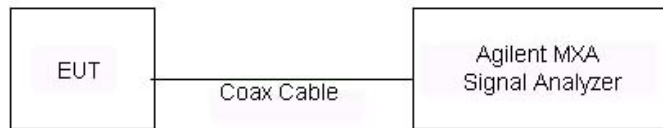


## 6.5 Peak Excursion Ratio – 802.11a/n §15.407(a)(6)



The spectrum analyzer was connected to the antenna terminal while the EUT was operating in the continuous transmission mode at the appropriate center frequencies.

Method SA-1, as defined in KDB 789033 and with the settings described in Section 6.4 of this test report, was used to generate the average signal trace and the procedure outlined in section F) was used to generate the peak signal trace. A minimum of 100 trace averages were used for the average signal. The peak and average traces are then used to determine the peak excursion.

***The largest permissible difference between the modulation envelope (measured using a peak hold function) and the maximum conducted output power is 13 dBm/MHz.***





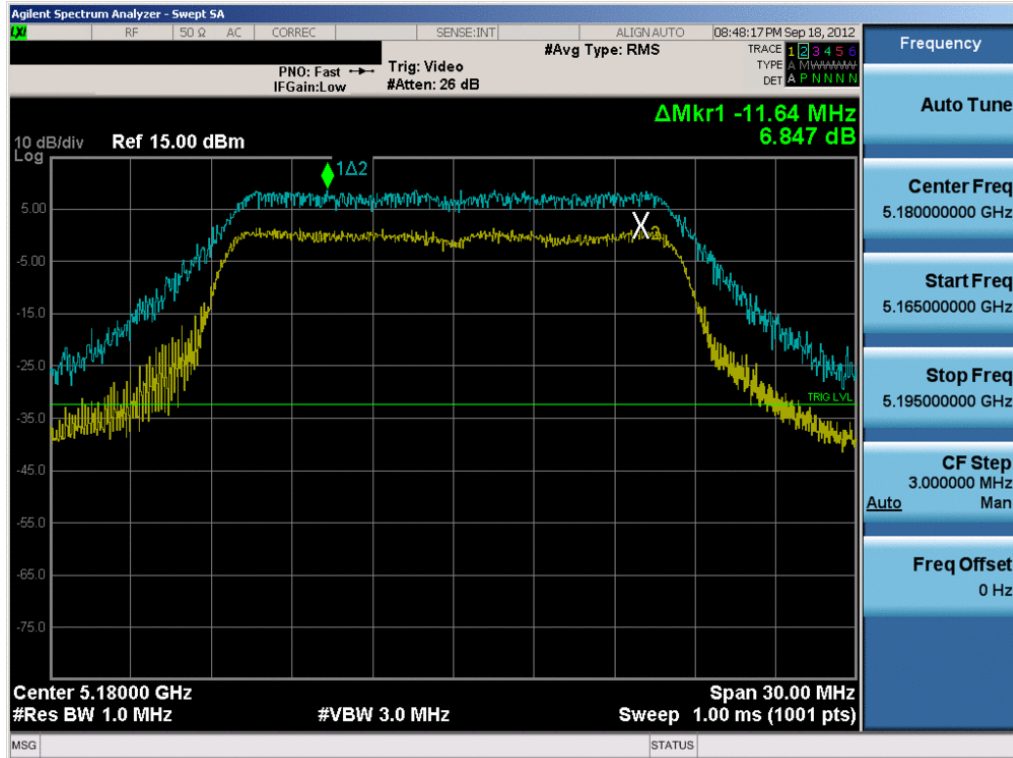
**Figure 6-4. Test Instrument & Measurement Setup**

FCC ID: A3LSWDSC21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 43 of 85

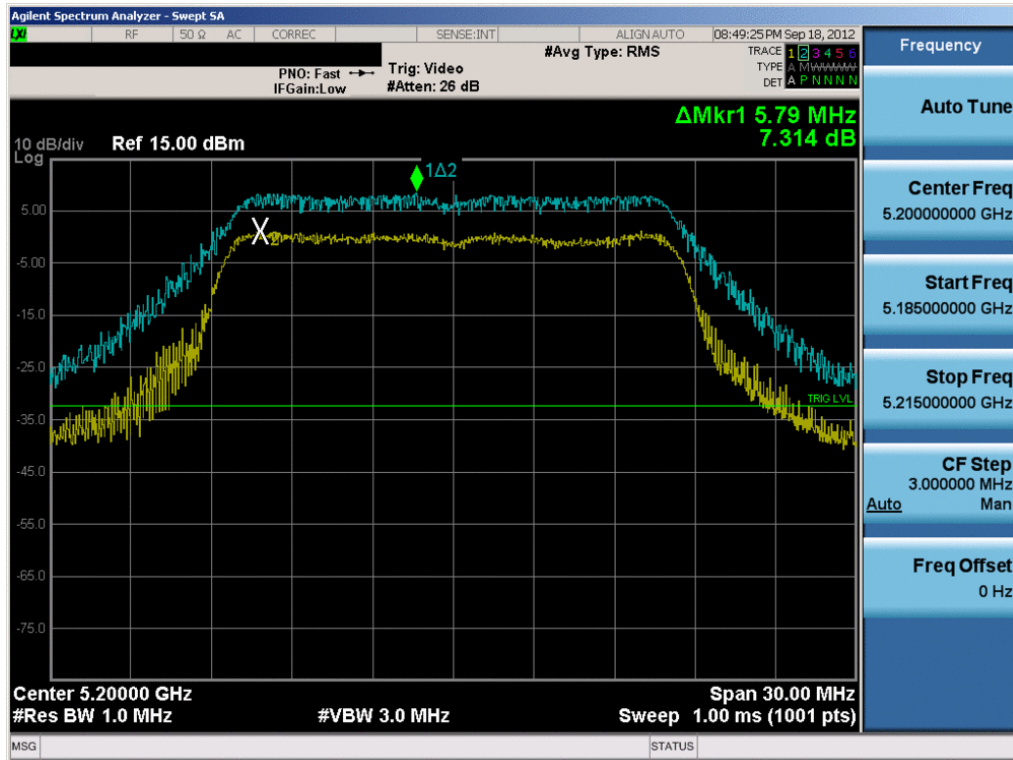
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Peak Excursion Ratio [dBm]	Max Permissible Peak Excursion Ratio [dBm/MHz]	Margin [dB]
Band I	5180	36	a	6	6.847	13.0	-6.15
	5200	40	a	6	7.314	13.0	-5.69
	5240	48	a	6	7.001	13.0	-6.00
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.542	13.0	-6.46
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.513	13.0	-6.49
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.784	13.0	-6.22
	5190	38	n (40MHz)	13.5/15 (MCS0)	8.357	13.0	-4.64
	5230	46	n (40MHz)	13.5/15 (MCS0)	7.853	13.0	-5.15
Band II	5260	52	a	6	7.259	13.0	-5.74
	5280	56	a	6	7.434	13.0	-5.57
	5320	64	a	6	7.661	13.0	-5.34
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.219	13.0	-6.78
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.310	13.0	-6.69
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	6.565	13.0	-6.44
	5270	54	n (40MHz)	13.5/15 (MCS0)	8.249	13.0	-4.75
	5310	62	n (40MHz)	13.5/15 (MCS0)	8.064	13.0	-4.94
Band III	5500	100	a	6	8.110	13.0	-4.89
	5580	116	a	6	7.717	13.0	-5.28
	5700	140	a	6	6.955	13.0	-6.05
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	7.794	13.0	-5.21
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	8.477	13.0	-4.52
	5700	140	n (20MHz)	6.5/7.2 (MCS0)	7.990	13.0	-5.01
	5510	102	n (40MHz)	13.5/15 (MCS0)	8.469	13.0	-4.53
	5550	110	n (40MHz)	13.5/15 (MCS0)	8.644	13.0	-4.36
	5670	134	n (40MHz)	13.5/15 (MCS0)	7.872	13.0	-5.13

**Table 6-7. Conducted Peak Excursion Ratio Measurements**

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 44 of 85



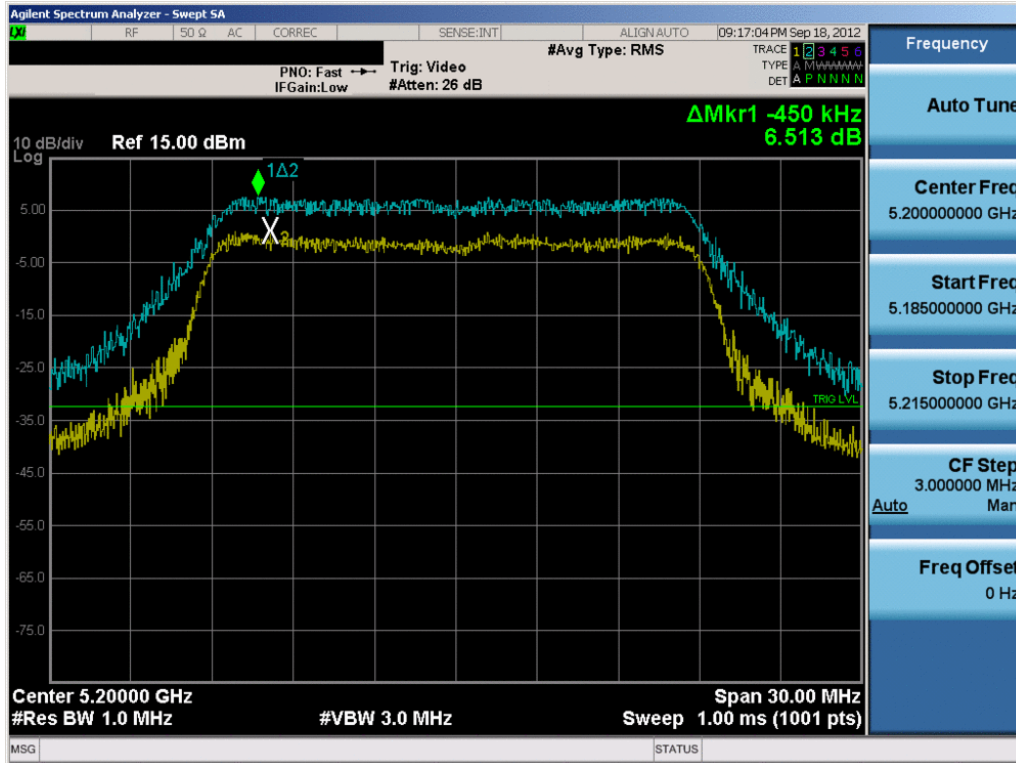
Plot 6-51. Peak Excursion Ratio Plot (802.11a (UNII Band 1) – Ch. 36)



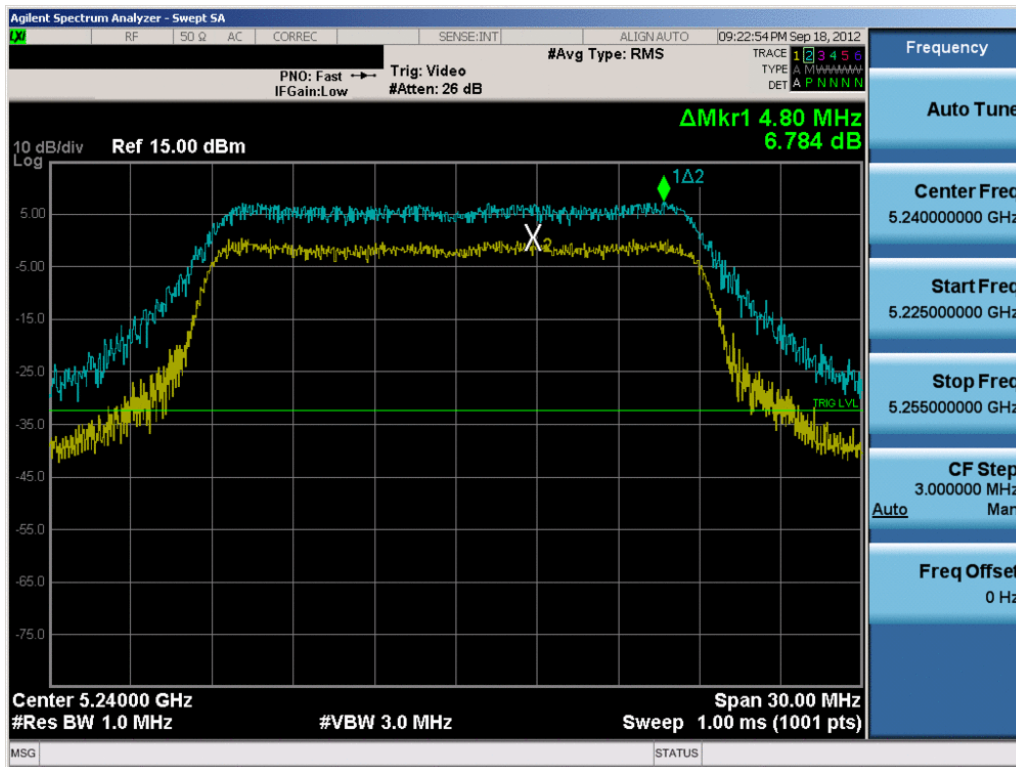
Plot 6-52. Peak Excursion Ratio Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 45 of 85





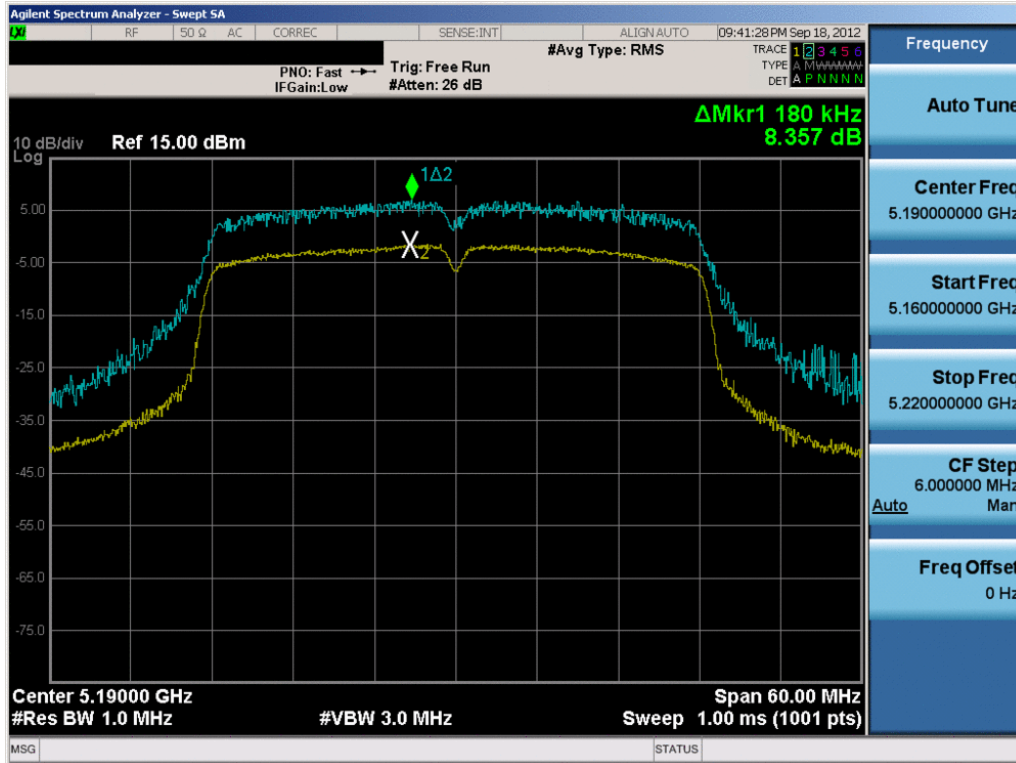


Plot 6-55. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

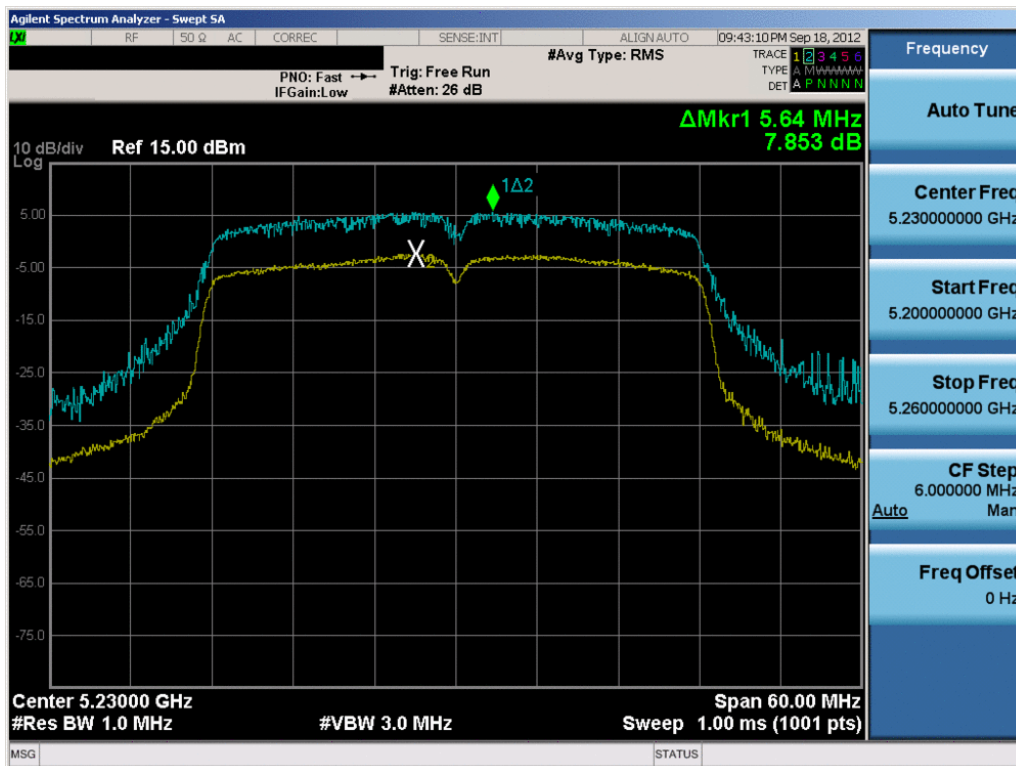


Plot 6-56. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)



FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 47 of 85

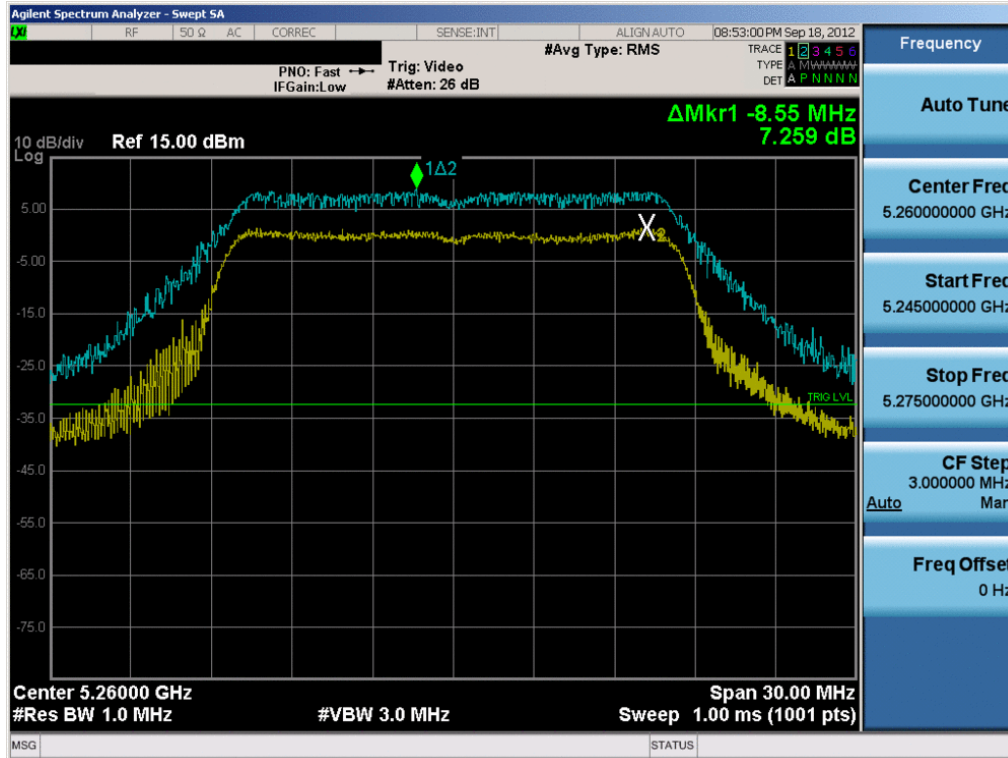


Plot 6-57. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

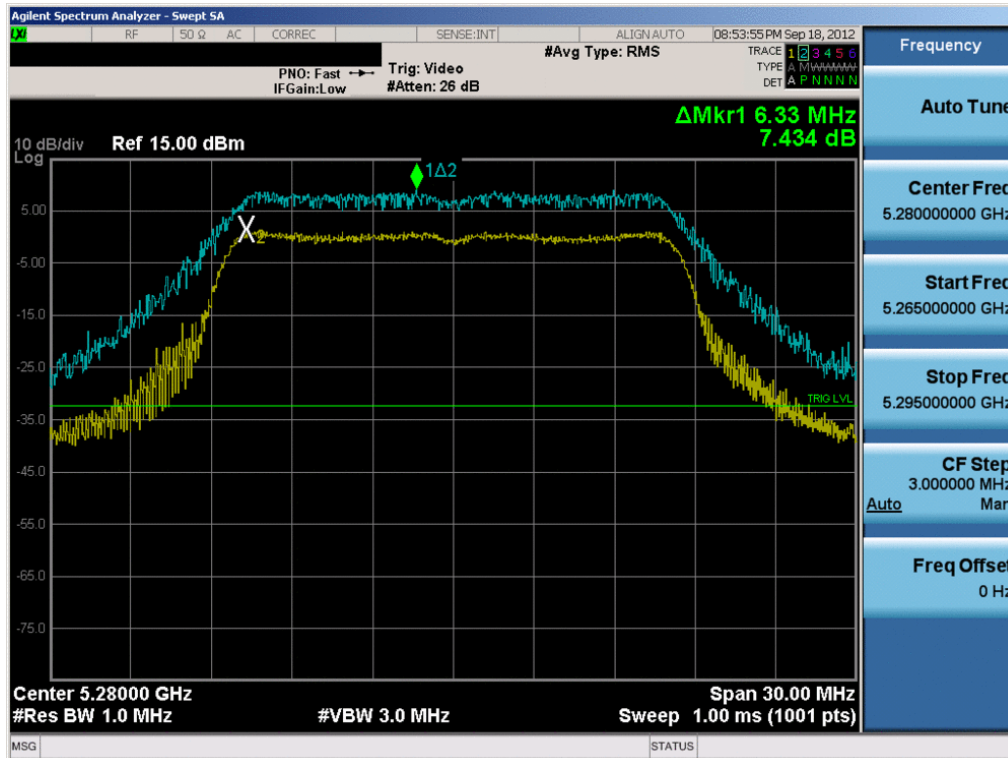


Plot 6-58. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 48 of 85

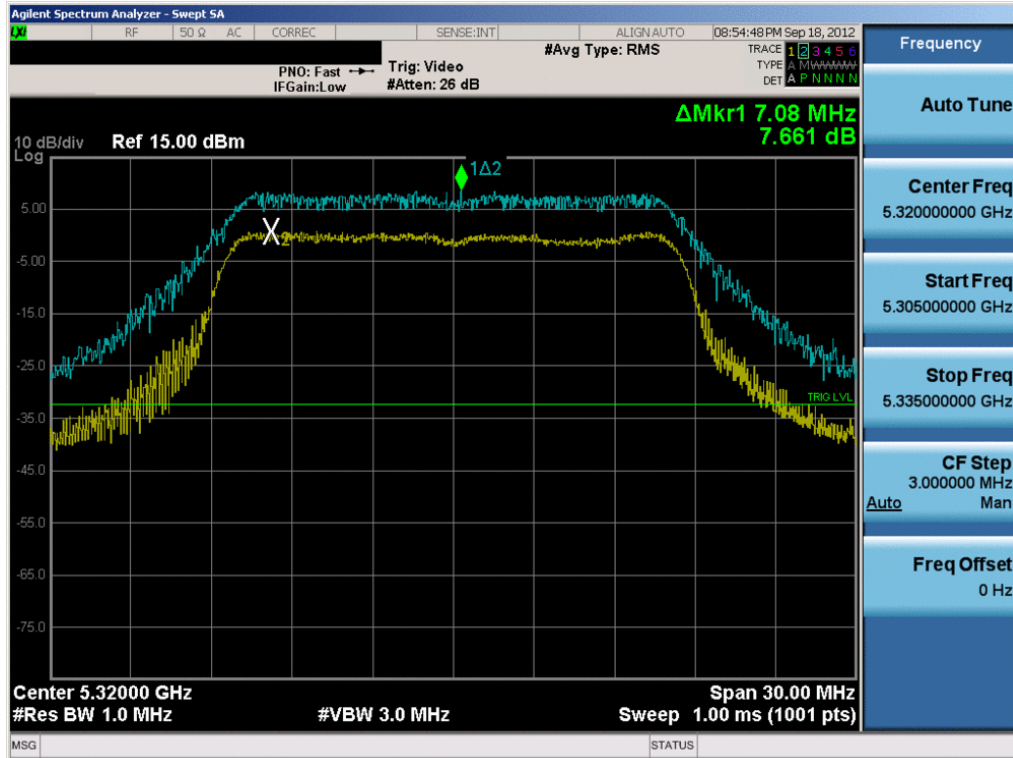


Plot 6-59. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 52)

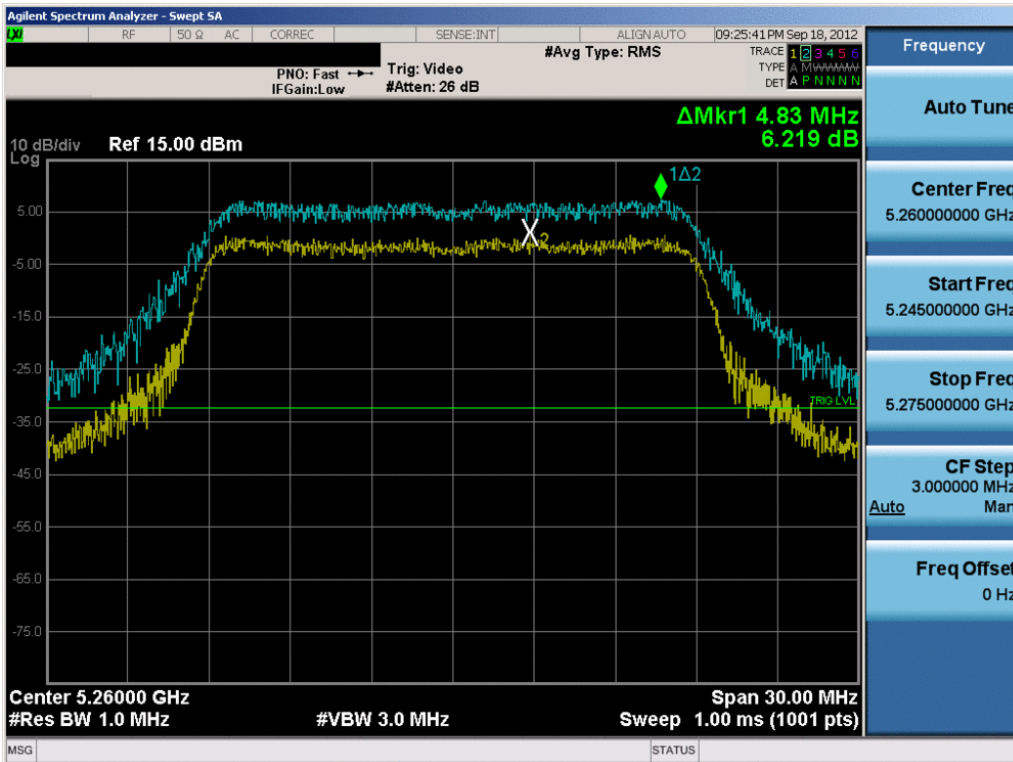


Plot 6-60. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 56)

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 49 of 85

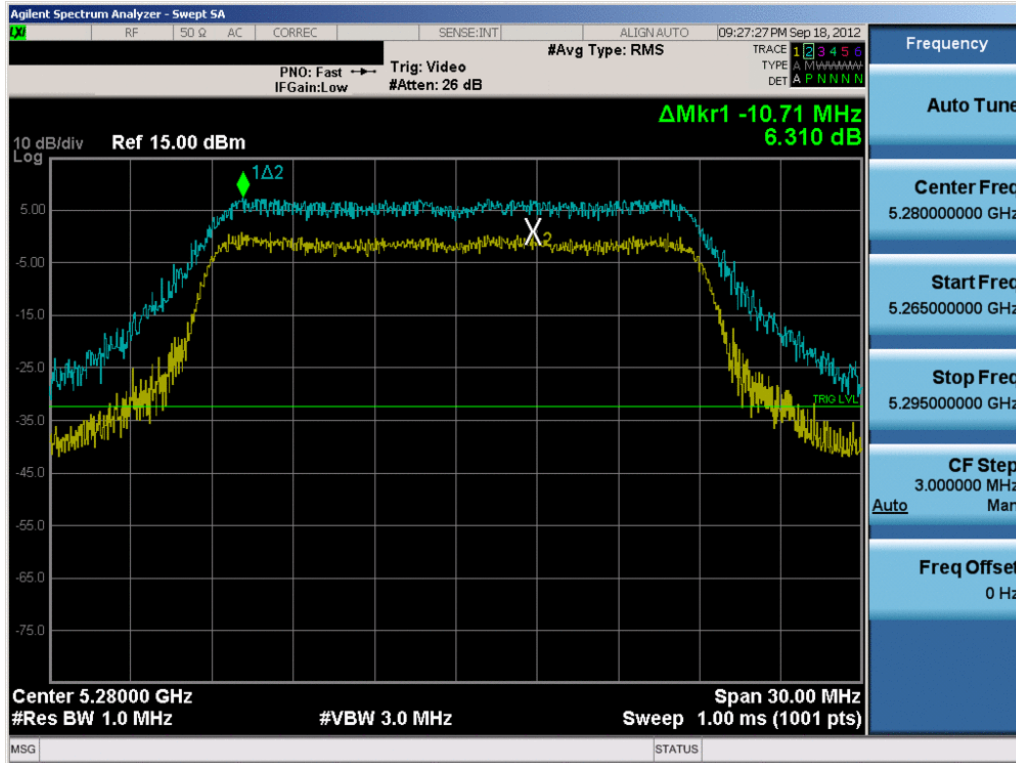


Plot 6-61. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 64)

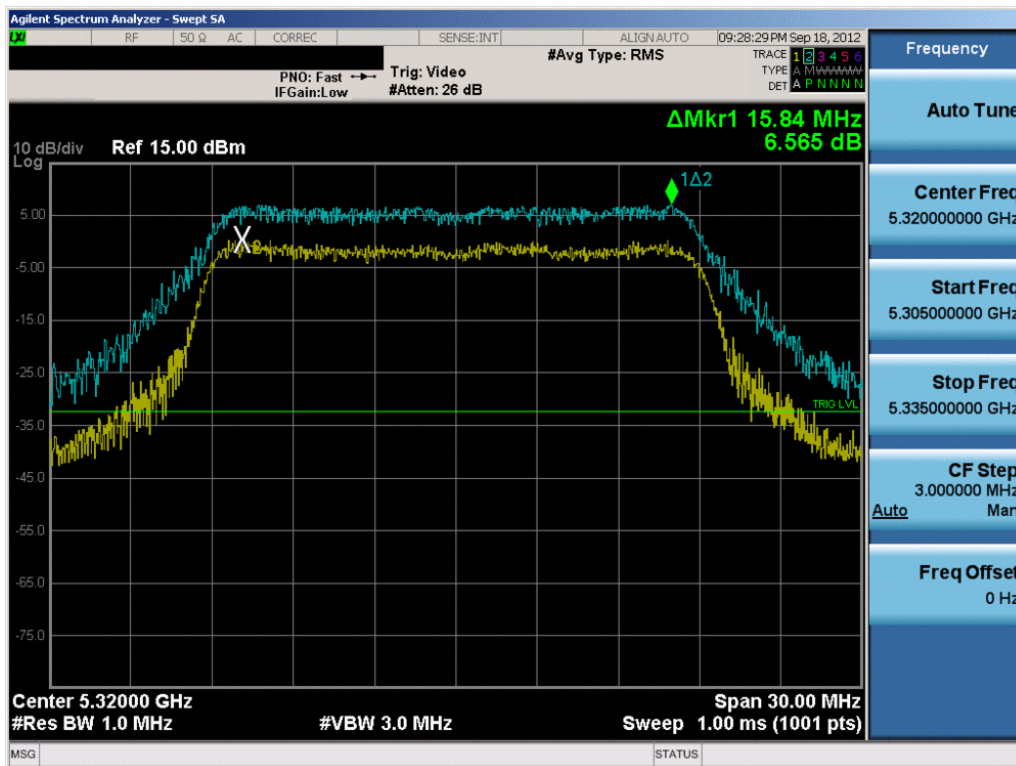


Plot 6-62. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 52)



FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 50 of 85



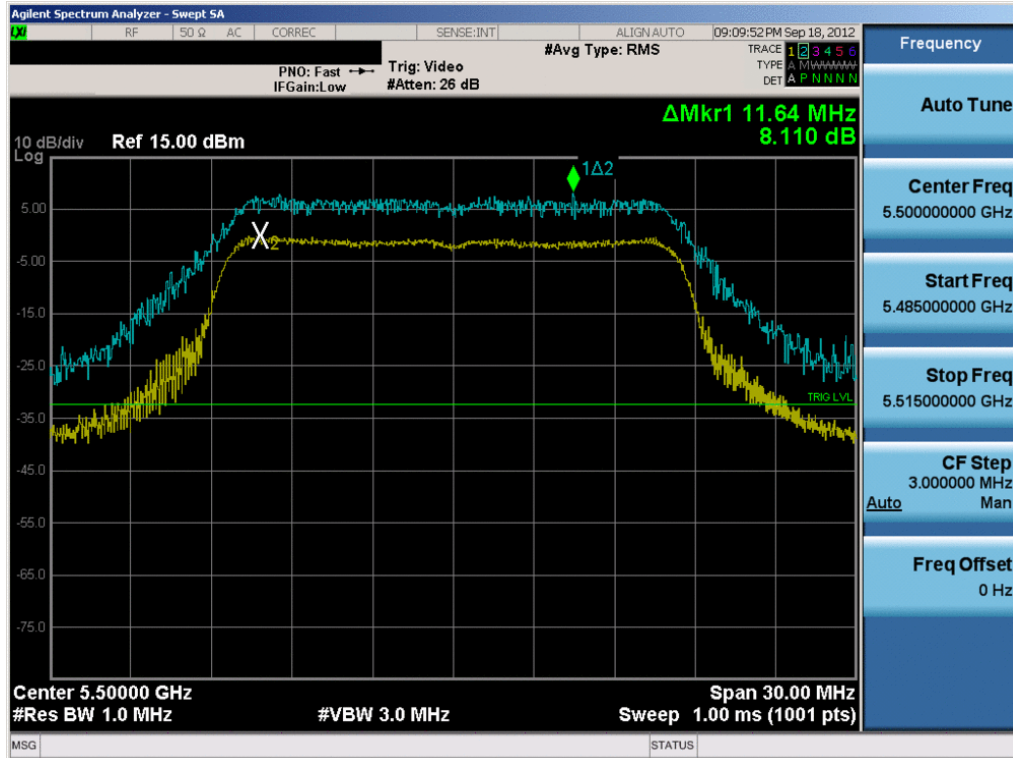
Plot 6-63. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 56)



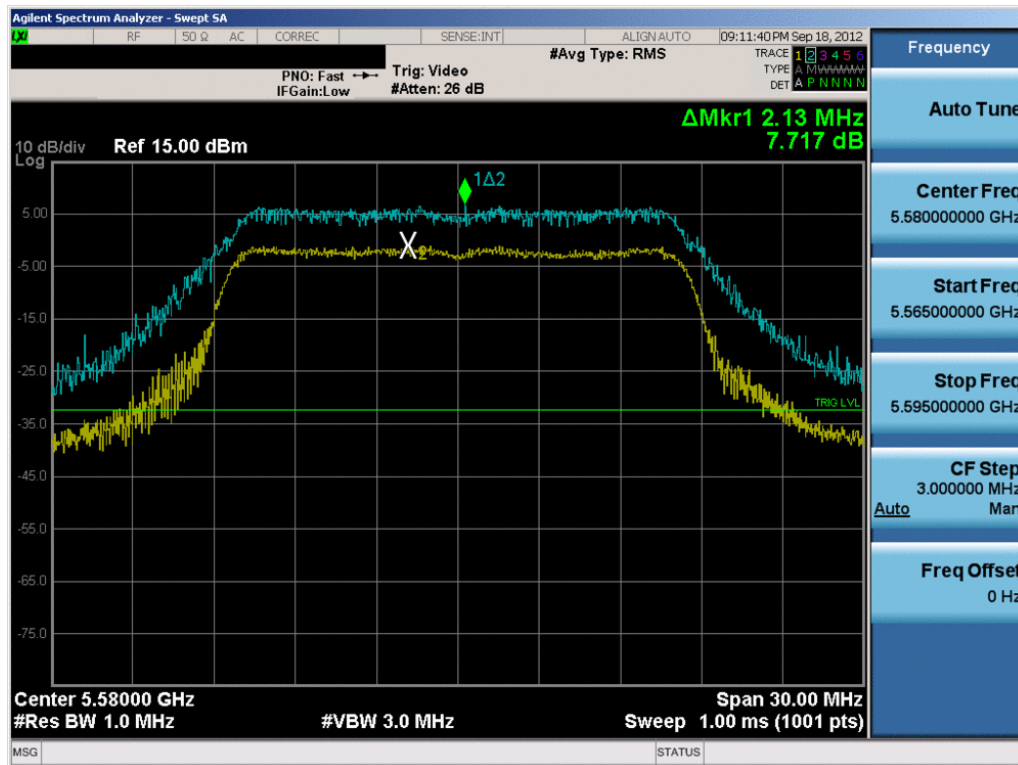
Plot 6-64. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 64)

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 51 of 85





Plot 6-67. Peak Excursion Ratio Plot (802.11a (UNII Band 3) – Ch. 100)



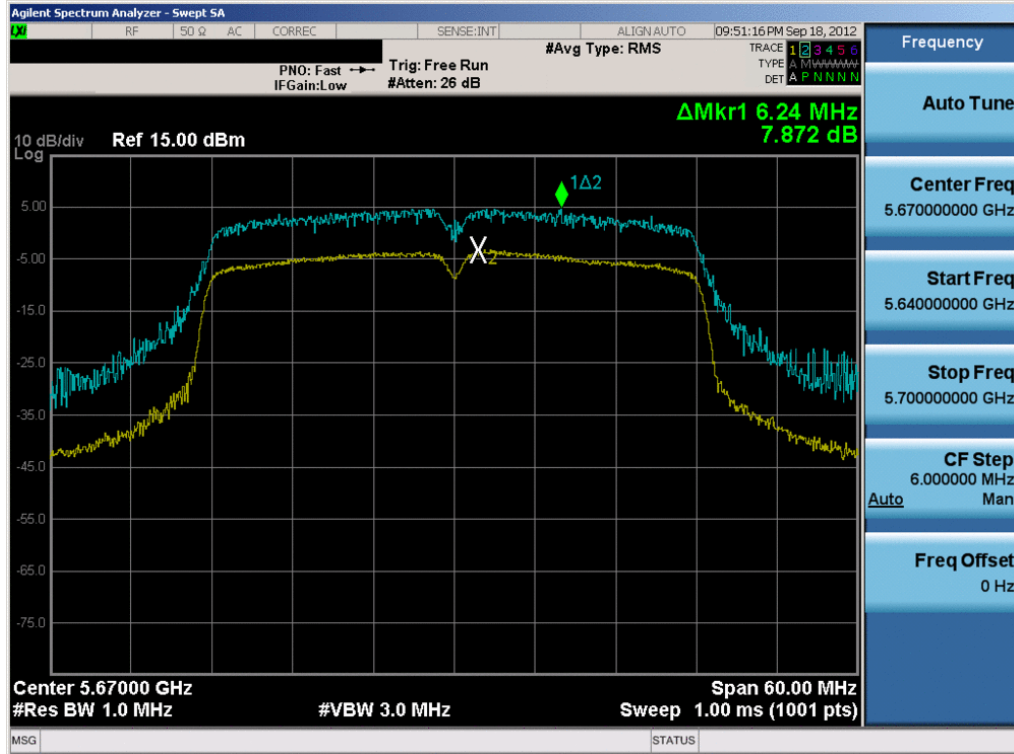
Plot 6-68. Peak Excursion Ratio Plot (802.11a (UNII Band 3) – Ch. 116)

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 53 of 85











Plot 6-75. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 134)

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset		Page 57 of 85

## 6.6 Frequency Stability

### §15.407(g)

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

OPERATING FREQUENCY: 5,180,000,000 Hz

CHANNEL: 36

REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	5,179,999,984	-16	-0.00000031
100 %		- 30	5,179,999,995	-5	-0.00000010
100 %		- 20	5,180,000,000	0	-0.00000001
100 %		- 10	5,179,999,982	-18	-0.00000035
100 %		0	5,179,999,986	-14	-0.00000027
100 %		+ 10	5,179,999,984	-16	-0.00000032
100 %		+ 20	5,179,999,991	-9	-0.00000017
100 %		+ 30	5,179,999,997	-3	-0.00000006
100 %		+ 40	5,179,999,998	-2	-0.00000003
100 %		+ 50	5,179,999,981	-19	-0.00000037
115 %	4.37	+ 20	5,179,999,991	-9	-0.00000017
BATT. ENDPOINT	3.40	+ 20	5,179,999,986	-14	-0.00000026

**Table 6-8. Frequency Stability Measurements for UNII Band 1 (Ch. 36)**

#### Note:

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

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Frequency Stability (Cont'd)**  
**§15.407(g)**

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

OPERATING FREQUENCY: 5,260,000,000 Hz

CHANNEL: 52



REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	5,259,999,988	-12	-0.00000022
100 %		- 30	5,259,999,993	-7	-0.00000013
100 %		- 20	5,259,999,989	-11	-0.00000021
100 %		- 10	5,259,999,985	-15	-0.00000028
100 %		0	5,259,999,997	-3	-0.00000006
100 %		+ 10	5,259,999,982	-18	-0.00000033
100 %		+ 20	5,259,999,984	-16	-0.00000030
100 %		+ 30	5,259,999,989	-11	-0.00000020
100 %		+ 40	5,259,999,992	-8	-0.00000014
100 %		+ 50	5,259,999,993	-7	-0.00000013
115 %	4.37	+ 20	5,259,999,987	-13	-0.00000026
BATT. ENDPOINT	3.40	+ 20	5,259,999,993	-7	-0.00000013

**Table 6-9. Frequency Stability Measurements for UNII Band 2 (Ch. 52)**

**Note:**

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

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Frequency Stability (Cont'd)**  
**§15.407(g)**

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

OPERATING FREQUENCY: 5,500,000,000 Hz

CHANNEL: 100



REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	5,499,999,988	-12	-0.00000021
100 %		- 30	5,499,999,985	-15	-0.00000028
100 %		- 20	5,499,999,985	-15	-0.00000027
100 %		- 10	5,499,999,992	-8	-0.00000014
100 %		0	5,500,000,000	0	0.00000000
100 %		+ 10	5,499,999,997	-3	-0.00000005
100 %		+ 20	5,499,999,997	-3	-0.00000006
100 %		+ 30	5,499,999,985	-15	-0.00000028
100 %		+ 40	5,499,999,983	-17	-0.00000031
100 %		+ 50	5,499,999,986	-14	-0.00000026
115 %	4.37	+ 20	5,499,999,987	-13	-0.00000023
BATT. ENDPOINT	3.40	+ 20	5,499,999,989	-11	-0.00000019

**Table 6-10. Frequency Stability Measurements for UNII Band 3 (Ch. 100)**

**Note:**

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

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 6.7 Radiated Spurious Emission Measurements

§15.407(b)(1), (6), §15.205, §15.209; RSS-210 [A9.2]

The EUT was tested from 9kHz and up to the 10<sup>th</sup> harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, peak measurements were taken using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033 and linearly polarized horn antennas. 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 6-11 per Section 15.209.



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 measurements shown in this section were obtained using traditional radiated test methods as defined in C63.10-2009. The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of KDB 789033 were not used to evaluate this device.

Frequency	Field Strength [ $\mu$ 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 6-11. Radiated Limits**

### Sample Calculation

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

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5180MHz



Channel: 36

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBmV/m]	Margin [dB]
10360.00	-97.44	Peak	H	45.89	55.46	68.20	-12.74
* 15540.00	-135.00	Average	H	58.35	30.35	53.98	-23.63
* 15540.00	-125.00	Peak	H	58.35	40.35	73.98	-33.63
* 20720.00	-135.00	Average	H	42.40	14.40	53.98	-39.58
* 20720.00	-125.00	Peak	H	42.40	24.40	73.98	-49.58
25900.00	-125.00	Peak	H	42.09	24.09	68.20	-44.11

**Table 6-12. Radiated Measurements @ 3 meters**

**NOTES:**

- All harmonics 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.
- 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 6-11.
- For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5200MHz



Channel: 40

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dBmV/m]	Margin [dB]
10400.00	-97.43	Peak	H	45.98	55.55	68.20	-12.65
* 15600.00	-135.00	Average	H	58.64	30.64	53.98	-23.34
* 15600.00	-125.00	Peak	H	58.64	40.64	73.98	-33.34
* 20800.00	-135.00	Average	H	42.43	14.43	53.98	-39.55
* 20800.00	-125.00	Peak	H	42.43	24.43	73.98	-49.55
26000.00	-125.00	Peak	H	42.01	24.01	68.20	-44.19

**Table 6-13. Radiated Measurements @ 3 meters**

**NOTES:**

1. All harmonics 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.
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 6-11.
3. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
6. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
7. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
8. Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5240MHz



Channel: 48

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dBmV/m]	Margin [dB]
10480.00	-97.02	Peak	H	46.14	56.12	68.20	-12.08
* 15720.00	-135.00	Average	H	59.21	31.21	53.98	-22.77
* 15720.00	-125.00	Peak	H	59.21	41.21	73.98	-32.77
* 20960.00	-135.00	Average	H	42.58	14.58	53.98	-39.40
* 20960.00	-125.00	Peak	H	42.58	24.58	73.98	-49.40
26200.00	-125.00	Peak	H	41.81	23.81	68.20	-44.39

**Table 6-14. Radiated Measurements @ 3 meters**

**NOTES:**

- All harmonics 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.
- 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 6-11.
- For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5260MHz



Channel: 52

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
10520.00	-96.26	Peak	H	46.23	56.96	68.20	-11.24
* 15780.00	-135.00	Average	H	59.53	31.53	53.98	-22.45
* 15780.00	-125.00	Peak	H	59.53	41.53	73.98	-32.45
* 21040.00	-135.00	Average	H	50.46	22.46	53.98	-31.52
* 21040.00	-125.00	Peak	H	50.46	32.46	73.98	-41.52
26300.00	-125.00	Peak	H	46.79	28.79	68.20	-39.41

**Table 6-15. Radiated Measurements @ 3 meters**

**NOTES:**

- All harmonics 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.
- 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 6-11.
- For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5280MHz



Channel: 56

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
10560.00	-95.96	Peak	H	46.32	57.37	68.20	-10.83
* 15840.00	-135.00	Average	H	59.88	31.88	53.98	-22.09
* 15840.00	-125.00	Peak	H	59.88	41.88	73.98	-32.09
* 21120.00	-135.00	Average	H	50.39	22.39	53.98	-31.59
* 21120.00	-125.00	Peak	H	50.39	32.39	73.98	-41.59
26400.00	-125.00	Peak	H	46.73	28.73	68.20	-39.47

**Table 6-16. Radiated Measurements @ 3 meters**

**NOTES:**

1. All harmonics 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.
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 6-11.
3. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
6. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
7. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
8. Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5320MHz



Channel: 64

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
* 10640.00	-108.22	Average	H	46.52	45.29	53.98	-8.68
* 10640.00	-96.80	Peak	H	46.52	56.71	73.98	-17.26
* 15960.00	-135.00	Average	H	62.27	34.27	53.98	-19.71
* 15960.00	-125.00	Peak	H	62.27	44.27	73.98	-29.71
* 21280.00	-135.00	Average	H	50.27	22.27	53.98	-31.71
* 21280.00	-125.00	Peak	H	50.27	32.27	73.98	-41.71
26600.00	-125.00	Peak	H	46.60	28.60	68.20	-39.60

**Table 6-17. Radiated Measurements @ 3 meters**

**NOTES:**

- All harmonics 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.
- 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 6-11.
- For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5500MHz



Channel: 100

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	-108.68	Average	H	46.98	45.30	53.98	-8.68
* 11000.00	-98.80	Peak	H	46.98	55.18	73.98	-18.80
16500.00	-125.00	Peak	H	60.10	42.10	68.20	-26.10
22000.00	-125.00	Peak	H	41.92	23.92	68.20	-44.28
27500.00	-125.00	Peak	H	42.55	24.55	68.20	-43.65

**Table 6-18. Radiated Measurements @ 3 meters**

**NOTES:**

- All harmonics 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.
- 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 6-11.
- For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
- Levels at -135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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**Radiated Spurious Emission Measurements (Cont'd)**  
**§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]**



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	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11160.00	-109.12	Average	H	49.42	47.31	53.98	-6.67
* 11160.00	-99.01	Peak	H	49.42	57.42	73.98	-16.56
16740.00	-125.00	Peak	H	58.53	40.53	68.20	-27.67
* 22320.00	-135.00	Average	H	41.93	13.93	53.98	-40.05
* 22320.00	-125.00	Peak	H	41.93	23.93	73.98	-50.05
27900.00	-125.00	Peak	H	42.47	24.47	68.20	-43.73

**Table 6-19. Radiated Measurements @ 3 meters**

**NOTES:**

1. All harmonics 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.
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 6-11.
3. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
6. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
7. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
8. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## Radiated Spurious Emission Measurements (Cont'd)

§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

Worst Case Mode: 802.11a

Worst Case Transfer Rate: 6 Mbps

Distance of Measurements: 3 Meters

Operating Frequency: 5700MHz



Channel: 140

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
* 11400.00	-111.21	Average	H	47.61	43.40	53.98	-10.58
* 11400.00	-100.99	Peak	H	47.61	53.62	73.98	-20.36
17100.00	-125.00	Peak	H	56.08	38.08	68.20	-30.12
* 22800.00	-135.00	Average	H	42.01	14.01	53.98	-39.97
* 22800.00	-125.00	Peak	H	42.01	24.01	73.98	-49.97
28500.00	-125.00	Peak	H	42.35	24.35	68.20	-43.85

**Table 6-20. Radiated Measurements @ 3 meters**

**NOTES:**

- All harmonics 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.
- 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 6-11.
- For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## 6.8 Radiated Band Edge Measurements (20MHz BW) §15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]



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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
5139.58	-104.12	Average	H	39.26	42.14	53.98	-11.84
5139.58	-92.64	Peak	H	39.26	53.62	73.98	-20.36
5144.79	-102.30	Average	H	39.26	43.96	53.98	-10.01
5144.79	-88.85	Peak	H	39.26	57.41	73.98	-16.56
5150.00	-100.66	Average	H	39.27	45.61	53.98	-8.37
5150.00	-85.70	Peak	H	39.27	60.57	73.98	-13.41

**Table 6-21. Radiated Restricted Band Measurements at 3 meters (4.5 – 5.15GHz)**

### NOTES:

- For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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**Radiated Band Edge Measurements (20MHz BW) (Cont'd)**  
**§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]**



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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
5350.00	-100.79	Average	H	39.53	45.74	53.98	-8.24
5350.00	-90.17	Peak	H	39.53	56.36	73.98	-17.62
5353.88	-101.55	Average	H	39.53	44.99	53.98	-8.99
5353.88	-89.68	Peak	H	39.53	56.86	73.98	-17.12
5370.50	-103.25	Average	H	39.56	43.31	53.98	-10.67
5370.50	-93.47	Peak	H	39.56	53.09	73.98	-20.89

**Table 6-22. Radiated Restricted Band Measurements at 3 meters (5.35 – 5.46GHz, 5.46 – 5.47GHz)**

**NOTES:**

1. Emissions within 5.35 – 5.46GHz lie in a restricted band and are subject to the radiated emissions limits specified in §15.209. Emission within 5.46 – 5.47GHz are at the lower band edge of UNII Band 3 transmission and are subject to the -27dBm/MHz (68.2dBμV/m) EIRP limit specified in §15.407.
2. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
5. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
6. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricteds band specified in §15.205.

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**Radiated Band Edge Measurements (20MHz BW) (Cont'd)**  
**§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]**



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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
5459.47	-104.78	Average	H	39.67	41.89	53.98	-12.09
5459.47	-92.79	Peak	H	39.67	53.88	73.98	-20.10
5460.00	-104.50	Average	H	39.67	42.17	53.98	-11.81
5460.00	-94.07	Peak	H	39.67	52.60	73.98	-21.38
5468.31	-88.46	Peak	H	39.68	58.22	68.20	-9.98

**Table 6-23. Radiated Restricted Band Measurements at 3 meters (5.35 – 5.46GHz, 5.46 – 5.47GHz)**

**NOTES:**

1. Emissions within 5.35 – 5.46GHz lie in a restricted band and are subject to the radiated emissions limits specified in §15.209. Emission within 5.46 – 5.47GHz are at the lower band edge of UNII Band 3 transmission and are subject to the -27dBm/MHz (68.2dBμV/m) EIRP limit specified in §15.407.
2. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
5. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
6. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Radiated Band Edge Measurements (20MHz BW) (Cont'd)**  
**§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]**



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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
5725.68	-92.91	Peak	H	40.18	54.27	68.20	-13.93
5729.33	-93.88	Peak	H	40.18	53.31	68.20	-14.89
5734.46	-93.43	Peak	H	40.19	53.77	68.20	-14.43

**Table 6-24. Radiated Restricted Band Measurements at 3 meters**

**NOTES:**

1. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
2. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
3. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
4. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
5. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
6. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1209111327.A3L	Test Dates: 09/18/12 - 9/24/12	EUT Type: Portable Handset	Page 74 of 85	

## 6.9 Radiated Band Edge Measurements (40MHz BW) §15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]



Worst Case Mode: 802.11n (40MHz)  
 Worst Case Transfer Rate: MCS 0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5190MHz  
 Channel: 38

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
5142.70	-98.47	Average	H	39.26	47.79	53.98	-6.19
5142.70	-86.37	Peak	H	39.26	59.89	73.98	-14.09
5146.88	-96.76	Average	H	39.26	49.50	53.98	-4.48
5146.88	-84.08	Peak	H	39.26	62.18	73.98	-11.80
5150.00	-95.95	Average	H	39.27	50.32	53.98	-3.66
5150.00	-86.42	Peak	H	39.27	59.85	73.98	-14.13

**Table 6-25. Radiated Restricted Band Measurements at 3 meters (4.5 – 5.15GHz)**

### NOTES:

- For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
- The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
- The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
- Levels at -135 dBm represent the analyzer noise floor and signify that no emission was detected.
- Above 960MHz the limit is 500  $\mu$ V/m (54dB $\mu$ m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Radiated Band Edge Measurements (40MHz BW) (Cont'd)**  
**§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]**



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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
5350.00	-94.48	Average	H	39.53	52.05	53.98	-1.93
5350.00	-85.31	Peak	H	39.53	61.22	73.98	-12.76
5357.05	-98.36	Average	H	39.54	48.18	53.98	-5.80
5357.05	-88.03	Peak	H	39.54	58.51	73.98	-15.47
5362.69	-101.08	Average	H	39.54	45.47	53.98	-8.51
5362.69	-91.77	Peak	H	39.54	54.78	73.98	-19.20

**Table 6-26. Radiated Restricted Band Measurements at 3 meters (5.35 – 5.46GHz, 5.46 – 5.47GHz)**

**NOTES:**

1. Emissions within 5.35 – 5.46GHz lie in a restricted band and are subject to the radiated emissions limits specified in §15.209. Emission within 5.46 – 5.47GHz are at the lower band edge of UNII Band 3 transmission and are subject to the -27dBm/MHz (68.2dBμV/m) EIRP limit specified in §15.407.
2. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
5. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
6. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricteds band specified in §15.205.

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Radiated Band Edge Measurements (40MHz BW) (Cont'd)**  
§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]



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

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
5454.00	-104.16	Average	H	39.66	42.50	53.98	-11.48
5454.00	-92.38	Peak	H	39.66	54.28	73.98	-19.70
5460.00	-104.01	Average	H	39.67	42.66	53.98	-11.32
5460.00	-94.73	Peak	H	39.67	51.94	73.98	-22.04
5469.60	-85.16	Peak	H	39.68	61.52	68.20	-6.68

**Table 6-27. Radiated Restricted Band Measurements at 3 meters (5.35 – 5.46GHz, 5.46 – 5.47GHz)**

**NOTES:**

1. Emissions within 5.35 – 5.46GHz lie in a restricted band and are subject to the radiated emissions limits specified in §15.209. Emission within 5.46 – 5.47GHz are at the lower band edge of UNII Band 3 transmission and are subject to the -27dBm/MHz (68.2dBμV/m) EIRP limit specified in §15.407.
2. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
5. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
6. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Radiated Band Edge Measurements (40MHz BW) (Cont'd)**  
§15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]



Worst Case Mode: 802.11n (40MHz)  
 Worst Case Transfer Rate: MCS0  
 Distance of Measurements: 3 Meters  
 Operating Frequency: 5690MHz  
 Channel: 138

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
5725.00	-94.36	Peak	H	40.18	52.82	68.20	-15.38
5732.25	-94.11	Peak	H	40.19	53.08	68.20	-15.12
5746.71	-93.61	Peak	H	40.22	53.61	68.20	-14.59

**Table 6-28. Radiated Restricted Band Measurements at 3 meters**

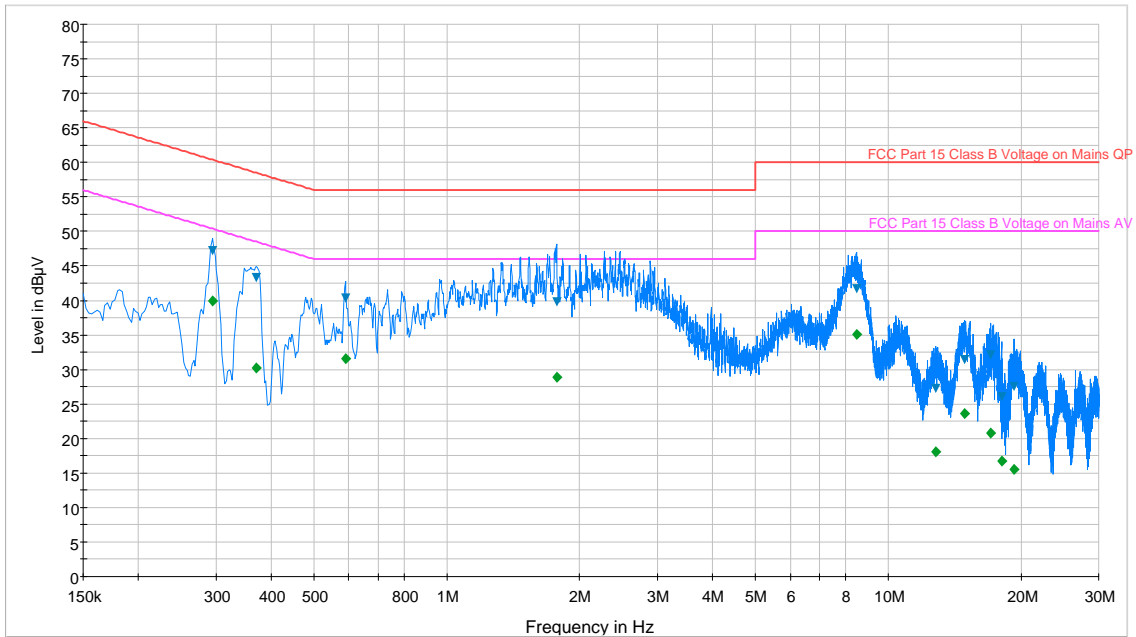
**NOTES:**

1. For frequencies above 1GHz, peak emissions are measured using RBW = 1MHz and VBW = 3MHz. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation ("Method AD") per KDB 789033.
2. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
3. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
4. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported. No significant emissions were found beyond the fifth harmonic for this device.
5. Levels at - 135 dBm represent the analyzer noise floor and signify that no emission was detected.
6. Above 960MHz the limit is 500 µV/m (54dBµ/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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## 6.10 Line-Conducted Test Data

### §15.207; RSS-Gen [7.2.2]



— FCC Part 15 Class B Voltage on Mains QP.LimitLine    
— FCC Part 15 Class B Voltage on Mains AV.LimitLine    
— Preview Result 1-PK+  
▼ Final Result 1-QPK    
◆ Final Result 2-AVG

**Plot 6-76. Line Conducted Plot with 802.11a UNII Band 1 (L1)**

Frequency MHz	Line	Corr. dB	QuasiPeak dBµV	Limit dBµV	Margin dB	Average dBµV	Limit dBµV	Margin dB
0.294	L1	0.1	47.20	60.40	13.20	40.00	50.40	10.40
0.371	L1	0.1	43.20	58.50	15.30	30.30	48.50	18.20
0.589	L1	0.1	40.30	56.00	15.70	31.60	46.00	14.40
1.775	L1	0.2	39.70	56.00	16.30	28.90	46.00	17.10
8.468	L1	0.3	41.60	60.00	18.40	35.00	50.00	15.00
12.822	L1	0.5	27.30	60.00	32.70	18.00	50.00	32.00
14.937	L1	0.5	31.40	60.00	28.60	23.60	50.00	26.40
17.043	L1	0.6	32.10	60.00	27.90	20.70	50.00	29.30
18.065	L1	0.7	26.00	60.00	34.00	16.80	50.00	33.20
19.253	L1	0.7	27.50	60.00	32.50	15.50	50.00	34.50

**Table 6-29. Line Conducted Data with 802.11a UNII Band 1 (L1)**

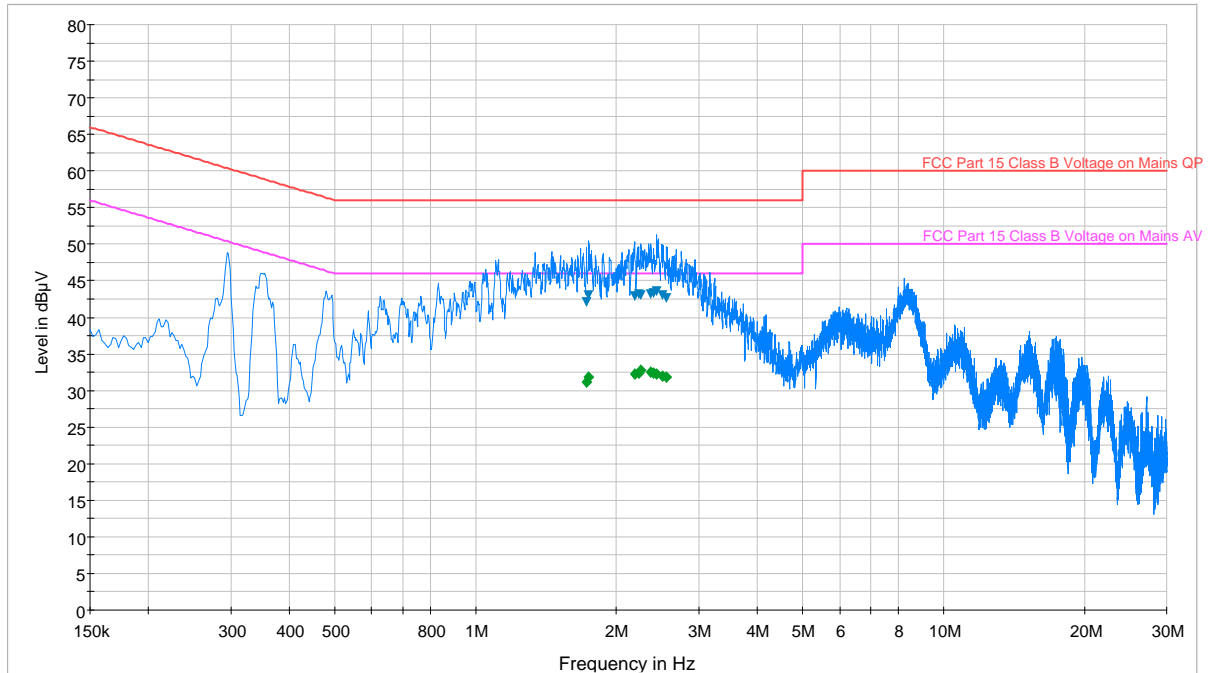
**Notes:**

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

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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# Line-Conducted Test Data (Cont'd)

## §15.207; RSS-Gen [7.2.2]



— FCC Part 15 Class B Voltage on Mains QP.LimitLine — FCC Part 15 Class B Voltage on Mains AV.LimitLine — Preview Result 1-PK+  
▼ Final Result 1-QPK ◆ Final Result 2-AVG

**Plot 6-77. Line Conducted Plot with 802.11a UNII Band 1 (N)**

Frequency MHz	Line	Corr. dB	QuasiPeak dBµV	Limit dBµV	Margin dB	Average dBµV	Limit dBµV	Margin dB
1.727	N	0.2	42.10	56.00	13.90	31.20	46.00	14.80
1.745	N	0.2	43.10	56.00	12.90	31.80	46.00	14.20
2.186	N	0.2	43.00	56.00	13.00	32.20	46.00	13.80
2.229	N	0.2	43.10	56.00	12.90	32.40	46.00	13.60
2.258	N	0.2	43.00	56.00	13.00	32.70	46.00	13.30
2.371	N	0.2	43.10	56.00	12.90	32.50	46.00	13.50
2.400	N	0.2	43.30	56.00	12.70	32.40	46.00	13.60
2.434	N	0.2	43.60	56.00	12.40	32.20	46.00	13.80
2.504	N	0.2	43.10	56.00	12.90	32.00	46.00	14.00
2.562	N	0.2	42.70	56.00	13.30	31.90	46.00	14.10

**Table 6-30. Line Conducted Data with 802.11a UNII Band 1 (N)**

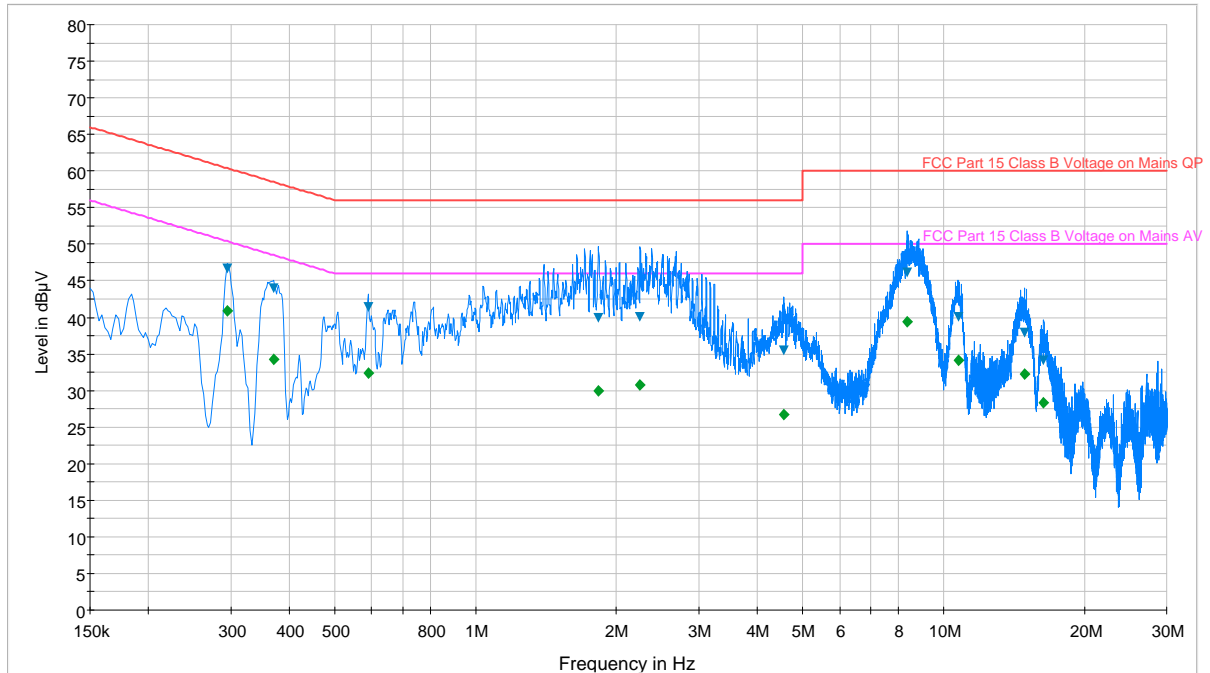
**Notes:**

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

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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# Line-Conducted Test Data (Cont'd)

## §15.207; RSS-Gen [7.2.2]



— FCC Part 15 Class B Voltage on Mains QP.LimitLine — FCC Part 15 Class B Voltage on Mains AV.LimitLine — Preview Result 1-PK+  
▼ Final Result 1-QPK ◆ Final Result 2-AVG

**Plot 6-78. Line Conducted Plot with 802.11a UNII Band 2 (L1)**

Frequency MHz	Line	Corr. dB	QuasiPeak dBµV	Limit dBµV	Margin dB	Average dBµV	Limit dBµV	Margin dB
0.294	L1	0.1	46.70	60.40	13.70	40.90	50.40	9.50
0.371	L1	0.1	44.00	58.50	14.50	34.30	48.50	14.20
0.589	L1	0.1	41.40	56.00	14.60	32.30	46.00	13.70
1.831	L1	0.2	39.90	56.00	16.10	30.00	46.00	16.00
2.247	L1	0.2	40.10	56.00	15.90	30.80	46.00	15.20
4.553	L1	0.2	35.50	56.00	20.50	26.80	46.00	19.20
8.358	L1	0.3	46.20	60.00	13.80	39.40	50.00	10.60
10.757	L1	0.4	40.00	60.00	20.00	34.20	50.00	15.80
14.876	L1	0.5	37.90	60.00	22.10	32.20	50.00	17.80
16.388	L1	0.6	34.10	60.00	25.90	28.30	50.00	21.70

**Table 6-31. Line Conducted Data with 802.11a UNII Band 2 (L1)**

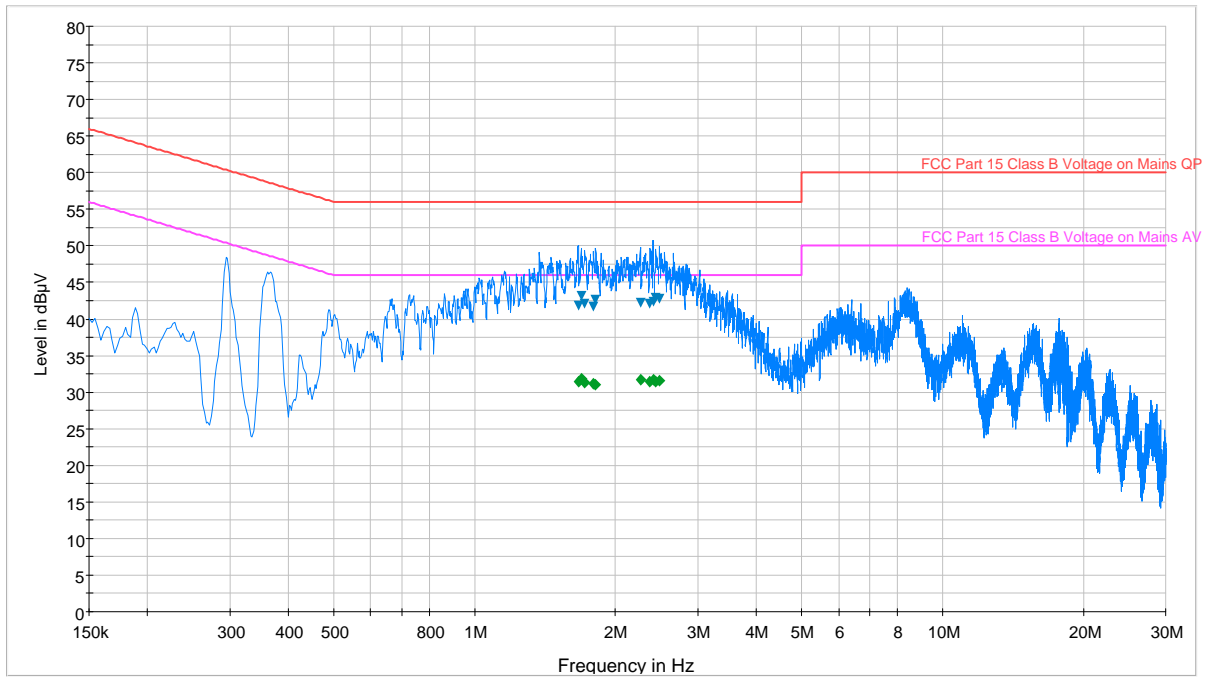
**Notes:**

- All modes of operation, data rates, and test channels were investigated and the worst-case emissions are reported in 802.11a mode using 6Mbps on Channel 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.

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8. Deviations to the Specifications: None.

**Line-Conducted Test Data (Cont'd)**  
**§15.207; RSS-Gen [7.2.2]**



— FCC Part 15 Class B Voltage on Mains QP.LimitLine — FCC Part 15 Class B Voltage on Mains AV.LimitLine — Preview Result 1-PK+  
 ▼ Final Result 1-QPK ◆ Final Result 2-AVG

**Plot 6-79. Line Conducted Plot with 802.11a UNII Band 2 (N)**

Frequency MHz	Line	Corr. dB	QuasiPeak dBµV	Limit dBµV	Margin dB	Average dBµV	Limit dBµV	Margin dB
1.664	N	0.2	41.90	56.00	14.10	31.40	46.00	14.60
1.689	N	0.2	43.10	56.00	12.90	31.90	46.00	14.10
1.718	N	0.2	42.10	56.00	13.90	31.40	46.00	14.60
1.795	N	0.2	41.70	56.00	14.30	31.20	46.00	14.80
1.815	N	0.2	42.60	56.00	13.40	31.10	46.00	14.90
2.261	N	0.2	42.20	56.00	13.80	31.70	46.00	14.30
2.371	N	0.2	42.10	56.00	13.90	31.40	46.00	14.60
2.409	N	0.2	42.30	56.00	13.70	31.80	46.00	14.20
2.438	N	0.2	42.90	56.00	13.10	31.50	46.00	14.50
2.483	N	0.2	42.80	56.00	13.20	31.50	46.00	14.50

**Table 6-32. Line Conducted Data with 802.11a UNII Band 2 (N)**

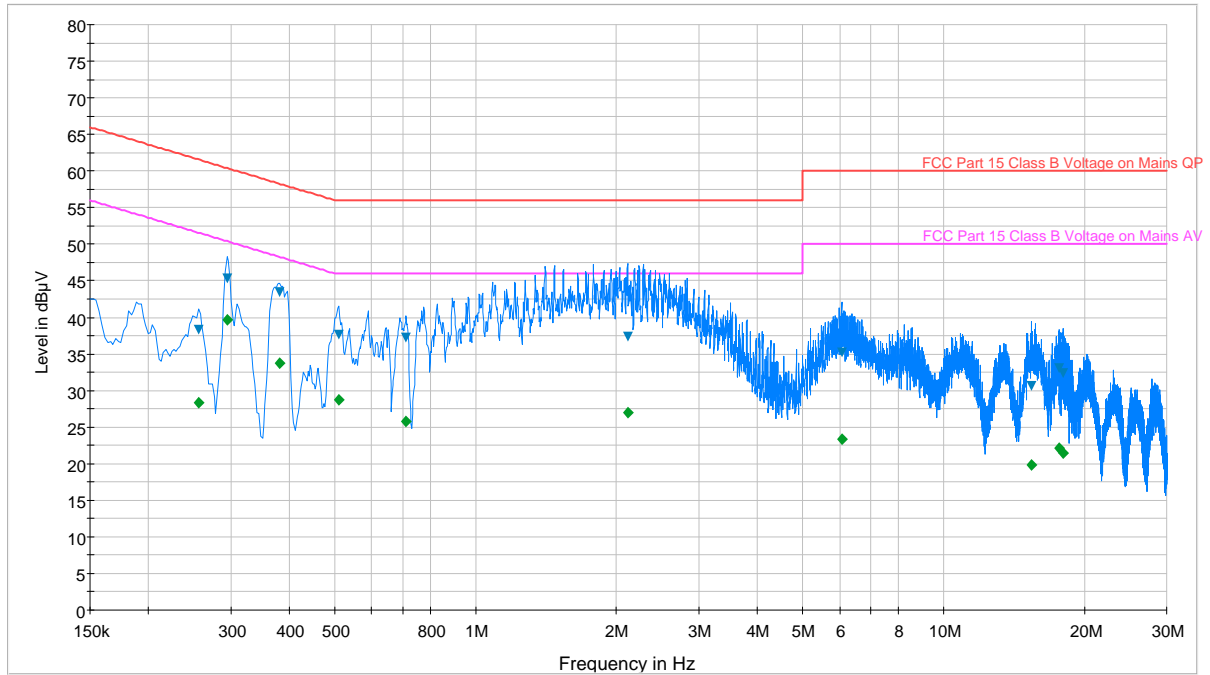
**Notes:**

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

FCC ID: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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# Line-Conducted Test Data (Cont'd)

## §15.207; RSS-Gen [7.2.2]



— FCC Part 15 Class B Voltage on Mains QP.LimitLine — FCC Part 15 Class B Voltage on Mains AV.LimitLine — Preview Result 1-PK+  
▼ Final Result 1-QPK ◆ Final Result 2-AVG

**Plot 6-80. Line Conducted Plot with 802.11a UNII Band 3 (L1)**

Frequency MHz	Line	Corr. dB	QuasiPeak dBµV	Limit dBµV	Margin dB	Average dBµV	Limit dBµV	Margin dB
0.256	L1	0.1	38.30	61.60	23.30	28.40	51.60	23.20
0.294	L1	0.1	45.40	60.40	15.00	39.70	50.40	10.70
0.382	L1	0.1	43.50	58.20	14.70	33.70	48.20	14.50
0.510	L1	0.1	37.70	56.00	18.30	28.80	46.00	17.20
0.710	L1	0.1	37.30	56.00	18.70	25.80	46.00	20.20
2.112	L1	0.2	37.40	56.00	18.60	26.90	46.00	19.10
6.056	L1	0.3	35.30	60.00	24.70	23.30	50.00	26.70
15.392	L1	0.6	30.60	60.00	29.40	19.80	50.00	30.20
17.655	L1	0.6	33.10	60.00	26.90	22.20	50.00	27.80
17.977	L1	0.7	32.40	60.00	27.60	21.40	50.00	28.60

**Table 6-33. Line Conducted Plot with 802.11a UNII Band 3 (L1)**

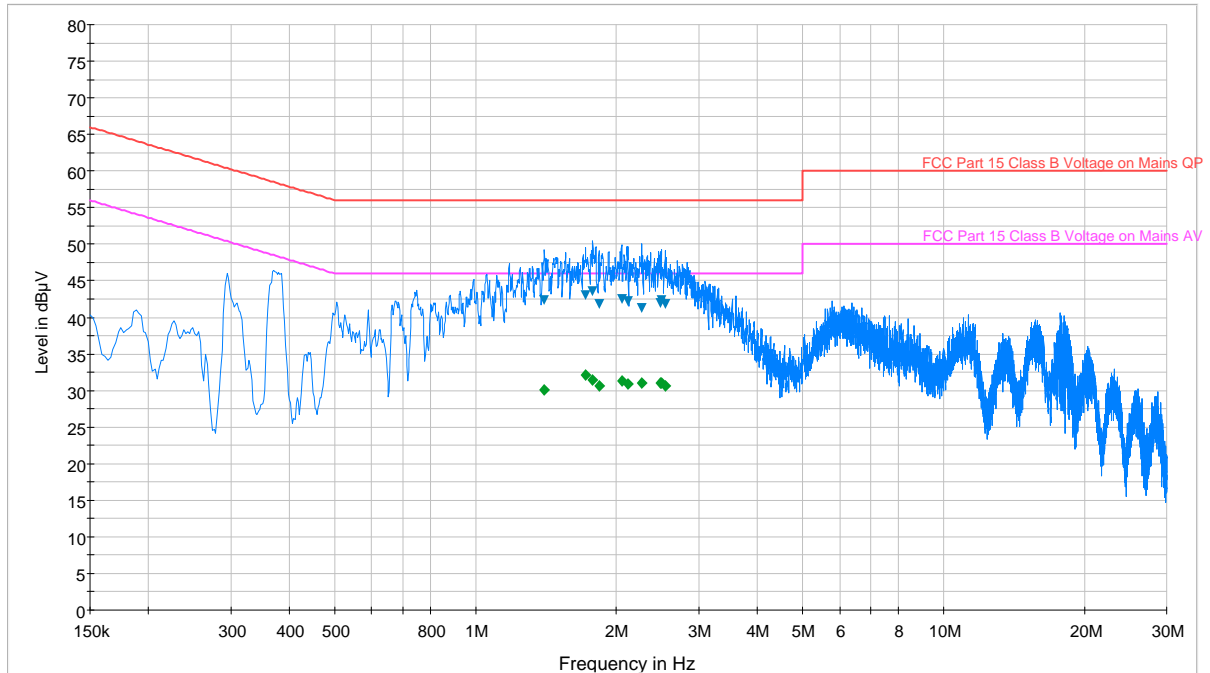
**Notes:**

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

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# Line-Conducted Test Data (Cont'd)

## §15.207; RSS-Gen [7.2.2]



— FCC Part 15 Class B Voltage on Mains QP.LimitLine — FCC Part 15 Class B Voltage on Mains AV.LimitLine — Preview Result 1-PK+  
▼ Final Result 1-QPK ◆ Final Result 2-AVG

**Plot 6-81. Line Conducted Plot with 802.11a UNII Band 3 (N)**

Frequency MHz	Line	Corr. dB	QuasiPeak dBµV	Limit dBµV	Margin dB	Average dBµV	Limit dBµV	Margin dB
1.403	N	0.2	42.40	56.00	13.60	30.10	46.00	15.90
1.716	N	0.2	43.10	56.00	12.90	32.10	46.00	13.90
1.779	N	0.2	43.60	56.00	12.40	31.40	46.00	14.60
1.835	N	0.2	41.90	56.00	14.10	30.60	46.00	15.40
2.051	N	0.2	42.50	56.00	13.50	31.30	46.00	14.70
2.117	N	0.2	42.20	56.00	13.80	30.90	46.00	15.10
2.265	N	0.2	41.30	56.00	14.70	31.10	46.00	14.90
2.479	N	0.2	42.00	56.00	14.00	31.10	46.00	14.90
2.495	N	0.2	42.40	56.00	13.60	31.00	46.00	15.00
2.542	N	0.2	41.80	56.00	14.20	30.60	46.00	15.40

**Table 6-34. Line Conducted Data with 802.11a UNII Band 3 (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: A3LSWDSCL21		FCC Pt. 15.407 802.11a/n 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: A3LSWDSCL21** is in compliance with Part 15E of the FCC Rules and RSS-210 of the Industry Canada Rules.

<b>FCC ID:</b> A3LSWDSCL21		<b>FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y1209111327.A3L	<b>Test Dates:</b> 09/18/12 - 9/24/12	<b>EUT Type:</b> Portable Handset	Page 85 of 85	