

6.4 Power Spectral Density

§15.247(e)

Test Overview and Limit

The peak power density is measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates were investigated and the worst case configuration results are reported in this section.

The maximum permissible power spectral density is 8 dBm in any 3 kHz band.

Test Procedure Used

KDB 558074 v03r02 – Section 10.2 Method PKPSD
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 10kHz
4. VBW = 1MHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

Test Setup

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

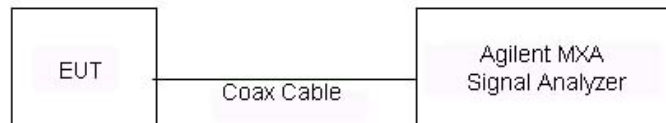


Figure 6-3. Test Instrument & Measurement Setup

Test Notes

None

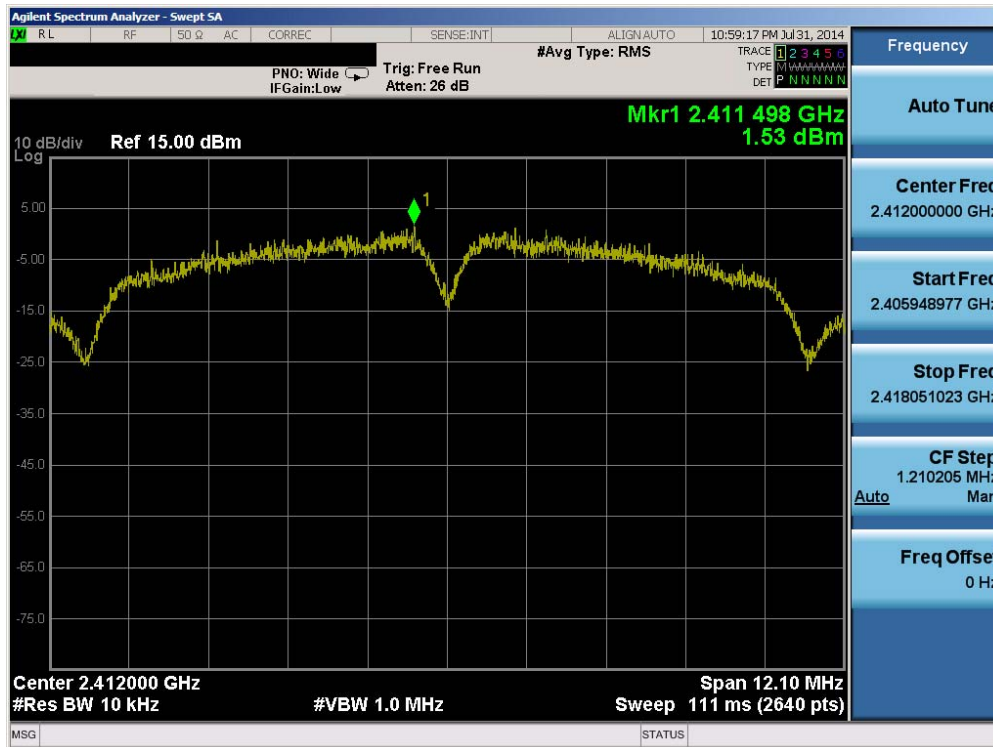
FCC ID: A3LSMN910R4		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 42 of 120

Antenna-1 Power Spectral Density Measurements

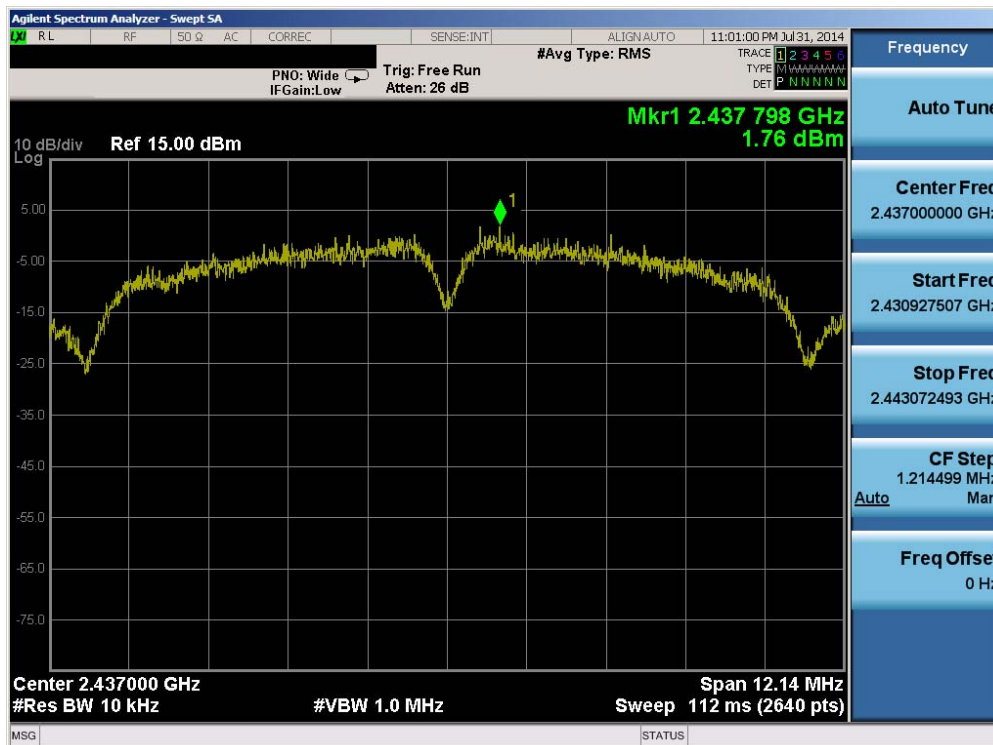
Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]	Pass / Fail
2412	1	b	1	1.53	8.00	-6.47	Pass
2437	6	b	1	1.76	8.00	-6.24	Pass
2462	11	b	1	0.55	8.00	-7.45	Pass
2412	1	g	6	-5.76	8.00	-13.76	Pass
2437	6	g	6	-6.66	8.00	-14.66	Pass
2462	11	g	6	-6.08	8.00	-14.08	Pass
2412	1	n	6.5/7.2 (MCS0)	-5.95	8.00	-13.95	Pass
2437	6	n	6.5/7.2 (MCS0)	-5.64	8.00	-13.64	Pass
2462	11	n	6.5/7.2 (MCS0)	-5.99	8.00	-13.99	Pass
5745	149	a	6	-7.99	8.00	-15.99	Pass
5785	157	a	6	-9.17	8.00	-17.17	Pass
5825	165	a	6	-9.08	8.00	-17.08	Pass
5745	149	n (20MHz)	6.5/7.2 (MCS0)	-7.97	8.00	-15.97	Pass
5785	157	n (20MHz)	6.5/7.2 (MCS0)	-8.91	8.00	-16.91	Pass
5825	165	n (20MHz)	6.5/7.2 (MCS0)	-8.86	8.00	-16.86	Pass
5755	151	n (40MHz)	13.5/15 (MCS0)	-11.54	8.00	-19.54	Pass
5795	159	n (40MHz)	13.5/15 (MCS0)	-11.72	8.00	-19.72	Pass
5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-16.35	8.00	-24.35	Pass

Table 6-28. Conducted Power Density Measurements

FCC ID: A3LSMN910R4		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 43 of 120

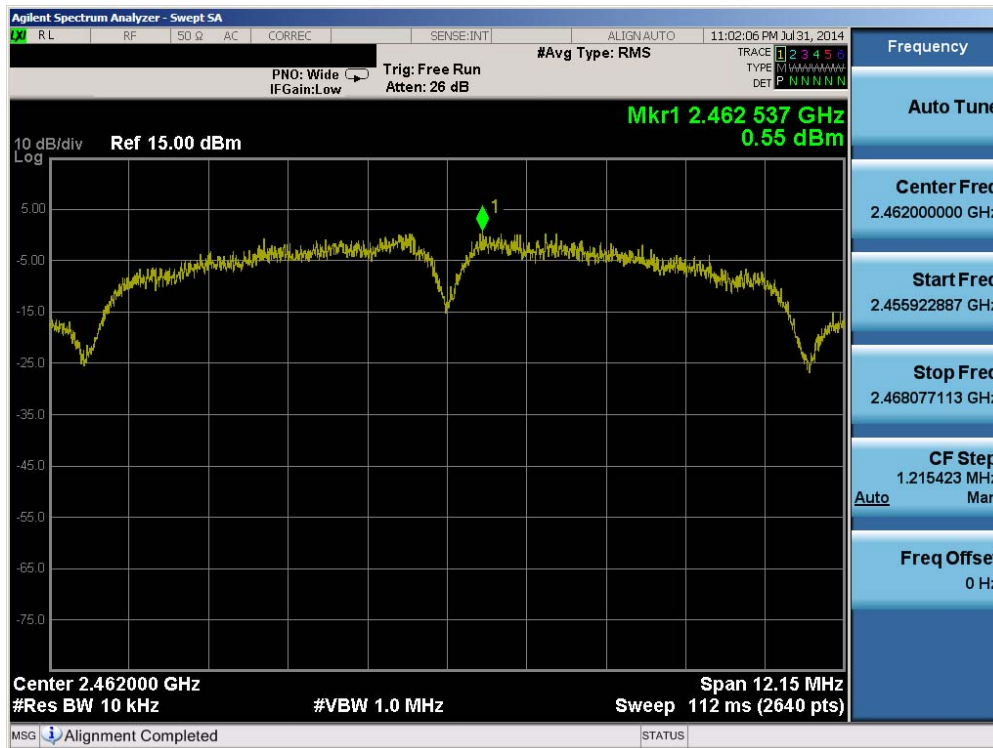


Plot 6-37. Power Spectral Density Plot (802.11b – Ch. 1)

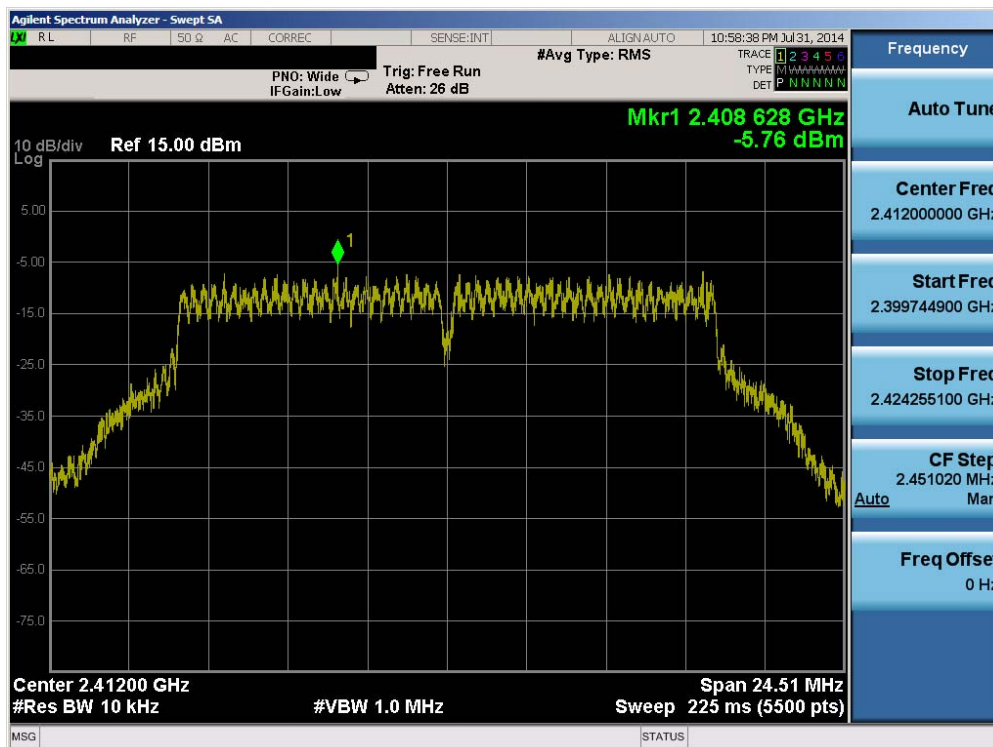


Plot 6-38. Power Spectral Density Plot (802.11b – Ch. 6)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 44 of 120

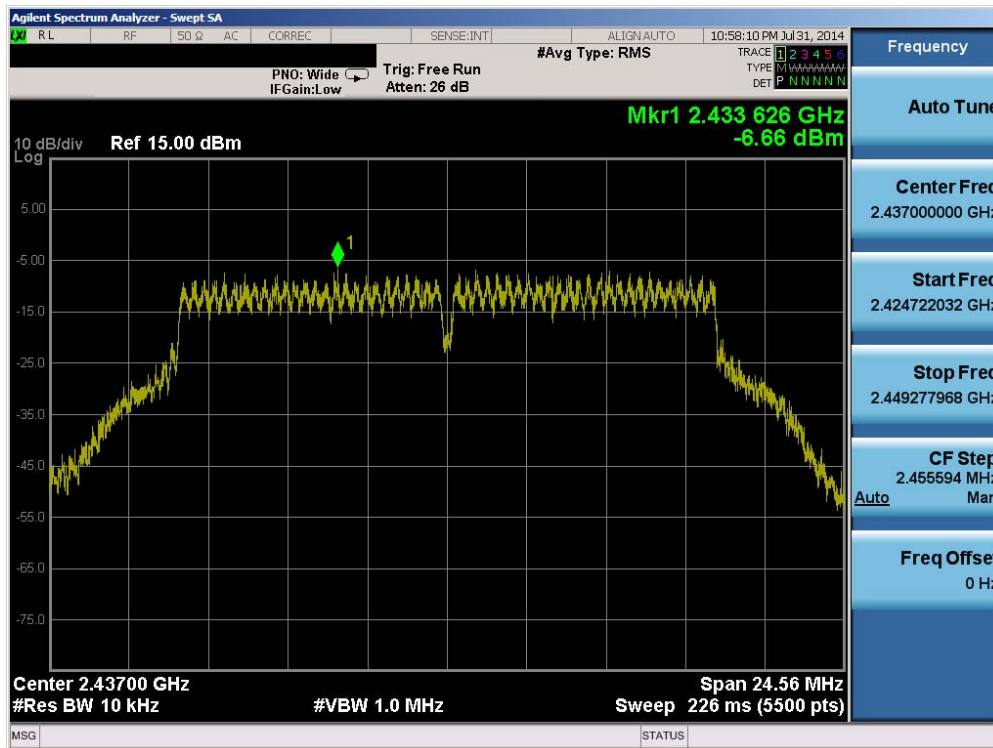


Plot 6-39. Power Spectral Density Plot (802.11b – Ch. 11)

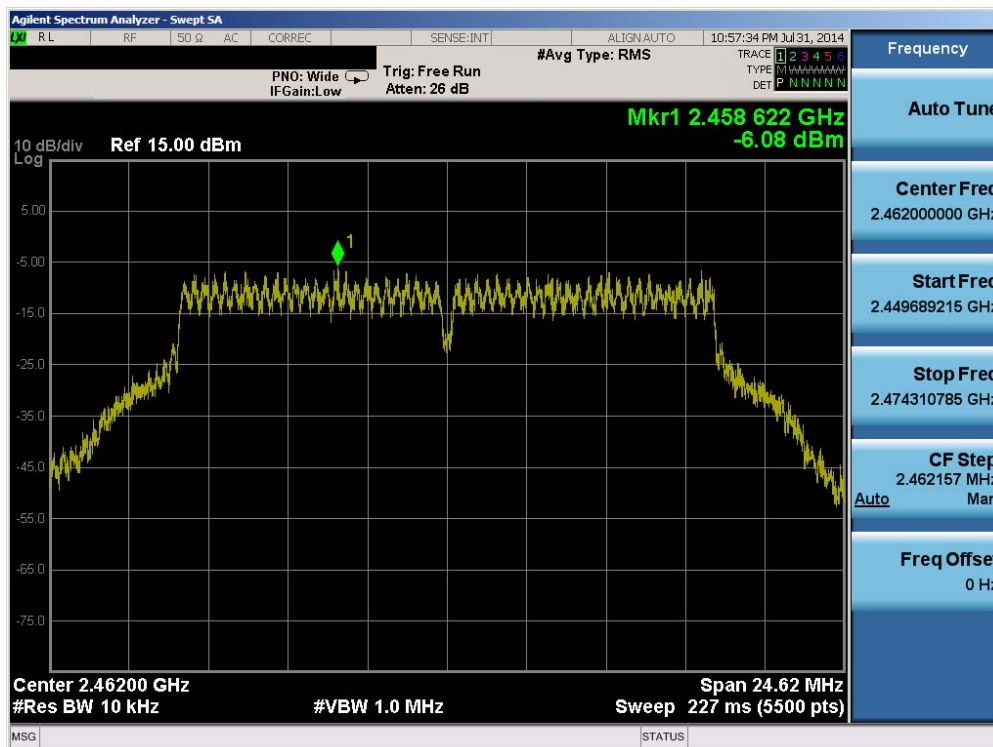


Plot 6-40. Power Spectral Density Plot (802.11g – Ch. 1)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 45 of 120

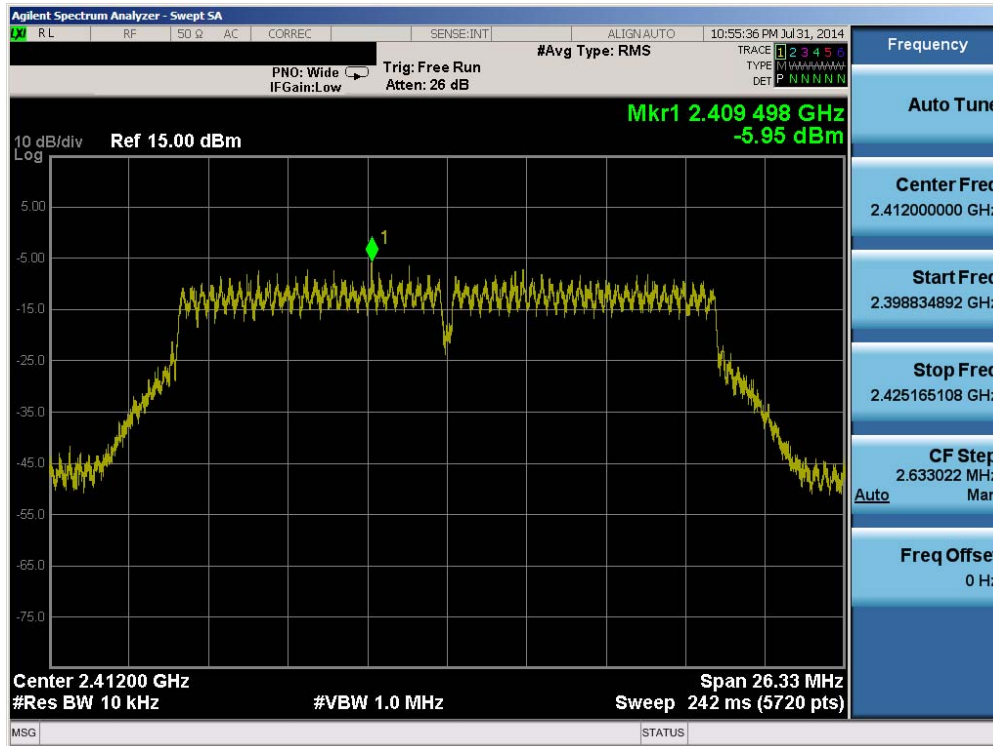


Plot 6-41. Power Spectral Density Plot (802.11g – Ch. 6)

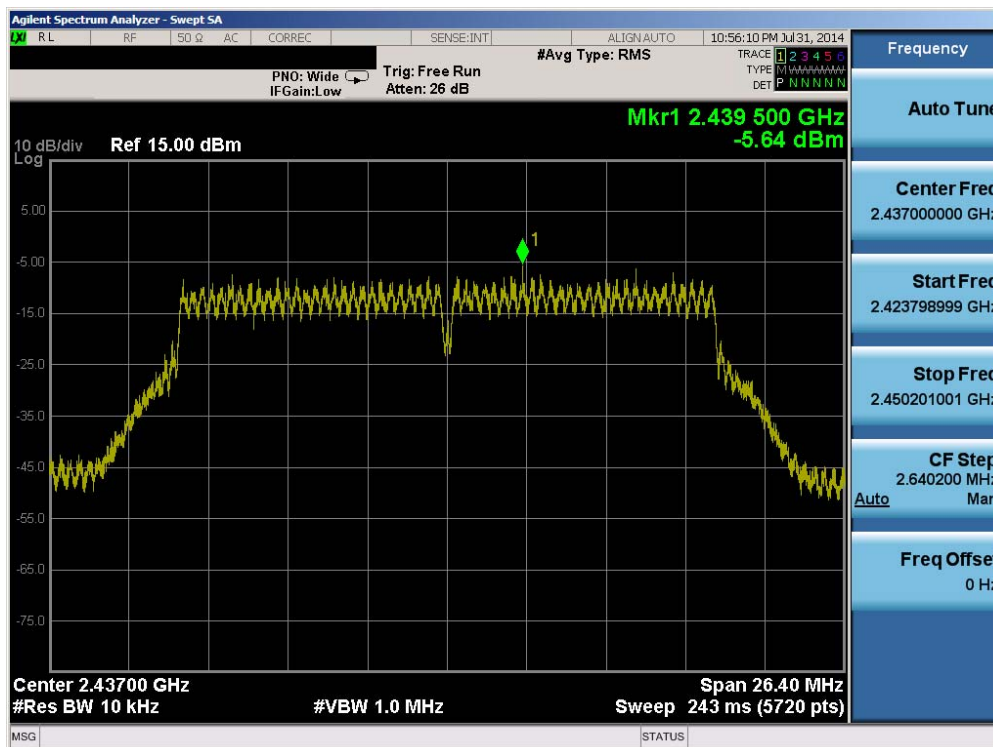


Plot 6-42. Power Spectral Density Plot (802.11g – Ch. 11)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 46 of 120

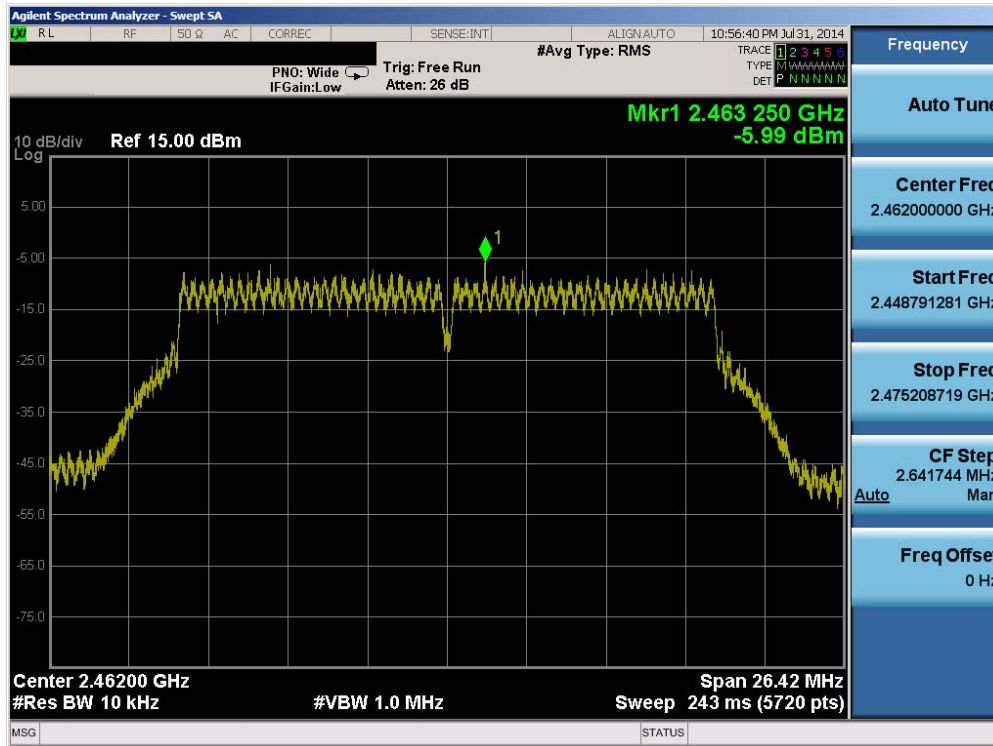


Plot 6-43. Power Spectral Density Plot (802.11n (2.4GHz) – Ch. 1)

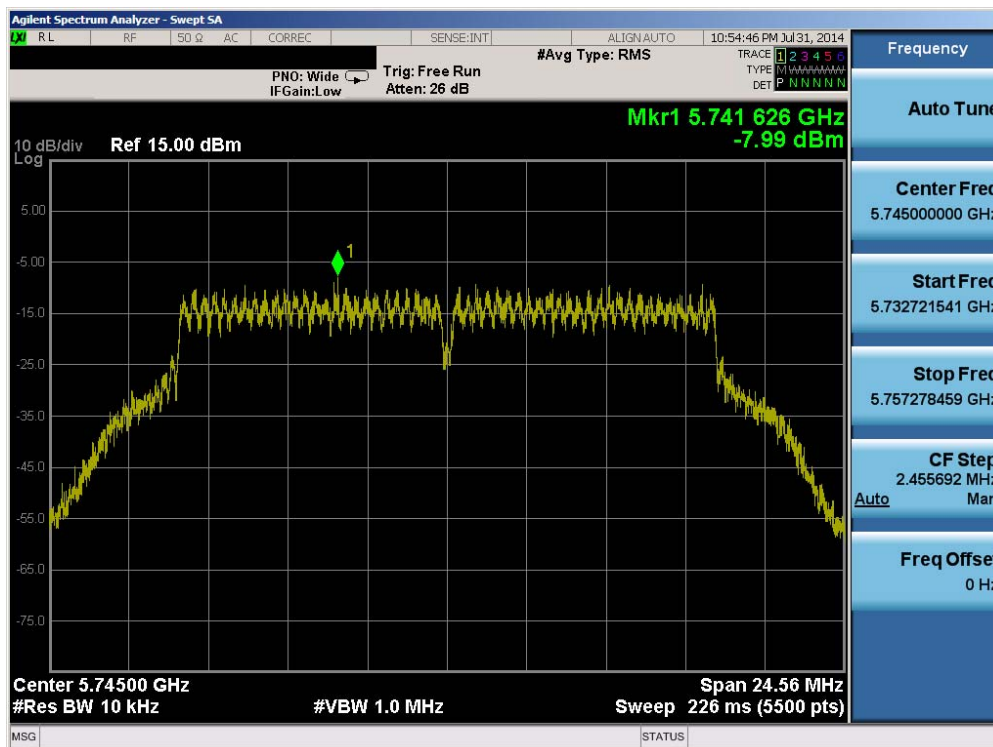


Plot 6-44. Power Spectral Density Plot (802.11n (2.4GHz) – Ch. 6)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 47 of 120

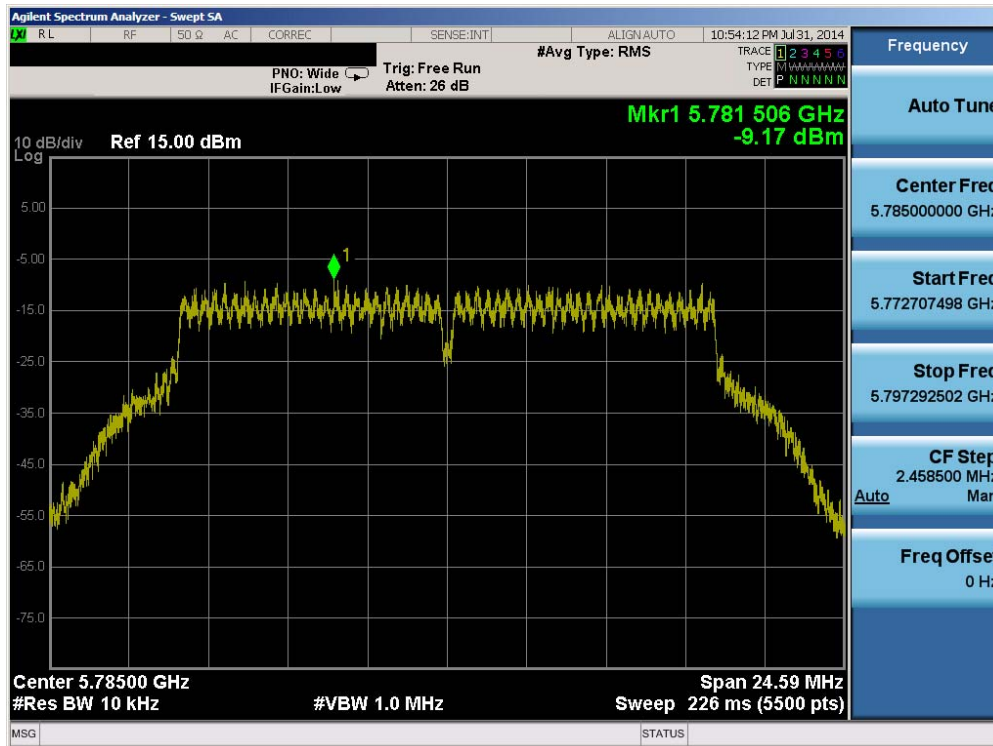


Plot 6-45. Power Spectral Density Plot (802.11n (2.4GHz) – Ch. 11)

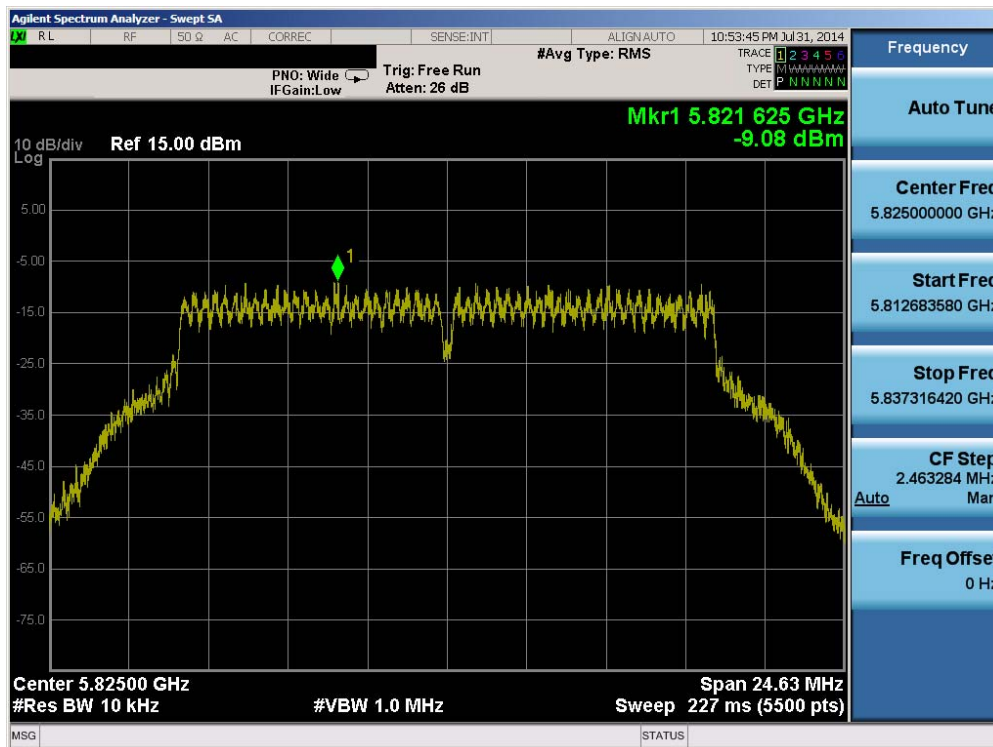


Plot 6-46. Power Spectral Density Plot (802.11a – Ch. 149)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 48 of 120

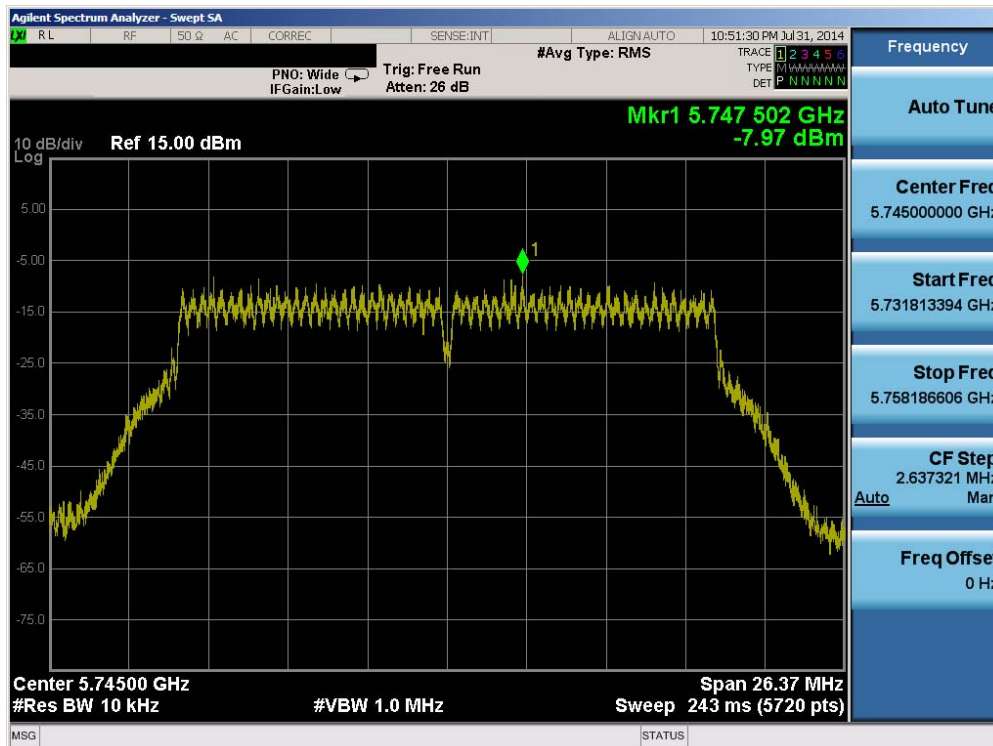


Plot 6-47. Power Spectral Density Plot (802.11a – Ch. 157)

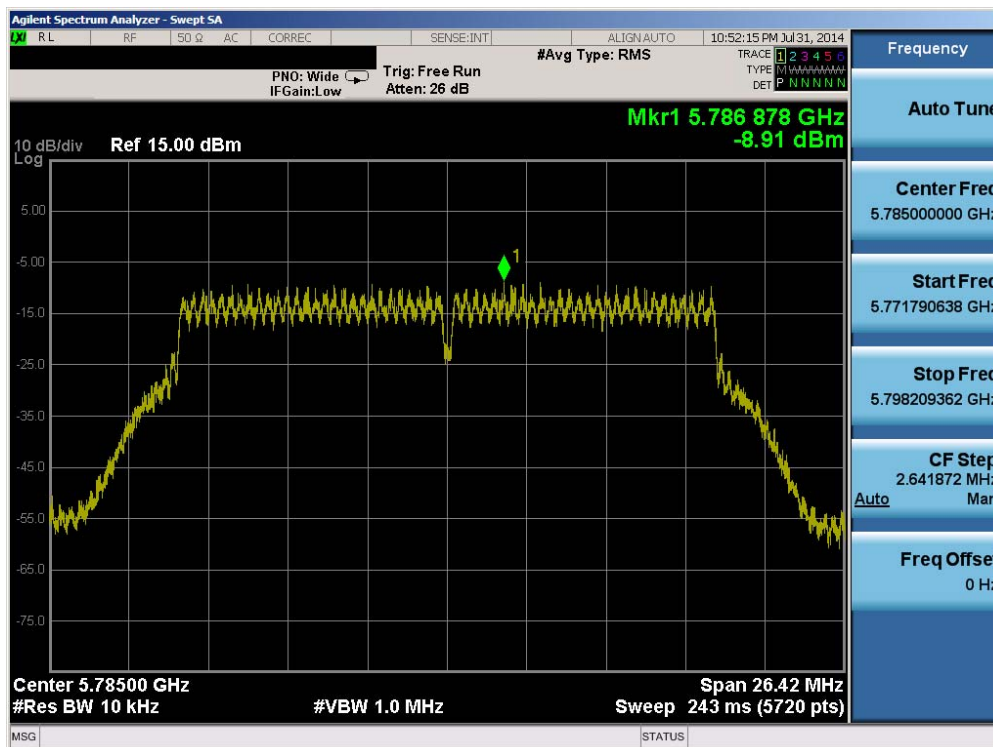


Plot 6-48. Power Spectral Density Plot (802.11a – Ch. 165)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 49 of 120

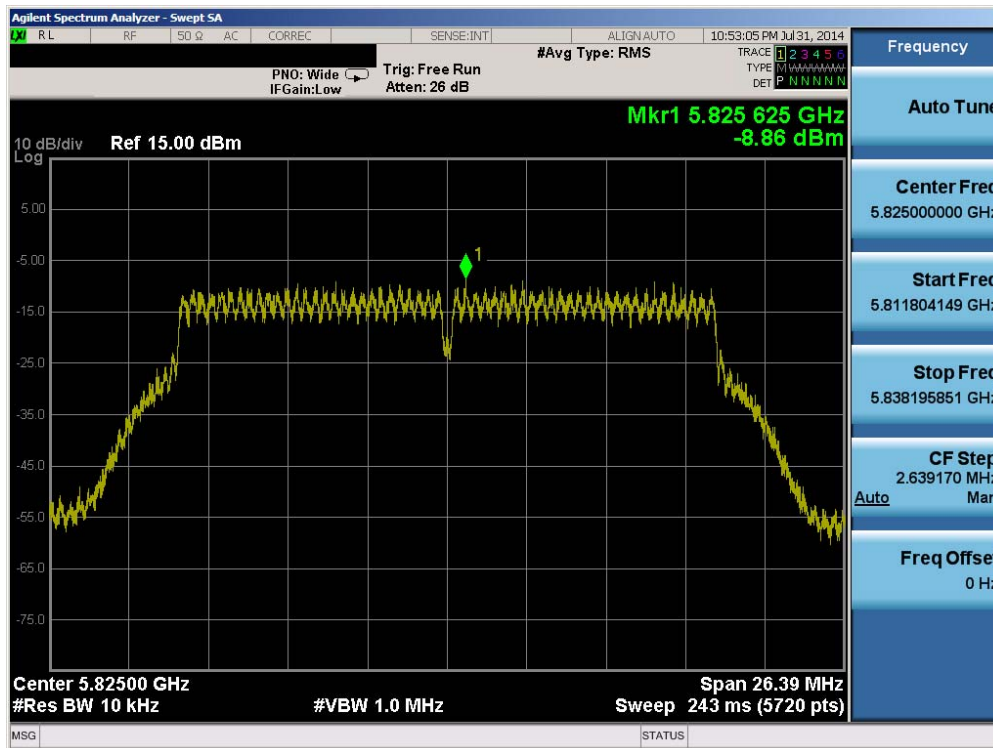


Plot 6-49. Power Spectral Density Plot (20MHz BW 802.11n (5.8GHz) – Ch. 149)

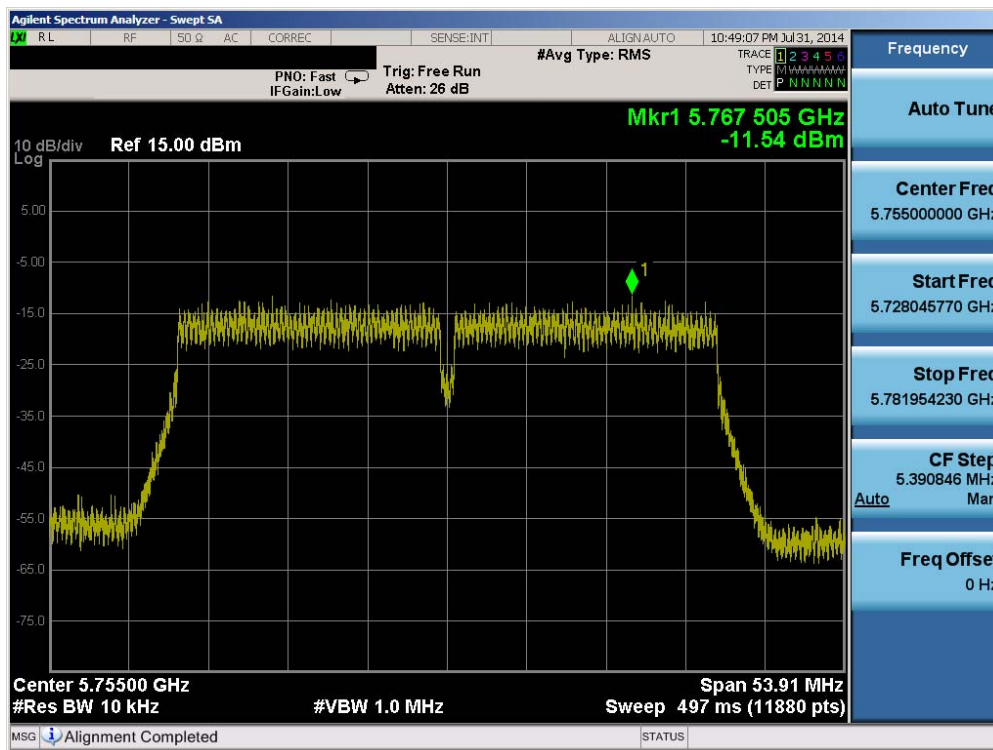


Plot 6-50. Power Spectral Density Plot (20MHz BW 802.11n (5.8GHz) – Ch. 157)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 50 of 120

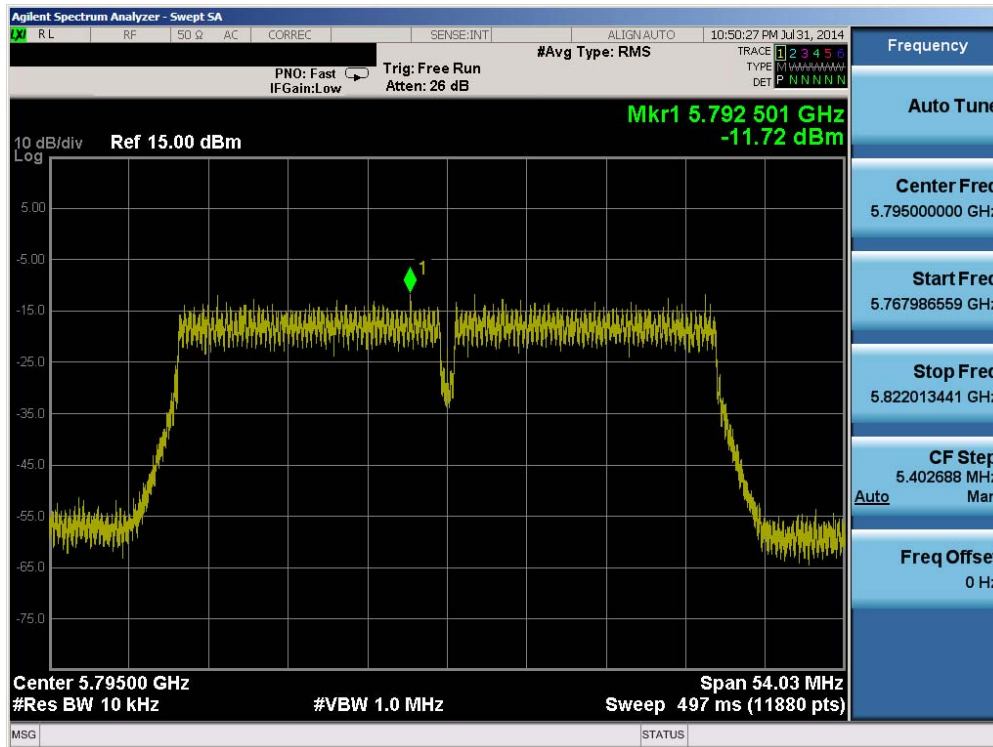


Plot 6-51. Power Spectral Density Plot (20MHz BW 802.11n (5.8GHz) – Ch. 165)

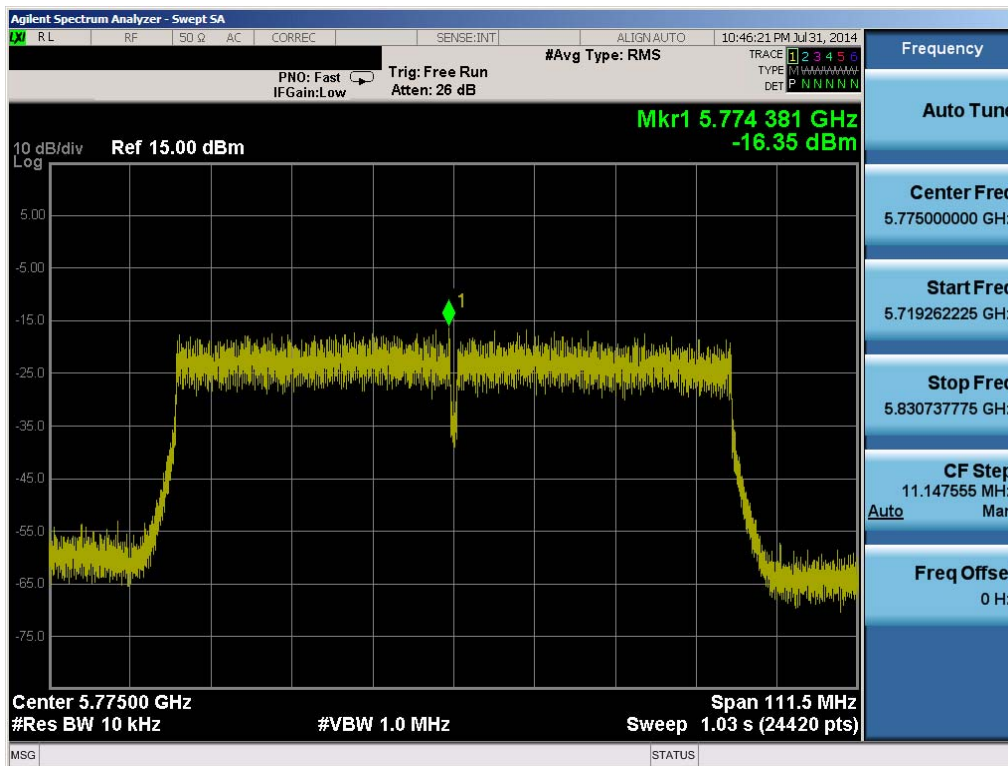


Plot 6-52. Power Spectral Density Plot (40MHz BW 802.11n (5.8GHz) – Ch. 151)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-53. Power Spectral Density Plot (40MHz BW 802.11n (5.8GHz) – Ch. 159)



Plot 6-54. Power Spectral Density Plot (80MHz BW 802.11ac (5.8GHz) – Ch. 155)

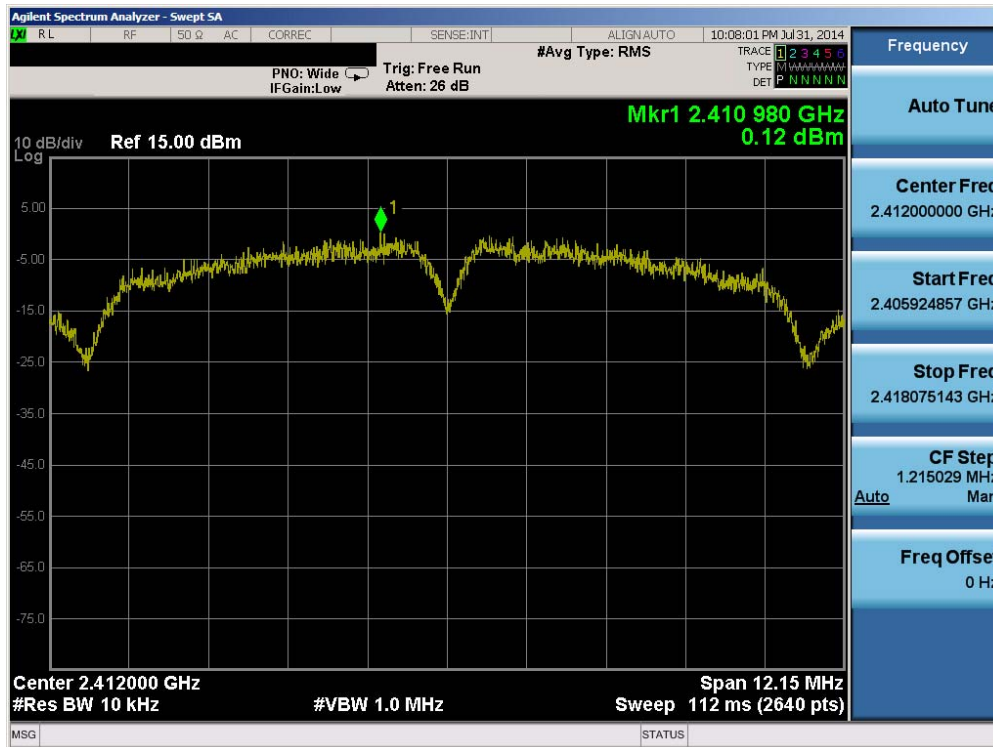
FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 52 of 120

Antenna-2 Power Spectral Density Measurements

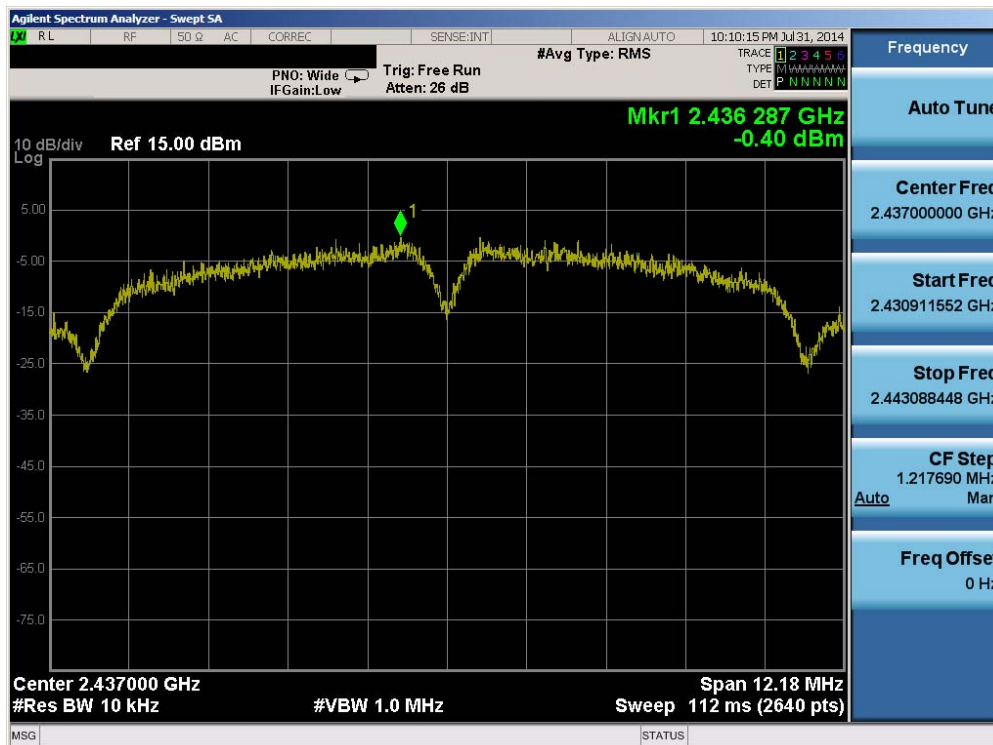
Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]	Pass / Fail
2412	1	b	1	0.12	8.00	-7.88	Pass
2437	6	b	1	-0.40	8.00	-8.40	Pass
2462	11	b	1	-0.53	8.00	-8.53	Pass
2412	1	g	6	-6.18	8.00	-14.18	Pass
2437	6	g	6	-7.26	8.00	-15.26	Pass
2462	11	g	6	-6.39	8.00	-14.39	Pass
2412	1	n	6.5/7.2 (MCS0)	-6.32	8.00	-14.32	Pass
2437	6	n	6.5/7.2 (MCS0)	-6.58	8.00	-14.58	Pass
2462	11	n	6.5/7.2 (MCS0)	-6.50	8.00	-14.50	Pass
5745	149	a	6	-7.57	8.00	-15.57	Pass
5785	157	a	6	-7.13	8.00	-15.13	Pass
5825	165	a	6	-7.44	8.00	-15.44	Pass
5745	149	n (20MHz)	6.5/7.2 (MCS0)	-7.00	8.00	-15.00	Pass
5785	157	n (20MHz)	6.5/7.2 (MCS0)	-8.36	8.00	-16.36	Pass
5825	165	n (20MHz)	6.5/7.2 (MCS0)	-7.25	8.00	-15.25	Pass
5755	151	n (40MHz)	13.5/15 (MCS0)	-11.92	8.00	-19.92	Pass
5795	159	n (40MHz)	13.5/15 (MCS0)	-11.23	8.00	-19.23	Pass
5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-14.89	8.00	-22.89	Pass

Table 6-29. Conducted Power Density Measurements

FCC ID: A3LSMN910R4		FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 53 of 120

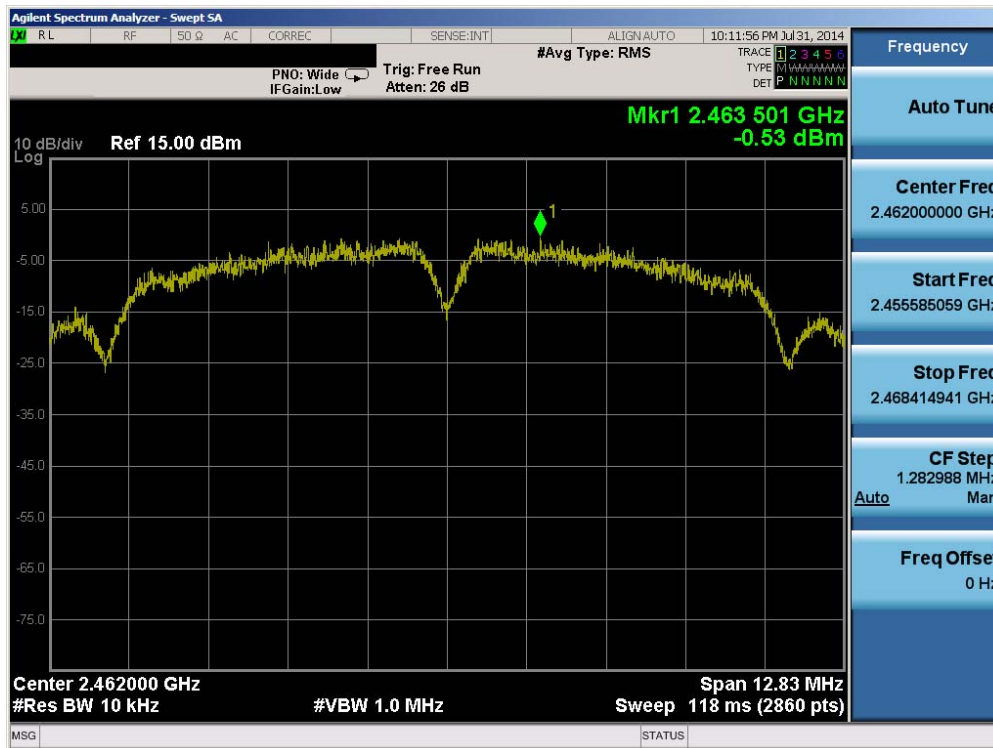


Plot 6-55. Power Spectral Density Plot (802.11b – Ch. 1)

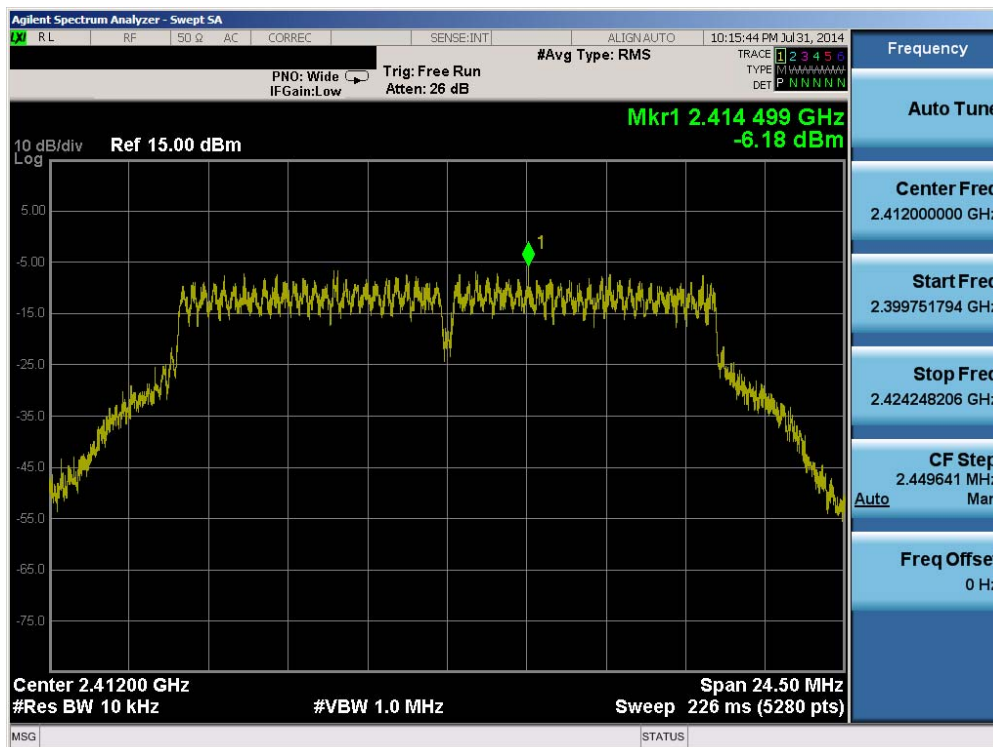


Plot 6-56. Power Spectral Density Plot (802.11b – Ch. 6)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 54 of 120

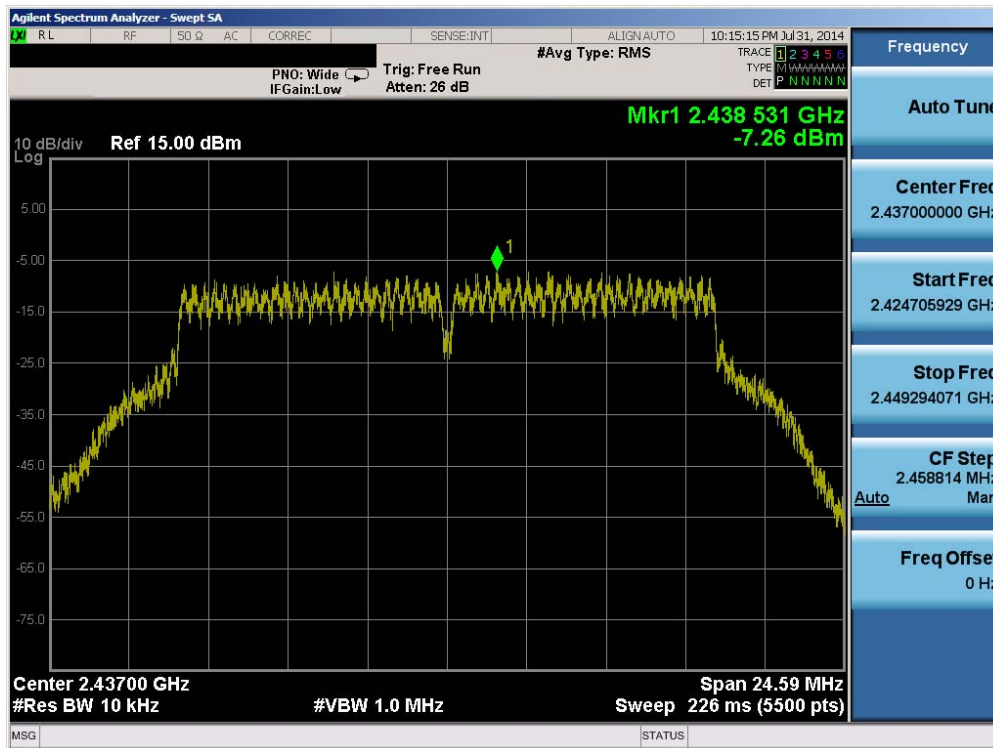


Plot 6-57. Power Spectral Density Plot (802.11b – Ch. 11)

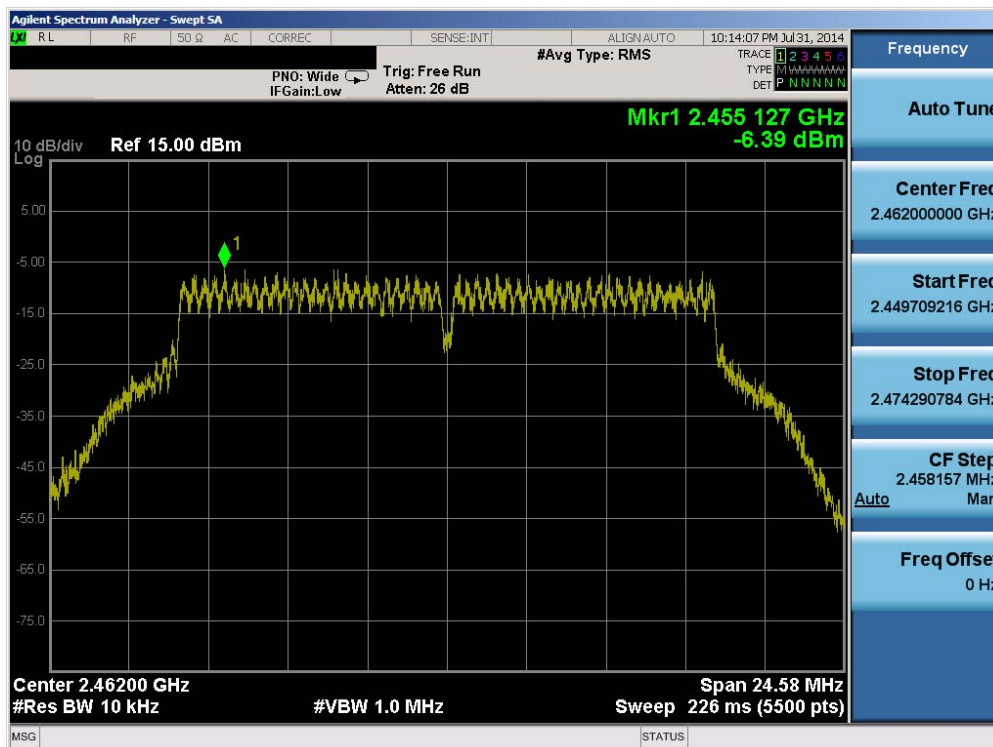


Plot 6-58. Power Spectral Density Plot (802.11g – Ch. 1)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 55 of 120

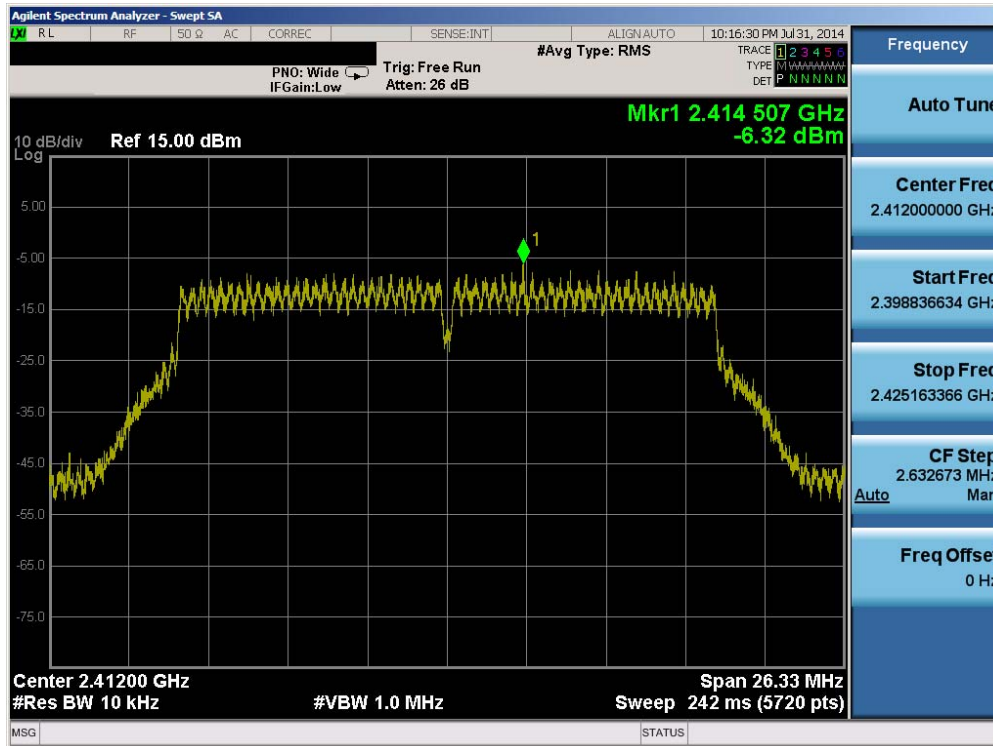


Plot 6-59. Power Spectral Density Plot (802.11g – Ch. 6)

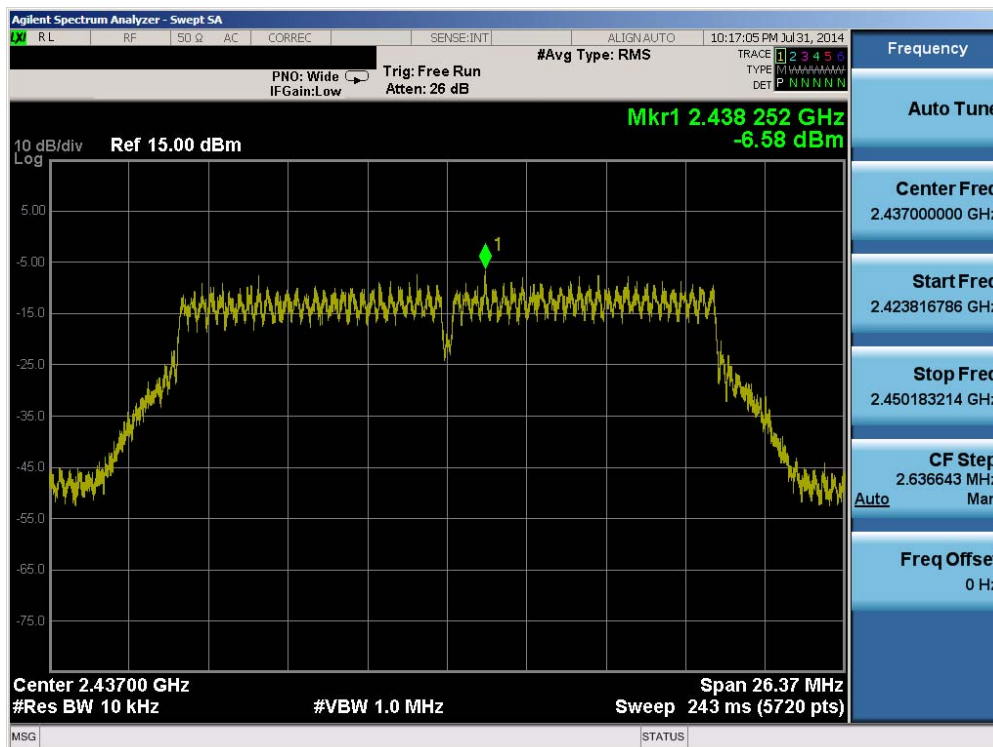


Plot 6-60. Power Spectral Density Plot (802.11g – Ch. 11)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 56 of 120

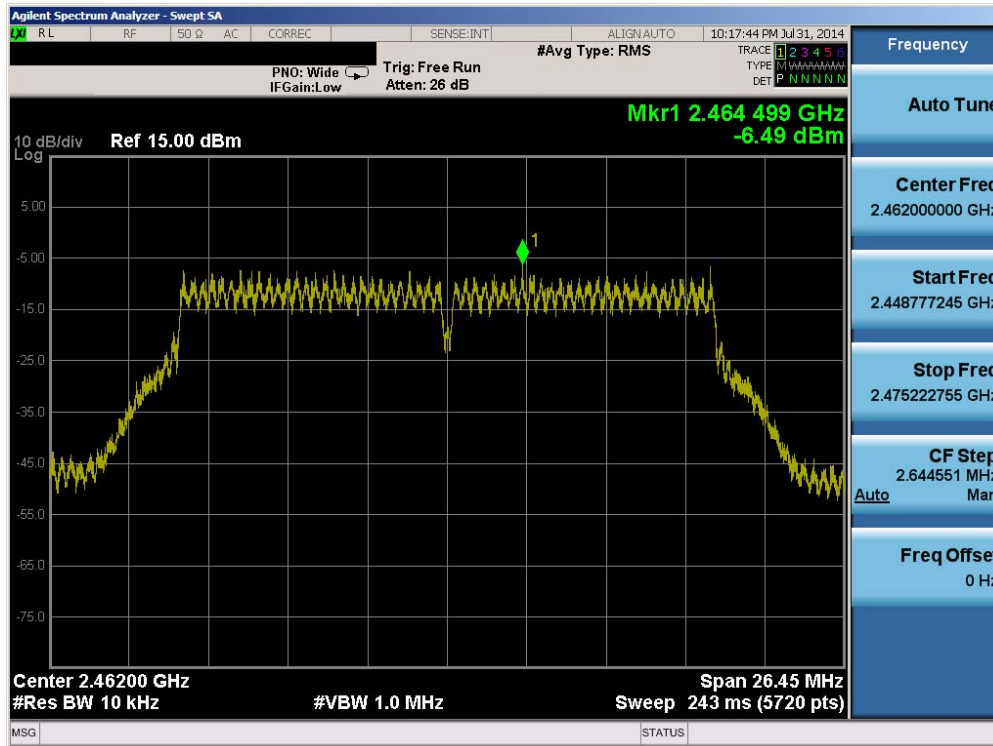


Plot 6-61. Power Spectral Density Plot (802.11n (2.4GHz) – Ch. 1)

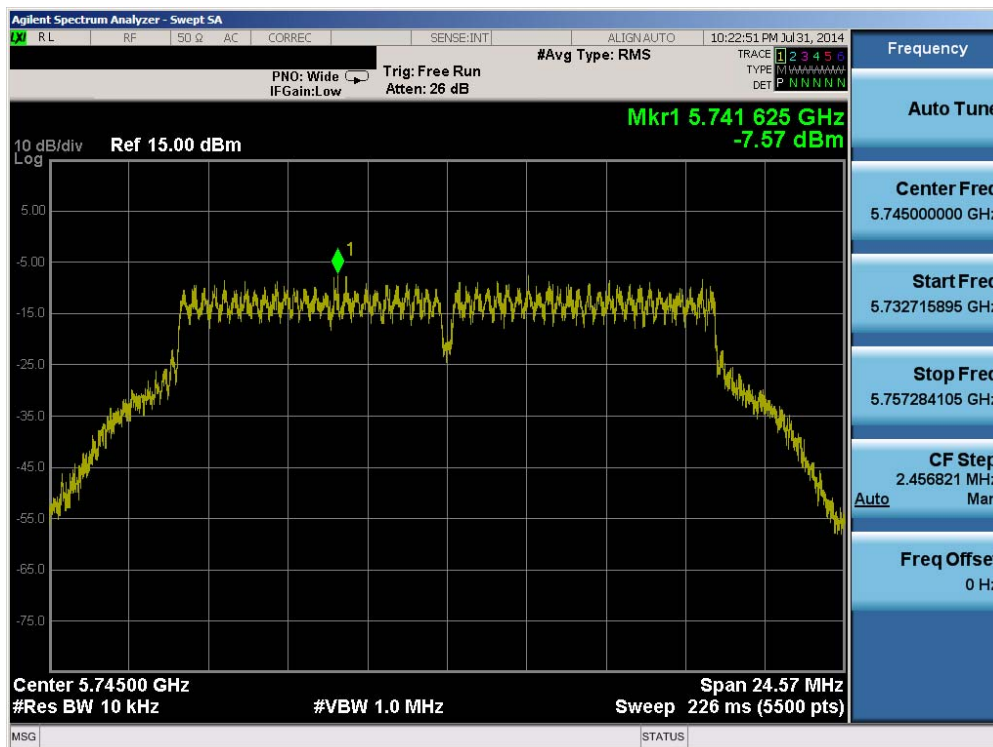


Plot 6-62. Power Spectral Density Plot (802.11n (2.4GHz) – Ch. 6)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 57 of 120

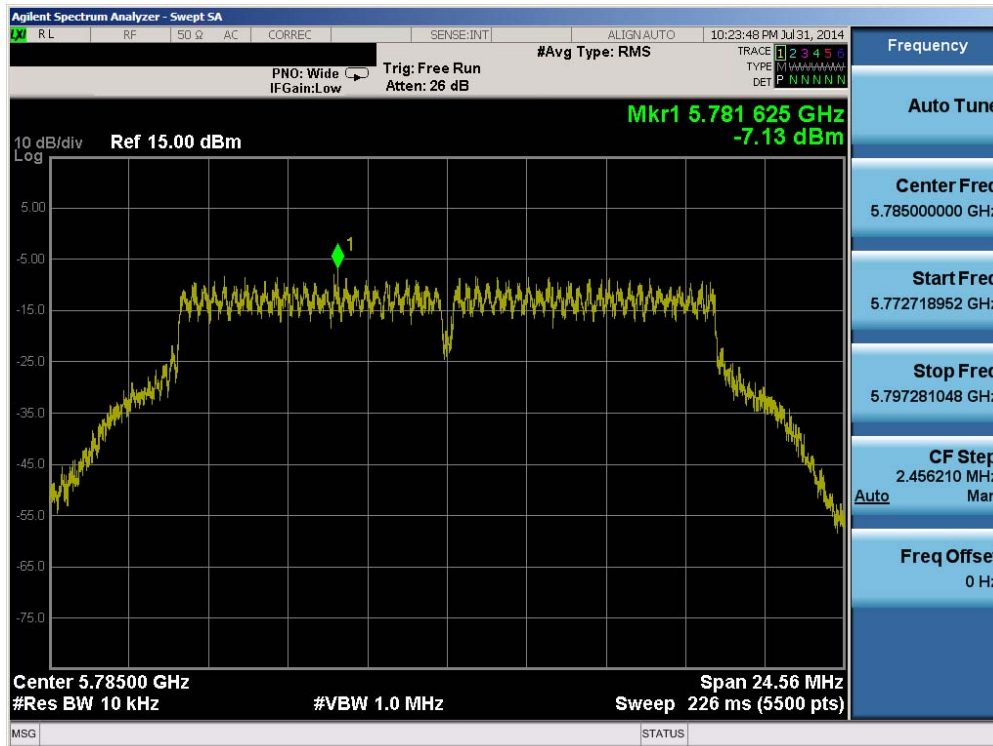


Plot 6-63. Power Spectral Density Plot (802.11n (2.4GHz) – Ch. 11)

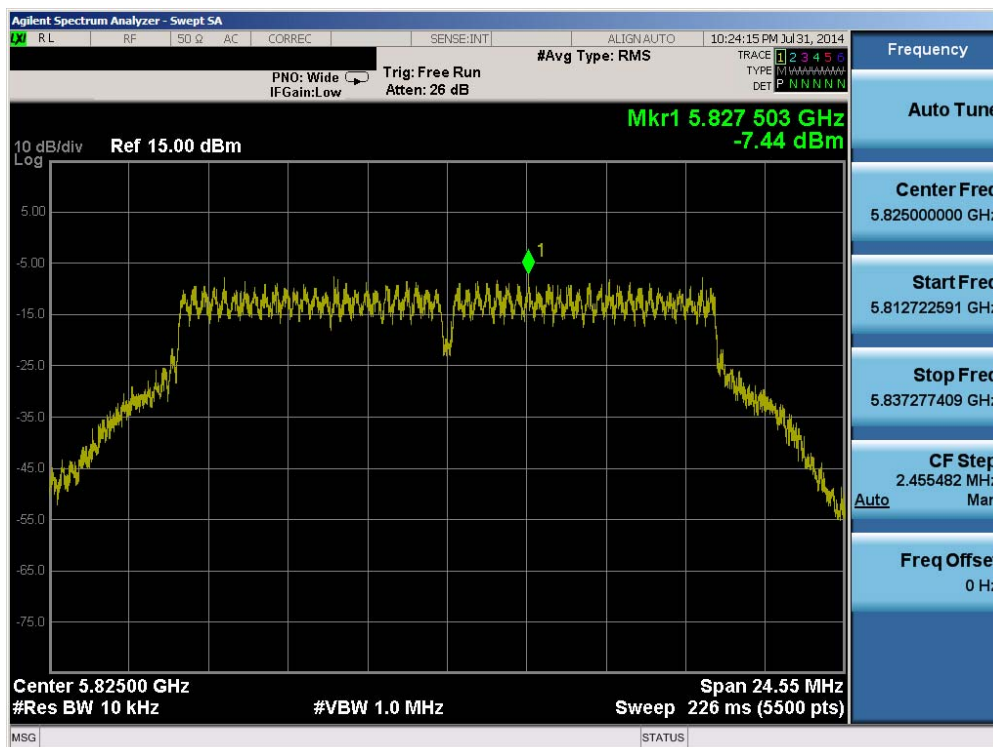


Plot 6-64. Power Spectral Density Plot (802.11a – Ch. 149)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 58 of 120

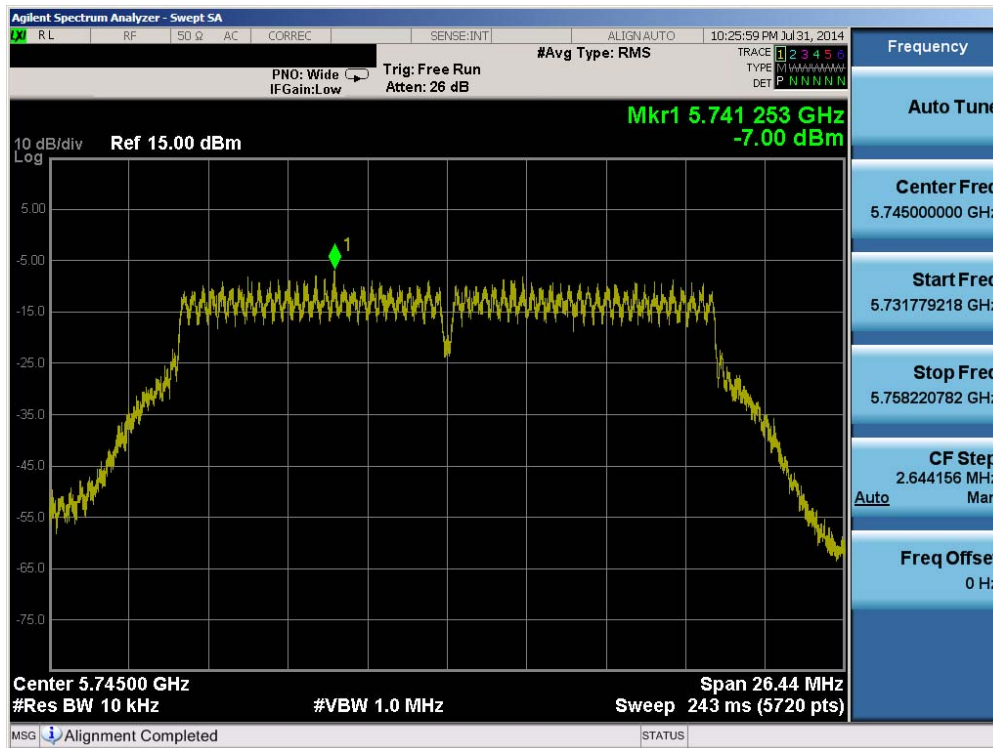


Plot 6-65. Power Spectral Density Plot (802.11a – Ch. 157)

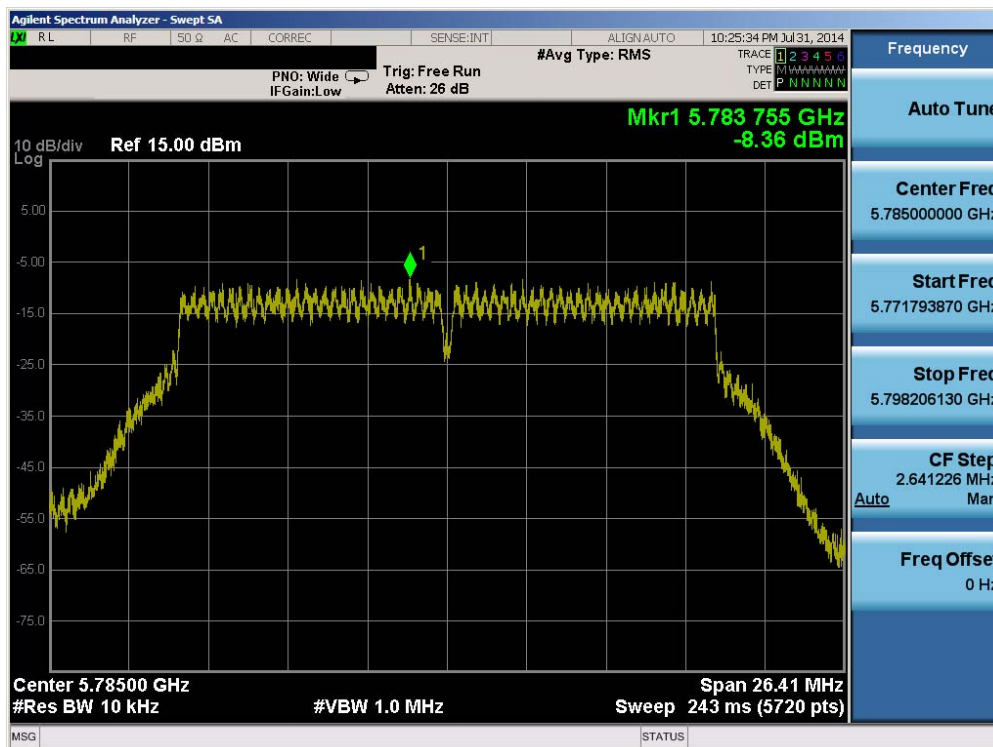


Plot 6-66. Power Spectral Density Plot (802.11a – Ch. 165)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 59 of 120

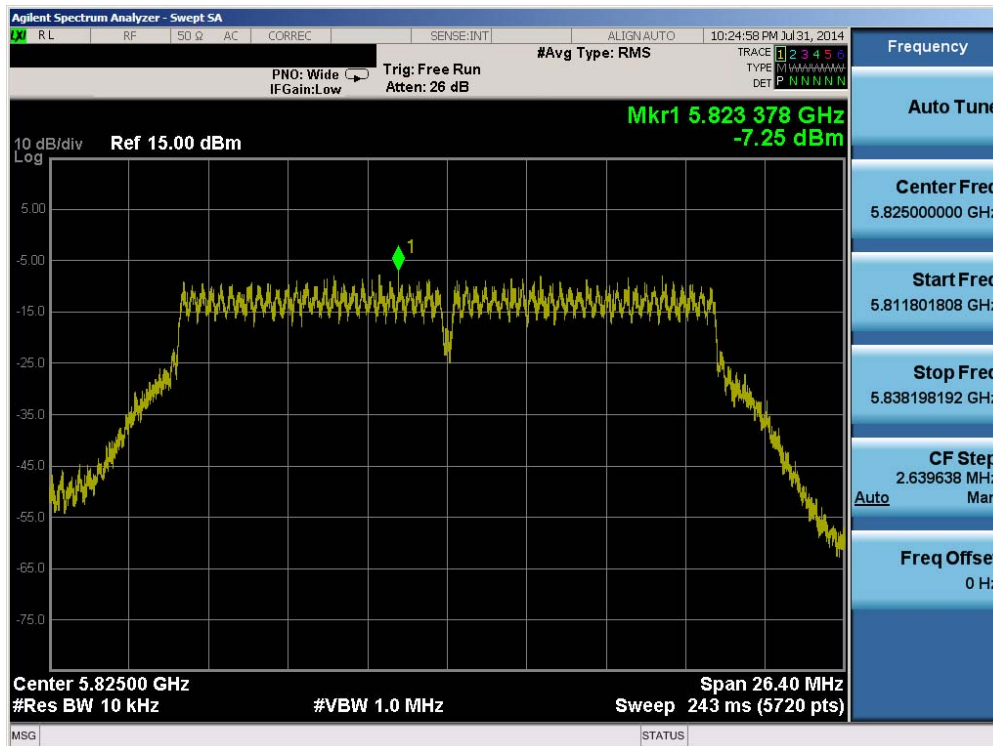


Plot 6-67. Power Spectral Density Plot (20MHz BW 802.11n (5.8GHz) – Ch. 149)

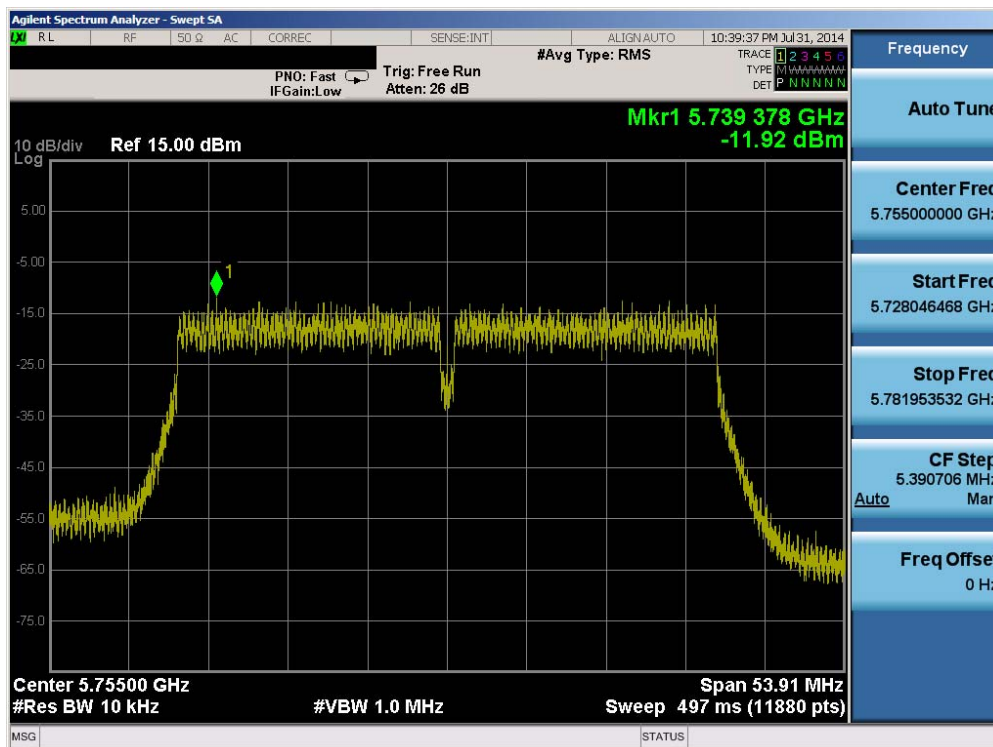


Plot 6-68. Power Spectral Density Plot (20MHz BW 802.11n (5.8GHz) – Ch. 157)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 60 of 120

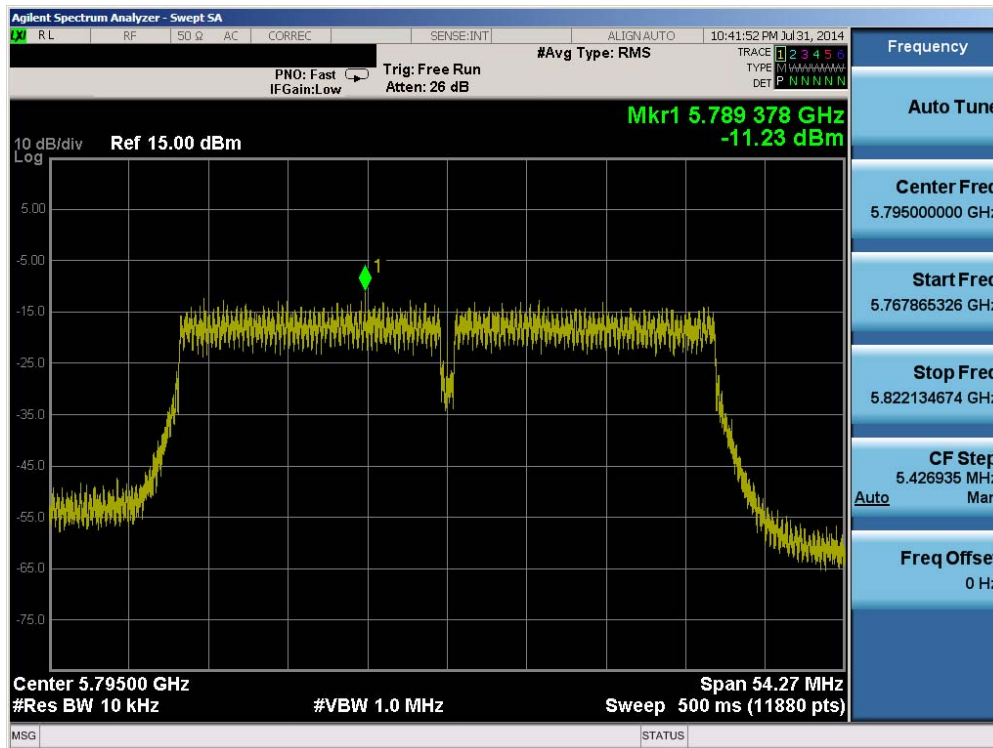


Plot 6-69. Power Spectral Density Plot (20MHz BW 802.11n (5.8GHz) – Ch. 165)

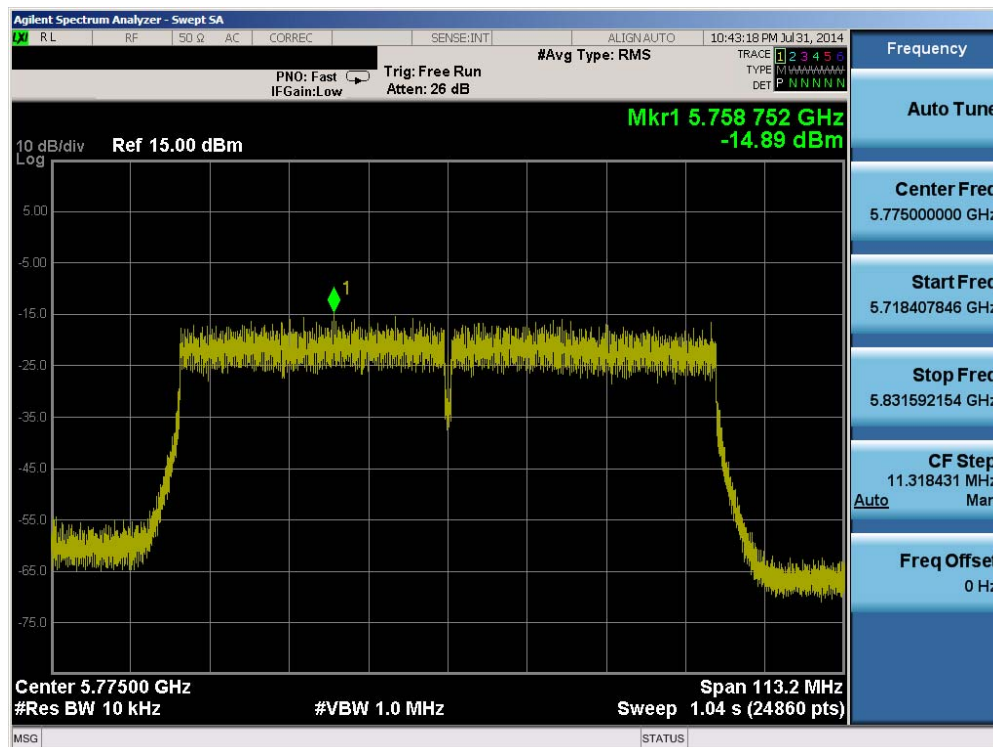


Plot 6-70. Power Spectral Density Plot (40MHz BW 802.11n (5.8GHz) – Ch. 151)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-71. Power Spectral Density Plot (40MHz BW 802.11n (5.8GHz) – Ch. 159)



Plot 6-72. Power Spectral Density Plot (80MHz BW 802.11ac (5.8GHz) – Ch. 155)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.247 802.11a/b/g/n/ac MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051619.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 62 of 120