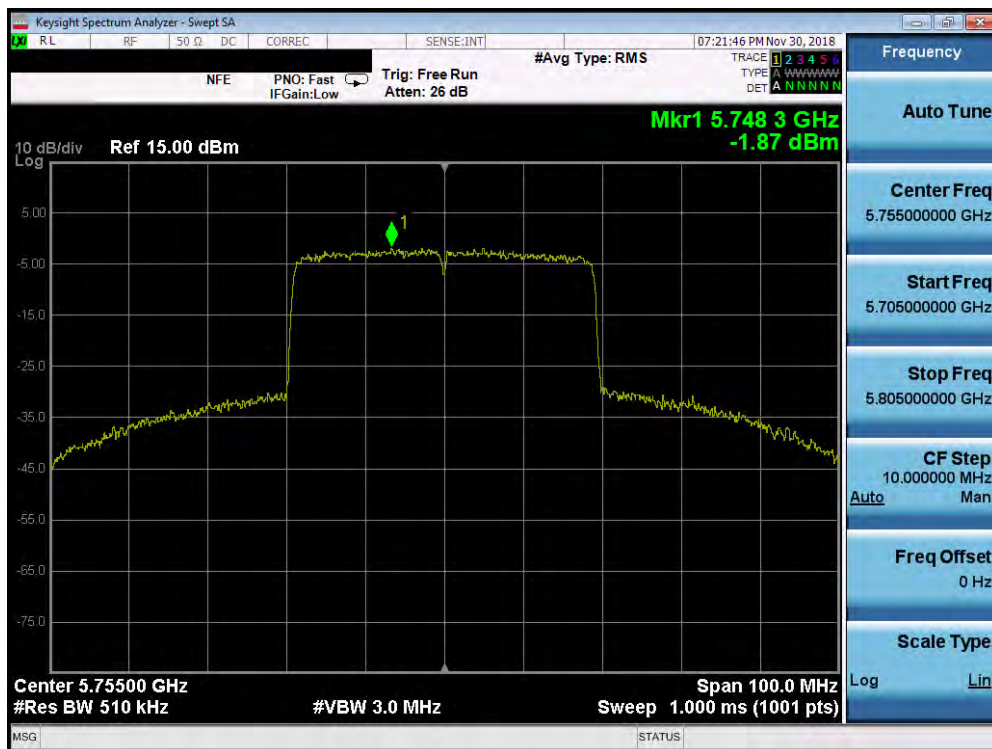


Plot 7-193. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)



Plot 7-194. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 127 of 249

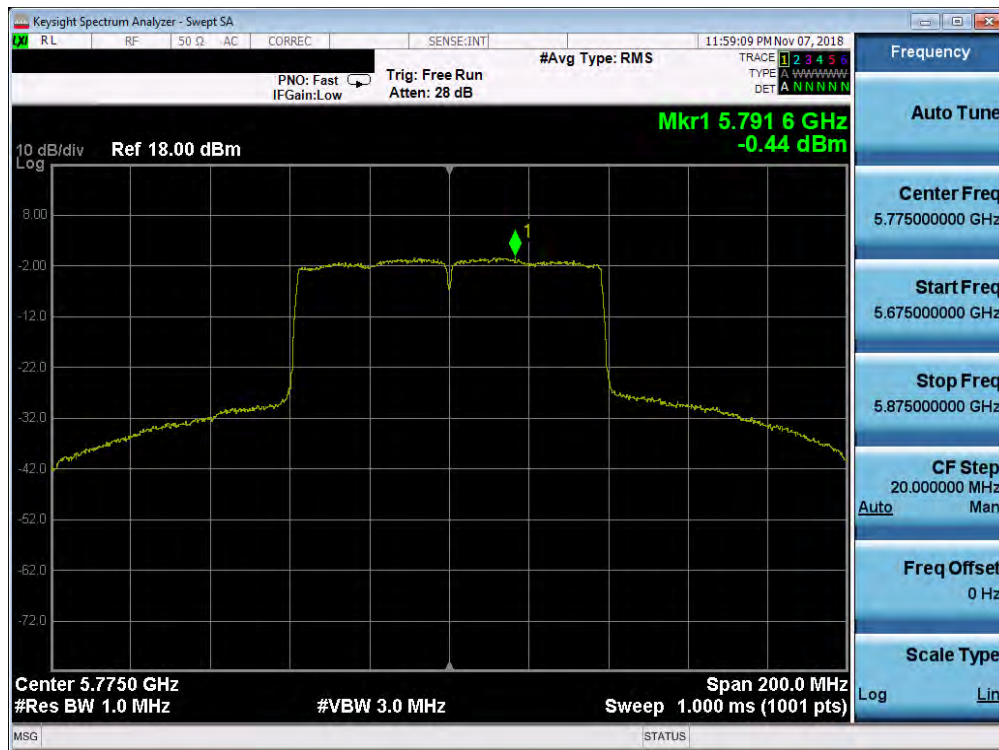


Plot 7-195. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)

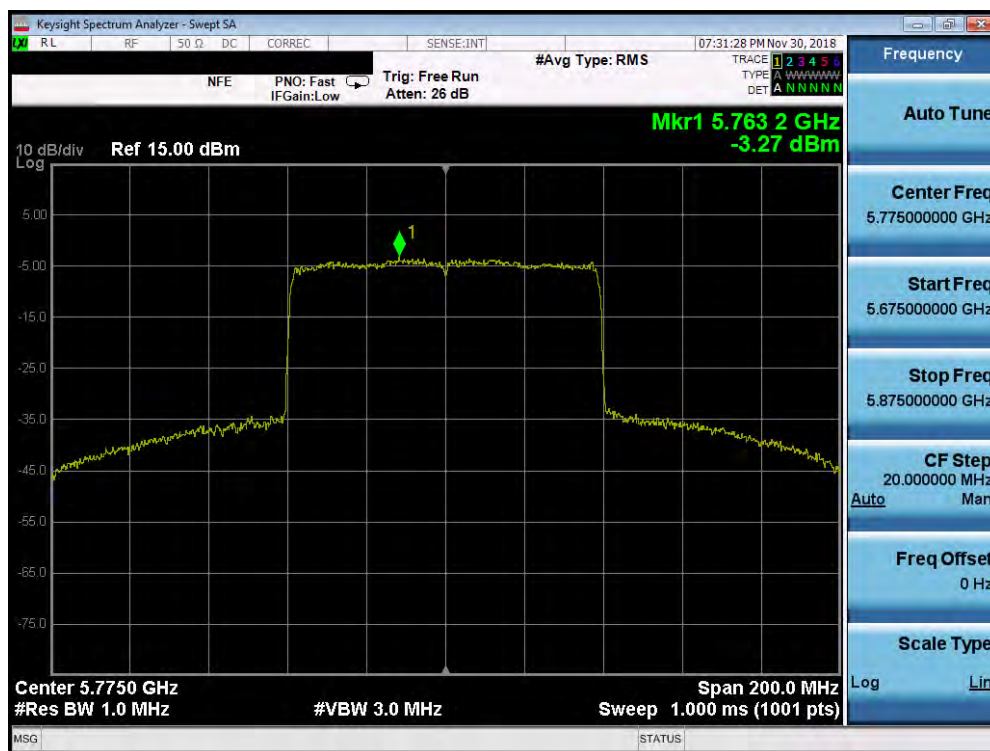


Plot 7-196. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 128 of 249



Plot 7-197. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)



Plot 7-198. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 129 of 249



## SISO Antenna-2 Power Spectral Density Measurements

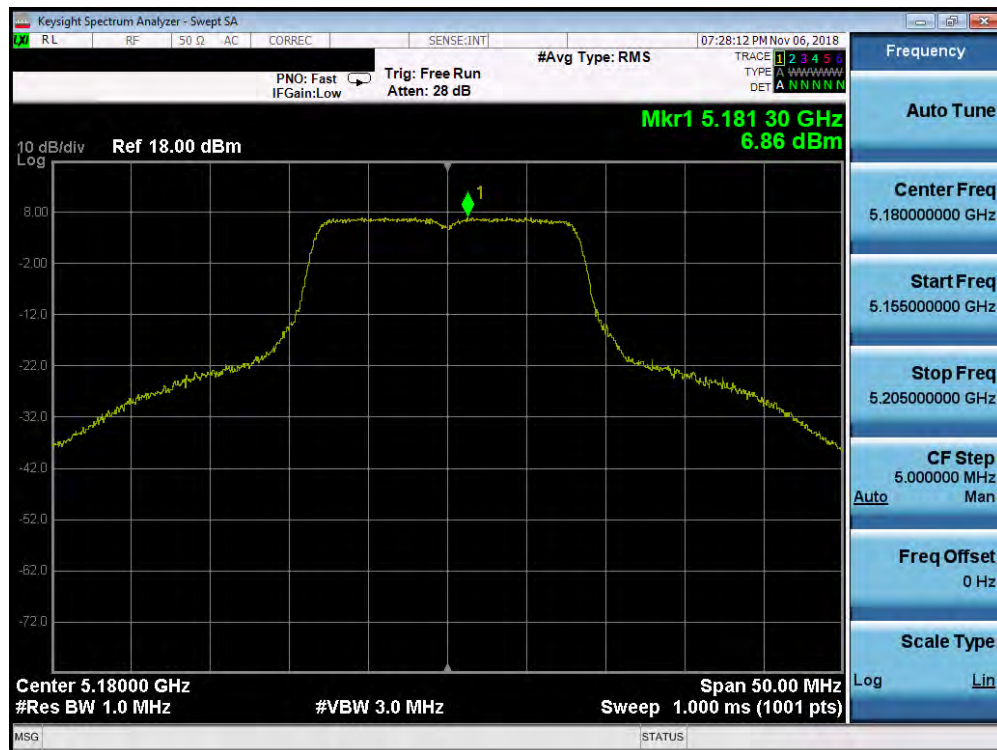
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	6.86	11.0	-4.14
	5200	40	a	6	6.90	11.0	-4.10
	5240	48	a	6	7.02	11.0	-3.99
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.60	11.0	-4.40
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.97	11.0	-4.03
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	7.01	11.0	-3.99
	5180	36	ax (20MHz)	8.6 (MCS0)	5.84	11.0	-5.16
	5200	40	ax (20MHz)	8.6 (MCS0)	6.49	11.0	-4.51
	5240	48	ax (20MHz)	8.6 (MCS0)	6.60	11.0	-4.40
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.09	11.0	-7.91
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.19	11.0	-7.81
	5190	38	ax (40MHz)	17.2 (MCS0)	2.81	11.0	-8.19
	5230	46	ax (40MHz)	17.2 (MCS0)	3.13	11.0	-7.87
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-1.13	11.0	-12.13
	5210	42	ax (80MHz)	36 (MCS0)	-0.72	11.0	-11.72
Band 2A	5260	52	a	6	6.84	11.0	-4.16
	5280	56	a	6	6.98	11.0	-4.02
	5320	64	a	6	7.06	11.0	-3.94
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	7.03	11.0	-3.97
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.79	11.0	-4.21
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	7.25	11.0	-3.75
	5260	52	ax (20MHz)	8.6 (MCS0)	6.61	11.0	-4.39
	5280	56	ax (20MHz)	8.6 (MCS0)	6.68	11.0	-4.32
	5320	64	ax (20MHz)	8.6 (MCS0)	6.94	11.0	-4.06
	5270	54	n (40MHz)	13.5/15 (MCS0)	2.60	11.0	-8.40
	5310	62	n (40MHz)	13.5/15 (MCS0)	3.00	11.0	-8.00
	5270	54	ax (40MHz)	17.2 (MCS0)	3.27	11.0	-7.74
	5310	62	ax (40MHz)	17.2 (MCS0)	3.07	11.0	-7.93
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-0.71	11.0	-11.71
	5210	58	ax (80MHz)	36 (MCS0)	-0.37	11.0	-11.37
Band 2C	5500	100	a	6	6.76	11.0	-4.24
	5600	120	a	6	6.83	11.0	-4.17
	5720	144	a	6	6.62	11.0	-4.38
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	6.69	11.0	-4.31
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	6.75	11.0	-4.25
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	7.02	11.0	-3.98
	5500	100	ax (20MHz)	8.6 (MCS0)	6.35	11.0	-4.65
	5600	120	ax (20MHz)	8.6 (MCS0)	5.96	11.0	-5.04
	5720	144	ax (20MHz)	8.6 (MCS0)	6.12	11.0	-4.89
	5510	102	n (40MHz)	13.5/15 (MCS0)	2.34	11.0	-8.66
	5590	118	n (40MHz)	13.5/15 (MCS0)	2.60	11.0	-8.40
	5710	142	n (40MHz)	13.5/15 (MCS0)	2.69	11.0	-8.31
	5510	102	ax (40MHz)	17.2 (MCS0)	3.65	11.0	-7.35
	5590	118	ax (40MHz)	17.2 (MCS0)	2.37	11.0	-8.63
	5710	142	ax (40MHz)	17.2 (MCS0)	2.89	11.0	-8.11
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-1.17	11.0	-12.17
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-1.01	11.0	-12.01
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-3.52	11.0	-14.52
	5530	106	ax (80MHz)	36 (MCS0)	-0.46	11.0	-11.46
	5610	122	ax (80MHz)	36 (MCS0)	-1.06	11.0	-12.06
	5690	138	ax (80MHz)	36 (MCS0)	-3.87	11.0	-14.87

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

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 130 of 249

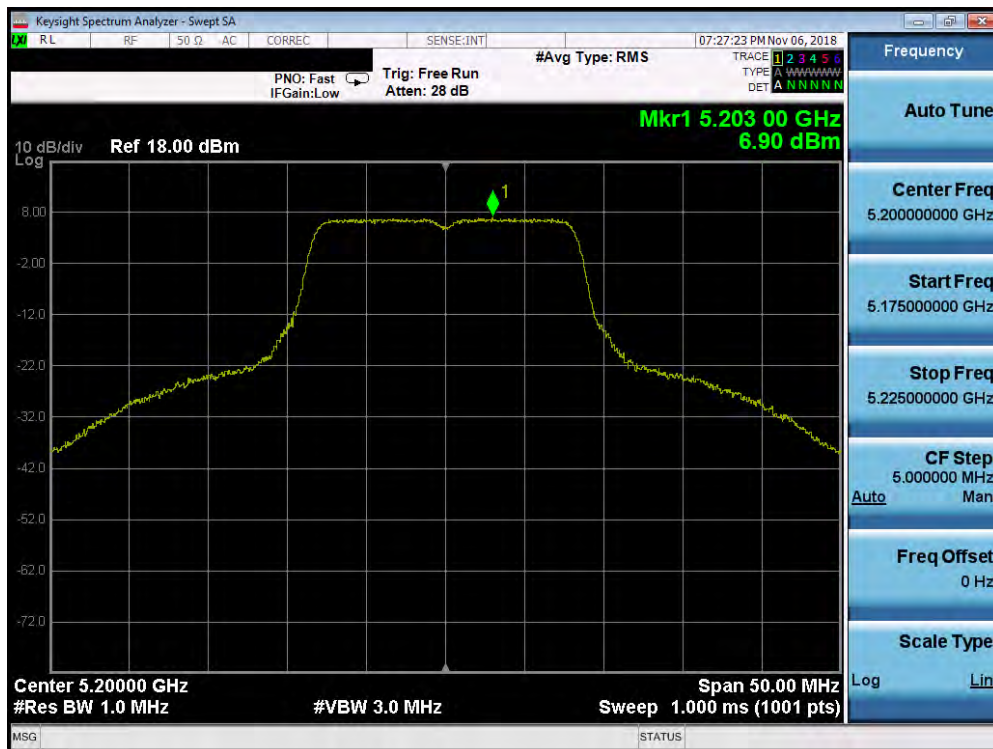
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	6.86	-7.70	-0.84	10.0	-10.84
	5200	40	a	6	6.90	-7.57	-0.67	10.0	-10.67
	5240	48	a	6	7.02	-8.01	-1.00	10.0	-11.00
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.60	-7.70	-1.10	10.0	-11.10
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.97	-7.57	-0.60	10.0	-10.60
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	7.01	-8.01	-1.00	10.0	-11.00
	5180	36	ax (20MHz)	8.6 (MCS0)	5.84	-7.70	-1.86	10.0	-11.86
	5200	40	ax (20MHz)	8.6 (MCS0)	6.49	-7.57	-1.08	10.0	-11.08
	5240	48	ax (20MHz)	8.6 (MCS0)	6.60	-8.01	-1.41	10.0	-11.41
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.09	-7.70	-4.61	10.0	-14.61
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.19	-8.01	-4.82	10.0	-14.82
	5190	38	ax (40MHz)	17.2 (MCS0)	2.81	-7.70	-4.89	10.0	-14.89
	5230	46	ax (40MHz)	17.2 (MCS0)	3.13	-8.01	-4.88	10.0	-14.88
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-1.13	-7.57	-8.70	10.0	-18.70
	5210	42	ax (80MHz)	36 (MCS0)	-0.72	-7.57	-8.29	10.0	-18.29

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

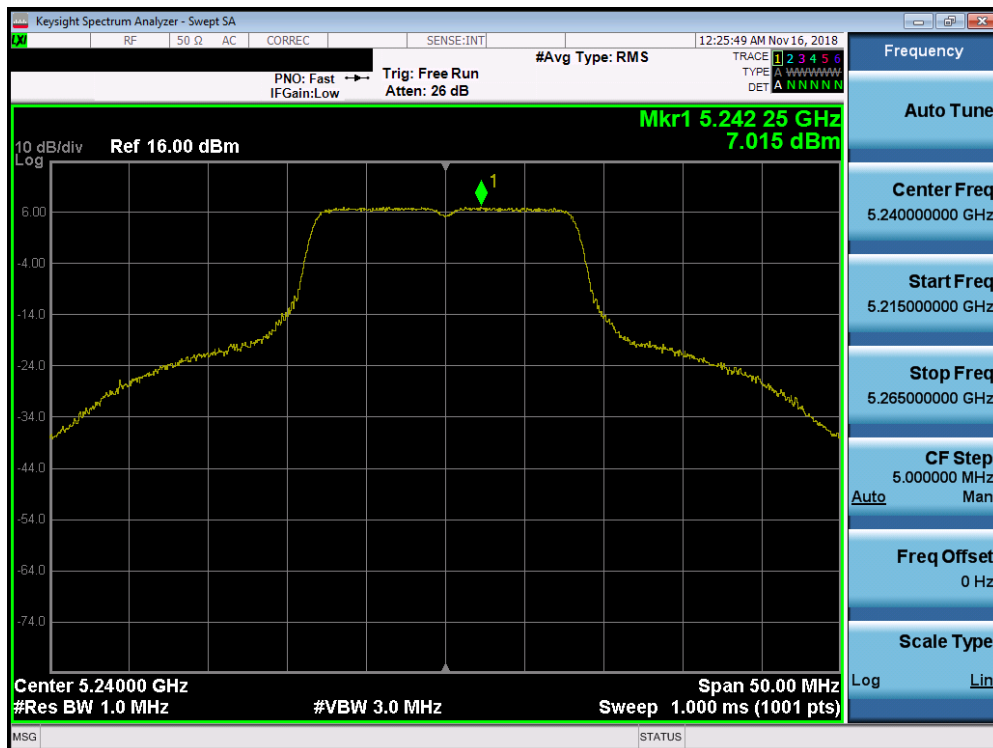


Plot 7-199. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 36)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 131 of 249

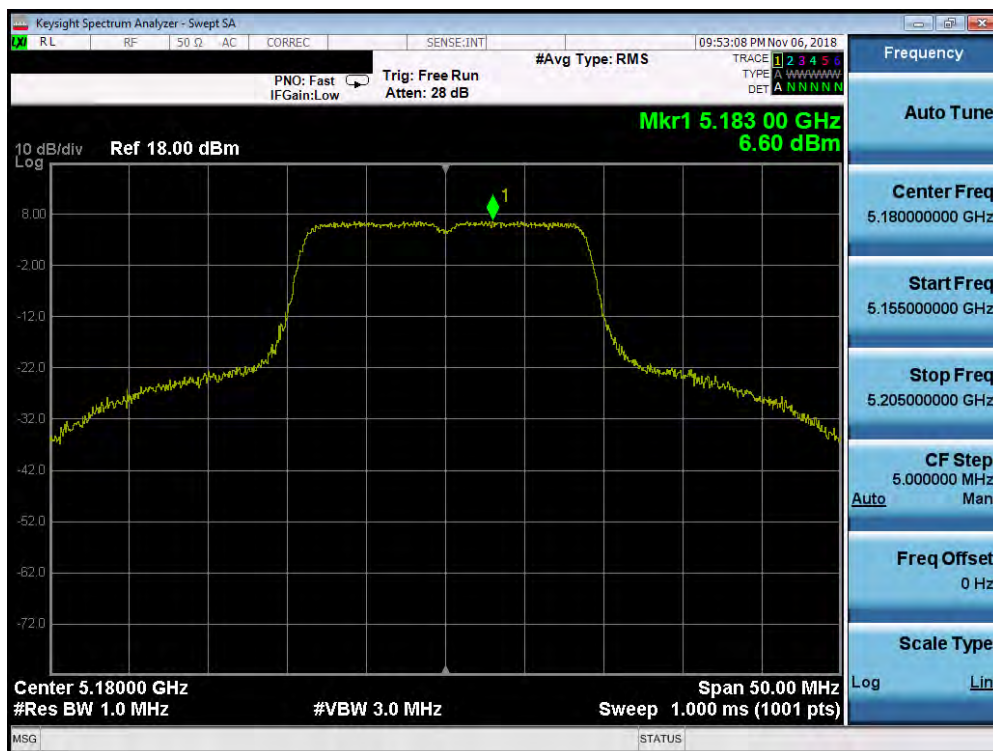


Plot 7-200. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 40)

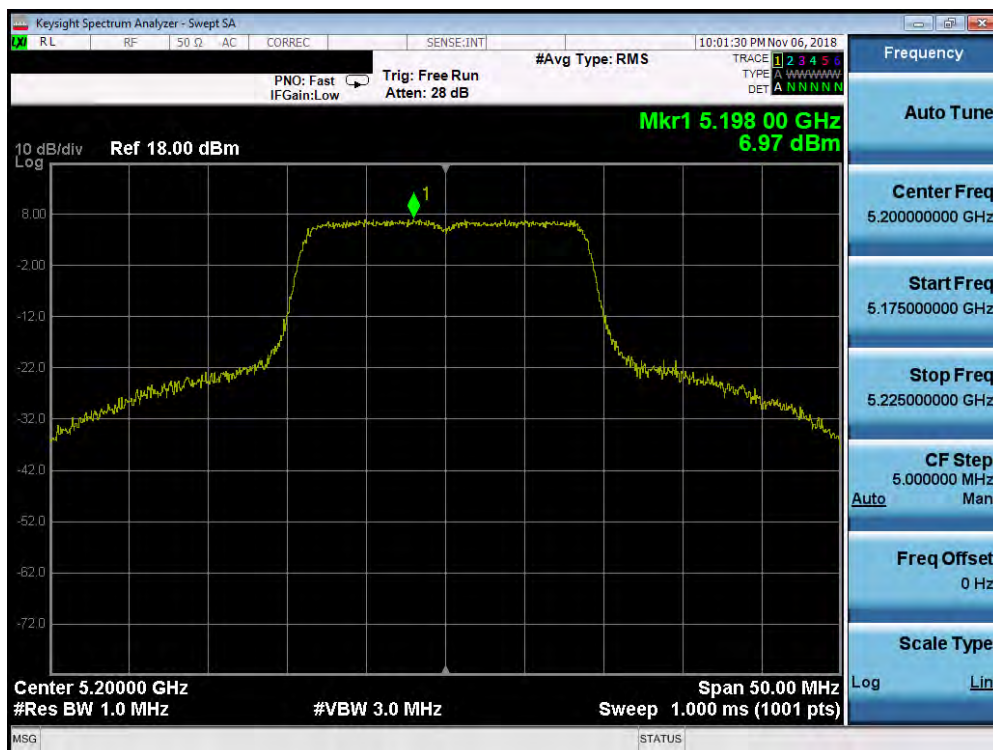


Plot 7-201. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 48)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 132 of 249



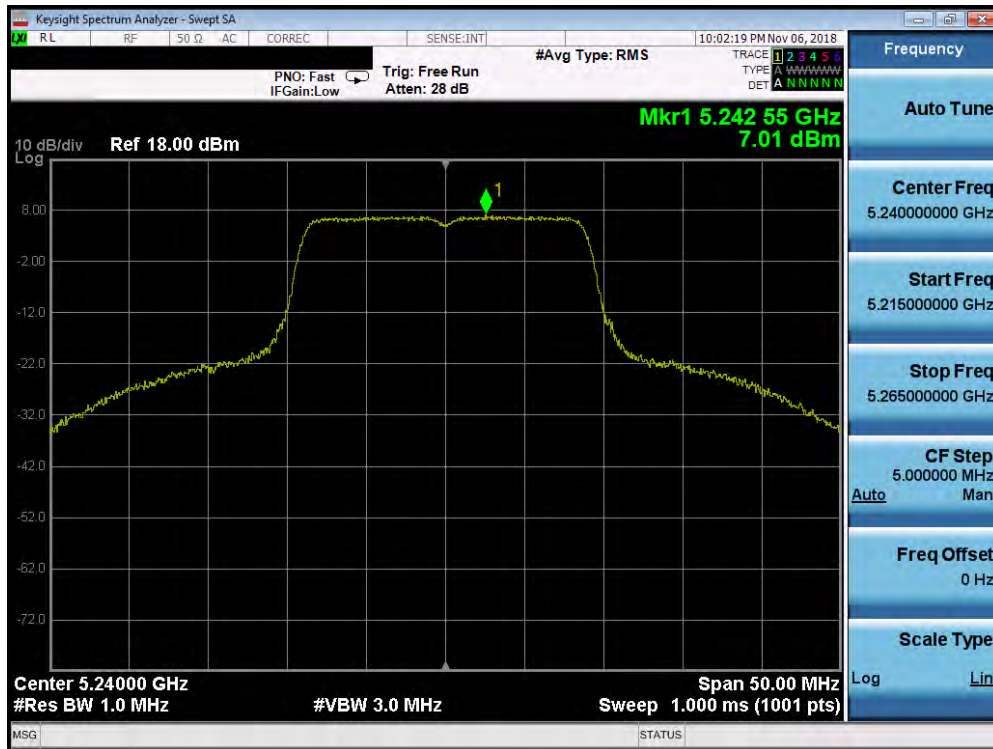
Plot 7-202. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)



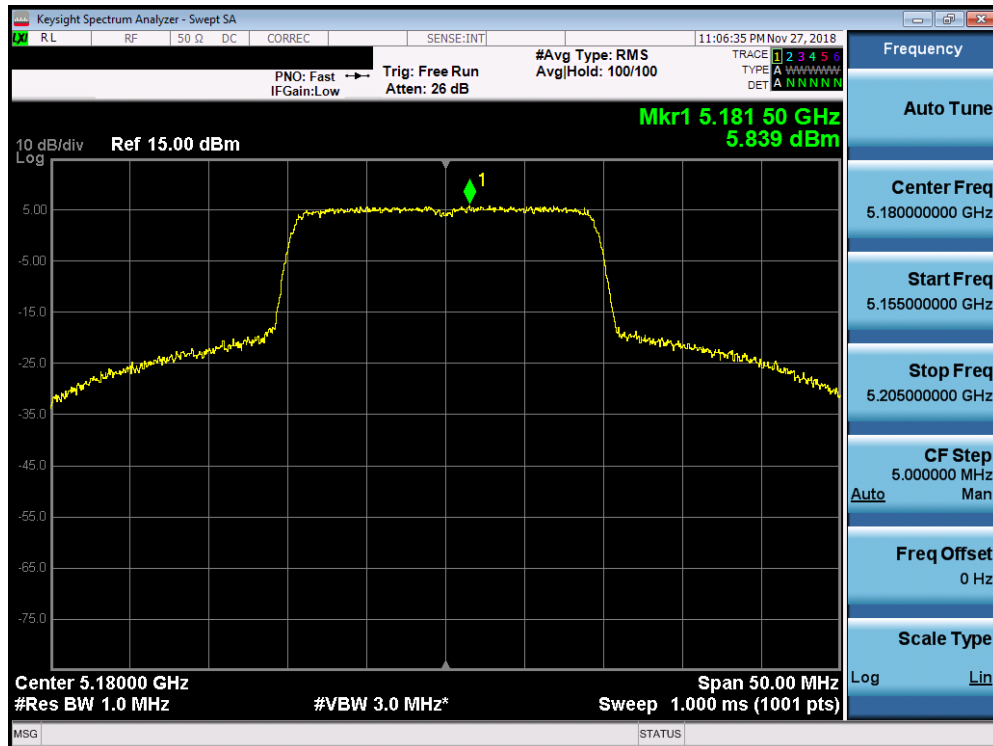
Plot 7-203. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 133 of 249





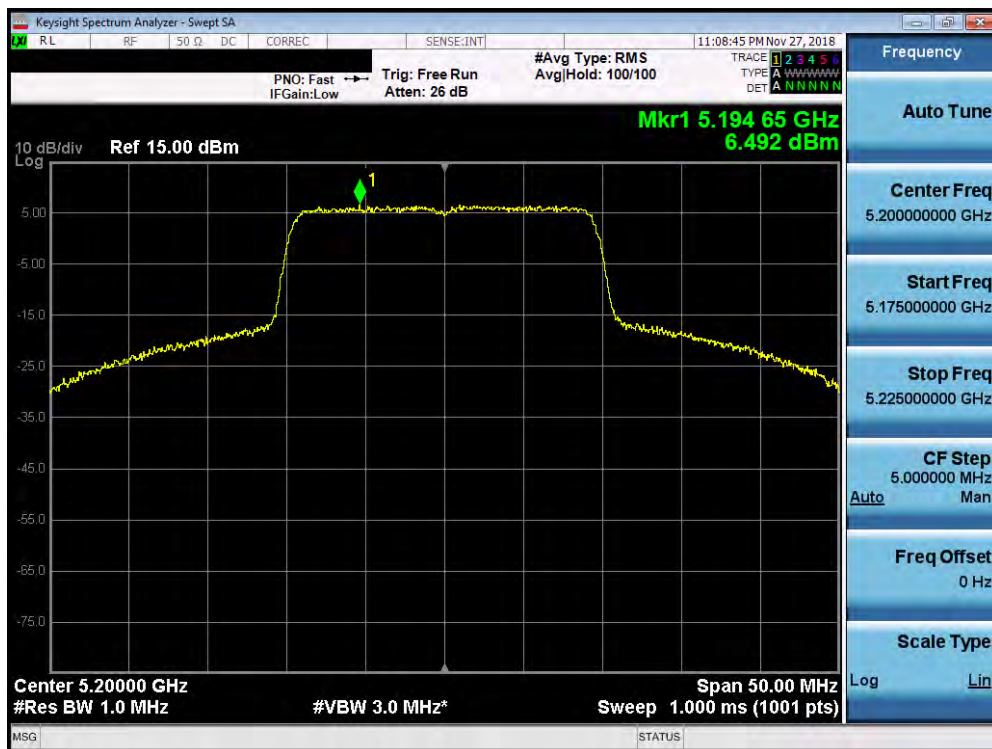
Plot 7-204. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)



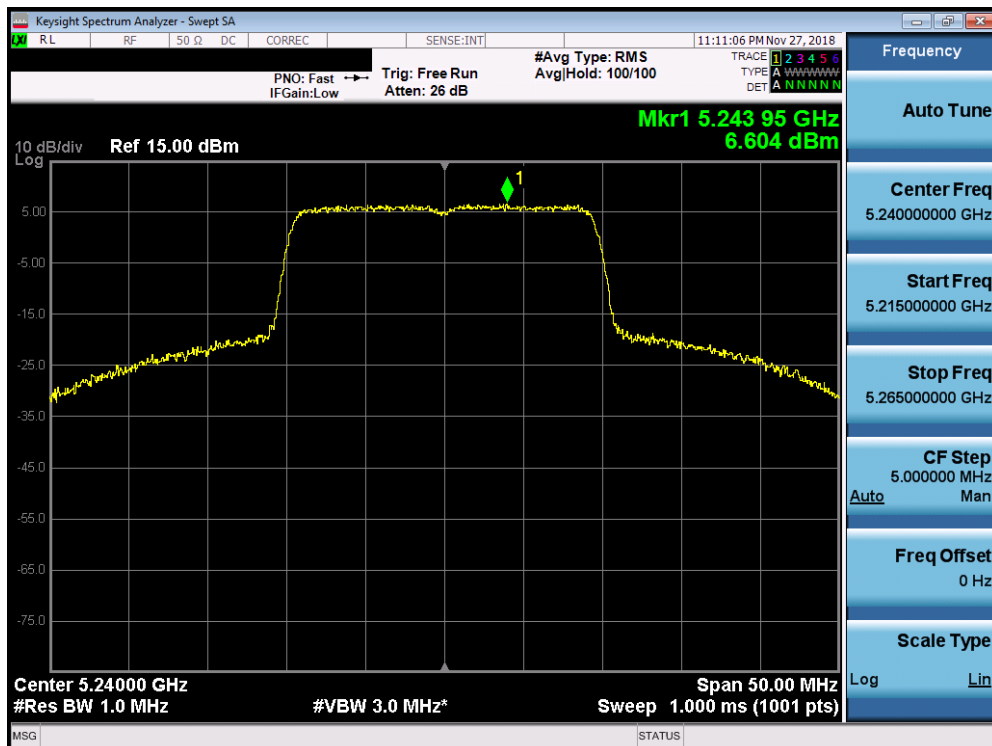
Plot 7-205. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 36)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 134 of 249





Plot 7-206. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 40)

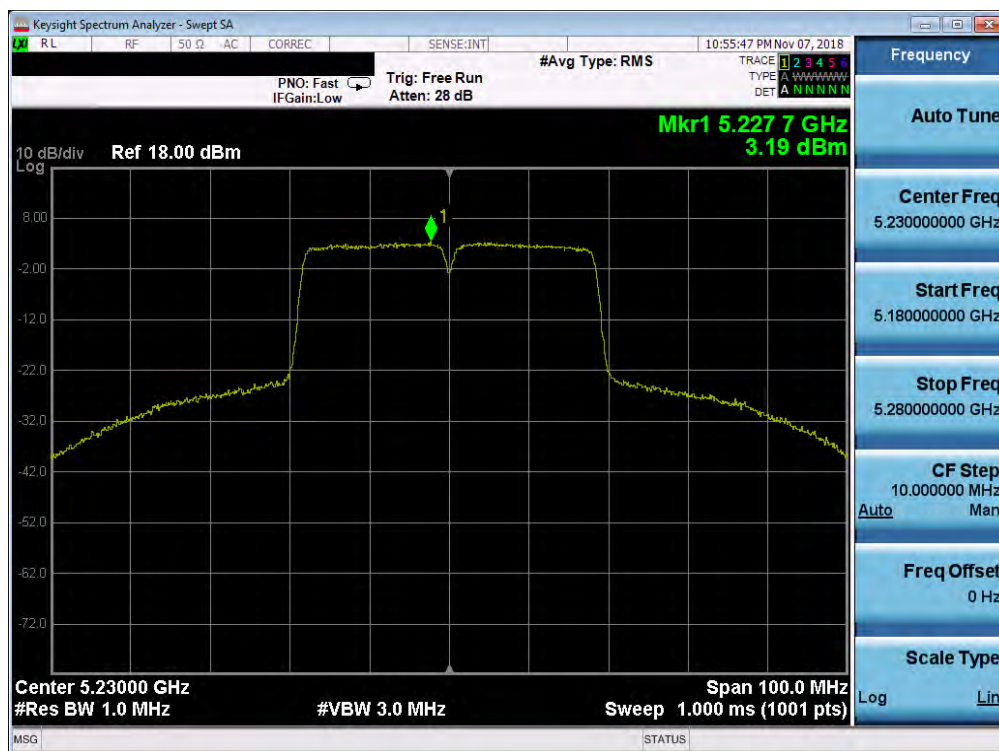


Plot 7-207. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 48)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 135 of 249

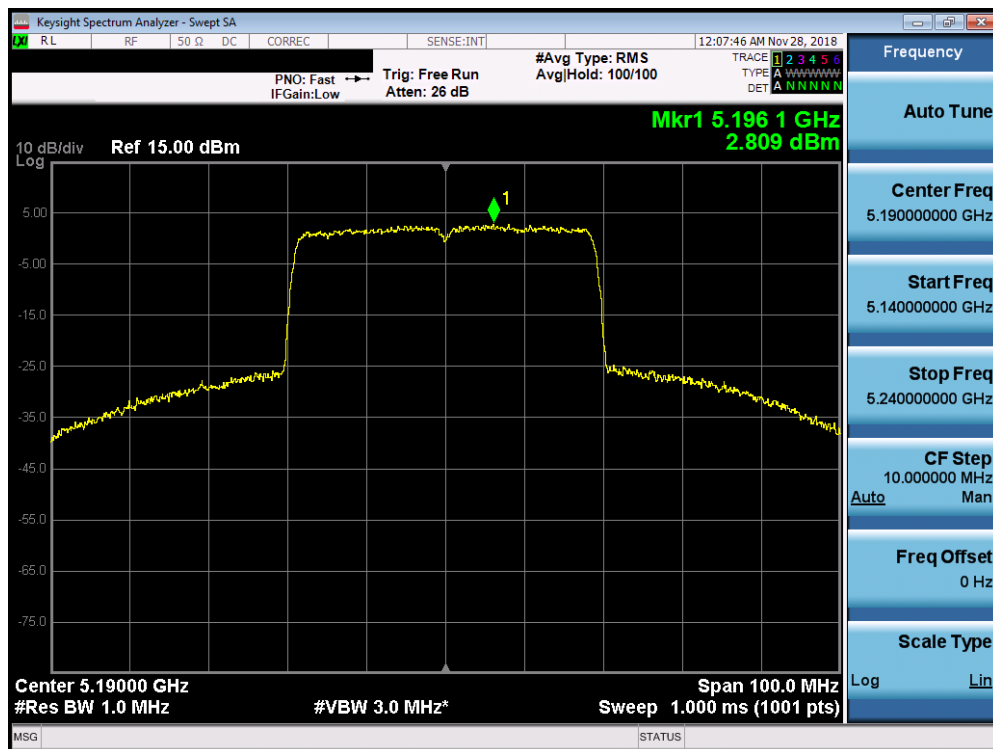


Plot 7-208. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

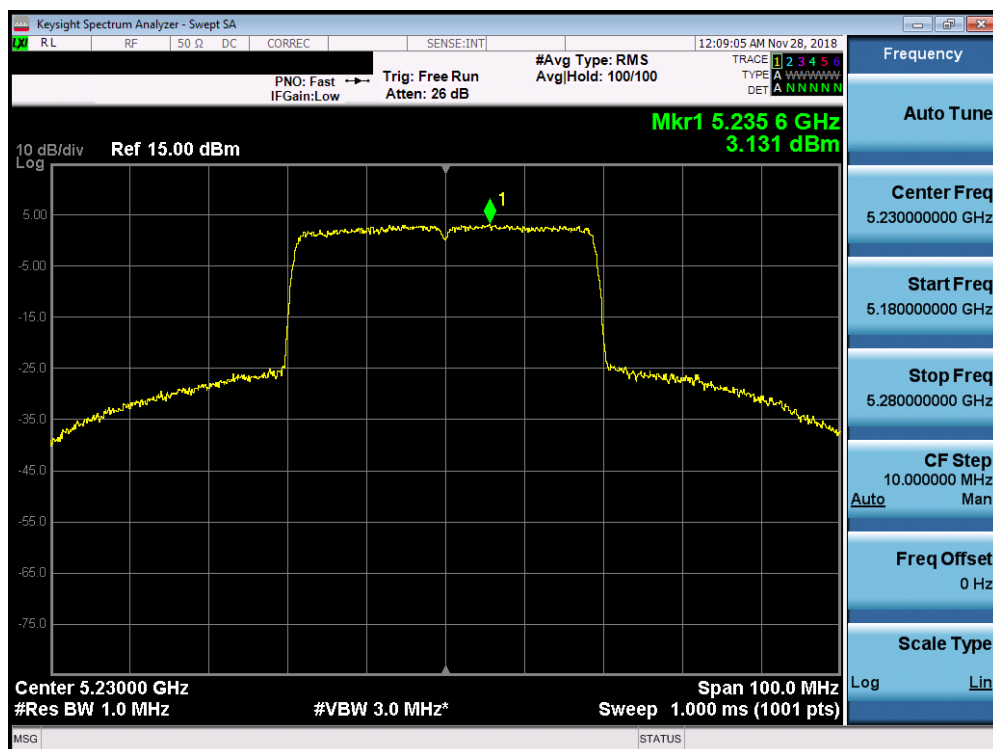


Plot 7-209. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

FCC ID: A3LSMG9730	<b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 136 of 249



Plot 7-210. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 1) – Ch. 38)

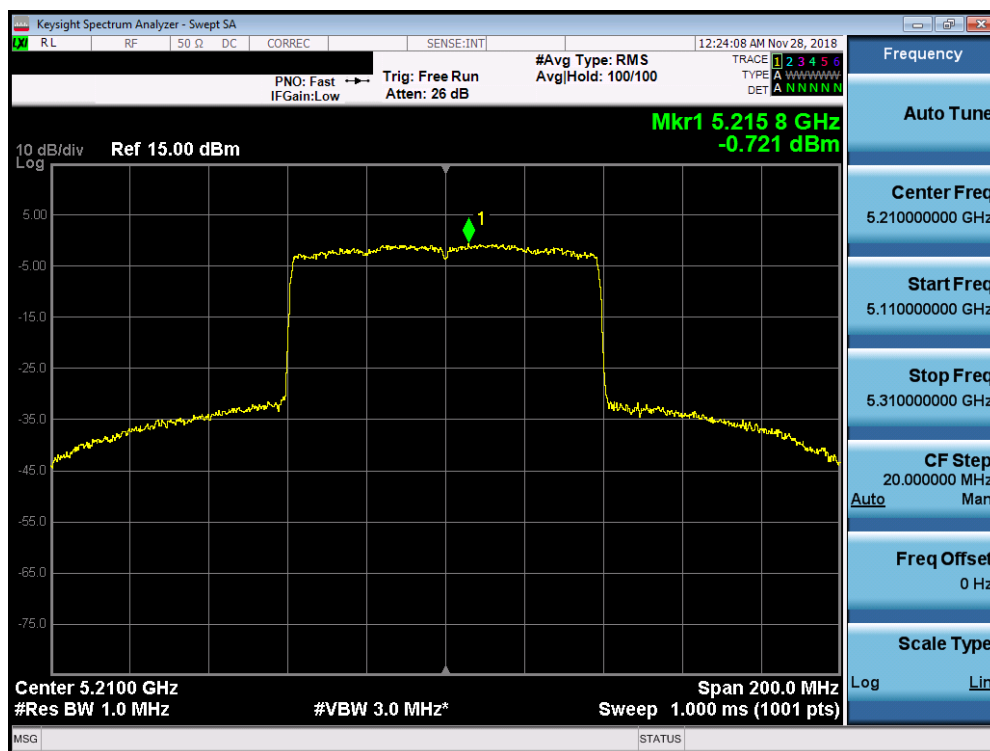


Plot 7-211. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 1) – Ch. 46)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 137 of 249



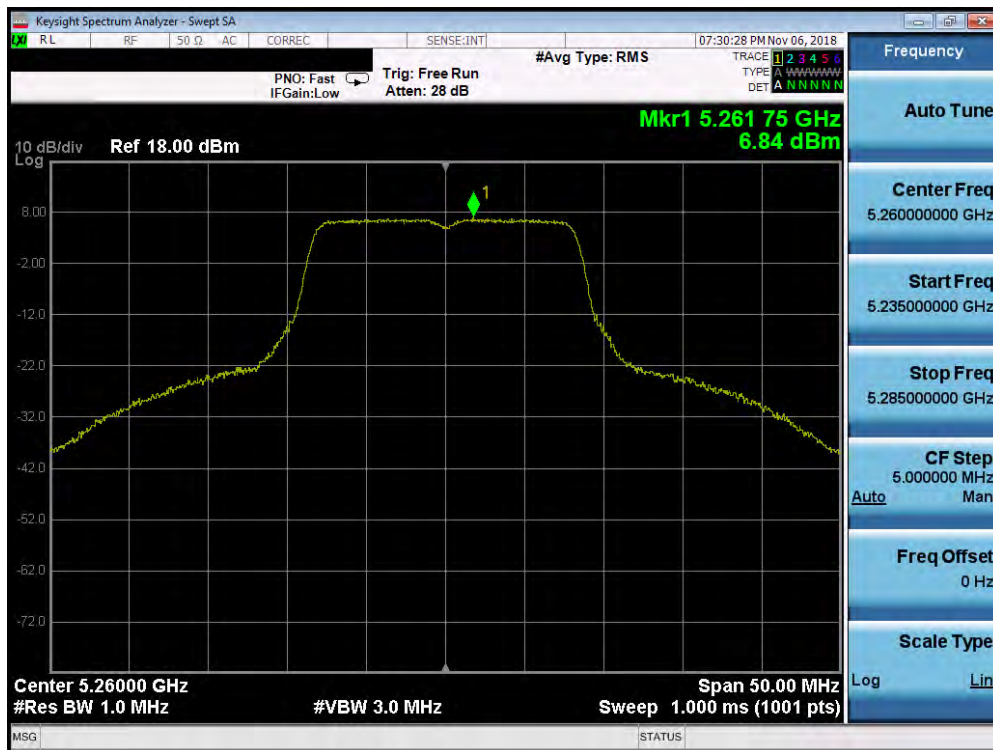
Plot 7-212. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)



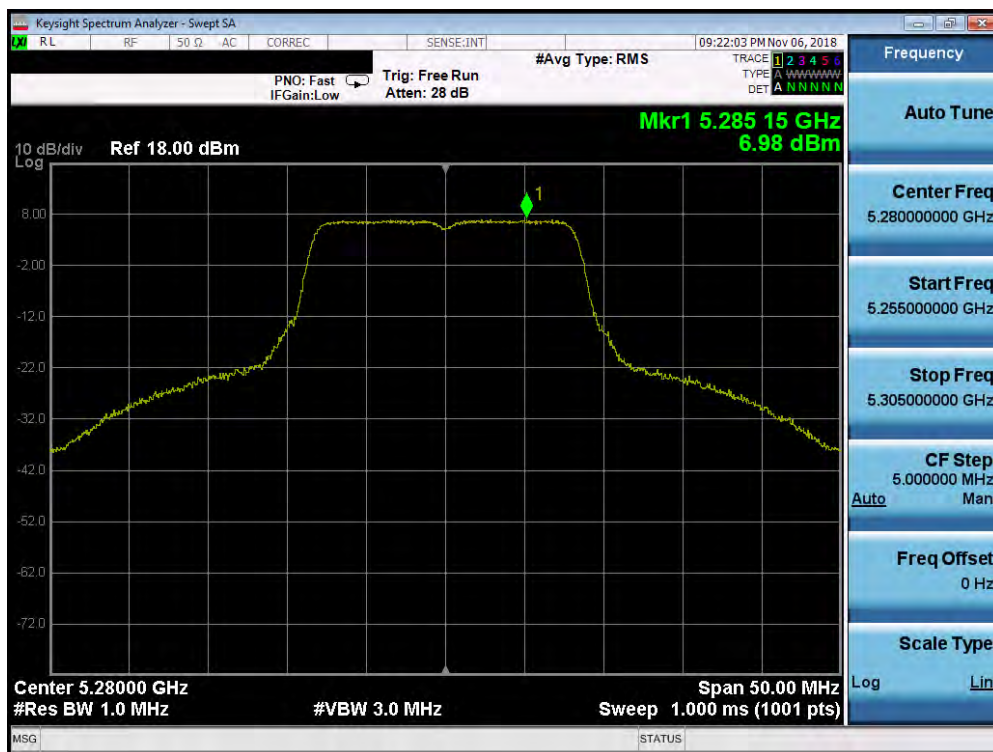
Plot 7-213. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 138 of 249



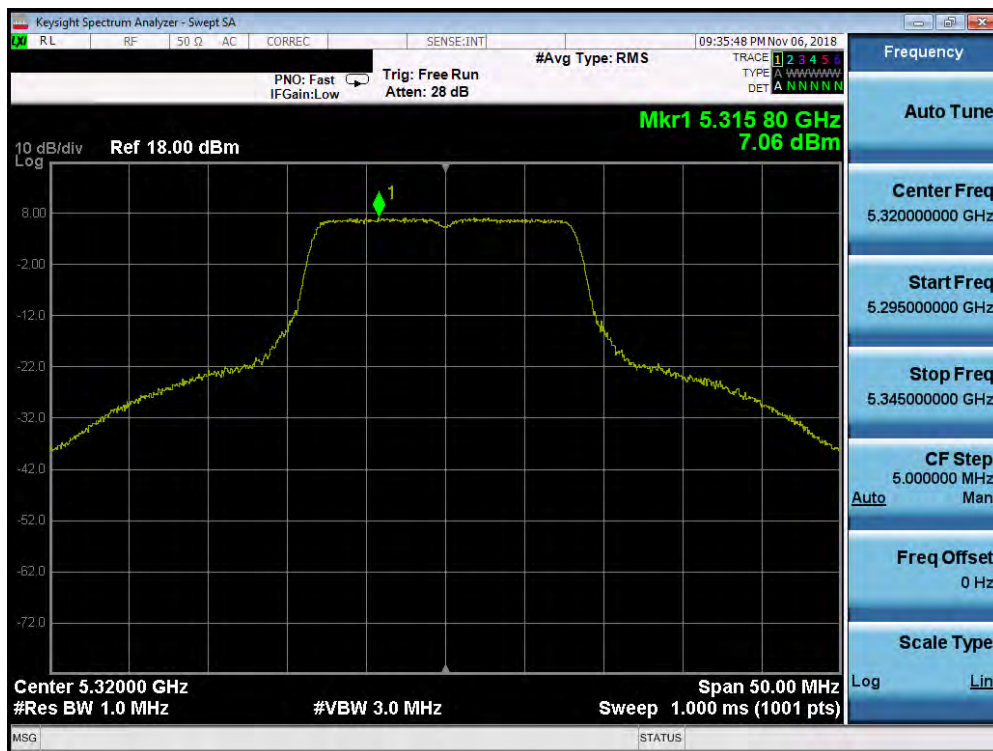


Plot 7-214. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 52)

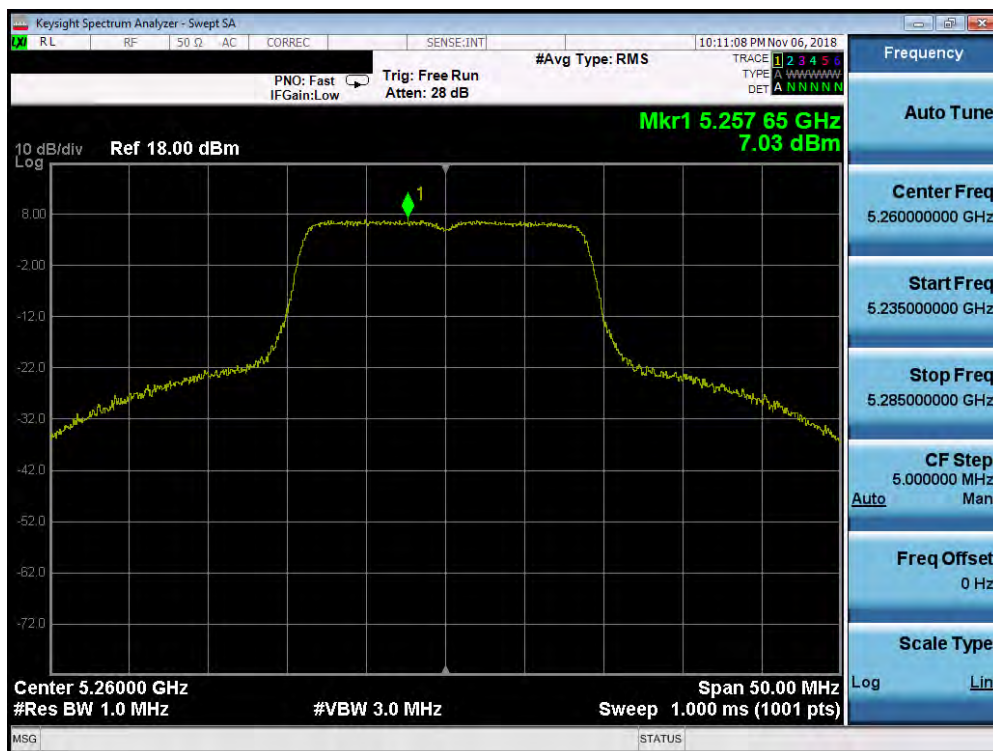


Plot 7-215. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 139 of 249

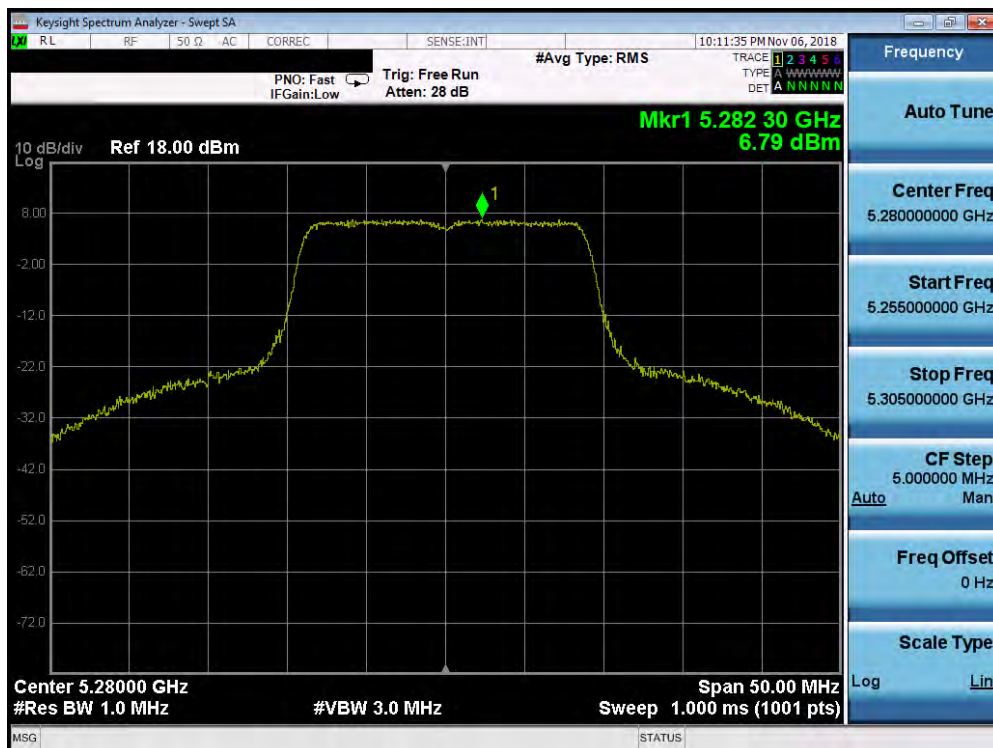


Plot 7-216. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 64)

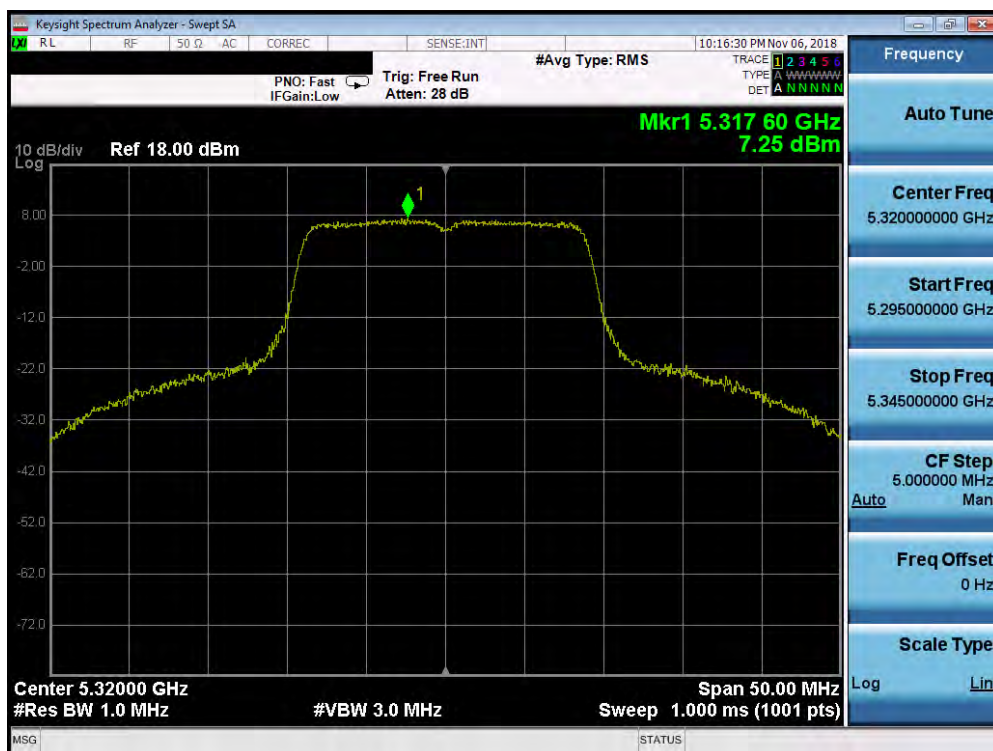


Plot 7-217. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMG9730	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 140 of 249	



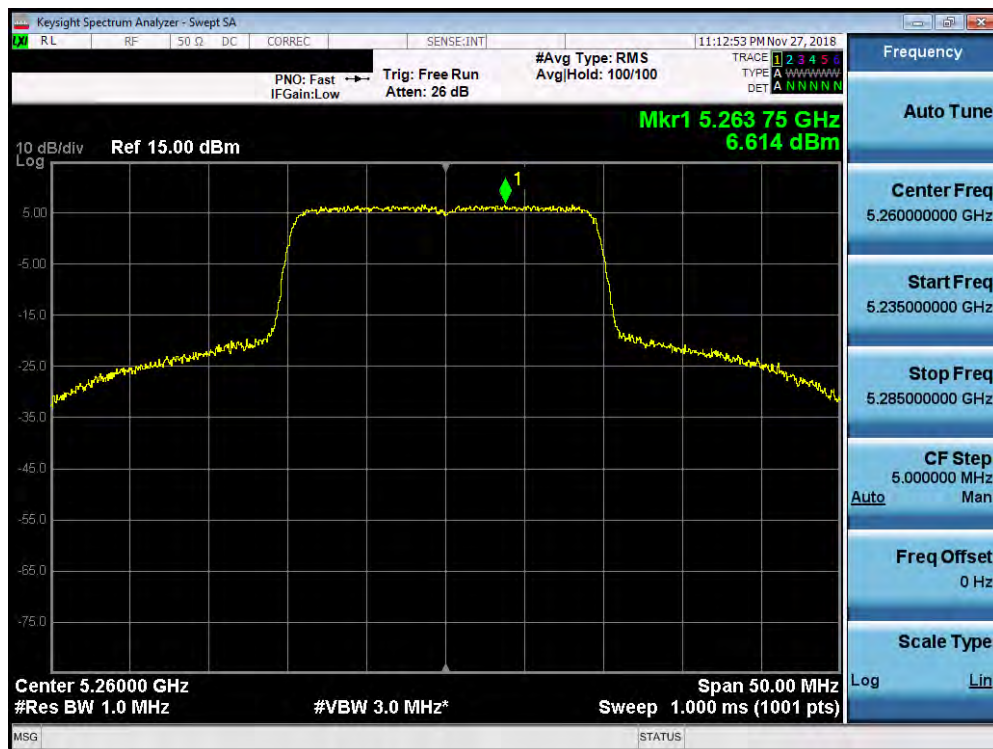
Plot 7-218. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)



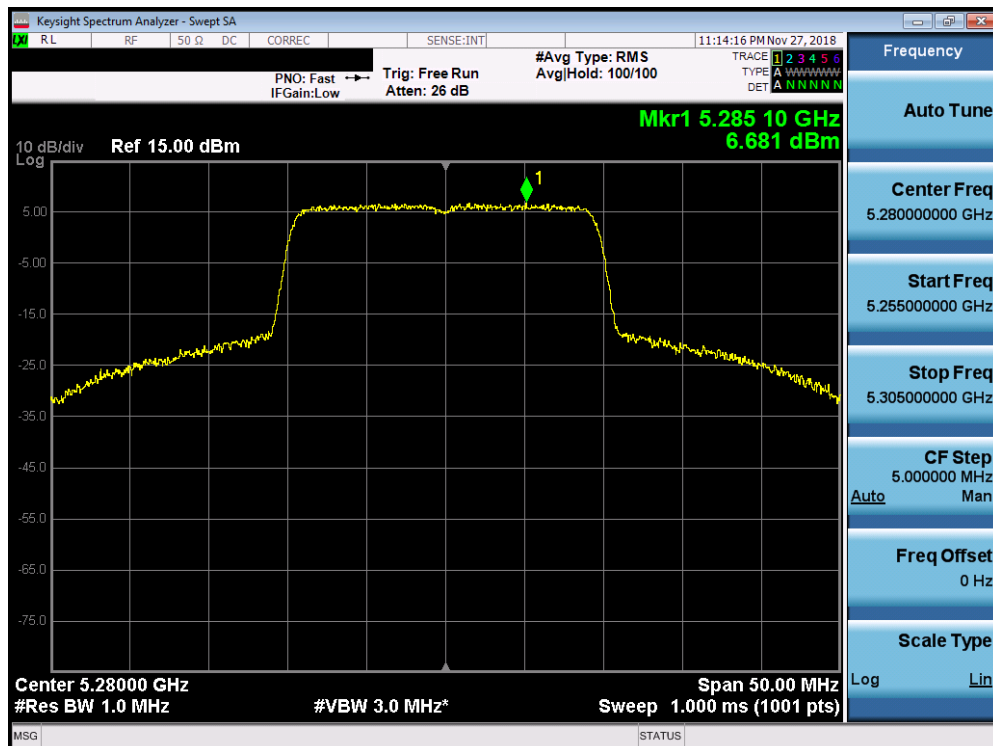
Plot 7-219. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMG9730	<b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 141 of 249





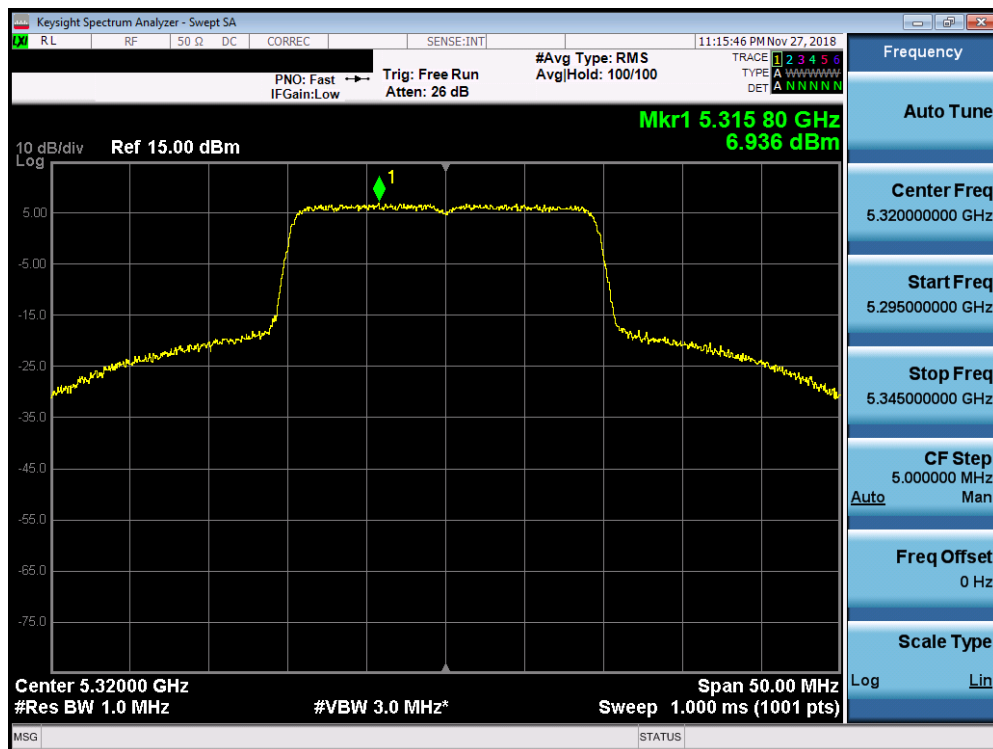
Plot 7-220. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 52)



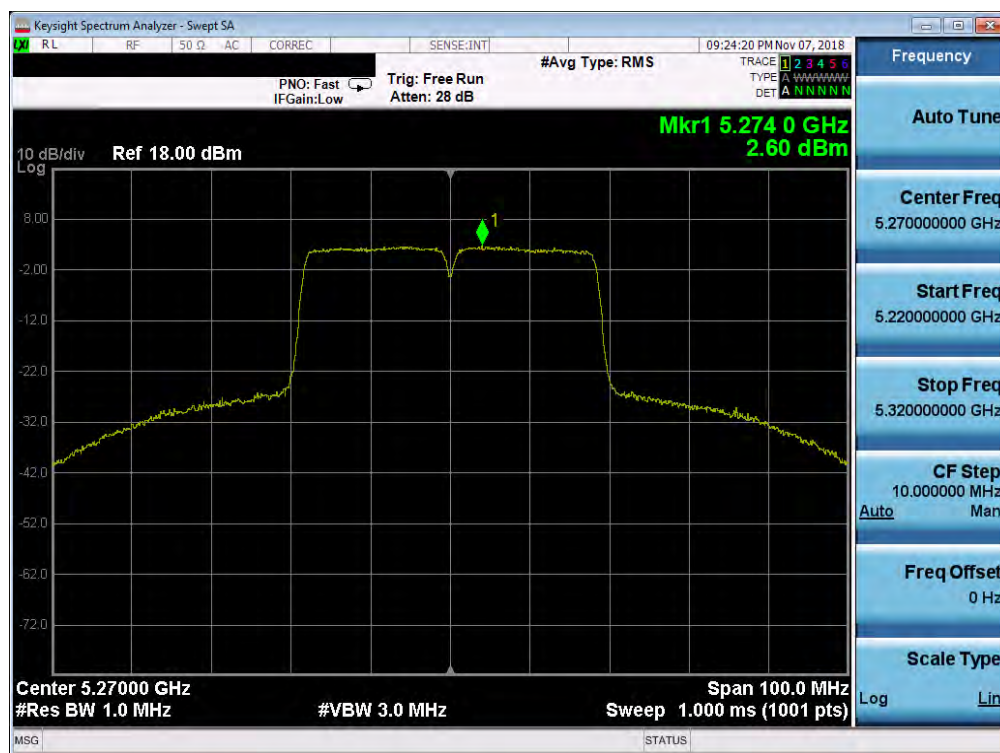
Plot 7-221. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 142 of 249



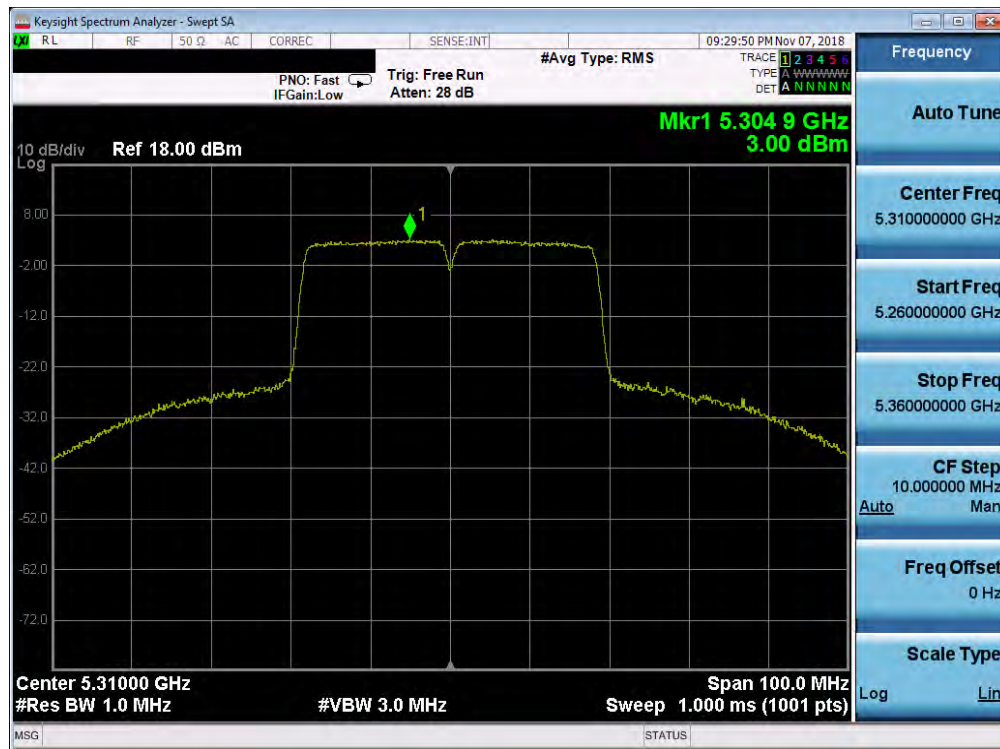


Plot 7-222. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 64)

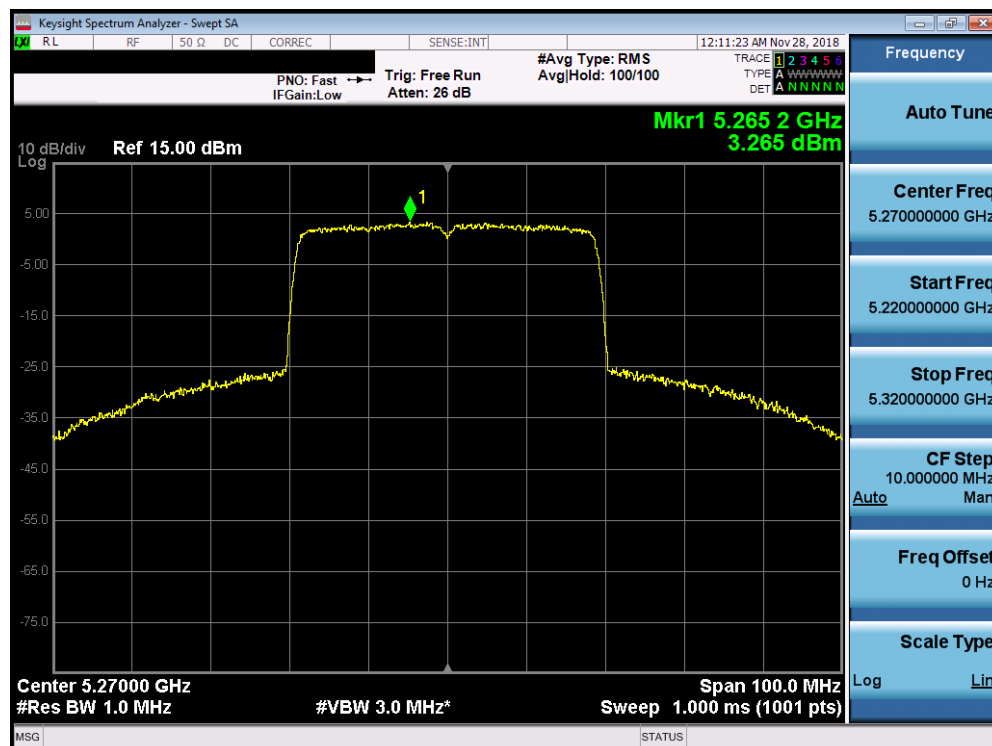


Plot 7-223. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 143 of 249

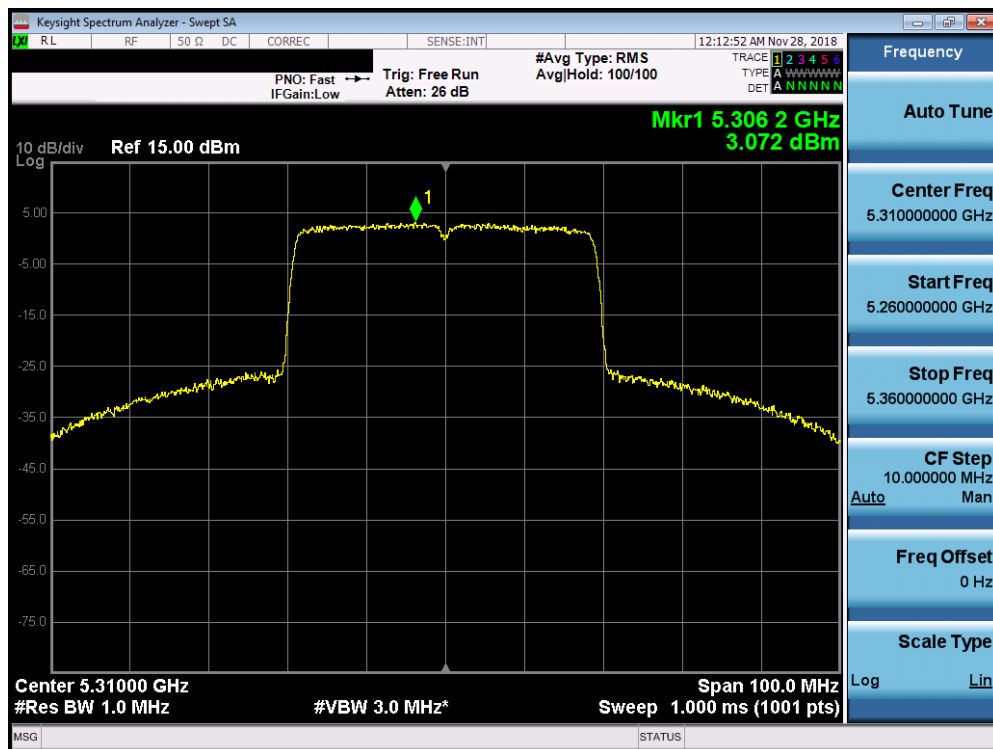


Plot 7-224. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

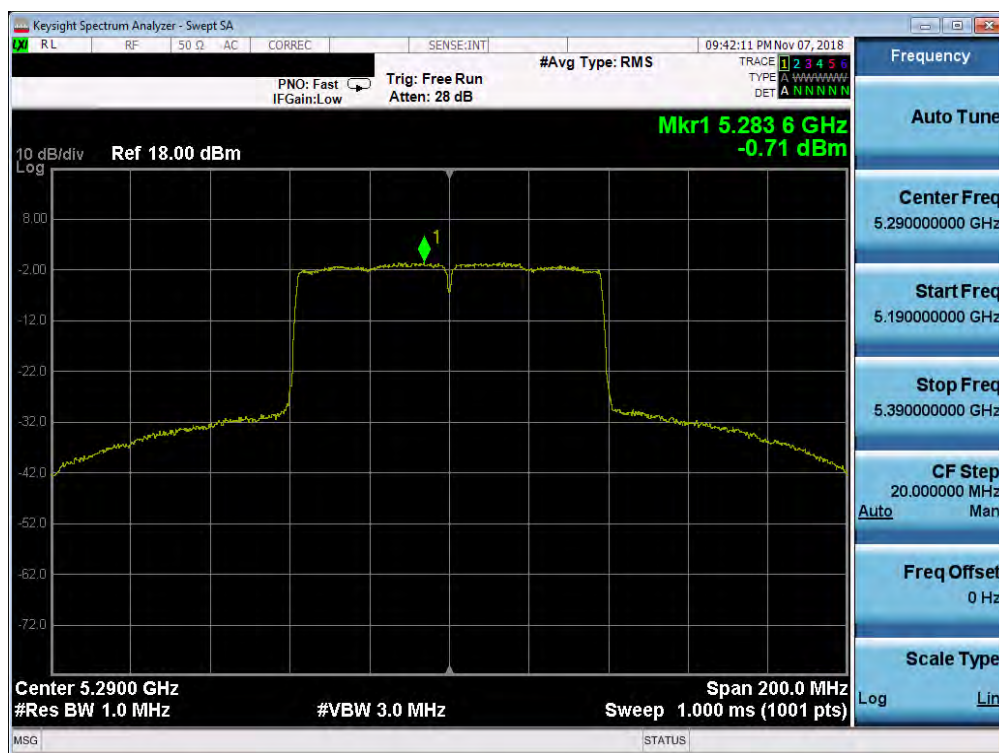


Plot 7-225. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 144 of 249

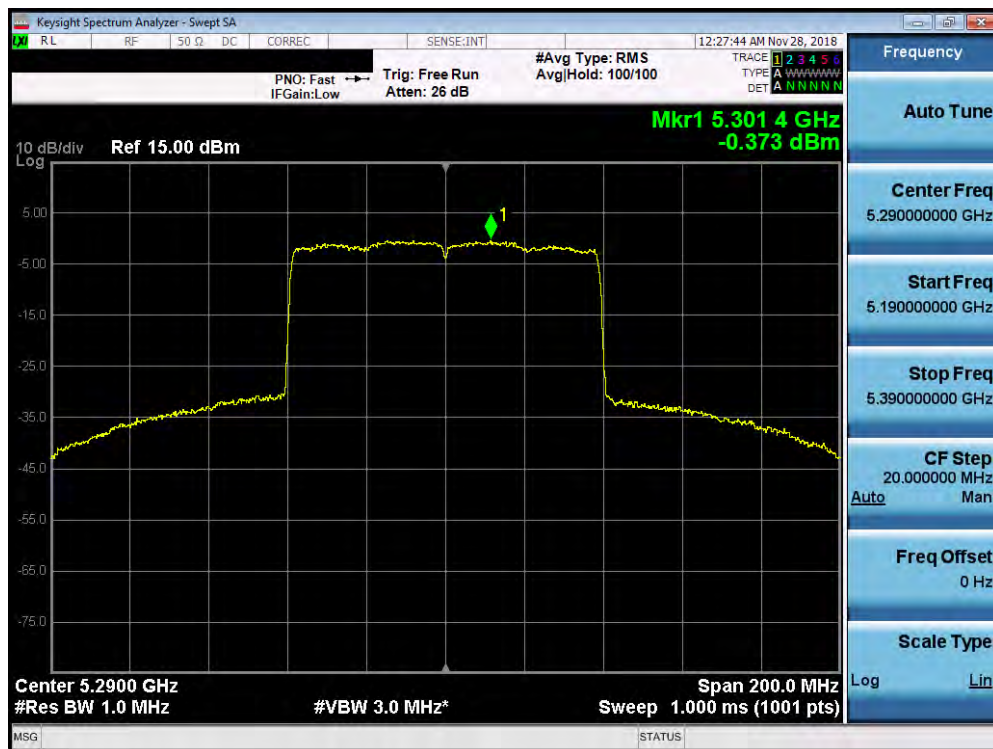


Plot 7-226. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 62)

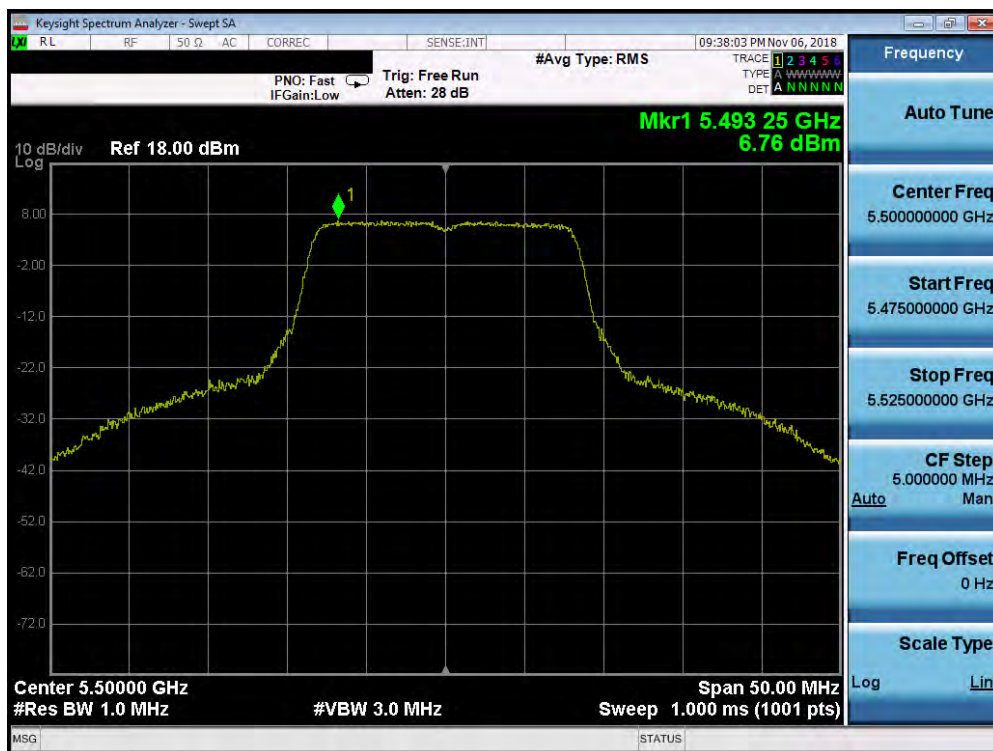


Plot 7-227. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 145 of 249



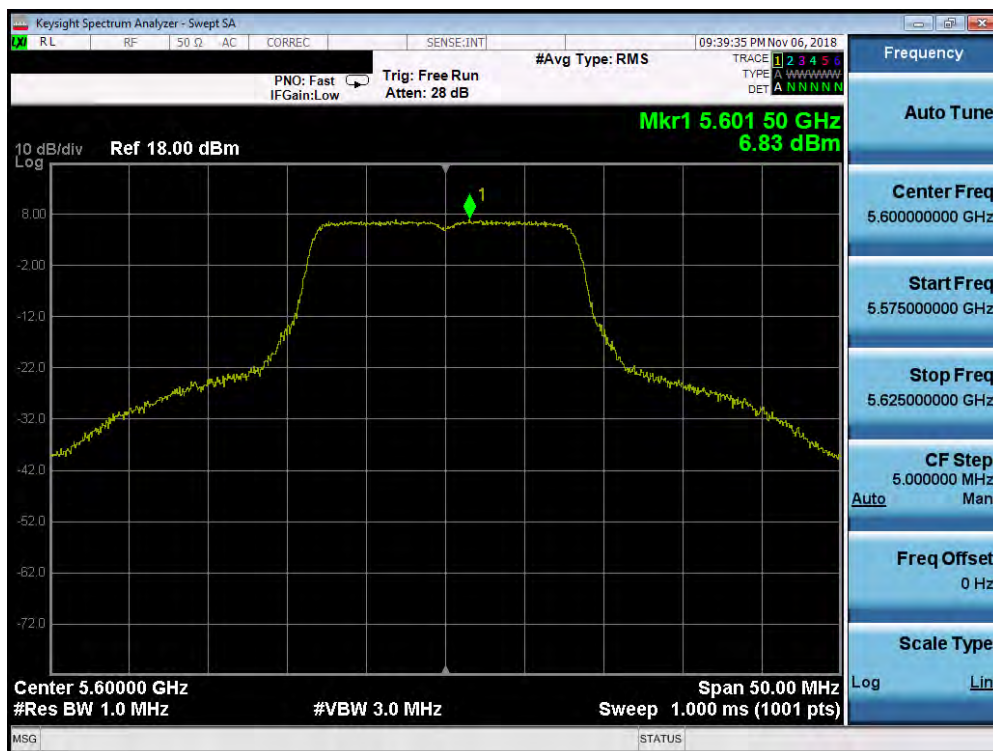
Plot 7-228. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2A) – Ch. 58)



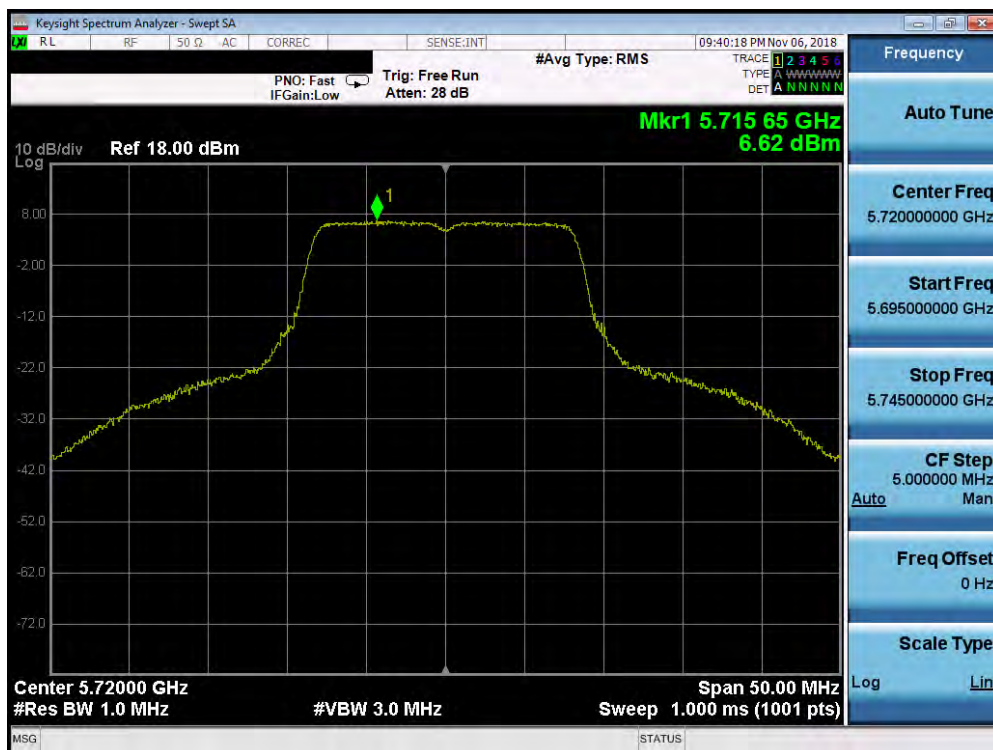
Plot 7-229. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 146 of 249



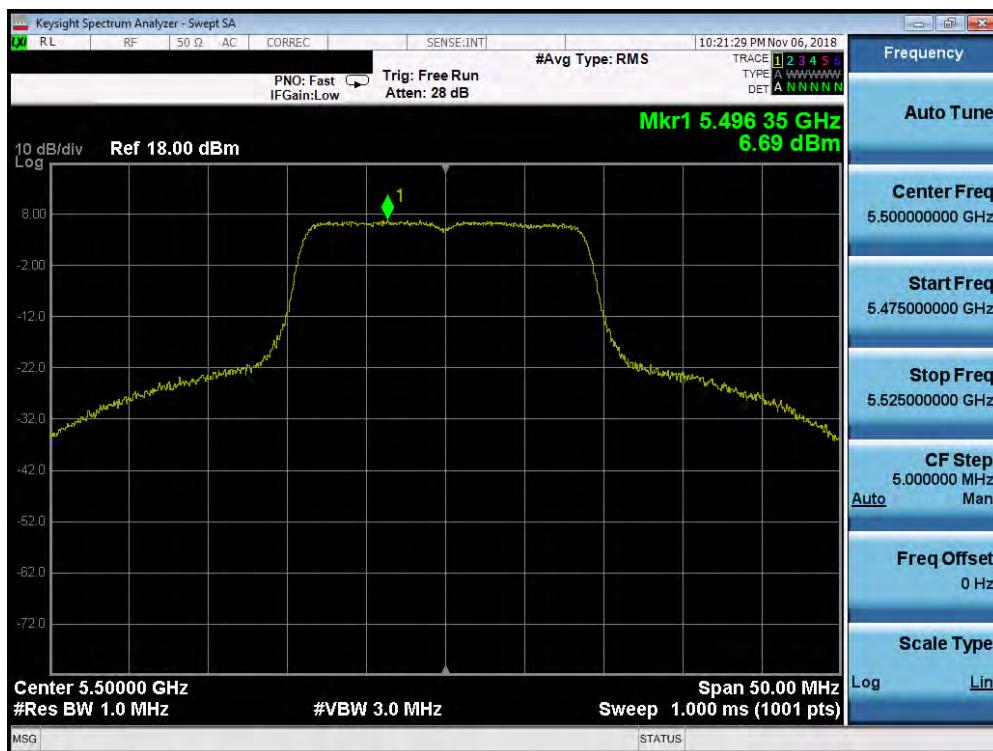


Plot 7-230. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 120)

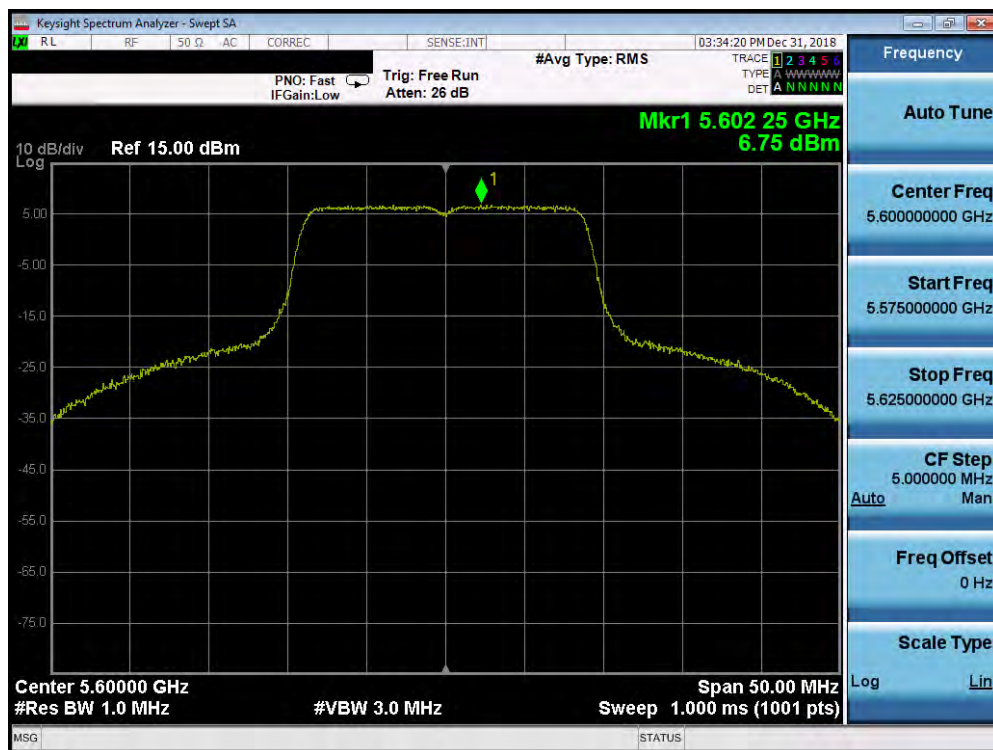


Plot 7-231. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 147 of 249

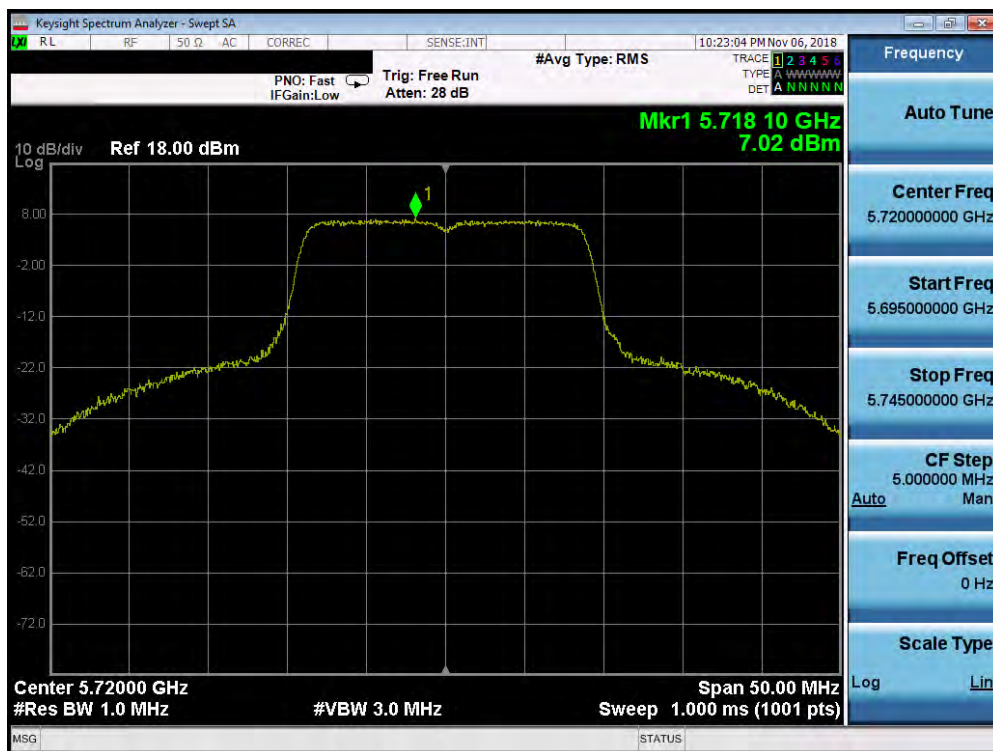


Plot 7-232. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

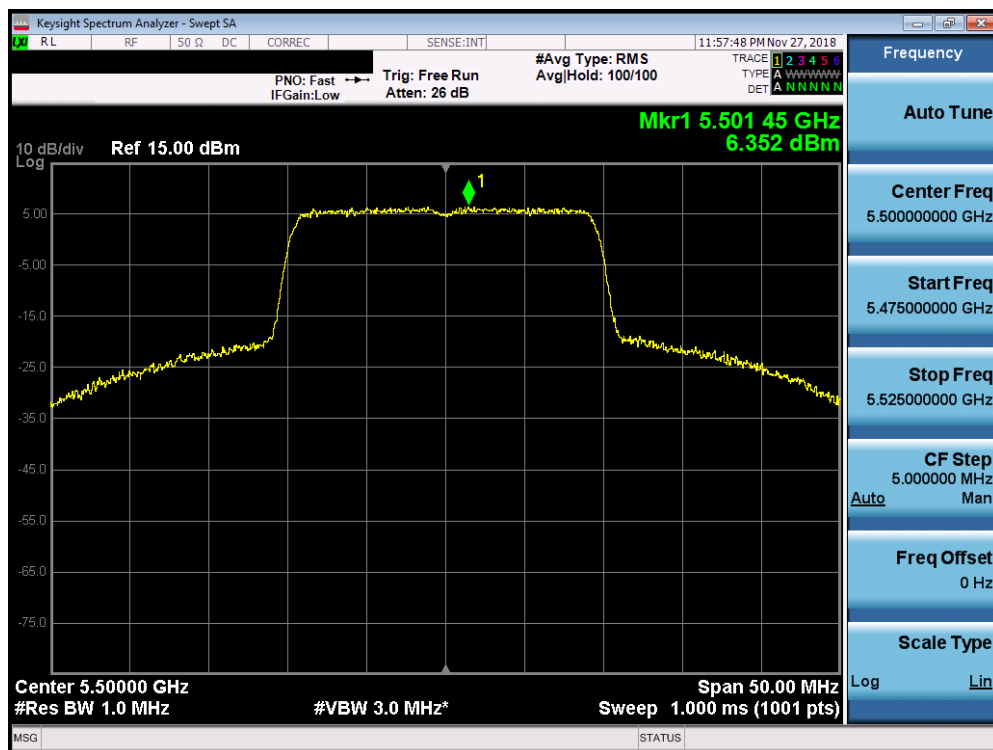


Plot 7-233. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 148 of 249

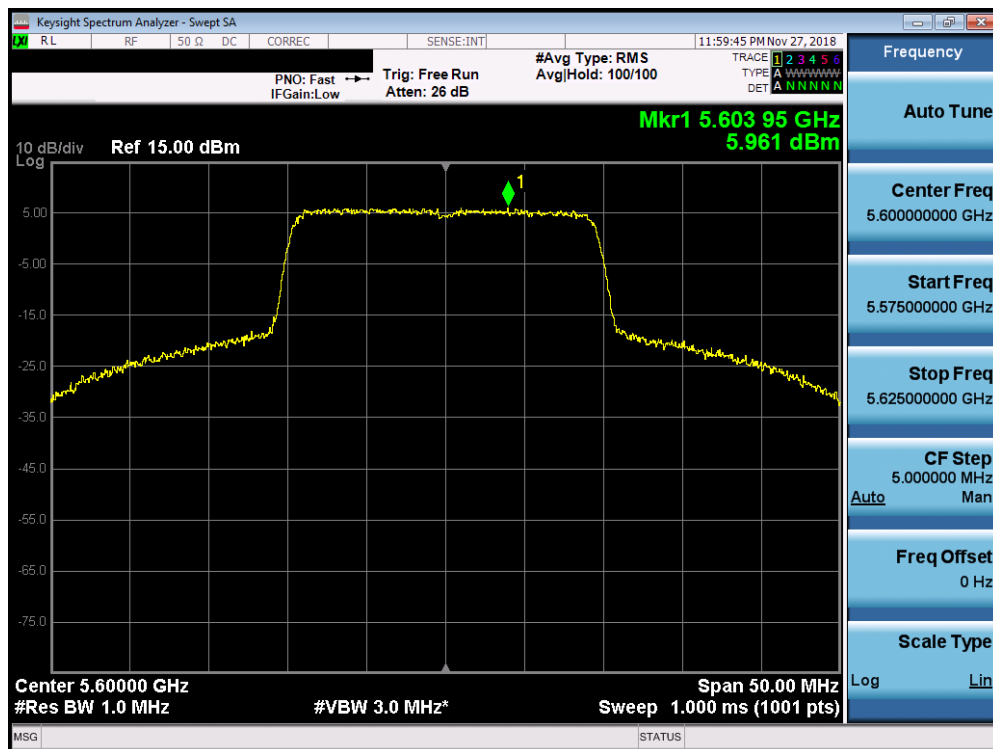


Plot 7-234. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

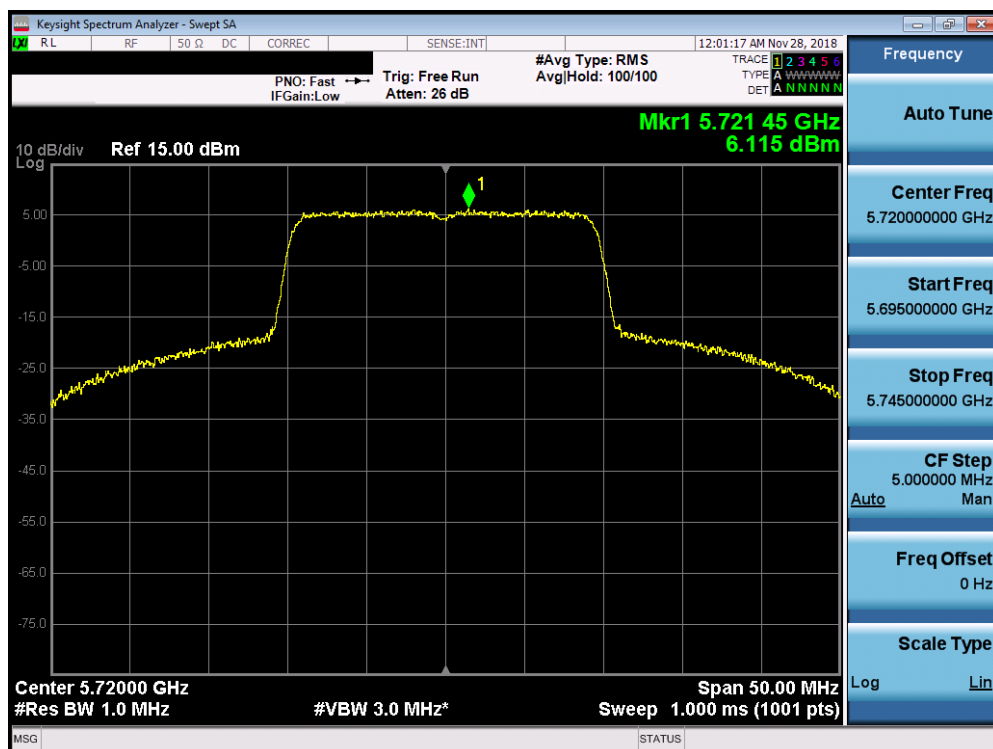


Plot 7-235. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 149 of 249



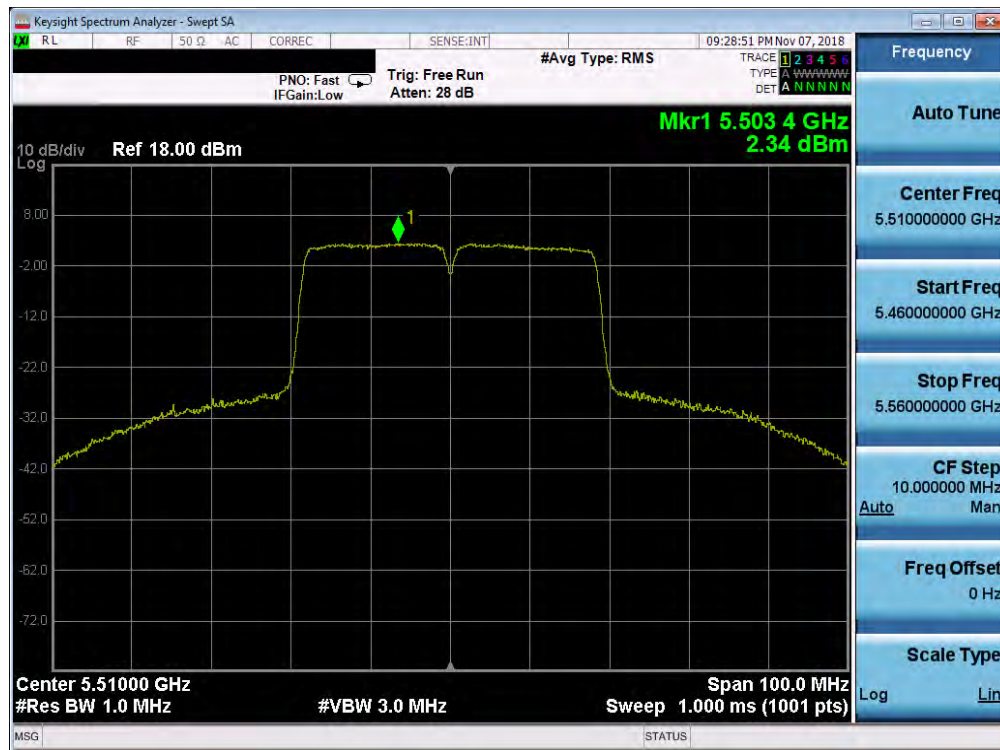
Plot 7-236. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 120)



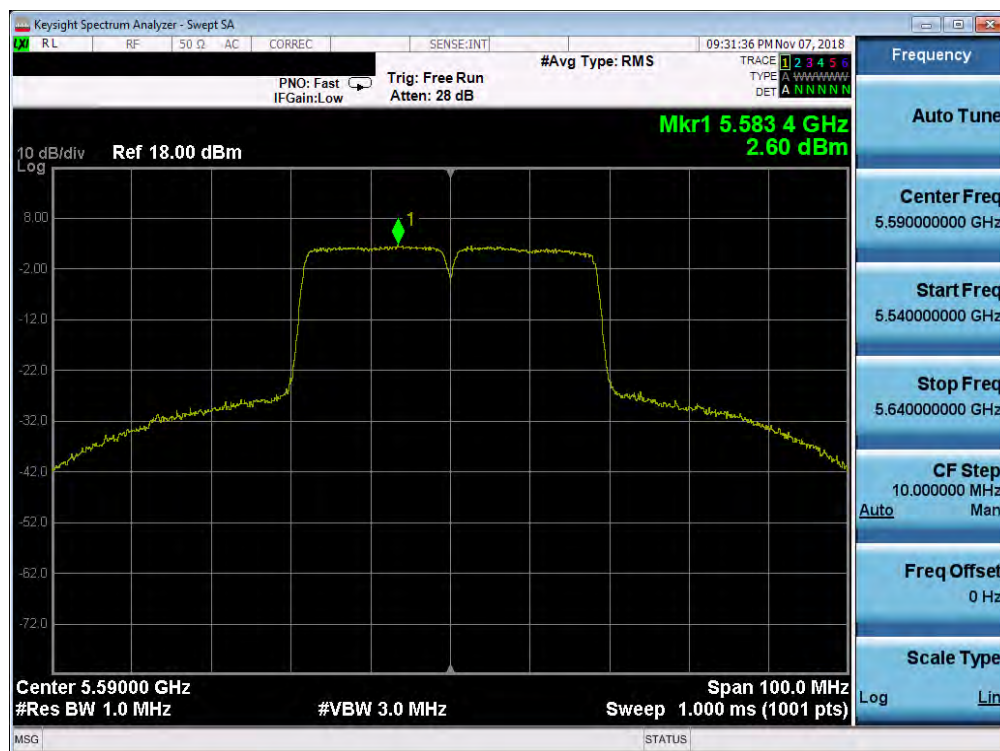
Plot 7-237. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 150 of 249



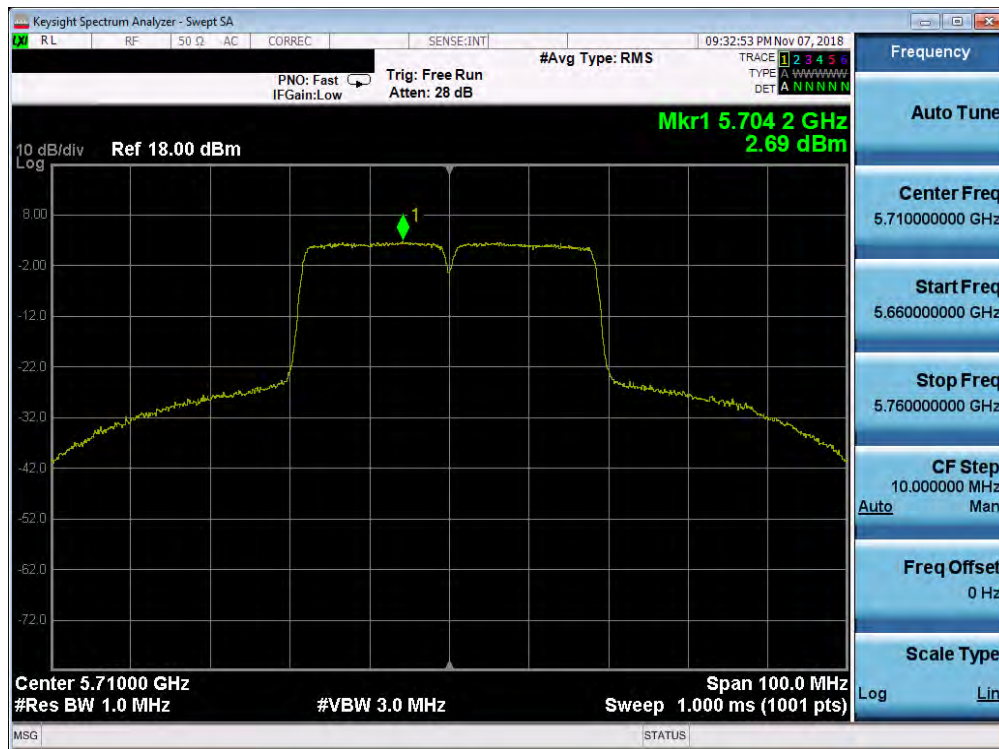


Plot 7-238. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

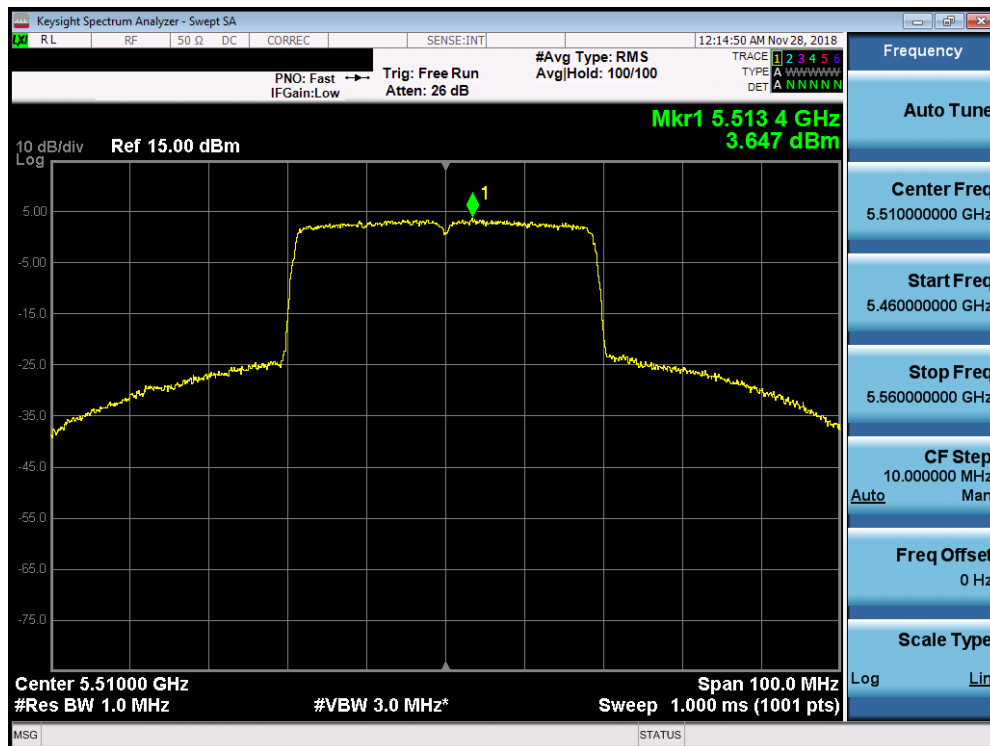


Plot 7-239. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMG9730	<b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 151 of 249



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

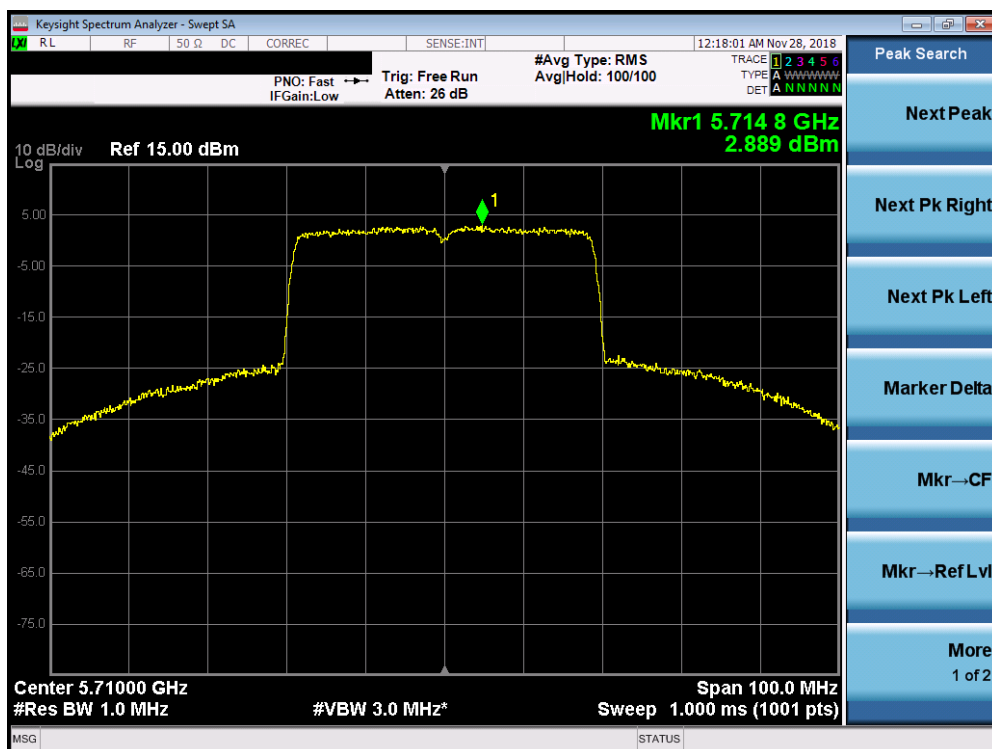


Plot 7-241. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 152 of 249

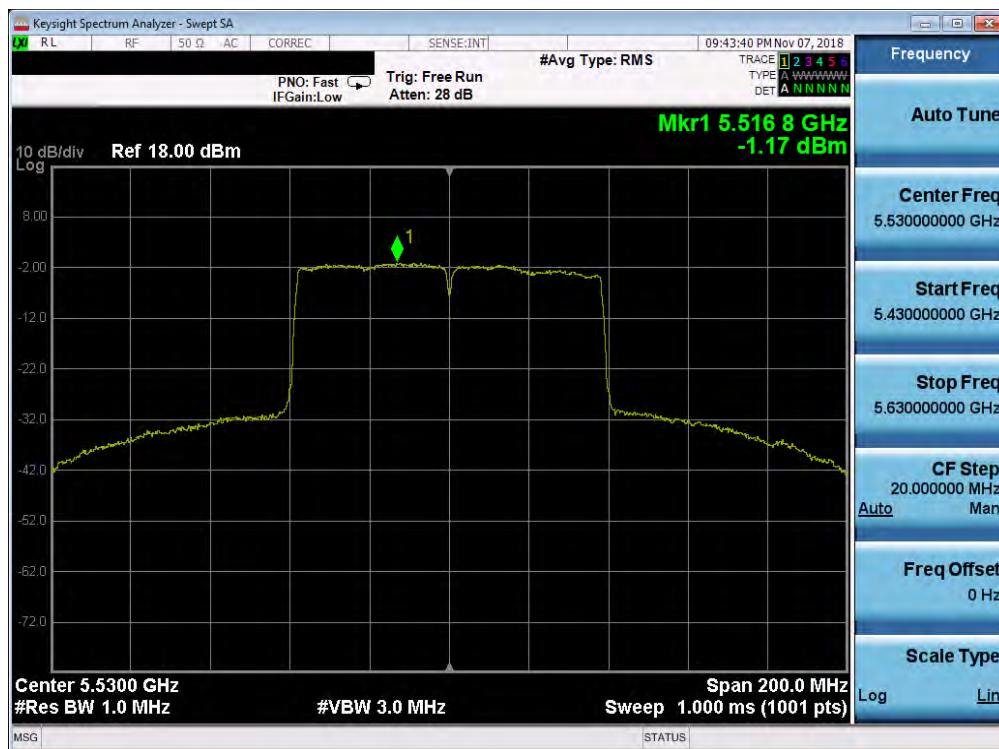


Plot 7-242. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 118)

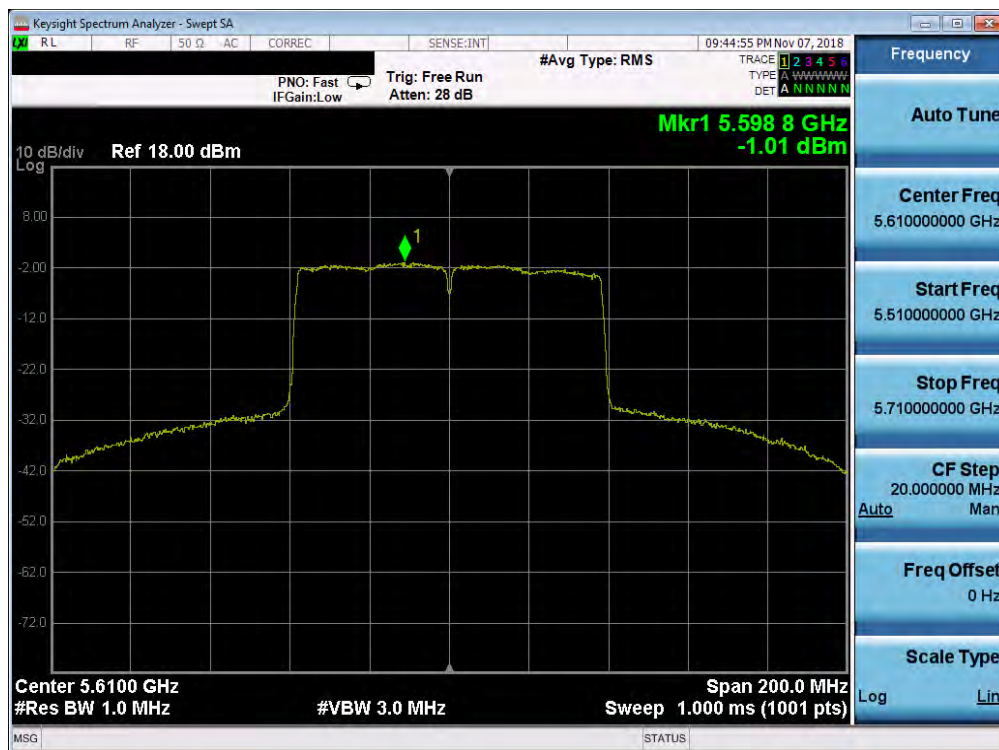


Plot 7-243. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 153 of 249



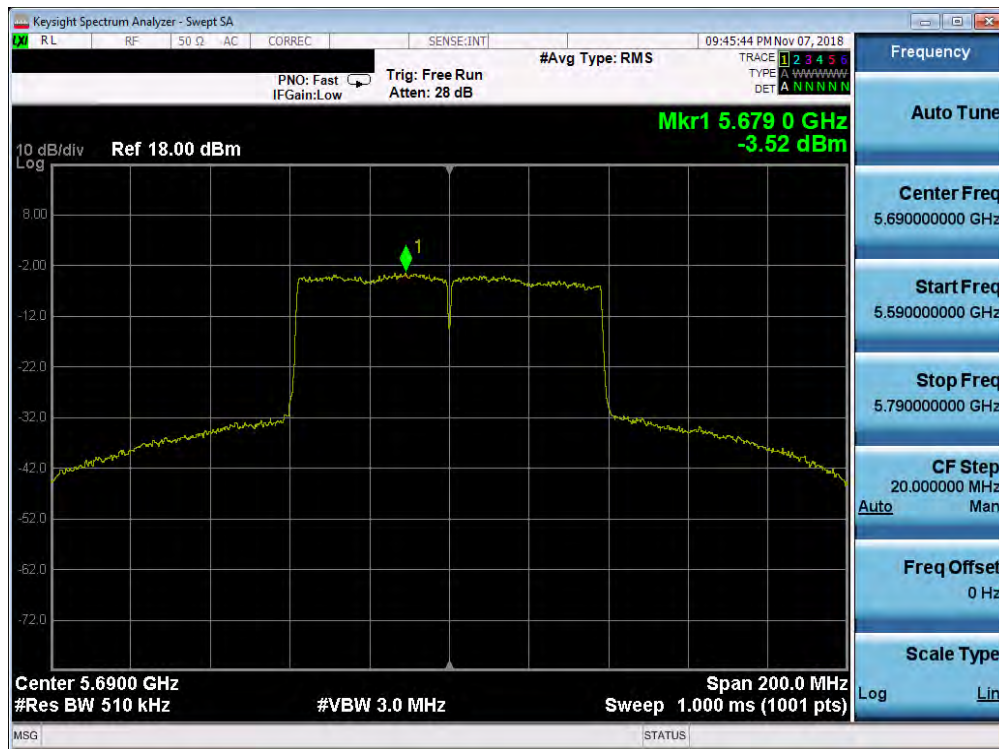
Plot 7-244. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)



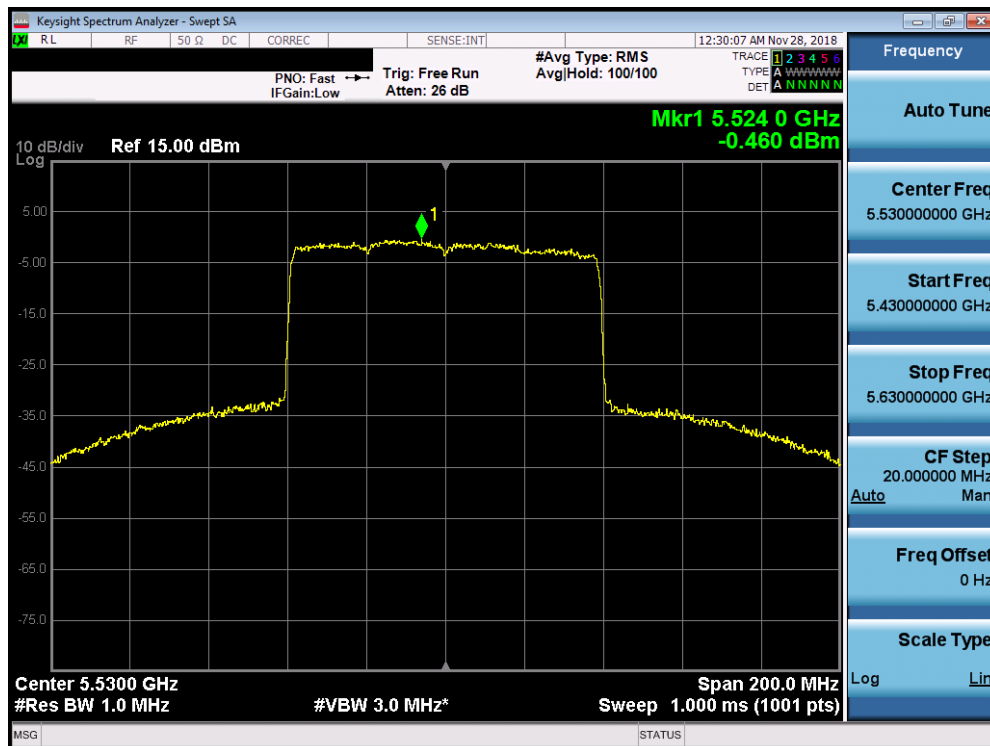
Plot 7-245. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 154 of 249





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

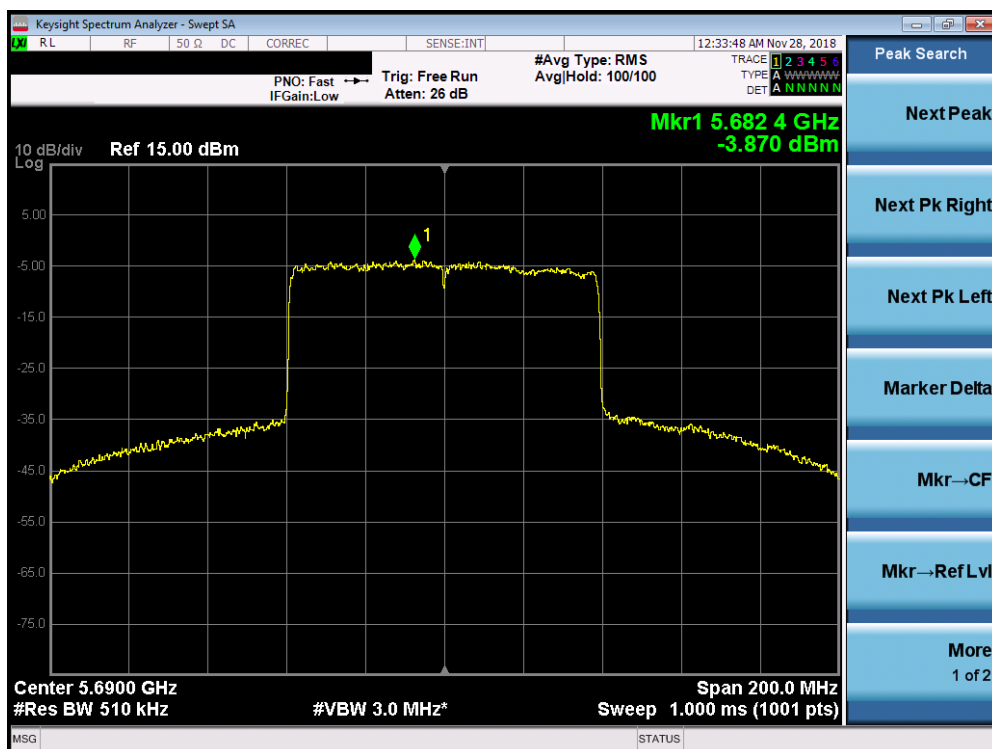


Plot 7-247. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 155 of 249



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

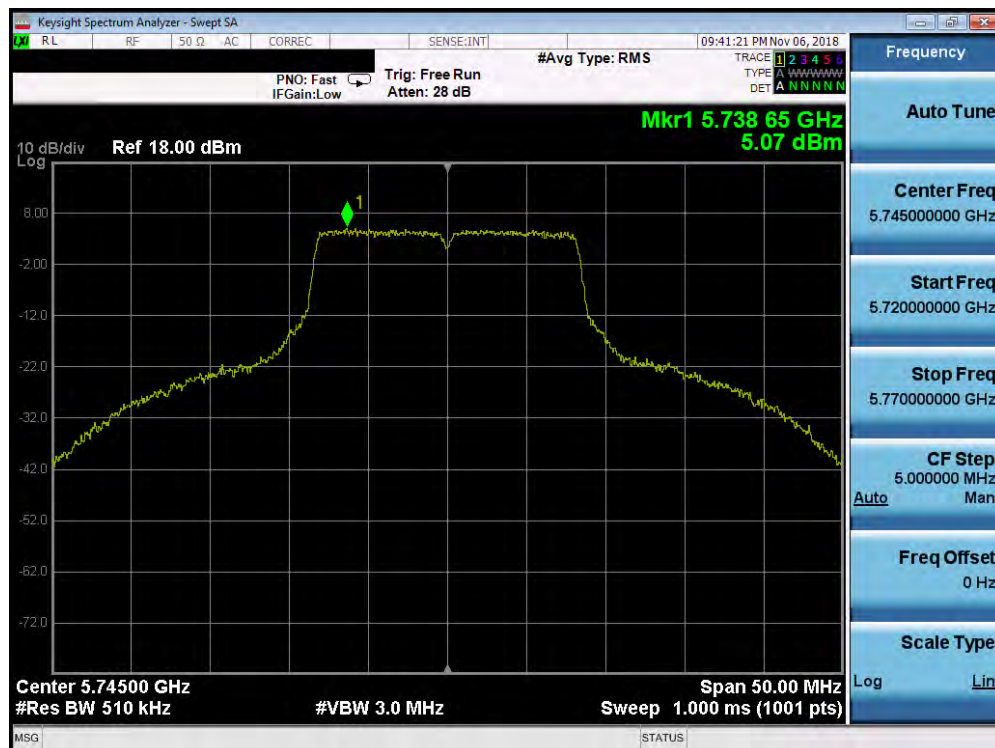


Plot 7-249. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 156 of 249

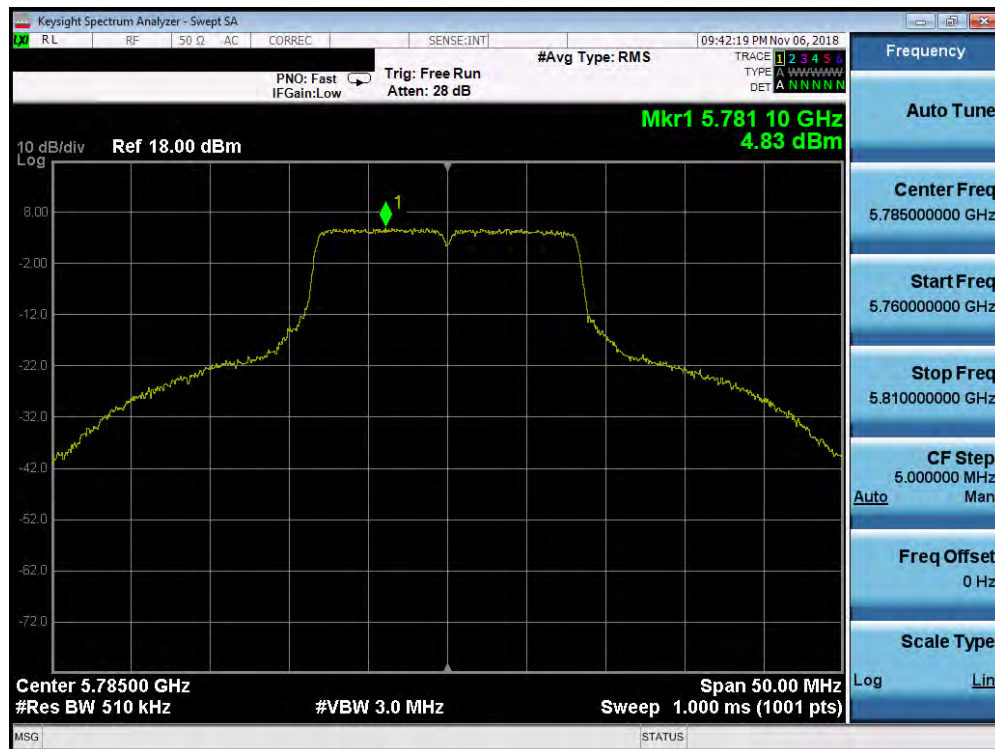
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
<b>Band 3</b>	5745	149	a	6	5.07	30.0	-24.93
	5785	157	a	6	4.83	30.0	-25.17
	5825	165	a	6	5.41	30.0	-24.59
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	4.05	30.0	-25.95
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	4.14	30.0	-25.86
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	4.19	30.0	-25.81
	5745	149	ax (20MHz)	8.6 (MCS0)	3.791	30.0	-26.21
	5785	157	ax (20MHz)	8.6 (MCS0)	3.998	30.0	-26.00
	5825	165	ax (20MHz)	8.6 (MCS0)	3.372	30.0	-26.63
	5755	151	n (40MHz)	13.5/15 (MCS0)	0.16	30.0	-29.84
	5795	159	n (40MHz)	13.5/15 (MCS0)	0.38	30.0	-29.62
	5755	151	ax (40MHz)	17.2 (MCS0)	-0.031	30.0	-30.03
	5795	159	ax (40MHz)	17.2 (MCS0)	0.290	30.0	-29.71
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-0.53	30.0	-30.53
	5775	155	ax (80MHz)	36 (MCS0)	-0.600	30.0	-30.60

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

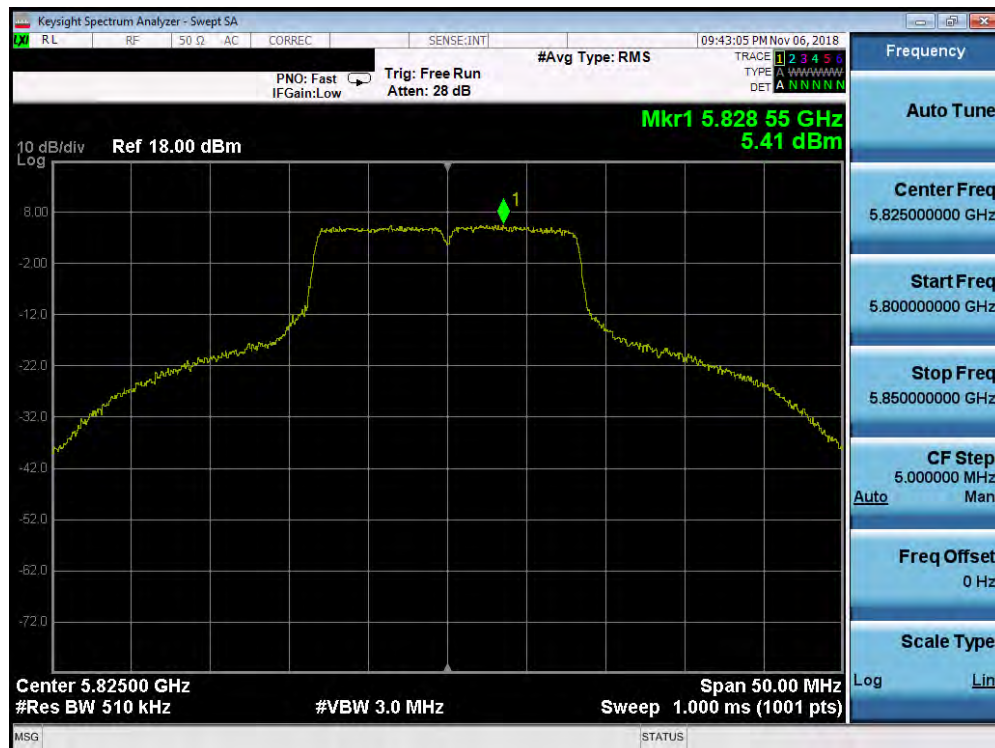


**Plot 7-250. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 149)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 157 of 249



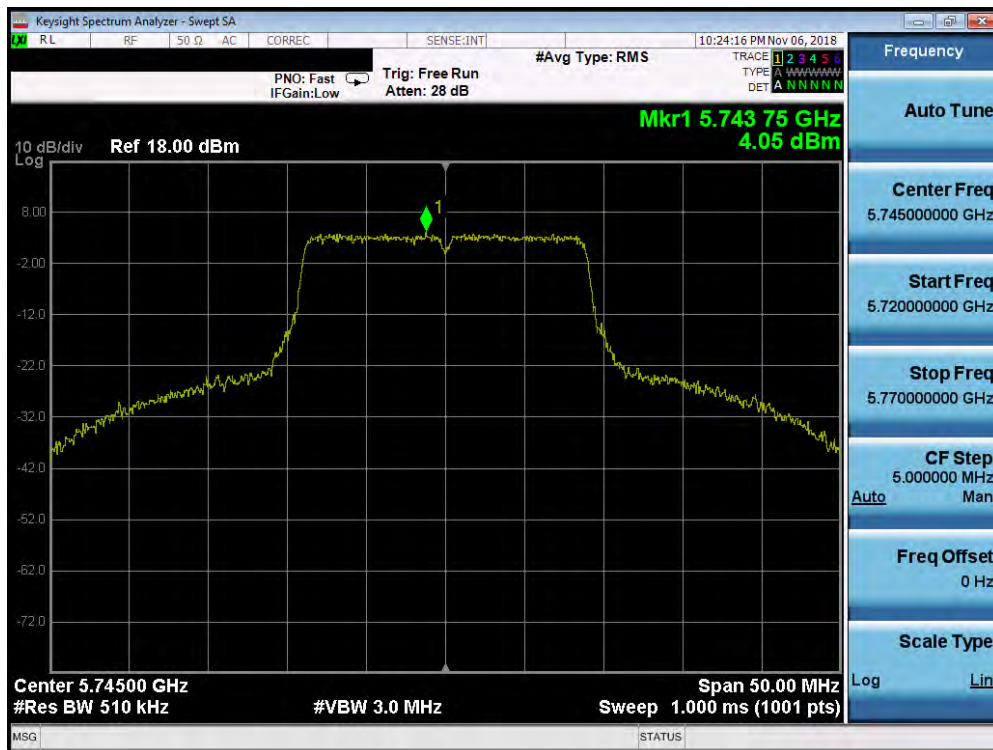
Plot 7-251. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 157)



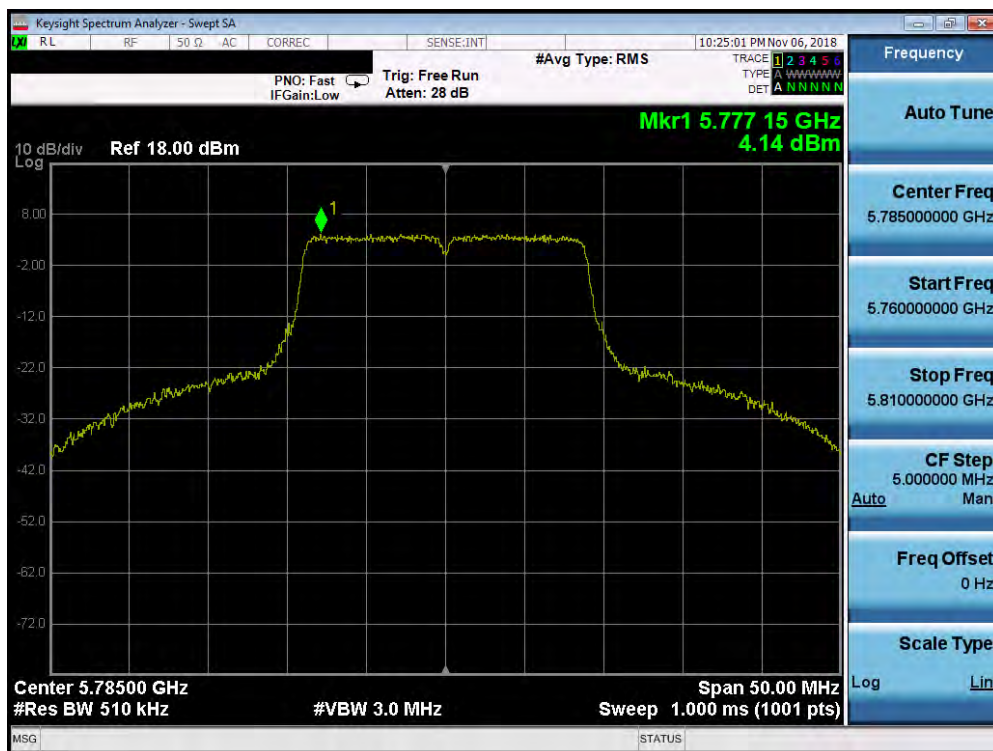
Plot 7-252. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 158 of 249



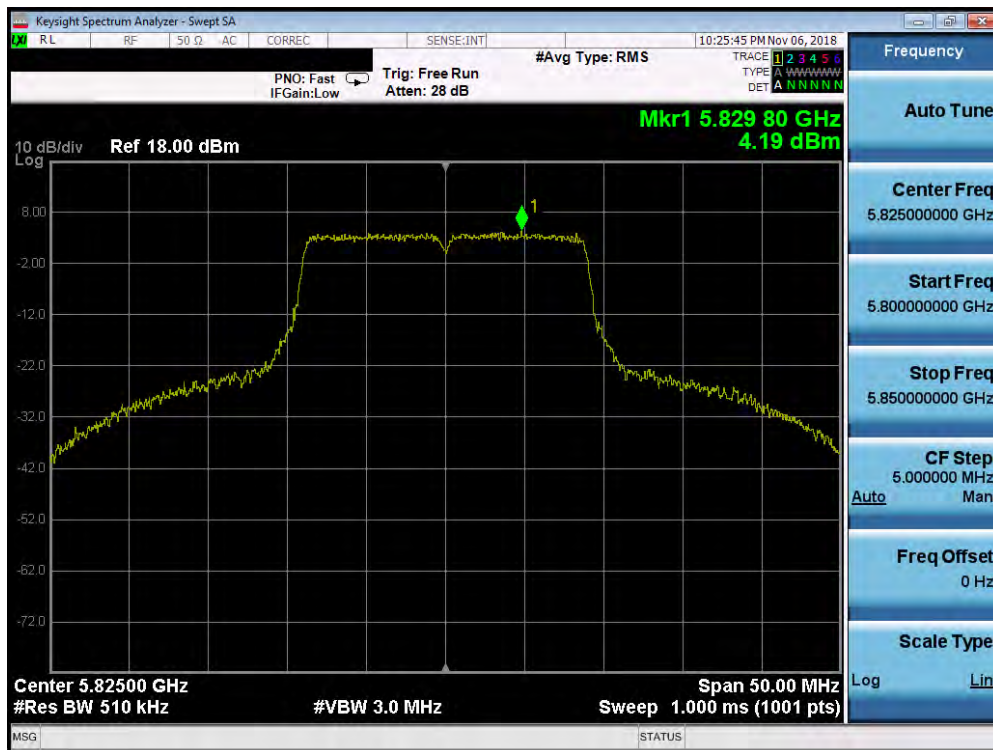


Plot 7-253. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

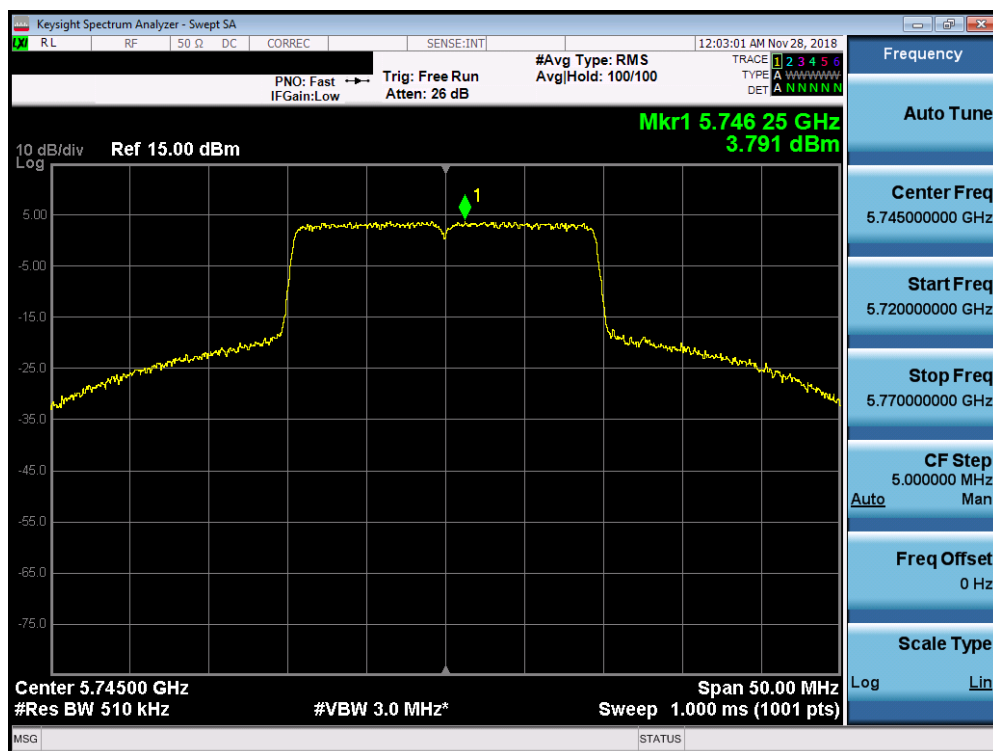


Plot 7-254. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: A3LSMG9730	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 159 of 249	

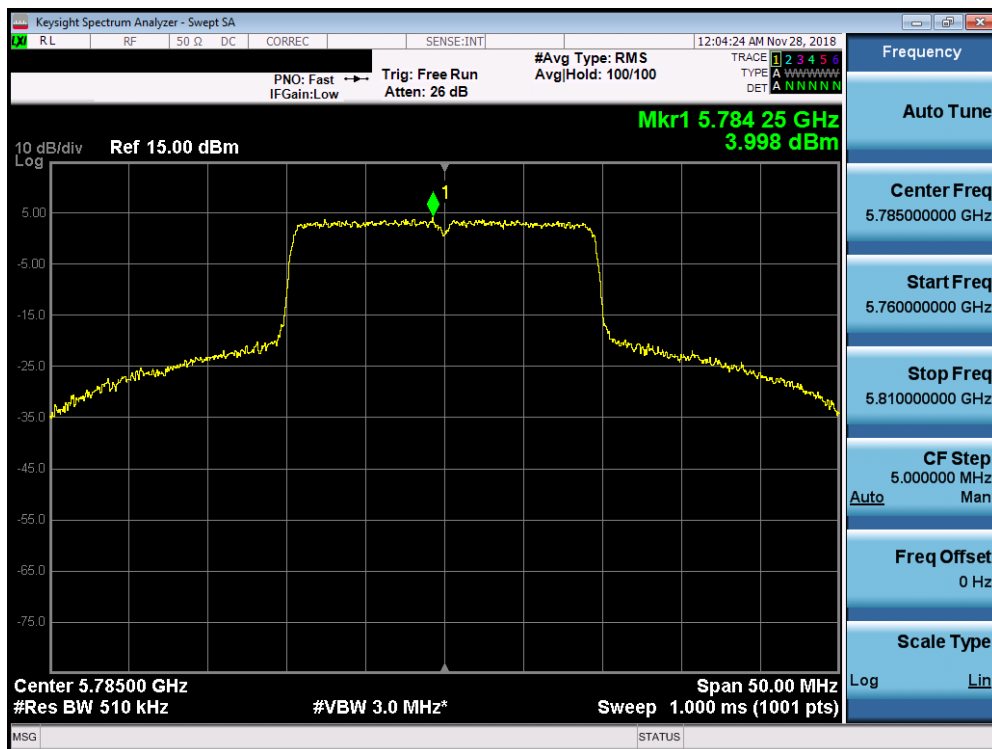


Plot 7-255. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

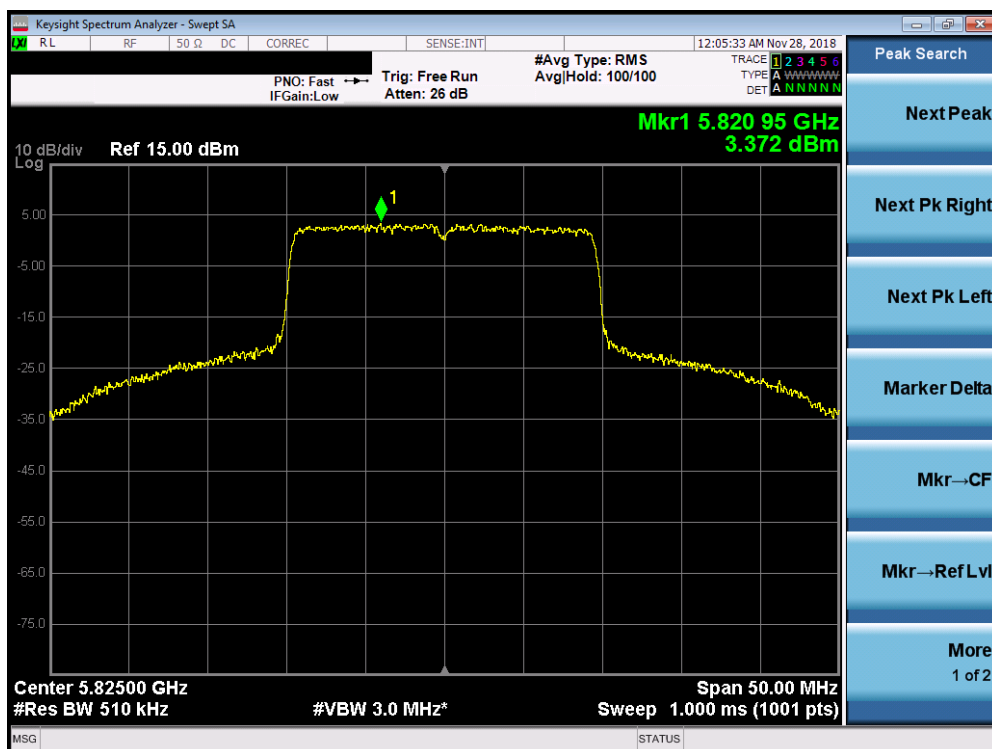


Plot 7-256. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 160 of 249

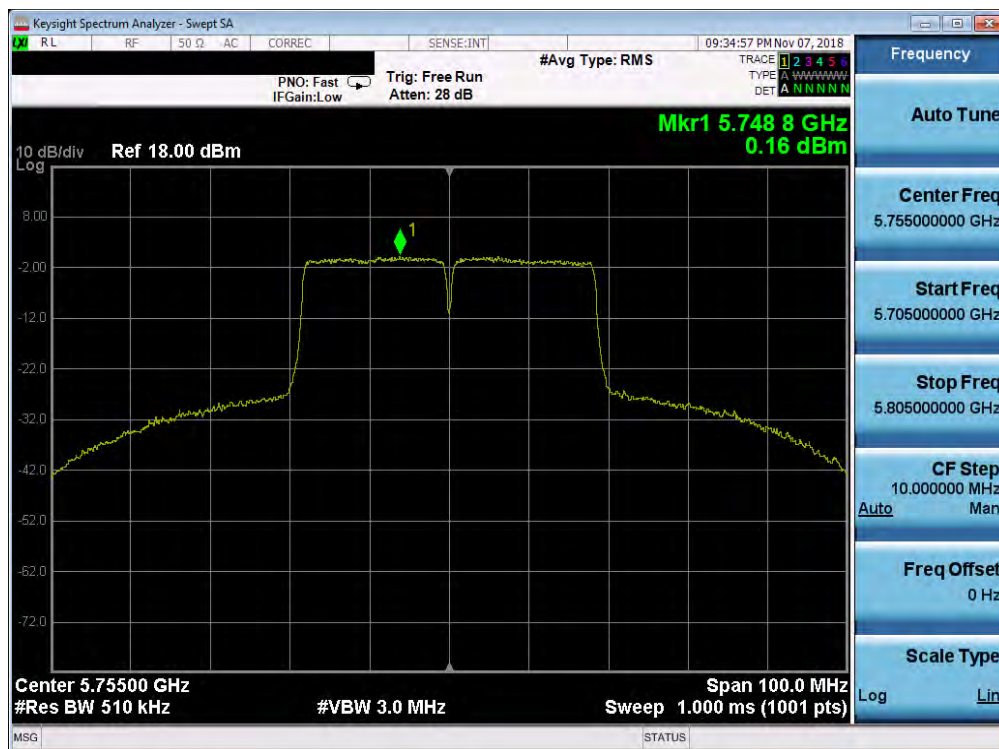


Plot 7-257. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 157)



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

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 161 of 249



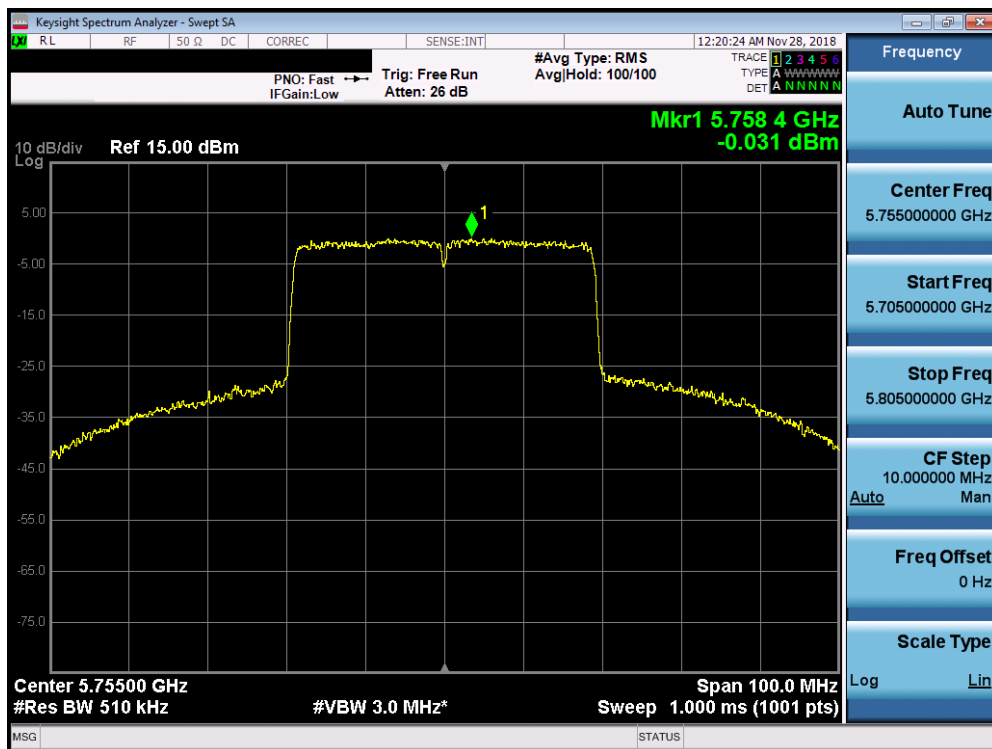
Plot 7-259. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)



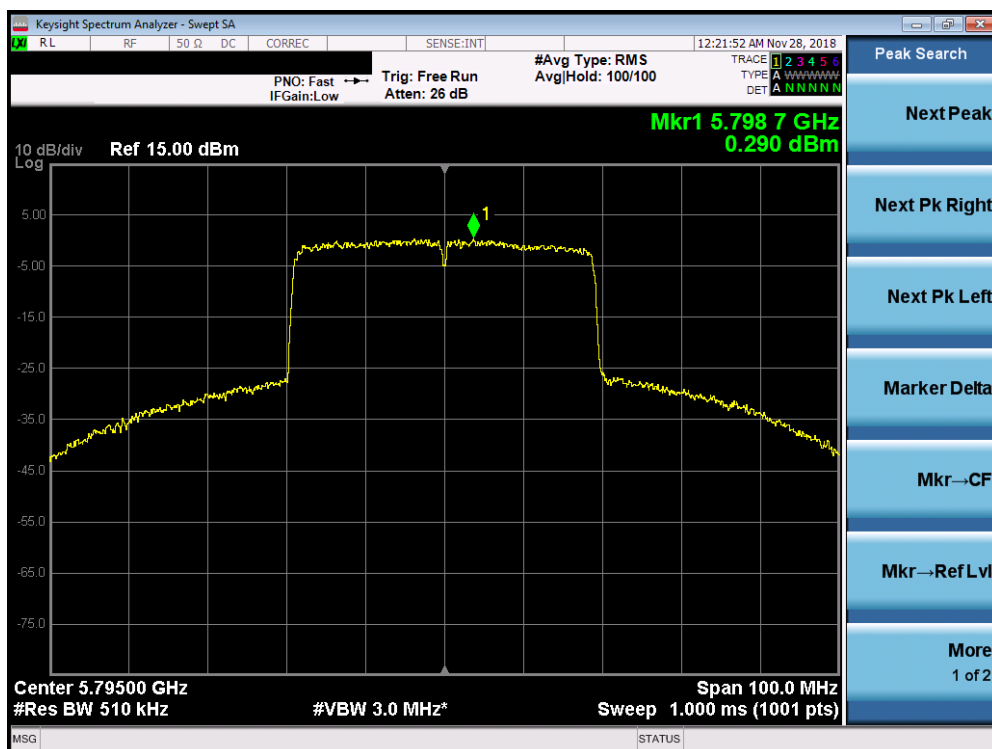
Plot 7-260. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 162 of 249



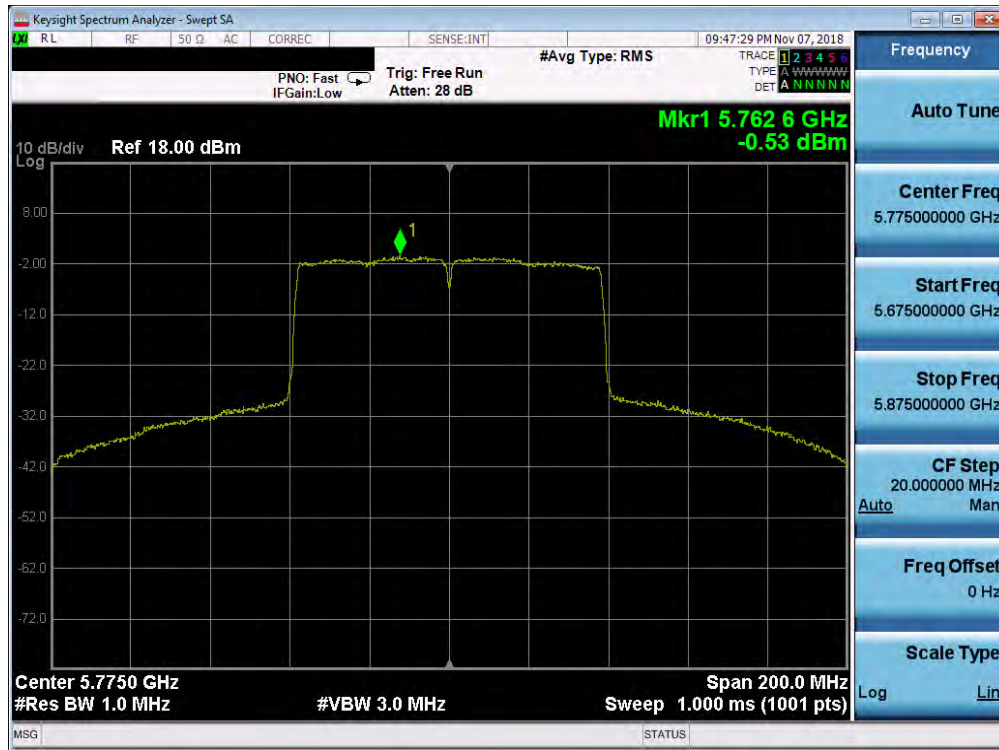


Plot 7-261. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)



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

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 163 of 249



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: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 164 of 249

## 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	6.68	6.86	9.78	11.0	-1.22
	5200	40	a	6	6.68	6.90	9.80	11.0	-1.20
	5240	48	a	6	6.66	7.02	9.85	11.0	-1.15
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.60	6.60	9.61	11.0	-1.39
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.49	6.97	9.75	11.0	-1.25
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.67	7.01	9.86	11.0	-1.14
	5180	36	ax (20MHz)	8.6 (MCS0)	7.44	5.84	9.72	11.0	-1.28
	5200	40	ax (20MHz)	8.6 (MCS0)	6.17	6.49	9.34	11.0	-1.66
	5240	48	ax (20MHz)	8.6 (MCS0)	6.32	6.60	9.47	11.0	-1.53
	5190	38	n (40MHz)	13.5/15 (MCS0)	2.93	3.09	6.02	11.0	-4.98
	5230	46	n (40MHz)	13.5/15 (MCS0)	2.92	3.19	6.07	11.0	-4.93
	5190	38	ax (40MHz)	17.2 (MCS0)	3.79	2.81	6.34	11.0	-4.66
	5230	46	ax (40MHz)	17.2 (MCS0)	3.67	3.13	6.42	11.0	-4.58
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-1.14	-1.13	1.88	11.0	-9.12
Band 2A	5210	42	ax (80MHz)	36 (MCS0)	-0.26	-0.72	2.53	11.0	-8.47
	5260	52	a	6	6.58	6.84	9.73	11.0	-1.27
	5280	56	a	6	6.37	6.98	9.69	11.0	-1.31
	5320	64	a	6	6.77	7.06	9.93	11.0	-1.07
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	6.60	7.03	9.83	11.0	-1.17
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.21	6.79	9.52	11.0	-1.48
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	6.41	7.25	9.86	11.0	-1.14
	5260	52	ax (20MHz)	8.6 (MCS0)	6.83	6.61	9.73	11.0	-1.27
	5280	56	ax (20MHz)	8.6 (MCS0)	6.54	6.68	9.62	11.0	-1.38
	5320	64	ax (20MHz)	8.6 (MCS0)	5.84	6.94	9.43	11.0	-1.57
	5270	54	n (40MHz)	13.5/15 (MCS0)	2.72	2.60	5.67	11.0	-5.33
	5310	62	n (40MHz)	13.5/15 (MCS0)	2.99	3.00	6.01	11.0	-4.99
	5270	54	ax (40MHz)	17.2 (MCS0)	2.57	3.27	5.94	11.0	-5.06
	5310	62	ax (40MHz)	17.2 (MCS0)	1.98	3.07	5.57	11.0	-5.43
Band 2C	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-0.91	-0.71	2.20	11.0	-8.80
	5210	58	ax (80MHz)	36 (MCS0)	-1.71	-0.37	2.02	11.0	-8.98
	5500	100	a	6	6.79	6.76	9.79	11.0	-1.21
	5600	120	a	6	6.95	6.83	9.90	11.0	-1.10
	5720	144	a	6	7.10	6.62	9.88	11.0	-1.12
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	6.48	6.69	9.60	11.0	-1.40
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	6.33	6.75	9.56	11.0	-1.44
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	6.79	7.02	9.91	11.0	-1.09
	5500	100	ax (20MHz)	8.6 (MCS0)	5.98	6.35	9.18	11.0	-1.82
	5600	120	ax (20MHz)	8.6 (MCS0)	4.90	5.96	8.47	11.0	-2.53
	5720	144	ax (20MHz)	8.6 (MCS0)	4.54	6.12	8.41	11.0	-2.59
	5510	102	n (40MHz)	13.5/15 (MCS0)	2.64	2.34	5.50	11.0	-5.50
	5590	118	n (40MHz)	13.5/15 (MCS0)	2.97	2.60	5.80	11.0	-5.20
	5710	142	n (40MHz)	13.5/15 (MCS0)	2.89	2.69	5.80	11.0	-5.20
	5510	102	ax (40MHz)	17.2 (MCS0)	1.79	3.65	5.83	11.0	-5.17
	5590	118	ax (40MHz)	17.2 (MCS0)	0.98	2.37	4.74	11.0	-6.26
	5710	142	ax (40MHz)	17.2 (MCS0)	0.41	2.89	4.83	11.0	-6.17
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-1.44	-1.17	1.71	11.0	-9.29
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-1.56	-1.01	1.73	11.0	-9.27
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-3.91	-3.52	-0.70	11.0	-11.70
	5530	106	ax (80MHz)	36 (MCS0)	-2.48	-0.46	1.66	11.0	-9.34
	5610	122	ax (80MHz)	36 (MCS0)	-3.37	-1.06	0.95	11.0	-10.05
	5690	138	ax (80MHz)	36 (MCS0)	-5.79	-3.87	-1.71	11.0	-12.71

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

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	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Directional Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6.5/7.2 (MCS0)	6.68	6.86	9.78	-4.81	4.97	10.0	-5.03
	5200	40	a	6.5/7.2 (MCS0)	6.68	6.90	9.80	-4.53	5.27	10.0	-4.73
	5240	48	a	6.5/7.2 (MCS0)	6.66	7.02	9.85	-4.71	5.15	10.0	-4.85
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.60	6.60	9.61	-4.81	4.80	10.0	-5.20
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.49	6.97	9.75	-4.53	5.22	10.0	-4.78
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	6.67	7.01	9.86	-4.71	5.15	10.0	-4.85
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	7.44	5.84	9.72	-4.81	4.92	10.0	-5.08
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	7.89	6.49	10.26	-4.53	5.73	10.0	-4.27
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	7.47	6.60	10.07	-4.71	5.36	10.0	-4.64
	5190	38	n (40MHz)	13.5/15 (MCS0)	2.93	3.09	6.02	-4.81	1.21	10.0	-8.79
	5230	46	n (40MHz)	13.5/15 (MCS0)	2.92	3.19	6.07	-4.71	1.36	10.0	-8.64
	5190	38	n (40MHz)	13.5/15 (MCS0)	3.79	2.81	6.34	-4.81	1.53	10.0	-8.47
	5230	46	n (40MHz)	13.5/15 (MCS0)	3.67	3.13	6.42	-4.71	1.71	10.0	-8.29
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-1.14	-1.13	1.88	-4.53	-2.65	10.0	-12.65
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-0.26	-0.72	2.53	-4.53	-2.00	10.0	-12.00

**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	4.32	5.07	7.72	30.0	-22.28
	5785	157	a	6	4.53	4.83	7.69	30.0	-22.31
	5825	165	a	6	4.48	5.41	7.98	30.0	-22.02
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	4.23	4.05	7.15	30.0	-22.85
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	4.25	4.14	7.21	30.0	-22.79
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	4.51	4.19	7.37	30.0	-22.63
	5745	149	ax (20MHz)	8.6 (MCS0)	2.41	3.79	6.17	30.0	-23.83
	5785	157	ax (20MHz)	8.6 (MCS0)	2.02	4.00	6.13	30.0	-23.87
	5825	165	ax (20MHz)	8.6 (MCS0)	1.25	3.37	5.45	30.0	-24.55
	5755	151	n (40MHz)	13.5/15 (MCS0)	0.28	0.16	3.23	30.0	-26.77
	5795	159	n (40MHz)	13.5/15 (MCS0)	0.87	0.38	3.64	30.0	-26.36
	5755	151	ax (40MHz)	17.2 (MCS0)	-1.87	-0.03	2.16	30.0	-27.84
	5795	159	ax (40MHz)	17.2 (MCS0)	-2.41	0.29	2.16	30.0	-27.84
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-0.44	-0.53	2.52	30.0	-27.48
	5775	155	ax (80MHz)	36 (MCS0)	-3.27	-0.60	1.28	30.0	-28.72

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

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**Note:**

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

**Sample MIMO Calculation:**

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

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

$$(\text{N/A dBm} + \text{N/A dBm}) = (\text{N/A mW} + \text{N/A mW}) = \text{N/A mW} = \text{N/A dBm}$$

**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 N/A dBm with directional gain of N/A dBi.

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

$$\text{N/A dBm} + -4.81 \text{ dBi} = 4.80 \text{ dBm}$$

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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 [ $\mu\text{V/m}$ ]	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

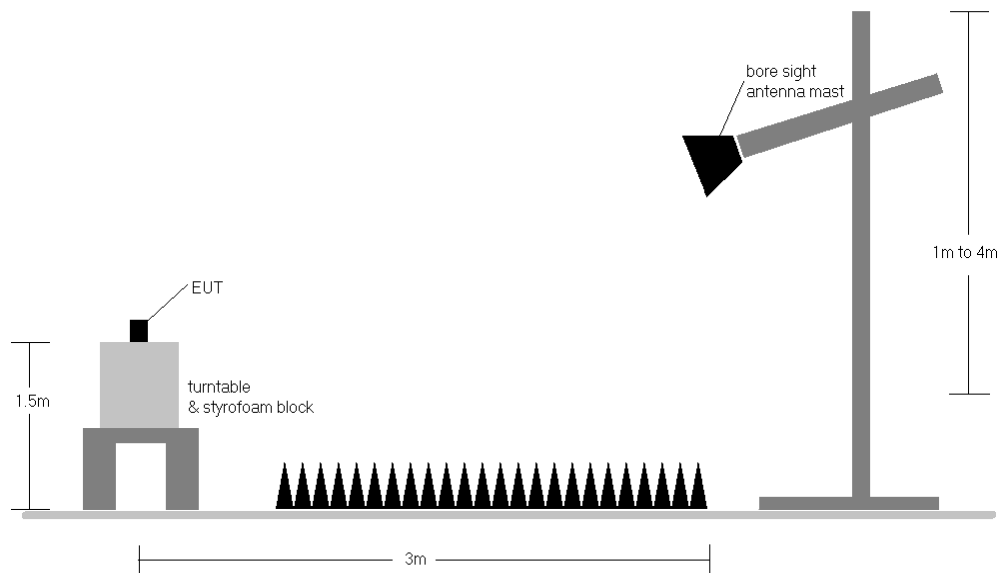
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

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

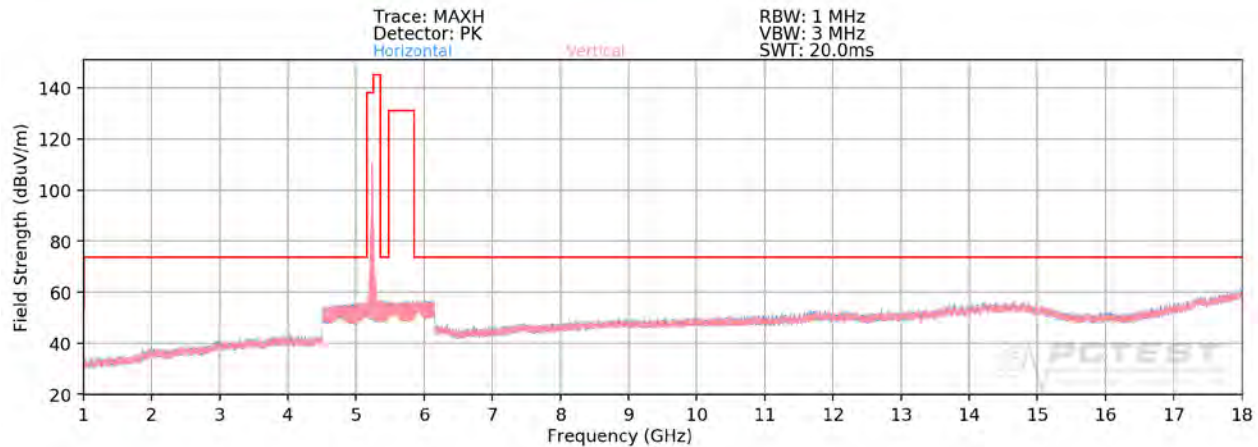
### Radiated Band Edge Measurement Offset

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

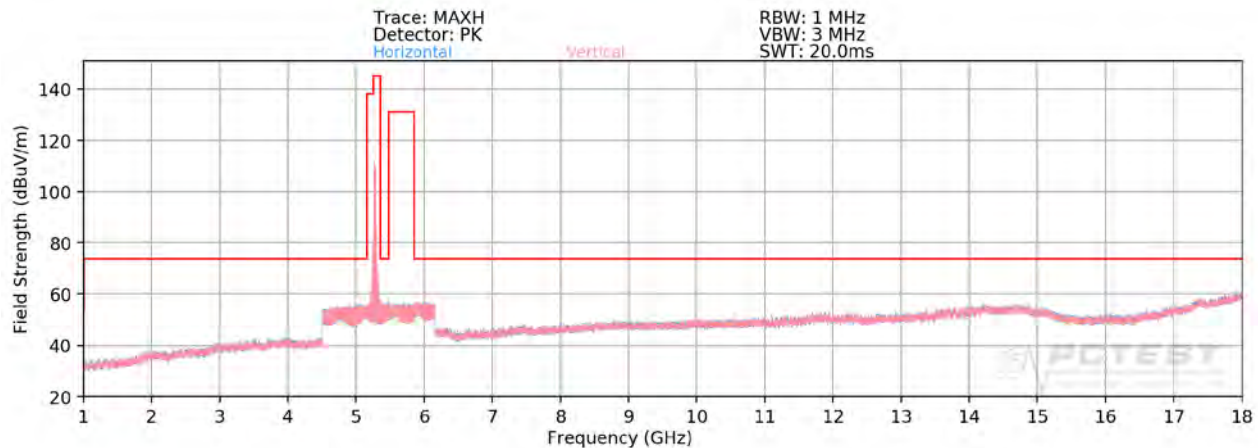
FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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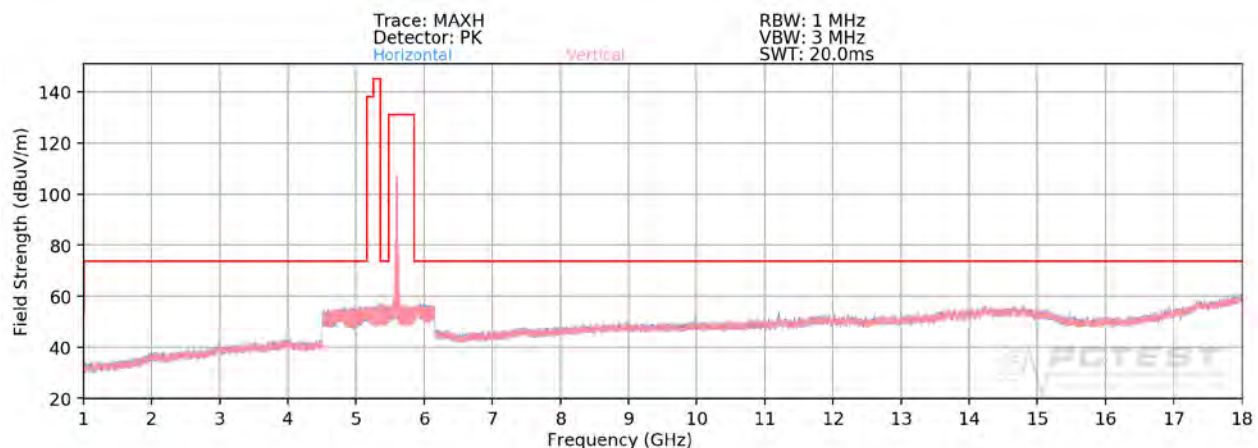
## 7.6.1 SISO Antenna-1 Radiated Spurious Emission Measurements



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

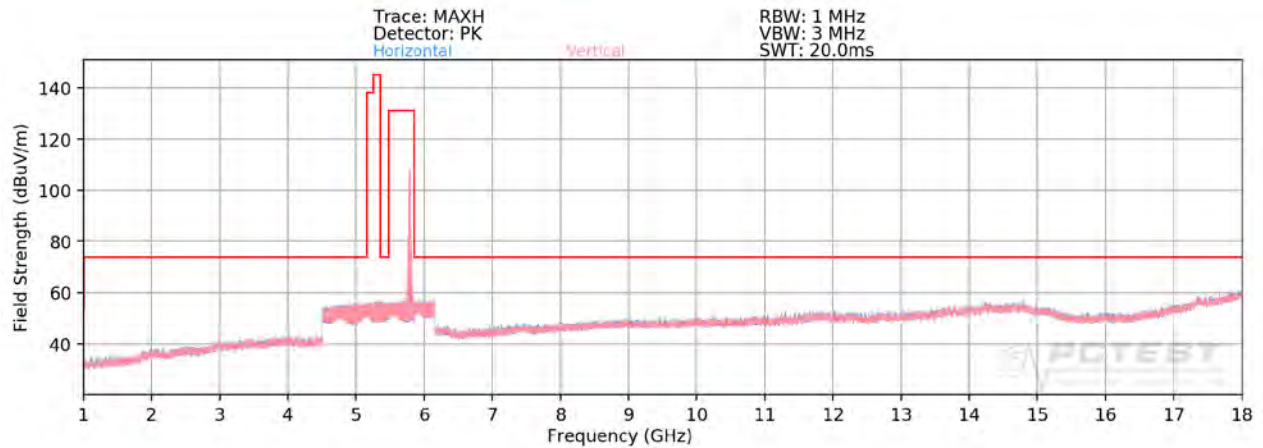


**Plot 7-266. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U2A Ch. 56)**



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

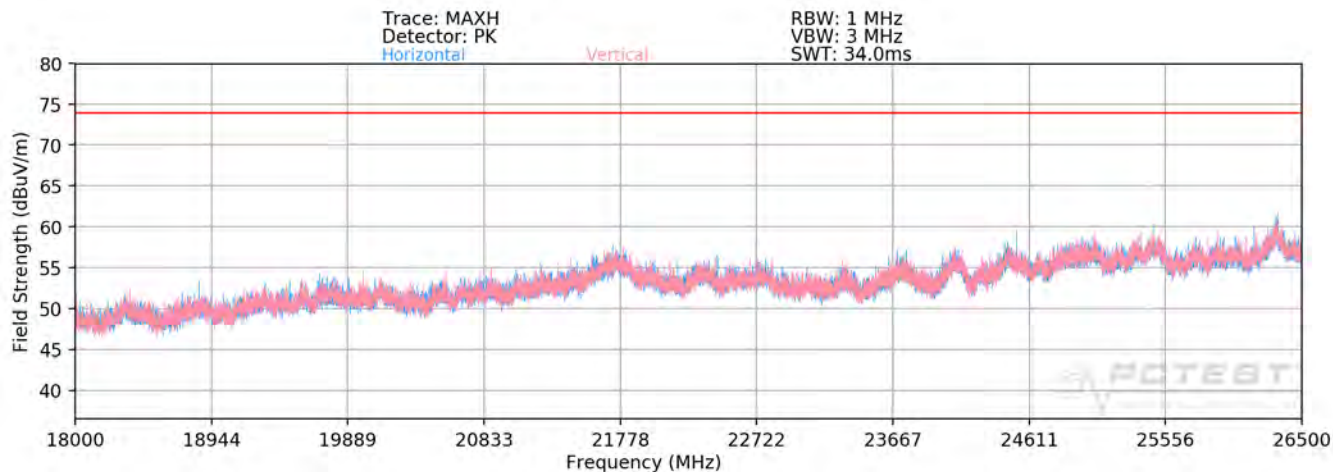
FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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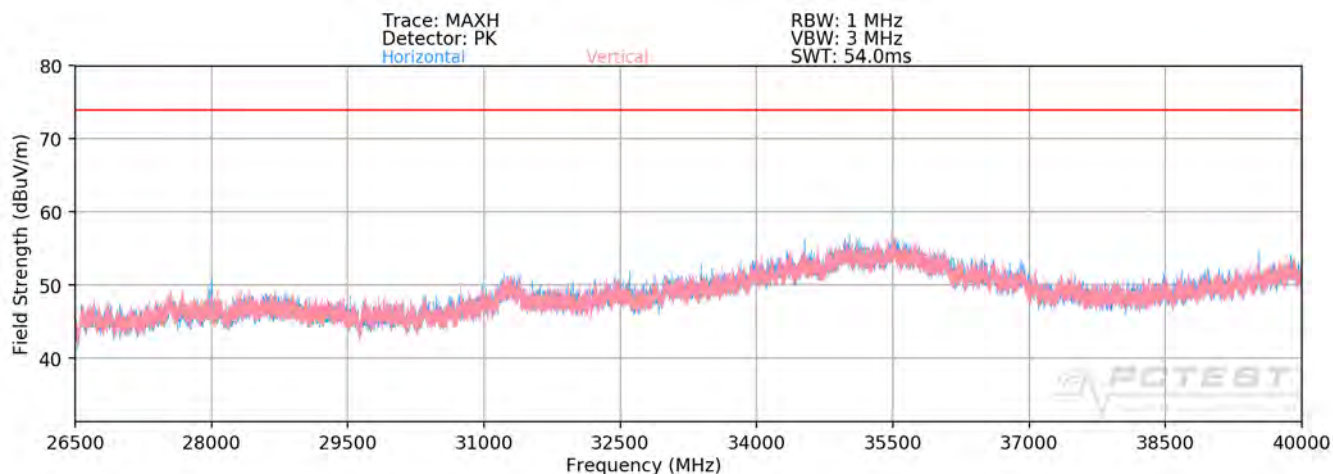
**Plot 7-268. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11a – U3 Ch. 157)**

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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	V	-	-	-69.47	12.74	0.00	50.27	68.20	-17.93
* 15540.00	Average	V	112	18	-82.74	15.28	0.00	46.14	53.98	-7.84
* 15540.00	Peak	V	112	18	-71.96	15.28	0.00	60.82	73.98	-13.16
* 20720.00	Average	H	-	-	-77.56	7.38	-9.54	27.28	53.98	-26.70
* 20720.00	Peak	H	-	-	-67.61	7.38	-9.54	37.23	73.98	-36.75
25900.00	Peak	H	-	-	-66.44	9.85	-9.54	40.87	68.20	-27.33

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	V	-	-	-69.46	12.24	0.00	49.78	68.20	-18.42
* 15600.00	Average	V	116	18	-75.01	15.40	0.00	47.39	53.98	-6.58
* 15600.00	Peak	V	116	18	-61.84	15.40	0.00	60.56	73.98	-13.41
* 20800.00	Average	H	-	-	-78.35	7.85	-9.54	26.95	53.98	-27.02
* 20800.00	Peak	H	-	-	-67.65	7.85	-9.54	37.65	73.98	-36.32
26000.00	Peak	H	-	-	-66.48	10.44	-9.54	41.41	68.20	-26.79

Table 7-32. Radiated Measurements SISO ANT1

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		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	-	-	-69.46	12.41	0.00	49.95	68.20	-18.25
* 15720.00	Average	V	116	18	-75.01	16.70	0.00	48.69	53.98	-5.29
* 15720.00	Peak	V	116	18	-61.84	16.70	0.00	61.86	73.98	-12.12
* 20960.00	Average	H	-	-	-78.11	7.75	-9.54	27.10	53.98	-26.88
* 20960.00	Peak	H	-	-	-67.78	7.75	-9.54	37.43	73.98	-36.55
26200.00	Peak	H	-	-	-65.89	10.26	-9.54	41.83	68.20	-26.37

Table 7-33. Radiated Measurements SISO ANT1

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	-	-	-70.11	12.41	0.00	49.30	68.20	-18.90
* 15720.00	Average	V	134	52	-75.15	16.70	0.00	48.55	53.98	-5.43
* 15720.00	Peak	V	134	52	-61.93	16.70	0.00	61.77	73.98	-12.21
* 20960.00	Average	V	100	167	-77.27	7.75	-9.54	27.94	53.98	-26.04
* 20960.00	Peak	V	100	167	-66.95	7.75	-9.54	38.26	73.98	-35.72
26200.00	Peak	V	100	174	-63.97	10.26	-9.54	43.75	68.20	-24.45

Table 7-34. Radiated Measurements SISO ANT1 with WCP

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	

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	-	-	-70.02	13.16	0.00	50.14	68.20	-18.06
* 15780.00	Average	V	113	20	-78.72	16.21	0.00	44.49	53.98	-9.49
* 15780.00	Peak	V	113	20	-62.45	16.21	0.00	60.76	73.98	-13.22
* 21040.00	Average	H	-	-	-78.00	7.78	-9.54	27.24	53.98	-26.74
* 21040.00	Peak	H	-	-	-67.75	7.78	-9.54	37.49	73.98	-36.49
26300.00	Peak	H	-	-	-67.13	10.58	-9.54	40.91	68.20	-27.29

Table 7-35. 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	V	-	-	-70.11	13.66	0.00	50.55	68.20	-17.65
* 15840.00	Average	V	118	24	-77.75	15.64	0.00	44.89	53.98	-9.09
* 15840.00	Peak	V	118	24	-62.44	15.64	0.00	60.20	73.98	-13.78
* 21120.00	Average	H	-	-	-77.46	17.26	-9.54	37.26	53.98	-16.72
* 21120.00	Peak	H	-	-	-67.13	17.26	-9.54	47.59	73.98	-26.39
26400.00	Peak	H	-	-	-65.41	19.67	-9.54	51.72	68.20	-16.48

Table 7-36. Radiated Measurements SISO ANT1

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 176 of 249

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	-	-	-82.45	14.15	0.00	38.70	53.98	-15.28
* 10640.00	Peak	V	-	-	-71.01	14.15	0.00	50.14	73.98	-23.84
* 15960.00	Average	V	113	20	-77.01	15.01	0.00	45.00	53.98	-8.98
* 15960.00	Peak	V	113	20	-63.25	15.01	0.00	58.76	73.98	-15.22
* 21280.00	Average	H	-	-	-77.43	17.51	-9.54	37.54	53.98	-16.44
* 21280.00	Peak	H	-	-	-67.47	17.51	-9.54	47.50	73.98	-26.48
26600.00	Peak	H	-	-	-51.28	1.44	-9.54	47.62	68.20	-20.58

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: 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	-	-	-82.45	14.15	0.00	38.70	53.98	-15.28
* 10640.00	Peak	V	-	-	-71.01	14.15	0.00	50.14	73.98	-23.84
* 15960.00	Average	V	125	98	-77.01	15.01	0.00	45.00	53.98	-8.98
* 15960.00	Peak	V	125	98	-63.25	15.01	0.00	58.76	73.98	-15.22
* 21280.00	Average	V	-	-	-77.32	17.51	-9.54	37.65	53.98	-16.33
* 21280.00	Peak	V	-	-	-66.44	17.51	-9.54	48.53	73.98	-25.45
26600.00	Peak	V	-	-	-50.12	1.44	-9.54	48.78	68.20	-19.42

Table 7-38. Radiated Measurements SISO ANT1 with WCP

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 177 of 249

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	263	352	-79.94	13.55	0.00	40.61	53.98	-13.37
* 11000.00	Peak	V	263	352	-67.91	13.55	0.00	52.64	73.98	-21.34
16500.00	Peak	V	113	1	-65.95	16.10	0.00	57.15	68.20	-11.05
22000.00	Peak	H	-	-	-67.26	8.71	-9.54	38.91	68.20	-29.29
27500.00	Peak	H	-	-	-51.60	-9.42	-9.54	36.44	68.20	-31.76

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: 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	V	-	-	-81.11	14.57	0.00	40.46	53.98	-13.52
* 11200.00	Peak	V	-	-	-71.36	14.57	0.00	50.21	73.98	-23.77
16800.00	Peak	V	111	24	-65.00	17.52	0.00	59.52	68.20	-8.68
* 22400.00	Average	H	-	-	-77.88	9.30	-9.54	28.88	53.98	-25.10
* 22400.00	Peak	H	-	-	-67.29	9.30	-9.54	39.47	73.98	-34.51
28000.00	Peak	H	-	-	-49.43	-9.24	-9.54	38.79	68.20	-29.41

Table 7-40. Radiated Measurements SISO ANT1

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 178 of 249



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	V	-	-	-83.11	15.10	0.00	38.99	53.98	-14.99
* 11440.00	Peak	V	-	-	-71.87	15.10	0.00	50.23	73.98	-23.75
17160.00	Peak	V	112	20	-64.67	18.83	0.00	61.16	68.20	-7.04
* 22880.00	Average	H	-	-	-78.80	8.86	-9.54	27.52	53.98	-26.46
* 22880.00	Peak	H	-	-	-68.07	8.86	-9.54	38.25	73.98	-35.73
28600.00	Peak	H	-	-	-52.80	-9.13	-9.54	35.53	68.20	-32.67

**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: 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	V	-	-	-82.79	15.10	0.00	39.31	53.98	-14.67
* 11440.00	Peak	V	-	-	-71.99	15.10	0.00	50.11	73.98	-23.87
17160.00	Peak	V	123	25	-66.77	18.83	0.00	60.06	68.20	-8.14
* 22880.00	Average	V	-	-	-77.91	8.86	-9.54	28.41	53.98	-25.57
* 22880.00	Peak	V	-	-	-67.50	8.86	-9.54	38.82	73.98	-35.16
28600.00	Peak	V	-	-	-47.98	-9.13	-9.54	40.35	68.20	-27.85

**Table 7-42. Radiated Measurements SISO ANT1 with WCP**

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 179 of 249

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	-	-	-82.00	15.22	0.00	40.22	53.98	-13.76
* 11490.00	Peak	V	-	-	-70.91	15.22	0.00	51.31	73.98	-22.67
17235.00	Peak	V	112	32	-64.92	19.54	0.00	61.62	68.20	-6.58
* 22980.00	Average	H	-	-	-77.93	8.38	-9.54	27.91	53.98	-26.07
* 22980.00	Peak	H	-	-	-67.98	8.38	-9.54	37.86	73.98	-36.12
28725.00	Peak	H	-	-	-52.18	-8.87	-9.54	36.41	68.20	-31.79

Table 7-43. Radiated Measurements SISO ANT1

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	-	-	-83.10	15.02	0.00	38.92	53.98	-15.06
* 11570.00	Peak	V	-	-	-71.70	15.02	0.00	50.32	73.98	-23.66
17355.00	Peak	V	111	40	-67.36	23.41	0.00	63.05	68.20	-5.15
23140.00	Peak	V	-	-	-67.25	8.78	-9.54	38.99	68.20	-29.21
28925.00	Peak	V	-	-	-52.33	-8.79	-9.54	36.34	68.20	-31.86

Table 7-44. Radiated Measurements SISO ANT1

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 180 of 249

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	-	-	-82.60	14.92	0.00	39.32	53.98	-14.66
* 11650.00	Peak	V	-	-	-71.87	14.92	0.00	50.05	73.98	-23.93
17475.00	Peak	V	119	41	-67.74	21.86	0.00	61.12	68.20	-7.08
23300.00	Peak	V	-	-	-66.11	9.23	-9.54	40.58	68.20	-27.62
29125.00	Peak	V	-	-	-48.60	-9.66	-9.54	39.20	68.20	-29.00

Table 7-45. Radiated Measurements SISO ANT1

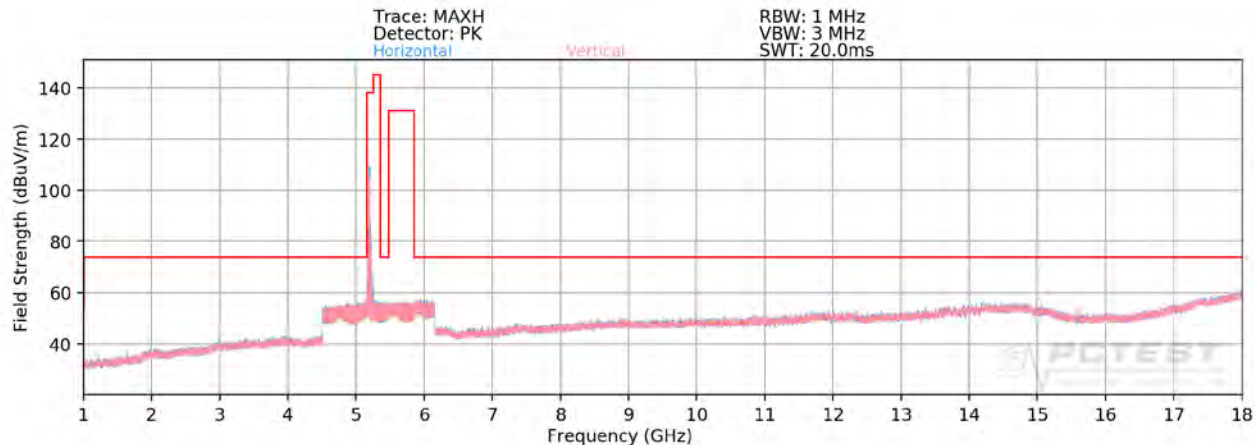
Worst Case Mode: 802.11a  
Worst Case Transfer Rate: 6Mbps  
Distance of Measurements: 1 & 3 Meters  
Operating Frequency: 5785MHz  
Channel: 157

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	-	-	-82.99	15.02	0.00	39.03	53.98	-14.95
* 11570.00	Peak	V	-	-	-72.01	15.02	0.00	50.01	73.98	-23.97
17355.00	Peak	V	121	56	-69.94	23.41	0.00	60.47	68.20	-7.73
23140.00	Peak	V	-	-	-67.31	8.78	-9.54	38.93	68.20	-29.27
28925.00	Peak	V	-	-	-48.47	-8.79	-9.54	40.20	68.20	-28.00

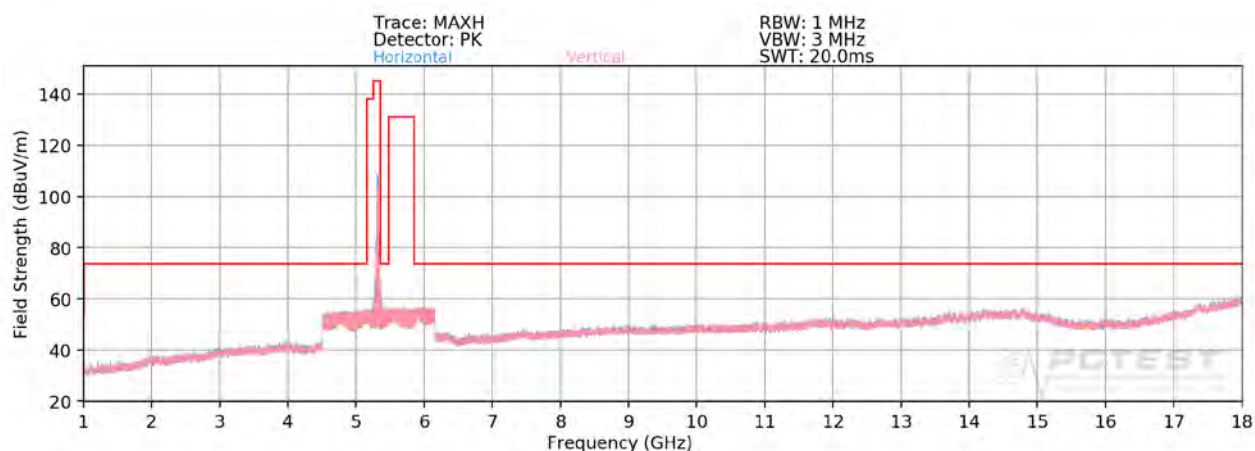
Table 7-46. Radiated Measurements SISO ANT1 with WCP

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 181 of 249

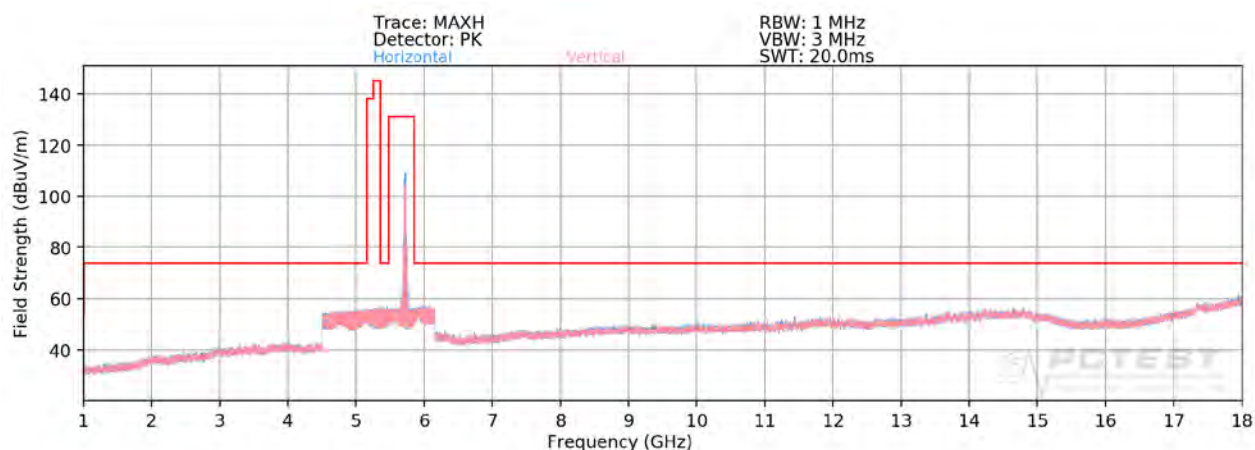
## 7.6.2 SISO Antenna-2 Radiated Spurious Emission Measurements



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



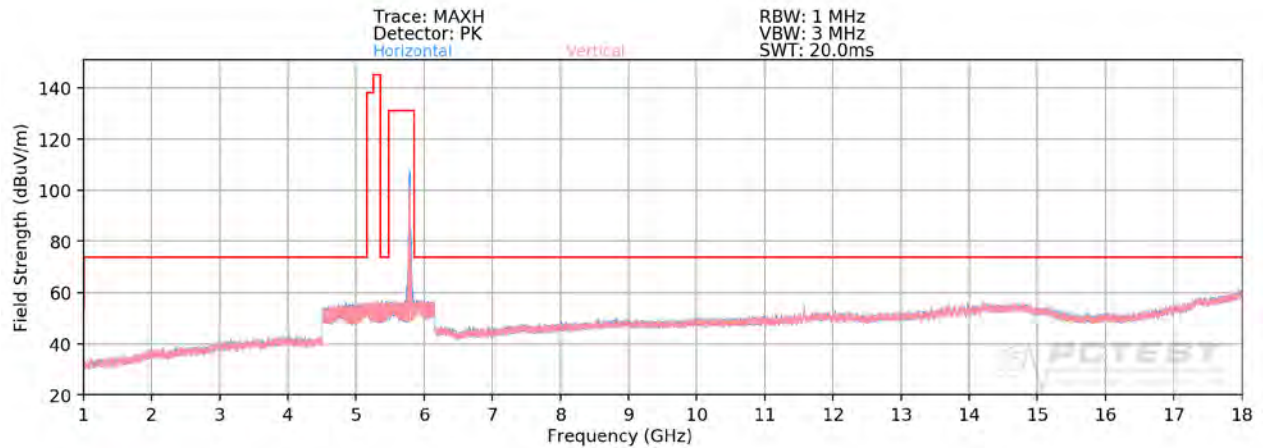
Plot 7-272. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U2A Ch. 56)



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

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 182 of 249

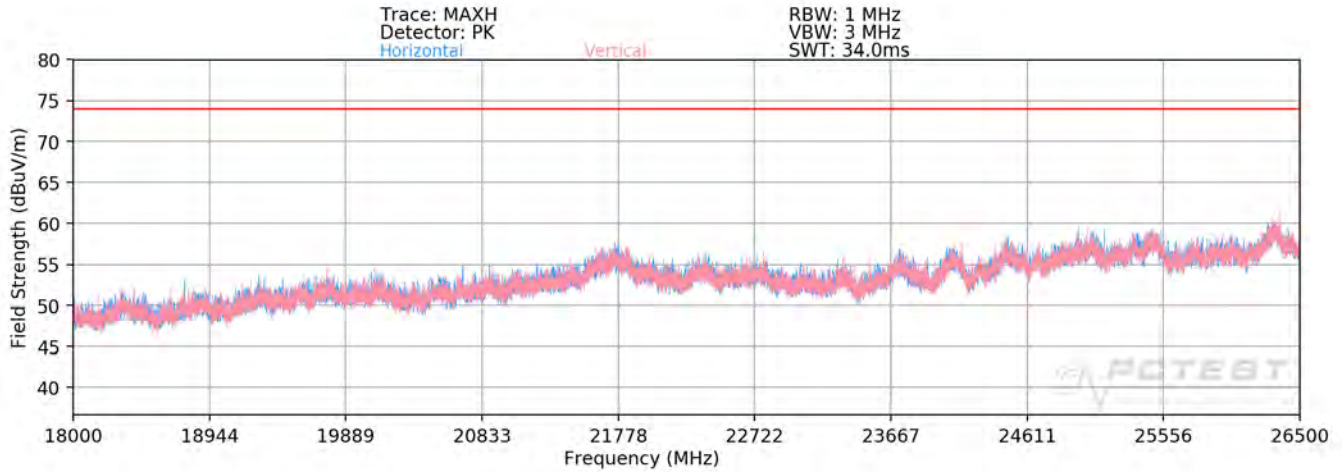




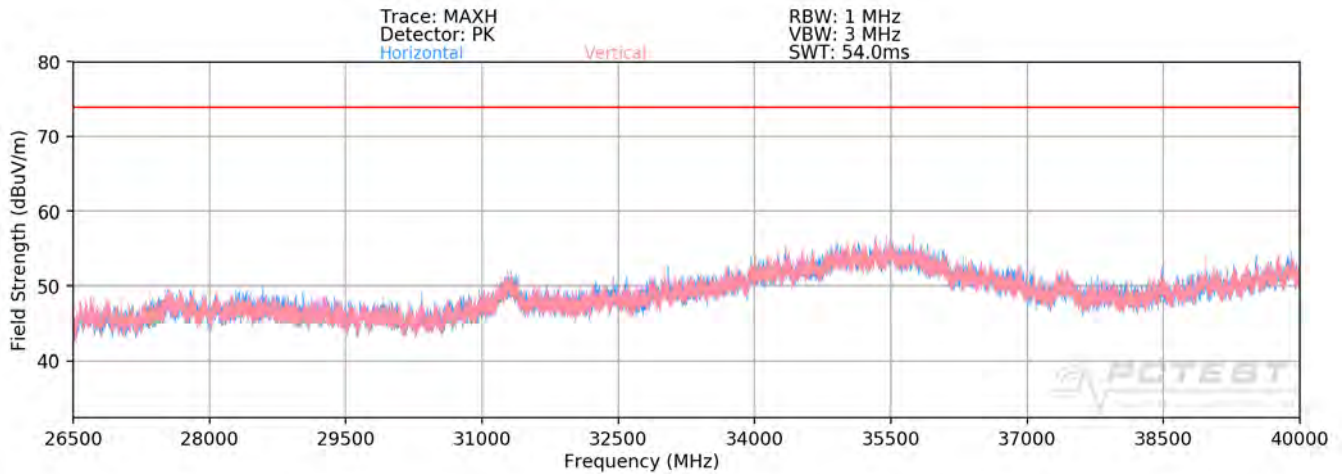
**Plot 7-274. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11a – U3 Ch. 157)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 183 of 249

## 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: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 184 of 249

## 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	V	400	0	-68.72	12.74	0.00	51.02	68.20	-17.18
* 15540.00	Average	V	116	350	-81.53	15.28	0.00	40.75	53.98	-13.23
* 15540.00	Peak	V	116	350	-68.78	15.28	0.00	53.50	73.98	-20.48
* 20720.00	Average	H	-	-	-77.90	7.38	-9.54	26.94	53.98	-27.04
* 20720.00	Peak	H	-	-	-66.40	7.38	-9.54	38.44	73.98	-35.54
25900.00	Peak	H	-	-	-65.87	9.85	-9.54	41.44	68.20	-26.76

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: 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	-	-	-70.66	12.24	0.00	48.58	68.20	-19.62
* 15600.00	Average	V	129	333	-81.89	15.40	0.00	40.51	53.98	-13.46
* 15600.00	Peak	V	129	333	-70.11	15.40	0.00	52.29	73.98	-21.68
* 20800.00	Average	H	-	-	-78.44	7.85	-9.54	26.86	53.98	-27.11
* 20800.00	Peak	H	-	-	-67.66	7.85	-9.54	37.64	73.98	-36.33
26000.00	Peak	H	-	-	-65.82	10.44	-9.54	42.07	68.20	-26.13

Table 7-48. Radiated Measurements SISO ANT2

Worst Case Mode: 802.11a

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 185 of 249

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	129	0	-70.59	12.41	0.00	48.82	68.20	-19.38
* 15720.00	Average	V	158	339	-81.56	16.70	0.00	42.14	53.98	-11.84
* 15720.00	Peak	V	158	339	-69.99	16.70	0.00	53.71	73.98	-20.27
* 20960.00	Average	H	-	-	-78.26	7.75	-9.54	26.95	53.98	-27.03
* 20960.00	Peak	H	-	-	-67.45	7.75	-9.54	37.76	73.98	-36.22
26200.00	Peak	H	-	-	-65.99	10.26	-9.54	41.73	68.20	-26.47

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: 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	153	37	-70.89	12.41	0.00	48.52	68.20	-19.68
* 15720.00	Average	V	190	321	-81.51	16.70	0.00	42.19	53.98	-11.79
* 15720.00	Peak	V	190	321	-70.15	16.70	0.00	53.55	73.98	-20.43
* 20960.00	Average	V	100	209	-76.62	7.75	-9.54	28.59	53.98	-25.39
* 20960.00	Peak	V	100	209	-65.20	7.75	-9.54	40.01	73.98	-33.97
26200.00	Peak	V	-	-	-65.59	10.26	-9.54	42.13	68.20	-26.07

Table 7-50. Radiated Measurements SISO ANT2 with WCP

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 186 of 249



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	-	-	-71.00	13.16	0.00	49.16	68.20	-19.04
* 15780.00	Average	V	123	326	-82.11	16.21	0.00	41.10	53.98	-12.88
* 15780.00	Peak	V	123	326	-70.41	16.21	0.00	52.80	73.98	-21.18
* 21040.00	Average	H	-	-	-77.78	7.78	-9.54	27.46	53.98	-26.52
* 21040.00	Peak	H	-	-	-67.50	7.78	-9.54	37.74	73.98	-36.24
26300.00	Peak	H	-	-	-65.64	10.58	-9.54	42.40	68.20	-25.80

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: 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	-	-	-71.02	13.66	0.00	49.64	68.20	-18.56
* 15840.00	Average	V	-	-	-82.45	15.64	0.00	40.19	53.98	-13.79
* 15840.00	Peak	V	-	-	-71.20	15.64	0.00	51.44	73.98	-22.54
* 21120.00	Average	H	-	-	-77.46	17.26	-9.54	37.26	53.98	-16.72
* 21120.00	Peak	H	-	-	-67.52	17.26	-9.54	47.20	73.98	-26.78
26400.00	Peak	H	-	-	-65.53	19.67	-9.54	51.60	68.20	-16.60

Table 7-52. Radiated Measurements SISO ANT2

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 187 of 249

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	-	-	-81.99	14.15	0.00	39.16	53.98	-14.82
* 10640.00	Peak	V	-	-	-70.90	14.15	0.00	50.25	73.98	-23.73
* 15960.00	Average	V	141	346	-80.65	15.01	0.00	41.36	53.98	-12.62
* 15960.00	Peak	V	141	346	-66.63	15.01	0.00	55.38	73.98	-18.60
* 21280.00	Average	H	-	-	-77.38	17.51	-9.54	37.59	53.98	-16.39
* 21280.00	Peak	H	-	-	-67.20	17.51	-9.54	47.77	73.98	-26.21
26600.00	Peak	H	-	-	-49.62	1.44	-9.54	49.28	68.20	-18.92

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: 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	-	-	-82.13	14.15	0.00	39.02	53.98	-14.96
* 10640.00	Peak	V	-	-	-71.15	14.15	0.00	50.00	73.98	-23.98
* 15960.00	Average	V	158	331	-81.11	15.01	0.00	40.90	53.98	-13.08
* 15960.00	Peak	V	158	331	-67.15	15.01	0.00	54.86	73.98	-19.12
* 21280.00	Average	V	-	-	-77.27	17.51	-9.54	37.70	53.98	-16.28
* 21280.00	Peak	V	-	-	-66.42	17.51	-9.54	48.55	73.98	-25.43
26600.00	Peak	V	100	123	-46.95	1.44	-9.54	51.95	68.20	-16.25

Table 7-54. Radiated Measurements SISO ANT2 with WCP

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 188 of 249

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	-	-	-81.70	13.55	0.00	38.85	53.98	-15.13
* 11000.00	Peak	V	-	-	-71.01	13.55	0.00	49.54	73.98	-24.44
16500.00	Peak	V	121	301	-69.78	16.10	0.00	53.32	68.20	-14.88
22000.00	Peak	H	-	-	-66.54	8.71	-9.54	39.63	68.20	-28.57
27500.00	Peak	H	-	-	-49.13	-9.42	-9.54	38.91	68.20	-29.29

Table 7-55. 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]
* 11200.00	Average	V	-	-	-82.53	14.57	0.00	39.04	53.98	-14.94
* 11200.00	Peak	V	-	-	-70.15	14.57	0.00	51.42	73.98	-22.56
16800.00	Peak	V	118	313	-68.70	17.52	0.00	55.82	68.20	-12.38
* 22400.00	Average	H	-	-	-77.82	9.30	-9.54	28.94	53.98	-25.04
* 22400.00	Peak	H	-	-	-67.09	9.30	-9.54	39.67	73.98	-34.31
28000.00	Peak	H	-	-	-49.99	-9.24	-9.54	38.23	68.20	-29.97

Table 7-56. Radiated Measurements SISO ANT2

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 189 of 249

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	V	371	330	-82.88	15.10	0.00	39.22	53.98	-14.76
* 11440.00	Peak	V	371	330	-71.27	15.10	0.00	50.83	73.98	-23.15
17160.00	Peak	V	115	319	-68.32	18.83	0.00	57.51	68.20	-10.69
* 22880.00	Average	V	-	-	-78.35	8.86	-9.54	27.97	53.98	-26.01
* 22880.00	Peak	V	-	-	-67.94	8.86	-9.54	38.38	73.98	-35.60
28600.00	Peak	V	-	-	-48.69	-9.13	-9.54	39.64	68.20	-28.56

**Table 7-57. Radiated Measurements SISO ANT2**

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	V	314	301	-83.01	15.10	0.00	39.09	53.98	-14.89
* 11440.00	Peak	V	314	301	-71.39	15.10	0.00	50.71	73.98	-23.27
17160.00	Peak	V	125	309	-71.22	18.83	0.00	54.61	68.20	-13.59
* 22880.00	Average	V	-	-	-77.91	8.86	-9.54	28.41	53.98	-25.57
* 22880.00	Peak	V	-	-	-67.50	8.86	-9.54	38.82	73.98	-35.16
28600.00	Peak	V	-	-	-47.98	-9.13	-9.54	40.35	68.20	-27.85

**Table 7-58. Radiated Measurements SISO ANT2 with WCP**

FCC ID: A3LSMG9730		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: 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	-	-	-75.48	15.22	0.00	46.74	53.98	-7.24
* 11490.00	Peak	V	-	-	-71.34	15.22	0.00	50.88	73.98	-23.10
17235.00	Peak	V	124	305	-70.13	19.54	0.00	56.41	68.20	-11.79
* 22980.00	Average	V	-	-	-78.01	8.38	-9.54	27.83	53.98	-26.15
* 22980.00	Peak	V	-	-	-67.55	8.38	-9.54	38.29	73.98	-35.69
28725.00	Peak	V	-	-	-51.51	-8.87	-9.54	37.08	68.20	-31.12

Table 7-59. Radiated Measurements SISO ANT2

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	-	-	-81.49	15.02	0.00	40.53	53.98	-13.45
* 11570.00	Peak	V	-	-	-71.38	15.02	0.00	50.64	73.98	-23.34
17355.00	Peak	V	118	316	-73.29	23.41	0.00	57.12	68.20	-11.08
23140.00	Peak	V	-	-	-66.98	8.78	-9.54	39.26	68.20	-28.94
28925.00	Peak	V	-	-	-51.75	-8.79	-9.54	36.92	68.20	-31.28

Table 7-60. Radiated Measurements SISO ANT2

FCC ID: A3LSMG9730		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: 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	318	0	-73.89	14.92	0.00	48.03	53.98	-5.95
* 11650.00	Peak	V	318	0	-68.50	14.92	0.00	53.42	73.98	-20.56
17475.00	Peak	V	-	-	-72.67	21.86	0.00	56.19	68.20	-12.01
23300.00	Peak	V	-	-	-65.76	9.23	-9.54	40.93	68.20	-27.27
29125.00	Peak	V	115	121	-42.35	-9.66	-9.54	45.45	68.20	-22.75

Table 7-61. 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	V	299	11	-76.89	14.92	0.00	45.03	53.98	-8.95
* 11650.00	Peak	V	299	11	-71.00	14.92	0.00	50.92	73.98	-23.06
17475.00	Peak	V	-	-	-72.89	21.86	0.00	55.97	68.20	-12.23
23300.00	Peak	V	-	-	-66.95	9.23	-9.54	39.74	68.20	-28.46
29125.00	Peak	V	100	135	-44.50	-9.66	-9.54	43.30	68.20	-24.90

Table 7-62. Radiated Measurements SISO ANT2 with WCP

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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### 7.6.3 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	220	37	-65.59	15.88	0.00	57.29	68.20	-10.91
* 15540.00	Average	V	-	-	-81.20	23.03	0.00	48.83	53.98	-5.15
* 15540.00	Peak	V	-	-	-69.78	23.03	0.00	60.25	73.98	-13.73
* 20720.00	Average	V	-	-	-81.43	16.92	-9.54	32.95	53.98	-21.03
* 20720.00	Peak	V	-	-	-69.98	16.92	-9.54	44.40	73.98	-29.58
25900.00	Peak	V	-	-	-67.78	19.39	-9.54	49.07	68.20	-19.13

**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: 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	108	86	-67.86	16.04	0.00	55.18	68.20	-13.02
* 15600.00	Average	V	110	82	-80.39	23.01	0.00	49.62	53.98	-4.36
* 15600.00	Peak	V	110	82	-68.89	23.01	0.00	61.12	73.98	-12.86
* 20800.00	Average	V	-	-	-81.11	17.39	-9.54	33.73	53.98	-20.24
* 20800.00	Peak	V	-	-	-69.75	17.39	-9.54	45.09	73.98	-28.88
26000.00	Peak	V	-	-	-67.49	19.98	-9.54	49.94	68.20	-18.26

**Table 7-64. Radiated Measurements MIMO/CDD**

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 193 of 249

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	297	219	-68.76	16.18	0.00	54.42	68.20	-13.78
* 15720.00	Average	V	-	-	-81.02	23.46	0.00	49.44	53.98	-4.54
* 15720.00	Peak	V	-	-	-69.07	23.46	0.00	61.39	73.98	-12.59
* 20960.00	Average	V	-	-	-81.24	17.29	-9.54	33.51	53.98	-20.47
* 20960.00	Peak	V	-	-	-69.50	17.29	-9.54	45.25	73.98	-28.73
26200.00	Peak	V	-	-	-67.24	19.80	-9.54	50.02	68.20	-18.18

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: 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	163	15	-67.24	16.04	0.00	55.80	68.20	-12.40
* 15720.00	Average	V	-	-	-80.94	23.01	0.00	49.07	53.98	-4.91
* 15720.00	Peak	V	-	-	-68.76	23.01	0.00	61.25	73.98	-12.73
* 20960.00	Average	V	-	-	-80.94	17.29	-9.54	33.81	53.98	-20.17
* 20960.00	Peak	V	-	-	-69.18	17.29	-9.54	45.57	73.98	-28.41
26200.00	Peak	V	-	-	-67.65	19.80	-9.54	49.61	68.20	-18.59

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

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 194 of 249



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	-	-	-69.30	13.16	0.00	50.86	68.20	-17.34
* 15780.00	Average	V	113	14	-78.50	16.21	0.00	44.71	53.98	-9.27
* 15780.00	Peak	V	113	14	-69.26	16.21	0.00	53.95	73.98	-20.03
* 21040.00	Average	V	-	-	-80.94	17.32	-9.54	33.84	53.98	-20.14
* 21040.00	Peak	V	-	-	-69.17	17.32	-9.54	45.61	73.98	-28.37
26300.00	Peak	V	-	-	-67.41	20.12	-9.54	50.17	68.20	-18.03

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: 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	-	-	-69.44	13.66	0.00	51.22	68.20	-16.98
* 15840.00	Average	V	-	-	-81.30	15.64	0.00	41.34	53.98	-12.64
* 15840.00	Peak	V	-	-	-69.58	15.64	0.00	53.06	73.98	-20.92
* 21120.00	Average	V	-	-	-81.13	17.26	-9.54	33.59	53.98	-20.39
* 21120.00	Peak	V	-	-	-69.52	17.26	-9.54	45.20	73.98	-28.78
26400.00	Peak	V	-	-	-67.57	19.67	-9.54	49.56	68.20	-18.64

Table 7-68. Radiated Measurements MIMO/CDD

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 195 of 249

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	188	-80.28	14.15	0.00	40.87	53.98	-13.11
* 10640.00	Peak	V	100	188	-69.14	14.15	0.00	52.01	73.98	-21.97
* 15960.00	Average	V	102	174	-80.53	15.01	0.00	41.48	53.98	-12.50
* 15960.00	Peak	V	102	174	-69.49	15.01	0.00	52.52	73.98	-21.46
* 21280.00	Average	V	-	-	-81.21	17.51	-9.54	33.76	53.98	-20.22
* 21280.00	Peak	V	-	-	-69.14	17.51	-9.54	45.83	73.98	-28.15
26600.00	Peak	V	-	-	-49.96	1.44	-9.54	48.94	68.20	-19.26

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: 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	120	363	-79.94	14.15	0.00	41.21	53.98	-12.77
* 10640.00	Peak	V	120	363	-68.05	14.15	0.00	53.10	73.98	-20.88
* 15960.00	Average	V	135	352	-80.85	15.01	0.00	41.16	53.98	-12.82
* 15960.00	Peak	V	135	352	-69.58	15.01	0.00	52.43	73.98	-21.55
* 21280.00	Average	V	-	-	-80.47	17.32	-9.54	34.31	53.98	-19.67
21280.00	Peak	V	-	-	-69.49	17.32	-9.54	45.29	73.98	-28.69
26600.00	Peak	V	-	-	-67.68	20.12	-9.54	49.90	68.20	-18.30

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

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 196 of 249

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	100	186	-79.30	13.55	0.00	41.25	53.98	-12.73
* 11000.00	Peak	V	100	186	-68.00	13.55	0.00	52.55	73.98	-21.43
16500.00	Peak	V	102	80	-68.13	16.10	0.00	54.97	68.20	-13.23
22000.00	Peak	V	-	-	-80.78	18.25	-9.54	34.93	68.20	-33.27
27500.00	Peak	V	-	-	-49.07	0.12	-9.54	48.51	68.20	-19.69

Table 7-71. Radiated Measurements MIMO/CDD

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]
* 11200.00	Average	V	100	238	-79.76	14.57	0.00	41.81	53.98	-12.17
* 11200.00	Peak	V	100	238	-68.12	14.57	0.00	53.45	73.98	-20.53
16800.00	Peak	V	110	250	-69.40	17.52	0.00	55.12	68.20	-13.08
* 22400.00	Average	V	-	-	-80.59	19.00	-9.54	35.87	53.98	-18.11
* 22400.00	Peak	V	-	-	-69.03	19.00	-9.54	47.43	73.98	-26.55
28000.00	Peak	V	-	-	-49.33	0.74	-9.54	48.86	68.20	-19.34

Table 7-72. Radiated Measurements MIMO/CDD

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 197 of 249

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	V	100	308	-77.32	15.10	0.00	44.78	53.98	-9.20
* 11440.00	Peak	V	100	308	-64.65	15.10	0.00	57.45	73.98	-16.53
17160.00	Peak	V	107	320	-64.02	18.83	0.00	61.81	68.20	-6.39
* 22880.00	Average	V	-	-	-80.53	18.40	-9.54	35.33	53.98	-18.65
* 22880.00	Peak	V	-	-	-69.49	18.40	-9.54	46.37	73.98	-27.61
28600.00	Peak	V	-	-	-48.50	0.41	-9.54	49.37	68.20	-18.83

Table 7-73. Radiated Measurements MIMO/CDD

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]
* 11200.00	Average	V	-	-	-81.91	14.57	0.00	39.66	53.98	-14.32
* 11200.00	Peak	V	-	-	-69.88	14.57	0.00	51.69	73.98	-22.29
16800.00	Peak	V	126	231	-70.89	17.52	0.00	53.63	68.20	-14.57
* 22400.00	Average	V	-	-	-80.66	19.00	-9.54	35.80	53.98	-18.18
* 22400.00	Peak	V	-	-	-69.44	19.00	-9.54	47.02	73.98	-26.96
28000.00	Peak	V	-	-	-48.90	0.74	-9.54	49.29	68.20	-18.91

Table 7-74. Radiated Measurements MIMO/CDD with WCP

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 198 of 249



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	143	335	-78.85	15.22	0.00	43.37	53.98	-10.61
* 11490.00	Peak	V	143	335	-65.55	15.22	0.00	56.67	73.98	-17.31
17235.00	Peak	V	111	52	-64.51	19.54	0.00	62.03	68.20	-6.17
* 22980.00	Average	V	-	-	-81.50	17.92	-9.54	33.88	53.98	-20.10
* 22980.00	Peak	V	-	-	-69.85	17.92	-9.54	45.53	73.98	-28.45
28725.00	Peak	V	-	-	-48.86	0.67	-9.54	49.27	69.20	-19.93

Table 7-75. 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	318	340	-76.10	15.02	0.00	45.92	53.98	-8.06
* 11570.00	Peak	V	318	340	-64.82	15.02	0.00	57.20	73.98	-16.78
17355.00	Peak	V	118	35	-66.00	23.41	0.00	64.41	68.20	-3.79
23140.00	Peak	V	-	-	-69.51	18.32	-9.54	46.27	68.20	-21.93
28925.00	Peak	V	-	-	-49.14	0.75	-9.54	49.07	68.20	-19.13

Table 7-76. Radiated Measurements MIMO/CDD

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 199 of 249

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	315	336	-75.21	14.92	0.00	46.71	53.98	-7.27
* 11650.00	Peak	V	315	336	-63.56	14.92	0.00	58.36	73.98	-15.62
17475.00	Peak	V	124	306	-67.20	21.86	0.00	61.66	68.20	-6.54
23300.00	Peak	V	-	-	-69.78	18.77	-9.54	46.45	68.20	-21.75
29125.00	Peak	V	-	-	-49.04	-0.12	-9.54	48.30	68.20	-19.90

Table 7-77. 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	256	321	-78.55	14.92	0.00	43.37	53.98	-10.61
* 11570.00	Peak	V	256	321	-66.76	14.92	0.00	55.16	73.98	-18.82
17355.00	Peak	V	178	298	-71.11	21.86	0.00	57.75	68.20	-10.45
23140.00	Peak	V	-	-	-69.74	18.32	-9.54	46.04	68.20	-22.16
28925.00	Peak	V	-	-	-49.26	0.75	-9.54	48.95	68.20	-19.25

Table 7-78. Radiated Measurements MIMO/CDD with WCP

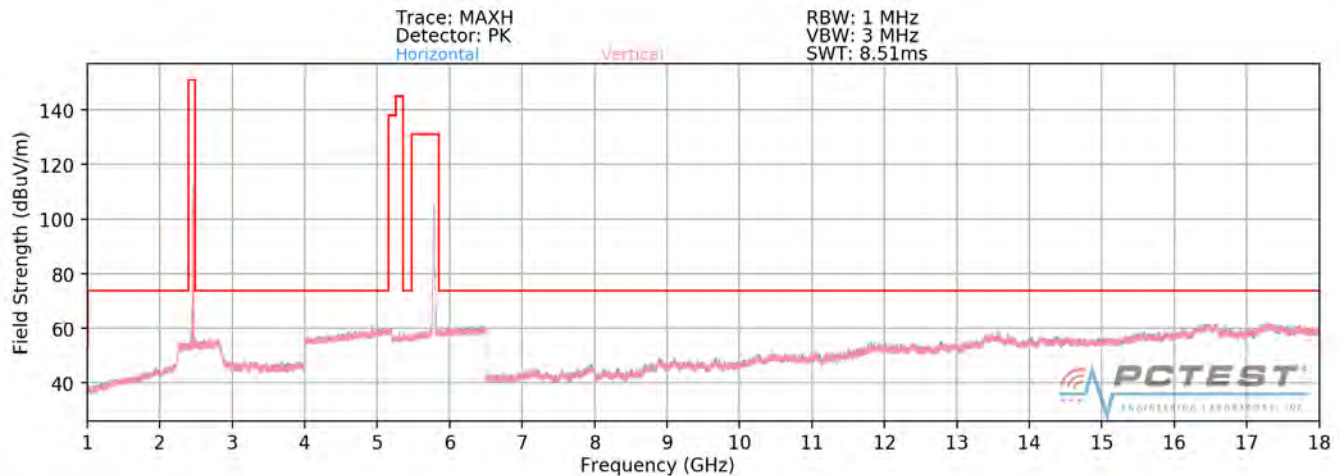
FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 200 of 249

## 7.6.4 Simultaneous Tx Radiated Spurious Emissions Measurements

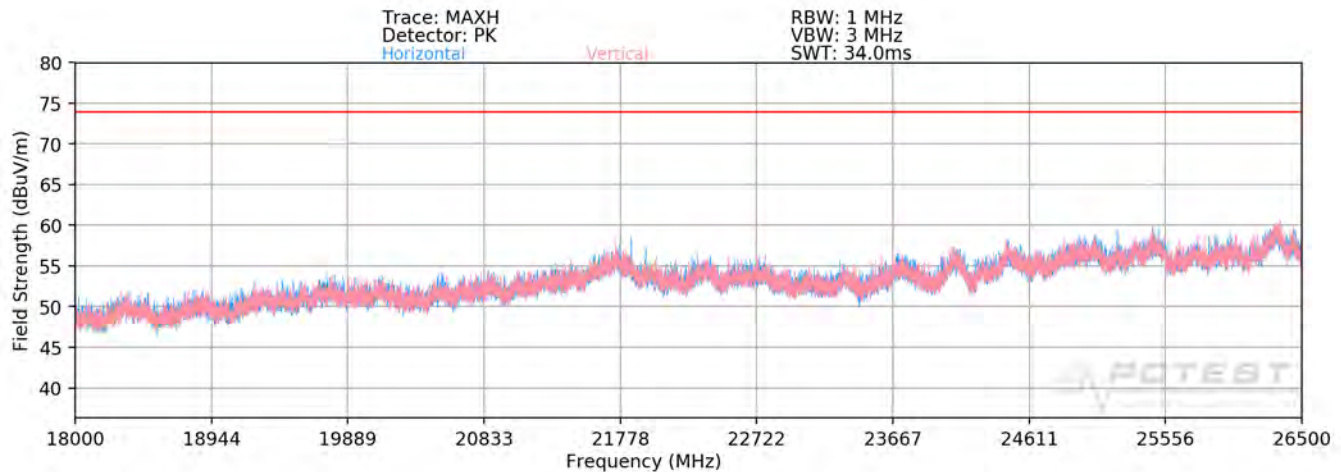
§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	11	157
Operating Frequency (MHz)	2462	5785
Data Rate (Mbps)	1	6
Mode	802.11b	802.11a

**Table 7-79. Simultaneous Transmission Config-1**

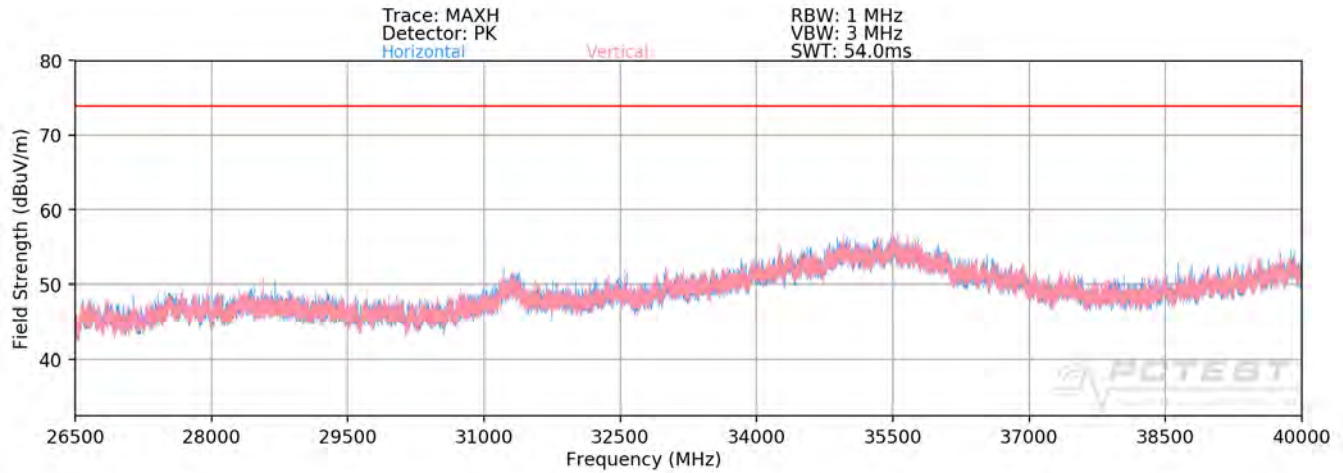


**Plot 7-277. Radiated Spurious Plot above 1GHz (2.4GHz – 5GHz)**



**Plot 7-278. Radiated Spurious Plot 18GHz – 26.5GHz (2.4GHz – 5GHz)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 201 of 249



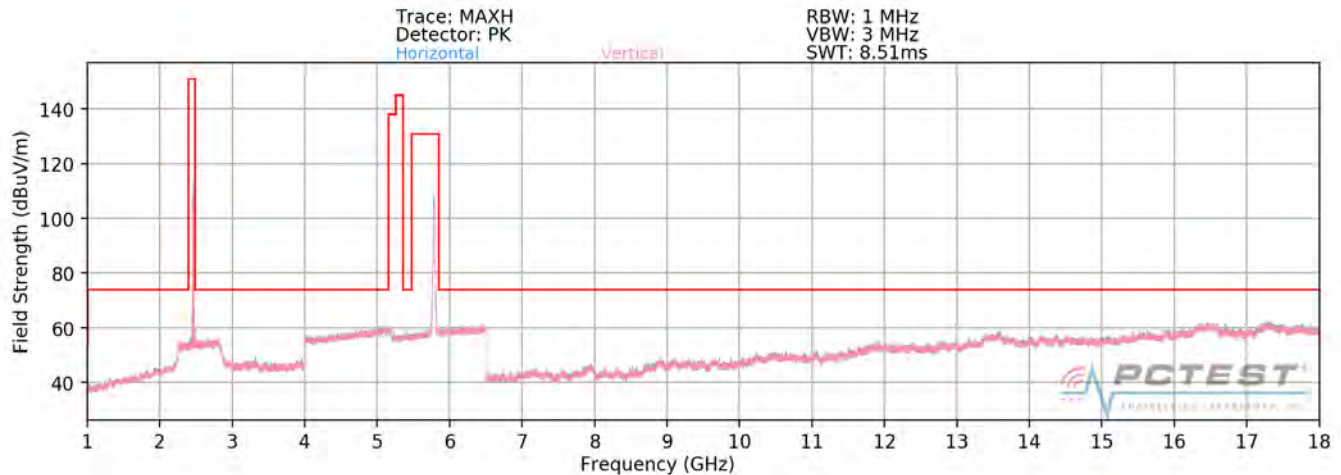
**Plot 7-279. Radiated Spurious Plot above 26.5GHz (2.4GHz – 5GHz)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 202 of 249



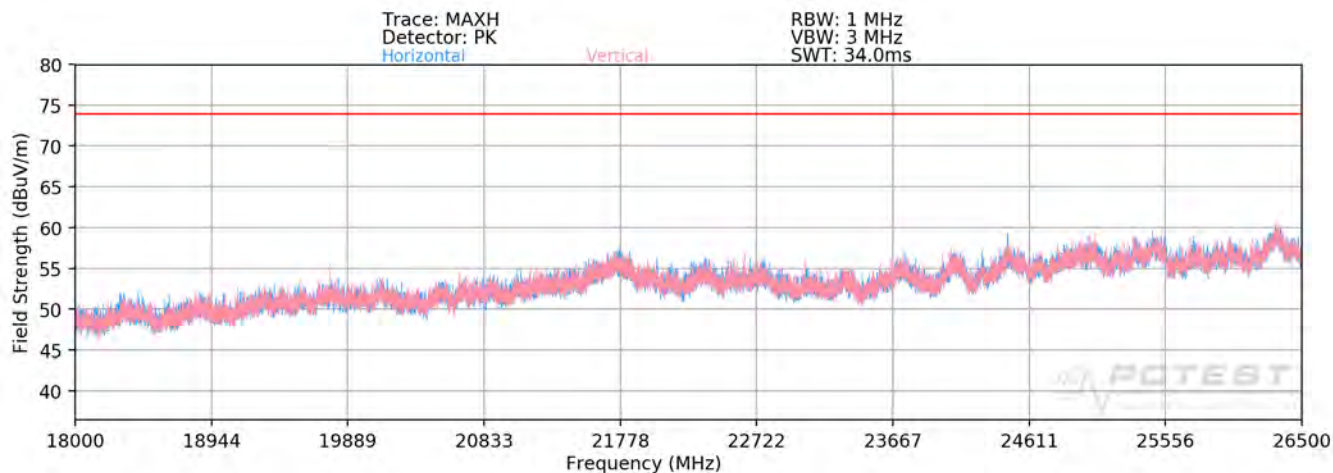
Description	2.4 GHz Emission	5 GHz Emission
Antenna	2	1
Channel	11	157
Operating Frequency (MHz)	2462	5785
Data Rate (Mbps)	1	6
Mode	802.11b	802.11a

**Table 7-80. Simultaneous Transmission Config-2**

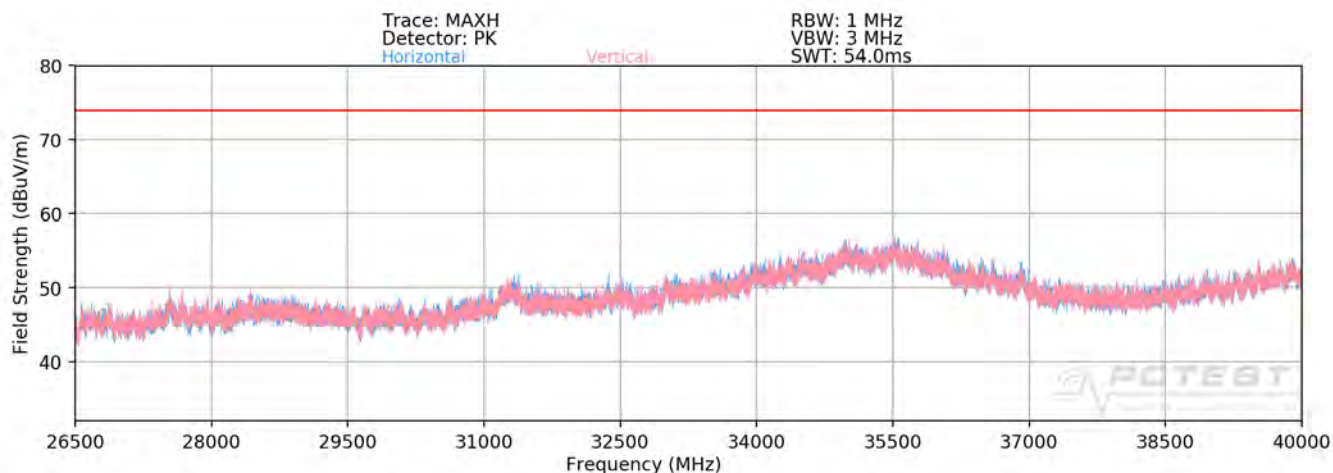


**Plot 7-280. Radiated Spurious Plot above 1GHz (5GHz – 2.4 GHz)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 203 of 249



**Plot 7-281. Radiated Spurious Plot 18GHz – 26.5GHz (5GHz – 2.4 GHz)**

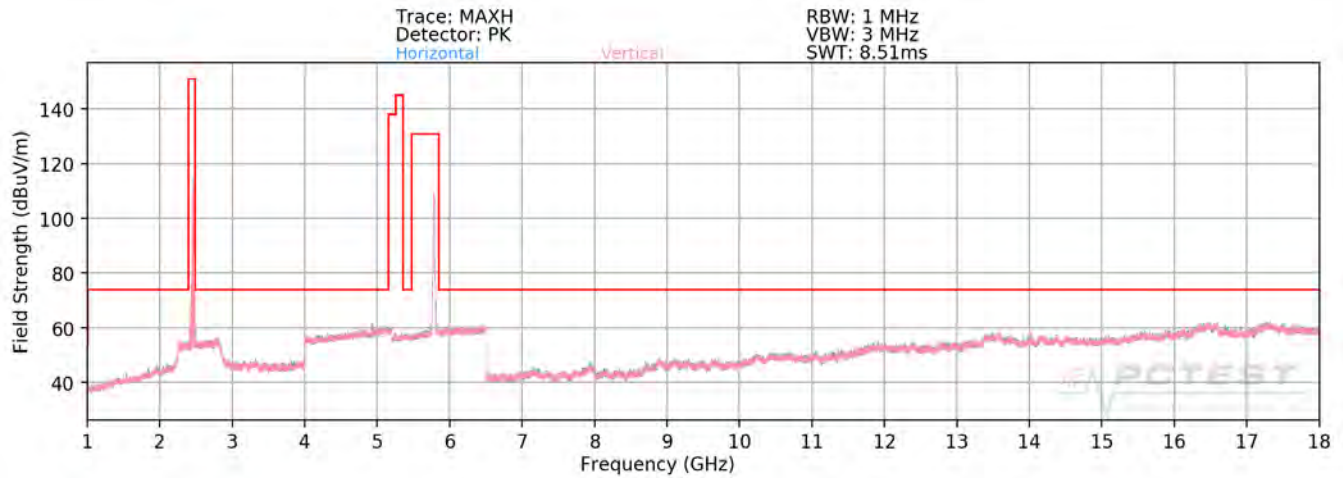


**Plot 7-282. Radiated Spurious Plot above 26.5GHz (5GHz – 2.4 GHz)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 204 of 249

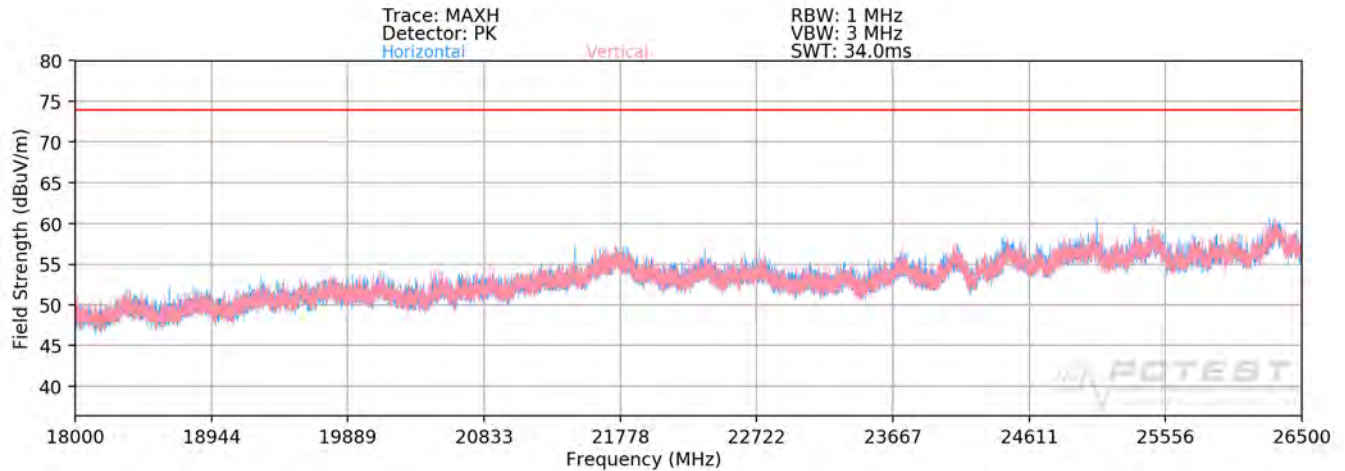
Description	2.4 GHz Emission	5 GHz Emission
Antenna	1, 2	1, 2
Channel	11	157
Operating Frequency (MHz)	2462	5785
Data Rate (Mbps)	6	6
Mode	802.11g	802.11a

**Table 7-81. Dual Band Simultaneous Transmission**

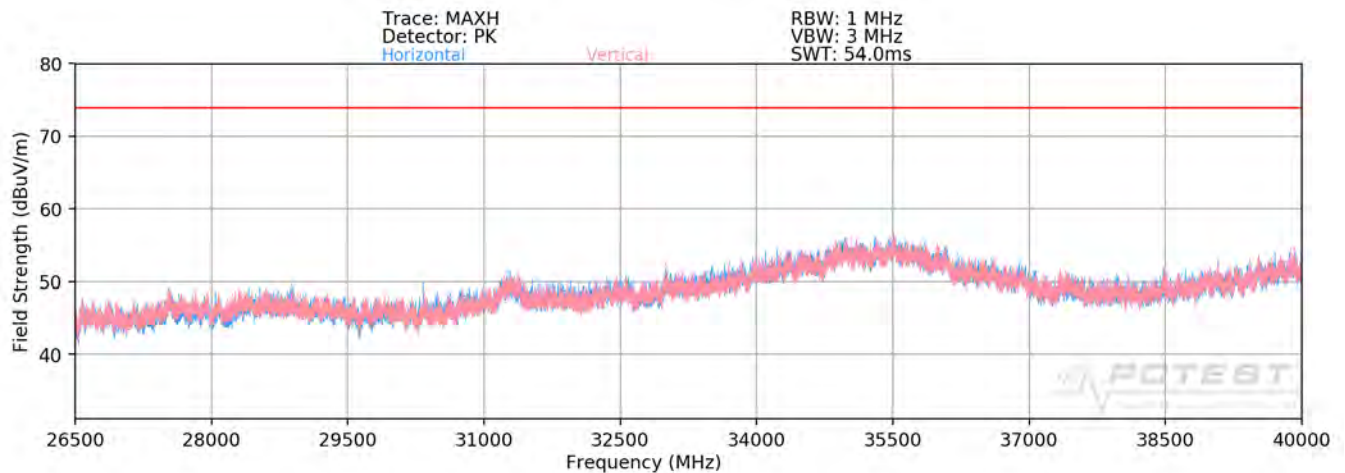


**Plot 7-283. Radiated Spurious Plot above 1GHz (Dual Band Simult. Tx)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 205 of 249



**Plot 7-284. Radiated Spurious Plot 18GHz – 26.5GHz (Dual Band Simult. Tx)**



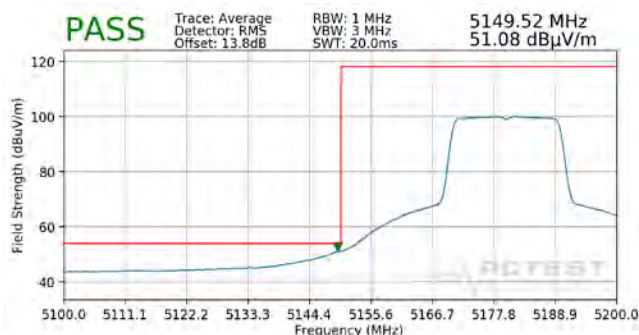
**Plot 7-285. Radiated Spurious Plot above 26.5GHz (Dual Band Simult. Tx)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 206 of 249

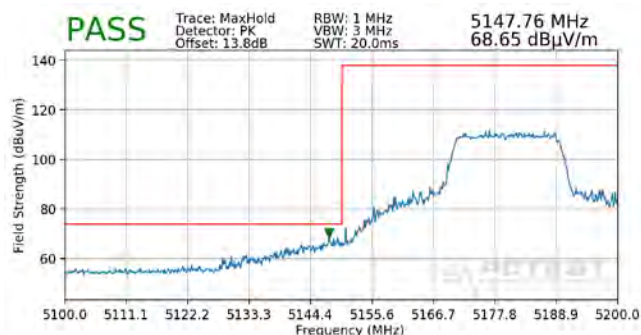
## 7.6.5 SISO Antenna-1 Radiated Band Edge Measurements (20MHz BW)

§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

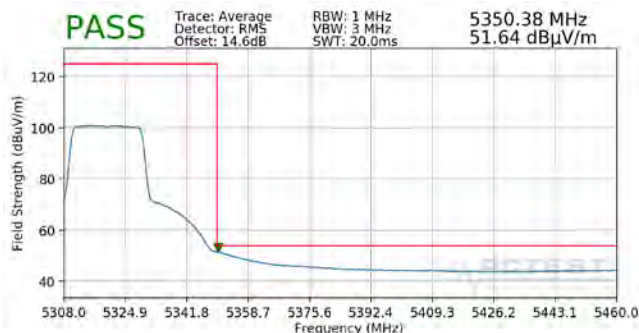


**Plot 7-286. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 1)**

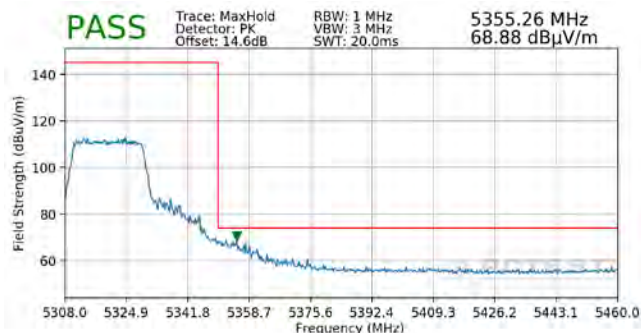


**Plot 7-287. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 1)**

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



**Plot 7-288. Radiated Upper Band Edge Plot SISO ANT1 (Average – UNII Band 2A)**

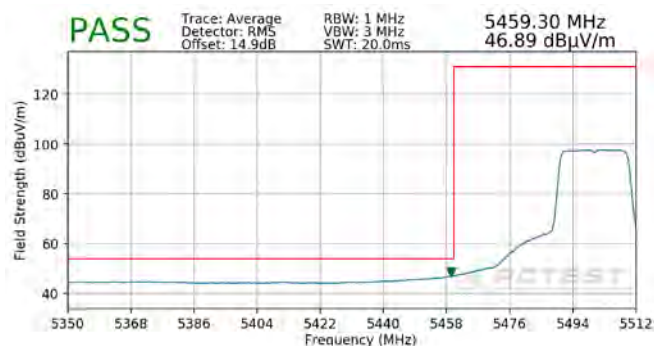


**Plot 7-289. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 2A)**

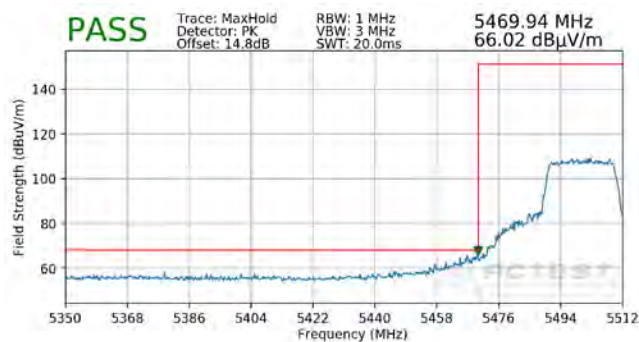
FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 207 of 249



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

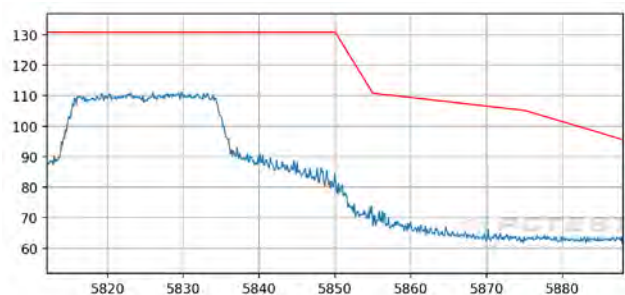


**Plot 7-290. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C)**



**Plot 7-291. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C)**

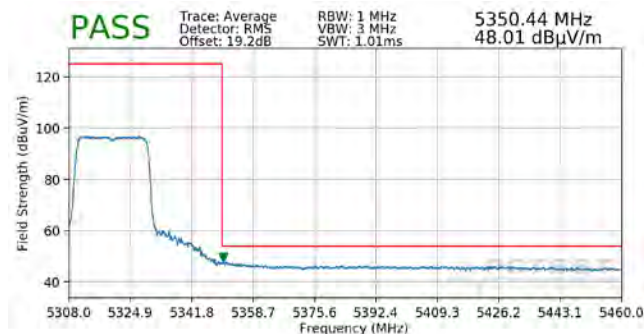
Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5825MHz
Channel:	165



**Plot 7-292. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 208 of 249

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



**Plot 7-293. Radiated Band Edge Plot SISO ANT1  
(Average – WCP)**



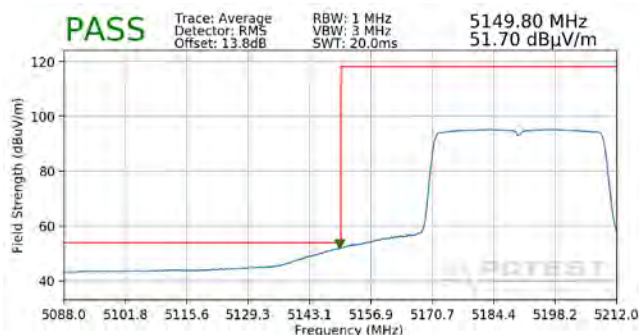
**Plot 7-294. Radiated Band Edge Plot SISO ANT1  
(Peak – WCP)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 209 of 249

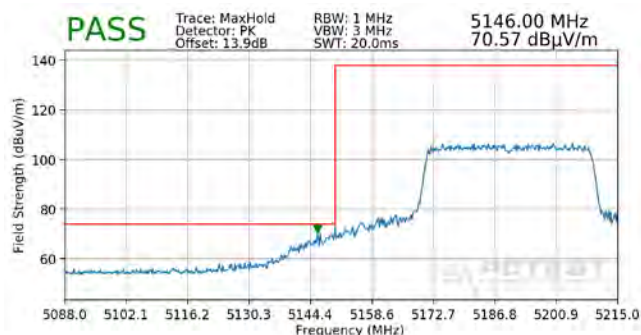
## 7.6.6 SISO Antenna-1 Radiated Band Edge Measurements (40MHz BW)

§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

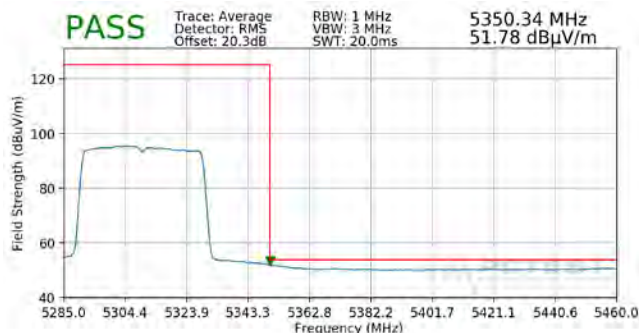


**Plot 7-295. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 1)**

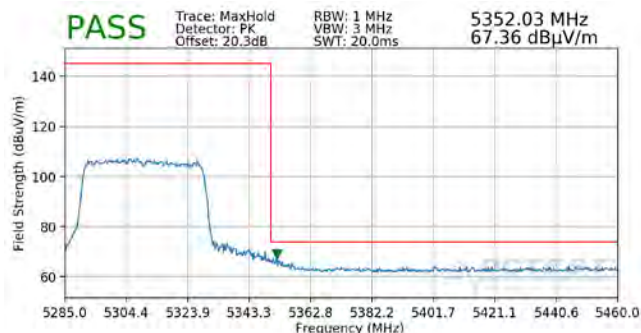


**Plot 7-296. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 1)**

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



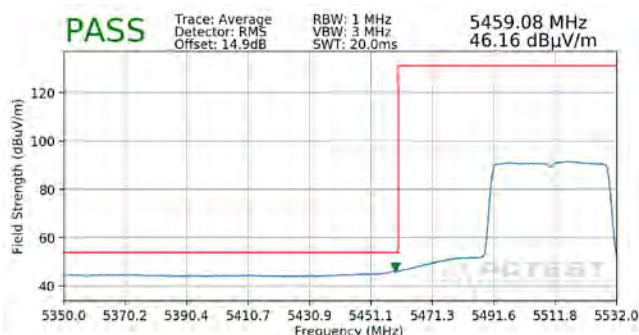
**Plot 7-297. Radiated Upper Band Edge Plot SISO ANT1 (Average – UNII Band 2A)**



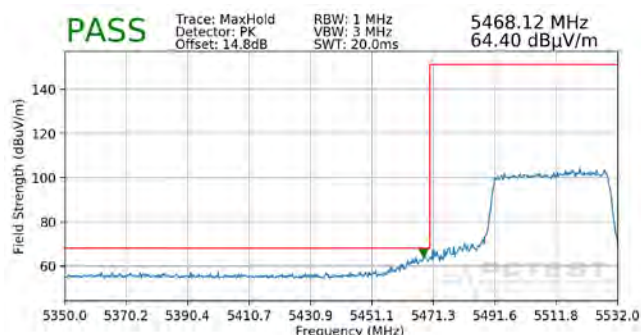
**Plot 7-298. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 2A)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 210 of 249

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

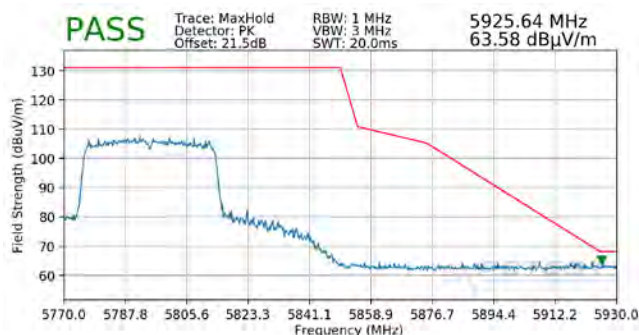


**Plot 7-299. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C)**



**Plot 7-300. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C)**

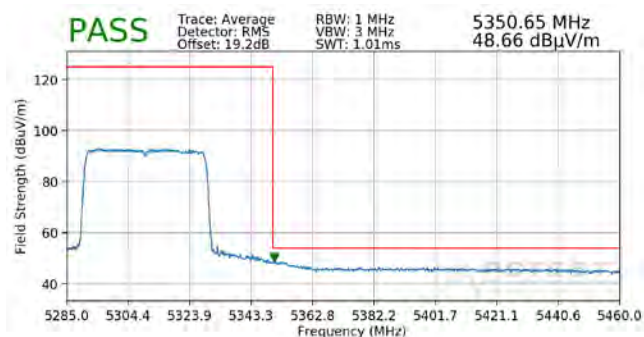
Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
Distance of Measurements: 3 Meters  
Operating Frequency: 5795MHz  
Channel: 159



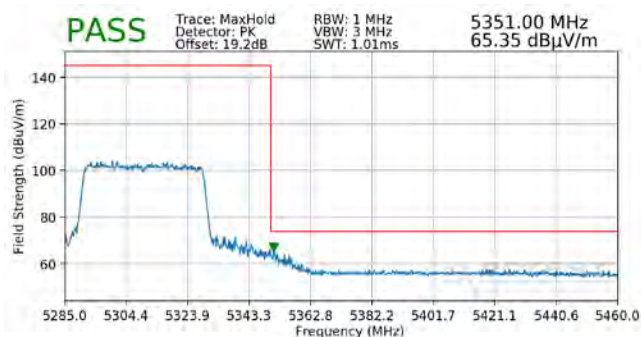
**Plot 7-301. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 211 of 249

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



**Plot 7-302. Radiated Band Edge Plot SISO ANT1 (Average – WCP)**



**Plot 7-303. Radiated Band Edge Plot SISO ANT1 (Peak – WCP)**

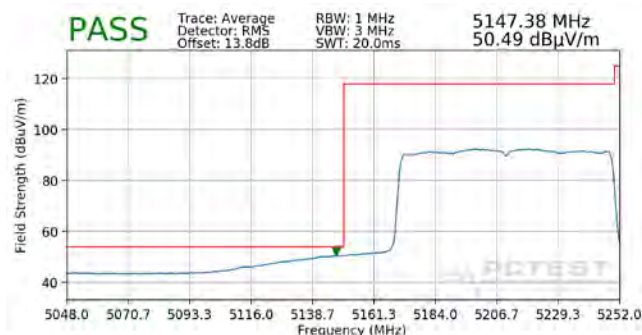
FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 212 of 249



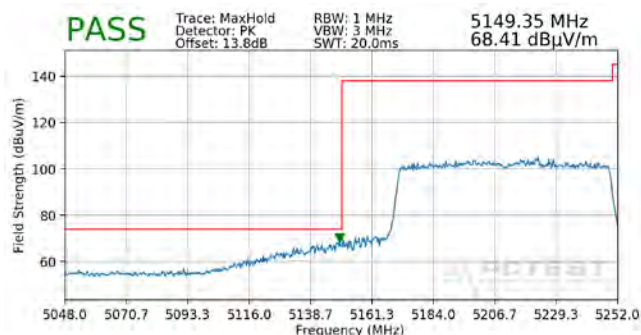
## 7.6.7 SISO Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§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:	5210MHz
Channel:	42

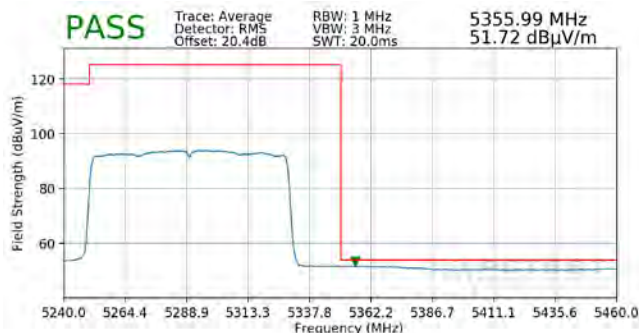


**Plot 7-304. Radiated Lower Band Edge Plot SISO ANT1 (Average - UNII Band 1)**

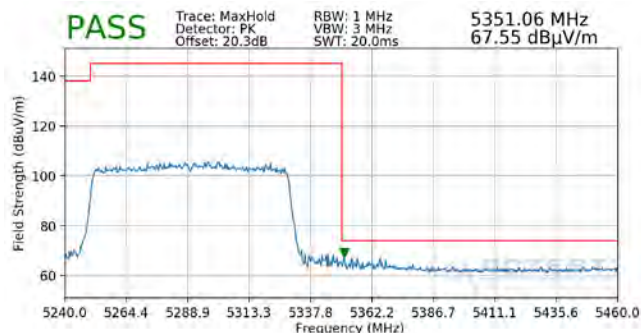


**Plot 7-305. Radiated Lower Band Edge Plot SISO ANT1 (Peak - UNII Band 1)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



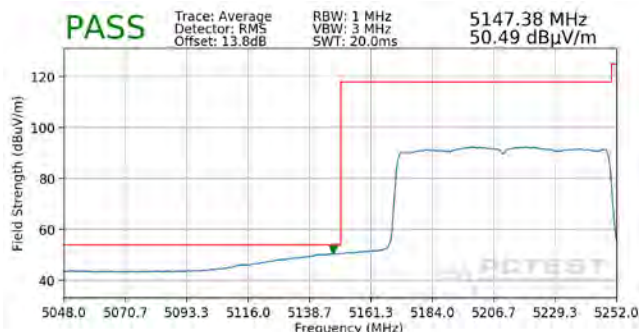
**Plot 7-306. Radiated Upper Band Edge Plot SISO ANT1 (Average - UNII Band 2A)**



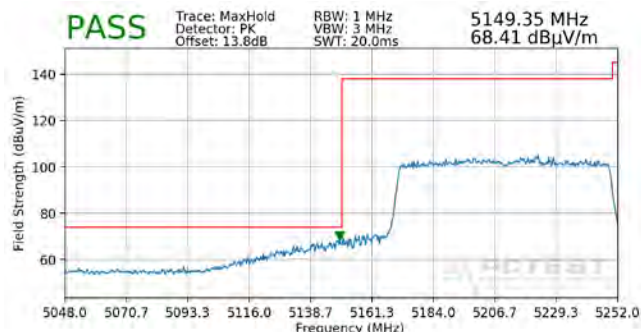
**Plot 7-307. Radiated Upper Band Edge Plot SISO ANT1 (Peak - UNII Band 2A)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT</b> (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 213 of 249

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5530MHz
Channel:	106

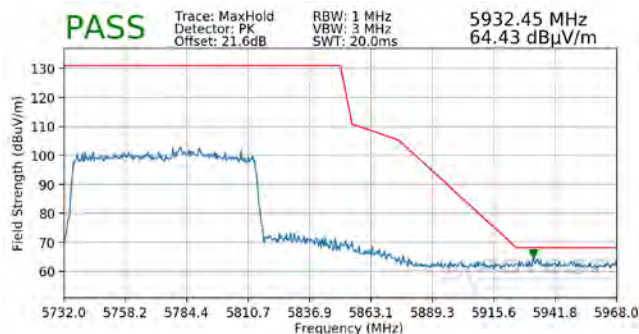


**Plot 7-308. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C)**



**Plot 7-309. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C)**

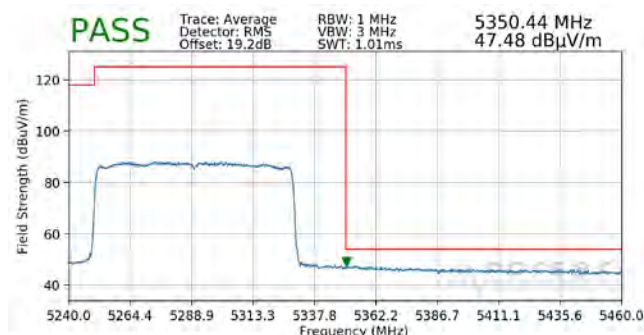
Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5775MHz
Channel:	155



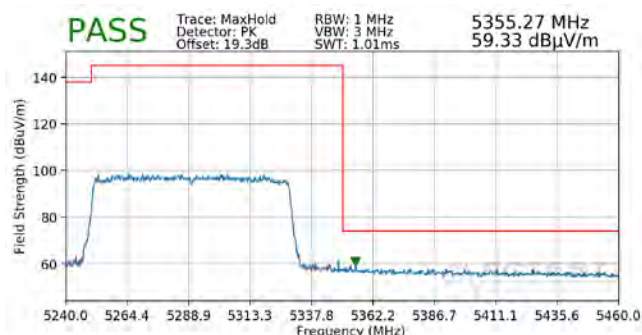
**Plot 7-310. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3)**

FCC ID: A3LSMG9730	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset		Page 214 of 249

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



**Plot 7-311. Radiated Band Edge Plot SISO ANT1  
(Average – WCP)**



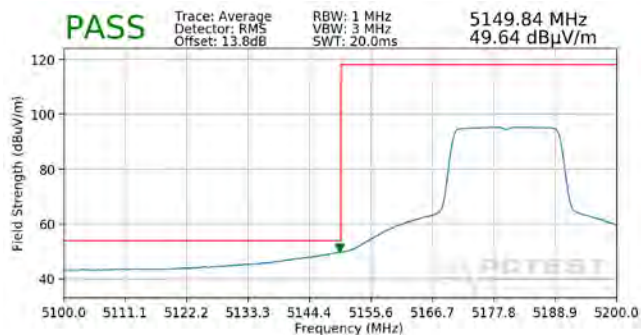
**Plot 7-312. Radiated Band Edge Plot SISO ANT1  
(Peak – WCP)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 215 of 249

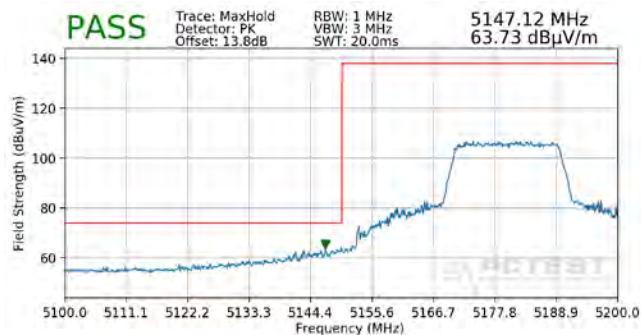
## 7.6.8 SISO Antenna-2 Radiated Band Edge Measurements (20MHz BW)

\$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:	5180MHz
Channel:	36

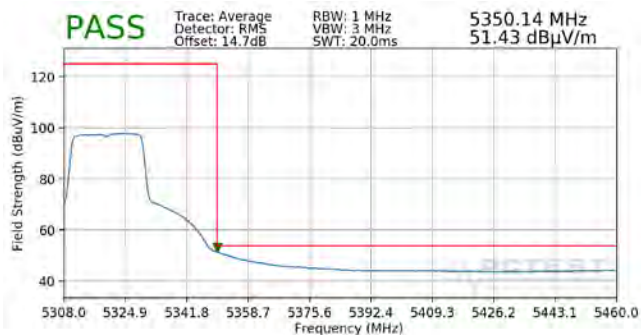


**Plot 7-313. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1)**



**Plot 7-314. Radiated Lower Band Edge Plot SISO ANT2 (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 7-315. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A)**

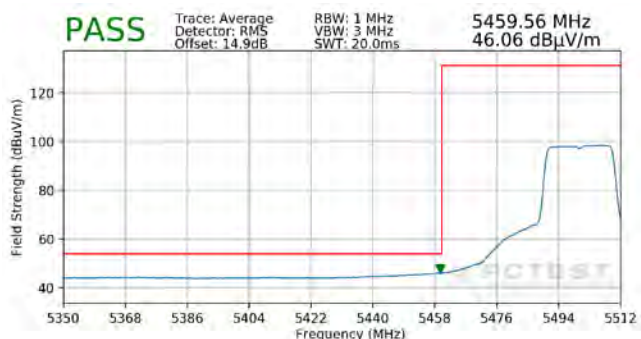


**Plot 7-316. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A)**

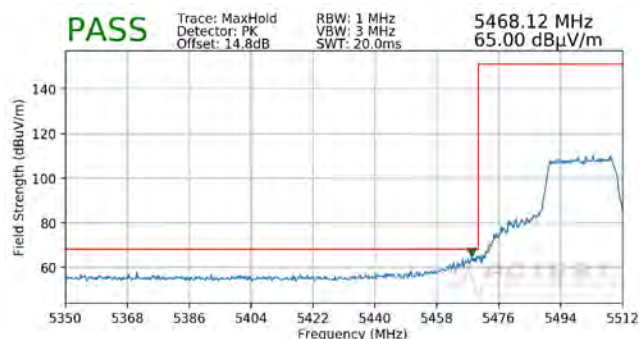
FCC ID: A3LSMG9730	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 216 of 249



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

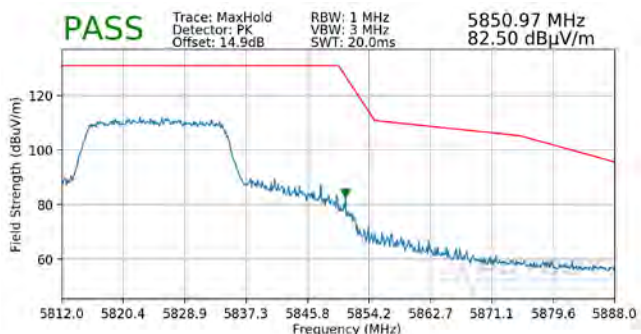


**Plot 7-317. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C)**



**Plot 7-318. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C)**

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

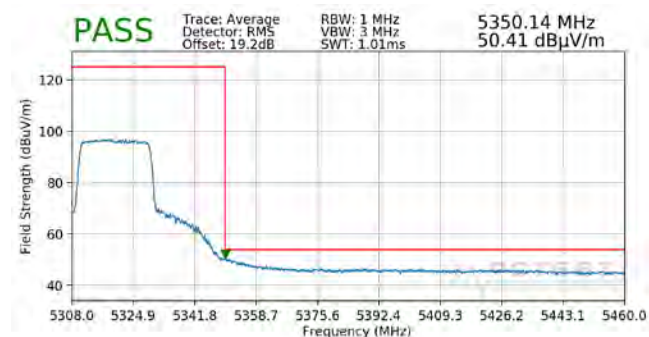


**Plot 7-319. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 217 of 249



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



**Plot 7-320. Radiated Band Edge Plot SISO ANT2  
(Average – WCP)**



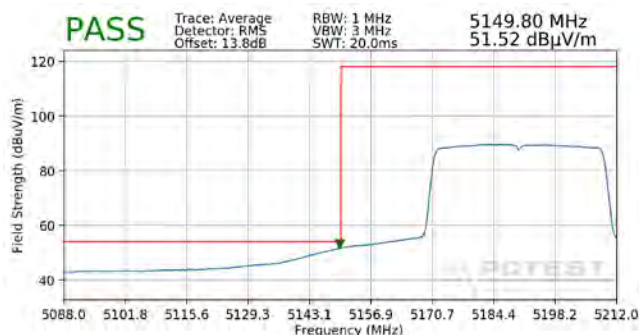
**Plot 7-321. Radiated Band Edge Plot SISO ANT2  
(Peak – WCP)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 218 of 249

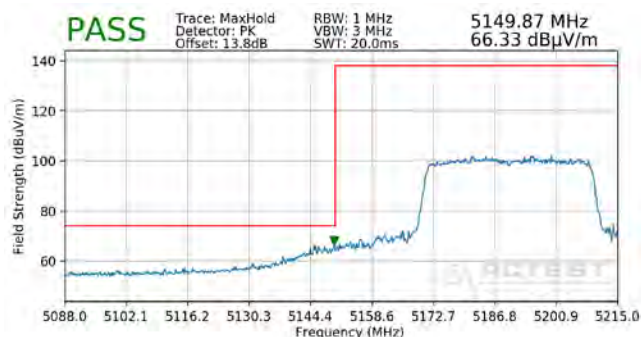
## 7.6.9 SISO Antenna-2 Radiated Band Edge Measurements (40MHz BW)

\$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

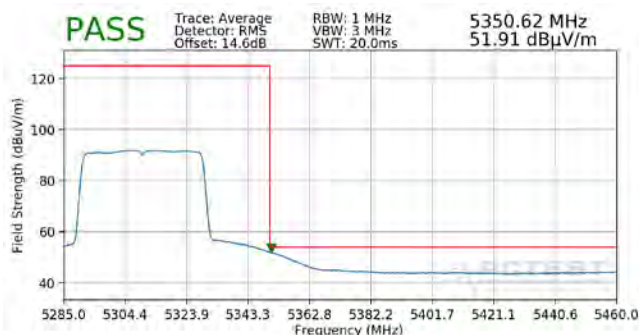


**Plot 7-322. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1)**

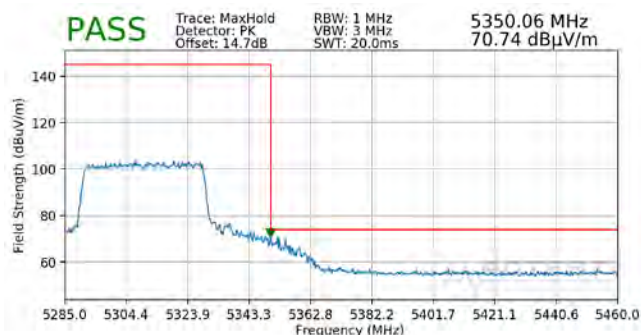


**Plot 7-323. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 1)**

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



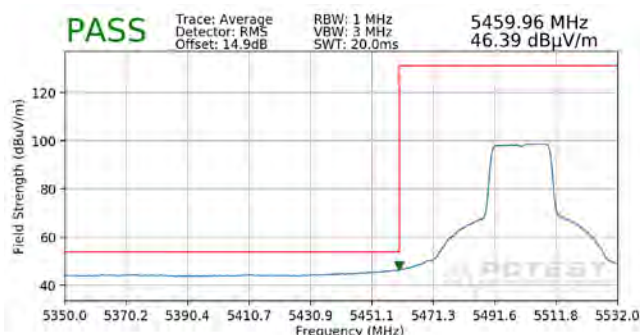
**Plot 7-324. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A)**



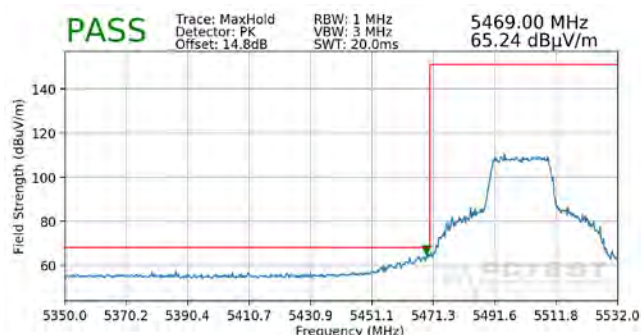
**Plot 7-325. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 219 of 249

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

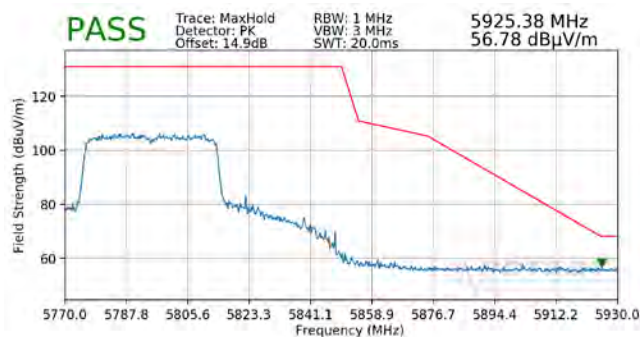


**Plot 7-326. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C)**



**Plot 7-327. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C)**

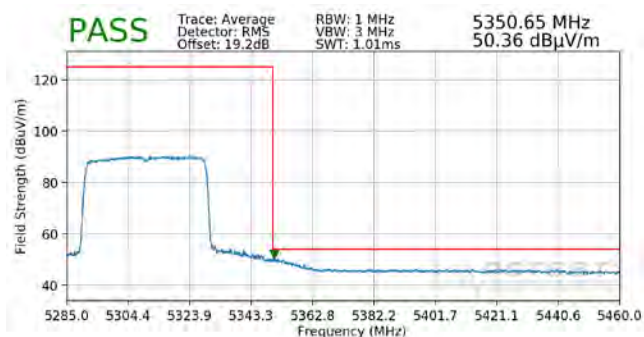
Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
Distance of Measurements: 3 Meters  
Operating Frequency: 5795MHz  
Channel: 159



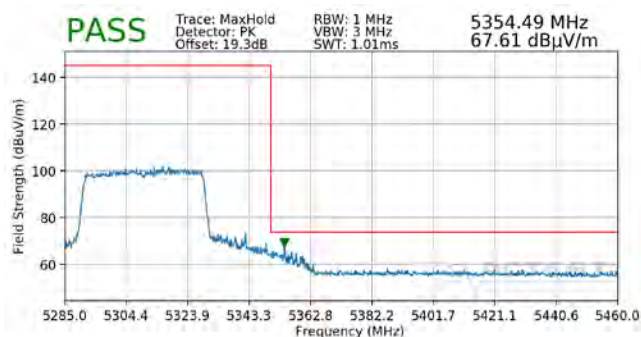
**Plot 7-328. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 220 of 249

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



**Plot 7-329. Radiated Band Edge Plot SISO ANT2  
(Average – WCP)**



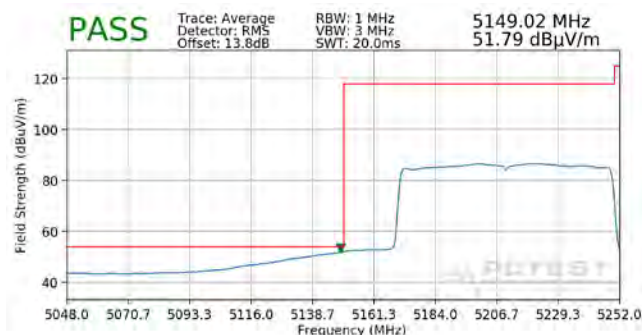
**Plot 7-330. Radiated Band Edge Plot SISO ANT2  
(Peak – WCP)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 221 of 249

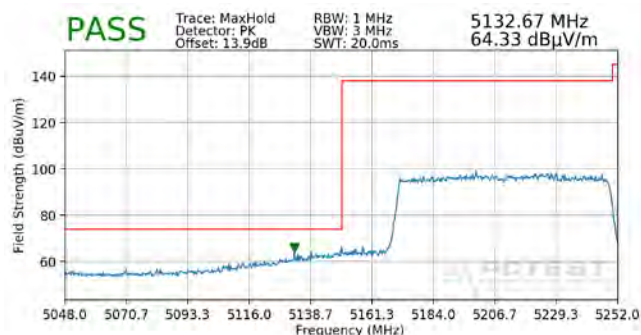
## 7.6.10 SISO Antenna-2 Radiated Band Edge Measurements (80MHz BW)

\$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:	5210MHz
Channel:	42

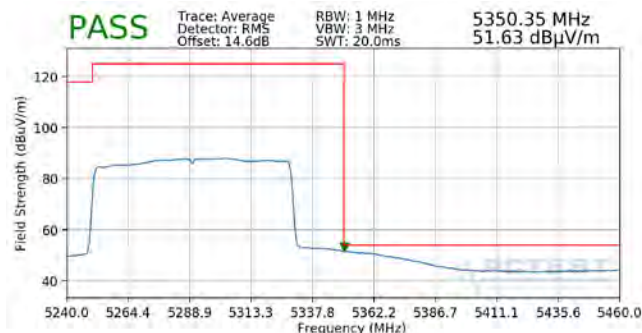


**Plot 7-331. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1)**

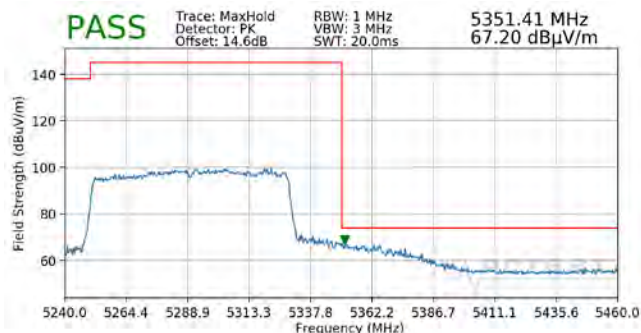


**Plot 7-332. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 1)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



**Plot 7-333. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A)**

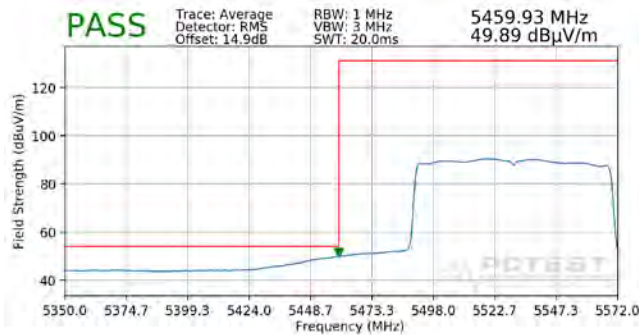


**Plot 7-334. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A)**

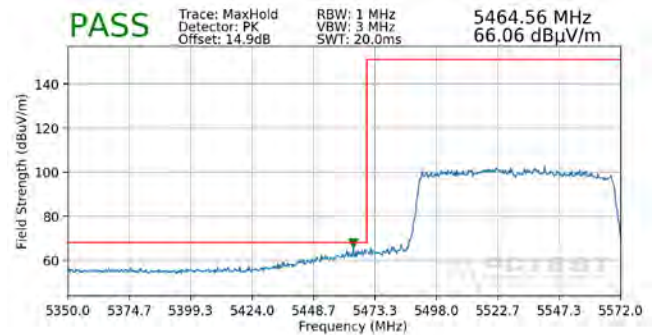
FCC ID: A3LSMG9730	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 222 of 249



Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
Distance of Measurements: 3 Meters  
Operating Frequency: 5530MHz  
Channel: 106

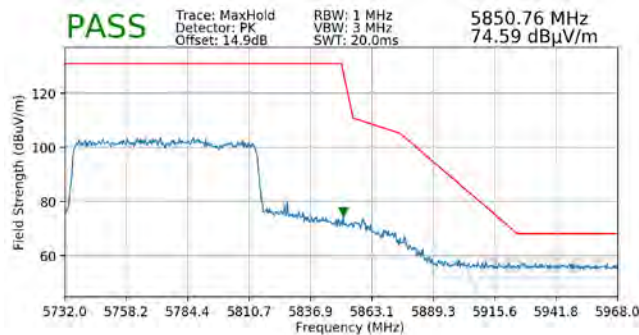


**Plot 7-335. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C)**



**Plot 7-336. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C)**

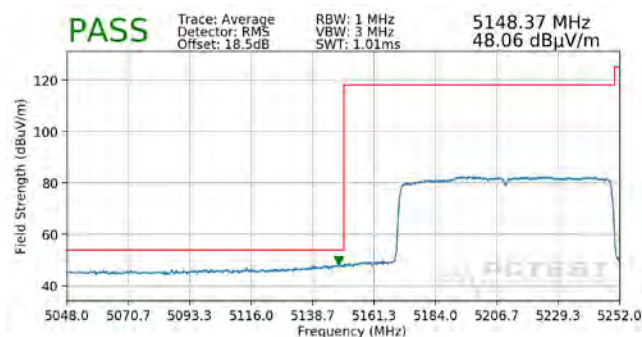
Worst Case Mode: 802.11ax  
Worst Case Transfer Rate: MCS0  
Distance of Measurements: 3 Meters  
Operating Frequency: 5775MHz  
Channel: 155



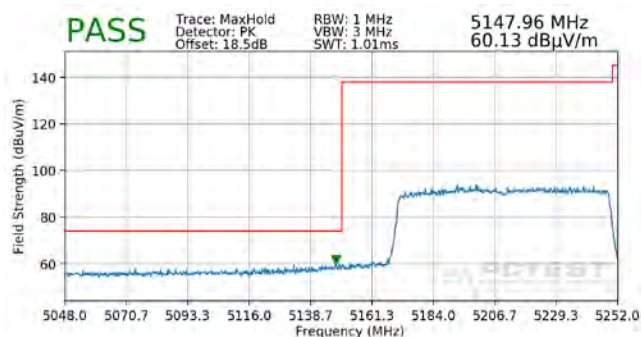
**Plot 7-337. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3)**

FCC ID: A3LSMG9730	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 223 of 249

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42



**Plot 7-338. Radiated Band Edge Plot SISO ANT2  
(Average – WCP)**



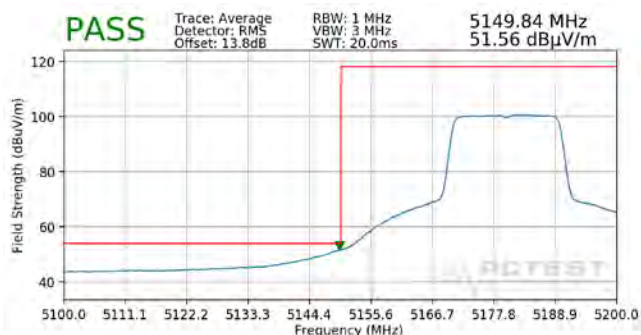
**Plot 7-339. Radiated Band Edge Plot SISO ANT2  
(Peak – WCP)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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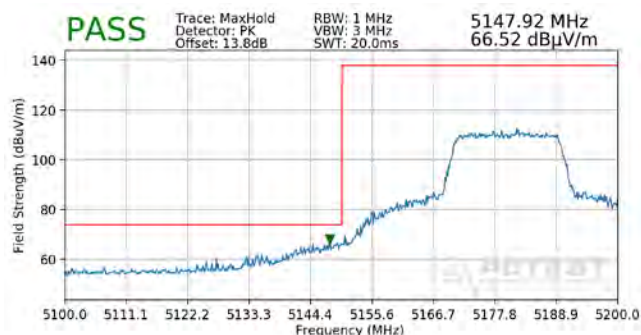
## 7.6.11 MIMO Radiated Band Edge Measurements (20MHz BW)

\$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:	5180MHz
Channel:	36

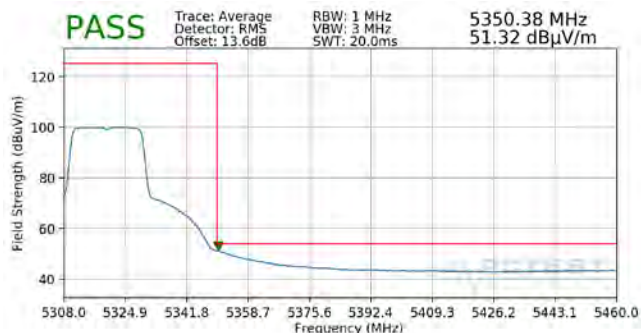


**Plot 7-340. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)**

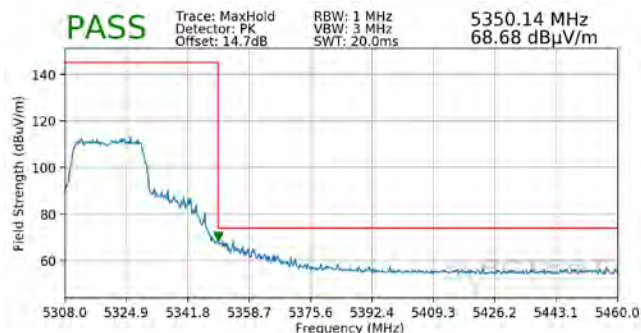


**Plot 7-341. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)**

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



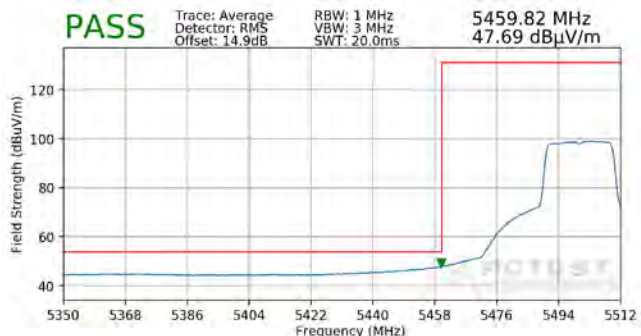
**Plot 7-342. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)**



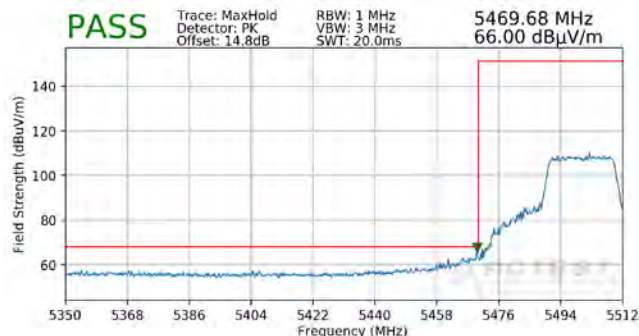
**Plot 7-343. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100

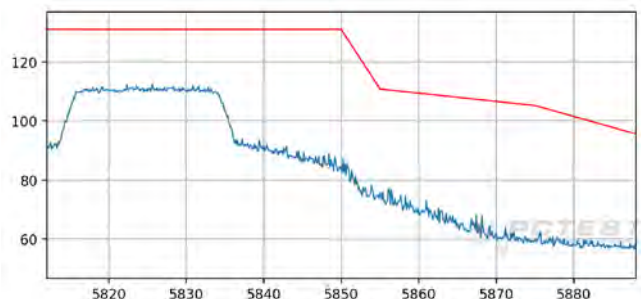


**Plot 7-344. Radiated Lower Band Edge Plot MIMO  
(Average – UNII Band 2C)**



**Plot 7-345. Radiated Lower Band Edge Plot MIMO  
(Peak – UNII Band 2C)**

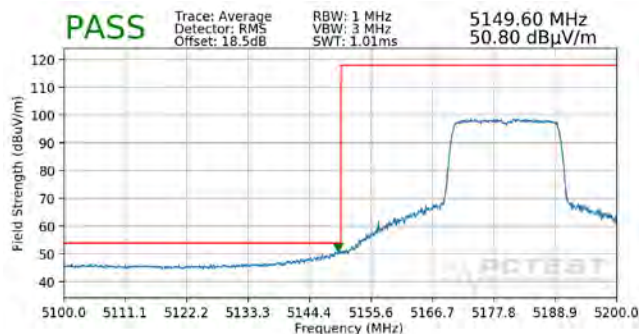
Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5825MHz
Channel:	165



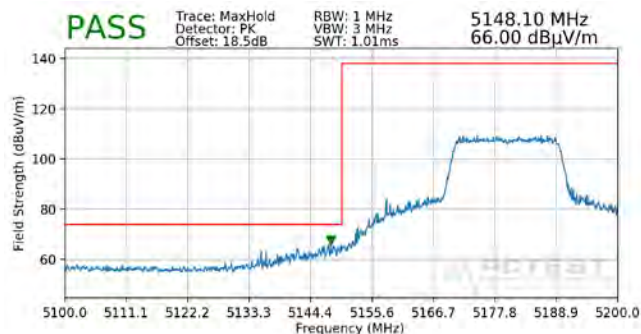
**Plot 7-346. Radiated Upper Band Edge Plot MIMO  
(Peak – UNII Band 3)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36



**Plot 7-347. Radiated Band Edge Plot MIMO (Average – WCP)**



**Plot 7-348. Radiated Band Edge Plot MIMO (Peak – WCP)**

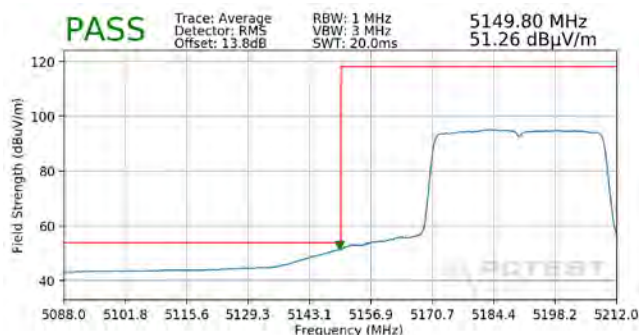
FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1811230206-06.A3L	Test Dates: 12/14/2018 - 1/14/2019	EUT Type: Portable Handset	Page 227 of 249



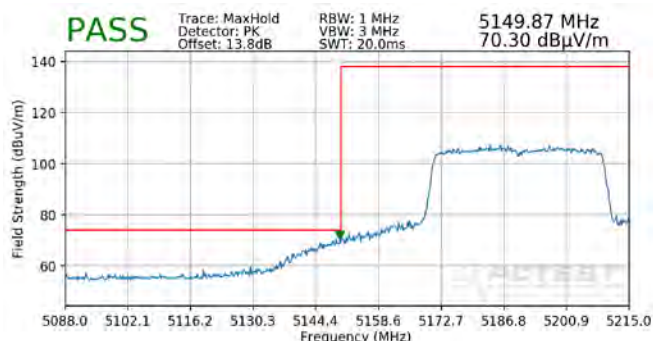
## 7.6.12 MIMO Radiated Band Edge Measurements (40MHz BW)

\$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

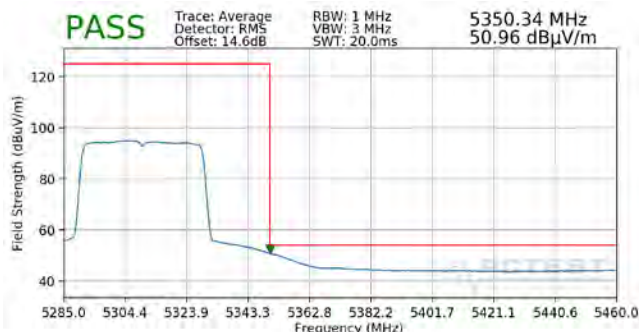


**Plot 7-349. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1)**

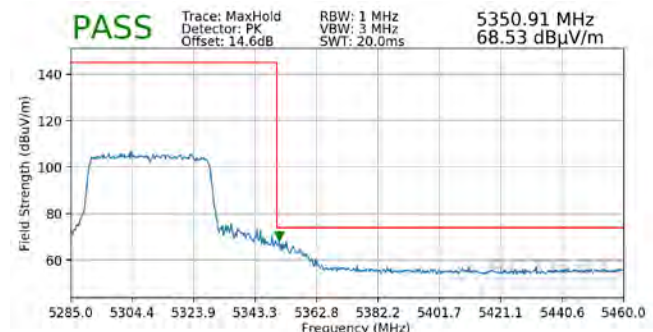


**Plot 7-350. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1)**

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



**Plot 7-351. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A)**



**Plot 7-352. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A)**

FCC ID: A3LSMG9730	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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