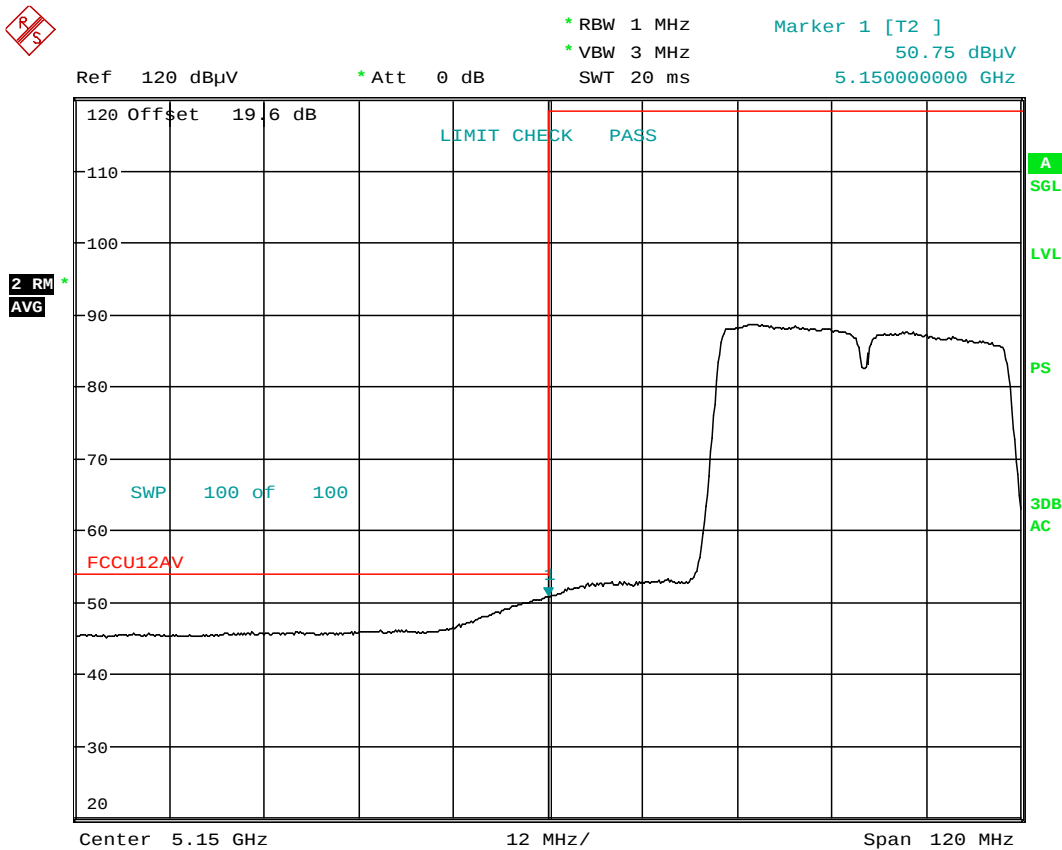
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38

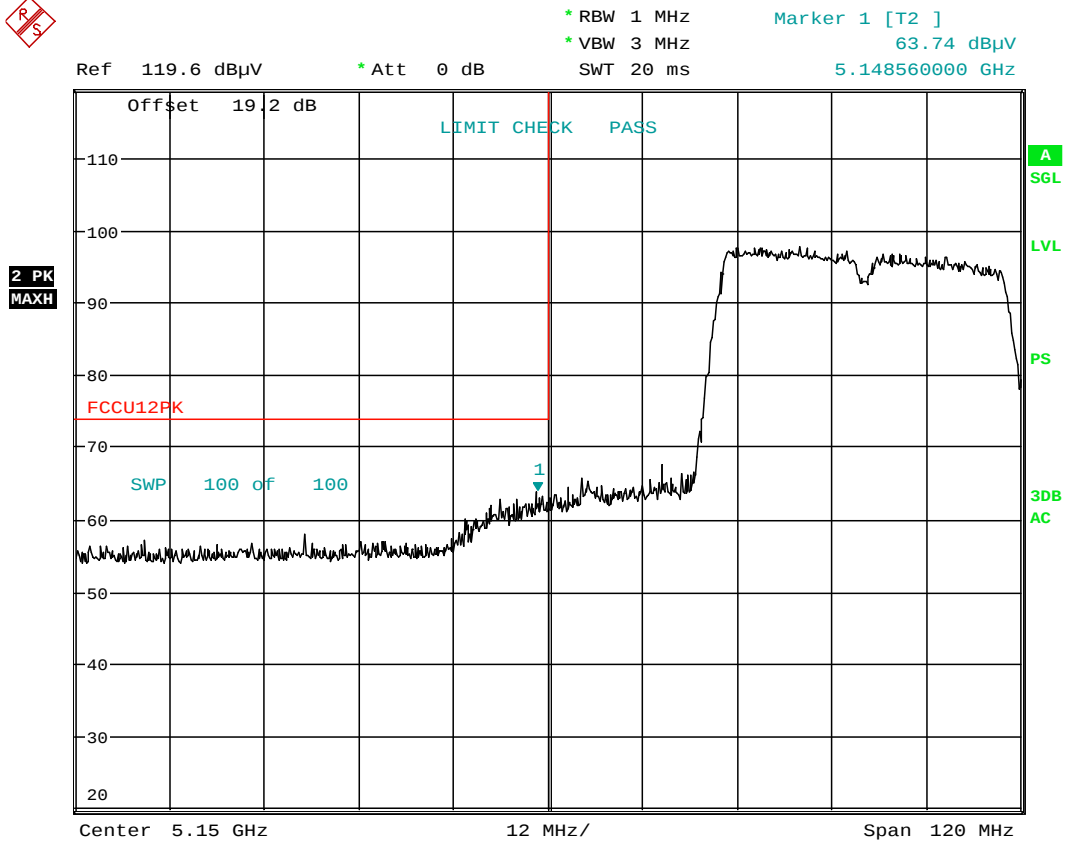


Date: 13.AUG.2014 12:27:17

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 162 of 181

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



Date: 13.AUG.2014 12:28:30

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 163 of 181

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

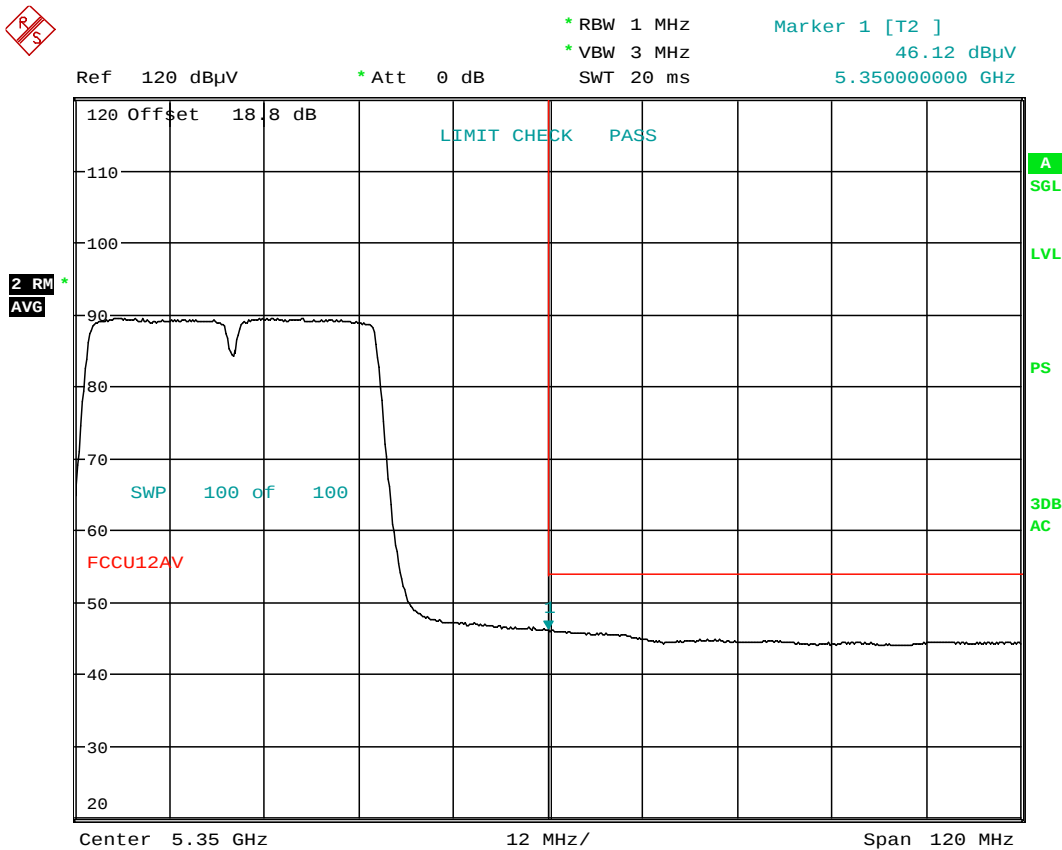
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62

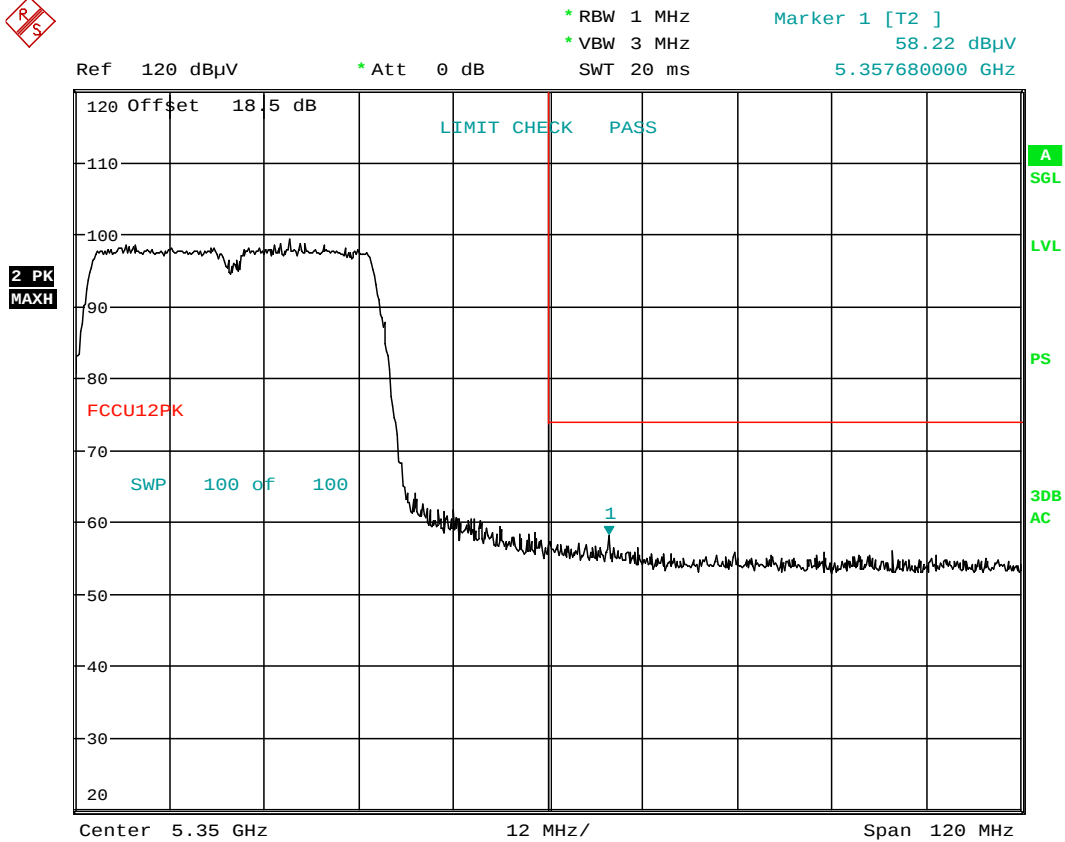


Date: 13.AUG.2014 12:55:09

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 164 of 181

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



Date: 13.AUG.2014 12:56:30

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 165 of 181

Radiated Band Edge Measurements (40MHz BW)

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

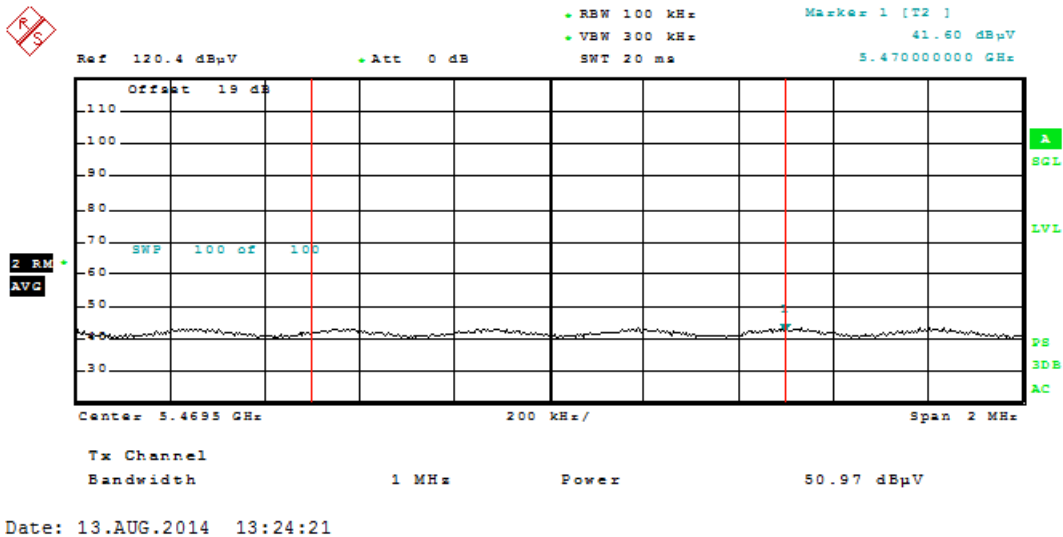
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



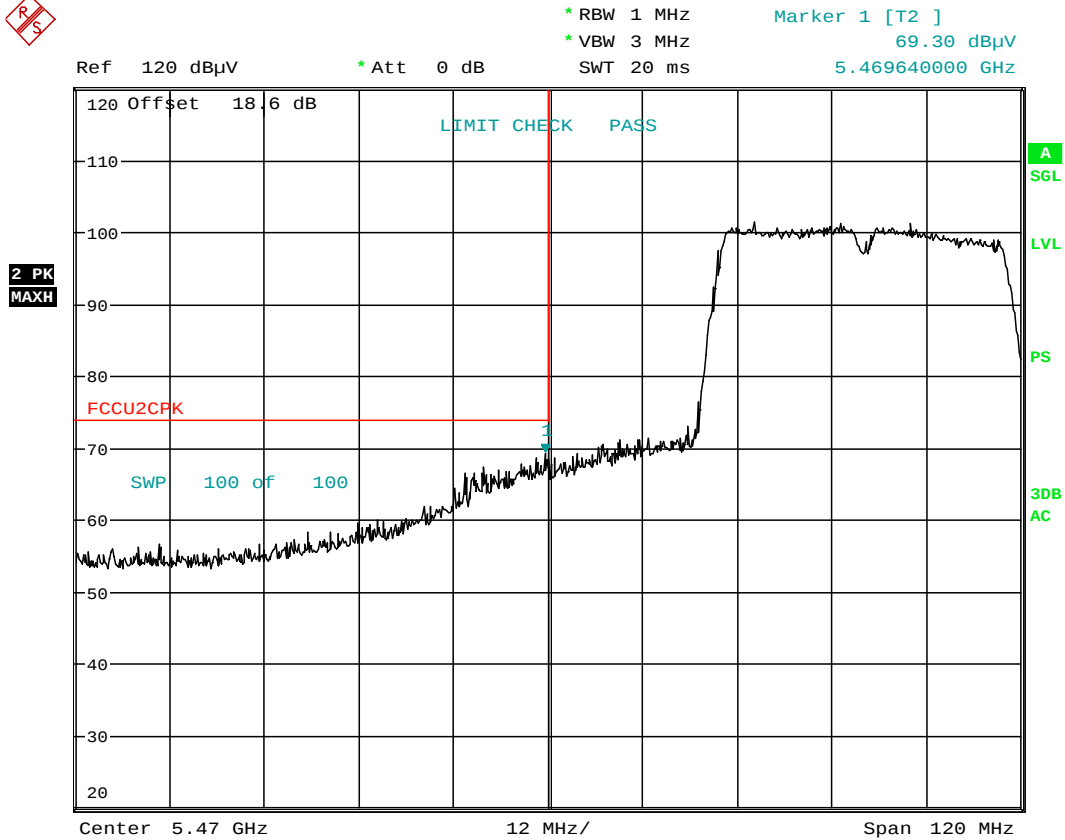
Plot 6-181. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

Note:

A channel integration method was used to determine compliance with the out of band average radiated spurious emissions limit in the 5350 – 5460MHz band. Per KDB 789033 v01r03 Section H, a measurement was performed using a RBW of 100kHz at the 5470MHz band edge. The results were integrated up to the 1MHz reference bandwidth to show compliance with the 15.209 radiated limit for emissions greater than 1GHz.

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 166 of 181

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



Date: 13.AUG.2014 13:17:37

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 167 of 181

6.16 MIMO Radiated Band Edge Measurements (80MHz BW)

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

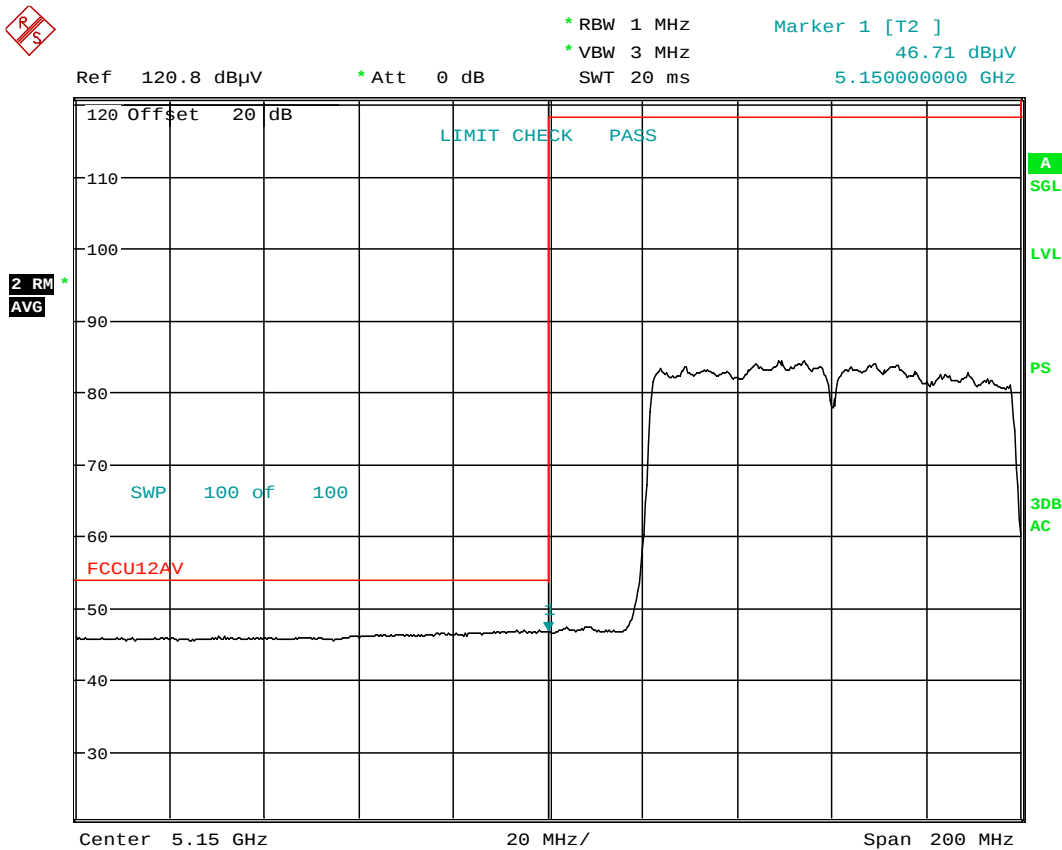
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42

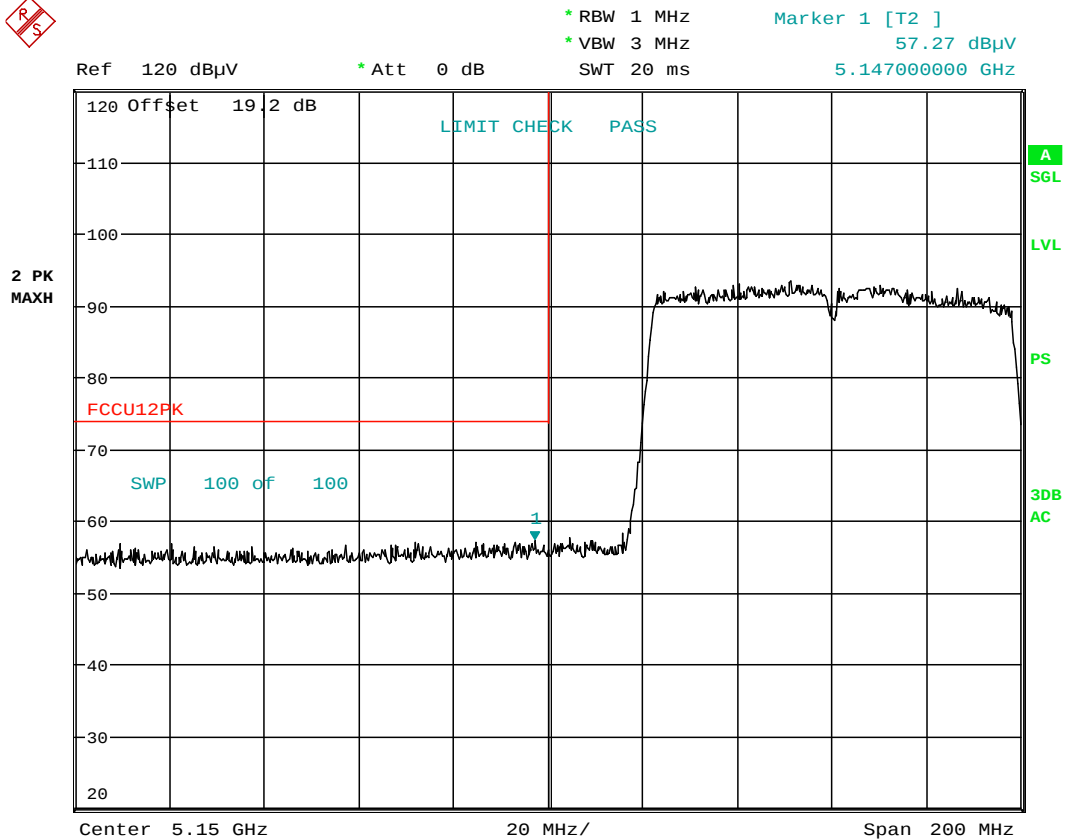


Date: 13.AUG.2014 12:36:13

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 169 of 181

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



Date: 13.AUG.2014 12:34:19

Plot 6-185. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 170 of 181

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

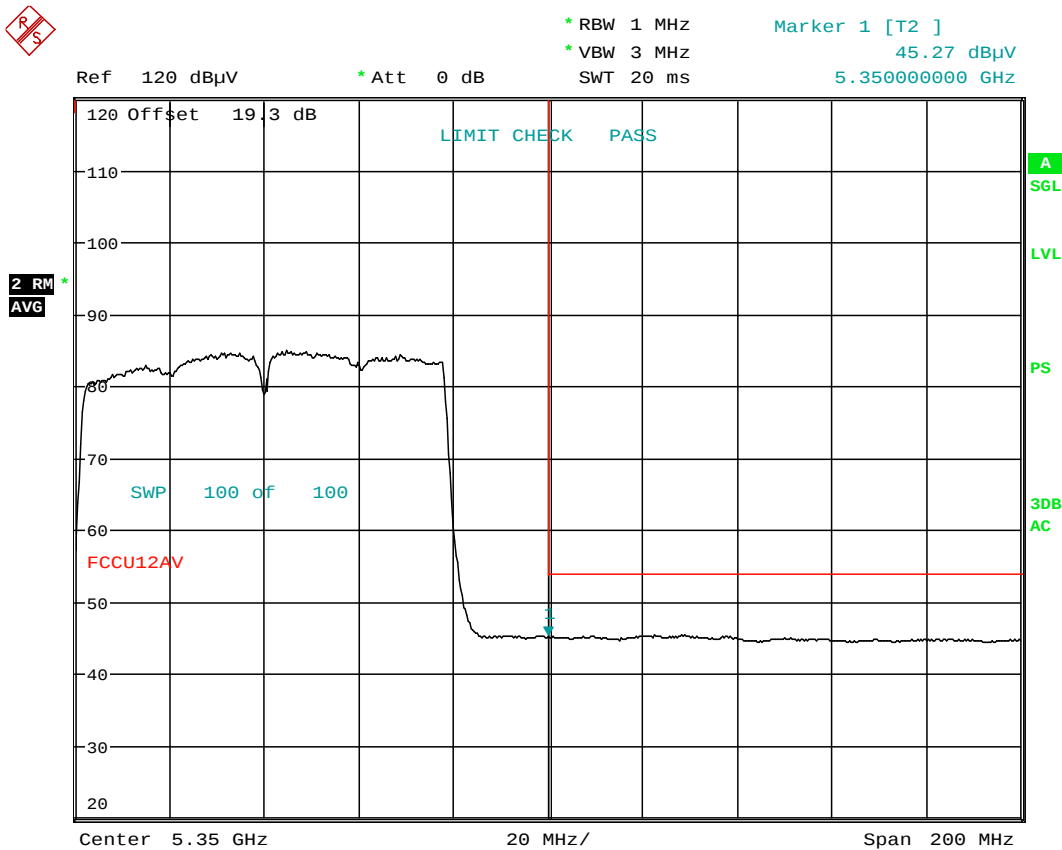
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58

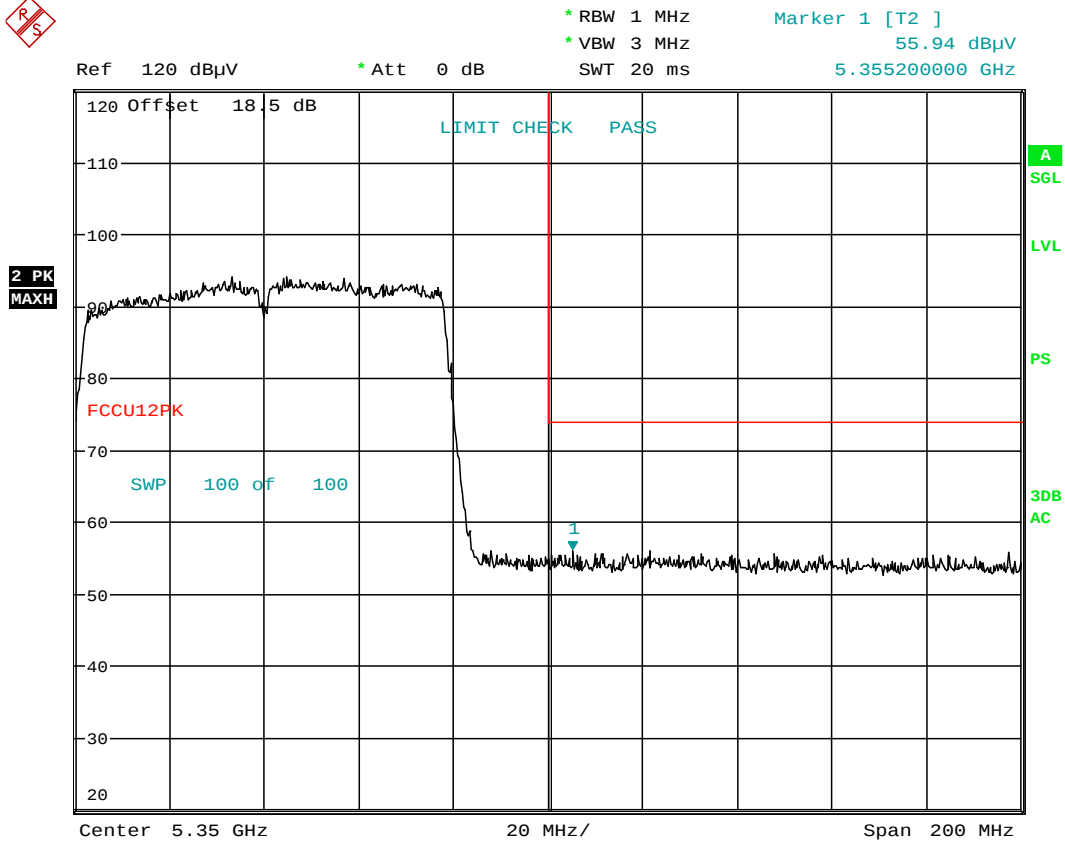


Date: 13.AUG.2014 13:00:28

Plot 6-186. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 171 of 181

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



Date: 13.AUG.2014 12:58:48

Plot 6-187. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 172 of 181

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

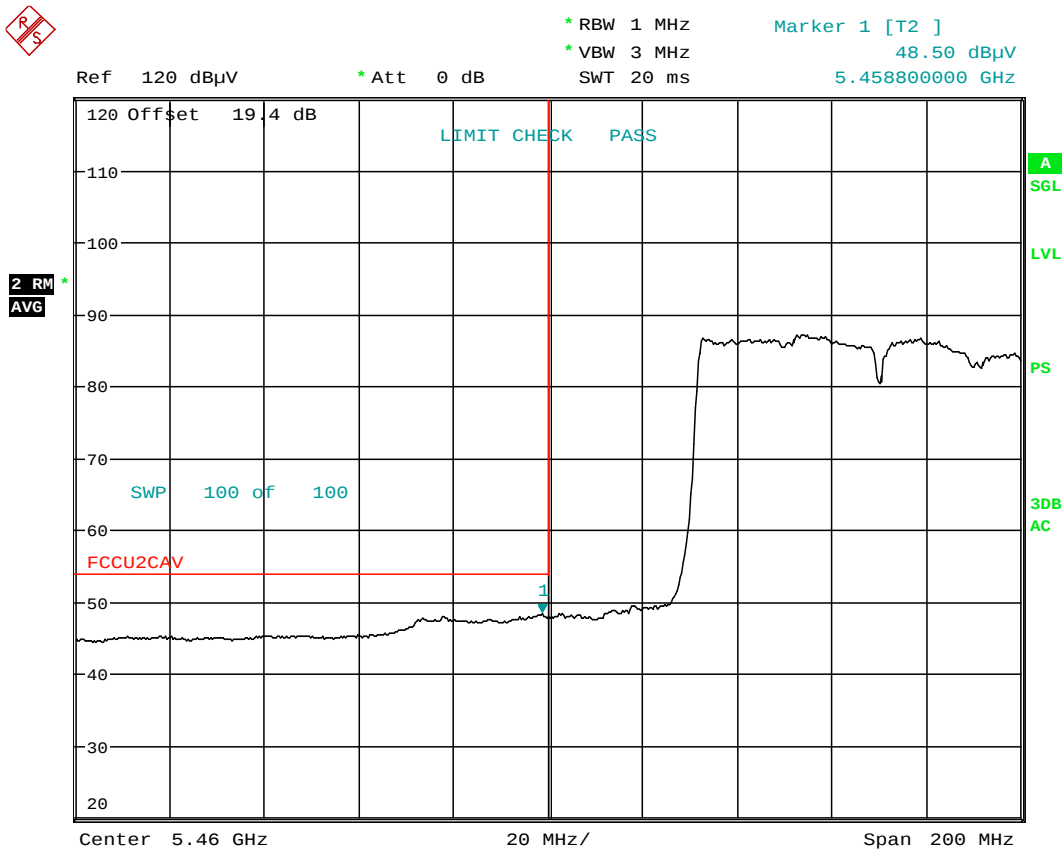
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106

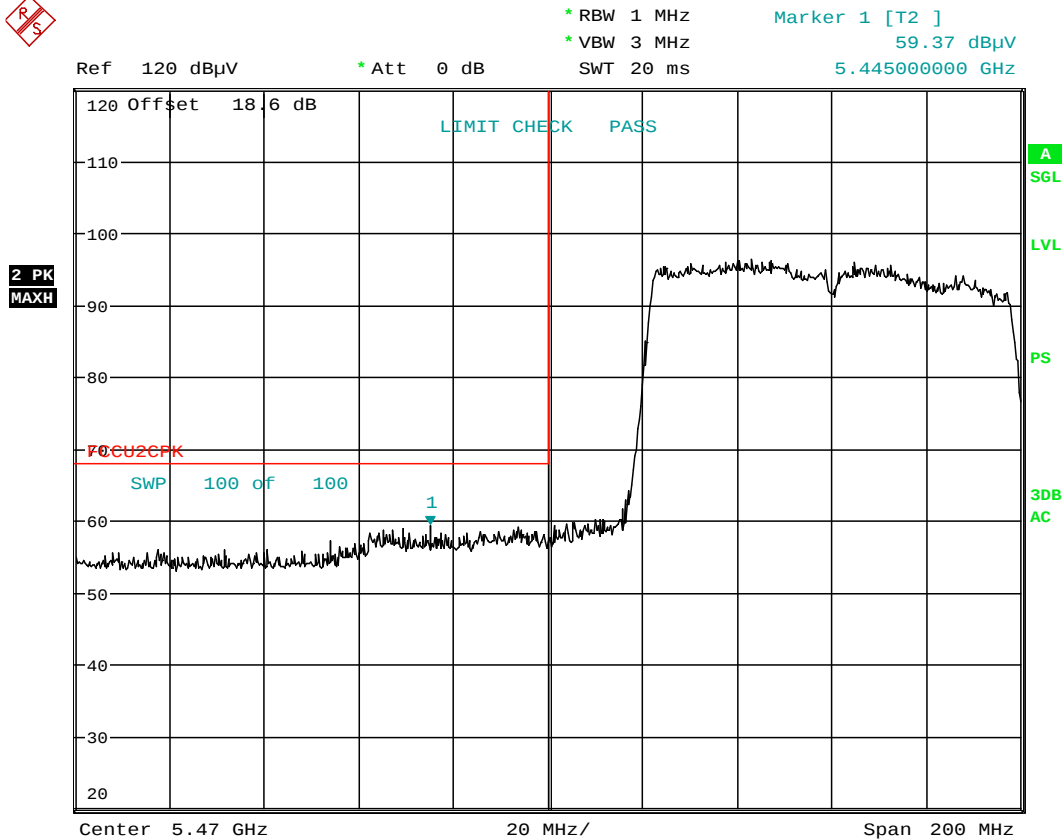


Date: 13.AUG.2014 13:31:12

Plot 6-188. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 173 of 181

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



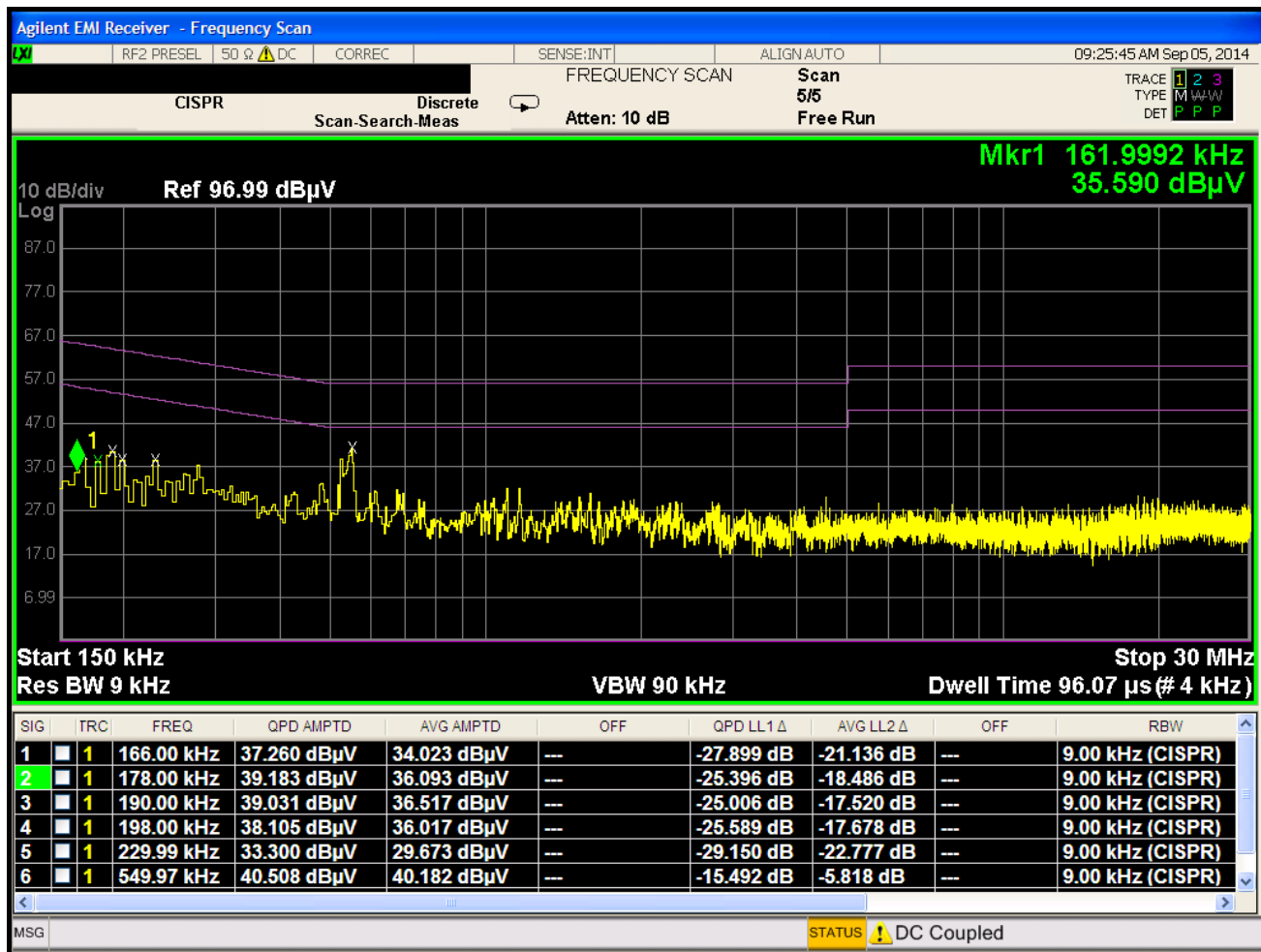
Date: 13.AUG.2014 13:28:59

Plot 6-189. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 174 of 181

6.17 Line-Conducted Test Data

\$15.407



Plot 6-190. Line Conducted Plot with 802.11a UNII Band 1 (L1)

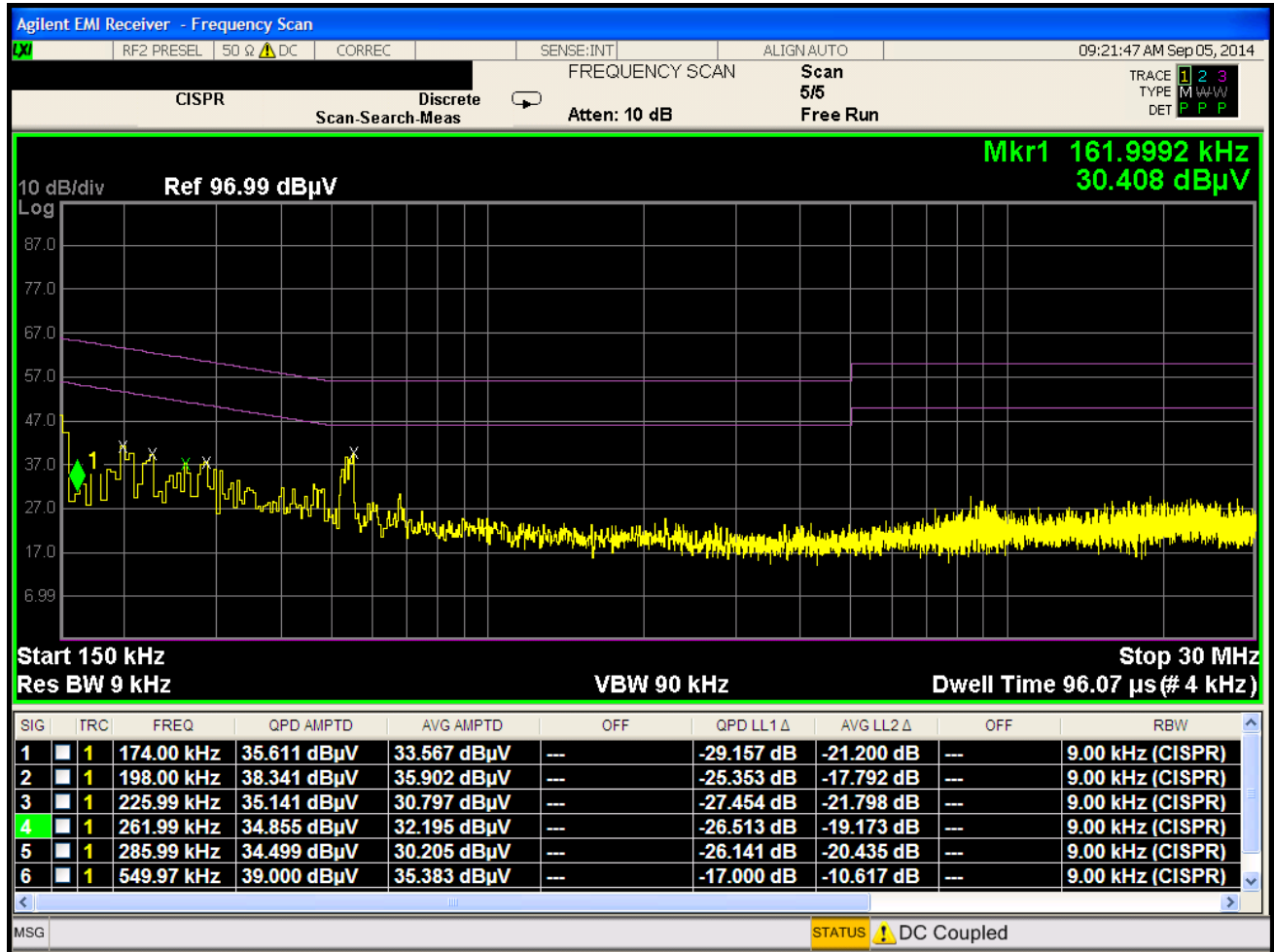
Notes:

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 175 of 181

Line-Conducted Test Data

\$15.407



Plot 6-191. Line Conducted Plot with 802.11a UNII Band 1 (N)

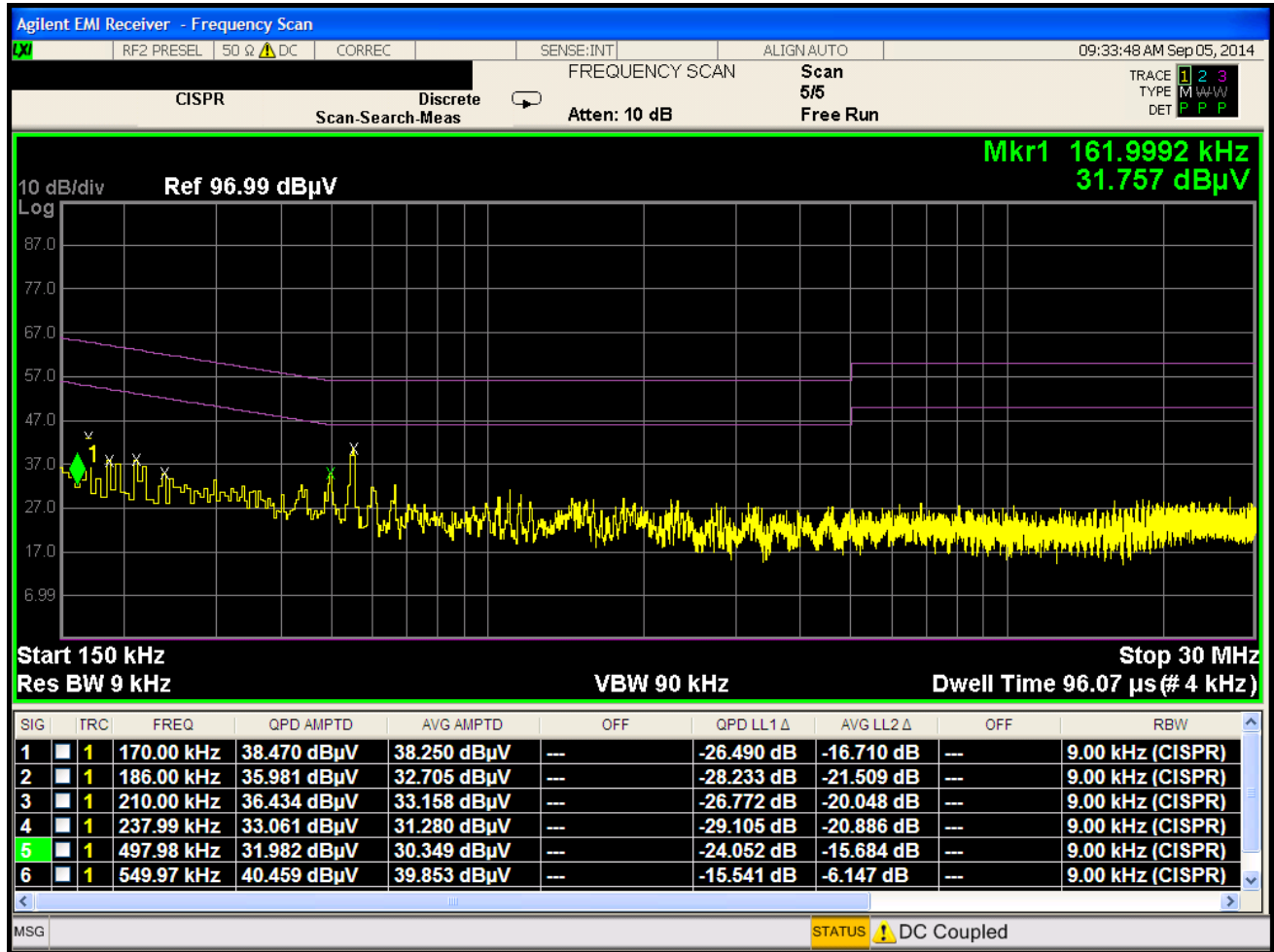
Notes:

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 176 of 181

Line-Conducted Test Data

\$15.407



Plot 6-192. Line Conducted Plot with 802.11a UNII Band 2A (L1)

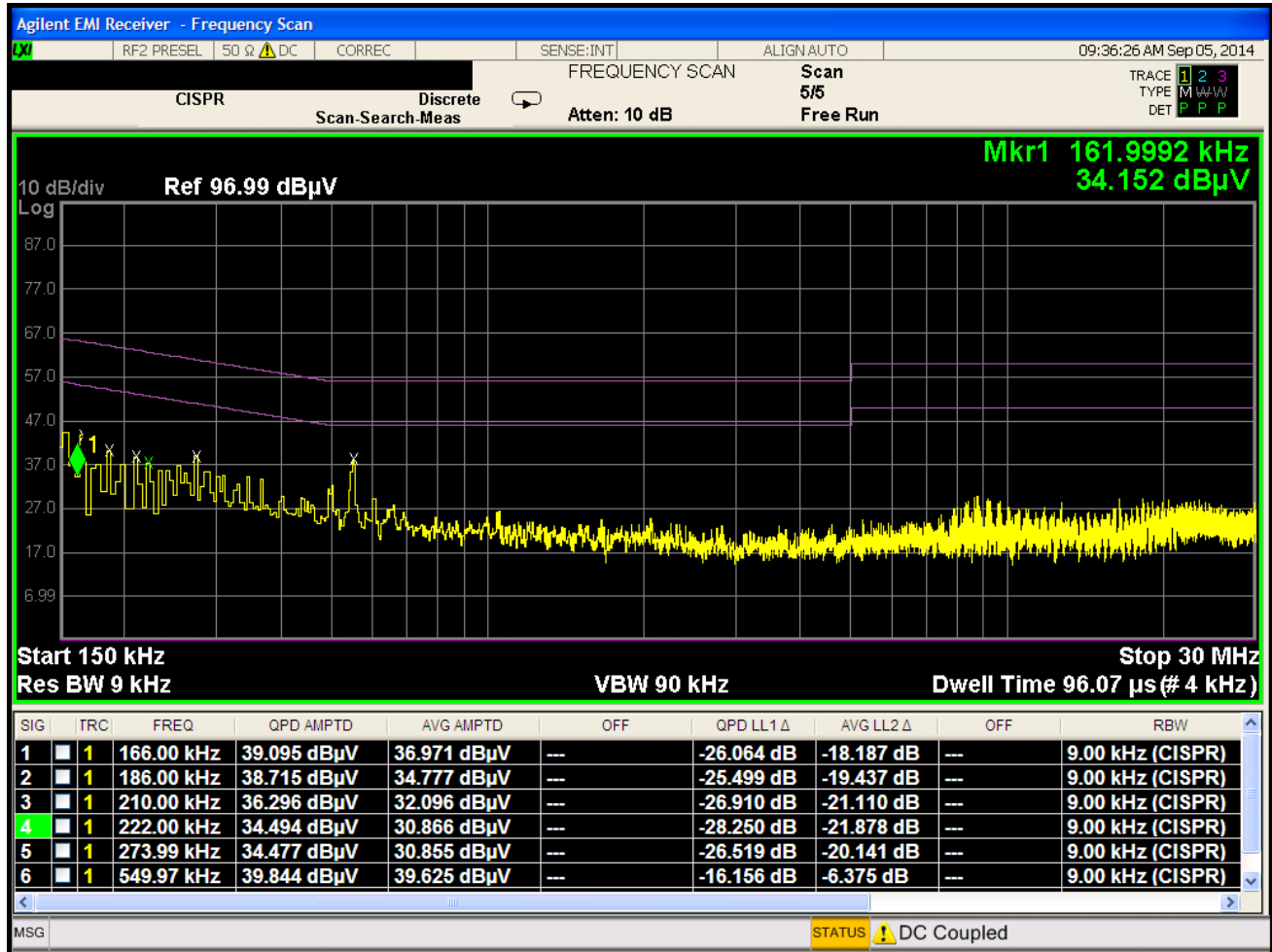
Notes:

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 177 of 181

Line-Conducted Test Data

\$15.407



Plot 6-193. Line Conducted Plot with 802.11a UNII Band 2A (N)

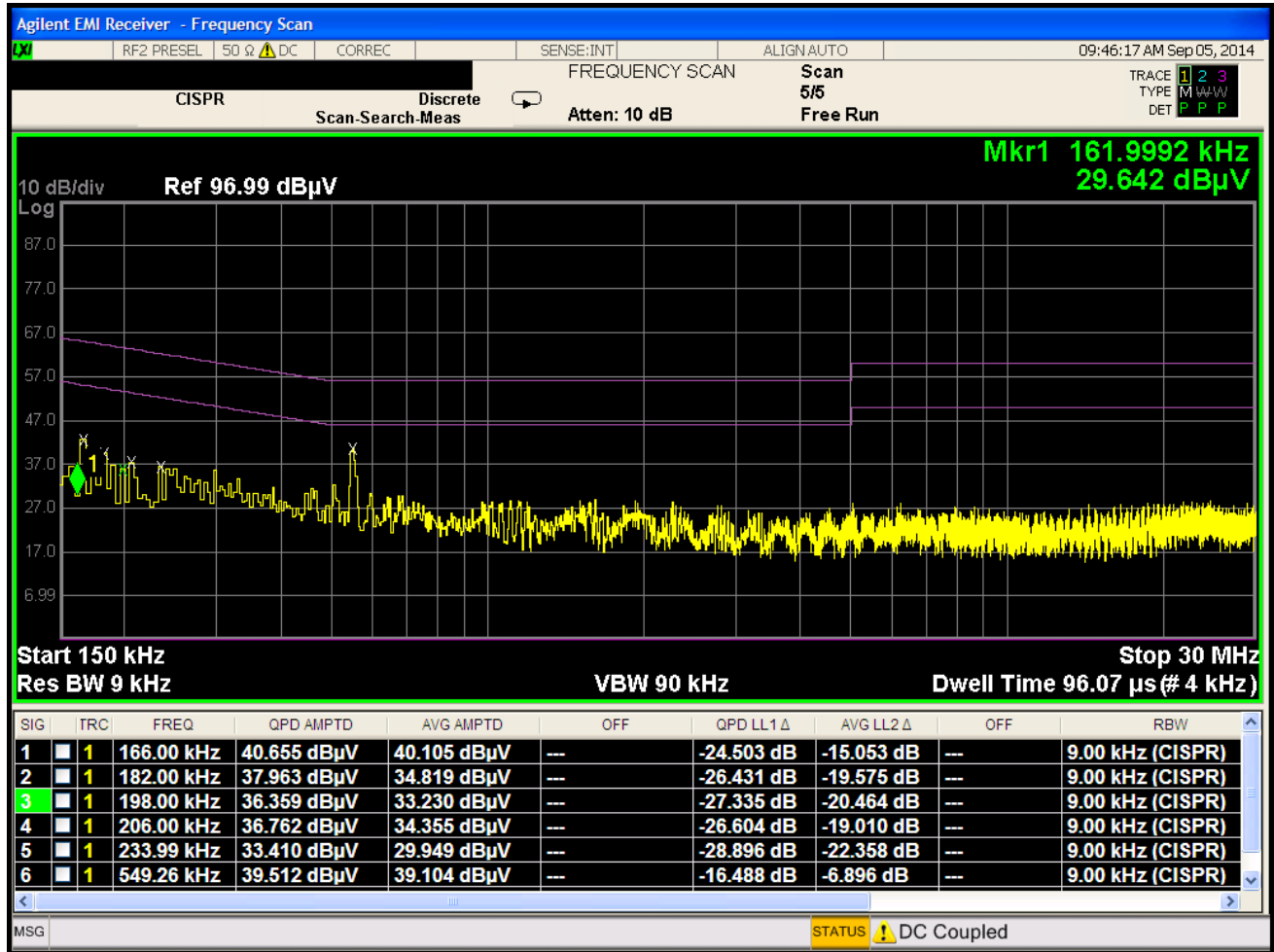
Notes:

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 178 of 181

Line-Conducted Test Data

\$15.407



Plot 6-194. Line Conducted Plot with 802.11a UNII Band 2C (L1)

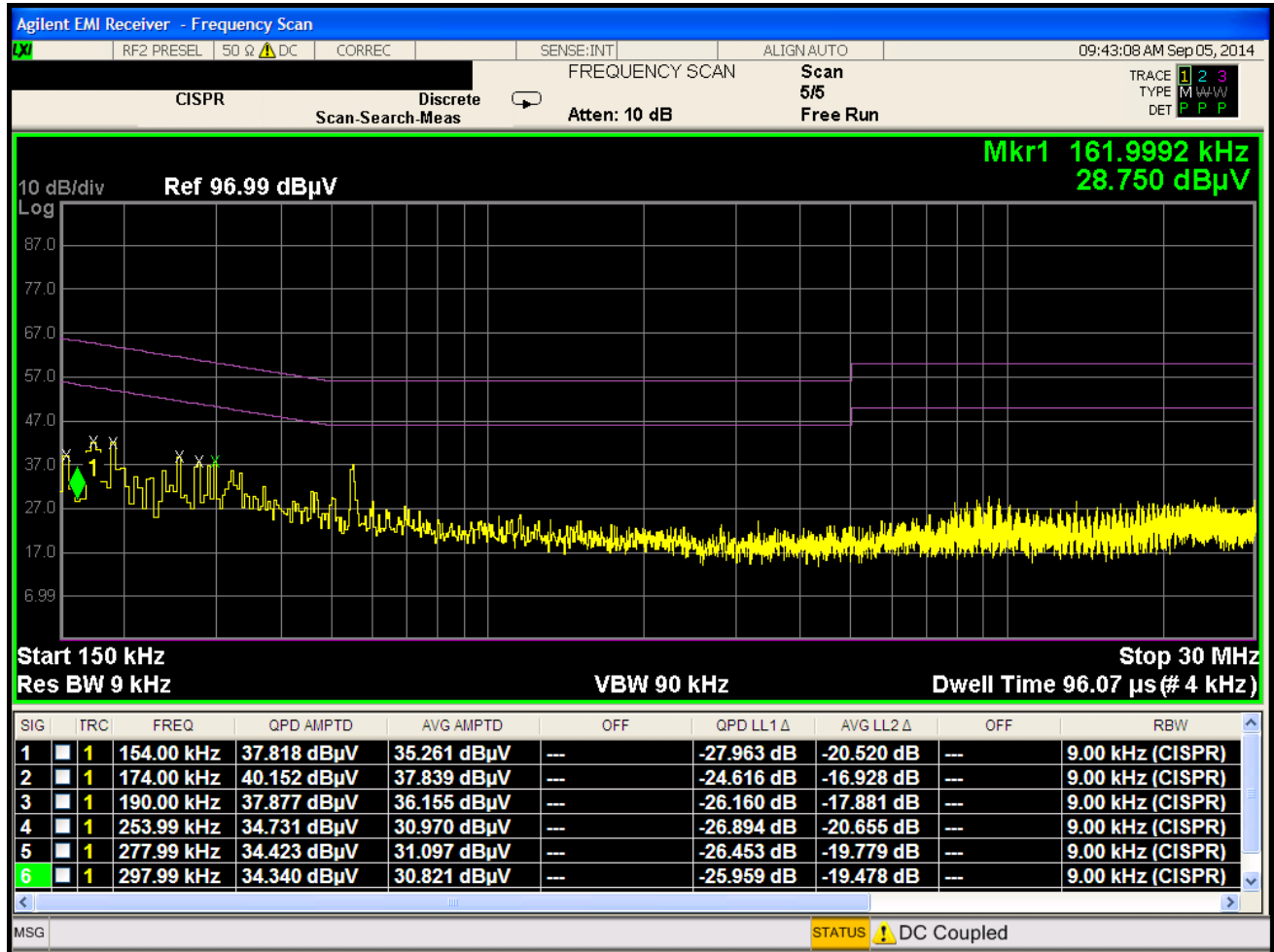
Notes:

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 179 of 181

Line-Conducted Test Data

\$15.407



Plot 6-195. Line Conducted Plot with 802.11a UNII Band 2C (N)

Notes:

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

FCC ID: A3LSMN9109W	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 180 of 181

7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN9109W** is in compliance with Part 15E of the FCC Rules.

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset		Page 181 of 181