



Plot 7-291. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 52 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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SISO Antenna-2 Power Spectral Density Measurements (106 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)	106T	MCS0	6.54	11.00	-4.46
	5200	40	ax (20MHz)	106T	MCS0	6.72	11.00	-4.28
p 1	5240	48	ax (20MHz)	106T	MCS0	6.82	11.00	-4.18
Band 1	5190	38	ax (40MHz)	106T	MCS0	6.40	11.00	-4.60
_	5230	46	ax (40MHz)	106T	MCS0	6.88	11.00	-4.12
	5210	42	ax (80MHz)	106T	MCS0	8.17	11.00	-2.83
	5260	52	ax (20MHz)	106T	MCS0	6.44	11.00	-4.56
∡	5280	56	ax (20MHz)	106T	MCS0	6.46	11.00	-4.54
d 2	5320	64	ax (20MHz)	106T	MCS0	6.72	11.00	-4.28
Band 2A	5270	54	ax (40MHz)	106T	MCS0	6.37	11.00	-4.63
ш	5310	62	ax (40MHz)	106T	MCS0	6.70	11.00	-4.30
	5290	58	ax (80MHz)	106T	MCS0	8.16	11.00	-2.84
	5500	100	ax (20MHz)	106T	MCS0	7.54	11.00	-3.46
	5600	120	ax (20MHz)	106T	MCS0	7.40	11.00	-3.60
	5720	144	ax (20MHz)	106T	MCS0	7.01	11.00	-3.99
2C	5510	102	ax (40MHz)	106T	MCS0	6.88	11.00	-4.12
Bnad 2C	5590	118	ax (40MHz)	106T	MCS0	6.92	11.00	-4.08
Bn	5710	142	ax (40MHz)	106T	MCS0	6.96	11.00	-4.04
	5530	106	ax (80MHz)	106T	MCS0	8.27	11.00	-2.73
	5610	122	ax (80MHz)	106T	MCS0	8.71	11.00	-2.29
	5690	138	ax (80MHz)	106T	MCS0	8.62	11.00	-2.38

Table 7-87. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (106 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)	106T	MCS0	6.54	-7.70	-1.16	10.0	-11.16
-	5200	40	ax (20MHz)	106T	MCS0	6.72	-7.57	-0.85	10.0	-10.85
	5240	48	ax (20MHz)	106T	MCS0	6.82	-8.01	-1.19	10.0	-11.19
Band	5190	38	ax (40MHz)	106T	MCS0	6.40	-7.57	-1.17	10.0	-11.17
	5230	46	ax (40MHz)	106T	MCS0	6.88	-8.01	-1.13	10.0	-11.13
	5210	42	ax (80MHz)	106T	MCS0	8.17	-7.57	0.60	10.0	-9.40

Table 7-88. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 106 Tones)

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Plot 7-292. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 1) - Ch. 36)



Plot 7-293. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 1) - Ch. 40)

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Plot 7-294. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 1) - Ch. 48)



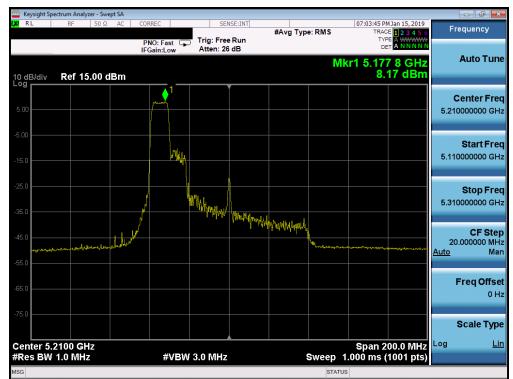
Plot 7-295. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 106 Tones (UNII Band 1) - Ch. 38)

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Plot 7-296. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 106 Tones (UNII Band 1) - Ch. 46)



Plot 7-297. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 106 Tones (UNII Band 1) - Ch. 42)

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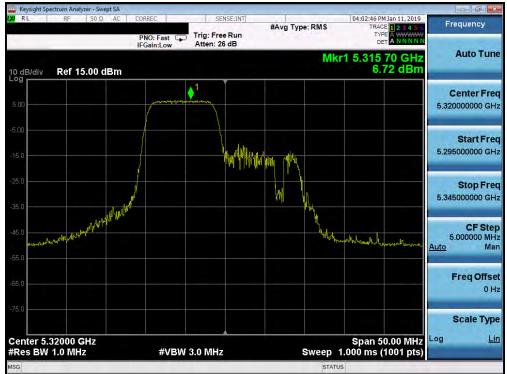
Plot 7-298. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 2A) – Ch. 52)



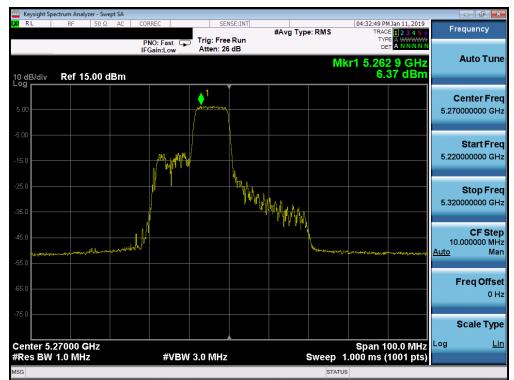
Plot 7-299. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 2A) – Ch. 56)

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Plot 7-300. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 2A) - Ch. 64)



Plot 7-301. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 106 Tones (UNII Band 2A) - Ch. 54)

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Plot 7-302. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 106 Tones (UNII Band 2A) - Ch. 62)



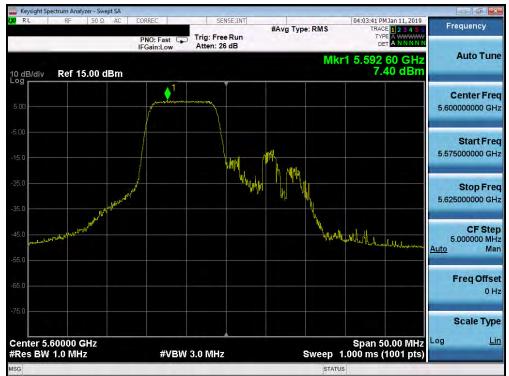
Plot 7-303. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 106 Tones (UNII Band 2A) - Ch. 58)

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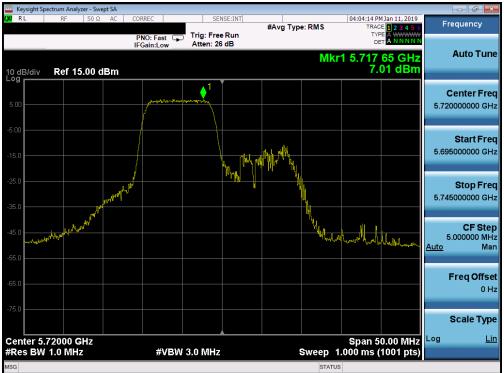
Plot 7-304. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 2C) - Ch. 100)



Plot 7-305. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 2C) - Ch. 120)

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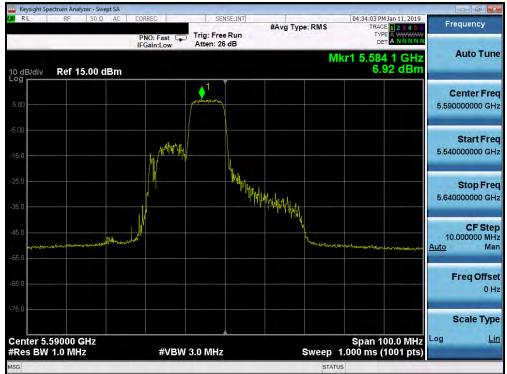
Plot 7-306. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 2C) - Ch. 144)



Plot 7-307. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 106 Tones (UNII Band 2C) - Ch. 102)

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Plot 7-308. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 118)



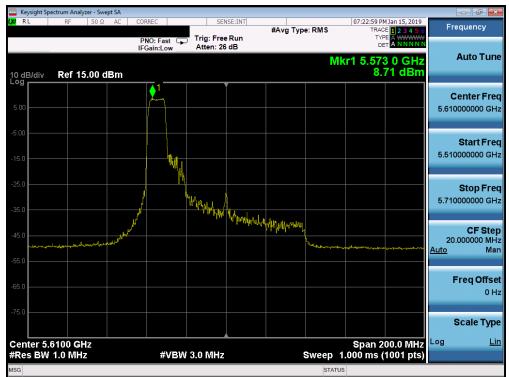
Plot 7-309. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 142)

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Plot 7-310. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 106 Tones (UNII Band 2C) - Ch. 106)



Plot 7-311. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 106 Tones (UNII Band 2C) - Ch. 122)

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Plot 7-312. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 106 Tones (UNII Band 2C) – Ch. 138)

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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)	106T	MCS0	4.25	30.00	-25.75
	5785	157	ax (20MHz)	106T	MCS0	4.52	30.00	-25.48
9 9	5825	165	ax (20MHz)	106T	MCS0	4.21	30.00	-25.79
Band	5755	151	ax (40MHz)	106T	MCS0	4.10	30.00	-25.90
_	5795	159	ax (40MHz)	106T	MCS0	4.33	30.00	-25.67
	5775	155	ax (80MHz)	106T	MCS0	9.08	30.00	-20.92

Table 7-89. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (106 Tones)



Plot 7-313. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 106 Tones (UNII Band 3) – Ch. 149)

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Plot 7-314. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 3) - Ch. 157)



Plot 7-315. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 106 Tones (UNII Band 3) - Ch. 165)

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Plot 7-316. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 106 Tones (UNII Band 3) - Ch. 151)



Plot 7-317. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 106 Tones (UNII Band 3) - Ch. 159)

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Plot 7-318. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 106 Tones (UNII Band 3) – Ch. 155)

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SISO Antenna-2 Power Spectral Density Measurements (242 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	5.83	11.00	-5.17
	5200	40	ax (20MHz)	242T	MCS0	5.94	11.00	-5.06
p 1	5240	48	ax (20MHz)	242T	MCS0	6.44	11.00	-4.56
Band 1	5190	38	ax (40MHz)	242T	MCS0	6.79	11.00	-4.21
_	5230	46	ax (40MHz)	242T	MCS0	7.12	11.00	-3.88
	5210	42	ax (80MHz)	242T	MCS0	1.74	11.00	-9.26
	5260	52	ax (20MHz)	242T	MCS0	5.79	11.00	-5.21
∡	5280	56	ax (20MHz)	242T	MCS0	5.81	11.00	-5.19
d 2	5320	64	ax (20MHz)	242T	MCS0	6.14	11.00	-4.86
Band 2A	5270	54	ax (40MHz)	242T	MCS0	6.52	11.00	-4.48
ш	5310	62	ax (40MHz)	242T	MCS0	6.90	11.00	-4.10
	5290	58	ax (80MHz)	242T	MCS0	2.23	11.00	-8.77
	5500	100	ax (20MHz)	242T	MCS0	6.53	11.00	-4.47
	5600	120	ax (20MHz)	242T	MCS0	6.73	11.00	-4.27
	5720	144	ax (20MHz)	242T	MCS0	6.13	11.00	-4.87
2C	5510	102	ax (40MHz)	242T	MCS0	7.13	11.00	-3.87
Bnad 2C	5590	118	ax (40MHz)	242T	MCS0	6.89	11.00	-4.11
Bn	5710	142	ax (40MHz)	242T	MCS0	7.01	11.00	-3.99
	5530	106	ax (80MHz)	242T	MCS0	7.77	11.00	-3.23
	5610	122	ax (80MHz)	242T	MCS0	7.95	11.00	-3.05
	5690	138	ax (80MHz)	242T	MCS0	8.03	11.00	-2.97

Table 7-90. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (242 Tones)

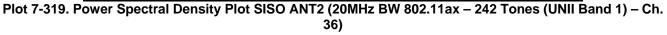
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	242T	MCS0	5.83	-7.70	-1.87	10.0	-11.87
	5200	40	ax (20MHz)	242T	MCS0	5.94	-7.57	-1.63	10.0	-11.63
	5240	48	ax (20MHz)	242T	MCS0	6.44	-8.01	-1.57	10.0	-11.57
Band	5190	38	ax (40MHz)	242T	MCS0	6.79	-7.57	-0.78	10.0	-10.78
-	5230	46	ax (40MHz)	242T	MCS0	7.12	-8.01	-0.89	10.0	-10.89
	5210	42	ax (80MHz)	242T	MCS0	1.74	-7.57	-5.83	10.0	-15.83

Table 7-91. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 242 Tones)

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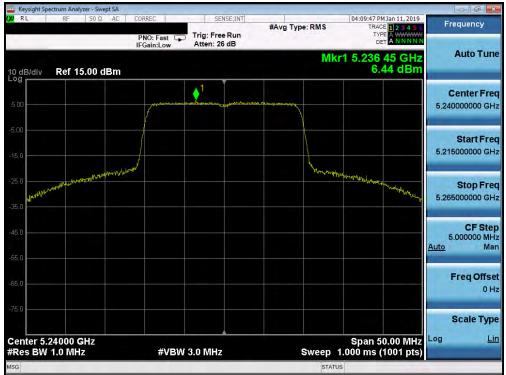




Plot 7-320. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 1) - Ch. 40)

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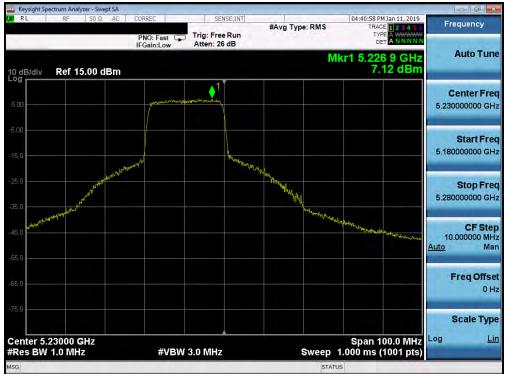
Plot 7-321. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 1) - Ch. 48)



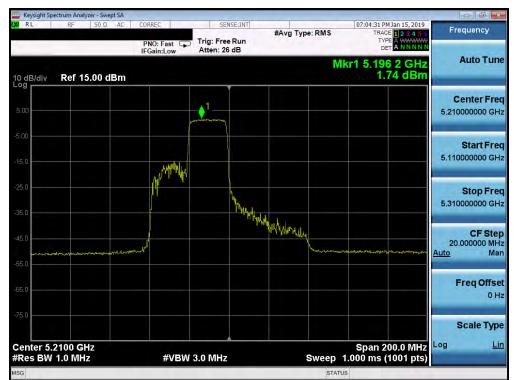
Plot 7-322. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 1) - Ch. 38)

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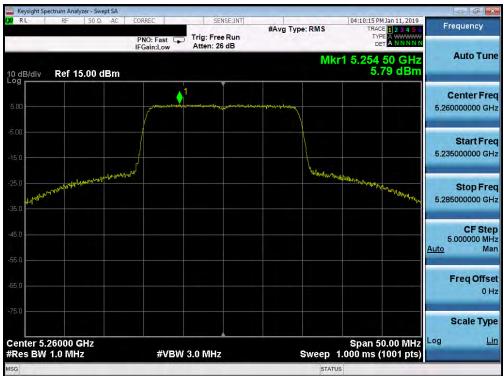
Plot 7-323. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 1) - Ch. 46)



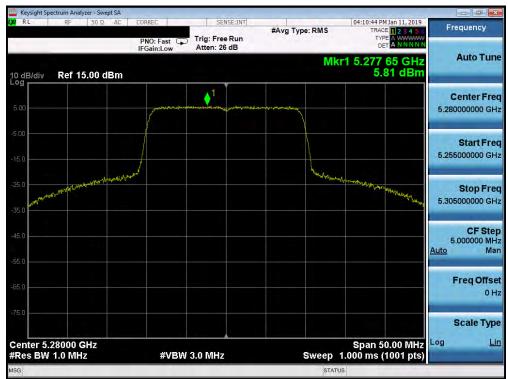
Plot 7-324. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 242 Tones (UNII Band 1) - Ch. 42)

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Plot 7-325. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 52)



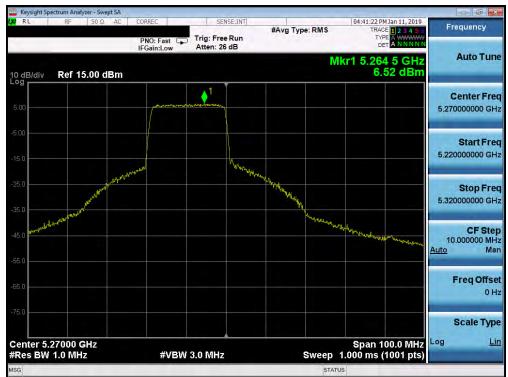
Plot 7-326. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 56)

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Keysight Spectrum Analyzer - Swept SA				The second second second	
I RL RF 50Ω AC		SENSE(INT Trig: Free Run Atten: 26 dB	#Avg Type: RMS	04:11:13 PM Jan 11, 2019 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
0 dB/div Ref 15.00 dBm	IFGain:Low	Atten: 20 db	M	r1 5.326 25 GHz 6.14 dBm	Auto Tune
.og 5.00		and a contraction of the second se	arts land		Center Fred 5.320000000 GHz
15.0					Start Fred 5.295000000 GH2
25.0	un Nord		heard	and the second of the second sec	Stop Fred 5.345000000 GH;
5.0					CF Stej 5.000000 MH Auto Ma
35,0					Freq Offse 0 H:
25.0 Center 5.32000 GHz				Span 50.00 MHz	Scale Type
Res BW 1.0 MHz	#VBW 3		Sweep	1.000 ms (1001 pts)	

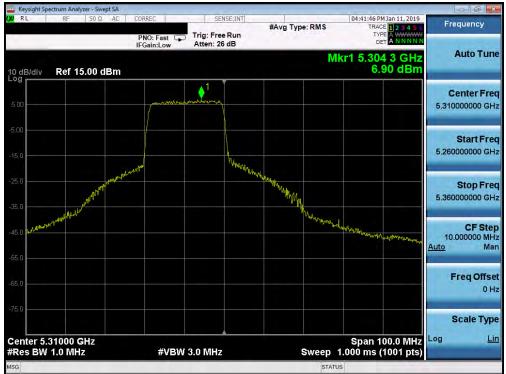
Plot 7-327. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2A) - Ch. 64)



Plot 7-328. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 225 of 514
1M1811230206-15.A3L	10/23 - 1/26/2018	Portable Handset		Page 235 of 514
© 2019 PCTEST Engineering Lab	V 8.8 11/19/2018			





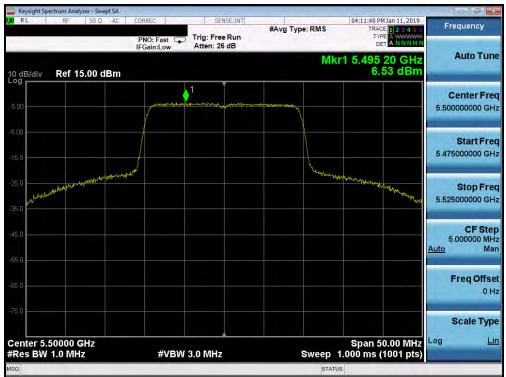
Plot 7-329. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 2A) - Ch. 62)



Plot 7-330. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 242 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 226 of 514
1M1811230206-15.A3L	10/23 - 1/26/2018	Portable Handset		Page 236 of 514
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Plot 7-331. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 100)



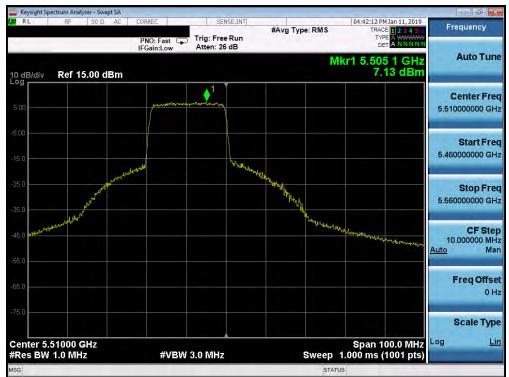
Plot 7-332. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 227 of 514
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Keysight Spectrum Analyzer - Swept SA	10	and the second second	
ORL RF 50Ω AC	PNO: Fast Trig: Free Run IFGain:Low Atten: 26 dB	TYPE	I 11,2019 2 3 4 5 6 A N N N N N A N N N N N
0 dB/div Ref 15.00 dBm		Mkr1 5.712 6 6.1	5 GHz Auto Tune 6 dBm
5.00	1	Constant A Laboratory of the	Center Freq 5.720000000 GHz
15,0			Start Freq 5.695000000 GHz
25.0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		Whith applications of	Stop Freq 5.745000000 GHz
45.0			CF Step 5.00000 MH <u>Auto</u> Mar
35,0			Freq Offse 0 H
75.0 Center 5.72000 GHz		Span 50.	Scale Type
Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 1.000 ms (10	101 pts)
SG		STATUS	

Plot 7-333. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 144)



Plot 7-334. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-335. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 118)



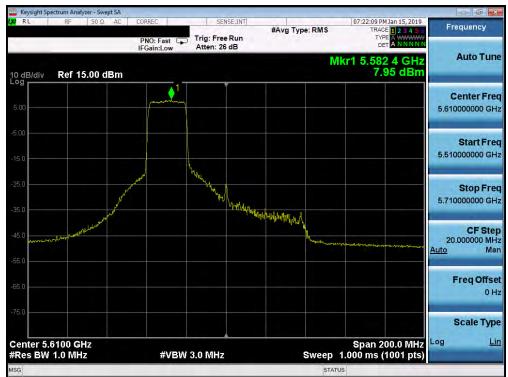
Plot 7-336. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 142)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 220 of 514
1M1811230206-15.A3L	10/23 - 1/26/2018	Portable Handset		Page 239 of 514
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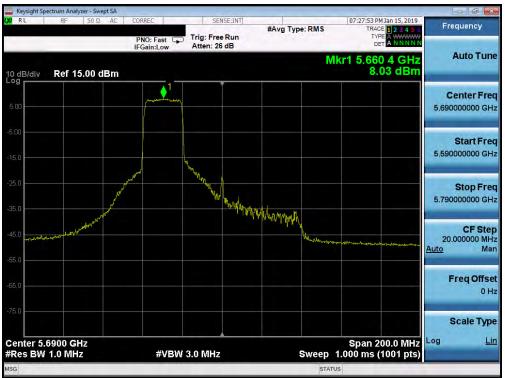
Plot 7-337. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 106)



Plot 7-338. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 242 Tones (UNII Band 2C) - Ch. 122)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 240 of 514
1M1811230206-15.A3L	10/23 - 1/26/2018	Portable Handset		Page 240 of 514
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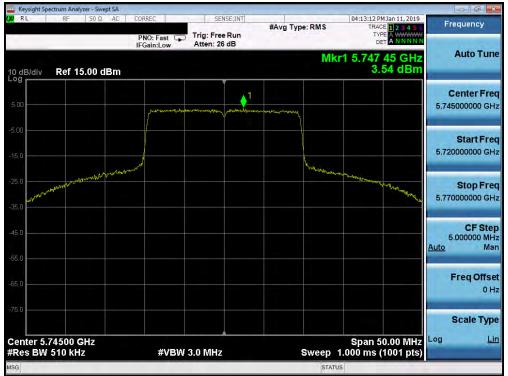
Plot 7-339. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 241 of 514
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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)	242T	MCS0	3.54	30.00	-26.46
	5785	157	ax (20MHz)	242T	MCS0	3.67	30.00	-26.33
9 9	5825	165	ax (20MHz)	242T	MCS0	3.19	30.00	-26.81
Band	5755	151	ax (40MHz)	242T	MCS0	4.28	30.00	-25.72
_	5795	159	ax (40MHz)	242T	MCS0	4.75	30.00	-25.25
	5775	155	ax (80MHz)	242T	MCS0	9.33	30.00	-20.67

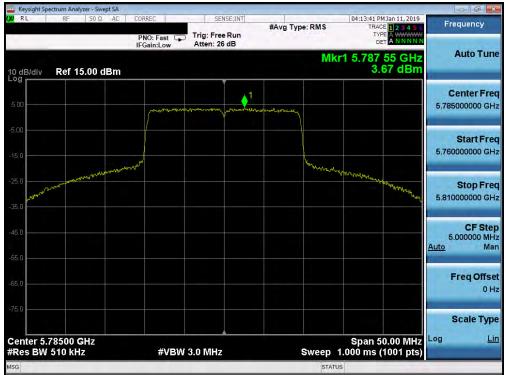
Table 7-92. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (242 Tones)



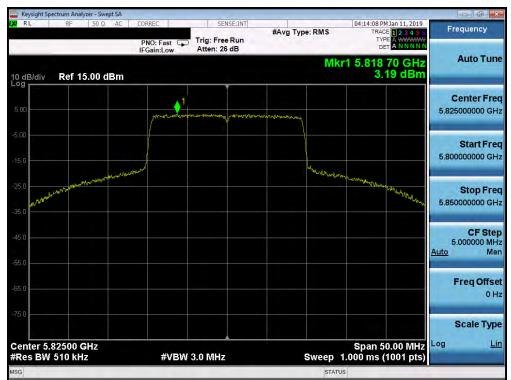
Plot 7-340. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 242 of 514
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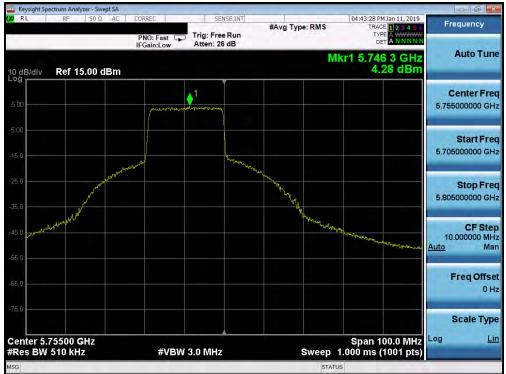
Plot 7-341. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 157)



Plot 7-342. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 165)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-343. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 151)



Plot 7-344. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 159)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 244 of 514
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Plot 7-345. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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SISO Antenna-2 Power Spectral Density Measurements (484 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
-	5190	38	ax (40MHz)	484T	MCS0	2.42	11.00	-8.58
Band	5230	46	ax (40MHz)	484T	MCS0	2.52	11.00	-8.48
ä	5210	42	ax (80MHz)	484T	MCS0	-0.40	11.00	-11.40
q	5270	54	ax (40MHz)	484T	MCS0	2.52	11.00	-8.48
Band 2A	5310	62	ax (40MHz)	484T	MCS0	2.84	11.00	-8.16
ш	5290	58	ax (80MHz)	484T	MCS0	0.00	11.00	-11.00
	5510	102	ax (40MHz)	484T	MCS0	3.16	11.00	-7.84
SC	5590	118	ax (40MHz)	484T	MCS0	2.81	11.00	-8.19
	5710	142	ax (40MHz)	484T	MCS0	2.75	11.00	-8.25
Band	5530	106	ax (80MHz)	484T	MCS0	-0.30	11.00	-11.30
	5610	122	ax (80MHz)	484T	MCS0	5.01	11.00	-5.99
	5690	138	ax (80MHz)	484T	MCS0	6.04	11.00	-4.96

Table 7-93. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (484 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]		e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
.	5190	38	ax (40MHz)	484T	MCS0	2.42	-7.57	-5.15	10.0	-15.15
Band	5230	46	ax (40MHz)	484T	MCS0	2.52	-8.01	-5.49	10.0	-15.49
B	5210	42	ax (80MHz)	484T	MCS0	-0.40	-7.57	-7.97	10.0	-17.97

Table 7-94. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 484 Tones)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-346. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 1) - Ch. 38)



Plot 7-347. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 1) - Ch. 46)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 247 of 514
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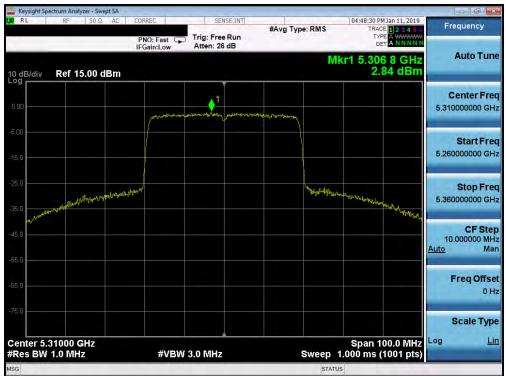
Plot 7-348. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 484 Tones (UNII Band 1) - Ch. 42)



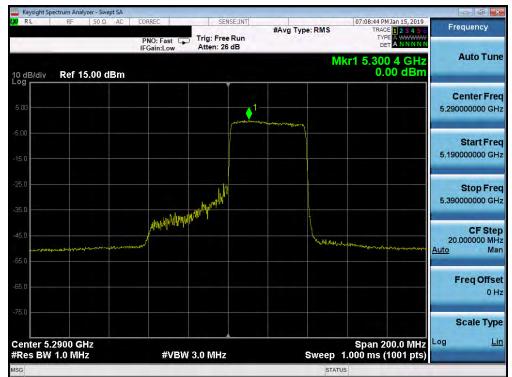
Plot 7-349. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-350. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 62)



Plot 7-351. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 240 of 514	
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Plot 7-353. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 2C) - Ch. 118)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 250 of 514	
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Plot 7-354. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 2C) - Ch. 142)



Plot 7-355. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 484 Tones (UNII Band 2C) - Ch. 106)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 251 of 514	
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Plot 7-356. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 484 Tones (UNII Band 2C) - Ch. 122)



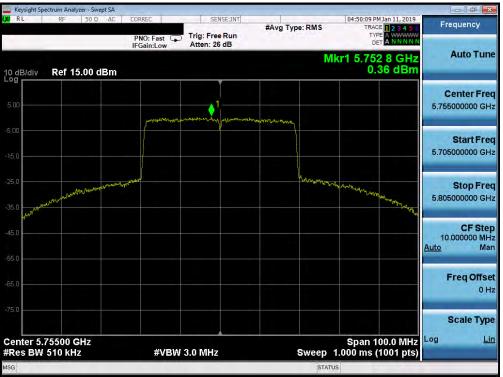
Plot 7-357. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 484 Tones (UNII Band 2C) - Ch. 138)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 252 of 514	
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-	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]		Max Permissible Power Density [dBm/500kHz]	Margin [dB]
3	5755	151	ax (40MHz)	484T	MCS0	0.36	30.00	-29.64
Band	5795	159	ax (40MHz)	484T	MCS0	0.64	30.00	-29.36
ä	5775	155	ax (80MHz)	484T	MCS0	6.20	30.00	-23.80

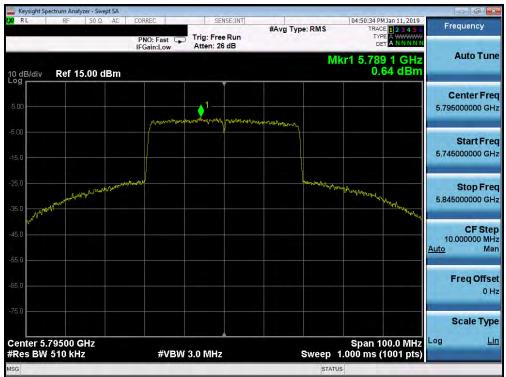
Table 7-95. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (484 Tones)



Plot 7-358. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 151)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-359. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 3) - Ch. 159)



Plot 7-360. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 484 Tones (UNII Band 3) - Ch. 155)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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SISO Antenna-2 Power Spectral Density Measurements (996 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5210	42	ax (80MHz)	996T	MCS0	-3.34	11.00	-14.34
Band 2A	5290	58	ax (80MHz)	996T	MCS0	-3.25	11.00	-14.25
SC	5530	106	ax (80MHz)	996T	MCS0	-3.94	11.00	-14.94
pr 1	5610	122	ax (80MHz)	996T	MCS0	2.26	11.00	-8.74
Band	5690	138	ax (80MHz)	996T	MCS0	2.77	11.00	-8.23

Table 7-96. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT2 (996 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Antenna	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5210	42	ax (80MHz)	996T	MCS0	-3.34	-7.57	-10.91	10.0	-20.91

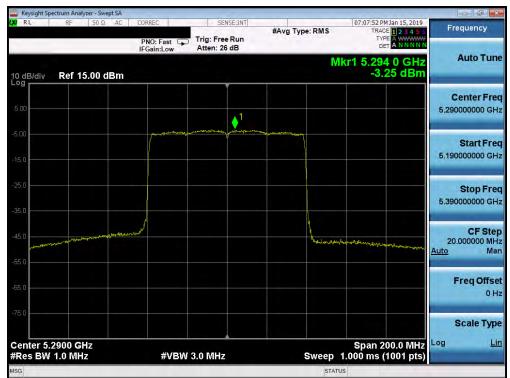
Table 7-97. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 996 Tones)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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AL RF 50Ω AC	PNO: Fast	SENSE(INT Trig: Free Run Atten: 26 dB	#Avg Type: RMS	07:06:04 PM Jan 15, 2019 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
0 dB/div Ref 15.00 dBm	II Galli.Low		М	kr1 5.200 2 GHz -3.34 dBm	Auto Tune
5,00		▲1			Center Fred 5.210000000 GH:
5.0		and a start and a start a start and a start a st	Arr weeks a week		Start Free 5.110000000 GH
5.0					Stop Free 5,310000000 GH
15.0	south		Magakawa	er on har and a familie and a straight and a familie and a straight and a straight and a straight a straight a	CF Ste 20.000000 MH <u>Auto</u> Ma
35.0					Freq Offse 0 H
75.0					Scale Type
Center 5.2100 GHz Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep	Span 200.0 MHz 1.000 ms (1001 pts)	

Plot 7-361. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 1) - Ch. 42)



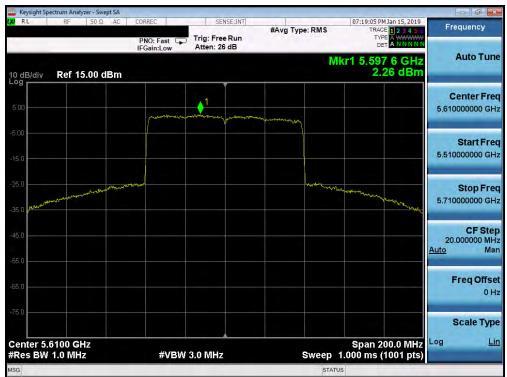
Plot 7-362. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:			
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RL RF 50Ω AC	CORREC PNO: Fast	SENSE:INT Trig: Free Run Atten: 26 dB	#Avg Type		07:18:22 PM Jan 15, 2019 TRACE 1 2 3 4 5 TYPE A WWWW DET A N N N N	Frequency
dB/div Ref 15.00 dBm				Mkr1	5.512 8 GH -3.94 dBn	2 Auto Tune
.00		1				Center Free 5,530000000 GH
5.0	Part of the line o	and an address of the second	Med was a straight and			Start Free 5.430000000 GH
5.0						Stop Fre 5.630000000 GH
5.0	han ha			and many more	Andread grifted and a fair of the strength and the	CF Ste 20.000000 MH <u>Auto</u> Ma
5,0						Freq Offse 0 H
enter 5.5300 GHz					Span 200.0 MH	Scale Type
Res BW 1.0 MHz	#VBW 3			Swoon 1 00	00 ms (1001 pts	

Plot 7-363. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 2C) - Ch. 106)



Plot 7-364. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 2C) - Ch. 122)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-365. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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-		Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]		Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	Band 3	5775	155	ax (80MHz)	996T	MCS0	3.55	30.00	-26.45

 Table 7-98. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (996 Tones)



Plot 7-366. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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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	5.76	6.08	8.93	11.00	-2.07
	5200	40	ax (20MHz)	26T	MCS0	5.51	5.53	8.53	11.00	-2.47
	5240	48	ax (20MHz)	26T	MCS0	5.45	5.70	8.59	11.00	-2.41
Band	5190	38	ax (40MHz)	26T	MCS0	5.51	6.78	9.20	11.00	-1.80
	5230	46	ax (40MHz)	26T	MCS0	4.59	7.45	9.26	11.00	-1.74
	5210	42	ax (80MHz)	26T	MCS0	6.87	6.80	9.85	11.00	-1.15
	5260	52	ax (20MHz)	26T	MCS0	6.34	7.30	9.86	11.00	-1.14
2A	5280	56	ax (20MHz)	26T	MCS0	6.12	6.06	9.10	11.00	-1.90
d 2	5320	64	ax (20MHz)	26T	MCS0	5.38	6.37	8.91	11.00	-2.09
Band	5270	54	ax (40MHz)	26T	MCS0	7.40	5.06	9.40	11.00	-1.60
Ξ.	5310	62	ax (40MHz)	26T	MCS0	5.77	3.76	7.89	11.00	-3.11
	5290	58	ax (80MHz)	26T	MCS0	5.54	5.84	8.70	11.00	-2.30
	5500	100	ax (20MHz)	26T	MCS0	4.68	4.80	7.75	11.00	-3.25
	5600	120	ax (20MHz)	26T	MCS0	6.10	5.20	8.68	11.00	-2.32
	5720	144	ax (20MHz)	26T	MCS0	5.63	4.97	8.32	11.00	-2.68
SC	5510	102	ax (40MHz)	26T	MCS0	4.50	2.73	6.71	11.00	-4.29
Bnad	5590	118	ax (40MHz)	26T	MCS0	4.66	1.59	6.40	11.00	-4.60
Bn	5710	142	ax (40MHz)	26T	MCS0	4.42	1.00	6.05	11.00	-4.95
	5530	106	ax (80MHz)	26T	MCS0	6.10	5.43	8.79	11.00	-2.21
	5610	122	ax (80MHz)	26T	MCS0	5.42	5.60	8.52	11.00	-2.48
	5690	138	ax (80MHz)	26T	MCS0	6.75	7.12	9.95	11.00	-1.05

Table 7-99. Bands 1, 2A, 2C 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]		e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
		5180	36	ax (20MHz)	26T	MCS0	5.76	6.08	8.93	-4.81	4.13	10.0	-5.87
	-	5200	40	ax (20MHz)	26T	MCS0	5.51	5.53	8.53	-4.53	4.00	10.0	-6.00
	, p	5240	48	ax (20MHz)	26T	MCS0	5.45	5.70	8.59	-4.71	3.88	10.0	-6.12
	Bar	5190	38	ax (40MHz)	26T	MCS0	5.51	6.78	9.20	-4.53	4.67	10.0	-5.33
	-	5230	46	ax (40MHz)	26T	MCS0	4.59	7.45	9.26	-4.71	4.56	10.0	-5.44
		5210	42	ax (80MHz)	26T	MCS0	6.87	6.80	9.85	-4.53	5.32	10.0	-4.68

Table 7-100. Bands 1 e.r.i.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]		Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	5745	149	ax (20MHz)	26T	MCS0	5.63	5.97	8.81	30.00	-21.19
с р 	5785	157	ax (20MHz)	26T	MCS0	5.88	5.54	8.72	30.00	-21.28
	5825	165	ax (20MHz)	26T	MCS0	4.61	4.34	7.49	30.00	-22.51
Band	5755	151	ax (40MHz)	26T	MCS0	5.59	7.53	9.68	30.00	-20.32
	5795	159	ax (40MHz)	26T	MCS0	4.54	6.32	8.53	30.00	-21.47
	5775	155	ax (80MHz)	26T	MCS0	7.37	7.61	10.50	30.00	-19.50

Table 7-101. Bands 3 Conducted Power Spectral Density Measurements MIMO (26 Tones)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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MIMO Power Spectral Density Measurements (52 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)	52T	MCS0	5.59	6.19	8.91	11.00	-2.09
	5200	40	ax (20MHz)	52T	MCS0	6.18	6.97	9.60	11.00	-1.40
d 1	5240	48	ax (20MHz)	52T	MCS0	5.54	6.87	9.27	11.00	-1.73
Band	5190	38	ax (40MHz)	52T	MCS0	4.71	6.01	8.42	11.00	-2.58
_	5230	46	ax (40MHz)	52T	MCS0	3.66	4.93	7.35	11.00	-3.65
	5210	42	ax (80MHz)	52T	MCS0	6.45	6.13	9.30	11.00	-1.70
	5260	52	ax (20MHz)	52T	MCS0	5.26	3.48	7.47	11.00	-3.53
∢	5280	56	ax (20MHz)	52T	MCS0	5.86	6.45	9.18	11.00	-1.82
d 2A	5320	64	ax (20MHz)	52T	MCS0	6.04	6.38	9.22	11.00	-1.78
Band	5270	54	ax (40MHz)	52T	MCS0	5.10	3.37	7.33	11.00	-3.67
-	5310	62	ax (40MHz)	52T	MCS0	5.19	3.08	7.27	11.00	-3.73
	5290	58	ax (80MHz)	52T	MCS0	6.55	5.90	9.25	11.00	-1.75
	5500	100	ax (20MHz)	52T	MCS0	5.42	5.00	8.23	11.00	-2.77
	5600	120	ax (20MHz)	52T	MCS0	5.43	4.53	8.01	11.00	-2.99
	5720	144	ax (20MHz)	52T	MCS0	4.83	4.60	7.73	11.00	-3.27
SC	5510	102	ax (40MHz)	52T	MCS0	3.82	2.09	6.05	11.00	-4.95
Bnad	5590	118	ax (40MHz)	52T	MCS0	2.67	1.54	5.15	11.00	-5.85
Bn	5710	142	ax (40MHz)	52T	MCS0	3.81	1.21	5.71	11.00	-5.29
	5530	106	ax (80MHz)	52T	MCS0	6.24	6.71	9.49	11.00	-1.51
	5610	122	ax (80MHz)	52T	MCS0	5.88	6.38	9.15	11.00	-1.85
	5690	138	ax (80MHz)	52T	MCS0	5.89	6.17	9.04	11.00	-1.96

Table 7-102. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (52 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]	Antenna	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	52T	MCS0	5.59	6.19	8.91	-4.81	4.10	10.0	-5.90
-	5200	40	ax (20MHz)	52T	MCS0	6.18	6.97	9.60	-4.53	5.07	10.0	-4.93
d 1	5240	48	ax (20MHz)	52T	MCS0	5.54	6.87	9.27	-4.71	4.56	10.0	-5.44
Ban	5190	38	ax (40MHz)	52T	MCS0	4.71	6.01	8.42	-4.53	3.89	10.0	-6.11
	5230	46	ax (40MHz)	52T	MCS0	3.66	4.93	7.35	-4.71	2.65	10.0	-7.35
	5210	42	ax (80MHz)	52T	MCS0	6.45	6.13	9.30	-4.53	4.77	10.0	-5.23

Table 7-103. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 52 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]		Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	5745	149	ax (20MHz)	52T	MCS0	5.15	4.69	7.94	30.00	-22.06
	5785	157	ax (20MHz)	52T	MCS0	4.97	5.01	8.00	30.00	-22.00
	5825	165	ax (20MHz)	52T	MCS0	4.65	5.09	7.89	30.00	-22.11
Band	5755	151	ax (40MHz)	52T	MCS0	3.58	5.37	7.58	30.00	-22.42
	5795	159	ax (40MHz)	52T	MCS0	4.54	5.61	8.12	30.00	-21.88
	5775	155	ax (80MHz)	52T	MCS0	7.19	7.18	10.20	30.00	-19.80

Table 7-104. Bands 3 Conducted Power Spectral Density Measurements MIMO (52 Tones)

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MIMO Power Spectral Density Measurements (106 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)	106T	MCS0	5.53	6.00	8.78	11.00	-2.22
_	5200	40	ax (20MHz)	106T	MCS0	4.48	5.72	8.15	11.00	-2.85
d 1	5240	48	ax (20MHz)	106T	MCS0	4.45	5.62	8.08	11.00	-2.92
Band	5190	38	ax (40MHz)	106T	MCS0	6.29	4.50	8.50	11.00	-2.50
_	5230	46	ax (40MHz)	106T	MCS0	2.68	4.14	6.48	11.00	-4.52
	5210	42	ax (80MHz)	106T	MCS0	5.23	5.53	8.39	11.00	-2.61
	5260	52	ax (20MHz)	106T	MCS0	4.33	5.37	7.89	11.00	-3.11
∢	5280	56	ax (20MHz)	106T	MCS0	4.51	5.40	7.99	11.00	-3.01
d 2A	5320	64	ax (20MHz)	106T	MCS0	5.00	5.55	8.29	11.00	-2.71
Band	5270	54	ax (40MHz)	106T	MCS0	4.79	2.68	6.87	11.00	-4.13
-	5310	62	ax (40MHz)	106T	MCS0	5.26	2.79	7.21	11.00	-3.79
	5290	58	ax (80MHz)	106T	MCS0	4.91	5.27	8.10	11.00	-2.90
	5500	100	ax (20MHz)	106T	MCS0	4.35	4.29	7.33	11.00	-3.67
	5600	120	ax (20MHz)	106T	MCS0	4.52	3.96	7.26	11.00	-3.74
	5720	144	ax (20MHz)	106T	MCS0	4.28	3.51	6.92	11.00	-4.08
2C	5510	102	ax (40MHz)	106T	MCS0	3.39	1.17	5.43	11.00	-5.57
ad	5590	118	ax (40MHz)	106T	MCS0	3.40	0.63	5.24	11.00	-5.76
Bnad	5710	142	ax (40MHz)	106T	MCS0	3.53	0.12	5.16	11.00	-5.84
	5530	106	ax (80MHz)	106T	MCS0	4.51	5.16	7.86	11.00	-3.14
	5610	122	ax (80MHz)	106T	MCS0	4.62	5.22	7.94	11.00	-3.06
	5690	138	ax (80MHz)	106T	MCS0	4.89	5.34	8.13	11.00	-2.87

Table 7-105. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (106 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]	Antenna	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	106T	MCS0	5.53	6.00	8.78	-4.81	3.97	10.0	-6.03
_	5200	40	ax (20MHz)	106T	MCS0	4.48	5.72	8.15	-4.53	3.62	10.0	-6.38
d 1	5240	48	ax (20MHz)	106T	MCS0	4.45	5.62	8.08	-4.71	3.38	10.0	-6.62
Ban	5190	38	ax (40MHz)	106T	MCS0	6.29	4.50	8.50	-4.53	3.97	10.0	-6.03
-	5230	46	ax (40MHz)	106T	MCS0	2.68	4.14	6.48	-4.71	1.78	10.0	-8.22
	5210	42	ax (80MHz)	106T	MCS0	5.23	5.53	8.39	-4.53	3.86	10.0	-6.14

Table 7-106. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 106 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]		Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	5745	149	ax (20MHz)	106T	MCS0	4.15	4.10	7.14	30.00	-22.86
	5785	157	ax (20MHz)	106T	MCS0	4.22	4.29	7.27	30.00	-22.73
d 3	5825	165	ax (20MHz)	106T	MCS0	4.26	3.59	6.95	30.00	-23.05
Band	5755	151	ax (40MHz)	106T	MCS0	2.31	4.24	6.39	30.00	-23.61
	5795	159	ax (40MHz)	106T	MCS0	2.60	4.76	6.82	30.00	-23.18
	5775	155	ax (80MHz)	106T	MCS0	5.48	5.99	8.75	30.00	-21.25

Table 7-107. Bands 3 Conducted Power Spectral Density Measurements MIMO (106 Tones)

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MIMO Power Spectral Density Measurements (242 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)	242T	MCS0	1.67	2.58	5.16	11.00	-5.84
	5200	40	ax (20MHz)	242T	MCS0	4.43	5.30	7.90	11.00	-3.10
d 1	5240	48	ax (20MHz)	242T	MCS0	4.57	5.61	8.13	11.00	-2.87
Band	5190	38	ax (40MHz)	242T	MCS0	-1.01	-0.06	2.50	11.00	-8.50
_	5230	46	ax (40MHz)	242T	MCS0	2.70	3.85	6.32	11.00	-4.68
	5210	42	ax (80MHz)	242T	MCS0	-0.64	-0.83	2.28	11.00	-8.72
	5260	52	ax (20MHz)	242T	MCS0	3.79	5.30	7.62	11.00	-3.38
∢	5280	56	ax (20MHz)	242T	MCS0	4.36	5.07	7.74	11.00	-3.26
d 2A	5320	64	ax (20MHz)	242T	MCS0	2.70	3.62	6.19	11.00	-4.81
Band	5270	54	ax (40MHz)	242T	MCS0	4.23	2.37	6.41	11.00	-4.59
-	5310	62	ax (40MHz)	242T	MCS0	-0.59	-2.62	1.52	11.00	-9.48
	5290	58	ax (80MHz)	242T	MCS0	-0.62	-0.68	2.36	11.00	-8.64
	5500	100	ax (20MHz)	242T	MCS0	3.21	3.51	6.37	11.00	-4.63
	5600	120	ax (20MHz)	242T	MCS0	4.17	3.94	7.07	11.00	-3.93
	5720	144	ax (20MHz)	242T	MCS0	4.06	4.13	7.11	11.00	-3.89
SC	5510	102	ax (40MHz)	242T	MCS0	-2.38	-4.15	-0.17	11.00	-11.17
Bnad	5590	118	ax (40MHz)	242T	MCS0	-2.54	0.70	2.39	11.00	-8.61
Bn	5710	142	ax (40MHz)	242T	MCS0	2.44	-0.09	4.37	11.00	-6.63
	5530	106	ax (80MHz)	242T	MCS0	4.49	-1.01	5.57	11.00	-5.43
	5610	122	ax (80MHz)	242T	MCS0	4.69	5.03	7.87	11.00	-3.13
	5690	138	ax (80MHz)	242T	MCS0	4.89	5.02	7.97	11.00	-3.03

Table 7-108. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (242 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]	Antenna	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	1.67	2.58	5.16	-4.81	0.35	10.0	-9.65
_	5200	40	ax (20MHz)	242T	MCS0	4.43	5.30	7.90	-4.53	3.37	10.0	-6.63
d 1	5240	48	ax (20MHz)	242T	MCS0	4.57	5.61	8.13	-4.71	3.43	10.0	-6.57
Ban	5190	38	ax (40MHz)	242T	MCS0	-1.01	-0.06	2.50	-4.53	-2.03	10.0	-12.03
-	5230	46	ax (40MHz)	242T	MCS0	2.70	3.85	6.32	-4.71	1.62	10.0	-8.38
	5210	42	ax (80MHz)	242T	MCS0	-0.64	-0.83	2.28	-4.53	-2.25	10.0	-12.25

Table 7-109. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 242 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]		Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	5745	149	ax (20MHz)	242T	MCS0	3.54	3.75	6.66	30.00	-23.34
	5785	157	ax (20MHz)	242T	MCS0	3.78	4.14	6.97	30.00	-23.03
d 3	5825	165	ax (20MHz)	242T	MCS0	3.12	3.83	6.50	30.00	-23.50
Band	5755	151	ax (40MHz)	242T	MCS0	2.13	4.07	6.22	30.00	-23.78
	5795	159	ax (40MHz)	242T	MCS0	-0.04	5.07	6.24	30.00	-23.76
	5775	155	ax (80MHz)	242T	MCS0	5.07	5.50	8.30	30.00	-21.70

Table 7-110. Bands 3 Conducted Power Spectral Density Measurements MIMO (242 Tones)

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MIMO Power Spectral Density Measurements (484 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]
-	5190	38	ax (40MHz)	484T	MCS0	-3.37	-3.74	-0.54	11.00	-11.54
Band	5230	46	ax (40MHz)	484T	MCS0	-0.38	-0.78	2.43	11.00	-8.57
ä	5210	42	ax (80MHz)	484T	MCS0	-3.90	-3.47	-0.67	11.00	-11.67
σ	5270	54	ax (40MHz)	484T	MCS0	0.13	-2.33	2.08	11.00	-8.92
Band 2A	5310	62	ax (40MHz)	484T	MCS0	-3.29	-5.59	-1.28	11.00	-12.28
ш	5290	58	ax (80MHz)	484T	MCS0	-3.28	-2.95	-0.10	11.00	-11.10
	5510	102	ax (40MHz)	484T	MCS0	-5.40	-8.00	-3.50	11.00	-14.50
3C	5590	118	ax (40MHz)	484T	MCS0	-1.44	-3.96	0.49	11.00	-10.51
	5710	142	ax (40MHz)	484T	MCS0	-1.36	-4.74	0.28	11.00	-10.72
Band	5530	106	ax (80MHz)	484T	MCS0	-3.24	-3.36	-0.29	11.00	-11.29
	5610	122	ax (80MHz)	484T	MCS0	0.94	0.99	3.98	11.00	-7.02
	5690	138	ax (80MHz)	484T	MCS0	0.91	0.63	3.78	11.00	-7.22

Table 7-111. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (484 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]		Antenna	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
	5190	38	ax (40MHz)	484T	MCS0	-3.37	-3.74	-0.54	-4.53	-5.07	10.0	-15.07
Pu	5230	46	ax (40MHz)	484T	MCS0	-0.38	-0.78	2.43	-4.71	-2.27	10.0	-12.27
Ba	5210	42	ax (80MHz)	484T	MCS0	-3.90	-3.47	-0.67	-4.53	-5.20	10.0	-15.20

Table 7-112. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 484 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	-		-	Margin [dB]
e	5755	151	ax (40MHz)	484T	MCS0	-1.90	-0.50	1.87	30.00	-28.13
Band	5795	159	ax (40MHz)	484T	MCS0	-1.32	0.11	2.46	30.00	-27.54
ä	5775	155	ax (80MHz)	484T	MCS0	1.35	1.45	4.41	30.00	-25.59

 Table 7-113. Bands 3 Conducted Power Spectral Density Measurements MIMO (484 Tones)

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MIMO Power Spectral Density Measurements (996 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]
Band 1	5210	42	ax (80MHz)	996T	MCS0	-7.18	-6.68	-3.91	11.00	-14.91
Band 2A	5290	58	ax (80MHz)	996T	MCS0	-6.81	-6.67	-3.73	11.00	-14.73
2C	5530	106	ax (80MHz)	996T	MCS0	-7.15	-6.27	-3.68	11.00	-14.68
	5610	122	ax (80MHz)	996T	MCS0	-3.20	-2.39	0.23	11.00	-10.77
Band	5690	138	ax (80MHz)	996T	MCS0	-3.02	-2.31	0.36	11.00	-10.64

Table 7-114. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements MIMO (996 Tones)

Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]		Antenna	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
5210	42	ax (80MHz)	996T	MCS0	-7.18	-6.68	-3.91	-4.53	-8.44	10.0	-18.44

 Table 7-115. Bands 1 e.r.i.p Conducted Power Spectral Density Measurements (ISED 996 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]		MIMO Power	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5775	155	ax (80MHz)	996T	MCS0	-2.56	-1.67	0.92	30.00	-29.08

Table 7-116. Bands 3 Conducted Power Spectral Density Measurements MIMO (996 Tones)

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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 -7.94 dBi for Antenna-1 and -7.70 dBi for Antenna-2.

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

= $10 \log[(10^{-7.94/20} + 10^{-7.70/20} / 2] dBi$
= $(-4.81) dBi$

Sample MIMO Calculation:

Assuming the average conducted power spectral density was measured to be 5.76 dBm for Antenna-1 and 6.08 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

(5.76 dBm + 6.08 dBm) = (3.77 mW + 4.06 mW) = 8.93 mW = dBm

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

Assuming the average MIMO power density was calculated to be 8.93 dBm with directional gain of -4.81 dBi.

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

8.93 dBm + (-4.81) dBi = 4.12 dBm

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Keysight Spectrum Analyzer - Swept SA 08:54:51 PM Jan 24, 2019 TRACE 1 2 3 4 5 6 Frequency #Avg Type: RMS TYPE Trig: Free Run PNO: Fast IFGain:Low Atten: 30 dB Auto Tune Mkr1 5.171 30 GHz 5.762 dBm Ref 20.00 dBm 10 dB/div **Center Freq** 5.180000000 GHz ۵ Start Freq 5.155000000 GHz Stop Freq TT I 5.205000000 GHz ռեն CF Step 5.000000 MHz ՝՝ <u>Auto</u> Man Freq Offset 0 Hz Scale Type Center 5.18000 GHz #Res BW 1.0 MHz Span 50.00 MHz Sweep 1.000 ms (1001 pts) Log Lin #VBW 3.0 MHz MSG STATUS

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

Plot 7-367. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

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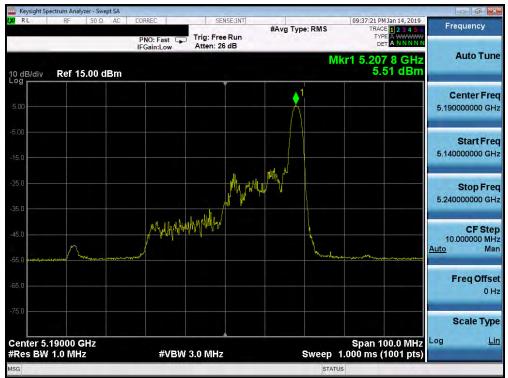
Plot 7-368. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)



Plot 7-369. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-370. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)



Plot 7-371. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

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0 RL RF 50Ω AC		SENSE(INT	#Avg Typ	e: RMS	04:27:05 PM Jan 15, 2019 TRACE 1 2 3 4 5 6 TYPE A WAYAAWA DET A N N N N N	Frequency
0 dB/div Ref 15.00 dBm	a dameon			Mkr	1 5.248 2 GHz 6.87 dBm	Auto Tune
5.00				1		Center Free 5.210000000 GH
5.0						Start Fre 5.110000000 GH
15.0 16.0			appy Mr M			Stop Fre 5.310000000 GH
15.0 	man manung bergeber	when high public public between the public between		Lourse	the second s	CF Ste 20.000000 MH <u>Auto</u> Ma
36.0						Freq Offse 0 H
250 Center 5.2100 GHz Res BW 1.0 MHz	#VBW 3.0 M	H7		Sween 1(Span 200.0 MHz 00 ms (1001 pts)	Scale Type Log <u>Li</u>

Plot 7-372. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)



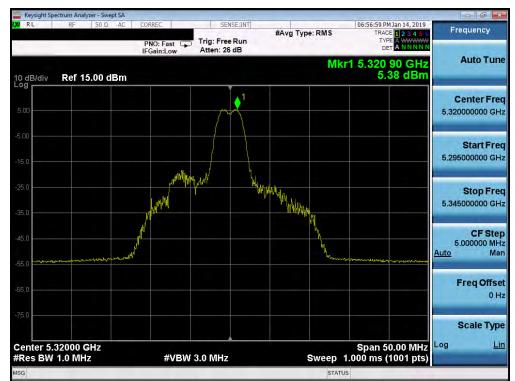
Plot 7-373. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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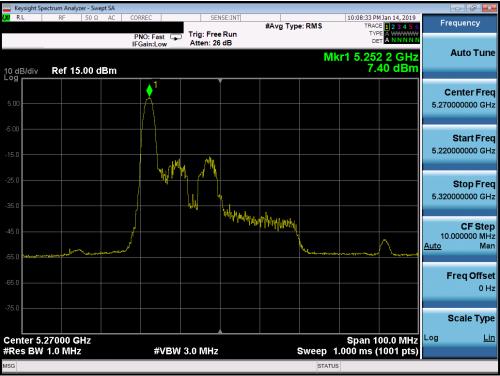
Plot 7-374. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 56)



Plot 7-375. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 64)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-376. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 54)



Plot 7-377. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 62)

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Plot 7-378. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)



Plot 7-379. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 100)

FCC ID: A3LSMG9730		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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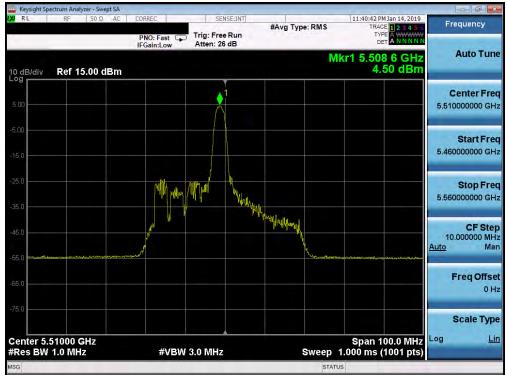
Plot 7-380. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)



Plot 7-381. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

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Plot 7-382. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 102)



Plot 7-383. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 118)

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Plot 7-384. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 142)



Plot 7-385. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 106)

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Plot 7-386. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 122)



Plot 7-387. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 138)

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Plot 7-388. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)



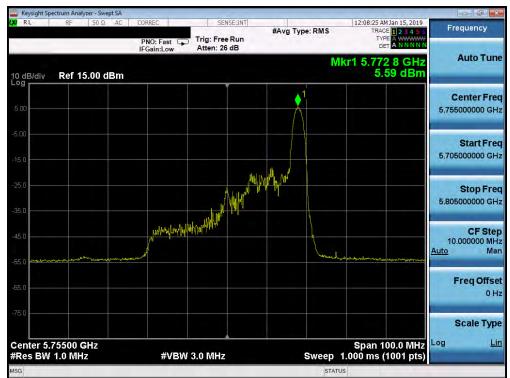
Plot 7-389. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

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Plot 7-390. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 165)



Plot 7-391. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 151)

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