

7.7 Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b.1)(b.6) §15.205 §15.209

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in KDB 789033 D02 v01, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11n (20MHz BW), 802.11n (40MHz BW), and 802.11ac (80MHz)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

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

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

Table 7-27. Radiated Limits

Test Procedures Used

KDB 789033 D02 v01 – Section G

Test Settings

Average Measurements above 1GHz (Method AD)

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

Peak Measurements above 1GHz

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

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Peak Measurements below 1GHz

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

Test Setup

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

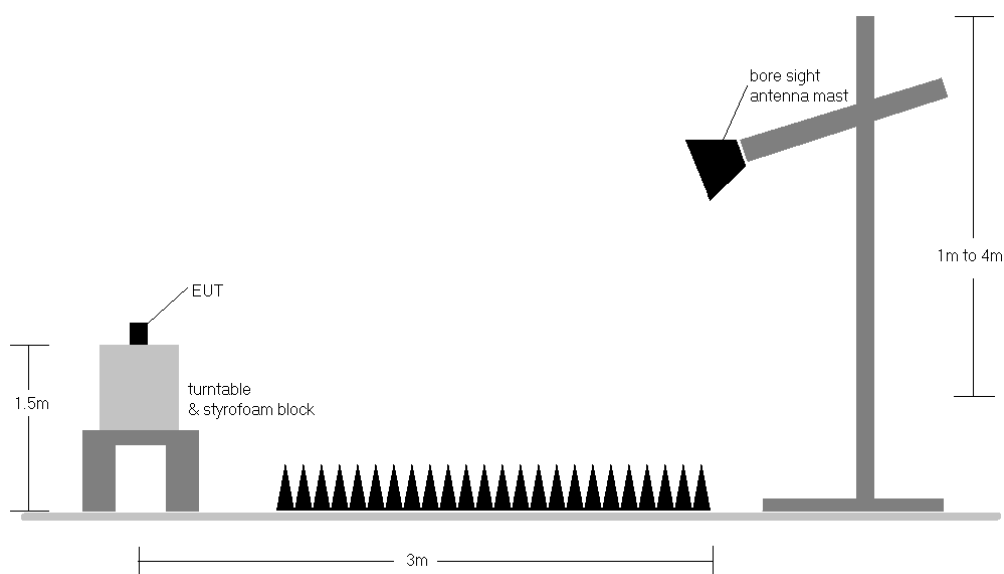


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 D02 v01 Section H.
2. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 are below the limit shown in Table 7-27.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-11. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.

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4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.
6. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
8. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section. Rohde & Schwarz EMC32, Version 9.15.00 automated test software was used to perform the Radiated Spurious Emissions Pre-Scan testing.
10. The “-” shown in the following RSE tables are used to denote a noise floor measurement.

Sample Calculations

Determining Spurious Emissions Levels

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

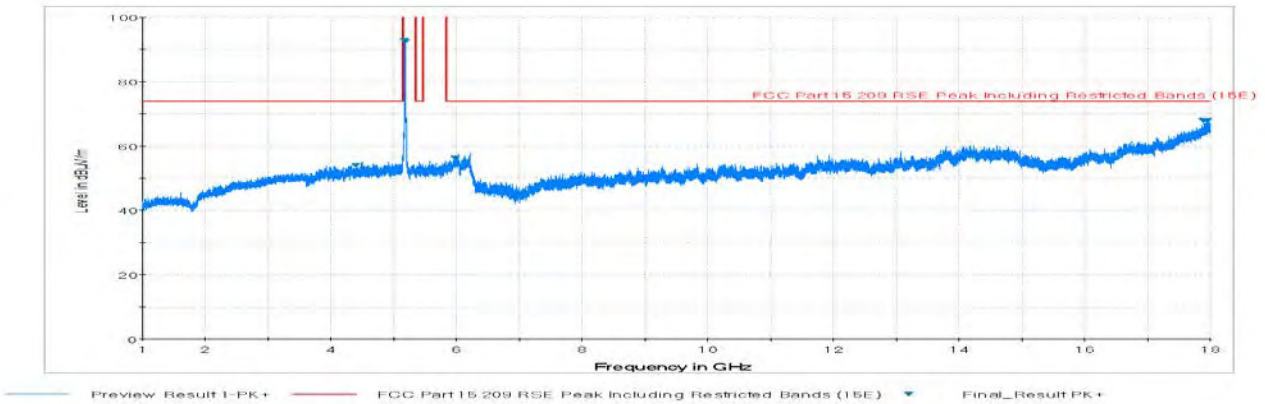
Radiated Band Edge Measurement Offset

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

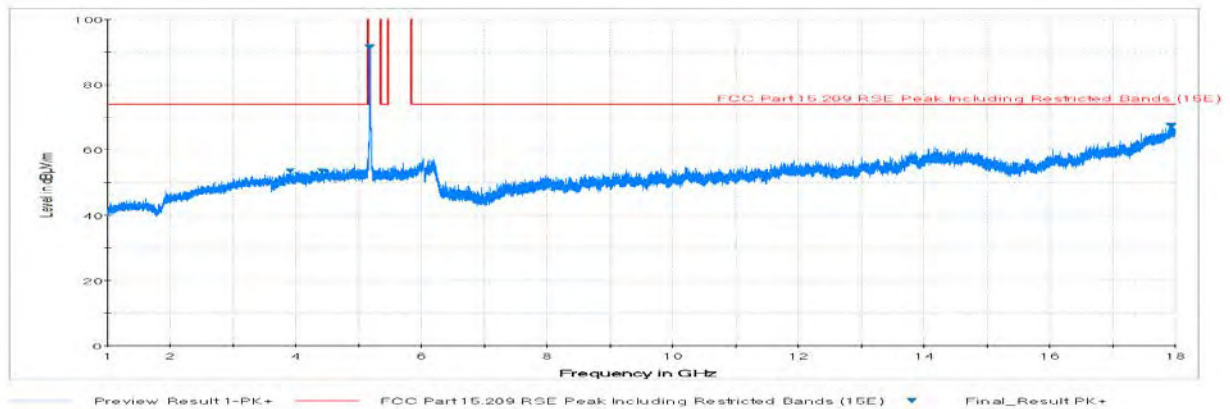
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + 10 \text{ dB Attenuator}) - \text{Preamplifier Gain}$$

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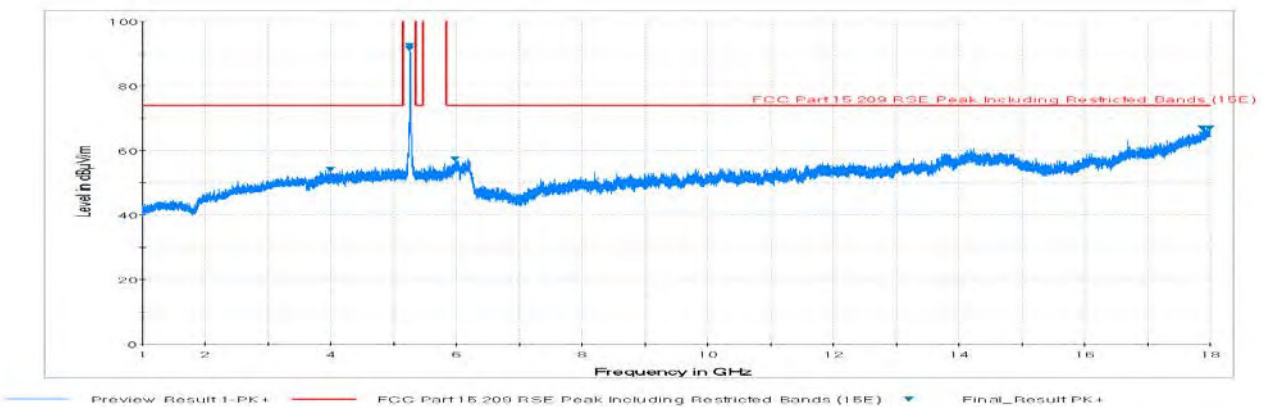
7.7.1 Antenna-1 Radiated Spurious Emission Measurements



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

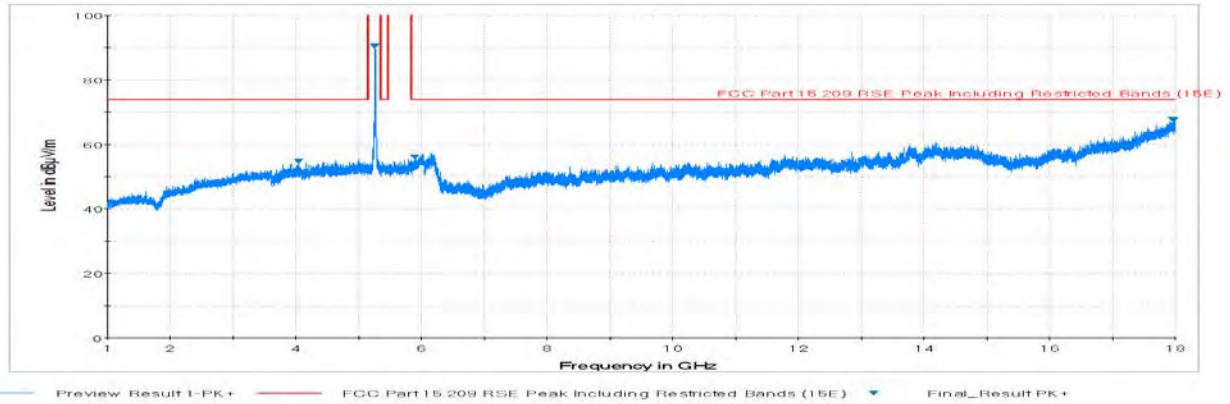


Plot 7-158. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

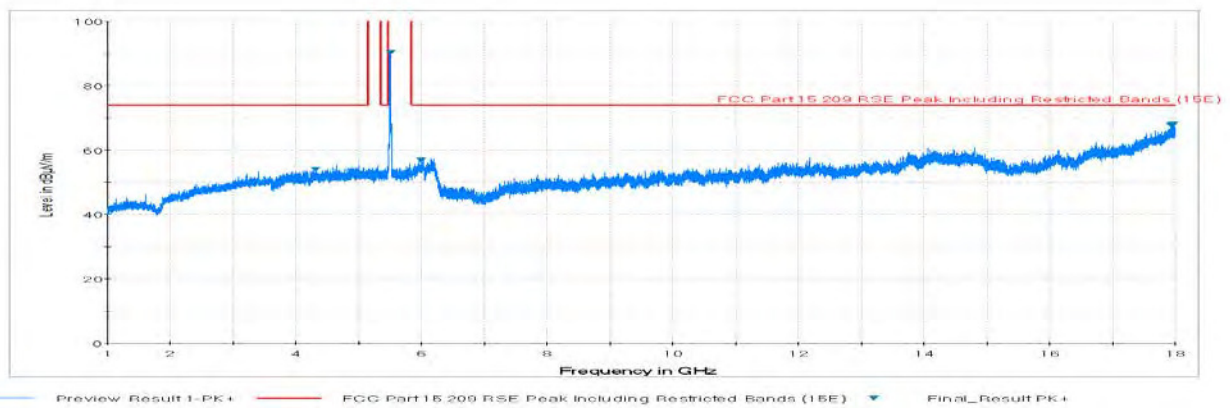


Plot 7-159. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

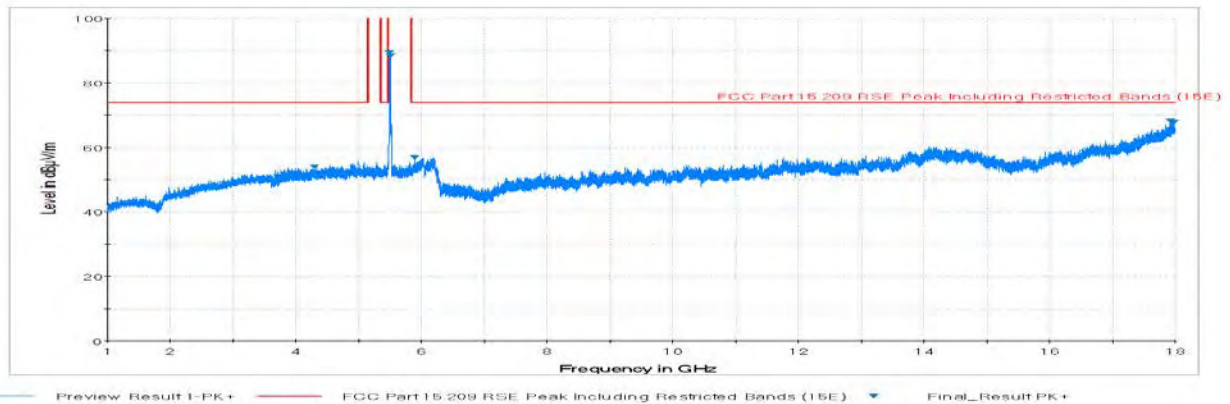
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Plot 7-160. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. V)

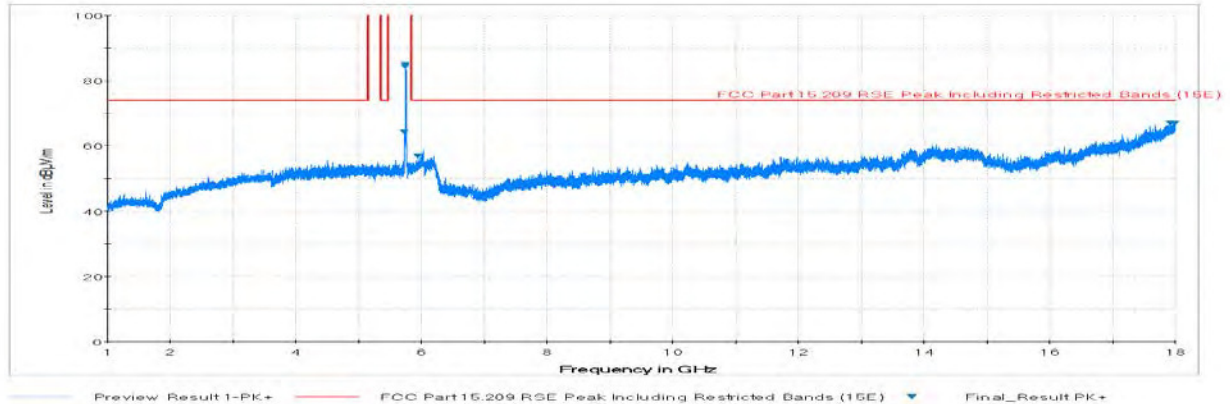


Plot 7-161. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

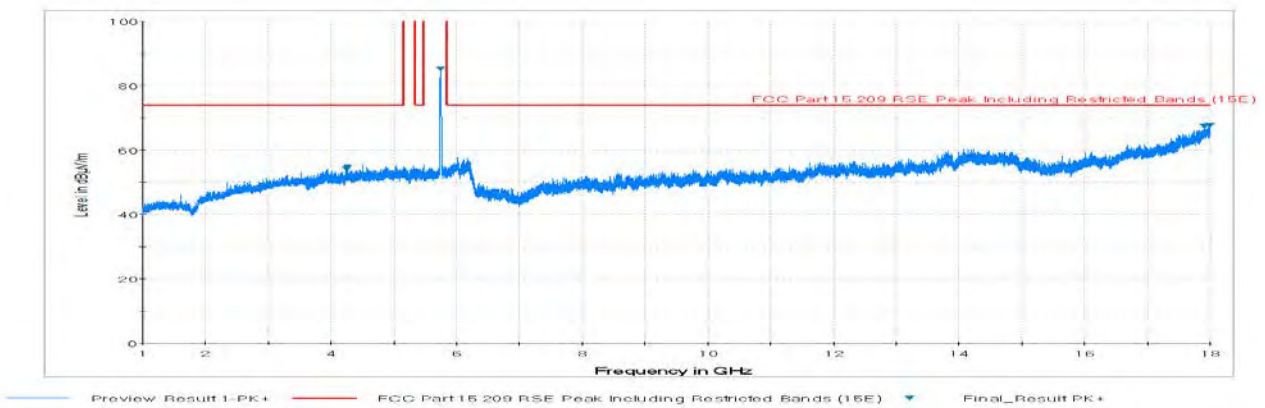


Plot 7-162. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-163. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)

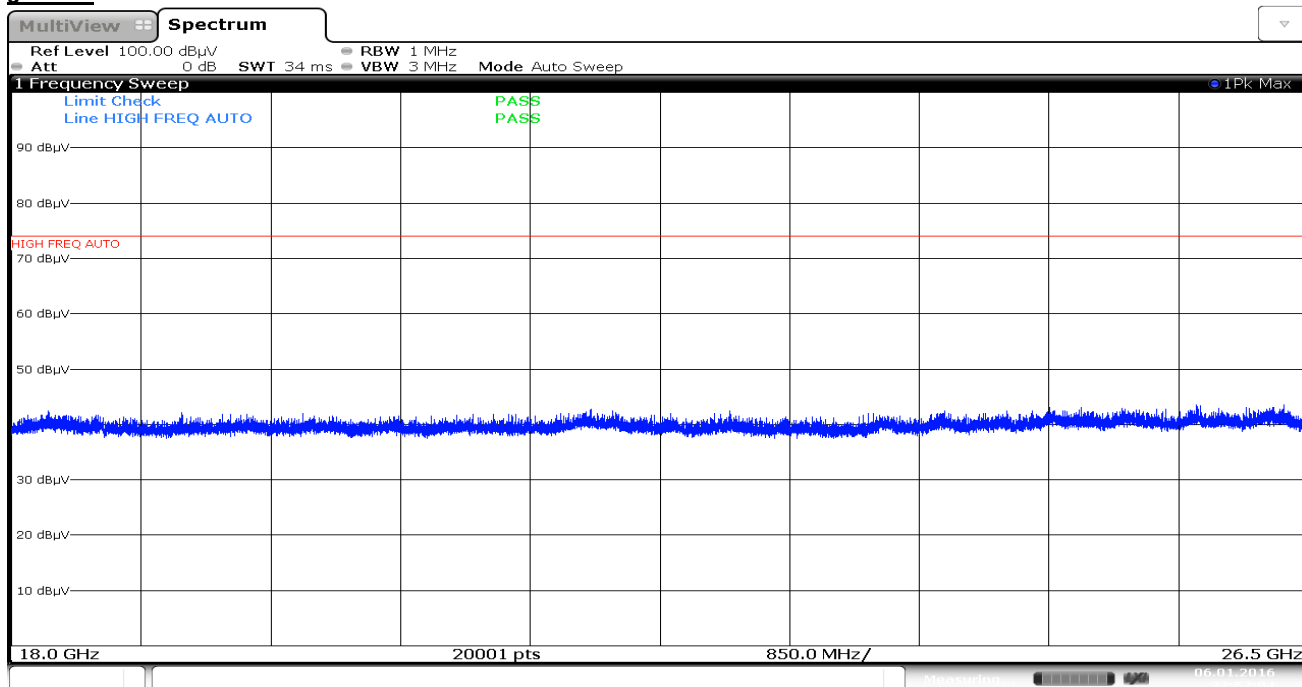


Plot 7-164. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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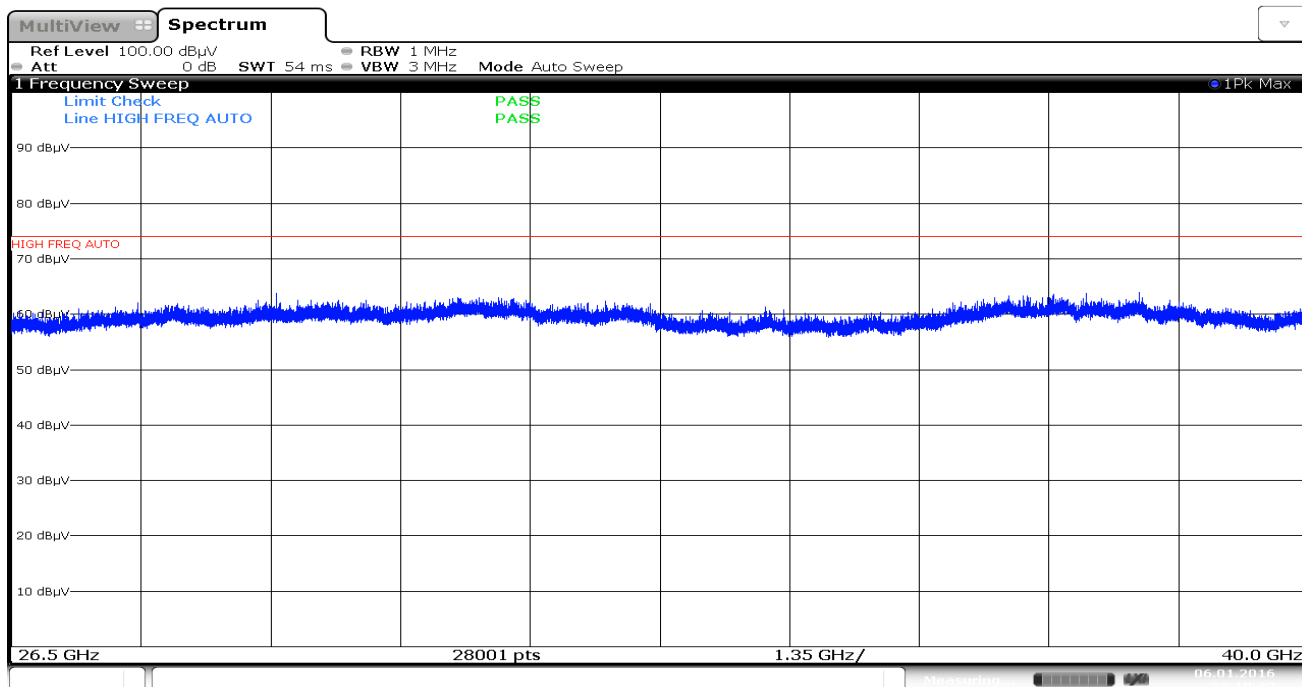
Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209



Date: 6 JAN.2016 22:57:04

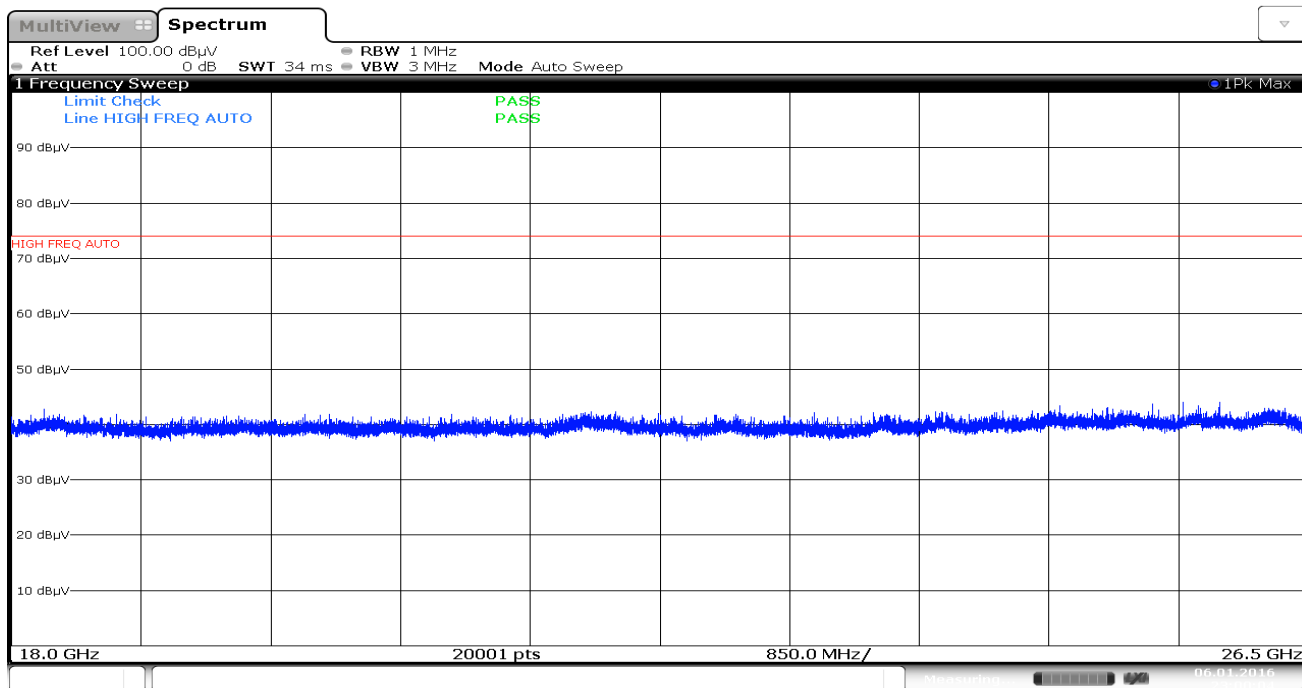
Plot 7-165. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)



Date: 6 JAN.2016 23:19:31

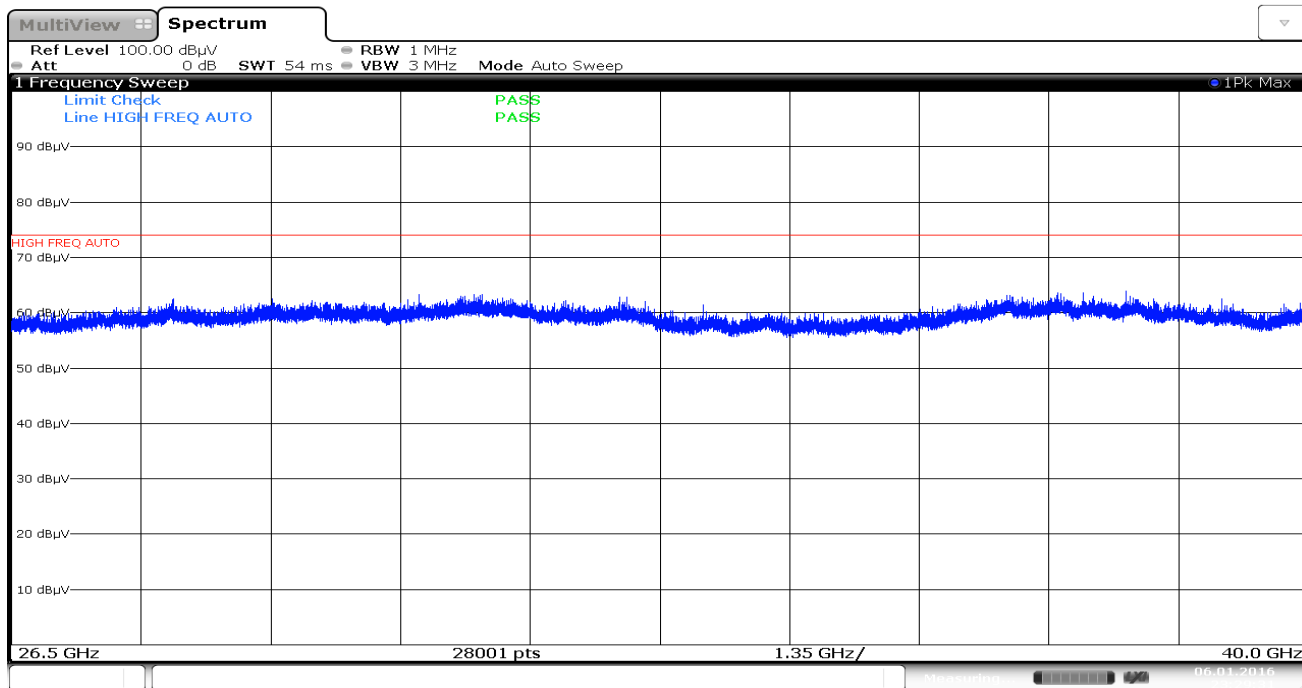
Plot 7-166. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Date: 6 JAN.2016 23:00:04

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



Date: 6 JAN.2016 23:29:31

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Antenna-1 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-98.04	47.31	0.00	56.27	68.20	-11.93
* 15540.00	Average	H	-	-	-111.30	51.34	0.00	47.04	53.98	-6.94
* 15540.00	Peak	H	-	-	-99.36	51.34	0.00	58.98	73.98	-15.00
* 20720.00	Average	H	1.00	290	-108.37	44.39	-9.54	33.48	53.98	-20.50
* 20720.00	Peak	H	1.00	290	-100.09	44.39	-9.54	41.76	73.98	-32.22
25900.00	Peak	H	-	-	-99.83	45.11	-9.54	42.74	68.20	-25.46

Table 7-28. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-97.40	47.33	0.00	56.93	68.20	-11.27
* 15600.00	Average	H	-	-	-110.95	50.86	0.00	46.90	53.98	-7.07
* 15600.00	Peak	H	-	-	-98.34	50.86	0.00	59.51	73.98	-14.46
* 20800.00	Average	H	1.00	277	-107.89	44.39	-9.54	33.96	53.98	-20.02
* 20800.00	Peak	H	1.00	277	-99.40	44.39	-9.54	42.45	73.98	-31.53
26000.00	Peak	H	-	-	-100.20	45.12	-9.54	42.37	68.20	-25.83

Table 7-29. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-98.80	47.37	0.00	55.58	68.20	-12.62
* 15720.00	Average	H	-	-	-110.66	50.12	0.00	46.46	53.98	-7.52
* 15720.00	Peak	H	-	-	-98.03	50.12	0.00	59.09	73.98	-14.89
* 20960.00	Average	H	1.00	272	-106.02	44.31	-9.54	35.75	53.98	-18.23
* 20960.00	Peak	H	1.00	272	-98.62	44.31	-9.54	43.15	73.98	-30.83
26200.00	Peak	H	-	-	-99.91	45.01	-9.54	42.56	68.20	-25.64

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 [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-99.89	47.37	0.00	54.49	68.20	-13.71
* 15720.00	Average	H	-	-	-111.95	50.12	0.00	45.17	53.98	-8.81
* 15720.00	Peak	H	-	-	-99.74	50.12	0.00	57.38	73.98	-16.60
* 20960.00	Average	H	-	-	-112.31	44.31	-9.54	29.46	53.98	-24.52
* 20960.00	Peak	H	-	-	-100.25	44.31	-9.54	41.52	73.98	-32.46
26200.00	Peak	H	-	-	-99.14	45.01	-9.54	43.33	68.20	-24.87

Table 7-31. Radiated Measurements with WCP

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-98.36	47.39	0.00	56.04	68.20	-12.16
* 15780.00	Average	H	-	-	-111.06	49.96	0.00	45.90	53.98	-8.08
* 15780.00	Peak	H	-	-	-98.69	49.96	0.00	58.27	73.98	-15.71
* 21040.00	Average	H	1.00	293	-108.43	44.29	-9.54	33.31	53.98	-20.67
* 21040.00	Peak	H	1.00	293	-100.26	44.29	-9.54	41.48	73.98	-32.50
26300.00	Peak	H	-	-	-99.19	45.00	-9.54	43.27	68.20	-24.93

Table 7-32. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-98.49	47.41	0.00	55.91	68.20	-12.29
* 15840.00	Average	H	-	-	-111.13	50.16	0.00	46.03	53.98	-7.95
* 15840.00	Peak	H	-	-	-98.87	50.16	0.00	58.29	73.98	-15.69
* 21120.00	Average	H	1.00	293	-107.76	44.28	-9.54	33.98	53.98	-20.00
* 21120.00	Peak	H	1.00	293	-99.47	44.28	-9.54	42.27	73.98	-31.71
26400.00	Peak	H	-	-	-99.69	45.02	-9.54	42.79	68.20	-25.41

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 [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-110.13	47.46	0.00	44.34	53.98	-9.64
* 10640.00	Peak	H	-	-	-97.82	47.46	0.00	56.65	73.98	-17.33
* 15960.00	Average	H	-	-	-110.94	50.83	0.00	46.89	53.98	-7.09
* 15960.00	Peak	H	-	-	-98.54	50.83	0.00	59.29	73.98	-14.69
* 21280.00	Average	H	1.00	286	-107.78	44.26	-9.54	33.94	53.98	-20.04
* 21280.00	Peak	H	1.00	286	-99.71	44.26	-9.54	42.01	73.98	-31.97
26600.00	Peak	H	-	-	-102.66	47.61	-9.54	42.41	68.20	-25.79

Table 7-34. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-99.61	47.41	0.00	54.79	68.20	-13.41
* 15840.00	Average	H	-	-	-112.03	50.16	0.00	45.13	53.98	-8.85
* 15840.00	Peak	H	-	-	-99.86	50.16	0.00	57.30	73.98	-16.68
* 21120.00	Average	H	-	-	-113.22	44.28	0.00	38.06	53.98	-15.92
* 21120.00	Peak	H	-	-	-101.07	44.28	-9.54	40.67	73.98	-33.31
26400.00	Peak	H	-	-	-98.90	45.02	-9.54	43.58	68.20	-24.62

Table 7-35. Radiated Measurements with WCP

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	1.65	360	-108.55	47.69	0.00	46.14	53.98	-7.84
* 11000.00	Peak	H	1.65	360	-96.91	47.69	0.00	57.78	73.98	-16.20
16500.00	Peak	H	-	-	-99.44	52.33	0.00	59.88	68.20	-8.32
22000.00	Peak	H	1.00	158	-98.87	44.50	-9.54	43.08	68.20	-25.12
27500.00	Peak	H	-	-	-102.62	47.97	-9.54	42.81	68.20	-25.39

Table 7-36. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	1.68	35	-109.17	47.88	0.00	45.71	53.98	-8.27
* 11200.00	Peak	H	1.68	35	-96.91	47.88	0.00	57.97	73.98	-16.01
16800.00	Peak	H	-	-	-99.01	53.52	0.00	61.52	68.20	-6.68
* 22400.00	Average	H	1.00	190	-107.00	44.56	-9.54	35.02	53.98	-18.96
* 22400.00	Peak	H	1.00	190	-99.18	44.56	-9.54	42.84	73.98	-31.14
28000.00	Peak	H	-	-	-103.28	48.08	-9.54	42.26	68.20	-25.94

Table 7-37. Radiated Measurements

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 127 of 261

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11440.00	Average	H	1.68	72	-106.56	48.49	0.00	48.92	53.98	-5.06
*	11440.00	Peak	H	1.68	72	-94.99	48.49	0.00	60.49	73.98	-13.49
	17160.00	Peak	H	-	-	-98.03	55.12	0.00	64.09	68.20	-4.11
*	22880.00	Average	H	1.00	224	-108.74	44.56	-9.54	33.27	53.98	-20.71
*	22880.00	Peak	H	1.00	224	-98.03	44.56	-9.54	43.98	73.98	-30.00
	28600.00	Peak	H	-	-	-102.84	48.32	-9.54	42.94	68.20	-25.26

Table 7-38. Radiated Measurements

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11000.00	Average	H	-	-	-110.06	47.69	0.00	44.63	53.98	-9.35
*	11000.00	Peak	H	-	-	-97.71	47.69	0.00	56.98	73.98	-17.00
	16500.00	Peak	H	-	-	-99.99	52.33	0.00	59.33	68.20	-8.87
	22000.00	Peak	H	1.00	224	-100.24	44.50	-9.54	41.71	68.20	-26.49
	27500.00	Peak	H	-	-	-102.94	47.97	-9.54	42.49	68.20	-25.71

Table 7-39. Radiated Measurements with WCP

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 128 of 261

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	1.50	301	-108.16	48.89	0.00	47.73	53.98	-6.25
* 11490.00	Peak	H	1.50	301	-96.26	48.89	0.00	59.63	73.98	-14.35
17235.00	Peak	H	-	-	-98.86	56.10	0.00	64.24	68.20	-3.96
* 22980.00	Average	H	1.00	214	-108.08	44.68	-9.54	34.06	53.98	-19.92
* 22980.00	Peak	H	1.00	214	-97.96	44.68	-9.54	44.18	73.98	-29.80
28725.00	Peak	H	-	-	-102.43	48.26	-9.54	43.29	68.20	-24.91

Table 7-40. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	1.61	161	-109.22	49.13	0.00	46.91	53.98	-7.07
* 11570.00	Peak	H	1.61	161	-96.67	49.13	0.00	59.46	73.98	-14.52
17355.00	Peak	H	-	-	-98.25	56.44	0.00	65.19	68.20	-3.01
23140.00	Peak	H	1.00	230	-97.57	44.75	-9.54	44.64	68.20	-23.56
28925.00	Peak	H	-	-	-100.88	48.29	-9.54	44.87	68.20	-23.33

Table 7-41. Radiated Measurements

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 129 of 261

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-110.41	49.22	0.00	45.81	53.98	-8.17
* 11650.00	Peak	H	-	-	-97.86	49.22	0.00	58.36	73.98	-15.62
17475.00	Peak	H	-	-	-99.50	57.10	0.00	64.61	68.20	-3.59
23300.00	Peak	H	1.00	172	-97.02	44.75	-9.54	45.18	68.20	-23.02
29125.00	Peak	H	-	-	-98.42	48.28	-9.54	47.33	68.20	-20.87

Table 7-42. Radiated Measurements

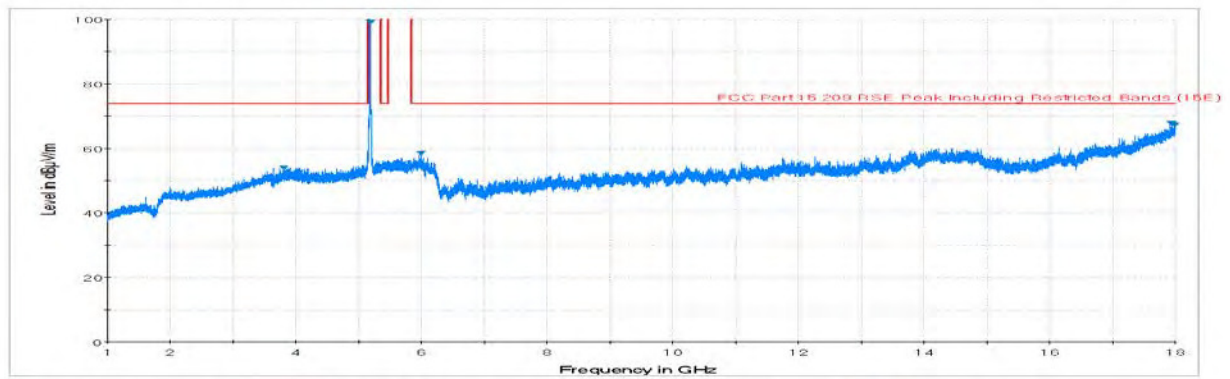
Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-111.87	49.22	0.00	44.35	53.98	-9.63
* 11650.00	Peak	H	-	-	-99.34	49.22	0.00	56.88	73.98	-17.10
17475.00	Peak	H	-	-	-98.92	57.10	0.00	65.19	68.20	-3.01
23300.00	Peak	H	-	-	-100.56	44.75	-9.54	41.64	68.20	-26.56
29125.00	Peak	H	-	-	-102.33	48.28	-9.54	43.42	68.20	-24.78

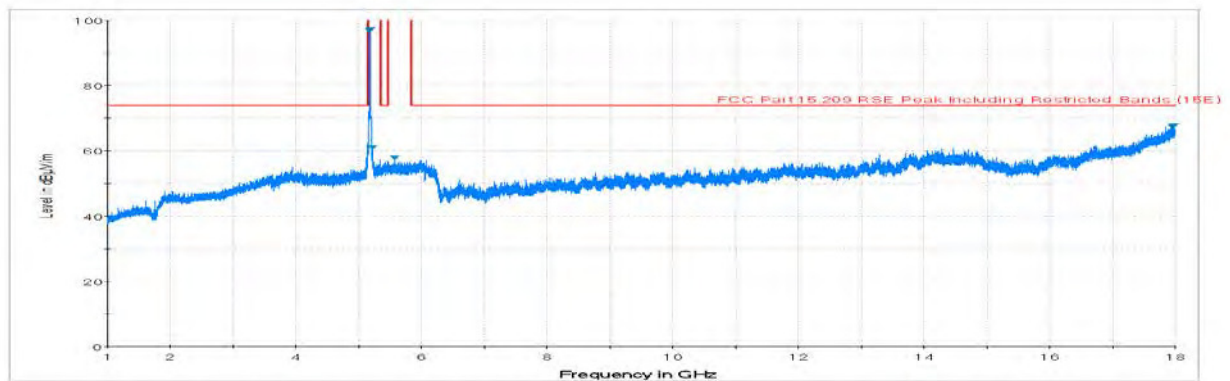
Table 7-43. Radiated Measurements with WCP

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 130 of 261

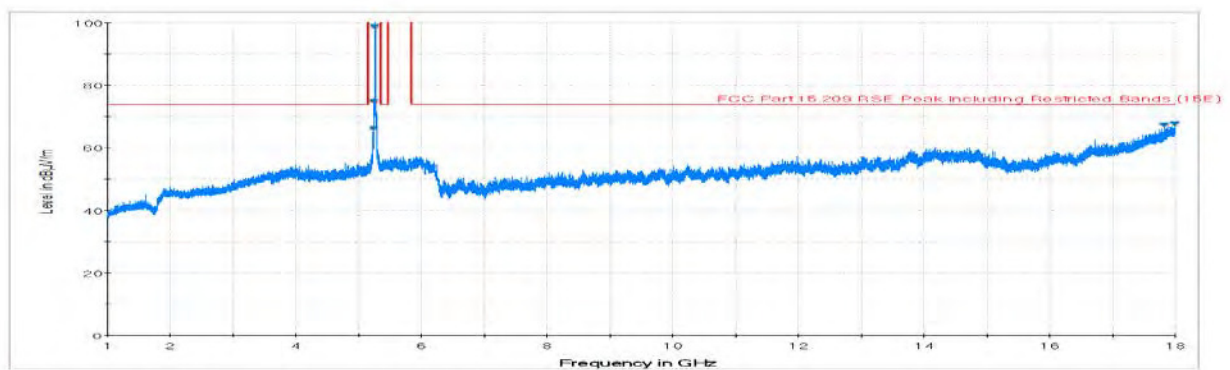
7.7.2 Antenna-2 Radiated Spurious Emission Measurements



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

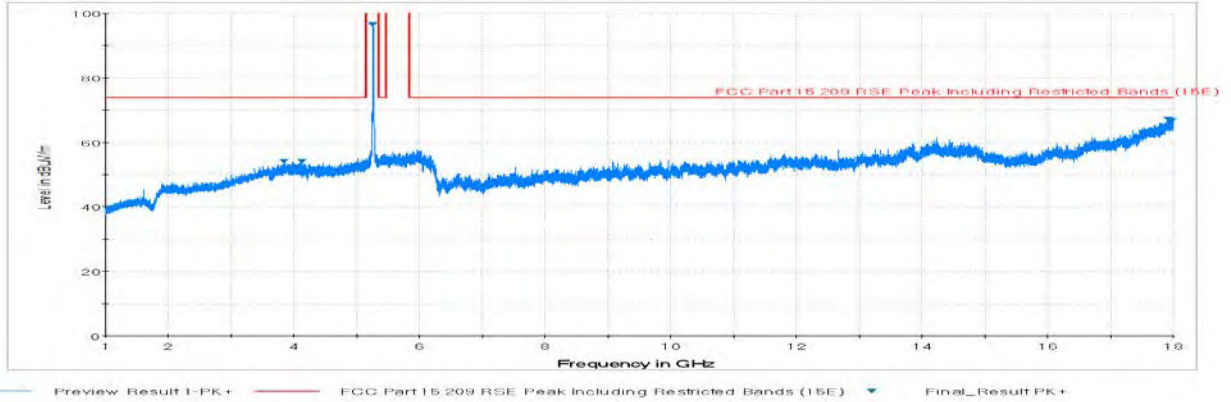


Plot 7-170. Radiated Spurious Plot above 1GHz (802.11a – U1 Ch. 40, Ant. Pol. V)

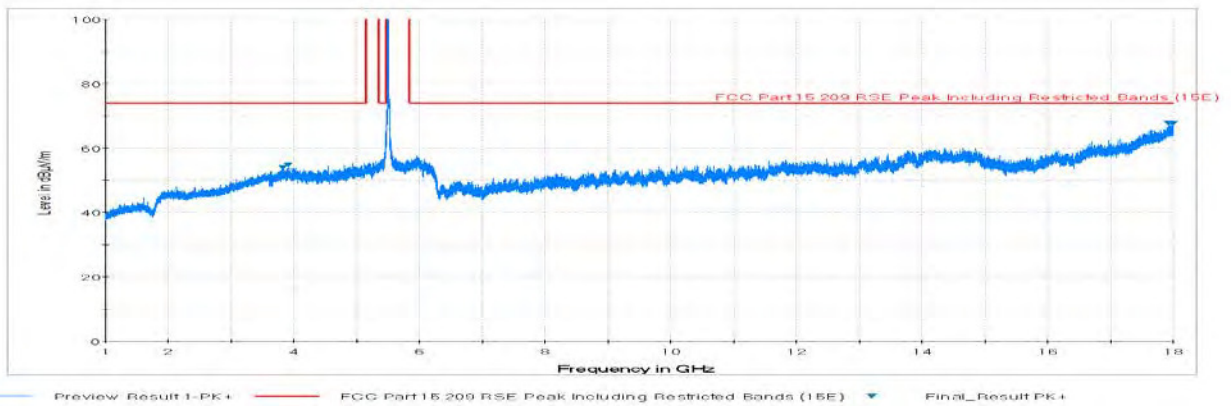


Plot 7-171. Radiated Spurious Plot above 1GHz (802.11a – U2A Ch. 56, Ant. Pol. H)

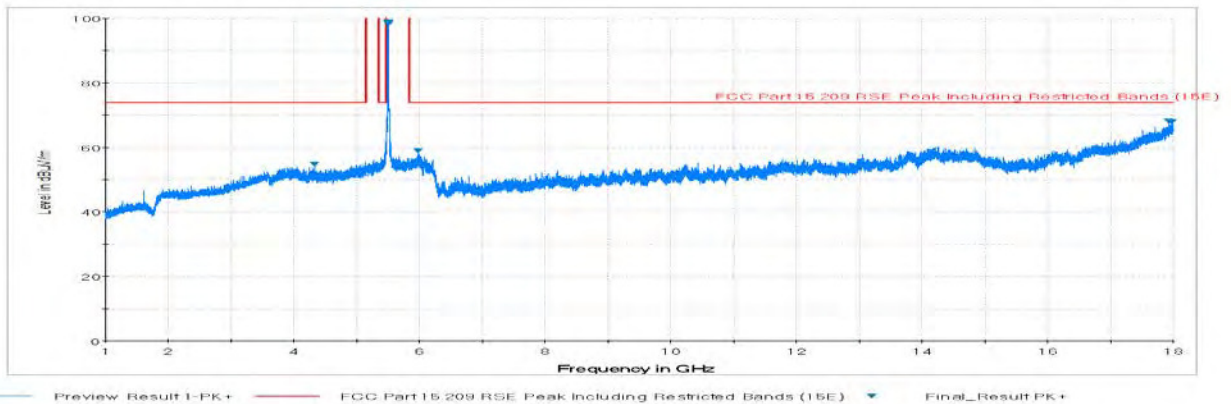
FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 131 of 261



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

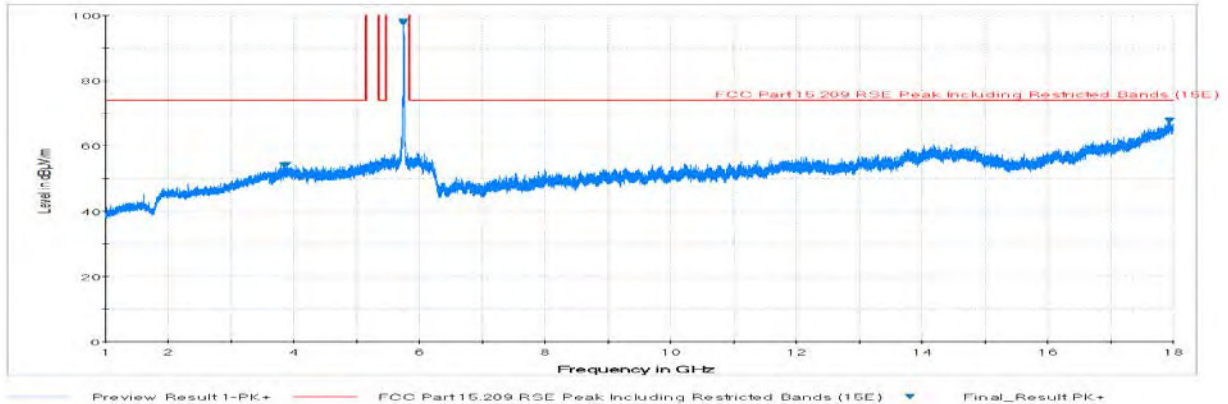


Plot 7-173. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. H)

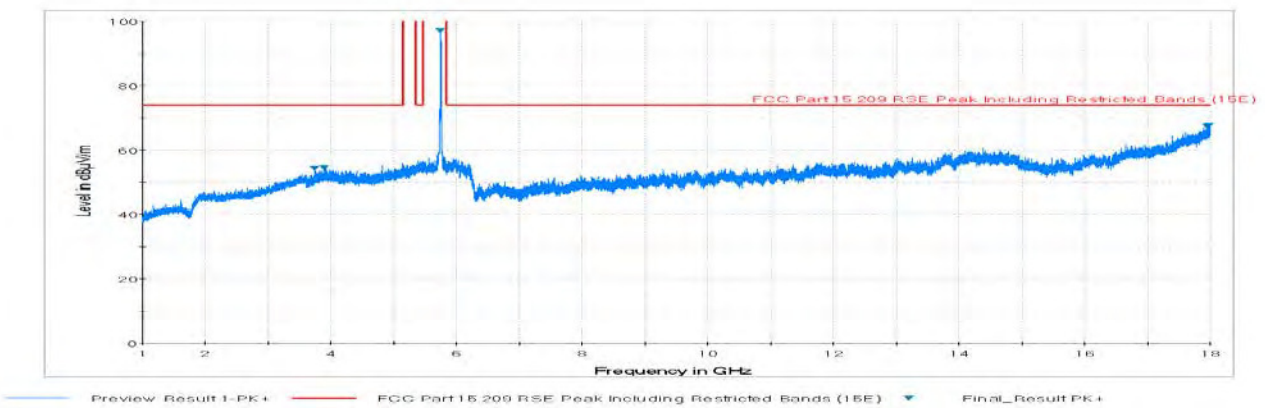


Plot 7-174. Radiated Spurious Plot above 1GHz (802.11a – U2C Ch. 116, Ant. Pol. V)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 132 of 261



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

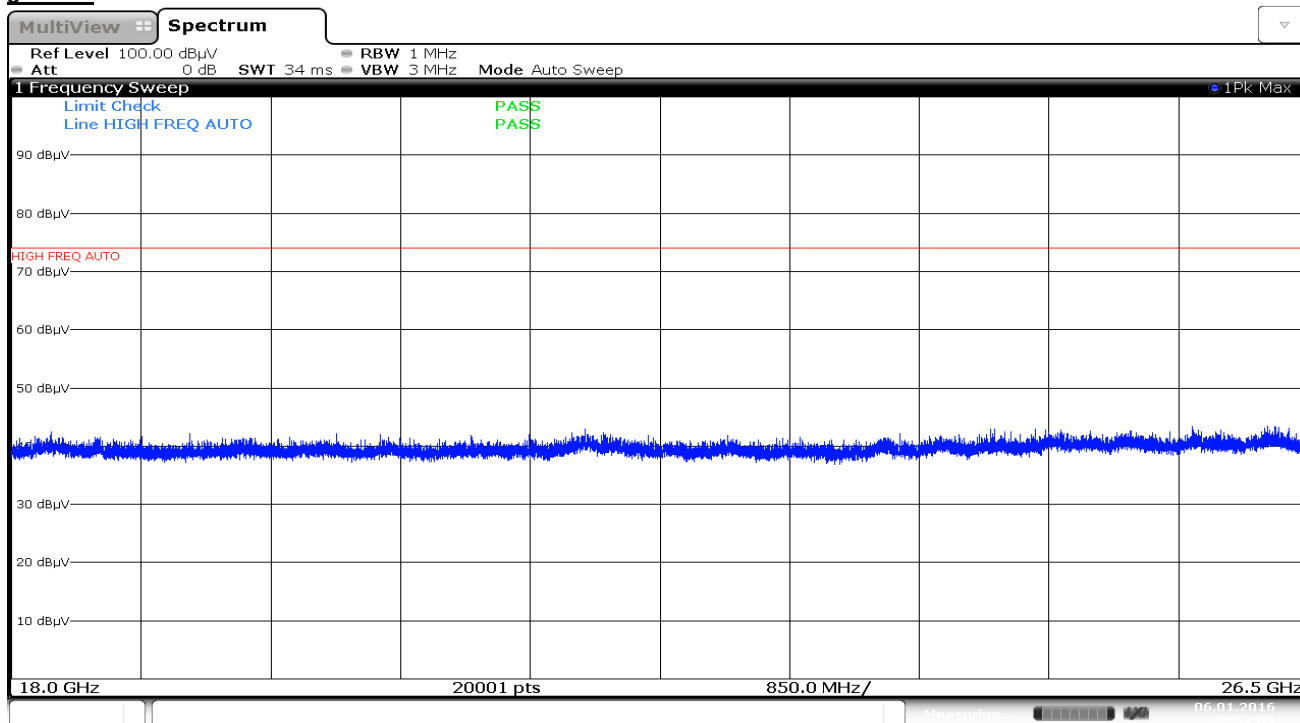


Plot 7-176. Radiated Spurious Plot above 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 133 of 261

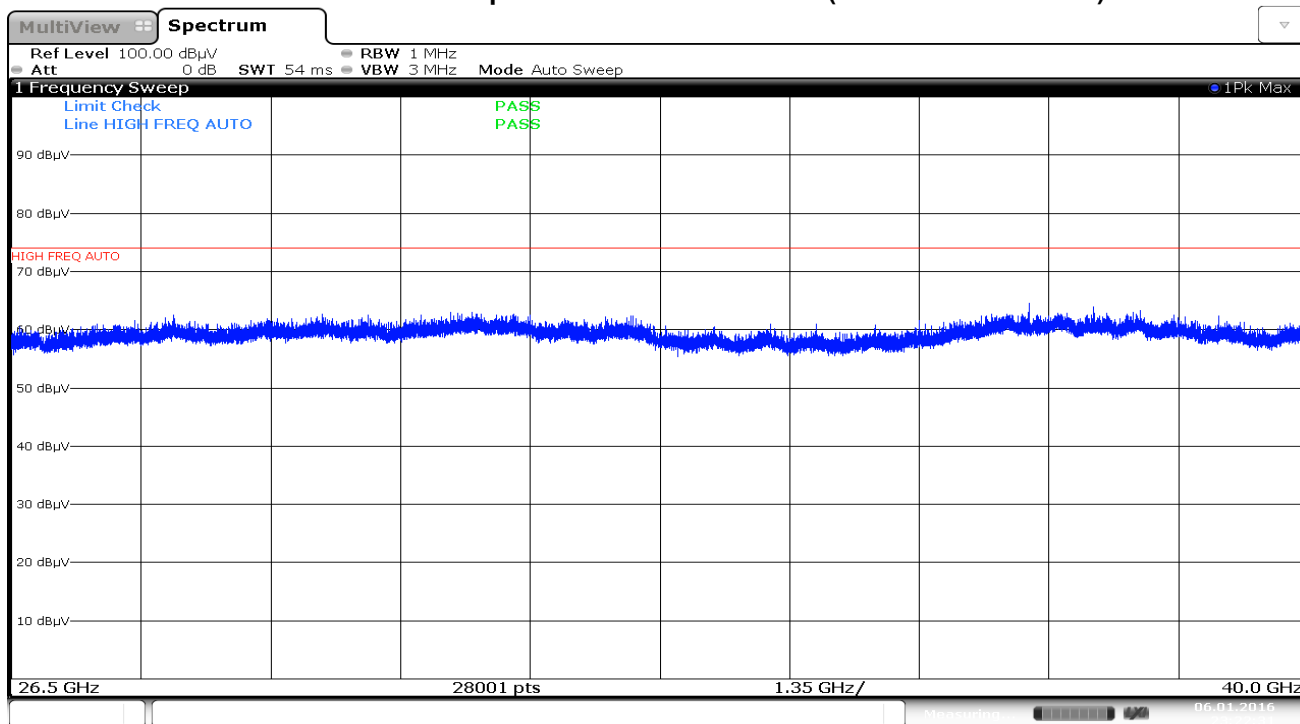
Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)

§15.209



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

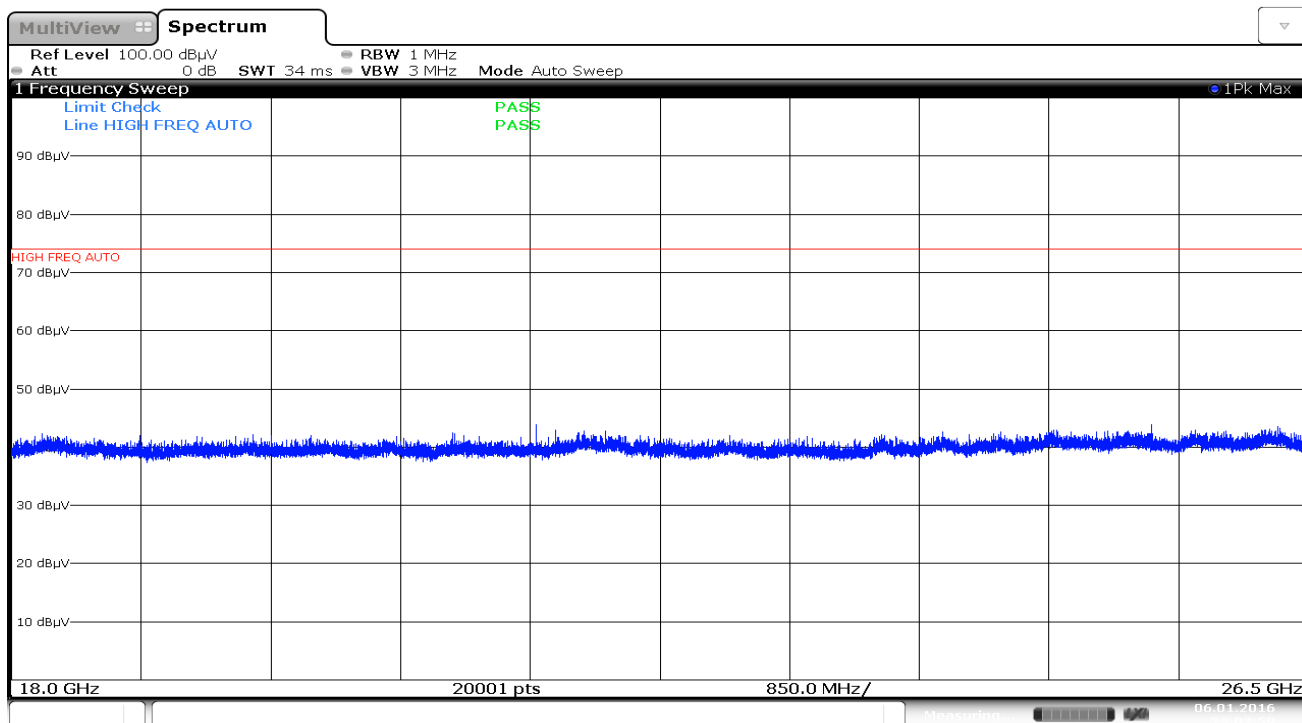
Plot 7-177. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)



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

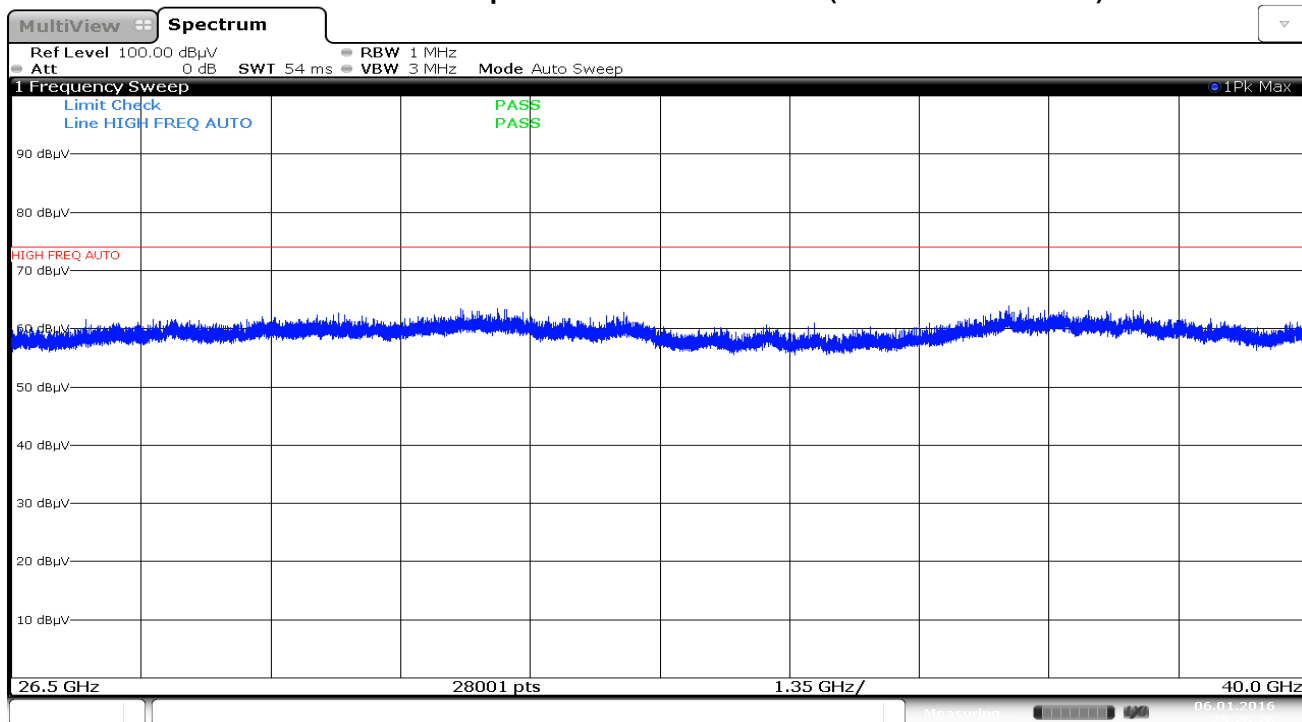
Plot 7-178. Radiated Spurious Plot above 18GHz (802.11a – Ant. Pol. H)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 134 of 261



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: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 135 of 261

Antenna-2 Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	1.49	296	-94.43	47.31	0.00	59.88	68.20	-8.32
* 15540.00	Average	H	-	-	-111.29	51.34	0.00	47.05	53.98	-6.93
* 15540.00	Peak	H	-	-	-99.18	51.34	0.00	59.16	73.98	-14.82
* 20720.00	Average	H	1.00	277	-111.29	44.39	-9.54	30.56	53.98	-23.42
* 20720.00	Peak	H	1.00	277	-99.54	44.39	-9.54	42.31	73.98	-31.67
25900.00	Peak	H	-	-	-100.13	45.11	-9.54	42.44	68.20	-25.76

Table 7-44. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	1.41	291	-94.19	47.33	0.00	60.14	68.20	-8.06
* 15600.00	Average	H	-	-	-110.97	50.86	0.00	46.88	53.98	-7.09
* 15600.00	Peak	H	-	-	-98.69	50.86	0.00	59.16	73.98	-14.81
* 20800.00	Average	H	1.00	20	-110.13	44.39	-9.54	31.72	53.98	-22.26
* 20800.00	Peak	H	1.00	20	-99.26	44.39	-9.54	42.59	73.98	-31.39
26000.00	Peak	H	-	-	-100.37	45.12	-9.54	42.20	68.20	-26.00

Table 7-45. Radiated Measurements

Worst Case Mode: 802.11a

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 136 of 261

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	1.42	360	-95.28	47.37	0.00	59.10	68.20	-9.10
* 15720.00	Average	H	1.42	360	-106.89	50.12	0.00	50.23	53.98	-3.75
* 15720.00	Peak	H	-	-	-98.69	50.12	0.00	58.43	73.98	-15.55
* 20960.00	Average	H	1.00	28	-109.19	44.31	-9.54	32.58	53.98	-21.40
* 20960.00	Peak	H	1.00	28	-97.63	44.31	-9.54	44.14	73.98	-29.84
26200.00	Peak	H	-	-	-99.72	45.01	-9.54	42.75	68.20	-25.45

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 [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-99.01	47.37	0.00	55.37	68.20	-12.83
* 15720.00	Average	H	-	-	-112.47	50.12	0.00	44.65	53.98	-9.33
* 15720.00	Peak	H	-	-	-100.47	50.12	0.00	56.65	73.98	-17.33
* 20960.00	Average	H	-	-	-111.50	44.31	-9.54	30.27	53.98	-23.71
* 20960.00	Peak	H	-	-	-100.12	44.31	-9.54	41.65	73.98	-32.33
26200.00	Peak	H	-	-	-100.18	45.01	-9.54	42.29	68.20	-25.91

Table 7-47. Radiated Measurements with WCP

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 137 of 261

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	1.65	16	-95.72	47.39	0.00	58.68	68.20	-9.52
* 15780.00	Average	H	-	-	-111.04	49.96	0.00	45.92	53.98	-8.06
* 15780.00	Peak	H	-	-	-99.55	49.96	0.00	57.41	73.98	-16.57
* 21040.00	Average	H	1.00	198	-109.02	44.29	-9.54	32.72	53.98	-21.26
* 21040.00	Peak	H	1.00	198	-98.81	44.29	-9.54	42.93	73.98	-31.05
26300.00	Peak	H	-	-	-98.81	45.00	-9.54	43.65	68.20	-24.55

Table 7-48. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	1.60	10	-96.33	47.41	0.00	58.07	68.20	-10.13
* 15840.00	Average	H	-	-	-111.19	50.16	0.00	45.97	53.98	-8.01
* 15840.00	Peak	H	-	-	-99.25	50.16	0.00	57.91	73.98	-16.07
* 21120.00	Average	H	1.00	198	-110.30	44.28	-9.54	31.44	53.98	-22.54
* 21120.00	Peak	H	1.00	198	-96.84	44.28	-9.54	44.90	73.98	-29.08
26400.00	Peak	H	-	-	-99.50	45.02	-9.54	42.98	68.20	-25.22

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 [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	1.66	34	-107.26	47.46	0.00	47.21	53.98	-6.77
* 10640.00	Peak	H	1.66	34	-95.40	47.46	0.00	59.07	73.98	-14.91
* 15960.00	Average	H	-	-	-110.95	50.83	0.00	46.88	53.98	-7.10
* 15960.00	Peak	H	-	-	-99.08	50.83	0.00	58.75	73.98	-15.23
* 21280.00	Average	H	1.00	15	-106.45	44.26	-9.54	35.27	53.98	-18.71
* 21280.00	Peak	H	1.00	15	-97.78	44.26	-9.54	43.94	73.98	-30.04
26600.00	Peak	H	-	-	-101.49	47.61	-9.54	43.58	68.20	-24.62

Table 7-50. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10640.00	Average	H	-	-	-111.71	47.46	0.00	42.76	53.98	-11.22
* 10640.00	Peak	H	-	-	-99.59	47.46	0.00	54.88	73.98	-19.10
* 15960.00	Average	H	-	-	-111.02	50.83	0.00	46.81	53.98	-7.17
* 15960.00	Peak	H	-	-	-98.03	50.83	0.00	59.80	73.98	-14.18
* 21280.00	Average	H	-	-	-111.32	44.26	-9.54	30.40	53.98	-23.58
21280.00	Peak	H	-	-	-100.73	44.26	-9.54	40.99	73.98	-32.99
26600.00	Peak	H	-	-	-101.27	47.61	-9.54	43.80	68.20	-24.40

Table 7-51. Radiated Measurements with WCP

FCC ID: A3LSMG930W8			FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset			Page 139 of 261

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11000.00	Average	H	1.43	43	-108.78	47.69	0.00	45.91	53.98	-8.07
*	11000.00	Peak	H	1.43	43	-96.97	47.69	0.00	57.72	73.98	-16.26
	16500.00	Peak	H	-	-	-98.89	52.33	0.00	60.43	68.20	-7.77
	22000.00	Peak	H	1.00	152	-96.46	44.50	-9.54	45.49	68.20	-22.71
	27500.00	Peak	H	1.00	152	-126.02	47.97	-9.54	19.41	68.20	-48.79

Table 7-52. 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]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11200.00	Average	H	-	-	-109.26	47.88	0.00	45.62	53.98	-8.36
*	11200.00	Peak	H	-	-	-97.18	47.88	0.00	57.70	73.98	-16.28
	16800.00	Peak	H	-	-	-98.79	53.52	0.00	61.74	68.20	-6.46
*	22400.00	Average	H	1.00	222	-97.43	44.56	-9.54	44.59	53.98	-9.39
*	22400.00	Peak	H	1.00	222	-105.38	44.56	-9.54	36.64	73.98	-37.34
	28000.00	Peak	H	-	-	-103.06	48.08	-9.54	42.48	68.20	-25.72

Table 7-53. Radiated Measurements

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 140 of 261

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11440.00	Average	H	1.43	360	-109.72	48.49	0.00	45.76	53.98	-8.22
*	11440.00	Peak	H	1.43	360	-97.63	48.49	0.00	57.85	73.98	-16.13
	17160.00	Peak	H	-	-	-98.53	55.12	0.00	63.59	68.20	-4.61
*	22880.00	Average	H	1.00	181	-107.14	44.56	-9.54	34.87	53.98	-19.11
*	22880.00	Peak	H	1.00	181	-99.66	44.56	-9.54	42.35	73.98	-31.63
	28600.00	Peak	H	-	-	-103.10	48.32	-9.54	42.68	68.20	-25.52

Table 7-54. Radiated Measurements

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

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	11440.00	Average	H	-	-	-111.42	48.49	0.00	44.06	53.98	-9.92
*	11440.00	Peak	H	-	-	-98.70	48.49	0.00	56.78	73.98	-17.20
	17160.00	Peak	H	-	-	-101.37	55.12	0.00	60.75	68.20	-7.45
	22880.00	Peak	H	1.00	181	-111.05	44.56	-9.54	30.96	73.98	-43.02
	28600.00	Peak	H	1.00	181	-122.39	48.32	-9.54	23.39	68.20	-44.81

Table 7-55. Radiated Measurements with WCP

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 141 of 261

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-110.61	48.89	0.00	45.28	53.98	-8.70
* 11490.00	Peak	H	-	-	-97.99	48.89	0.00	57.90	73.98	-16.08
17235.00	Peak	H	-	-	-98.31	56.10	0.00	64.79	68.20	-3.41
* 22980.00	Average	H	1.00	192	-107.30	44.68	-9.54	34.84	53.98	-19.14
* 22980.00	Peak	H	1.00	192	-99.51	44.68	-9.54	42.63	73.98	-31.35
28725.00	Peak	H	-	-	-102.60	48.26	-9.54	43.12	68.20	-25.08

Table 7-56. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-110.63	49.13	0.00	45.50	53.98	-8.48
* 11570.00	Peak	H	-	-	-98.88	49.13	0.00	57.25	73.98	-16.73
17355.00	Peak	H	-	-	-98.76	56.44	0.00	64.68	68.20	-3.52
23140.00	Peak	H	1.00	221	-99.63	44.75	-9.54	42.58	68.20	-25.62
28925.00	Peak	H	-	-	-102.73	48.29	-9.54	43.02	68.20	-25.18

Table 7-57. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-110.36	49.22	0.00	45.86	53.98	-8.12
* 11650.00	Peak	H	-	-	-98.72	49.22	0.00	57.50	73.98	-16.48
17475.00	Peak	H	-	-	-99.38	57.10	0.00	64.73	68.20	-3.47
23300.00	Peak	H	1.00	346	-99.14	44.75	-9.54	43.06	68.20	-25.14
29125.00	Peak	H	-	-	-102.59	48.28	-9.54	43.16	68.20	-25.04

Table 7-58. Radiated Measurements

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

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-111.52	48.89	0.00	44.37	53.98	-9.61
* 11490.00	Peak	H	-	-	-99.27	48.89	0.00	56.62	73.98	-17.36
17235.00	Peak	H	-	-	-101.38	56.10	0.00	61.72	68.20	-6.48
22980.00	Peak	H	1.00	137	-100.65	44.68	-9.54	41.49	73.98	-32.49
28725.00	Peak	H	-	-	-102.84	48.26	-9.54	42.88	68.20	-25.32

Table 7-59. Radiated Measurements with WCP

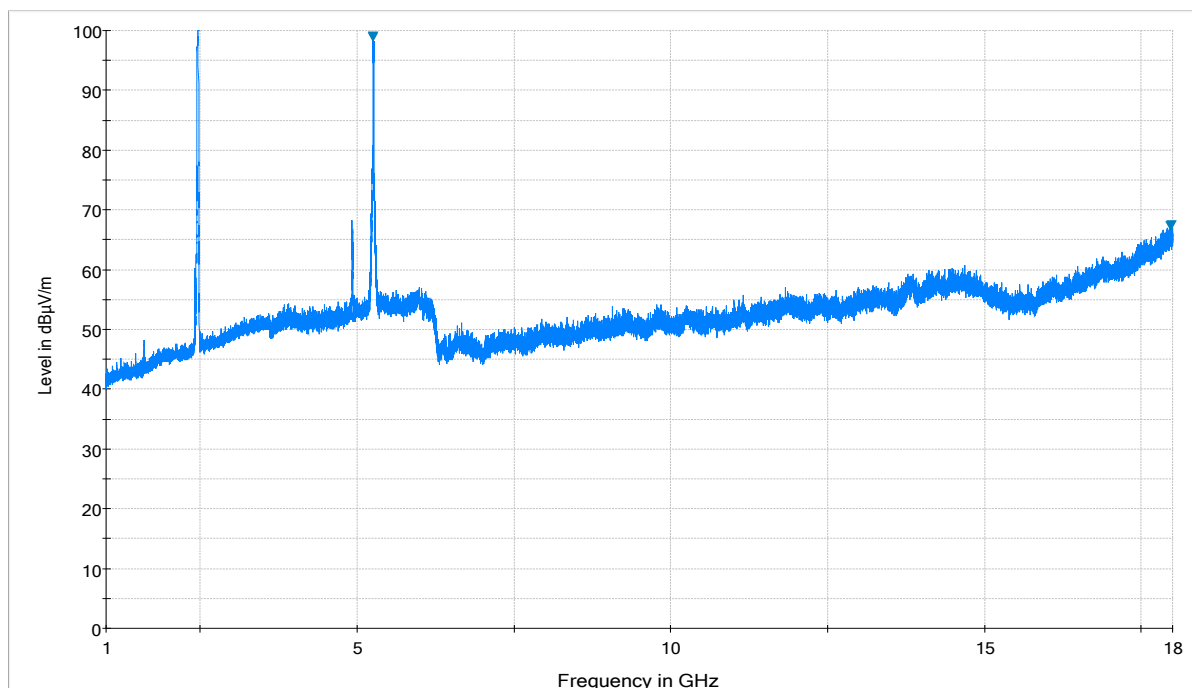
FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 143 of 261	

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

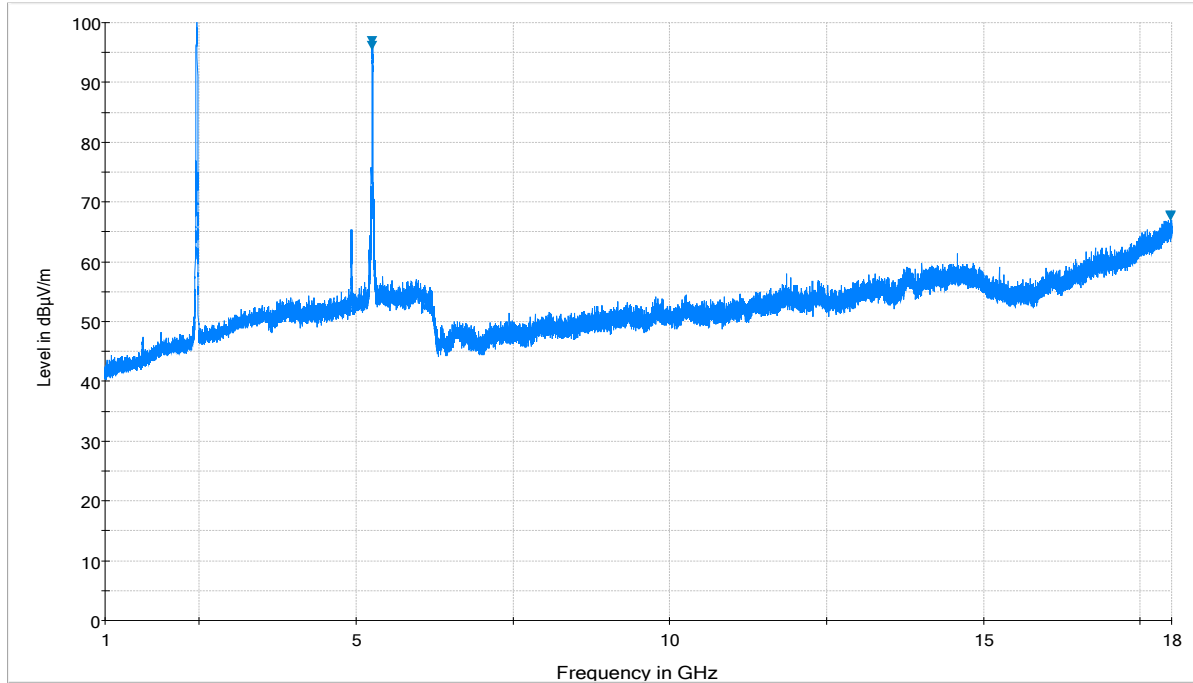
Table 7-60. Simultaneous Transmission Config-1



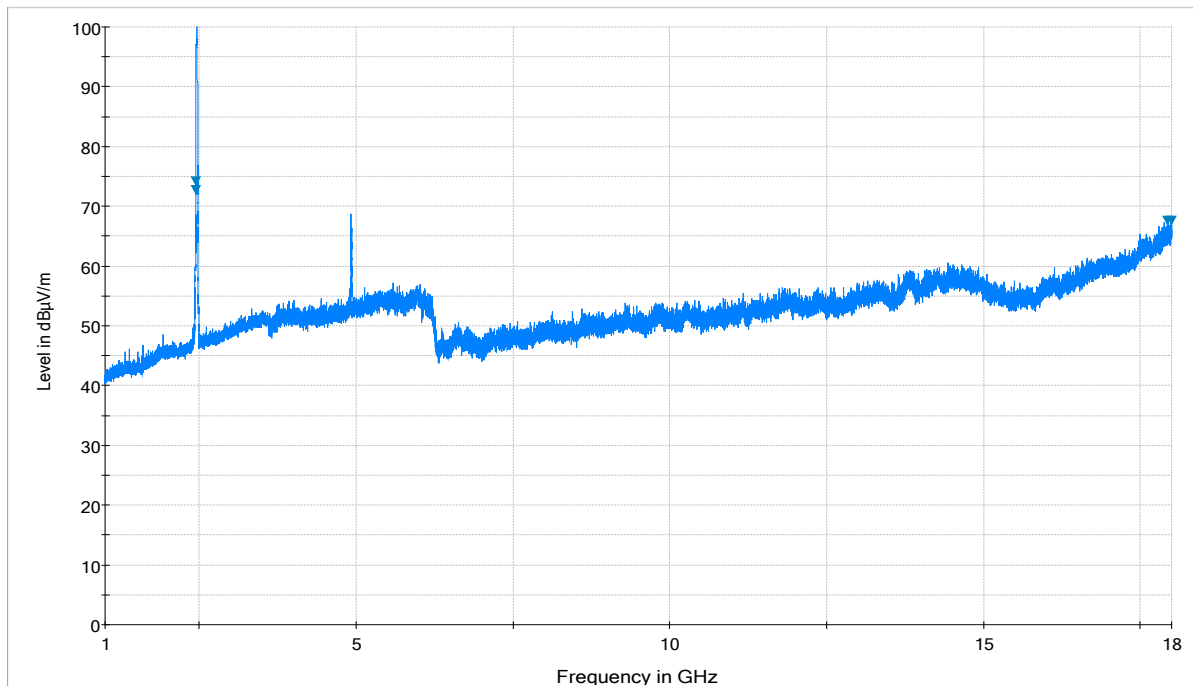
Preview Result 1-PK+ Final_Result PK+

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 144 of 261	

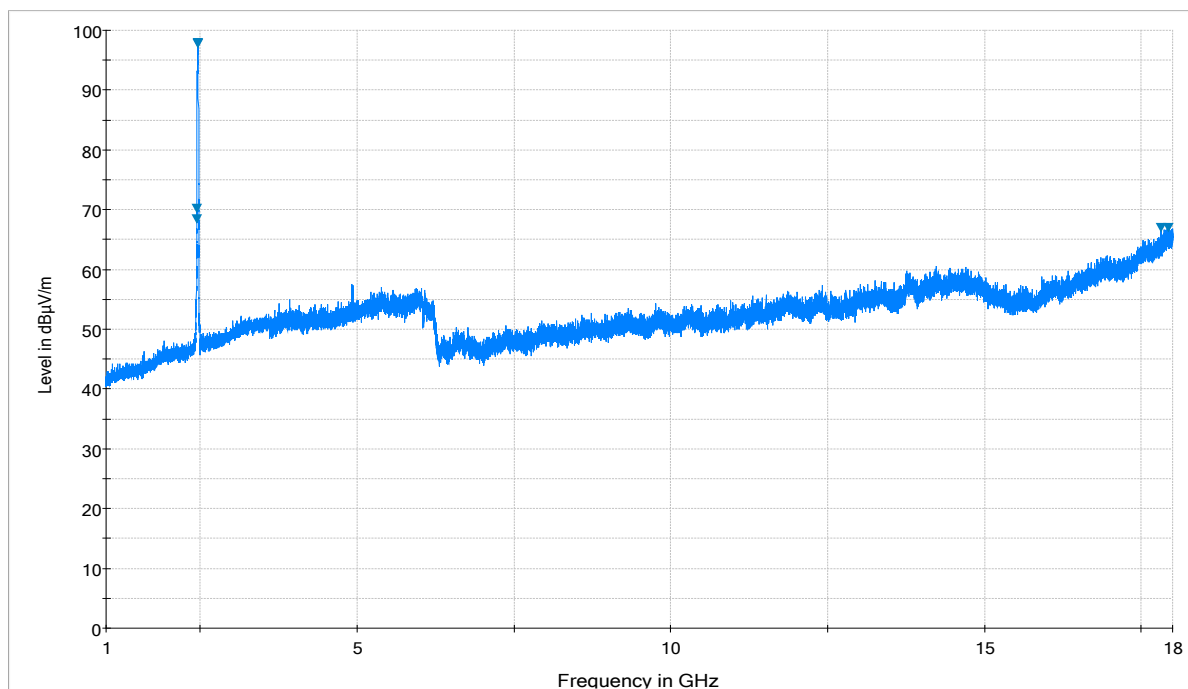


Plot 7-182. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz, Ant. Pol. V)



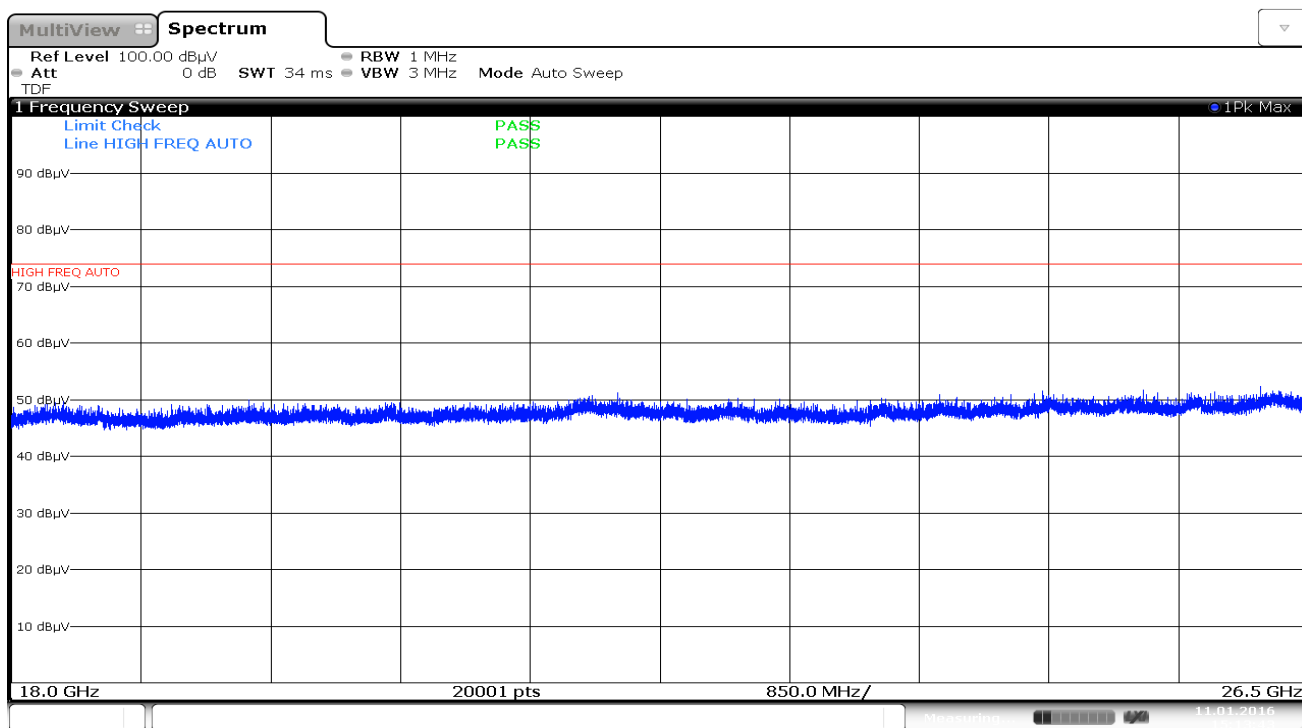
Plot 7-183. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz, Ant. Pol. H)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 145 of 261



Preview Result 1-PK+ Final_Result PK+

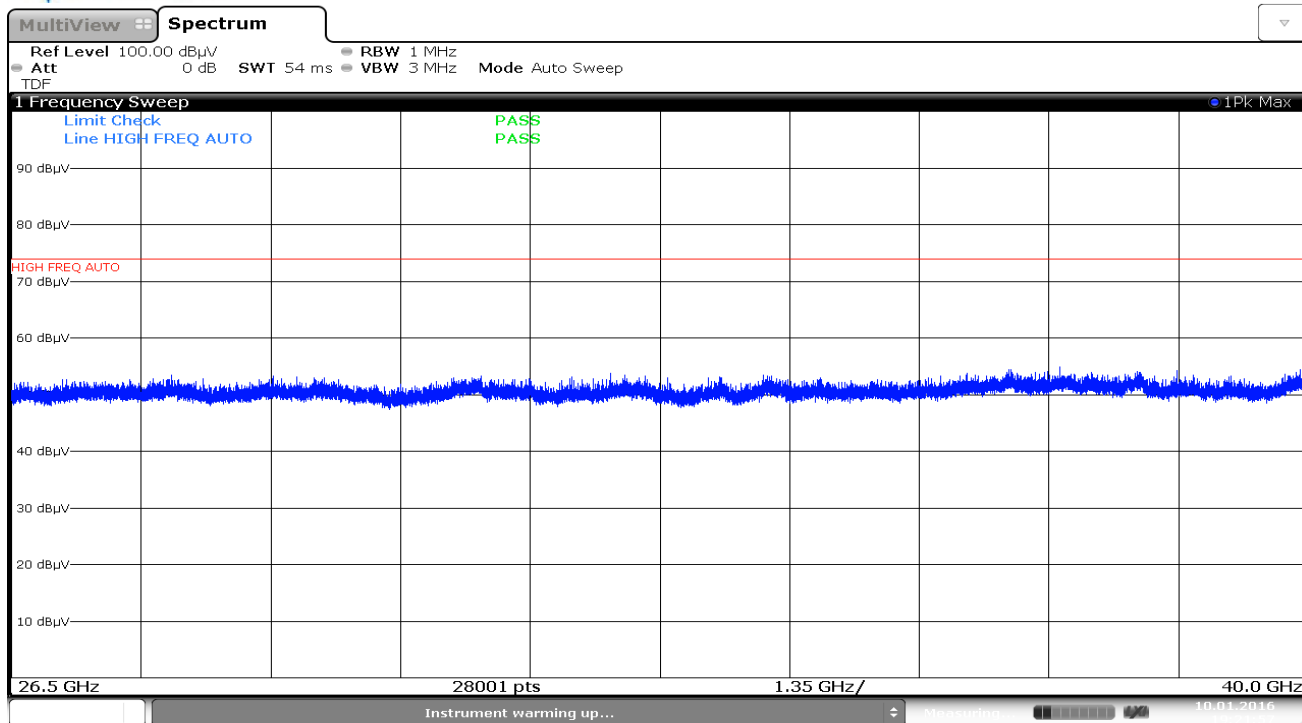
Plot 7-184. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz, Ant. Pol. V)



Date: 11.JAN.2016 15:13:43

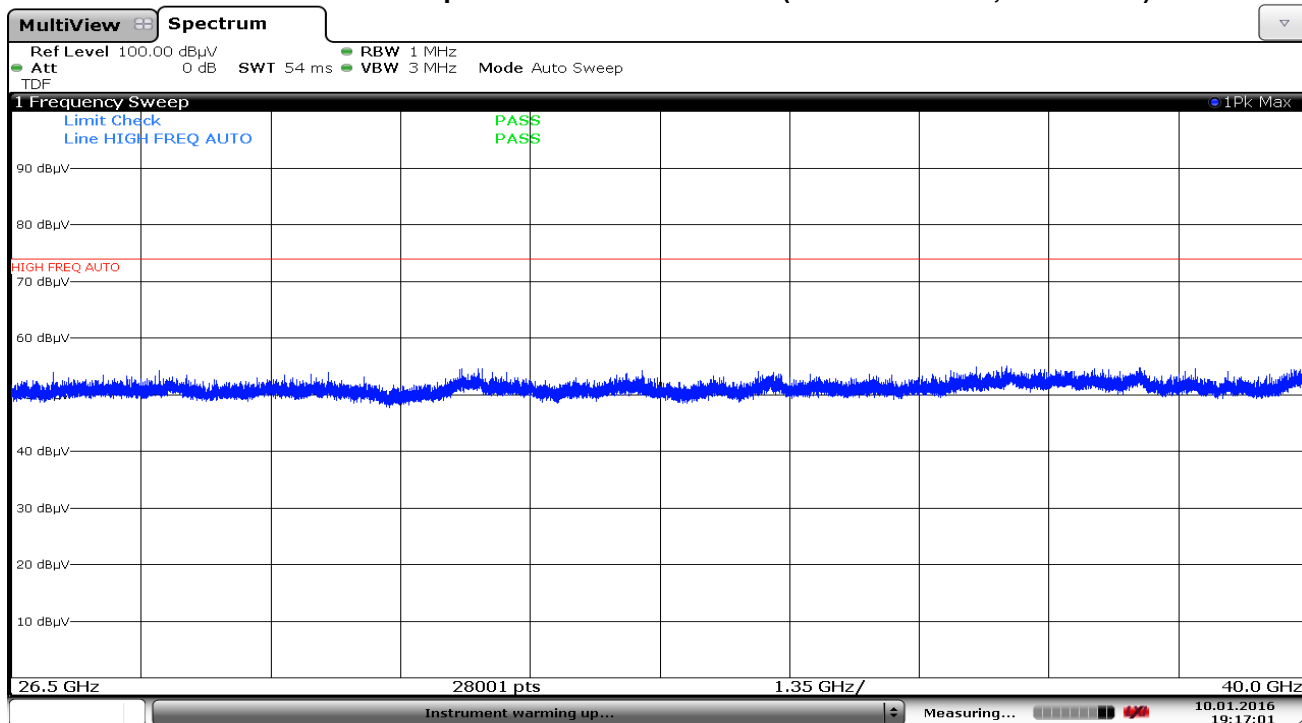
Plot 7-185. Radiated Spurious Plot above 18GHz (2.4 GHz – 5 GHz, Ant. Pol. H)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 146 of 261



Date: 10. JAN. 2016 19:21:58

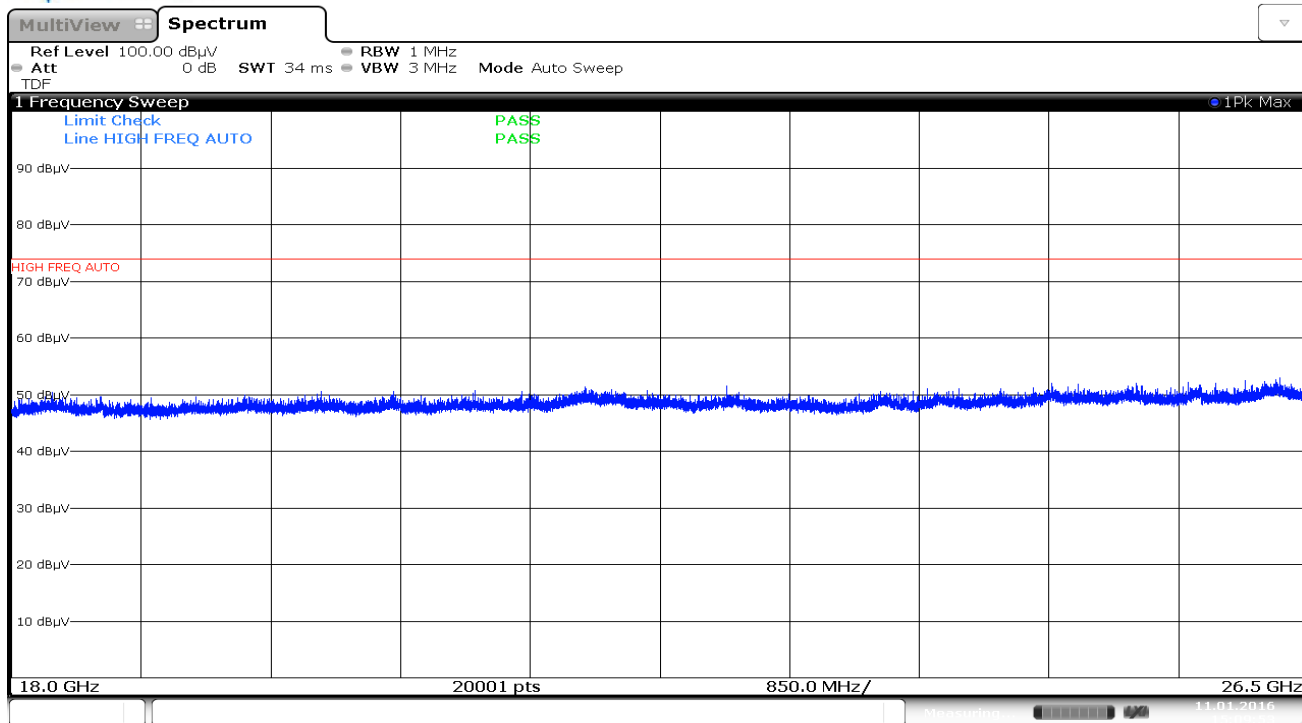
Plot 7-186. Radiated Spurious Plot above 18GHz (2.4 GHz – 5 GHz, Ant. Pol. H)



Date: 10. JAN. 2016 19:17:01

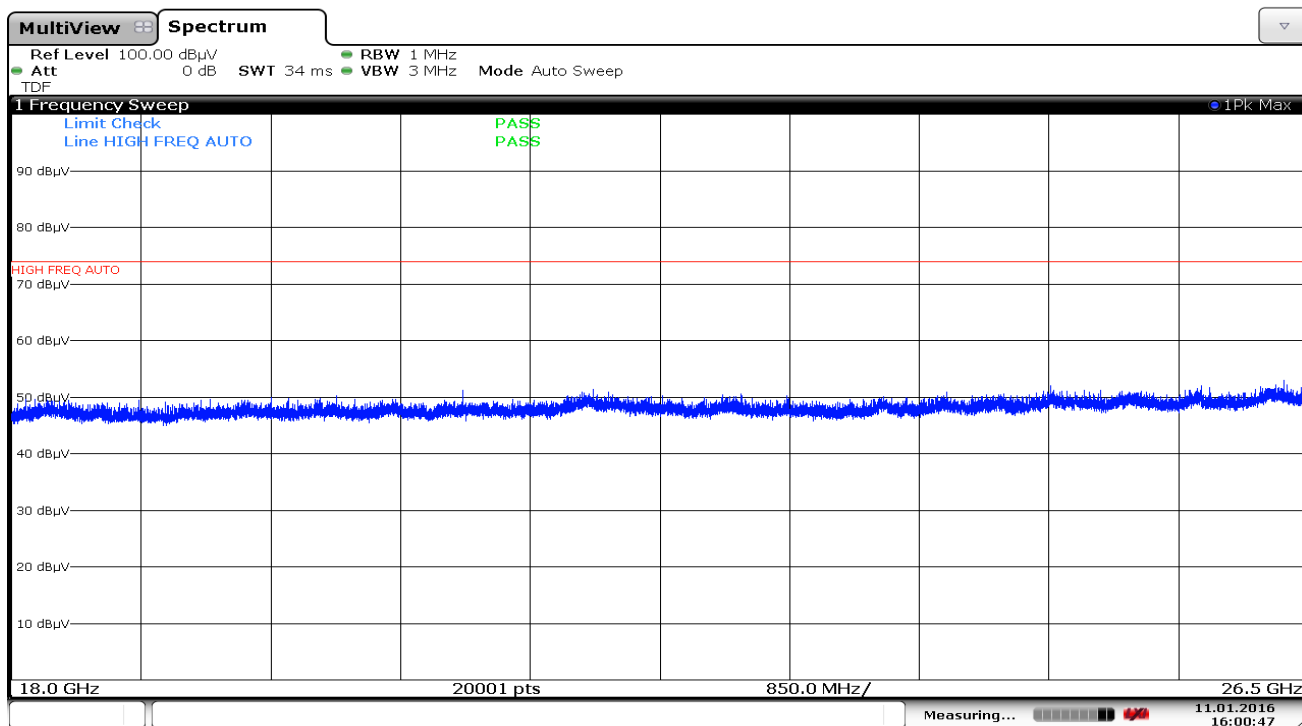
Plot 7-187. Radiated Spurious Plot above 18GHz (2.4 GHz – 5 GHz, Ant. Pol. V)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 147 of 261



Date: 11.JAN.2016 15:09:53

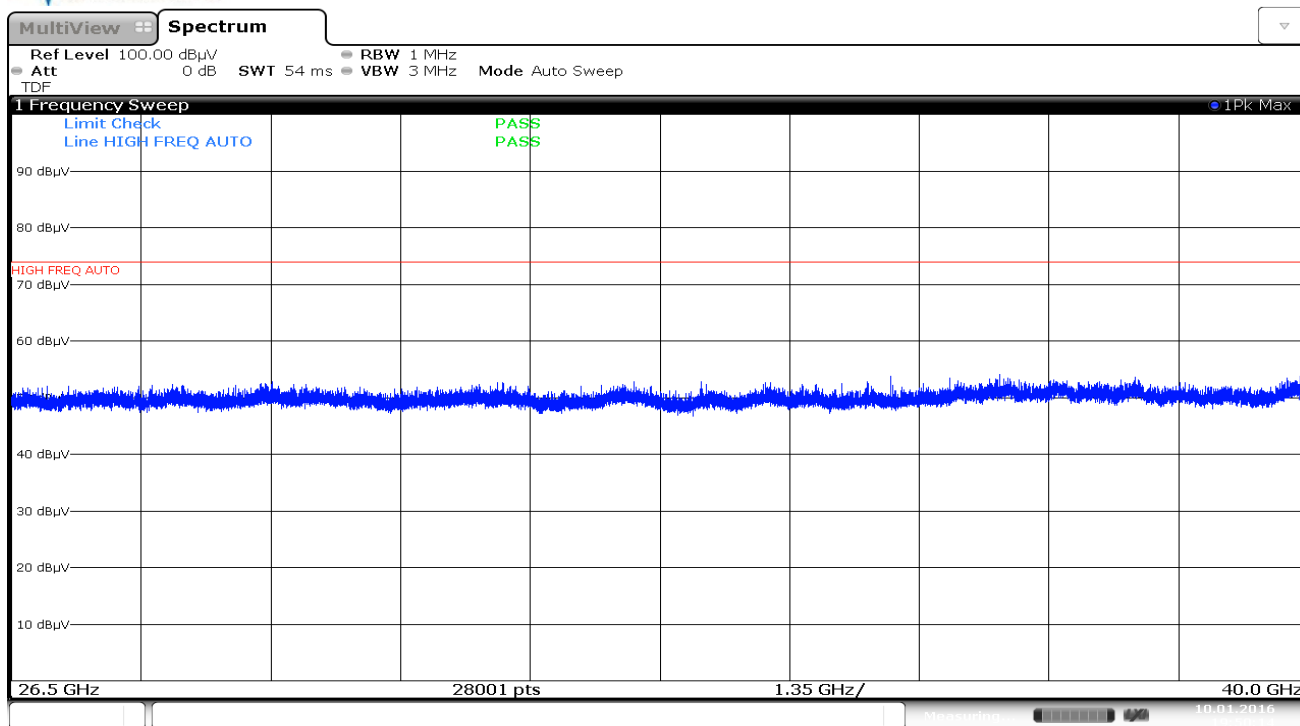
Plot 7-188. Radiated Spurious Plot above 18GHz (2.4 GHz – 5 GHz, Ant. Pol. V)



Date: 11.JAN.2016 16:00:47

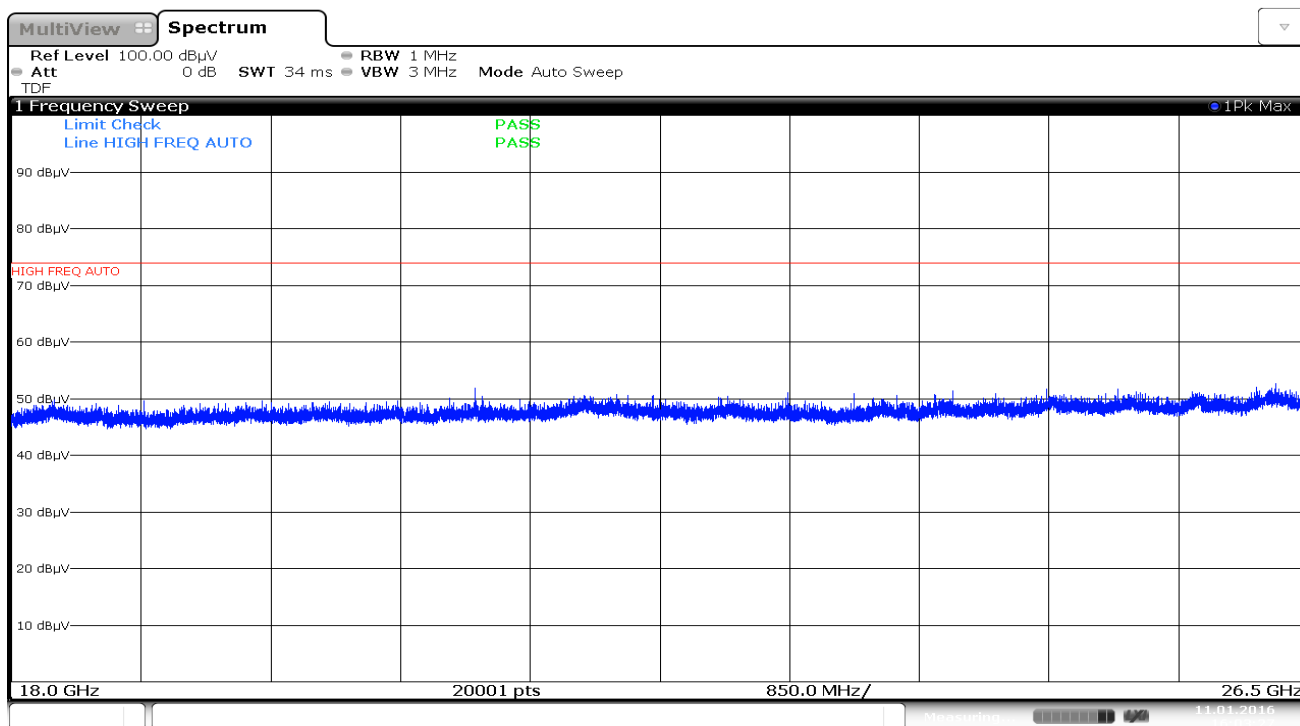
Plot 7-189. Radiated Spurious Plot above 18GHz (5 GHz – 2.4 GHz, Ant. Pol. H)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 148 of 261



Date: 10.JAN.2016 19:50:14

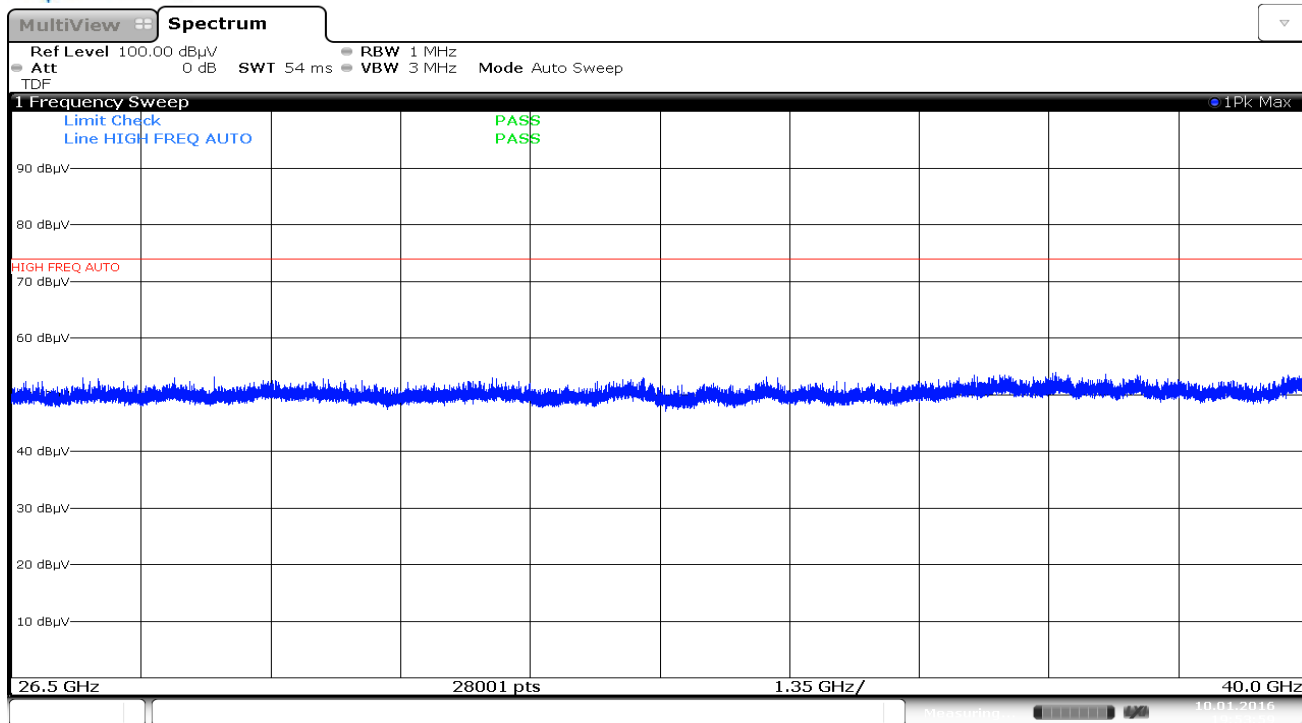
Plot 7-190. Radiated Spurious Plot above 18GHz (5 GHz – 2.4 GHz, Ant. Pol. H)



Date: 11.JAN.2016 16:03:27

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 149 of 261



Date: 10.JAN.2016 19:53:59

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 150 of 261

Simultaneous Tx Radiated Spurious Emission Measurements

§15.247(d) §15.205 & §15.209

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 2798.00	Average	H	-	-	-110.95	43.16	0.00	39.21	53.98	-14.77
* 2798.00	Peak	H	-	-	-97.58	43.16	0.00	52.58	73.98	-21.40
* 4924.00	Average	H	-	-	-110.79	49.74	0.00	45.94	53.98	-8.03
* 4924.00	Peak	H	-	-	-98.44	49.74	0.00	58.29	73.98	-15.68
* 7722.00	Average	H	-	-	-110.91	44.65	0.00	40.74	53.98	-13.24
* 7722.00	Peak	H	-	-	-98.37	44.65	0.00	53.28	73.98	-20.70
* 8058.00	Average	H	-	-	-111.25	45.82	0.00	41.58	53.98	-12.40
* 8058.00	Peak	H	-	-	-98.51	45.82	0.00	54.32	73.98	-19.66
10184.00	Average	H	-	-	-111.38	47.62	0.00	43.24	53.98	-10.74
* 11490.00	Average	H	-	-	-111.64	48.89	0.00	44.25	53.98	-9.73
12982.00	Peak	H	-	-	-98.57	50.41	0.00	58.84	73.98	-15.14

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 151 of 261

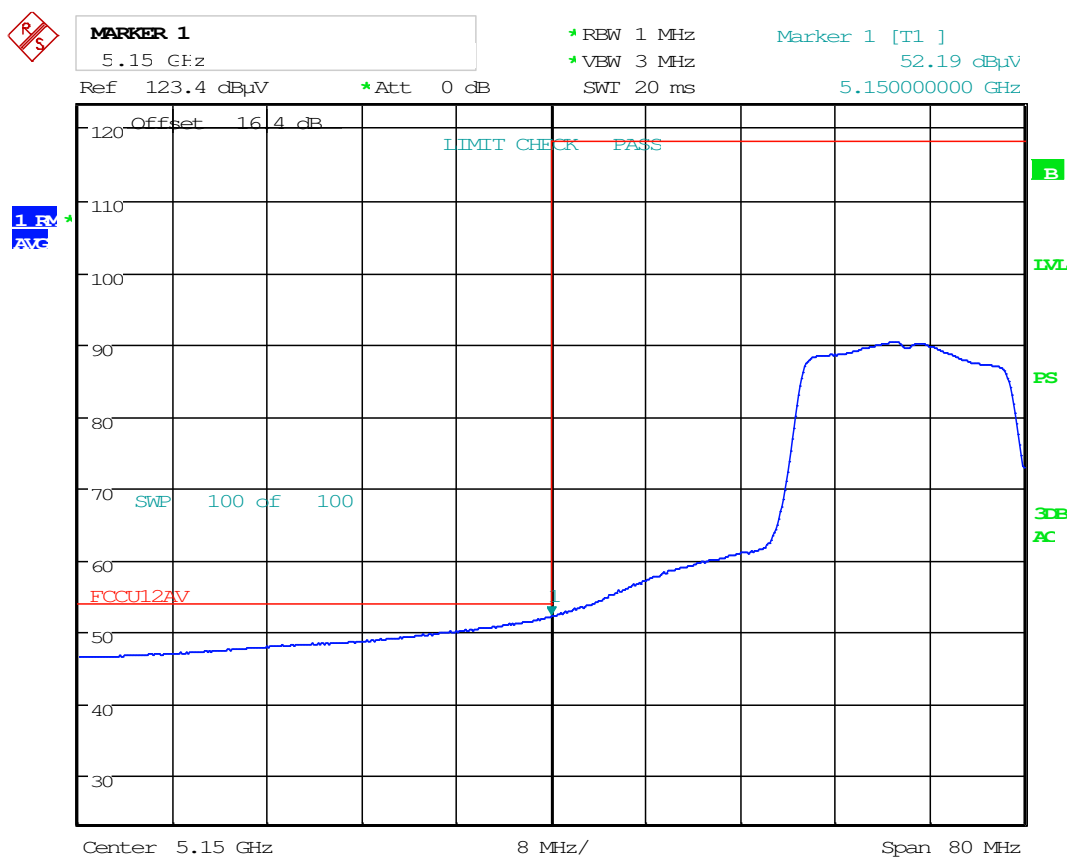
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 2798.00	Average	H	-	-	-111.37	43.16	0.00	38.79	53.98	-15.19
* 2798.00	Peak	H	-	-	-98.58	43.16	0.00	51.58	73.98	-22.40
* 4924.00	Average	H	-	-	-108.19	49.74	0.00	48.54	53.98	-5.43
* 4924.00	Peak	H	-	-	-98.21	49.74	0.00	58.52	73.98	-15.45
* 7722.00	Average	H	-	-	-107.82	44.65	0.00	43.83	53.98	-10.15
* 7722.00	Peak	H	-	-	-98.56	44.65	0.00	53.09	73.98	-20.89
* 8058.00	Average	H	-	-	-108.61	45.82	0.00	44.22	53.98	-9.76
* 8058.00	Peak	H	-	-	-97.55	45.82	0.00	55.28	73.98	-18.70
10184.00	Average	H	-	-	-109.06	47.62	0.00	45.56	53.98	-8.42
* 11490.00	Average	H	-	-	-111.68	48.89	0.00	44.21	53.98	-9.77
12982.00	Peak	H	-	-	-98.80	50.41	0.00	58.61	73.98	-15.37

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 152 of 261	

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

Worst Case Mode:	802.11ac
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36



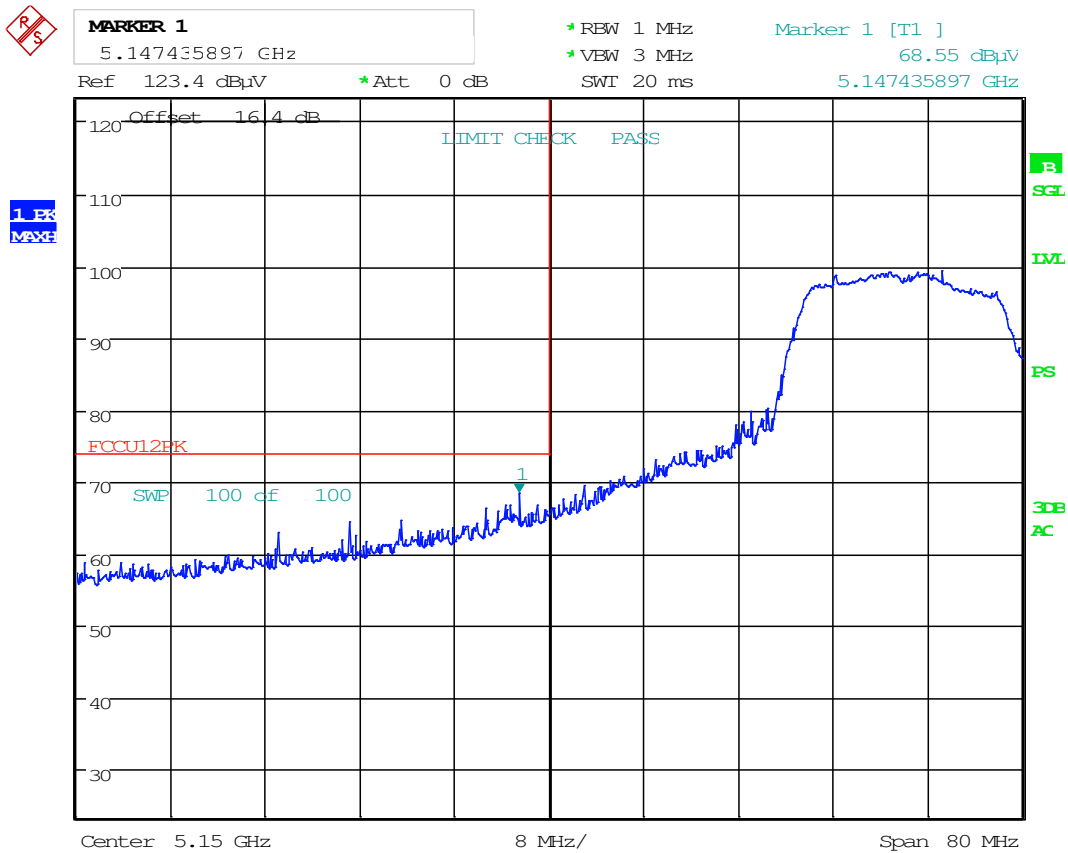
Date: 23.DEC.2015 14:40:21

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 153 of 261	

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 23.DEC.2015 14:41:01

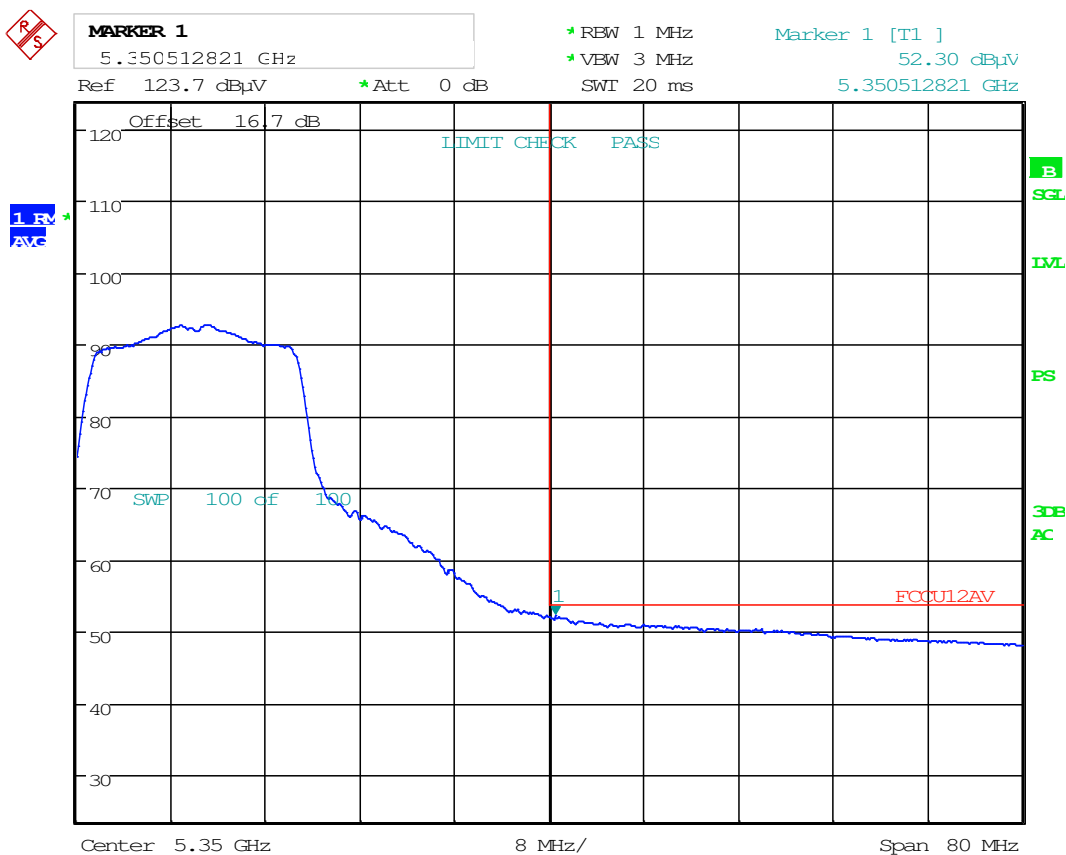
Plot 7-194. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 154 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11ac
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5320MHz
Channel: 64



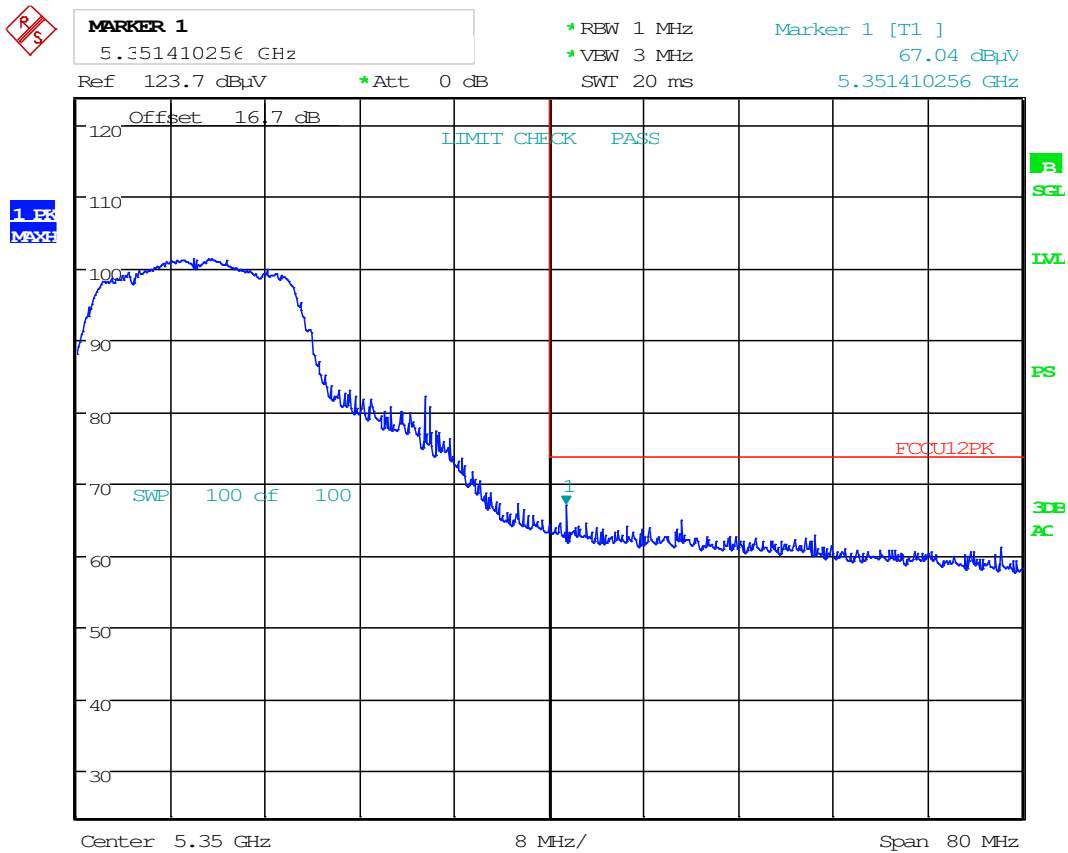
Date: 23.DEC.2015 15:04:17

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 155 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



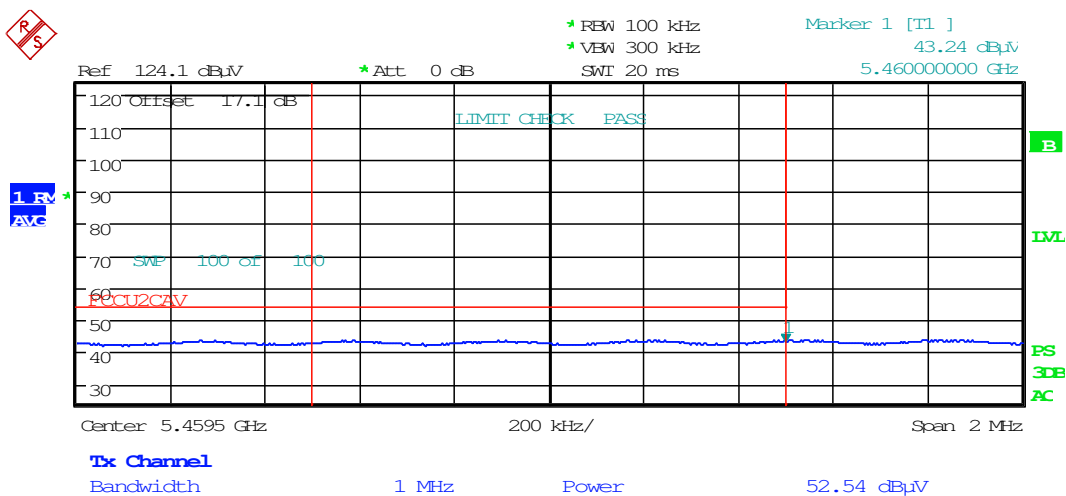
Date: 23.DEC.2015 15:04:56

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 156 of 261

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

Worst Case Mode: 802.11ac
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5500MHz
Channel: 100



Date: 23.DEC.2015 15:27:54

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

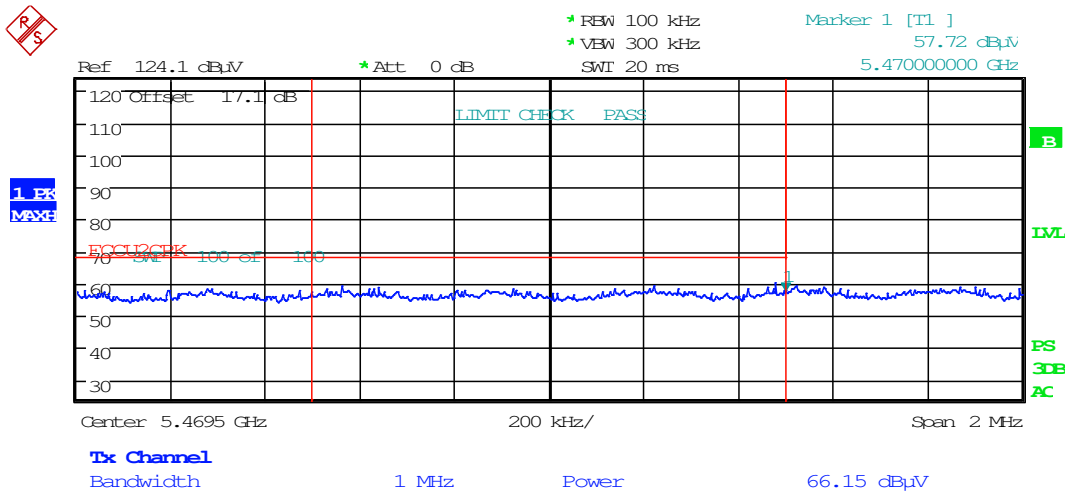
Note:

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: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 157 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 23.DEC.2015 15:31:12

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: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 158 of 261

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

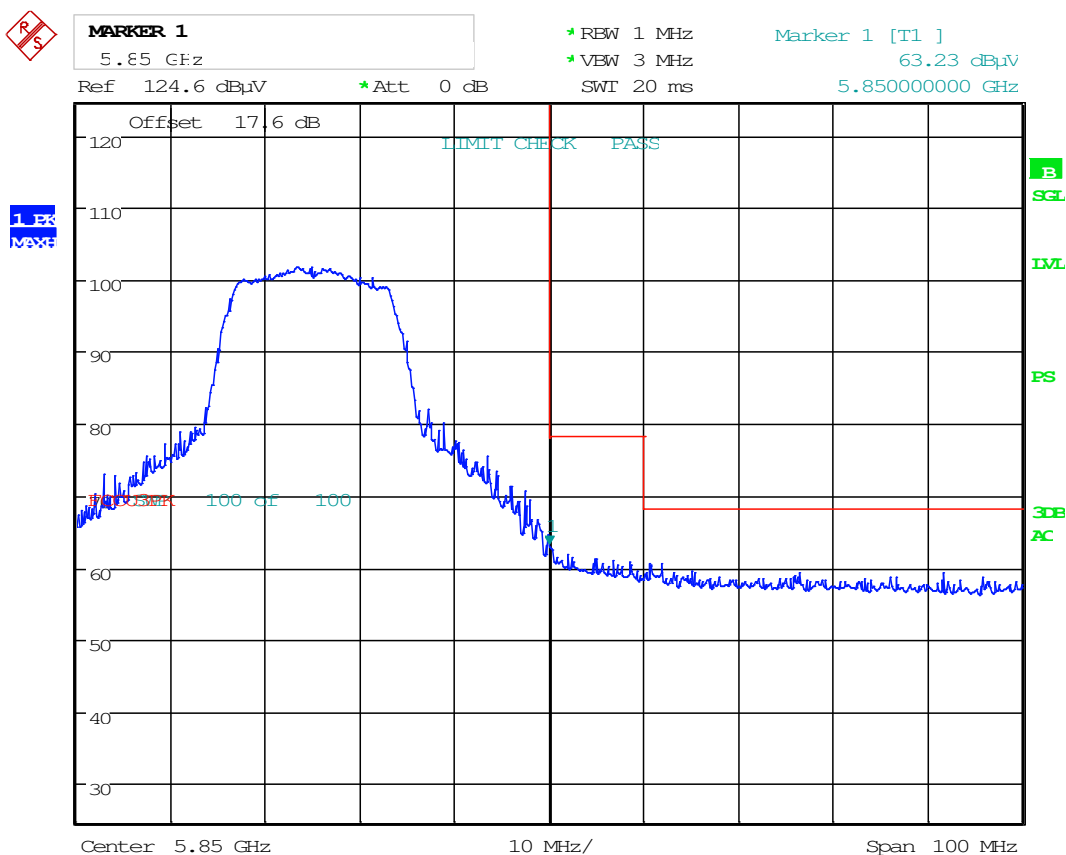
Worst Case Mode: 802.11ac

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



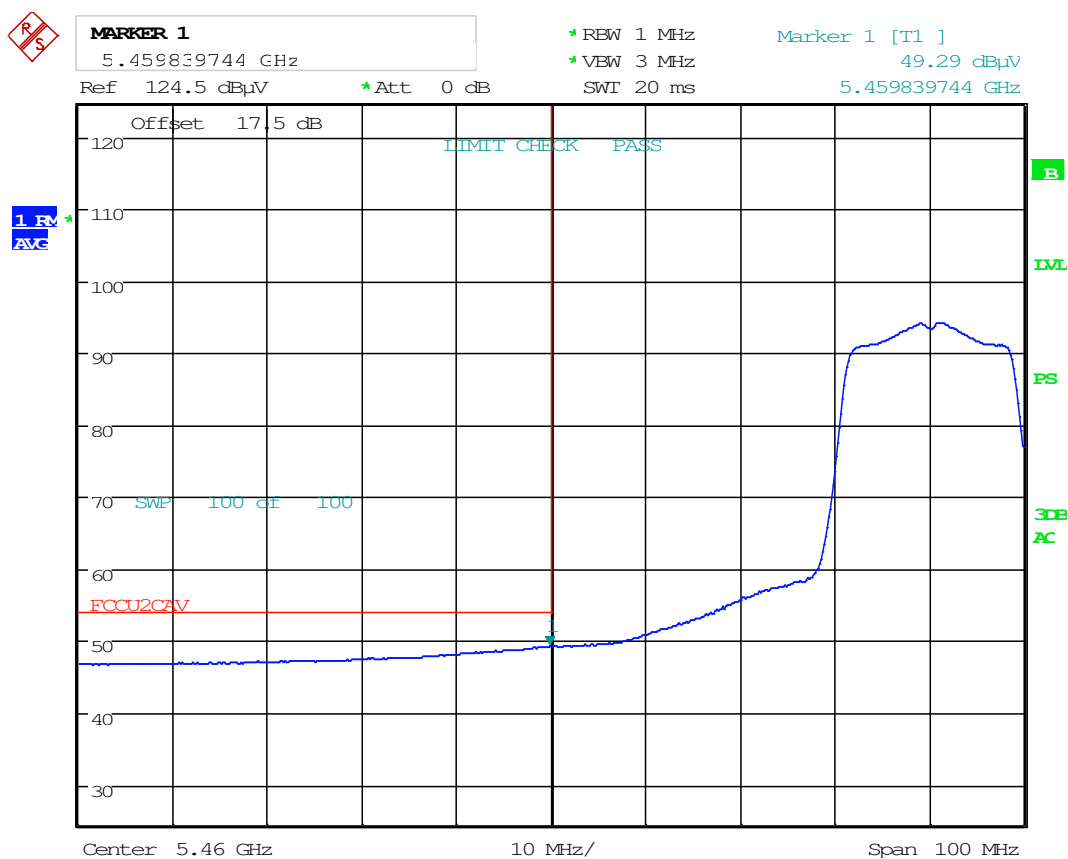
Date: 23.DEC.2015 16:01:29

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 159 of 261

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

Worst Case Mode:	802.11ac
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100



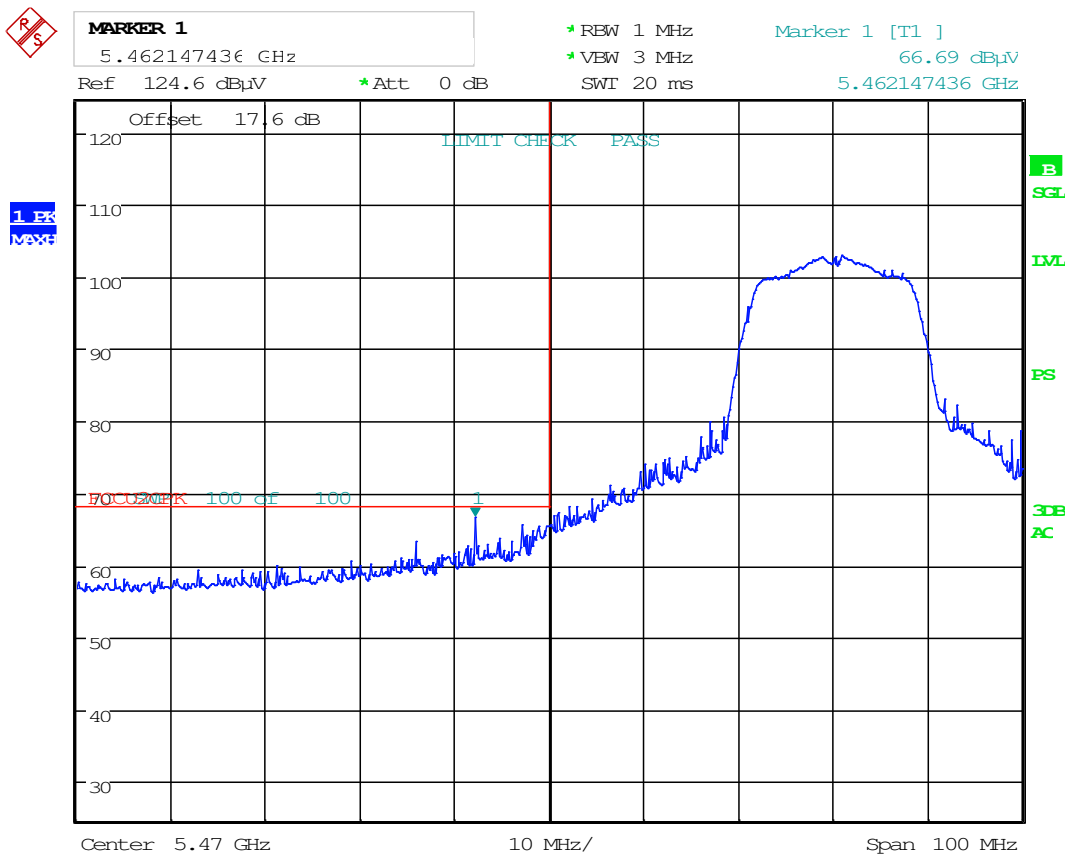
Date: 8.JAN.2016 19:46:07

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 160 of 261	

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2016 19:47:15

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 161 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

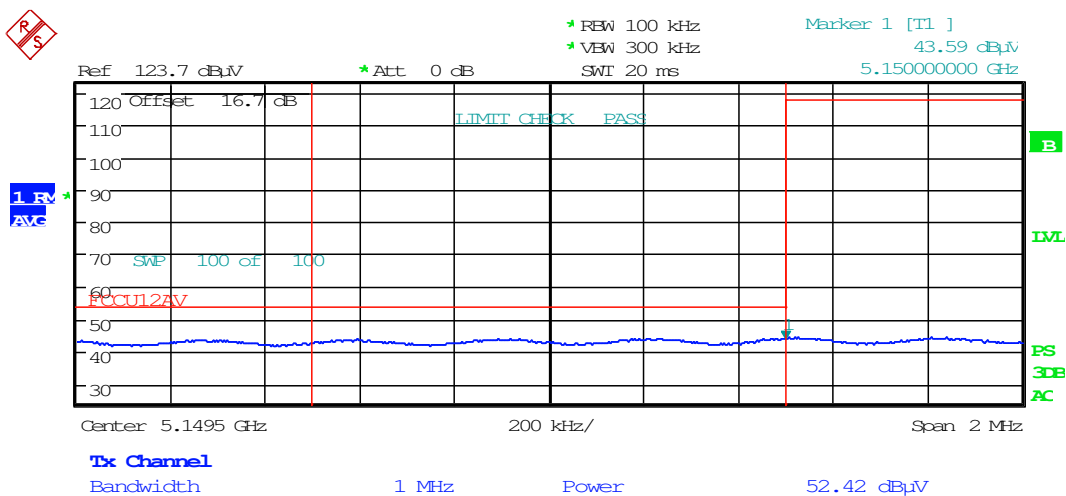
Worst Case Mode: 802.11ac (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 23.DEC.2015 14:54:19

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

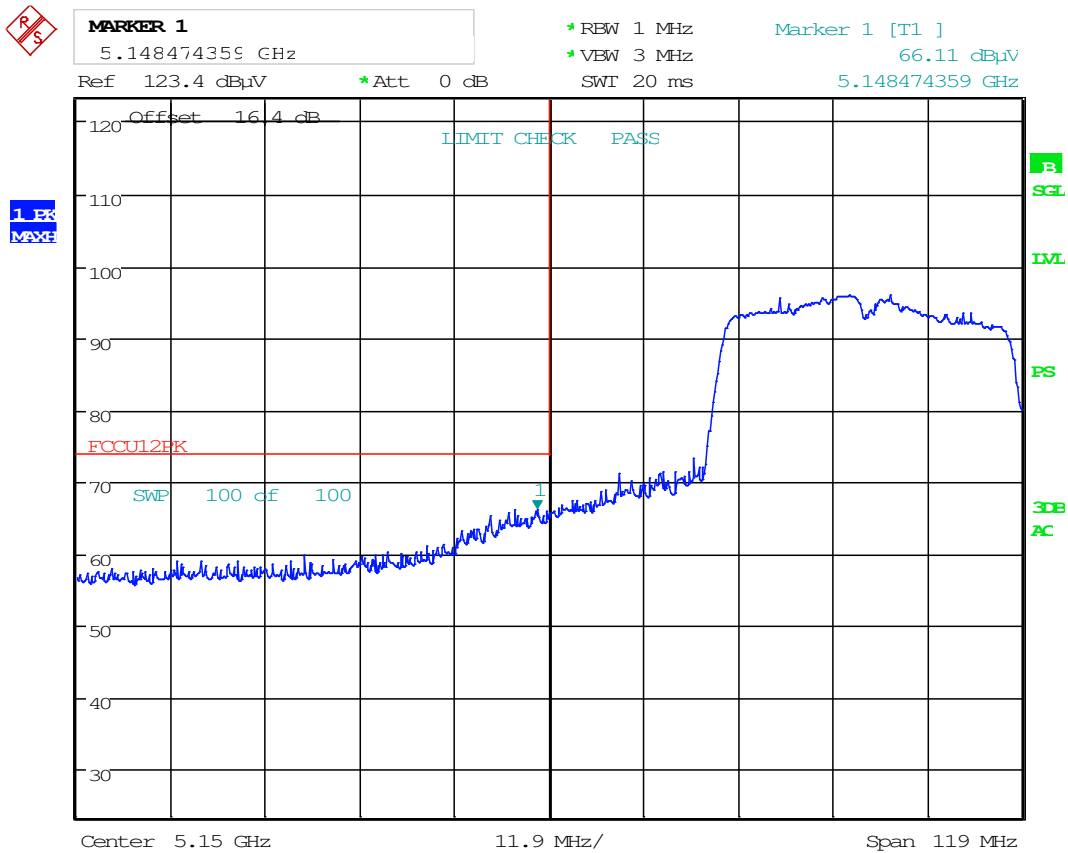
Note:

Per KDB 7890336 Section II)G)3)d)ii, the Integration method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 162 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



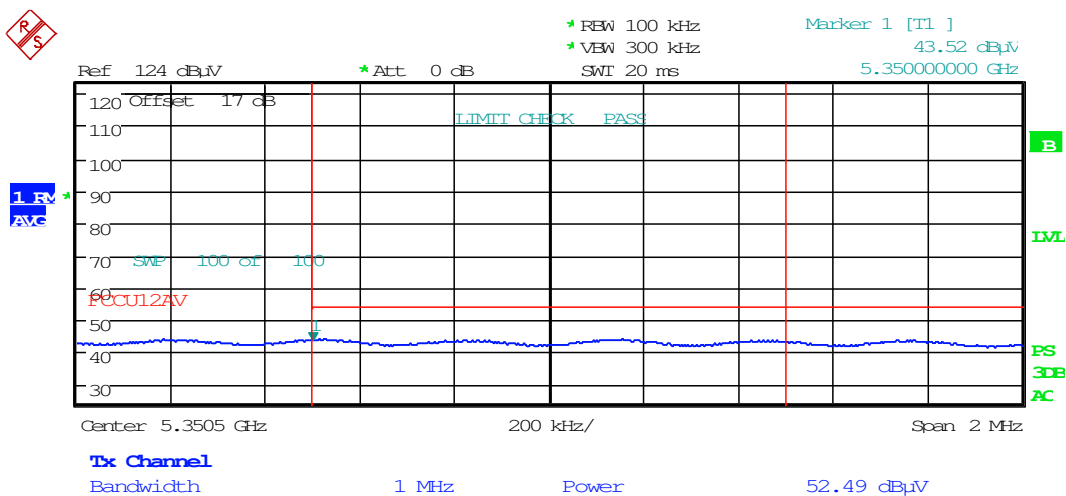
Date: 23.DEC.2015 14:55:59

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 163 of 261

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

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



Date: 23.DEC.2015 15:10:57

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

Note:

Per KDB 7890336 Section II)G)3)d)ii, the Integration method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 164 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.350189103 GHz

*RBW 1 MHz

Marker 1 [T1]

*VBW 3 MHz

67.37 dBμV

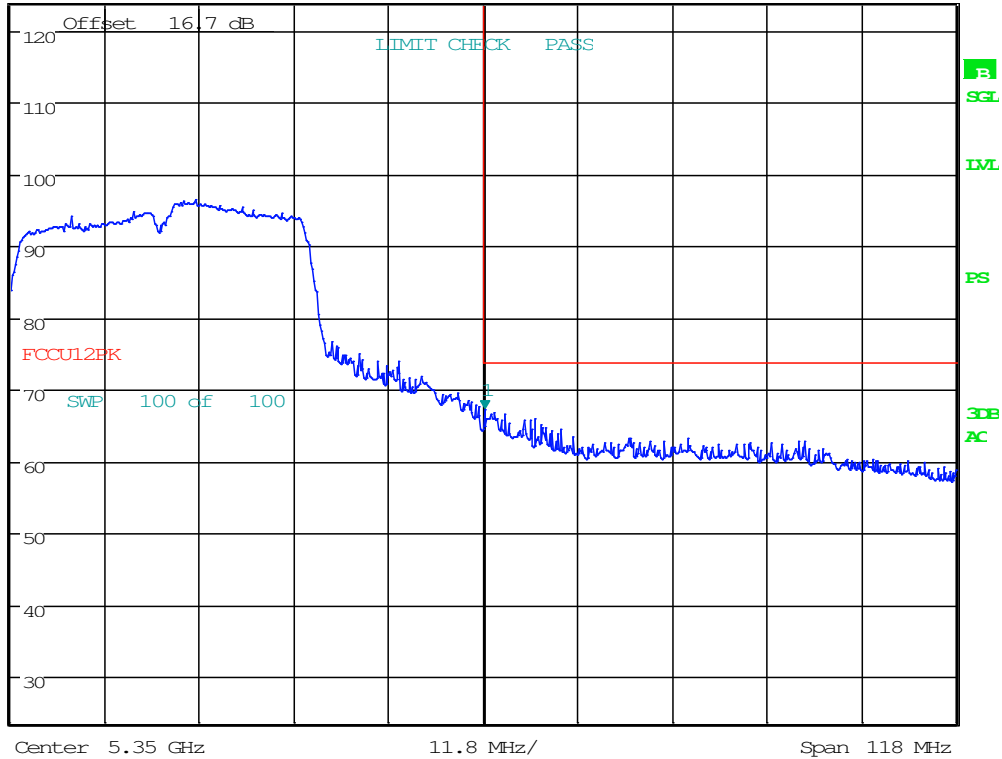
Ref 123.7 dBμV

*Att 0 dB

SWI 20 ms

5.350189103 GHz

1 PK
MAX



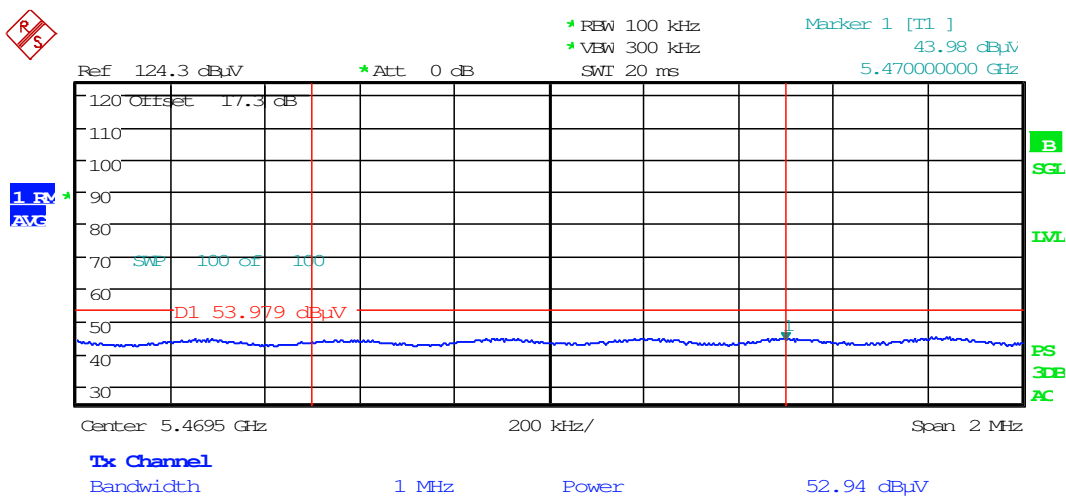
Date: 23.DEC.2015 15:12:44

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 165 of 261

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

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



Date: 23.DEC.2015 15:46:27

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

Note:

Per KDB 7890336 Section II)G)3)d)ii, the Integration method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 166 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.469102564 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

69.31 dBμV

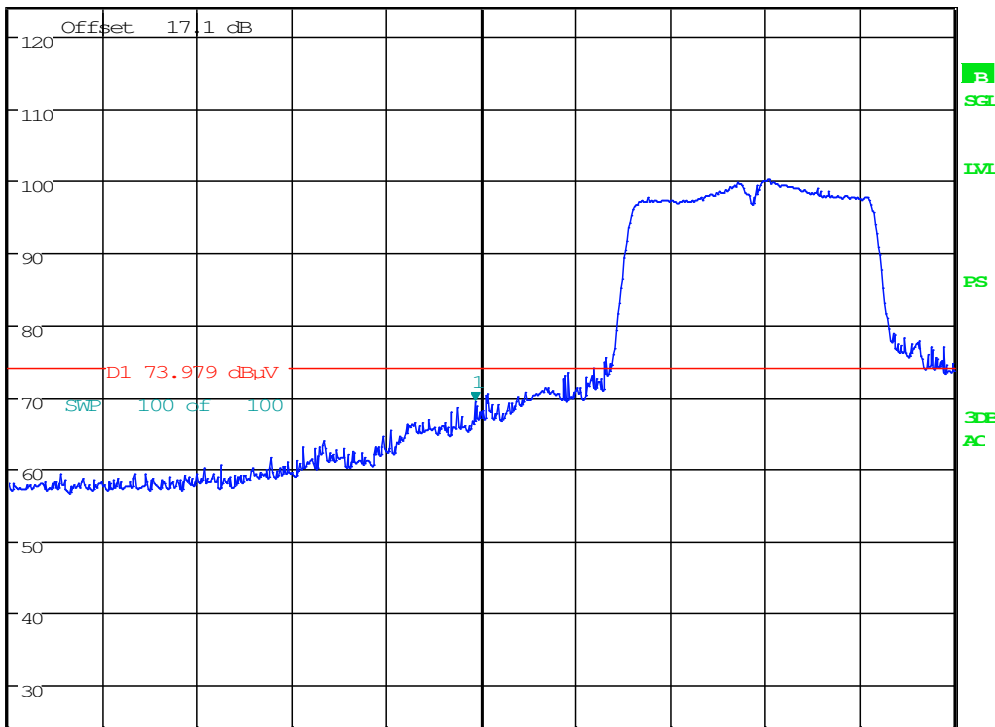
Ref 124.1 dBμV

* Att 0 dB

SWI 20 ms

5.469102564 GHz

1.0k
MHz



Center 5.47 GHz

14 MHz/

Span 140 MHz

Date: 23.DEC.2015 15:41:21

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 167 of 261

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

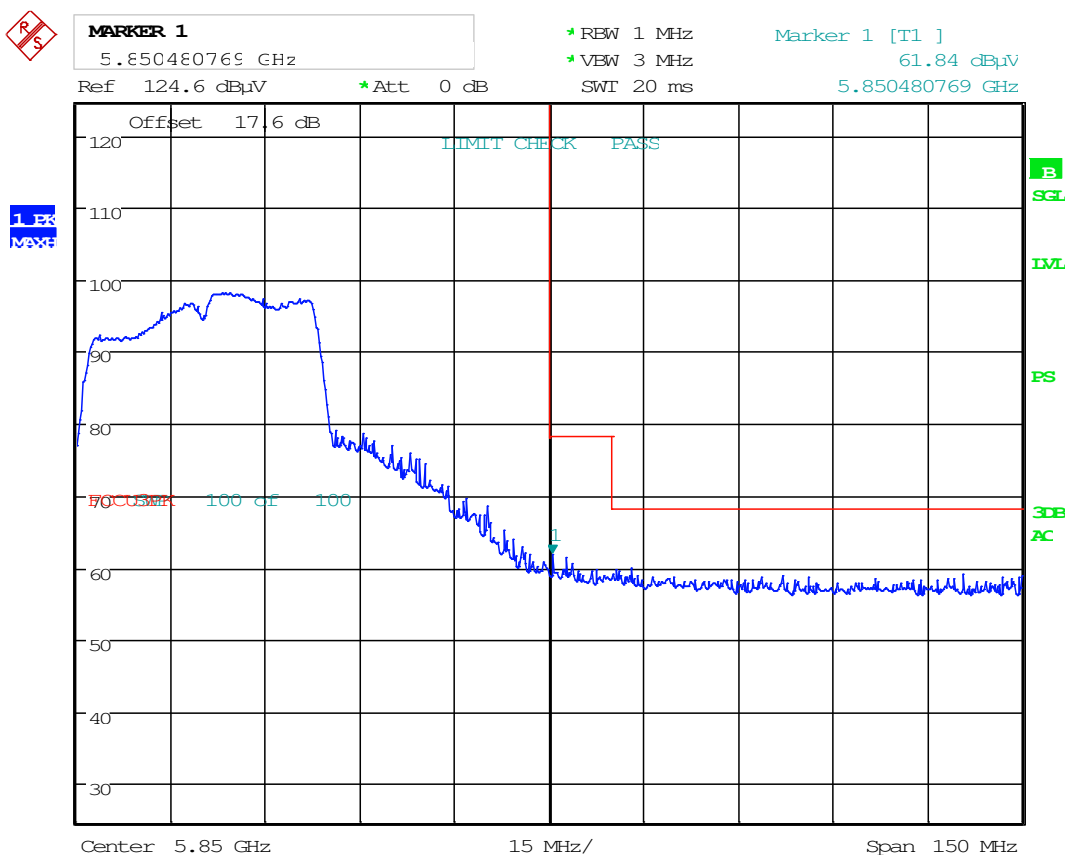
Worst Case Mode: 802.11ac (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 23.DEC.2015 16:03:54

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 168 of 261

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

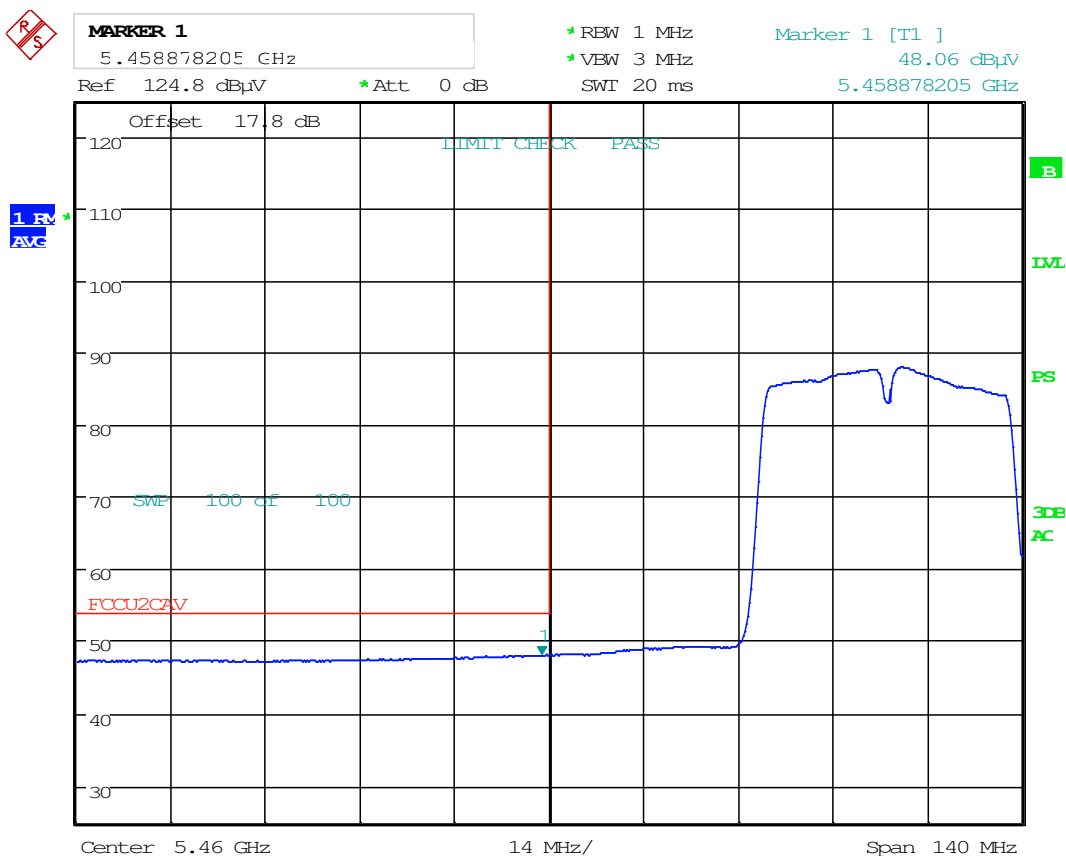
Worst Case Mode: 802.11ac (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



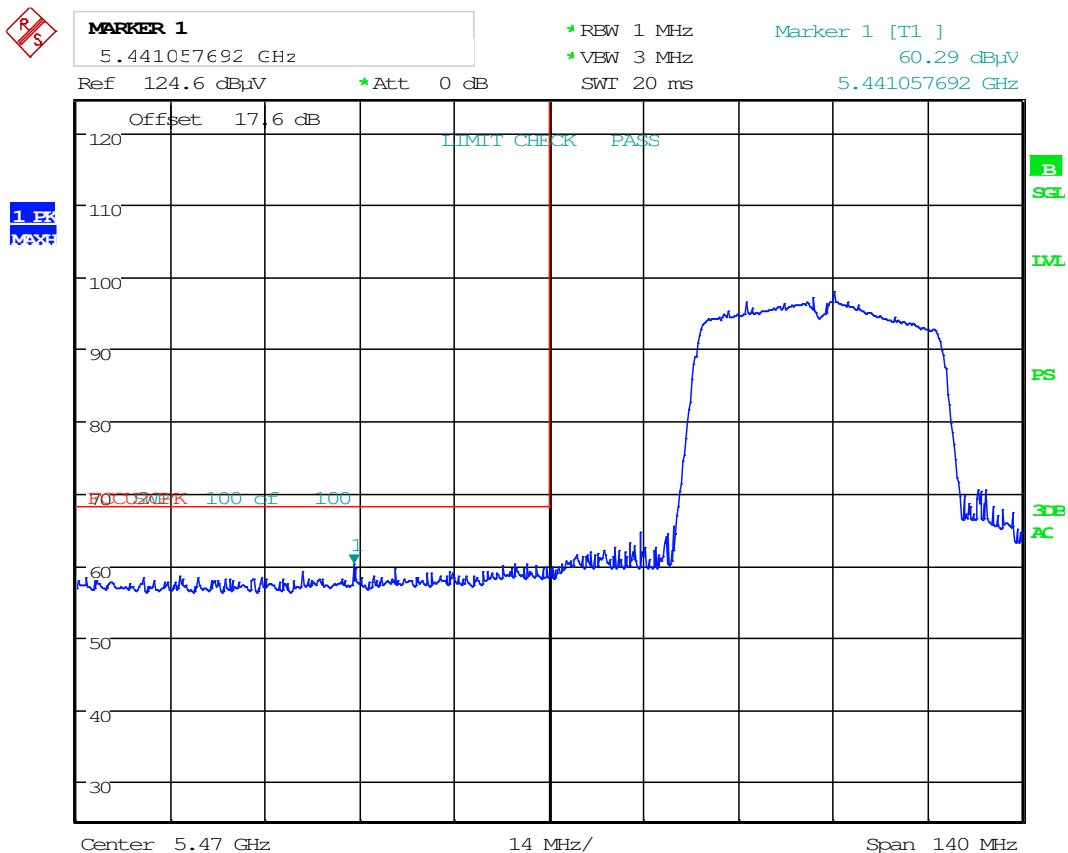
Date: 8.JAN.2016 19:50:05

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 169 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2016 19:50:43

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 170 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

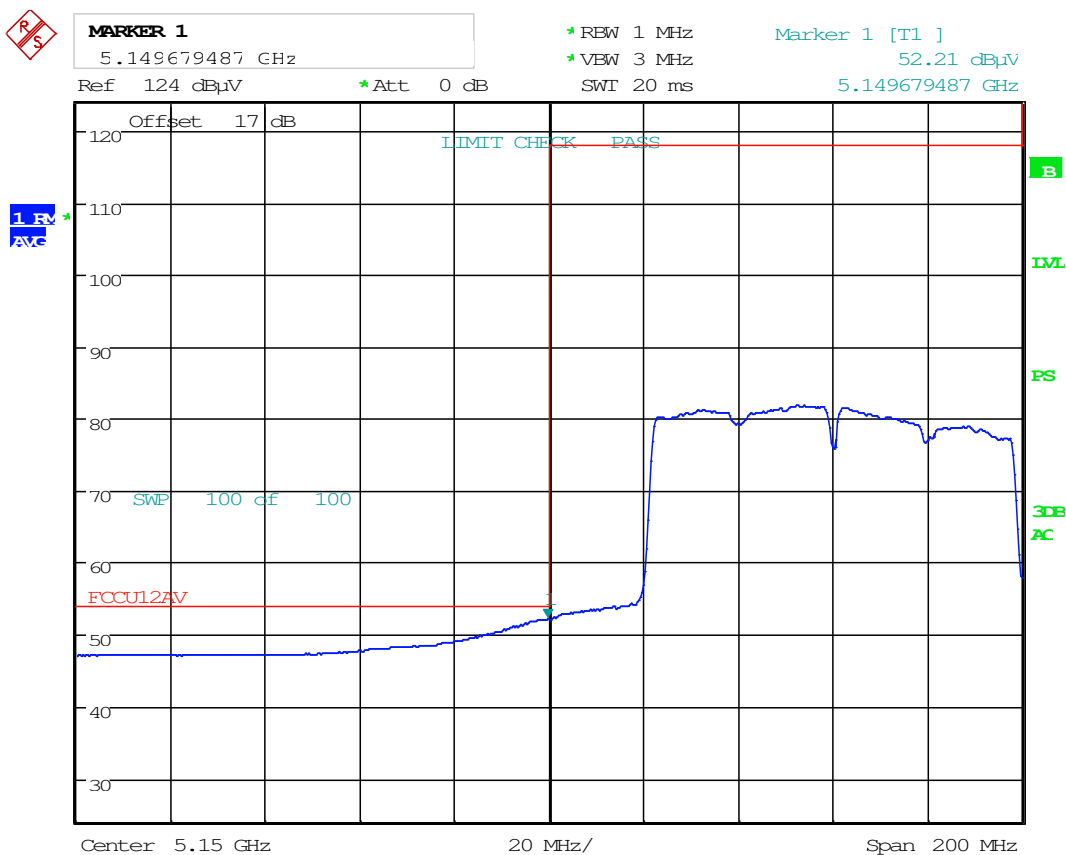
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



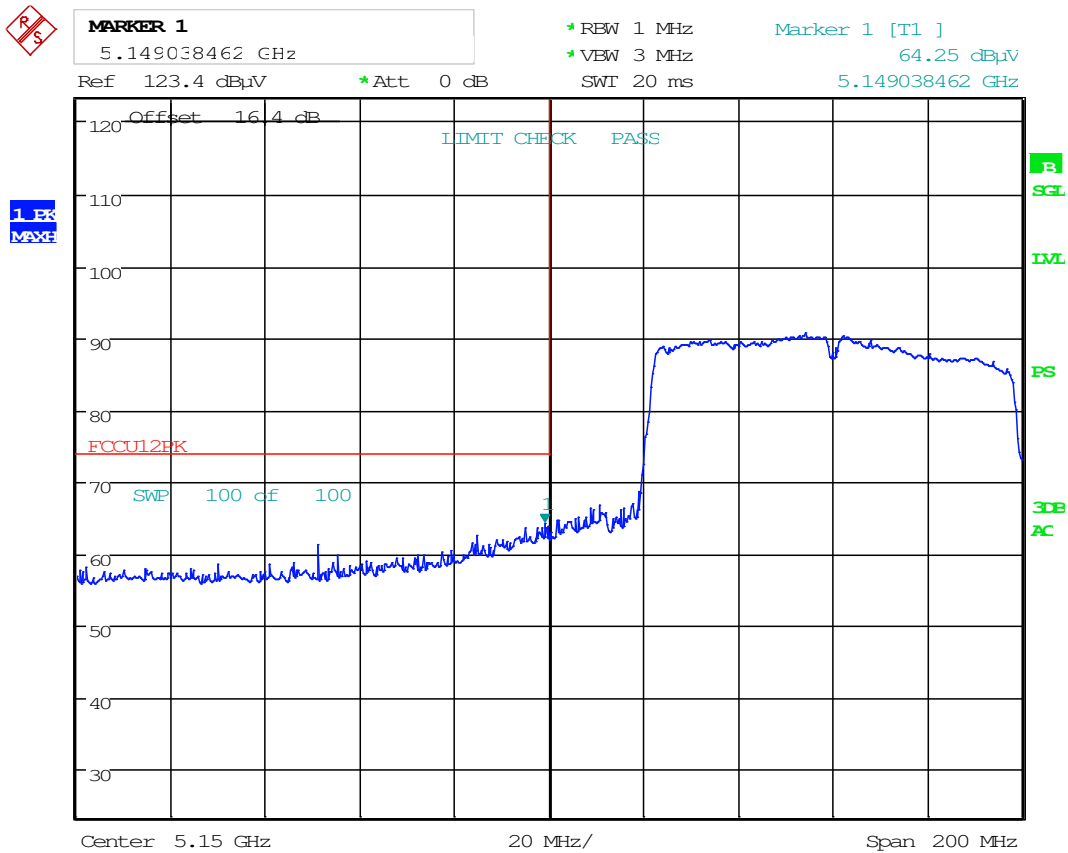
Date: 23.DEC.2015 14:58:13

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 171 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



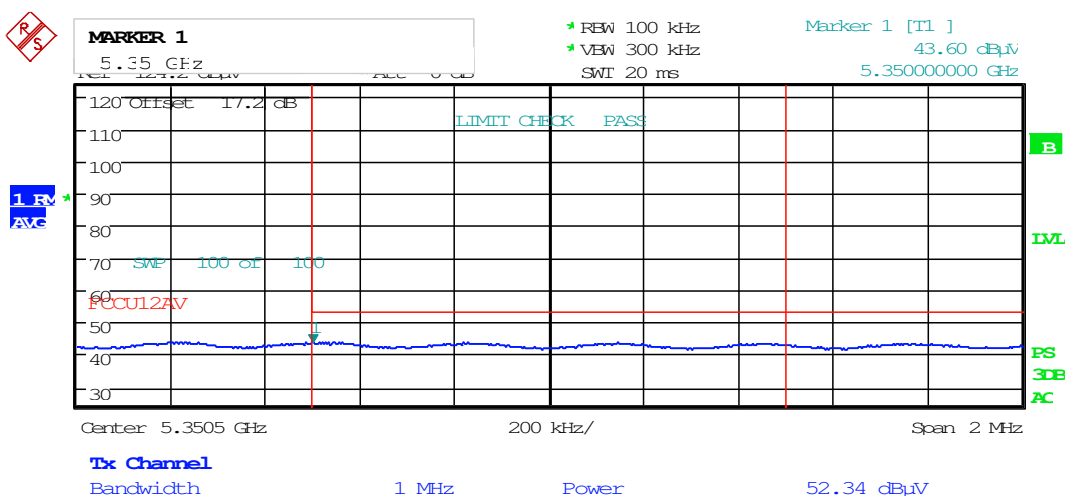
Date: 23.DEC.2015 14:58:55

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 172 of 261

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

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



Date: 23.DEC.2015 15:18:54

Plot 7-213. 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: A3LSMG930W8	 FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 173 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.35 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

66.33 dBμV

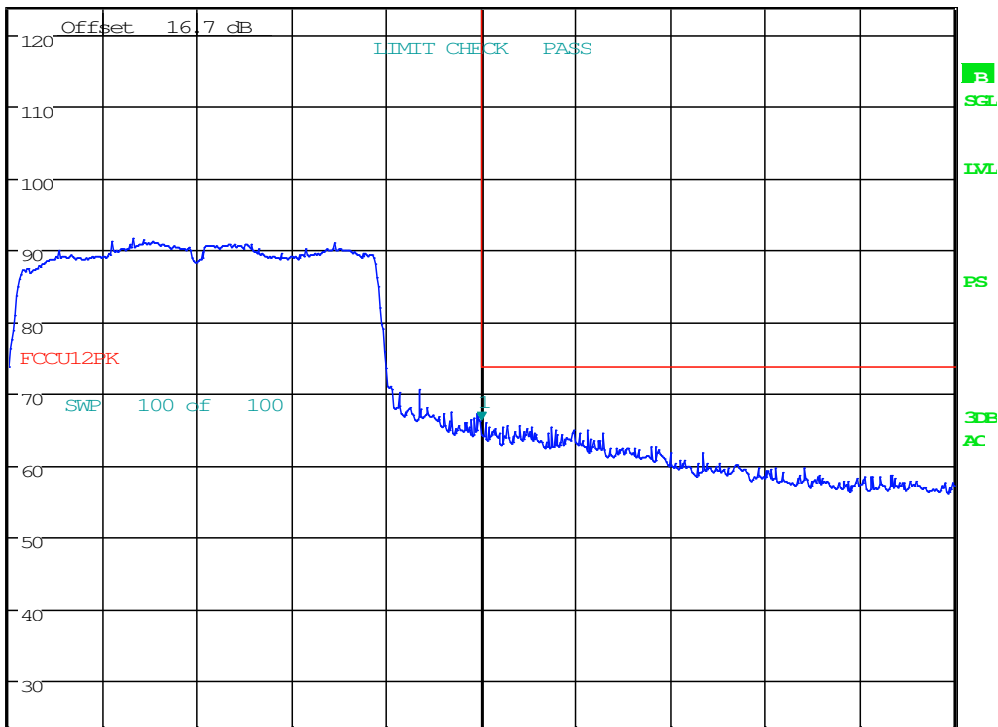
Ref 123.7 dBμV

* Att 0 dB

SWI 20 ms

5.350000000 GHz

1.0K
MHz



Center 5.35 GHz

20 MHz/

Span 200 MHz

Date: 23.DEC.2015 15:20:30

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 174 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

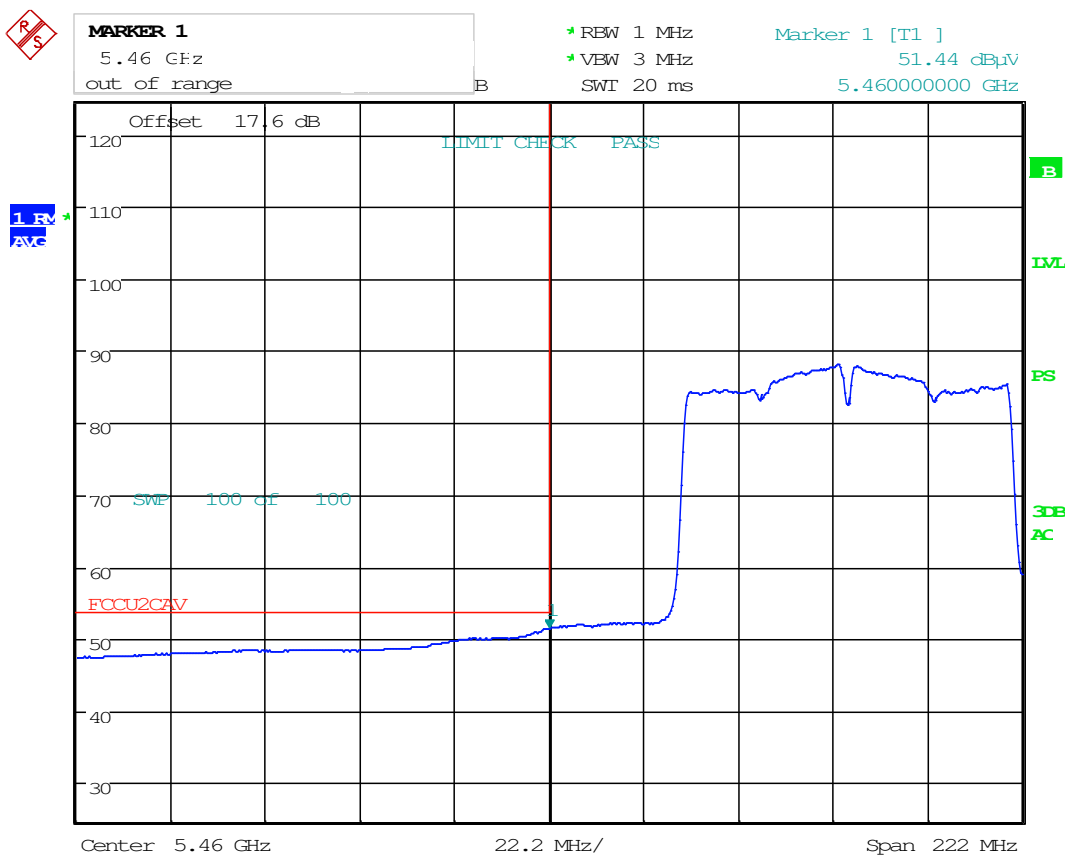
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 23.DEC.2015 15:53:01

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 175 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.465375 GHz

* REW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

66.44 dBμV

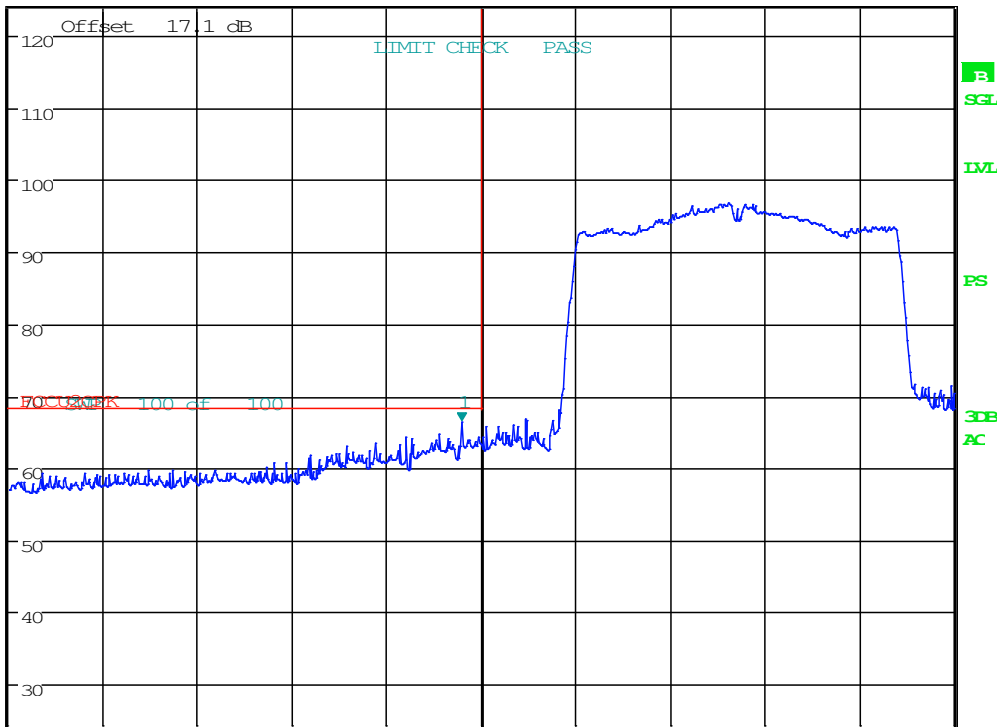
Ref 124.1 dBμV

* Att 0 dB

SWI 20 ms

5.465375000 GHz

PEAK
MAX



Center 5.47 GHz

22.2 MHz/

Span 22.2 MHz

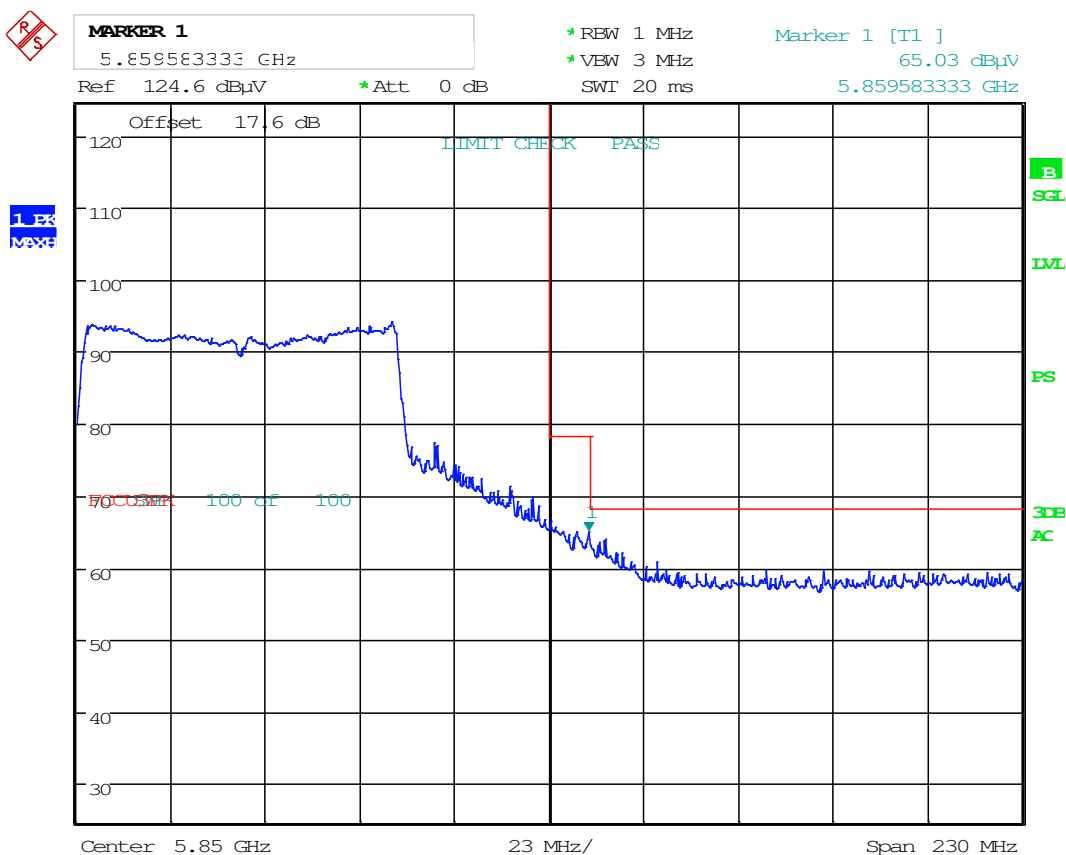
Date: 23.DEC.2015 15:54:19

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 176 of 261

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

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



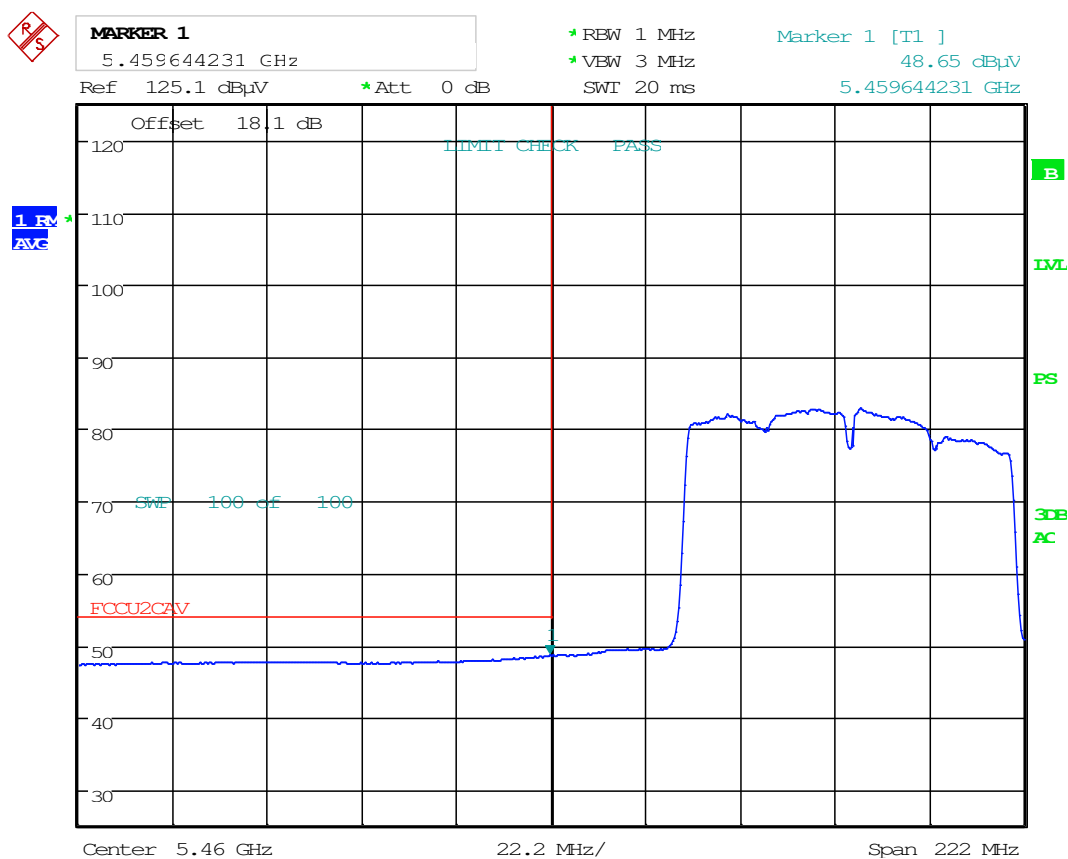
Date: 23.DEC.2015 16:06:13

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 177 of 261

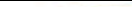
Antenna-1 WCP Radiated Band Edge Measurements (80MHz BW)
 §15.407(b.1)(b.2) §15.205 §15.209

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



Date: 8.JAN.2016 19:54:12

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

FCC ID: A3LSMG930W8	 		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 178 of 261	

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.465730769 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

60.41 dBμV

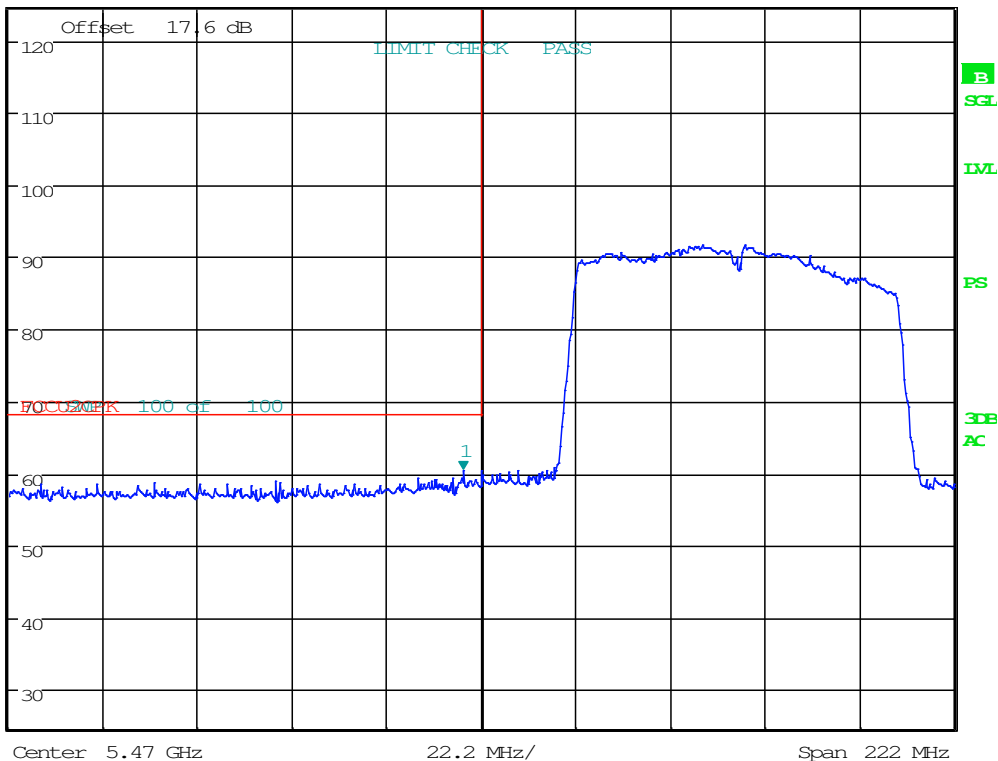
Ref 124.6 dBμV

* Att 0 dB

SWI 20 ms

5.465730769 GHz

1 PK
MAX



Date: 8.JAN.2016 19:55:01

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 179 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

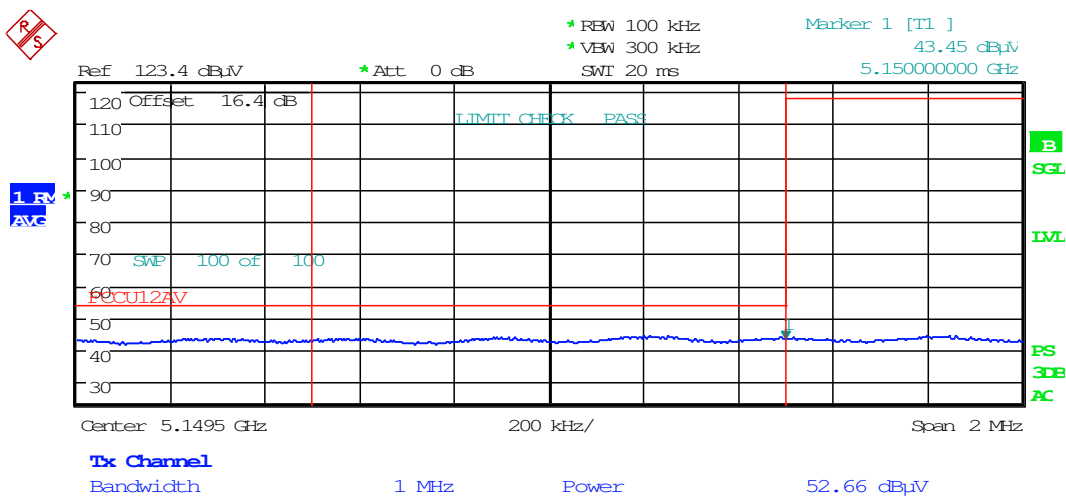
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



Date: 24.DEC.2015 08:35:19

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

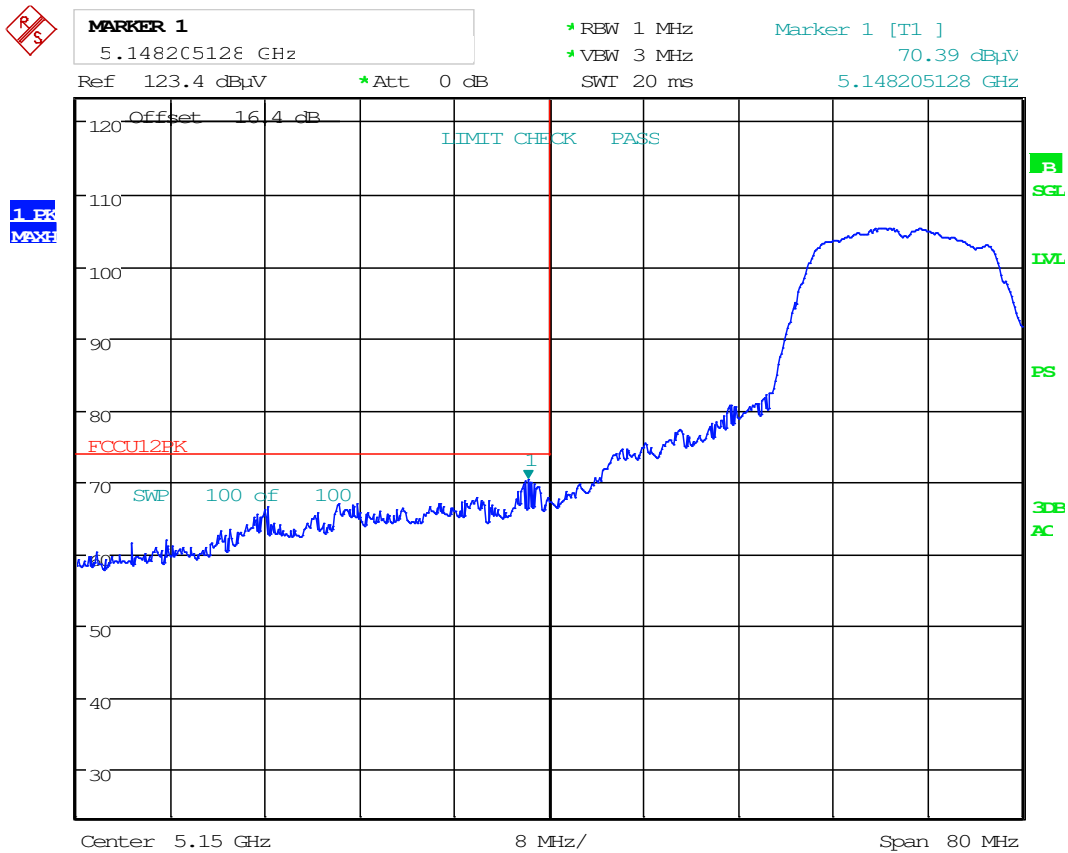
Note:

Per KDB 7890933 Section II)G)d)ii, the Integration Method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 180 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 24.DEC.2015 08:36:33

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 181 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

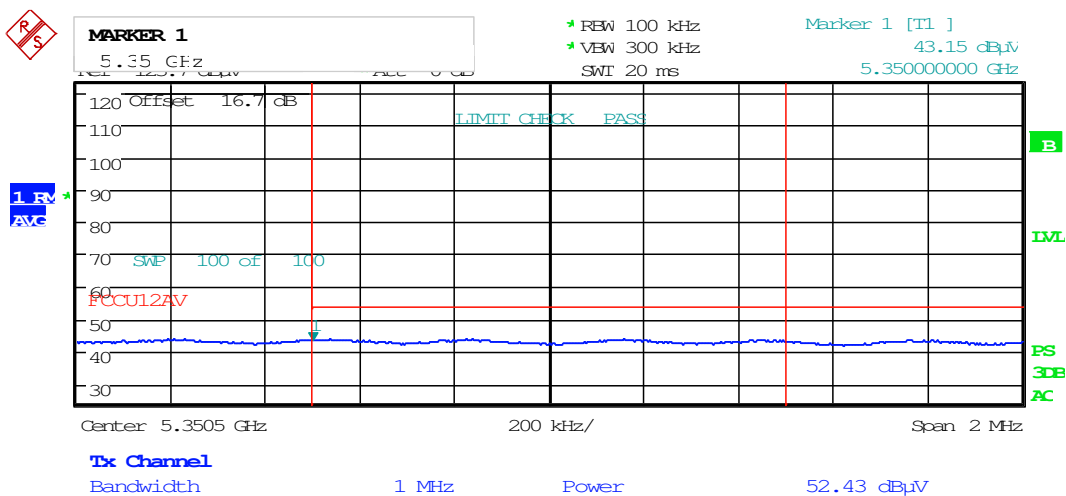
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 24.DEC.2015 08:59:25

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

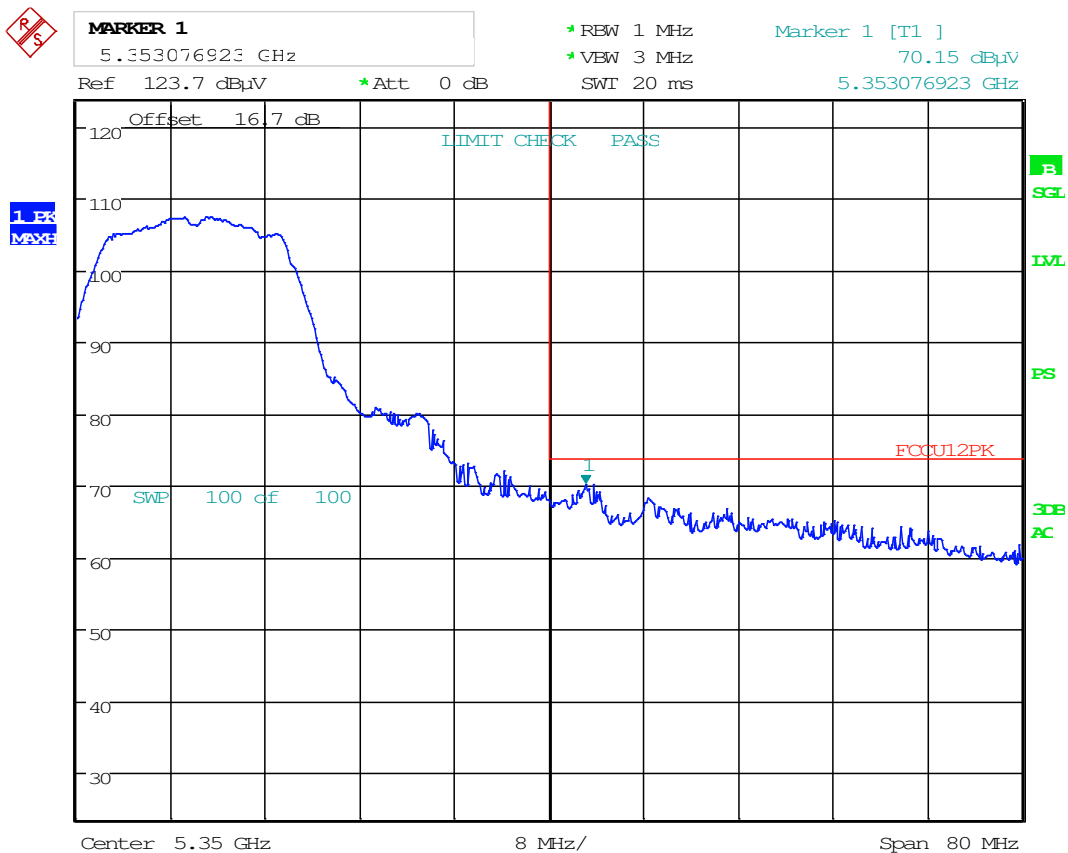
Note:

Per KDB 7890933 Section II)G)d)ii, the Integration Method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 182 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 24.DEC.2015 09:00:17

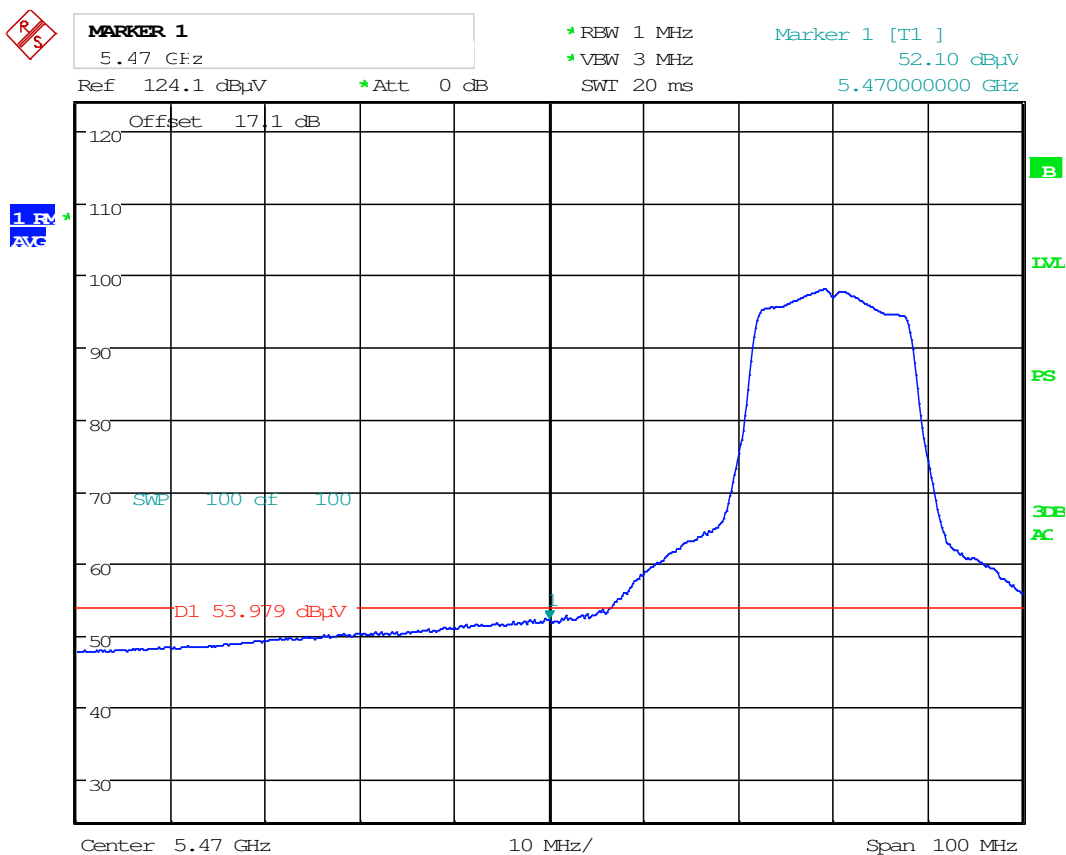
Plot 7-223. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 183 of 261

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: 24.DEC.2015 09:29:52

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 184 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.469519231 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

71.59 dBμV

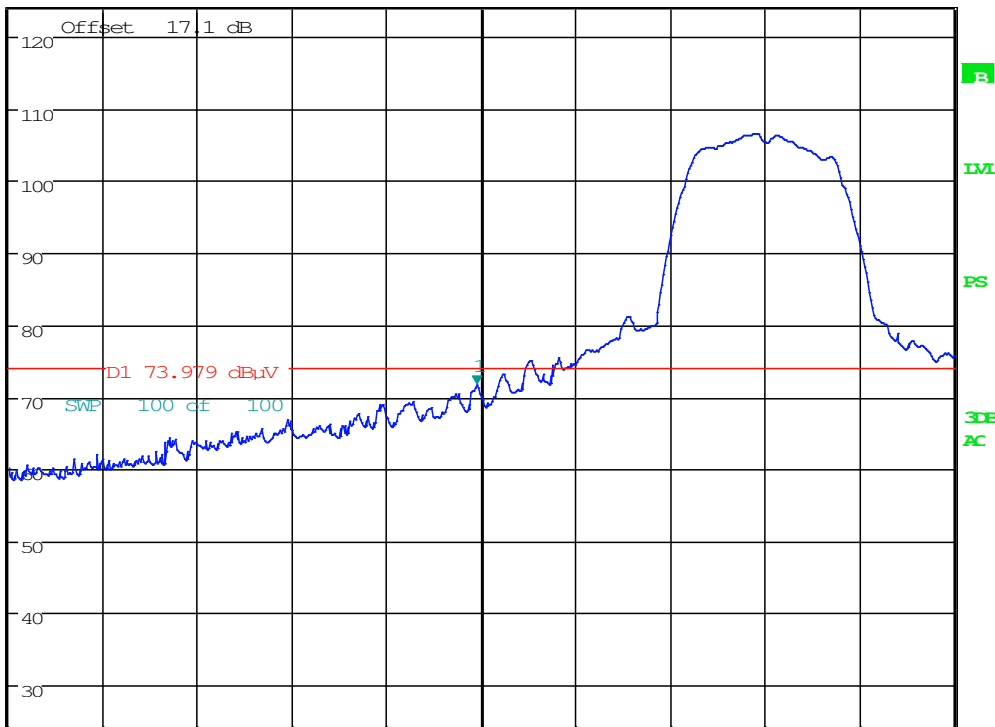
Ref 124.1 dBμV

* Att 0 dB

SWI 20 ms

5.469519231 GHz

1.00
MHz



Center 5.47 GHz

10 MHz/

Span 100 MHz

Date: 24.DEC.2015 09:30:43

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 185 of 261

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

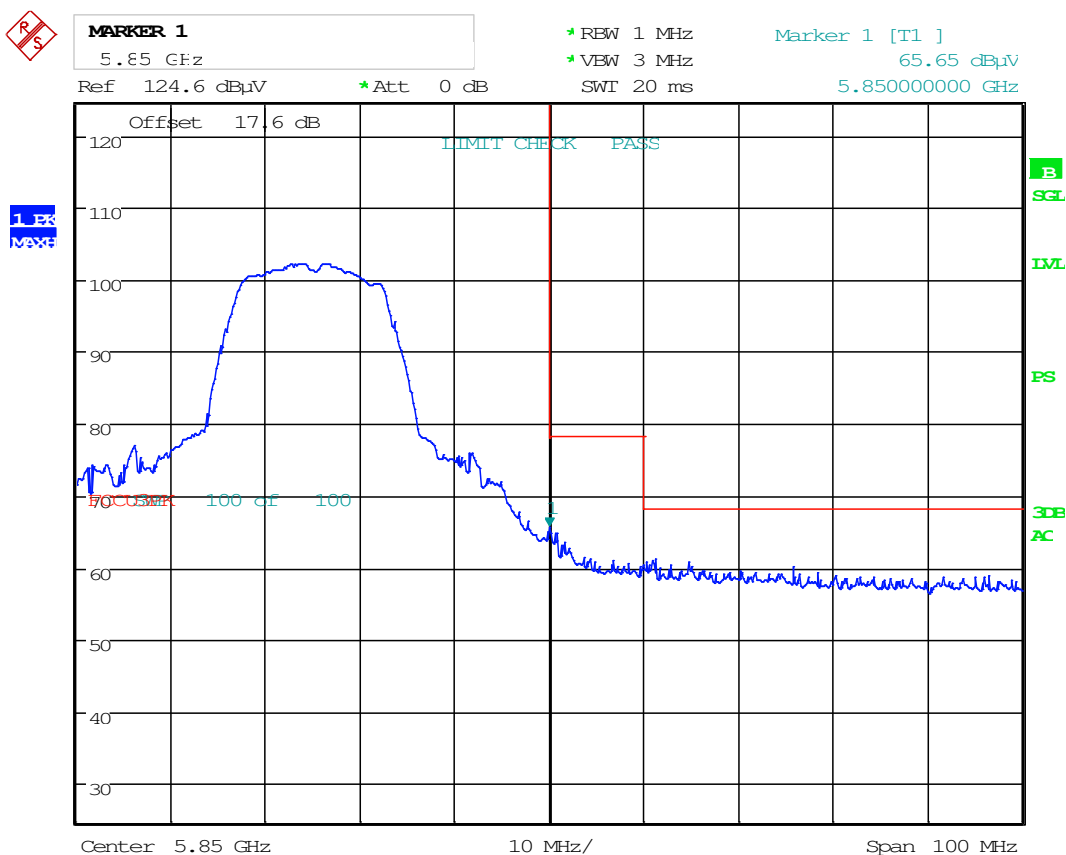
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



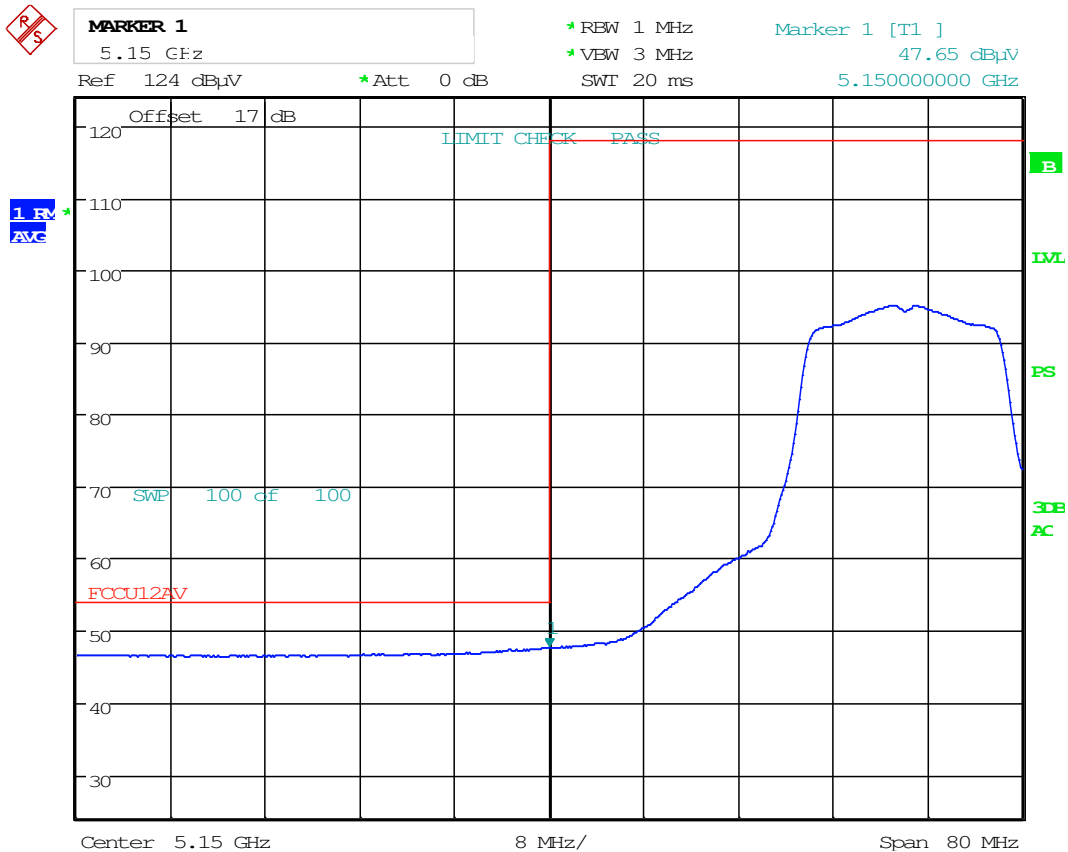
Date: 24.DEC.2015 10:10:33

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 186 of 261

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

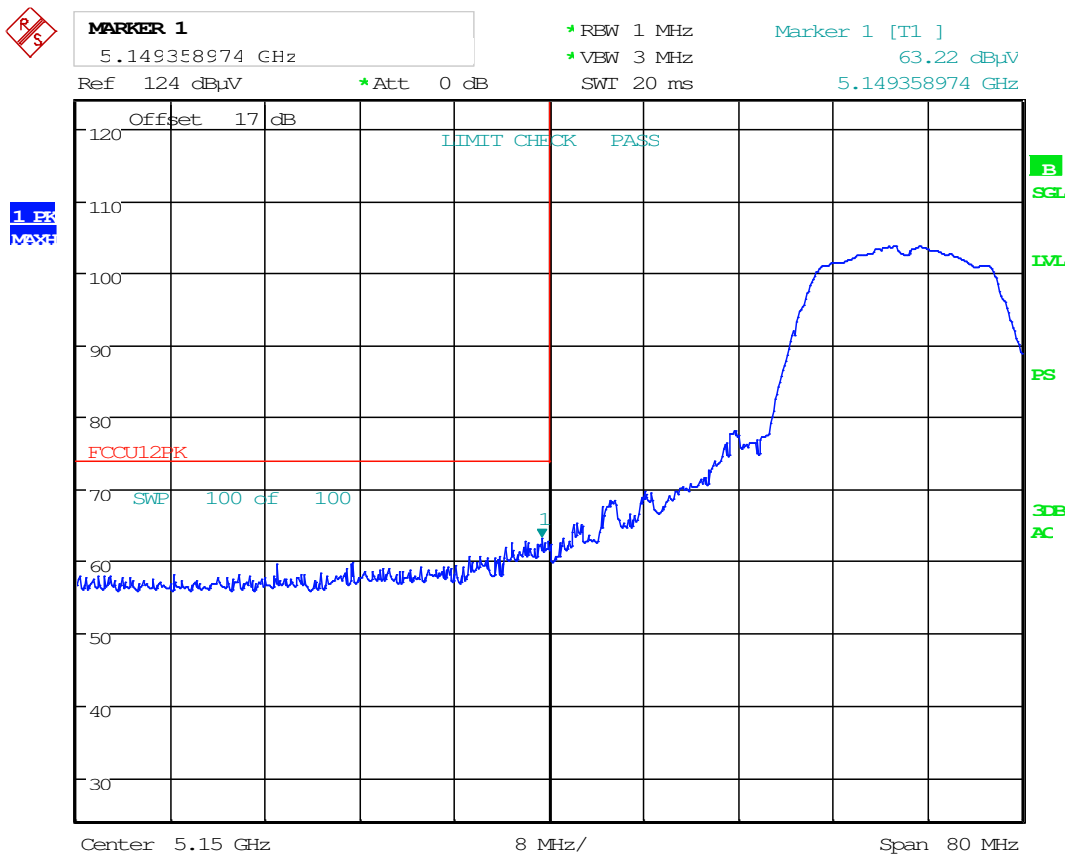


Date: 8.JAN.2016 20:01:48

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 187 of 261

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



Date: 8.JAN.2016 20:03:08

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 188 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

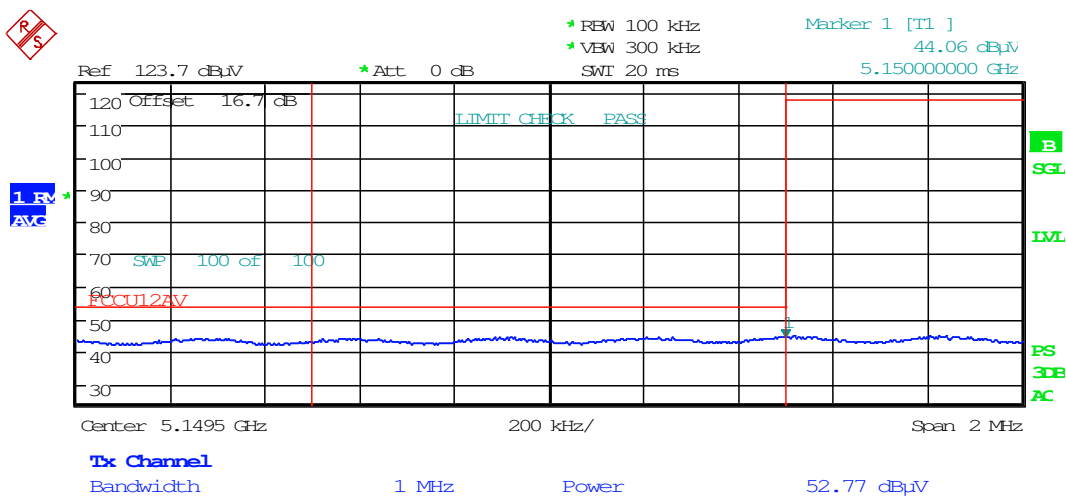
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



Date: 24.DEC.2015 08:43:26

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

Note:

Per KDB 7890933 Section II)G)d)ii, the Integration Method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 189 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.146785256 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

70.11 dBμV

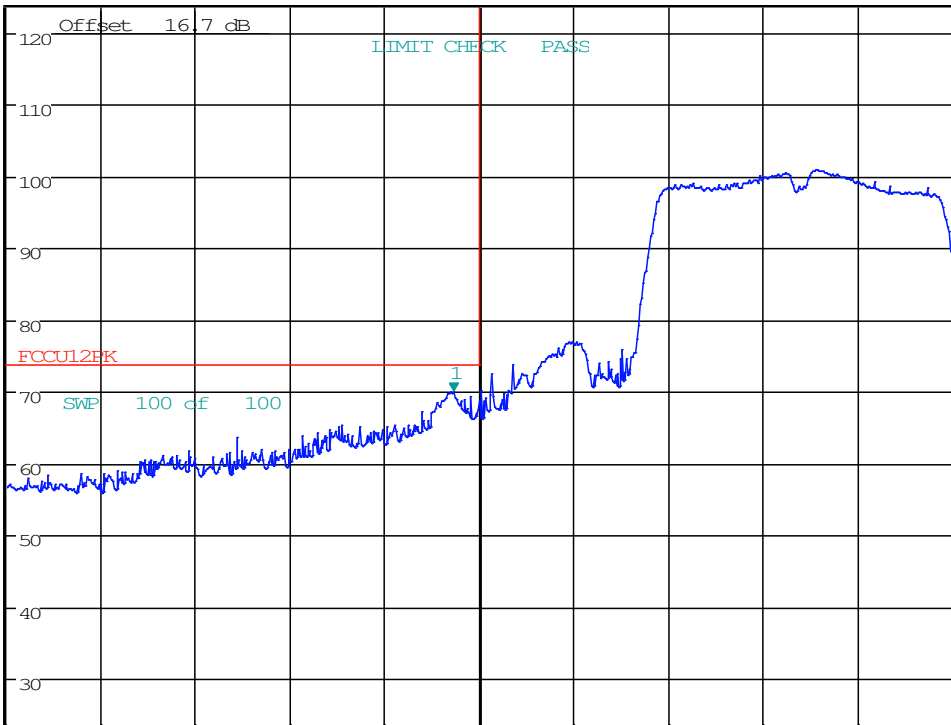
Ref 123.7 dBμV

* Att 0 dB

SWI 20 ms

5.146785256 GHz

1.0K
MHz



Center 5.15 GHz

11.8 MHz/

Span 118 MHz

Date: 24.DEC.2015 08:45:25

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 190 of 261

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

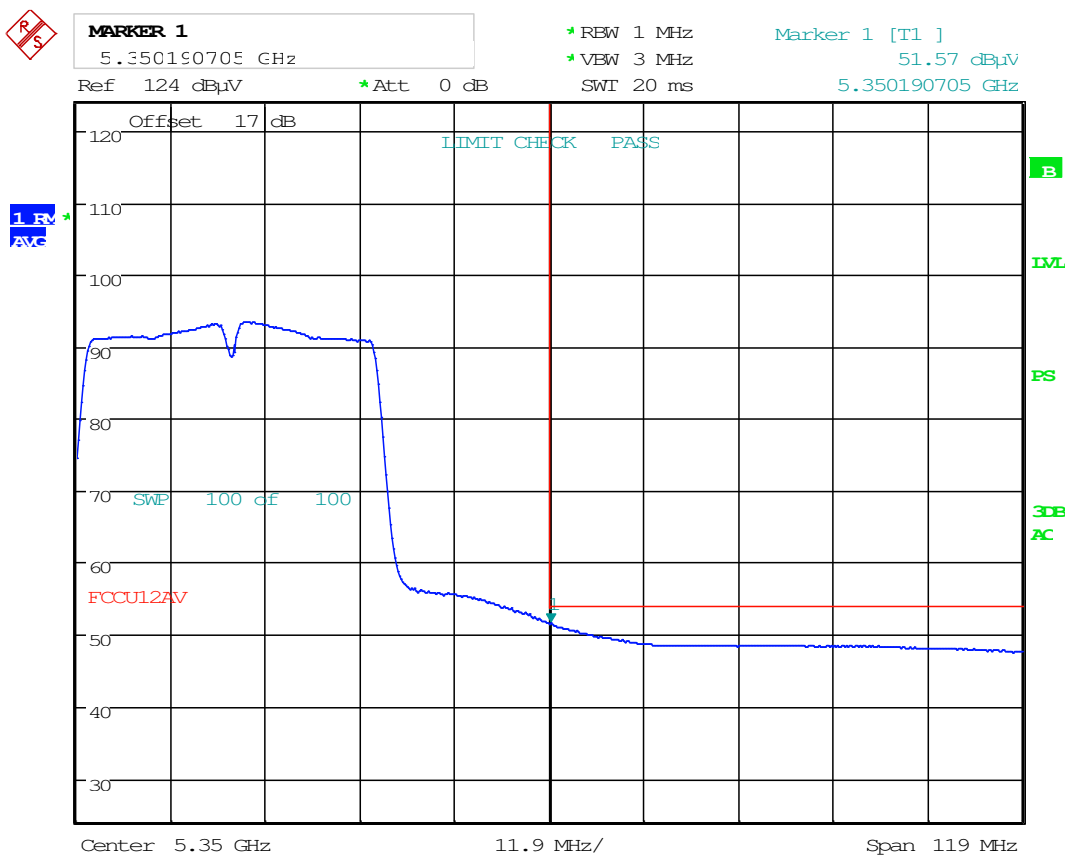
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



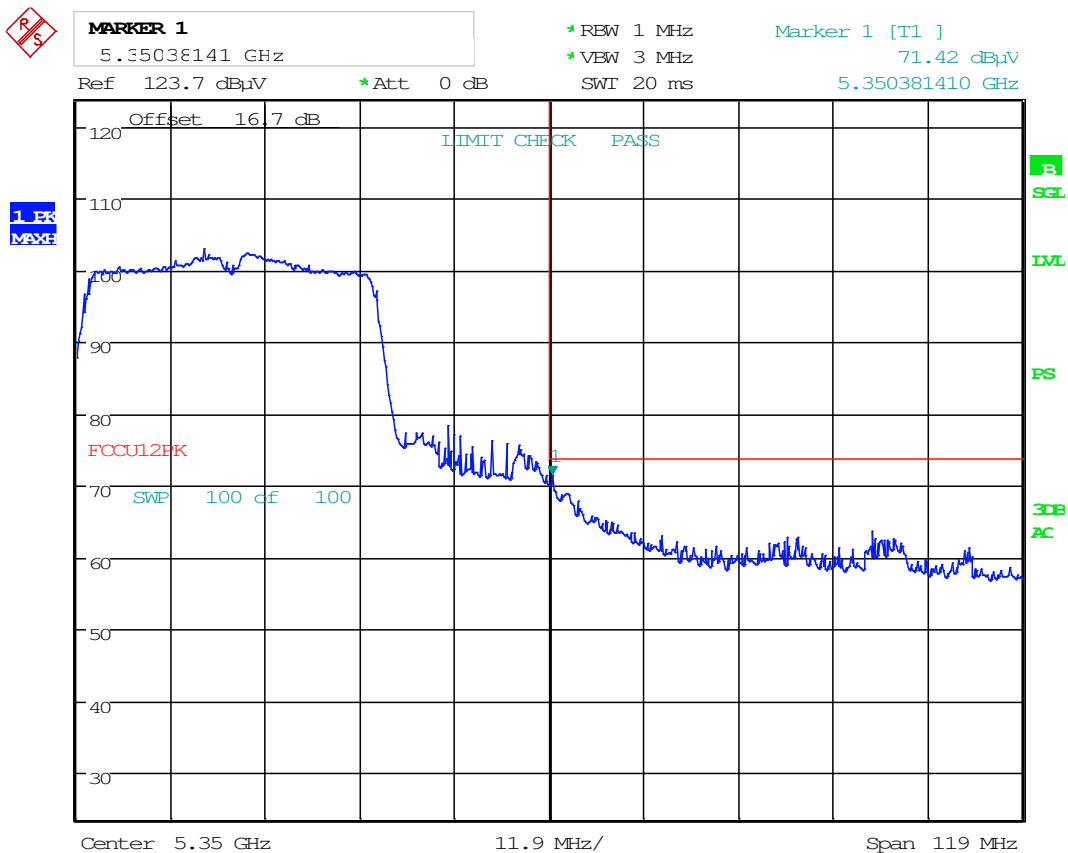
Date: 24.DEC.2015 09:08:21

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 191 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 24.DEC.2015 09:09:50

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 192 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

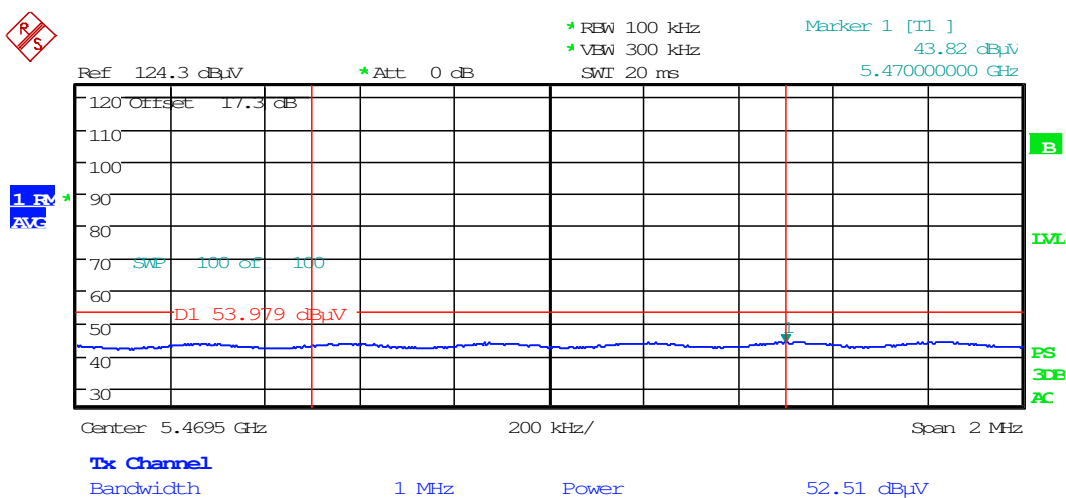
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 24.DEC.2015 09:50:13

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

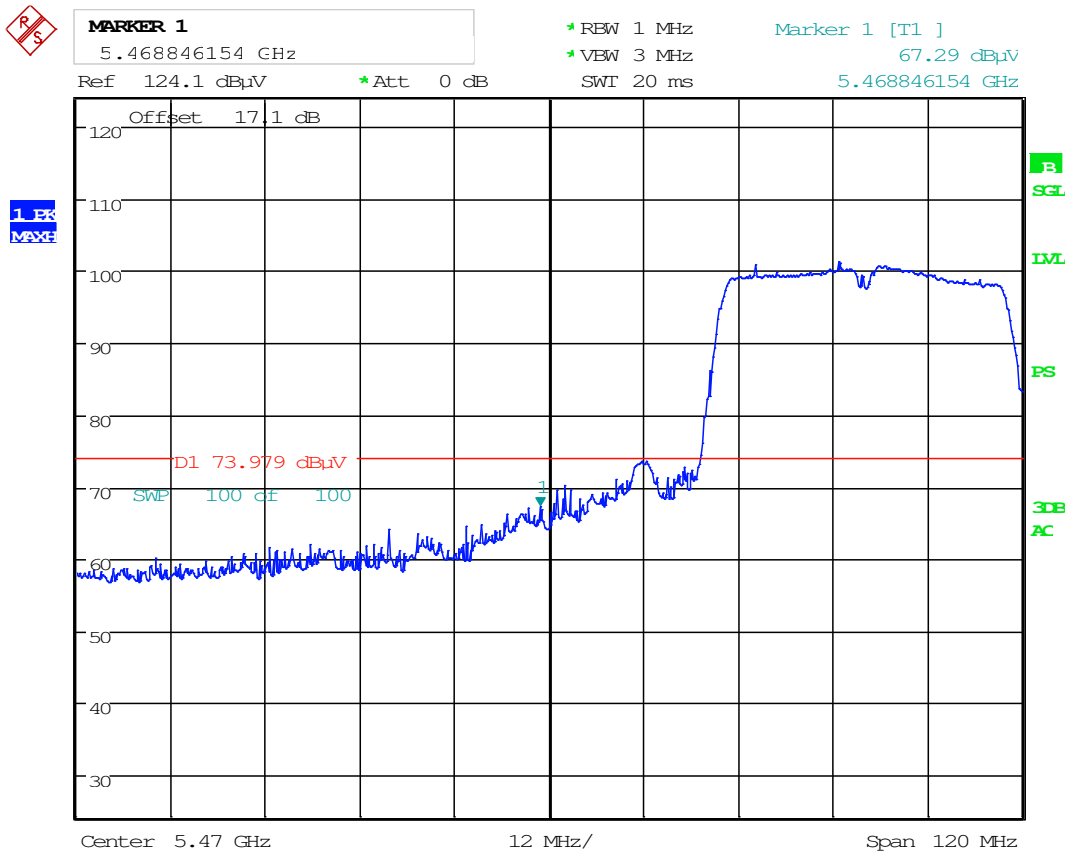
Note:

Per KDB 7890933 Section II)G)d)ii, the Integration Method was used to determine compliance with the out-of-band emission limits.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 193 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



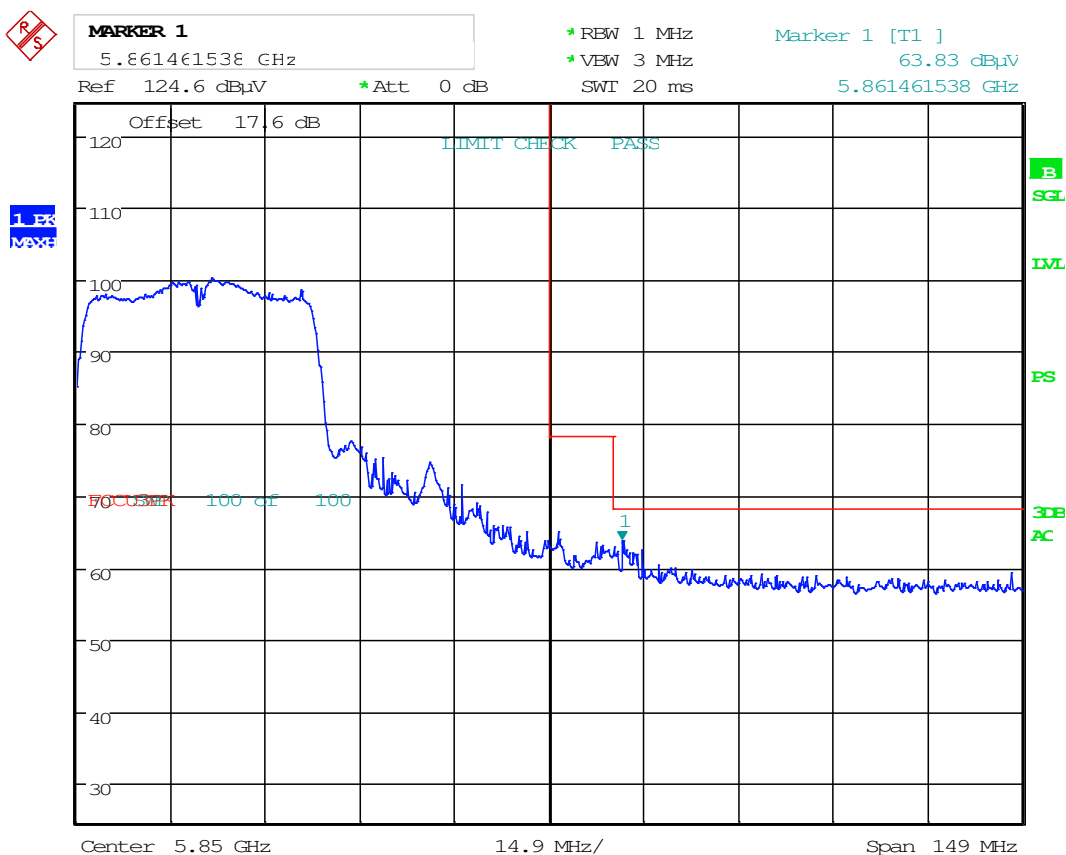
Date: 24.DEC.2015 09:51:40

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 194 of 261

Antenna-2 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>5795MHz</u>
Channel:	159



Date: 24.DEC.2015 10:12:52

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

FCC ID: A3LSMG930W8	 		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 195 of 261

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

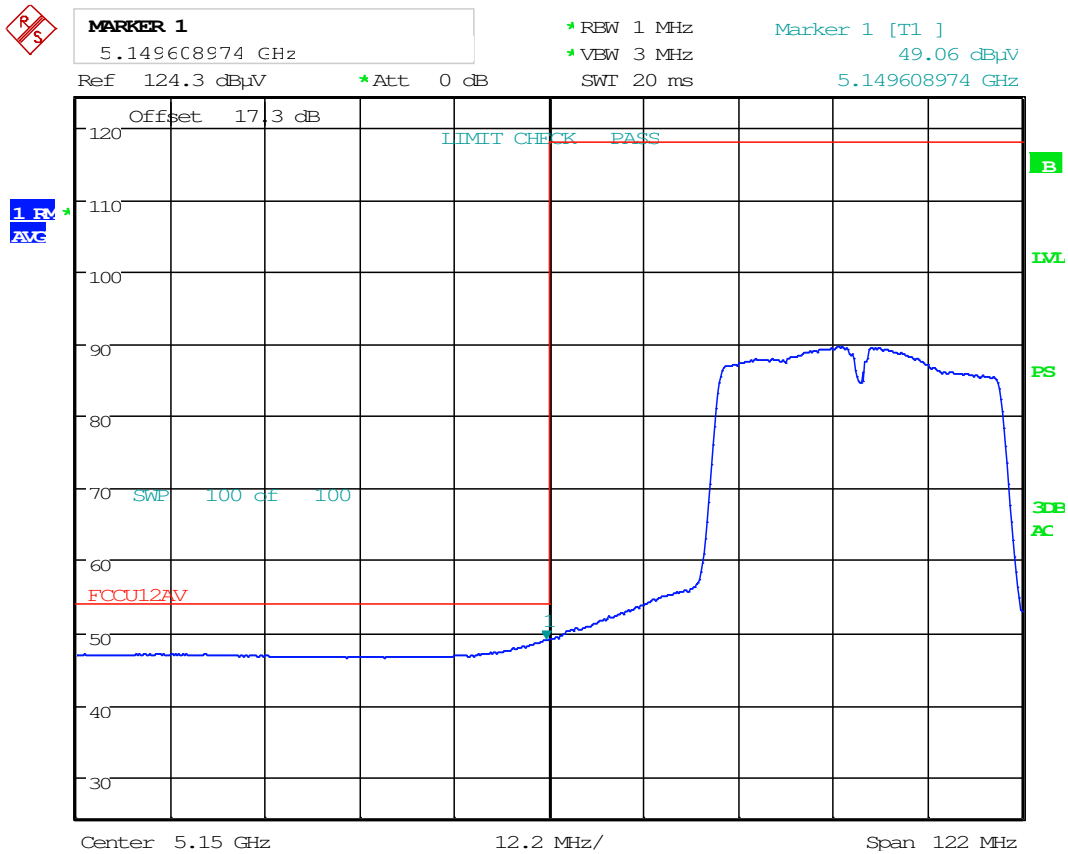
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38

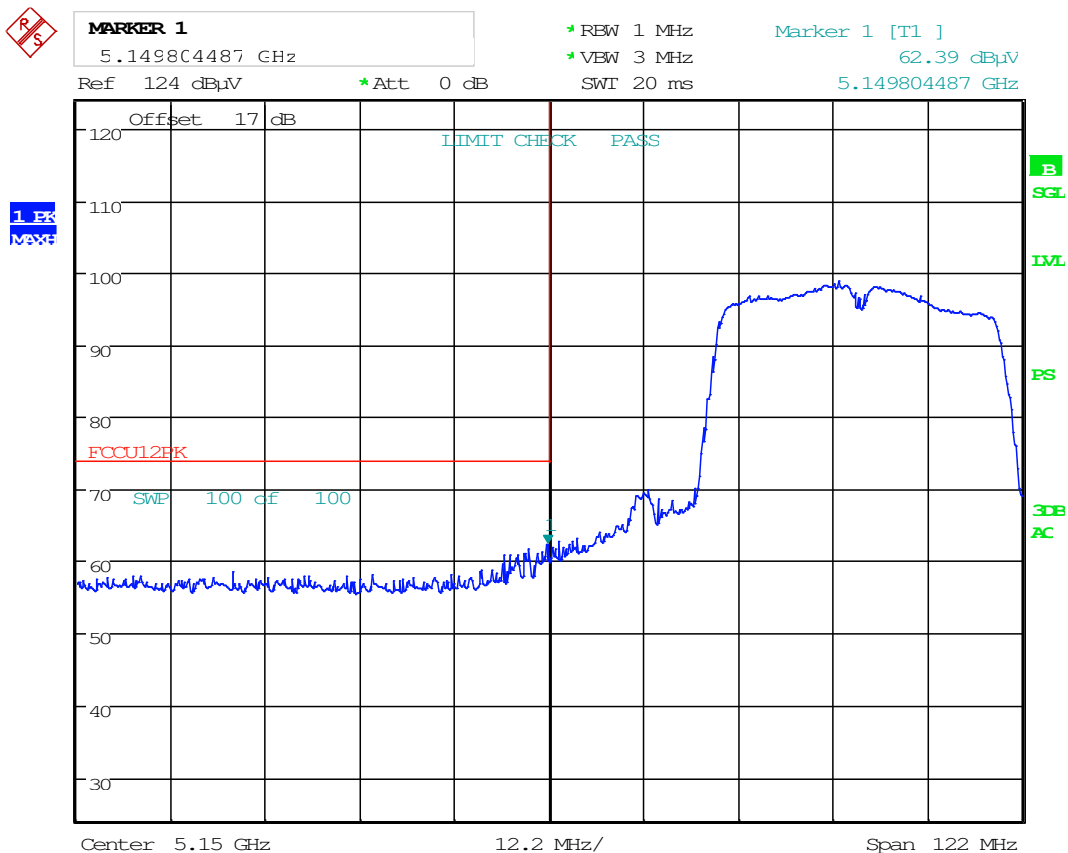


Date: 8.JAN.2016 20:05:41

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 196 of 261

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



Date: 8.JAN.2016 20:06:12

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 197 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

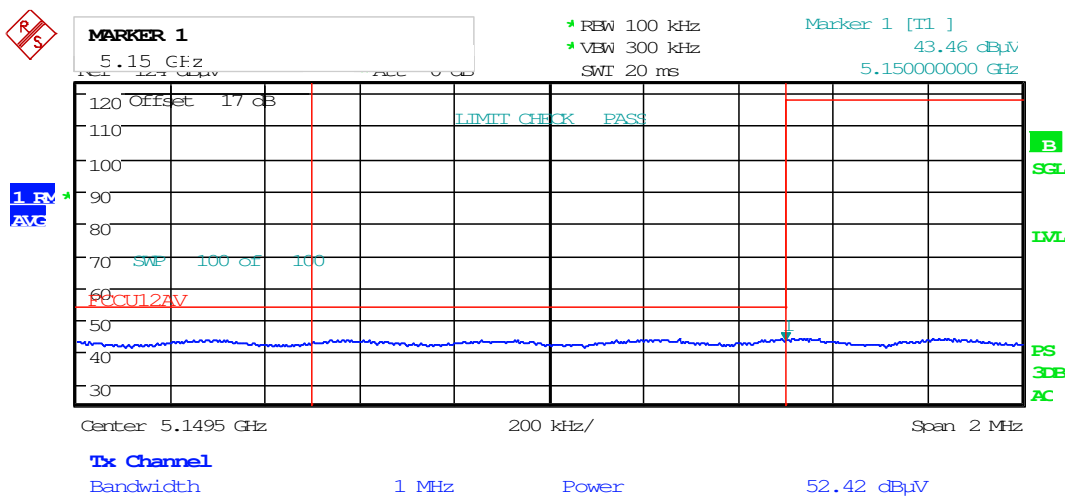
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 24.DEC.2015 08:52:18

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

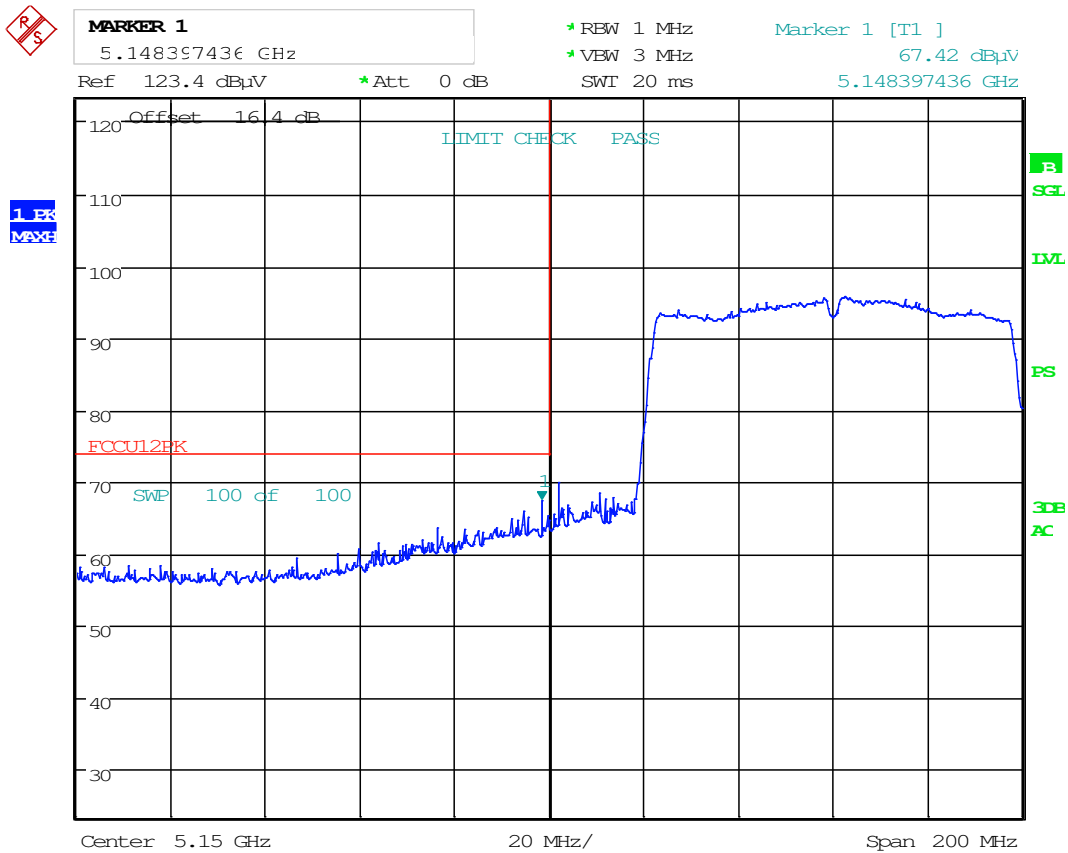
Note:

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: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 198 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 24.DEC.2015 08:53:49

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 199 of 261

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

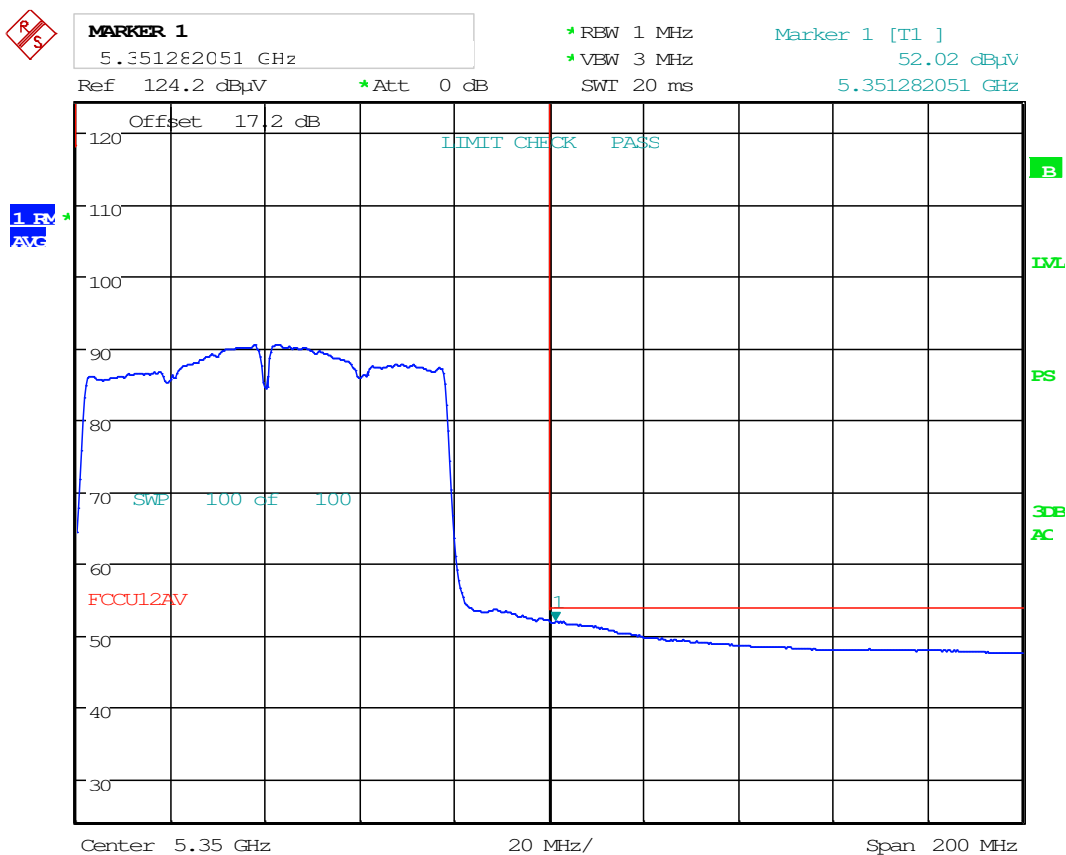
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



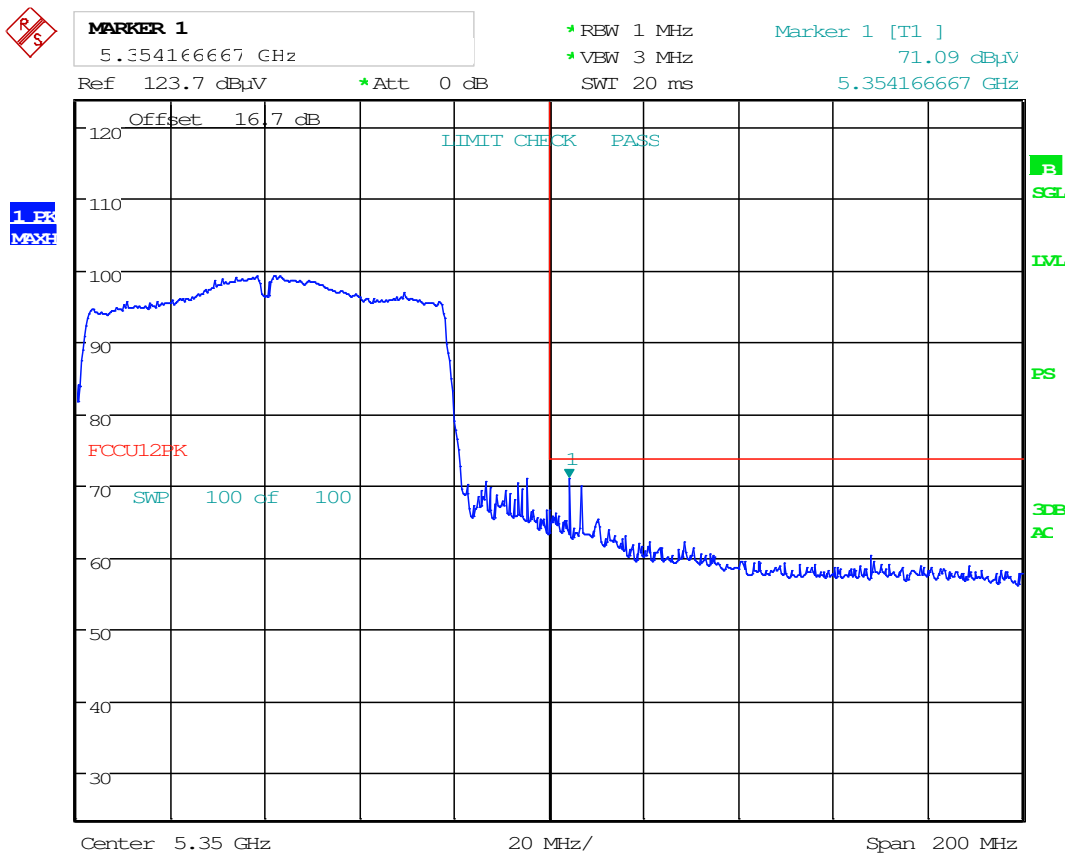
Date: 24.DEC.2015 09:13:44

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 200 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



Date: 24.DEC.2015 09:14:46

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 201 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209

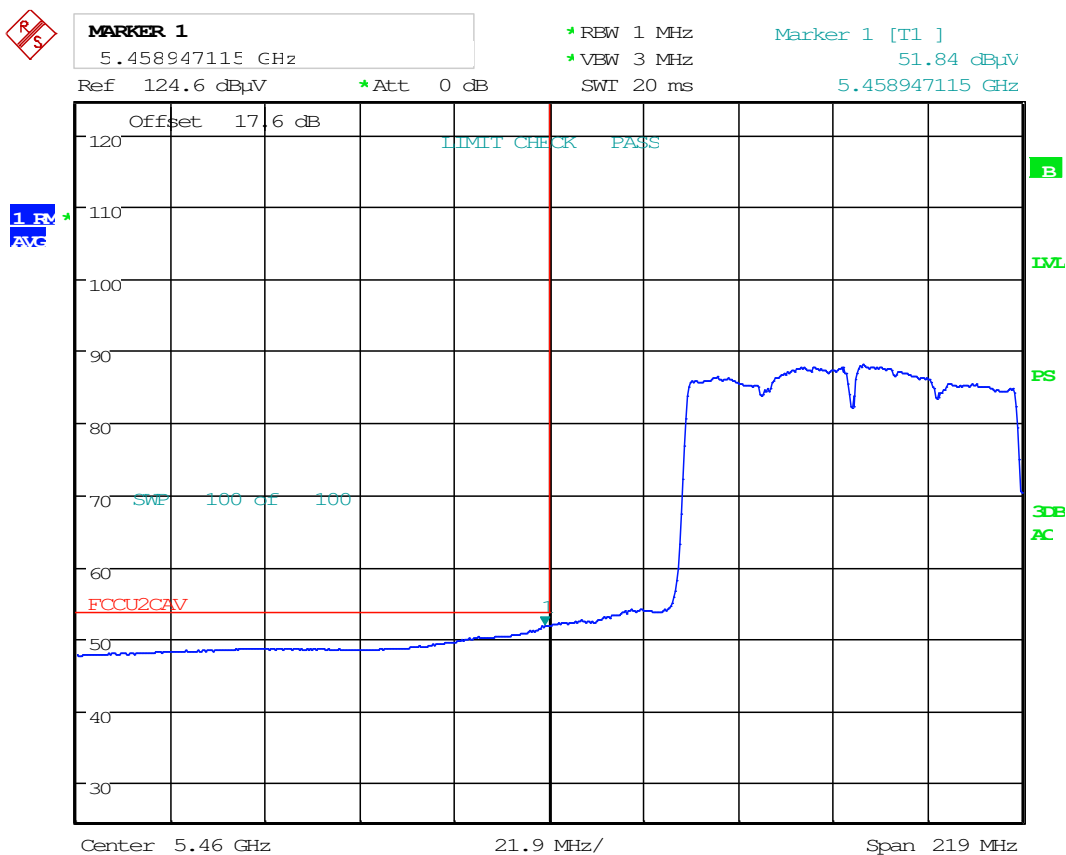
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 24.DEC.2015 10:03:54

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 202 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.464033654 GHz

* REW 1 MHz

Marker 1 [T1]

* VEW 3 MHz

63.97 dBμV

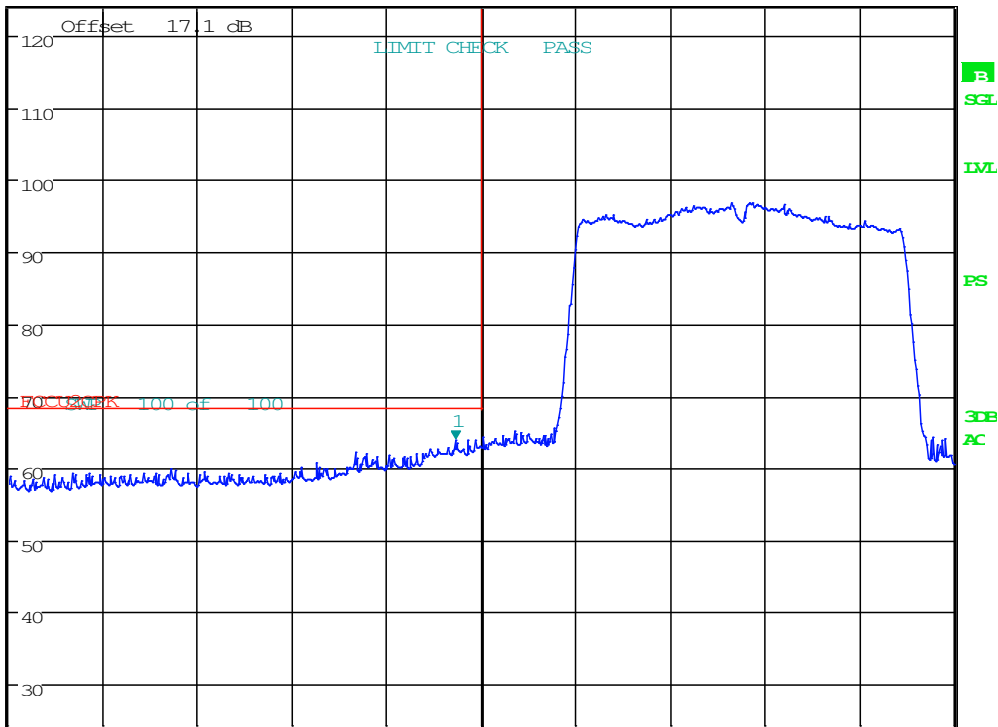
Ref 124.1 dBμV

* Att 0 dB

SWI 20 ms

5.464033654 GHz

PEAK
MAX



Center 5.47 GHz

21.9 MHz/

Span 219 MHz

Date: 24.DEC.2015 10:04:57

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 203 of 261

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

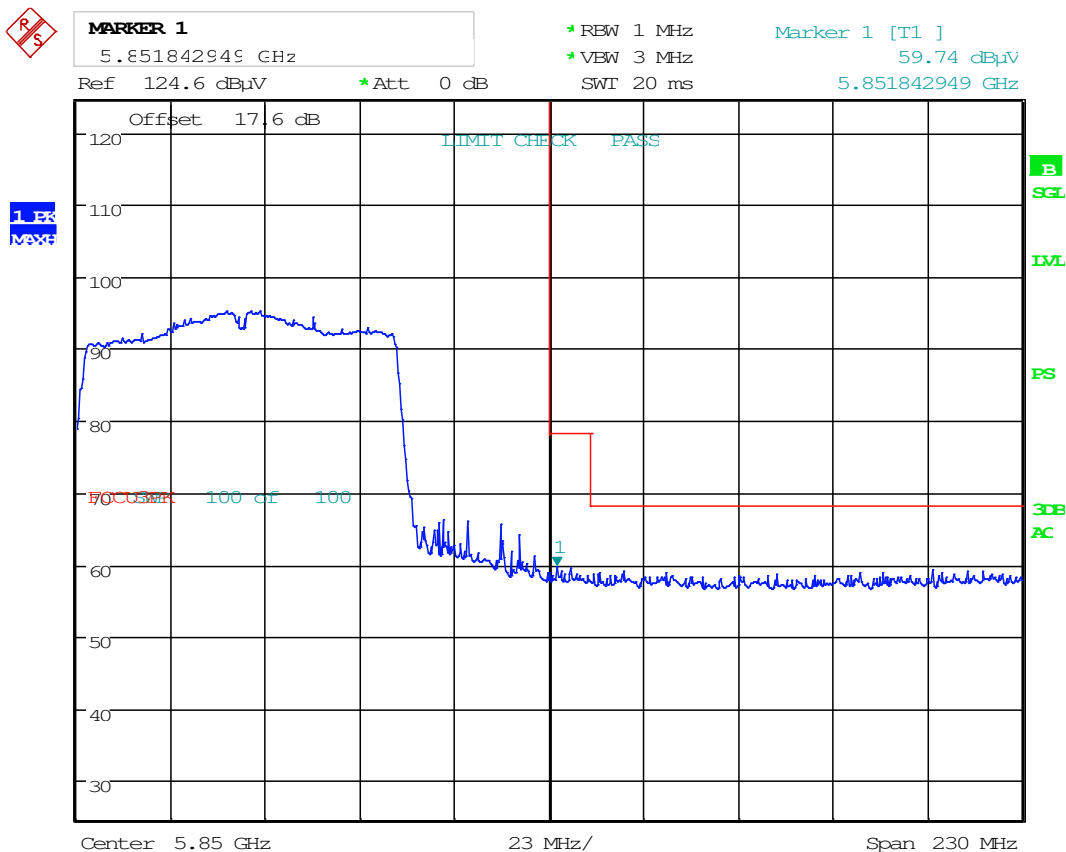
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



Date: 24.DEC.2015 10:14:49

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 204 of 261

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

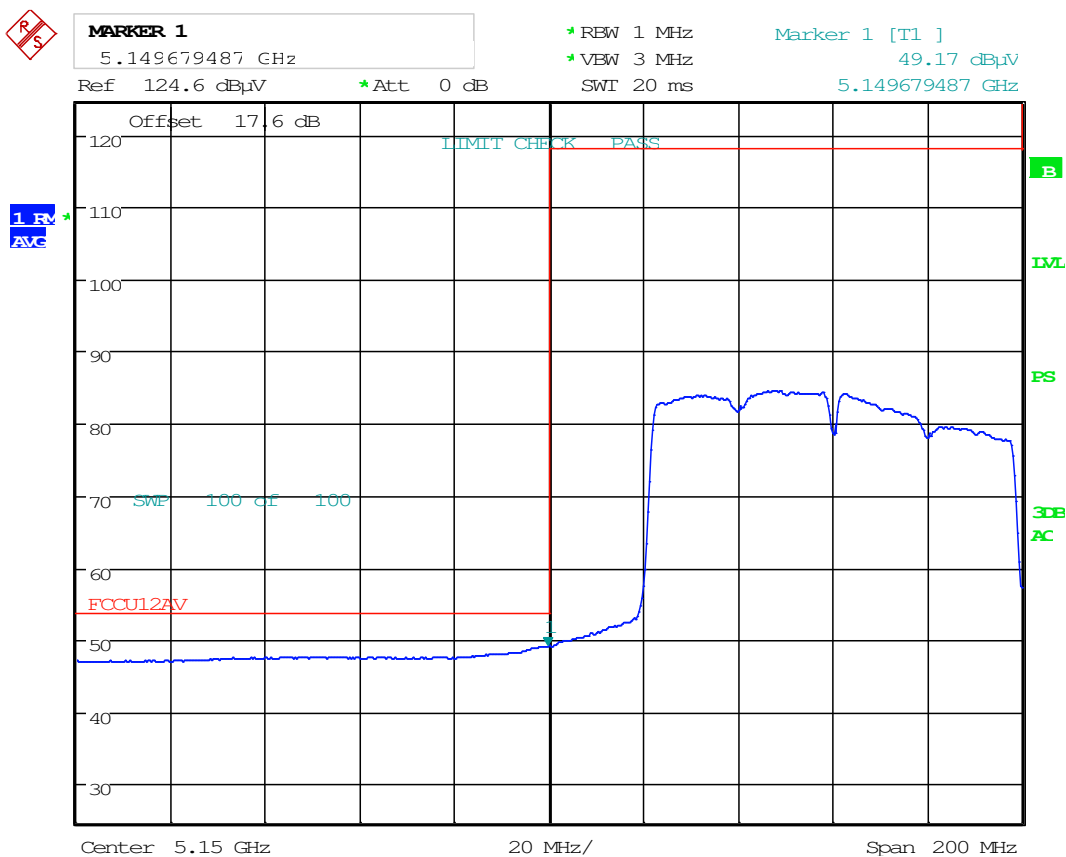
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



Date: 8.JAN.2016 20:13:13

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 205 of 261

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

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.145512821 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

60.30 dBμV

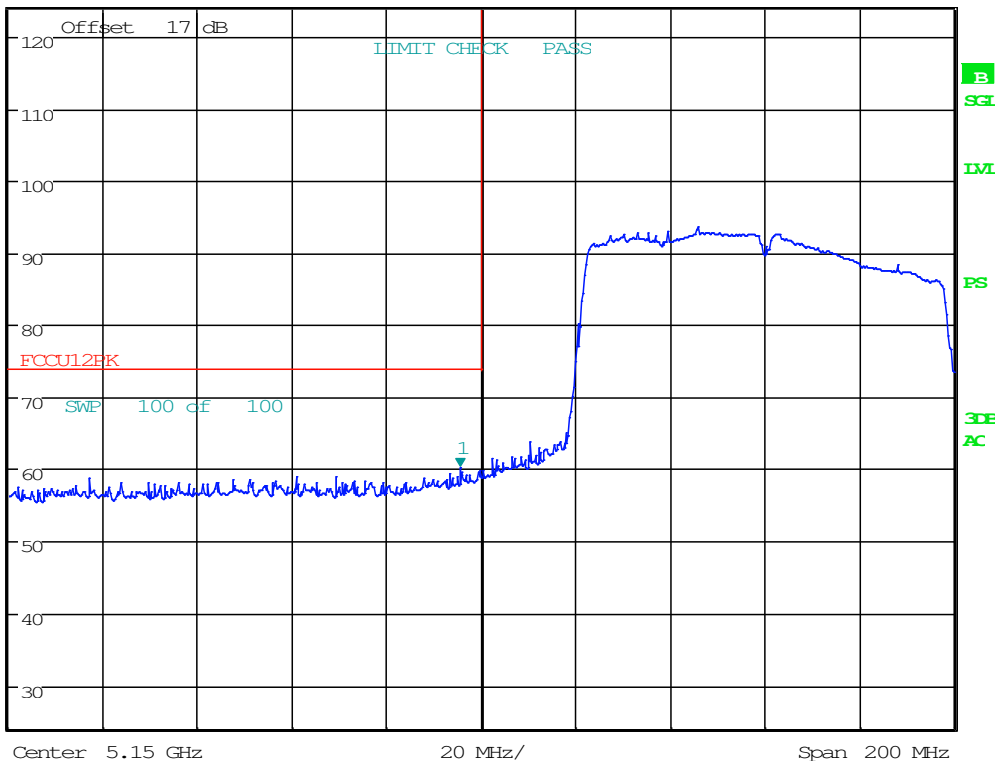
Ref 124 dBμV

* Att 0 dB

SWI 20 ms

5.145512821 GHz

1 PK
MAX



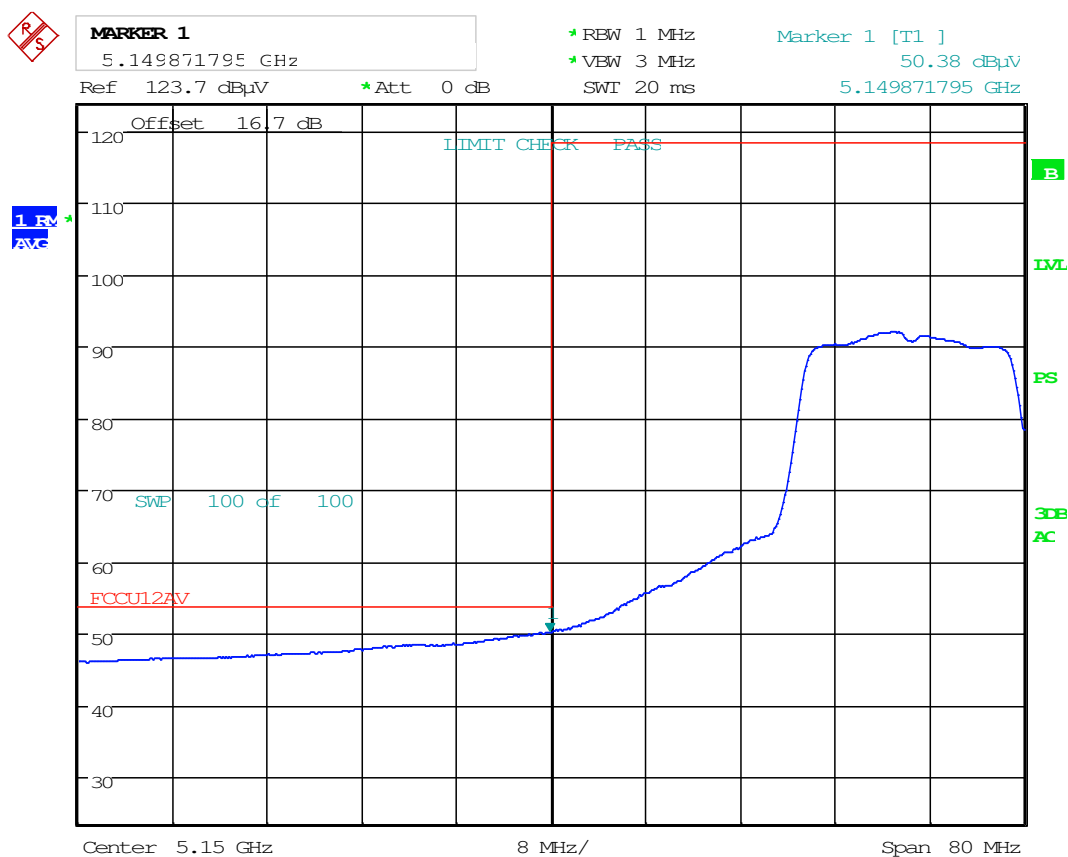
Date: 8.JAN.2016 20:14:08

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 206 of 261

7.7.10 MIMO Radiated Band Edge Measurements (20MHz BW)

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:	36



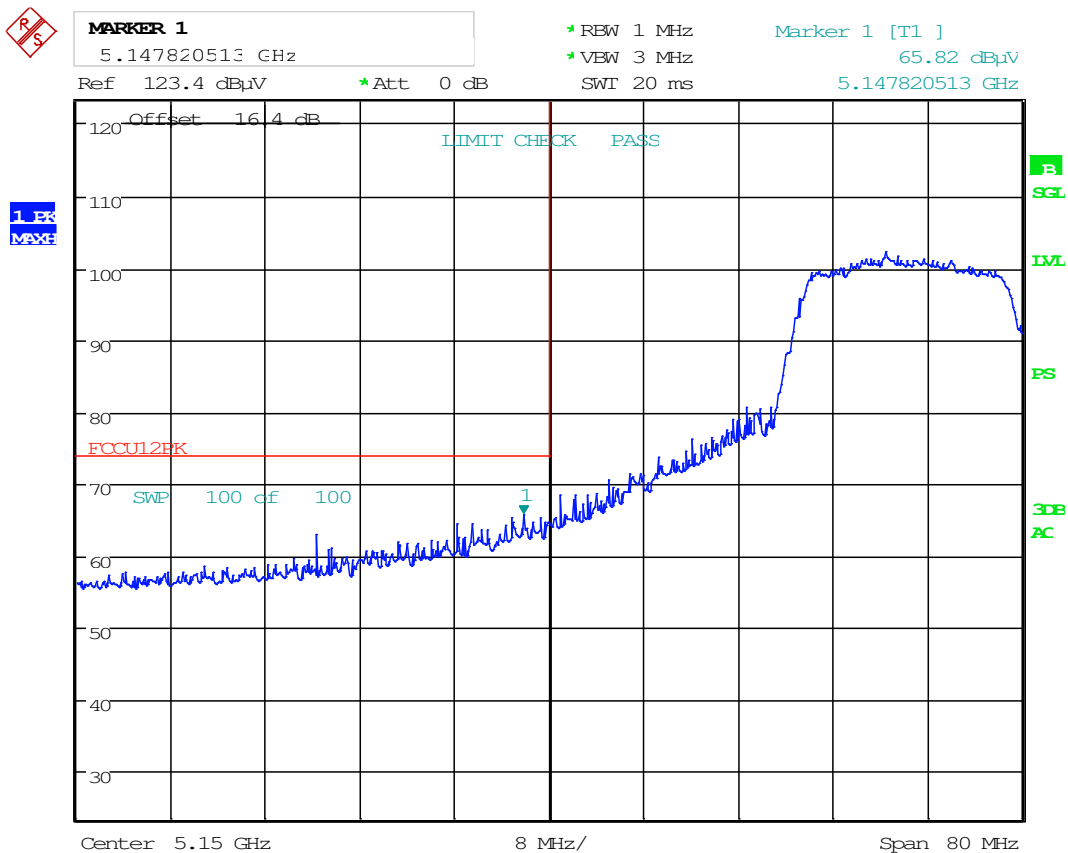
Date: 29.DEC.2015 10:22:59

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 207 of 261	

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 29.DEC.2015 10:23:38

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 208 of 261

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

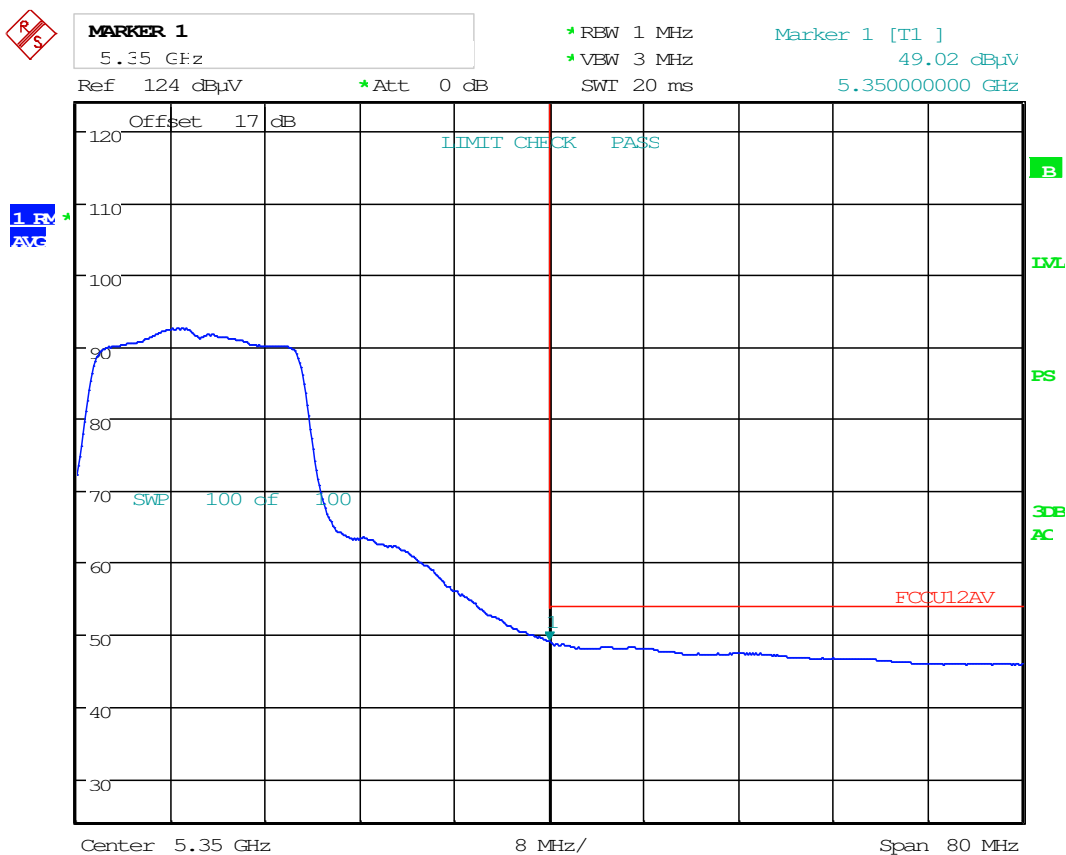
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 29.DEC.2015 11:21:48

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 209 of 261

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.350641026 GHz

*RBW 1 MHz

Marker 1 [T1]

*VBW 3 MHz

63.35 dBμV

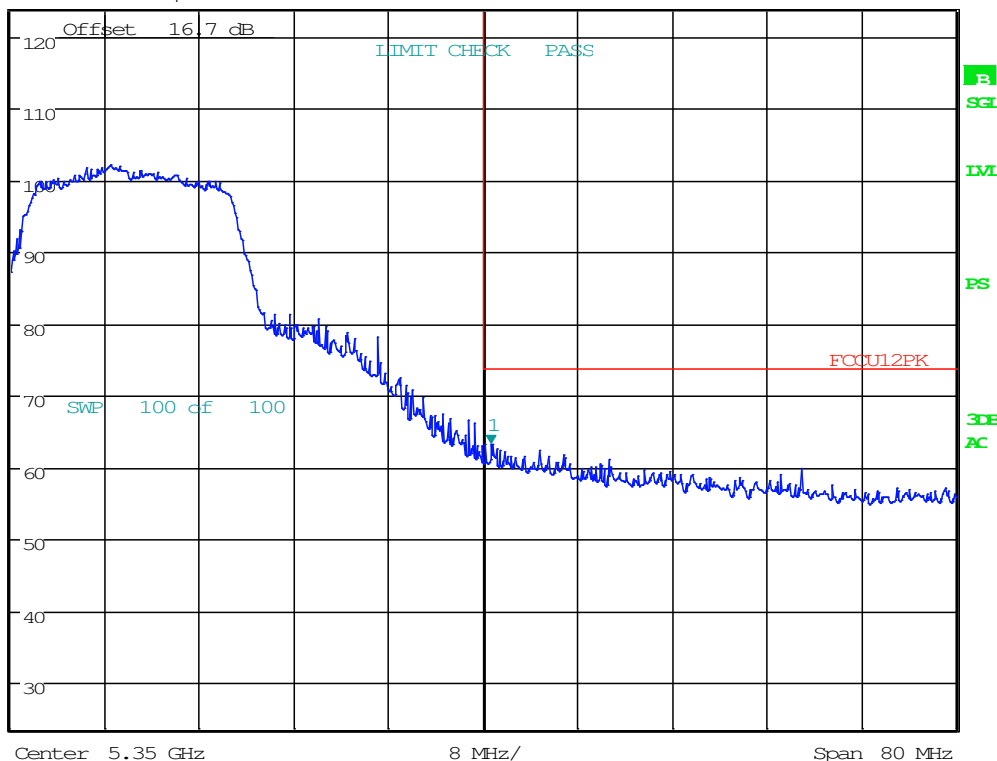
Ref 123.7 dBμV

*Att 0 dB

SWI 20 ms

5.350641026 GHz

1 PK
MAX



Date: 29.DEC.2015 11:22:27

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 210 of 261

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

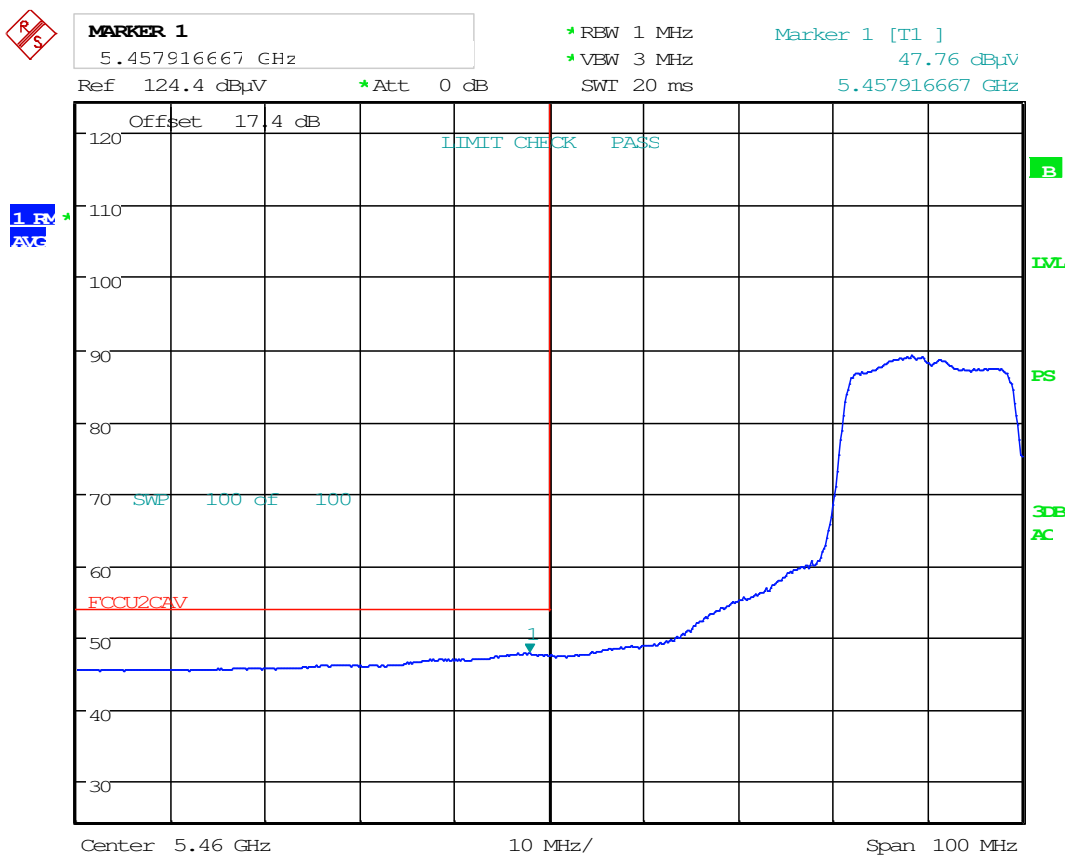
Worst Case Mode: 802.11n (20MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz

Channel: 100



Date: 29.DEC.2015 11:37:56

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 211 of 261

MIMO Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.469839744 GHz

*RBW 1 MHz

Marker 1 [T1]

*VBW 3 MHz

62.57 dBμV

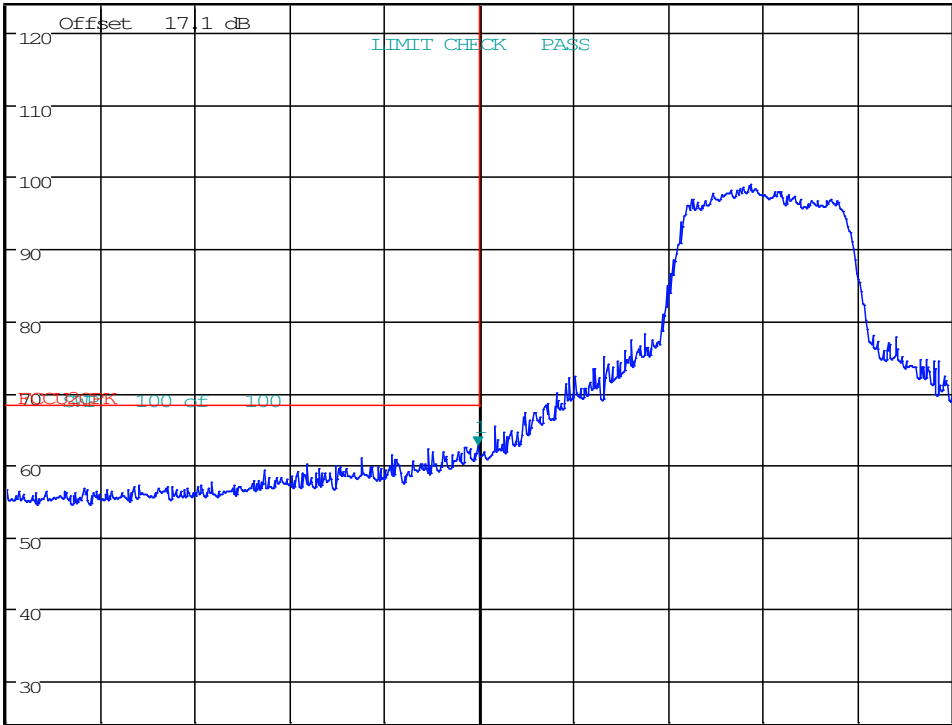
Ref 124.1 dBμV

*Att 0 dB

SWI 20 ms

5.469839744 GHz

1.00
dB



Center 5.47 GHz

10 MHz/

Span 100 MHz

Date: 29.DEC.2015 11:38:38

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 212 of 261

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



MARKER 1

5.850480769 GHz

* RBW 1 MHz

* VEW 3 MHz

Marker 1 [T1]

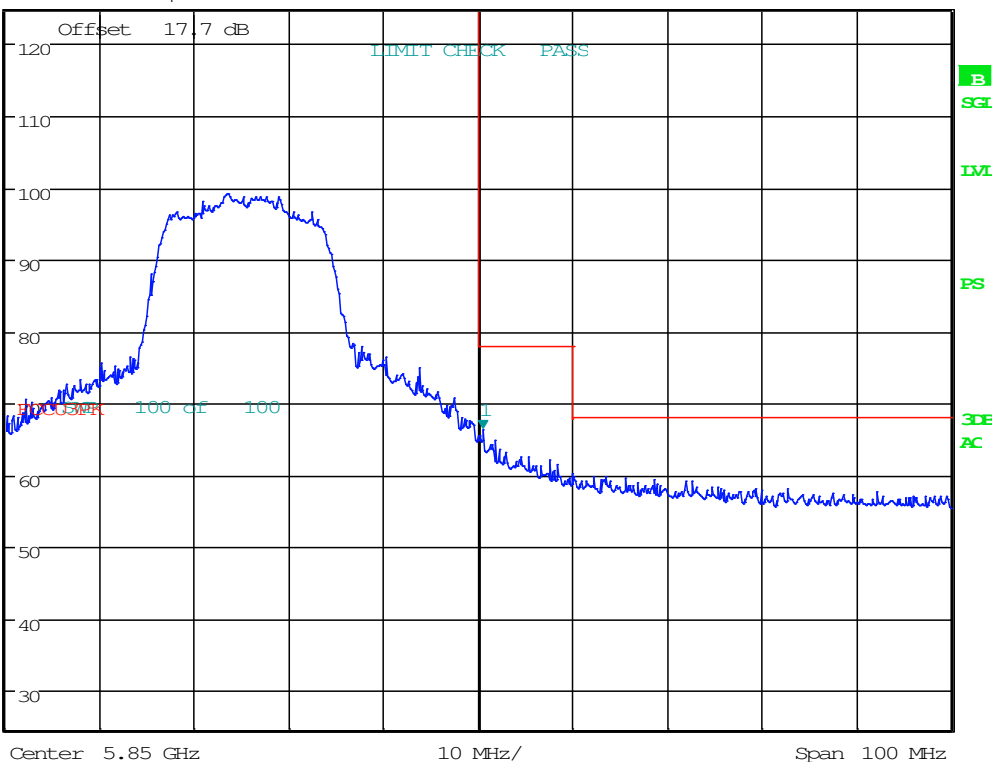
66.39 dBμV

Ref 124.7 dBμV

* Att 0 dB

SWT 20 ms

5.850480769 GHz



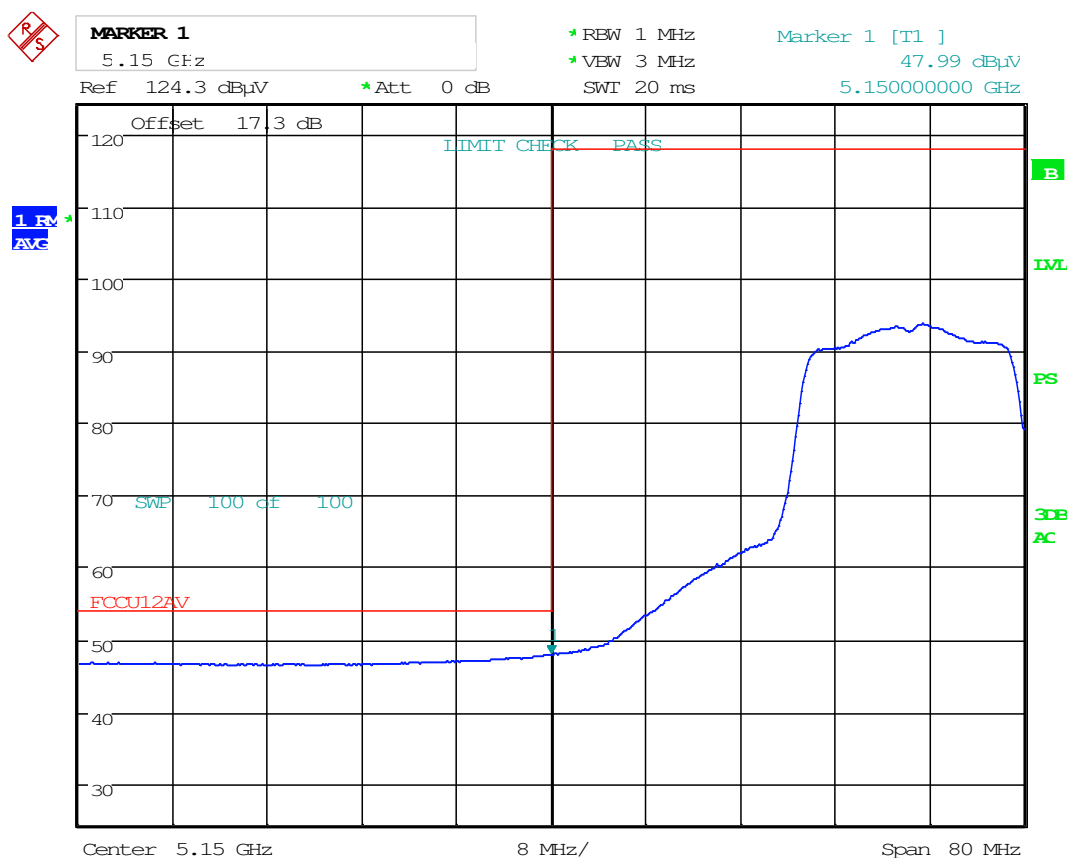
Date: 29.DEC.2015 12:03:58

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 213 of 261

MIMO WCP Radiated Band Edge Measurements (20MHz BW)

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>



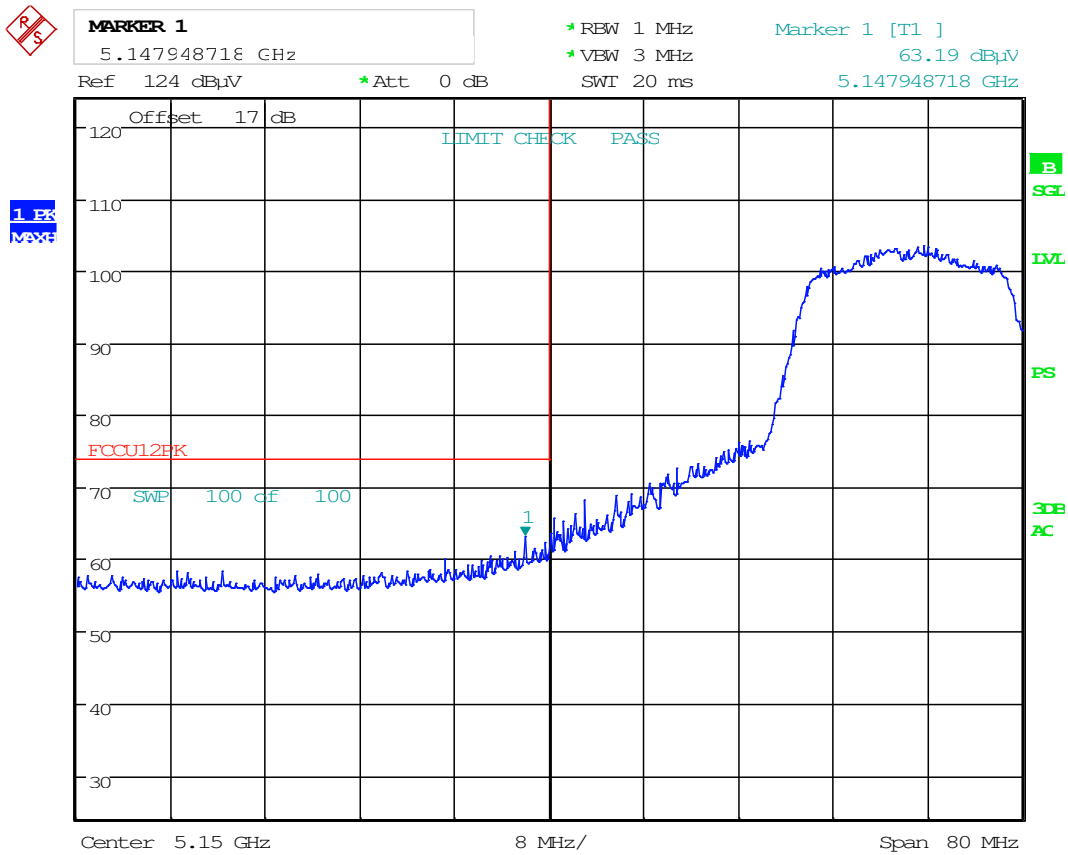
Date: 8.JAN.2016 20:29:08

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 214 of 261	

MIMO WCP Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



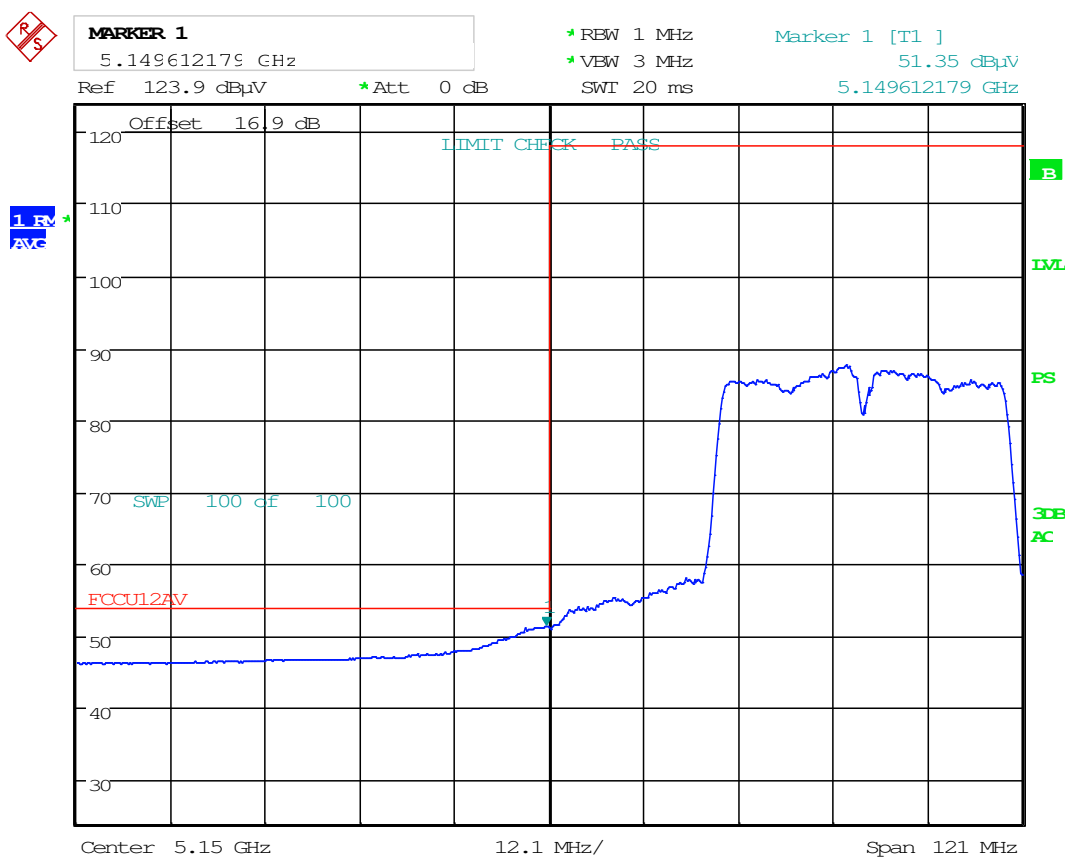
Date: 8.JAN.2016 20:29:42

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 215 of 261

7.7.11 MIMO Radiated Band Edge Measurements (40MHz BW)

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>5190MHz</u>
Channel:	38



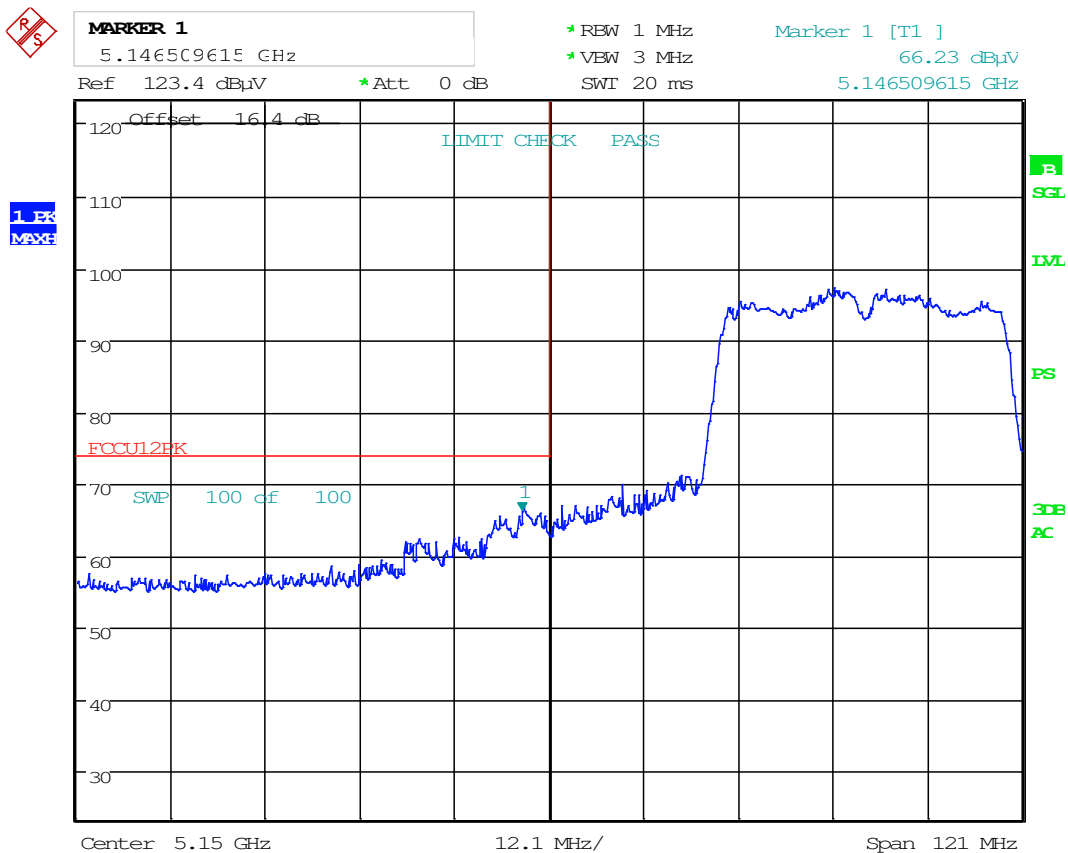
Date: 29.DEC.2015 11:07:36

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 216 of 261	

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 29.DEC.2015 11:08:06

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 217 of 261

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

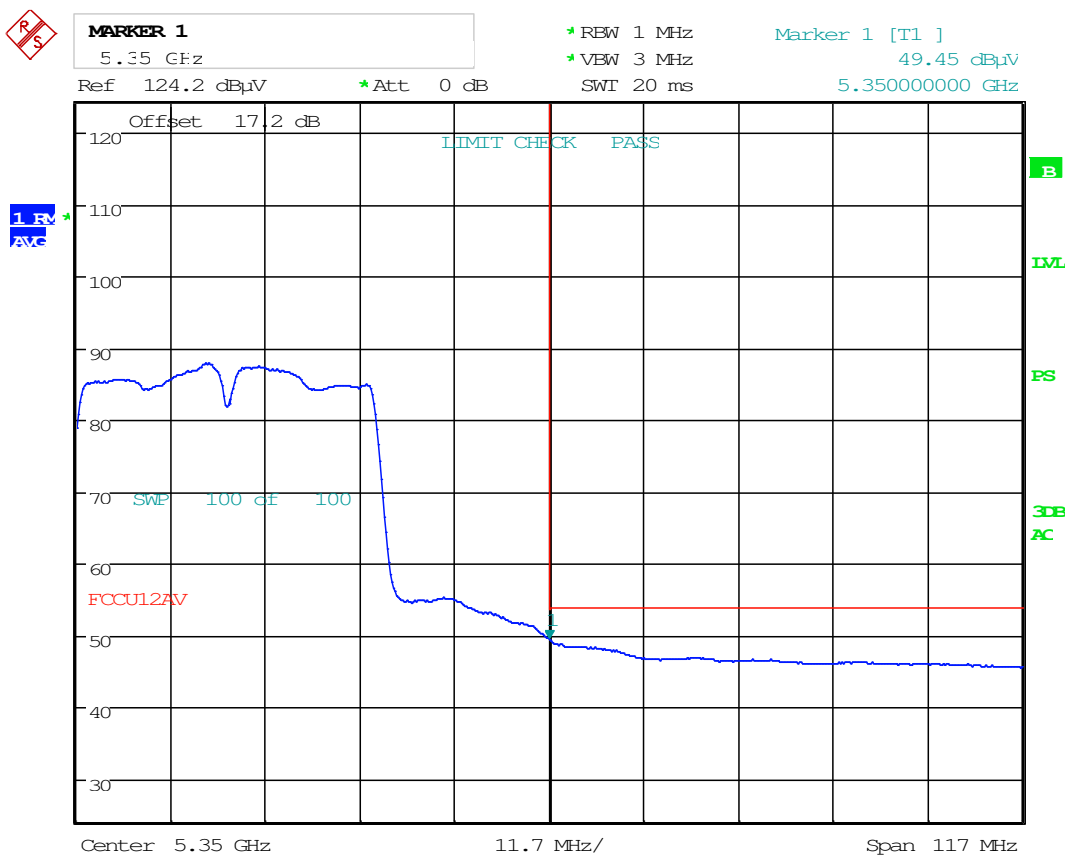
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5310MHz

Channel: 62



Date: 29.DEC.2015 11:29:44

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 218 of 261

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.3550625 GHz

*RBW 1 MHz

Marker 1 [T1]

*VBW 3 MHz

65.03 dBμV

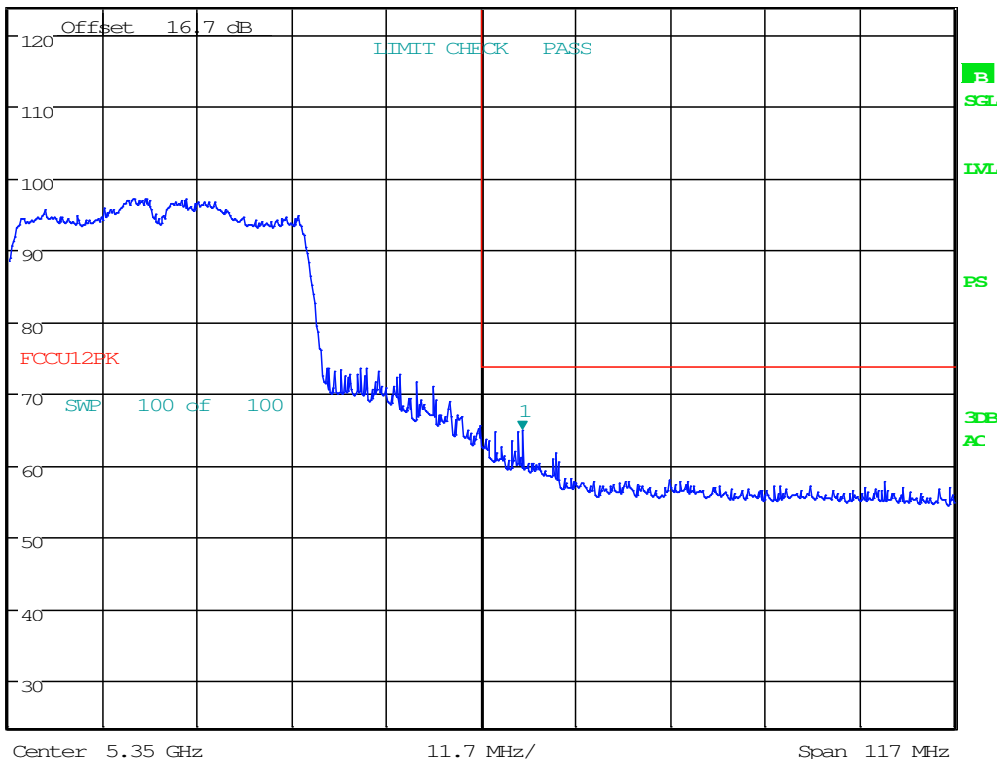
Ref 123.7 dBμV

*Att 0 dB

SWI 20 ms

5.355062500 GHz

1 PK
MAX



Date: 29.DEC.2015 11:30:19

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 219 of 261

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

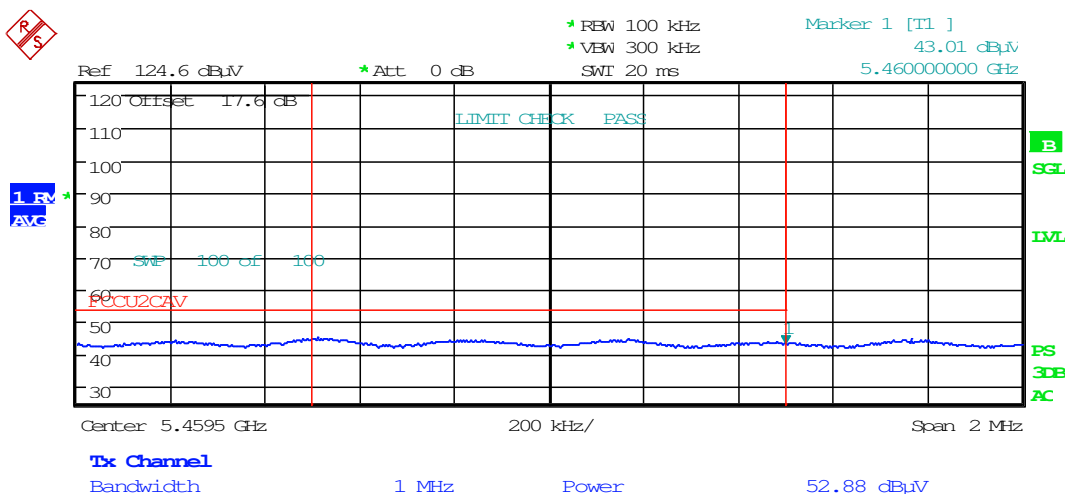
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5510MHz

Channel: 102



Date: 29.DEC.2015 11:42:28

Plot 7-260. 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 emissions limits.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 220 of 261

MIMO Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.465737179 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

66.71 dBμV

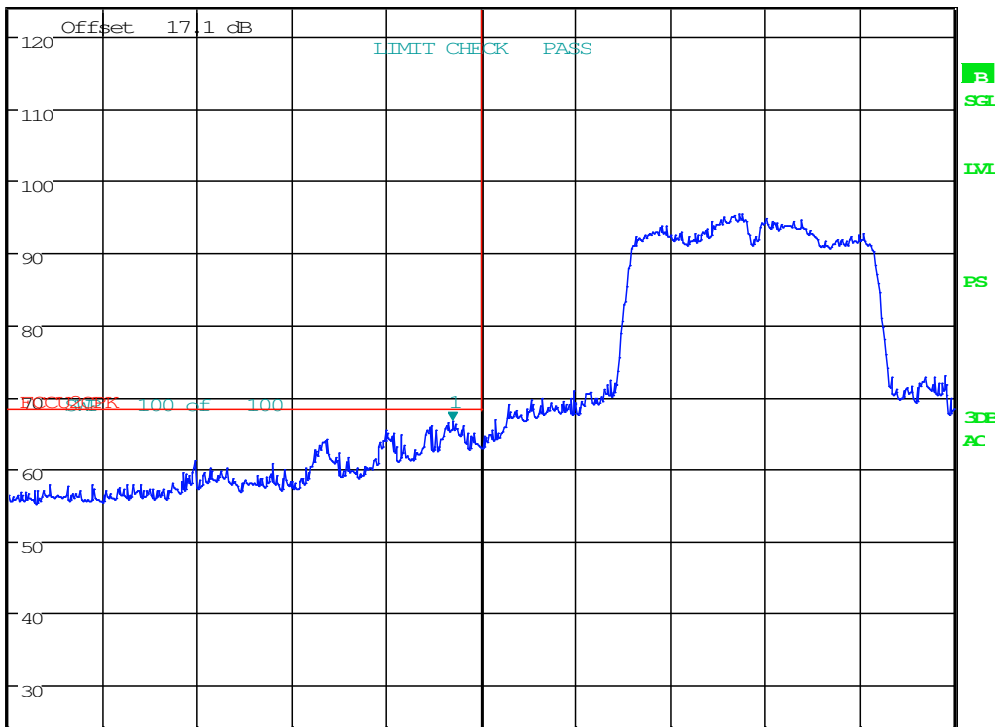
Ref 124.1 dBμV

* Att 0 dB

SWI 20 ms

5.465737179 GHz

1.00
MAX



Center 5.47 GHz

14 MHz/

Span 140 MHz

Date: 29.DEC.2015 11:48:42

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 221 of 261

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

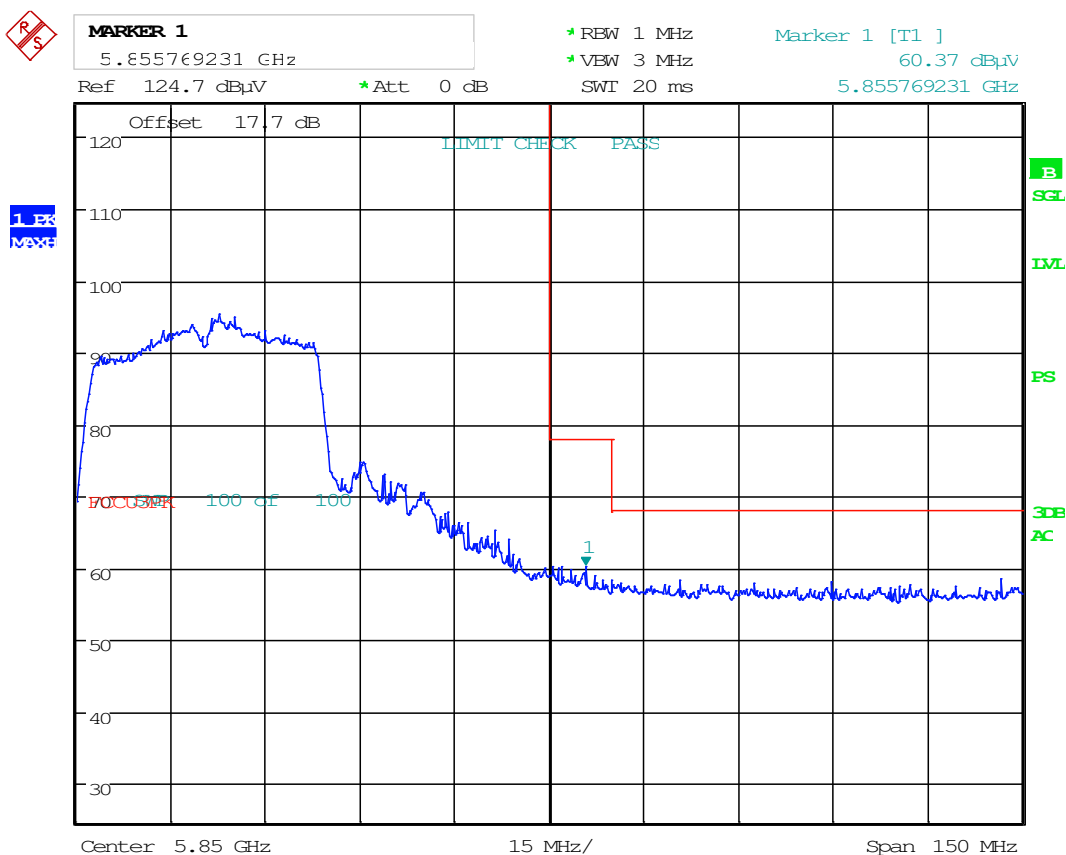
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5795MHz

Channel: 159



Date: 29.DEC.2015 12:05:26

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 222 of 261

MIMO WCP Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

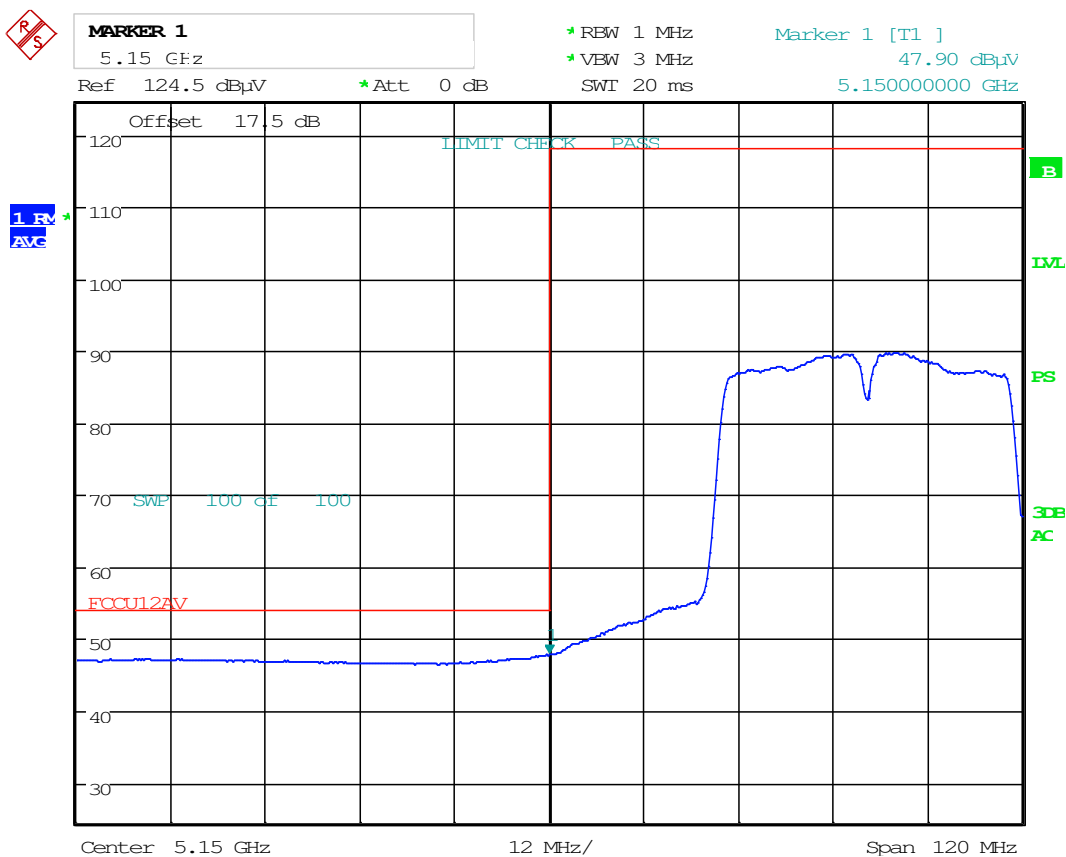
Worst Case Mode: 802.11n (40MHz)

Worst Case Transfer Rate: MCS8

Distance of Measurements: 3 Meters

Operating Frequency: 5190MHz

Channel: 38



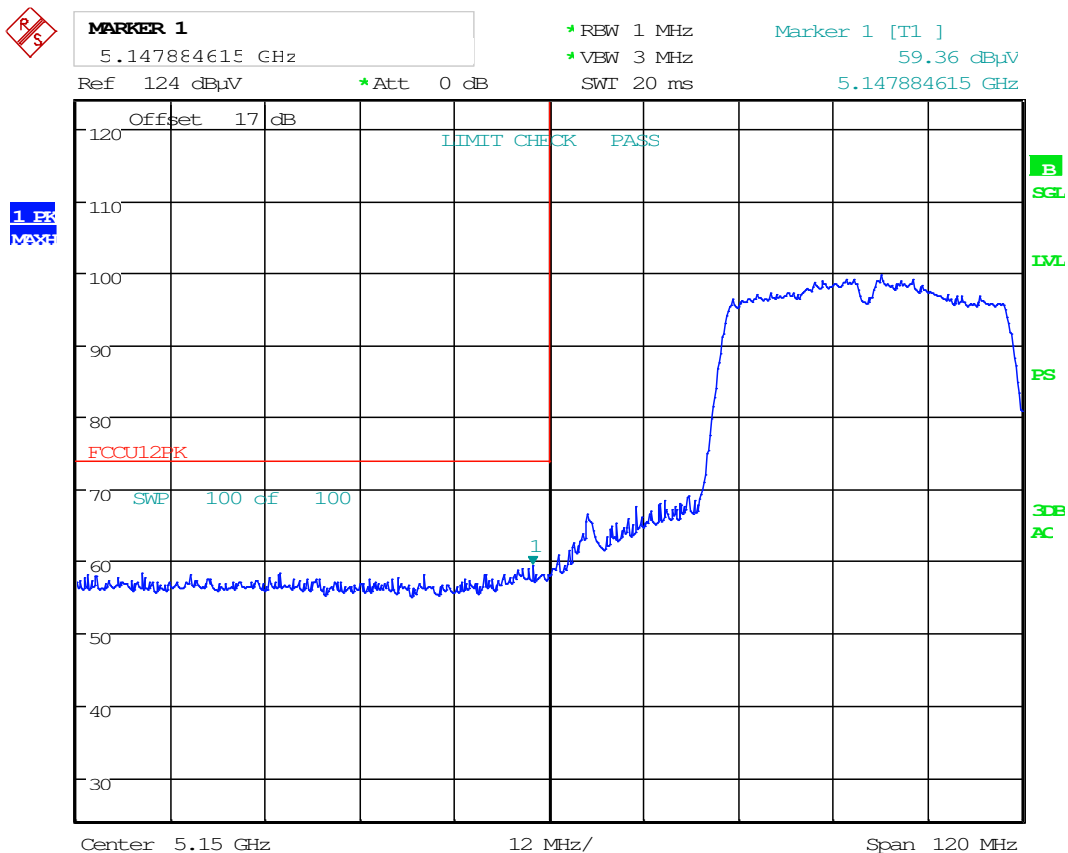
Date: 8.JAN.2016 20:32:34

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 223 of 261

MIMO WCP Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 8.JAN.2016 20:33:11

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 224 of 261

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

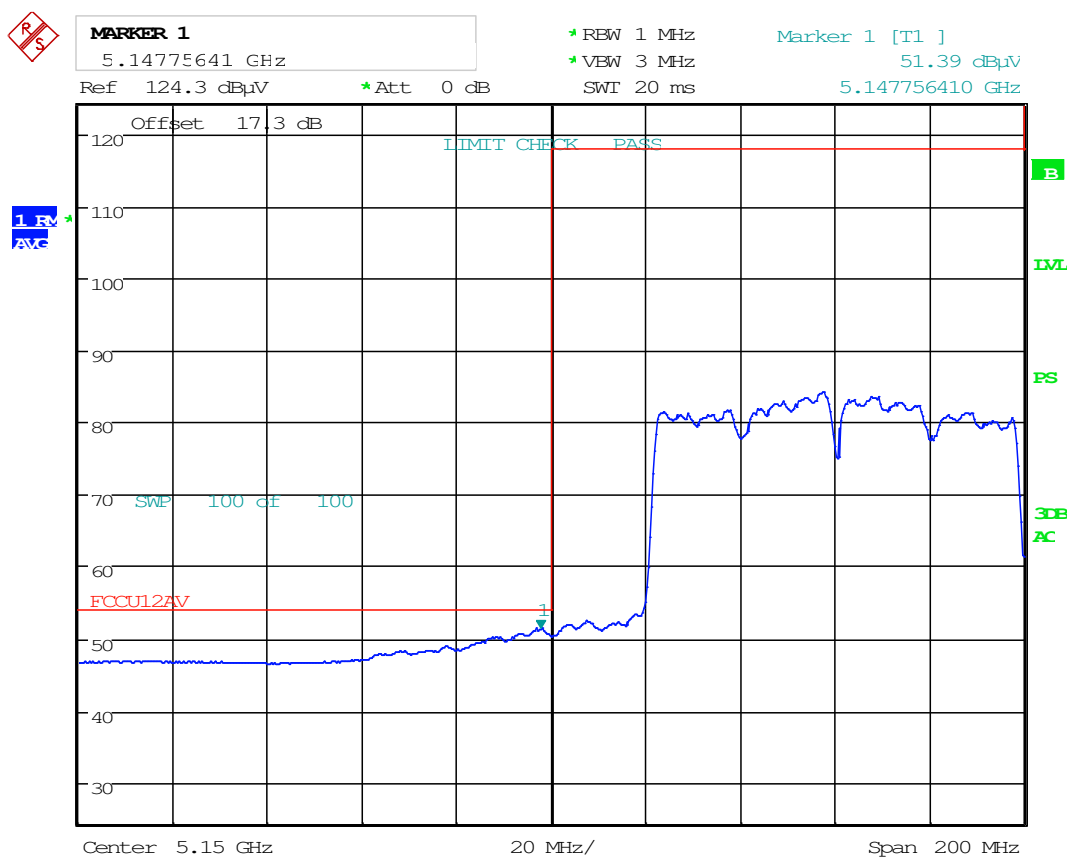
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5210MHz

Channel: 42



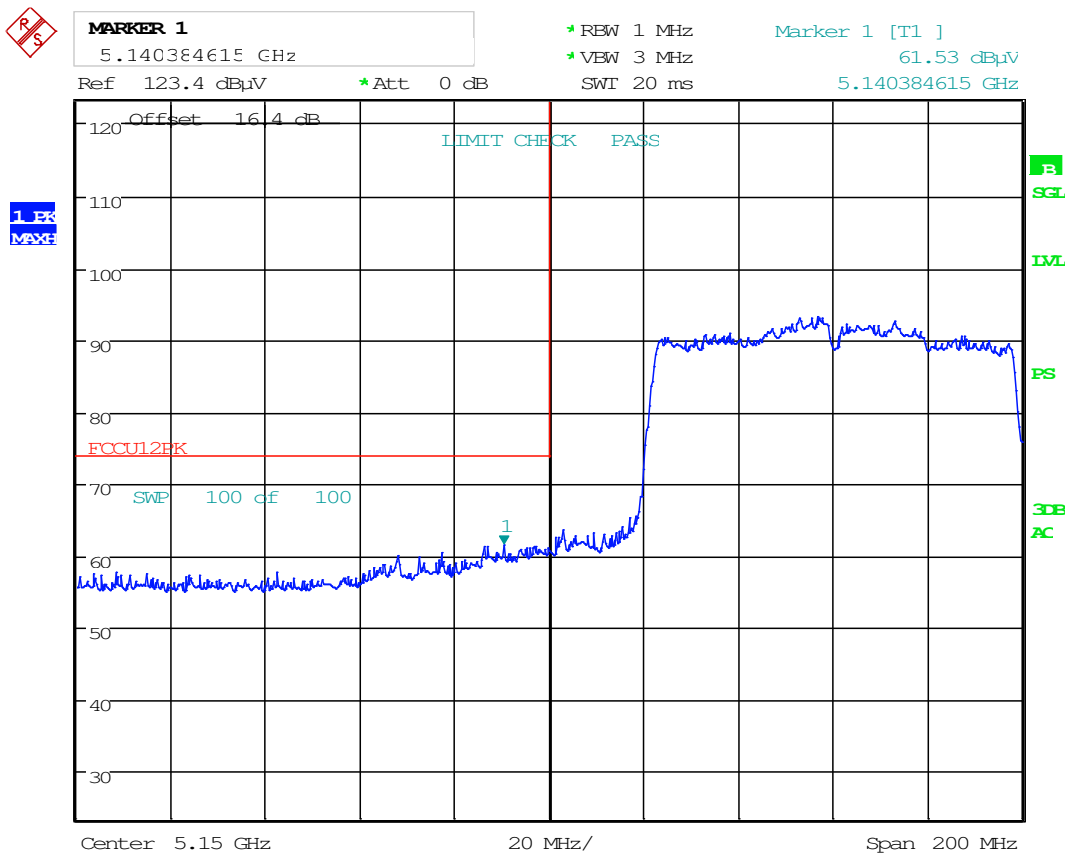
Date: 29.DEC.2015 11:13:55

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 225 of 261	

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 29.DEC.2015 11:14:43

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 226 of 261

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

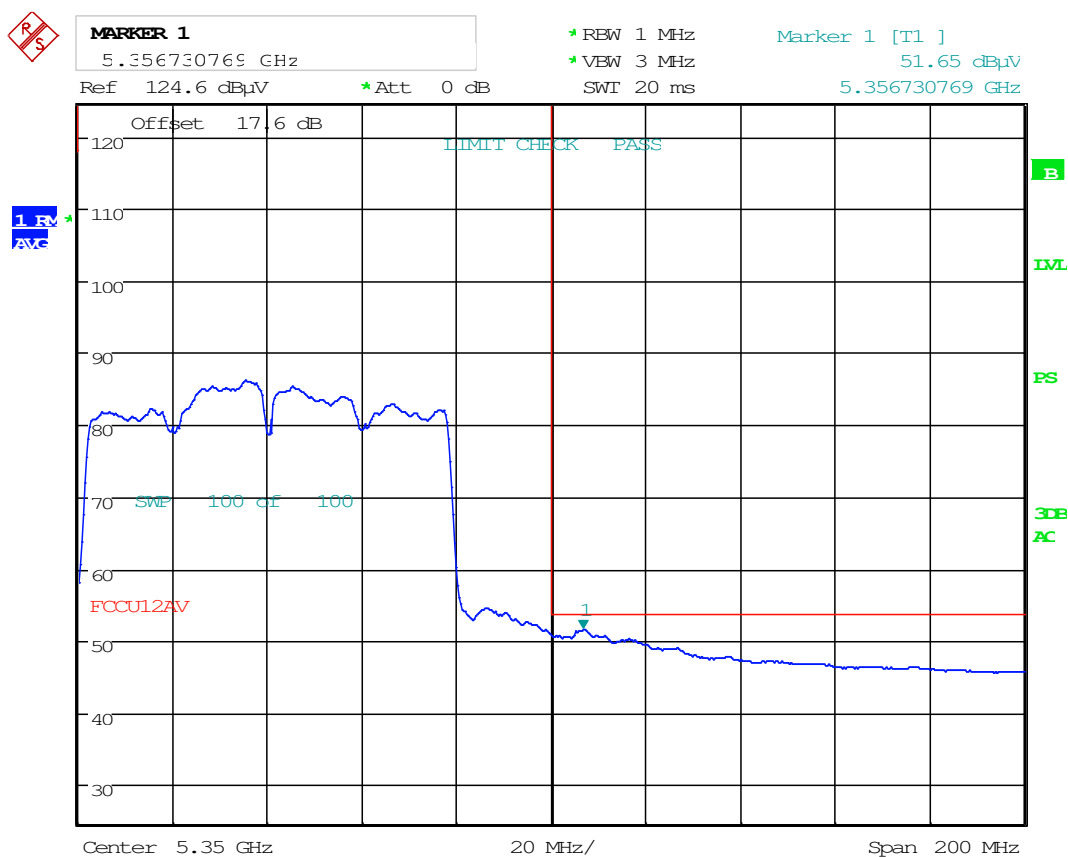
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5290MHz

Channel: 58



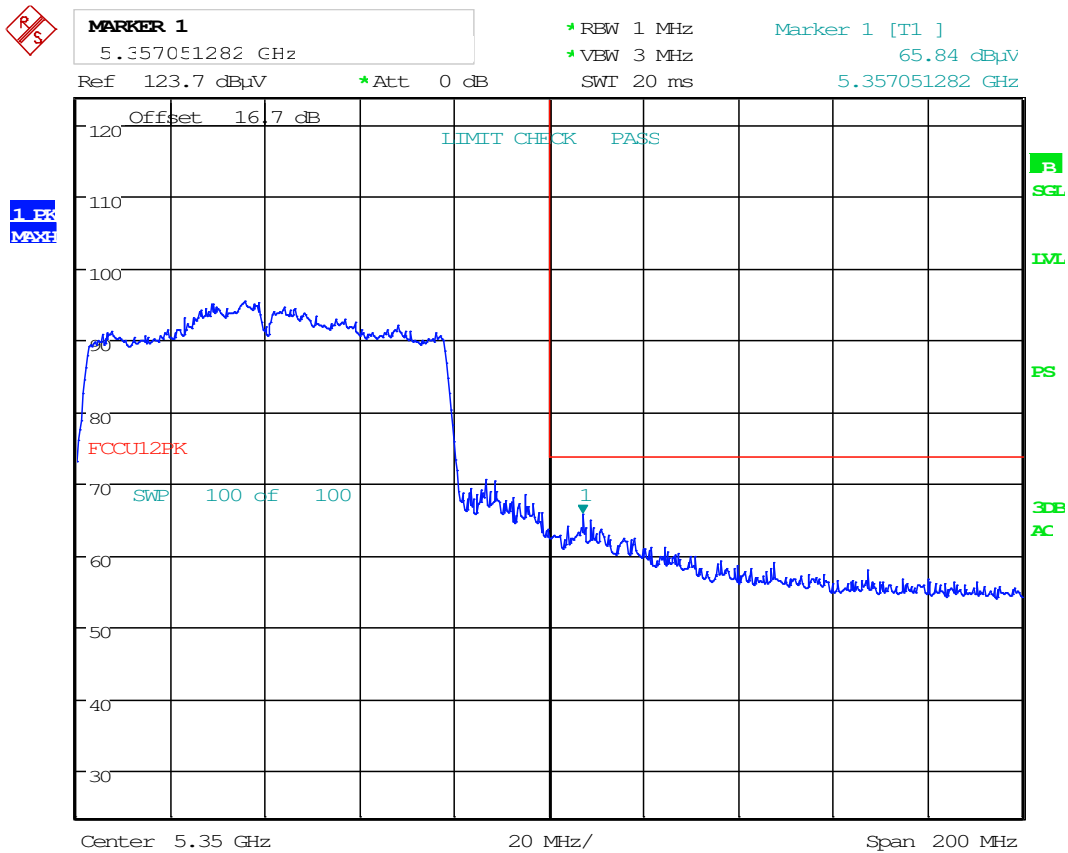
Date: 29.DEC.2015 11:32:20

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

FCC ID: A3LSMG930W8	 		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 227 of 261

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



Date: 29.DEC.2015 11:33:00

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 228 of 261

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

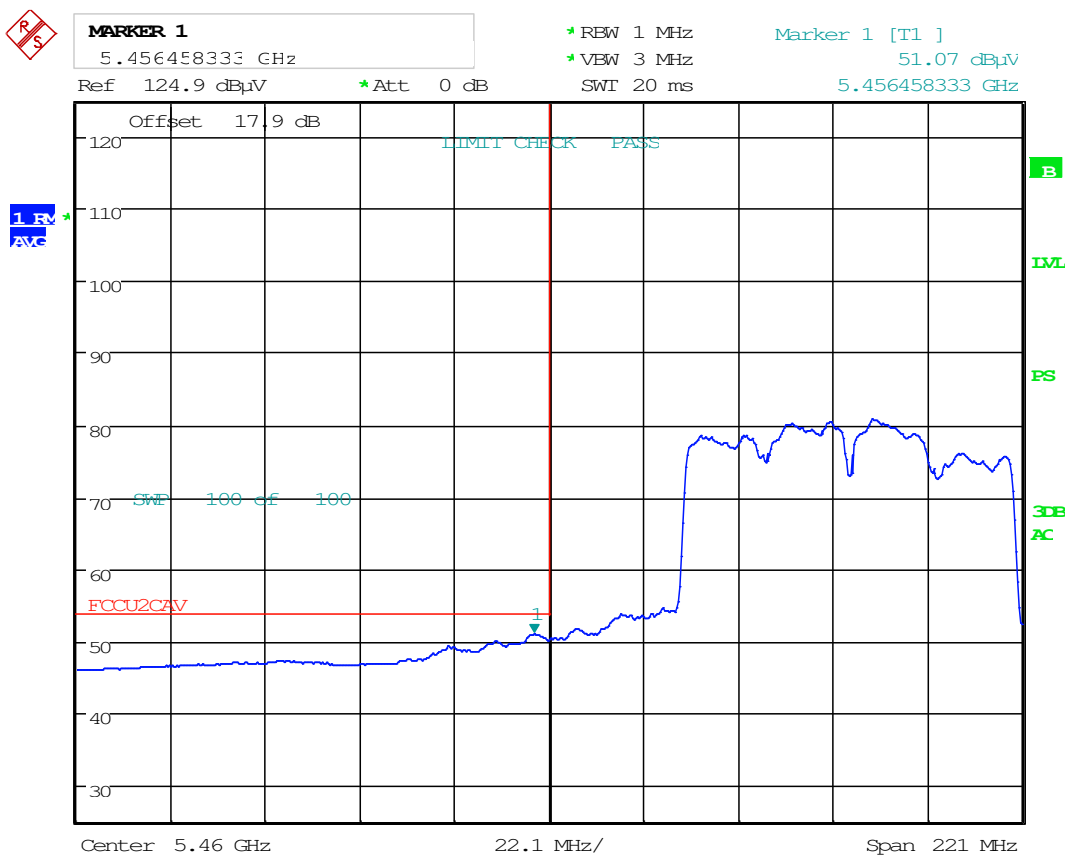
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5530MHz

Channel: 106



Date: 29.DEC.2015 11:58:09

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 229 of 261

MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.467875 GHz

* REW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

64.08 dBμV

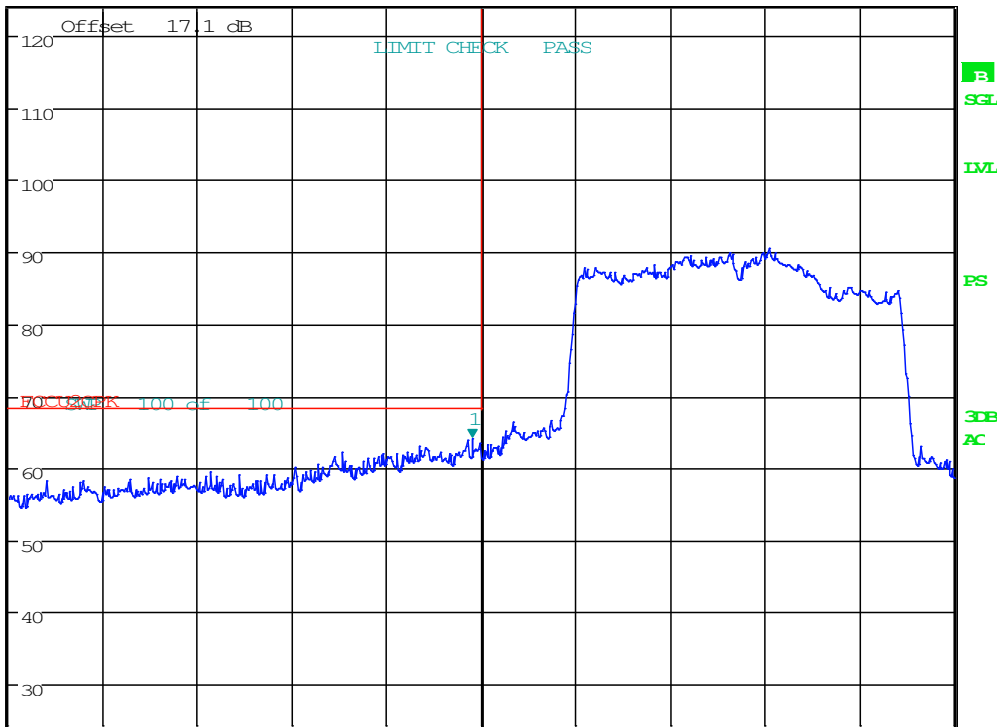
Ref 124.1 dBμV

* Att 0 dB

SWI 20 ms

5.467875000 GHz

PEAK



Center 5.47 GHz

22.1 MHz/

Span 221 MHz

Date: 29.DEC.2015 11:58:52

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 230 of 261

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

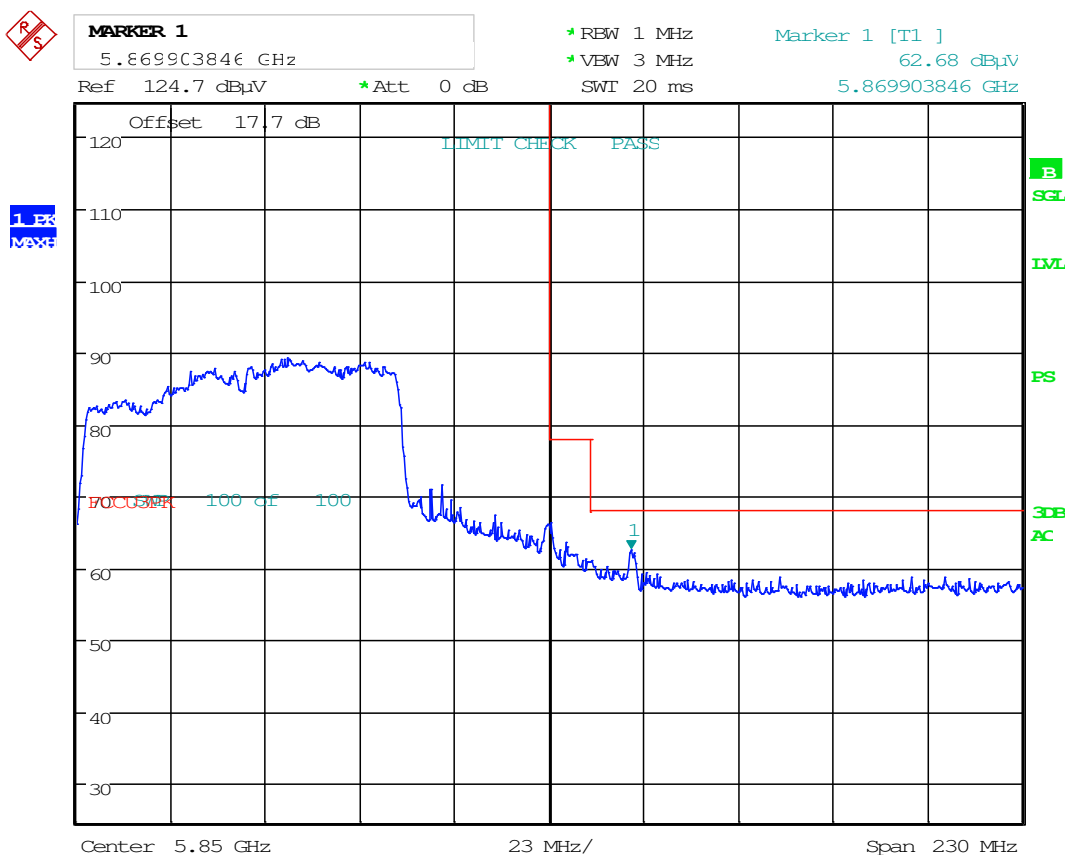
Worst Case Mode: 802.11ac (80MHz)

Worst Case Transfer Rate: MCS0

Distance of Measurements: 3 Meters

Operating Frequency: 5775MHz

Channel: 155



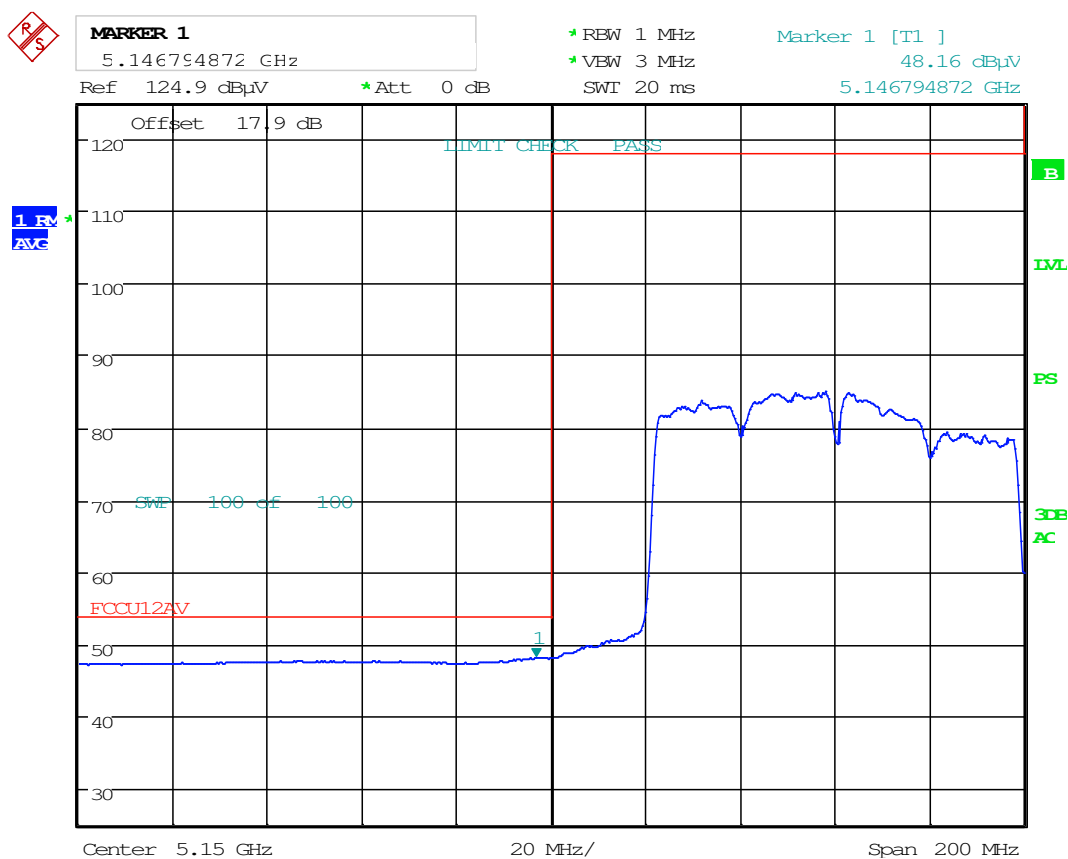
Date: 29.DEC.2015 12:07:21

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 231 of 261

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

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



Date: 8.JAN.2016 20:35:49

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 232 of 261	

MIMO WCP Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.148076923 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

58.67 dBμV

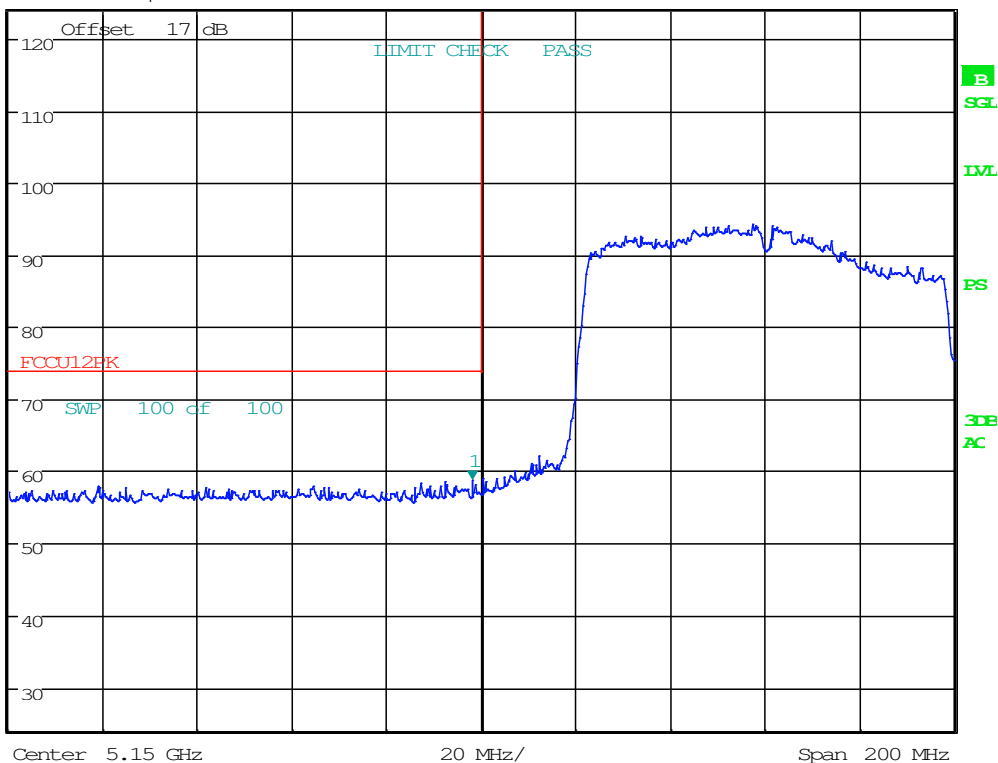
Ref 124 dBμV

* Att 0 dB

SWI 20 ms

5.148076923 GHz

1 PK
MAX



Date: 8.JAN.2016 20:36:31

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 233 of 261

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 [$\mu\text{V/m}$]	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 C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 234 of 261

Test Setup

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

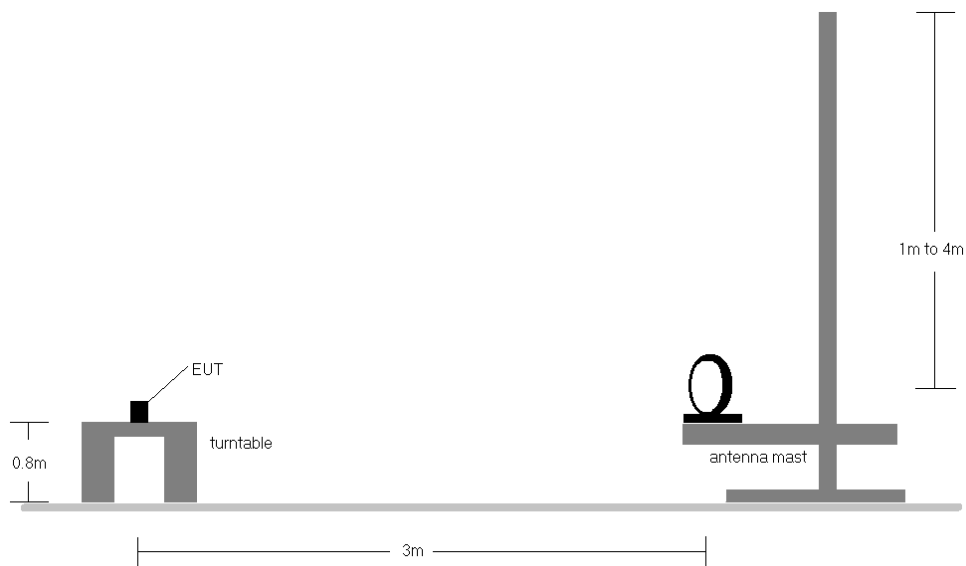


Figure 7-6. Radiated Test Setup < 30MHz

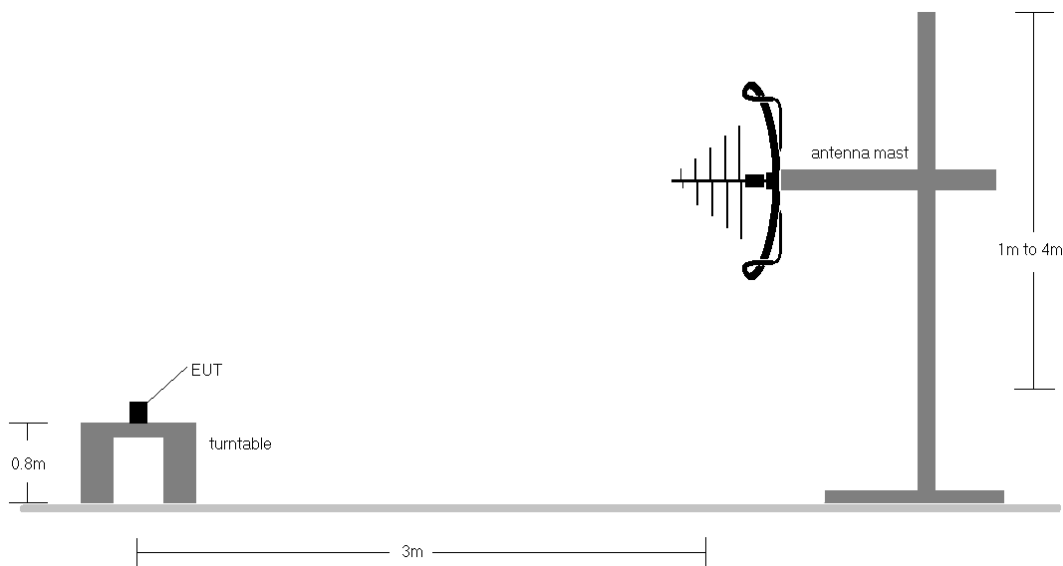


Figure 7-7. Radiated Test Setup < 1GHz

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.

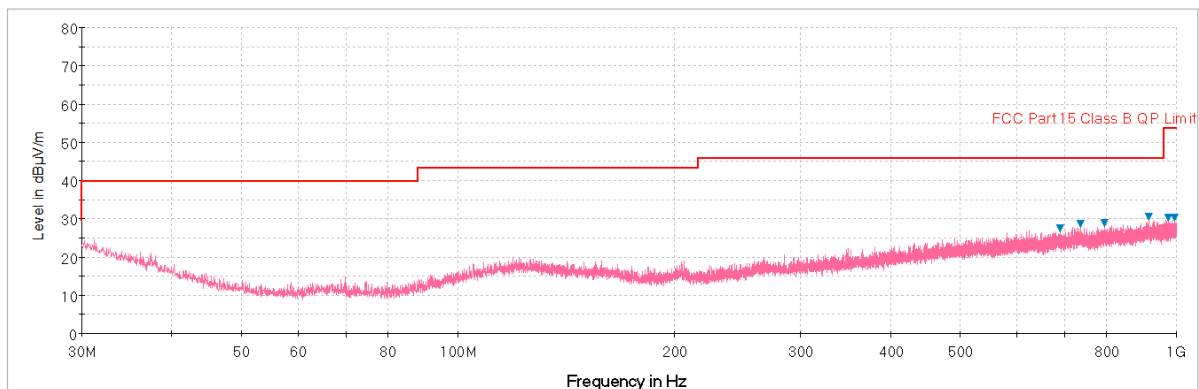
FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 235 of 261

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.

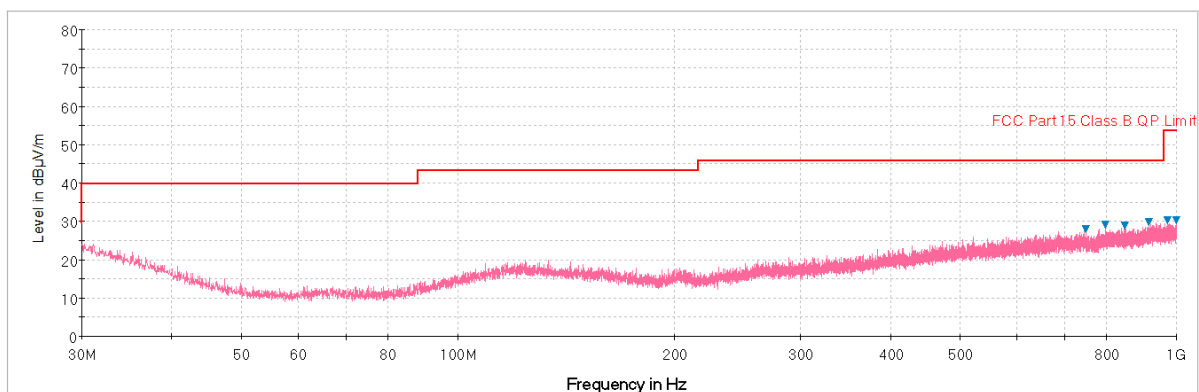
FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 236 of 261

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

§15.209



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

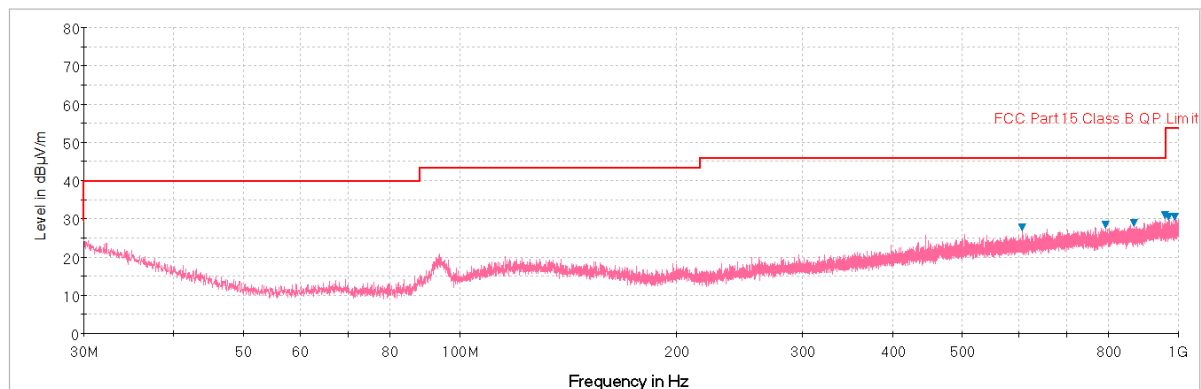


Plot 7-275. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

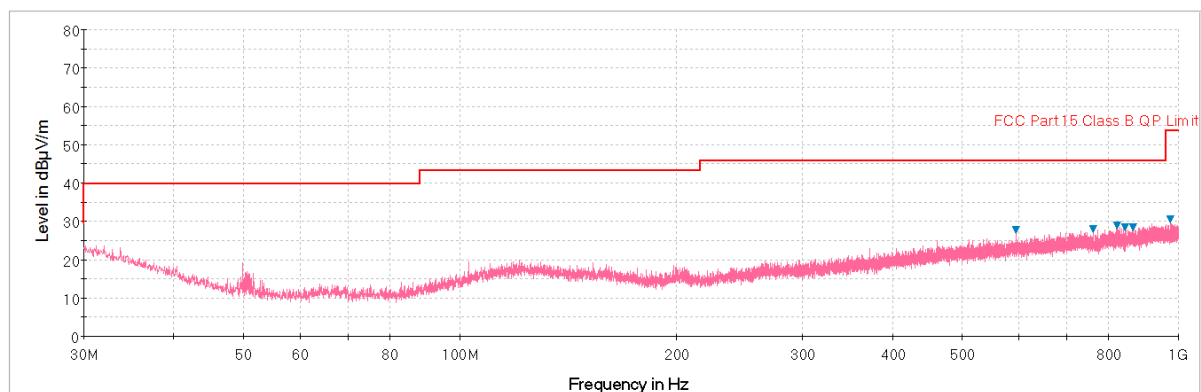
FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 237 of 261

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

§15.209



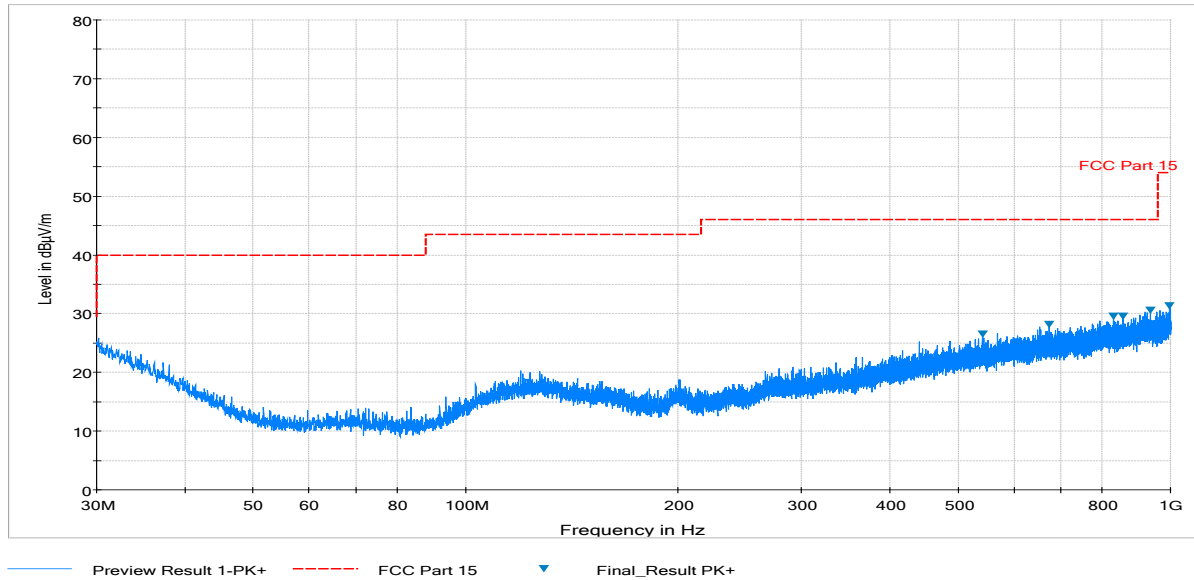
Plot 7-276. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. H)



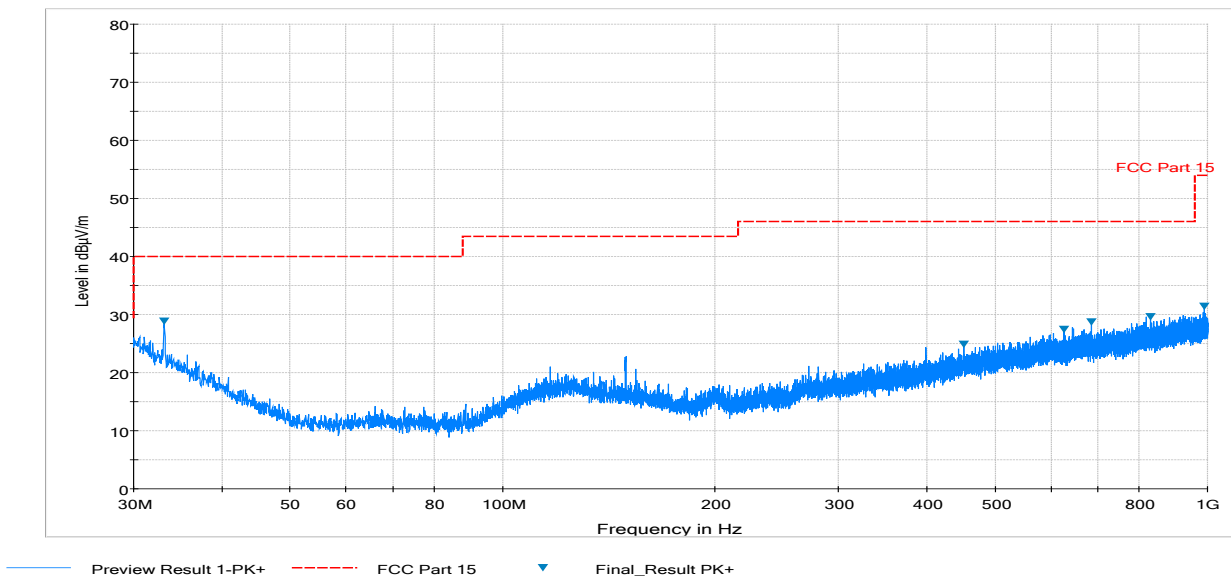
Plot 7-277. Radiated Spurious Plot below 1GHz (802.11a – U3 Ch. 157, Ant. Pol. V)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 238 of 261

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

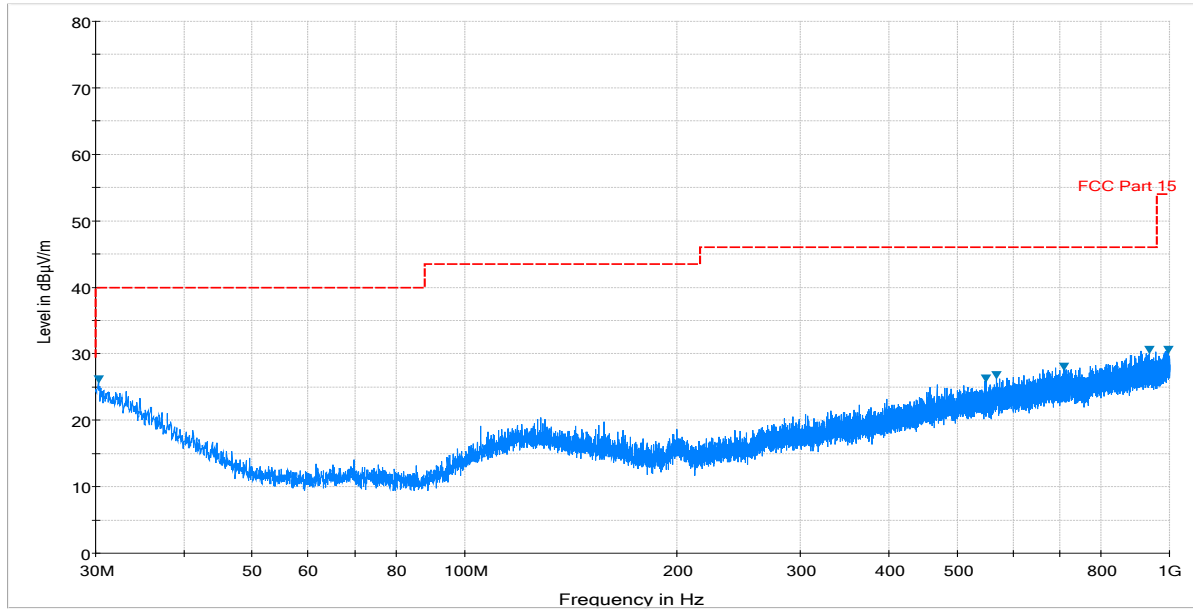


Plot 7-278. Radiated Spurious Plot below 1GHz (2.4GHz – 5GHz, Ant. Pol. H)

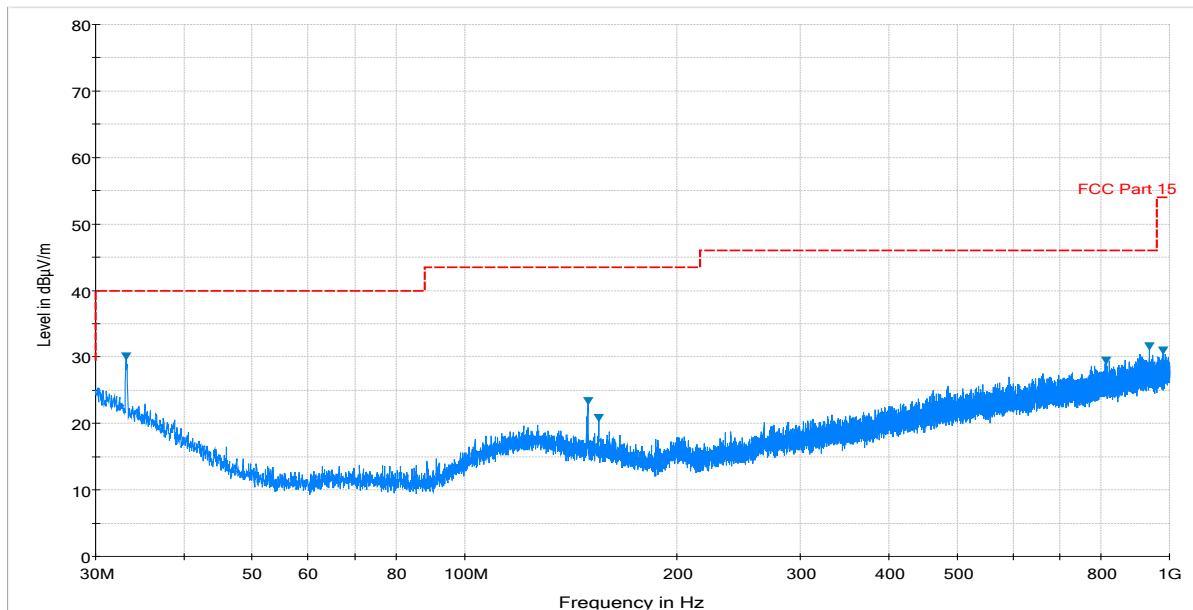


Plot 7-279. Radiated Spurious Plot below 1GHz (2.4GHz – 5GHz, Ant. Pol. V)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 239 of 261



Plot 7-280. Radiated Spurious Plot below 1GHz (5GHz – 2.4 GHz, Ant. Pol. H)



Plot 7-281. Radiated Spurious Plot below 1GHz (5GHz – 2.4 GHz, Ant. Pol. V)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 240 of 261

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 (dB μ V)	
	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: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Test Setup

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

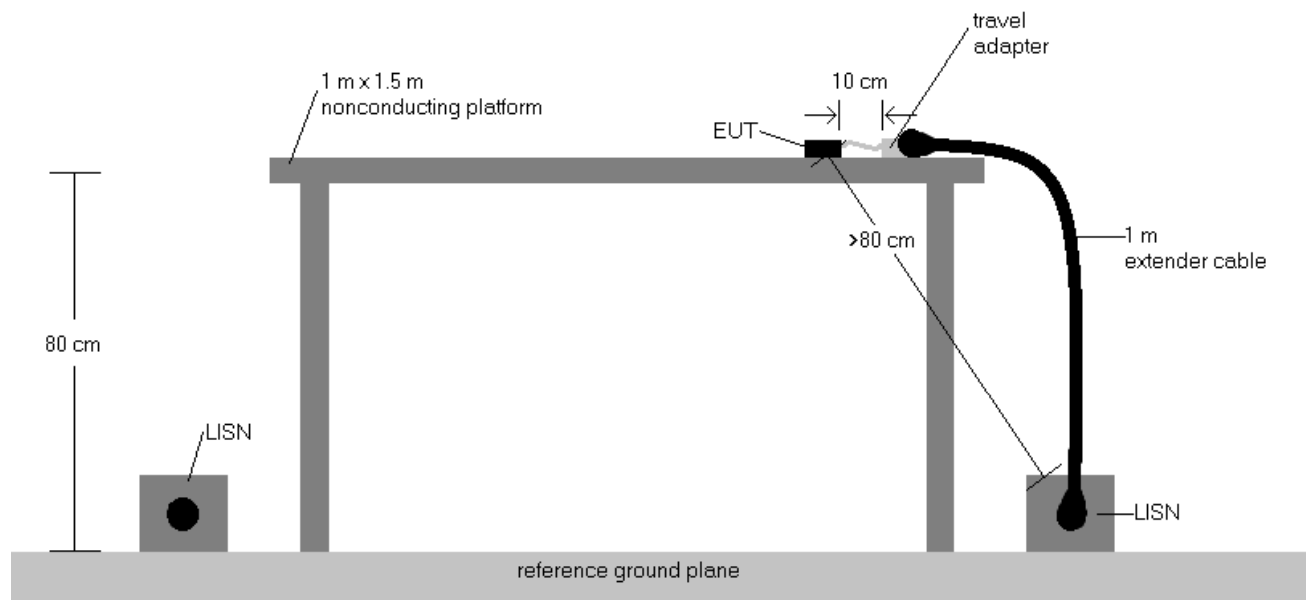


Figure 7-8. Test Instrument & Measurement Setup

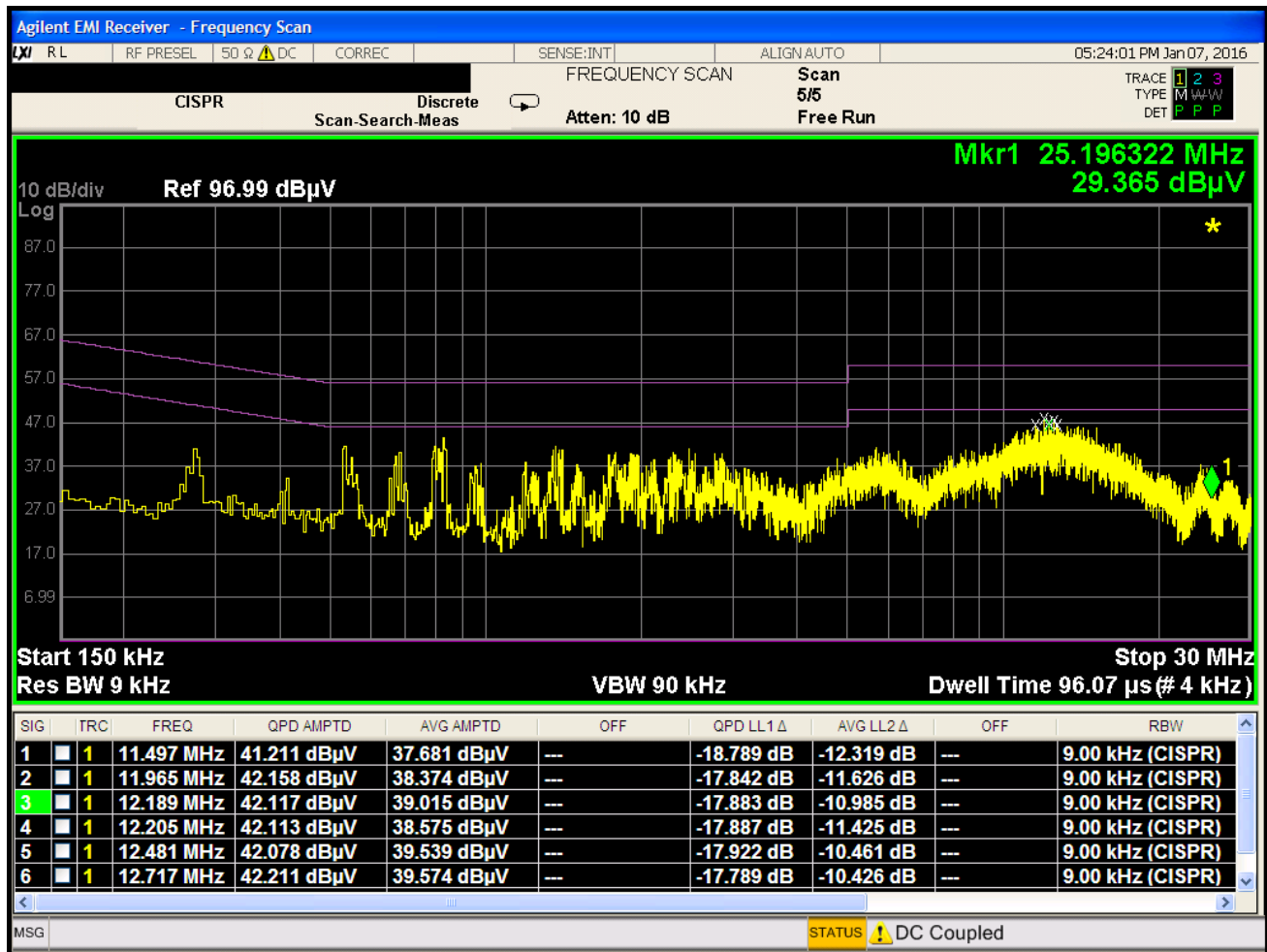
Test Notes

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Line-Conducted Test Data

§15.407

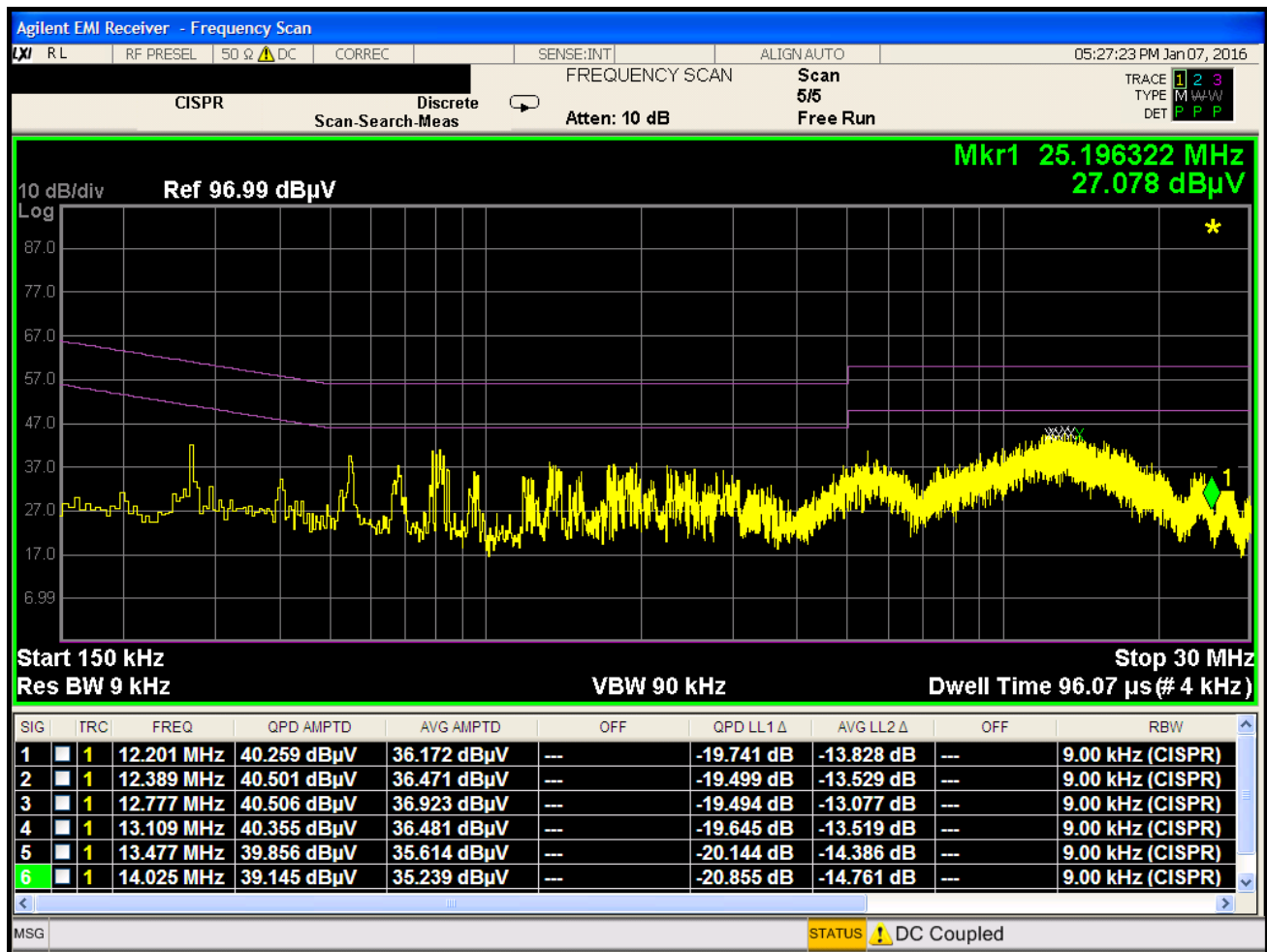


Plot 7-282. Line Conducted Plot with 802.11a UNII Band 1 (L1)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 243 of 261

Line-Conducted Test Data

\$15.407

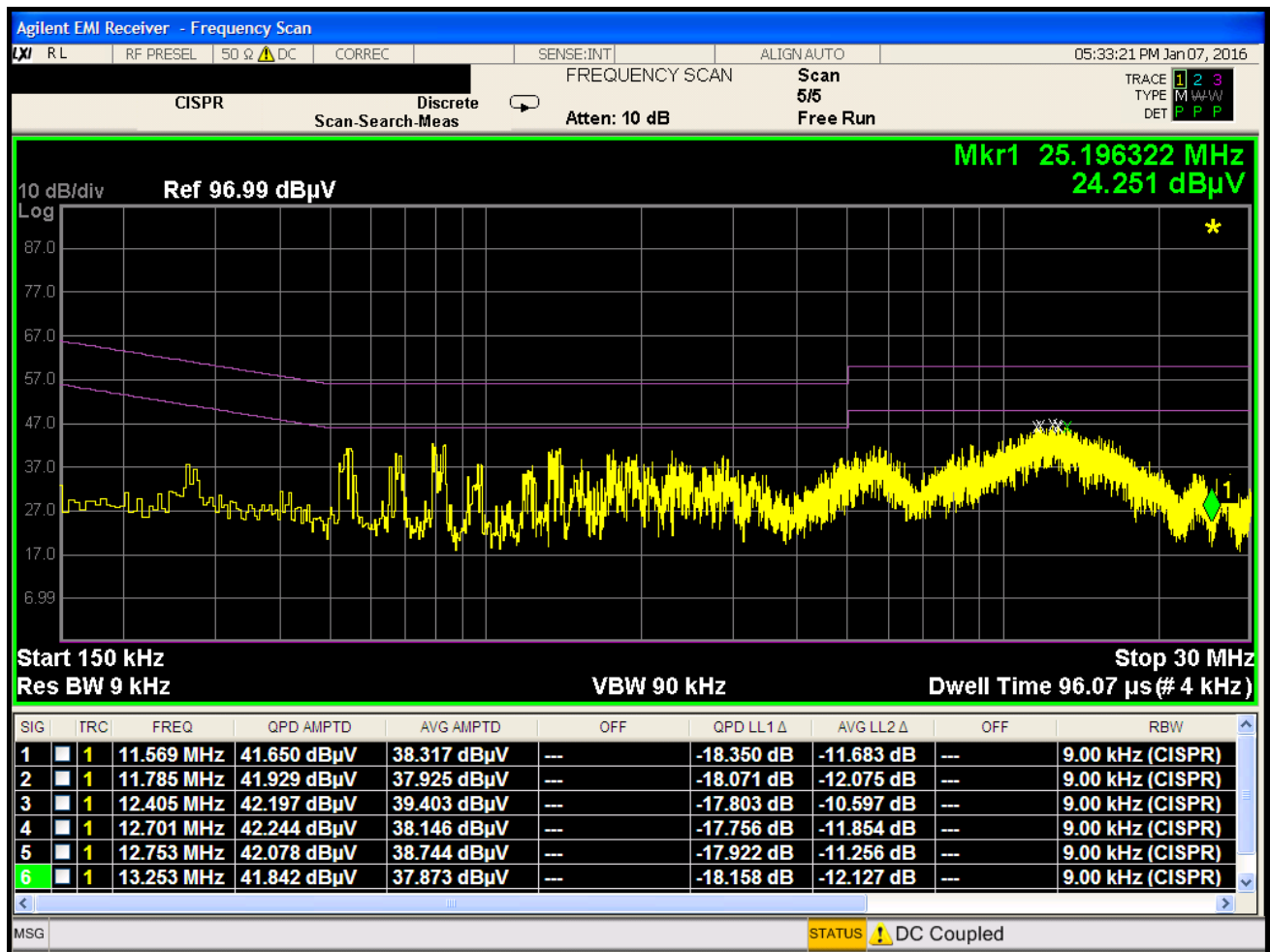


Plot 7-283. Line Conducted Plot with 802.11a UNII Band 1 (N)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 244 of 261

Line-Conducted Test Data

\$15.407

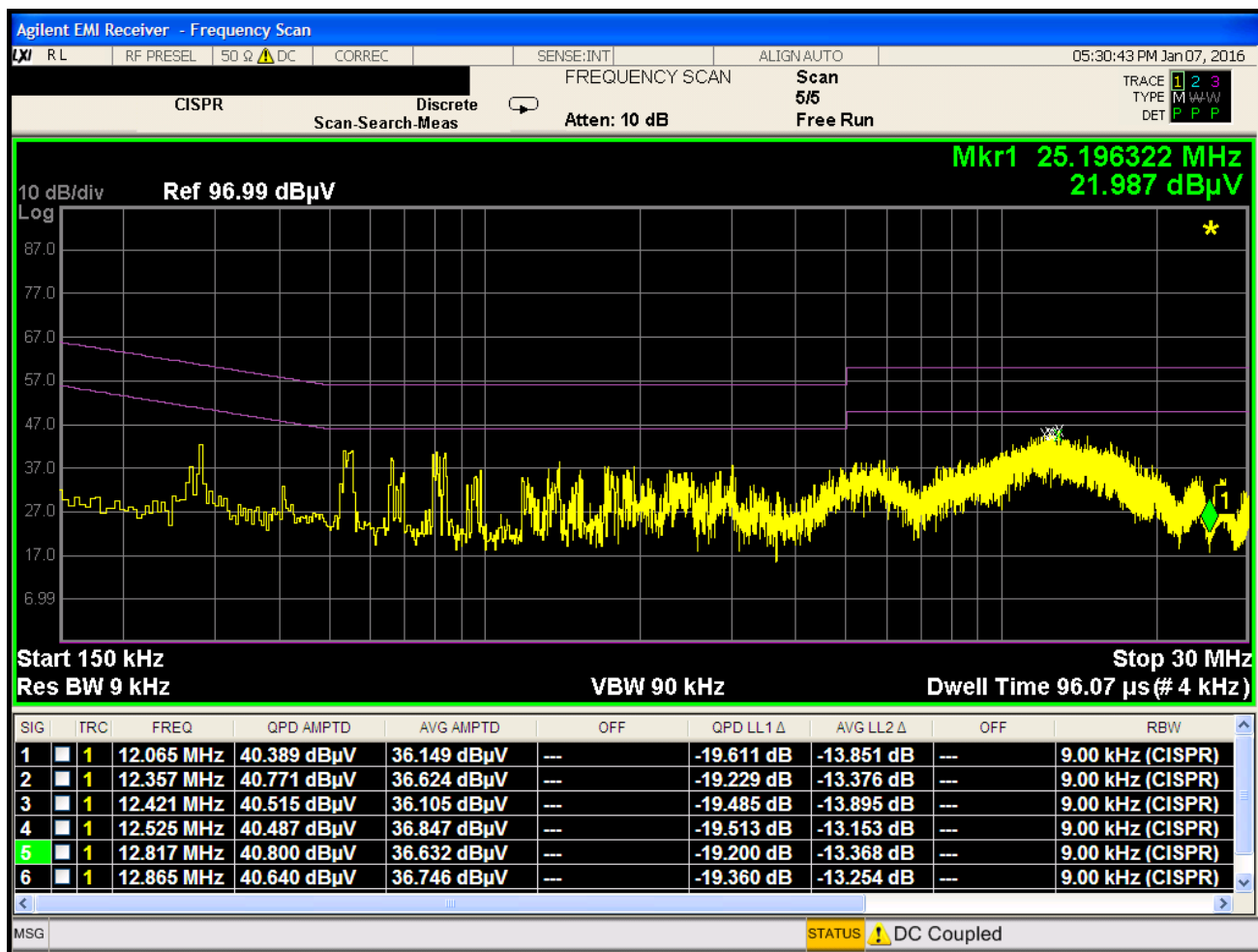


Plot 7-284. Line Conducted Plot with 802.11a UNII Band 2A (L1)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 245 of 261

Line-Conducted Test Data

\$15.407

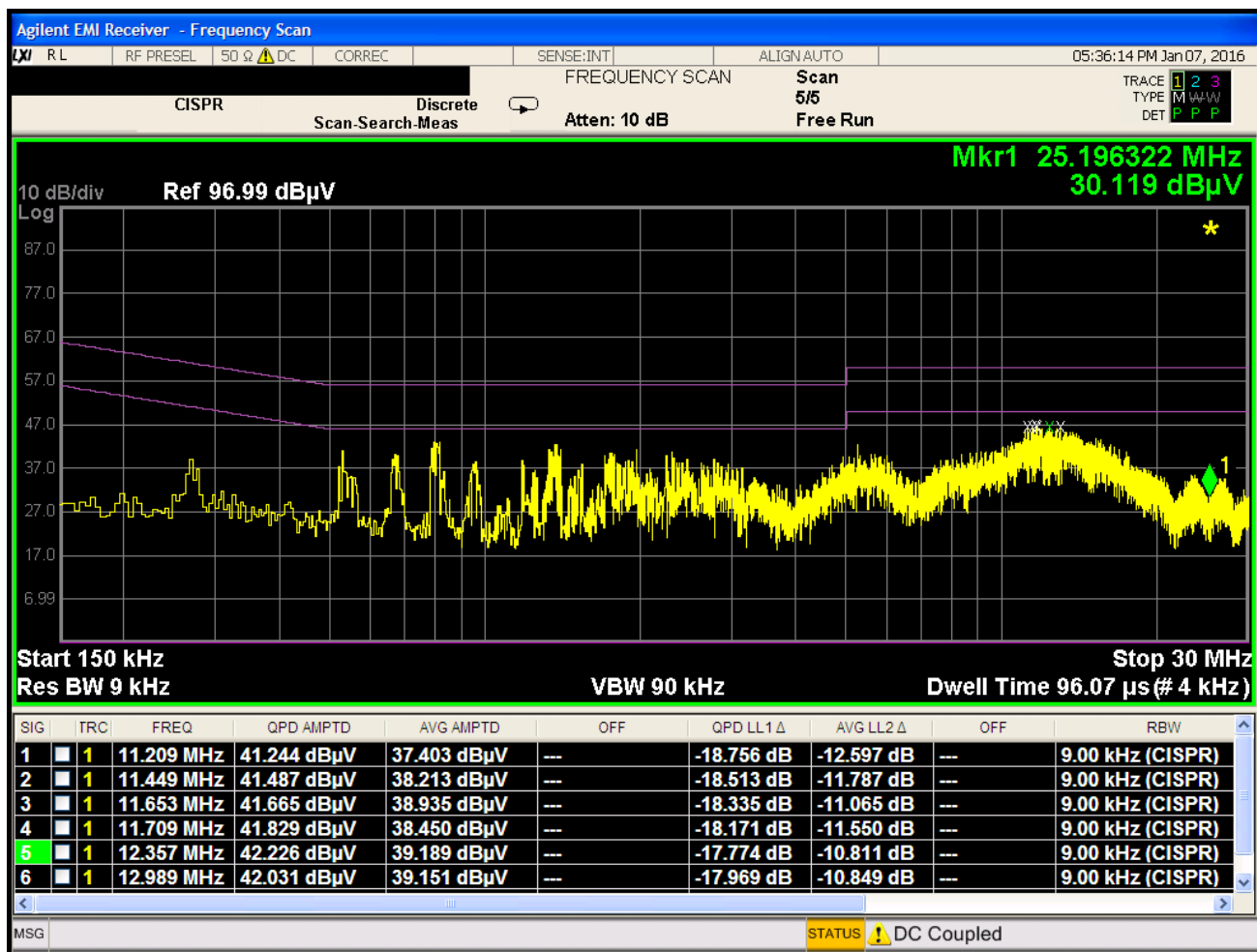


Plot 7-285. Line Conducted Plot with 802.11a UNII Band 2A (N)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 246 of 261

Line-Conducted Test Data

\$15.407

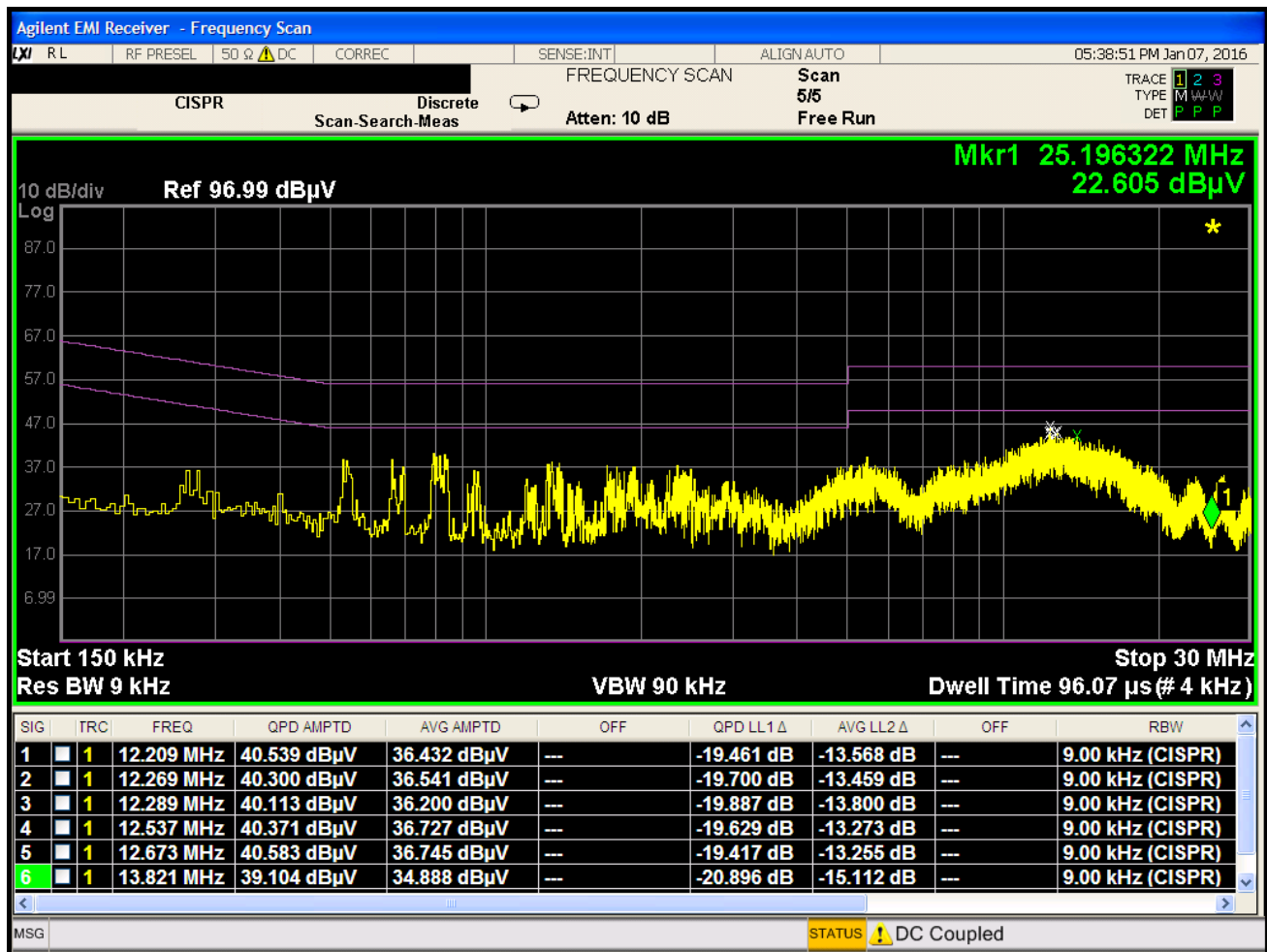


Plot 7-286. Line Conducted Plot with 802.11a UNII Band 2C (L1)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 247 of 261

Line-Conducted Test Data

\$15.407

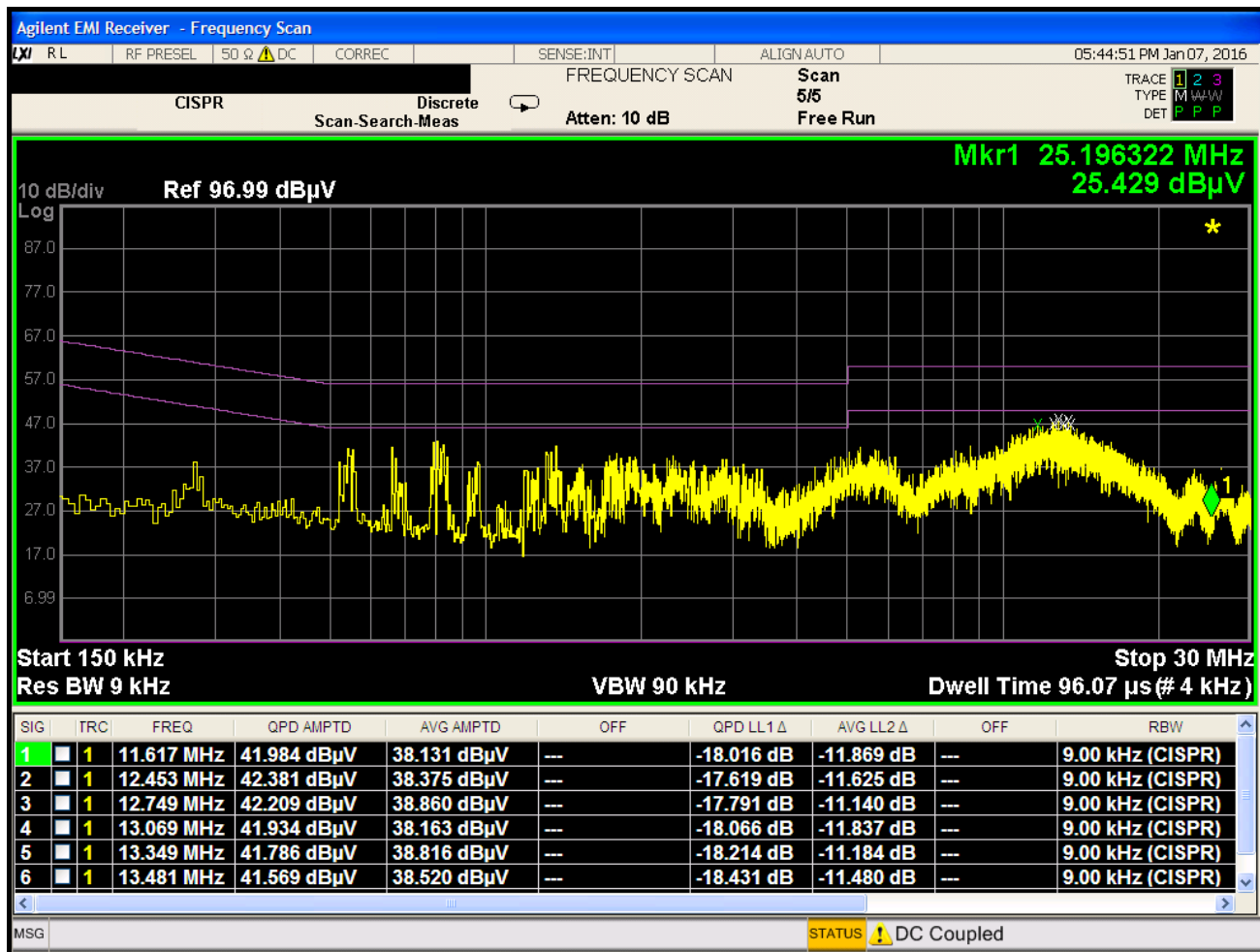


Plot 7-287. Line Conducted Plot with 802.11a UNII Band 2C (N)

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 248 of 261

Line-Conducted Test Data

\$15.407

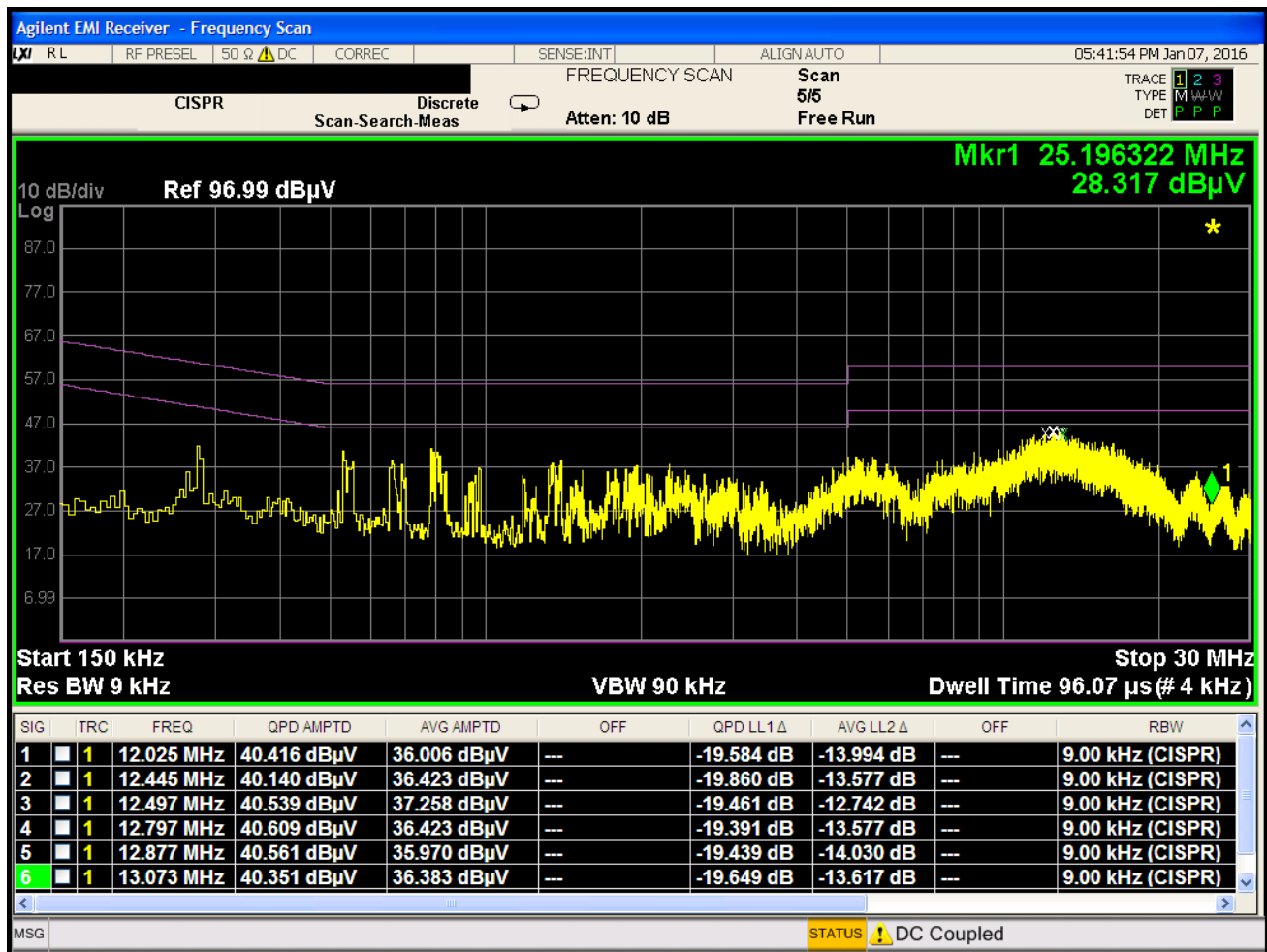


Plot 7-288. Line Conducted Plot with 802.11a UNII Band 3 (L1)

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 249 of 261

Line-Conducted Test Data

\$15.407



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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 250 of 261

8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG930W8** is in compliance with Part 15E of the FCC Rules.

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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APPENDIX A. 802.11A DUAL TX

A.1 Summary

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

Table A.1-1. Summary of Test Results

Notes:

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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A.2 Output Power Measurement

§15.247(b.3)

Test Overview

Using the “Measure and Sum” technique, the measured conducted power values were summed in linear power units then converted back to dBm.

Freq [MHz]	Channel	Detector	5GHz (20MHz) Conducted Power [dBm]		
			IEEE Transmission Mode 802.11a		
			ANT1	ANT2	MIMO
5180	36	AVG	11.94	12.16	15.06
5200	40	AVG	12.62	13.09	15.87
5220	44	AVG	13.15	13.15	16.16
5240	48	AVG	12.96	13.13	16.06
5260	52	AVG	12.88	13.22	16.06
5280	56	AVG	12.81	13.11	15.97
5300	60	AVG	13.03	13.14	16.10
5320	64	AVG	11.94	12.33	15.15
5500	100	AVG	11.93	12.29	15.12
5560	112	AVG	12.86	13.12	16.00
5580	116	AVG	12.65	13.15	15.92
5600	120	AVG	12.66	13.00	15.84
5620	124	AVG	12.73	13.20	15.98
5640	128	AVG	12.43	13.03	15.75
5660	132	AVG	12.49	13.09	15.81
5700	140	AVG	11.41	12.24	14.86
5720	144	AVG	12.38	13.01	15.72
5745	149	AVG	12.40	12.98	15.71
5785	157	AVG	12.33	12.95	15.66
5825	165	AVG	12.31	12.94	15.65

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 253 of 261

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]	Antenn-1 Power Density	Antenn-2 Power Density	Summed MIMO Power	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	a	6	6.82	6.32	9.59	11.0	-1.41	Pass
	5200	40	a	6	7.27	6.10	9.73	11.0	-1.27	Pass
	5240	48	a	6	7.27	6.12	9.74	11.0	-1.26	Pass
Band 2A	5260	52	a	6	7.42	6.06	9.80	11.0	-1.20	Pass
	5280	56	a	6	7.44	6.21	9.88	11.0	-1.12	Pass
	5320	64	a	6	8.04	6.28	10.26	11.0	-0.74	Pass
Band 2C	5500	100	a	6	7.97	6.52	10.32	11.0	-0.68	Pass
	5600	120	a	6	7.70	6.49	10.15	11.0	-0.85	Pass
	5720	144	a	6	7.31	6.55	9.96	11.0	-1.04	Pass
Band 3	5745	149	n	6.5/7.2	4.62	3.53	7.12	30.0	-22.88	Pass
	5785	157	n	6.5/7.2	4.79	3.46	7.19	30.0	-22.81	Pass
	5825	165	n	6.5/7.2	4.69	3.84	7.30	30.0	-22.70	Pass

Table A3-1.802.11a Dual Tx Conducted Power Density Measurements

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 254 of 261

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.

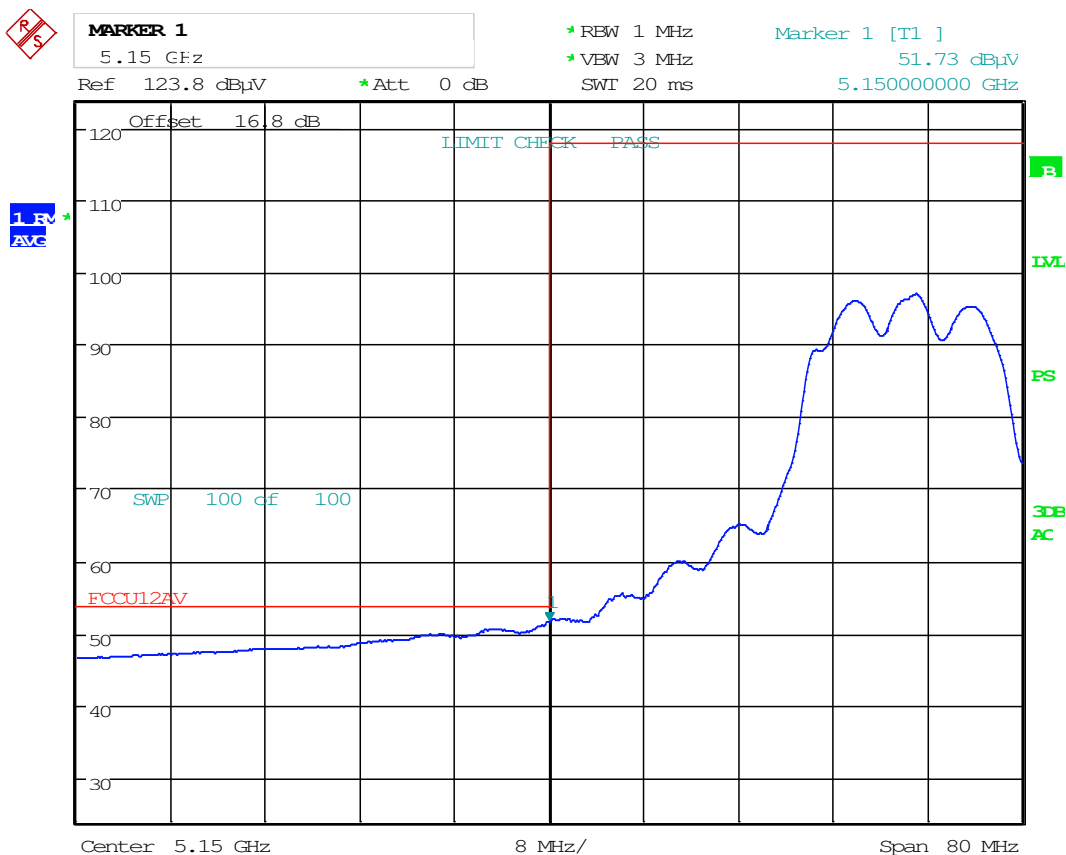
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz

Channel: 36



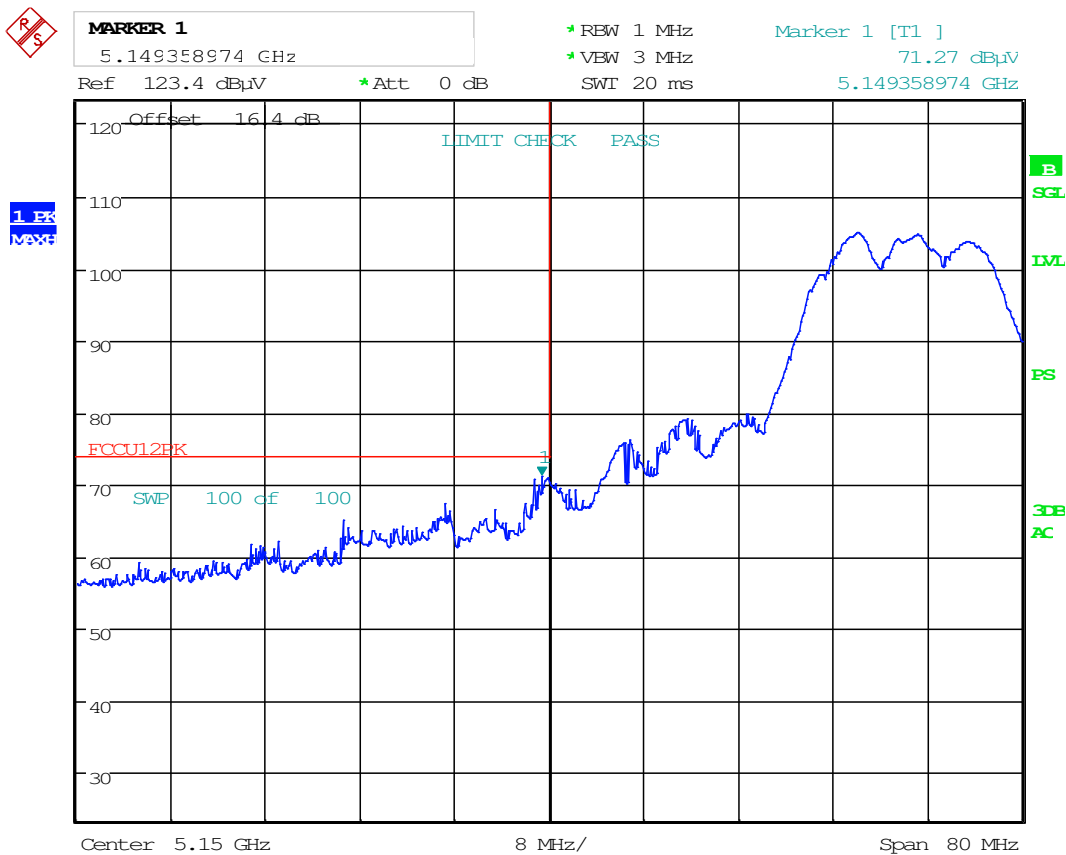
Date: 30.DEC.2015 11:31:10

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 255 of 261

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209



Date: 30.DEC.2015 11:31:48

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 256 of 261

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

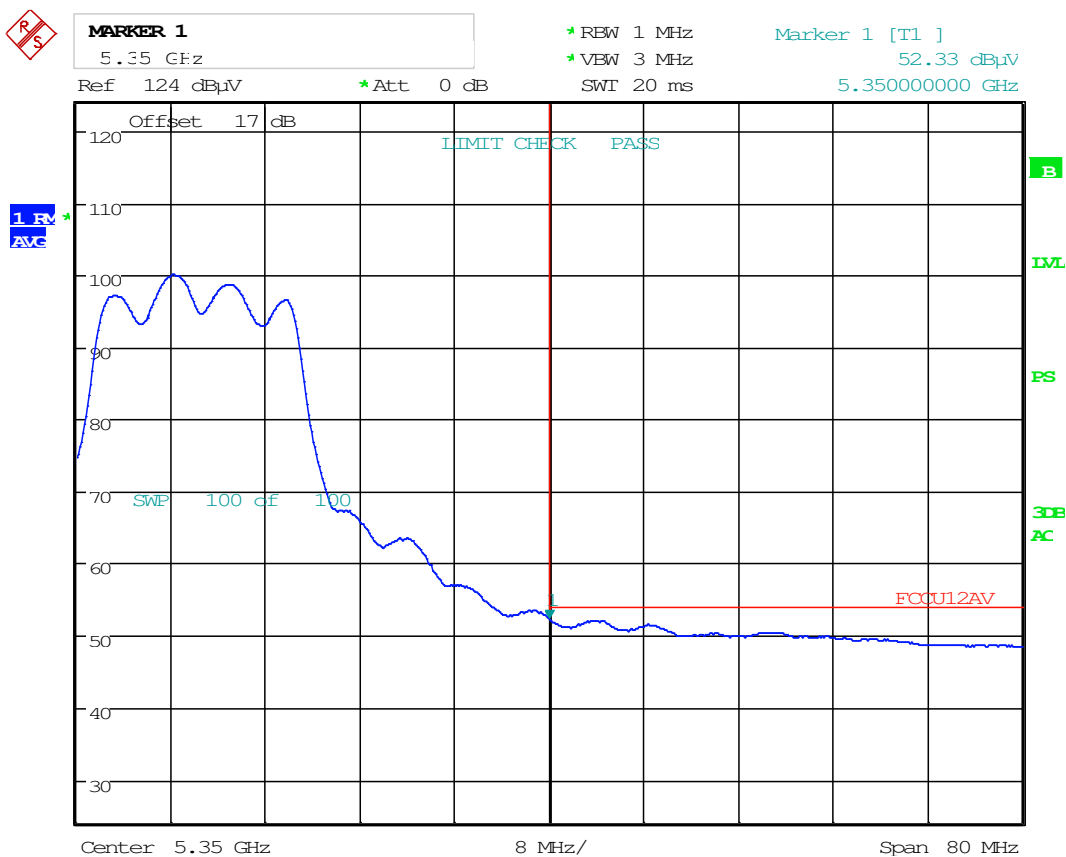
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz

Channel: 64



Date: 30.DEC.2015 11:38:51

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 257 of 261

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.358333333 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

67.88 dBμV

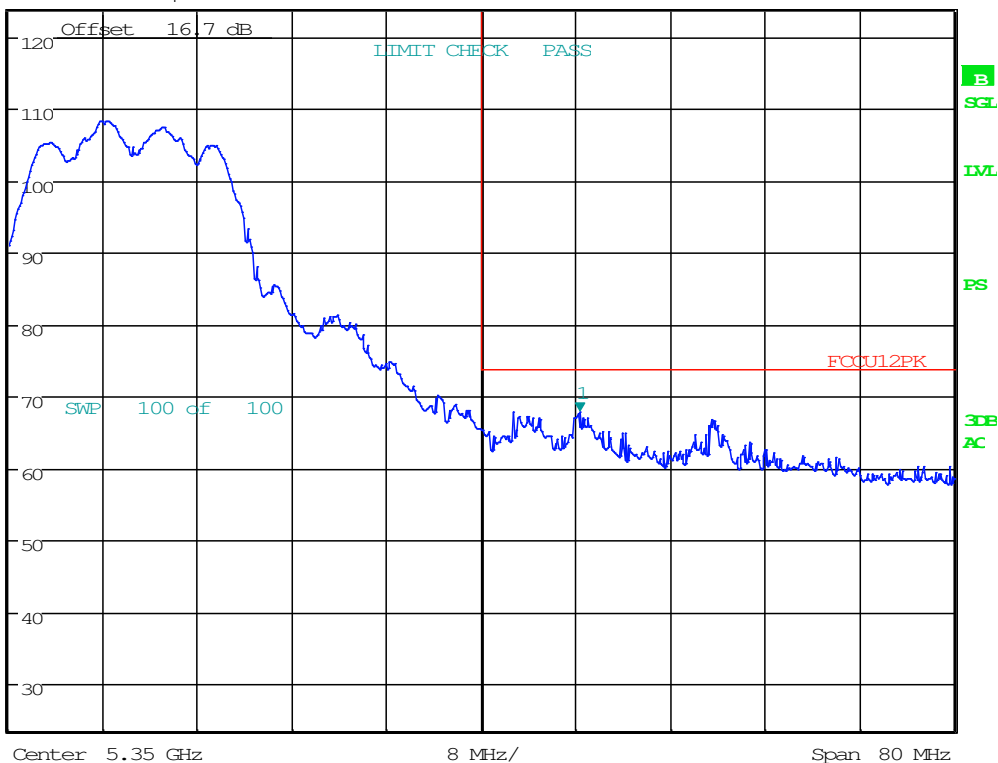
Ref 123.7 dBμV

* Att 0 dB

SWI 20 ms

5.358333333 GHz

1 PK
MAX



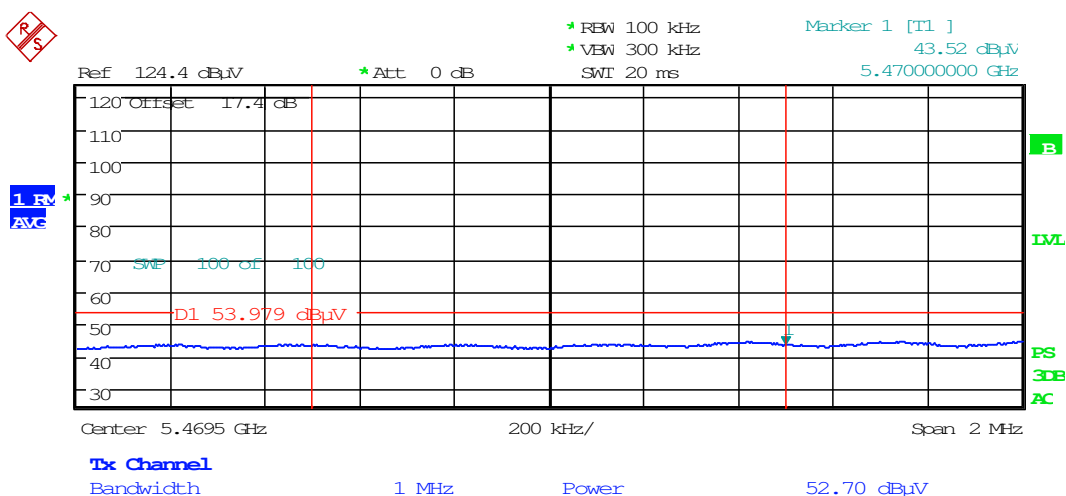
Date: 30.DEC.2015 11:39:49

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 258 of 261

Dual Tx Radiated Restricted Band Edge Measurements

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



Date: 30.DEC.2015 11:50:37

Plot A.4-5. 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: A3LSMG930W8	  		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset	Page 259 of 261

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209



MARKER 1

5.469519231 GHz

* RBW 1 MHz

Marker 1 [T1]

* VBW 3 MHz

72.22 dBμV

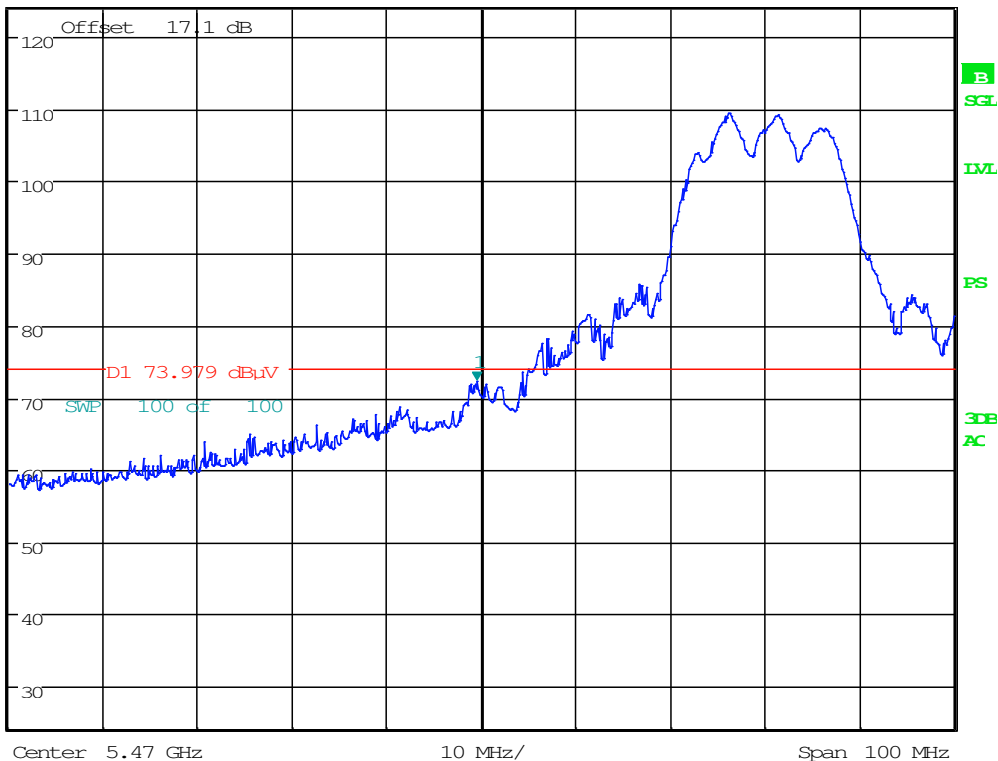
Ref 124.1 dBμV

* Att 0 dB

SWI 20 ms

5.469519231 GHz

1 PK
MAX



Date: 30.DEC.2015 11:51:41

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

FCC ID: A3LSMG930W8		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 260 of 261

Dual Tx Radiated Restricted Band Edge Measurements

§15.407(b.1)(b.2) §15.205 §15.209

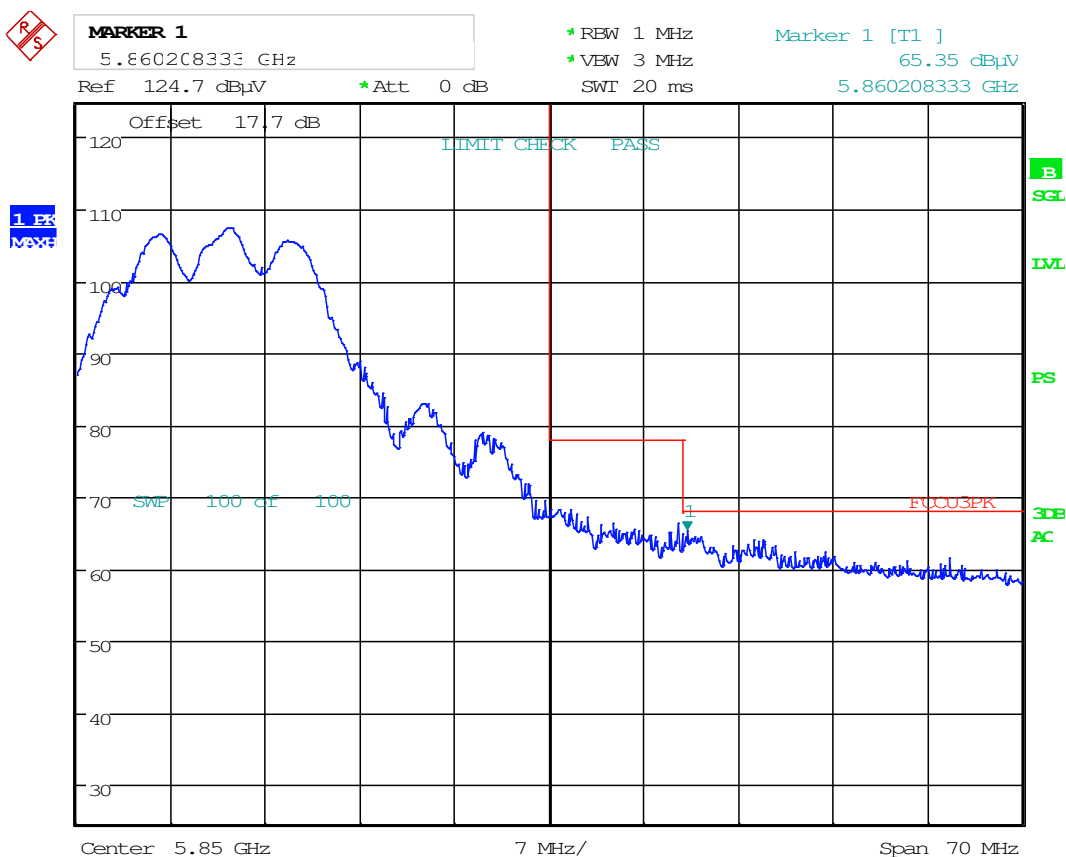
Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5825MHz

Channel: 165



Date: 30.DEC.2015 12:02:14

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

FCC ID: A3LSMG930W8	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512232221.A3L	Test Dates: 12/22/2015-1/11/2016, 1/15/2016	EUT Type: Portable Handset		Page 261 of 261