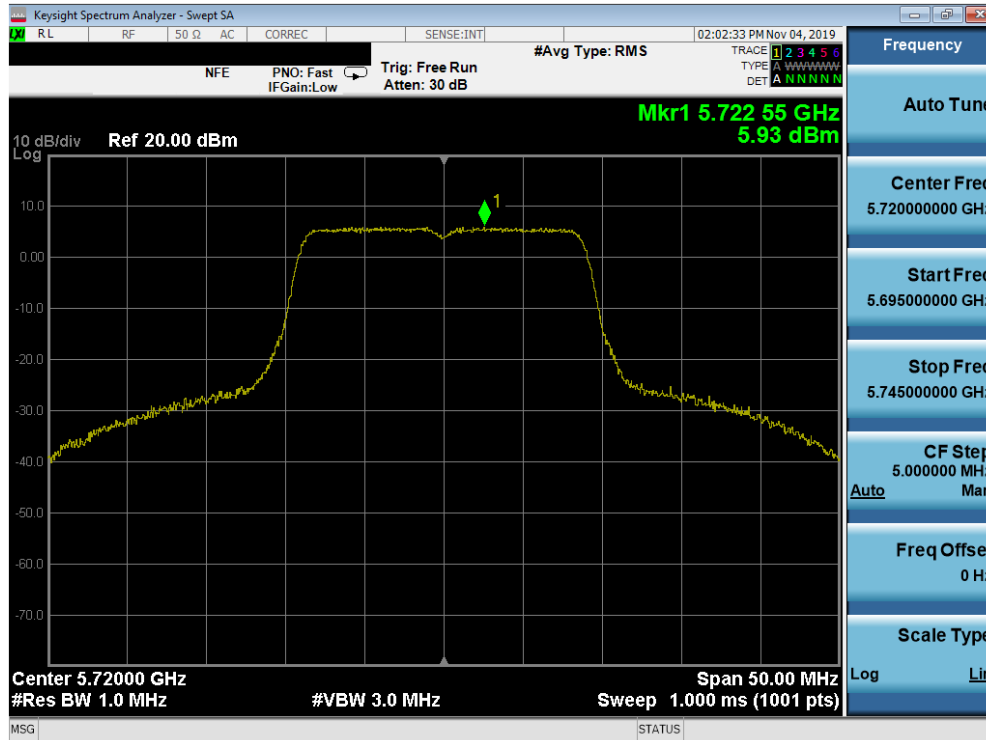
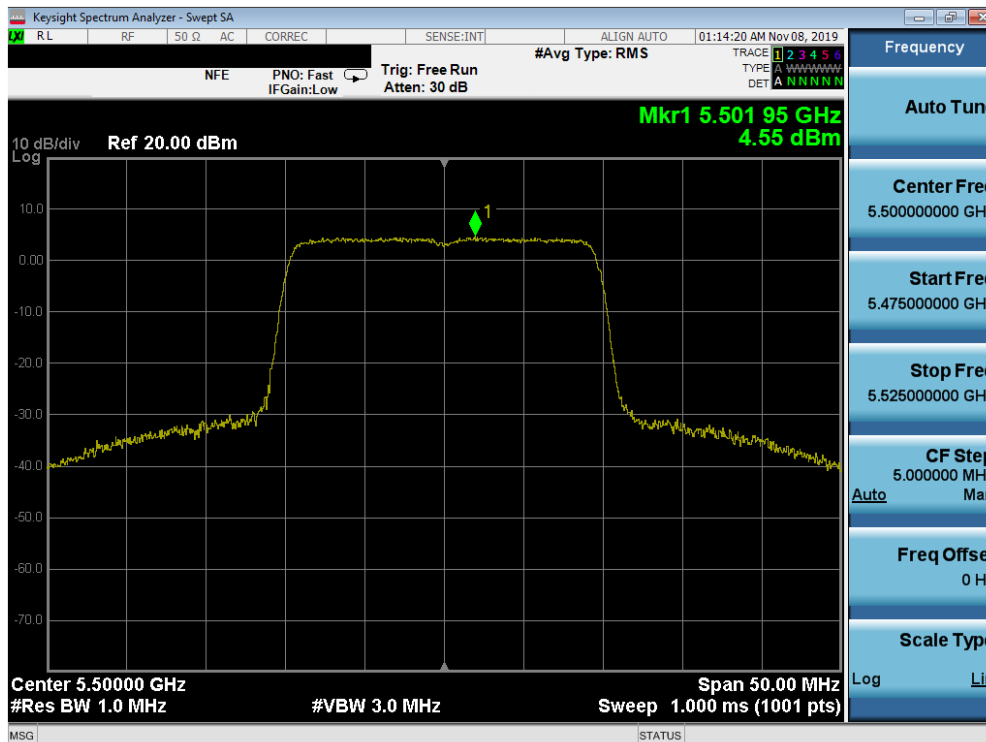


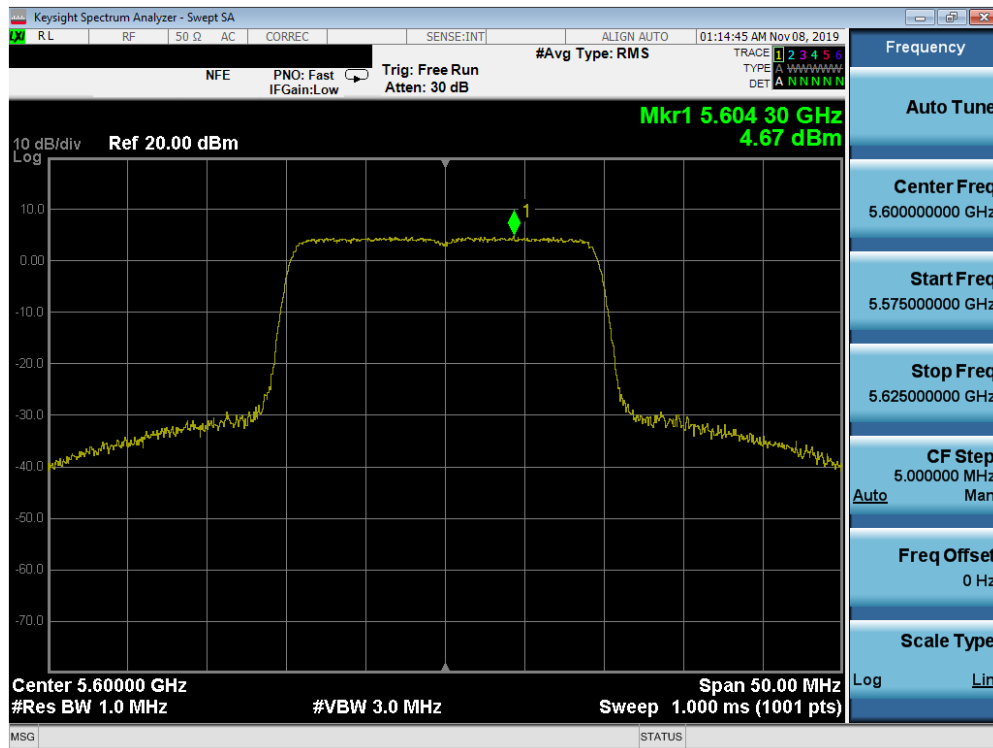


Plot 7-234. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

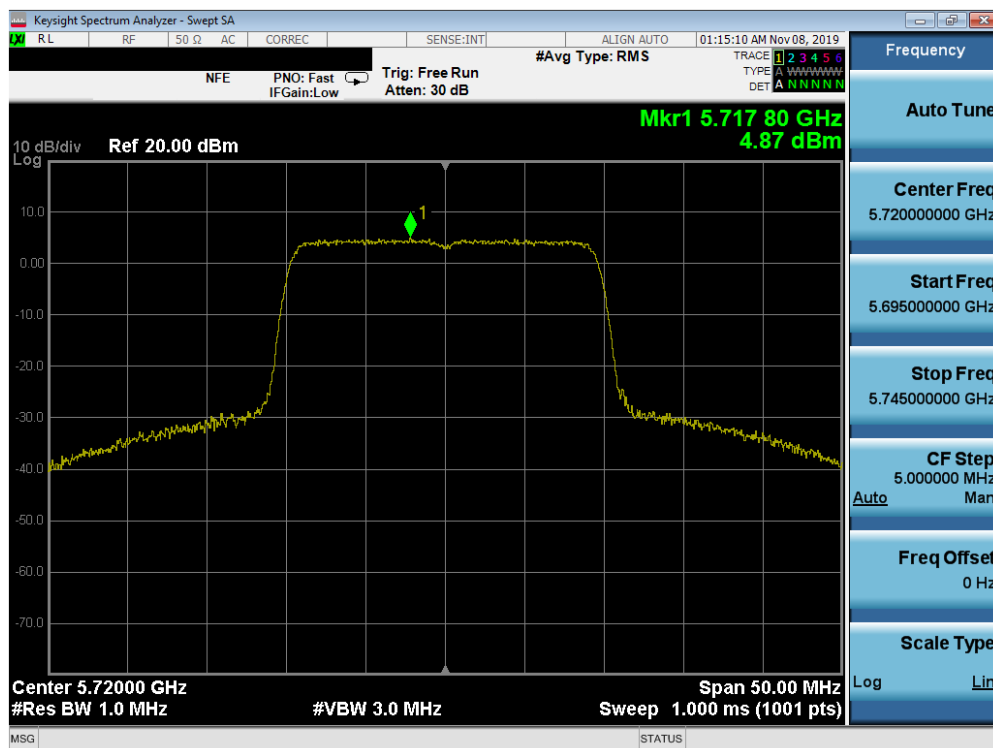


Plot 7-235. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 149 of 240

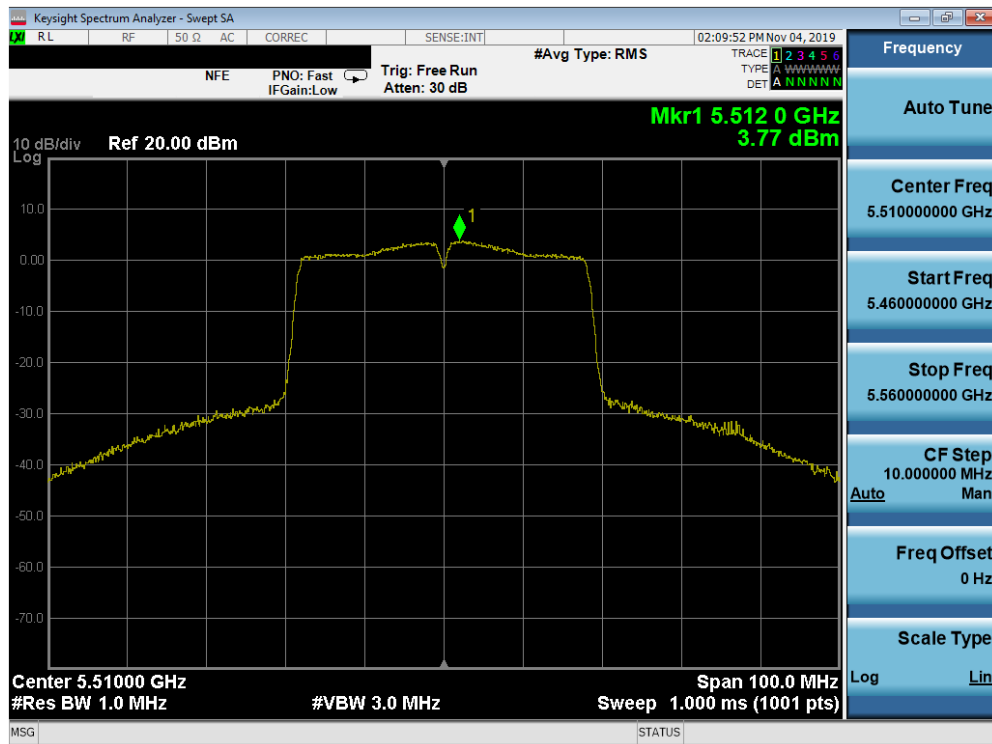


Plot 7-236. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 120)

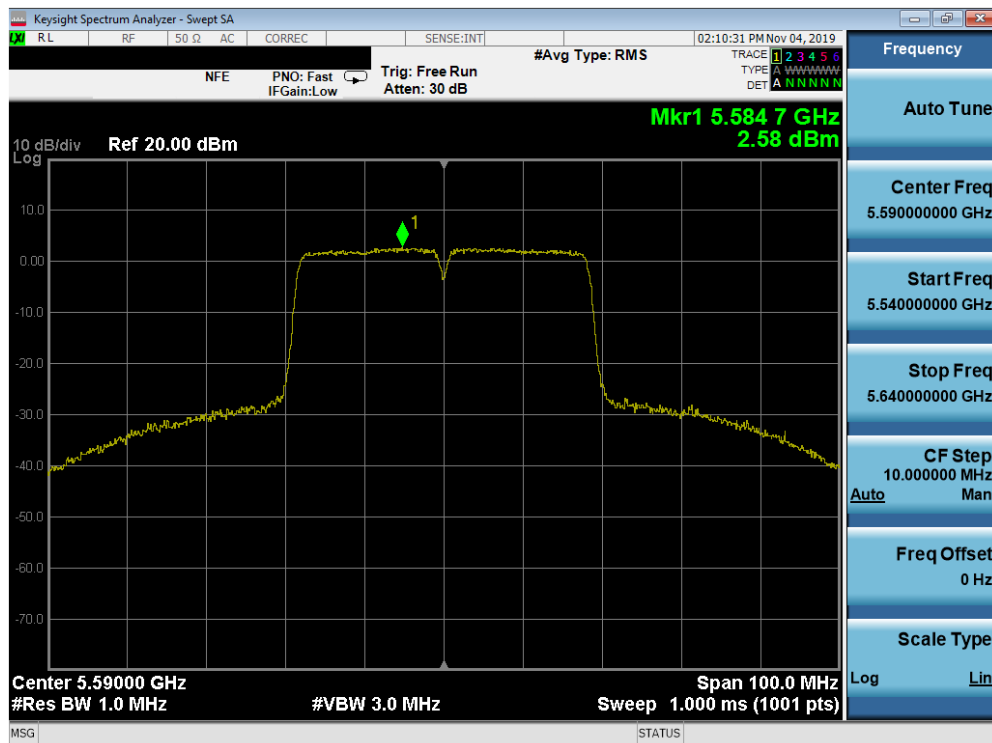


Plot 7-237. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 150 of 240

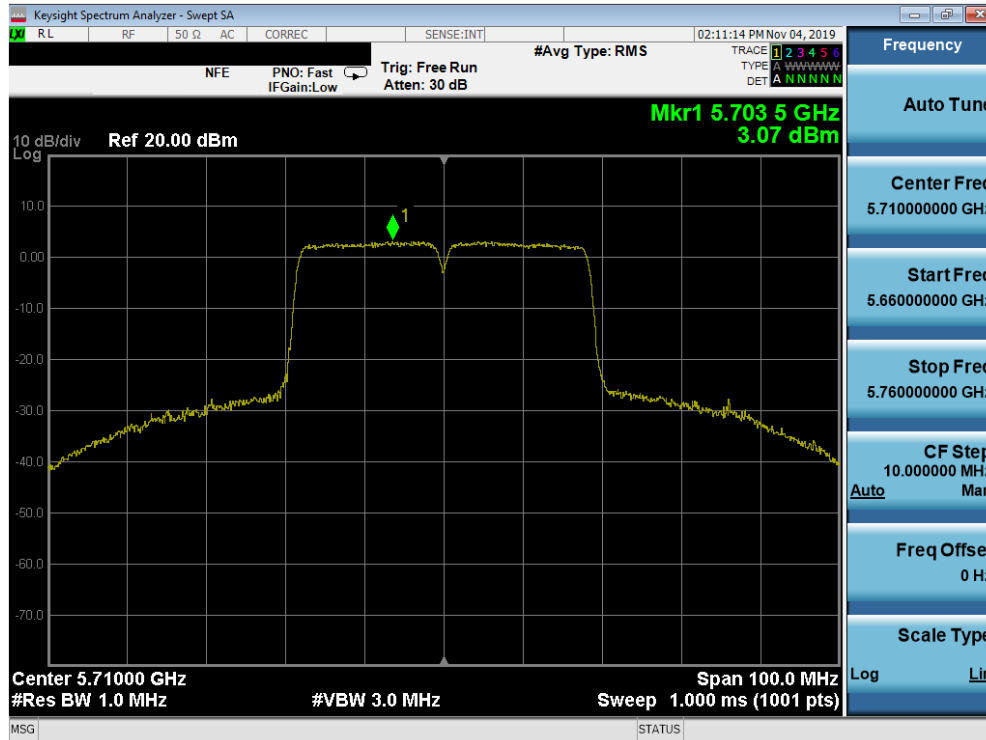


Plot 7-238. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

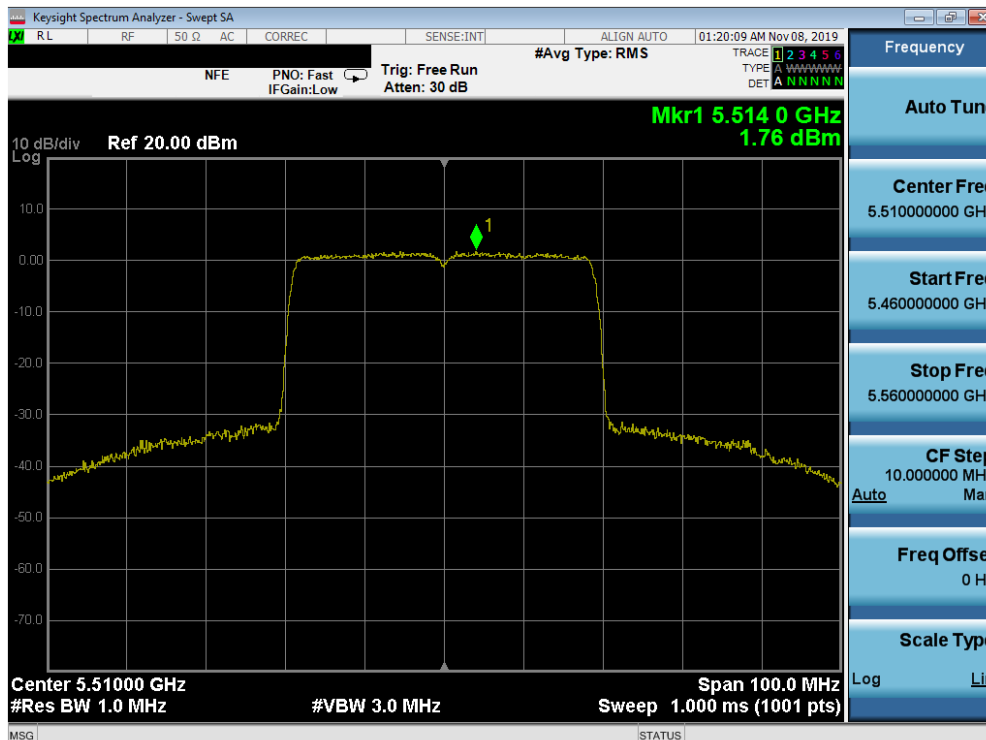


Plot 7-239. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 151 of 240

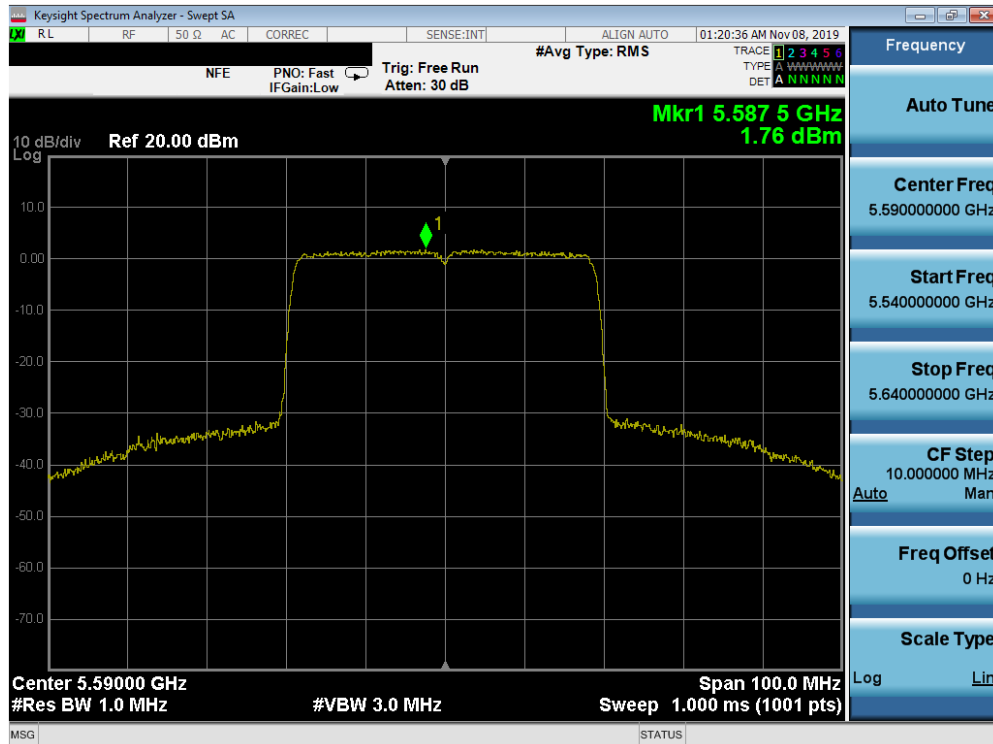


Plot 7-240. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

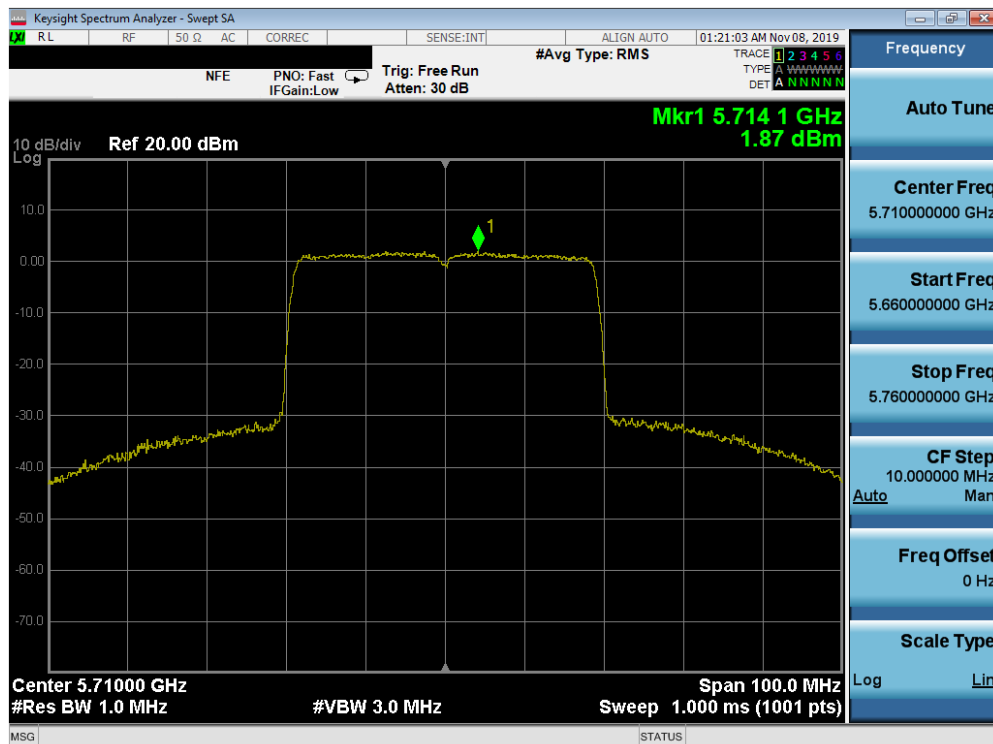


Plot 7-241. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 152 of 240

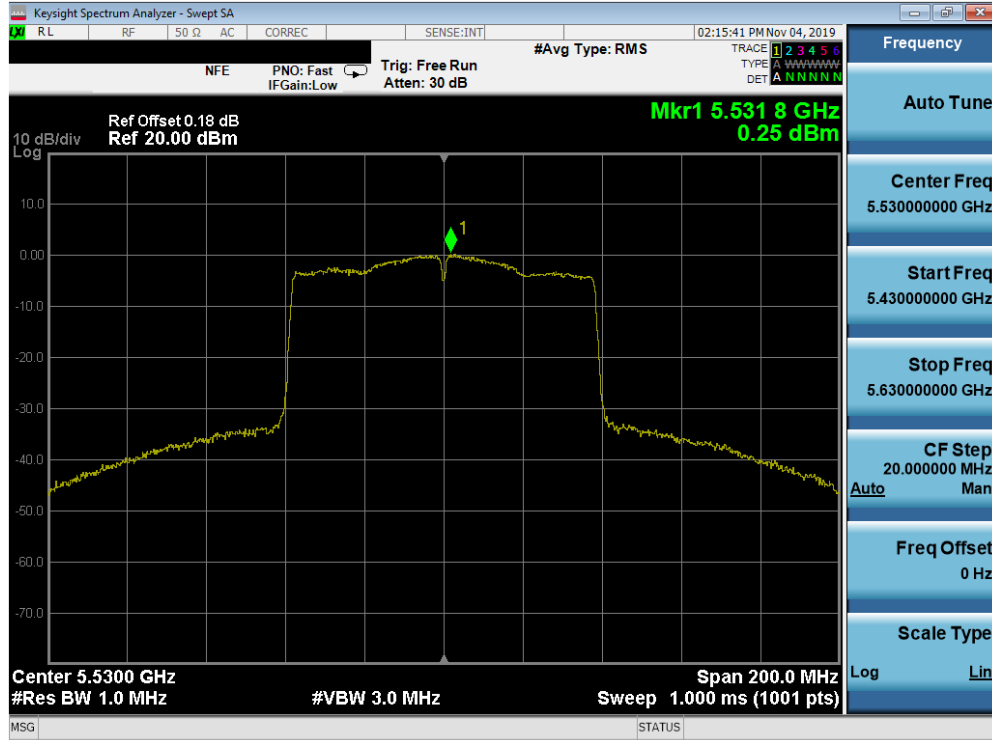


Plot 7-242. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 118)

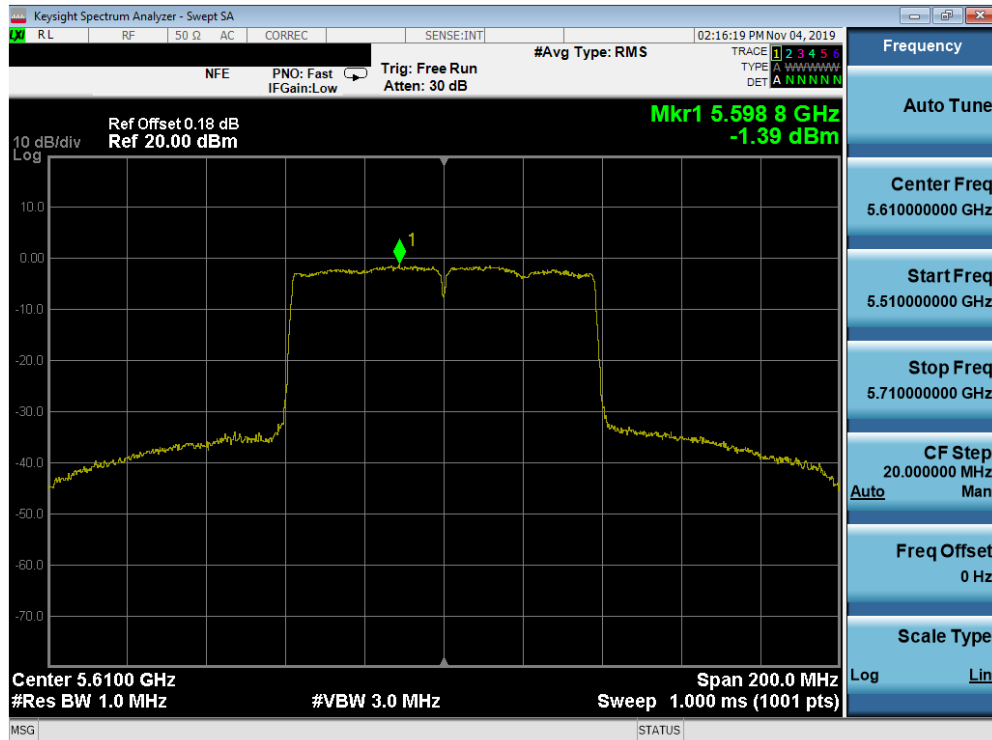


Plot 7-243. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 153 of 240

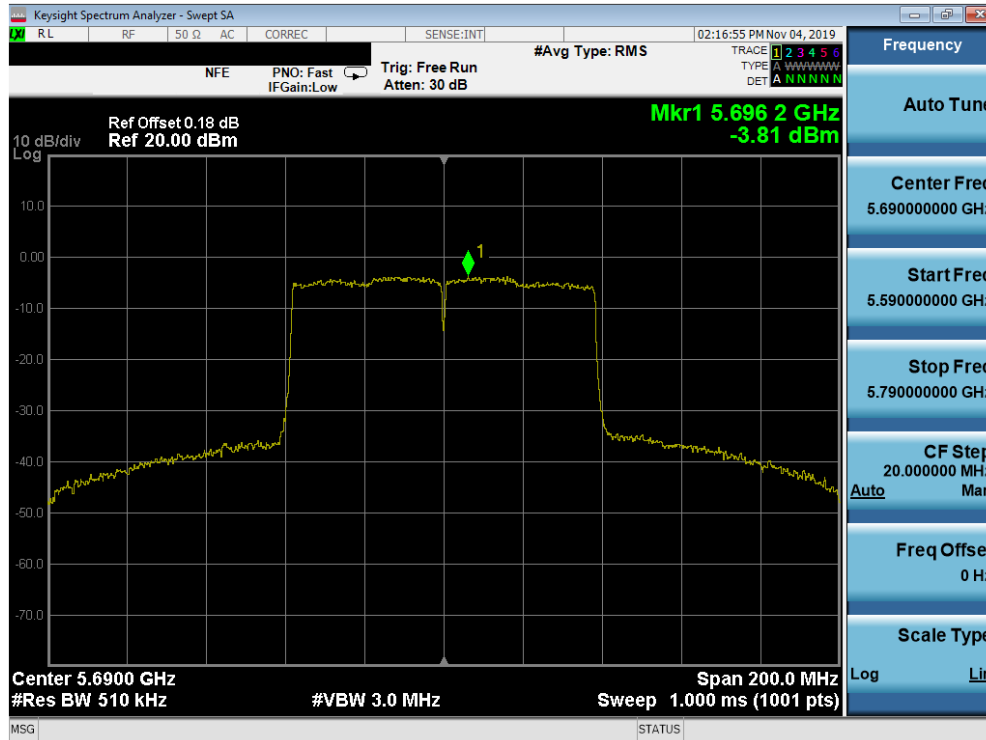


Plot 7-244. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

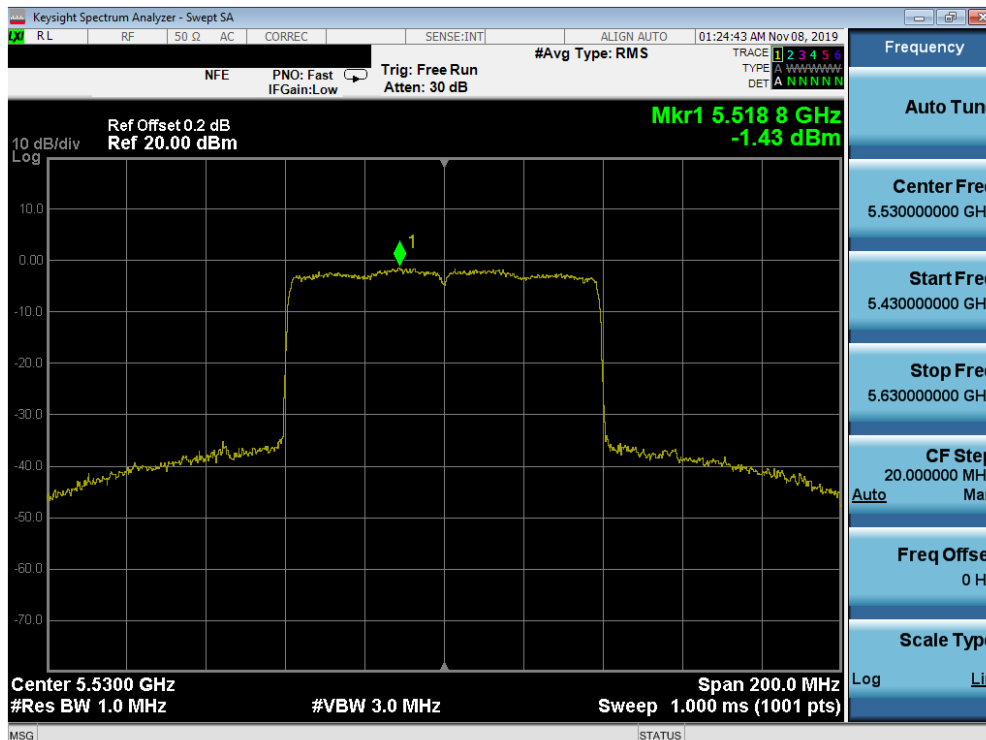


Plot 7-245. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 154 of 240

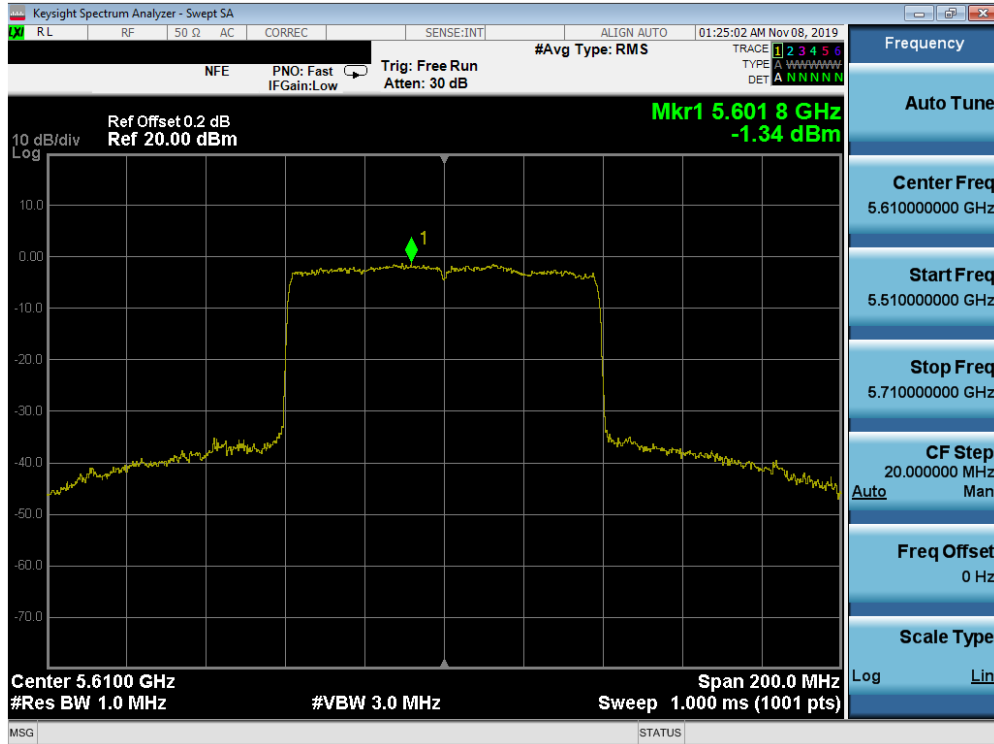


Plot 7-246. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

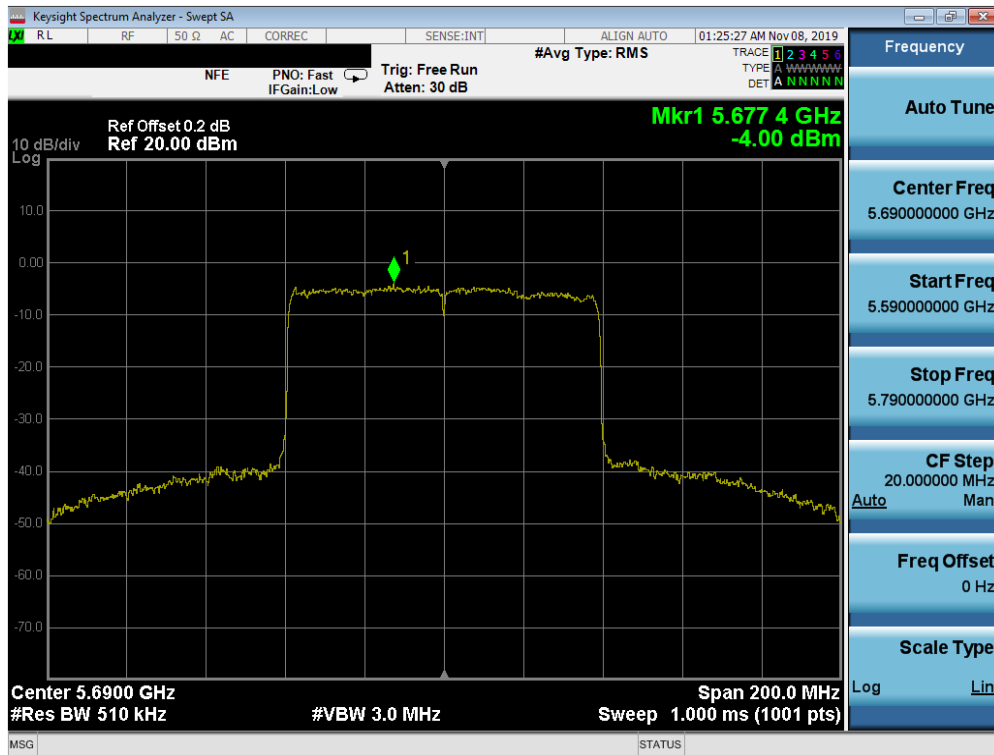


Plot 7-247. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 155 of 240



Plot 7-248. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 122)

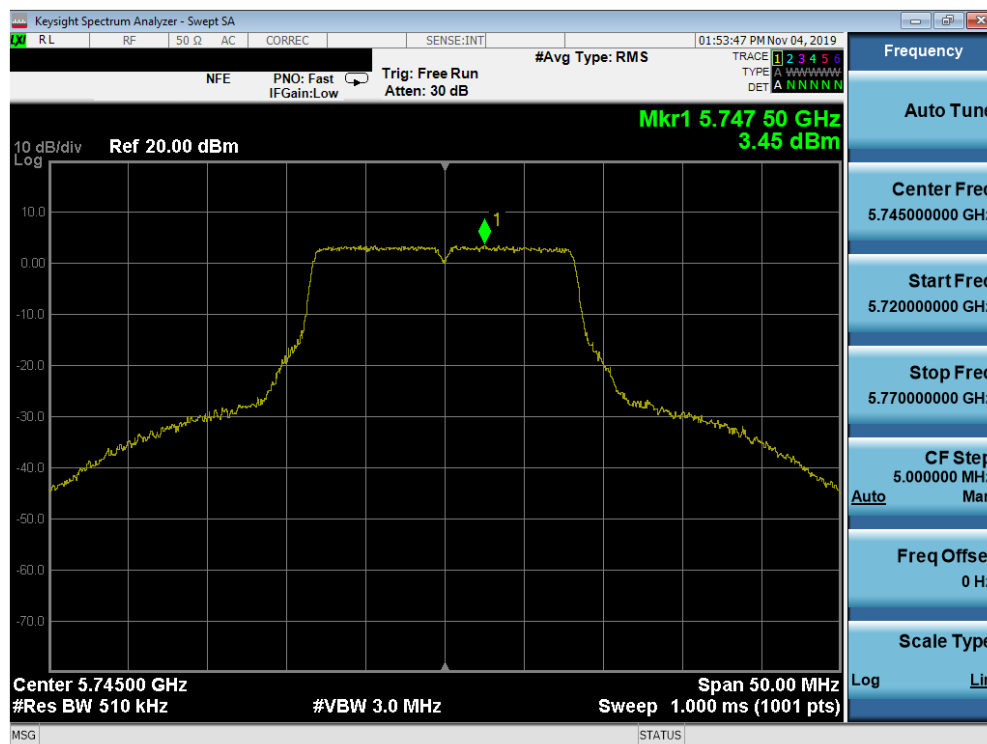


Plot 7-249. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 156 of 240

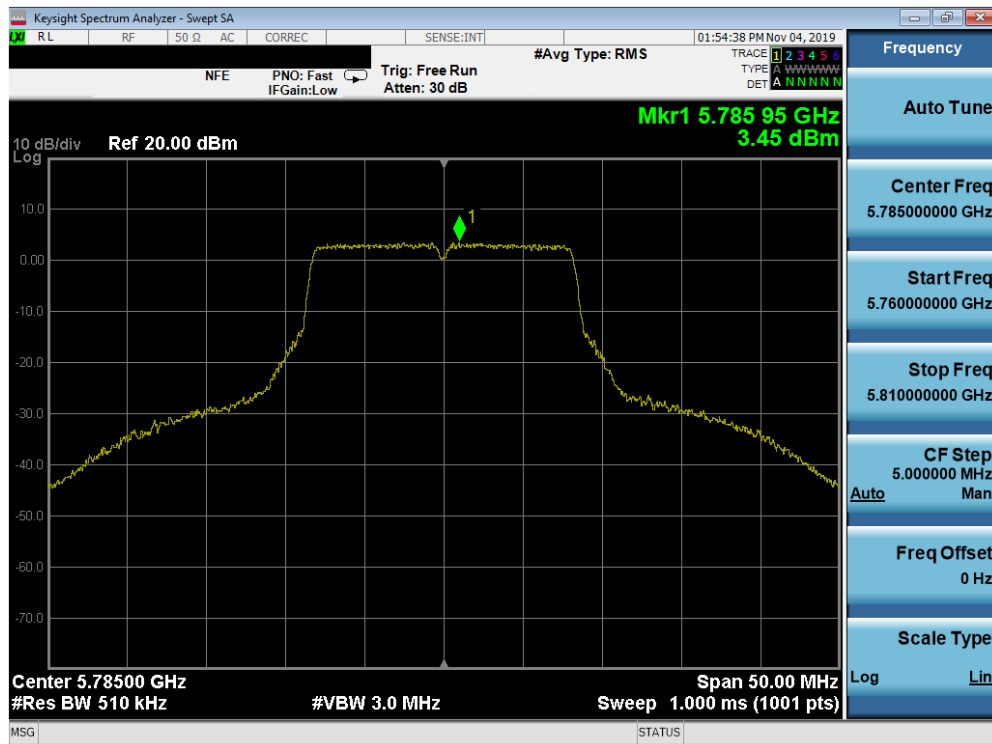
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6	3.45	30.0	-26.55
	5785	157	a	6	3.45	30.0	-26.55
	5825	165	a	6	3.26	30.0	-26.74
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	3.24	30.0	-26.76
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	3.13	30.0	-26.87
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	3.10	30.0	-26.90
	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	2.09	30.0	-27.91
	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	2.20	30.0	-27.80
	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	2.09	30.0	-27.91
	5755	151	n (40MHz)	13.5/15 (MCS0)	0.37	30.0	-29.63
	5795	159	n (40MHz)	13.5/15 (MCS0)	0.43	30.0	-29.57
	5755	151	ax (40MHz)	13.5/15 (MCS0)	-0.86	30.0	-30.86
	5795	159	ax (40MHz)	13.5/15 (MCS0)	-0.88	30.0	-30.88
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-0.57	30.0	-30.57
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	-2.83	30.0	-32.83

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

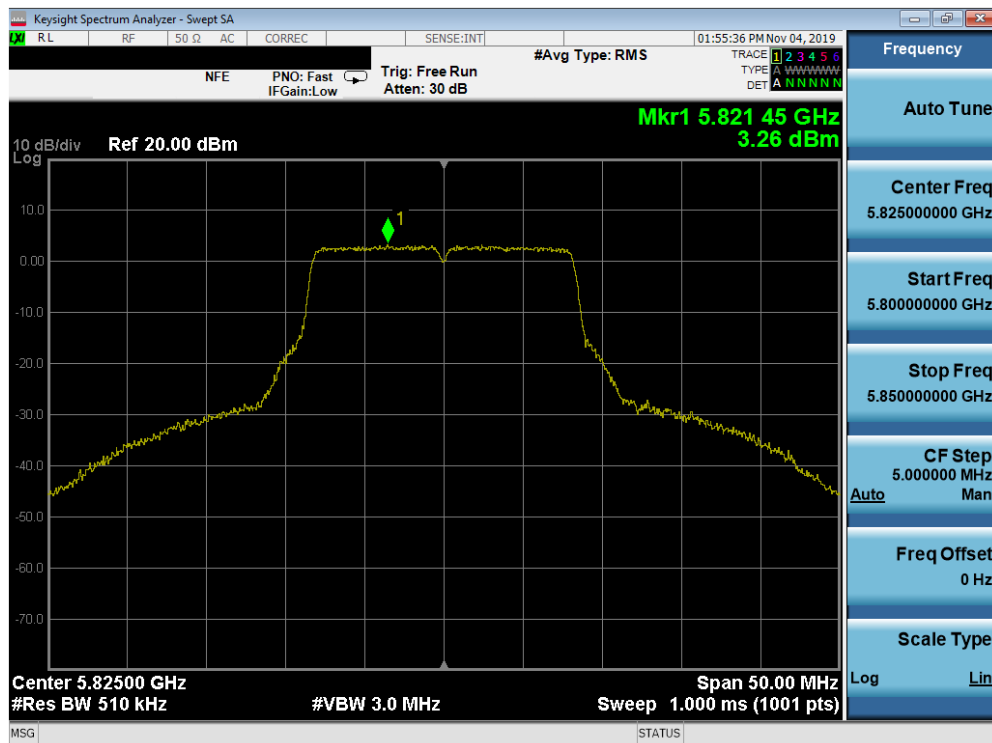


Plot 7-250. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 157 of 240

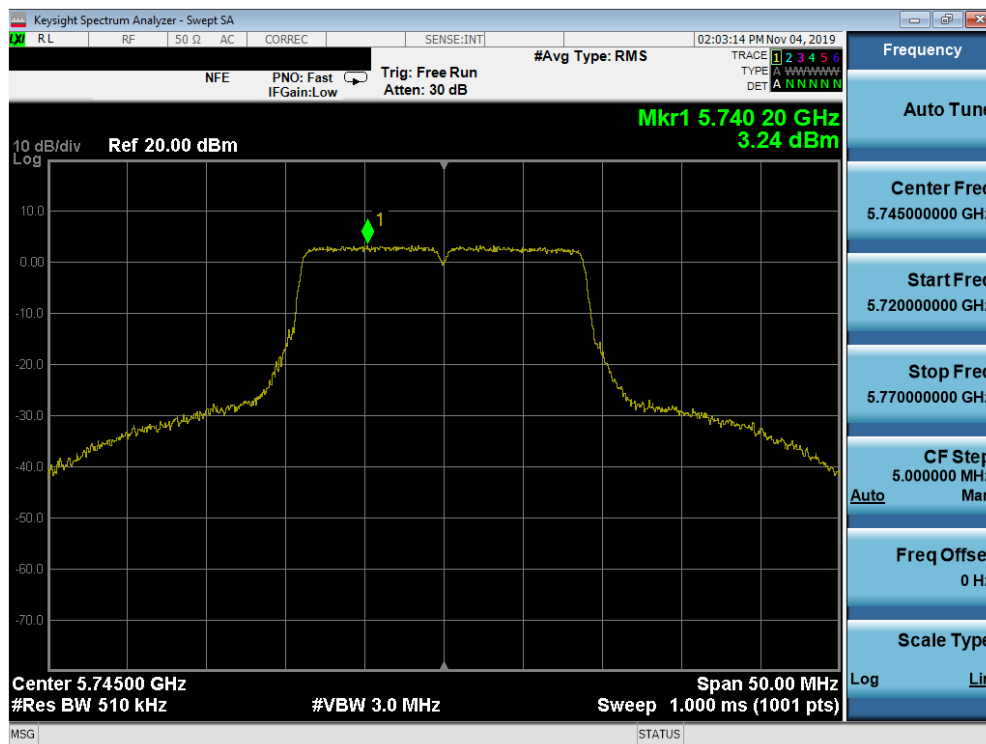


Plot 7-251. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 157)

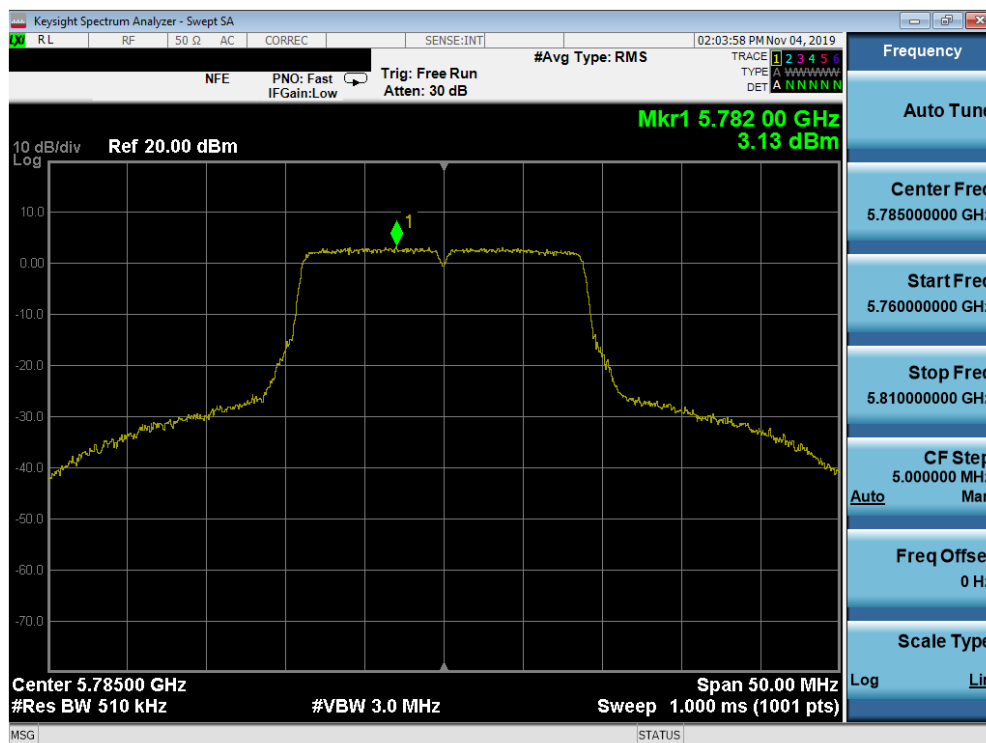


Plot 7-252. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 158 of 240

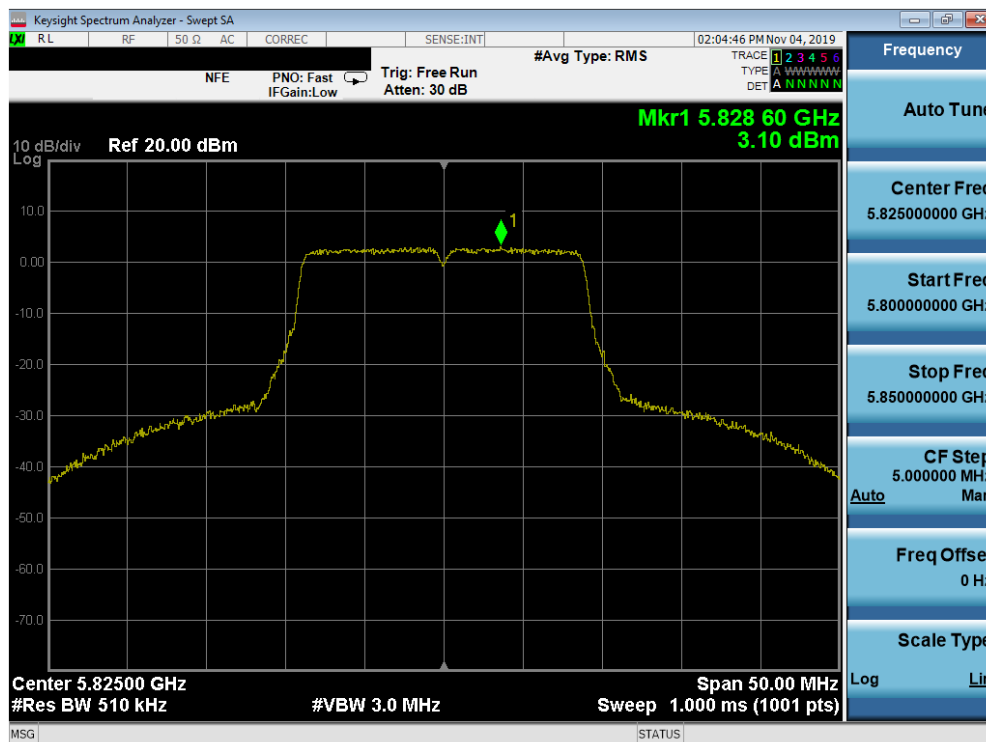


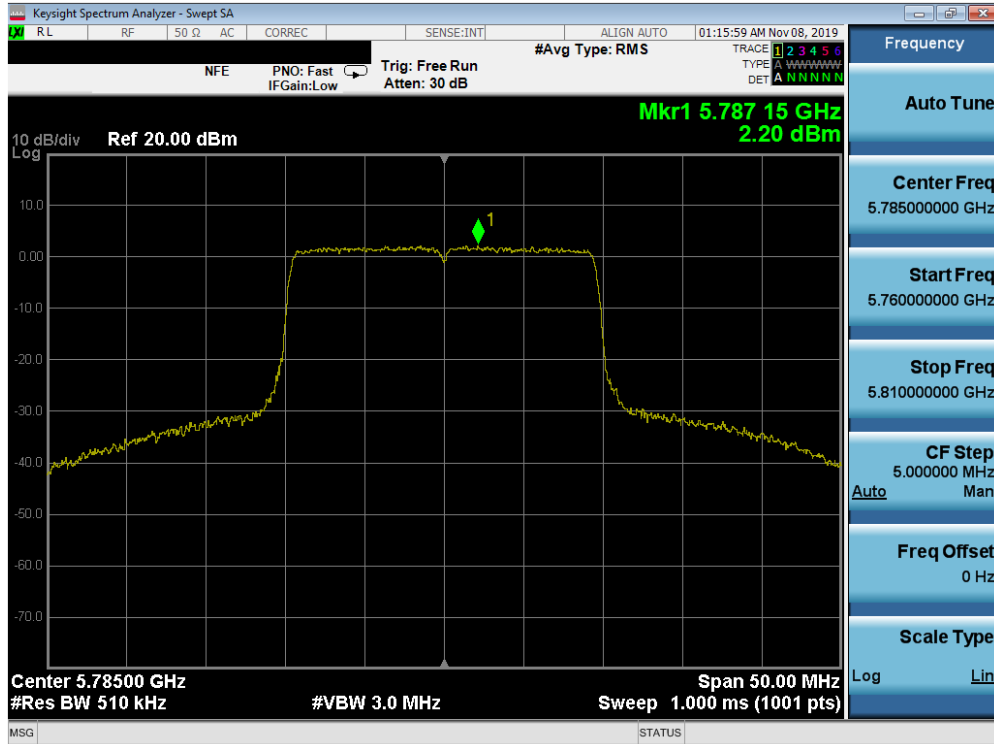
Plot 7-253. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



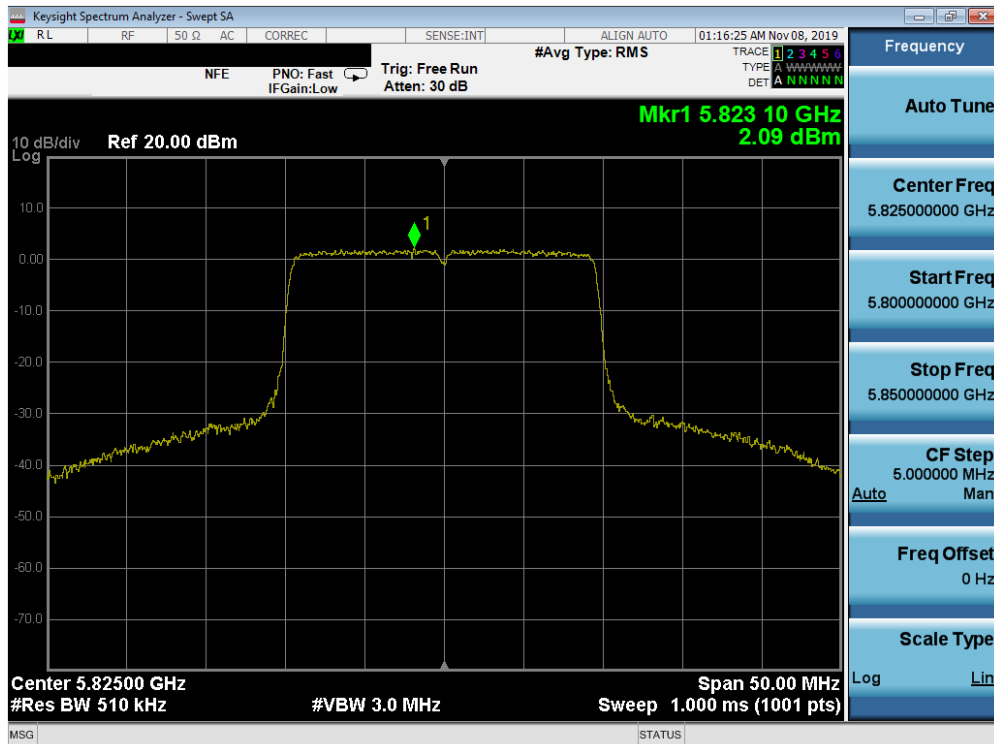
Plot 7-254. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 159 of 240



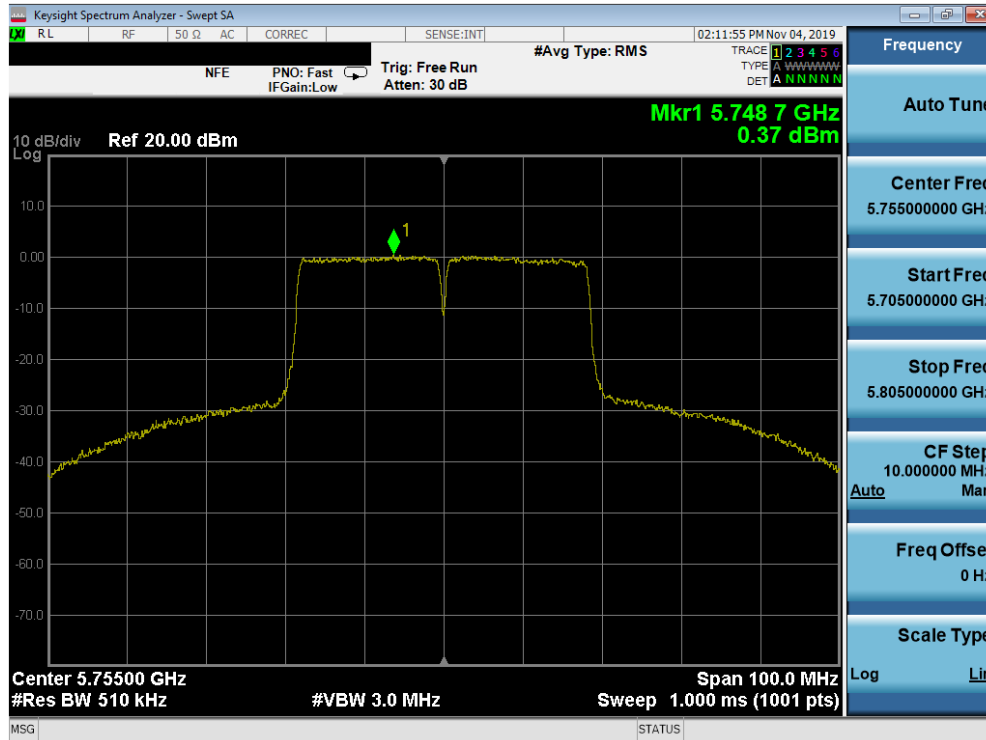


Plot 7-257. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

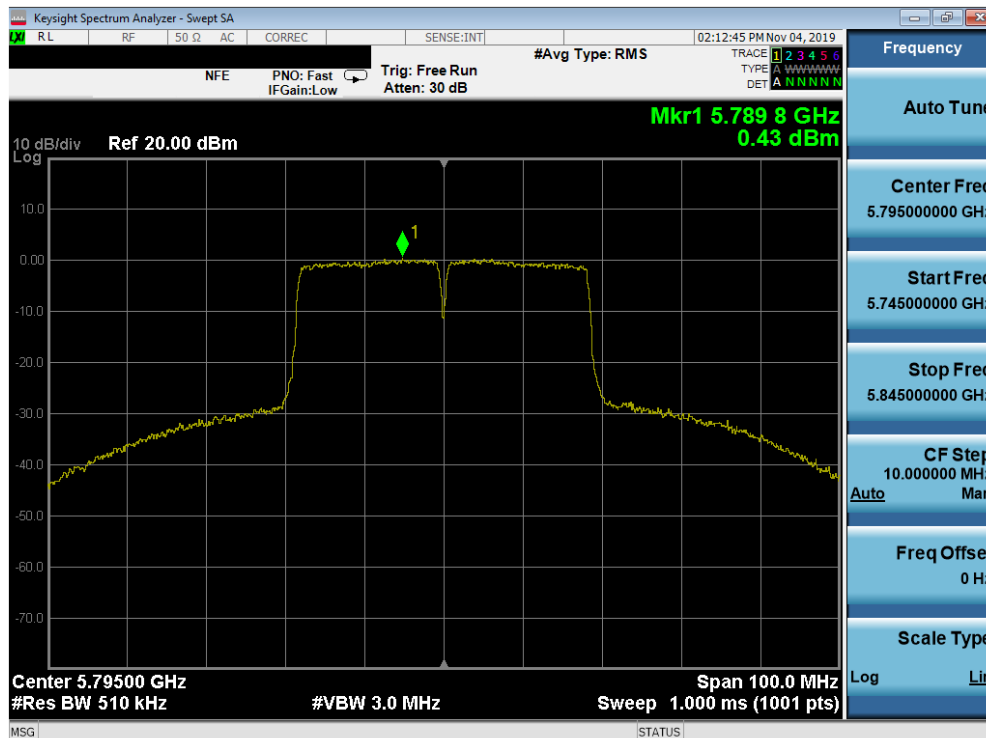


Plot 7-258. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 161 of 240

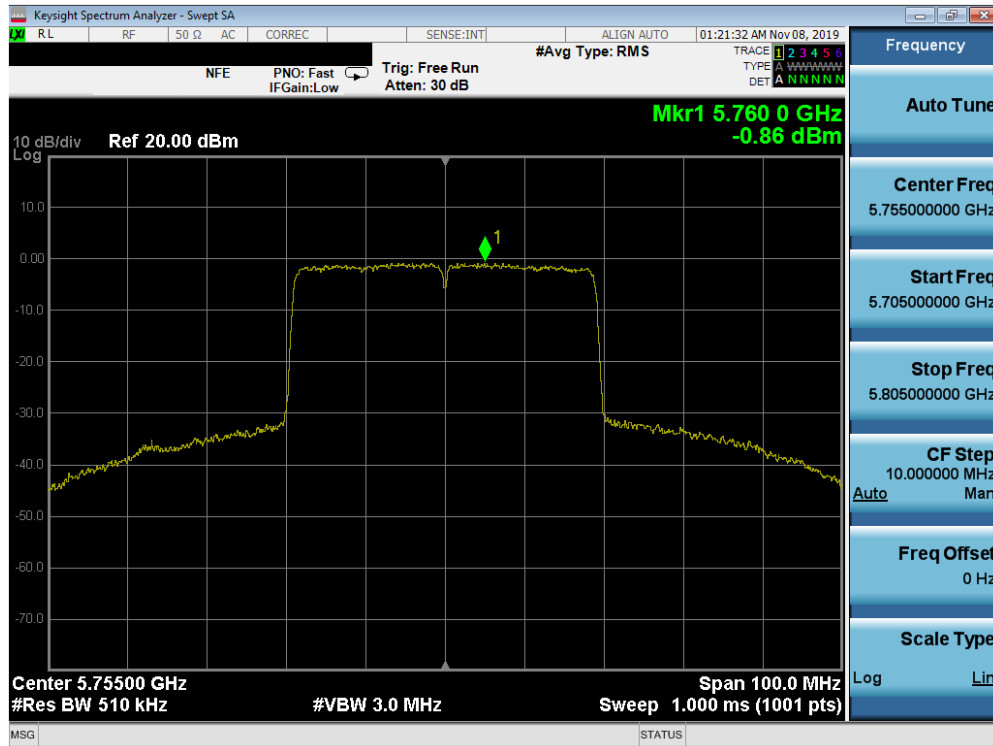


Plot 7-259. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

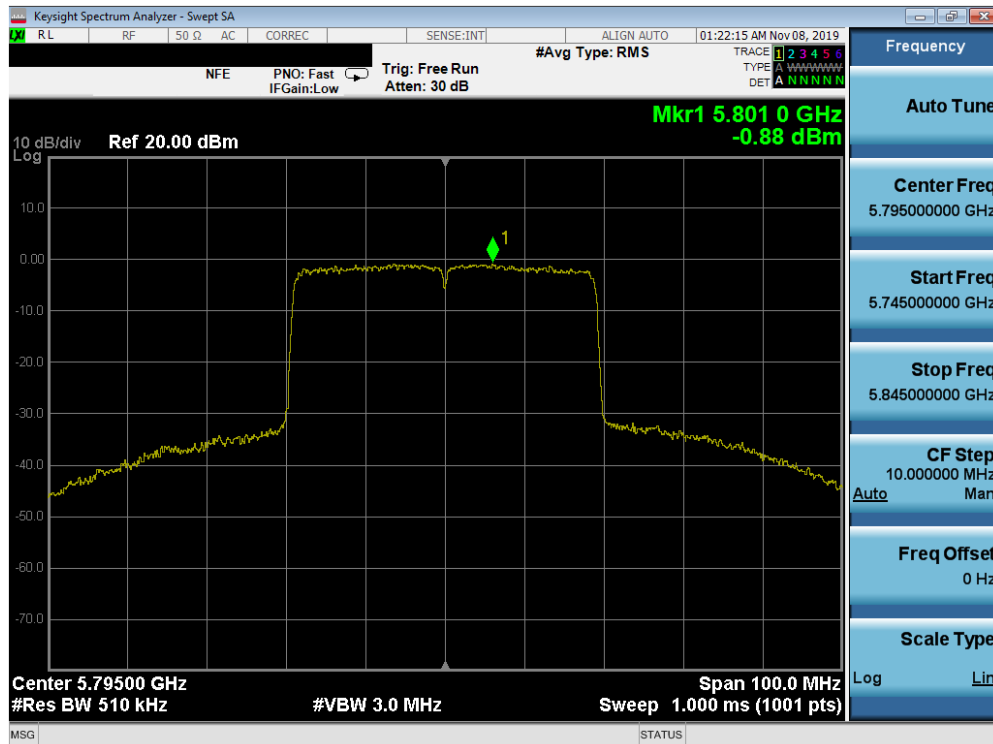


Plot 7-260. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 162 of 240

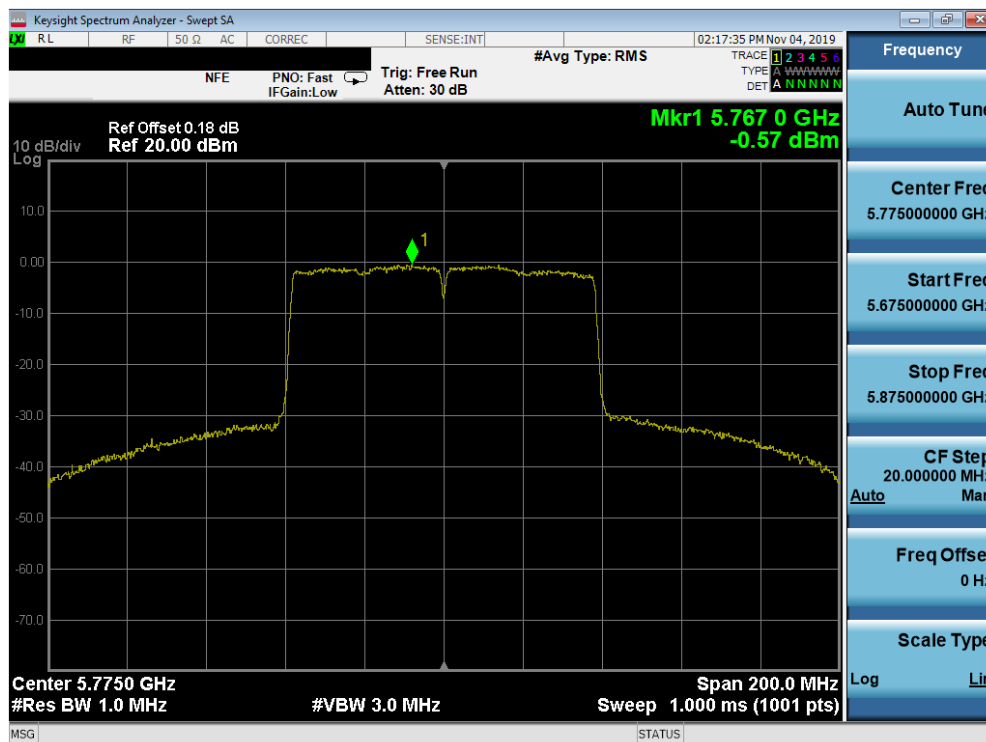


Plot 7-261. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ac (UNII Band 3) – Ch. 151)

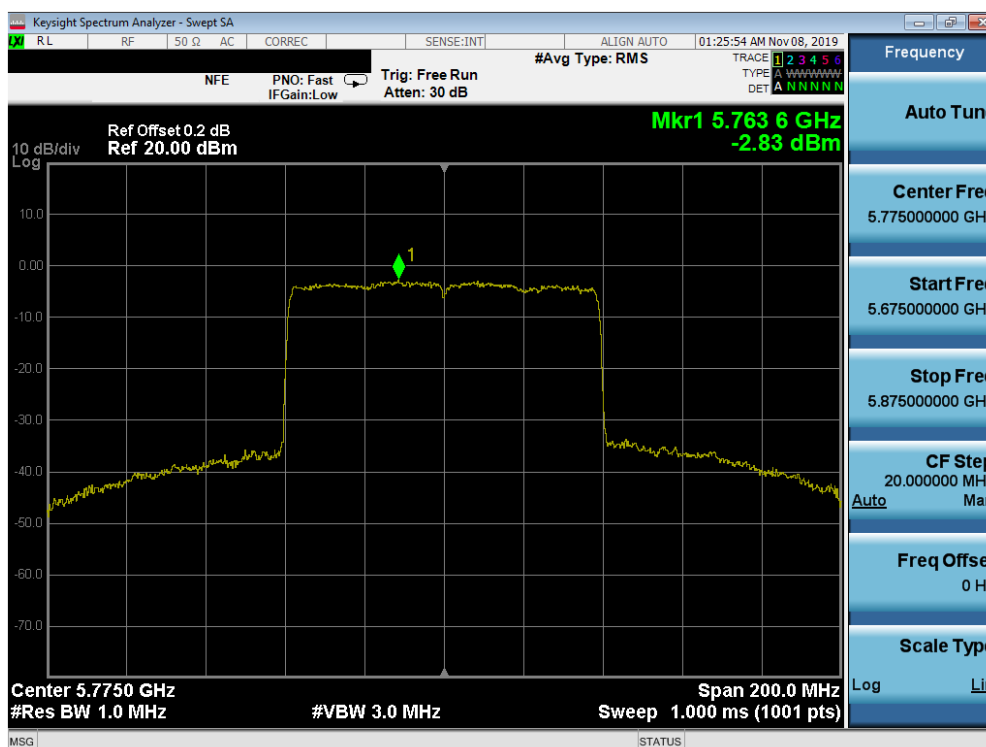


Plot 7-262. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ac (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 163 of 240



Plot 7-263. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)



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

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 164 of 240

Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	7.89	6.75	10.37	11.0	-0.63
	5200	40	a	6	6.55	5.94	9.26	11.0	-1.74
	5240	48	a	6	7.28	5.96	9.68	11.0	-1.32
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	7.53	6.66	10.13	11.0	-0.87
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.53	5.63	9.11	11.0	-1.89
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.89	5.82	9.40	11.0	-1.60
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	3.83	4.89	7.40	11.0	-3.60
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	3.93	4.79	7.39	11.0	-3.61
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	4.60	4.76	7.69	11.0	-3.31
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.68	3.72	6.71	11.0	-4.29
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.01	3.13	6.08	11.0	-4.92
	5190	38	ax (40MHz)	13.5/15 (MCS0)	1.87	1.75	4.82	11.0	-6.18
	5230	46	ax (40MHz)	13.5/15 (MCS0)	2.09	1.79	4.95	11.0	-6.05
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-0.27	-0.08	2.84	11.0	-8.16
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-1.82	-2.33	0.94	11.0	-10.06
Band 2A	5260	52	a	6	7.09	5.84	9.52	11.0	-1.48
	5280	56	a	6	6.89	5.89	9.43	11.0	-1.57
	5320	64	a	6	7.96	7.02	10.53	11.0	-0.47
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.45	5.67	9.09	11.0	-1.91
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.34	5.59	8.99	11.0	-2.01
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	7.62	6.97	10.32	11.0	-0.68
	5260	52	ax (20MHz)	6.5/7.2 (MCS0)	4.61	4.63	7.63	11.0	-3.37
	5280	56	ax (20MHz)	6.5/7.2 (MCS0)	4.55	4.53	7.55	11.0	-3.45
	5320	64	ax (20MHz)	6.5/7.2 (MCS0)	4.57	4.71	7.65	11.0	-3.35
	5270	54	n (40MHz)	13.5/15 (MCS0)	2.60	2.80	5.71	11.0	-5.29
	5310	62	n (40MHz)	13.5/15 (MCS0)	3.56	4.00	6.80	11.0	-4.20
	5270	54	ax (40MHz)	13.5/15 (MCS0)	2.07	1.60	4.85	11.0	-6.15
	5310	62	ax (40MHz)	13.5/15 (MCS0)	1.67	1.80	4.75	11.0	-6.25
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-0.55	-0.75	2.36	11.0	-8.64
	5290	58	ax (80MHz)	29.3/32.5 (MCS0)	-2.00	-2.34	0.84	11.0	-10.16
Band 2C	5500	100	a	6	7.74	7.01	10.40	11.0	-0.60
	5580	116	a	6	6.80	5.91	9.39	11.0	-1.61
	5720	144	a	6	7.17	6.22	9.73	11.0	-1.27
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	7.73	6.66	10.24	11.0	-0.76
	5580	116	n (20MHz)	6.5/7.2 (MCS0)	6.40	5.74	9.09	11.0	-1.91
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.85	5.93	9.42	11.0	-1.58
	5500	100	ax (20MHz)	6.5/7.2 (MCS0)	4.66	4.55	7.62	11.0	-3.38
	5580	116	ax (20MHz)	6.5/7.2 (MCS0)	4.52	4.67	7.61	11.0	-3.39
	5720	144	ax (20MHz)	6.5/7.2 (MCS0)	4.93	4.87	7.91	11.0	-3.09
	5510	102	n (40MHz)	13.5/15 (MCS0)	3.88	3.77	6.84	11.0	-4.16
	5550	110	n (40MHz)	13.5/15 (MCS0)	2.36	2.58	5.48	11.0	-5.52
	5710	142	n (40MHz)	13.5/15 (MCS0)	2.65	3.07	5.88	11.0	-5.12
	5510	102	ax (40MHz)	13.5/15 (MCS0)	2.95	1.76	5.41	11.0	-5.59
	5550	110	ax (40MHz)	13.5/15 (MCS0)	1.29	1.76	4.54	11.0	-6.46
	5710	142	ax (40MHz)	13.5/15 (MCS0)	1.82	1.87	4.86	11.0	-6.14
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-0.38	0.25	2.96	11.0	-8.04
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-2.01	-1.39	1.32	11.0	-9.68
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-4.22	-3.81	-1.00	11.0	-12.00
	5530	106	ax (80MHz)	29.3/32.5 (MCS0)	-1.73	-1.43	1.43	11.0	-9.57
	5610	122	ax (80MHz)	29.3/32.5 (MCS0)	-2.25	-1.34	1.24	11.0	-9.76
	5690	138	ax (80MHz)	29.3/32.5 (MCS0)	-4.98	-4.00	-1.45	11.0	-12.45

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

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 165 of 240	

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Directional Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6.5/7.2 (MCS0)	7.89	6.75	10.37	-3.59	6.78	10.0	-3.22
	5200	40	a	6.5/7.2 (MCS0)	6.55	5.94	9.26	-3.59	5.68	10.0	-4.32
	5240	48	a	6.5/7.2 (MCS0)	7.28	5.96	9.68	-3.59	6.09	10.0	-3.91
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	7.53	6.66	10.13	-3.59	6.54	10.0	-3.46
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.53	5.63	9.11	-3.59	5.53	10.0	-4.47
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.89	5.82	9.40	-3.59	5.81	10.0	-4.19
	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	-1.78	-1.59	1.33	-3.59	-2.26	10.0	-12.26
	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	-0.18	2.01	4.06	-3.59	0.47	10.0	-9.53
	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	0.26	2.35	4.44	-3.59	0.85	10.0	-9.15
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.68	3.72	6.71	-3.59	3.12	10.0	-6.88
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.01	3.13	6.08	-3.59	2.49	10.0	-7.51
	5190	38	ax (40MHz)	13.5/15 (MCS0)	-7.47	-5.63	-3.44	-3.59	-7.03	10.0	-17.03
	5230	46	ax (40MHz)	13.5/15 (MCS0)	-1.96	-5.21	-0.28	-3.59	-3.87	10.0	-13.87
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-0.27	-0.08	2.84	-3.59	-0.75	10.0	-10.75
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-8.14	-7.84	-4.98	-3.59	-8.57	10.0	-18.57

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

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6	4.31	3.45	6.91	30.0	-23.09
	5785	157	a	6	4.18	3.45	6.84	30.0	-23.16
	5825	165	a	6	4.40	3.26	6.88	30.0	-23.12
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	3.91	3.24	6.60	30.0	-23.40
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	3.70	3.13	6.43	30.0	-23.57
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	3.72	3.10	6.43	30.0	-23.57
	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	2.55	2.09	5.34	30.0	-24.66
	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	2.55	2.20	5.39	30.0	-24.61
	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	-0.65	2.09	3.94	30.0	-26.06
	5755	151	n (40MHz)	13.5/15 (MCS0)	0.04	0.37	3.22	30.0	-26.78
	5795	159	n (40MHz)	13.5/15 (MCS0)	-0.40	0.43	3.05	30.0	-26.95
	5755	151	ax (40MHz)	13.5/15 (MCS0)	-0.59	-0.86	2.29	30.0	-27.71
	5795	159	ax (40MHz)	13.5/15 (MCS0)	0.34	-0.88	2.78	30.0	-27.22
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-1.43	-0.57	2.03	30.0	-27.97
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	-2.24	-2.83	0.49	30.0	-29.51

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

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Note:

Per ANSI C63.10-2013 Section 14.3.2.2 and KDB 662911 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where G_N is the gain of the nth antenna and N_{ANT} , the total number of antennas used.

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi}$$

Sample Directional Gain Calculation:

Assuming the antenna gain is -8.61 dBi for Antenna-1 and -7.68 dBi for Antenna-2.

$$\begin{aligned} \text{Directional gain} &= 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi} \\ &= 10 \log[(10^{-8.61/20} + 10^{-7.68/20} / 2] \text{ dBi} \\ &= (-5.12) \text{ dBi} \end{aligned}$$

Sample MIMO Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted power spectral density was measured to be 7.53 dBm for Antenna-1 and 6.66 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

$$(7.53 \text{ dBm} + 6.66 \text{ dBm}) = (5.66 \text{ mW} + 4.63 \text{ mW}) = 10.29 \text{ mW} = 10.13 \text{ dBm}$$

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

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO power density was calculated to be 10.13 dBm with directional gain of -6.50 dBi.

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

$$10.13 \text{ dBm} + -6.50 \text{ dBi} = 3.63 \text{ dBm}$$

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7.6 Radiated Spurious Emission Measurements – Above 1GHz

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

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 802.11a, 802.11n (20MHz BW), 802.11n (40MHz BW), and 802.11ac (80MHz)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

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

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

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

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-30 per Section 15.209 and RSS-Gen (8.9).

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

Table 7-30. Radiated Limits

Test Procedures Used

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

Test Settings

Average Measurements above 1GHz (Method AD)

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

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Peak Measurements above 1GHz

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

Peak Measurements below 1GHz

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

Test Setup

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

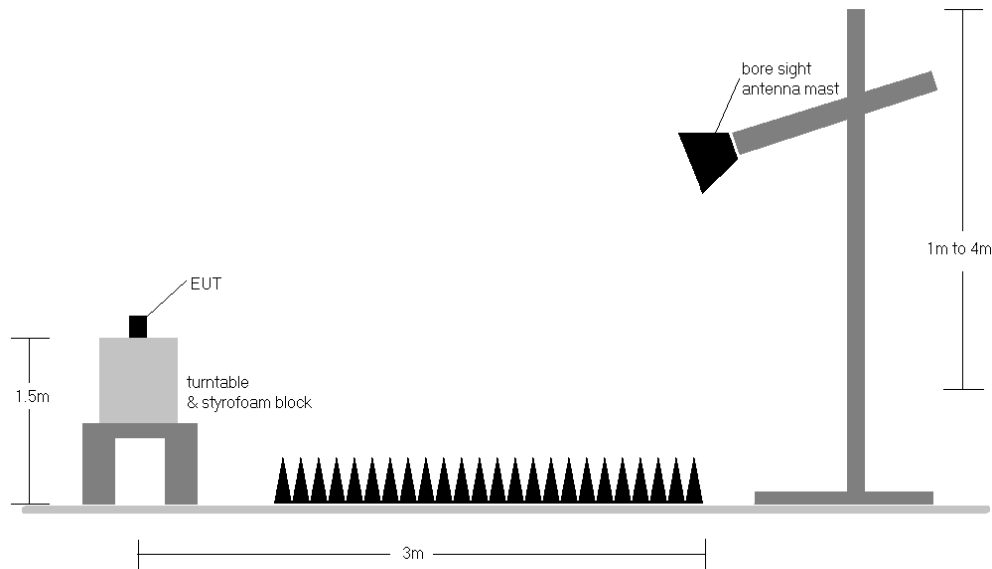


Figure 7-5. Test Instrument & Measurement Setup

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Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-30.
2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-30. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
8. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
9. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

Sample Calculations

Determining Spurious Emissions Levels

- Field Strength Level $_{[dB\mu V/m]} = \text{Analyzer Level }_{[dBm]} + 107 + \text{AFCL }_{[dB/m]}$
- $\text{AFCL }_{[dB/m]} = \text{Antenna Factor }_{[dB/m]} + \text{Cable Loss }_{[dB]}$
- $\text{Margin }_{[dB]} = \text{Field Strength Level }_{[dB\mu V/m]} - \text{Limit }_{[dB\mu V/m]}$

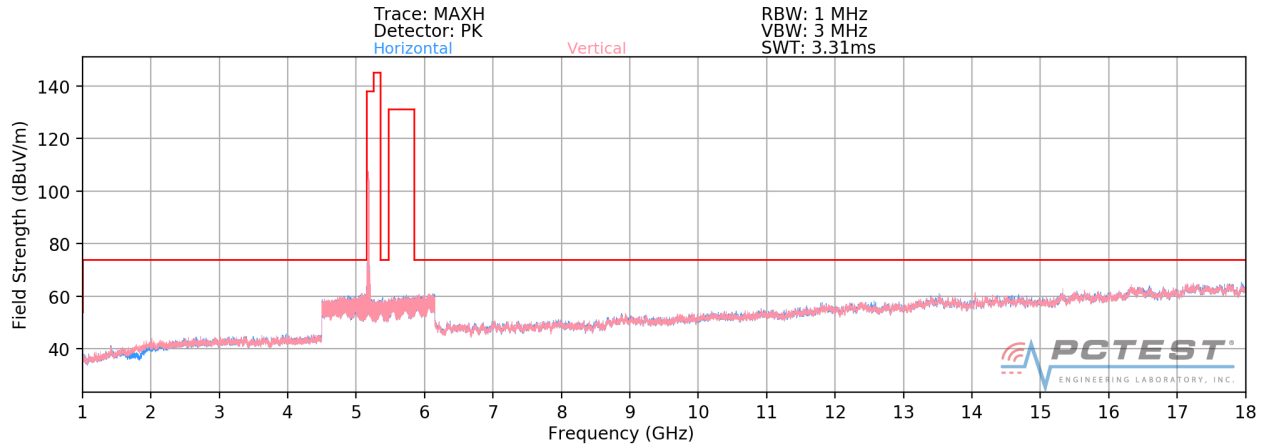
Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula:

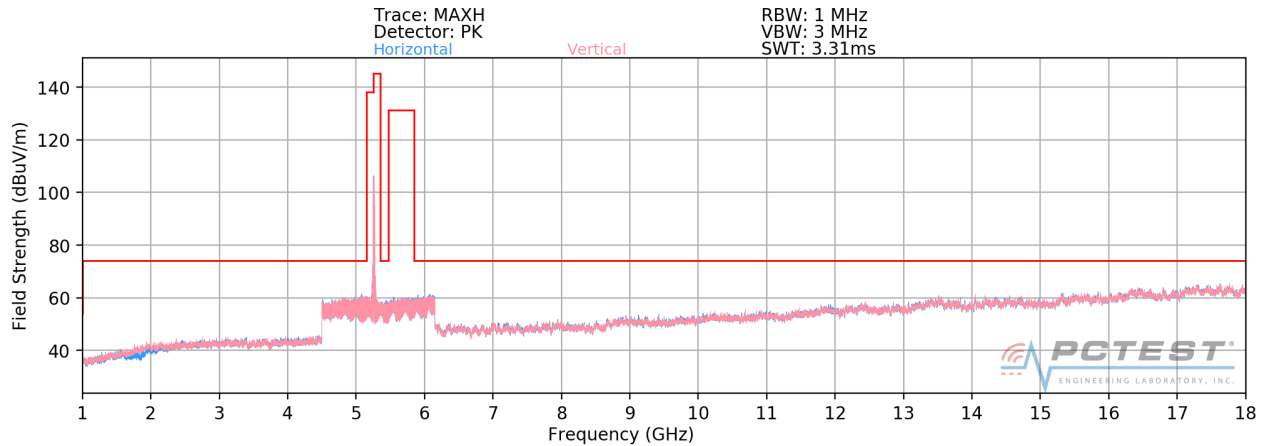
$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Preamplifier Gain}$$

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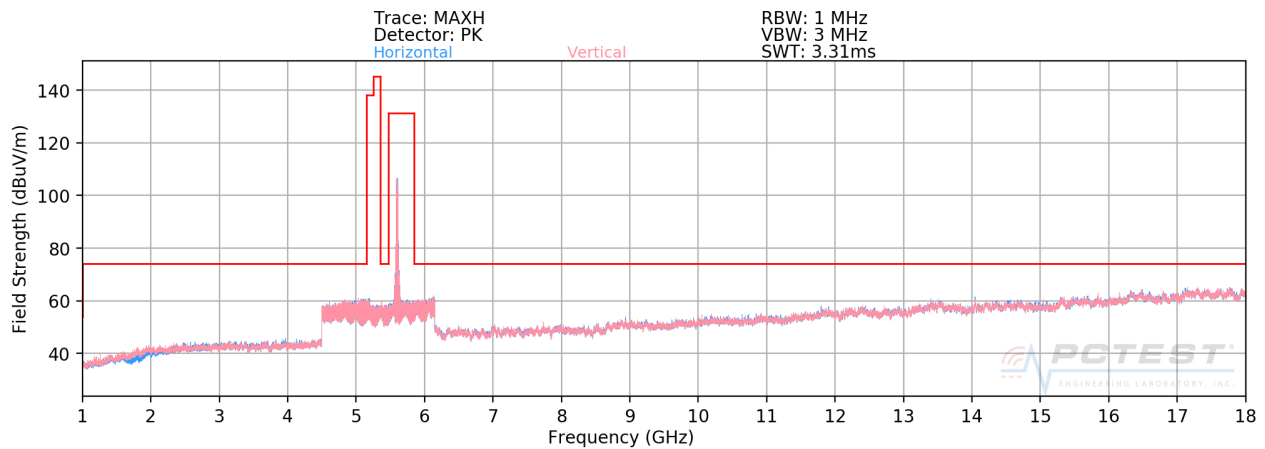
7.5.1 SISO Antenna-1 Radiated Spurious Emission Measurements



Plot 7-265. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U1 Ch. 40)

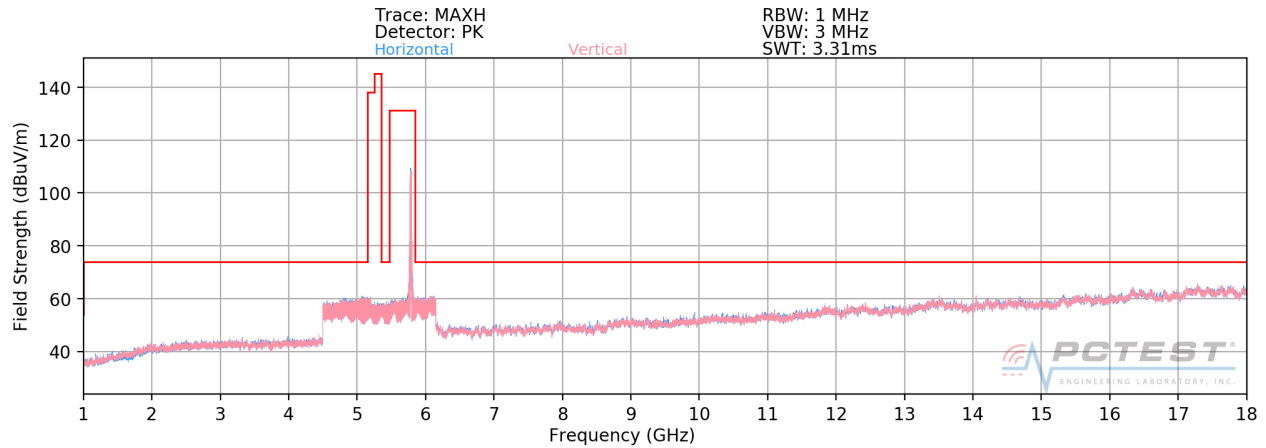


Plot 7-266. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U2A Ch. 56)



Plot 7-267. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U2C Ch. 120)

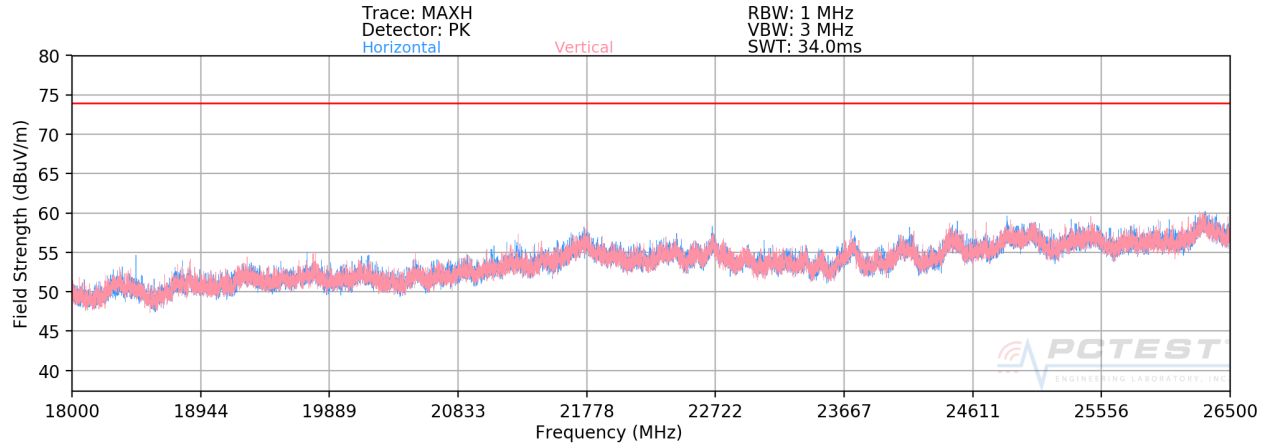
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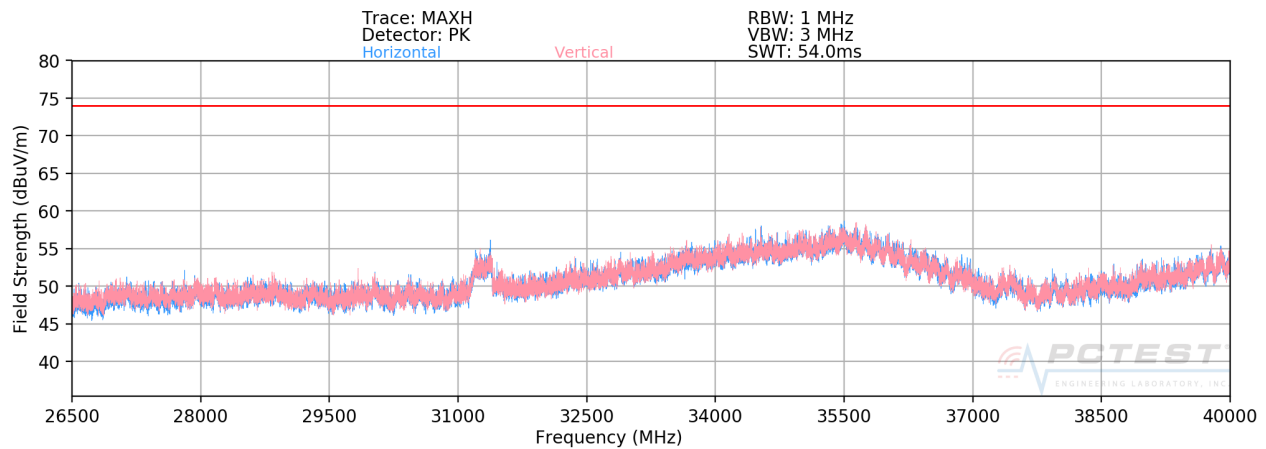
Plot 7-268. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U3 Ch. 157)

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



Plot 7-269. Radiated Spurious Plot 18GHz - 26.5GHz SISO ANT1 (802.11a)



Plot 7-270. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT1 (802.11a)

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SISO Antenna-1 Radiated Spurious Emission Measurements

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

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	122	48	-67.33	11.41	0.00	51.08	68.20	-17.12
* 15540.00	Average	H	123	270	-78.15	13.23	0.00	42.08	53.98	-11.90
* 15540.00	Peak	H	123	270	-65.93	13.23	0.00	54.30	73.98	-19.68
* 20720.00	Average	H	-	-	-78.35	17.51	-9.54	36.62	53.98	-17.36
* 20720.00	Peak	H	-	-	-67.16	17.51	-9.54	47.81	73.98	-26.17
25900.00	Peak	H	-	-	-65.02	19.88	-9.54	52.32	68.20	-15.88

Table 7-31. Radiated Measurements SISO ANT1

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	115	53	-66.62	11.17	0.00	51.55	68.20	-16.65
* 15600.00	Average	H	111	270	-77.67	12.81	0.00	42.14	53.98	-11.84
* 15600.00	Peak	H	111	270	-64.99	12.81	0.00	54.82	73.98	-19.16
* 20800.00	Average	H	-	-	-78.26	17.87	-9.54	37.06	53.98	-16.92
* 20800.00	Peak	H	-	-	-66.90	17.87	-9.54	48.42	73.98	-25.56
26000.00	Peak	H	-	-	-64.34	20.15	-9.54	53.26	68.20	-14.94

Table 7-32. Radiated Measurements SISO ANT1

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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	293	54	-66.16	11.37	0.00	52.21	68.20	-15.99
* 15720.00	Average	H	112	271	-78.24	15.18	0.00	43.94	53.98	-10.04
* 15720.00	Peak	H	112	271	-66.21	15.18	0.00	55.97	73.98	-18.01
* 20960.00	Average	H	-	-	-78.23	18.06	-9.54	37.28	53.98	-16.69
* 20960.00	Peak	H	-	-	-67.04	18.06	-9.54	48.47	73.98	-25.50
26200.00	Peak	H	-	-	-66.05	20.23	-9.54	51.64	68.20	-16.56

Table 7-33. Radiated Measurements SISO ANT1

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	286	41	-65.76	11.86	0.00	53.10	68.20	-15.10
* 15780.00	Average	H	115	270	-78.82	13.75	0.00	41.93	53.98	-12.05
* 15780.00	Peak	H	115	270	-66.46	13.75	0.00	54.29	73.98	-19.69
* 21040.00	Average	H	-	-	-77.85	18.36	-9.54	37.96	53.98	-16.02
* 21040.00	Peak	H	-	-	-66.86	18.36	-9.54	48.95	73.98	-25.03
26300.00	Peak	H	-	-	-63.45	20.96	-9.54	54.96	68.20	-13.24

Table 7-34. Radiated Measurements SISO ANT1

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	282	51	-66.30	12.47	0.00	53.17	68.20	-15.03
* 15840.00	Average	H	117	285	-78.31	15.16	0.00	43.85	53.98	-10.13
* 15840.00	Peak	H	117	285	-65.95	15.16	0.00	56.21	73.98	-17.77
* 21120.00	Average	H	-	-	-77.70	18.17	-9.54	37.92	53.98	-16.05
* 21120.00	Peak	H	-	-	-66.07	18.17	-9.54	49.55	73.98	-24.42
26400.00	Peak	H	-	-	-62.43	20.65	-9.54	55.68	68.20	-12.52

Table 7-35. Radiated Measurements SISO ANT1

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	271	31	-77.70	13.08	0.00	42.38	53.98	-11.60
* 10640.00	Peak	H	271	31	-66.23	13.08	0.00	53.85	73.98	-20.13
* 15960.00	Average	H	145	77	-79.22	13.43	0.00	41.21	53.98	-12.77
* 15960.00	Peak	H	145	77	-68.41	13.43	0.00	52.02	73.98	-21.96
* 21280.00	Average	H	-	-	-77.67	18.57	-9.54	38.36	53.98	-15.62
* 21280.00	Peak	H	-	-	-67.16	18.57	-9.54	48.87	73.98	-25.11
26600.00	Peak	H	-	-	-47.30	5.16	-9.54	55.32	68.20	-12.88

Table 7-36. Radiated Measurements SISO ANT1

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	-79	-	-79.25	12.53	0.00	40.28	53.98	-13.70
* 11000.00	Peak	H	-79	-	-67.77	12.53	0.00	51.76	73.98	-22.22
16500.00	Peak	H	261	67	-66.93	15.04	0.00	55.11	68.20	-13.09
22000.00	Peak	H	-	-	-64.78	19.12	-9.54	51.79	68.20	-16.41
27500.00	Peak	H	-	-	-44.91	3.98	-9.54	56.53	68.20	-11.67

Table 7-37. Radiated Measurements SISO ANT1

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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]
* 11160.00	Average	H	280	45	-78.66	12.71	0.00	41.05	53.98	-12.93
* 11160.00	Peak	H	280	45	-67.58	12.71	0.00	52.13	73.98	-21.85
16740.00	Peak	H	223	40	-65.65	15.84	0.00	57.19	68.20	-11.01
* 22320.00	Average	H	-	-	-77.41	20.03	-9.54	40.08	53.98	-13.90
* 22320.00	Peak	H	-	-	-66.74	20.03	-9.54	50.75	73.98	-23.23
27900.00	Peak	H	-	-	-44.52	4.70	-9.54	57.64	68.20	-10.56

Table 7-38. Radiated Measurements SISO ANT1

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 178 of 240

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	301	53	-78.48	12.70	0.00	41.22	53.98	-12.76
* 11440.00	Peak	H	301	53	-67.63	12.70	0.00	52.07	73.98	-21.91
17160.00	Peak	H	234	37	-67.24	17.71	0.00	57.47	68.20	-10.73
* 22880.00	Average	H	-	-	-78.00	19.50	-9.54	38.96	53.98	-15.02
* 22880.00	Peak	H	-	-	-66.87	19.50	-9.54	50.09	73.98	-23.89
28600.00	Peak	H	100	59	-47.26	5.14	-9.54	55.34	68.20	-12.86

Table 7-39. Radiated Measurements SISO ANT1

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	305	55	-78.86	13.38	0.00	41.52	53.98	-12.46
* 11490.00	Peak	H	305	55	-67.08	13.38	0.00	53.30	73.98	-20.68
17235.00	Peak	H	242	23	-67.37	17.44	0.00	57.07	68.20	-11.13
* 22980.00	Average	H	-	-	-77.87	19.89	-9.54	39.47	53.98	-14.51
* 22980.00	Peak	H	-	-	-67.39	19.89	-9.54	49.95	73.98	-24.03
28725.00	Peak	H	100	67	-48.07	4.66	-9.54	54.05	68.20	-14.15

Table 7-40. Radiated Measurements SISO ANT1

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 179 of 240

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	-	-	-79.21	12.70	0.00	40.49	53.98	-13.49
* 11570.00	Peak	H	-	-	-68.13	12.70	0.00	51.57	73.98	-22.41
17355.00	Peak	H	-	-	-68.71	19.46	0.00	57.75	68.20	-10.45
23140.00	Peak	H	-	-	-67.55	19.59	-9.54	49.50	68.20	-18.70
28925.00	Peak	H	100	52	-47.66	4.43	-9.54	54.23	68.20	-13.97

Table 7-41. Radiated Measurements SISO ANT1

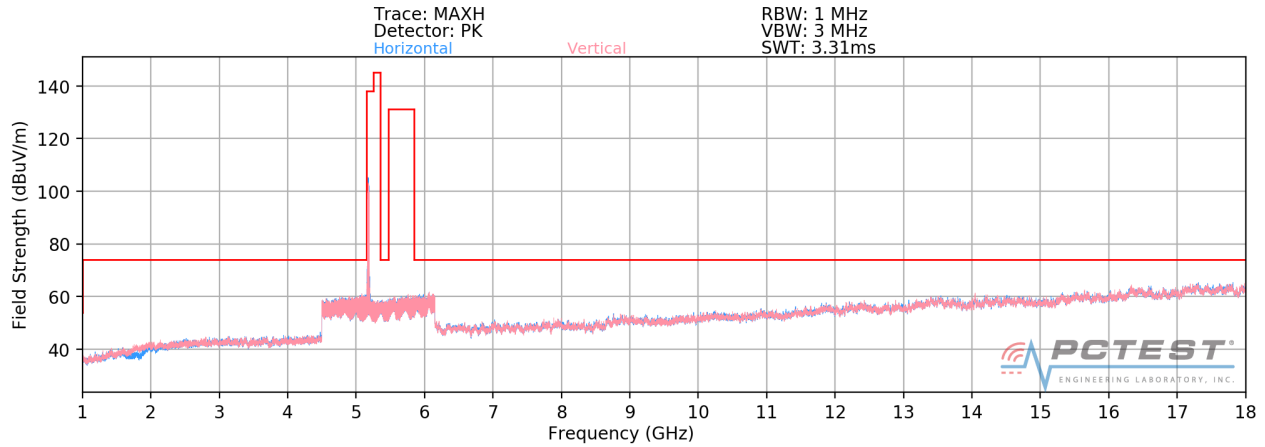
Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

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	-	-	-79.45	13.24	0.00	40.79	53.98	-13.19
* 11650.00	Peak	H	-	-	-68.82	13.24	0.00	51.42	73.98	-22.56
17475.00	Peak	H	-	-	-67.62	20.06	0.00	59.44	68.20	-8.76
23300.00	Peak	H	-	-	-67.52	18.93	-9.54	48.87	68.20	-19.33
29125.00	Peak	H	100	56	-47.25	3.48	-9.54	53.69	68.20	-14.51

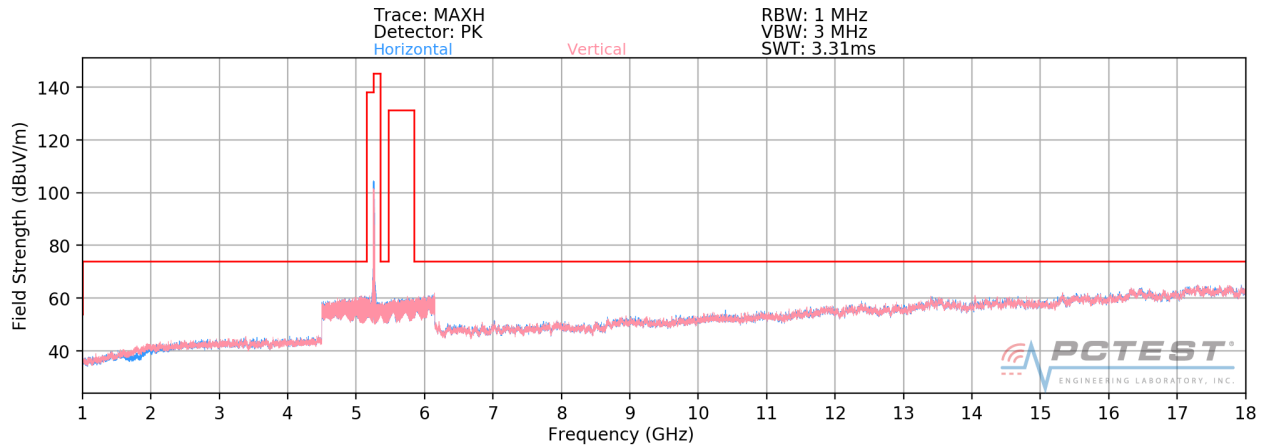
Table 7-42. Radiated Measurements SISO ANT1

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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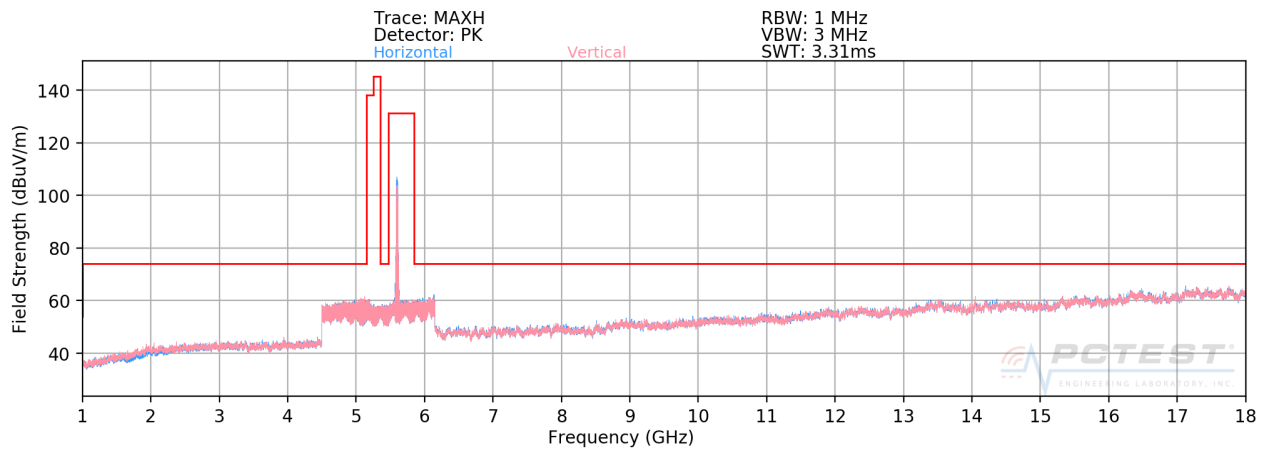
7.5.2 SISO Antenna-2 Radiated Spurious Emission Measurements



Plot 7-271. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U1 Ch. 40)

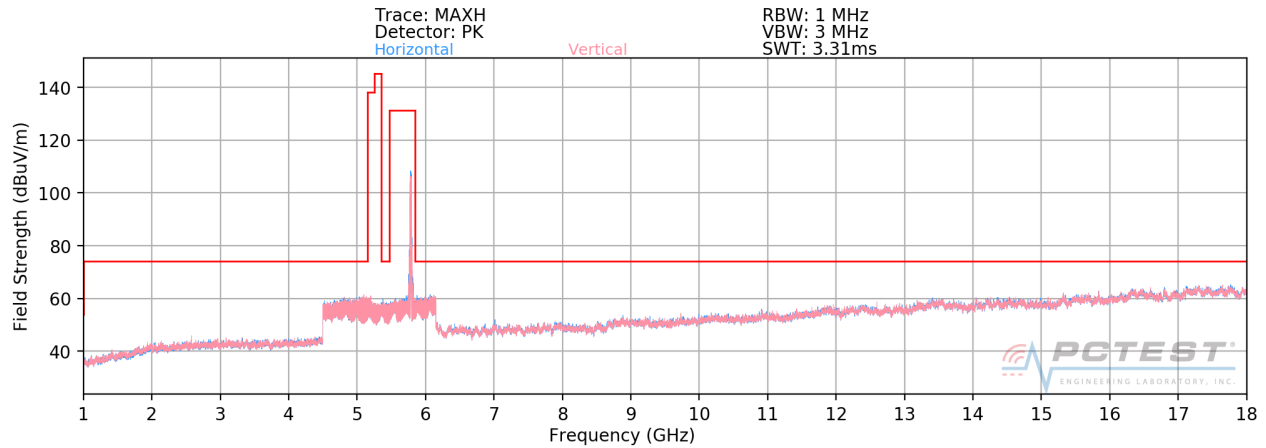


Plot 7-272. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U2A Ch. 56)



Plot 7-273. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U2C Ch. 120)

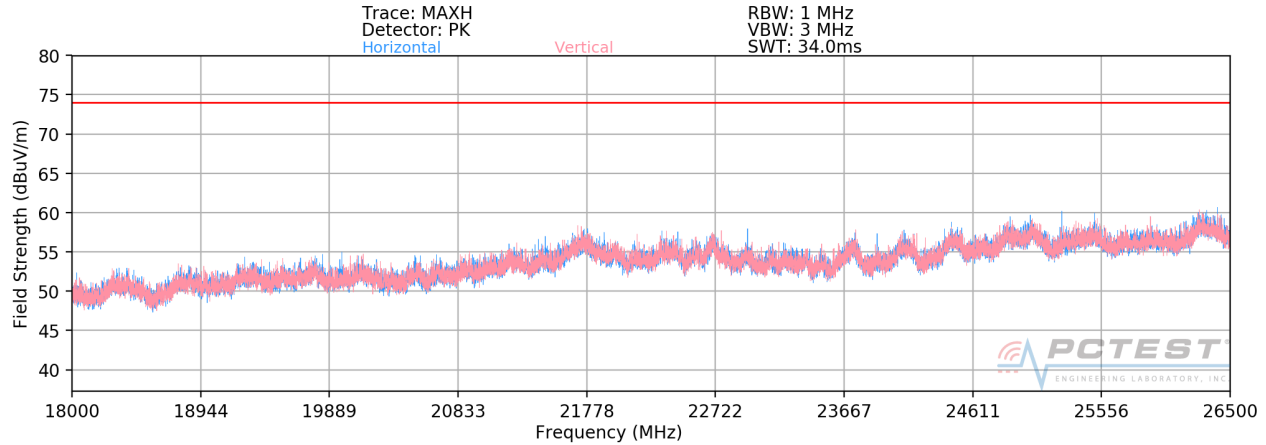
FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 181 of 240



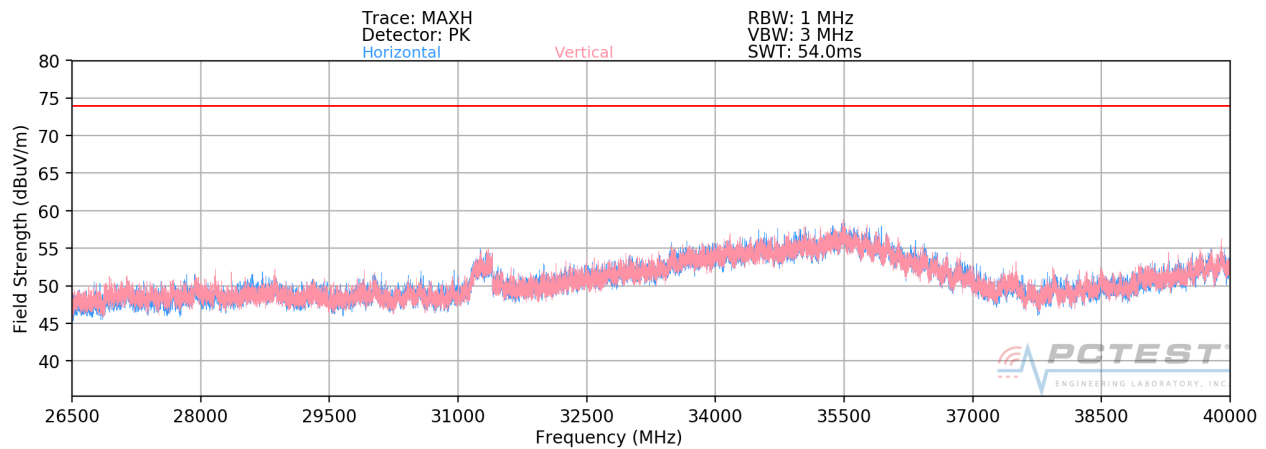
Plot 7-274. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U3 Ch. 157)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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SISO Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-275. Radiated Spurious Plot above 18GHz - 26.5GHz SISO ANT2 (802.11a)



Plot 7-276. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT2 (802.11a)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 183 of 240

SISO Antenna-2 Radiated Spurious Emission Measurements

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

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	354	352	-70.25	11.41	0.00	48.16	68.20	-20.04
* 15540.00	Average	H	-	-	-84.04	13.23	0.00	36.19	53.98	-17.79
* 15540.00	Peak	H	-	-	-71.41	13.23	0.00	48.82	73.98	-25.16
* 20720.00	Average	H	-	-	-69.46	17.51	-9.54	45.51	53.98	-8.47
* 20720.00	Peak	H	-	-	-61.00	17.51	-9.54	53.97	73.98	-20.01
25900.00	Peak	H	-	-	-59.08	19.88	-9.54	58.26	68.20	-9.94

Table 7-43. Radiated Measurements SISO ANT2

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	371	53	-70.03	11.17	0.00	48.14	68.20	-20.06
* 15600.00	Average	H	-	-	-83.63	12.81	0.00	36.18	53.98	-17.80
* 15600.00	Peak	H	-	-	-70.36	12.81	0.00	49.45	73.98	-24.53
* 20800.00	Average	H	-	-	-68.24	17.87	-9.54	47.08	53.98	-6.90
* 20800.00	Peak	H	-	-	-61.46	17.87	-9.54	53.86	73.98	-20.12
26000.00	Peak	H	-	-	-59.33	20.15	-9.54	58.27	68.20	-9.93

Table 7-44. Radiated Measurements SISO ANT2

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 184 of 240

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	257	341	-69.73	11.37	0.00	48.64	68.20	-19.56
* 15720.00	Average	H	-	-	-83.52	15.18	0.00	38.66	53.98	-15.32
* 15720.00	Peak	H	-	-	-71.02	15.18	0.00	51.16	73.98	-22.82
* 20960.00	Average	H	-	-	-68.59	18.06	-9.54	46.92	53.98	-7.05
* 20960.00	Peak	H	-	-	-60.86	18.06	-9.54	54.65	73.98	-19.32
26200.00	Peak	H	-	-	-58.93	20.23	-9.54	58.76	68.20	-9.44

Table 7-45. Radiated Measurements SISO ANT2

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	100	348	-69.30	11.86	0.00	49.56	68.20	-18.64
* 15780.00	Average	H	-	-	-83.97	13.75	0.00	36.78	53.98	-17.20
* 15780.00	Peak	H	-	-	-70.57	13.75	0.00	50.18	73.98	-23.80
* 21040.00	Average	H	-	-	-68.82	18.36	-9.54	46.99	53.98	-6.99
* 21040.00	Peak	H	-	-	-60.94	18.36	-9.54	54.87	73.98	-19.11
26300.00	Peak	H	-	-	-57.82	20.96	-9.54	60.59	68.20	-7.61

Table 7-46. Radiated Measurements SISO ANT2

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 185 of 240

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	308	47	-69.38	12.47	0.00	50.09	68.20	-18.11
* 15840.00	Average	H	-	-	-83.81	15.16	0.00	38.35	53.98	-15.63
* 15840.00	Peak	H	-	-	-71.52	15.16	0.00	50.64	73.98	-23.34
* 21120.00	Average	H	-	-	-67.96	18.17	-9.54	47.66	53.98	-6.31
* 21120.00	Peak	H	-	-	-60.66	18.17	-9.54	54.96	73.98	-19.01
26400.00	Peak	H	-	-	-57.97	20.65	-9.54	60.14	68.20	-8.06

Table 7-47. Radiated Measurements SISO ANT2

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	102	364	-82.11	13.08	0.00	37.97	53.98	-16.01
* 10640.00	Peak	H	102	364	-69.03	13.08	0.00	51.05	73.98	-22.93
* 15960.00	Average	H	-	-	-84.21	13.43	0.00	36.22	53.98	-17.76
* 15960.00	Peak	H	-	-	-70.79	13.43	0.00	49.64	73.98	-24.34
* 21280.00	Average	H	-	-	-67.37	18.57	-9.54	48.66	53.98	-5.32
* 21280.00	Peak	H	-	-	-60.05	18.57	-9.54	55.98	73.98	-18.00
26600.00	Peak	H	-	-	-52.40	5.16	-9.54	50.22	68.20	-17.98

Table 7-48. Radiated Measurements SISO ANT2

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 186 of 240

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	341	317	-81.84	12.53	0.00	37.69	53.98	-16.29
* 11000.00	Peak	H	341	317	-68.72	12.53	0.00	50.81	73.98	-23.17
16500.00	Peak	H	-	-	-70.25	15.04	0.00	51.79	68.20	-16.41
22000.00	Peak	H	-	-	-60.17	19.12	-9.54	56.40	68.20	-11.80
27500.00	Peak	H	-	-	-50.98	3.98	-9.54	50.46	68.20	-17.74

Table 7-49. Radiated Measurements SISO ANT2

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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]
* 11160.00	Average	H	349	186	-82.49	12.71	0.00	37.22	53.98	-16.76
* 11160.00	Peak	H	349	186	-70.17	12.71	0.00	49.54	73.98	-24.44
16740.00	Peak	H	-	-	-70.27	15.84	0.00	52.57	68.20	-15.63
* 22320.00	Average	H	-	-	-67.66	20.03	-9.54	49.83	53.98	-4.15
* 22320.00	Peak	H	-	-	-59.47	20.03	-9.54	58.02	73.98	-15.96
27900.00	Peak	H	-	-	-50.36	4.70	-9.54	51.80	68.20	-16.40

Table 7-50. Radiated Measurements SISO ANT2

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 187 of 240

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	306	369	-83.31	12.70	0.00	36.39	53.98	-17.59
* 11440.00	Peak	H	306	369	-70.11	12.70	0.00	49.59	73.98	-24.39
17160.00	Peak	H	-	-	-70.79	17.71	0.00	53.92	68.20	-14.28
* 22880.00	Average	H	-	-	-68.61	19.50	-9.54	48.35	53.98	-5.63
* 22880.00	Peak	H	-	-	-60.94	19.50	-9.54	56.02	73.98	-17.96
28600.00	Peak	H	-	-	-50.91	5.14	-9.54	51.69	68.20	-16.51

Table 7-51. Radiated Measurements SISO ANT2

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	315	78	-84.03	13.38	0.00	36.35	53.98	-17.63
* 11490.00	Peak	H	315	78	-71.47	13.38	0.00	48.91	73.98	-25.07
17235.00	Peak	H	-	-	-71.90	17.44	0.00	52.54	68.20	-15.66
* 22980.00	Average	H	-	-	-68.51	19.89	-9.54	48.83	53.98	-5.15
* 22980.00	Peak	H	-	-	-60.35	19.89	-9.54	56.99	73.98	-16.99
28725.00	Peak	H	-	-	-51.02	4.66	-9.54	51.10	68.20	-17.10

Table 7-52. Radiated Measurements SISO ANT2

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 188 of 240

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	368	119	-83.19	12.70	0.00	36.51	53.98	-17.47
* 11570.00	Peak	H	368	119	-70.88	12.70	0.00	48.82	73.98	-25.16
17355.00	Peak	H	-	-	-71.65	19.46	0.00	54.81	68.20	-13.39
23140.00	Peak	H	-	-	-61.46	19.59	-9.54	55.59	68.20	-12.61
28925.00	Peak	H	-	-	-51.04	4.43	-9.54	50.85	68.20	-17.35

Table 7-53. Radiated Measurements SISO ANT2

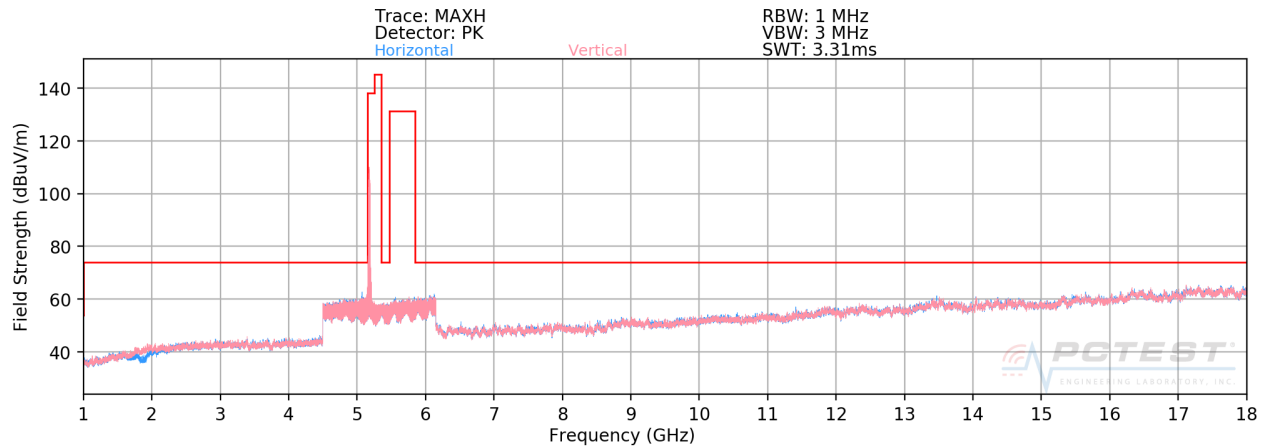
Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

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	114	218	-83.43	13.24	0.00	36.81	53.98	-17.17
* 11650.00	Peak	H	114	218	-70.43	13.24	0.00	49.81	73.98	-24.17
17475.00	Peak	H	-	-	-71.51	20.06	0.00	55.55	68.20	-12.65
23300.00	Peak	H	-	-	-60.51	18.93	-9.54	55.88	68.20	-12.32
29125.00	Peak	H	-	-	-50.75	3.48	-9.54	50.19	68.20	-18.01

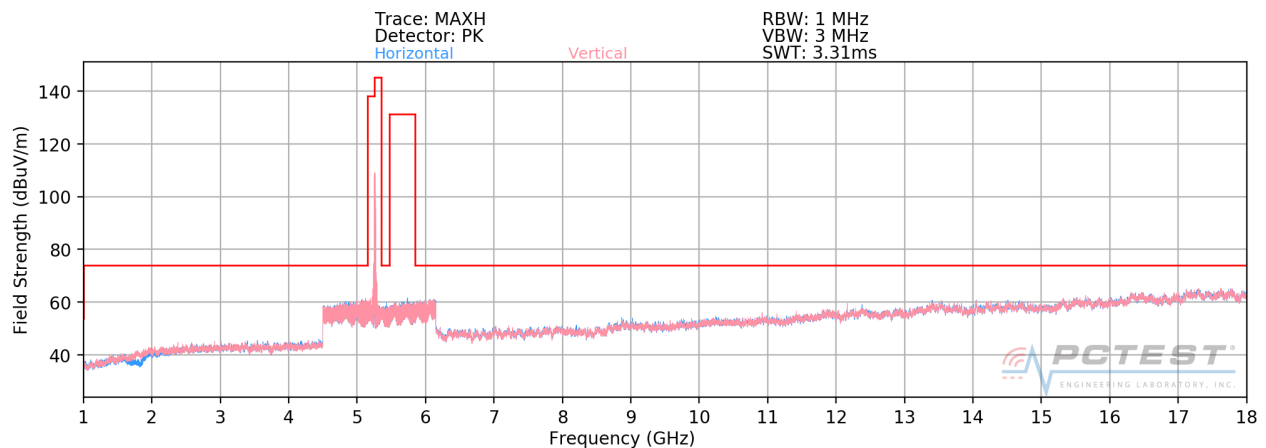
Table 7-54. Radiated Measurements SISO ANT2

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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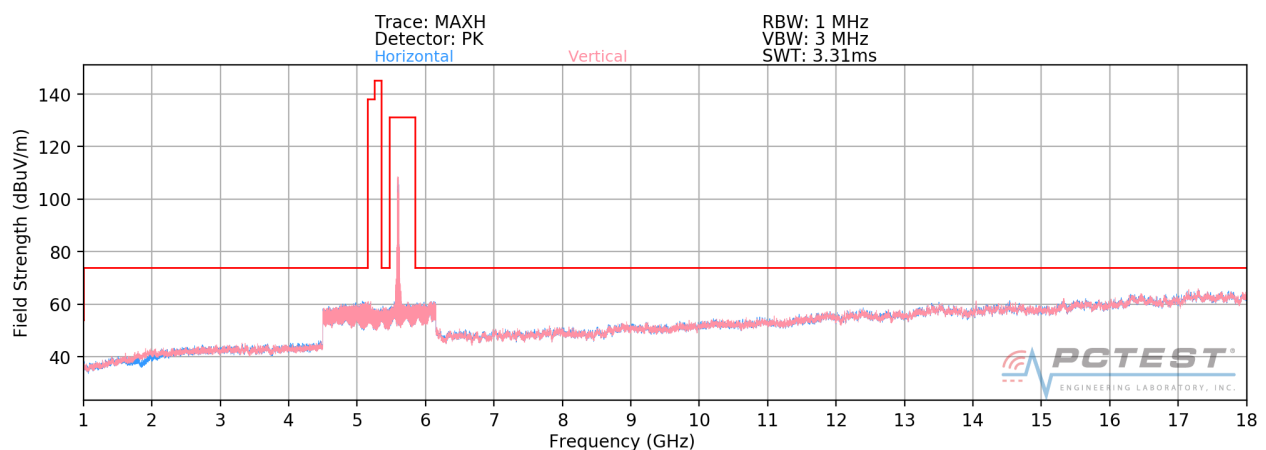
7.5.3 MIMO/CDD Radiated Spurious Emission Measurements



Plot 7-277. Radiated Spurious Plot above 1GHz MIMO/CDD (802.11a – U1 Ch. 40)

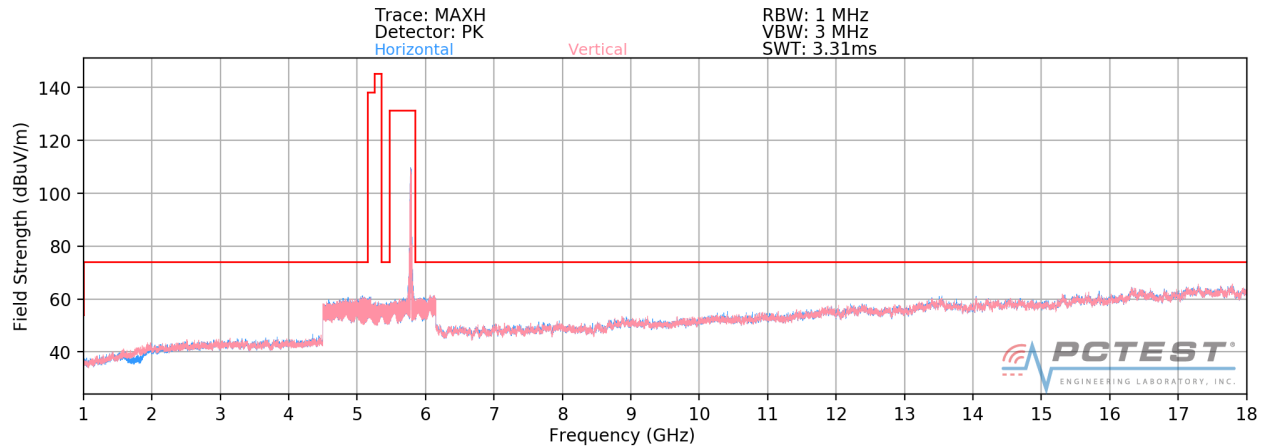


Plot 7-278. Radiated Spurious Plot above 1GHz MIMO/CDD (802.11a – U2A Ch. 56)



Plot 7-279. Radiated Spurious Plot above 1GHz MIMO/CDD (802.11a – U2C Ch. 116120)

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
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Plot 7-280. Radiated Spurious Plot above 1GHz MIMO/CDD (802.11a – U3 Ch. 157)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 191 of 240

MIMO/CDD Radiated Spurious Emission Measurements

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

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6Mbps
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	V	116	61	-68.40	11.41	0.00	50.01	68.20	-18.19
* 15540.00	Average	V	102	267	-83.07	13.23	0.00	37.16	53.98	-16.82
* 15540.00	Peak	V	102	267	-71.42	13.23	0.00	48.81	73.98	-25.17
* 20720.00	Average	V	-	-	-68.25	7.97	-9.54	37.18	53.98	-16.80
* 20720.00	Peak	V	-	-	-59.58	7.97	-9.54	45.85	73.98	-28.13
25900.00	Peak	V	-	-	-58.74	10.34	-9.54	49.06	68.20	-19.14

Table 7-55. Radiated Measurements MIMO/CDD

Worst Case Mode:	802.11a
Worst Case Transfer Rate:	6Mbps
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	V	100	172	-68.92	11.17	0.00	49.25	68.20	-18.95
* 15600.00	Average	V	-	-	-83.46	12.81	0.00	36.35	53.98	-17.63
* 15600.00	Peak	V	-	-	-71.18	12.81	0.00	48.63	73.98	-25.35
* 20800.00	Average	V	-	-	-68.49	8.33	-9.54	37.29	53.98	-16.69
* 20800.00	Peak	V	-	-	-61.17	8.33	-9.54	44.61	73.98	-29.37
26000.00	Peak	V	-	-	-59.15	10.61	-9.54	48.91	68.20	-19.29

Table 7-56. Radiated Measurements MIMO/CDD

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	V	115	172	-69.08	11.37	0.00	49.29	68.20	-18.91
* 15720.00	Average	V	100	360	-82.44	15.18	0.00	39.74	53.98	-14.24
* 15720.00	Peak	V	100	360	-68.20	15.18	0.00	53.98	73.98	-20.00
* 20960.00	Average	V	-	-	-68.63	8.52	-9.54	37.34	53.98	-16.63
* 20960.00	Peak	V	-	-	-61.06	8.52	-9.54	44.91	73.98	-29.06
26200.00	Peak	V	-	-	-59.35	10.69	-9.54	48.80	68.20	-19.40

Table 7-57. Radiated Measurements MIMO/CDD

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	V	121	169	-70.13	11.37	0.00	48.24	68.20	-19.96
* 15720.00	Average	V	123	349	-81.36	15.18	0.00	40.82	53.98	-13.16
* 15720.00	Peak	V	123	349	-69.33	15.18	0.00	52.85	73.98	-21.13
* 20960.00	Average	V	-	-	-68.79	8.52	-9.54	37.18	53.98	-16.79
* 20960.00	Peak	V	-	-	-62.36	8.52	-9.54	43.61	73.98	-30.36
26200.00	Peak	V	-	-	-60.49	10.69	-9.54	47.66	68.20	-20.54

Table 7-58. Radiated Measurements MIMO/CDD with WCP

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 193 of 240

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	V	100	167	-67.75	11.86	0.00	51.11	68.20	-17.09
* 15780.00	Average	V	100	166	-82.72	13.75	0.00	38.03	53.98	-15.95
* 15780.00	Peak	V	100	166	-70.17	13.75	0.00	50.58	73.98	-23.40
* 21040.00	Average	V	-	-	-67.92	8.82	-9.54	38.35	53.98	-15.63
* 21040.00	Peak	V	-	-	-61.11	8.82	-9.54	45.16	73.98	-28.82
26300.00	Peak	V	-	-	-58.09	11.42	-9.54	50.78	68.20	-17.42

Table 7-59. Radiated Measurements MIMO/CDD

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	V	112	187	-68.45	12.47	0.00	51.02	68.20	-17.18
* 15840.00	Average	V	295	149	-83.49	15.16	0.00	38.67	53.98	-15.31
* 15840.00	Peak	V	295	149	-70.87	15.16	0.00	51.29	73.98	-22.69
* 21120.00	Average	V	-	-	-67.84	8.63	-9.54	38.24	53.98	-15.73
* 21120.00	Peak	V	-	-	-60.12	8.63	-9.54	45.96	73.98	-28.01
26400.00	Peak	V	-	-	-58.03	11.11	-9.54	50.54	68.20	-17.66

Table 7-60. Radiated Measurements MIMO/CDD

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	V	100	169	-80.93	13.08	0.00	39.15	53.98	-14.83
* 10640.00	Peak	V	100	169	-68.46	13.08	0.00	51.62	73.98	-22.36
* 15960.00	Average	V	100	164	-82.44	13.43	0.00	37.99	53.98	-15.99
* 15960.00	Peak	V	100	164	-69.88	13.43	0.00	50.55	73.98	-23.43
* 21280.00	Average	V	-	-	-67.36	9.03	-9.54	39.13	53.98	-14.85
* 21280.00	Peak	V	-	-	-59.90	9.03	-9.54	46.59	73.98	-27.39
26600.00	Peak	V	-	-	-51.47	-4.38	-9.54	41.61	68.20	-26.59

Table 7-61. Radiated Measurements MIMO/CDD

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	V	114	201	-81.01	13.08	0.00	39.07	53.98	-14.91
* 10640.00	Peak	V	114	201	-69.51	13.08	0.00	50.57	73.98	-23.41
* 15960.00	Average	V	105	178	-83.06	13.43	0.00	37.37	53.98	-16.61
* 15960.00	Peak	V	105	178	-70.08	13.43	0.00	50.35	73.98	-23.63
* 21280.00	Average	V	-	-	-68.24	9.03	-9.54	38.25	53.98	-15.73
21280.00	Peak	V	-	-	-60.19	9.03	-9.54	46.30	73.98	-27.68
26600.00	Peak	V	-	-	-52.10	-4.38	-9.54	40.98	68.20	-27.22

Table 7-62. Radiated Measurements MIMO/CDD with WCP

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 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	V	250	28	-81.99	12.53	0.00	37.54	53.98	-16.44
* 11000.00	Peak	V	250	28	-69.65	12.53	0.00	49.88	73.98	-24.10
16500.00	Peak	V	101	160	-66.22	15.04	0.00	55.82	68.20	-12.38
22000.00	Peak	V	-	-	-59.86	9.58	-9.54	47.17	68.20	-21.03
27500.00	Peak	V	-	-	-51.36	-5.56	-9.54	40.54	68.20	-27.66

Table 7-63. Radiated Measurements MIMO/CDD

Worst Case Mode: 802.11a
 Worst Case Transfer Rate: 6Mbps
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5580MHz
 Channel: 116

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]
* 11160.00	Average	V	102	141	-81.67	12.71	0.00	38.04	53.98	-15.94
* 11160.00	Peak	V	102	141	-68.23	12.71	0.00	51.48	73.98	-22.50
16740.00	Peak	V	101	160	-67.74	15.84	0.00	55.10	68.20	-13.10
* 22320.00	Average	V	-	-	-67.62	10.36	-9.54	40.20	53.98	-13.78
* 22320.00	Peak	V	-	-	-60.39	10.36	-9.54	47.43	73.98	-26.55
27900.00	Peak	V	-	-	-50.34	-5.17	-9.54	41.94	68.20	-26.26

Table 7-64. Radiated Measurements MIMO/CDD

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 196 of 240

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5700MHz
Channel: 140

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	V	115	99	-83.00	12.70	0.00	36.70	53.98	-17.28
* 11440.00	Peak	V	115	99	-71.09	12.70	0.00	48.61	73.98	-25.37
17160.00	Peak	V	101	66	-70.64	17.71	0.00	54.07	68.20	-14.13
* 22880.00	Average	V	-	-	-68.59	9.96	-9.54	38.83	53.98	-15.15
* 22880.00	Peak	V	-	-	-60.71	9.96	-9.54	46.71	73.98	-27.27
28600.00	Peak	V	-	-	-50.68	-4.40	-9.54	42.38	68.20	-25.82

Table 7-65. Radiated Measurements MIMO/CDD

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5580MHz
Channel: 116

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]
* 11160.00	Average	V	141	167	-81.74	12.71	0.00	37.97	53.98	-16.01
* 11160.00	Peak	V	141	167	-69.04	12.71	0.00	50.67	73.98	-23.31
16740.00	Peak	V	116	159	-68.49	15.84	0.00	54.35	68.20	-13.85
* 22320.00	Average	V	-	-	-66.34	10.36	-9.54	41.48	53.98	-12.50
* 22320.00	Peak	V	-	-	-61.04	10.36	-9.54	46.78	73.98	-27.20
27900.00	Peak	V	-	-	-50.46	-5.17	-9.54	41.82	68.20	-26.38

Table 7-66. Radiated Measurements MIMO/CDD with WCP

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 197 of 240

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	V	102	156	-83.27	13.38	0.00	37.11	53.98	-16.87
* 11490.00	Peak	V	102	156	-70.75	13.38	0.00	49.63	73.98	-24.35
17235.00	Peak	V	101	161	-70.38	17.44	0.00	54.06	68.20	-14.14
* 22980.00	Average	V	-	-	-68.57	10.35	-9.54	39.23	53.98	-14.75
* 22980.00	Peak	V	-	-	-60.68	10.35	-9.54	47.12	73.98	-26.86
28725.00	Peak	V	-	-	-49.62	-4.88	-9.54	42.96	69.20	-26.24

Table 7-67. Radiated Measurements MIMO/CDD

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	V	388	198	-83.11	12.70	0.00	36.59	53.98	-17.39
* 11570.00	Peak	V	388	198	-70.31	12.70	0.00	49.39	73.98	-24.59
17355.00	Peak	V	101	32	-70.49	19.46	0.00	55.97	68.20	-12.23
23140.00	Peak	V	-	-	-61.02	10.05	-9.54	46.49	68.20	-21.71
28925.00	Peak	V	-	-	-51.28	-5.11	-9.54	41.07	68.20	-27.13

Table 7-68. Radiated Measurements MIMO/CDD

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 198 of 240

Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
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	V	400	343	-83.25	13.24	0.00	36.99	53.98	-16.99
* 11650.00	Peak	V	400	343	-70.66	13.24	0.00	49.58	73.98	-24.40
17475.00	Peak	V	102	22	-69.70	20.06	0.00	57.36	68.20	-10.84
23300.00	Peak	V	-	-	-61.19	9.39	-9.54	45.66	68.20	-22.54
29125.00	Peak	V	-	-	-49.73	-6.06	-9.54	41.67	68.20	-26.53

Table 7-69. Radiated Measurements MIMO/CDD

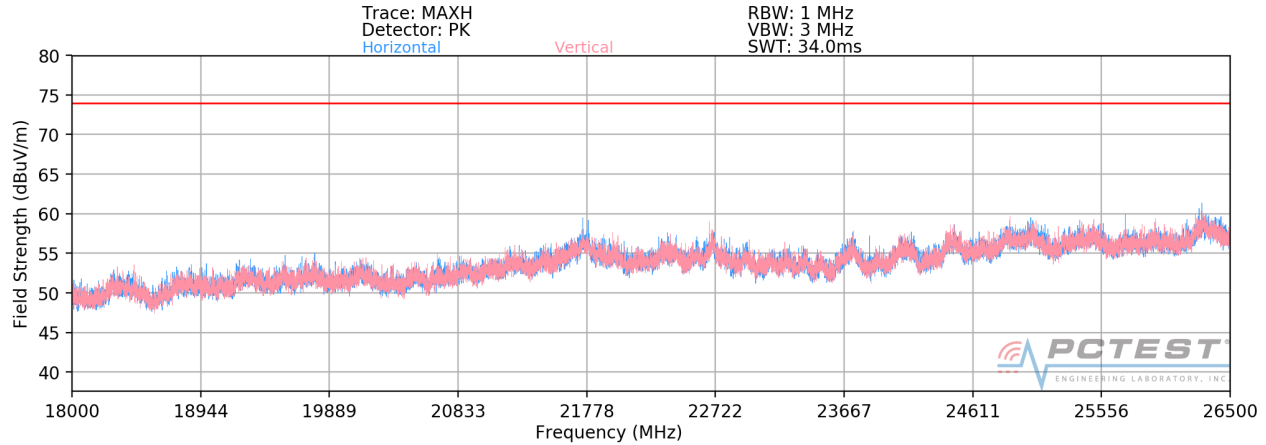
Worst Case Mode: 802.11a
Worst Case Transfer Rate: 6Mbps
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5825MHz
Channel: 165

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	V	347	216	-83.31	13.24	0.00	36.93	53.98	-17.05
* 11650.00	Peak	V	347	216	-71.24	13.24	0.00	49.00	73.98	-24.98
17475.00	Peak	V	-	-	-70.04	20.06	0.00	57.02	68.20	-11.18
23300.00	Peak	V	-	-	-62.04	9.39	-9.54	44.81	68.20	-23.39
29125.00	Peak	V	-	-	-50.22	-6.06	-9.54	41.18	68.20	-27.02

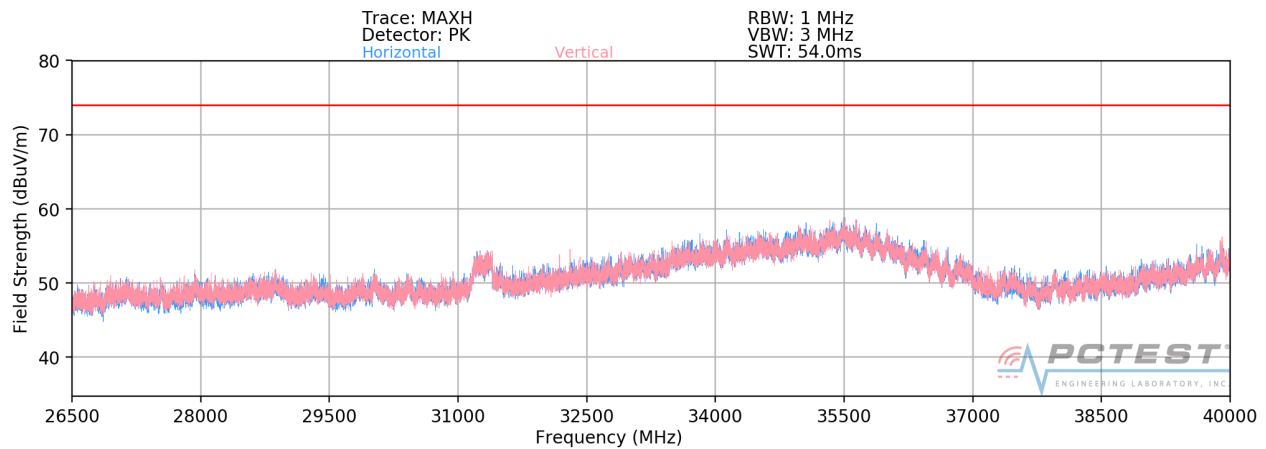
Table 7-70. Radiated Measurements MIMO/CDD with WCP

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 199 of 240

MIMO/CDD Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-281. Radiated Spurious Plot above 18GHz - 26.5GHz MIMO/CDD (802.11a)



Plot 7-282. Radiated Spurious Plot 26.5GHz - 40GHz MIMO/CDD (802.11a)

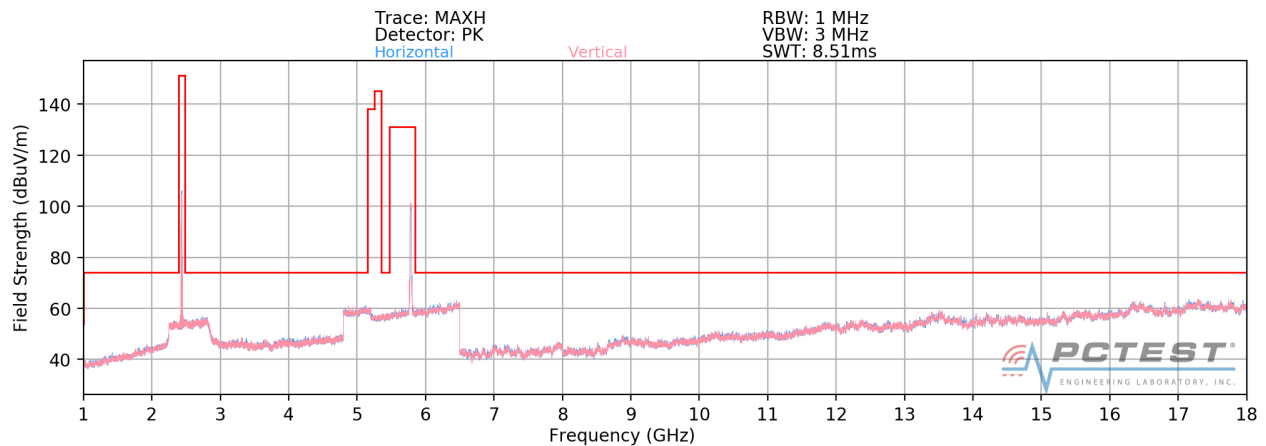
FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 200 of 240

7.5.4 Simultaneous Tx Radiated Spurious Emissions Measurements

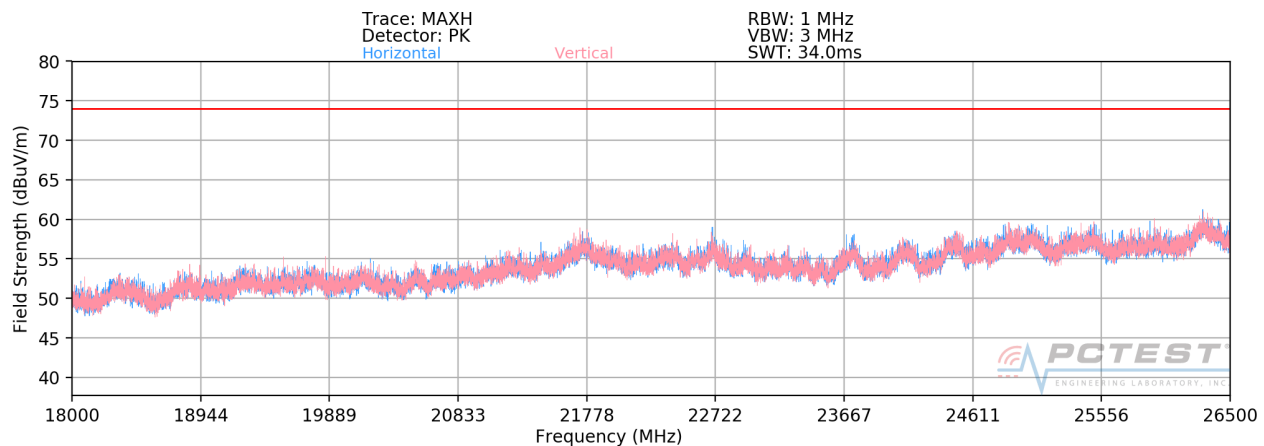
§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	6	40
Operating Frequency (MHz)	2437	5200
Data Rate (Mbps)	1	MCS0
Mode	802.11b	802.11n

Table 7-71. Simultaneous Transmission Config-1

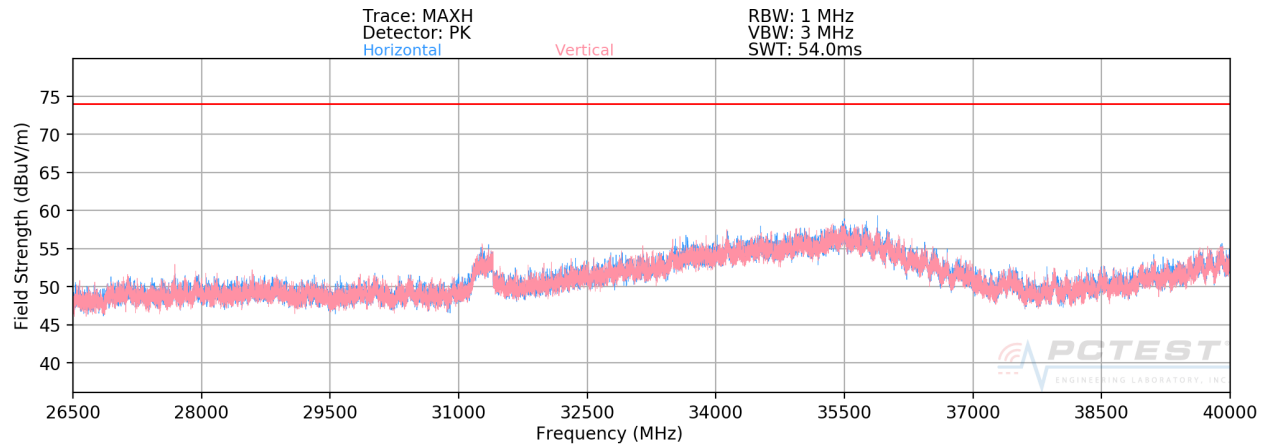


Plot 7-283. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz)



Plot 7-284. Radiated Spurious Plot 18GHz – 26.5GHz (2.4GHz – 5GHz)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 201 of 240

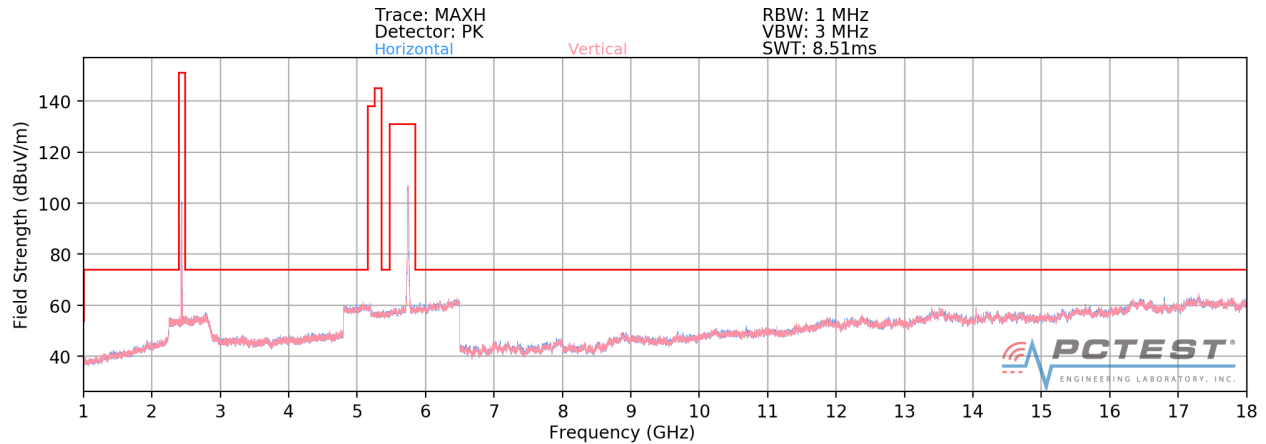


Plot 7-285. Radiated Spurious Plot above 26.5GHz (2.4GHz – 5GHz)

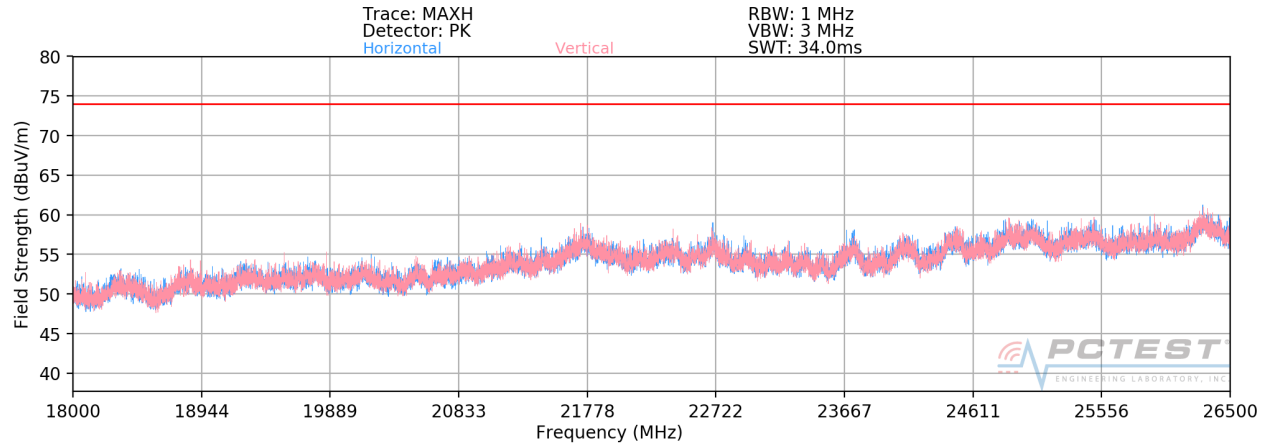
FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 202 of 240

Description	2.4 GHz Emission	5 GHz Emission
Antenna	2	1
Channel	6	120
Operating Frequency (MHz)	2437	5600
Data Rate (Mbps)	1	MCS0
Mode	802.11b	802.11n

Table 7-72. Simultaneous Transmission Config-2

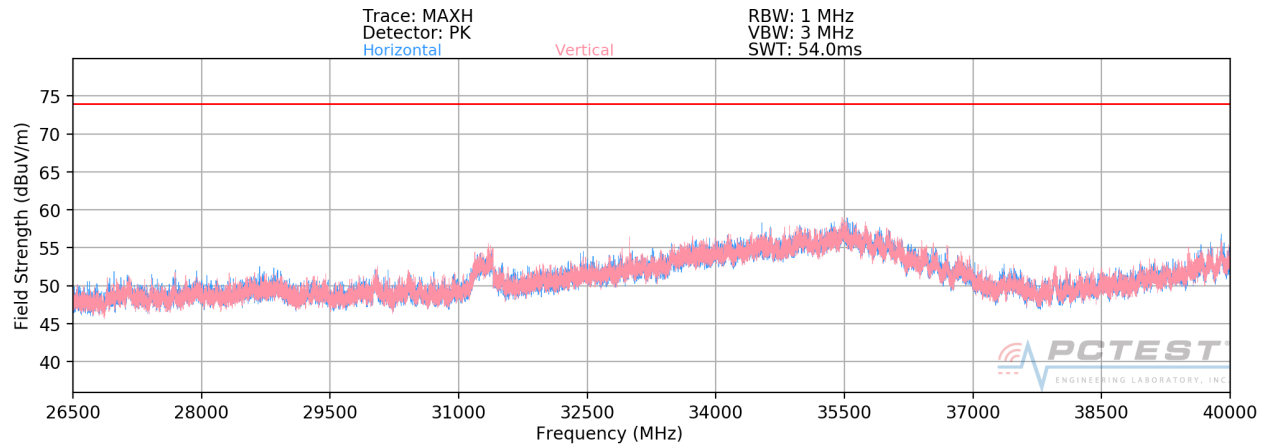


Plot 7-286. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz)



Plot 7-287. Radiated Spurious Plot 18GHz – 26.5GHz (5GHz – 2.4 GHz)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 203 of 240

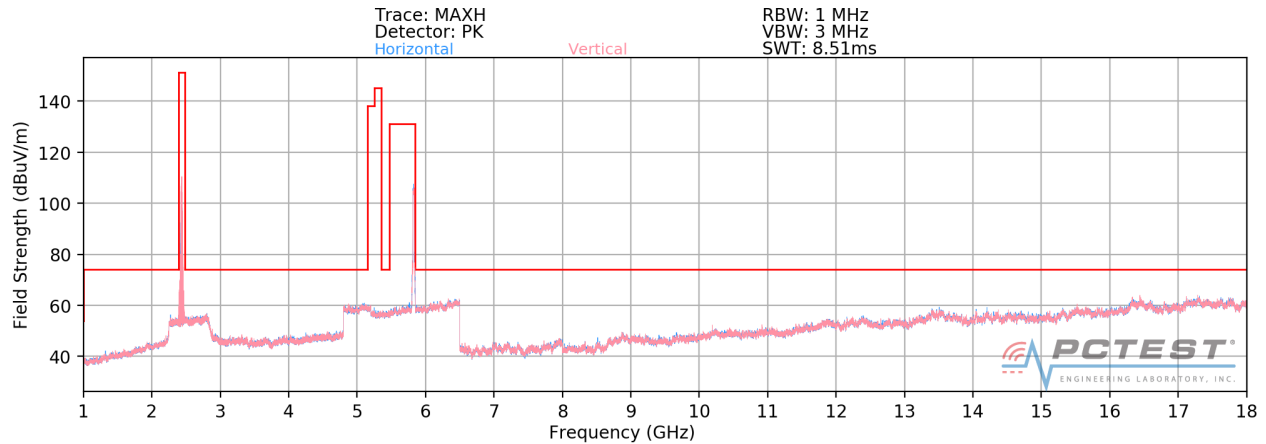


Plot 7-288. Radiated Spurious Plot above 26.5GHz (5GHz – 2.4 GHz)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 204 of 240

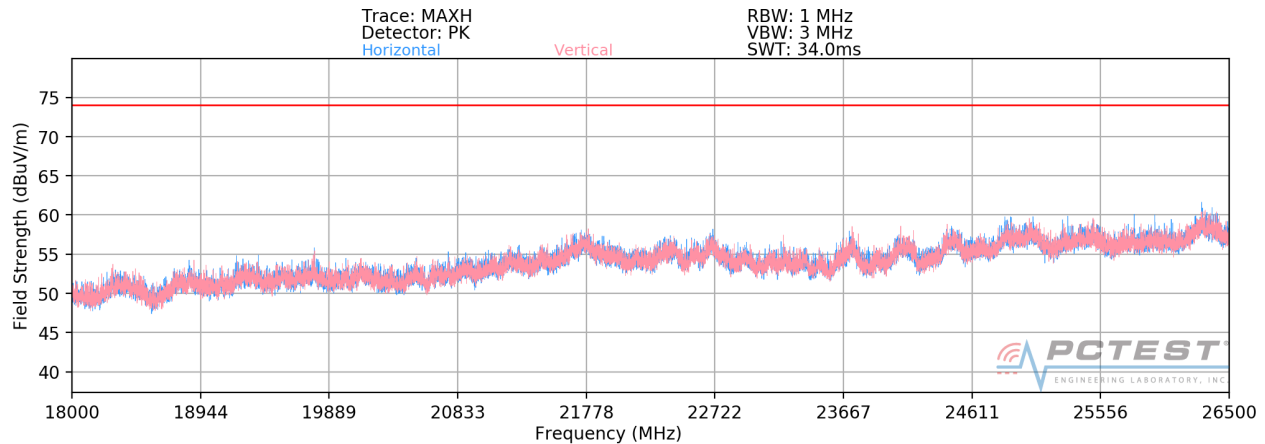
Description	2.4 GHz Emission	5 GHz Emission
Antenna	1, 2	1, 2
Channel	6	36
Operating Frequency (MHz)	2437	5180
Data Rate (Mbps)	MCS8	MCS8
Mode	802.11n	802.11n

Table 7-73. Dual Band Simultaneous Transmission

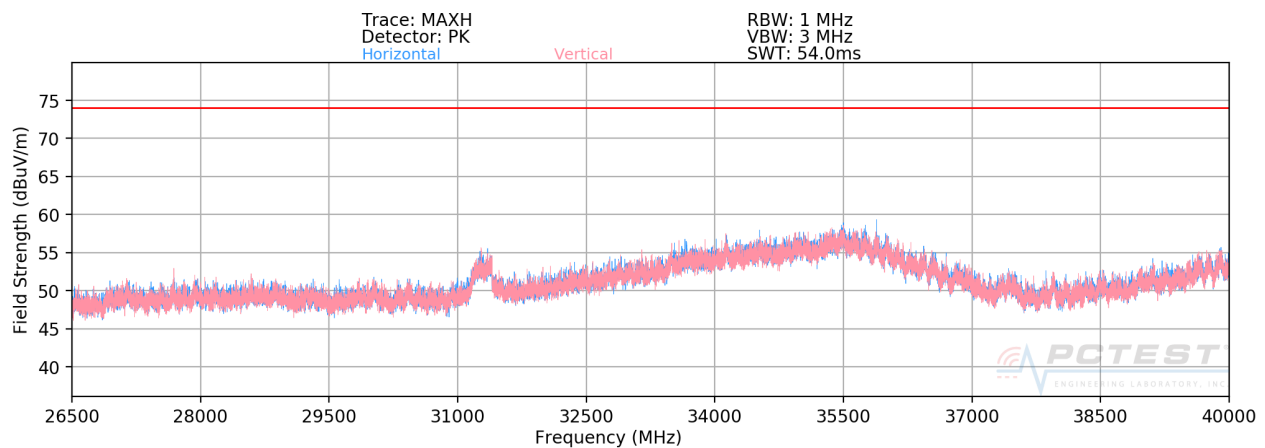


Plot 7-289. Radiated Spurious Plot above 1GHz (Dual Band Simult. Tx)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 205 of 240



Plot 7-290. Radiated Spurious Plot 18GHz – 26.5GHz (Dual Band Simult. Tx)



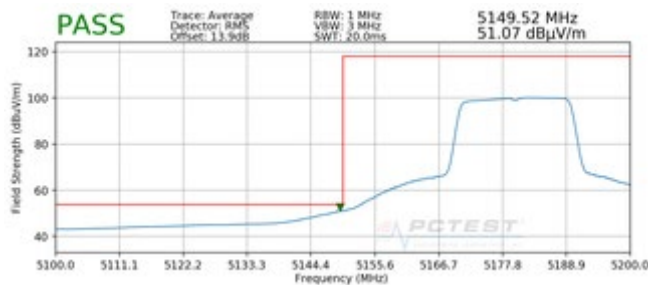
Plot 7-291. Radiated Spurious Plot above 26.5GHz (Dual Band Simult. Tx)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 206 of 240

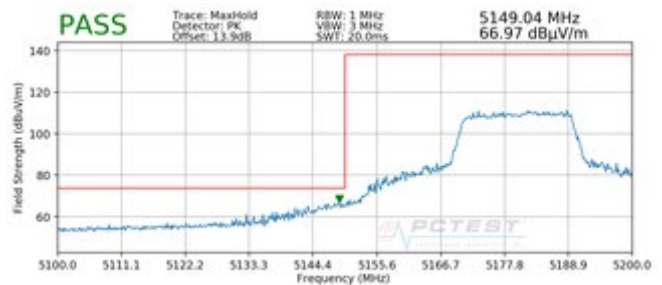
7.5.5 SISO Antenna-1 Radiated Band Edge Measurements (20MHz BW)

\$15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]; RSS-Gen [8.9]

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36

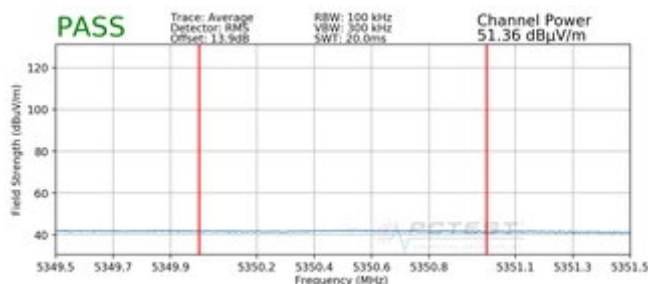


Plot 7-292. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 1)

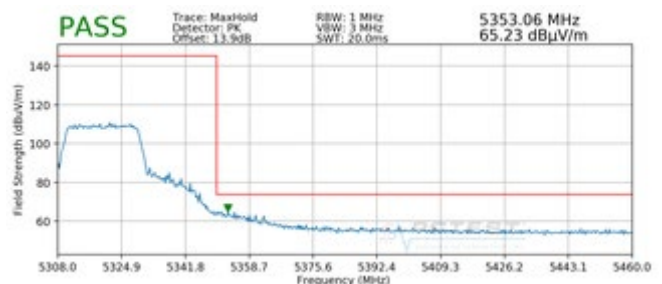


Plot 7-293. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 1)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



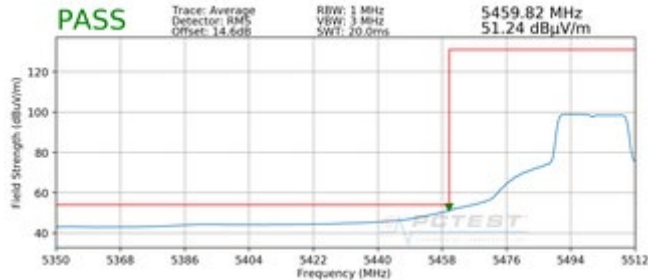
Plot 7-294. Radiated Upper Band Edge Plot SISO ANT1 (Average – UNII Band 2A)



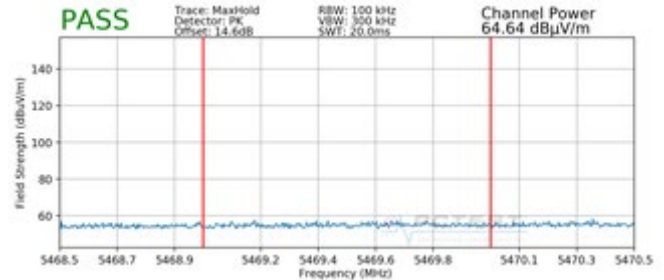
Plot 7-295. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 2A)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 207 of 240

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5500MHz
Channel: 100

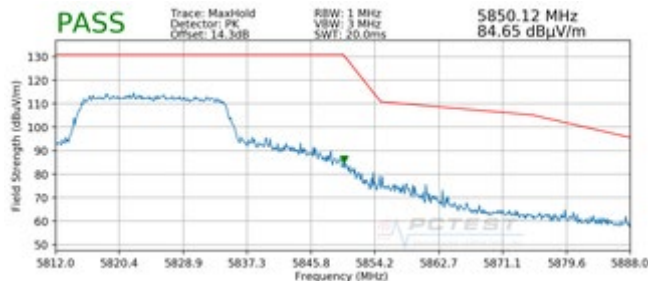


Plot 7-296. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C)



Plot 7-297. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C)

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5825MHz
Channel: 165



Plot 7-298. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3)

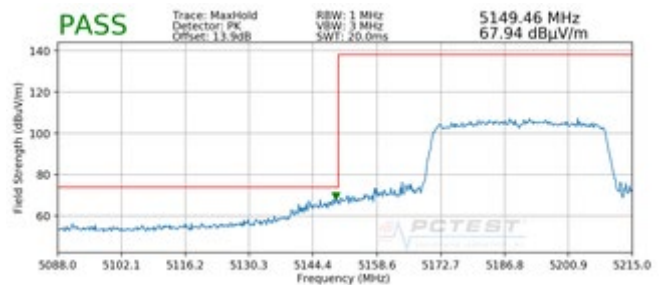
FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 208 of 240

7.5.6 SISO Antenna-1 Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38

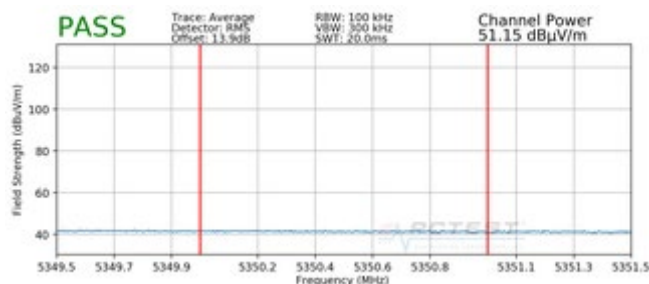


Plot 7-299. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 1)

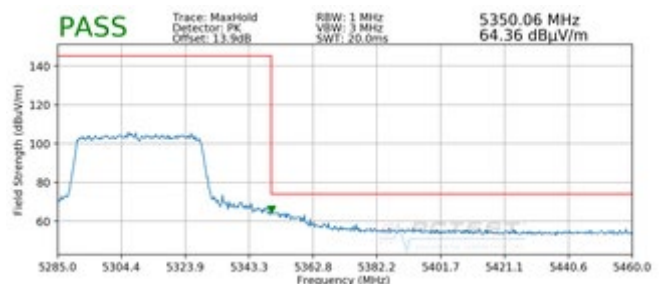


Plot 7-300. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 1)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



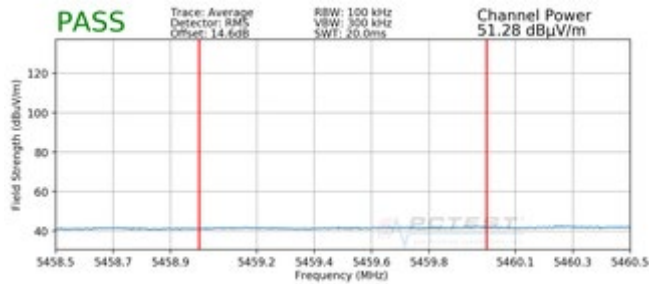
Plot 7-301. Radiated Upper Band Edge Plot SISO ANT1 (Average – UNII Band 2A)



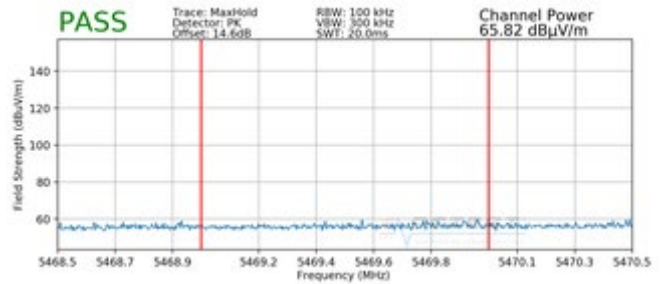
Plot 7-302. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 2A)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 209 of 240

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5510MHz
Channel: 102

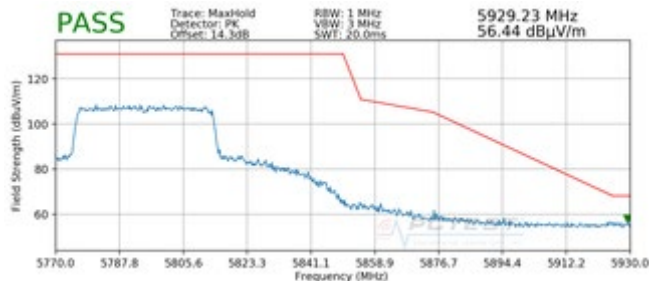


Plot 7-303. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C)



Plot 7-304. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C)

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
Distance of Measurements: 3 Meters
Operating Frequency: 5795MHz
Channel: 159



Plot 7-305. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-06.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 210 of 240