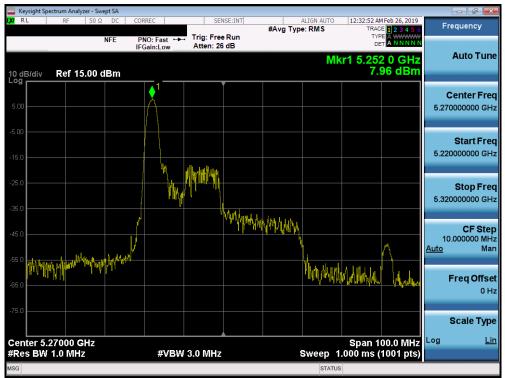




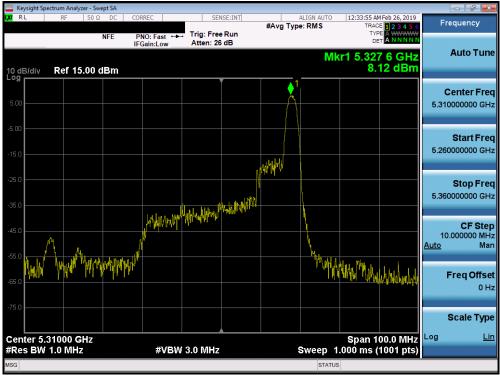
Plot 7-171. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 64)



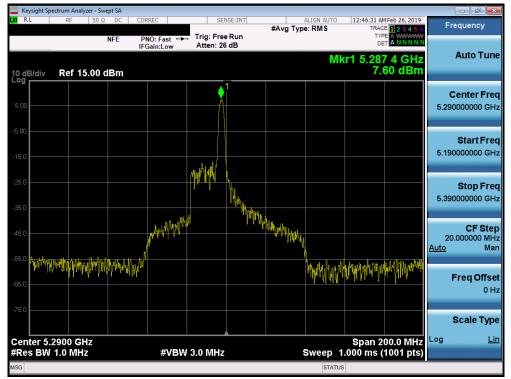
Plot 7-172. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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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: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 140 of 220
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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: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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1M1904220064-07.A3L	01/22 - 05/17/2019	Portable Handset		Page 141 of 330
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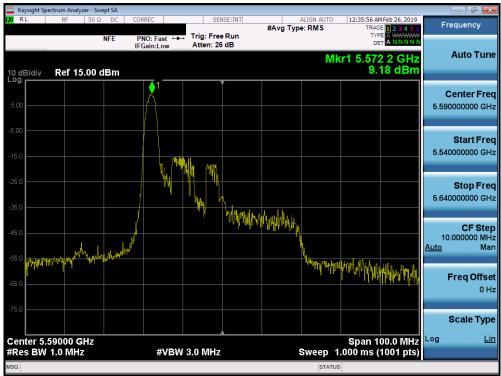
Plot 7-177. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 144)



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

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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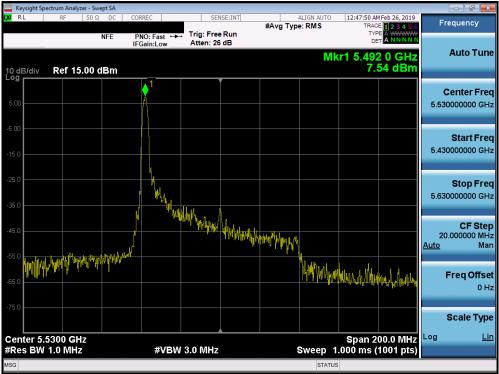
Plot 7-179. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 118)



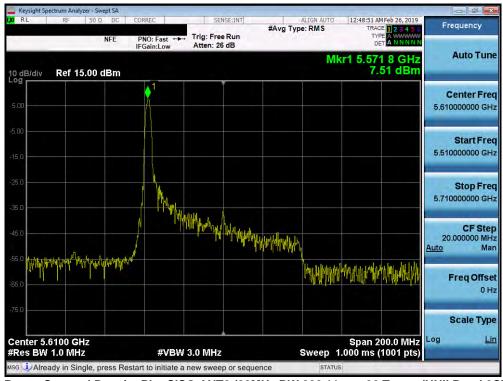
Plot 7-180. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 142)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 142 of 220
1M1904220064-07.A3L	01/22 - 05/17/2019	Portable Handset		Page 143 of 330
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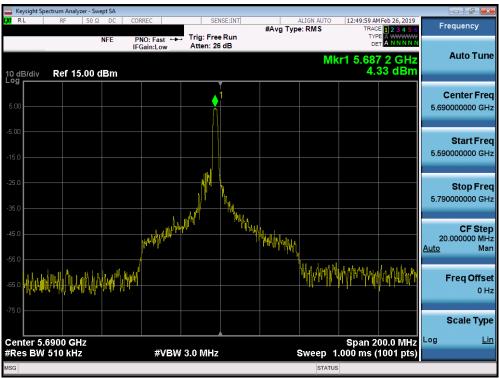
Plot 7-181. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 106)



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

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-183. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 138)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	5745	149	ax (20MHz)	26T	MCS0	8.06	30.00	-21.94
-	5785	157	ax (20MHz)	26T	MCS0	8.69	30.00	-21.31
d 3	5825	165	ax (20MHz)	26T	MCS0	6.99	30.00	-23.01
Band	5755	151	ax (40MHz)	26T	MCS0	6.24	30.00	-23.76
	5795	159	ax (40MHz)	26T	MCS0	5.97	30.00	-24.03
	5775	155	ax (80MHz)	26T	MCS0	7.87	30.00	-22.13

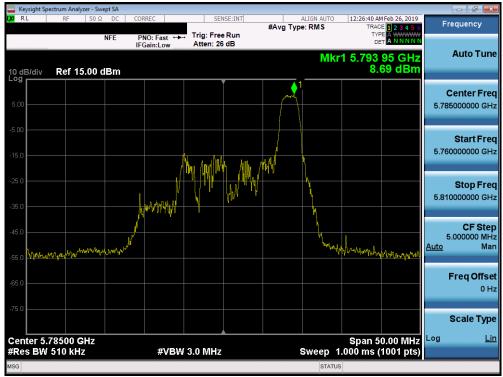
Table 7-63. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-184. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 149)



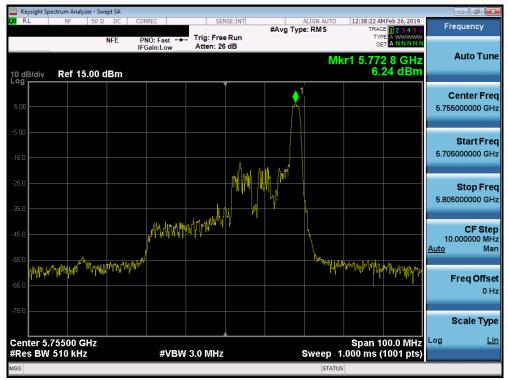
Plot 7-185. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 157)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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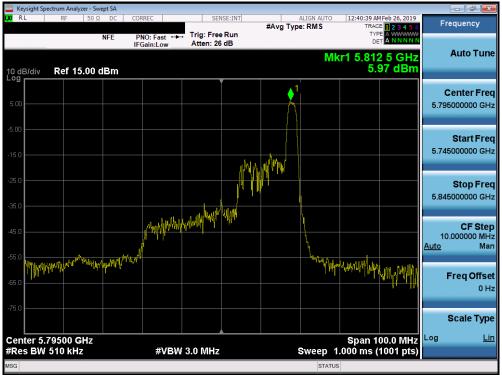
Plot 7-186. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 165)



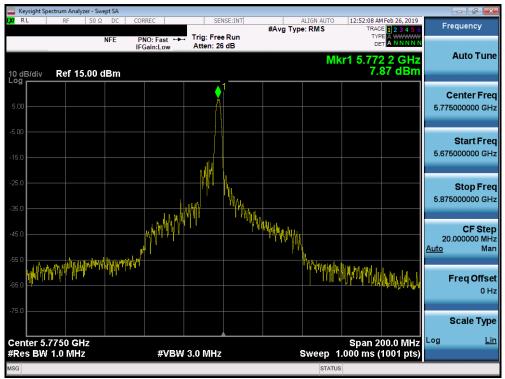
Plot 7-187. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 151)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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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: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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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	2.60	11.0	-8.40
_	5200	40	ax (20MHz)	242T	MCS0	3.09	11.0	-7.91
Band 1	5240	48	ax (20MHz)	242T	MCS0	4.06	11.0	-6.94
Bar	5190	38	ax (40MHz)	484T	MCS0	-1.36	11.0	-12.36
	5230	46	ax (40MHz)	484T	MCS0	-0.91	11.0	-11.91
	5210	42	ax (80MHz)	996T	MCS0	-5.31	11.0	-16.31
	5260	52	ax (20MHz)	242T	MCS0	3.81	11.0	-7.19
⊲	5280	56	ax (20MHz)	242T	MCS0	3.86	11.0	-7.14
Band 2A	5320	64	ax (20MHz)	242T	MCS0	3.93	11.0	-7.07
Ban	5270	54	ax (40MHz)	484T	MCS0	-1.08	11.0	-12.08
ш	5310	62	ax (40MHz)	484T	MCS0	-1.45	11.0	-12.45
	5290	58	ax (80MHz)	996T	MCS0	-5.20	11.0	-16.20
	5500	100	ax (20MHz)	242T	MCS0	4.21	11.0	-6.79
	5600	120	ax (20MHz)	242T	MCS0	3.27	11.0	-7.73
	5720	144	ax (20MHz)	242T	MCS0	3.69	11.0	-7.31
SC	5510	102	ax (40MHz)	484T	MCS0	-0.58	11.0	-11.58
Band 2C	5590	118	ax (40MHz)	484T	MCS0	-1.39	11.0	-12.39
Ba	5710	142	ax (40MHz)	484T	MCS0	-0.95	11.0	-11.95
	5530	106	ax (80MHz)	996T	MCS0	-4.82	11.0	-15.82
	5610	122	ax (80MHz)	996T	MCS0	-5.68	11.0	-16.68
	5690	138	ax (80MHz)	996T	MCS0	-5.24	11.0	-16.24

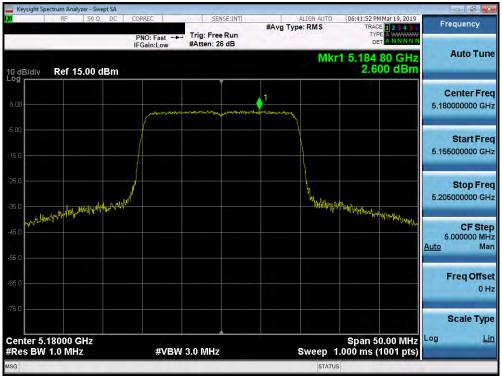
Table 7-64. Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)

-	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	2.60	-6.05	-3.45	10.0	-13.45
_	5200	40	ax (20MHz)	242T	MCS0	3.09	-6.05	-2.96	10.0	-12.96
1 pc	5240	48	ax (20MHz)	242T	MCS0	4.06	-6.05	-1.99	10.0	-11.99
Bar	5190	38	ax (40MHz)	484T	MCS0	-1.36	-6.05	-7.41	10.0	-17.41
	5230	46	ax (40MHz)	484T	MCS0	-0.91	-6.05	-6.96	10.0	-16.96
_	5210	42	ax (80MHz)	996T	MCS0	-5.31	-6.05	-11.36	10.0	-21.36

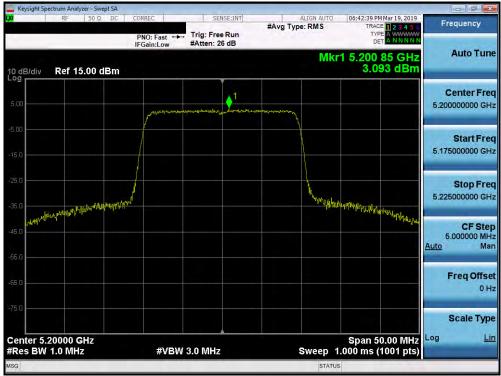
Table 7-65. Band 1 e.i.r.p. Conducted Power Spectral Density Measurements (ISED Full Tones)

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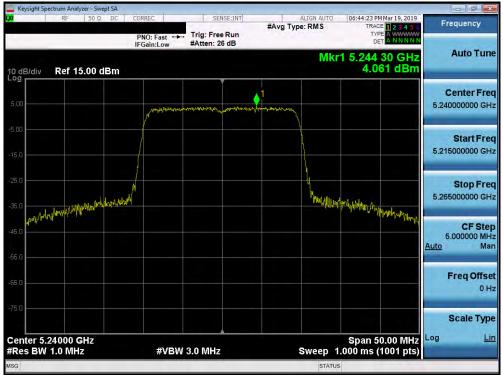
Plot 7-190. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 1) - Ch. 36)



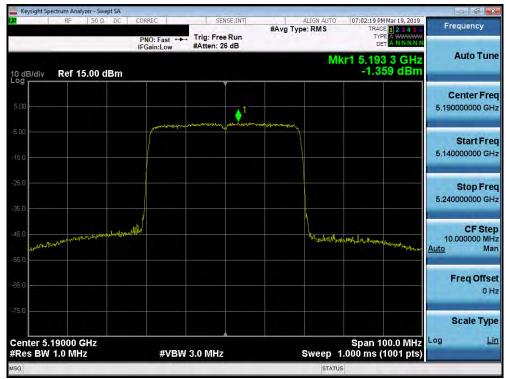
Plot 7-191. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dage 151 of 220		
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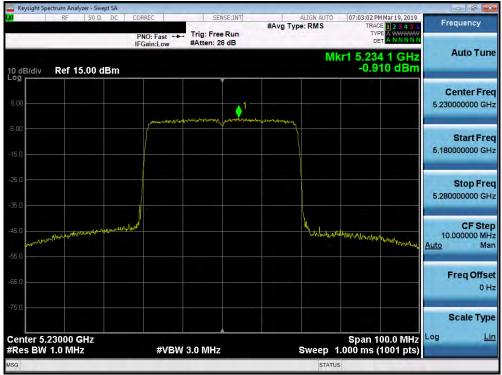
Plot 7-192. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 1) - Ch. 48)



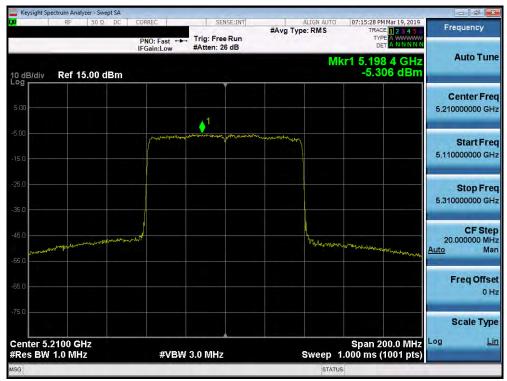
Plot 7-193. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
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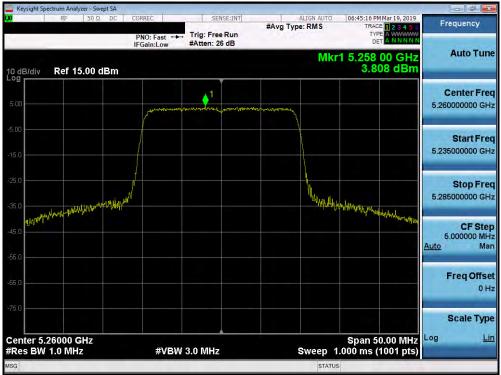
Plot 7-194. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 1) - Ch. 46)



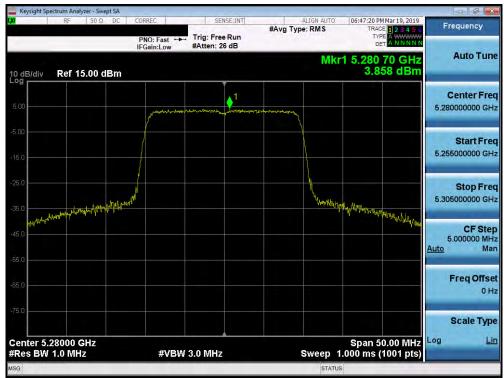
Plot 7-195. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dogo 152 of 220		
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Plot 7-196. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2A) - Ch. 52)



Plot 7-197. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
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Keysight Spectrum Analyzer - Swept SA		1000			
	100	ree Run	ALIGN AUTO g Type: RMS	06:48:14 PM Mar 19, 2019 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 15.00 dBm	IFGam:Low #Atten	. 20 00	Mkr	1 5.325 70 GHz 3.938 dBm	Auto Tune
5.00	Jointown warmen	n poster working	county -		Center Free 5.320000000 GH
15.0					Start Free 5.295000000 GH
25.0			hundren	Wernerster the start of the start have by the	Stop Fre 5.345000000 GH
45.0				and the second sec	CF Ste 5.000000 MH <u>Auto</u> Ma
36.0					Freq Offso 0 H
75 0 Center 5.32000 GHz Res BW 1.0 MHz	#VBW 3.0 MH		Sween 1	Span 50.00 MHz 000 ms (1001 pts)	Scale Typ Log <u>Li</u>
	#VEVV 5.0 WI		SWEEP 1.	ooo ms (noor pis)	

Plot 7-198. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2A) - Ch. 64)



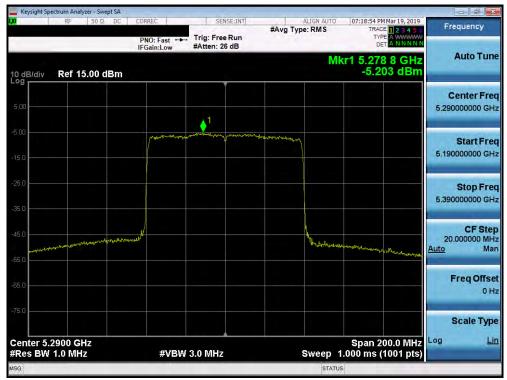
Plot 7-199. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
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RF 50 Ω DC	CORREC SENSE:II PNO: Fast +++ Trig: Free Rut	#Avg Type: RMS	07:05:56 PM Mar 19, 2019 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
0 dB/div Ref 15.00 dBm	IFGain:Low #Atten: 26 dB	М	kr1 5.305 4 GHz -1.449 dBm	Auto Tun
9 	1	10%4A		Center Fre 5,310000000 GH
5.00				Start Fre 5.260000000 GH
25.0				Stop Fre 5,36000000 GH
15.0 How many brand and a second		hiterate	el and har and an and	CF Ste 10.000000 Mi <u>Auto</u> Mi
36.0				Freq Offs 0 F
enter 5.31000 GHz				Scale Typ Log <u>L</u>
Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep	1.000 ms (1001 pts)	

Plot 7-200. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 2A) - Ch. 62)



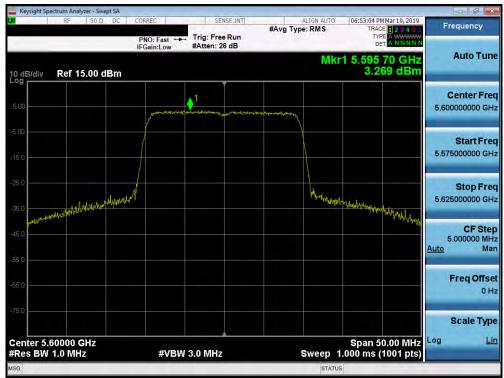
Plot 7-201. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
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Keysight Spectrum							- 6 ×
<u>IX</u>	RF 5)Ω DC	CORREC PNO: Fast ↔	, Trig: Free Run #Atten: 26 dB	ALIGN AUTO #Avg Type: RMS	06:50:31 PM Mar 19, 2019 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div R	ef 15.0	0 dBm	IFGain:Low	#Atten: 20 db	Mkı	1 5.501 80 GHz 4.206 dBm	Auto Tune
5.00			fanson	marine proprietion and provide			Center Free 5.500000000 GH
5.00							Start Fre 5.475000000 GH
25.0 35.0	How the state of t	honlanger Me	nd		handhijeve	Martin and Ma	Stop Fre 5.525000000 GH
45.0							CF Ste 5.000000 MH Auto Ma
65,0					· · · · · · · · · · · · · · · · · · ·		Freq Offs 0 H
75.0 Center 5.500 Res BW 1.0				/ 3.0 MHz		Span 30.00 19112	Scale Typ
ISG	TWINZ		#VBV	7-5.0 WIH2	Sweep	.000 ms (1001 pts)	

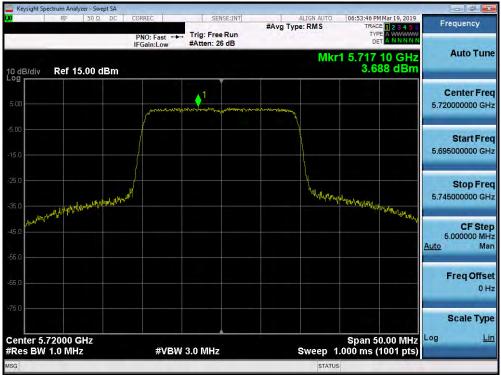
Plot 7-202. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 100)



Plot 7-203. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
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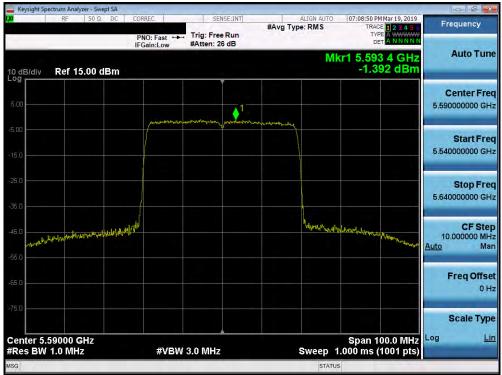
Plot 7-204. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 144)



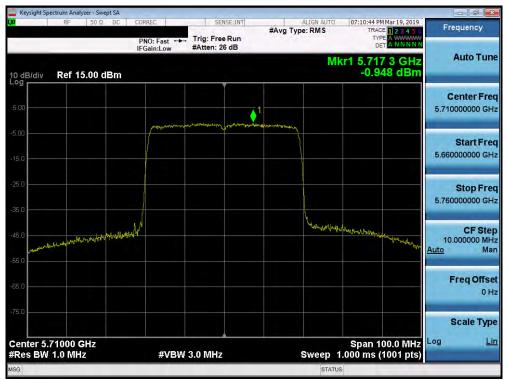
Plot 7-205. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-206. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 2C) - Ch. 118)



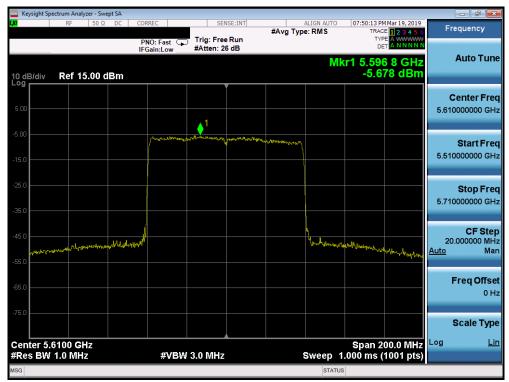
Plot 7-207. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 2C) - Ch. 142)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Swept SA RF 50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO	07:20:18 PM Mar 19, 2019	Frequency
	PNO: Fast	Trig: Free Run #Atten: 26 dB	#Avg Type: RMS	TRACE 123456 TYPE A WWWWW DET A NNNNN	
0 dB/div Ref 15.00 dBm			MI	kr1 5.515 8 GHz -4.82 dBm	Auto Tune
5.00		1			Center Fre 5.530000000 GH
15.0		and a second a second and a second second	Maringeneric		Start Fre 5.430000000 GH
36.0					Stop Fre 5.630000000 GH
15.0	ntwitt		Mirtul Mirakeye	apple are and a second	CF Ste 20.000000 MH Auto Ma
55.0			4 A		Freq Offso 0 H
250 Center 5.5300 GHz Res BW 1.0 MHz	#\/B14	3.0 MHz	Sween	Span 200.0 MHz I.000 ms (1001 pts)	Scale Typ
sg	# V D V V	5.0 191112	STATU	1	

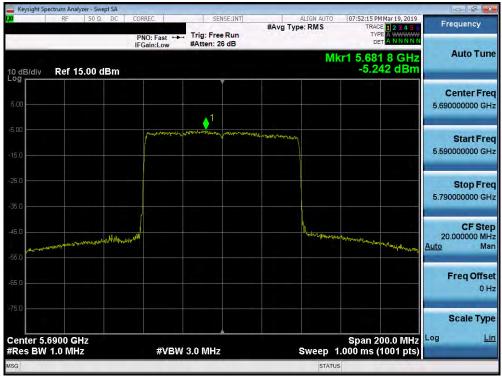
Plot 7-208. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 2C) - Ch. 106)



Plot 7-209. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 2C) - Ch. 122)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 160 of 220	
1M1904220064-07.A3L	01/22 - 05/17/2019	Portable Handset		Page 160 of 330	
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Plot 7-210. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 2C) - Ch. 138)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 161 of 220
1M1904220064-07.A3L	01/22 - 05/17/2019	Portable Handset		Page 161 of 330
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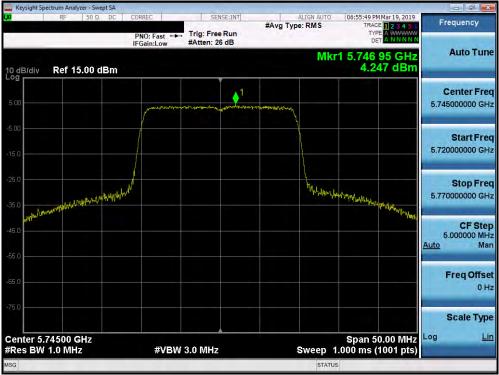


	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
	5745	149	ax (20MHz)	242T	MCS0	4.25	30.00	-25.75
<u>س</u>	5785	157	ax (20MHz)	242T	MCS0	4.29	30.00	-25.71
	5825	165	ax (20MHz)	242T	MCS0	3.92	30.00	-26.08
Band	5755	151	ax (40MHz)	484T	MCS0	-0.70	30.00	-30.70
	5795	159	ax (40MHz)	484T	MCS0	-0.77	30.00	-30.77
	5775	155	ax (80MHz)	996T	MCS0	-5.13	30.00	-35.13

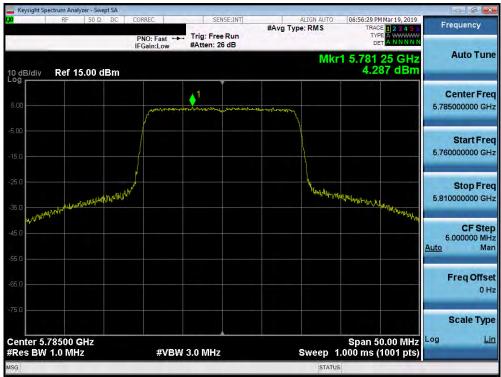
Table 7-66. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 162 of 220
1M1904220064-07.A3L	01/22 - 05/17/2019	Portable Handset		Page 162 of 330
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Plot 7-211. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 149)



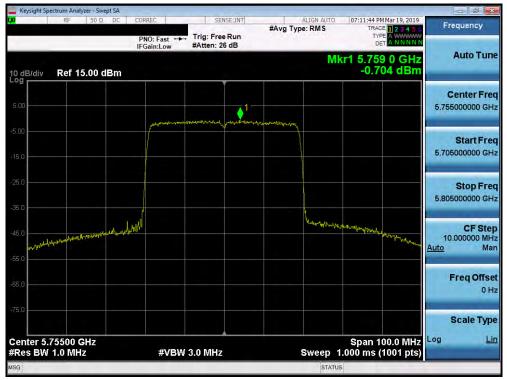
Plot 7-212. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 157)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 162 of 220	
1M1904220064-07.A3L	01/22 - 05/17/2019	Portable Handset		Page 163 of 330	
© 2019 PCTEST Engineering Labo	V 9.0 02/01/2019				



Keysight Spectrum Analyzer - Swept SA		1	1	
RF 50 Ω DC	CORREC SENSE:INT PNO: Fast ↔→ Trig: Free Run	ALIGN AUTO #Avg Type: RMS	06:58:26 PM Mar 19, 2019 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N	Frequency
o dB/div Ref 15.00 dBm	IFGain:Low #Atten: 26 dB	Mki	1 5.821 60 GHz 3.920 dBm	Auto Tun
5.00	1	www.Warnen		Center Fre 5.825000000 GH
5.00				Start Fre 5.800000000 GH
25.0 15.0 W ^{WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW}	nd	hintony	annaharhan sa ann ann ann ann ann ann ann ann an	Stop Fre 5.85000000 GH
15.0 W ^{WWWWWWW}			- water	CF Ste 5.000000 Mi <u>Auto</u> Ma
5.0				Freq Offs 01
50 Center 5.82500 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sween 1	Span 50.00 MHz .000 ms (1001 pts)	Scale Typ Log <u>L</u>
SG		STATU	/	

Plot 7-213. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 165)



Plot 7-214. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 3) - Ch. 151)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 164 of 220
1M1904220064-07.A3L	01/22 - 05/17/2019	Portable Handset		Page 164 of 330
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Keysight Spectrum Analyzer -			The second			
KI RF 5		PNO: Fast	SENSE(INT	ALIGN AUT #Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
10 dB/div Ref 15.0		Gain:Low	#Atten: 26 dB		0.765 dBm	Auto Tuno
5.00		ماليم معرمين المراجع	1 Langer province			Center Fre 5.795000000 GH
5.00						Start Fre 5.745000000 GH
35.0						Stop Fre 5.845000000 GH
15.0	porneticontections			had winn	WHIT MAN AND MAN MAN MAN AND AND AND AND AND AND AND AND AND A	CF Ste 10.000000 MH Auto Ma
5,0						Freq Offs 0 H
Center 5.79500 GHz					Span 100.0 MHz	Scale Typ
Res BW 1.0 MHz		#VBW	3.0 MHz		1.000 ms (1001 pts)	
SG				ST/	TUS	

Plot 7-215. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 3) - Ch. 159)



Plot 7-216. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 3) - Ch. 155)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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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	5.41	4.95	8.20	11.00	-2.80
_	5200	40	ax (20MHz)	26T	MCS0	3.99	3.91	6.96	11.00	-4.04
1 pt	5240	48	ax (20MHz)	26T	MCS0	3.80	4.00	6.91	11.00	-4.09
Band	5190	38	ax (40MHz)	26T	MCS0	5.42	5.18	8.31	11.00	-2.69
	5230	46	ax (40MHz)	26T	MCS0	5.35	6.09	8.75	11.00	-2.25
	5210	42	ax (80MHz)	26T	MCS0	5.76	4.85	8.34	11.00	-2.66
	5260	52	ax (20MHz)	26T	MCS0	5.28	5.20	8.25	11.00	-2.75
∢	5280	56	ax (20MHz)	26T	MCS0	5.28	5.07	8.19	11.00	-2.81
Band 2A	5320	64	ax (20MHz)	26T	MCS0	5.36	4.71	8.06	11.00	-2.94
gan	5270	54	ax (40MHz)	26T	MCS0	5.69	5.42	8.57	11.00	-2.43
	5310	62	ax (40MHz)	26T	MCS0	5.42	5.54	8.49	11.00	-2.51
	5290	58	ax (80MHz)	26T	MCS0	3.62	3.66	6.65	11.00	-4.35
	5500	100	ax (20MHz)	26T	MCS0	5.30	5.61	8.47	11.00	-2.53
	5600	120	ax (20MHz)	26T	MCS0	5.90	5.78	8.85	11.00	-2.15
	5720	144	ax (20MHz)	26T	MCS0	5.84	5.73	8.80	11.00	-2.20
SC	5510	102	ax (40MHz)	26T	MCS0	5.31	5.77	8.56	11.00	-2.44
Band	5590	118	ax (40MHz)	26T	MCS0	5.60	5.71	8.67	11.00	-2.33
Ba	5710	142	ax (40MHz)	26T	MCS0	5.79	6.33	9.08	11.00	-1.92
	5530	106	ax (80MHz)	26T	MCS0	4.86	5.50	8.20	11.00	-2.80
	5610	122	ax (80MHz)	26T	MCS0	3.34	3.60	6.48	11.00	-4.52
	5690	138	ax (80MHz)	26T	MCS0	1.77	2.33	5.07	11.00	-5.93

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	5.41	4.95	8.20	-2.89	5.31	10.0	-4.69
	5200	40	ax (20MHz)	26T	MCS0	3.99	3.91	6.96	-2.89	4.07	10.0	-5.93
1 1	5240	48	ax (20MHz)	26T	MCS0	3.80	4.00	6.91	-2.89	4.02	10.0	-5.98
Bar	5190	38	ax (40MHz)	26T	MCS0	5.42	5.18	8.31	-2.89	5.42	10.0	-4.58
_	5230	46	ax (40MHz)	26T	MCS0	5.35	6.09	8.75	-2.89	5.86	10.0	-4.14
	5210	42	ax (80MHz)	26T	MCS0	5.76	4.85	8.34	-2.89	5.45	10.0	-4.55

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

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	5745	149	ax (20MHz)	26T	MCS0	2.57	3.08	5.84	30.00	-24.16
	5785	157	ax (20MHz)	26T	MCS0	2.47	3.13	5.82	30.00	-24.18
d 3	5825	165	ax (20MHz)	26T	MCS0	2.31	2.89	5.62	30.00	-24.38
Band	5755	151	ax (40MHz)	26T	MCS0	3.12	3.26	6.20	30.00	-23.80
	5795	159	ax (40MHz)	26T	MCS0	2.46	3.93	6.27	30.00	-23.73
	5775	155	ax (80MHz)	26T	MCS0	4.03	5.14	7.63	30.00	-22.37

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

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Note:

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

Sample Directional Gain Calculation:

Assuming the antenna gain is -5.50 dBi for Antenna-1 and -6.05 dBi for Antenna-2.

Directional gain =
$$10 \log[(10^{G_{1/20}} + 10^{G_{2/20}} + ... + 10^{G_{N/20}})^2 / N_{ANT}] dBi$$

= $10 \log[(10^{-5.50/20} + 10^{-6.05/20} / 2] dBi$
= (-2.89) dBi

Sample MIMO Calculation:

Assuming the average conducted power spectral density was measured to be 5.41 dBm for Antenna-1 and 4.95 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

(5.41 dBm + 4.95 dBm) = (3.48 mW + 3.13 mW) = 6.61mW = 8.20 dBm

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

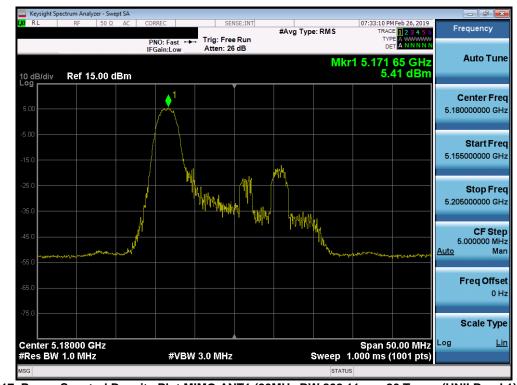
Assuming the average MIMO power density was calculated to be 8.20 dBm with directional gain of -2.89 dBi.

e.i.r.p. Power Spectral Density(dBm) = Power Spectral Density (dBm) + directional gain (dBi)

8.20 dBm + (-2.89) dBi = 5.31 dBm

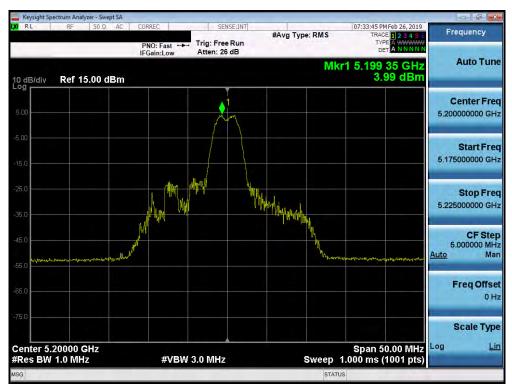
FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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MIMO Antenna-1 Power Spectral Density Measurements (26 Tones)

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



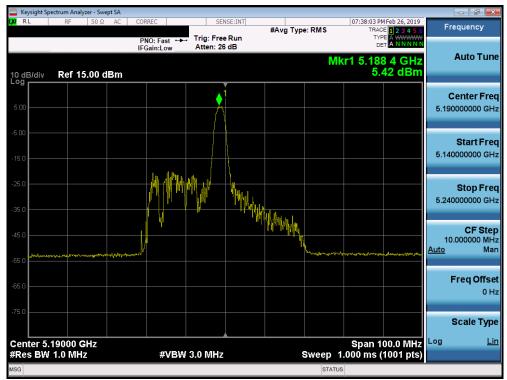
Plot 7-218. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMF907B	Industrial Lacines (194)	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 168 of 330
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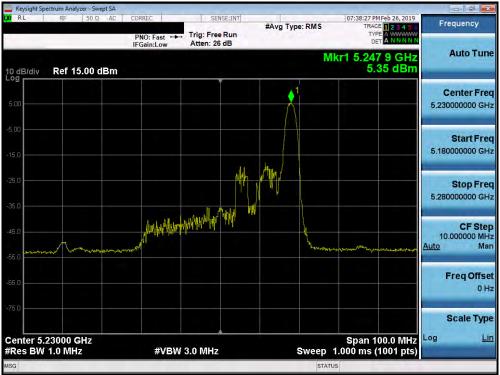
Plot 7-219. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 48)



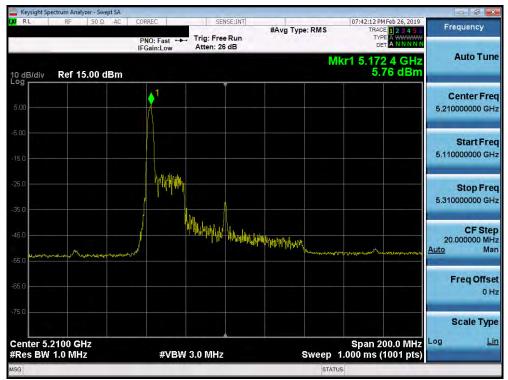
Plot 7-220. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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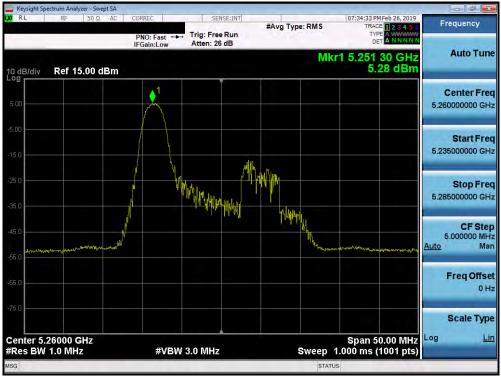
Plot 7-221. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 46)



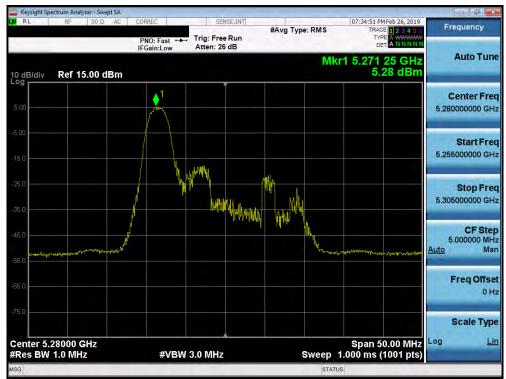
Plot 7-222. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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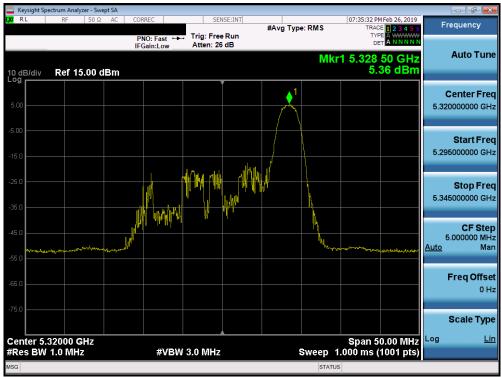
Plot 7-223. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 52)



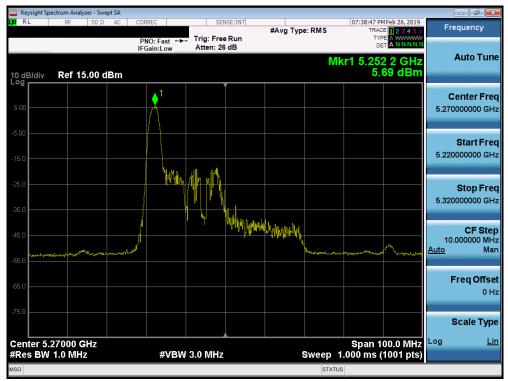
Plot 7-224. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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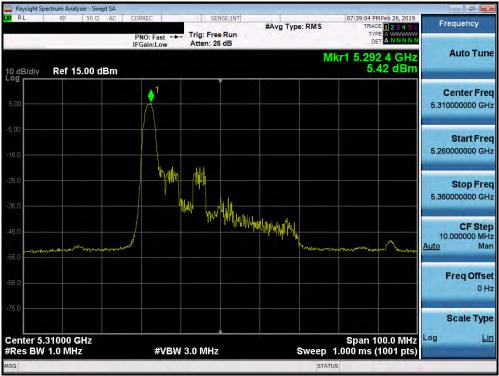
Plot 7-225. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 64)



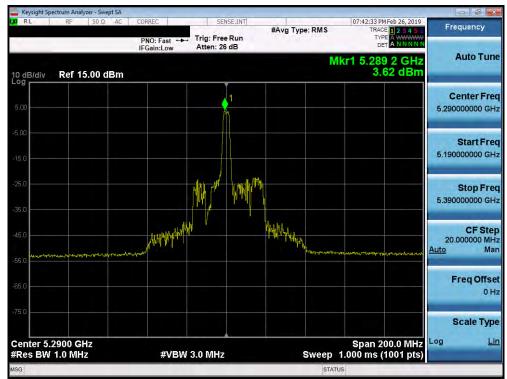
Plot 7-226. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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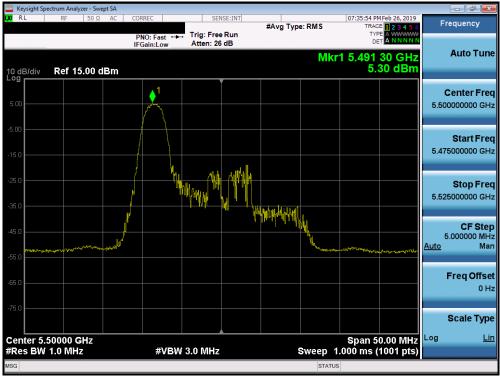
Plot 7-227. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 62)



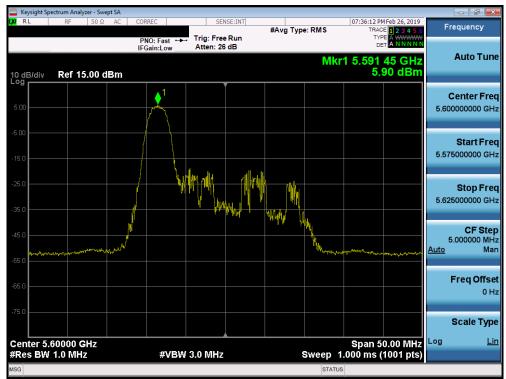
Plot 7-228. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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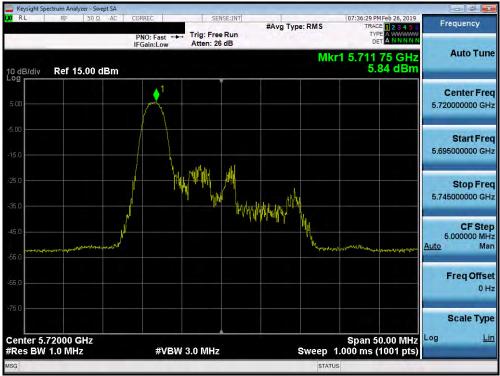
Plot 7-229. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 100)



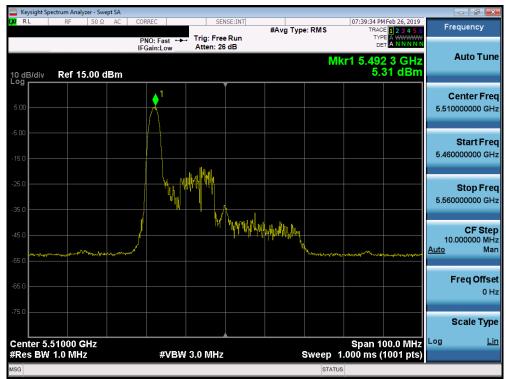
Plot 7-230. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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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: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-233. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 118)



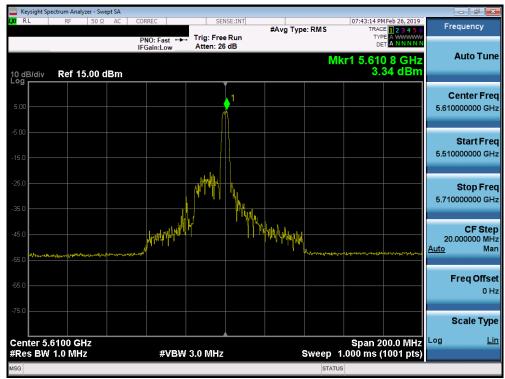
Plot 7-234. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 142)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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	ctrum Analyzer -									
LXI RL	RF 50	Ω AC	CORREC	SEI	ISE:INT	#Avg Typ	e: RMS		HFeb 26, 2019	Frequency
			PNO: Fast ↔ IFGain:Low	Trig: Free Atten: 26				TYP		
10 dB/div Log	Ref 15.00) dBm					Mł	(r1 5.49) 4.	2 4 GHz 86 dBm	Auto Tuno
5.00			↓ ¹							Center Free 5.530000000 GH
-5.00										
-15.0										Start Free 5.430000000 GH
-25.0										Stop Free
-35.0										5.630000000 GH
-45.0			<u> </u>		MANA AND AND A	MarkitWoodayMynik				CF Step 20.000000 MH
-55.0	war	approache and a second			ավարագող	under der der der der der der der der der	Rowal was all the	wwwwww	الدير ويسامد ويورد المريم ويرود الم	<u>Auto</u> Mar
-65.0										Freq Offse 0 H
-75.0										Scale Type
Center 5.	5300 GHz							Span 2	00.0 MHz	Log <u>Lin</u>
#Res BW			#VBW	3.0 MHz			Sweep 1	.000 ms (1001 pts)	
MSG							STATUS	3		

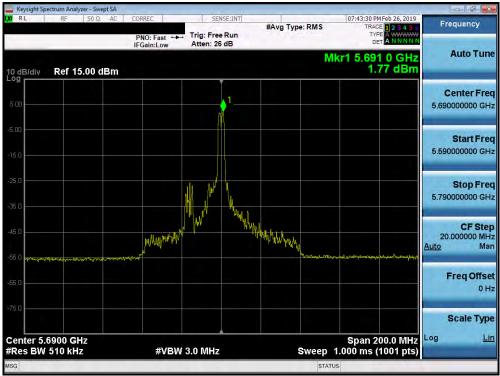
Plot 7-235. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 106)



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

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-237. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 138)



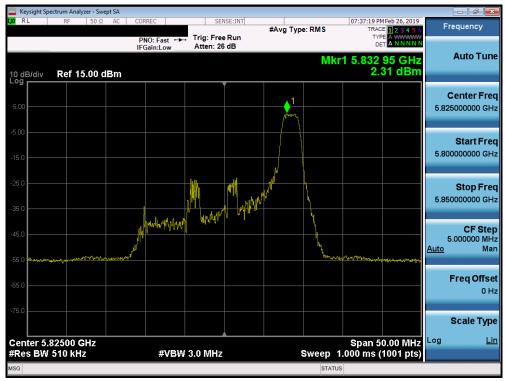
Plot 7-238. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 149)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 179 of 220
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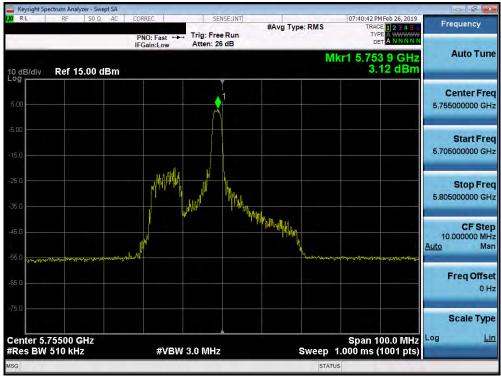
Plot 7-239. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 157)



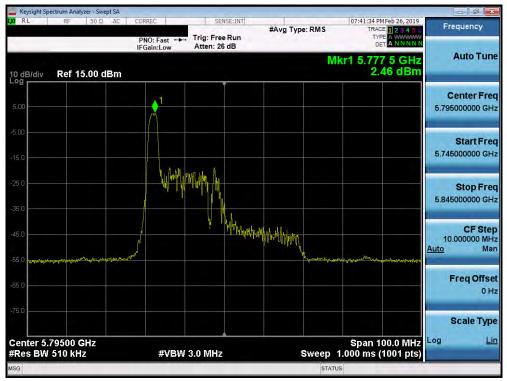
Plot 7-240. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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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: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-243. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 155)

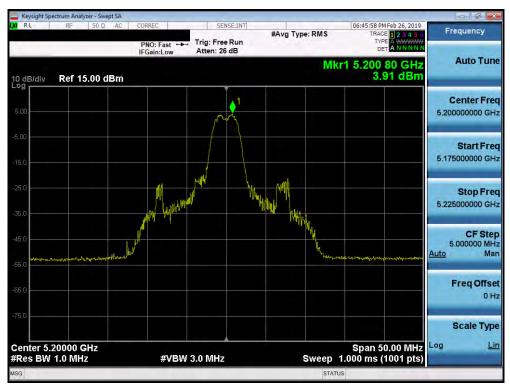
FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 101 of 220
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Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC 06:45:29 PM Feb 26, 2019 TRACE 1 2 3 4 Frequency #Avg Type: RMS Trig: Free Run PNO: Fast IFGain:Low Atten: 26 dB Auto Tune Mkr1 5.171 30 GHz 4.95 dBm Ref 15.00 dBm 10 dB/div 1 **Center Freq** 5.180000000 GHz Start Freq 5.155000000 GHz Stop Freq 5.205000000 GHz **CF** Step 5 000000 MHz Auto Man **Freq Offset** 0 Hz Scale Type Center 5.18000 GHz #Res BW 1.0 MHz Span 50.00 MHz Log Lin #VBW 3.0 MHz Sweep 1.000 ms (1001 pts) STATUS

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

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



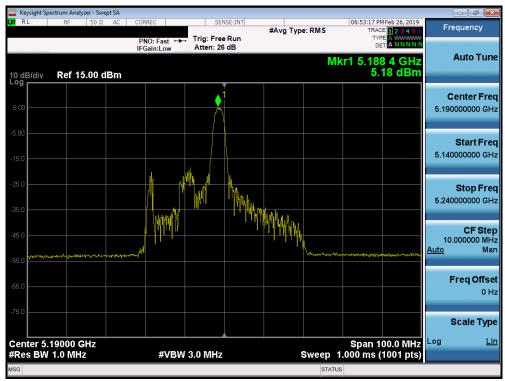
Plot 7-245. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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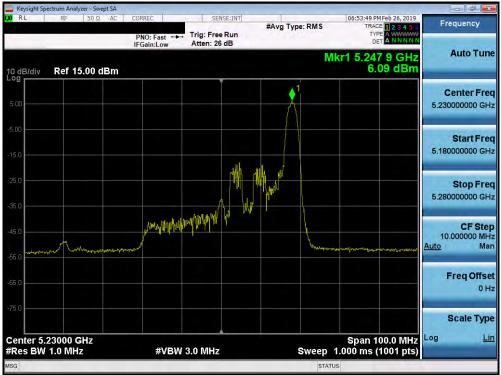
Plot 7-246. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 48)



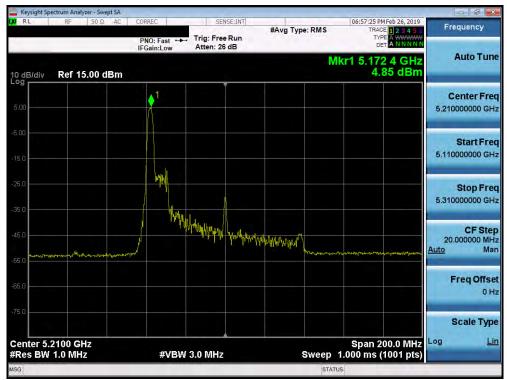
Plot 7-247. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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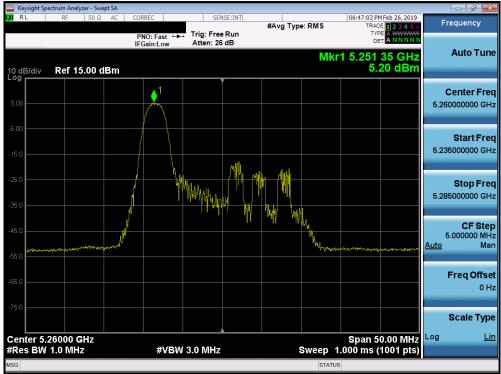
Plot 7-248. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 46)



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

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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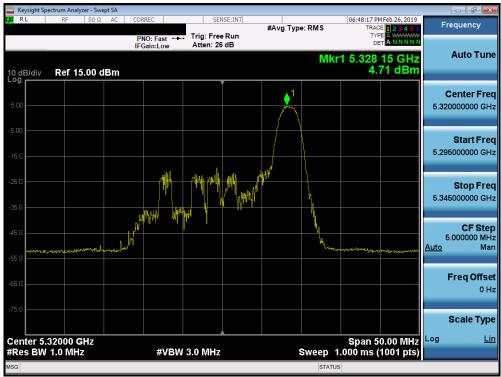
Plot 7-250. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 52)



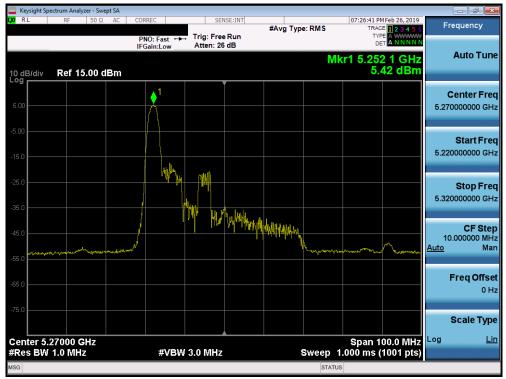
Plot 7-251. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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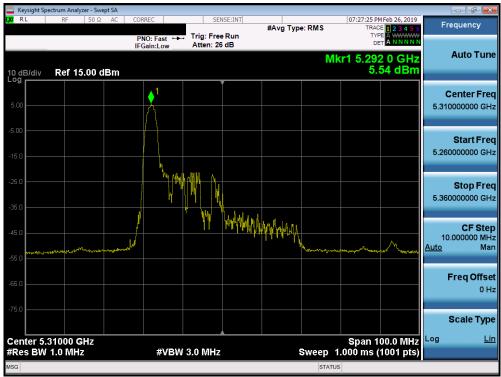
Plot 7-252. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 64)



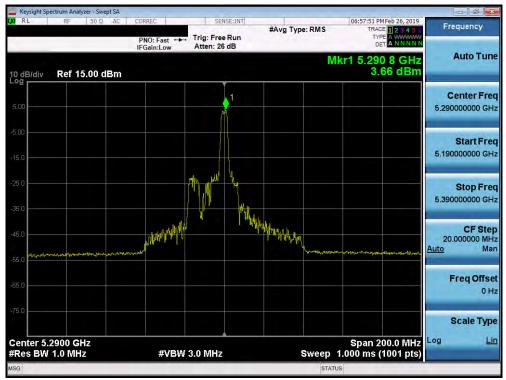
Plot 7-253. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-254. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 62)



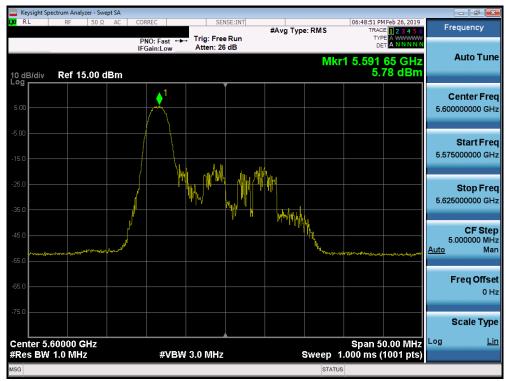
Plot 7-255. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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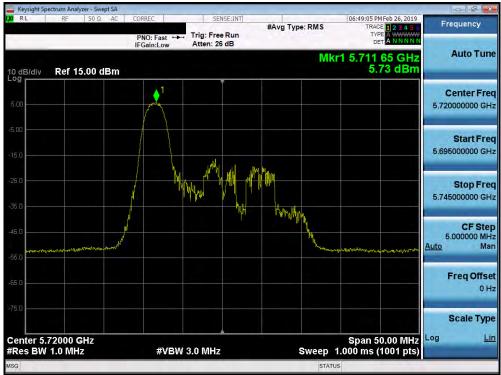
Plot 7-256. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 100)



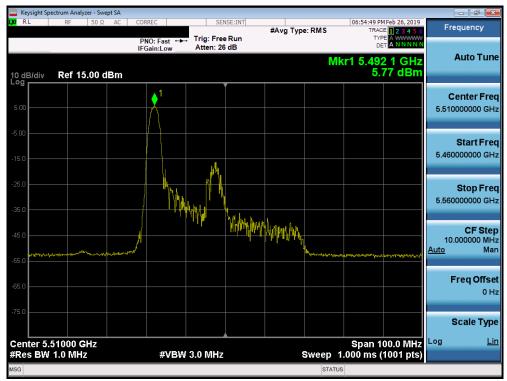
Plot 7-257. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-258. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 144)



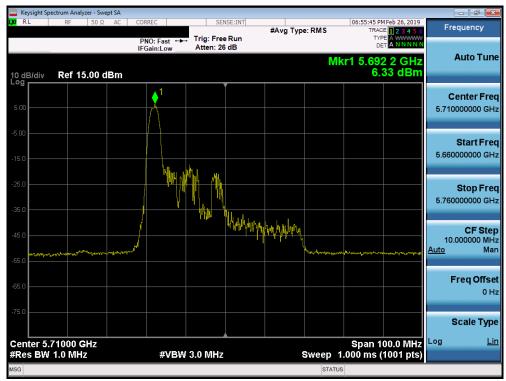
Plot 7-259. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-260. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 118)



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

FCC ID: A3LSMF907B		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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	ectrum Analyzer - Swe										×
LXI RL	RF 50 Ω	AC CC	ORREC	SEI	ISE:INT	#Avg Typ	e: RMS		Feb 26, 2019	Frequency	
			PNO: Fast 🔸	Trig: Free Atten: 26				TYP		Auto Tu	ne
10 dB/div Log	Ref 15.00 d	Bm						5.	50 dBm		
			↓ ¹							Center Fr	
-5.00			Å							5.530000000 G	Hz
-5.00										Start Fr	
-15.0										5.430000000 G	Hz
-25.0										Stop Fr	_
-35.0										5.630000000 G	Hz
-45.0			j IM	hhh hhh						CF Ste	
-55.0	seri, was ser ^{wa} nd the and series	man		er læd	. 1.1.4.9.40	Merin an (bernema	ahayddiraegorchyddwy	๖๛๖๖ _๗ ๛๛๛ _{฿๛} ฦ๛๛๚ _{฿๛}	20.000000 M <u>Auto</u> M	lHZ lan
										Freq Offs	set
-65.0											Hz
-75.0											
										Scale Ty	
Center 5. #Res BW			#\/P\A	3.0 MHz			Swoon 1	Span 2 .000 ms (00.0 IYII 12	Log <u>l</u>	Lin
			#VBV	3.0 MIHZ			Sweep		ioo r pis)		
											_

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



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

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