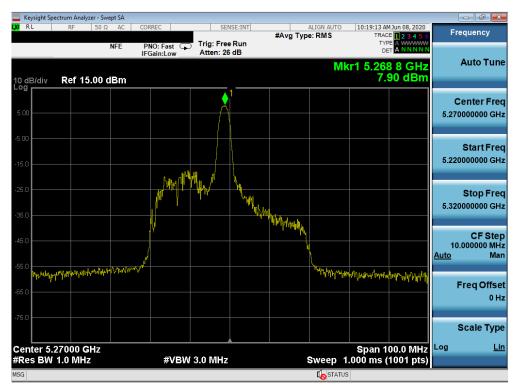




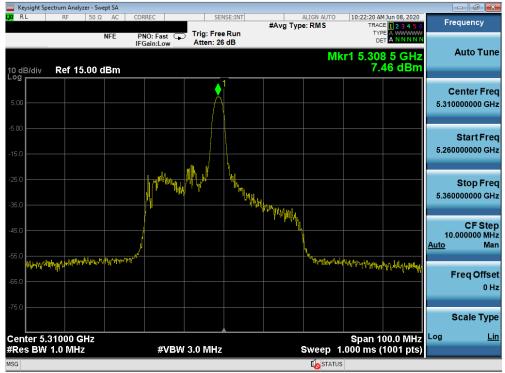
Plot 7-171. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 64)



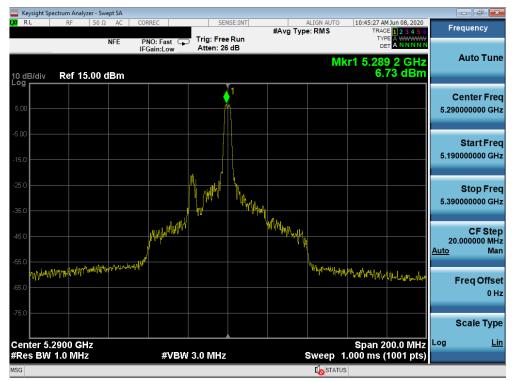
Plot 7-172. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMN986W	Hould be part of B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 128 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 138 of 292
© 2020 PCTEST	•	•		V 9.0 02/01/2019





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



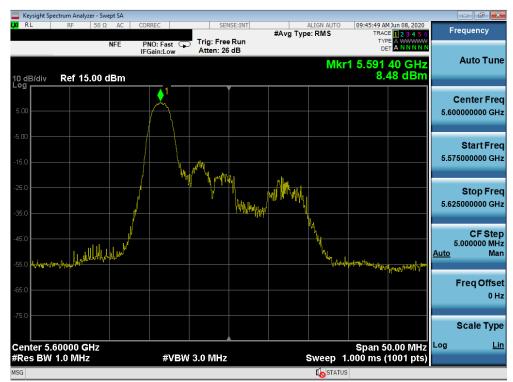
Plot 7-174. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMN986W	Hour to be part of B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 120 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 139 of 292
© 2020 PCTEST		•		V 9.0 02/01/2019





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



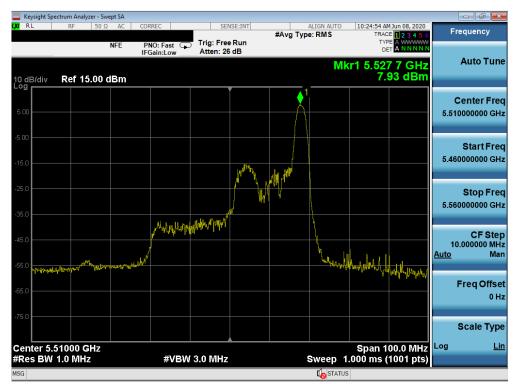
Plot 7-176. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 140 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 140 of 292
© 2020 PCTEST	•	·		V 9.0 02/01/2019





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 111 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 141 of 292
© 2020 PCTEST	•	·		V 9.0 02/01/2019





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 440 at 000
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 142 of 292
© 2020 PCTEST	· ·			V 9.0 02/01/2019





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 142 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 143 of 292
© 2020 PCTEST	·	•		V 9.0 02/01/2019





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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 111 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 144 of 292
© 2020 PCTEST	·			V 9.0 02/01/2019



	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
	5745	149	ax (20MHz)	26T	MCS0	6.26	30.00	-23.74
~	5785	157	ax (20MHz)	26T	MCS0	6.24	30.00	-23.76
pd 3	5825	165	ax (20MHz)	26T	MCS0	6.10	30.00	-23.90
Band	5755	151	ax (40MHz)	26T	MCS0	6.19	30.00	-23.81
	5795	159	ax (40MHz)	26T	MCS0	6.67	30.00	-23.33
	5775	155	ax (80MHz)	26T	MCS0	7.99	30.00	-22.01

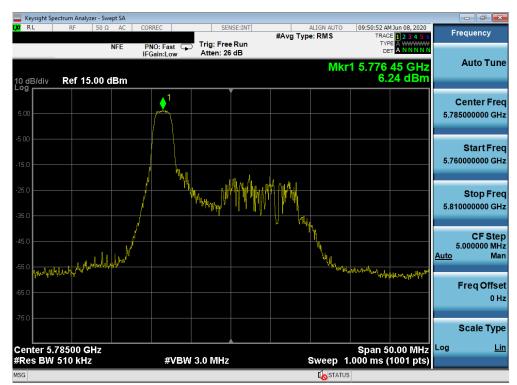
Table 7-63. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMN986W	PCTEST Mould forby part of B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 145 of 292
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 145 01 292
© 2020 PCTEST				V 9.0 02/01/2019





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



Plot 7-185. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 157)

FCC ID: A3LSMN986W	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 146 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 146 of 292
© 2020 PCTEST		•		V 9.0 02/01/2019





Plot 7-186. Power Spectral Density Plot SISO ANT2 (20 MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 165)



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 117 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 147 of 292
© 2020 PCTEST	·	•		V 9.0 02/01/2019





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 149 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 148 of 292
© 2020 PCTEST	· · ·			V 9.0 02/01/2019



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

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	242T	MCS0	5.29	11.0	-5.71
	5200	40	ax (20MHz)	242T	MCS0	6.03	11.0	-4.97
Band 1	5240	48	ax (20MHz)	242T	MCS0	5.87	11.0	-5.13
Bar	5190	38	ax (40MHz)	484T	MCS0	2.11	11.0	-8.89
	5230	46	ax (40MHz)	484T	MCS0	2.14	11.0	-8.86
	5210	42	ax (80MHz)	996T	MCS0	-1.43	11.0	-12.43
	5260	52	ax (20MHz)	242T	MCS0	6.33	11.0	-4.67
	5280	56	ax (20MHz)	242T	MCS0	6.35	11.0	-4.65
Band 2A	5320	64	ax (20MHz)	242T	MCS0	5.38	11.0	-5.62
Bane	5270	54	ax (40MHz)	484T	MCS0	2.64	11.0	-8.36
	5310	62	ax (40MHz)	484T	MCS0	1.56	11.0	-9.44
	5290	58	ax (80MHz)	996T	MCS0	-2.44	11.0	-13.44
	5500	100	ax (20MHz)	242T	MCS0	5.45	11.0	-5.55
	5580	116	ax (20MHz)	242T	MCS0	4.63	11.0	-6.37
	5700	140	ax (20MHz)	242T	MCS0	5.91	11.0	-5.09
ပ္ရ	5510	102	ax (40MHz)	484T	MCS0	2.37	11.0	-8.63
Band 2C	5590	118	ax (40MHz)	484T	MCS0	1.47	11.0	-9.53
Bâ	5710	142	ax (40MHz)	484T	MCS0	2.05	11.0	-8.95
	5530	106	ax (80MHz)	996T	MCS0	-1.74	11.0	-12.74
	5610	122	ax (80MHz)	996T	MCS0	-1.88	11.0	-12.88
	5690	138	ax (80MHz)	996T	MCS0	-4.32	11.0	-15.32

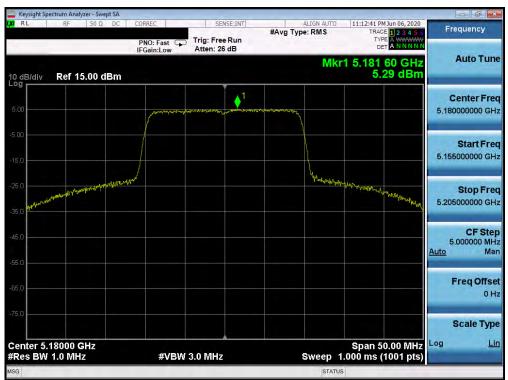
Table 7-64. Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)

-	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	242T	MCS0	5.29	-5.46	-0.17	10.0	-10.17
	5200	40	ax (20MHz)	242T	MCS0	6.03	-5.46	0.57	10.0	-9.43
d 1	5240	48	ax (20MHz)	242T	MCS0	5.87	-5.46	0.41	10.0	-9.59
Band	5190	38	ax (40MHz)	484T	MCS0	2.11	-5.46	-3.35	10.0	-13.35
	5230	46	ax (40MHz)	484T	MCS0	2.14	-5.46	-3.32	10.0	-13.32
	5210	42	ax (80MHz)	996T	MCS0	-1.43	-5.46	-6.89	10.0	-16.89

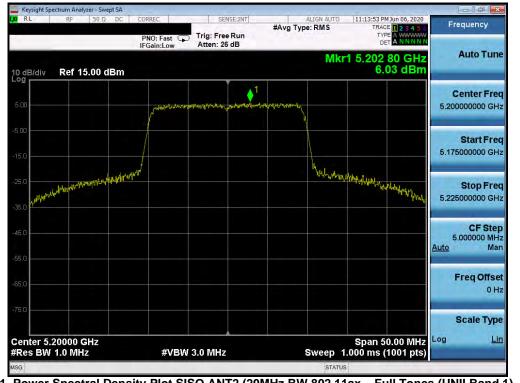
Table 7-65. Band 1 e.i.r.p. Conducted Power Spectral Density Measurements (ISED Full Tones)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 140 of 202	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 149 of 292	
© 2020 PCTEST				V 9.0 02/01/2019	





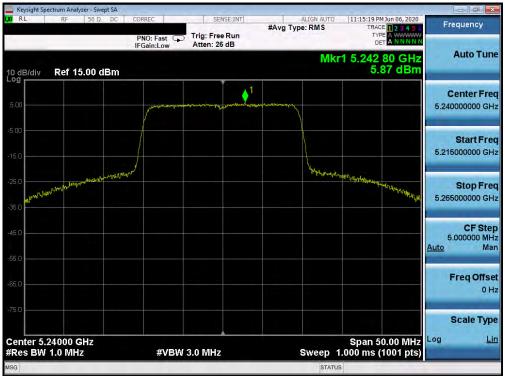
Plot 7-190. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 36)



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

FCC ID: A3LSMN986W	PCTEST Hous 6 by pert of 8	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 150 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 150 of 292
© 2020 PCTEST	·	•		V 9.0 02/01/2019





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 151 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 151 of 292
© 2020 PCTEST		·		V 9.0 02/01/2019





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



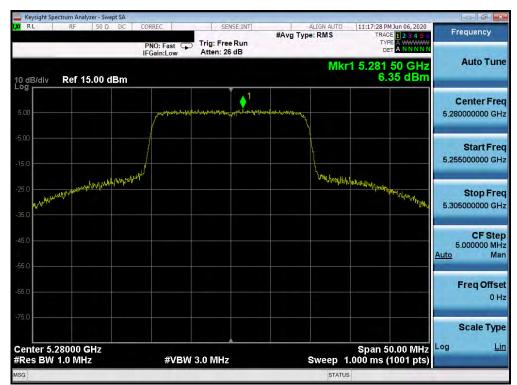
Plot 7-195. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 450 at 000
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 152 of 292
© 2020 PCTEST	•			V 9.0 02/01/2019





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 152 of 202	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 153 of 292	
© 2020 PCTEST	·			V 9.0 02/01/2019	





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 154 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 154 of 292
© 2020 PCTEST	•	·		V 9.0 02/01/2019





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



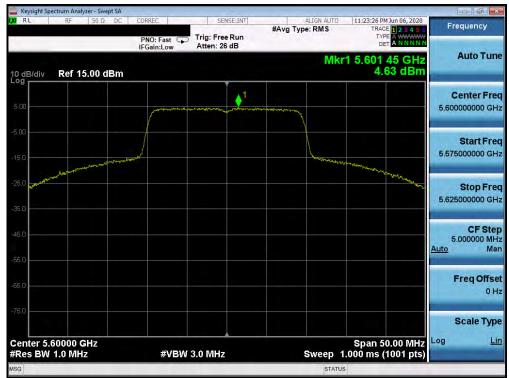
Plot 7-201. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMN986W	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 455 at 000
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 155 of 292
© 2020 PCTEST				V 9.0 02/01/2019



Keysight Spectrum Analyzer - Swept SA					
XIRL RF 50Ω DC	CORREC PNO: Fast	SENSE:INT Trig: Free Run Atten: 26 dB	ALIGN AUTO #Avg Type: RMS	11:21:36 PM Jun 06, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
10 dB/div Ref 15.00 dBm	I Guilleow		Mkr	1 5.502 20 GHz 5.45 dBm	Auto Tune
5.00	free and the second				Center Free 5,500000000 GH:
15.0	purch			any investigation of the standing of the stand	Start Fre 5.475000000 GH
25.0				and the share a factor of the share of the s	Stop Fre 5.525000000 GH
is.0					CF Ste 5.000000 MH Auto Ma
56.0					Freq Offse 0 H
Center 5.50000 GHz				0 Juli 20.00 Mili 12	Scale Typ Log <u>Li</u>
≉Res BW 1.0 MHz Ise	#VBW :	3.0 MHz	Sweep 1	.000 ms (1001 pts)	

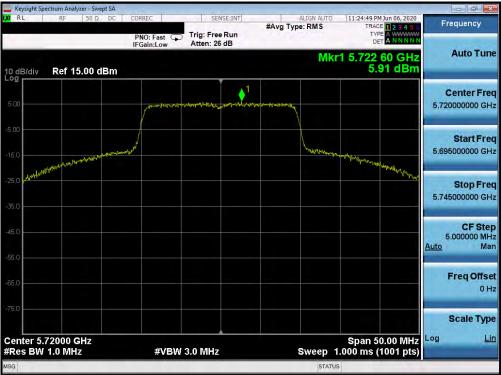
Plot 7-202. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 100)



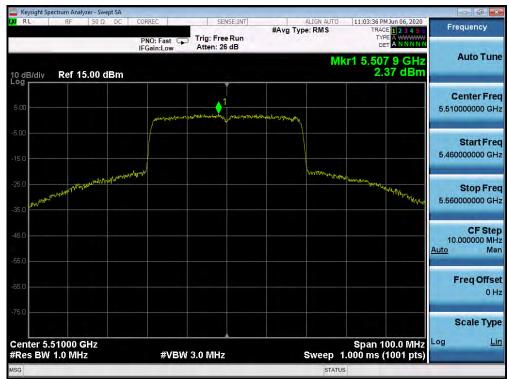
Plot 7-203. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 456 of 202	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 156 of 292	
© 2020 PCTEST	· · ·			V 9.0 02/01/2019	





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 157 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 157 of 292
© 2020 PCTEST	<u>.</u>	·		V 9.0 02/01/2019





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 450 at 000	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 158 of 292	
© 2020 PCTEST				V 9.0 02/01/2019	





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 450 at 000
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset	Page 159 of 292	
© 2020 PCTEST	· ·			V 9.0 02/01/2019



Keysight Spectrum Analyzer - Swept SA		I share and	1	10000	
XU RL RF 50Ω DC	PNO: Fast	SENSE:INT Trig: Free Run Atten: 26 dB	ALIGN AUTO #Avg Type: RMS	10:52:16 PM Jun 06, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N	Frequency
10 dB/div Ref 15.00 dBm			М	kr1 5.678 6 GHz -4.32 dBm	Auto Tune
5.00		↓ 1			Center Freq 5,69000000 GHz
15.0		and an same have a for an a start	monum		Start Fred 5.590000000 GH2
25.0	intram.		monument	and the second of the second second	Stop Freq 5.790000000 GHz
45.0					CF Step 20.000000 MH; Auto Mar
66,0					Freq Offse 0 H:
-75.0 Center 5.6900 GHz #Res BW 510 kHz	#VBW	3.0 MHz	Sweep	Span 200.0 MHz 1.000 ms (1001 pts)	Scale Type Log <u>Lir</u>
ASG			STATU	Y	

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

FCC ID: A3LSMN986W	PCTEST Hould to be part of B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 160 of 202	
		Portable Handset		Page 160 of 292	
© 2020 PCTEST	<u>.</u>			V 9.0 02/01/2019	



	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
	5745	149	ax (20MHz)	242T	MCS0	3.22	30.00	-26.78
	5785	157	ax (20MHz)	242T	MCS0	3.37	30.00	-26.63
g 3	5825	165	ax (20MHz)	242T	MCS0	2.93	30.00	-27.07
Band	5755	151	ax (40MHz)	484T	MCS0	-0.28	30.00	-30.28
	5795	159	ax (40MHz)	484T	MCS0	-0.24	30.00	-30.24
	5775	155	ax (80MHz)	996T	MCS0	-1.64	30.00	-31.64

Table 7-66. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 161 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 161 of 292
© 2020 PCTEST				V 9.0 02/01/2019





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

CORREC	SENSE:INT	ALIGN AUTO	11:27:14 PM Jun 06, 2020	
PNO: Fast	Trig: Free Run Atten: 26 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
		Mkı	1 5.781 80 GHz 3.37 dBm	Auto Tun
mannana	1 authorizer	montering		Center Fre 5.785000000 GH
www		and a star	Myring and a	Start Fre 5.760000000 G⊦
			and a second a se	Stop Fre 5.810000000 GH
				CF Ste 5.000000 MH Auto Ma
				Freq Offso 0 H
			Span 50.00 MHz	Scale Typ Log <u>L</u>
	PNO: Fast	PNO: Fast Trig: Free Run IFGain:Low Atten: 26 dB	PNO: Fast Trig: Free Run Atten: 26 dB	PNO: Fast FGain:Low Trig: Free Run Atten: 26 dB Trig: Free Run

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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 162 of 202	
1M2004170066-06.A3L 4/17 - 6/22/2020		Portable Handset		Page 162 of 292	
© 2020 PCTEST				V 9.0 02/01/2019	





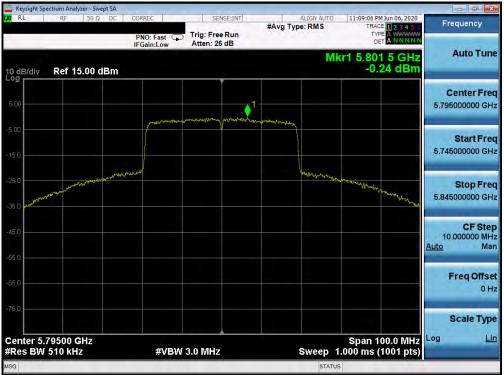
Plot 7-213. Power Spectral Density Plot SISO ANT2 (20 MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 165)



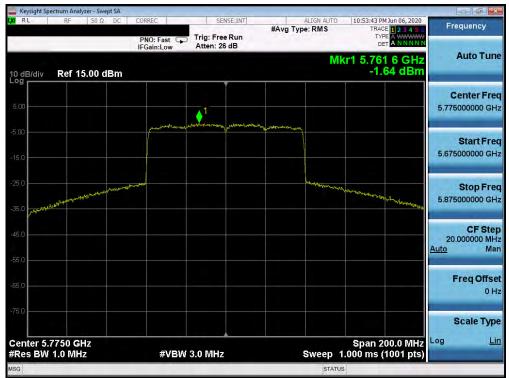
Plot 7-214. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 151)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 400 at 000
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset	Page 163 of 292	
© 2020 PCTEST	· ·			V 9.0 02/01/2019





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



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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 101 of 202
1M2004170066-06.A3L 4/17 - 6/22/2020		Portable Handset	Page 164 of 292	
© 2020 PCTEST	•			V 9.0 02/01/2019



Summed MIMO Power Spectral Density Measurements (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	26T	MCS0	4.19	5.01	7.63	11.00	-3.37
_	5200	40	ax (20MHz)	26T	MCS0	4.33	5.17	7.78	11.00	-3.22
d 1	5240	48	ax (20MHz)	26T	MCS0	4.61	5.23	7.94	11.00	-3.06
Band	5190	38	ax (40MHz)	26T	MCS0	4.56	5.21	7.91	11.00	-3.09
	5230	46	ax (40MHz)	26T	MCS0	5.18	5.55	8.38	11.00	-2.62
	5210	42	ax (80MHz)	26T	MCS0	3.89	4.48	7.21	11.00	-3.79
	5260	52	ax (20MHz)	26T	MCS0	4.57	5.13	7.87	11.00	-3.13
∢	5280	56	ax (20MHz)	26T	MCS0	4.31	4.83	7.59	11.00	-3.41
d 2A	5320	64	ax (20MHz)	26T	MCS0	4.45	4.44	7.46	11.00	-3.54
Band	5270	54	ax (40MHz)	26T	MCS0	4.50	4.86	7.69	11.00	-3.31
	5310	62	ax (40MHz)	26T	MCS0	4.56	4.62	7.60	11.00	-3.40
	5290	58	ax (80MHz)	26T	MCS0	3.43	3.78	6.62	11.00	-4.38
	5500	100	ax (20MHz)	26T	MCS0	5.03	4.69	7.87	11.00	-3.13
	5600	120	ax (20MHz)	26T	MCS0	5.13	4.51	7.84	11.00	-3.16
	5720	144	ax (20MHz)	26T	MCS0	5.10	5.45	8.29	11.00	-2.71
2C	5510	102	ax (40MHz)	26T	MCS0	5.38	4.35	7.91	11.00	-3.09
Band	5590	118	ax (40MHz)	26T	MCS0	5.10	4.73	7.93	11.00	-3.07
Ba	5710	142	ax (40MHz)	26T	MCS0	4.86	4.90	7.89	11.00	-3.11
	5530	106	ax (80MHz)	26T	MCS0	4.27	3.95	7.12	11.00	-3.88
	5610	122	ax (80MHz)	26T	MCS0	4.84	4.11	7.50	11.00	-3.50
	5690	138	ax (80MHz)	26T	MCS0	-10.45	-9.87	-7.14	11.00	-18.14

Table 7-67. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

-		Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Directional Antenna Gain [dBi]		ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
		5180	36	ax (20MHz)	26T	MCS0	7.62	5.39	9.66	-2.77	6.89	10.0	-3.11
	-	5200	40	ax (20MHz)	26T	MCS0	4.28	5.69	8.05	-2.77	5.28	10.0	-4.72
3		5240	48	ax (20MHz)	26T	MCS0	8.64	6.68	10.78	-2.77	8.01	10.0	-1.99
, i	00	5190	38	ax (40MHz)	26T	MCS0	8.58	1.94	9.43	-2.77	6.66	10.0	-3.34
	-	5230	46	ax (40MHz)	26T	MCS0	8.24	2.48	9.26	-2.77	6.49	10.0	-3.51
		5210	42	ax (80MHz)	26T	MCS0	8.06	-1.54	8.51	-2.77	5.74	10.0	-4.26

Table 7-68. Band 1 e.i.r.p. Conducted Power Spectral Density Measurements MIMO (ISED 26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
	5745	149	ax (20MHz)	26T	MCS0	3.29	3.50	6.41	30.00	-23.59
	5785	157	ax (20MHz)	26T	MCS0	3.14	4.11	6.66	30.00	-23.34
	5825	165	ax (20MHz)	26T	MCS0	2.86	3.69	6.31	30.00	-23.69
Band	5755	151	ax (40MHz)	26T	MCS0	2.51	2.99	5.77	30.00	-24.23
	5795	159	ax (40MHz)	26T	MCS0	3.51	4.30	6.93	30.00	-23.07
	5775	155	ax (80MHz)	26T	MCS0	4.53	5.21	7.89	30.00	-22.11

Table 7-69. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 165 of 202	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 165 of 292	
© 2020 PCTEST	· ·			V 9.0 02/01/2019	



	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	242T	MCS0	1.65	1.69	4.68	11.00	-6.32
	5200	40	ax (20MHz)	242T	MCS0	2.70	2.66	5.69	11.00	-5.31
Band 1	5240	48	ax (20MHz)	242T	MCS0	2.58	3.21	5.92	11.00	-5.08
Bar	5190	38	ax (40MHz)	484T	MCS0	-2.90	-2.52	0.30	11.00	-10.70
	5230	46	ax (40MHz)	484T	MCS0	-2.48	-2.56	0.49	11.00	-10.51
	5210	42	ax (80MHz)	996T	MCS0	-7.68	-7.44	-4.55	11.00	-15.55
	5260	52	ax (20MHz)	242T	MCS0	2.48	2.69	5.60	11.00	-5.40
	5280	56	ax (20MHz)	242T	MCS0	2.52	2.68	5.61	11.00	-5.39
4 2A	5320	64	ax (20MHz)	242T	MCS0	2.66	2.29	5.49	11.00	-5.51
Band 2A	5270	54	ax (40MHz)	484T	MCS0	-3.00	-2.62	0.20	11.00	-10.80
_	5310	62	ax (40MHz)	484T	MCS0	-4.03	-4.17	-1.09	11.00	-12.09
	5290	58	ax (80MHz)	996T	MCS0	-7.74	-8.00	-4.86	11.00	-15.86
	5500	100	ax (20MHz)	242T	MCS0	2.75	2.53	5.65	11.00	-5.35
	5580	116	ax (20MHz)	242T	MCS0	2.89	2.12	5.53	11.00	-5.47
	5700	140	ax (20MHz)	242T	MCS0	2.83	2.67	5.76	11.00	-5.24
сı U	5510	102	ax (40MHz)	484T	MCS0	-1.78	-1.93	1.16	11.00	-9.84
Band 2C	5590	118	ax (40MHz)	484T	MCS0	-1.98	-2.53	0.76	11.00	-10.24
Ba	5710	142	ax (40MHz)	484T	MCS0	-1.82	-1.51	1.35	11.00	-9.65
	5530	106	ax (80MHz)	996T	MCS0	-7.94	-6.94	-4.40	11.00	-15.40
	5610	122	ax (80MHz)	996T	MCS0	-8.05	-7.56	-4.79	11.00	-15.79
	5690	138	ax (80MHz)	996T	MCS0	-9.42	-9.76	-6.58	11.00	-17.58

Table 7-70. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Directional Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	242T	MCS0	5.39	5.29	8.35	-2.77	5.58	10.0	-4.42
	5200	40	ax (20MHz)	242T	MCS0	5.69	6.03	8.87	-2.77	6.10	10.0	-3.90
d 1	5240	48	ax (20MHz)	242T	MCS0	6.68	5.87	9.30	-2.77	6.53	10.0	-3.47
Band	5190	38	ax (40MHz)	484T	MCS0	1.94	2.11	5.04	-2.77	2.27	10.0	-7.73
	5230	46	ax (40MHz)	484T	MCS0	2.48	2.14	5.32	-2.77	2.55	10.0	-7.45
	5210	42	ax (80MHz)	996T	MCS0	-1.54	-1.43	1.53	-2.77	-1.24	10.0	-11.24

Table 7-71. Band 1 e.i.r.p. Conducted Power Spectral Density Measurements MIMO (ISED Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
	5745	149	ax (20MHz)	242T	MCS0	0.33	-0.12	3.12	30.00	-26.88
	5785	157	ax (20MHz)	242T	MCS0	-0.07	0.04	3.00	30.00	-27.00
g 3	5825	165	ax (20MHz)	242T	MCS0	-0.62	-0.20	2.61	30.00	-27.39
Band	5755	151	ax (40MHz)	484T	MCS0	-3.99	-3.89	-0.93	30.00	-30.93
	5795	159	ax (40MHz)	484T	MCS0	-4.28	-3.72	-0.98	30.00	-30.98
	5775	155	ax (80MHz)	996T	MCS0	-6.33	-6.17	-3.24	30.00	-33.24

Table 7-72. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 166 at 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset	Page 166 of 292	
© 2020 PCTEST				V 9.0 02/01/2019



Note:

Per ANSI C63.10-2013 Section 14.3.2.2 and KDB 662911 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately with reduced Antenna 1 and Antenna 2 powers per manufacture's tune-up document. The measured values were then summed in linear power units then converted back to dBm.

Sample MIMO Calculation:

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

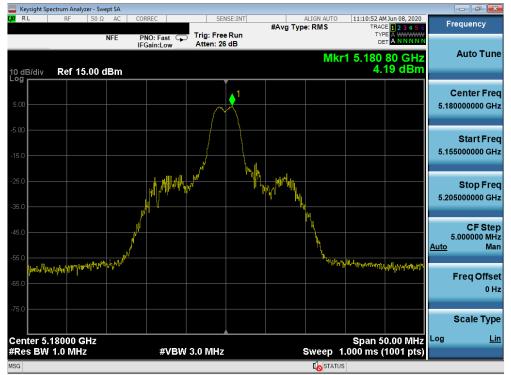
Antenna 1 + Antenna 2 = MIMO

(5.88 dBm + 6.27 dBm) = (3.87 mW + 4.24 mW) = 8.11mW = 9.09 dBm

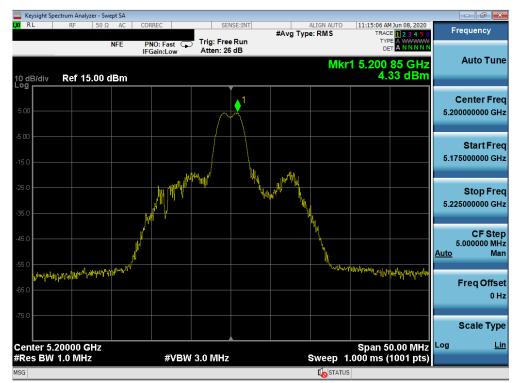
FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 167 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 167 of 292
© 2020 PCTEST				V 9.0 02/01/2019



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



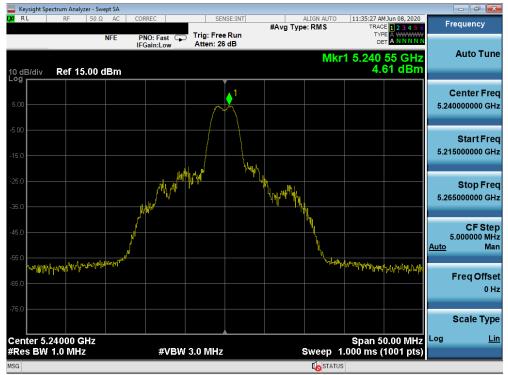
Plot 7-217. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 36)



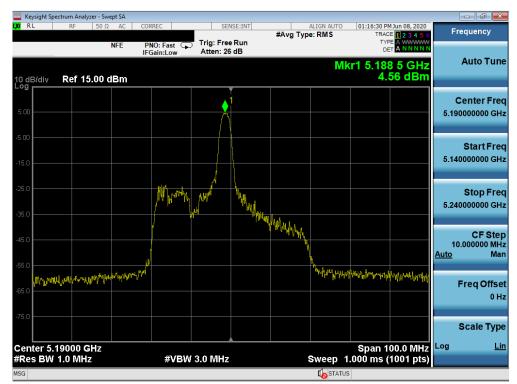
Plot 7-218. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 169 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 168 of 292
© 2020 PCTEST				V 9 0 02/01/2019





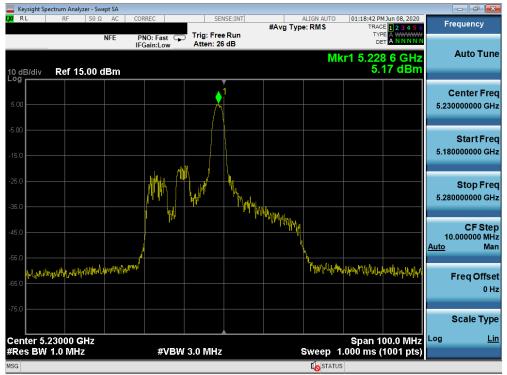
Plot 7-219. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 48)



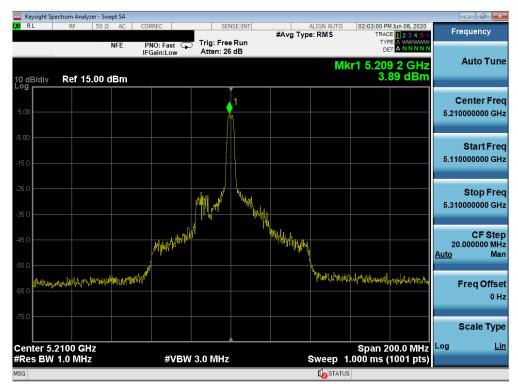
Plot 7-220. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 160 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 169 of 292
© 2020 PCTEST	•	·		V 9.0 02/01/2019





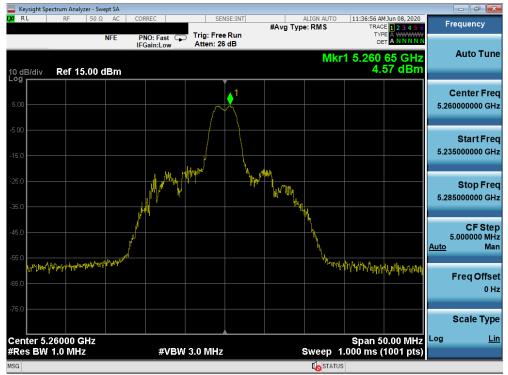
Plot 7-221. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 46)



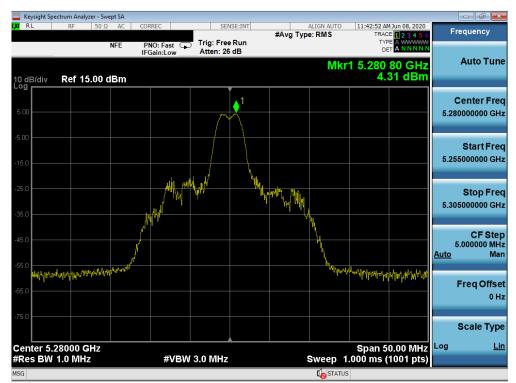
Plot 7-222. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 170 of 202	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 170 of 292	
© 2020 PCTEST	•			V 9.0 02/01/2019	





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



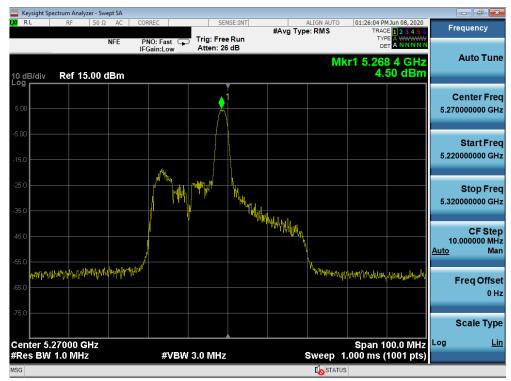
Plot 7-224. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 171 of 292
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset	Handset	
© 2020 PCTEST	•	·		V 9.0 02/01/2019





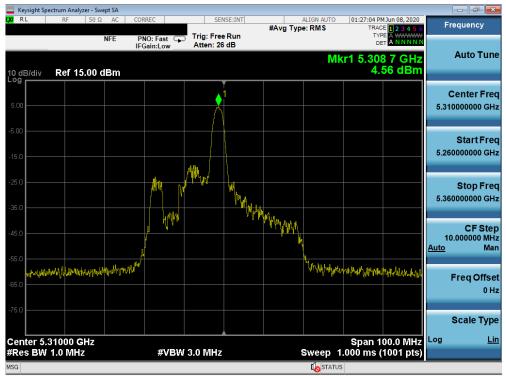
Plot 7-225. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 64)



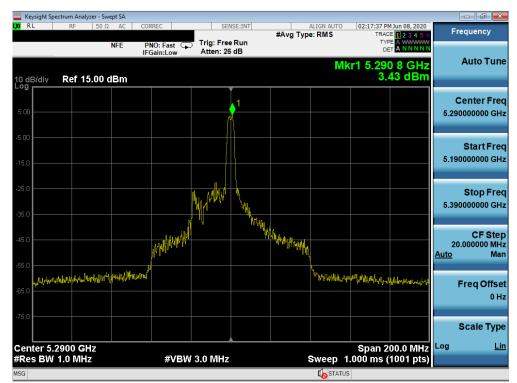
Plot 7-226. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 172 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 172 of 292
© 2020 PCTEST	· ·	·		V 9.0 02/01/2019





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



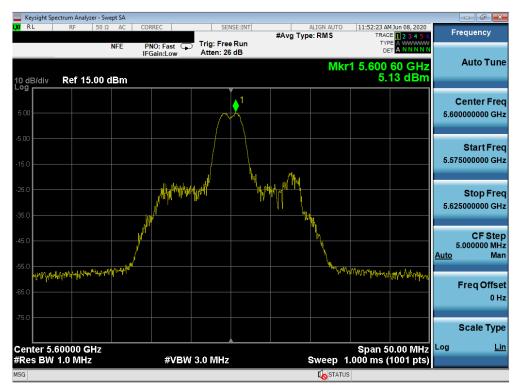
Plot 7-228. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 173 of 292
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		
© 2020 PCTEST	•	·		V 9.0 02/01/2019





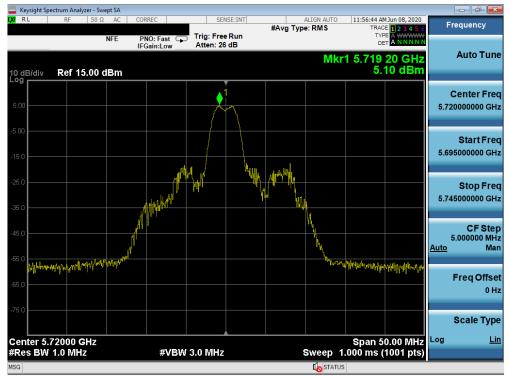
Plot 7-229. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 100)



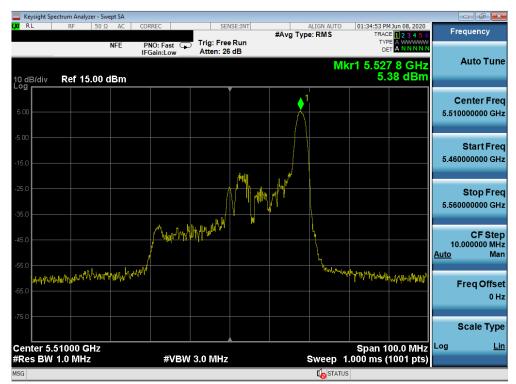
Plot 7-230. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	EUT Type:	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 174 of 292
© 2020 PCTEST	•	•		V 9.0 02/01/2019





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



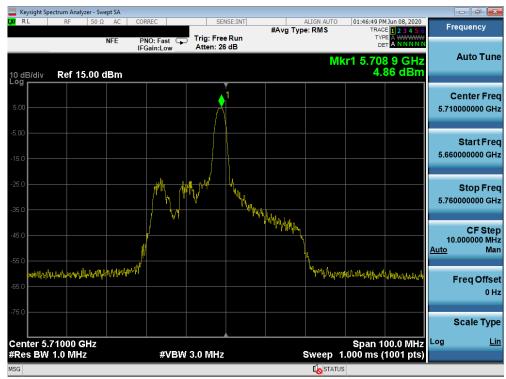
Plot 7-232. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type: Portable Handset		Dogo 175 of 202	
1M2004170066-06.A3L	4/17 - 6/22/2020			Page 175 of 292	
© 2020 PCTEST	•			V 9.0 02/01/2019	





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



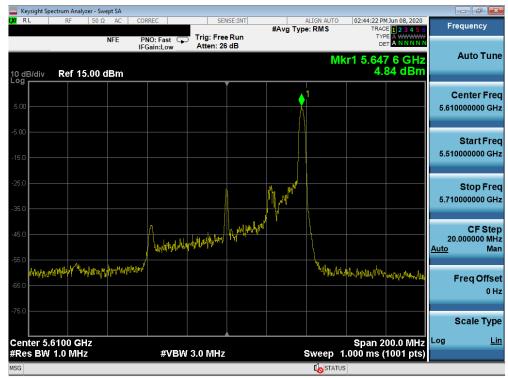
Plot 7-234. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 142)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 470 at 000
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 176 of 292
© 2020 PCTEST		·		V 9.0 02/01/2019



Keysight Spectrum Analyzer - S									
LX/ R L RF 50	Ω AC	CORREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRACI	Jun 08, 2020	Frequency
10 dB/div Ref 15.00	NFE D dBm	PNO: Fast IFGain:Low	Trig: Free Atten: 26			M	DE (r1 5.567	6 GHz 27 dBm	Auto Tun
5.00						1 1			Center Fre 5.530000000 GH
-15.0									Start Fre 5.430000000 GH
-25.0					AHM.				Stop Fre 5.630000000 GH
-45.0		A ANNALAWAYA		har war	M/f [*]				CF Ste 20.000000 MH <u>Auto</u> Ma
-65.0	Jried, inder the	Wat				Why	whiteleter	ndult-dependent without	Freq Offse 0 H
-75.0 Center 5.5300 GHz							Span 2	00.0 MHz	Scale Typ
#Res BW 1.0 MHz		#VBW	3.0 MHz				.000 ms ('	1001 pts)	
MSG						I STATUS	5		

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



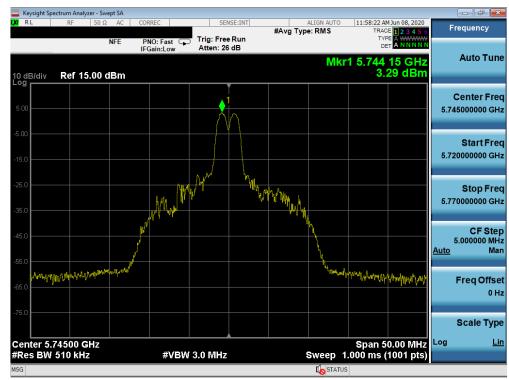
Plot 7-236. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 122)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 177 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset Pa		Page 177 of 292
© 2020 PCTEST	·	•		V 9.0 02/01/2019





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



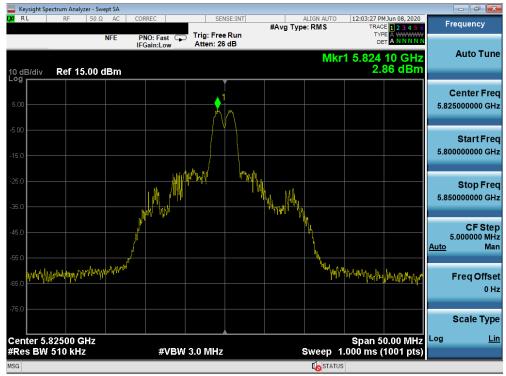
Plot 7-238. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 149)

FCC ID: A3LSMN986W	PCTEST Hour Site pert of B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 179 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset	Page 178 of 292	
© 2020 PCTEST	-			V 9.0 02/01/2019





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



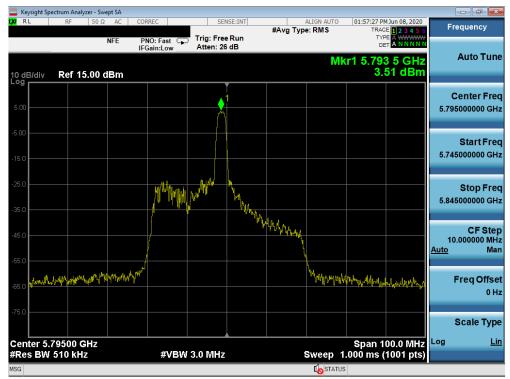
Plot 7-240. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 165)

FCC ID: A3LSMN986W	Hout Site part al B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 170 of 202	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 179 of 292	
© 2020 PCTEST	· ·			V 9.0 02/01/2019	





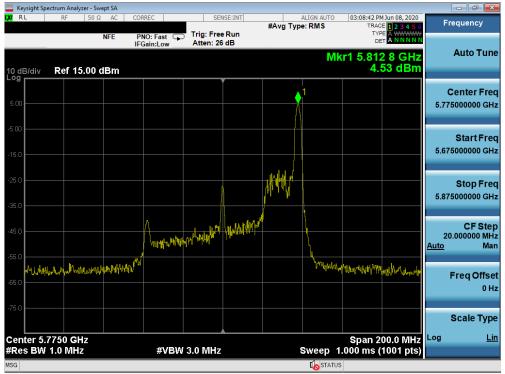
Plot 7-241. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 151)



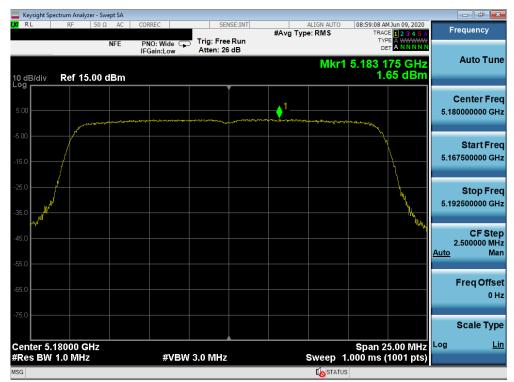
Plot 7-242. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMN986W	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type: Portable Handset		Page 180 of 292	
1M2004170066-06.A3L	4/17 - 6/22/2020				
© 2020 PCTEST		÷		V 9.0 02/01/2019	





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



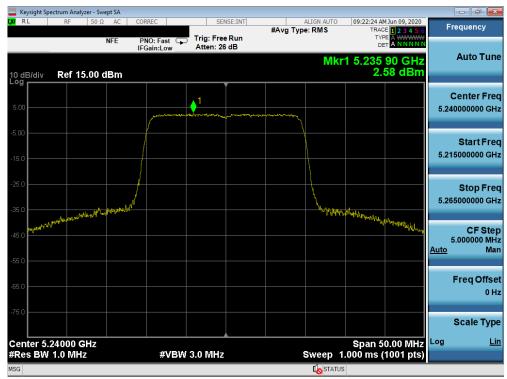
Plot 7-244. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 36)

FCC ID: A3LSMN986W	PCTEST Mould forbe part of B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 181 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset	Page 181 of 292	
© 2020 PCTEST	·			V 9.0 02/01/2019





Plot 7-245. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 40)



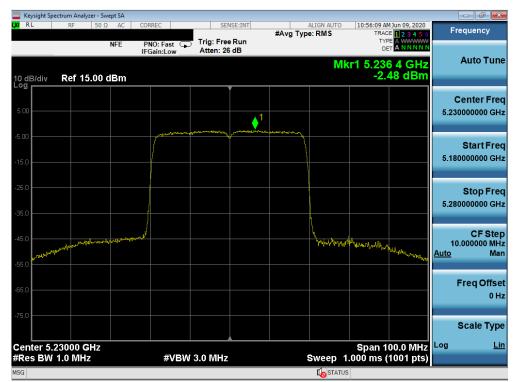
Plot 7-246. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 48)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 182 of 202	
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 182 of 292	
© 2020 PCTEST		·		V 9.0 02/01/2019	



	ectrum Analyzer - S									
L <mark>XI</mark> RL	RF 50	Ω AC	CORREC		ISE:INT	#Avg Typ	ALIGN AUTO	TRAC	1 Jun 09, 2020 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref 15.00	NFE dBm	PNO: Fast 🕞 IFGain:Low	Trig: Free Atten: 26			M	or 1 5.194	1 GHz 90 dBm	Auto Tune
5.00				· · · · · ·	↓ ¹					Center Freq 5.190000000 GHz
-5.00				and and a second se						Start Freq 5.140000000 GHz
-25.0										Stop Freq 5.240000000 GHz
-45.0	Martin Martine and the	and the second second					Munkeynwer	Wing Waybuly	What have a water	CF Step 10.000000 MHz <u>Auto</u> Man
-65.0										Freq Offset 0 Hz
-75.0										Scale Type
Center 5. #Res BW	19000 GHz		#\/R\//	3.0 MHz			Sween 1	Span 1 .000 ms (00.0 MHz	Log <u>Lin</u>
MSG	1.0 101112		<i>"</i> v D v v	5.0 141112			STATUS		roor pts)	

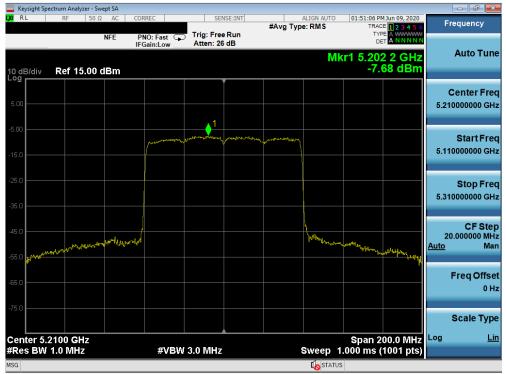
Plot 7-247. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 38)



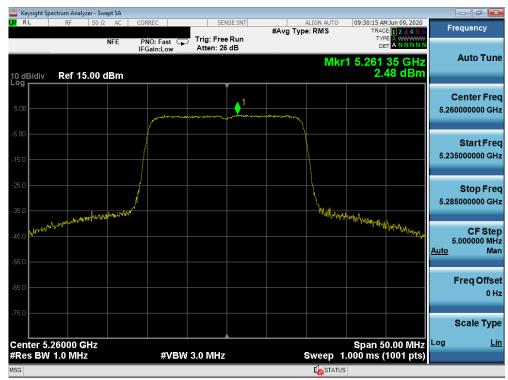
Plot 7-248. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 46)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 182 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 183 of 292
© 2020 PCTEST		•		V 9.0 02/01/2019





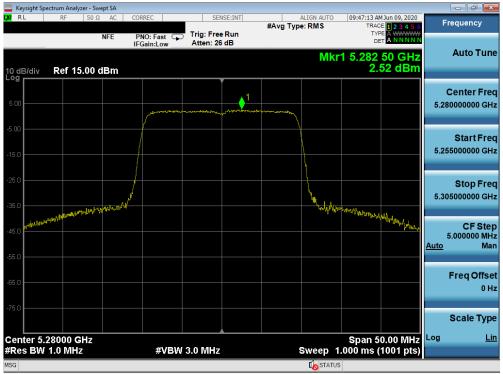
Plot 7-249. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 42)



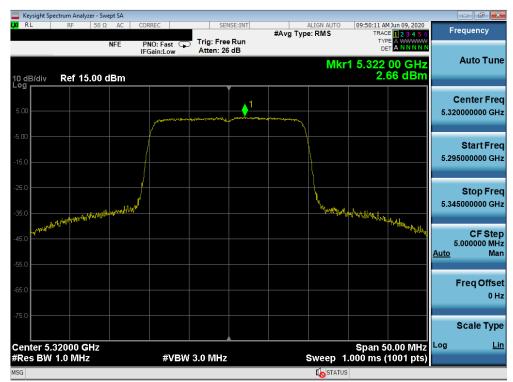
Plot 7-250. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 52)

FCC ID: A3LSMN986W	Houst Gribe part of B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 184 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 184 of 292
© 2020 PCTEST		•		V 9.0 02/01/2019





Plot 7-251. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 56)



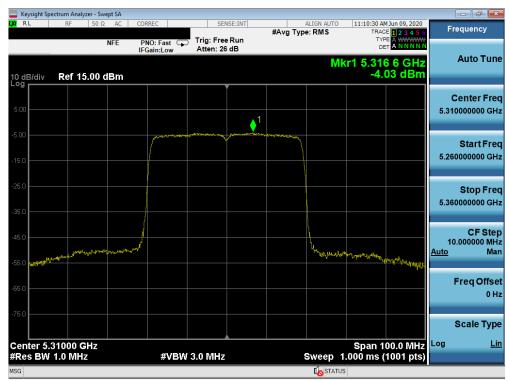
Plot 7-252. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 64)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 195 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 185 of 292
© 2020 PCTEST				V 9.0 02/01/2019



🔤 Keysight Spectrum Ana							
LXIRL RF	50 Ω AC	CORREC	SENSE:INT	#Avg Type:		:08:51 AM Jun 09, 2020 TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 1	NFE	PNO: Fast IFGain:Low	⊖ Trig: Free Run Atten: 26 dB		Mkr1	5.260 4 GHz -3.00 dBm	Auto Tune
5.00			↓ ¹				Center Freq 5.270000000 GHz
-5.00			and all and the off that have a second s				Start Freq 5.220000000 GHz
-25.0							Stop Freq 5.320000000 GHz
-45.0	للمركز المركز				What when the first of the second sec	How Mary Maring	CF Step 10.000000 MHz <u>Auto</u> Man
-65.0							Freq Offset 0 Hz
-75.0 Center 5.27000	GHz					pan 100.0 MHz	Scale Type Log <u>Lin</u>
#Res BW 1.0 MH		#VBV	/ 3.0 MHz	S	weep 1.00	0 ms (1001 pts)	
MSG					I STATUS		

Plot 7-253. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 54)



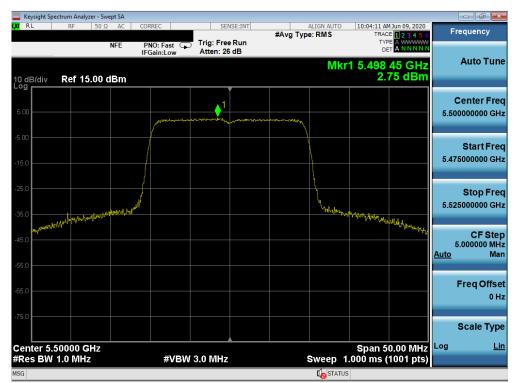
Plot 7-254. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 62)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 196 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 186 of 292
© 2020 PCTEST				V 9.0 02/01/2019





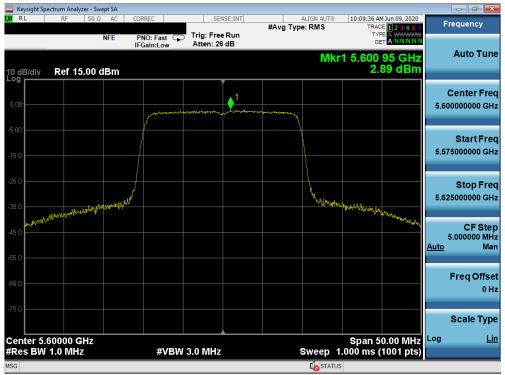
Plot 7-255. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 58)



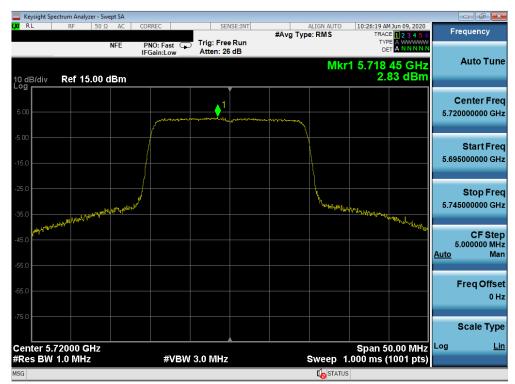
Plot 7-256. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 100)

FCC ID: A3LSMN986W	PCTEST Houst la be part al B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 197 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 187 of 292
© 2020 PCTEST	*	•		V 9.0 02/01/2019





Plot 7-257. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 120)



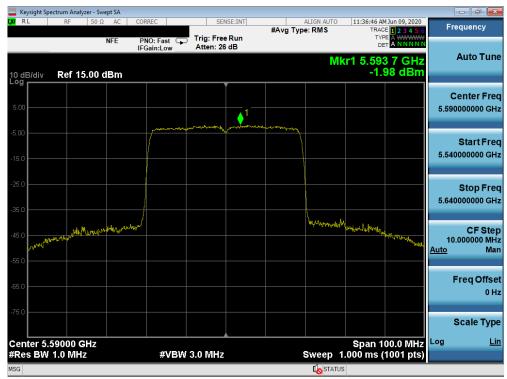
Plot 7-258. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 144)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 199 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 188 of 292
© 2020 PCTEST		·		V 9.0 02/01/2019



Keysight Spectrum Analyzer - Sv									_	
LX/ RL RF 50 \$	Ω AC (CORREC		SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	1 Jun 09, 2020 E 1 2 3 4 5 6	Fr	equency
	NFE	PNO: Fast G IFGain:Low	Trig: Free Atten: 26			Mk	r1 5.51			Auto Tune
10 dB/div Ref 15.00	dBm						-1.	78 dBm		
5.00				↓1						enter Freq
-5.00									5.460	Start Freq
-25.0									5.560	Stop Freq
-45.0	nteritati	6				Mensilveryway	Mananat Kudletes	and a start and a start	10 <u>Auto</u>	CF Step .000000 MHz Man
-65.0									,	Freq Offset 0 Hz
-75.0										Scale Type
Center 5.51000 GHz #Res BW 1.0 MHz		#VB)	V 3.0 MHz			Sween 1		00.0 MHz 1001 pts)	Log	Lin
MSG		<i>"</i> • D •	0.0-141112			STATUS		roor pts)		

Plot 7-259. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 102)



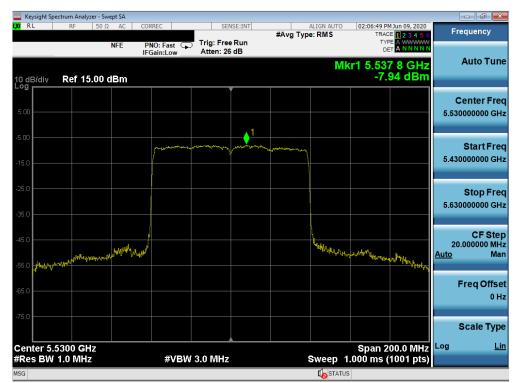
Plot 7-260. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 400 at 000
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 189 of 292
© 2020 PCTEST	•			V 9.0 02/01/2019



	ectrum Analyzer - Sw										5 ×
L <mark>XI</mark> RL	RF 50 Ω	AC C	ORREC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO		MJun 09, 2020	Frequen	су
			PNO: Fast G	Trig: Free Atten: 26		• //		TYF De		Auto	Tune
10 dB/div Log	Ref 15.00	dBm					Mk	(r1 5.70 -1.	6 9 GHz 82 dBm	Auto	Tune
										Center	r Freq
5.00				∮ ¹						5.71000000	0 GHz
-5.00				and the second se	Contraction of the second	- manner				Start	t Freq
-15.0										5.66000000	
-25.0											Freq
-35.0							-			5.7600000	/0 GHz
	and the second	workship	1				Manhhamped	Were Werner	Munchaghtrice	CE	Step
-45.0	Apple Anno Al an								- mould all strong	10.00000 <u>Auto</u>	
-55.0											
-65.0										FreqC	Offset 0 Hz
-75.0											
										Scale	Туре
	71000 GHz							Span 1	00.0 10112	Log	Lin
#Res BW	1.0 MHz		#VBW	3.0 MHz				.000 ms (1001 pts)		
MSG							I N STATUS	5			

Plot 7-261. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 142)



Plot 7-262. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 106)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 100 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 190 of 292
© 2020 PCTEST	·	·		V 9.0 02/01/2019





Plot 7-263. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 122)



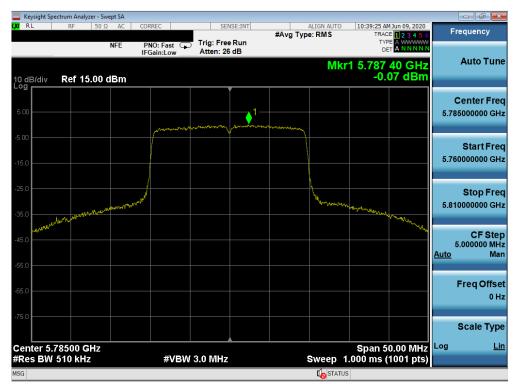
Plot 7-264. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 138)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 101 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 191 of 292
© 2020 PCTEST		·		V 9.0 02/01/2019





Plot 7-265. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 149)



Plot 7-266. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 157)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 102 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 192 of 292
© 2020 PCTEST	•	•		V 9.0 02/01/2019





Plot 7-267. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 165)



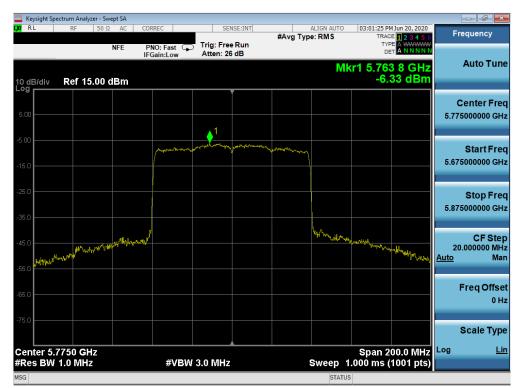
Plot 7-268. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 151)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 102 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 193 of 292
© 2020 PCTEST				V 9.0 02/01/2019



Keysight Spectrum Ar										×
LXIRL RF	50 Ω AC	CORREC	SENS	4	#Avg Type	ALIGN AUTO e: RMS	TRAC	I Jun 09, 2020 E 1 2 3 4 5 6	Frequency	r
	NFE 15.00 dBm	PNO: Fast IFGain:Low	Trig: Free F Atten: 26 c			Mk	15.792	2 5 GHz 28 dBm	Auto T	une
5.00			▲ ¹						Center F 5.795000000	
-5.00		- Construction of the second s	and a stranger	merer and and a second					Start F 5.745000000	
-25.0						Wine to a			Stop F 5.845000000	
-45.0	Mannonaling	enter all				mundymoudy	Whater Aller	and and a start of the start of	CF S 10.000000 <u>Auto</u>	
-65.0									Freq Of	fset 0 Hz
-75.0									Scale T	ype Lin
Center 5.79500 #Res BW 510 k		#VBW	3.0 MHz			Sweep_1	Span 1 .000 m <u>s (</u>	00.0 MHz 1001 pts)	LUY	<u>- III</u>
MSG										

Plot 7-269. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 159)

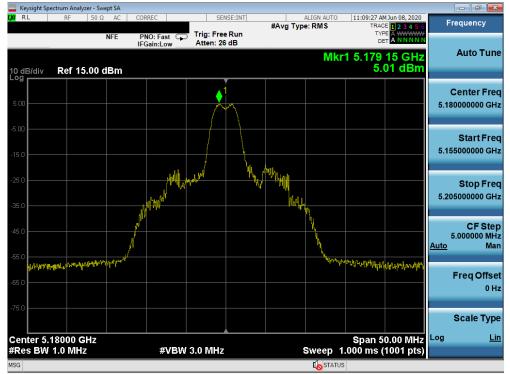


Plot 7-270. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 155)

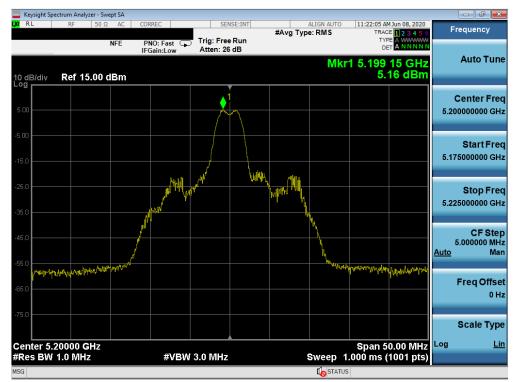
FCC ID: A3LSMN986W	hout to be part of B	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 104 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 194 of 292
© 2020 PCTEST		•		V 9.0 02/01/2019



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



Plot 7-271. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 36)



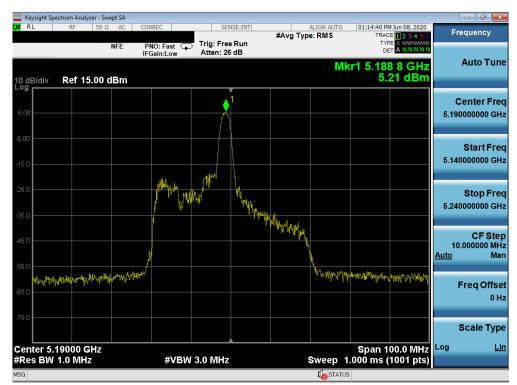
Plot 7-272. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 105 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 195 of 292
© 2020 PCTEST				V 9 0 02/01/2019





Plot 7-273. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 48)



Plot 7-274. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 106 of 202
1M2004170066-06.A3L	4/17 - 6/22/2020	Portable Handset		Page 196 of 292
© 2020 PCTEST				V 9.0 02/01/2019