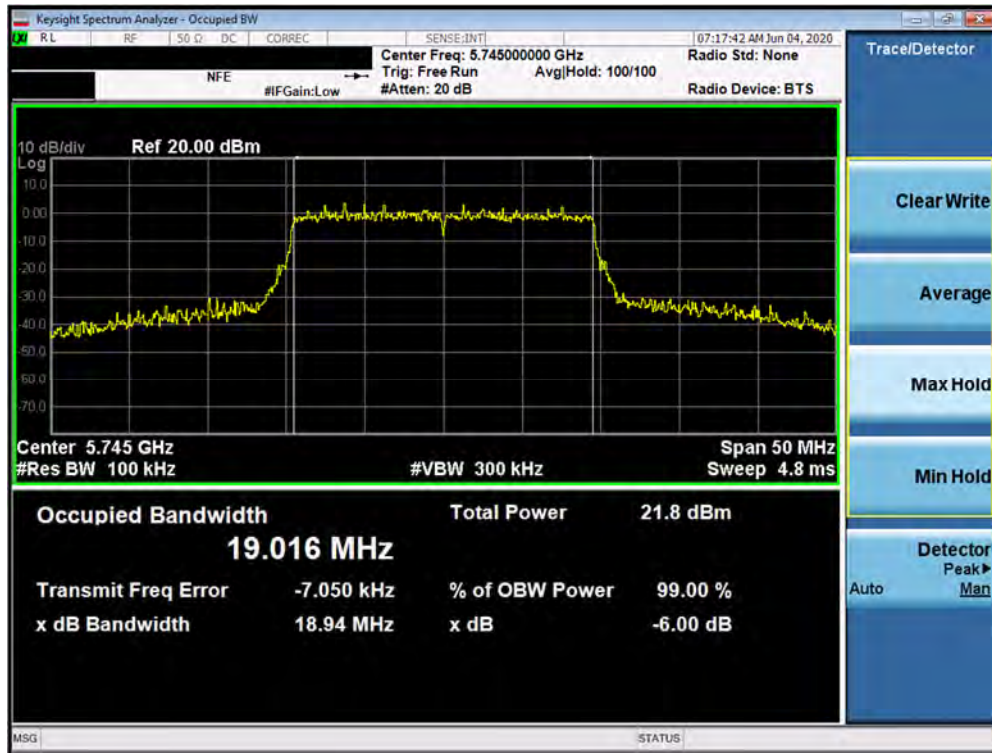
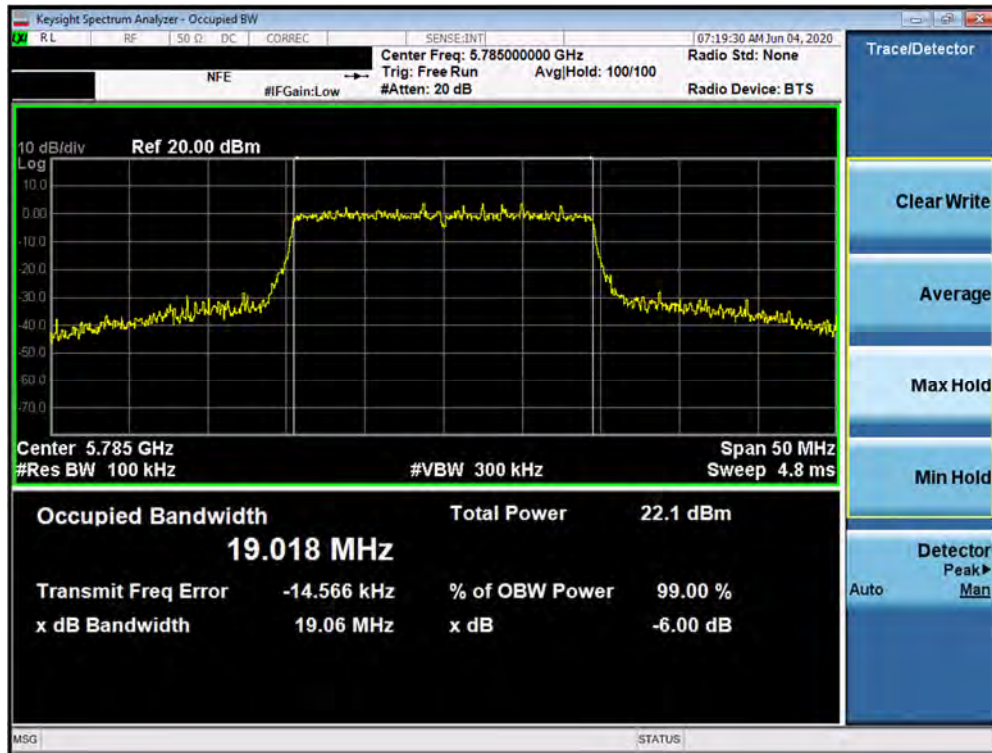


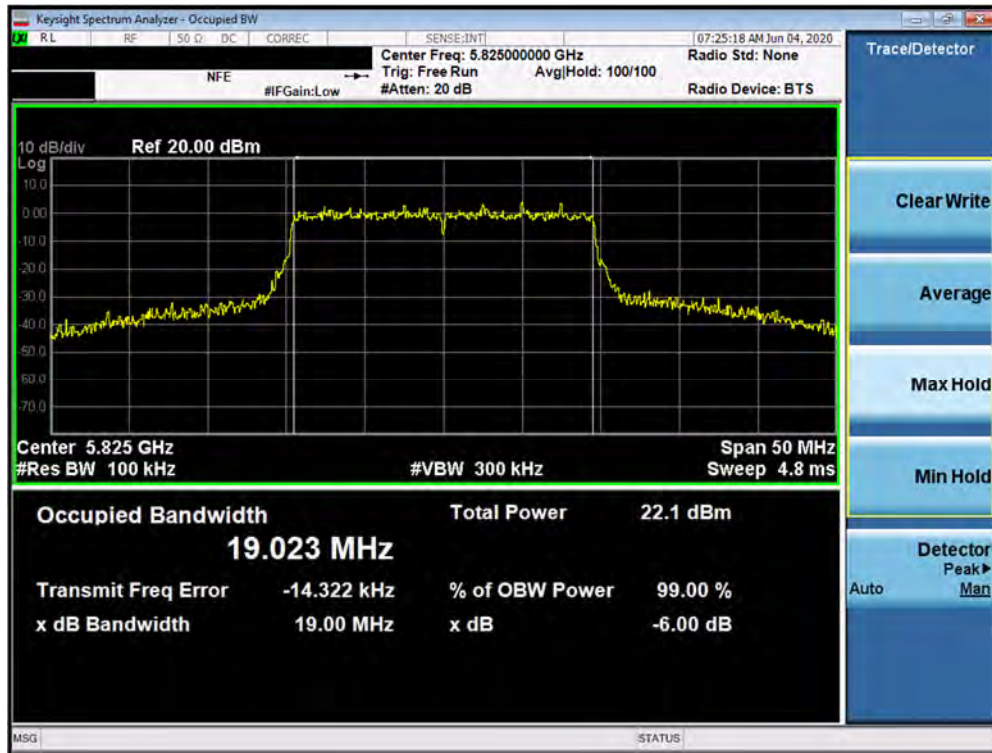


Plot 7-118. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 149)

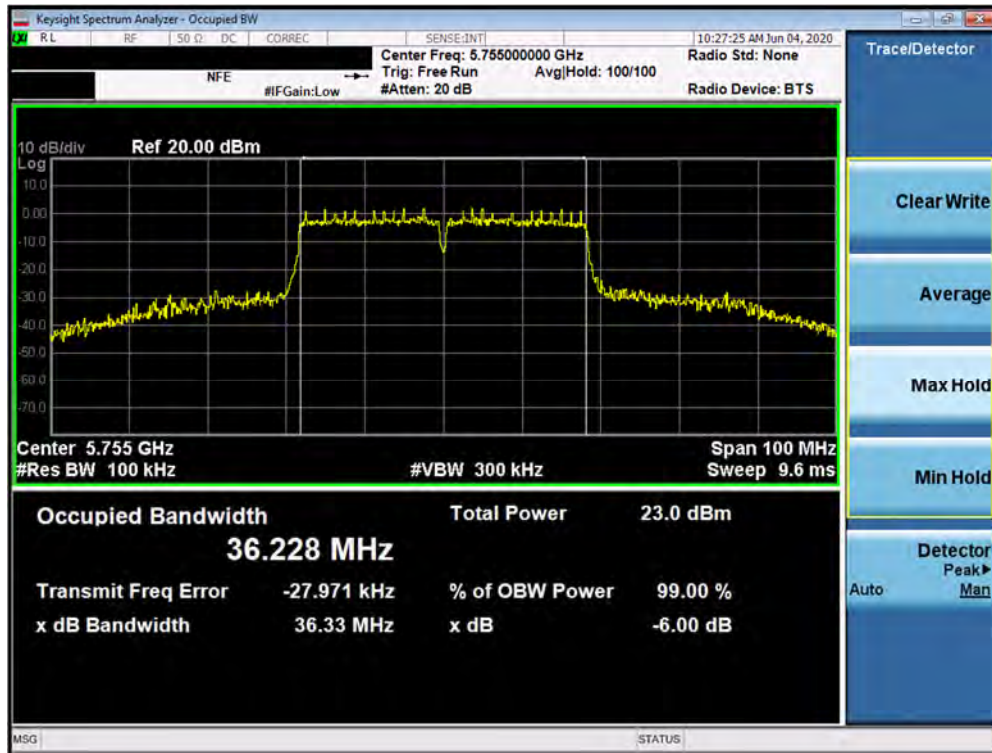


Plot 7-119. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 157)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 81 of 224

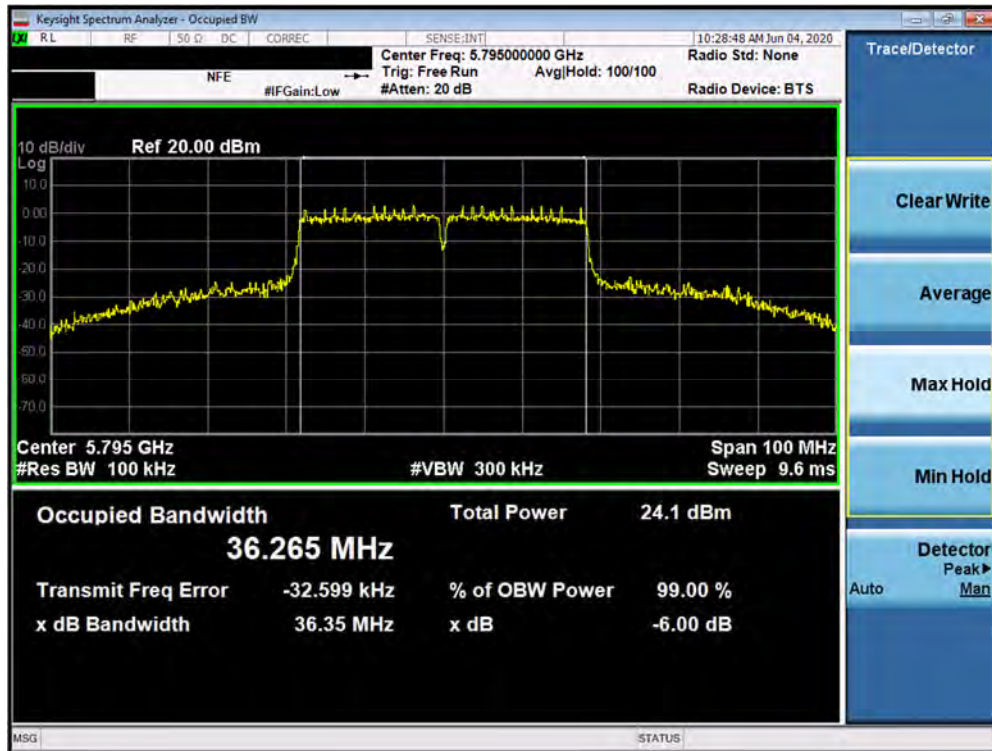


Plot 7-120. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 165)

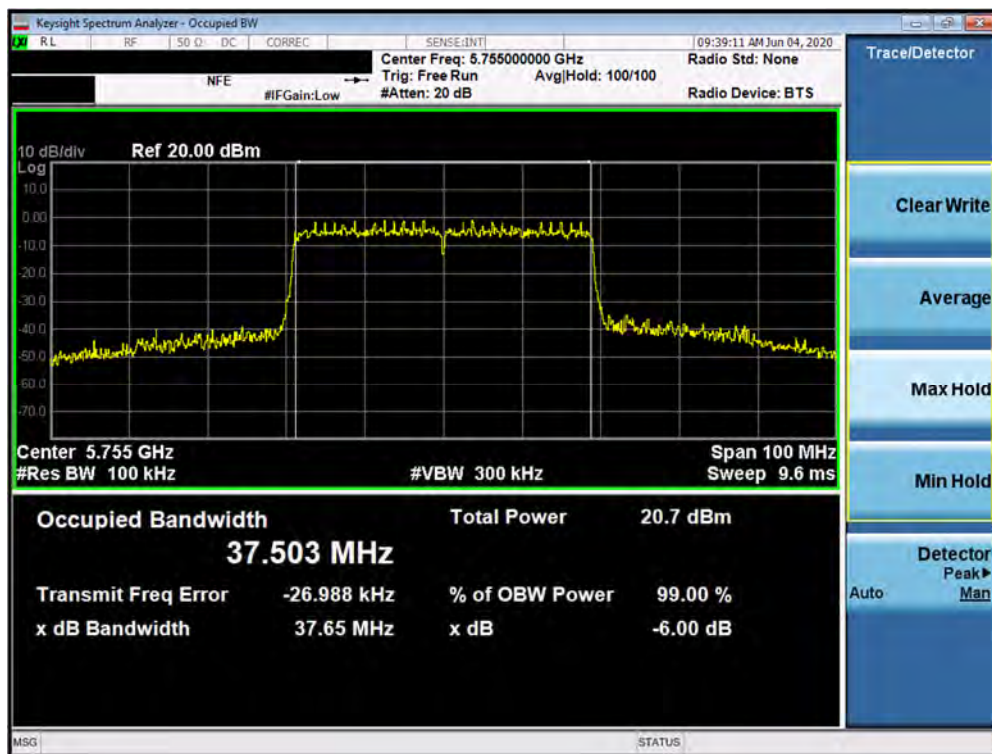


Plot 7-121. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 82 of 224

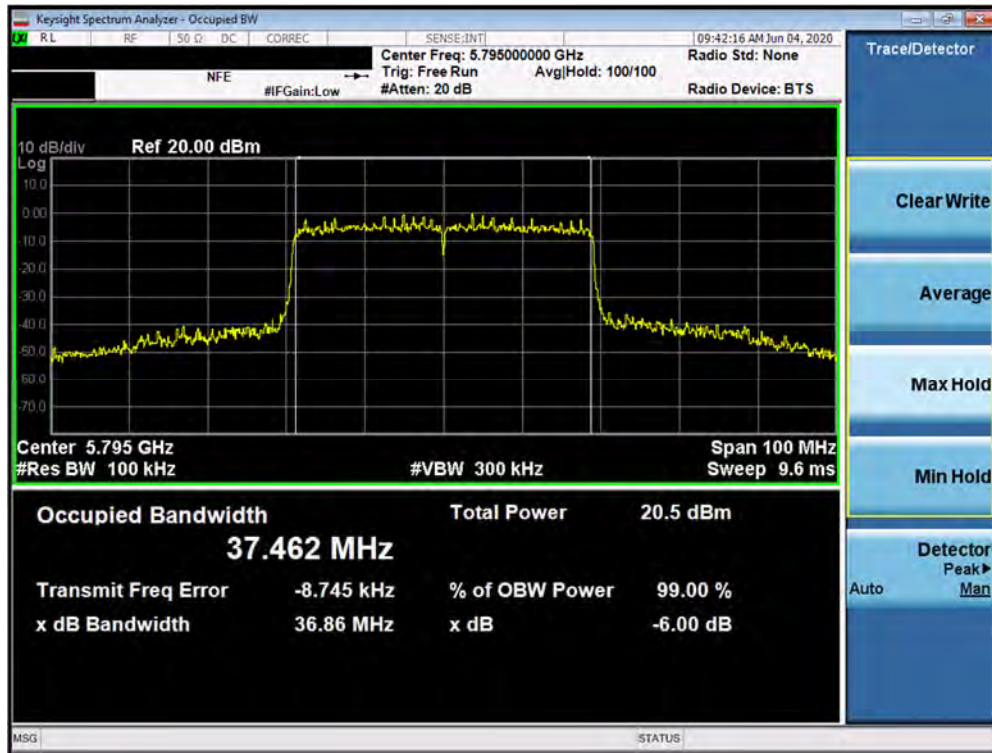


Plot 7-122. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

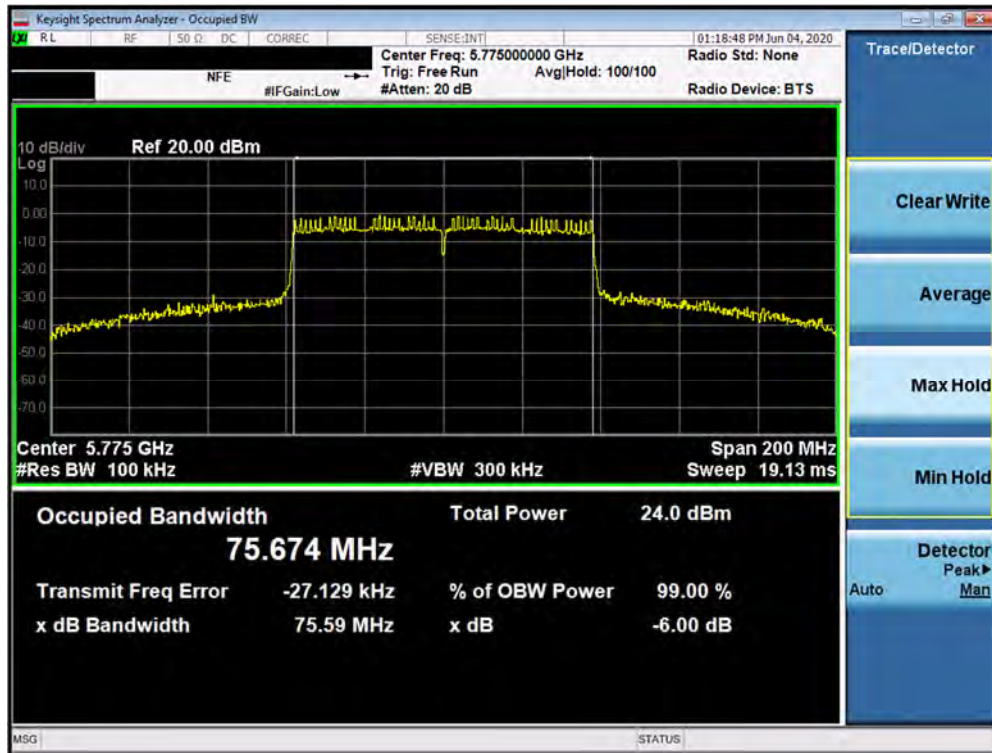


Plot 7-123. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 83 of 224

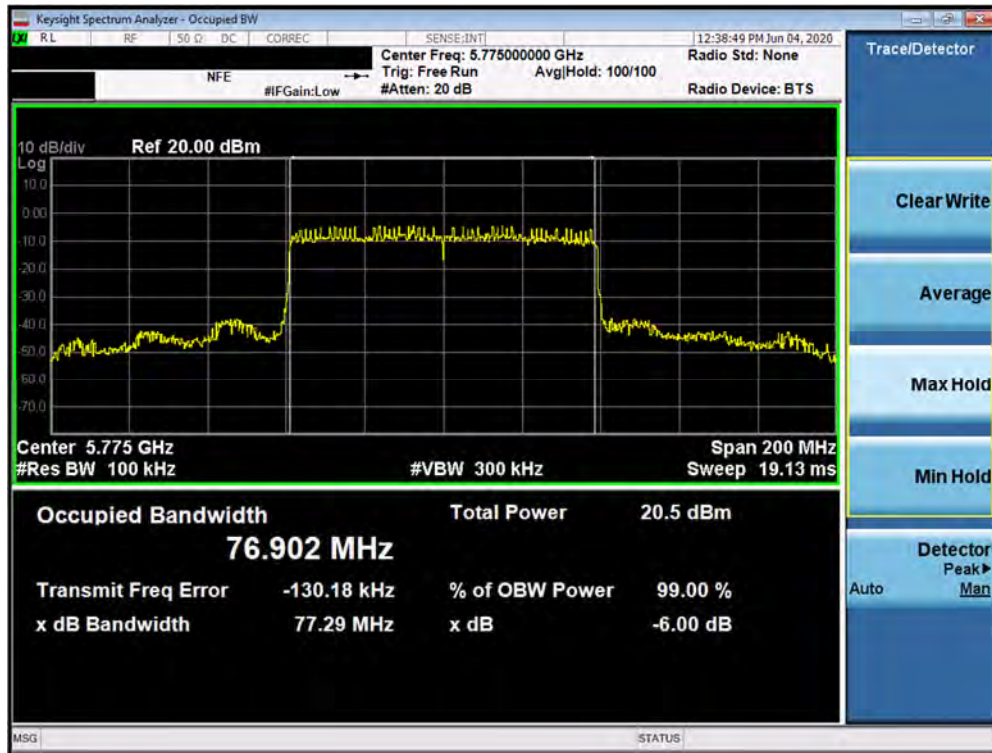


Plot 7-124. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 159)



Plot 7-125. 6dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 84 of 224



Plot 7-126. 6dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 3) – Ch. 155)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 85 of 224

7.4 UNII Output Power Measurement – 802.11a/n/ac/ax §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 or $10 + 10 \log_{10}B$, dBm.

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(21.09) = 24.24\text{dBm}$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or $17 + 10 \log_{10}B$, dBm.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(21.18) = 24.26\text{dBm}$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or $17 + 10 \log_{10}B$, 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 E3)b) Method PM-G
ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E1) 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: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 86 of 224

SISO Antenna-1 Conducted Output Power Measurements

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	IEEE Transmission Mode				Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				802.11a	802.11n	802.11ac	802.11ax						
	5180	36	AVG	17.45	17.48	17.42	15.34	23.98	-6.50	-6.85	10.63	23.01	-12.38
	5200	40	AVG	17.80	17.95	17.96	15.28	23.98	-6.02	-6.85	11.11	23.01	-11.90
	5220	44	AVG	17.86	17.78	17.77	15.10	23.98	-6.12	-6.85	11.01	23.01	-12.00
	5240	48	AVG	17.84	17.84	17.86	15.12	23.98	-6.12	-6.85	11.01	23.01	-12.00
	5260	52	AVG	17.26	17.32	17.39	15.94	23.98	-6.59	-6.04	11.35	30.00	-18.65
	5280	56	AVG	17.20	17.21	17.30	15.88	23.98	-6.68	-6.04	11.26	30.00	-18.74
	5300	60	AVG	17.25	17.31	17.35	15.97	23.98	-6.63	-6.04	11.31	30.00	-18.69
	5320	64	AVG	16.79	17.72	17.96	15.80	23.98	-6.02	-6.04	11.92	30.00	-18.08
	5500	100	AVG	16.60	17.77	17.77	15.67	23.98	-6.21	-6.92	10.85	30.00	-19.15
	5520	104	AVG	17.89	17.85	17.98	15.72	23.98	-6.00	-6.92	11.06	30.00	-18.94
	5540	108	AVG	17.79	17.80	17.86	15.56	23.98	-6.12	-6.92	10.94	30.00	-19.06
	5560	112	AVG	17.62	17.67	17.70	15.43	23.98	-6.28	-6.92	10.78	30.00	-19.22
	5580	116	AVG	17.49	17.50	17.62	15.32	23.98	-6.36	-6.92	10.70	30.00	-19.30
	5600	120	AVG	17.45	17.53	17.50	15.21	23.98	-6.45	-6.92	10.61	-	-
	5620	124	AVG	17.42	17.37	17.45	15.13	23.98	-6.53	-6.92	10.53	-	-
	5640	128	AVG	17.38	17.46	17.52	15.23	23.98	-6.46	-6.92	10.60	-	-
	5660	132	AVG	17.47	17.54	17.57	15.28	23.98	-6.41	-6.92	10.65	30.00	-19.35
	5680	136	AVG	17.64	17.65	17.74	15.42	23.98	-6.24	-6.92	10.82	30.00	-19.18
	5700	140	AVG	17.77	17.79	17.81	15.52	23.98	-6.17	-6.92	10.89	30.00	-19.11
	5720	144	AVG	17.79	17.77	17.90	15.56	23.98	-6.08	-6.92	10.98	30.00	-19.02
	5745	149	AVG	17.80	17.81	17.81	15.28	30.00	-12.19	-7.42	10.39	-	-
	5765	153	AVG	17.93	17.97	17.98	15.48	30.00	-12.02	-7.42	10.56	-	-
	5785	157	AVG	17.82	17.90	17.93	15.40	30.00	-12.07	-7.42	10.51	-	-
	5805	161	AVG	17.69	17.72	17.75	15.14	30.00	-12.25	-7.42	10.33	-	-
	5825	165	AVG	17.47	17.48	17.57	15.01	30.00	-12.43	-7.42	10.15	-	-

Table 7-6. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	IEEE Transmission Mode			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				802.11n	802.11ac	802.11ax						
	5190	38	AVG	15.84	15.81	13.35	23.98	-8.14	-6.85	8.99	23.01	-14.02
	5230	46	AVG	16.75	16.83	13.09	23.98	-7.15	-6.85	9.98	23.01	-13.03
	5270	54	AVG	16.32	16.39	13.79	23.98	-7.59	-6.04	10.35	30.00	-19.65
	5310	62	AVG	14.61	14.62	13.56	23.98	-9.36	-6.04	8.58	30.00	-21.42
	5510	102	AVG	14.90	14.89	13.80	23.98	-9.08	-6.92	7.98	30.00	-22.02
	5550	110	AVG	16.99	16.99	13.56	23.98	-6.99	-6.92	10.07	30.00	-19.93
	5590	118	AVG	16.82	16.72	13.21	23.98	-7.16	-6.92	9.90	-	-
	5630	126	AVG	16.75	16.77	13.34	23.98	-7.21	-6.92	9.85	-	-
	5670	134	AVG	16.95	16.93	13.35	23.98	-7.03	-6.92	10.03	30.00	-19.97
	5710	142	AVG	16.01	16.10	13.62	23.98	-7.88	-6.92	9.18	30.00	-20.82
	5755	151	AVG	16.01	16.99	13.14	30.00	-13.01	-7.42	9.57	-	-
	5795	159	AVG	16.81	16.84	13.94	30.00	-13.16	-7.42	9.42	-	-

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

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	IEEE Transmission Mode		Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				802.11ac	802.11ax						
	5210	42	AVG	14.88	12.99	23.98	-9.10	-6.85	8.03	23.01	-14.98
	5290	58	AVG	13.61	12.54	23.98	-10.37	-6.04	7.57	30.00	-22.43
	5530	106	AVG	13.86	12.64	23.98	-10.12	-6.92	6.94	30.00	-23.06
	5610	122	AVG	15.57	12.11	23.98	-8.41	-6.92	8.65	-	-
	5690	138	AVG	15.84	12.42	23.98	-8.14	-6.92	8.92	30.00	-21.08
	5775	155	AVG	15.77	12.99	30.00	-14.23	-7.42	8.35	-	-

Table 7-8. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN981W	 PCTEST Trusted to be part of the solution		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset			Page 87 of 224

SISO Antenna-2 Conducted Output Power Measurements

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	IEEE Transmission Mode				Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				802.11a	802.11n	802.11ac	802.11ax						
	5180	36	AVG	17.62	17.59	17.68	15.42	23.98	-6.30	-6.94	10.74	23.01	-12.27
	5200	40	AVG	17.61	17.69	17.81	15.58	23.98	-6.17	-6.94	10.87	23.01	-12.14
	5220	44	AVG	17.58	17.76	17.82	15.50	23.98	-6.16	-6.94	10.88	23.01	-12.13
	5240	48	AVG	17.62	17.84	17.90	15.57	23.98	-6.08	-6.94	10.96	23.01	-12.05
	5260	52	AVG	17.52	17.68	17.75	15.35	23.98	-6.23	-6.48	11.27	30.00	-18.73
	5280	56	AVG	17.58	17.71	17.81	15.34	23.98	-6.17	-6.48	11.33	30.00	-18.67
	5300	60	AVG	17.56	17.81	17.84	15.55	23.98	-6.14	-6.48	11.36	30.00	-18.64
	5320	64	AVG	16.40	17.65	17.75	15.40	23.98	-6.23	-6.48	11.27	30.00	-18.73
	5500	100	AVG	16.54	17.81	17.83	15.64	23.98	-6.15	-6.57	11.26	30.00	-18.74
	5520	104	AVG	17.98	17.04	17.08	15.69	23.98	-6.00	-6.57	11.41	30.00	-18.59
	5540	108	AVG	17.99	17.10	17.06	15.73	23.98	-5.99	-6.57	11.42	30.00	-18.58
	5560	112	AVG	17.01	17.12	17.21	15.70	23.98	-6.77	-6.57	10.64	30.00	-19.36
	5580	116	AVG	17.01	17.02	17.10	15.69	23.98	-6.88	-6.57	10.53	30.00	-19.47
	5600	120	AVG	17.03	17.16	17.17	15.75	23.98	-6.81	-6.57	10.60	-	-
	5620	124	AVG	17.03	17.11	17.23	15.48	23.98	-6.75	-6.57	10.66	-	-
	5640	128	AVG	17.04	17.12	17.24	15.83	23.98	-6.74	-6.57	10.67	-	-
	5660	132	AVG	17.12	17.18	17.23	15.94	23.98	-6.75	-6.57	10.66	30.00	-19.34
	5680	136	AVG	17.26	17.28	17.30	15.98	23.98	-6.68	-6.57	10.73	30.00	-19.27
	5700	140	AVG	17.19	17.24	17.28	15.99	23.98	-6.70	-6.57	10.71	30.00	-19.29
	5720	144	AVG	17.11	17.31	17.34	15.98	23.98	-6.64	-6.57	10.77	30.00	-19.23
	5745	149	AVG	17.32	17.41	17.46	15.34	30.00	-12.54	-7.39	10.07	-	-
	5765	153	AVG	17.46	17.61	17.64	15.40	30.00	-12.36	-7.39	10.25	-	-
	5785	157	AVG	17.54	17.64	17.62	15.47	30.00	-12.36	-7.39	10.25	-	-
	5805	161	AVG	17.60	17.52	17.60	15.31	30.00	-12.40	-7.39	10.21	-	-
	5825	165	AVG	17.51	17.56	17.58	15.46	30.00	-12.42	-7.39	10.19	-	-

Table 7-9. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	IEEE Transmission Mode			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				802.11n	802.11ac	802.11ax						
	5190	38	AVG	15.43	15.42	13.33	23.98	-8.55	-6.94	8.49	23.01	-14.52
	5230	46	AVG	16.11	16.14	13.44	23.98	-7.84	-6.94	9.20	23.01	-13.81
	5270	54	AVG	16.99	16.97	13.27	23.98	-6.99	-6.48	10.51	30.00	-19.49
	5310	62	AVG	14.26	14.29	13.20	23.98	-9.69	-6.48	7.81	30.00	-22.19
	5510	102	AVG	14.89	14.97	13.79	23.98	-9.01	-6.57	8.40	30.00	-21.60
	5550	110	AVG	16.27	16.29	13.75	23.98	-7.69	-6.57	9.72	30.00	-20.28
	5590	118	AVG	16.19	16.34	13.79	23.98	-7.64	-6.57	9.77	-	-
	5630	126	AVG	16.42	16.40	13.89	23.98	-7.56	-6.57	9.85	-	-
	5670	134	AVG	16.43	16.40	13.91	23.98	-7.55	-6.57	9.86	30.00	-20.14
	5710	142	AVG	16.56	16.53	13.99	23.98	-7.42	-6.57	9.99	30.00	-20.01
	5755	151	AVG	16.97	16.98	13.57	30.00	-13.02	-7.39	9.59	-	-
	5795	159	AVG	16.84	16.88	13.38	30.00	-13.12	-7.39	9.49	-	-

Table 7-10. SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	IEEE Transmission Mode		Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				802.11ac	802.11ax						
	5210	42	AVG	14.15	12.25	23.98	-9.83	-6.94	7.21	23.01	-15.80
	5290	58	AVG	13.78	12.50	23.98	-10.20	-6.48	7.30	30.00	-22.70
	5530	106	AVG	13.32	12.44	23.98	-10.66	-6.57	6.75	30.00	-23.25
	5610	122	AVG	15.99	12.45	23.98	-7.99	-6.57	9.42	-	-
	5690	138	AVG	15.25	12.76	23.98	-8.73	-6.57	8.68	30.00	-21.32
	5775	155	AVG	15.71	12.29	30.00	-14.29	-7.39	8.32	-	-

Table 7-11. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)					Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset					Page 88 of 224

MIMO Maximum Conducted Output Power Measurements

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5180	36	AVG	17.48	17.59	20.55	23.98	-3.43	-1.94	18.61	23.01	-4.40
	5200	40	AVG	17.95	17.69	20.83	23.98	-3.15	-1.94	18.89	23.01	-4.12
	5220	44	AVG	17.78	17.76	20.78	23.98	-3.20	-1.94	18.84	23.01	-4.17
	5240	48	AVG	17.84	17.84	20.85	23.98	-3.13	-1.94	18.91	23.01	-4.10
	5260	52	AVG	17.32	17.68	20.51	23.98	-3.47	-1.62	18.89	30.00	-11.11
	5280	56	AVG	17.21	17.71	20.48	23.98	-3.50	-1.62	18.86	30.00	-11.14
	5300	60	AVG	17.31	17.81	20.58	23.98	-3.40	-1.62	18.96	30.00	-11.04
	5320	64	AVG	17.72	17.65	20.70	23.98	-3.28	-1.62	19.08	30.00	-10.92
	5500	100	AVG	17.77	17.81	20.80	23.98	-3.18	-1.87	18.93	30.00	-11.07
	5520	104	AVG	17.85	17.04	20.47	23.98	-3.51	-1.87	18.60	30.00	-11.40
	5540	108	AVG	17.80	17.10	20.47	23.98	-3.51	-1.87	18.60	30.00	-11.40
	5560	112	AVG	17.67	17.12	20.41	23.98	-3.57	-1.87	18.54	30.00	-11.46
	5580	116	AVG	17.50	17.02	20.28	23.98	-3.70	-1.87	18.41	30.00	-11.59
	5600	120	AVG	17.53	17.16	20.36	23.98	-3.62	-1.87	18.49	-	-
	5620	124	AVG	17.37	17.11	20.25	23.98	-3.73	-1.87	18.38	-	-
	5640	128	AVG	17.46	17.12	20.30	23.98	-3.68	-1.87	18.43	-	-
	5660	132	AVG	17.54	17.18	20.37	23.98	-3.61	-1.87	18.50	30.00	-11.50
	5680	136	AVG	17.65	17.28	20.48	23.98	-3.50	-1.87	18.61	30.00	-11.39
	5700	140	AVG	17.79	17.24	20.53	23.98	-3.45	-1.87	18.66	30.00	-11.34
	5720	144	AVG	17.77	17.31	20.56	23.98	-3.42	-1.87	18.69	30.00	-11.31
	5745	149	AVG	17.81	17.41	20.62	30.00	-9.38	-2.20	18.42	-	-
	5765	153	AVG	17.97	17.61	20.80	30.00	-9.20	-2.20	18.60	-	-
	5785	157	AVG	17.90	17.64	20.78	30.00	-9.22	-2.20	18.58	-	-
	5805	161	AVG	17.72	17.52	20.63	30.00	-9.37	-2.20	18.43	-	-
	5825	165	AVG	17.48	17.56	20.53	30.00	-9.47	-2.20	18.33	-	-

Table 7-12. MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 89 of 224

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5180	36	AVG	17.42	17.68	20.56	23.98	-3.42	-1.94	18.62	23.01	-4.39
	5200	40	AVG	17.96	17.81	20.90	23.98	-3.08	-1.94	18.96	23.01	-4.05
	5220	44	AVG	17.77	17.82	20.81	23.98	-3.17	-1.94	18.87	23.01	-4.14
	5240	48	AVG	17.86	17.90	20.89	23.98	-3.09	-1.94	18.95	23.01	-4.06
	5260	52	AVG	17.39	17.75	20.58	23.98	-3.40	-1.62	18.96	30.00	-11.04
	5280	56	AVG	17.30	17.81	20.57	23.98	-3.41	-1.62	18.95	30.00	-11.05
	5300	60	AVG	17.35	17.84	20.61	23.98	-3.37	-1.62	18.99	30.00	-11.01
	5320	64	AVG	17.96	17.75	20.87	23.98	-3.11	-1.62	19.25	30.00	-10.75
	5500	100	AVG	17.77	17.83	20.81	23.98	-3.17	-1.87	18.94	30.00	-11.06
	5520	104	AVG	17.98	17.08	20.56	23.98	-3.42	-1.87	18.69	30.00	-11.31
	5540	108	AVG	17.86	17.06	20.49	23.98	-3.49	-1.87	18.62	30.00	-11.38
	5560	112	AVG	17.70	17.21	20.47	23.98	-3.51	-1.87	18.60	30.00	-11.40
	5580	116	AVG	17.62	17.10	20.38	23.98	-3.60	-1.87	18.51	30.00	-11.49
	5600	120	AVG	17.50	17.17	20.35	23.98	-3.63	-1.87	18.48	-	-
	5620	124	AVG	17.45	17.23	20.35	23.98	-3.63	-1.87	18.48	-	-
	5640	128	AVG	17.52	17.24	20.39	23.98	-3.59	-1.87	18.52	-	-
	5660	132	AVG	17.57	17.23	20.41	23.98	-3.57	-1.87	18.54	30.00	-11.46
	5680	136	AVG	17.74	17.30	20.54	23.98	-3.44	-1.87	18.67	30.00	-11.33
	5700	140	AVG	17.81	17.28	20.56	23.98	-3.42	-1.87	18.69	30.00	-11.31
	5720	144	AVG	17.90	17.34	20.64	23.98	-3.34	-1.87	18.77	30.00	-11.23
	5745	149	AVG	17.81	17.46	20.65	30.00	-9.35	-2.20	18.45	-	-
	5765	153	AVG	17.98	17.64	20.82	30.00	-9.18	-2.20	18.62	-	-
	5785	157	AVG	17.93	17.62	20.79	30.00	-9.21	-2.20	18.59	-	-
	5805	161	AVG	17.75	17.60	20.69	30.00	-9.31	-2.20	18.49	-	-
	5825	165	AVG	17.57	17.58	20.59	30.00	-9.41	-2.20	18.39	-	-

Table 7-13. MIMO 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5180	36	AVG	17.45	17.62	20.55	23.98	-3.43	-1.94	18.61	23.01	-4.40
	5200	40	AVG	17.80	17.61	20.72	23.98	-3.26	-1.94	18.78	23.01	-4.23
	5220	44	AVG	17.86	17.58	20.73	23.98	-3.25	-1.94	18.79	23.01	-4.22
	5240	48	AVG	17.84	17.62	20.74	23.98	-3.24	-1.94	18.80	23.01	-4.21
	5260	52	AVG	17.26	17.52	20.40	23.98	-3.58	-1.62	18.78	30.00	-11.22
	5280	56	AVG	17.20	17.58	20.40	23.98	-3.58	-1.62	18.78	30.00	-11.22
	5300	60	AVG	17.25	17.56	20.42	23.98	-3.56	-1.62	18.80	30.00	-11.20
	5320	64	AVG	16.79	16.40	19.61	23.98	-4.37	-1.62	17.99	30.00	-12.01
	5500	100	AVG	16.60	16.54	19.58	23.98	-4.40	-1.87	17.71	30.00	-12.29
	5520	104	AVG	17.89	17.98	20.95	23.98	-3.03	-1.87	19.08	30.00	-10.92
	5540	108	AVG	17.79	17.99	20.90	23.98	-3.08	-1.87	19.03	30.00	-10.97
	5560	112	AVG	17.62	17.01	20.34	23.98	-3.64	-1.87	18.47	30.00	-11.53
	5580	116	AVG	17.49	17.01	20.27	23.98	-3.71	-1.87	18.40	30.00	-11.60
	5600	120	AVG	17.45	17.03	20.26	23.98	-3.72	-1.87	18.39	-	-
	5620	124	AVG	17.42	17.03	20.24	23.98	-3.74	-1.87	18.37	-	-
	5640	128	AVG	17.38	17.04	20.22	23.98	-3.76	-1.87	18.35	-	-
	5660	132	AVG	17.47	17.12	20.31	23.98	-3.67	-1.87	18.44	30.00	-11.56
	5680	136	AVG	17.64	17.26	20.46	23.98	-3.52	-1.87	18.59	30.00	-11.41
	5700	140	AVG	17.77	17.19	20.50	23.98	-3.48	-1.87	18.63	30.00	-11.37
	5720	144	AVG	17.79	17.11	20.47	23.98	-3.51	-1.87	18.60	30.00	-11.40
	5745	149	AVG	17.80	17.32	20.58	30.00	-9.42	-2.20	18.38	-	-
	5765	153	AVG	17.93	17.46	20.71	30.00	-9.29	-2.20	18.51	-	-
	5785	157	AVG	17.82	17.54	20.69	30.00	-9.31	-2.20	18.49	-	-
	5805	161	AVG	17.69	17.60	20.66	30.00	-9.34	-2.20	18.46	-	-
	5825	165	AVG	17.47	17.51	20.50	30.00	-9.50	-2.20	18.30	-	-

Table 7-14. CDD 20MHz BW 802.11a (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN981W	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset	Page 90 of 224

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5180	36	AVG	13.10	12.65	15.89	23.98	-8.09	-1.94	13.95	23.01	-9.06
	5200	40	AVG	13.15	12.72	15.95	23.98	-8.03	-1.94	14.01	23.01	-9.00
	5220	44	AVG	13.25	12.70	15.99	23.98	-7.99	-1.94	14.05	23.01	-8.96
	5240	48	AVG	13.20	12.75	15.99	23.98	-7.99	-1.94	14.05	23.01	-8.96
	5260	52	AVG	12.82	12.65	15.75	23.98	-8.23	-1.62	14.13	30.00	-15.87
	5280	56	AVG	12.87	12.65	15.77	23.98	-8.21	-1.62	14.15	30.00	-15.85
	5300	60	AVG	13.00	12.67	15.85	23.98	-8.13	-1.62	14.23	30.00	-15.77
	5320	64	AVG	12.96	12.58	15.78	23.98	-8.20	-1.62	14.16	30.00	-15.84
	5500	100	AVG	12.15	12.00	15.09	23.98	-8.89	-1.87	13.22	30.00	-16.78
	5520	104	AVG	12.10	12.00	15.06	23.98	-8.92	-1.87	13.19	30.00	-16.81
	5540	108	AVG	12.11	12.04	15.09	23.98	-8.89	-1.87	13.22	30.00	-16.78
	5560	112	AVG	12.20	12.09	15.16	23.98	-8.82	-1.87	13.29	30.00	-16.71
	5580	116	AVG	12.15	12.04	15.11	23.98	-8.87	-1.87	13.24	30.00	-16.76
	5600	120	AVG	12.16	12.04	15.11	23.98	-8.87	-1.87	13.24	-	-
	5620	124	AVG	12.16	12.05	15.12	23.98	-8.86	-1.87	13.25	-	-
	5640	128	AVG	12.26	12.20	15.24	23.98	-8.74	-1.87	13.37	-	-
	5660	132	AVG	12.29	12.30	15.31	23.98	-8.67	-1.87	13.44	30.00	-16.56
	5680	136	AVG	12.34	12.38	15.37	23.98	-8.61	-1.87	13.50	30.00	-16.50
	5700	140	AVG	12.34	12.32	15.34	23.98	-8.64	-1.87	13.47	30.00	-16.53
	5720	144	AVG	12.27	12.37	15.33	23.98	-8.65	-1.87	13.46	30.00	-16.54
	5745	149	AVG	12.41	11.92	15.18	30.00	-14.82	-2.20	12.98	-	-
	5765	153	AVG	12.60	12.04	15.34	30.00	-14.66	-2.20	13.14	-	-
	5785	157	AVG	12.58	12.02	15.32	30.00	-14.68	-2.20	13.12	-	-
	5805	161	AVG	12.47	11.92	15.21	30.00	-14.79	-2.20	13.01	-	-
	5825	165	AVG	12.40	11.98	15.21	30.00	-14.79	-2.20	13.01	-	-

Table 7-15. MIMO 20MHz BW 802.11ax (UNII) Maximum Conducted Output Power

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5190	38	AVG	15.84	15.43	18.65	23.98	-5.33	-1.94	16.71	23.01	-6.30
	5230	46	AVG	16.75	16.11	19.45	23.98	-4.53	-1.94	17.51	23.01	-5.50
	5270	54	AVG	16.32	16.99	19.68	23.98	-4.30	-1.62	18.06	30.00	-11.94
	5310	62	AVG	14.61	14.26	17.45	23.98	-6.53	-1.62	15.83	30.00	-14.17
	5510	102	AVG	14.90	14.89	17.91	23.98	-6.07	-1.87	16.04	30.00	-13.96
	5550	110	AVG	16.99	16.27	19.66	23.98	-4.32	-1.87	17.79	30.00	-12.21
	5590	118	AVG	16.82	16.19	19.53	23.98	-4.45	-1.87	17.66	-	-
	5630	126	AVG	16.75	16.42	19.60	23.98	-4.38	-1.87	17.73	-	-
	5670	134	AVG	16.95	16.43	19.71	23.98	-4.27	-1.87	17.84	30.00	-12.16
	5710	142	AVG	16.01	16.56	19.30	23.98	-4.68	-1.87	17.43	30.00	-12.57
	5755	151	AVG	16.01	16.97	19.53	30.00	-10.47	-2.20	17.33	-	-
	5795	159	AVG	16.81	16.84	19.84	30.00	-10.16	-2.20	17.64	-	-

Table 7-16. MIMO 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN981W	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset	Page 91 of 224

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5190	38	AVG	15.81	15.42	18.63	23.98	-5.35	-1.94	16.69	23.01	-6.32
	5230	46	AVG	16.83	16.14	19.51	23.98	-4.47	-1.94	17.57	23.01	-5.44
	5270	54	AVG	16.39	16.97	19.70	23.98	-4.28	-1.62	18.08	30.00	-11.92
	5310	62	AVG	14.62	14.29	17.47	23.98	-6.51	-1.62	15.85	30.00	-14.15
	5510	102	AVG	14.89	14.97	17.94	23.98	-6.04	-1.87	16.07	30.00	-13.93
	5550	110	AVG	16.99	16.29	19.66	23.98	-4.32	-1.87	17.79	30.00	-12.21
	5590	118	AVG	16.72	16.34	19.54	23.98	-4.44	-1.87	17.67	-	-
	5630	126	AVG	16.77	16.40	19.60	23.98	-4.38	-1.87	17.73	-	-
	5670	134	AVG	16.93	16.40	19.68	23.98	-4.30	-1.87	17.81	30.00	-12.19
	5710	142	AVG	16.10	16.53	19.33	23.98	-4.65	-1.87	17.46	30.00	-12.54
	5755	151	AVG	16.99	16.98	20.00	30.00	-10.00	-2.20	17.80	-	-
	5795	159	AVG	16.84	16.88	19.87	30.00	-10.13	-2.20	17.67	-	-

Table 7-17. MIMO 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5190	38	AVG	9.76	9.72	12.75	23.98	-11.23	-1.94	10.81	23.01	-12.20
	5230	46	AVG	11.04	10.65	13.86	23.98	-10.12	-1.94	11.92	23.01	-11.09
	5270	54	AVG	10.64	10.30	13.48	23.98	-10.50	-1.62	11.86	30.00	-18.14
	5310	62	AVG	10.38	10.35	13.38	23.98	-10.60	-1.62	11.76	30.00	-18.24
	5510	102	AVG	11.11	10.80	13.97	23.98	-10.01	-1.87	12.10	30.00	-17.90
	5550	110	AVG	11.05	10.84	13.96	23.98	-10.02	-1.87	12.09	30.00	-17.91
	5590	118	AVG	10.86	10.84	13.86	23.98	-10.12	-1.87	11.99	-	-
	5630	126	AVG	10.99	10.91	13.96	23.98	-10.02	-1.87	12.09	-	-
	5670	134	AVG	10.99	10.97	13.99	23.98	-9.99	-1.87	12.12	30.00	-17.88
	5710	142	AVG	10.24	10.11	13.19	23.98	-10.79	-1.87	11.32	30.00	-18.68
	5755	151	AVG	10.28	9.97	13.14	30.00	-16.86	-2.20	10.94	-	-
	5795	159	AVG	10.31	10.11	13.22	30.00	-16.78	-2.20	11.02	-	-

Table 7-18. MIMO 40MHz BW 802.11ax (UNII) Maximum Conducted Output Power

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5210	42	AVG	14.88	14.15	17.54	23.98	-6.44	-1.94	15.60	23.01	-7.41
	5290	58	AVG	13.61	13.78	16.71	23.98	-7.27	-1.62	15.09	30.00	-14.91
	5530	106	AVG	13.86	13.32	16.61	23.98	-7.37	-1.87	14.74	30.00	-15.26
	5610	122	AVG	15.57	15.99	18.80	23.98	-5.18	-1.87	16.93	-	-
	5690	138	AVG	15.84	15.25	18.57	23.98	-5.41	-1.87	16.70	30.00	-13.30
	5775	155	AVG	15.77	15.71	18.75	30.00	-11.25	-2.20	16.55	-	-

Table 7-19. MIMO 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO						
	5210	42	AVG	9.24	9.46	12.36	23.98	-11.62	-1.94	10.42	23.01	-12.59
	5290	58	AVG	10.06	9.75	12.92	23.98	-11.06	-1.62	11.30	30.00	-18.70
	5530	106	AVG	8.97	9.31	12.15	23.98	-11.83	-1.87	10.28	30.00	-19.72
	5610	122	AVG	9.18	9.36	12.28	23.98	-11.70	-1.87	10.41	-	-
	5690	138	AVG	8.71	9.44	12.10	23.98	-11.88	-1.87	10.23	30.00	-19.77
	5775	155	AVG	9.30	9.46	12.39	30.00	-17.61	-2.20	10.19	-	-

Table 7-20. MIMO 80MHz BW 802.11ax (UNII) Maximum Conducted Output Power

FCC ID: A3LSMN981W	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset	Page 92 of 224

Note:

Per ANSI C63.10-2013 and 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 in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 17.48 dBm for Antenna-1 and 17.59 dBm for Antenna-2.

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

$$(17.48 \text{ dBm} + 17.59 \text{ dBm}) = (55.98 \text{ mW} + 57.41 \text{ mW}) = 113.39 \text{ mW} = 20.55 \text{ dBm}$$

Sample e.i.r.p. Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO conducted power was calculated to be 20.55 dBm with directional gain of N/A dBi.

$$\text{e.i.r.p. (dBm)} = \text{Conducted Power (dBm)} + \text{Ant gain (dBi)}$$

$$20.55 \text{ dBm} + \text{N/A dBi} = \text{N/A dBm}$$

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7.5 Maximum Power Spectral Density – 802.11a/n/ac/ax §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

None

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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SISO Antenna-1 Power Spectral Density Measurements

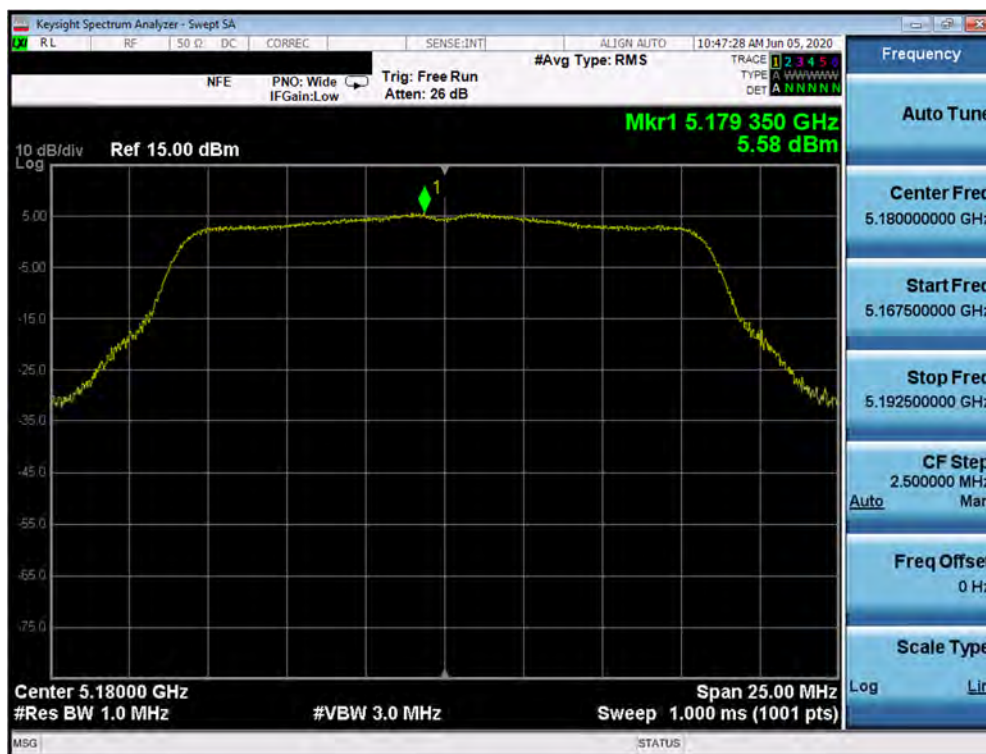
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	5.58	11.0	-5.42
	5200	40	a	6	4.73	11.0	-6.27
	5240	48	a	6	5.32	11.0	-5.68
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	4.69	11.0	-6.31
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	4.51	11.0	-6.49
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	5.18	11.0	-5.82
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	1.45	11.0	-9.55
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	1.70	11.0	-9.30
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	2.18	11.0	-8.82
	5190	38	n (40MHz)	13.5/15 (MCS0)	0.93	11.0	-10.07
	5230	46	n (40MHz)	13.5/15 (MCS0)	1.24	11.0	-9.76
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-3.09	11.0	-14.09
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-2.41	11.0	-13.41
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.04	11.0	-13.04
Band 2A	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-5.32	11.0	-16.32
	5260	52	a	6	5.58	11.0	-5.42
	5280	56	a	6	4.73	11.0	-6.27
	5320	64	a	6	5.32	11.0	-5.68
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	3.74	11.0	-7.26
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	3.68	11.0	-7.32
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	5.72	11.0	-5.28
	5260	52	ax (20MHz)	6.5/7.2 (MCS0)	1.78	11.0	-9.22
	5280	56	ax (20MHz)	6.5/7.2 (MCS0)	2.17	11.0	-8.83
	5320	64	ax (20MHz)	6.5/7.2 (MCS0)	2.31	11.0	-8.69
	5270	54	n (40MHz)	13.5/15 (MCS0)	-0.71	11.0	-11.71
	5310	62	n (40MHz)	13.5/15 (MCS0)	1.43	11.0	-9.57
	5270	54	ax (40MHz)	13.5/15 (MCS0)	-3.15	11.0	-14.15
	5310	62	ax (40MHz)	13.5/15 (MCS0)	-3.32	11.0	-14.32
Band 2C	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-2.23	11.0	-13.23
	5290	58	ax (80MHz)	29.3/32.5 (MCS0)	-6.77	11.0	-17.77
	5500	100	a	6	6.33	11.0	-4.67
	5600	120	a	6	4.44	11.0	-6.56
	5720	144	a	6	5.10	11.0	-5.90
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	6.48	11.0	-4.52
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	4.15	11.0	-6.85
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	4.38	11.0	-6.62
	5500	100	ax (20MHz)	6.5/7.2 (MCS0)	1.92	11.0	-9.08
	5600	120	ax (20MHz)	6.5/7.2 (MCS0)	1.58	11.0	-9.42
	5720	144	ax (20MHz)	6.5/7.2 (MCS0)	2.48	11.0	-8.52
	5510	102	n (40MHz)	13.5/15 (MCS0)	2.50	11.0	-8.50
	5590	118	n (40MHz)	13.5/15 (MCS0)	0.75	11.0	-10.25
	5710	142	n (40MHz)	13.5/15 (MCS0)	0.05	11.0	-10.95
	5510	102	ax (40MHz)	13.5/15 (MCS0)	-2.76	11.0	-13.76
	5590	118	ax (40MHz)	13.5/15 (MCS0)	-2.87	11.0	-13.87
	5710	142	ax (40MHz)	13.5/15 (MCS0)	-2.96	11.0	-13.96
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-2.81	11.0	-13.81
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-3.86	11.0	-14.86
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-6.19	11.0	-17.19
	5530	106	ax (80MHz)	29.3/32.5 (MCS0)	-6.80	11.0	-17.80
	5610	122	ax (80MHz)	29.3/32.5 (MCS0)	-7.43	11.0	-18.43
	5690	138	ax (80MHz)	29.3/32.5 (MCS0)	-9.56	11.0	-20.56

Table 7-21. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT1

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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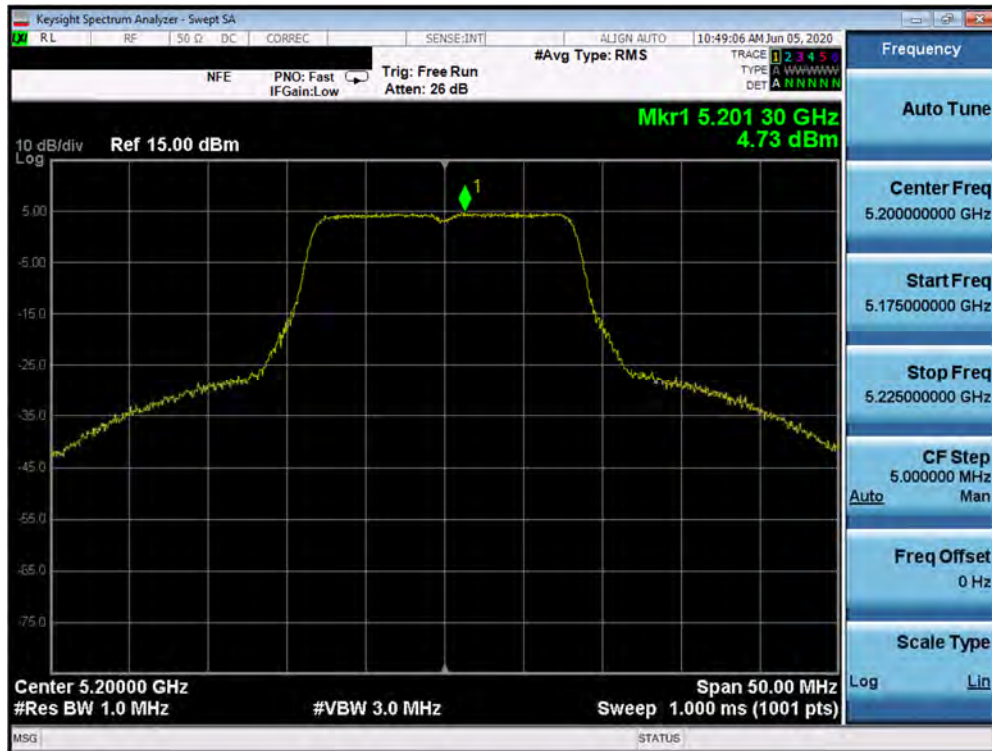
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	5.58	-6.85	-1.27	10.0	-11.27
	5200	40	a	6	4.73	-6.85	-2.12	10.0	-12.12
	5240	48	a	6	5.32	-6.85	-1.53	10.0	-11.53
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	4.69	-6.85	-2.16	10.0	-12.16
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	4.51	-6.85	-2.34	10.0	-12.34
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	5.18	-6.85	-1.67	10.0	-11.67
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	1.45	-6.85	-5.40	10.0	-15.40
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	1.70	-6.85	-5.15	10.0	-15.15
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	2.18	-6.85	-4.67	10.0	-14.67
	5190	38	n (40MHz)	13.5/15 (MCS0)	0.93	-6.85	-5.92	10.0	-15.92
	5230	46	n (40MHz)	13.5/15 (MCS0)	1.24	-6.85	-5.61	10.0	-15.61
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-3.09	-6.85	-9.94	10.0	-19.94
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-2.41	-6.85	-9.26	10.0	-19.26
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.04	-6.85	-8.89	10.0	-18.89
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-5.32	-6.85	-12.17	10.0	-22.17

Table 7-22. Band 1 e.i.r.p. Conducted Power Spectral Density Measurements (ISED) SISO ANT1

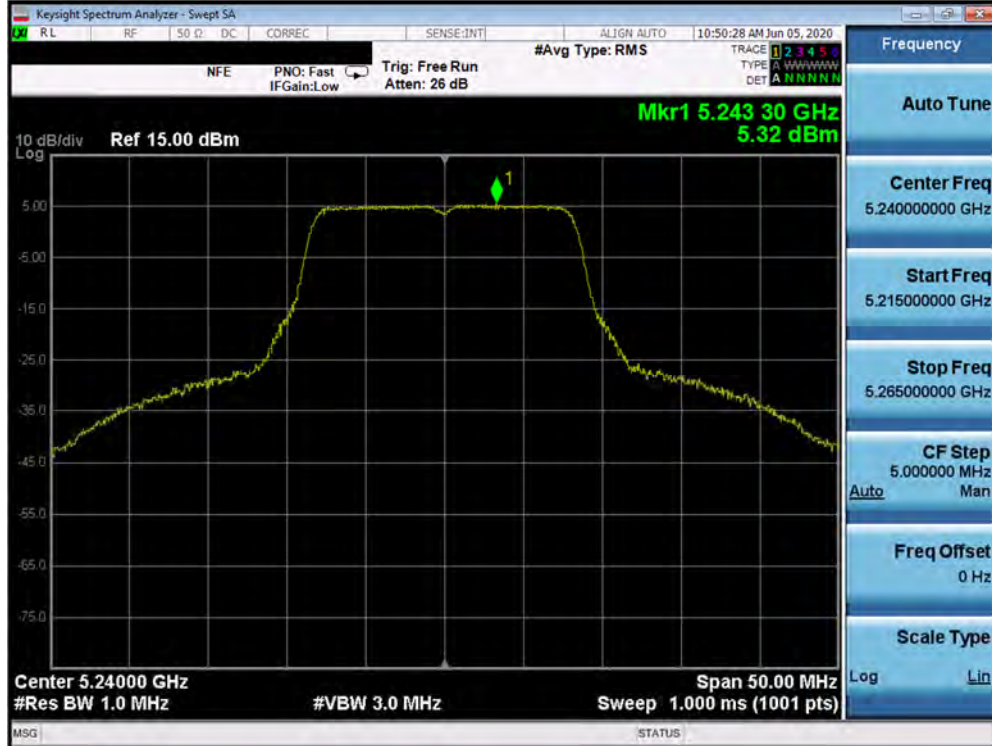


Plot 7-127. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 36)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 96 of 224

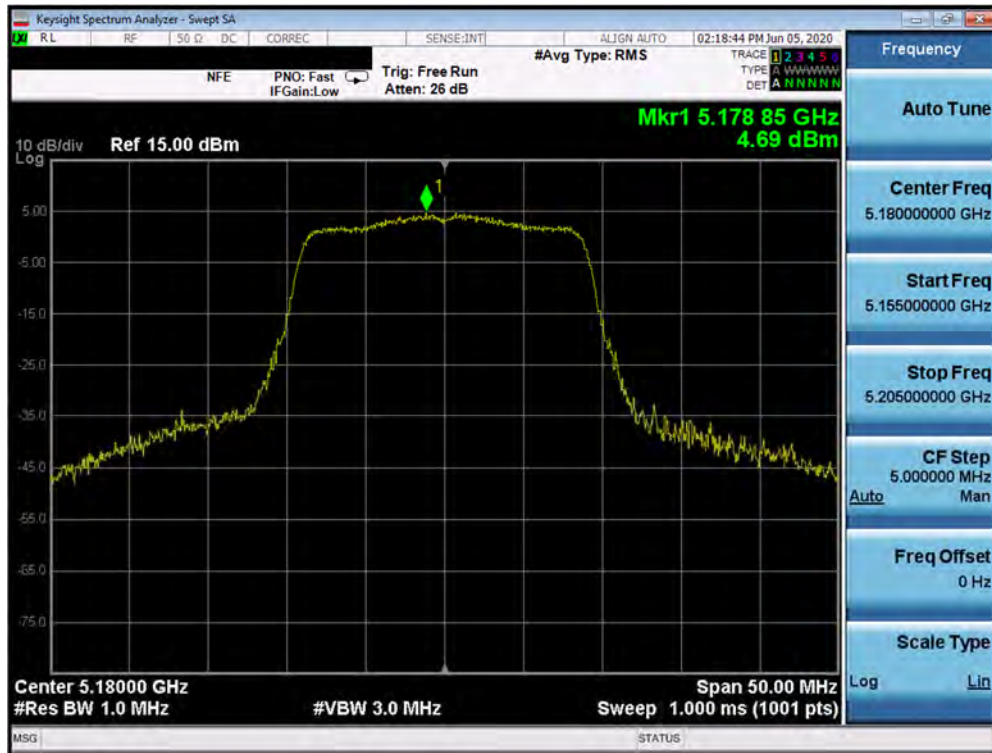


Plot 7-128. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 40)

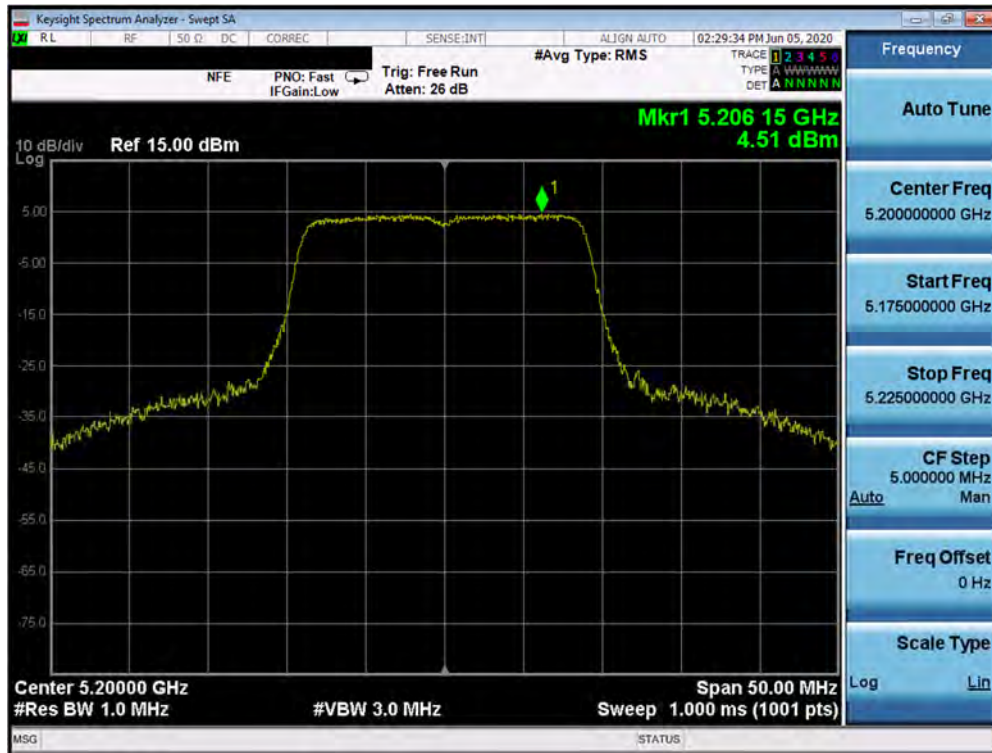


Plot 7-129. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 48)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 97 of 224

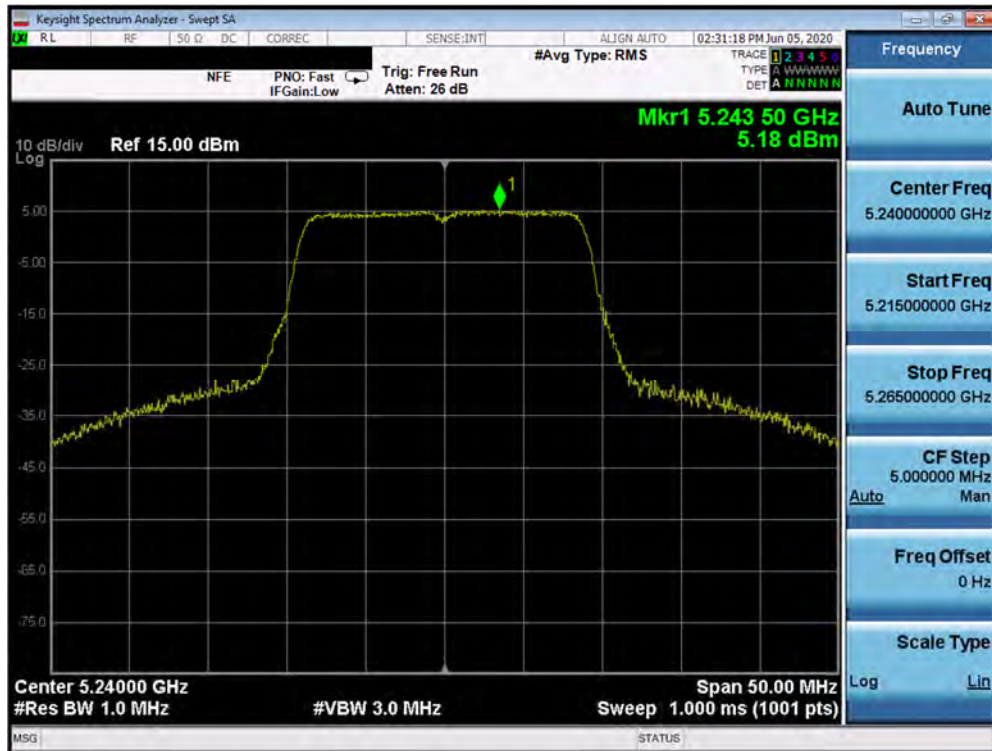


Plot 7-130. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

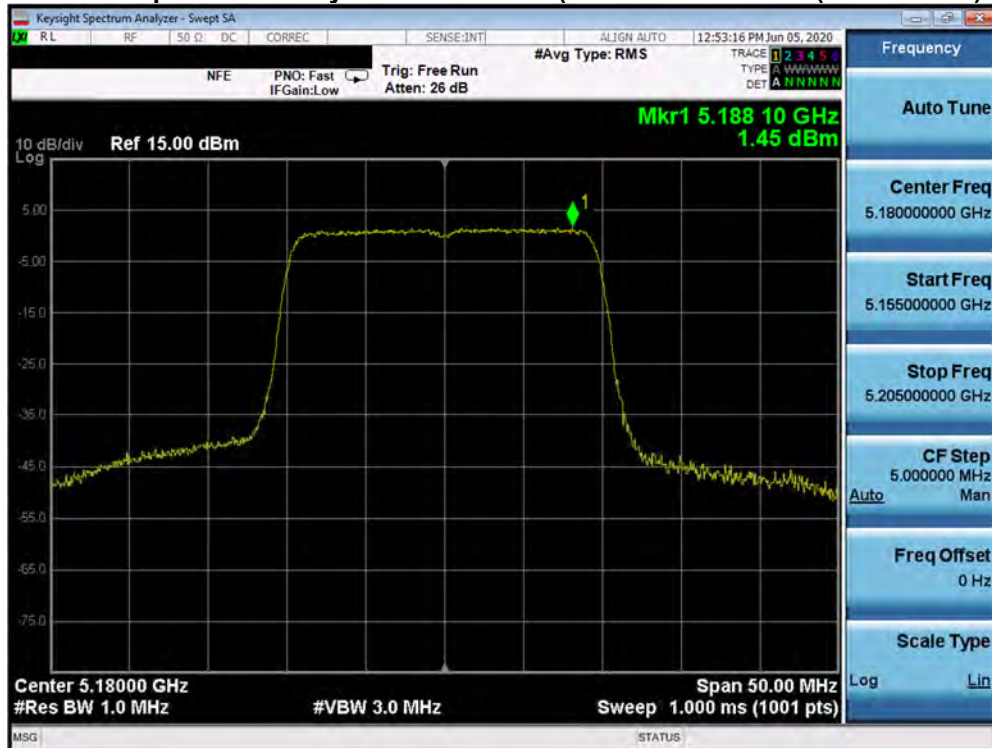


Plot 7-131. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 98 of 224

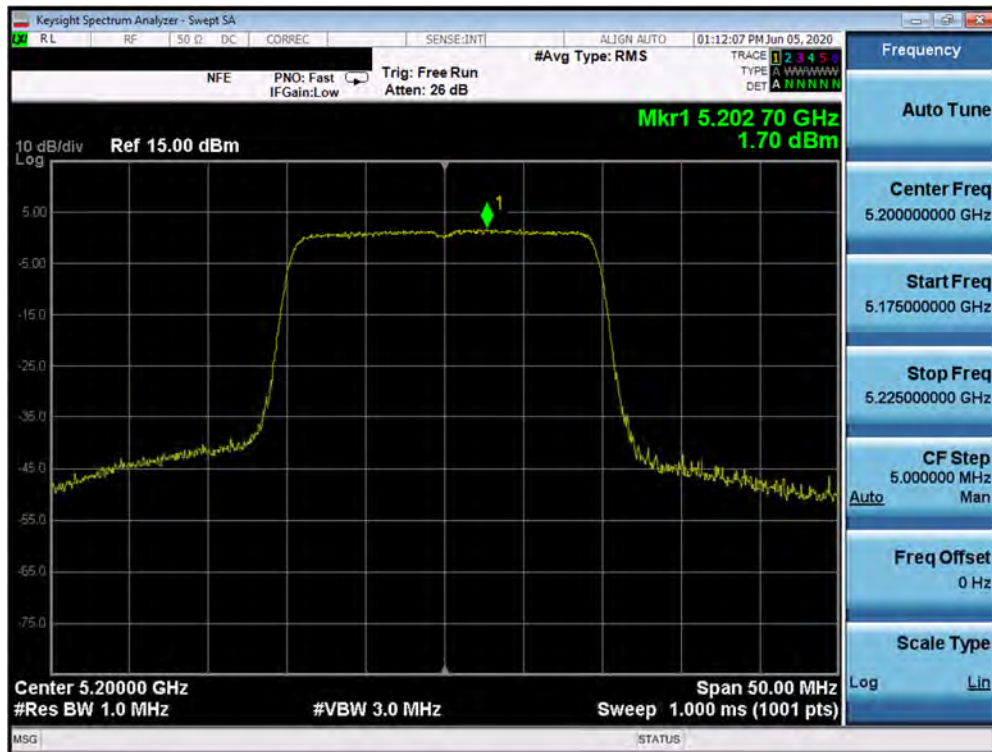


Plot 7-132. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

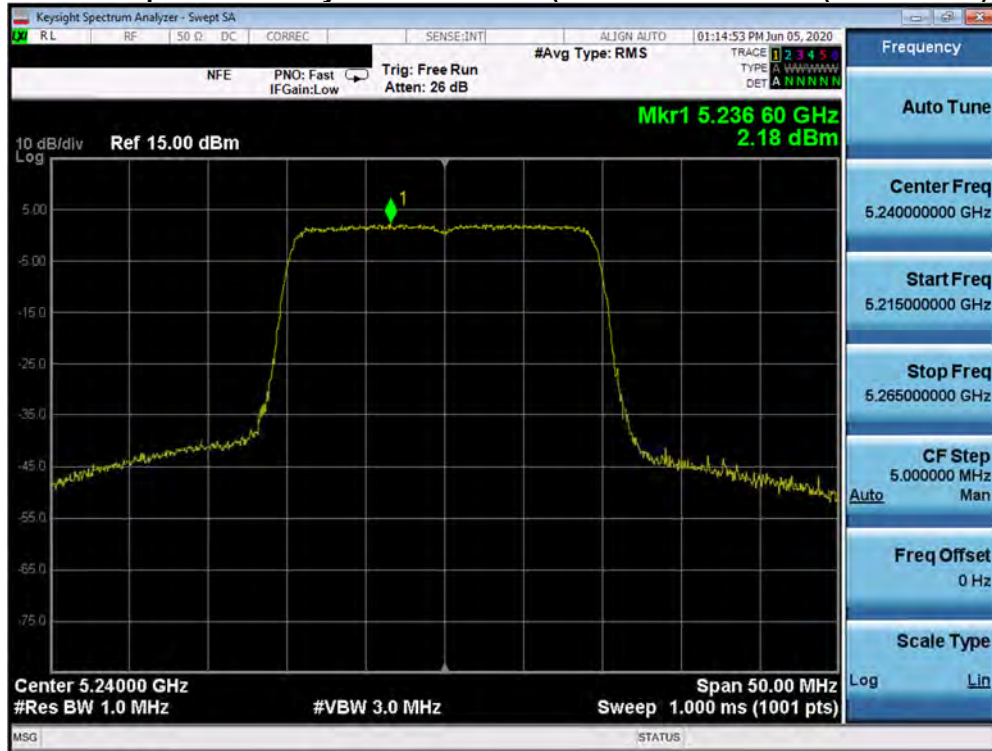


Plot 7-133. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 1) – Ch. 36)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 99 of 224

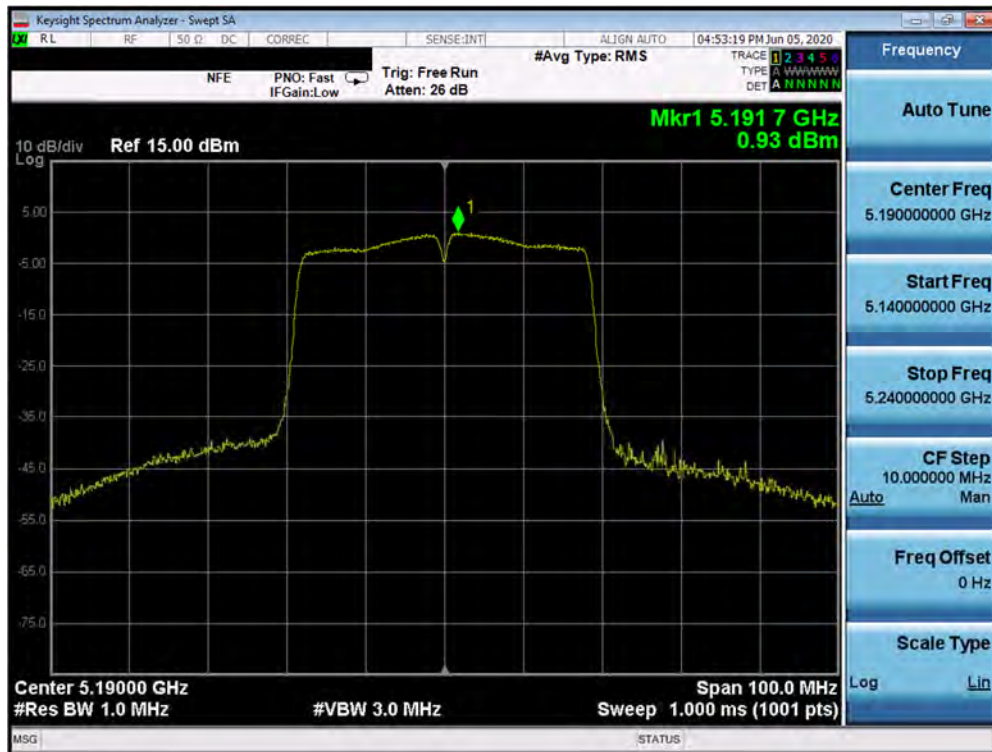


Plot 7-134. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 1) – Ch. 40)

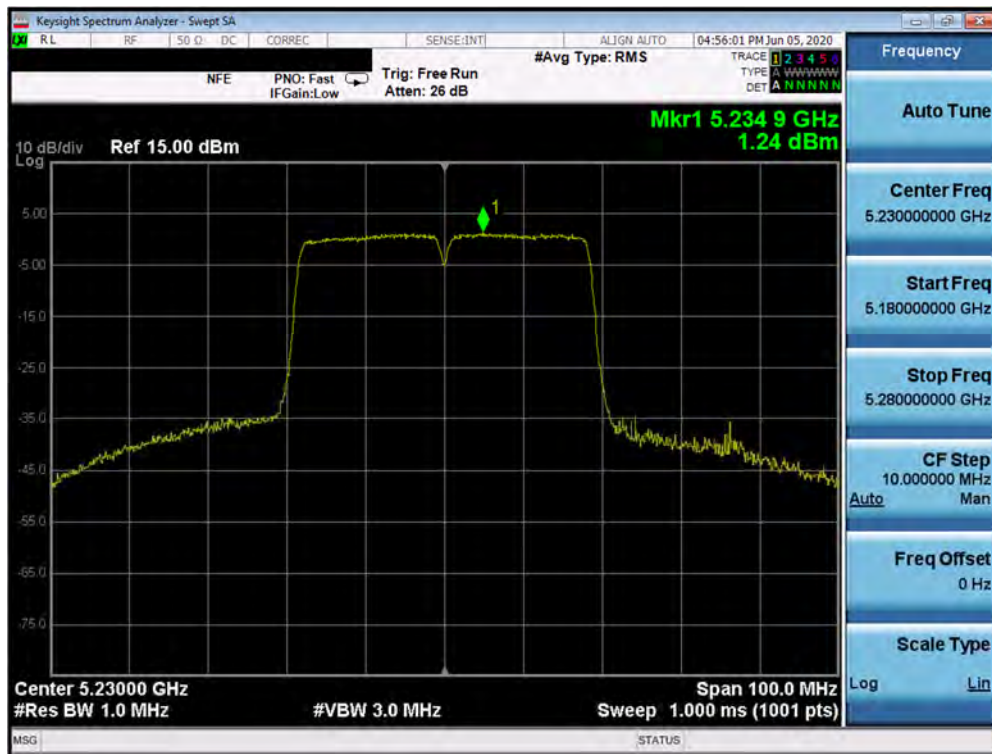


Plot 7-135. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 1) – Ch. 48)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 100 of 224

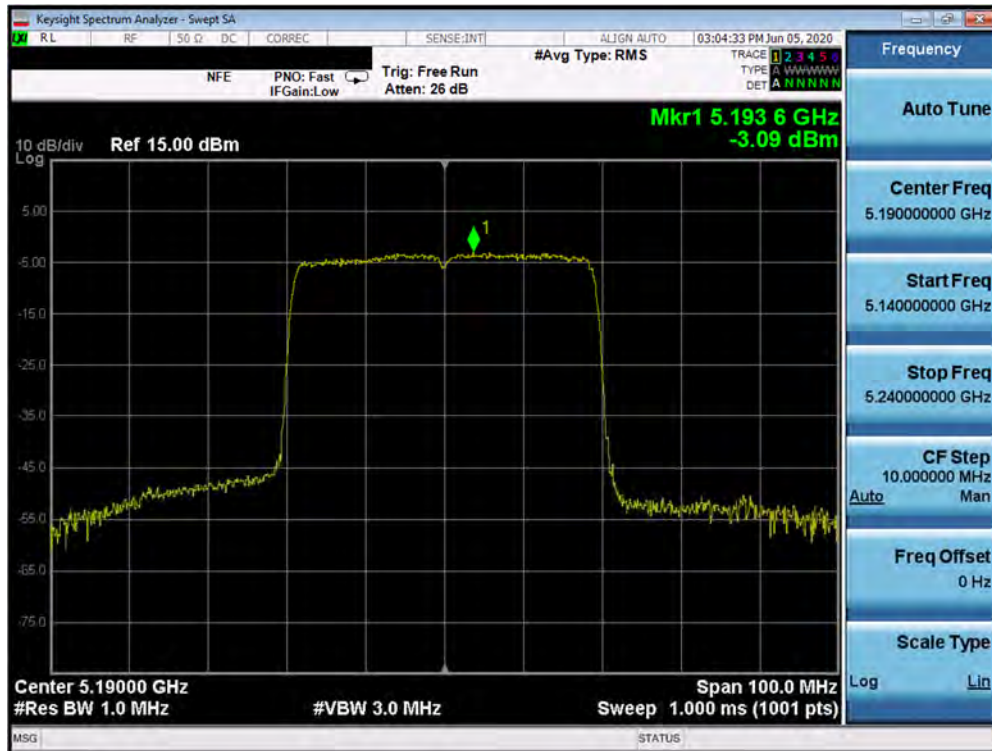


Plot 7-136. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

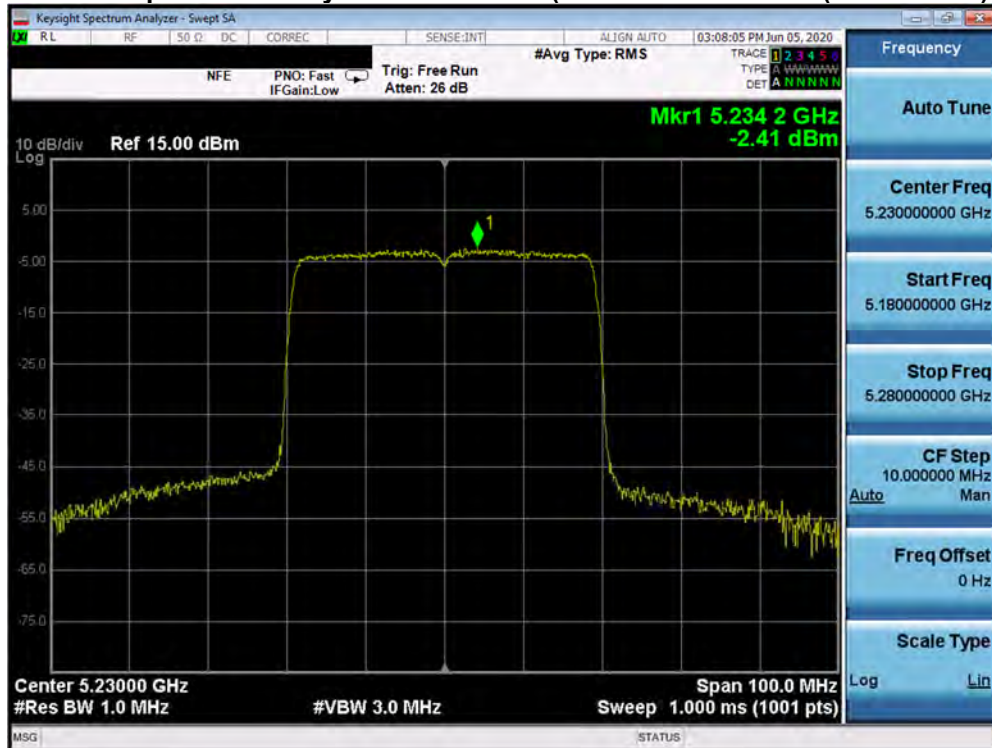


Plot 7-137. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 101 of 224

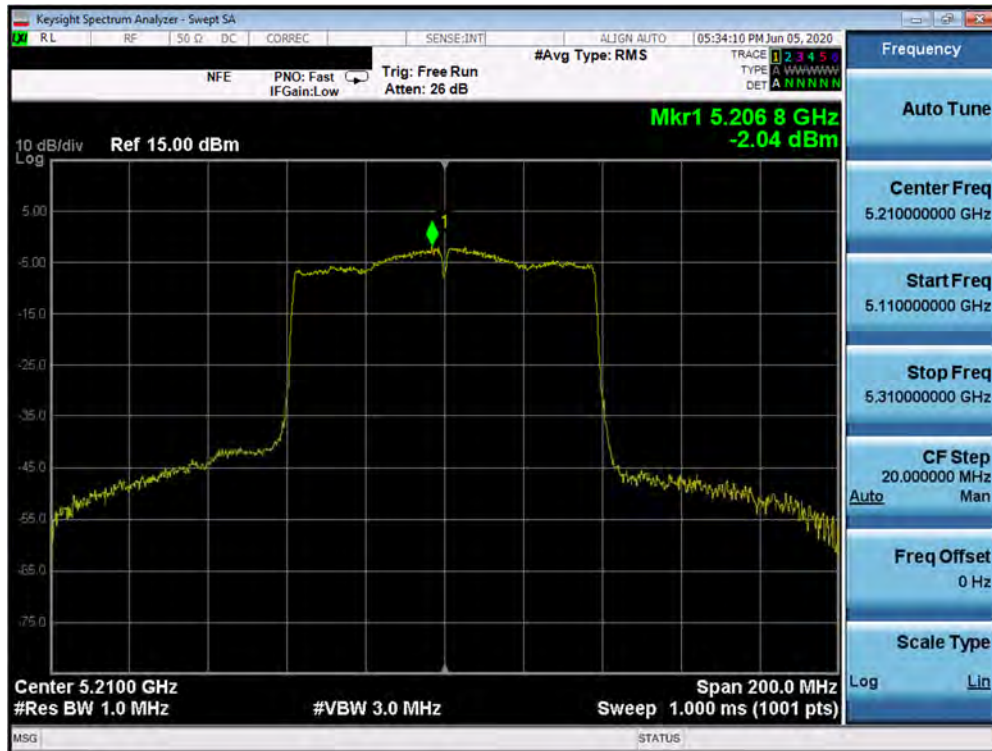


Plot 7-138. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 1) – Ch. 38)

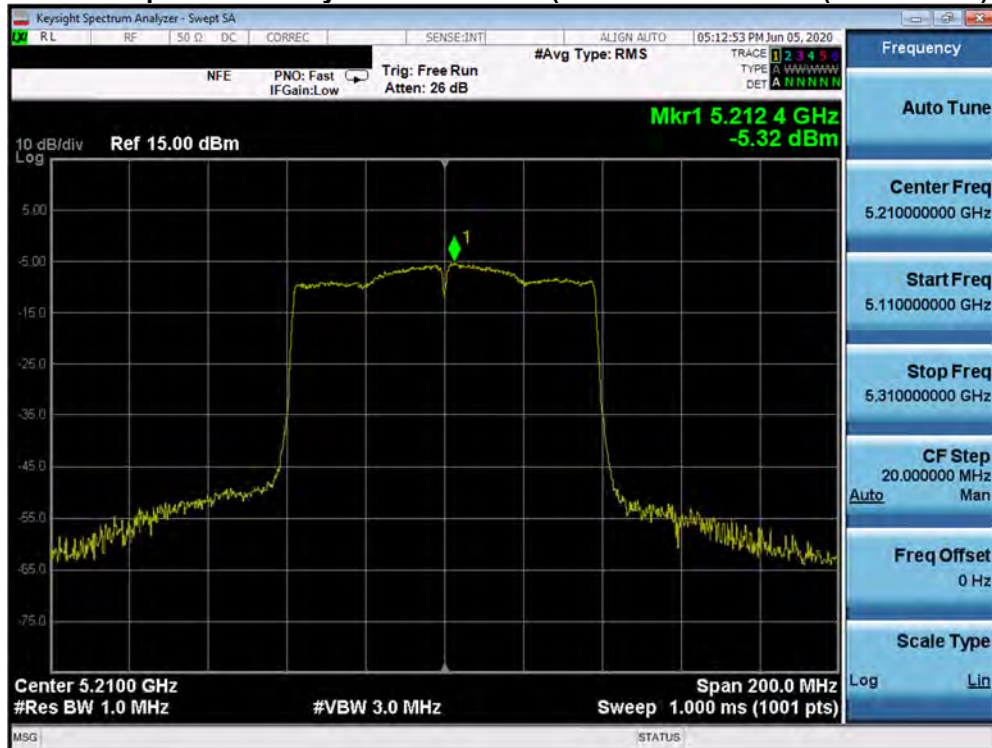


Plot 7-139. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 1) – Ch. 42)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 102 of 224

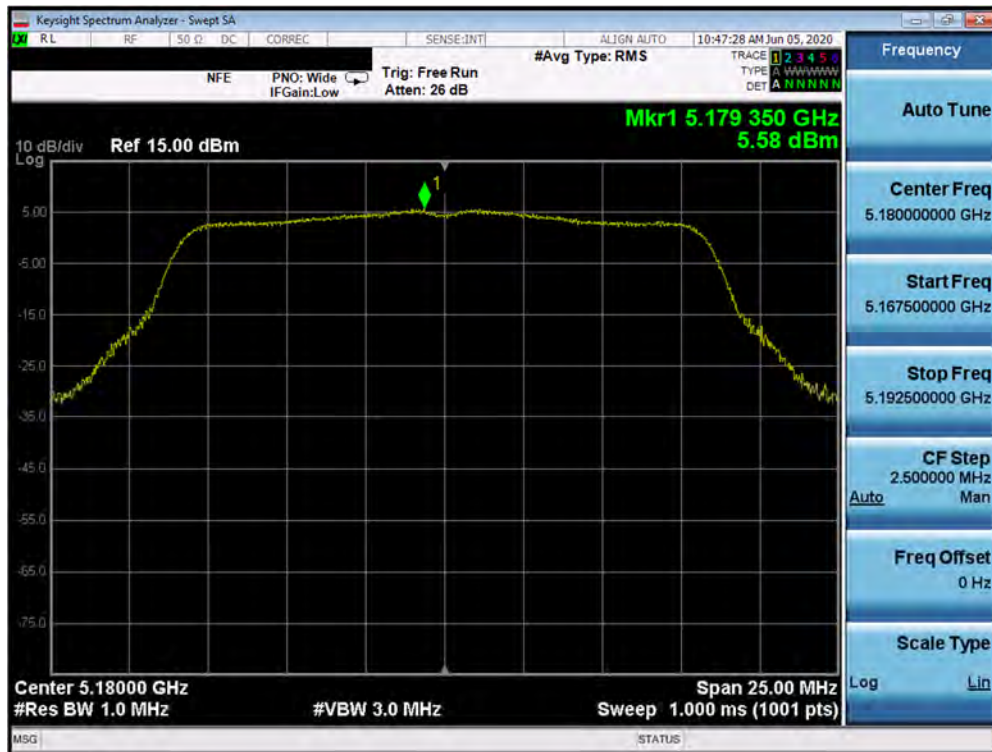


Plot 7-140. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

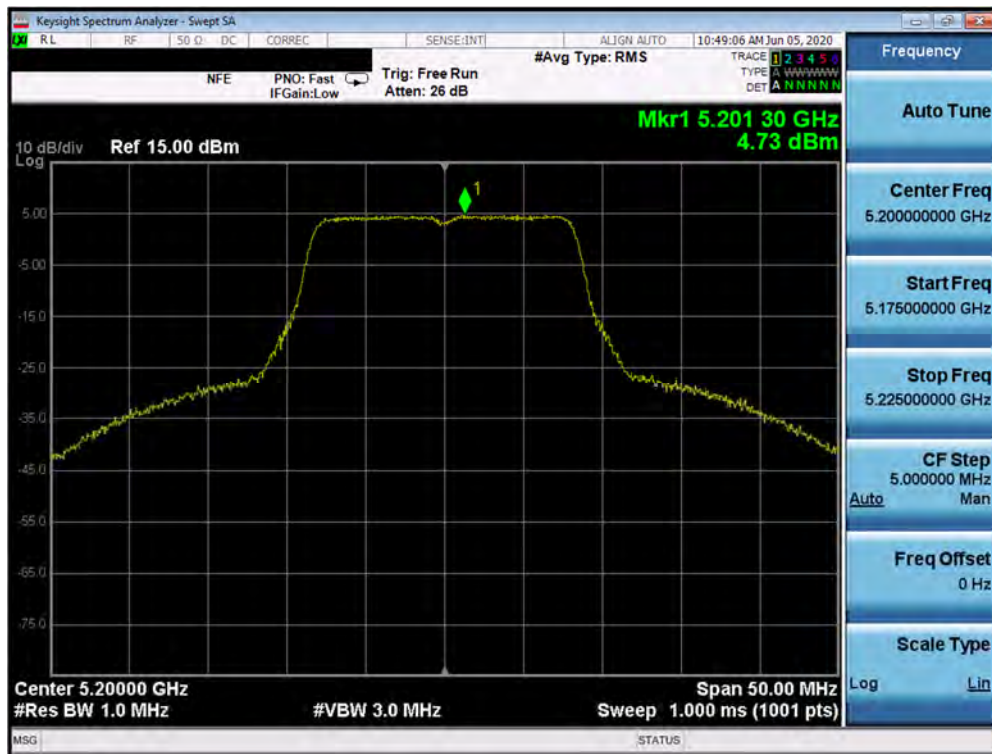


Plot 7-141. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax (UNII Band 1) – Ch. 42)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 103 of 224

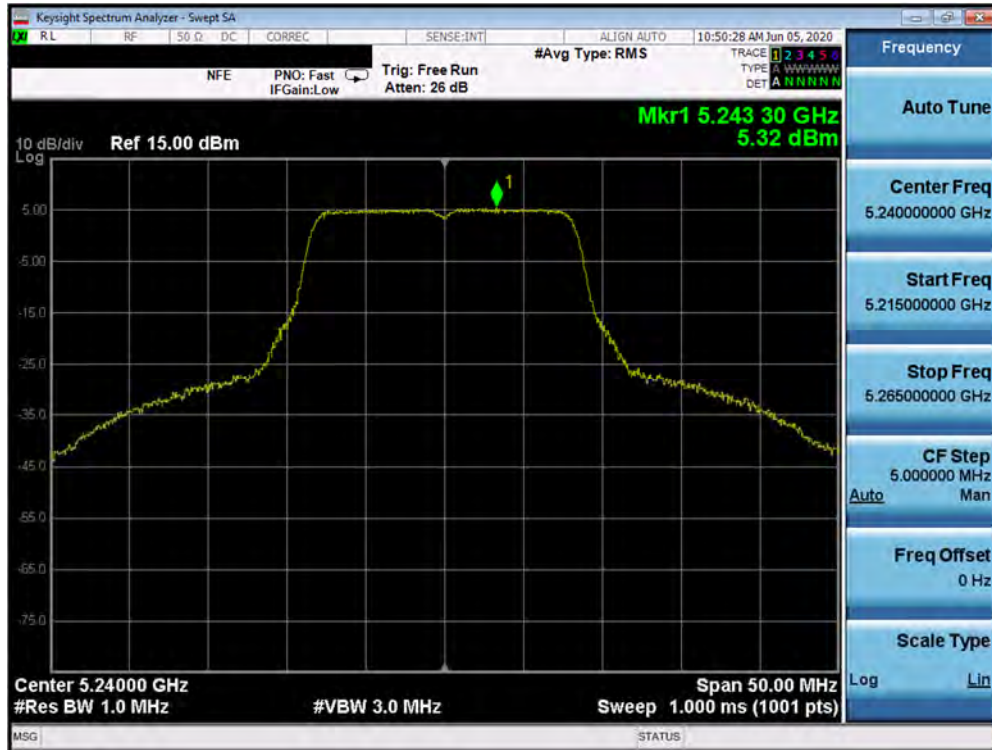


Plot 7-142. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 52)

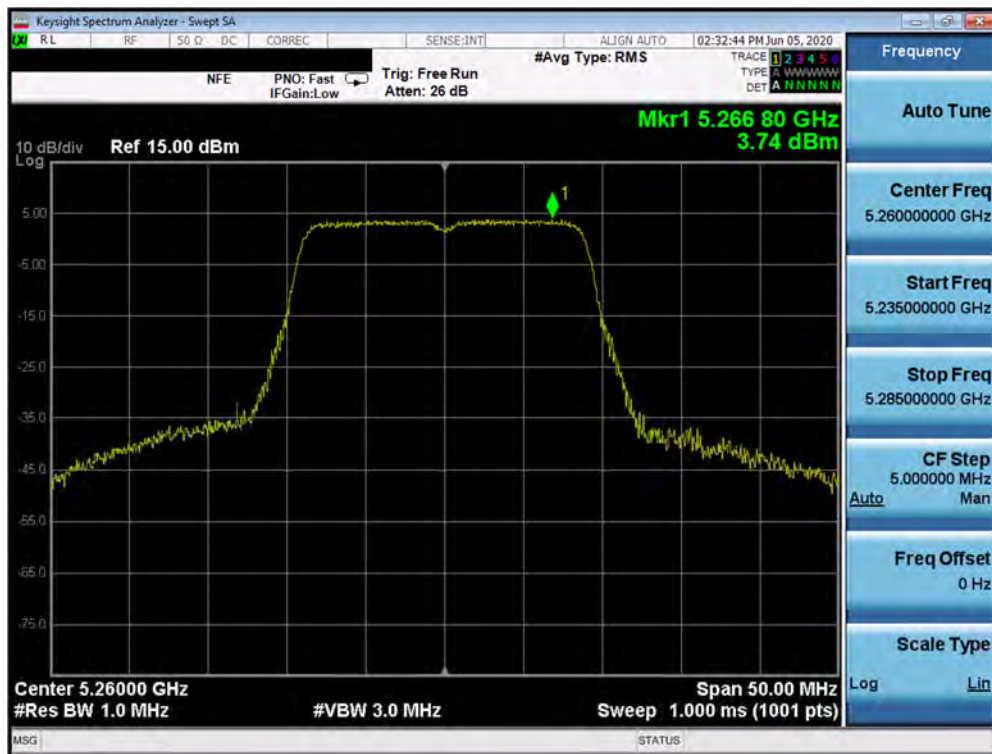


Plot 7-143. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 104 of 224

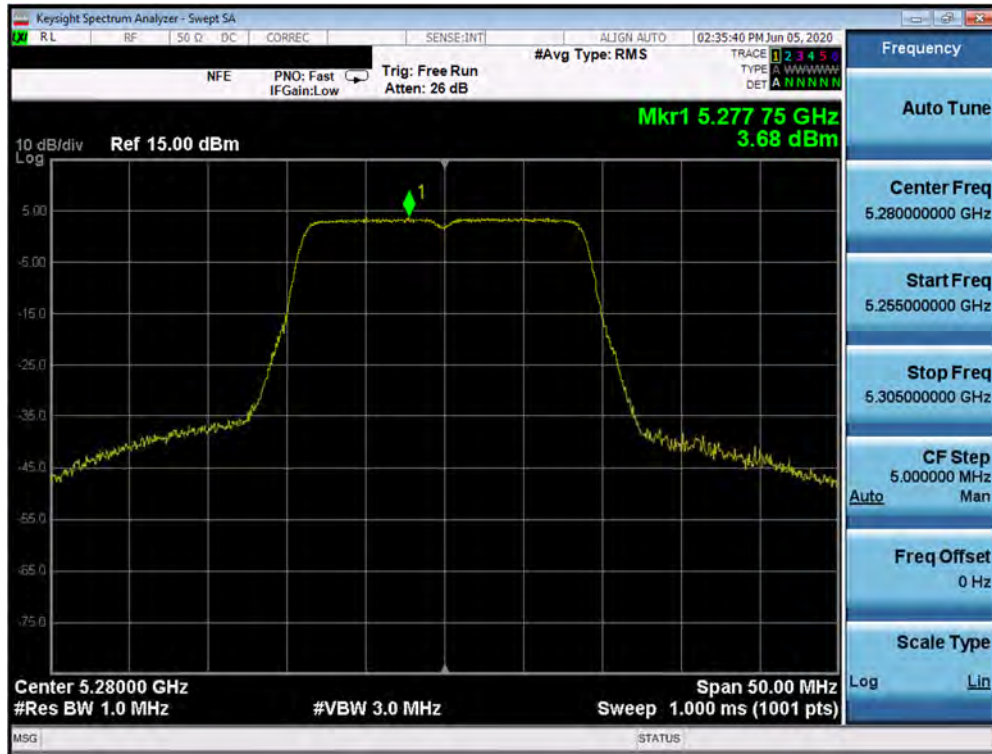


Plot 7-144. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 64)

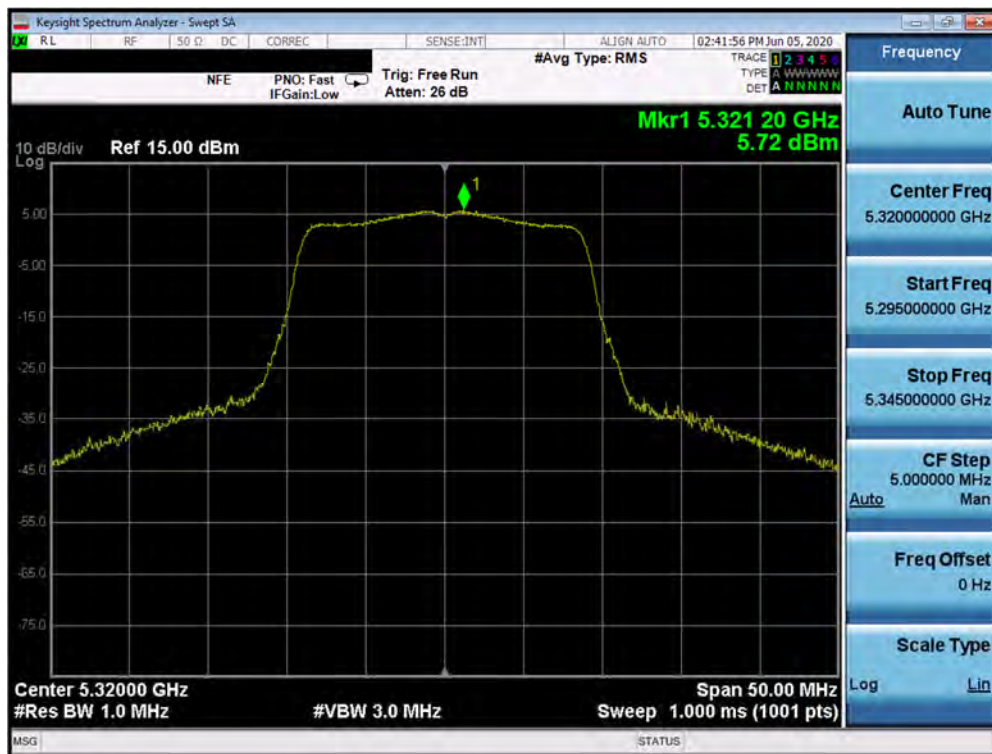


Plot 7-145. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 105 of 224

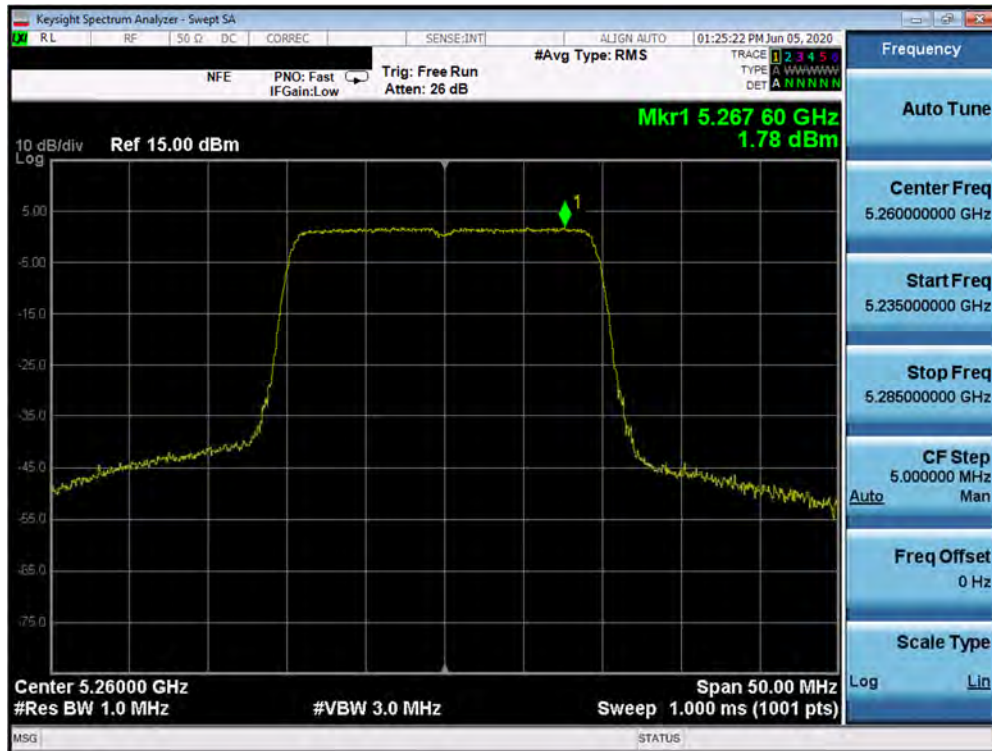


Plot 7-146. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

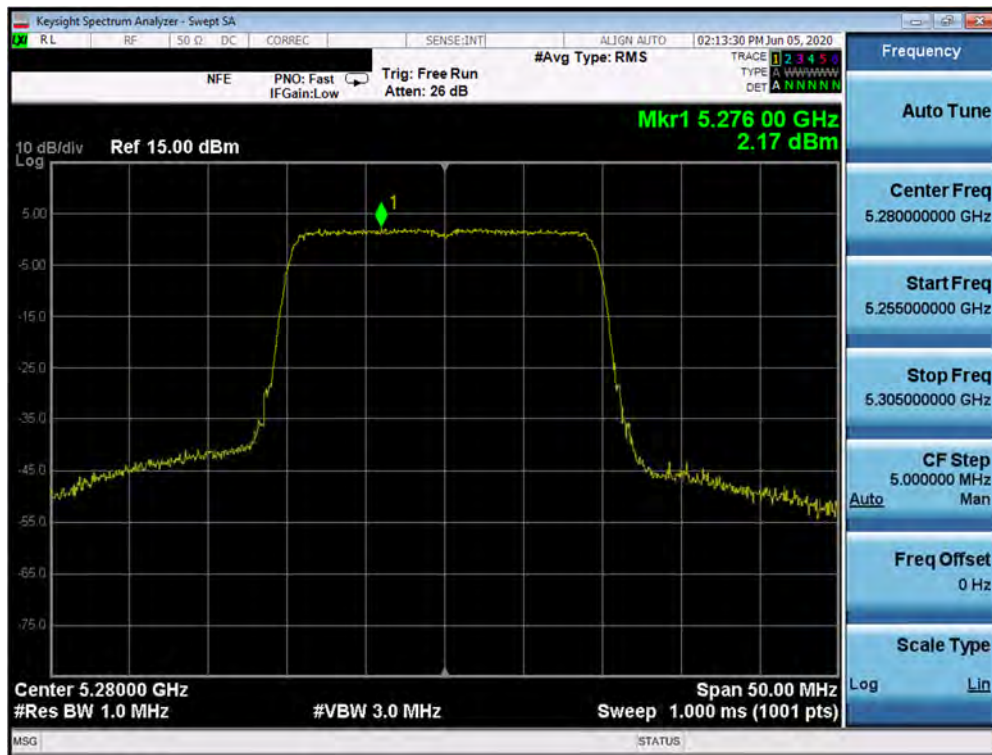


Plot 7-147. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 106 of 224

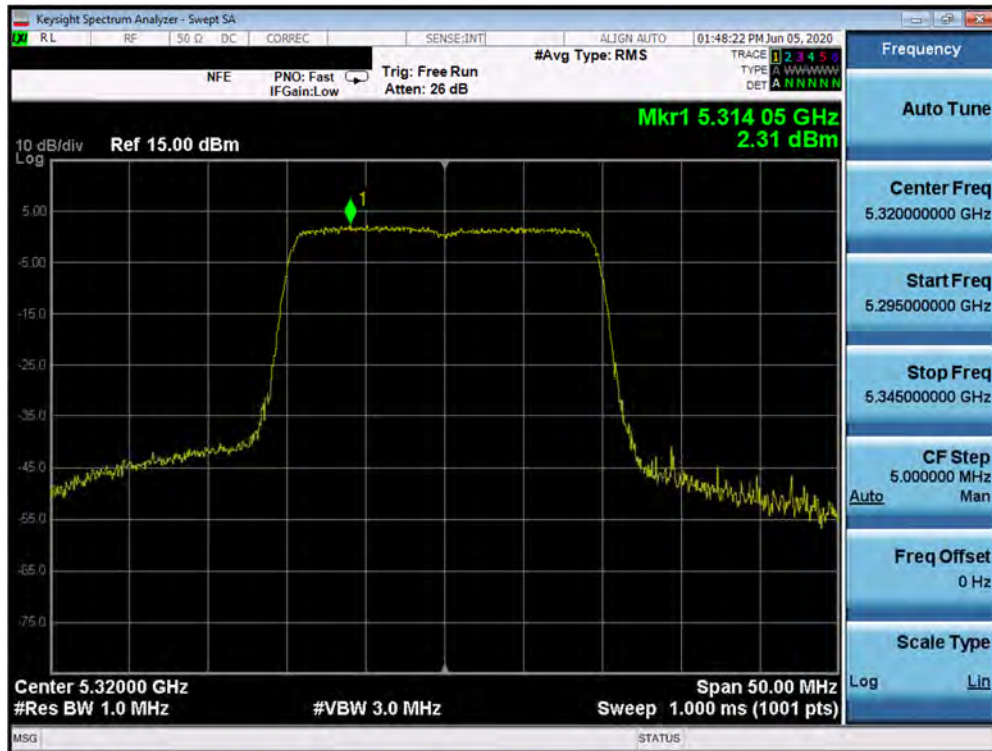


Plot 7-148. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 52)

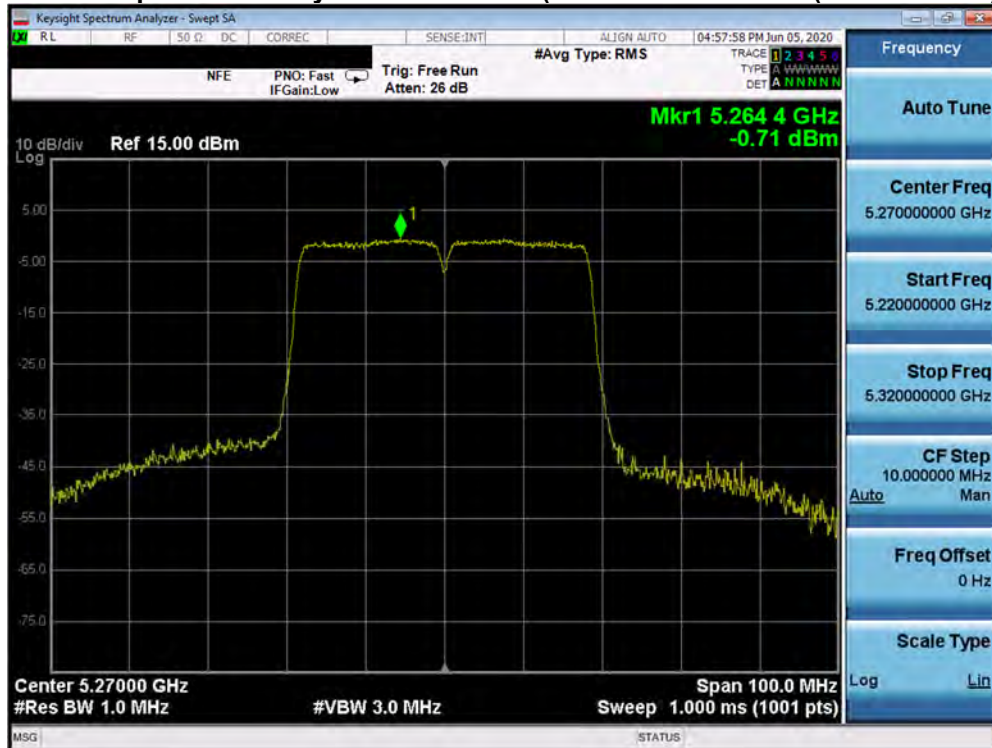


Plot 7-149. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 107 of 224

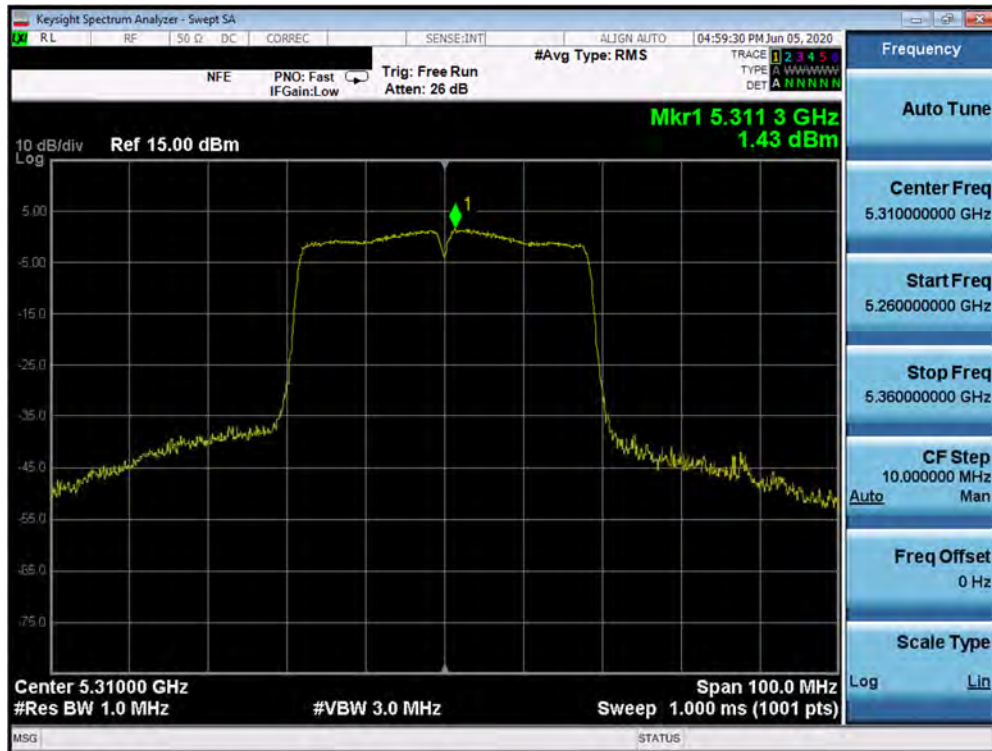


Plot 7-150. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 64)

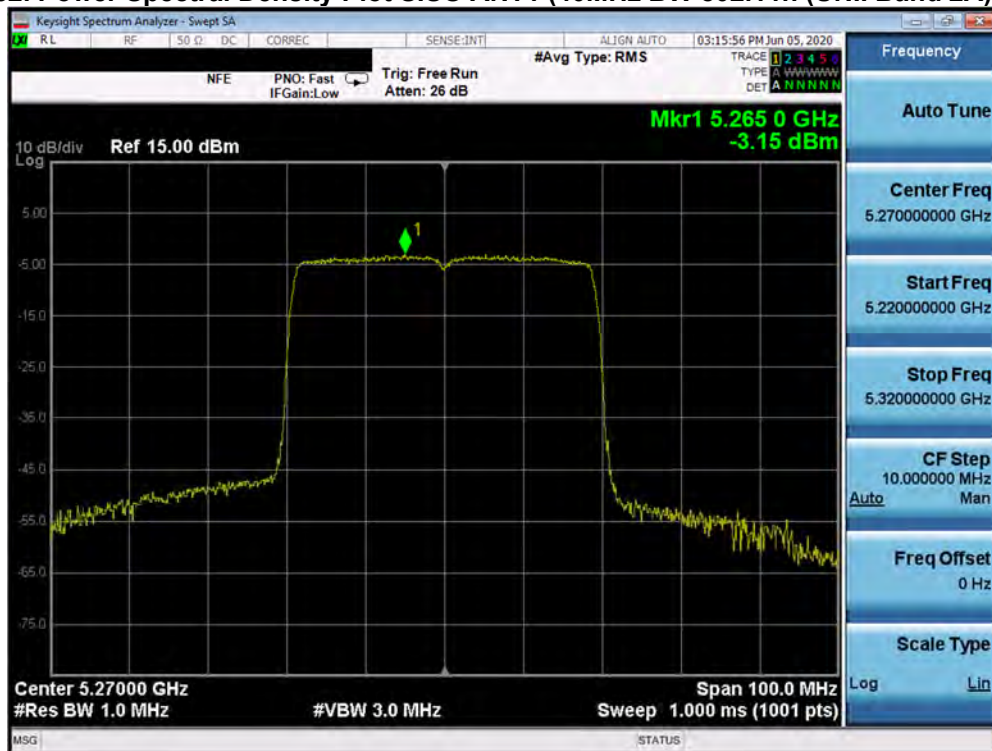


Plot 7-151. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 108 of 224

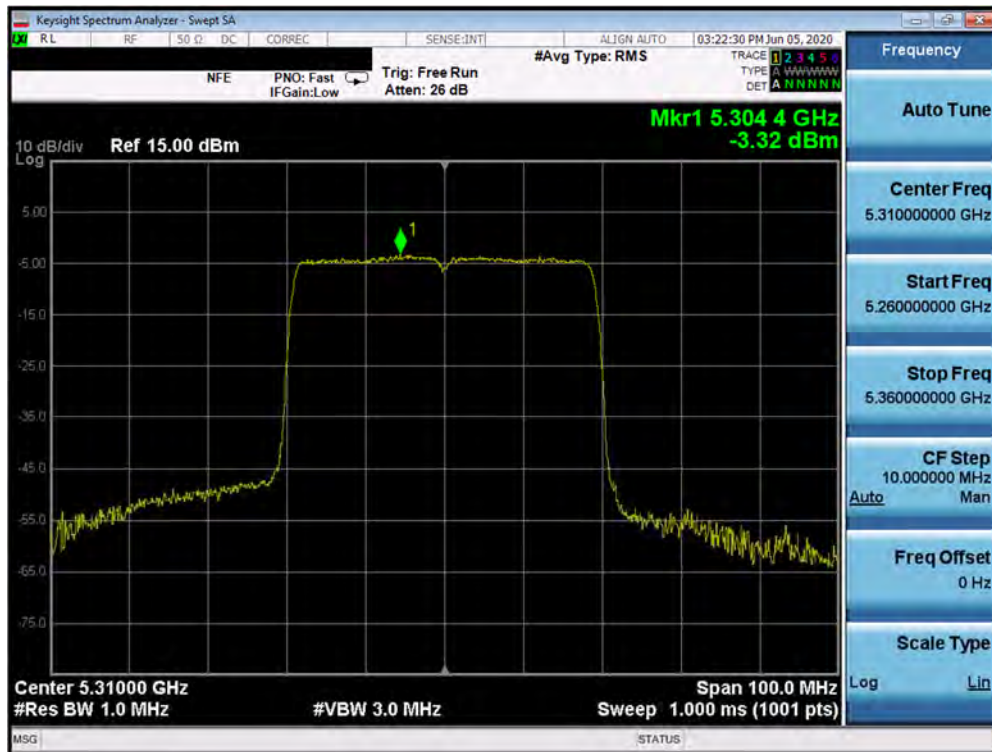


Plot 7-152. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

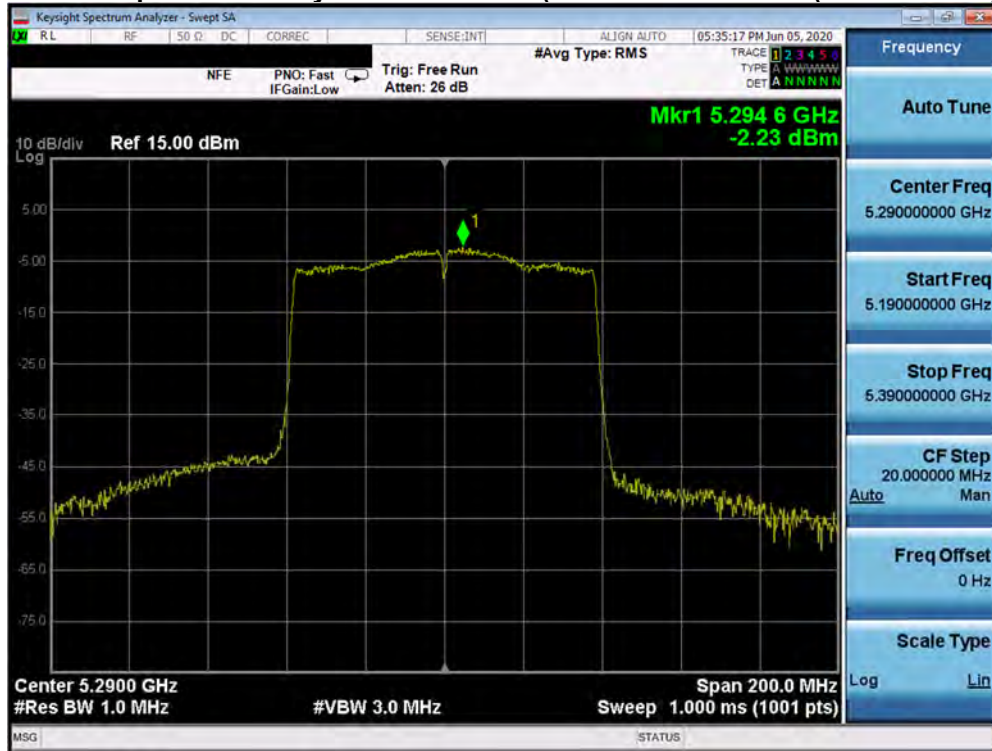


Plot 7-153. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 109 of 224

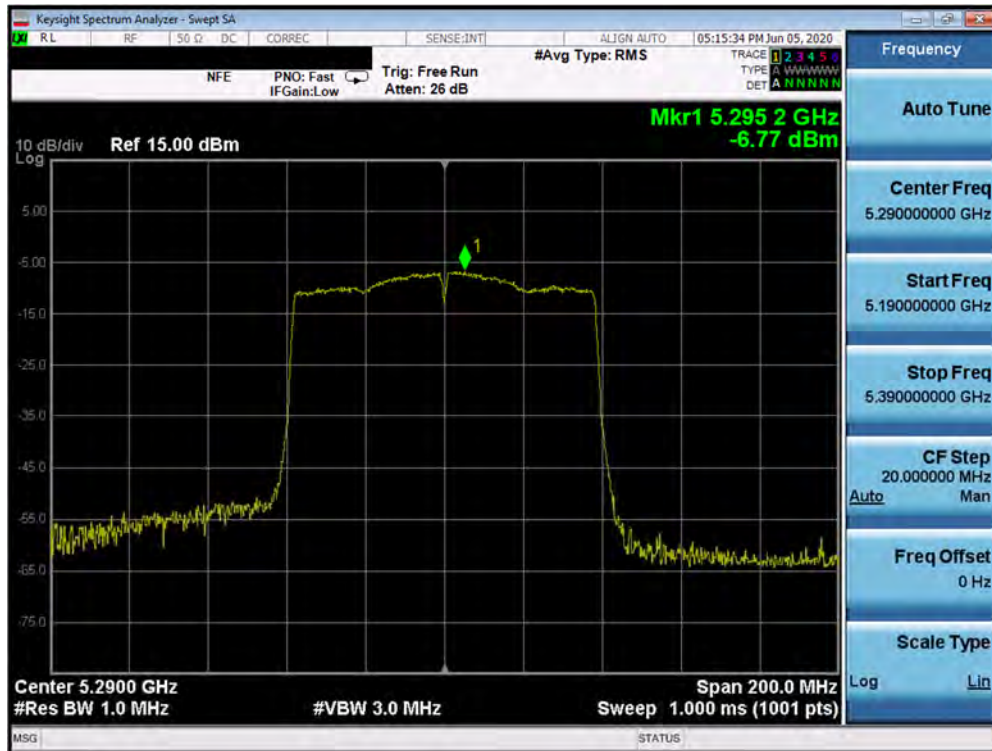


Plot 7-154. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 62)

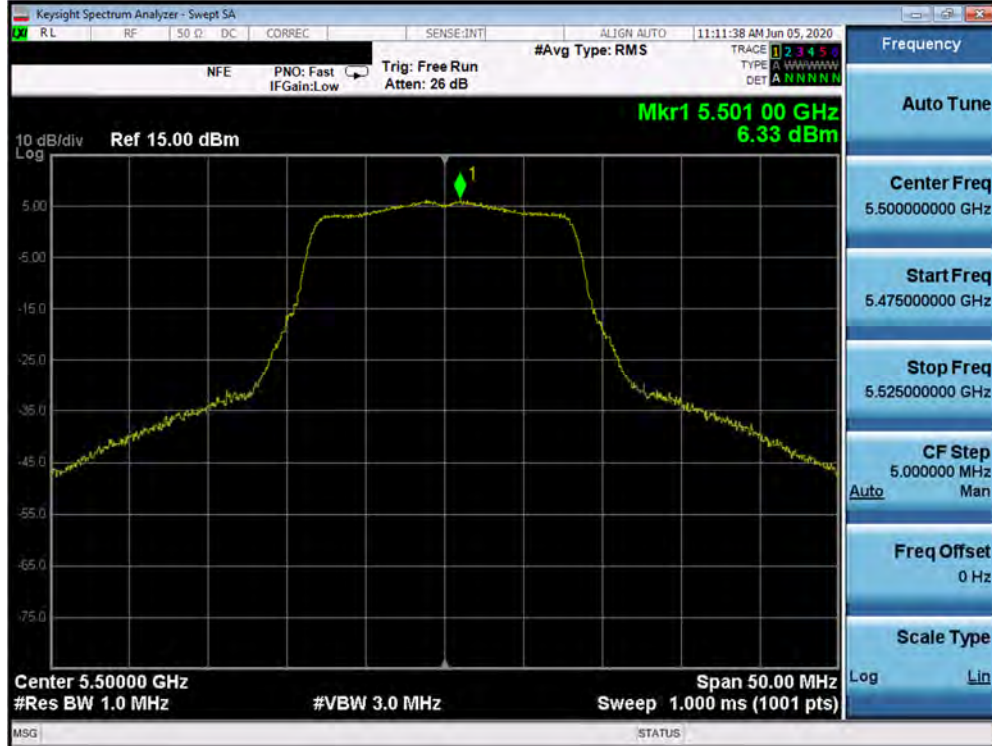


Plot 7-155. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 110 of 224

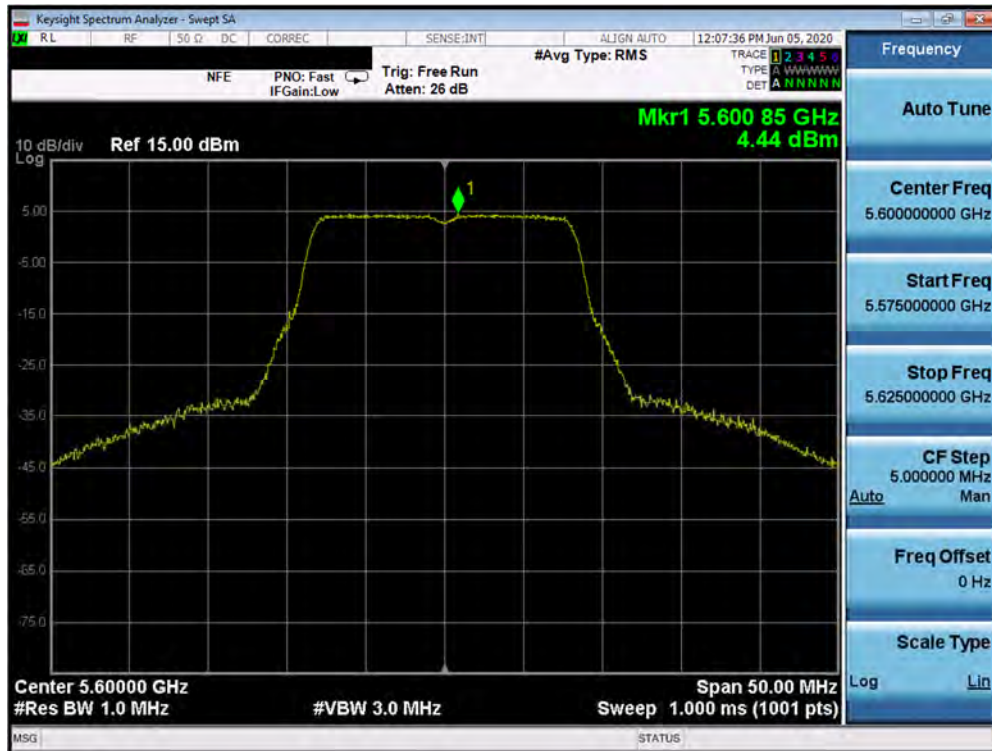


Plot 7-156. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax (UNII Band 2A) – Ch. 58)

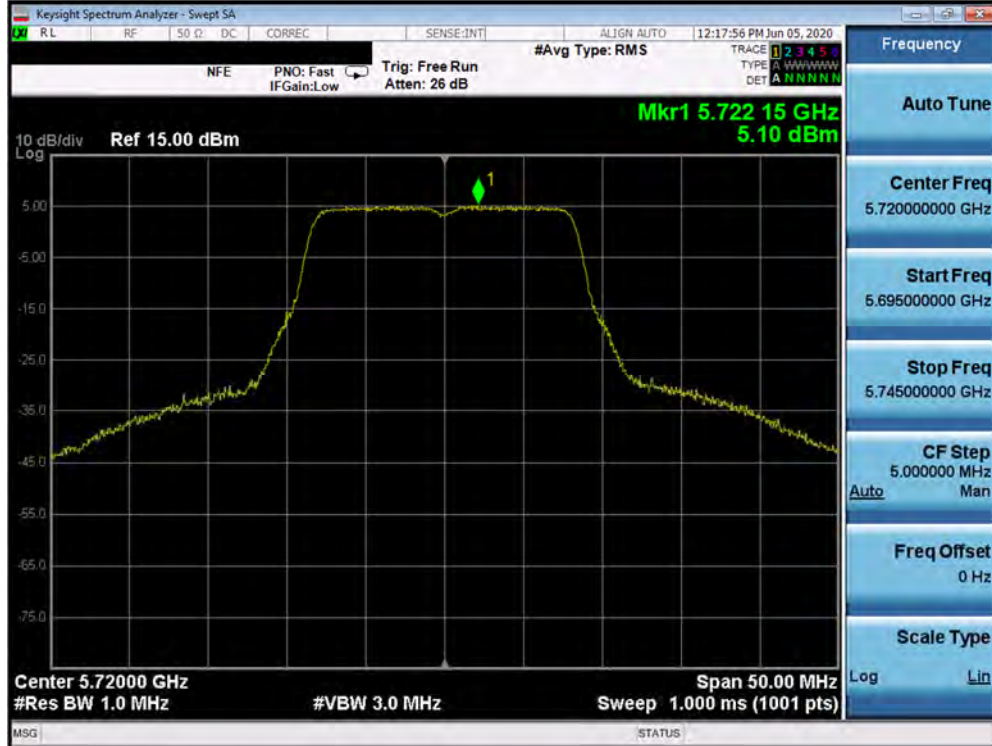


Plot 7-157. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 111 of 224

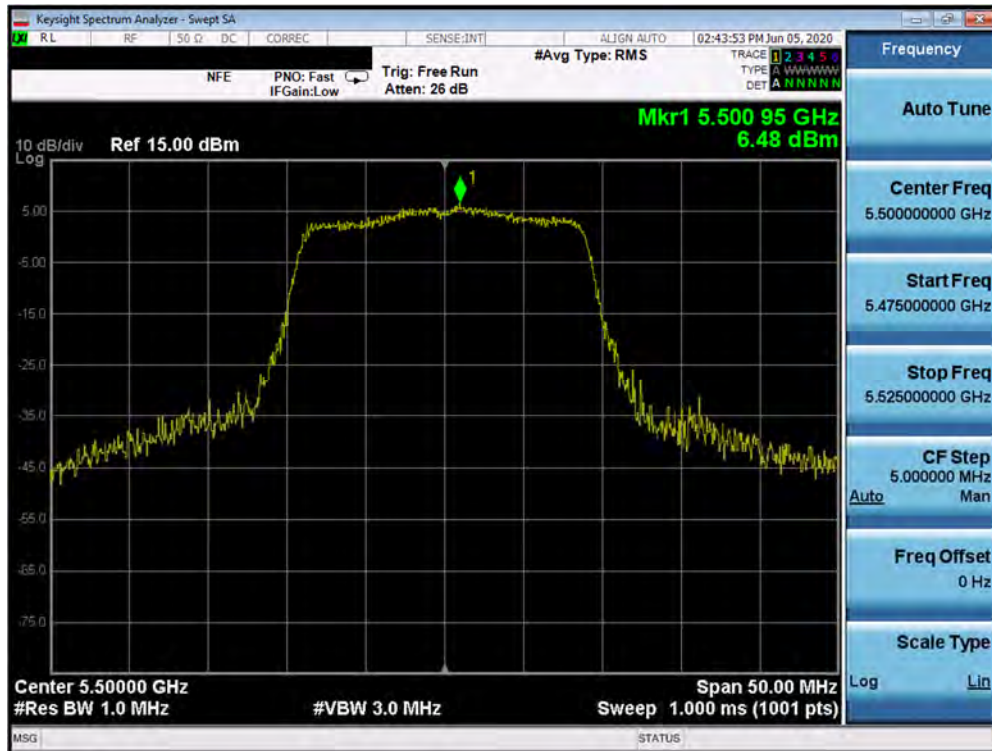


Plot 7-158. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 120)

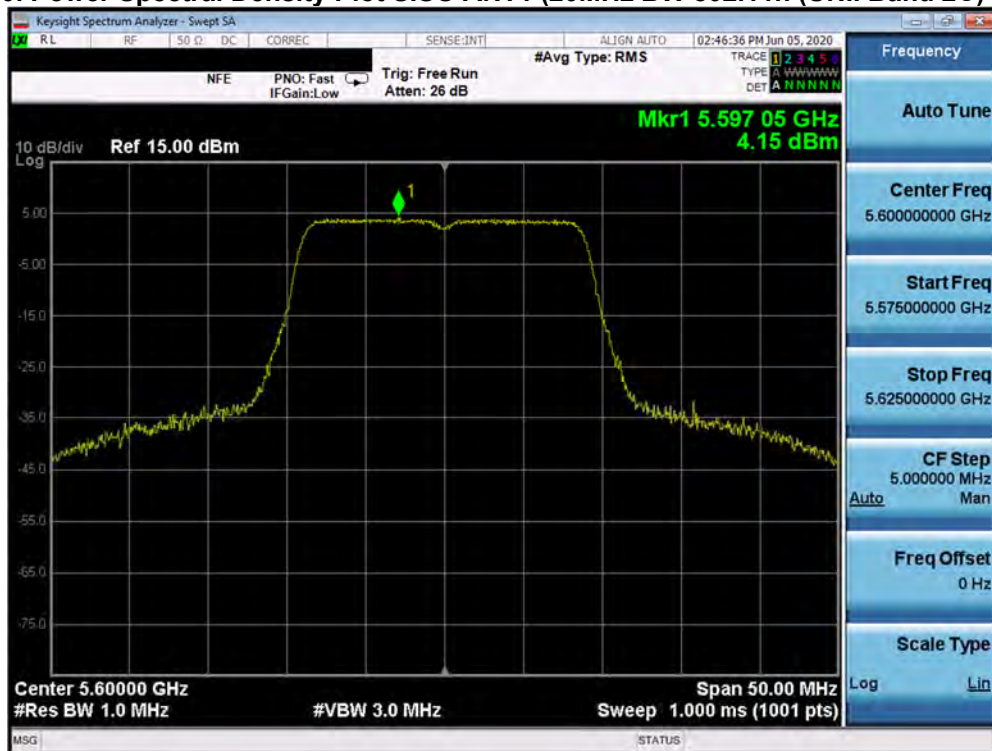


Plot 7-159. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 112 of 224

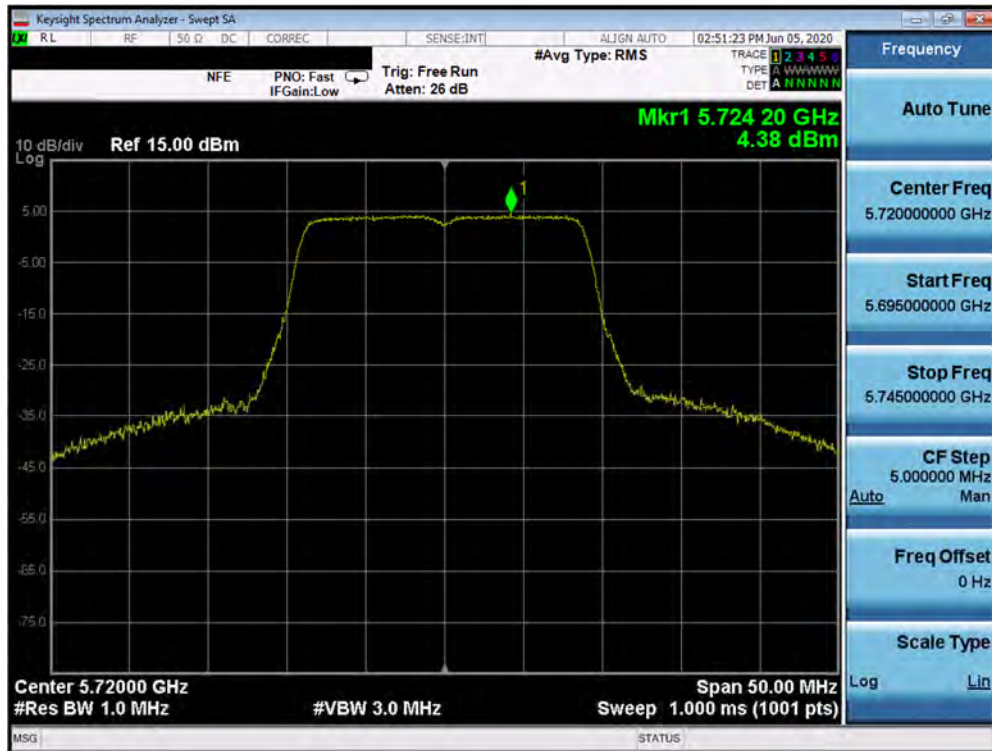


Plot 7-160. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

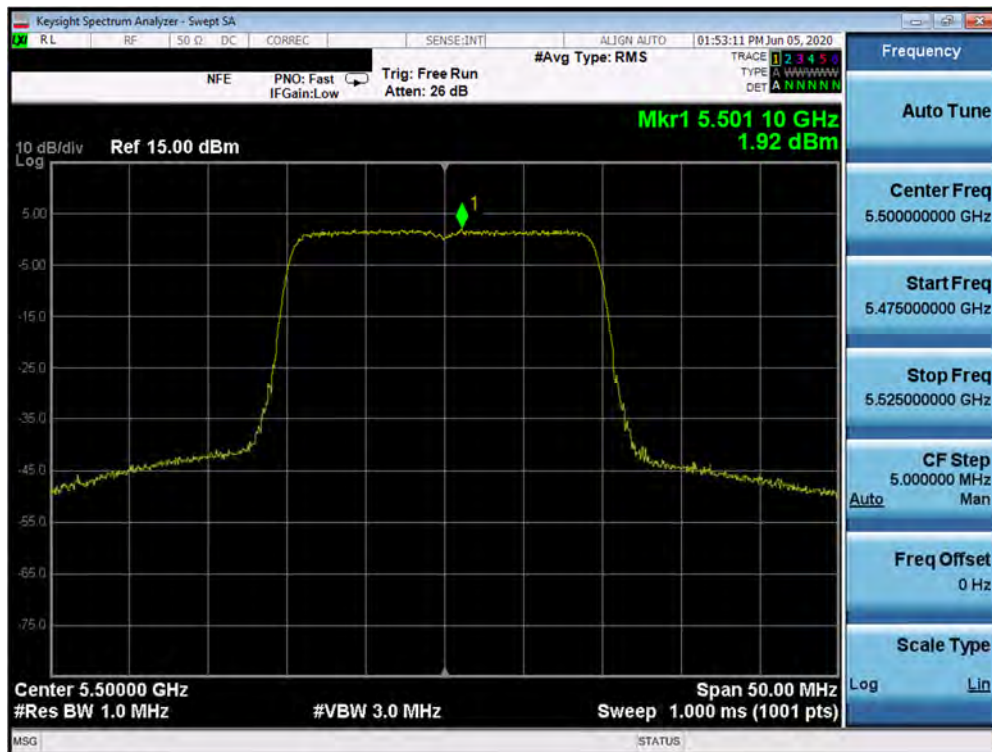


Plot 7-161. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 113 of 224

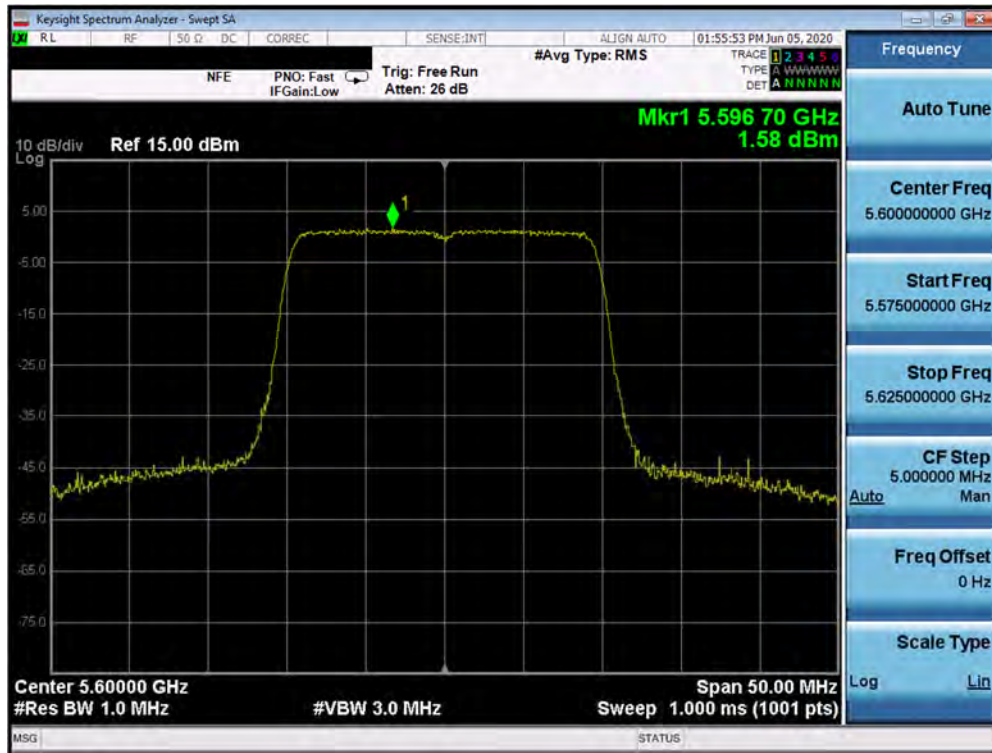


Plot 7-162. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

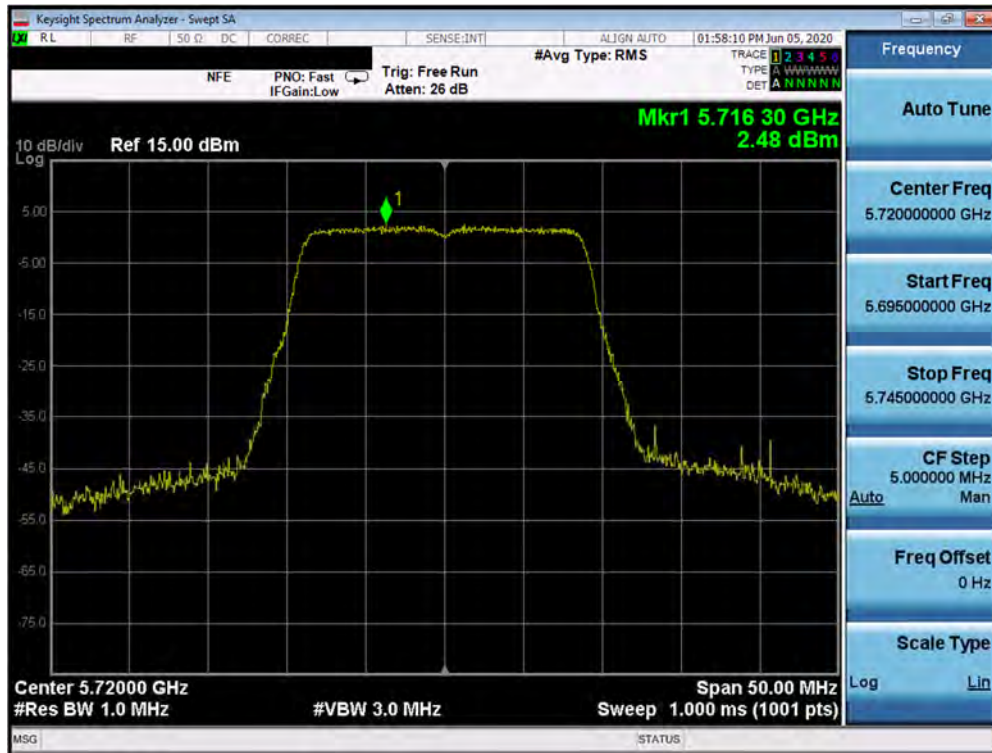


Plot 7-163. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 114 of 224

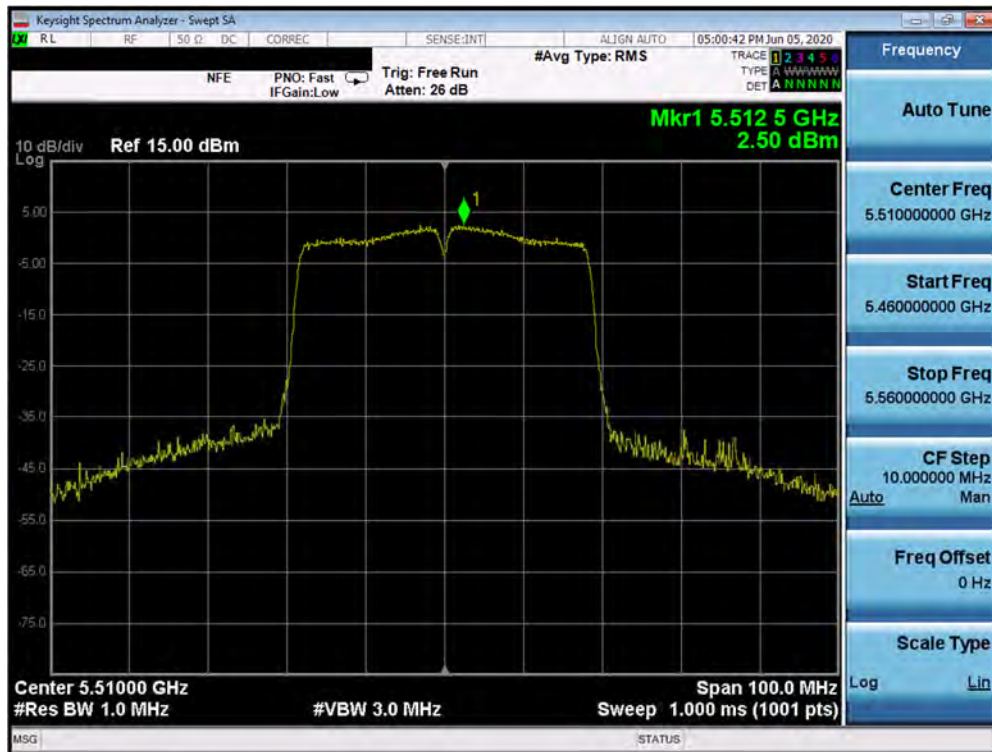


Plot 7-164. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 120)

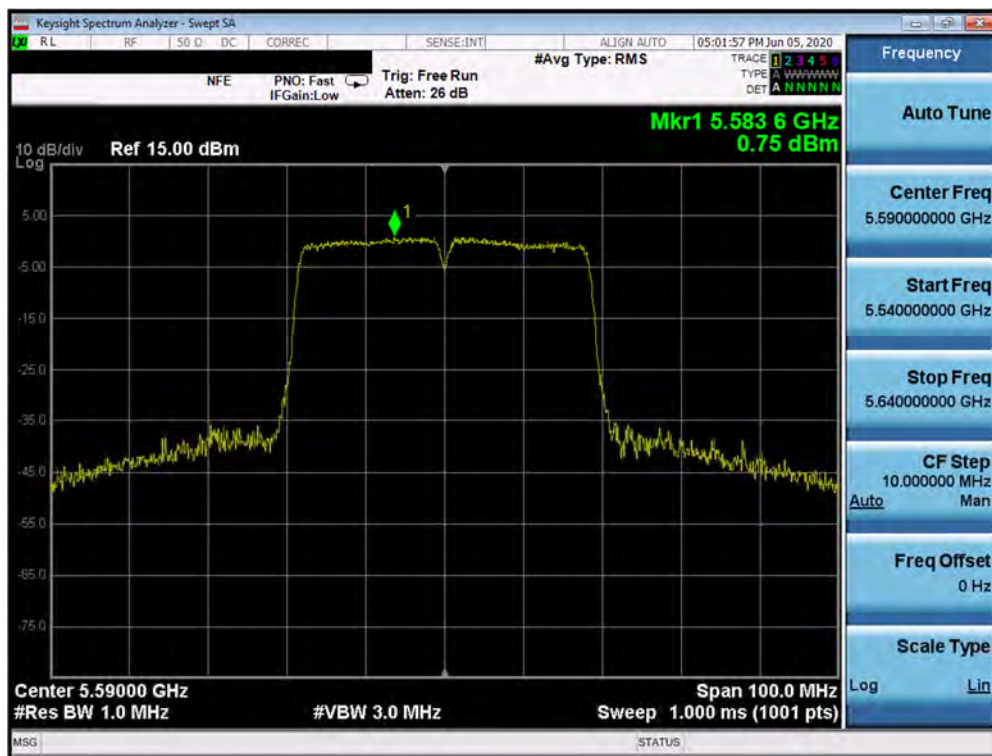


Plot 7-165. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 115 of 224

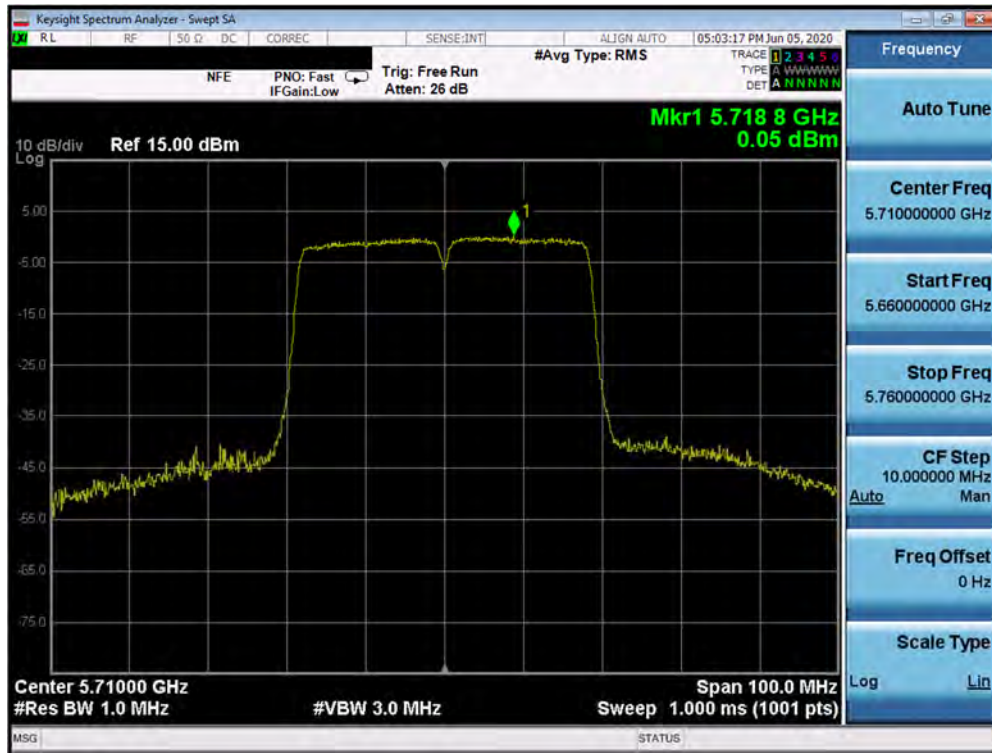


Plot 7-166. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

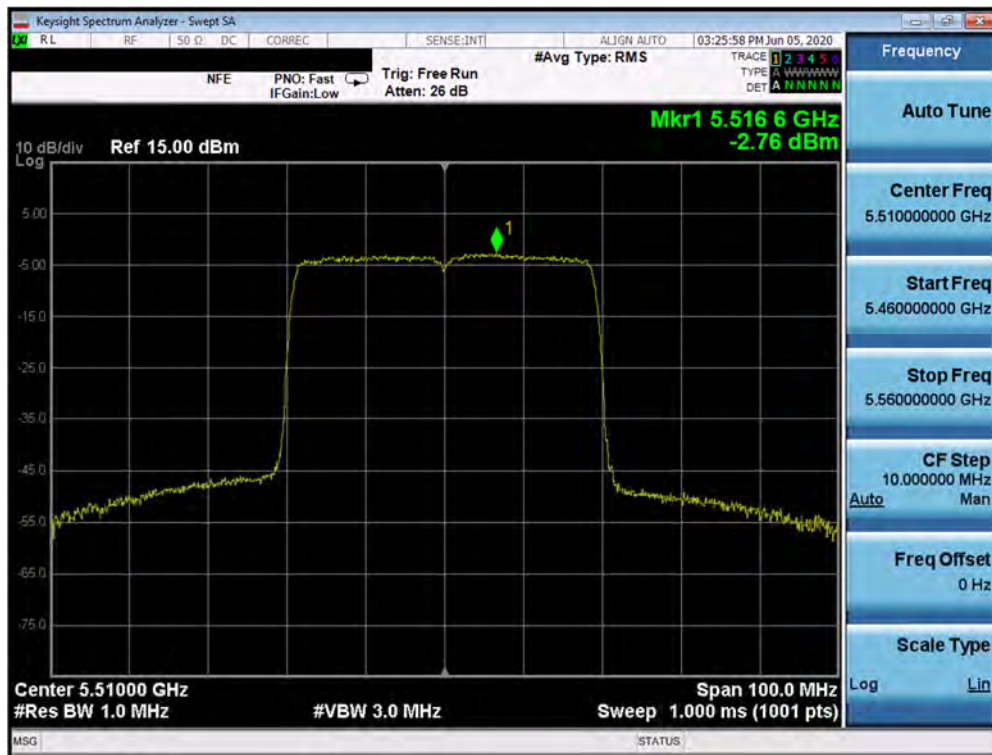


Plot 7-167. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 116 of 224

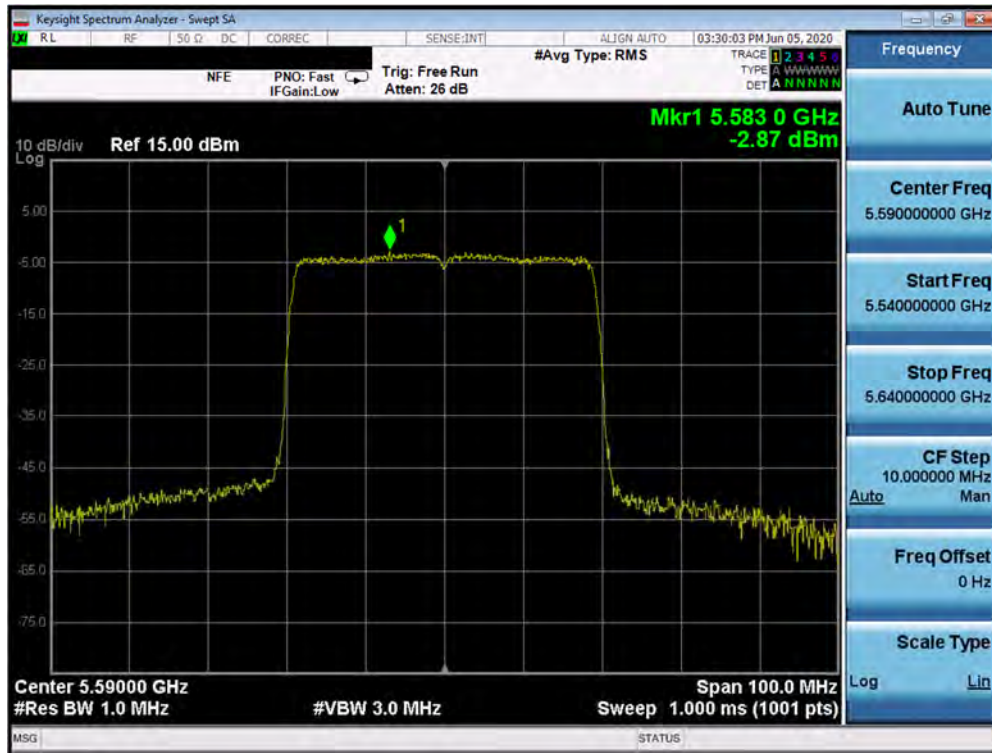


Plot 7-168. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

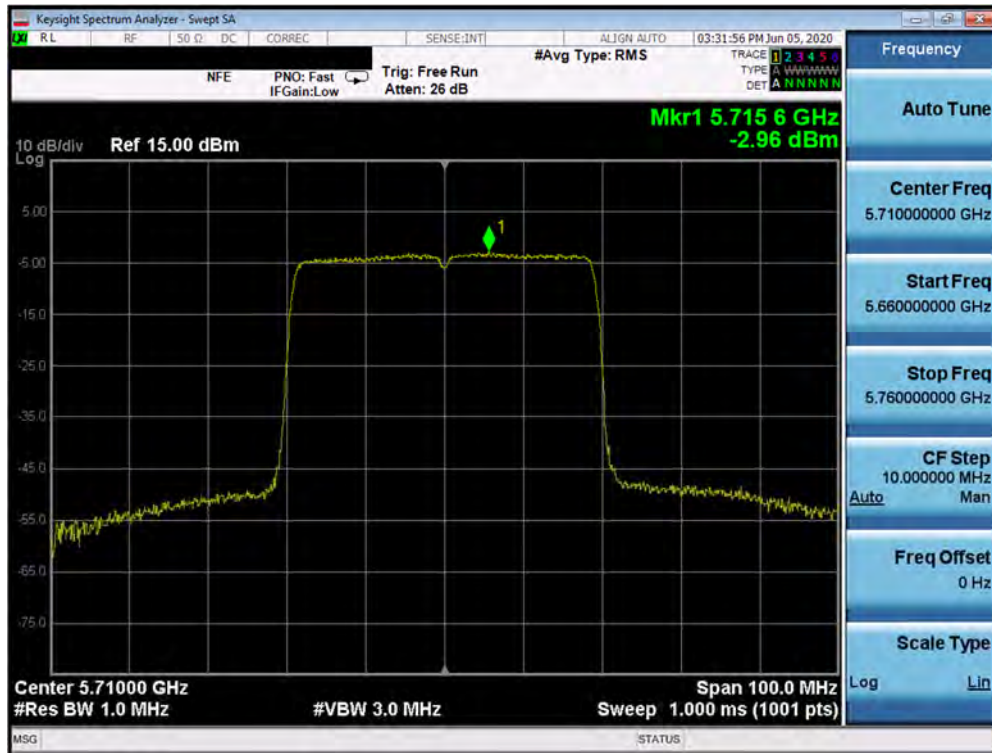


Plot 7-169. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 117 of 224

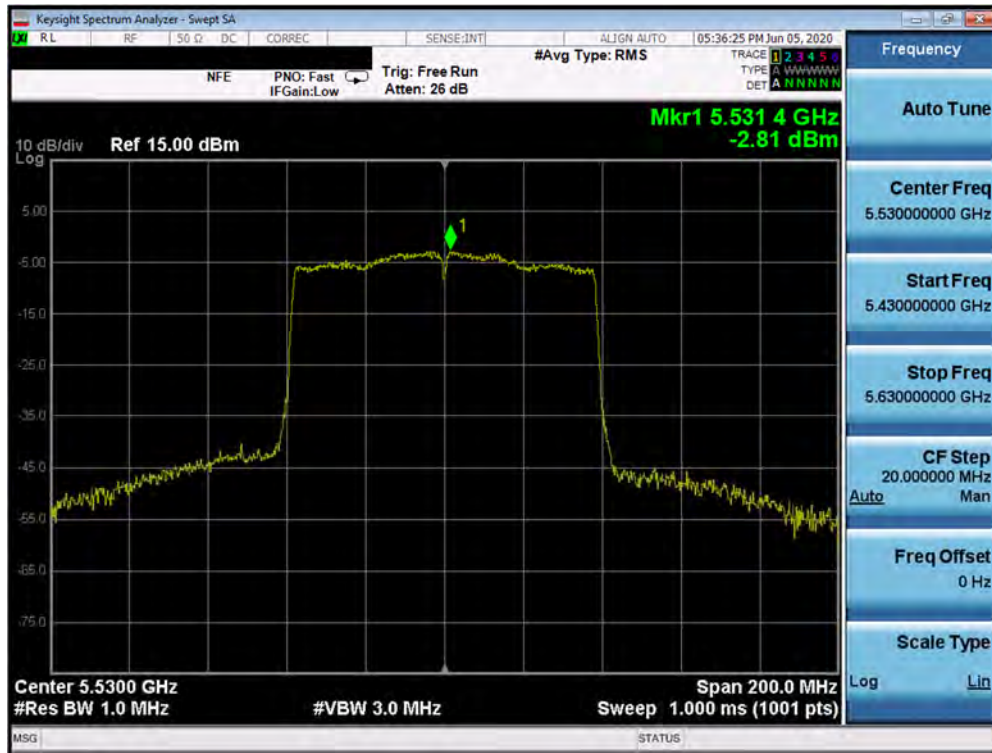


Plot 7-170. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 118)

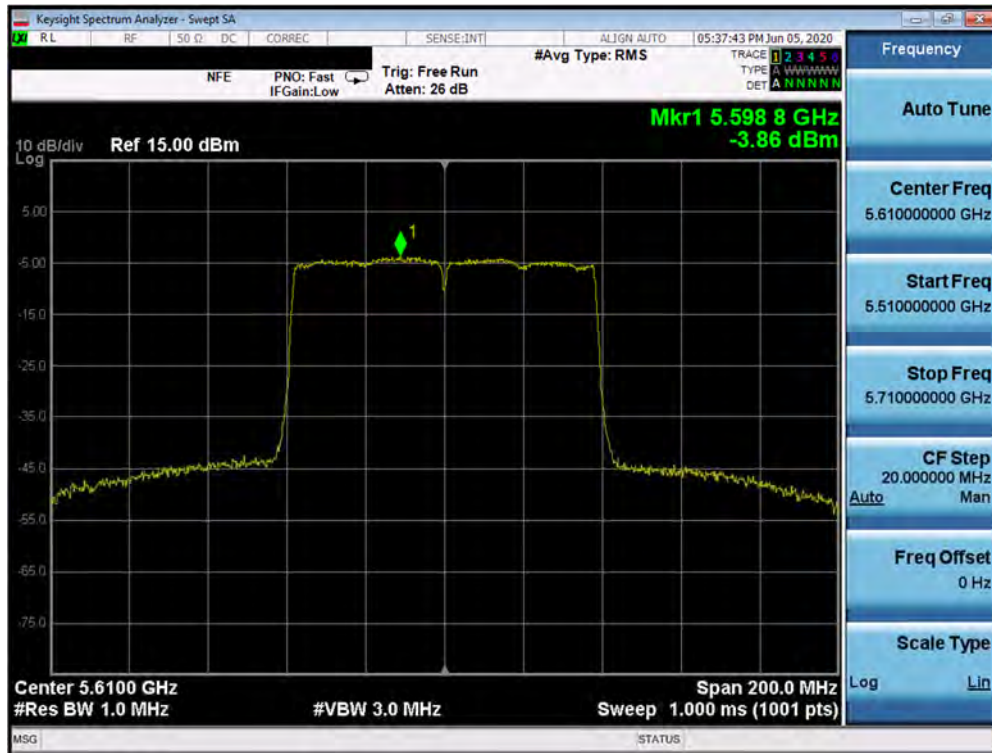


Plot 7-171. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 118 of 224

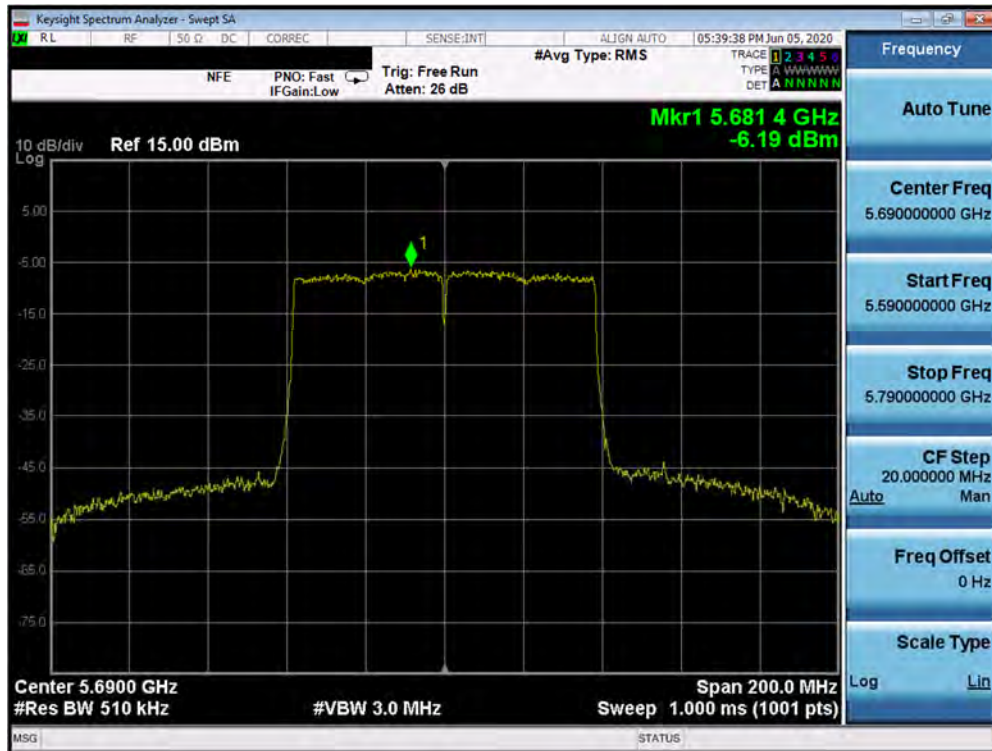


Plot 7-172. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

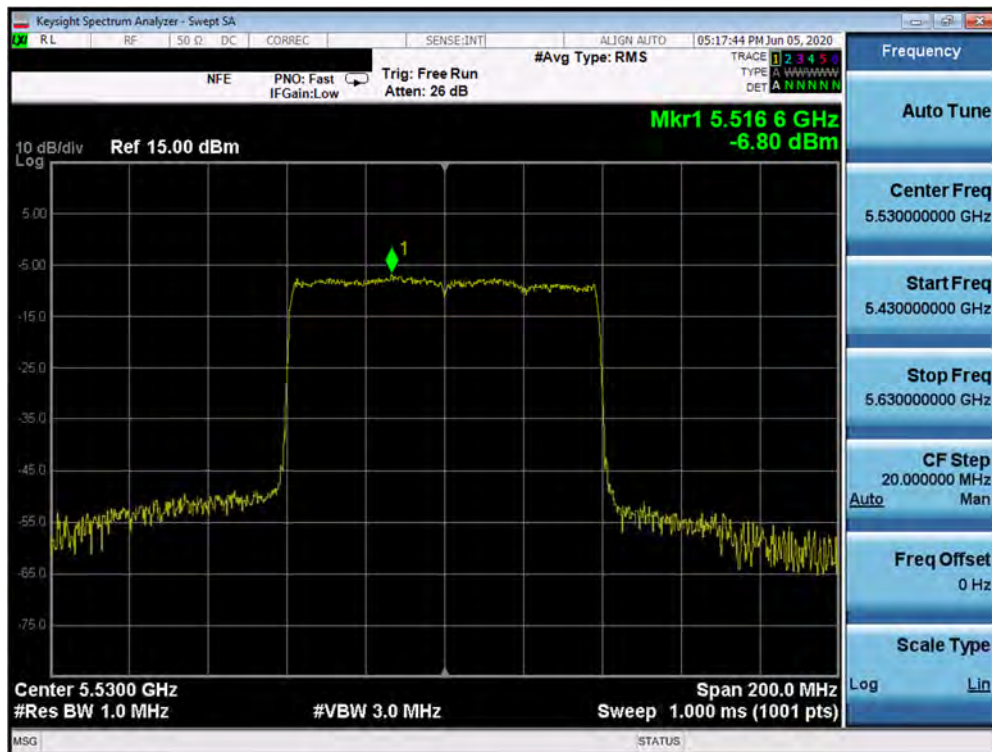


Plot 7-173. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 119 of 224



Plot 7-174. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

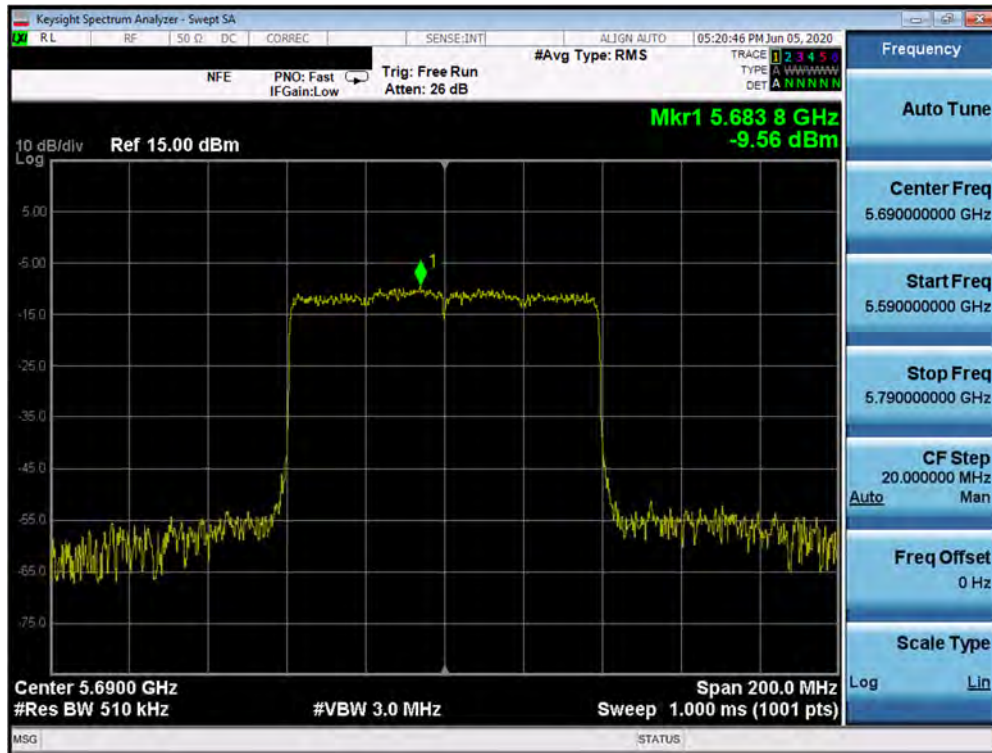


Plot 7-175. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 120 of 224



Plot 7-176. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 122)

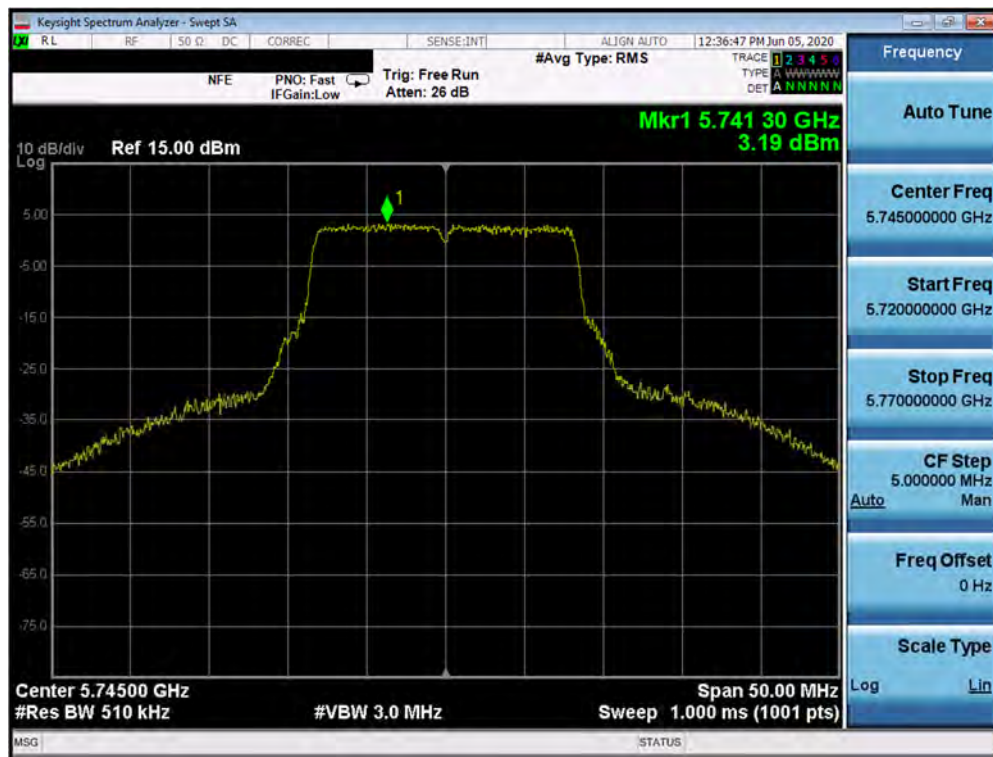


Plot 7-177. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 121 of 224

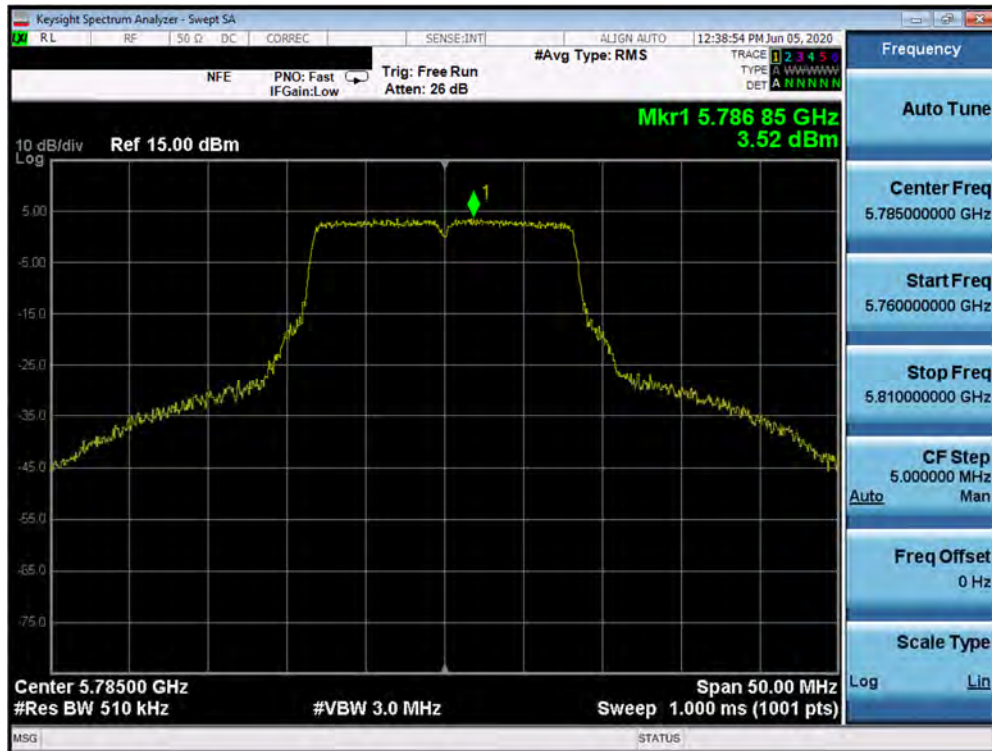
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6	3.19	30.0	-26.81
	5785	157	a	6	3.52	30.0	-26.48
	5825	165	a	6	2.63	30.0	-27.37
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	2.24	30.0	-27.76
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	2.60	30.0	-27.40
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	2.24	30.0	-27.76
	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	-0.48	30.0	-30.48
	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	0.21	30.0	-29.79
	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	-0.42	30.0	-30.42
	5755	151	n (40MHz)	13.5/15 (MCS0)	-2.18	30.0	-32.18
	5795	159	n (40MHz)	13.5/15 (MCS0)	-1.59	30.0	-31.59
	5755	151	ax (40MHz)	13.5/15 (MCS0)	-5.38	30.0	-35.38
	5795	159	ax (40MHz)	13.5/15 (MCS0)	-4.42	30.0	-34.42
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-3.28	30.0	-33.28
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	-6.19	30.0	-36.19

Table 7-23. Band 3 Conducted Power Spectral Density Measurements SISO ANT1

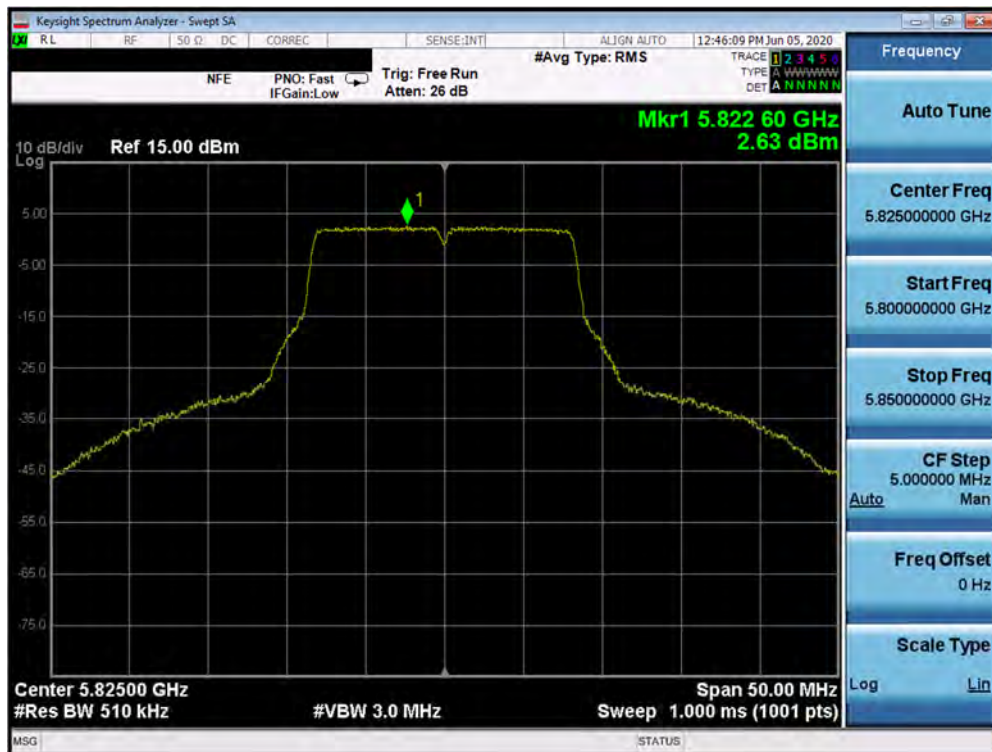


Plot 7-178. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 149)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 122 of 224

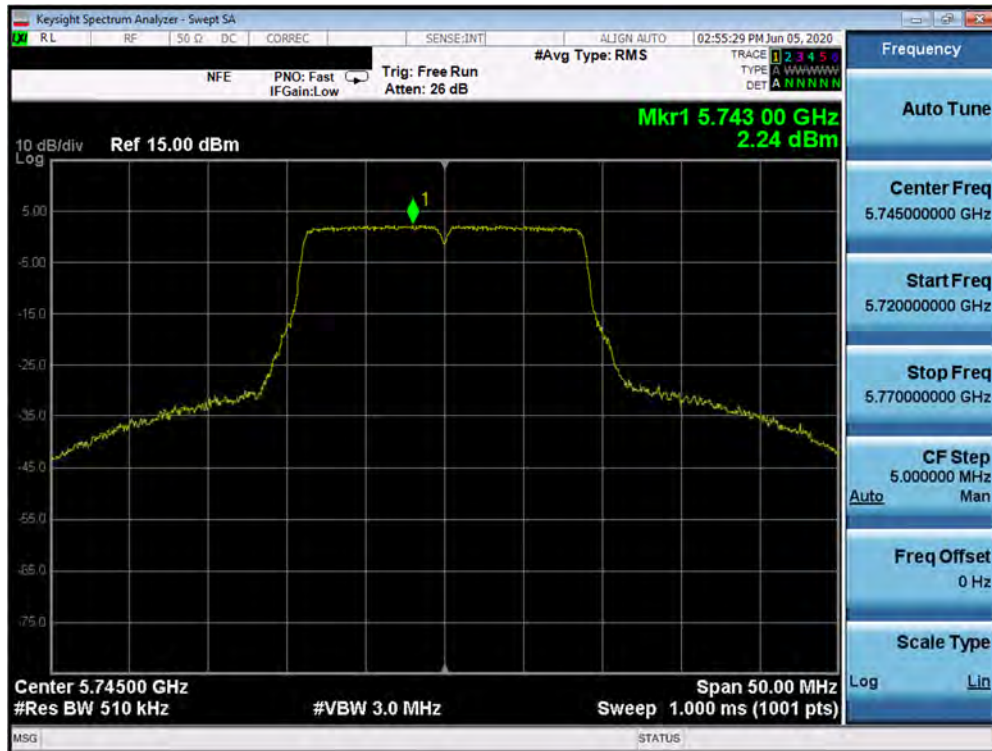


Plot 7-179. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 157)

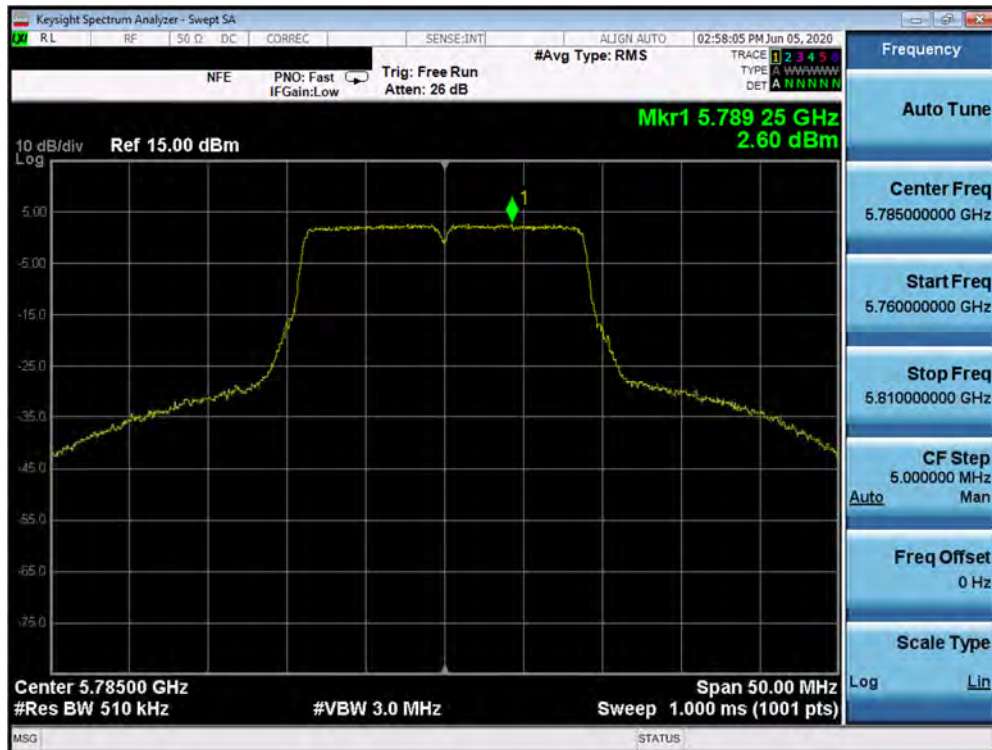


Plot 7-180. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 123 of 224

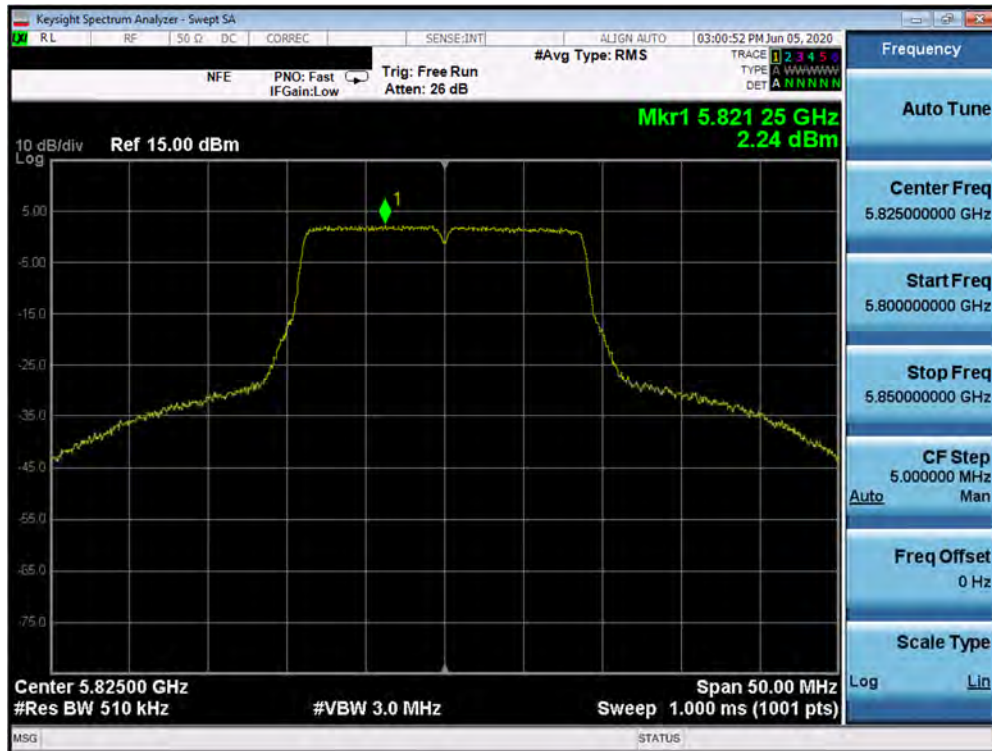


Plot 7-181. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

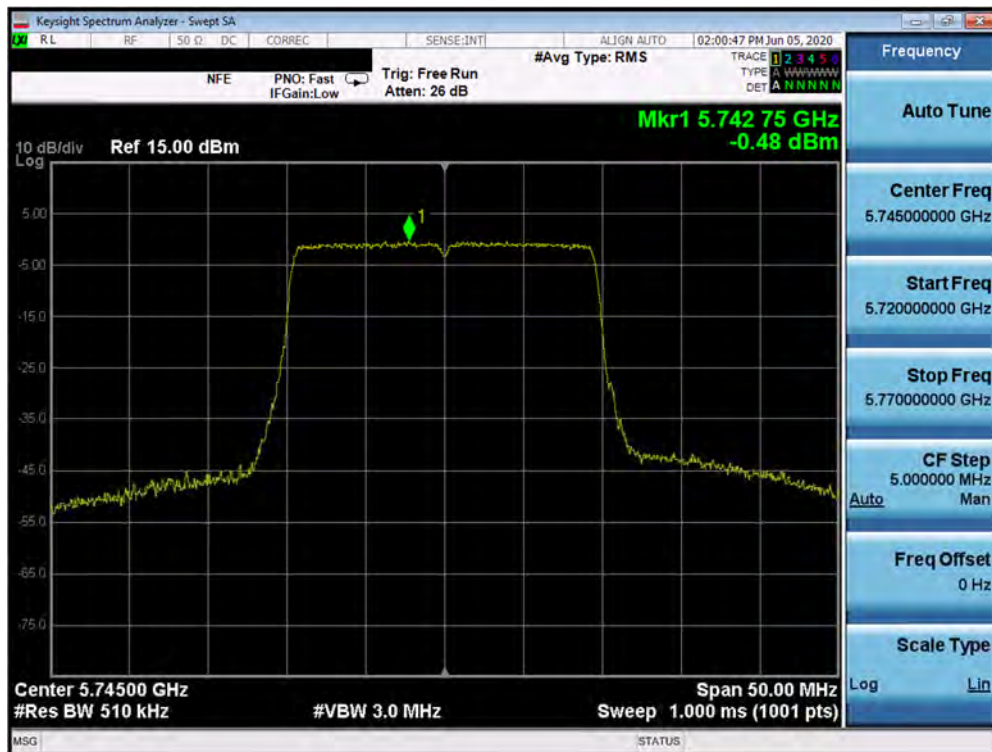


Plot 7-182. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 124 of 224

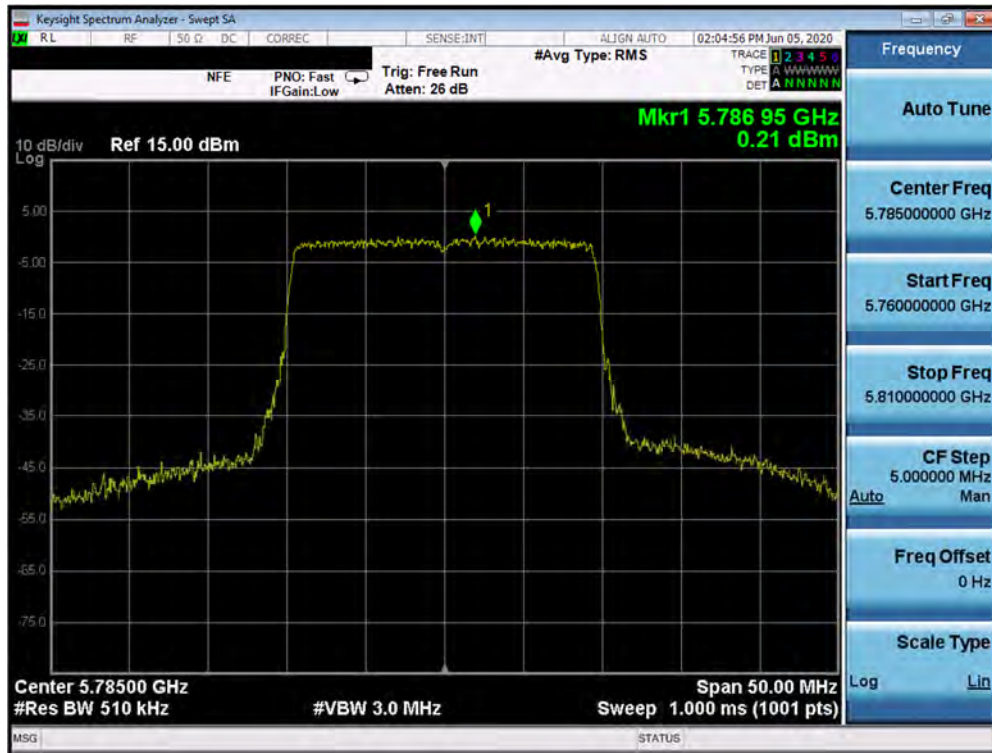


Plot 7-183. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

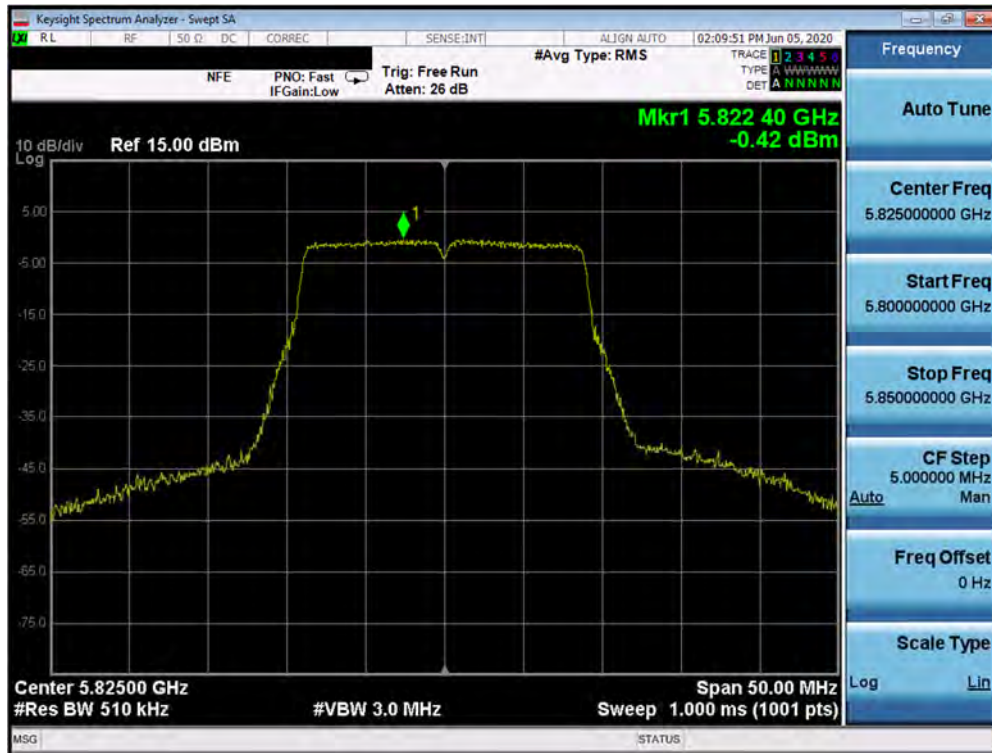


Plot 7-184. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 3) – Ch. 149)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 125 of 224

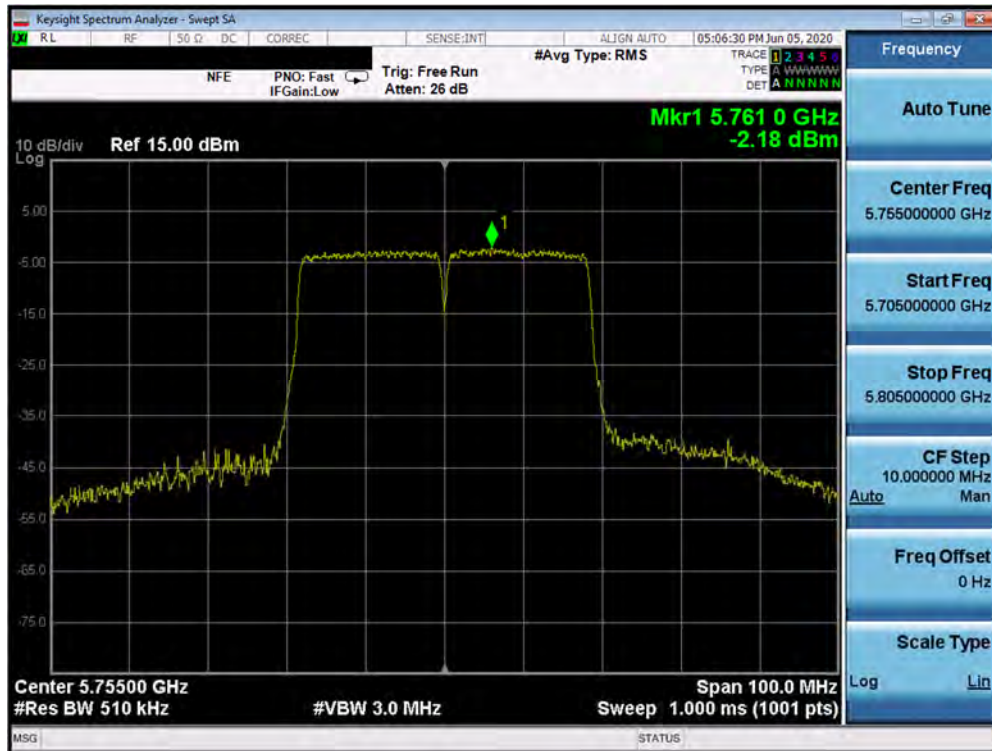


Plot 7-185. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 3) – Ch. 157)

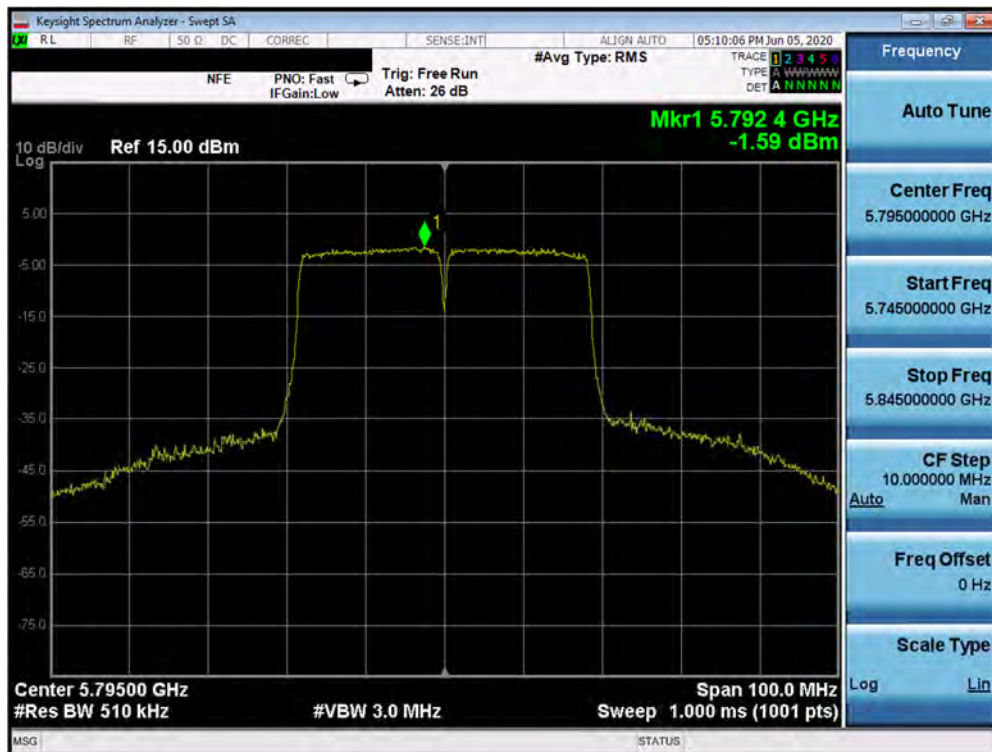


Plot 7-186. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 126 of 224

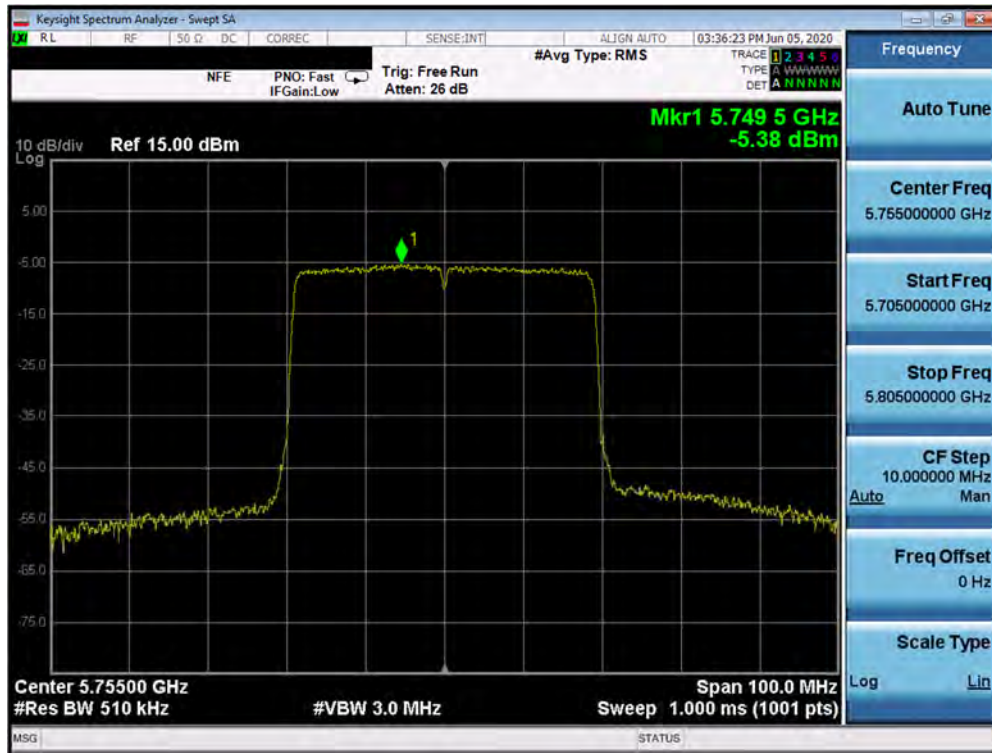


Plot 7-187. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

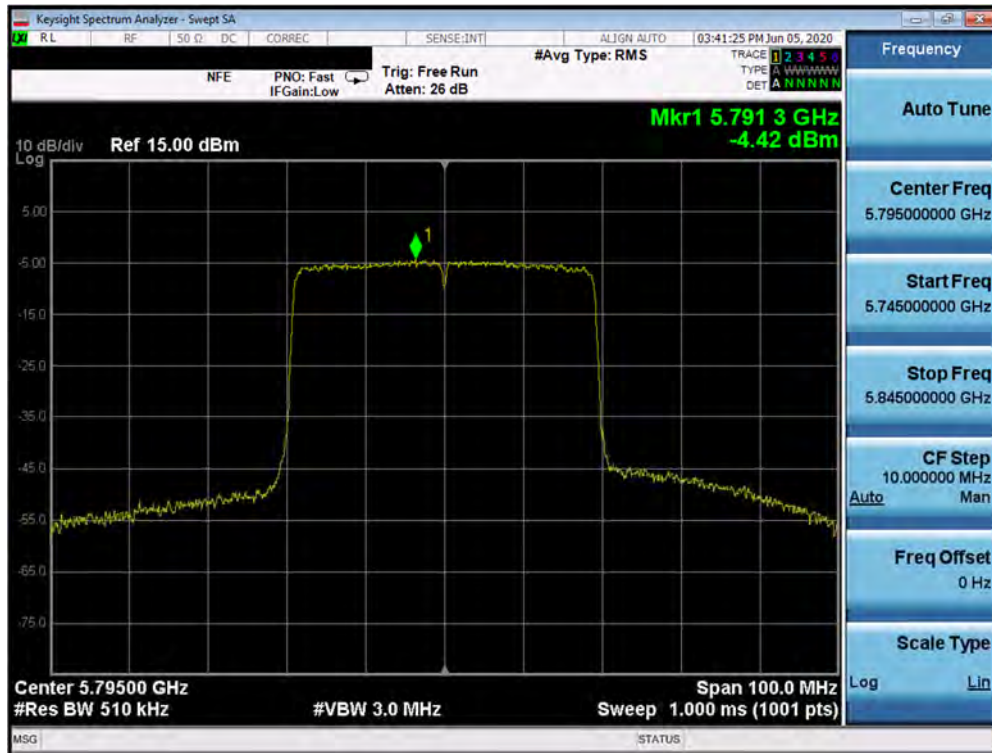


Plot 7-188. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 127 of 224

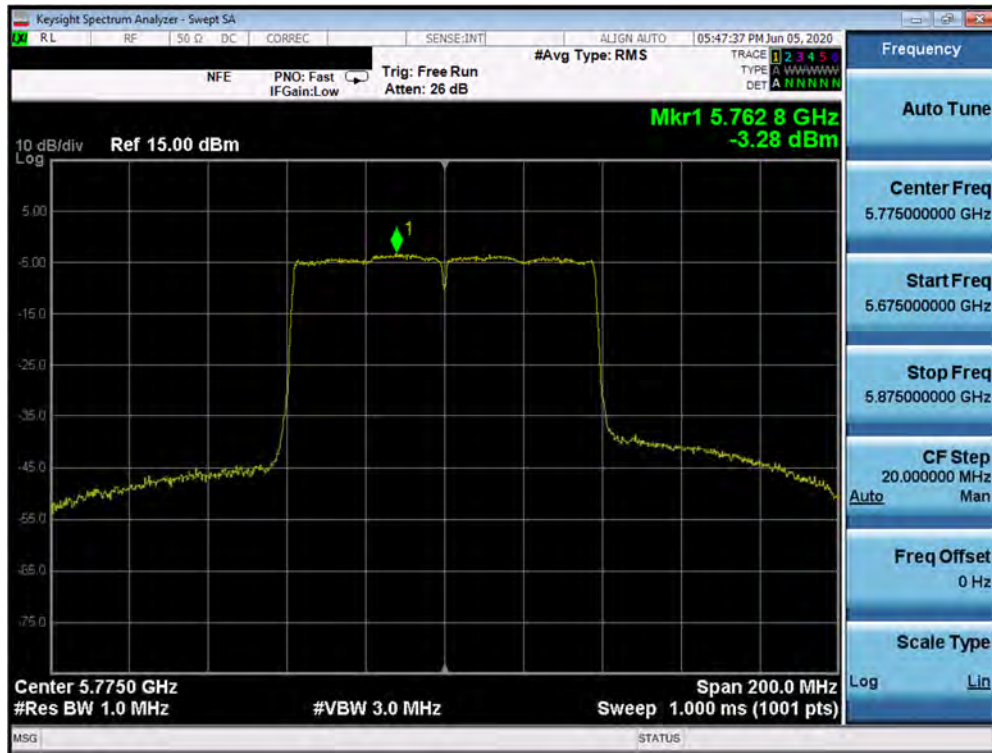


Plot 7-189. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)

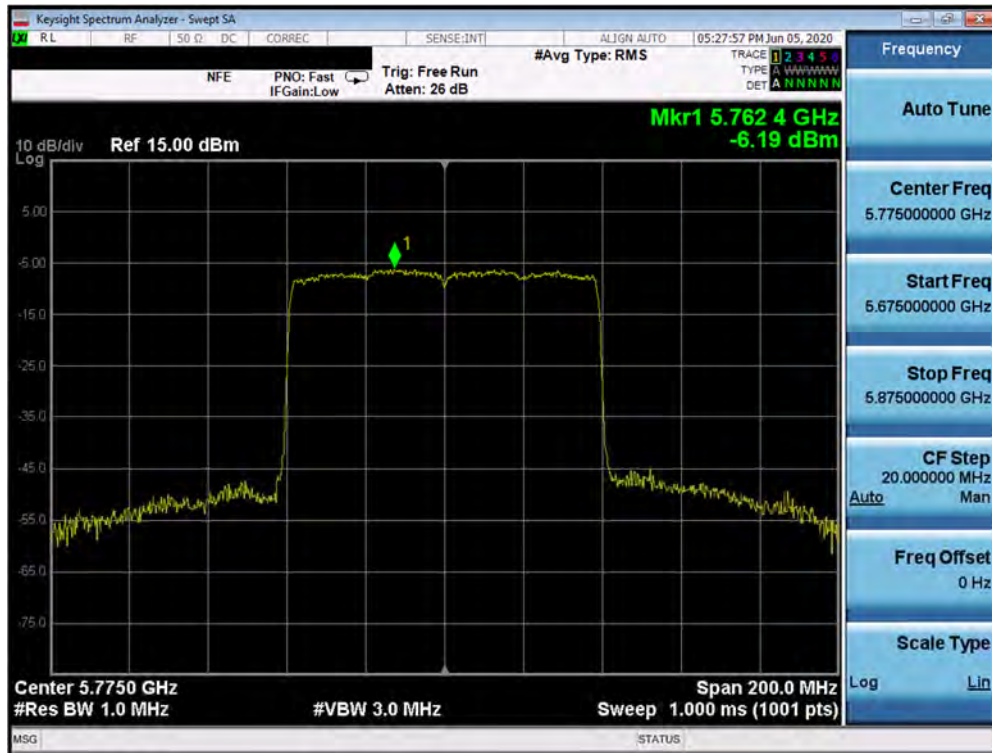


Plot 7-190. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 3) – Ch. 159)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 128 of 224



Plot 7-191. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)



Plot 7-192. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax (UNII Band 3) – Ch. 155)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 129 of 224

SISO Antenna-2 Power Spectral Density Measurements

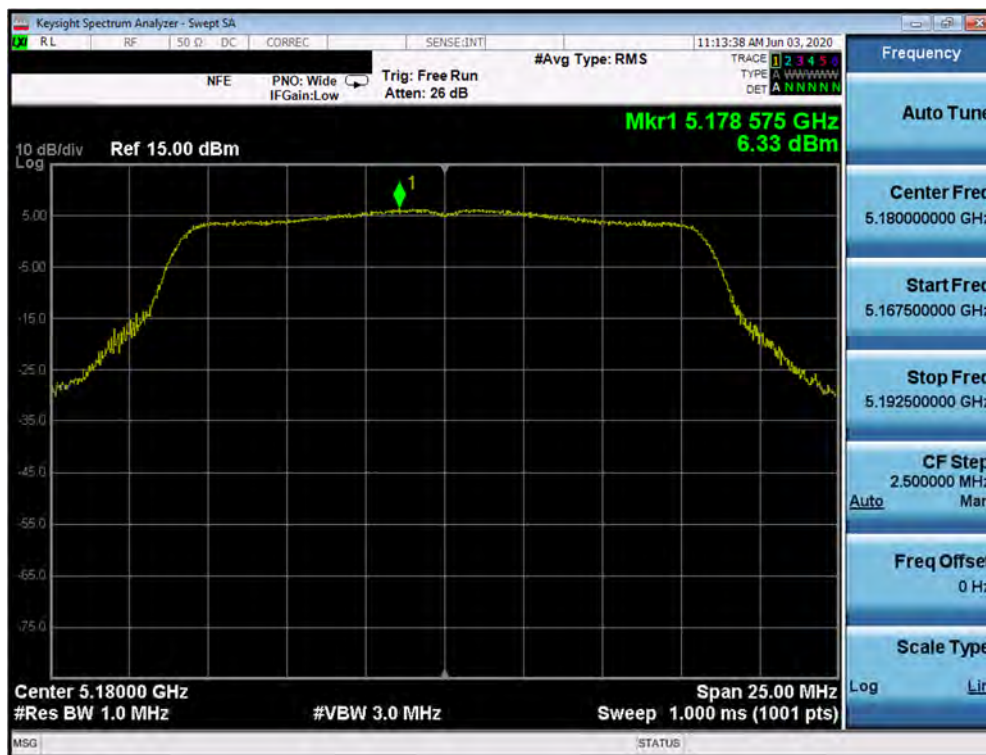
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	6.33	11.0	-4.67
	5200	40	a	6	7.22	11.0	-3.78
	5240	48	a	6	7.41	11.0	-3.59
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	7.82	11.0	-3.18
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.80	11.0	-4.20
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.57	11.0	-4.43
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	4.48	11.0	-6.52
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	4.27	11.0	-6.73
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	4.30	11.0	-6.70
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.71	11.0	-7.29
	5230	46	n (40MHz)	13.5/15 (MCS0)	2.52	11.0	-8.48
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-0.99	11.0	-11.99
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-1.28	11.0	-12.28
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-0.61	11.0	-11.61
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-3.87	11.0	-14.87
Band 2A	5260	52	a	6	6.88	11.0	-4.12
	5280	56	a	6	6.70	11.0	-4.30
	5320	64	a	6	5.62	11.0	-5.38
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.38	11.0	-4.62
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.43	11.0	-4.57
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	7.32	11.0	-3.68
	5260	52	ax (20MHz)	6.5/7.2 (MCS0)	3.91	11.0	-7.09
	5280	56	ax (20MHz)	6.5/7.2 (MCS0)	3.87	11.0	-7.13
	5320	64	ax (20MHz)	6.5/7.2 (MCS0)	4.58	11.0	-6.42
	5270	54	n (40MHz)	13.5/15 (MCS0)	2.30	11.0	-8.70
	5310	62	n (40MHz)	13.5/15 (MCS0)	2.07	11.0	-8.93
	5270	54	ax (40MHz)	13.5/15 (MCS0)	-1.10	11.0	-12.10
	5310	62	ax (40MHz)	13.5/15 (MCS0)	-1.76	11.0	-12.76
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-1.86	11.0	-12.86
	5290	58	ax (80MHz)	29.3/32.5 (MCS0)	-4.75	11.0	-15.75
Band 2C	5500	100	a	6	6.56	11.0	-4.44
	5600	120	a	6	5.99	11.0	-5.01
	5720	144	a	6	6.15	11.0	-4.85
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	7.11	11.0	-3.89
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	5.45	11.0	-5.55
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	5.82	11.0	-5.18
	5500	100	ax (20MHz)	6.5/7.2 (MCS0)	4.22	11.0	-6.78
	5600	120	ax (20MHz)	6.5/7.2 (MCS0)	3.63	11.0	-7.37
	5720	144	ax (20MHz)	6.5/7.2 (MCS0)	4.21	11.0	-6.79
	5510	102	n (40MHz)	13.5/15 (MCS0)	3.04	11.0	-7.96
	5590	118	n (40MHz)	13.5/15 (MCS0)	1.53	11.0	-9.47
	5710	142	n (40MHz)	13.5/15 (MCS0)	1.56	11.0	-9.44
	5510	102	ax (40MHz)	13.5/15 (MCS0)	-1.11	11.0	-12.11
	5590	118	ax (40MHz)	13.5/15 (MCS0)	-1.04	11.0	-12.04
	5710	142	ax (40MHz)	13.5/15 (MCS0)	-1.12	11.0	-12.12
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-2.49	11.0	-13.49
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-1.50	11.0	-12.50
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-5.27	11.0	-16.27
	5530	106	ax (80MHz)	29.3/32.5 (MCS0)	-5.13	11.0	-16.13
	5610	122	ax (80MHz)	29.3/32.5 (MCS0)	-5.43	11.0	-16.43
	5690	138	ax (80MHz)	29.3/32.5 (MCS0)	-7.64	11.0	-18.64

Table 7-24. Conducted Power Spectral Density Measurements SISO ANT2

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 130 of 224

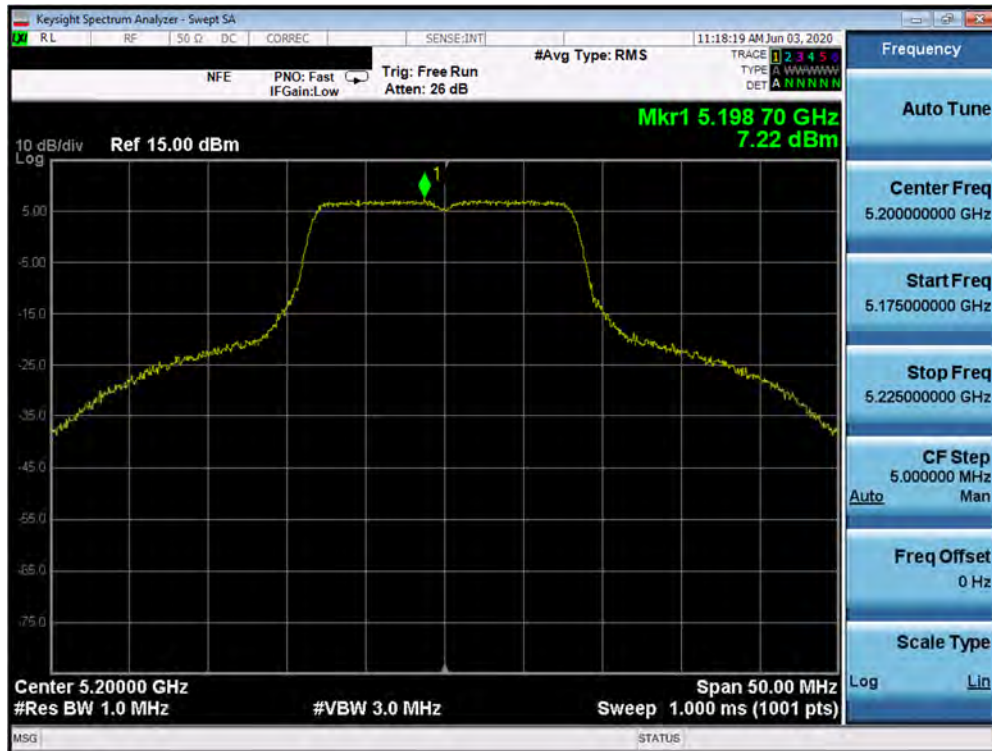
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	6.33	-6.94	-0.61	10.0	-10.61
	5200	40	a	6	7.22	-6.94	0.28	10.0	-9.72
	5240	48	a	6	7.41	-6.94	0.47	10.0	-9.53
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	7.82	-6.94	0.88	10.0	-9.12
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.80	-6.94	-0.14	10.0	-10.14
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.57	-6.94	-0.37	10.0	-10.37
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	4.48	-6.94	-2.46	10.0	-12.46
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	4.27	-6.94	-2.67	10.0	-12.67
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	4.30	-6.94	-2.64	10.0	-12.64
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.71	-6.94	-3.23	10.0	-13.23
	5230	46	n (40MHz)	13.5/15 (MCS0)	2.52	-6.94	-4.42	10.0	-14.42
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-0.99	-6.94	-7.93	10.0	-17.93
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-1.28	-6.94	-8.22	10.0	-18.22
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-0.61	-6.94	-7.55	10.0	-17.55
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-3.87	-6.94	-10.81	10.0	-20.81

Table 7-25. Band 1 e.i.r.p. Conducted Power Spectral Density Measurements (ISED) SISO ANT2

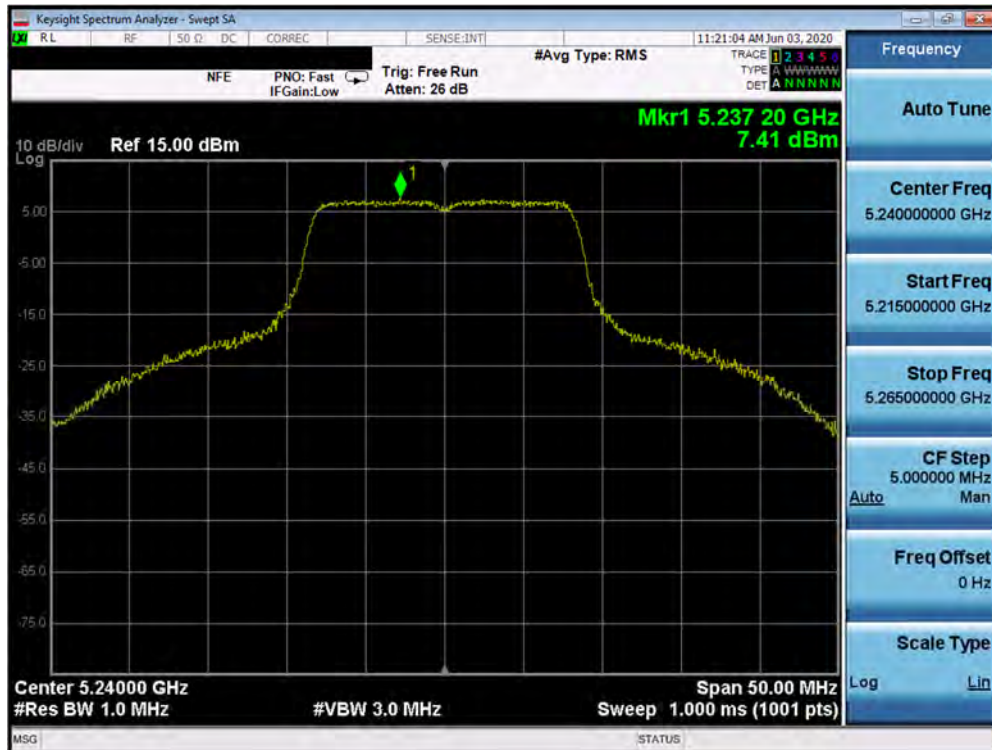


Plot 7-193. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 36)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 131 of 224

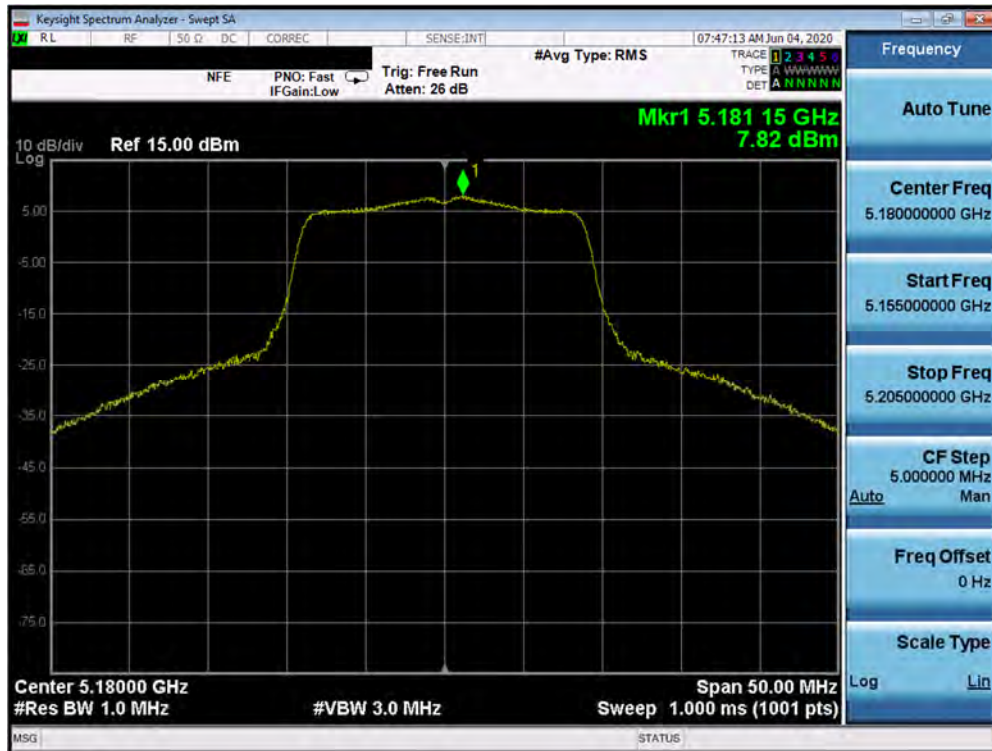


Plot 7-194. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 40)

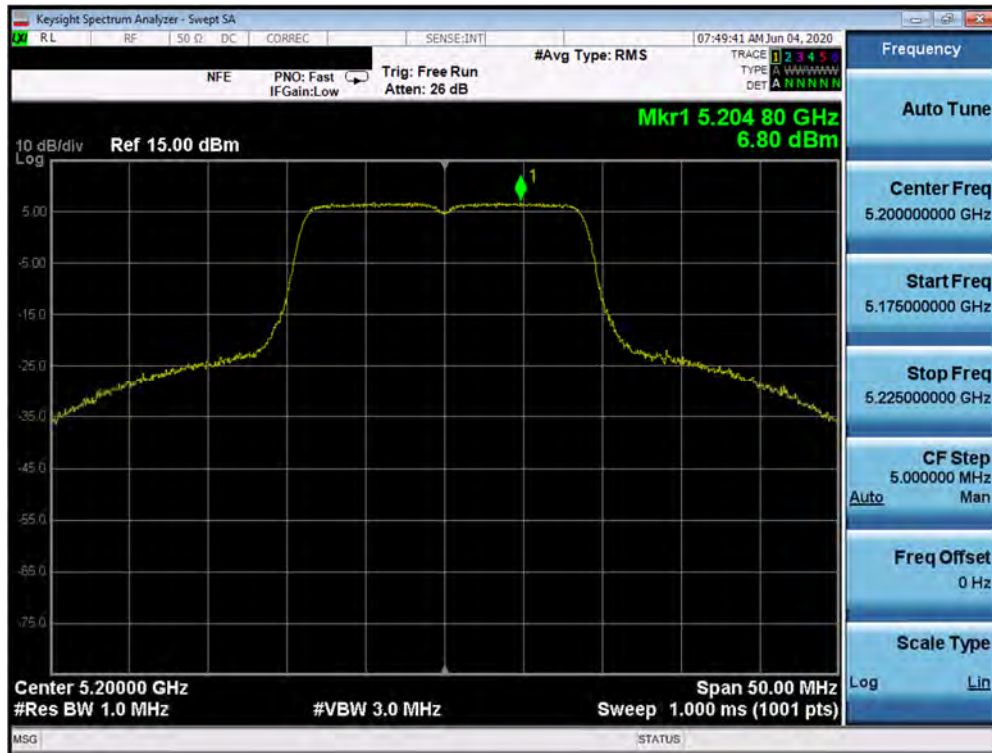


Plot 7-195. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 48)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 132 of 224

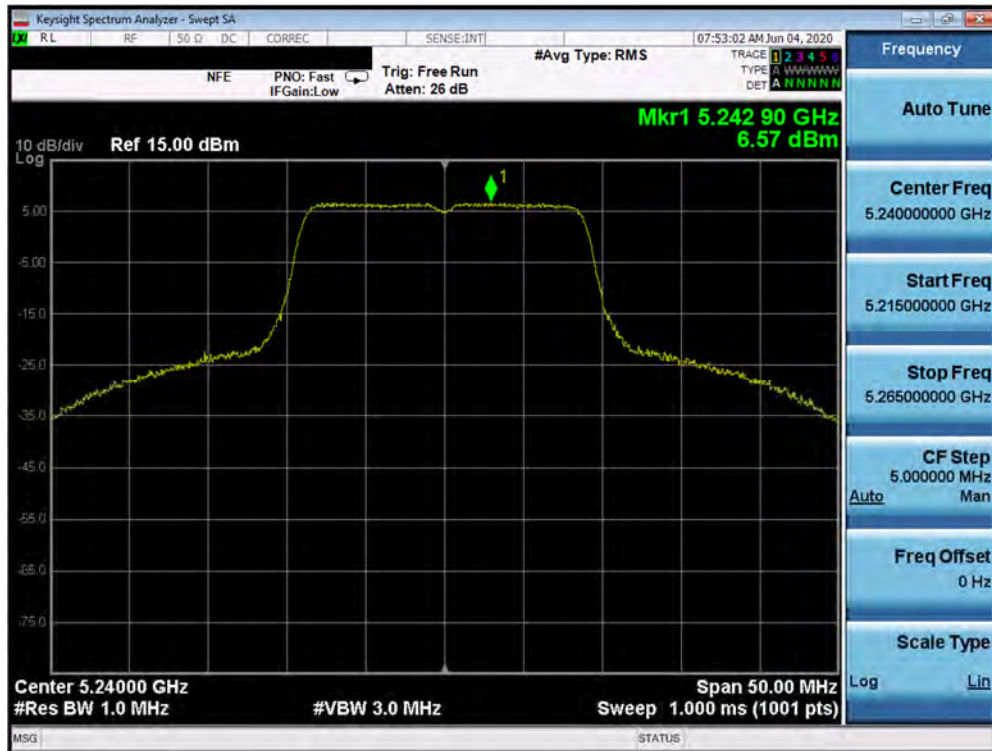


Plot 7-196. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)



Plot 7-197. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 133 of 224

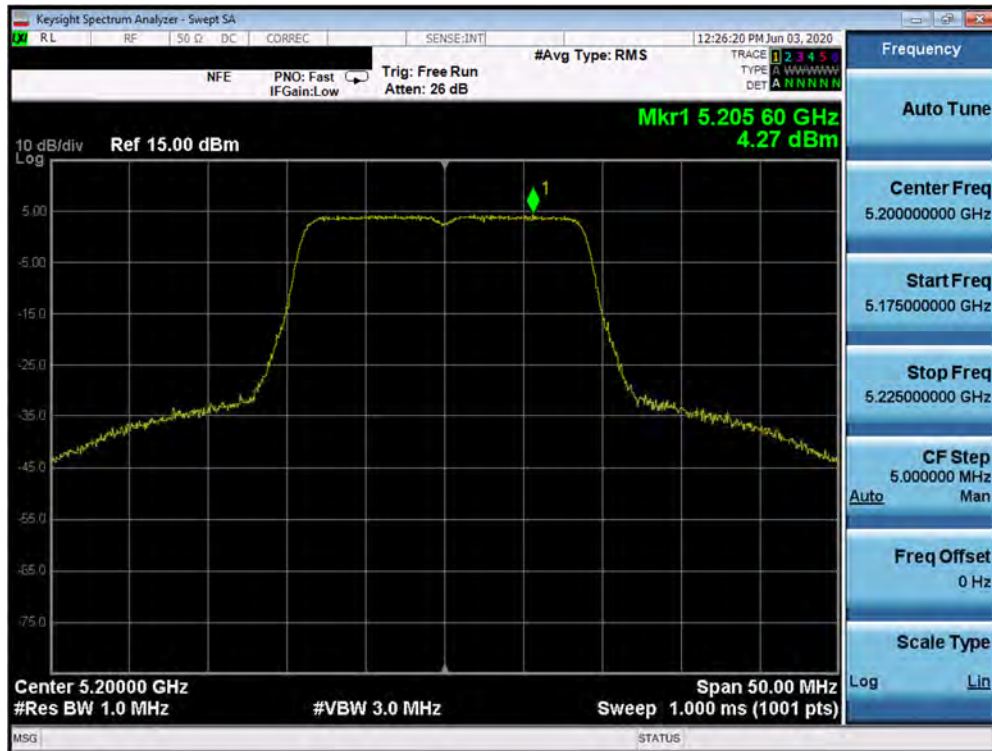


Plot 7-198. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

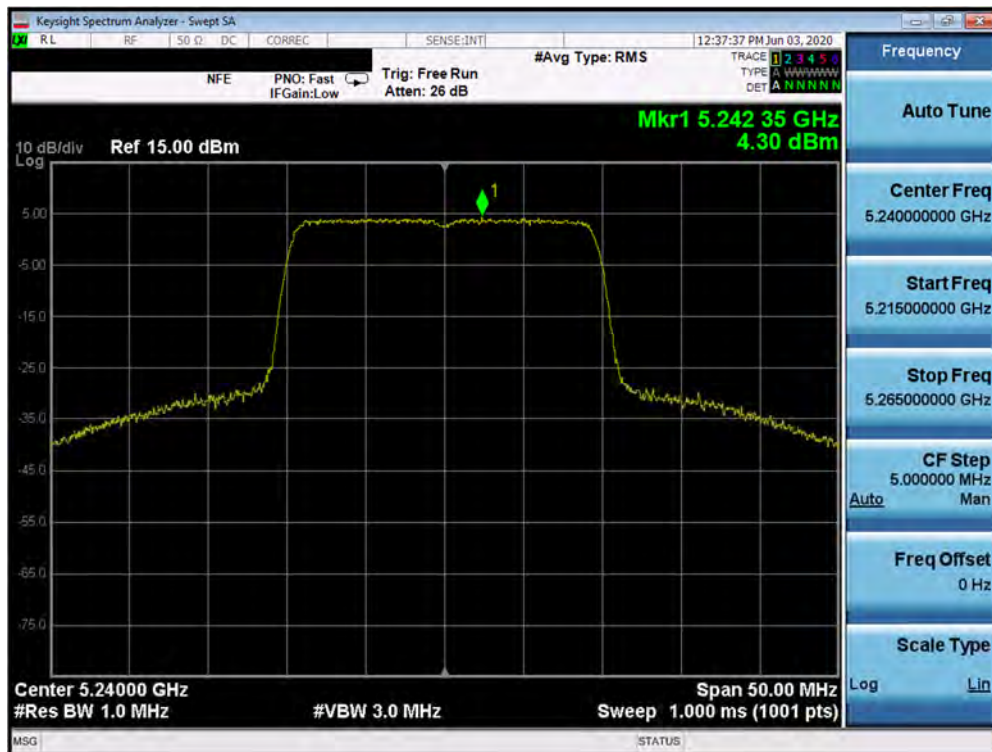


Plot 7-199. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 36)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 134 of 224

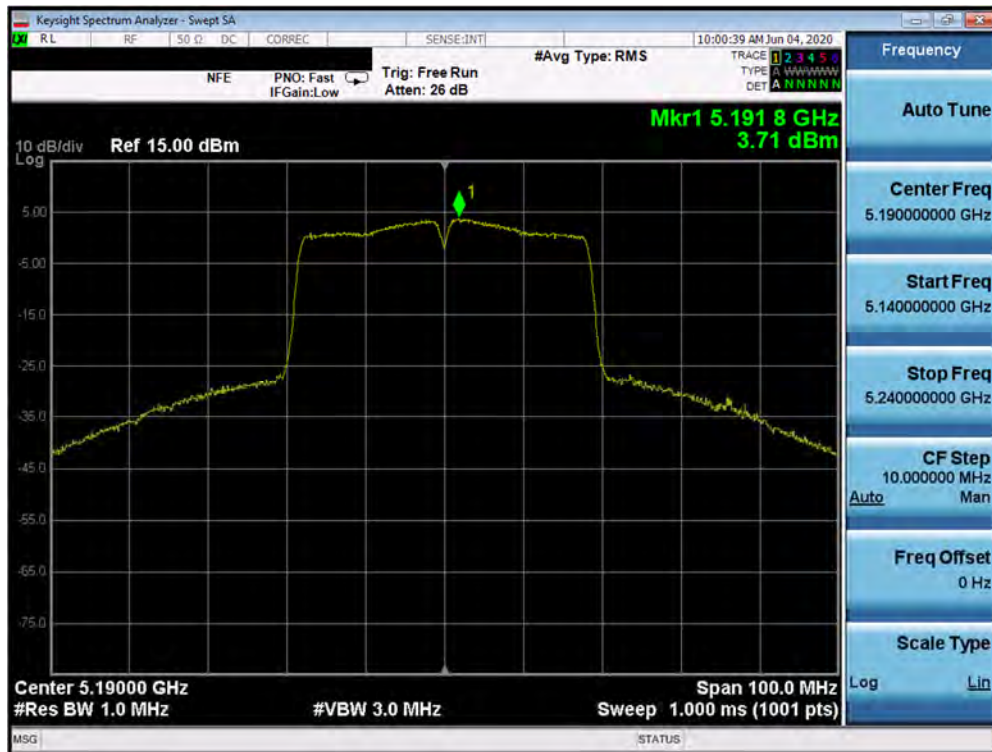


Plot 7-200. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 40)

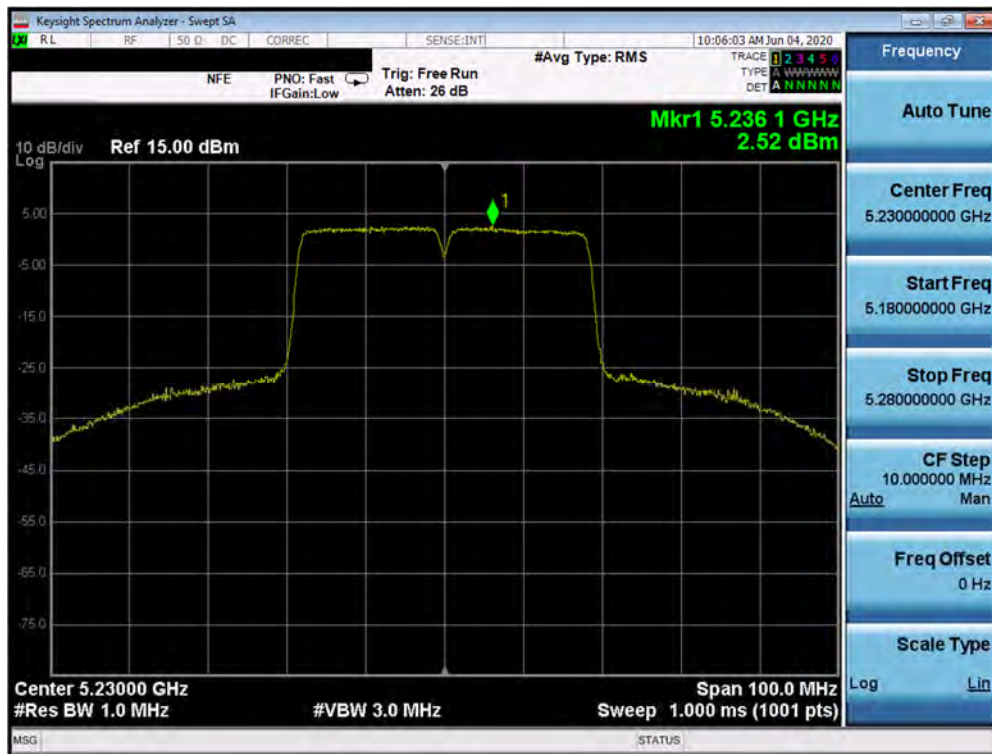


Plot 7-201. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 48)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 135 of 224

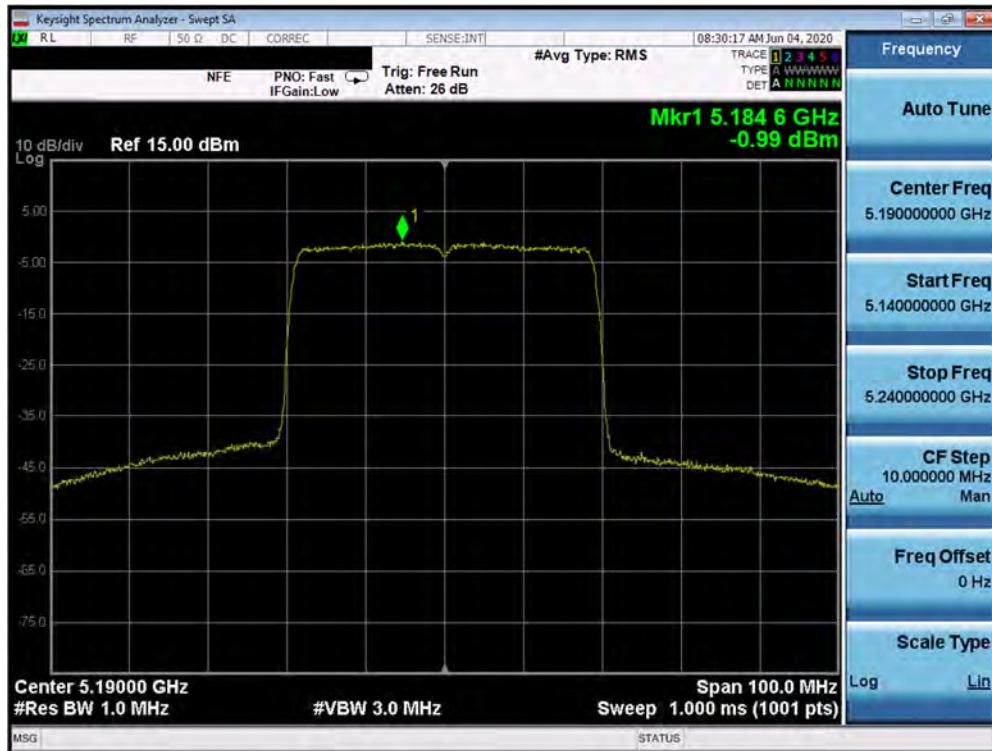


Plot 7-202. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

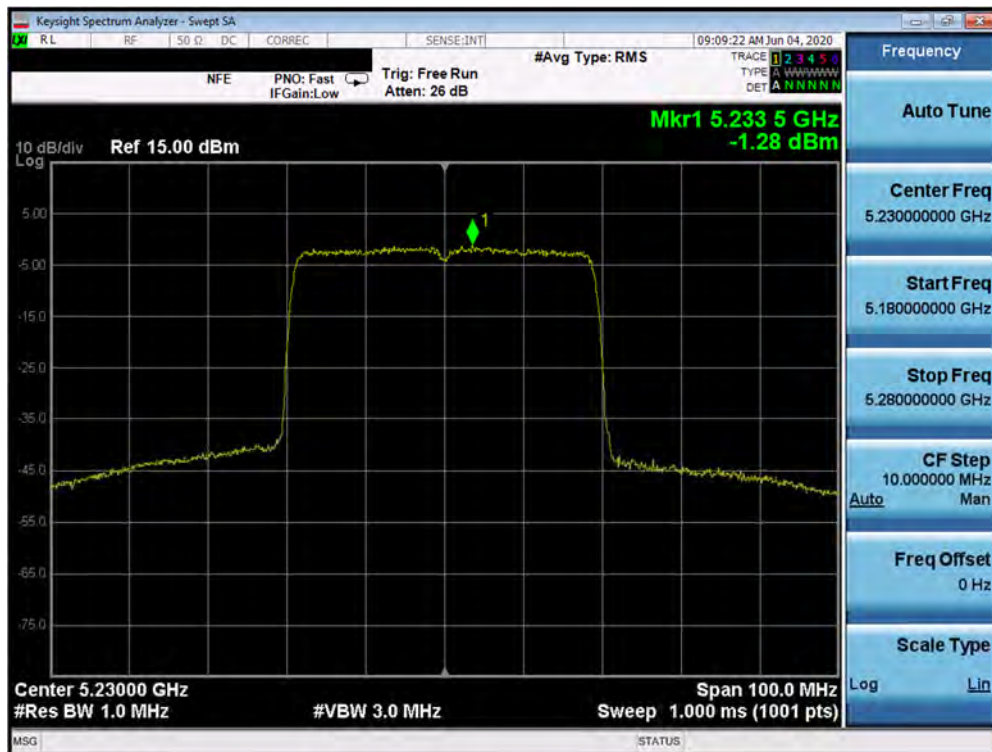


Plot 7-203. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 136 of 224

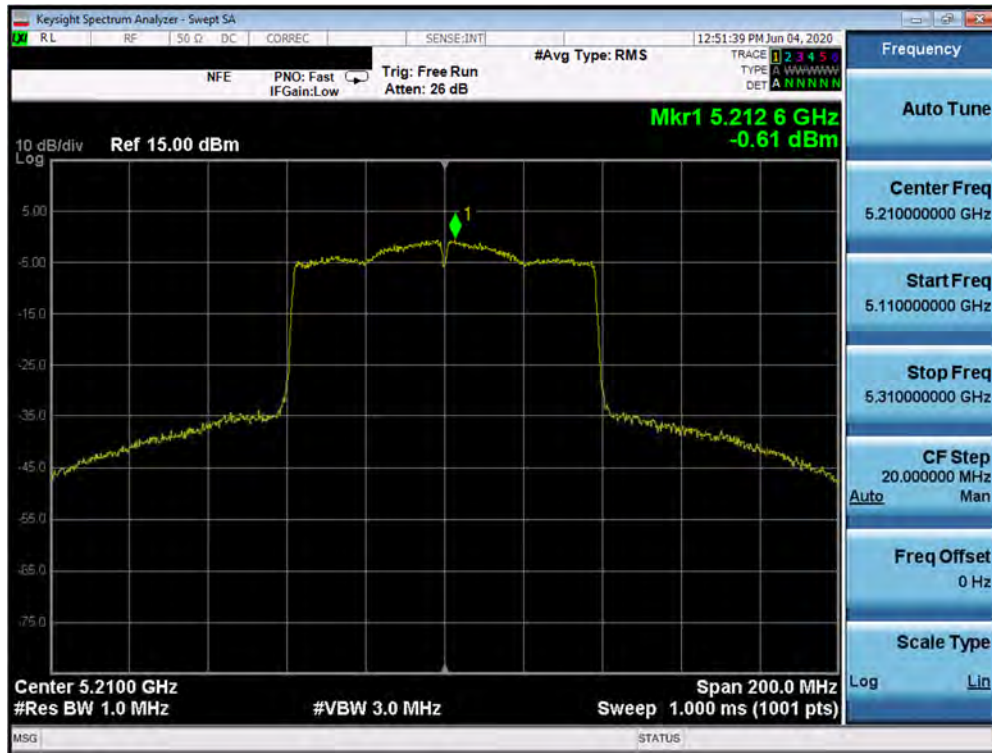


Plot 7-204. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 1) – Ch. 38)

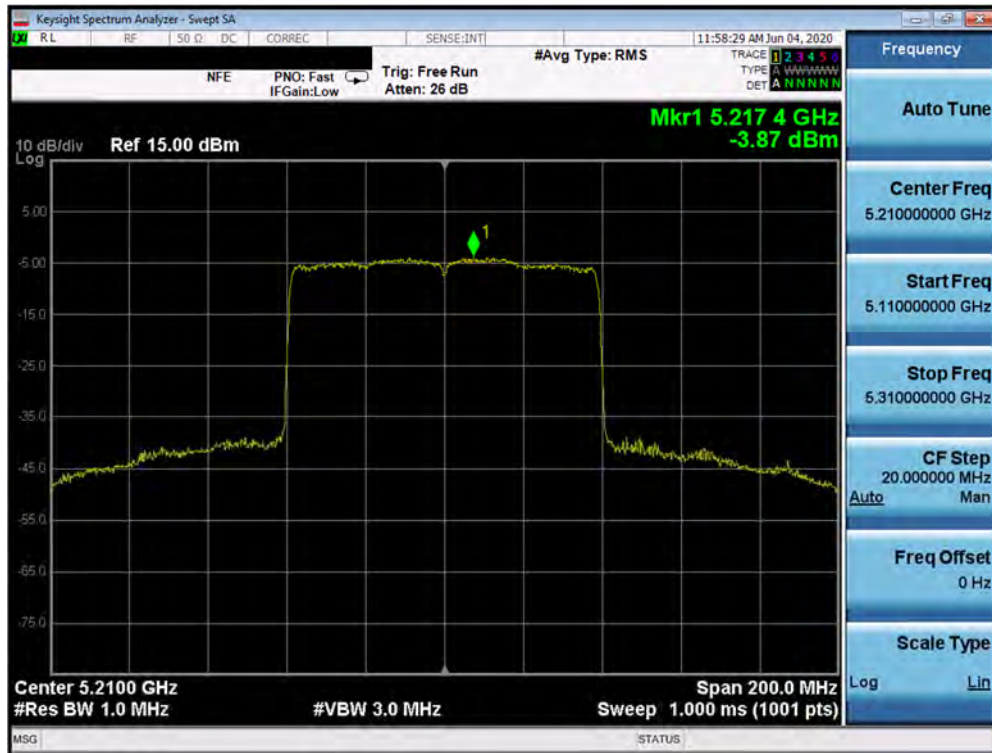


Plot 7-205. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 1) – Ch. 46)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 137 of 224

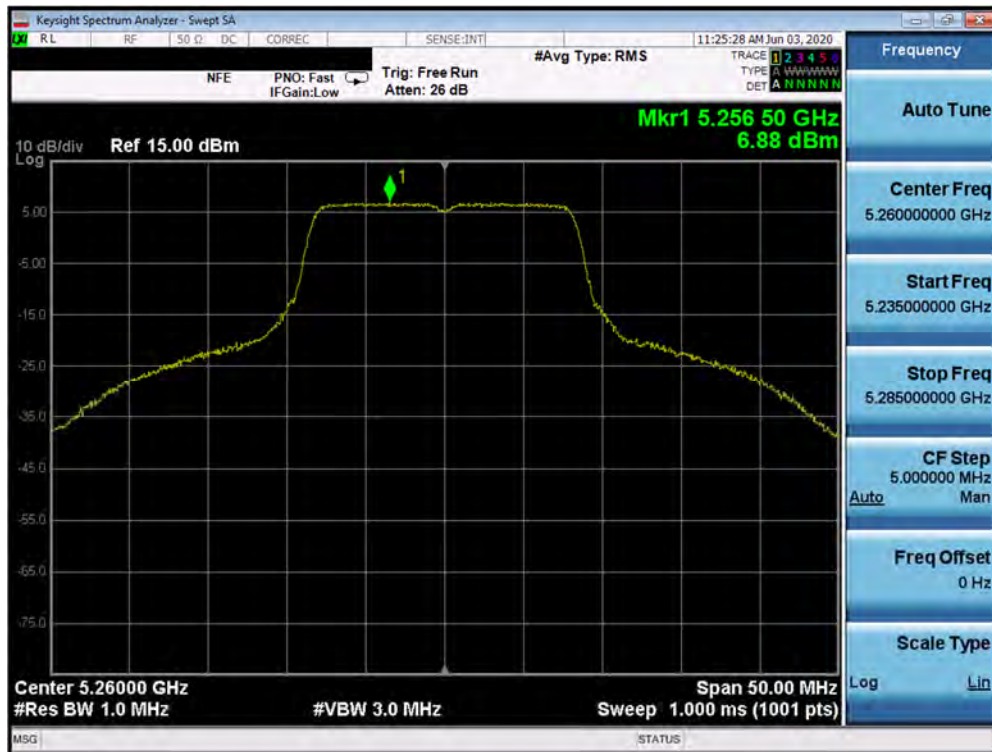


Plot 7-206. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

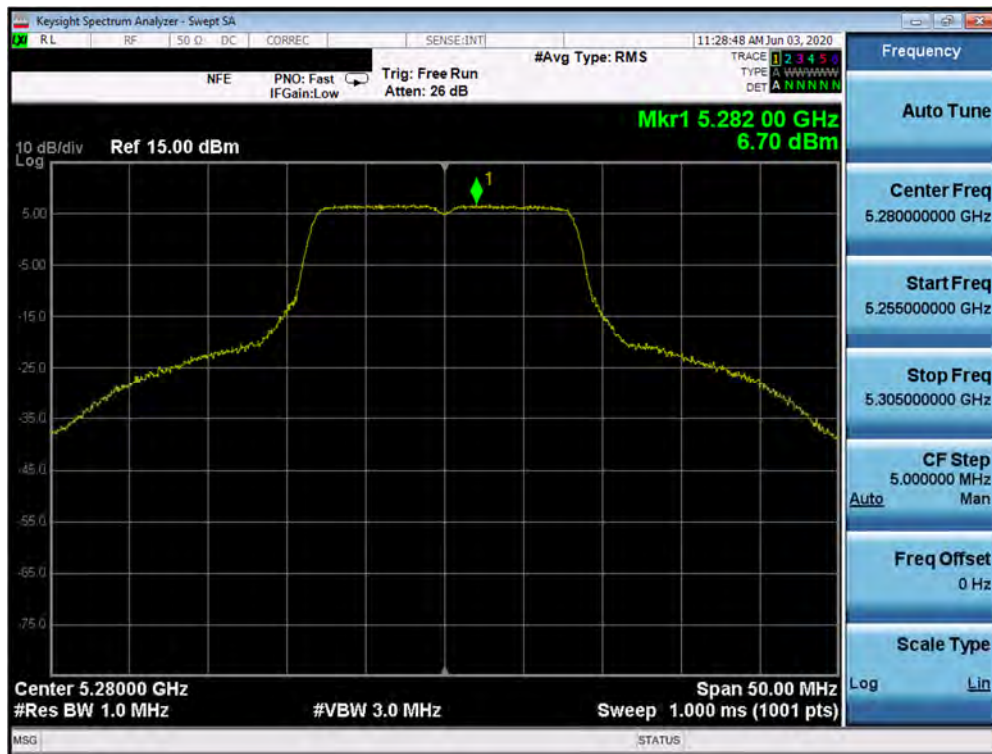


Plot 7-207. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 1) – Ch. 42)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 138 of 224

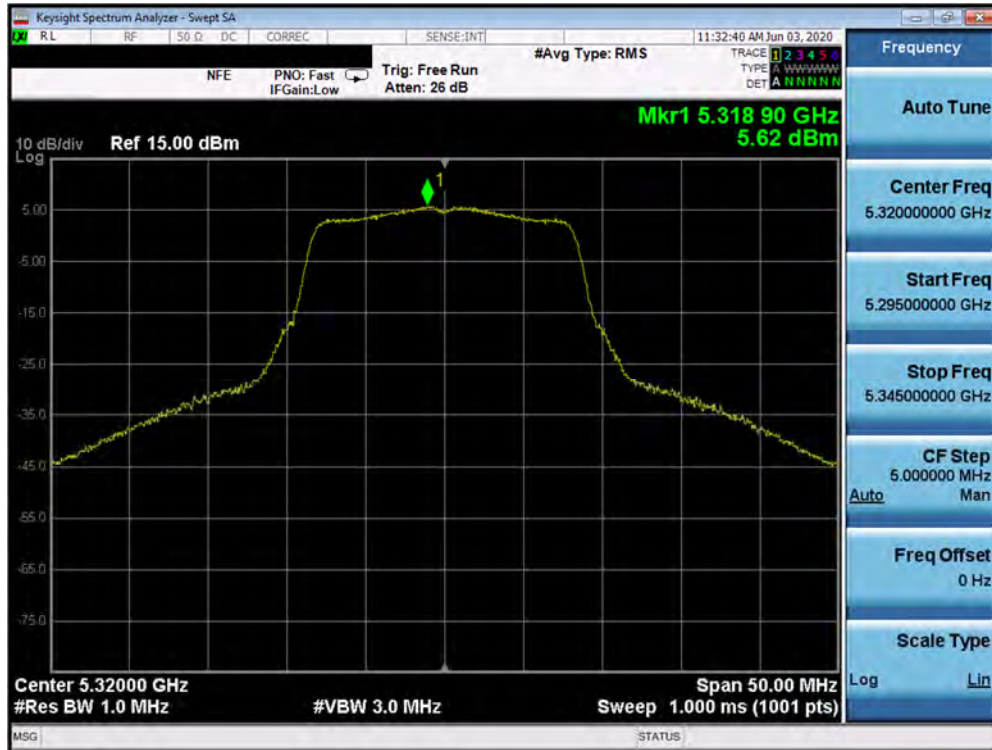


Plot 7-208. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 52)

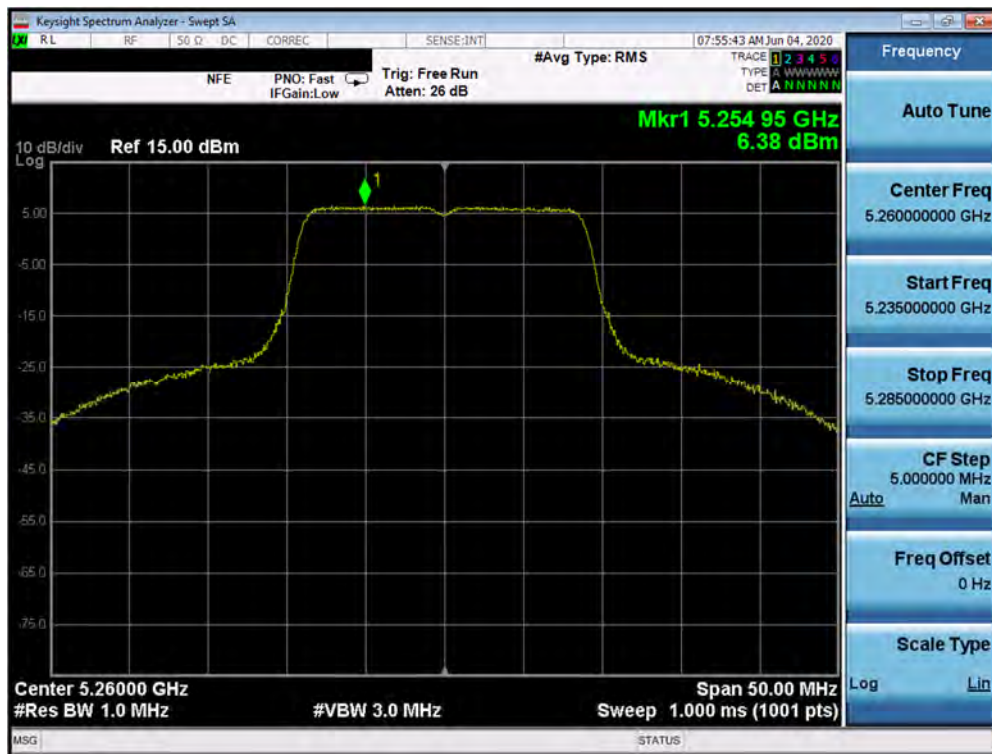


Plot 7-209. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 139 of 224

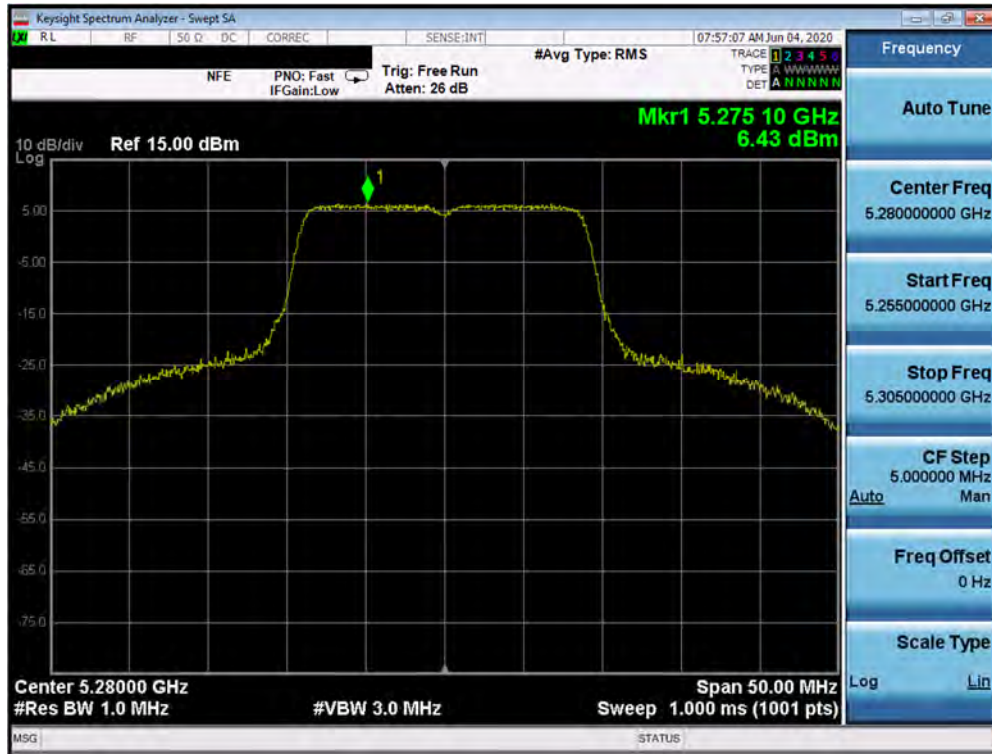


Plot 7-210. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 64)

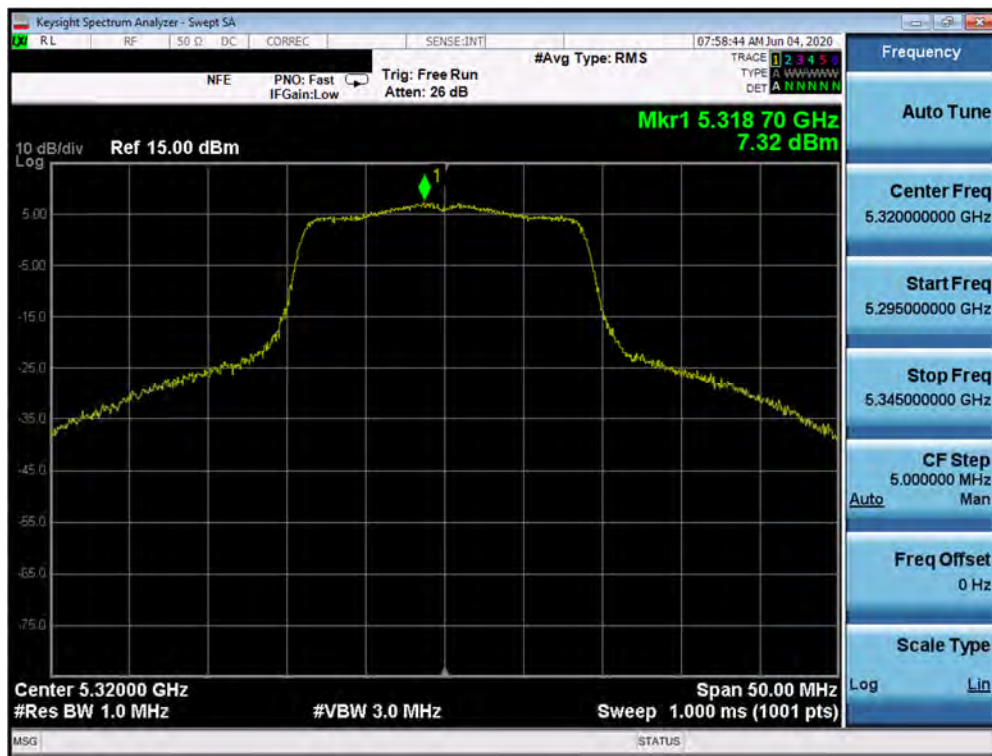


Plot 7-211. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 140 of 224

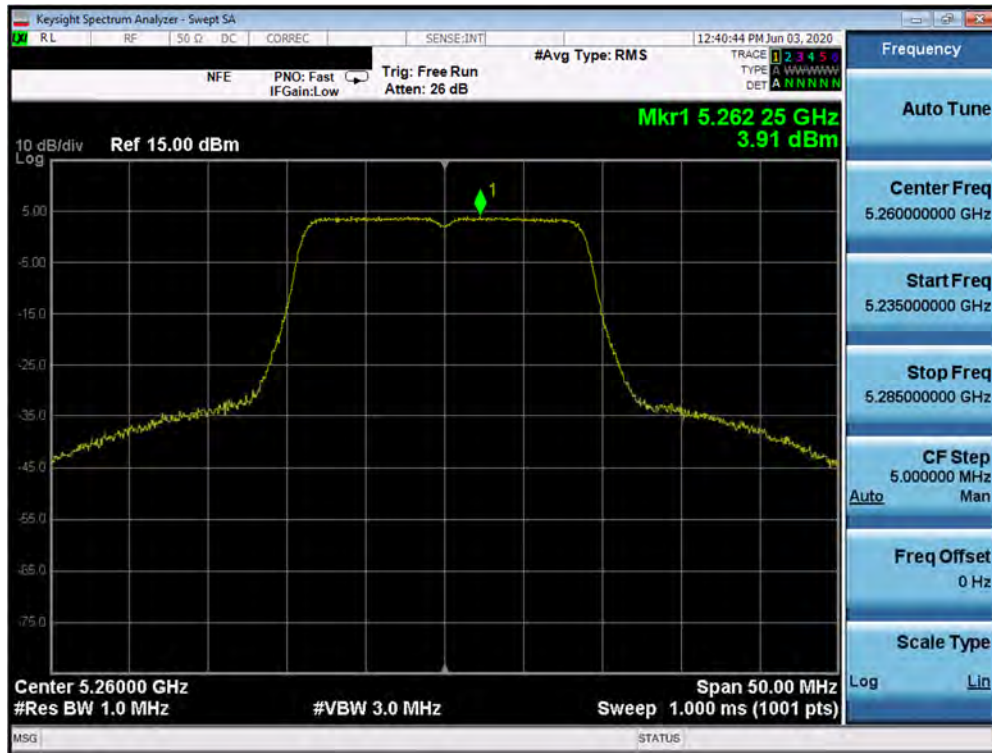


Plot 7-212. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

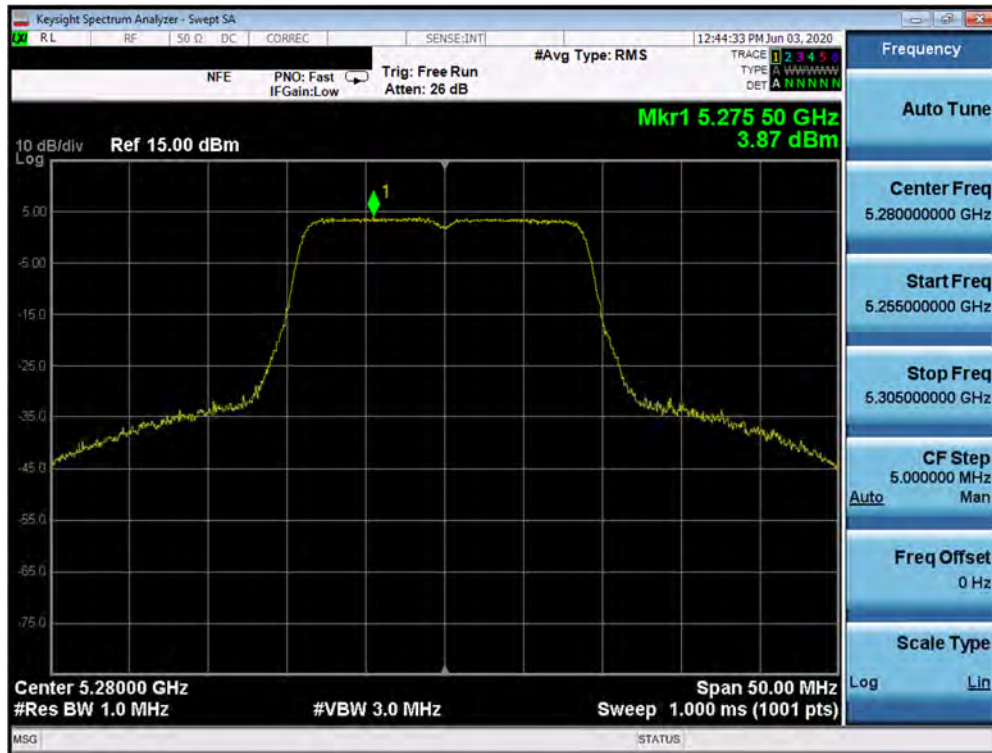


Plot 7-213. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 141 of 224

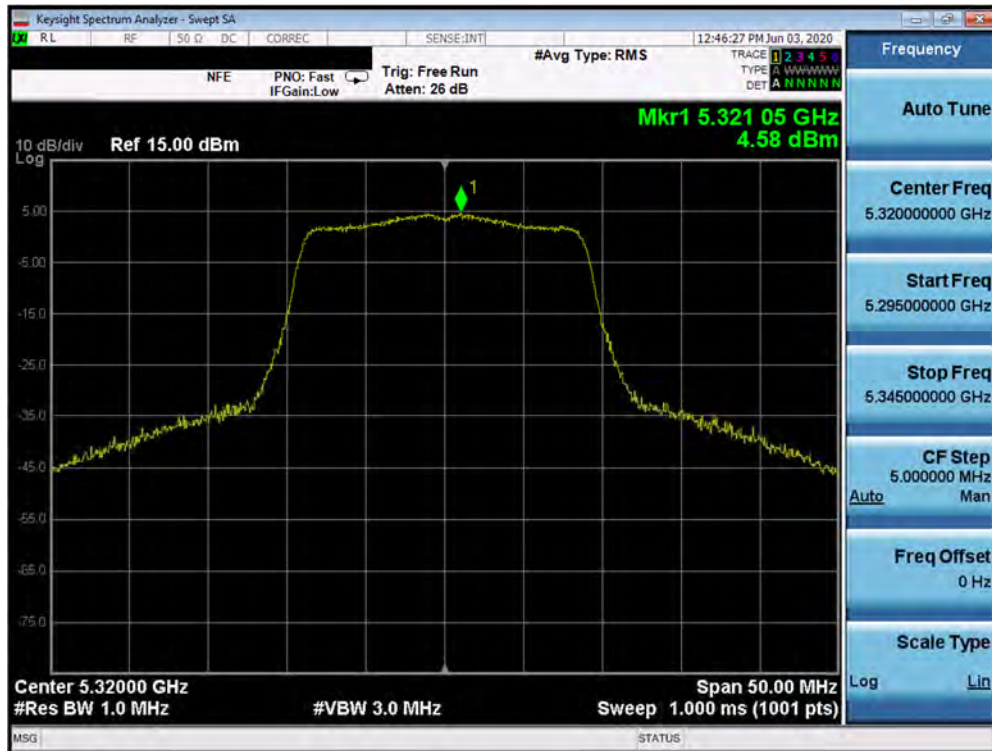


Plot 7-214. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 52)

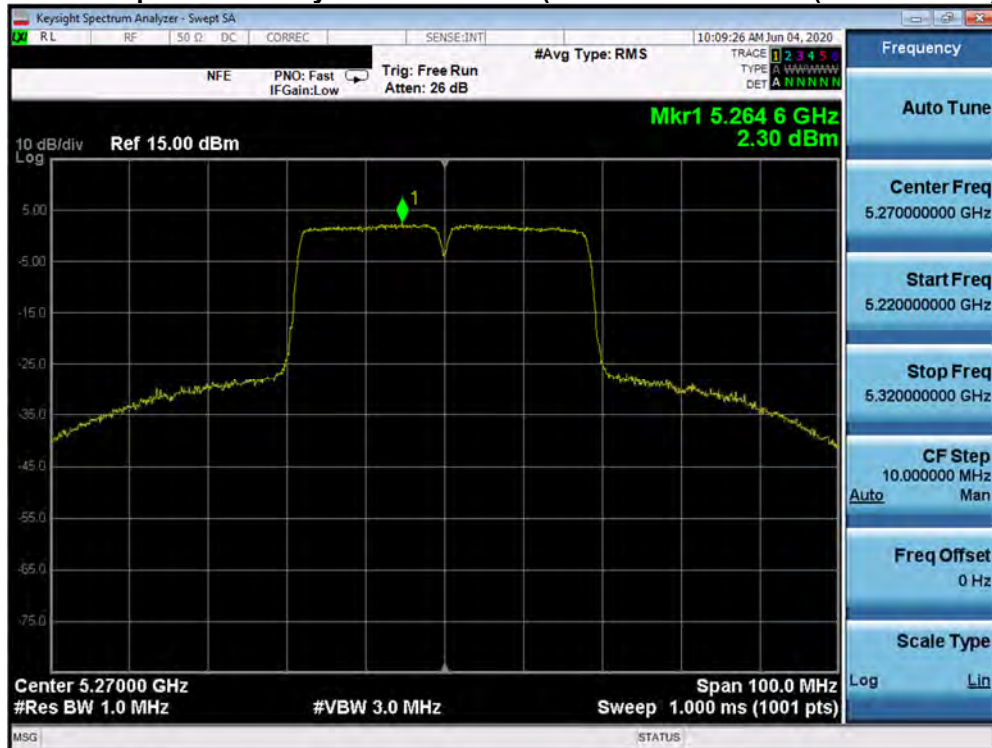


Plot 7-215. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 142 of 224

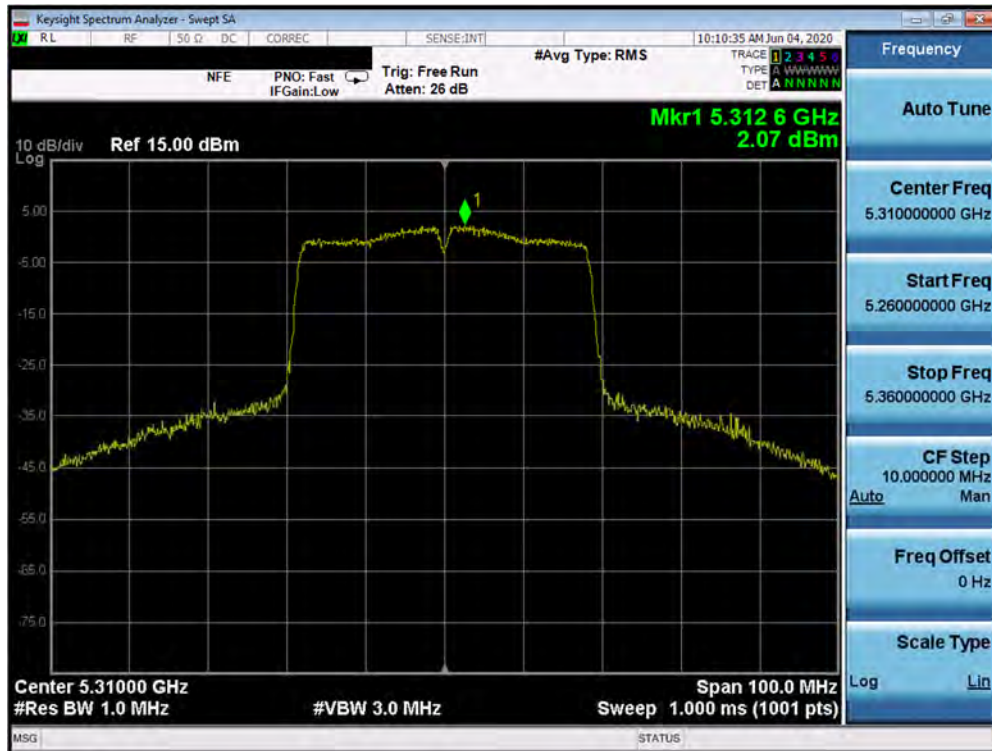


Plot 7-216. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 64)

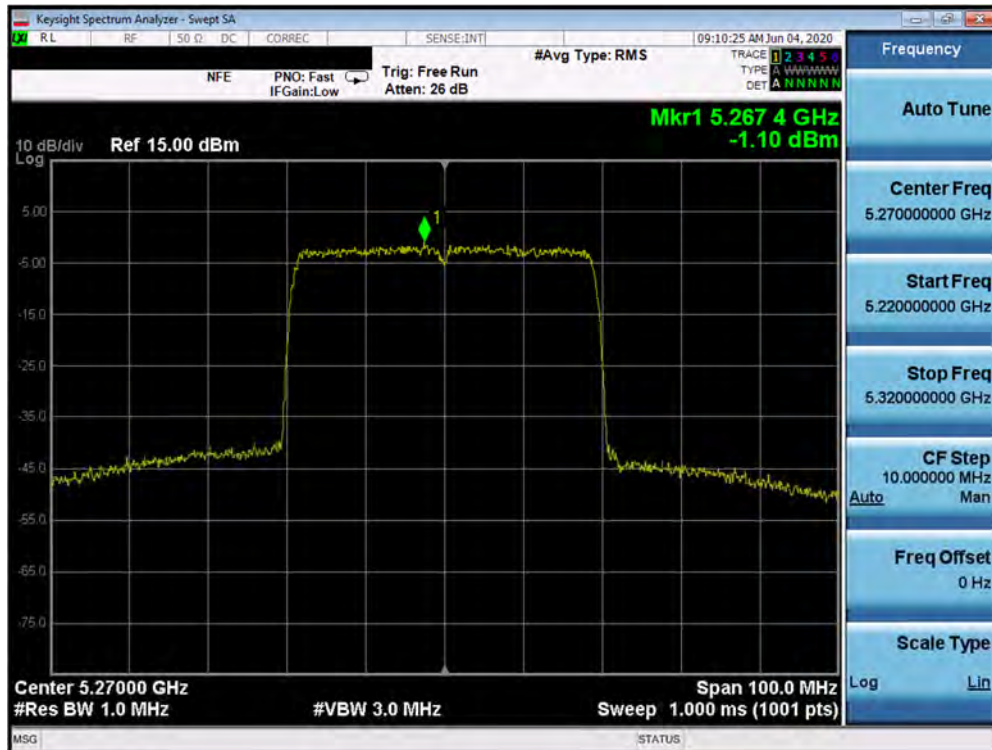


Plot 7-217. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 143 of 224

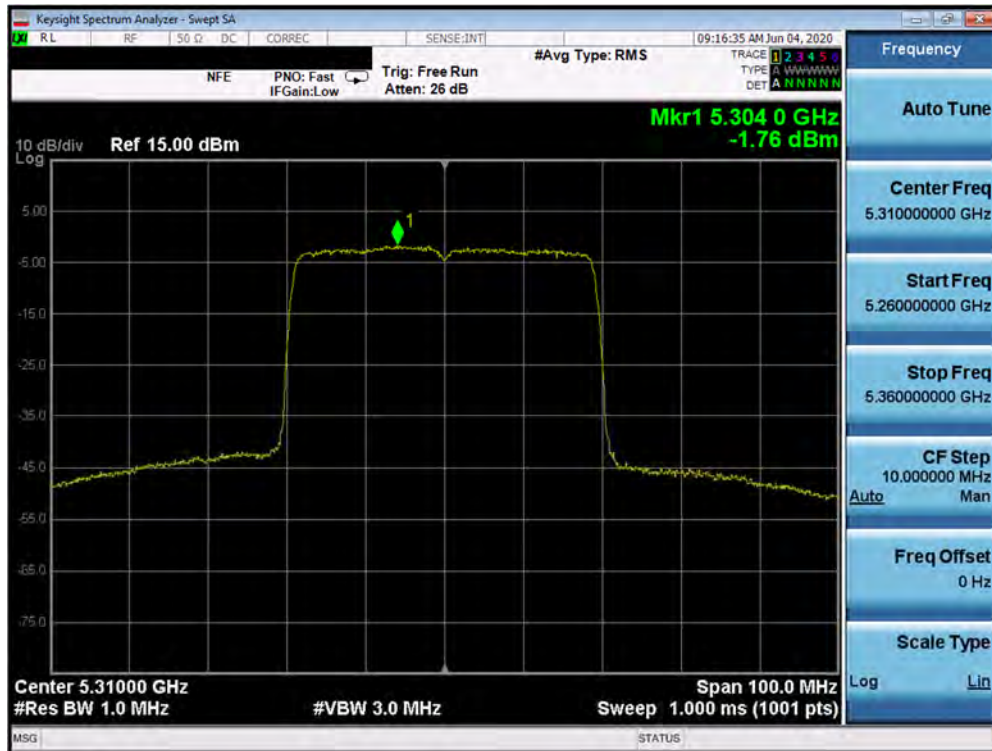


Plot 7-218. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

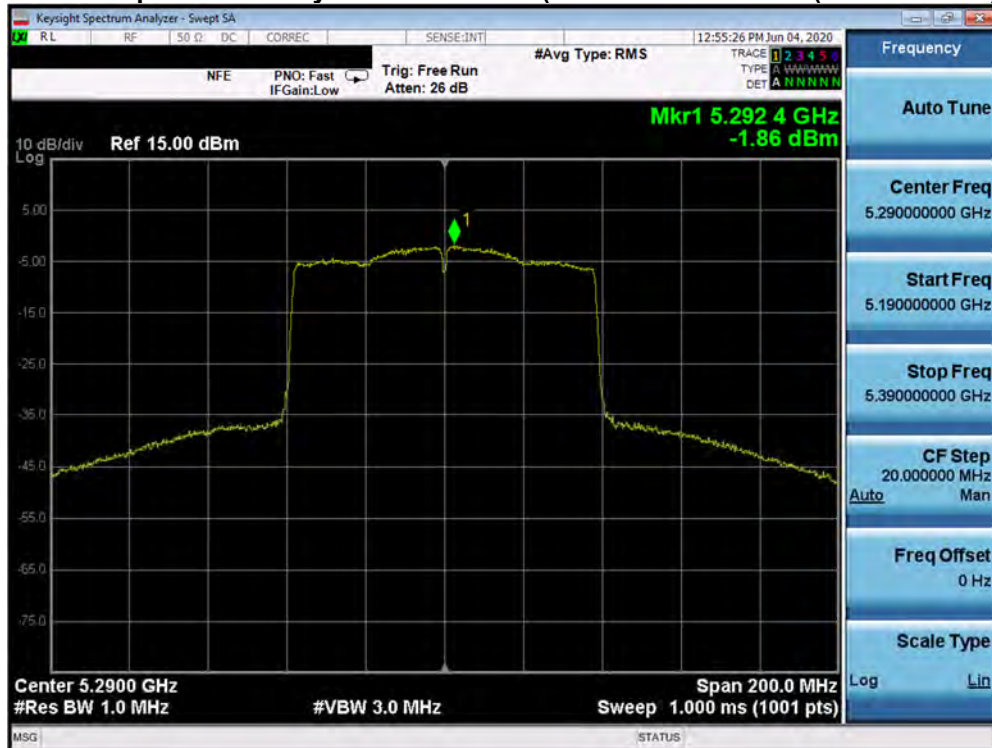


Plot 7-219. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 144 of 224

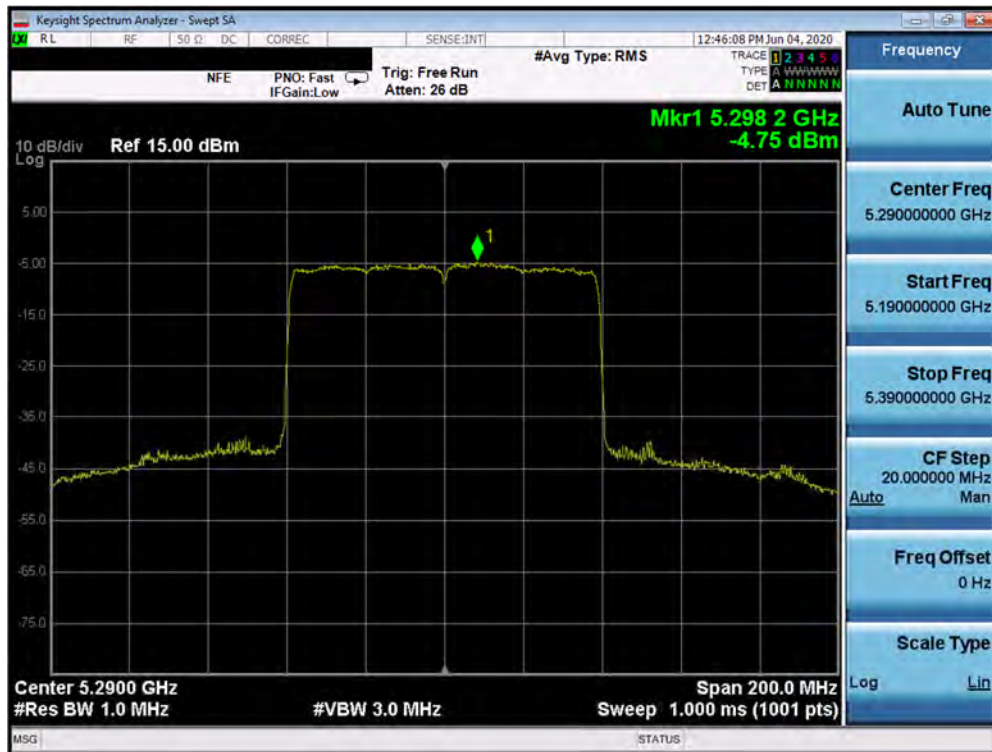


Plot 7-220. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 62)

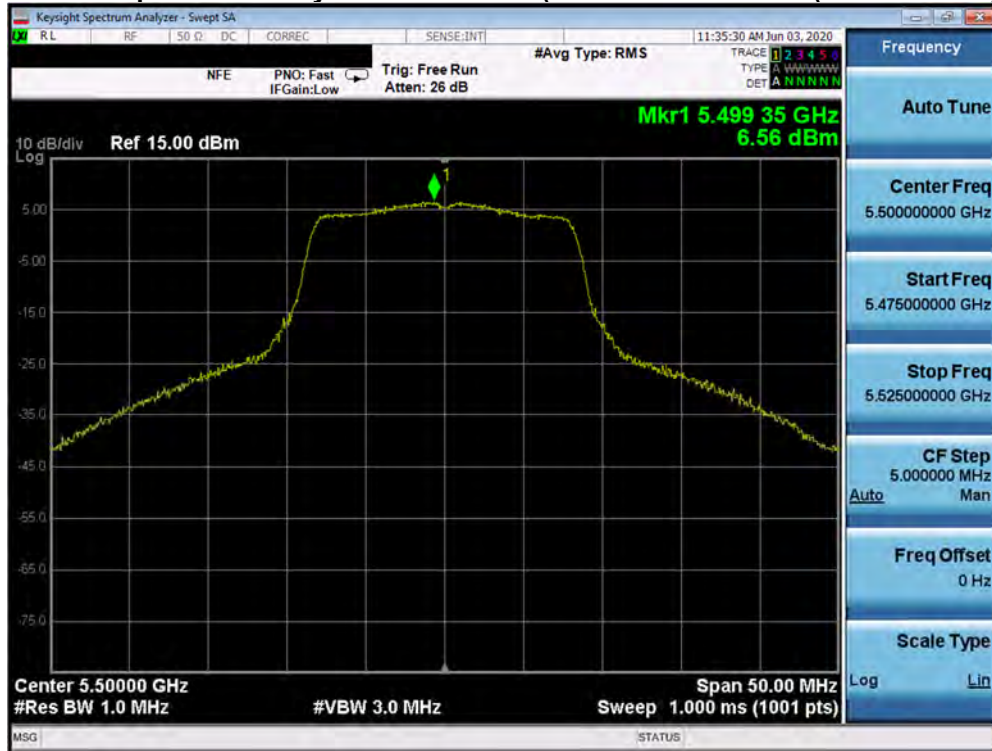


Plot 7-221. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 145 of 224

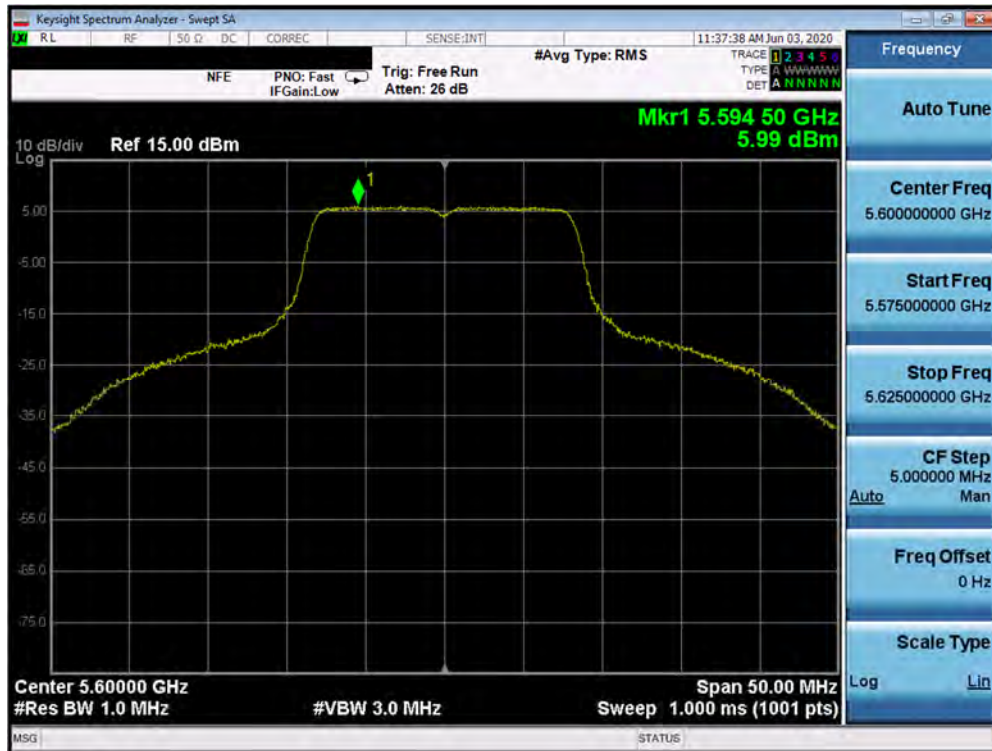


Plot 7-222. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2A) – Ch. 58)

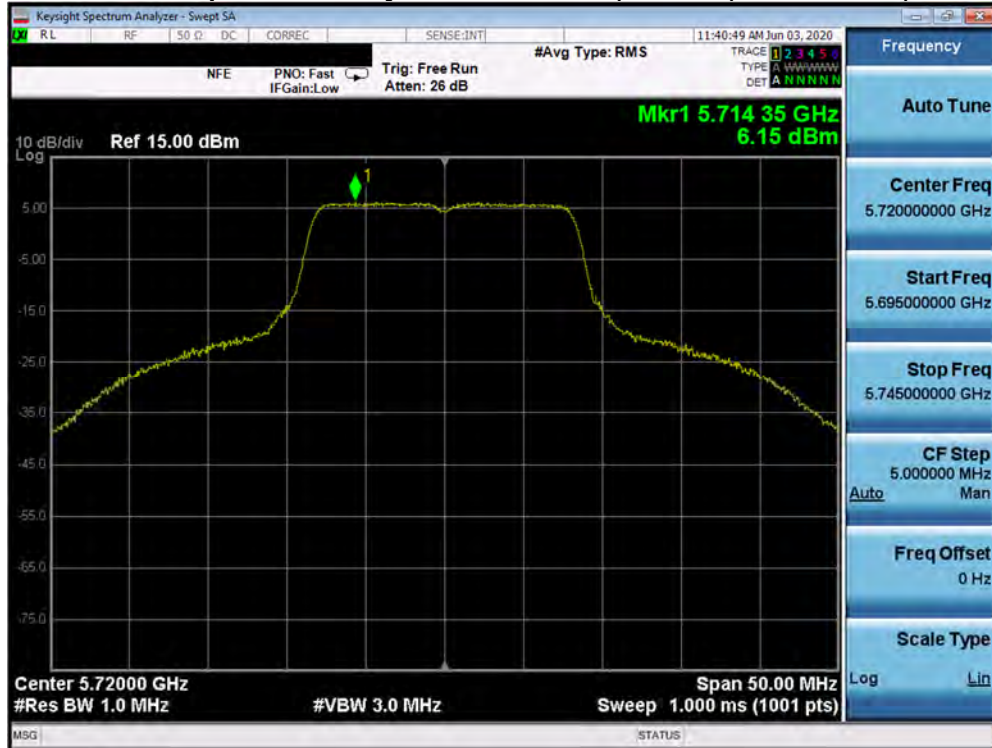


Plot 7-223. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 146 of 224

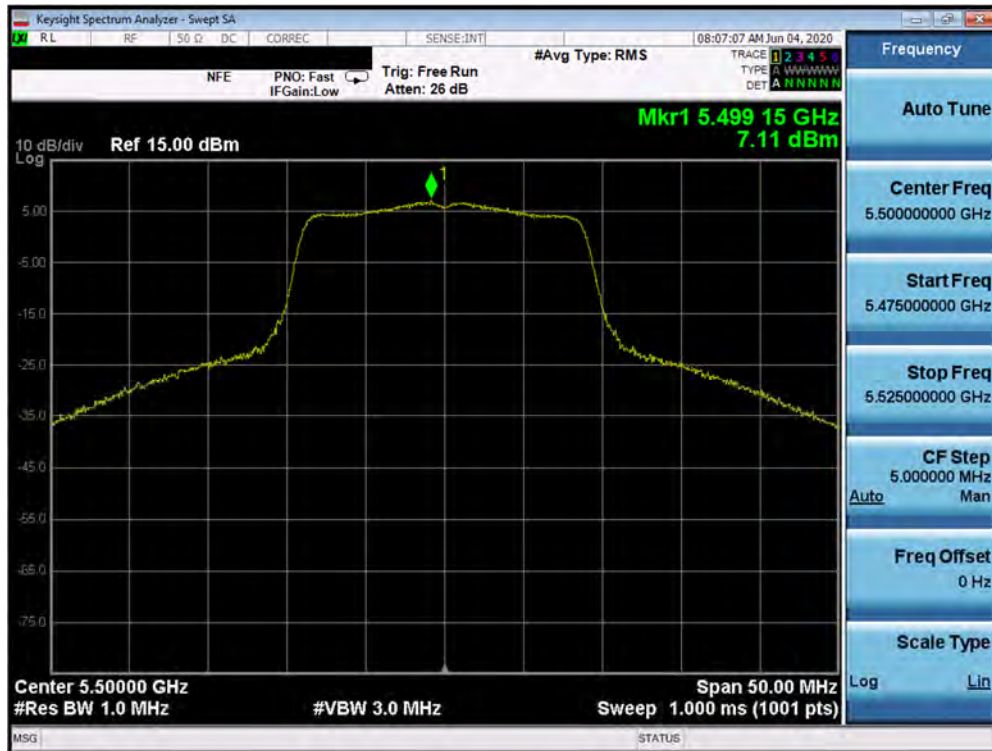


Plot 7-224. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 120)

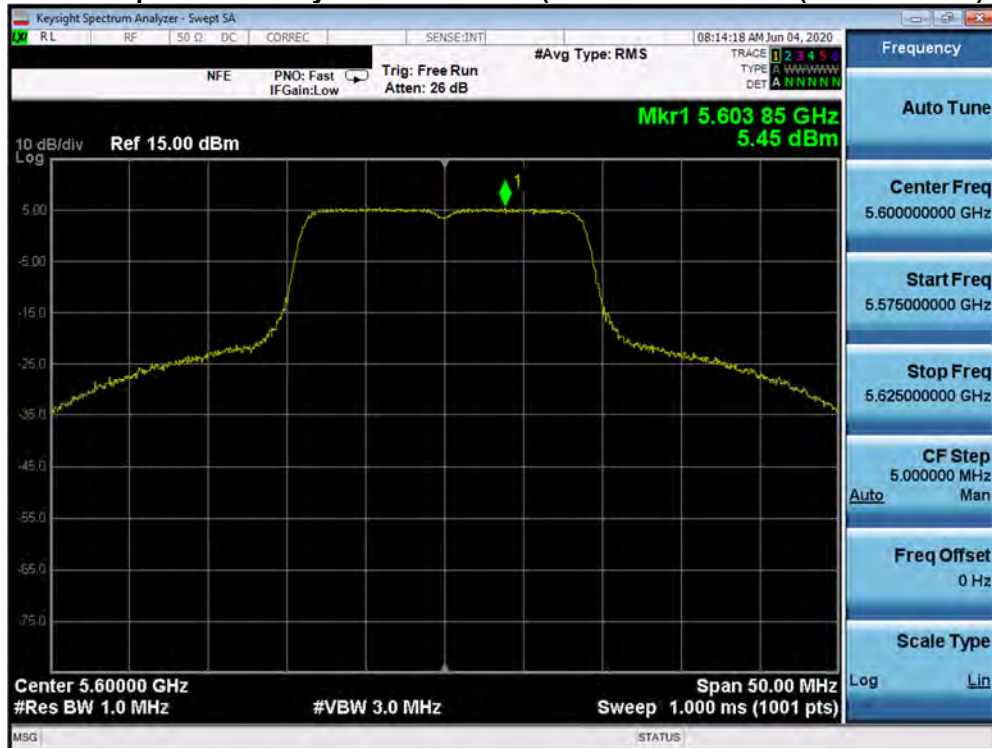


Plot 7-225. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 147 of 224

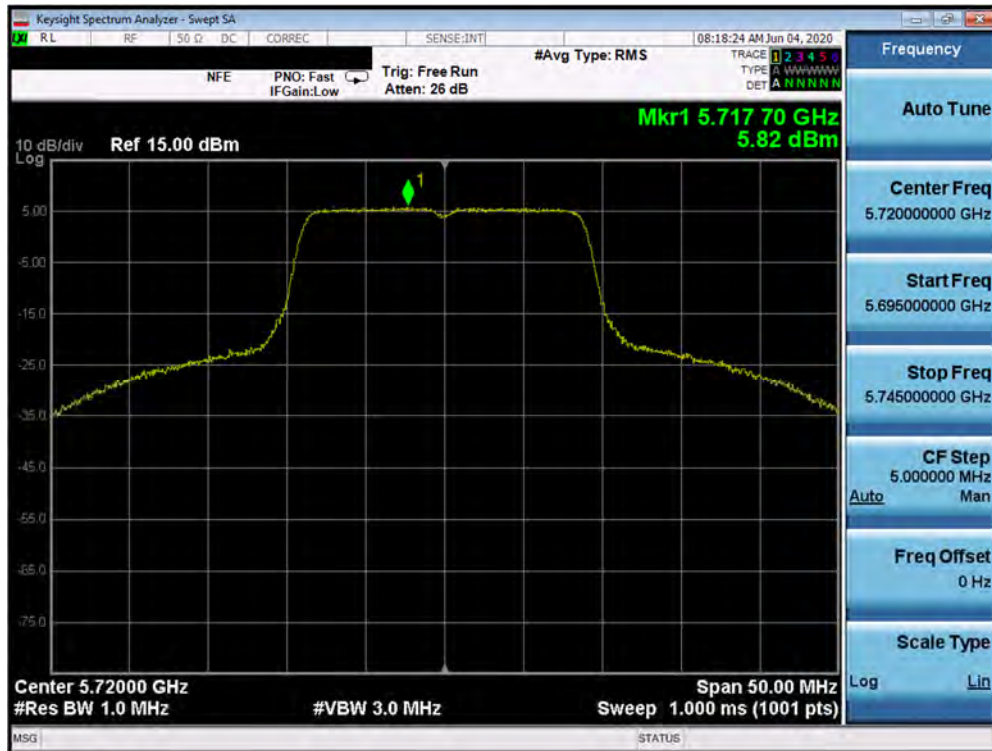


Plot 7-226. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

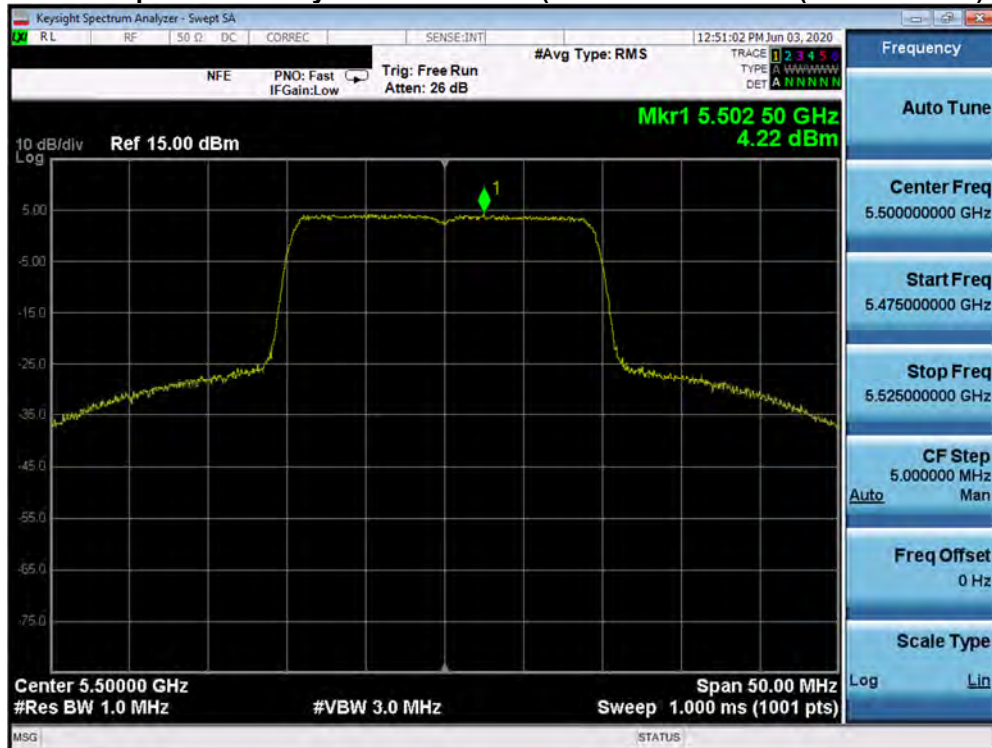


Plot 7-227. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 148 of 224

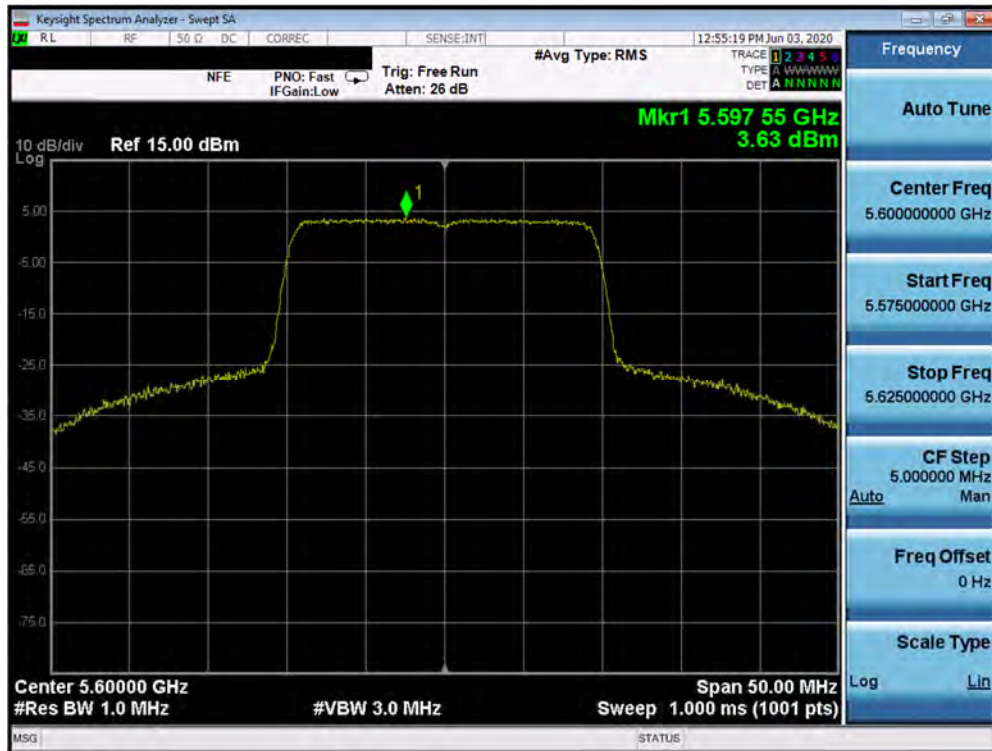


Plot 7-228. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

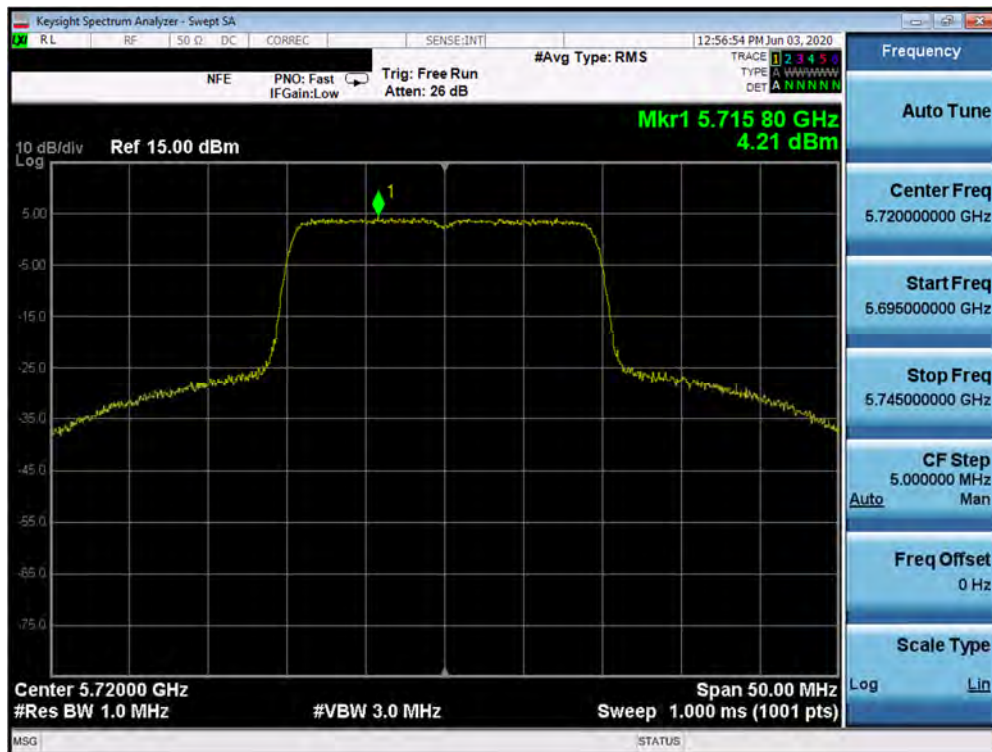


Plot 7-229. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 149 of 224

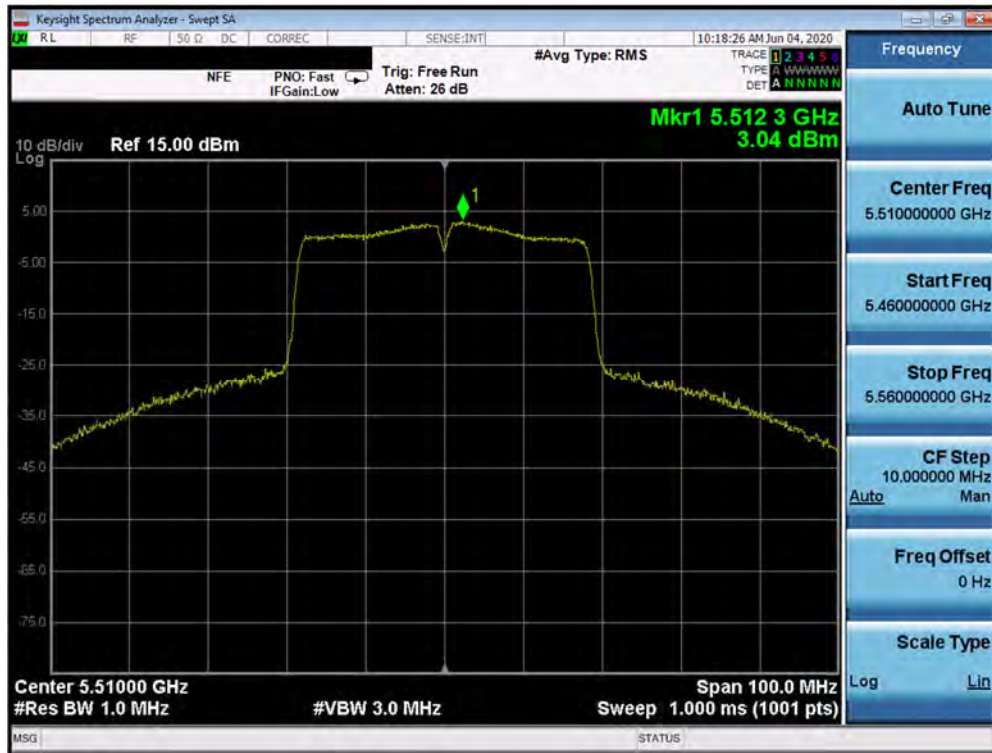


Plot 7-230. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 120)

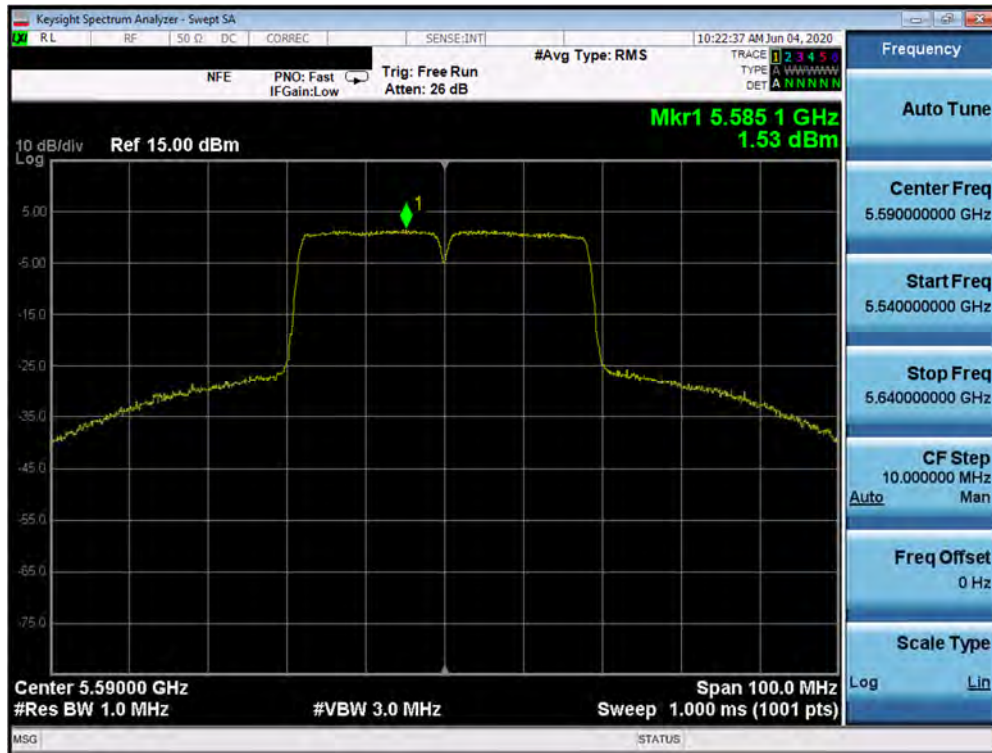


Plot 7-231. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 150 of 224

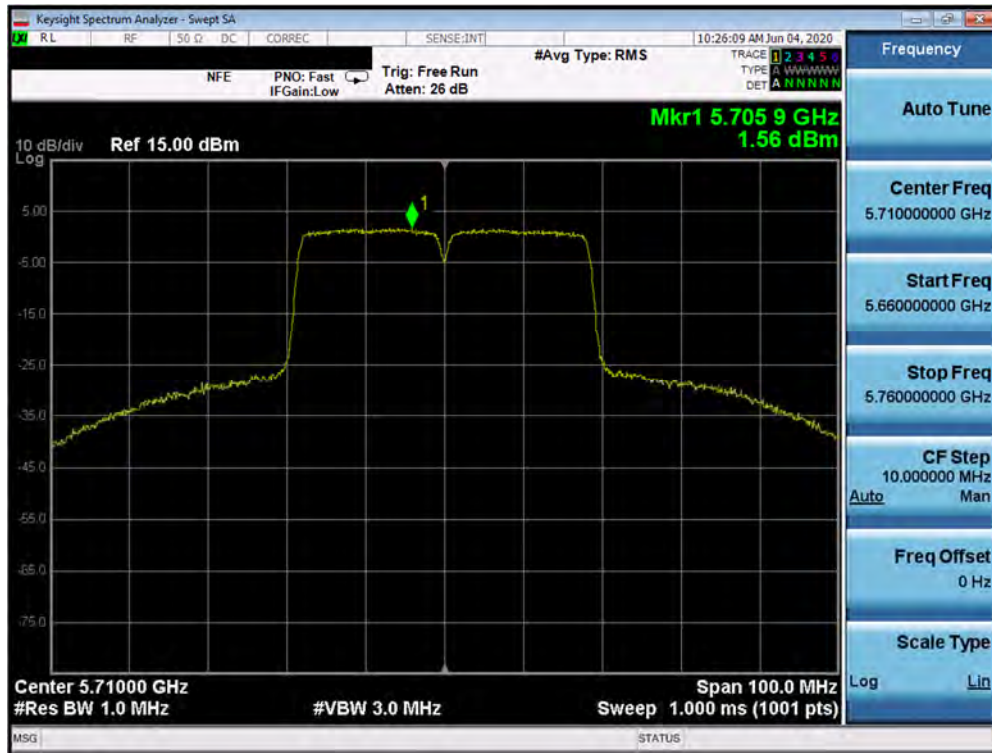


Plot 7-232. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

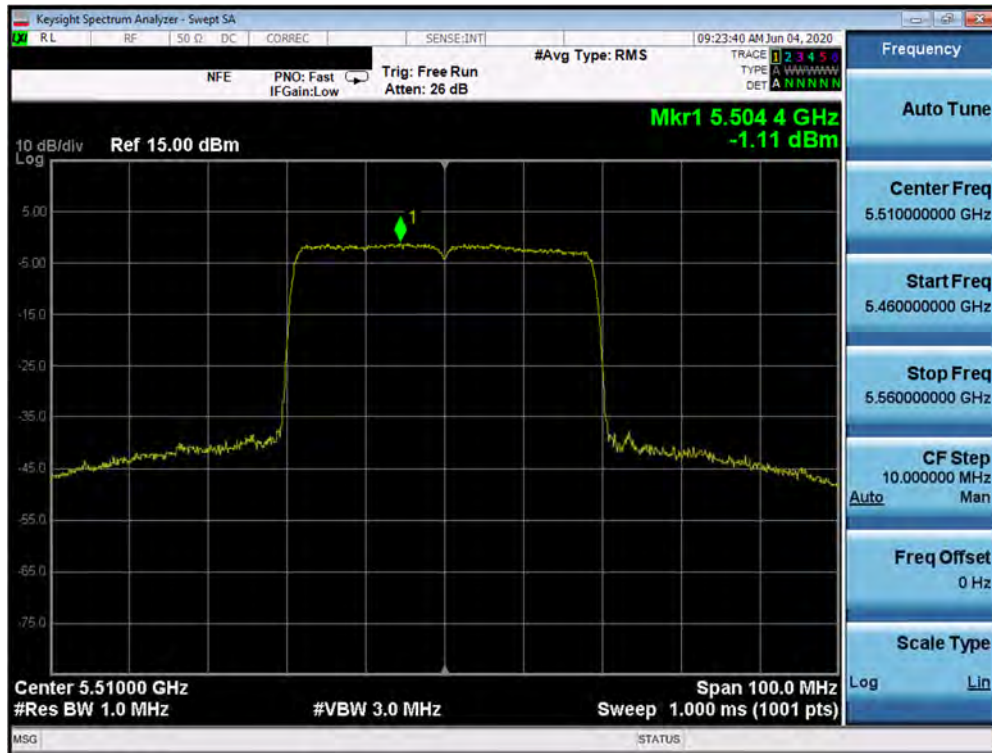


Plot 7-233. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMN981W	PCTEST Product to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 151 of 224

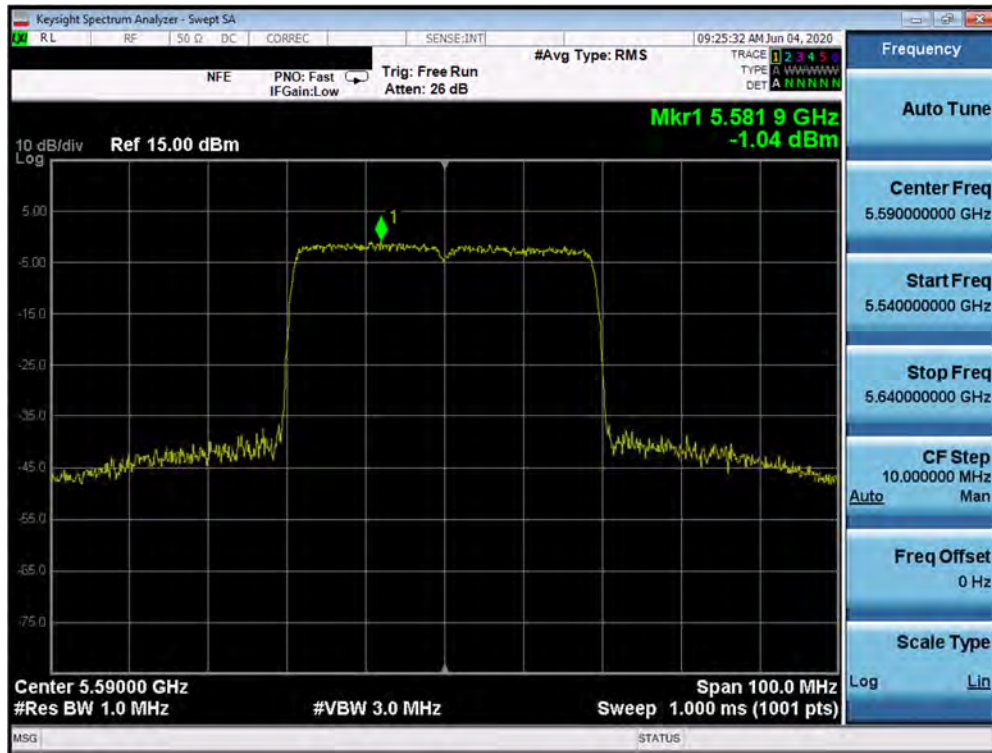


Plot 7-234. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

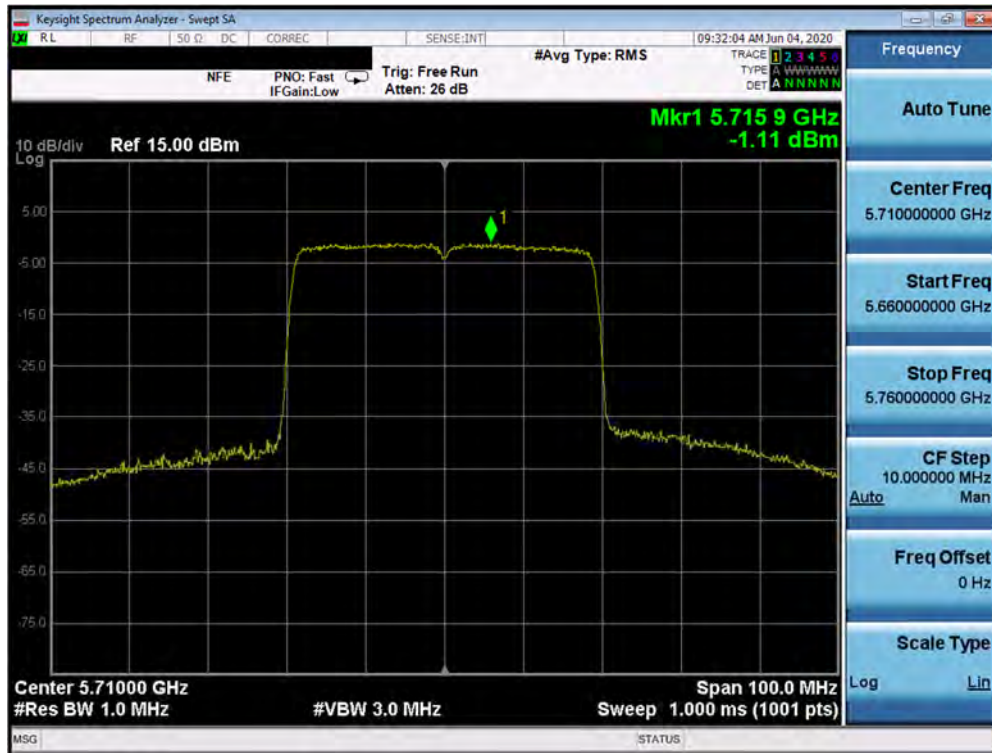


Plot 7-235. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 152 of 224

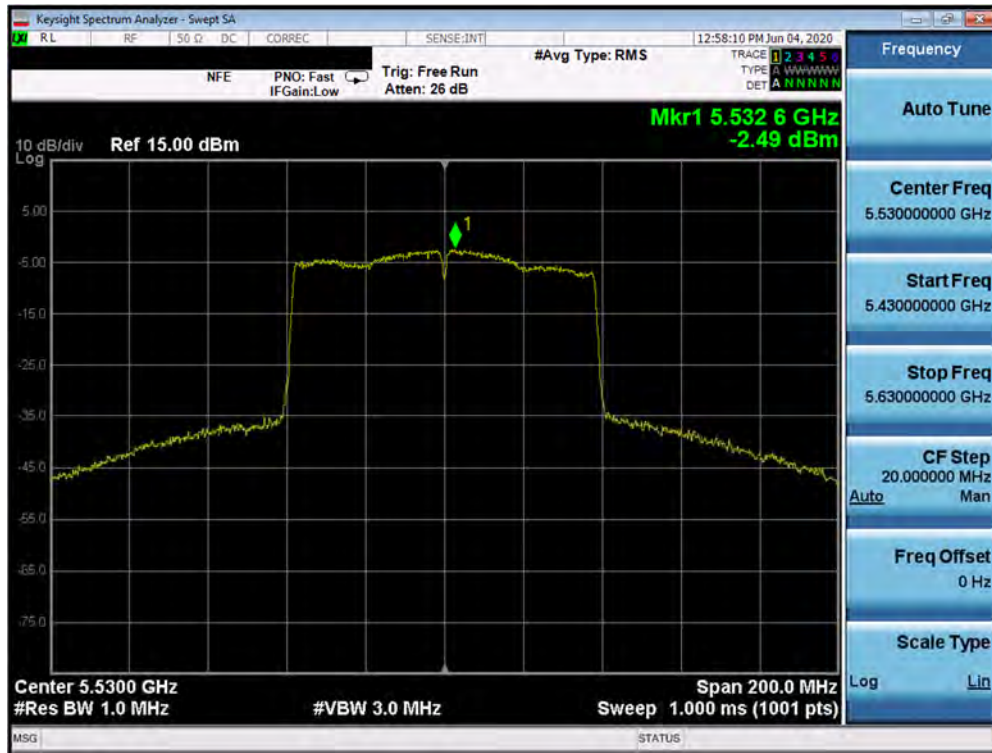


Plot 7-236. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 118)

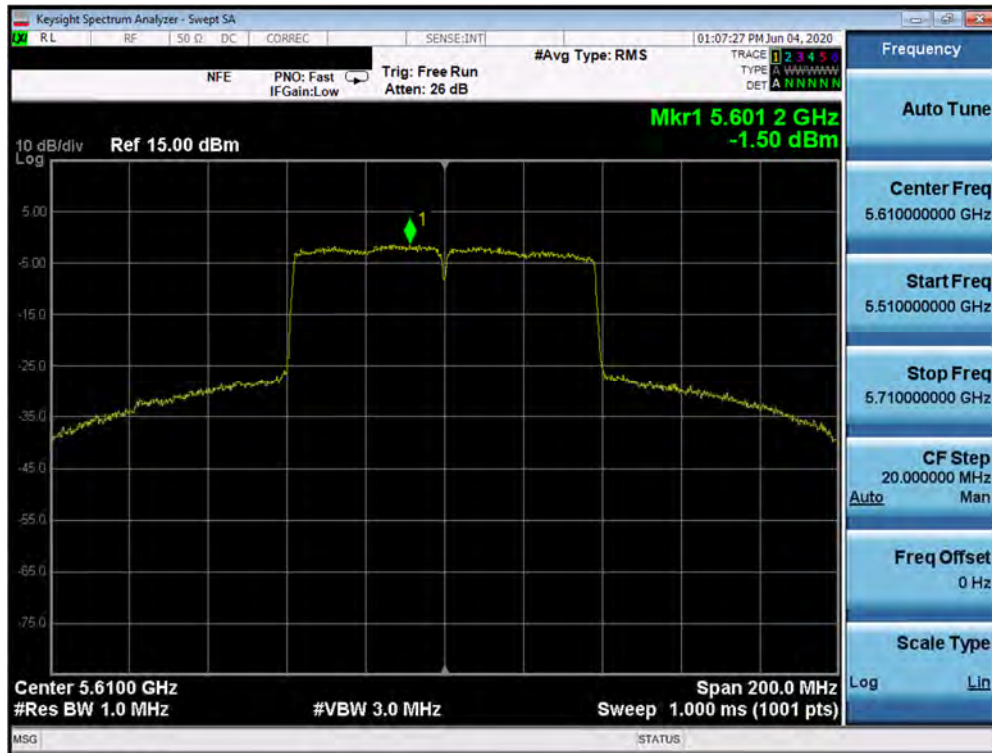


Plot 7-237. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 153 of 224

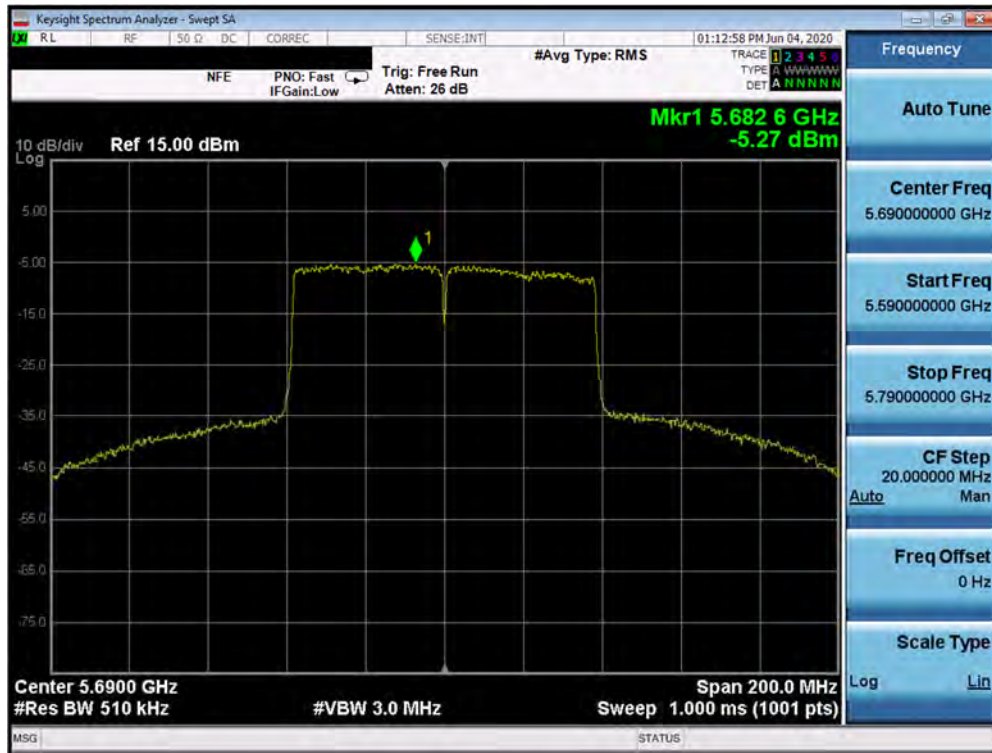


Plot 7-238. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

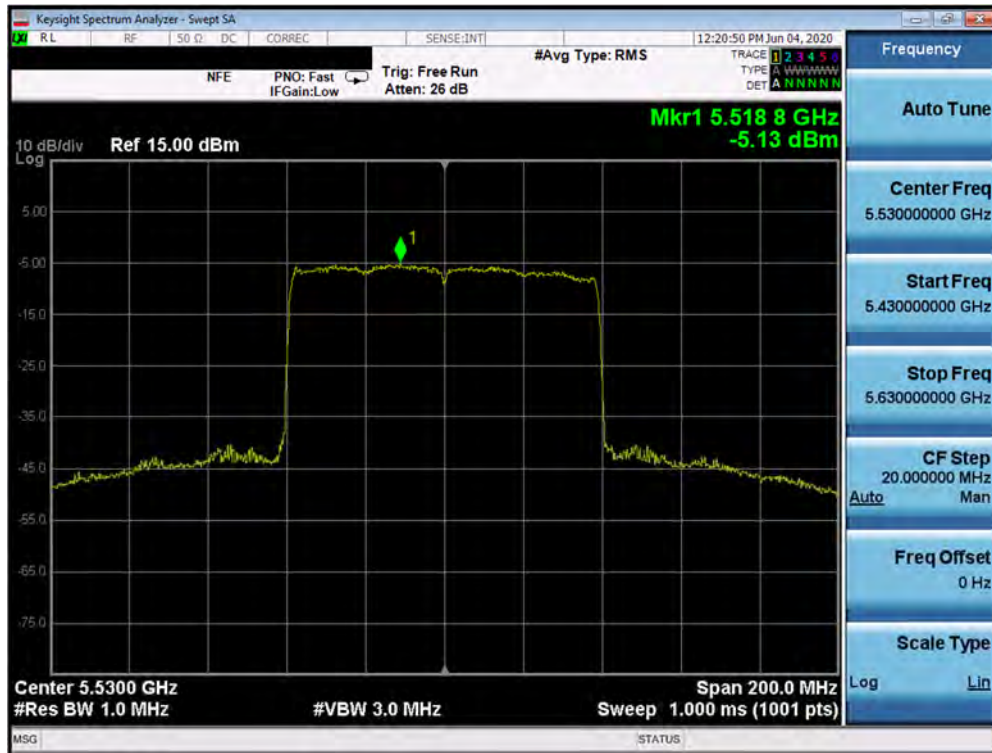


Plot 7-239. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 154 of 224

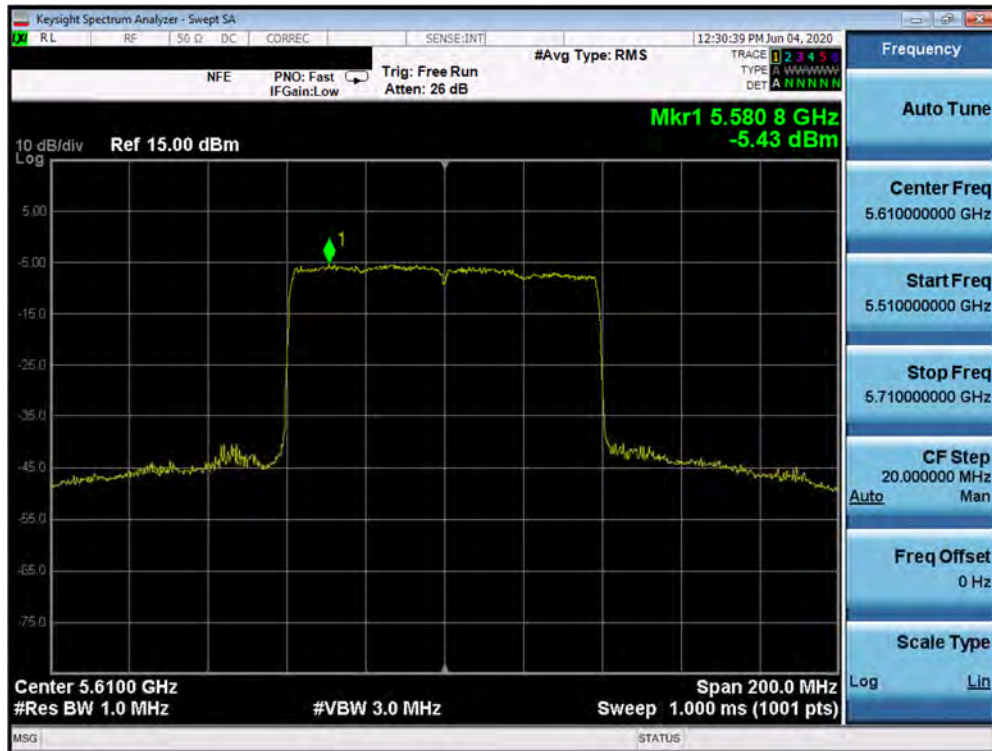


Plot 7-240. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

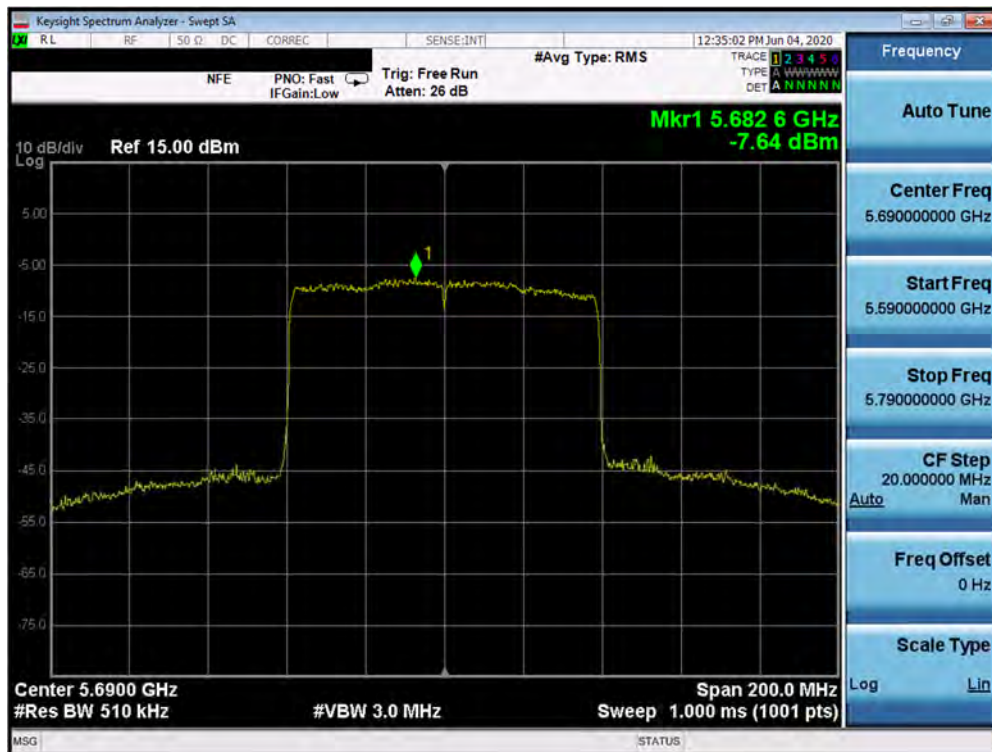


Plot 7-241. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 155 of 224



Plot 7-242. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 122)

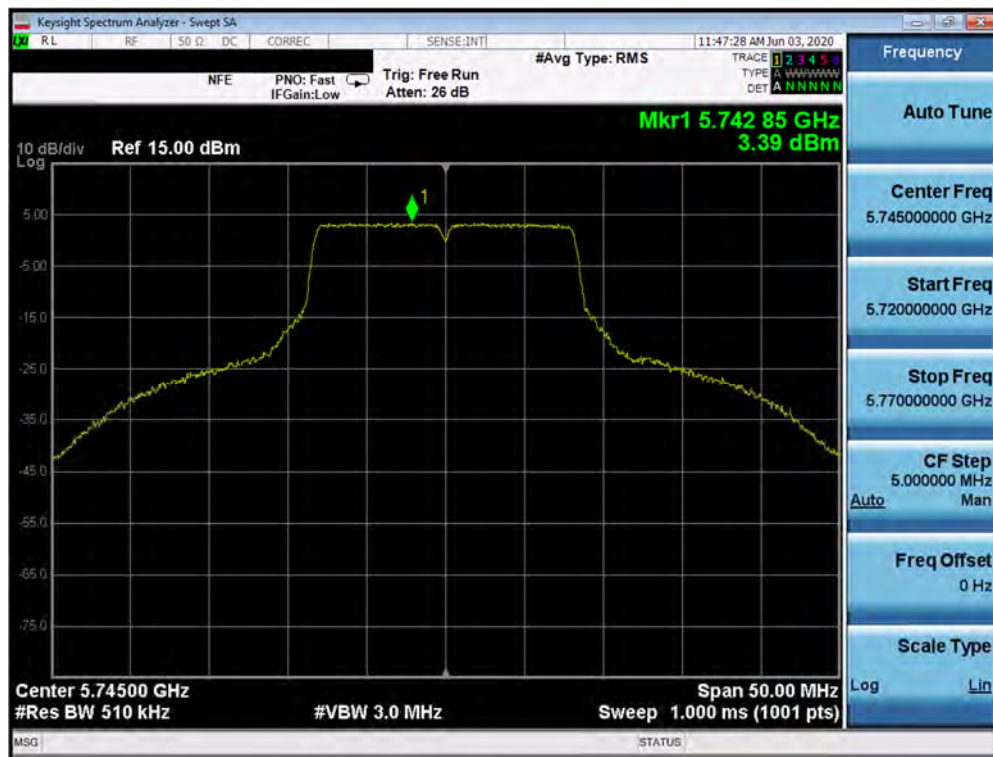


Plot 7-243. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 156 of 224

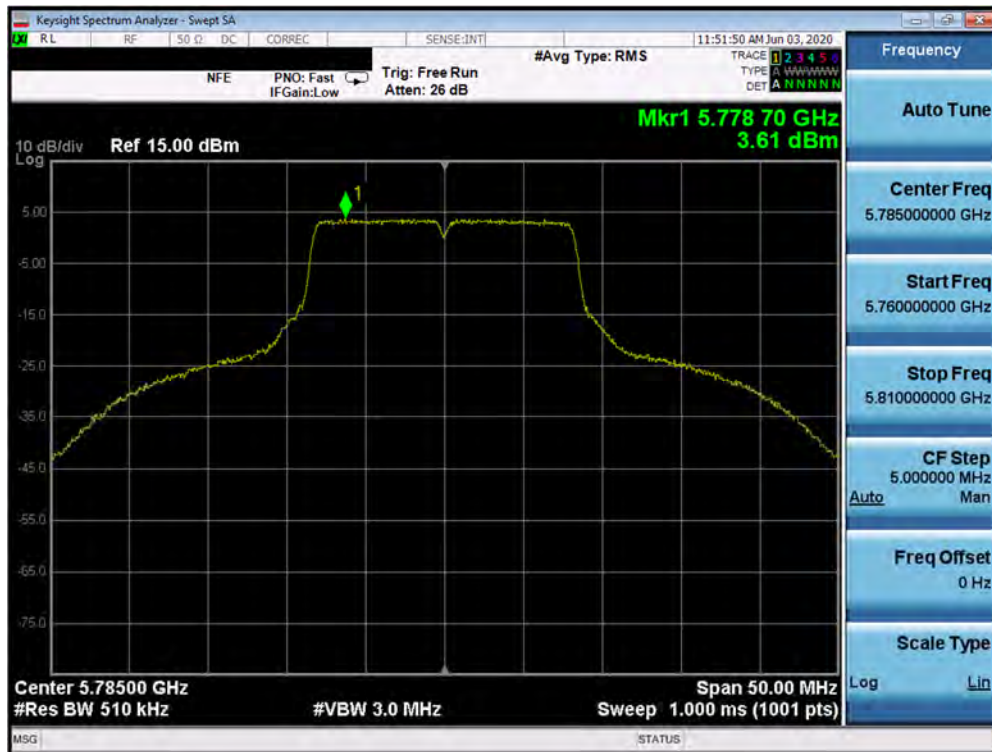
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6	3.39	30.0	-26.61
	5785	157	a	6	3.61	30.0	-26.39
	5825	165	a	6	3.40	30.0	-26.60
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	3.55	30.0	-26.45
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	3.43	30.0	-26.57
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	3.11	30.0	-26.89
	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	0.45	30.0	-29.55
	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	0.91	30.0	-29.09
	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	0.51	30.0	-29.49
	5755	151	n (40MHz)	13.5/15 (MCS0)	-1.56	30.0	-31.56
	5795	159	n (40MHz)	13.5/15 (MCS0)	-0.47	30.0	-30.47
	5755	151	ax (40MHz)	13.5/15 (MCS0)	-4.14	30.0	-34.14
	5795	159	ax (40MHz)	13.5/15 (MCS0)	-4.26	30.0	-34.26
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-1.23	30.0	-31.23
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	-5.85	30.0	-35.85

Table 7-26. Band 3 Conducted Power Spectral Density Measurements SISO ANT2

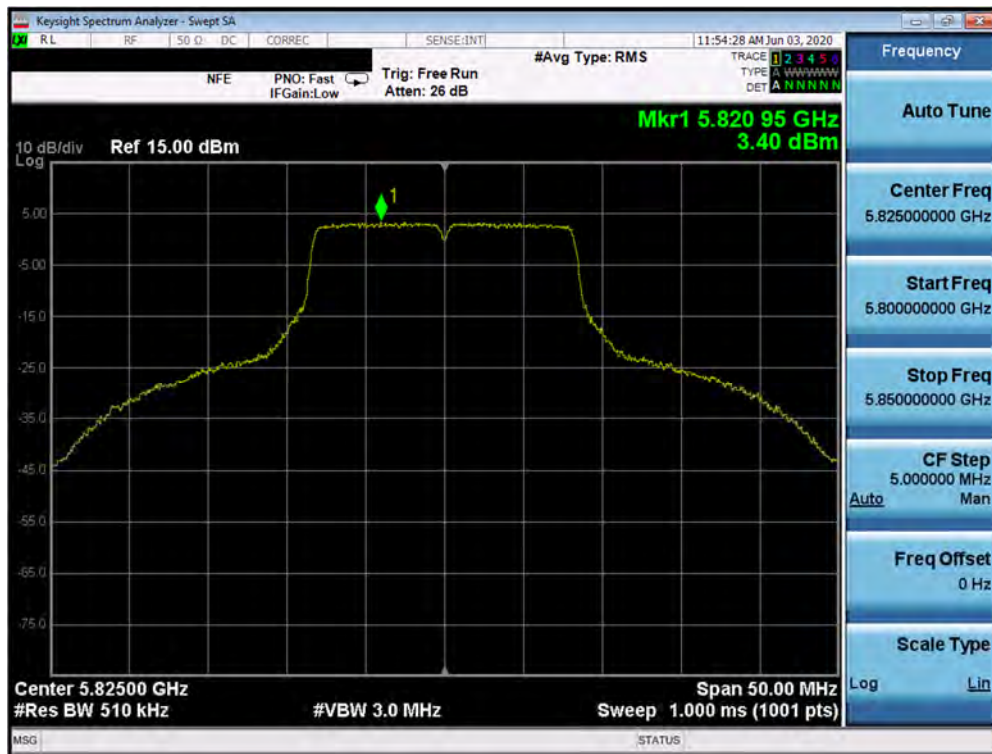


Plot 7-244. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 149)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 157 of 224

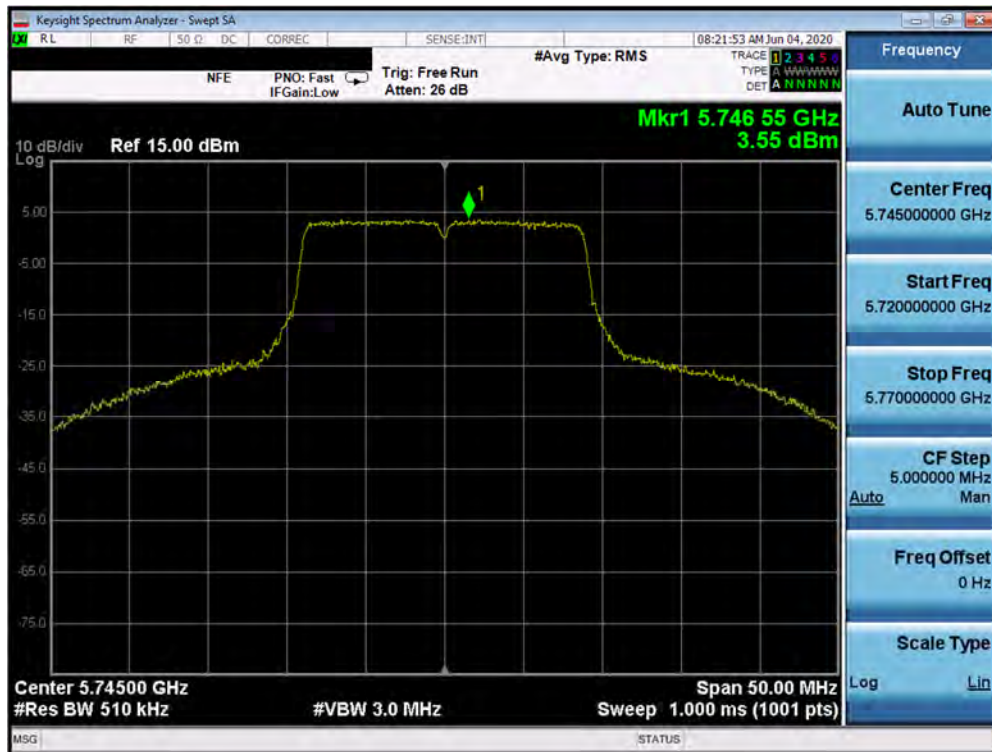


Plot 7-245. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 157)

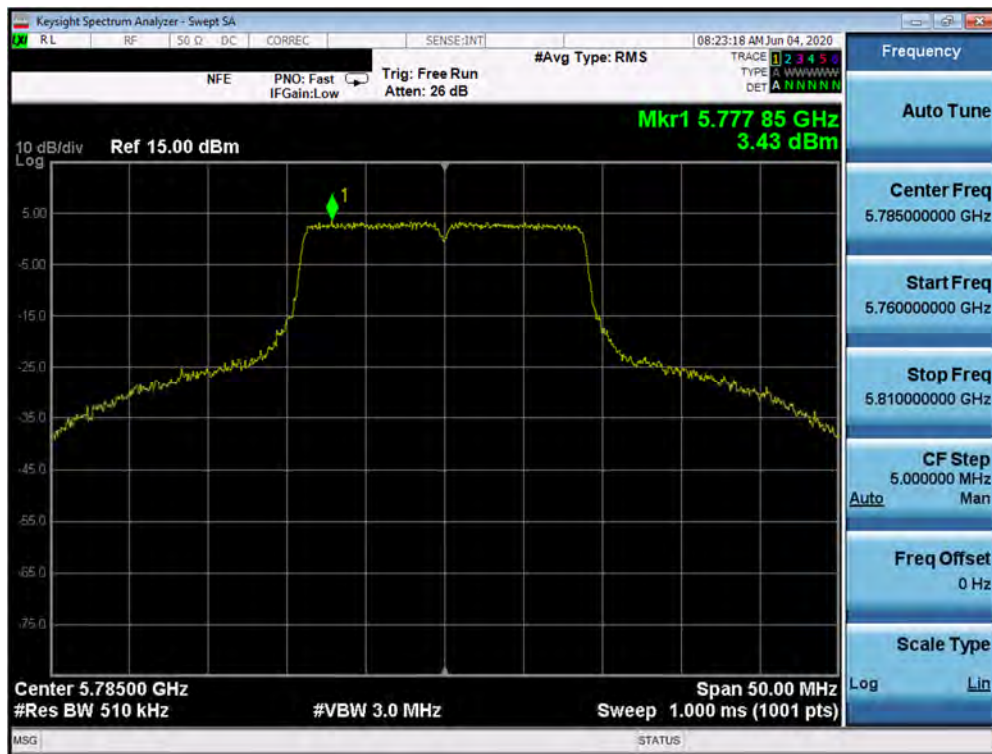


Plot 7-246. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 158 of 224

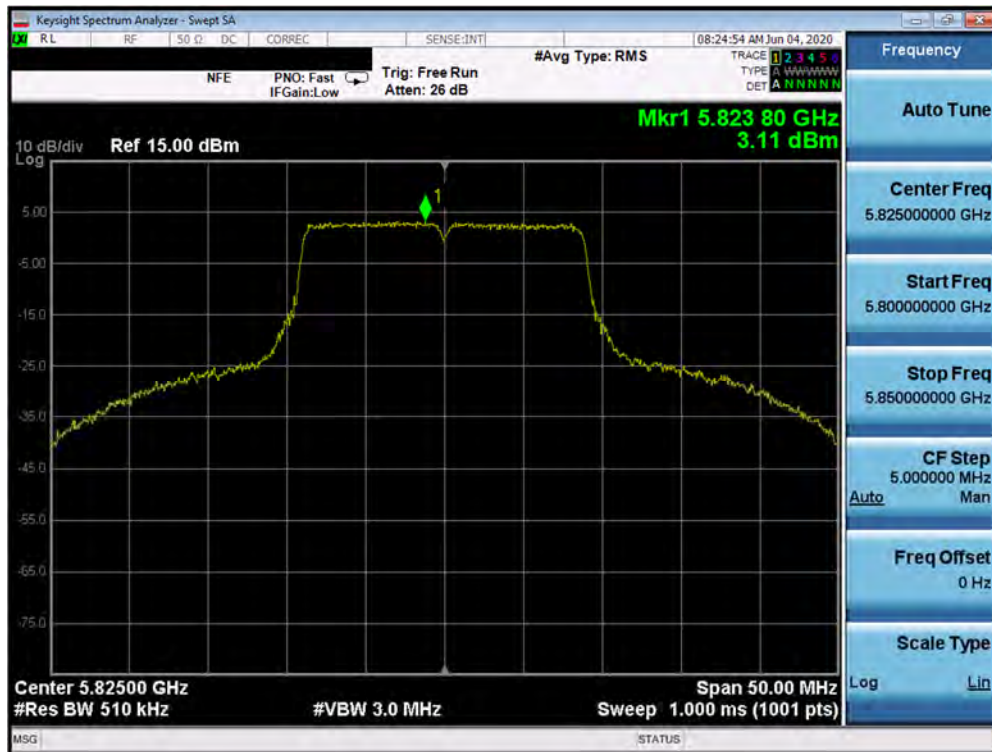


Plot 7-247. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

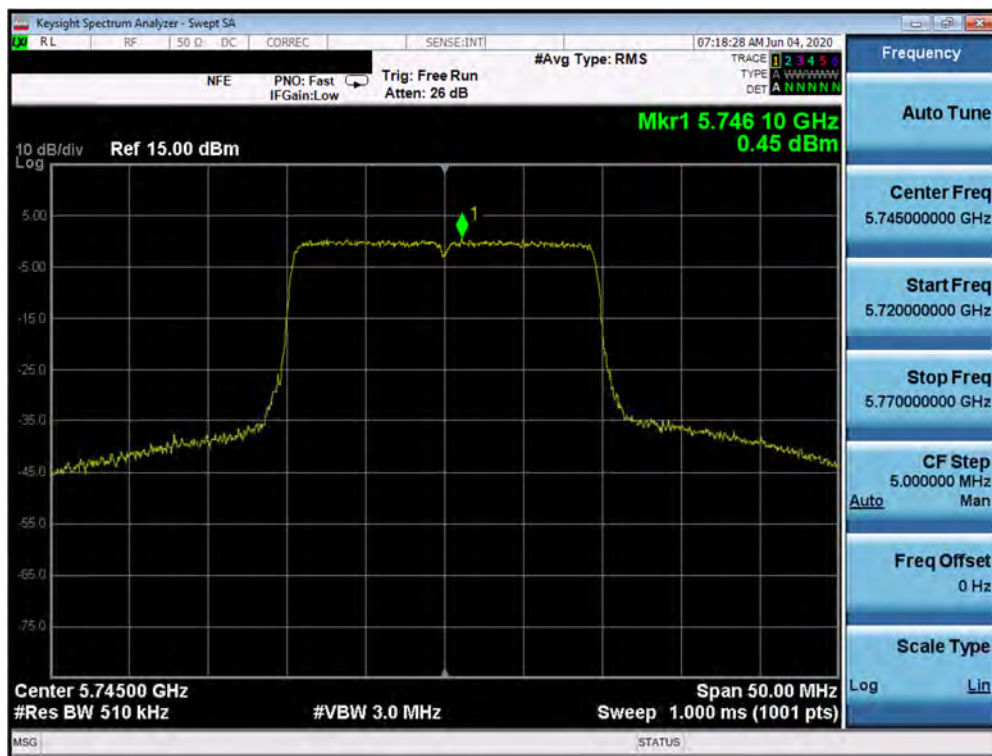


Plot 7-248. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 159 of 224

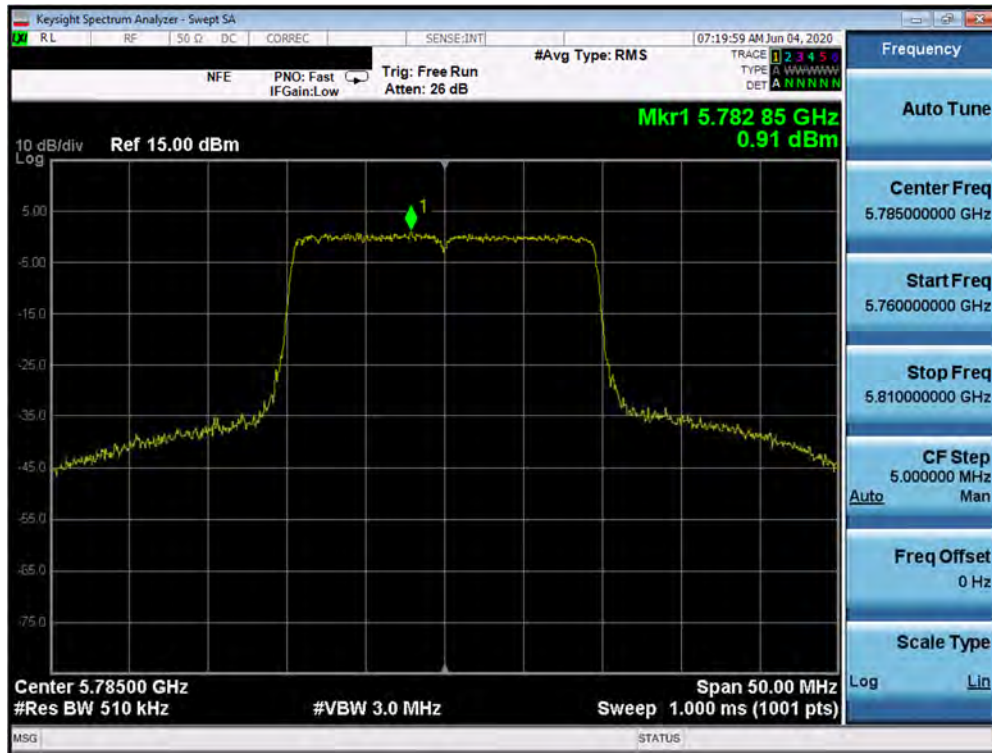


Plot 7-249. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

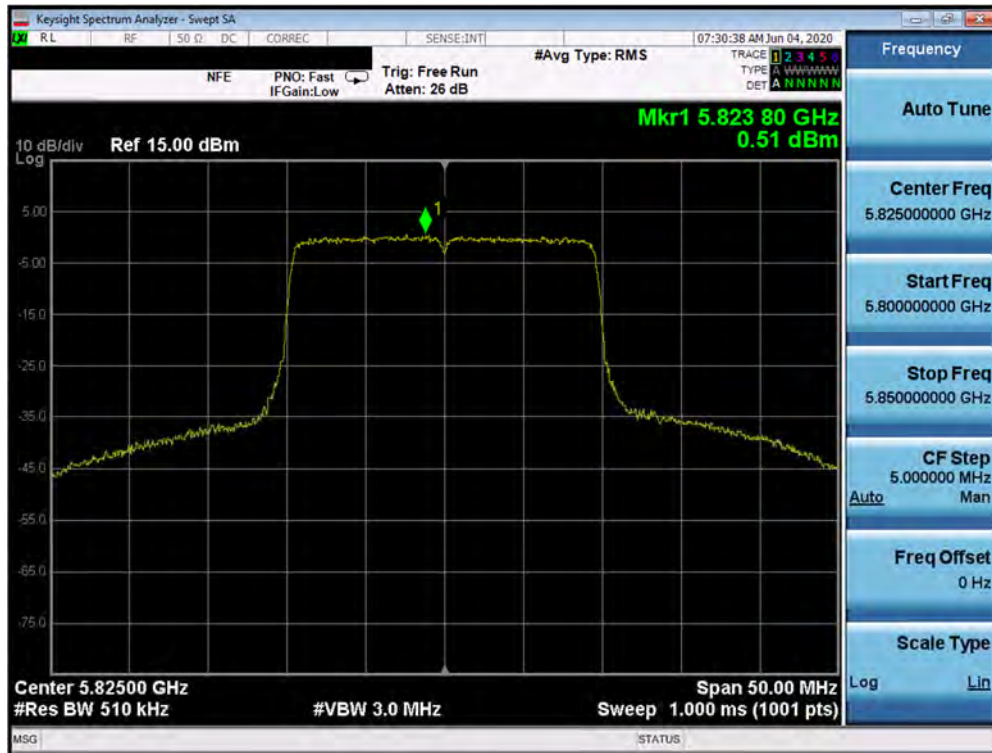


Plot 7-250. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 149)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 160 of 224

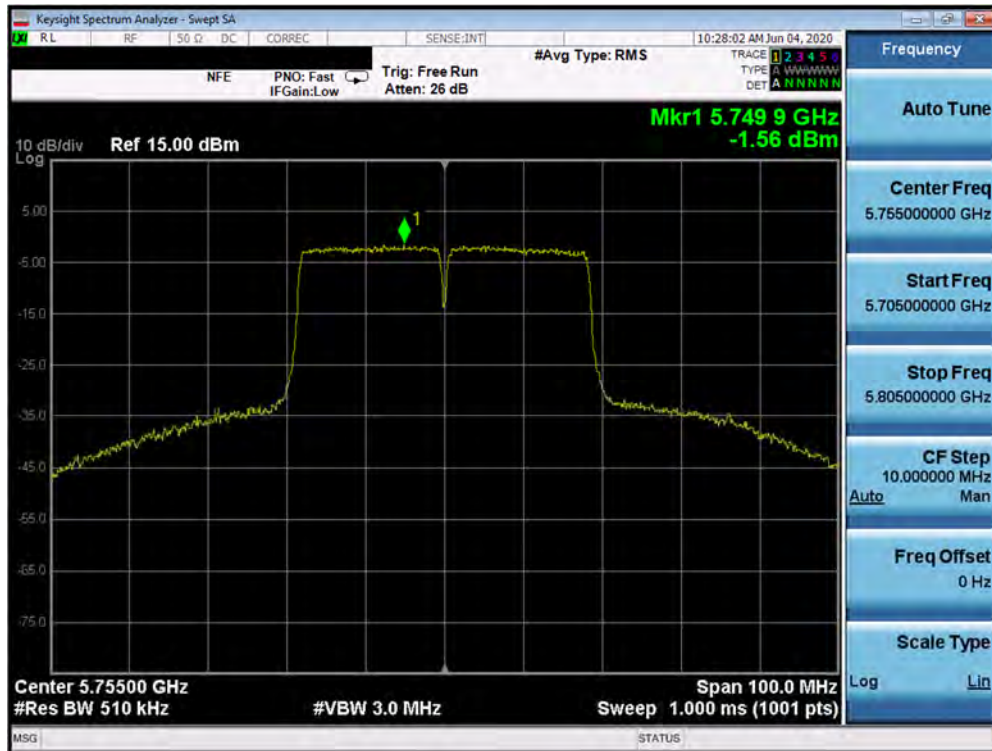


Plot 7-251. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 157)

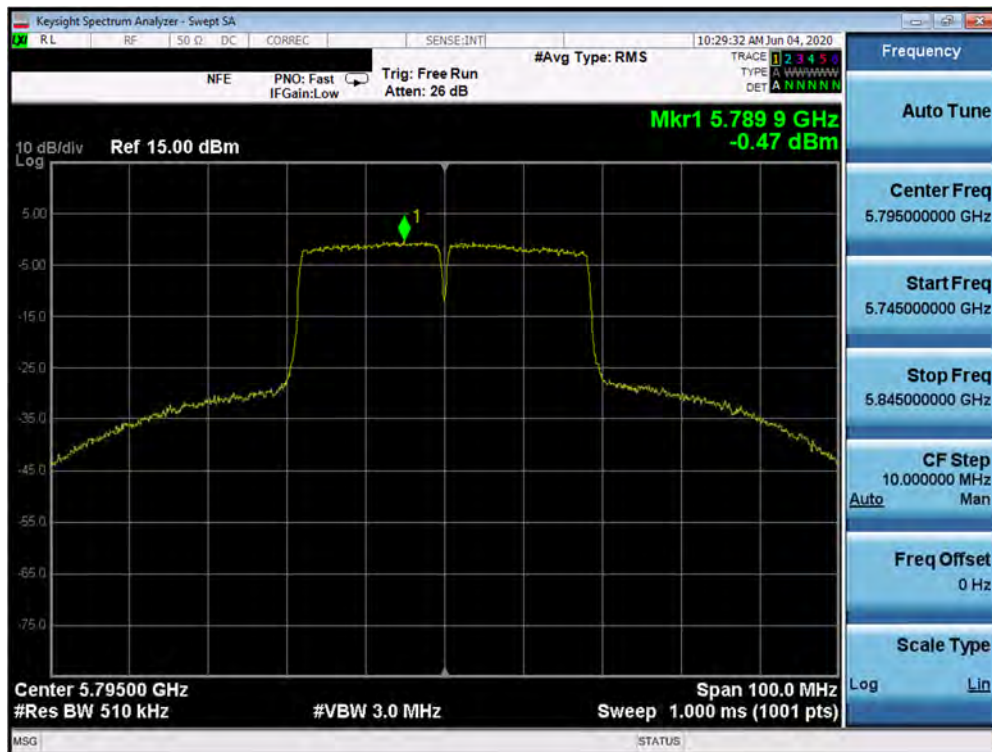


Plot 7-252. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 161 of 224

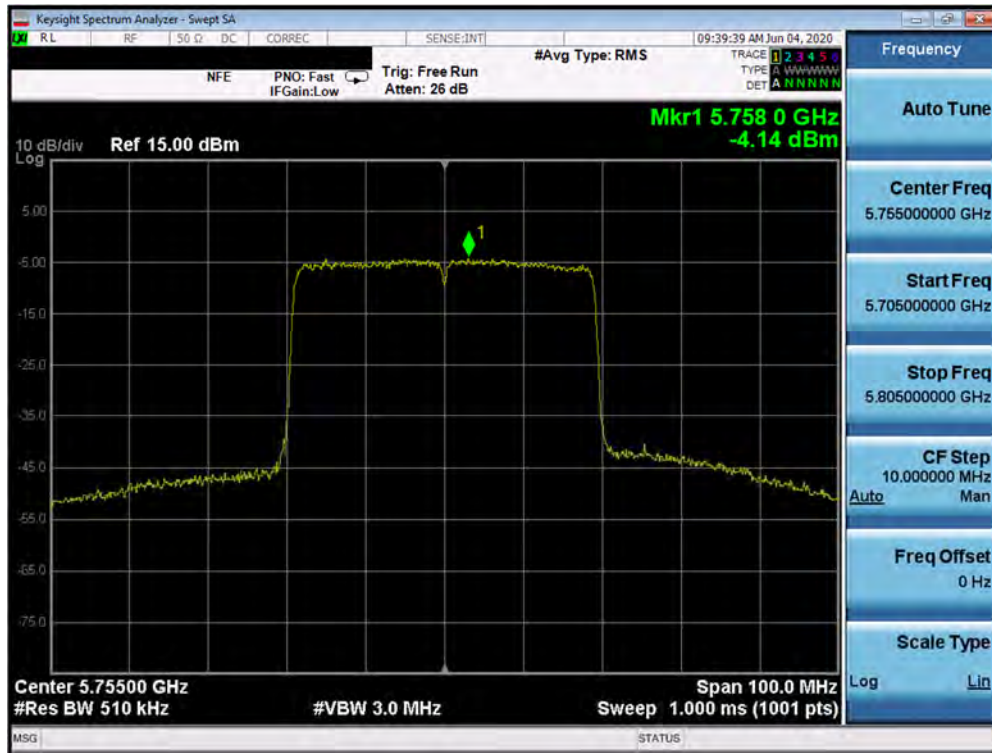


Plot 7-253. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

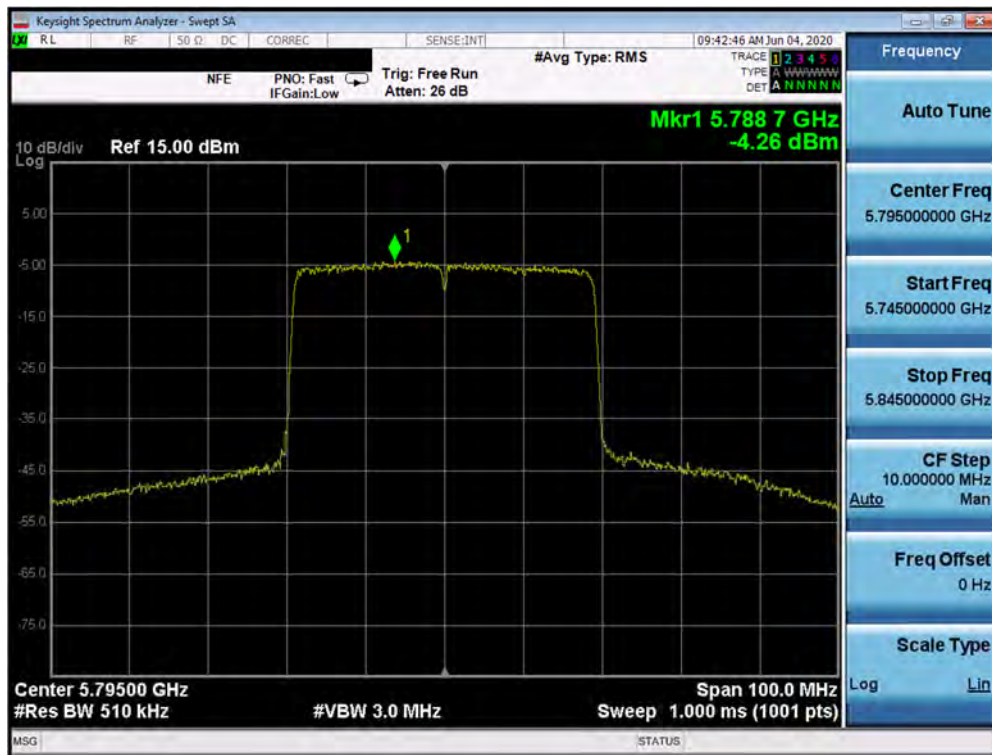


Plot 7-254. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 162 of 224



Plot 7-255. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)

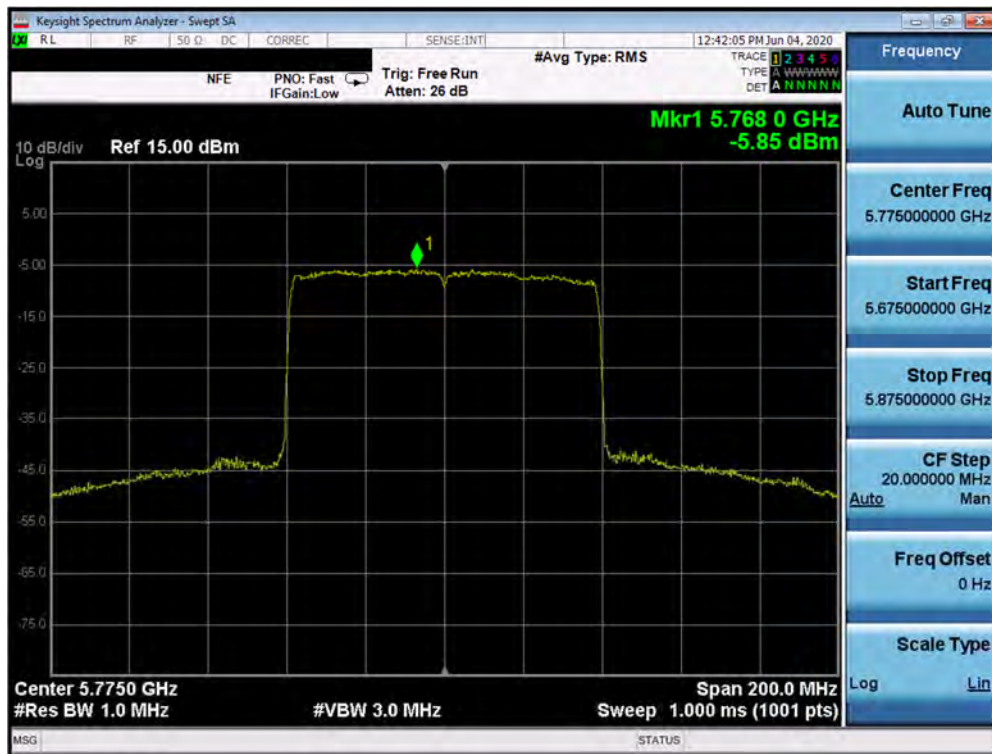


Plot 7-256. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 159)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 163 of 224



Plot 7-257. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)



Plot 7-258. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 3) – Ch. 155)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-09-R1.A3L	Test Dates: 5/5 - 7/7/2020	EUT Type: Portable Handset		Page 164 of 224

Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	5.58	6.33	8.98	11.0	-2.02
	5200	40	a	6	4.73	7.22	9.16	11.0	-1.84
	5240	48	a	6	5.32	7.41	9.50	11.0	-1.50
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	4.69	7.82	9.55	11.0	-1.45
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	4.51	6.80	8.82	11.0	-2.18
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	5.18	6.57	8.94	11.0	-2.06
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	1.45	4.48	6.23	11.0	-4.77
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	1.70	4.27	6.18	11.0	-4.82
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	2.18	4.30	6.38	11.0	-4.62
	5190	38	n (40MHz)	13.5/15 (MCS0)	0.93	3.71	5.55	11.0	-5.45
	5230	46	n (40MHz)	13.5/15 (MCS0)	1.24	2.52	4.94	11.0	-6.06
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-3.09	-0.99	1.10	11.0	-9.90
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-2.41	-1.28	1.20	11.0	-9.80
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.04	-0.61	1.75	11.0	-9.25
Band 2A	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-5.32	-3.87	-1.53	11.0	-12.53
	5260	52	a	6	5.58	6.88	9.29	11.0	-1.71
	5280	56	a	6	4.73	6.70	8.84	11.0	-2.16
	5320	64	a	6	5.32	5.62	8.48	11.0	-2.52
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	3.74	6.38	8.27	11.0	-2.73
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	3.68	6.43	8.28	11.0	-2.72
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	5.72	7.32	9.60	11.0	-1.40
	5260	52	ax (20MHz)	6.5/7.2 (MCS0)	1.78	3.91	5.99	11.0	-5.01
	5280	56	ax (20MHz)	6.5/7.2 (MCS0)	2.17	3.87	6.11	11.0	-4.89
	5320	64	ax (20MHz)	6.5/7.2 (MCS0)	2.31	4.58	6.60	11.0	-4.40
	5270	54	n (40MHz)	13.5/15 (MCS0)	-0.71	2.30	4.06	11.0	-6.94
	5310	62	n (40MHz)	13.5/15 (MCS0)	1.43	2.07	4.77	11.0	-6.23
	5270	54	ax (40MHz)	13.5/15 (MCS0)	-3.15	-1.10	1.01	11.0	-9.99
	5310	62	ax (40MHz)	13.5/15 (MCS0)	-3.32	-1.76	0.54	11.0	-10.46
Band 2C	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-2.23	-1.86	0.97	11.0	-10.03
	5290	58	ax (80MHz)	29.3/32.5 (MCS0)	-6.77	-4.75	-2.63	11.0	-13.63
	5500	100	a	6	6.33	6.56	9.46	11.0	-1.54
	5600	120	a	6	4.44	5.99	8.29	11.0	-2.71
	5720	144	a	6	5.10	6.15	8.67	11.0	-2.33
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	6.48	7.11	9.82	11.0	-1.18
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	4.15	5.45	7.86	11.0	-3.14
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	4.38	5.82	8.17	11.0	-2.83
	5500	100	ax (20MHz)	6.5/7.2 (MCS0)	1.92	4.22	6.23	11.0	-4.77
	5600	120	ax (20MHz)	6.5/7.2 (MCS0)	1.58	3.63	5.73	11.0	-5.27
	5720	144	ax (20MHz)	6.5/7.2 (MCS0)	2.48	4.21	6.44	11.0	-4.56
	5510	102	n (40MHz)	13.5/15 (MCS0)	2.50	3.04	5.79	11.0	-5.21
	5590	118	n (40MHz)	13.5/15 (MCS0)	0.75	1.53	4.17	11.0	-6.83
	5710	142	n (40MHz)	13.5/15 (MCS0)	0.05	1.56	3.88	11.0	-7.12
	5510	102	ax (40MHz)	13.5/15 (MCS0)	-2.76	-1.11	1.15	11.0	-9.85
	5590	118	ax (40MHz)	13.5/15 (MCS0)	-2.87	-1.04	1.15	11.0	-9.85
	5710	142	ax (40MHz)	13.5/15 (MCS0)	-2.96	-1.11	1.07	11.0	-9.93
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-2.81	-2.49	0.36	11.0	-10.64
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-3.86	-1.50	0.49	11.0	-10.51
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-6.19	-5.27	-2.70	11.0	-13.70
	5530	106	ax (80MHz)	29.3/32.5 (MCS0)	-6.80	-5.13	-2.88	11.0	-13.88
	5610	122	ax (80MHz)	29.3/32.5 (MCS0)	-7.43	-5.43	-3.31	11.0	-14.31
	5690	138	ax (80MHz)	29.3/32.5 (MCS0)	-9.56	-7.64	-5.48	11.0	-16.48

Table 7-27. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Directional Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6.5/7.2 (MCS0)	5.58	6.33	8.98	-1.94	7.04	10.0	-2.96
	5200	40	a	6.5/7.2 (MCS0)	4.73	7.22	9.16	-1.94	7.22	10.0	-2.78
	5240	48	a	6.5/7.2 (MCS0)	5.32	7.41	9.50	-1.94	7.56	10.0	-2.44
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	4.69	7.82	9.54	-1.94	7.60	10.0	-2.40
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	4.51	6.80	8.82	-1.94	6.87	10.0	-3.13
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	5.18	6.57	8.94	-1.94	7.00	10.0	-3.00
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	1.45	4.48	6.24	-1.94	4.29	10.0	-5.71
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	1.70	4.27	6.18	-1.94	4.24	10.0	-5.76
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	2.18	4.30	6.38	-1.94	4.44	10.0	-5.56
	5190	38	n (40MHz)	13.5/15 (MCS0)	0.93	3.71	5.55	-1.94	3.61	10.0	-6.39
	5230	46	n (40MHz)	13.5/15 (MCS0)	1.24	2.52	4.94	-1.94	3.00	10.0	-7.00
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-3.09	-0.99	1.10	-1.94	-0.85	10.0	-10.85
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-2.41	-1.28	1.20	-1.94	-0.74	10.0	-10.74
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-2.04	-0.61	1.75	-1.94	-0.20	10.0	-10.20
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-5.32	-3.87	-1.53	-1.94	-3.47	10.0	-13.47

Table 7-28. Band 1 MIMO e.i.r.p. Conducted Power Spectral Density Measurements (ISED)

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6	3.19	3.39	6.30	30.0	-23.70
	5785	157	a	6	3.52	3.61	6.57	30.0	-23.43
	5825	165	a	6	2.63	3.40	6.04	30.0	-23.96
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	2.24	3.55	5.96	30.0	-24.04
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	2.60	3.43	6.05	30.0	-23.95
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	2.24	3.11	5.71	30.0	-24.29
	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	-0.48	0.45	3.02	30.0	-26.98
	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	0.21	0.91	3.58	30.0	-26.42
	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	-0.42	0.51	3.08	30.0	-26.92
	5755	151	n (40MHz)	13.5/15 (MCS0)	-2.18	-1.56	1.15	30.0	-28.85
	5795	159	n (40MHz)	13.5/15 (MCS0)	-1.59	-0.47	2.02	30.0	-27.98
	5755	151	ax (40MHz)	13.5/15 (MCS0)	-5.38	-4.14	-1.71	30.0	-31.71
	5795	159	ax (40MHz)	13.5/15 (MCS0)	-4.42	-4.26	-1.33	30.0	-31.33
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-3.28	-1.23	0.87	30.0	-29.13
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	-6.19	-5.85	-3.00	30.0	-33.00

Table 7-29. Band 3 MIMO Conducted Power Spectral Density Measurements

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Note:

Per ANSI C63.10-2013 Section 14.3.2.2 and KDB 662911 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately 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 in 802.11n (20MHz BW) mode, the average conducted power spectral density was measured to be 4.69 dBm for Antenna-1 and 7.82 dBm for Antenna-2.

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

$$(4.69 \text{ dBm} + 7.82 \text{ dBm}) = (2.95 \text{ mW} + 6.06 \text{ mW}) = 9.01 \text{ mW} = 9.55 \text{ dBm}$$

Sample e.i.r.p Power Spectral Density Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO power density was calculated to be 8.83 dBm with directional gain of -2.52 dBi.

$$\text{e.i.r.p. Power Spectral Density(dBm)} = \text{Power Spectral Density (dBm)} + \text{Ant gain (dBi)}$$

$$8.83 \text{ dBm} + -2.52 \text{ dBi} = 6.31 \text{ dBm}$$

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7.6 Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b) §15.205 §15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna 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. All channels, modes (e.g. 802.11a, 802.11n (20MHz BW), 802.11n (40MHz BW), and 802.11ac (80MHz)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

For transmitters operating in the 5.15-5.25 GHz and 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-26 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-30. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5
KDB 789033 D02 v02r01 – Section G

Test Settings

Average Measurements above 1GHz (Method AD)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be $\geq 2 \times \text{span/RBW}$)
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

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Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Test Setup

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

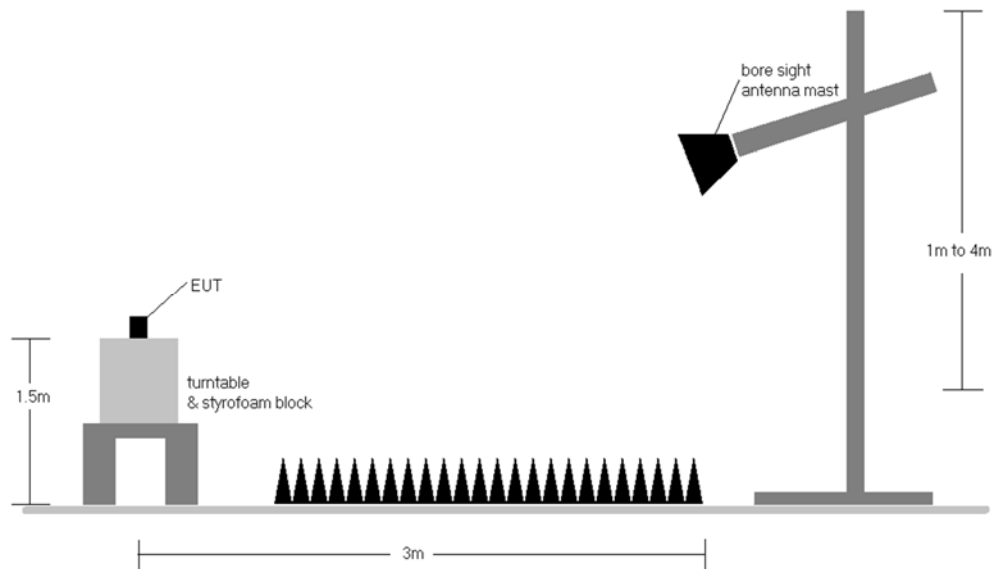


Figure 7-5. Test Instrument & Measurement Setup

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Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-26.
2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-26. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
8. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
9. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

Sample Calculations

Determining Spurious Emissions Levels

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

Radiated Band Edge Measurement Offset

- o The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

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