

## 6.7 Radiated Spurious Emission Measurements

§15.407(b.1)(b.6) §15.205 §15.209

### Test Overview and Limit

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

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

Frequency	Field Strength [ $\mu\text{V/m}$ ]	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 6-26. Radiated Limits**



### Test Procedures Used

KDB 789033 v01r04 – Section H

### Test Settings

#### Average Measurements above 1GHz (Method AD)

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

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**Peak Measurements above 1GHz**

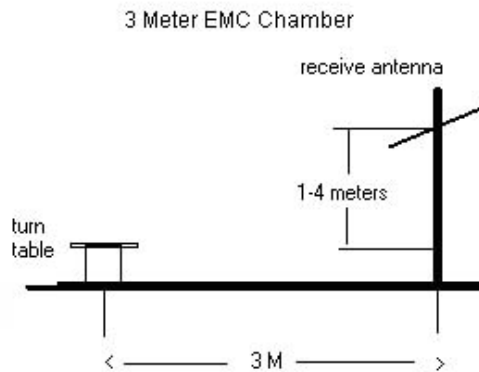
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

**Peak Measurements below 1GHz**



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

**Test Setup**

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



**Figure 6-5. Test Instrument & Measurement Setup**

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## Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 v01r04 Section H.
2. All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 are below the limit shown in Table 6-26.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-11. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB $\mu$ V/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 68.2dB $\mu$ V/m.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. The battery used with this device for testing (Model: EB-BN916BBC) contains an embedded NFC antenna.
6. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.



## Sample Calculations

### Determining Spurious Emissions Levels

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

### 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:  
Offset (dB) = (Antenna Factor + Cable Loss + 10 dB Attenuator + DCCF) – Preamplifier Gain
- $\text{DCCF} = 20 \log (1/x)$ , where x is the duty cycle

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## Antenna-1 Radiated Spurious Emission Measurements

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



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

**Table 6-27. Radiated Measurements**

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

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

**Table 6-28. Radiated Measurements**

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

**Table 6-29. Radiated Measurements**

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

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

**Table 6-30. Radiated Measurements**

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



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

**Table 6-31. Radiated Measurements**

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

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

**Table 6-32. Radiated Measurements**

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

**Table 6-33. Radiated Measurements**

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



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

**Table 6-34. Radiated Measurements**

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

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

**Table 6-35. Radiated Measurements**

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## Antenna-2 Radiated Spurious Emission Measurements

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



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

**Table 6-36. Radiated Measurements**

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

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

**Table 6-37. Radiated Measurements**

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

**Table 6-38. Radiated Measurements**

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

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

**Table 6-39. Radiated Measurements**

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



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

**Table 6-40. Radiated Measurements**

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

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

**Table 6-41. Radiated Measurements**

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

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

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

**Table 6-42. Radiated Measurements**

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



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

**Table 6-43. Radiated Measurements**

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

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

**Table 6-44. Radiated Measurements**

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

## MIMO Radiated Spurious Emission Measurements

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



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

**Table 6-45. Radiated Measurements**

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

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

**Table 6-46. Radiated Measurements**

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

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

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

**Table 6-47. Radiated Measurements**

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

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

**Table 6-48. Radiated Measurements**

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



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

**Table 6-49. Radiated Measurements**

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

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

**Table 6-50. Radiated Measurements**

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

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



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

**Table 6-51. Radiated Measurements**

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

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



**Table 6-52. Radiated Measurements**

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

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

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

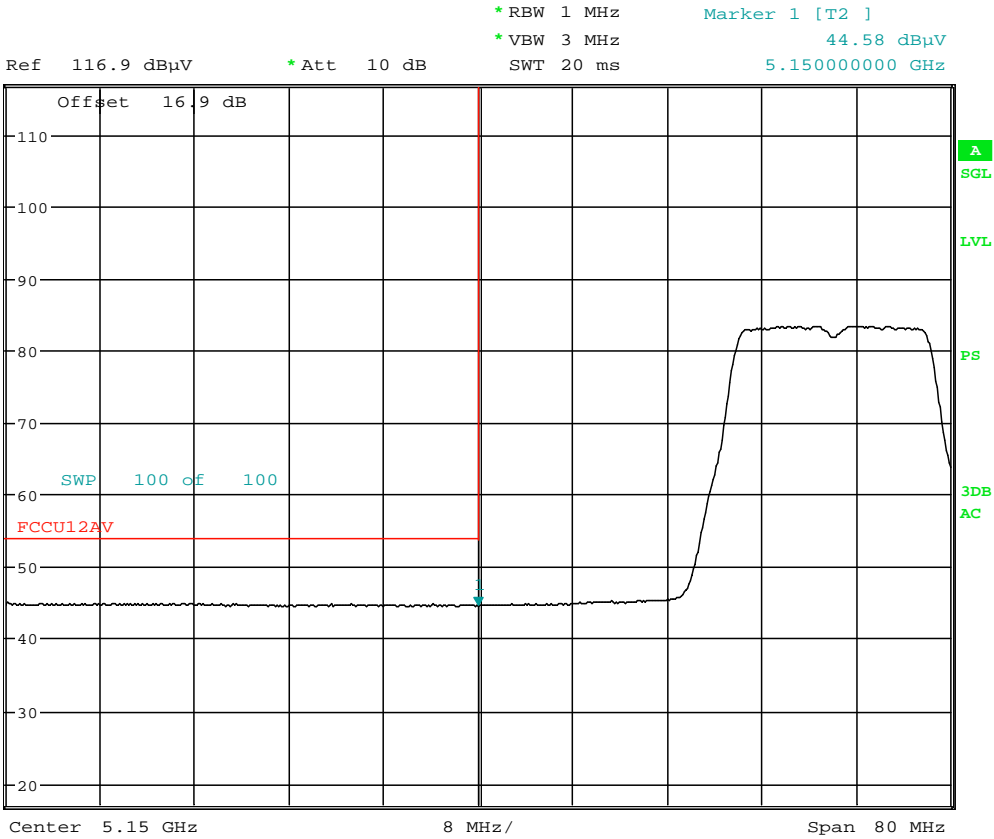
**Table 6-53. Radiated Measurements**

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

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

§15.407(b.1)(b.2) §15.205 §15.209

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

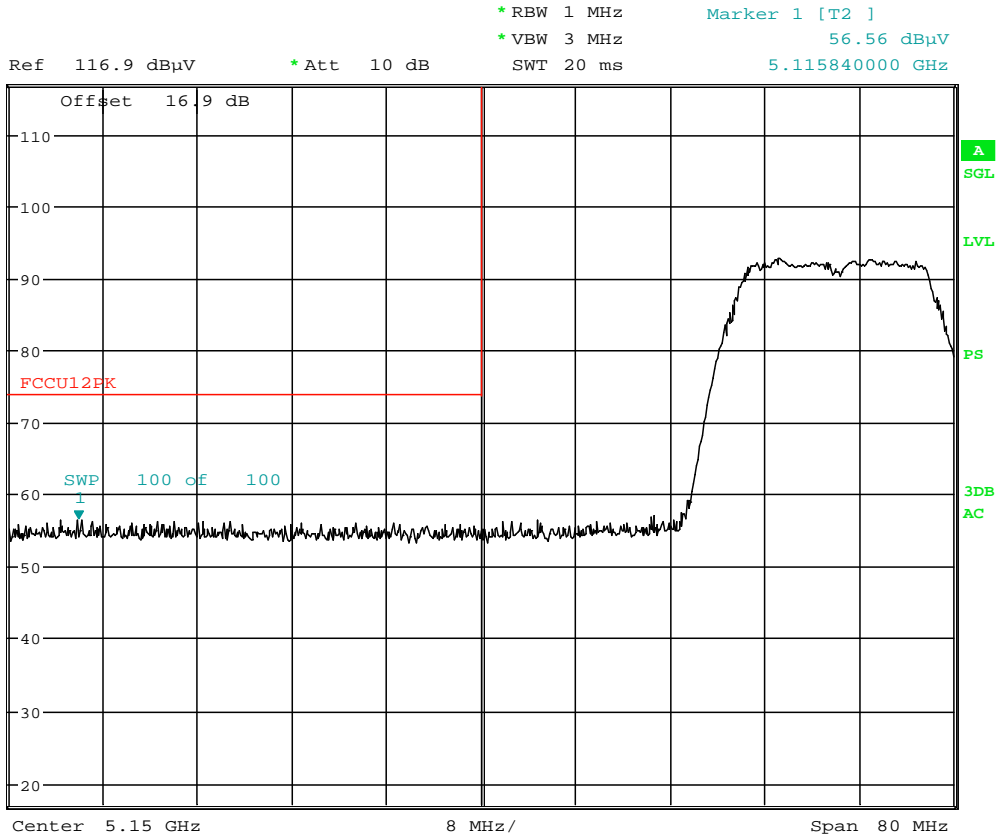


Date: 13.AUG.2014 00:32:52

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

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

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



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

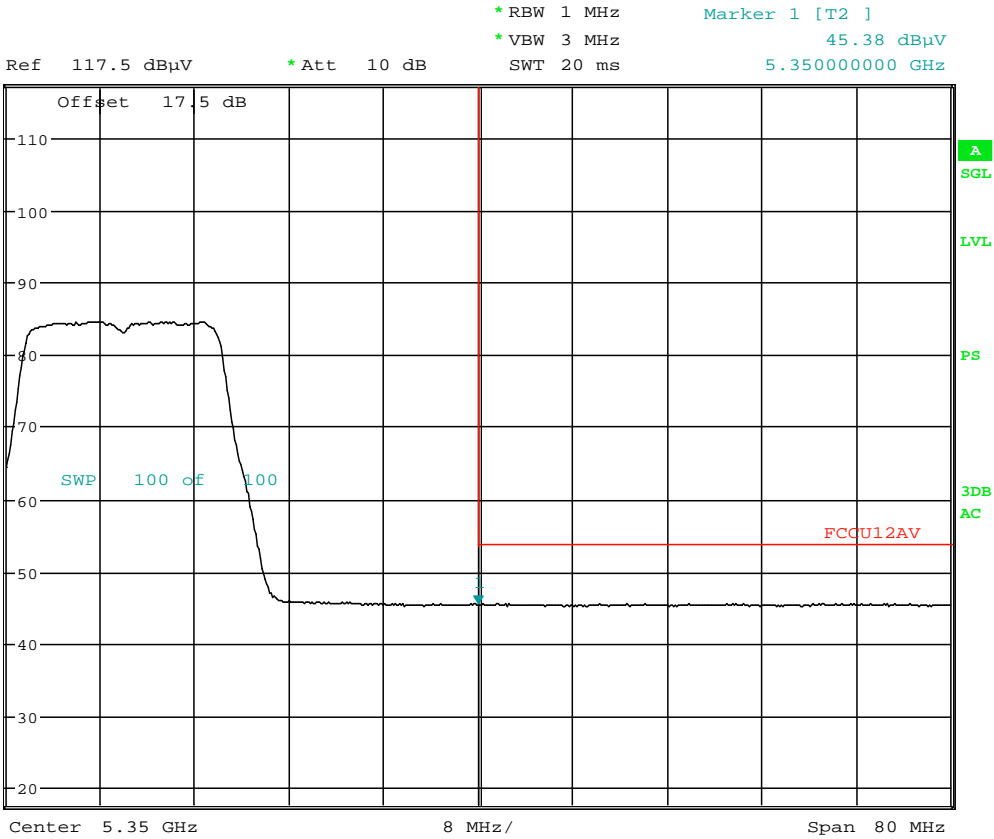
**Plot 6-131. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

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

# Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

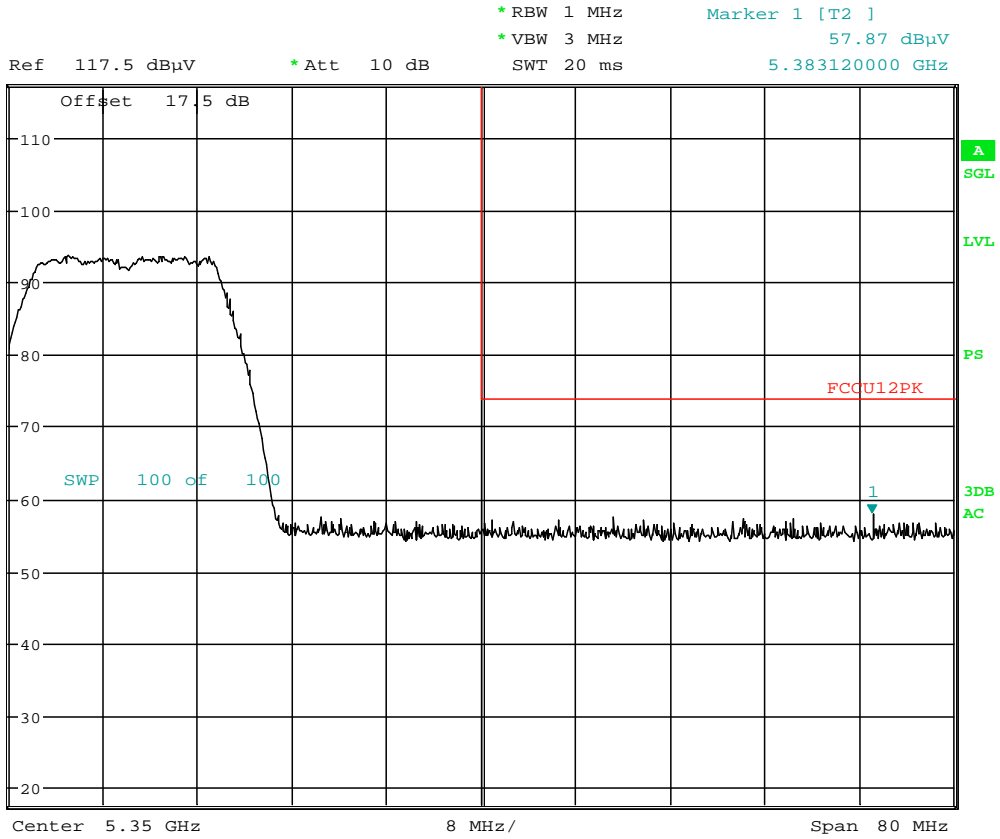


Date: 13.AUG.2014 00:52:40

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

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

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



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

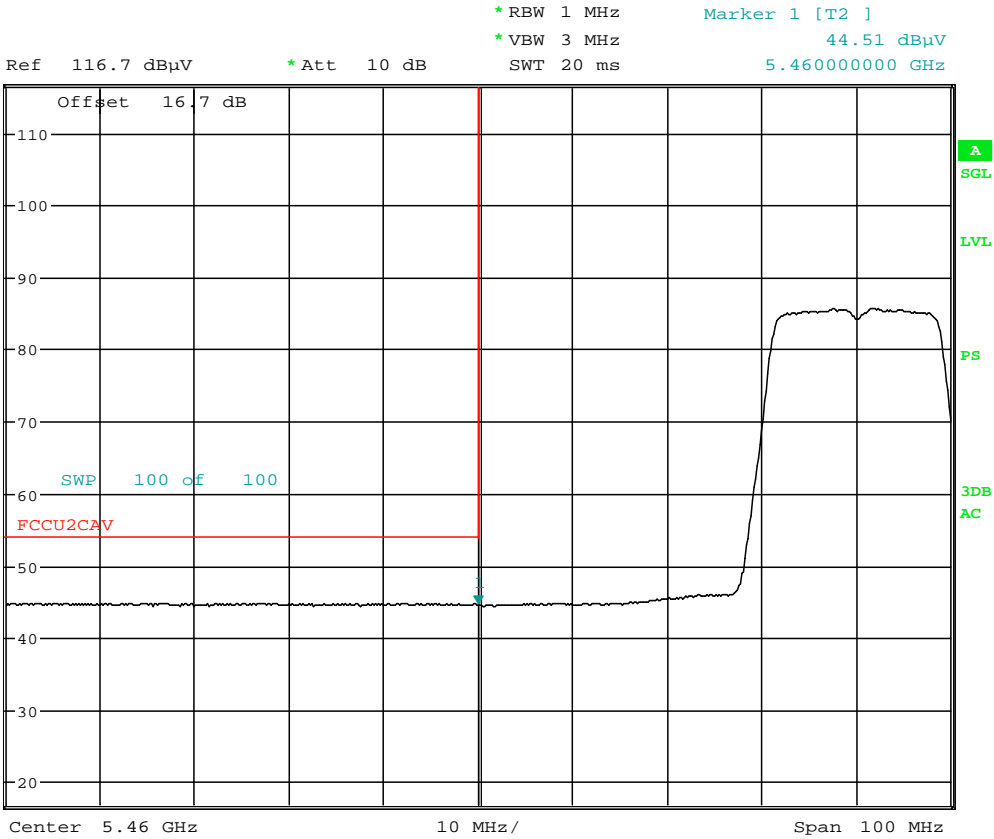
**Plot 6-133. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

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

# Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

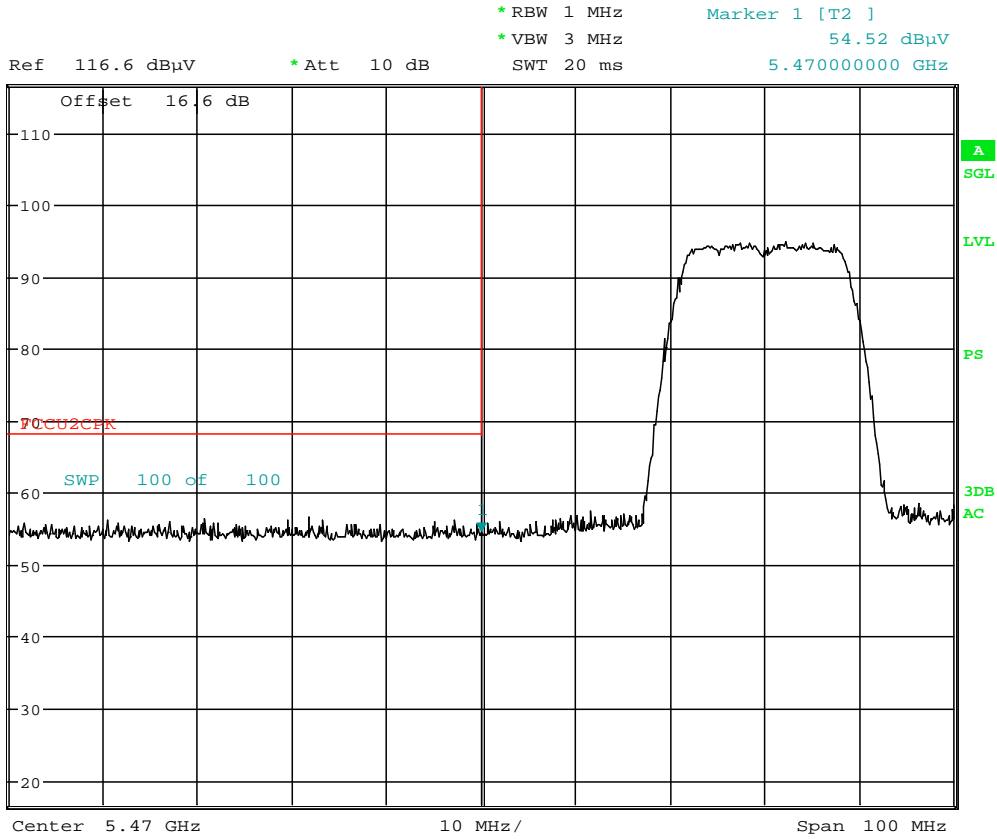


Date: 13.AUG.2014 01:08:18

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

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

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



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

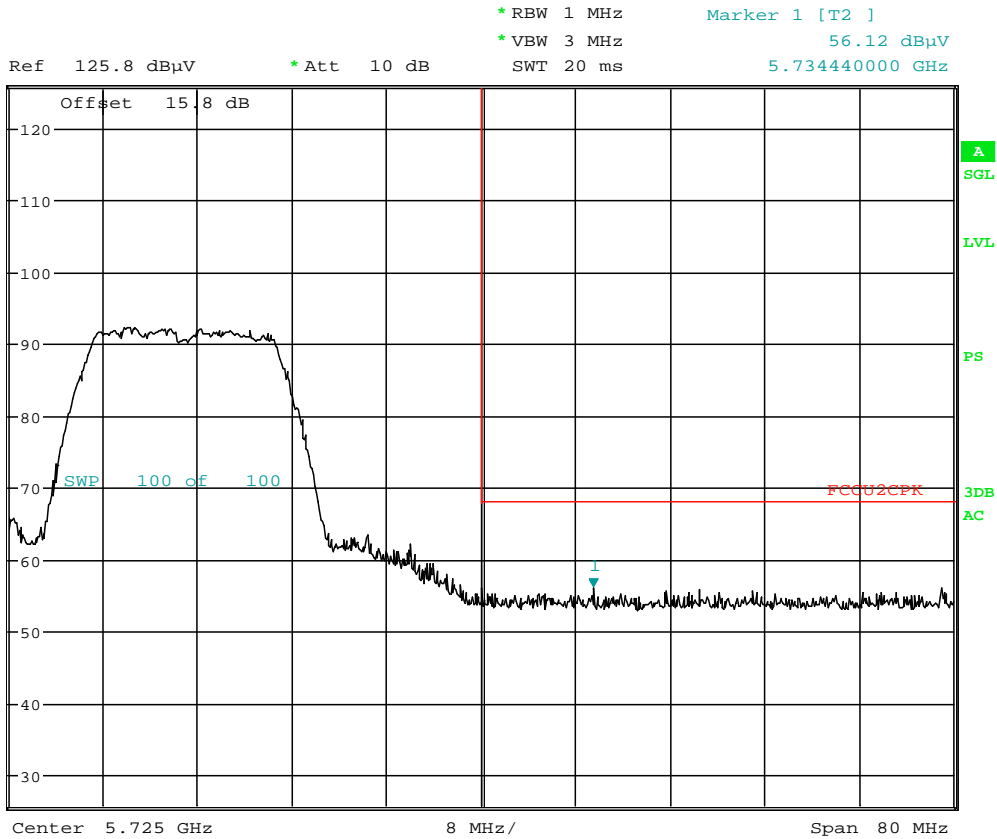
**Plot 6-135. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)**

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

# Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



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

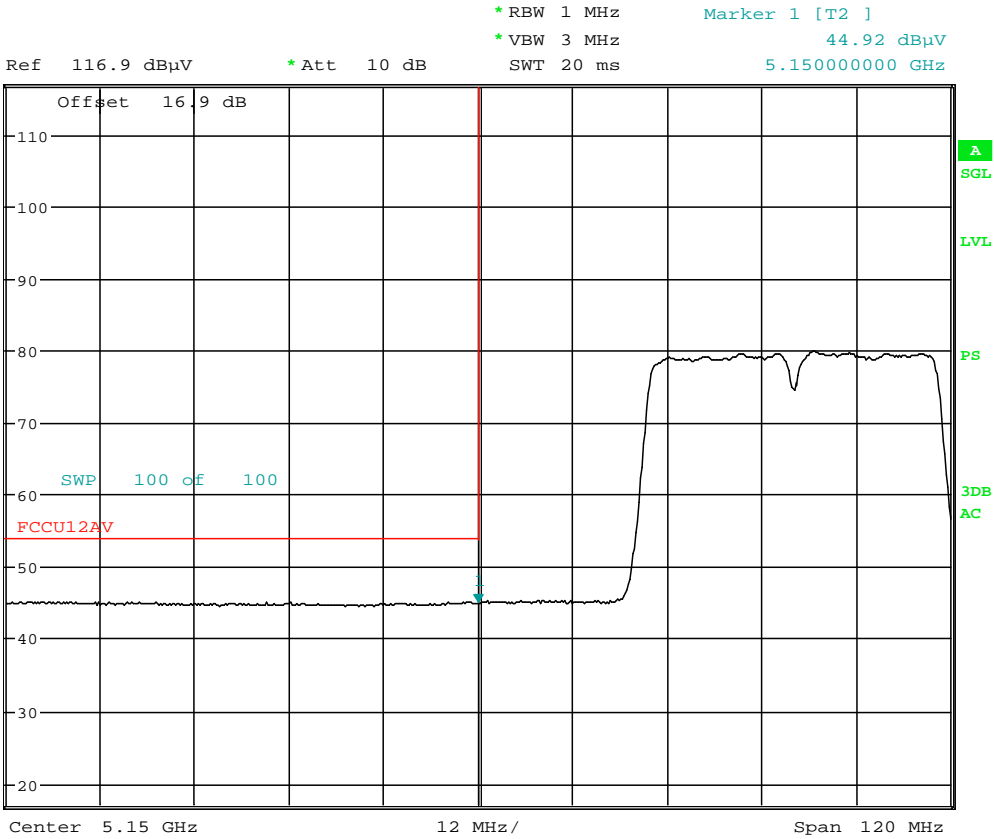
**Plot 6-136. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)**

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

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

§15.407(b.1)(b.2) §15.205 §15.209

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

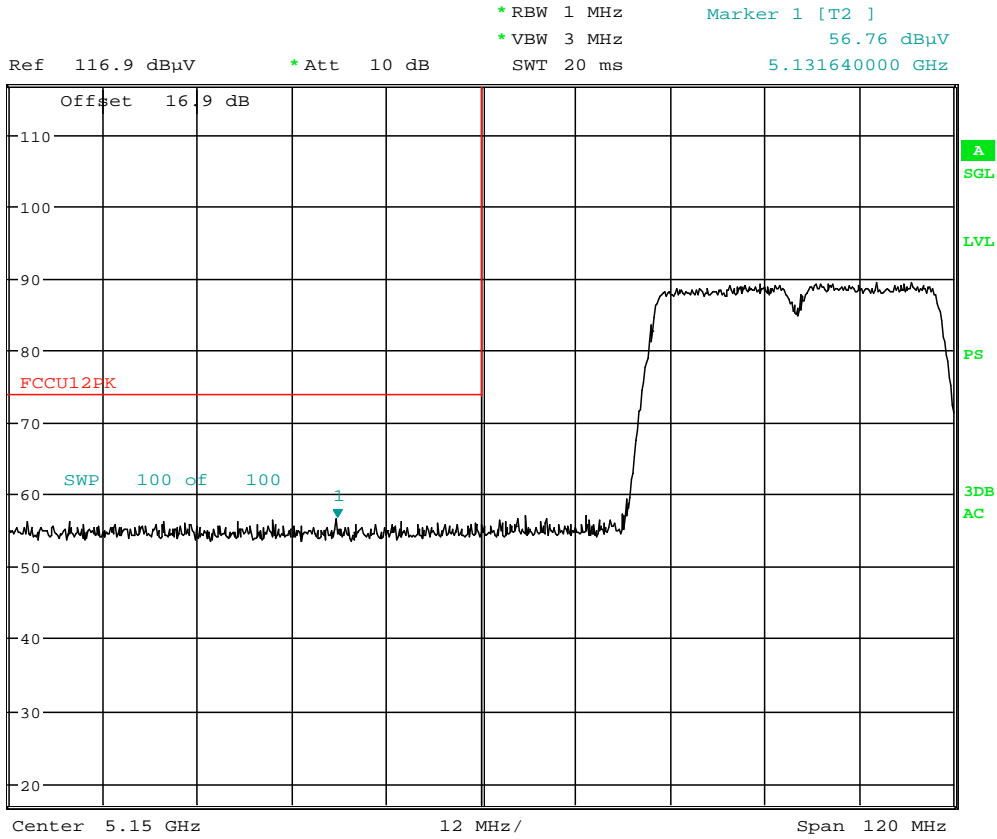


Date: 13.AUG.2014 00:36:09

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

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

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



Date: 13.AUG.2014 00:35:20

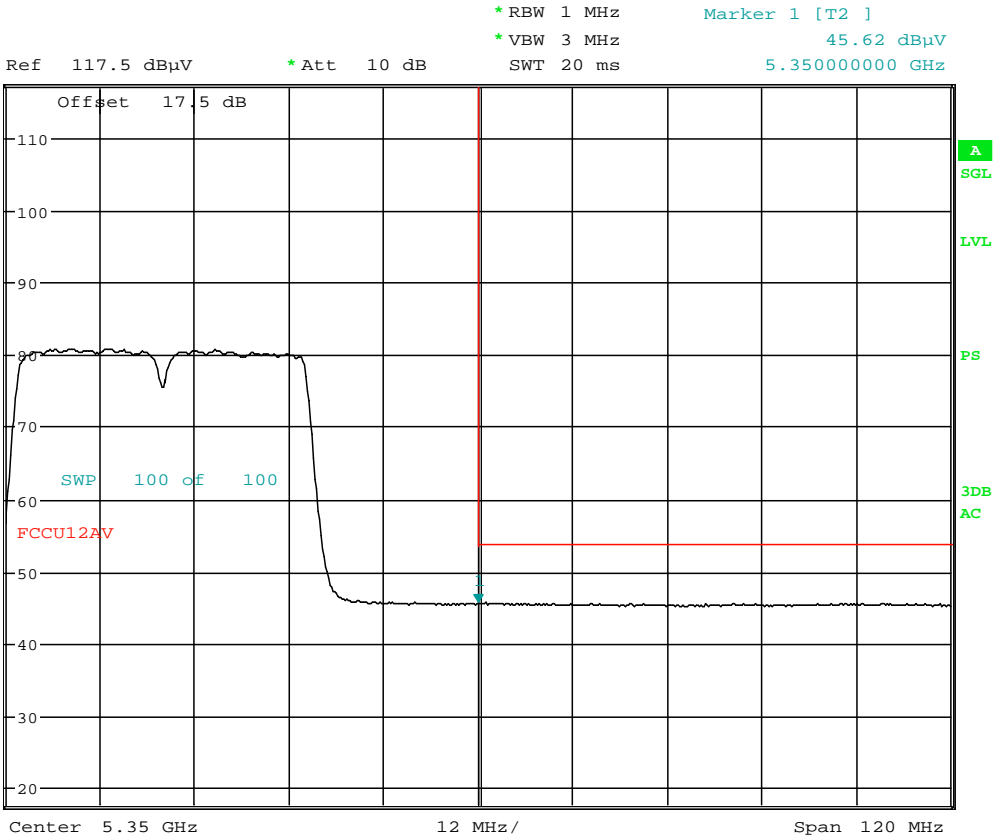
**Plot 6-138. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

<b>FCC ID:</b> A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1408081665.A3L	<b>Test Dates:</b> 8/12 - 9/5/2014	<b>EUT Type:</b> Portable Handset	Page 123 of 181	

# Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

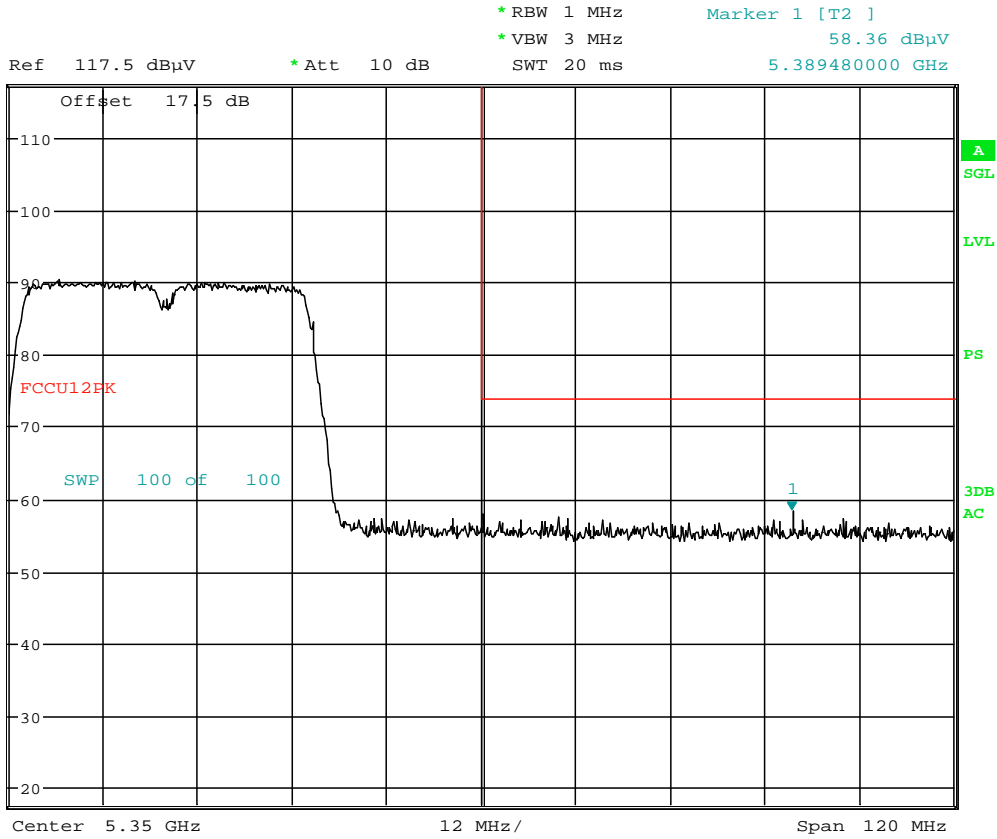


Date: 13.AUG.2014 00:56:33

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

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

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



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

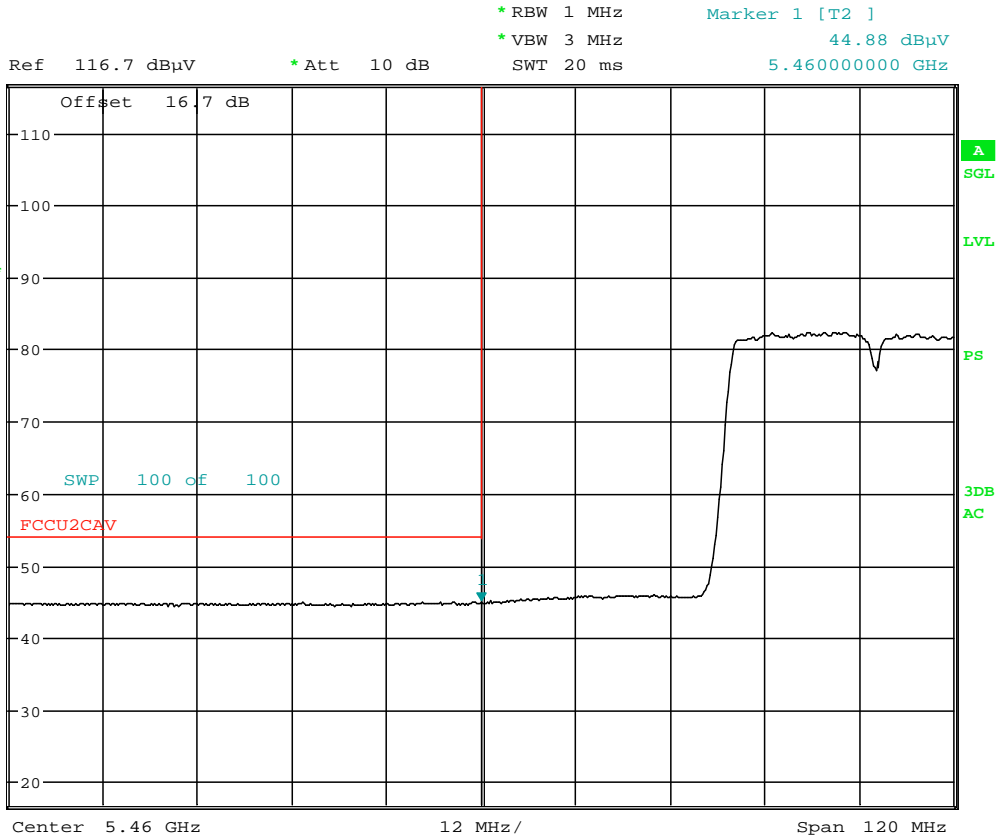
**Plot 6-140. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

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

# Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

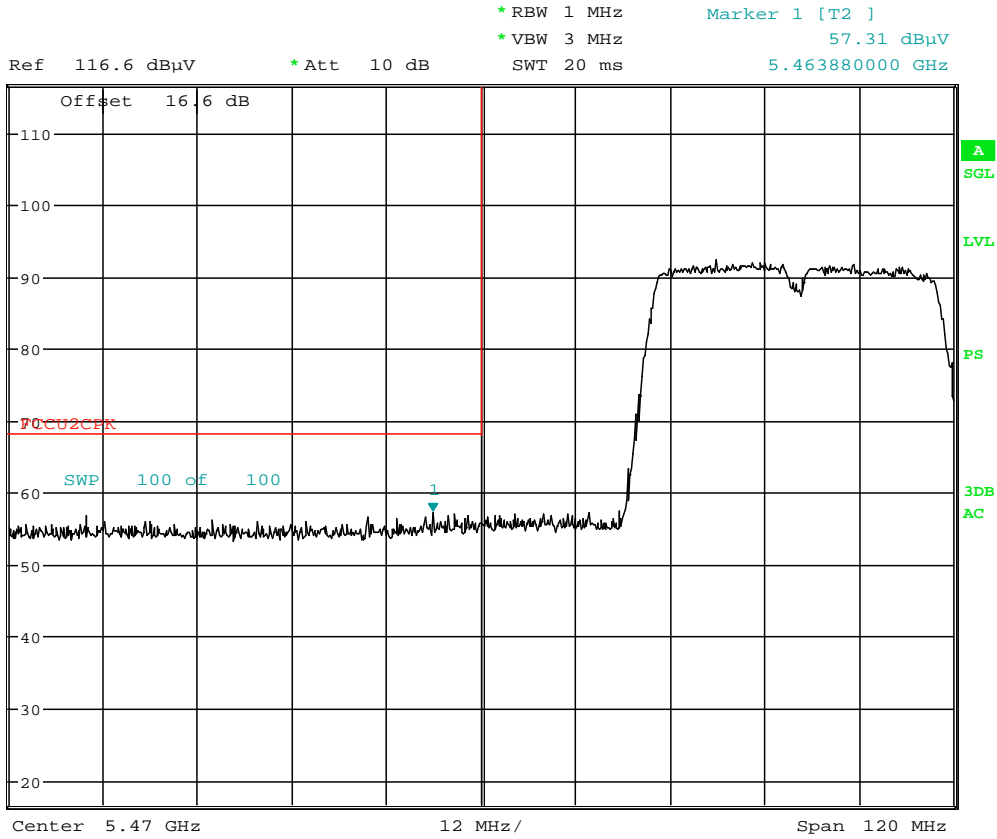


Date: 13.AUG.2014 01:13:17

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

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

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



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

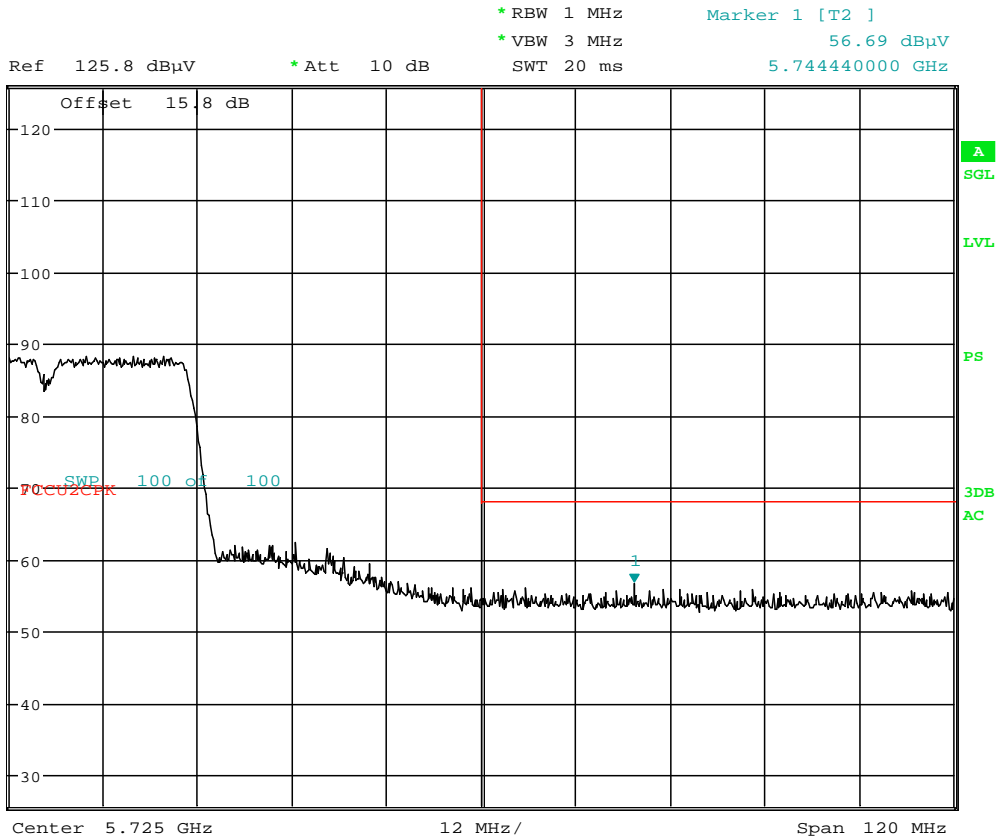
**Plot 6-142. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)**

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

# Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n (40MHz)  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5670MHz  
 Channel: 134



Date: 13.AUG.2014 01:25:03

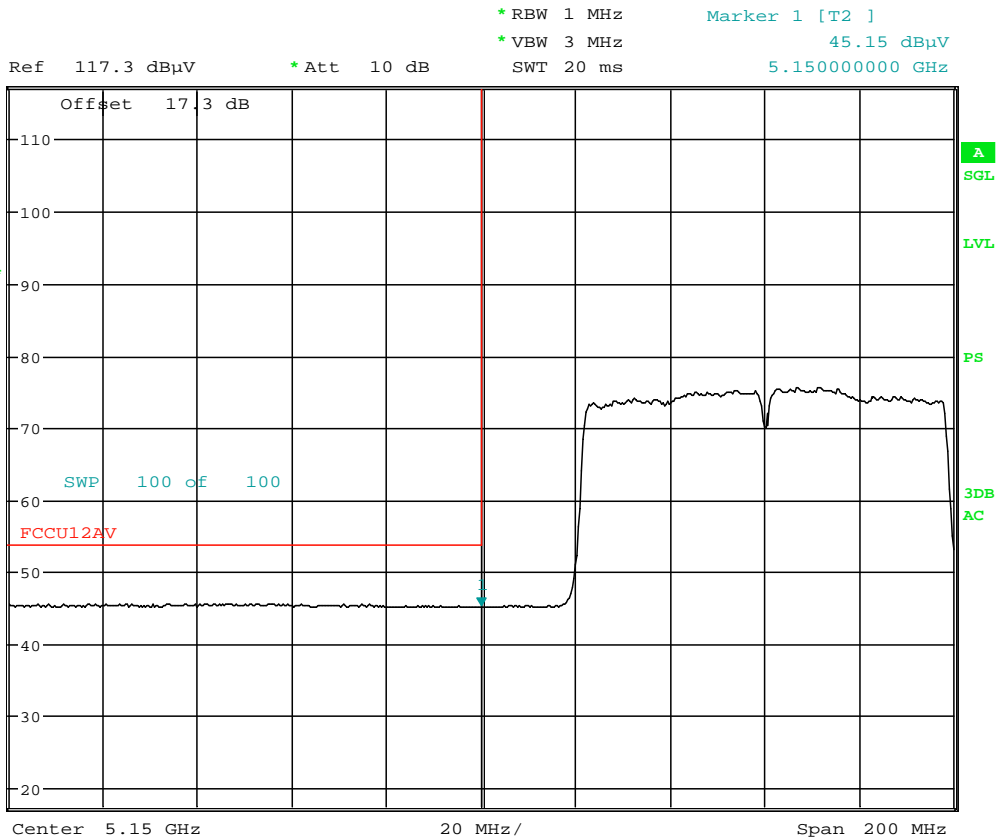
**Plot 6-143. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)**

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset	Page 128 of 181	

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

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n (80MHz)  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5210MHz  
 Channel: 42

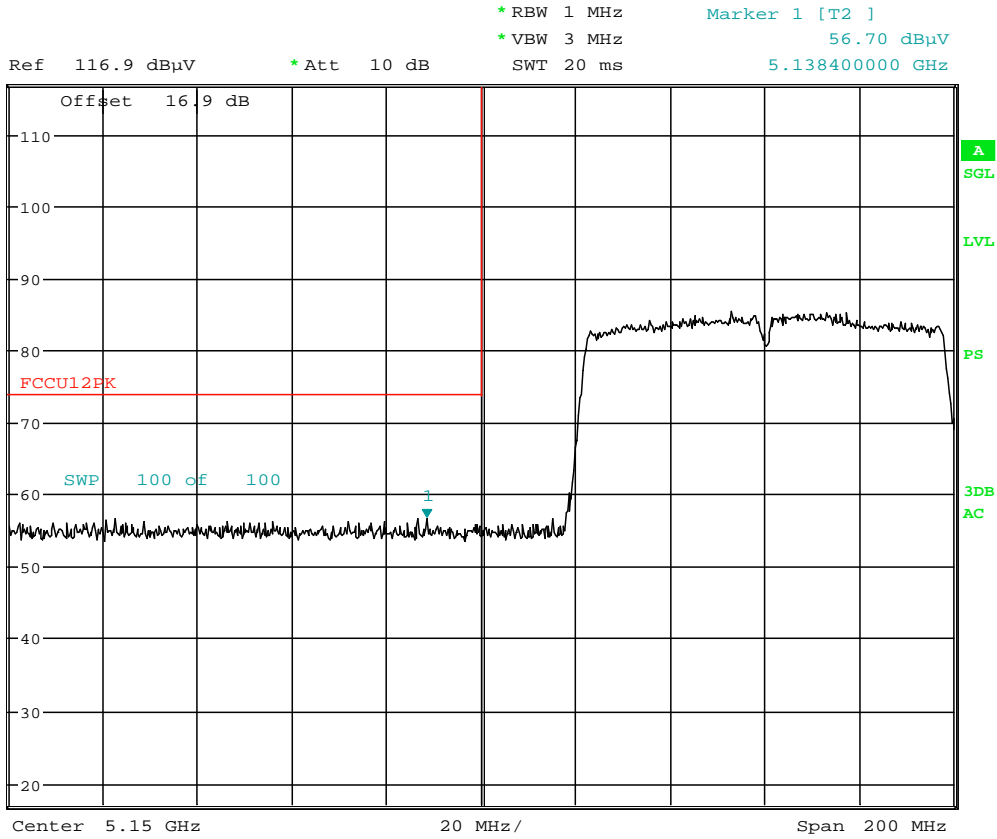


Date: 13.AUG.2014 00:44:18

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

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

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



Date: 13.AUG.2014 00:45:11

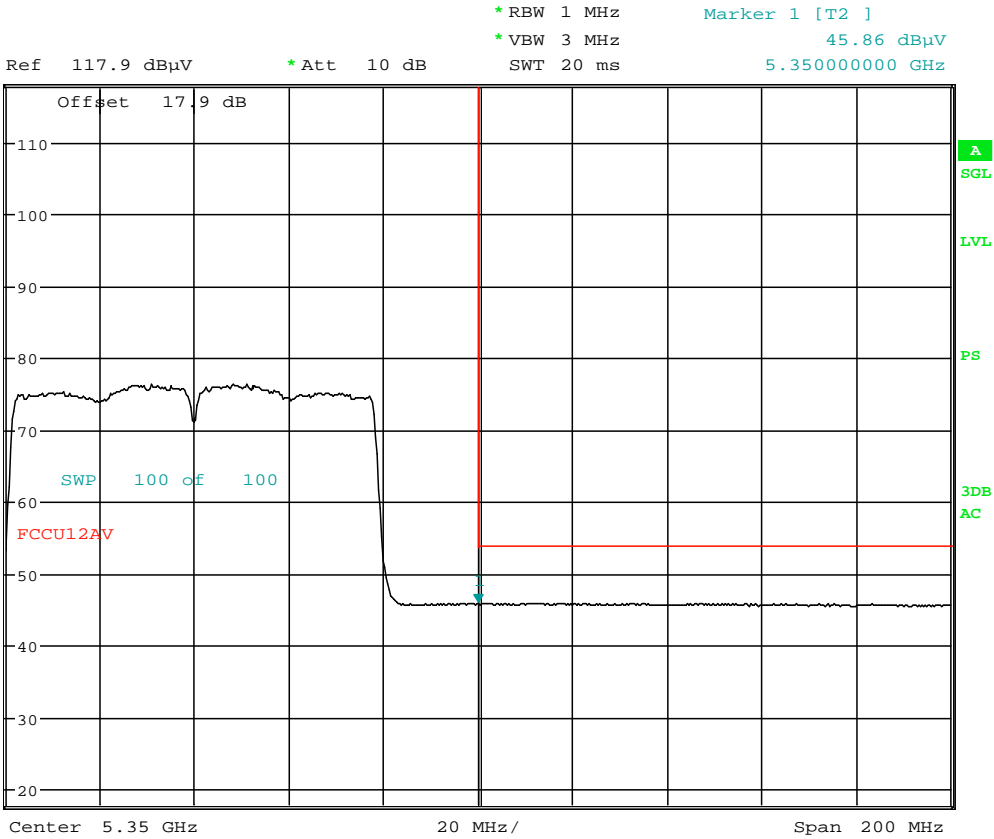
**Plot 6-145. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

<b>FCC ID:</b> A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1408081665.A3L	<b>Test Dates:</b> 8/12 - 9/5/2014	<b>EUT Type:</b> Portable Handset	Page 130 of 181	

# Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

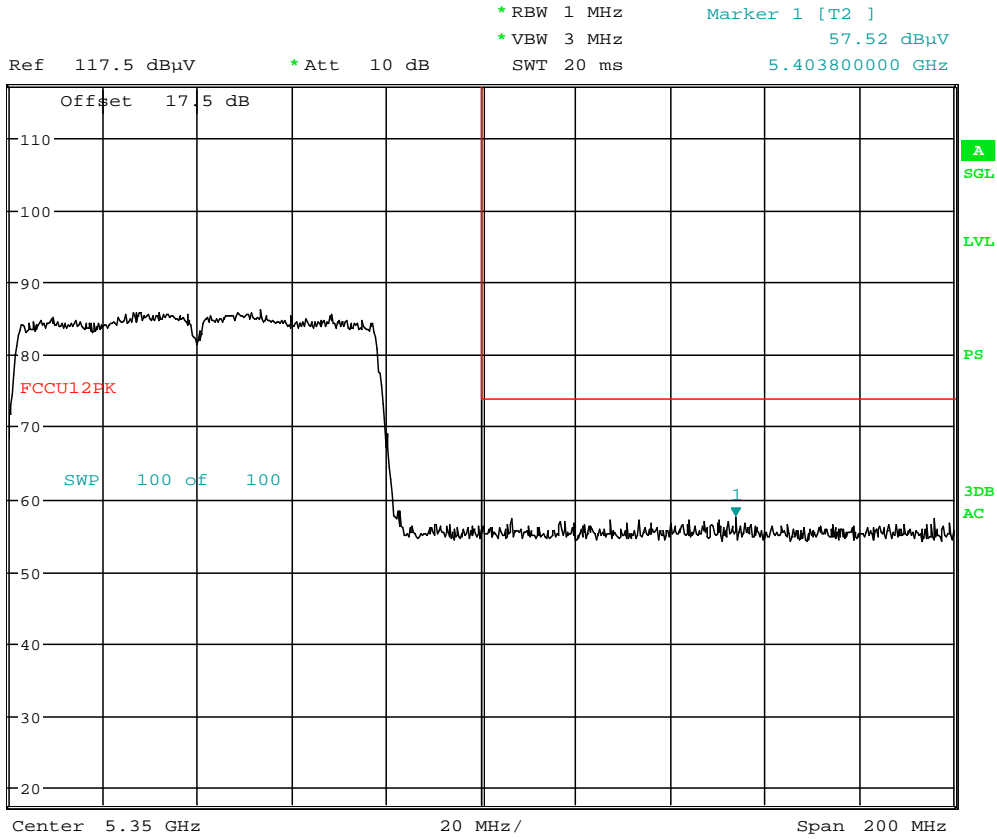


Date: 13.AUG.2014 01:00:25

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

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

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



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

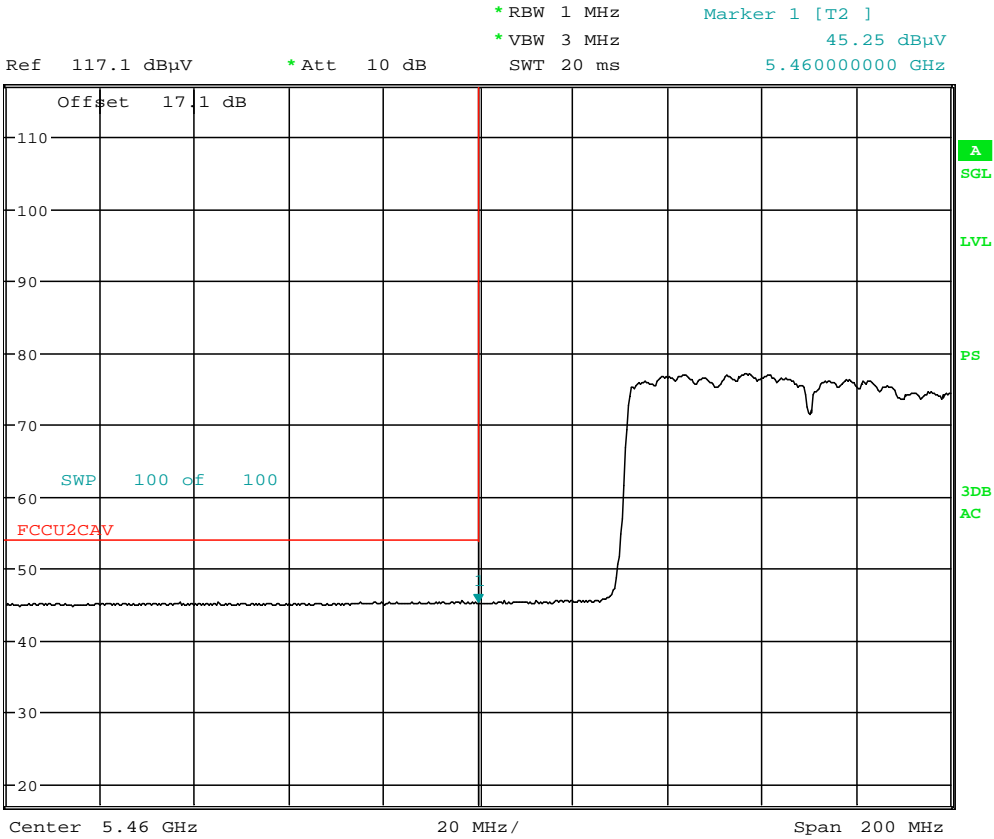
**Plot 6-147. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

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

# Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

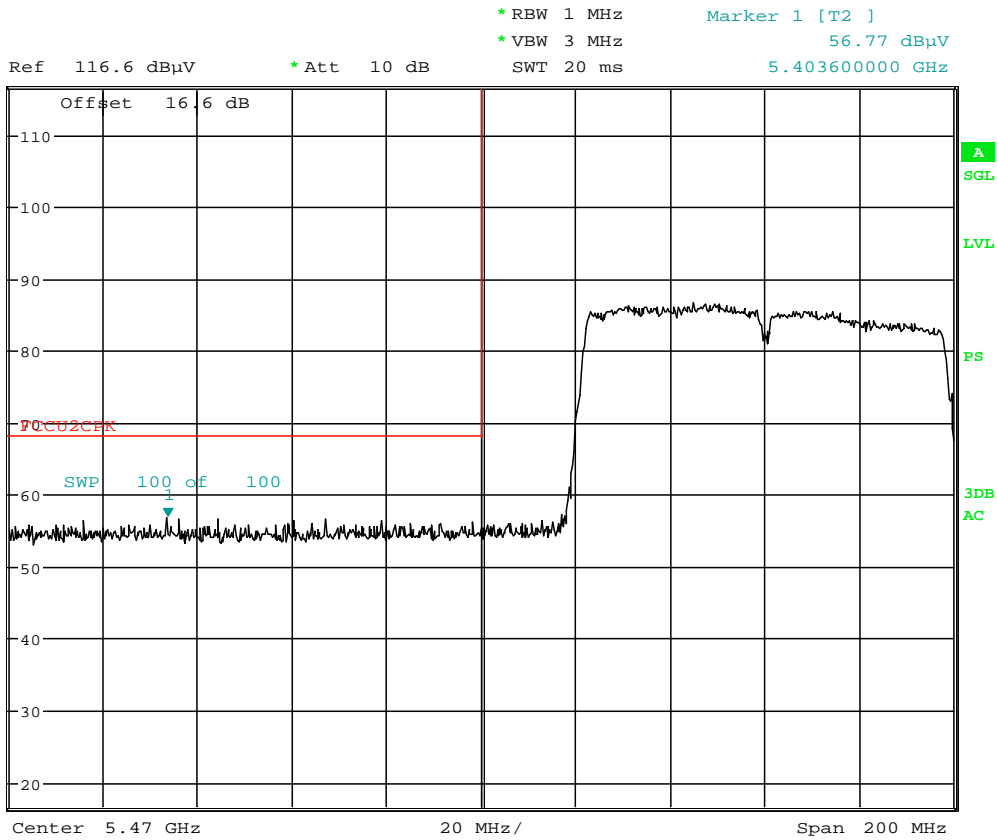


Date: 13.AUG.2014 01:17:10

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

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

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



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

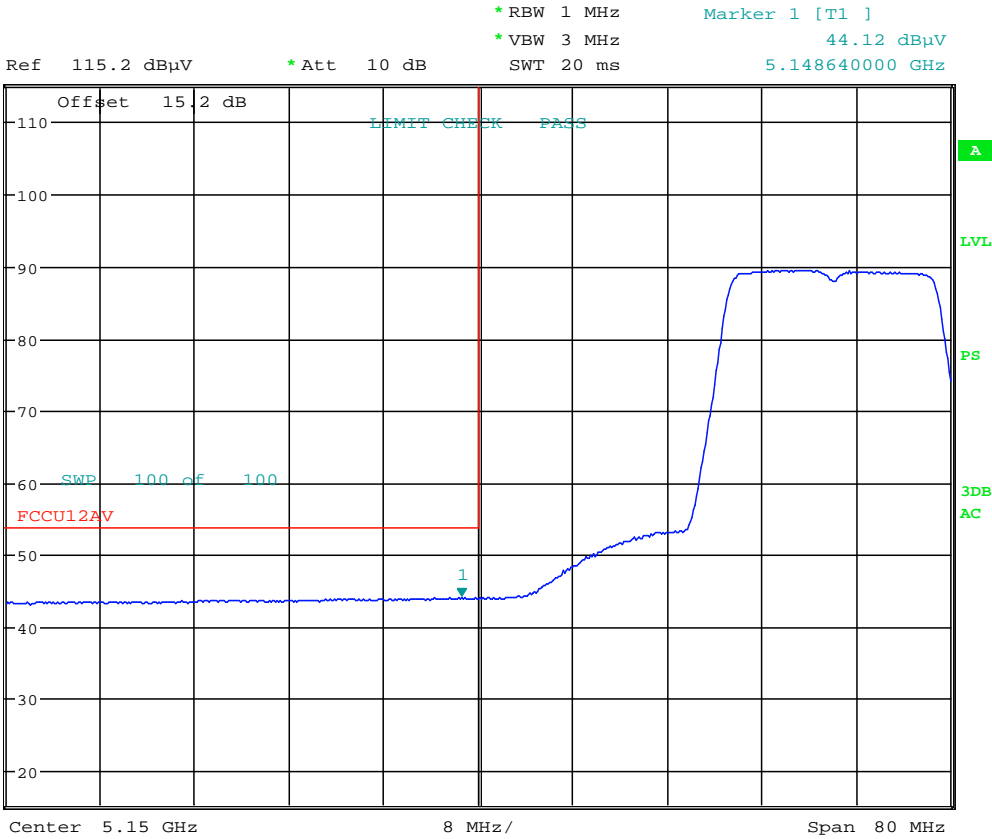
**Plot 6-149. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)**

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

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

§15.407(b.1)(b.2) §15.205 §15.209

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

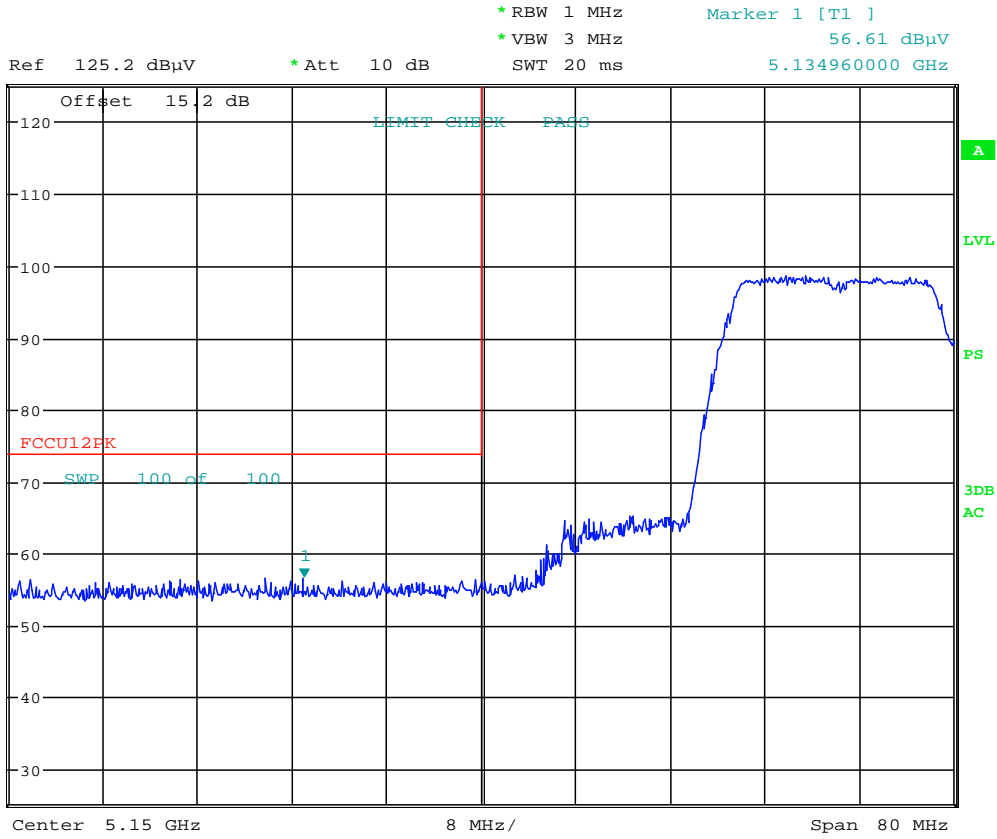


Date: 13.AUG.2014 01:56:36

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

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

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



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

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

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

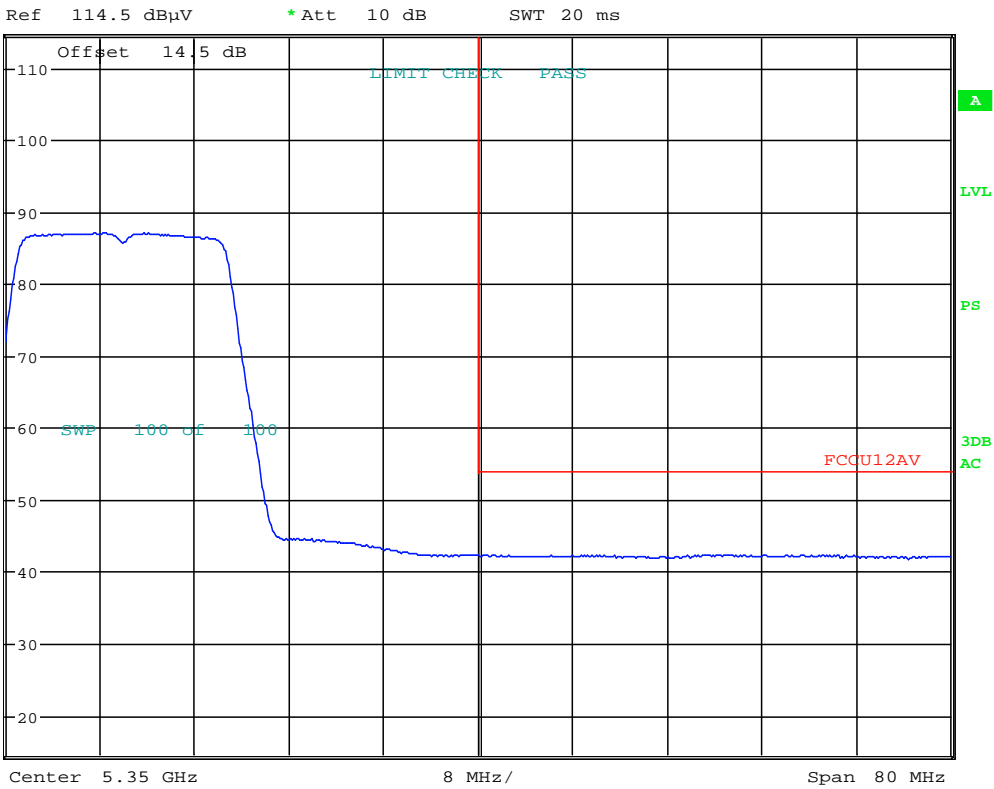
# Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



\* RBW 1 MHz  
 \* VBW 3 MHz  
 SWT 20 ms

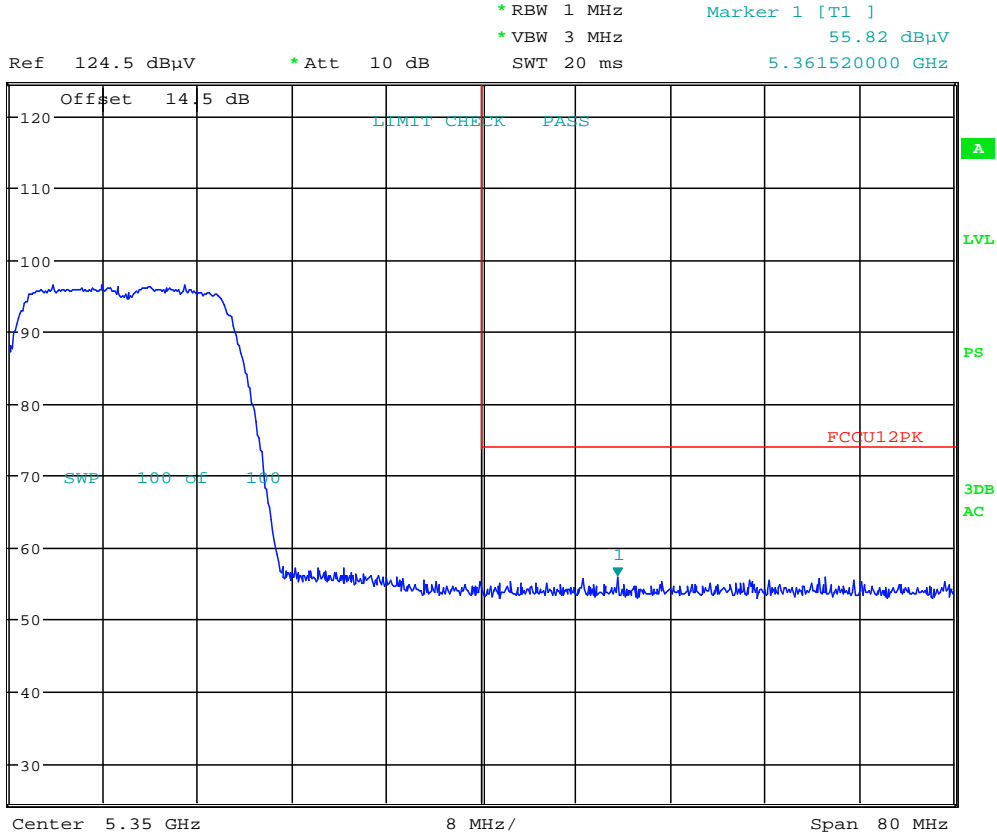


Date: 13.AUG.2014 02:41:01

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

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

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



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

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

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

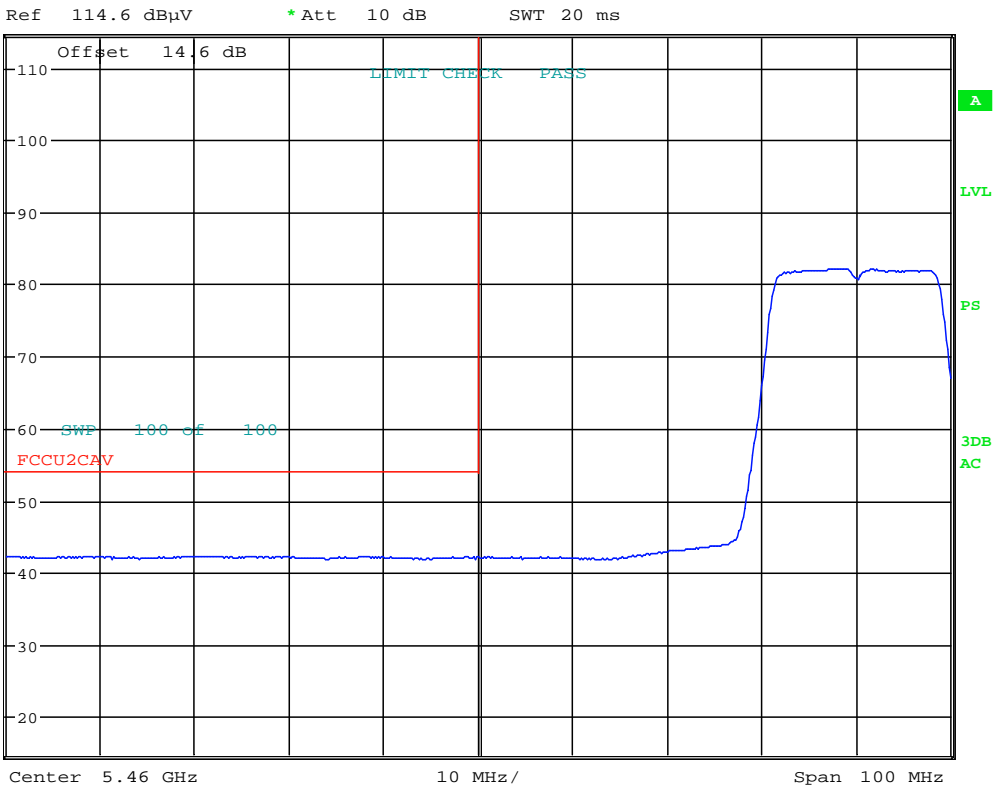
# Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



\* RBW 1 MHz  
 \* VBW 3 MHz  
 SWT 20 ms



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

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

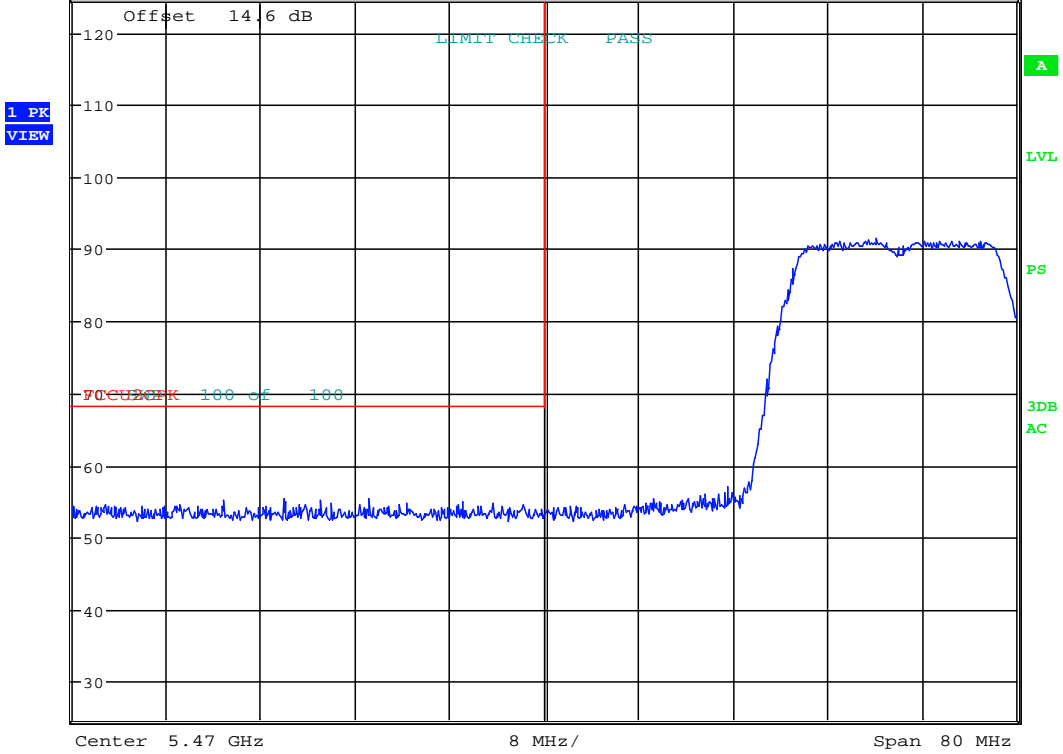
FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset	Page 139 of 181	

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



\* RBW 1 MHz  
\* VBW 3 MHz

Ref 124.6 dBµV \* Att 10 dB SWT 20 ms



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

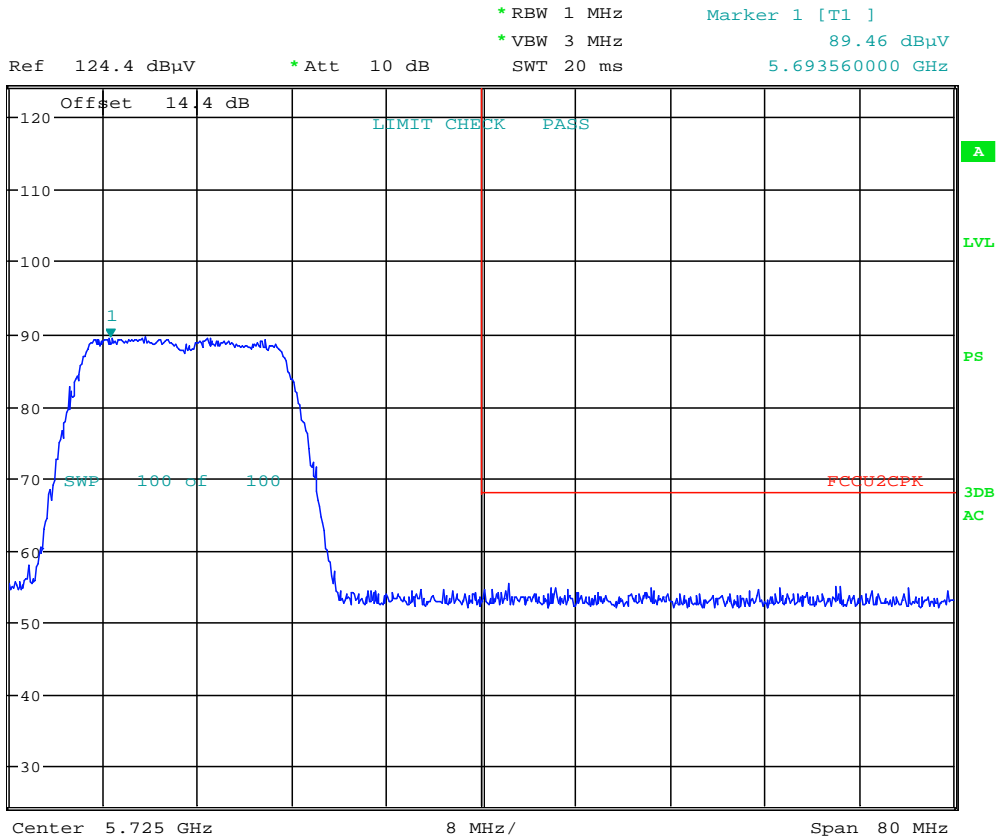
**Plot 6-155. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)**

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

# Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5700MHz  
 Channel: 140



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

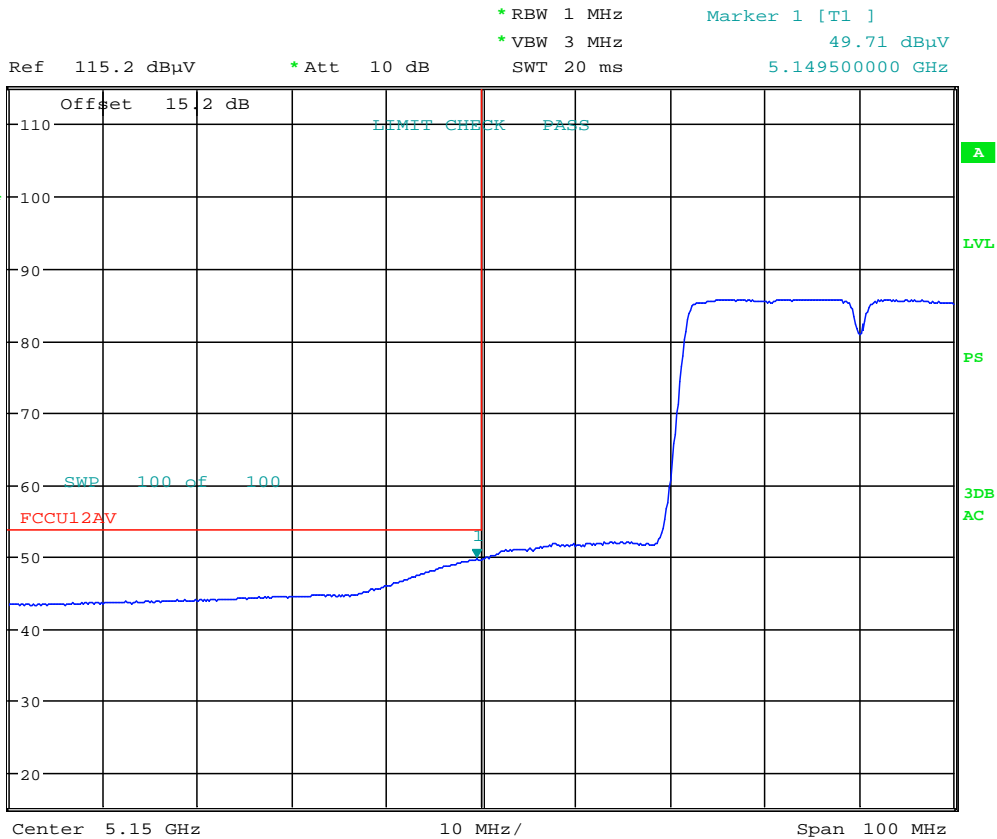
**Plot 6-156. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)**

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

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

§15.407(b.1)(b.2) §15.205 §15.209

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



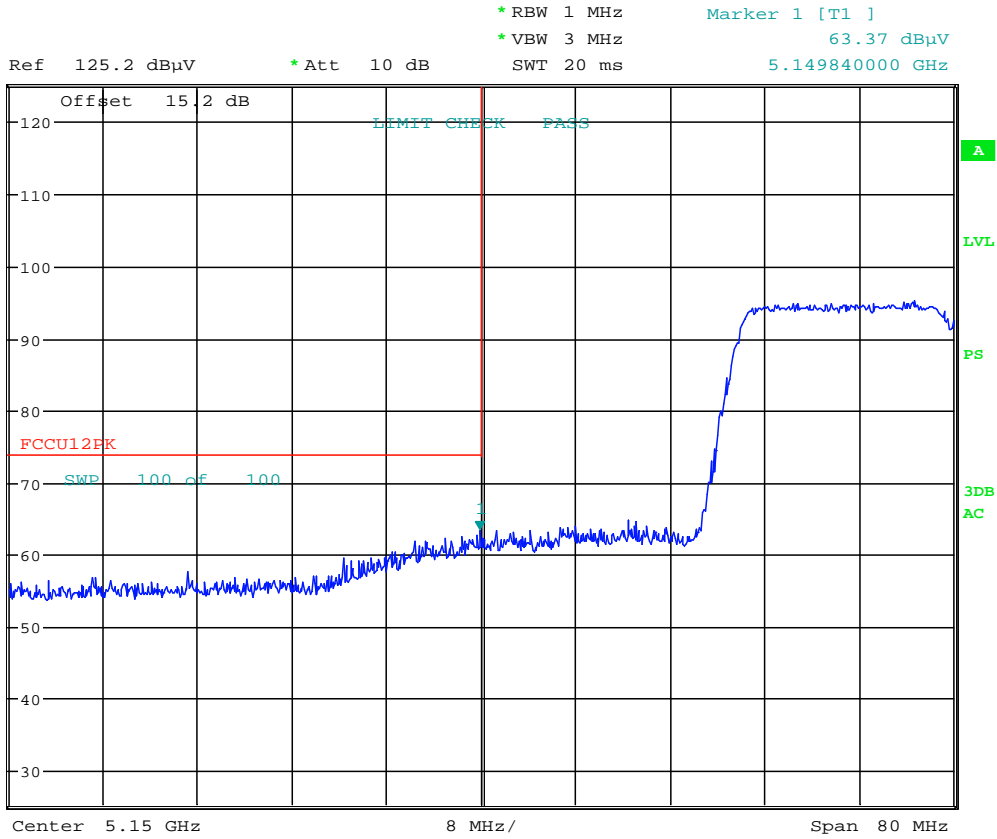
Date: 13.AUG.2014 02:04:44

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

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

# Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209



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

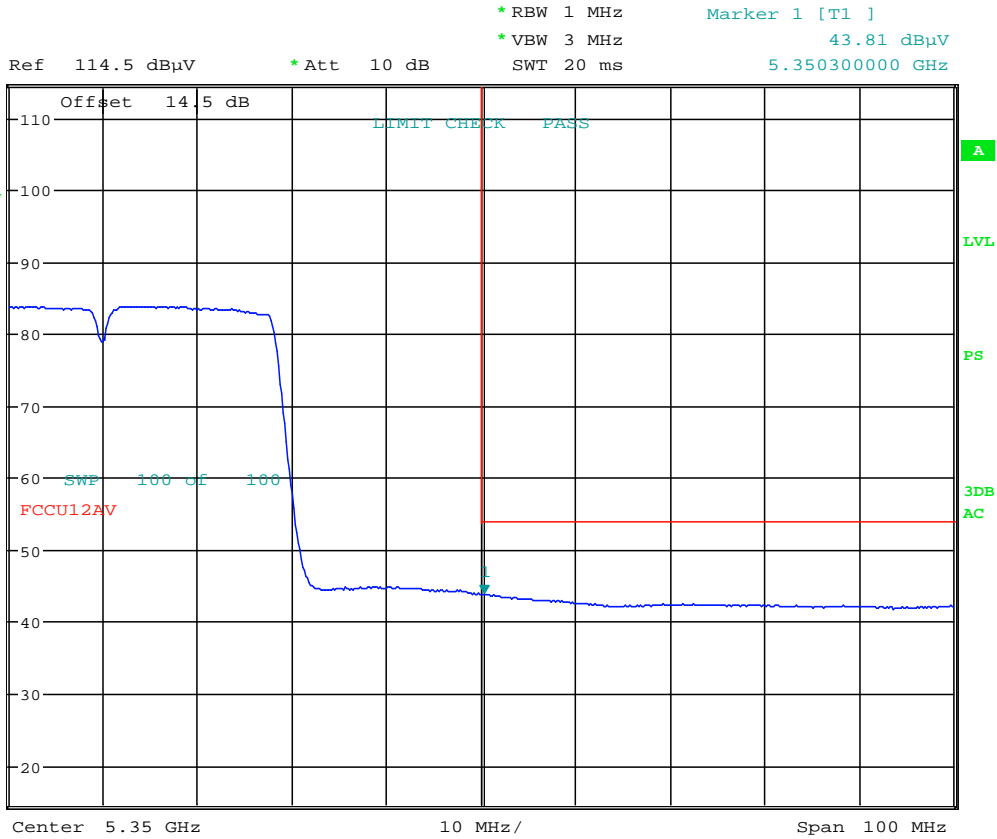
**Plot 6-158. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

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

# Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

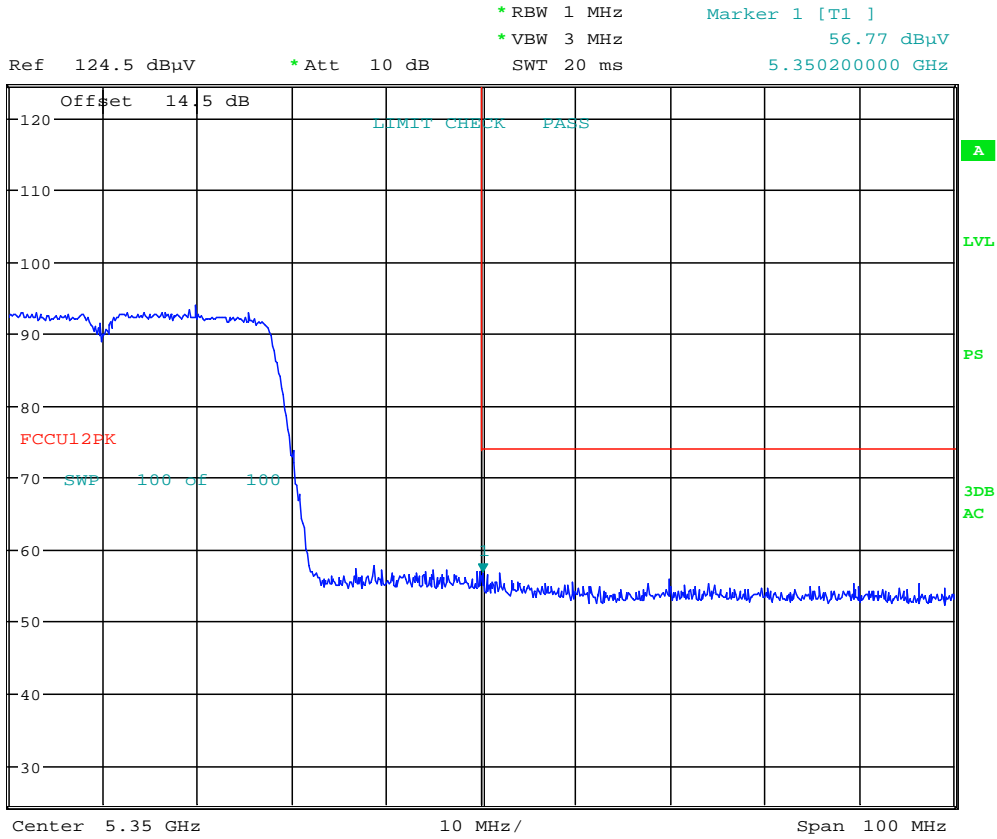


Date: 13.AUG.2014 02:37:31

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

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

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



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

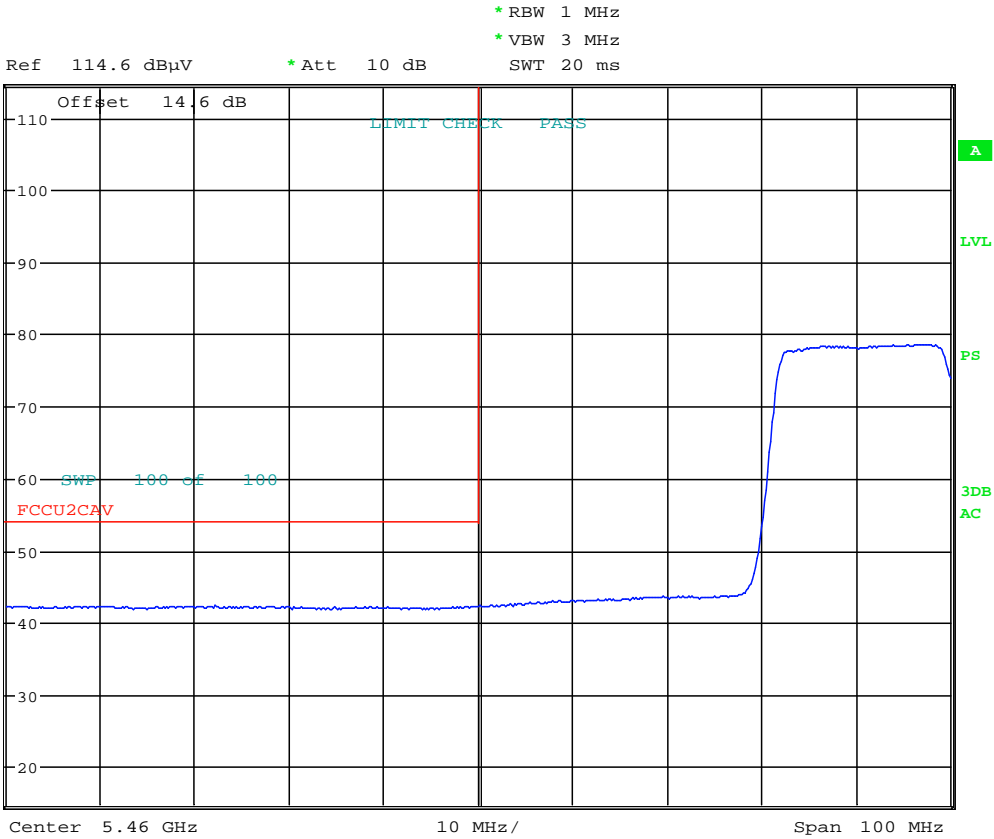
**Plot 6-160. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

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

# Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

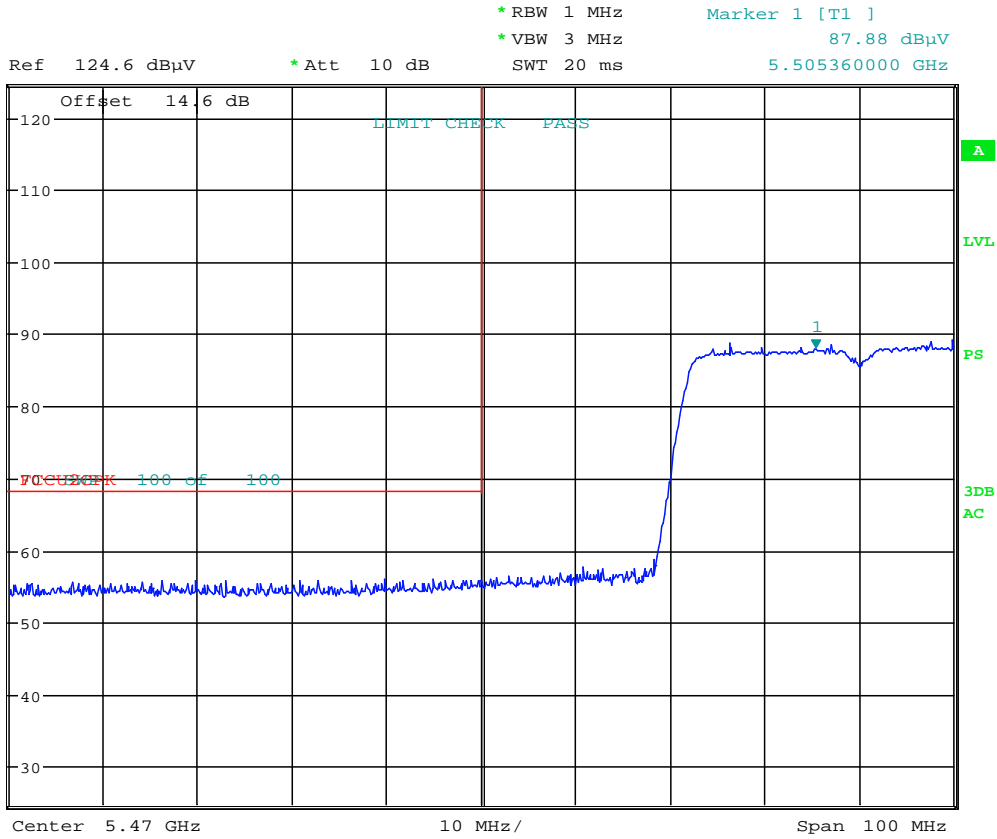


Date: 13.AUG.2014 03:04:52

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

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

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



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

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

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

# Radiated Band Edge Measurements (40MHz BW)

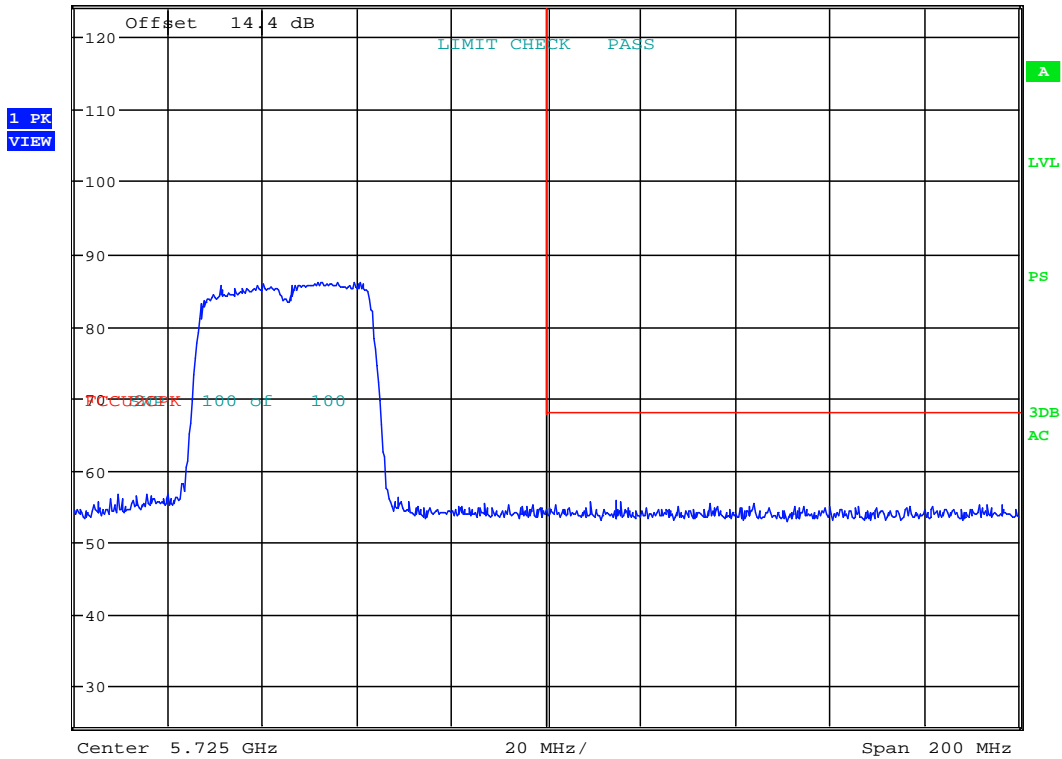
§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n (40MHz)  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5670MHz  
 Channel: 134



\* RBW 1 MHz  
 \* VBW 3 MHz

Ref 124.4 dBµV \* Att 10 dB SWT 20 ms



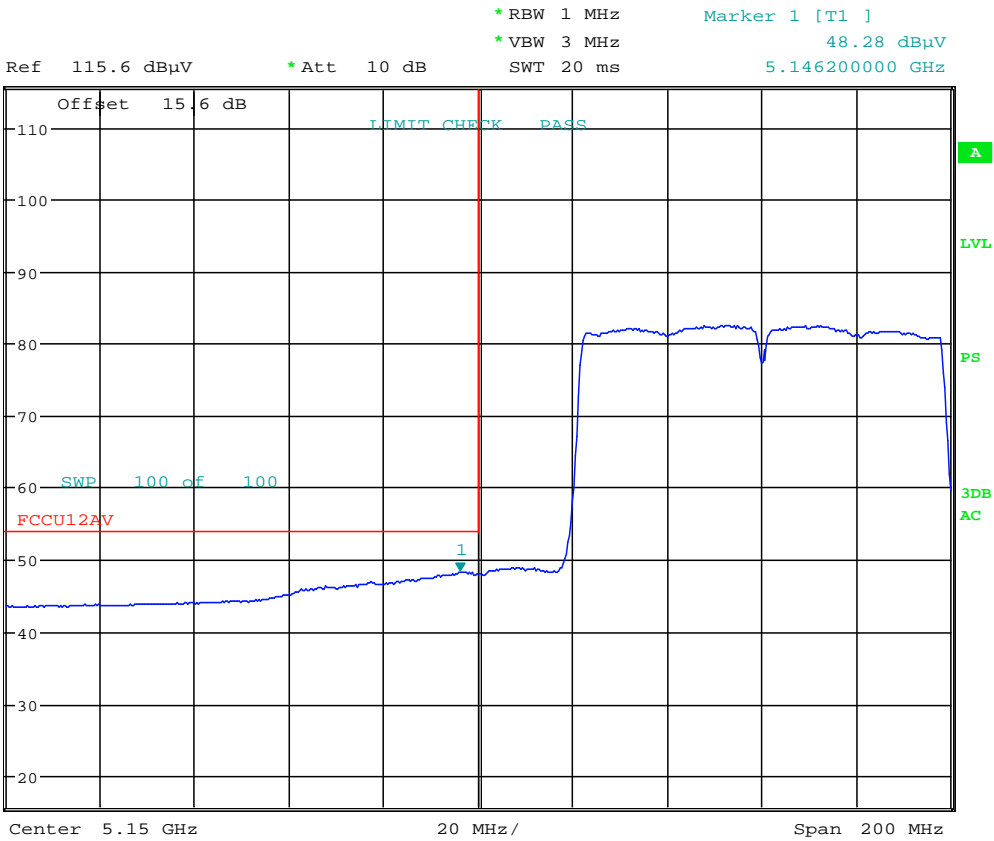
Date: 13.AUG.2014 03:23:04

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

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

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

Worst Case Mode: 802.11n (80MHz)  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5210MHz  
 Channel: 42

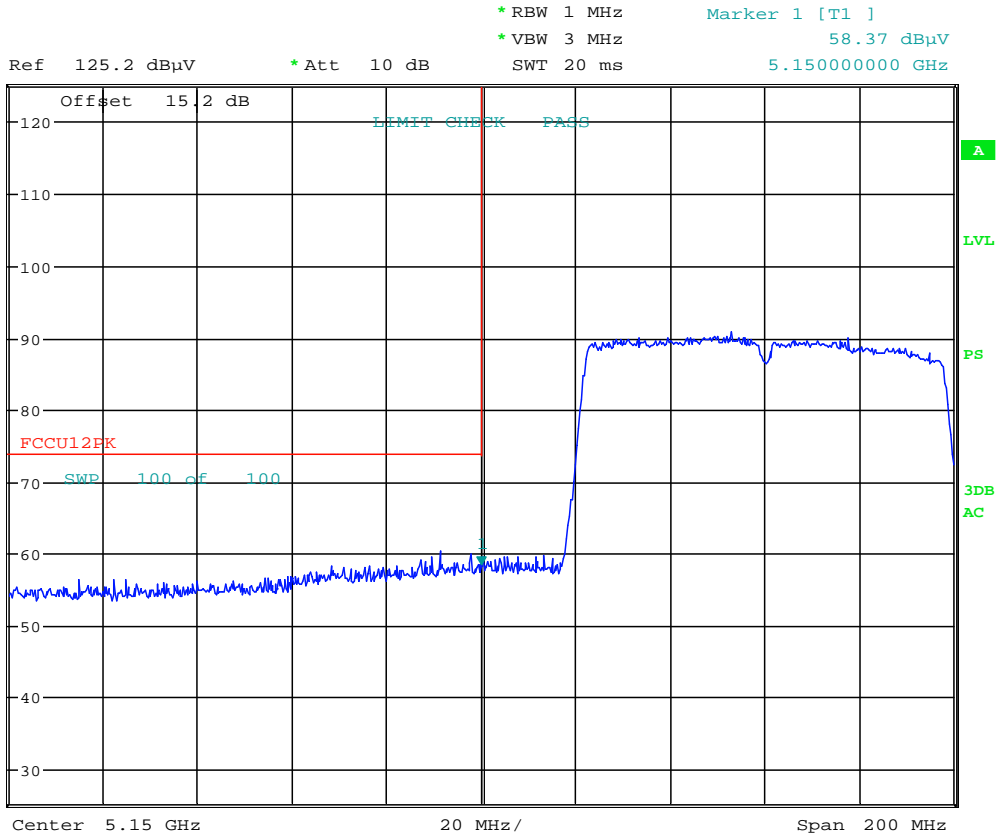


Date: 13.AUG.2014 02:26:42

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

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

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



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

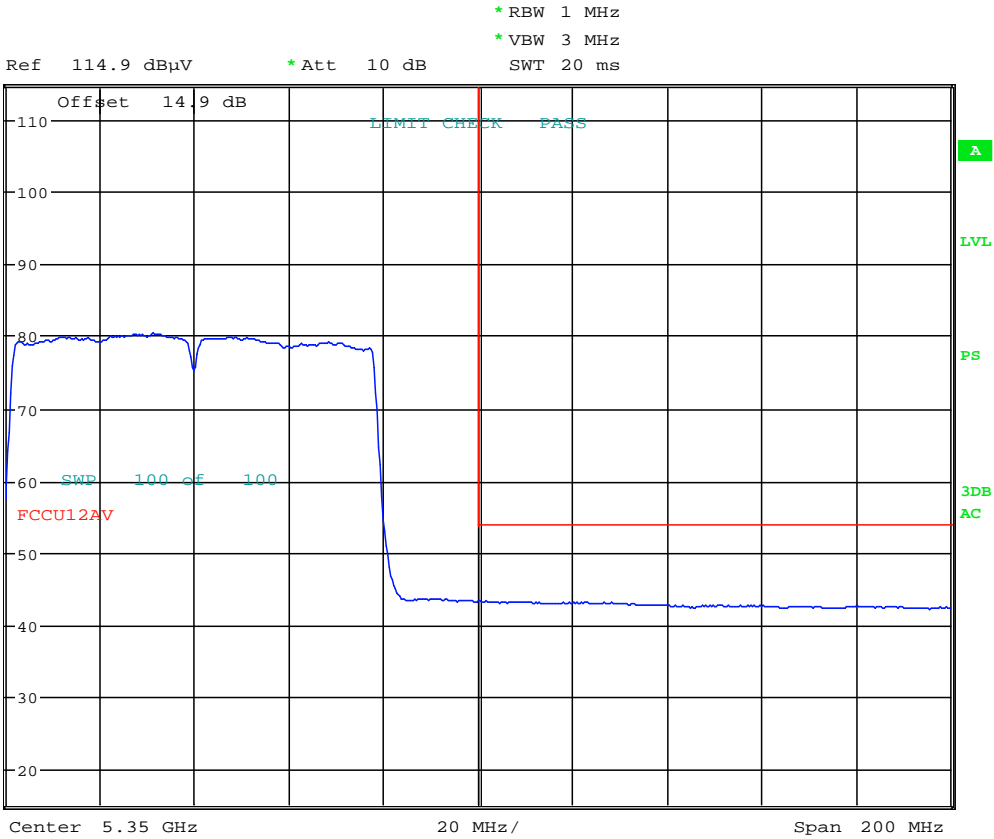
**Plot 6-165. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

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

# Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

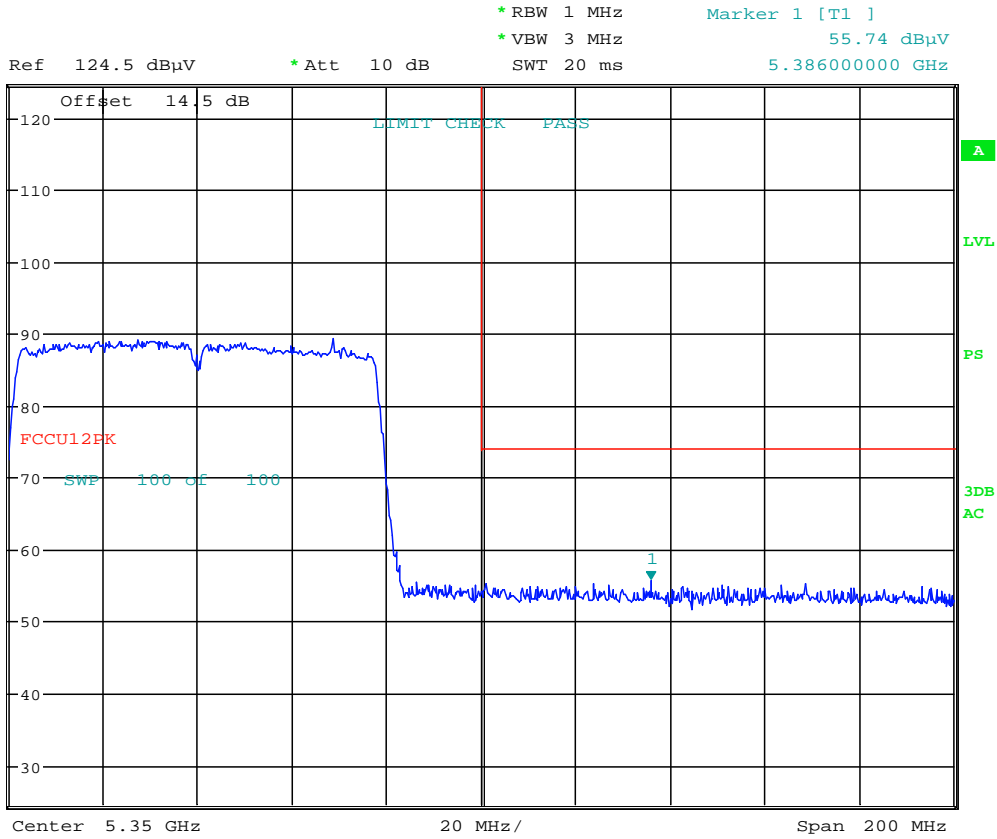


Date: 13.AUG.2014 02:47:37

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

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

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



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

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

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

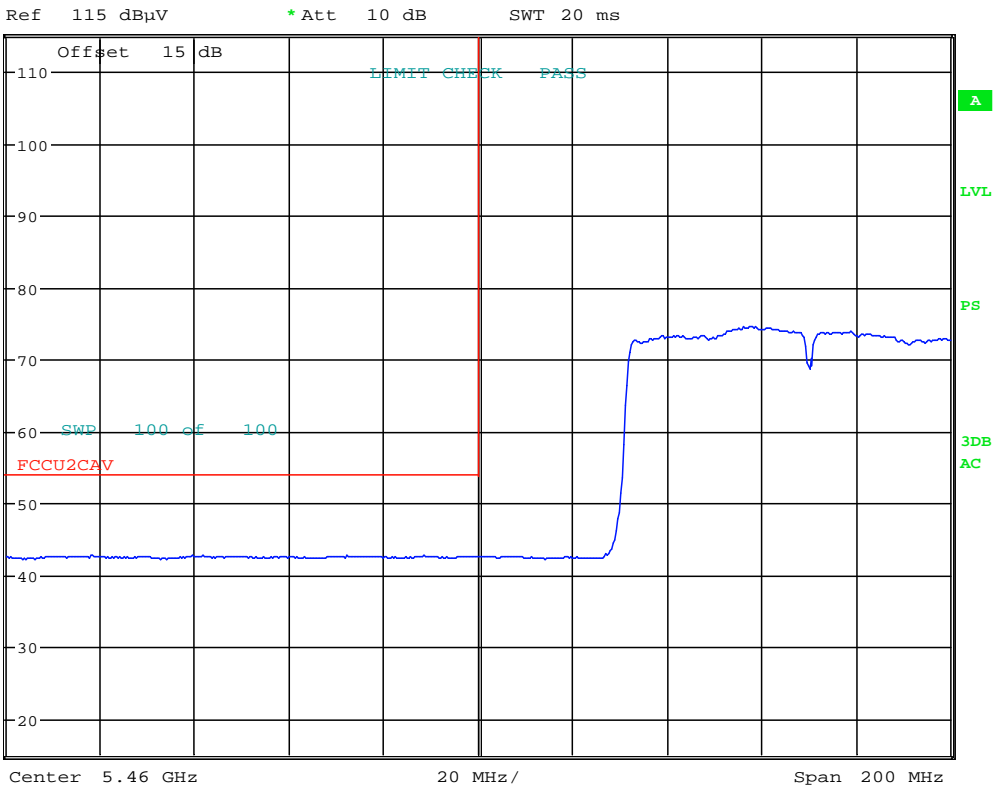
# Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



\* RBW 1 MHz  
 \* VBW 3 MHz  
 SWT 20 ms



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

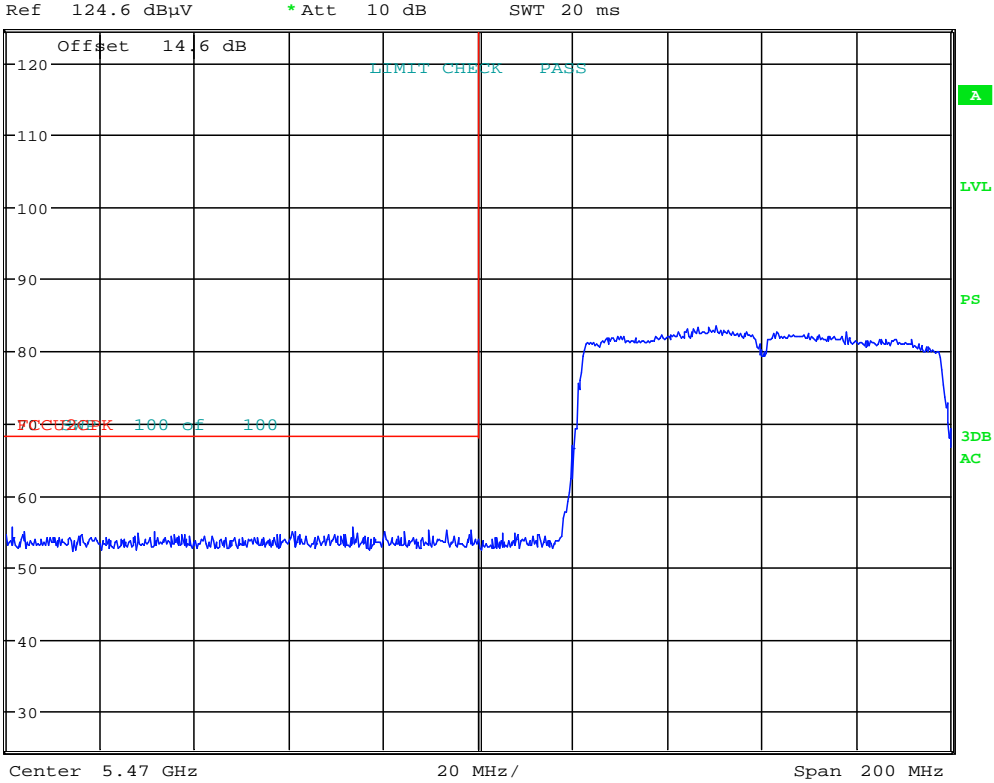
**Plot 6-168. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)**

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

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



\* RBW 1 MHz  
\* VBW 3 MHz  
SWT 20 ms



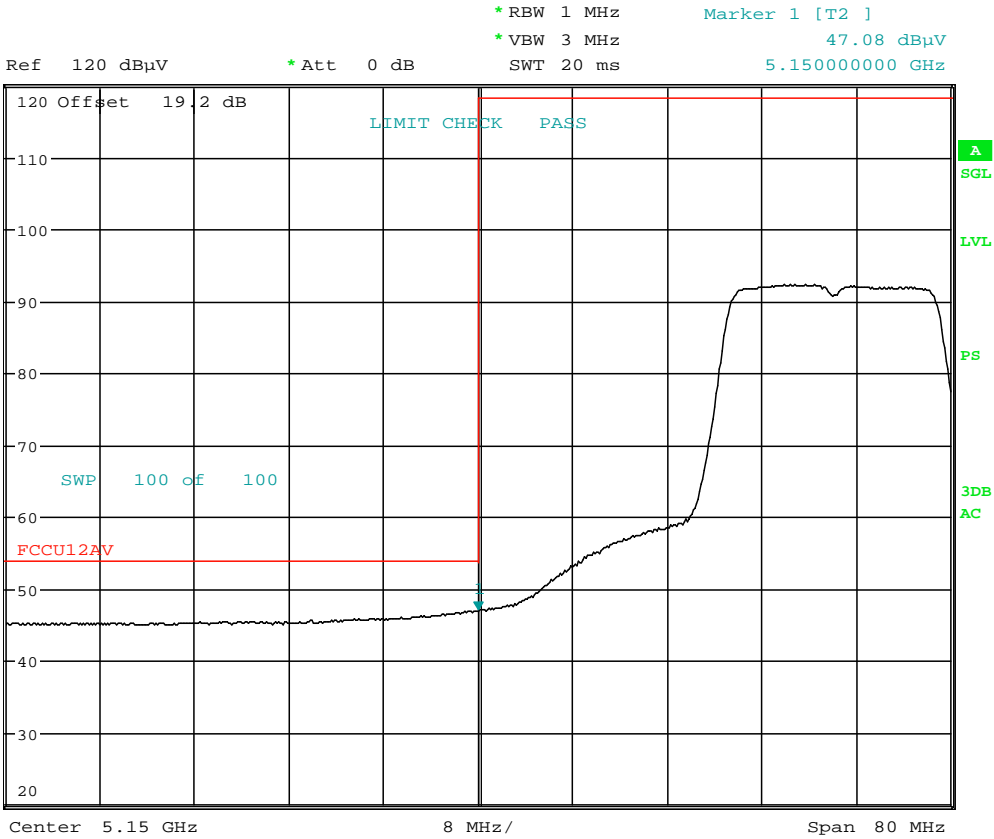
Date: 13.AUG.2014 03:11:29

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

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

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

Worst Case Mode: 802.11n (20MHz)  
 Worst Case Transfer Rate: MCS8  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5180MHz  
 Channel: 36

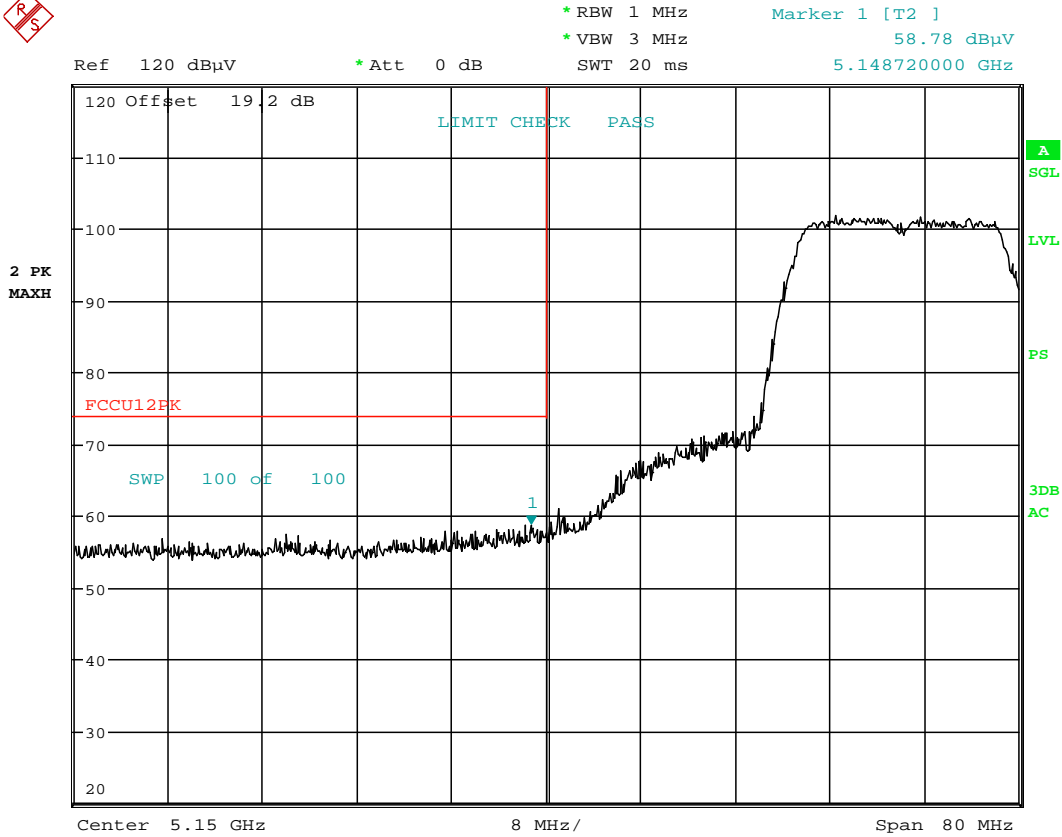


Date: 13.AUG.2014 11:55:01

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

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

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



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

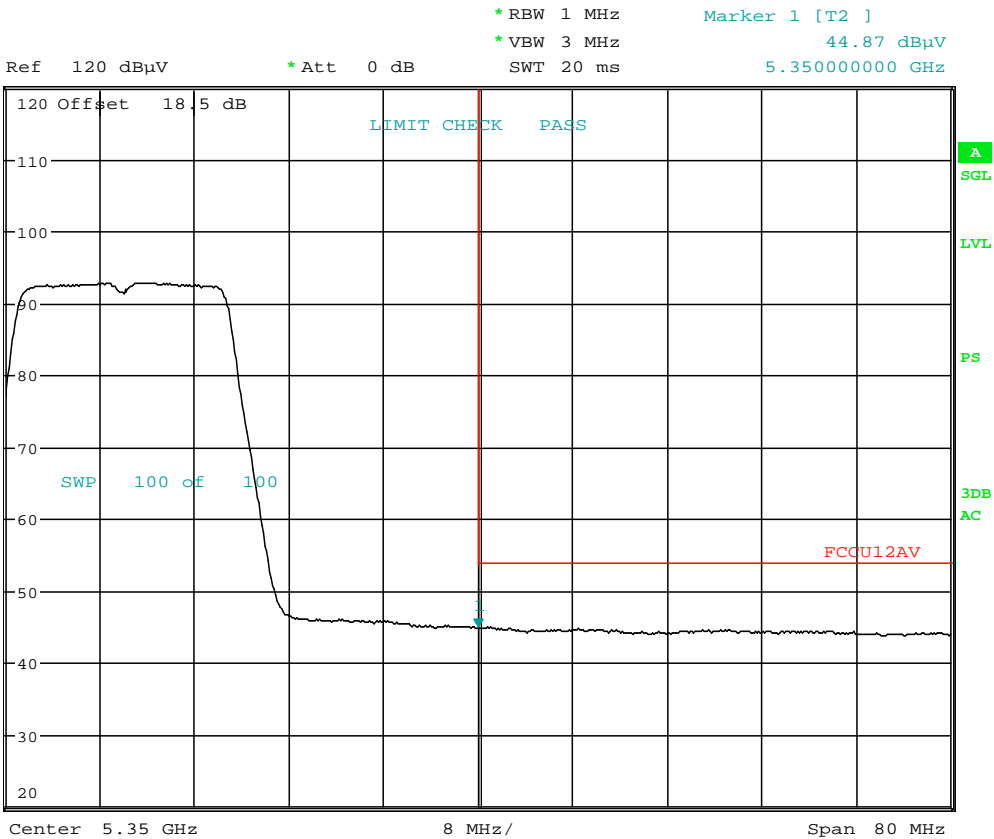
**Plot 6-171. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

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

# Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

Worst Case Mode: 802.11n (20MHz)  
 Worst Case Transfer Rate: MCS8  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5320MHz  
 Channel: 64

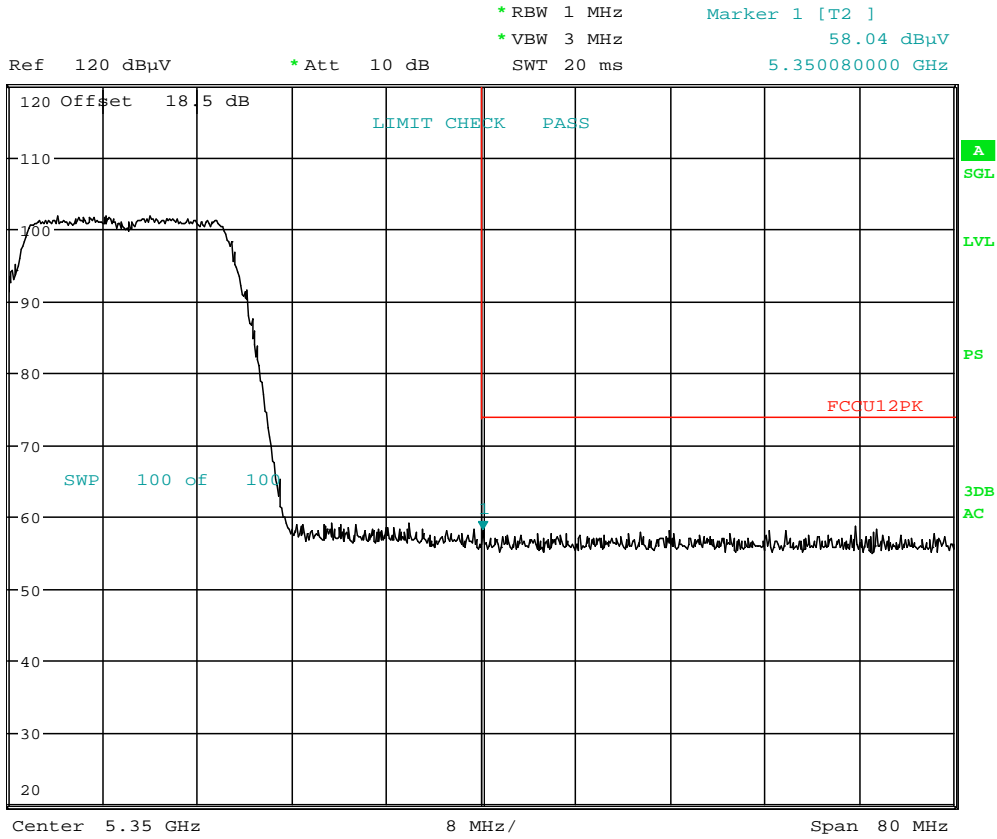


Date: 13.AUG.2014 12:52:15

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

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

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



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

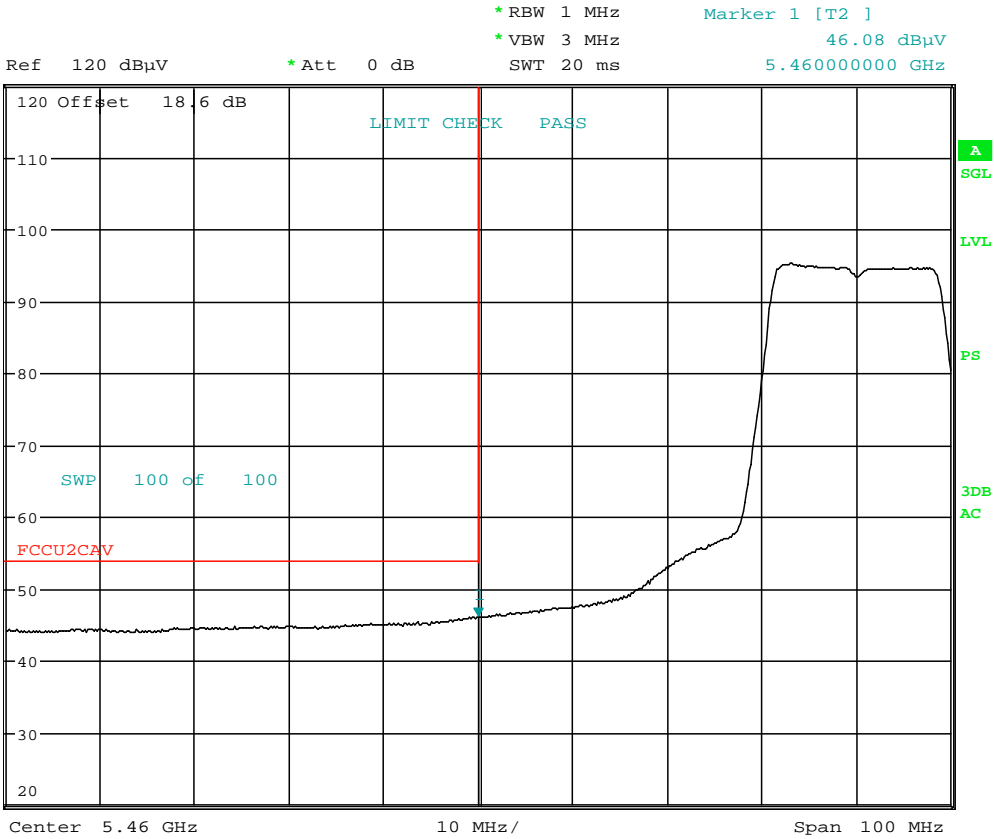
**Plot 6-173. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

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

# Radiated Band Edge Measurements (20MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

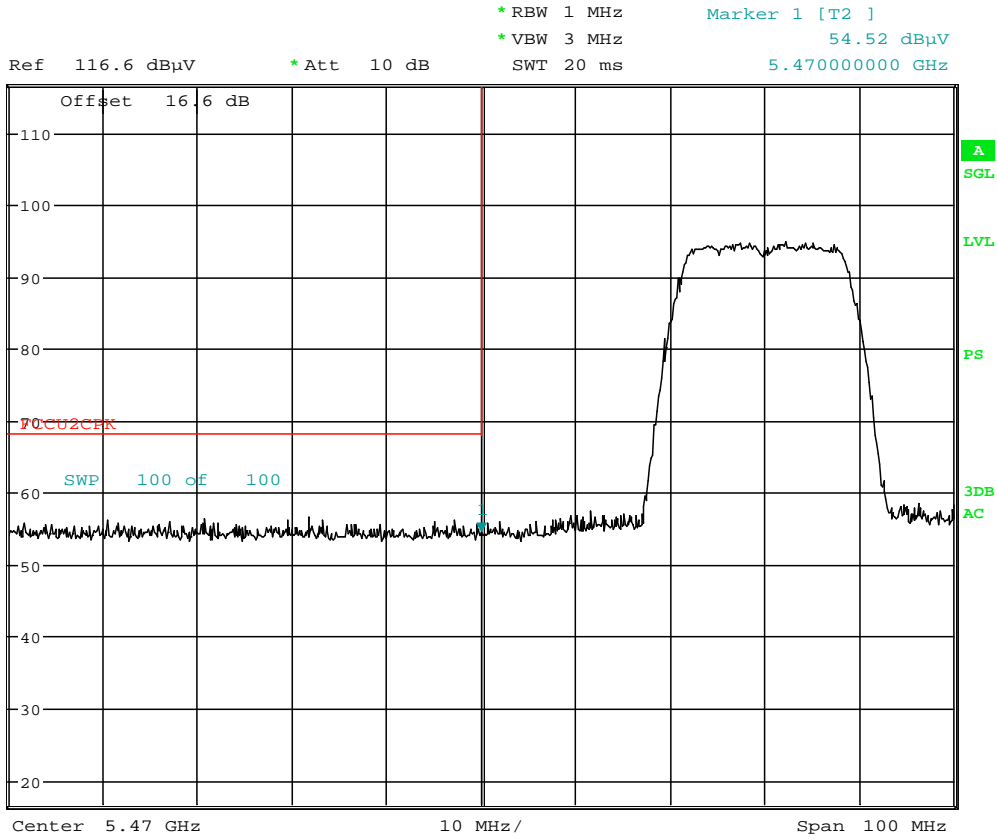


Date: 13.AUG.2014 13:07:40

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

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

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



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

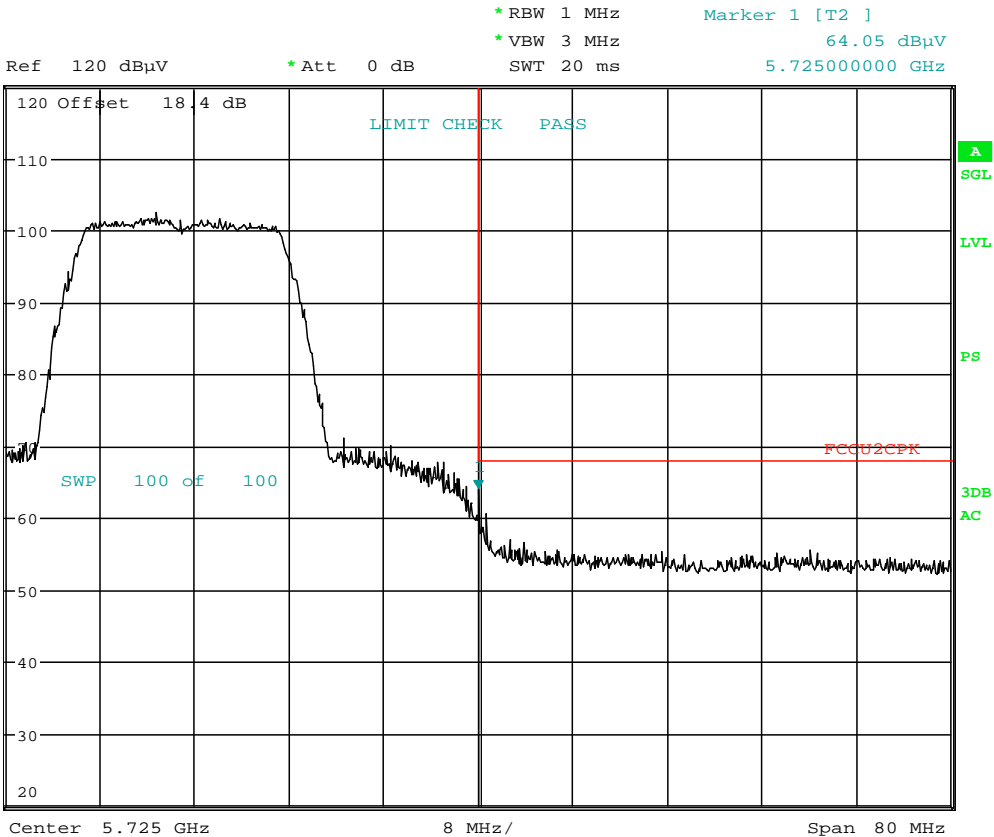
**Plot 6-175. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)**

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

# Radiated Band Edge Measurements (20MHz BW)

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

Worst Case Mode: 802.11n (20MHz)  
 Worst Case Transfer Rate: MCS8  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5700MHz  
 Channel: 140



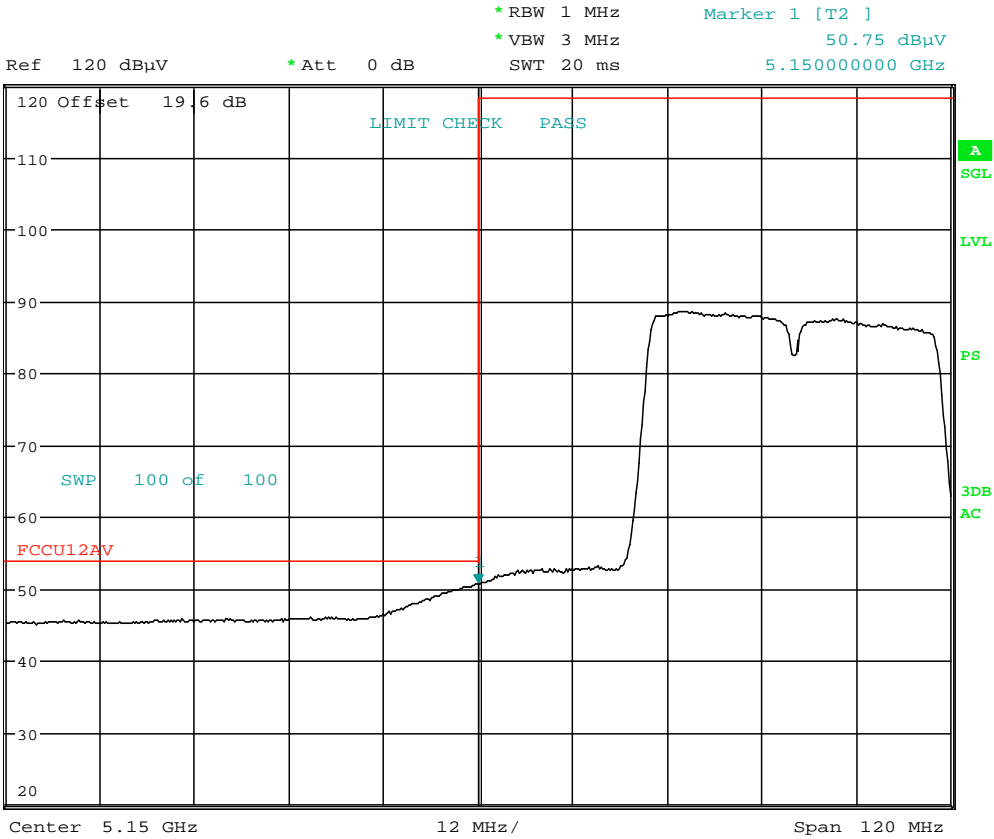
Date: 13.AUG.2014 13:35:42

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

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

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

Worst Case Mode: 802.11n (40MHz)  
 Worst Case Transfer Rate: MCS8  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5190MHz  
 Channel: 38

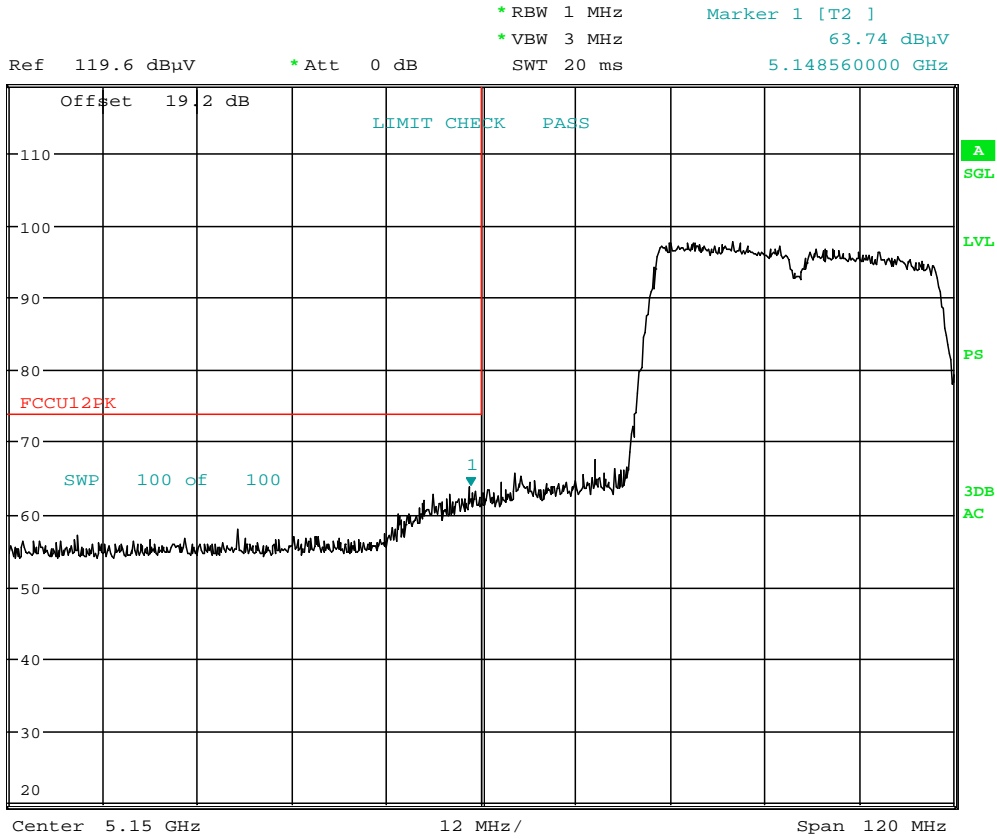


Date: 13.AUG.2014 12:27:17

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

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

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



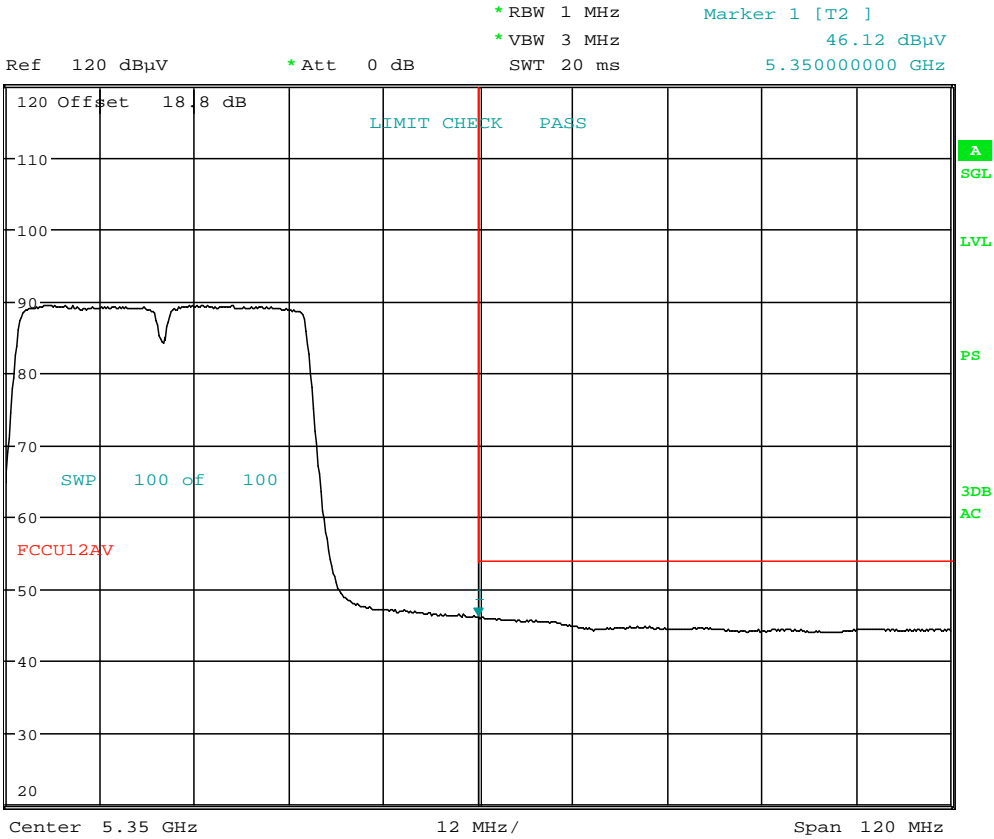
Date: 13.AUG.2014 12:28:30

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

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

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

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

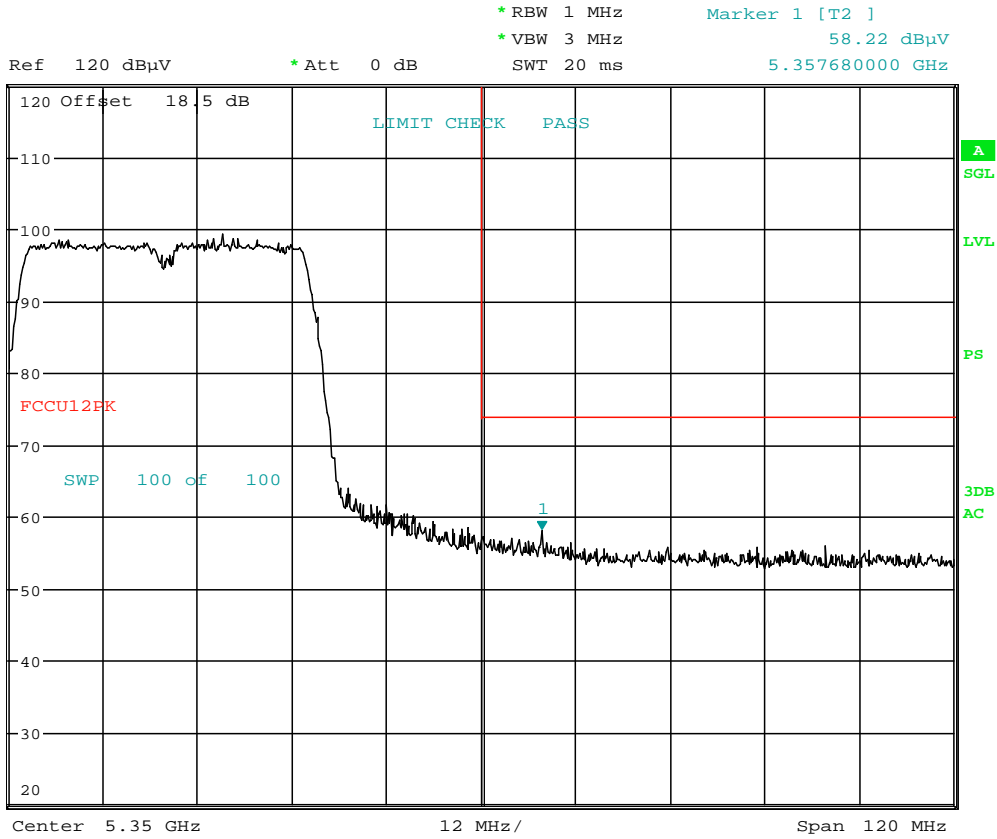


Date: 13.AUG.2014 12:55:09

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

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

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



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

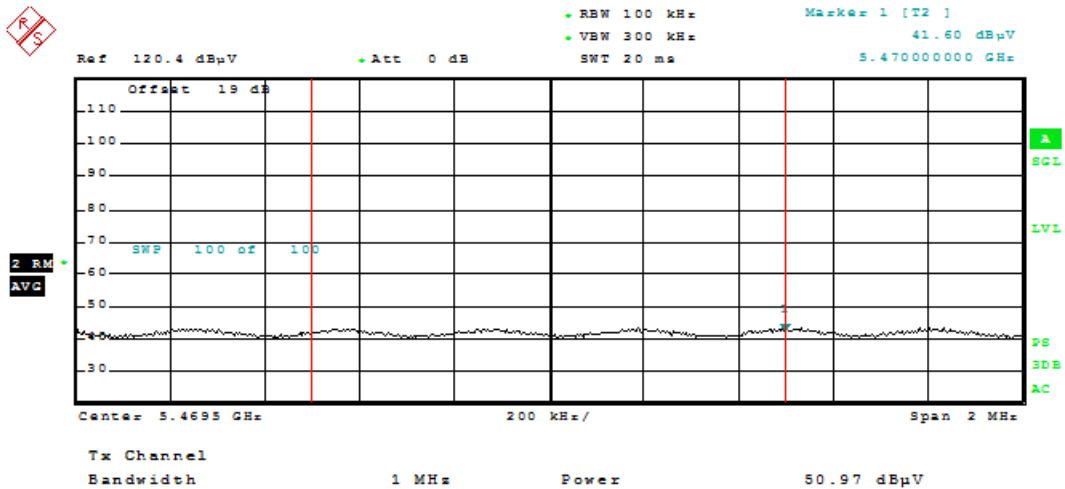
**Plot 6-180. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

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

# Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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



Date: 13.AUG.2014 13:24:21

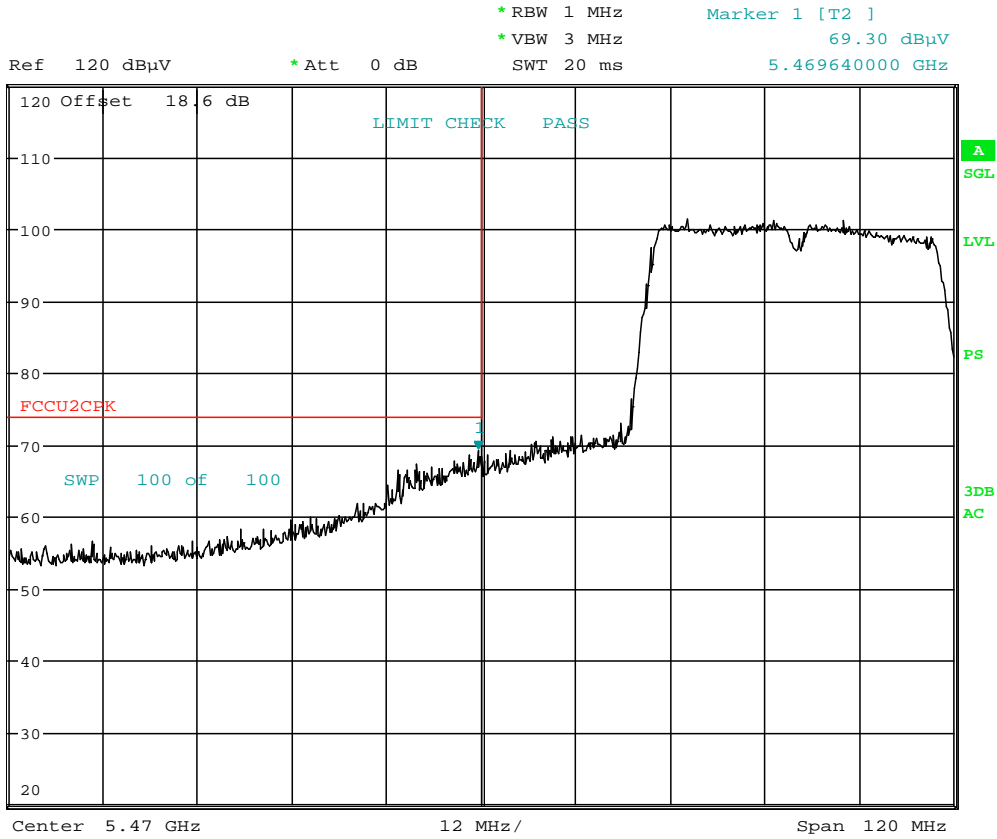
**Plot 6-181. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 2C)**

**Note:**

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

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

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



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

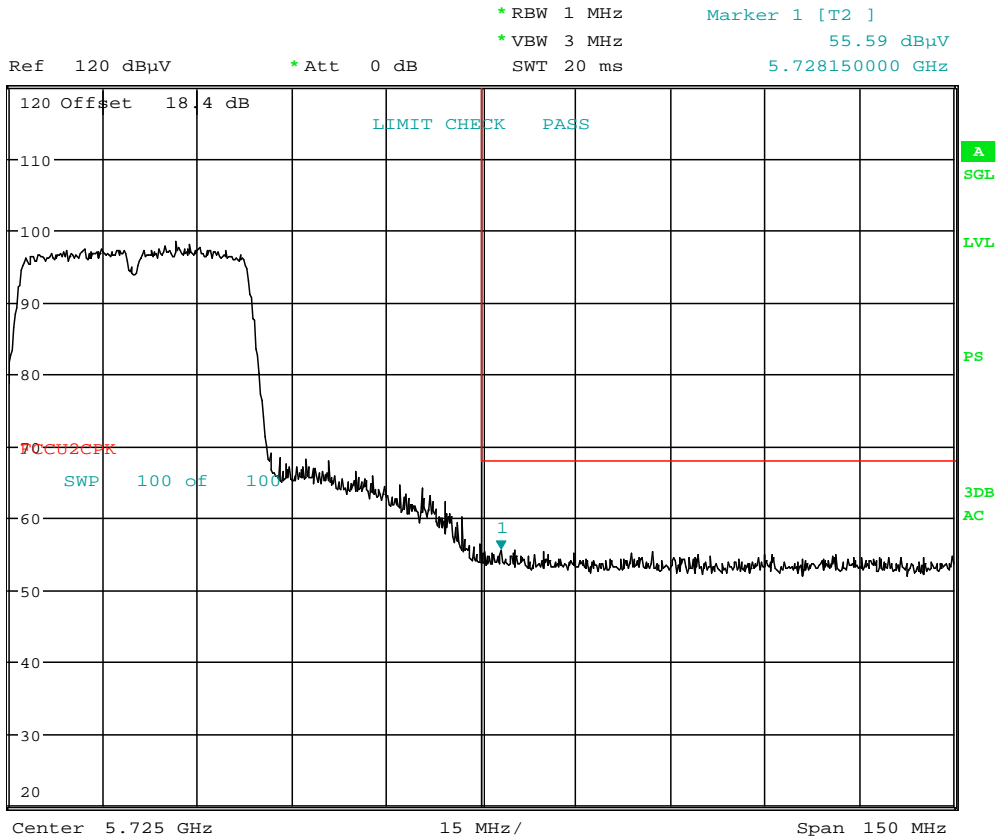
**Plot 6-182. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 2C)**

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

# Radiated Band Edge Measurements (40MHz BW)

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

Worst Case Mode: 802.11n (40MHz)  
 Worst Case Transfer Rate: MCS8  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5670MHz  
 Channel: 134



Date: 13.AUG.2014 13:37:46

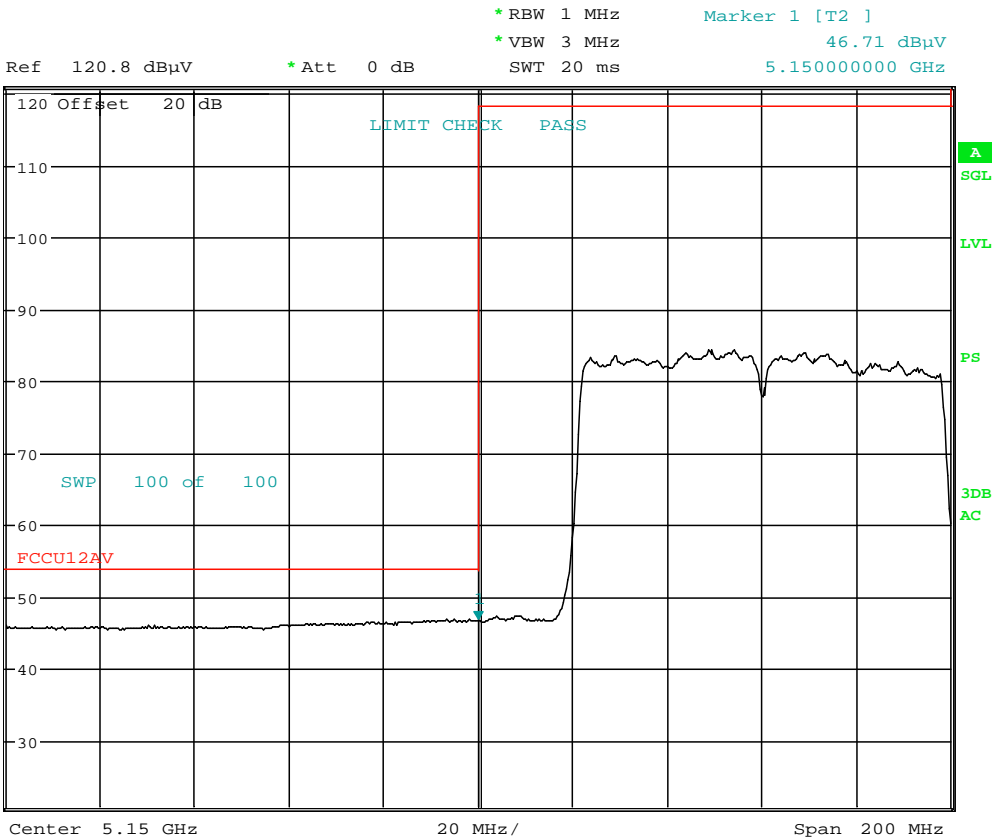
**Plot 6-183. Radiated Upper Band Edge Plot (Peak – UNII Band 2C)**

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408081665.A3L	Test Dates: 8/12 - 9/5/2014	EUT Type: Portable Handset	Page 168 of 181	

## 6.16 MIMO Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

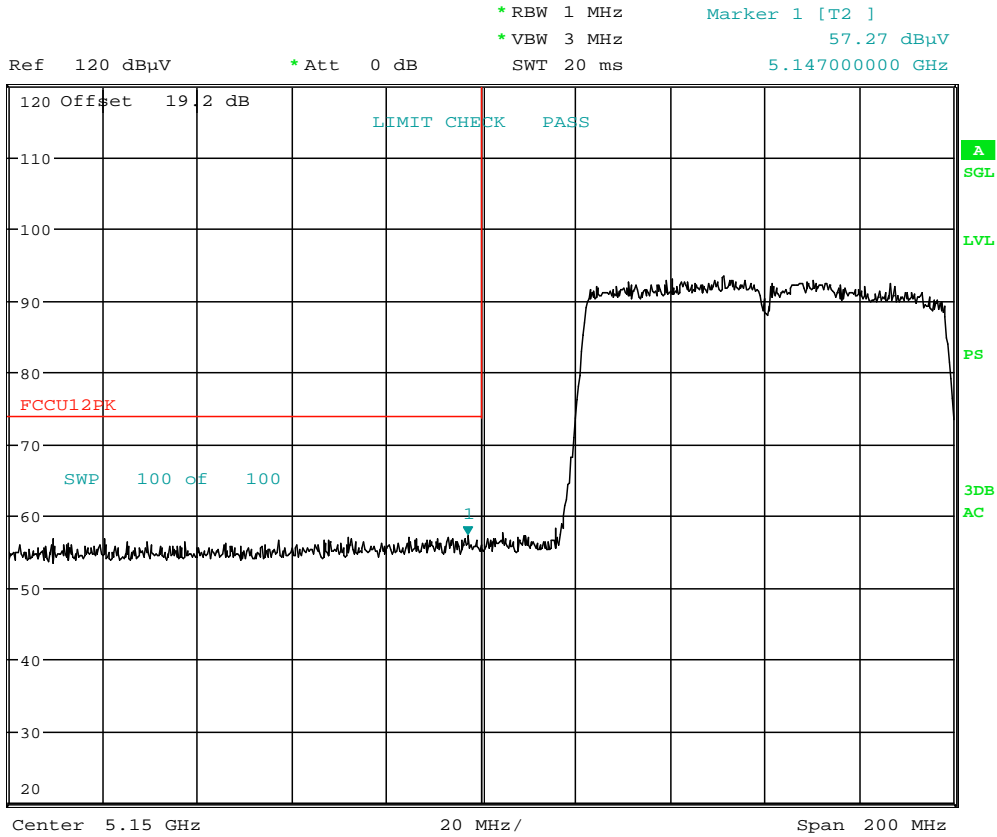


Date: 13.AUG.2014 12:36:13

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

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

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



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

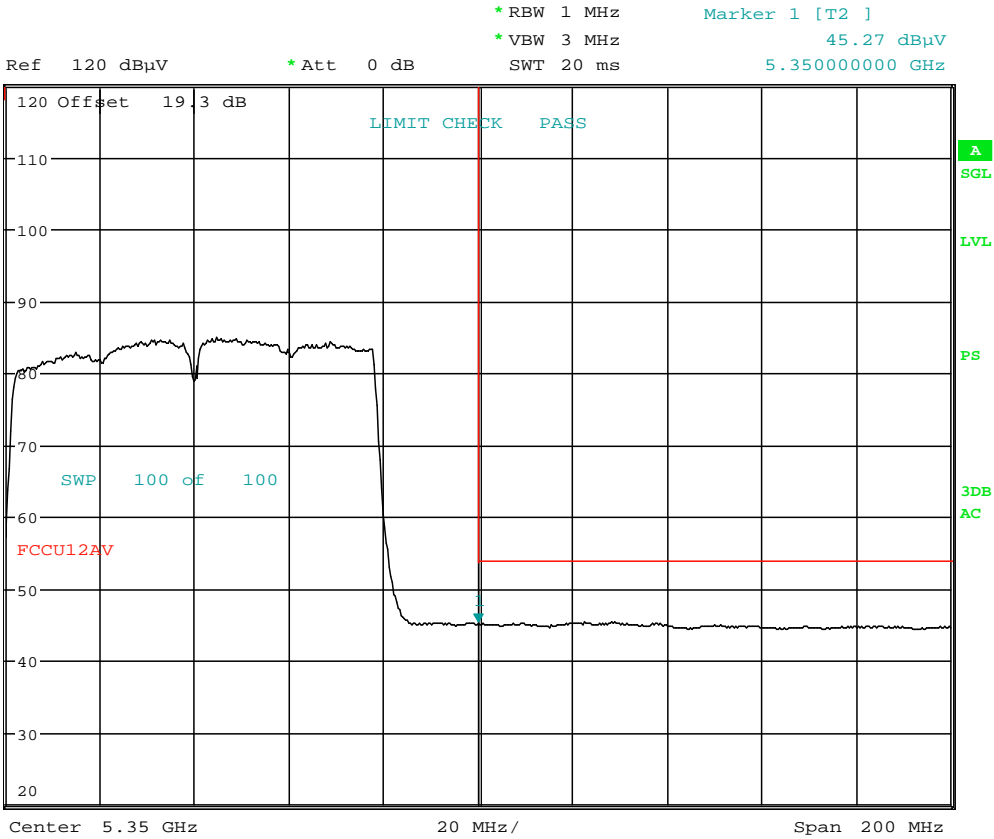
**Plot 6-185. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)**

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

# Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

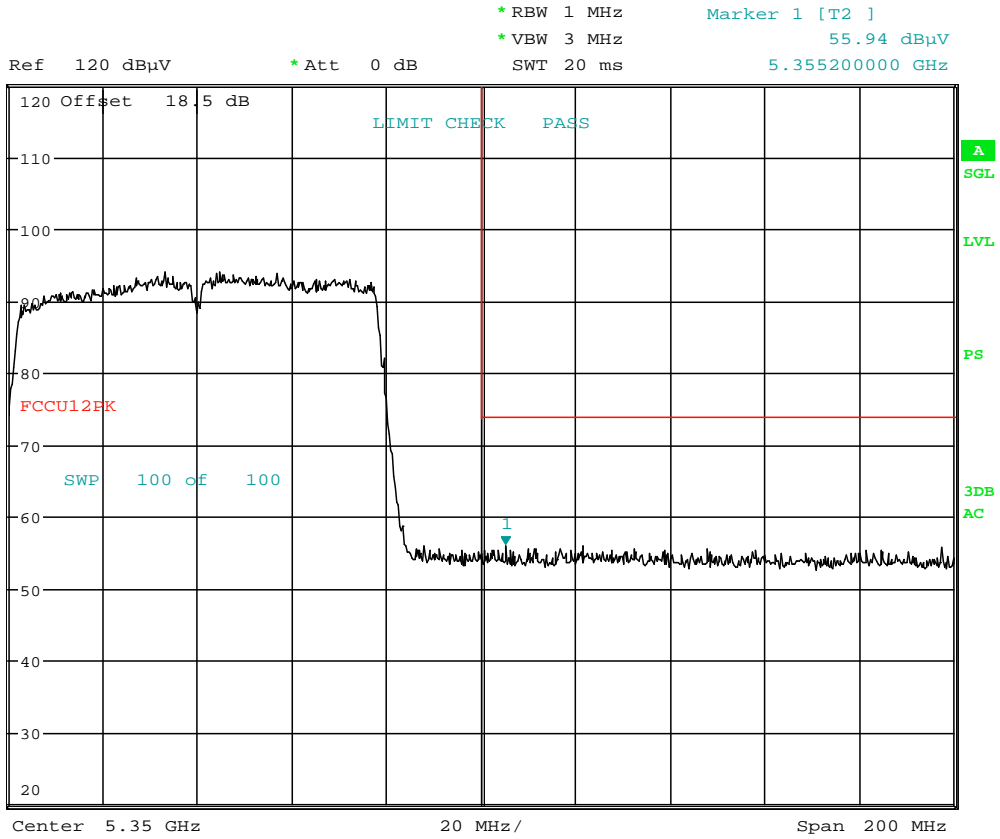


Date: 13.AUG.2014 13:00:28

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

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

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



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

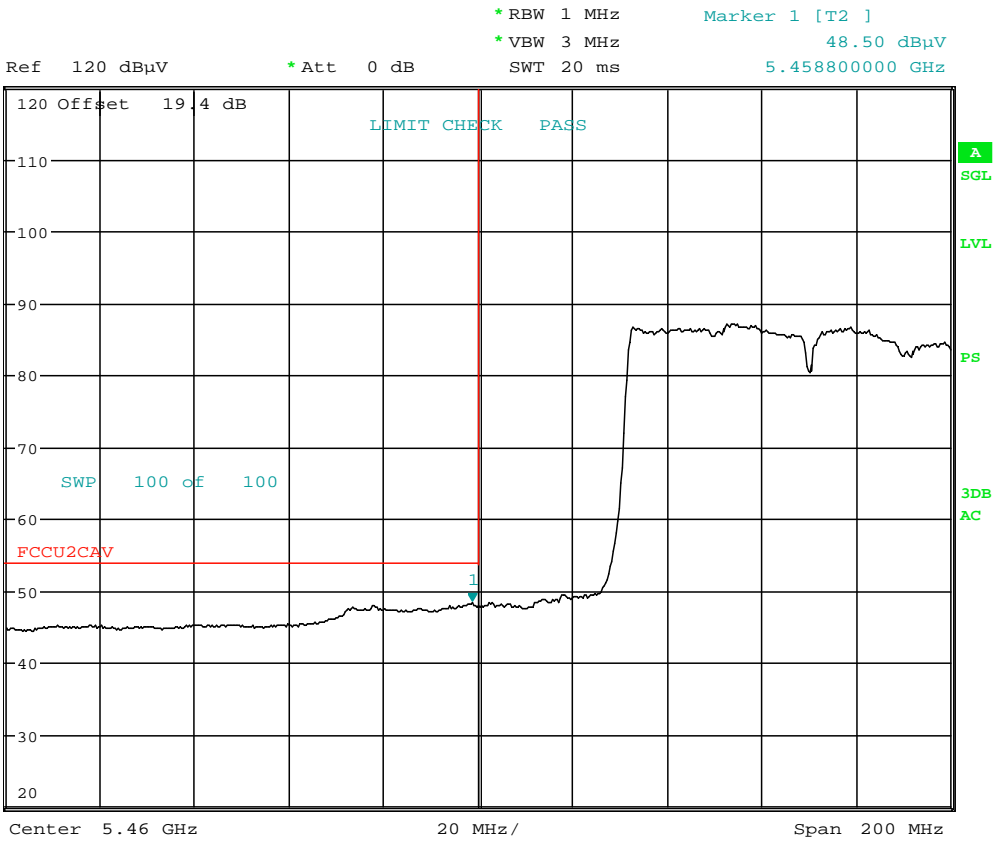
**Plot 6-187. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2A)**

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

# Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209

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

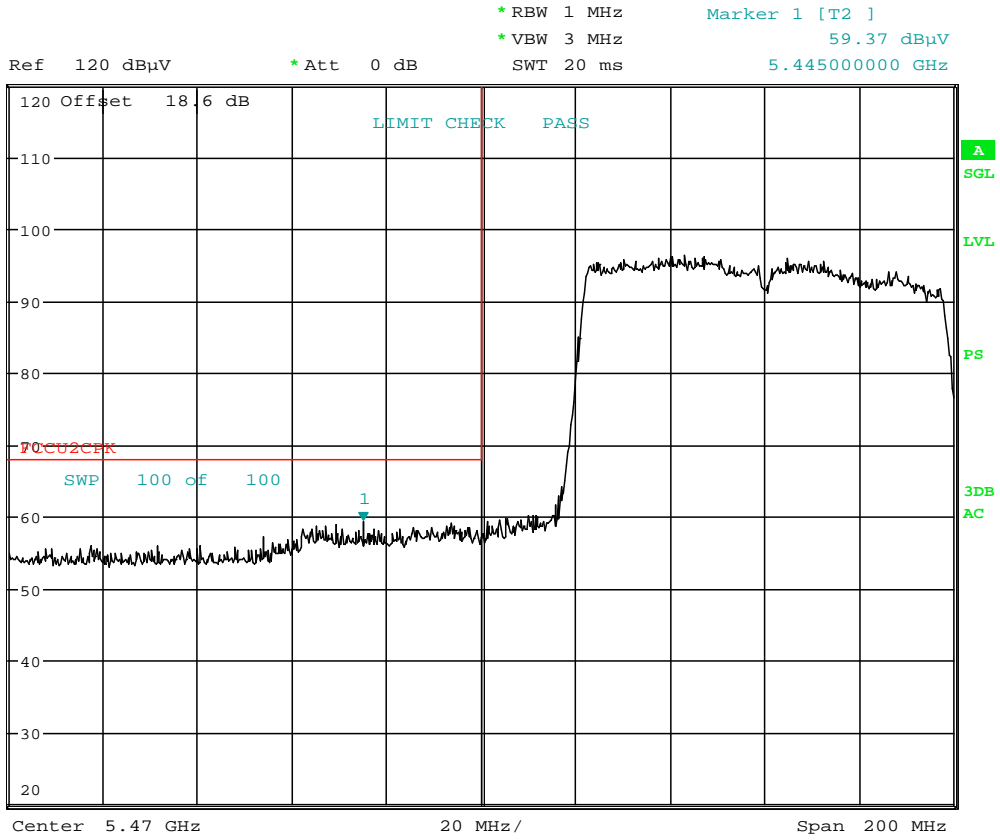


Date: 13.AUG.2014 13:31:12

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

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

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



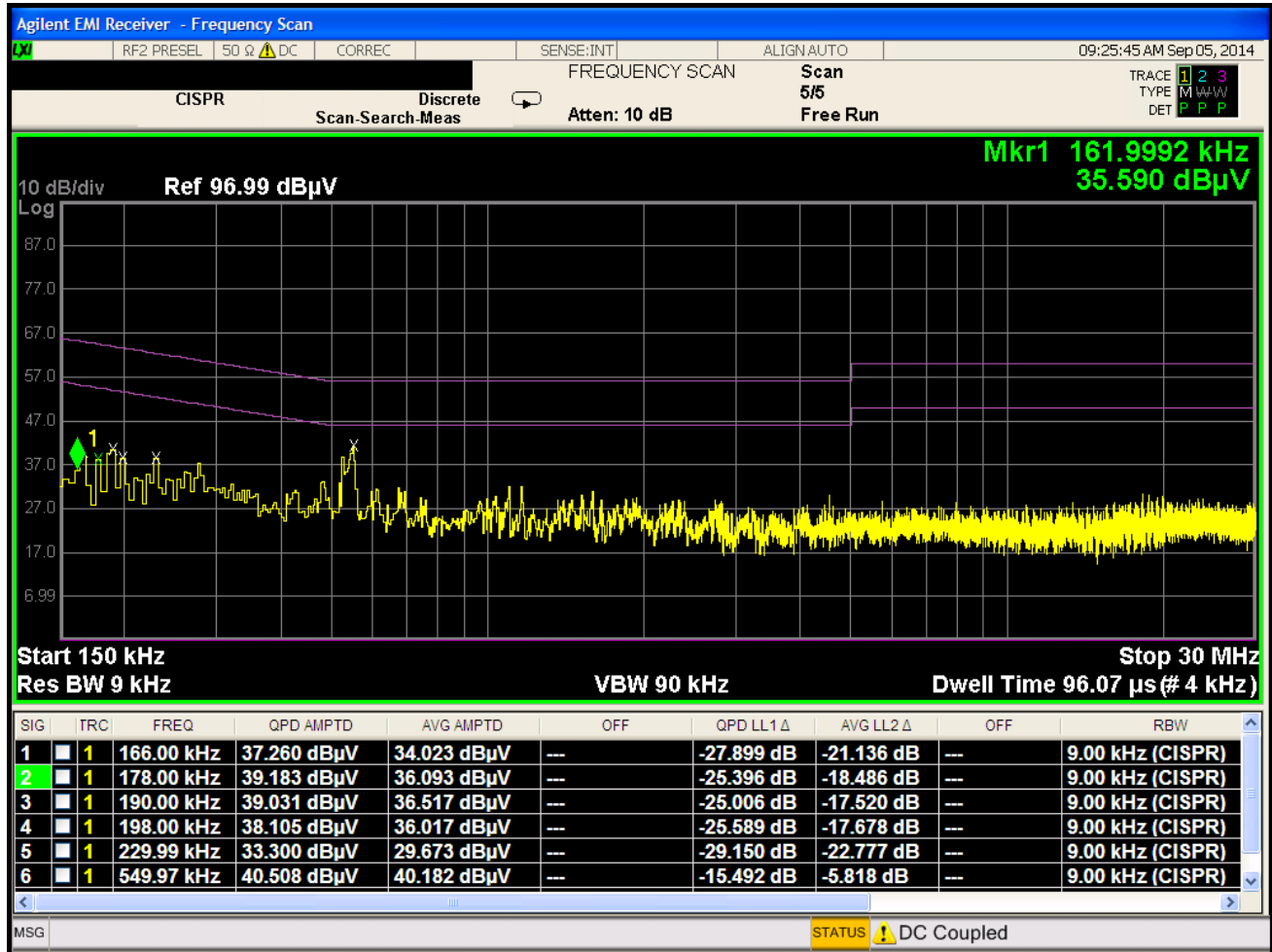
Date: 13.AUG.2014 13:28:59

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

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

## 6.17 Line-Conducted Test Data

**\$15.407**



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

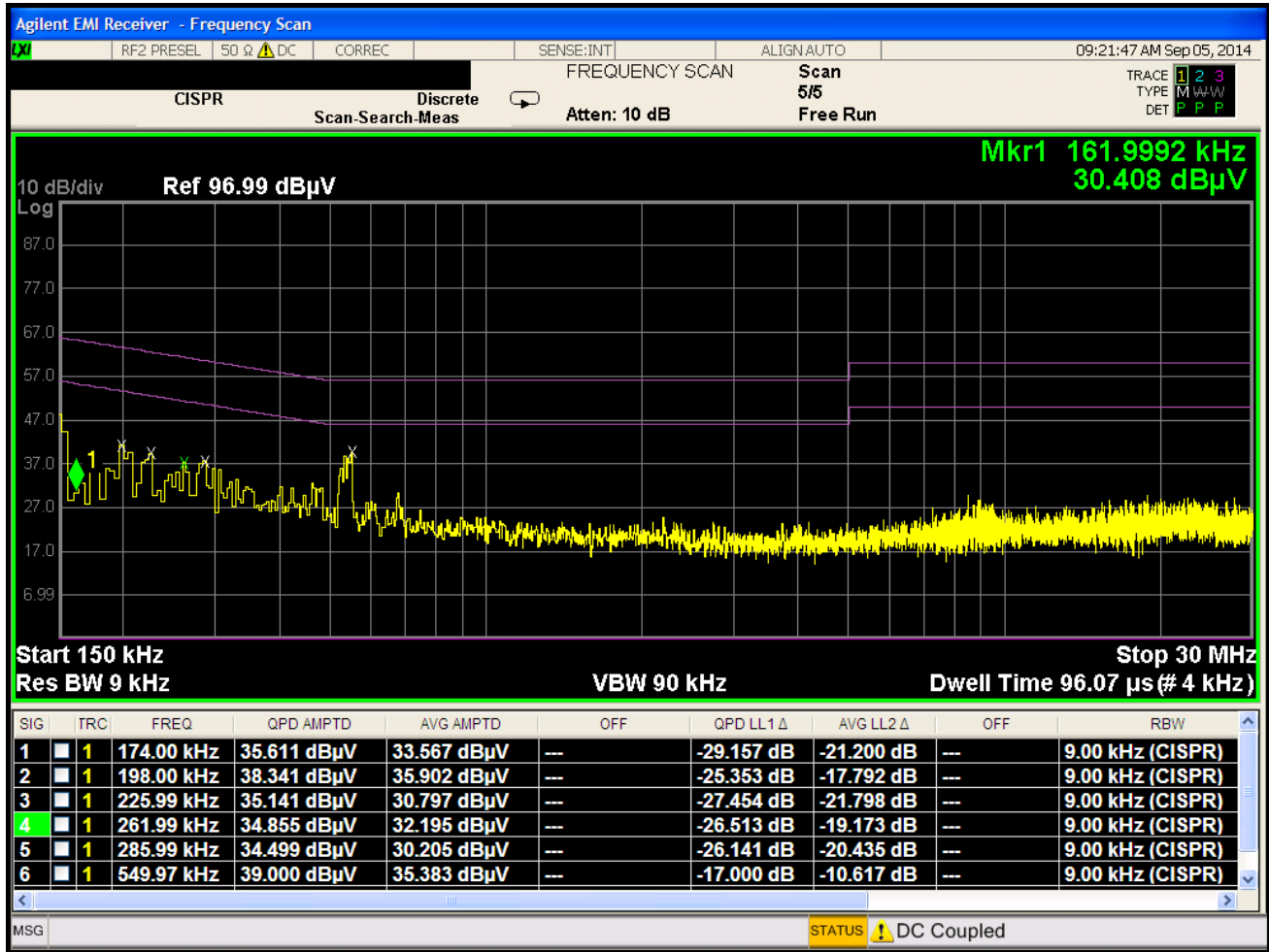
**Notes:**

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

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

# Line-Conducted Test Data

**\$15.407**



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

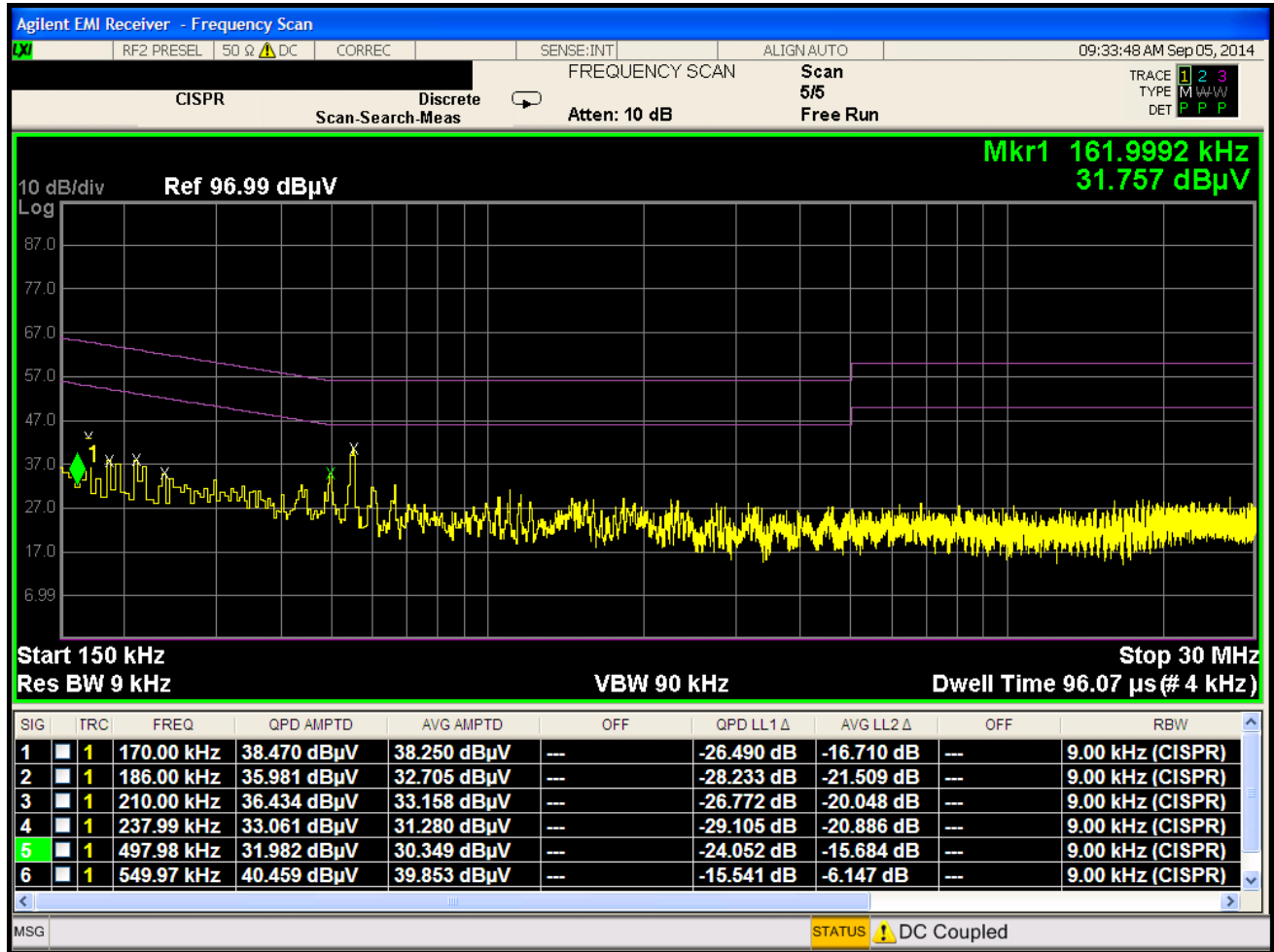
**Notes:**

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

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

# Line-Conducted Test Data

**\$15.407**



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

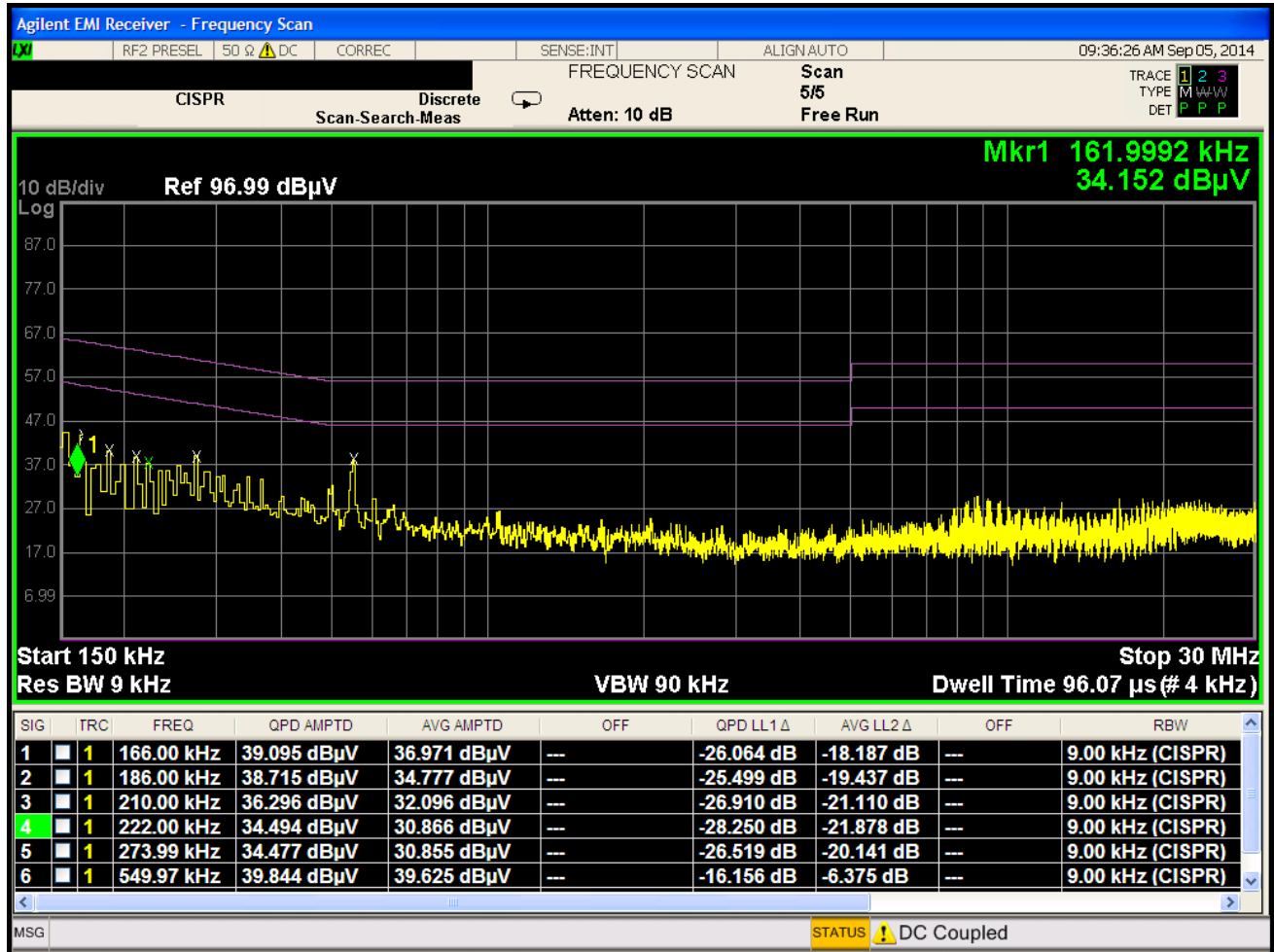
**Notes:**

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

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# Line-Conducted Test Data

## \$15.407



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

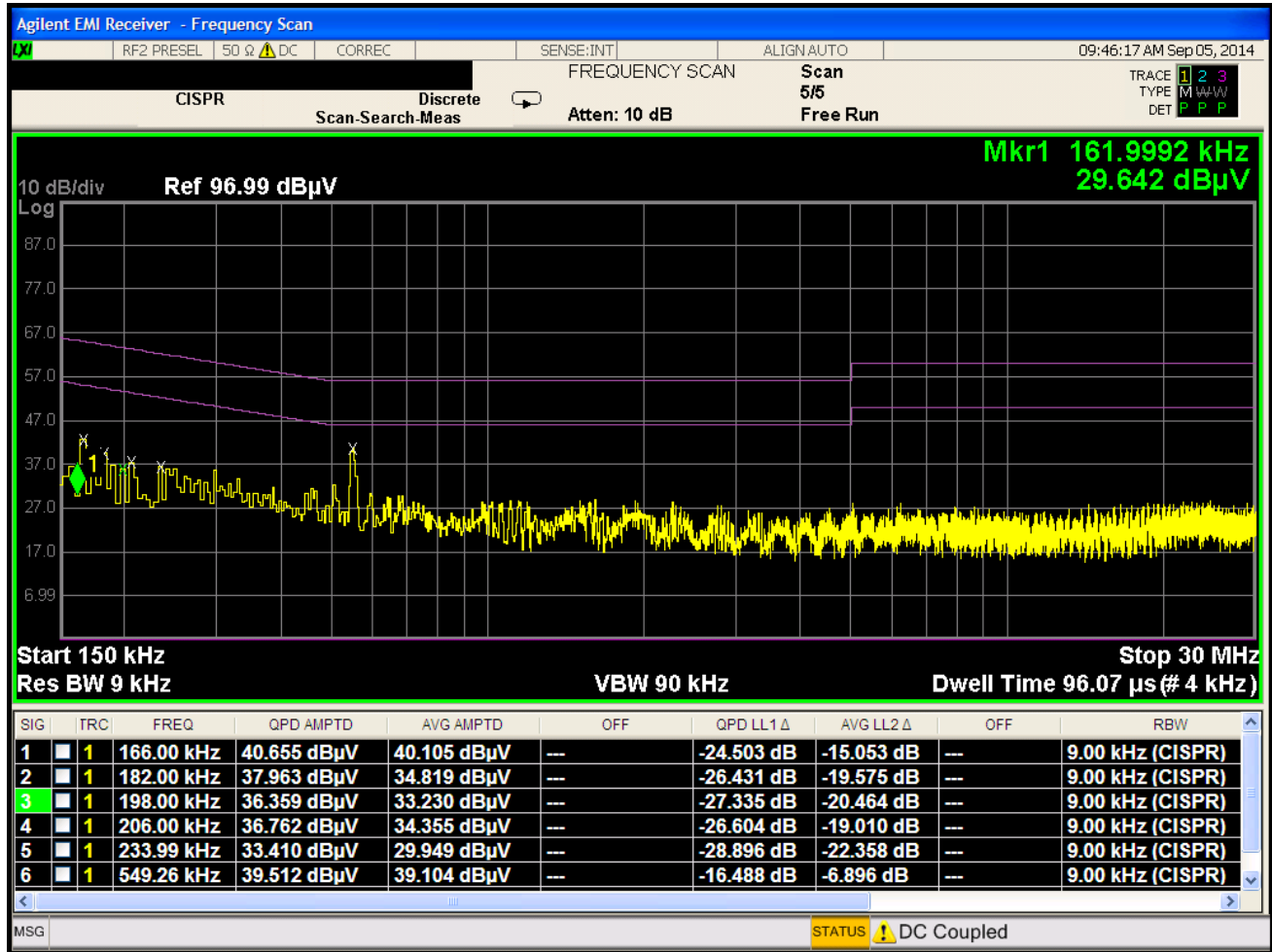
**Notes:**

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

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# Line-Conducted Test Data

**\$15.407**



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

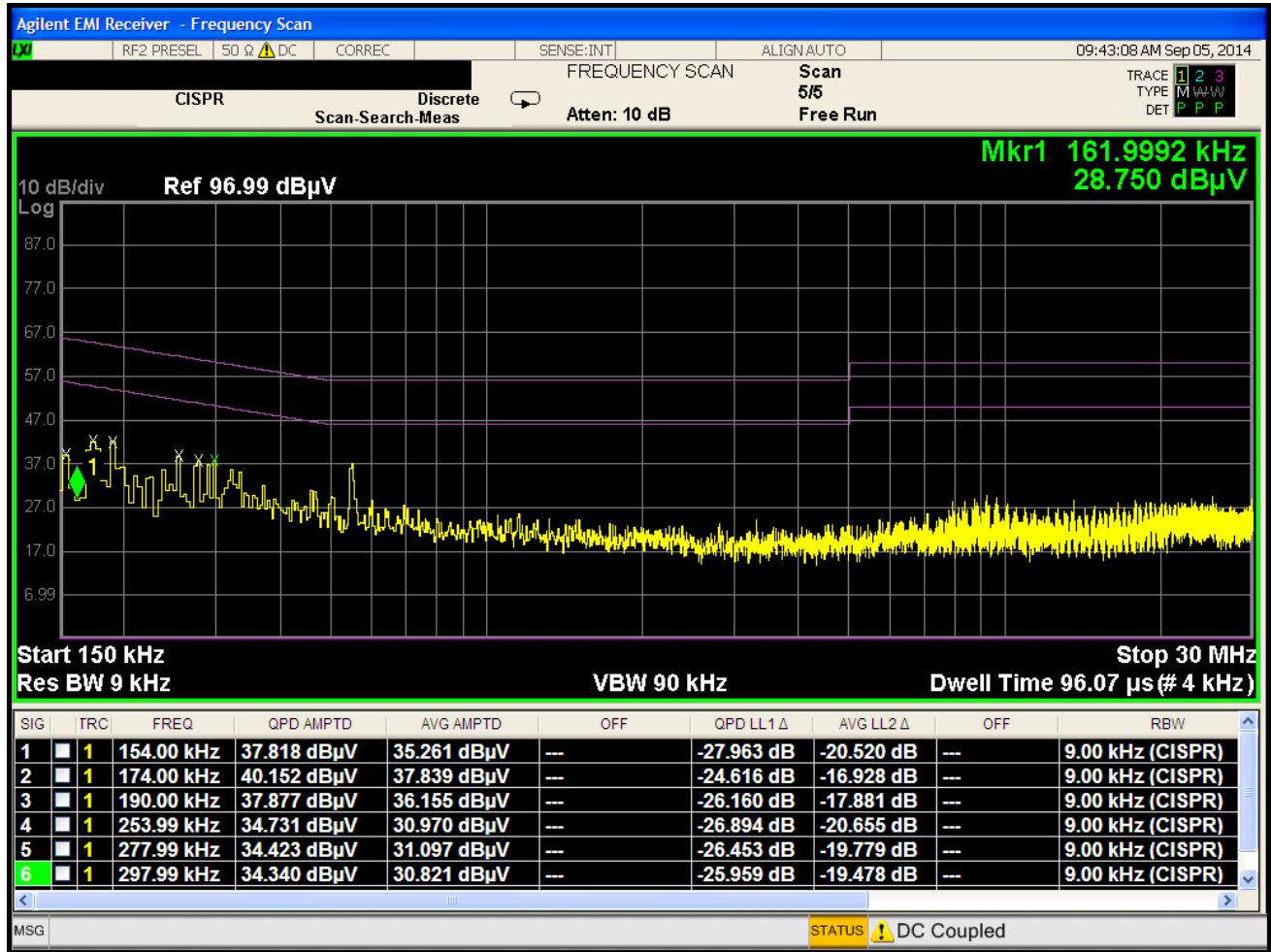
**Notes:**

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

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# Line-Conducted Test Data

**\$15.407**



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



**Notes:**

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

FCC ID: A3LSMN9109W		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 7.0 CONCLUSION

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

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