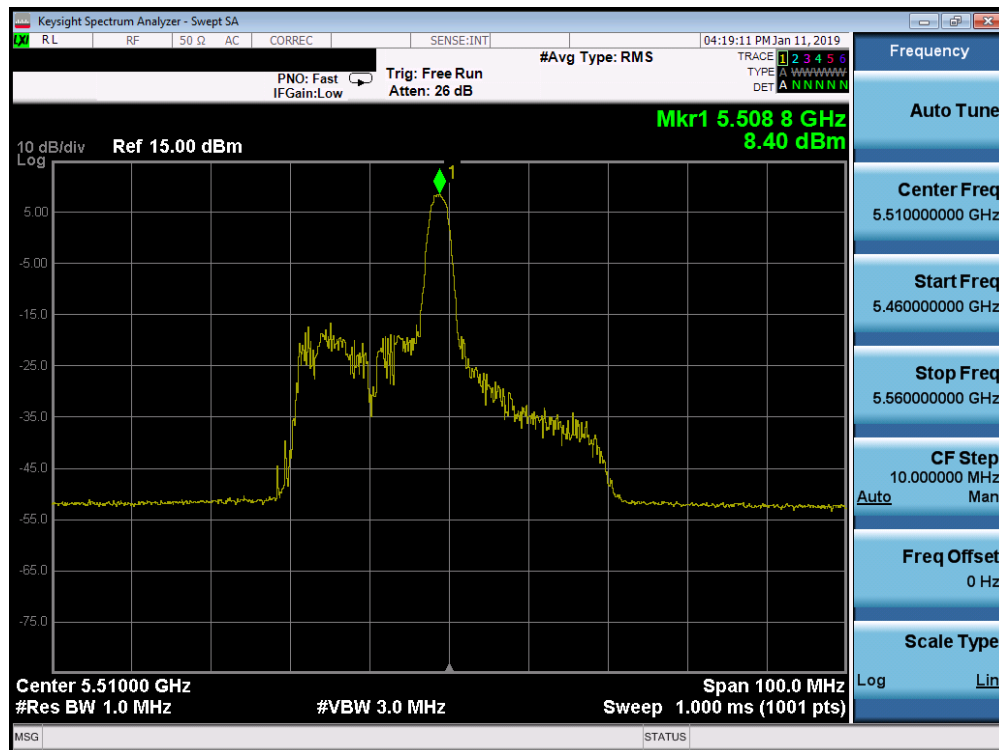
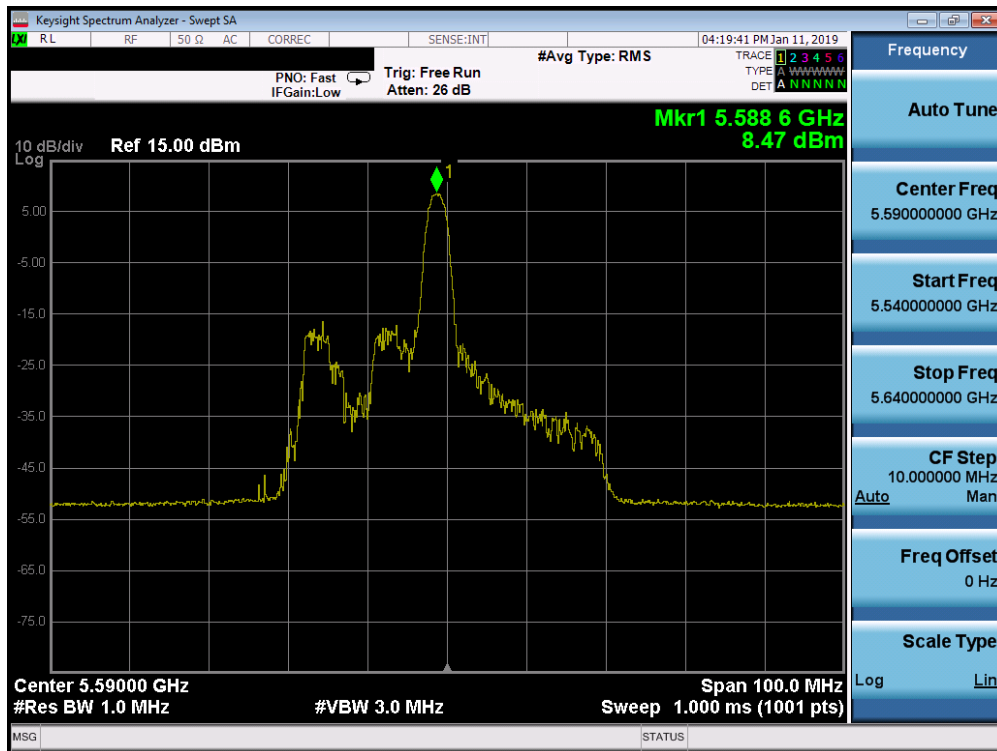


Plot 7-252. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

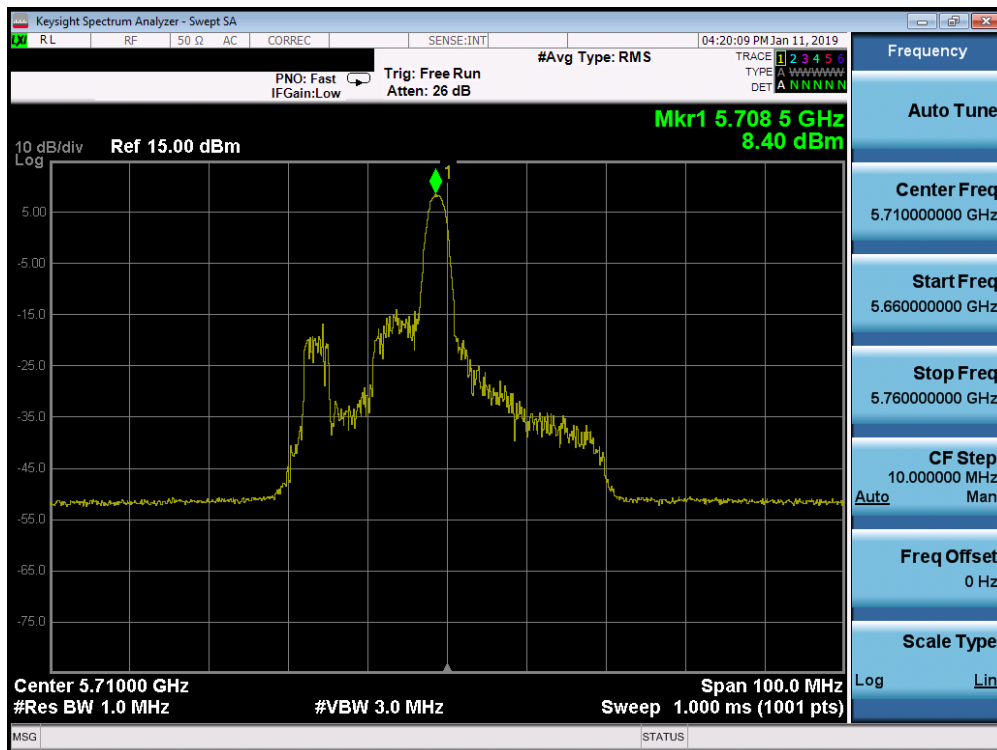


Plot 7-253. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 190 of 514		

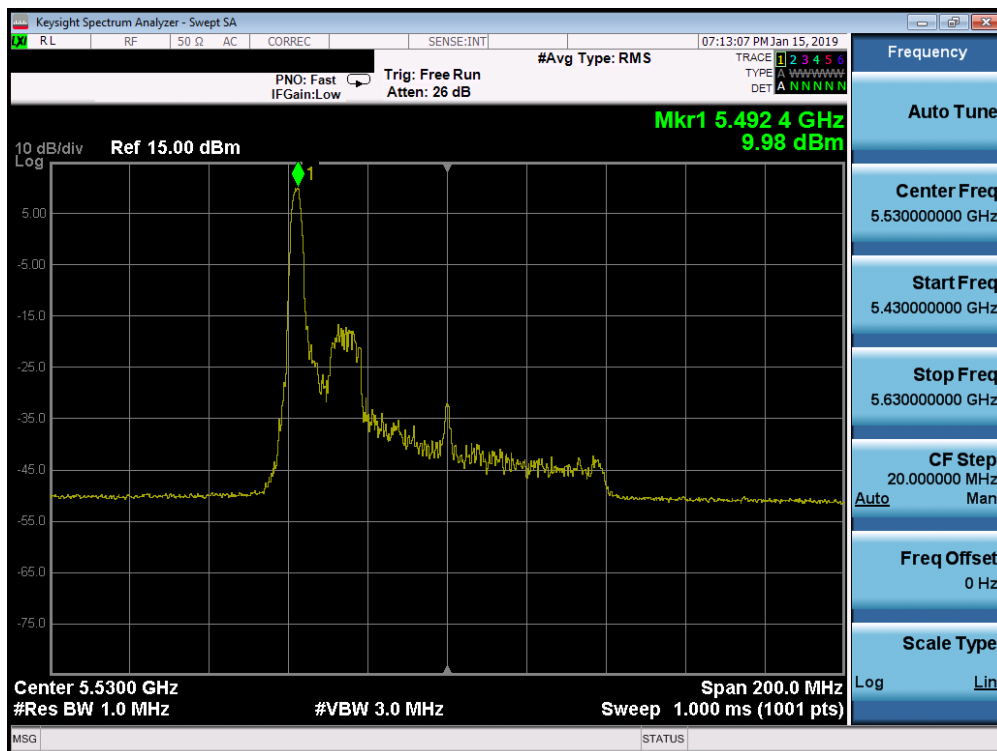


Plot 7-254. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

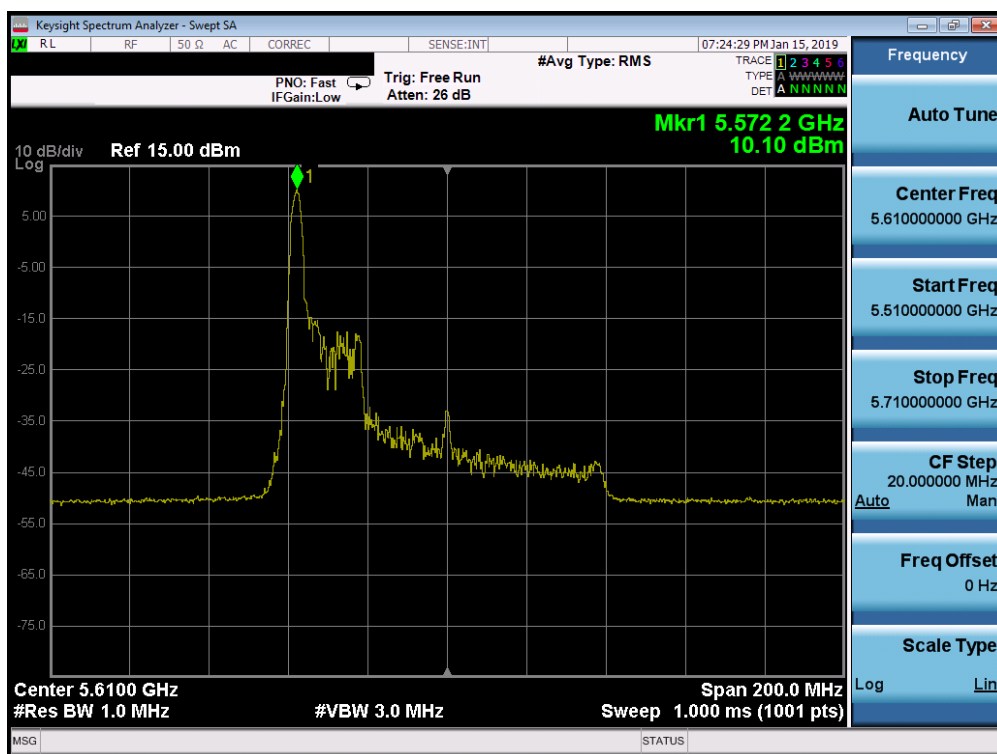


Plot 7-255. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 191 of 514		

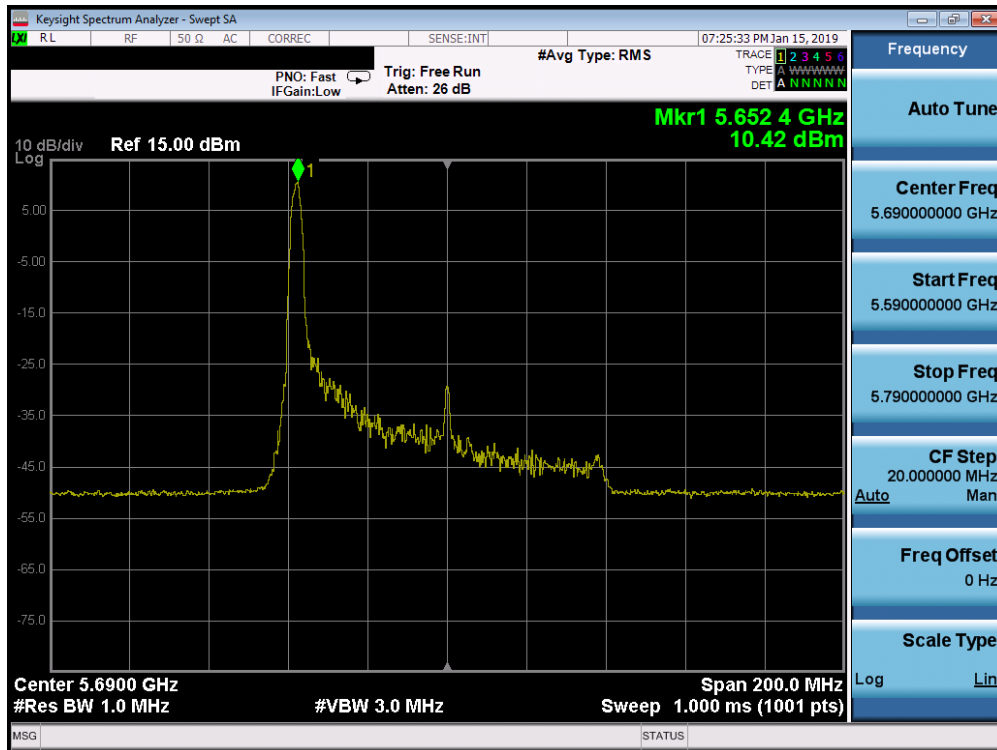


Plot 7-256. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



Plot 7-257. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 192 of 514

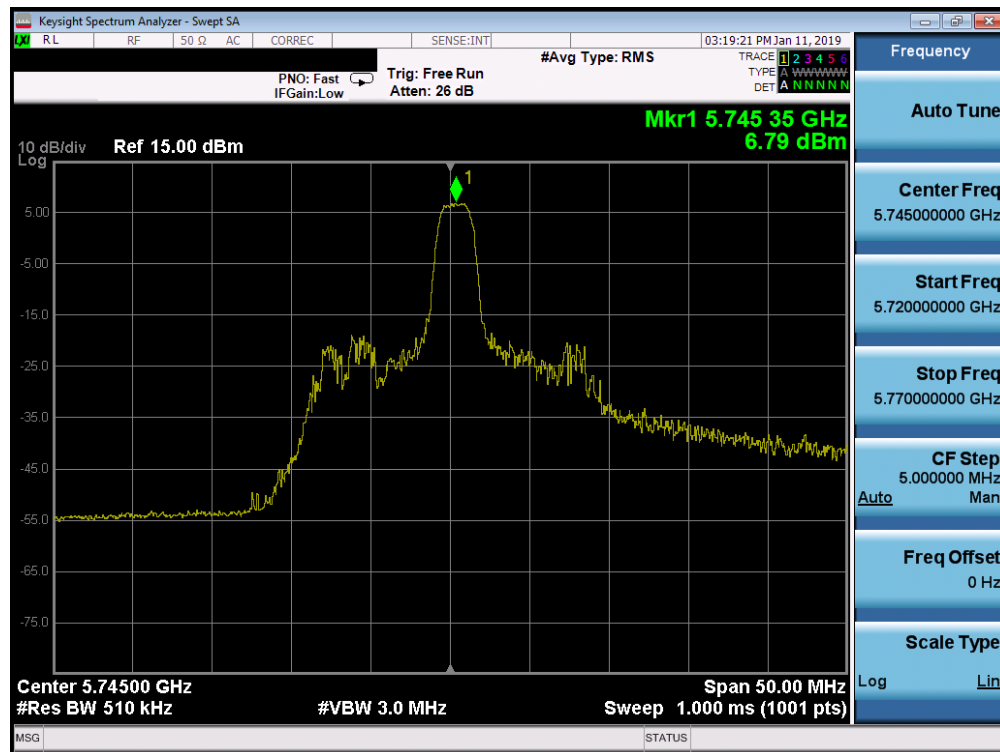


Plot 7-258. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 193 of 514

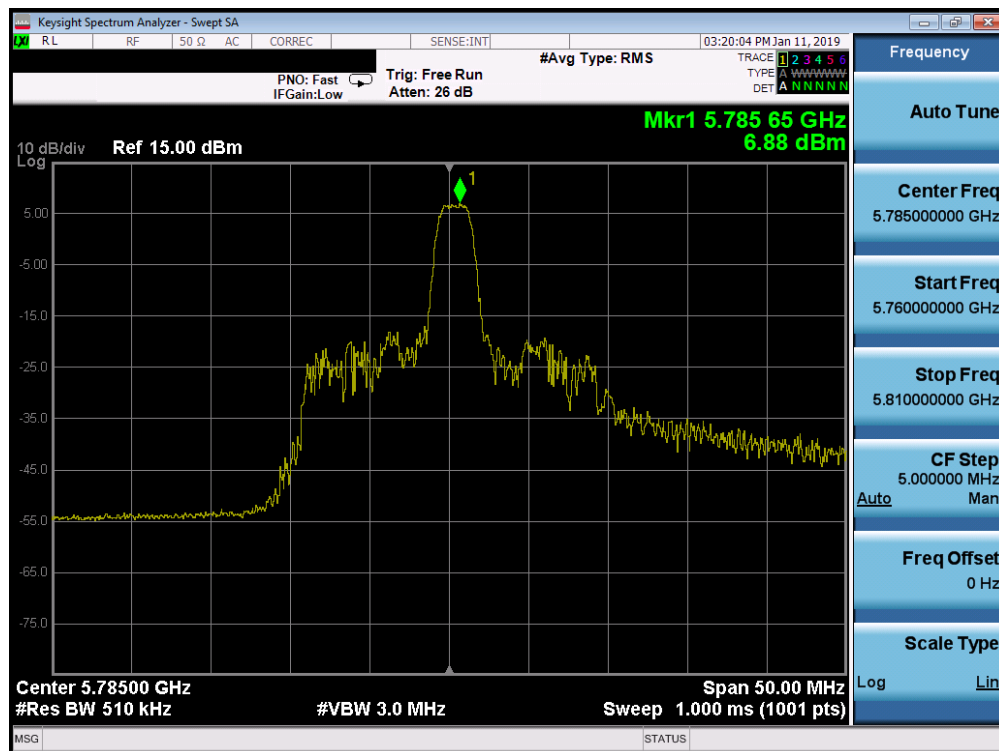
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	26T	MCS0	6.79	30.00	-23.21
	5785	157	ax (20MHz)	26T	MCS0	6.88	30.00	-23.12
	5825	165	ax (20MHz)	26T	MCS0	6.63	30.00	-23.37
	5755	151	ax (40MHz)	26T	MCS0	6.34	30.00	-23.66
	5795	159	ax (40MHz)	26T	MCS0	6.34	30.00	-23.66
	5775	155	ax (80MHz)	26T	MCS0	10.52	30.00	-19.48

Table 7-83. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (26 Tones)

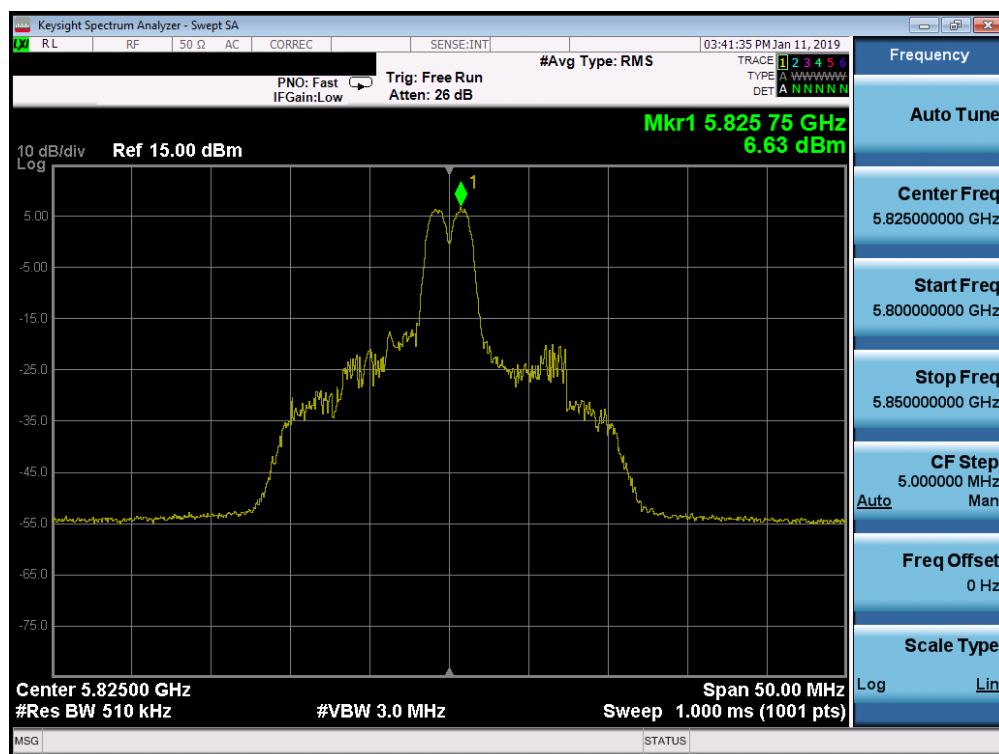


Plot 7-259. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSC03L	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 194 of 514

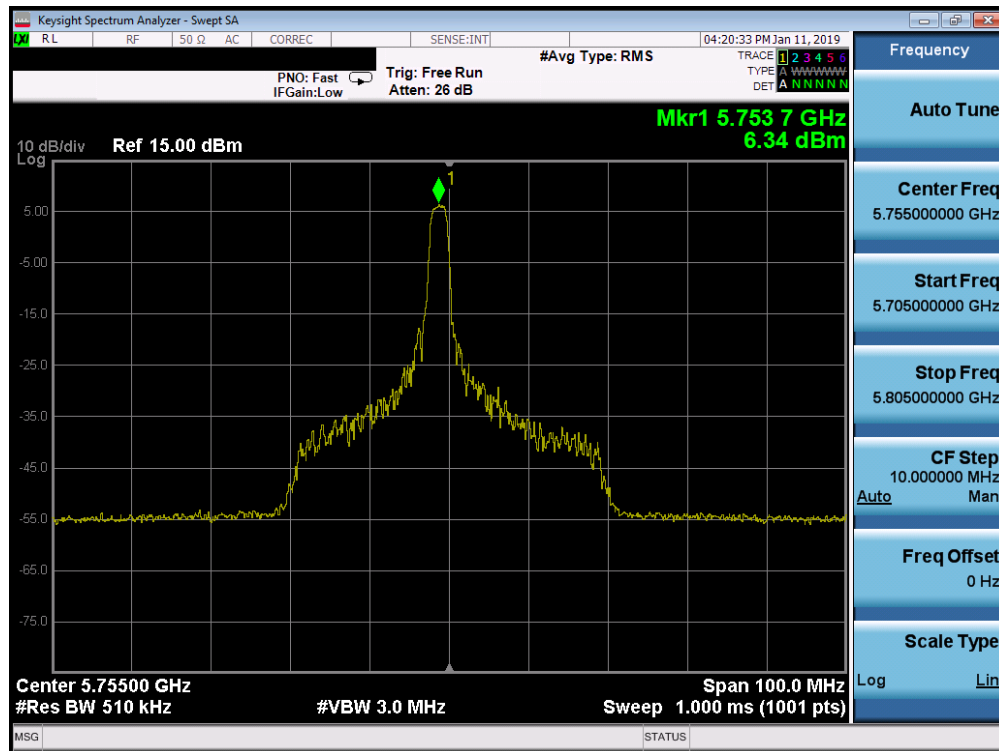


Plot 7-260. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

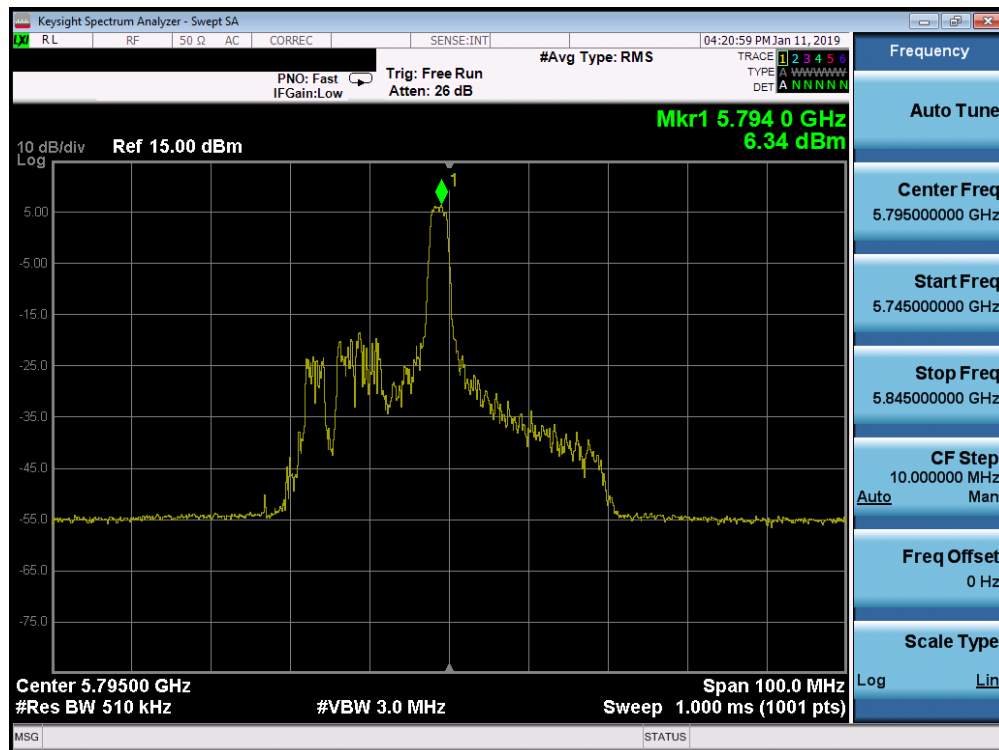


Plot 7-261. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 195 of 514

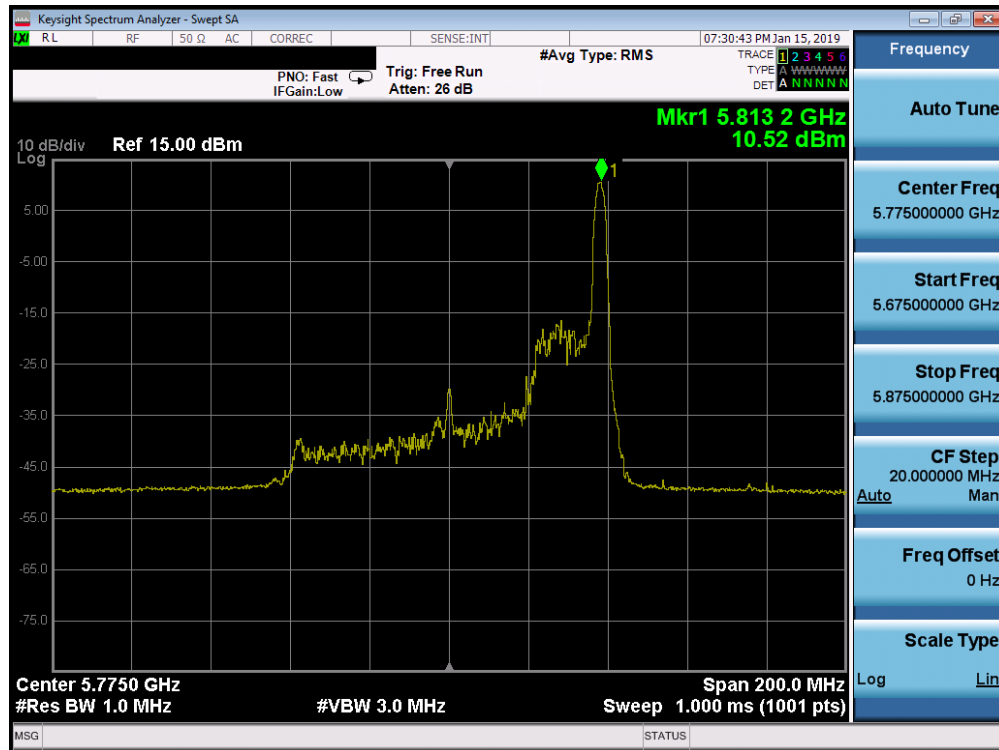


Plot 7-262. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-263. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 196 of 514



Plot 7-264. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 197 of 514

SISO Antenna-2 Power Spectral Density Measurements (52 Tones)

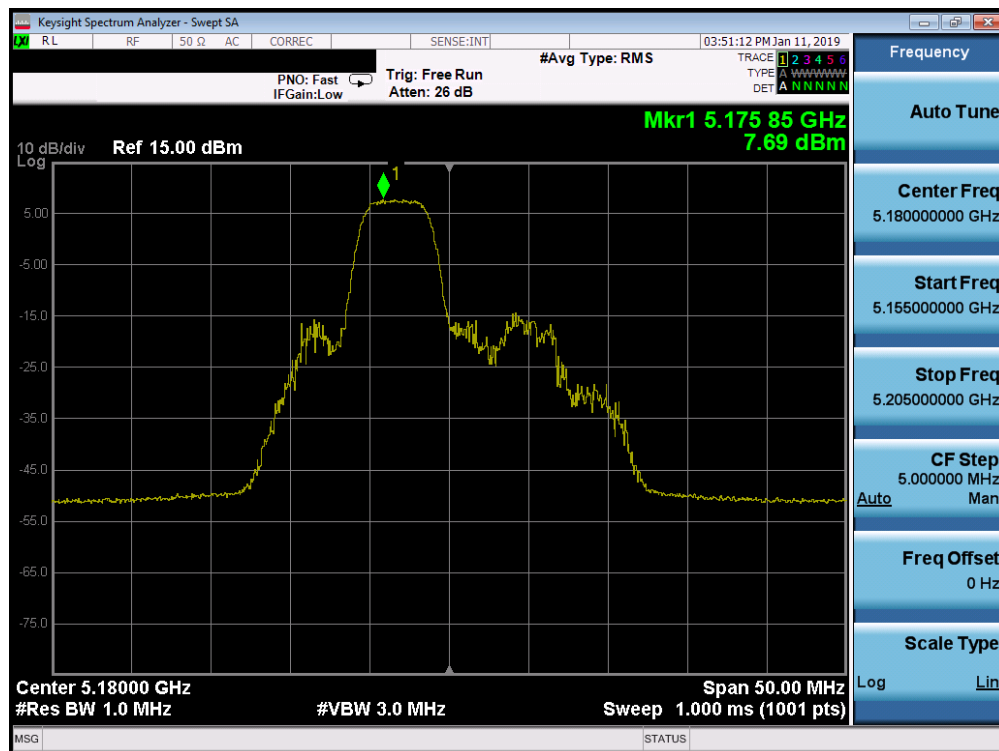
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	52T	MCS0	7.69	11.00	-3.31
	5200	40	ax (20MHz)	52T	MCS0	7.79	11.00	-3.21
	5240	48	ax (20MHz)	52T	MCS0	7.88	11.00	-3.12
	5190	38	ax (40MHz)	52T	MCS0	7.60	11.00	-3.40
	5230	46	ax (40MHz)	52T	MCS0	7.79	11.00	-3.21
	5210	42	ax (80MHz)	52T	MCS0	9.40	11.00	-1.60
Band 2A	5260	52	ax (20MHz)	52T	MCS0	7.63	11.00	-3.37
	5280	56	ax (20MHz)	52T	MCS0	7.64	11.00	-3.36
	5320	64	ax (20MHz)	52T	MCS0	8.06	11.00	-2.94
	5270	54	ax (40MHz)	52T	MCS0	7.29	11.00	-3.71
	5310	62	ax (40MHz)	52T	MCS0	7.65	11.00	-3.35
	5290	58	ax (80MHz)	52T	MCS0	8.76	11.00	-2.24
Band 2C	5500	100	ax (20MHz)	52T	MCS0	8.60	11.00	-2.40
	5600	120	ax (20MHz)	52T	MCS0	8.60	11.00	-2.40
	5720	144	ax (20MHz)	52T	MCS0	8.19	11.00	-2.81
	5510	102	ax (40MHz)	52T	MCS0	7.78	11.00	-3.22
	5590	118	ax (40MHz)	52T	MCS0	7.78	11.00	-3.22
	5710	142	ax (40MHz)	52T	MCS0	7.53	11.00	-3.47
	5530	106	ax (80MHz)	52T	MCS0	9.03	11.00	-1.97
	5610	122	ax (80MHz)	52T	MCS0	9.70	11.00	-1.30
	5690	138	ax (80MHz)	52T	MCS0	9.50	11.00	-1.50

Table 7-84. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (52 Tones)

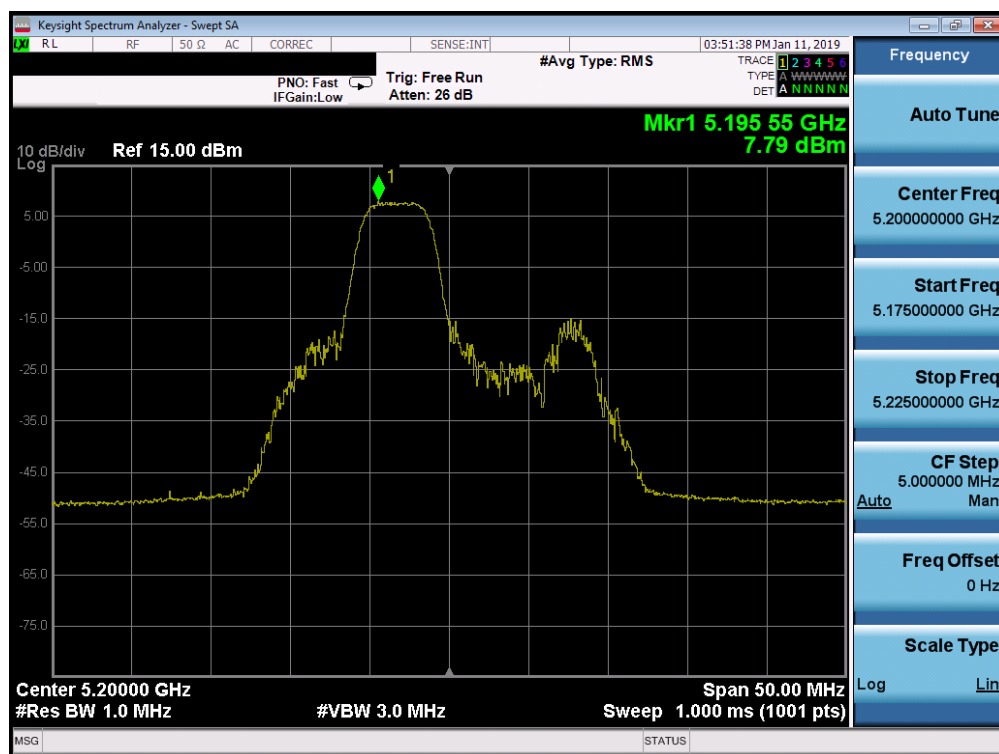
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	52T	MCS0	7.69	-7.70	-0.01	10.0	-10.01
	5200	40	ax (20MHz)	52T	MCS0	7.79	-7.57	0.22	10.0	-9.78
	5240	48	ax (20MHz)	52T	MCS0	7.88	-8.01	-0.13	10.0	-10.13
	5190	38	ax (40MHz)	52T	MCS0	7.60	-7.57	0.03	10.0	-9.97
	5230	46	ax (40MHz)	52T	MCS0	7.79	-8.01	-0.22	10.0	-10.22
	5210	42	ax (80MHz)	52T	MCS0	9.40	-7.57	1.83	10.0	-8.17

Table 7-85. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 52 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 198 of 514

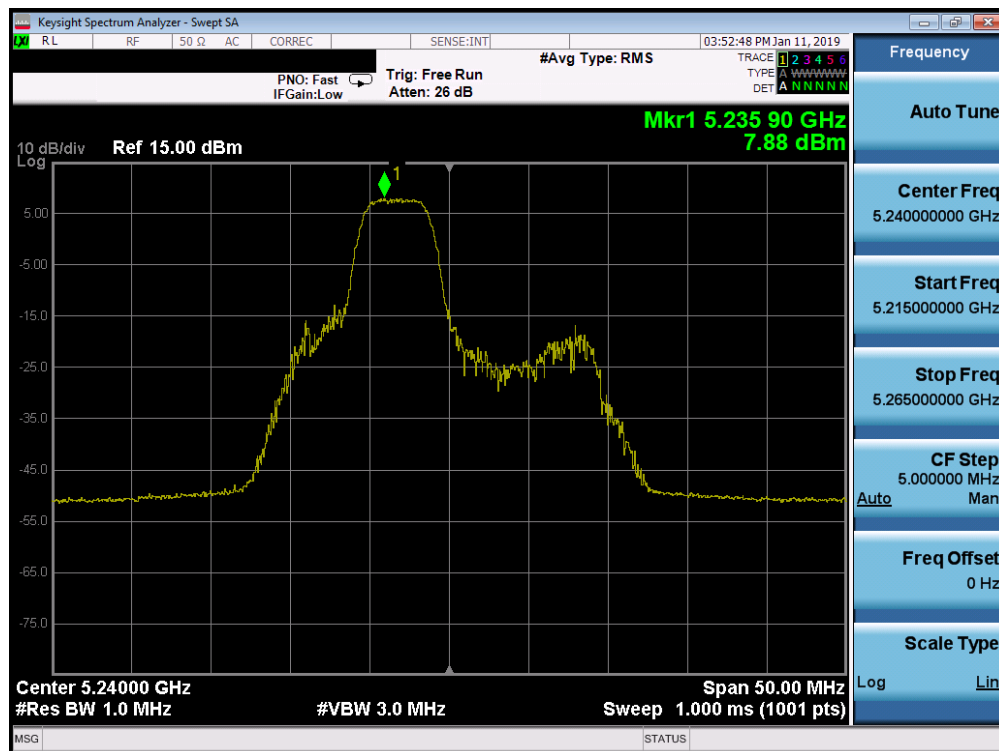


Plot 7-265. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 1) – Ch. 36)

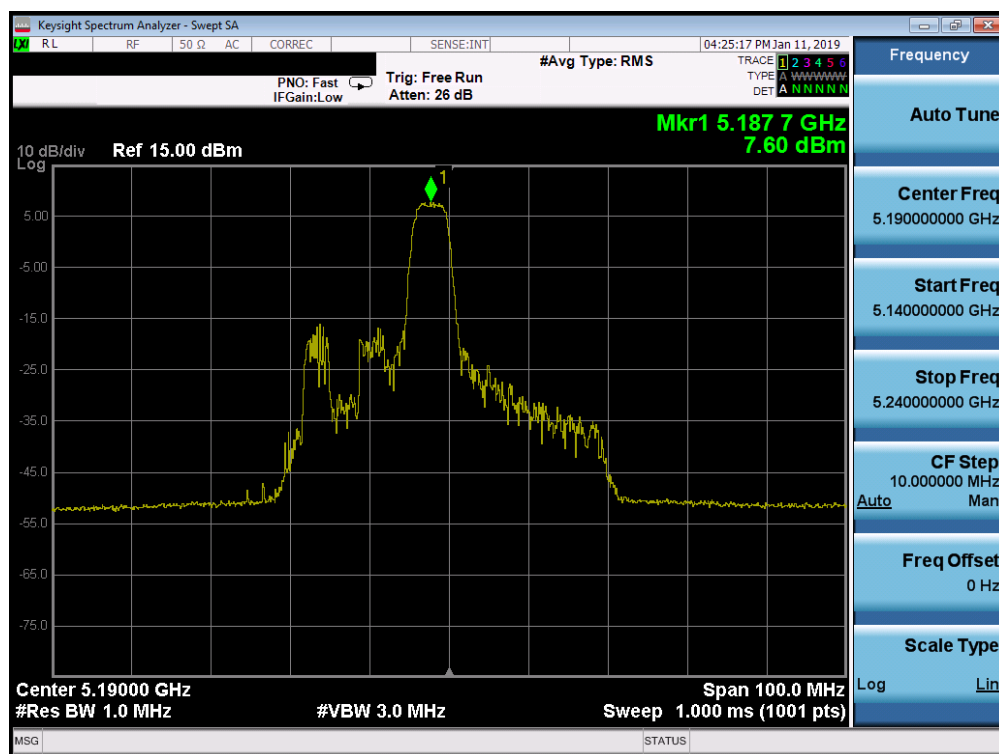


Plot 7-266. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 199 of 514

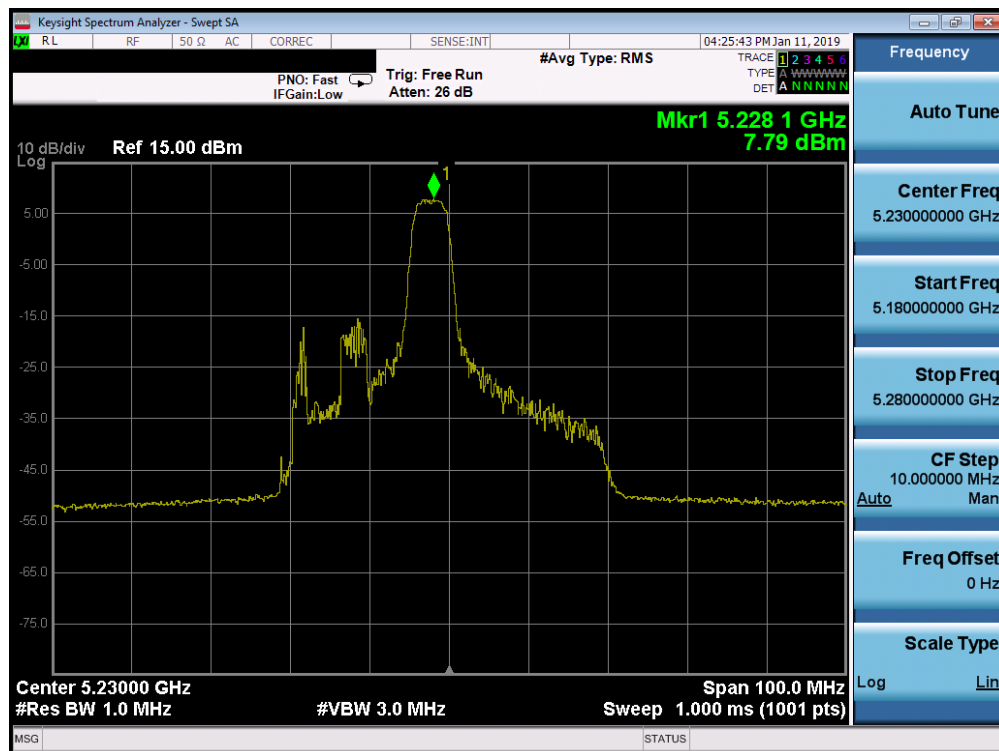


Plot 7-267. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 1) – Ch. 48)

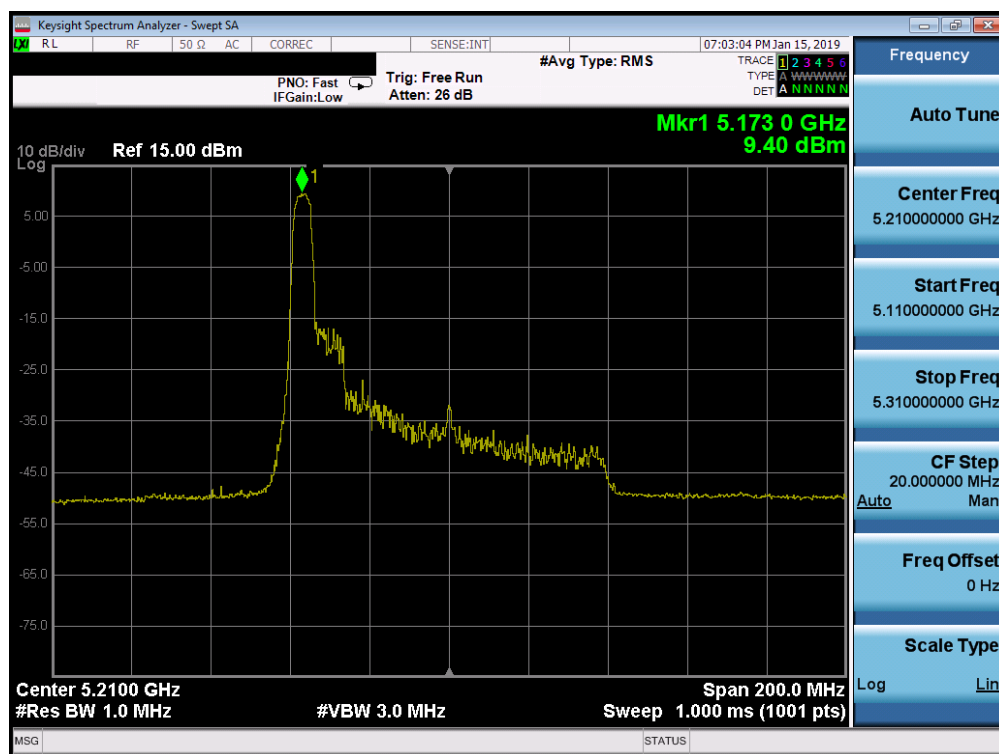


Plot 7-268. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 200 of 514		

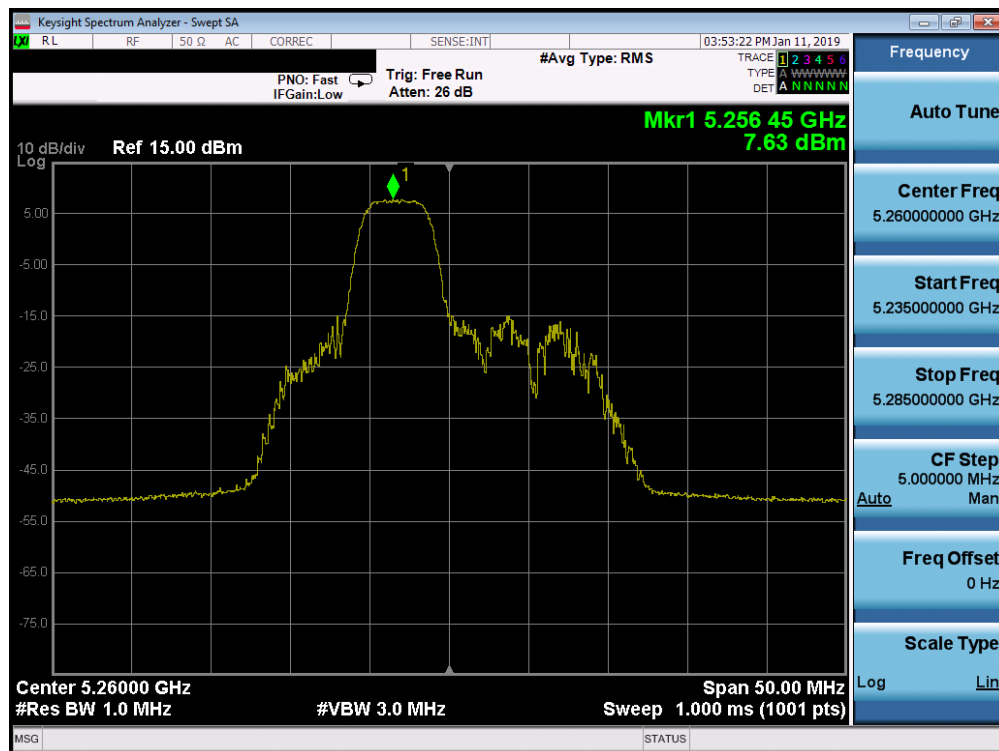


Plot 7-269. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 1) – Ch. 46)

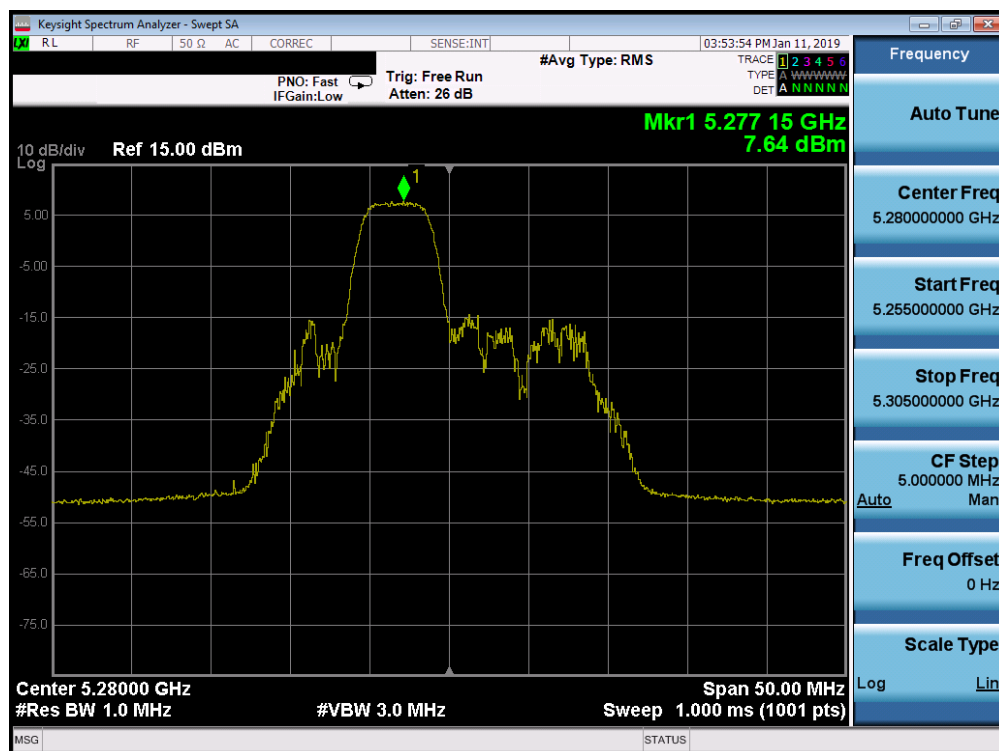


Plot 7-270. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 52 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 201 of 514

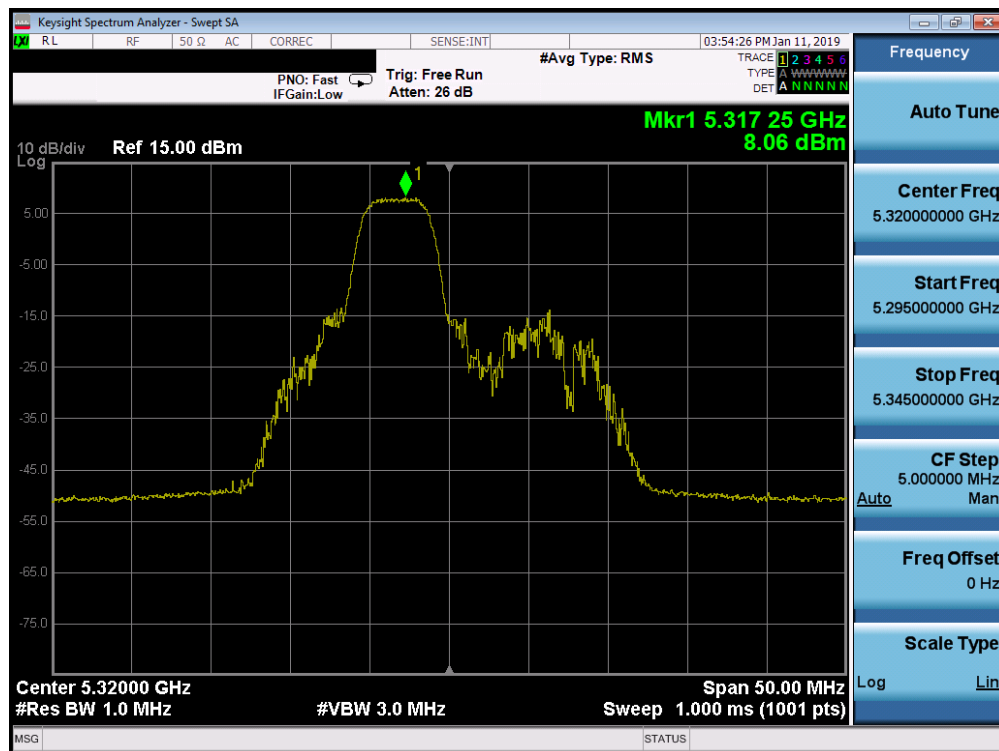


Plot 7-271. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 2A) – Ch. 52)

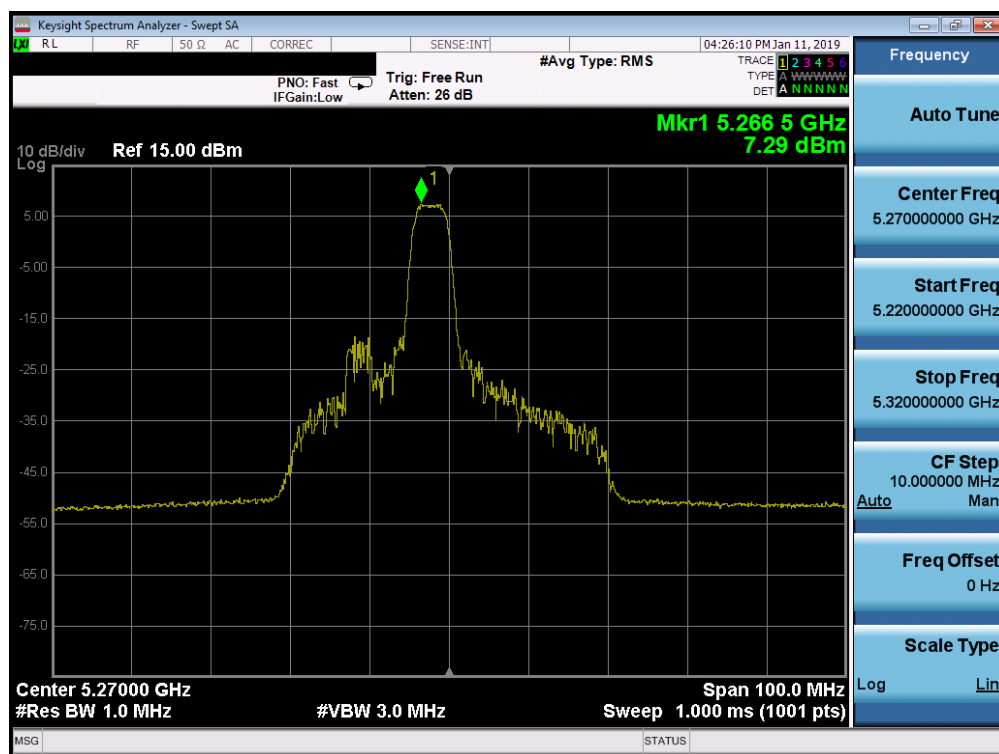


Plot 7-272. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 202 of 514

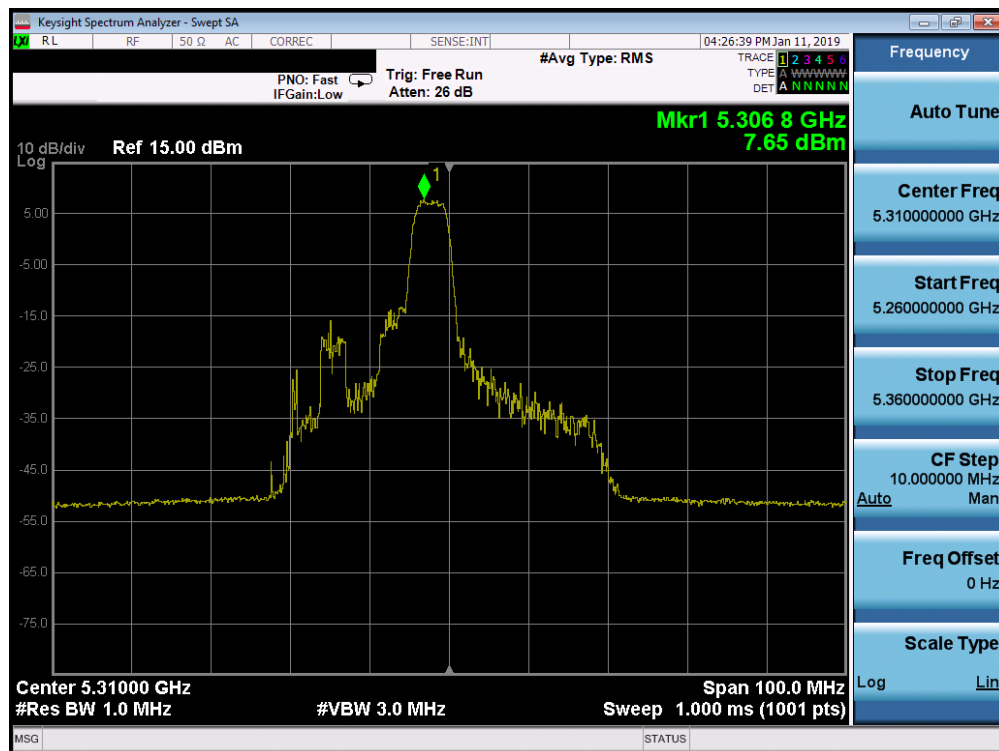


Plot 7-273. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 2A) – Ch. 64)

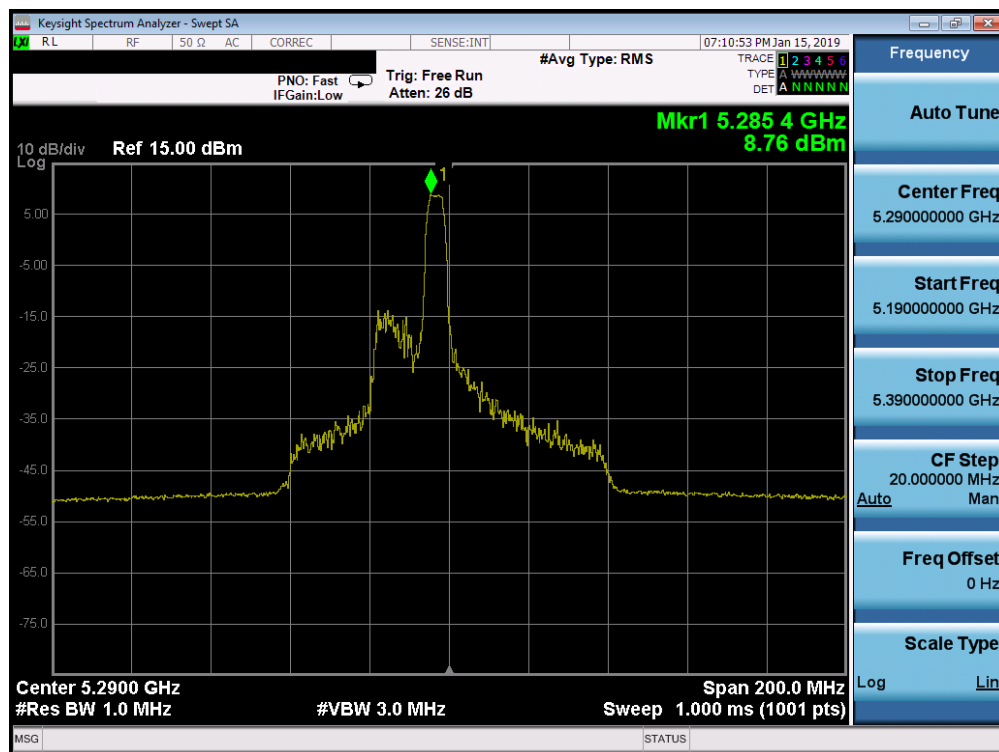


Plot 7-274. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 203 of 514

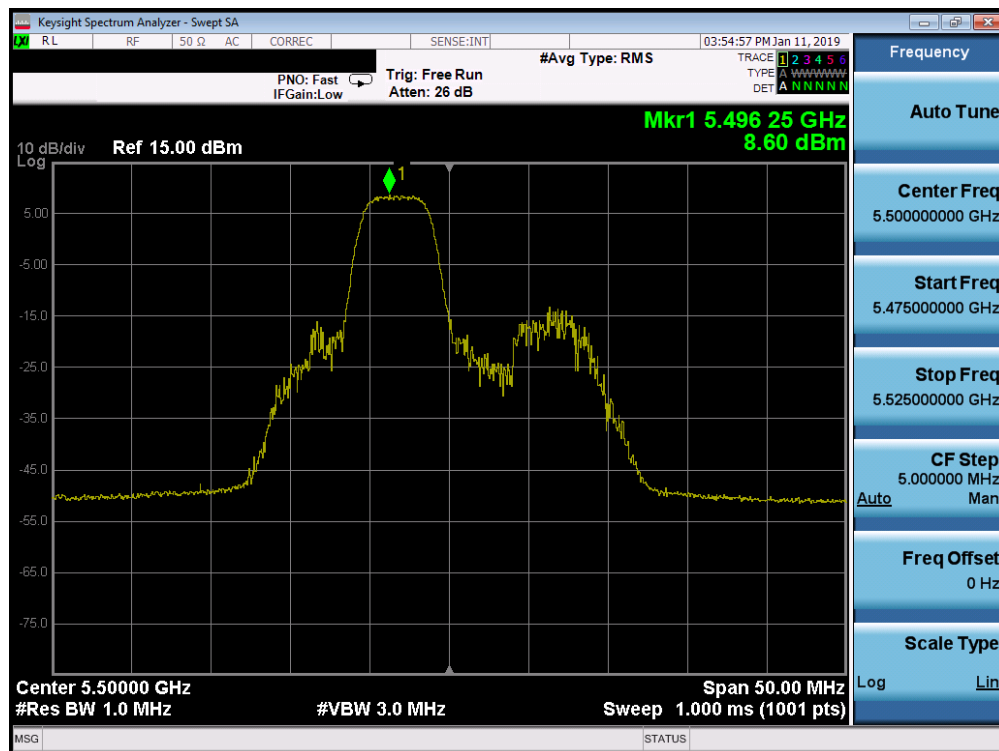


Plot 7-275. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 2A) – Ch. 62)

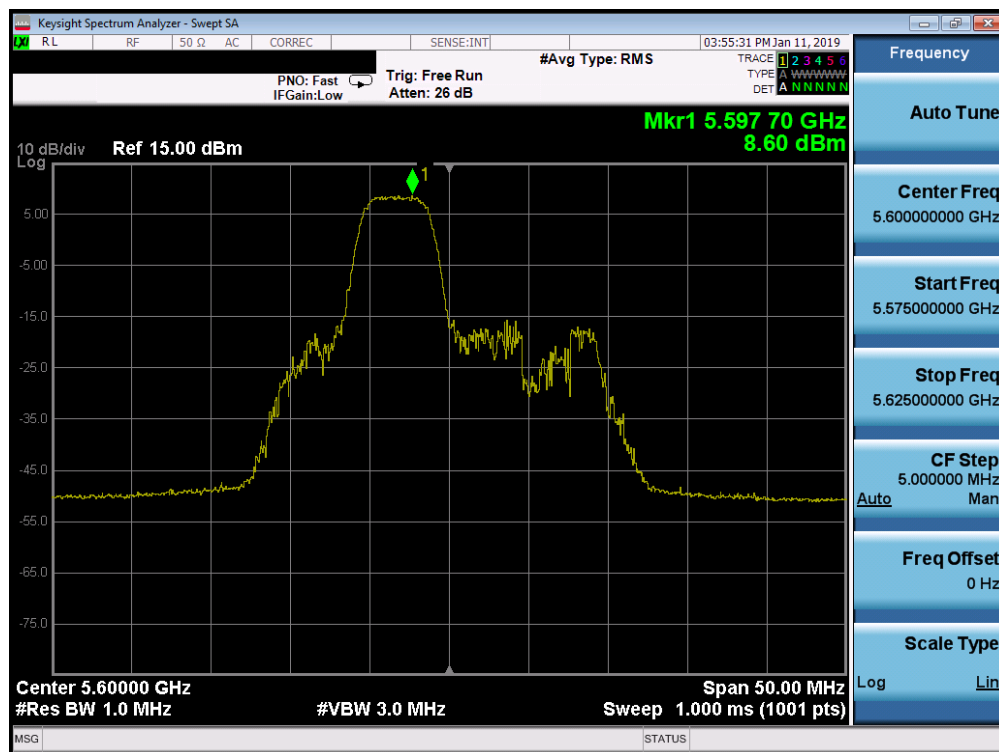


Plot 7-276. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 52 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 204 of 514		

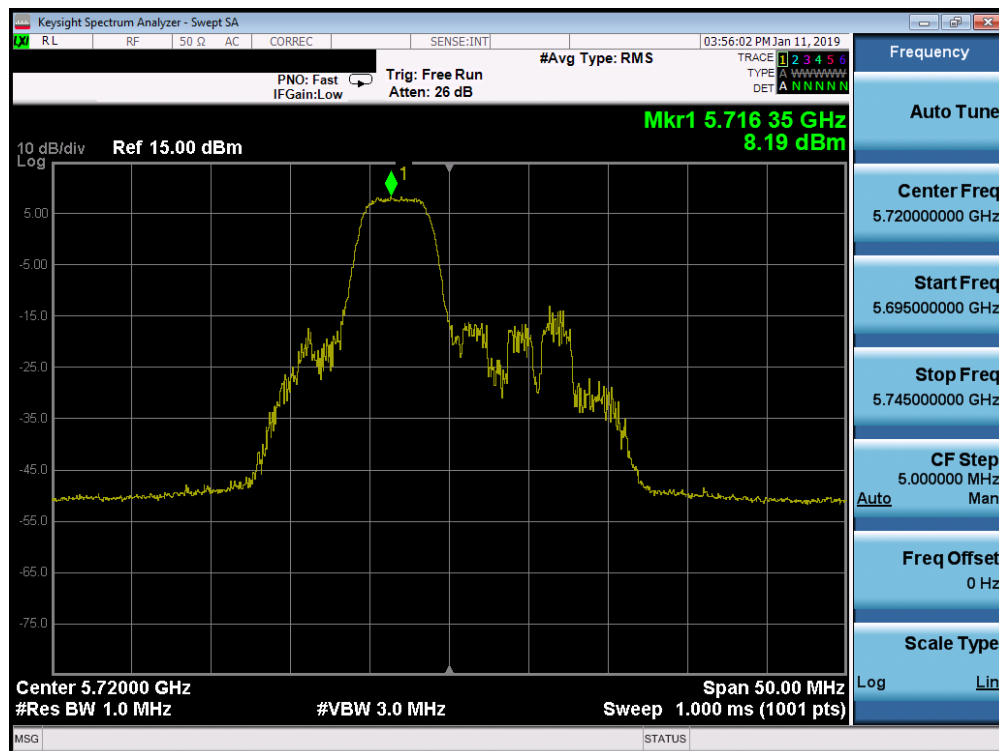


Plot 7-277. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 2C) – Ch. 100)

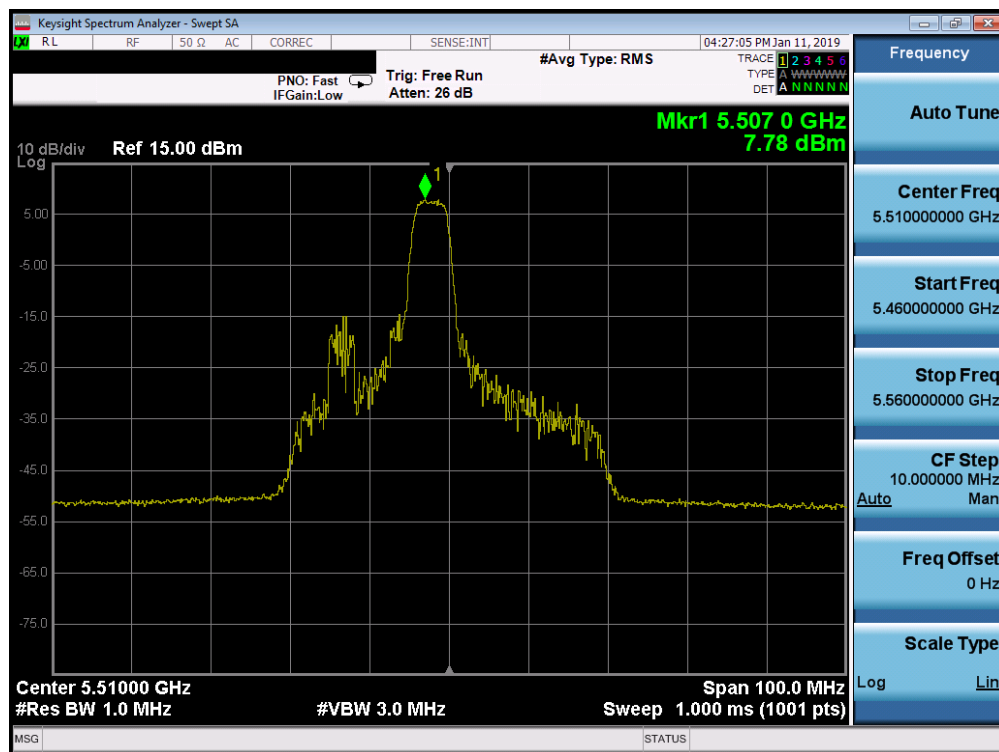


Plot 7-278. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 205 of 514

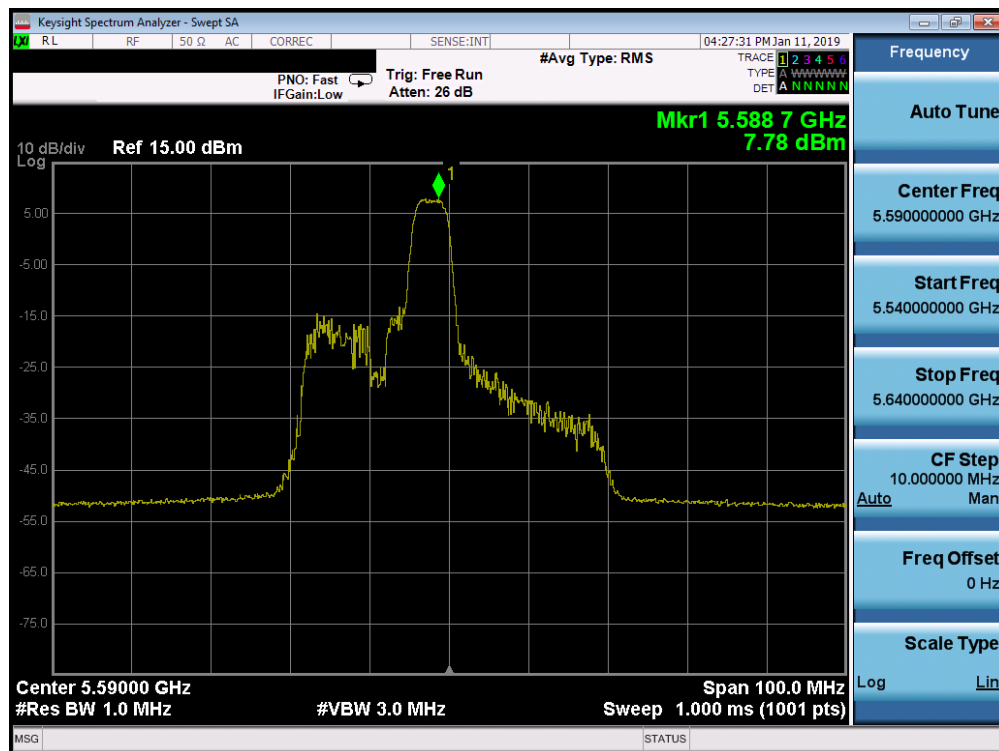


Plot 7-279. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 2C) – Ch. 144)

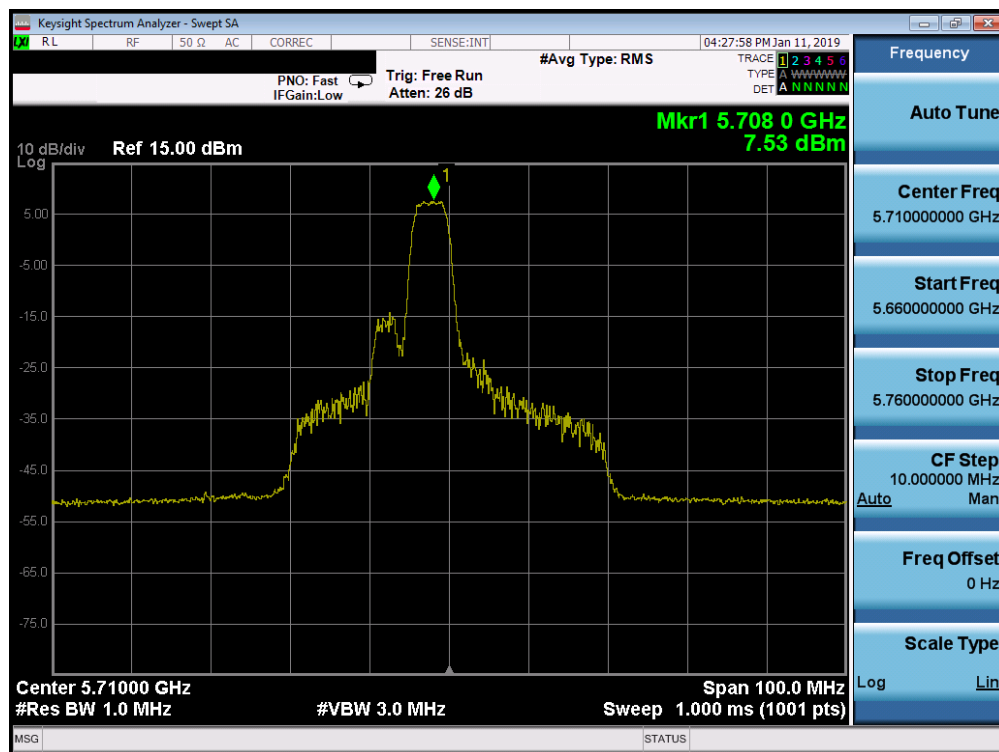


Plot 7-280. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 206 of 514		

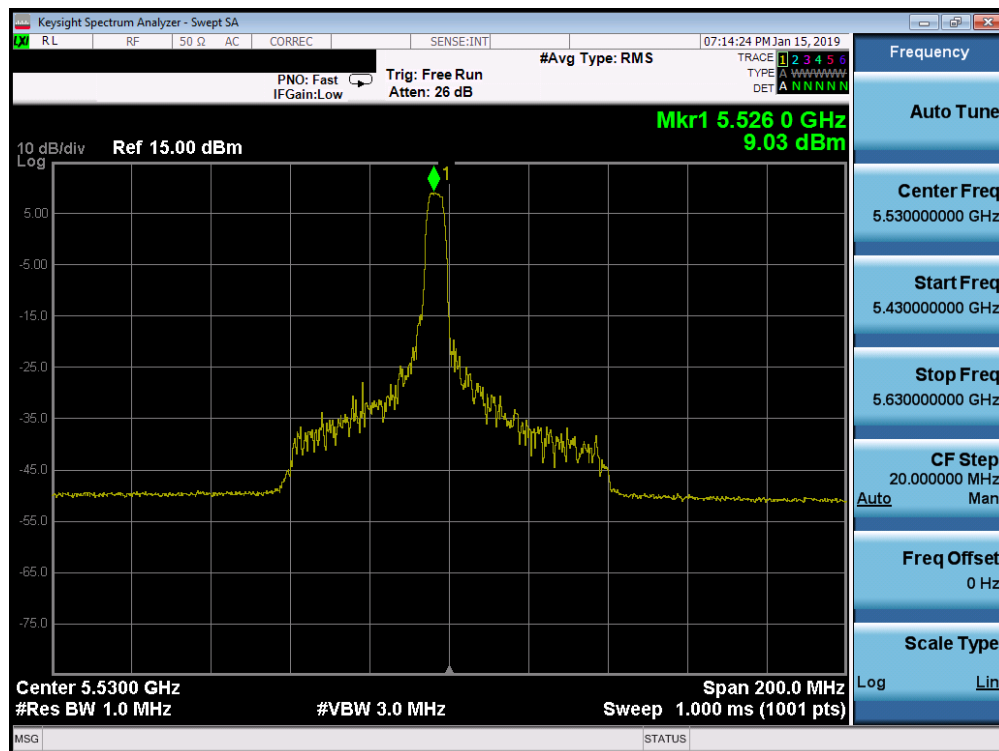


Plot 7-281. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 2C) – Ch. 118)

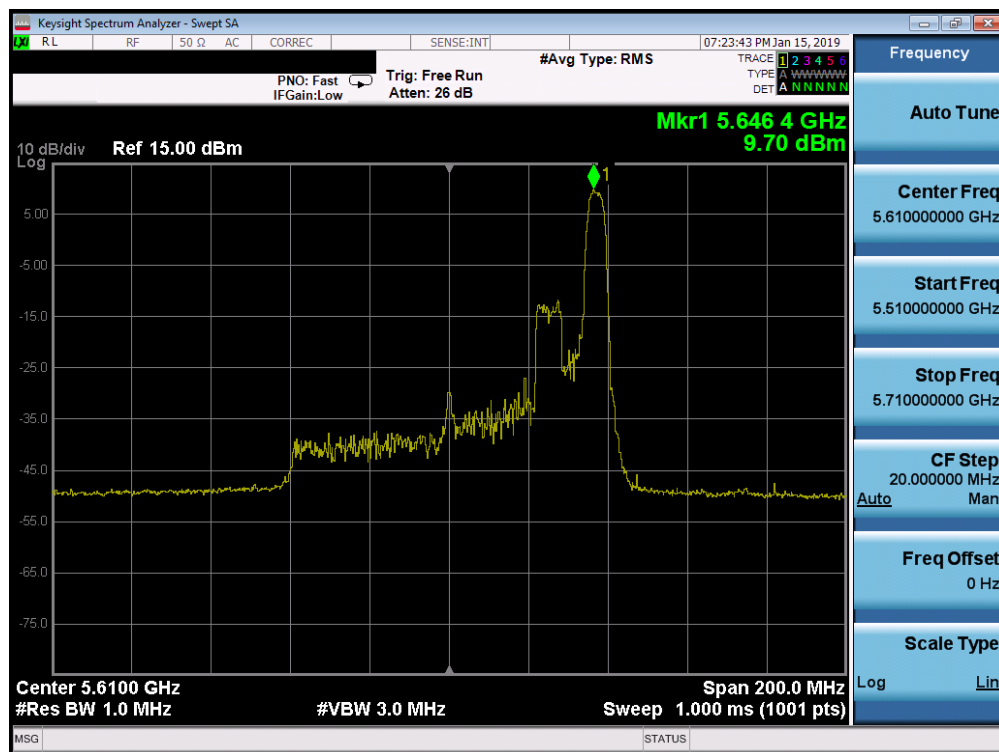


Plot 7-282. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 207 of 514

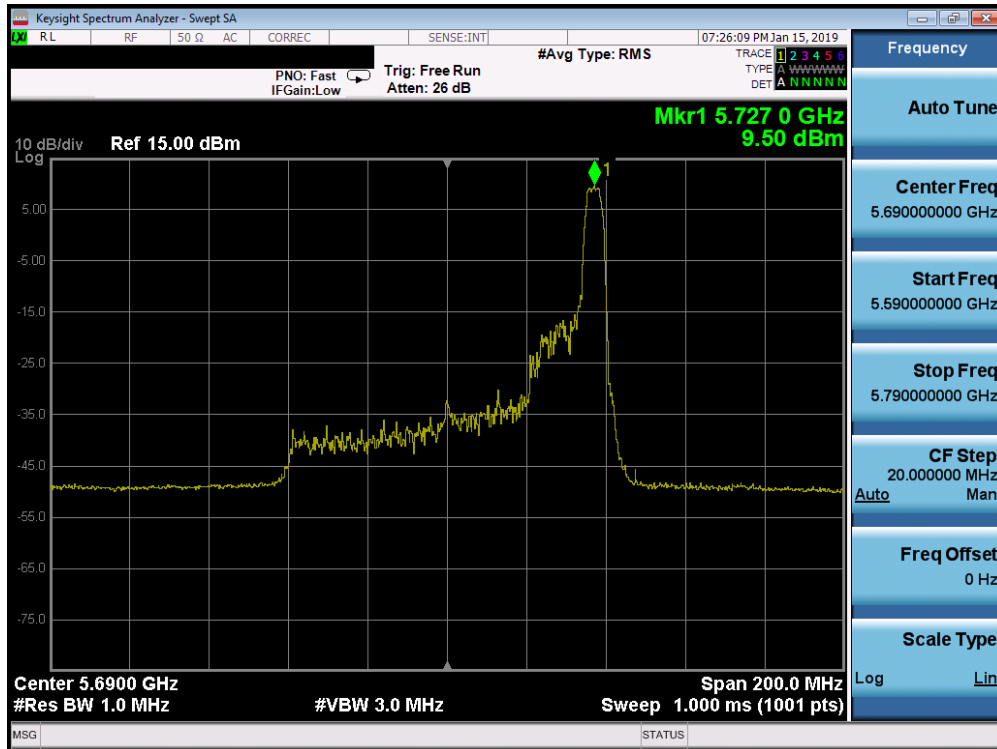


Plot 7-283. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 52 Tones (UNII Band 2C) – Ch. 106)



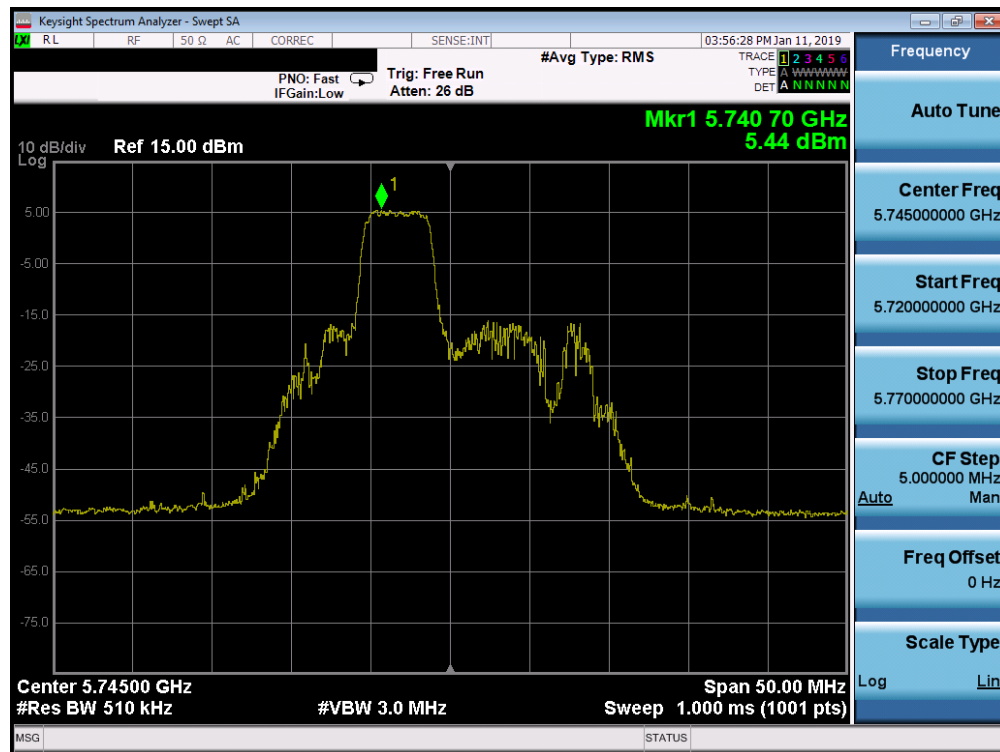
Plot 7-284. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 52 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 208 of 514		



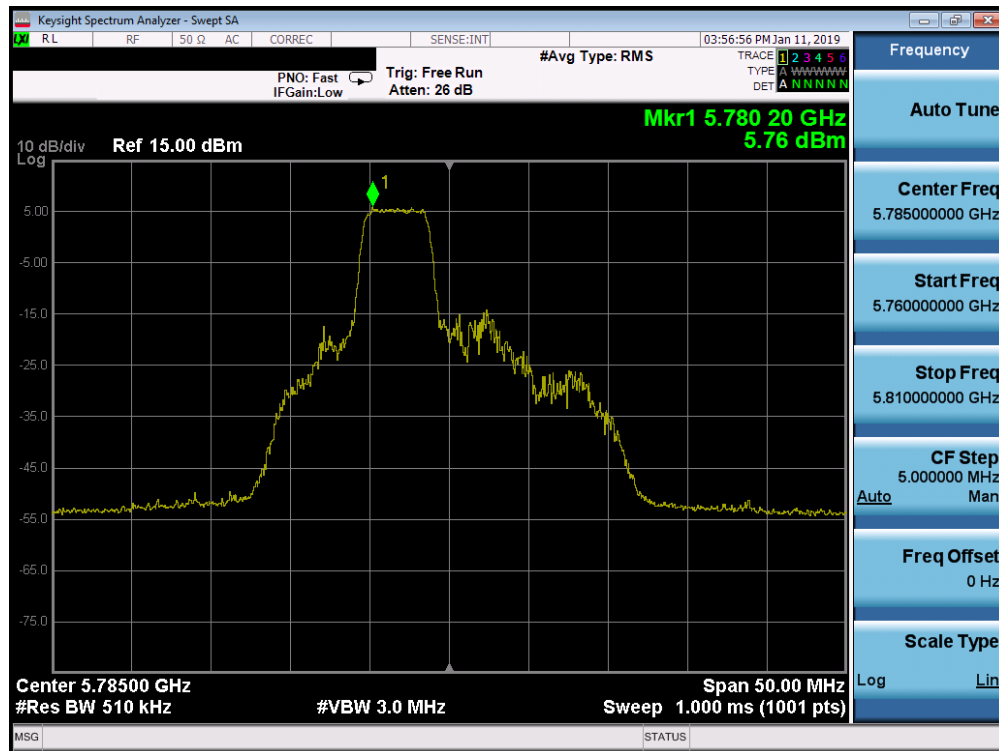
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	52T	MCS0	5.44	30.00	-24.56
	5785	157	ax (20MHz)	52T	MCS0	5.76	30.00	-24.24
	5825	165	ax (20MHz)	52T	MCS0	5.47	30.00	-24.53
	5755	151	ax (40MHz)	52T	MCS0	5.18	30.00	-24.82
	5795	159	ax (40MHz)	52T	MCS0	5.03	30.00	-24.97
	5775	155	ax (80MHz)	52T	MCS0	10.24	30.00	-19.76

Table 7-86. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (52 Tones)

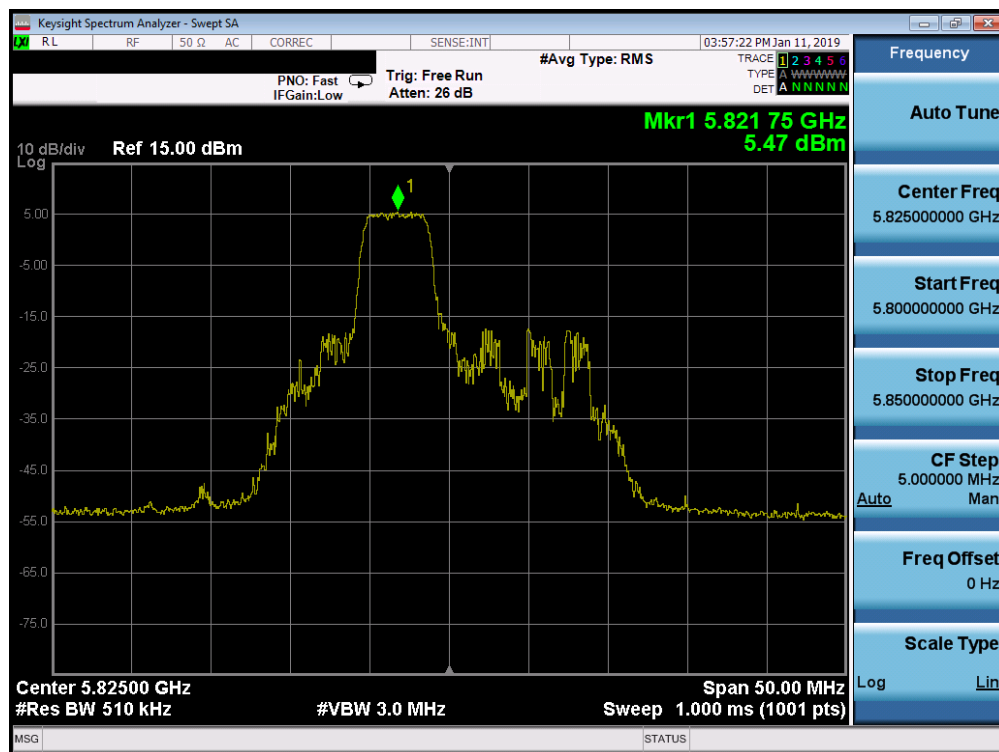


Plot 7-286. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 210 of 514

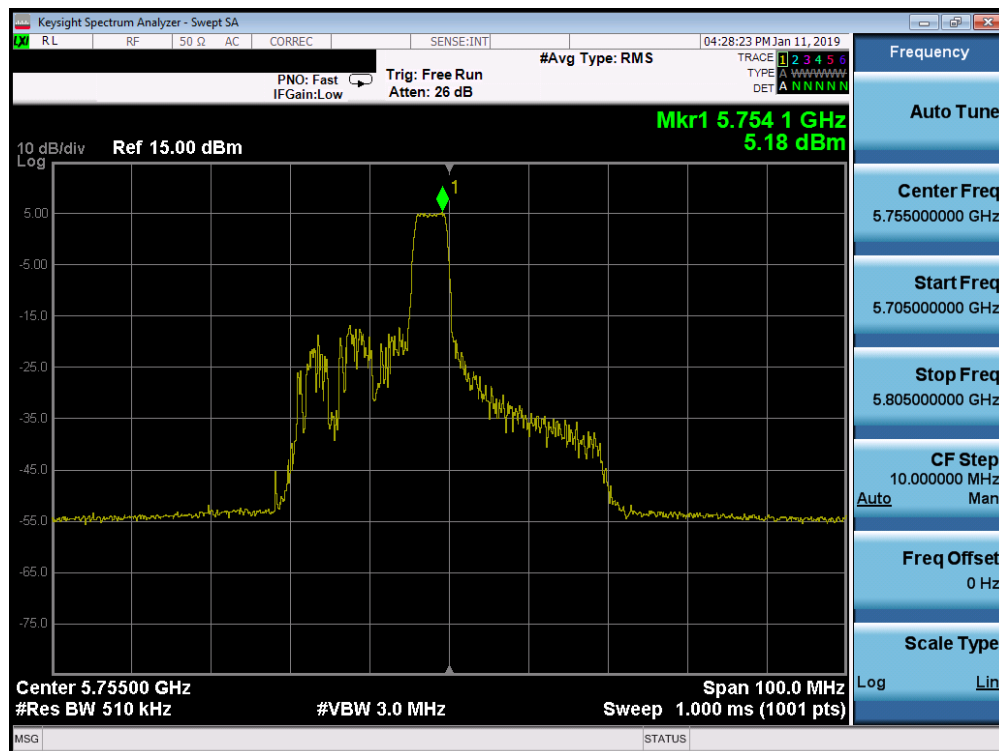


Plot 7-287. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 3) – Ch. 157)

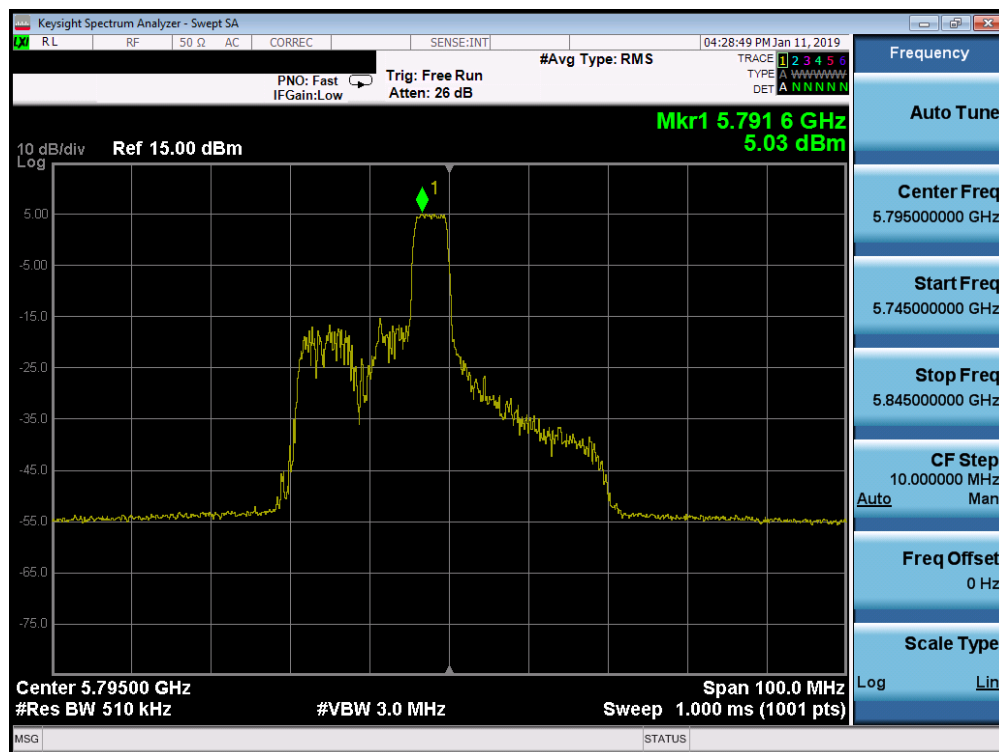


Plot 7-288. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 52 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 211 of 514		

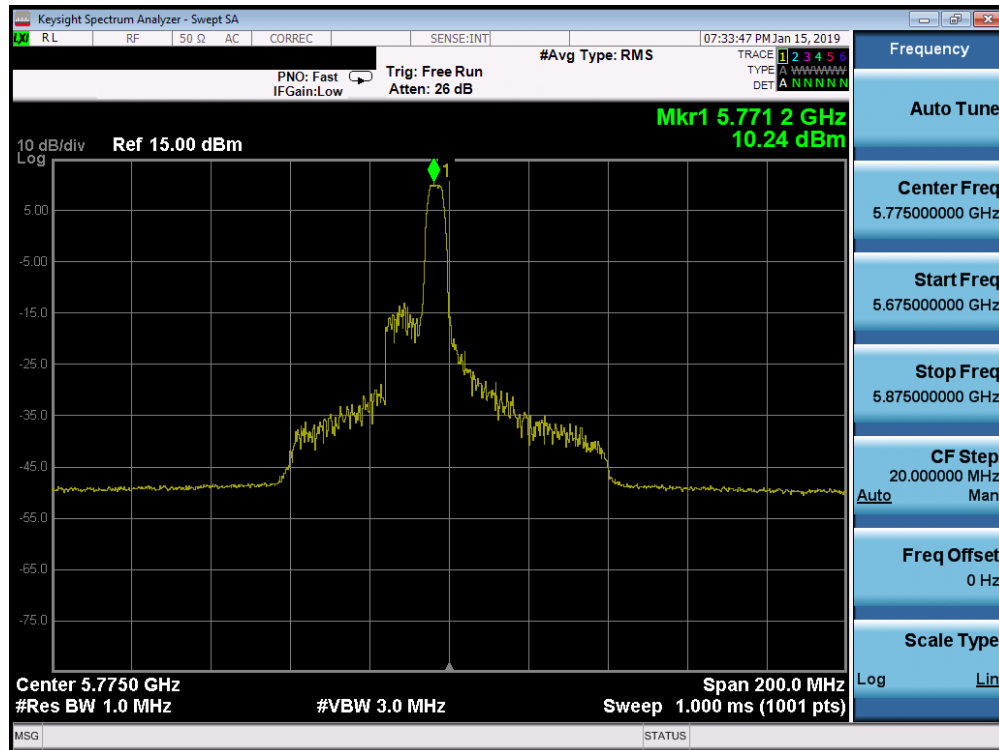


Plot 7-289. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 3) – Ch. 151)



Plot 7-290. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 52 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 212 of 514



Plot 7-291. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 52 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 213 of 514

SISO Antenna-2 Power Spectral Density Measurements (106 Tones)

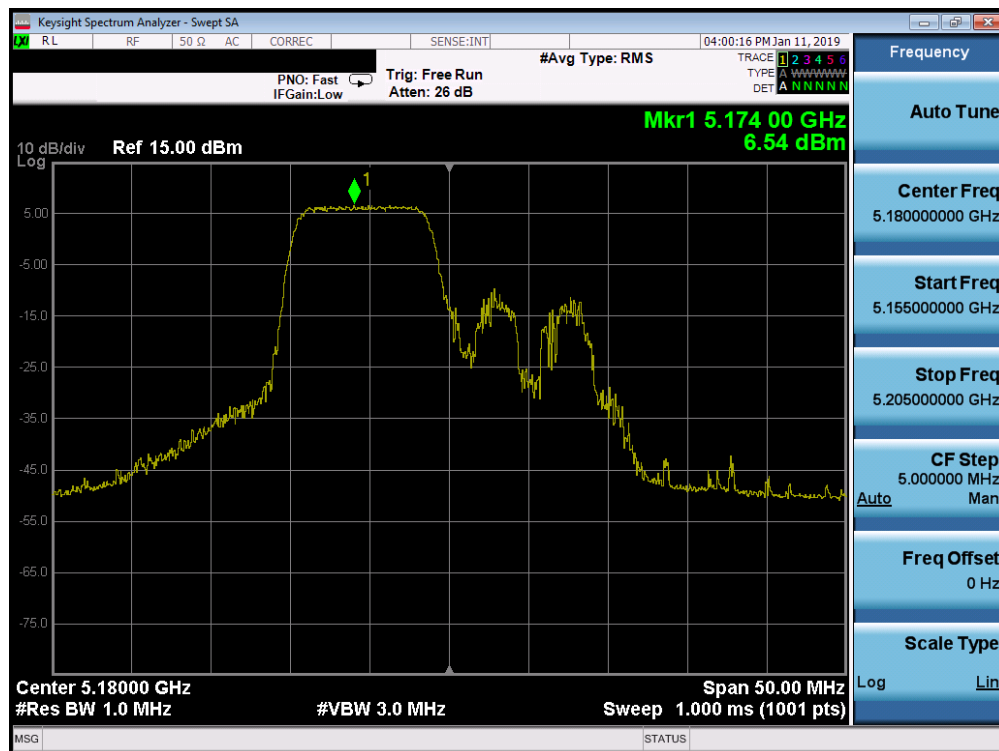
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	106T	MCS0	6.54	11.00	-4.46
	5200	40	ax (20MHz)	106T	MCS0	6.72	11.00	-4.28
	5240	48	ax (20MHz)	106T	MCS0	6.82	11.00	-4.18
	5190	38	ax (40MHz)	106T	MCS0	6.40	11.00	-4.60
	5230	46	ax (40MHz)	106T	MCS0	6.88	11.00	-4.12
	5210	42	ax (80MHz)	106T	MCS0	8.17	11.00	-2.83
Band 2A	5260	52	ax (20MHz)	106T	MCS0	6.44	11.00	-4.56
	5280	56	ax (20MHz)	106T	MCS0	6.46	11.00	-4.54
	5320	64	ax (20MHz)	106T	MCS0	6.72	11.00	-4.28
	5270	54	ax (40MHz)	106T	MCS0	6.37	11.00	-4.63
	5310	62	ax (40MHz)	106T	MCS0	6.70	11.00	-4.30
	5290	58	ax (80MHz)	106T	MCS0	8.16	11.00	-2.84
Band 2C	5500	100	ax (20MHz)	106T	MCS0	7.54	11.00	-3.46
	5600	120	ax (20MHz)	106T	MCS0	7.40	11.00	-3.60
	5720	144	ax (20MHz)	106T	MCS0	7.01	11.00	-3.99
	5510	102	ax (40MHz)	106T	MCS0	6.88	11.00	-4.12
	5590	118	ax (40MHz)	106T	MCS0	6.92	11.00	-4.08
	5710	142	ax (40MHz)	106T	MCS0	6.96	11.00	-4.04
	5530	106	ax (80MHz)	106T	MCS0	8.27	11.00	-2.73
	5610	122	ax (80MHz)	106T	MCS0	8.71	11.00	-2.29
	5690	138	ax (80MHz)	106T	MCS0	8.62	11.00	-2.38

Table 7-87. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (106 Tones)

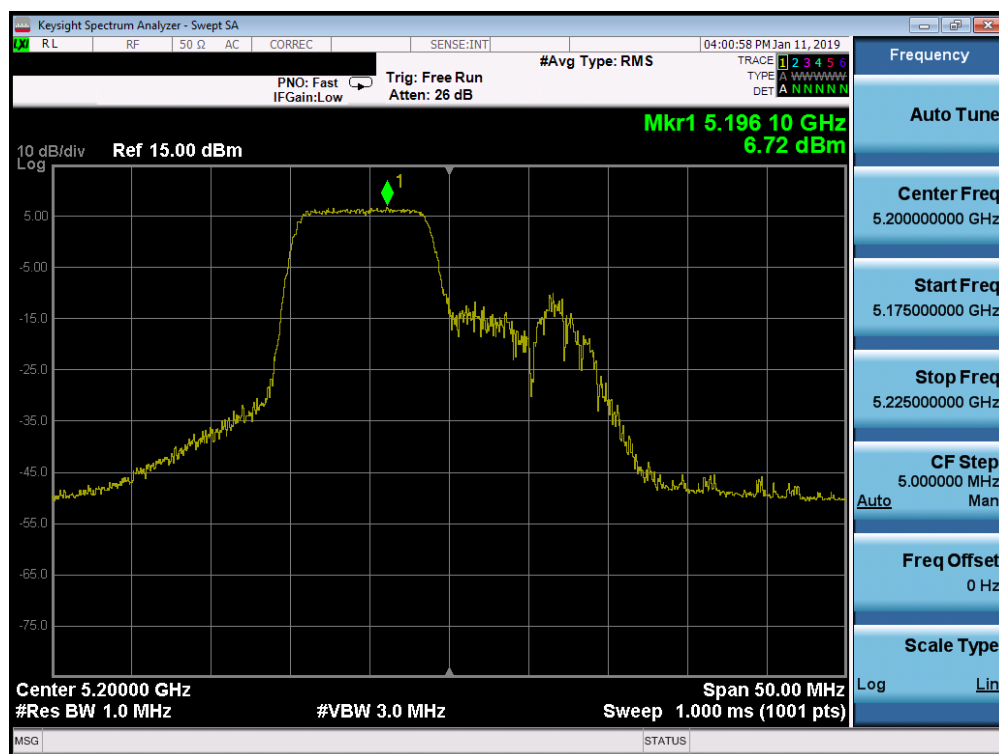
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	106T	MCS0	6.54	-7.70	-1.16	10.0	-11.16
	5200	40	ax (20MHz)	106T	MCS0	6.72	-7.57	-0.85	10.0	-10.85
	5240	48	ax (20MHz)	106T	MCS0	6.82	-8.01	-1.19	10.0	-11.19
	5190	38	ax (40MHz)	106T	MCS0	6.40	-7.57	-1.17	10.0	-11.17
	5230	46	ax (40MHz)	106T	MCS0	6.88	-8.01	-1.13	10.0	-11.13
	5210	42	ax (80MHz)	106T	MCS0	8.17	-7.57	0.60	10.0	-9.40

Table 7-88. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 106 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 214 of 514

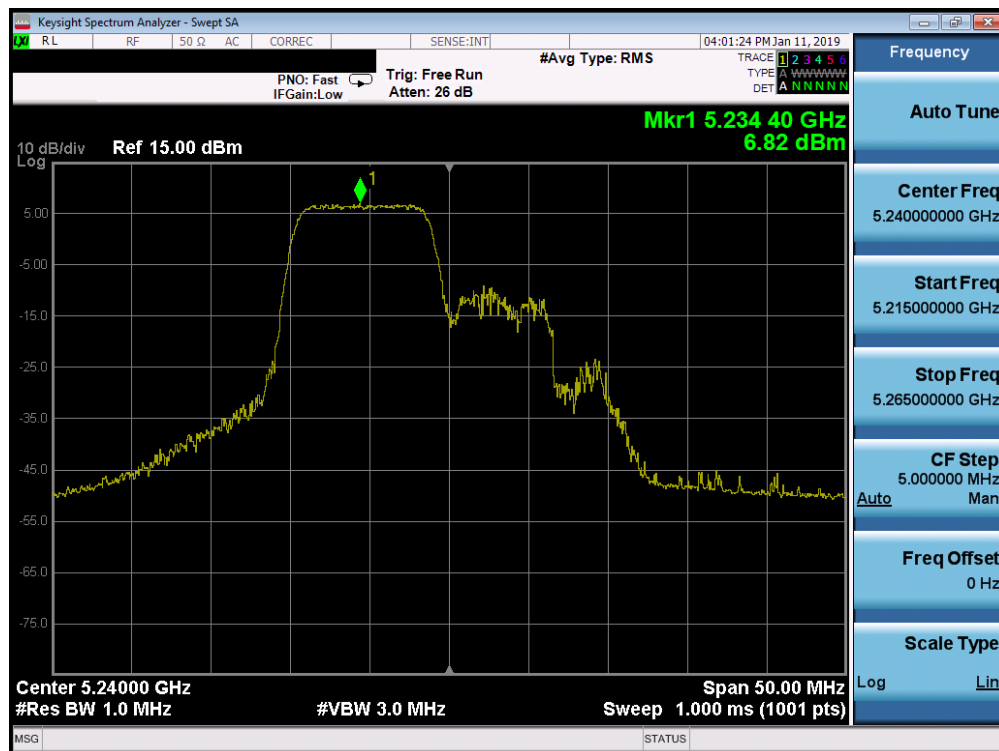


Plot 7-292. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 1) – Ch. 36)

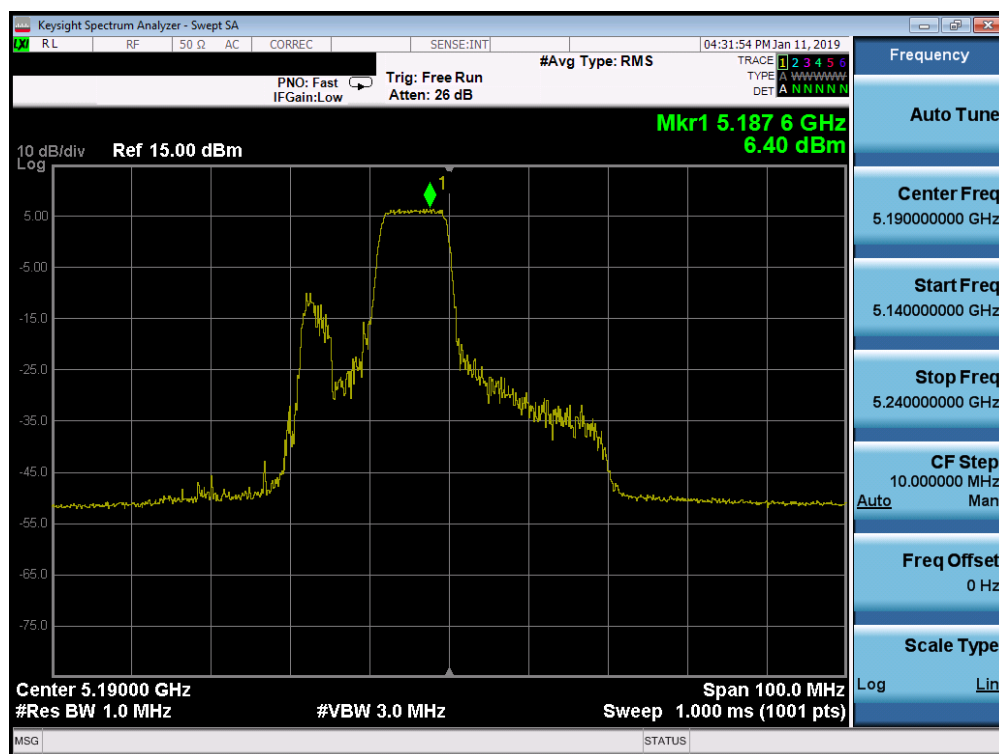


Plot 7-293. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 215 of 514

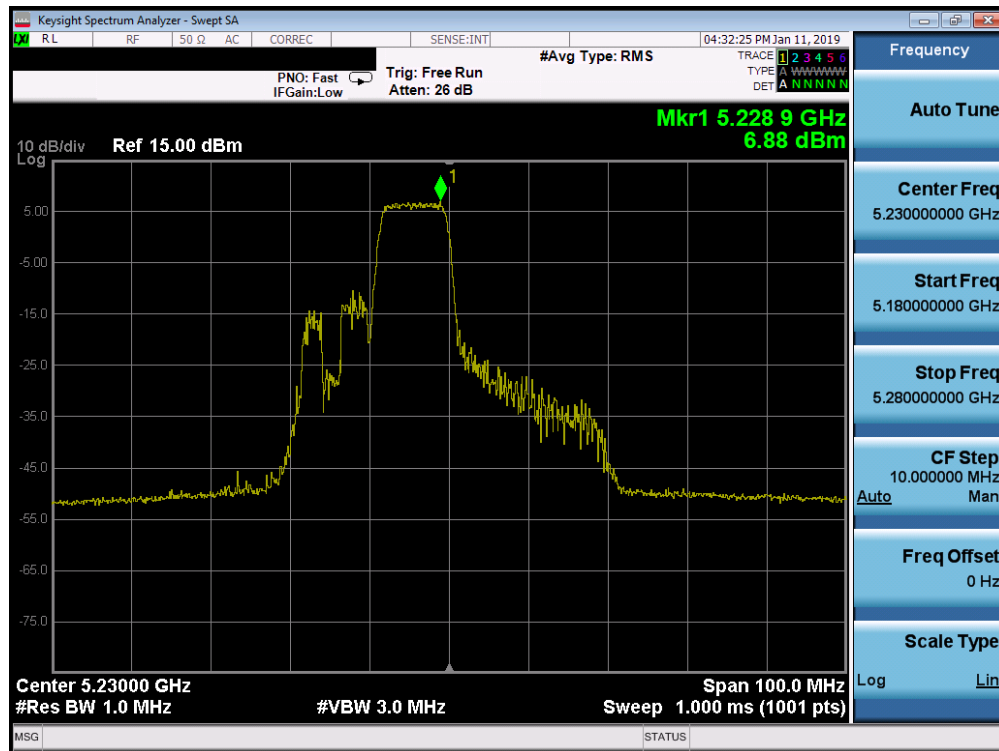


Plot 7-294. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 1) – Ch. 48)

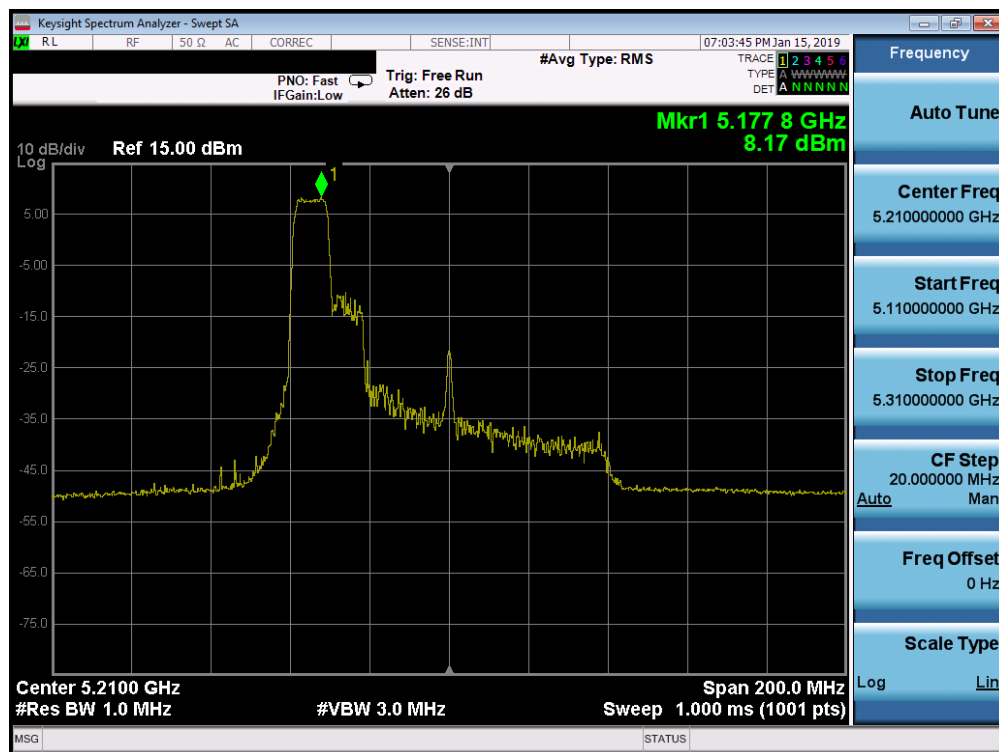


Plot 7-295. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 216 of 514		

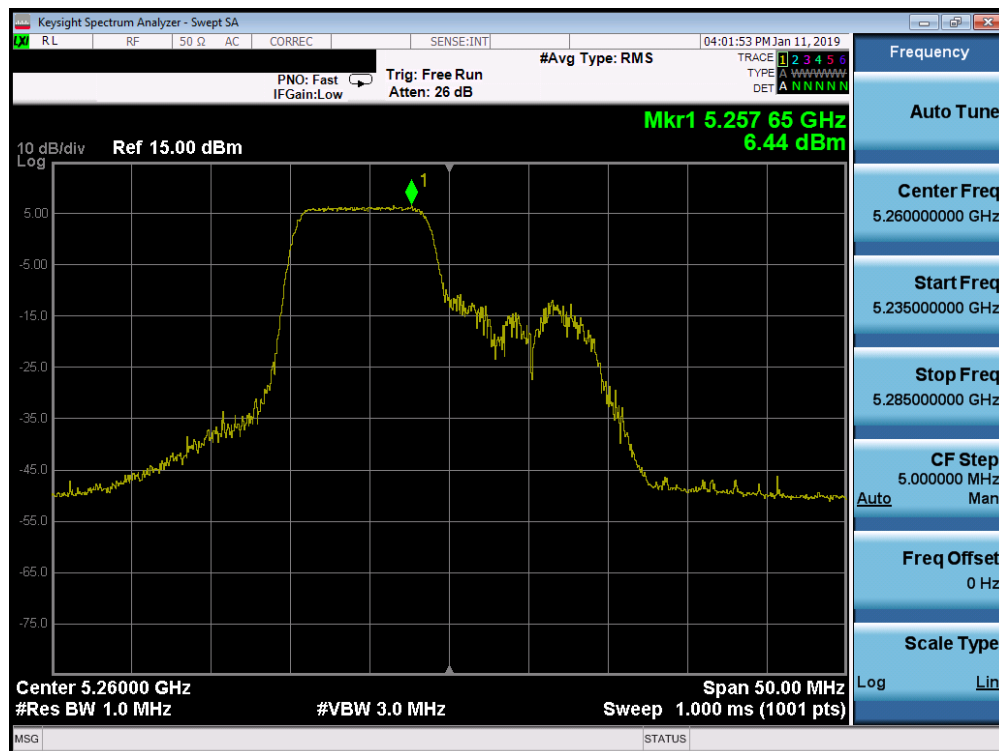


Plot 7-296. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 1) – Ch. 46)

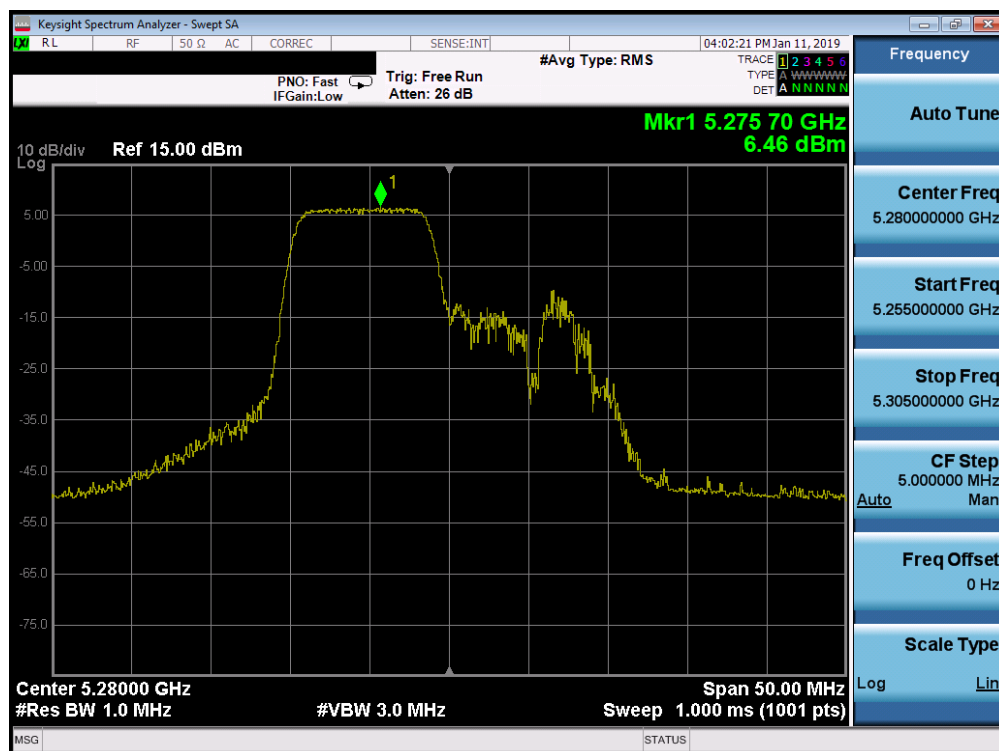


Plot 7-297. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 106 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 217 of 514

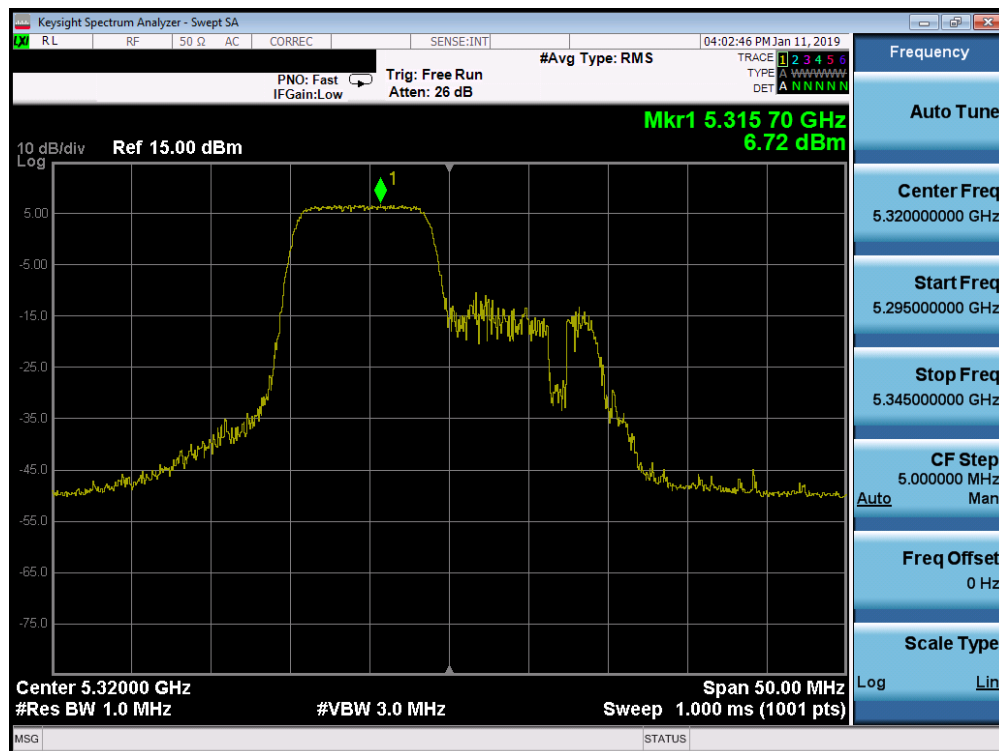


Plot 7-298. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 2A) – Ch. 52)

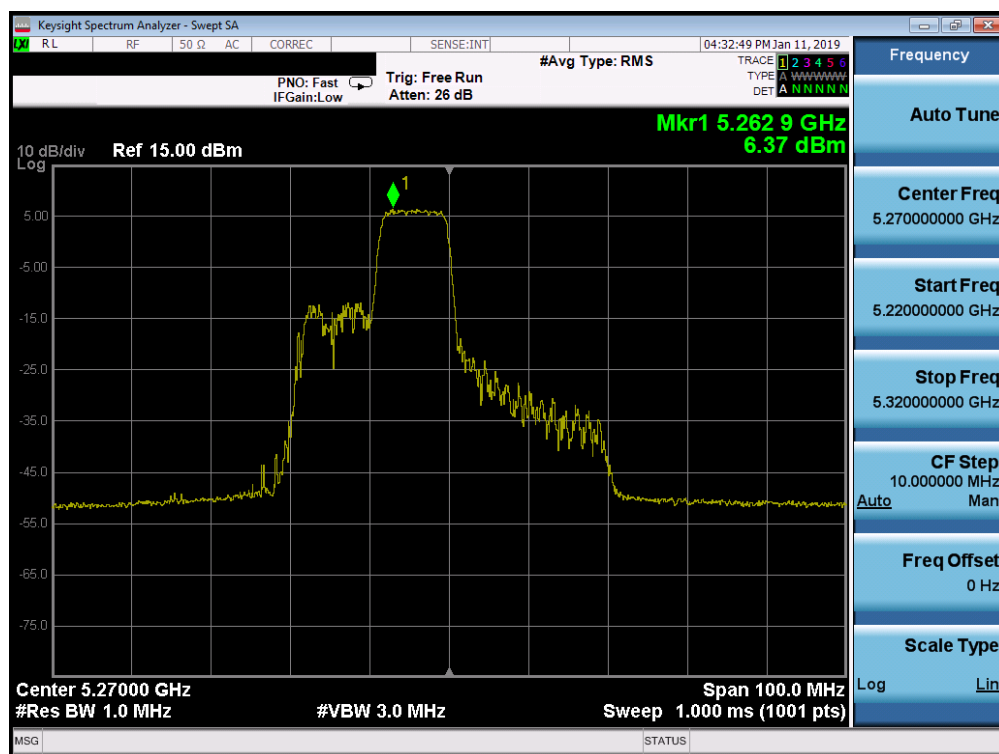


Plot 7-299. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 218 of 514

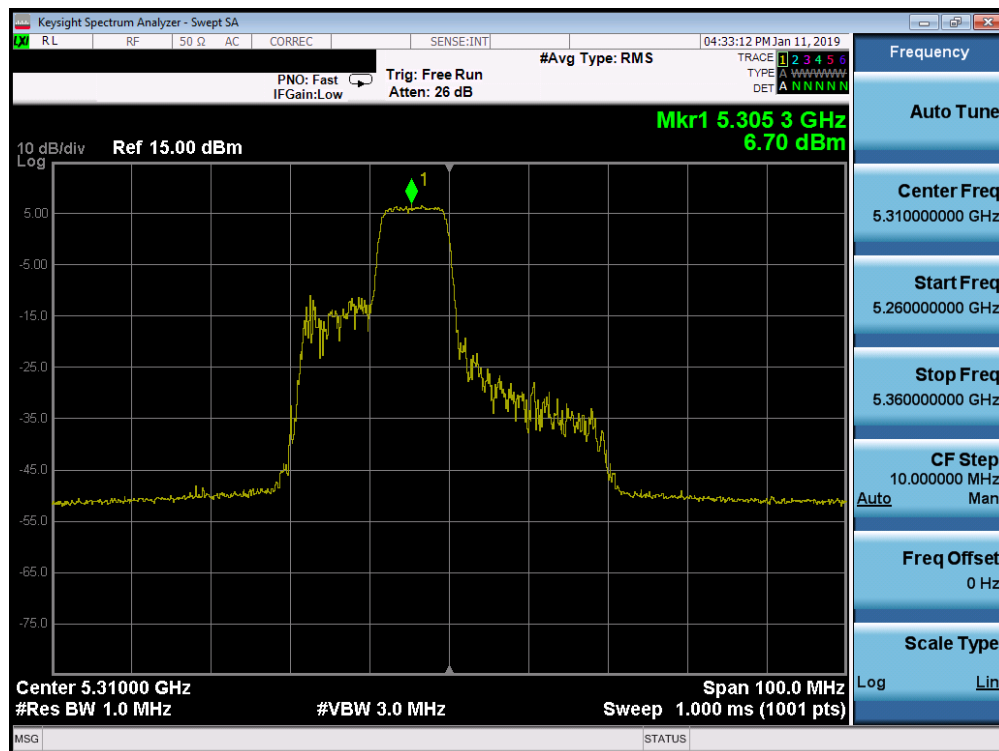


Plot 7-300. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 2A) – Ch. 64)

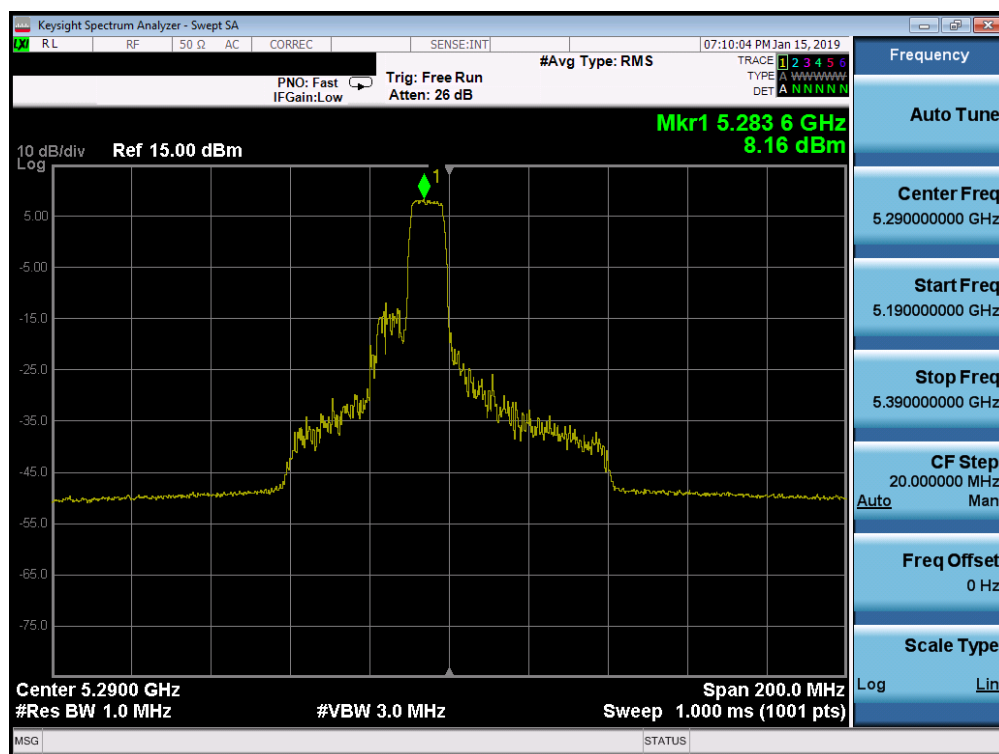


Plot 7-301. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 219 of 514	

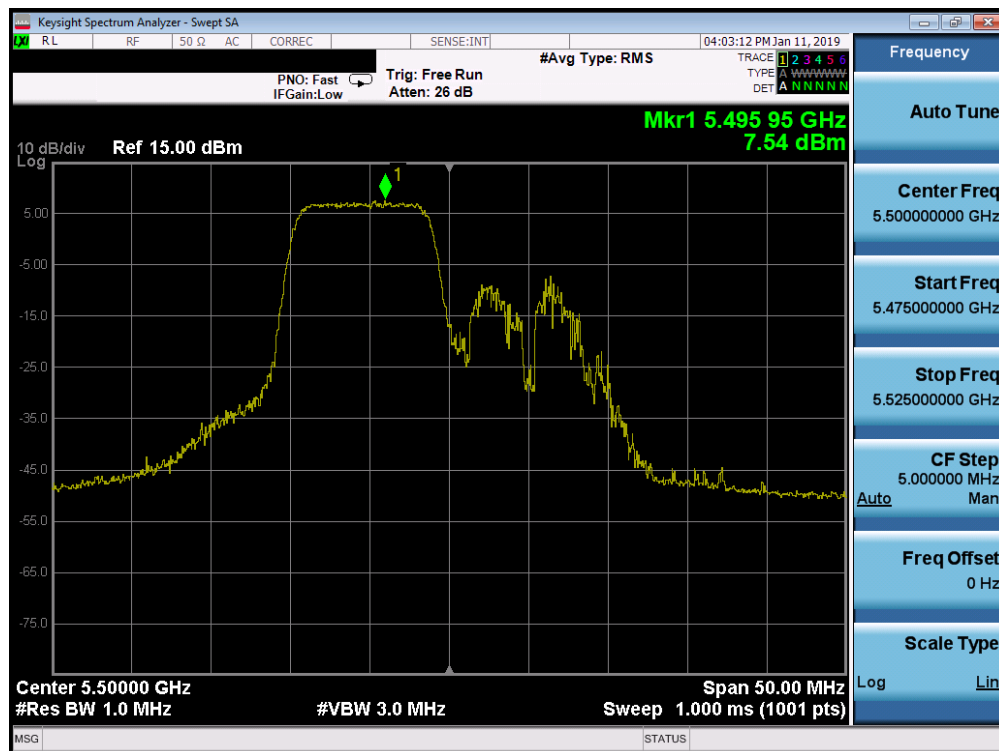


Plot 7-302. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 2A) – Ch. 62)



Plot 7-303. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 106 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 220 of 514

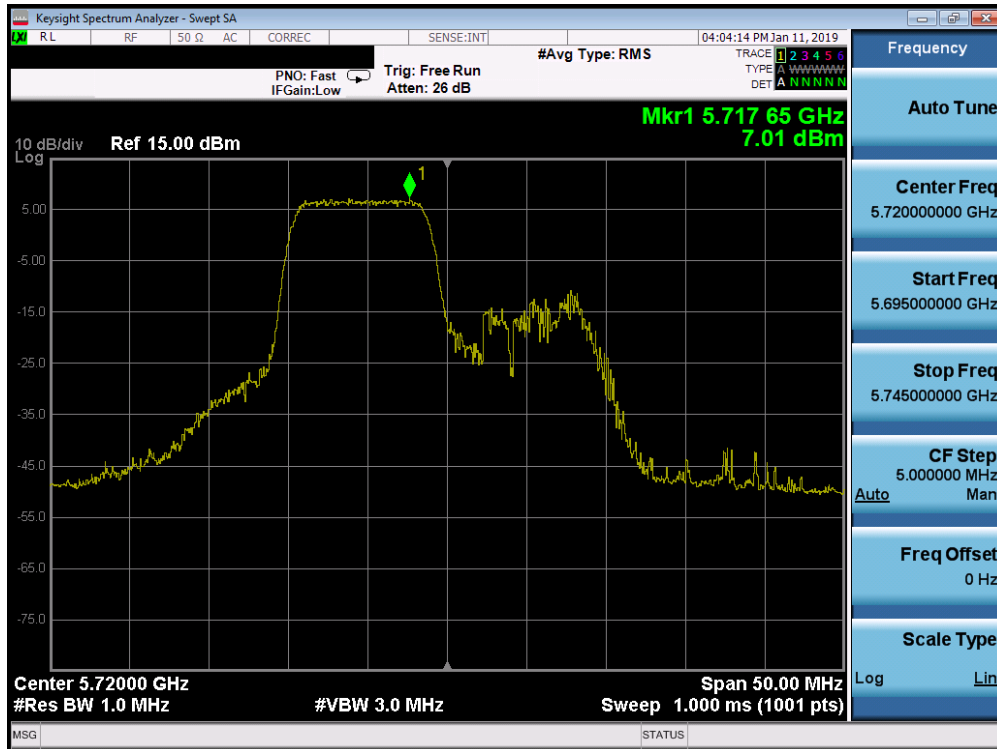


Plot 7-304. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 100)

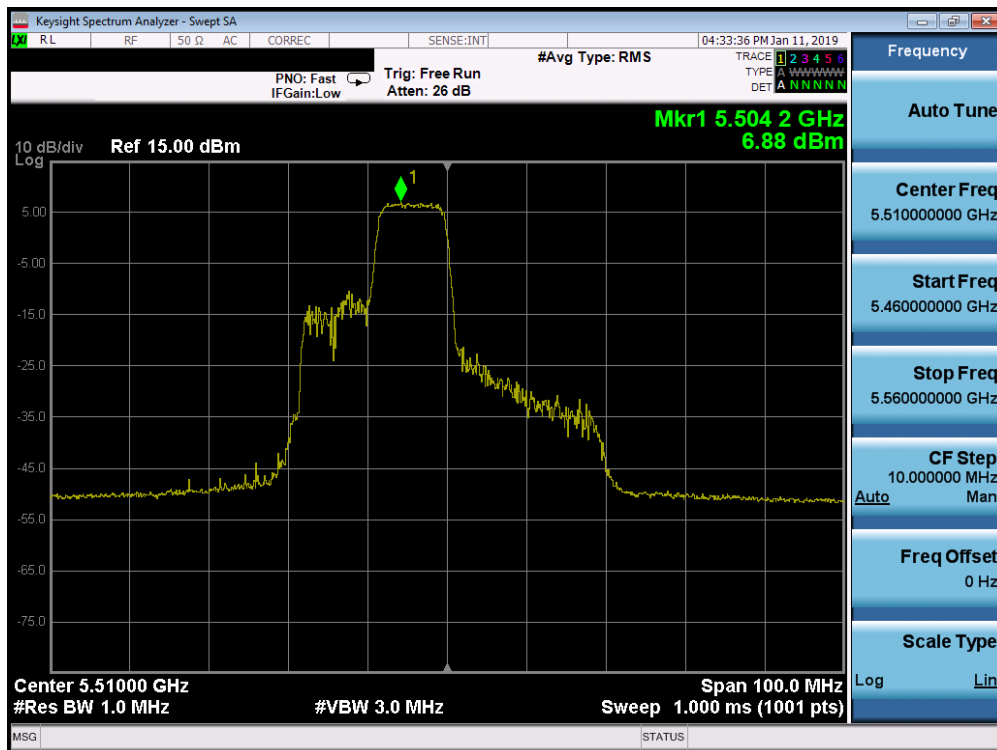


Plot 7-305. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 221 of 514		

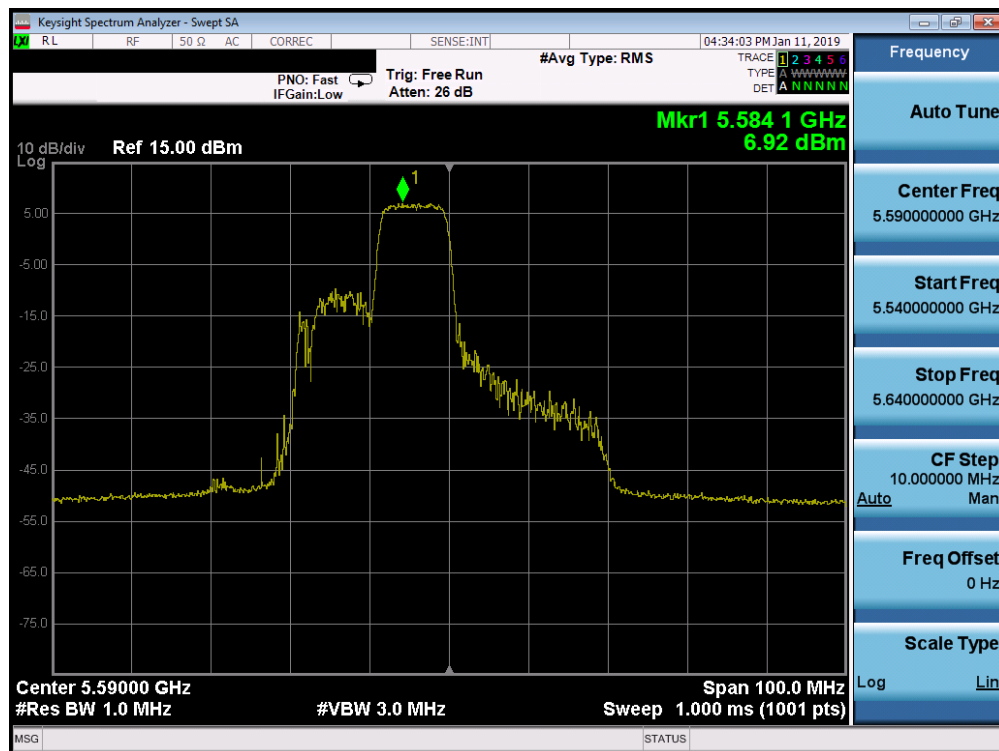


Plot 7-306. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 144)



Plot 7-307. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 222 of 514

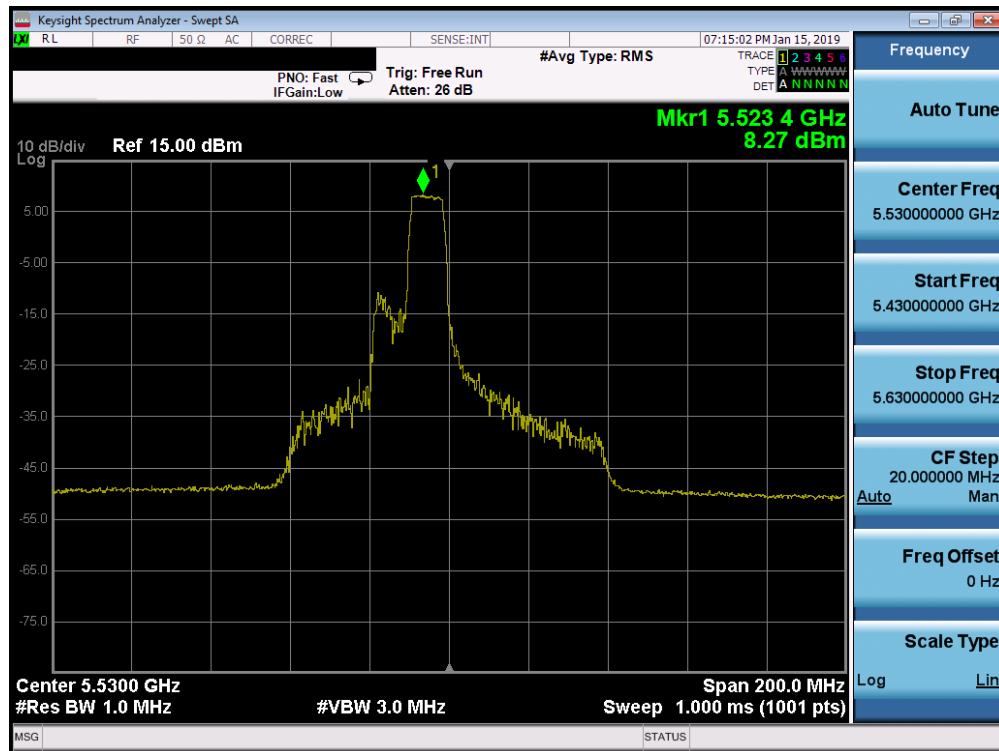


Plot 7-308. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 118)

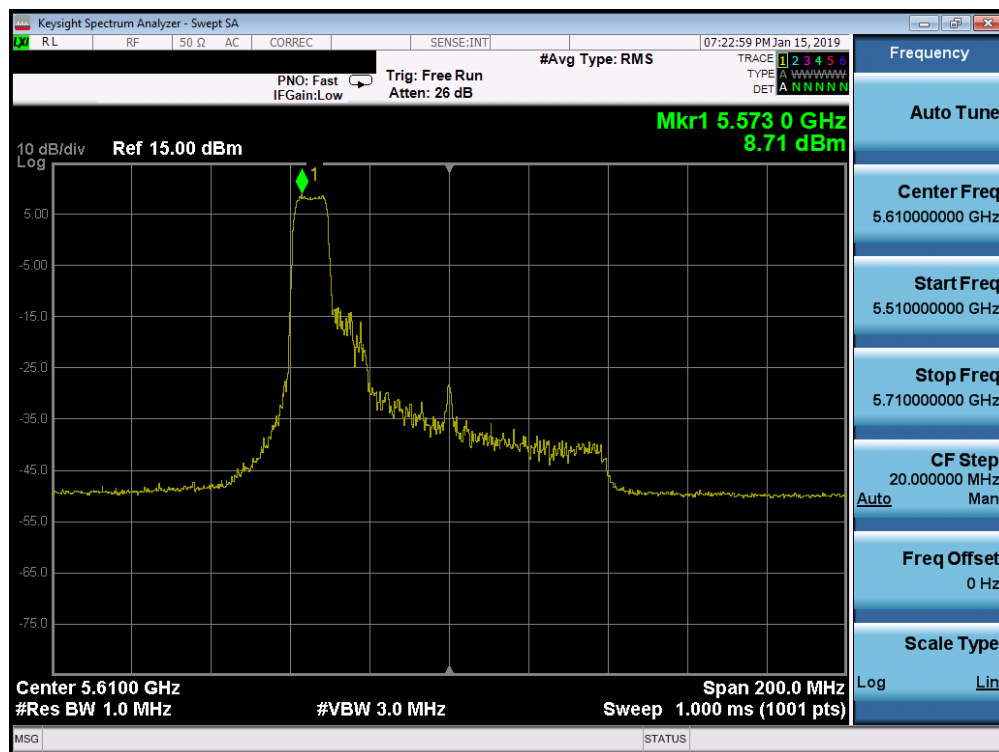


Plot 7-309. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 223 of 514		

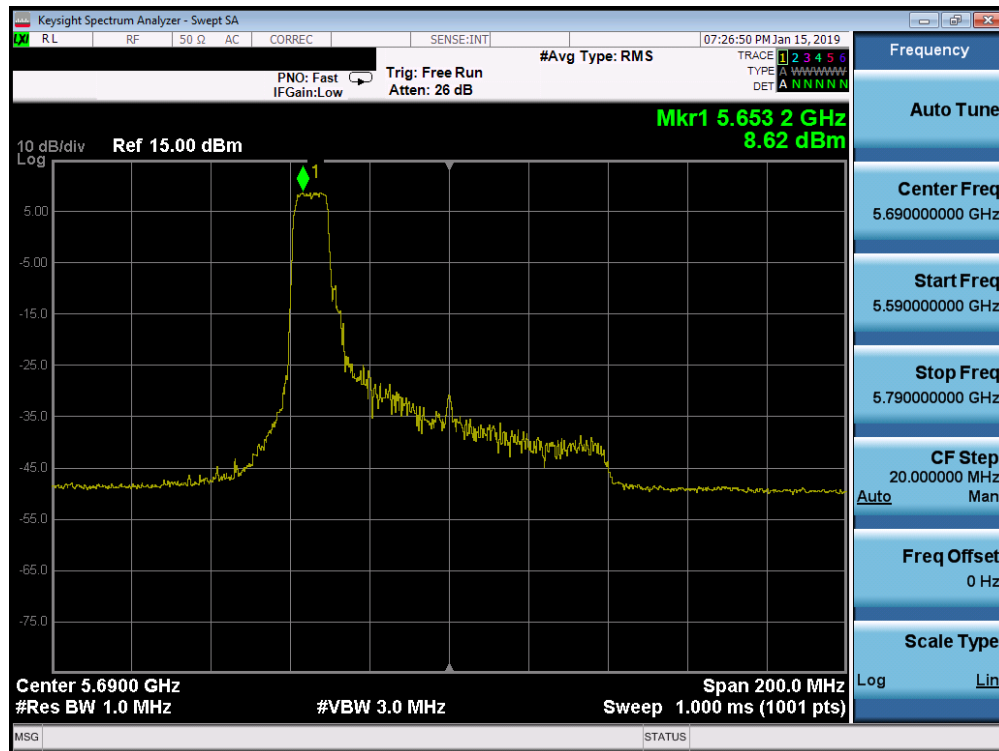


Plot 7-310. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 106)



Plot 7-311. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 224 of 514

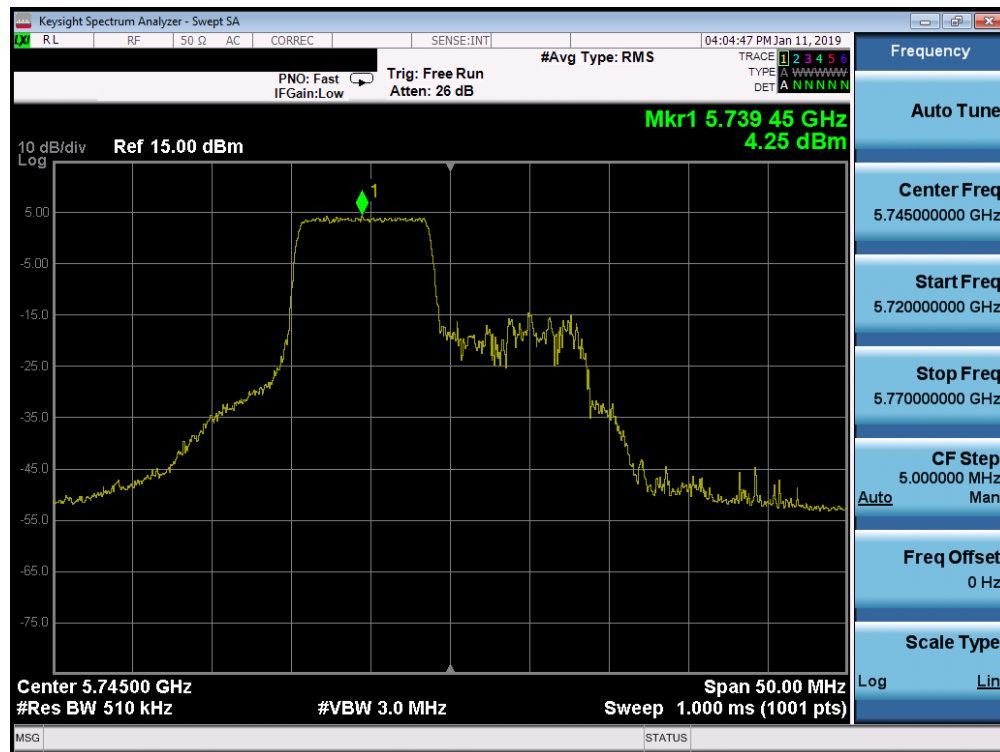


Plot 7-312. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset			Page 225 of 514

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	106T	MCS0	4.25	30.00	-25.75
	5785	157	ax (20MHz)	106T	MCS0	4.52	30.00	-25.48
	5825	165	ax (20MHz)	106T	MCS0	4.21	30.00	-25.79
	5755	151	ax (40MHz)	106T	MCS0	4.10	30.00	-25.90
	5795	159	ax (40MHz)	106T	MCS0	4.33	30.00	-25.67
	5775	155	ax (80MHz)	106T	MCS0	9.08	30.00	-20.92

Table 7-89. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (106 Tones)



Plot 7-313. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 226 of 514



Plot 7-314. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 3) – Ch. 157)



Plot 7-315. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 227 of 514

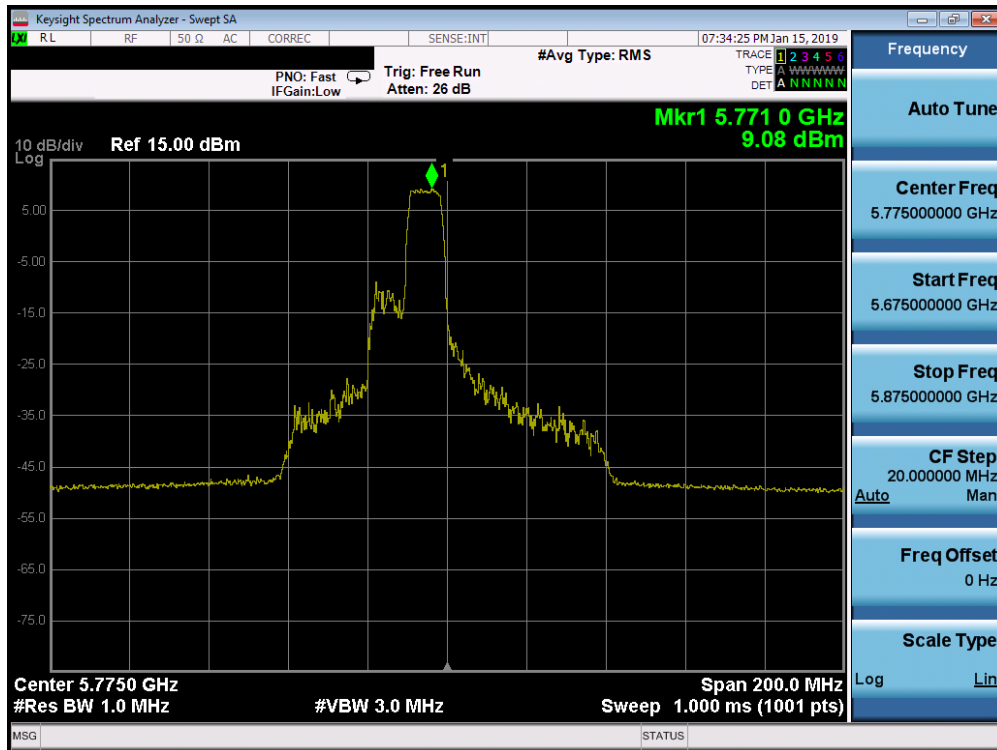


Plot 7-316. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 3) – Ch. 151)



Plot 7-317. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 228 of 514		



Plot 7-318. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 106 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 229 of 514

SISO Antenna-2 Power Spectral Density Measurements (242 Tones)

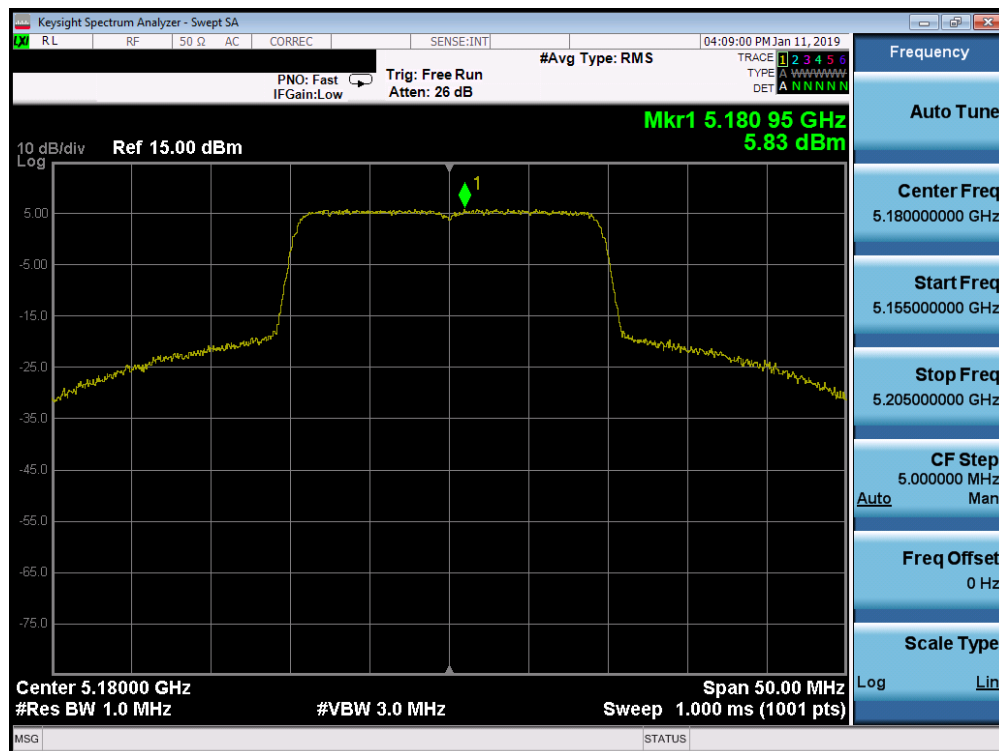
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	5.83	11.00	-5.17
	5200	40	ax (20MHz)	242T	MCS0	5.94	11.00	-5.06
	5240	48	ax (20MHz)	242T	MCS0	6.44	11.00	-4.56
	5190	38	ax (40MHz)	242T	MCS0	6.79	11.00	-4.21
	5230	46	ax (40MHz)	242T	MCS0	7.12	11.00	-3.88
	5210	42	ax (80MHz)	242T	MCS0	1.74	11.00	-9.26
Band 2A	5260	52	ax (20MHz)	242T	MCS0	5.79	11.00	-5.21
	5280	56	ax (20MHz)	242T	MCS0	5.81	11.00	-5.19
	5320	64	ax (20MHz)	242T	MCS0	6.14	11.00	-4.86
	5270	54	ax (40MHz)	242T	MCS0	6.52	11.00	-4.48
	5310	62	ax (40MHz)	242T	MCS0	6.90	11.00	-4.10
	5290	58	ax (80MHz)	242T	MCS0	2.23	11.00	-8.77
Band 2C	5500	100	ax (20MHz)	242T	MCS0	6.53	11.00	-4.47
	5600	120	ax (20MHz)	242T	MCS0	6.73	11.00	-4.27
	5720	144	ax (20MHz)	242T	MCS0	6.13	11.00	-4.87
	5510	102	ax (40MHz)	242T	MCS0	7.13	11.00	-3.87
	5590	118	ax (40MHz)	242T	MCS0	6.89	11.00	-4.11
	5710	142	ax (40MHz)	242T	MCS0	7.01	11.00	-3.99
	5530	106	ax (80MHz)	242T	MCS0	7.77	11.00	-3.23
	5610	122	ax (80MHz)	242T	MCS0	7.95	11.00	-3.05
	5690	138	ax (80MHz)	242T	MCS0	8.03	11.00	-2.97

Table 7-90. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (242 Tones)

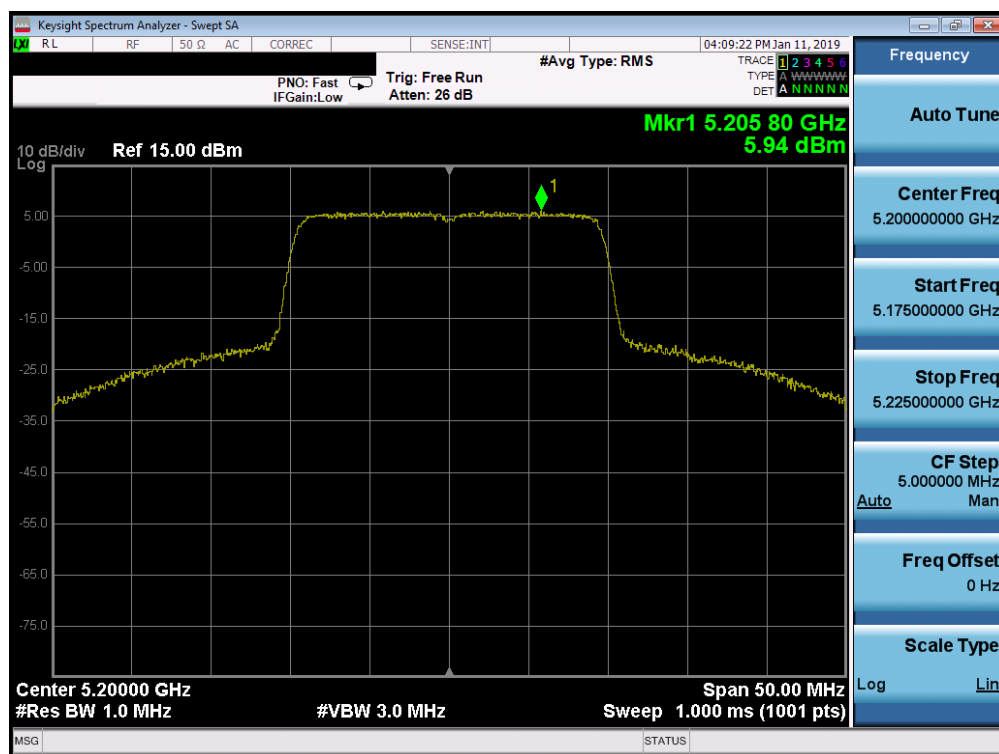
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	5.83	-7.70	-1.87	10.0	-11.87
	5200	40	ax (20MHz)	242T	MCS0	5.94	-7.57	-1.63	10.0	-11.63
	5240	48	ax (20MHz)	242T	MCS0	6.44	-8.01	-1.57	10.0	-11.57
	5190	38	ax (40MHz)	242T	MCS0	6.79	-7.57	-0.78	10.0	-10.78
	5230	46	ax (40MHz)	242T	MCS0	7.12	-8.01	-0.89	10.0	-10.89
	5210	42	ax (80MHz)	242T	MCS0	1.74	-7.57	-5.83	10.0	-15.83

Table 7-91. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 242 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 230 of 514

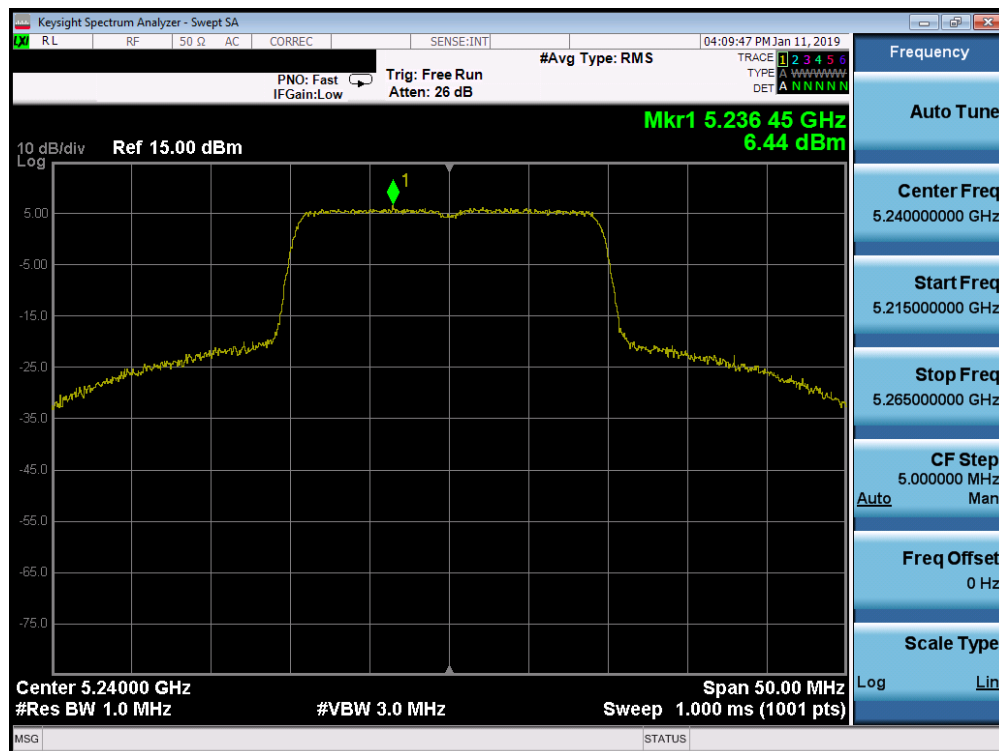


Plot 7-319. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 36)

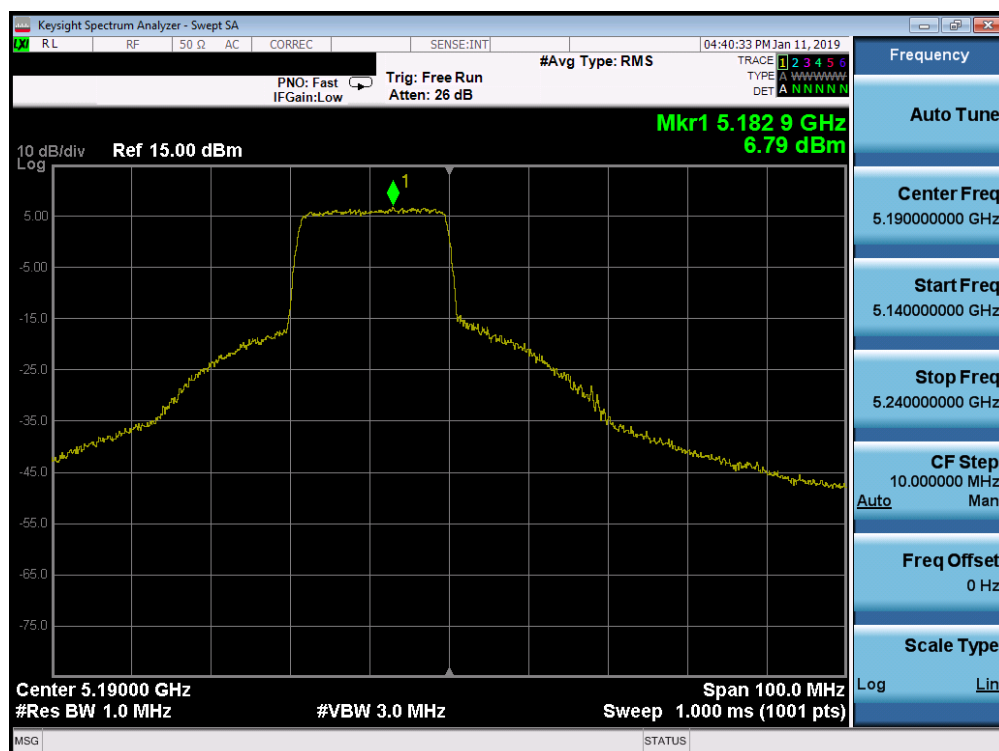


Plot 7-320. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 231 of 514

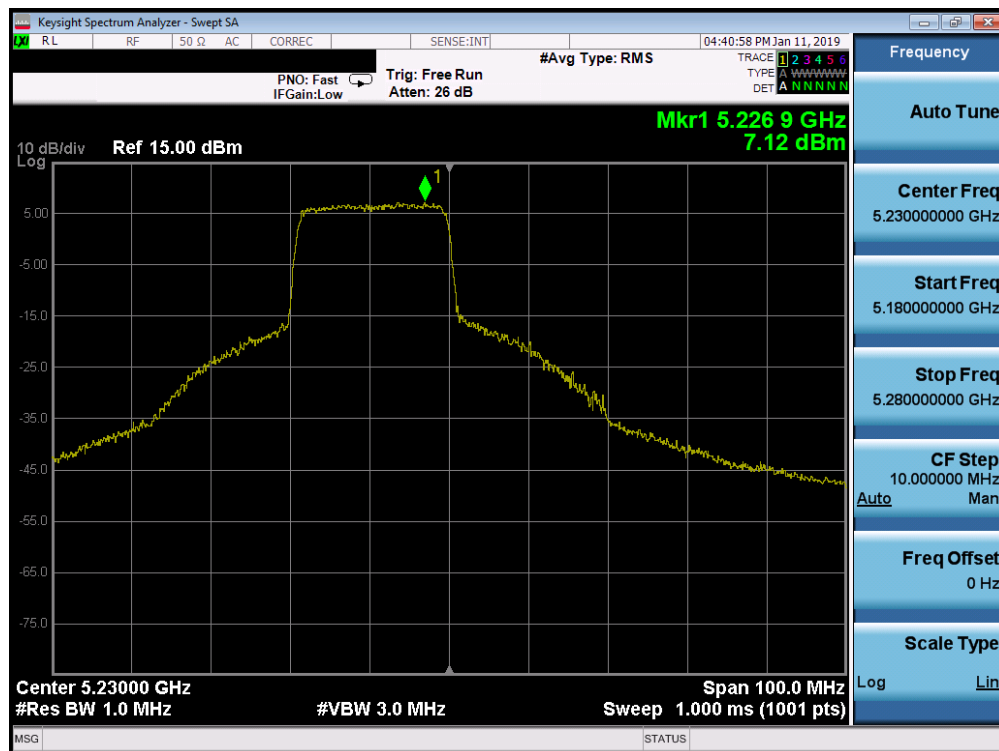


Plot 7-321. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 48)

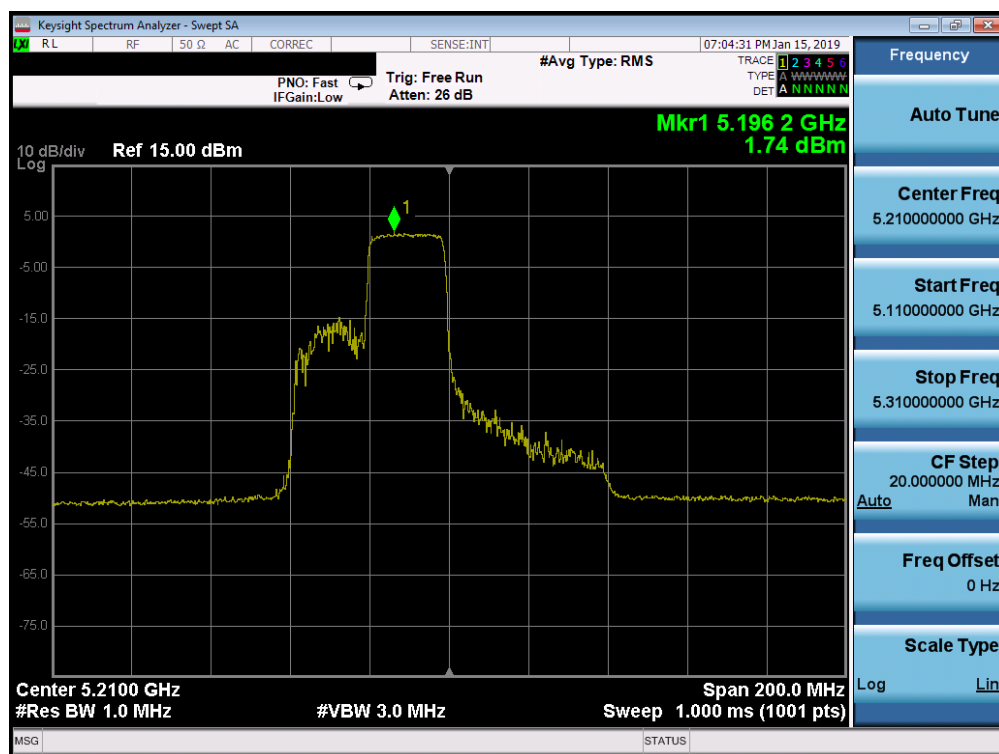


Plot 7-322. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 232 of 514

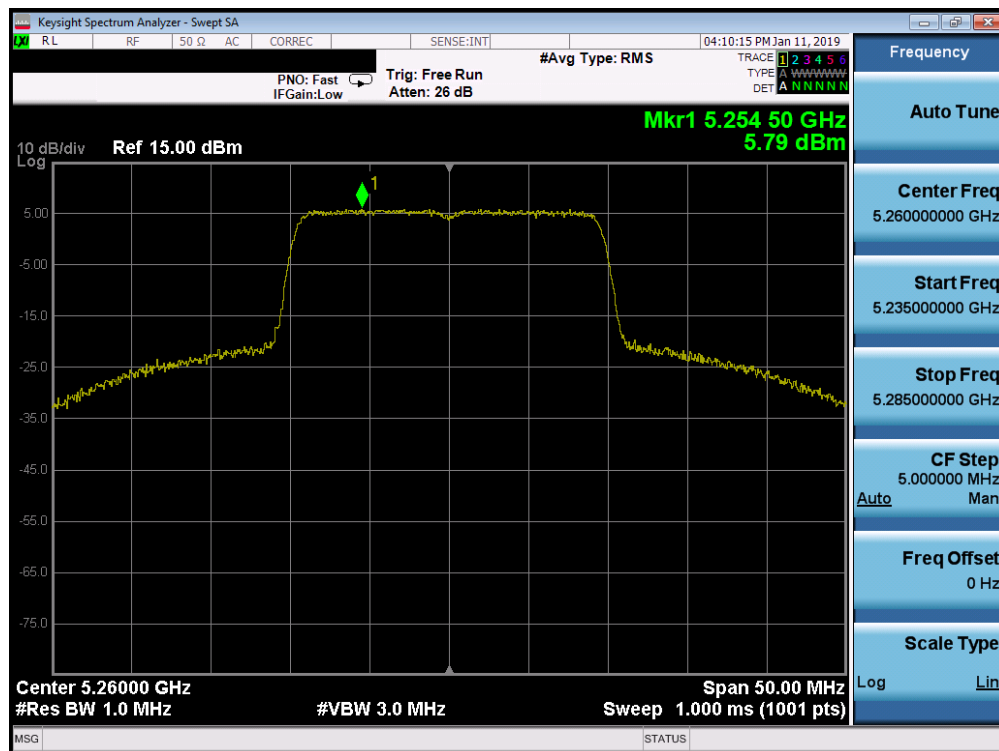


Plot 7-323. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 46)

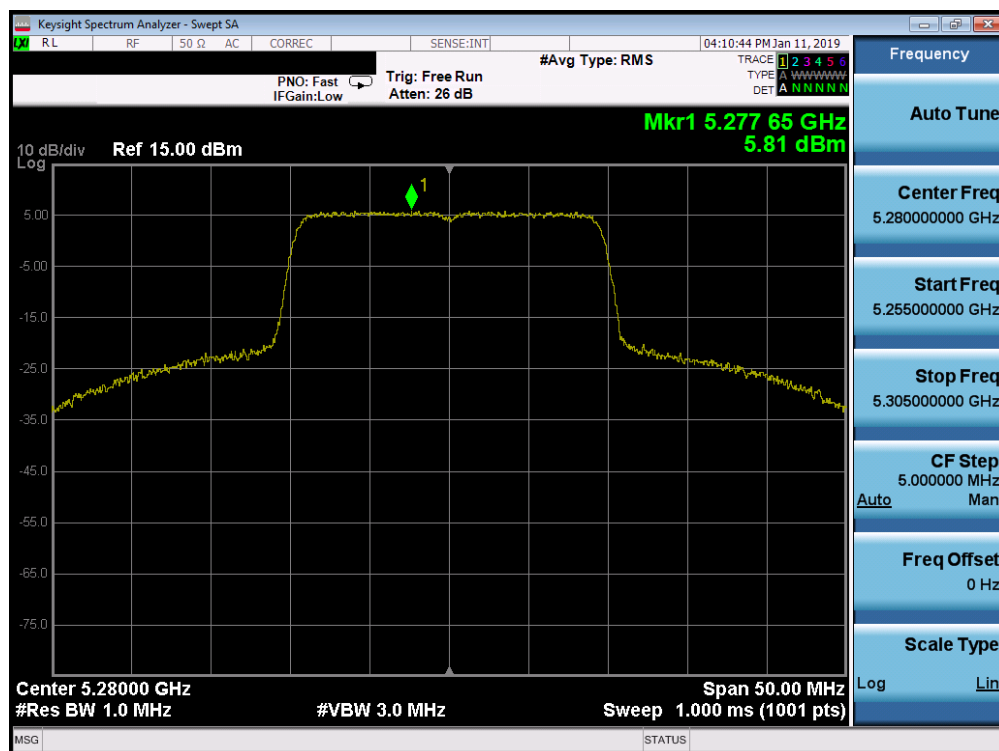


Plot 7-324. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 233 of 514		

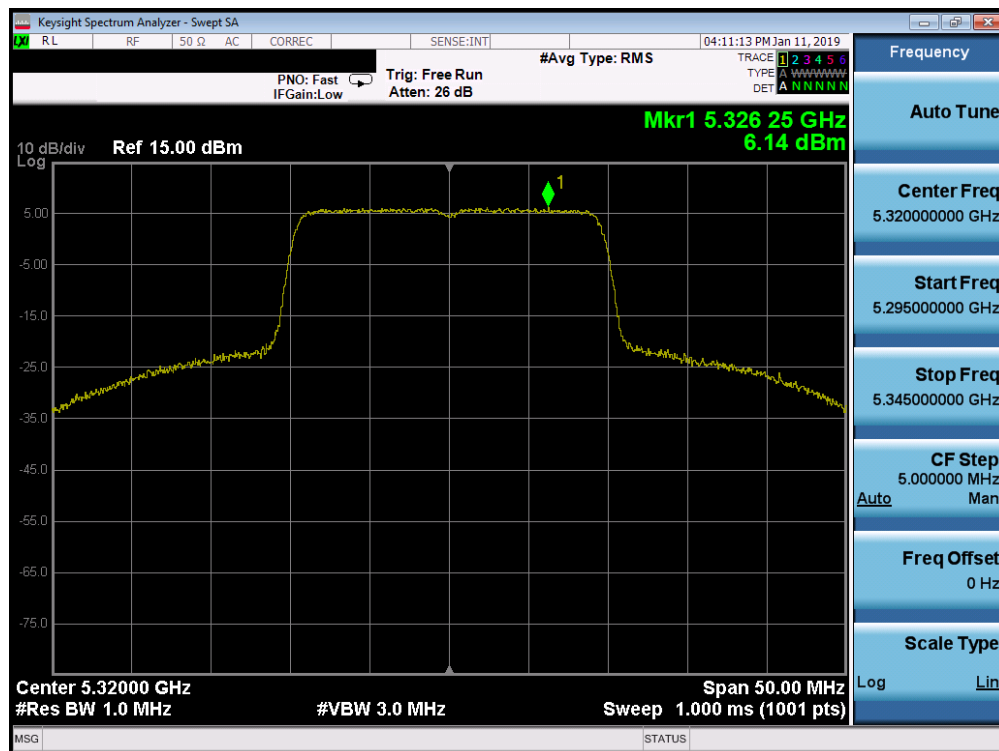


Plot 7-325. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 52)

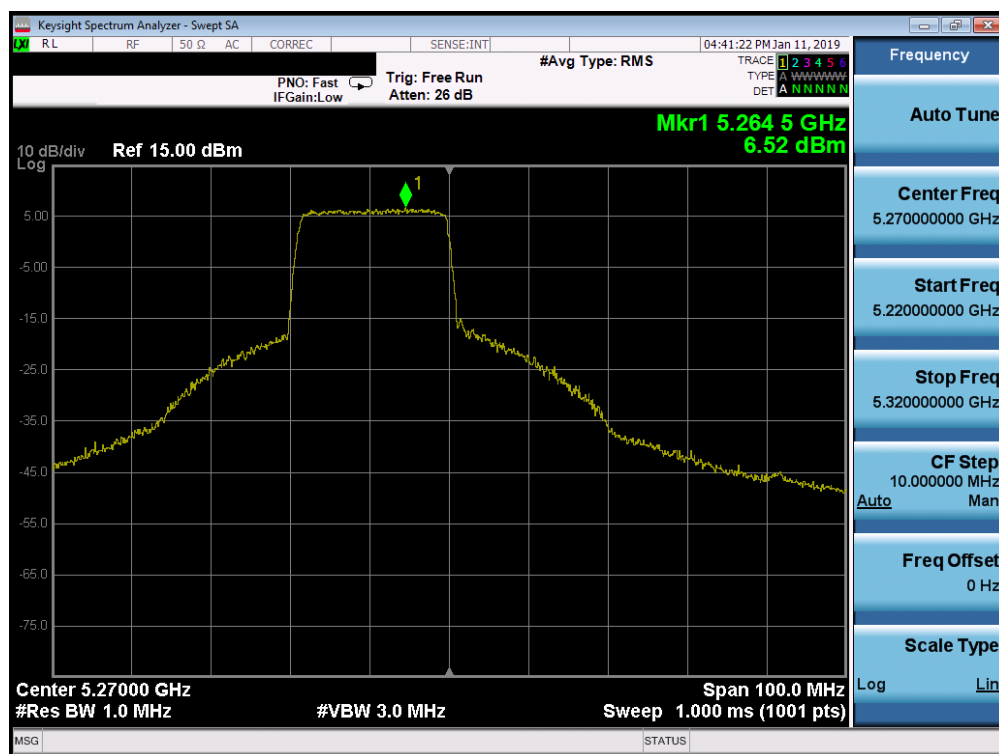


Plot 7-326. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 234 of 514		

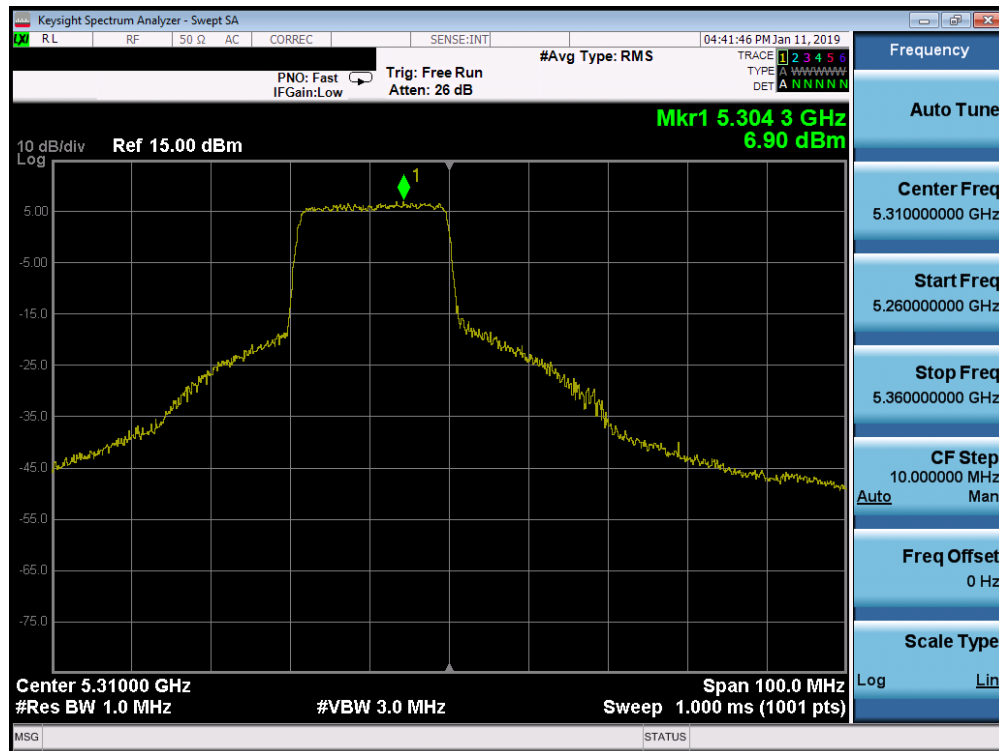


Plot 7-327. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 64)

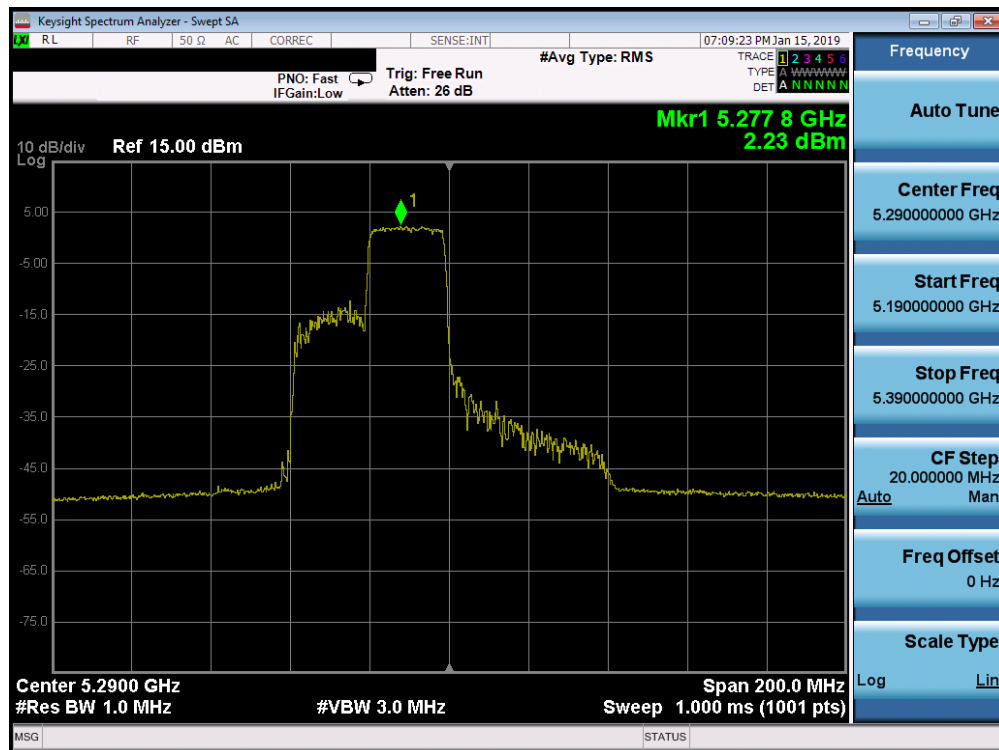


Plot 7-328. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 235 of 514		

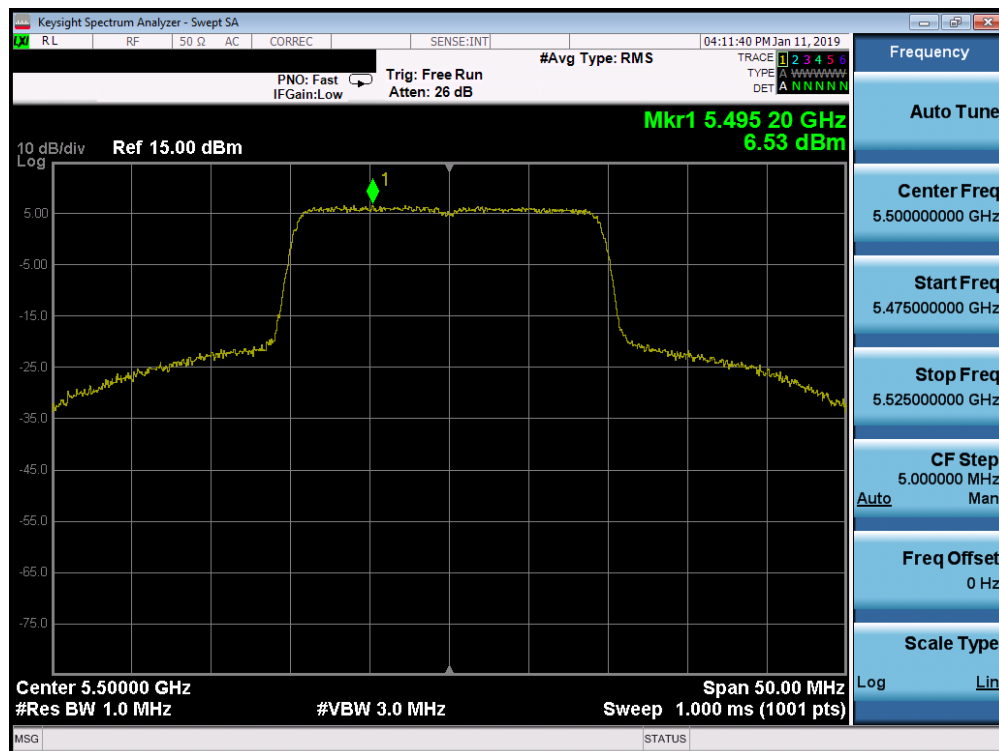


Plot 7-329. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 62)

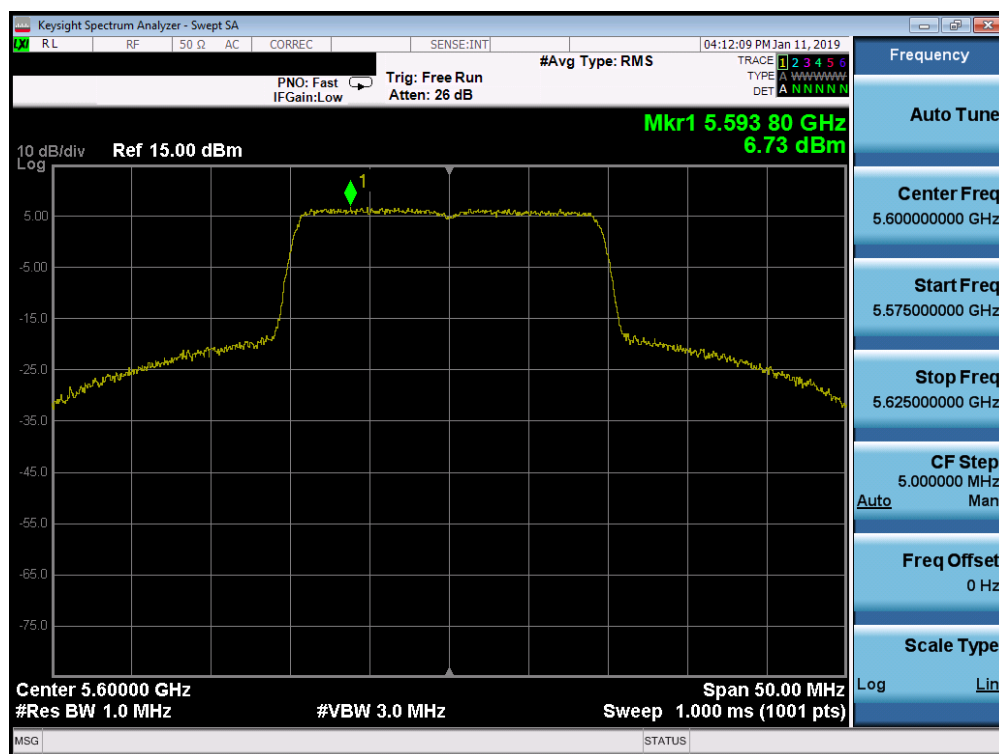


Plot 7-330. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 236 of 514

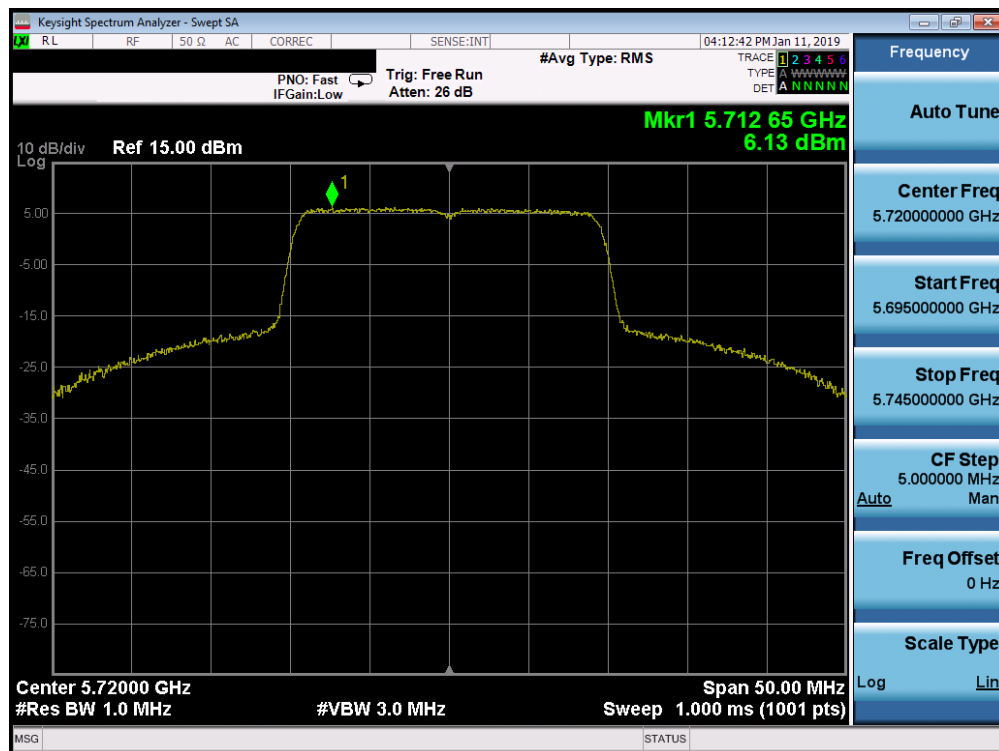


Plot 7-331. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 100)

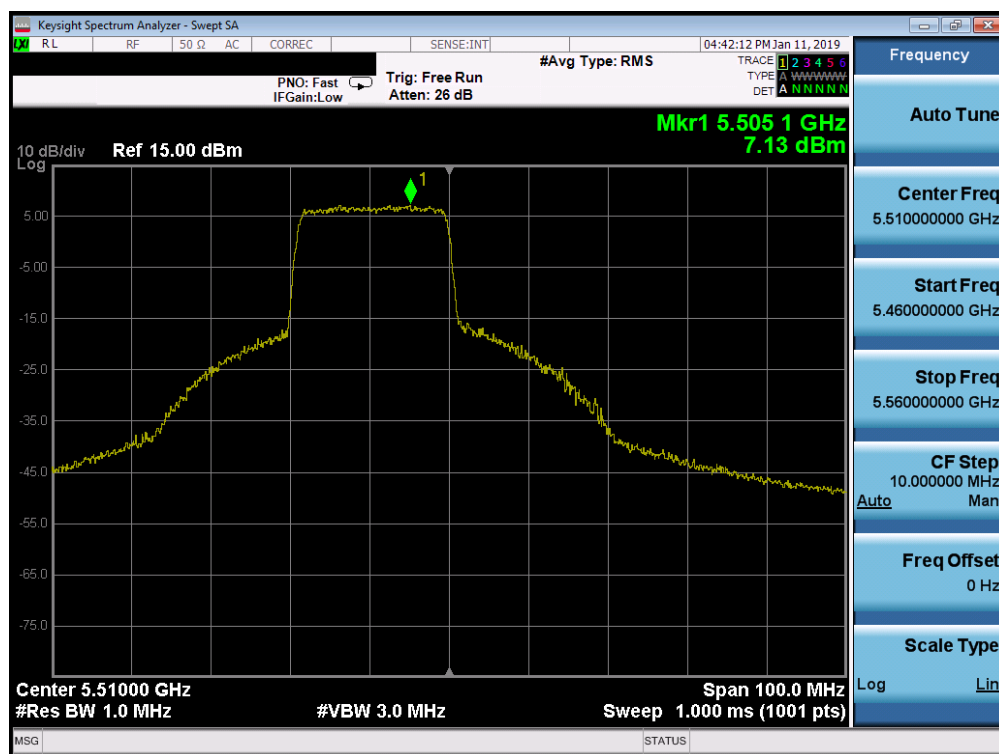


Plot 7-332. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 237 of 514		

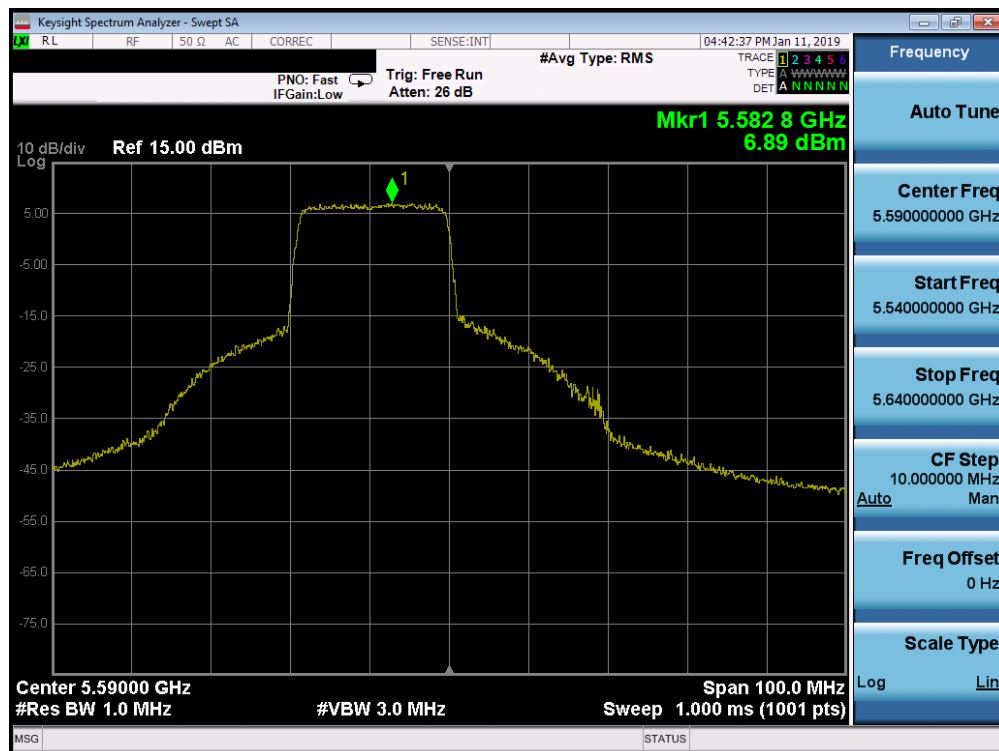


Plot 7-333. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 144)

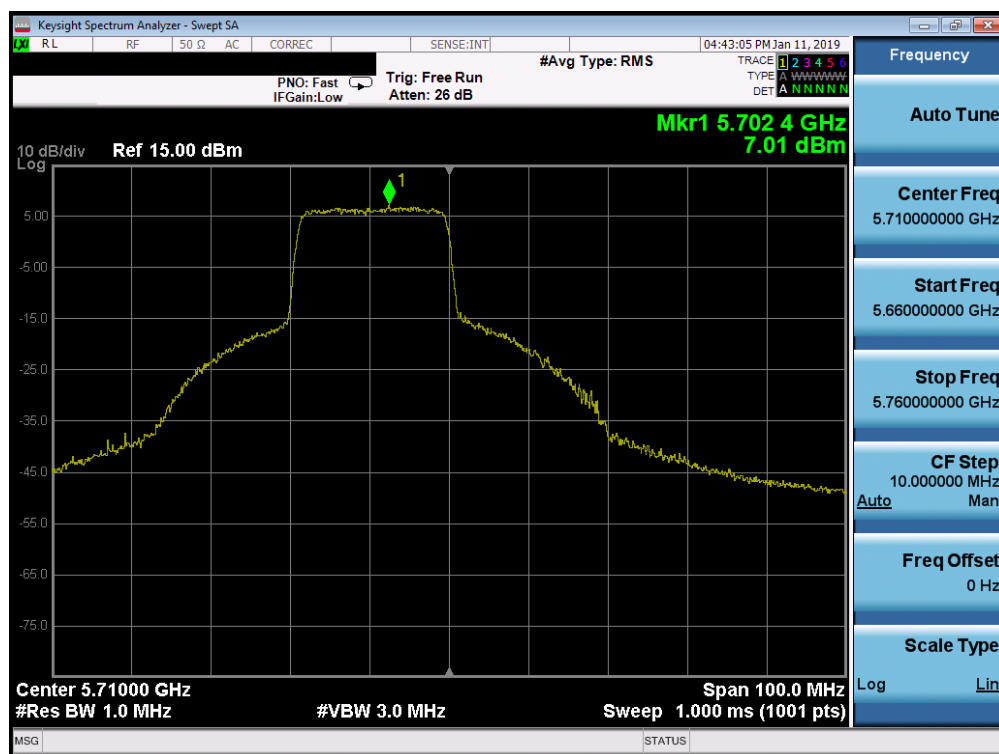


Plot 7-334. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 238 of 514



Plot 7-335. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 118)

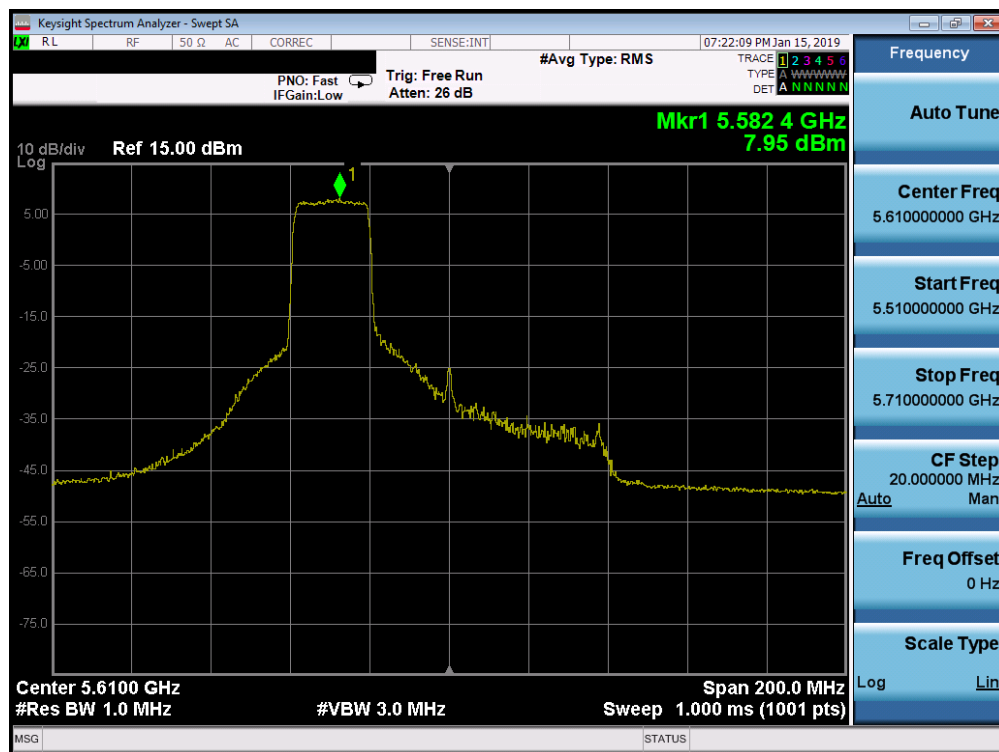


Plot 7-336. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 239 of 514

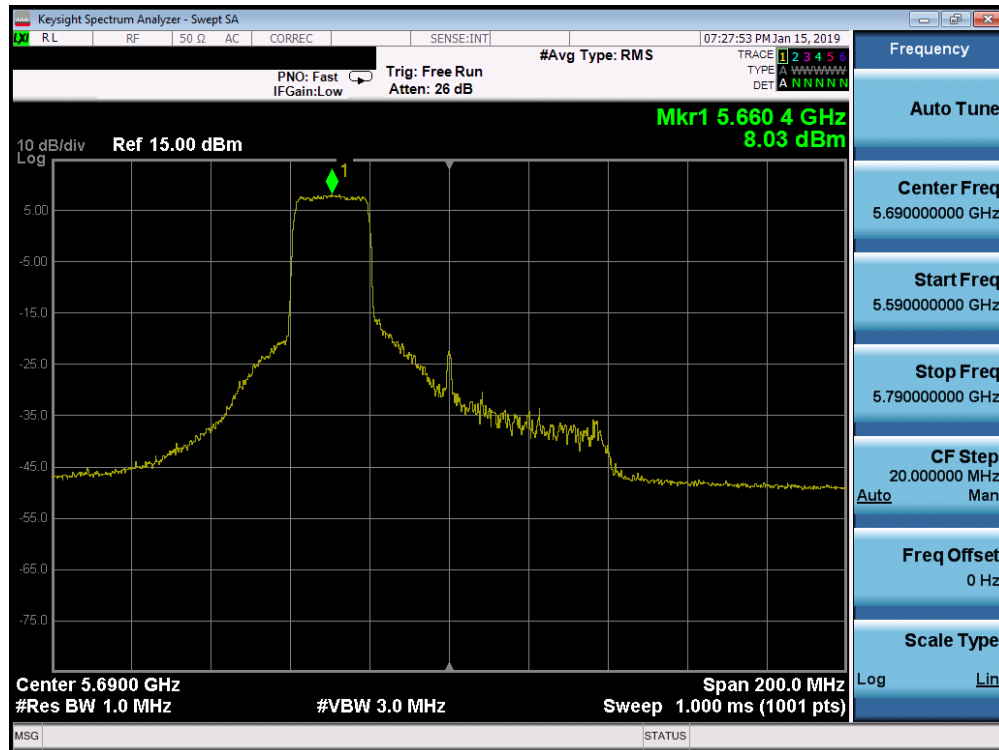


Plot 7-337. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 106)



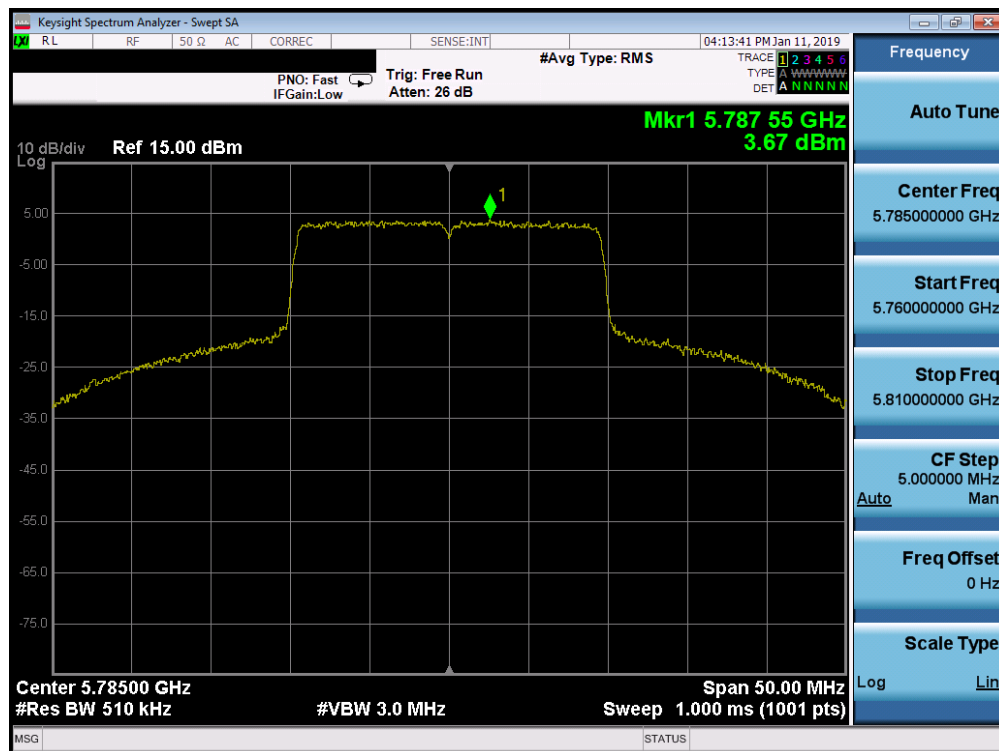
Plot 7-338. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 240 of 514

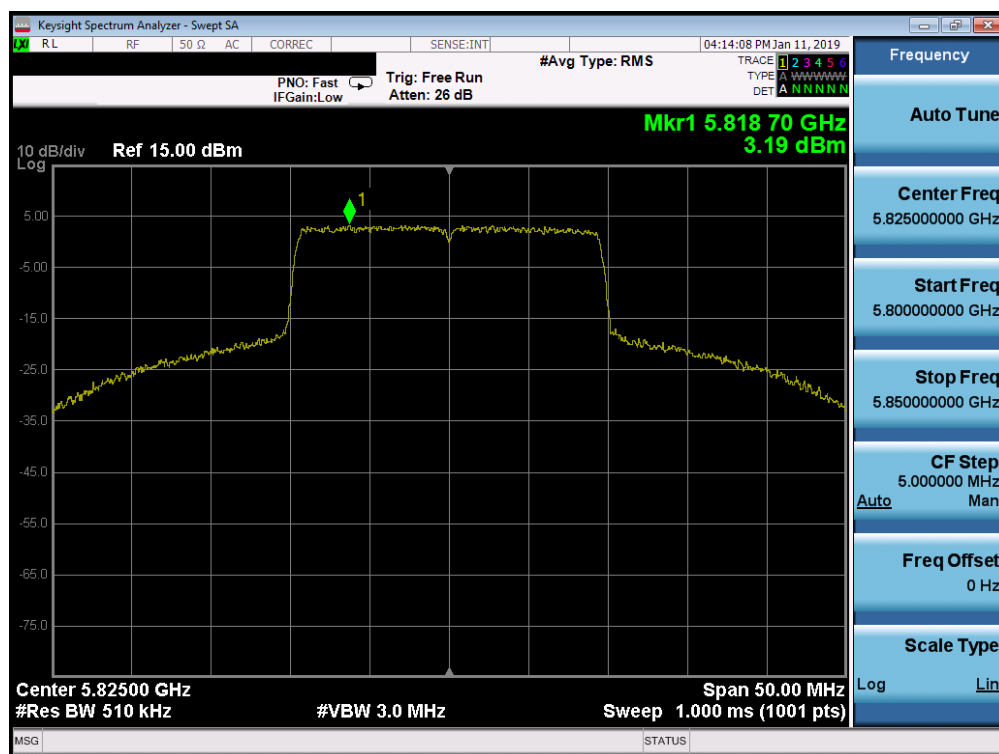


Plot 7-339. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSC03L	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 241 of 514

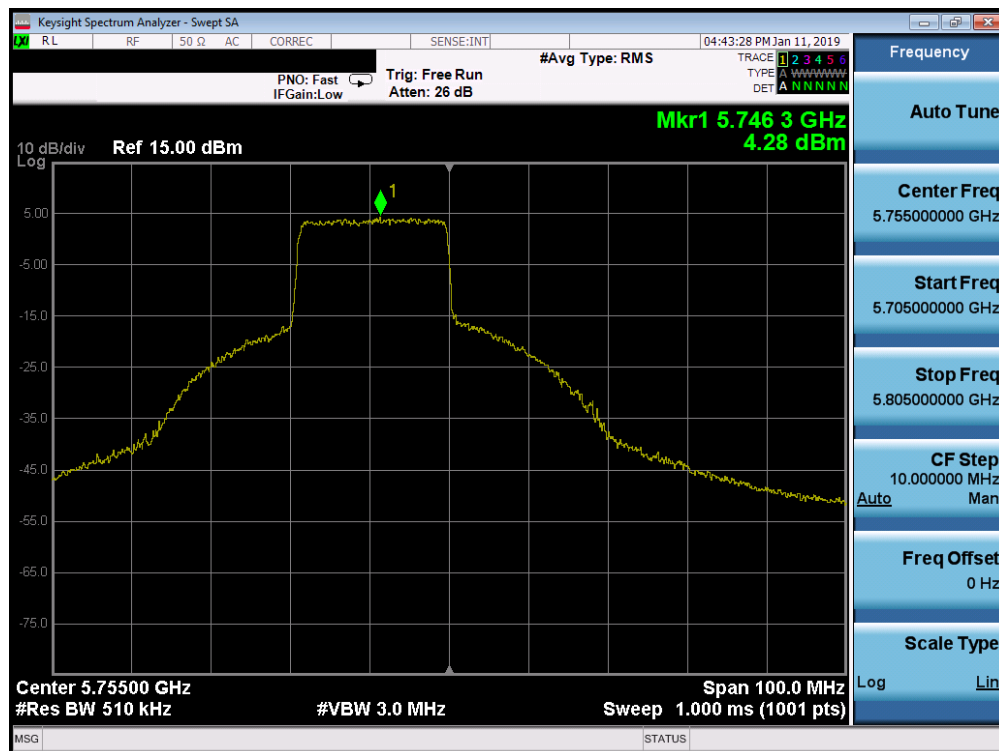


Plot 7-341. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 157)



Plot 7-342. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSC03L	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 243 of 514



Plot 7-343. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 151)



Plot 7-344. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 244 of 514



Plot 7-345. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSC03L				Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 245 of 514

SISO Antenna-2 Power Spectral Density Measurements (484 Tones)

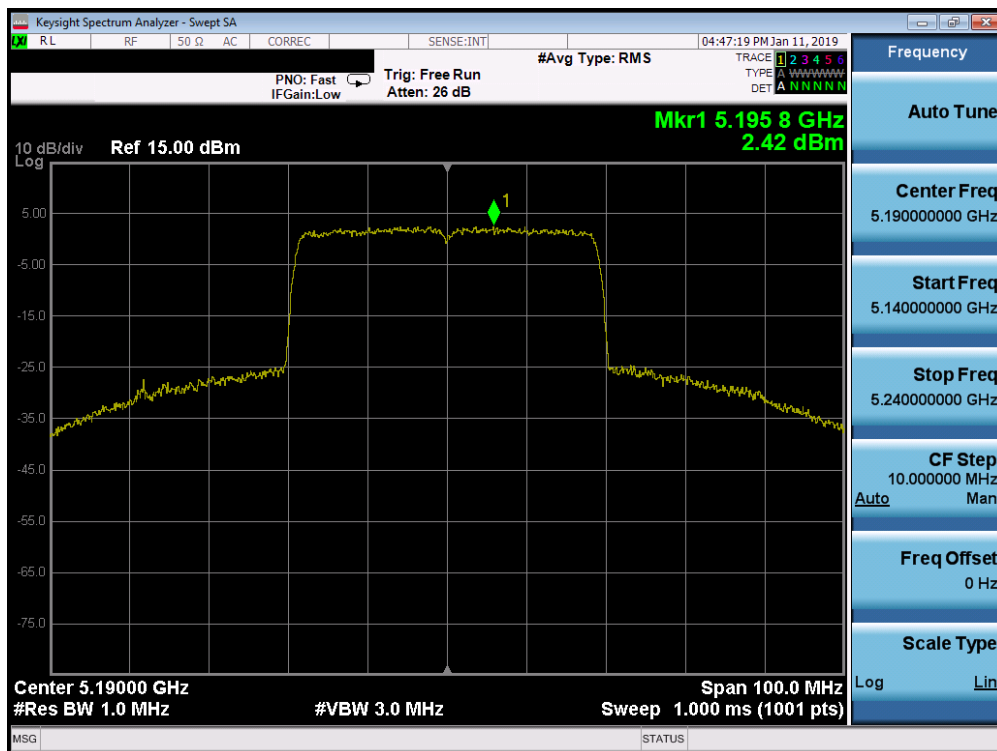
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5190	38	ax (40MHz)	484T	MCS0	2.42	11.00	-8.58
	5230	46	ax (40MHz)	484T	MCS0	2.52	11.00	-8.48
	5210	42	ax (80MHz)	484T	MCS0	-0.40	11.00	-11.40
Band 2A	5270	54	ax (40MHz)	484T	MCS0	2.52	11.00	-8.48
	5310	62	ax (40MHz)	484T	MCS0	2.84	11.00	-8.16
	5290	58	ax (80MHz)	484T	MCS0	0.00	11.00	-11.00
Band 2C	5510	102	ax (40MHz)	484T	MCS0	3.16	11.00	-7.84
	5590	118	ax (40MHz)	484T	MCS0	2.81	11.00	-8.19
	5710	142	ax (40MHz)	484T	MCS0	2.75	11.00	-8.25
	5530	106	ax (80MHz)	484T	MCS0	-0.30	11.00	-11.30
	5610	122	ax (80MHz)	484T	MCS0	5.01	11.00	-5.99
	5690	138	ax (80MHz)	484T	MCS0	6.04	11.00	-4.96

Table 7-93. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (484 Tones)

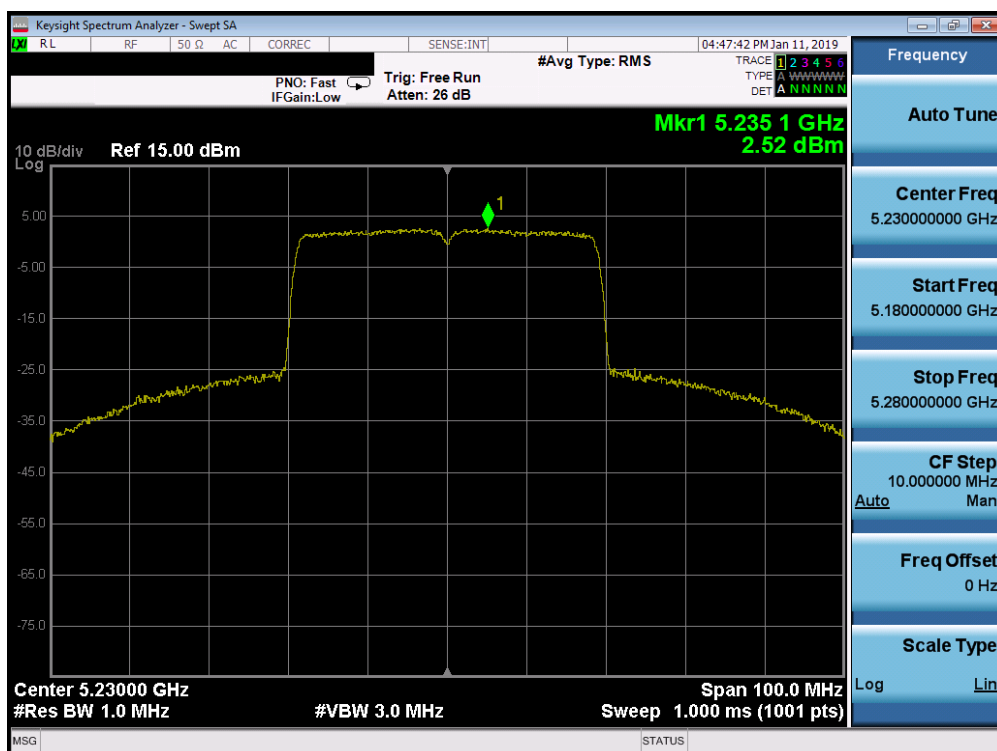
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5190	38	ax (40MHz)	484T	MCS0	2.42	-7.57	-5.15	10.0	-15.15
	5230	46	ax (40MHz)	484T	MCS0	2.52	-8.01	-5.49	10.0	-15.49
	5210	42	ax (80MHz)	484T	MCS0	-0.40	-7.57	-7.97	10.0	-17.97

Table 7-94. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 484 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 246 of 514

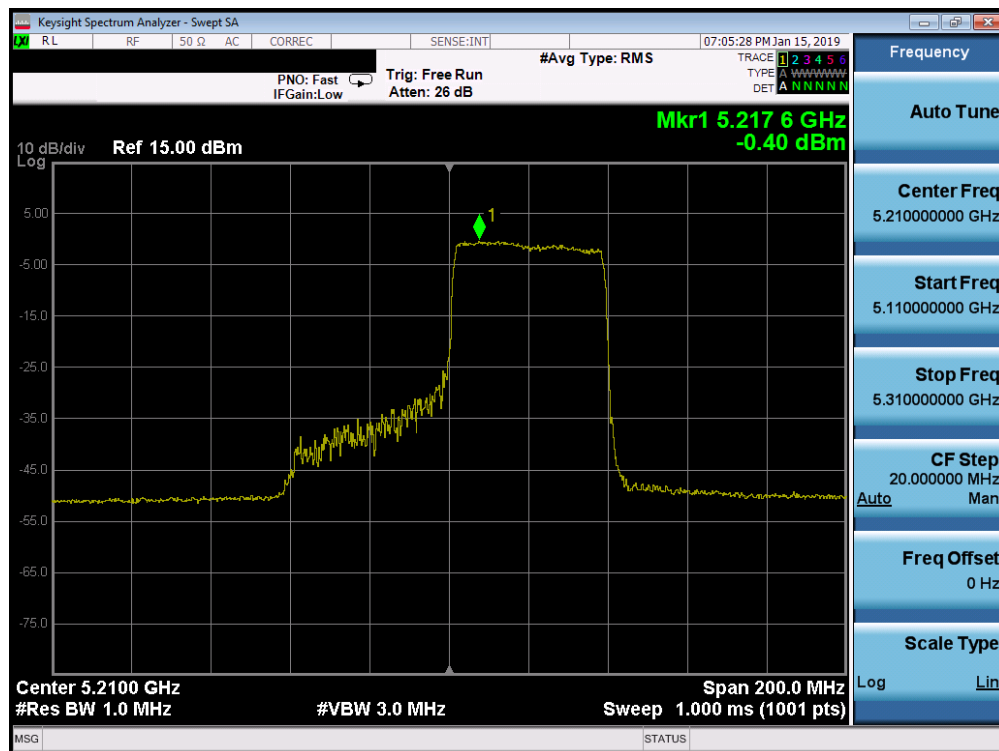


Plot 7-346. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 38)

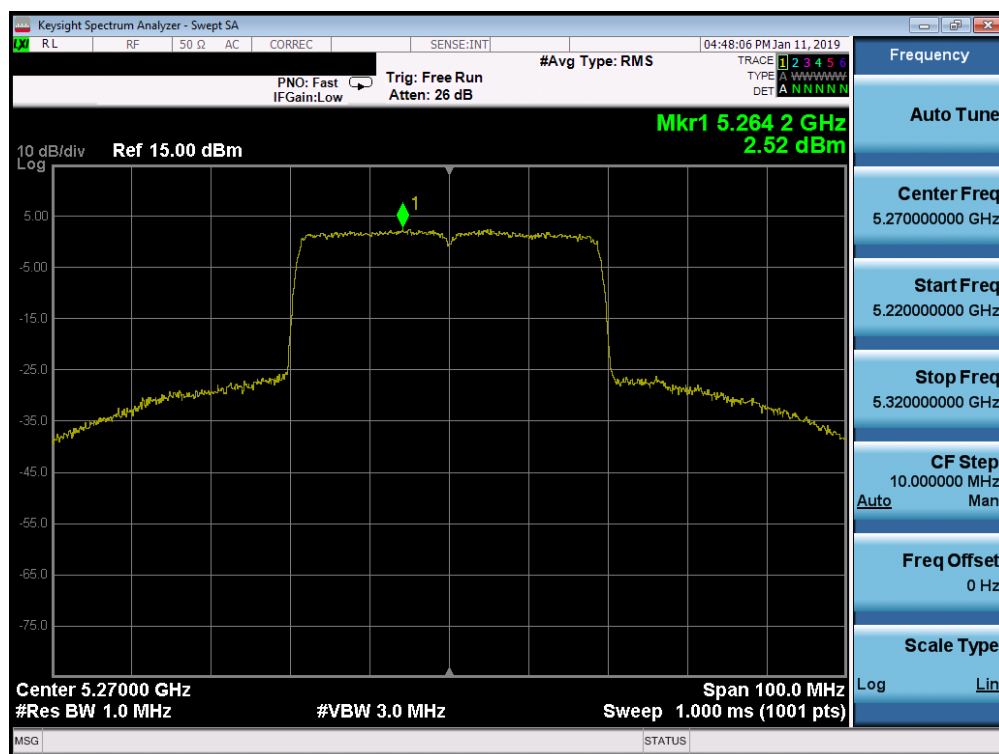


Plot 7-347. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 46)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 247 of 514

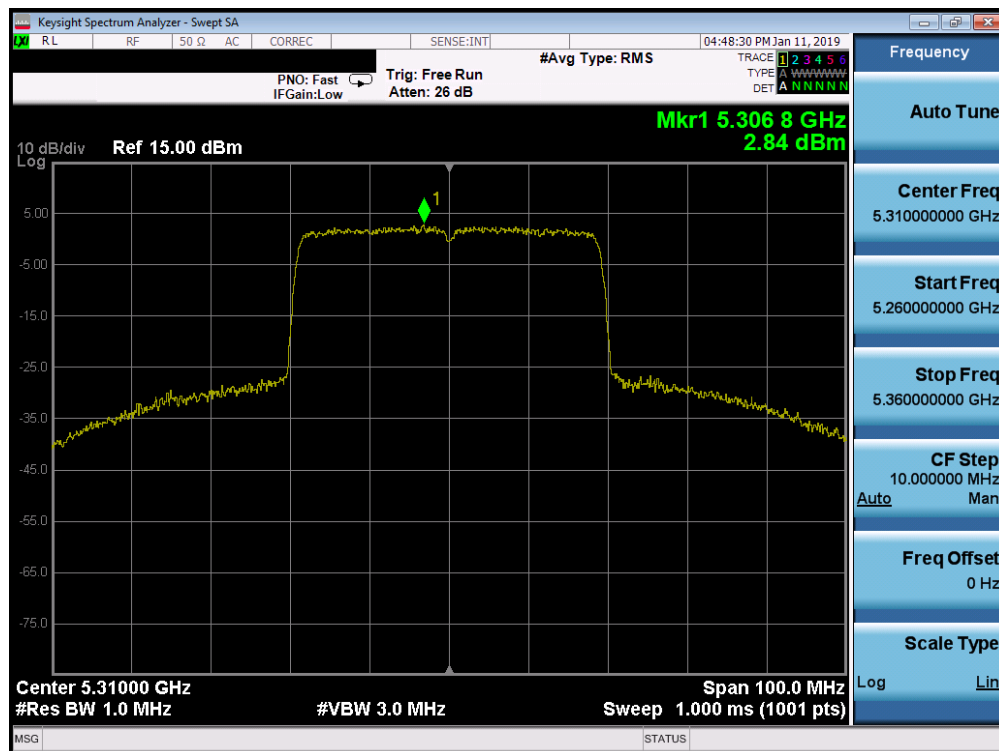


Plot 7-348. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 42)

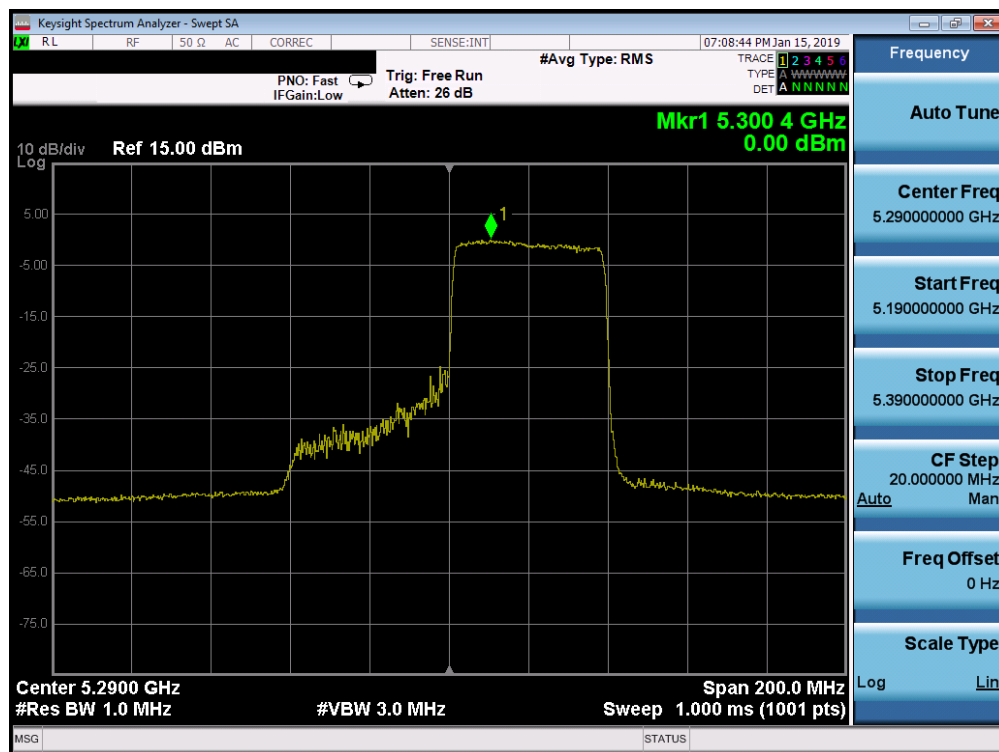


Plot 7-349. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 248 of 514		



Plot 7-350. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 62)

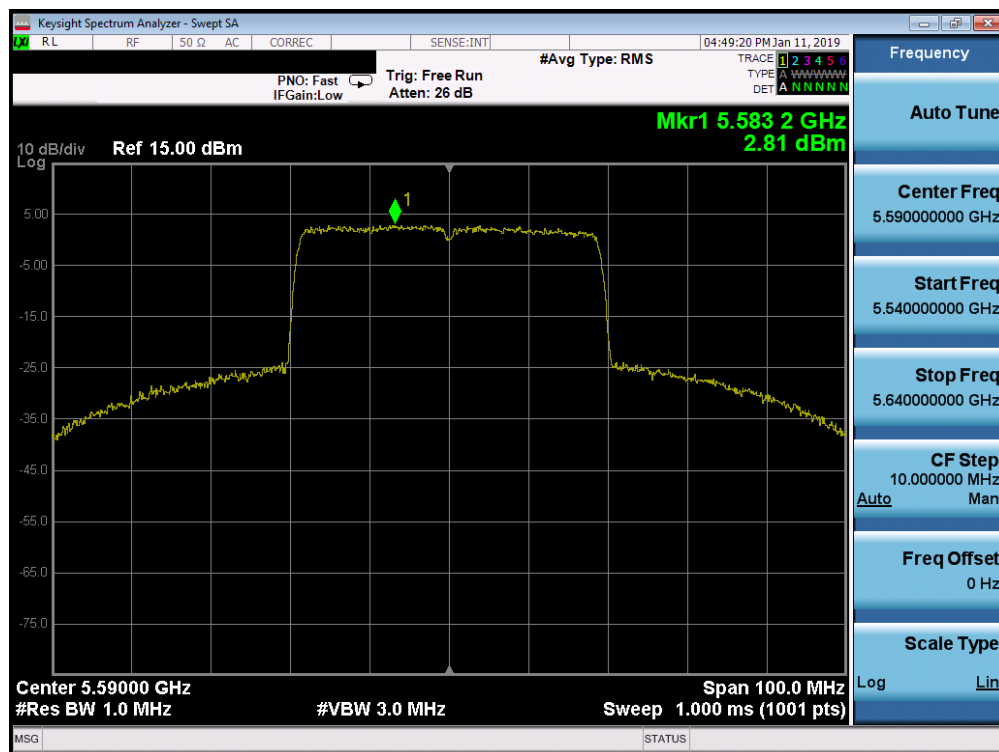


Plot 7-351. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 249 of 514

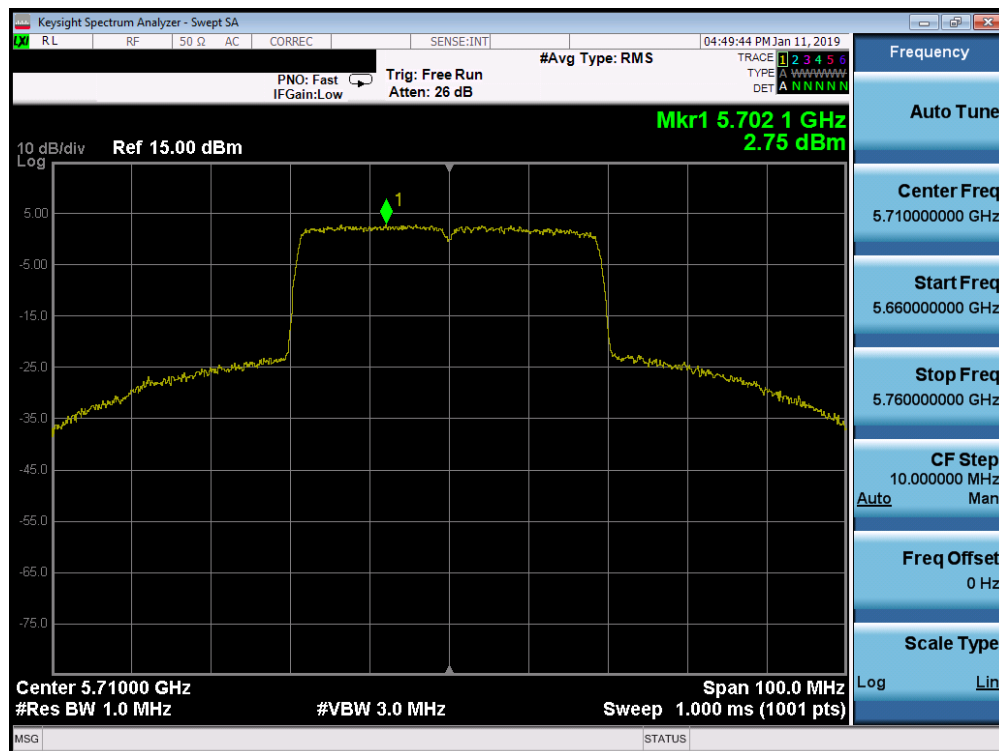


Plot 7-352. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 102)

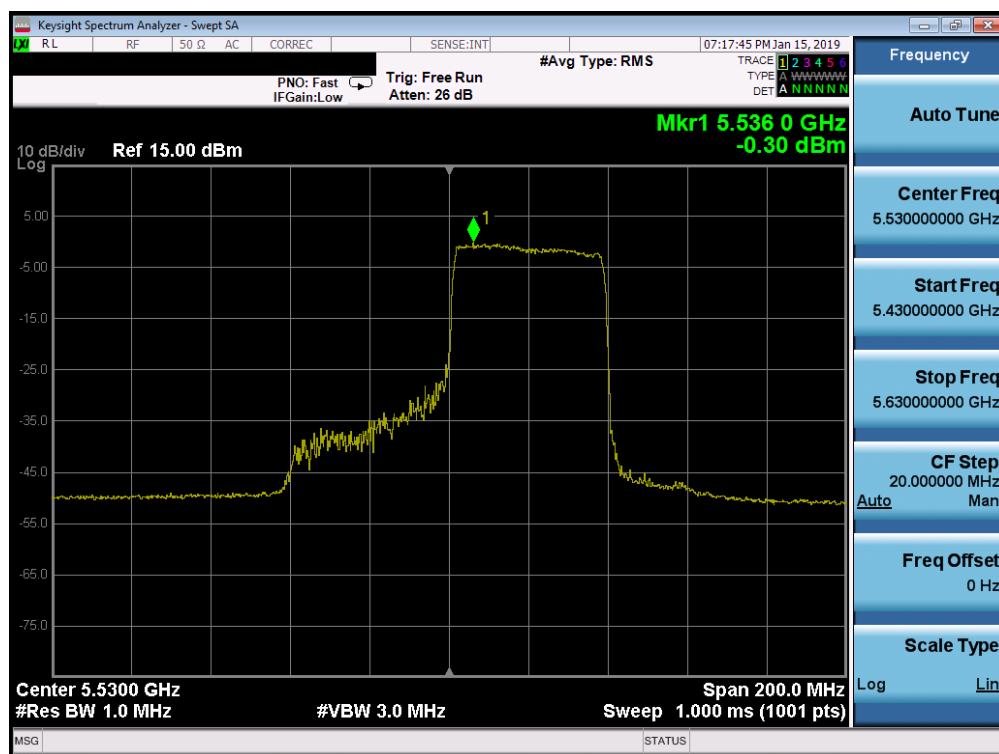


Plot 7-353. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 118)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 250 of 514

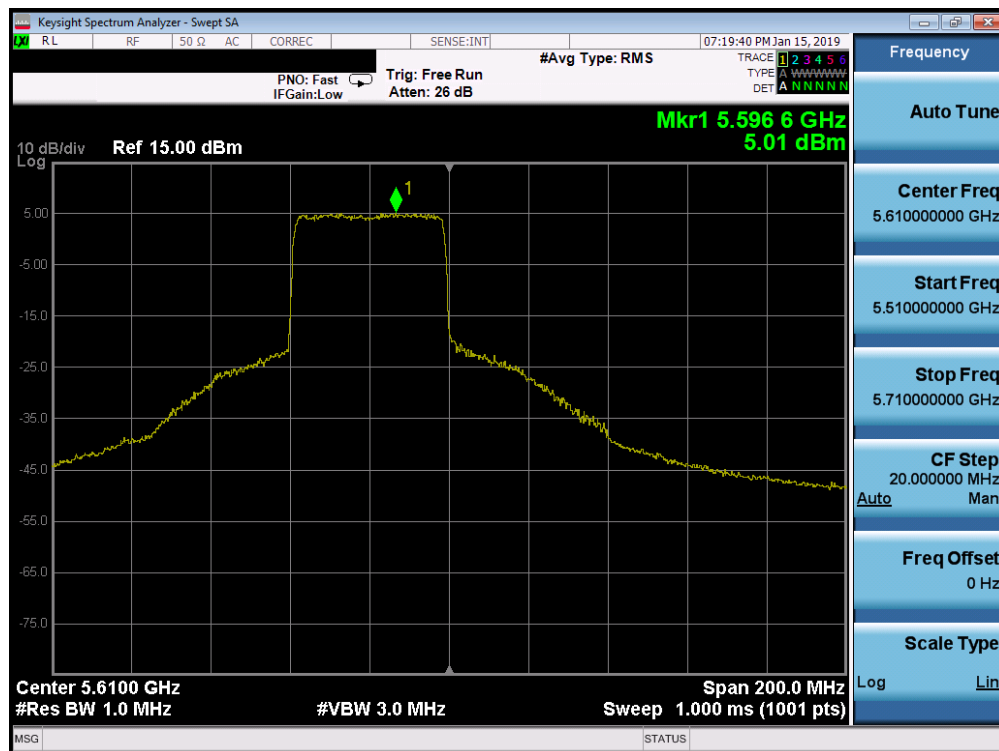


Plot 7-354. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 142)

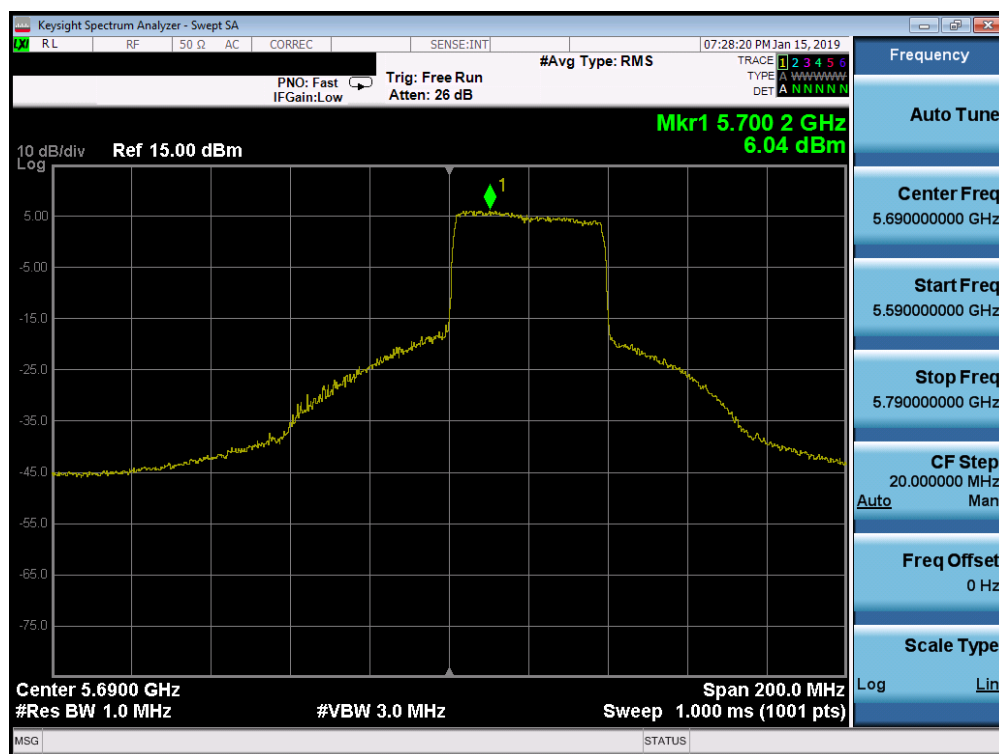


Plot 7-355. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 106)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 251 of 514



Plot 7-356. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 122)

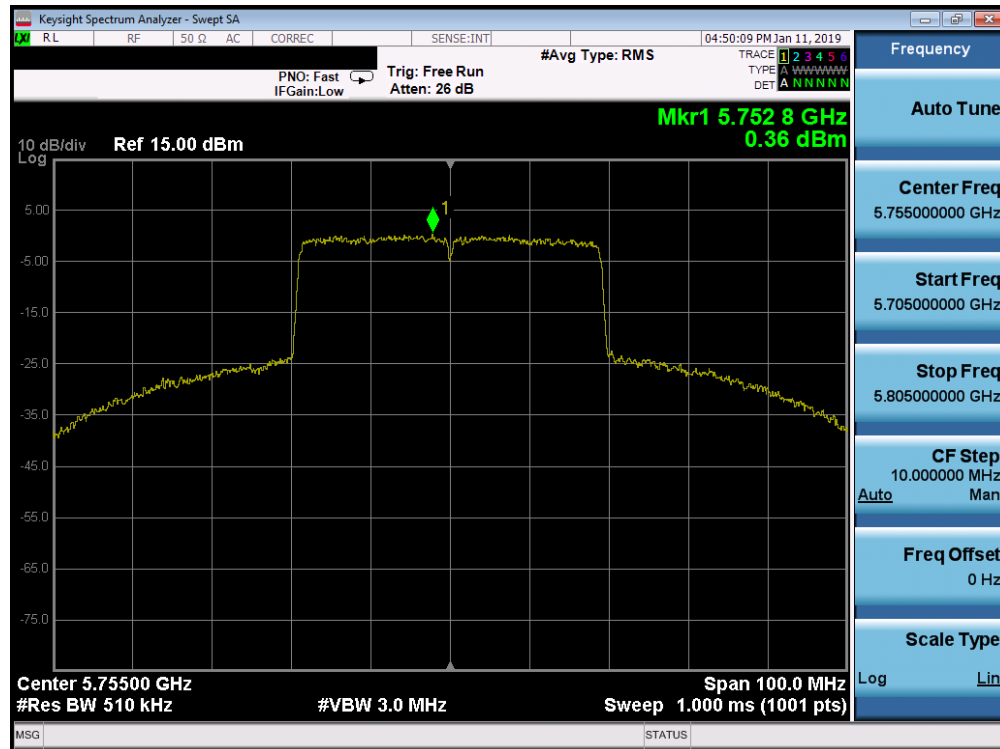


Plot 7-357. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 252 of 514

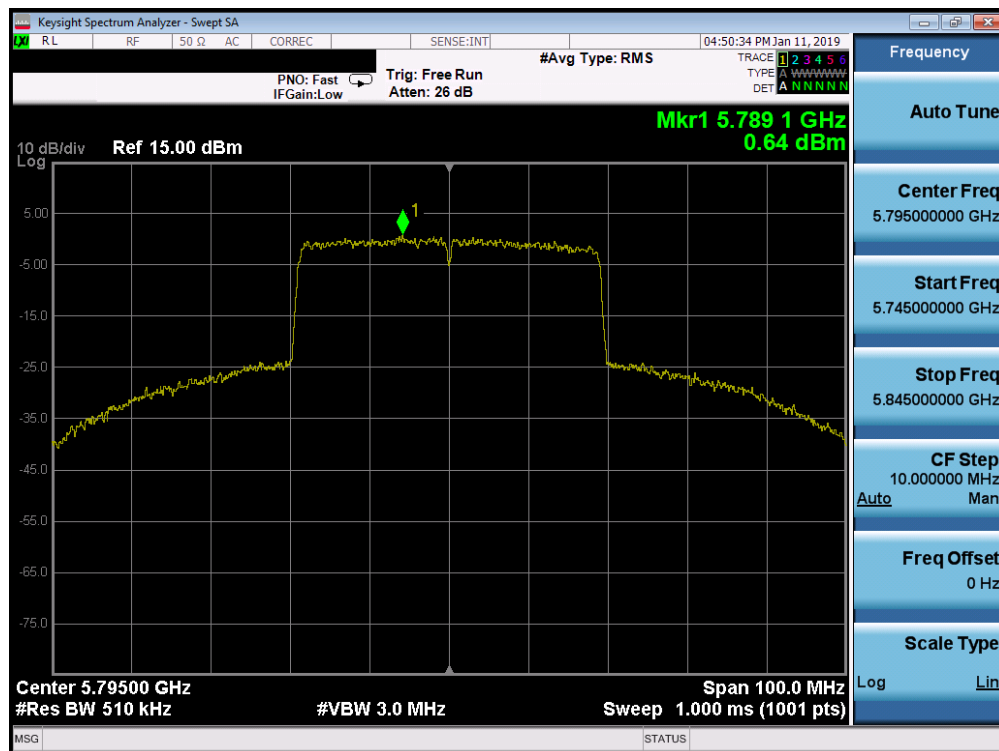
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5755	151	ax (40MHz)	484T	MCS0	0.36	30.00	-29.64
	5795	159	ax (40MHz)	484T	MCS0	0.64	30.00	-29.36
	5775	155	ax (80MHz)	484T	MCS0	6.20	30.00	-23.80

Table 7-95. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (484 Tones)



Plot 7-358. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 151)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 253 of 514



Plot 7-359. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 159)



Plot 7-360. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 254 of 514

SISO Antenna-2 Power Spectral Density Measurements (996 Tones)

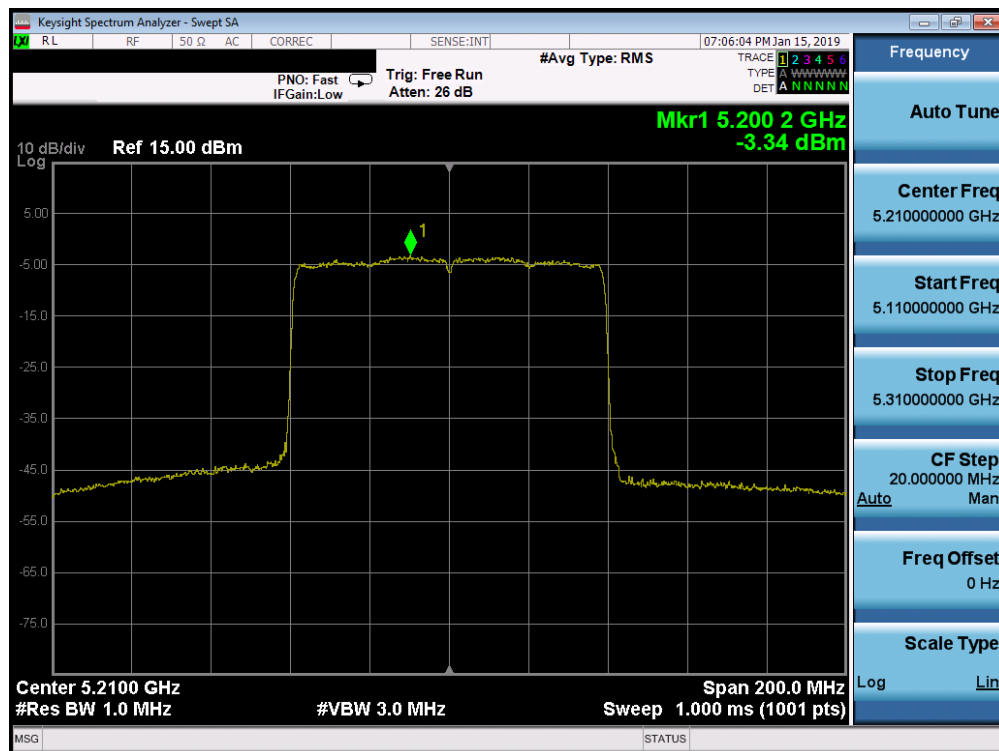
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5210	42	ax (80MHz)	996T	MCS0	-3.34	11.00	-14.34
Band 2A	5290	58	ax (80MHz)	996T	MCS0	-3.25	11.00	-14.25
Band 2C	5530	106	ax (80MHz)	996T	MCS0	-3.94	11.00	-14.94
	5610	122	ax (80MHz)	996T	MCS0	2.26	11.00	-8.74
	5690	138	ax (80MHz)	996T	MCS0	2.77	11.00	-8.23

Table 7-96. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (996 Tones)

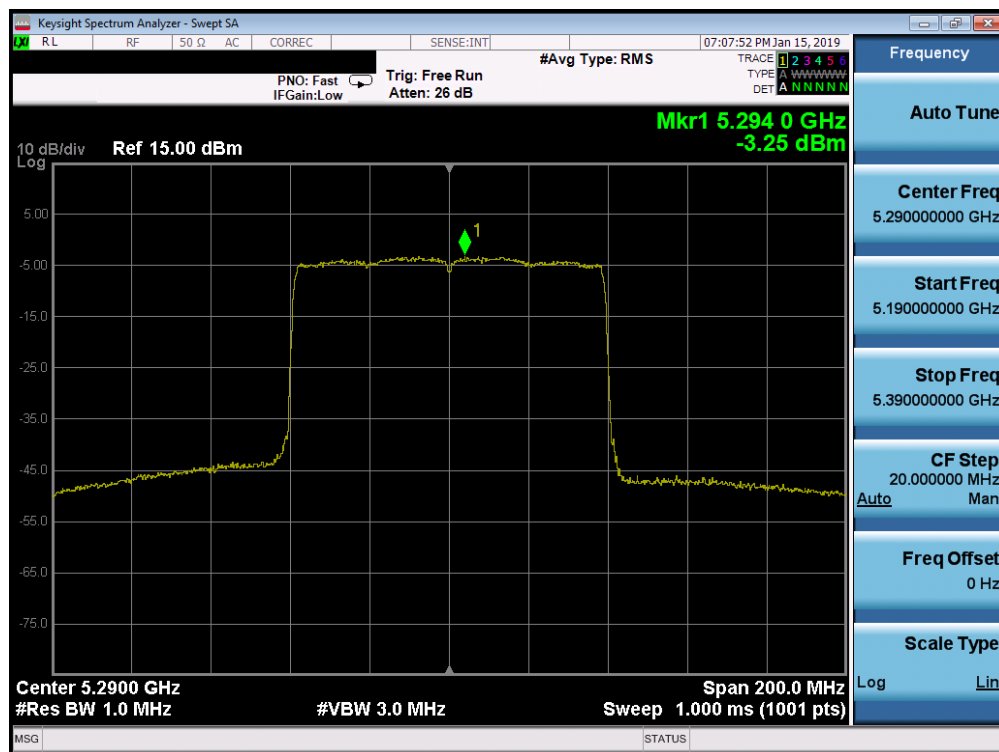
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5210	42	ax (80MHz)	996T	MCS0	-3.34	-7.57	-10.91	10.0	-20.91

Table 7-97. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 996 Tones)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 255 of 514

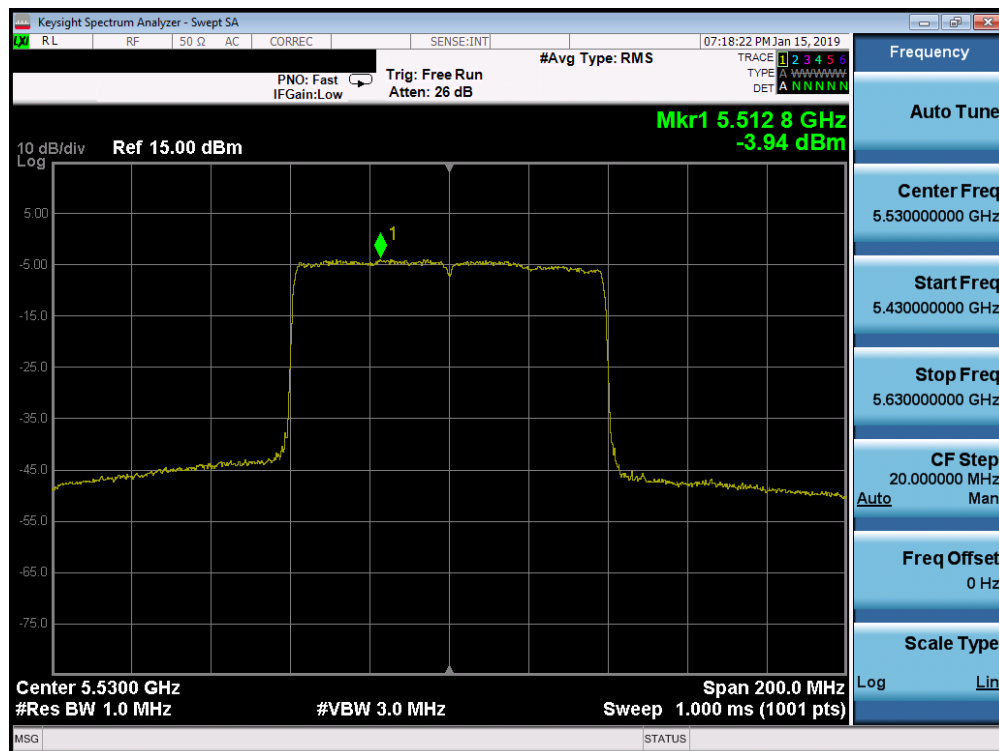


Plot 7-361. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 1) – Ch. 42)

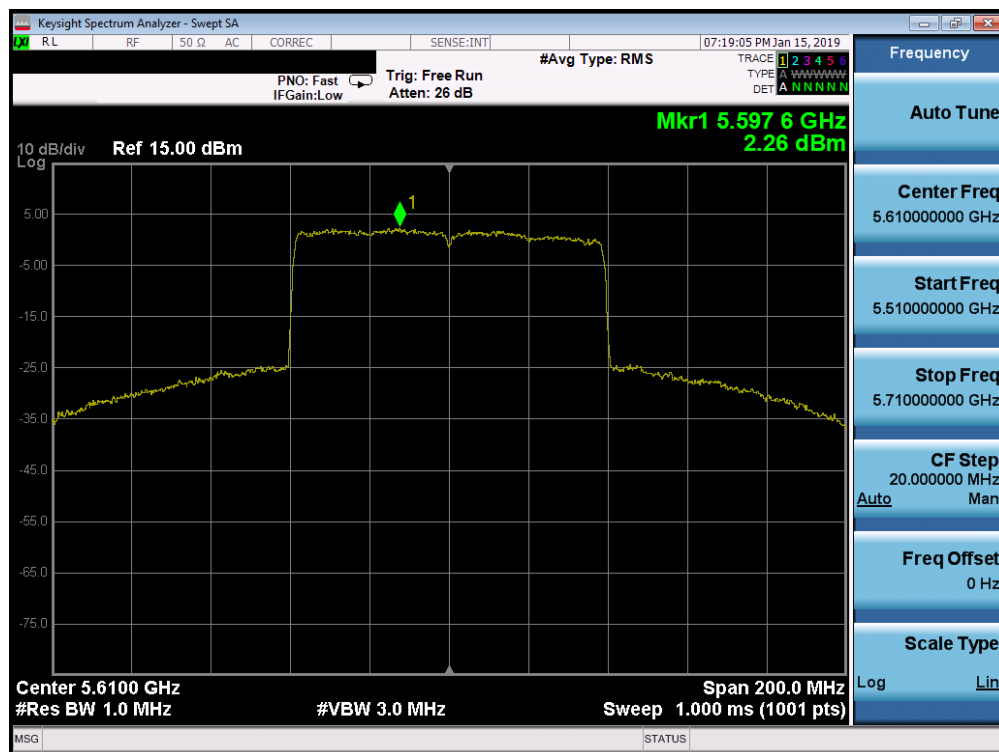


Plot 7-362. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 256 of 514

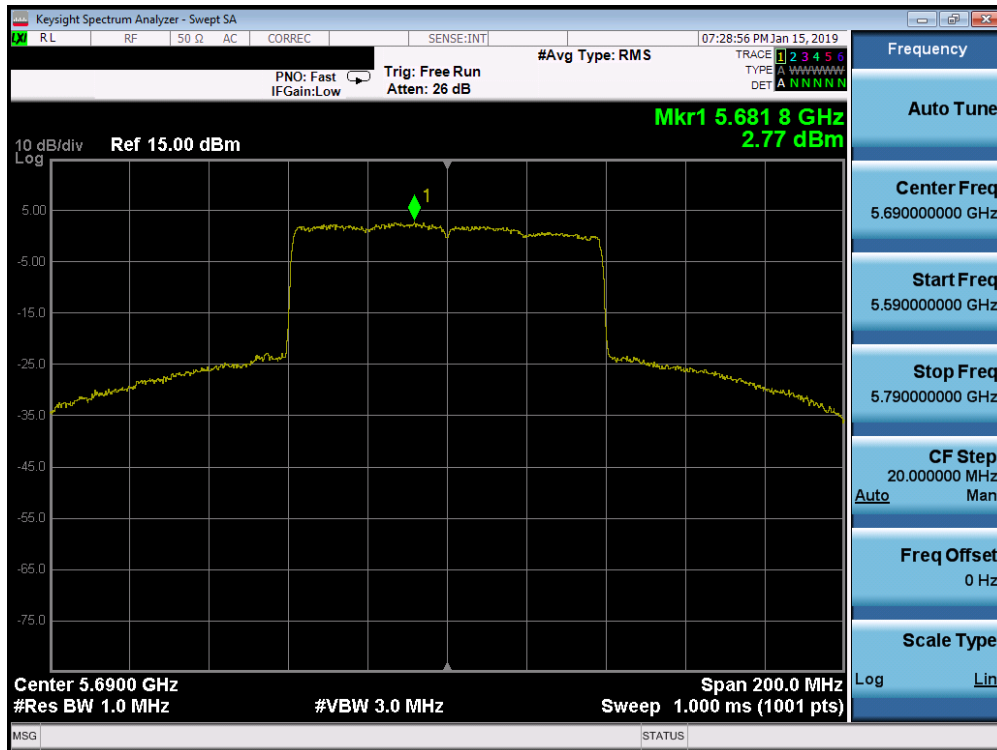


Plot 7-363. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 106)



Plot 7-364. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-365. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA

07:36:42 PM Jan 15, 2019

RL RF 50 Ω AC CORREC SENSE:INT #Avg Type: RMS

TRACE 1 2 3 4 5 6
TYPE A WWWWWW
DET A NNNNN

PNO: Fast IFGain:Low Trig: Free Run Atten: 26 dB

10 dB/div Log Ref 15.00 dBm

Mkr1 5.762 4 GHz 3.55 dBm

Center 5.7750 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 200.0 MHz Sweep 1.000 ms (1001 pts)

Frequency Auto Tune Center Freq 5.775000000 GHz Start Freq 5.675000000 GHz Stop Freq 5.875000000 GHz CF Step 20.000000 MHz Auto Man Freq Offset 0 Hz Scale Type Log Lin

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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MIMO Power Spectral Density Measurements (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 Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26T	MCS0	5.76	6.08	8.93	11.00	-2.07
	5200	40	ax (20MHz)	26T	MCS0	5.51	5.53	8.53	11.00	-2.47
	5240	48	ax (20MHz)	26T	MCS0	5.45	5.70	8.59	11.00	-2.41
	5190	38	ax (40MHz)	26T	MCS0	5.51	6.78	9.20	11.00	-1.80
	5230	46	ax (40MHz)	26T	MCS0	4.59	7.45	9.26	11.00	-1.74
	5210	42	ax (80MHz)	26T	MCS0	6.87	6.80	9.85	11.00	-1.15
Band 2A	5260	52	ax (20MHz)	26T	MCS0	6.34	7.30	9.86	11.00	-1.14
	5280	56	ax (20MHz)	26T	MCS0	6.12	6.06	9.10	11.00	-1.90
	5320	64	ax (20MHz)	26T	MCS0	5.38	6.37	8.91	11.00	-2.09
	5270	54	ax (40MHz)	26T	MCS0	7.40	5.06	9.40	11.00	-1.60
	5310	62	ax (40MHz)	26T	MCS0	5.77	3.76	7.89	11.00	-3.11
	5290	58	ax (80MHz)	26T	MCS0	5.54	5.84	8.70	11.00	-2.30
Band 2C	5500	100	ax (20MHz)	26T	MCS0	4.68	4.80	7.75	11.00	-3.25
	5600	120	ax (20MHz)	26T	MCS0	6.10	5.20	8.68	11.00	-2.32
	5720	144	ax (20MHz)	26T	MCS0	5.63	4.97	8.32	11.00	-2.68
	5510	102	ax (40MHz)	26T	MCS0	4.50	2.73	6.71	11.00	-4.29
	5590	118	ax (40MHz)	26T	MCS0	4.66	1.59	6.40	11.00	-4.60
	5710	142	ax (40MHz)	26T	MCS0	4.42	1.00	6.05	11.00	-4.95
	5530	106	ax (80MHz)	26T	MCS0	6.10	5.43	8.79	11.00	-2.21
	5610	122	ax (80MHz)	26T	MCS0	5.42	5.60	8.52	11.00	-2.48
	5690	138	ax (80MHz)	26T	MCS0	6.75	7.12	9.95	11.00	-1.05

Table 7-99. Bands 1, 2A, 2C 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]	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	ax (20MHz)	26T	MCS0	5.76	6.08	8.93	-4.81	4.13	10.0	-5.87
	5200	40	ax (20MHz)	26T	MCS0	5.51	5.53	8.53	-4.53	4.00	10.0	-6.00
	5240	48	ax (20MHz)	26T	MCS0	5.45	5.70	8.59	-4.71	3.88	10.0	-6.12
	5190	38	ax (40MHz)	26T	MCS0	5.51	6.78	9.20	-4.53	4.67	10.0	-5.33
	5230	46	ax (40MHz)	26T	MCS0	4.59	7.45	9.26	-4.71	4.56	10.0	-5.44
	5210	42	ax (80MHz)	26T	MCS0	6.87	6.80	9.85	-4.53	5.32	10.0	-4.68

Table 7-100. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 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 [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	26T	MCS0	5.63	5.97	8.81	30.00	-21.19
	5785	157	ax (20MHz)	26T	MCS0	5.88	5.54	8.72	30.00	-21.28
	5825	165	ax (20MHz)	26T	MCS0	4.61	4.34	7.49	30.00	-22.51
	5755	151	ax (40MHz)	26T	MCS0	5.59	7.53	9.68	30.00	-20.32
	5795	159	ax (40MHz)	26T	MCS0	4.54	6.32	8.53	30.00	-21.47
	5775	155	ax (80MHz)	26T	MCS0	7.37	7.61	10.50	30.00	-19.50

Table 7-101. Bands 3 Conducted Power Spectral Density Measurements MIMO (26 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 			Approved by: Quality Manager
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MIMO Power Spectral Density Measurements (52 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 Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	52T	MCS0	5.59	6.19	8.91	11.00	-2.09
	5200	40	ax (20MHz)	52T	MCS0	6.18	6.97	9.60	11.00	-1.40
	5240	48	ax (20MHz)	52T	MCS0	5.54	6.87	9.27	11.00	-1.73
	5190	38	ax (40MHz)	52T	MCS0	4.71	6.01	8.42	11.00	-2.58
	5230	46	ax (40MHz)	52T	MCS0	3.66	4.93	7.35	11.00	-3.65
	5210	42	ax (80MHz)	52T	MCS0	6.45	6.13	9.30	11.00	-1.70
Band 2A	5260	52	ax (20MHz)	52T	MCS0	5.26	3.48	7.47	11.00	-3.53
	5280	56	ax (20MHz)	52T	MCS0	5.86	6.45	9.18	11.00	-1.82
	5320	64	ax (20MHz)	52T	MCS0	6.04	6.38	9.22	11.00	-1.78
	5270	54	ax (40MHz)	52T	MCS0	5.10	3.37	7.33	11.00	-3.67
	5310	62	ax (40MHz)	52T	MCS0	5.19	3.08	7.27	11.00	-3.73
	5290	58	ax (80MHz)	52T	MCS0	6.55	5.90	9.25	11.00	-1.75
Band 2C	5500	100	ax (20MHz)	52T	MCS0	5.42	5.00	8.23	11.00	-2.77
	5600	120	ax (20MHz)	52T	MCS0	5.43	4.53	8.01	11.00	-2.99
	5720	144	ax (20MHz)	52T	MCS0	4.83	4.60	7.73	11.00	-3.27
	5510	102	ax (40MHz)	52T	MCS0	3.82	2.09	6.05	11.00	-4.95
	5590	118	ax (40MHz)	52T	MCS0	2.67	1.54	5.15	11.00	-5.85
	5710	142	ax (40MHz)	52T	MCS0	3.81	1.21	5.71	11.00	-5.29
	5530	106	ax (80MHz)	52T	MCS0	6.24	6.71	9.49	11.00	-1.51
	5610	122	ax (80MHz)	52T	MCS0	5.88	6.38	9.15	11.00	-1.85
	5690	138	ax (80MHz)	52T	MCS0	5.89	6.17	9.04	11.00	-1.96

Table 7-102. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (52 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]	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	ax (20MHz)	52T	MCS0	5.59	6.19	8.91	-4.81	4.10	10.0	-5.90
	5200	40	ax (20MHz)	52T	MCS0	6.18	6.97	9.60	-4.53	5.07	10.0	-4.93
	5240	48	ax (20MHz)	52T	MCS0	5.54	6.87	9.27	-4.71	4.56	10.0	-5.44
	5190	38	ax (40MHz)	52T	MCS0	4.71	6.01	8.42	-4.53	3.89	10.0	-6.11
	5230	46	ax (40MHz)	52T	MCS0	3.66	4.93	7.35	-4.71	2.65	10.0	-7.35
	5210	42	ax (80MHz)	52T	MCS0	6.45	6.13	9.30	-4.53	4.77	10.0	-5.23

Table 7-103. Bands 1 e.i.r.p. Conducted Power Spectral Density Measurements (ISED 52 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 [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	52T	MCS0	5.15	4.69	7.94	30.00	-22.06
	5785	157	ax (20MHz)	52T	MCS0	4.97	5.01	8.00	30.00	-22.00
	5825	165	ax (20MHz)	52T	MCS0	4.65	5.09	7.89	30.00	-22.11
	5755	151	ax (40MHz)	52T	MCS0	3.58	5.37	7.58	30.00	-22.42
	5795	159	ax (40MHz)	52T	MCS0	4.54	5.61	8.12	30.00	-21.88
	5775	155	ax (80MHz)	52T	MCS0	7.19	7.18	10.20	30.00	-19.80

Table 7-104. Bands 3 Conducted Power Spectral Density Measurements MIMO (52 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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MIMO Power Spectral Density Measurements (106 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 Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	106T	MCS0	5.53	6.00	8.78	11.00	-2.22
	5200	40	ax (20MHz)	106T	MCS0	4.48	5.72	8.15	11.00	-2.85
	5240	48	ax (20MHz)	106T	MCS0	4.45	5.62	8.08	11.00	-2.92
	5190	38	ax (40MHz)	106T	MCS0	6.29	4.50	8.50	11.00	-2.50
	5230	46	ax (40MHz)	106T	MCS0	2.68	4.14	6.48	11.00	-4.52
	5210	42	ax (80MHz)	106T	MCS0	5.23	5.53	8.39	11.00	-2.61
Band 2A	5260	52	ax (20MHz)	106T	MCS0	4.33	5.37	7.89	11.00	-3.11
	5280	56	ax (20MHz)	106T	MCS0	4.51	5.40	7.99	11.00	-3.01
	5320	64	ax (20MHz)	106T	MCS0	5.00	5.55	8.29	11.00	-2.71
	5270	54	ax (40MHz)	106T	MCS0	4.79	2.68	6.87	11.00	-4.13
	5310	62	ax (40MHz)	106T	MCS0	5.26	2.79	7.21	11.00	-3.79
	5290	58	ax (80MHz)	106T	MCS0	4.91	5.27	8.10	11.00	-2.90
Band 2C	5500	100	ax (20MHz)	106T	MCS0	4.35	4.29	7.33	11.00	-3.67
	5600	120	ax (20MHz)	106T	MCS0	4.52	3.96	7.26	11.00	-3.74
	5720	144	ax (20MHz)	106T	MCS0	4.28	3.51	6.92	11.00	-4.08
	5510	102	ax (40MHz)	106T	MCS0	3.39	1.17	5.43	11.00	-5.57
	5590	118	ax (40MHz)	106T	MCS0	3.40	0.63	5.24	11.00	-5.76
	5710	142	ax (40MHz)	106T	MCS0	3.53	0.12	5.16	11.00	-5.84
	5530	106	ax (80MHz)	106T	MCS0	4.51	5.16	7.86	11.00	-3.14
	5610	122	ax (80MHz)	106T	MCS0	4.62	5.22	7.94	11.00	-3.06
	5690	138	ax (80MHz)	106T	MCS0	4.89	5.34	8.13	11.00	-2.87

Table 7-105. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (106 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]	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	ax (20MHz)	106T	MCS0	5.53	6.00	8.78	-4.81	3.97	10.0	-6.03
	5200	40	ax (20MHz)	106T	MCS0	4.48	5.72	8.15	-4.53	3.62	10.0	-6.38
	5240	48	ax (20MHz)	106T	MCS0	4.45	5.62	8.08	-4.71	3.38	10.0	-6.62
	5190	38	ax (40MHz)	106T	MCS0	6.29	4.50	8.50	-4.53	3.97	10.0	-6.03
	5230	46	ax (40MHz)	106T	MCS0	2.68	4.14	6.48	-4.71	1.78	10.0	-8.22
	5210	42	ax (80MHz)	106T	MCS0	5.23	5.53	8.39	-4.53	3.86	10.0	-6.14

Table 7-106. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 106 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 [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	106T	MCS0	4.15	4.10	7.14	30.00	-22.86
	5785	157	ax (20MHz)	106T	MCS0	4.22	4.29	7.27	30.00	-22.73
	5825	165	ax (20MHz)	106T	MCS0	4.26	3.59	6.95	30.00	-23.05
	5755	151	ax (40MHz)	106T	MCS0	2.31	4.24	6.39	30.00	-23.61
	5795	159	ax (40MHz)	106T	MCS0	2.60	4.76	6.82	30.00	-23.18
	5775	155	ax (80MHz)	106T	MCS0	5.48	5.99	8.75	30.00	-21.25

Table 7-107. Bands 3 Conducted Power Spectral Density Measurements MIMO (106 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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MIMO Power Spectral Density Measurements (242 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 Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	1.67	2.58	5.16	11.00	-5.84
	5200	40	ax (20MHz)	242T	MCS0	4.43	5.30	7.90	11.00	-3.10
	5240	48	ax (20MHz)	242T	MCS0	4.57	5.61	8.13	11.00	-2.87
	5190	38	ax (40MHz)	242T	MCS0	-1.01	-0.06	2.50	11.00	-8.50
	5230	46	ax (40MHz)	242T	MCS0	2.70	3.85	6.32	11.00	-4.68
	5210	42	ax (80MHz)	242T	MCS0	-0.64	-0.83	2.28	11.00	-8.72
Band 2A	5260	52	ax (20MHz)	242T	MCS0	3.79	5.30	7.62	11.00	-3.38
	5280	56	ax (20MHz)	242T	MCS0	4.36	5.07	7.74	11.00	-3.26
	5320	64	ax (20MHz)	242T	MCS0	2.70	3.62	6.19	11.00	-4.81
	5270	54	ax (40MHz)	242T	MCS0	4.23	2.37	6.41	11.00	-4.59
	5310	62	ax (40MHz)	242T	MCS0	-0.59	-2.62	1.52	11.00	-9.48
	5290	58	ax (80MHz)	242T	MCS0	-0.62	-0.68	2.36	11.00	-8.64
Band 2C	5500	100	ax (20MHz)	242T	MCS0	3.21	3.51	6.37	11.00	-4.63
	5600	120	ax (20MHz)	242T	MCS0	4.17	3.94	7.07	11.00	-3.93
	5720	144	ax (20MHz)	242T	MCS0	4.06	4.13	7.11	11.00	-3.89
	5510	102	ax (40MHz)	242T	MCS0	-2.38	-4.15	-0.17	11.00	-11.17
	5590	118	ax (40MHz)	242T	MCS0	-2.54	0.70	2.39	11.00	-8.61
	5710	142	ax (40MHz)	242T	MCS0	2.44	-0.09	4.37	11.00	-6.63
	5530	106	ax (80MHz)	242T	MCS0	4.49	-1.01	5.57	11.00	-5.43
	5610	122	ax (80MHz)	242T	MCS0	4.69	5.03	7.87	11.00	-3.13
	5690	138	ax (80MHz)	242T	MCS0	4.89	5.02	7.97	11.00	-3.03

Table 7-108. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (242 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]	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	ax (20MHz)	242T	MCS0	1.67	2.58	5.16	-4.81	0.35	10.0	-9.65
	5200	40	ax (20MHz)	242T	MCS0	4.43	5.30	7.90	-4.53	3.37	10.0	-6.63
	5240	48	ax (20MHz)	242T	MCS0	4.57	5.61	8.13	-4.71	3.43	10.0	-6.57
	5190	38	ax (40MHz)	242T	MCS0	-1.01	-0.06	2.50	-4.53	-2.03	10.0	-12.03
	5230	46	ax (40MHz)	242T	MCS0	2.70	3.85	6.32	-4.71	1.62	10.0	-8.38
	5210	42	ax (80MHz)	242T	MCS0	-0.64	-0.83	2.28	-4.53	-2.25	10.0	-12.25

Table 7-109. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 242 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 [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	242T	MCS0	3.54	3.75	6.66	30.00	-23.34
	5785	157	ax (20MHz)	242T	MCS0	3.78	4.14	6.97	30.00	-23.03
	5825	165	ax (20MHz)	242T	MCS0	3.12	3.83	6.50	30.00	-23.50
	5755	151	ax (40MHz)	242T	MCS0	2.13	4.07	6.22	30.00	-23.78
	5795	159	ax (40MHz)	242T	MCS0	-0.04	5.07	6.24	30.00	-23.76
	5775	155	ax (80MHz)	242T	MCS0	5.07	5.50	8.30	30.00	-21.70

Table 7-110. Bands 3 Conducted Power Spectral Density Measurements MIMO (242 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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MIMO Power Spectral Density Measurements (484 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 Power Density [dBm/MHz]	Margin [dB]
Band 1	5190	38	ax (40MHz)	484T	MCS0	-3.37	-3.74	-0.54	11.00	-11.54
	5230	46	ax (40MHz)	484T	MCS0	-0.38	-0.78	2.43	11.00	-8.57
	5210	42	ax (80MHz)	484T	MCS0	-3.90	-3.47	-0.67	11.00	-11.67
Band 2A	5270	54	ax (40MHz)	484T	MCS0	0.13	-2.33	2.08	11.00	-8.92
	5310	62	ax (40MHz)	484T	MCS0	-3.29	-5.59	-1.28	11.00	-12.28
	5290	58	ax (80MHz)	484T	MCS0	-3.28	-2.95	-0.10	11.00	-11.10
Band 2C	5510	102	ax (40MHz)	484T	MCS0	-5.40	-8.00	-3.50	11.00	-14.50
	5590	118	ax (40MHz)	484T	MCS0	-1.44	-3.96	0.49	11.00	-10.51
	5710	142	ax (40MHz)	484T	MCS0	-1.36	-4.74	0.28	11.00	-10.72
	5530	106	ax (80MHz)	484T	MCS0	-3.24	-3.36	-0.29	11.00	-11.29
	5610	122	ax (80MHz)	484T	MCS0	0.94	0.99	3.98	11.00	-7.02
	5690	138	ax (80MHz)	484T	MCS0	0.91	0.63	3.78	11.00	-7.22

Table 7-111. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (484 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]	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	5190	38	ax (40MHz)	484T	MCS0	-3.37	-3.74	-0.54	-4.53	-5.07	10.0	-15.07
	5230	46	ax (40MHz)	484T	MCS0	-0.38	-0.78	2.43	-4.71	-2.27	10.0	-12.27
	5210	42	ax (80MHz)	484T	MCS0	-3.90	-3.47	-0.67	-4.53	-5.20	10.0	-15.20

Table 7-112. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 484 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 [dBm/500kHz]	Margin [dB]
Band 3	5755	151	ax (40MHz)	484T	MCS0	-1.90	-0.50	1.87	30.00	-28.13
	5795	159	ax (40MHz)	484T	MCS0	-1.32	0.11	2.46	30.00	-27.54
	5775	155	ax (80MHz)	484T	MCS0	1.35	1.45	4.41	30.00	-25.59

Table 7-113. Bands 3 Conducted Power Spectral Density Measurements MIMO (484 Tones)

FCC ID: A3LSC03L	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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MIMO Power Spectral Density Measurements (996 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 Power Density [dBm/MHz]	Margin [dB]
Band 1	5210	42	ax (80MHz)	996T	MCS0	-7.18	-6.68	-3.91	11.00	-14.91
Band 2A	5290	58	ax (80MHz)	996T	MCS0	-6.81	-6.67	-3.73	11.00	-14.73
Band 2C	5530	106	ax (80MHz)	996T	MCS0	-7.15	-6.27	-3.68	11.00	-14.68
	5610	122	ax (80MHz)	996T	MCS0	-3.20	-2.39	0.23	11.00	-10.77
	5690	138	ax (80MHz)	996T	MCS0	-3.02	-2.31	0.36	11.00	-10.64

Table 7-114. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (996 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]	Directional Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
5210	42	ax (80MHz)	996T	MCS0	-7.18	-6.68	-3.91	-4.53	-8.44	10.0	-18.44

Table 7-115. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 996 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 [dBm/500kHz]	Margin [dB]
Band 3	5775	155	ax (80MHz)	996T	MCS0	-2.56	-1.67	0.92	30.00	-29.08

Table 7-116. Bands 3 Conducted Power Spectral Density Measurements MIMO (996 Tones)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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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 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 Directional Gain Calculation:

Assuming the antenna gain is -7.94 dBi for Antenna-1 and -7.70 dBi for Antenna-2.

$$\begin{aligned} \text{Directional gain} &= 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{\text{ANT}}] \text{ dBi} \\ &= 10 \log[(10^{-7.94/20} + 10^{-7.70/20} / 2] \text{ dBi} \\ &= (-4.81) \text{ dBi} \end{aligned}$$

Sample MIMO Calculation:

Assuming the average conducted power spectral density was measured to be 5.76 dBm for Antenna-1 and 6.08 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

$$(5.76 \text{ dBm} + 6.08 \text{ dBm}) = (3.77 \text{ mW} + 4.06 \text{ mW}) = 8.93 \text{ mW} = \text{dBm}$$

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

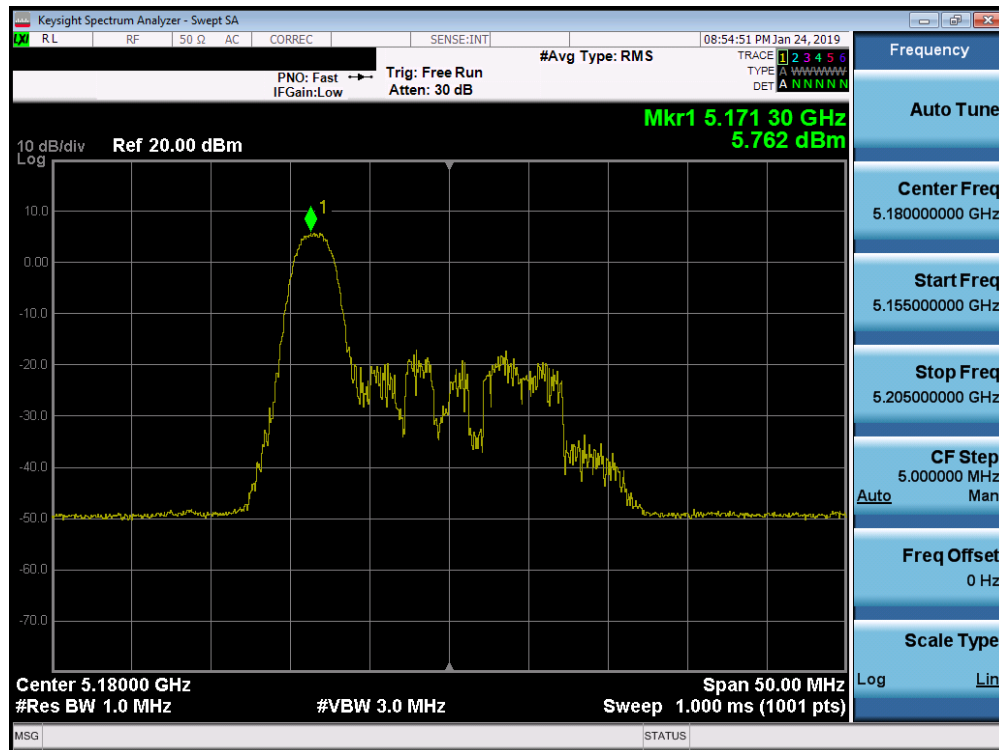
Assuming the average MIMO power density was calculated to be 8.93 dBm with directional gain of -4.81 dBi.

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

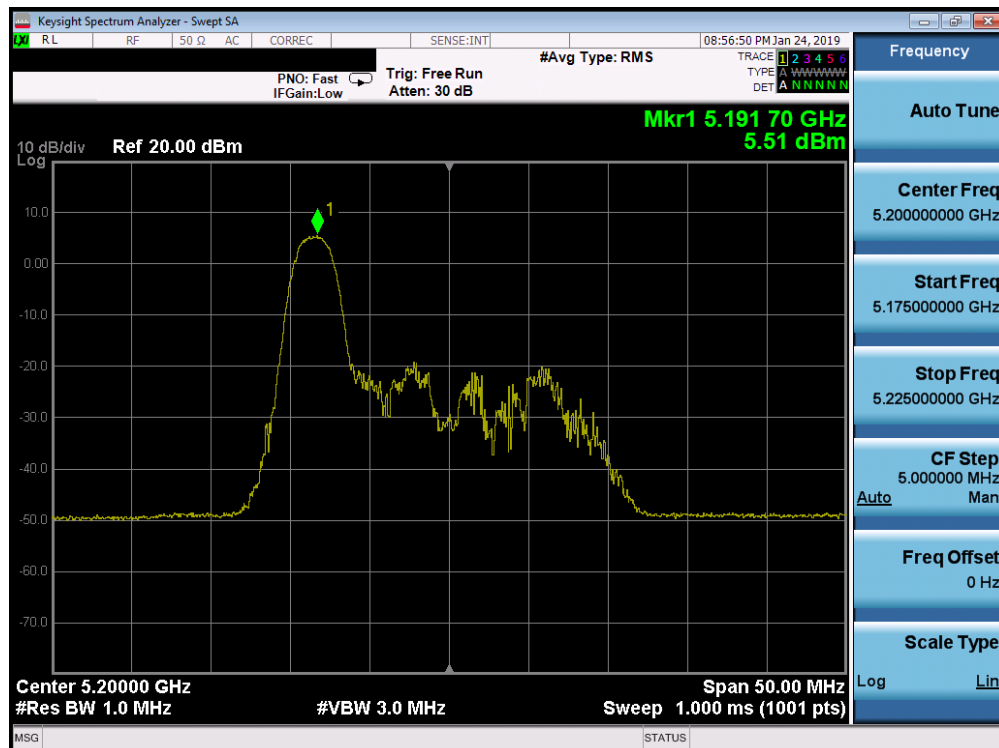
$$8.93 \text{ dBm} + (-4.81) \text{ dBi} = 4.12 \text{ dBm}$$

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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MIMO Antenna-1 Power Spectral Density Measurements (26 Tones)

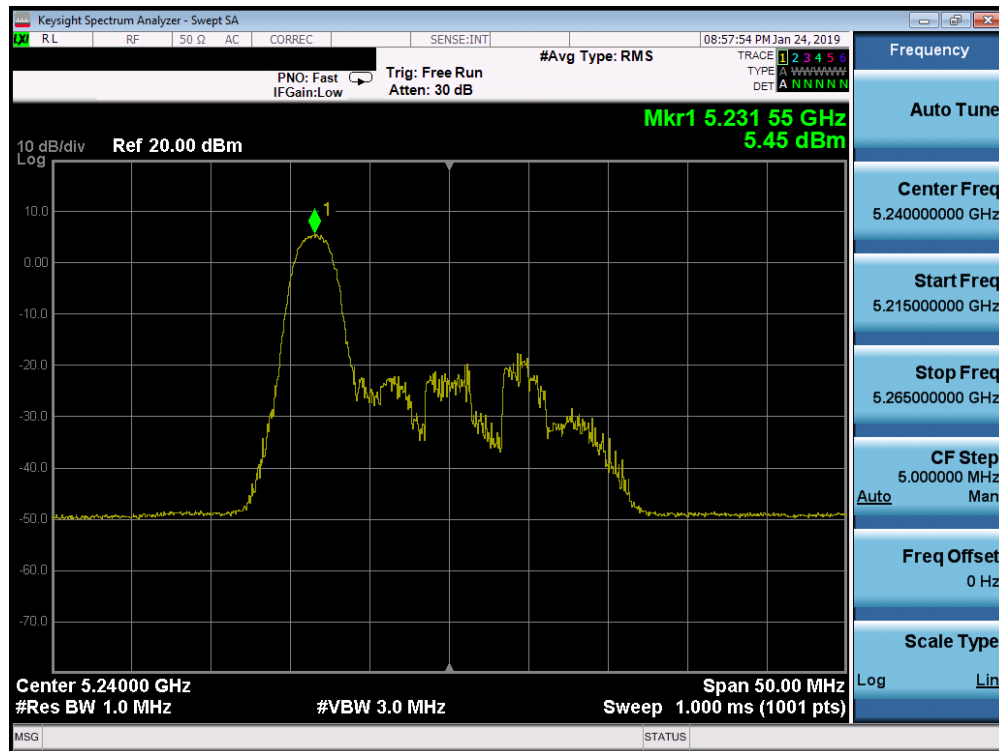


Plot 7-367. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

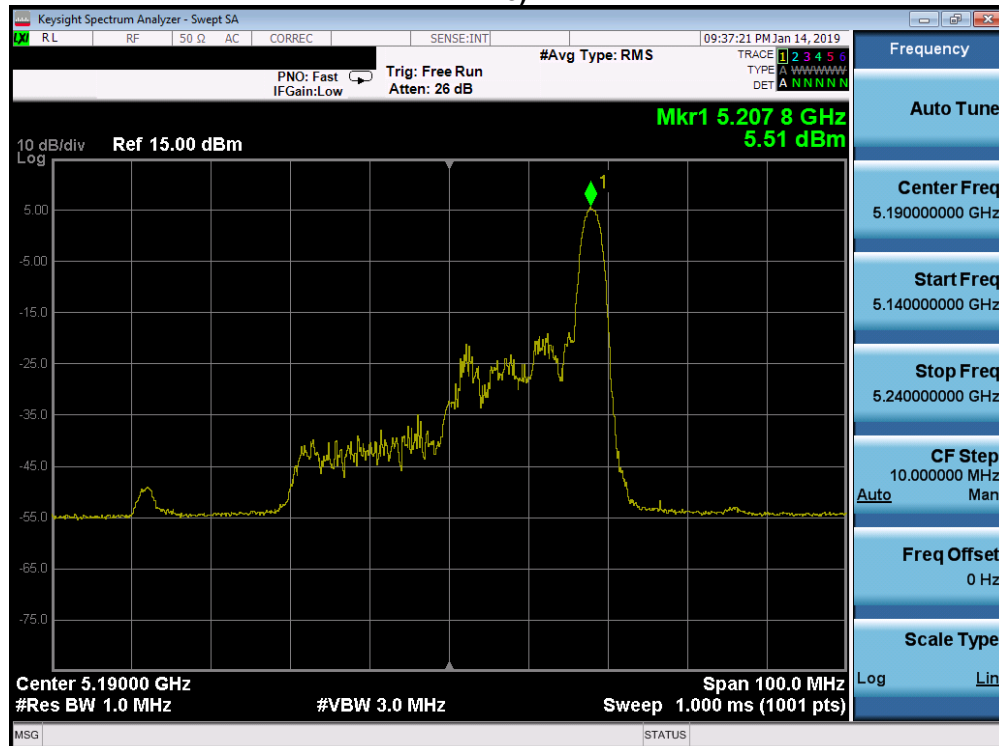


Plot 7-368. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSC03L	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset		Page 267 of 514



Plot 7-369. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

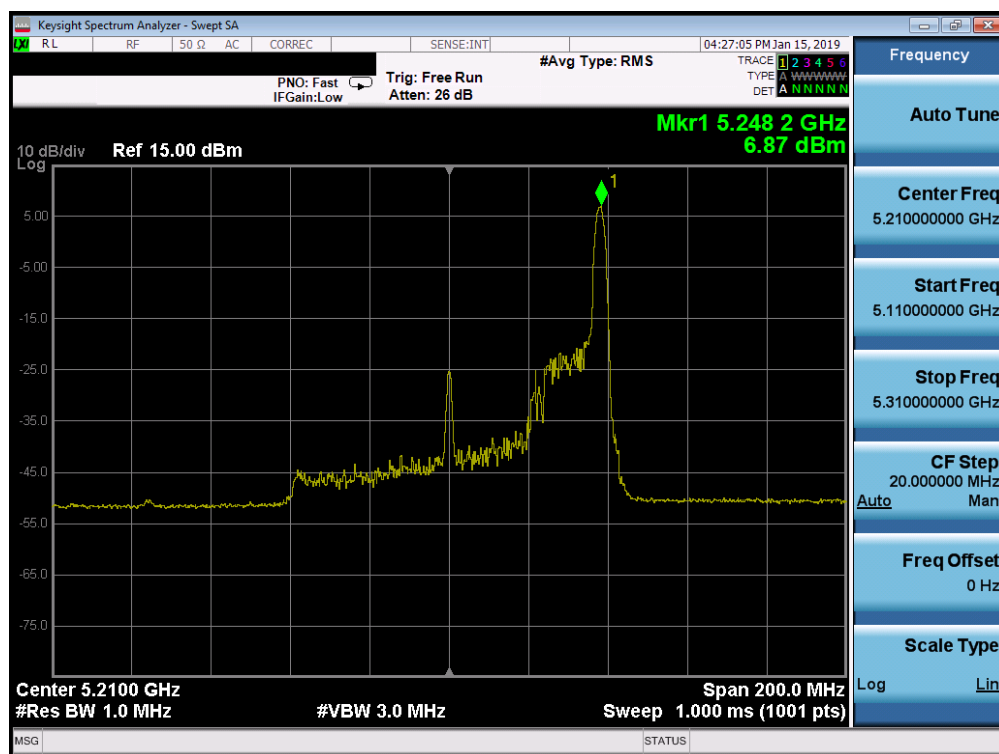


Plot 7-370. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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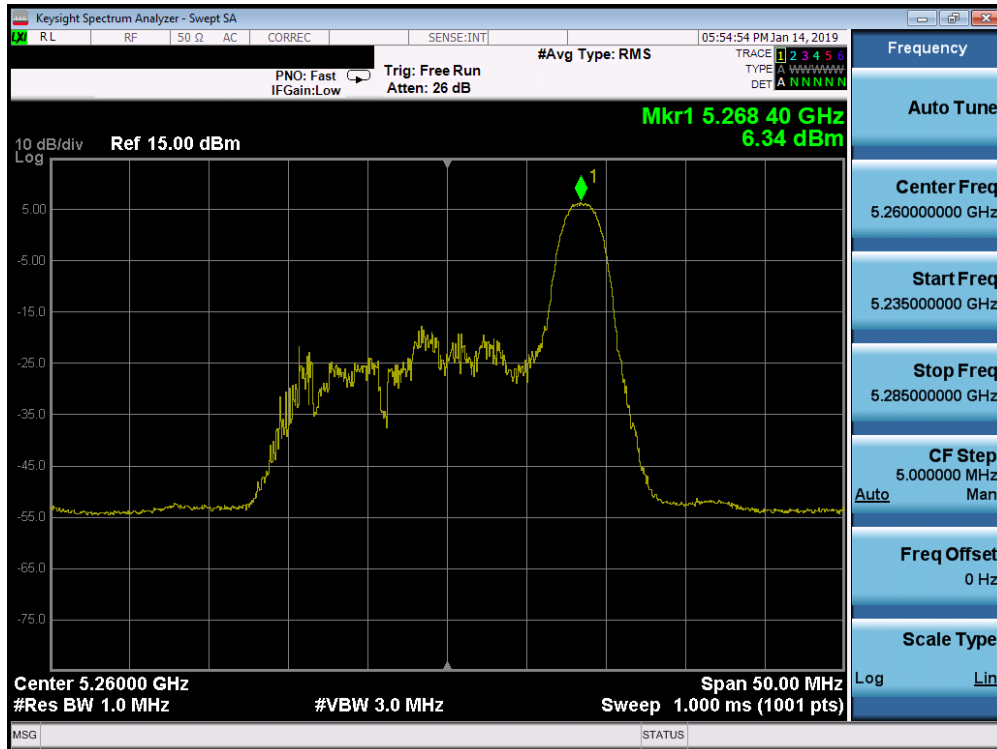


Plot 7-371. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

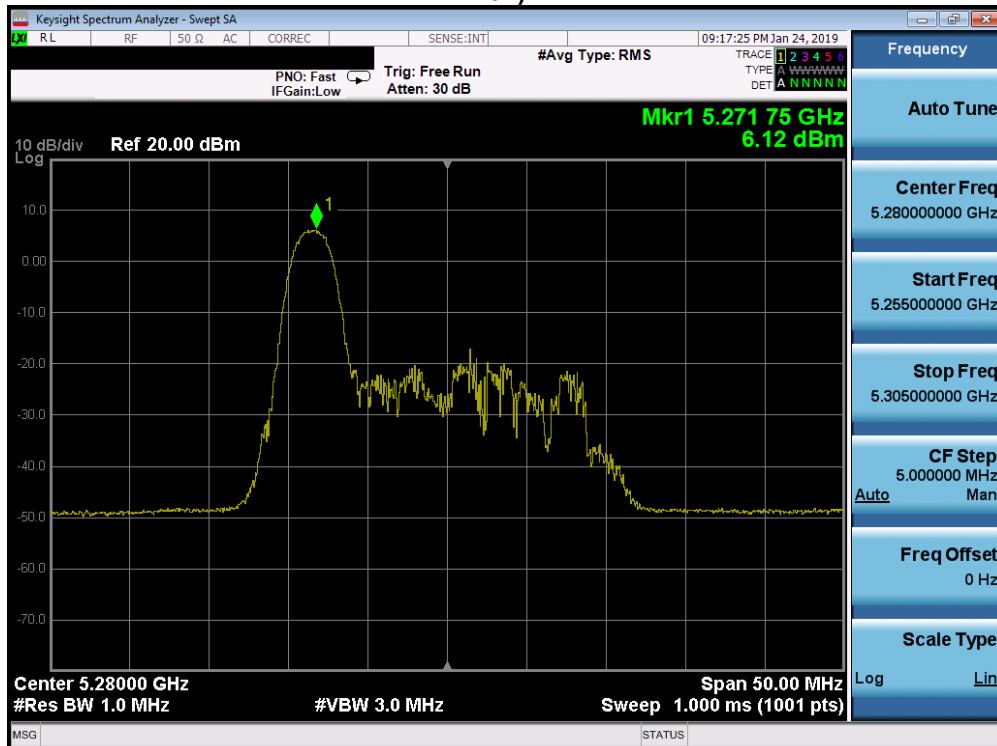


Plot 7-372. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 269 of 514		

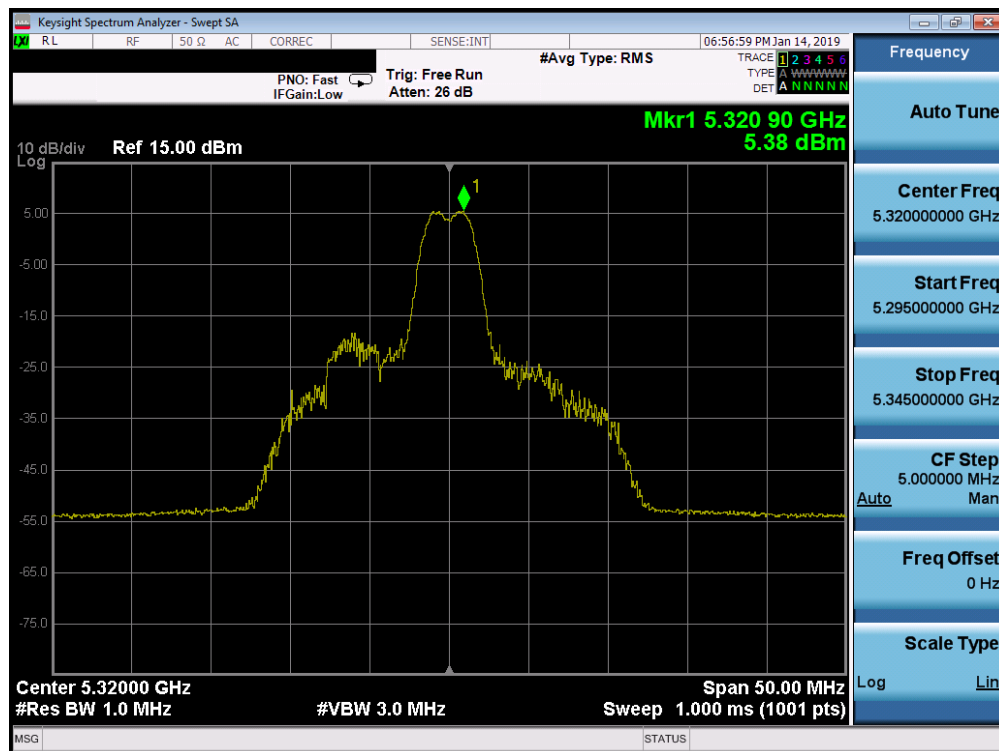


Plot 7-373. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

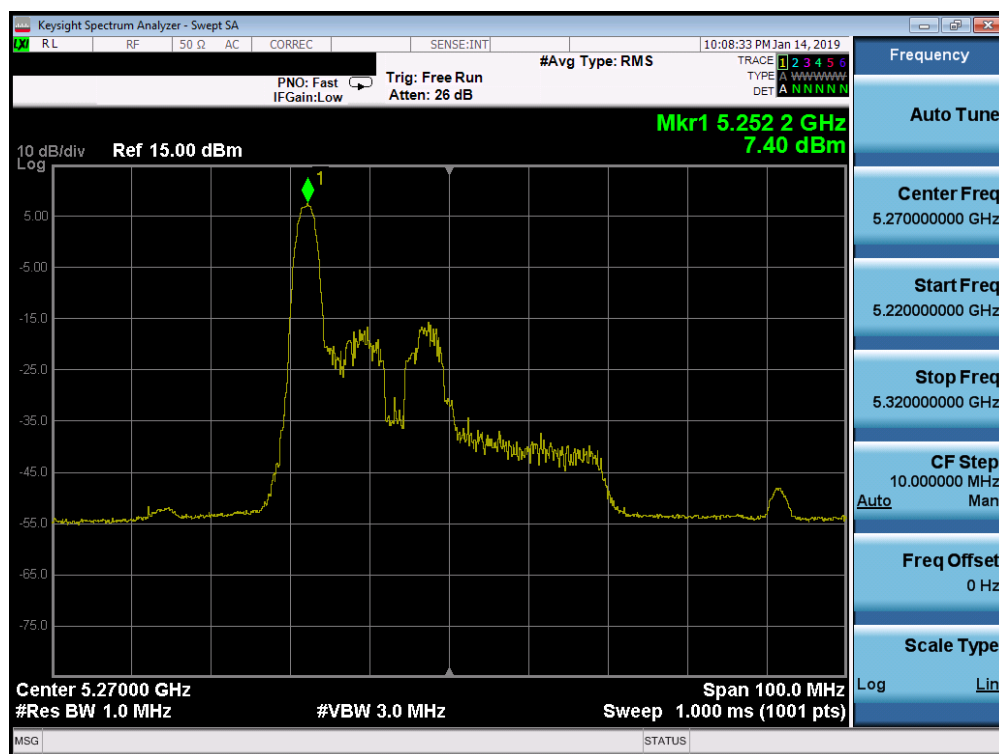


Plot 7-374. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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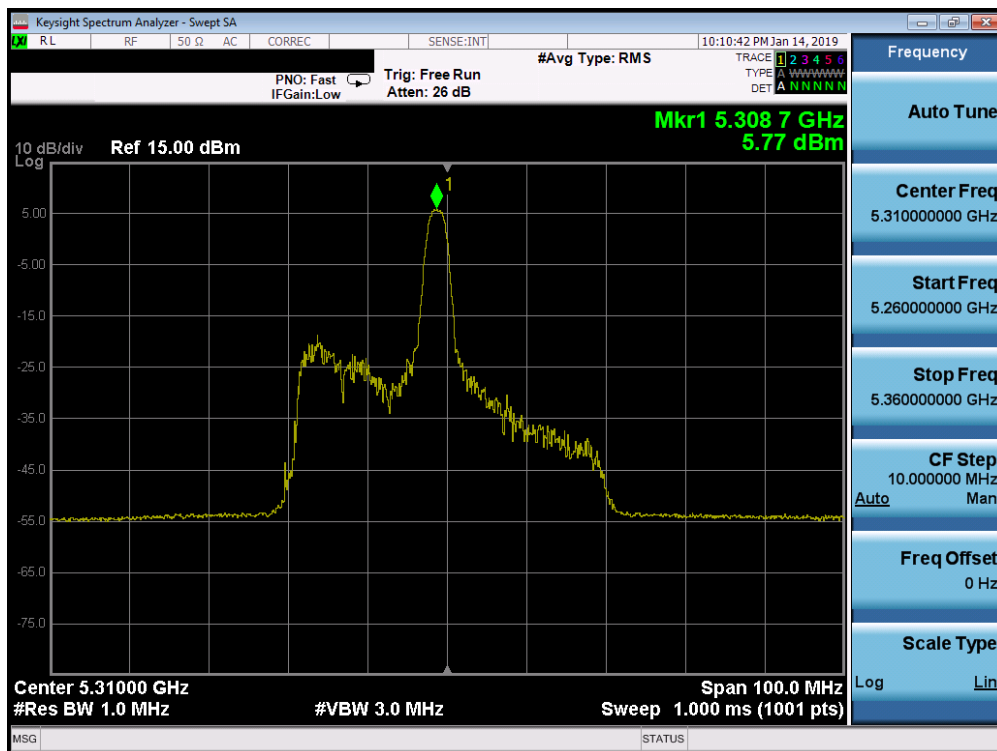


Plot 7-375. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

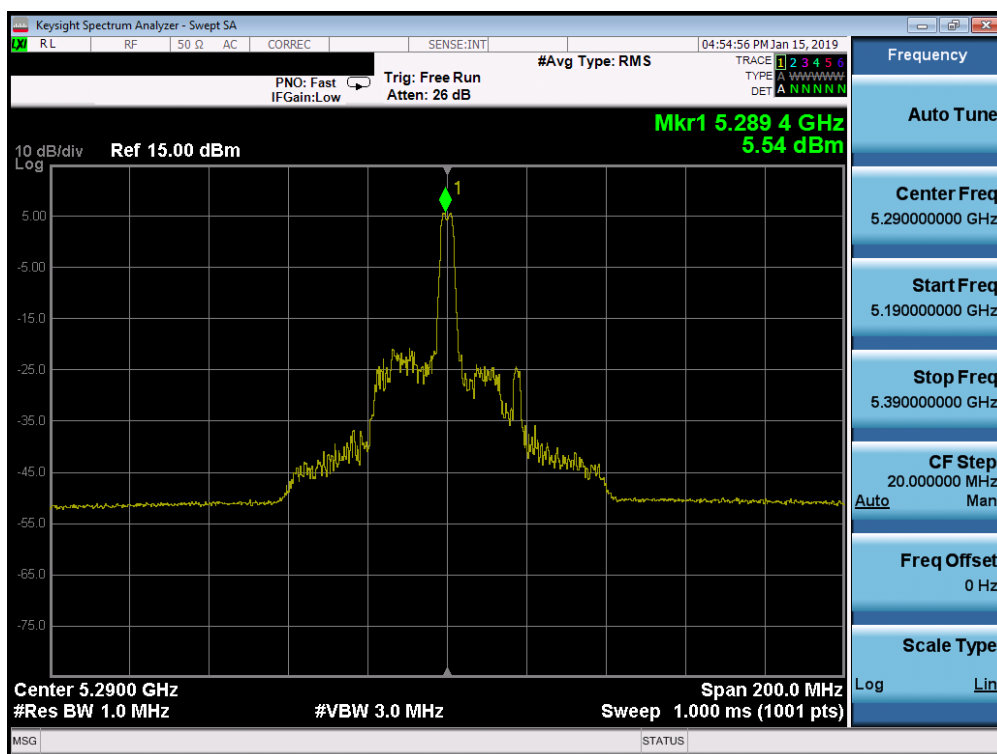


Plot 7-376. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSC03L		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-377. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)



Plot 7-378. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSC03L			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901240017-07.A3L	Test Dates: 10/23/2018 - 1/18/2019	EUT Type: Portable Handset	Page 272 of 514		