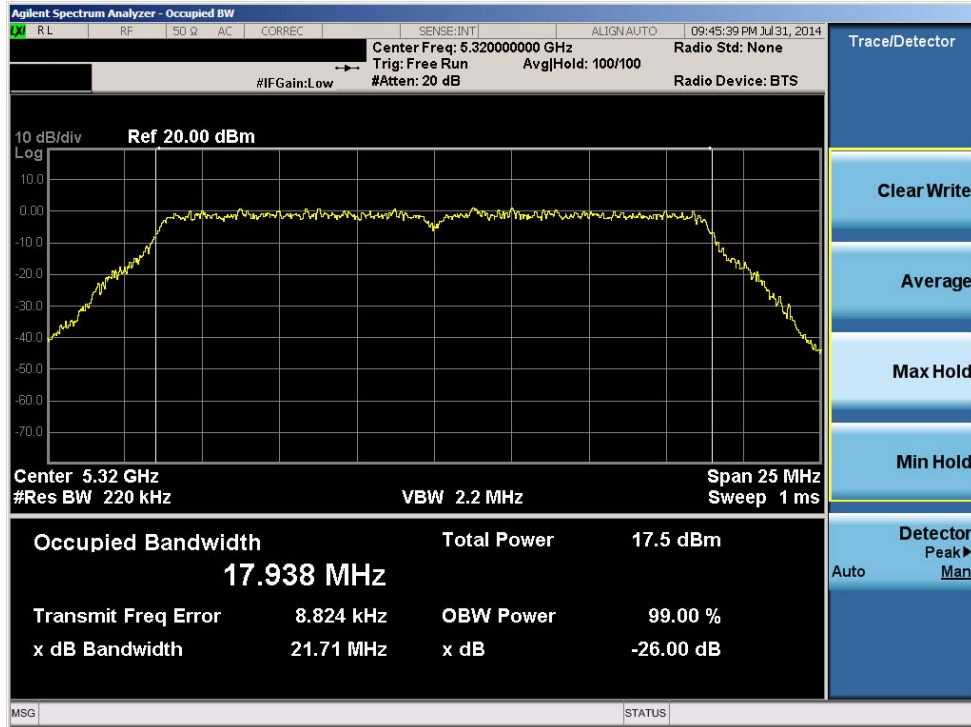
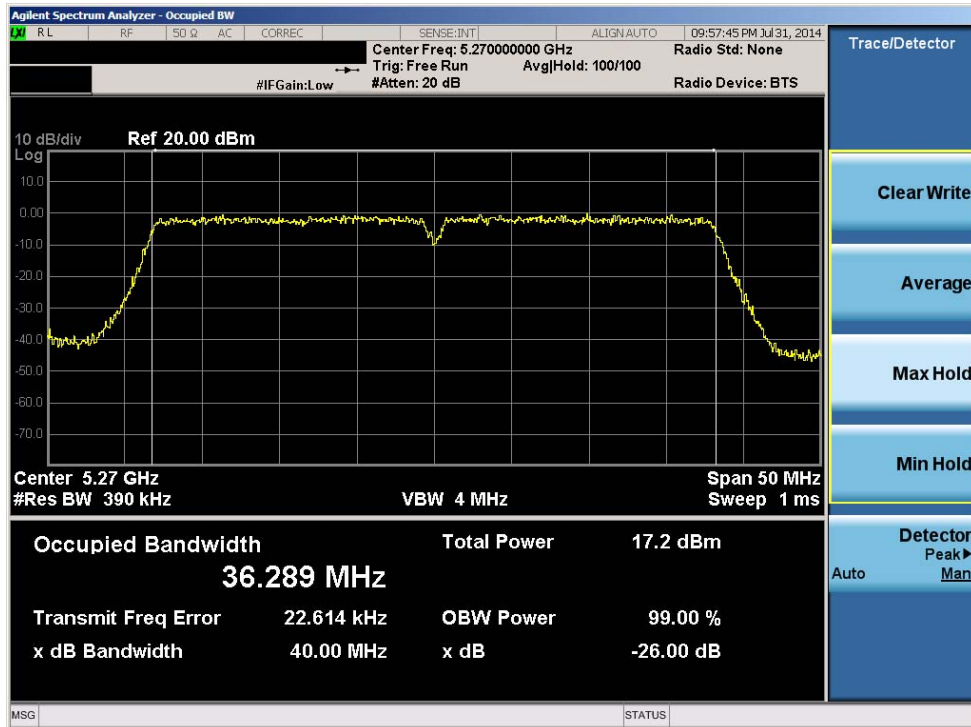


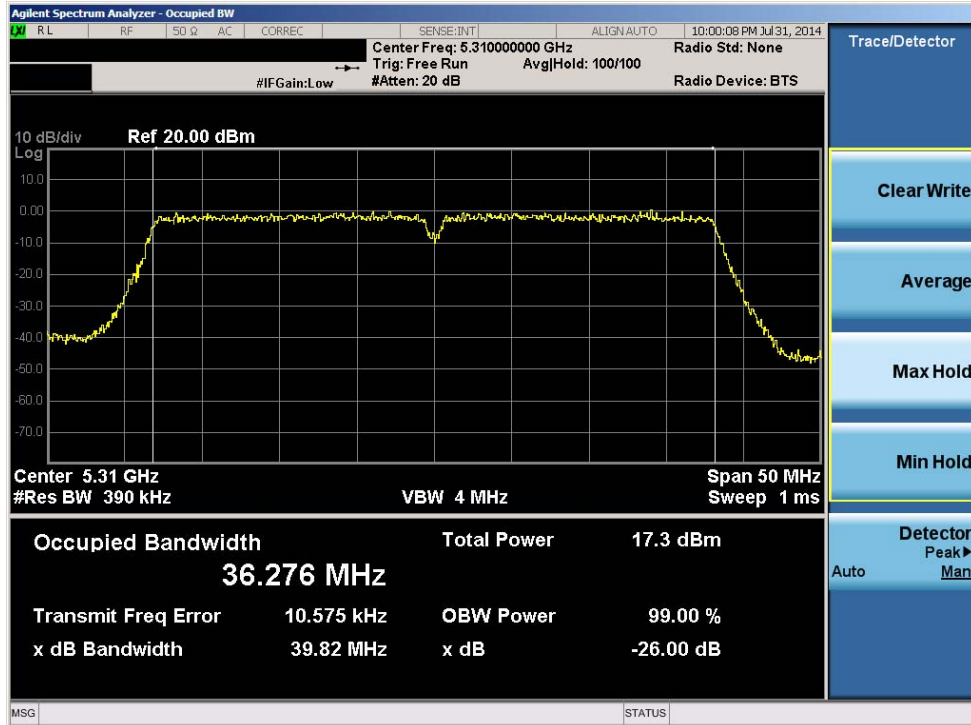


Plot 6-49. 26dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

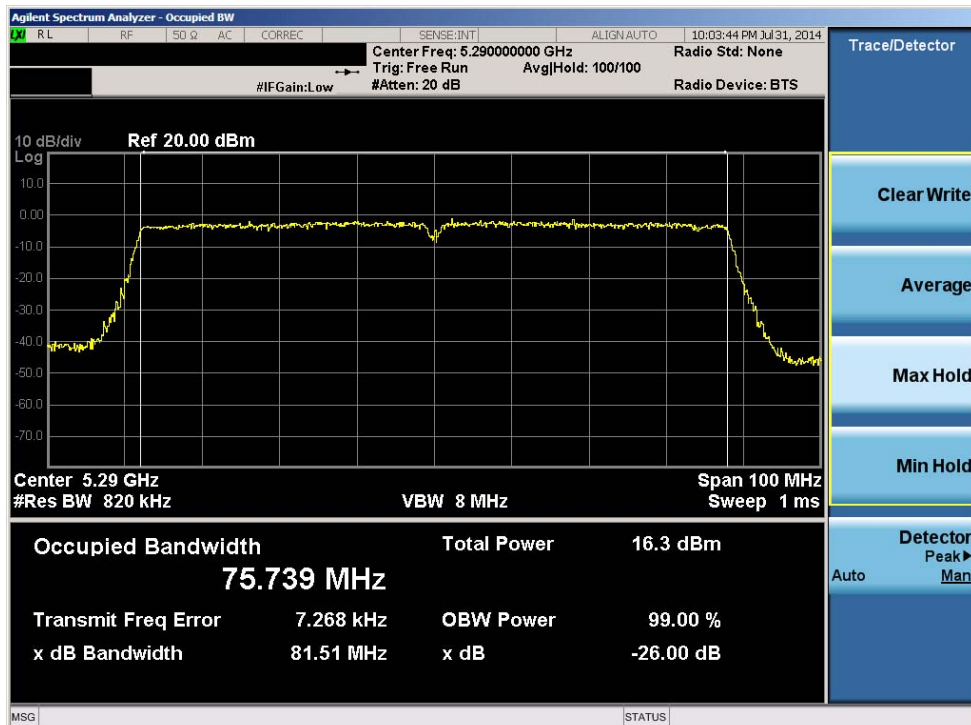


Plot 6-50. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 39 of 182

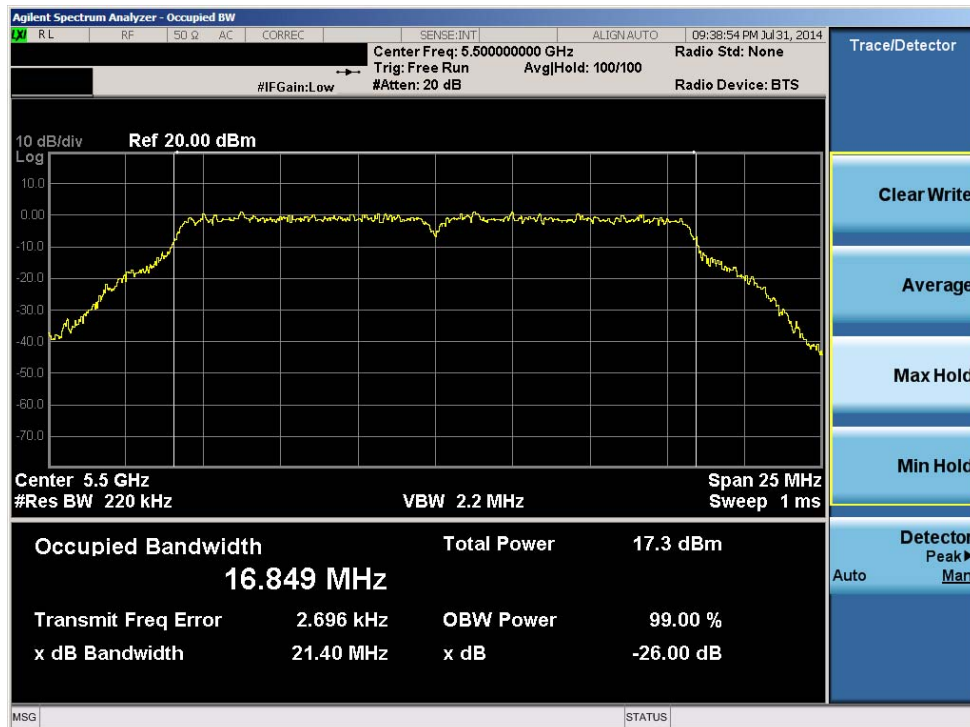


Plot 6-51. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

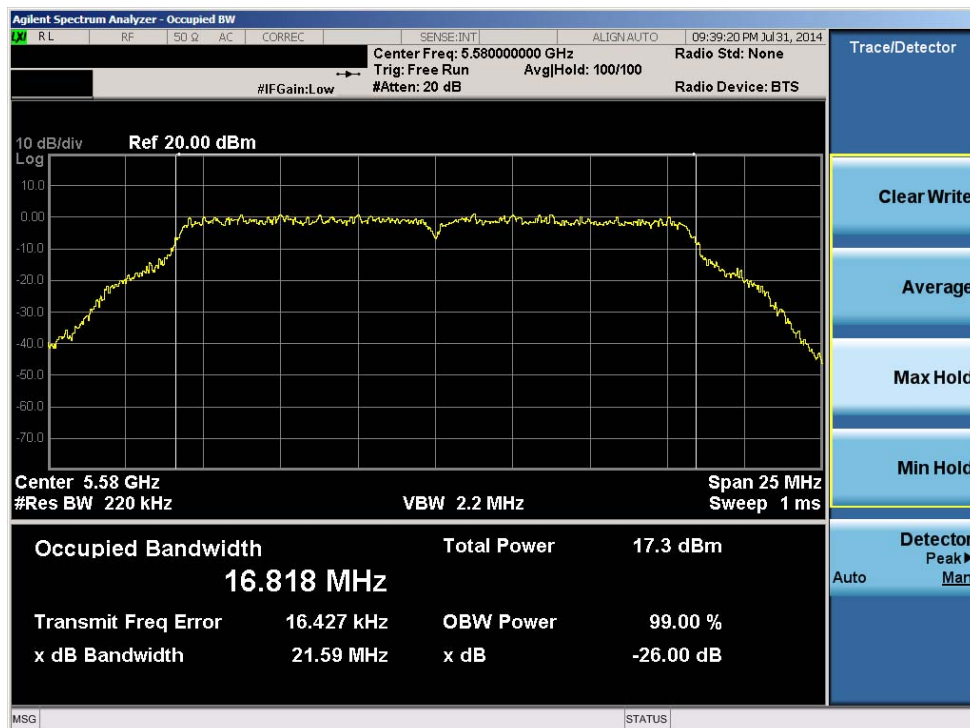


Plot 6-52. 26dB Bandwidth Plot (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 40 of 182

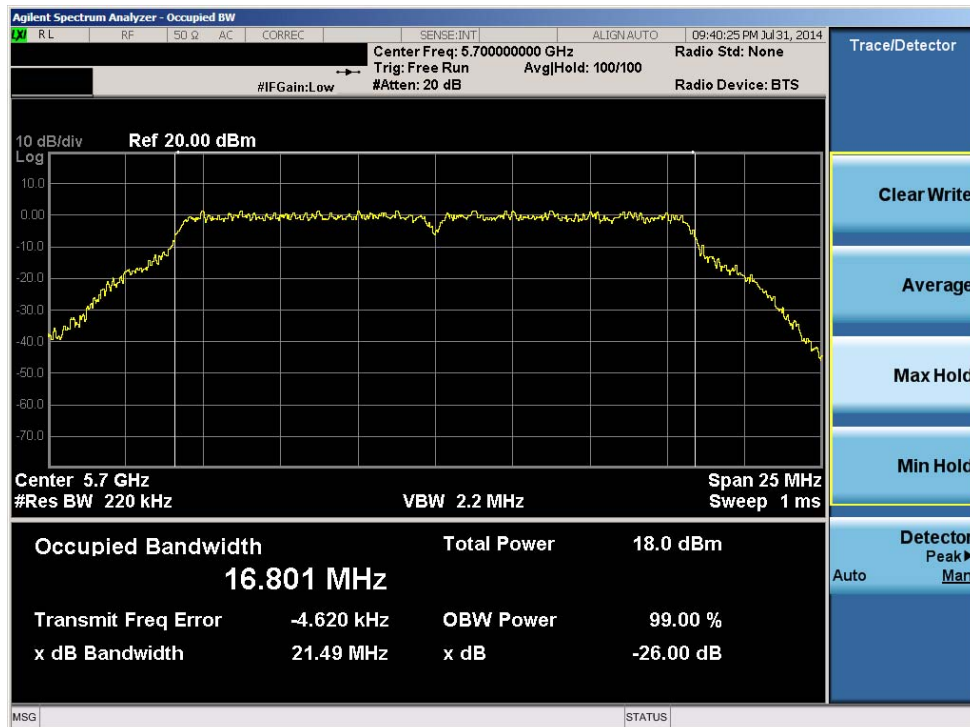


Plot 6-53. 26dB Bandwidth Plot (802.11a (UNII Band 2C) – Ch. 100)

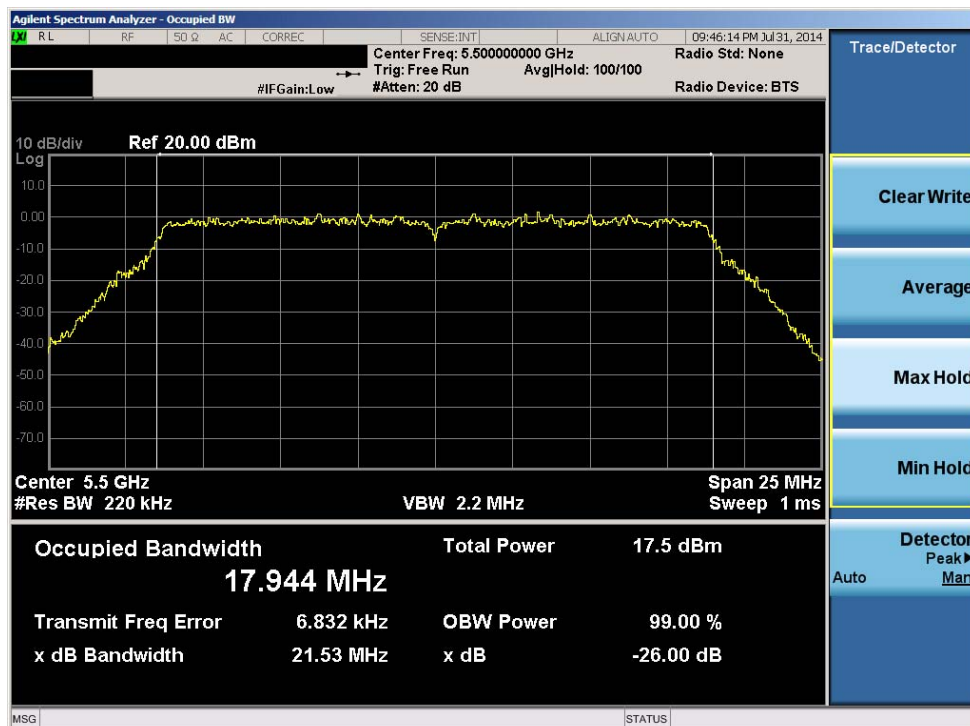


Plot 6-54. 26dB Bandwidth Plot (802.11a (UNII Band 2C) – Ch. 116)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 41 of 182

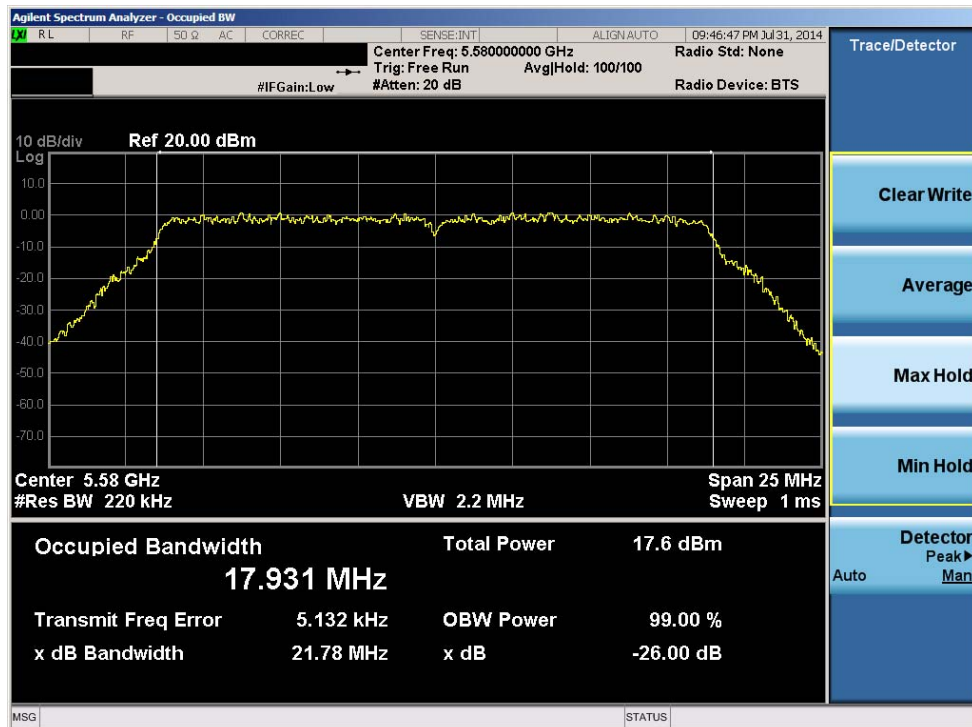


Plot 6-55. 26dB Bandwidth Plot (802.11a (UNII Band 2C) – Ch. 140)

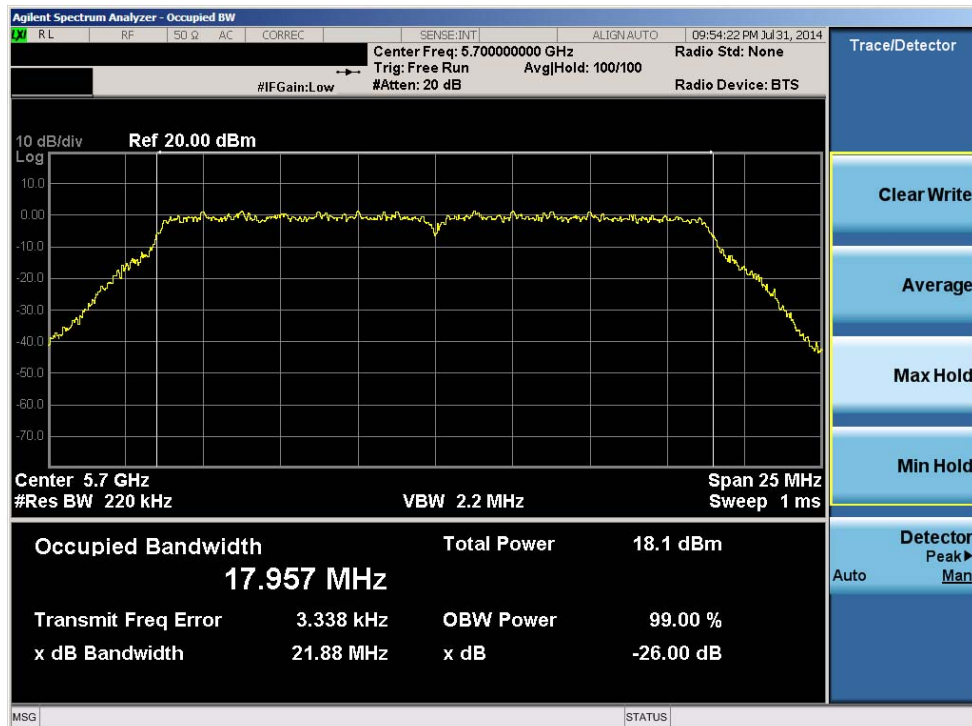


Plot 6-56. 26dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 42 of 182

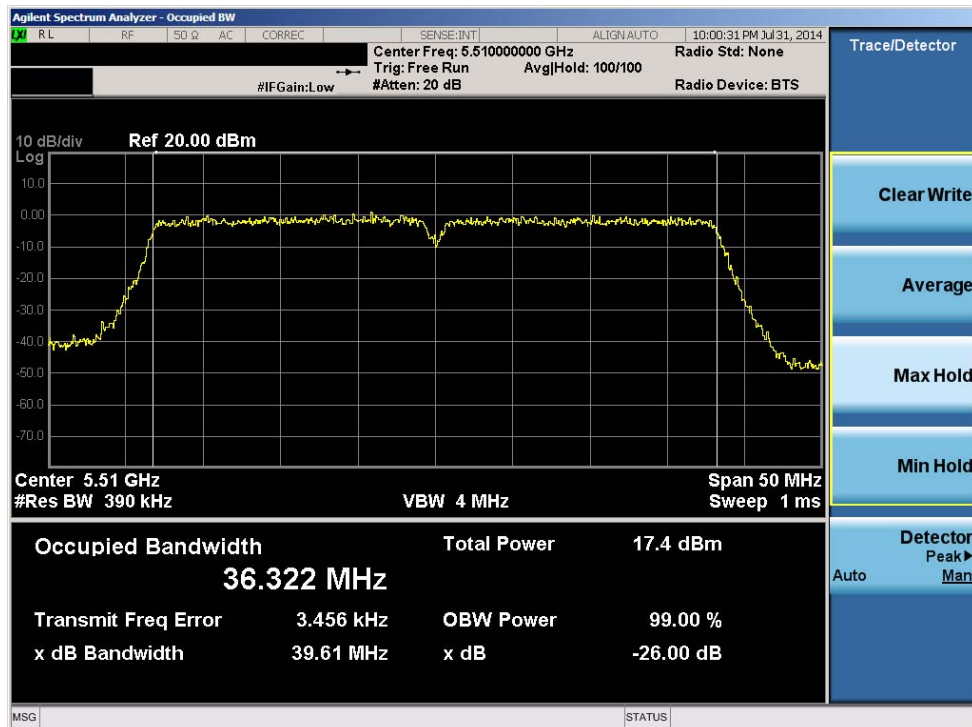


Plot 6-57. 26dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 116)

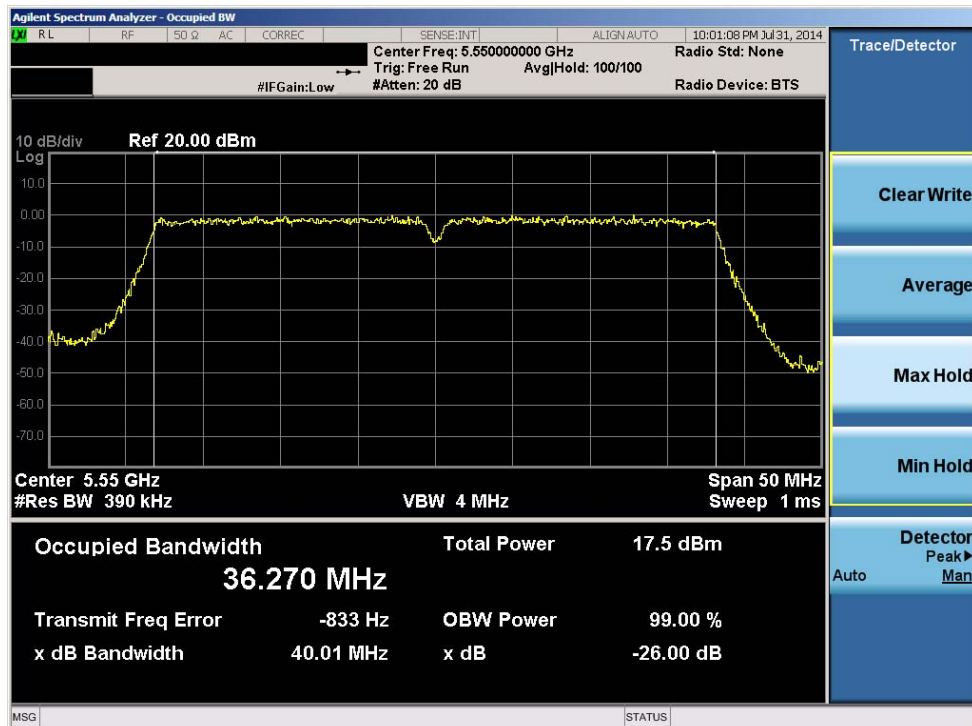


Plot 6-58. 26dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 140)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 43 of 182

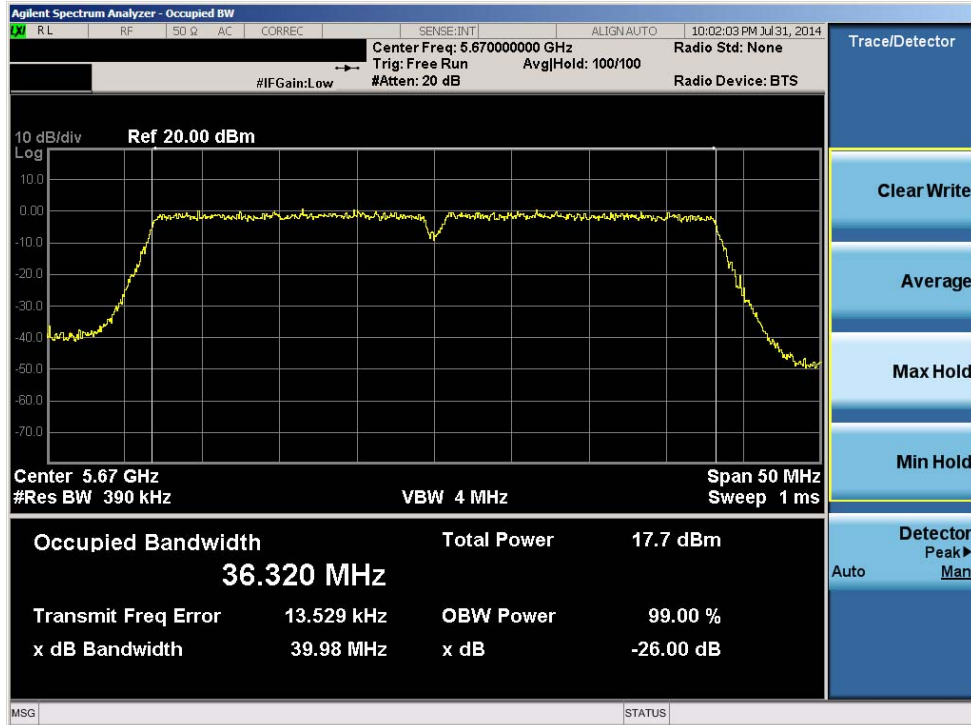


Plot 6-59. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

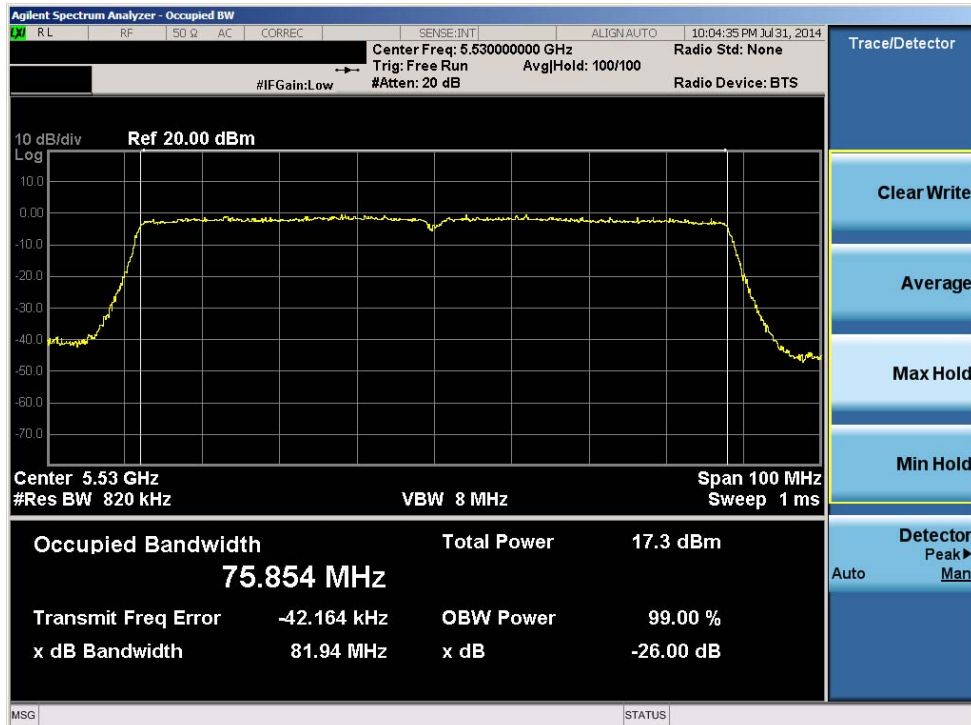


Plot 6-60. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 110)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 44 of 182

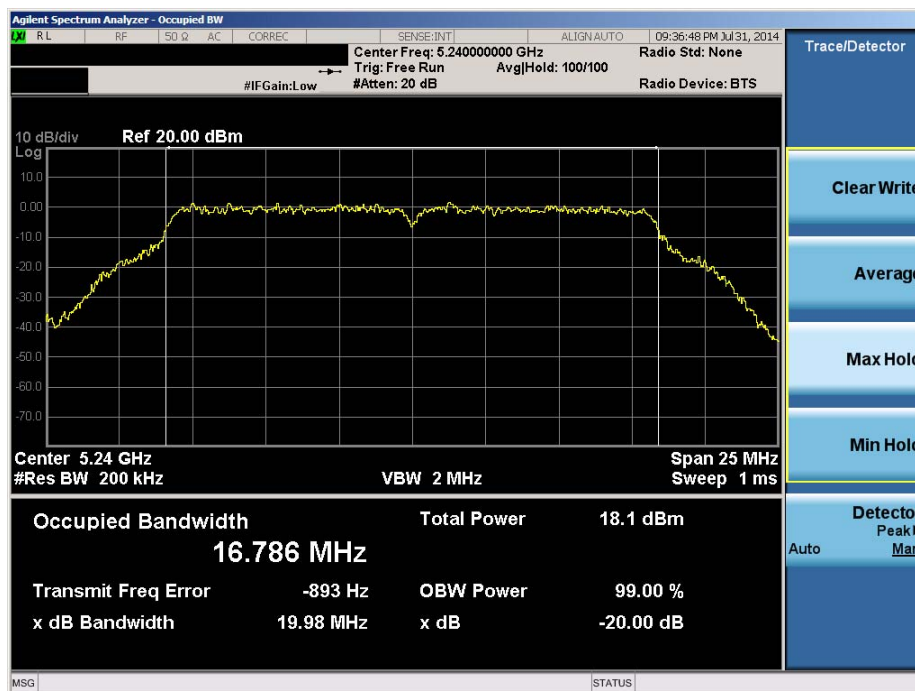


Plot 6-61. 26dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 134)



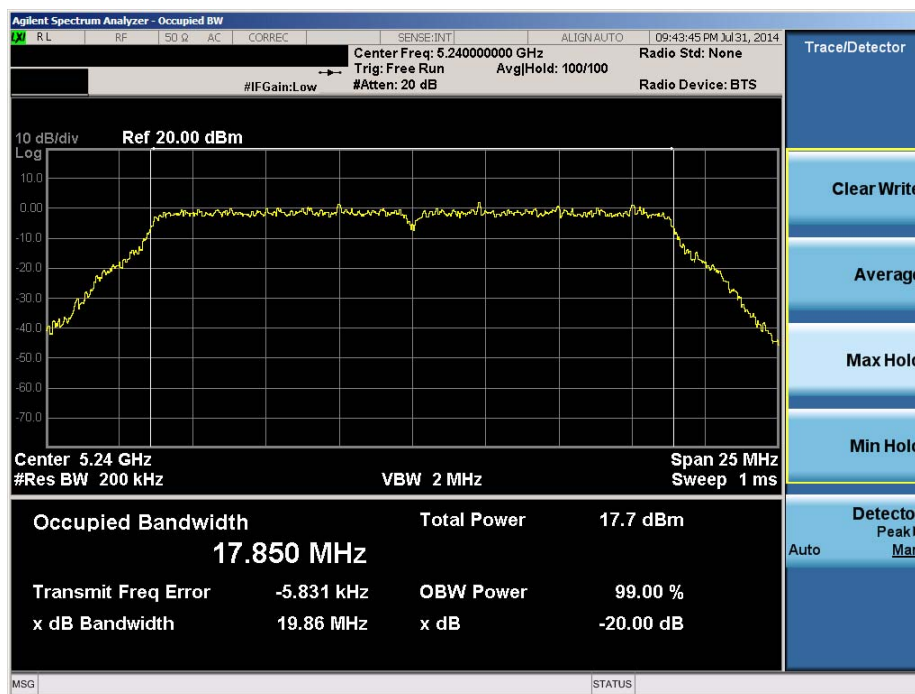
Plot 6-62. 26dB Bandwidth Plot (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 45 of 182



Plot 6-63. 20dB Bandwidth Plot (20MHz BW 802.11a (UNII Band 1) – Ch. 48)

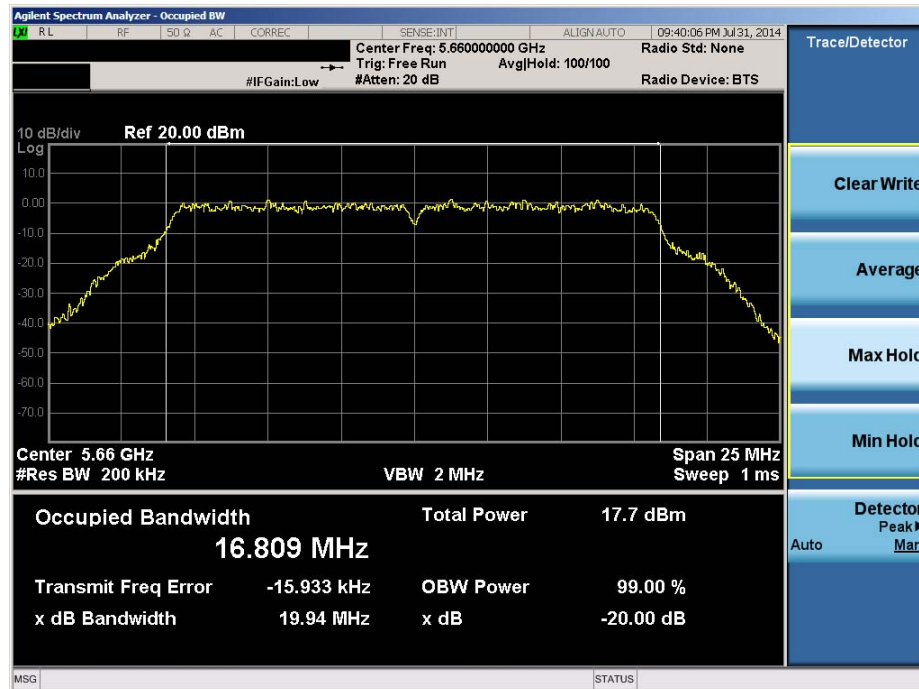
Note: The 20dB bandwidth plot of the UNII Band 1 high channel was found to be within 20MHz and is, therefore, operating solely within the UNII Band 1 frequencies.



Plot 6-64. 20dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

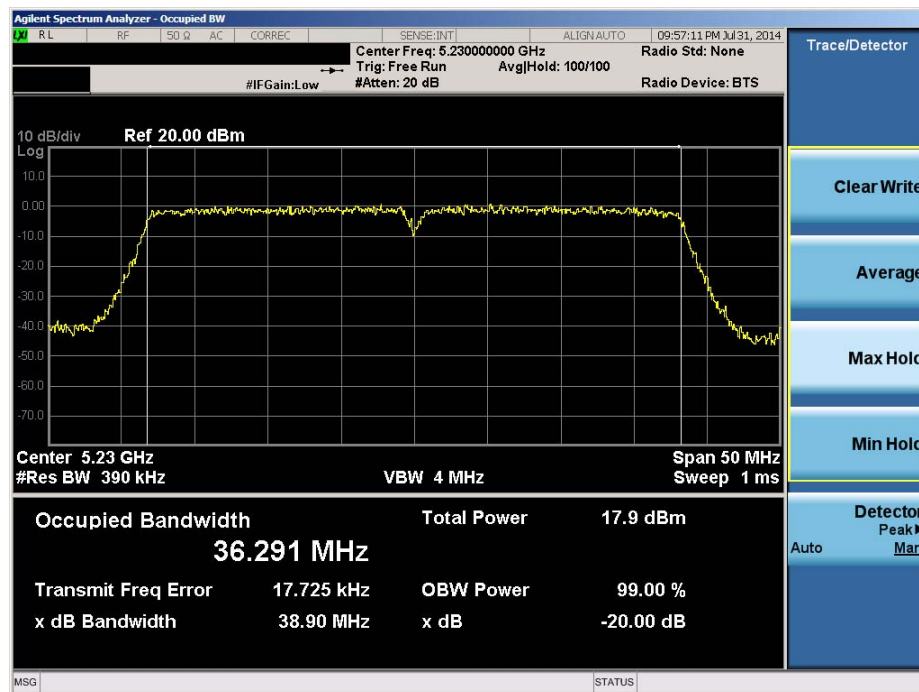
Note: The 20dB bandwidth plot of the UNII Band 1 high channel was found to be within 20MHz and is, therefore, operating solely within the UNII Band 1 frequencies.

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 46 of 182



Plot 6-65. 20dB Bandwidth Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 132)

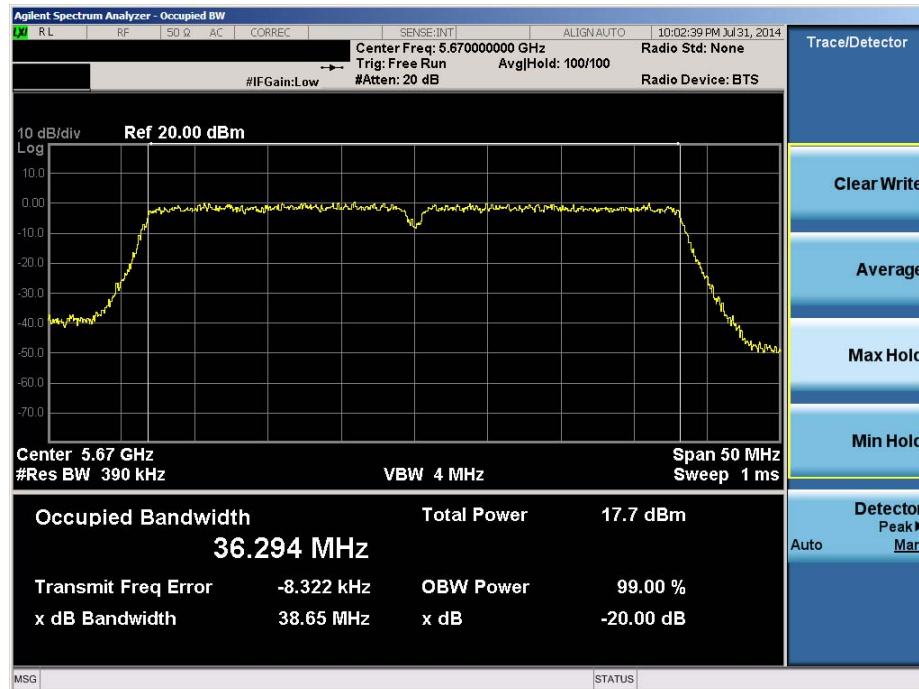
Note: The 20dB bandwidth plot of the UNII Band 2C channel 132 was found to be within 20MHz and is, therefore, is not found to be operating within the 5600 – 5650MHz TDWR band.



Plot 6-66. 20dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

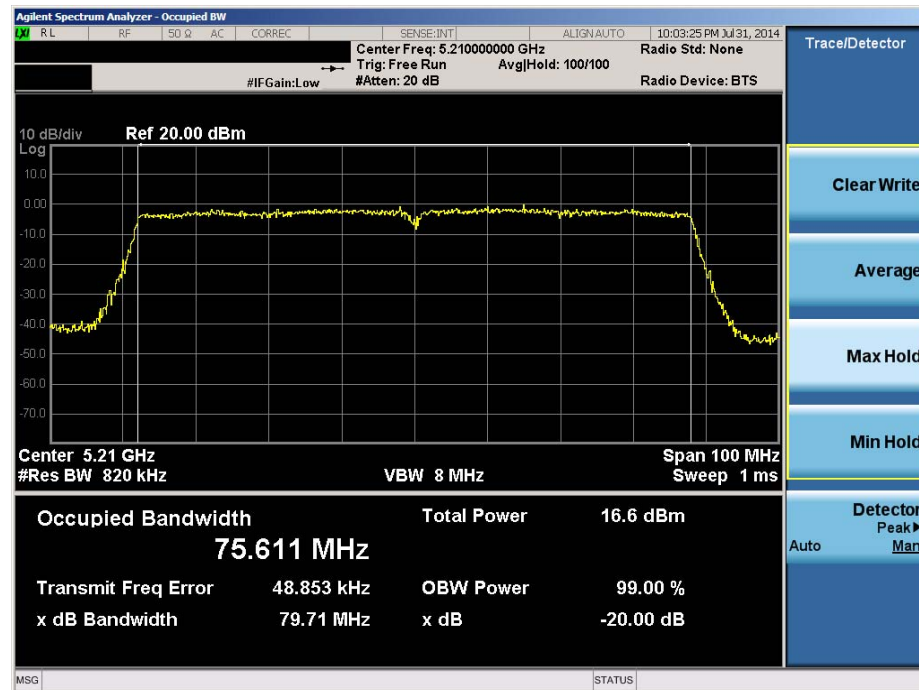
Note: The 20dB bandwidth plot of the UNII Band 1 high channel was found to be within 40MHz and is, therefore, operating solely within the UNII Band 1 frequencies.

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 47 of 182



Plot 6-67. 20dB Bandwidth Plot (40MHz BW 802.11n (UNII Band 2C) – Ch. 134)

Note: The 20dB bandwidth plot of the UNII Band 2C high channel was found to be within 40MHz and is, therefore, is not found to be operating within the 5600 – 5650MHz TDWR band.



Plot 6-68. 20dB Bandwidth Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

Note: The 20dB bandwidth plot of the UNII Band 1 high channel was found to be within 80MHz and is, therefore, operating solely within the UNII Band 1 frequencies.

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 48 of 182

6.3 UNII Output Power Measurement – 802.11a/n/ac §15.407 (a.1)

Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle (>98%), at its maximum power control level, as defined in KDB 789033 v01r04, and at the appropriate frequencies.

In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is the lesser of 50mW (16.99dBm) and $4 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 4 \text{ dBm} + 10\log_{10}(21.36) = 17.30\text{dBm}$.

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(21.43) = 24.31\text{dBm}$.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(21.39) = 24.30\text{dBm}$.

Test Procedure Used

KDB 789033 v01r04 – Section E)3)b) Method PM-G
KDB 662911 v02r01 – Section E)1) Measure-and-Sum Technique

Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

Test Setup

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

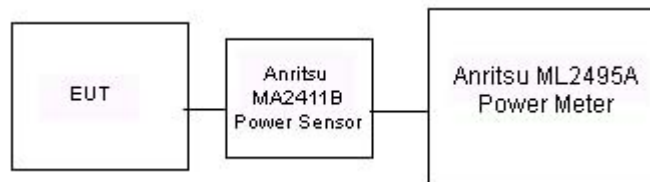


Figure 6-2. Test Instrument & Measurement Setup

Test Notes

None

FCC ID: A3LSMN910R4		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Antenna-1 Conducted Output Power Measurements

Mode	Freq [MHz]	Channel	Detector	802.11a Conducted Power [dBm]							
				Data Rate [Mbps]							
				6	9	12	18	24	36	48	54
802.11a	5180	36	AVG	11.50	11.75	11.63	11.61	11.70	11.67	11.65	11.82
802.11a	5200	40	AVG	11.50	11.67	11.60	11.53	11.69	11.67	11.63	11.80
802.11a	5220	44	AVG	11.51	11.72	11.52	11.52	11.76	11.75	11.64	11.77
802.11a	5240	48	AVG	11.59	11.69	11.58	11.76	11.75	11.68	11.75	11.80
802.11a	5260	52	AVG	11.71	11.92	11.81	11.83	11.92	12.03	11.84	12.05
802.11a	5280	56	AVG	11.87	11.86	11.85	11.84	11.97	12.07	12.03	12.13
802.11a	5300	60	AVG	11.91	11.88	11.80	11.86	11.98	11.97	11.96	12.11
802.11a	5320	64	AVG	11.94	12.03	11.87	11.76	12.07	12.00	12.02	12.15
802.11a	5500	100	AVG	11.86	11.91	11.85	11.88	12.03	12.02	12.10	12.10
802.11a	5520	104	AVG	11.92	11.96	11.90	11.92	12.14	12.02	12.11	12.07
802.11a	5540	108	AVG	11.89	12.11	11.99	11.88	12.10	12.03	12.17	12.14
802.11a	5560	112	AVG	11.99	12.06	12.02	11.86	12.18	12.07	12.20	12.11
802.11a	5580	116	AVG	12.00	12.09	11.98	11.98	12.23	12.08	12.23	12.18
802.11a	5660	132	AVG	11.91	12.02	12.03	11.98	12.07	12.09	12.16	12.23
802.11a	5680	136	AVG	11.98	12.16	11.98	11.91	12.12	12.04	12.22	12.16
802.11a	5700	140	AVG	11.82	12.03	11.98	11.96	12.12	12.05	11.94	12.10

Table 6-4. 802.11a (UNII) Maximum Conducted Output Power

Mode	Freq [MHz]	Channel	Detector	20MHz BW 802.11n (5GHz) Conducted Power [dBm]							
				Data Rate [Mbps]							
				6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	AVG	11.57	11.53	11.52	11.69	11.82	11.72	11.83	11.82
802.11n	5200	40	AVG	11.47	11.59	11.58	11.61	11.71	11.73	11.79	11.80
802.11n	5220	44	AVG	11.43	11.51	11.47	11.49	11.58	11.56	11.83	11.71
802.11n	5240	48	AVG	11.51	11.62	11.48	11.83	11.73	11.65	11.75	11.76
802.11n	5260	52	AVG	11.61	11.69	11.69	12.11	12.05	11.76	12.14	11.83
802.11n	5280	56	AVG	11.66	11.69	11.67	12.04	12.15	11.77	12.17	12.05
802.11n	5300	60	AVG	11.76	11.70	11.74	12.18	12.08	11.93	12.02	12.01
802.11n	5320	64	AVG	11.69	11.79	11.72	12.14	12.15	11.87	12.17	12.11
802.11n	5500	100	AVG	11.78	11.68	11.68	12.13	12.07	12.10	12.17	12.07
802.11n	5520	104	AVG	11.79	11.87	11.83	12.04	12.15	12.12	12.22	12.10
802.11n	5540	108	AVG	11.82	11.78	11.78	12.13	12.11	12.13	12.21	12.18
802.11n	5560	112	AVG	11.86	11.87	11.82	12.18	12.17	12.20	12.14	12.14
802.11n	5580	116	AVG	11.93	11.93	11.81	12.13	12.08	12.22	12.21	12.15
802.11n	5660	132	AVG	11.96	11.94	11.89	12.04	12.19	12.19	12.23	12.17
802.11n	5680	136	AVG	11.87	11.86	11.79	12.23	12.15	12.21	12.19	12.16
802.11n	5700	140	AVG	11.85	11.86	11.90	12.17	12.18	12.23	12.22	12.18

Table 6-5. 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN910R4		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)					Reviewed by: Quality Manager
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Mode	Freq [MHz]	Channel	Detector	40MHz BW 802.11n (5GHz) Conducted Power [dBm]							
				Data Rate [Mbps]							
				13.5	27	40.5	54	81	108	121.5	135
802.11n	5190	38	AVG	9.19	8.95	9.14	9.48	9.38	9.25	9.34	9.41
802.11n	5230	46	AVG	9.09	9.20	9.21	9.44	9.14	9.32	9.43	9.18
802.11n	5270	54	AVG	9.07	9.30	9.07	9.22	9.31	9.38	9.40	9.36
802.11n	5310	62	AVG	9.03	9.09	9.32	9.45	9.46	9.46	9.42	9.42
802.11n	5510	102	AVG	9.47	9.30	9.27	9.37	9.37	9.37	9.49	9.19
802.11n	5550	110	AVG	9.35	9.45	9.49	9.49	9.47	9.43	9.30	9.36
802.11n	5670	134	AVG	9.48	9.20	9.32	9.47	9.41	9.45	9.48	9.22

Table 6-6. 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

20MHz BW 802.11ac (5GHz) Conducted Power [dBm]				
Mode	Freq [MHz]	Channel	Detector	Data Rate
				6.5 Mbps
802.11ac	5180	36	AVG	11.62
802.11ac	5200	40	AVG	11.52
802.11ac	5240	48	AVG	11.52
802.11ac	5260	52	AVG	11.77
802.11ac	5280	56	AVG	11.73
802.11ac	5320	64	AVG	11.77
802.11ac	5500	100	AVG	11.86
802.11ac	5580	116	AVG	11.97
802.11ac	5700	140	AVG	11.98

Table 6-7. 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

40MHz BW 802.11ac (5GHz) Conducted Power [dBm]				
Mode	Freq [MHz]	Channel	Detector	Data Rate
				13.5 Mbps
802.11ac	5190	38	AVG	9.13
802.11ac	5230	46	AVG	9.02
802.11ac	5270	54	AVG	9.01
802.11ac	5310	62	AVG	9.09
802.11ac	5510	102	AVG	9.18
802.11ac	5550	110	AVG	9.32
802.11ac	5670	134	AVG	9.34

Table 6-7. 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power

Mode	Freq [MHz]	Channel	Detector	80MHz BW 802.11ac (5GHz) Conducted Power [dBm]									
				Data Rate [Mbps]									
				29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
802.11ac	5210	42	AVG	9.88	9.71	9.61	9.99	10.07	9.94	9.89	9.95	10.04	10.02
802.11ac	5290	58	AVG	9.96	9.71	9.65	10.10	10.10	10.01	9.92	10.04	10.13	10.15
802.11ac	5530	106	AVG	9.92	9.98	9.95	10.01	10.13	9.93	9.87	9.97	10.06	10.05

Table 6-8. 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN910R4		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)					Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset				Page 51 of 182	

Antenna-2 Conducted Output Power Measurements

Mode	Freq [MHz]	Channel	Detector	802.11a Conducted Power [dBm]							
				Data Rate [Mbps]							
				6	9	12	18	24	36	48	54
802.11a	5180	36	AVG	11.75	11.79	11.83	11.87	11.91	12.02	12.01	12.10
802.11a	5200	40	AVG	11.92	11.75	11.71	11.84	12.11	12.13	12.12	12.12
802.11a	5220	44	AVG	11.75	11.81	11.76	11.75	11.92	12.06	11.88	12.07
802.11a	5240	48	AVG	11.59	11.54	11.63	11.63	11.72	12.02	11.97	11.92
802.11a	5260	52	AVG	11.54	11.55	11.34	11.44	11.68	11.73	11.74	11.74
802.11a	5280	56	AVG	11.37	11.33	11.36	11.36	11.52	11.53	11.68	11.72
802.11a	5300	60	AVG	11.24	11.38	11.23	11.29	11.31	11.50	11.59	11.55
802.11a	5320	64	AVG	11.23	11.07	11.18	11.18	11.44	11.56	11.36	11.51
802.11a	5500	100	AVG	11.40	11.38	11.30	11.25	11.90	11.64	11.74	11.84
802.11a	5520	104	AVG	11.45	11.48	11.45	11.56	11.91	11.71	11.64	12.06
802.11a	5540	108	AVG	11.53	11.15	11.19	11.41	11.96	11.66	11.58	11.98
802.11a	5560	112	AVG	11.49	11.37	11.22	11.38	11.80	11.55	11.63	11.93
802.11a	5580	116	AVG	11.41	11.25	11.25	11.47	11.95	11.72	11.39	11.94
802.11a	5660	132	AVG	11.54	11.35	11.32	11.62	11.95	11.54	11.71	11.91
802.11a	5680	136	AVG	11.68	11.33	11.54	11.40	12.09	11.49	11.77	12.10
802.11a	5700	140	AVG	11.92	11.49	11.43	11.49	12.02	11.86	11.89	12.12

Table 6-9. 802.11a (UNII) Maximum Conducted Output Power

Mode	Freq [MHz]	Channel	Detector	20MHz BW 802.11n (5GHz) Conducted Power [dBm]							
				Data Rate [Mbps]							
				6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	AVG	11.96	11.94	11.87	12.02	12.07	12.05	12.08	12.07
802.11n	5200	40	AVG	11.96	11.78	11.99	12.06	12.13	12.00	12.06	12.11
802.11n	5220	44	AVG	11.86	11.86	11.97	12.03	12.09	12.04	12.10	12.15
802.11n	5240	48	AVG	11.83	11.83	11.92	11.94	12.11	11.91	12.10	12.13
802.11n	5260	52	AVG	11.56	11.50	11.53	11.68	11.76	11.74	11.69	11.71
802.11n	5280	56	AVG	11.67	11.63	11.57	11.69	11.76	11.72	11.72	11.71
802.11n	5300	60	AVG	11.55	11.54	11.51	11.76	11.74	11.70	11.67	11.71
802.11n	5320	64	AVG	11.47	11.51	11.42	11.66	11.61	11.62	11.56	11.59
802.11n	5500	100	AVG	11.24	11.28	11.29	11.81	11.56	11.59	11.44	11.65
802.11n	5520	104	AVG	11.38	11.30	11.31	11.68	11.55	11.63	11.72	11.63
802.11n	5540	108	AVG	11.38	11.41	11.39	11.59	11.63	11.66	11.73	11.56
802.11n	5560	112	AVG	11.32	11.51	11.20	11.68	11.63	11.52	11.57	11.63
802.11n	5580	116	AVG	11.54	11.42	11.45	11.54	11.71	11.54	11.57	11.48
802.11n	5660	132	AVG	11.52	11.45	11.46	11.79	11.78	11.79	11.86	11.73
802.11n	5680	136	AVG	11.70	11.61	11.63	11.74	11.88	11.87	11.78	11.74
802.11n	5700	140	AVG	11.51	11.40	11.49	11.77	11.82	11.73	11.67	11.61

Table 6-10. 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN910R4		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)					Reviewed by: Quality Manager
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Mode	Freq [MHz]	Channel	Detector	40MHz BW 802.11n (5GHz) Conducted Power [dBm]							
				Data Rate [Mbps]							
				13.5	27	40.5	54	81	108	121.5	135
802.11n	5190	38	AVG	9.29	9.26	9.41	9.40	9.41	9.26	9.35	9.24
802.11n	5230	46	AVG	9.27	9.34	9.15	9.49	9.32	9.40	9.19	9.27
802.11n	5270	54	AVG	8.94	8.96	8.93	9.34	9.19	9.17	9.31	9.22
802.11n	5310	62	AVG	8.73	8.99	8.82	8.90	9.11	9.10	9.21	9.22
802.11n	5510	102	AVG	8.80	8.93	8.75	8.99	9.27	9.14	9.43	9.21
802.11n	5550	110	AVG	8.80	9.02	8.88	8.95	9.06	9.02	9.30	9.26
802.11n	5670	134	AVG	8.77	9.04	9.05	9.17	9.25	9.22	9.35	9.28

Table 6-11. 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

20MHz BW 802.11ac (5GHz) Conducted Power [dBm]				
Mode	Freq [MHz]	Channel	Detector	Data Rate
				6.5 Mbps
802.11ac	5180	36	AVG	12.00
802.11ac	5200	40	AVG	11.90
802.11ac	5240	48	AVG	11.66
802.11ac	5260	52	AVG	11.55
802.11ac	5280	56	AVG	11.44
802.11ac	5320	64	AVG	11.53
802.11ac	5500	100	AVG	11.51
802.11ac	5580	116	AVG	11.47
802.11ac	5700	140	AVG	11.70

Table 6-12. 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

40MHz BW 802.11ac (5GHz) Conducted Power [dBm]				
Mode	Freq [MHz]	Channel	Detector	Data Rate
				13.5 Mbps
802.11ac	5190	38	AVG	9.00
802.11ac	5230	46	AVG	9.12
802.11ac	5270	54	AVG	8.61
802.11ac	5310	62	AVG	8.45
802.11ac	5510	102	AVG	8.54
802.11ac	5550	110	AVG	8.64
802.11ac	5670	134	AVG	8.67

Table 6-7. 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power

Mode	Freq [MHz]	Channel	Detector	80MHz BW 802.11ac (5GHz) Conducted Power [dBm]									
				Data Rate [Mbps]									
				29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
802.11ac	5210	42	AVG	10.04	9.95	9.98	10.17	10.24	10.15	10.26	10.12	10.21	10.19
802.11ac	5290	58	AVG	9.59	9.54	9.60	9.77	9.76	9.64	9.80	9.61	9.79	9.71
802.11ac	5530	106	AVG	9.50	9.43	9.55	9.59	9.72	9.72	9.68	9.71	9.66	9.62

Table 6-13. 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

MIMO Maximum Conducted Output Power Measurements

Mode	Freq [MHz]	Channel	Detector	MCS8		
				ANT1	ANT2	MIMO
802.11n	5180	36	AVG	11.57	11.96	14.78
802.11n	5200	40	AVG	11.47	11.96	14.73
802.11n	5220	44	AVG	11.43	11.86	14.66
802.11n	5240	48	AVG	11.51	11.83	14.68
802.11n	5260	52	AVG	11.61	11.56	14.60
802.11n	5280	56	AVG	11.66	11.67	14.67
802.11n	5300	60	AVG	11.76	11.55	14.67
802.11n	5320	64	AVG	11.69	11.47	14.59
802.11n	5500	100	AVG	11.78	11.24	14.53
802.11n	5520	104	AVG	11.79	11.38	14.60
802.11n	5540	108	AVG	11.82	11.38	14.62
802.11n	5560	112	AVG	11.86	11.32	14.61
802.11n	5580	116	AVG	11.93	11.54	14.75
802.11n	5660	132	AVG	11.96	11.52	14.75
802.11n	5680	136	AVG	11.87	11.70	14.80
802.11n	5700	140	AVG	11.85	11.51	14.69

Table 6-14. MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

Mode	Freq [MHz]	Channel	Detector	MCS8		
				ANT1	ANT2	MIMO
802.11n	5190	38	AVG	9.19	9.29	12.25
802.11n	5230	46	AVG	9.09	9.27	12.19
802.11n	5270	54	AVG	9.07	8.94	12.02
802.11n	5310	62	AVG	9.03	8.73	11.89
802.11n	5510	102	AVG	9.47	8.80	12.16
802.11n	5550	110	AVG	9.35	8.80	12.09
802.11n	5670	134	AVG	9.48	8.77	12.15

Table 6-15. MIMO 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

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20MHz BW 802.11ac (5GHz) Conducted Power [dBm]						
Mode	Freq [MHz]	Channel	Detector	MCS0		
				ANT1	ANT2	MIMO
802.11ac	5180	36	AVG	11.62	12.00	14.82
802.11ac	5200	40	AVG	11.52	11.90	14.72
802.11ac	5240	48	AVG	11.52	11.66	14.60
802.11ac	5260	52	AVG	11.77	11.55	14.67
802.11ac	5280	56	AVG	11.73	11.44	14.60
802.11ac	5320	64	AVG	11.77	11.53	14.66
802.11ac	5500	100	AVG	11.86	11.51	14.70
802.11ac	5580	116	AVG	11.97	11.47	14.73
802.11ac	5700	140	AVG	11.98	11.70	14.85

Table 6-16. MIMO 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

40MHz BW 802.11ac (5GHz) Conducted Power [dBm]						
Mode	Freq [MHz]	Channel	Detector	MCS0		
				ANT1	ANT2	MIMO
802.11ac	5190	38	AVG	9.13	9.00	12.08
802.11ac	5230	46	AVG	9.02	9.12	12.08
802.11ac	5270	54	AVG	9.01	8.61	11.82
802.11ac	5310	62	AVG	9.09	8.45	11.80
802.11ac	5510	102	AVG	9.18	8.54	11.88
802.11ac	5550	110	AVG	9.32	8.64	12.00
802.11ac	5670	134	AVG	9.34	8.67	12.03

Table 6-7. MIMO 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power

Mode	Freq [MHz]	Channel	Detector	MCS0		
				ANT1	ANT2	MIMO
802.11ac	5210	42	AVG	9.88	10.04	12.97
802.11ac	5290	58	AVG	9.96	9.59	12.79
802.11ac	5530	106	AVG	9.92	9.50	12.72

Table 6-17. MIMO 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

Note:

Per KDB 662911 v02r01 Section E)1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Sample MIMO Calculation:

At 5180MHz the average conducted output power was measured to be 11.57 dBm for Antenna-1 and 11.96 dBm for Antenna-2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

$$(11.57 \text{ dBm} + 11.96 \text{ dBm}) = (14.36 \text{ mW} + 15.70 \text{ mW}) = 30.06 \text{ mW} = 14.78 \text{ dBm}$$

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6.4 Maximum Power Spectral Density – 802.11a/n/ac §15.407(a.1)(2.5)

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle (>98%), at its maximum power control level, as defined in KDB 789033 v01r04, and at the appropriate frequencies. Method SA-1, as defined in KDB 789033 v01r04, was used to measure the power spectral density.

In the 5.15 – 5.25GHz band, the maximum permissible power spectral density is 4dBm/MHz.

In the 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

Test Procedure Used

KDB 789033 v01r04 – Section F
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points $\geq 2 \times (\text{span}/\text{RBW})$
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run since the EUT was operating at a duty cycle $\geq 98\%$
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

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

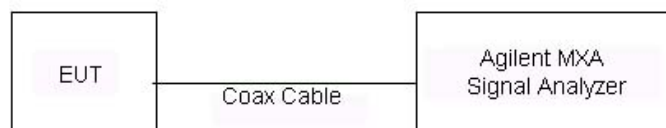


Figure 6-3. Test Instrument & Measurement Setup

Test Notes

None

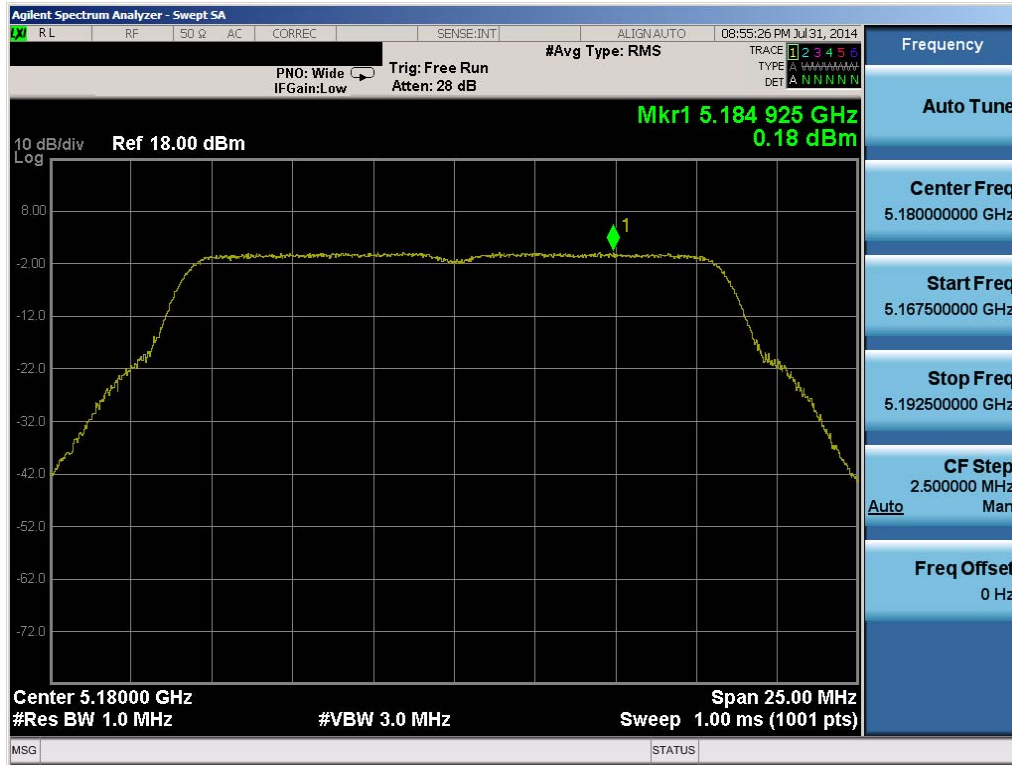
FCC ID: A3LSMN910R4		FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Antenna-1 Power Spectral Density Measurements

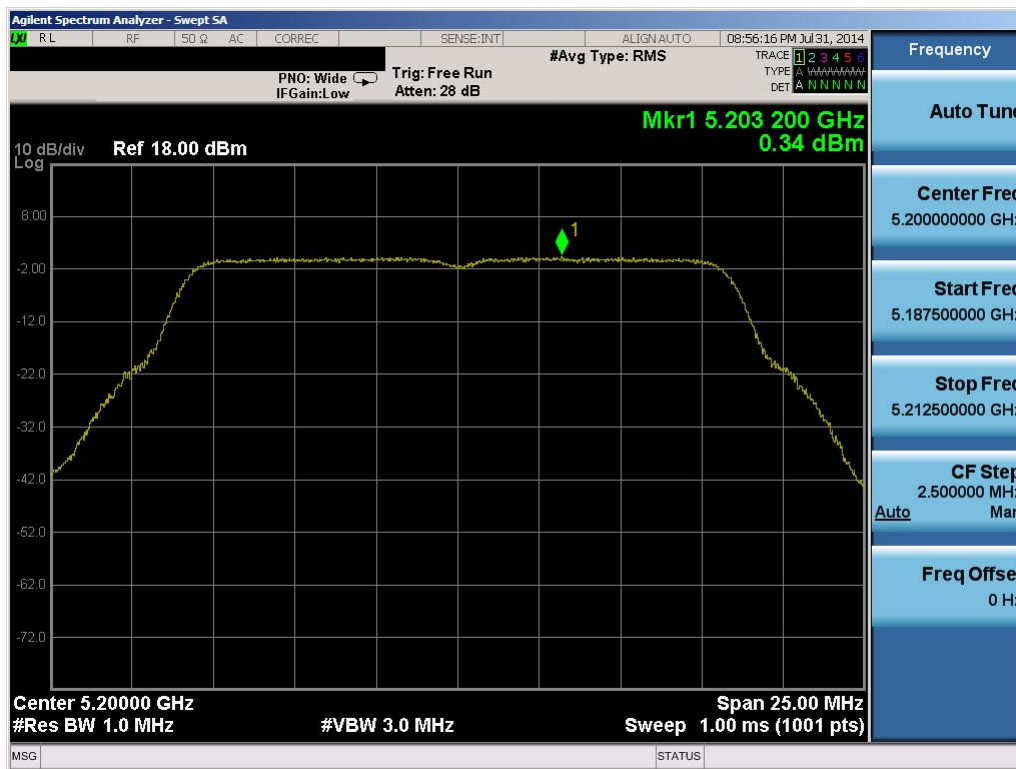
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/MHz]	Margin [dB]	Pass / Fail
Band 1	5180	36	a	6	0.18	4.0	-3.82	Pass
	5200	40	a	6	0.34	4.0	-3.66	Pass
	5240	48	a	6	0.25	4.0	-3.75	Pass
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	0.33	4.0	-3.67	Pass
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	0.16	4.0	-3.85	Pass
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	0.22	4.0	-3.78	Pass
	5190	38	n (40MHz)	13.5/15 (MCS0)	-3.46	4.0	-7.46	Pass
	5230	46	n (40MHz)	13.5/15 (MCS0)	-3.50	4.0	-7.50	Pass
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-8.06	4.0	-12.06	Pass
Band 2A	5260	52	a	6	0.32	11.0	-10.68	Pass
	5280	56	a	6	0.69	11.0	-10.31	Pass
	5320	64	a	6	0.64	11.0	-10.37	Pass
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	0.54	11.0	-10.46	Pass
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	0.52	11.0	-10.48	Pass
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	0.52	11.0	-10.48	Pass
	5270	54	n (40MHz)	13.5/15 (MCS0)	-3.31	11.0	-14.31	Pass
	5310	62	n (40MHz)	13.5/15 (MCS0)	-3.30	11.0	-14.30	Pass
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-7.87	11.0	-18.87	Pass
Band 2C	5500	100	a	6	1.40	11.0	-9.60	Pass
	5580	116	a	6	1.55	11.0	-9.45	Pass
	5700	140	a	6	1.72	11.0	-9.28	Pass
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	1.57	11.0	-9.44	Pass
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	1.60	11.0	-9.40	Pass
	5700	140	n (20MHz)	6.5/7.2 (MCS0)	1.58	11.0	-9.43	Pass
	5510	102	n (40MHz)	13.5/15 (MCS0)	-2.34	11.0	-13.34	Pass
	5550	110	n (40MHz)	13.5/15 (MCS0)	-2.49	11.0	-13.49	Pass
	5670	134	n (40MHz)	13.5/15 (MCS0)	-2.32	11.0	-13.32	Pass
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-6.91	11.0	-17.91	Pass

Table 6-18. Conducted Power Spectral Density Measurements

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Plot 6-69. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 36)

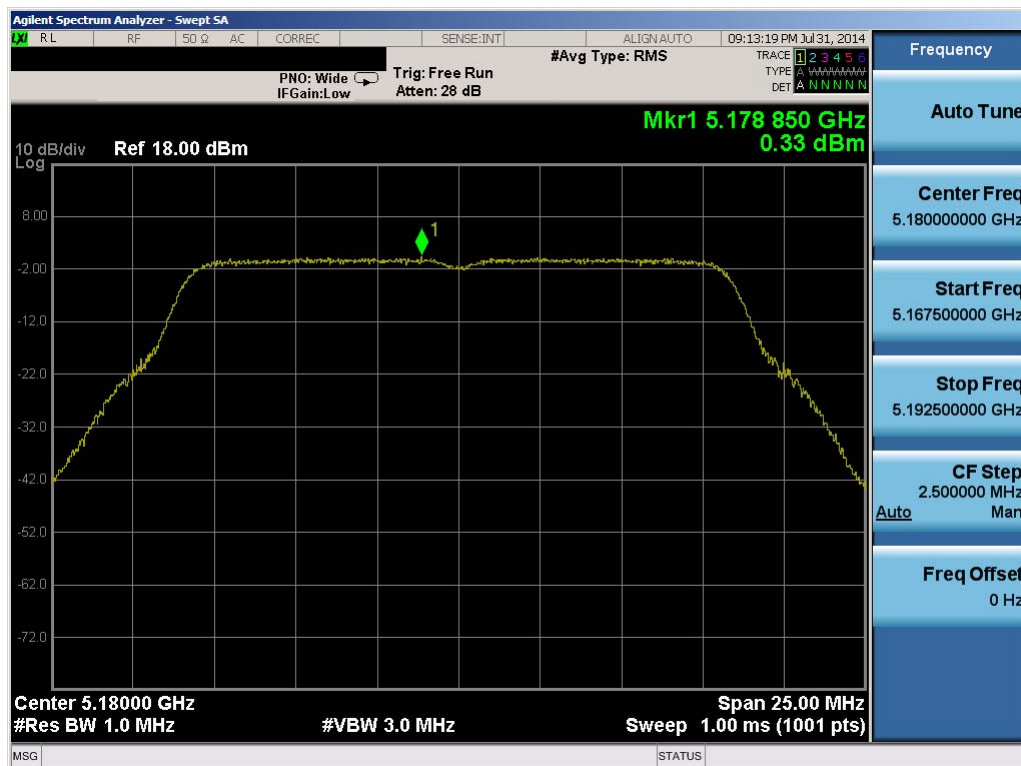


Plot 6-70. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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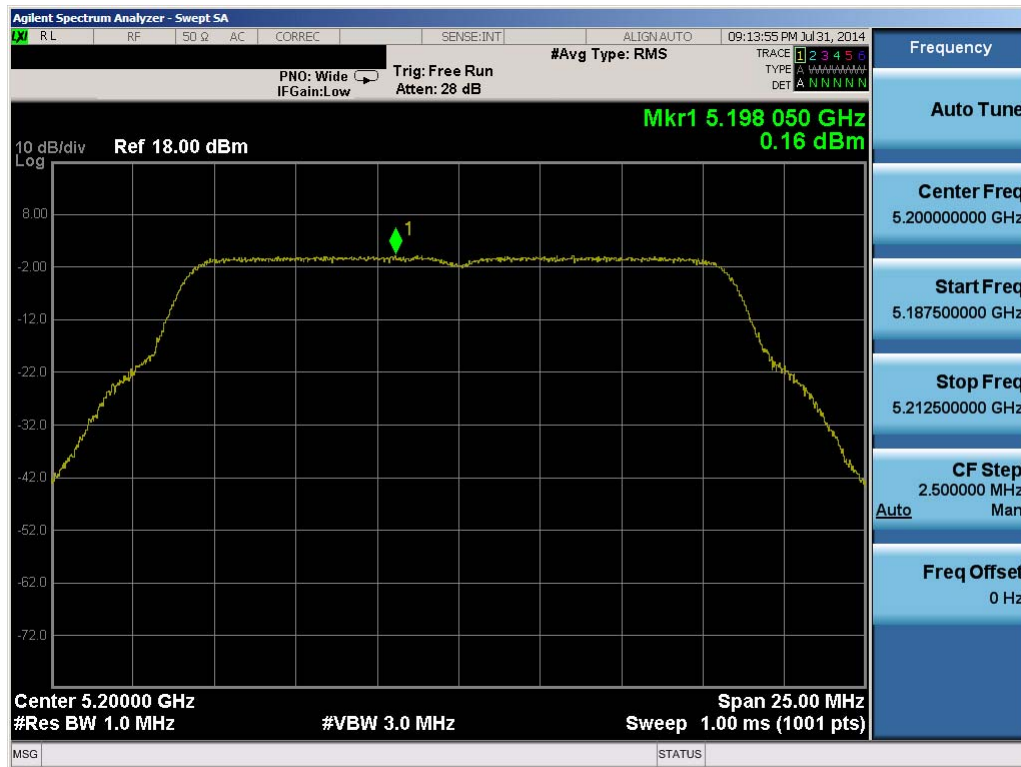


Plot 6-71. Peak Power Spectral Density Plot (802.11a (UNII Band 1) – Ch. 48)

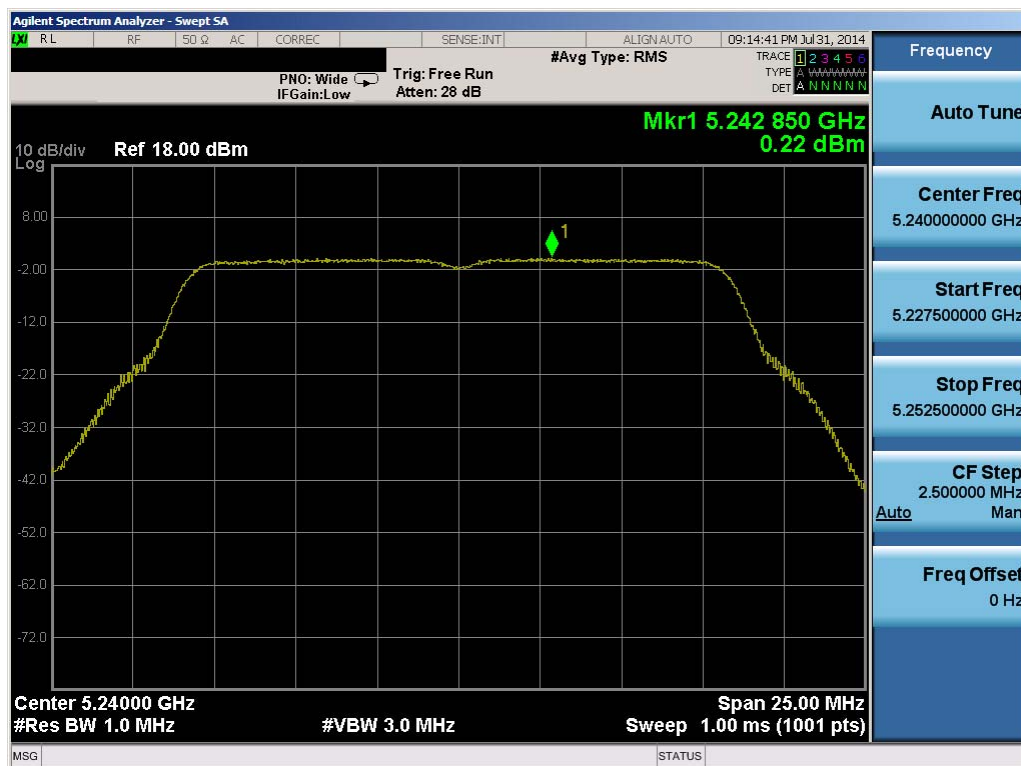


Plot 6-72. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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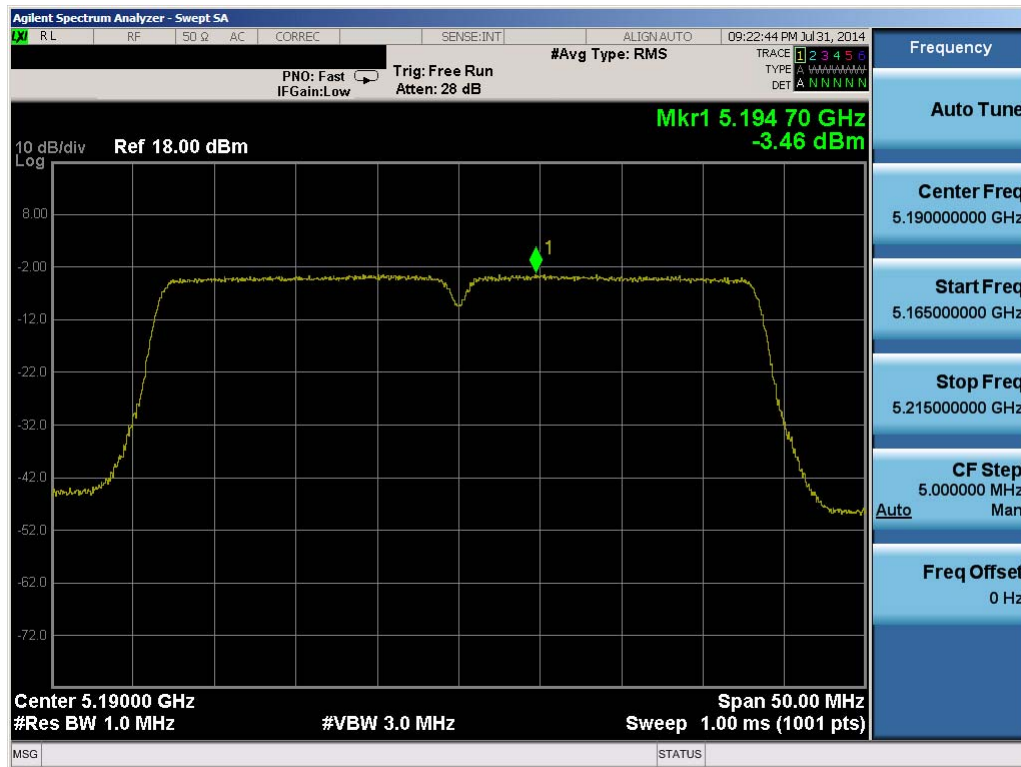


Plot 6-73. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

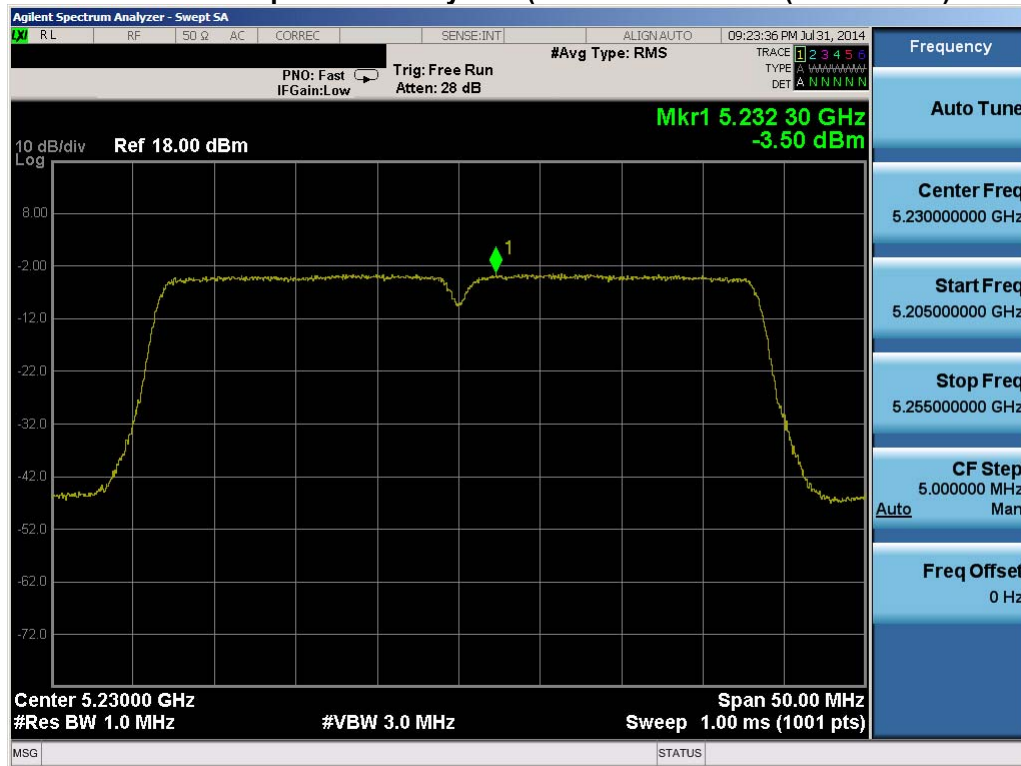


Plot 6-74. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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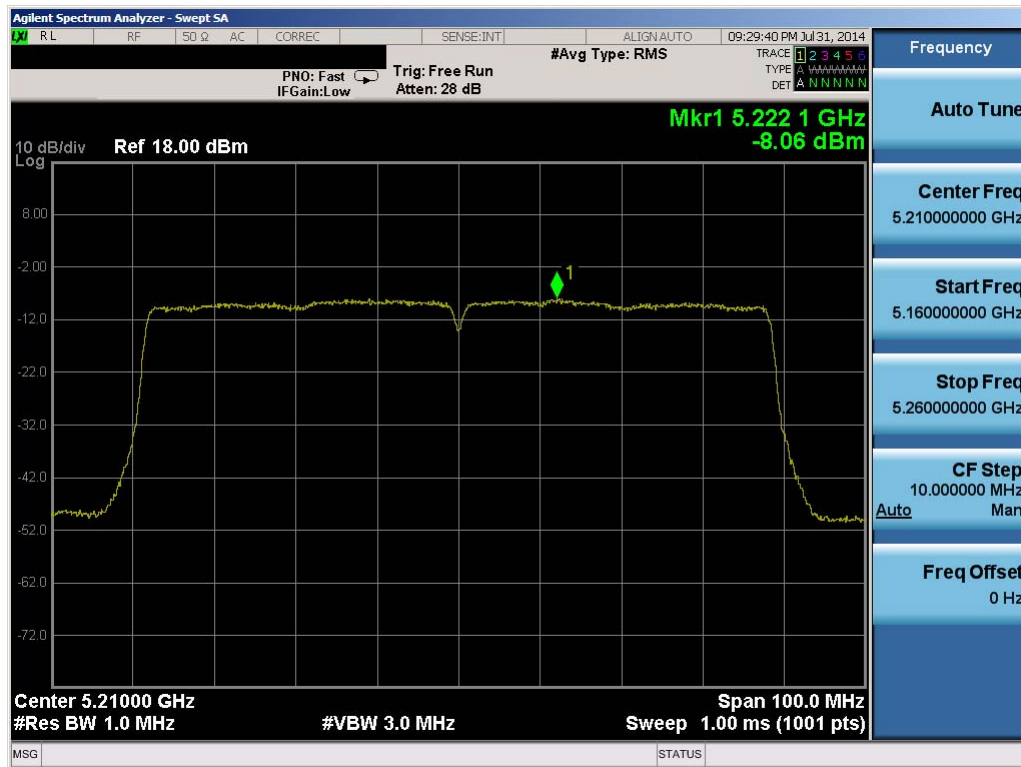


Plot 6-75. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

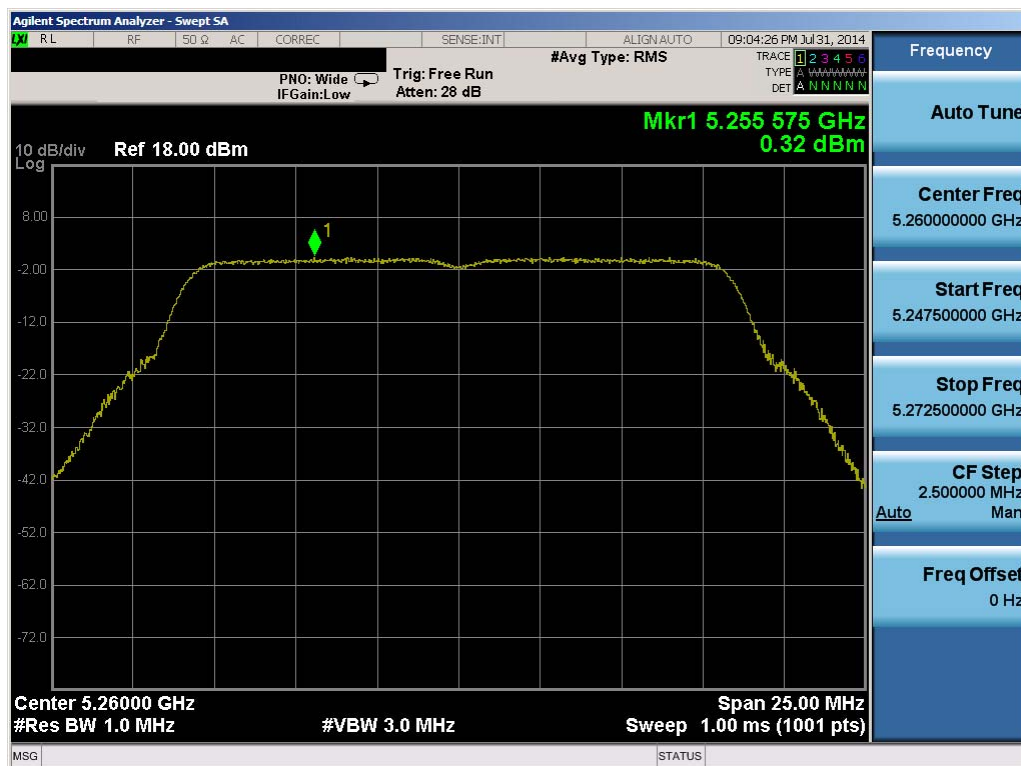


Plot 6-76. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-77. Peak Power Spectral Density Plot (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)



Plot 6-78. Peak Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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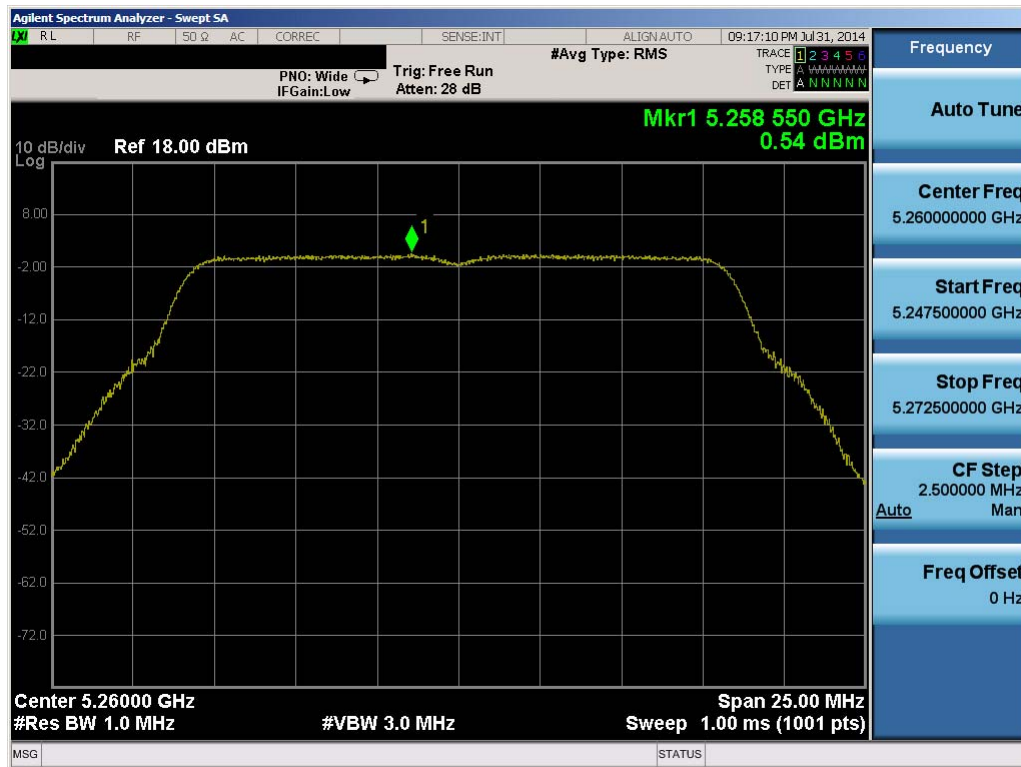


Plot 6-79. Peak Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 56)

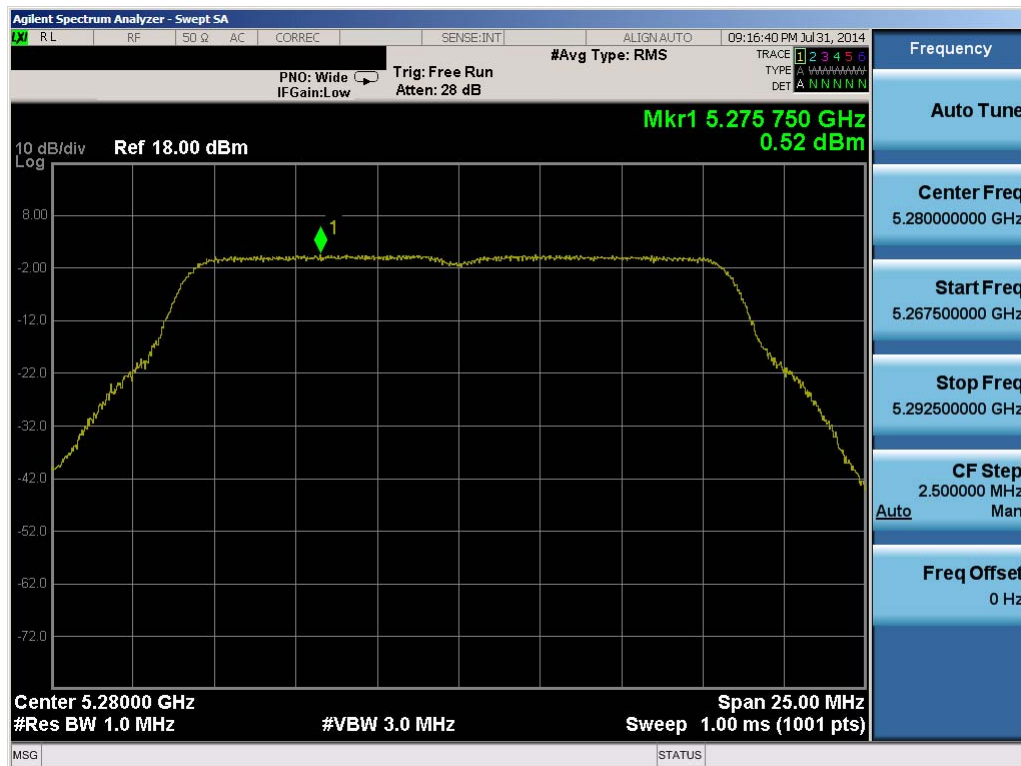


Plot 6-80. Peak Power Spectral Density Plot (802.11a (UNII Band 2A) – Ch. 64)

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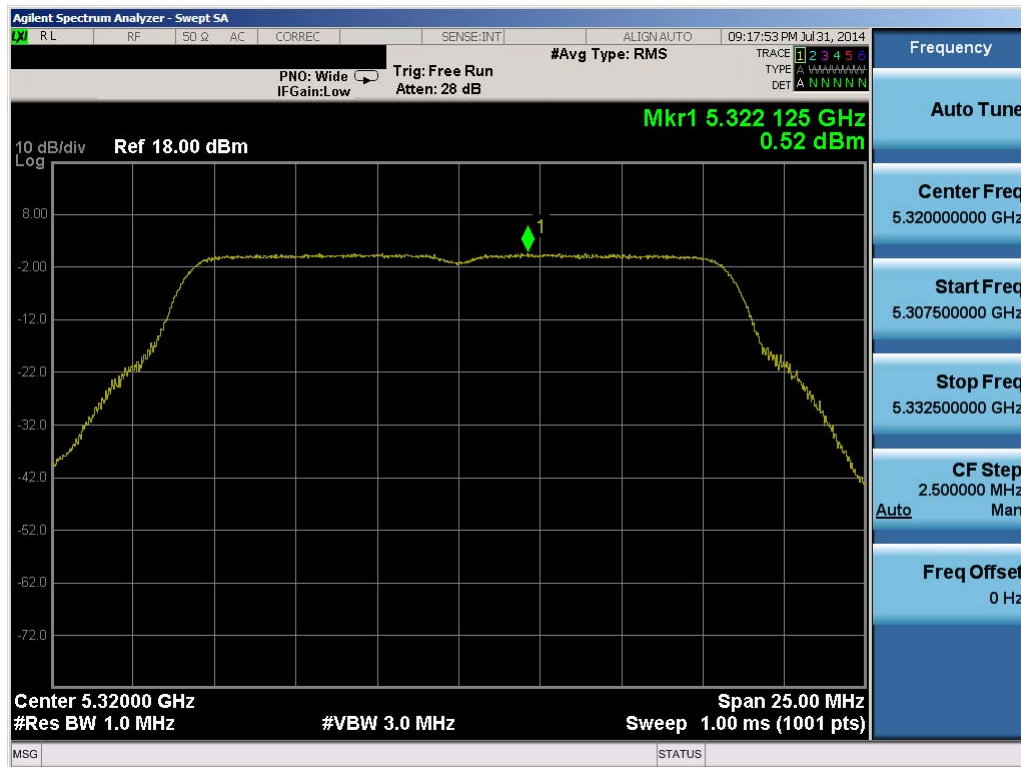


Plot 6-81. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

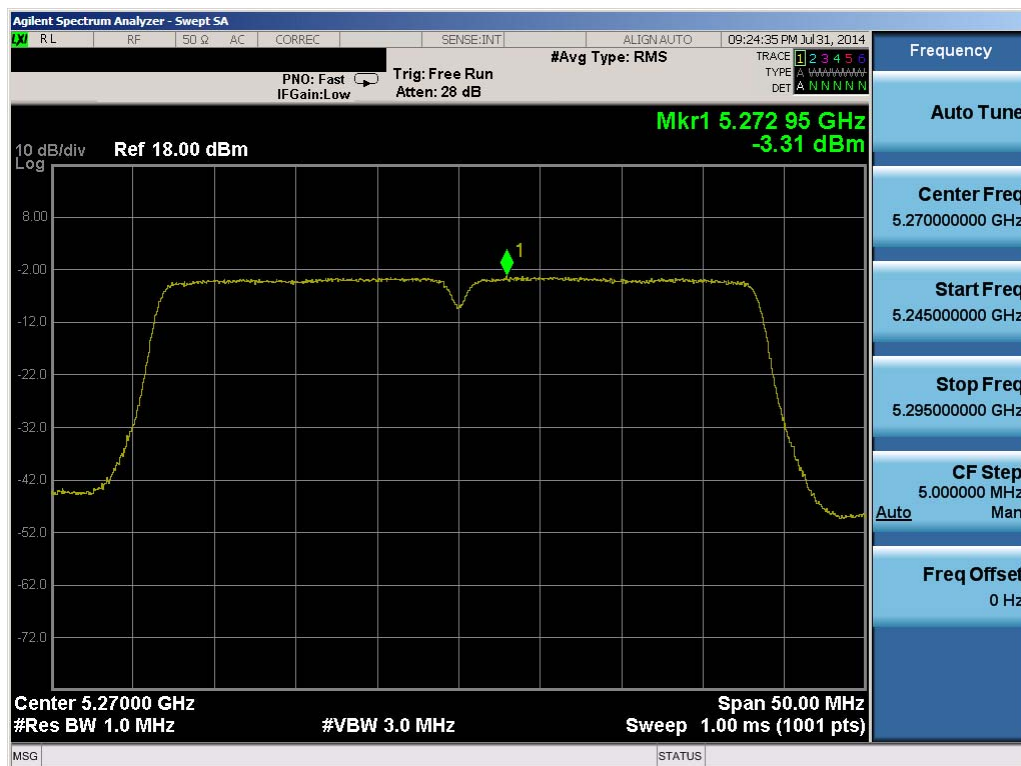


Plot 6-82. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 64 of 182

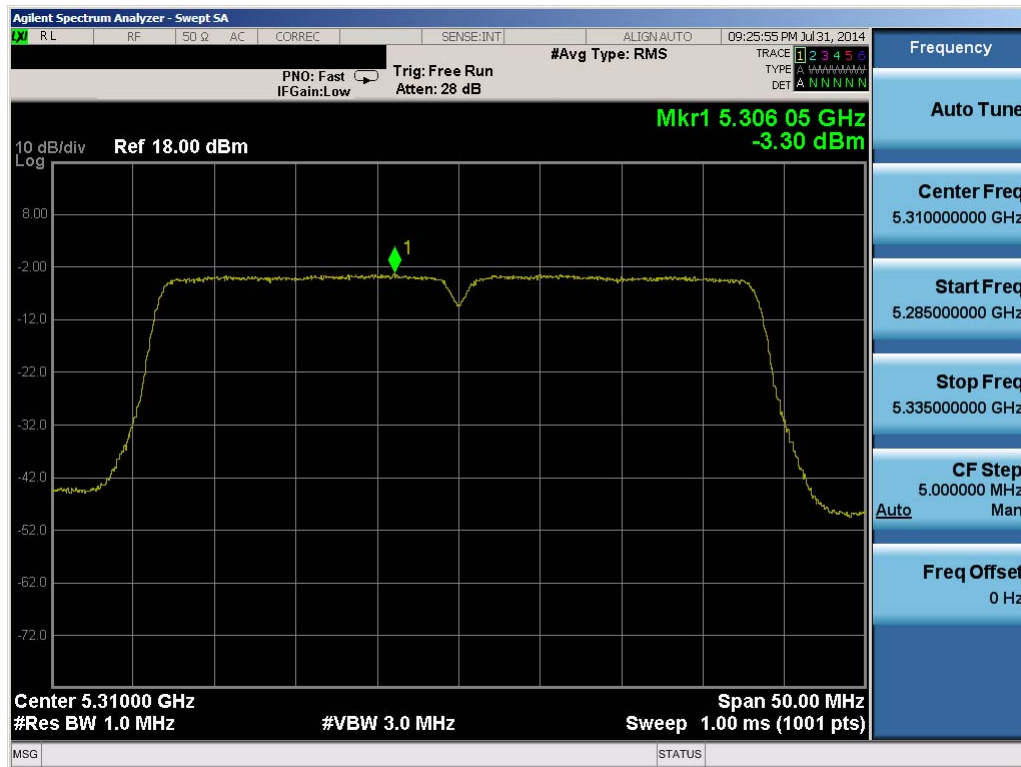


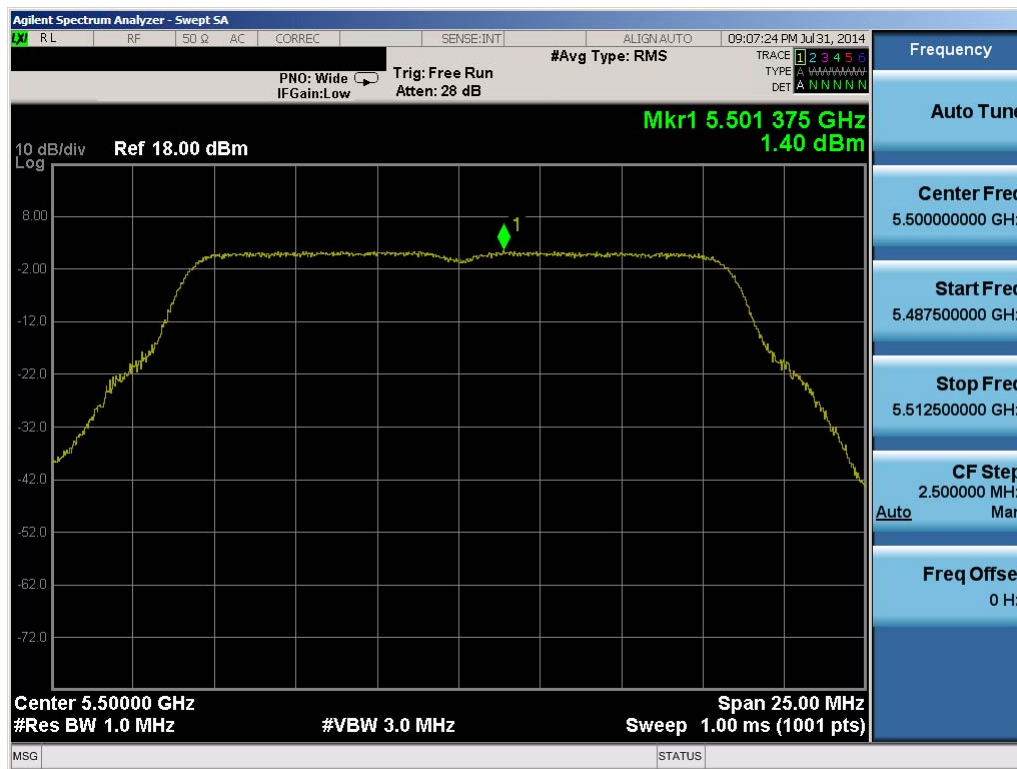
Plot 6-83. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)



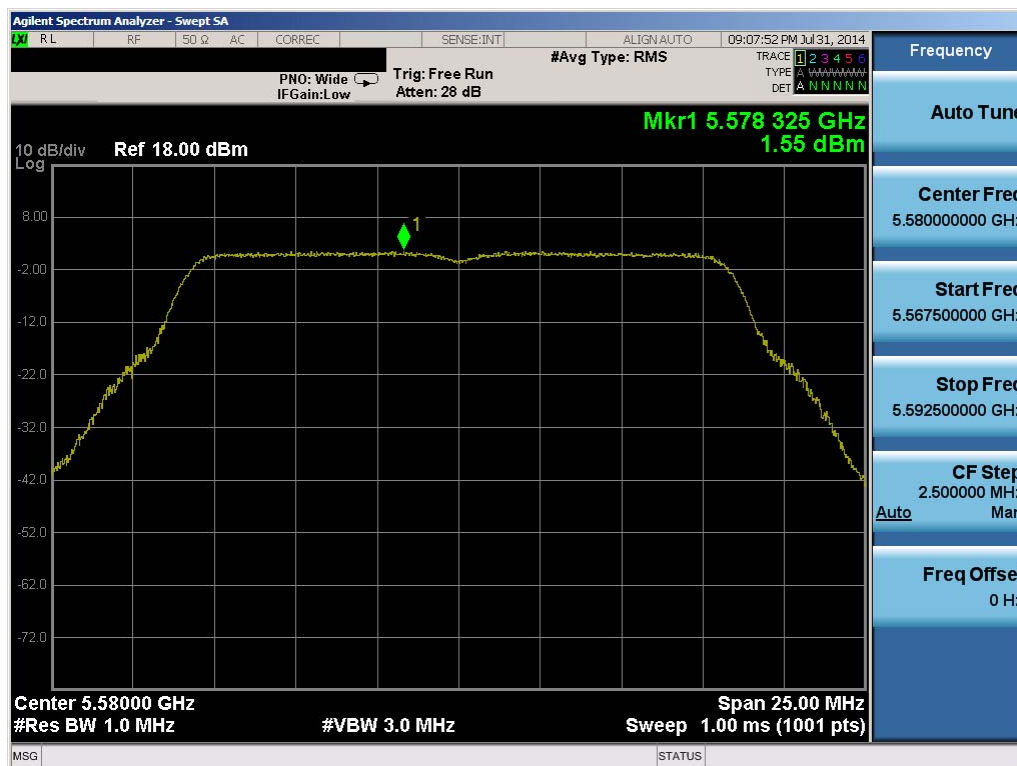
Plot 6-84. Peak Power Spectral Density Plot (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 65 of 182



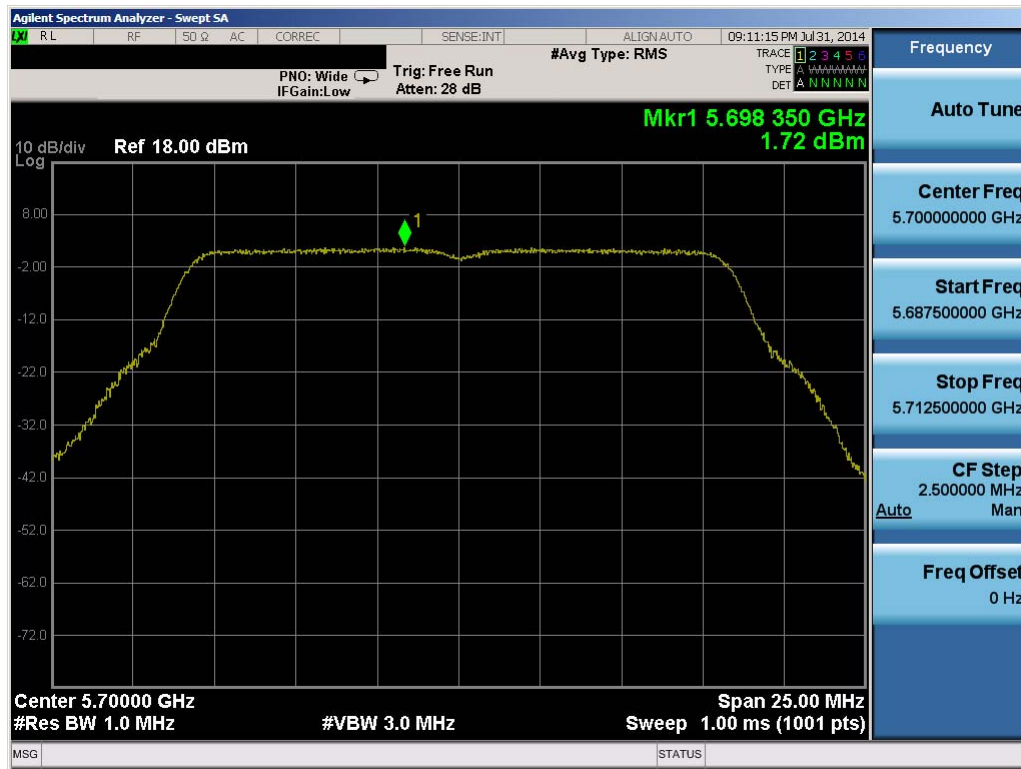


Plot 6-87. Peak Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 100)

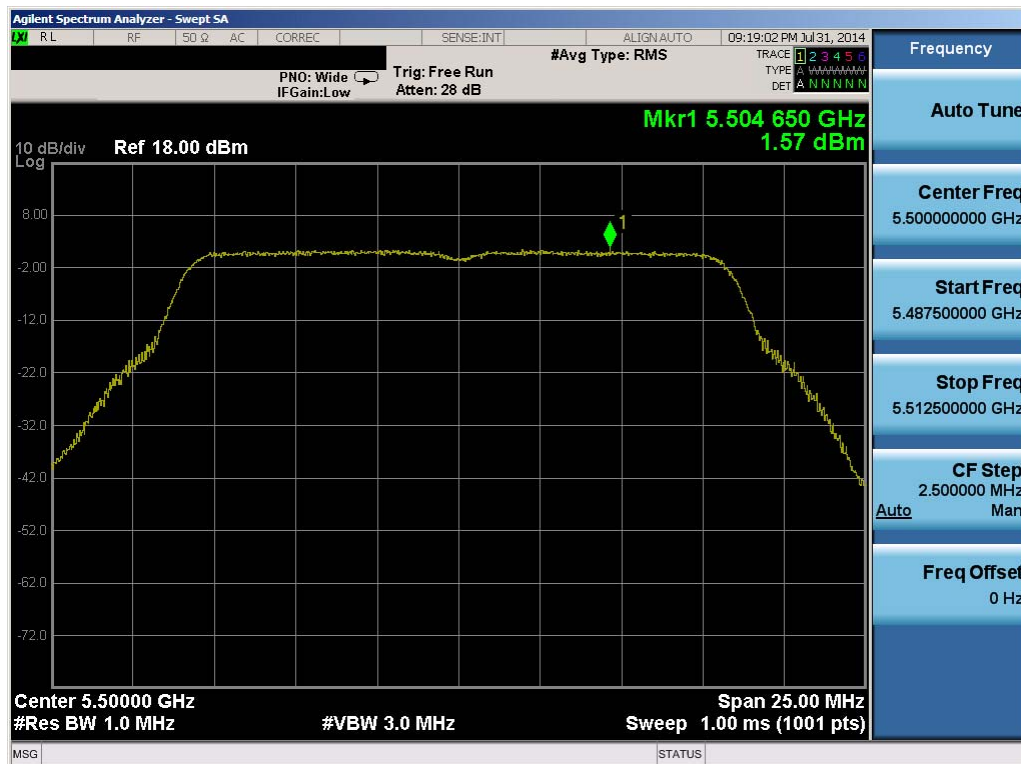


Plot 6-88. Peak Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 116)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 67 of 182

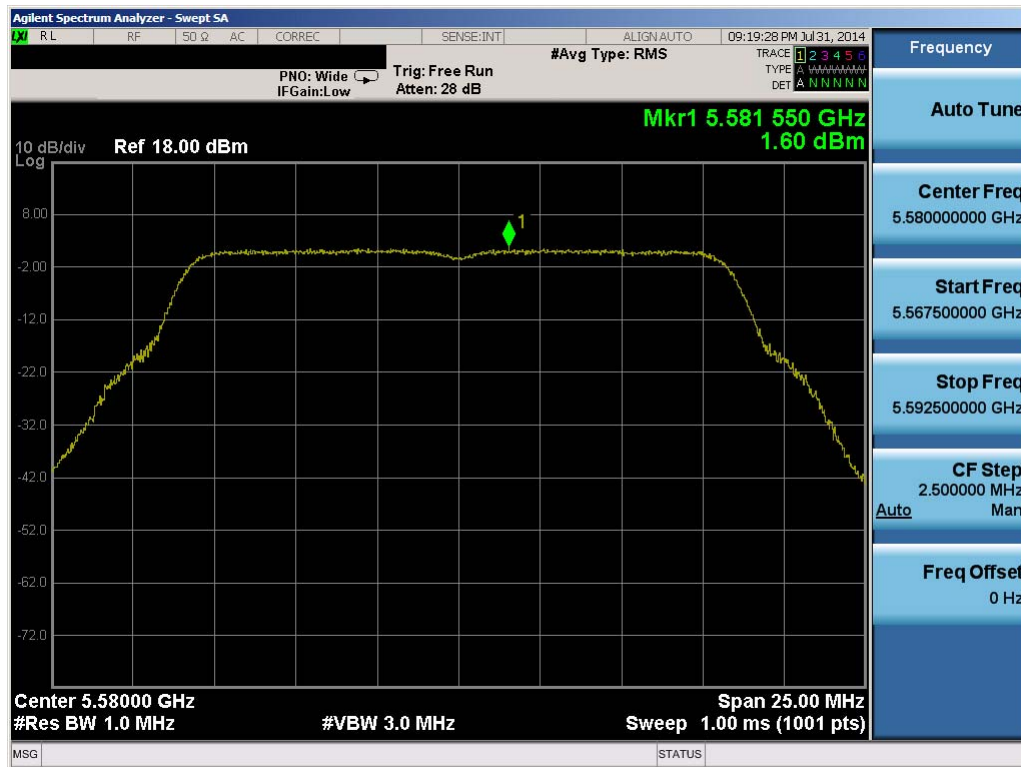


Plot 6-89. Peak Power Spectral Density Plot (802.11a (UNII Band 2C) – Ch. 140)



Plot 6-90. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 68 of 182



Plot 6-91. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 116)



Plot 6-92. Peak Power Spectral Density Plot (20MHz BW 802.11n (UNII Band 2C) – Ch. 140)

FCC ID: A3LSMN910R4	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 802.11a/n/ac UNII MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1408051620.A3L	Test Dates: 07/29-09/1/2014	EUT Type: Portable Handset		Page 69 of 182

