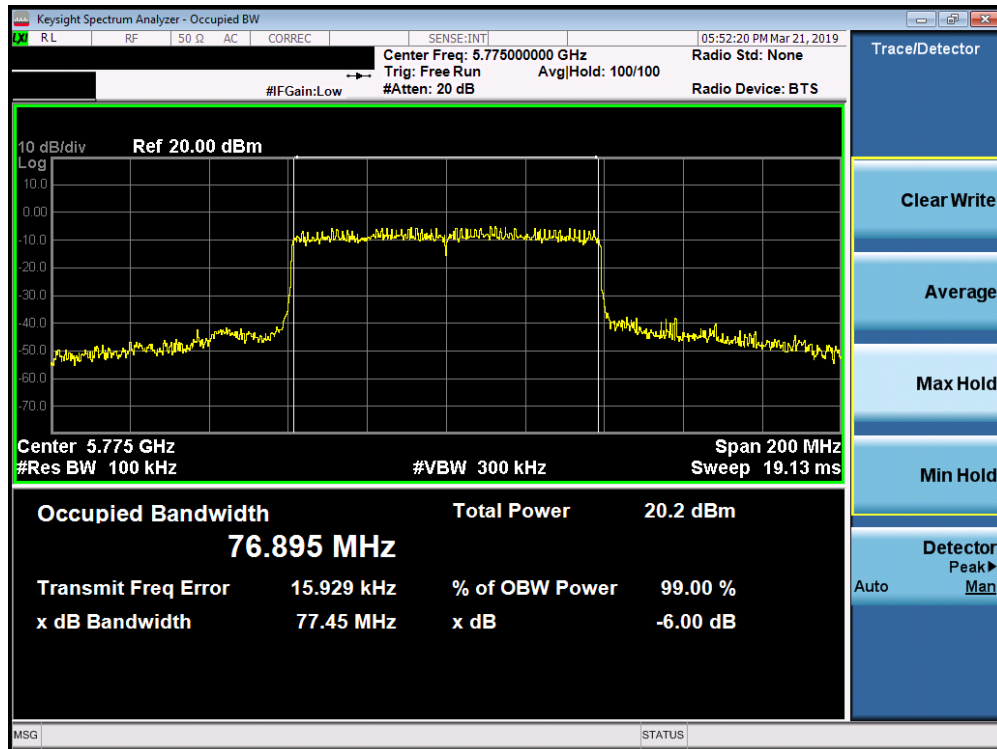




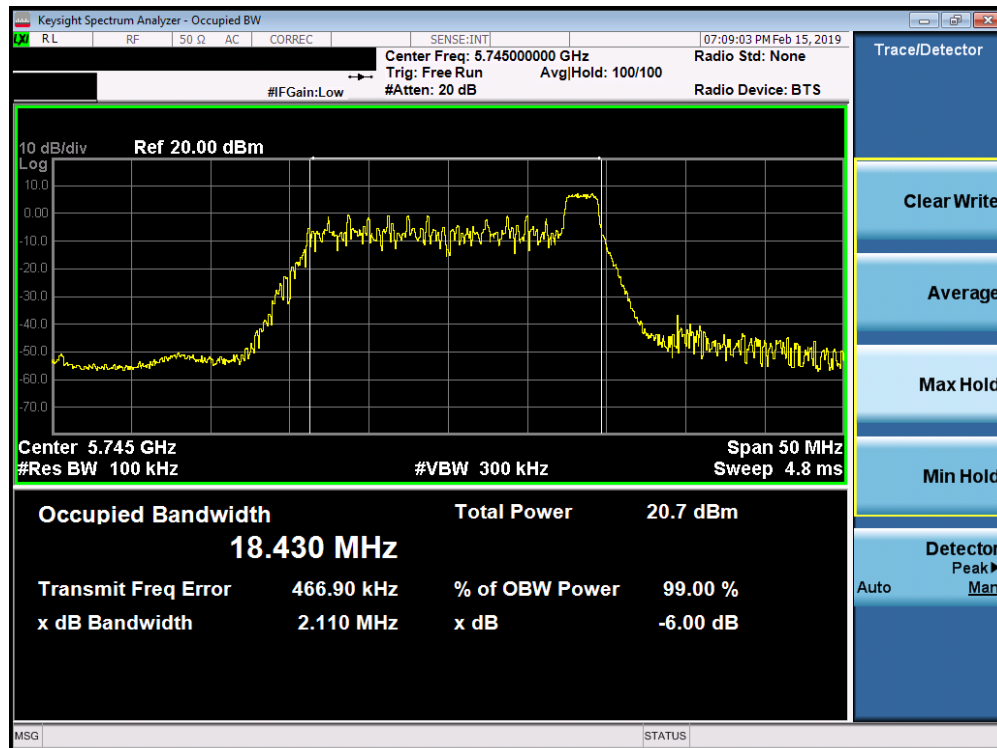
Plot 7-96. 6dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 72 of 285

SISO Antenna-2 6dB Bandwidth Measurements (26 Tones)

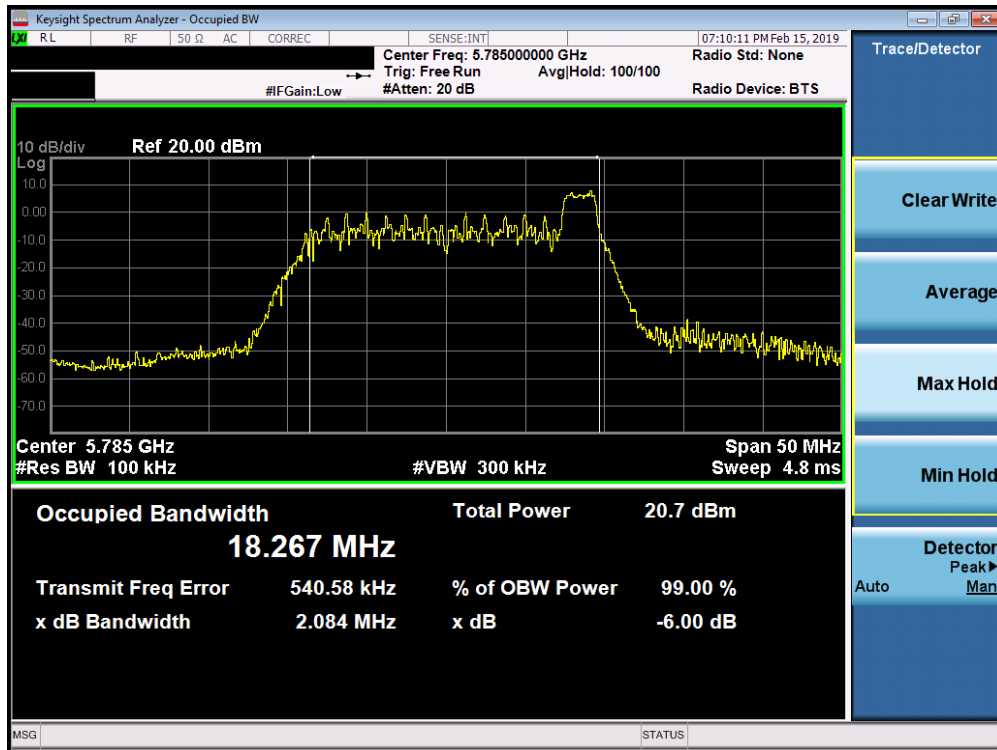
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3	5745	149	ax (20MHz)	26T	MCS0	2.11
	5785	157	ax (20MHz)	26T	MCS0	2.08
	5825	165	ax (20MHz)	26T	MCS0	2.67
	5755	151	ax (40MHz)	26T	MCS0	2.12
	5795	159	ax (40MHz)	26T	MCS0	2.08
	5775	155	ax (80MHz)	26T	MCS0	2.29

Table 7-8. Conducted Bandwidth Measurements SISO ANT2 (26 Tones)

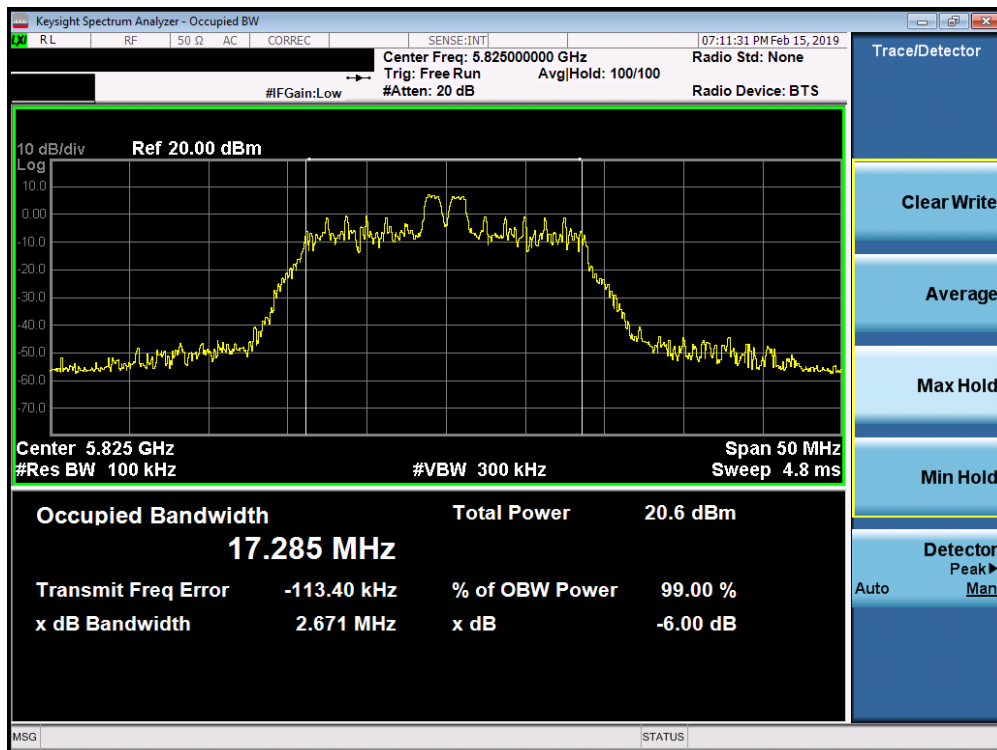


Plot 7-97. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 149)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 73 of 285

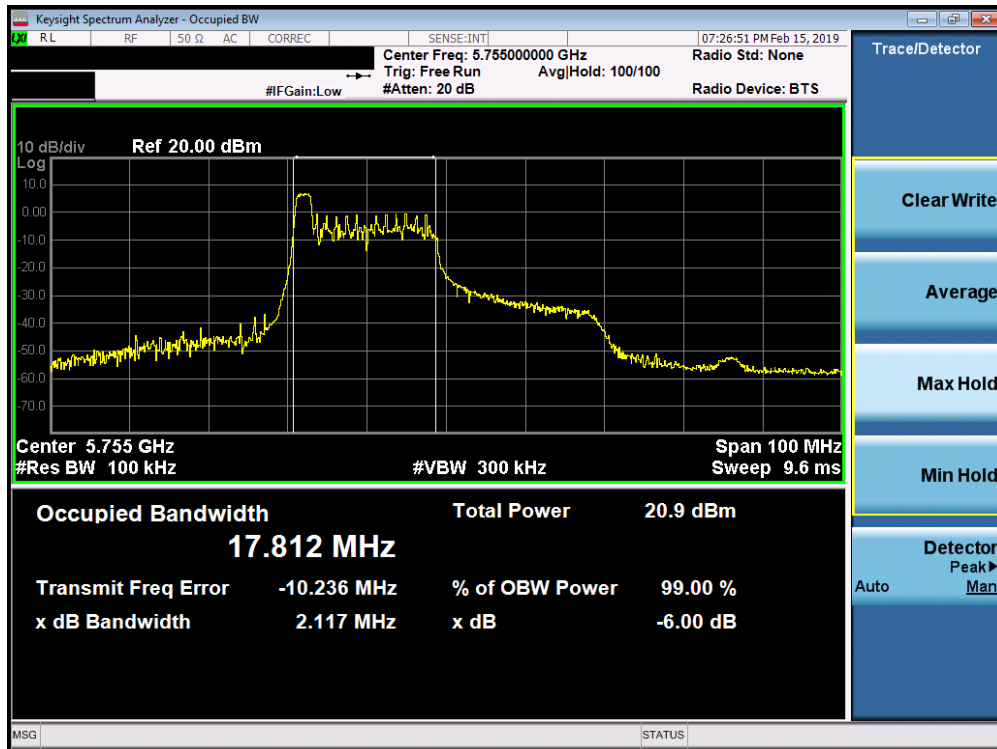


Plot 7-98. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

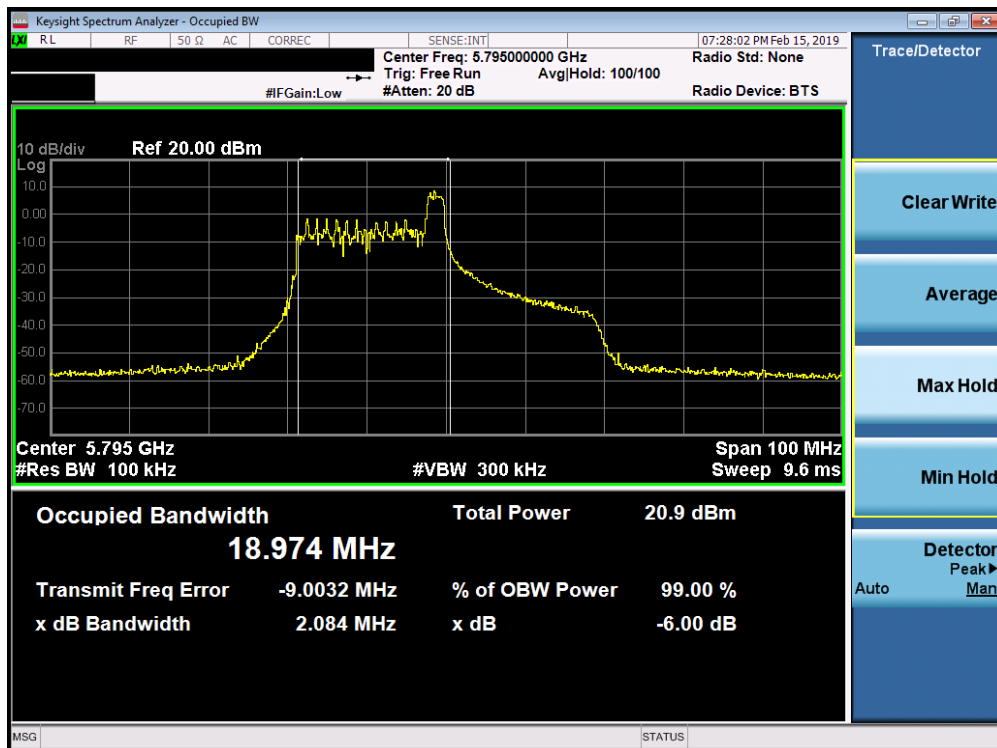


Plot 7-99. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 74 of 285

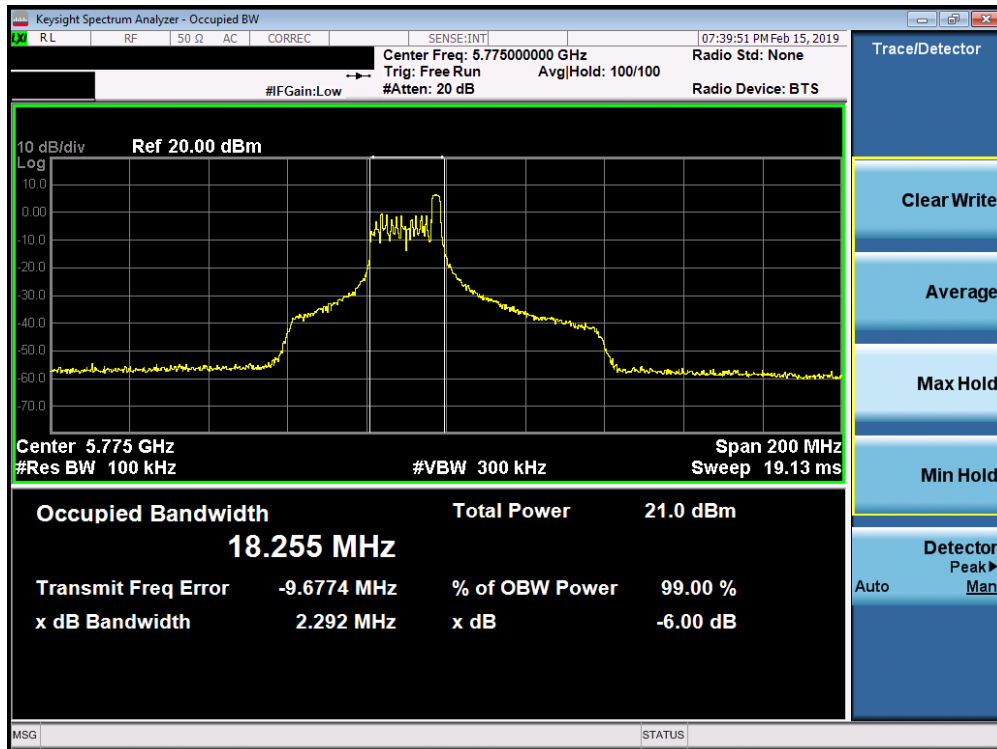


Plot 7-100. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-101. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 75 of 285



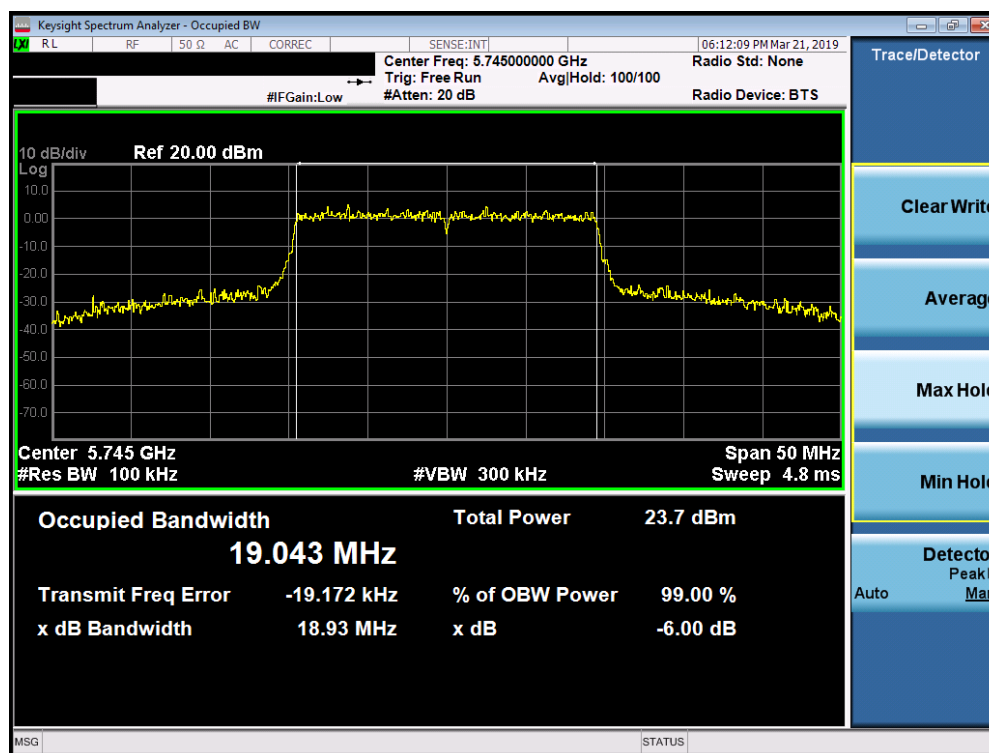
Plot 7-102. 6dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 76 of 285

SISO Antenna-2 6 dB Bandwidth Measurements (Full Tones)

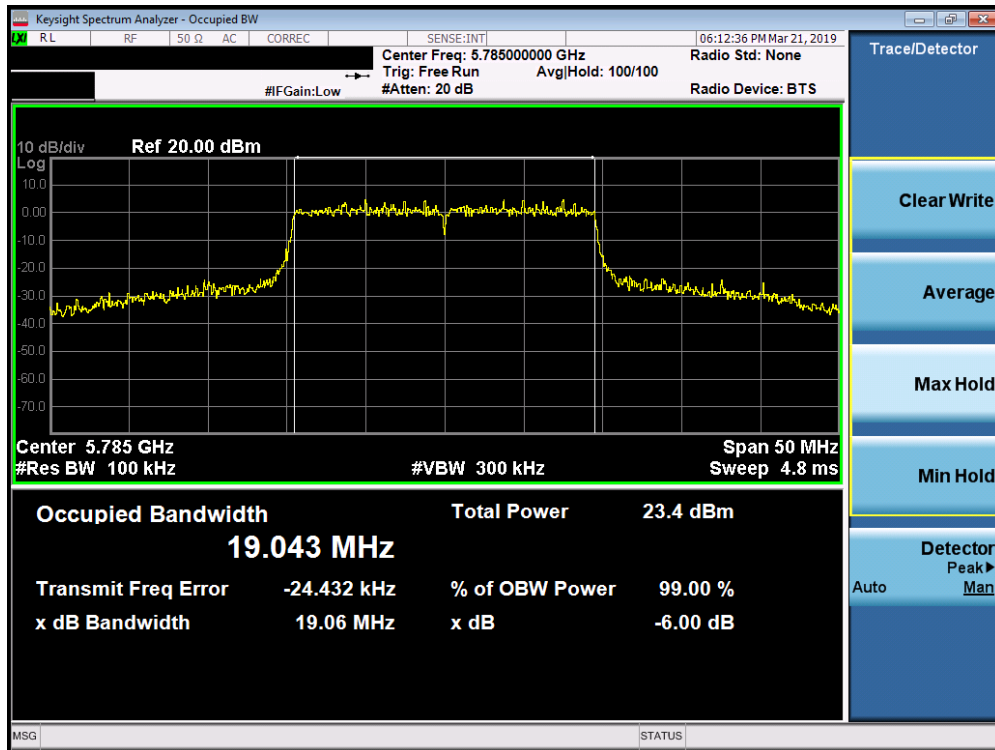
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3	5745	149	ax (20MHz)	242T	MCS0	18.93
	5785	157	ax (20MHz)	242T	MCS0	19.06
	5825	165	ax (20MHz)	242T	MCS0	18.98
	5755	151	ax (40MHz)	484T	MCS0	37.07
	5795	159	ax (40MHz)	484T	MCS0	37.42
	5775	155	ax (80MHz)	996T	MCS0	77.60

Table 7-9. Conducted Bandwidth Measurements SISO ANT2 (Full Tones)

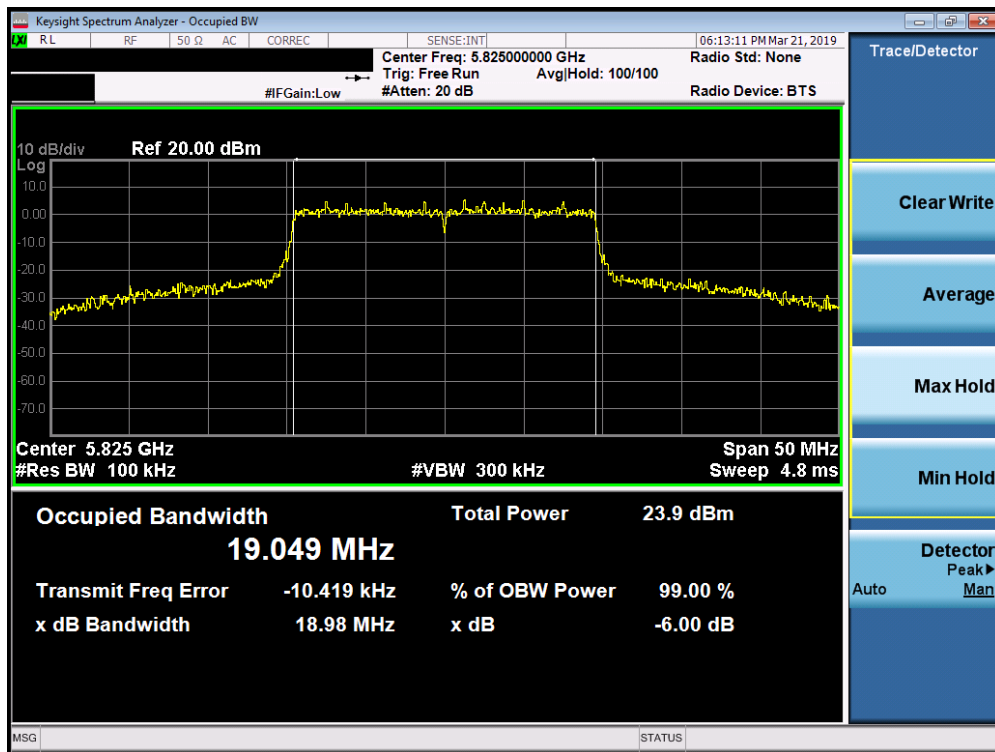


Plot 7-103. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 77 of 285

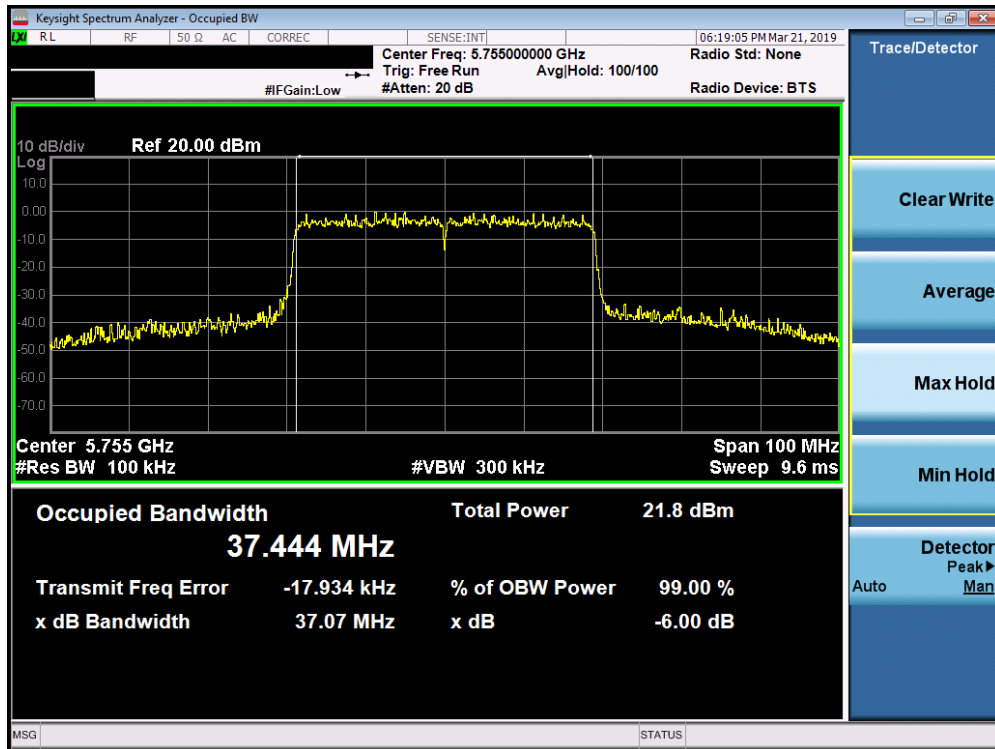


Plot 7-104. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

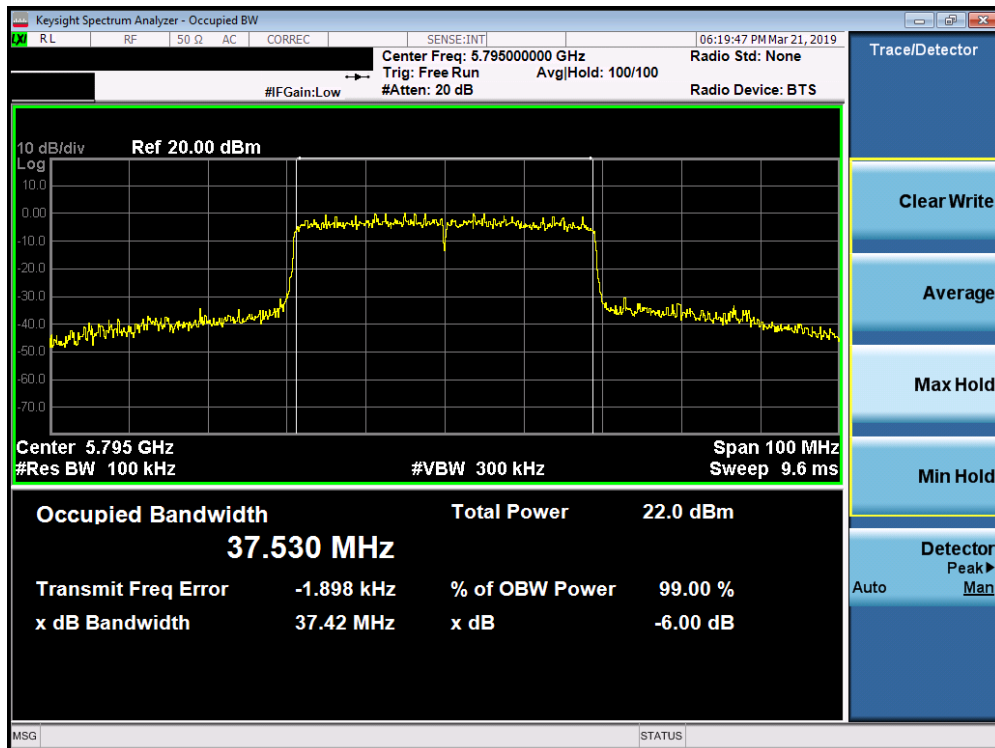


Plot 7-105. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 78 of 285

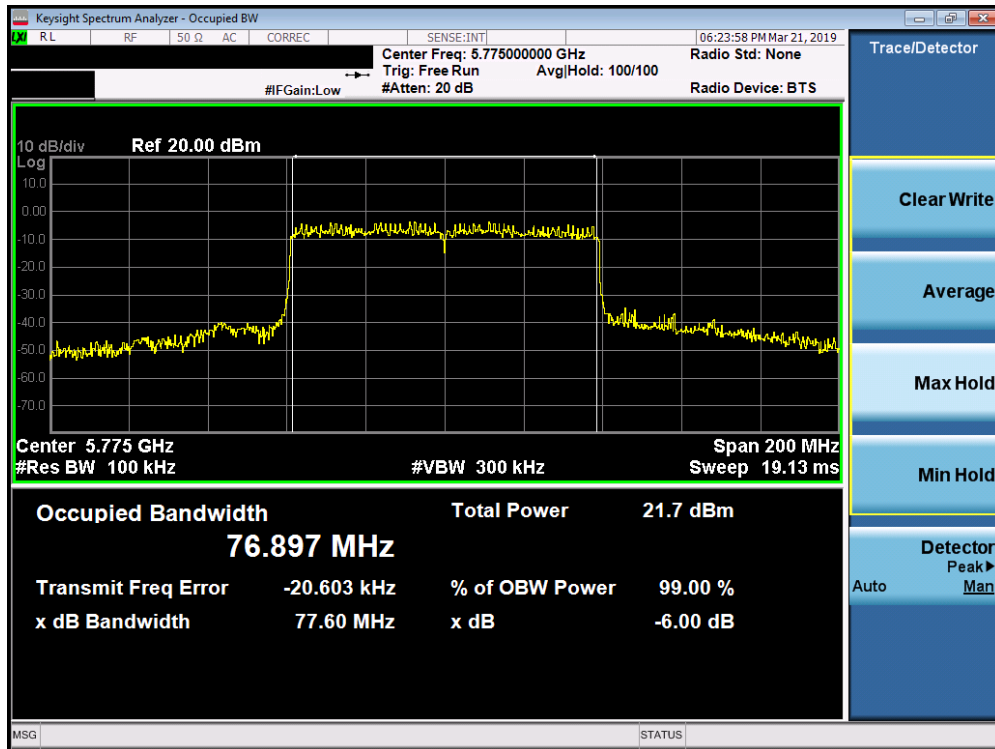


Plot 7-106. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)



Plot 7-107. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 79 of 285



Plot 7-108. 6dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 80 of 285

7.4 UNII Output Power Measurement – 802.11ax OFDMA

§15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

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, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies.

In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is 250mW (23.98dBm). The maximum e.i.r.p. shall not exceed the lesser of 200 mW(23.01dBm) or $10 + 10 \log_{10} B = 10 + 10 \log_{10}(23.98) = 23.80\text{dBm}$.

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(18.51) = 23.67\text{dBm}$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W(30dBm) or $17 + 10 \log_{10} B = 17 + 10 \log_{10}(18.51) = 29.67\text{dBm}$.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(18.32) = 23.63\text{dBm}$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W(30dBm) or $17 + 10 \log_{10} B = 17 + 10 \log_{10}(18.32) = 29.63\text{dBm}$.

In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm). The maximum e.i.r.p. is 36 dBm.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G
KDB 789033 D02 v02r01 – Section E)3)b) Method PM-G
ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique
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 7-3. Test Instrument & Measurement Setup

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 81 of 285

SISO Antenna-1 Conducted Output Power Measurements (26 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0	4	8		
	5180	36	AVG	26T	10.56	10.87	10.73	23.98	-13.11
	5200	40	AVG	26T	10.54	10.80	10.68	23.98	-13.18
	5240	48	AVG	26T	10.54	10.94	10.78	23.98	-13.04
	5260	52	AVG	26T	10.41	10.65	10.98	23.67	-12.69
	5280	56	AVG	26T	10.95	10.66	10.54	23.67	-12.72
	5320	64	AVG	26T	10.50	10.71	10.50	23.67	-12.96
	5500	100	AVG	26T	10.95	10.64	10.94	23.63	-12.68
	5600	120	AVG	26T	10.77	10.98	10.76	23.63	-12.65
	5720	144	AVG	26T	10.67	10.96	10.76	23.63	-12.67
	5745	149	AVG	26T	10.93	10.65	10.70	30.00	-19.07
	5785	157	AVG	26T	10.83	10.70	10.77	30.00	-19.17
	5825	165	AVG	26T	10.50	10.90	10.58	30.00	-19.10

Table 7-10. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0	8	17		
	5190	38	AVG	26T	10.52	10.88	10.63	23.98	-13.10
	5230	46	AVG	26T	10.48	10.80	10.58	23.98	-13.18
	5270	54	AVG	26T	10.92	10.91	10.95	23.67	-12.72
	5310	62	AVG	26T	10.83	10.92	10.92	23.67	-12.75
	5510	102	AVG	26T	10.88	10.88	10.99	23.63	-12.64
	5590	118	AVG	26T	10.60	10.60	10.98	23.63	-12.65
	5710	142	AVG	26T	10.71	10.85	10.65	23.63	-12.78
	5755	151	AVG	26T	10.92	10.91	10.80	30.00	-19.08
	5795	159	AVG	26T	10.83	10.83	10.87	30.00	-19.13

Table 7-11. SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0	18	36		
	5210	42	AVG	26T	10.56	10.65	10.57	23.98	-13.33
	5290	58	AVG	26T	10.77	10.98	10.85	23.67	-12.69
	5530	106	AVG	26T	10.85	10.84	10.54	23.63	-12.78
	5610	122	AVG	26T	10.99	10.89	10.70	23.63	-12.64
	5690	138	AVG	26T	10.83	10.74	10.98	23.63	-12.65
	5775	155	AVG	26T	10.68	10.76	10.53	30.00	-19.24

Table 7-12. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 82 of 285

SISO Antenna-1 Conducted Output Power Measurements (52 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37	39	40		
	5180	36	AVG	52T	12.75	12.83	12.81	23.98	-11.15
	5200	40	AVG	52T	12.70	12.89	12.82	23.98	-11.09
	5240	48	AVG	52T	12.65	12.88	12.86	23.98	-11.10
	5260	52	AVG	52T	12.51	12.70	12.57	23.67	-10.97
	5280	56	AVG	52T	12.57	12.75	12.58	23.67	-10.92
	5320	64	AVG	52T	12.60	12.72	12.57	23.67	-10.95
	5500	100	AVG	52T	12.82	12.90	12.86	23.63	-10.73
	5600	120	AVG	52T	12.68	12.81	12.64	23.63	-10.82
	5720	144	AVG	52T	12.72	12.88	12.70	23.63	-10.75
	5745	149	AVG	52T	12.96	12.63	12.75	30.00	-17.04
	5785	157	AVG	52T	12.82	12.99	12.77	30.00	-17.01
	5825	165	AVG	52T	12.57	12.75	12.55	30.00	-17.25

Table 7-13. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37	40	44		
	5190	38	AVG	52T	11.86	11.81	11.83	23.98	-12.12
	5230	46	AVG	52T	11.74	11.72	11.87	23.98	-12.11
	5270	54	AVG	52T	11.85	11.98	11.85	23.67	-11.69
	5310	62	AVG	52T	11.74	11.98	11.60	23.67	-11.69
	5510	102	AVG	52T	11.97	11.98	11.58	23.63	-11.65
	5590	118	AVG	52T	11.83	11.52	11.70	23.63	-11.80
	5710	142	AVG	52T	11.96	11.81	11.82	23.63	-11.67
	5755	151	AVG	52T	11.83	11.83	11.72	30.00	-18.17
	5795	159	AVG	52T	11.99	11.68	11.94	30.00	-18.01

Table 7-14. SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37	44	52		
	5210	42	AVG	52T	10.68	10.60	10.69	23.98	-13.29
	5290	58	AVG	52T	10.91	10.50	10.99	23.67	-12.68
	5530	106	AVG	52T	10.98	10.82	10.90	23.63	-12.65
	5610	122	AVG	52T	10.75	10.94	10.89	23.63	-12.69
	5690	138	AVG	52T	10.67	10.82	10.70	23.63	-12.81
	5775	155	AVG	52T	10.88	10.83	10.72	30.00	-19.12

Table 7-15. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 83 of 285		

SISO Antenna-1 Conducted Output Power Measurements (106 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index		Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53	54		
	5180	36	AVG	106T	14.54	14.75	23.98	-9.23
	5200	40	AVG	106T	14.65	14.73	23.98	-9.25
	5240	48	AVG	106T	14.61	14.68	23.98	-9.30
	5260	52	AVG	106T	14.50	14.56	23.67	-9.11
	5280	56	AVG	106T	14.58	14.51	23.67	-9.09
	5320	64	AVG	106T	14.57	14.53	23.67	-9.10
	5500	100	AVG	106T	14.72	14.72	23.63	-8.91
	5600	120	AVG	106T	14.52	14.51	23.63	-9.11
	5720	144	AVG	106T	14.55	14.93	23.63	-8.70
	5745	149	AVG	106T	14.91	14.79	30.00	-15.09
	5785	157	AVG	106T	14.77	14.73	30.00	-15.23
	5825	165	AVG	106T	14.59	14.59	30.00	-15.41

Table 7-16. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53	54	56		
	5190	38	AVG	106T	12.97	12.80	12.96	23.98	-11.01
	5230	46	AVG	106T	12.92	12.82	12.95	23.98	-11.03
	5270	54	AVG	106T	12.99	12.99	12.98	23.67	-10.68
	5310	62	AVG	106T	12.98	12.88	12.78	23.67	-10.69
	5510	102	AVG	106T	12.76	12.76	12.75	23.63	-10.87
	5590	118	AVG	106T	12.94	12.99	12.88	23.63	-10.64
	5710	142	AVG	106T	12.62	12.78	12.98	23.63	-10.65
	5755	151	AVG	106T	12.97	12.93	12.81	30.00	-17.03
	5795	159	AVG	106T	12.89	12.78	12.80	30.00	-17.11

Table 7-17. SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53	56	60		
	5210	42	AVG	106T	11.93	11.83	11.80	23.98	-12.05
	5290	58	AVG	106T	11.71	11.98	11.76	23.67	-11.69
	5530	106	AVG	106T	11.65	11.82	11.89	23.63	-11.74
	5610	122	AVG	106T	11.84	11.98	11.48	23.63	-11.65
	5690	138	AVG	106T	11.67	11.79	11.82	23.63	-11.81
	5775	155	AVG	106T	11.65	11.80	11.97	30.00	-18.03

Table 7-18. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset			Page 84 of 285

SISO Antenna-1 Conducted Output Power Measurements (242 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index	Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61		
	5180	36	AVG	242T	15.73	23.98	-8.25
	5200	40	AVG	242T	15.63	23.98	-8.35
	5240	48	AVG	242T	15.65	23.98	-8.33
	5260	52	AVG	242T	15.52	23.67	-8.15
	5280	56	AVG	242T	15.51	23.67	-8.16
	5320	64	AVG	242T	15.56	23.67	-8.11
	5500	100	AVG	242T	15.54	23.63	-8.09
	5600	120	AVG	242T	15.85	23.63	-7.78
	5720	144	AVG	242T	15.82	23.63	-7.81
	5745	149	AVG	242T	15.73	30.00	-14.27
	5785	157	AVG	242T	15.79	30.00	-14.21
	5825	165	AVG	242T	15.52	30.00	-14.48

Table 7-19. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index		Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61	62		
	5190	38	AVG	242T	13.98	13.87	23.98	-10.00
	5230	46	AVG	242T	13.89	13.74	23.98	-10.09
	5270	54	AVG	242T	13.60	13.68	23.67	-9.99
	5310	62	AVG	242T	13.56	13.92	23.67	-9.75
	5510	102	AVG	242T	13.87	13.99	23.63	-9.64
	5590	118	AVG	242T	13.99	13.98	23.63	-9.64
	5710	142	AVG	242T	13.80	13.58	23.63	-9.83
	5755	151	AVG	242T	13.98	13.71	30.00	-16.02
	5795	159	AVG	242T	13.75	13.81	30.00	-16.19

Table 7-20. SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61	62	64		
	5210	42	AVG	242T	12.85	12.93	12.68	23.98	-11.05
	5290	58	AVG	242T	12.96	12.73	12.98	23.67	-10.69
	5530	106	AVG	242T	12.85	12.83	12.71	23.63	-10.78
	5610	122	AVG	242T	12.57	12.98	12.91	23.63	-10.65
	5690	138	AVG	242T	12.80	12.84	12.98	23.63	-10.65
	5775	155	AVG	242T	12.88	12.90	12.56	30.00	-17.10

Table 7-21. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset			Page 85 of 285

SISO Antenna-1 Conducted Output Power Measurements (484 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index	Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					65		
	5190	38	AVG	484T	13.55	23.98	-10.43
	5230	46	AVG	484T	13.60	23.98	-10.38
	5270	54	AVG	484T	13.90	23.67	-9.77
	5310	62	AVG	484T	13.76	23.67	-9.91
	5510	102	AVG	484T	13.68	23.63	-9.95
	5590	118	AVG	484T	13.86	23.63	-9.77
	5710	142	AVG	484T	13.98	23.63	-9.65
	5755	151	AVG	484T	13.81	30.00	-16.19
	5795	159	AVG	484T	13.97	30.00	-16.03

Table 7-22. SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index		Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					65	66		
	5210	42	AVG	484T	12.98	12.98	23.98	-11.00
	5290	58	AVG	484T	12.81	12.77	23.67	-10.86
	5530	106	AVG	484T	12.87	12.99	23.63	-10.64
	5610	122	AVG	484T	12.71	12.69	23.63	-10.92
	5690	138	AVG	484T	12.56	12.99	23.63	-10.64
	5775	155	AVG	484T	12.57	12.55	30.00	-17.43

Table 7-23. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset			Page 86 of 285

SISO Antenna-1 Conducted Output Power Measurements (996 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index	Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					67		
	5210	42	AVG	996T	12.98	23.98	-11.00
	5290	58	AVG	996T	12.79	23.67	-10.88
	5530	106	AVG	996T	12.48	23.63	-11.15
	5610	122	AVG	996T	12.74	23.63	-10.89
	5690	138	AVG	996T	12.95	23.63	-10.68
	5775	155	AVG	996T	12.99	30.00	-17.01

Table 7-24. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 87 of 285

SISO Antenna-2 Conducted Output Power Measurements (26 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0	4	8		
	5180	36	AVG	26T	10.61	10.98	10.80	23.98	-13.00
	5200	40	AVG	26T	10.59	10.94	10.66	23.98	-13.04
	5240	48	AVG	26T	10.70	10.98	10.82	23.98	-13.00
	5260	52	AVG	26T	10.86	10.98	10.83	23.67	-12.69
	5280	56	AVG	26T	10.79	10.72	10.98	23.67	-12.69
	5320	64	AVG	26T	10.44	10.73	10.88	23.67	-12.79
	5500	100	AVG	26T	10.53	10.87	10.77	23.63	-12.76
	5600	120	AVG	26T	10.61	10.72	10.92	23.63	-12.71
	5720	144	AVG	26T	10.71	10.86	10.85	23.63	-12.77
	5745	149	AVG	26T	10.75	10.91	10.98	30.00	-19.02
	5785	157	AVG	26T	10.64	10.94	10.95	30.00	-19.05
	5825	165	AVG	26T	10.72	10.99	10.96	30.00	-19.01

Table 7-25. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0	8	17		
	5190	38	AVG	26T	10.97	10.62	10.50	23.98	-13.01
	5230	46	AVG	26T	10.51	10.61	10.53	23.98	-13.37
	5270	54	AVG	26T	10.74	10.77	10.79	23.67	-12.88
	5310	62	AVG	26T	10.81	10.70	10.68	23.67	-12.86
	5510	102	AVG	26T	10.67	10.58	10.68	23.63	-12.95
	5590	118	AVG	26T	10.62	10.80	10.86	23.63	-12.77
	5710	142	AVG	26T	10.72	10.54	10.54	23.63	-12.91
	5755	151	AVG	26T	10.85	10.73	10.67	30.00	-19.15
	5795	159	AVG	26T	10.60	10.98	10.85	30.00	-19.02

Table 7-26. SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0	18	36		
	5210	42	AVG	26T	10.93	10.48	10.55	23.98	-13.05
	5290	58	AVG	26T	10.63	10.69	10.73	23.67	-12.94
	5530	106	AVG	26T	10.70	10.94	10.76	23.63	-12.69
	5610	122	AVG	26T	10.97	10.95	10.86	23.63	-12.66
	5690	138	AVG	26T	10.75	10.80	10.95	23.63	-12.68
	5775	155	AVG	26T	10.62	10.85	10.67	30.00	-19.15

Table 7-27. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 88 of 285		

SISO Antenna-2 Conducted Output Power Measurements (52 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37	39	40		
	5180	36	AVG	52T	12.99	12.86	12.64	23.98	-10.99
	5200	40	AVG	52T	12.63	12.81	12.80	23.98	-11.17
	5240	48	AVG	52T	12.65	12.91	12.80	23.98	-11.07
	5260	52	AVG	52T	12.81	12.70	12.92	23.67	-10.75
	5280	56	AVG	52T	12.94	12.98	12.92	23.67	-10.69
	5320	64	AVG	52T	12.99	12.71	12.98	23.67	-10.68
	5500	100	AVG	52T	12.69	12.73	12.45	23.63	-10.90
	5600	120	AVG	52T	12.58	12.63	12.85	23.63	-10.78
	5720	144	AVG	52T	12.68	12.75	12.85	23.63	-10.78
	5745	149	AVG	52T	12.64	12.72	12.90	30.00	-17.10
	5785	157	AVG	52T	12.91	12.61	12.77	30.00	-17.09
	5825	165	AVG	52T	12.98	12.81	12.81	30.00	-17.02

Table 7-28. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37	40	44		
	5190	38	AVG	52T	11.63	11.64	11.59	23.98	-12.34
	5230	46	AVG	52T	11.72	11.71	11.72	23.98	-12.26
	5270	54	AVG	52T	11.95	11.84	11.98	23.67	-11.69
	5310	62	AVG	52T	11.94	11.83	11.93	23.67	-11.73
	5510	102	AVG	52T	11.88	11.55	11.70	23.63	-11.75
	5590	118	AVG	52T	11.58	11.74	11.91	23.63	-11.72
	5710	142	AVG	52T	11.75	11.60	11.56	23.63	-11.88
	5755	151	AVG	52T	11.93	11.75	11.79	30.00	-18.07
	5795	159	AVG	52T	11.72	11.85	11.53	30.00	-18.15

Table 7-29. SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37	44	52		
	5210	42	AVG	52T	10.70	10.53	10.70	23.98	-13.28
	5290	58	AVG	52T	10.76	10.75	10.91	23.67	-12.76
	5530	106	AVG	52T	10.93	10.96	10.92	23.63	-12.67
	5610	122	AVG	52T	10.65	10.66	10.65	23.63	-12.97
	5690	138	AVG	52T	10.99	10.91	10.80	23.63	-12.64
	5775	155	AVG	52T	10.77	10.96	10.87	30.00	-19.04

Table 7-30. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 89 of 285		

SISO Antenna-2 Conducted Output Power Measurements (106 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index		Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53	54		
	5180	36	AVG	106T	14.50	14.60	23.98	-9.38
	5200	40	AVG	106T	14.55	14.61	23.98	-9.37
	5240	48	AVG	106T	14.66	14.69	23.98	-9.29
	5260	52	AVG	106T	14.93	14.87	23.67	-8.74
	5280	56	AVG	106T	14.98	14.99	23.67	-8.68
	5320	64	AVG	106T	14.99	14.53	23.67	-8.68
	5500	100	AVG	106T	14.99	14.98	23.63	-8.64
	5600	120	AVG	106T	14.98	14.84	23.63	-8.65
	5720	144	AVG	106T	14.96	14.86	23.63	-8.67
	5745	149	AVG	106T	14.98	14.71	30.00	-15.02
	5785	157	AVG	106T	14.82	14.63	30.00	-15.18
	5825	165	AVG	106T	14.89	14.71	30.00	-15.11

Table 7-31. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53	54	56		
	5190	38	AVG	106T	12.76	12.71	12.77	23.98	-11.21
	5230	46	AVG	106T	12.92	12.52	12.89	23.98	-11.06
	5270	54	AVG	106T	12.70	12.73	12.62	23.67	-10.94
	5310	62	AVG	106T	12.72	12.85	12.50	23.67	-10.82
	5510	102	AVG	106T	12.39	12.50	12.58	23.63	-11.05
	5590	118	AVG	106T	12.95	12.85	12.73	23.63	-10.68
	5710	142	AVG	106T	12.96	12.43	12.82	23.63	-10.67
	5755	151	AVG	106T	12.55	12.60	12.41	30.00	-17.40
	5795	159	AVG	106T	12.97	12.79	12.84	30.00	-17.03

Table 7-32. SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53	56	60		
	5210	42	AVG	106T	11.76	11.65	11.85	23.98	-12.13
	5290	58	AVG	106T	11.97	11.82	11.95	23.67	-11.70
	5530	106	AVG	106T	11.89	11.99	11.98	23.63	-11.64
	5610	122	AVG	106T	11.65	11.71	11.72	23.63	-11.91
	5690	138	AVG	106T	11.86	11.80	11.40	23.63	-11.77
	5775	155	AVG	106T	11.75	11.91	11.86	30.00	-18.09

Table 7-33. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 90 of 285		

SISO Antenna-2 Conducted Output Power Measurements (242 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index	Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61		
	5180	36	AVG	242T	15.98	23.98	-8.00
	5200	40	AVG	242T	15.99	23.98	-7.99
	5240	48	AVG	242T	15.97	23.98	-8.01
	5260	52	AVG	242T	15.85	23.67	-7.82
	5280	56	AVG	242T	15.85	23.67	-7.82
	5320	64	AVG	242T	15.80	23.67	-7.87
	5500	100	AVG	242T	15.98	23.63	-7.65
	5600	120	AVG	242T	15.85	23.63	-7.78
	5720	144	AVG	242T	15.86	23.63	-7.77
	5745	149	AVG	242T	15.74	30.00	-14.26
	5785	157	AVG	242T	15.68	30.00	-14.32
	5825	165	AVG	242T	15.78	30.00	-14.22

Table 7-34. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index		Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61	62		
	5190	38	AVG	242T	13.64	13.51	23.98	-10.34
	5230	46	AVG	242T	13.97	13.96	23.98	-10.01
	5270	54	AVG	242T	13.80	13.72	23.67	-9.87
	5310	62	AVG	242T	13.79	13.65	23.67	-9.88
	5510	102	AVG	242T	13.71	13.86	23.63	-9.77
	5590	118	AVG	242T	13.93	13.99	23.63	-9.64
	5710	142	AVG	242T	13.86	13.69	23.63	-9.77
	5755	151	AVG	242T	13.67	13.70	30.00	-16.30
	5795	159	AVG	242T	13.80	13.82	30.00	-16.18

Table 7-35. SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61	62	64		
	5210	42	AVG	242T	12.99	12.98	12.61	23.98	-10.99
	5290	58	AVG	242T	12.72	12.99	12.67	23.67	-10.68
	5530	106	AVG	242T	12.58	12.74	12.40	23.63	-10.89
	5610	122	AVG	242T	12.89	12.84	12.76	23.63	-10.74
	5690	138	AVG	242T	12.72	12.63	12.81	23.63	-10.82
	5775	155	AVG	242T	12.94	12.96	12.84	30.00	-17.04

Table 7-36. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset			Page 91 of 285

SISO Antenna-2 Conducted Output Power Measurements (484 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index	Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					65		
	5190	38	AVG	484T	13.53	23.98	-10.45
	5230	46	AVG	484T	13.95	23.98	-10.03
	5270	54	AVG	484T	13.67	23.67	-10.00
	5310	62	AVG	484T	13.60	23.67	-10.07
	5510	102	AVG	484T	13.60	23.63	-10.03
	5590	118	AVG	484T	13.93	23.63	-9.70
	5710	142	AVG	484T	13.64	23.63	-9.99
	5755	151	AVG	484T	13.50	30.00	-16.50
	5795	159	AVG	484T	13.80	30.00	-16.20

Table 7-37. SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index		Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					65	66		
	5210	42	AVG	484T	12.89	12.94	23.98	-11.04
	5290	58	AVG	484T	12.55	12.65	23.67	-11.02
	5530	106	AVG	484T	12.93	12.89	23.63	-10.70
	5610	122	AVG	484T	12.65	12.60	23.63	-10.98
	5690	138	AVG	484T	12.87	12.78	23.63	-10.76
	5775	155	AVG	484T	12.78	12.71	30.00	-17.22

Table 7-38. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset			Page 92 of 285

SISO Antenna-2 Conducted Output Power Measurements (996 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index	Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					67		
	5210	42	AVG	996T	12.88	23.98	-11.10
	5290	58	AVG	996T	12.77	23.67	-10.90
	5530	106	AVG	996T	12.86	23.63	-10.77
	5610	122	AVG	996T	12.52	23.63	-11.11
	5690	138	AVG	996T	12.96	23.63	-10.67
	5775	155	AVG	996T	12.60	30.00	-17.40

Table 7-39. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 93 of 285

MIMO Maximum Conducted Output Power Measurements (26 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0			4			8				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5180	36	AVG	26T	7.55	7.61	10.59	7.89	7.94	10.93	7.84	7.62	10.74	23.98	-13.05
	5200	40	AVG	26T	7.62	7.62	10.63	7.90	7.96	10.94	7.66	7.63	10.66	23.98	-13.04
	5240	48	AVG	26T	7.67	7.85	10.77	7.87	8.05	10.97	7.70	7.87	10.80	23.98	-13.01
	5260	52	AVG	26T	8.08	7.27	10.70	8.25	7.61	10.95	8.04	7.33	10.71	23.67	-12.72
	5280	56	AVG	26T	8.19	7.41	10.83	8.24	7.56	10.92	8.21	7.41	10.84	23.67	-12.75
	5320	64	AVG	26T	8.22	7.35	10.82	8.33	7.60	10.99	8.04	7.31	10.70	23.67	-12.68
	5500	100	AVG	26T	8.06	7.22	10.67	8.33	7.46	10.93	8.10	7.00	10.60	23.63	-12.70
	5600	120	AVG	26T	8.49	7.38	10.98	8.07	6.93	10.55	8.42	7.21	10.87	23.63	-12.65
	5720	144	AVG	26T	8.13	7.07	10.64	8.27	7.22	10.79	8.44	7.41	10.97	23.63	-12.66
	5745	149	AVG	26T	7.61	7.84	10.74	7.72	7.92	10.83	8.00	7.90	10.96	30.00	-19.04
	5785	157	AVG	26T	8.02	7.78	10.91	7.84	7.76	10.81	8.00	7.64	10.83	30.00	-19.09
	5825	165	AVG	26T	7.66	7.67	10.68	7.45	7.56	10.52	7.67	7.47	10.58	30.00	-19.32

Table 7-40. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0			8			17				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5190	38	AVG	26T	7.56	7.55	10.57	7.68	7.73	10.72	7.61	7.84	10.74	23.98	-13.24
	5230	46	AVG	26T	7.53	7.49	10.52	7.79	7.54	10.68	7.51	7.75	10.64	23.98	-13.30
	5270	54	AVG	26T	7.89	7.27	10.60	7.80	7.23	10.53	7.85	7.30	10.59	23.67	-13.07
	5310	62	AVG	26T	7.88	7.40	10.66	7.83	7.41	10.64	7.76	7.31	10.55	23.67	-13.01
	5510	102	AVG	26T	8.03	7.25	10.67	7.90	7.11	10.53	8.08	7.07	10.61	23.63	-12.96
	5590	118	AVG	26T	8.26	7.57	10.94	8.24	7.03	10.69	8.20	7.36	10.81	23.63	-12.69
	5710	142	AVG	26T	8.39	7.48	10.97	8.40	7.29	10.89	8.33	7.40	10.90	23.63	-12.66
	5755	151	AVG	26T	8.12	7.80	10.97	8.08	7.85	10.98	8.08	7.75	10.93	30.00	-19.02
	5795	159	AVG	26T	7.94	7.97	10.97	7.94	8.01	10.99	7.80	7.73	10.78	30.00	-19.01

Table 7-41. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					0			18			36				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5210	42	AVG	26T	7.98	7.98	10.99	7.44	7.70	10.58	7.52	7.66	10.60	23.98	-12.99
	5290	58	AVG	26T	8.07	7.70	10.90	8.19	7.75	10.99	8.17	7.67	10.94	23.67	-12.68
	5530	106	AVG	26T	7.95	7.14	10.57	8.36	7.51	10.97	8.27	7.45	10.89	23.63	-12.66
	5610	122	AVG	26T	8.26	7.39	10.86	8.09	7.08	10.62	8.08	7.04	10.60	23.63	-12.77
	5690	138	AVG	26T	8.24	7.29	10.80	8.20	7.26	10.77	8.11	7.14	10.66	23.63	-12.83
	5775	155	AVG	26T	7.94	7.78	10.87	7.85	7.93	10.90	7.78	7.48	10.64	30.00	-19.10

Table 7-42. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 94 of 285

MIMO Conducted Output Power Measurements (52 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37			39			40				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5180	36	AVG	52T	9.65	9.71	12.69	9.95	9.94	12.96	9.89	9.77	12.84	23.98	-11.02
	5200	40	AVG	52T	9.67	9.80	12.75	9.87	9.96	12.93	9.80	9.79	12.81	23.98	-11.05
	5240	48	AVG	52T	9.80	9.90	12.86	9.80	9.97	12.90	9.81	9.91	12.87	23.98	-11.08
	5260	52	AVG	52T	10.05	9.53	12.81	10.27	9.67	12.99	10.14	9.57	12.87	23.67	-10.68
	5280	56	AVG	52T	10.11	9.62	12.88	9.83	9.17	12.52	10.16	9.59	12.89	23.67	-10.78
	5320	64	AVG	52T	10.07	9.52	12.81	10.28	9.58	12.95	10.15	9.55	12.87	23.67	-10.72
	5500	100	AVG	52T	10.03	9.37	12.72	10.21	9.43	12.85	10.01	9.21	12.64	23.63	-10.78
	5600	120	AVG	52T	10.36	9.56	12.99	10.04	9.11	12.61	10.40	9.26	12.88	23.63	-10.64
	5720	144	AVG	52T	9.93	9.31	12.64	10.05	9.43	12.76	9.87	9.11	12.52	23.63	-10.87
	5745	149	AVG	52T	9.67	9.54	12.62	9.73	9.60	12.68	10.00	9.82	12.92	30.00	-17.08
	5785	157	AVG	52T	9.94	9.81	12.89	9.70	9.48	12.60	9.90	9.60	12.76	30.00	-17.11
	5825	165	AVG	52T	9.69	9.64	12.68	9.94	9.81	12.89	9.71	9.52	12.63	30.00	-17.11

Table 7-43. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37			40			44				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5190	38	AVG	52T	8.88	8.86	11.88	8.77	8.80	11.80	8.86	9.01	11.95	23.98	-12.03
	5230	46	AVG	52T	8.84	8.85	11.86	8.62	8.73	11.69	8.35	8.64	11.51	23.98	-12.12
	5270	54	AVG	52T	9.06	8.52	11.81	8.97	8.33	11.67	9.18	8.73	11.97	23.67	-11.70
	5310	62	AVG	52T	9.11	8.77	11.95	9.04	8.32	11.71	9.03	8.63	11.84	23.67	-11.72
	5510	102	AVG	52T	9.04	8.47	11.77	9.03	8.11	11.60	9.21	8.42	11.84	23.63	-11.79
	5590	118	AVG	52T	9.33	8.59	11.99	9.25	8.21	11.77	9.28	8.56	11.95	23.63	-11.64
	5710	142	AVG	52T	9.07	8.20	11.67	9.41	8.38	11.94	9.02	8.11	11.60	23.63	-11.69
5755	151	AVG	52T	8.83	8.64	11.75	9.13	8.72	11.94	8.70	8.58	11.65	30.00	-18.06	
5795	159	AVG	52T	8.65	8.61	11.64	9.01	8.94	11.99	8.61	8.39	11.51	30.00	-18.01	

Table 7-44. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					37			44			52				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5210	42	AVG	52T	7.70	7.62	10.67	7.55	7.72	10.65	7.58	7.70	10.65	23.98	-13.31
	5290	58	AVG	52T	7.89	7.25	10.59	7.91	7.22	10.59	7.96	7.26	10.63	23.67	-13.04
	5530	106	AVG	52T	8.08	7.29	10.71	8.45	7.42	10.98	8.36	7.57	10.99	23.63	-12.64
	5610	122	AVG	52T	8.39	7.52	10.99	8.01	7.09	10.58	8.07	7.16	10.65	23.63	-12.64
	5690	138	AVG	52T	8.25	7.42	10.87	8.44	7.29	10.91	8.29	7.43	10.89	23.63	-12.72
	5775	155	AVG	52T	7.71	7.50	10.62	7.95	7.61	10.79	7.96	7.69	10.84	30.00	-19.16

Table 7-45. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 95 of 285		

MIMO Conducted Output Power Measurements (106 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index						Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53			54				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5180	36	AVG	106T	11.81	11.77	14.80	11.95	11.67	14.82	23.98	-9.16
	5200	40	AVG	106T	11.89	11.80	14.85	11.93	11.85	14.90	23.98	-9.08
	5240	48	AVG	106T	11.82	11.86	14.85	11.89	11.85	14.88	23.98	-9.10
	5260	52	AVG	106T	12.15	11.58	14.88	12.17	11.56	14.89	23.67	-8.78
	5280	56	AVG	106T	12.17	11.67	14.94	12.31	11.59	14.98	23.67	-8.69
	5320	64	AVG	106T	12.15	11.41	14.81	12.22	11.53	14.90	23.67	-8.77
	5500	100	AVG	106T	12.03	11.46	14.76	12.04	11.26	14.68	23.63	-8.87
5600	120	AVG	106T	11.90	11.15	14.55	12.23	11.34	14.82	23.63	-8.81	
5720	144	AVG	106T	12.03	11.30	14.69	12.39	11.53	14.99	23.63	-8.64	
5745	149	AVG	106T	12.07	11.89	14.99	12.00	11.66	14.84	30.00	-15.01	
5785	157	AVG	106T	12.08	11.72	14.91	12.06	11.59	14.84	30.00	-15.09	
5825	165	AVG	106T	11.75	11.50	14.64	12.16	11.72	14.96	30.00	-15.04	

Table 7-46. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53			54			56				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5190	38	AVG	106T	9.54	9.67	12.62	9.80	9.70	12.76	9.57	9.78	12.69	23.98	-11.22
	5230	46	AVG	106T	9.58	9.64	12.62	9.69	9.85	12.78	9.71	9.89	12.81	23.98	-11.17
	5270	54	AVG	106T	9.83	9.37	12.62	9.99	9.30	12.67	9.93	9.33	12.65	23.67	-11.00
	5310	62	AVG	106T	9.73	9.50	12.63	9.94	9.55	12.76	9.71	9.50	12.62	23.67	-10.91
	5510	102	AVG	106T	9.86	9.26	12.58	9.91	9.20	12.58	9.96	9.12	12.57	23.63	-11.05
	5590	118	AVG	106T	10.06	9.35	12.73	10.12	9.24	12.71	10.15	9.40	12.80	23.63	-10.83
	5710	142	AVG	106T	10.41	9.51	12.99	10.40	9.45	12.96	10.41	9.41	12.95	23.63	-10.64
5755	151	AVG	106T	10.03	9.77	12.91	10.01	9.67	12.85	9.95	9.56	12.77	30.00	-17.09	
5795	159	AVG	106T	10.08	9.84	12.97	9.85	9.64	12.76	10.05	9.75	12.91	30.00	-17.03	

Table 7-47. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					53			56			60				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5210	42	AVG	106T	8.88	8.82	11.86	8.71	8.88	11.81	8.32	8.58	11.46	23.98	-12.12
	5290	58	AVG	106T	9.11	8.56	11.85	8.89	8.32	11.62	9.09	8.60	11.86	23.67	-11.81
	5530	106	AVG	106T	9.13	8.42	11.80	8.97	8.23	11.63	9.02	8.31	11.69	23.63	-11.83
	5610	122	AVG	106T	8.94	8.21	11.60	9.15	8.32	11.77	9.24	8.46	11.88	23.63	-11.75
	5690	138	AVG	106T	9.26	8.31	11.82	9.39	8.41	11.94	9.40	8.50	11.98	23.63	-11.65
	5775	155	AVG	106T	8.73	8.70	11.73	8.89	8.77	11.84	9.06	8.70	11.89	30.00	-18.11

Table 7-48. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset			Page 96 of 285

MIMO Conducted Output Power Measurements (242 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61				
					ANT1	ANT2	MIMO		
	5180	36	AVG	242T	12.97	12.68	15.84	23.98	-8.14
	5200	40	AVG	242T	12.97	12.61	15.80	23.98	-8.18
	5240	48	AVG	242T	12.86	12.82	15.85	23.98	-8.13
	5260	52	AVG	242T	13.26	12.59	15.95	23.67	-7.72
	5280	56	AVG	242T	13.18	12.51	15.87	23.67	-7.80
	5320	64	AVG	242T	13.33	12.56	15.97	23.67	-7.70
	5500	100	AVG	242T	12.98	12.23	15.63	23.63	-8.00
	5600	120	AVG	242T	13.32	12.38	15.89	23.63	-7.74
	5720	144	AVG	242T	12.88	12.17	15.55	23.63	-8.08
	5745	149	AVG	242T	12.98	12.66	15.83	30.00	-14.17
5785	157	AVG	242T	12.91	12.46	15.70	30.00	-14.30	
5825	165	AVG	242T	13.15	12.81	15.99	30.00	-14.01	

Table 7-49. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index						Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61			62				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5190	38	AVG	242T	10.86	10.88	13.88	10.85	10.98	13.93	23.98	-10.05
	5230	46	AVG	242T	10.88	10.92	13.91	10.82	10.99	13.92	23.98	-10.06
	5270	54	AVG	242T	11.22	10.48	13.88	11.17	10.67	13.94	23.67	-9.73
	5310	62	AVG	242T	11.18	10.64	13.93	11.15	10.67	13.93	23.67	-9.74
	5510	102	AVG	242T	11.15	10.57	13.88	11.30	10.52	13.94	23.63	-9.69
	5590	118	AVG	242T	10.89	10.26	13.60	10.92	10.24	13.60	23.63	-10.03
	5710	142	AVG	242T	11.13	10.09	13.65	10.98	10.18	13.61	23.63	-9.98
5755	151	AVG	242T	10.82	10.37	13.61	10.88	10.37	13.64	30.00	-16.36	
5795	159	AVG	242T	10.95	10.81	13.89	10.99	10.70	13.86	30.00	-16.11	

Table 7-50. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					61			62			64				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5210	42	AVG	242T	9.66	9.74	12.71	9.89	9.96	12.94	9.73	9.91	12.83	23.98	-11.04
	5290	58	AVG	242T	9.90	9.45	12.69	10.13	9.63	12.90	9.84	9.48	12.67	23.67	-10.77
	5530	106	AVG	242T	9.92	9.14	12.56	10.10	9.30	12.73	10.28	9.66	12.99	23.63	-10.64
	5610	122	AVG	242T	10.24	9.30	12.81	10.30	9.46	12.91	10.04	9.35	12.72	23.63	-10.72
	5690	138	AVG	242T	9.99	9.02	12.54	10.08	9.15	12.65	10.40	9.50	12.98	23.63	-10.65
	5775	155	AVG	242T	9.92	9.57	12.76	9.95	9.88	12.93	9.92	9.57	12.76	30.00	-17.07

Table 7-51. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset			Page 97 of 285

MIMO Conducted Output Power Measurements (484 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					65				
					ANT1	ANT2	MIMO		
	5190	38	AVG	484T	10.54	10.86	13.71	23.98	-10.27
	5230	46	AVG	484T	10.58	10.86	13.73	23.98	-10.25
	5270	54	AVG	484T	10.81	10.50	13.67	23.67	-10.00
	5310	62	AVG	484T	10.84	10.47	13.67	23.67	-10.00
	5510	102	AVG	484T	11.26	10.64	13.97	23.63	-9.66
	5590	118	AVG	484T	10.90	10.30	13.62	23.63	-10.01
	5710	142	AVG	484T	11.39	10.43	13.95	23.63	-9.68
5755	151	AVG	484T	10.86	10.82	13.85	30.00	-16.15	
5795	159	AVG	484T	10.72	10.51	13.63	30.00	-16.37	

Table 7-52. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index						Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					65			66				
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO		
	5210	42	AVG	484T	9.90	10.01	12.97	9.50	9.84	12.68	23.98	-11.01
5290	58	AVG	484T	10.14	9.70	12.94	10.17	9.76	12.98	23.67	-10.69	
5530	106	AVG	484T	10.26	9.47	12.89	10.29	9.58	12.96	23.63	-10.67	
5610	122	AVG	484T	10.01	9.26	12.66	9.98	9.23	12.63	23.63	-10.97	
5690	138	AVG	484T	10.22	9.34	12.81	10.10	9.26	12.71	23.63	-10.82	
5775	155	AVG	484T	9.67	9.71	12.70	9.56	9.55	12.57	30.00	-17.30	

Table 7-53. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

FCC ID: A3LSMG977T			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset			Page 98 of 285

MIMO Conducted Output Power Measurements (996 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
					67				
					ANT1	ANT2	MIMO		
	5210	42	AVG	996T	9.98	9.98	12.99	23.98	-10.99
	5290	58	AVG	996T	10.11	9.40	12.78	23.67	-10.89
	5530	106	AVG	996T	9.77	9.50	12.65	23.63	-10.98
	5610	122	AVG	996T	9.86	9.69	12.79	23.63	-10.84
	5690	138	AVG	996T	9.60	9.34	12.48	23.63	-11.15
	5775	155	AVG	996T	9.70	10.03	12.88	30.00	-17.12

Table 7-54. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 99 of 285

Note:

Per ANSI C63.10-2013 and KDB 662911 v02r01 Section E1), 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:

Assuming the average conducted output power was measured to be 12.97 dBm for Antenna-1 and 12.68 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

$$(12.97 \text{ dBm} + 12.68 \text{ dBm}) = (19.82 \text{ mW} + 18.53 \text{ mW}) = 38.35 \text{ mW} = 15.84 \text{ dBm}$$

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 100 of 285

7.5 Maximum Power Spectral Density – 802.11ax OFDMA §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

In the 5.15 – 5.25GHz, 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2

KDB 789033 D02 v02r01 – Section F

ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique

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 $\geq 2 \times (\text{span/RBW})$
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
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 7-4. Test Instrument & Measurement Setup

Test Notes

The power spectral density for each channel was measured with the RU index showing the highest conducted power

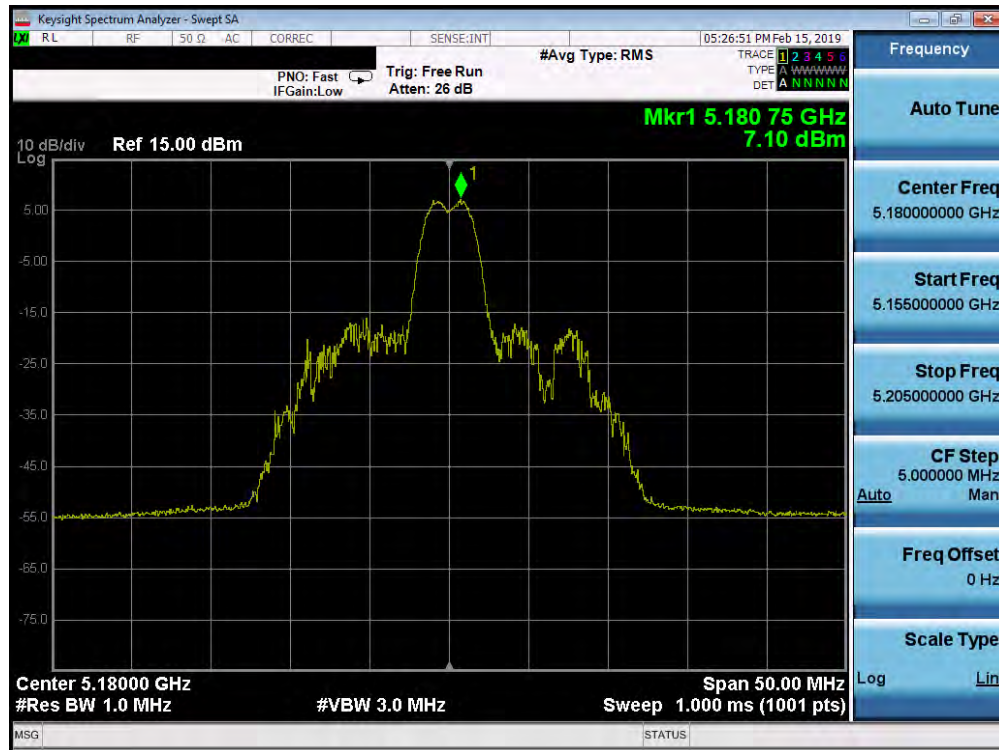
FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 101 of 285

SISO Antenna-1 Power Spectral Density Measurements (26 Tones)

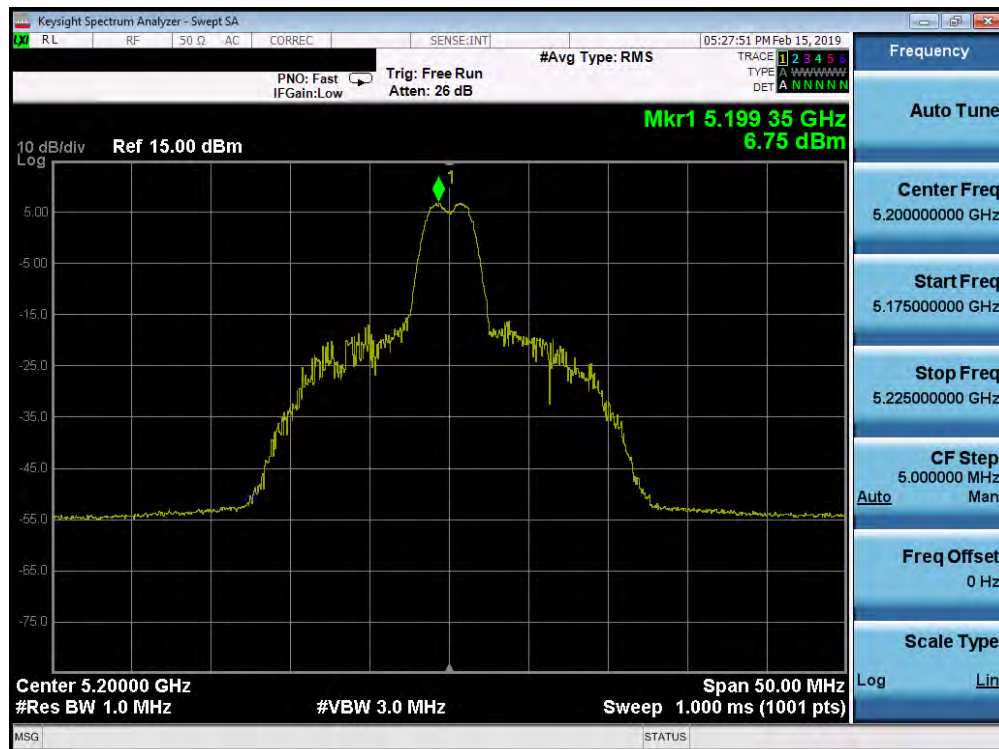
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26T	MCS0	7.10	11.0	-3.90
	5200	40	ax (20MHz)	26T	MCS0	6.75	11.0	-4.25
	5240	48	ax (20MHz)	26T	MCS0	6.93	11.0	-4.07
	5190	38	ax (40MHz)	26T	MCS0	7.76	11.0	-3.24
	5230	46	ax (40MHz)	26T	MCS0	7.75	11.0	-3.25
	5210	42	ax (80MHz)	26T	MCS0	7.89	11.0	-3.11
Band 2A	5260	52	ax (20MHz)	26T	MCS0	8.29	11.0	-2.71
	5280	56	ax (20MHz)	26T	MCS0	7.92	11.0	-3.08
	5320	64	ax (20MHz)	26T	MCS0	6.86	11.0	-4.14
	5270	54	ax (40MHz)	26T	MCS0	8.22	11.0	-2.78
	5310	62	ax (40MHz)	26T	MCS0	8.44	11.0	-2.56
	5290	58	ax (80MHz)	26T	MCS0	8.21	11.0	-2.79
Band 2C	5500	100	ax (20MHz)	26T	MCS0	8.25	11.0	-2.76
	5600	120	ax (20MHz)	26T	MCS0	7.05	11.0	-3.95
	5720	144	ax (20MHz)	26T	MCS0	7.65	11.0	-3.35
	5510	102	ax (40MHz)	26T	MCS0	8.65	11.0	-2.35
	5590	118	ax (40MHz)	26T	MCS0	8.46	11.0	-2.54
	5710	142	ax (40MHz)	26T	MCS0	8.46	11.0	-2.54
	5530	106	ax (80MHz)	26T	MCS0	8.24	11.0	-2.76
	5610	122	ax (80MHz)	26T	MCS0	7.78	11.0	-3.22
	5690	138	ax (80MHz)	26T	MCS0	7.25	11.0	-3.75

Table 7-55. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 102 of 285

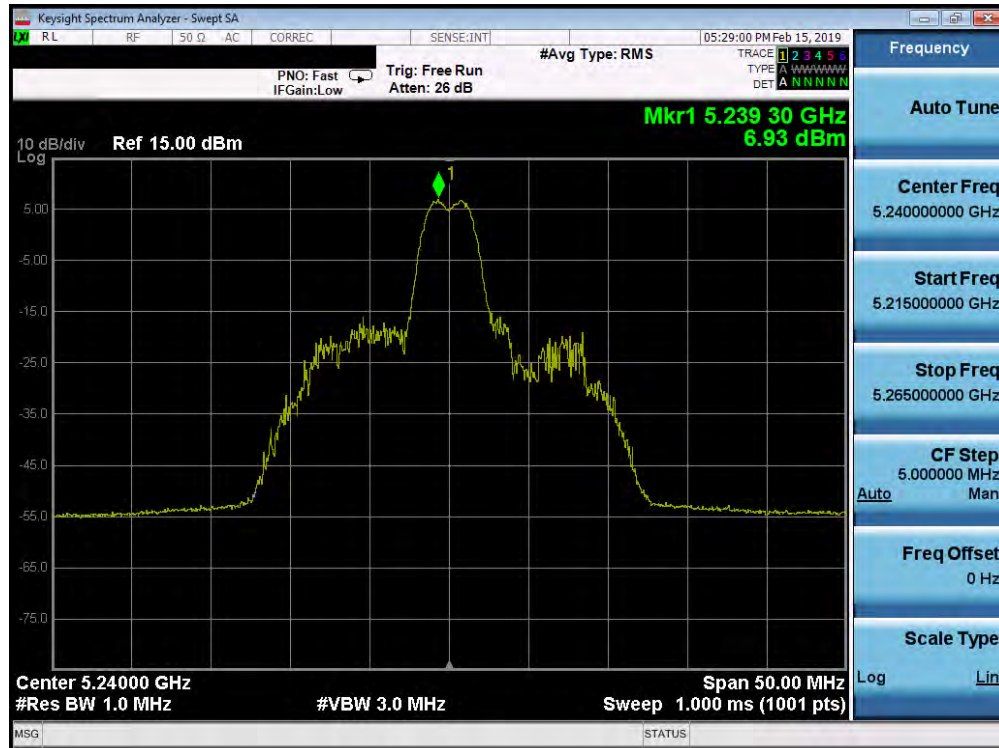


Plot 7-109. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

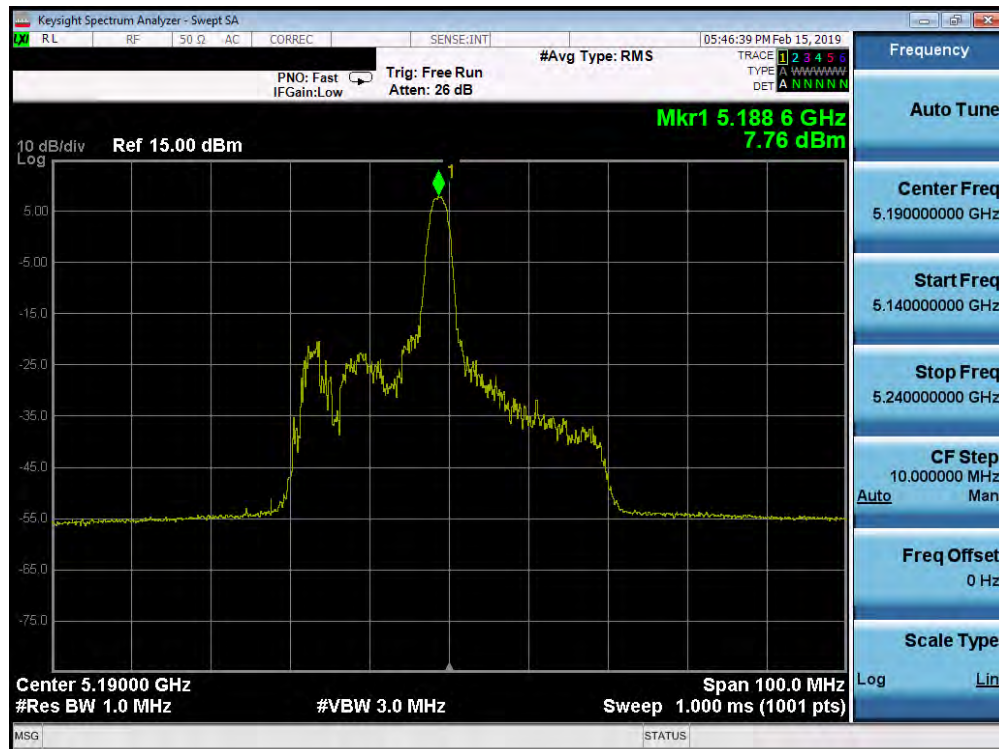


Plot 7-110. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 103 of 285

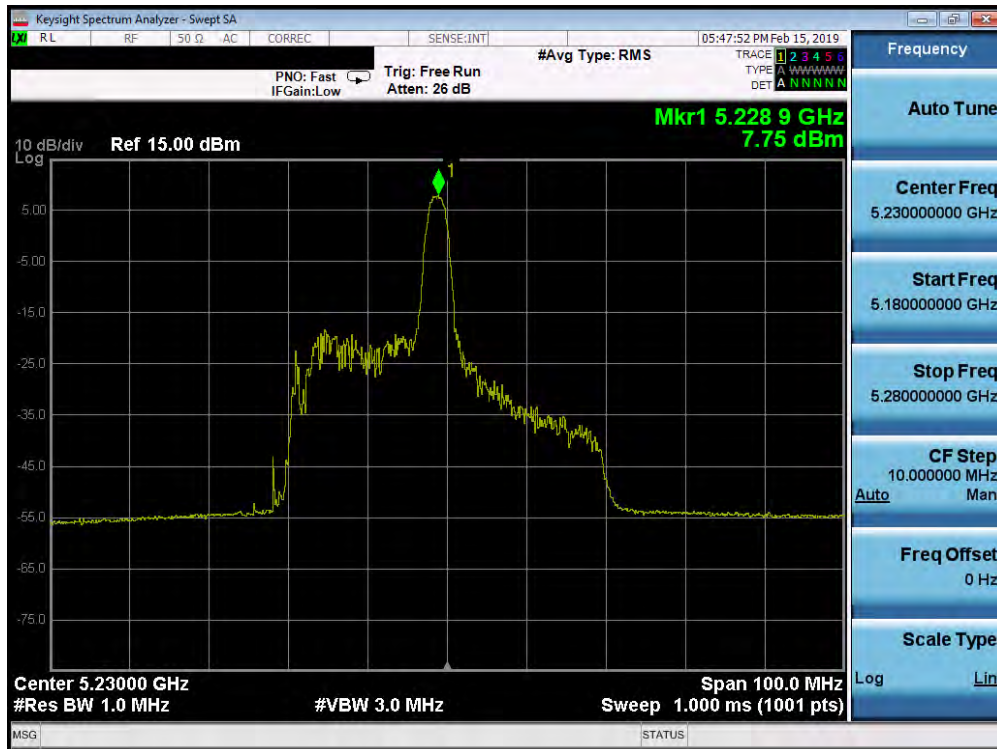


Plot 7-111. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

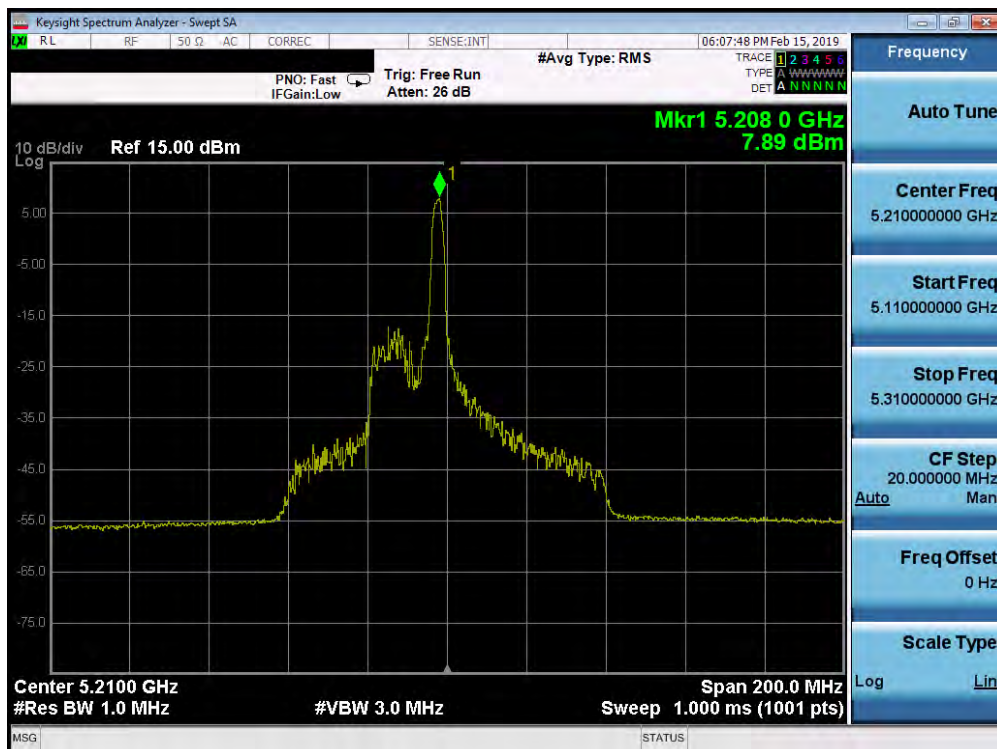


Plot 7-112. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 104 of 285

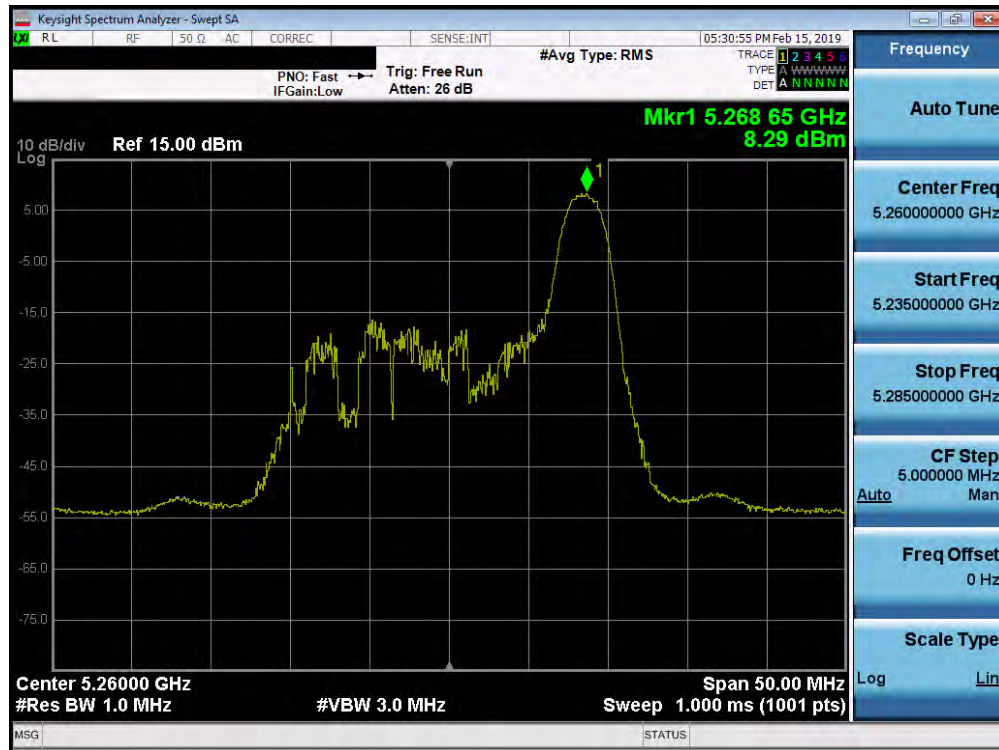


Plot 7-113. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

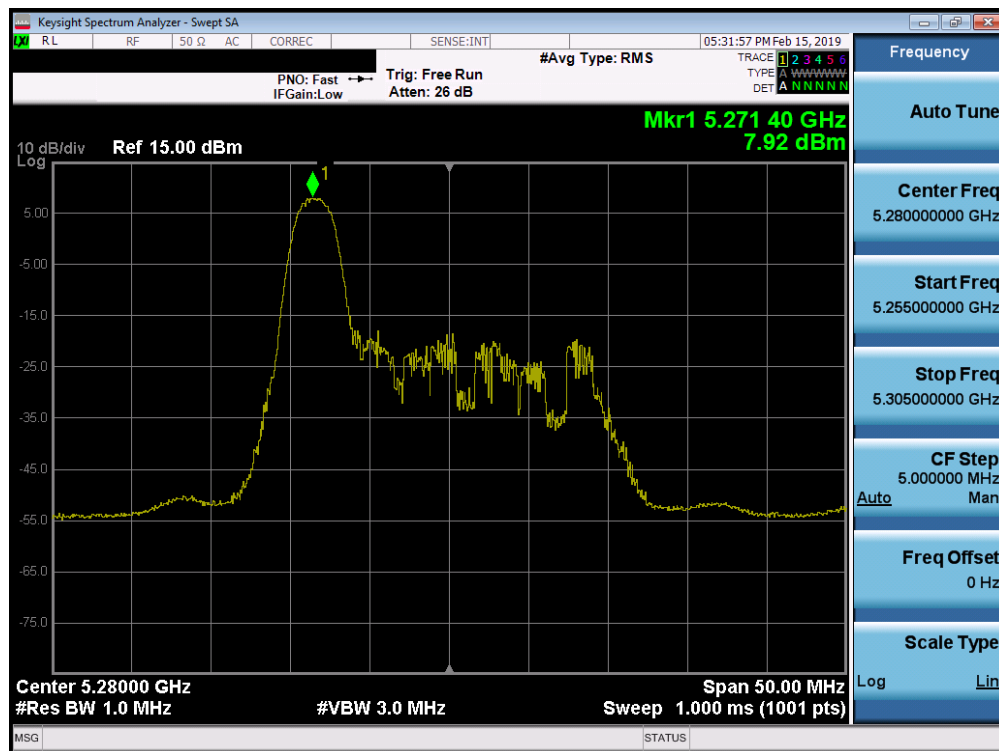


Plot 7-114. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 105 of 285



Plot 7-115. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

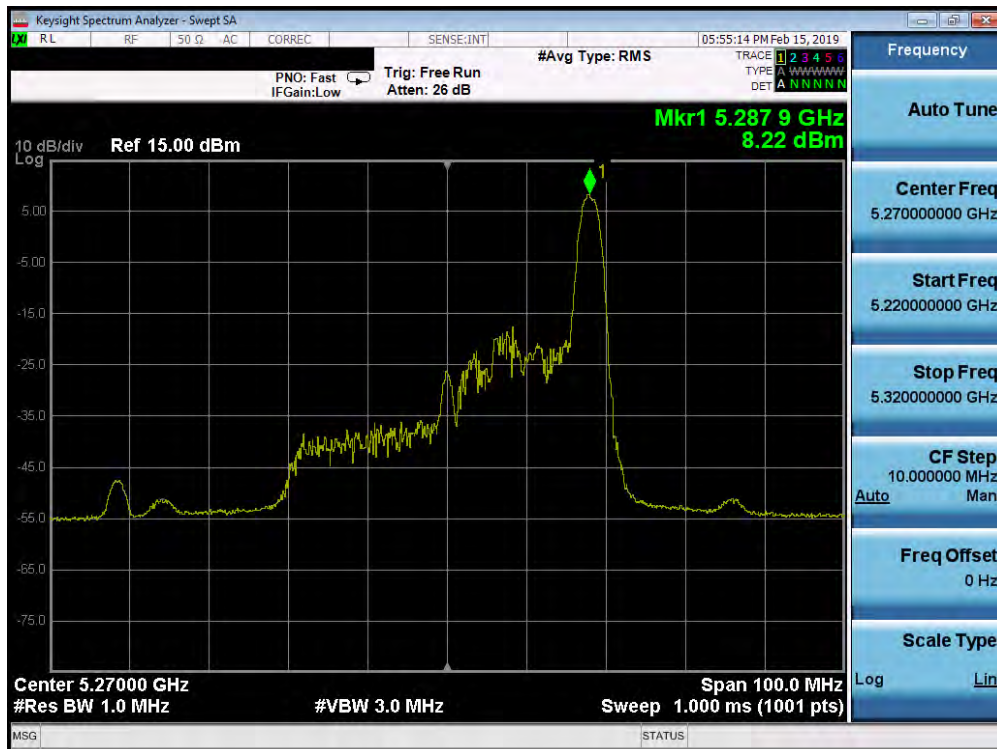


Plot 7-116. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 106 of 285

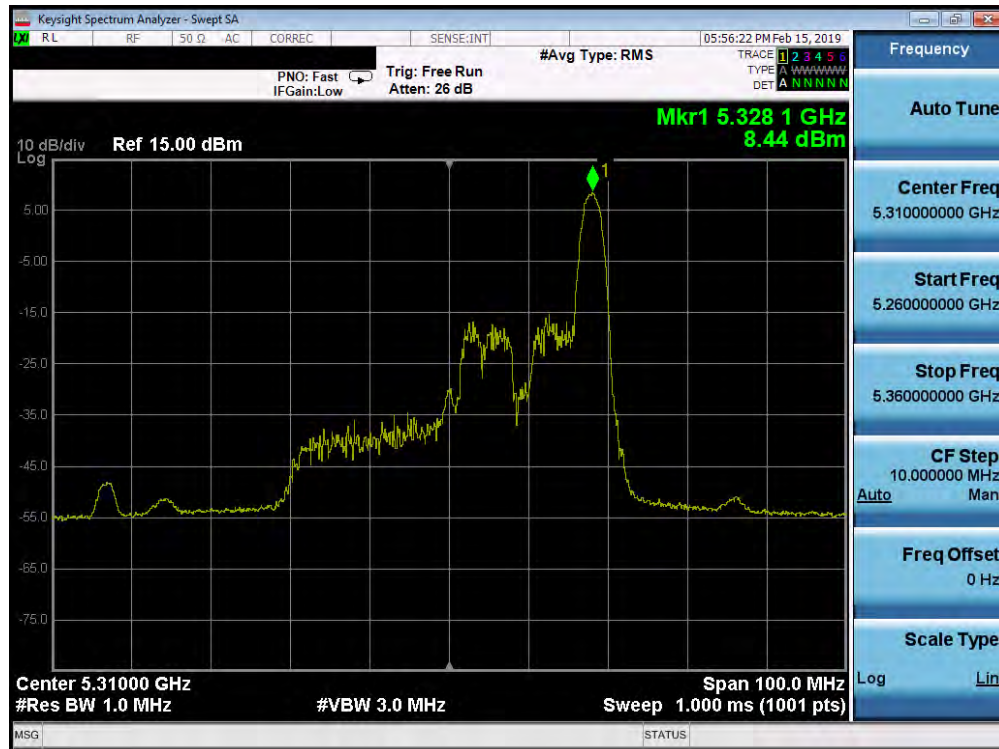


Plot 7-117. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

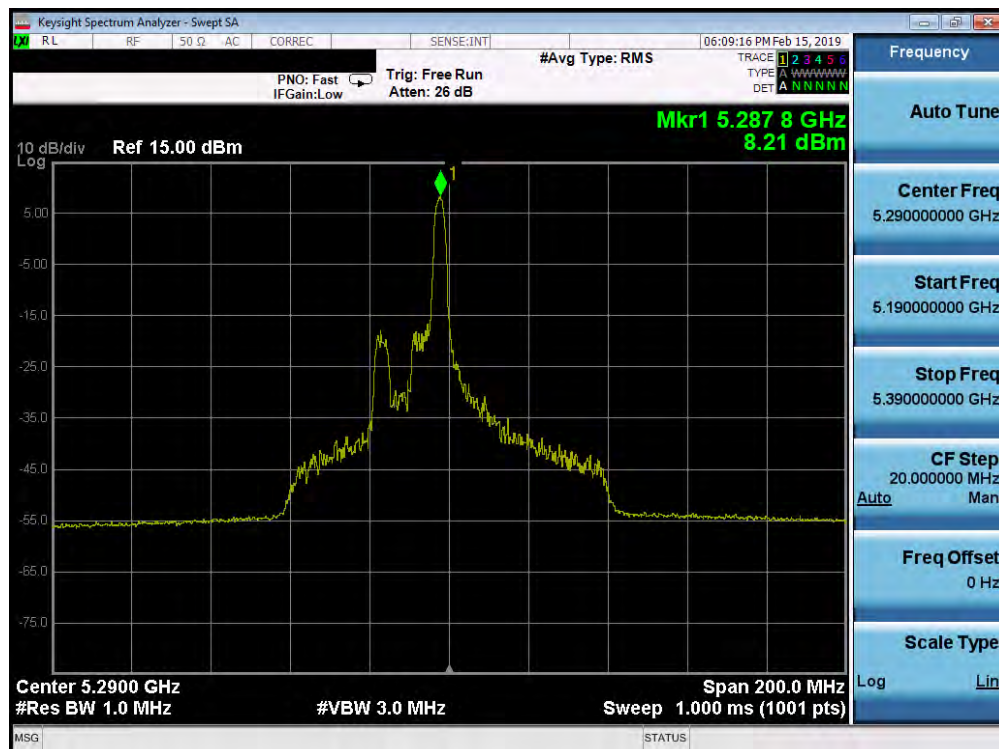


Plot 7-118. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 107 of 285

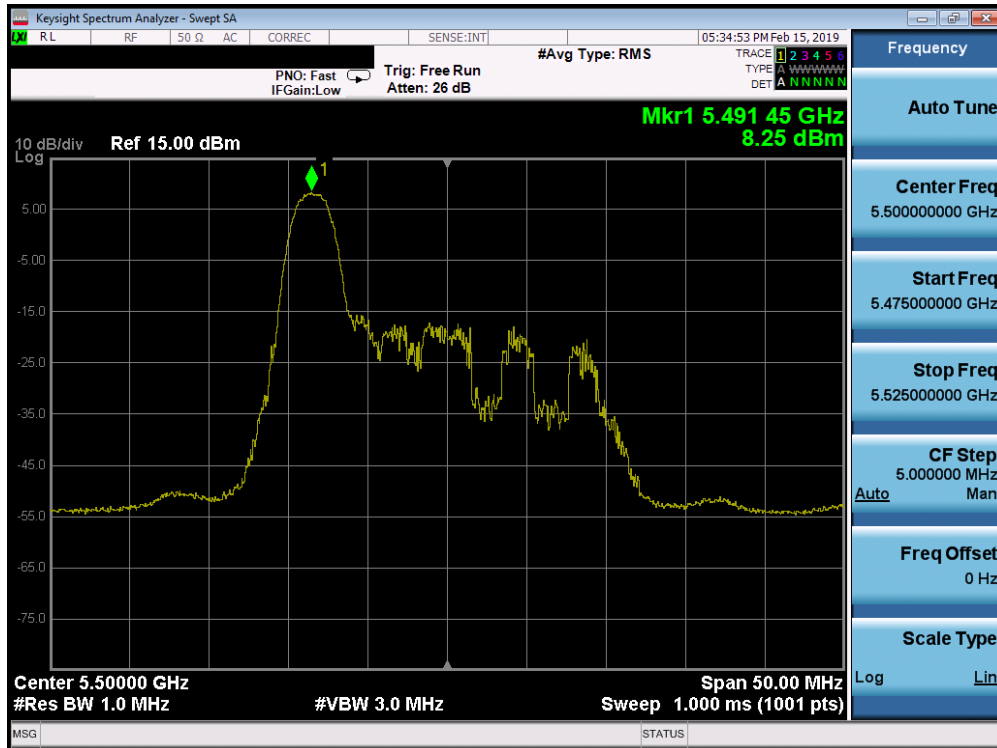


Plot 7-119. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

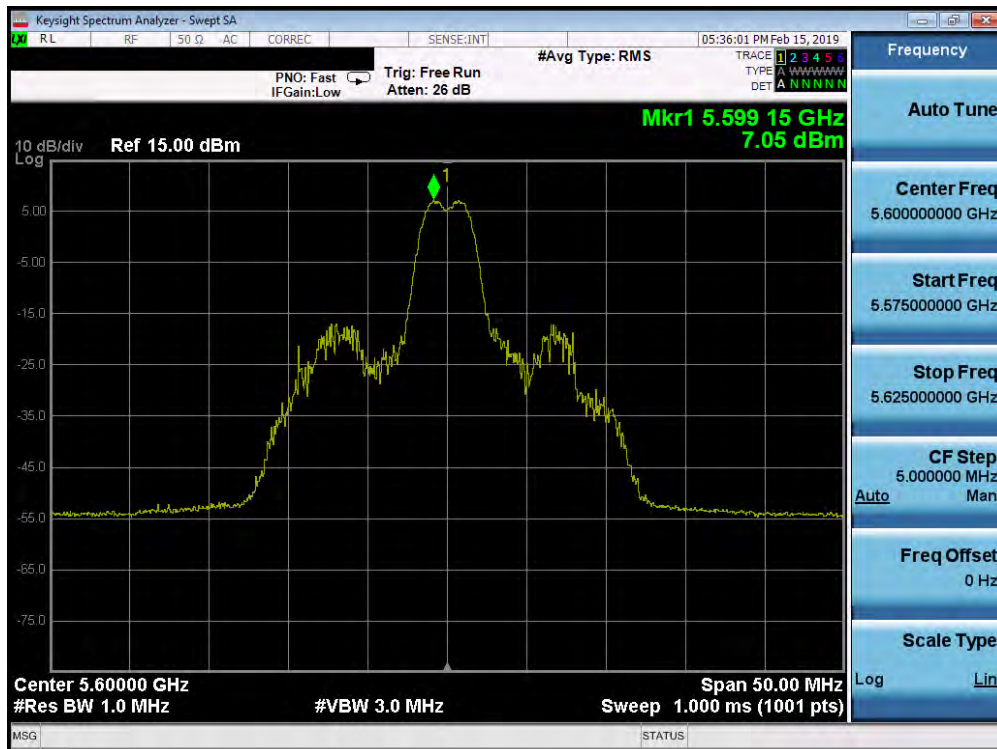


Plot 7-120. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 108 of 285

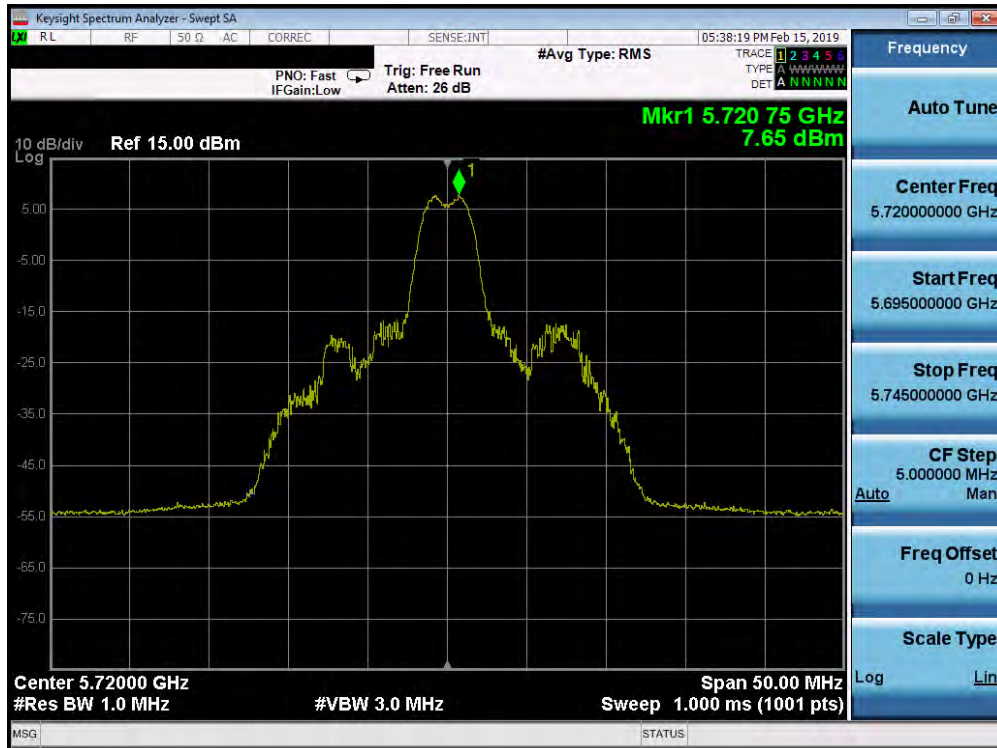


Plot 7-121. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

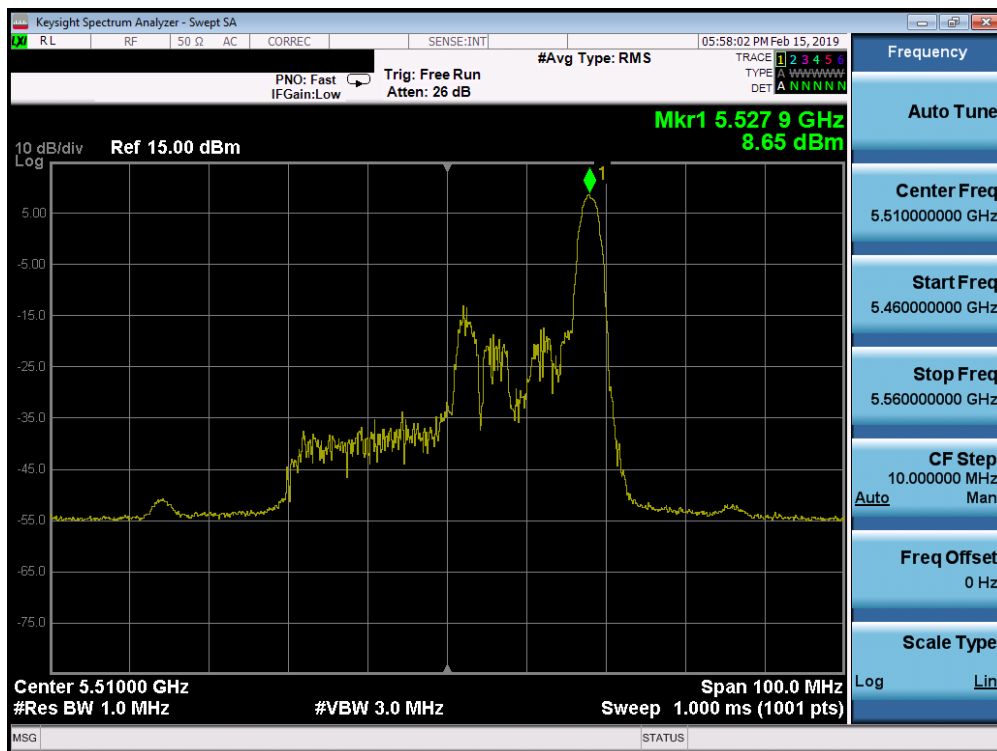


Plot 7-122. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 109 of 285

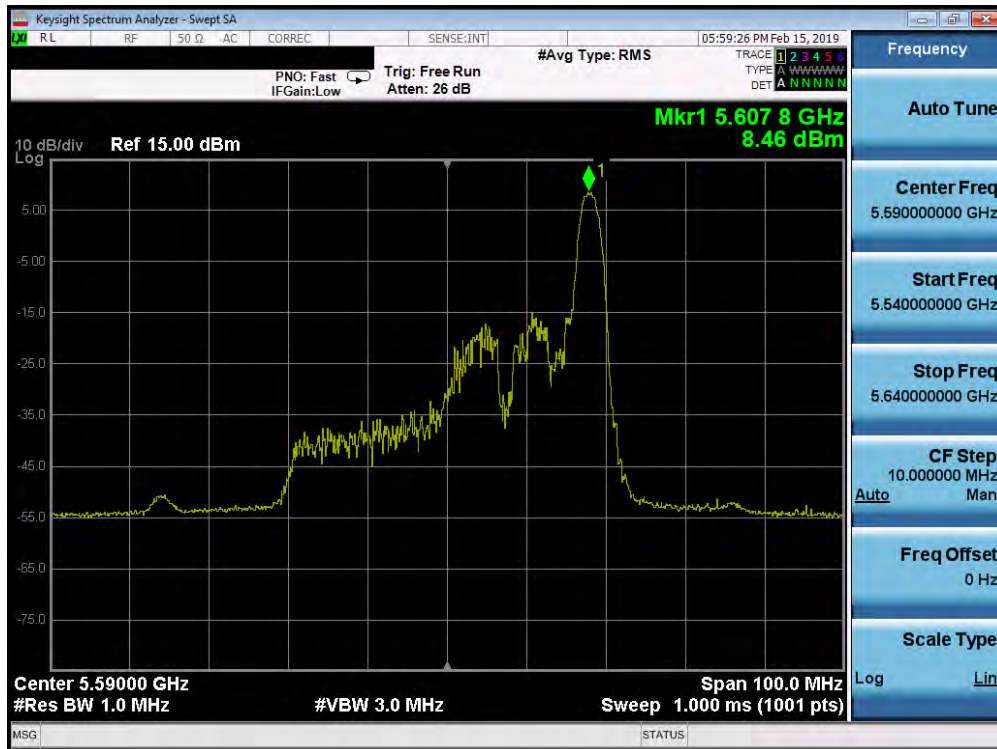


Plot 7-123. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

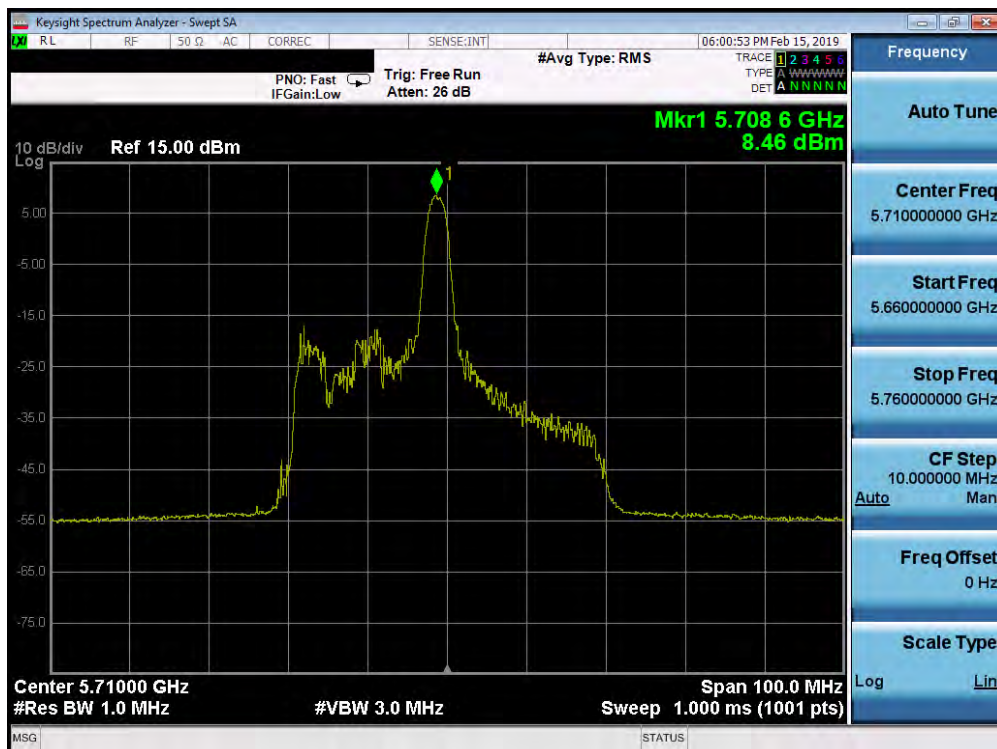


Plot 7-124. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 110 of 285

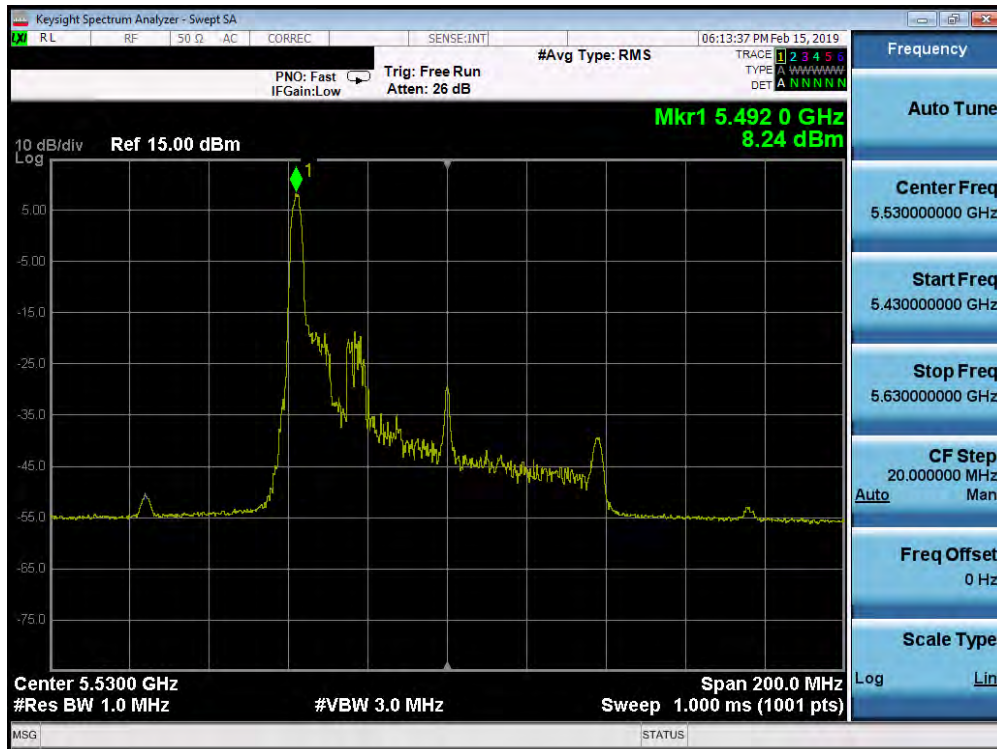


Plot 7-125. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 118)

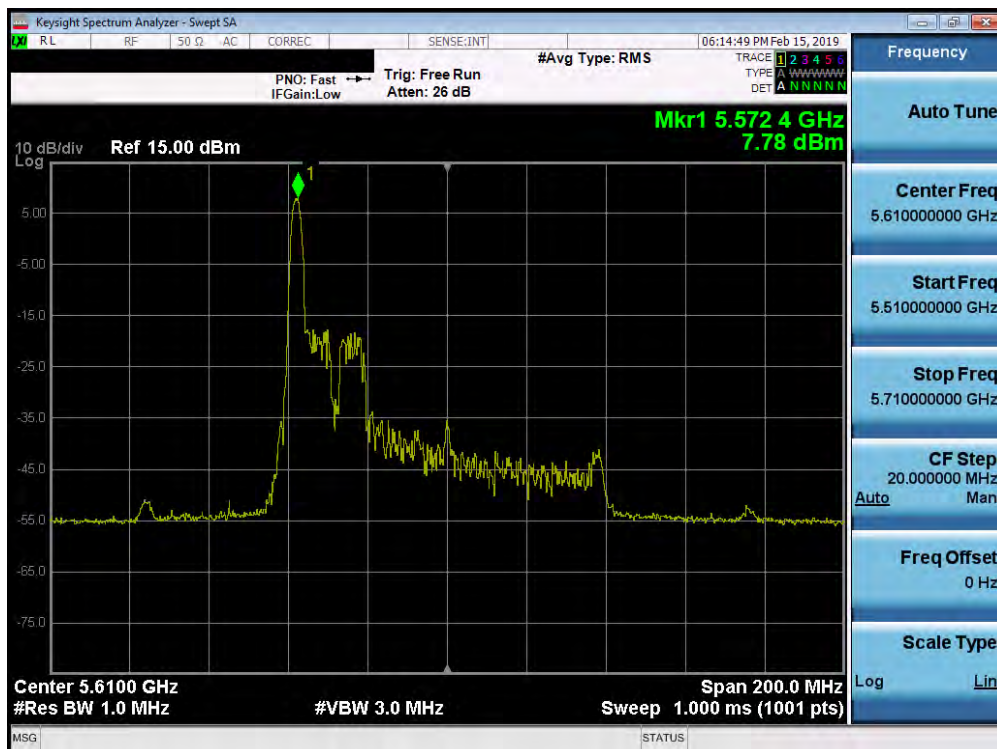


Plot 7-126. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 142)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 111 of 285

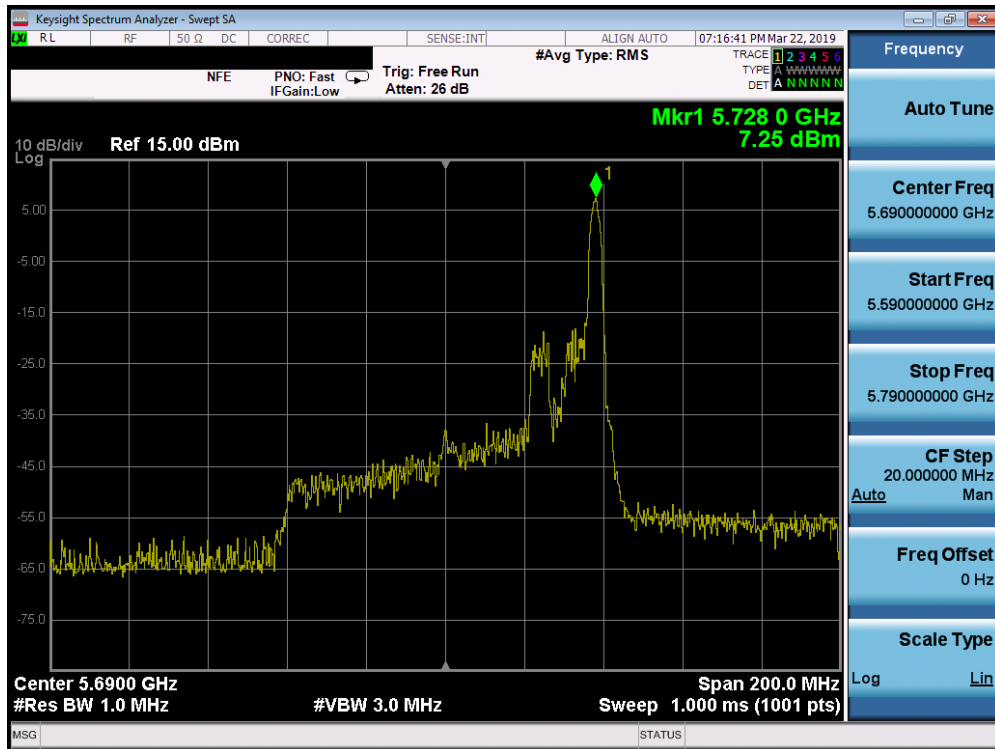


Plot 7-127. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 106)



Plot 7-128. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 122)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 112 of 285

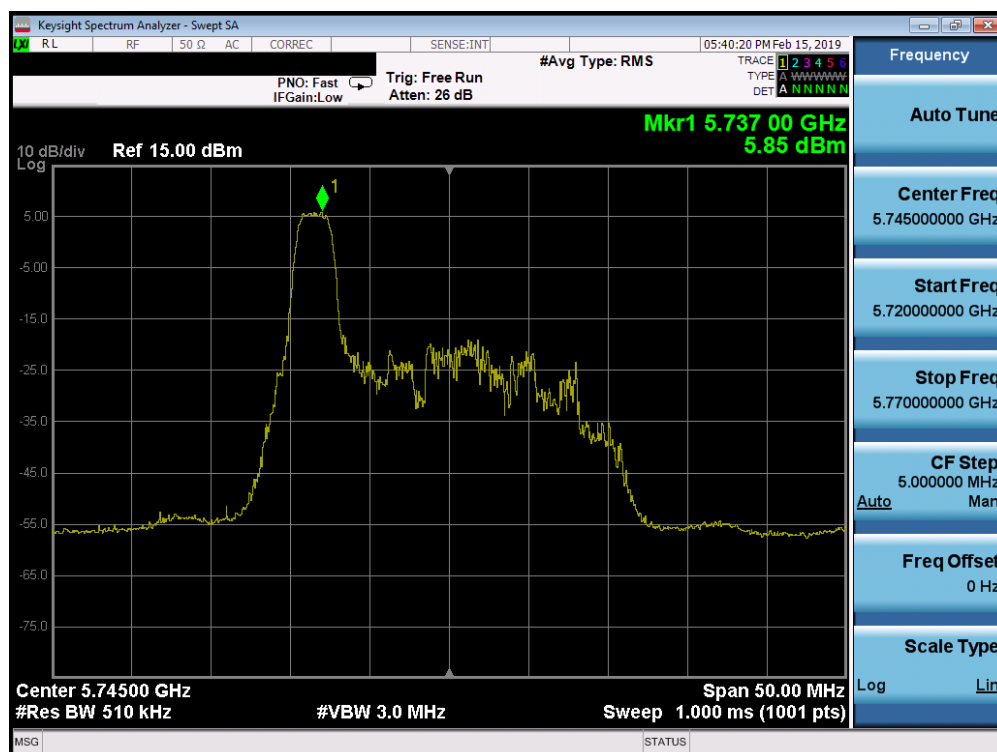


Plot 7-129. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 138)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 113 of 285

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	26T	MCS0	5.85	30.00	-24.15
	5785	157	ax (20MHz)	26T	MCS0	5.53	30.00	-24.47
	5825	165	ax (20MHz)	26T	MCS0	5.38	30.00	-24.62
	5755	151	ax (40MHz)	26T	MCS0	6.16	30.00	-23.84
	5795	159	ax (40MHz)	26T	MCS0	6.23	30.00	-23.77
	5775	155	ax (80MHz)	26T	MCS0	8.22	30.00	-21.78

Table 7-56. Band 3 Conducted Power Spectral Density Measurements SISO ANT1 (26 Tones)

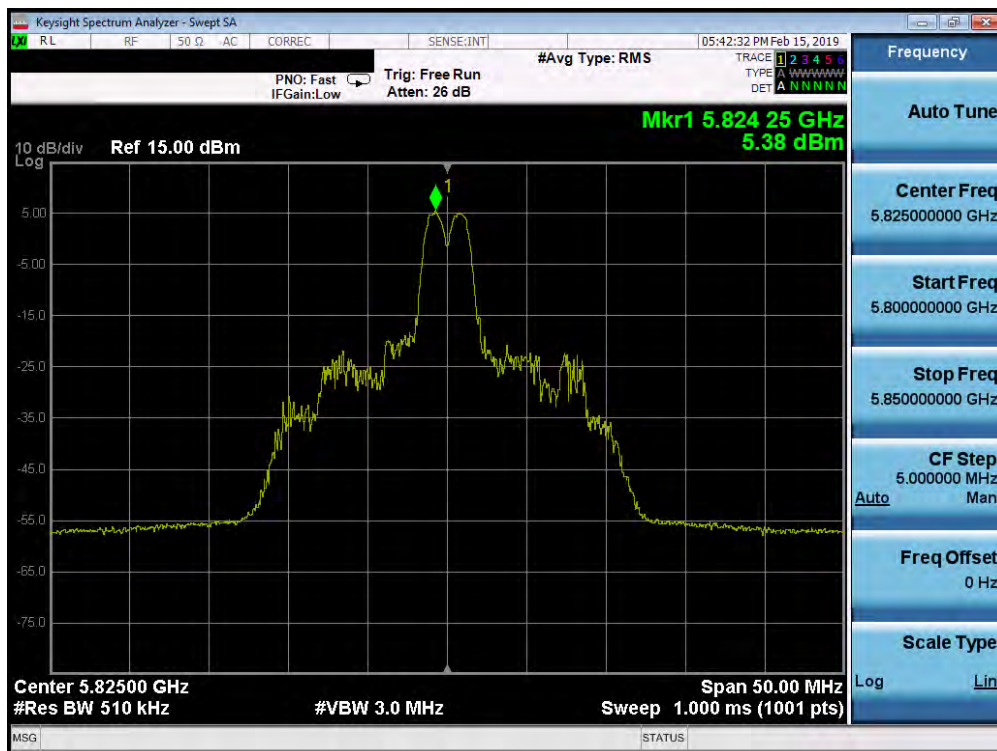


Plot 7-130. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 114 of 285

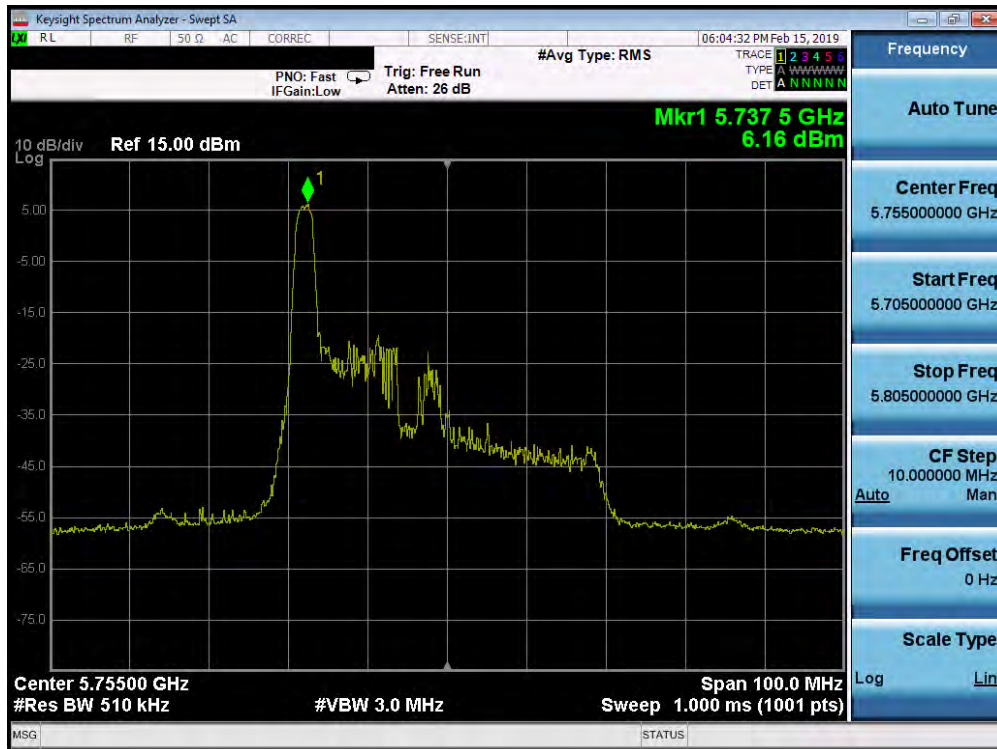


Plot 7-131. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

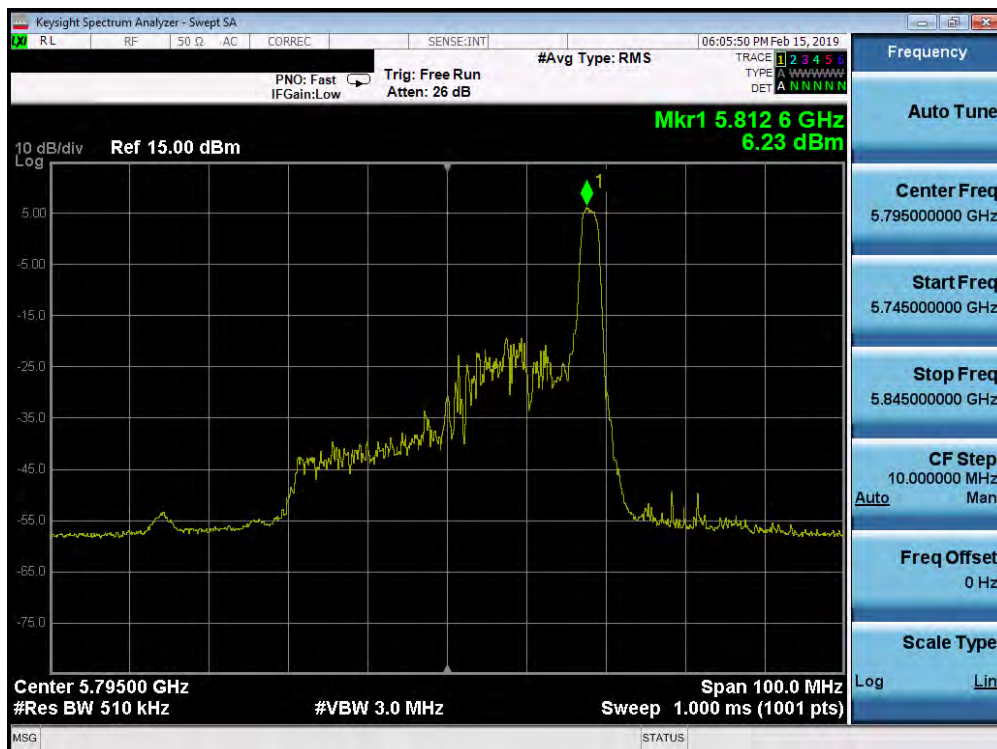


Plot 7-132. Power Spectral Density Plot SISO ANT1 (20 MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 115 of 285

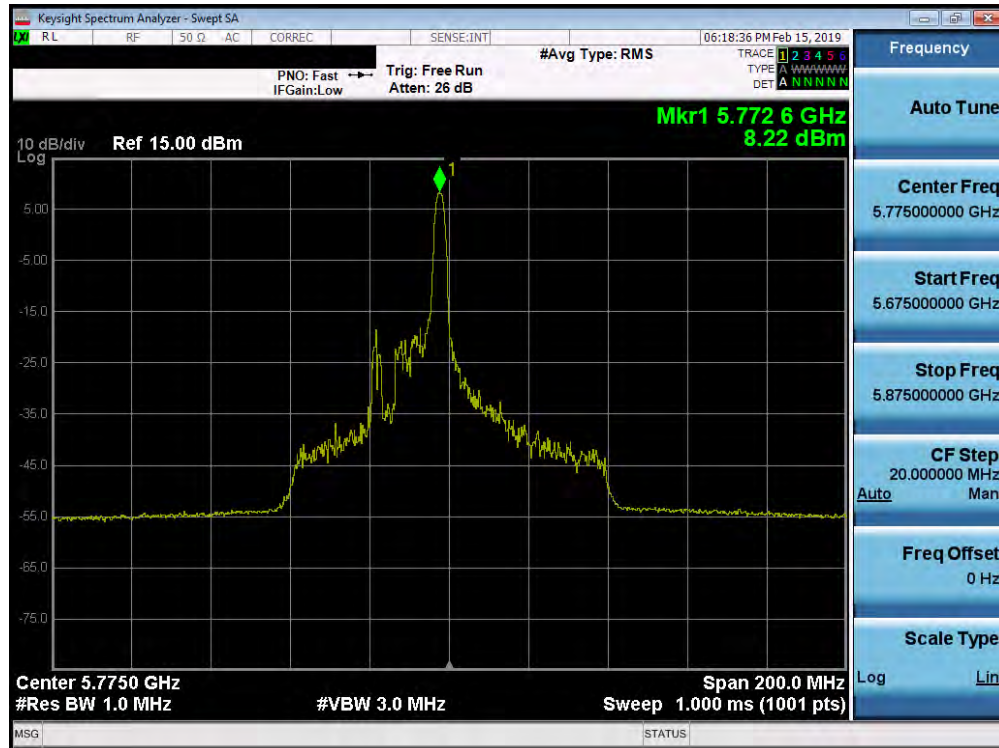


Plot 7-133. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-134. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 116 of 285



Plot 7-135. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

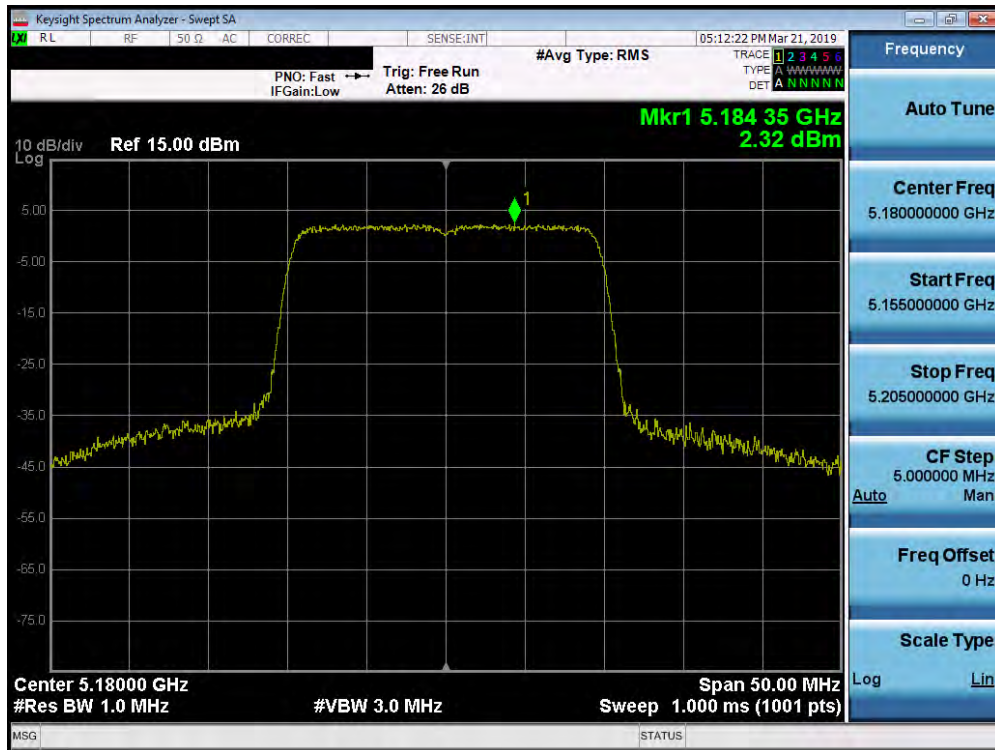
FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 117 of 285

SISO Antenna-1 Power Spectral Density Measurements (Full Tones)

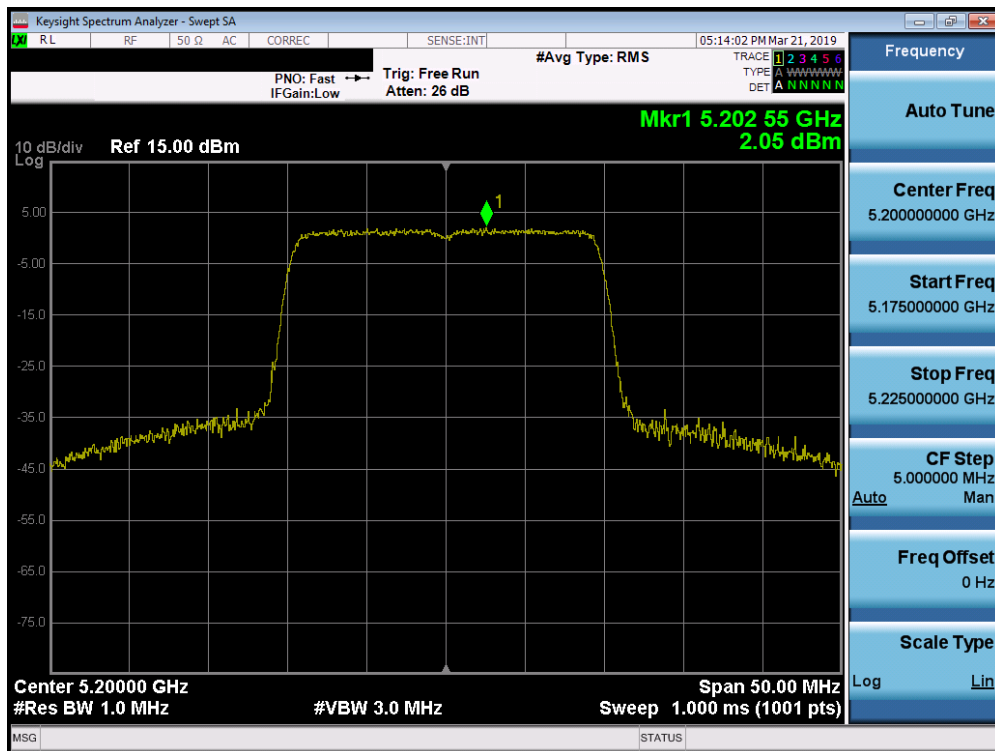
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	2.32	11.0	-8.68
	5200	40	ax (20MHz)	242T	MCS0	2.05	11.0	-8.95
	5240	48	ax (20MHz)	242T	MCS0	1.94	11.0	-9.06
	5190	38	ax (40MHz)	484T	MCS0	-2.97	11.0	-13.97
	5230	46	ax (40MHz)	484T	MCS0	-2.75	11.0	-13.75
	5210	42	ax (80MHz)	996T	MCS0	-6.07	11.0	-17.07
Band 2A	5260	52	ax (20MHz)	242T	MCS0	0.96	11.0	-10.04
	5280	56	ax (20MHz)	242T	MCS0	1.17	11.0	-9.83
	5320	64	ax (20MHz)	242T	MCS0	1.33	11.0	-9.67
	5270	54	ax (40MHz)	484T	MCS0	-3.08	11.0	-14.08
	5310	62	ax (40MHz)	484T	MCS0	-2.98	11.0	-13.98
	5290	58	ax (80MHz)	996T	MCS0	-6.81	11.0	-17.81
Band 2C	5500	100	ax (20MHz)	242T	MCS0	2.57	11.0	-8.43
	5600	120	ax (20MHz)	242T	MCS0	2.93	11.0	-8.07
	5720	144	ax (20MHz)	242T	MCS0	3.35	11.0	-7.65
	5510	102	ax (40MHz)	484T	MCS0	-2.16	11.0	-13.16
	5590	118	ax (40MHz)	484T	MCS0	-1.79	11.0	-12.79
	5710	142	ax (40MHz)	484T	MCS0	-1.50	11.0	-12.50
	5530	106	ax (80MHz)	996T	MCS0	-6.74	11.0	-17.74
	5610	122	ax (80MHz)	996T	MCS0	-6.51	11.0	-17.51
	5690	138	ax (80MHz)	996T	MCS0	-4.15	11.0	-15.15

Table 7-57. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT1 (Full Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 118 of 285

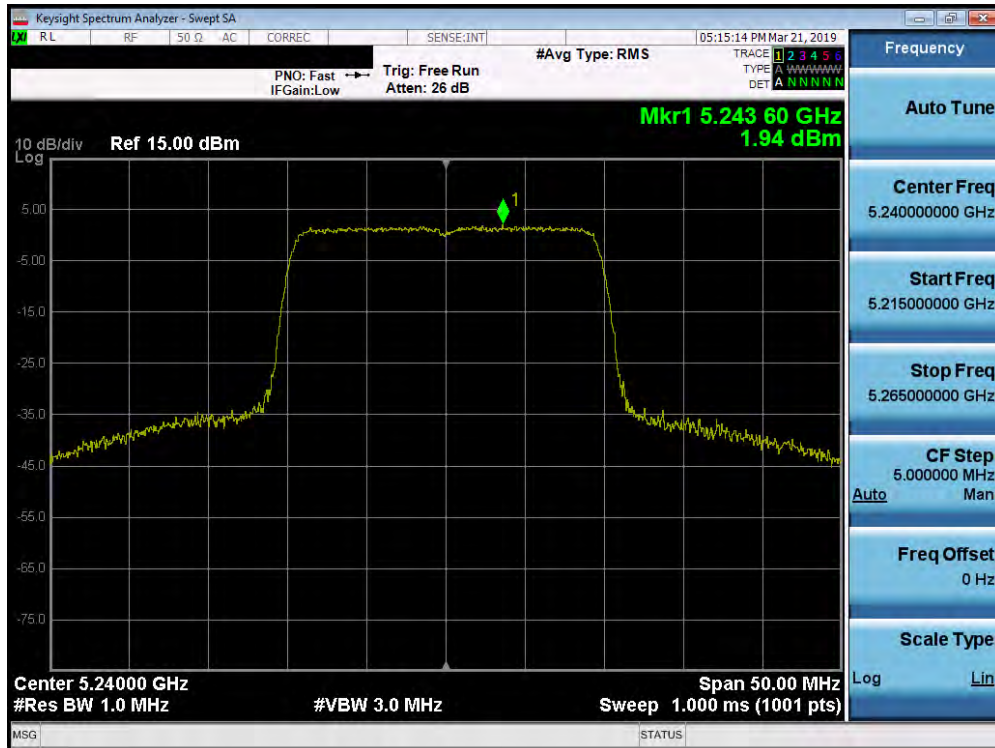


Plot 7-136. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

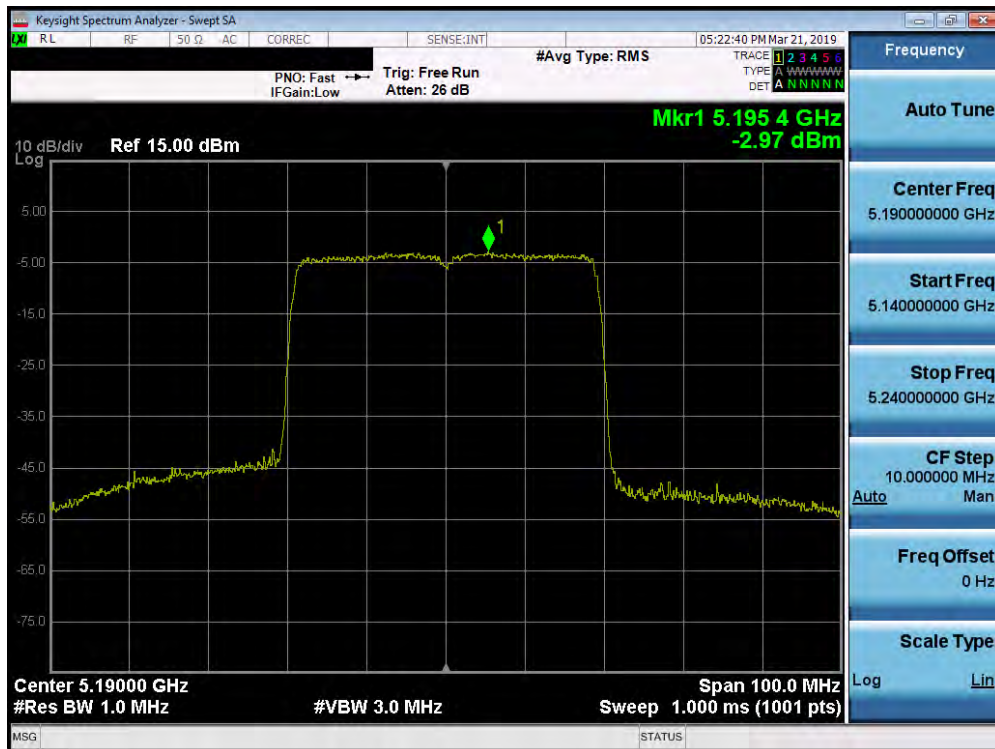


Plot 7-137. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 119 of 285

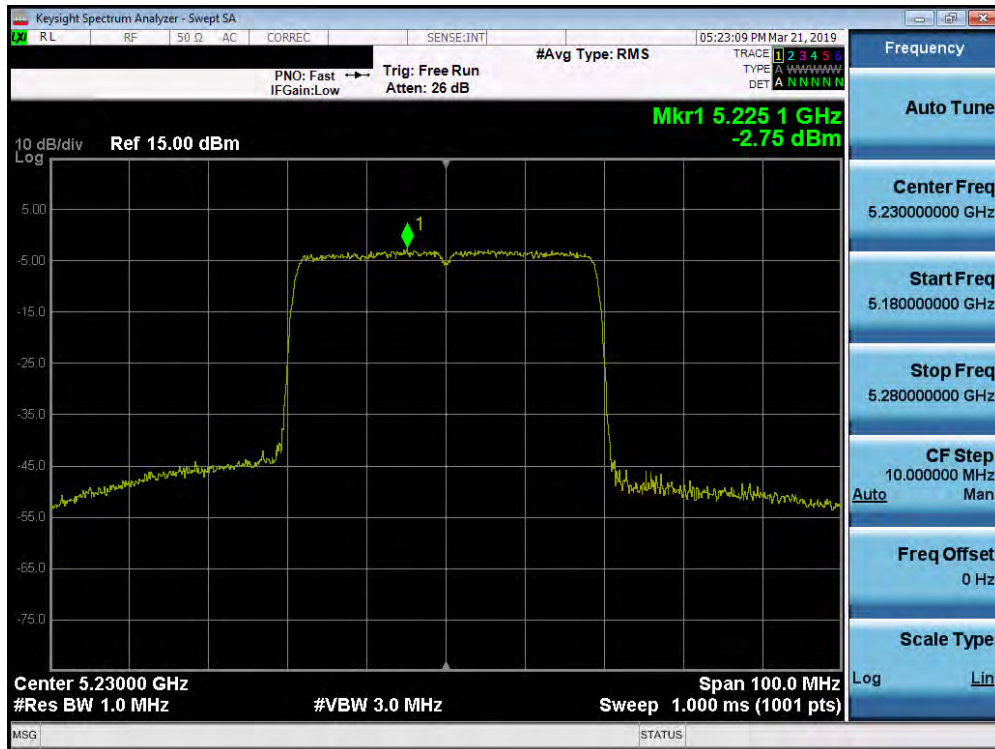


Plot 7-138. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

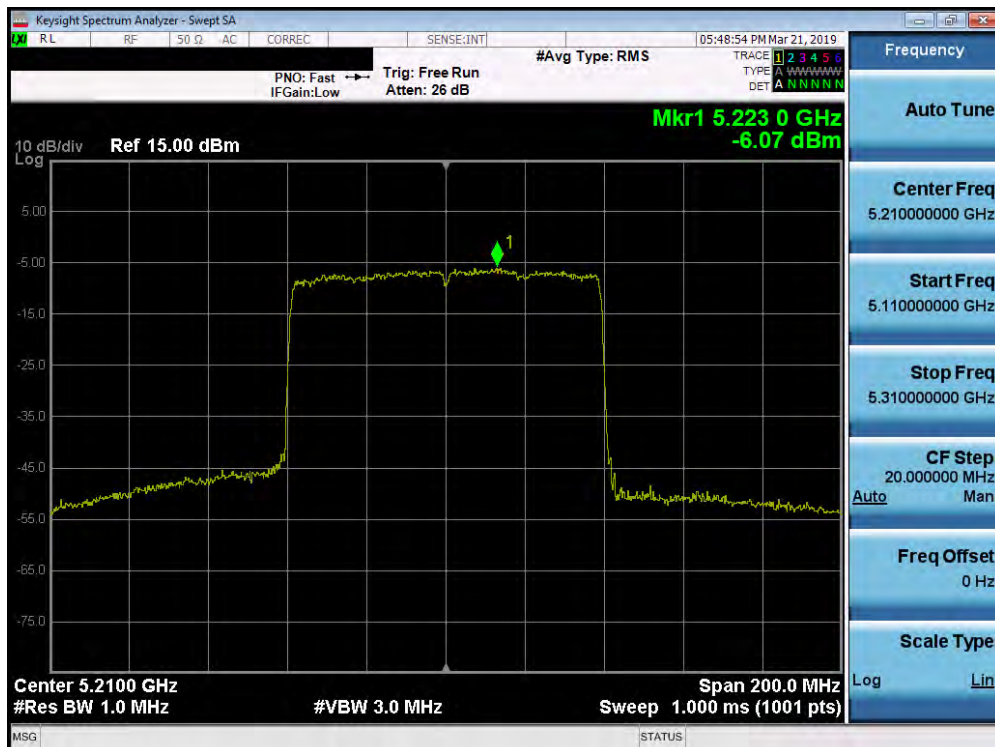


Plot 7-139. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 120 of 285

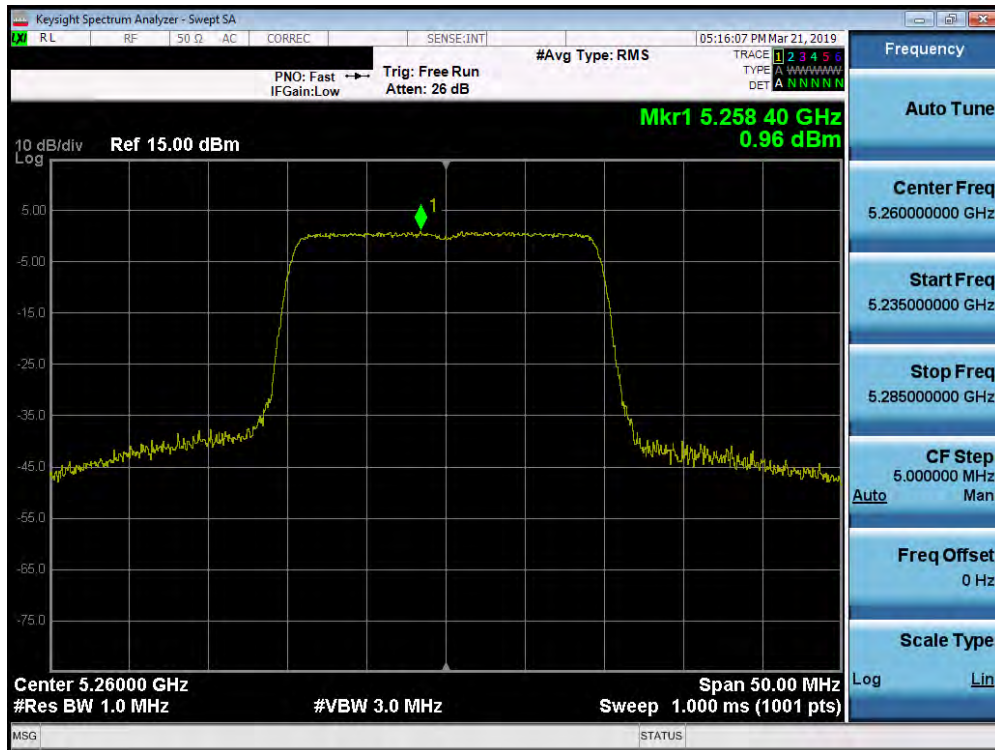


Plot 7-140. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

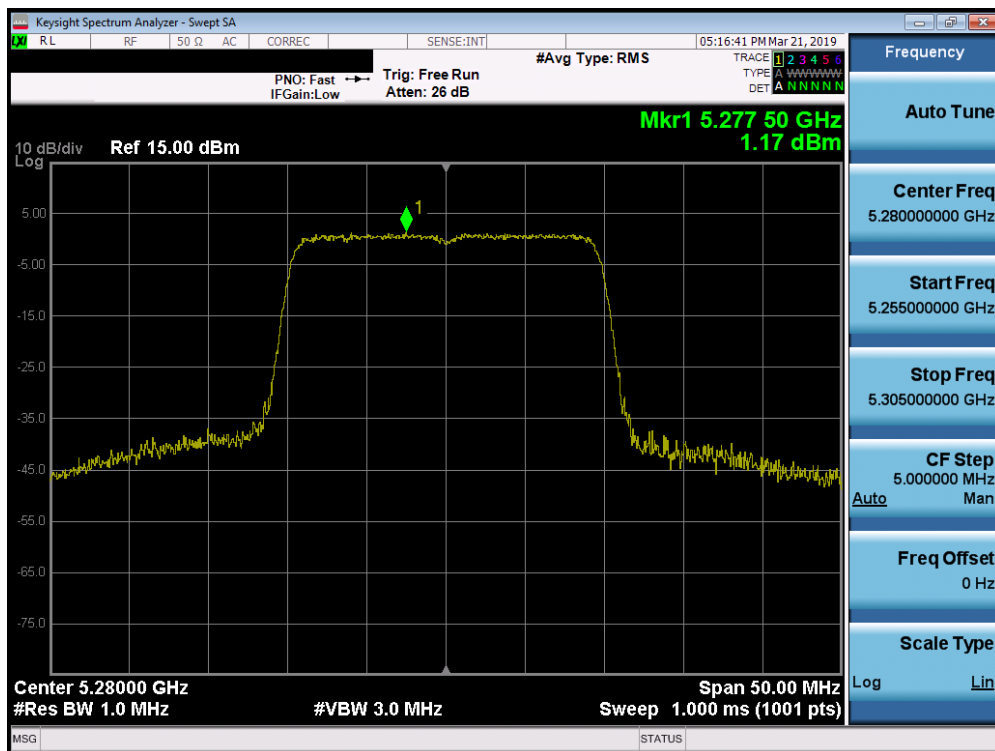


Plot 7-141. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 121 of 285

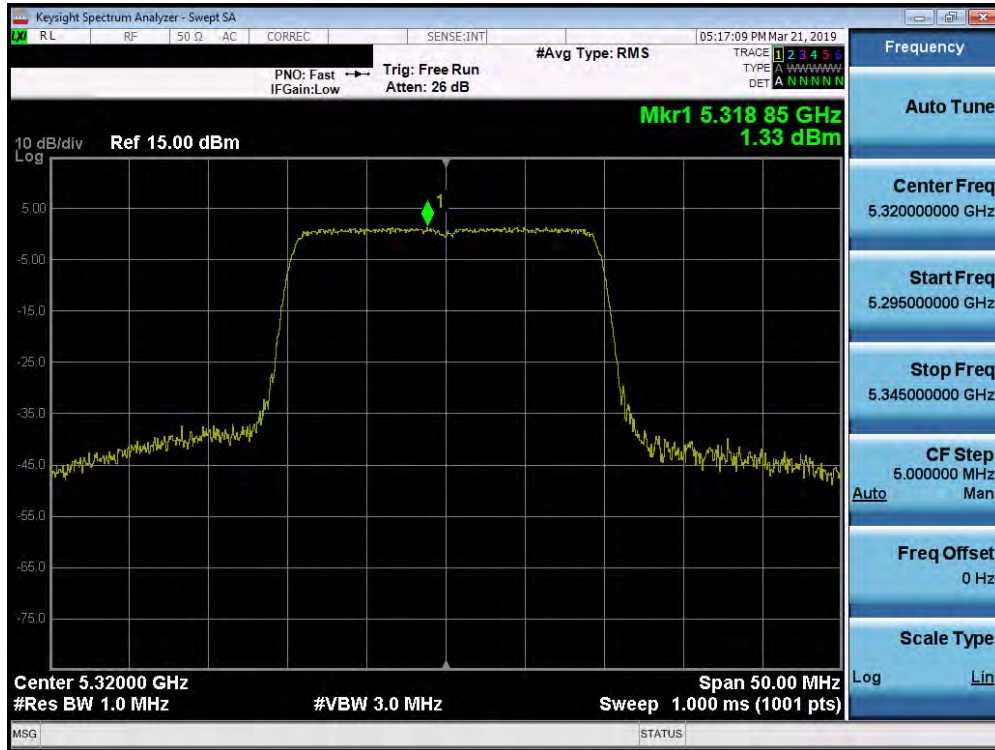


Plot 7-142. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)

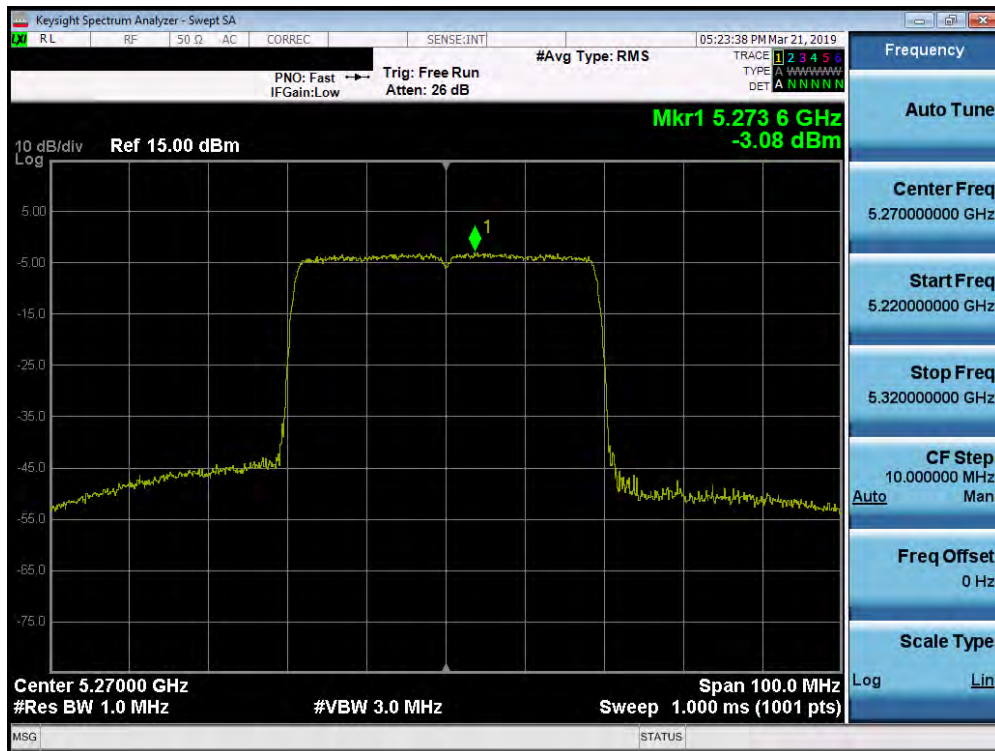


Plot 7-143. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 122 of 285

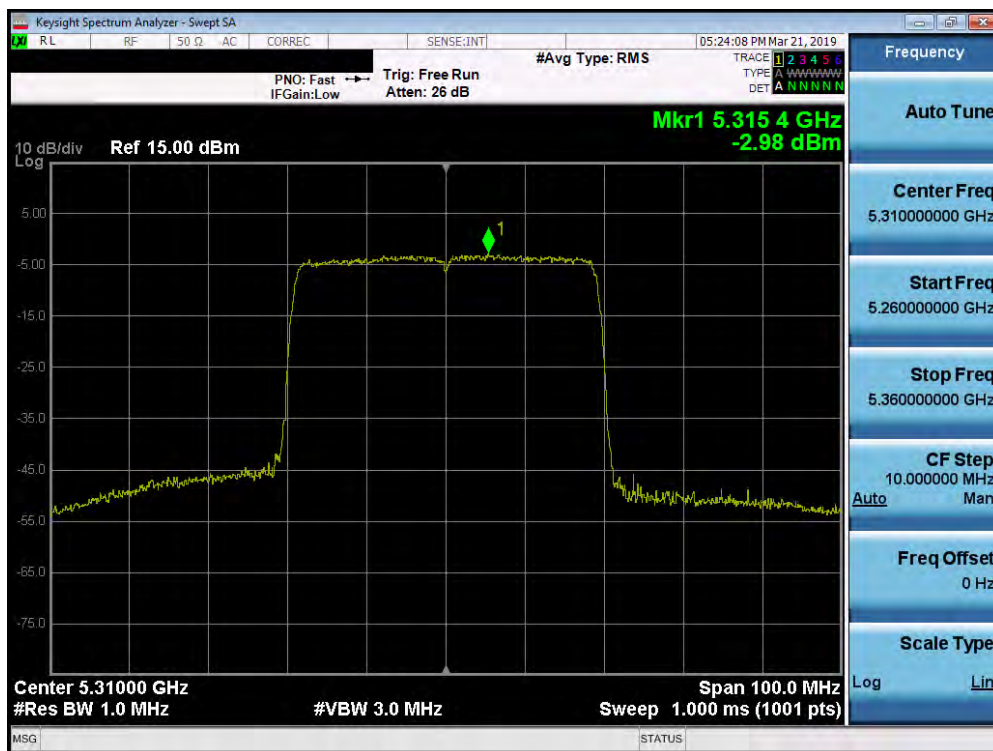


Plot 7-144. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)

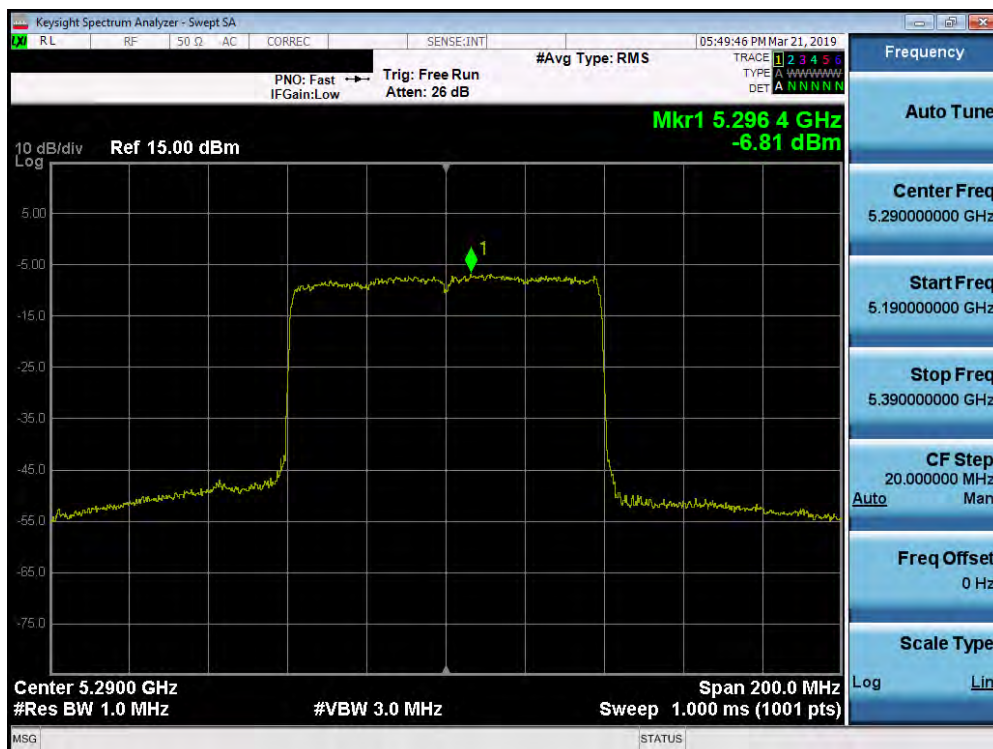


Plot 7-145. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 123 of 285

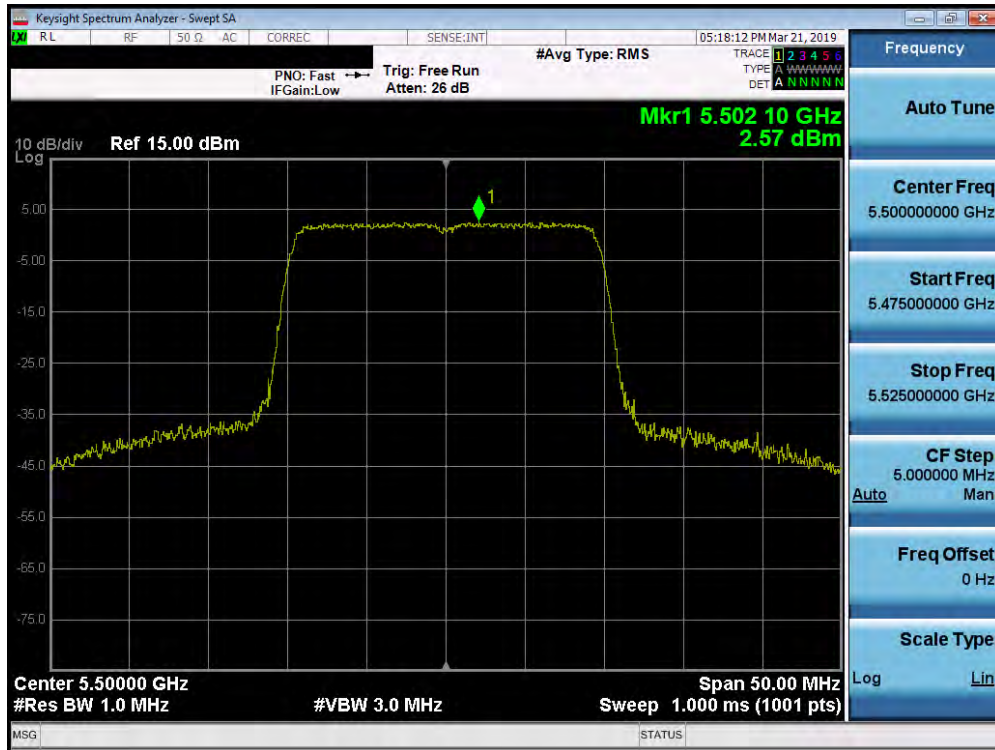


Plot 7-146. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

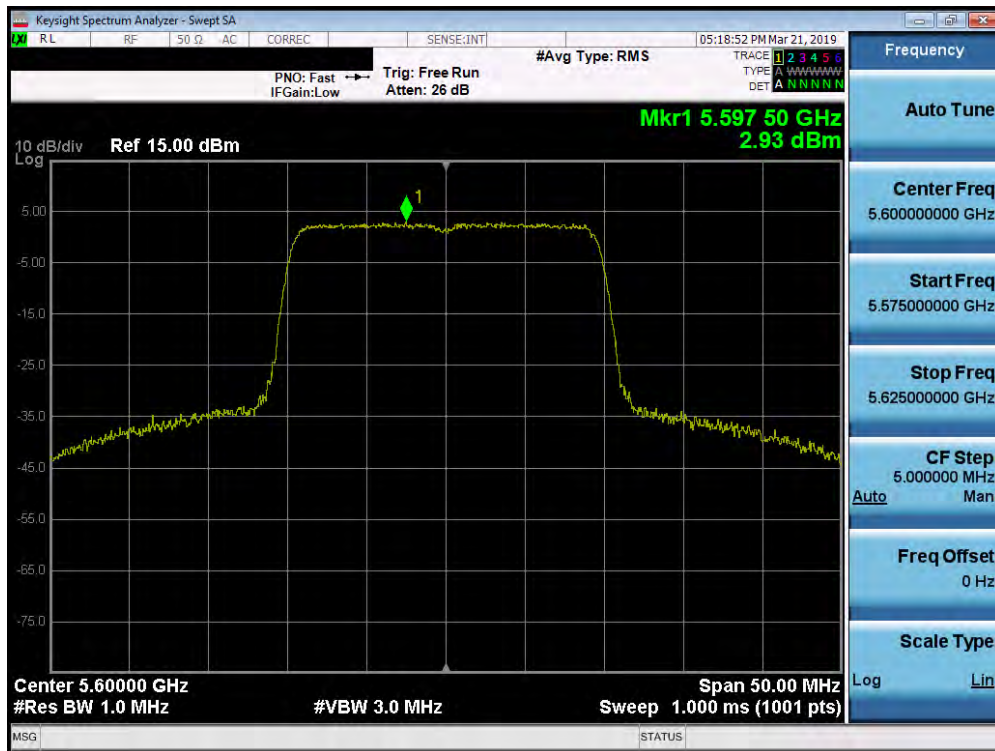


Plot 7-147. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 124 of 285

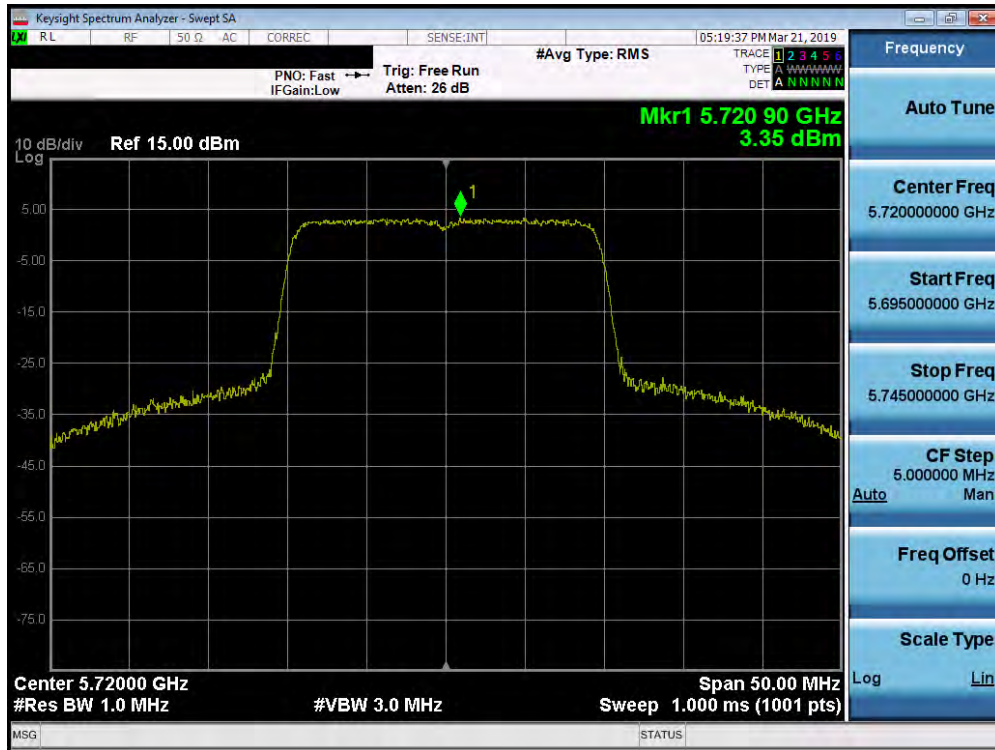


Plot 7-148. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

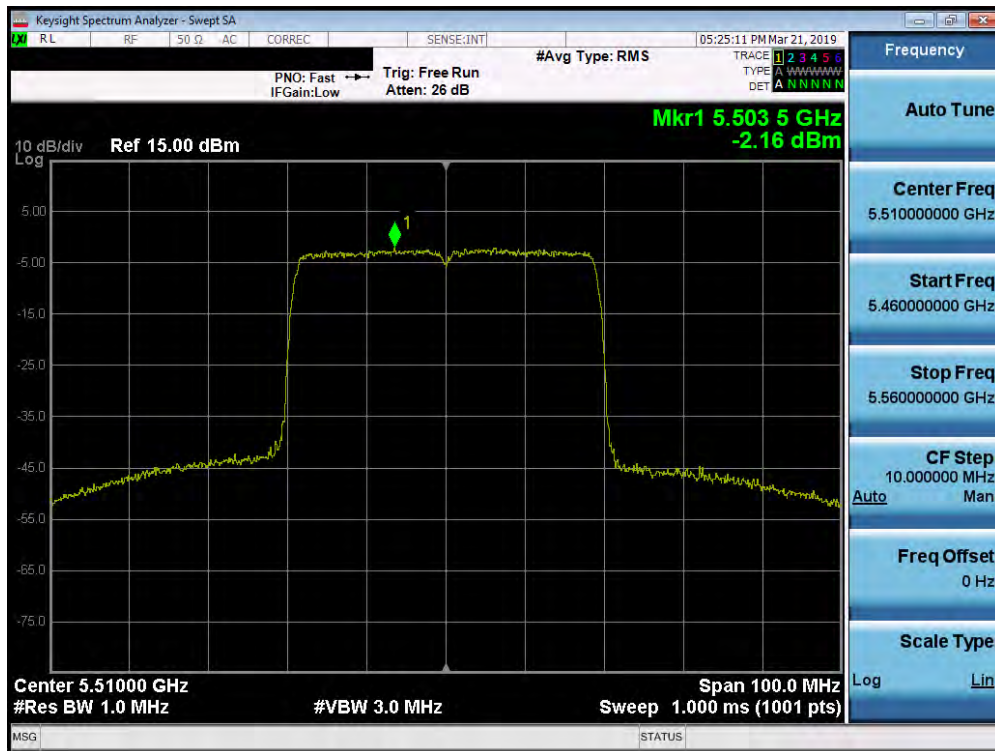


Plot 7-149. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 125 of 285	

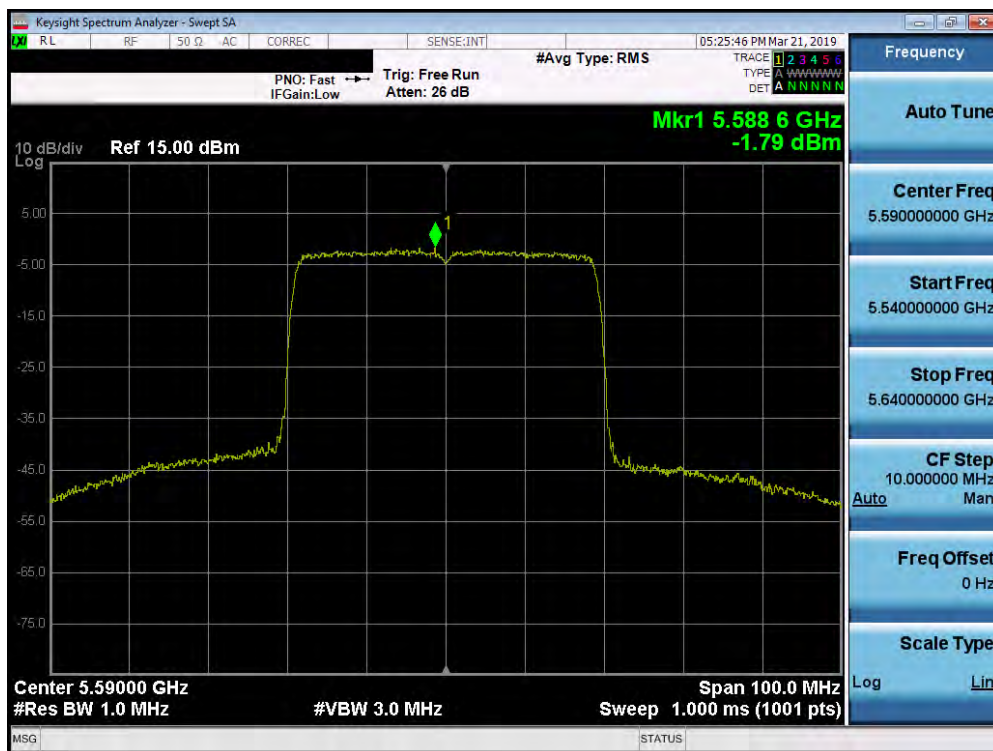


Plot 7-150. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)

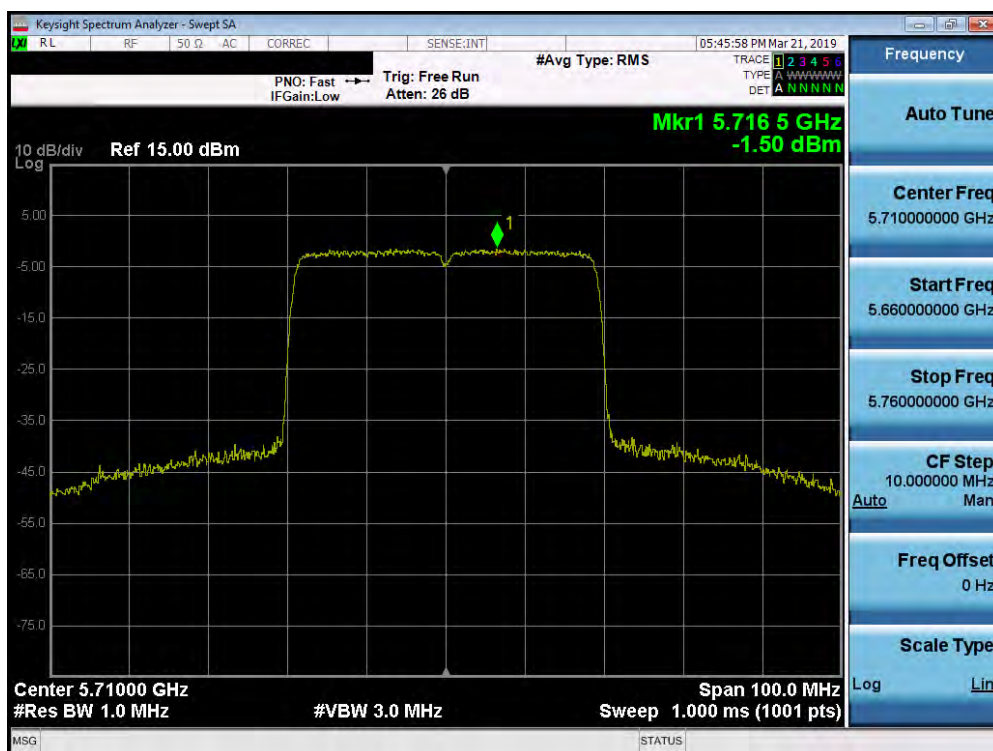


Plot 7-151. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 126 of 285

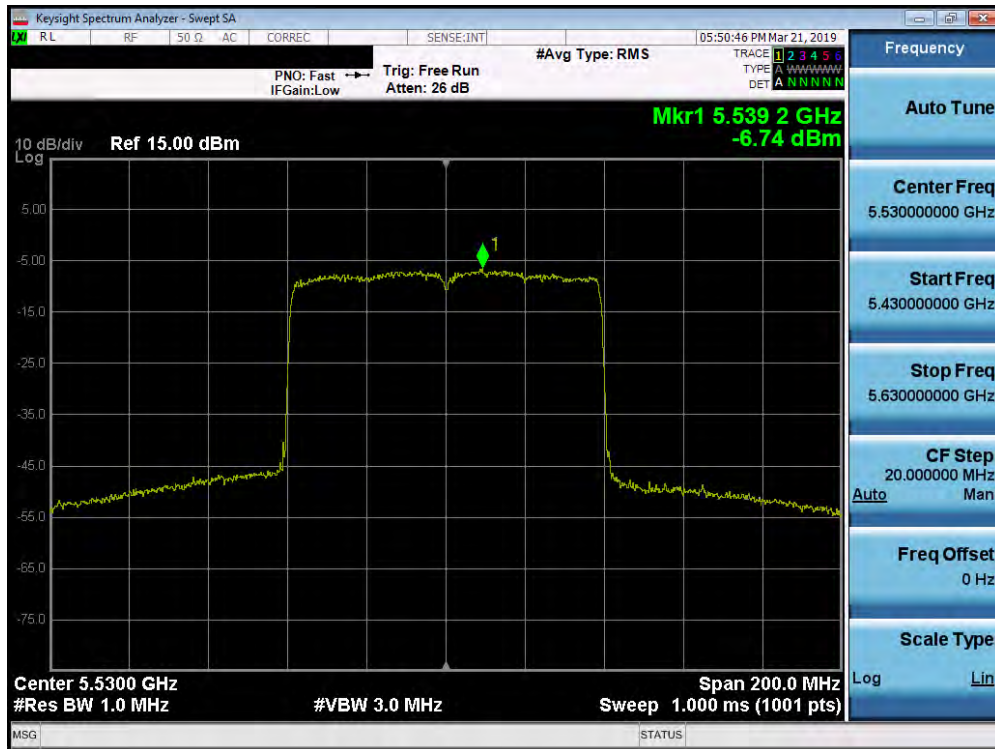


Plot 7-152. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)

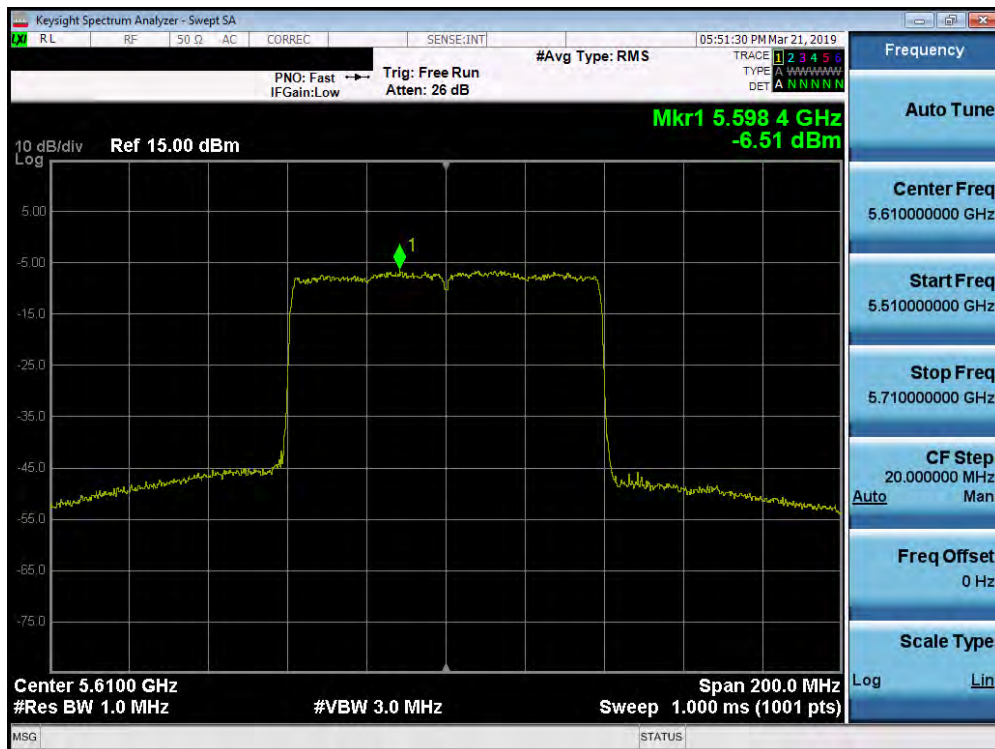


Plot 7-153. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 127 of 285

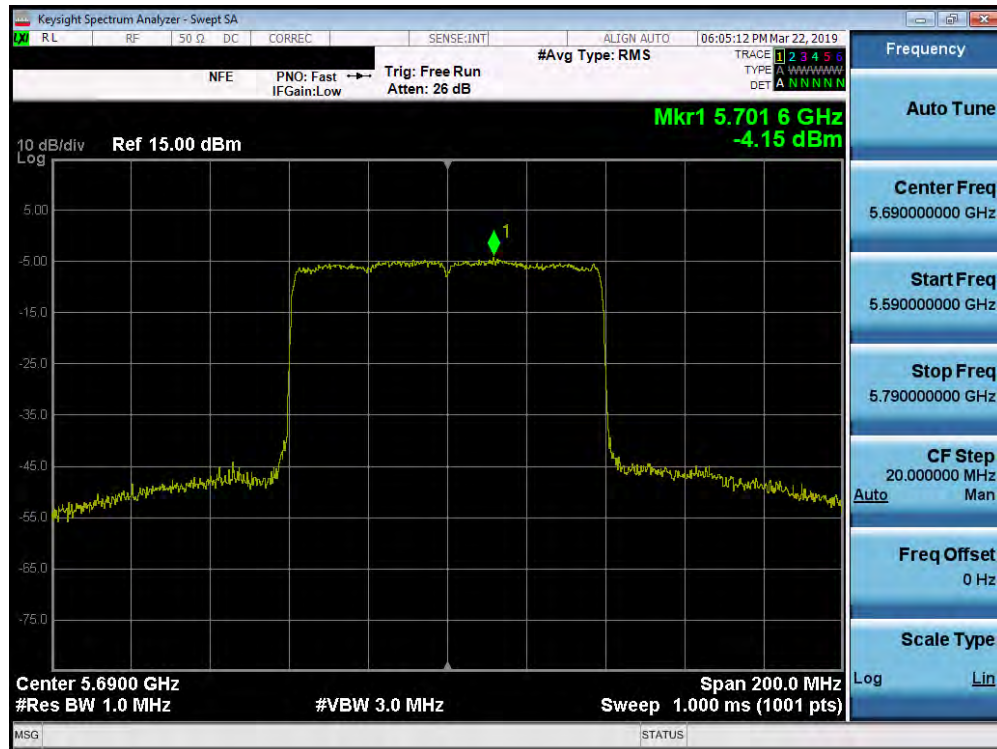


Plot 7-154. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)



Plot 7-155. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 128 of 285

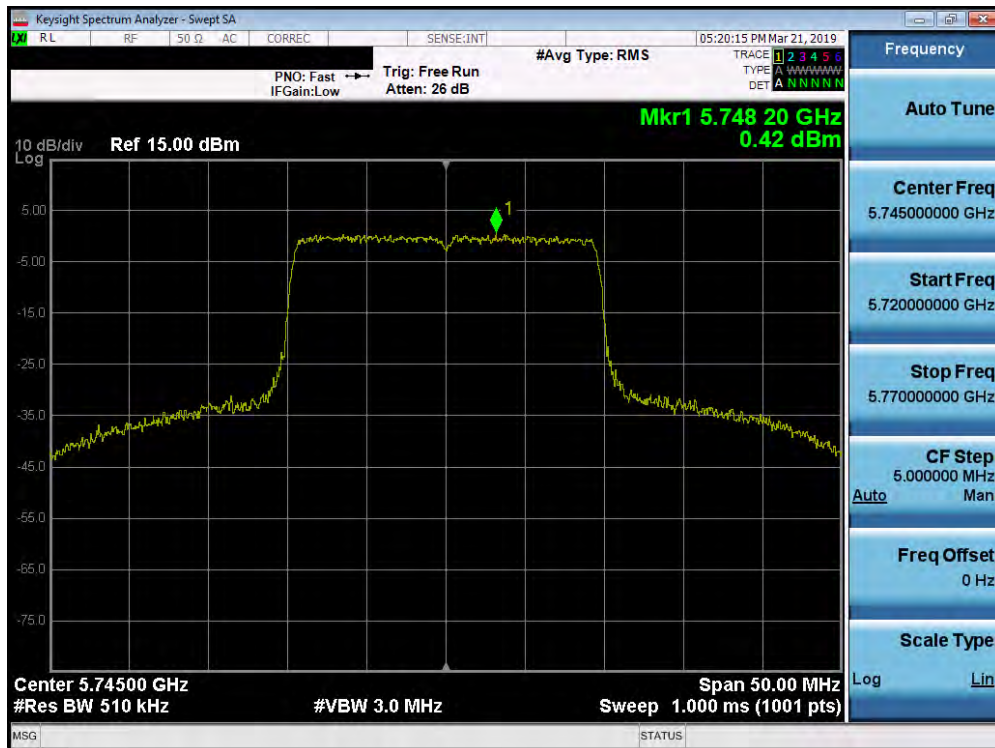


Plot 7-156. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 129 of 285

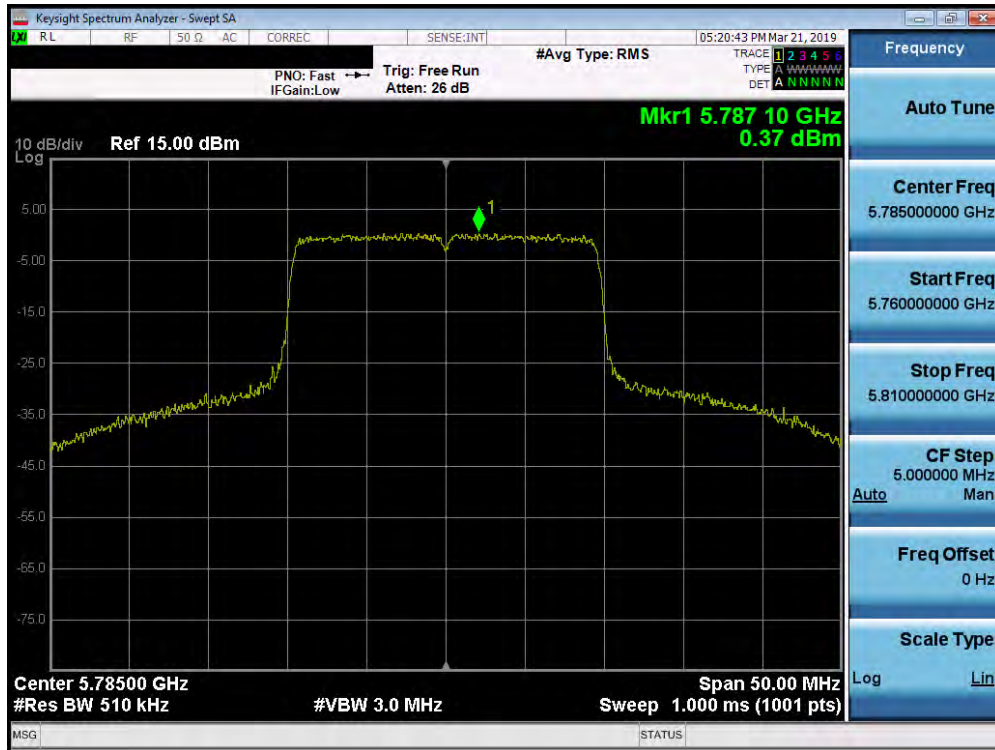
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	242T	MCS0	0.42	30.00	-29.58
	5785	157	ax (20MHz)	242T	MCS0	0.37	30.00	-29.63
	5825	165	ax (20MHz)	242T	MCS0	0.15	30.00	-29.85
	5755	151	ax (40MHz)	484T	MCS0	-4.82	30.00	-34.82
	5795	159	ax (40MHz)	484T	MCS0	-3.96	30.00	-33.96
	5775	155	ax (80MHz)	996T	MCS0	-5.31	30.00	-35.31

Table 7-58. Band 3 Conducted Power Spectral Density Measurements SISO ANT1 (Full Tones)

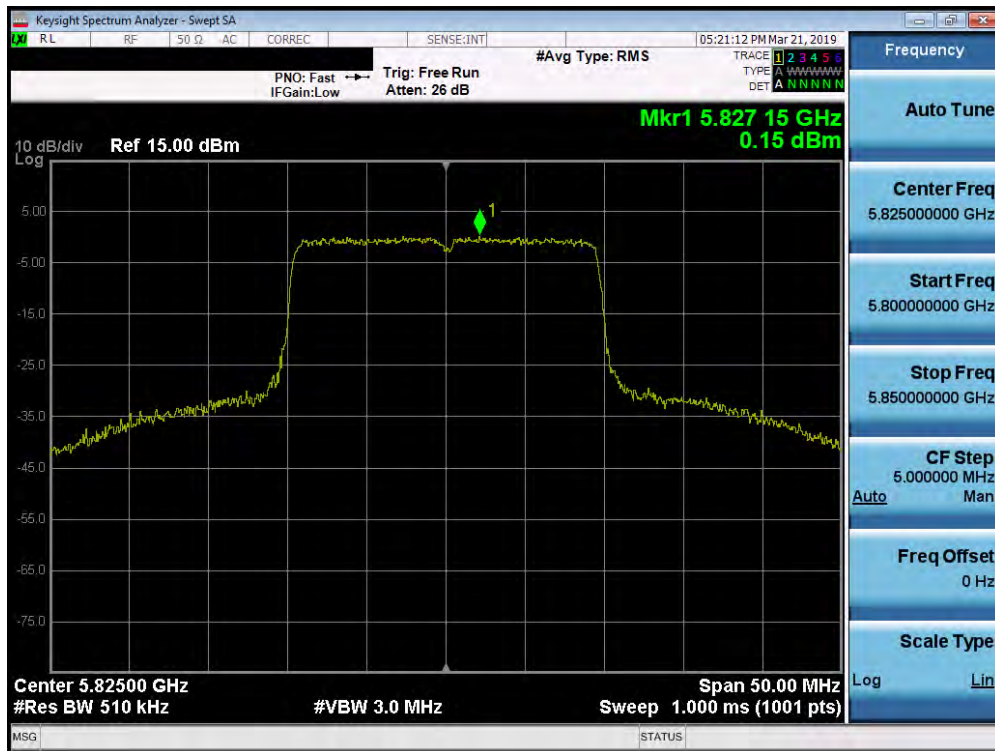


Plot 7-157. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 130 of 285

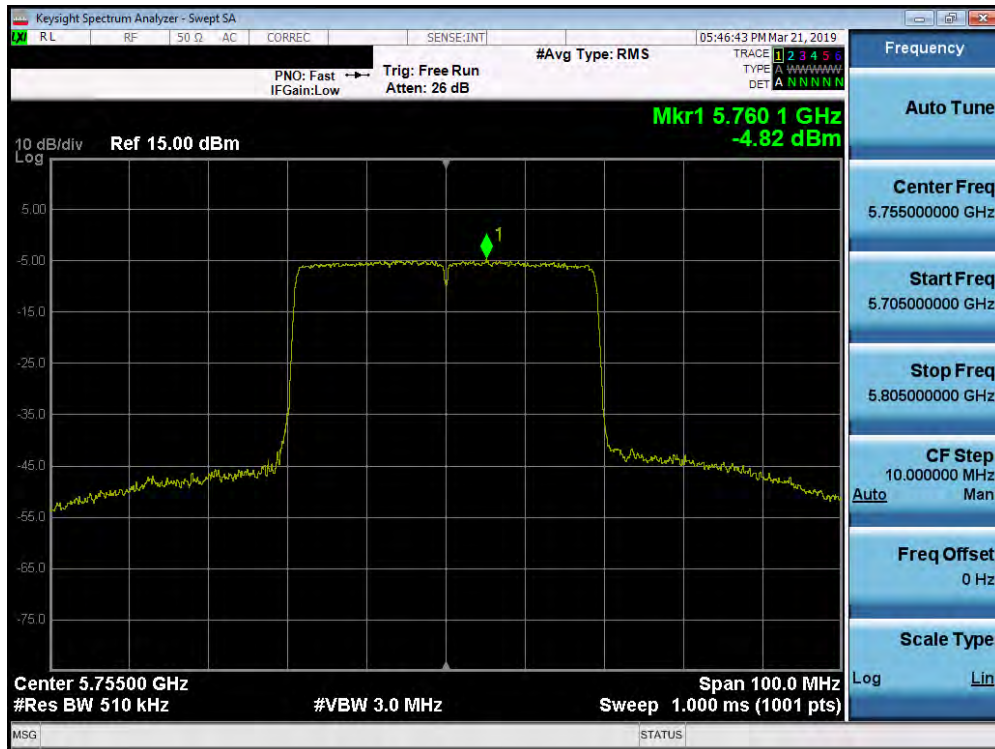


Plot 7-158. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

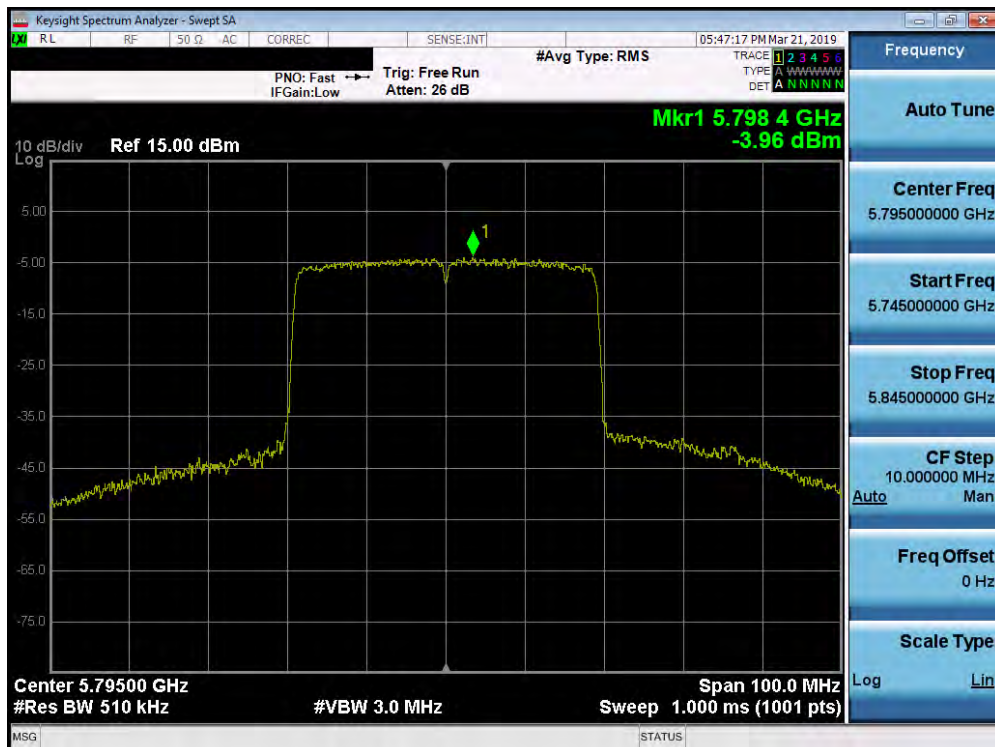


Plot 7-159. Power Spectral Density Plot SISO ANT1 (20 MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 131 of 285

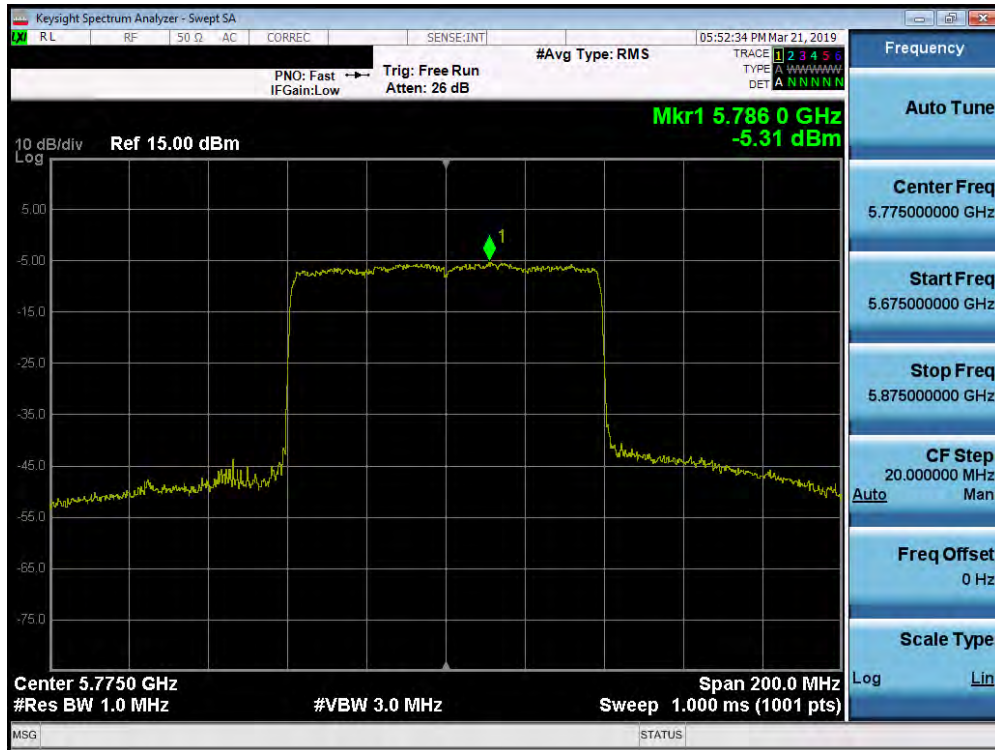


Plot 7-160. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)



Plot 7-161. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 132 of 285



Plot 7-162. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

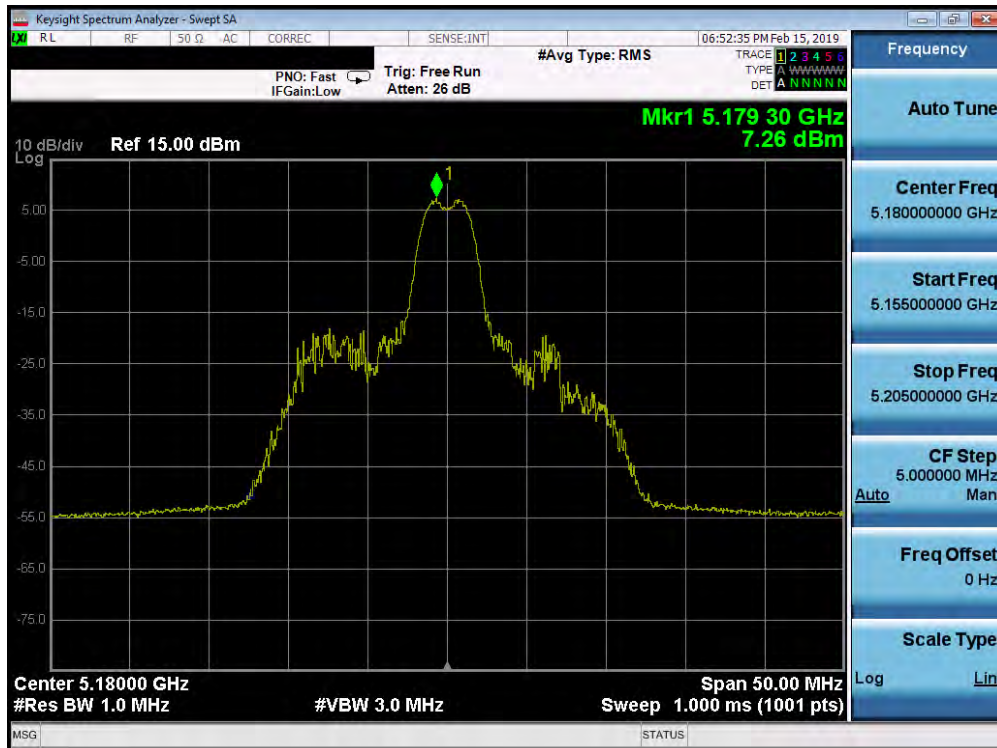
FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 133 of 285

SISO Antenna-2 Power Spectral Density Measurements (26 Tones)

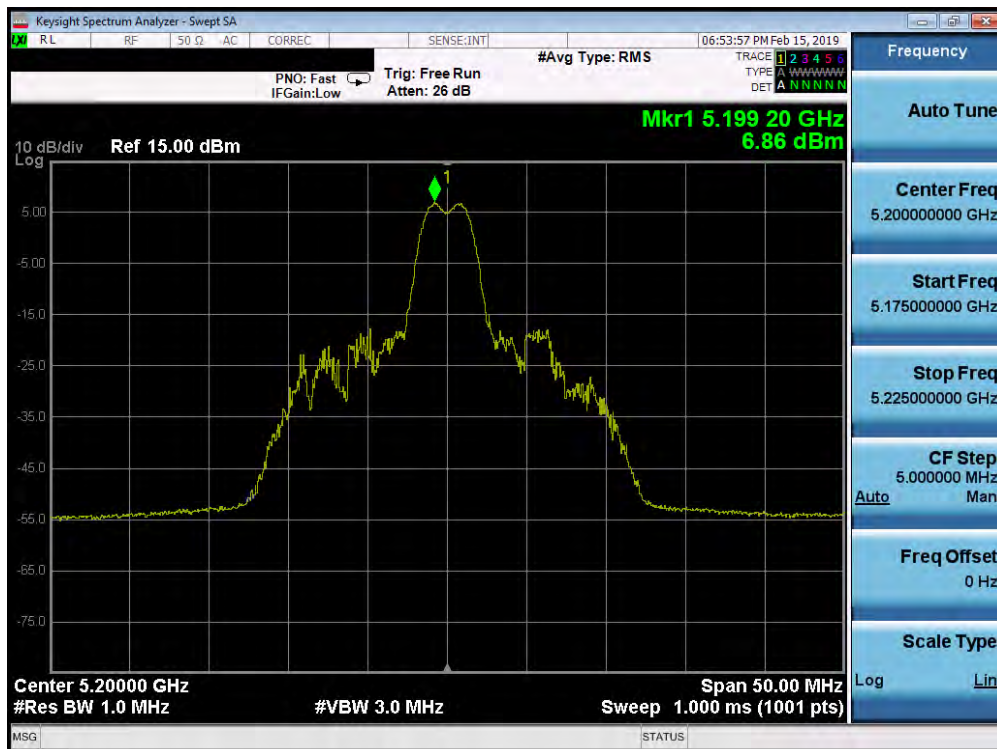
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26T	MCS0	7.26	11.0	-3.74
	5200	40	ax (20MHz)	26T	MCS0	6.86	11.0	-4.14
	5240	48	ax (20MHz)	26T	MCS0	6.94	11.0	-4.06
	5190	38	ax (40MHz)	26T	MCS0	8.53	11.0	-2.47
	5230	46	ax (40MHz)	26T	MCS0	8.10	11.0	-2.90
	5210	42	ax (80MHz)	26T	MCS0	7.62	11.0	-3.38
Band 2A	5260	52	ax (20MHz)	26T	MCS0	7.39	11.0	-3.61
	5280	56	ax (20MHz)	26T	MCS0	8.14	11.0	-2.86
	5320	64	ax (20MHz)	26T	MCS0	8.25	11.0	-2.75
	5270	54	ax (40MHz)	26T	MCS0	8.08	11.0	-2.92
	5310	62	ax (40MHz)	26T	MCS0	8.14	11.0	-2.87
	5290	58	ax (80MHz)	26T	MCS0	7.97	11.0	-3.03
Band 2C	5500	100	ax (20MHz)	26T	MCS0	7.10	11.0	-3.90
	5600	120	ax (20MHz)	26T	MCS0	7.93	11.0	-3.07
	5720	144	ax (20MHz)	26T	MCS0	7.53	11.0	-3.48
	5510	102	ax (40MHz)	26T	MCS0	8.01	11.0	-2.99
	5590	118	ax (40MHz)	26T	MCS0	8.31	11.0	-2.69
	5710	142	ax (40MHz)	26T	MCS0	8.33	11.0	-2.67
	5530	106	ax (80MHz)	26T	MCS0	7.67	11.0	-3.33
	5610	122	ax (80MHz)	26T	MCS0	7.52	11.0	-3.48
	5690	138	ax (80MHz)	26T	MCS0	8.89	11.0	-2.11

Table 7-59. Conducted Power Spectral Density Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 134 of 285

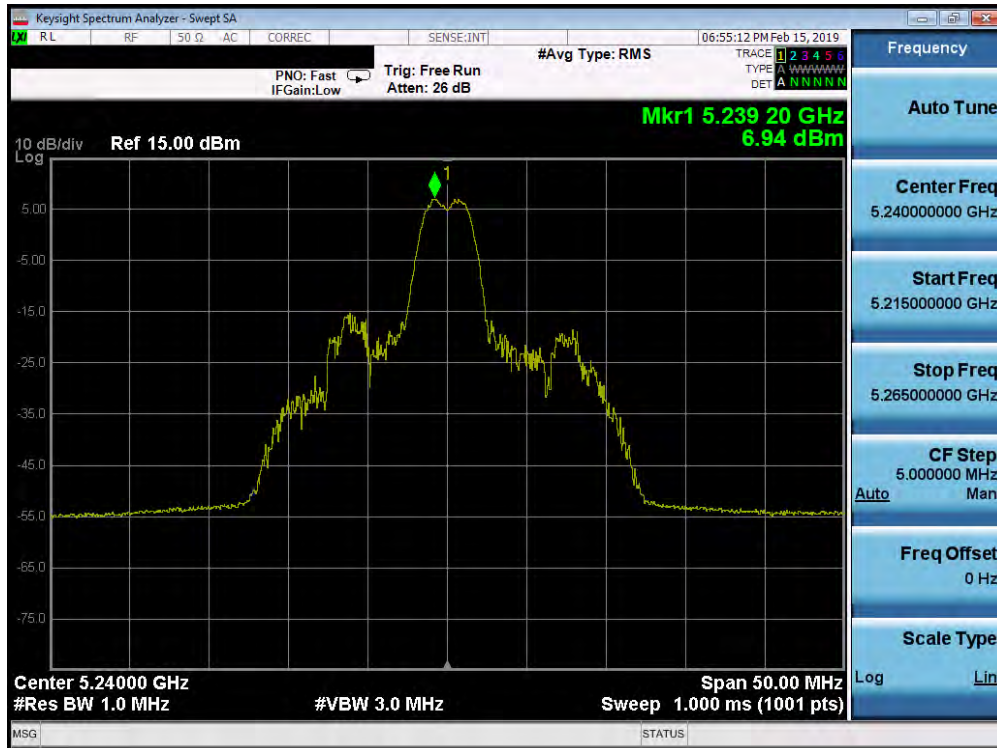


Plot 7-163. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

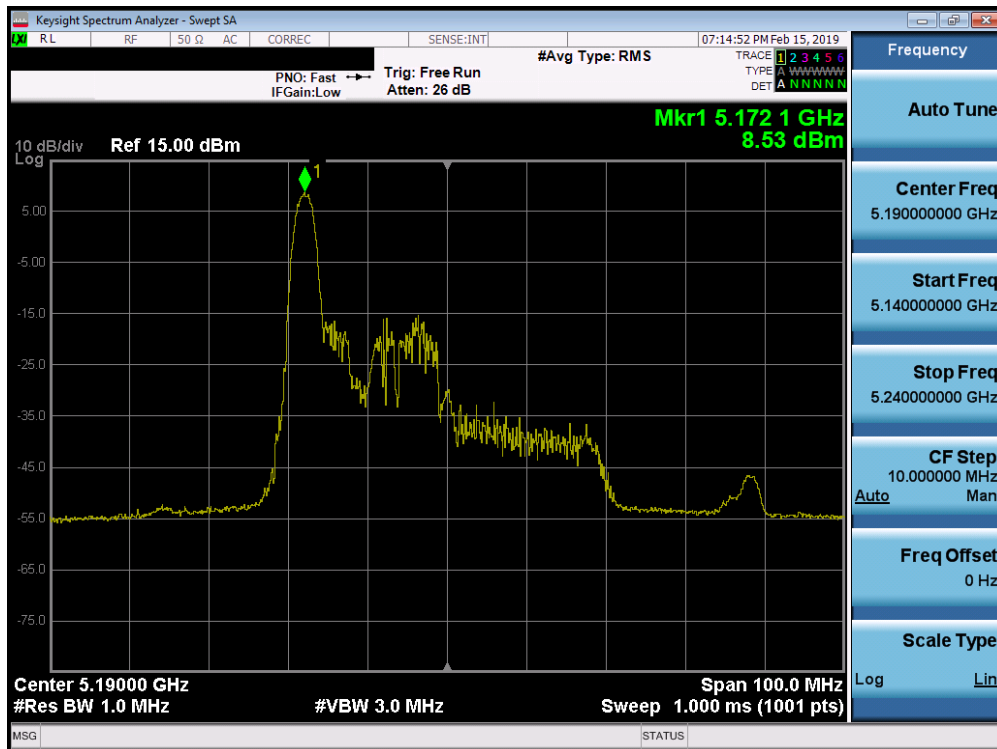


Plot 7-164. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 135 of 285

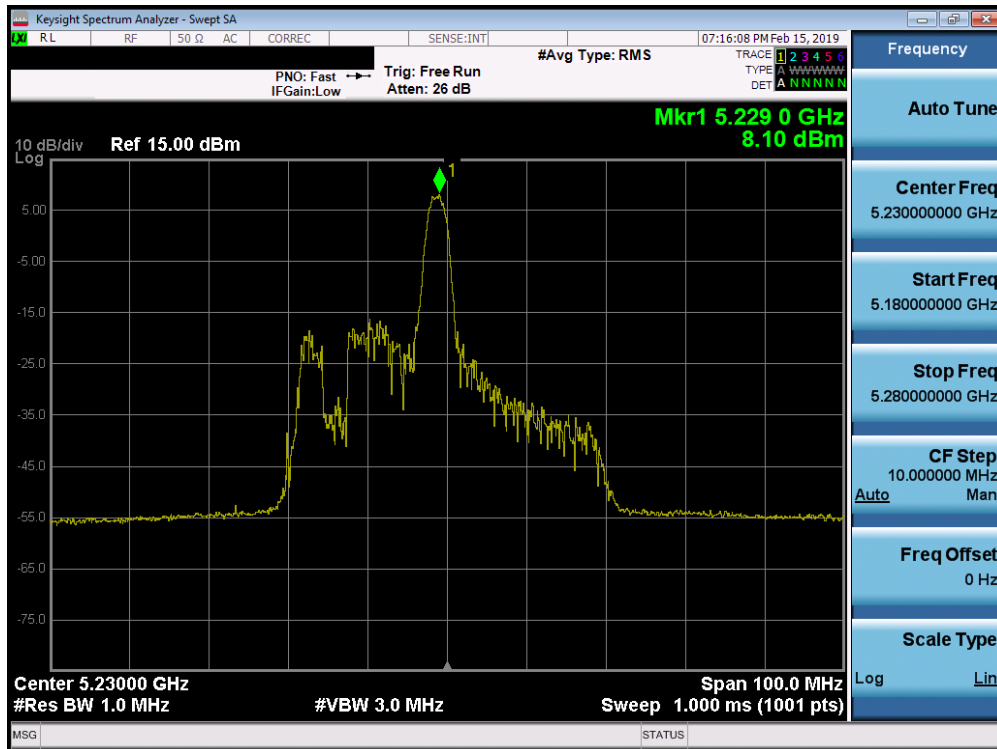


Plot 7-165. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

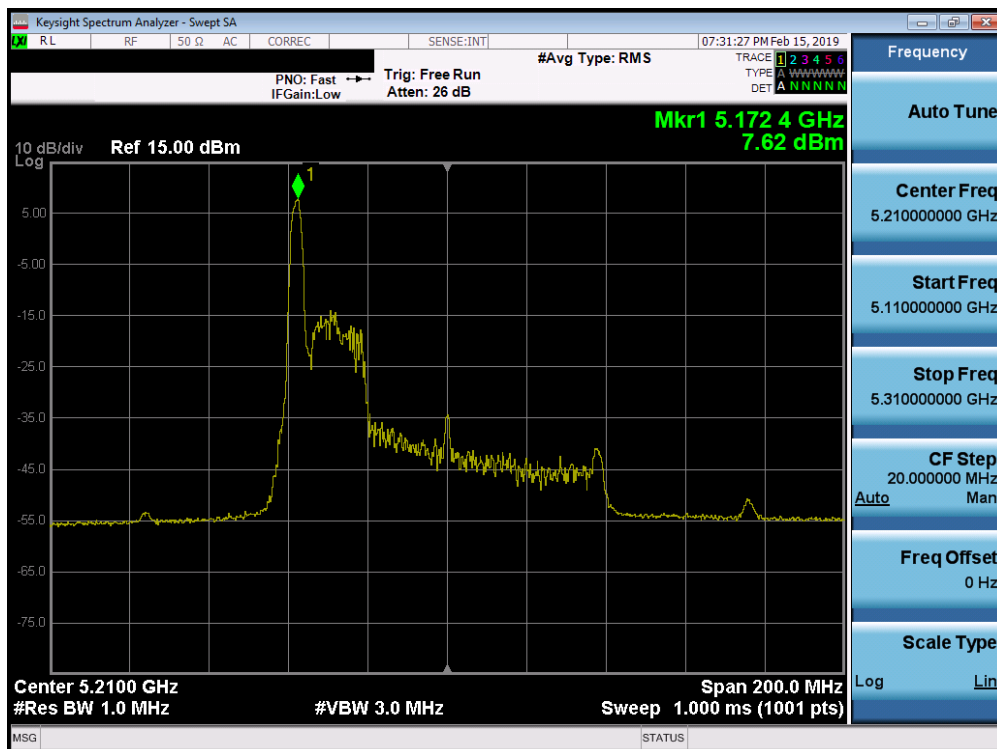


Plot 7-166. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 136 of 285

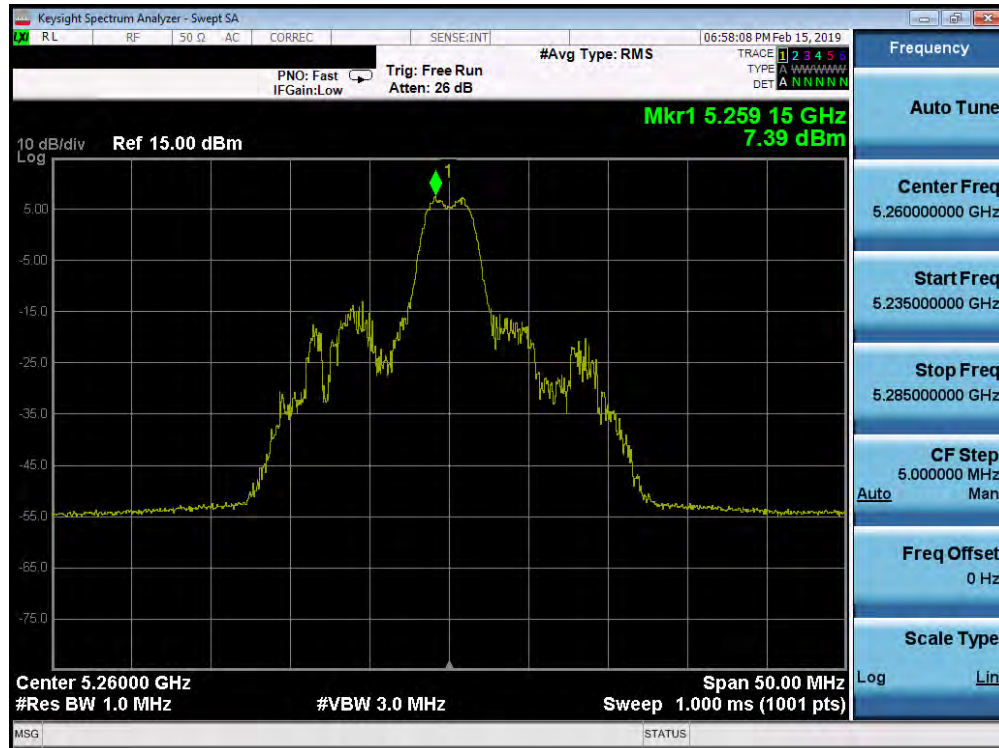


Plot 7-167. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

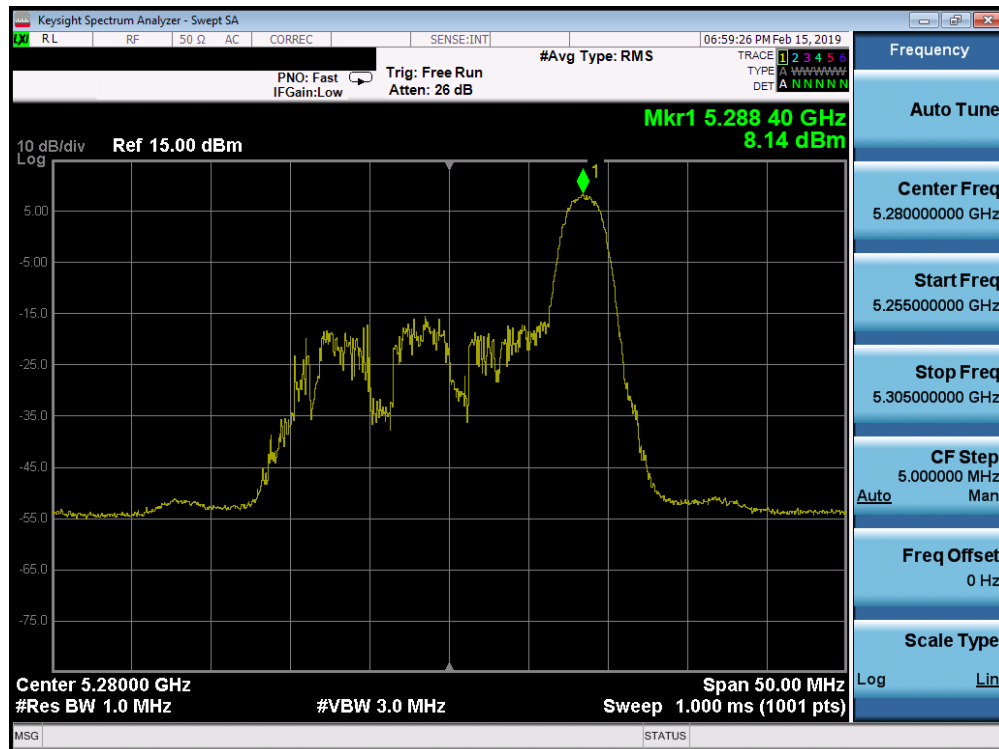


Plot 7-168. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 137 of 285

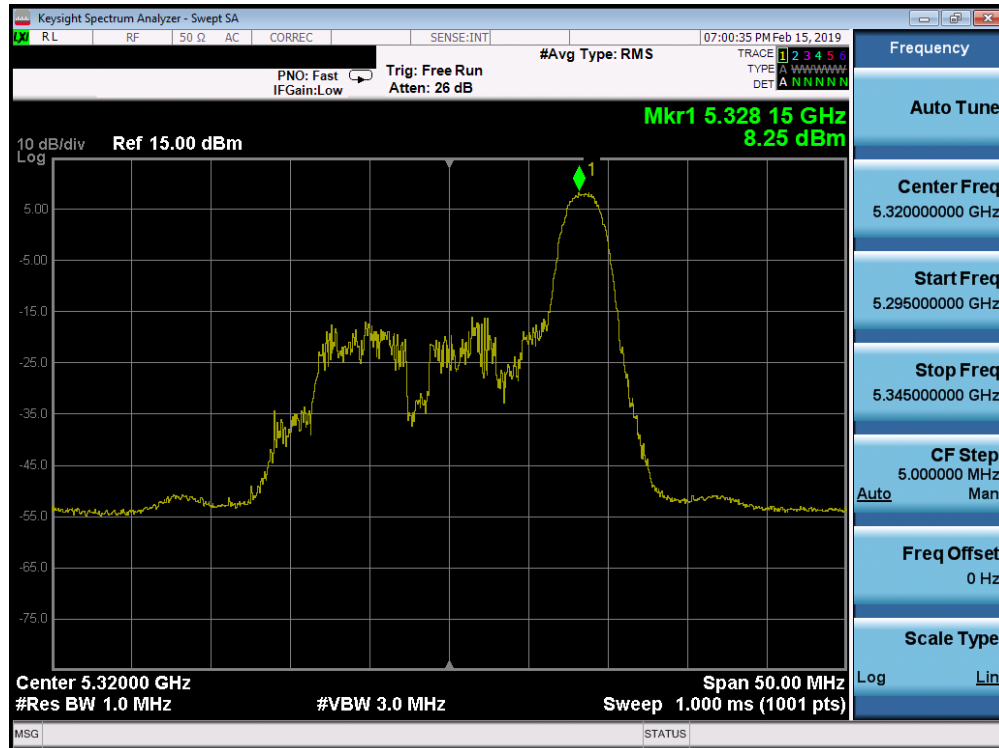


Plot 7-169. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

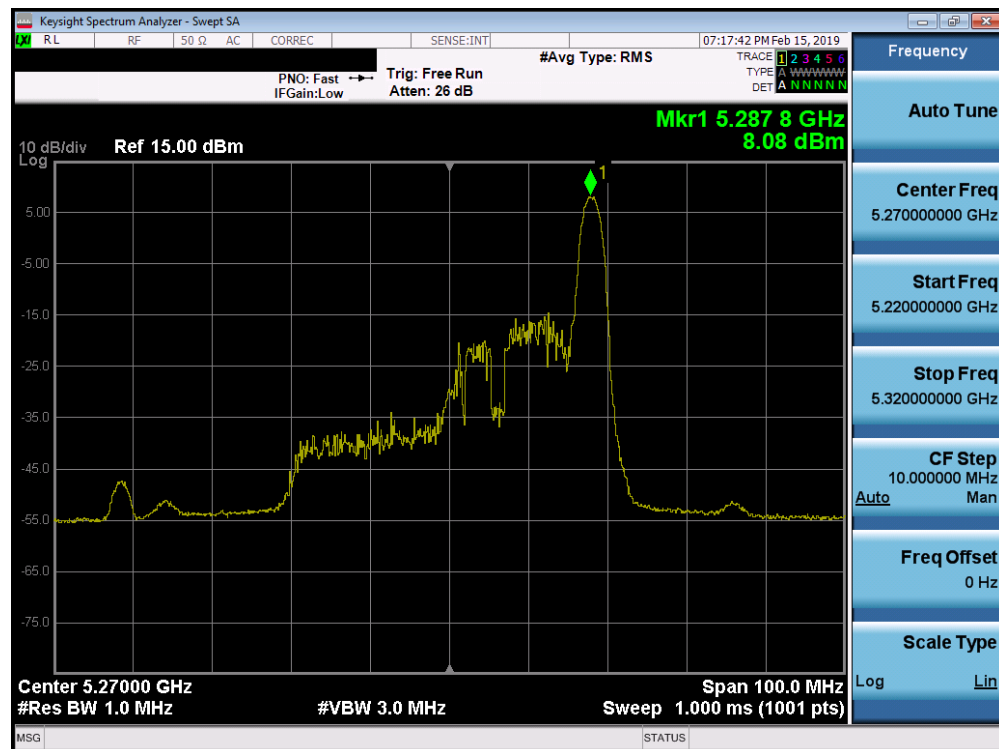


Plot 7-170. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 138 of 285

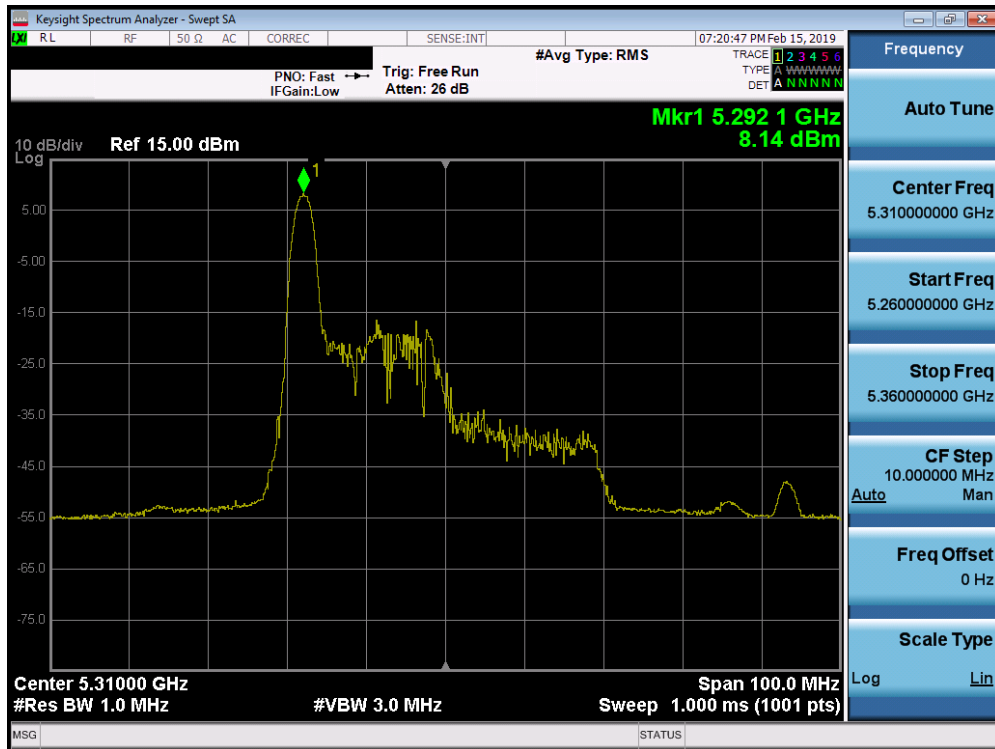


Plot 7-171. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

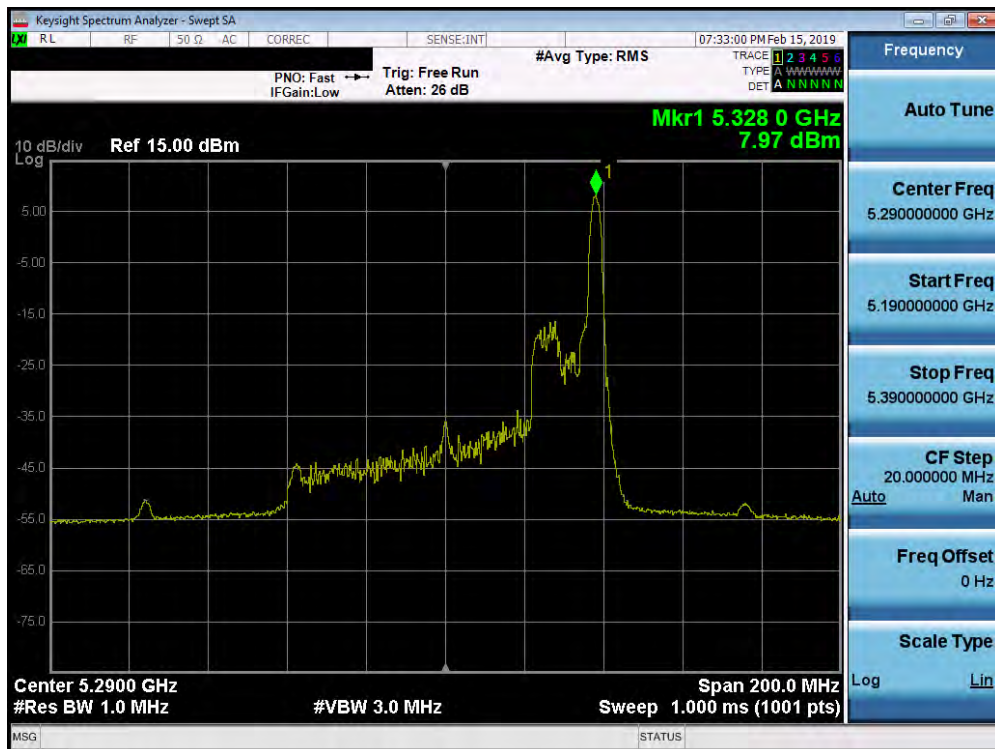


Plot 7-172. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 139 of 285

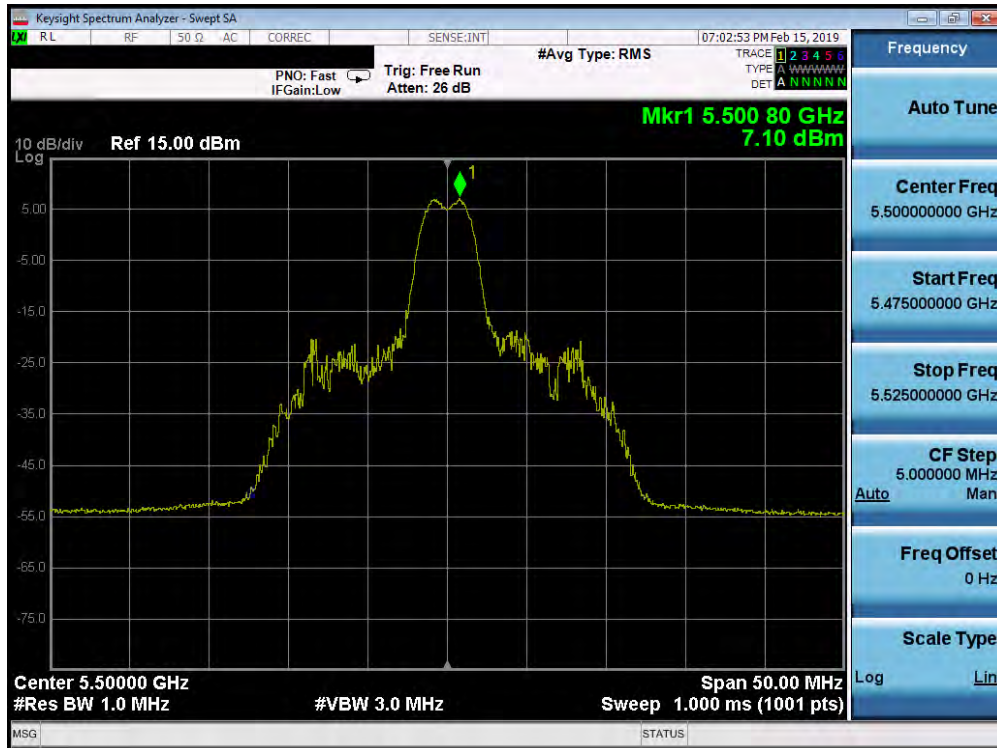


Plot 7-173. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 62)

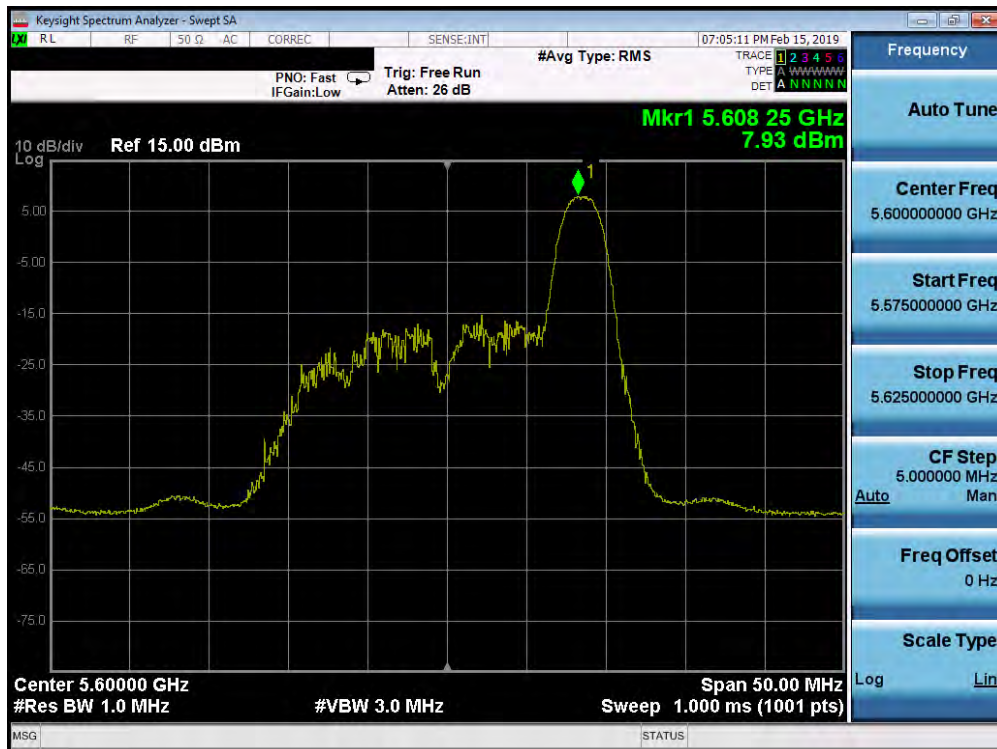


Plot 7-174. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 140 of 285

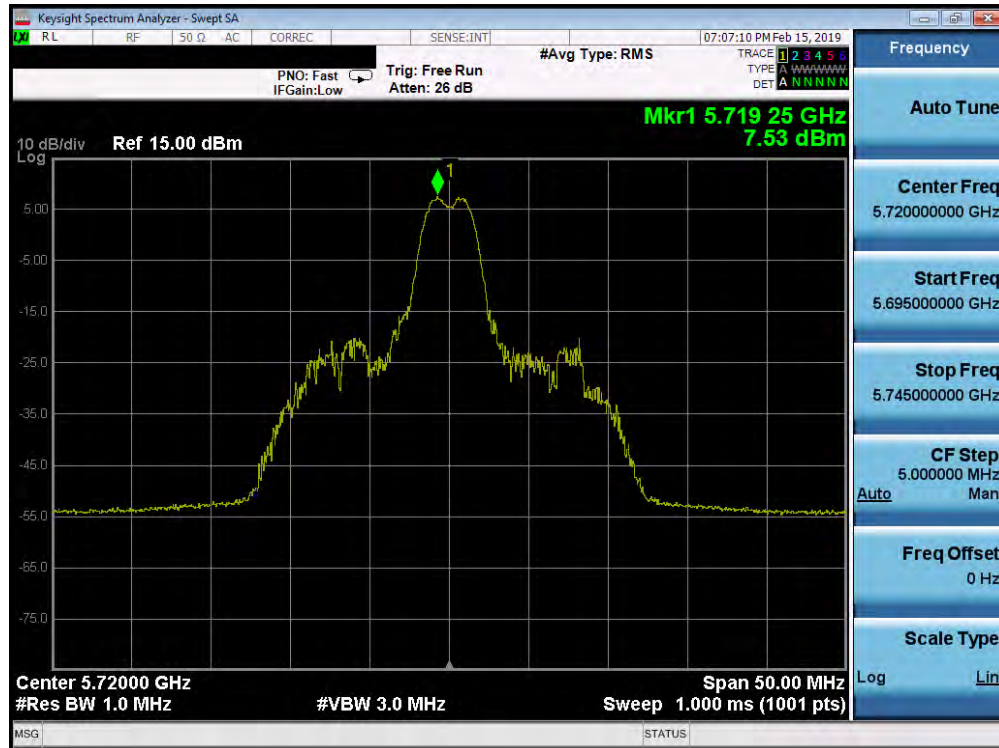


Plot 7-175. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

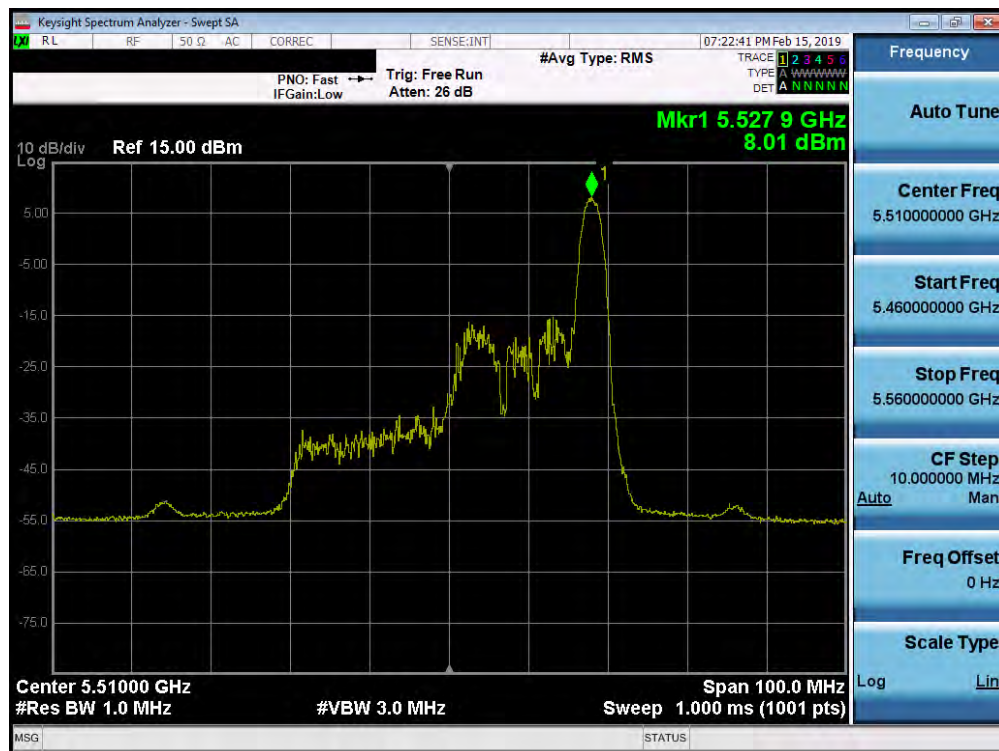


Plot 7-176. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 141 of 285

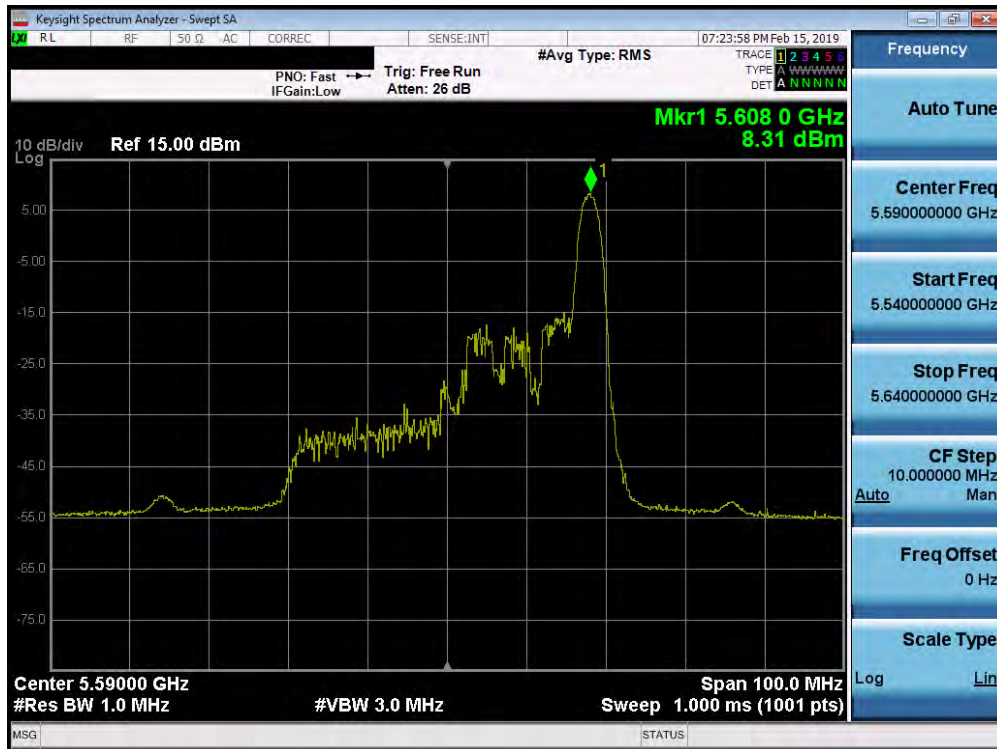


Plot 7-177. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

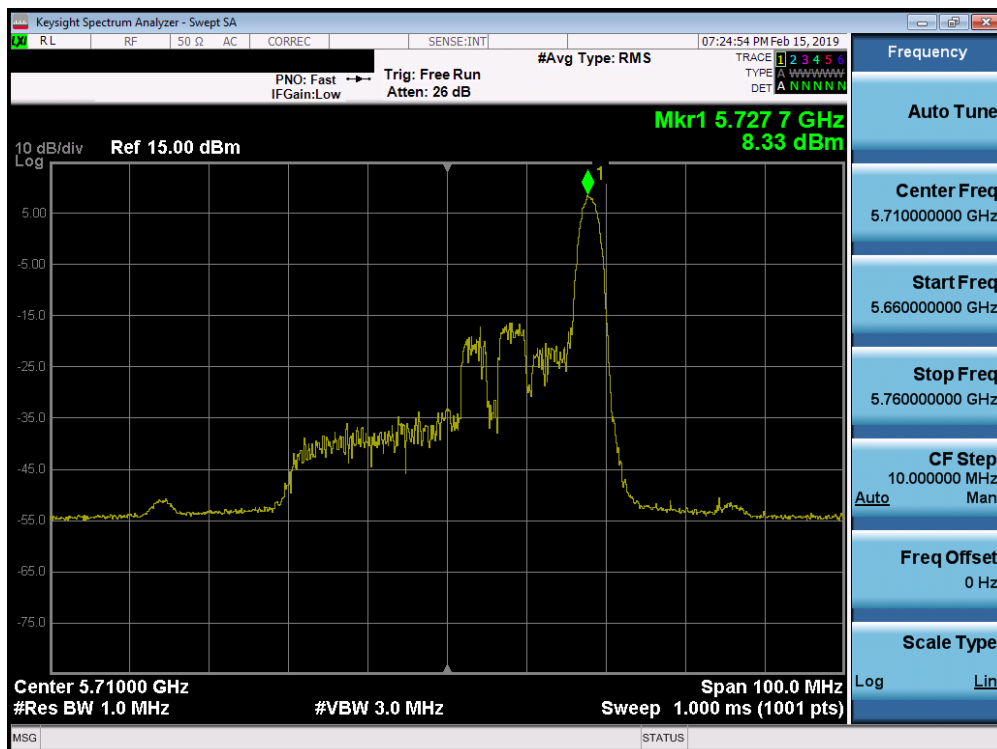


Plot 7-178. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 142 of 285

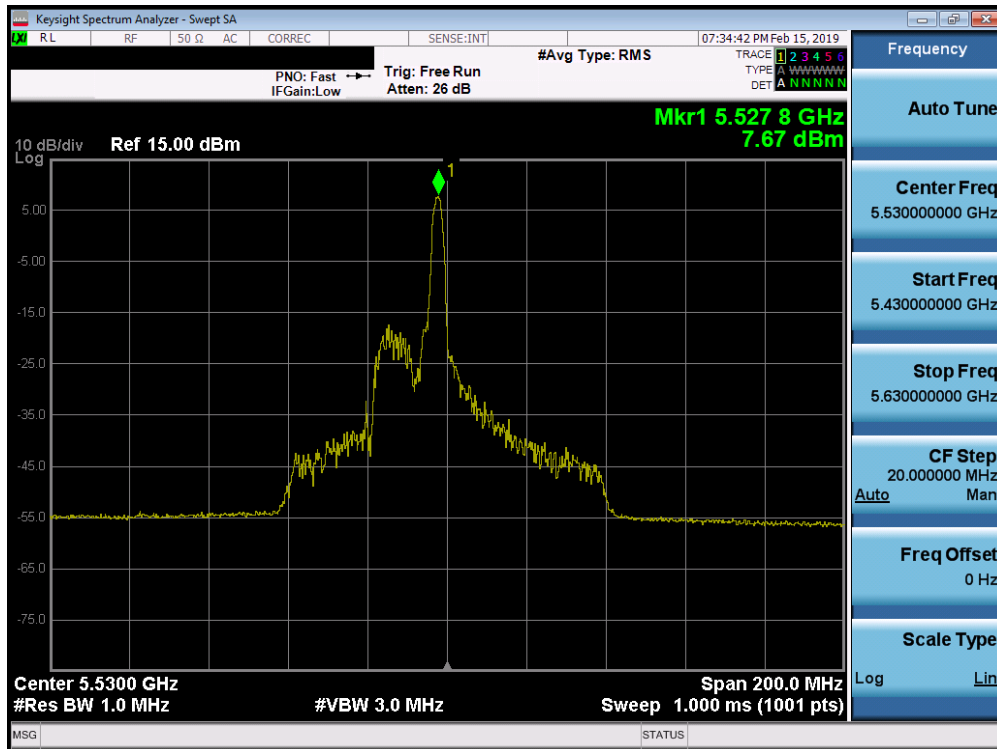


Plot 7-179. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

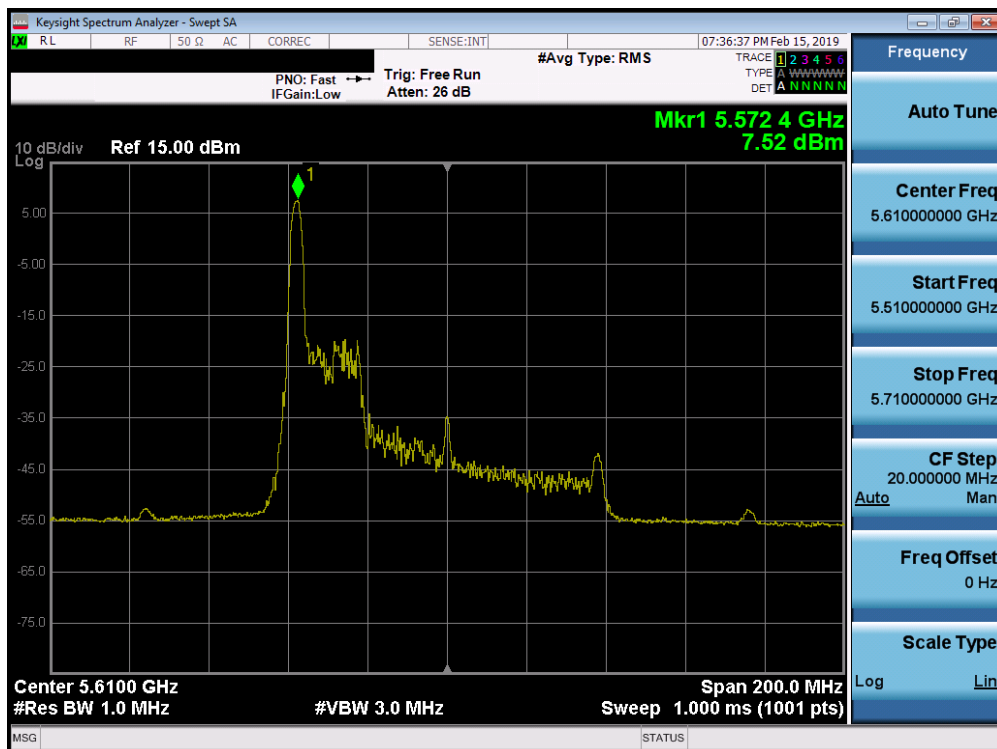


Plot 7-180. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 143 of 285

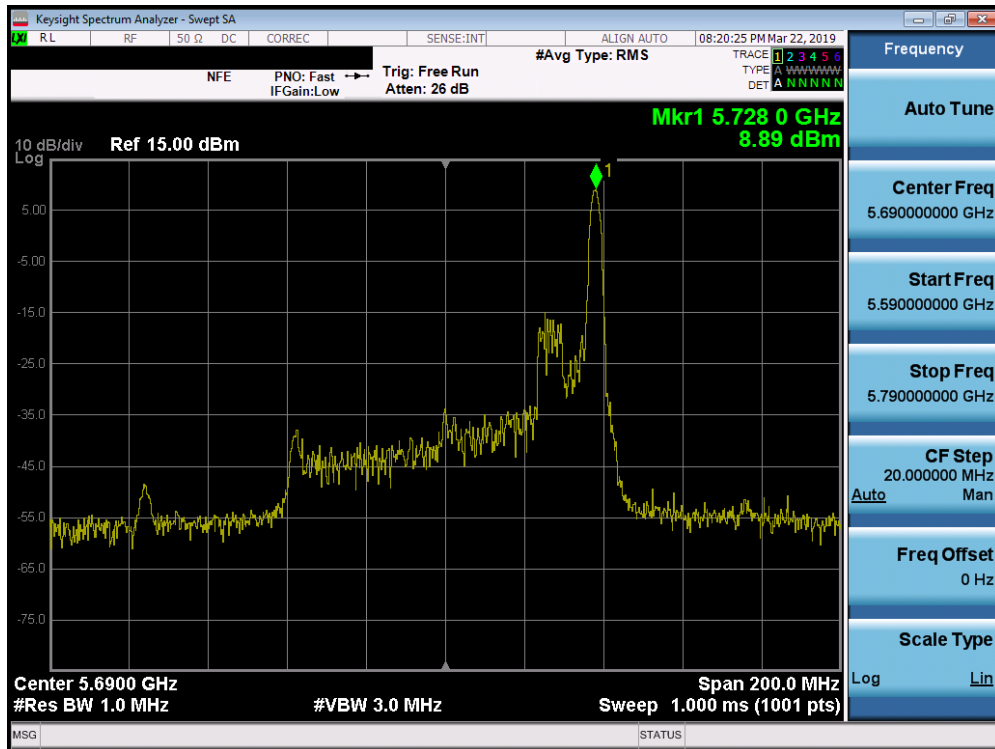


Plot 7-181. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



Plot 7-182. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 144 of 285

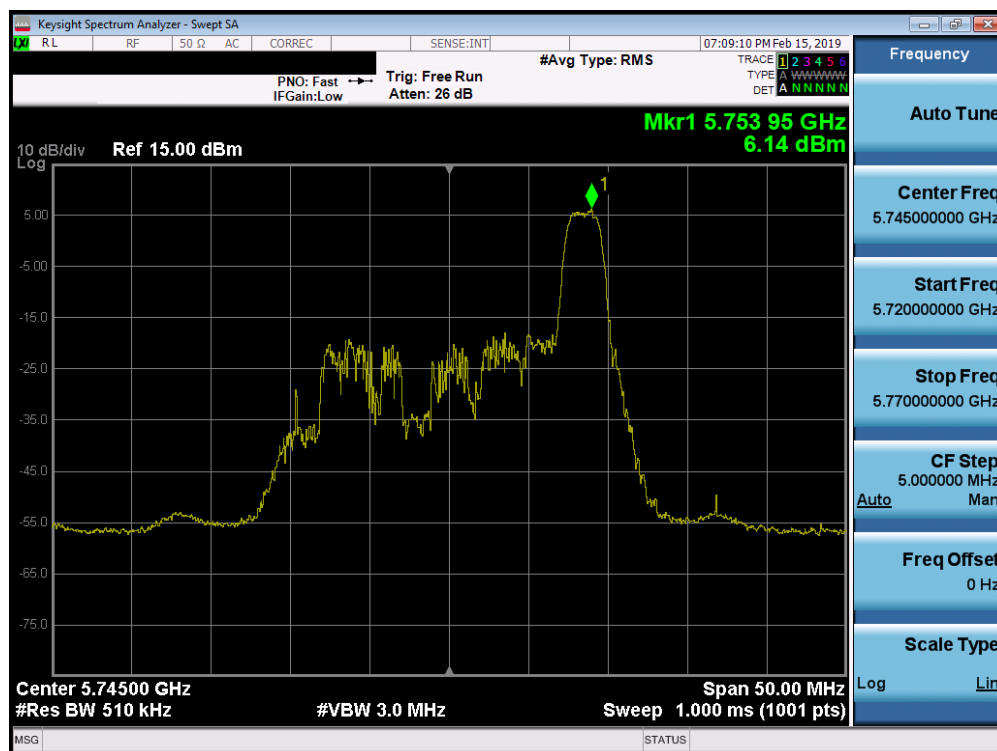


Plot 7-183. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 138)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 145 of 285

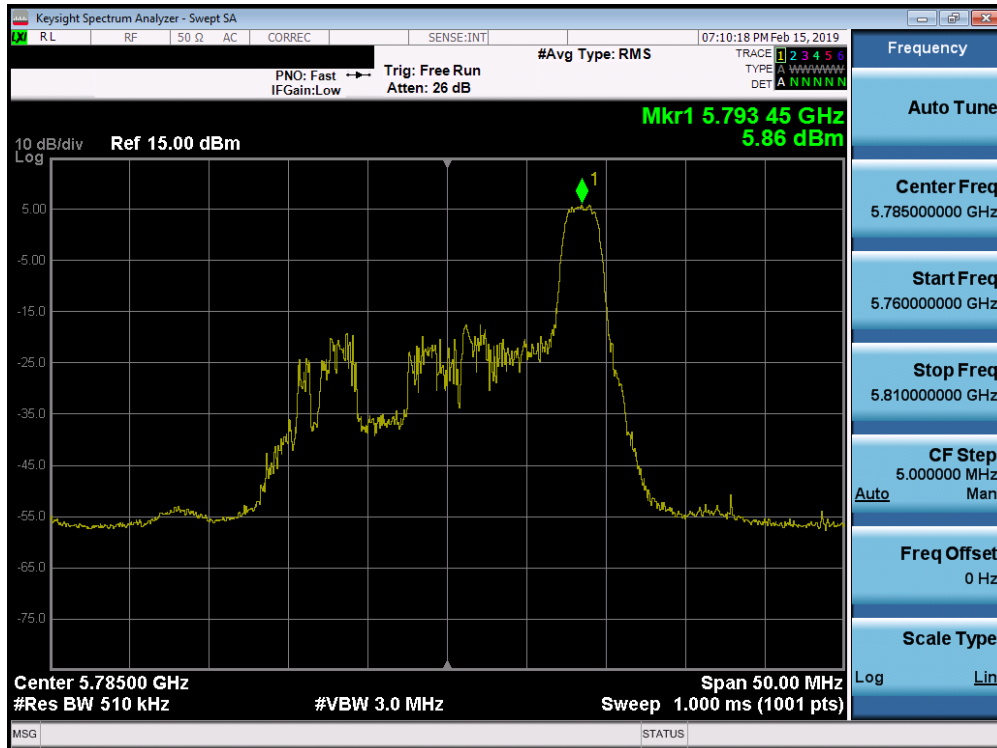
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	26T	MCS0	6.14	30.00	-23.86
	5785	157	ax (20MHz)	26T	MCS0	5.86	30.00	-24.14
	5825	165	ax (20MHz)	26T	MCS0	5.67	30.00	-24.33
	5755	151	ax (40MHz)	26T	MCS0	6.04	30.00	-23.96
	5795	159	ax (40MHz)	26T	MCS0	5.72	30.00	-24.28
	5775	155	ax (80MHz)	26T	MCS0	7.96	30.00	-22.04

Table 7-60. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (26 Tones)

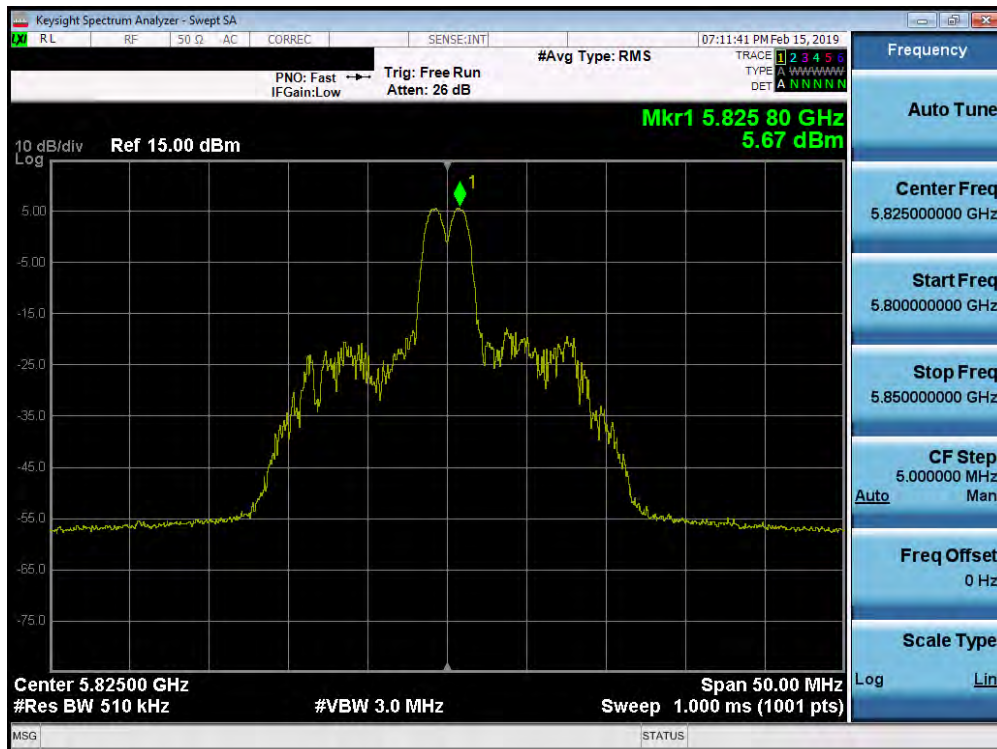


Plot 7-184. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 146 of 285

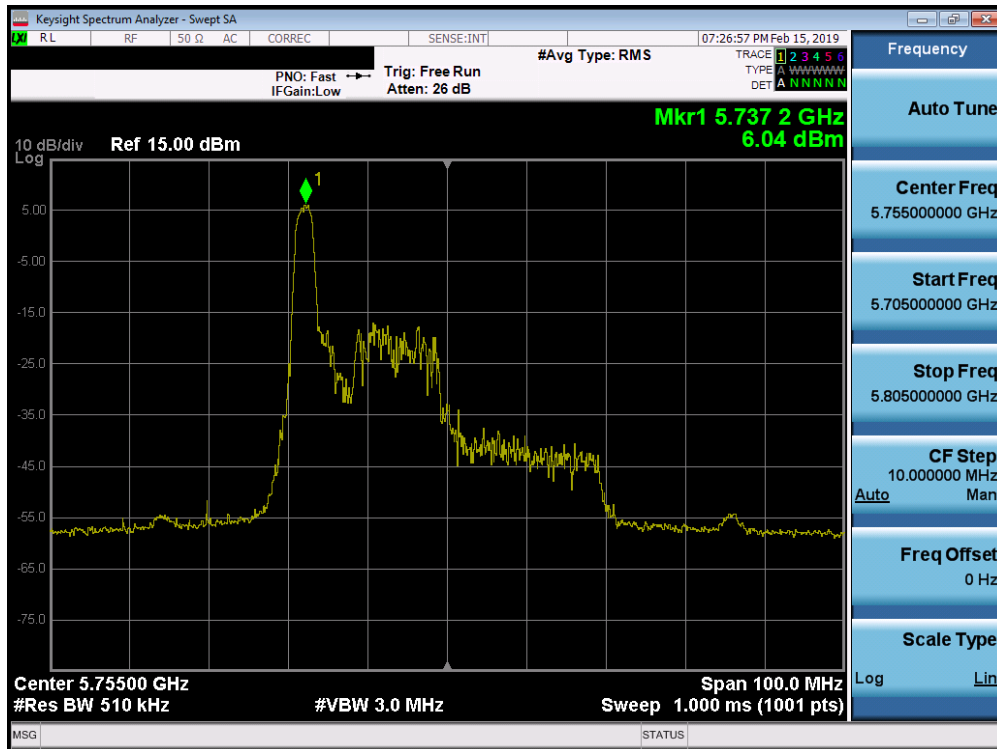


Plot 7-185. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

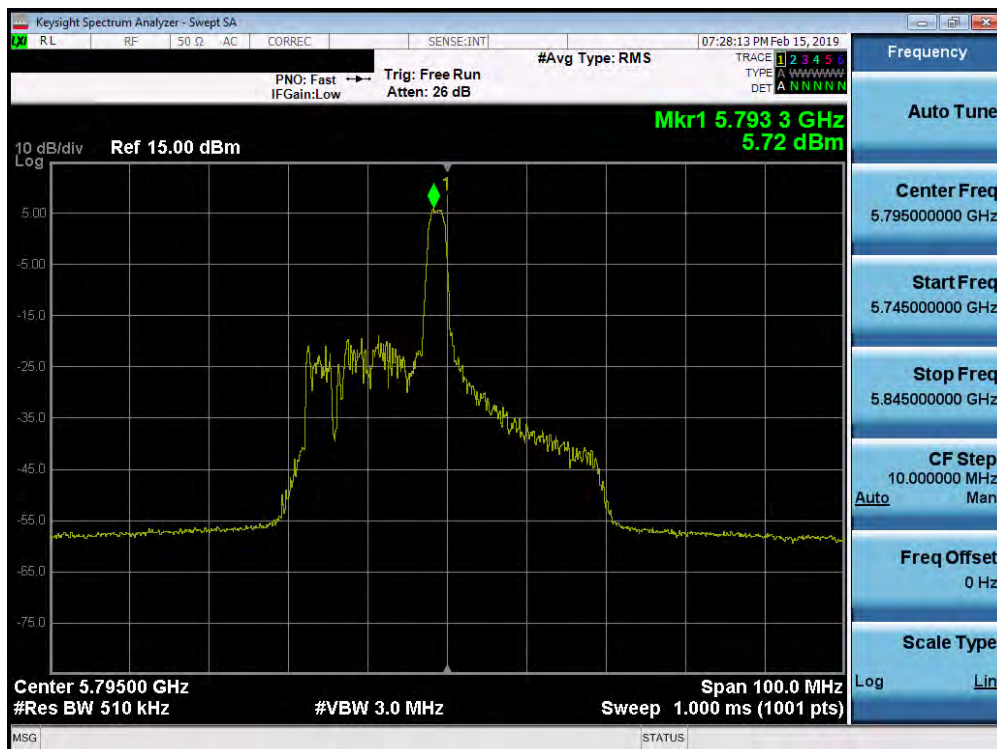


Plot 7-186. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 147 of 285

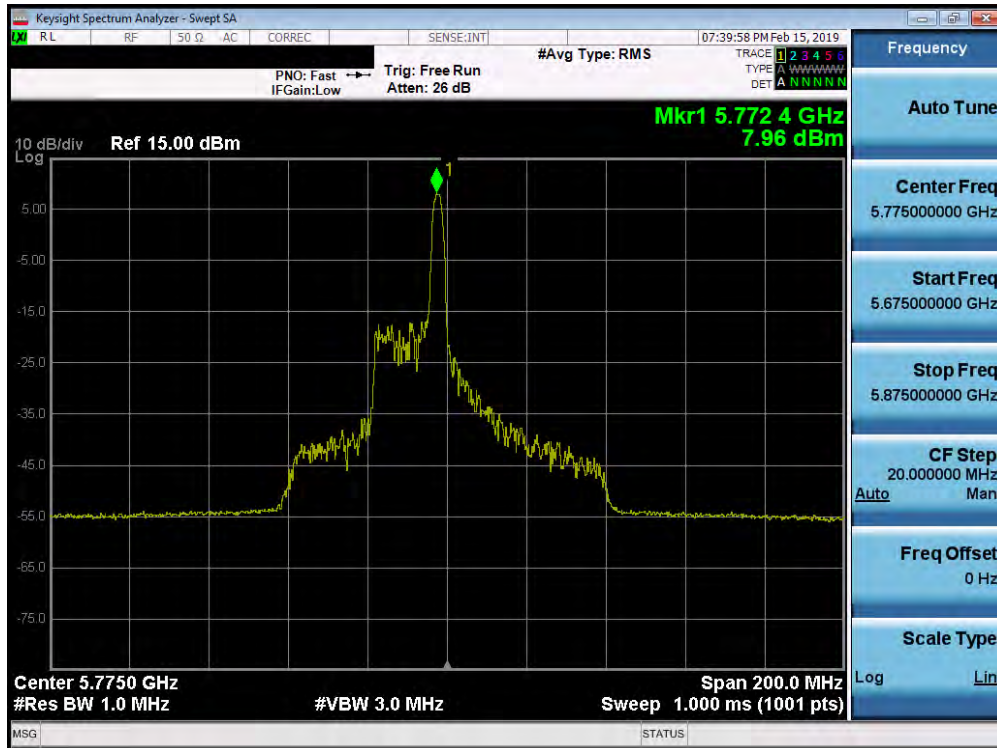


Plot 7-187. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-188. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 148 of 285	

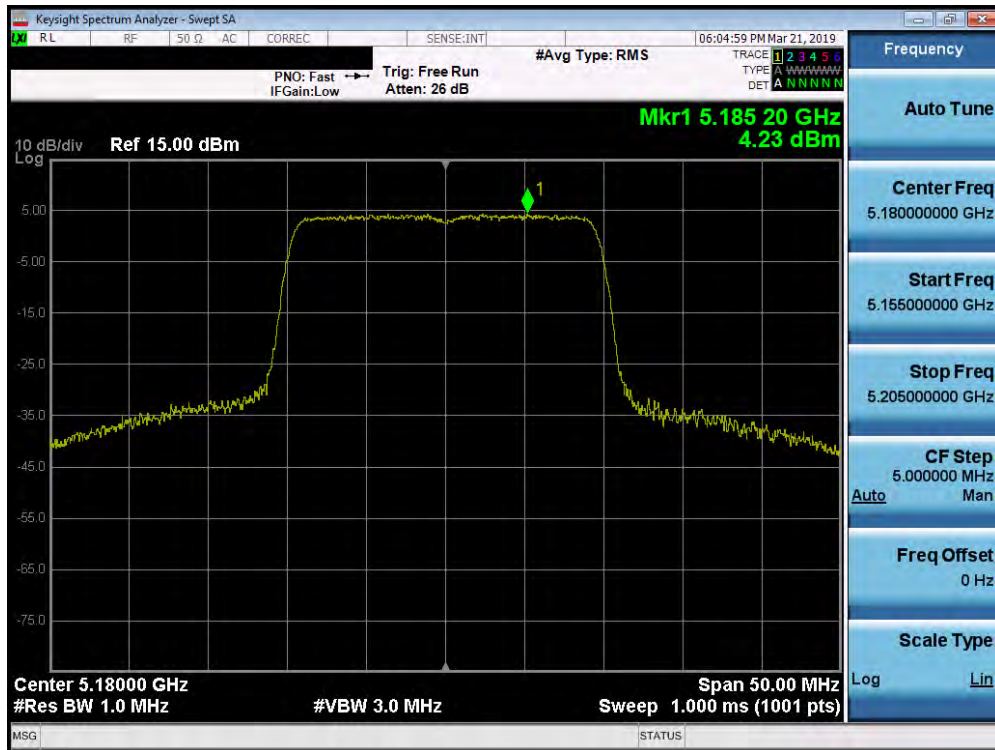


SISO Antenna-2 Power Spectral Density Measurements (Full Tones)

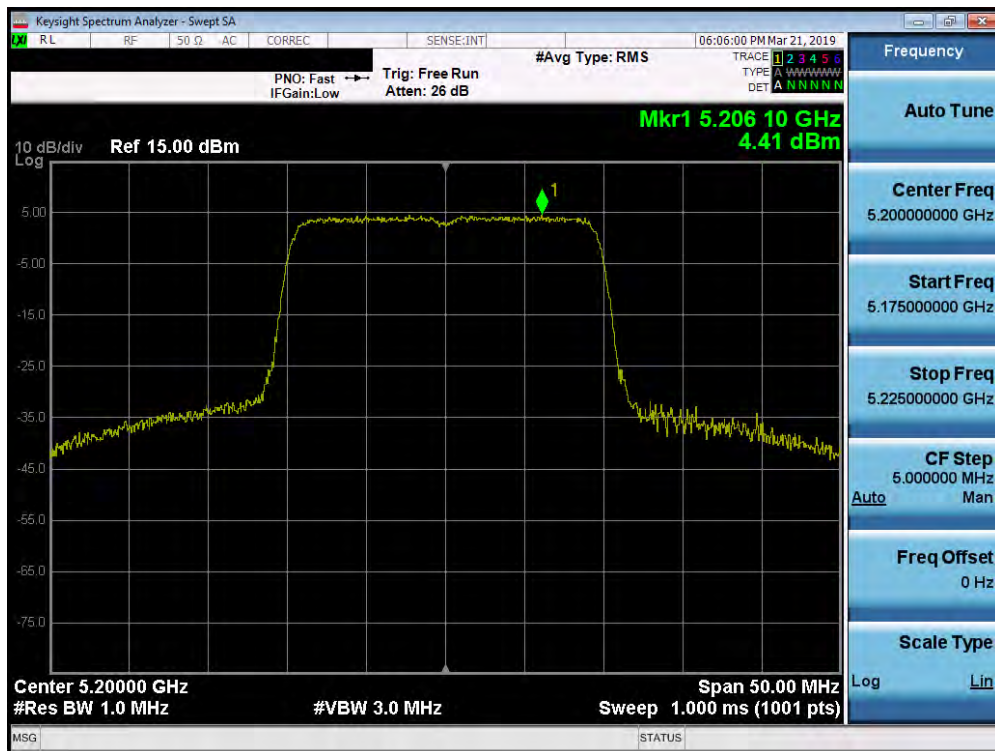
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	4.23	11.0	-6.77
	5200	40	ax (20MHz)	242T	MCS0	4.41	11.0	-6.59
	5240	48	ax (20MHz)	242T	MCS0	4.72	11.0	-6.28
	5190	38	ax (40MHz)	484T	MCS0	-0.81	11.0	-11.81
	5230	46	ax (40MHz)	484T	MCS0	0.02	11.0	-10.98
	5210	42	ax (80MHz)	996T	MCS0	-4.53	11.0	-15.53
Band 2A	5260	52	ax (20MHz)	242T	MCS0	4.05	11.0	-6.95
	5280	56	ax (20MHz)	242T	MCS0	4.26	11.0	-6.74
	5320	64	ax (20MHz)	242T	MCS0	4.75	11.0	-6.25
	5270	54	ax (40MHz)	484T	MCS0	-0.31	11.0	-11.31
	5310	62	ax (40MHz)	484T	MCS0	-0.38	11.0	-11.38
	5290	58	ax (80MHz)	996T	MCS0	-4.37	11.0	-15.37
Band 2C	5500	100	ax (20MHz)	242T	MCS0	4.76	11.0	-6.25
	5600	120	ax (20MHz)	242T	MCS0	4.98	11.0	-6.02
	5720	144	ax (20MHz)	242T	MCS0	5.02	11.0	-5.98
	5510	102	ax (40MHz)	484T	MCS0	-0.61	11.0	-11.61
	5590	118	ax (40MHz)	484T	MCS0	-0.12	11.0	-11.12
	5710	142	ax (40MHz)	484T	MCS0	-0.45	11.0	-11.45
	5530	106	ax (80MHz)	996T	MCS0	-4.74	11.0	-15.74
	5610	122	ax (80MHz)	996T	MCS0	-4.83	11.0	-15.83
	5690	138	ax (80MHz)	996T	MCS0	-3.76	11.0	-14.76

Table 7-61. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 150 of 285

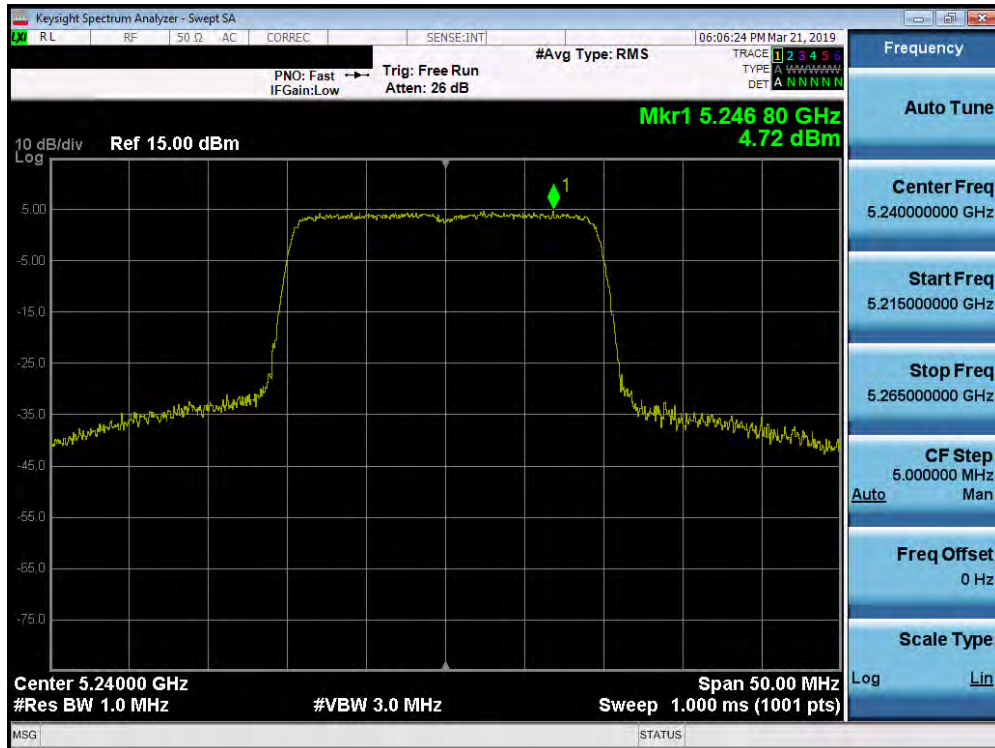


Plot 7-190. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

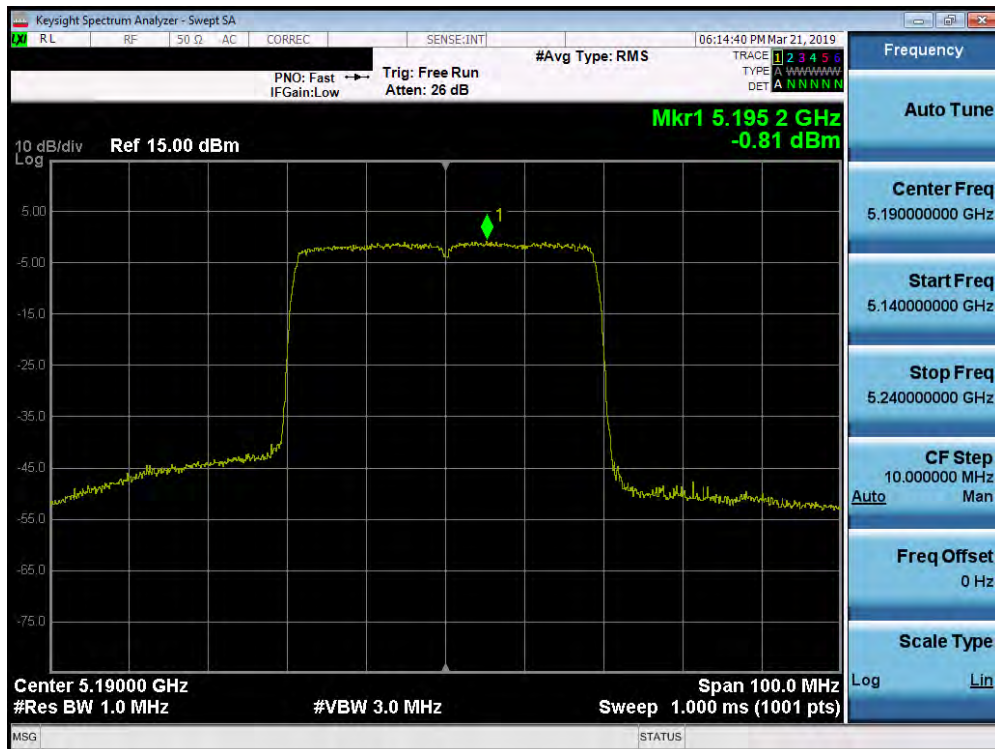


Plot 7-191. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 151 of 285



Plot 7-192. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)



Plot 7-193. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 152 of 285