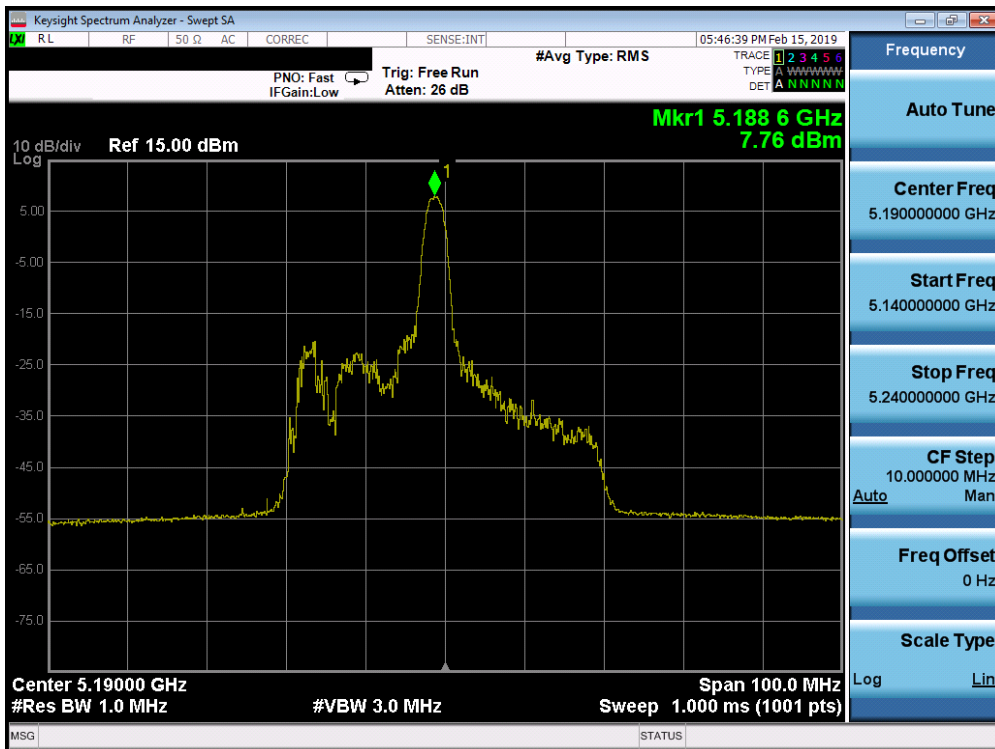
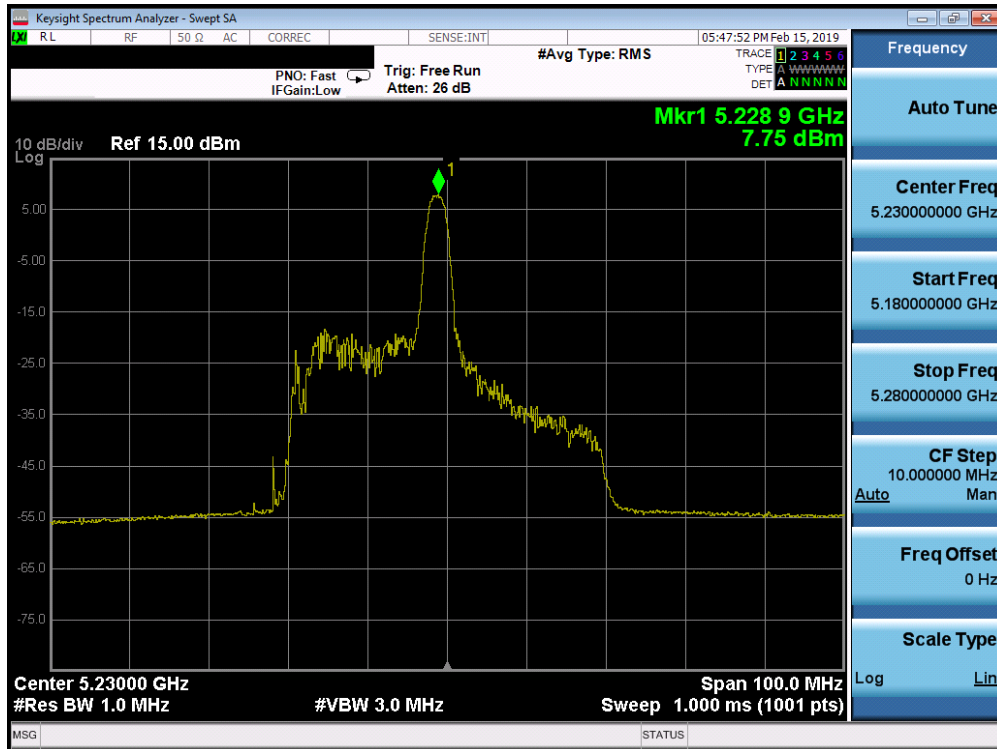


Plot 7-111. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

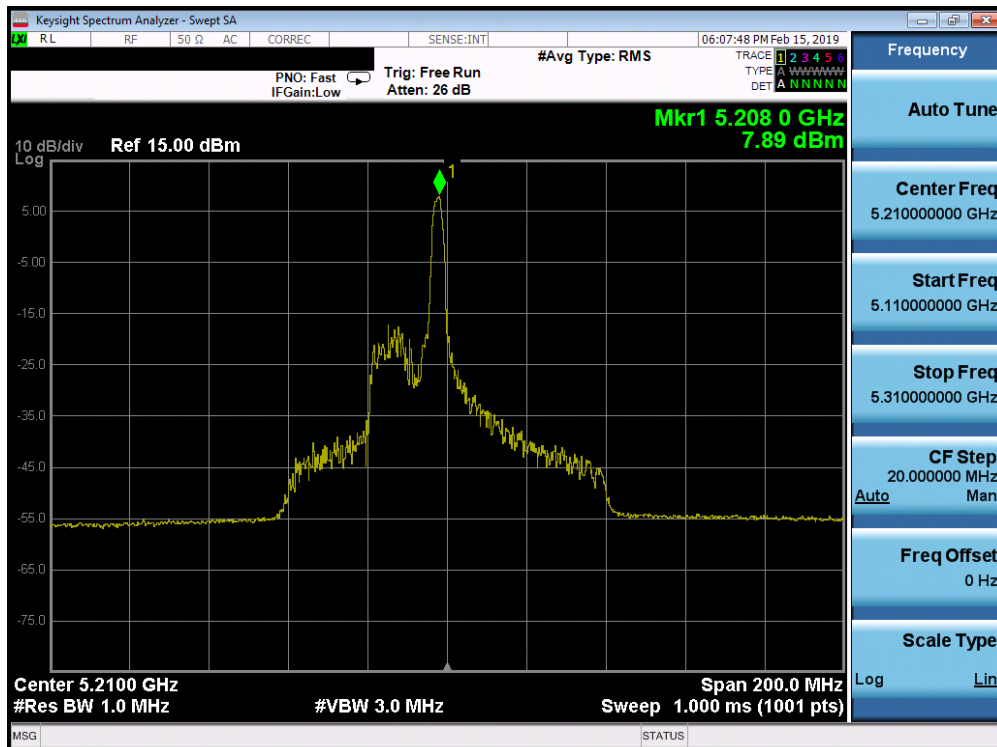


Plot 7-112. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 104 of 287

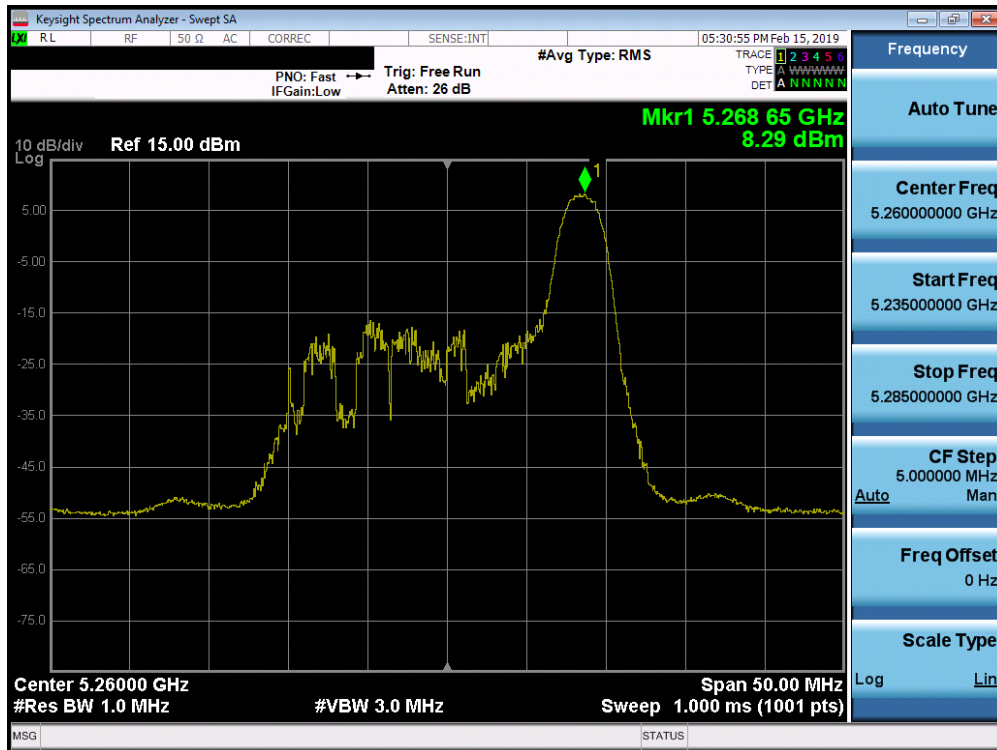


Plot 7-113. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

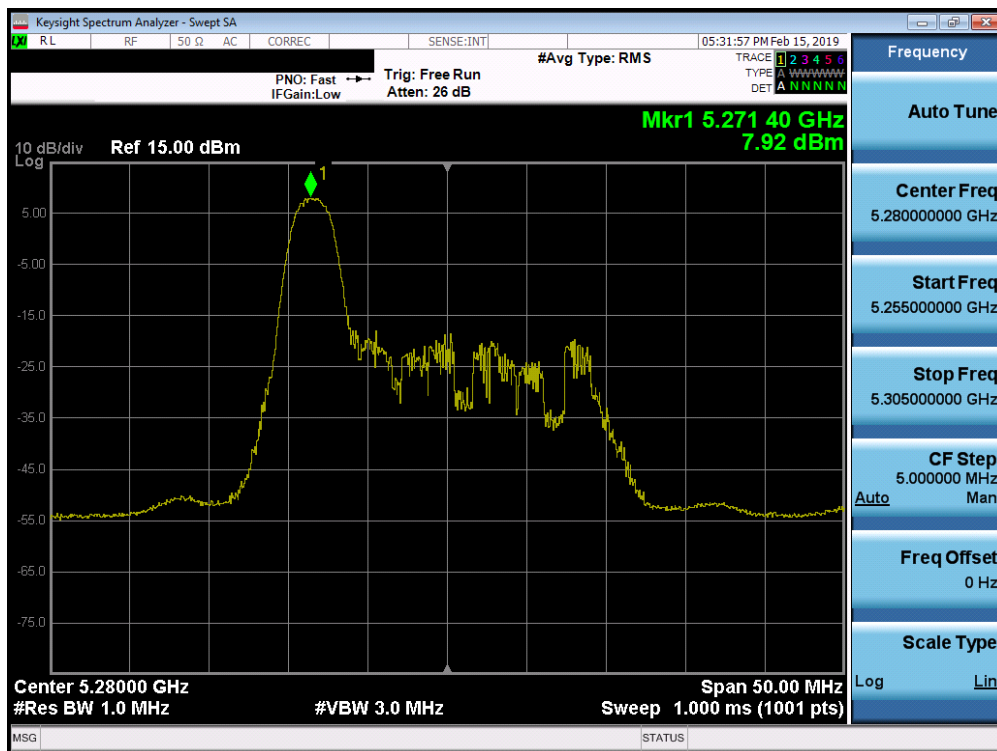


Plot 7-114. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 105 of 287



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

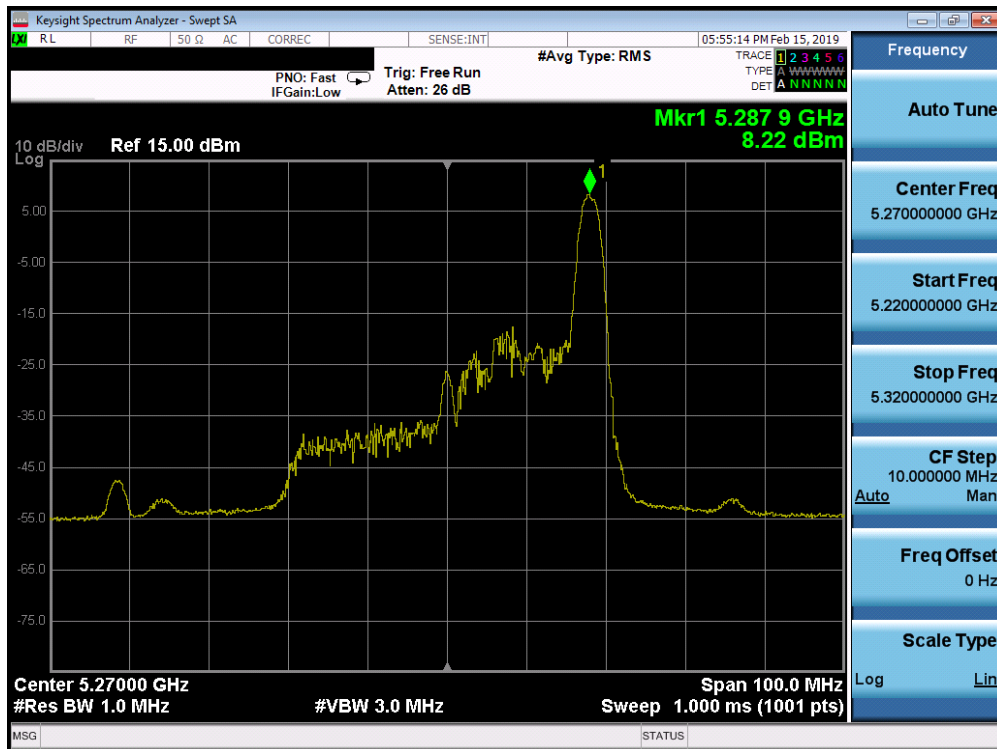


Plot 7-116. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 106 of 287

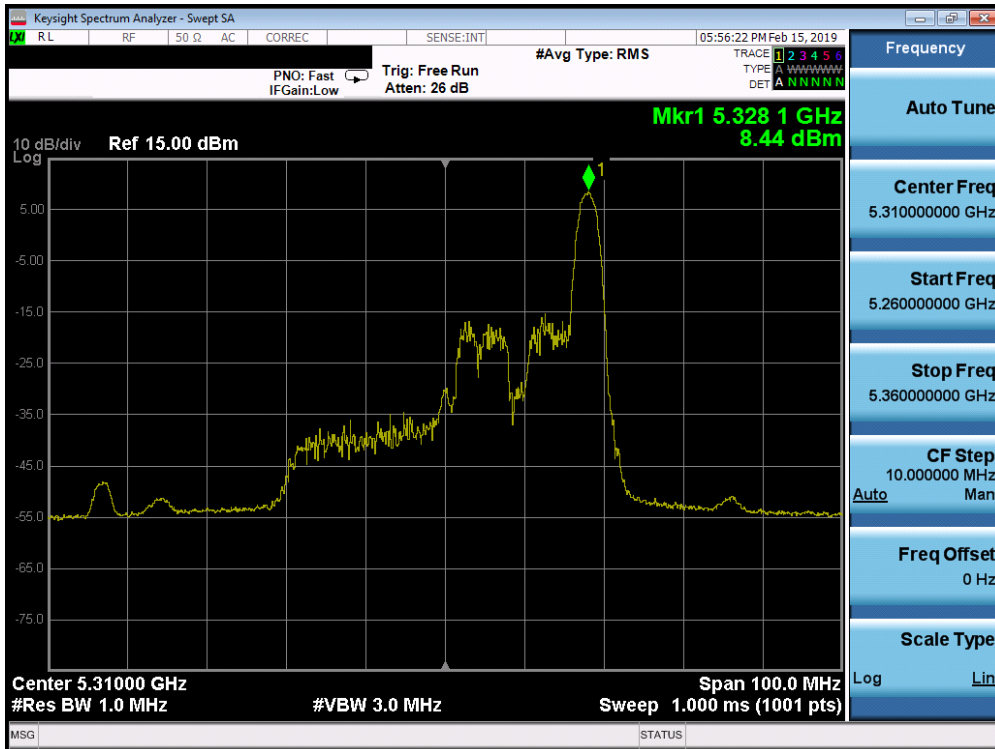


Plot 7-117. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

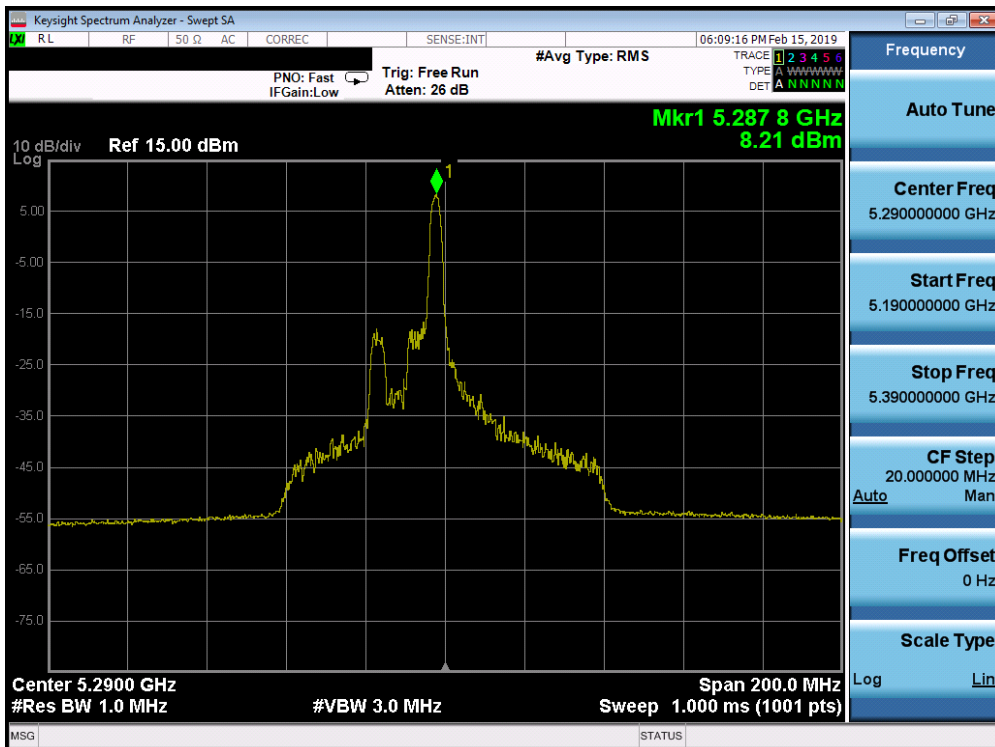


Plot 7-118. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977U	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset	Page 107 of 287



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



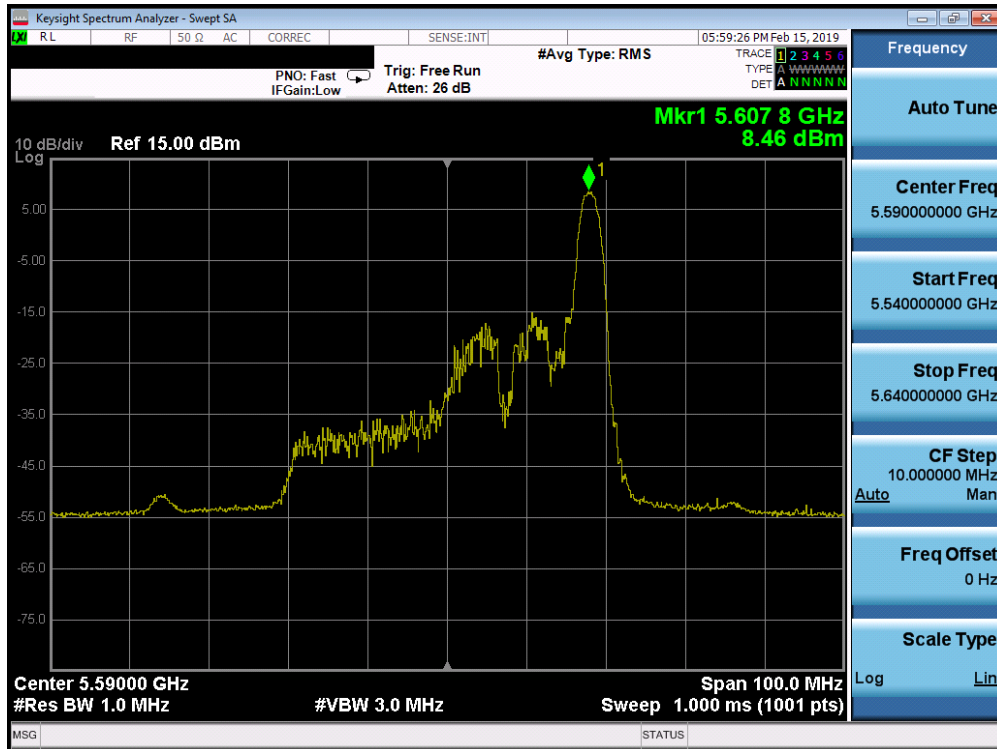
Plot 7-120. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977U		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 108 of 287

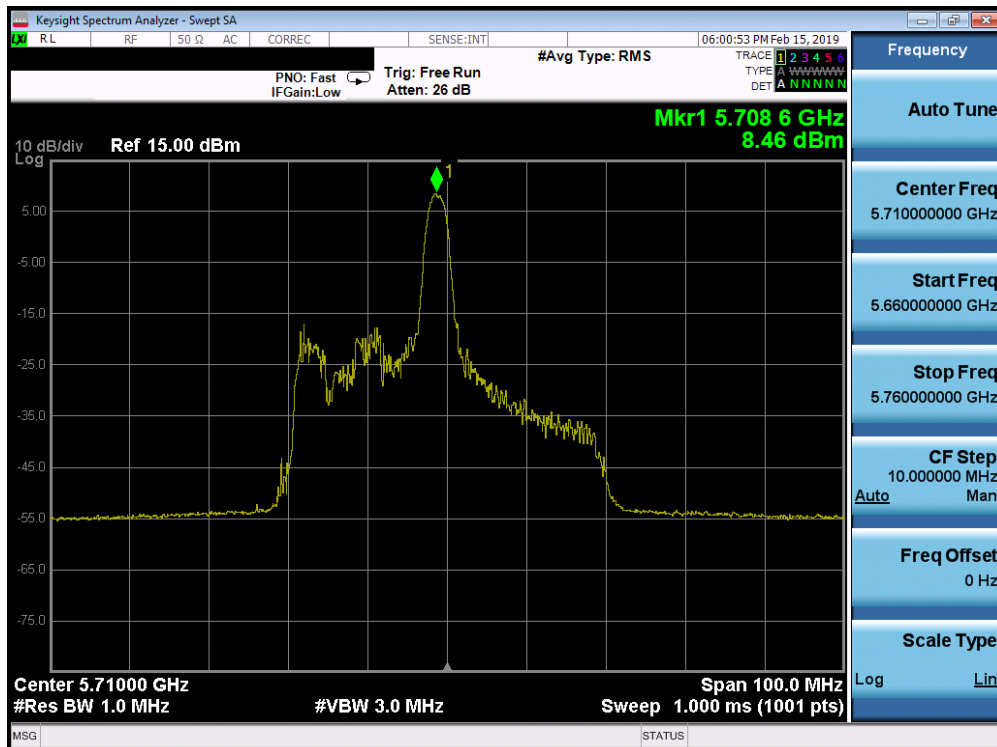








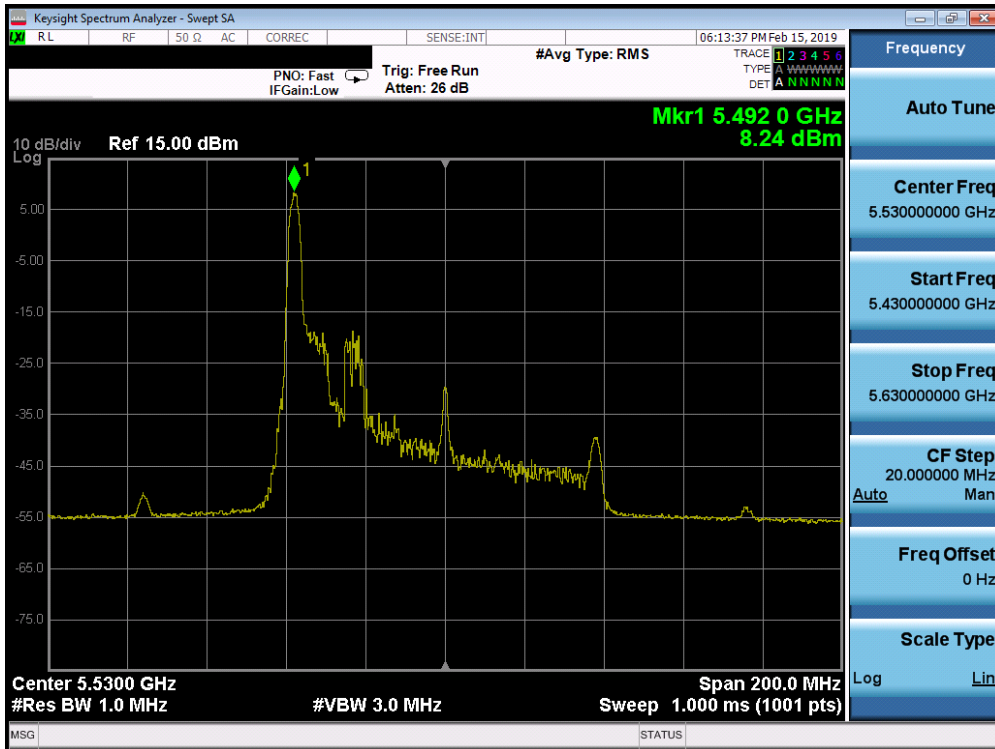
Plot 7-125. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)



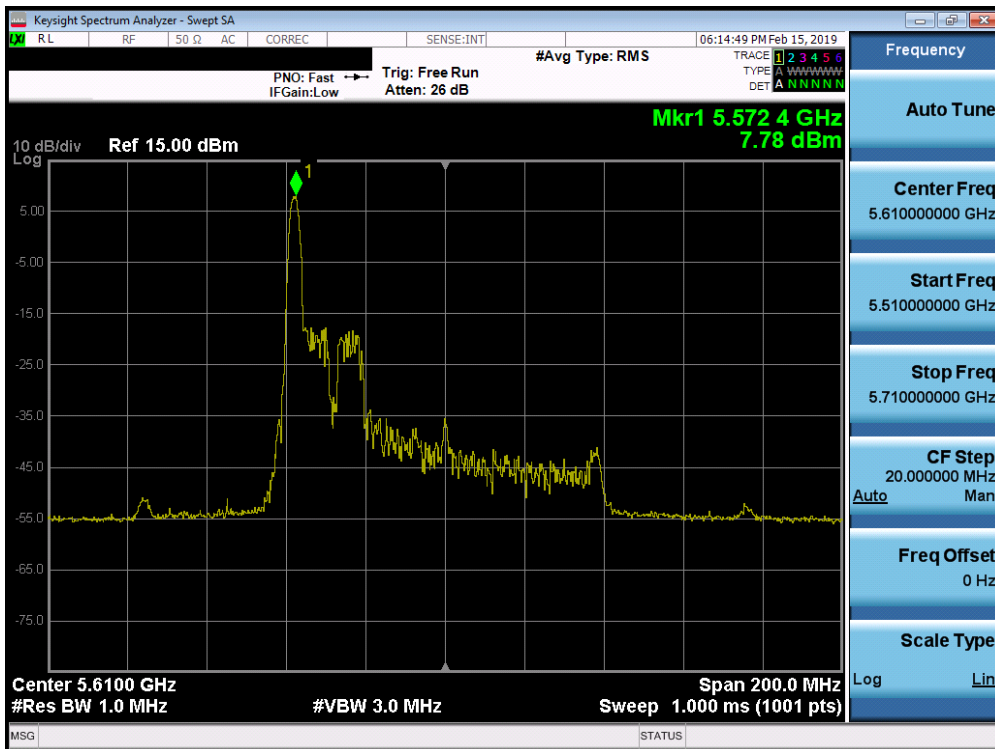
Plot 7-126. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 111 of 287



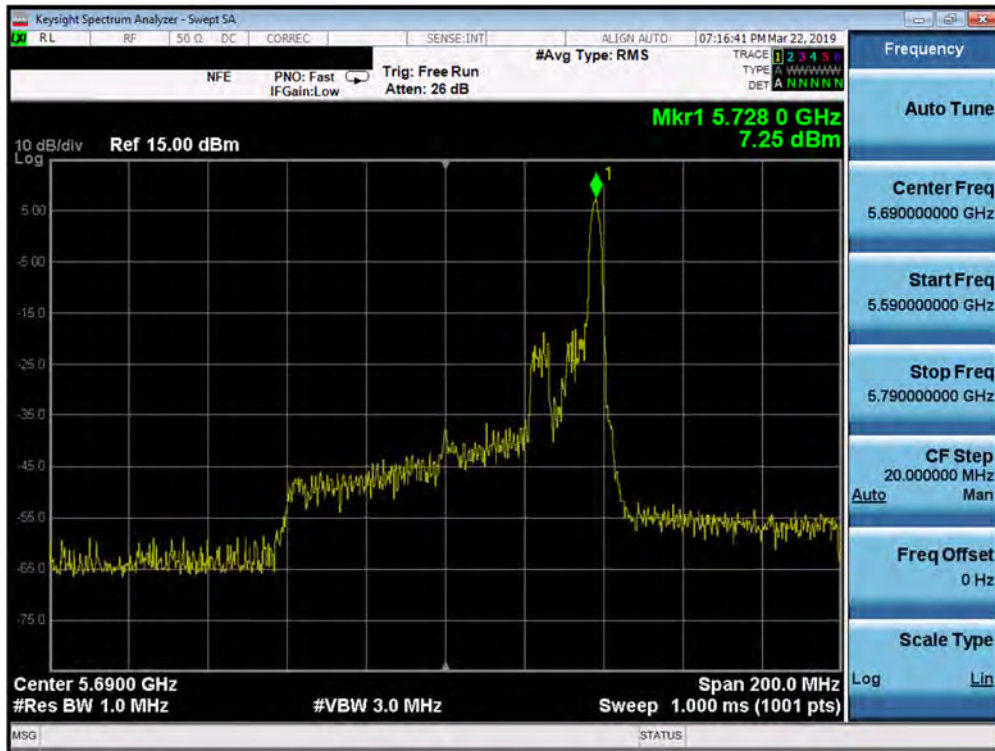


Plot 7-127. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



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

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 112 of 287

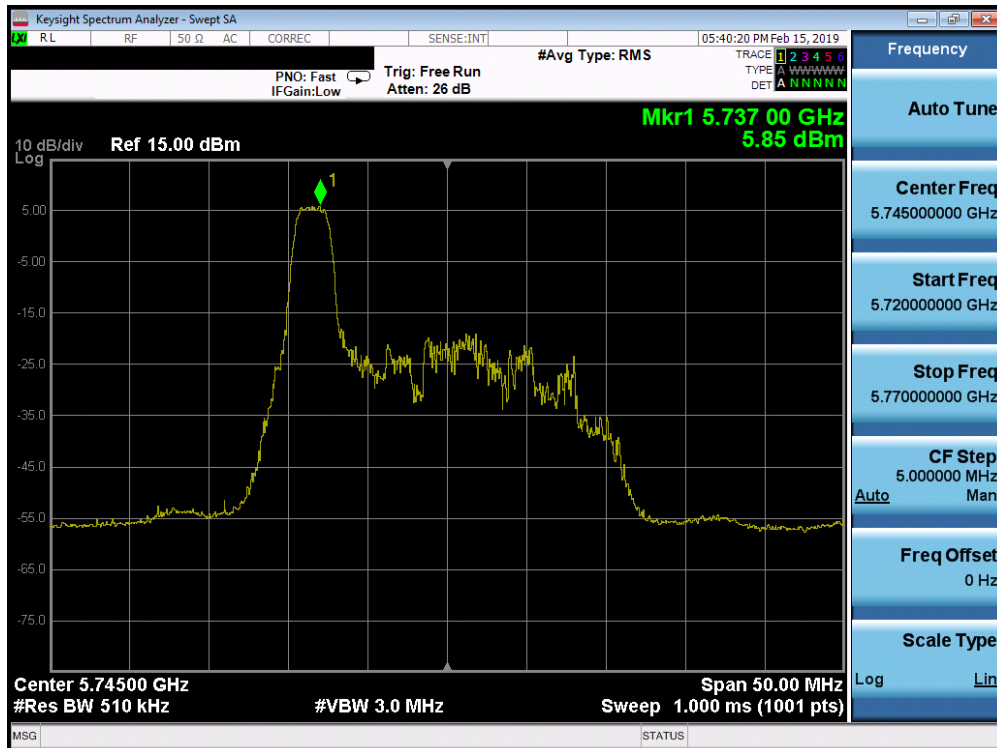


Plot 7-129. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG977U	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 113 of 287

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

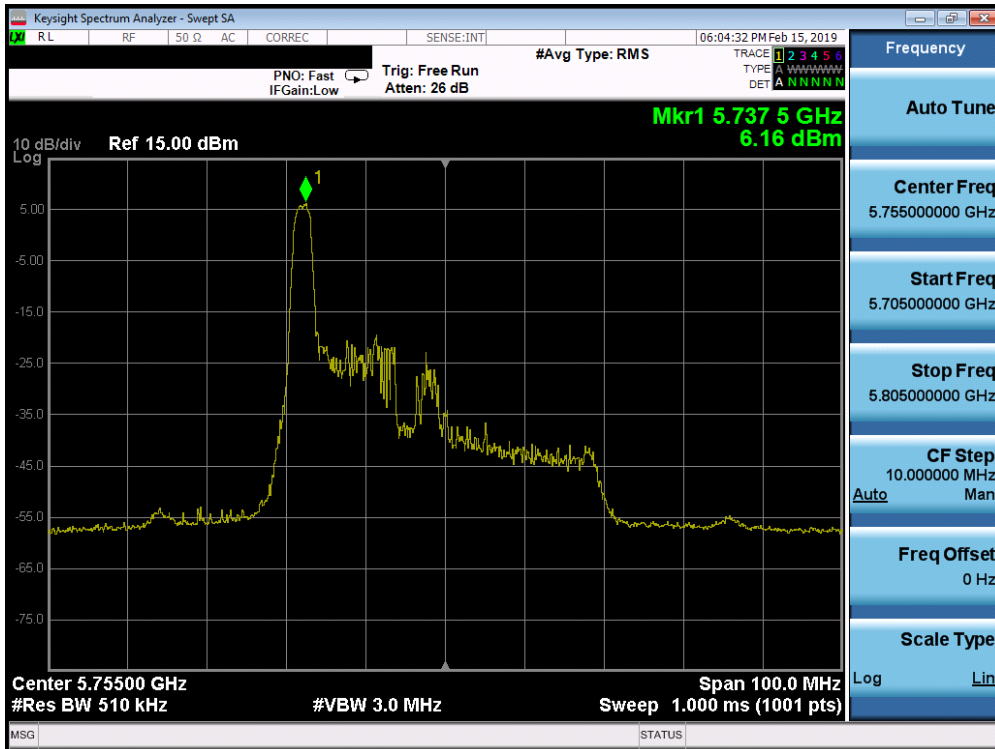
**Table 7-56. Band 3 Conducted Power Spectral Density Measurements SISO ANT1 (26 Tones)**



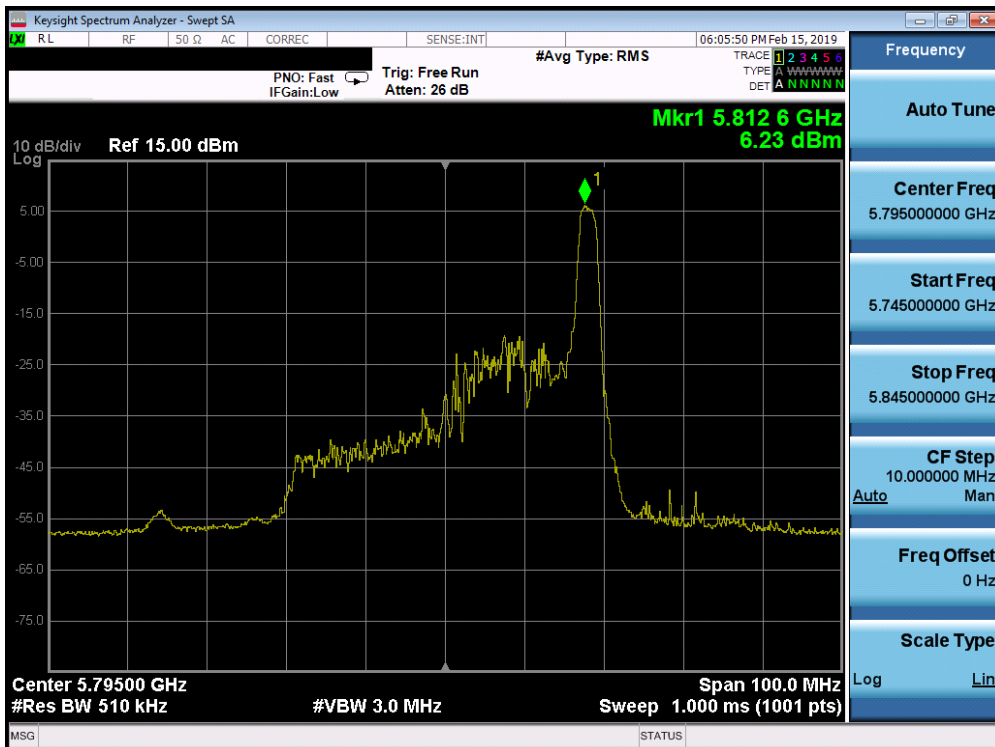
**Plot 7-130. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)**

FCC ID: A3LSMG977U		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 114 of 287





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



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

FCC ID: A3LSMG977U	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT</b> (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 116 of 287



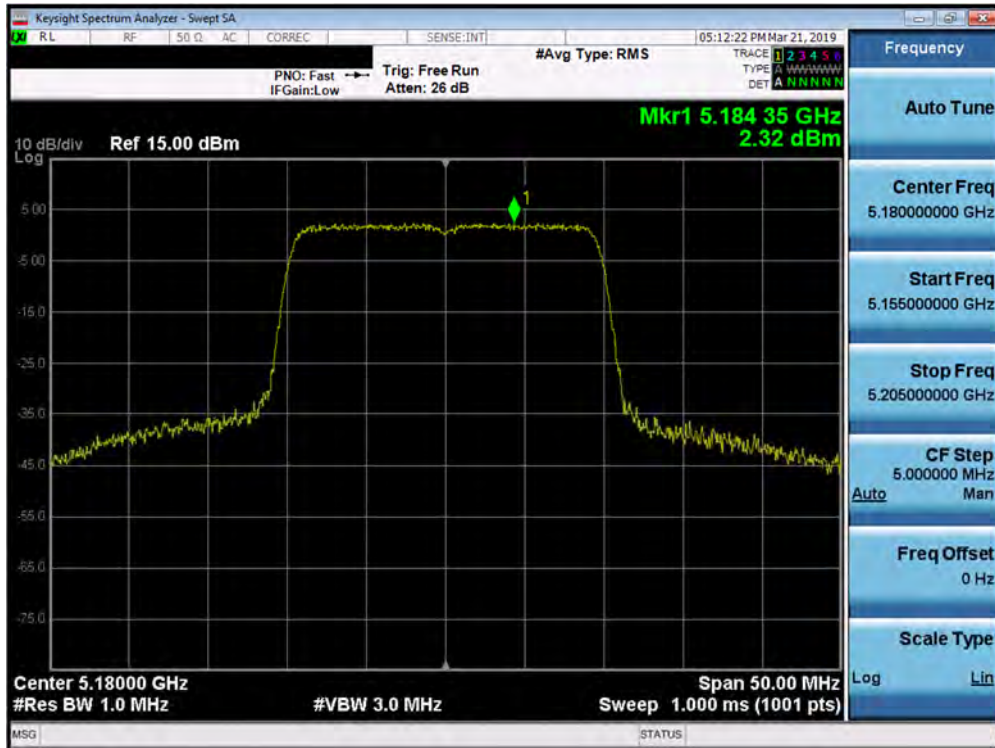


### SISO Antenna-1 Power Spectral Density Measurements (Full Tones)

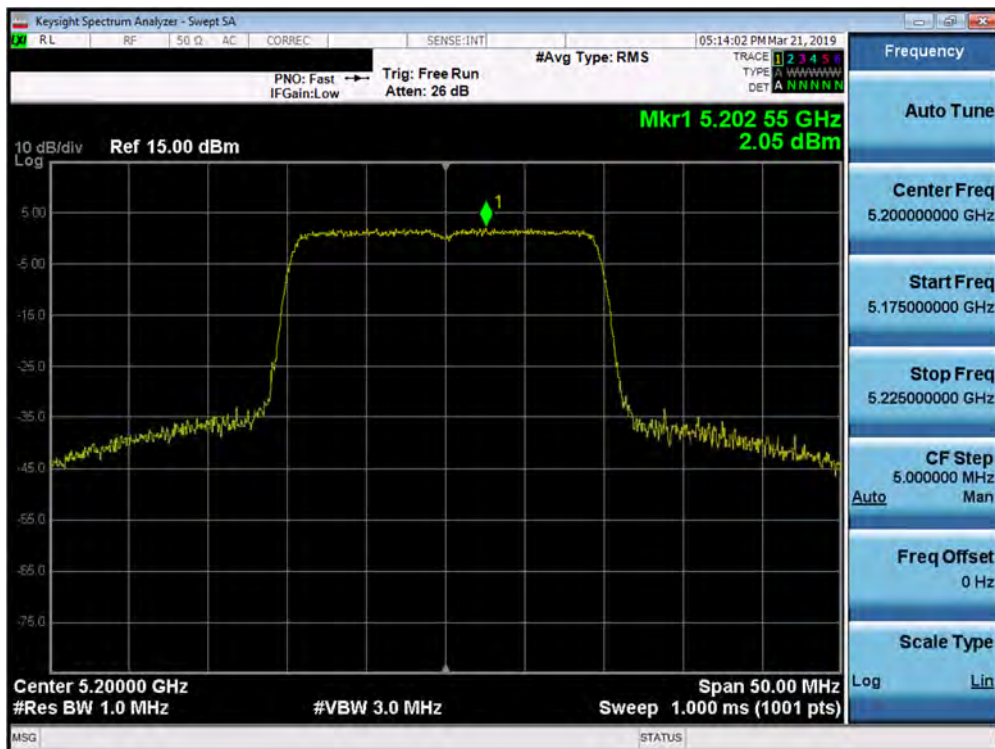
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	2.32	11.0	-8.68
	5200	40	ax (20MHz)	242T	MCS0	2.05	11.0	-8.95
	5240	48	ax (20MHz)	242T	MCS0	1.94	11.0	-9.06
	5190	38	ax (40MHz)	484T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

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

FCC ID: A3LSMG977U	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset	Page 118 of 287

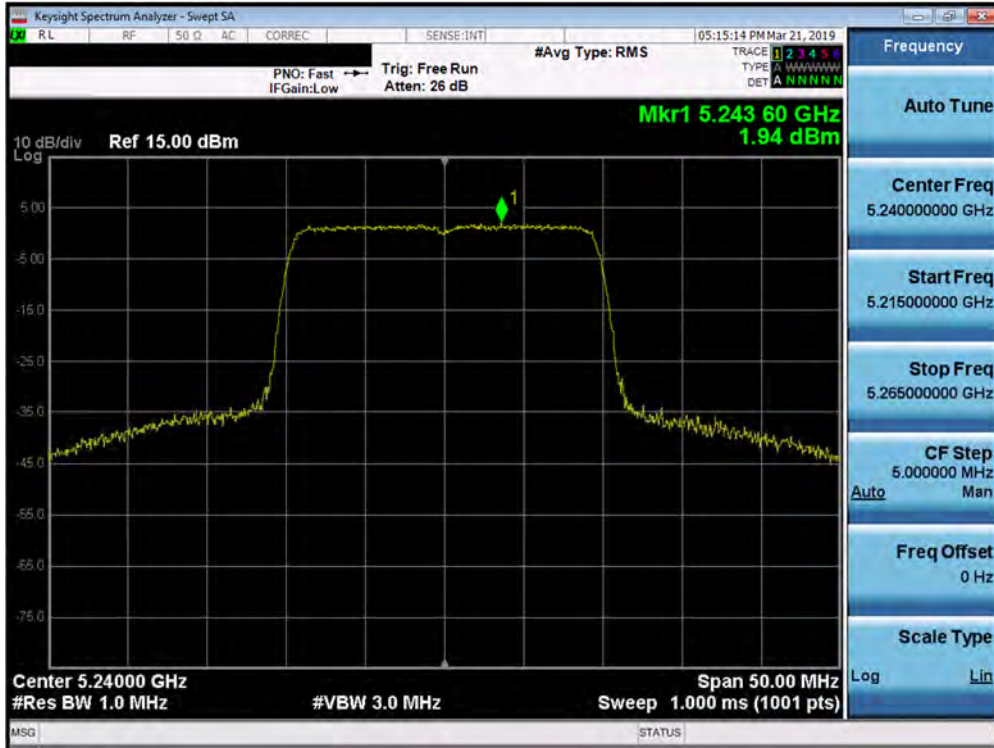


Plot 7-136. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

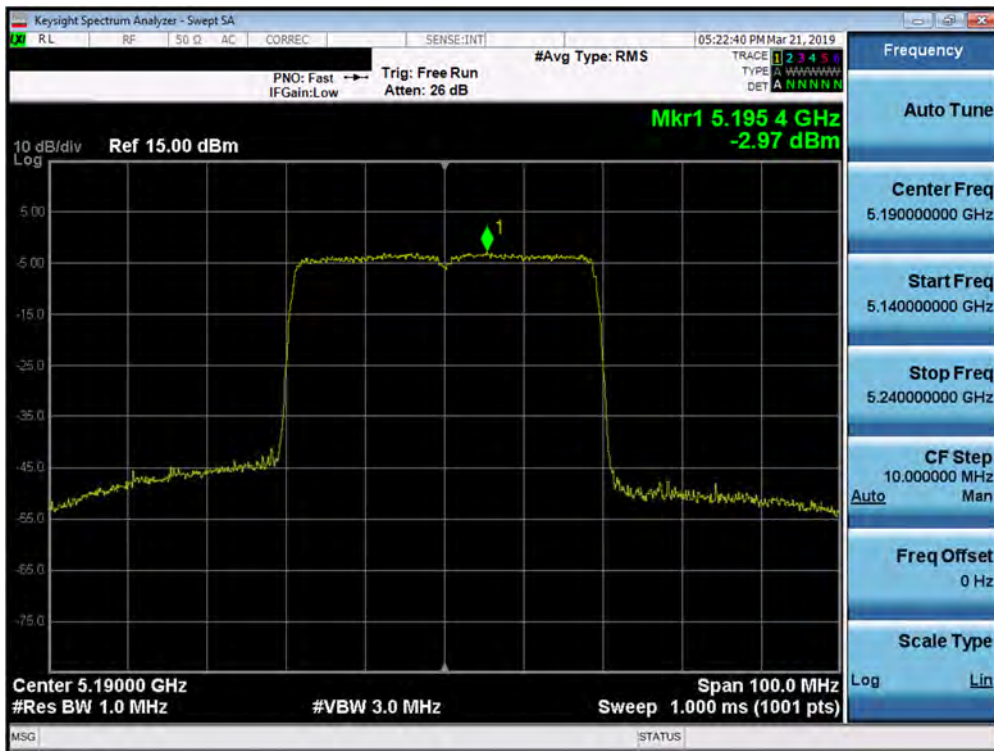


Plot 7-137. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 119 of 287



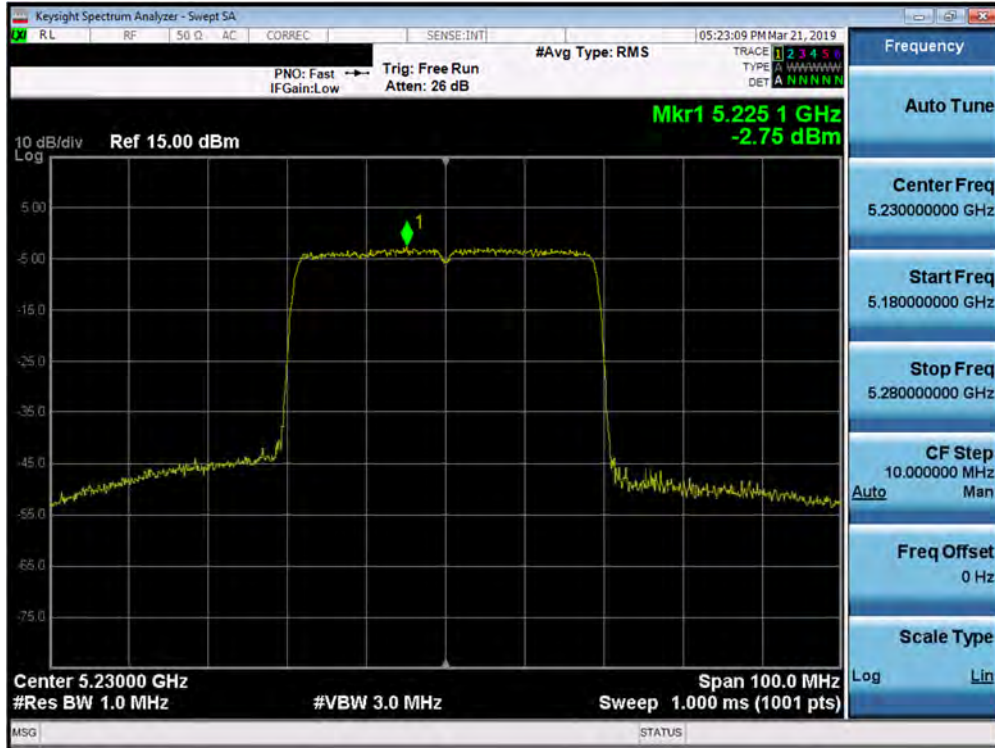
Plot 7-138. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)



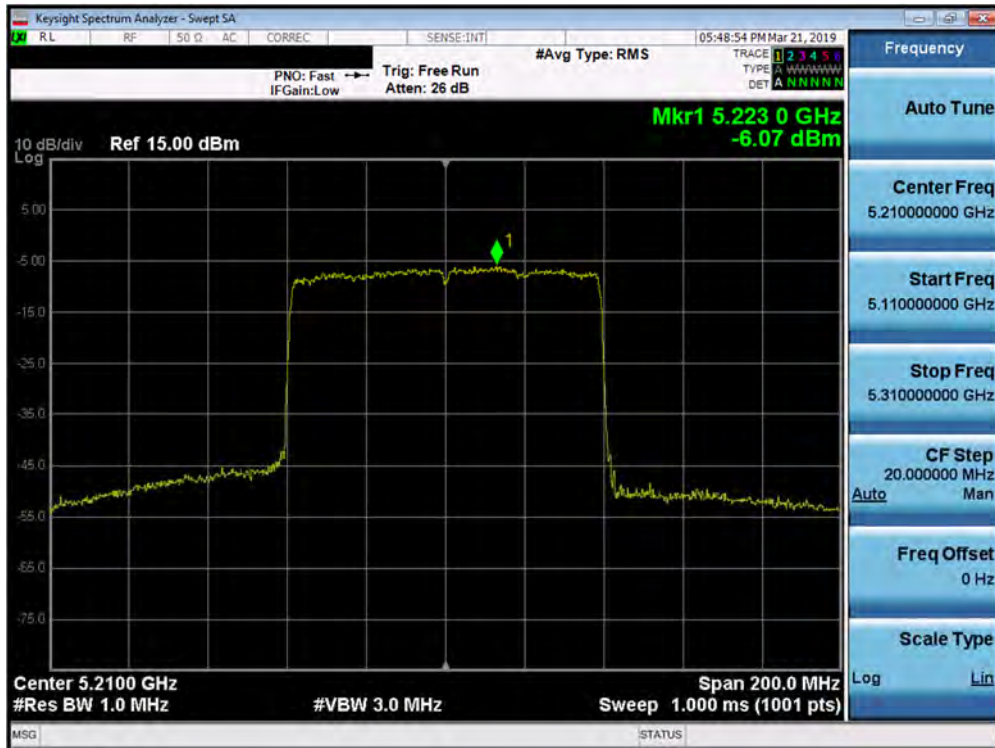
Plot 7-139. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 120 of 287



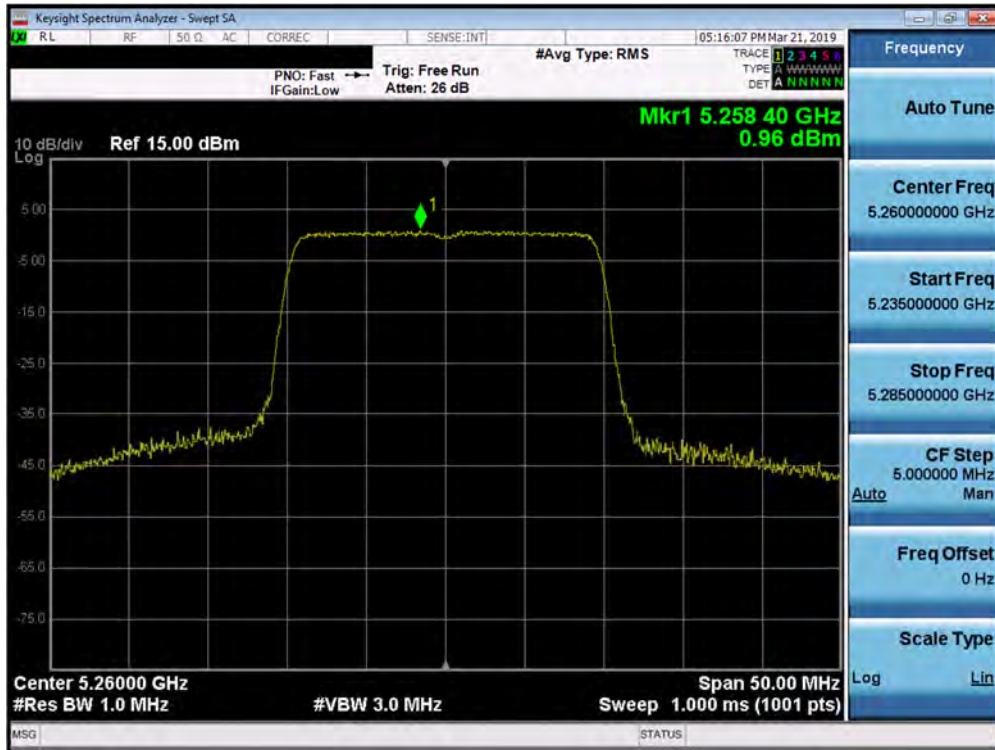


Plot 7-140. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

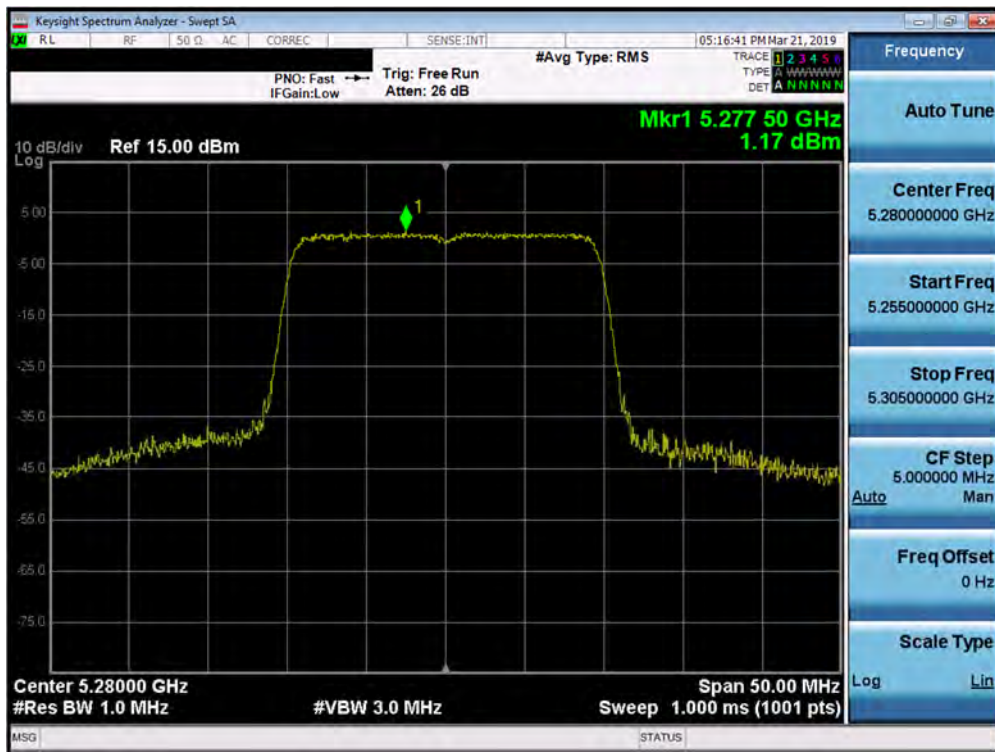


Plot 7-141. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 121 of 287

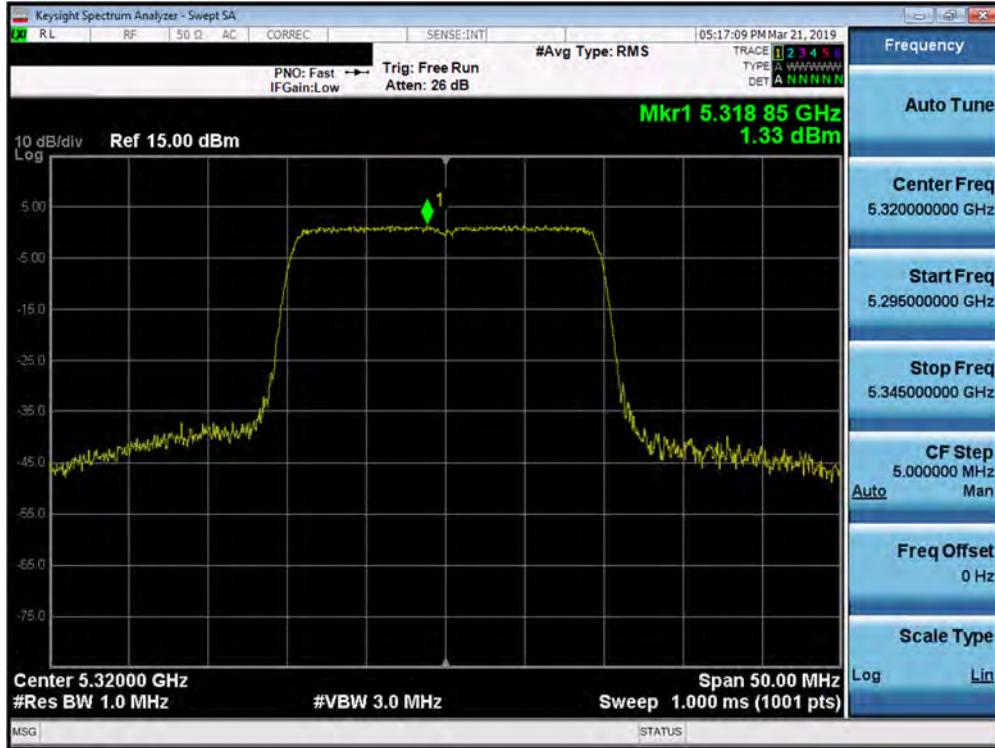


Plot 7-142. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)

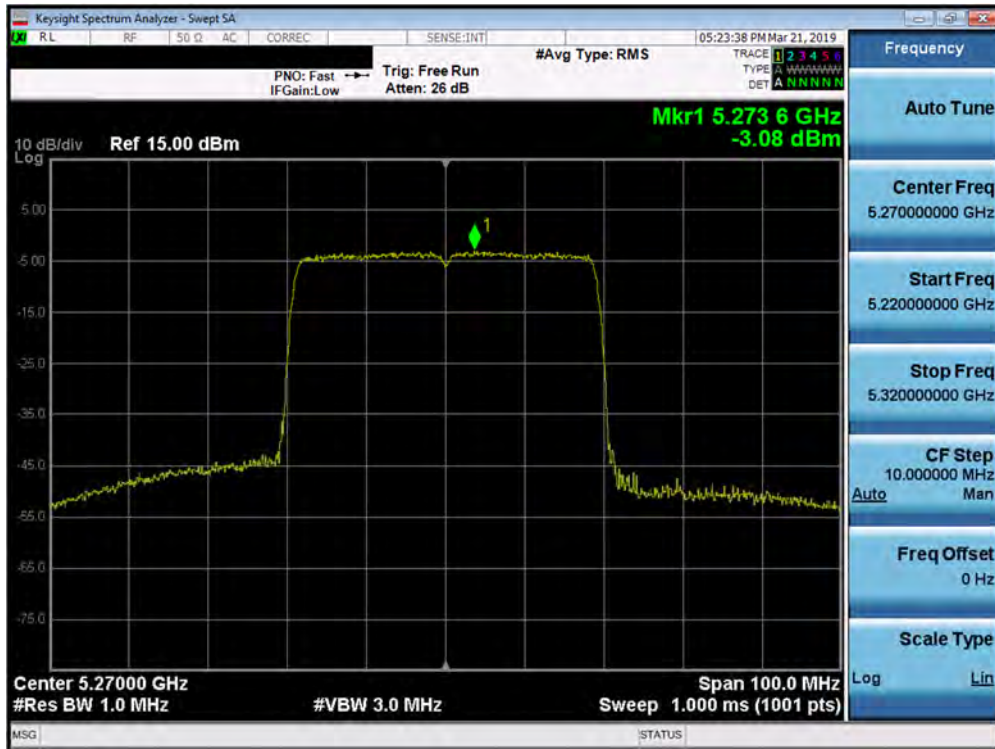


Plot 7-143. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 122 of 287



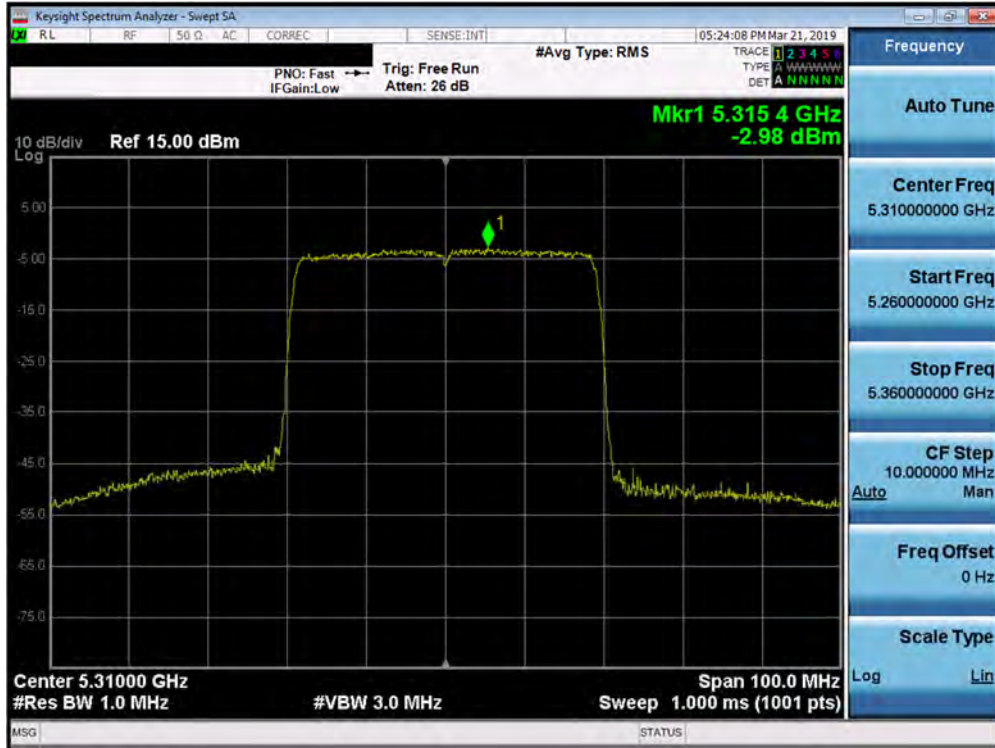
Plot 7-144. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)



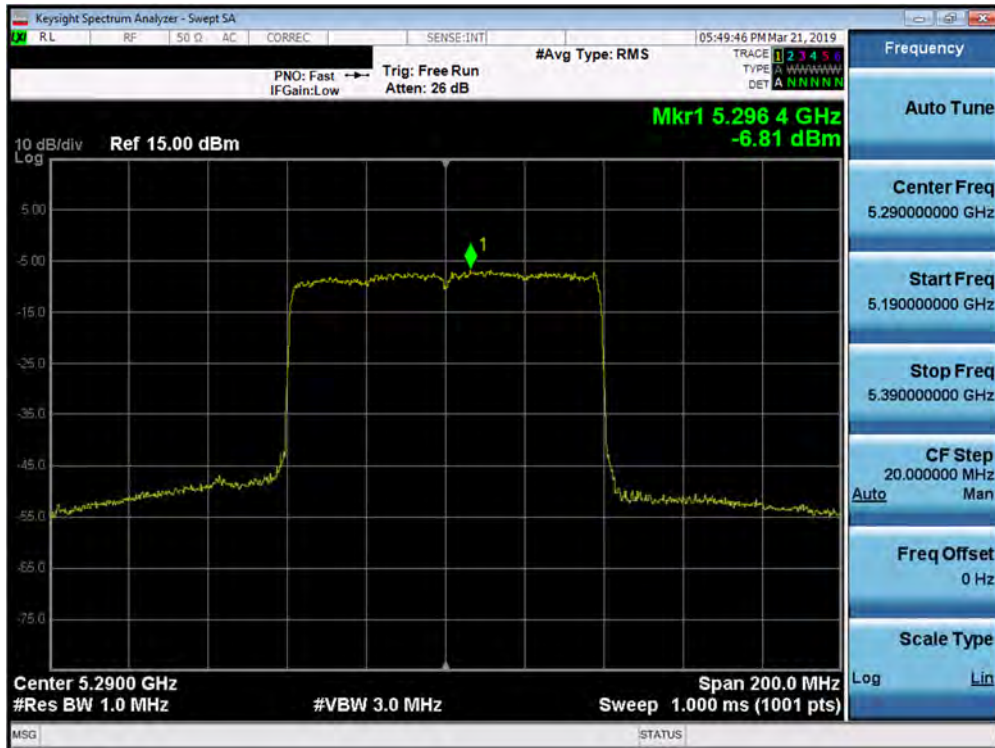
Plot 7-145. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 123 of 287



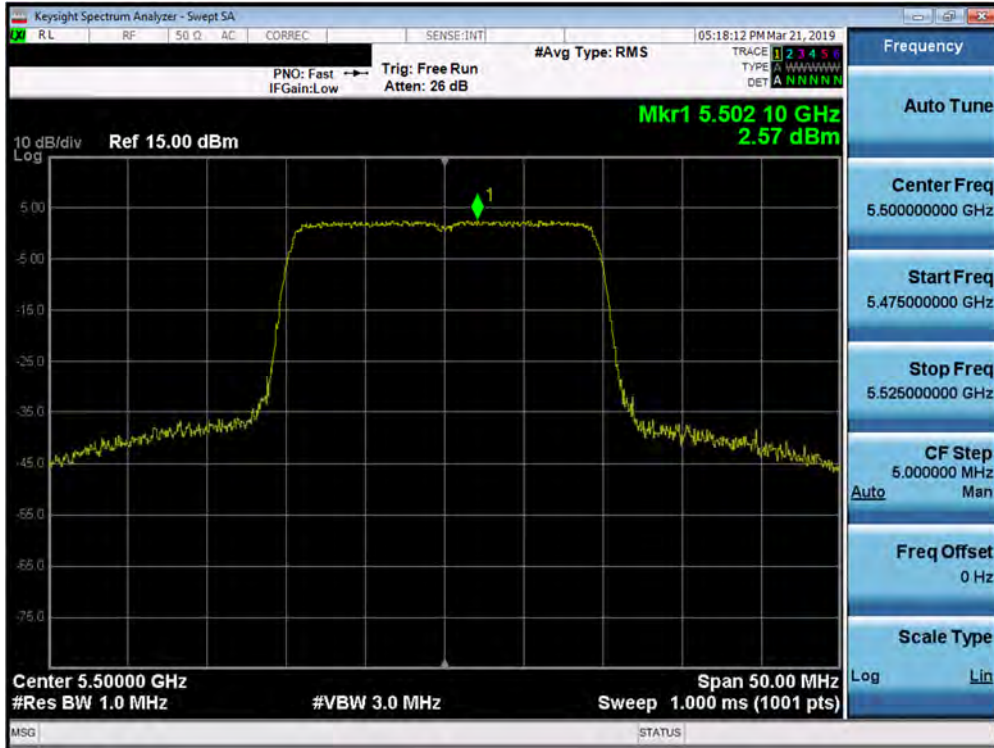


Plot 7-146. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

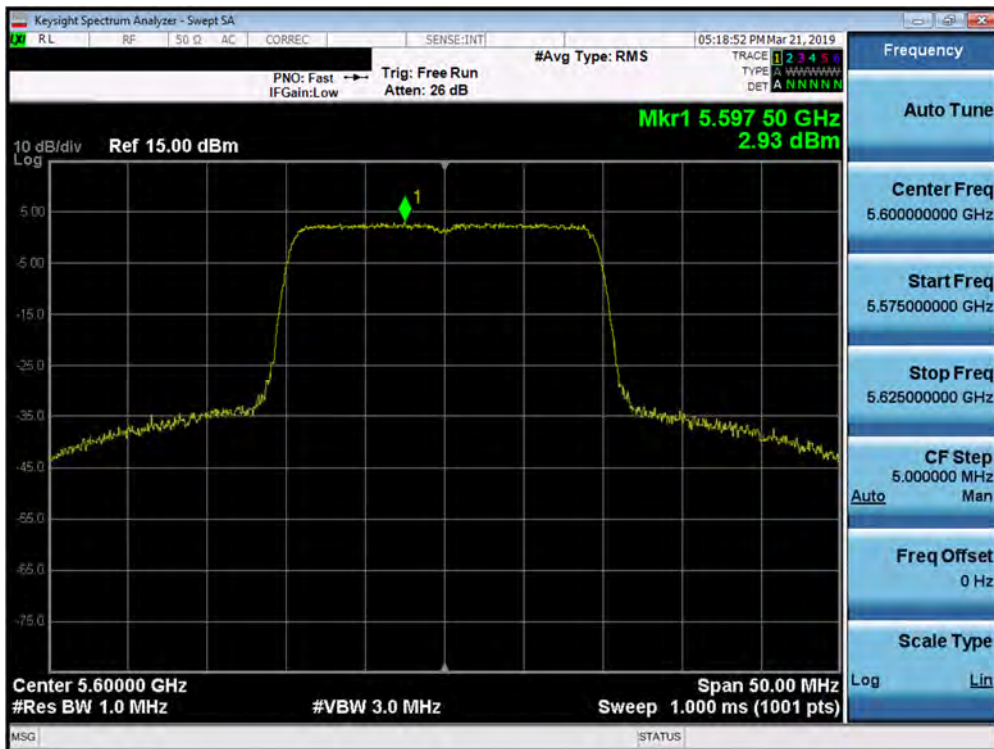


Plot 7-147. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 124 of 287

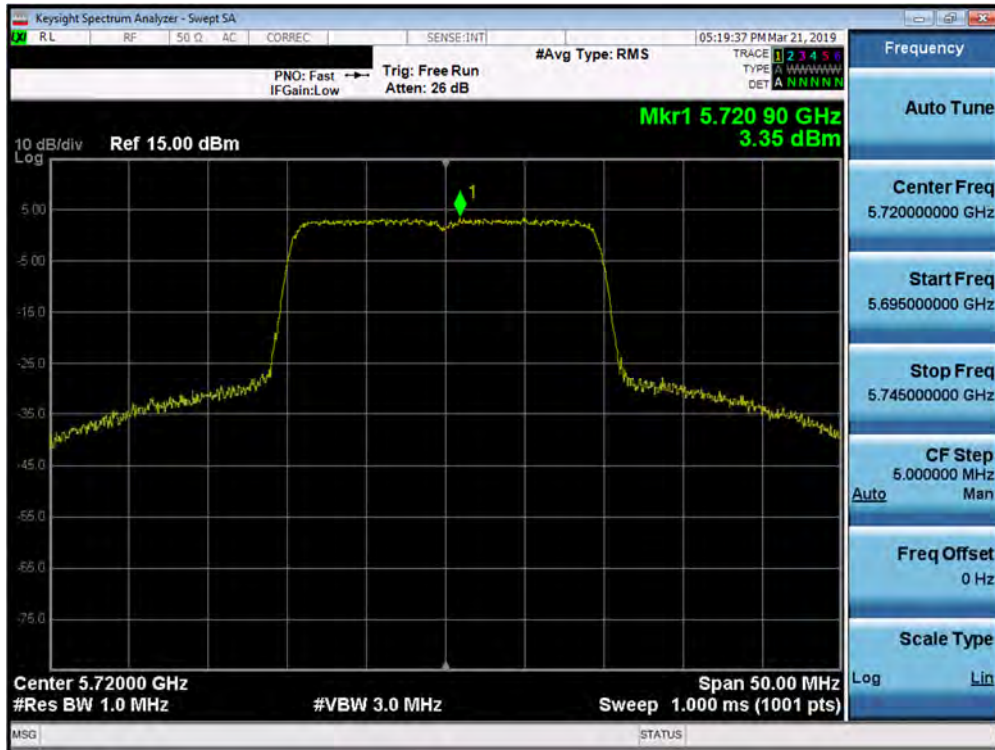


Plot 7-148. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

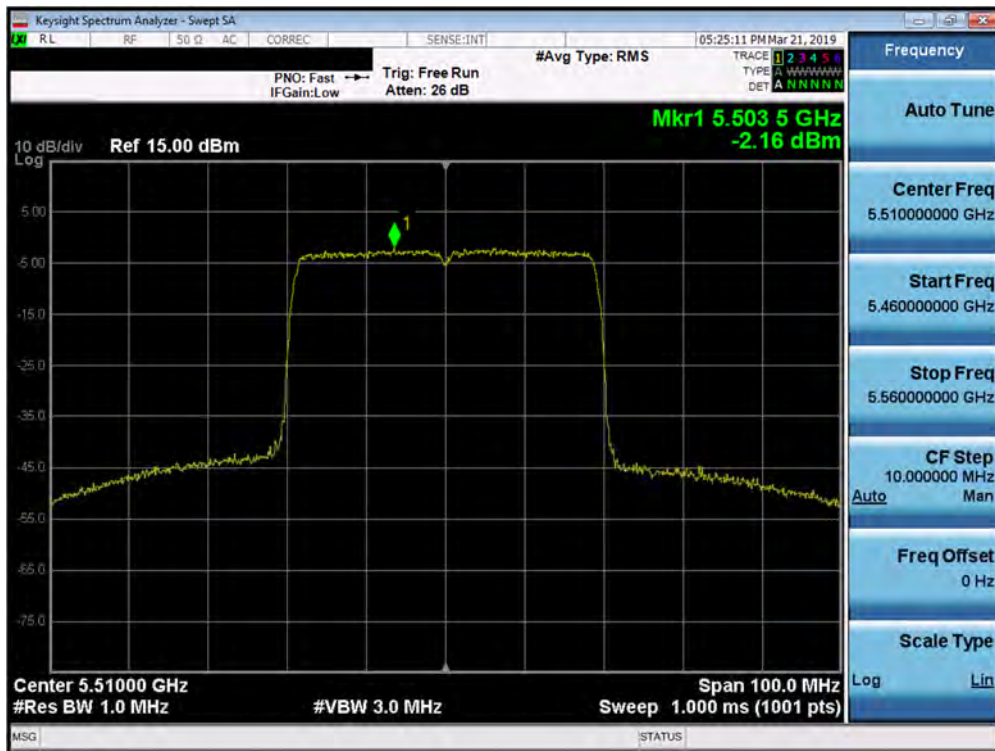


Plot 7-149. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 125 of 287



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



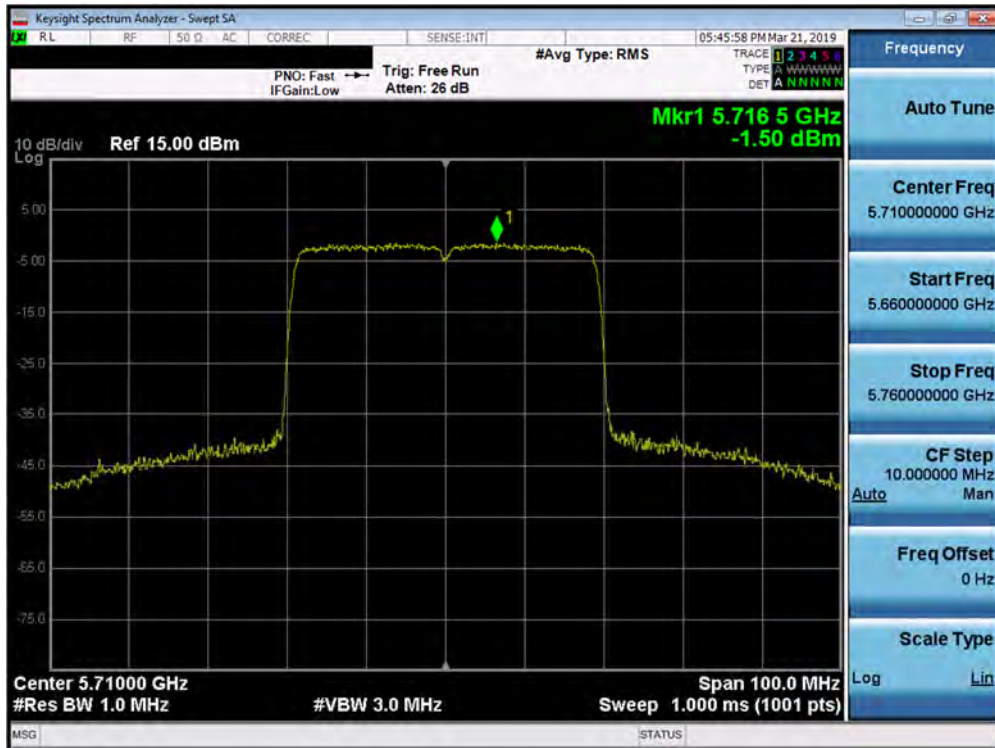
Plot 7-151. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 126 of 287



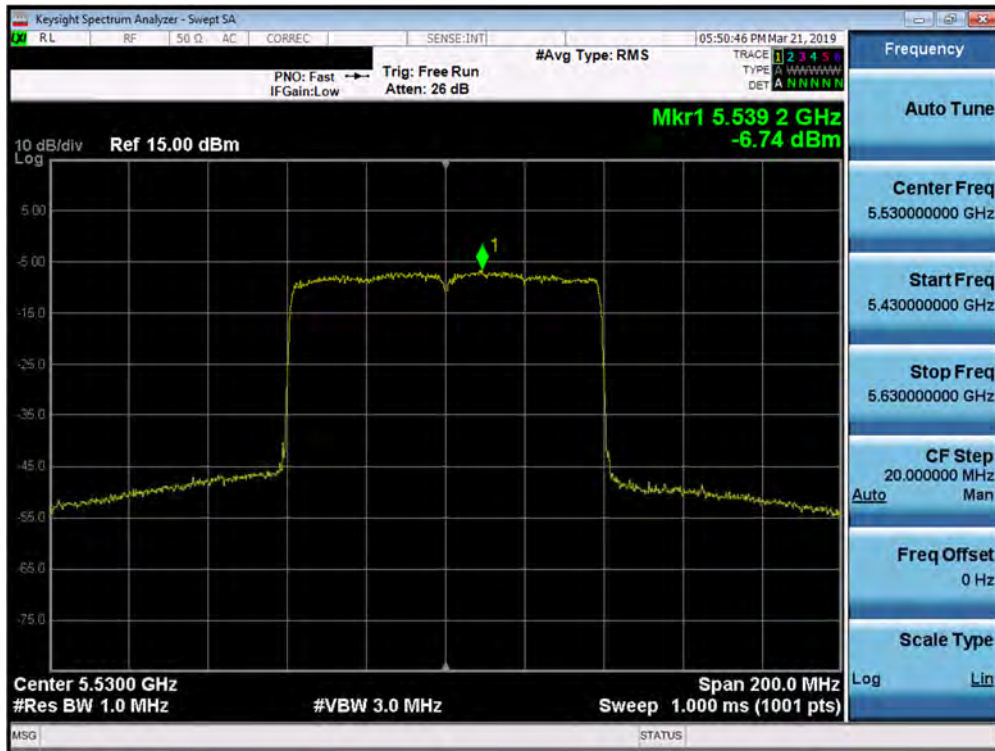


Plot 7-152. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)

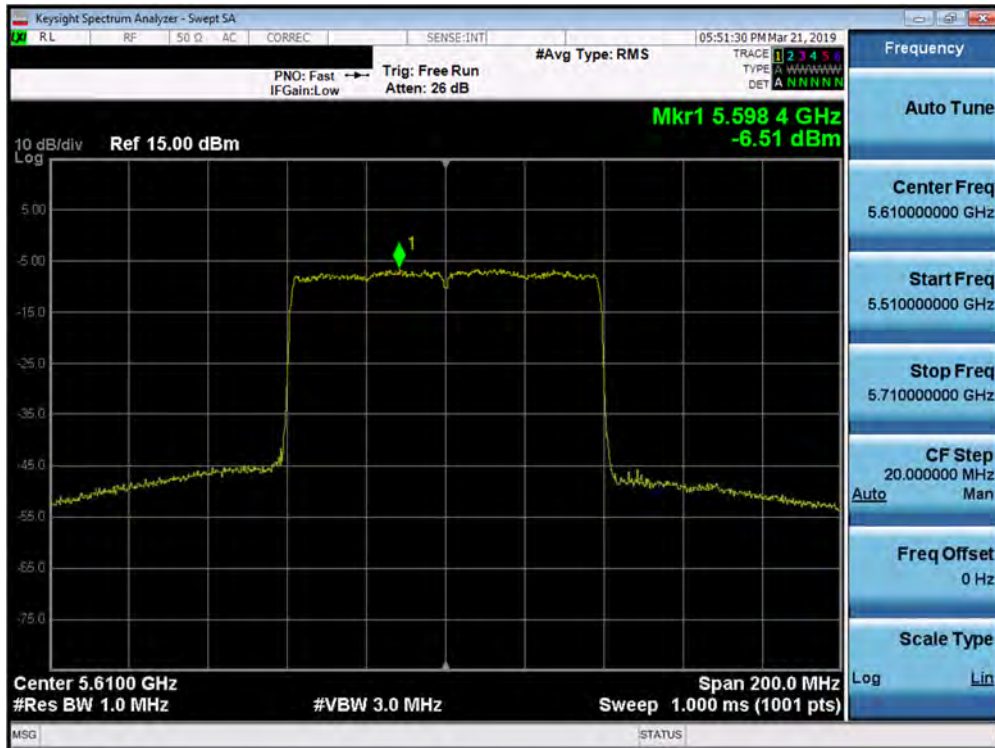


Plot 7-153. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 127 of 287

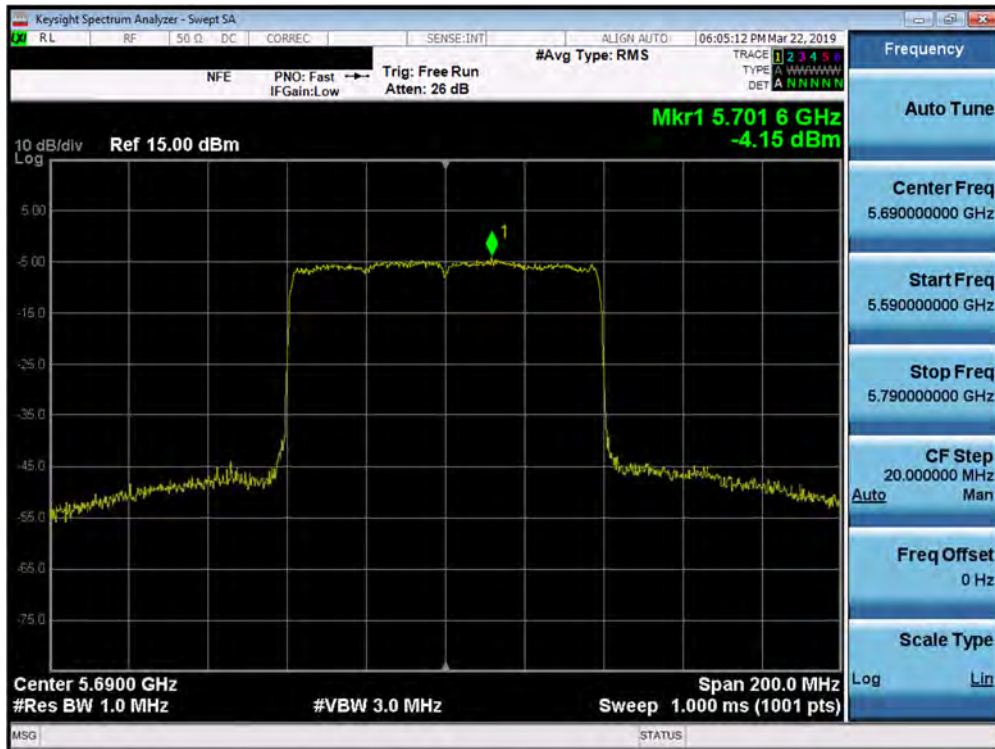


Plot 7-154. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)



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

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 128 of 287



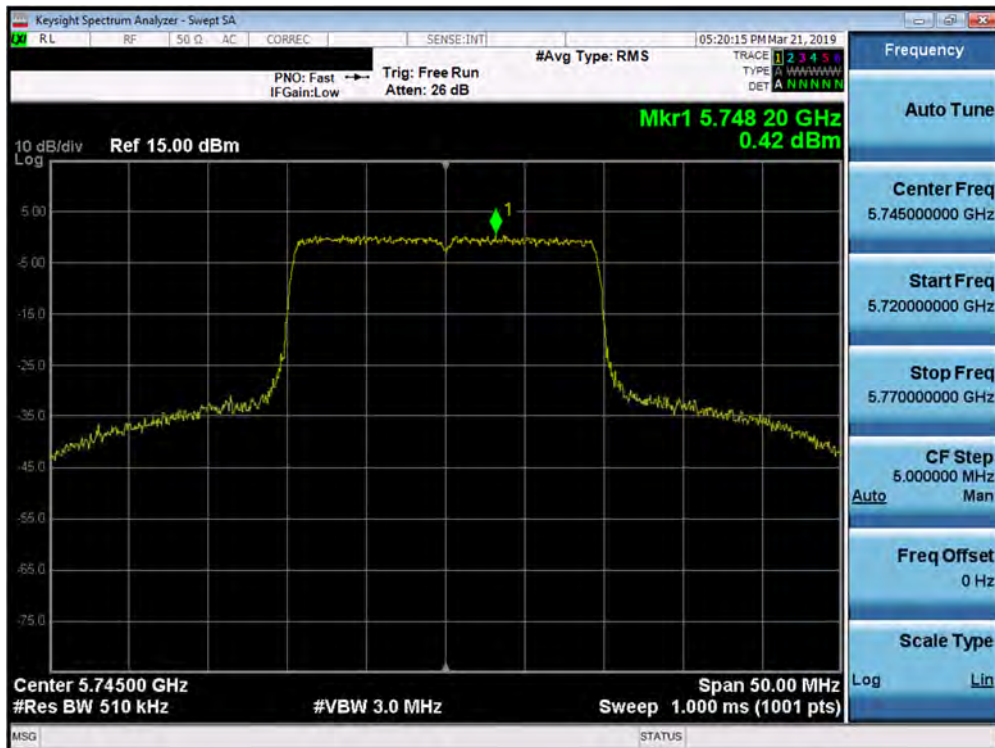
Plot 7-156. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 129 of 287



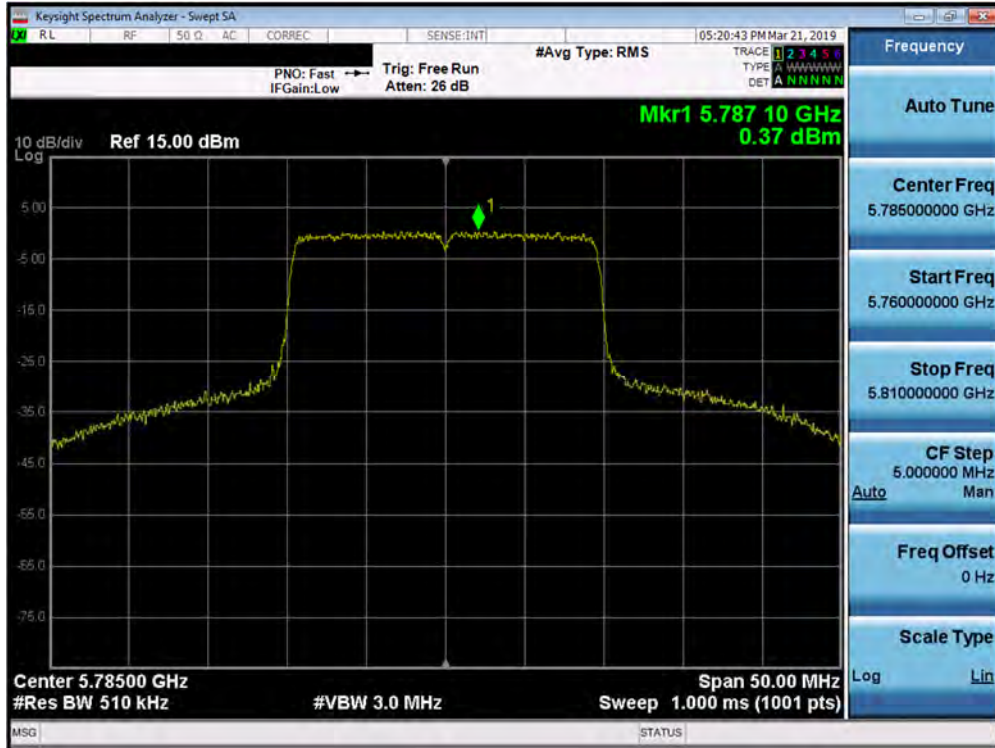
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
<b>Band 3</b>	5745	149	ax (20MHz)	242T	MCS0	0.42	30.00	-29.58
	5785	157	ax (20MHz)	242T	MCS0	0.37	30.00	-29.63
	5825	165	ax (20MHz)	242T	MCS0	0.15	30.00	-29.85
	5755	151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

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

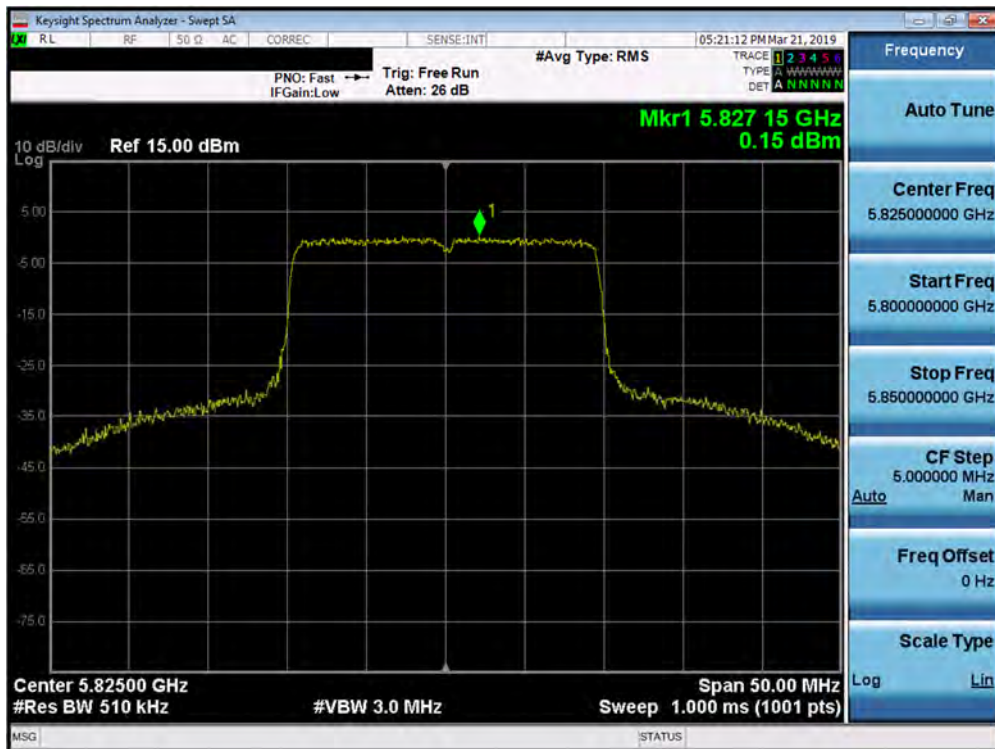


**Plot 7-157. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)**

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 130 of 287

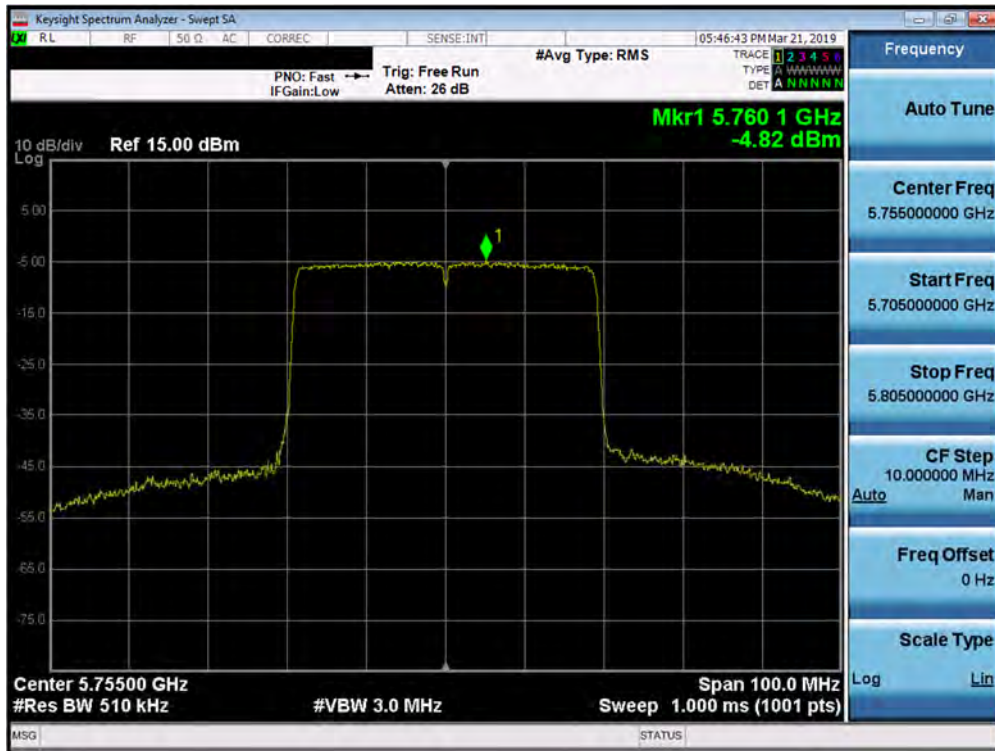


Plot 7-158. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

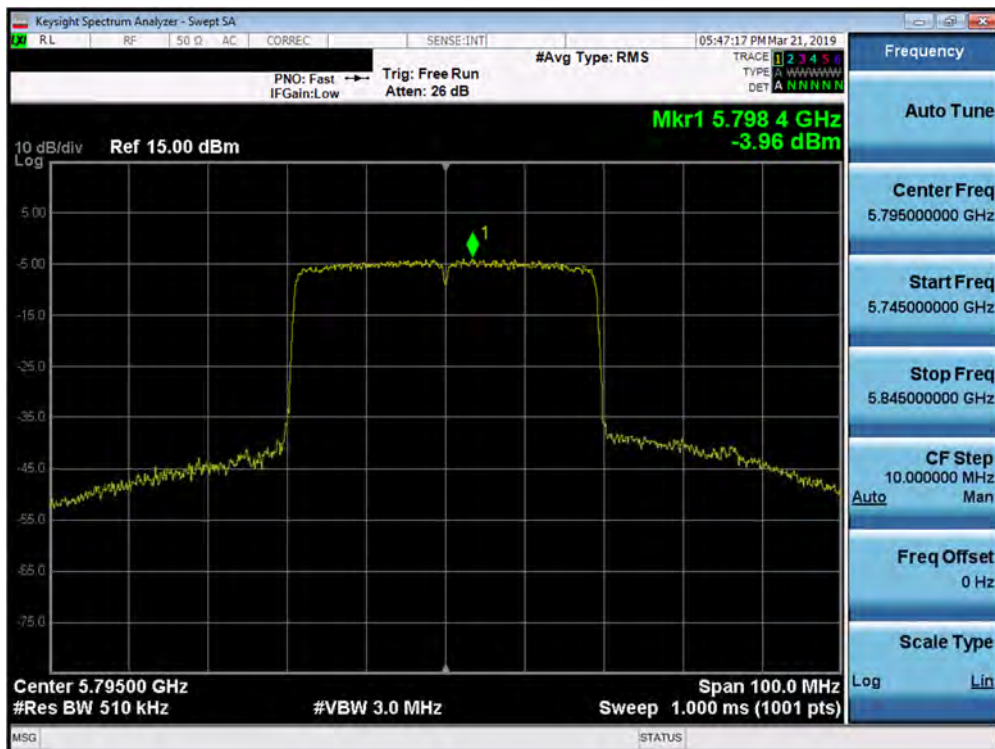


Plot 7-159. Power Spectral Density Plot SISO ANT1 (20 MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 131 of 287

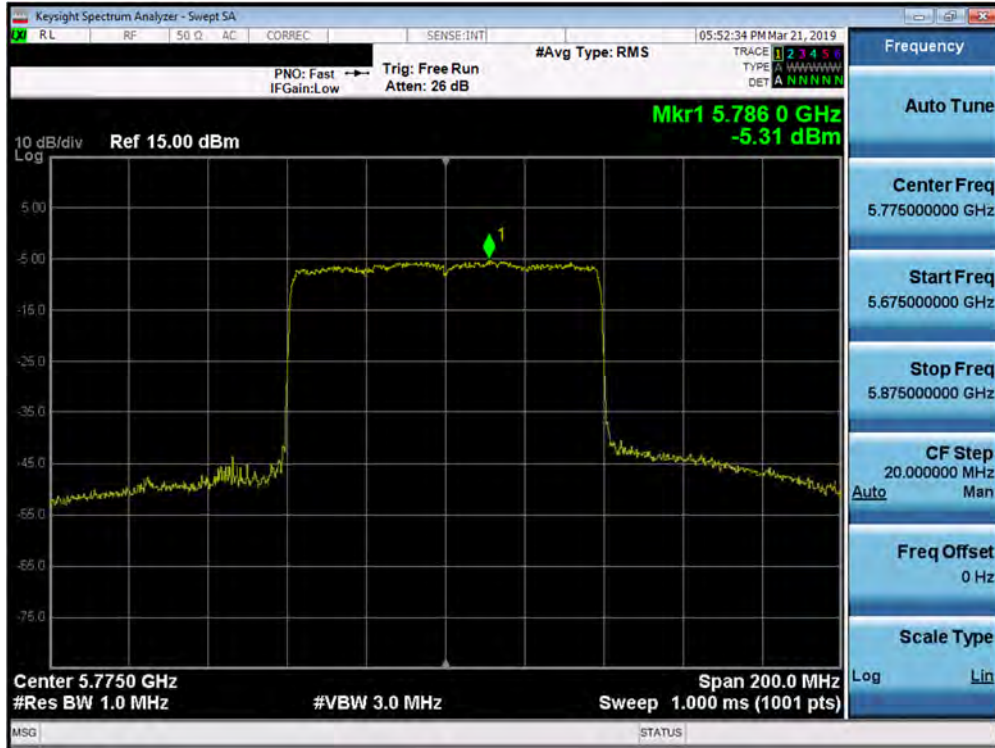


Plot 7-160. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)



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

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 132 of 287



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

FCC ID: A3LSMG977U	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 133 of 287



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

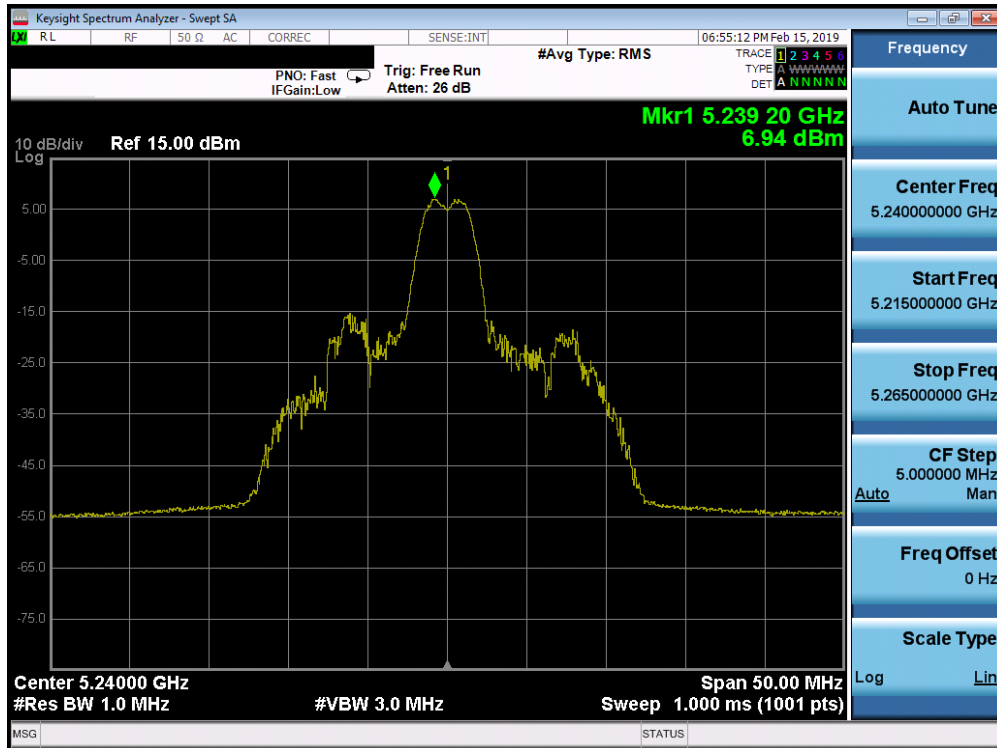
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26T	MCS0	7.26	11.0	-3.74
	5200	40	ax (20MHz)	26T	MCS0	6.86	11.0	-4.14
	5240	48	ax (20MHz)	26T	MCS0	6.94	11.0	-4.06
	5190	38	ax (40MHz)	26T	MCS0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

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

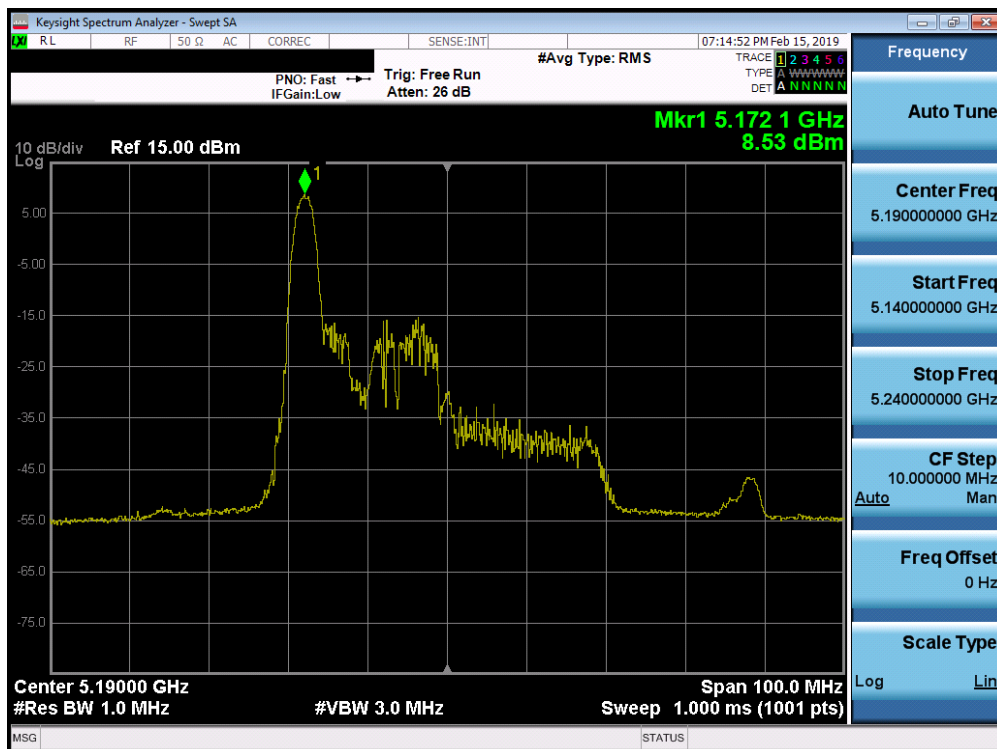
FCC ID: A3LSMG977U		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 134 of 287





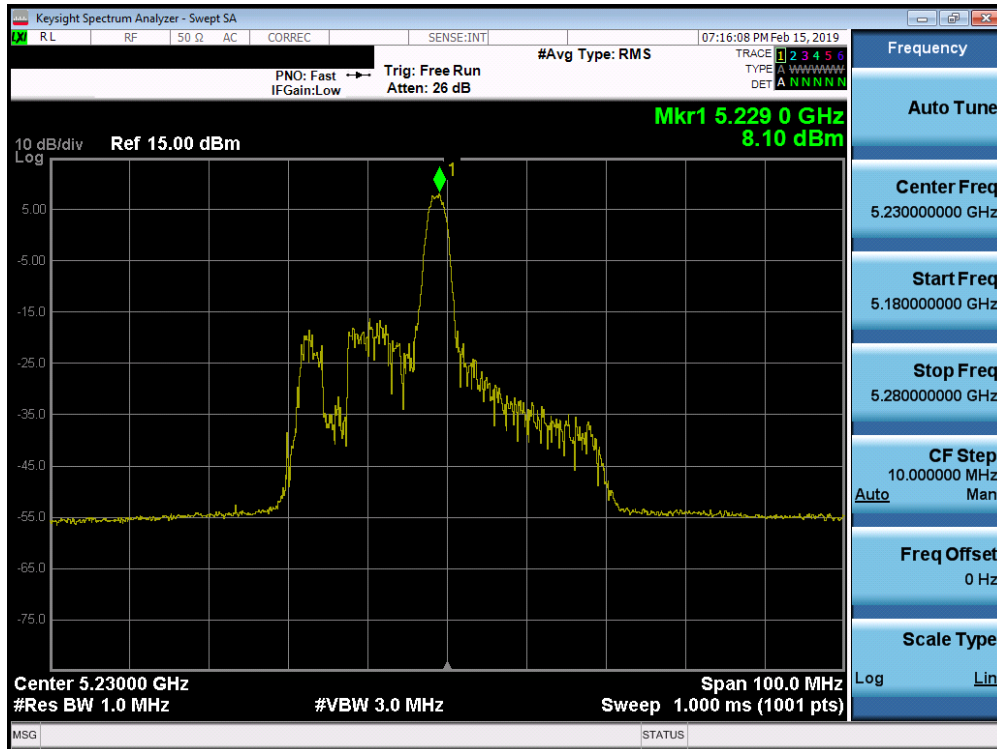


Plot 7-165. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

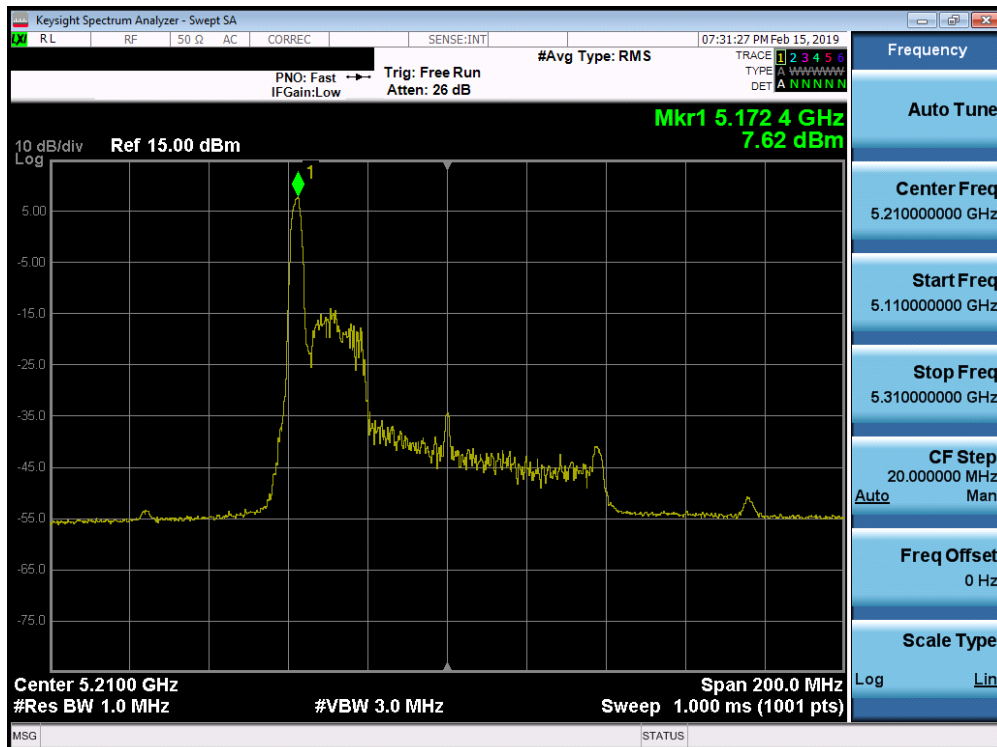


Plot 7-166. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 136 of 287

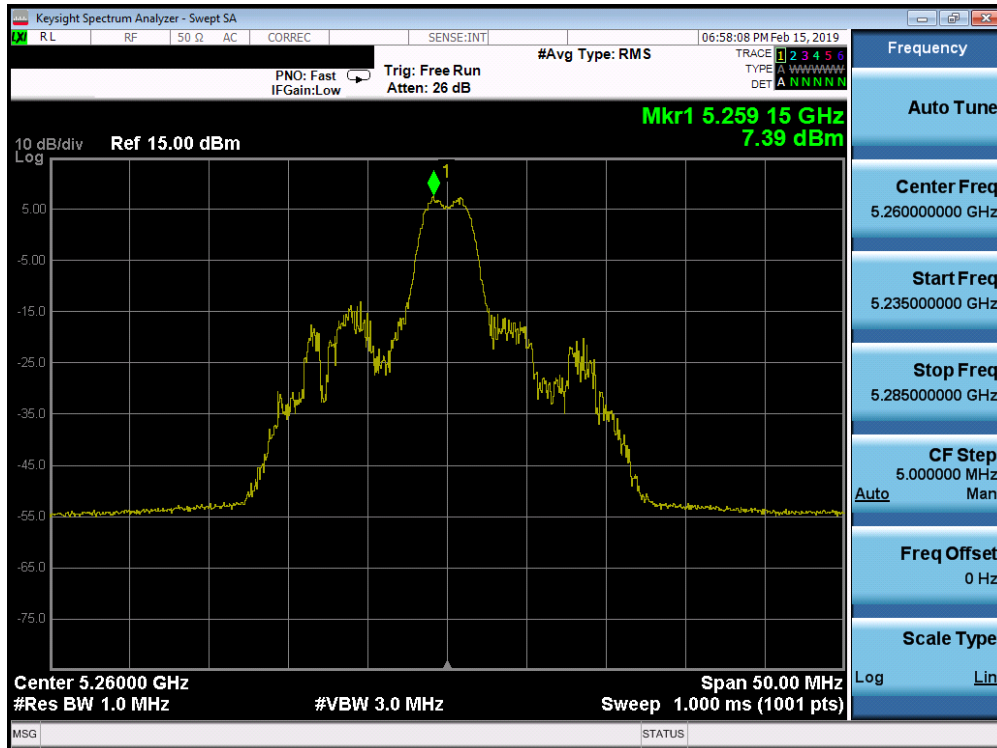


Plot 7-167. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

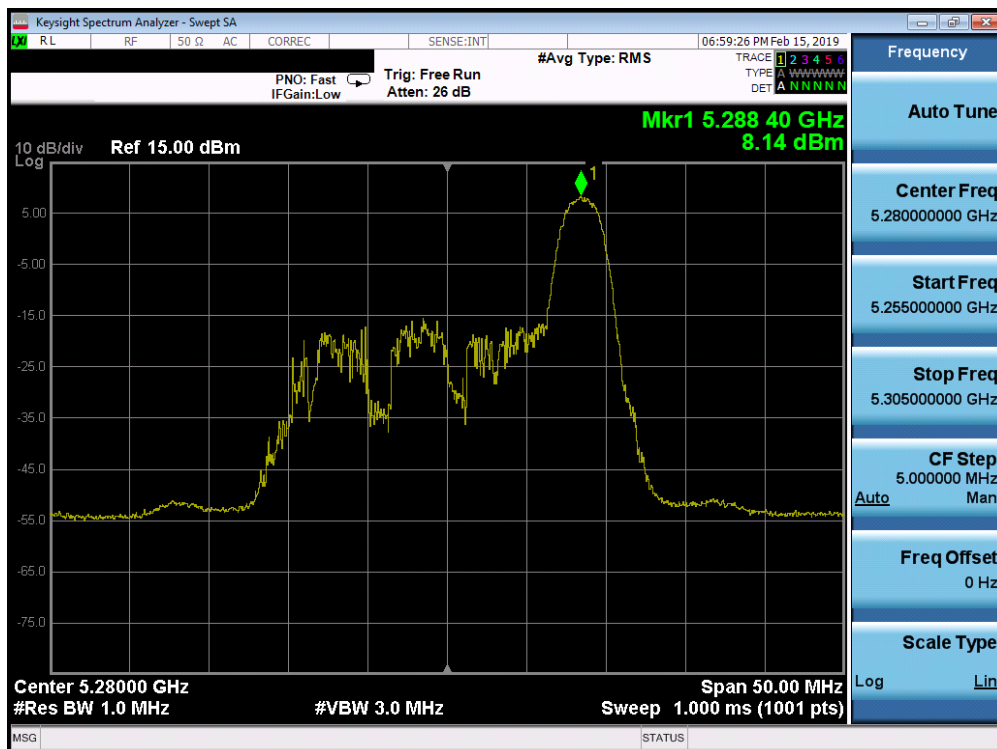


Plot 7-168. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 137 of 287



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

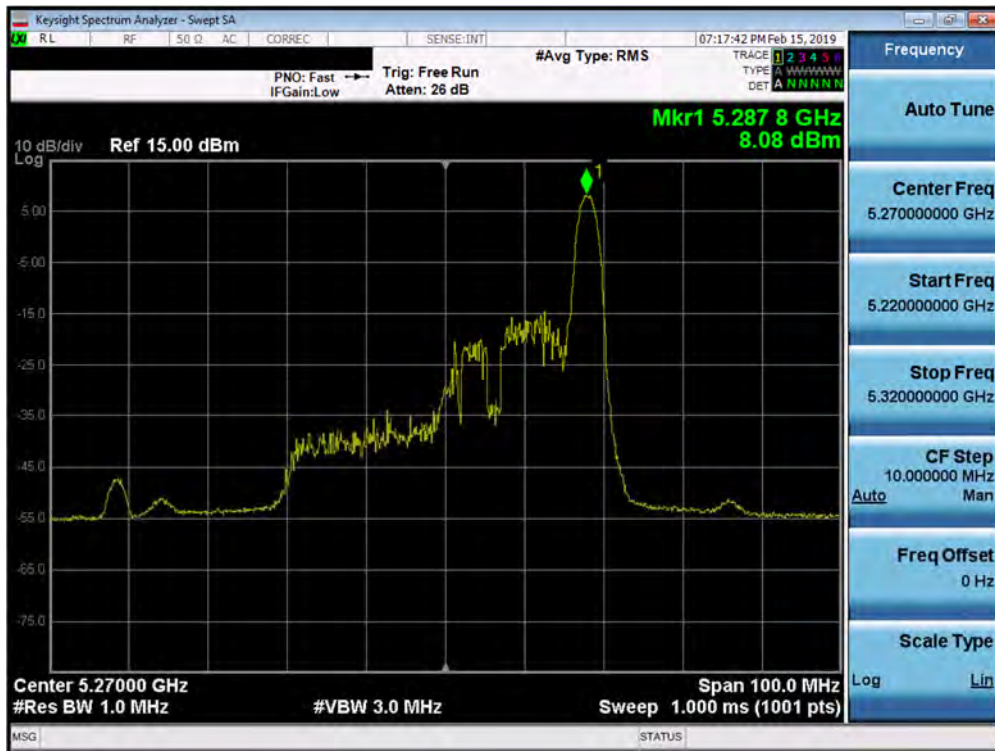


Plot 7-170. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 138 of 287



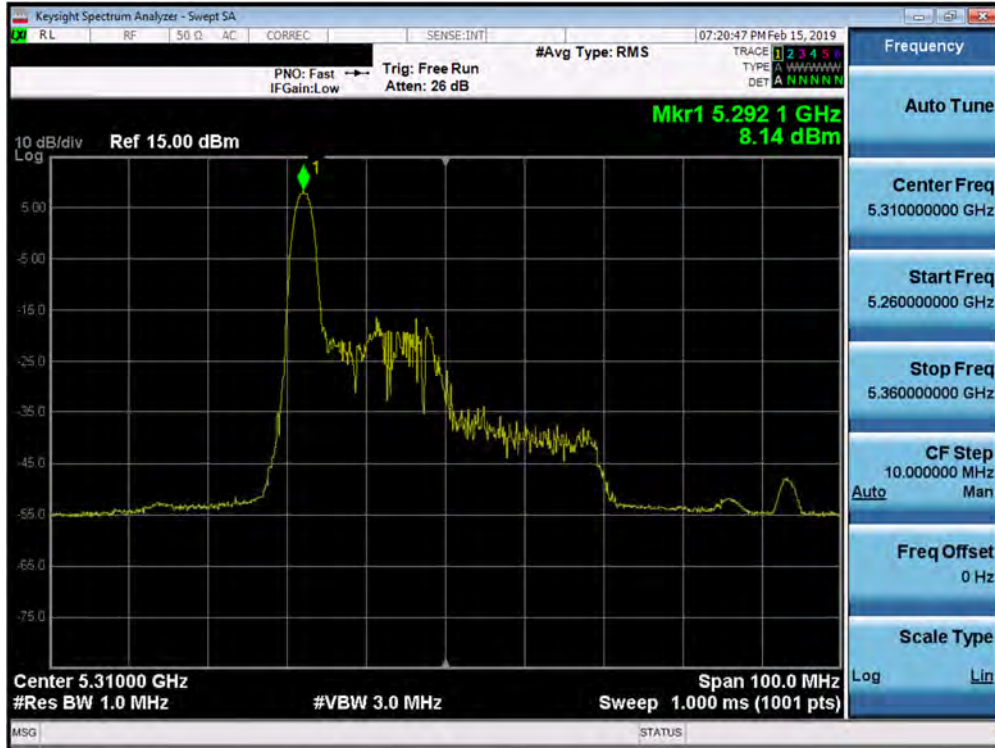
Plot 7-171. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)



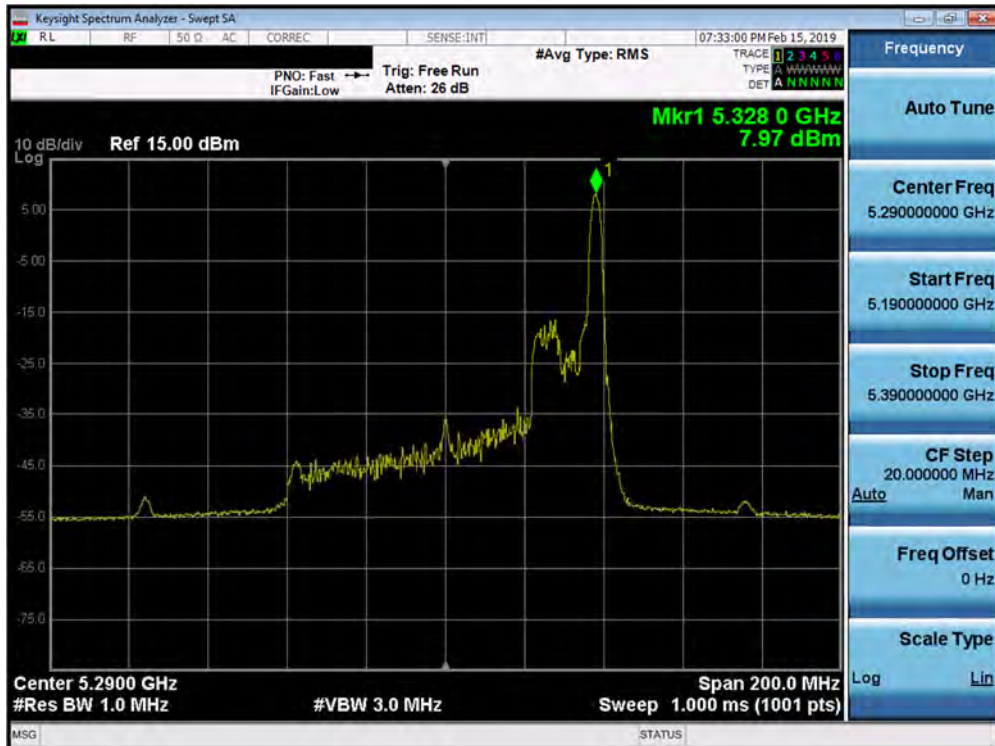
Plot 7-172. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 139 of 287



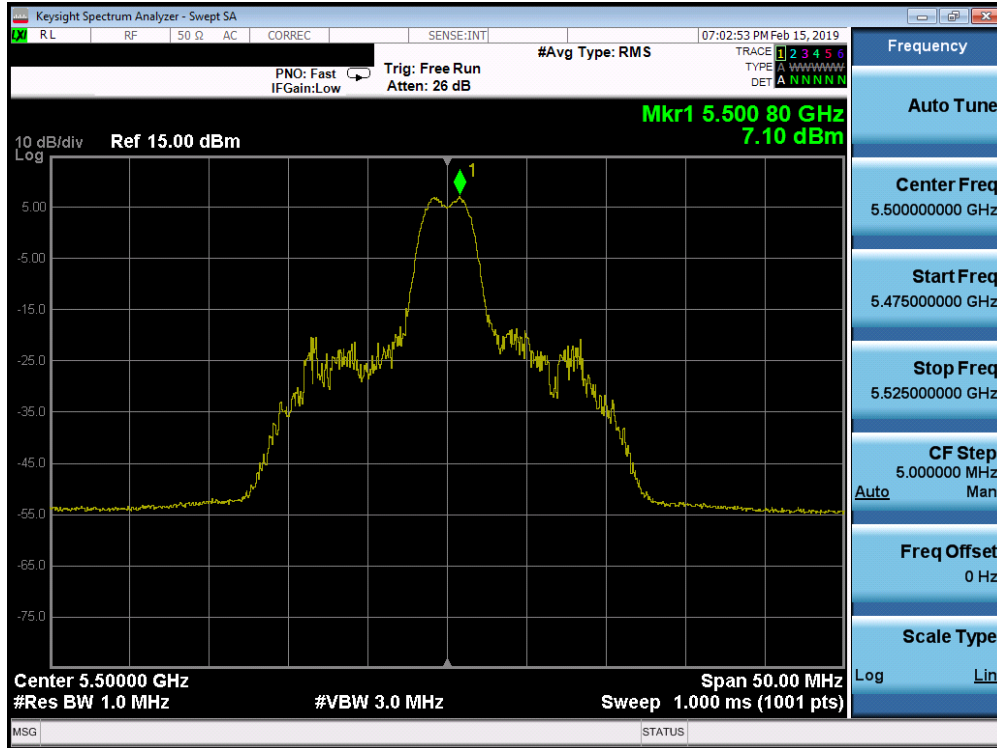


Plot 7-173. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

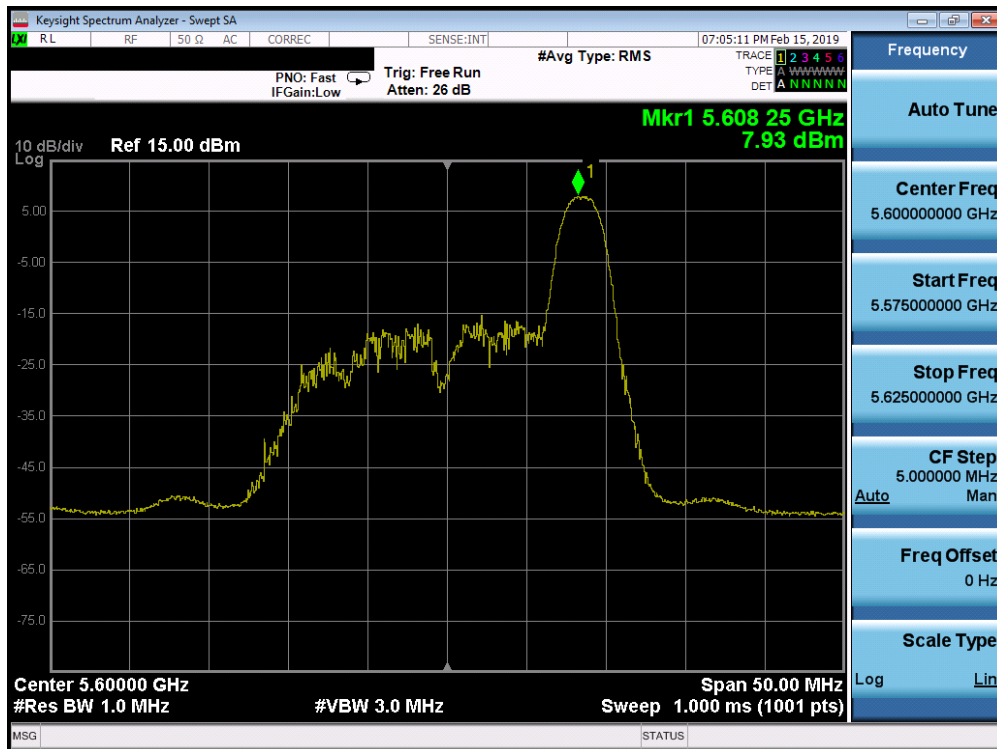


Plot 7-174. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 140 of 287



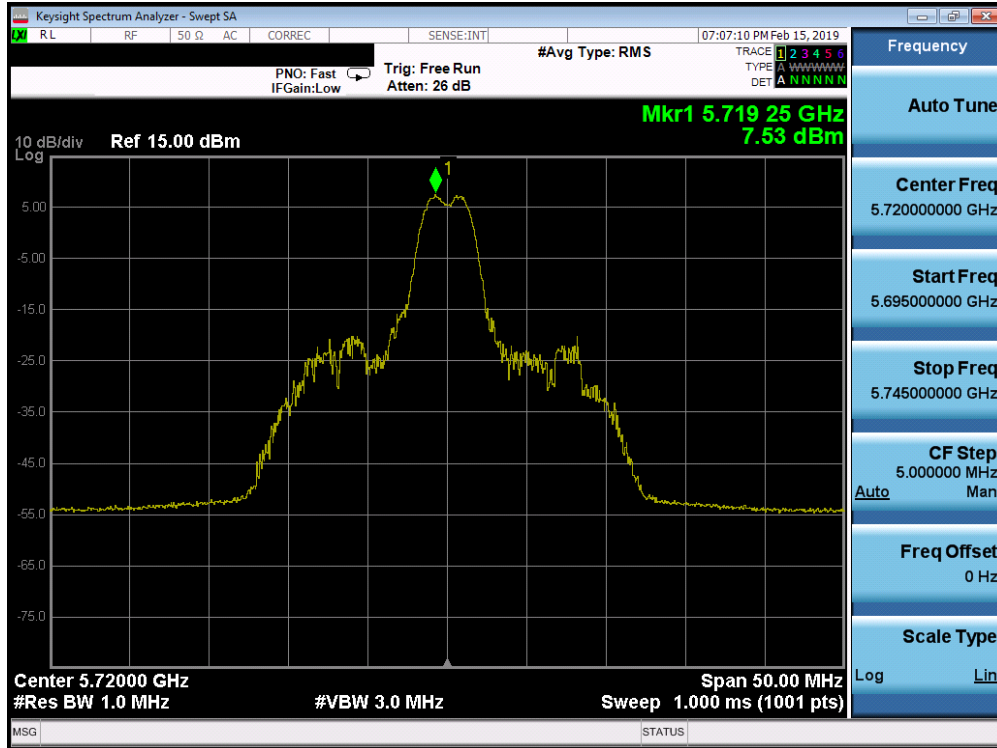
Plot 7-175. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)



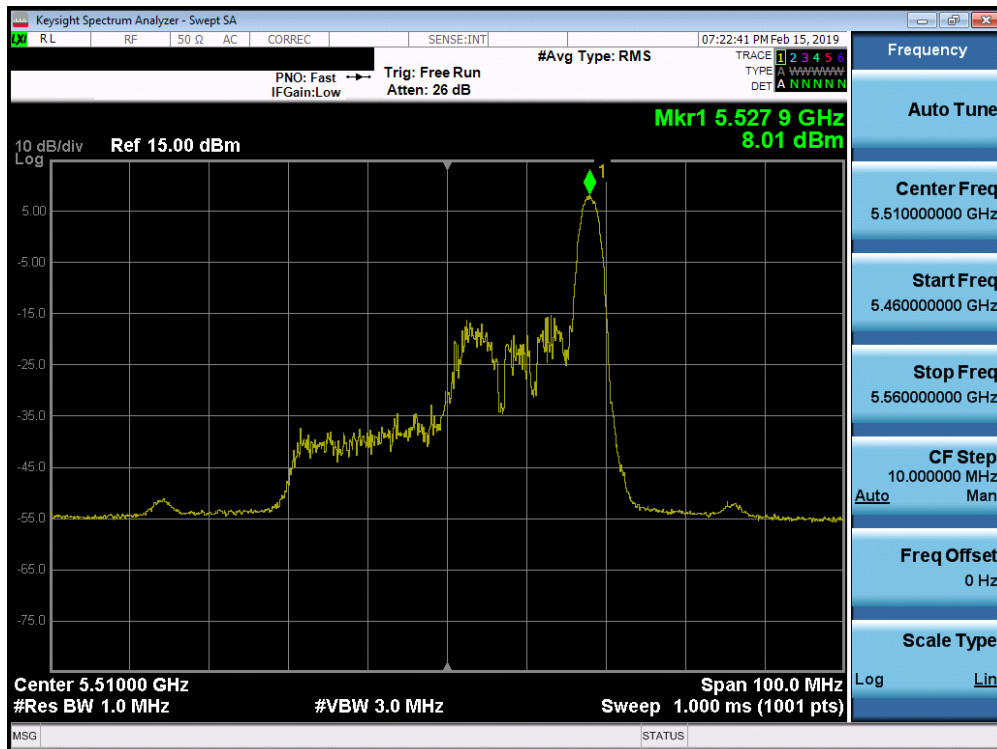
Plot 7-176. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 141 of 287



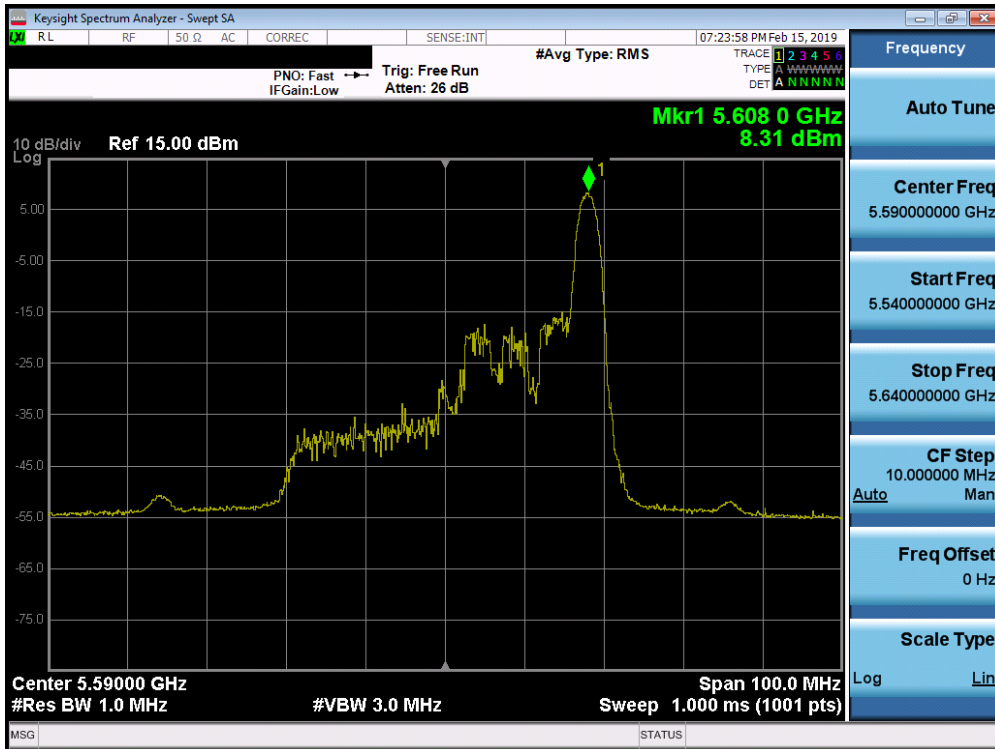


Plot 7-177. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

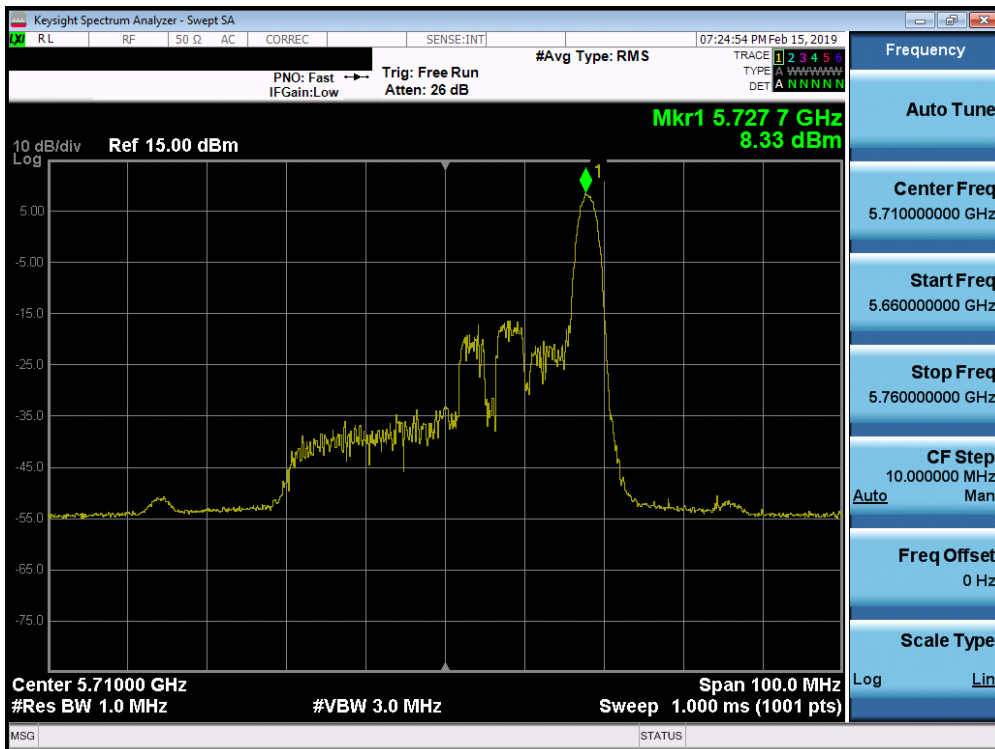


Plot 7-178. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 142 of 287

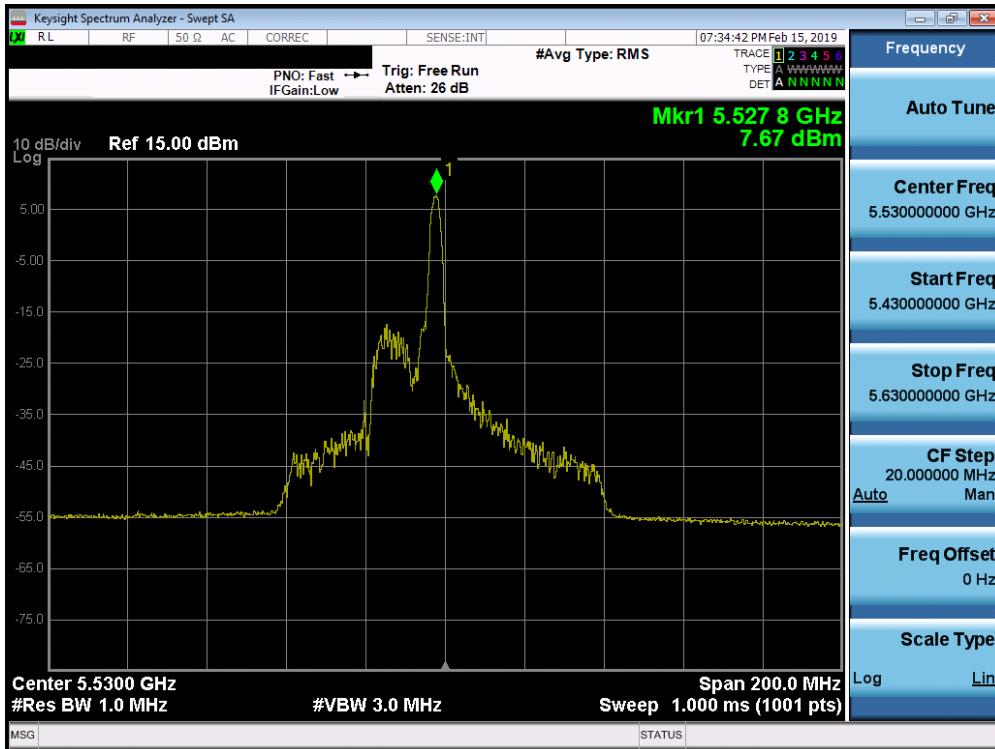


Plot 7-179. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

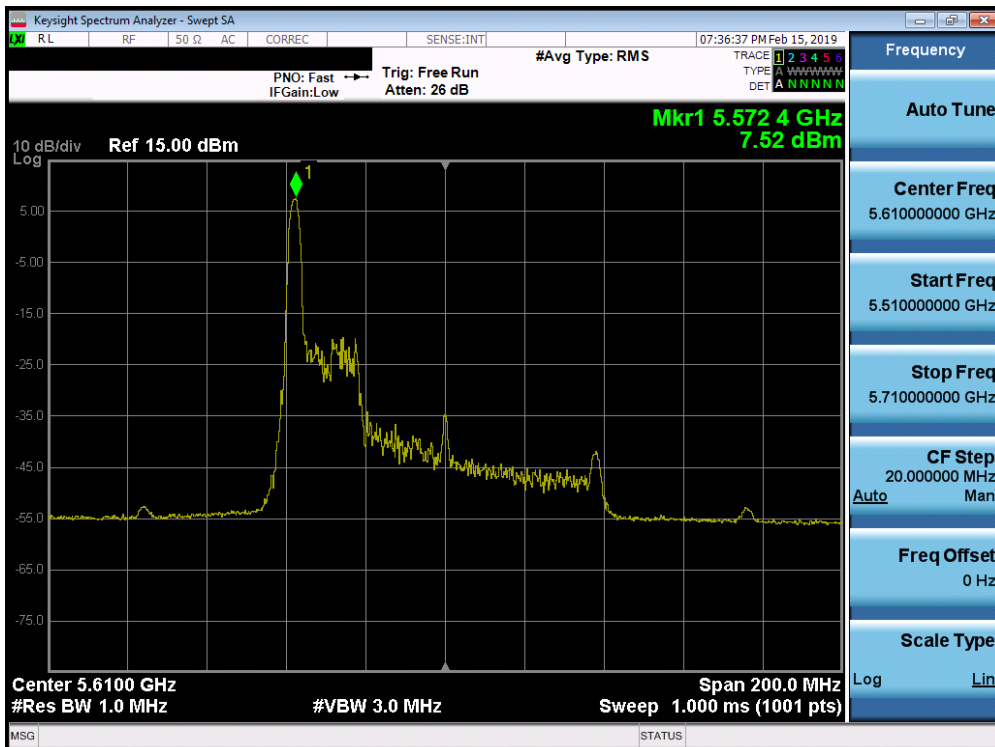


Plot 7-180. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 143 of 287

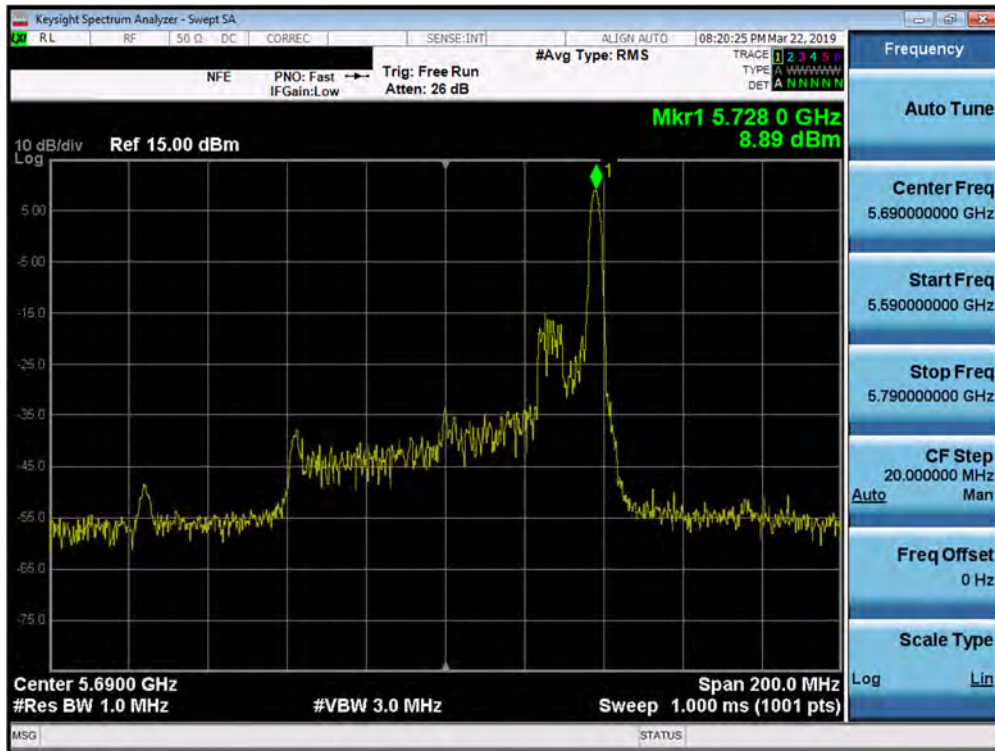


Plot 7-181. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



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

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 144 of 287

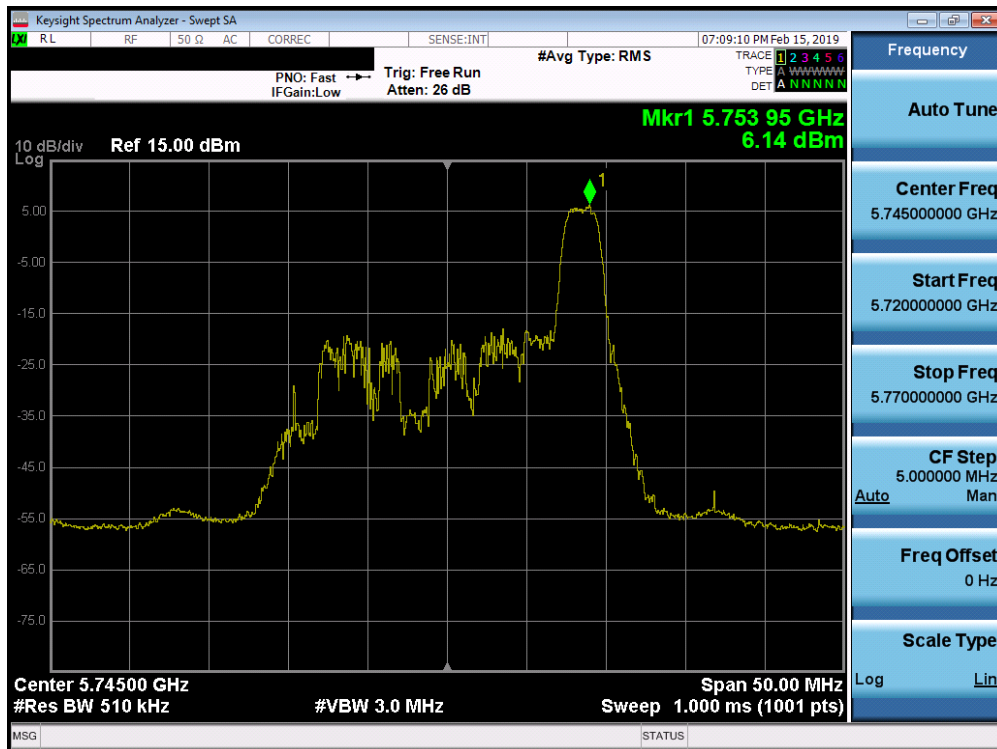


Plot 7-183. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 145 of 287

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

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

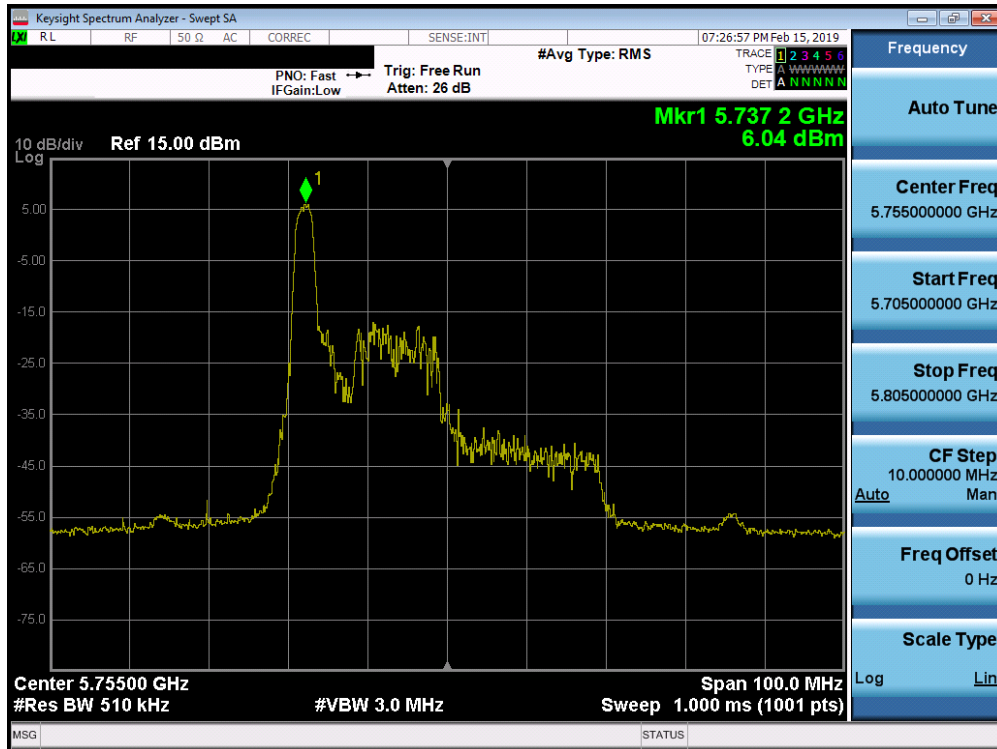


**Plot 7-184. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)**

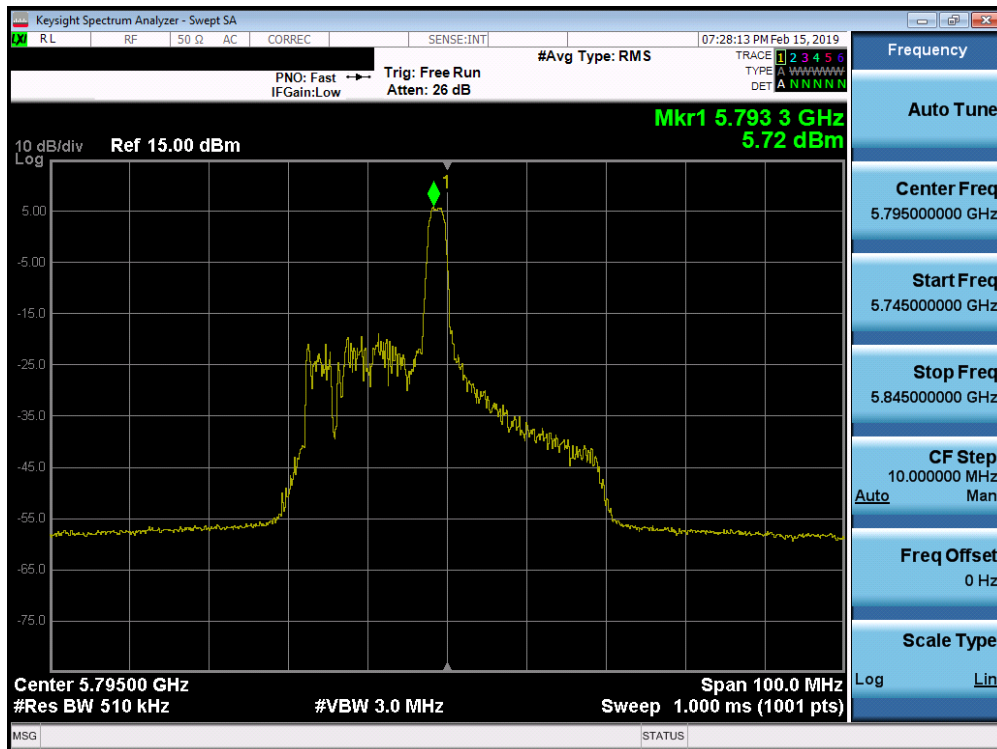
FCC ID: A3LSMG977U		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 146 of 287





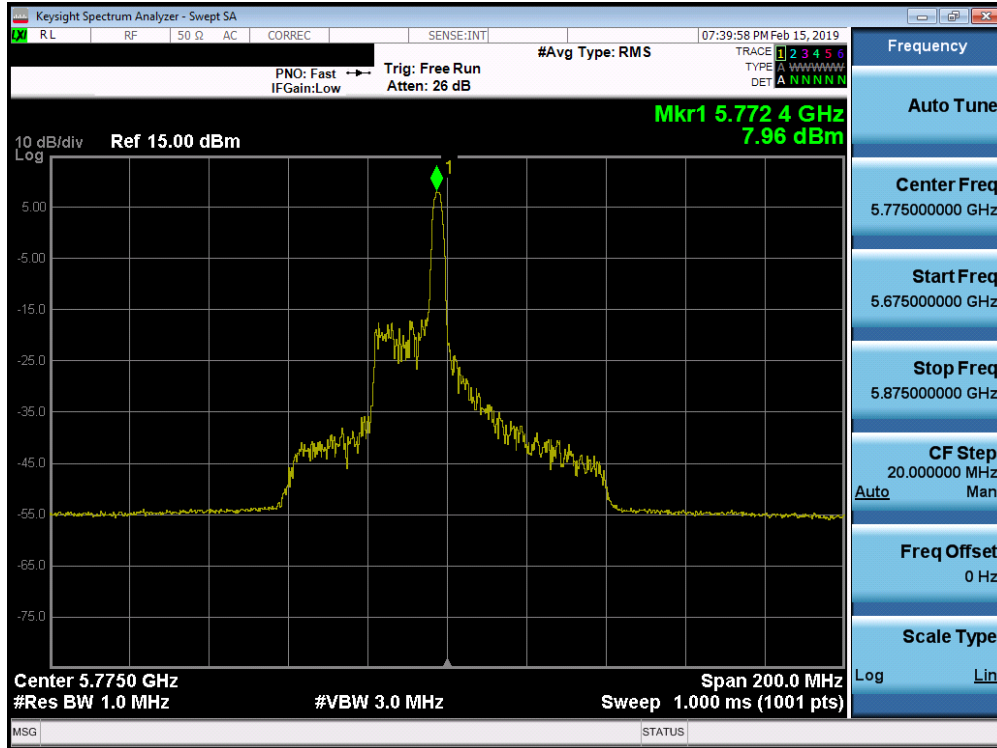


Plot 7-187. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



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

FCC ID: A3LSMG977U	<b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 148 of 287



Plot 7-189. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG977U	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 149 of 287

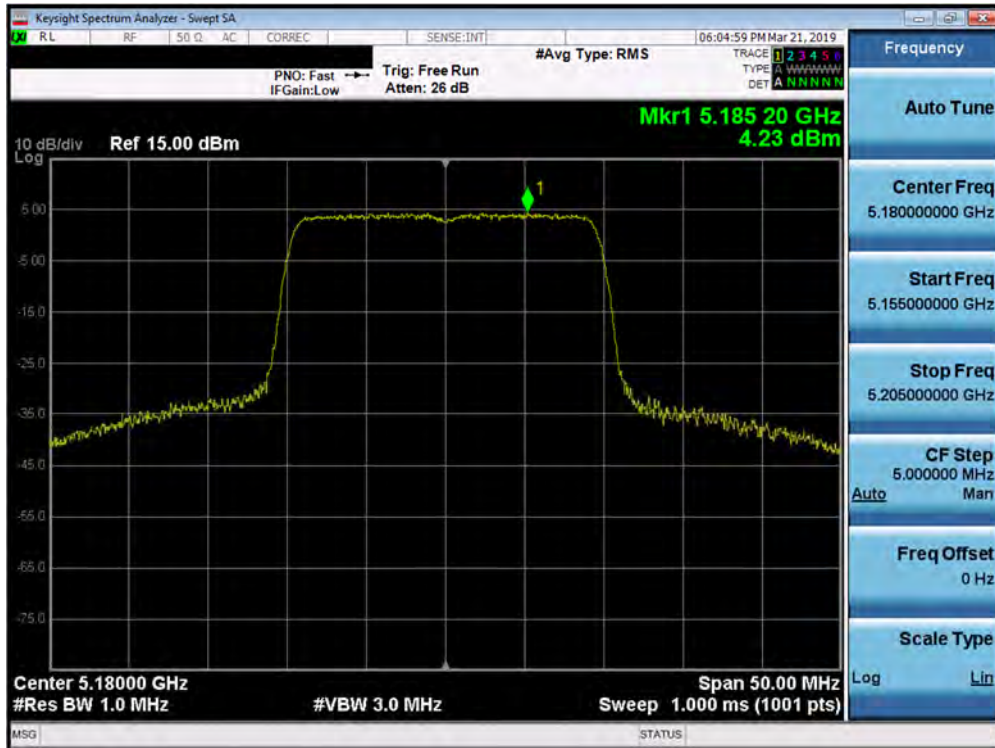
### SISO Antenna-2 Power Spectral Density Measurements (Full Tones)

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

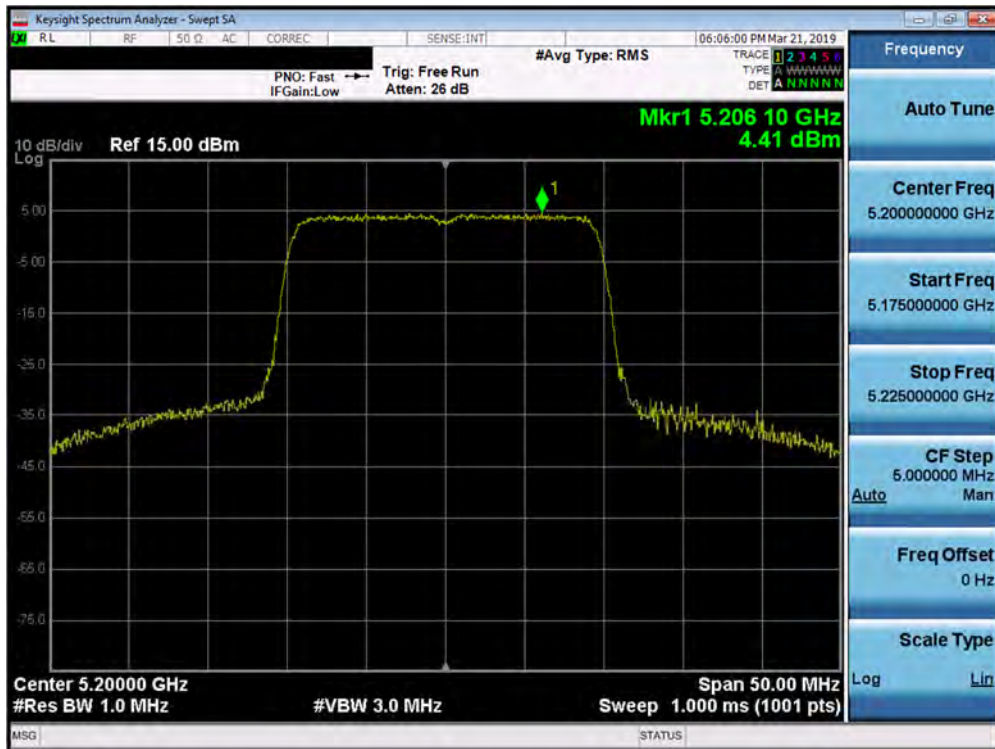
Table 7-61. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 150 of 287





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

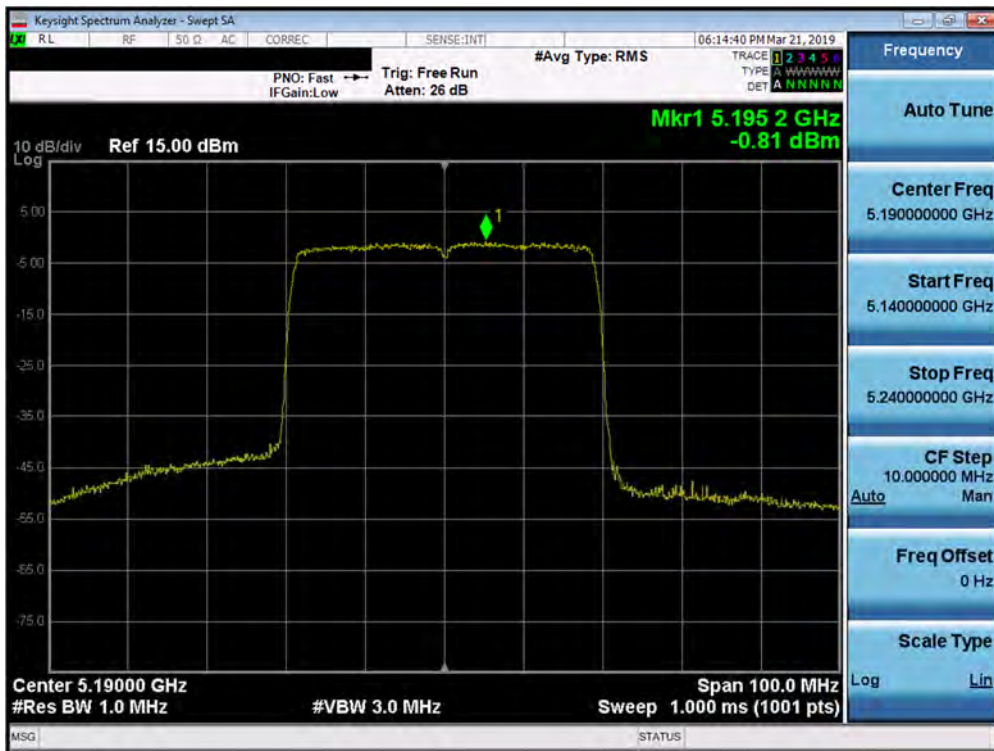


Plot 7-191. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 151 of 287

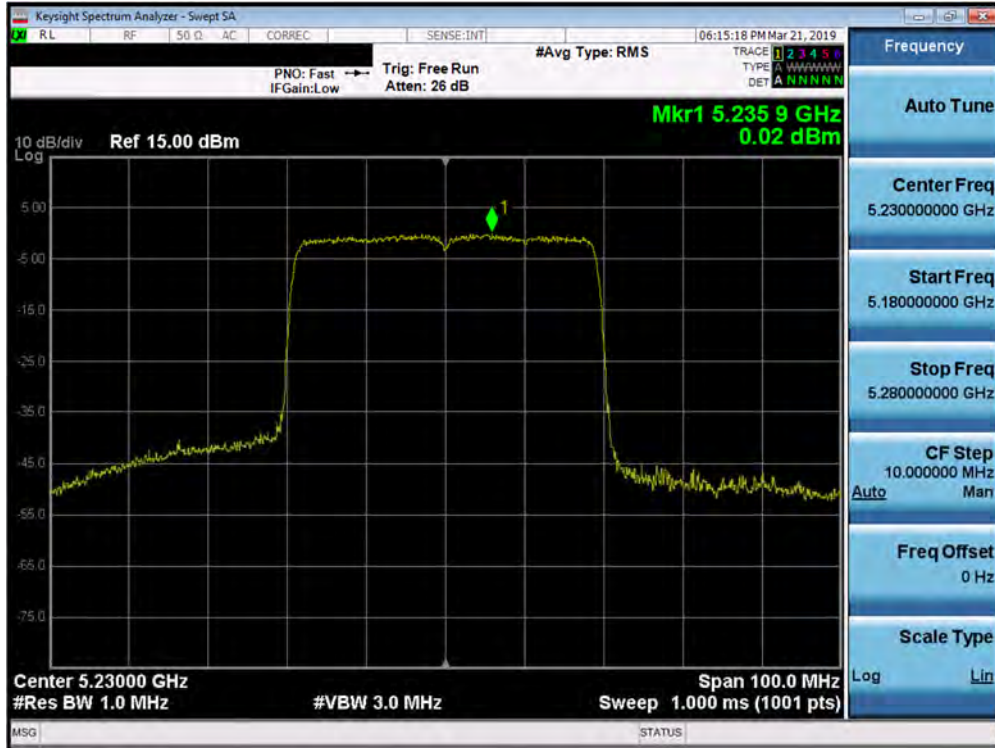


Plot 7-192. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

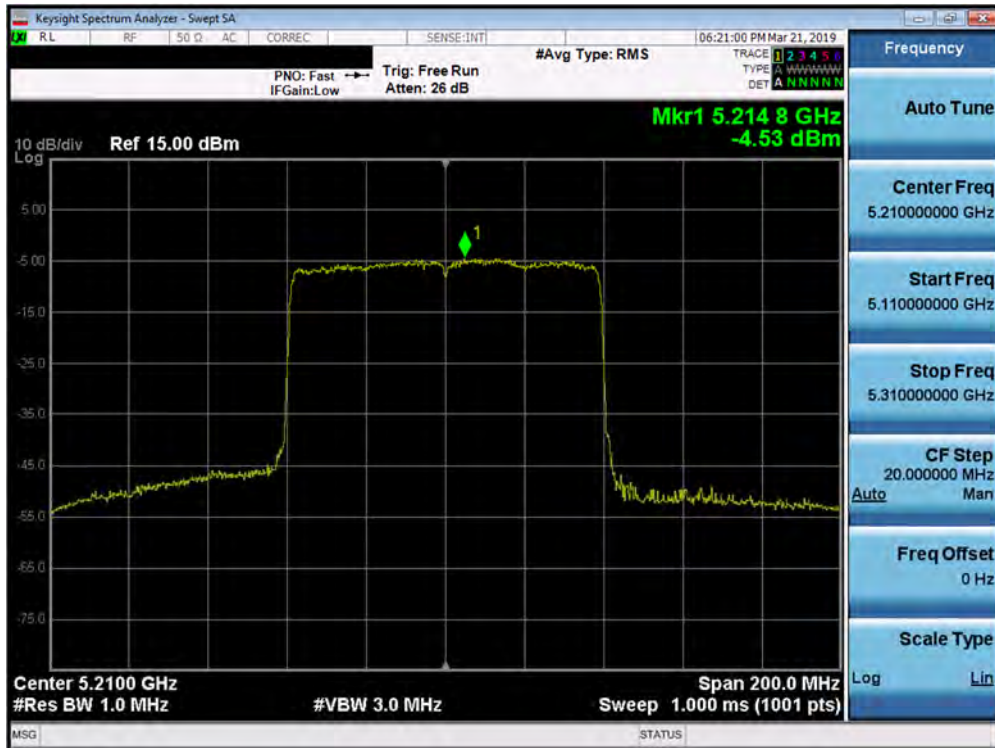


Plot 7-193. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 152 of 287



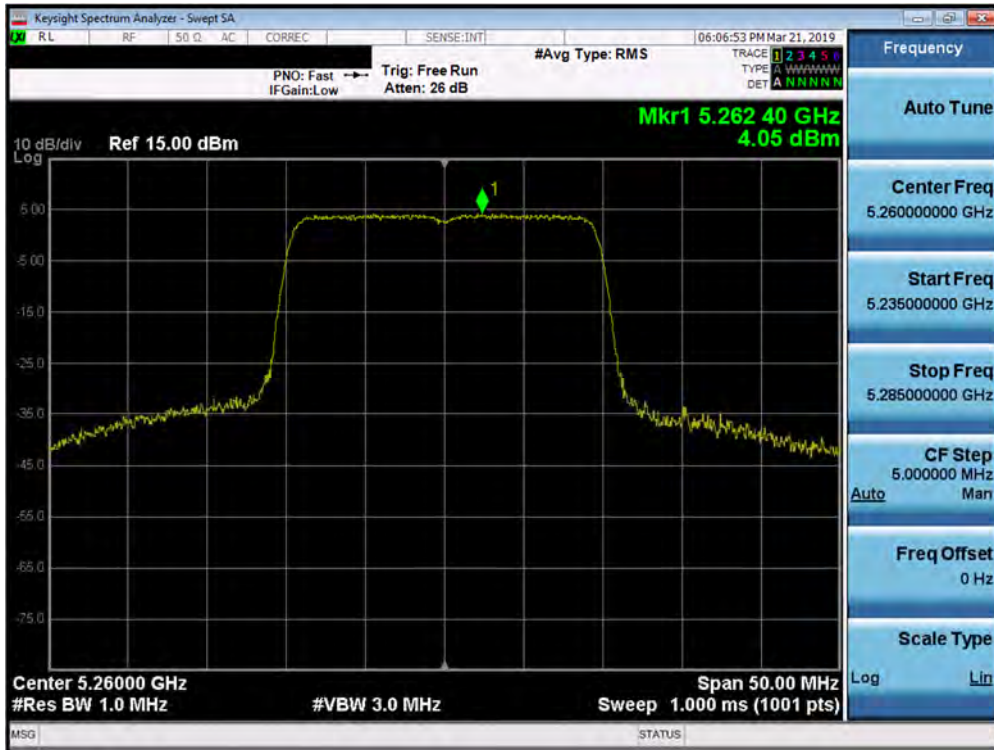
Plot 7-194. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)



Plot 7-195. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 153 of 287





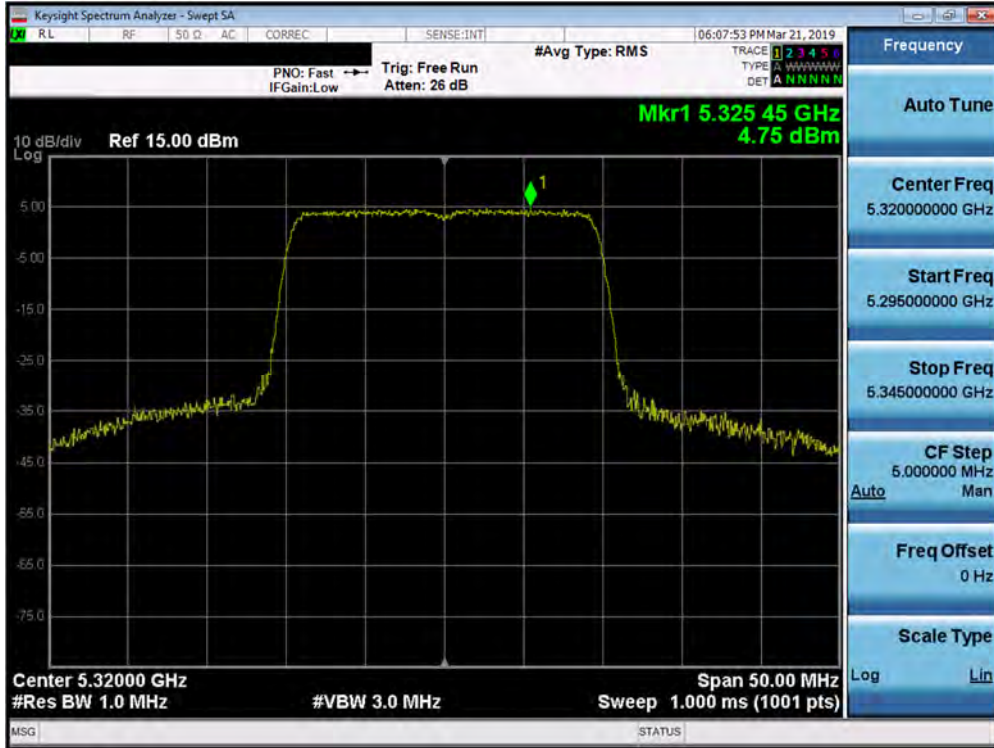
Plot 7-196. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)



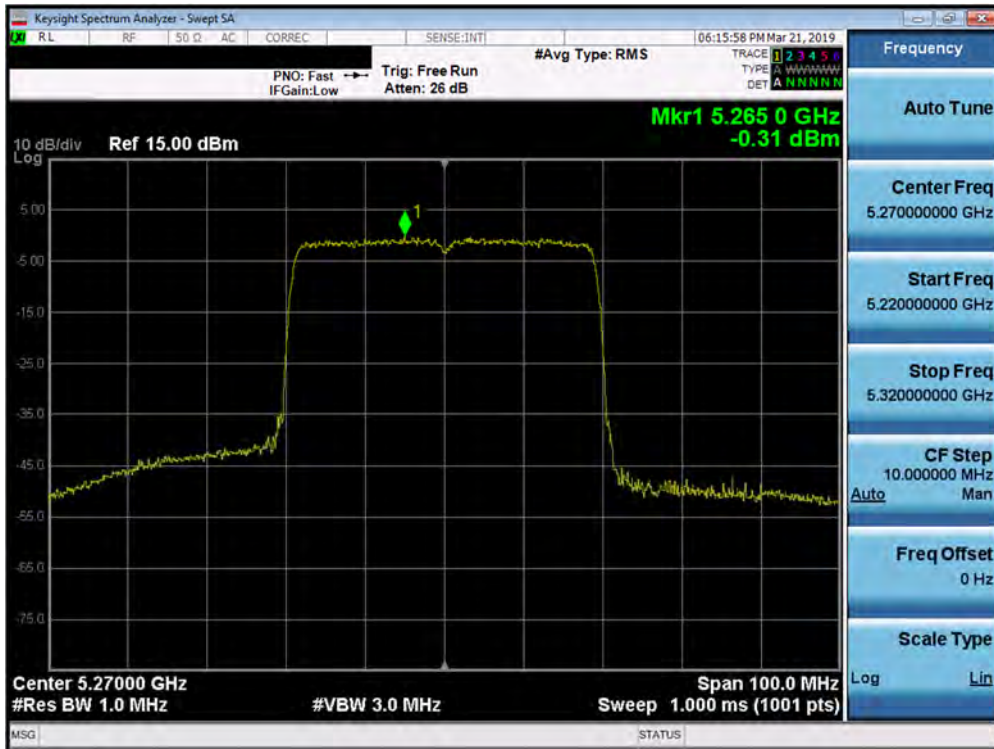
Plot 7-197. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 154 of 287



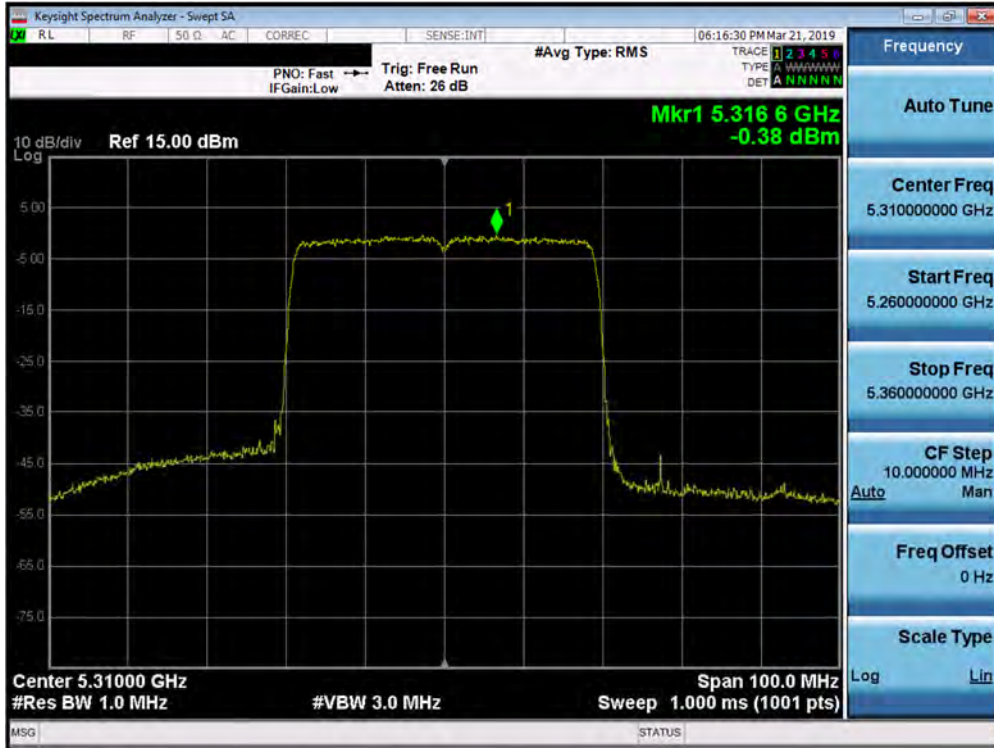


Plot 7-198. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)

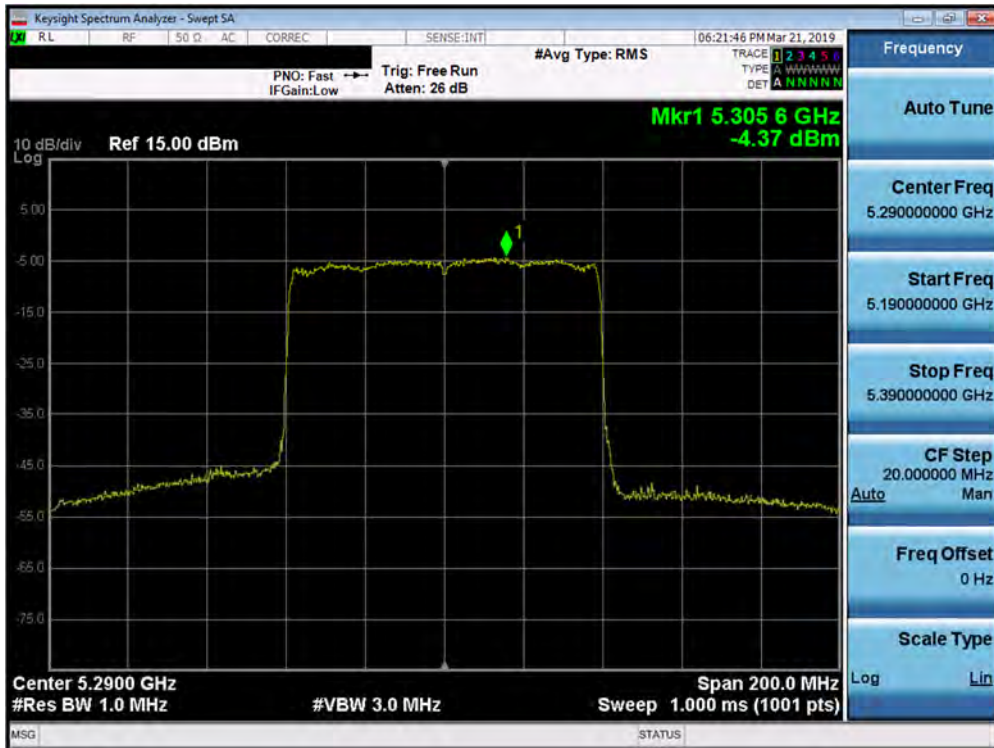


Plot 7-199. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 155 of 287

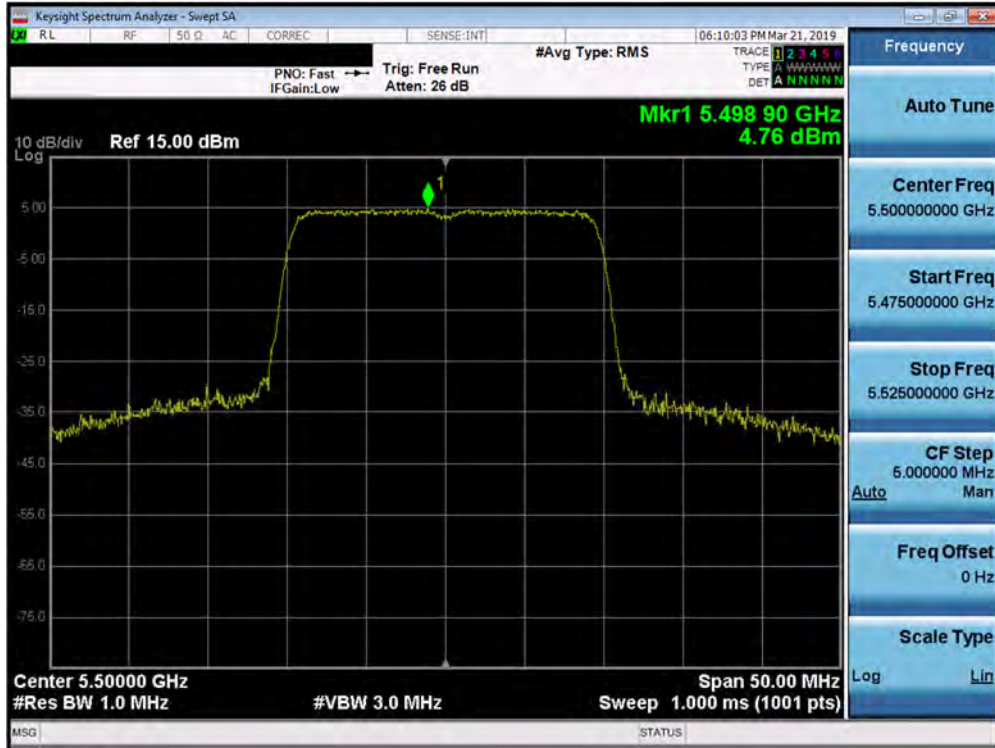


Plot 7-200. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

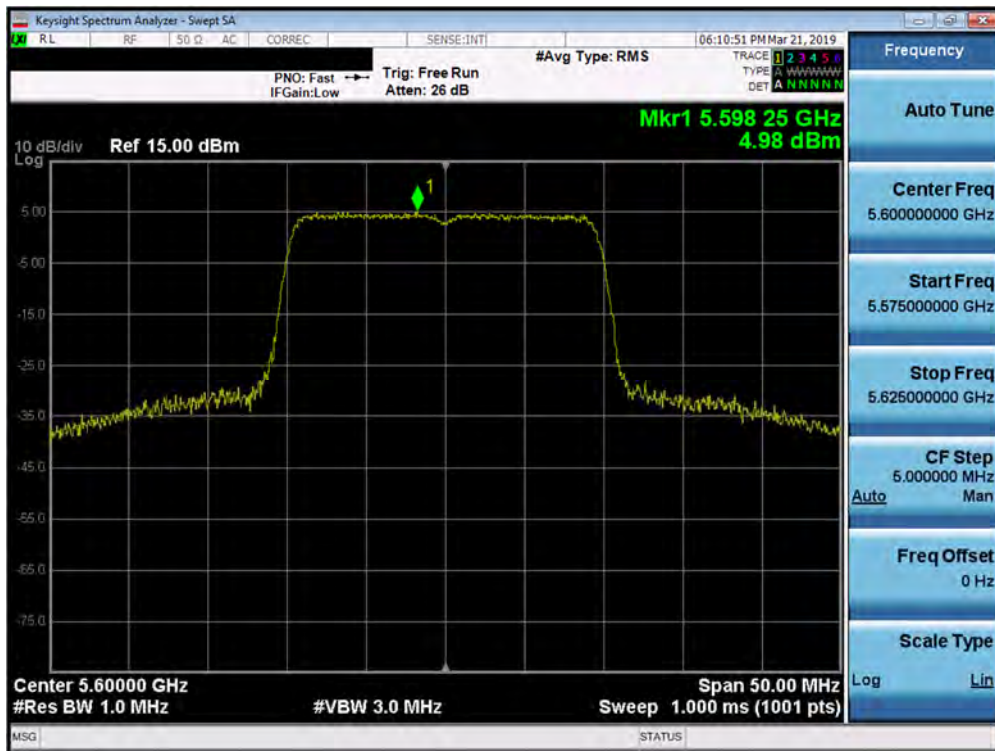


Plot 7-201. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 156 of 287



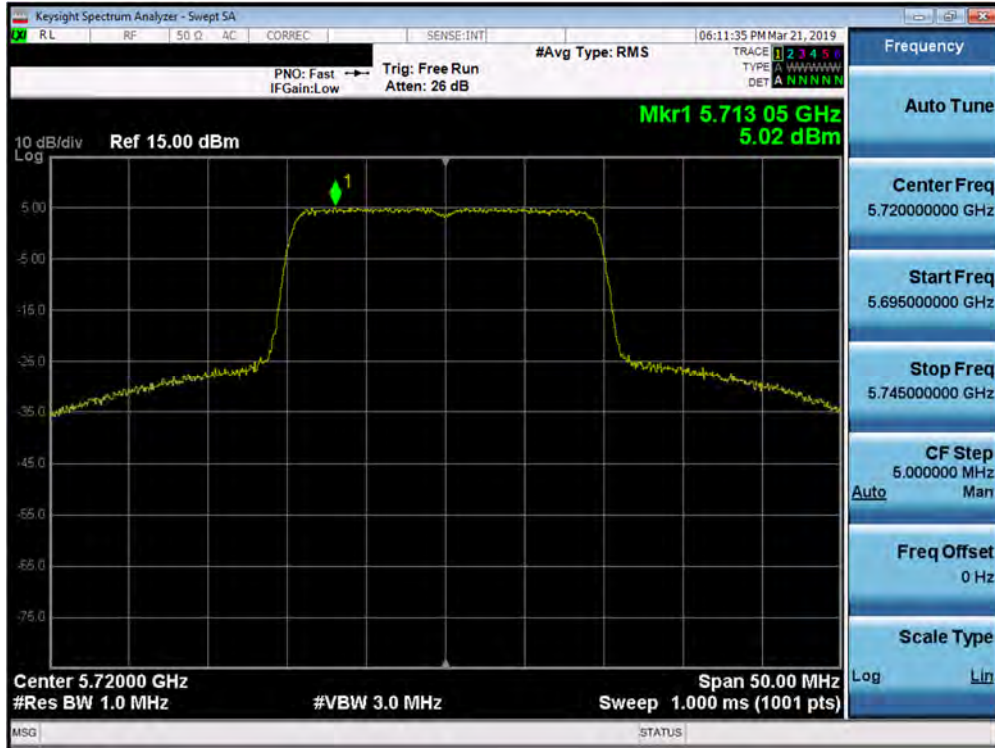
Plot 7-202. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)



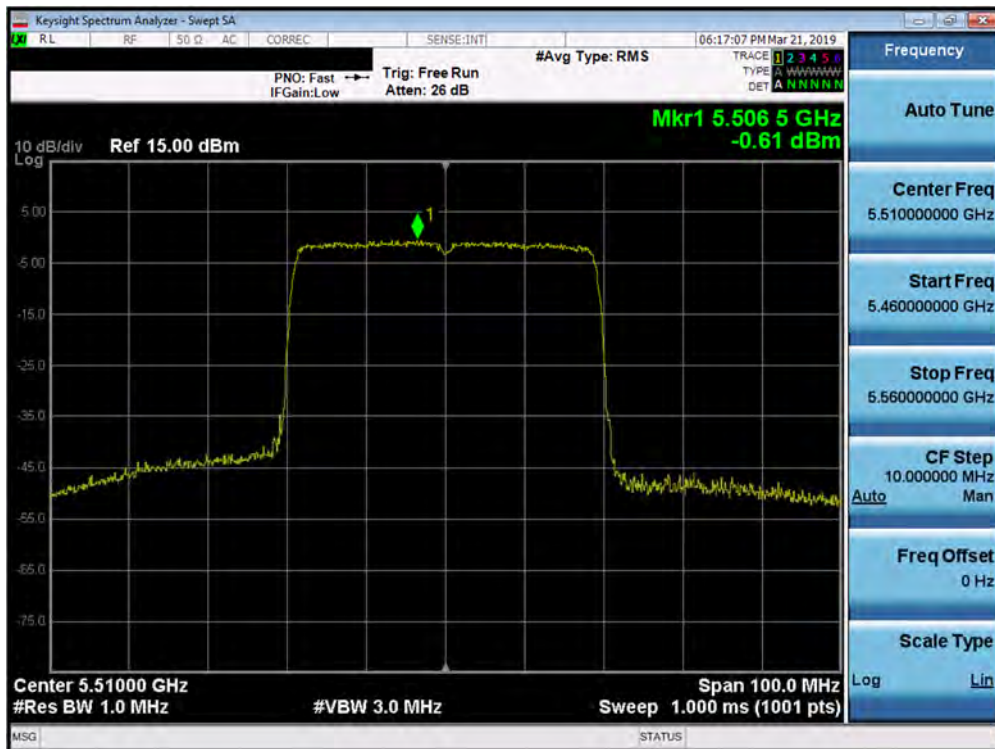
Plot 7-203. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977U	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT</b> (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 157 of 287



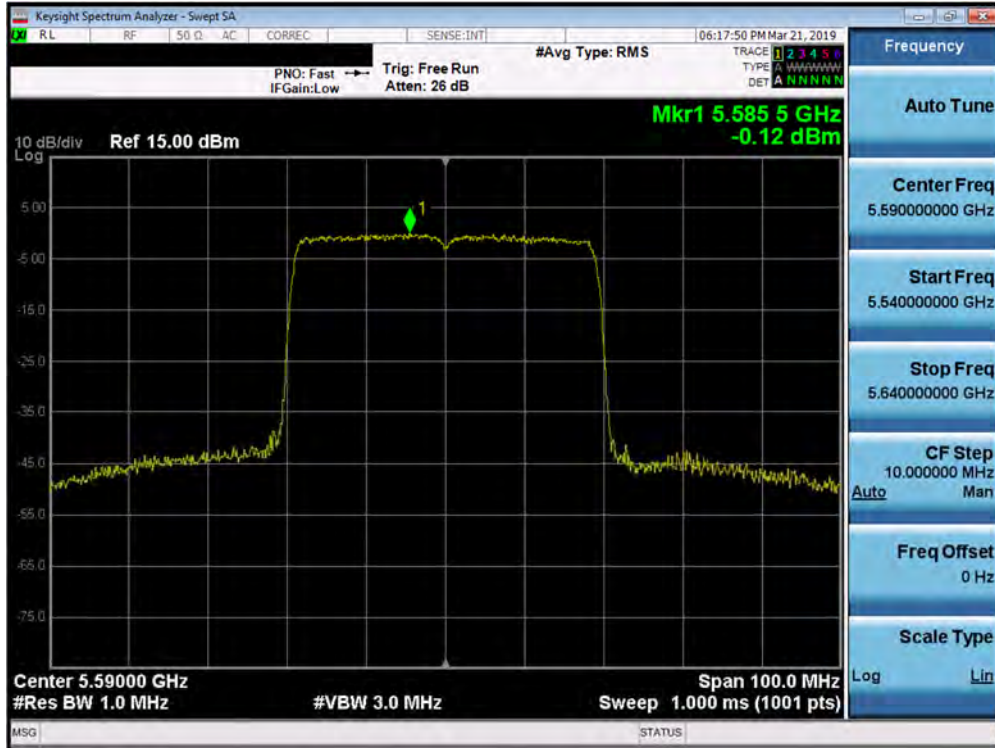


Plot 7-204. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)

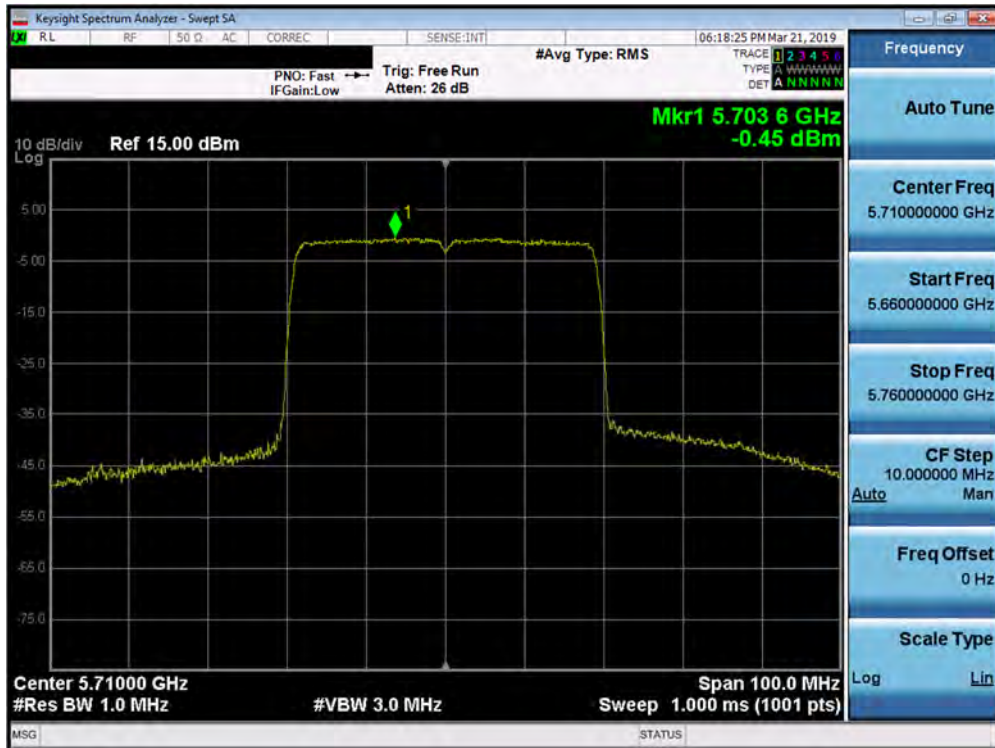


Plot 7-205. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 158 of 287



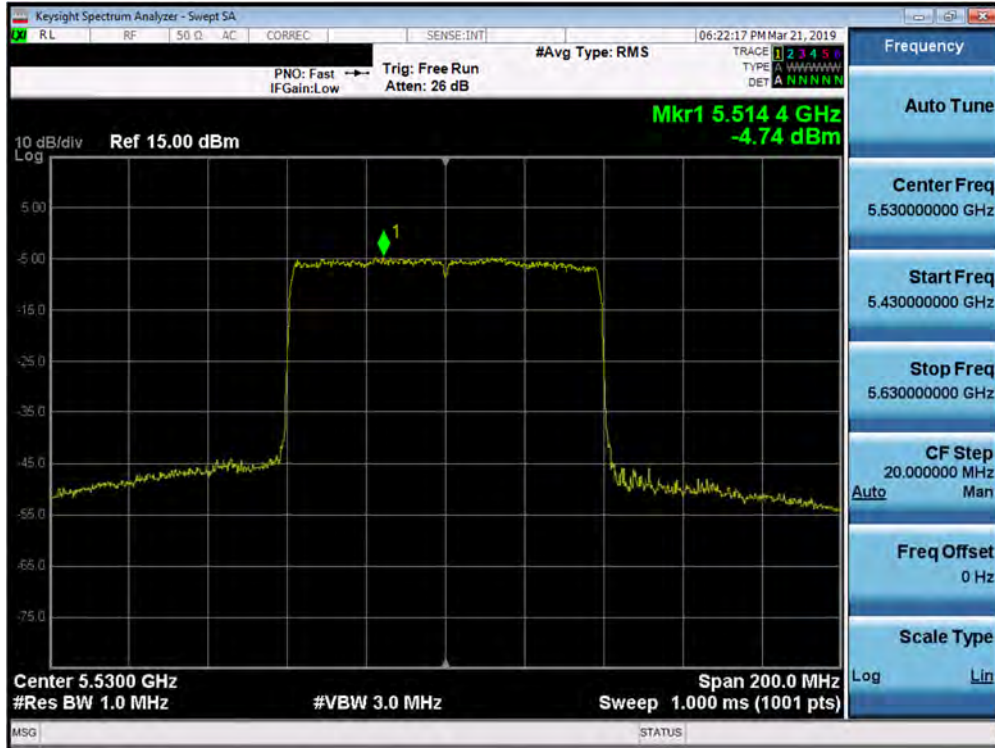
Plot 7-206. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)



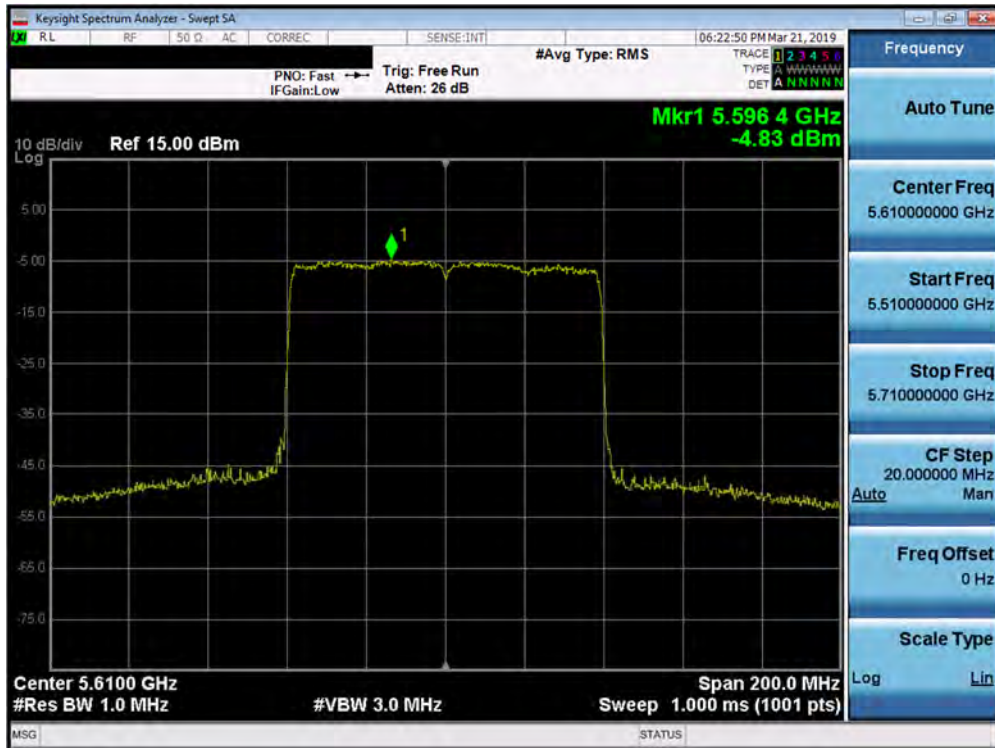
Plot 7-207. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 159 of 287



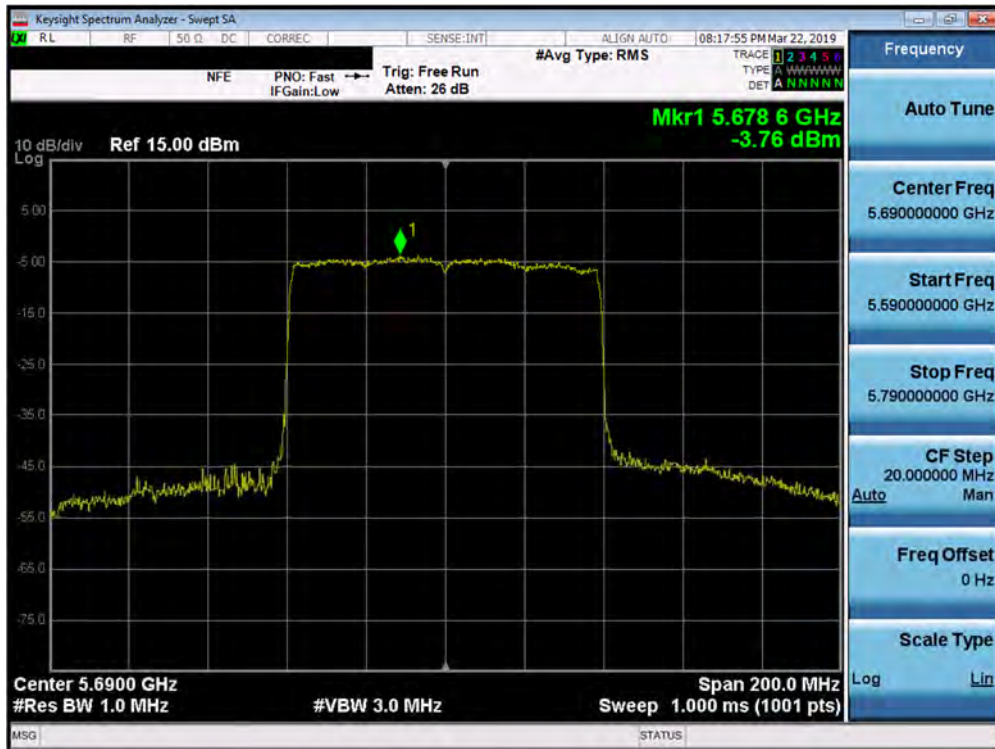


Plot 7-208. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)



Plot 7-209. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 160 of 287

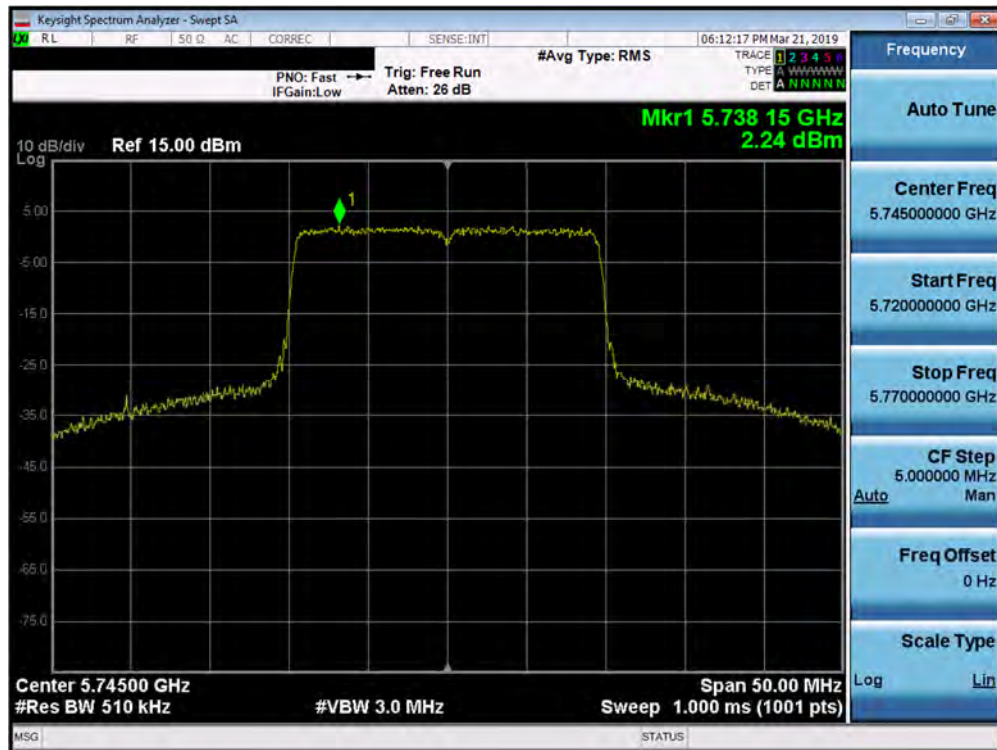


Plot 7-210. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

<b>FCC ID:</b> A3LSMG977U		<b>MEASUREMENT REPORT (CERTIFICATION)</b>	 <b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1901100003-10.A3L	<b>Test Dates:</b> 01/22/2019 - 03/25/2019	<b>EUT Type:</b> Portable Handset	Page 161 of 287

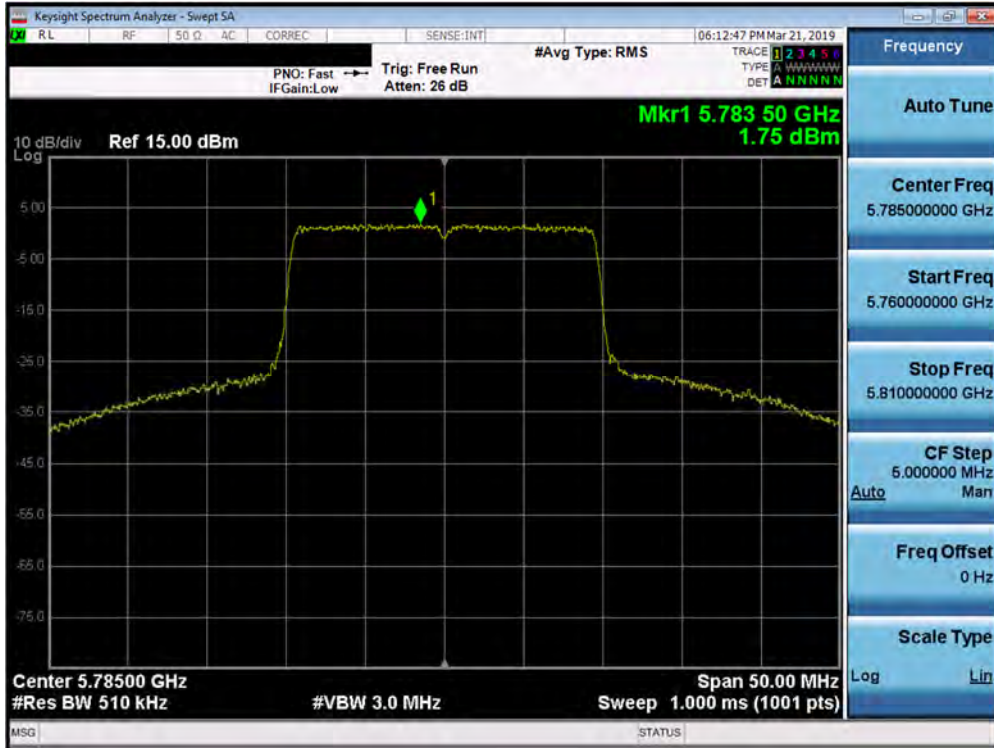
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
<b>Band 3</b>	5745	149	ax (20MHz)	242T	MCS0	2.24	30.00	-27.76
	5785	157	ax (20MHz)	242T	MCS0	1.75	30.00	-28.25
	5825	165	ax (20MHz)	242T	MCS0	2.14	30.00	-27.86
	5755	151	ax (40MHz)	484T	MCS0	-2.97	30.00	-32.97
	5795	159	ax (40MHz)	484T	MCS0	-2.46	30.00	-32.46
	5775	155	ax (80MHz)	996T	MCS0	-3.84	30.00	-33.84

**Table 7-62. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)**

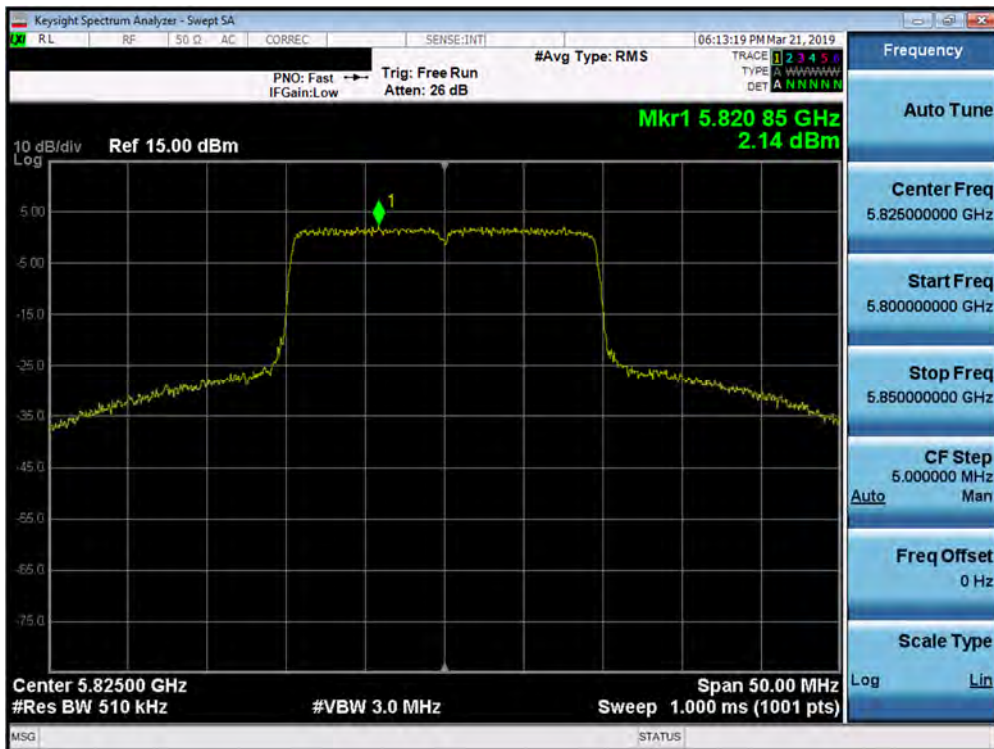


**Plot 7-211. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)**

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 162 of 287



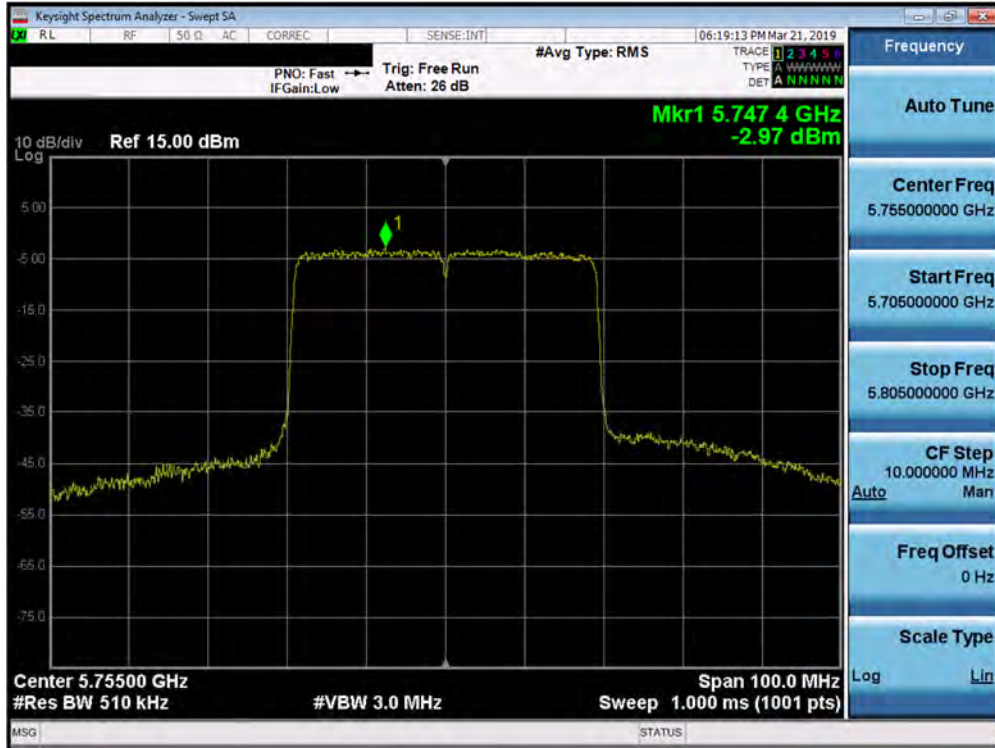
Plot 7-212. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)



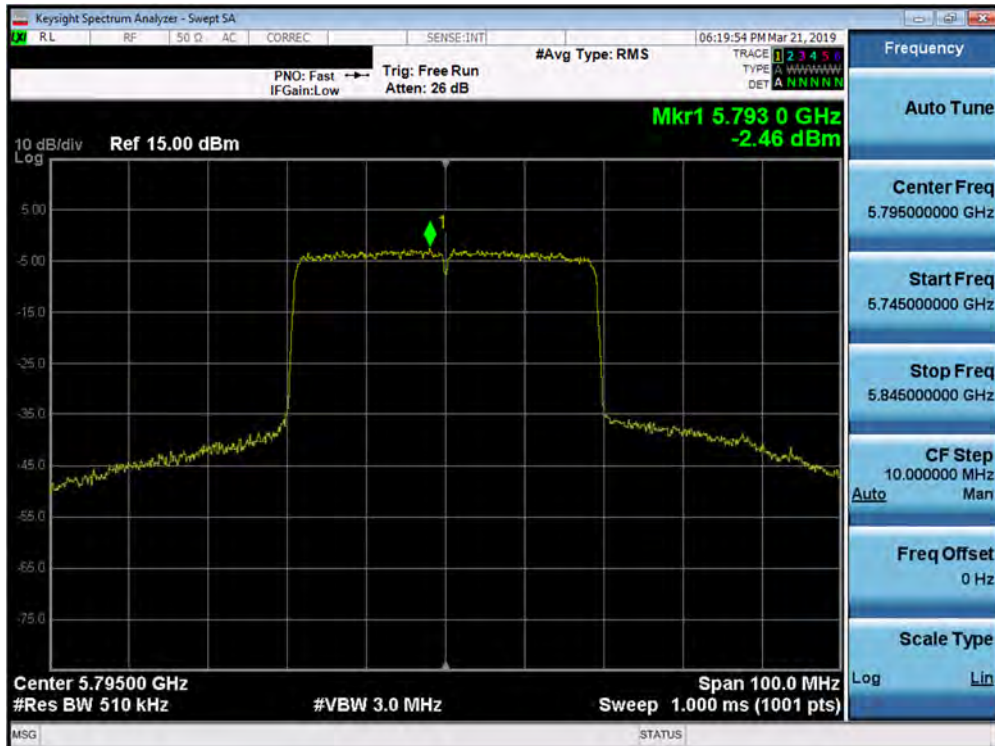
Plot 7-213. Power Spectral Density Plot SISO ANT2 (20 MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 163 of 287





Plot 7-214. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)



Plot 7-215. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 164 of 287





Plot 7-216. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 165 of 287

## Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	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	ax (20MHz)	26T	MCS0	3.98	3.72	6.86	11.00	-4.14
	5200	40	ax (20MHz)	26T	MCS0	4.27	3.81	7.06	11.00	-3.94
	5240	48	ax (20MHz)	26T	MCS0	4.51	3.84	7.20	11.00	-3.80
	5190	38	ax (40MHz)	26T	MCS0	5.33	4.64	8.01	11.00	-2.99
	5230	46	ax (40MHz)	26T	MCS0	5.46	4.44	7.99	11.00	-3.01
	5210	42	ax (80MHz)	26T	MCS0	5.12	4.54	7.85	11.00	-3.15
Band 2A	5260	52	ax (20MHz)	26T	MCS0	4.51	3.59	7.08	11.00	-3.92
	5280	56	ax (20MHz)	26T	MCS0	4.86	3.36	7.19	11.00	-3.81
	5320	64	ax (20MHz)	26T	MCS0	4.69	3.19	7.02	11.00	-3.98
	5270	54	ax (40MHz)	26T	MCS0	5.40	4.56	8.01	11.00	-2.99
	5310	62	ax (40MHz)	26T	MCS0	5.46	4.50	8.02	11.00	-2.98
	5290	58	ax (80MHz)	26T	MCS0	4.17	3.38	6.80	11.00	-4.20
Band 2C	5500	100	ax (20MHz)	26T	MCS0	4.57	3.86	7.24	11.00	-3.76
	5600	120	ax (20MHz)	26T	MCS0	6.12	5.01	8.61	11.00	-2.39
	5720	144	ax (20MHz)	26T	MCS0	5.93	5.15	8.57	11.00	-2.43
	5510	102	ax (40MHz)	26T	MCS0	5.44	4.53	8.02	11.00	-2.98
	5590	118	ax (40MHz)	26T	MCS0	5.99	5.26	8.65	11.00	-2.35
	5710	142	ax (40MHz)	26T	MCS0	5.94	5.24	8.61	11.00	-2.39
	5530	106	ax (80MHz)	26T	MCS0	4.49	3.01	6.82	11.00	-4.18
	5610	122	ax (80MHz)	26T	MCS0	4.87	4.10	7.51	11.00	-3.49
5690	138	ax (80MHz)	26T	MCS0	4.88	7.25	9.24	11.00	-1.76	

Table 7-63. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	26T	MCS0	2.89	2.77	5.84	30.00	-24.16
	5785	157	ax (20MHz)	26T	MCS0	2.77	2.43	5.61	30.00	-24.39
	5825	165	ax (20MHz)	26T	MCS0	2.99	2.31	5.67	30.00	-24.33
	5755	151	ax (40MHz)	26T	MCS0	2.64	2.59	5.63	30.00	-24.37
	5795	159	ax (40MHz)	26T	MCS0	2.84	2.47	5.67	30.00	-24.33
	5775	155	ax (80MHz)	26T	MCS0	4.16	4.06	7.12	30.00	-22.88

Table 7-64. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

FCC ID: A3LSMG977U			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 166 of 287	

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	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	ax (20MHz)	242T	MCS0	2.32	4.23	6.39	11.00	-4.61
	5200	40	ax (20MHz)	242T	MCS0	2.05	4.41	6.40	11.00	-4.60
	5240	48	ax (20MHz)	242T	MCS0	1.94	4.72	6.56	11.00	-4.44
	5190	38	ax (40MHz)	484T	MCS0	-2.97	-0.81	1.25	11.00	-9.75
	5230	46	ax (40MHz)	484T	MCS0	-2.75	0.02	1.86	11.00	-9.14
	5210	42	ax (80MHz)	996T	MCS0	-6.07	-4.53	-2.22	11.00	-13.22
Band 2A	5260	52	ax (20MHz)	242T	MCS0	0.96	4.05	5.79	11.00	-5.21
	5280	56	ax (20MHz)	242T	MCS0	1.17	4.26	5.99	11.00	-5.01
	5320	64	ax (20MHz)	242T	MCS0	1.33	4.75	6.38	11.00	-4.62
	5270	54	ax (40MHz)	484T	MCS0	-3.08	-0.31	1.54	11.00	-9.46
	5310	62	ax (40MHz)	484T	MCS0	-2.98	-0.38	1.52	11.00	-9.48
	5290	58	ax (80MHz)	996T	MCS0	-6.81	-4.37	-2.41	11.00	-13.41
Band 2C	5500	100	ax (20MHz)	242T	MCS0	2.57	4.76	6.81	11.00	-4.19
	5600	120	ax (20MHz)	242T	MCS0	2.93	4.98	7.08	11.00	-3.92
	5720	144	ax (20MHz)	242T	MCS0	3.35	5.02	7.28	11.00	-3.72
	5510	102	ax (40MHz)	484T	MCS0	-2.16	-0.61	1.69	11.00	-9.31
	5590	118	ax (40MHz)	484T	MCS0	-1.79	-0.12	2.14	11.00	-8.86
	5710	142	ax (40MHz)	484T	MCS0	-1.50	-0.45	2.07	11.00	-8.93
	5530	106	ax (80MHz)	996T	MCS0	-6.74	-4.74	-2.61	11.00	-13.61
	5610	122	ax (80MHz)	996T	MCS0	-6.51	-4.83	-2.58	11.00	-13.58
	5690	138	ax (80MHz)	996T	MCS0	-4.15	-3.76	-0.94	11.00	-11.94

Table 7-65. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	242T	MCS0	0.42	2.24	4.43	30.00	-25.57
	5785	157	ax (20MHz)	242T	MCS0	0.37	1.75	4.12	30.00	-25.88
	5825	165	ax (20MHz)	242T	MCS0	0.15	2.14	4.27	30.00	-25.73
	5755	151	ax (40MHz)	484T	MCS0	-4.82	-2.97	-0.79	30.00	-30.79
	5795	159	ax (40MHz)	484T	MCS0	-3.96	-2.46	-0.14	30.00	-30.14
	5775	155	ax (80MHz)	996T	MCS0	-5.31	-3.84	-1.50	30.00	-31.50

Table 7-66. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

FCC ID: A3LSMG977U			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 167 of 287	

**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 with reduced Antenna 1 and Antenna 2 powers per manufacture's tune-up document. The measured values were then summed in linear power units then converted back to dBm.

**Sample MIMO Calculation:**

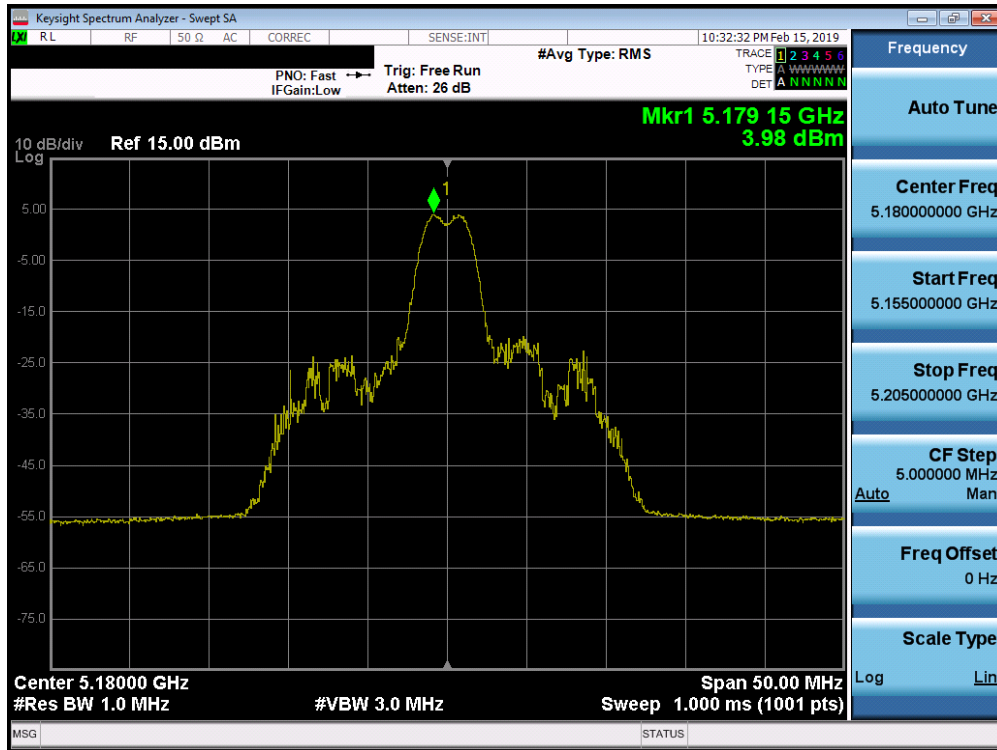
Assuming the average conducted power spectral density was measured to be 5.88 dBm for Antenna-1 and 6.27 dBm for Antenna-2.

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

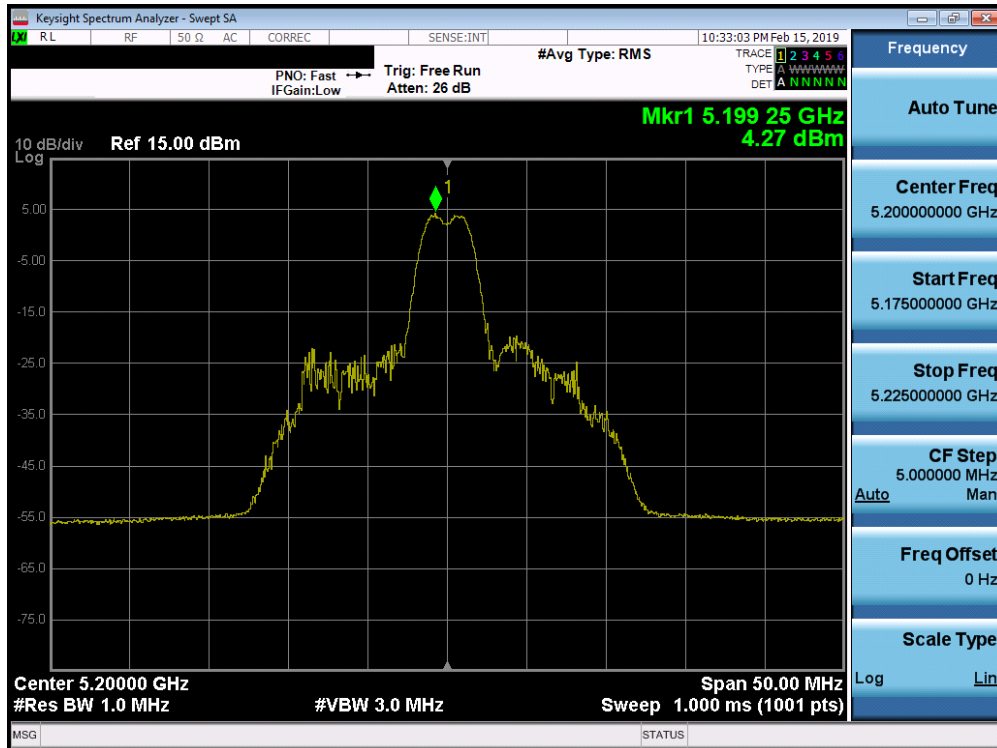
$$(5.88 \text{ dBm} + 6.27 \text{ dBm}) = (3.87 \text{ mW} + 4.24 \text{ mW}) = 8.11 \text{ mW} = 9.09 \text{ dBm}$$

<b>FCC ID:</b> A3LSMG977U		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1901100003-10.A3L	<b>Test Dates:</b> 01/22/2019 - 03/25/2019	<b>EUT Type:</b> Portable Handset	Page 168 of 287	

## MIMO Antenna-1 Power Spectral Density Measurements (26 Tones)



Plot 7-217. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

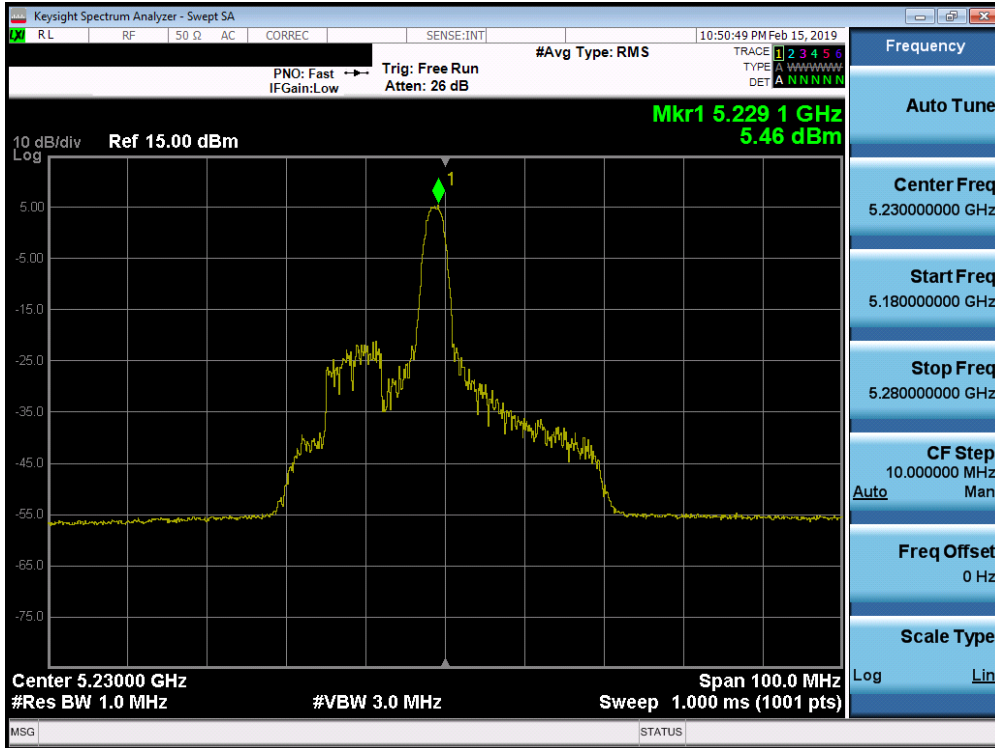


Plot 7-218. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

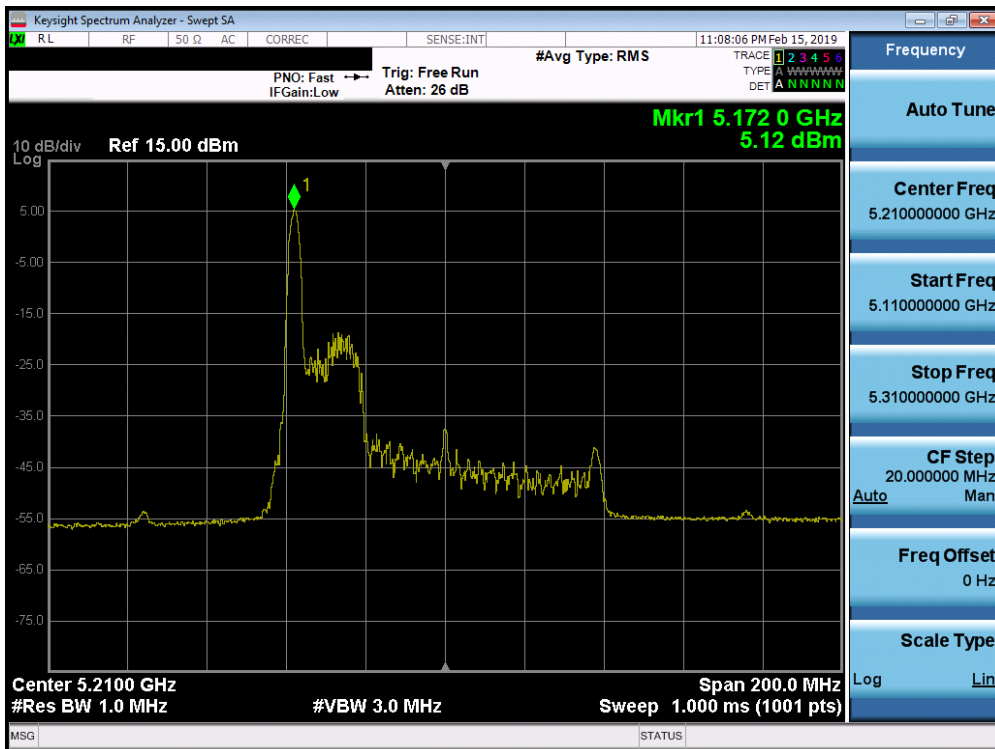
FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 169 of 287





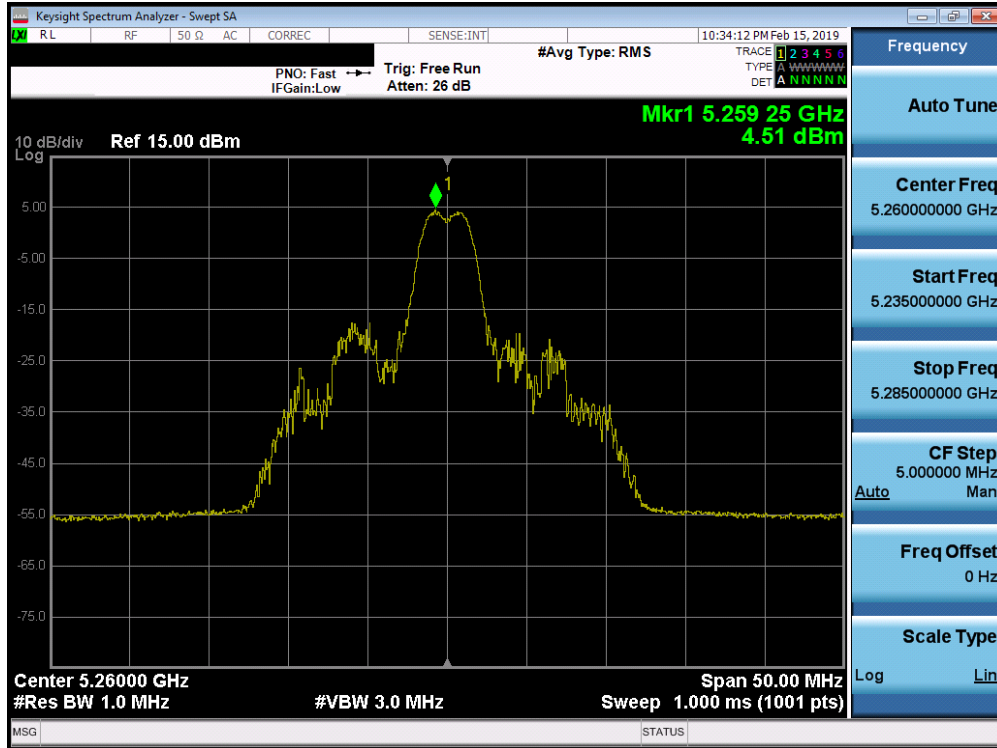


Plot 7-221. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

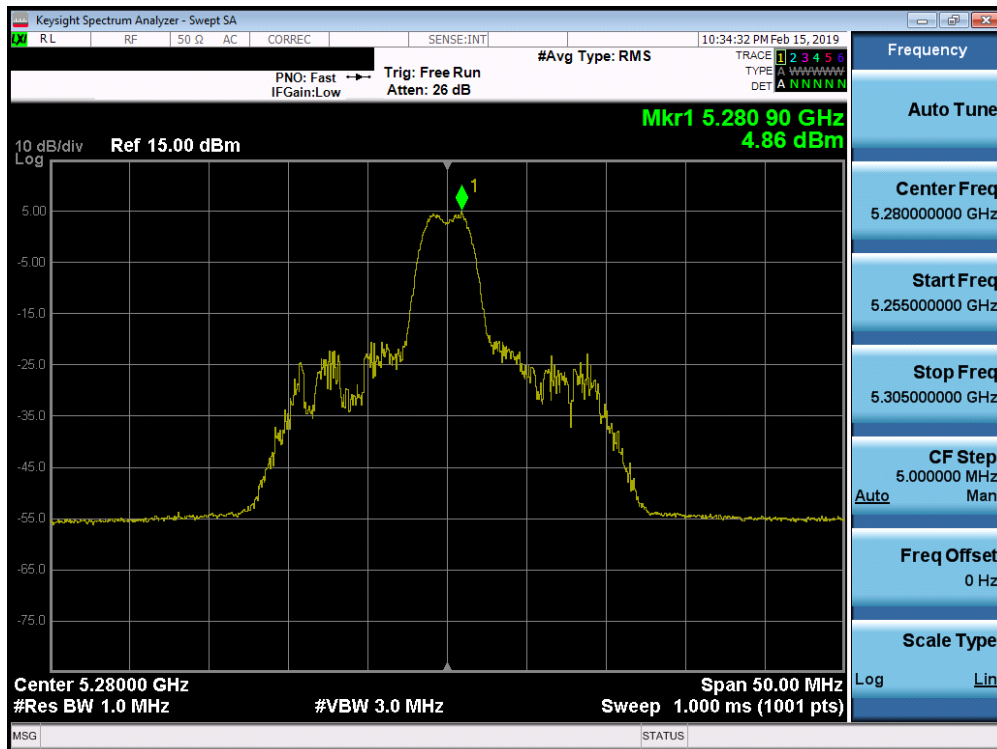


Plot 7-222. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 171 of 287

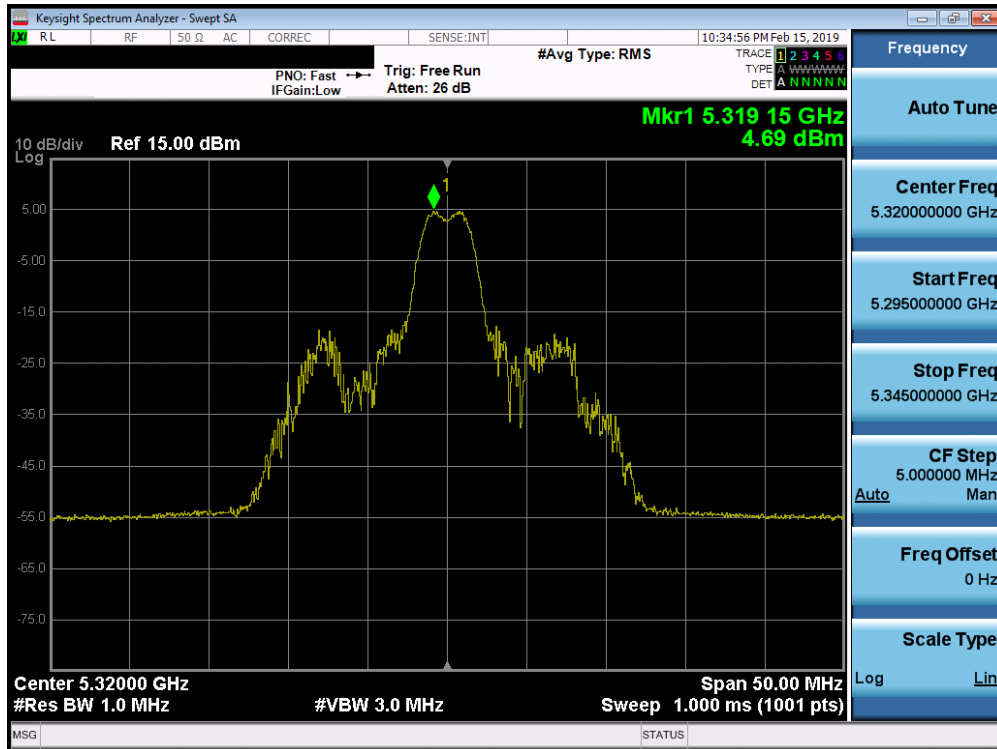


Plot 7-223. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

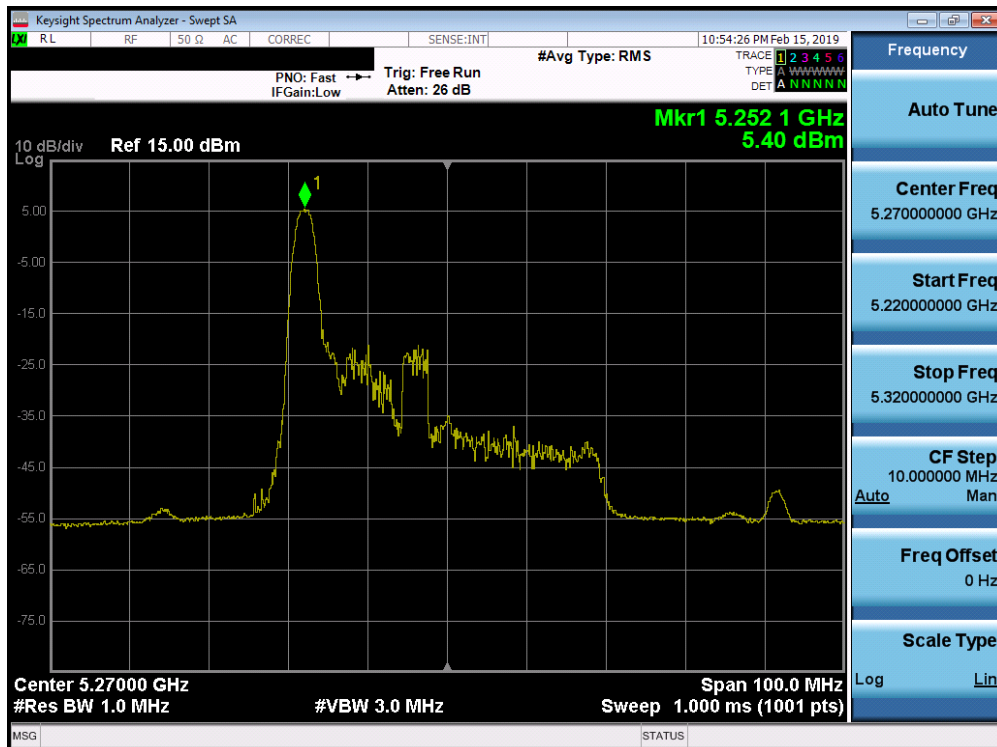


Plot 7-224. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 172 of 287



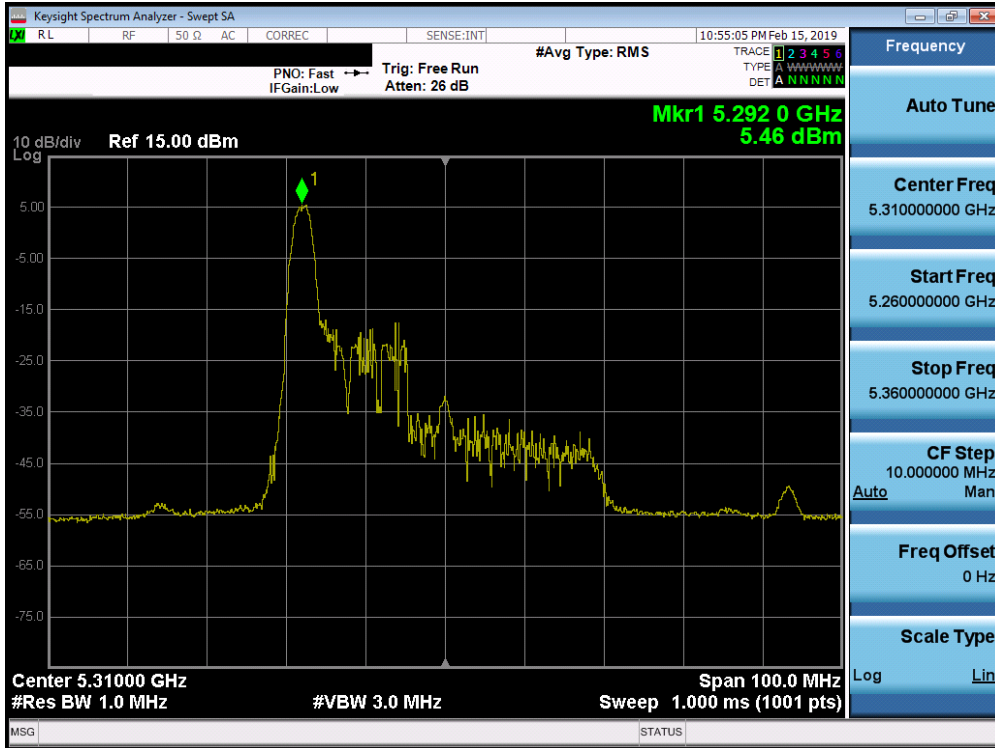
Plot 7-225. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)



Plot 7-226. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 173 of 287



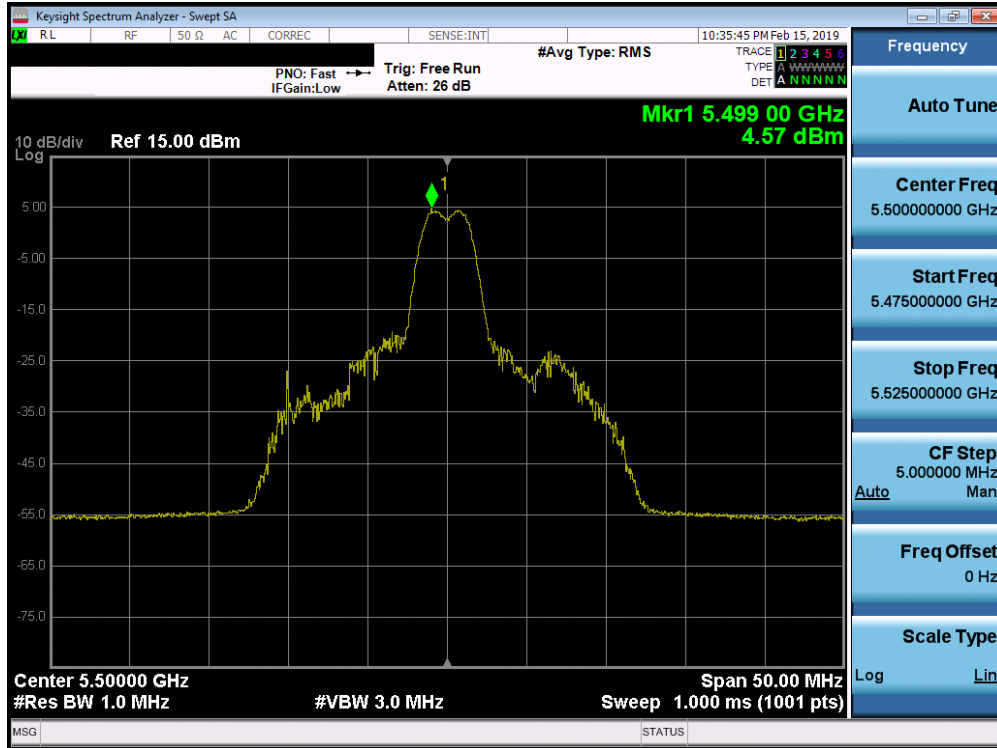


Plot 7-227. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

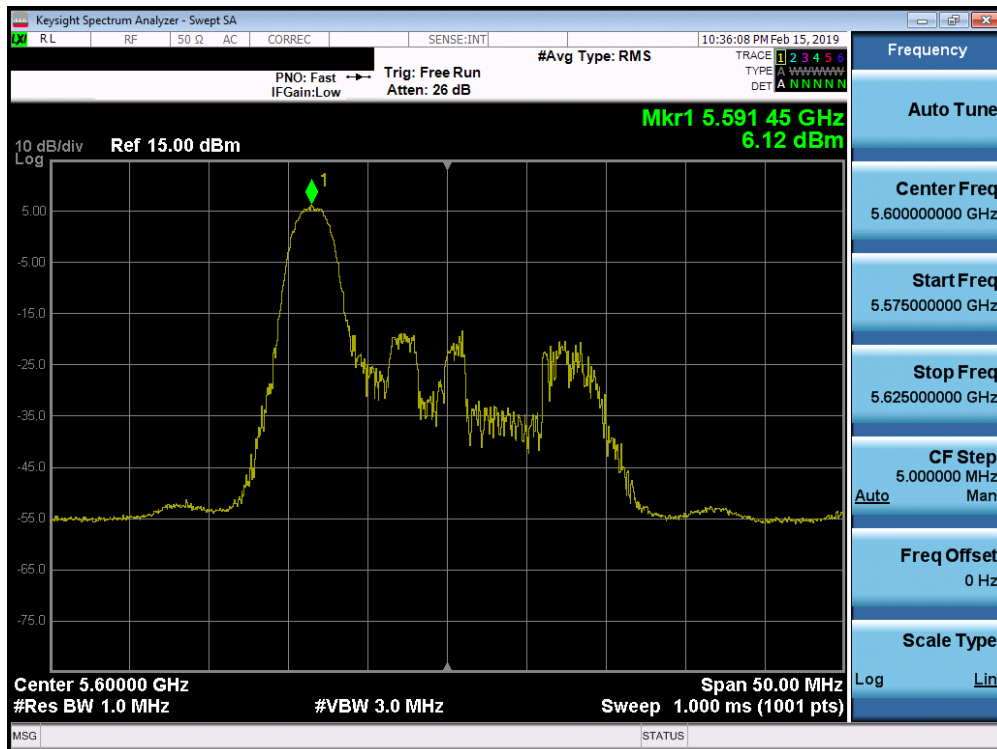


Plot 7-228. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977U	 <b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 174 of 287



Plot 7-229. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)



Plot 7-230. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901100003-10.A3L	Test Dates: 01/22/2019 - 03/25/2019	EUT Type: Portable Handset		Page 175 of 287

