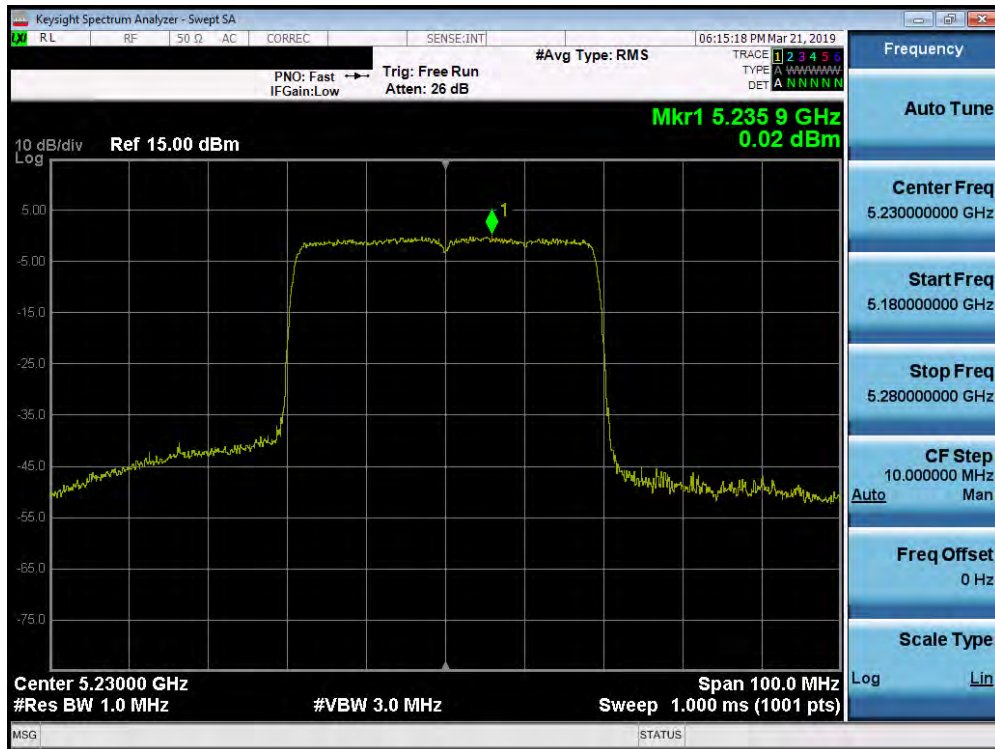
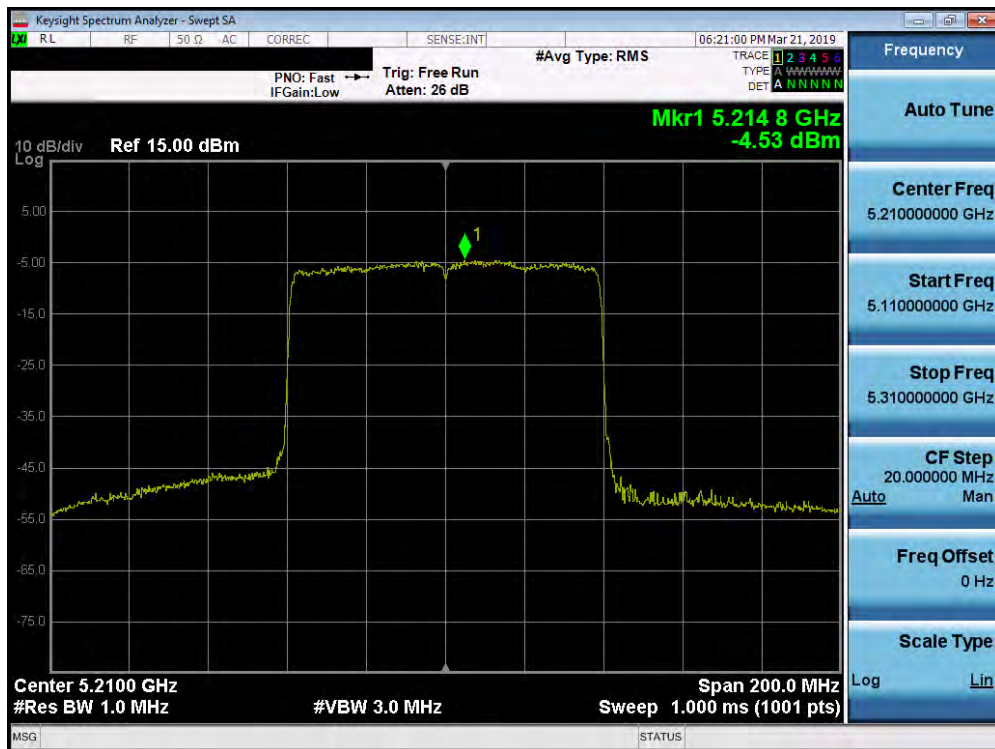


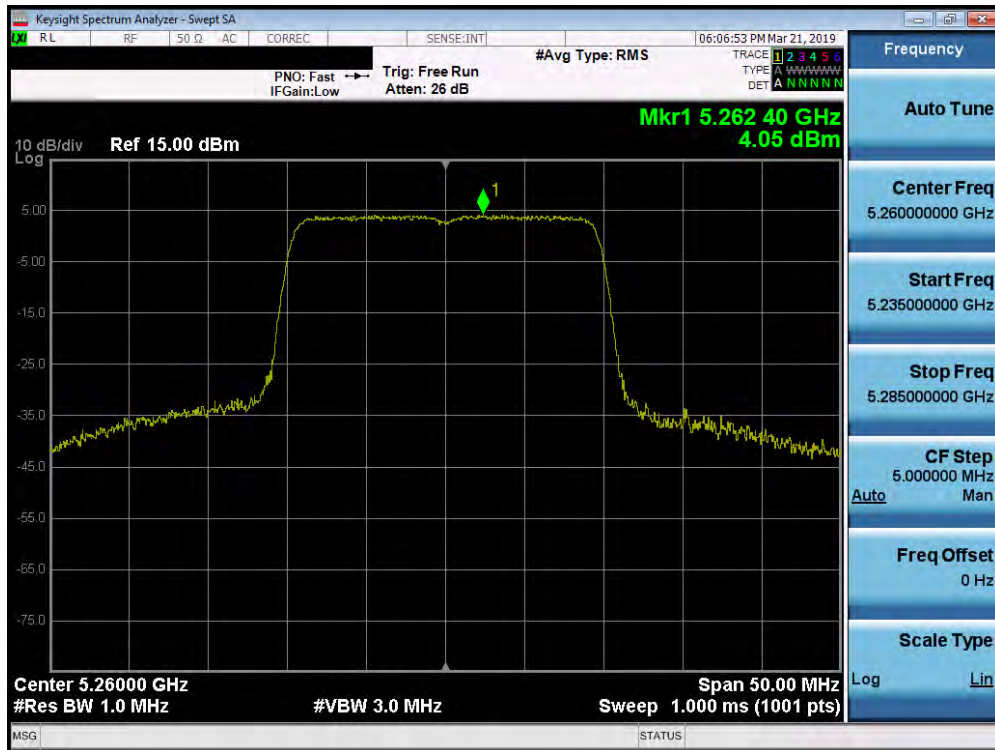


Plot 7-194. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

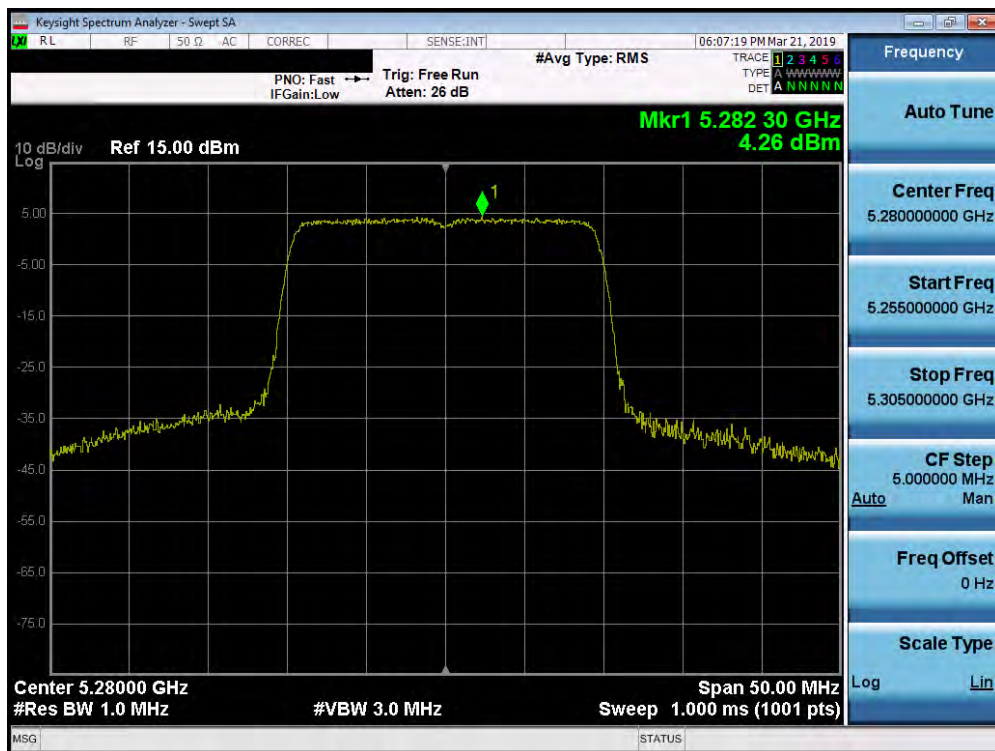


Plot 7-195. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 153 of 285

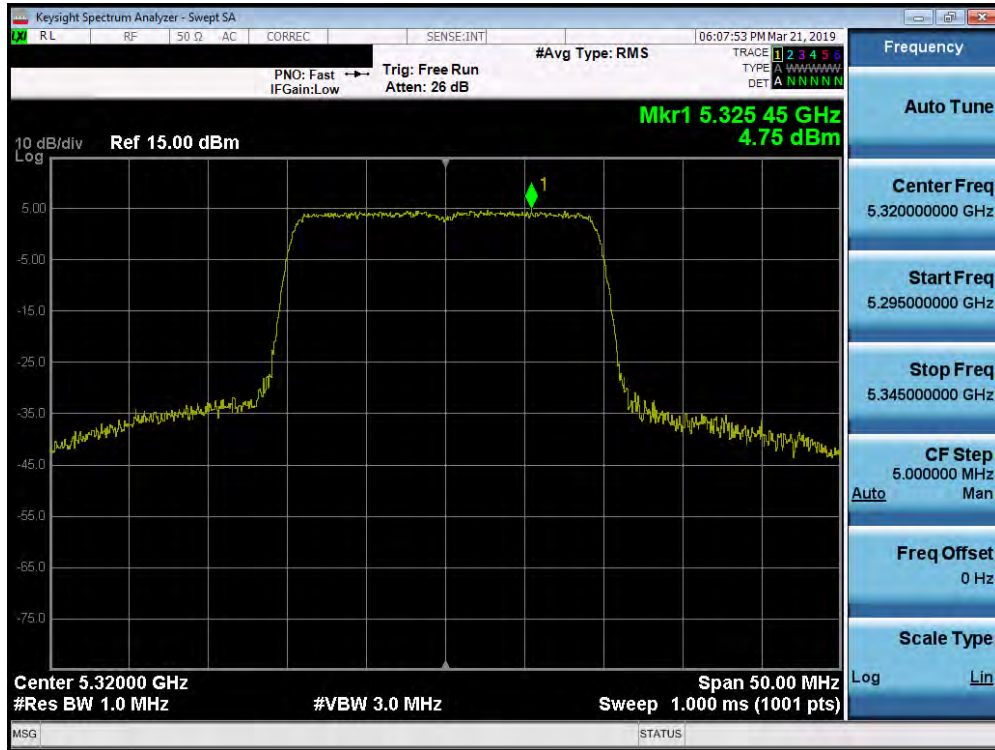


Plot 7-196. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)

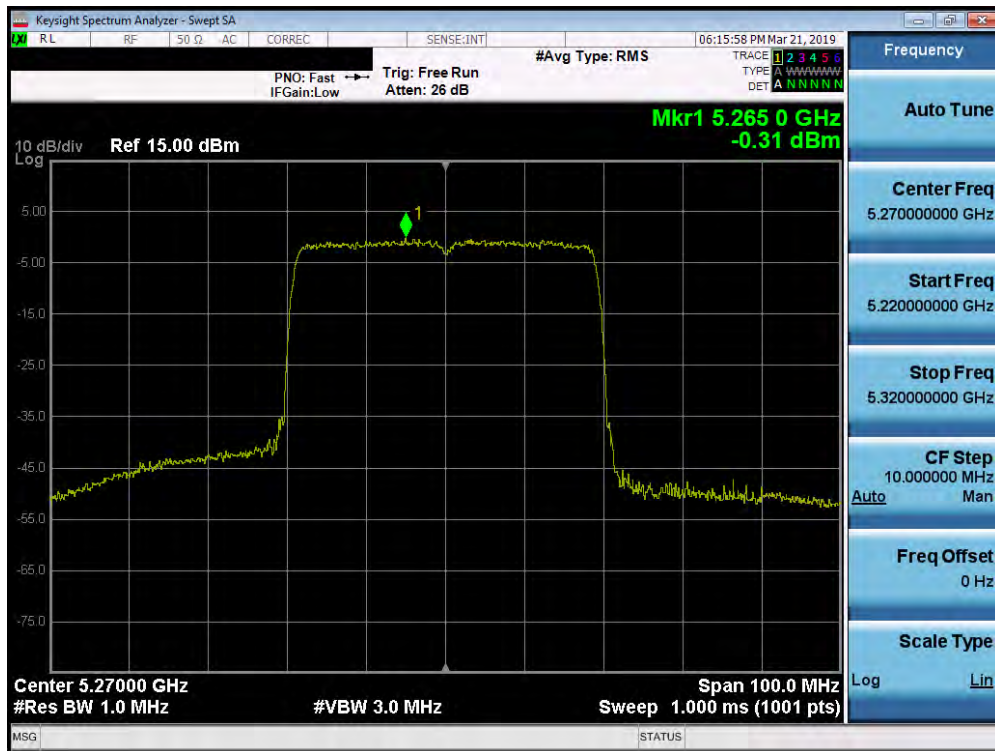


Plot 7-197. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 154 of 285

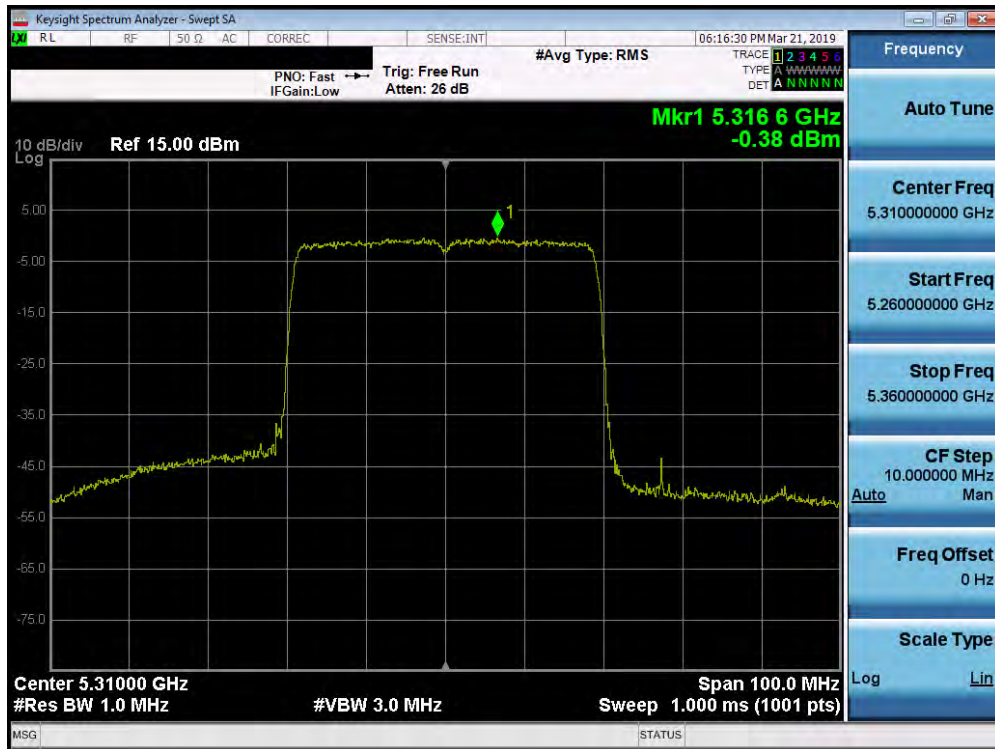


Plot 7-198. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)

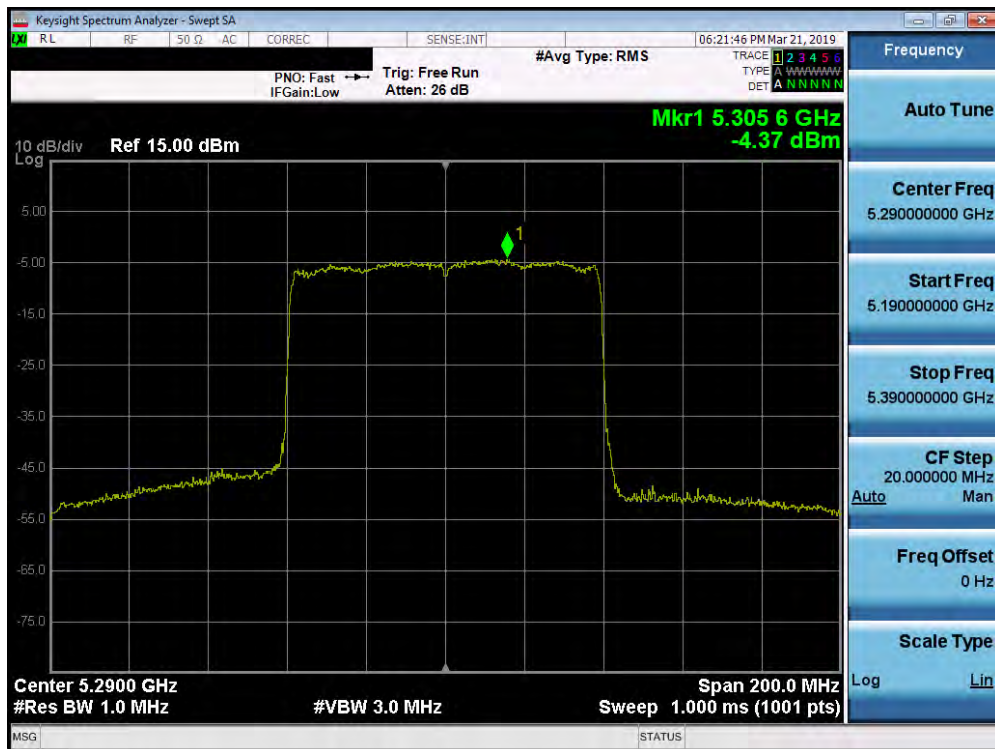


Plot 7-199. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 155 of 285

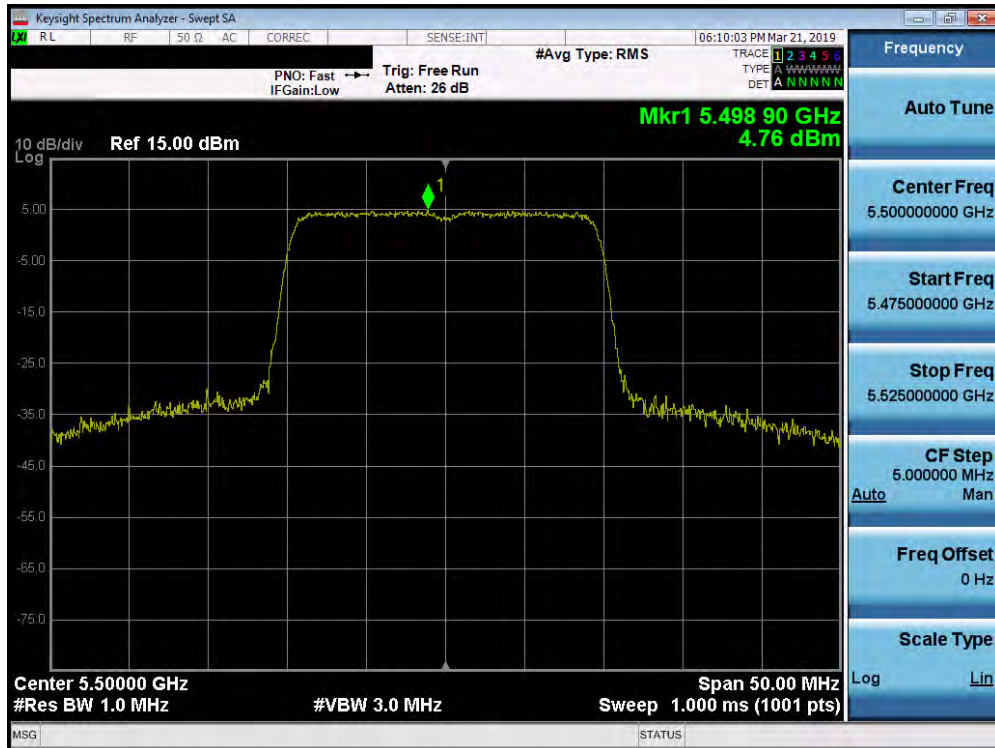


Plot 7-200. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

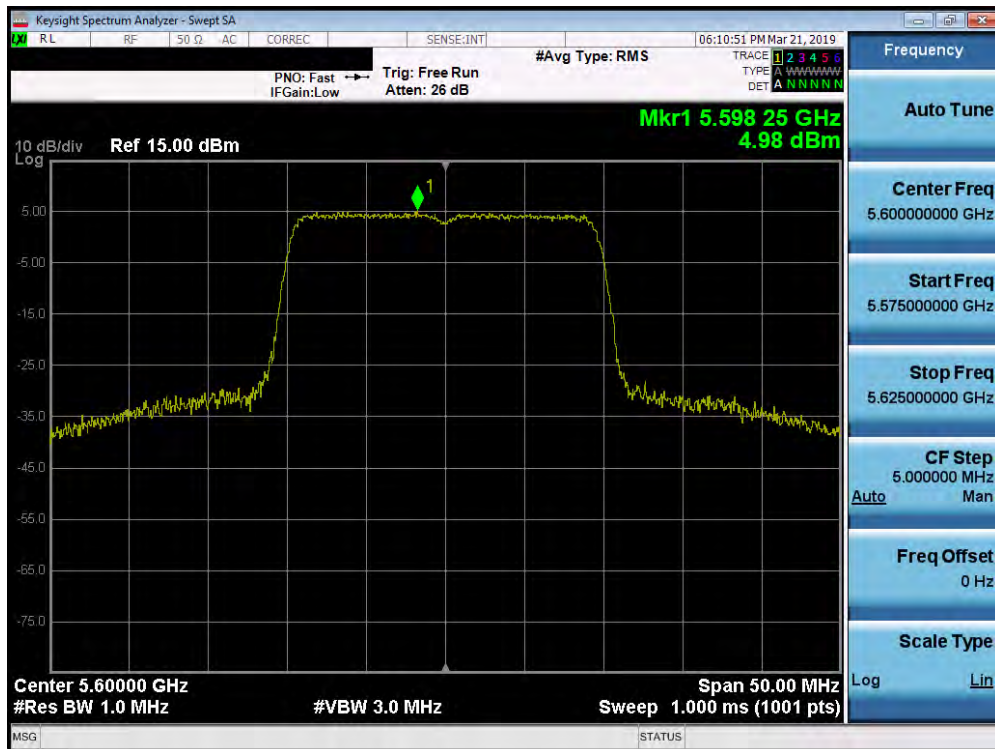


Plot 7-201. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 156 of 285

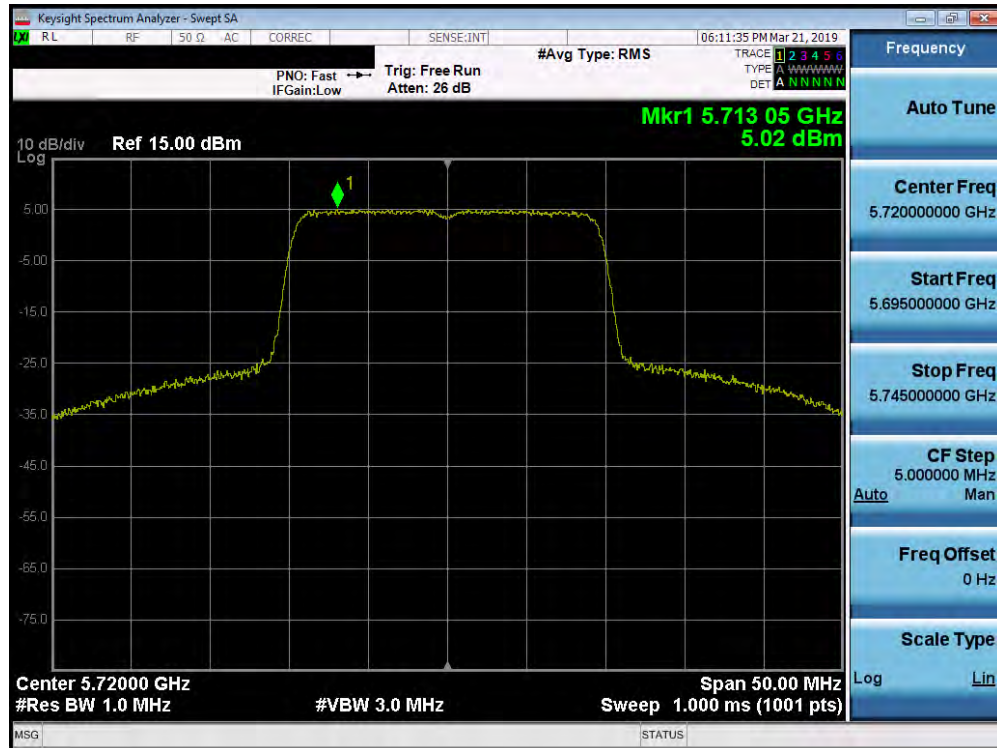


Plot 7-202. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

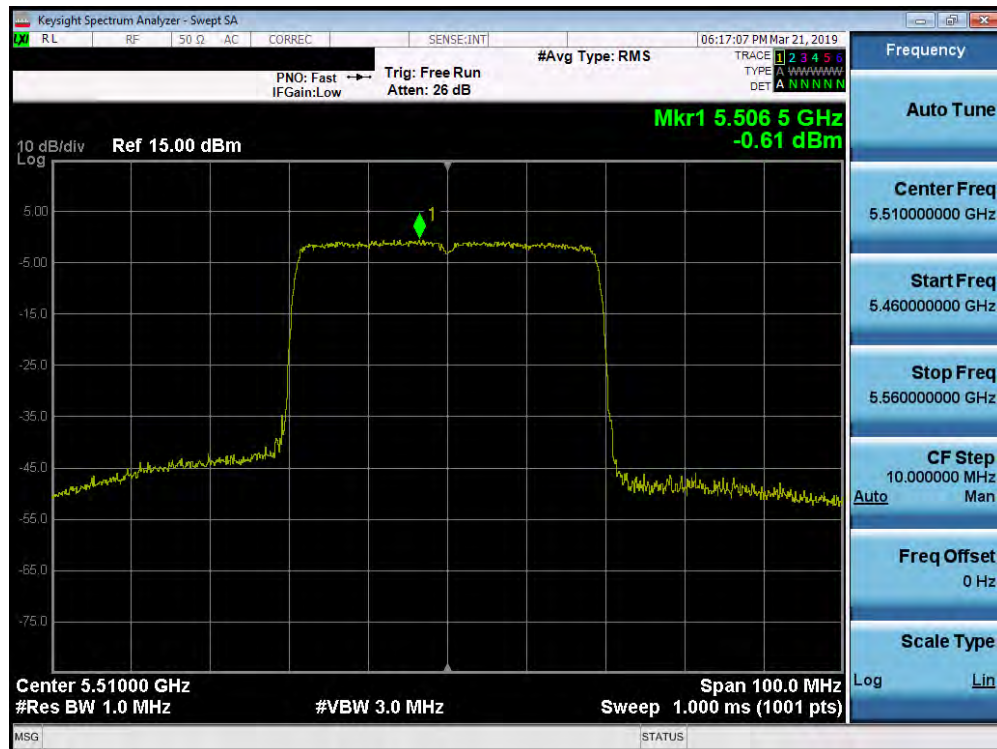


Plot 7-203. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 157 of 285

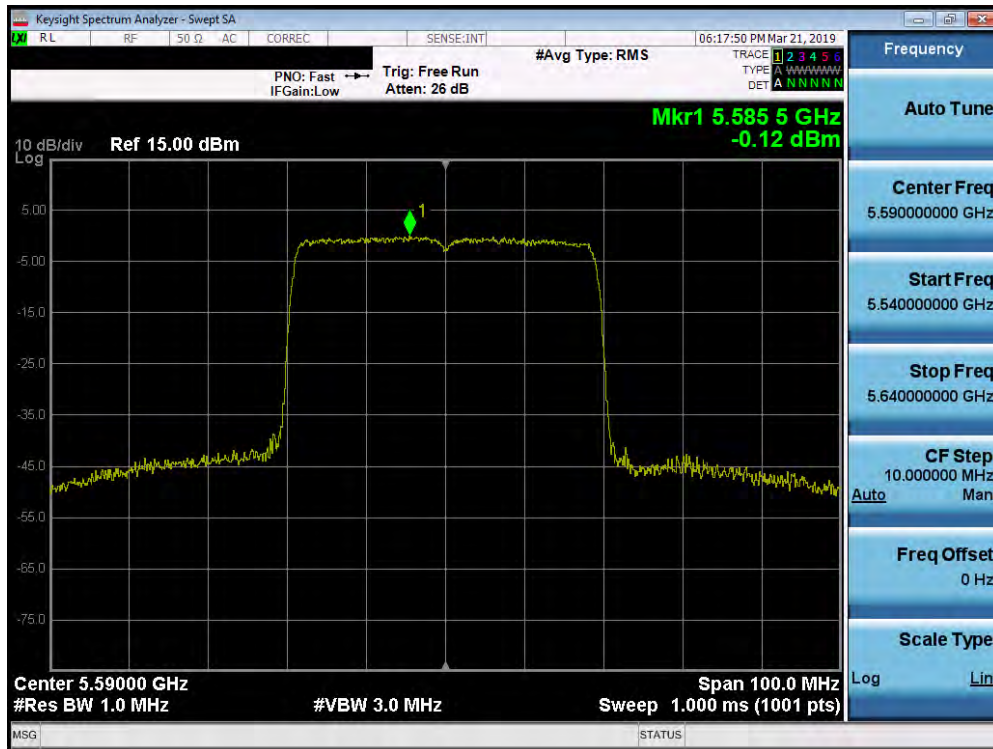


Plot 7-204. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)

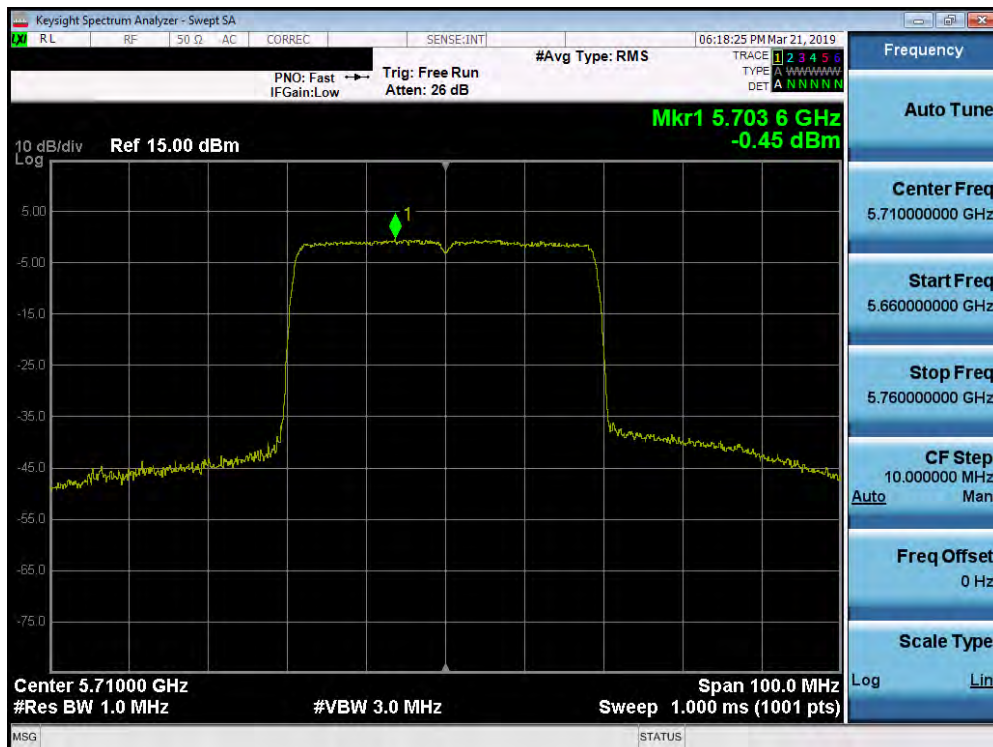


Plot 7-205. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 158 of 285

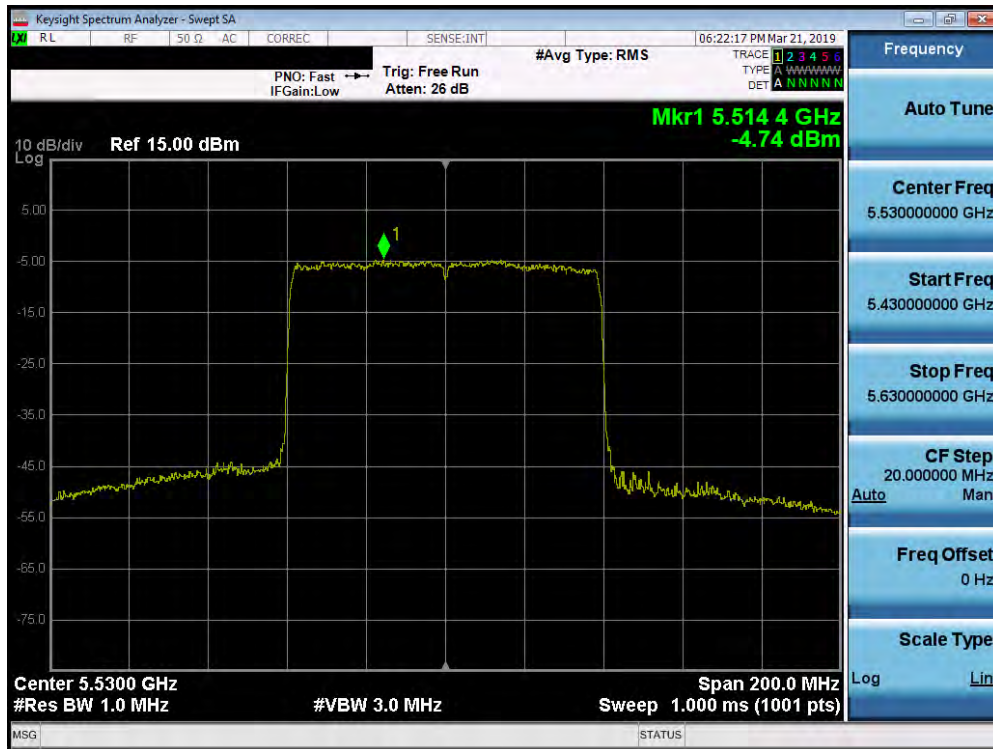


Plot 7-206. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)

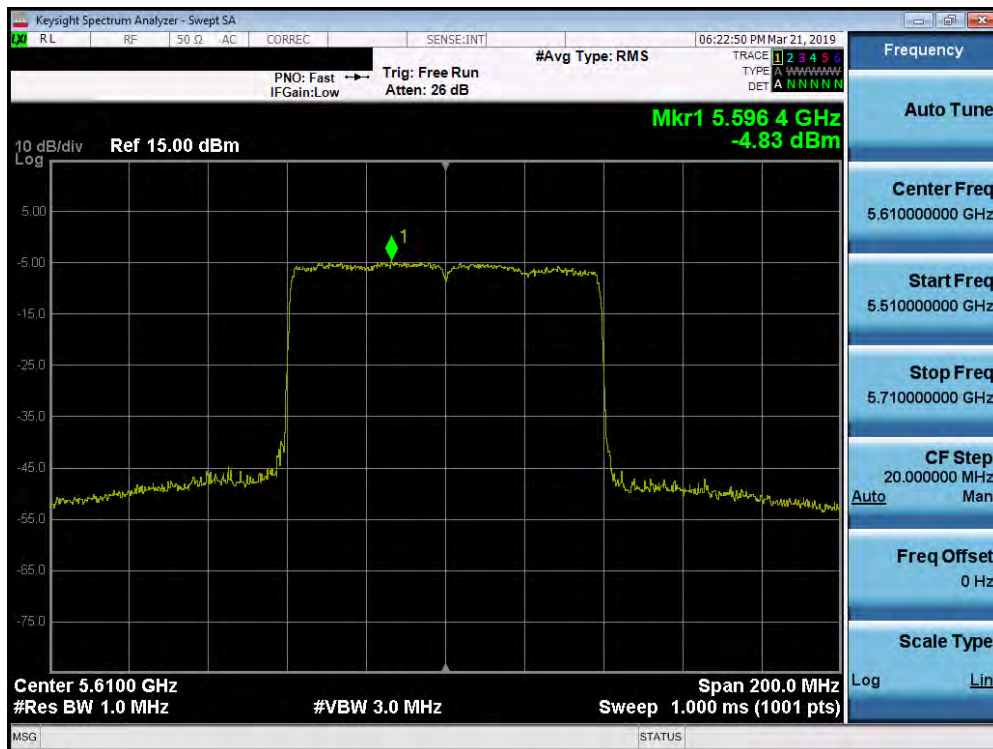


Plot 7-207. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 159 of 285

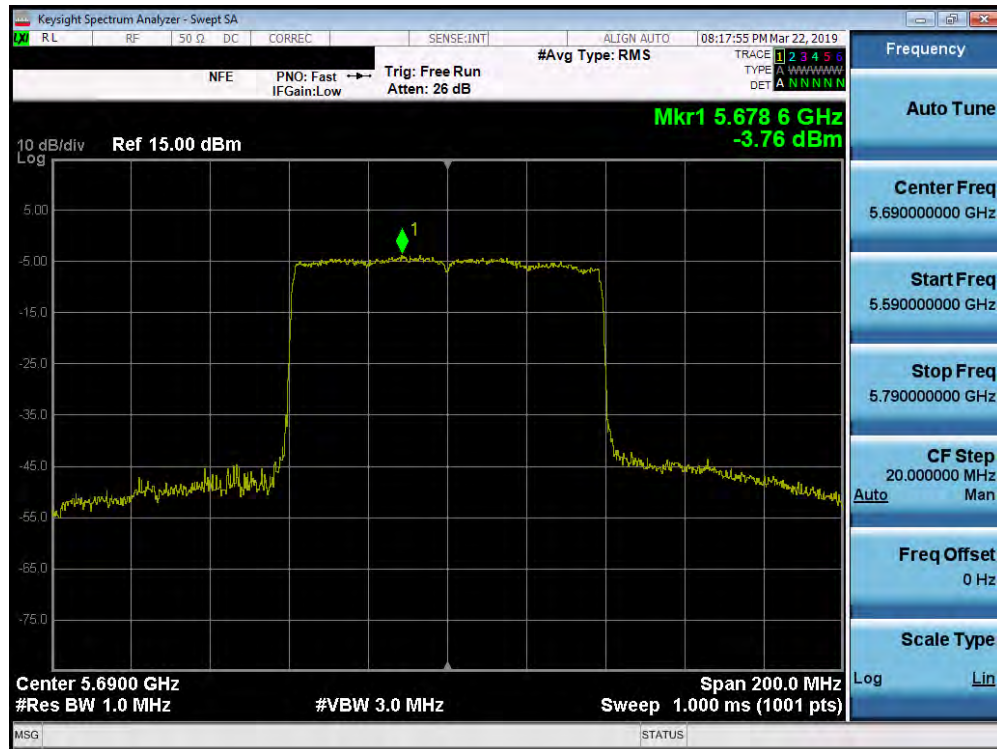


Plot 7-208. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)



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

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 160 of 285

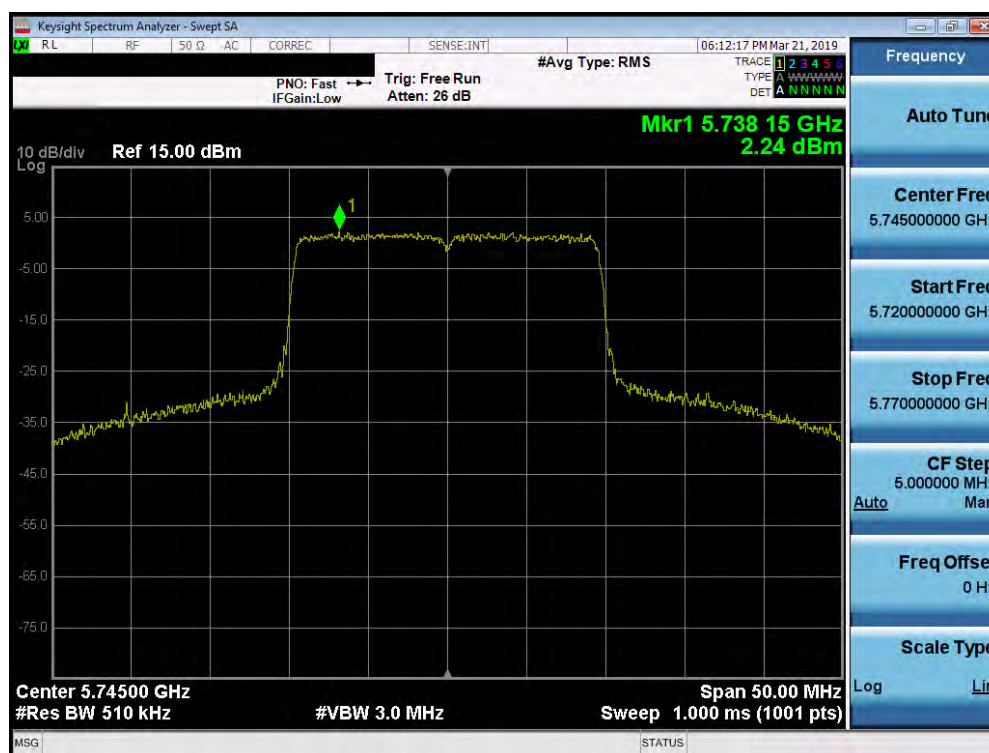


Plot 7-210. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 161 of 285

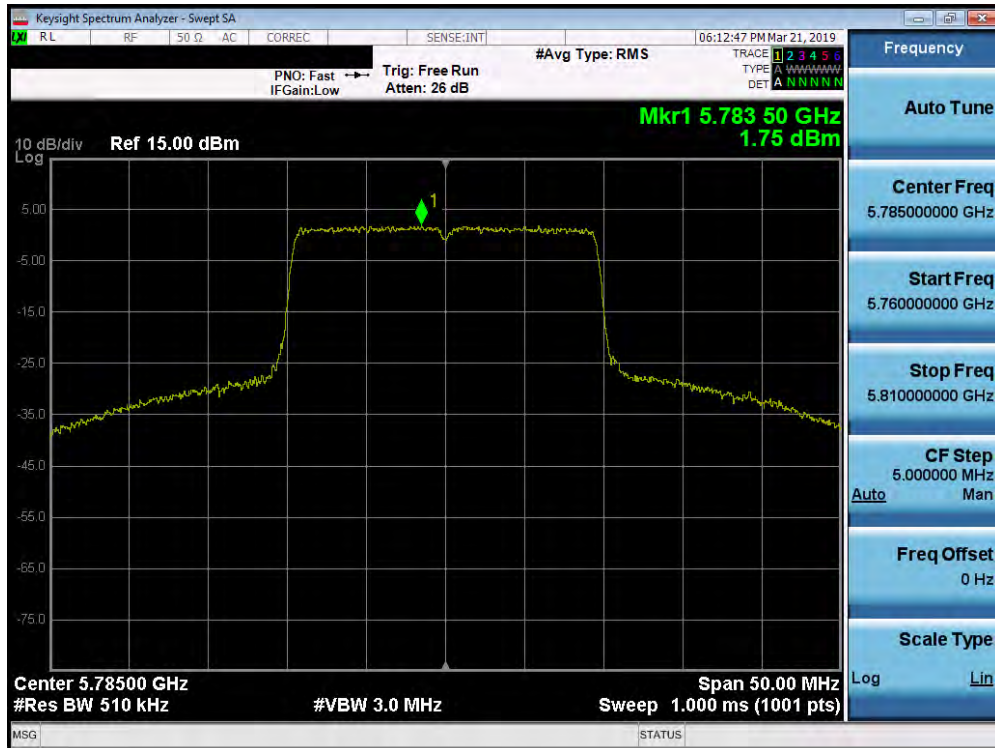
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	242T	MCS0	2.24	30.00	-27.76
	5785	157	ax (20MHz)	242T	MCS0	1.75	30.00	-28.25
	5825	165	ax (20MHz)	242T	MCS0	2.14	30.00	-27.86
	5755	151	ax (40MHz)	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)

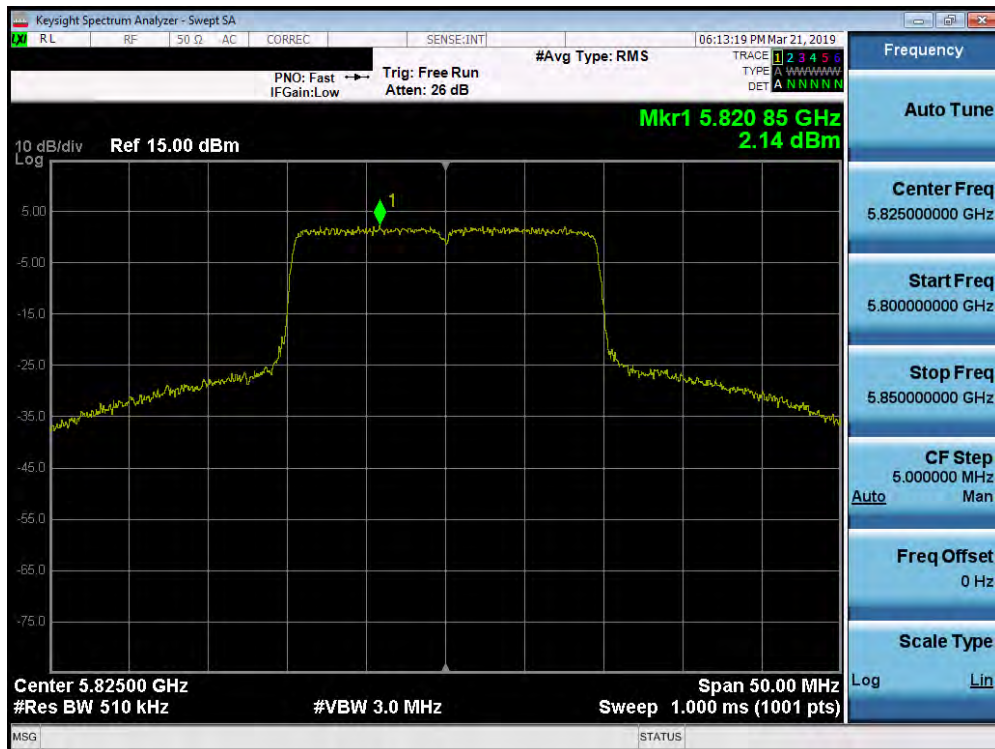


Plot 7-211. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 162 of 285

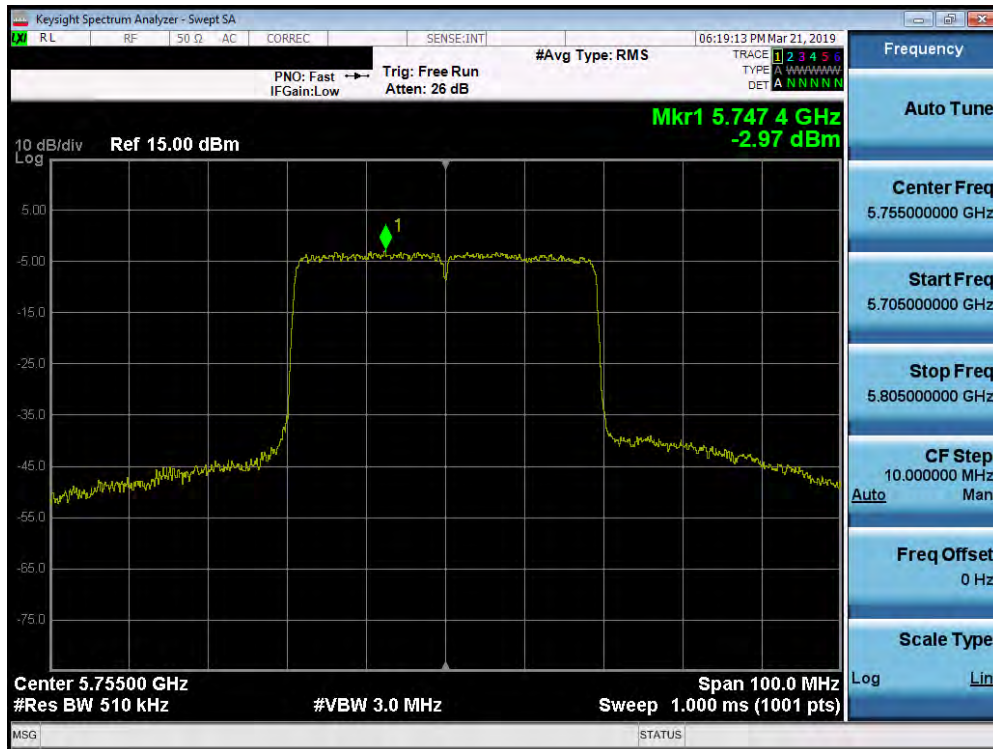


Plot 7-212. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

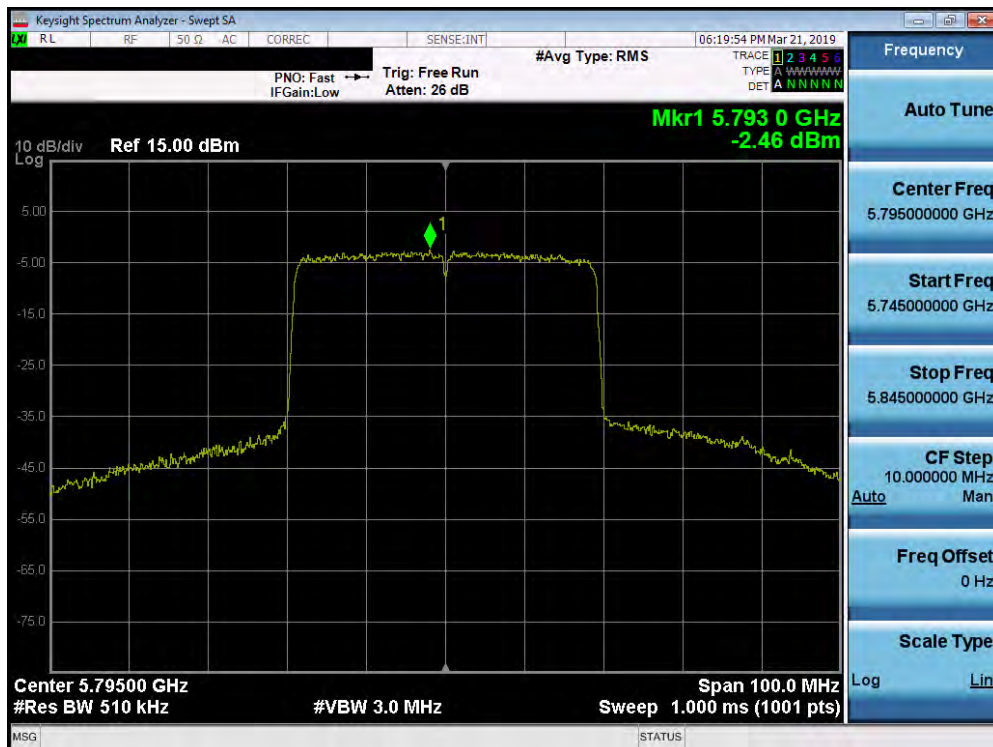


Plot 7-213. Power Spectral Density Plot SISO ANT2 (20 MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 163 of 285

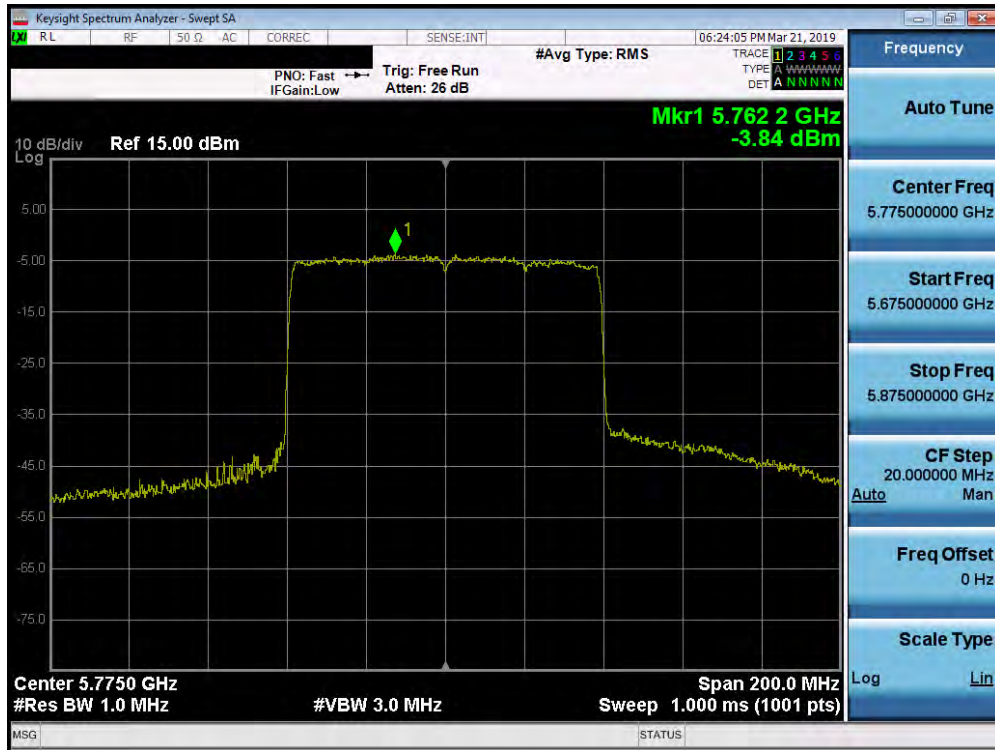


Plot 7-214. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)



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

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 164 of 285



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

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 165 of 285

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: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 166 of 285

	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: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 167 of 285

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:

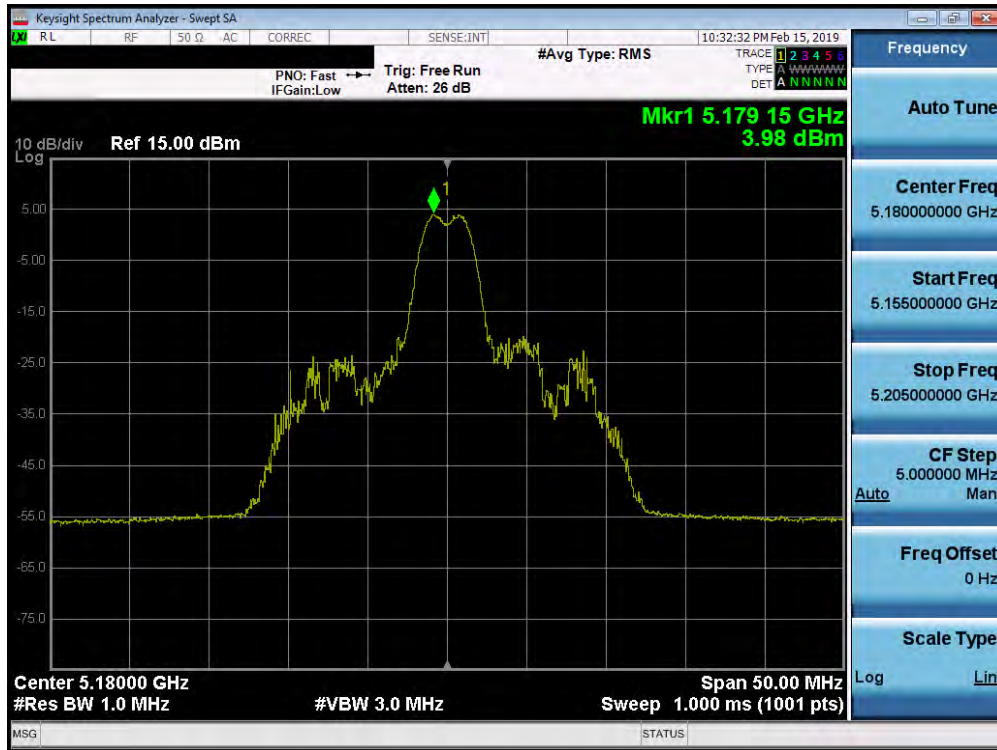
Assuming the average conducted power spectral density was measured to be 5.88 dBm for Antenna-1 and 6.27 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

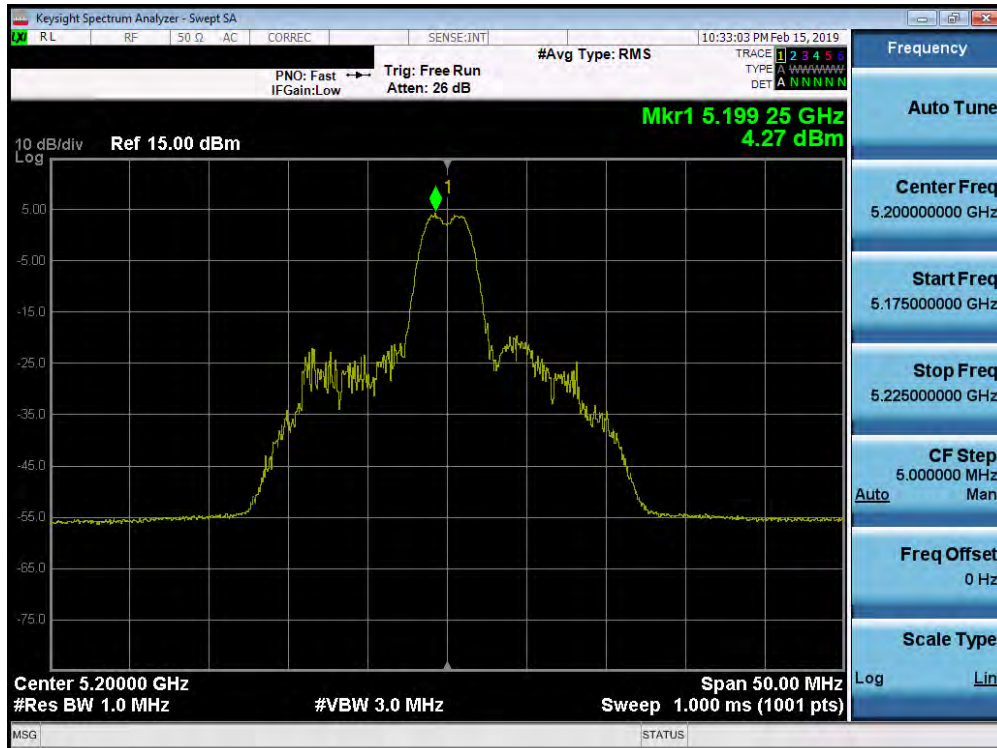
$$(5.88 \text{ dBm} + 6.27 \text{ dBm}) = (3.87 \text{ mW} + 4.24 \text{ mW}) = 8.11 \text{ mW} = 9.09 \text{ dBm}$$

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 168 of 285

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

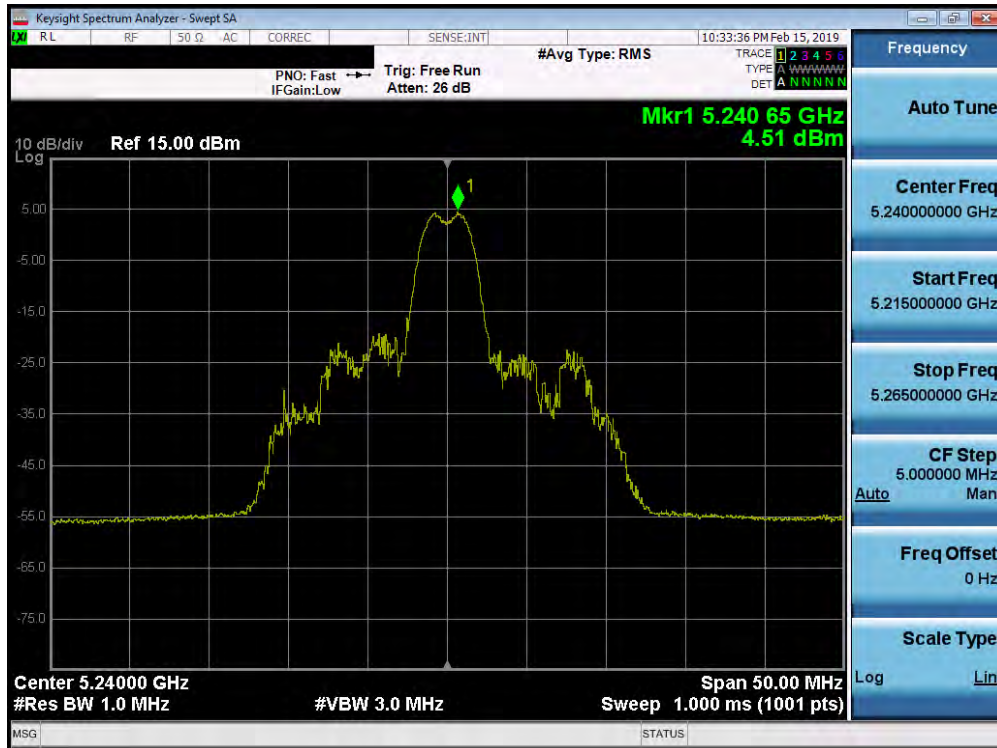


Plot 7-217. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

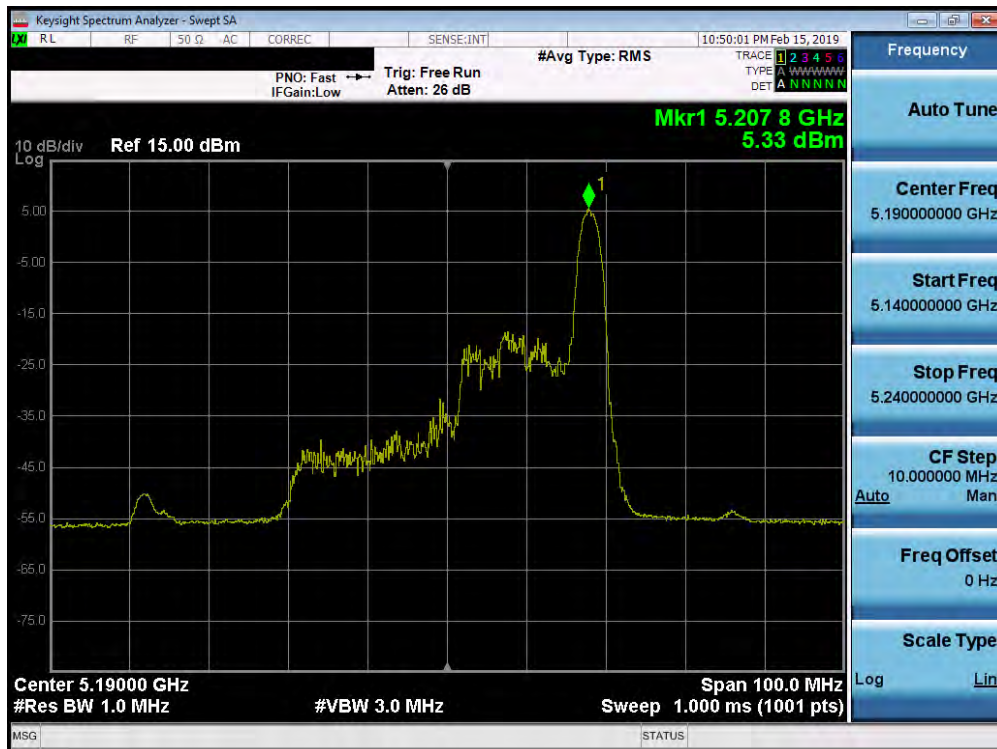


Plot 7-218. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 169 of 285

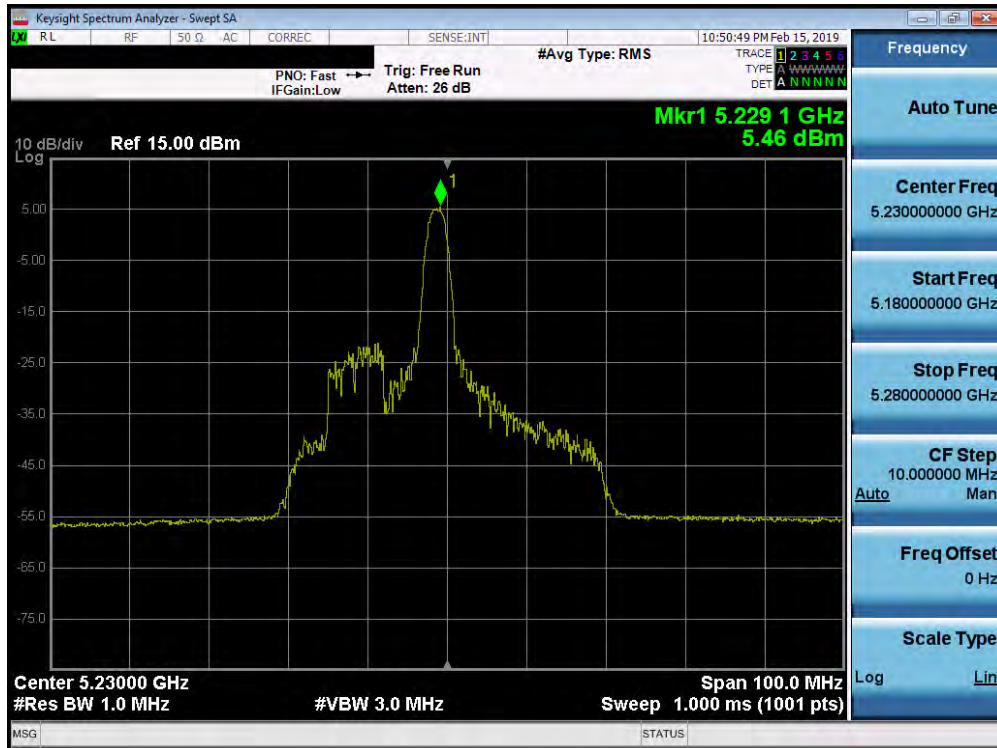


Plot 7-219. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

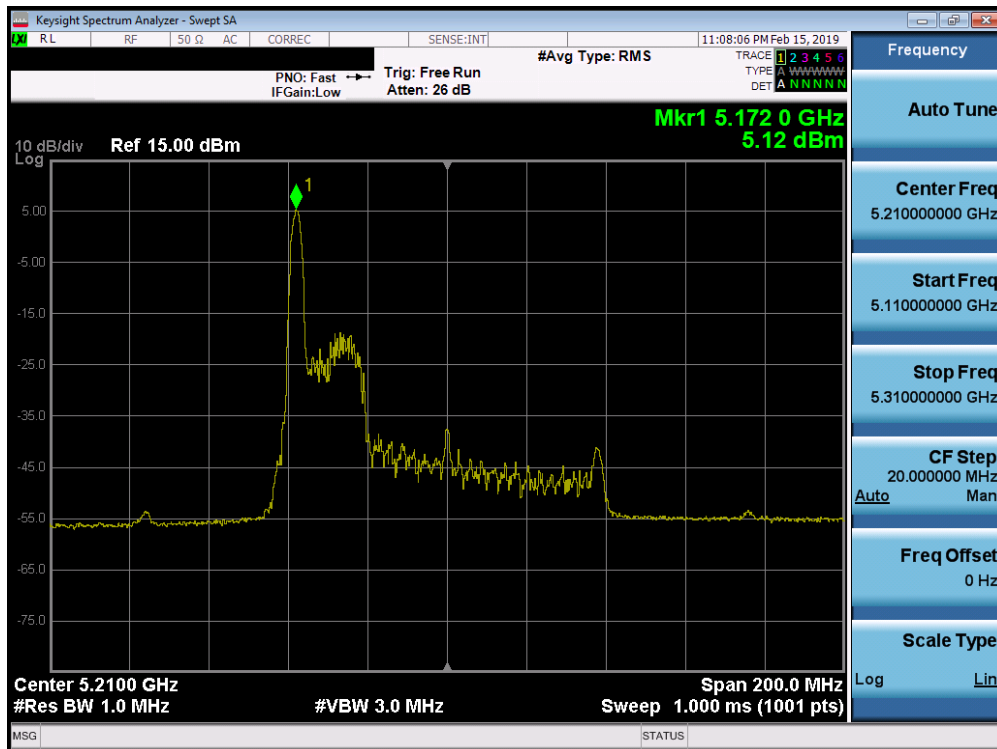


Plot 7-220. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 170 of 285

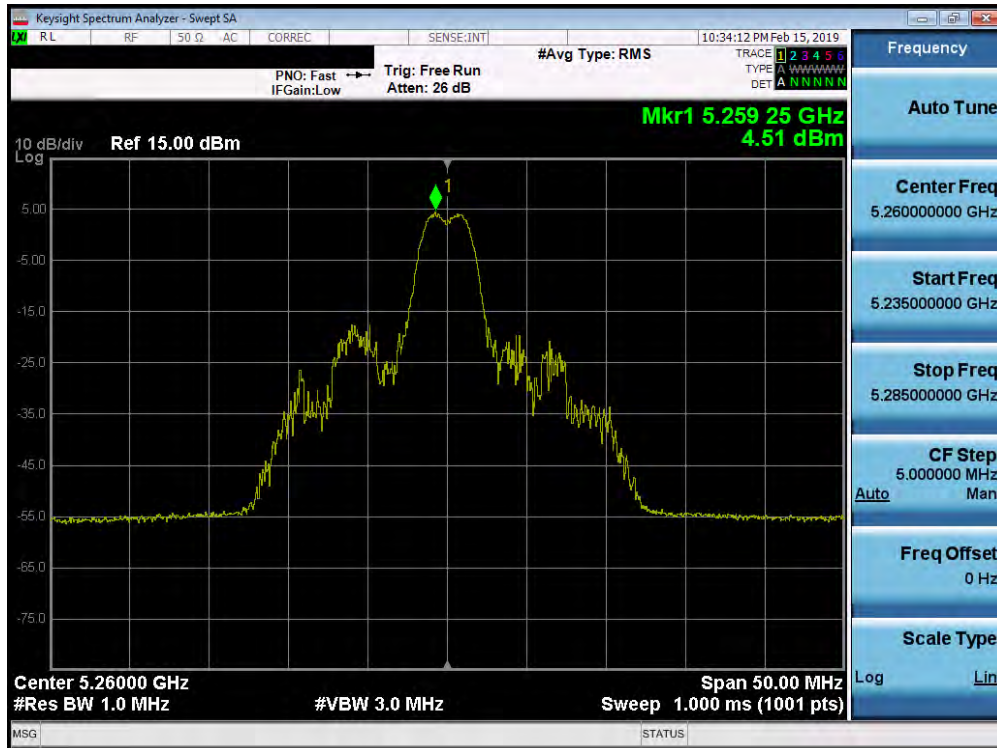


Plot 7-221. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

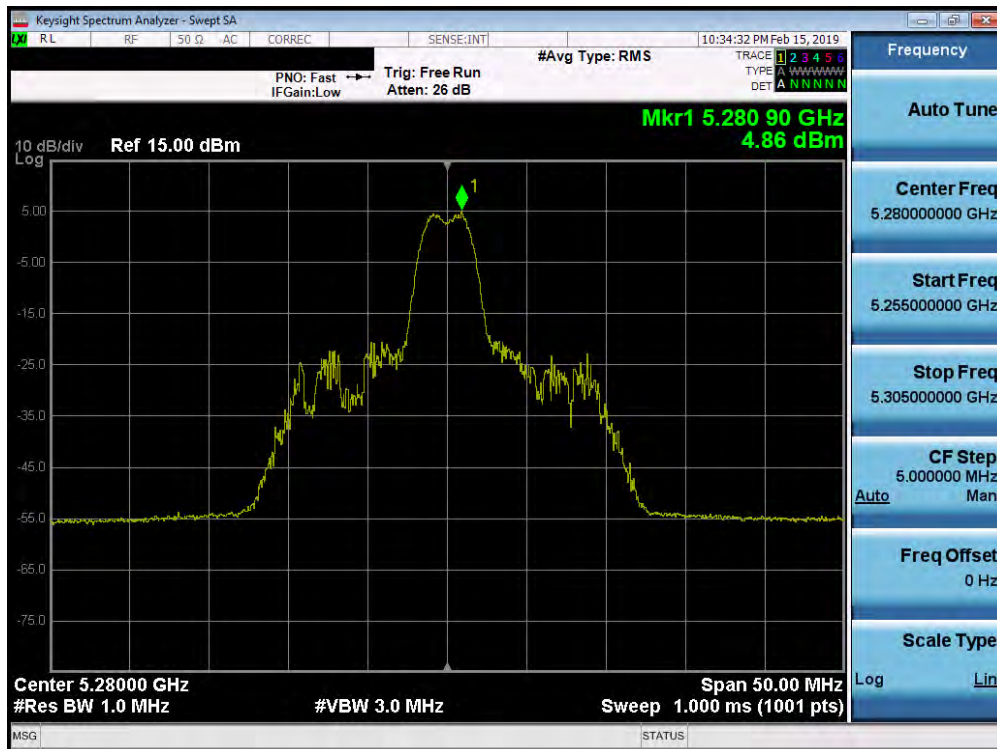


Plot 7-222. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 171 of 285

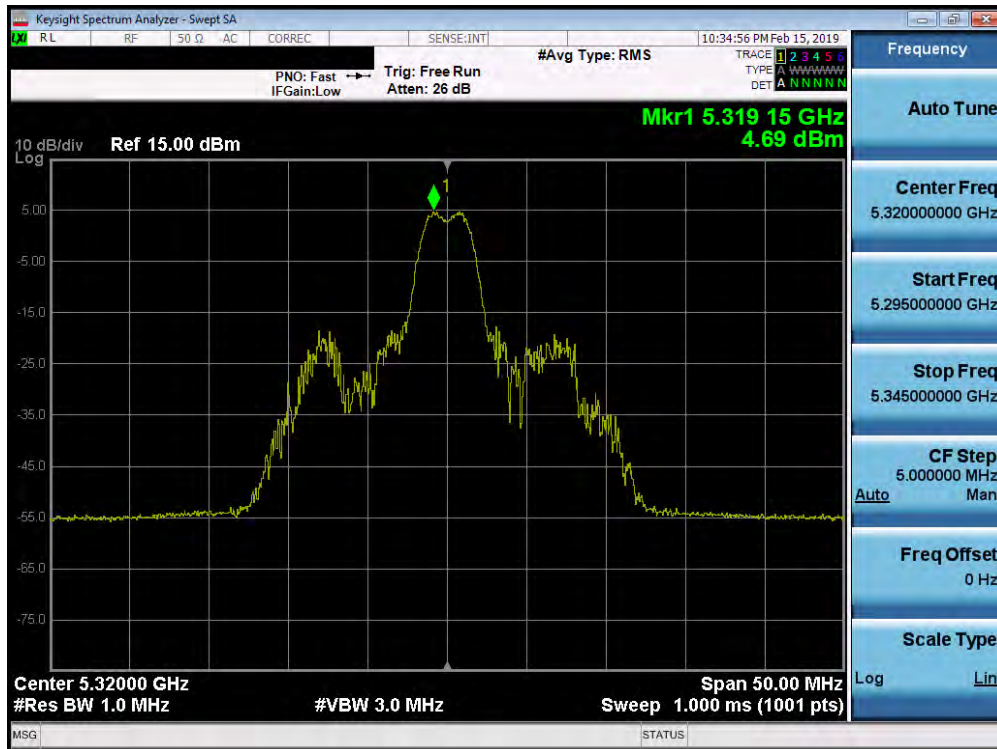


Plot 7-223. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 52)

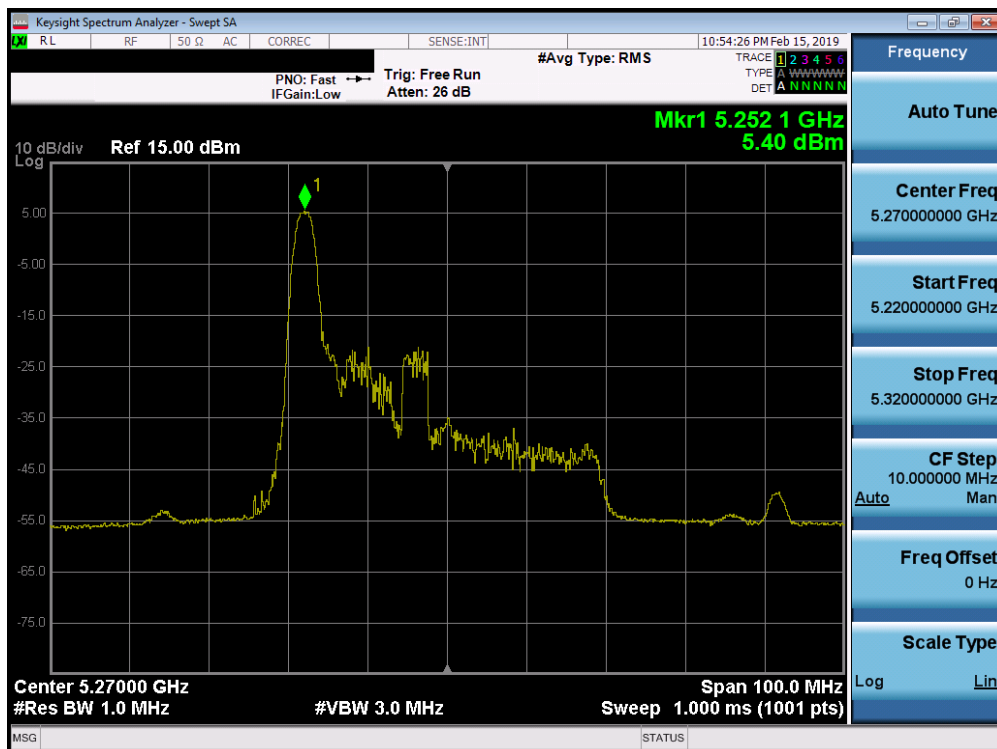


Plot 7-224. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 172 of 285

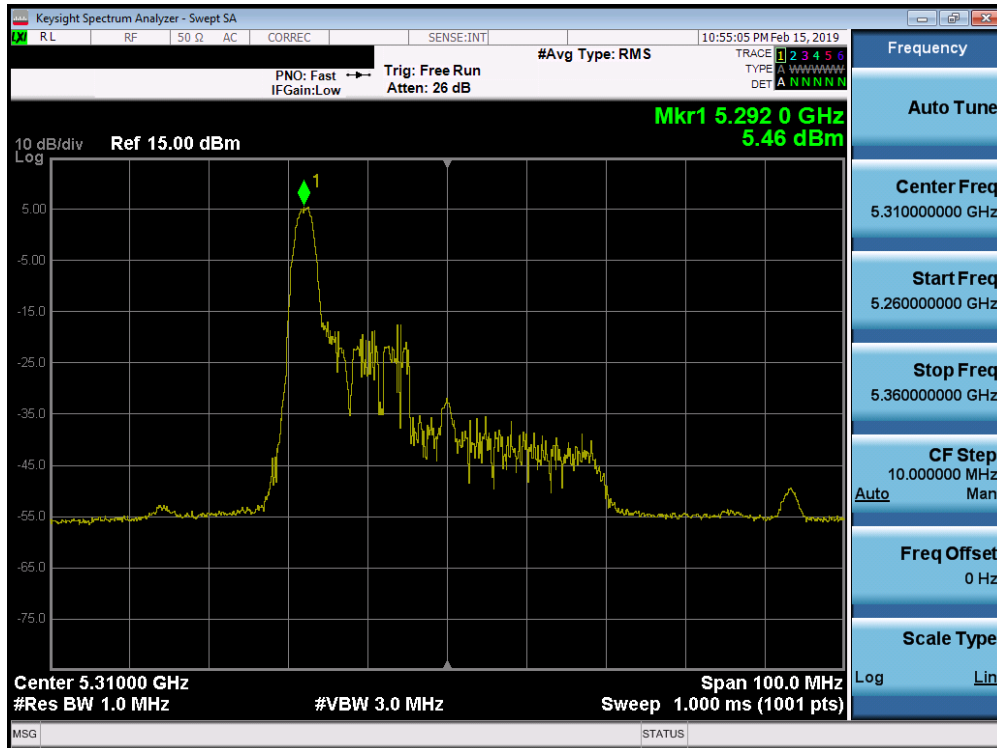


Plot 7-225. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)



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

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 173 of 285

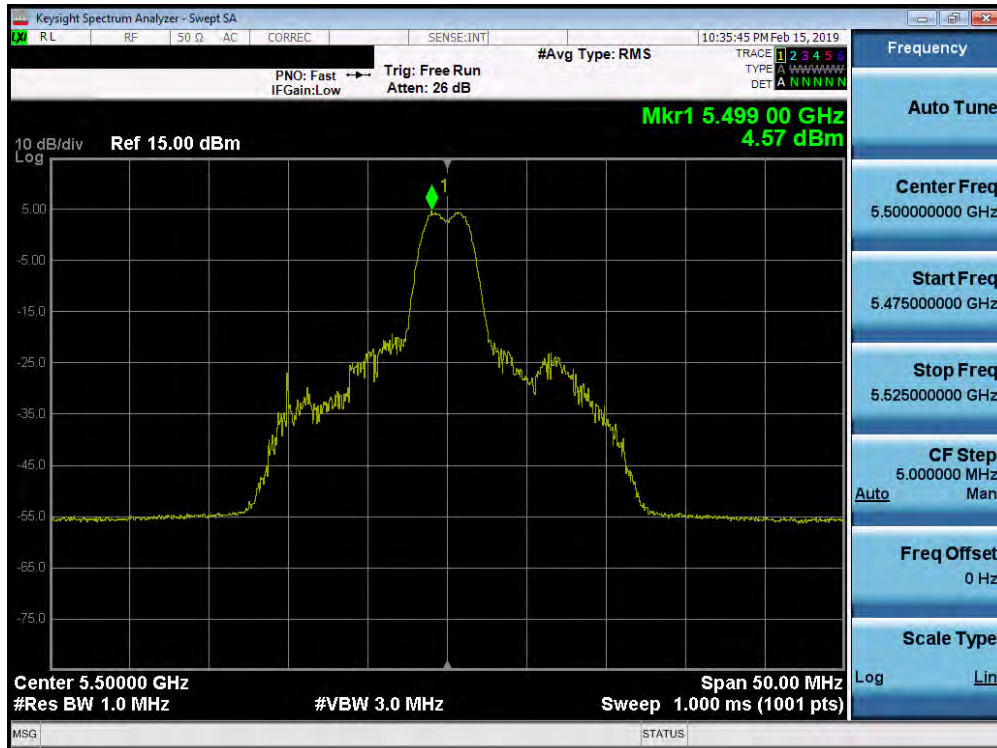


Plot 7-227. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

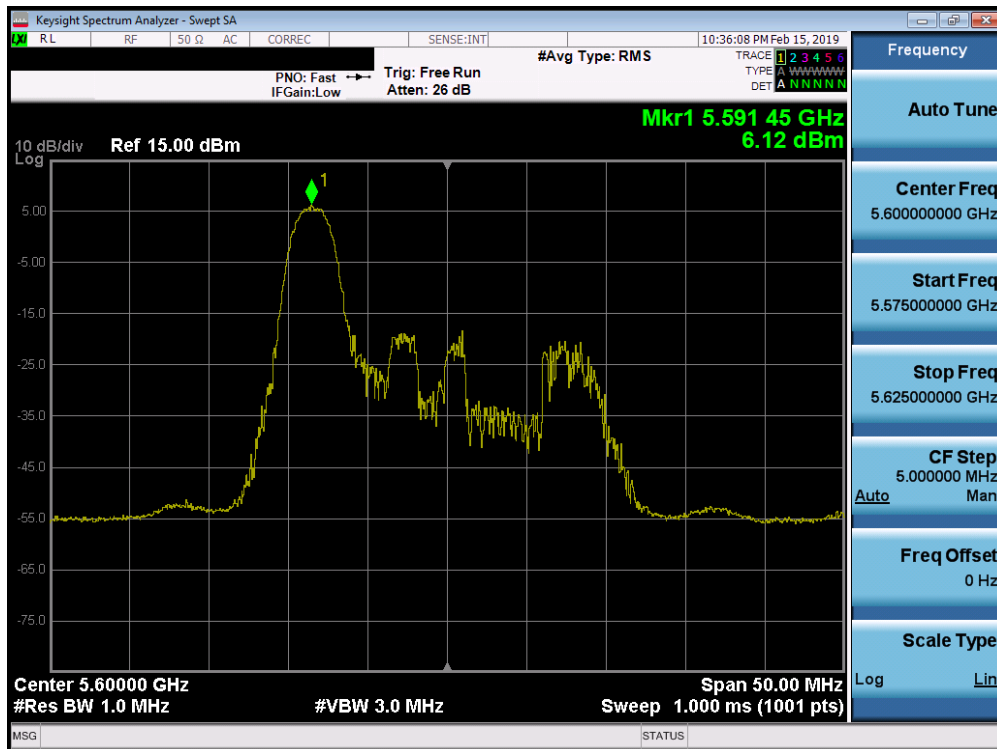


Plot 7-228. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 174 of 285

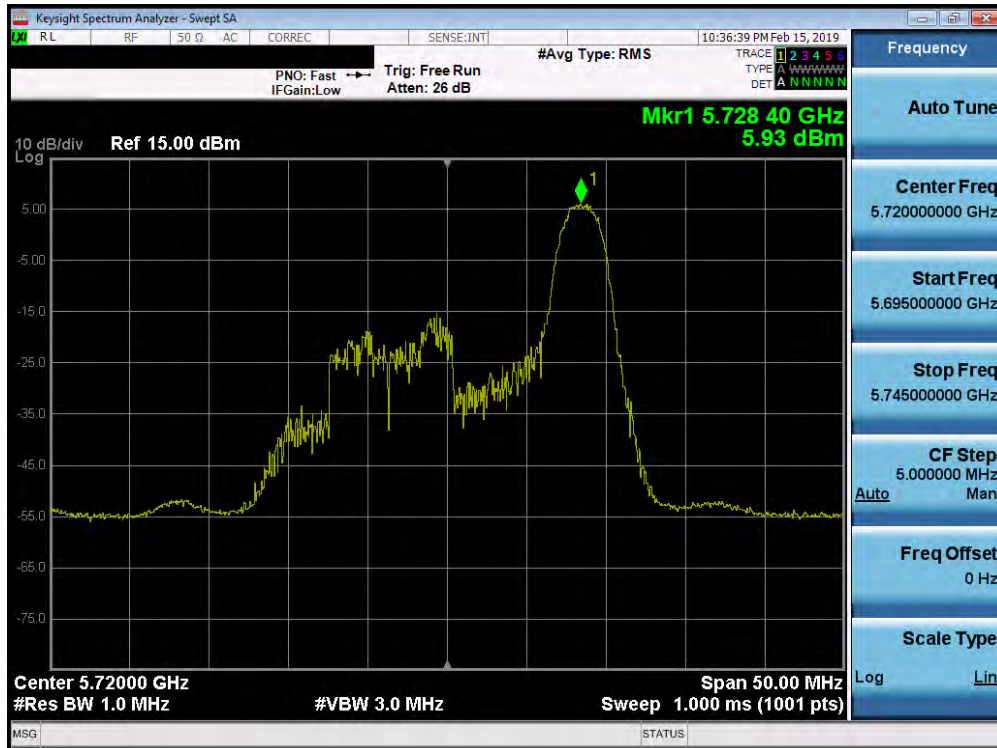


Plot 7-229. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

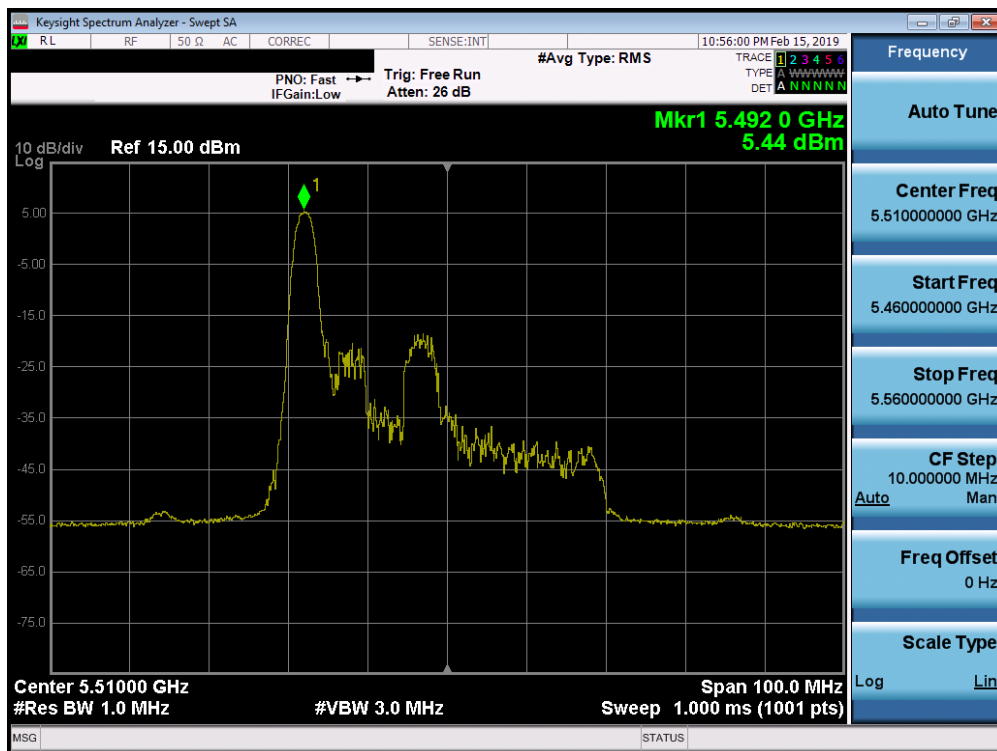


Plot 7-230. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 175 of 285

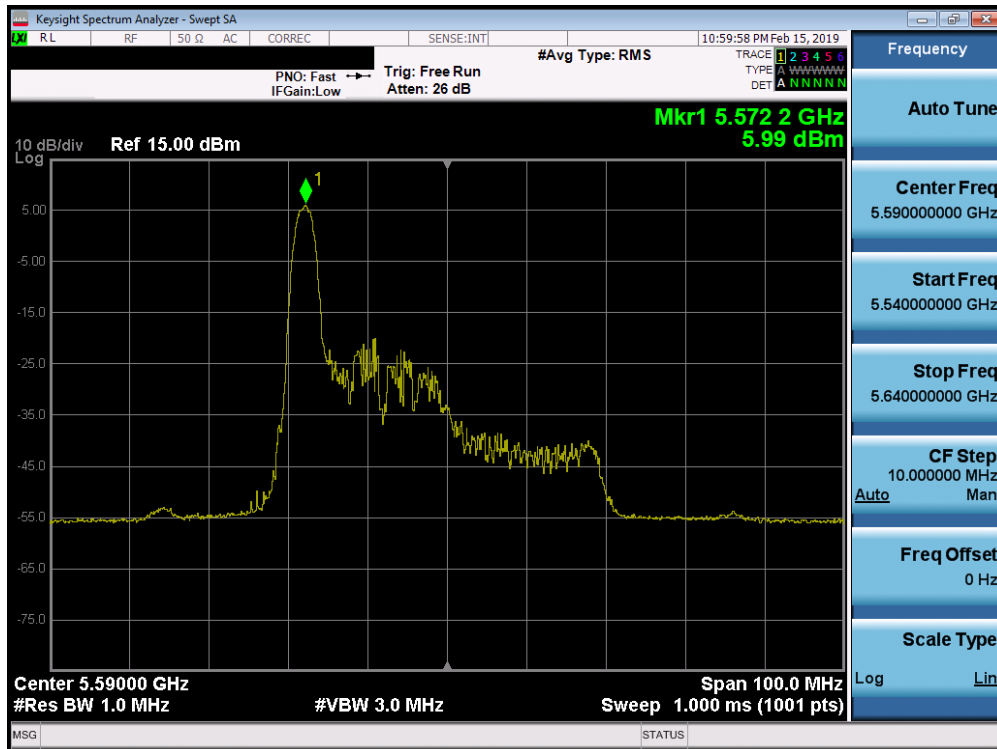


Plot 7-231. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

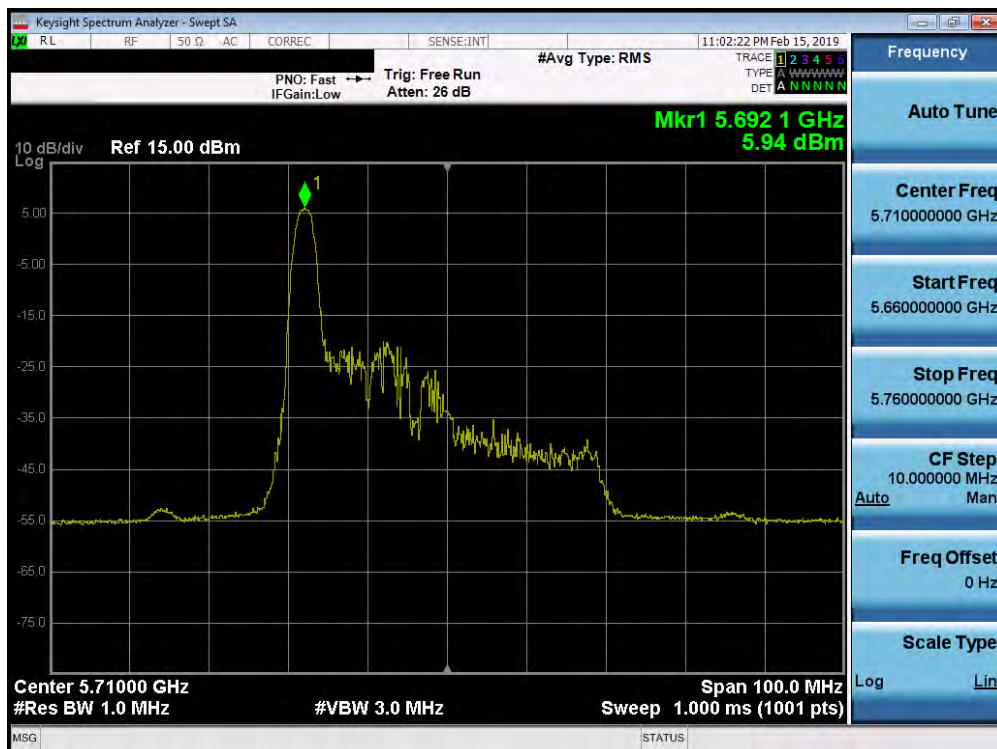


Plot 7-232. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 176 of 285

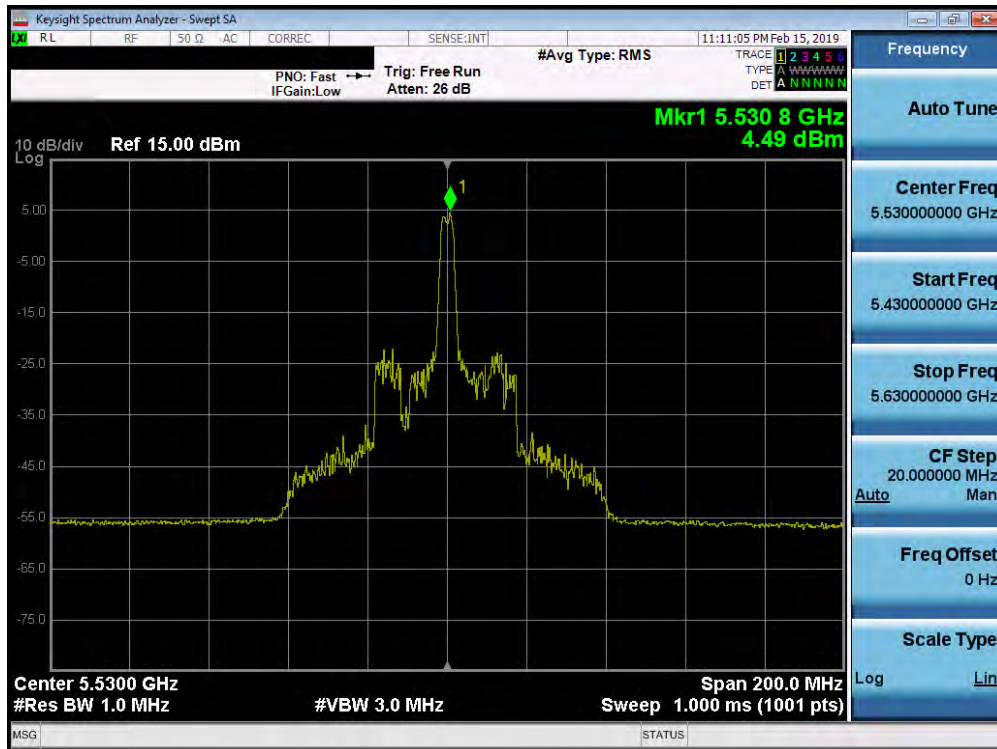


Plot 7-233. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

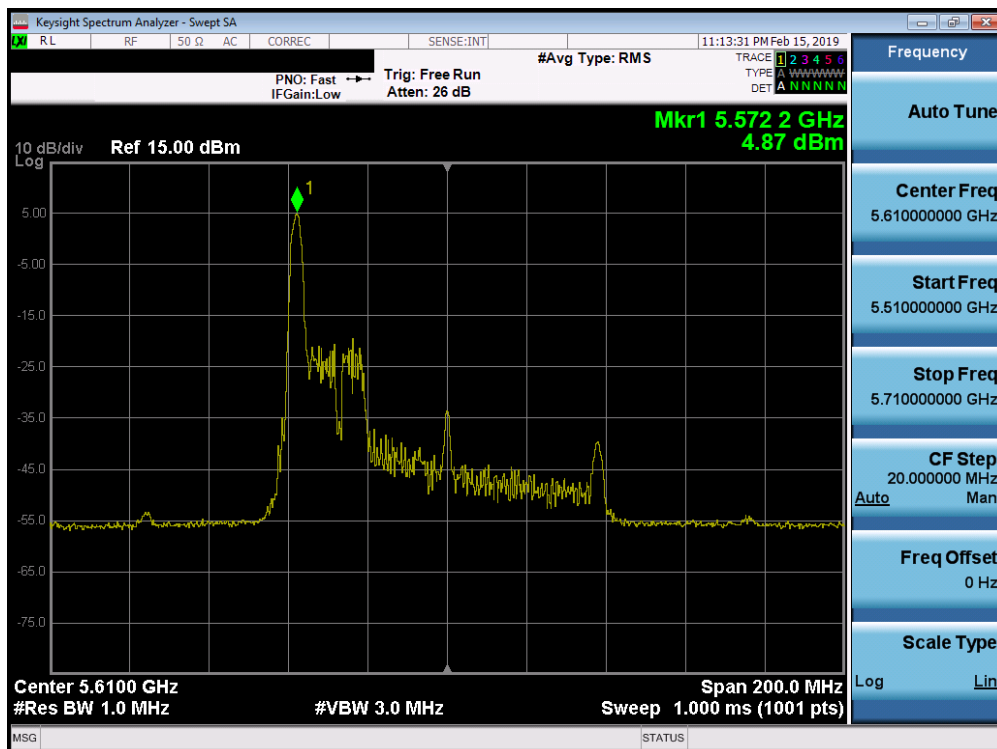


Plot 7-234. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 177 of 285

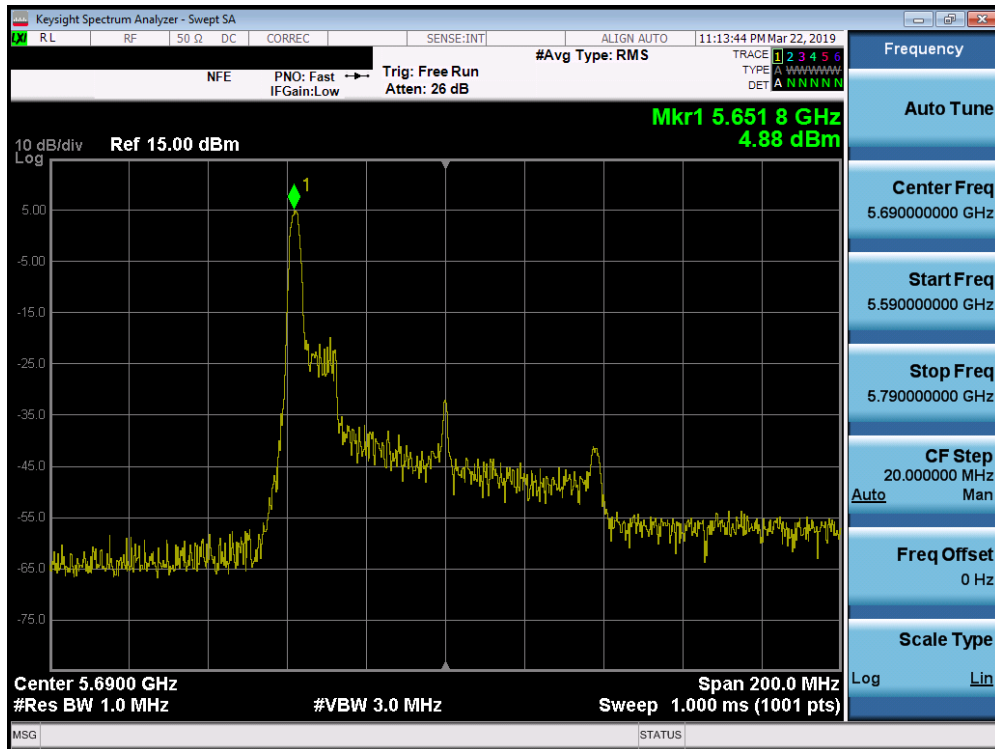


Plot 7-235. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



Plot 7-236. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 178 of 285



Plot 7-237. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

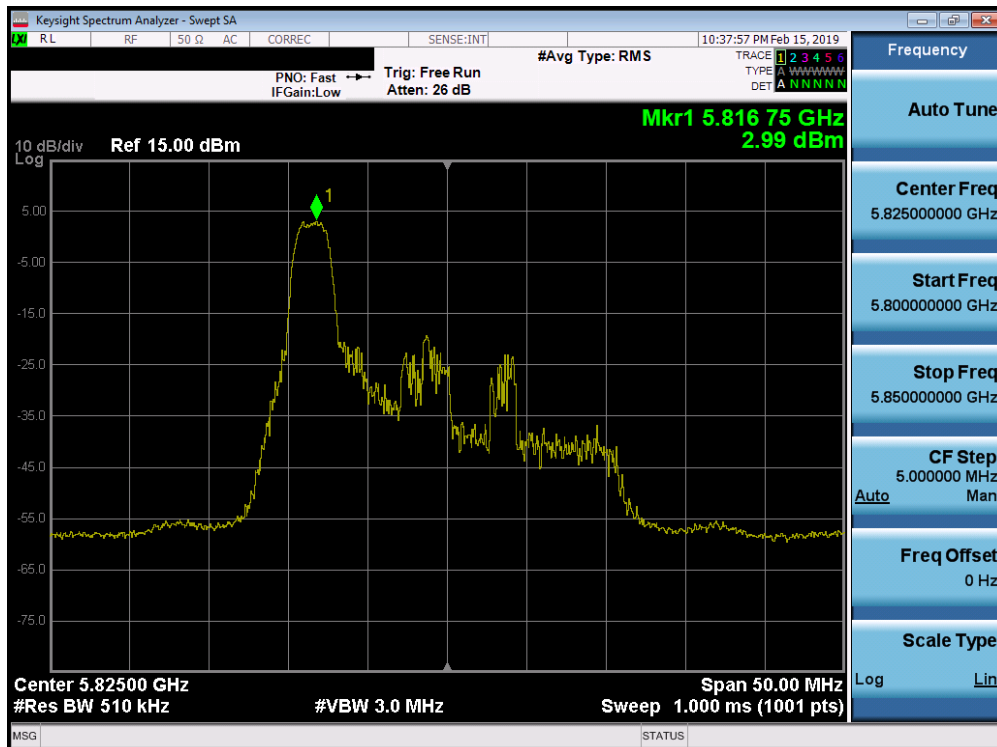


Plot 7-238. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 179 of 285

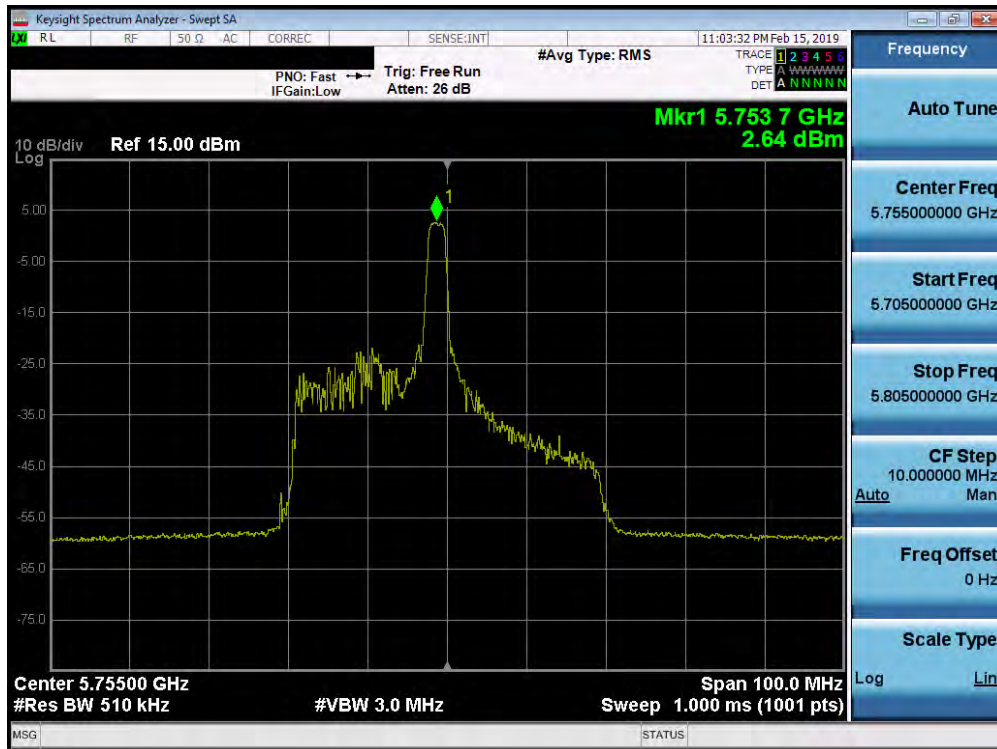


Plot 7-239. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

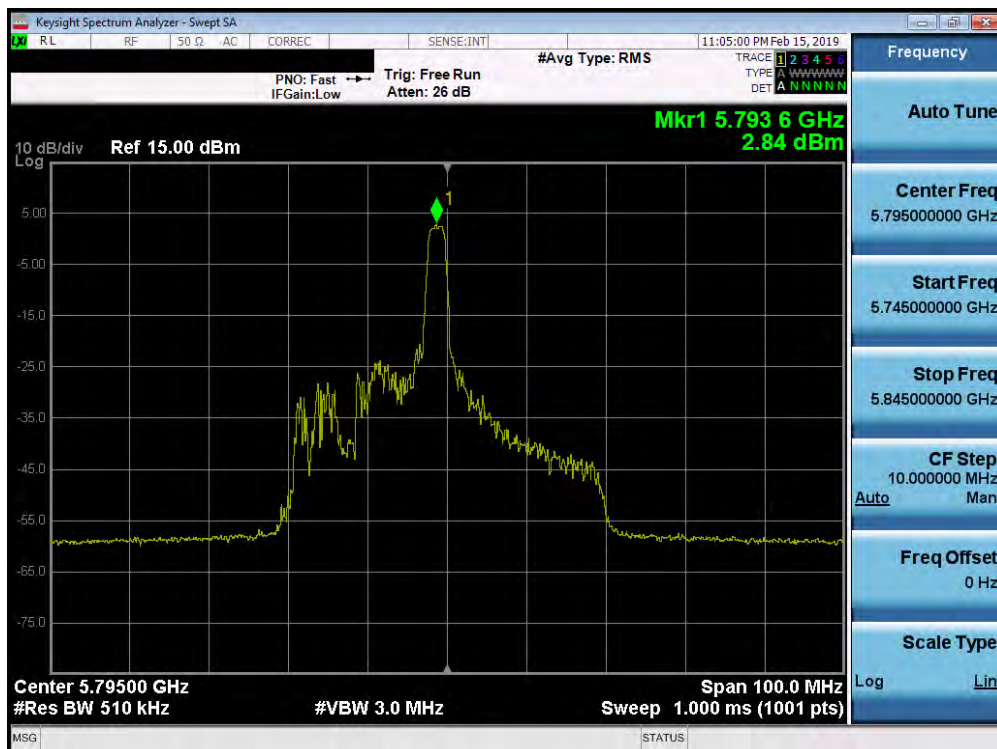


Plot 7-240. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 180 of 285

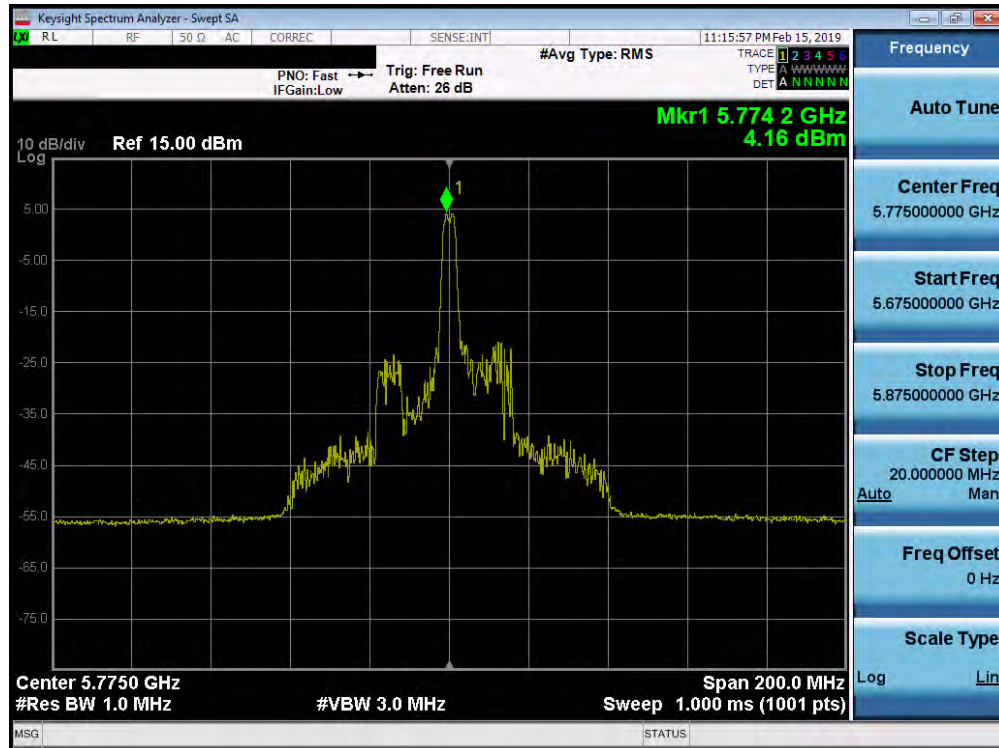


Plot 7-241. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-242. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

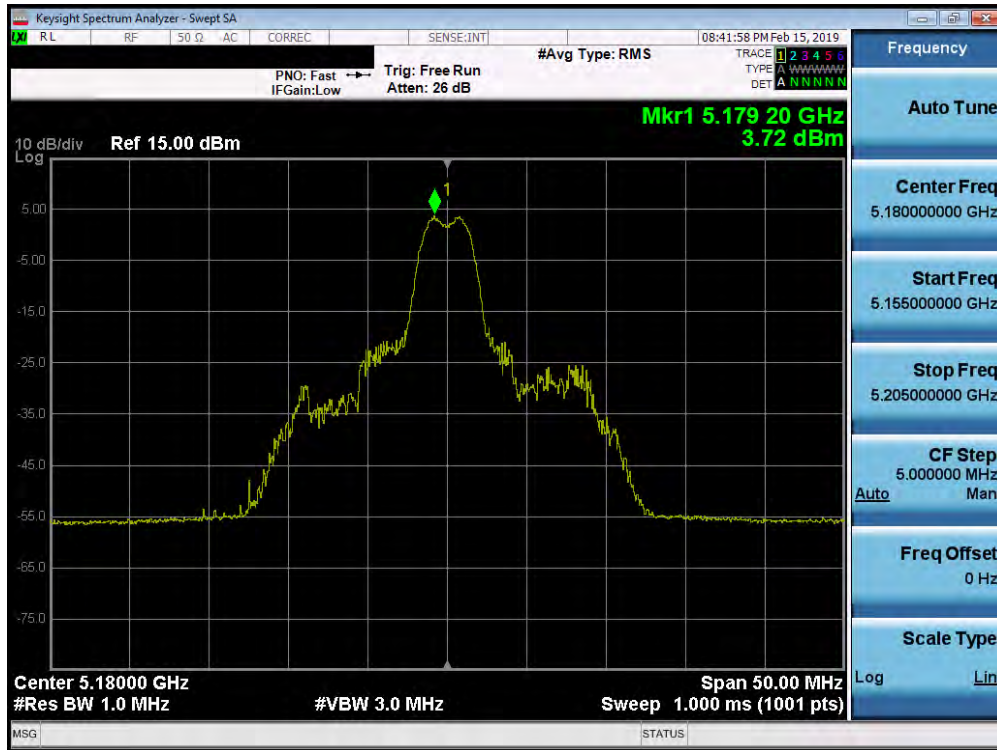
FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 181 of 285



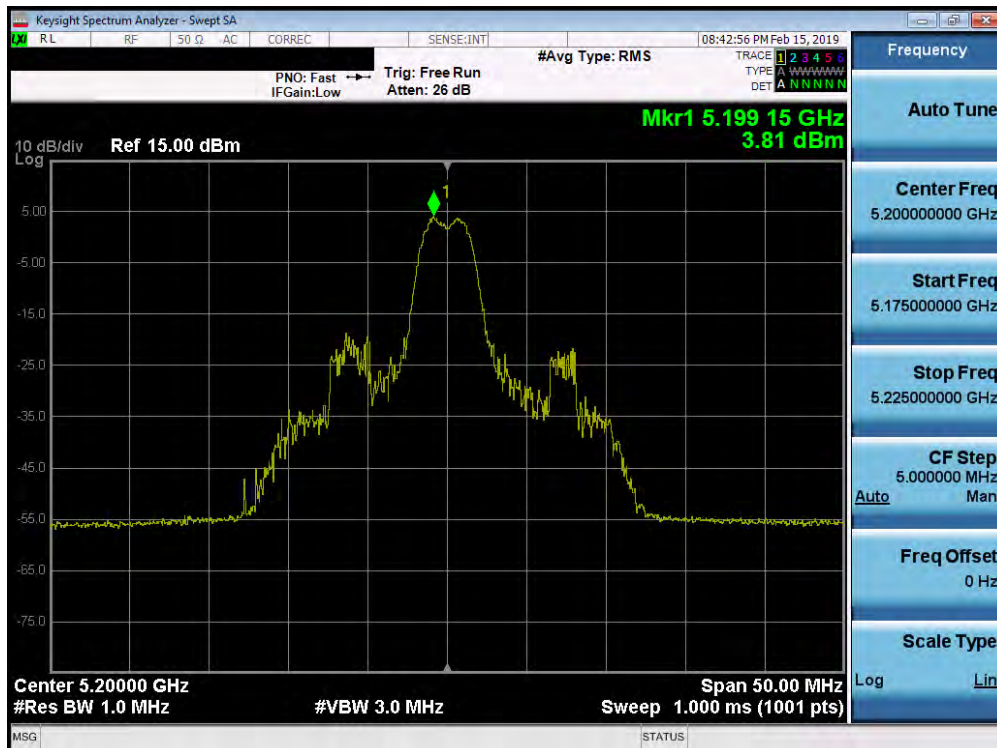
Plot 7-243. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 182 of 285

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

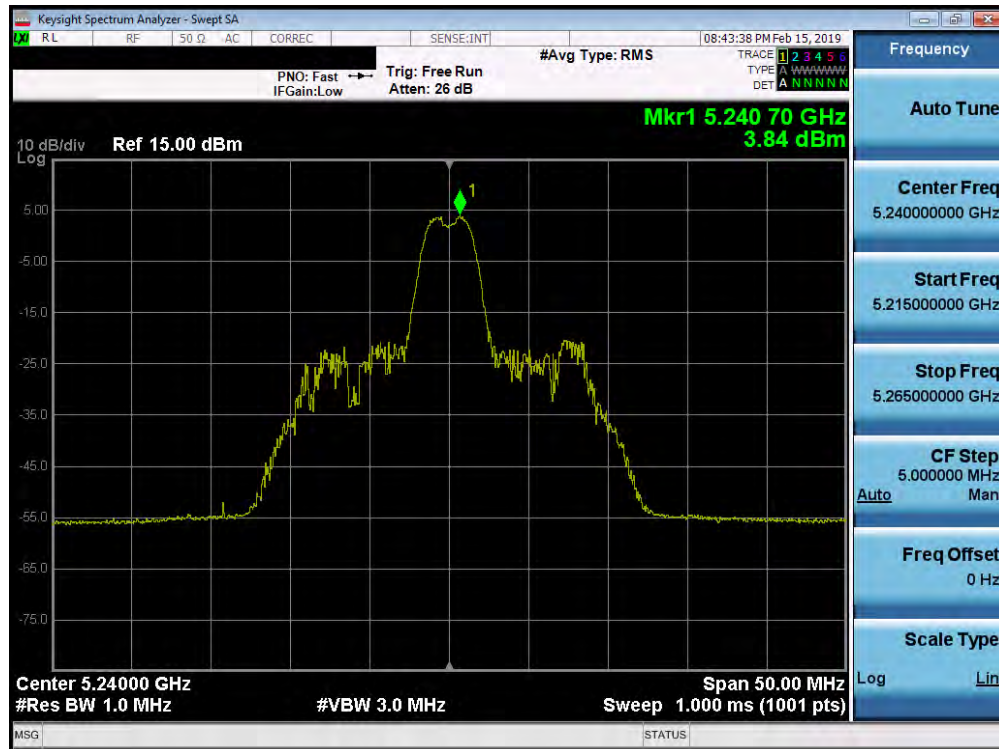


Plot 7-244. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

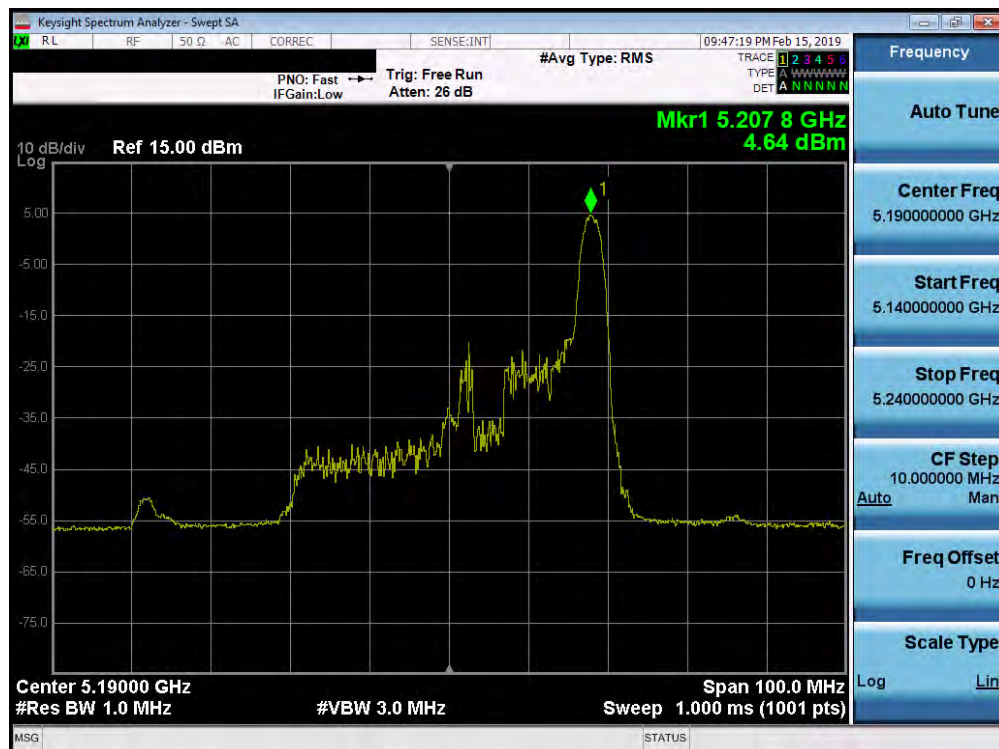


Plot 7-245. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 183 of 285

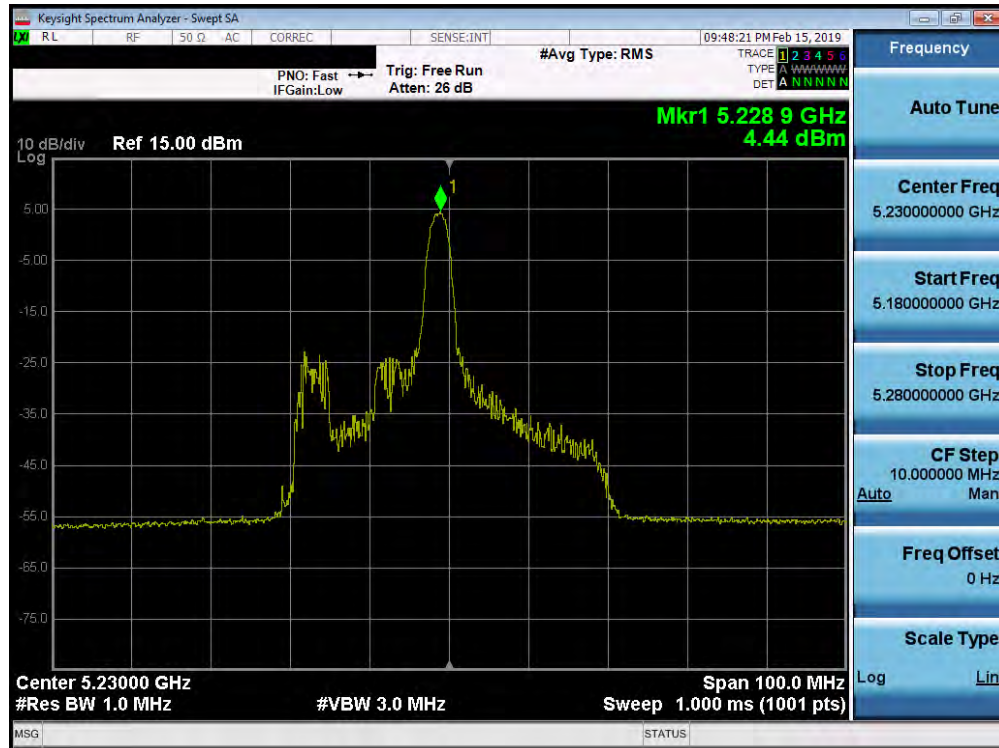


Plot 7-246. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

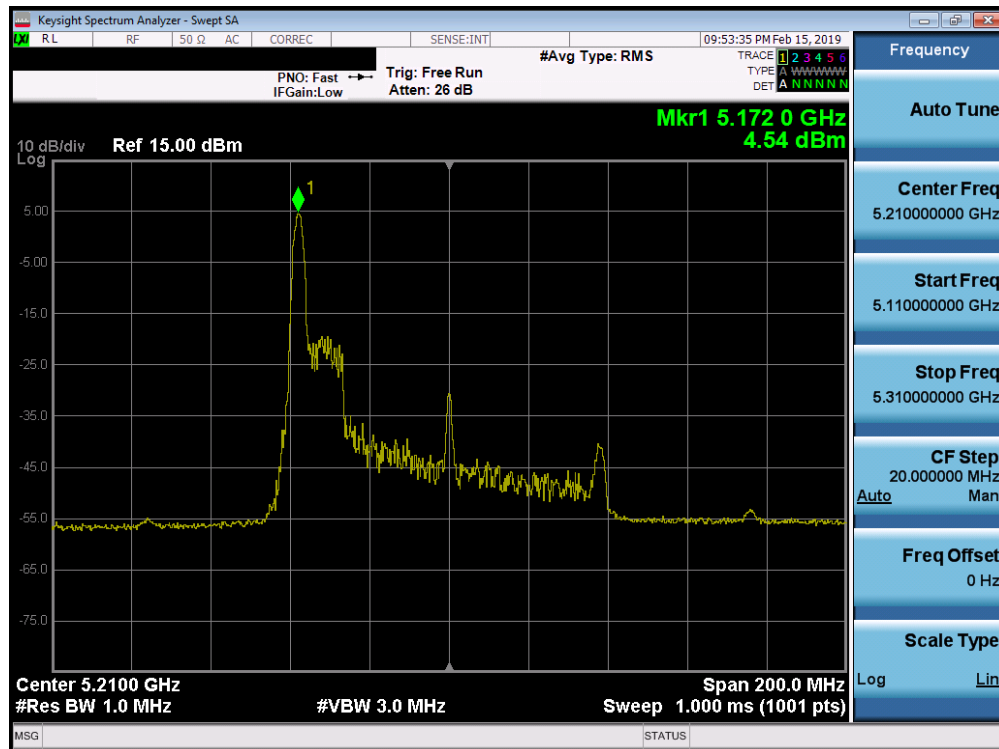


Plot 7-247. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 184 of 285

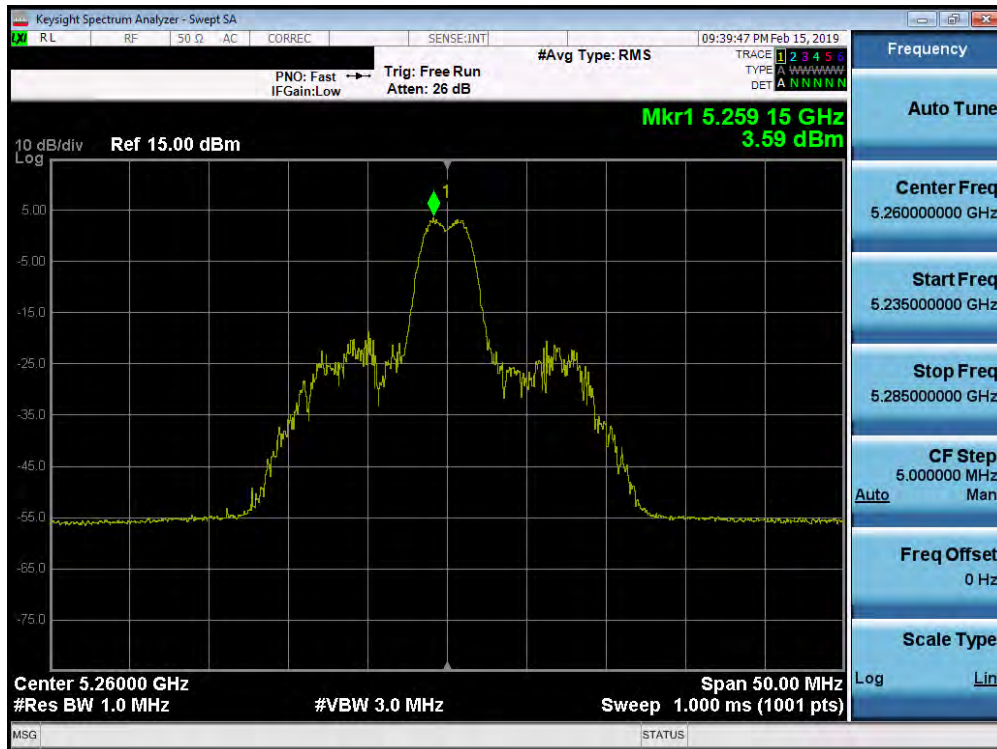


Plot 7-248. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

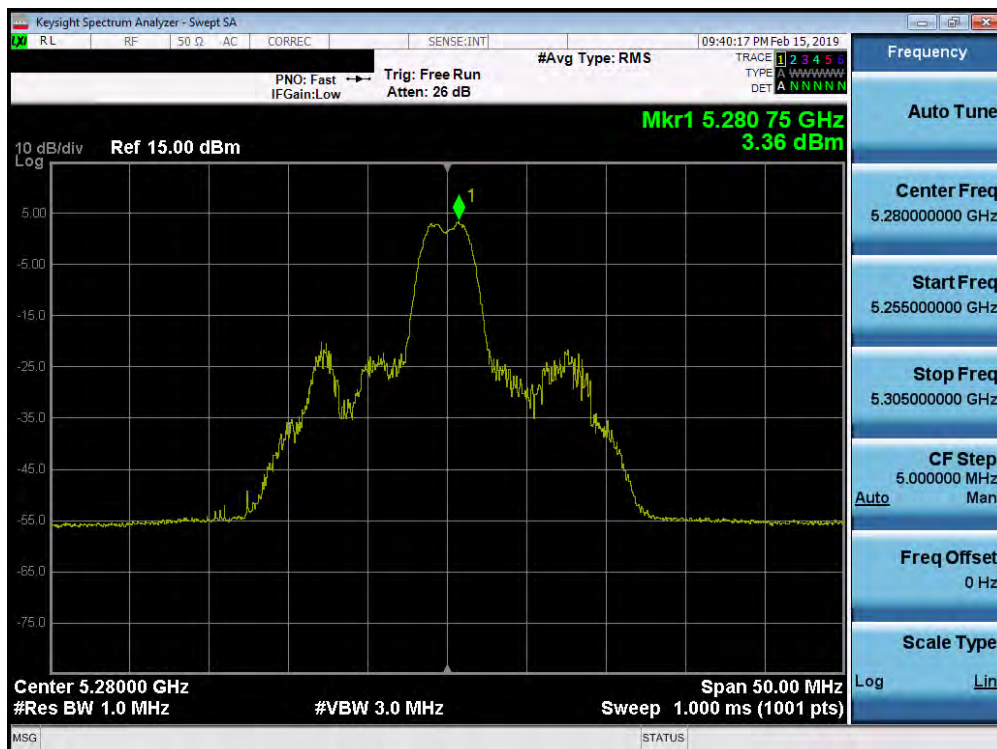


Plot 7-249. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 185 of 285

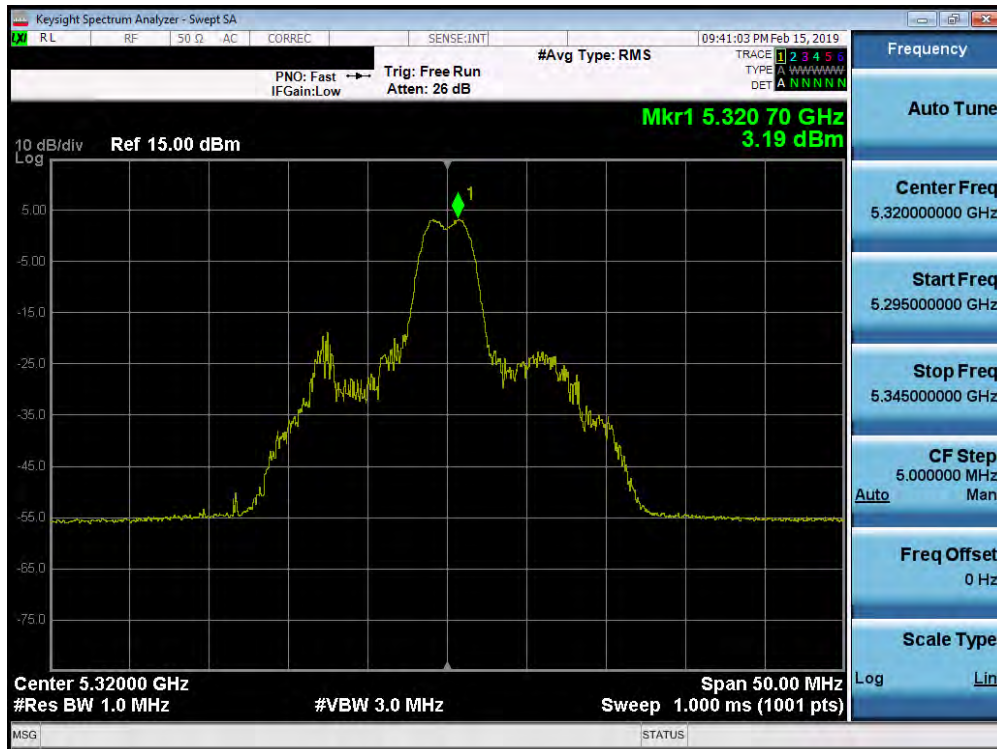


Plot 7-250. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

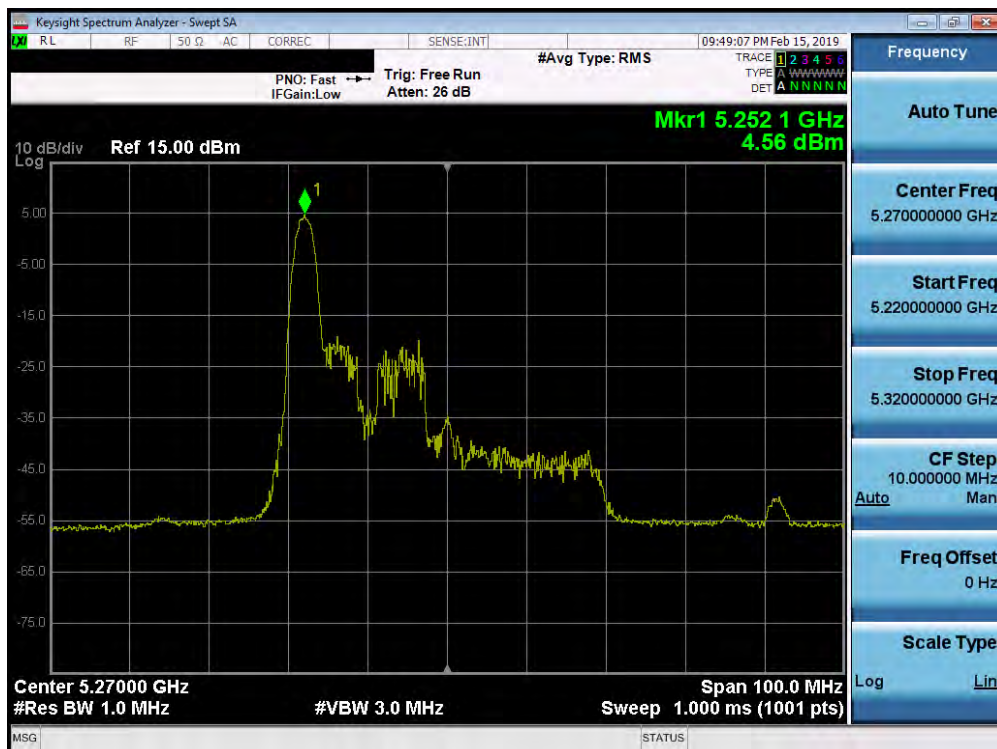


Plot 7-251. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 186 of 285

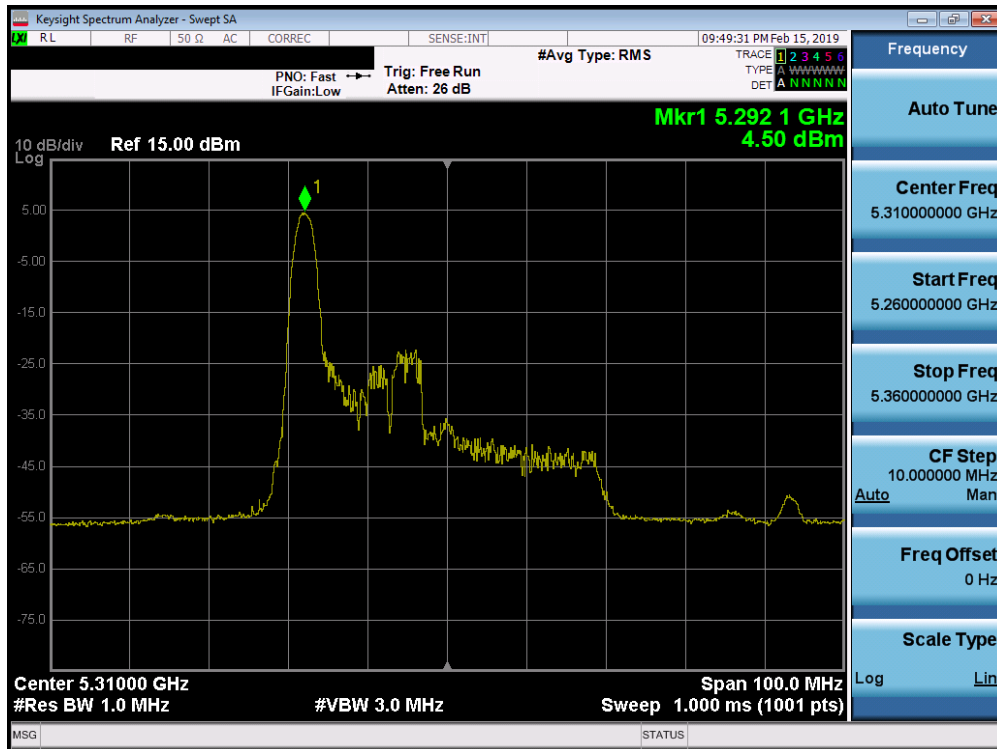


Plot 7-252. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

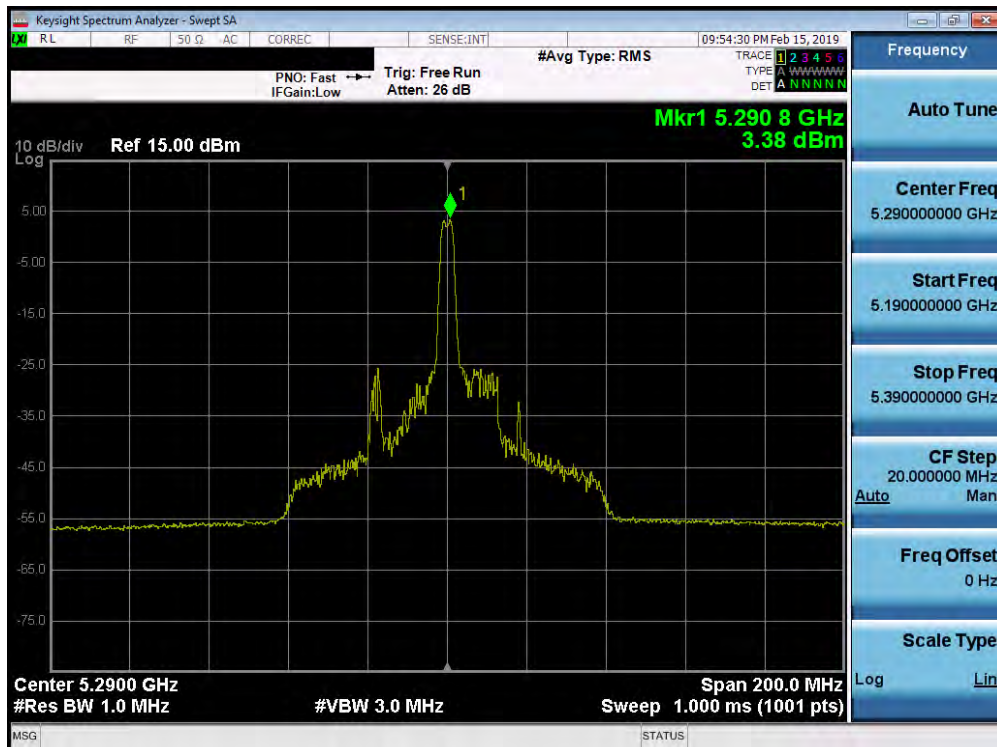


Plot 7-253. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 187 of 285

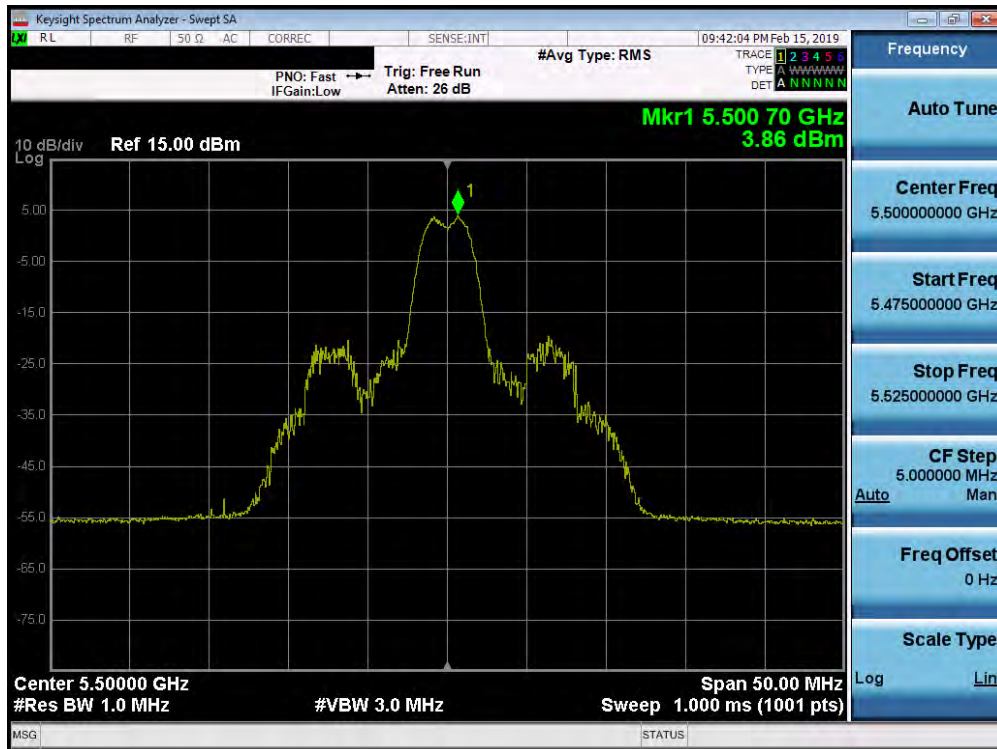


Plot 7-254. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 62)

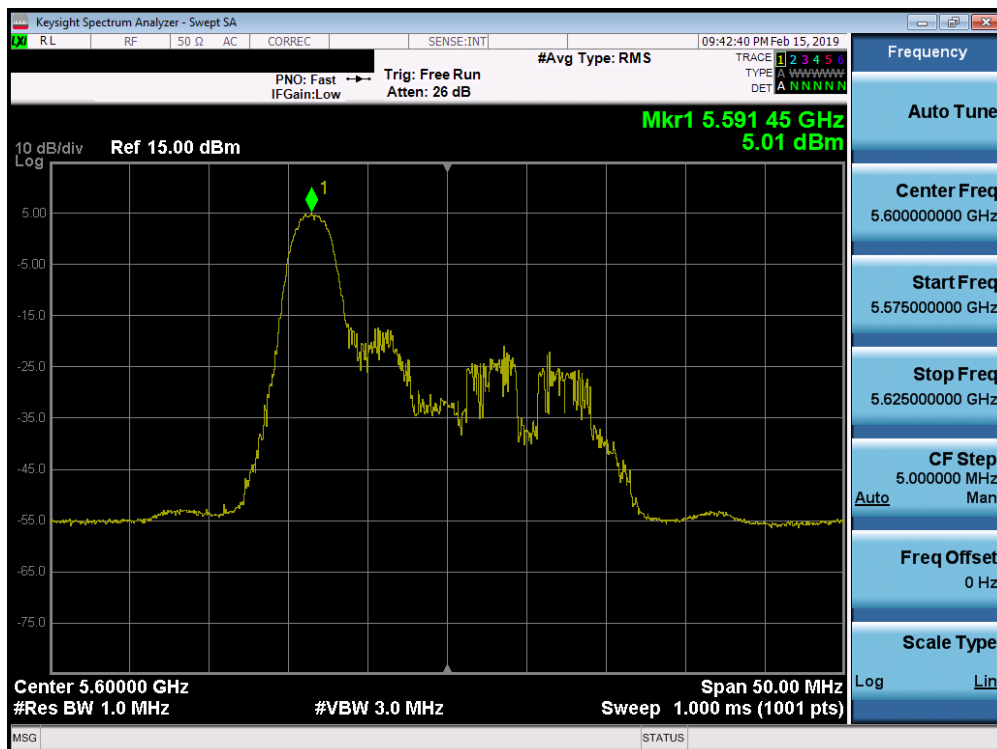


Plot 7-255. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 188 of 285

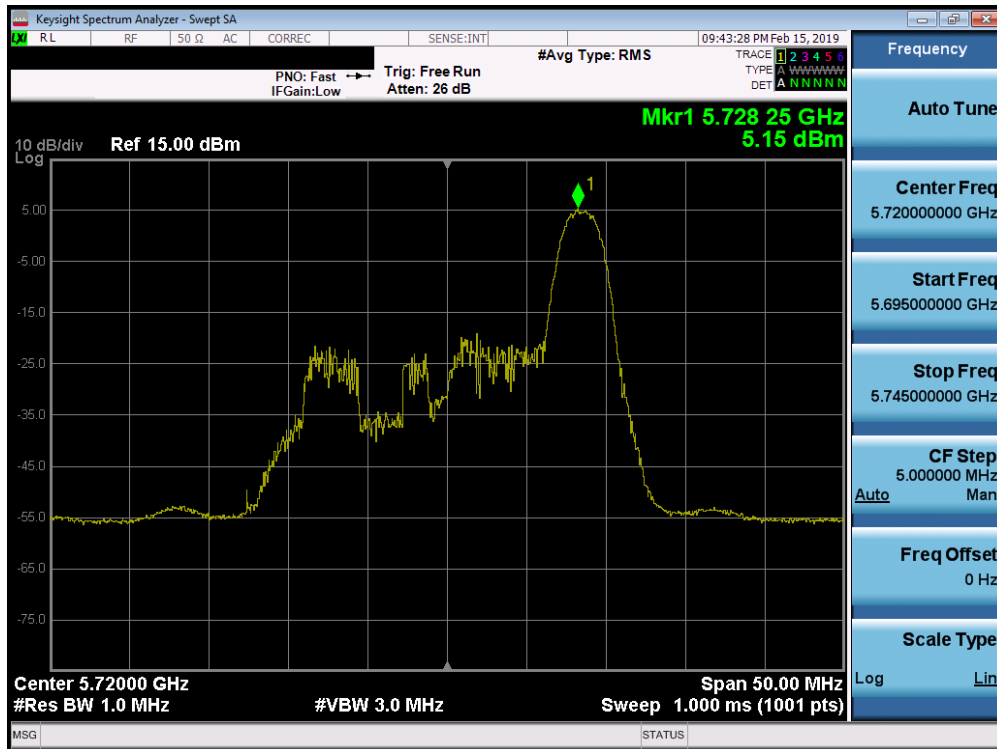


Plot 7-256. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

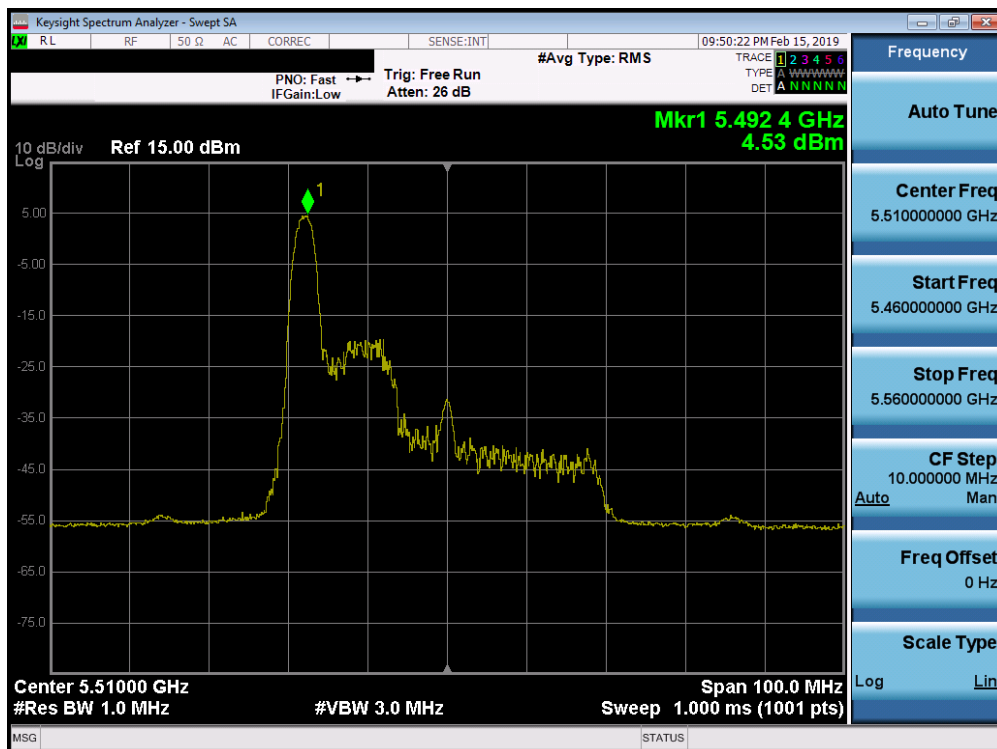


Plot 7-257. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 189 of 285

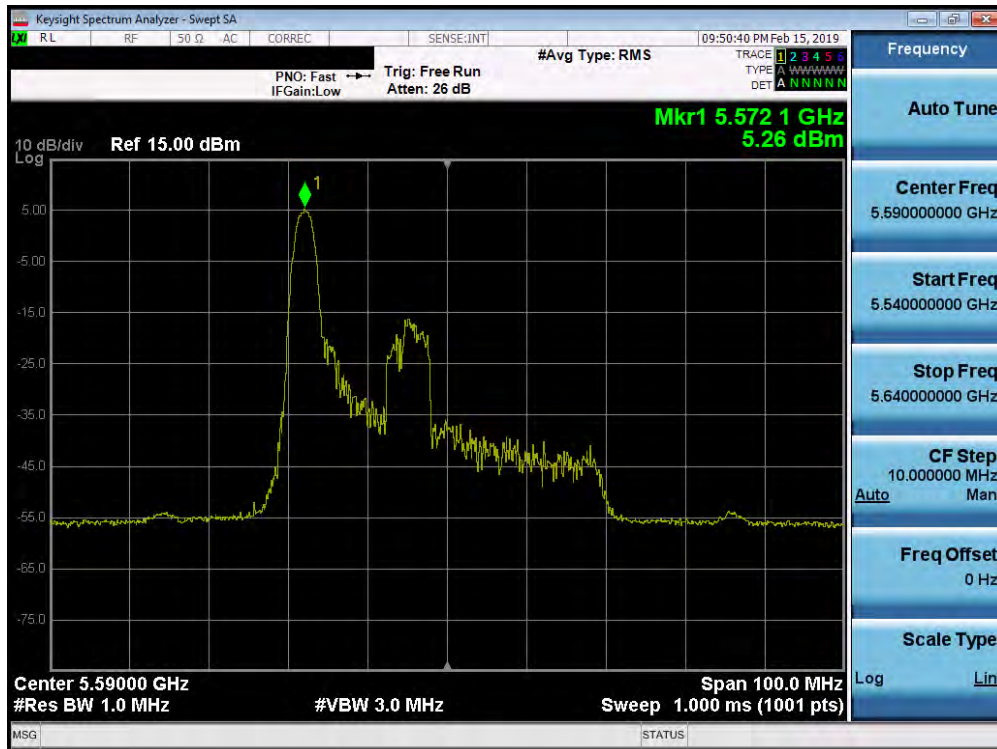


Plot 7-258. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

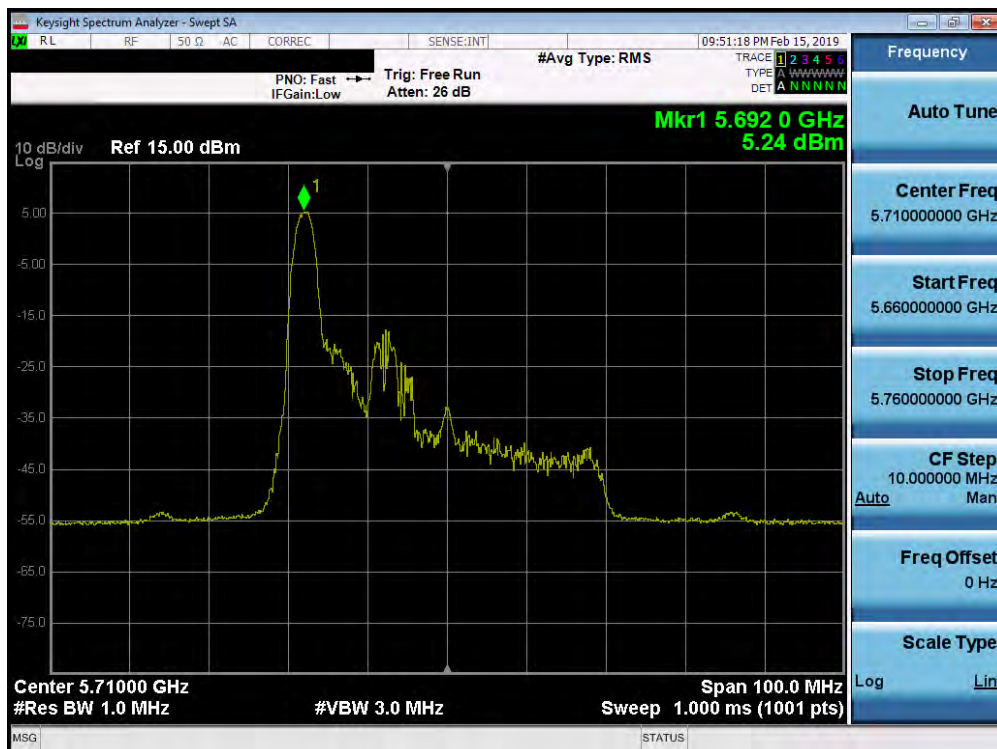


Plot 7-259. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 190 of 285

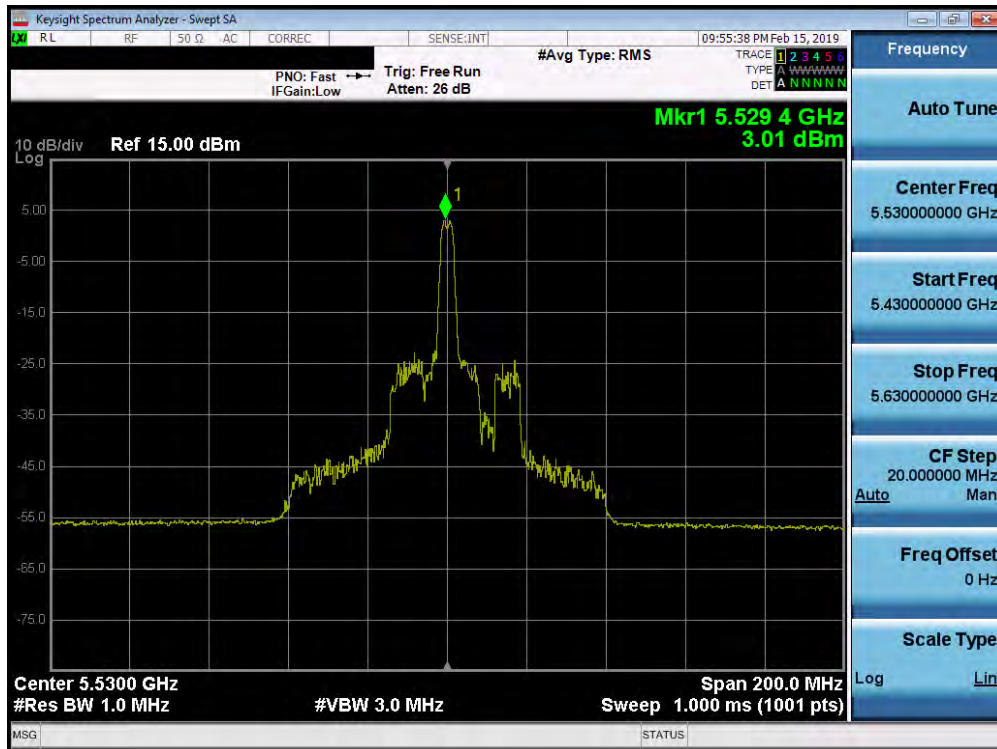


Plot 7-260. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

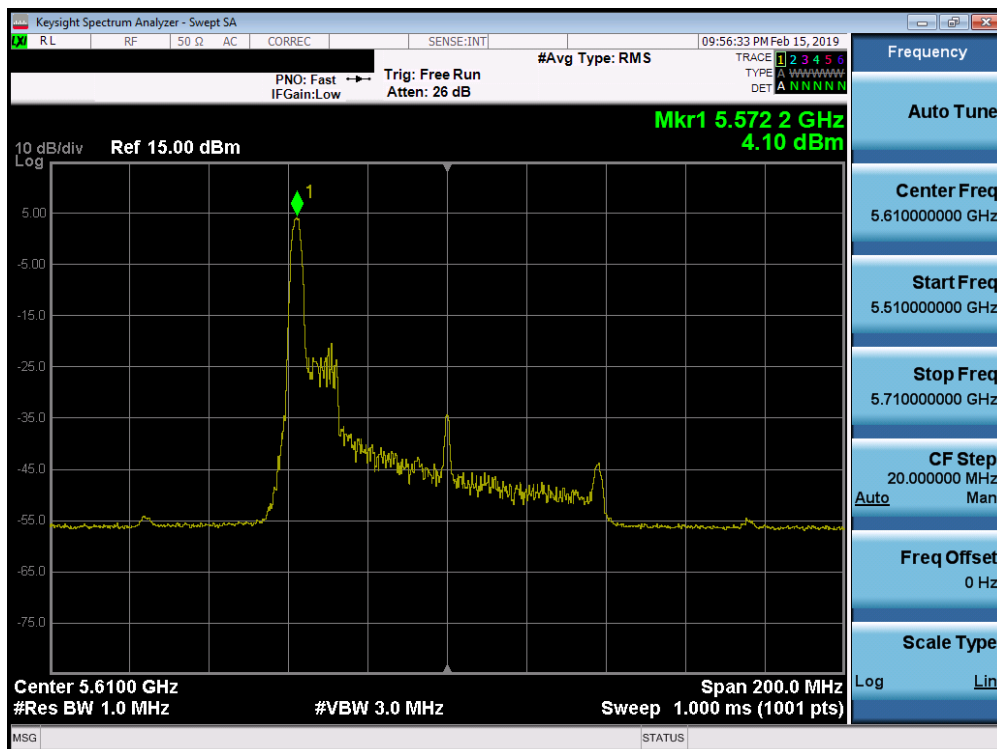


Plot 7-261. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG977T	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 191 of 285

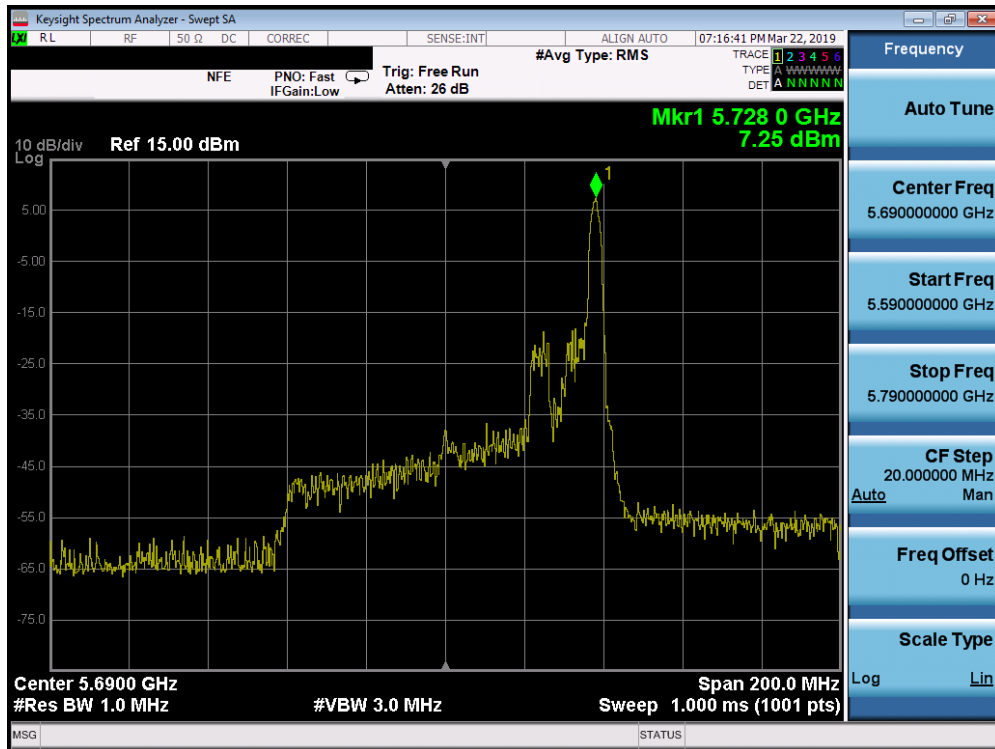


Plot 7-262. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)

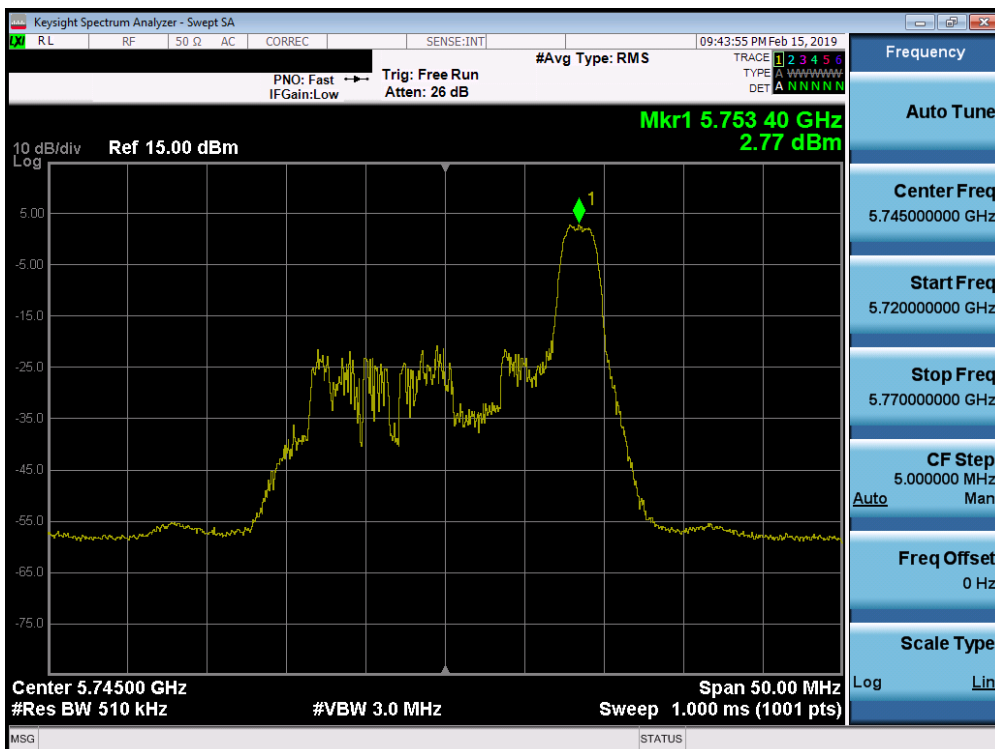


Plot 7-263. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 192 of 285

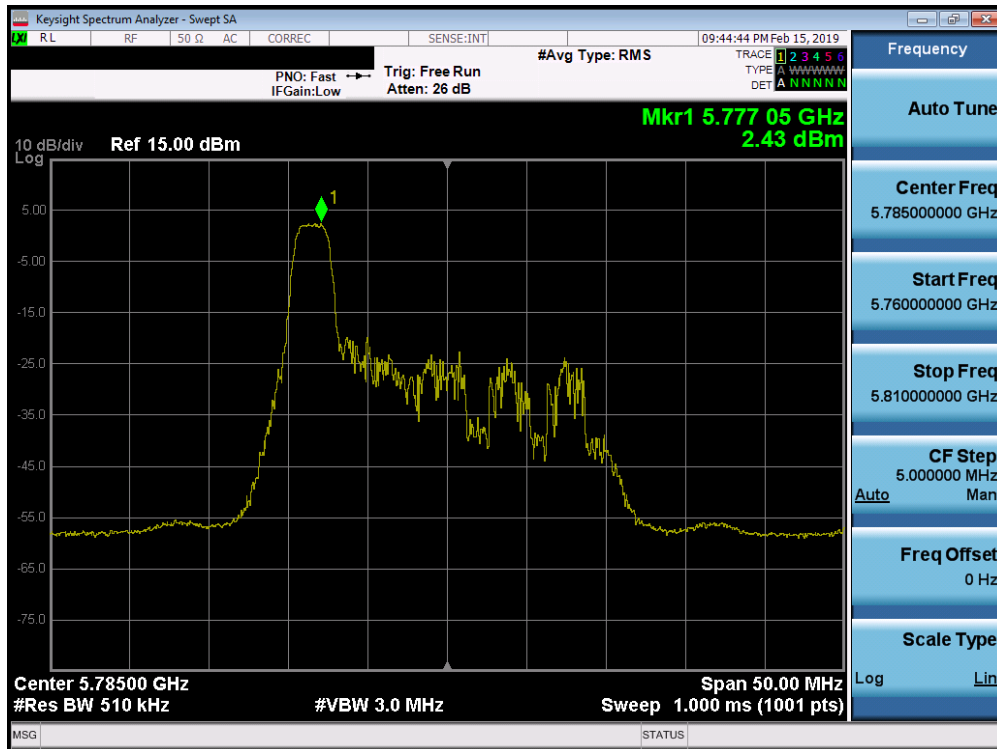


Plot 7-264. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

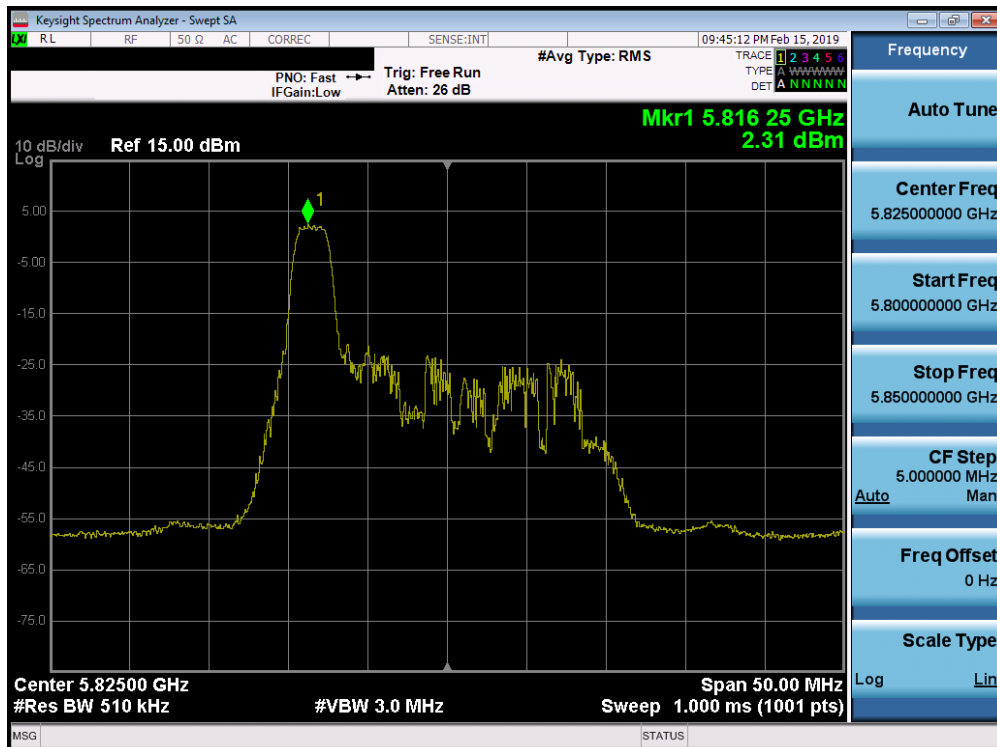


Plot 7-265. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 193 of 285

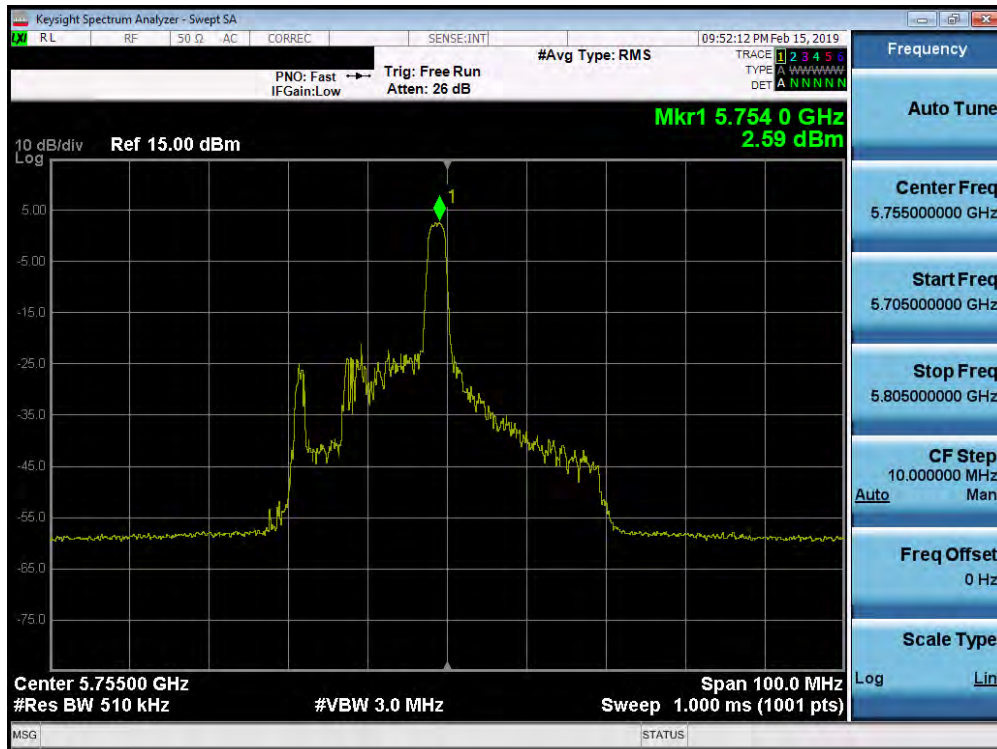


Plot 7-266. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

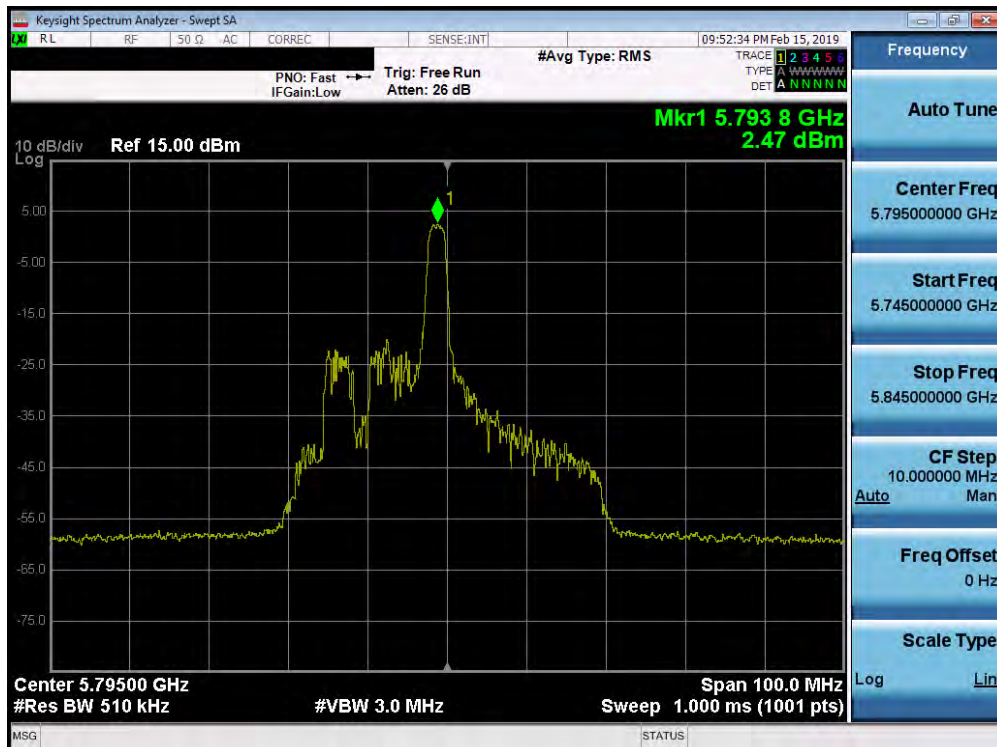


Plot 7-267. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 194 of 285



Plot 7-268. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-269. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 195 of 285



Plot 7-270. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 196 of 285

7.6 Radiated Spurious Emission Measurements – Above 1GHz

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

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 26 Tones, 52 Tones, 106 Tones, 242 Tones, 484 Tones and 996 Tones), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

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

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

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

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-67 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-67. Radiated Limits

Test Procedures Used

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

Test Settings

Average Measurements above 1GHz (Method AD)

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

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 197 of 285

Peak Measurements above 1GHz

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

Peak Measurements below 1GHz

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

Test Setup

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

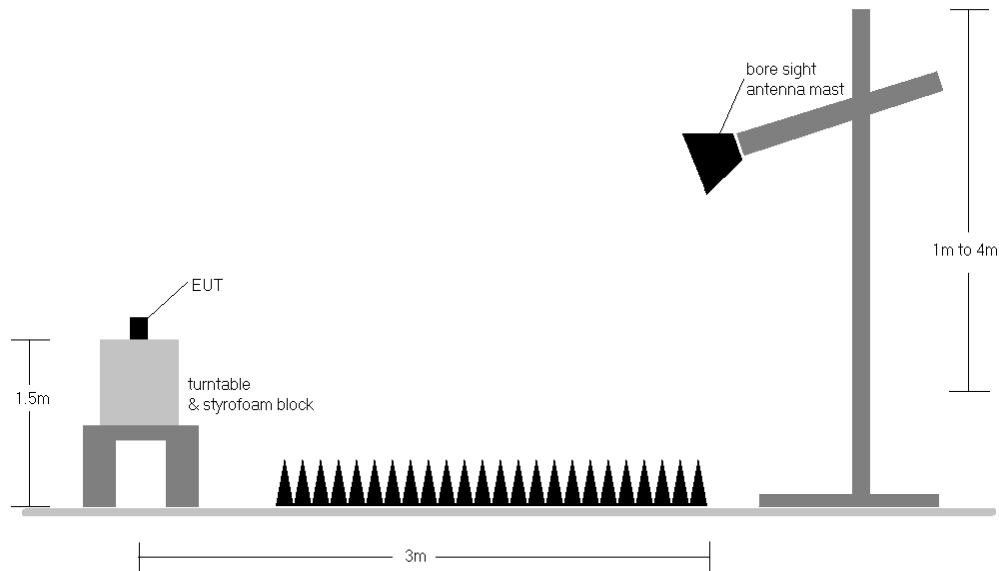


Figure 7-5. Test Instrument & Measurement Setup

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 198 of 285

Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-67.
2. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dB μ V/m.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
8. The “-” shown in the following RSE tables are used to denote a noise floor measurement.
9. For radiated measurements, emissions were investigated for the fully-loaded RU configuration and for all of the partially-loaded RU configurations. Among all of the available partially-loaded RU configurations, only the configuration with the worst case emissions is reported.

Sample Calculations

Determining Spurious Emissions Levels

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

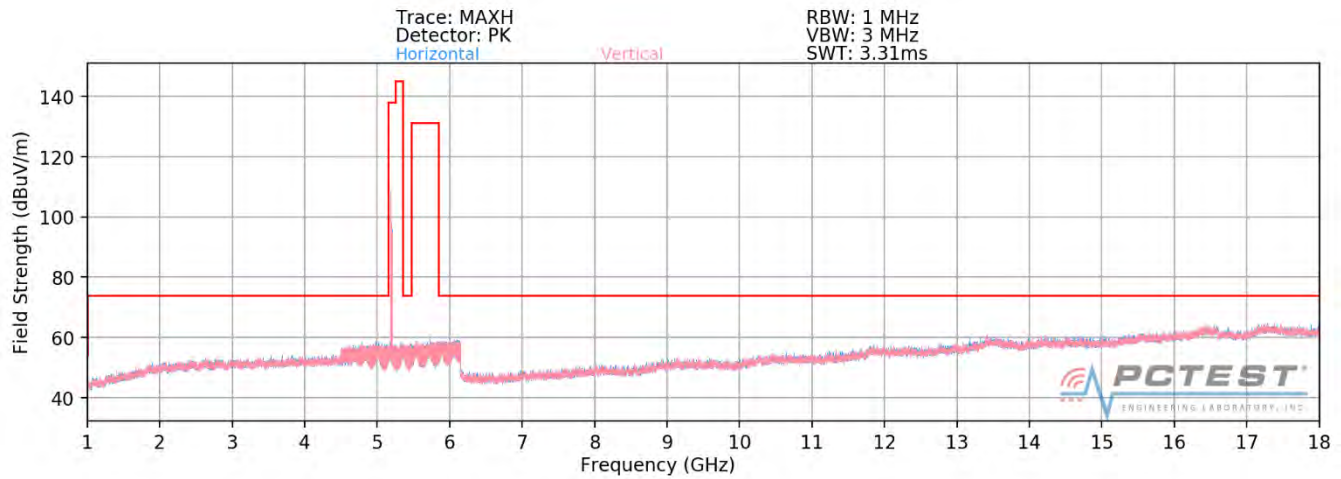
Radiated Band Edge Measurement Offset

- o The amplitude offset shown in the radiated restricted band edge plots in Section Radiated Spurious Emission Measurements – Above 1GHz was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

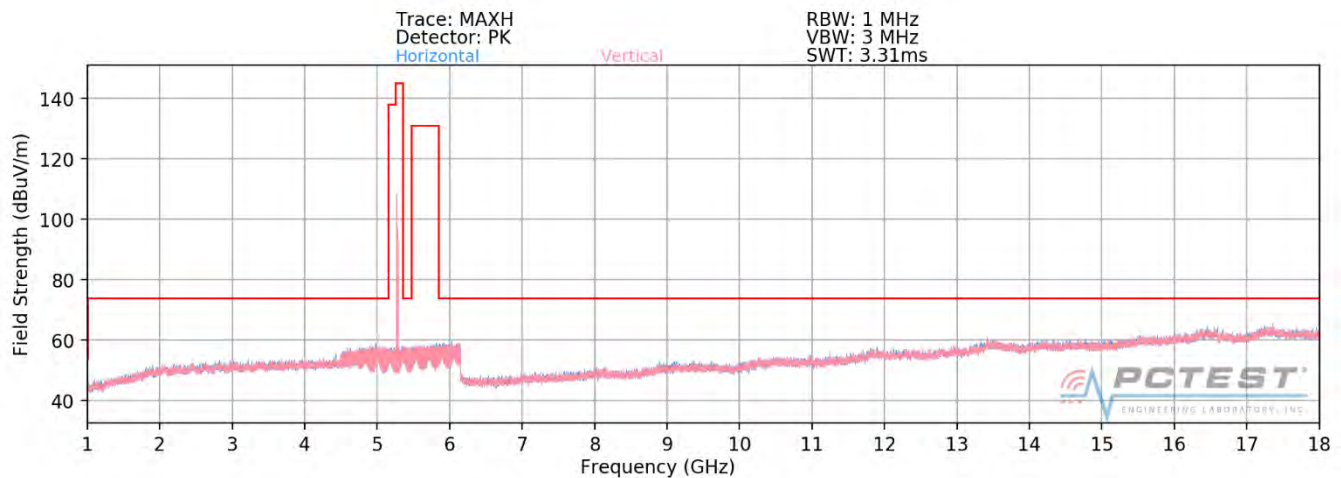
FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 199 of 285

7.6.1 SISO Antenna-1 Radiated Spurious Emission Measurements

26 Tones

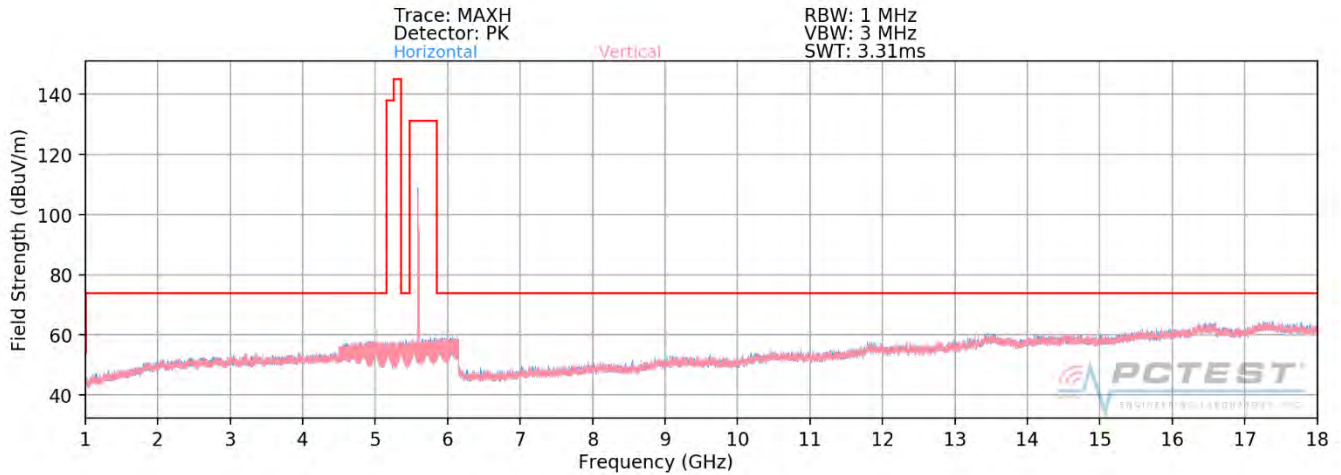


Plot 7-271. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U1 Ch. 40 – 26 Tones)

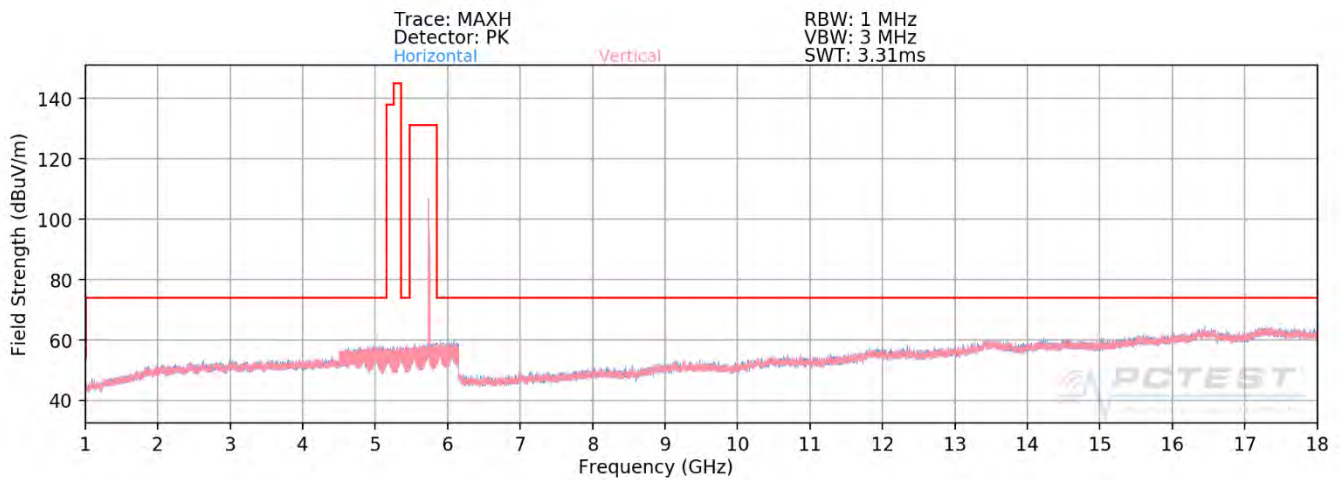


Plot 7-272. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U2A Ch. 56 – 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 200 of 285



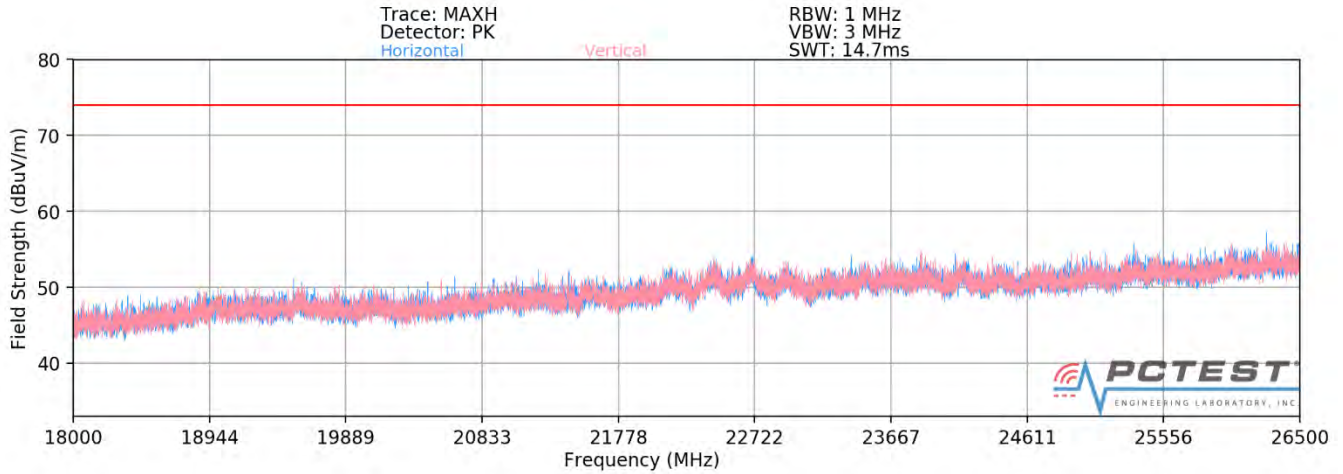
Plot 7-273. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U2C Ch. 120 – 26 Tones)



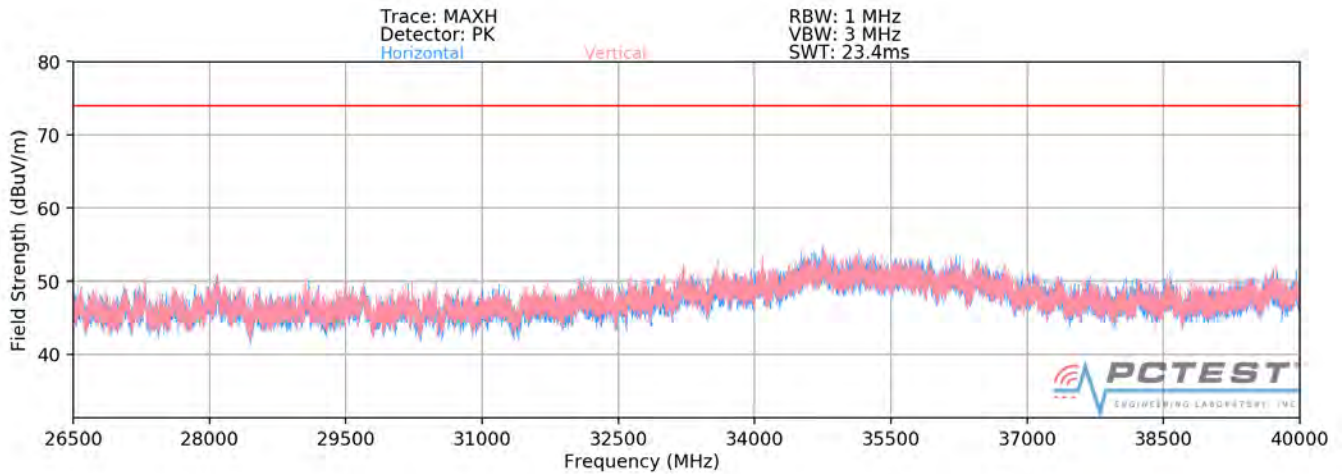
Plot 7-274. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U3 Ch. 157 – 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 201 of 285

SISO Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-275. Radiated Spurious Plot 18GHz - 26.5GHz SISO ANT1 (802.11ax - 26 Tones)



Plot 7-276. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT1 (802.11ax - 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 202 of 285

SISO Antenna-1 Radiated Spurious Emission Measurements (26 Tones)

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

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-72.29	18.82	0.00	53.53	68.20	-14.67
* 15540.00	Average	H	-	-	-84.87	28.27	0.00	50.40	53.98	-3.58
* 15540.00	Peak	H	-	-	-74.00	28.27	0.00	61.27	73.98	-12.71
* 20720.00	Average	H	-	-	-80.91	17.17	-9.54	33.72	53.98	-20.26
* 20720.00	Peak	H	-	-	-69.41	17.17	-9.54	45.22	73.98	-28.76
25900.00	Peak	H	-	-	-68.65	19.34	-9.54	48.14	68.20	-20.06

Table 7-68. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-72.13	18.78	0.00	53.65	68.20	-14.55
* 15600.00	Average	H	-	-	-85.43	27.80	0.00	49.37	53.98	-4.61
* 15600.00	Peak	H	-	-	-74.17	27.80	0.00	60.63	73.98	-13.35
* 20800.00	Average	H	-	-	-80.52	17.31	-9.54	34.24	53.98	-19.73
* 20800.00	Peak	H	-	-	-69.24	17.31	-9.54	45.52	73.98	-28.46
26000.00	Peak	H	-	-	-69.11	19.60	-9.54	47.95	68.20	-20.25

Table 7-69. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 203 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-72.07	20.06	0.00	54.99	68.20	-13.21
* 15720.00	Average	H	-	-	-84.85	27.64	0.00	49.79	53.98	-4.19
* 15720.00	Peak	H	-	-	-72.89	27.64	0.00	61.75	73.98	-12.23
* 20960.00	Average	H	-	-	-80.50	17.60	-9.54	34.55	53.98	-19.43
* 20960.00	Peak	H	-	-	-69.51	17.60	-9.54	45.54	73.98	-28.44
26200.00	Peak	H	-	-	-67.92	19.73	-9.54	49.27	68.20	-18.93

Table 7-70. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-71.92	19.70	0.00	54.78	68.20	-13.42
* 15780.00	Average	H	-	-	-84.92	27.31	0.00	49.39	53.98	-4.59
* 15780.00	Peak	H	-	-	-74.03	27.31	0.00	60.28	73.98	-13.70
* 21040.00	Average	H	-	-	-80.73	17.67	-9.54	34.40	53.98	-19.58
* 21040.00	Peak	H	-	-	-69.76	17.67	-9.54	45.36	73.98	-28.61
26300.00	Peak	H	-	-	-69.77	20.29	-9.54	47.97	68.20	-20.23

Table 7-71. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 204 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-72.36	19.86	0.00	54.50	68.20	-13.70
* 15840.00	Average	H	-	-	-84.60	27.54	0.00	49.94	53.98	-4.04
* 15840.00	Peak	H	-	-	-73.11	27.54	0.00	61.43	73.98	-12.55
* 21120.00	Average	H	-	-	-80.53	17.83	-9.54	34.77	53.98	-19.21
* 21120.00	Peak	H	-	-	-69.36	17.83	-9.54	45.93	73.98	-28.05
26400.00	Peak	H	-	-	-69.28	20.07	-9.54	48.25	68.20	-19.95

Table 7-72. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-83.01	19.52	0.00	43.51	53.98	-10.47
* 10640.00	Peak	H	-	-	-72.10	19.52	0.00	54.42	73.98	-19.56
* 15960.00	Average	H	-	-	-85.12	27.84	0.00	49.72	53.98	-4.26
* 15960.00	Peak	H	-	-	-74.07	27.84	0.00	60.77	73.98	-13.21
* 21280.00	Average	H	-	-	-81.70	17.98	-9.54	33.73	53.98	-20.25
* 21280.00	Peak	H	-	-	-70.49	17.98	-9.54	44.95	73.98	-29.03
26600.00	Peak	H	-	-	-54.52	4.42	-9.54	47.35	68.20	-20.85

Table 7-73. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 205 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-84.29	20.35	0.00	43.06	53.98	-10.92
* 11000.00	Peak	H	-	-	-73.10	20.35	0.00	54.25	73.98	-19.73
16500.00	Peak	H	-	-	-73.17	28.54	0.00	62.37	68.20	-5.83
22000.00	Peak	H	-	-	-70.05	18.43	-9.54	45.83	68.20	-22.37
27500.00	Peak	H	-	-	-52.66	3.16	-9.54	47.95	68.20	-20.25

Table 7-74. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	-	-	-83.79	20.31	0.00	43.52	53.98	-10.46
* 11200.00	Peak	H	-	-	-71.68	20.31	0.00	55.63	73.98	-18.35
16800.00	Peak	H	-	-	-73.62	28.88	0.00	62.26	68.20	-5.94
* 22400.00	Average	H	-	-	-80.25	19.18	-9.54	36.39	53.98	-17.59
* 22400.00	Peak	H	-	-	-70.31	19.18	-9.54	46.33	73.98	-27.65
28000.00	Peak	H	-	-	-53.24	4.80	-9.54	49.02	68.20	-19.18

Table 7-75. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 206 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-83.99	20.11	0.00	43.12	53.98	-10.86
* 11440.00	Peak	H	-	-	-72.45	20.11	0.00	54.66	73.98	-19.32
17160.00	Peak	H	-	-	-73.67	29.40	0.00	62.73	68.20	-5.47
* 22880.00	Average	H	-	-	-80.41	18.88	-9.54	35.93	53.98	-18.05
* 22880.00	Peak	H	-	-	-69.21	18.88	-9.54	47.13	73.98	-26.85
28600.00	Peak	H	-	-	-52.75	3.32	-9.54	48.03	68.20	-20.17

Table 7-76. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-83.73	20.55	0.00	43.82	53.98	-10.15
* 11490.00	Peak	H	-	-	-72.14	20.55	0.00	55.41	73.98	-18.56
17235.00	Peak	H	-	-	-73.24	29.71	0.00	63.47	68.20	-4.73
* 22980.00	Average	H	-	-	-80.49	19.03	-9.54	36.00	53.98	-17.98
* 22980.00	Peak	H	-	-	-69.77	19.03	-9.54	46.72	73.98	-27.26
28725.00	Peak	H	-	-	-53.38	3.65	-9.54	47.73	68.20	-20.47

Table 7-77. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 207 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-83.89	21.44	0.00	44.55	53.98	-9.43
* 11570.00	Peak	H	-	-	-72.95	21.44	0.00	55.49	73.98	-18.49
17355.00	Peak	H	-	-	-73.31	29.55	0.00	63.24	68.20	-4.96
23140.00	Peak	H	-	-	-70.58	18.82	-9.54	45.70	68.20	-22.50
28925.00	Peak	H	-	-	-52.91	4.50	-9.54	49.04	68.20	-19.16

Table 7-78. Radiated Measurements SISO ANT1 (26 Tones)

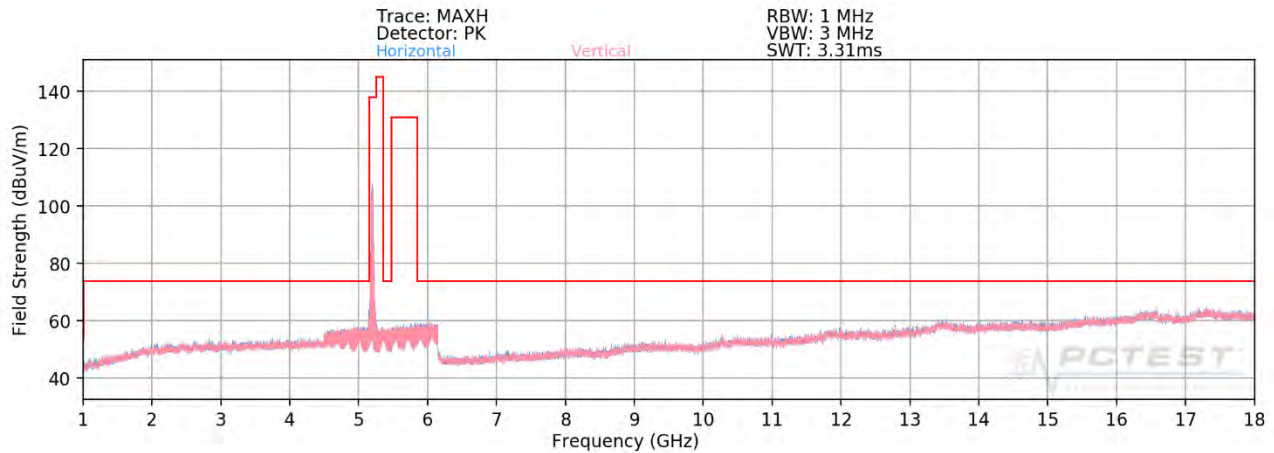
Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-83.54	20.88	0.00	44.34	53.98	-9.63
* 11650.00	Peak	H	-	-	-72.05	20.88	0.00	55.83	73.98	-18.14
17475.00	Peak	H	-	-	-74.00	30.26	0.00	63.26	68.20	-4.94
23300.00	Peak	H	-	-	-68.60	18.40	-9.54	47.26	68.20	-20.94
29125.00	Peak	H	-	-	-52.45	2.23	-9.54	47.24	68.20	-20.96

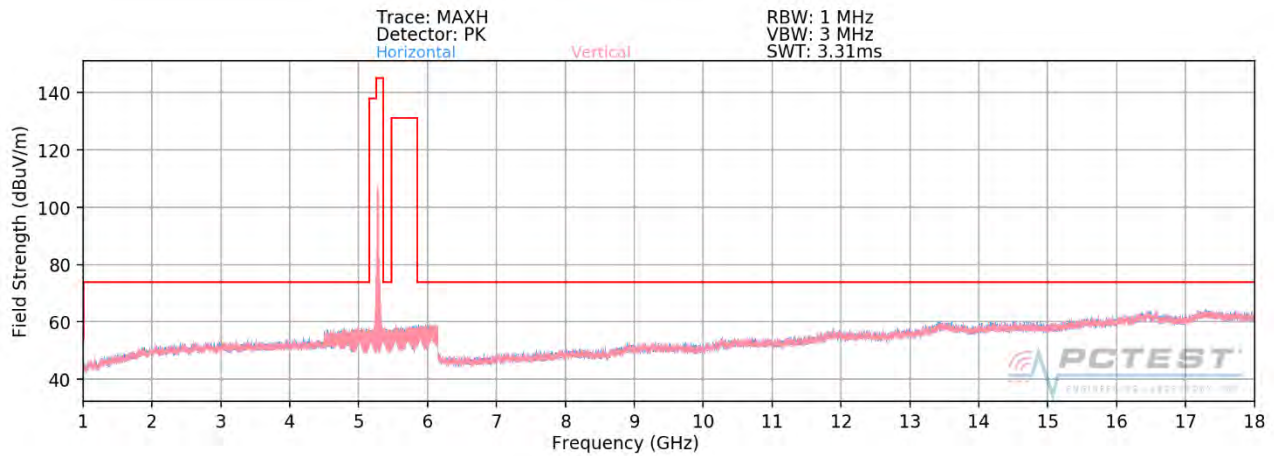
Table 7-79. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 208 of 285

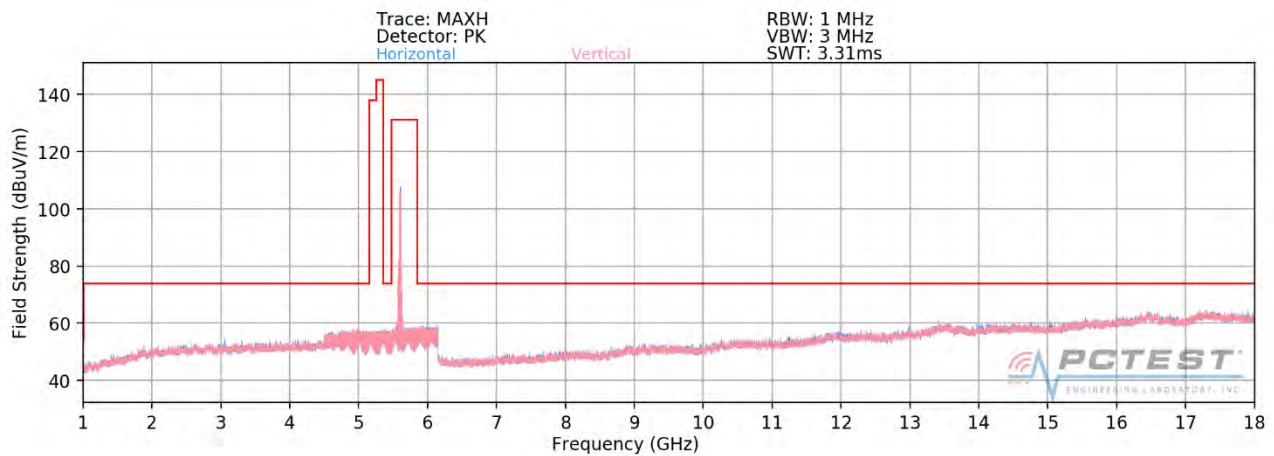
242 Tones



Plot 7-277. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U1 Ch. 40 – 242 Tones)

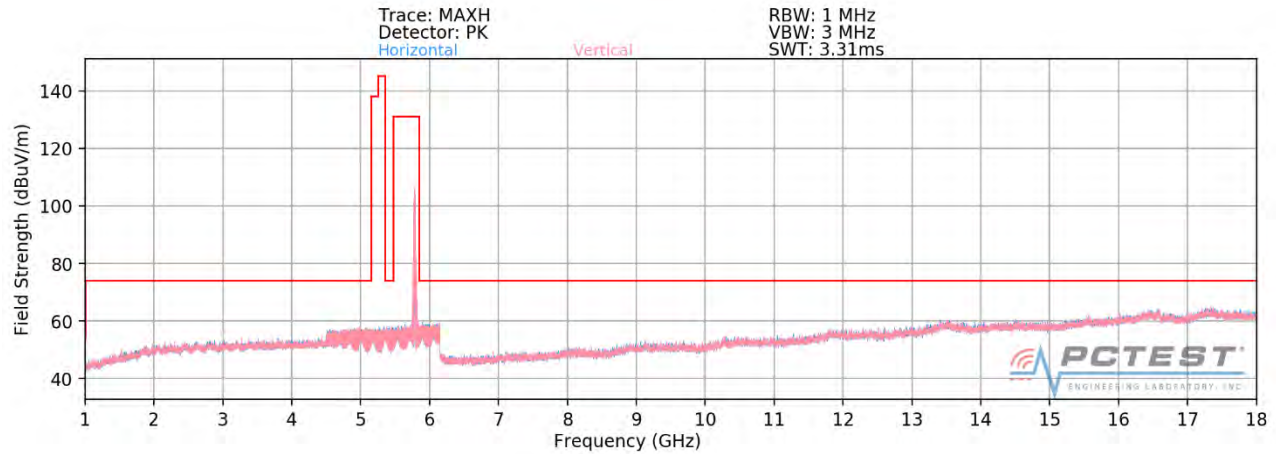


Plot 7-278. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U2A Ch. 56 – 242 Tones)



Plot 7-279. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U2C Ch. 120 – 242 Tones)

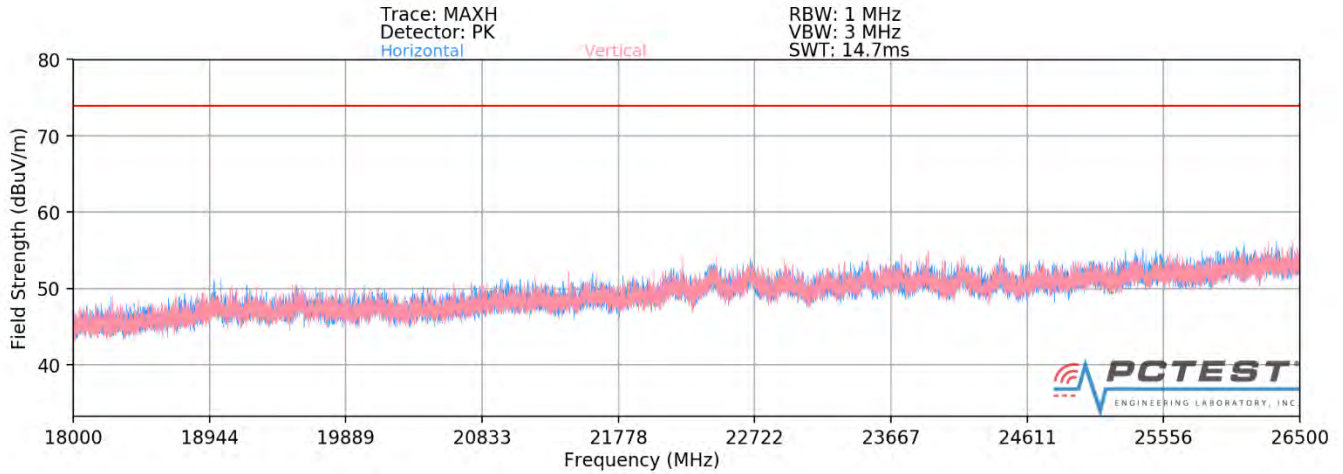
FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 209 of 285



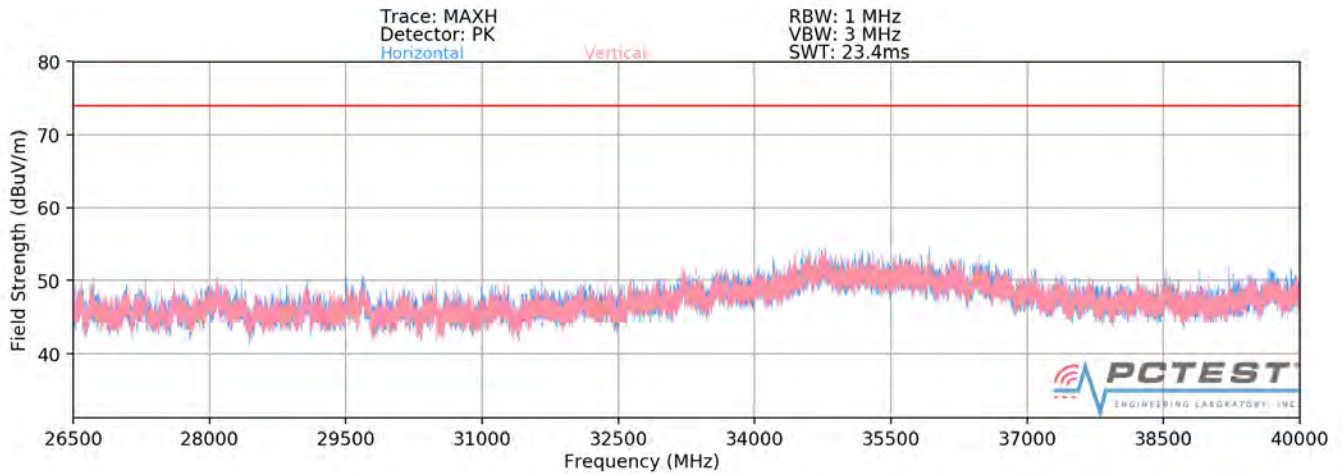
Plot 7-280. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U3 Ch. 157 – 242 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 210 of 285

SISO Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-281. Radiated Spurious Plot 18GHz - 26.5GHz SISO ANT1 (802.11ax - 242 Tones)



Plot 7-282. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT1 (802.11ax - 242 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 211 of 285

SISO Antenna-1 Radiated Spurious Emission Measurements (242 Tones)

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

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-71.13	18.82	0.00	54.69	68.20	-13.51
* 15540.00	Average	H	-	-	-85.13	28.27	0.00	50.14	53.98	-3.84
* 15540.00	Peak	H	-	-	-73.67	28.27	0.00	61.60	73.98	-12.38
* 20720.00	Average	H	-	-	-80.48	17.17	-9.54	34.15	53.98	-19.83
* 20720.00	Peak	H	-	-	-69.90	17.17	-9.54	44.73	73.98	-29.25
25900.00	Peak	H	-	-	-68.28	19.34	-9.54	48.52	68.20	-19.68

Table 7-80. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-71.50	18.78	0.00	54.28	68.20	-13.92
* 15600.00	Average	H	-	-	-86.22	27.80	0.00	48.58	53.98	-5.40
* 15600.00	Peak	H	-	-	-74.29	27.80	0.00	60.51	73.98	-13.47
* 20800.00	Average	H	-	-	-80.36	17.31	-9.54	34.41	53.98	-19.57
* 20800.00	Peak	H	-	-	-69.47	17.31	-9.54	45.30	73.98	-28.68
26000.00	Peak	H	-	-	-69.01	19.60	-9.54	48.05	68.20	-20.15

Table 7-81. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 212 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-72.71	20.06	0.00	54.35	68.20	-13.85
* 15720.00	Average	H	-	-	-85.03	27.64	0.00	49.61	53.98	-4.37
* 15720.00	Peak	H	-	-	-74.34	27.64	0.00	60.30	73.98	-13.68
* 20960.00	Average	H	-	-	-79.37	17.60	-9.54	35.69	53.98	-18.29
* 20960.00	Peak	H	-	-	-68.87	17.60	-9.54	46.18	73.98	-27.79
26200.00	Peak	H	-	-	-68.98	19.73	-9.54	48.21	68.20	-19.99

Table 7-82. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-72.72	19.70	0.00	53.98	68.20	-14.22
* 15780.00	Average	H	-	-	-84.81	27.31	0.00	49.50	53.98	-4.48
* 15780.00	Peak	H	-	-	-74.30	27.31	0.00	60.01	73.98	-13.97
* 21040.00	Average	H	-	-	-80.39	17.67	-9.54	34.74	53.98	-19.24
* 21040.00	Peak	H	-	-	-69.77	17.67	-9.54	45.36	73.98	-28.62
26300.00	Peak	H	-	-	-69.91	20.29	-9.54	47.84	68.20	-20.36

Table 7-83. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	
			Page 213 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-72.06	19.86	0.00	54.80	68.20	-13.40
* 15840.00	Average	H	-	-	-84.72	27.54	0.00	49.82	53.98	-4.16
* 15840.00	Peak	H	-	-	-73.74	27.54	0.00	60.80	73.98	-13.18
* 21120.00	Average	H	-	-	-79.95	17.83	-9.54	35.34	53.98	-18.64
* 21120.00	Peak	H	-	-	-68.76	17.83	-9.54	46.53	73.98	-27.45
26400.00	Peak	H	-	-	-68.87	20.07	-9.54	48.66	68.20	-19.54

Table 7-84. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-83.02	19.52	0.00	43.50	53.98	-10.48
* 10640.00	Peak	H	-	-	-71.89	19.52	0.00	54.63	73.98	-19.35
* 15960.00	Average	H	-	-	-84.93	27.84	0.00	49.91	53.98	-4.07
* 15960.00	Peak	H	-	-	-73.47	27.84	0.00	61.37	73.98	-12.61
* 21280.00	Average	H	-	-	-80.00	17.98	-9.54	35.44	53.98	-18.54
* 21280.00	Peak	H	-	-	-69.12	17.98	-9.54	46.31	73.98	-27.66
26600.00	Peak	H	-	-	-54.88	4.42	-9.54	47.00	68.20	-21.20

Table 7-85. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 214 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-83.39	20.35	0.00	43.96	53.98	-10.02
* 11000.00	Peak	H	-	-	-72.40	20.35	0.00	54.95	73.98	-19.03
16500.00	Peak	H	-	-	-73.85	28.54	0.00	61.69	68.20	-6.51
22000.00	Peak	H	-	-	-68.94	18.43	-9.54	46.95	68.20	-21.25
27500.00	Peak	H	-	-	-53.54	3.16	-9.54	47.07	68.20	-21.13

Table 7-86. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	108	357	-81.99	20.31	0.00	45.32	53.98	-8.66
* 11200.00	Peak	H	108	357	-70.68	20.31	0.00	56.63	73.98	-17.35
16800.00	Peak	H	-	-	-72.74	28.88	0.00	63.14	68.20	-5.06
* 22400.00	Average	H	-	-	-80.03	18.58	-9.54	36.01	53.98	-17.97
* 22400.00	Peak	H	-	-	-69.11	18.58	-9.54	46.93	73.98	-27.05
28000.00	Peak	H	-	-	-53.06	4.79	-9.54	49.19	68.20	-19.01

Table 7-87. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 215 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-83.23	20.11	0.00	43.88	53.98	-10.10
* 11440.00	Peak	H	-	-	-71.71	20.11	0.00	55.40	73.98	-18.58
17160.00	Peak	H	-	-	-73.55	29.40	0.00	62.85	68.20	-5.35
* 22880.00	Average	H	-	-	-79.87	18.88	-9.54	36.47	53.98	-17.51
* 22880.00	Peak	H	-	-	-68.95	18.88	-9.54	47.39	73.98	-26.59
28600.00	Peak	H	-	-	-53.49	3.32	-9.54	47.28	68.20	-20.92

Table 7-88. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-83.56	20.55	0.00	43.99	53.98	-9.98
* 11490.00	Peak	H	-	-	-72.44	20.55	0.00	55.11	73.98	-18.86
17235.00	Peak	H	-	-	-73.73	29.71	0.00	62.98	68.20	-5.22
* 22980.00	Average	H	-	-	-79.95	19.03	-9.54	36.54	53.98	-17.44
* 22980.00	Peak	H	-	-	-68.56	19.03	-9.54	47.93	73.98	-26.05
28725.00	Peak	H	-	-	-54.14	3.65	-9.54	46.97	68.20	-21.23

Table 7-89. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 216 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-83.74	21.44	0.00	44.70	53.98	-9.28
* 11570.00	Peak	H	-	-	-72.58	21.44	0.00	55.86	73.98	-18.12
17355.00	Peak	H	-	-	-73.53	29.55	0.00	63.02	68.20	-5.18
23140.00	Peak	H	-	-	-68.85	18.82	-9.54	47.43	68.20	-20.77
28925.00	Peak	H	-	-	-53.98	4.50	-9.54	47.98	68.20	-20.22

Table 7-90. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

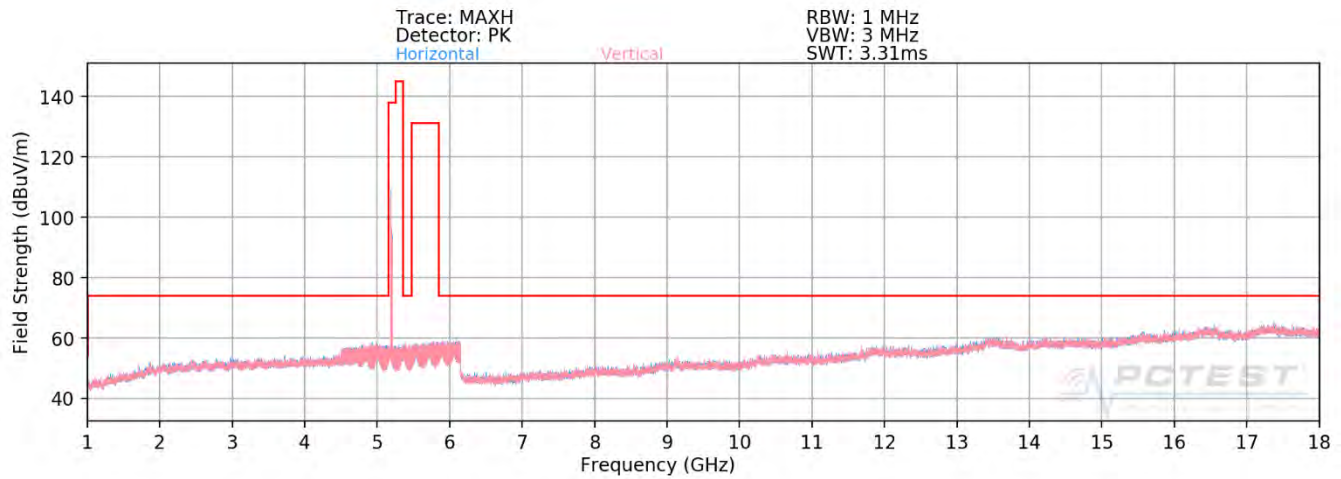
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-83.05	20.88	0.00	44.83	53.98	-9.14
* 11650.00	Peak	H	-	-	-71.28	20.88	0.00	56.60	73.98	-17.37
17475.00	Peak	H	-	-	-73.66	30.26	0.00	63.60	68.20	-4.60
23300.00	Peak	H	-	-	-69.77	18.40	-9.54	46.09	68.20	-22.11
29125.00	Peak	H	-	-	-54.01	2.23	-9.54	45.68	68.20	-22.52

Table 7-91. Radiated Measurements SISO ANT1 (242 Tones)

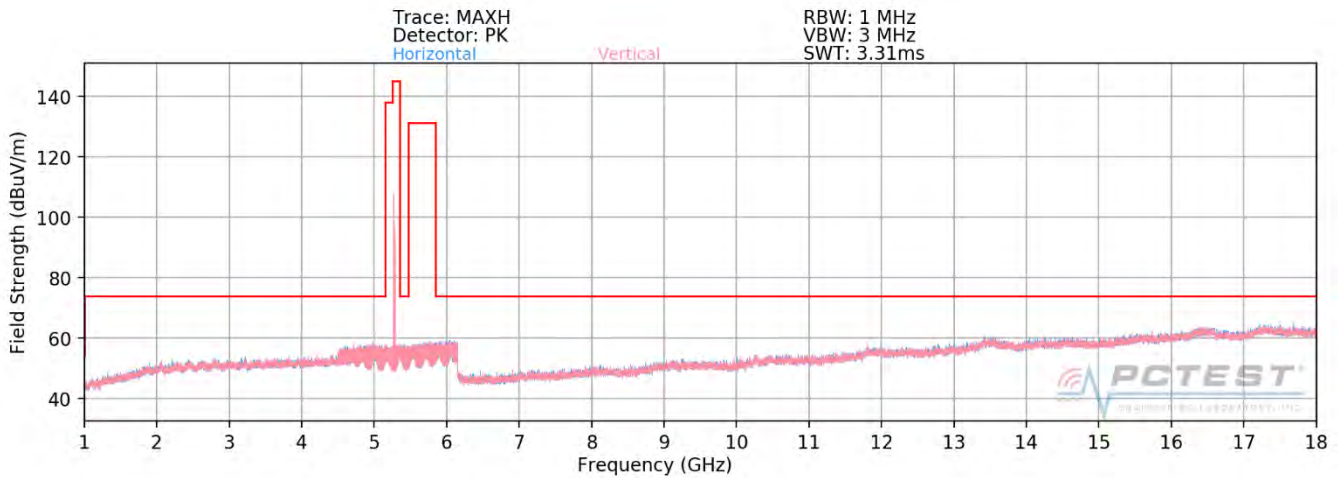
FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 217 of 285

7.6.2 SISO Antenna-2 Radiated Spurious Emission Measurements

26 Tones

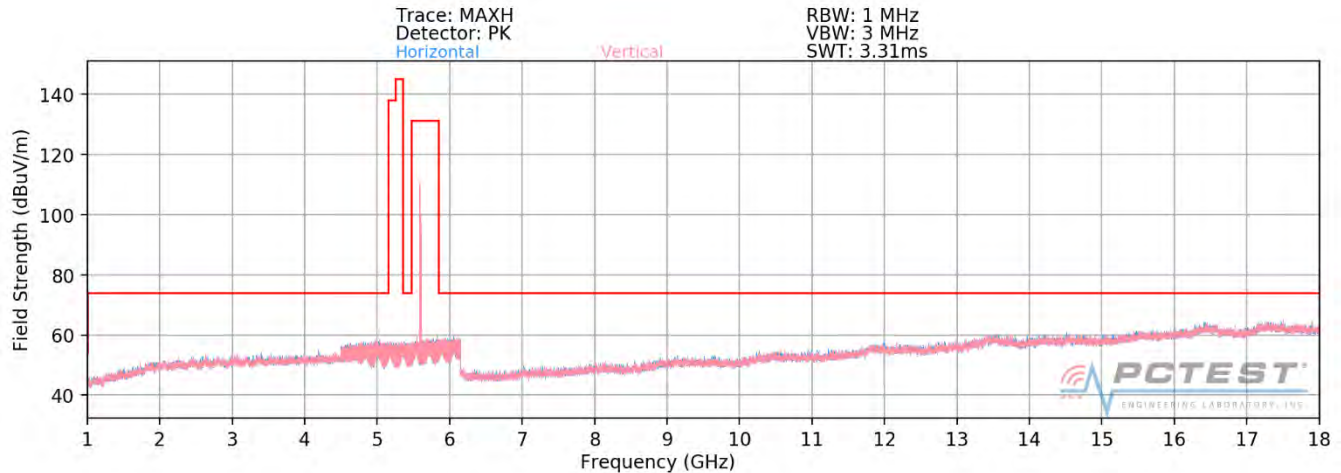


Plot 7-283. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U1 Ch. 40 – 26 Tones)

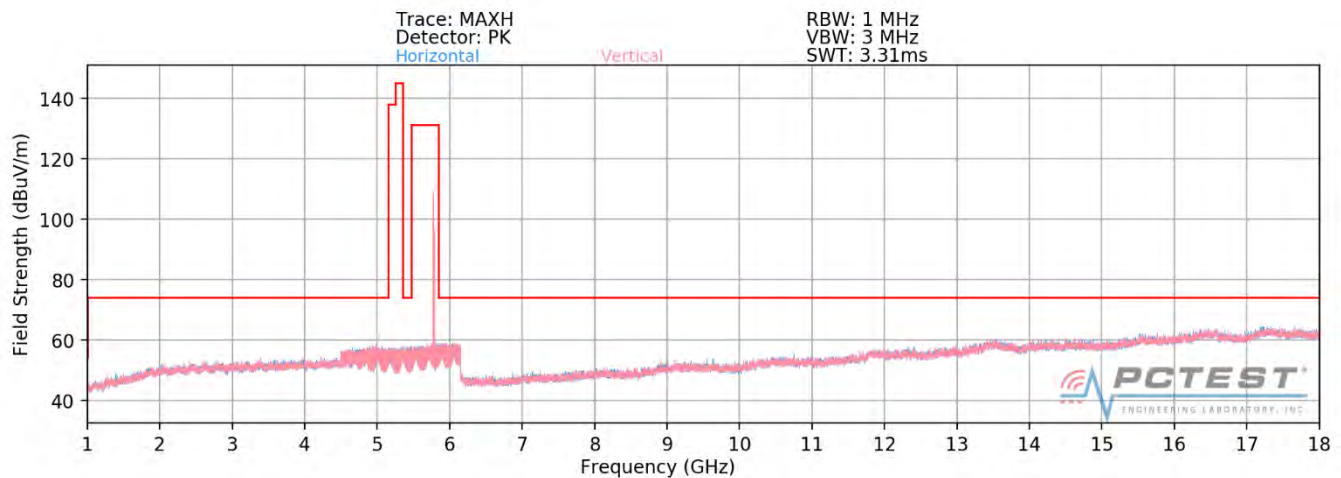


Plot 7-284. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U2A Ch. 56 – 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 218 of 285



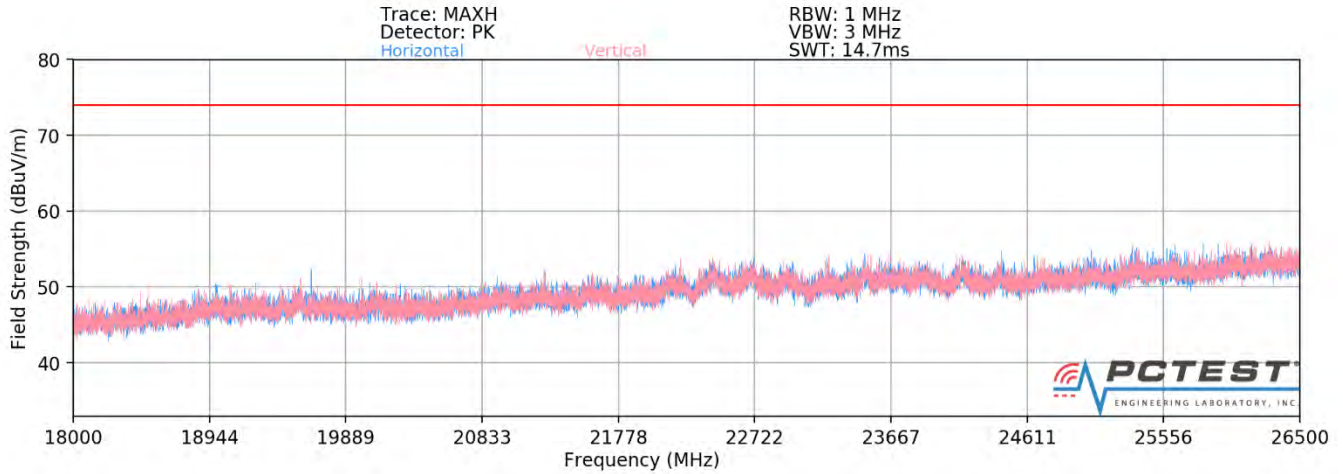
Plot 7-285. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U2C Ch. 120 – 26 Tones)



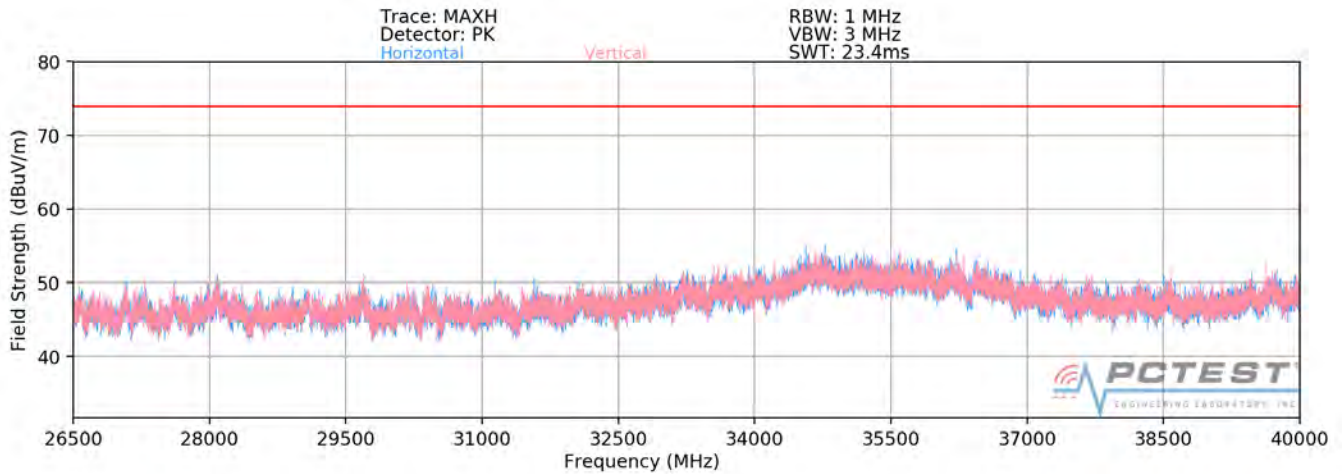
Plot 7-286. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U3 Ch. 157 – 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 219 of 285

SISO Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-287. Radiated Spurious Plot above 18GHz - 26.5GHz SISO ANT2 (802.11ax - 26 Tones)



Plot 7-288. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT2 (802.11ax - 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 220 of 285

SISO Antenna-2 Radiated Spurious Emission Measurements

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

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-72.23	18.82	0.00	53.59	68.20	-14.61
* 15540.00	Average	H	-	-	-85.66	28.27	0.00	49.61	53.98	-4.37
* 15540.00	Peak	H	-	-	-73.82	28.27	0.00	61.45	73.98	-12.53
* 20720.00	Average	H	-	-	-81.22	17.17	-9.54	33.41	53.98	-20.57
* 20720.00	Peak	H	-	-	-69.45	17.17	-9.54	45.18	73.98	-28.80
25900.00	Peak	H	-	-	-68.17	19.34	-9.54	48.63	68.20	-19.57

Table 7-92. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-71.66	18.78	0.00	54.12	68.20	-14.08
* 15600.00	Average	H	-	-	-85.31	27.80	0.00	49.49	53.98	-4.49
* 15600.00	Peak	H	-	-	-74.77	27.80	0.00	60.03	73.98	-13.95
* 20800.00	Average	H	-	-	-81.37	17.31	-9.54	33.39	53.98	-20.59
* 20800.00	Peak	H	-	-	-69.25	17.31	-9.54	45.51	73.98	-28.47
26000.00	Peak	H	-	-	-69.70	19.60	-9.54	47.36	68.20	-20.84

Table 7-93. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 221 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-72.66	20.06	0.00	54.40	68.20	-13.80
* 15720.00	Average	H	-	-	-84.74	27.64	0.00	49.90	53.98	-4.08
* 15720.00	Peak	H	-	-	-73.77	27.64	0.00	60.87	73.98	-13.11
* 20960.00	Average	H	-	-	-81.88	17.60	-9.54	33.17	53.98	-20.81
* 20960.00	Peak	H	-	-	-70.17	17.60	-9.54	44.89	73.98	-29.09
26200.00	Peak	H	-	-	-69.70	19.73	-9.54	47.48	68.20	-20.72

Table 7-94. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-72.26	19.70	0.00	54.44	68.20	-13.76
* 15780.00	Average	H	-	-	-84.78	27.31	0.00	49.53	53.98	-4.45
* 15780.00	Peak	H	-	-	-74.18	27.31	0.00	60.13	73.98	-13.85
* 21040.00	Average	H	-	-	-80.05	17.67	-9.54	35.08	53.98	-18.90
* 21040.00	Peak	H	-	-	-69.64	17.67	-9.54	45.48	73.98	-28.50
26300.00	Peak	H	-	-	-68.10	20.29	-9.54	49.65	68.20	-18.55

Table 7-95. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 222 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-72.43	19.86	0.00	54.43	68.20	-13.77
* 15840.00	Average	H	-	-	-84.77	27.54	0.00	49.77	53.98	-4.21
* 15840.00	Peak	H	-	-	-73.81	27.54	0.00	60.73	73.98	-13.25
* 21120.00	Average	H	-	-	-80.91	17.83	-9.54	34.38	53.98	-19.60
* 21120.00	Peak	H	-	-	-69.34	17.83	-9.54	45.95	73.98	-28.03
26400.00	Peak	H	-	-	-68.64	20.07	-9.54	48.89	68.20	-19.31

Table 7-96. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-83.00	19.52	0.00	43.52	53.98	-10.46
* 10640.00	Peak	H	-	-	-71.36	19.52	0.00	55.16	73.98	-18.82
* 15960.00	Average	H	-	-	-85.05	27.84	0.00	49.79	53.98	-4.19
* 15960.00	Peak	H	-	-	-73.52	27.84	0.00	61.32	73.98	-12.66
* 21280.00	Average	H	-	-	-81.53	17.98	-9.54	33.90	53.98	-20.08
* 21280.00	Peak	H	-	-	-69.52	17.98	-9.54	45.92	73.98	-28.06
26600.00	Peak	H	-	-	-55.75	4.42	-9.54	46.13	68.20	-22.07

Table 7-97. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 223 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-84.12	20.35	0.00	43.23	53.98	-10.75
* 11000.00	Peak	H	-	-	-73.28	20.35	0.00	54.07	73.98	-19.91
16500.00	Peak	H	-	-	-73.72	28.54	0.00	61.82	68.20	-6.38
22000.00	Peak	H	-	-	-69.67	18.43	-9.54	46.22	68.20	-21.98
27500.00	Peak	H	-	-	-53.56	3.16	-9.54	47.05	68.20	-21.15

Table 7-98. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	-	-	-83.91	20.31	0.00	43.40	53.98	-10.58
* 11200.00	Peak	H	-	-	-71.51	20.31	0.00	55.80	73.98	-18.18
16800.00	Peak	H	-	-	-73.82	28.88	0.00	62.06	68.20	-6.14
* 22400.00	Average	H	-	-	-80.25	19.18	-9.54	36.39	53.98	-17.59
* 22400.00	Peak	H	-	-	-69.87	19.18	-9.54	46.77	73.98	-27.21
28000.00	Peak	H	-	-	-53.67	4.80	-9.54	48.59	68.20	-19.61

Table 7-99. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 224 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-83.87	20.11	0.00	43.24	53.98	-10.74
* 11440.00	Peak	H	-	-	-73.07	20.11	0.00	54.04	73.98	-19.94
17160.00	Peak	H	-	-	-74.65	29.40	0.00	61.75	68.20	-6.45
* 22880.00	Average	H	-	-	-81.05	18.88	-9.54	35.29	53.98	-18.69
* 22880.00	Peak	H	-	-	-69.02	18.88	-9.54	47.32	73.98	-26.66
28600.00	Peak	H	-	-	-52.69	3.32	-9.54	48.09	68.20	-20.11

Table 7-100. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-83.75	20.55	0.00	43.80	53.98	-10.17
* 11490.00	Peak	H	-	-	-72.89	20.55	0.00	54.66	73.98	-19.31
17235.00	Peak	H	-	-	-73.46	29.71	0.00	63.25	68.20	-4.95
* 22980.00	Average	H	-	-	-81.60	19.03	-9.54	34.89	53.98	-19.09
* 22980.00	Peak	H	-	-	-69.60	19.03	-9.54	46.89	73.98	-27.09
28725.00	Peak	H	-	-	-52.94	3.65	-9.54	48.17	68.20	-20.03

Table 7-101. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 225 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-83.94	21.44	0.00	44.50	53.98	-9.48
* 11570.00	Peak	H	-	-	-72.64	21.44	0.00	55.80	73.98	-18.18
17355.00	Peak	H	-	-	-73.54	29.55	0.00	63.01	68.20	-5.19
23140.00	Peak	H	-	-	-70.43	18.82	-9.54	45.84	68.20	-22.36
28925.00	Peak	H	-	-	-52.70	4.50	-9.54	49.26	68.20	-18.94

Table 7-102. Radiated Measurements SISO ANT2 (26 Tones)

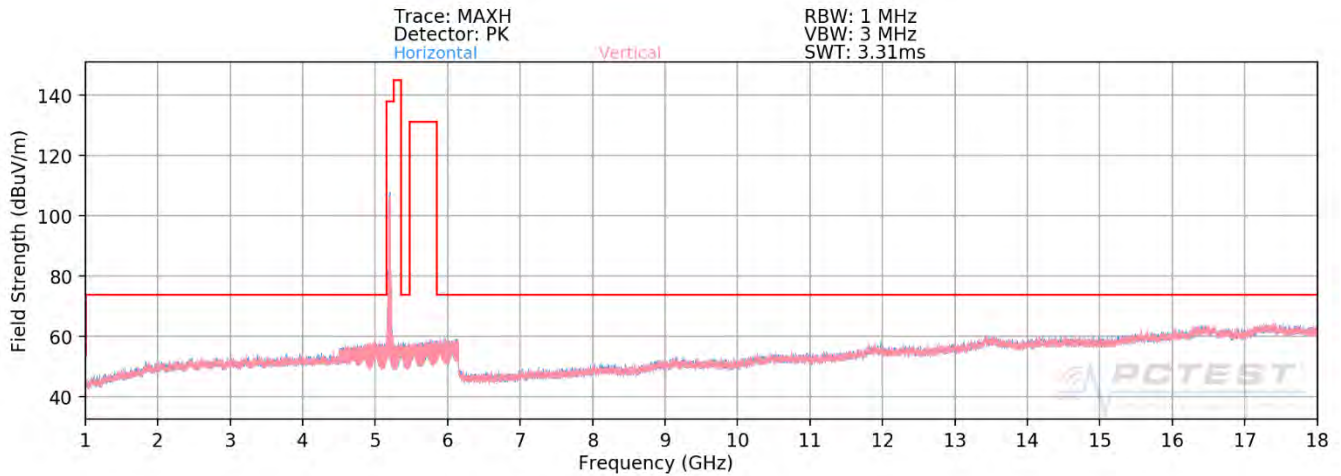
Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-83.64	20.88	0.00	44.24	53.98	-9.73
* 11650.00	Peak	H	-	-	-72.01	20.88	0.00	55.87	73.98	-18.10
17475.00	Peak	H	-	-	-73.97	30.26	0.00	63.29	68.20	-4.91
23300.00	Peak	H	-	-	-69.10	18.40	-9.54	46.76	68.20	-21.44
29125.00	Peak	H	-	-	-52.36	2.23	-9.54	47.33	68.20	-20.87

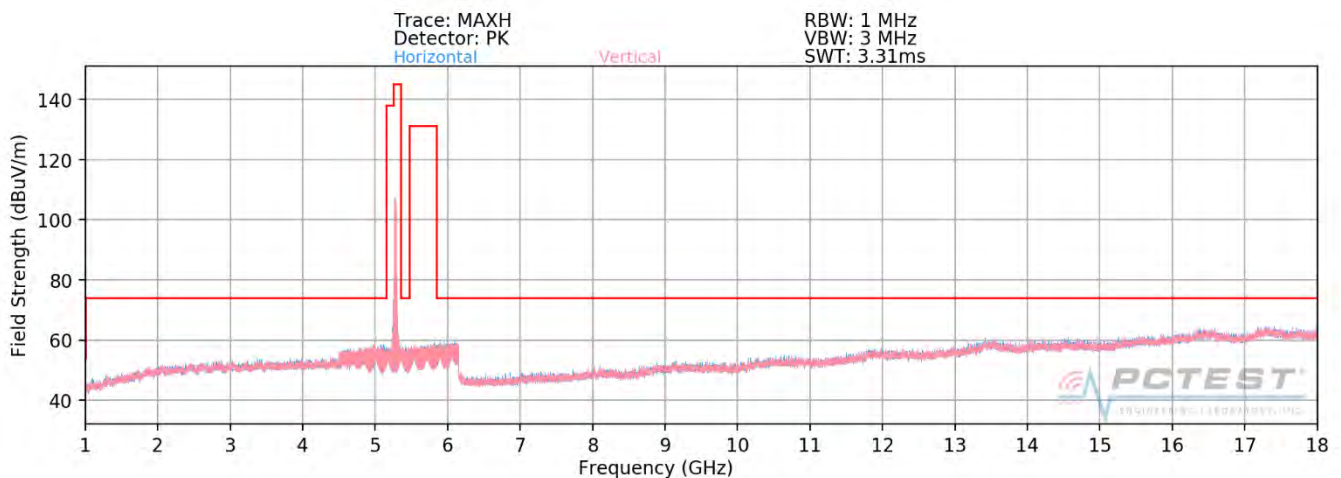
Table 7-103. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 226 of 285

242 Tones

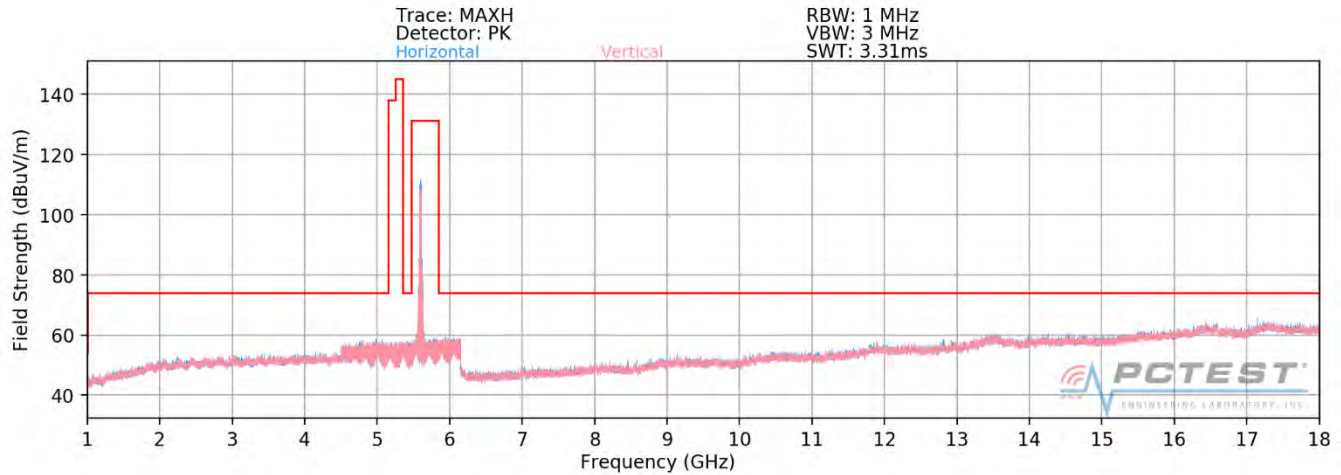


Plot 7-289. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U1 Ch. 40 – 242 Tones)

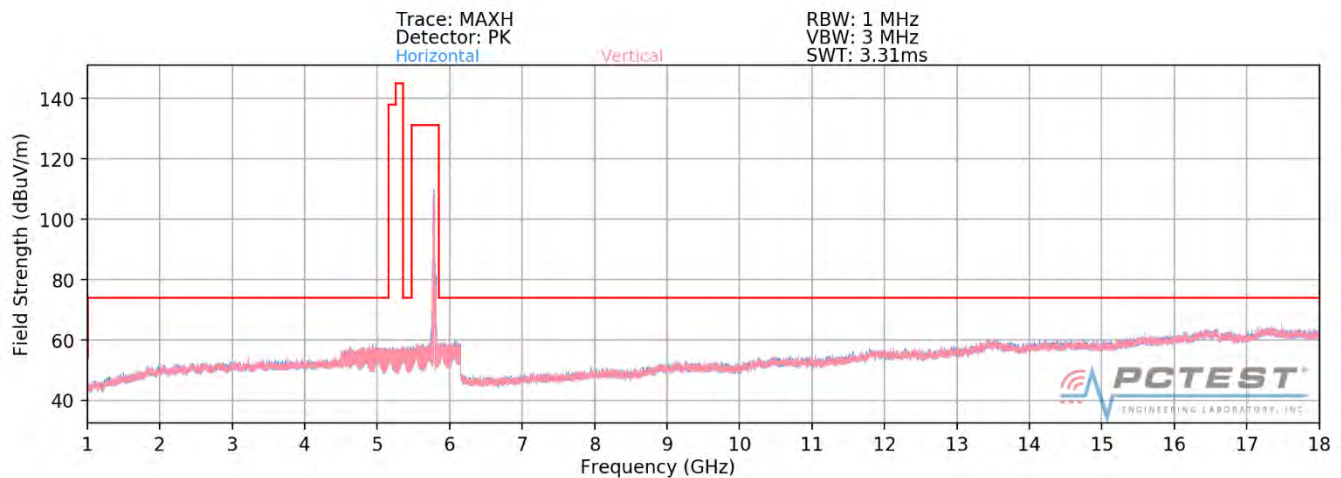


Plot 7-290. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U2A Ch. 56 – 242 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 227 of 285



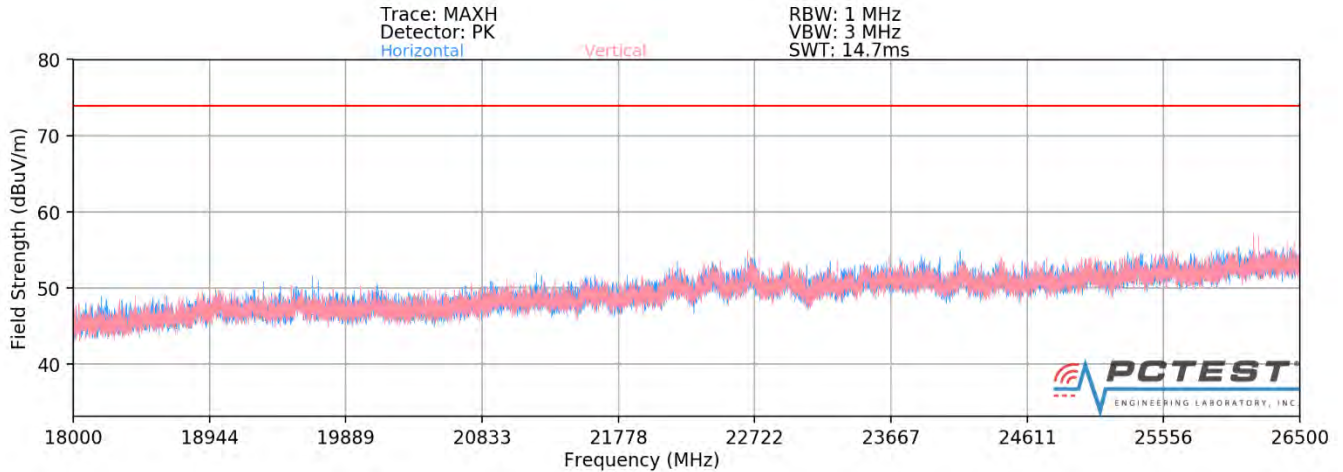
Plot 7-291. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U2C Ch. 120 – 242 Tones)



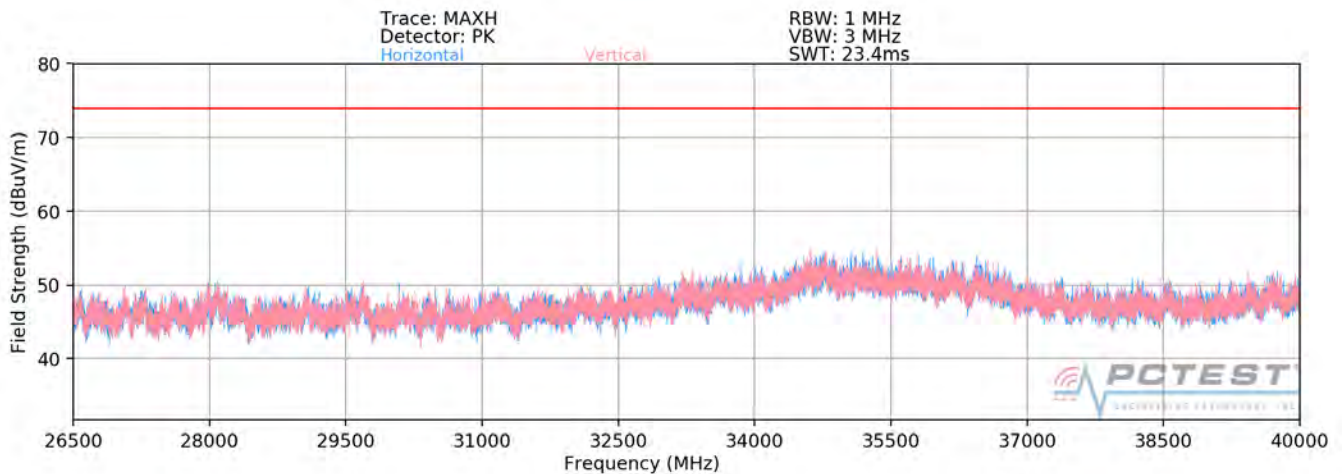
Plot 7-292. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U3 Ch. 157 – 242 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 228 of 285

SISO Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-293. Radiated Spurious Plot above 18GHz - 26.5GHz SISO ANT2 (802.11ax – 242 Tones)



Plot 7-294. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT2 (802.11ax – 242 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 229 of 285

SISO Antenna-2 Radiated Spurious Emission Measurements

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

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-71.65	18.82	0.00	54.17	68.20	-14.03
* 15540.00	Average	H	-	-	-85.71	28.27	0.00	49.56	53.98	-4.42
* 15540.00	Peak	H	-	-	-73.83	28.27	0.00	61.44	73.98	-12.54
* 20720.00	Average	H	-	-	-79.76	17.17	-9.54	34.87	53.98	-19.11
* 20720.00	Peak	H	-	-	-68.91	17.17	-9.54	45.72	73.98	-28.26
25900.00	Peak	H	-	-	-68.93	19.34	-9.54	47.86	68.20	-20.34

Table 7-104. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-71.85	18.78	0.00	53.93	68.20	-14.27
* 15600.00	Average	H	-	-	-85.21	27.80	0.00	49.59	53.98	-4.39
* 15600.00	Peak	H	-	-	-74.18	27.80	0.00	60.62	73.98	-13.36
* 20800.00	Average	H	-	-	-80.70	17.31	-9.54	34.07	53.98	-19.91
* 20800.00	Peak	H	-	-	-69.58	17.31	-9.54	45.18	73.98	-28.80
26000.00	Peak	H	-	-	-68.88	19.60	-9.54	48.18	68.20	-20.02

Table 7-105. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 230 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-72.09	20.06	0.00	54.97	68.20	-13.23
* 15720.00	Average	H	-	-	-84.96	27.64	0.00	49.68	53.98	-4.30
* 15720.00	Peak	H	-	-	-73.71	27.64	0.00	60.93	73.98	-13.05
* 20960.00	Average	H	-	-	-80.13	17.60	-9.54	34.92	53.98	-19.06
* 20960.00	Peak	H	-	-	-69.37	17.60	-9.54	45.68	73.98	-28.30
26200.00	Peak	H	-	-	-68.72	19.73	-9.54	48.46	68.20	-19.74

Table 7-106. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-72.46	19.70	0.00	54.24	68.20	-13.96
* 15780.00	Average	H	-	-	-84.98	27.31	0.00	49.33	53.98	-4.65
* 15780.00	Peak	H	-	-	-74.34	27.31	0.00	59.97	73.98	-14.01
* 21040.00	Average	H	-	-	-79.98	17.67	-9.54	35.15	53.98	-18.83
* 21040.00	Peak	H	-	-	-68.95	17.67	-9.54	46.17	73.98	-27.80
26300.00	Peak	H	-	-	-69.01	20.29	-9.54	48.73	68.20	-19.47

Table 7-107. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 231 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-72.36	19.86	0.00	54.50	68.20	-13.70
* 15840.00	Average	H	-	-	-84.80	27.54	0.00	49.74	53.98	-4.24
* 15840.00	Peak	H	-	-	-73.45	27.54	0.00	61.09	73.98	-12.89
* 21120.00	Average	H	-	-	-80.15	17.83	-9.54	35.14	53.98	-18.84
* 21120.00	Peak	H	-	-	-69.12	17.83	-9.54	46.17	73.98	-27.81
26400.00	Peak	H	-	-	-68.73	20.07	-9.54	48.81	68.20	-19.39

Table 7-108. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-83.02	19.52	0.00	43.50	53.98	-10.48
* 10640.00	Peak	H	-	-	-71.92	19.52	0.00	54.60	73.98	-19.38
* 15960.00	Average	H	-	-	-85.14	27.84	0.00	49.70	53.98	-4.28
* 15960.00	Peak	H	-	-	-74.18	27.84	0.00	60.66	73.98	-13.32
* 21280.00	Average	H	-	-	-79.78	17.98	-9.54	35.65	53.98	-18.32
* 21280.00	Peak	H	-	-	-68.59	17.98	-9.54	46.85	73.98	-27.13
26600.00	Peak	H	-	-	-54.70	4.42	-9.54	47.17	68.20	-21.03

Table 7-109. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 232 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-84.14	20.35	0.00	43.21	53.98	-10.77
* 11000.00	Peak	H	-	-	-72.45	20.35	0.00	54.90	73.98	-19.08
16500.00	Peak	H	-	-	-73.88	28.54	0.00	61.66	68.20	-6.54
22000.00	Peak	H	-	-	-68.81	18.43	-9.54	47.08	68.20	-21.12
27500.00	Peak	H	-	-	-54.78	3.16	-9.54	45.83	68.20	-22.37

Table 7-110. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	-	-	-83.70	20.31	0.00	43.61	53.98	-10.37
* 11200.00	Peak	H	-	-	-72.75	20.31	0.00	54.56	73.98	-19.42
16800.00	Peak	H	-	-	-72.84	28.88	0.00	63.04	68.20	-5.16
* 22400.00	Average	H	-	-	-81.03	18.58	-9.54	35.01	53.98	-18.97
* 22400.00	Peak	H	-	-	-69.45	18.58	-9.54	46.59	73.98	-27.39
28000.00	Peak	H	-	-	-53.87	4.79	-9.54	48.38	68.20	-19.82

Table 7-111. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 233 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-83.39	20.11	0.00	43.72	53.98	-10.26
* 11440.00	Peak	H	-	-	-72.42	20.11	0.00	54.69	73.98	-19.29
17160.00	Peak	H	-	-	-73.93	29.40	0.00	62.47	68.20	-5.73
* 22880.00	Average	H	-	-	-80.81	18.88	-9.54	35.52	53.98	-18.46
* 22880.00	Peak	H	-	-	-69.92	18.88	-9.54	46.42	73.98	-27.56
28600.00	Peak	H	-	-	-54.05	3.32	-9.54	46.72	68.20	-21.48

Table 7-112. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-83.39	20.55	0.00	44.16	53.98	-9.81
* 11490.00	Peak	H	-	-	-72.25	20.55	0.00	55.30	73.98	-18.67
17235.00	Peak	H	-	-	-72.38	29.71	0.00	64.33	68.20	-3.87
* 22980.00	Average	H	-	-	-80.52	19.03	-9.54	35.97	53.98	-18.01
* 22980.00	Peak	H	-	-	-68.47	19.03	-9.54	48.02	73.98	-25.96
28725.00	Peak	H	-	-	-54.33	3.65	-9.54	46.78	68.20	-21.42

Table 7-113. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMG977T	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset	Page 234 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-83.93	21.44	0.00	44.51	53.98	-9.47
* 11570.00	Peak	H	-	-	-72.33	21.44	0.00	56.11	73.98	-17.87
17355.00	Peak	H	-	-	-73.06	29.55	0.00	63.49	68.20	-4.71
23140.00	Peak	H	-	-	-69.01	18.82	-9.54	47.26	68.20	-20.94
28925.00	Peak	H	-	-	-53.07	4.50	-9.54	48.89	68.20	-19.31

Table 7-114. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

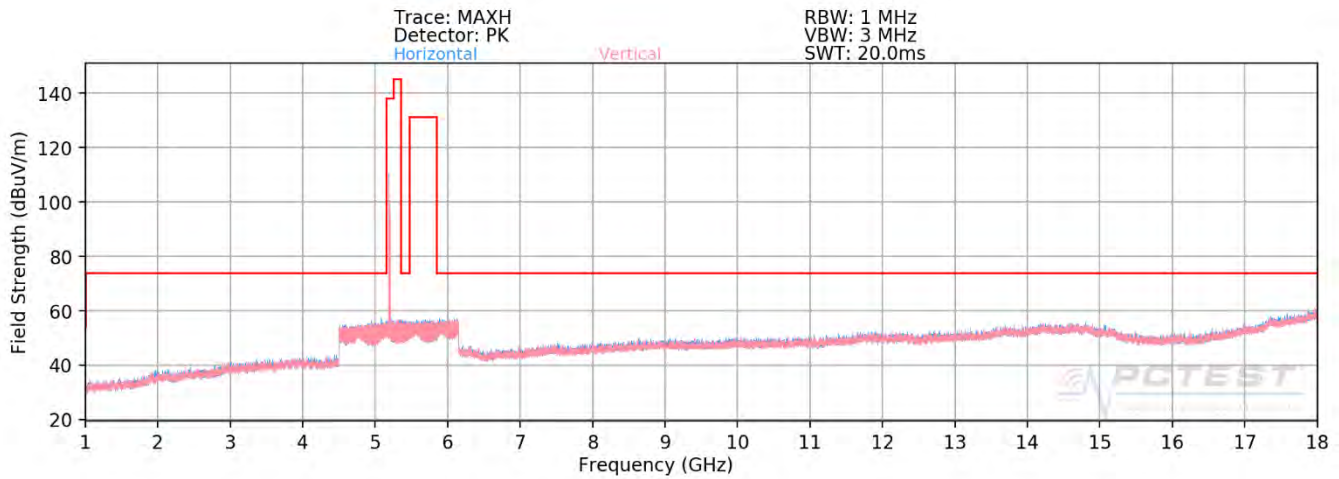
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-83.38	20.88	0.00	44.50	53.98	-9.47
* 11650.00	Peak	H	-	-	-71.87	20.88	0.00	56.01	73.98	-17.96
17475.00	Peak	H	-	-	-73.89	30.26	0.00	63.37	68.20	-4.83
23300.00	Peak	H	-	-	-68.33	18.40	-9.54	47.53	68.20	-20.67
29125.00	Peak	H	-	-	-53.14	2.23	-9.54	46.55	68.20	-21.65

Table 7-115. Radiated Measurements SISO ANT2 (242 Tones)

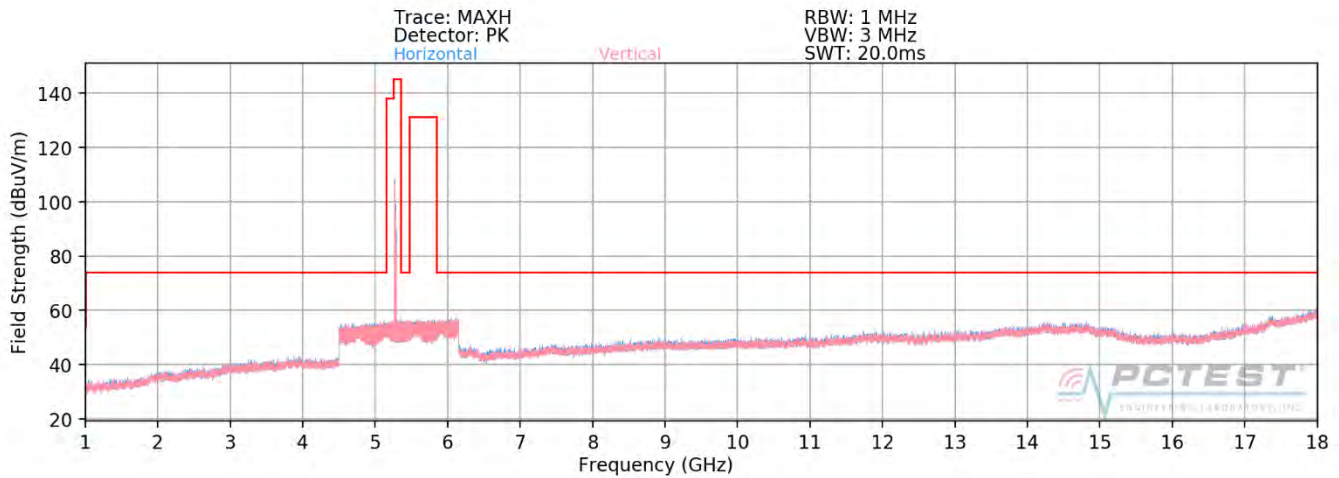
FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 235 of 285

7.6.3 MIMO Radiated Spurious Emission Measurements

26 Tones

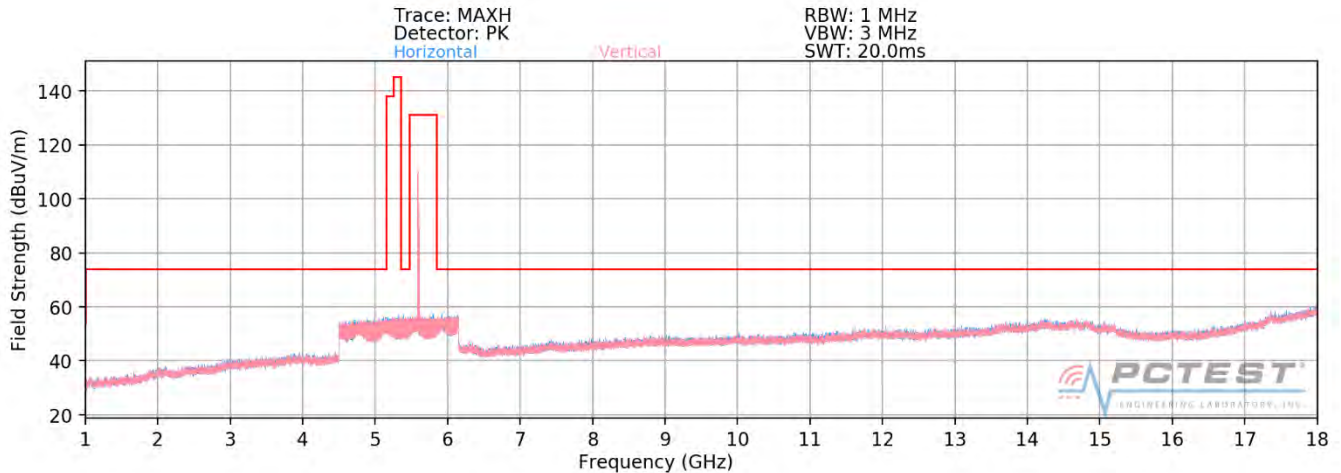


Plot 7-295. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U1 Ch. 40 – 26 Tones)

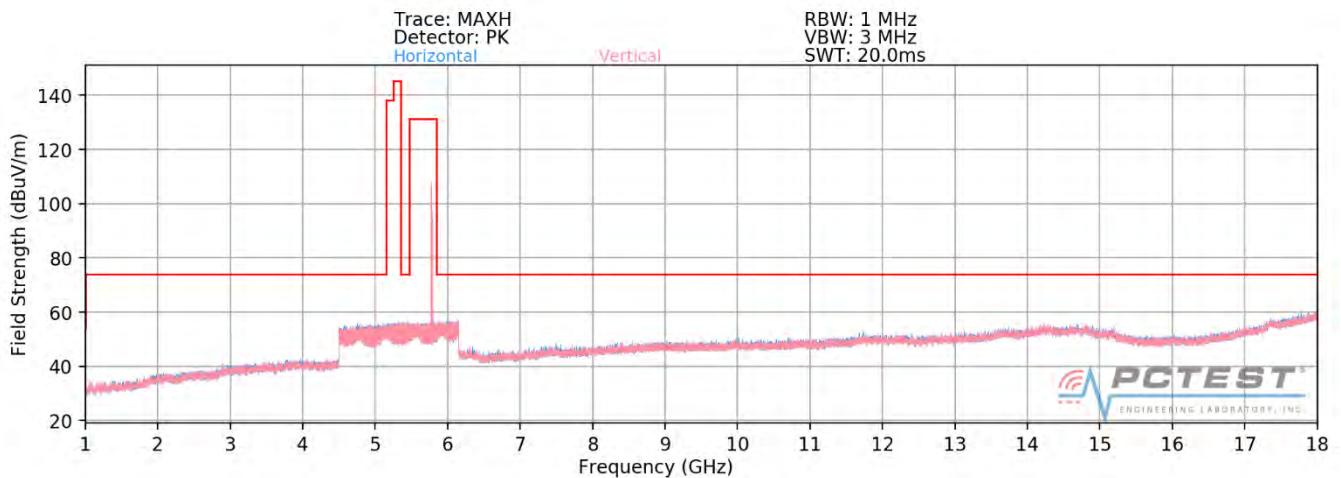


Plot 7-296. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2A Ch. 56 – 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 236 of 285



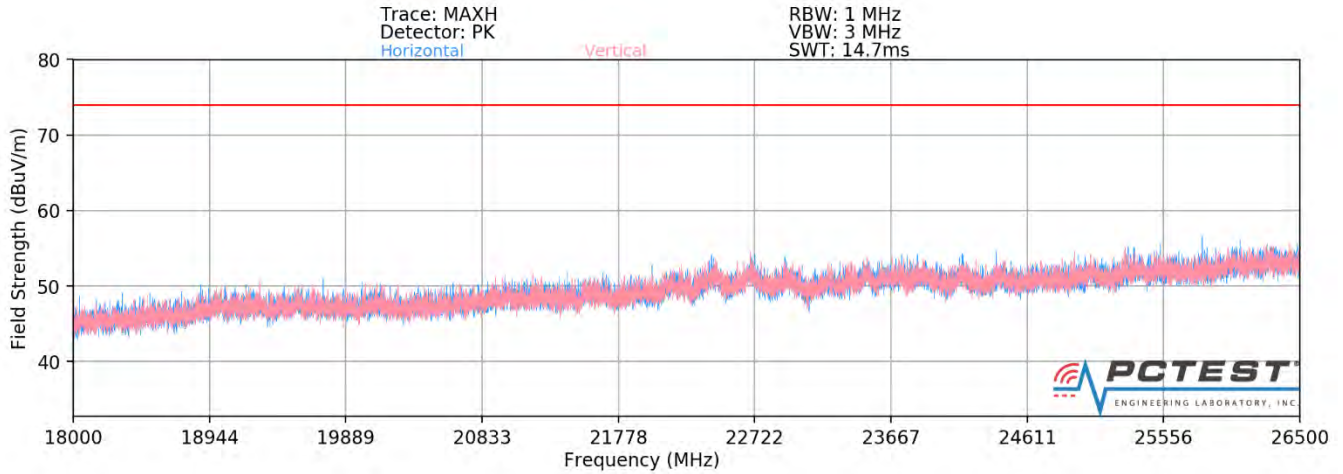
Plot 7-297. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2C Ch. 120 – 26 Tones)



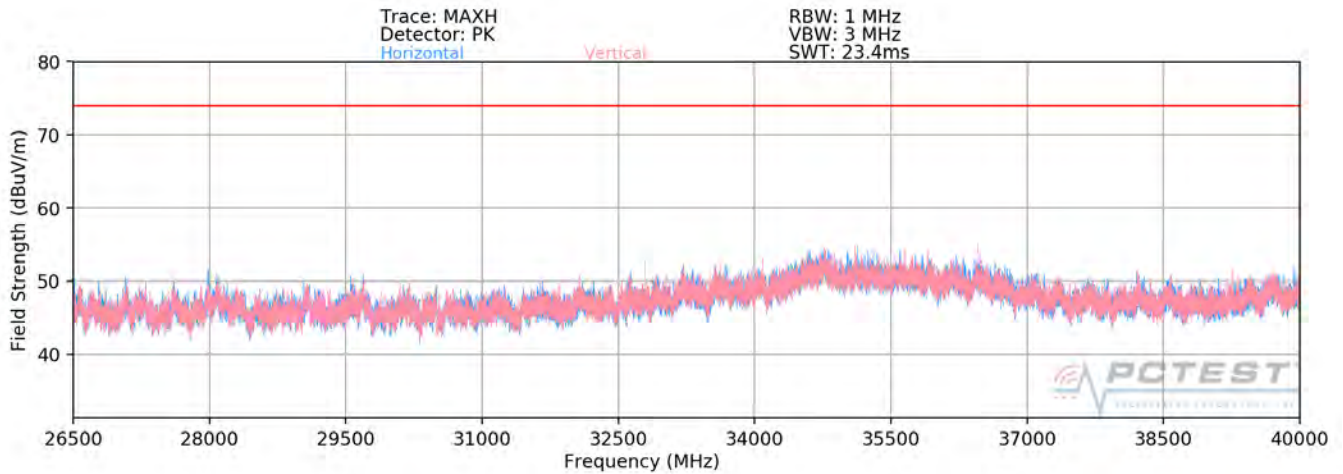
Plot 7-298. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U3 Ch. 157 – 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 237 of 285

MIMO Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-299. Radiated Spurious Plot above 18GHz - 26.5GHz MIMO (802.11ax – 26 Tones)



Plot 7-300. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax – 26 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 238 of 285

MIMO Radiated Spurious Emission Measurements (26 Tones)

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

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 4
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5180MHz
Channel: 36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-71.30	18.82	0.00	54.52	68.20	-13.68
* 15540.00	Average	H	-	-	-84.82	28.27	0.00	50.45	53.98	-3.53
* 15540.00	Peak	H	-	-	-73.81	28.27	0.00	61.46	73.98	-12.52
* 20720.00	Average	H	-	-	-81.20	17.17	-9.54	33.43	53.98	-20.55
* 20720.00	Peak	H	-	-	-69.76	17.17	-9.54	44.87	73.98	-29.11
25900.00	Peak	H	-	-	-69.38	19.34	-9.54	47.42	68.20	-20.78

Table 7-116. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 4
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5200MHz
Channel: 40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-71.77	18.78	0.00	54.01	68.20	-14.19
* 15600.00	Average	H	-	-	-85.35	27.80	0.00	49.45	53.98	-4.53
* 15600.00	Peak	H	-	-	-73.83	27.80	0.00	60.97	73.98	-13.01
* 20800.00	Average	H	-	-	-80.87	17.31	-9.54	33.90	53.98	-20.08
* 20800.00	Peak	H	-	-	-69.64	17.31	-9.54	45.12	73.98	-28.86
26000.00	Peak	H	-	-	-69.17	19.60	-9.54	47.89	68.20	-20.31

Table 7-117. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 4
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5240MHz
Channel: 48

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 239 of 285

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-71.85	20.06	0.00	55.21	68.20	-12.99
* 15720.00	Average	H	-	-	-84.92	27.64	0.00	49.72	53.98	-4.26
* 15720.00	Peak	H	-	-	-74.04	27.64	0.00	60.60	73.98	-13.38
* 20960.00	Average	H	-	-	-80.10	17.60	-9.54	34.95	53.98	-19.03
* 20960.00	Peak	H	-	-	-69.94	17.60	-9.54	45.12	73.98	-28.86
26200.00	Peak	H	-	-	-69.26	19.73	-9.54	47.93	68.20	-20.27

Table 7-118. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	H	-	-	-72.41	19.70	0.00	54.29	68.20	-13.91
* 15780.00	Average	H	-	-	-84.94	27.31	0.00	49.37	53.98	-4.61
* 15780.00	Peak	H	-	-	-73.87	27.31	0.00	60.44	73.98	-13.54
* 21040.00	Average	H	-	-	-80.72	17.67	-9.54	34.41	53.98	-19.57
* 21040.00	Peak	H	-	-	-70.24	17.67	-9.54	44.89	73.98	-29.09
26300.00	Peak	H	-	-	-69.55	20.29	-9.54	48.19	68.20	-20.01

Table 7-119. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 240 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	H	-	-	-72.33	19.86	0.00	54.53	68.20	-13.67
* 15840.00	Average	H	-	-	-84.69	27.54	0.00	49.85	53.98	-4.13
* 15840.00	Peak	H	-	-	-73.67	27.54	0.00	60.87	73.98	-13.11
* 21120.00	Average	H	-	-	-80.56	17.83	-9.54	34.73	53.98	-19.25
* 21120.00	Peak	H	-	-	-70.20	17.83	-9.54	45.09	73.98	-28.89
* 26400.00	Peak	H	-	-	-67.58	20.07	-9.54	49.96	68.20	-18.24

Table 7-120. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	H	-	-	-83.04	19.52	0.00	43.48	53.98	-10.50
* 10640.00	Peak	H	-	-	-71.74	19.52	0.00	54.78	73.98	-19.20
* 15960.00	Average	H	-	-	-85.05	27.84	0.00	49.79	53.98	-4.19
* 15960.00	Peak	H	-	-	-73.29	27.84	0.00	61.55	73.98	-12.43
* 21280.00	Average	H	-	-	-80.09	17.98	-9.54	35.34	53.98	-18.63
* 21280.00	Peak	H	-	-	-67.93	17.98	-9.54	47.51	73.98	-26.47
* 26600.00	Peak	H	-	-	-54.32	4.42	-9.54	47.56	68.20	-20.64

Table 7-121. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 241 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	H	-	-	-84.36	20.35	0.00	42.99	53.98	-10.99
* 11000.00	Peak	H	-	-	-72.81	20.35	0.00	54.54	73.98	-19.44
16500.00	Peak	H	-	-	-73.41	28.54	0.00	62.13	68.20	-6.07
22000.00	Peak	H	-	-	-68.20	18.43	-9.54	47.68	68.20	-20.52
27500.00	Peak	H	-	-	-53.05	3.16	-9.54	47.56	68.20	-20.64

Table 7-122. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	H	-	-	-83.86	20.31	0.00	43.45	53.98	-10.53
* 11200.00	Peak	H	-	-	-70.92	20.31	0.00	56.39	73.98	-17.59
16800.00	Peak	H	-	-	-73.09	28.88	0.00	62.79	68.20	-5.41
* 22400.00	Average	H	-	-	-81.11	19.18	-9.54	35.53	53.98	-18.45
* 22400.00	Peak	H	-	-	-69.33	19.18	-9.54	47.31	73.98	-26.67
28000.00	Peak	H	-	-	-53.50	4.80	-9.54	48.76	68.20	-19.44

Table 7-123. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 242 of 285

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	H	-	-	-83.70	20.11	0.00	43.41	53.98	-10.57
* 11440.00	Peak	H	-	-	-72.35	20.11	0.00	54.76	73.98	-19.22
17160.00	Peak	H	-	-	-74.31	29.40	0.00	62.09	68.20	-6.11
* 22880.00	Average	H	-	-	-81.84	18.88	-9.54	34.50	53.98	-19.48
* 22880.00	Peak	H	-	-	-68.33	18.88	-9.54	48.01	73.98	-25.97
28600.00	Peak	H	-	-	-53.74	3.32	-9.54	47.04	68.20	-21.16

Table 7-124. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-83.42	20.55	0.00	44.13	53.98	-9.84
* 11490.00	Peak	H	-	-	-72.53	20.55	0.00	55.02	73.98	-18.95
17235.00	Peak	H	-	-	-73.10	29.71	0.00	63.61	68.20	-4.59
* 22980.00	Average	H	-	-	-80.98	19.03	-9.54	35.51	53.98	-18.47
* 22980.00	Peak	H	-	-	-69.88	19.03	-9.54	46.61	73.98	-27.37
28725.00	Peak	H	-	-	-53.18	3.65	-9.54	47.93	68.20	-20.27

Table 7-125. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 243 of 285

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-83.69	21.44	0.00	44.75	53.98	-9.23
* 11570.00	Peak	H	-	-	-71.92	21.44	0.00	56.52	73.98	-17.46
17355.00	Peak	H	-	-	-73.47	29.55	0.00	63.08	68.20	-5.12
23140.00	Peak	H	-	-	-68.67	18.82	-9.54	47.61	68.20	-20.59
28925.00	Peak	H	-	-	-52.86	4.50	-9.54	49.10	68.20	-19.10

Table 7-126. Radiated Measurements MIMO (26 Tones)

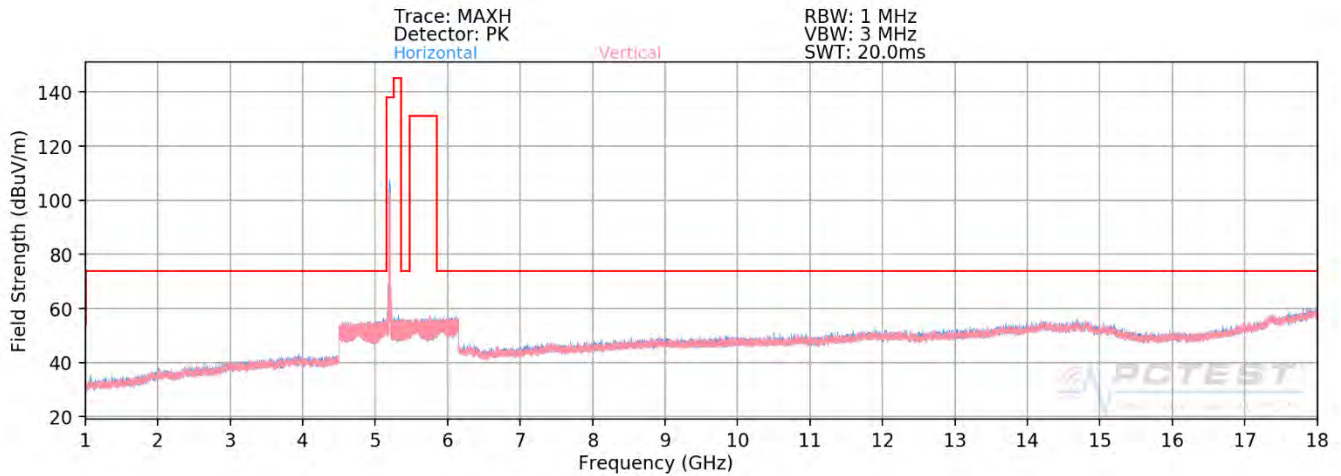
Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-83.63	20.88	0.00	44.25	53.98	-9.72
* 11650.00	Peak	H	-	-	-71.73	20.88	0.00	56.15	73.98	-17.82
17475.00	Peak	H	-	-	-73.63	30.26	0.00	63.63	68.20	-4.57
23300.00	Peak	H	-	-	-69.23	18.40	-9.54	46.63	68.20	-21.57
29125.00	Peak	H	-	-	-52.63	2.23	-9.54	47.06	68.20	-21.14

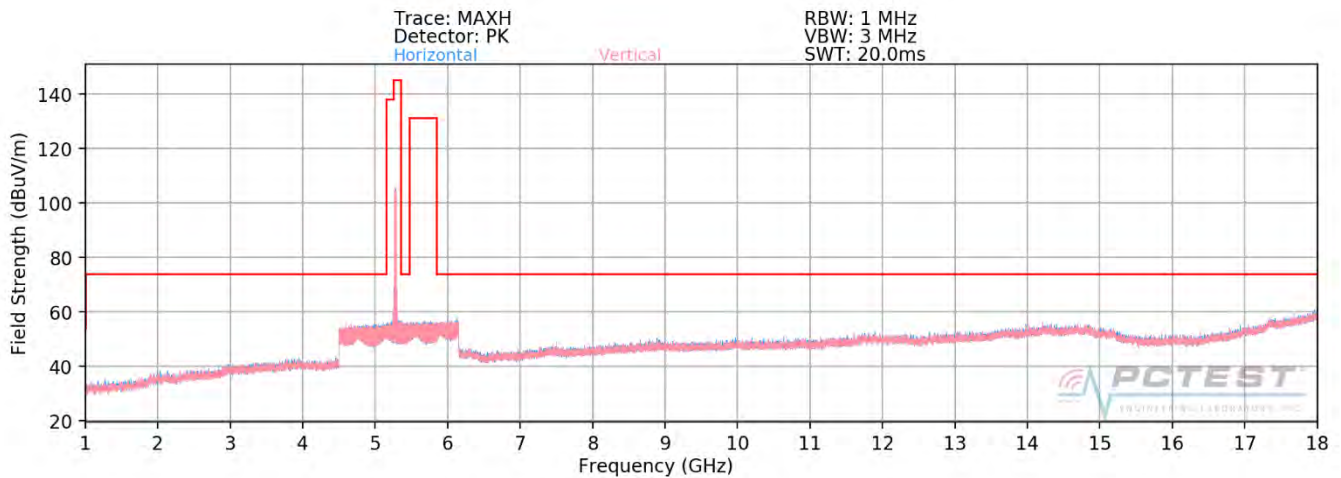
Table 7-127. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG977T		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 244 of 285

242 Tones

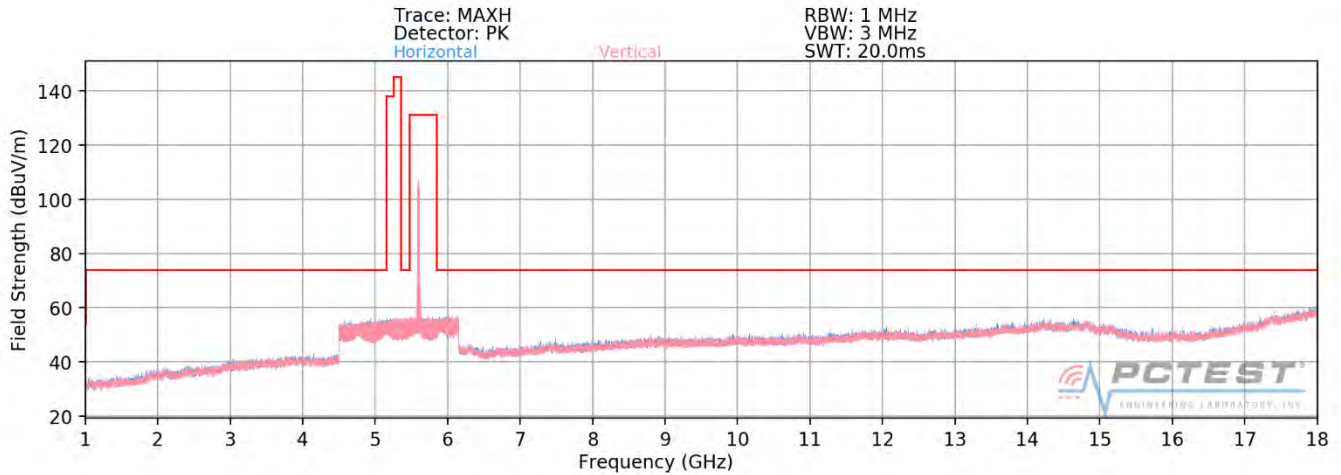


Plot 7-301. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U1 Ch. 40 – 242 Tones)

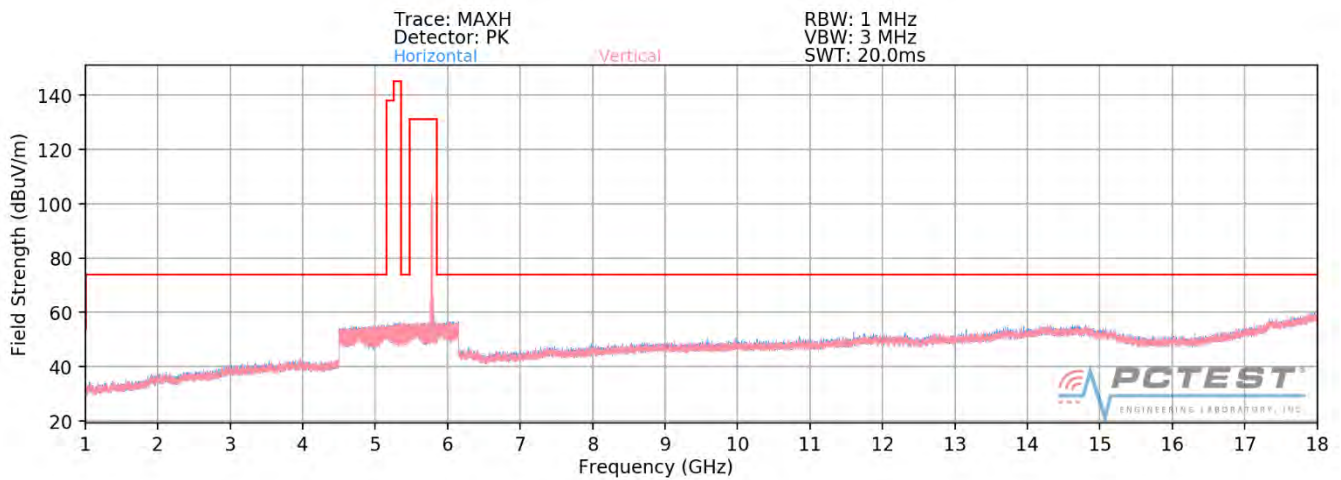


Plot 7-302. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2A Ch. 56 – 242 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 245 of 285



Plot 7-303. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2C Ch. 120 – 242 Tones)



Plot 7-304. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U3 Ch. 157 – 242 Tones)

FCC ID: A3LSMG977T	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1903060032-09.A3L	Test Dates: 01/22 - 05/08/2019	EUT Type: Portable Handset		Page 246 of 285