

6.4 Peak Power Spectral Density – 802.11a/n §15.407 (a)(1),(5) / RSS-210 [A9.2]

The spectrum analyzer was connected to the antenna terminal while the EUT was operating in a continuous transmission mode at the appropriate center frequencies. Method SA-1, as defined in KDB 789033, was used to measure the power spectral density.

For 20MHz bandwidth signals, the maximum achievable duty cycle was found to be 93.5%. A video trigger was used to ensure that average measurements were made only at times during which the transmitter was at its maximum power level. The minimum number of sweep points required to ensure that the bin-to-bin spacing is such that narrowband emissions are not lost is equal to $2 \times \text{Span} / \text{RBW} = 2 \times 20\text{MHz} / 1\text{MHz} = 40$ sweep points.

For 40MHz bandwidth signals, the maximum achievable duty cycle was found to be 86%. A suitable video trigger level could not be found to satisfy the condition of continuous operation required for use of Method SA-1 per KDB 789033 so the analyzers' gating function was used instead. The spectrum analyzer was set to use an internal "RF Burst" trigger which syncs the analyzer with an incoming pulse from the EUT. Once the analyzer is triggered on a pulse, the gate delay and gate length are set up to ensure average measurements are recorded only during times in which the transmitter is operating at its maximum power with no blanking intervals. The minimum number of sweep points required to ensure that the bin-to-bin spacing is such that narrowband emissions are not lost is equal to $2 \times \text{Span} / \text{RBW} = 2 \times 40\text{MHz} / 1\text{MHz} = 80$ sweep points.

The maximum permissible peak power spectral density is 4dBm/MHz in the 5.15GHz – 5.25GHz band and 11dBm/MHz in the 5.25GHz – 5.35 GHz and 5.47 – 5.725GHz bands.

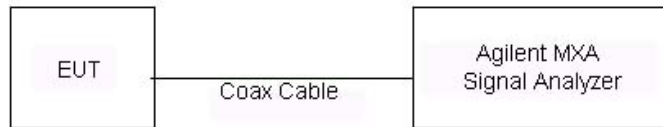






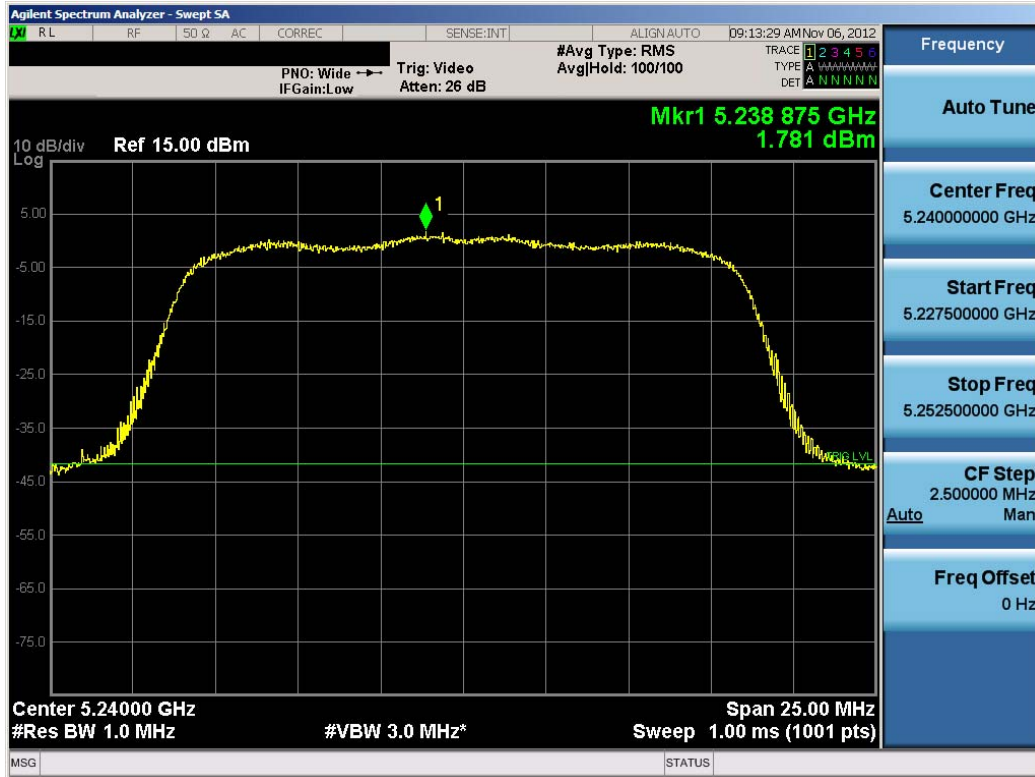
Figure 6-3. Test Instrument & Measurement Setup

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 27 of 78	

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]
Band I	5180	36	a	6	2.239	4.0	-1.76
	5200	40	a	6	1.796	4.0	-2.20
	5240	48	a	6	1.781	4.0	-2.22
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	2.018	4.0	-1.98
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	1.719	4.0	-2.28
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	1.653	4.0	-2.35
	5190	38	n (40MHz)	13.5/15 (MCS0)	-0.339	4.0	-4.34
	5230	46	n (40MHz)	13.5/15 (MCS0)	-0.679	4.0	-4.68
Band II	5260	52	a	6	1.465	11.0	-9.54
	5280	56	a	6	1.268	11.0	-9.73
	5320	64	a	6	0.870	11.0	-10.13
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	1.556	11.0	-9.44
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	1.712	11.0	-9.29
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	1.246	11.0	-9.75
	5270	54	n (40MHz)	13.5/15 (MCS0)	-0.312	11.0	-11.31
	5310	62	n (40MHz)	13.5/15 (MCS0)	-0.537	11.0	-11.54
Band III	5500	100	a	6	1.794	11.0	-9.21
	5580	116	a	6	1.312	11.0	-9.69
	5700	140	a	6	1.191	11.0	-9.81
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	2.365	11.0	-8.64
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	1.687	11.0	-9.31
	5700	140	n (20MHz)	6.5/7.2 (MCS0)	1.551	11.0	-9.45
	5510	102	n (40MHz)	13.5/15 (MCS0)	-0.825	11.0	-11.83
	5550	110	n (40MHz)	13.5/15 (MCS0)	-1.050	11.0	-12.05
	5670	134	n (40MHz)	13.5/15 (MCS0)	-1.579	11.0	-12.58

Table 6-6. Conducted Power Spectral Density Measurements

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 28 of 78

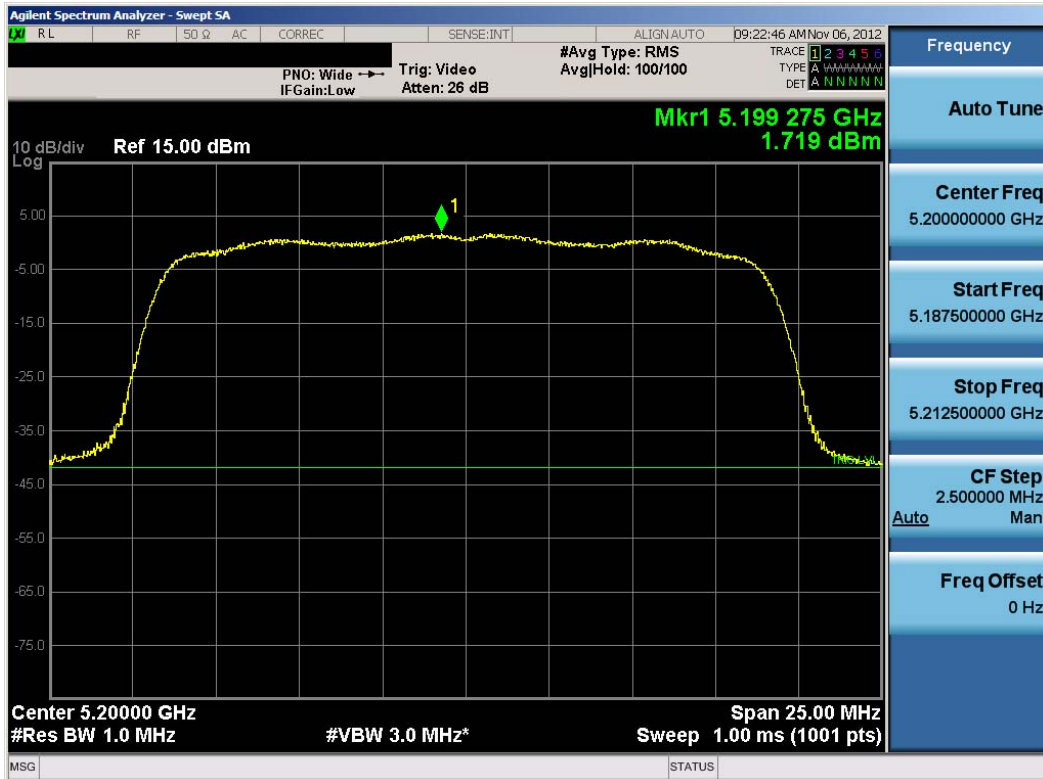


Plot 6-28. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)



Plot 6-29. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 30 of 78

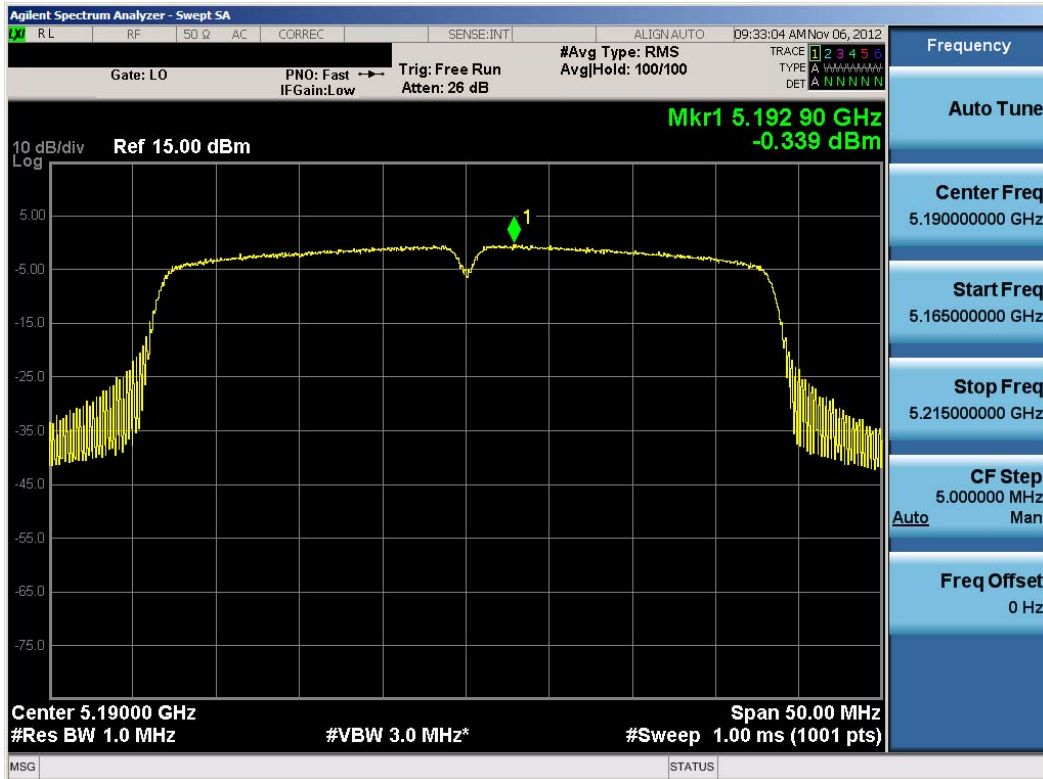


Plot 6-30. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

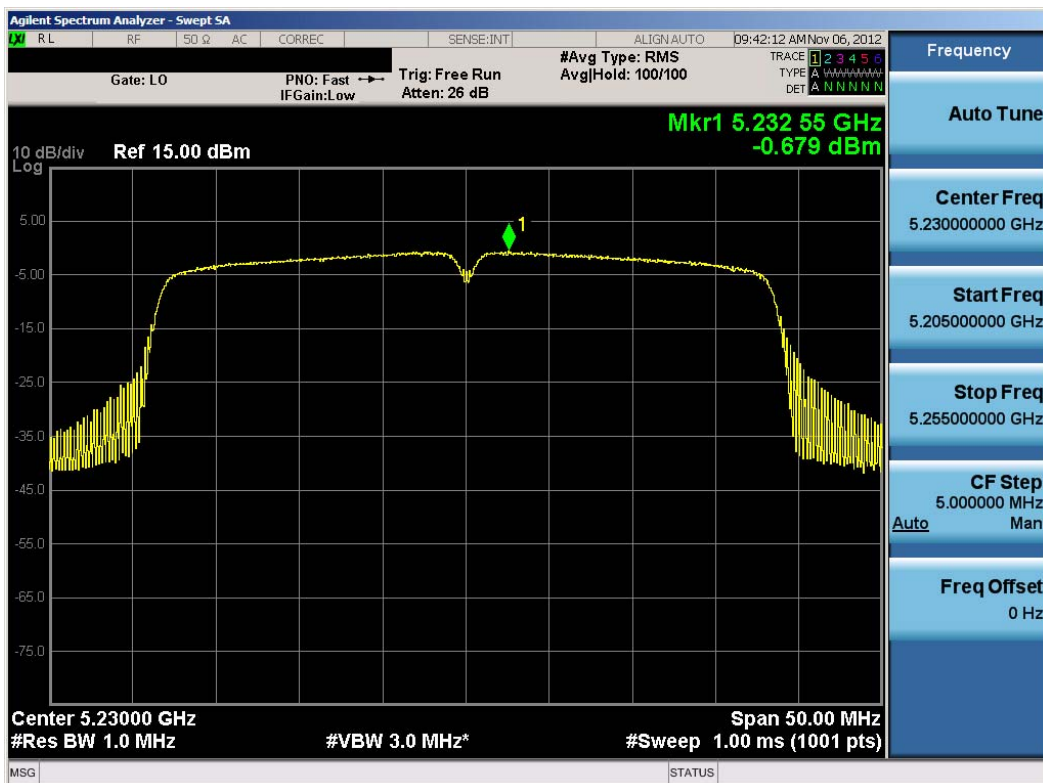


Plot 6-31. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 31 of 78

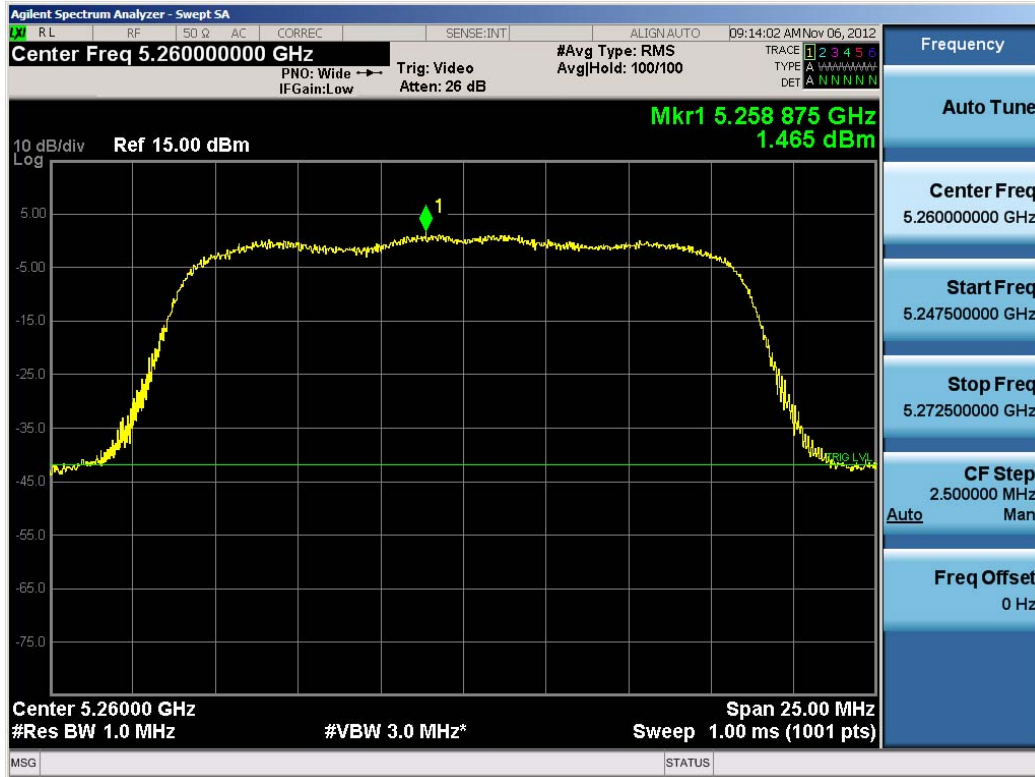


Plot 6-32. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

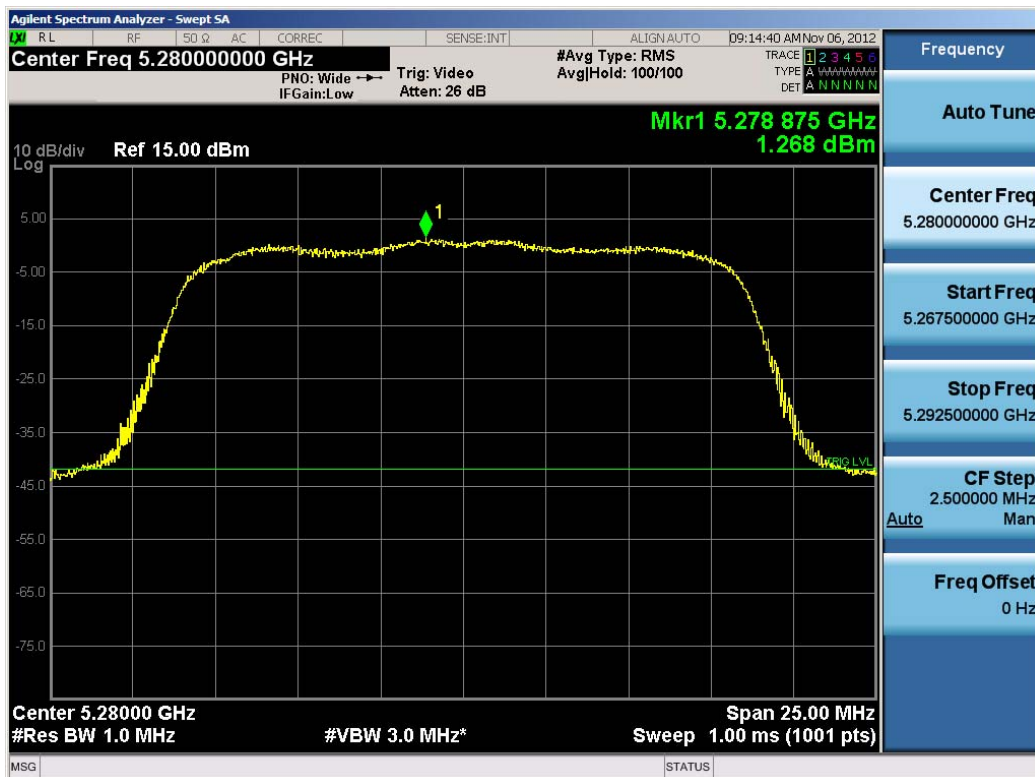


Plot 6-33. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 32 of 78

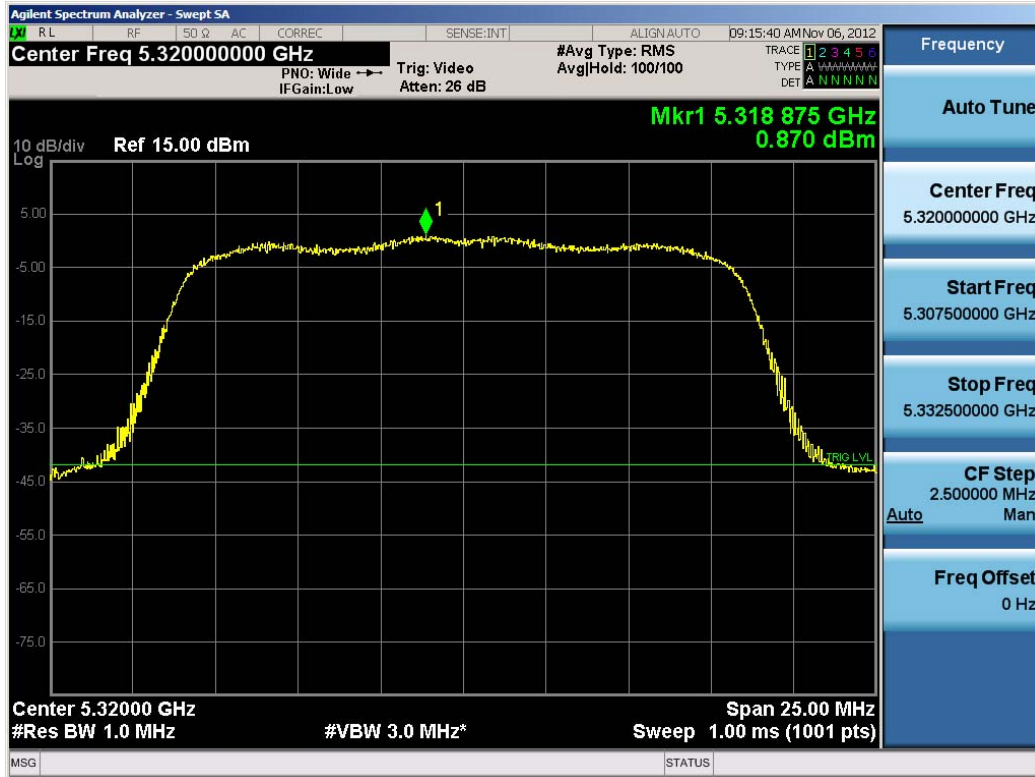


Plot 6-34. Peak Power Spectral Density Plot (802.11a (UNII Band 2) – Ch. 52)

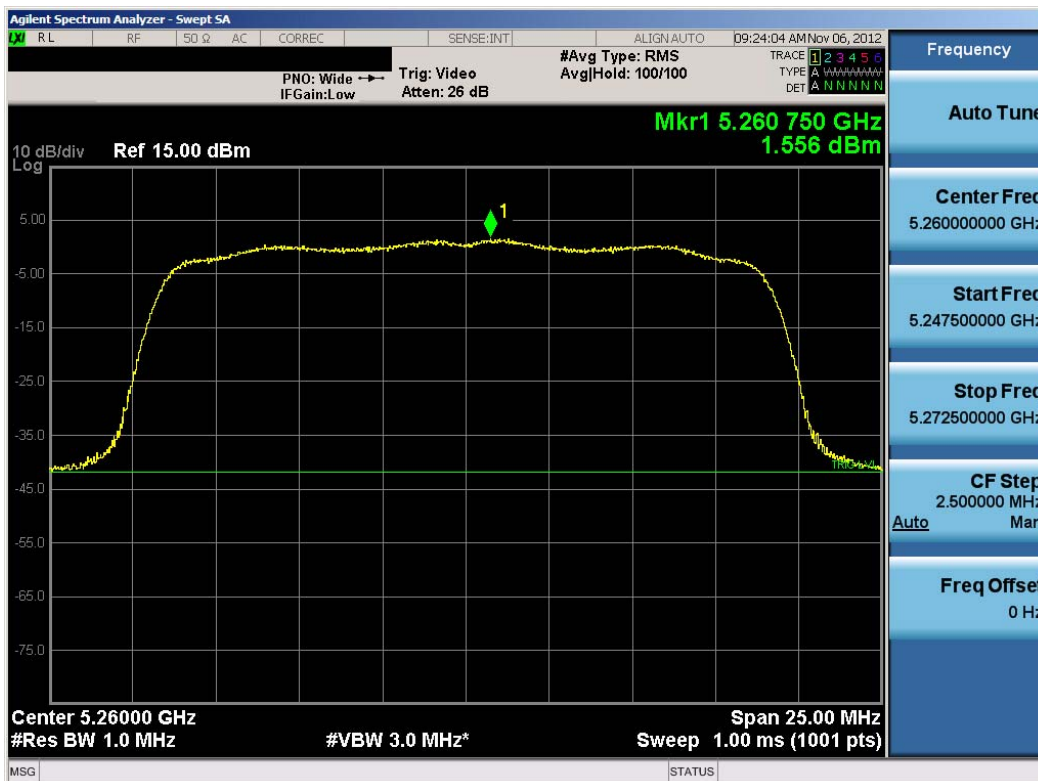


Plot 6-35. Peak Power Spectral Density Plot (802.11a (UNII Band 2) – Ch. 56)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 33 of 78



Plot 6-36. Peak Power Spectral Density Plot (802.11a (UNII Band 2) – Ch. 64)

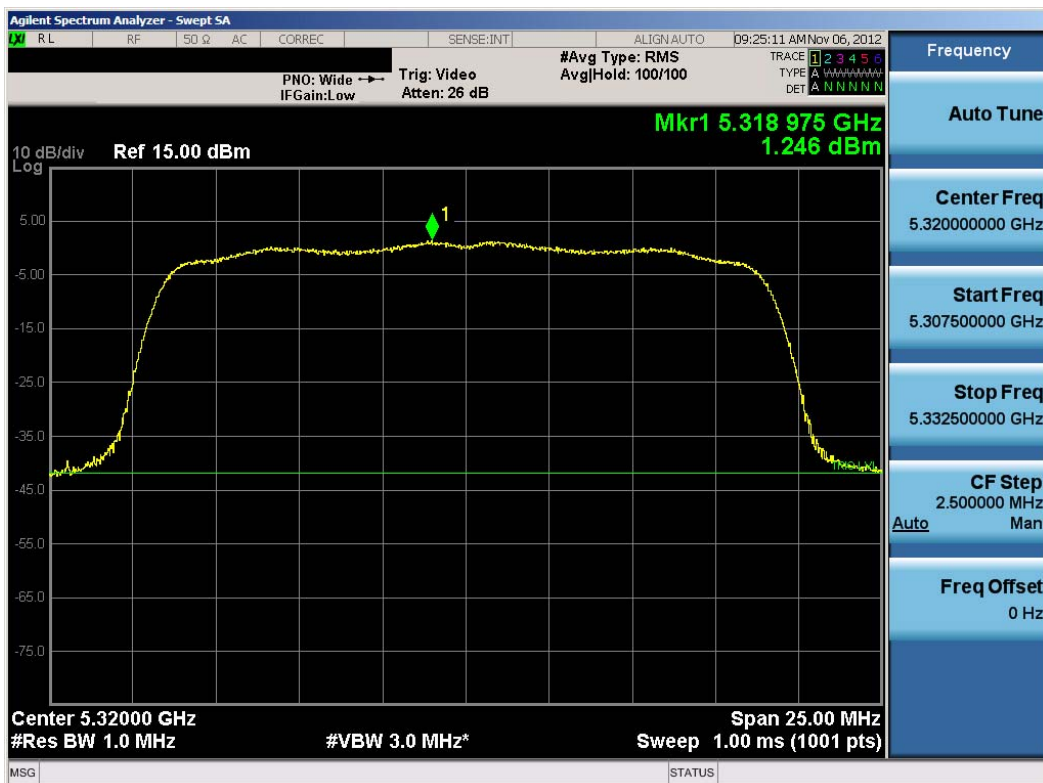


Plot 6-37. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 52)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 34 of 78

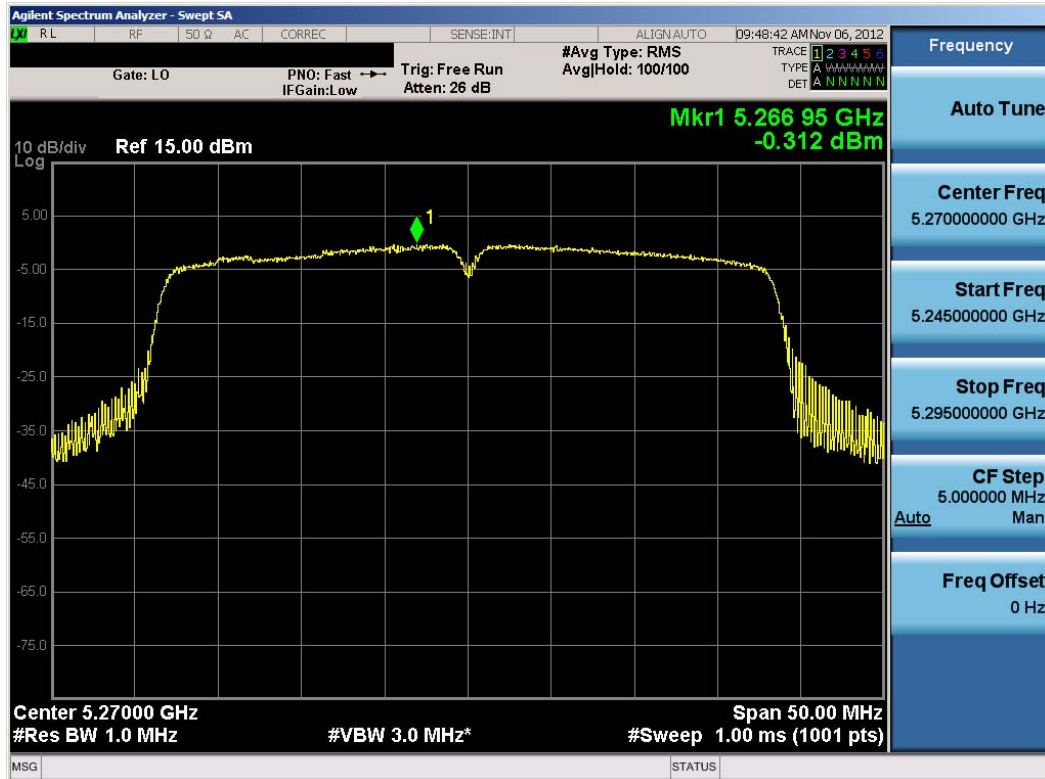


Plot 6-38. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 56)

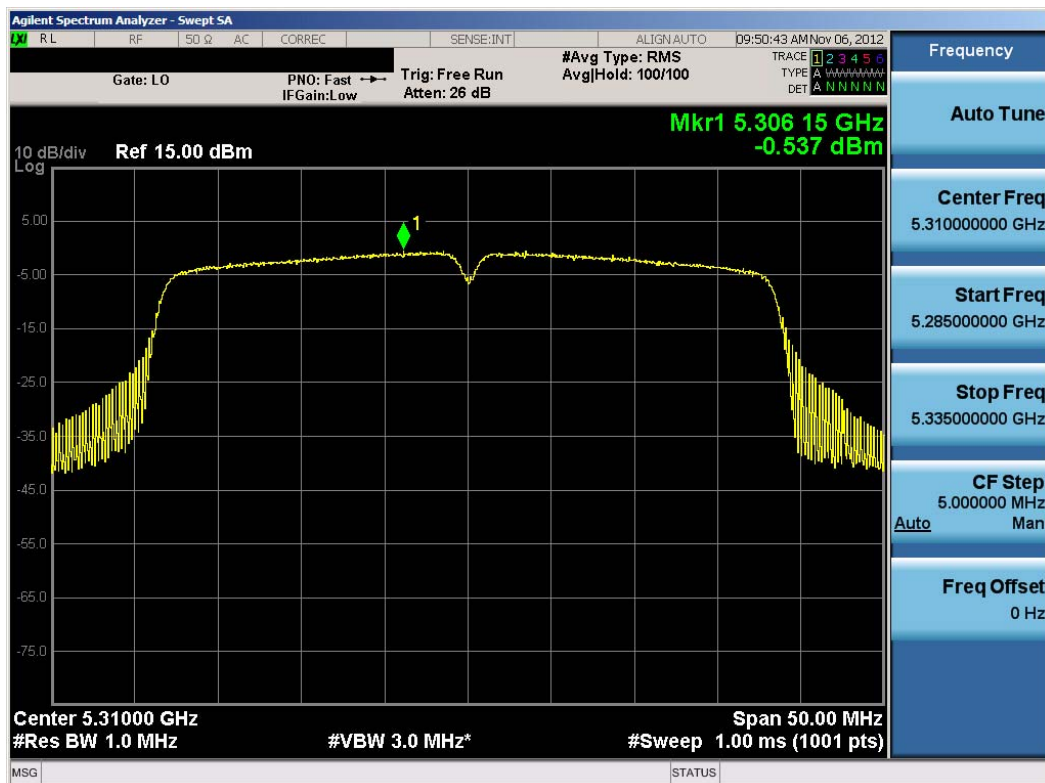


Plot 6-39. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 64)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 35 of 78

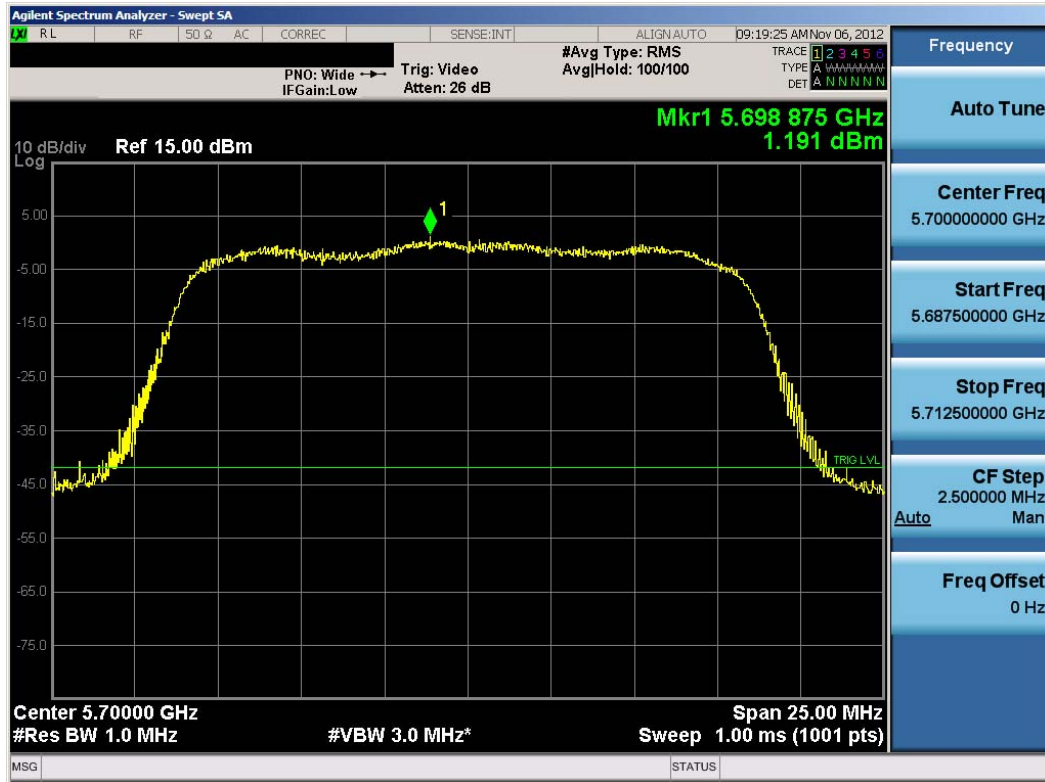


Plot 6-40. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2) – Ch. 54)



Plot 6-41. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2) – Ch. 62)

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 36 of 78



Plot 6-44. Peak Power Spectral Density Plot (802.11a (UNII Band 3) – Ch. 140)

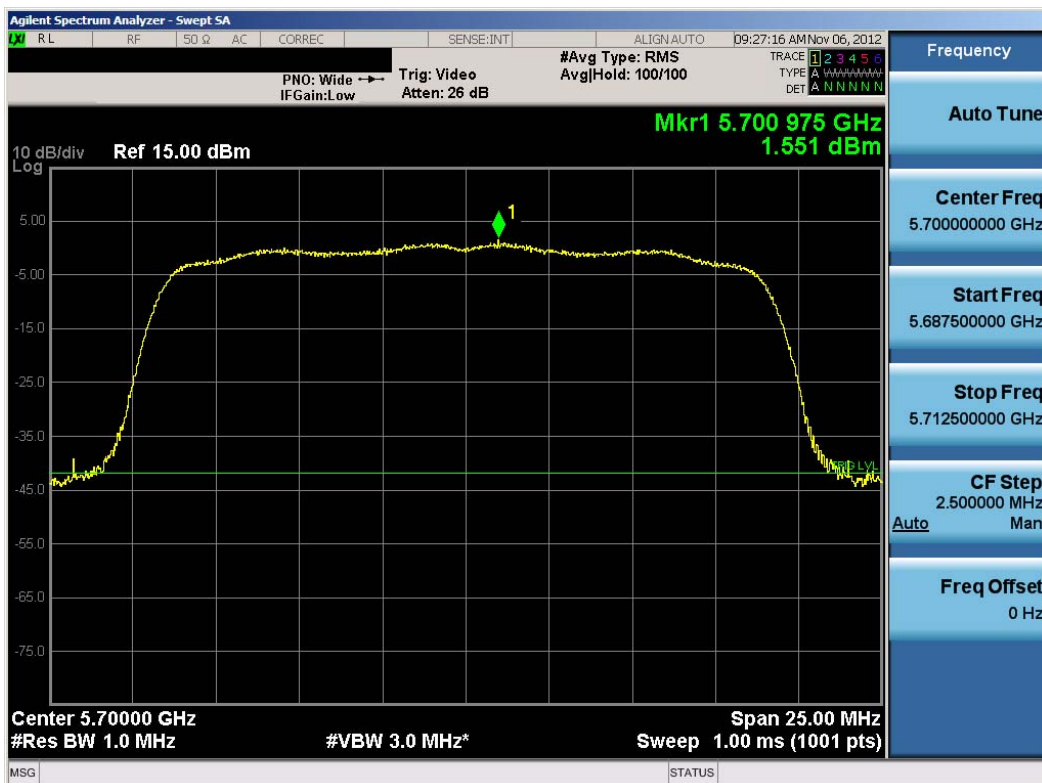


Plot 6-45. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 100)

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 38 of 78

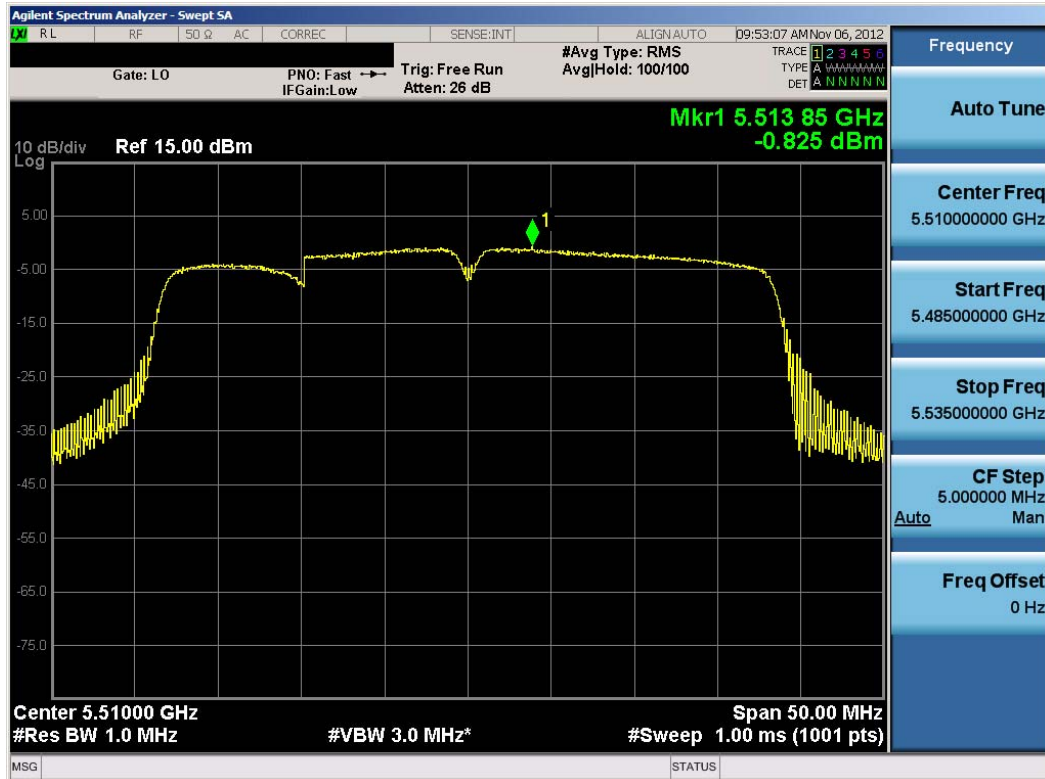


Plot 6-46. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 116)

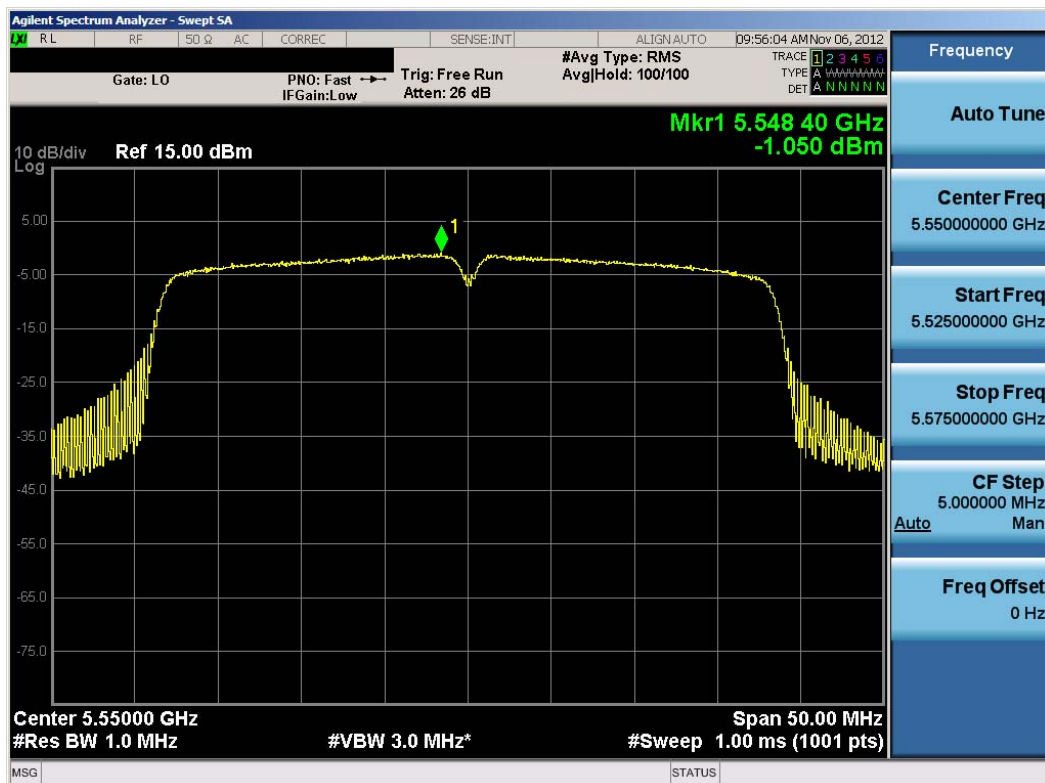


Plot 6-47. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 140)

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 39 of 78

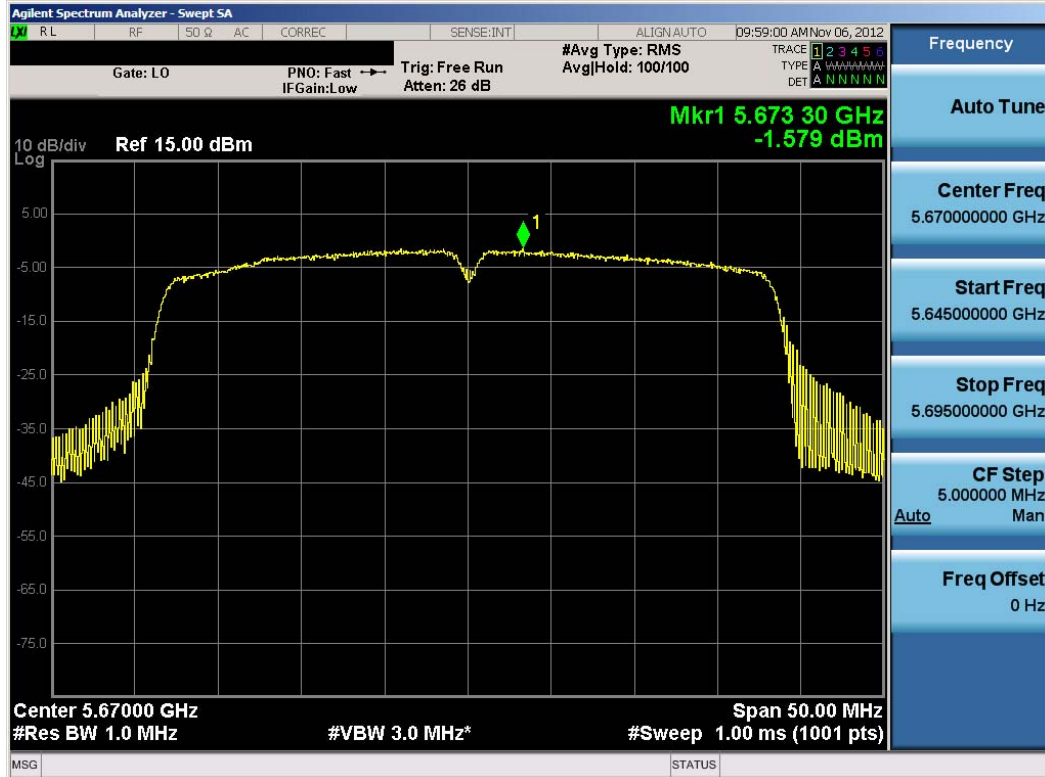


Plot 6-48. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 102)



Plot 6-49. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 110)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 40 of 78



Plot 6-50. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 134)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 41 of 78

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) of KDB789033 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 peak excursion ratio was investigated for all data rates. There were no significant differences found between data rates. The worst case peak excursion ratio is reported below.

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

Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Peak Excursion Ratio [dBm]	Max Permissible Peak Excursion Ratio [dBm/MHz]	Margin [dB]
5180	36	a	6	7.46	13.0	-5.54
5180	36	n (20MHz)	6.5/7.2 (MCS0)	7.75	13.0	-5.25
5190	38	n (40MHz)	13.5/15 (MCS0)	9.12	13.0	-3.88

Table 6-7. Conducted Peak Excursion Ratio Measurements

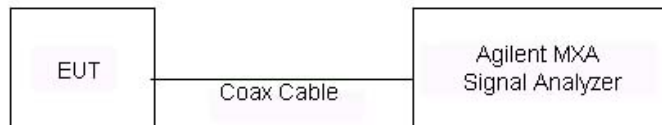


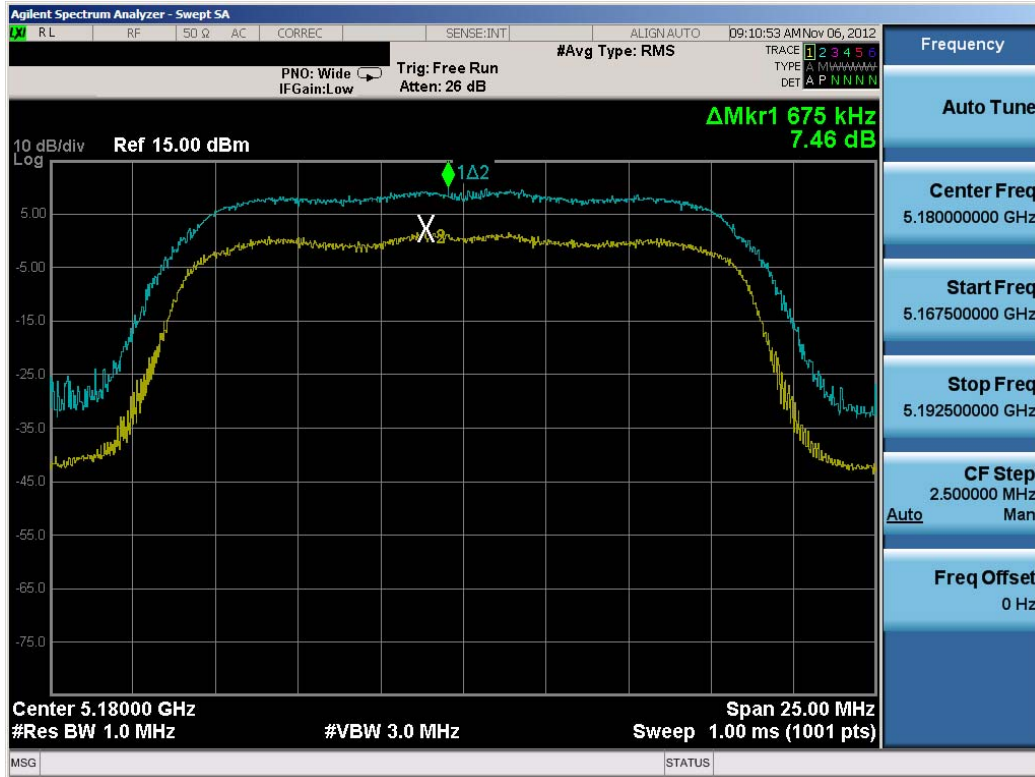
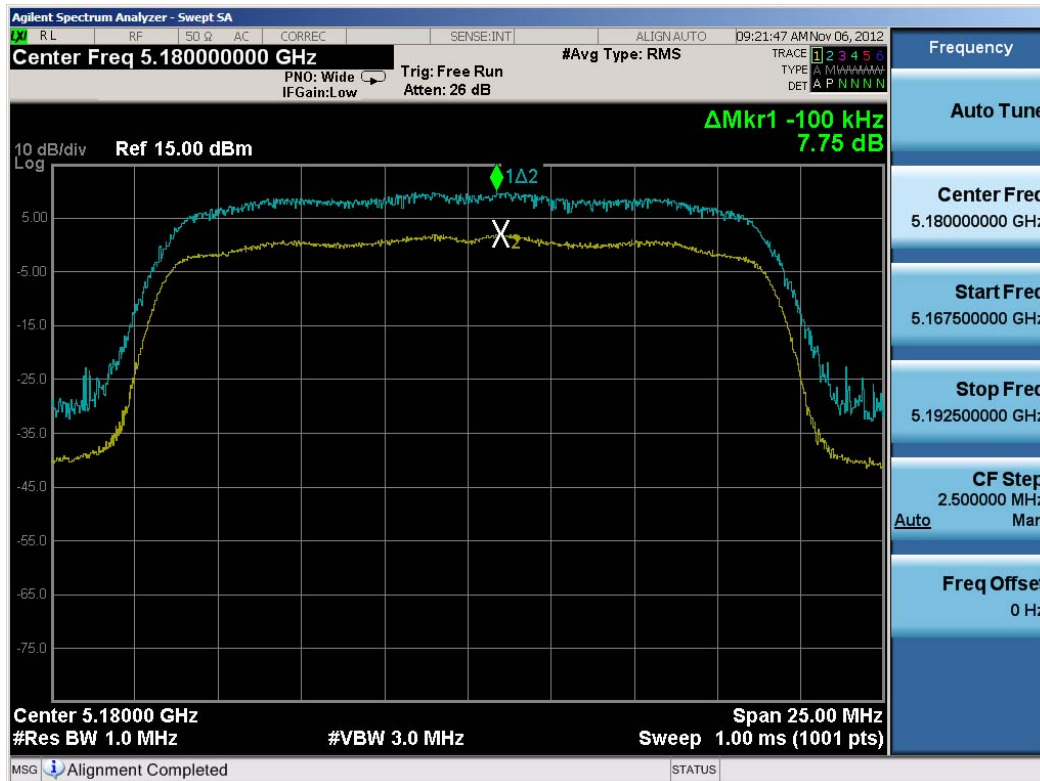


Figure 6-4. Test Instrument & Measurement Setup

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 42 of 78	



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



Plot 6-52. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 43 of 78

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: 3.7 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	5,180,000,016	16	0.0000003
100 %		- 30	5,180,000,011	11	0.0000002
100 %		- 20	5,180,000,030	30	0.0000006
100 %		- 10	5,180,000,025	25	0.0000005
100 %		0	5,180,000,031	31	0.0000006
100 %		+ 10	5,180,000,029	29	0.0000006
100 %		+ 20	5,180,000,021	21	0.0000004
100 %		+ 30	5,180,000,014	14	0.0000003
100 %		+ 40	5,180,000,049	49	0.0000010
100 %		+ 50	5,180,000,026	26	0.0000005
115 %		4.26	+ 20	5,180,000,034	34
BATT. ENDPOINT	3.40	+ 20	5,180,000,014	14	0.0000003

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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 45 of 78	

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: 3.7 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	5,260,000,018	18	0.0000003
100 %		- 30	5,260,000,017	17	0.0000003
100 %		- 20	5,260,000,014	14	0.0000003
100 %		- 10	5,260,000,014	14	0.0000003
100 %		0	5,260,000,030	30	0.0000006
100 %		+ 10	5,260,000,028	28	0.0000005
100 %		+ 20	5,260,000,030	30	0.0000006
100 %		+ 30	5,260,000,039	39	0.0000007
100 %		+ 40	5,260,000,021	21	0.0000004
100 %		+ 50	5,260,000,006	6	0.0000001
115 %		4.26	+ 20	5,260,000,013	13
BATT. ENDPOINT	3.40	+ 20	5,260,000,026	26	0.0000005

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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 46 of 78	

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: 3.7 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	5,500,000,026	26	0.0000005
100 %		- 30	5,500,000,012	12	0.0000002
100 %		- 20	5,500,000,038	38	0.0000007
100 %		- 10	5,500,000,029	29	0.0000005
100 %		0	5,500,000,044	44	0.0000008
100 %		+ 10	5,500,000,028	28	0.0000005
100 %		+ 20	5,500,000,022	22	0.0000004
100 %		+ 30	5,500,000,007	7	0.0000001
100 %		+ 40	5,500,000,048	48	0.0000009
100 %		+ 50	5,500,000,044	44	0.0000008
115 %		4.26	+ 20	5,500,000,045	45
BATT. ENDPOINT	3.40	+ 20	5,500,000,028	28	0.0000005

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.

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Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 47 of 78	

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 10th 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 [μV/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 6-11. Radiated Limits

Sample Calculation

- Field Strength Level [dBμV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [dBμV/m] – Limit [dBμV/m]

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 48 of 78	

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: 5180MHz



Channel: 36

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	-101.37	Peak	H	45.89	0.00	51.53	68.20	-16.67
* 15540.00	-135.00	Average	H	58.35	0.00	30.35	53.98	-23.63
* 15540.00	-125.00	Peak	H	58.35	0.00	40.35	73.98	-33.63
* 20720.00	-98.57	Average	H	44.02	-9.54	42.91	53.98	-11.07
* 20720.00	-95.97	Peak	H	44.02	-9.54	45.51	73.98	-28.47
25900.00	-125.00	Peak	H	44.85	0.00	26.85	68.20	-41.35

Table 6-12. Radiated Measurements @ 1 & 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 49 of 78	

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: 5200MHz



Channel: 40

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
10400.00	-100.22	Peak	H	45.98	0.00	52.76	68.20	-15.44
* 15600.00	-135.00	Average	H	58.64	0.00	30.64	53.98	-23.34
* 15600.00	-125.00	Peak	H	58.64	0.00	40.64	73.98	-33.34
* 20800.00	-99.47	Average	H	44.00	-9.54	41.98	53.98	-12.00
* 20800.00	-96.77	Peak	H	44.00	-9.54	44.68	73.98	-29.30
26000.00	-125.00	Peak	H	44.88	0.00	26.88	68.20	-41.32

Table 6-13. Radiated Measurements @ 1 & 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 μ 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 μ 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- Above 960MHz the limit is 500 μ V/m (54dB μ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera	Page 50 of 78	

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: 5240MHz



Channel: 48

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	-100.57	Peak	H	46.14	0.00	52.57	68.20	-15.63
* 15720.00	-135.00	Average	H	59.21	0.00	31.21	53.98	-22.77
* 15720.00	-125.00	Peak	H	59.21	0.00	41.21	73.98	-32.77
* 20960.00	-98.62	Average	H	43.99	-9.54	42.83	53.98	-11.15
* 20960.00	-95.92	Peak	H	43.99	-9.54	45.53	73.98	-28.45
26200.00	-125.00	Peak	H	44.82	0.00	26.82	68.20	-41.38

Table 6-14. Radiated Measurements @ 1 & 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera	Page 51 of 78	

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: 5260MHz
 Channel: 52

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	-100.39	Peak	H	46.23	0.00	52.83	68.20	-15.37
* 15780.00	-135.00	Average	H	59.53	0.00	31.53	53.98	-22.45
* 15780.00	-125.00	Peak	H	59.53	0.00	41.53	73.98	-32.45
* 21040.00	-100.22	Average	H	44.01	-9.54	41.25	53.98	-12.73
* 21040.00	-97.57	Peak	H	44.01	-9.54	43.90	73.98	-30.08
26300.00	-125.00	Peak	H	44.87	0.00	26.87	68.20	-41.33

Table 6-15. Radiated Measurements @ 1 & 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera	Page 52 of 78	

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: 5280MHz
 Channel: 56

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	-100.72	Peak	H	46.32	0.00	52.61	68.20	-15.59
* 15840.00	-135.00	Average	H	59.88	0.00	31.88	53.98	-22.09
* 15840.00	-125.00	Peak	H	59.88	0.00	41.88	73.98	-32.09
* 21120.00	-99.88	Average	H	44.00	-9.54	41.58	53.98	-12.40
* 21120.00	-97.38	Peak	H	44.00	-9.54	44.08	73.98	-29.90
26400.00	-125.00	Peak	H	44.81	0.00	26.81	68.20	-41.39

Table 6-16. Radiated Measurements @ 1 & 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera	Page 53 of 78	

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: 5320MHz



Channel: 64

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
* 10640.00	-110.35	Average	H	46.52	0.00	43.16	53.98	-10.81
* 10640.00	-100.75	Peak	H	46.52	0.00	52.76	73.98	-21.21
* 15960.00	-135.00	Average	H	62.27	0.00	34.27	53.98	-19.71
* 15960.00	-125.00	Peak	H	62.27	0.00	44.27	73.98	-29.71
* 21280.00	-99.66	Average	H	44.02	-9.54	41.82	53.98	-12.16
* 21280.00	-97.16	Peak	H	44.02	-9.54	44.32	73.98	-29.66
26600.00	-125.00	Peak	H	44.70	0.00	26.70	68.20	-41.50

Table 6-17. Radiated Measurements @ 1 & 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 μ 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 μ 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- Above 960MHz the limit is 500 μ V/m (54dB μ m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera	Page 54 of 78	

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: 5500MHz
 Channel: 100

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
* 11000.00	-110.09	Average	H	46.23	0.00	43.13	53.98	-10.85
* 11000.00	-100.79	Peak	H	46.23	0.00	52.43	73.98	-21.55
16500.00	-125.00	Peak	H	59.53	0.00	41.53	68.20	-26.67
22000.00	-101.72	Peak	H	44.30	-9.54	40.04	68.20	-28.16
27500.00	-125.00	Peak	H	47.96	0.00	29.96	68.20	-38.24

Table 6-18. Radiated Measurements @ 1 & 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 μ 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 μ 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- Above 960MHz the limit is 500 μ V/m (54dB μ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 55 of 78	

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]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11160.00	-110.02	Average	H	46.32	0.00	43.31	53.98	-10.67
* 11160.00	-100.12	Peak	H	46.32	0.00	53.21	73.98	-20.77
16740.00	-125.00	Peak	H	59.88	0.00	41.88	68.20	-26.32
* 22320.00	-101.85	Average	H	44.40	-9.54	40.01	53.98	-13.97
* 22320.00	-99.05	Peak	H	44.40	-9.54	42.81	73.98	-31.17
27900.00	-125.00	Peak	H	48.14	0.00	30.14	68.20	-38.06

Table 6-19. Radiated Measurements @ 1 & 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 56 of 78	

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: 5700MHz



Channel: 140

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
* 11400.00	-110.05	Average	H	46.52	0.00	43.46	53.98	-10.51
* 11400.00	-100.95	Peak	H	46.52	0.00	52.56	73.98	-21.41
17100.00	-117.60	Average	H	62.27	0.00	51.67	53.98	-2.31
17100.00	-99.65	Peak	H	62.27	0.00	69.62	73.98	-4.36
* 22800.00	-101.59	Average	H	44.45	-9.54	40.32	53.98	-13.66
* 22800.00	-98.69	Peak	H	44.45	-9.54	43.22	73.98	-30.76
28500.00	-125.00	Peak	H	48.28	0.00	30.28	68.20	-37.92

Table 6-20. Radiated Measurements @ 1 & 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 μ 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 μ V/m. Note that for the emission at 17100MHz, per KDB789033 Section (G)(2)(c)(i), non-restricted band emissions that comply with average and peak limits from 15.209 are not required to satisfy the -27 dBm/MHz (68.2dB μ 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. Emissions whose levels were not within 20dB of the respective limits were not reported.
- Average levels at -135dBm and peak levels at -125dBm represent the analyzer noise floor and signify that no emission was detected.
- Emissions below 18GHz were measured at a 3 meter test distance and emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- Above 960MHz the limit is 500 μ V/m (54dB μ /m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 57 of 78	

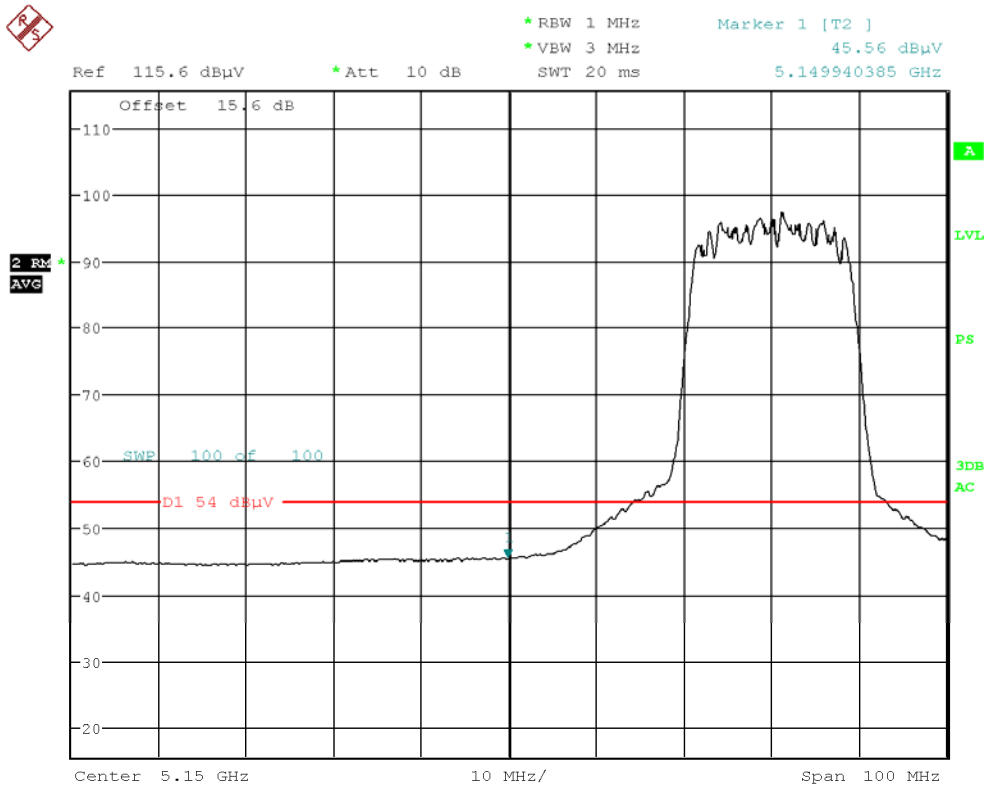
6.8 Radiated Band Edge Measurements (20MHz BW) §15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

The amplitude offset shown in the following plots was calculated using the formula:

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

Worst Case Mode: 802.11a (20MHz)
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 5180MHz
 Channel: 36



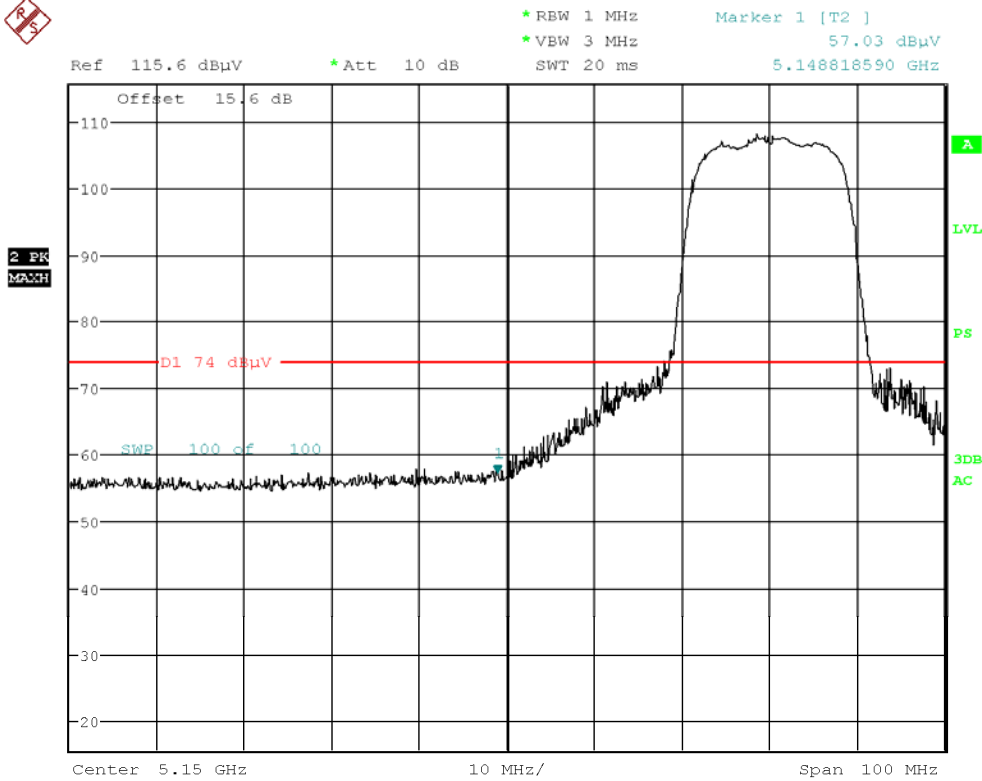
Date: 5.NOV.2012 20:30:24

Plot 6-54. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 58 of 78

Radiated Band Edge Measurements (20MHz BW) (Cont'd)

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



Date: 5.NOV.2012 20:29:33

Plot 6-55. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

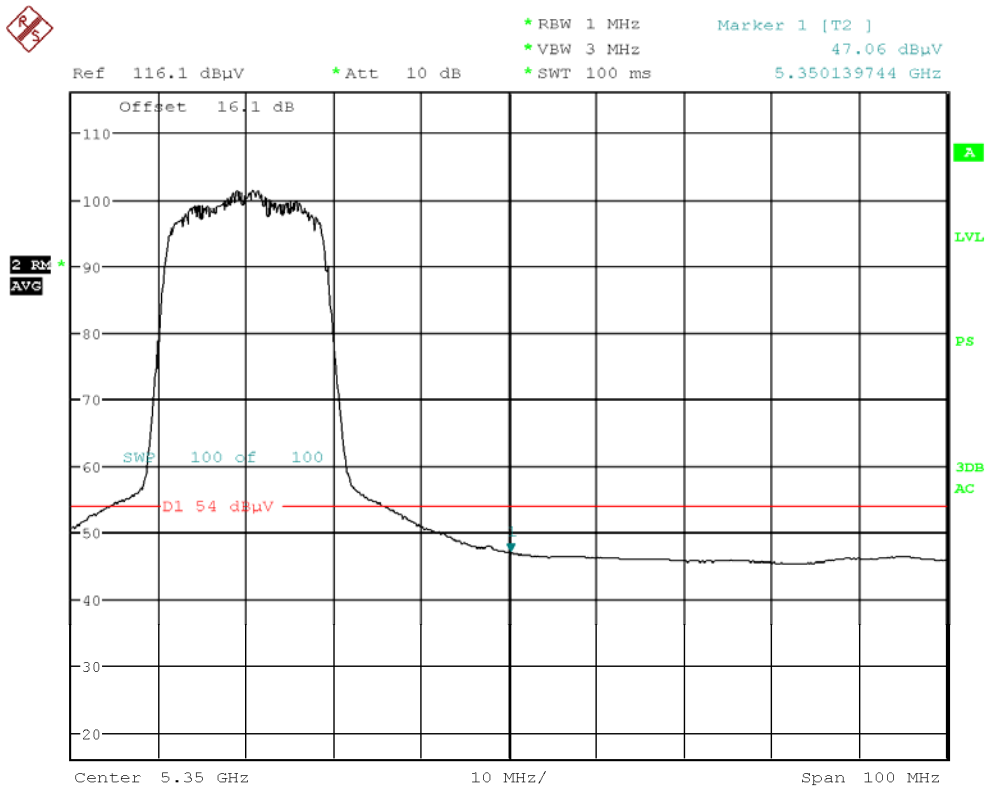
NOTES:

1. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033. Peak emissions are measured using RBW = 1MHz and VBW = 3MHz.
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.

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera	Page 59 of 78	

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 (20MHz)
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64



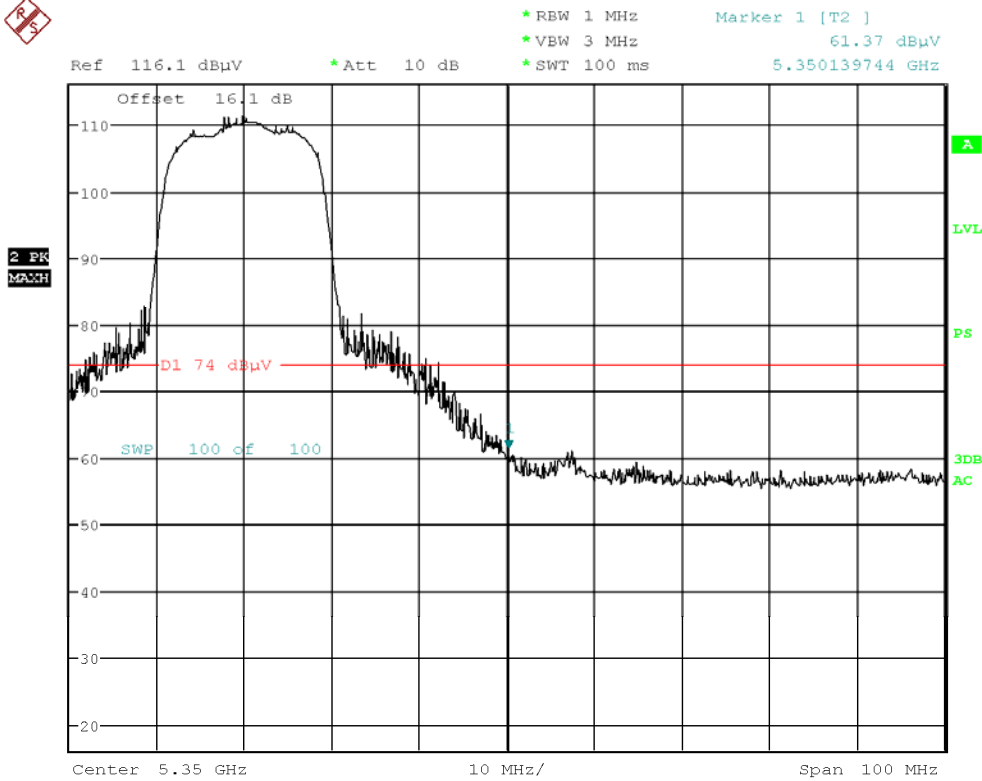
Date: 5.NOV.2012 20:56:23

Plot 6-56. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2)

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 60 of 78	

Radiated Band Edge Measurements (20MHz BW) (Cont'd)

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



Date: 5.NOV.2012 20:55:29

Plot 6-57. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2)

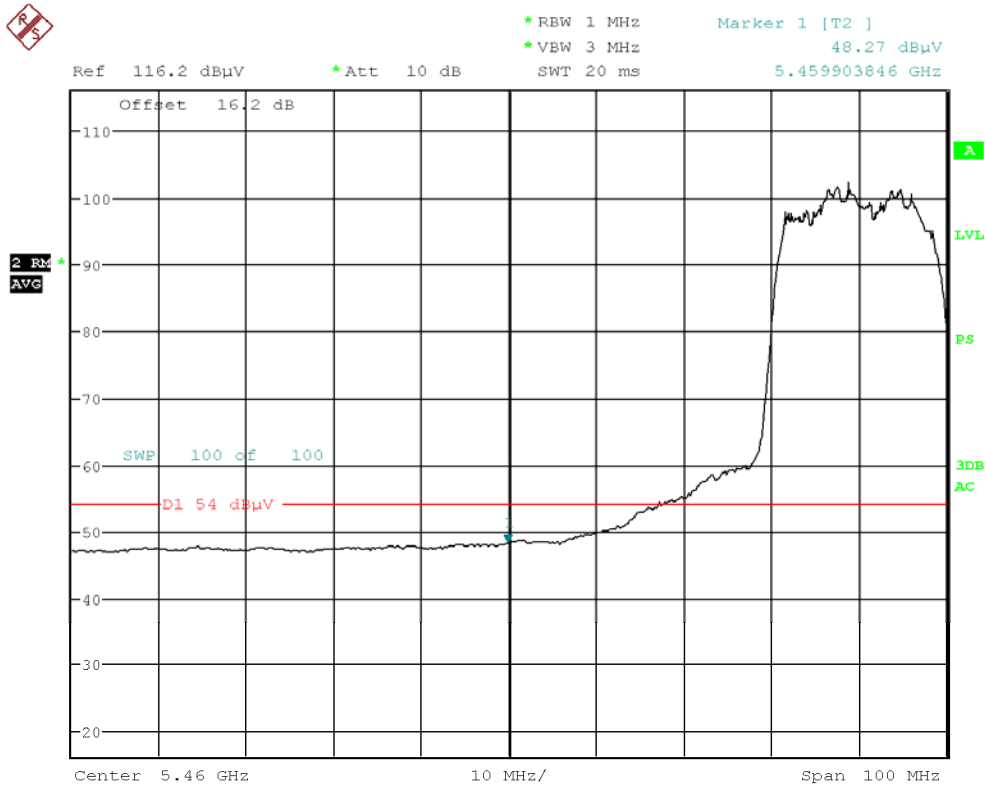
NOTES:

1. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033. Peak emissions are measured using RBW = 1MHz and VBW = 3MHz.
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.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 61 of 78

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 (20MHz)
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100



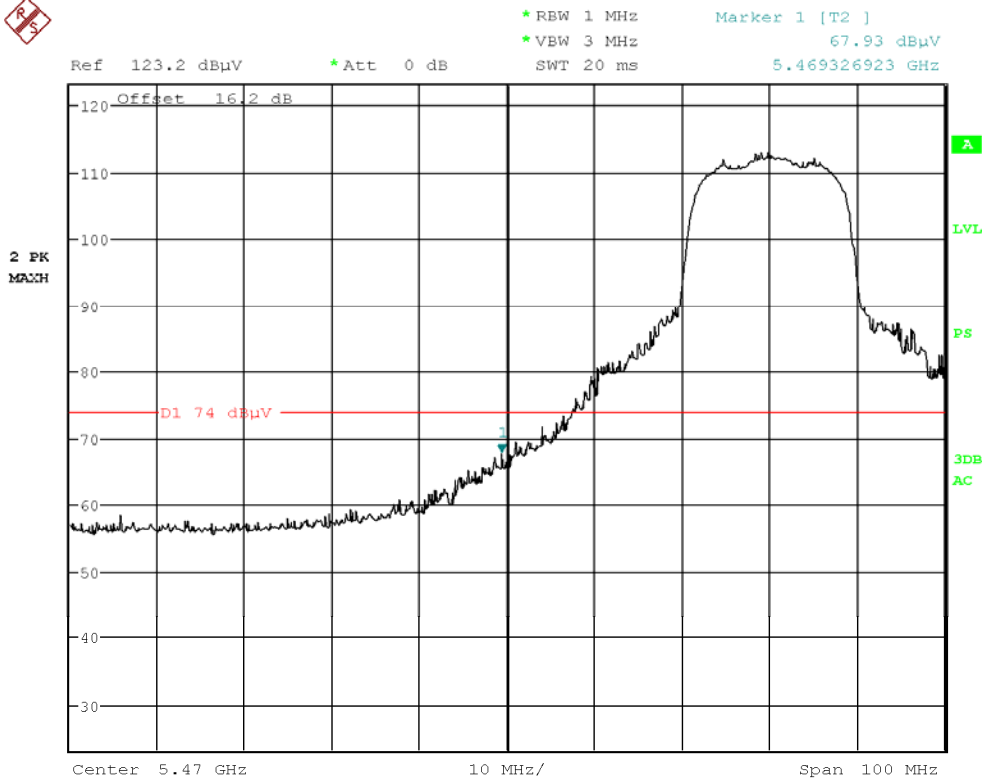
Date: 5.NOV.2012 21:29:05

Plot 6-58. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 3)

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera		Page 62 of 78

Radiated Band Edge Measurements (20MHz BW) (Cont'd)

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



Date: 5.NOV.2012 23:13:50

Plot 6-59. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 3)

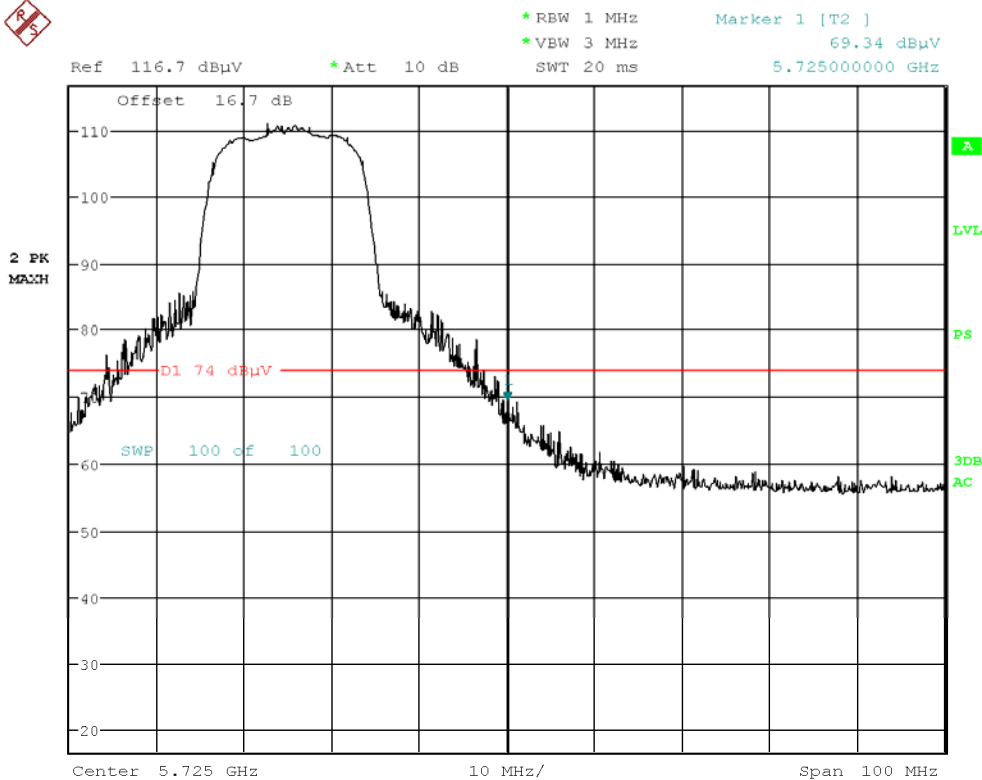
NOTES:

1. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033. Peak emissions are measured using RBW = 1MHz and VBW = 3MHz.
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.

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera		Page 63 of 78

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 (20MHz)
 Worst Case Transfer Rate: 6 Mbps
 Distance of Measurements: 3 Meters
 Operating Frequency: 5700MHz
 Channel: 140



Date: 5.NOV.2012 22:19:59

Plot 6-60. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

NOTES:

1. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033. Peak emissions are measured using RBW = 1MHz and VBW = 3MHz.
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.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera		Page 64 of 78

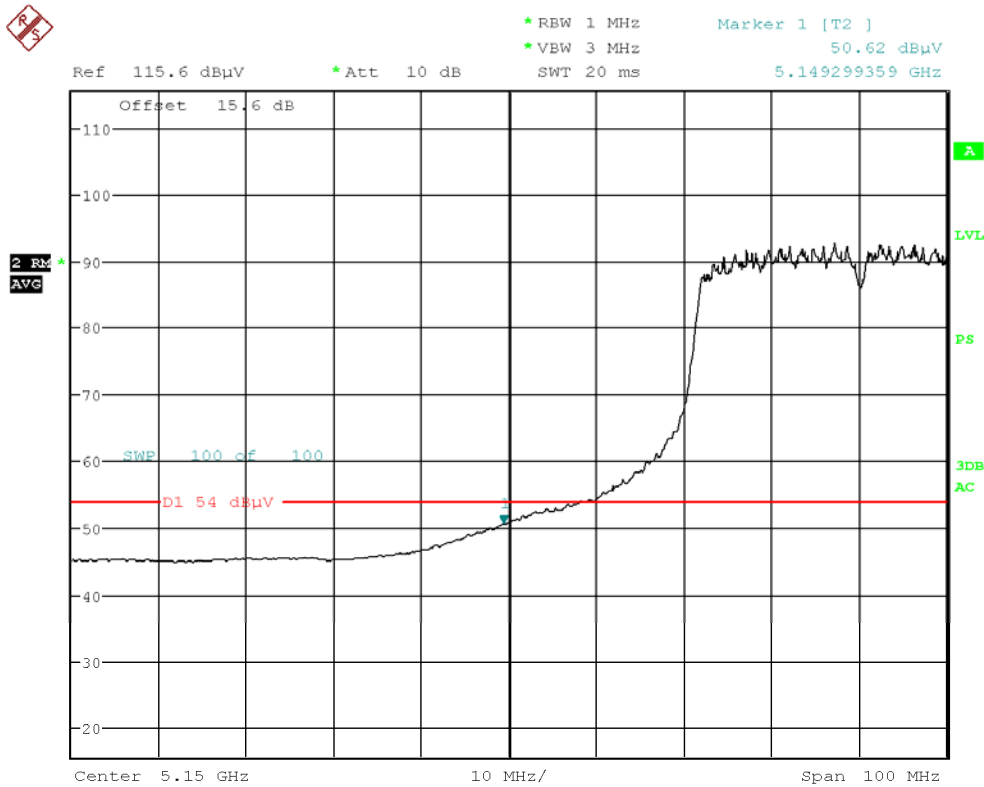
6.9 Radiated Band Edge Measurements (40MHz BW) §15.407(b)(1) and (2), §15.205 & §15.209; RSS-210 [A9.2]

The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting.

The amplitude offset shown in the following plots was calculated using the formula:

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

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



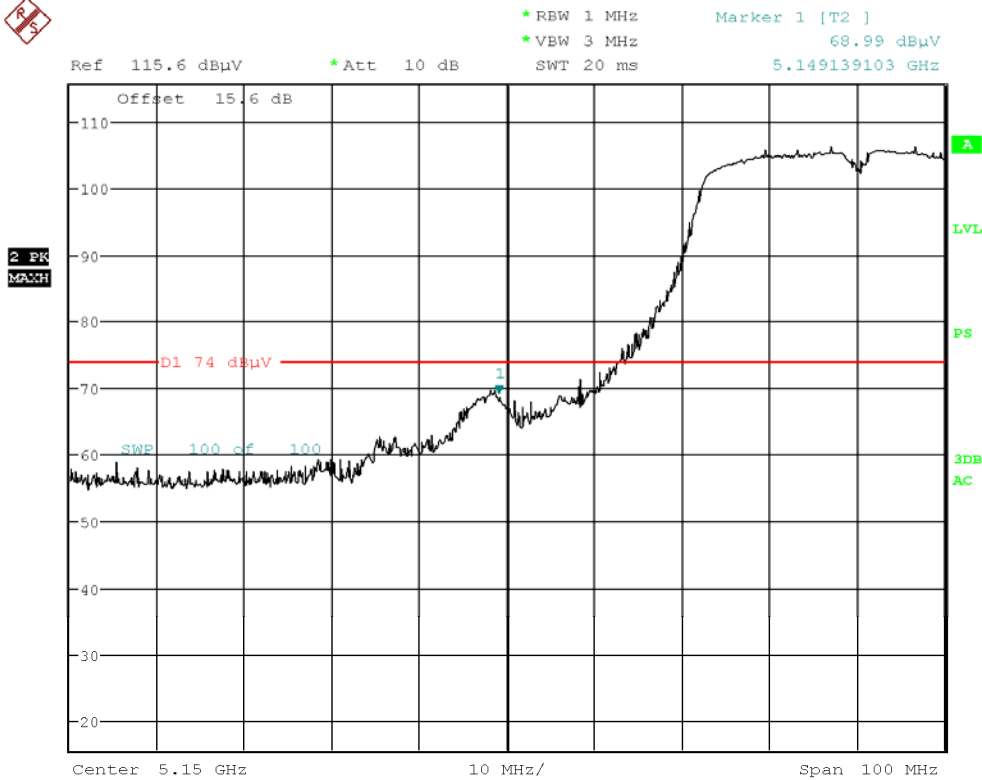
Date: 5.NOV.2012 20:35:20

Plot 6-61. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 1)

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 65 of 78

Radiated Band Edge Measurements (40MHz BW) (Cont'd)

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



Date: 5.NOV.2012 20:36:35

Plot 6-62. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 1)

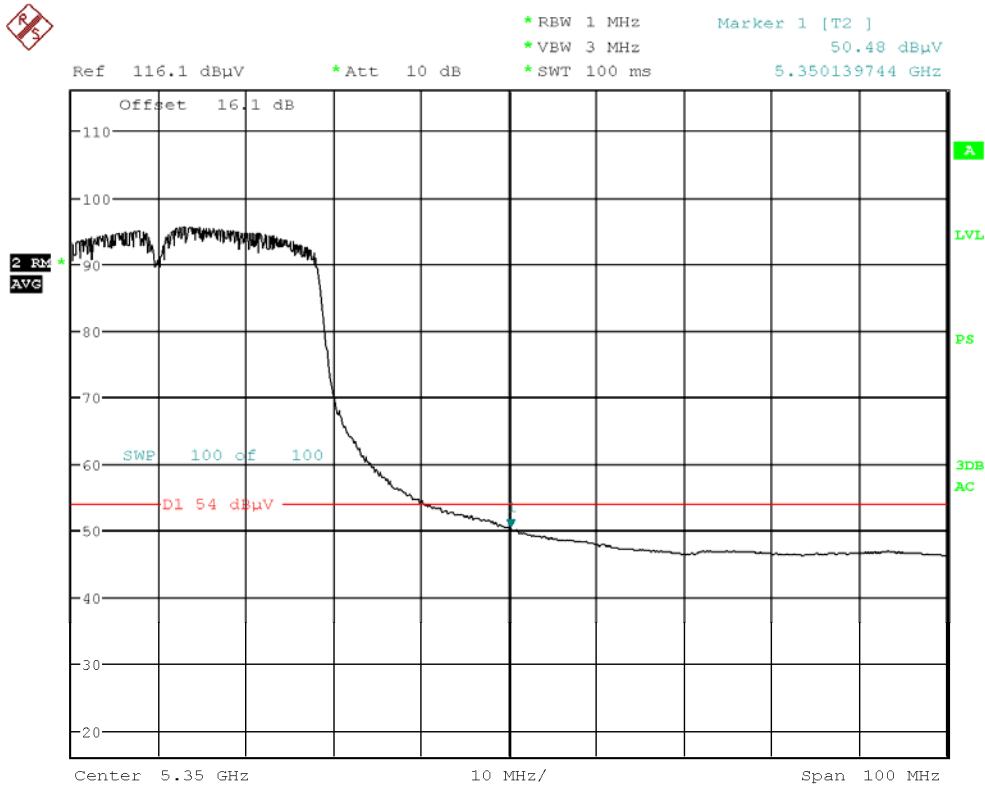
NOTES:

1. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033. Peak emissions are measured using RBW = 1MHz and VBW = 3MHz.
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.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera	Page 66 of 78	

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



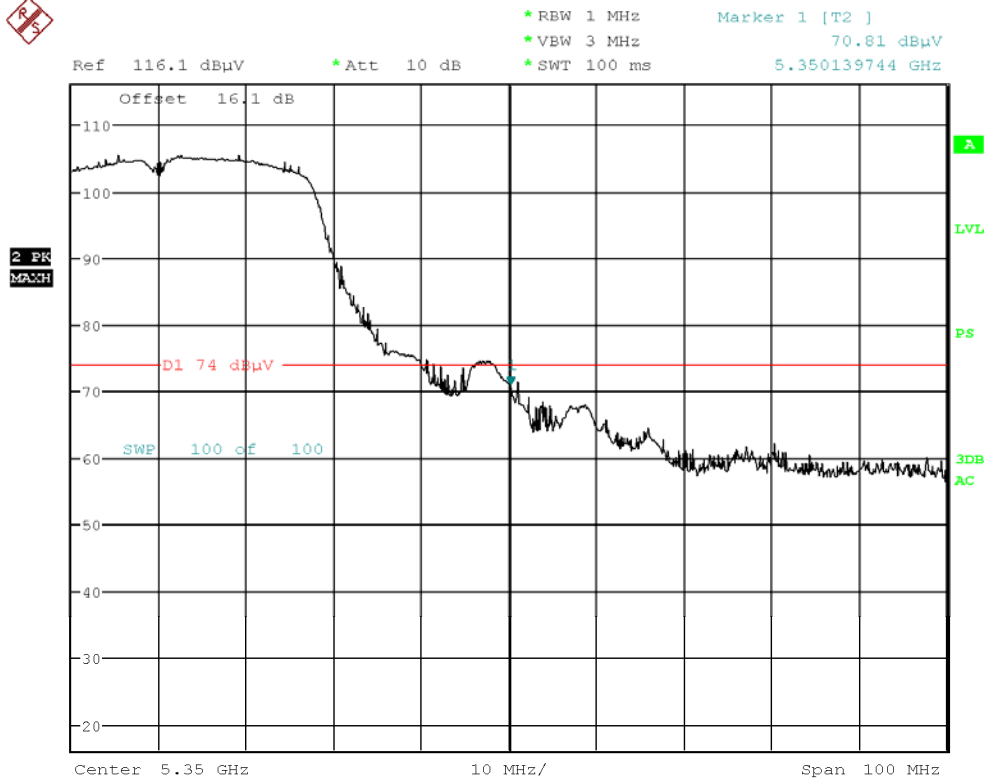
Date: 5.NOV.2012 20:46:47

Plot 6-63. Radiated Restricted Upper Band Edge Plot (Average – UNII Band 2)

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera		Page 67 of 78

Radiated Band Edge Measurements (40MHz BW) (Cont'd)

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



Date: 5.NOV.2012 20:47:21

Plot 6-64. Radiated Restricted Upper Band Edge Plot (Peak – UNII Band 2)

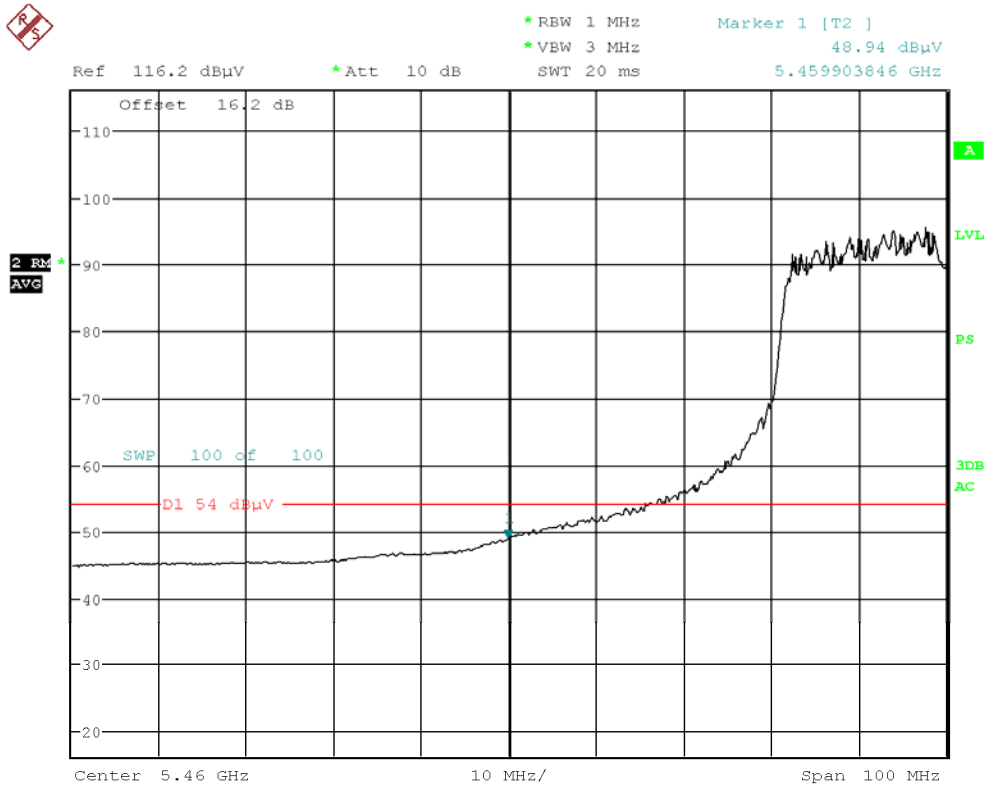
NOTES:

1. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033. Peak emissions are measured using RBW = 1MHz and VBW = 3MHz.
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.

FCC ID: A3LEKGC120	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera	Page 68 of 78	

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



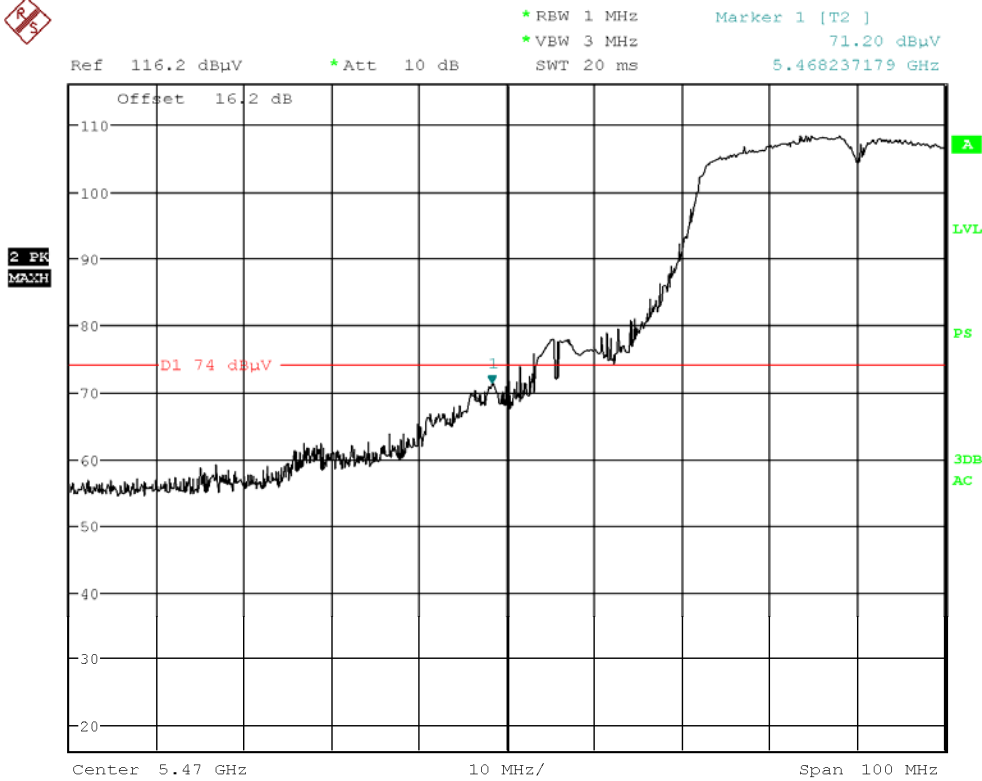
Date: 5.NOV.2012 21:33:58

Plot 6-65. Radiated Restricted Lower Band Edge Plot (Average – UNII Band 3)

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera		Page 69 of 78

Radiated Band Edge Measurements (40MHz BW) (Cont'd)

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



Date: 5.NOV.2012 21:41:26

Plot 6-66. Radiated Restricted Lower Band Edge Plot (Peak – UNII Band 3)

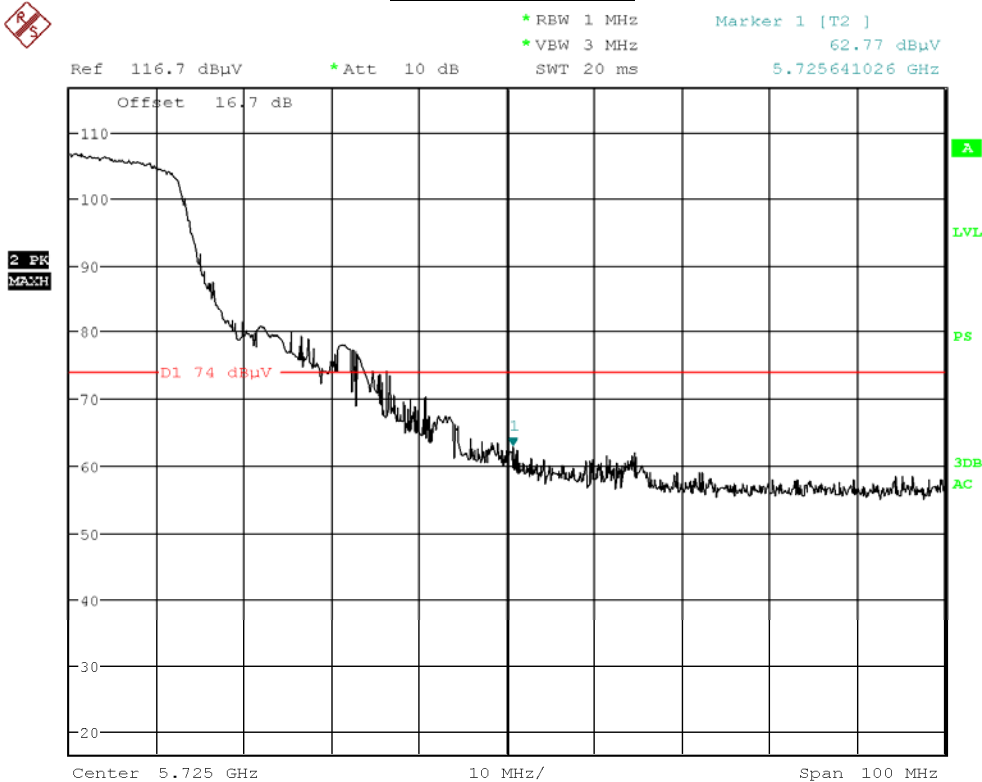
NOTES:

1. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033. Peak emissions are measured using RBW = 1MHz and VBW = 3MHz.
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.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera		Page 70 of 78

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: 5670MHz
 Channel: 134



Date: 5.NOV.2012 22:24:37

Plot 6-67. Radiated Upper Band Edge Plot (Peak – UNII Band 3)

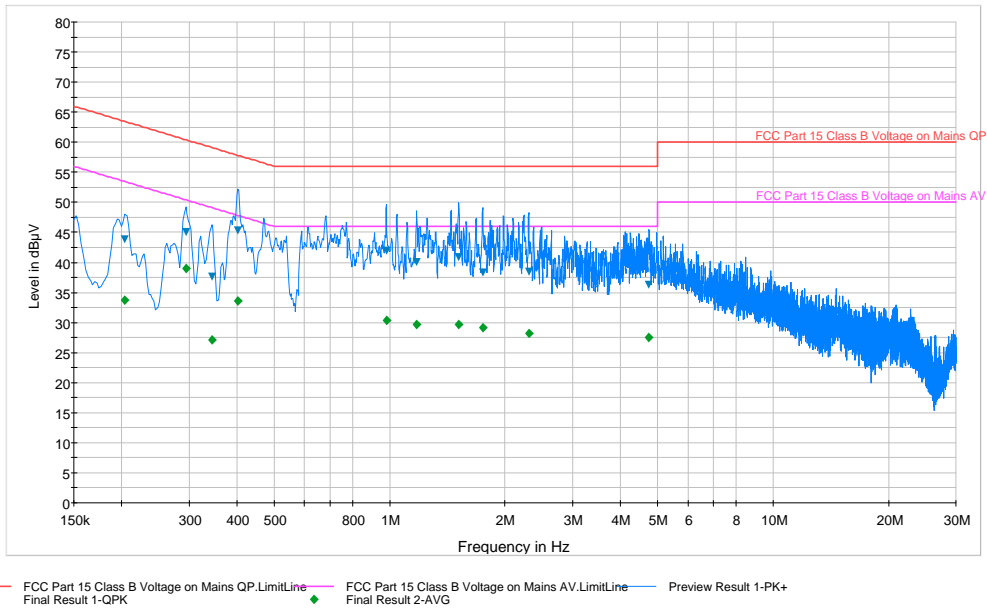
NOTES:

1. Average emissions are measured using RBW = 1MHz, VBW = 3MHz, RMS detector, and 100 trace averages under continuous operation (“Method AD”) per KDB 789033. Peak emissions are measured using RBW = 1MHz and VBW = 3MHz.
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.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 71 of 78	

6.10 Line-Conducted Test Data

§15.207; RSS-Gen [7.2.2]



Plot 6-68. 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
0.204	L1	0.2	43.80	63.40	19.60	33.70	53.40	19.70
0.294	L1	0.1	45.10	60.40	15.30	39.00	50.40	11.40
0.344	L1	0.1	37.70	59.10	21.40	27.20	49.10	21.90
0.402	L1	0.1	45.40	57.80	12.40	33.60	47.80	14.20
0.980	L1	0.1	41.90	56.00	14.10	30.30	46.00	15.70
1.176	L1	0.2	40.10	56.00	15.90	29.70	46.00	16.30
1.514	L1	0.2	40.90	56.00	15.10	29.60	46.00	16.40
1.748	L1	0.2	38.40	56.00	17.60	29.10	46.00	16.90
2.306	L1	0.2	38.50	56.00	17.50	28.20	46.00	17.80
4.749	L1	0.2	36.30	56.00	19.70	27.50	46.00	18.50

Table 6-21. Line Conducted Data with 802.11a UNII Band 1 (L1)

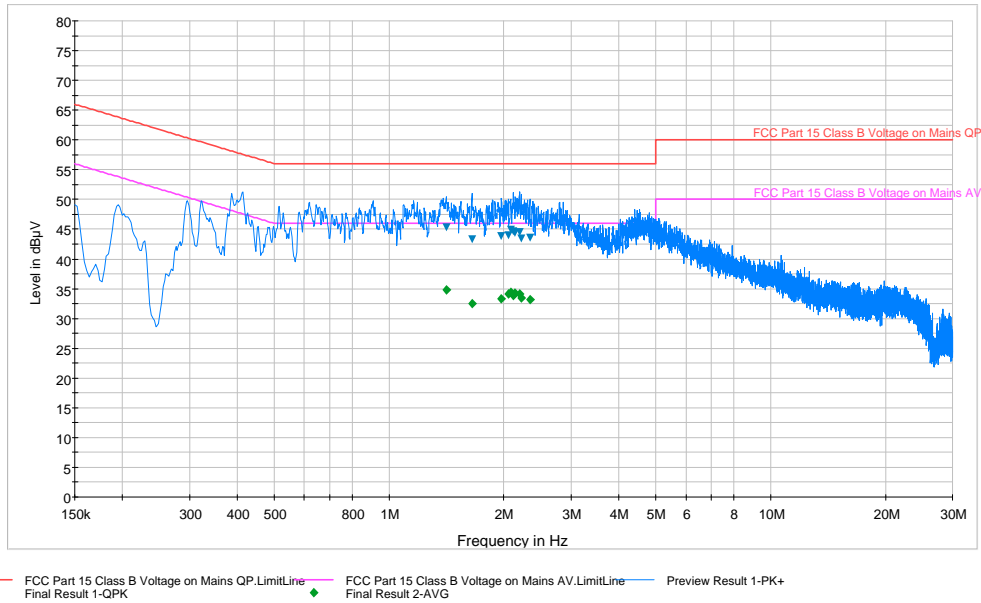
Notes:

- 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera		Page 72 of 78

Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



Plot 6-69. 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
1.412	N	0.2	45.30	56.00	10.70	34.80	46.00	11.20
1.651	N	0.2	43.40	56.00	12.60	32.50	46.00	13.50
1.970	N	0.2	43.80	56.00	12.20	33.40	46.00	12.60
2.051	N	0.2	44.00	56.00	12.00	34.10	46.00	11.90
2.083	N	0.2	44.90	56.00	11.10	34.40	46.00	11.60
2.117	N	0.2	44.70	56.00	11.30	33.90	46.00	12.10
2.141	N	0.2	44.40	56.00	11.60	34.30	46.00	11.70
2.198	N	0.2	44.60	56.00	11.40	34.10	46.00	11.90
2.218	N	0.2	43.50	56.00	12.50	33.40	46.00	12.60
2.339	N	0.2	43.50	56.00	12.50	33.20	46.00	12.80

Table 6-22. Line Conducted Data with 802.11a UNII Band 1 (N)

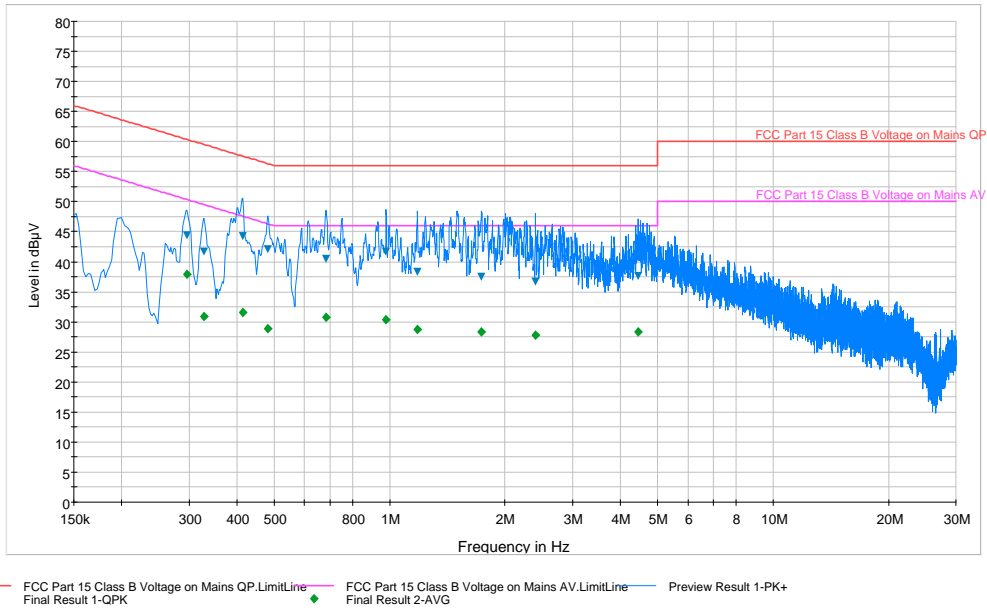
Notes:

- 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 73 of 78

Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



Plot 6-70. 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
0.296	L1	0.1	44.30	60.30	16.00	37.90	50.30	12.40
0.328	L1	0.1	41.70	59.50	17.80	30.90	49.50	18.60
0.413	L1	0.1	44.20	57.60	13.40	31.50	47.60	16.10
0.481	L1	0.1	42.00	56.30	14.30	28.90	46.30	17.40
0.681	L1	0.1	40.50	56.00	15.50	30.70	46.00	15.30
0.978	L1	0.1	41.70	56.00	14.30	30.40	46.00	15.60
1.183	L1	0.2	38.30	56.00	17.70	28.70	46.00	17.30
1.736	L1	0.2	37.40	56.00	18.60	28.40	46.00	17.60
2.400	L1	0.2	36.70	56.00	19.30	27.80	46.00	18.20
4.448	L1	0.2	37.60	56.00	18.40	28.40	46.00	17.60

Table 6-23. Line Conducted Data with 802.11a UNII Band 2 (L1)

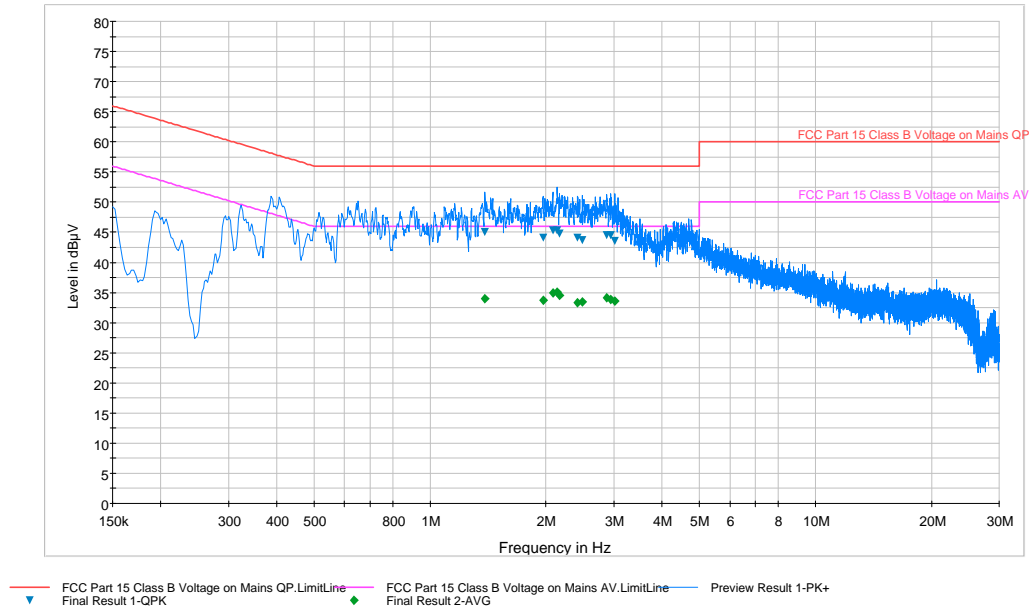
Notes:

- 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.
- Deviations to the Specifications: None.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 74 of 78

Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



Plot 6-71. 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
1.390	N	0.2	45.10	56.00	10.90	33.90	46.00	12.10
1.964	N	0.2	44.10	56.00	11.90	33.70	46.00	12.30
2.083	N	0.2	45.40	56.00	10.60	34.90	46.00	11.10
2.139	N	0.2	45.40	56.00	10.60	35.00	46.00	11.00
2.171	N	0.2	44.80	56.00	11.20	34.60	46.00	11.40
2.418	N	0.2	44.20	56.00	11.80	33.30	46.00	12.70
2.483	N	0.2	43.70	56.00	12.30	33.40	46.00	12.60
2.877	N	0.2	44.50	56.00	11.50	34.10	46.00	11.90
2.940	N	0.2	44.50	56.00	11.50	33.90	46.00	12.10
3.012	N	0.2	43.60	56.00	12.40	33.60	46.00	12.40

Table 6-24. Line Conducted Data with 802.11a UNII Band 2 (N)

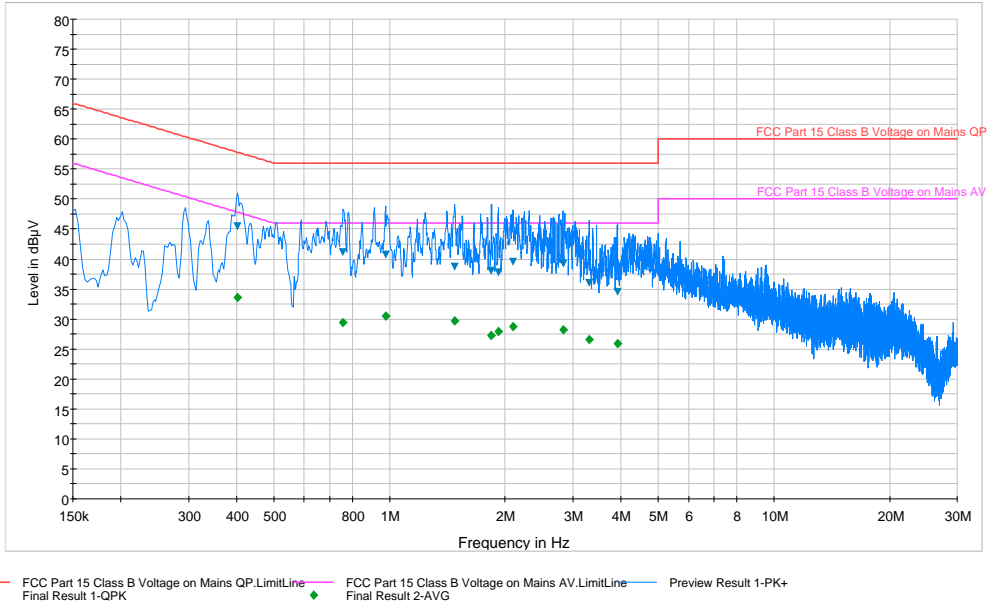
Notes:

- 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 75 of 78

Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



Plot 6-72. 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
0.402	L1	0.1	45.50	57.80	12.30	33.60	47.80	14.20
0.758	L1	0.1	41.20	56.00	14.80	29.40	46.00	16.60
0.976	L1	0.1	40.80	56.00	15.20	30.50	46.00	15.50
1.478	L1	0.2	38.70	56.00	17.30	29.70	46.00	16.30
1.842	L1	0.2	38.00	56.00	18.00	27.30	46.00	18.70
1.919	L1	0.2	37.80	56.00	18.20	27.90	46.00	18.10
2.096	L1	0.2	39.60	56.00	16.40	28.80	46.00	17.20
2.825	L1	0.2	39.20	56.00	16.80	28.20	46.00	17.80
3.307	L1	0.2	36.00	56.00	20.00	26.60	46.00	19.40
3.912	L1	0.2	34.60	56.00	21.40	25.90	46.00	20.10

Table 6-25. Line Conducted Plot with 802.11a UNII Band 3 (L1)

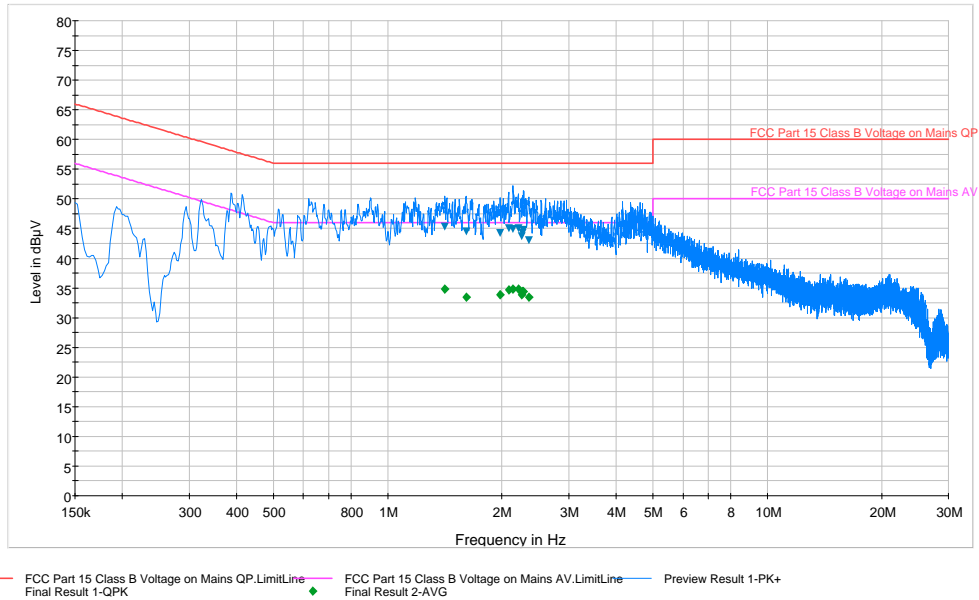
Notes:

- 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.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: November 1-8, 2012	EUT Type: Portable Camera		Page 76 of 78

Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



Plot 6-73. 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
1.415	N	0.2	45.30	56.00	10.70	34.80	46.00	11.20
1.610	N	0.2	44.50	56.00	11.50	33.40	46.00	12.60
1.977	N	0.2	44.20	56.00	11.80	33.90	46.00	12.10
2.083	N	0.2	45.00	56.00	11.00	34.70	46.00	11.30
2.139	N	0.2	45.00	56.00	11.00	34.80	46.00	11.20
2.207	N	0.2	45.00	56.00	11.00	34.80	46.00	11.20
2.249	N	0.2	43.70	56.00	12.30	33.80	46.00	12.20
2.263	N	0.2	44.20	56.00	11.80	34.40	46.00	11.60
2.279	N	0.2	44.80	56.00	11.20	34.40	46.00	11.60
2.351	N	0.2	43.00	56.00	13.00	33.40	46.00	12.60

Table 6-26. 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: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera			Page 77 of 78

7.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Camera FCC ID: A3LEKGC120** is in compliance with Part 15E of the FCC Rules and RSS-210 of the Industry Canada Rules.

FCC ID: A3LEKGC120		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210311558.A3L	Test Dates: Novemer 1-8, 2012	EUT Type: Portable Camera	Page 78 of 78	