

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.

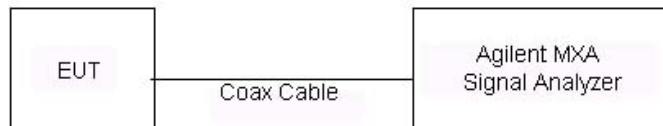


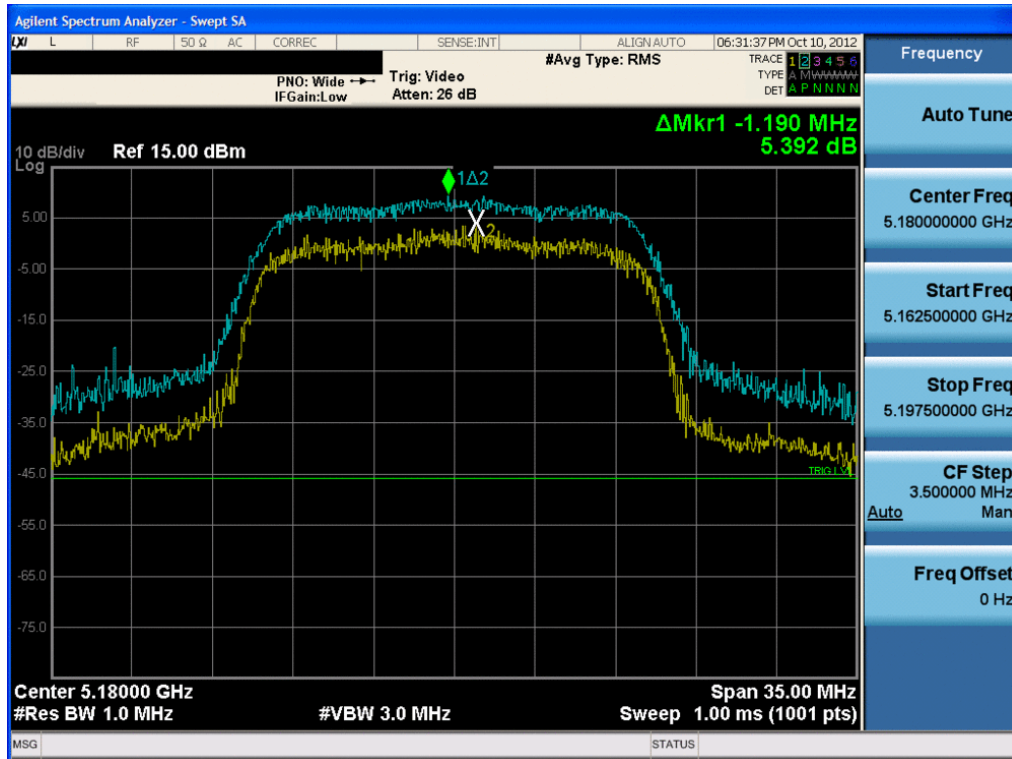
Figure 6-4. Test Instrument & Measurement Setup

FCC ID: A3LSCHN719		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 42 of 84

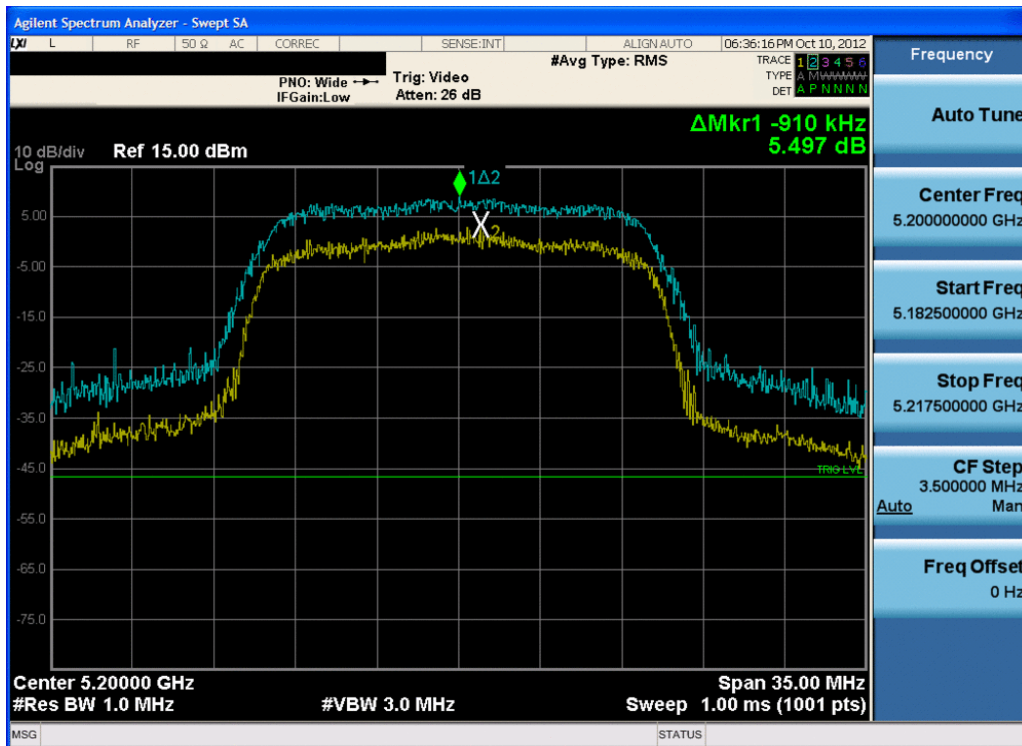
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Peak Excursion Ratio [dBm]	Max Permissible Peak Excursion Ratio [dBm/MHz]	Margin [dB]
Band I	5180	36	a	6	5.39	13.0	-7.61
	5200	40	a	6	5.50	13.0	-7.50
	5240	48	a	6	5.27	13.0	-7.73
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.82	13.0	-6.18
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	7.75	13.0	-5.25
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	7.04	13.0	-5.96
	5190	38	n (40MHz)	13.5/15 (MCS0)	8.72	13.0	-4.28
	5230	46	n (40MHz)	13.5/15 (MCS0)	8.42	13.0	-4.58
Band II	5260	52	a	6	5.07	13.0	-7.93
	5280	56	a	6	4.99	13.0	-8.01
	5320	64	a	6	5.49	13.0	-7.51
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.95	13.0	-6.05
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.75	13.0	-6.25
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	7.96	13.0	-5.04
	5270	54	n (40MHz)	13.5/15 (MCS0)	8.38	13.0	-4.62
	5310	62	n (40MHz)	13.5/15 (MCS0)	8.66	13.0	-4.35
Band III	5500	100	a	6	5.00	13.0	-8.00
	5580	116	a	6	6.35	13.0	-6.65
	5700	140	a	6	6.13	13.0	-6.87
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	8.39	13.0	-4.62
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	7.28	13.0	-5.72
	5700	140	n (20MHz)	6.5/7.2 (MCS0)	7.15	13.0	-5.85
	5510	102	n (40MHz)	13.5/15 (MCS0)	8.53	13.0	-4.47
	5550	110	n (40MHz)	13.5/15 (MCS0)	9.73	13.0	-3.27
	5670	134	n (40MHz)	13.5/15 (MCS0)	8.16	13.0	-4.84

Table 6-7. Conducted Peak Excursion Ratio Measurements

FCC ID: A3LSCHN719		FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 43 of 84

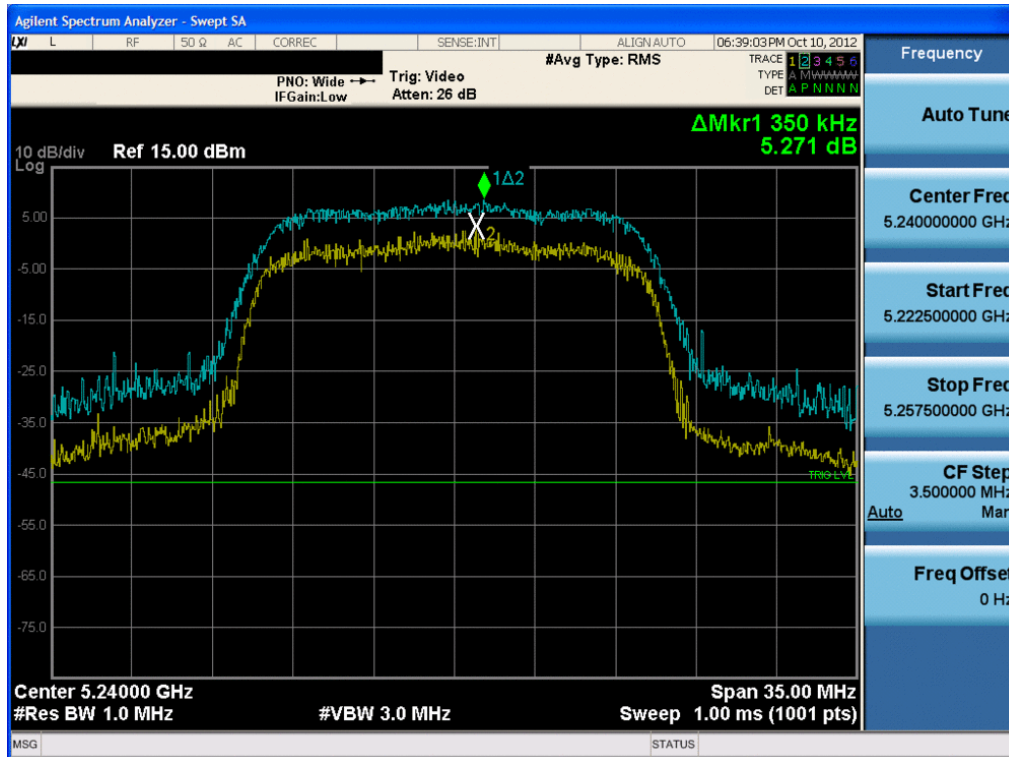


Plot 6-51. Peak Excursion Ratio Plot (802.11a (UNII Band 1) – Ch. 36)

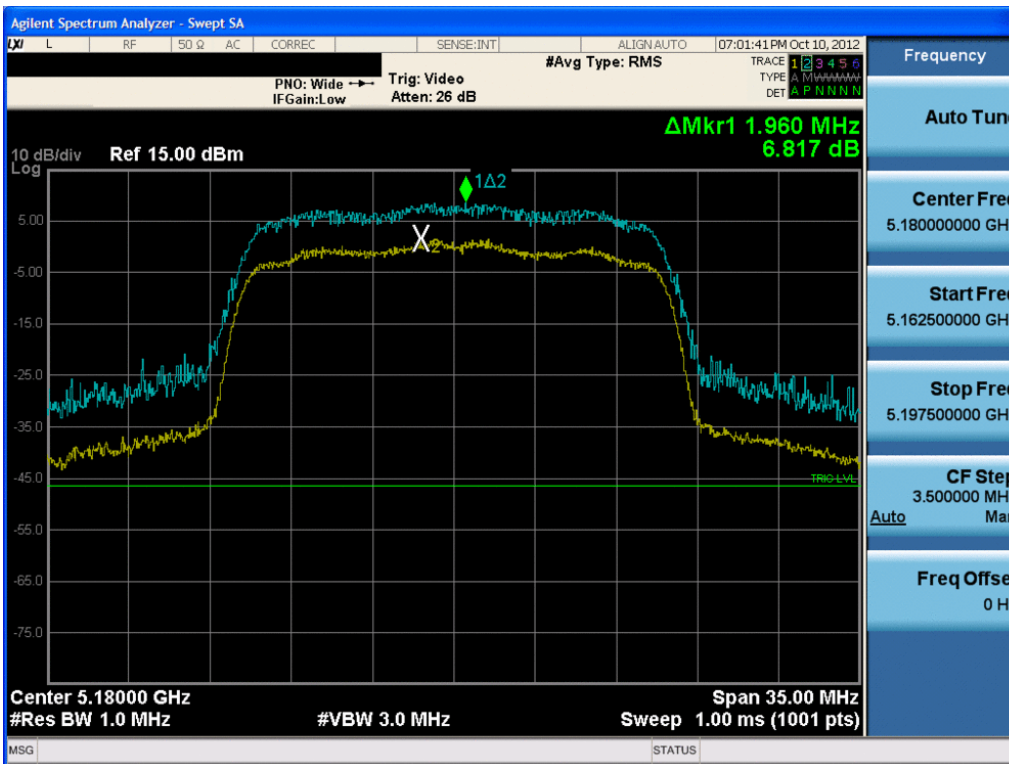


Plot 6-52. Peak Excursion Ratio Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 44 of 84

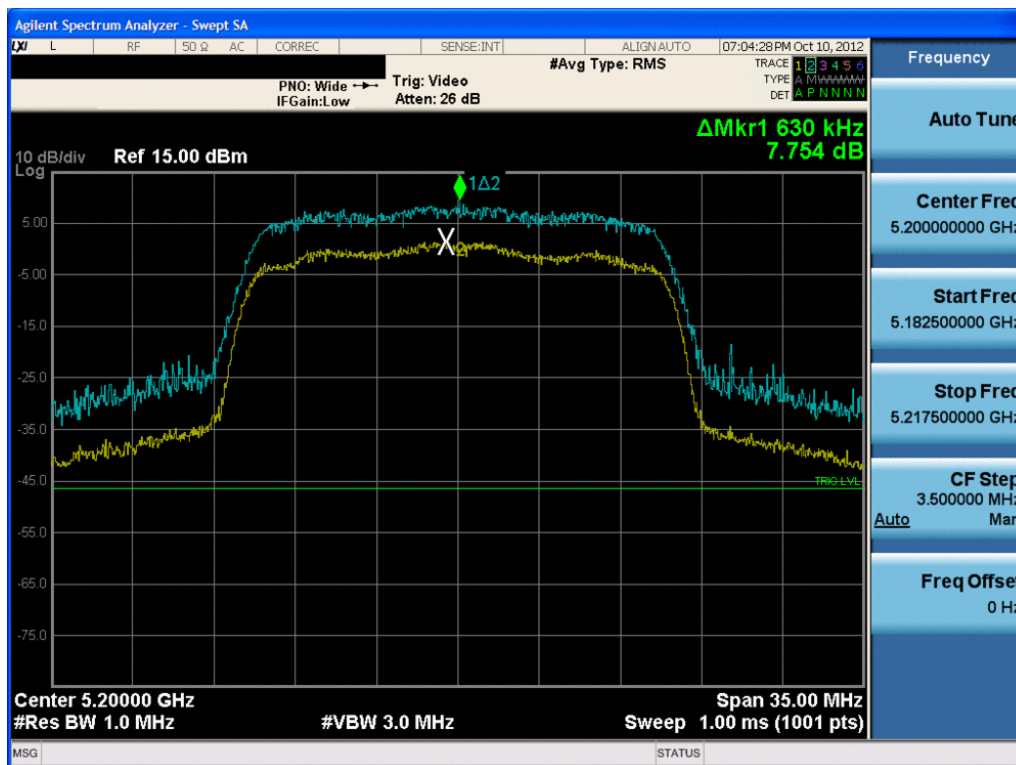


Plot 6-53. Peak Excursion Ratio Plot (802.11a (UNII Band 1) – Ch. 48)

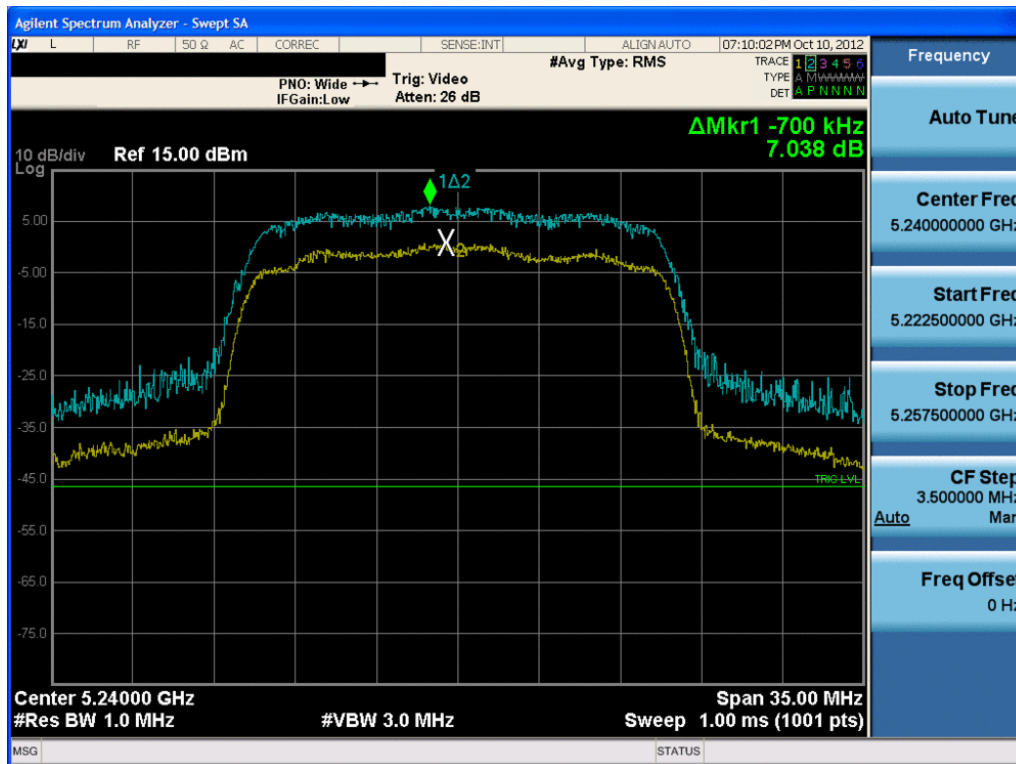


Plot 6-54. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 45 of 84

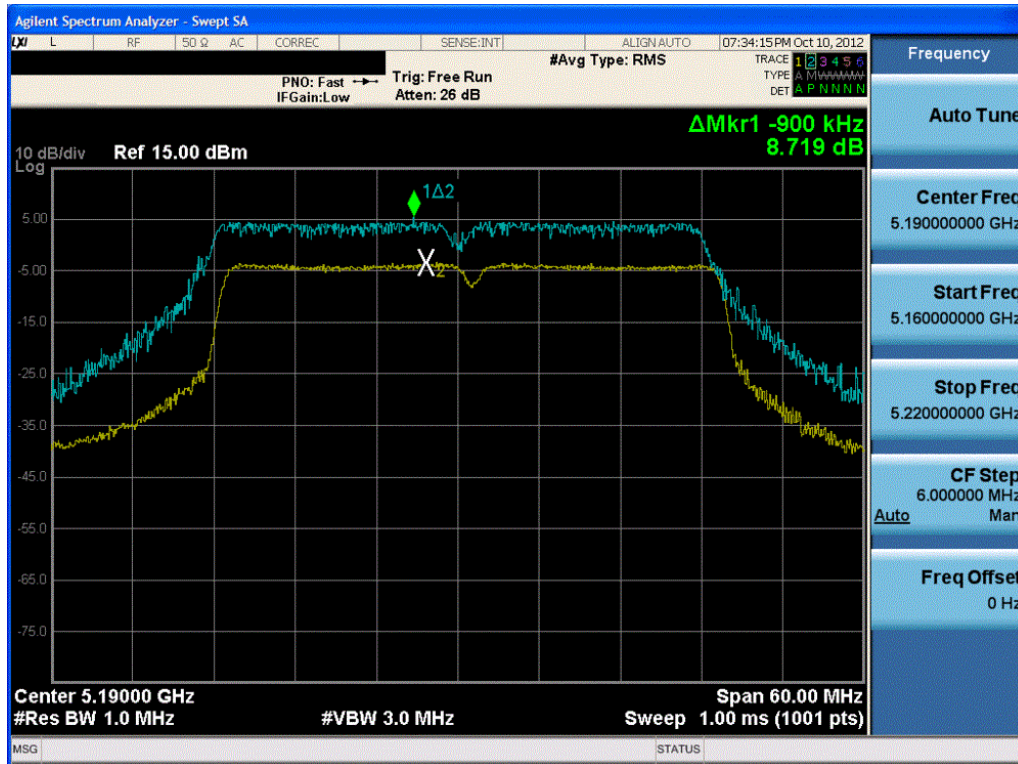


Plot 6-55. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

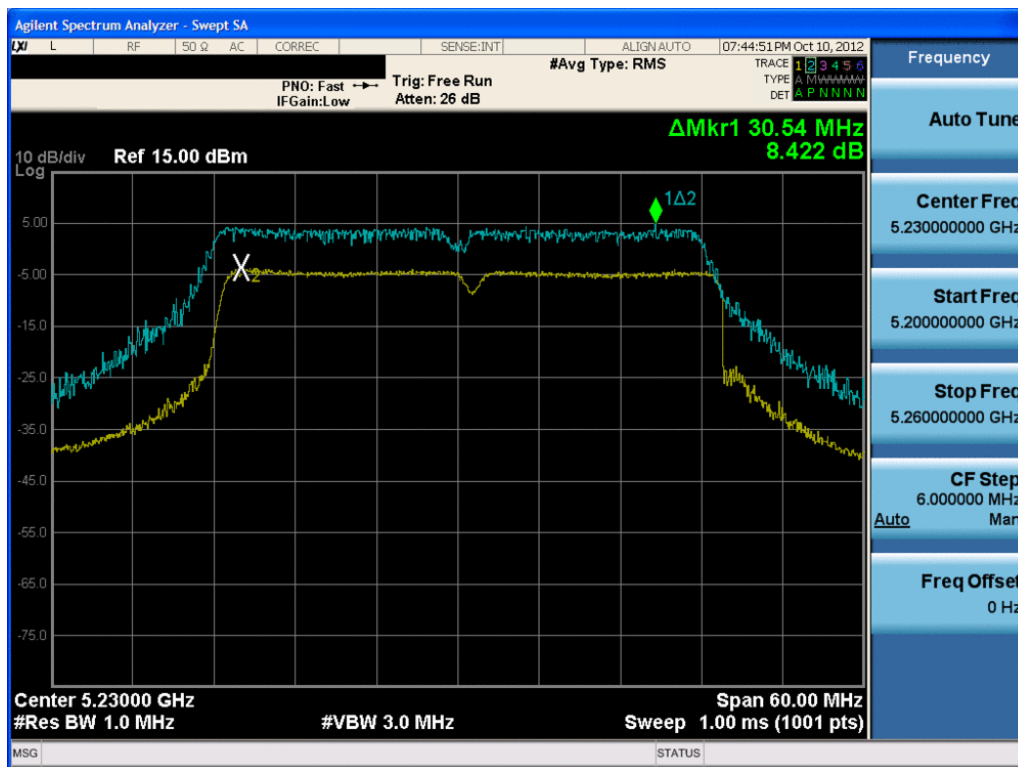


Plot 6-56. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 46 of 84

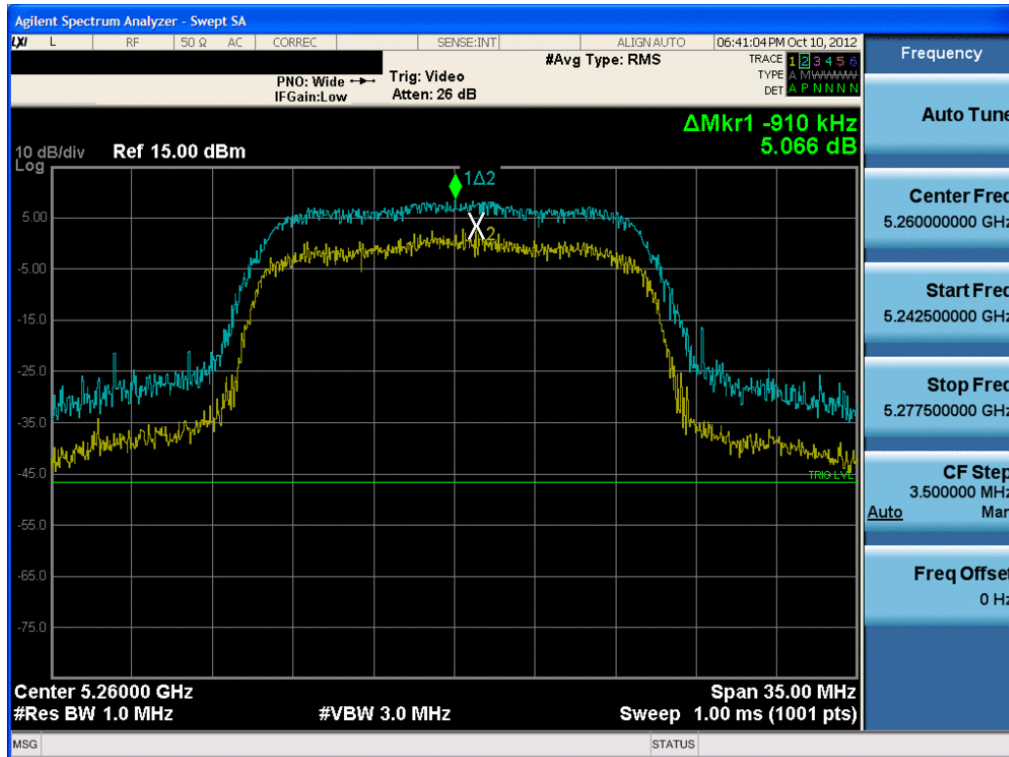


Plot 6-57. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

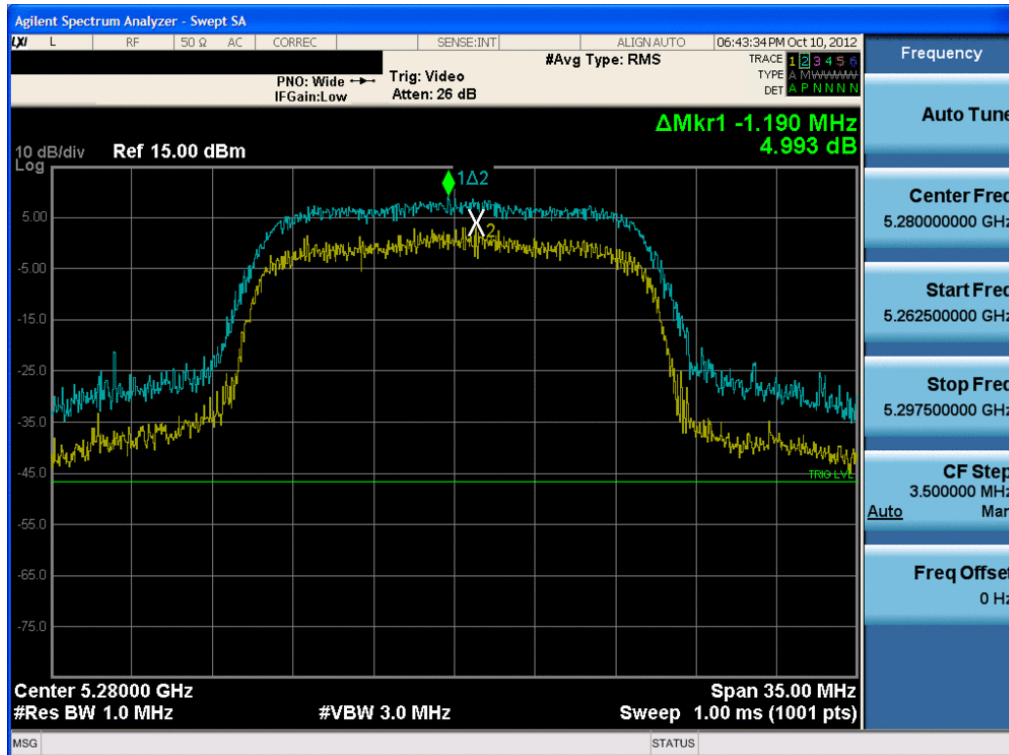


Plot 6-58. Peak Excursion Ratio Plot (40MHz BW 802.11a/n (UNII Band 1) – Ch. 46)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 47 of 84

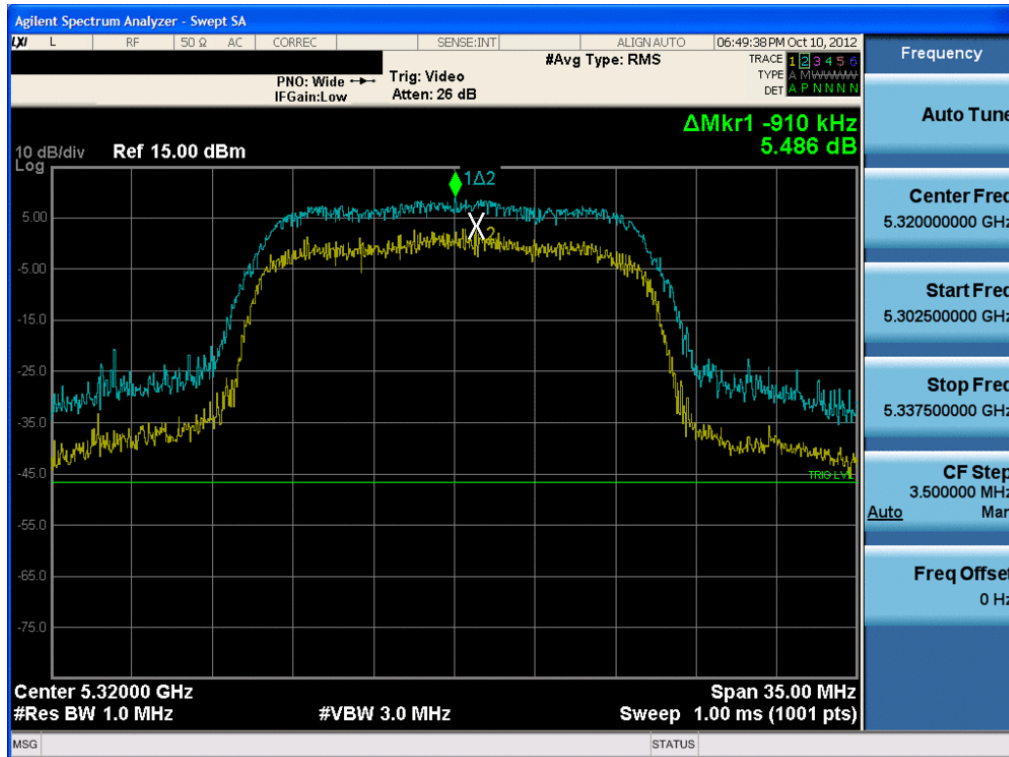


Plot 6-59. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 52)

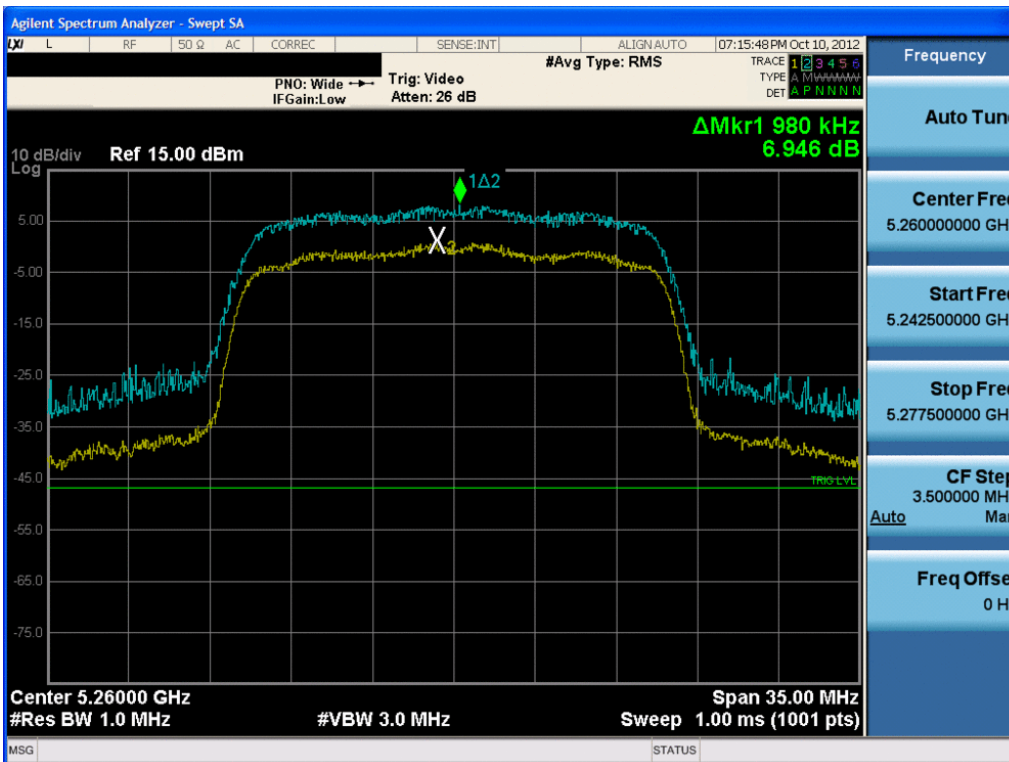


Plot 6-60. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 56)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 48 of 84

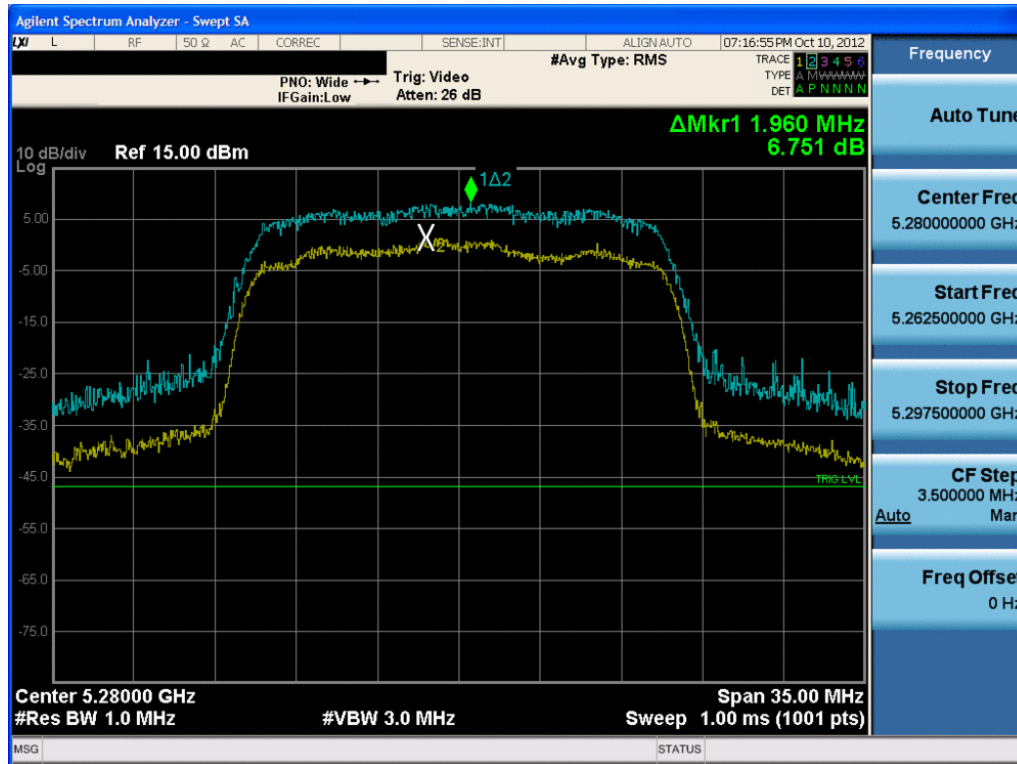


Plot 6-61. Peak Excursion Ratio Plot (802.11a (UNII Band 2) – Ch. 64)

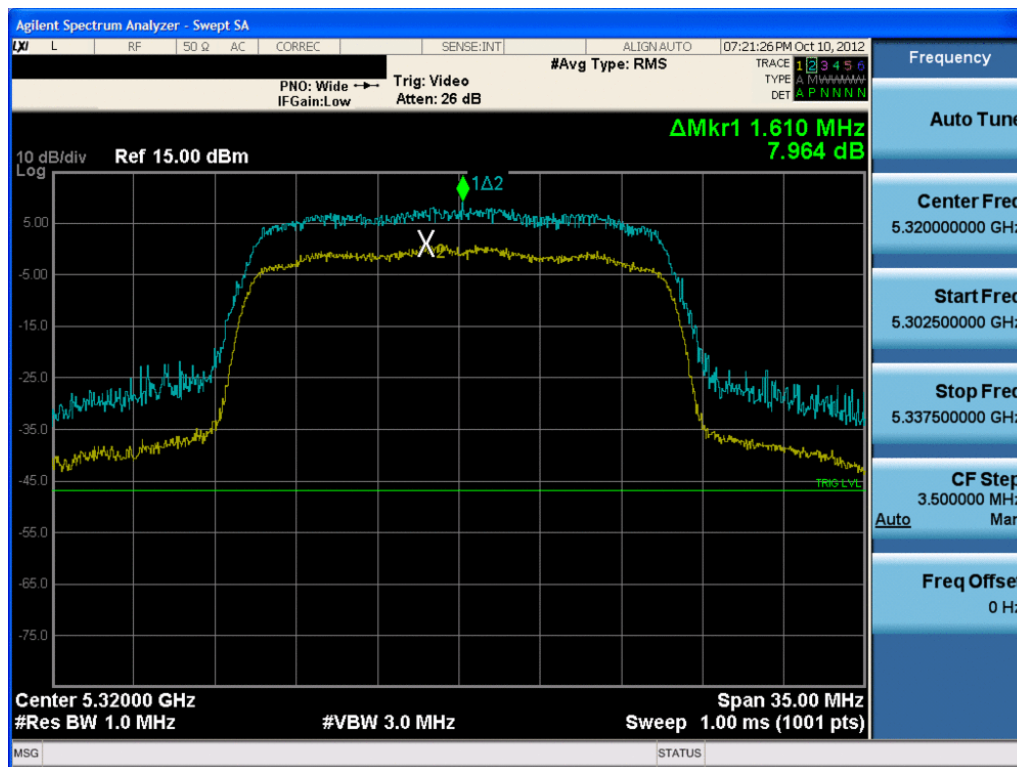


Plot 6-62. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 52)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 49 of 84

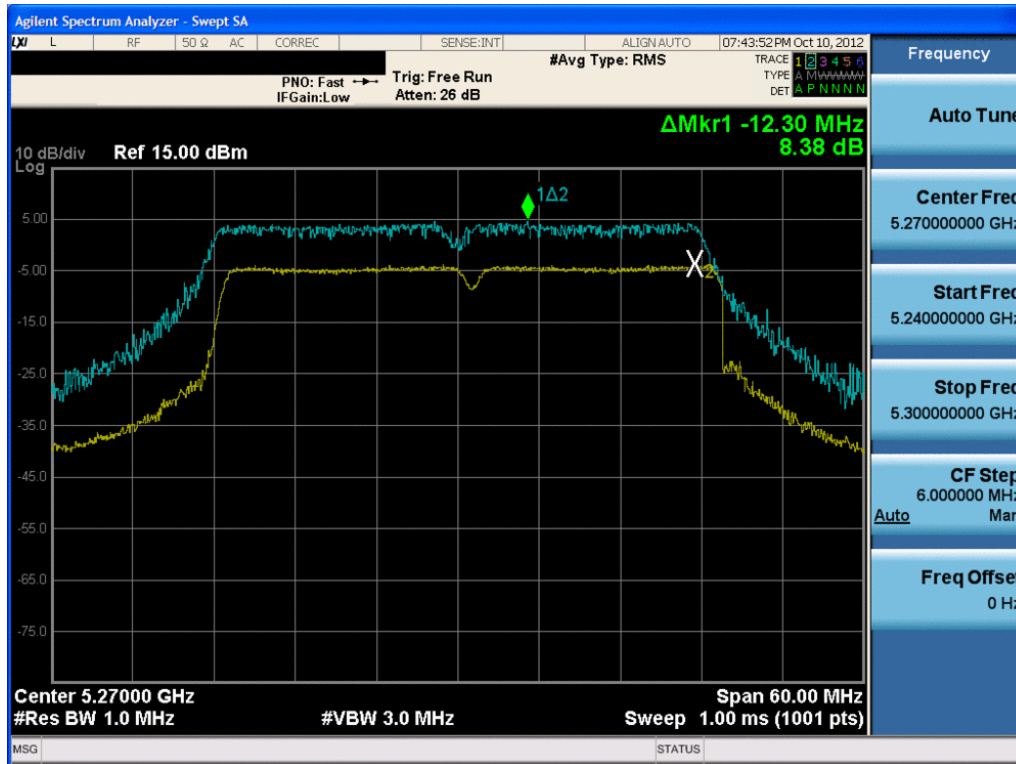


Plot 6-63. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 56)

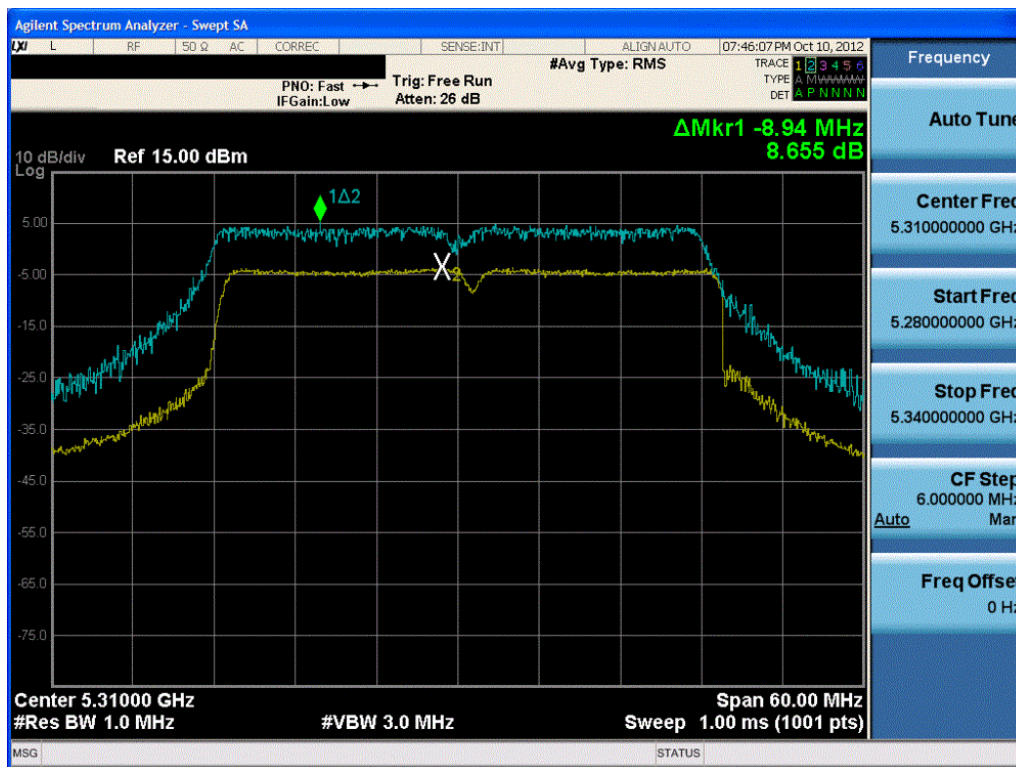


Plot 6-64. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 2) – Ch. 64)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 50 of 84

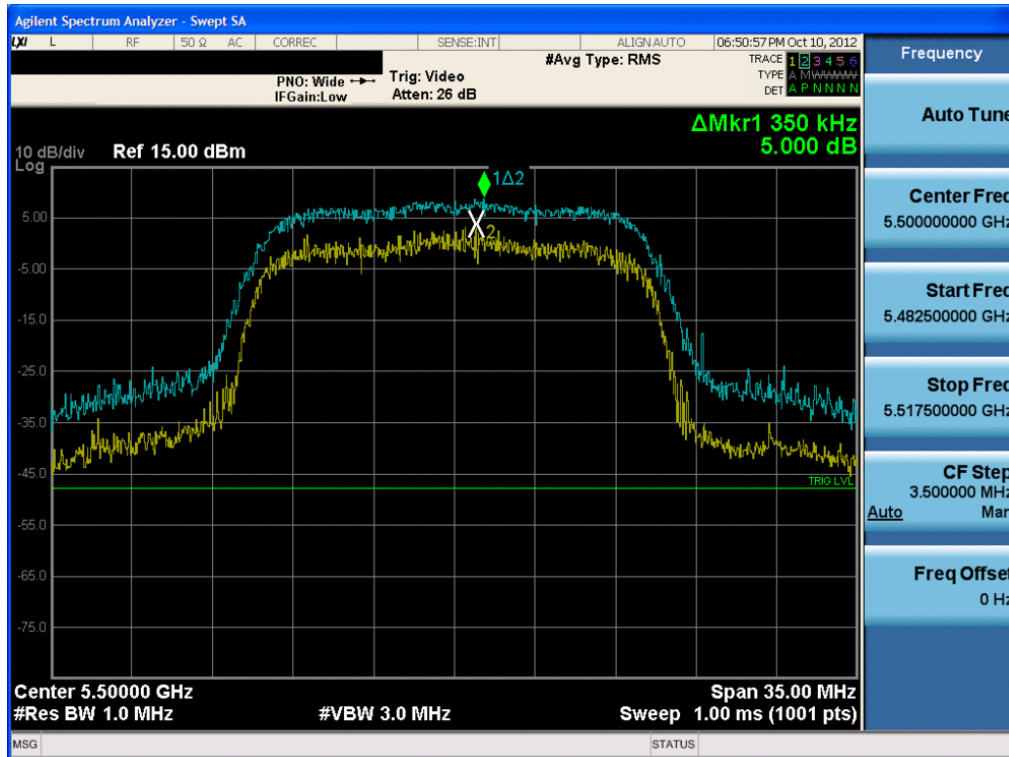


Plot 6-65. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 2) – Ch. 54)

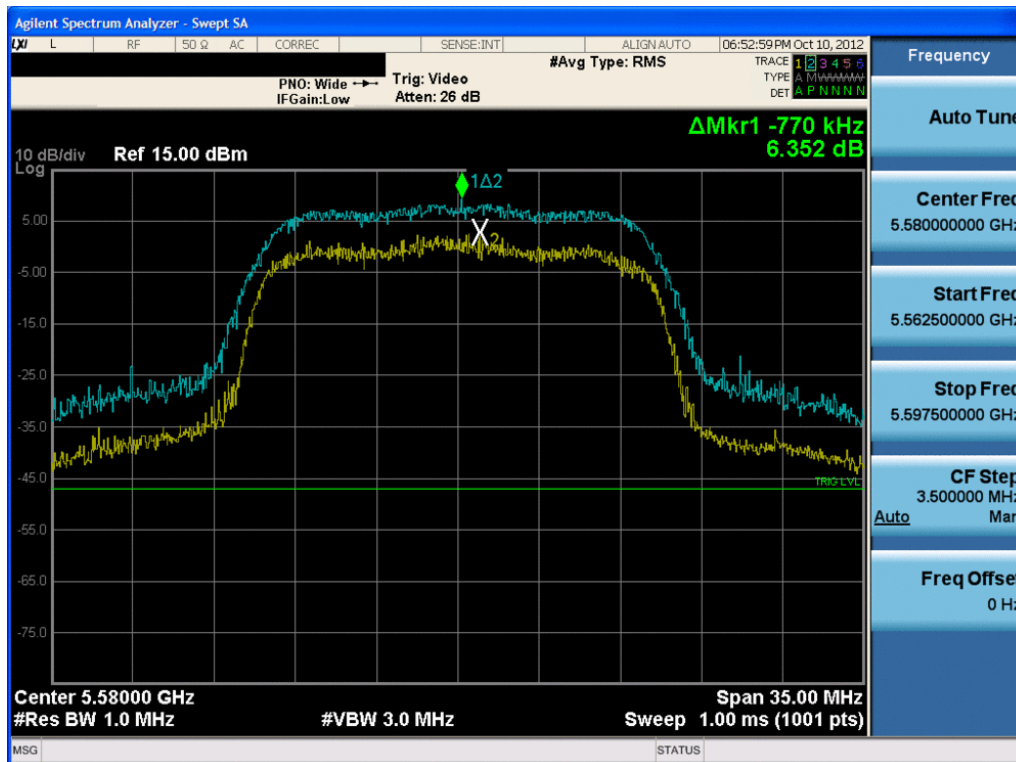


Plot 6-66. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 2) – Ch. 62)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 51 of 84

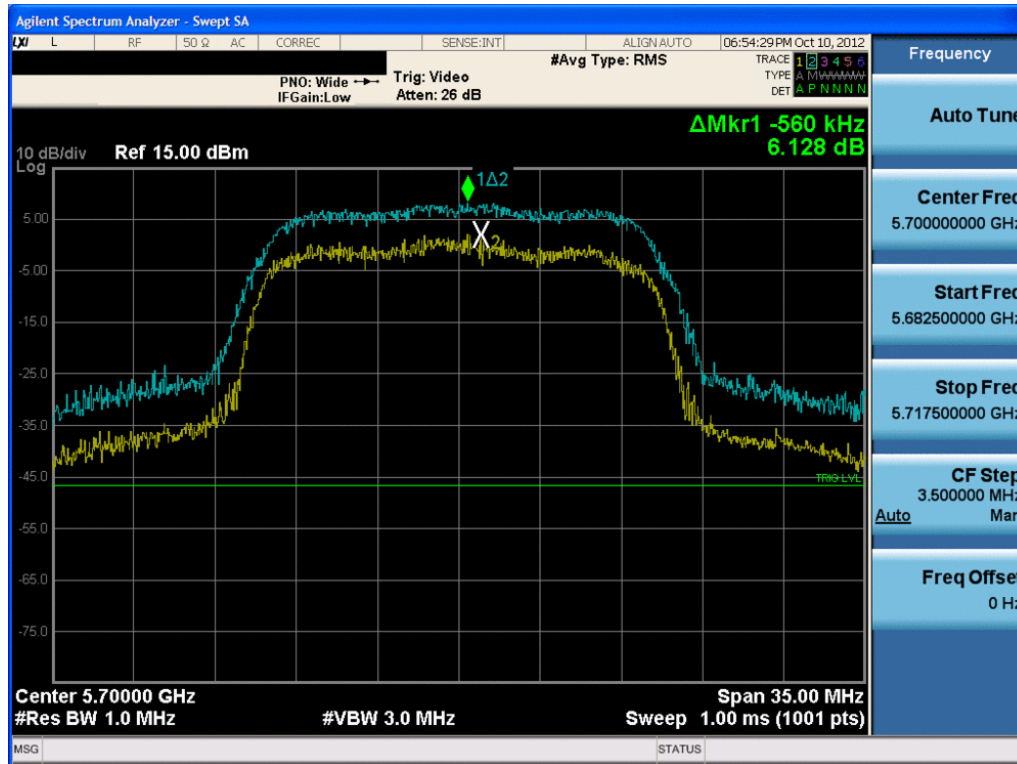


Plot 6-67. Peak Excursion Ratio Plot (802.11a (UNII Band 3) – Ch. 100)

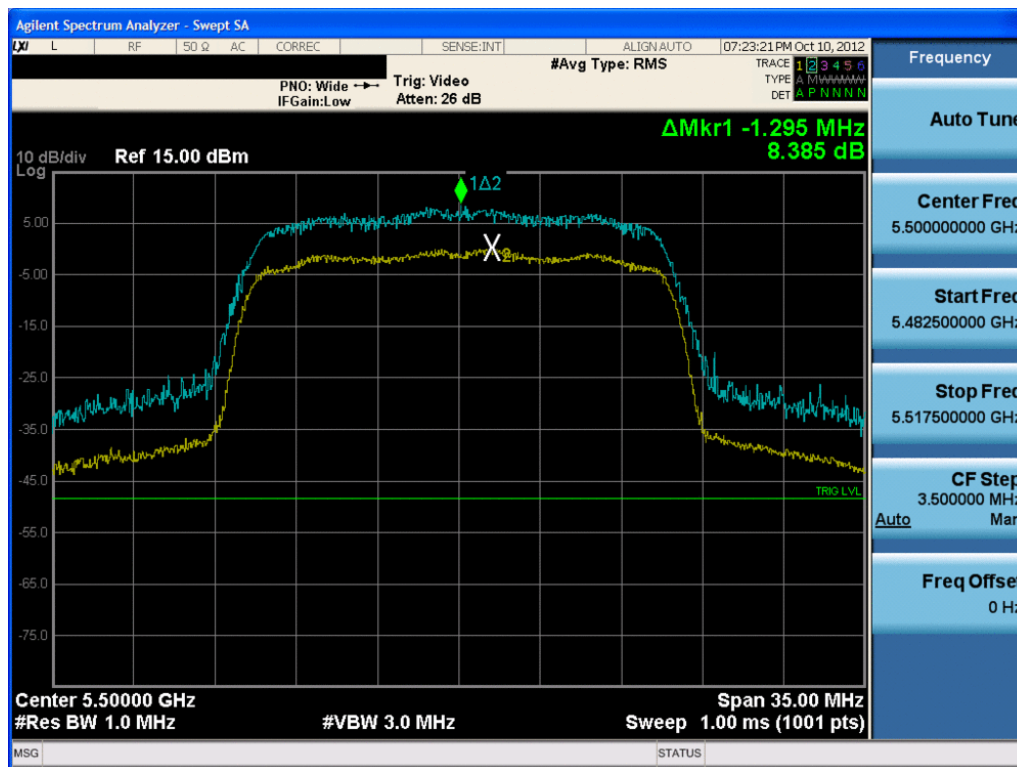


Plot 6-68. Peak Excursion Ratio Plot (802.11a (UNII Band 3) – Ch. 116)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 52 of 84

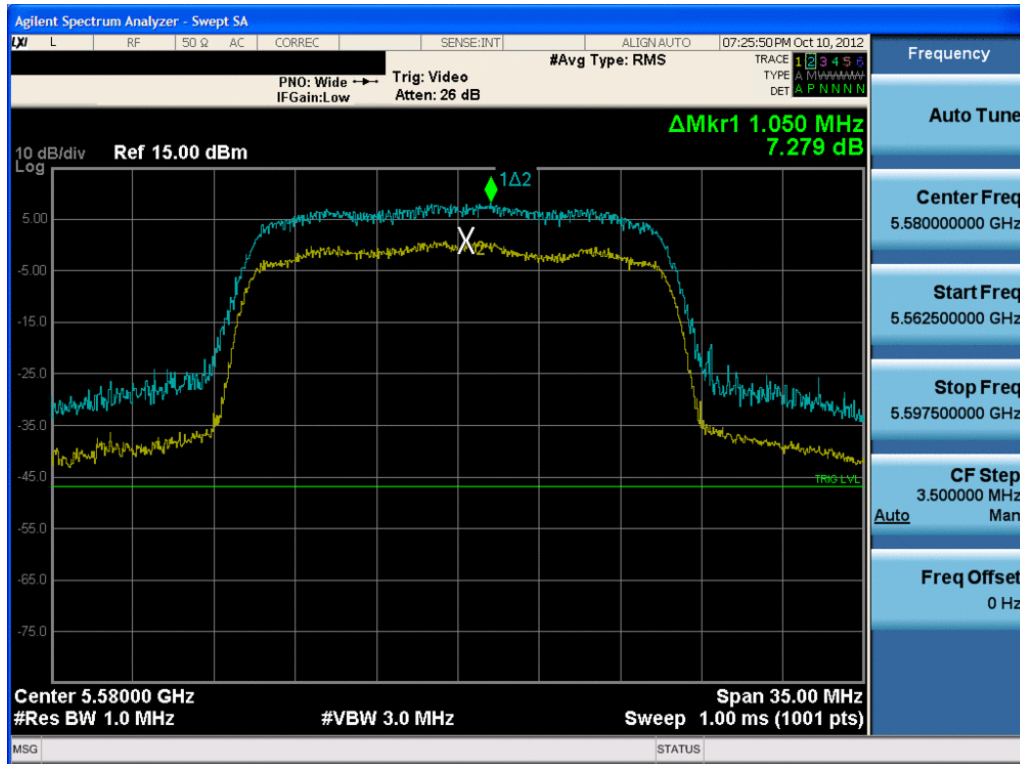


Plot 6-69. Peak Excursion Ratio Plot (802.11a (UNII Band 3) – Ch. 140)

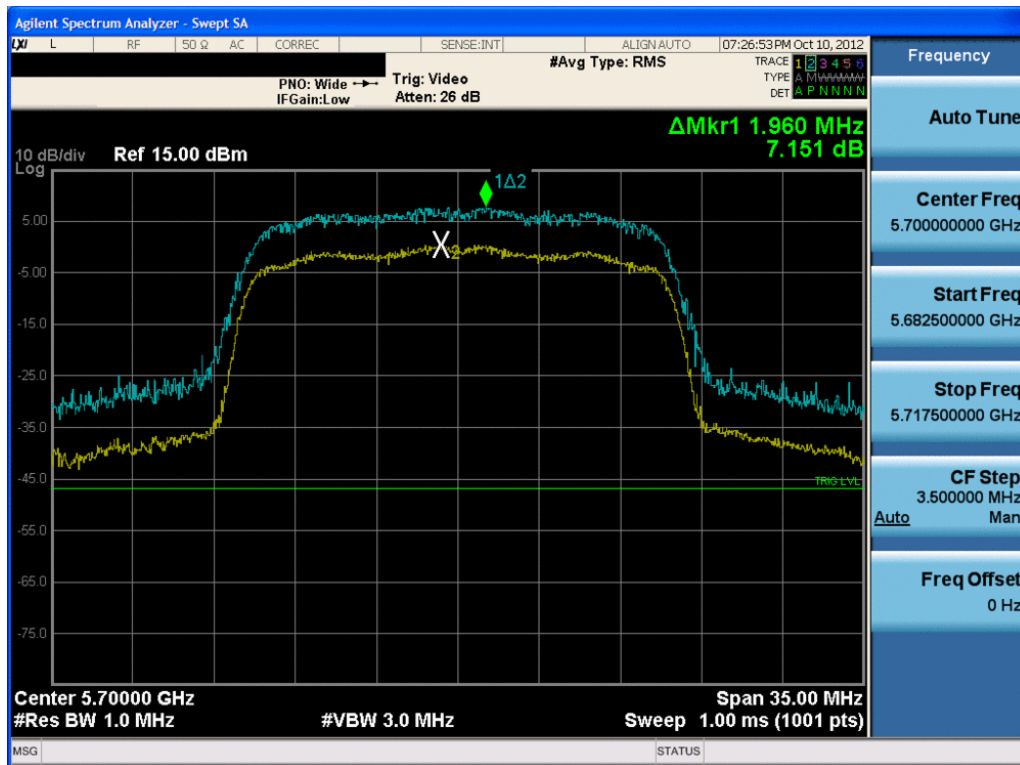


Plot 6-70. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 100)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 53 of 84

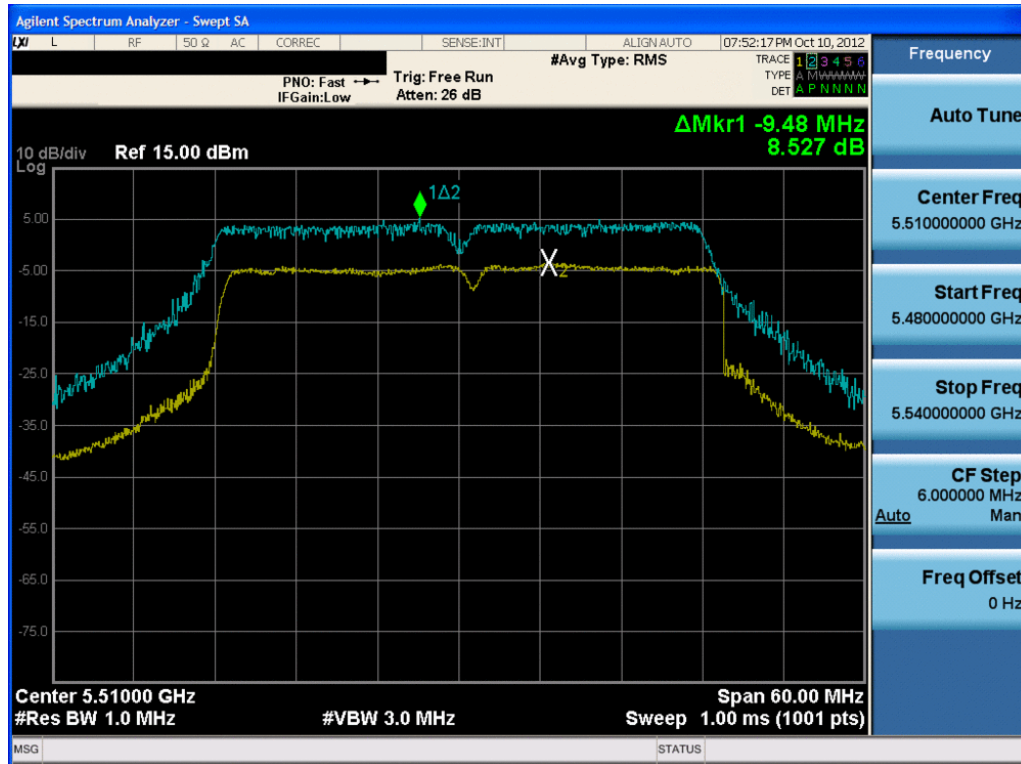


Plot 6-71. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 116)

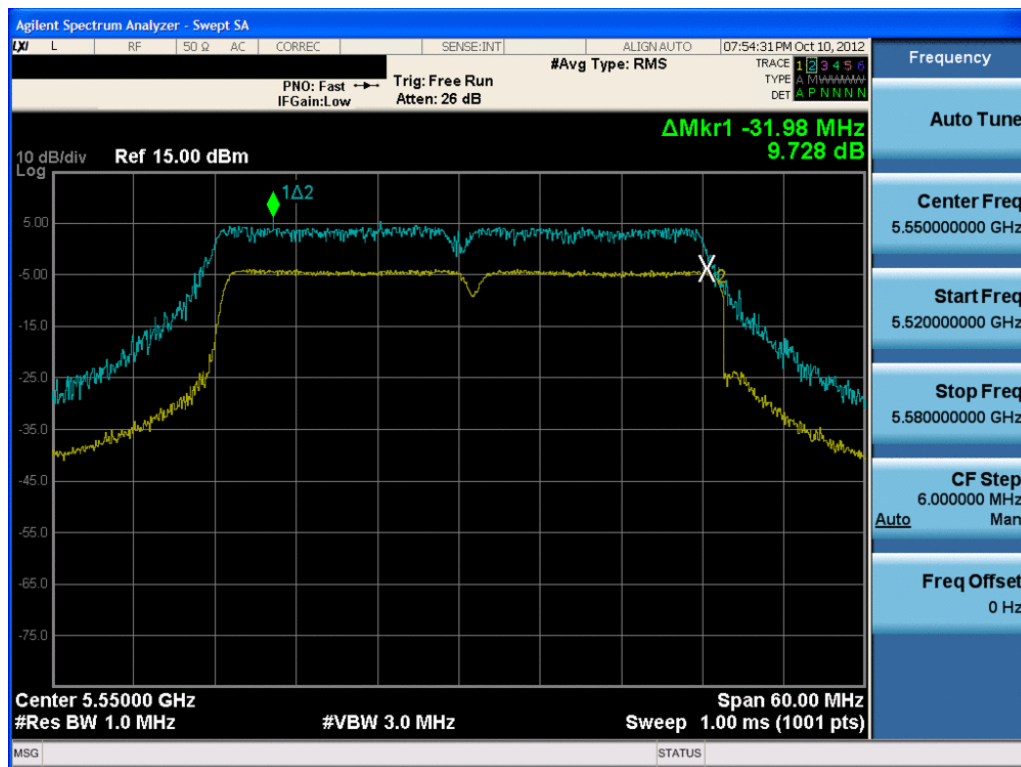


Plot 6-72. Peak Excursion Ratio Plot (20MHz BW 802.11n (UNII Band 3) – Ch. 140)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1210081473.A3L	Test Dates: 10/08/12 - 10/12/12	EUT Type: Portable Handset		Page 54 of 84

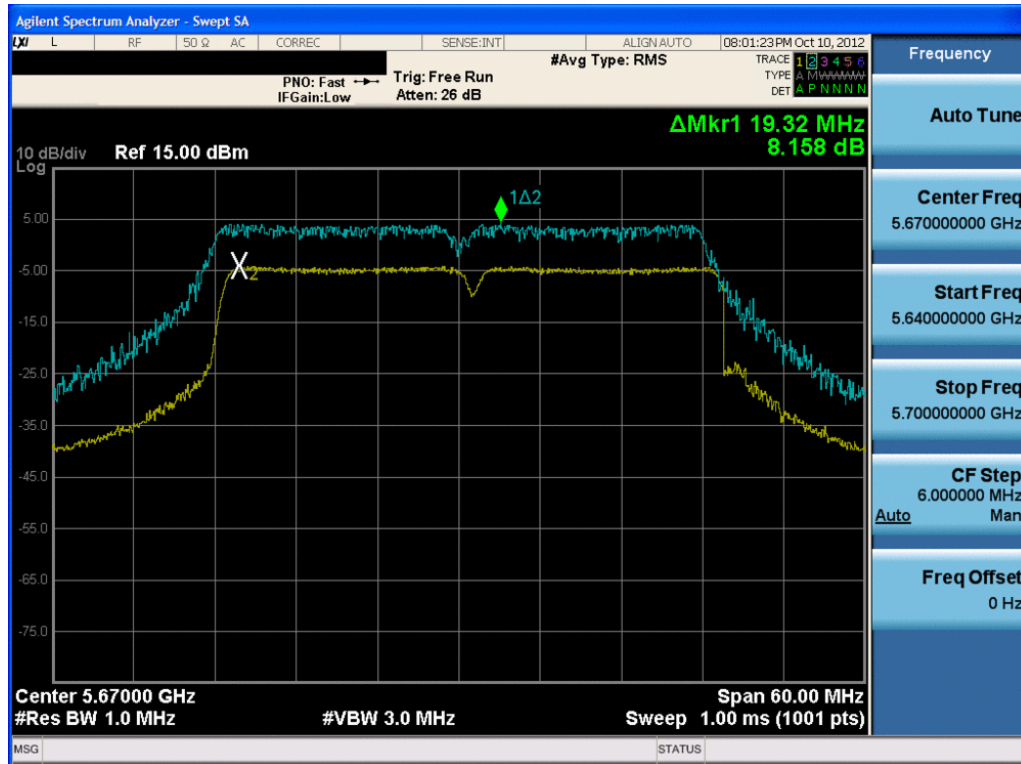


Plot 6-73. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 102)



Plot 6-74. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 110)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-75. Peak Excursion Ratio Plot (40MHz BW 802.11n (UNII Band 3) – Ch. 134)

FCC ID: A3LSCHN719	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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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)	5,179,999,991	-9	-0.00000017
100 %		- 30	5,179,999,994	-6	-0.00000012
100 %		- 20	5,179,999,989	-11	-0.00000022
100 %		- 10	5,179,999,981	-19	-0.00000036
100 %		0	5,179,999,994	-6	-0.00000012
100 %		+ 10	5,179,999,999	-1	-0.00000001
100 %		+ 20	5,179,999,994	-6	-0.00000012
100 %		+ 30	5,179,999,996	-4	-0.00000008
100 %		+ 40	5,179,999,990	-10	-0.00000020
100 %		+ 50	5,179,999,990	-10	-0.00000019
115 %		+ 20	5,179,999,995	-5	-0.00000011
BATT. ENDPOINT	3.40	+ 20	5,179,999,993	-7	-0.00000014

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 edges 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: A3LSCHN719		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)	5,259,999,998	-2	-0.00000004
100 %		- 30	5,259,999,987	-13	-0.00000025
100 %		- 20	5,259,999,983	-17	-0.00000032
100 %		- 10	5,259,999,986	-14	-0.00000026
100 %		0	5,259,999,983	-17	-0.00000032
100 %		+ 10	5,259,999,993	-7	-0.00000013
100 %		+ 20	5,259,999,998	-2	-0.00000003
100 %		+ 30	5,259,999,995	-5	-0.00000009
100 %		+ 40	5,259,999,980	-20	-0.00000038
100 %		+ 50	5,259,999,996	-4	-0.00000008
115 %		+ 20	5,259,999,987	-13	-0.00000025
BATT. ENDPOINT	3.40	+ 20	5,259,999,992	-8	-0.00000015

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 edges 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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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)	5,499,999,983	-17	-0.00000030
100 %		- 30	5,499,999,984	-16	-0.00000029
100 %		- 20	5,499,999,986	-14	-0.00000025
100 %		- 10	5,499,999,987	-13	-0.00000024
100 %		0	5,499,999,998	-2	-0.00000004
100 %		+ 10	5,499,999,995	-5	-0.00000009
100 %		+ 20	5,499,999,980	-20	-0.00000036
100 %		+ 30	5,499,999,998	-2	-0.00000003
100 %		+ 40	5,499,999,999	-1	-0.00000001
100 %		+ 50	5,499,999,988	-12	-0.00000021
115 %	4.37	+ 20	5,499,999,983	-17	-0.00000032
BATT. ENDPOINT	3.40	+ 20	5,499,999,999	-1	-0.00000001

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 edges 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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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

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

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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 [dBμV/m]	Margin [dB]
10360.00	-100.28	Peak	H	45.89	52.62	68.20	-15.58
* 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	42.11	14.11	53.98	-39.87
* 20720.00	-125.00	Peak	H	42.11	24.11	73.98	-49.87
25900.00	-125.00	Peak	H	42.58	24.58	68.20	-43.62

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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels 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 [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	-100.40	Peak	H	45.98	52.58	68.20	-15.62
* 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	42.04	14.04	53.98	-39.94
* 20800.00	-125.00	Peak	H	42.04	24.04	73.98	-49.94
26000.00	-125.00	Peak	H	42.67	24.67	68.20	-43.53

Table 6-13. 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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels 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: 5240MHz

Channel: 48

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	-100.22	Peak	H	46.14	52.92	68.20	-15.28
* 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	41.92	13.92	53.98	-40.06
* 20960.00	-125.00	Peak	H	41.92	23.92	73.98	-50.06
26200.00	-125.00	Peak	H	42.53	24.53	68.20	-43.67

Table 6-14. Radiated Measurements @ 3 meters

NOTES:

17. 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.
18. 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.
19. 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.
20. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
21. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
22. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
23. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
24. 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: 5260MHz

Channel: 52

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	-100.17	Peak	H	46.23	53.05	68.20	-15.15
* 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	41.92	13.92	53.98	-40.06
* 21040.00	-125.00	Peak	H	41.92	23.92	73.98	-50.06
26300.00	-125.00	Peak	H	42.55	24.55	68.20	-43.65

Table 6-15. Radiated Measurements @ 3 meters

NOTES:

25. 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.
26. 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.
27. 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.
28. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
29. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
30. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
31. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
32. 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: 5280MHz

Channel: 56

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	-101.53	Peak	H	46.32	51.80	68.20	-16.40
* 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	41.93	13.93	53.98	-40.05
* 21120.00	-125.00	Peak	H	41.93	23.93	73.98	-50.05
26400.00	-125.00	Peak	H	42.47	24.47	68.20	-43.73

Table 6-16. Radiated Measurements @ 3 meters

NOTES:

33. 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.
34. 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.
35. 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.
36. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
37. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
38. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
39. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
40. 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: 5320MHz

Channel: 64

	Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
*	10640.00	-110.86	Average	H	46.52	42.65	53.98	-11.32
*	10640.00	-100.55	Peak	H	46.52	52.96	73.98	-21.01
*	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	42.01	14.01	53.98	-39.97
*	21280.00	-125.00	Peak	H	42.01	24.01	73.98	-49.97
	26600.00	-125.00	Peak	H	42.35	24.35	68.20	-43.85

Table 6-17. Radiated Measurements @ 3 meters

NOTES:

41. 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.
42. 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.
43. 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.
44. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
45. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
46. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
47. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
48. 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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§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	-110.63	Average	H	46.98	43.35	53.98	-10.63
* 11000.00	-100.94	Peak	H	46.98	53.04	73.98	-20.94
16500.00	-125.00	Peak	H	60.10	42.10	68.20	-26.10
22000.00	-125.00	Peak	H	42.40	24.40	68.20	-43.80
27500.00	-125.00	Peak	H	42.09	24.09	68.20	-44.11

Table 6-18. Radiated Measurements @ 3 meters

NOTES:

49. 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.
50. 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.
51. 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.
52. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
53. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
54. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
55. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
56. 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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§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: 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	-109.90	Average	H	49.42	46.53	53.98	-7.45
*	11160.00	-100.03	Peak	H	49.42	56.40	73.98	-17.58
	16740.00	-125.00	Peak	H	58.53	40.53	68.20	-27.67
*	22320.00	-135.00	Average	H	42.43	14.43	53.98	-39.55
*	22320.00	-125.00	Peak	H	42.43	24.43	73.98	-49.55
	27900.00	-125.00	Peak	H	42.01	24.01	68.20	-44.19

Table 6-19. Radiated Measurements @ 3 meters

NOTES:

57. 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.
58. 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.
59. 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.
60. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
61. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
62. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
63. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
64. 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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§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]
*	11400.00	-111.42	Average	H	47.61	43.19	53.98	-10.79
*	11400.00	-101.55	Peak	H	47.61	53.06	73.98	-20.92
	17100.00	-125.00	Peak	H	56.08	38.08	68.20	-30.12
*	22800.00	-135.00	Average	H	42.58	14.58	53.98	-39.40
*	22800.00	-125.00	Peak	H	42.58	24.58	73.98	-49.40
	28500.00	-125.00	Peak	H	41.81	23.81	68.20	-44.39

Table 6-20. Radiated Measurements @ 3 meters

NOTES:

65. 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.
66. 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.
67. 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.
68. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
69. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
70. The spectrum is measured from 9kHz to 40GHz and the worst-case emissions are reported.
71. Levels at -135 dBm and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
72. 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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6.8 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]
5050.00	-108.04	Average	H	39.00	37.96	53.98	-16.02
5050.00	-101.49	Peak	H	39.00	44.51	73.98	-29.47
5081.25	-107.96	Average	H	39.24	38.28	53.98	-15.70
5081.25	-99.94	Peak	H	39.24	46.30	73.98	-27.68
5150.00	-108.90	Average	H	39.27	37.37	53.98	-16.61
5150.00	-98.52	Peak	H	39.27	47.75	73.98	-26.23

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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμV/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	-107.50	Average	H	39.53	39.03	53.98	-14.95
5350.00	-99.12	Peak	H	39.53	47.41	73.98	-26.57
5352.47	-108.56	Average	H	39.53	37.97	53.98	-16.00
5352.47	-97.73	Peak	H	39.53	48.80	73.98	-25.17
5431.09	-107.07	Average	H	39.63	39.56	53.98	-14.42
5431.09	-96.57	Peak	H	39.63	50.06	73.98	-23.92

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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμV/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]
5451.36	-109.14	Average	H	39.66	37.52	53.98	-16.46
5451.36	-100.85	Peak	H	39.66	45.81	73.98	-28.17
5460.00	-109.43	Average	H	39.67	37.24	53.98	-16.74
5460.00	-100.38	Peak	H	39.67	46.29	73.98	-27.69
5468.97	-92.35	Peak	H	39.68	54.33	68.20	-13.87

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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμV/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: 5700MHz

Channel: 140

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
5725.00	-97.04	Peak	H	40.18	50.14	68.20	-18.06
5725.64	-93.89	Peak	H	40.18	53.29	68.20	-14.91
5726.08	-94.59	Peak	H	40.18	52.59	68.20	-15.61

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

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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμV/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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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: MCS0

Distance of Measurements: 3 meters

Operating Frequency: 5190MHz

Channel: 38

Frequency [MHz]	Analyzer Level [dBm]	Detector	Pol. [H/V]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
5127.08	-108.16	Average	H	39.24	38.08	53.98	-15.90
5127.08	-94.83	Peak	H	39.24	51.41	73.98	-22.57
5139.58	-103.78	Average	H	39.26	42.48	53.98	-11.50
5139.58	-90.49	Peak	H	39.26	55.77	73.98	-18.21
5150.00	-97.17	Average	H	39.27	49.10	53.98	-4.88
5150.00	-86.93	Peak	H	39.27	59.34	73.98	-14.64

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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels 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 (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	-94.92	Average	H	39.53	51.61	53.98	-2.37
5350.00	-83.46	Peak	H	39.53	63.07	73.98	-10.91
5351.59	-97.15	Average	H	39.53	49.38	53.98	-4.60
5351.59	-84.80	Peak	H	39.53	61.73	73.98	-12.25
5353.70	-99.23	Average	H	39.53	47.31	53.98	-6.67
5353.70	-87.96	Peak	H	39.53	58.58	73.98	-15.40

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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels 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 band specified in §15.205.

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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]
5455.77	-105.24	Average	H	39.66	41.43	53.98	-12.55
5455.77	-90.84	Peak	H	39.66	55.83	73.98	-18.15
5460.00	-103.19	Average	H	39.67	43.48	53.98	-10.50
5460.00	-92.74	Peak	H	39.67	53.93	73.98	-20.05
5468.38	-82.55	Peak	H	39.68	64.13	68.20	-4.07

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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
7. Above 960MHz the limit is 500 μV/m (54dBμV/m) at 3 meters radiated for emissions that lie in restricted bands specified in §15.205.

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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	-100.69	Peak	H	40.18	46.49	68.20	-21.71
5726.24	-98.44	Peak	H	40.18	48.74	68.20	-19.46
5727.28	-97.61	Peak	H	40.18	49.57	68.20	-18.63

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

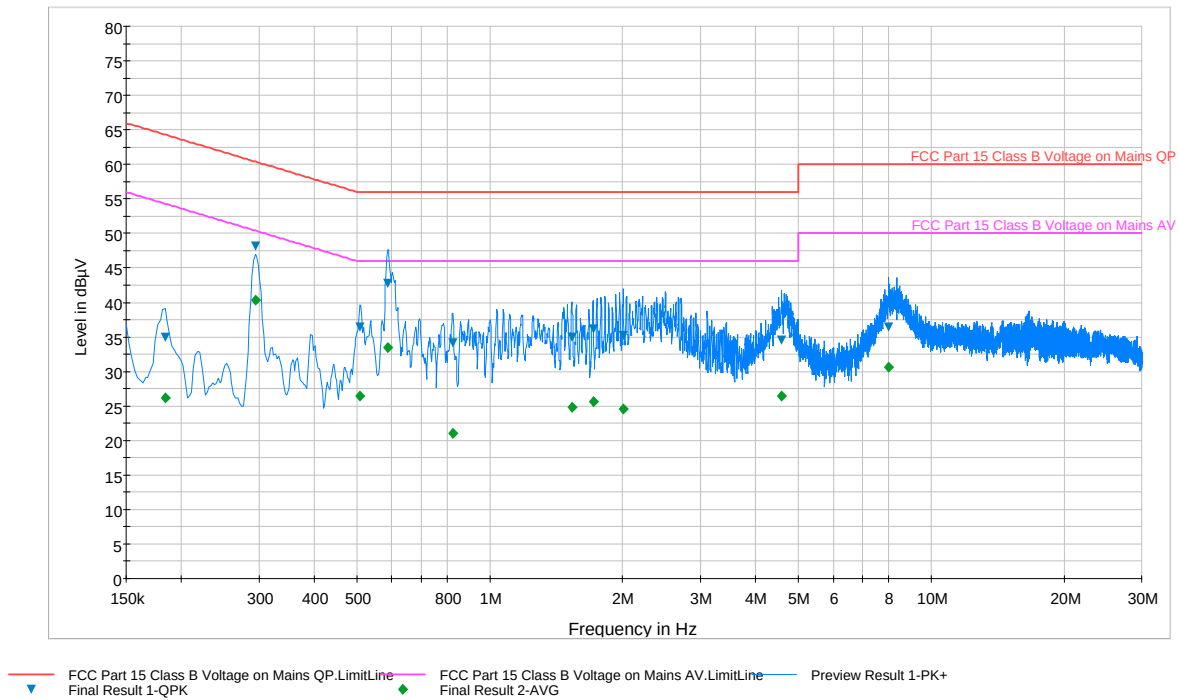
NOTES:

- 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 and -125 dBm represent the analyzer noise floor for average and peak measurements. These levels signify that no emission was detected.
- Above 960MHz the limit is 500 μV/m (54dBμV/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]



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
0.184	L1	0.2	35.00	64.30	29.30	26.10	54.30	28.20
0.294	L1	0.1	48.10	60.40	12.30	40.40	50.40	10.00
0.508	L1	0.1	36.50	56.00	19.50	26.40	46.00	19.60
0.587	L1	0.1	42.70	56.00	13.30	33.50	46.00	12.50
0.825	L1	0.1	34.10	56.00	21.90	21.00	46.00	25.00
1.534	L1	0.2	34.90	56.00	21.10	24.90	46.00	21.10
1.714	L1	0.2	36.20	56.00	19.80	25.70	46.00	20.30
2.006	L1	0.2	35.10	56.00	20.90	24.60	46.00	21.40
4.580	L1	0.2	34.60	56.00	21.40	26.40	46.00	19.60
8.005	L1	0.3	36.50	60.00	23.50	30.70	50.00	19.30

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

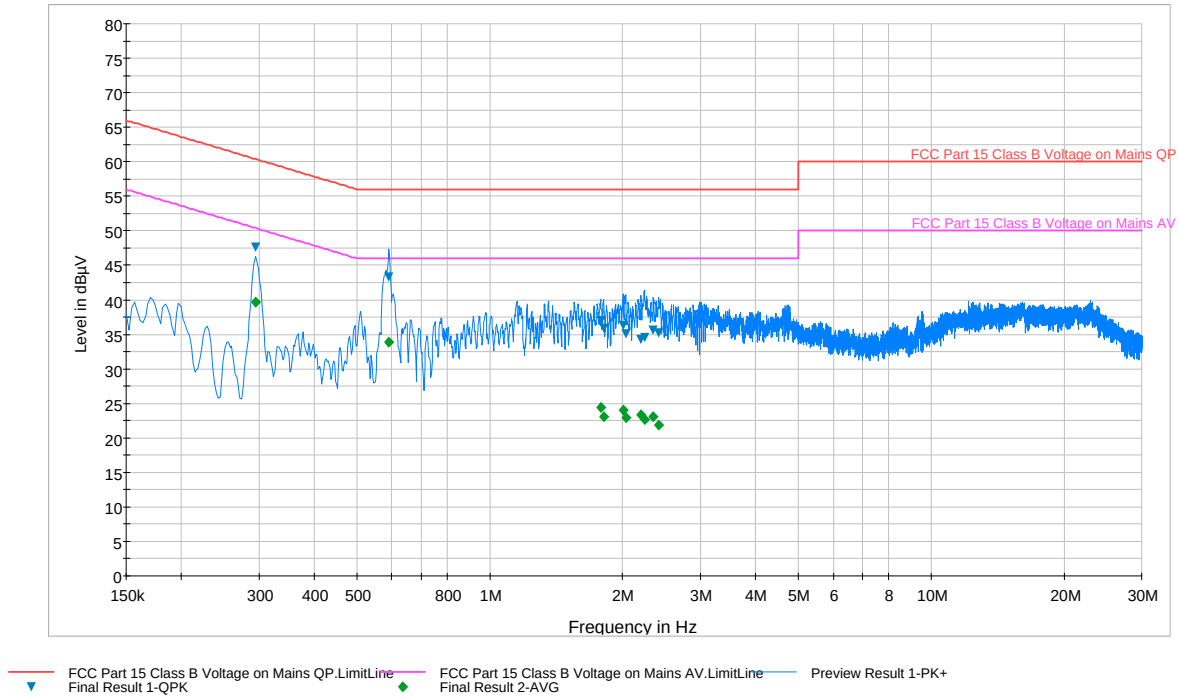
Notes:

- 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.

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Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



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
0.294	N	0.2	47.60	60.40	12.80	39.70	50.40	10.70
0.591	N	0.1	43.30	56.00	12.70	33.90	46.00	12.10
1.781	N	0.2	37.00	56.00	19.00	24.40	46.00	21.60
1.811	N	0.2	35.90	56.00	20.10	23.00	46.00	23.00
2.002	N	0.2	36.20	56.00	19.80	24.00	46.00	22.00
2.031	N	0.2	35.00	56.00	21.00	22.90	46.00	23.10
2.202	N	0.2	34.30	56.00	21.70	23.30	46.00	22.70
2.238	N	0.2	34.60	56.00	21.40	22.60	46.00	23.40
2.348	N	0.2	35.60	56.00	20.40	23.10	46.00	22.90
2.416	N	0.2	35.20	56.00	20.80	21.80	46.00	24.20

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

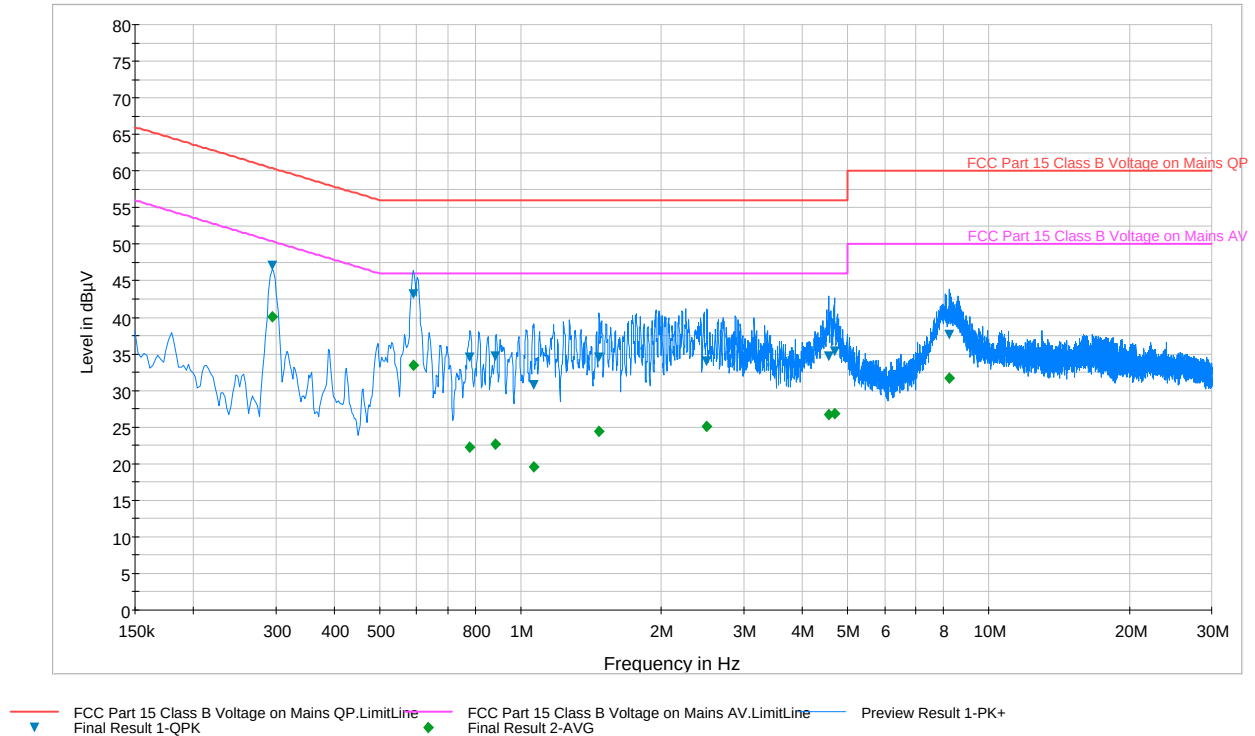
Notes:

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

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Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



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	47.10	60.40	13.30	40.00	50.40	10.40
0.589	L1	0.1	43.20	56.00	12.80	33.40	46.00	12.60
0.780	L1	0.1	34.50	56.00	21.50	22.30	46.00	23.70
0.884	L1	0.1	34.60	56.00	21.40	22.60	46.00	23.40
1.068	L1	0.2	30.80	56.00	25.20	19.50	46.00	26.50
1.473	L1	0.2	34.60	56.00	21.40	24.50	46.00	21.50
2.501	L1	0.2	34.00	56.00	22.00	25.20	46.00	20.80
4.562	L1	0.2	34.70	56.00	21.30	26.60	46.00	19.40
4.686	L1	0.2	35.40	56.00	20.60	26.80	46.00	19.20
8.248	L1	0.3	37.70	60.00	22.30	31.70	50.00	18.30

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

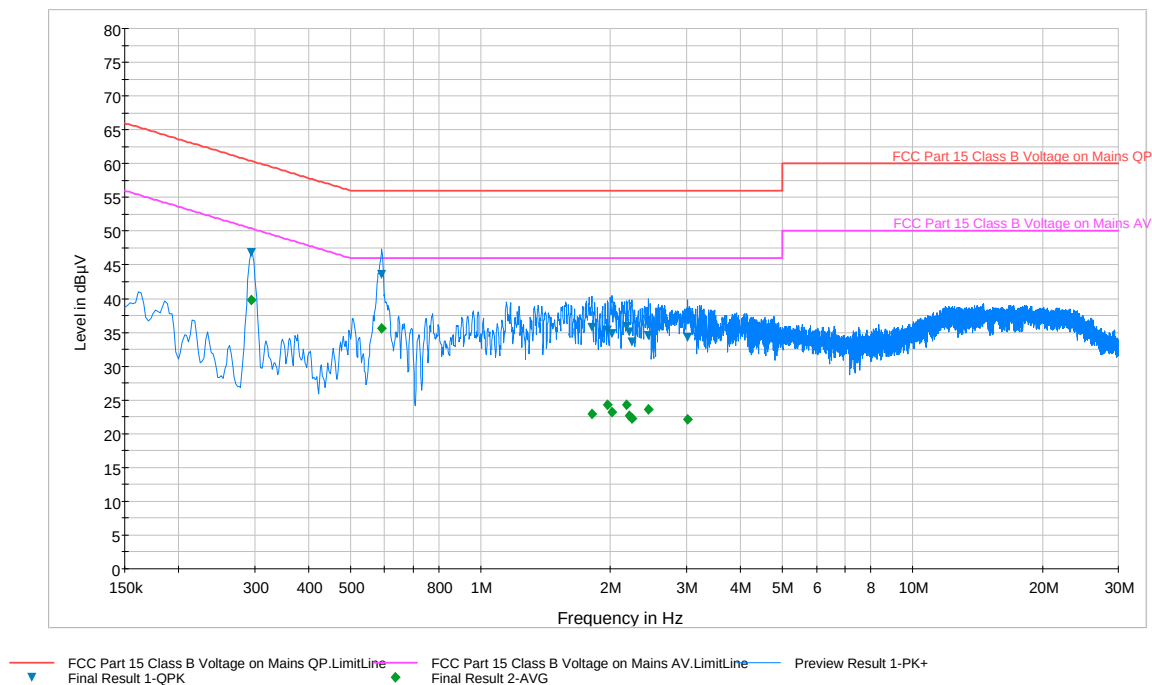
Notes:

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

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Line-Conducted Test Data (Cont'd)

§15.207; RSS-Gen [7.2.2]



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
0.294	N	0.2	46.80	60.40	13.60	39.90	50.40	10.50
0.591	N	0.1	43.60	56.00	12.40	35.70	46.00	10.30
1.813	N	0.2	35.70	56.00	20.30	22.90	46.00	23.10
1.968	N	0.2	35.30	56.00	20.70	24.30	46.00	21.70
2.020	N	0.2	34.80	56.00	21.20	23.20	46.00	22.80
2.182	N	0.2	35.90	56.00	20.10	24.30	46.00	21.70
2.213	N	0.2	35.10	56.00	20.90	22.70	46.00	23.30
2.240	N	0.2	33.60	56.00	22.40	22.20	46.00	23.80
2.447	N	0.2	34.50	56.00	21.50	23.70	46.00	22.30
3.012	N	0.2	34.30	56.00	21.70	22.10	46.00	23.90

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

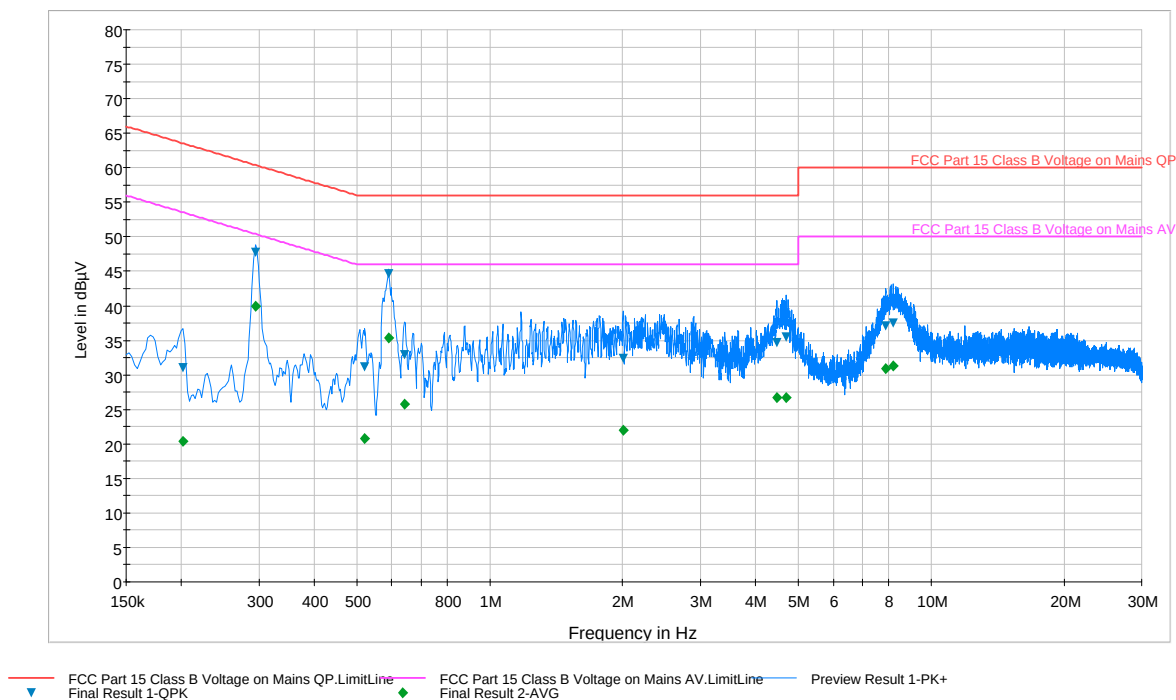
Notes:

- 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.

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Line-Conducted Test Data (Cont'd)

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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
0.202	L1	0.2	31.00	63.50	32.50	20.40	53.50	33.10
0.294	L1	0.1	47.70	60.40	12.70	39.90	50.40	10.50
0.521	L1	0.1	31.20	56.00	24.80	20.70	46.00	25.30
0.589	L1	0.1	44.70	56.00	11.30	35.40	46.00	10.60
0.641	L1	0.1	32.90	56.00	23.10	25.70	46.00	20.30
2.002	L1	0.2	32.30	56.00	23.70	22.00	46.00	24.00
4.472	L1	0.2	34.70	56.00	21.30	26.70	46.00	19.30
4.691	L1	0.2	35.50	56.00	20.50	26.70	46.00	19.30
7.874	L1	0.3	37.10	60.00	22.90	31.00	50.00	19.00
8.203	L1	0.3	37.50	60.00	22.50	31.40	50.00	18.60

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

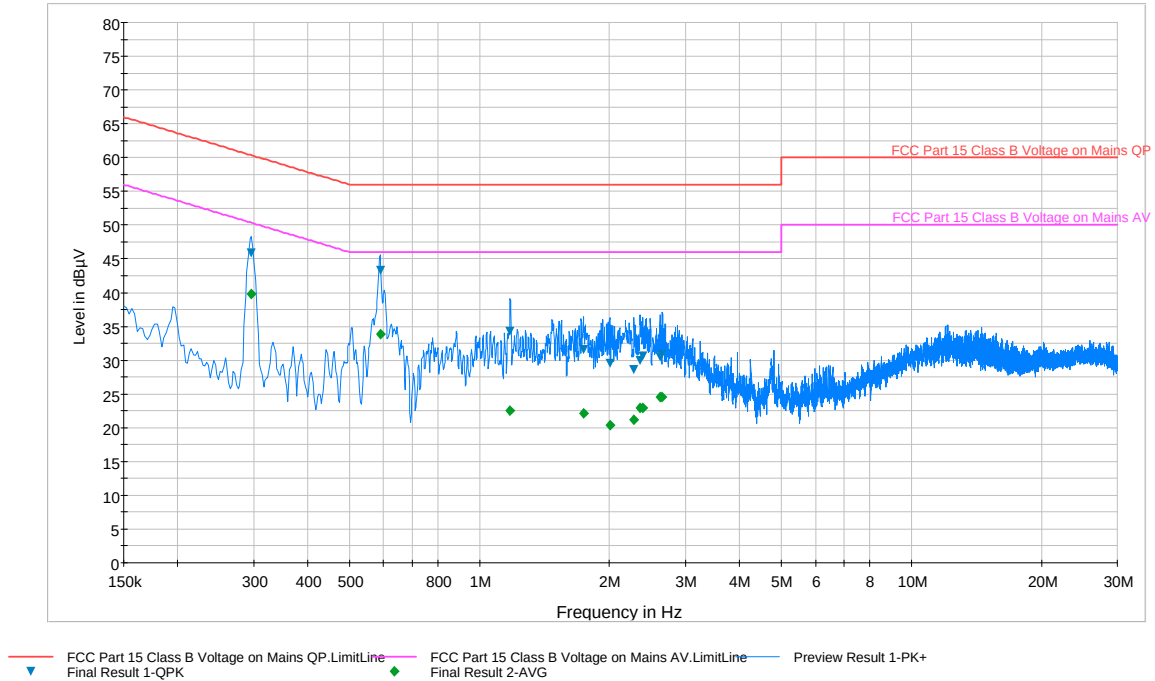
Notes:

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

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Line-Conducted Test Data (Cont'd)

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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
0.296	N	0.2	45.90	60.30	14.40	39.80	50.30	10.50
0.589	N	0.1	43.40	56.00	12.60	33.90	46.00	12.10
1.178	N	0.2	34.30	56.00	21.70	22.50	46.00	23.50
1.741	N	0.2	31.60	56.00	24.40	22.10	46.00	23.90
2.002	N	0.2	29.60	56.00	26.40	20.40	46.00	25.60
2.279	N	0.2	28.60	56.00	27.40	21.20	46.00	24.80
2.353	N	0.2	29.90	56.00	26.10	23.00	46.00	23.00
2.389	N	0.2	30.70	56.00	25.30	22.90	46.00	23.10
2.618	N	0.2	30.50	56.00	25.50	24.50	46.00	21.50
2.652	N	0.2	30.90	56.00	25.10	24.60	46.00	21.40

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.

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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: A3LSCHN719** is in compliance with Part 15E of the FCC Rules and RSS-210 of the Industry Canada Rules.

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