

							- 6
LXIRL RF 50Ω AC CORF		vse:INT eq: 5.875000000 GHz Run Avg Hold	ALIGN AUTO	05:47:12 F Radio Std	M Oct 28, 2021 : None	Trace	/Detector
#IFG	ain:Low #Atten: 20			Radio Dev	vice: BTS		
10 dB/div Ref 10.00 dBm							
Log							
-10.0	Milleleduk har Andrew Western	product for the product of the second states and the second second second second second second second second se				С	lear Write
-20.0							
-30.0							
							Average
-40.0			Hunderson				Average
				per alland for the	bound the state of		
-60.0							
-70.0							Max Hold
-80.0							
Center 5.87500 GHz				Span 1	00.0 MHz		
#Res BW 100 kHz	VBV	V 1 MHz			9.267 ms		Min Hold
			00.0	-1170			
Occupied Bandwidth		Total Power	22.8	dBm			
37.54	46 MHz						Detector Peak▶
Transmit Freq Error	-1.658 kHz	% of OBW Pow	er 99	.00 %		Auto	Man
x dB Bandwidth	37.77 MHz	x dB	-6.0	00 dB			
MSG			STATUS				

Plot 7-125. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax - 484 Tones (UNII Band 4) - Ch. 175)



Plot 7-126. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax - 996 Tones (UNII Band 3/4) - Ch. 171)

FCC ID: A3LSMS908U	Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Da az 00 at 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 88 of 242
© 2021 PCTEST				V 9.0 02/01/2019





Plot 7-127. 6dB Bandwidth Plot MIMO ANT1 (160MHz BW L 802.11ax - 996 Tones (UNII Band 3/4) - Ch. 163)



Plot 7-128. 6dB Bandwidth Plot MIMO ANT1 (160MHz BW U 802.11ax - 996 Tones (UNII Band 3/4) - Ch. 163)

FCC ID: A3LSMS908U	Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	уре:	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 89 of 242
© 2021 PCTEST				V 9.0 02/01/2019



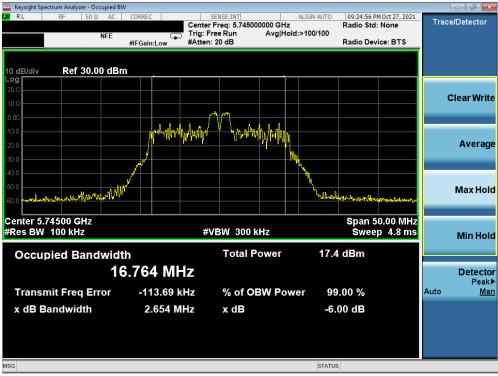
MIMO Antenna-2 6dB Bandwidth Measurements (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
	5745	149	ax (20MHz)	26T	MCS0	2.65
e	5785	157	ax (20MHz)	26T	MCS0	2.65
	5825	165	ax (20MHz)	26T	MCS0	2.68
Band	5755	151	ax (40MHz)	26T	MCS0	2.12
	5795	159	ax (40MHz)	26T	MCS0	2.13
	5775	155	ax (80MHz)	26T	MCS0	2.80

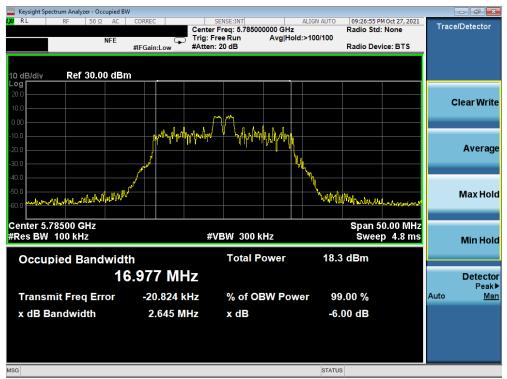
Table 7-10. Conducted Bandwidth Measurements MIMO ANT2 (26 Tones)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 00 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 90 of 242
© 2021 PCTEST		·		V 9.0 02/01/2019





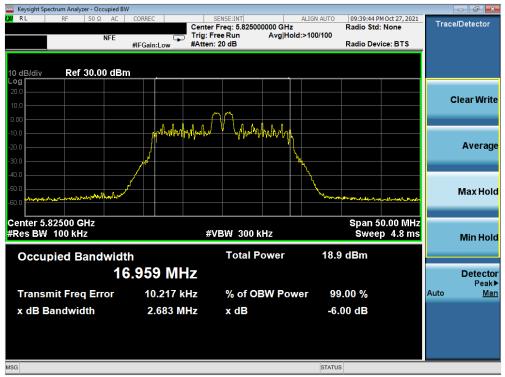
Plot 7-129. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 149)



Plot 7-130. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 157)

FCC ID: A3LSMS908U	Proud to be part of (6) element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 01 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 91 of 242
© 2021 PCTEST				V 9.0 02/01/2019





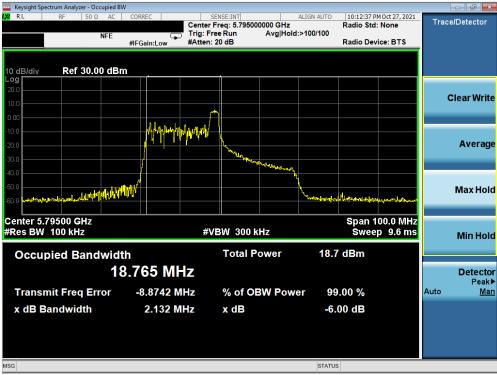
Plot 7-131. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 165)



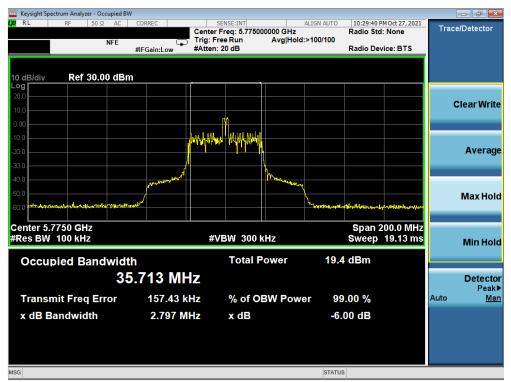
Plot 7-132. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)

FCC ID: A3LSMS908U	Poul to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset	Page 92 of 242
© 2021 PCTEST		·	V 9.0 02/01/2019





Plot 7-133. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 159)



Plot 7-134. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 155)

FCC ID: A3LSMS908U	Proud to be part of (6) element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 02 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 93 of 242	
© 2021 PCTEST V 9.0 02/01/2019					

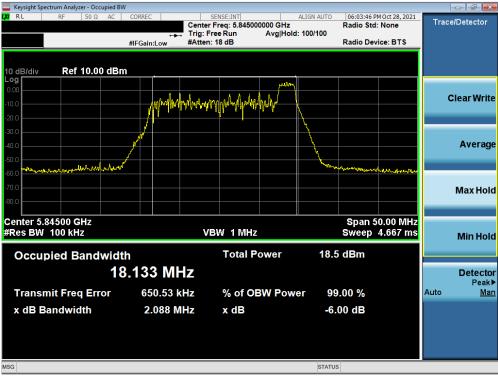


	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3/4	5845	169	ax (20MHz)	26T	MCS0	2.09
Band 4	5865	173	ax (20MHz)	26T	MCS0	2.11
Dallu 4	5885 177	177	ax (20MHz)	26T	MCS0	2.09
Band 3/4	5835	167	ax (40MHz)	26T	MCS0	2.10
Band 4	5875	175	ax (40MHz)	26T	MCS0	2.07
	5855	171	ax (80MHz)	26T	MCS0	2.73
Band 3/4	5815	163	ax (160MHz L)	26T	MCS0	3.05
	5815	163	ax (160MHz U)	26T	MCS0	2.99

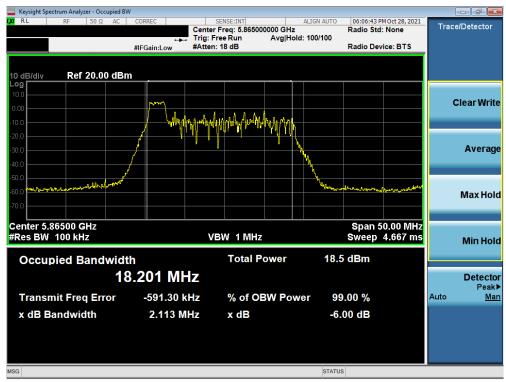
Table 7-11. Conducted Bandwidth Measurements MIMO ANT2 (26 Tones)

FCC ID: A3LSMS908U	Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 04 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 94 of 242
© 2021 PCTEST		·		V 9.0 02/01/2019





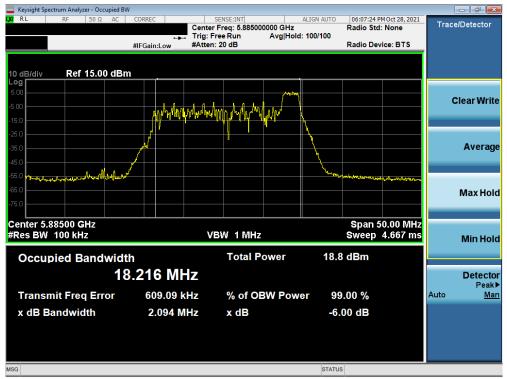
Plot 7-135. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 3/4) - Ch. 169)



Plot 7-136. 6dB Bandwidth Plot MIMO ANT2(20MHz BW 802.11ax - 26 Tones (UNII Band 4) - Ch. 173)

FCC ID: A3LSMS908U	PCTEST * Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 05 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 95 of 242
© 2021 PCTEST				V 9.0 02/01/2019





Plot 7-137. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 4) - Ch. 177)



Plot 7-138. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 3/4) - Ch. 167)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 at 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 96 of 242
© 2021 PCTEST				V 9.0 02/01/2019



🚾 Keysight Spectrum Analyzer - Occupied B\	N					
LXU RL RF 50Ω AC	CORREC	SENSE:INT Freg: 5.875000000 GHz	ALIGN AUTO 06:19:08 Radio Sto	PM Oct 28, 2021	Trace/Det	ector
	++++ Trig:	Free Run Avg Hold: n: 20 dB	: 100/100			
	#IFGain:Low #Atte	n: 20 dB	Radio De	vice: BTS		
10 dB/div Ref 20.00 dBr	<u>n</u>					
10.0						
0.00		— <u>/</u>			Clea	r Write
-10.0						_
-20.0						
-30.0					A۱	/erage
-40.0	mh shill and a strategic and		<u> </u>			-
-50.0	/		^ ↓			
-60.0 martinenstrumenter	and		man hours and have	al man man		
-70.0					ма	x Hold
Center 5.87500 GHz				100.0 MHz		
#Res BW 100 kHz	V	/BW 1 MHz	Sweep	9.267 ms	Mi	n Hold
Occupied Bandwidt	th	Total Power	18.9 dBm			_
			TO:S GBII			
1	7.832 MHz				De	tector Peak▶
Transmit Freq Error	10.196 MHz	% of OBW Powe	er 99.00 %		Auto	Man
x dB Bandwidth	2.073 MHz	x dB	-6.00 dB			
MSG			STATUS			
100			014103			

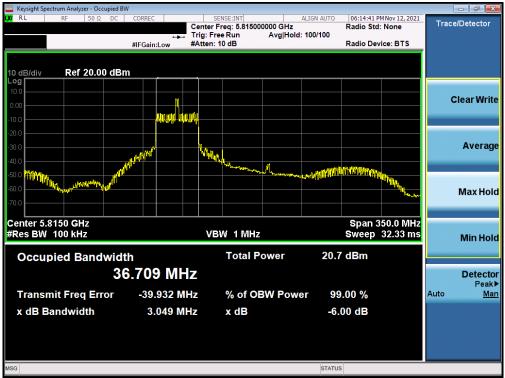
Plot 7-139. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 4) - Ch. 175)



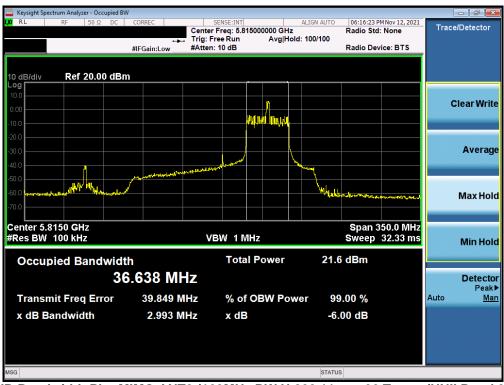
Plot 7-140. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 3/4) - Ch. 171)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset	Page 97 of 242
© 2021 PCTEST	and a state of		V 9.0 02/01/2019





Plot 7-141. 6dB Bandwidth Plot MIMO ANT2 (160MHz BW L 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 163)



Plot 7-142. 6dB Bandwidth Plot MIMO ANT2 (160MHz BW U 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 163)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 00 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 98 of 242
© 2021 PCTEST				V 9.0 02/01/2019

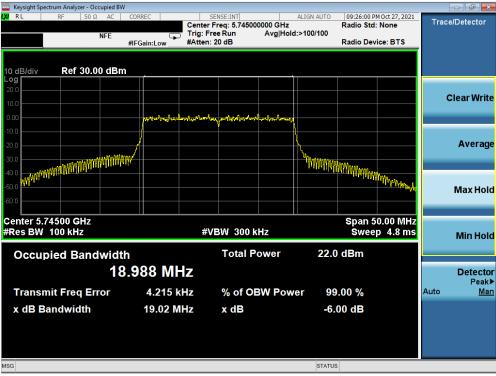


	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
	5745	149	ax (20MHz)	242T	MCS0	19.02
	5785	157	ax (20MHz)	242T	MCS0	19.08
od 3	5825	165	ax (20MHz)	242T	MCS0	19.01
Band	5755	151	ax (40MHz)	484T	MCS0	37.36
	5795	159	ax (40MHz)	484T	MCS0	37.48
	5775	155	ax (80MHz)	996T	MCS0	77.10

Table 7-12. Conducted Bandwidth Measurements MIMO ANT2 (Full Tones)

FCC ID: A3LSMS908U	Poul to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 00 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 99 of 242
© 2021 PCTEST		·		V 9.0 02/01/2019





Plot 7-143. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 149)



Plot 7-144. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 157)

FCC ID: A3LSMS908U	PCTEST: Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 400 af 040	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 100 of 242	
© 2021 PCTEST				V 9.0 02/01/2019	



www.www.com.com.com.com.com.com.com.com.com.com	cupied BW									
LXU RL RF 50 Ω	NFE	Ģ	Center Fr			ALIGN AUTO	09:40:28 Pl Radio Std: Radio Dev		Trac	e/Detector
	#IFG	ain:Low	#Atten. 20	0 UD			Raulo Dev	ice. DT3		
10 dB/div Ref 30.00	0 dBm									
20.0										
10.0										Clear Write
0.00		portionful	artheretun	methownawhow	hatenlyng					
-10.0	, ,									
-20.0	أمر					<u>ار</u>				Average
-30.0						₩ ₩				
-40.0	Ambia					- Walach	WHO'LE HAT THE	st.fl. a		
-50.0 m / / / / / / · · ·							·- • • • • • • • • • • • • • • • • • • •	www.whitehay		Max Hold
-60.0										
Center 5.82500 GHz							Snan 5	0.00 MHz		
#Res BW 100 kHz			#VB	W 300 k	Hz			p 4.8 ms		Min Hold
Occupied Band	width			Total P	ower	22.2	dBm			
		73 MF	7							Detector
										Peak▶
Transmit Freq Err	or	12.615 k	Hz	% of O	3W Pow	er 99	.00 %		Auto	<u>Man</u>
x dB Bandwidth		19.01 M	Hz	x dB		-6.0	00 dB			
MSG						STATUS				

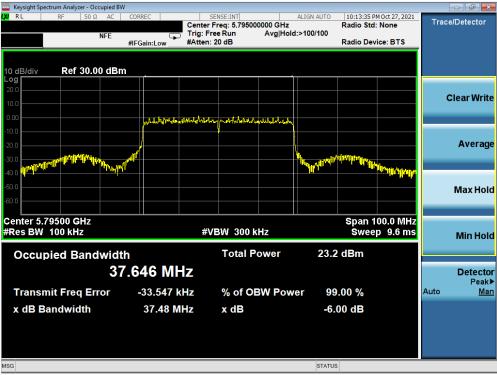
Plot 7-145. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3) - Ch. 165)



Plot 7-146. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 151)

FCC ID: A3LSMS908U	Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dage 101 of 242			
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 101 of 242			
© 2021 PCTEST V 9.0 02/01/2019							





Plot 7-147. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 3) - Ch. 159)



Plot 7-148. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 3) - Ch. 155)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 102 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 102 of 242
© 2021 PCTEST				V 9.0 02/01/2019



	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3/4	5845	169	ax (20MHz)	242T	MCS0	18.95
Band 4	5865	173	ax (20MHz)	242T	MCS0	18.92
Dallu 4	Band 4 5885 1	177	ax (20MHz)	242T	MCS0	18.92
Band 3/4	5835	167	ax (40MHz)	484T	MCS0	37.62
Band 4	5875	175	ax (40MHz)	484T	MCS0	37.32
	5855	171	ax (80MHz)	996T	MCS0	77.36
Band 3/4	5815	163	ax (160MHz L)	996T	MCS0	77.78
	5815	163	ax (160MHz U)	996T	MCS0	77.09

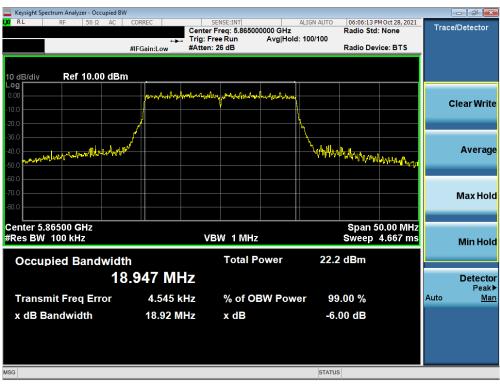
Table 7-13. Conducted Bandwidth Measurements MIMO ANT2 (Full Tones)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 102 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 103 of 242	
© 2021 PCTEST		·		V 9.0 02/01/2019	



Keysight Spectrum Analyzer - Occupied BV	1				
LX/ RL RF 50Ω AC		SENSE:INT ter Freq: 5.845000000 GH Free Run Avg H		PM Oct 28, 2021	Trace/Detector
		en: 26 dB		evice: BTS	
10 dB/div Ref 20.00 dBn	1		_		
Log 10.0					
0.00	- mary marked have been been been been been been been be	and with the whole and the states and the	*4		Clear Write
-10.0					
-20.0	_/				
-30.0			\		Average
-40.0	/		WA water the		
-50.0 AAM 14 1010 - 10 M			Jung Marthannin	W WWWWWWW	
-60.0					Max Hold
-70.0					Widx Hold
Center 5.84500 GHz #Res BW 100 kHz		VBW 1 MHz		50.00 MHz 4.667 ms	
#Res BW 100 KH2			Sweep	4.007 1115	Min Hold
Occupied Bandwidt	h	Total Power	22.3 dBm		
	8.960 MHz				Detector
10					Peak►
Transmit Freq Error	4.929 kHz	% of OBW Po	wer 99.00 %		Auto <u>Man</u>
x dB Bandwidth	18.95 MHz	x dB	-6.00 dB		
MSG			STATUS		

Plot 7-149. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 3/4) - Ch. 169)



Plot 7-150. 6dB Bandwidth Plot MIMO ANT2(20MHz BW 802.11ax - 242 Tones (UNII Band 4) - Ch. 173)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		De 404 6040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 104 of 242
© 2021 PCTEST				V 9.0 02/01/2019



Keysight Spectrum Analyzer - Occupied BW								- 6 ×
LX RE 50Ω AC CC	ORREC	SENSE:INT	00000 CH-	ALIGN AUTO	06:07:56 P	M Oct 28, 2021	Trac	e/Detector
		Center Freq: 5.8850 Trig: Free Run	Avg Hold	I: 100/100	Radio Sta	None		
#11		#Atten: 26 dB	0.		Radio Dev	ice: BTS		
10 dB/div Ref 20.00 dBm								
Log								
10.0								Clear Write
0.00	montantenter	be and weld to produce to a	+++++vlunel+veprov					
-10.0								
-20.0	┥──────			<u>\</u>				
-30.0				<u>\</u>				Average
-40.0				Myrth	where has			
-40.0 mmmilling to the start of					huthan futhin	W-WWWWWWW		
-60.0								
								Max Hold
-70.0								
Center 5.88500 GHz					Snan 5	0.00 MHz		
#Res BW 100 kHz		VBW 1 MHz	z			4.667 ms		Min Hold
								WIIII HOIU
Occupied Bandwidth		Total F	ower	22.7	dBm			
18 0	951 MHz	7						Detector
10.0		4						Peak►
Transmit Freq Error	-536 H	z % of O	BW Pow	er 99	.00 %		Auto	Man
x dB Bandwidth	18.92 MH	z xdB		-6 (00 dB			
	10.52 111			-0.0				
MSG				STATUS	;			

Plot 7-151. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax - 242 Tones (UNII Band 4) - Ch. 177)



Plot 7-152. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 3/4) - Ch. 167)

FCC ID: A3LSMS908U	PCTEST " Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 405 at 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 105 of 242
© 2021 PCTEST		-		V 9.0 02/01/2019



Keysight Spectrum Analyzer - Occupied BW							
LX RL RF 50Ω AC COR			ALIGN AUTO		M Oct 28, 2021	Trac	e/Detector
		eq: 5.875000000 GHz Run Avg Hold:	. 100/100	Radio Std	: None	mac	CIDELECTO
#IEG	ain:Low #Atten: 20		. 100/100	Radio Dev	vice: BTS		
10 dB/div Ref 10.00 dBm							
Log							
0.00	politic and provided with a	for the land and have a for the factor of th					Clear Write
-10.0							
-20.0							
-30.0							
			hard Marian (12)				Average
-40.0			and the state of t	1 Way Autoria	Lorasom		Average
-50.0					- with white		
-60.0							
-70,0							
							Max Hold
-80.0						_	
Center 5.87500 GHz				Snon 1	00.0 MHz		
#Res BW 100 kHz	VDV	V 1 MHz			9.267 ms		
#Res BW TOO KHZ	V D V			aweep	9.207 1115		Min Hold
Occupied Bandwidth		Total Power	23 /	dBm			
		I Otal I Owel	20.4	ubm			
37.5	32 MHz						Detector
							Peak▶
Transmit Freq Error -	19.896 kHz	% of OBW Powe	er 99.	.00 %		Auto	<u>Man</u>
x dB Bandwidth	37.32 MHz	x dB	6 (00 dB			
		X UB	-0.0	U UB			
MSG			STATUS				

Plot 7-153. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax - 484 Tones (UNII Band 4) - Ch. 175)



Plot 7-154. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax - 996 Tones (UNII Band 3/4) - Ch. 171)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 106 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset	Page 106 of 242
© 2021 PCTEST			V 9.0 02/01/2019





Plot 7-155. 6dB Bandwidth Plot MIMO ANT2 (160MHz BW L 802.11ax - 996 Tones (UNII Band 3/4) - Ch. 163)



Plot 7-156. 6dB Bandwidth Plot MIMO ANT2 (160MHz BW U 802.11ax - 996 Tones (UNII Band 3/4) - Ch. 163)

FCC ID: A3LSMS908U	PCTEST * Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 407 at 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 107 of 242
© 2021 PCTEST				V 9.0 02/01/2019



7.4 UNII Output Power Measurement – 802.11ax OFDMA §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies.

In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is 250mW (23.98dBm). The maximum e.i.r.p. shall not exceed the lesser of 200 mW or 10 + 10 log10B, dBm.

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + $10\log_{10}(26dB BW) = 11 dBm + 10\log_{10}(18.49) = 23.67dBm$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + $10\log_{10}(26dB BW) = 11 dBm + 10\log_{10}(18.49) = 23.67dBm$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.

In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm). The maximum e.i.r.p. is 36 dBm.

In the 5.850 – 5.895 GHz band, the maximum permissible e.i.r.p is 30dBm.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G KDB 789033 D02 v02r01 – Section E)3)b) Method PM-G ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique KDB 662911 v02r01 – Section E)1) Measure-and-Sum Technique

Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

FCC ID: A3LSMS908U	PCTEST Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dava 400 at 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 108 of 242
© 2021 PCTEST	-			V 9.0 02/01/2019



MIMO Maximum Conducted Output Power Measurements (26 Tones)

									RU Index					Conducted	Conducted
	Freq [MHz]	Channel	Detector	Tones		0			4			8		Power Limit	Power
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
N	5180	36	AVG	26T	8.37	9.20	11.81	8.93	9.45	12.21	8.82	9.36	12.11	23.98	-11.77
<u>∃</u> ⊆	5200	40	AVG	26T	8.76	8.93	11.85	9.26	9.42	12.35	9.03	9.09	12.07	23.98	-11.63
S S	5240	48	AVG	26T	9.07	8.92	12.00	9.49	9.37	12.44	9.22	9.03	12.14	23.98	-11.54
	5260	52	AVG	26T	8.92	8.80	11.87	9.47	9.38	12.44	9.16	9.08	12.13	23.47	-11.03
<u>S</u> 3	5280	56	AVG	26T	9.02	8.63	11.84	9.38	9.17	12.29	9.42	8.93	12.19	23.47	-11.18
NZ	5320	64	AVG	26T	9.46	8.87	12.18	9.44	9.45	12.46	9.38	9.05	12.23	23.47	-11.01
a T	5500	100	AVG	26T	8.85	8.21	11.55	9.16	8.53	11.87	8.97	8.01	11.53	22.80	-10.93
C m	5600	120	AVG	26T	8.87	8.55	11.72	9.24	9.46	12.36	8.65	8.94	11.81	22.80	-10.44
ເ <u>ດ</u>	5720	144	AVG	26T	9.07	9.03	12.06	9.60	9.35	12.49	9.49	9.36	12.44	22.80	-10.31
	5745	149	AVG	26T	8.91	8.87	11.90	9.21	9.31	12.27	8.91	8.77	11.85	30.00	-17.73
	5785	157	AVG	26T	8.77	8.82	11.81	9.41	9.15	12.29	8.78	9.05	11.93	30.00	-17.71
	5825	165	AVG	26T	9.01	9.40	12.22	9.39	9.55	12.48	9.05	9.15	12.11	30.00	-17.52

Table 7-14. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

									RU Index					Conducted	Conducted
	Freq [MHz]	Channel	Detector	Tones		0			8			17		Power Limit	
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
≣ ÷	5190	38	AVG	26T	8.38	8.65	11.53	9.09	9.56	12.34	8.93	9.07	12.01	23.98	-11.64
	5230	46	AVG	26T	8.52	8.72	11.63	9.33	9.40	12.38	8.81	8.93	11.88	23.98	-11.60
4 i≥ i	5270	54	AVG	26T	8.98	8.80	11.90	9.41	9.46	12.45	9.01	8.95	11.99	23.47	-11.02
. 6	5310	62	AVG	26T	8.74	8.29	11.53	9.26	9.00	12.14	8.81	8.90	11.87	23.47	-11.33
	5510	102	AVG	26T	8.87	8.54	11.72	9.11	8.83	11.98	8.90	8.83	11.88	22.80	-10.82
ם ב	5590	118	AVG	26T	8.73	8.29	11.53	9.48	8.75	12.14	8.84	8.19	11.54	22.80	-10.66
ЗШ	5710	142	AVG	26T	9.22	9.16	12.20	9.38	9.04	12.22	9.54	9.41	12.49	22.80	-10.31
· [5755	151	AVG	26T	8.88	8.63	11.77	9.55	9.39	12.48	8.96	9.20	12.09	30.00	-17.52
	5795	159	AVG	26T	9.21	8.75	12.00	9.26	9.24	12.26	8.64	8.77	11.72	30.00	-17.74

Table 7-15. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

					RU Index									Conducted	Conducted
N	Freq [MHz]	Channel	Detector	Tones		0			18			36	Power Limit	Power	
∃ ਦੇ ਹ					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
e e	5210	42	AVG	26T	8.76	9.26	12.03	9.18	9.16	12.18	9.10	8.57	11.85	23.98	-11.80
<u>®</u> <u>></u>	5290	58	AVG	26T	9.12	9.36	12.25	9.52	9.37	12.46	9.16	9.00	12.09	23.47	-11.01
₽°	5530	106	AVG	26T	9.27	8.59	11.95	9.28	8.92	12.11	8.71	8.54	11.64	22.80	-10.69
۳. C	5610	122	AVG	26T	9.35	8.50	11.96	9.22	8.21	11.75	9.37	8.53	11.98	22.80	-10.82
-0-	5690	138	AVG	26T	9.22	8.65	11.95	9.13	9.19	12.17	8.70	8.94	11.83	22.80	-10.63
	5775	155	AVG	26T	9.24	8 75	12.01	9.28	9.22	12.26	9.12	9 19	12 17	30.00	-17 74

Table 7-16. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

N		Frea			Average Conducted Power (dBm)									
Hz	Hereq		Channel	Tones	RU Index: 0			RU Index: 18				RU Index: 36	;	
N N N		[INITZ]			ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	
16(F	1	5250	50	26T	9.57	10.09	12.85	10.07	9.70	12.90	9.04	9.24	12.15	
	2A	5570	114	26T	9.91	9.85	12.89	9.97	9.78	12.89	9.49	9.26	12.39	

Table 7-17. MIMO 160MHz BW L (UNII) Maximum Conducted Output Power (26 Tones)

N		Frea						Average Co	onducted Po	wer (dBm)			
۲Hz	Band	[MHz]	Channel	Tones		RU Index: 0		_	RU Index: 18	•		RU Index: 36	•
BV					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO
16(I	1	5250	50	26T	9.88	10.01	12.96	9.78	9.42	12.61	9.25	9.33	12.30
	2C	5570	114	26T	9.65	9.38	12.53	9.76	9.24	12.52	9.68	9.10	12.41

Table 7-18. MIMO 160MHz BW U (UNII) Maximum Conducted Output Power (26 Tones)

FCC ID: A3LSMS908U	Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 100 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 109 of 242
© 2021 PCTEST		·		V 9.0 02/01/2019



MIMO Conducted Output Power Measurements (52 Tones)

									RU Index					Conducted	Conducted
	Freq [MHz]	Channel	Detector	Tones		37			39			40		Power Limit	Power
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
N	5180	36	AVG	52T	12.34	12.85	15.61	12.58	13.21	15.92	12.56	12.98	15.79	23.98	-8.06
ΞΞ	5200	40	AVG	52T	12.39	12.81	15.62	12.77	13.15	15.97	12.51	12.98	15.76	23.98	-8.00
ΞĦ	5240	48	AVG	52T	12.65	12.94	15.81	12.86	13.09	15.99	12.75	13.11	15.94	23.98	-7.99
vic 20	5260	52	AVG	52T	12.64	12.64	15.65	12.34	12.16	15.26	12.83	12.91	15.88	23.47	-7.59
<u>S</u>	5280	56	AVG	52T	12.75	12.76	15.76	13.01	12.94	15.99	12.84	12.78	15.82	23.47	-7.48
N	5320	64	AVG	52T	13.05	12.69	15.88	12.38	12.22	15.31	13.11	12.81	15.97	23.47	-7.50
a T	5500	100	AVG	52T	12.69	12.46	15.59	12.96	12.81	15.90	12.33	12.41	15.38	22.80	-6.90
C m	5600	120	AVG	52T	12.95	12.76	15.87	12.94	12.93	15.95	12.86	12.79	15.84	22.80	-6.85
υ -	5720	144	AVG	52T	12.16	12.39	15.29	12.53	12.66	15.61	12.05	12.15	15.11	22.80	-7.19
	5745	149	AVG	52T	12.45	12.53	15.50	12.73	12.93	15.84	12.46	12.61	15.55	30.00	-14.16
	5785	157	AVG	52T	12.46	12.67	15.58	12.88	12.92	15.91	12.53	12.85	15.70	30.00	-14.09
	5825	165	AVG	52T	12.51	12.86	15.70	12.80	12.99	15.91	12.55	12.82	15.69	30.00	-14.09

Table 7-19. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

									RU Index					Conducted	Conducted
	Freq [MHz]	Channel	Detector	Tones		37			40			44		Power Limit	Power
-					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
÷ -	5190	38	AVG	52T	11.82	12.55	15.21	12.36	12.73	15.56	12.23	12.76	15.51	23.98	-8.42
D	5230	46	AVG	52T	12.04	12.46	15.27	12.24	12.54	15.40	12.27	12.68	15.49	23.98	-8.49
N	5270	54	AVG	52T	12.15	12.29	15.23	12.46	12.52	15.50	12.64	12.63	15.65	23.47	-7.82
b	5310	62	AVG	52T	12.47	12.08	15.29	12.71	12.49	15.61	12.82	12.60	15.72	23.47	-7.75
<u> </u>	5510	102	AVG	52T	12.42	12.28	15.36	13.07	12.87	15.98	12.38	12.42	15.41	22.80	-6.82
a	5590	118	AVG	52T	12.62	12.17	15.41	13.06	12.89	15.99	12.67	12.42	15.56	22.80	-6.81
	5710	142	AVG	52T	12.94	12.87	15.92	12.41	12.55	15.49	12.97	12.98	15.99	22.80	-6.81
	5755	151	AVG	52T	12.18	12.29	15.25	12.89	12.73	15.82	12.21	12.18	15.21	30.00	-14.18
	5795	159	AVG	52T	12.41	12.48	15.46	13.01	12.92	15.98	12.59	12.65	15.63	30.00	-14.02

Table 7-20. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

									RU Index					Conducted	Conducted
N	Freq [MHz]	Channel	Detector	Tones		37			44			52		Power Limit	Power
ਜ ਦੇ ਦੇ ਦੇ					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
e te	5210	42	AVG	52T	12.42	12.77	15.61	12.48	12.45	15.48	12.40	12.16	15.29	23.98	-8.37
<u>∞ ≥</u>	5290	58	AVG	52T	12.65	12.64	15.66	12.43	12.32	15.39	12.35	12.09	15.23	23.47	-7.81
₽°	5530	106	AVG	52T	12.82	12.99	15.92	12.85	13.10	15.99	12.66	12.89	15.79	22.80	-6.81
ы B	5610	122	AVG	52T	12.00	12.75	15.40	13.01	12.81	15.92	12.86	12.79	15.84	22.80	-6.88
5	5690	138	AVG	52T	12.85	12.98	15.93	12.26	12.62	15.46	12.32	12.67	15.51	22.80	-6.87
	5775	155	AVG	52T	12.58	12.82	15 71	12 10	12.46	15.29	12.01	12.33	15.18	30.00	-14 29

Table 7-21. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

Band Freq Channel Tones RU Index: 37	RU Index: 44	RU Index: 52
		RU INDEX: 52
	ANT1 ANT2 MIMO	ANT1 ANT2 MIMO
	12.58 12.81 15.71	12.93 12.94 15.95
2C 5570 114 52T 12.81 12.97 15.90 12	12.19 12.51 15.36	12.20 12.37 15.30

Table 7-22. MIMO 160MHz BW L (UNII) Maximum Conducted Output Power (52 Tones)

N		Frea						Average C	onducted Po	wer (dBm)			
۲Hz	Band	[MHz]	Channel	Tones		RU Index: 37	,		RU Index: 44			RU Index: 52	
BVB					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO
16(1	5250	50	52T	12.76	12.63	15.71	12.75	12.60	15.68	13.13	12.78	15.97
	2C	5570	114	52T	12.25	12.41	15.34	12.89	12.99	15.95	12.38	12.57	15.49

Table 7-23. MIMO 160MHz BW U (UNII) Maximum Conducted Output Power (52 Tones)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 110 of 212
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 110 of 242
© 2021 PCTEST	•	·		V 9.0 02/01/2019



MIMO Conducted Output Power Measurements (106 Tones)

							RU I	ndex			Conducted	Conducted
	Freq [MHz]	Channel	Detector	Tones		53			54		Power Limit	Power
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
N	5180	36	AVG	106T	14.42	14.98	17.72	14.68	15.22	17.97	23.98	-6.01
E	5200	40	AVG	106T	14.24	14.86	17.57	14.52	14.96	17.75	23.98	-6.23
ן ב ב	5240	48	AVG	106T	14.46	14.86	17.67	14.65	14.94	17.81	23.98	-6.17
	5260	52	AVG	106T	14.57	14.64	17.62	14.96	14.98	17.98	23.47	-5.49
<u><</u> 0	5280	56	AVG	106T	14.83	14.82	17.84	14.89	14.96	17.94	23.47	-5.53
N 2	5320	64	AVG	106T	15.07	14.85	17.97	15.05	14.88	17.98	23.47	-5.49
a T	5500	100	AVG	106T	14.47	14.34	17.42	14.46	14.42	17.45	22.80	-5.35
C m	5600	120	AVG	106T	14.98	14.87	17.94	14.71	14.84	17.79	22.80	-4.86
S _	5720	144	AVG	106T	14.28	14.43	17.37	14.26	14.35	17.31	22.80	-5.43
	5745	149	AVG	106T	14.51	14.48	17.50	14.44	14.52	17.49	30.00	-12.50
	5785	157	AVG	106T	14.66	14.76	17.72	14.43	14.78	17.62	30.00	-12.28
	5825	165	AVG	106T	14.59	14.93	17.78	14.68	14.82	17.76	30.00	-12.22

Table 7-24. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

									RU Index					Conducted	Conducted
	Freq [MHz]	Channel	Detector	Tones		53			54			56		Power Limit	Power
2					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
÷	5190	38	AVG	106T	13.99	14.65	17.34	14.68	15.26	17.99	14.53	14.93	17.74	23.98	-5.99
σ	5230	46	AVG	106T	14.41	14.65	17.54	14.72	15.16	17.96	14.51	14.97	17.76	23.98	-6.02
Ξ	5270	54	AVG	106T	14.75	14.64	17.71	14.46	14.33	17.40	14.84	14.88	17.87	23.47	-5.60
6	5310	62	AVG	106T	14.85	14.68	17.78	14.65	14.27	17.47	14.94	14.78	17.87	23.47	-5.60
Ē	5510	102	AVG	106T	14.64	14.30	17.48	14.96	14.74	17.86	14.61	14.35	17.49	22.80	-4.94
a	5590	118	AVG	106T	14.71	14.42	17.58	15.08	14.86	17.98	14.72	14.62	17.68	22.80	-4.82
ш	5710	142	AVG	106T	14.93	15.01	17.98	14.61	14.65	17.64	14.36	14.40	17.39	22.80	-4.82
	5755	151	AVG	106T	14.28	14.26	17.28	14.69	14.60	17.66	14.23	14.45	17.35	30.00	-12.34
	5795	159	AVG	106T	14.48	14.46	17.48	14.88	14.83	17.86	14.59	14.71	17.66	30.00	-12.14

 Table 7-25. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

									RU Index					Conducted	Conducted
N	Freq [MHz]	Channel	Detector	Tones		53			56			60		Power Limit	Power
ਤ ਉ					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
e i	5210	42	AVG	106T	14.37	14.70	17.55	14.36	14.35	17.37	14.38	14.12	17.26	23.98	-6.43
8) A	5290	58	AVG	106T	14.91	14.59	17.76	14.38	14.26	17.33	14.26	14.15	17.22	23.47	-5.71
Ρč	5530	106	AVG	106T	14.04	14.26	17.16	14.15	14.37	17.27	14.83	15.11	17.98	22.80	-4.82
ъ В	5610	122	AVG	106T	14.74	14.91	17.84	14.34	14.02	17.19	14.26	14.18	17.23	22.80	-4.96
- C	5690	138	AVG	106T	14.86	15.06	17.97	14.34	14.43	17.40	14.36	14.68	17.53	22.80	-4.83
	5775	155	AVG	106T	14.48	14.57	17.54	14.89	15.05	17.98	14.72	15.18	17.97	30.00	-12.02
						B147 /1		•	<u> </u>						

Table 7-26. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

N		Freq						Average C	onducted Po	wer (dBm)			
Hz	Band	[MHz]	Channel	Tones		RU Index: 53	•		RU Index: 56	;	I	RU Index: 60	
N N N		נאורוצן			ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO
16(F	1	5250	50	106T	14.40	14.89	17.66	14.26	14.40	17.34	14.74	14.66	17.71
~	2C	5570	114	106T	14.88	15.07	17.99	14.19	14.39	17.30	14.04	14.41	17.24

Table 7-27. MIMO 160MHz BW L (UNII) Maximum Conducted Output Power (106 Tones)

N		Frea						Average C	onducted Po	wer (dBm)			
ΞHZ	Band	[MHz]	Channel	Tones		RU Index: 53	3		RU Index: 56	;		RU Index: 60	l -
B A O		[INITZ]			ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO
16(1	5250	50	106T	14.78	14.59	17.70	14.84	14.59	17.73	14.83	14.49	17.67
~~~	2C	5570	114	106T	14.25	14.41	17.34	14.16	14.32	17.25	14.01	14.34	17.19

 Table 7-28. MIMO 160MHz BW U (UNII) Maximum Conducted Output Power (106 Tones)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 111 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 111 of 242
© 2021 PCTEST	·	·		V 9.0 02/01/2019



# MIMO Conducted Output Power Measurements (242 Tones)

						RU Index		Conducted	Conducted
	Freq [MHz]	Channel	Detector	Tones		61		Power Limit	Power
					ANT1	ANT2	MIMO	[dBm]	Margin [dB]
N	5180	36	AVG	242T	14.55	15.12	17.85	23.98	-6.12
L L	5200	40	AVG	242T	14.49	14.94	17.73	23.98	-6.25
0M idt	5240	48	AVG	242T	14.58	14.89	17.75	23.98	-6.23
∑	5260	52	AVG	242T	14.56	14.72	17.65	23.47	-5.82
<u>&lt;</u> (2)	5280	56	AVG	242T	14.74	14.72	17.74	23.47	-5.73
	5320	64	AVG	242T	15.03	14.85	17.95	23.47	-5.52
a T	5500	100	AVG	242T	14.58	14.49	17.55	22.80	-5.25
C B B	5600	120	AVG	242T	14.83	14.93	17.89	22.80	-4.91
5	5720	144	AVG	242T	15.17	15.38	18.29	22.80	-4.51
	5745	149	AVG	242T	15.25	15.69	18.49	30.00	-11.51
	5785	157	AVG	242T	14.59	14.73	17.67	30.00	-12.33
	5825	165	AVG	242T	14.56	14.78	17.68	30.00	-12.32

Table 7-29. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

							RU I	ndex			Conducted	Conducted
N	Freq [MHz]	Channel	Detector	Tones		61			62		Power Limit	Power
T a	•				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
14 F	5190	38	AVG	242T	14.48	15.12	17.82	14.72	15.08	17.91	23.98	-6.07
<u>e</u> 9	5230	46	AVG	242T	14.46	14.84	17.66	14.65	15.17	17.93	23.98	-6.05
4 \$	5270	54	AVG	242T	14.96	14.98	17.98	15.15	15.13	18.15	23.47	-5.32
<u>с</u> б	5310	62	AVG	242T	15.12	14.93	18.04	15.18	15.01	18.11	23.47	-5.36
₽ <u></u>	5510	102	AVG	242T	14.58	14.43	17.52	14.72	14.76	17.75	22.80	-5.05
it so	5590	118	AVG	242T	14.72	14.46	17.60	14.88	14.75	17.83	22.80	-4.97
В	5710	142	AVG	242T	15.01	15.04	18.04	15.41	15.51	18.47	22.80	-4.33
	5755	151	AVG	242T	15.35	15.54	18.46	14.65	14.79	17.73	30.00	-11.54
	5795	159	AVG	242T	15.37	15.58	18.49	14.62	14.91	17.78	30.00	-11.51

Table 7-30. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

									RU Index					Conducted	Conducted
N	Freq [MHz]	Channel	Detector	Tones		61			62			64		Power Limit	Power
王운					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
id S	5210	42	AVG	242T	14.74	14.91	17.84	15.26	15.23	18.26	15.50	15.23	18.38	23.98	-5.60
<u>8</u> (8	5290	58	AVG	242T	14.26	15.19	17.76	14.84	14.53	17.70	15.41	15.28	18.36	23.47	-5.11
우입	5530	106	AVG	242T	15.09	15.39	18.25	15.12	15.40	18.27	15.19	15.41	18.31	22.80	-4.49
ы В В	5610	122	AVG	242T	14.91	15.02	17.98	14.94	15.12	18.04	15.26	15.14	18.21	22.80	-4.59
- C -	5690	138	AVG	242T	15.05	15.26	18.17	15.33	15.57	18.46	14.63	14.93	17.79	22.80	-4.34
	5775	155	AVG	242T	14.84	14.99	17.93	15.01	15.14	18.09	14.91	15.49	18.22	30.00	-11.78

## Table 7-31. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

N		Frea						Average C	onducted Po	wer (dBm)			
Hz	Band	[MHz]	Channel	Tones	RU Index: 61			RU Index: 62			RU Index: 64		
B A B		נייורובן			ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO
16( F	1	5250	50	242T	14.93	15.36	18.16	14.81	15.04	17.94	15.40	15.55	18.49
	2C	5570	114	242T	14.76	15.09	17.94	15.14	15.71	18.44	15.15	15.29	18.23

Table 7-32. MIMO 160MHz BW L (UNII) Maximum Conducted Output Power (242 Tones)

N		Frea						Average C	onducted Po	wer (dBm)			
۲۲ ۲	Band	[MHz]	Channel	Tones		RU Index: 61			RU Index: 62			RU Index: 64	•
N N N		נאורזצן			ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO
16(	1	5250	50	242T	14.96	14.80	17.89	15.34	15.23	18.30	15.19	14.81	18.01
	2C	5570	114	242T	15.24	15.51	18.39	15.22	15.42	18.33	15.31	15.64	18.49
	-			0 4 0 0 1		11/11/11		<u> </u>	4 1 0		10.10	- \	

Table 7-33. MIMO 160MHz BW U (UNII) Maximum Conducted Output Power (242 Tones)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 110 of 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 112 of 242
© 2021 PCTEST				V 9.0 02/01/2019



# MIMO Conducted Output Power Measurements (484 Tones)

							RU	Index			Conducted	Conducted
N	Freq [MHz]	Channel	Detector	Tones		65			66		Power Limit	Power
E E					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[dBm]	Margin [dB]
No H	5210	42	AVG	484T	14.31	14.26	17.30	13.83	13.79	16.82	23.98	-6.68
8) 1	5290	58	AVG	484T	15.13	14.90	18.03	15.32	15.15	18.25	23.47	-5.22
Ρü	5530	106	AVG	484T	14.83	15.16	18.01	14.75	15.09	17.93	22.80	-4.79
Bag	5610	122	AVG	484T	14.72	14.64	17.69	14.75	14.83	17.80	22.80	-5.00
- 2	5690	138	AVG	484T	14.68	14.96	17.83	15.25	15.49	18.38	22.80	-4.42
	5775	155	AVG	484T	14.58	14.81	17.71	14.71	15.05	17.89	30.00	-12.11

Table 7-34. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

					RU Index		Conducted	Conducted
Freq [MHz]	Channel	Detector	Tones		65		Power Limit	Power
				ANT1	ANT2	MIMO	[dBm]	Margin [dB]
5190	38	AVG	484T	13.47	13.97	16.74	23.98	-7.24
5230	46	AVG	484T	15.14	15.32	18.24	23.98	-5.74
5270	54	AVG	484T	15.52	15.29	18.42	23.47	-5.05
5310	62	AVG	484T	15.55	15.40	18.49	23.47	-4.98
5510	102	AVG	484T	15.21	14.82	18.03	22.80	-4.77
5590	118	AVG	484T	15.27	14.95	18.12	22.80	-4.68
5710	142	AVG	484T	15.38	15.57	18.49	22.80	-4.31
5755	151	AVG	484T	14.84	14.82	17.84	30.00	-12.16
5795	159	AVG	484T	15.07	15.14	18.12	30.00	-11.88
	5190 5230 5270 5310 55510 55590 5710 5755	5190         38           5230         46           5270         54           5310         62           5510         102           5590         118           5710         142           5755         151           5795         159	5190         38         AVG           5190         38         AVG           5230         46         AVG           5270         54         AVG           5310         62         AVG           5510         102         AVG           5590         118         AVG           5710         142         AVG           5755         151         AVG           5795         159         AVG	5190         38         AVG         484T           5230         46         AVG         484T           5270         54         AVG         484T           5310         62         AVG         484T           5510         102         AVG         484T           5590         118         AVG         484T           5710         142         AVG         484T           5755         151         AVG         484T           5795         159         AVG         484T	ANT1           5190         38         AVG         484T         13.47           5230         46         AVG         484T         15.14           5270         54         AVG         484T         15.52           5310         62         AVG         484T         15.55           5510         102         AVG         484T         15.21           5590         118         AVG         484T         15.27           5710         142         AVG         484T         15.38           5755         151         AVG         484T         14.84           5795         159         AVG         484T         15.07	Freq [MHz]         Channel         Detector         Tones         65           5190         38         AVG         484T         13.47         13.97           5230         46         AVG         484T         15.14         15.32           5270         54         AVG         484T         15.52         15.29           5310         62         AVG         484T         15.55         15.40           5510         102         AVG         484T         15.21         14.82           5590         118         AVG         484T         15.27         14.95           5710         142         AVG         484T         15.38         15.57           5710         142         AVG         484T         15.38         15.57           5755         151         AVG         484T         14.84         14.82           5795         159         AVG         484T         15.37         14.82	Freq [MHz]ChannelDetectorTones $65$ 519038AVG484T13.47ANT2MIMO523046AVG484T15.1415.3218.24527054AVG484T15.5215.2918.42531062AVG484T15.5515.4018.495510102AVG484T15.2714.8218.035590118AVG484T15.2714.9518.125710142AVG484T15.3815.5718.495755151AVG484T14.8414.8217.845795159AVG484T15.0715.1418.12	Freq [MHz]ChannelDetectorTones $65$ Power Limit519038AVG484T13.47ANT2MIMO[dBm]523046AVG484T15.1415.3218.2423.98527054AVG484T15.5215.2918.4223.47531062AVG484T15.5515.4018.4923.475510102AVG484T15.2114.8218.0322.805590118AVG484T15.2714.9518.1222.805710142AVG484T15.3815.5718.4922.805755151AVG484T14.8414.8217.8430.005795159AVG484T15.0715.1418.1230.00

Table 7-35. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

N		Free				Aver	age Conduc	ted Power (c	lBm)	
H۲ ۲	Band	Freq [MHz] Channel Tone		Tones		RU Index: 65	<b>j</b>		RU Index: 66	
N N N					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO
16( H	1	5250	50	484T	14.27	14.49	17.39	13.65	13.69	16.68
	2C	5570	114	484T	14.75	15.09	17.93	15.14	15.56	18.37

Table 7-36. MIMO 160MHz BW L (UNII) Maximum Conducted Output Power (484 Tones)

N		From				Aver	age Conduc	ted Power (c	dBm)	
Hz ۲	Band	Freq [MHz]	Channel	Tones		RU Index: 65	5		RU Index: 66	;
B A O					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO
- 0	1	5250	50	484T	14.20	13.93	17.08	14.13	13.86	17.01
~	2C	5570	114	484T	15.27	15.46	18.38	15.21	15.41	18.32

Table 7-37. MIMO 160MHz BW U (UNII) Maximum Conducted Output Power (484 Tones)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 112 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 113 of 242
© 2021 PCTEST				V 9.0 02/01/2019



# MIMO Conducted Output Power Measurements (996 Tones)

						RU Index		Conducted	Conducted
N	Freq [MHz]	Channel	Detector	Tones		67		Power Limit	Power
(80MHz width)					ANT1	ANT2	MIMO	[dBm]	Margin [dB]
NO IDI	5210	42	AVG	996T	14.76	14.93	17.86	23.98	-6.12
	5290	58	AVG	996T	15.15	14.81	17.99	23.47	-5.48
Hz	5530	106	AVG	996T	15.27	15.67	18.48	22.80	-4.32
5Gł Ba	5610	122	AVG	996T	15.41	15.39	18.41	22.80	-4.39
5	5690	138	AVG	996T	14.68	14.86	17.78	22.80	-5.02
	5775	155	AVG	996T	15.27	15.50	18.40	30.00	-11.60

Table 7-38. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

ZHW0		From			Average C	onducted Po	wer (dBm)	
	Band	Band [MHz]	Channel	Tones	RU Index: 67			
					ANT1	ANT2	MIMO	
9	1	5250	50	996T	12.39	12.43	15.42	
	2C	5570	114	996T	14.74	15.04	17.90	

Table 7-39. MIMO 160MHz BW L (UNII) Maximum Conducted Output Power (996 Tones)

N		Frog			Average C	onducted Po	wer (dBm)
H₩ ≥	Band	Freq [MHz]	Channel	Tones		RU Index: 67	,
					ANT1	ANT2	MIMO
160 B	1	5250	50	996T	12.31	12.06	15.20
	2C	5570	114	996T	15.17	15.33	18.26

Table 7-40. MIMO 160MHz BW U (UNII) Maximum Conducted Output Power (996 Tones)

FCC ID: A3LSMS908U	PCTEST * Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 114 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 114 of 242
© 2021 PCTEST				V 9.0 02/01/2019



							Ant1	Ant2	МІМО	Directional	Max	Max e.i.r.p	e.i.r.p
Frequency	Bandwidth	Channel	Mode	Tone	RU index	Detector	Power	Power	Power	Gain	e.i.r.p	Limit	Margin
5845	20MHz	169	ax RU	26T	0	Average	[dBm] 9.08	[dBm] 9.28	[dBm] 12.19	[dBi] -3.27	[dBm] 8.92	[dBm] 30.00	[dB] -21.08
5845	20MHz	169	ax RU ax RU	26T	4	Average	9.08 8.68	9.28	12.19	-3.27	8.92	30.00	-21.08
5845	20MHz	169	ax RU	26T	8	Average	9.13	9.27	12.21	-3.27	8.94	30.00	-21.40
5845	20MHz	169	ax RU	52T	37	Average	12.65	13.24	15.97	-3.27	12.70	30.00	-17.30
5845	20MHz	169	ax RU	52T	39	Average	11.93	12.49	15.23	-3.27	11.96	30.00	-18.04
5845	20MHz	169	ax RU	52T	40	Average	12.68	13.22	15.97	-3.27	12.70	30.00	-17.30
5845	20MHz	169	ax RU	106T	53	Average	14.54	15.19	17.89	-3.27	14.62	30.00	-15.38
5845	20MHz	169	ax RU	106T	54	Average	14.68	15.13	17.92	-3.27	14.65	30.00	-15.35
5845	20MHz	169	ax RU	242T	61	Average	14.58	15.20	17.91	-3.27	14.64	30.00	-15.36
5865 5865	20MHz 20MHz	173 173	ax RU ax RU	26T	0 4	Average	9.35 8.72	9.38 9.04	12.38 11.89	-3.27 -3.27	9.11 8.62	30.00	-20.89 -21.38
5865	201VIHz 20MHz	173	ax RU ax RU	26T 26T	8	Average Average	9.21	9.04	11.89	-3.27	8.62	30.00 30.00	-21.38
5865	2011112 2011112	173	ax RU	52T	37	Average	12.64	13.28	15.98	-3.27	12.71	30.00	-17.29
5865	20MHz	173	ax RU	52T	39	Average	11.86	12.34	15.12	-3.27	11.85	30.00	-18.15
5865	20MHz	173	ax RU	52T	40	Average	12.43	13.02	15.75	-3.27	12.48	30.00	-17.52
5865	20MHz	173	ax RU	106T	53	Average	14.68	15.15	17.93	-3.27	14.66	30.00	-15.34
5865	20MHz	173	ax RU	106T	54	Average	14.66	15.25	17.98	-3.27	14.71	30.00	-15.29
5865	20MHz	173	ax RU	242T	61	Average	14.47	15.28	17.90	-3.27	14.63	30.00	-15.37
5885	20MHz	177	ax RU	26T	0	Average	8.77	9.03	11.91	-3.27	8.64	30.00	-21.36
5885	20MHz	177	ax RU	26T	4	Average	8.98	9.44	12.23	-3.27	8.96	30.00	-21.04
5885	20MHz	177	ax RU	26T	8	Average	9.27	9.63	12.47	-3.27	9.20	30.00	-20.80
5885	20MHz	177	ax RU	52T	37	Average	12.63	13.27	15.97	-3.27	12.70	30.00	-17.30
5885 5885	20MHz 20MHz	177 177	ax RU ax RU	52T 52T	39 40	Average Average	11.83 12.69	12.51 13.25	15.19 15.99	-3.27 -3.27	11.92 12.72	30.00 30.00	-18.08 -17.28
5885	20MHz	177	ax RU ax RU	106T	53	Average	12.69	15.25	17.98	-3.27	14.71	30.00	-17.28
5885	20MHz	177	ax RU	106T	54	Average	14.63	15.25	17.96	-3.27	14.69	30.00	-15.31
5885	20MHz	177	ax RU	242T	61	Average	14.54	15.20	17.89	-3.27	14.62	30.00	-15.38
5835	40MHz	167	ax RU	26T	0	Average	9.11	9.16	12.14	-3.27	8.87	30.00	-21.13
5835	40MHz	167	ax RU	26T	8	Average	8.92	8.78	11.86	-3.27	8.59	30.00	-21.41
5835	40MHz	167	ax RU	26T	17	Average	9.24	9.27	12.27	-3.27	9.00	30.00	-21.00
5835	40MHz	167	ax RU	52T	37	Average	12.47	12.65	15.57	-3.27	12.30	30.00	-17.70
5835	40MHz	167	ax RU	52T	40	Average	12.25	12.41	15.34	-3.27	12.07	30.00	-17.93
5835	40MHz	167	ax RU	52T	44	Average	12.46	12.92	15.71	-3.27	12.44	30.00	-17.56
5835	40MHz	167	ax RU	106T	53	Average	14.57	14.85	17.72	-3.27	14.45	30.00	-15.55
5835	40MHz	167	ax RU	106T	54	Average	14.72	15.11	17.93	-3.27	14.66	30.00	-15.34
5835 5835	40MHz 40MHz	167 167	ax RU ax RU	106T 242T	56 61	Average Average	14.45 14.53	15.00 15.00	17.74 17.78	-3.27 -3.27	14.47 14.51	30.00 30.00	-15.53 -15.49
5835	40MHz	167	ax RU	242T	62	Average	14.61	15.22	17.94	-3.27	14.67	30.00	-15.33
5835	40MHz	167	ax RU	484T	65	Average	15.05	15.43	18.25	-3.27	14.98	30.00	-15.02
5875	40MHz	175	ax RU	26T	0	Average	9.07	9.32	12.21	-3.27	8.94	30.00	-21.06
5875	40MHz	175	ax RU	26T	8	Average	9.28	9.30	12.30	-3.27	9.03	30.00	-20.97
5875	40MHz	175	ax RU	26T	17	Average	9.27	9.35	12.32	-3.27	9.05	30.00	-20.95
5875	40MHz	175	ax RU	52T	37	Average	12.11	12.81	15.48	-3.27	12.21	30.00	-17.79
5875	40MHz	175	ax RU	52T	40	Average	12.14	12.55	15.36	-3.27	12.09	30.00	-17.91
5875	40MHz	175	ax RU	52T	44	Average	12.46	12.97	15.73	-3.27	12.46	30.00	-17.54
5875 5875	40MHz 40MHz	175 175	ax RU	106T 106T	53 54	Average	14.28 14.12	14.94 14.53	17.63 17.34	-3.27 -3.27	14.36 14.07	30.00 30.00	-15.64 -15.93
5875	401VIHz 40MHz	175	ax RU ax RU	106T	56	Average Average	14.12	14.55	17.83	-3.27	14.07	30.00	-15.95
5875	401VIHz 40MHz	175	ax RU	242T	61	Average	14.30	15.05	17.85	-3.27	14.56	30.00	-15.44
5875	40MHz	175	ax RU	242T	62	Average	14.73	15.37	18.07	-3.27	14.80	30.00	-15.20
5875	40MHz	175	ax RU	484T	65	Average	14.77	15.42	18.12	-3.27	14.85	30.00	-15.15
5855	80MHz	171	ax RU	26T	0	Average	8.65	8.96	11.82	-3.27	8.55	30.00	-21.45
5855	80MHz	171	ax RU	26T	18	Average	9.20	9.71	12.47	-3.27	9.20	30.00	-20.80
5855	80MHz	171	ax RU	26T	36	Average	8.87	9.21	12.05	-3.27	8.78	30.00	-21.22
5855	80MHz	171	ax RU	52T	37	Average	12.61	13.05	15.85	-3.27	12.58	30.00	-17.42
5855	80MHz	171	ax RU	52T	44	Average	11.93	12.49	15.23	-3.27	11.96	30.00	-18.04
5855	80MHz	171	ax RU	52T	52	Average	11.83	12.47	15.17	-3.27	11.90	30.00	-18.10
5855	80MHz	171	ax RU	106T	53	Average	14.74	15.10	17.93	-3.27	14.66	30.00	-15.34
5855 5855	80MHz	171 171	ax RU	106T	56	Average	13.95	14.36	17.17	-3.27	13.90	30.00	-16.10 -16.14
5855	80MHz 80MHz	171	ax RU ax RU	106T 242T	60 61	Average Average	13.80 14.88	14.42 15.15	17.13 18.03	-3.27 -3.27	13.86 14.76	30.00 30.00	-16.14 -15.24
5855	80MHz	171	ax RU	242T	62	Average	14.88	15.42	18.03	-3.27	14.70	30.00	-15.06
5855	80MHz	171	ax RU	242T	64	Average	15.08	15.62	18.37	-3.27	15.10	30.00	-14.90
5855	80MHz	171	ax RU	484T	65	Average	14.46	14.87	17.68	-3.27	14.41	30.00	-15.59
5855	80MHz	171	ax RU	484T	66	Average	14.62	15.16	17.91	-3.27	14.64	30.00	-15.36
					1		15.18	15.64	18.43		15.16	1	

## Table 7-41. UNII-4 Maximum 20/40/80MHz Conducted Output Power (all Tones)

FCC ID: A3LSMS908U	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 115 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 115 of 242
© 2021 PCTEST	•	•		V 9.0 02/01/2019



							Ant1	Ant2	MIMO	Directional	Max	Max e.i.r.p	e.i.r.p
-	<b>N N N</b>						Power	Power	Power	Gain	e.i.r.p	Limit	Margin
Frequency	Bandwidth	Channel	Mode	Tone	RU index	Detector	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dB]
5775	L160MHz	ax RU	26T	ax RU	26T	Average	9.77	9.07	12.44	-3.27	9.17	36.00	-26.83
5775	L160MHz	ax RU	26T	ax RU	26T	Average	10.07	9.87	12.98	-3.27	9.71	36.00	-26.29
5775	L160MHz	ax RU	26T	ax RU	26T	Average	9.47	9.23	12.36	-3.27	9.09	36.00	-26.91
5775	L160MHz	ax RU	52T	ax RU	52T	Average	12.93	12.68	15.82	-3.27	12.55	36.00	-23.45
5775	L160MHz	ax RU	52T	ax RU	52T	Average	13.01	12.92	15.98	-3.27	12.71	36.00	-23.29
5775	L160MHz	ax RU	52T	ax RU	52T	Average	12.03	12.25	15.15	-3.27	11.88	36.00	-24.12
5775	L160MHz	ax RU	106T	ax RU	106T	Average	14.47	14.26	17.38	-3.27	14.11	36.00	-21.89
5775	L160MHz	ax RU	106T	ax RU	106T	Average	14.86	14.74	17.81	-3.27	14.54	36.00	-21.46
5775	L160MHz	ax RU	106T	ax RU	106T	Average	14.86	14.92	17.90	-3.27	14.63	36.00	-21.37
5775	L160MHz	ax RU	242T	ax RU	242T	Average	14.94	14.68	17.82	-3.27	14.55	36.00	-21.45
5775	L160MHz	ax RU	242T	ax RU	242T	Average	15.35	15.05	18.21	-3.27	14.94	36.00	-21.06
5775	L160MHz	ax RU	242T	ax RU	242T	Average	15.08	15.15	18.13	-3.27	14.86	36.00	-21.14
5775	L160MHz	ax RU	484T	ax RU	484T	Average	14.76	14.66	17.72	-3.27	14.45	36.00	-21.55
5775	L160MHz	ax RU	484T	ax RU	484T	Average	15.06	15.09	18.09	-3.27	14.82	36.00	-21.18
5775	L160MHz	ax RU	996T	ax RU	996T	Average	15.44	15.31	18.39	-3.27	15.12	36.00	-20.88
5855	H160MHz	ax RU	26T	ax RU	26T	Average	9.38	9.50	12.45	-3.27	9.18	36.00	-26.82
5855	H160MHz	ax RU	26T	ax RU	26T	Average	9.81	10.01	12.92	-3.27	9.65	36.00	-26.35
5855	H160MHz	ax RU	26T	ax RU	26T	Average	9.33	9.98	12.68	-3.27	9.41	36.00	-26.59
5855	H160MHz	ax RU	52T	ax RU	52T	Average	12.19	12.40	15.31	-3.27	12.04	36.00	-23.96
5855	H160MHz	ax RU	52T	ax RU	52T	Average	12.05	12.30	15.19	-3.27	11.92	36.00	-24.08
5855	H160MHz	ax RU	52T	ax RU	52T	Average	12.08	12.46	15.28	-3.27	12.01	36.00	-23.99
5855	H160MHz	ax RU	106T	ax RU	106T	Average	14.03	14.27	17.16	-3.27	13.89	36.00	-22.11
5855	H160MHz	ax RU	106T	ax RU	106T	Average	14.02	14.25	17.15	-3.27	13.88	36.00	-22.12
5855	H160MHz	ax RU	106T	ax RU	106T	Average	13.89	14.38	17.15	-3.27	13.88	36.00	-22.12
5855	H160MHz	ax RU	242T	ax RU	242T	Average	15.06	15.25	18.16	-3.27	14.89	36.00	-21.11
5855	H160MHz	ax RU	242T	ax RU	242T	Average	15.40	15.55	18.49	-3.27	15.22	36.00	-20.78
5855	H160MHz	ax RU	242T	ax RU	242T	Average	15.23	15.55	18.40	-3.27	15.13	36.00	-20.87
5855	H160MHz	ax RU	484T	ax RU	484T	Average	15.16	15.36	18.27	-3.27	15.00	36.00	-21.00
5855	H160MHz	ax RU	484T	ax RU	484T	Average	15.26	15.40	18.34	-3.27	15.07	36.00	-20.93
5855	H160MHz	ax RU	996T	ax RU	996T	Average	15.21	15.38	18.31	-3.27	15.04	36.00	-20.96
		abla 7 1		A Massin	4.00				Dave	an /all T			

Table 7-42. UNII-4 Maximum 160MHz Conducted Output Power (all Tones)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 116 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset	Fage 116 01 242
© 2021 PCTEST			V 9.0 02/01/2019



# Note:

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

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

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

## Sample MIMO Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 14.35 dBm for Antenna-1 and 15.09 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

(14.35 dBm + 15.09 dBm) = (27.20 mW + 32.31 mW) = 59.51 mW = 17.75 dBm

# Sample e.i.r.p. Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO conducted power was calculated to be 17.75 dBm with directional gain of -3.27dBi.

e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

17.75 dBm + (-3.27) dBi = 14.48 dBm

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 117 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 117 of 242
© 2021 PCTEST				V 9.0 02/01/2019



# 7.5 Maximum Power Spectral Density – 802.11ax OFDMA §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

## **Test Overview and Limit**

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

# In the 5.15 – 5.25GHz, 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

In the 5.850 – 5.855, the maximum power spectral density must not exceed 14dBm/MHz e.i.r.p.

## Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2 KDB 789033 D02 v02r01 – Section F ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

## Test Settings

- 1. Analyzer was set to the center frequency of the UNII channel under investigation
- 2. Span was set to encompass the entire emission bandwidth of the signal
- 3. RBW = 1MHz
- 4. VBW = 3MHz
- 5. Number of sweep points  $\geq 2 \times (\text{span/RBW})$
- 6. Sweep time = auto
- 7. Detector = power averaging (RMS)
- 8. Trigger was set to free run for all modes
- 9. Trace was averaged over 100 sweeps
- 10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

## Test Setup

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



Figure 7-4. Test Instrument & Measurement Setup

## Test Notes

The power spectral density for each channel was measured with the RU index showing the highest conducted power.

FCC ID: A3LSMS908U	PCTEST Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 119 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 118 of 242
© 2021 PCTEST		·		V 9.0 02/01/2019



# Summed MIMO Power Spectral Density Measurements (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	26T	MCS0	5.07	6.18	8.67	11.00	-2.33
	5200	40	ax (20MHz)	26T	MCS0	5.49	6.41	8.99	11.00	-2.01
P	5240	48	ax (20MHz)	26T	MCS0	5.52	6.30	8.94	11.00	-2.06
Band 1	5190	38	ax (40MHz)	26T	MCS0	6.36	7.63	10.05	11.00	-0.95
	5230	46	ax (40MHz)	26T	MCS0	6.66	7.81	10.28	11.00	-0.72
	5210	42	ax (80MHz)	26T	MCS0	5.14	6.18	8.70	11.00	-2.30
Band 1/2A	5250	50	ax (160MHz L)	26T	MCS0	4.22	5.16	7.73	11.00	-3.27
Ba 1/	5250	50	ax (160MHz U)	26T	MCS0	6.43	7.21	9.85	11.00	-1.15
	5260	52	ax (20MHz)	26T	MCS0	5.73	6.15	8.95	11.00	-2.05
∢	5280	56	ax (20MHz)	26T	MCS0	5.74	6.43	9.11	11.00	-1.89
Band 2A	5320	64	ax (20MHz)	26T	MCS0	5.15	6.02	8.62	11.00	-2.38
an	5270	54	ax (40MHz)	26T	MCS0	7.00	7.84	10.45	11.00	-0.55
	5310	62	ax (40MHz)	26T	MCS0	6.74	7.54	10.17	11.00	-0.83
	5290	58	ax (80MHz)	26T	MCS0	6.02	5.74	8.89	11.00	-2.11
	5500	100	ax (20MHz)	26T	MCS0	4.66	4.65	7.67	11.00	-3.33
	5600	120	ax (20MHz)	26T	MCS0	5.31	5.24	8.29	11.00	-2.71
	5720	144	ax (20MHz)	26T	MCS0	6.25	5.82	9.05	11.00	-1.95
	5510	102	ax (40MHz)	26T	MCS0	5.79	5.74	8.77	11.00	-2.23
SC	5590	118	ax (40MHz)	26T	MCS0	6.45	5.64	9.07	11.00	-1.93
Band 2C	5710	142	ax (40MHz)	26T	MCS0	6.31	6.10	9.22	11.00	-1.78
Ba	5530	106	ax (80MHz)	26T	MCS0	3.69	4.65	7.21	11.00	-3.79
	5610	122	ax (80MHz)	26T	MCS0	5.91	5.14	8.55	11.00	-2.45
	5690	138	ax (80MHz)	26T	MCS0	5.13	5.61	8.39	11.00	-2.61
	5570	114	ax (160MHz L)	26T	MCS0	5.59	5.40	8.51	11.00	-2.49
	5570	114	ax (160MHz U)	26T	MCS0	6.57	6.13	9.37	11.00	-1.63

Table 7-43. 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]	Max Permissible Power Density	Margin [dB]
	5745	149	ax (20MHz)	26T	MCS0	3.71	3.16	6.45	30.00	-23.55
m	5785	157	ax (20MHz)	26T	MCS0	3.24	3.68	6.48	30.00	-23.52
	5825	165	ax (20MHz)	26T	MCS0	3.41	3.72	6.58	30.00	-23.42
Band	5755	151	ax (40MHz)	26T	MCS0	4.17	3.87	7.03	30.00	-22.97
	5795	159	ax (40MHz)	26T	MCS0	3.96	4.16	7.07	30.00	-22.93
	5775	155	ax (80MHz)	26T	MCS0	3.10	3.77	6.46	30.00	-23.54

Table 7-44. Band 3 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/MHz]	Antenna-2 Power Density [dBm/MHz]	MIMO Summed Power Density [dBm/MHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Directional Antenna Gain [dBi]	EIRP Power Density [dBm/MHz]	Max EIRP Power Density [dBm/MHz]	Margin [dB]
Band 3/4	5845	169	ax (20MHz)	26T	MCS0	6.38	6.82	9.62	30.00	-20.38	-3.27	6.35	14.00	-7.65
Band 4	5865	173	ax (20MHz)	26T	MCS0	6.45	7.10	9.79			-3.27	6.52	14.00	-7.48
Band 4	5885	177	ax (20MHz)	26T	MCS0	6.73	7.26	10.01			-3.27	6.74	14.00	-7.26
Band 3/4	5835	167	ax (40MHz)	26T	MCS0	6.44	6.77	9.62	30.00	-20.38	-3.27	6.35	14.00	-7.65
Band 4	5875	175	ax (40MHz)	26T	MCS0	7.04	7.57	10.32			-3.27	7.05	14.00	-6.95
	5855	171	ax (80MHz)	26T	MCS0	5.88	6.19	9.04	30.00	-20.96	-3.27	5.77	14.00	-8.23
Band 3/4	5815	163	ax (160MHz L)	26T	MCS0	6.67	6.41	9.55	30.00	-20.45	-3.27	6.28	14.00	-7.72
	5815	163	ax (160MHz U)	26T	MCS0	5.49	6.40	8.98	30.00	-21.02	-3.27	5.71	14.00	-8.29
	5815		( )					8.98			-3.27	-		<u> </u>

Table 7-45. Band 4 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 110 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 119 of 242	
© 2021 PCTEST				V 9.0 02/01/2019	



	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
	5180	36	ax (20MHz)	242T	MCS0	2.44	3.98	6.29	11.00	-4.71
	5200	40	ax (20MHz)	242T	MCS0	2.76	3.58	6.20	11.00	-4.80
Band 1	5240	48	ax (20MHz)	242T	MCS0	3.06	4.03	6.58	11.00	-4.42
Bar	5190	38	ax (40MHz)	484T	MCS0	0.29	1.27	3.82	11.00	-7.18
	5230	46	ax (40MHz)	484T	MCS0	0.67	1.33	4.02	11.00	-6.98
	5210	42	ax (80MHz)	996T	MCS0	-2.25	-1.78	1.00	11.00	-10.00
Band 1/2A	5250	50	ax (160MHz L)	996T	MCS0	-2.70	-1.35	1.04	11.00	-9.96
Ba 1/1	5250	50	ax (160MHz U)	996T	MCS0	-2.90	-2.09	0.53	11.00	-10.47
	5260	52	ax (20MHz)	242T	MCS0	3.02	3.15	6.10	11.00	-4.90
	5280	56	ax (20MHz)	242T	MCS0	3.08	3.17	6.14	11.00	-4.86
d 2A	5320	64	ax (20MHz)	242T	MCS0	3.20	3.32	6.27	11.00	-4.73
Band 2A	5270	54	ax (40MHz)	484T	MCS0	1.13	1.32	4.24	11.00	-6.76
	5310	62	ax (40MHz)	484T	MCS0	1.01	1.39	4.21	11.00	-6.79
	5290	58	ax (80MHz)	996T	MCS0	-1.85	-1.95	1.11	11.00	-9.89
	5500	100	ax (20MHz)	242T	MCS0	2.15	2.42	5.30	11.00	-5.70
	5600	120	ax (20MHz)	242T	MCS0	2.37	2.77	5.59	11.00	-5.41
	5720	144	ax (20MHz)	242T	MCS0	2.67	3.33	6.02	11.00	-4.98
	5510	102	ax (40MHz)	484T	MCS0	0.02	0.22	3.13	11.00	-7.87
ы С	5590	118	ax (40MHz)	484T	MCS0	0.26	0.32	3.30	11.00	-7.70
Band 2C	5710	142	ax (40MHz)	484T	MCS0	0.52	1.40	3.99	11.00	-7.01
Ba	5530	106	ax (80MHz)	996T	MCS0	-2.88	-3.11	0.02	11.00	-10.98
	5610	122	ax (80MHz)	996T	MCS0	-2.32	-2.38	0.66	11.00	-10.34
	5690	138	ax (80MHz)	996T	MCS0	-1.67	-1.42	1.47	11.00	-9.53
	5570	114	ax (160MHz L)	996T	MCS0	-3.58	-2.52	-0.01	11.00	-11.01
	5570	114	ax (160MHz U)	996T	MCS0	-2.24	-1.69	1.05	11.00	-9.95

Table 7-46. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
	5745	149	ax (20MHz)	242T	MCS0	-0.53	-0.13	2.68	30.00	-27.32
	5785	157	ax (20MHz)	242T	MCS0	-0.55	0.24	2.87	30.00	-27.13
1d 3	5825	165	ax (20MHz)	242T	MCS0	0.64	0.14	3.40	30.00	-26.60
Band	5755	151	ax (40MHz)	484T	MCS0	-2.76	-2.17	0.56	30.00	-29.44
	5795	159	ax (40MHz)	484T	MCS0	-2.91	-2.16	0.49	30.00	-29.51
	5775	155	ax (80MHz)	996T	MCS0	-4.45	-4.54	-1.48	30.00	-31.48

Table 7-47. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm/MHz]	Antenna-2 Power Density [dBm/MHz]	MIMO Summed Power Density [dBm/MHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Directional Antenna Gain [dBi]	EIRP Power Density [dBm/MHz]	Max EIRP Power Density [dBm/MHz]	Margin [dB]
Band 3/4	5845	169	ax (20MHz)	242T	MCS0	2.48	3.18	5.86	30.00	-24.14	-3.27	2.59	14.00	-11.41
Band 4	5865	173	ax (20MHz)	242T	MCS0	2.49	3.22	5.88			-3.27	2.61	14.00	-11.39
Band 4	5885	177	ax (20MHz)	242T	MCS0	2.92	3.32	6.13			-3.27	2.86	14.00	-11.14
Band 3/4	5835	167	ax (40MHz)	484T	MCS0	0.38	1.05	3.74	30.00	-26.26	-3.27	0.46	14.00	-13.54
Band 4	5875	175	ax (40MHz)	484T	MCS0	0.47	1.25	3.88			-3.27	0.61	14.00	-13.39
	5855	171	ax (80MHz)	996T	MCS0	-2.01	-1.37	1.33	30.00	-28.67	-3.27	-1.94	14.00	-15.94
Band 3/4	5815	163	ax (160MHz L)	996T	MCS0	-1.89	-2.10	1.02	30.00	-28.98	-3.27	-2.25	14.00	-16.25
	5815	163	ax (160MHz U)	996T	MCS0	-2.28	-1.47	1.15	30.00	-28.85	-3.27	-2.12	14.00	-16.12
Table 7-48. Band 4 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)														

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 120 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset	Fage 120 01 242
© 2021 PCTEST			V 9.0 02/01/2019

V 9.0 02/01/2019



# Note:

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

## Sample Directional Gain Calculation:

Assuming the antenna gain is -6.53 dBi for Antenna-1 and -6.04 dBi for Antenna-2.

Directional gain = 
$$10 \log[(10^{G_{1/20}} + 10^{G_{2/20}} + ... + 10^{G_{N/20}})^2 / N_{ANT}] dBi$$
  
=  $10 \log[(10^{-8.61/20} + 10^{-7.68/20} / 2] dBi$   
= (-3.27) dBi

## Sample MIMO Calculation:

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

Antenna-1 + Antenna-2 = MIMO

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

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

Assuming the average MIMO power density was calculated to be 9.09 dBm with directional gain of -3.27 dBi.

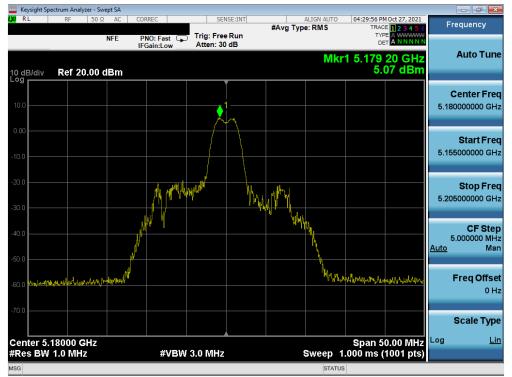
e.i.r.p. Power Spectral Density(dBm) = Power Spectral Density (dBm) + directional gain (dBi)

9.09 dBm + (-3.27) dBi = 5.82 dBm

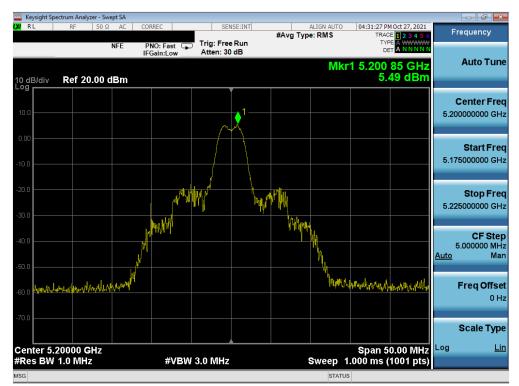
FCC ID: A3LSMS908U	Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 121 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 121 of 242	
© 2021 PCTEST				V 9.0 02/01/2019	



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



Plot 7-157. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 36)



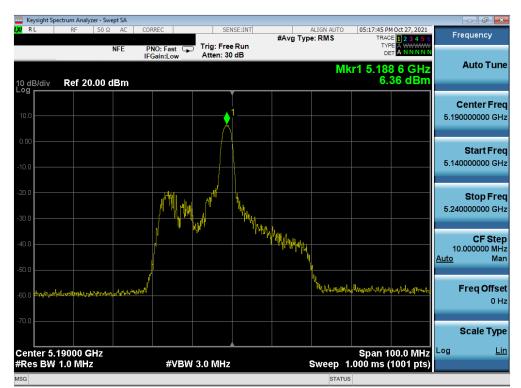
Plot 7-158. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 100 of 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 122 of 242
© 2021 PCTEST				V 9.0 02/01/2019





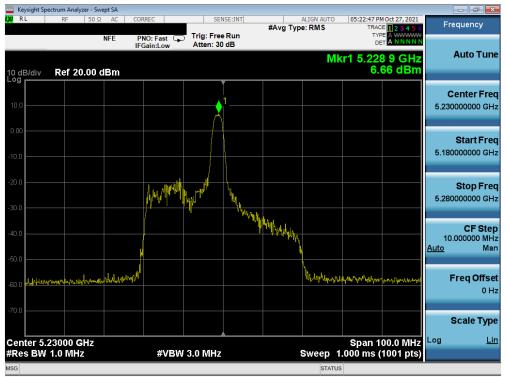
Plot 7-159. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 48)



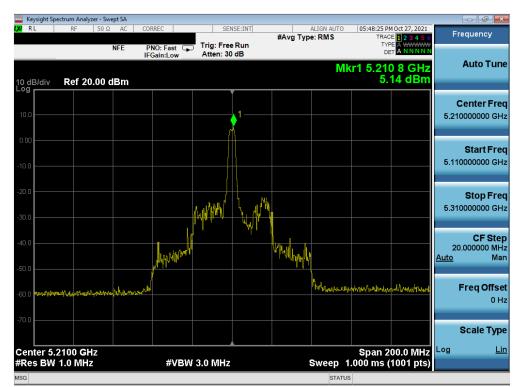
Plot 7-160. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:		Dogo 102 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 123 of 242
© 2021 PCTEST	•	·		V 9.0 02/01/2019





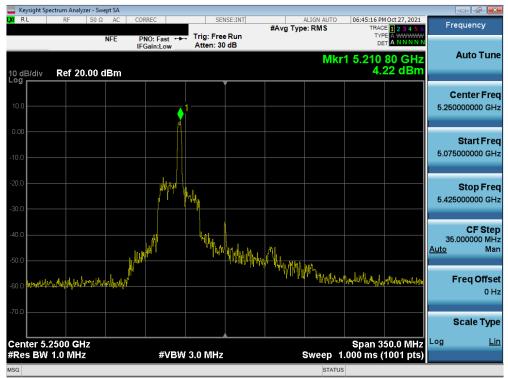
Plot 7-161. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 46)



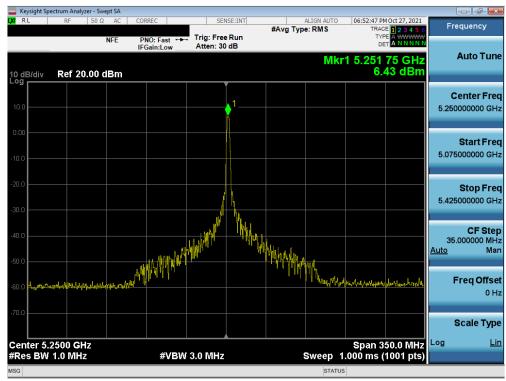
Plot 7-162. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMS908U	Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 104 of 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 124 of 242
© 2021 PCTEST		•		V 9.0 02/01/2019





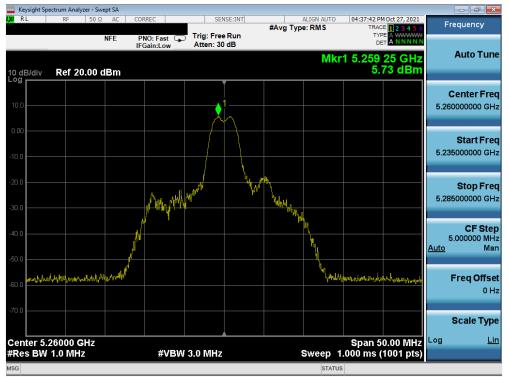
Plot 7-163. Power Spectral Density Plot MIMO ANT1 (160MHz BW L 802.11ax - 26 Tones (UNII Band 1/2A) - Ch. 50)



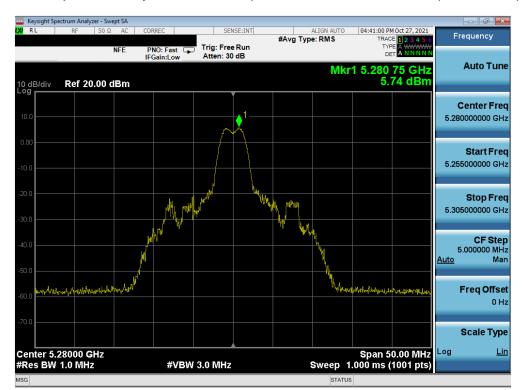
Plot 7-164. Power Spectral Density Plot MIMO ANT1 (160MHz BW U 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)

FCC ID: A3LSMS908U	PCTEST*	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 125 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 125 of 242
© 2021 PCTEST V 9.0 02/01/2019				





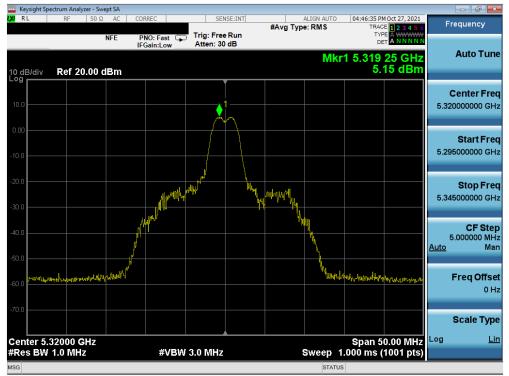
Plot 7-165. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 52)



Plot 7-166. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 126 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 126 of 242
© 2021 PCTEST	·	·		V 9.0 02/01/2019





Plot 7-167. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 64)



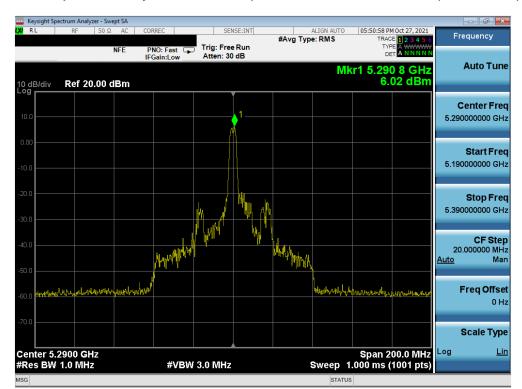
Plot 7-168. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMS908U	PCTEST " Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 107 of 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 127 of 242
© 2021 PCTEST	•	·		V 9.0 02/01/2019





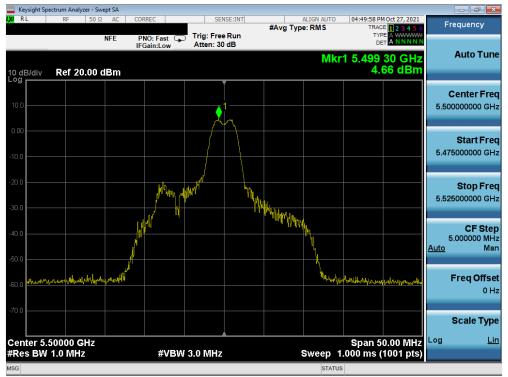
Plot 7-169. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 62)



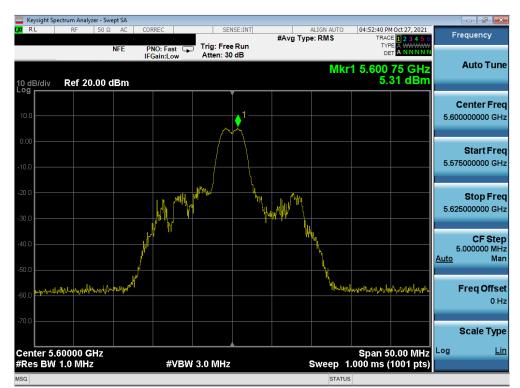
Plot 7-170. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMS908U	Proved to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 100 of 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 128 of 242
© 2021 PCTEST		•		V 9.0 02/01/2019





Plot 7-171. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 100)



Plot 7-172. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMS908U	Poul to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 100 of 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 129 of 242
0 2021 PCTEST V 9.0 02/01/2019				





Plot 7-173. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 144)



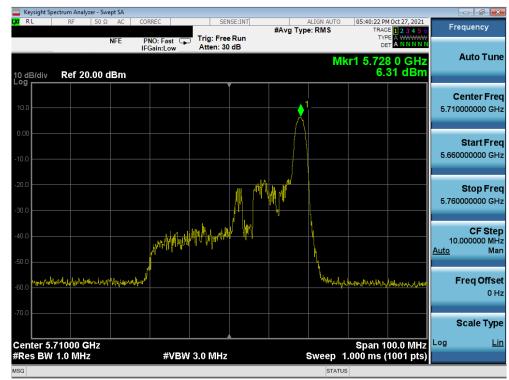
Plot 7-174. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMS908U	Poul to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 120 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 130 of 242
0 2021 PCTEST V 9.0 02/01/2019				





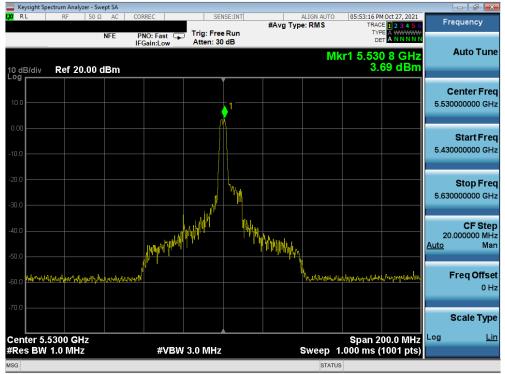
Plot 7-175. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 118)



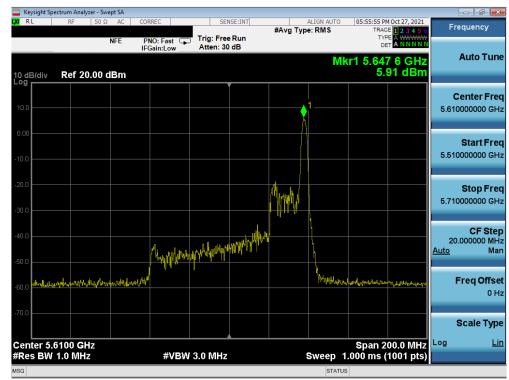
Plot 7-176. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 142)

FCC ID: A3LSMS908U	Poul to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 121 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 131 of 242
0 2021 PCTEST V 9.0 02/01/2019				





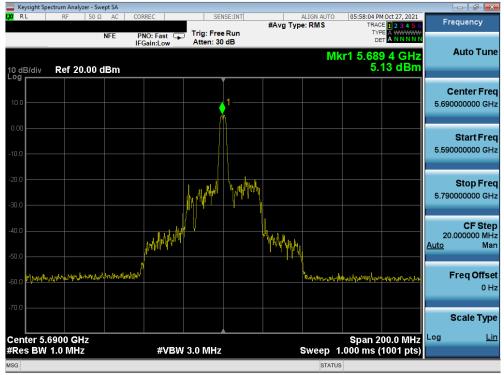
Plot 7-177. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 106)



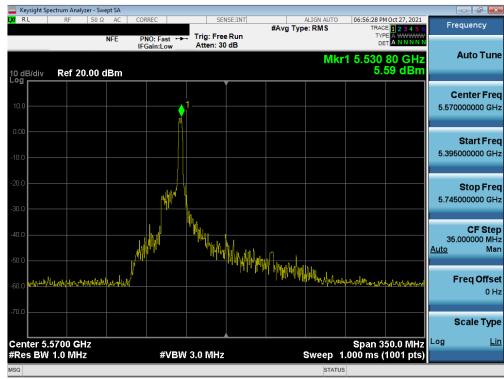
Plot 7-178. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 122)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 122 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 132 of 242
© 2021 PCTEST	•	·		V 9.0 02/01/2019





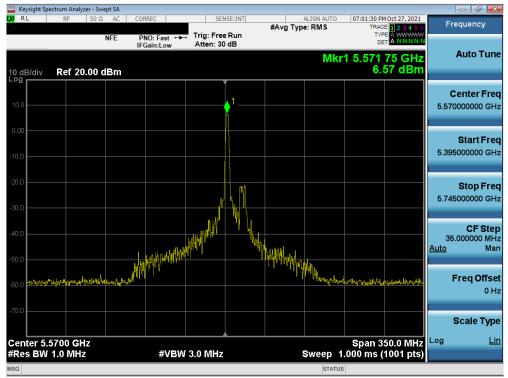
Plot 7-179. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 138)



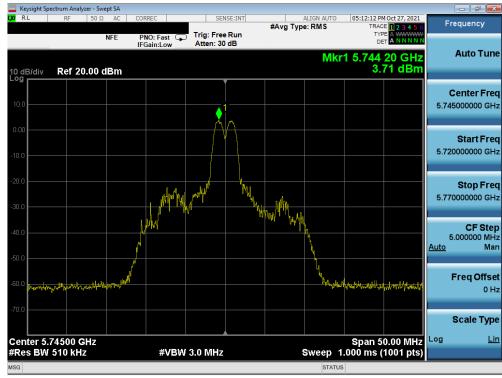
Plot 7-180. Power Spectral Density Plot MIMO ANT1 (160MHz BW L 802.11ax - 26 Tones (UNII Band 2C) - Ch. 114)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 122 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset	Page 133 of 242	
© 2021 PCTEST V 9.0 02/01/2019				





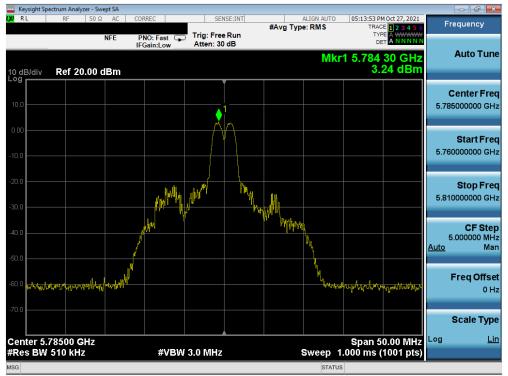
Plot 7-181. Power Spectral Density Plot MIMO ANT1 (160MHz BW U 802.11ax - 26 Tones (UNII Band 2C) - Ch. 114)



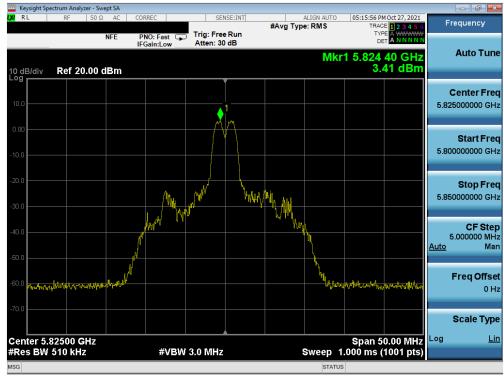
Plot 7-182. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 149)

FCC ID: A3LSMS908U	PCTEST Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 124 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 134 of 242
© 2021 PCTEST	•	·		V 9.0 02/01/2019





Plot 7-183. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 157)



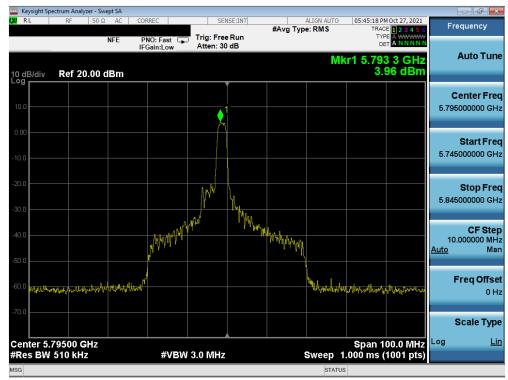
Plot 7-184. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 165)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 125 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 135 of 242
© 2021 PCTEST	•	·		V 9.0 02/01/2019





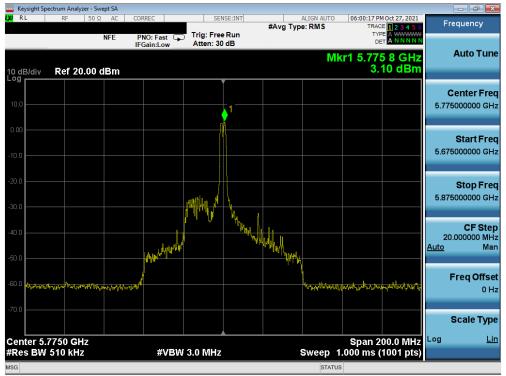
Plot 7-185. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 151)



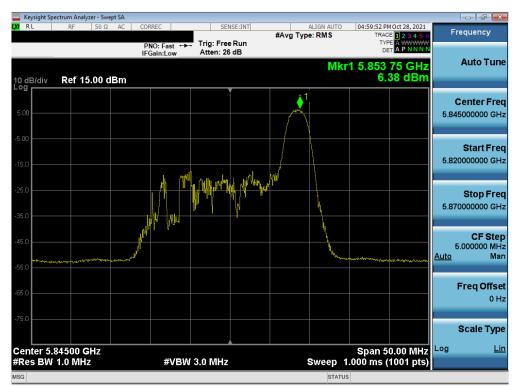
Plot 7-186. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 159)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 400 at 040	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 136 of 242	
© 2021 PCTEST		•		V 9.0 02/01/2019	





Plot 7-187. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 155)



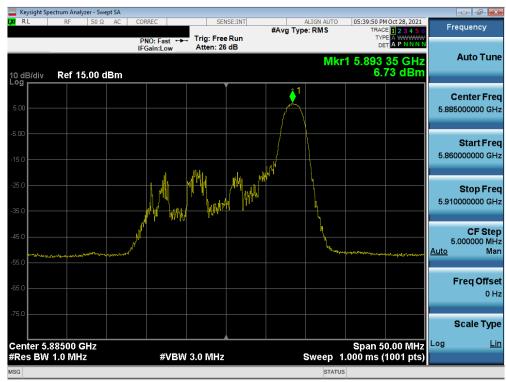
Plot 7-188. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3/4) - Ch. 169)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:		Dogo 127 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021 Portable Handset			Page 137 of 242	
© 2021 PCTEST	•			V 9.0 02/01/2019	





Plot 7-189. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 4) - Ch. 173)



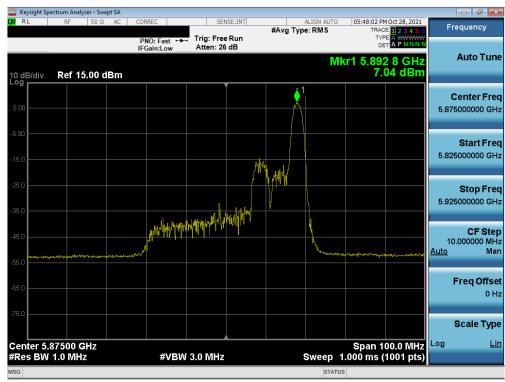
Plot 7-190. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 4) - Ch. 177)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:		Dega 129 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	2021 - 11/12/2021 Portable Handset		Page 138 of 242	
© 2021 PCTEST	•	·		V 9.0 02/01/2019	





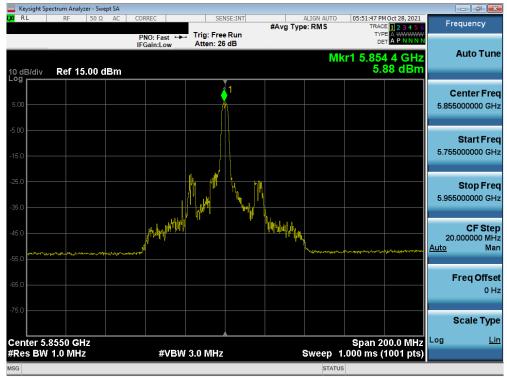
Plot 7-191. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 3/4) - Ch. 167)



Plot 7-192. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 4) - Ch. 175)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:		Dega 120 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	2021 - 11/12/2021 Portable Handset		Page 139 of 242	
© 2021 PCTEST		•		V 9.0 02/01/2019	





Plot 7-193. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 3/4) - Ch. 171)



Plot 7-194. Power Spectral Density Plot MIMO ANT1 (160MHz BW L 802.11ax - 26 Tones (UNII Band 3/4) - Ch. 163)

FCC ID: A3LSMS908U	PCTEST " Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 140 of 242
1M2109090102-12.A3L	2.A3L 9/14/2021 - 11/12/2021 Portable Handset			Page 140 of 242
© 2021 PCTEST	÷	•		V 9.0 02/01/2019

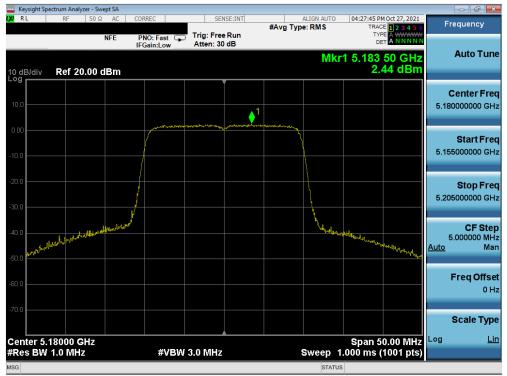




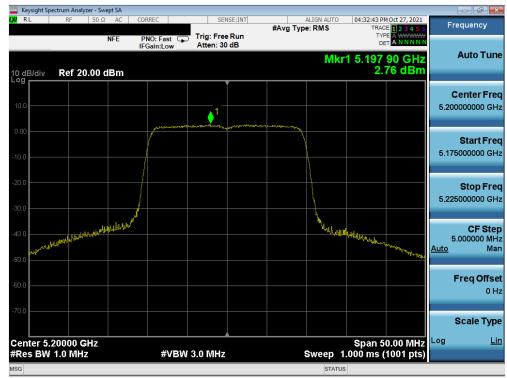
Plot 7-195. Power Spectral Density Plot MIMO ANT1 (160MHz BW U 802.11ax - 26 Tones (UNII Band 3/4) - Ch. 163)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 111 of 212
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 141 of 242
© 2021 PCTEST	-	·		V 9.0 02/01/2019





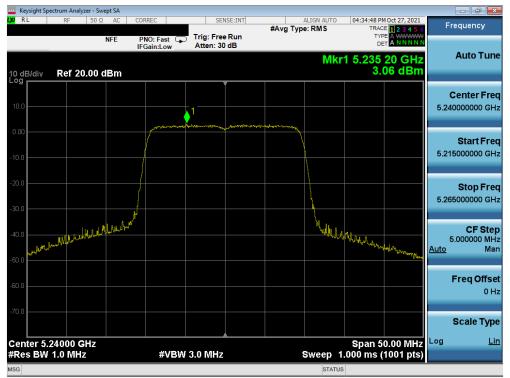
Plot 7-196. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 36)



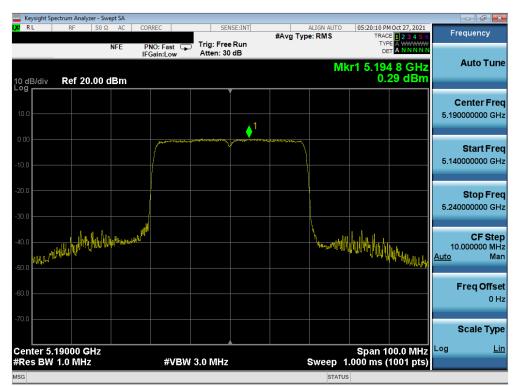
Plot 7-197. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:		Dama 440 at 040	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	/14/2021 - 11/12/2021 Portable Handset		Page 142 of 242	
© 2021 PCTEST	•	·		V 9.0 02/01/2019	





Plot 7-198. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 48)



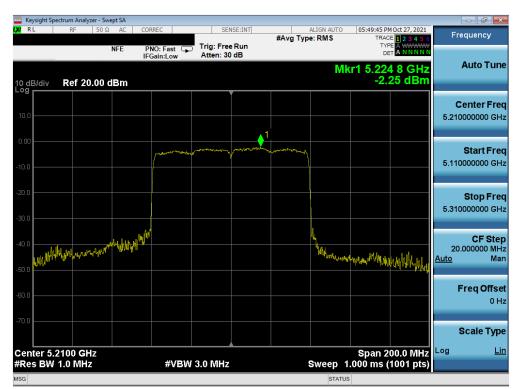
Plot 7-199. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:		Dama (142 af 040	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	14/2021 - 11/12/2021 Portable Handset		Page 143 of 242	
© 2021 PCTEST	•			V 9.0 02/01/2019	



	ctrum Analyzer - S									
RL	RF 50	Ω AC NFE	CORREC PNO: Fast	Trig: Fre		#Avg Typ	ALIGN AUTO	TRAC TYP	I Oct 27, 2021 E 1 2 3 4 5 6 E A WWWW A N N N N N	Frequency
10 dB/div Log	Ref 20.00	dBm	IFGain:Low	Atten: 30			M	(r1 5.23)	-	Auto Tune
10.0					↓ ¹					Center Freq 5.230000000 GHz
-10.0						- aproved a second				<b>Start Freq</b> 5.180000000 GHz
-20.0										<b>Stop Freq</b> 5.280000000 GHz
-40.0	North Martin	meradonitation	الا <mark>ر</mark>				Manuflan	freder Mus	the welf to see when	CF Step 10.000000 MHz <u>Auto</u> Man
-60.0										<b>Freq Offset</b> 0 Hz
-70.0	23000 GHz							Span 1	00.0 MHz	Scale Type
#Res BW			#V	BW 3.0 MHz			Sweep 1	.000 ms (	1001 pts)	
MSG							STATUS	6		

Plot 7-200. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 46)



Plot 7-201. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMS908U	Proved to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:		Dage 111 of 212	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 144 of 242	
© 2021 PCTEST		•		V 9.0 02/01/2019	





Plot 7-202. Power Spectral Density Plot MIMO ANT1 (160MHz BW L 802.11ax - Full Tones (UNII Band 1/2A) - Ch. 50)



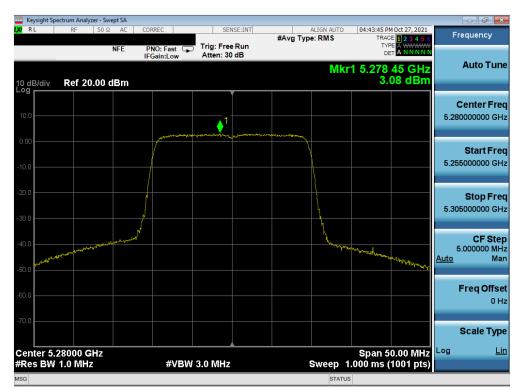
Plot 7-203. Power Spectral Density Plot MIMO ANT1 (160MHz BW U 802.11ax – Full Tones (UNII Band 1/2A) – Ch. 50)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:	Domo 145 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset	Page 145 of 242
© 2021 PCTEST		·	V 9.0 02/01/2019



🔤 Keysight Spectrum Analyzer -								
KI RF 5	CORREC	<b>_</b>	SE:INT	#Avg Typ	ALIGN AUTO	TRAC	Oct 27, 2021	Frequency
10 dB/div Ref 20.00	PNO: Fast IFGain:Low	Trig: Free Atten: 30			Mkr	DE 1 5.261		Auto Tune
10.0	مەربەر بىرىمىرىنى		1					Center Freq 5.26000000 GHz
-10.0								Start Freq 5.235000000 GHz
-20.0								<b>Stop Freq</b> 5.285000000 GHz
-40.0 -50.0					North Start Marker	and the second sec	the work and the	CF Step 5.000000 MHz <u>Auto</u> Man
-60.0								Freq Offset 0 Hz
-70.0 Center 5.26000 GHz						Span 5	0.00 MHz	Scale Type
#Res BW 1.0 MHz	#VBW	3.0 MHz			Sweep 1	.000 ms (	1001 pts)	
MSG					STATUS	5		

Plot 7-204. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 52)



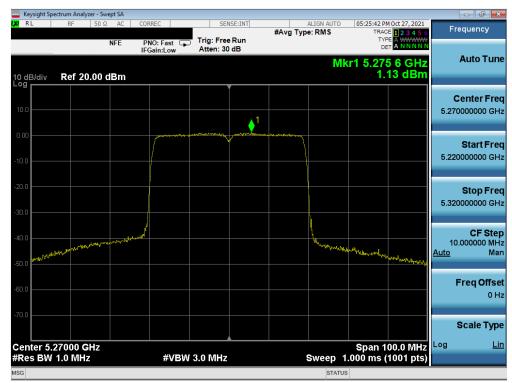
Plot 7-205. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:			
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 146 of 242	
© 2021 PCTEST		·		V 9.0 02/01/2019	



	trum Analyzer - Sv							-		
X/RL	RF 50 Ω	2 AC	CORREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	1 Oct 27, 2021 E 1 2 3 4 5 6	Frequency
		NFE	PNO: Fast IFGain:Low	Trig: Free Atten: 30				DE		Auto Tu
10 dB/div	Ref 20.00	dBm					Mkr	1 5.323 3.:	40 GHz 20 dBm	Autoru
10.0					1					Center Fr 5.320000000 G
-10.0				an frank an						<b>Start Fr</b> 5.295000000 G
-20.0										<b>Stop Fr</b> 5.345000000 G
-40.0	and the and a start of the star	M Maynamaga	r				ha ha ha ha ha ha ha ha ha ha ha ha ha h	muly war free for the for the	- Mussinger	CF St 5.000000 M <u>Auto</u> M
-50.0										Freq Offs 0
-70.0								On on f		Scale Ty
Center 5.3 #Res BW 1			#VBW	/ 3.0 MHz			Sweep 1	span 5 .000 m <u>s (</u>	0.00 MHz 1001 pts)	-
MSG							STATUS			

Plot 7-206. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 64)



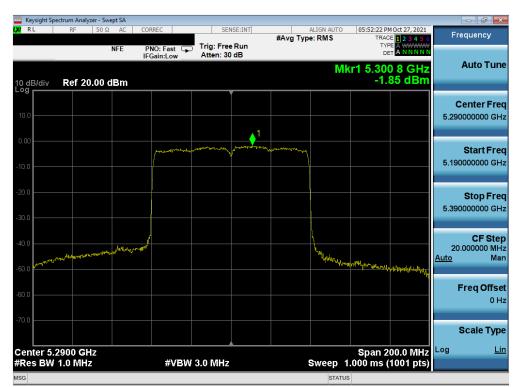
Plot 7-207. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMS908U	Proved to be part of (6) element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dage 147 of 242			
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset	Page 147 of 242			
2021 PCTEST V 9.0 02/01/2019						



	ctrum Analyzer - Sw									
LXI RL	RF 50 Ω		NO: Fast			#Avg Typ	ALIGN AUTO e: RMS	TRAC TYP	E 1 2 3 4 5 6	Frequency
10 dB/div	Ref 20.00 (	IFO	Gain:Low	Atten: 30			Mk	r1 5.301	I 8 GHz 01 dBm	Auto Tune
10.0				` 1						Center Free 5.310000000 GH
-10.0				and a second	pantonerai					Start Free 5.260000000 GH
-20.0										Stop Free 5.360000000 GH
-40.0	Alderson	and a second de la constant					anna anna	توم الروعين الديان المروحين المروحين المروحين المروحين الدين المروحين المروحين المروحين المروحين المروحين المروح	mayartury	CF Step 10.000000 MH <u>Auto</u> Mar
-60.0										Freq Offse 0 H
-70.0 Center 5.3								Snan 1	00.0 MHz	Scale Type
#Res BW			#VBW	/ 3.0 MHz			Sweep 1	opan n .000 ms (	00.0 1911 12	
MSG							STATUS			

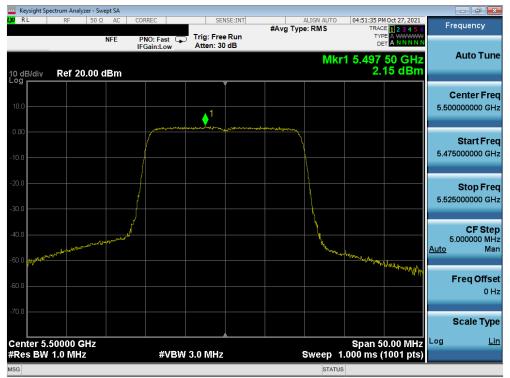
Plot 7-208. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 62)



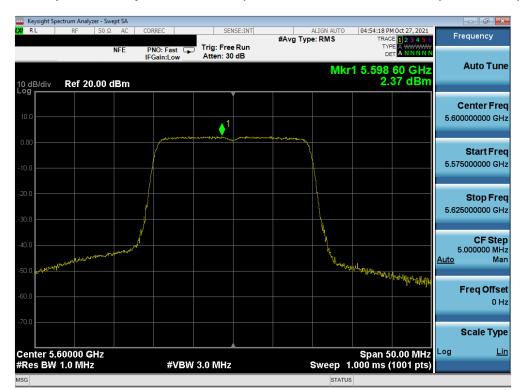
Plot 7-209. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 149 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 148 of 242
© 2021 PCTEST				V 9.0 02/01/2019





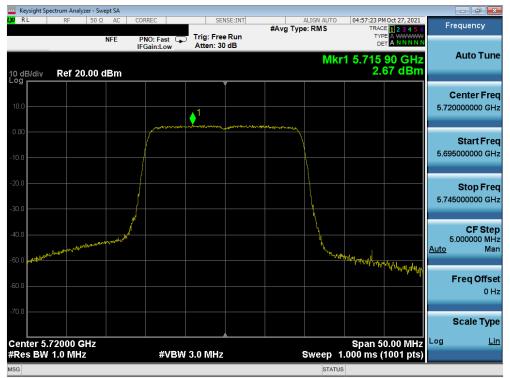
Plot 7-210. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 100)



Plot 7-211. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 140 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 149 of 242
© 2021 PCTEST		•		V 9.0 02/01/2019





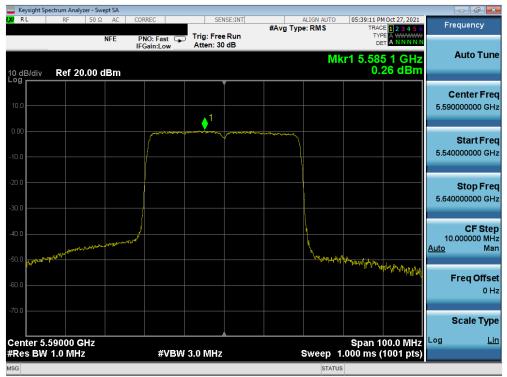
Plot 7-212. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 144)



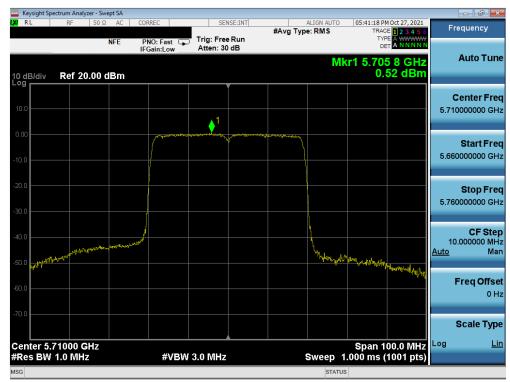
Plot 7-213. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMS908U	Proved to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 150 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 150 of 242
© 2021 PCTEST		•		V 9.0 02/01/2019





Plot 7-214. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 118)



Plot 7-215. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMS908U	Proved to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 151 of 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 151 of 242
© 2021 PCTEST		•		V 9.0 02/01/2019





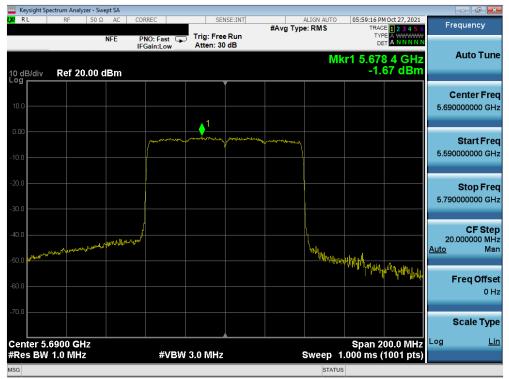
Plot 7-216. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 106)



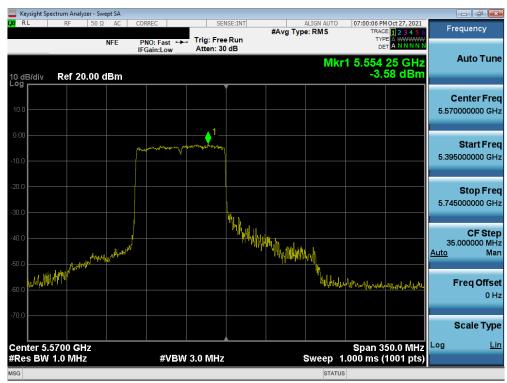
Plot 7-217. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMS908U	Proud to be part of (6) element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 152 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 152 of 242
© 2021 PCTEST				V 9.0 02/01/2019





Plot 7-218. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 138)



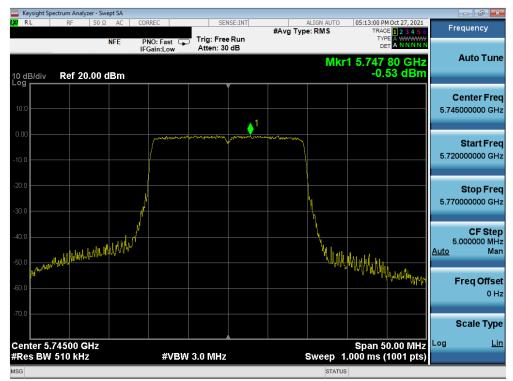
Plot 7-219. Power Spectral Density Plot MIMO ANT1 (160MHz BW L 802.11ax - Full Tones (UNII Band 2C) - Ch. 114)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dara 450 at 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 153 of 242
© 2021 PCTEST				V 9.0 02/01/2019





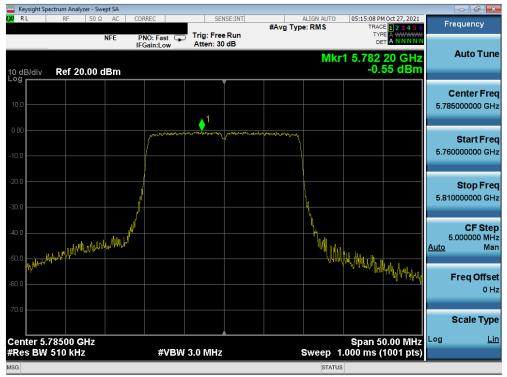
Plot 7-220. Power Spectral Density Plot MIMO ANT1 (160MHz BW U 802.11ax - Full Tones (UNII Band 2C) - Ch. 114)



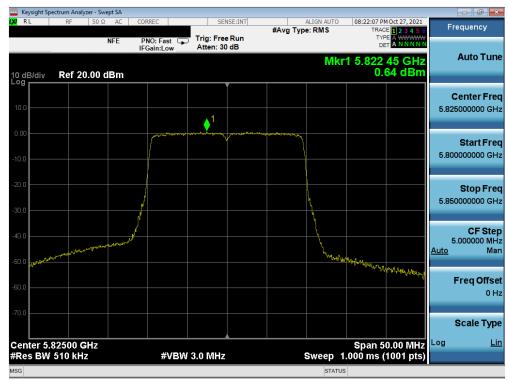
Plot 7-221. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 149)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 154 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 154 of 242
© 2021 PCTEST	·			V 9.0 02/01/2019





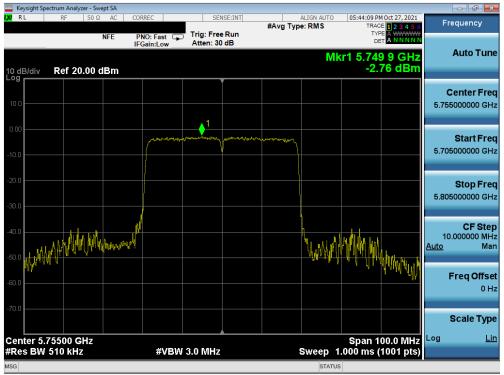
Plot 7-222. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 157)



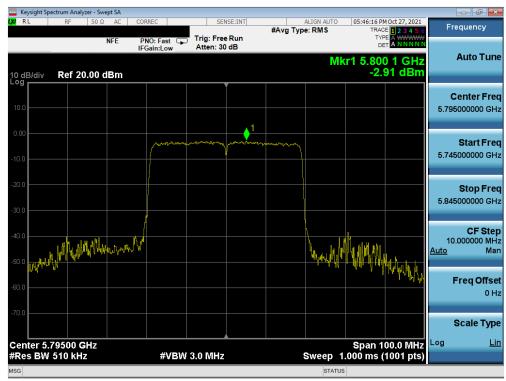
Plot 7-223. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 165)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 155 of 242
© 2021 PCTEST	•	·		V 9.0 02/01/2019





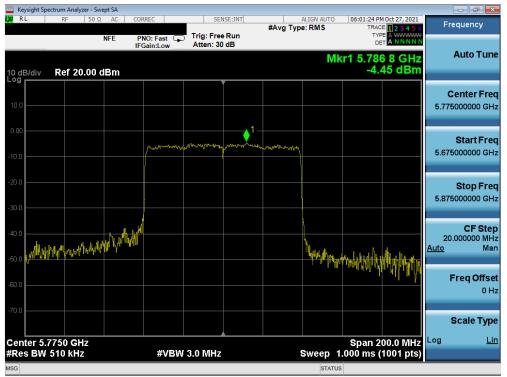
Plot 7-224. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 151)



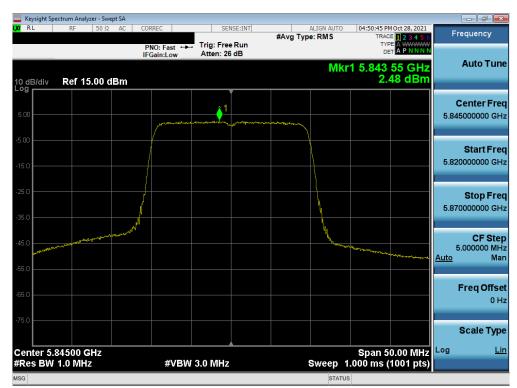
Plot 7-225. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 159)

FCC ID: A3LSMS908U	PCTEST Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 450 at 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 156 of 242
© 2021 PCTEST	•	•		V 9.0 02/01/2019





Plot 7-226. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 155)



Plot 7-227. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 242 Tones (UNII Band 3/4) - Ch. 169)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 157 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 157 of 242
© 2021 PCTEST	•	•		V 9.0 02/01/2019



Keysight Spectrum Analyzer - Swept SA							- @ <mark>*</mark>
X RL RF 50Ω AC Center Freq 5.865000000		SENSE:IN	#Avg Type	ALIGN AUTO e: RMS		<b>1 2 3 4 5</b> 6	Frequency
	PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 26 dB				A WWWWW A P N N N N	
10 dB/div Ref 15.00 dBm				Mkr	1 5.868 ⁻ 2.48	15 GHz 5 dBm	Auto Tune
5.00			<u>^</u> 1				Center Freq
-5.00	( market and the second	alfred - Burney of all a fairly and	and an and a second second				5.865000000 GHz
-15.0							<b>Start Freq</b> 5.840000000 GHz
-25.0							
-36.0	/						<b>Stop Freq</b> 5.890000000 GHz
-45.0	ſ			A.			CF Step
-56.0					ale and a second and a second	house	5.000000 MHz <u>Auto</u> Man
-65.0							Freq Offset
-75.0							0 Hz
413.0							Scale Type
Center 5.86500 GHz #Res BW 1.0 MHz	#VBW	3.0 MHz		Sweep 1	Span 50 1.000 ms (1	.00 MHz 001 pts)	Log <u>Lin</u>
MSG				STATUS			

Plot 7-228. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 242 Tones (UNII Band 4) - Ch. 173)



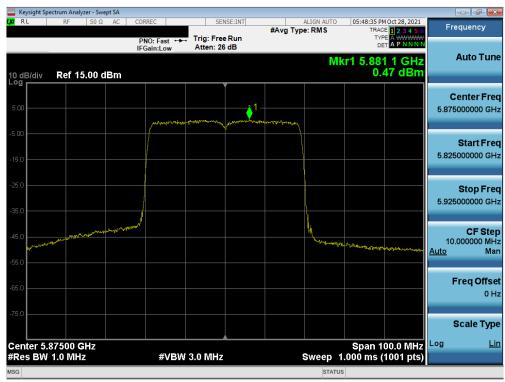
Plot 7-229. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 242 Tones (UNII Band 4) - Ch. 177)

FCC ID: A3LSMS908U	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 159 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 158 of 242
© 2021 PCTEST	•	•		V 9.0 02/01/2019



🔤 Keysight Spectrum Analyzer - Swept SA					
LX RL RF 50Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	05:44:26 PM Oct 28, 2021 TRACE 1 2 3 4 5 6	Frequency
	PNO: Fast ↔ IFGain:Low	Trig: Free Run Atten: 26 dB		TYPE A WWWWW DET A P N N N N	
10 dB/div Ref 15.00 dBm			Μ	kr1 5.831 3 GHz 0.38 dBm	Auto Tune
5.00		1 ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Marine		Center Freq 5.835000000 GHz
-5.00					<b>Start Freq</b> 5.785000000 GHz
-25.0					<b>Stop Freq</b> 5.885000000 GHz
-45.0				An actually be not the first and a before the second of the second second second second second second second se	CF Step 10.000000 MHz <u>Auto</u> Man
-65.0					<b>Freq Offset</b> 0 Hz
-75.0					Scale Type
Center 5.83500 GHz #Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep	Span 100.0 MHz 1.000 ms (1001 pts)	
MSG			STAT		

Plot 7-230. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 484 Tones (UNII Band 3/4) - Ch. 167)



Plot 7-231. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 4) – Ch. 175)

FCC ID: A3LSMS908U	Proud to be part of (6) element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 150 of 242	
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 159 of 242	
© 2021 PCTEST V 9.0 02/01/2019					



LXI RL RF 50Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	05:52:05 PM Oct 28, 2021 TRACE 1 2 3 4 5 6	Frequency
		Trig: Free Run Atten: 26 dB	•	TYPE A WWWWW DET A P N N N N	
10 dB/div Ref 15.00 dBm			MI	r1 5.842 6 GHz -2.01 dBm	Auto Tune
5.00	a the an and	1 1			Center Freq 5.855000000 GHz
-15.0					Start Freq 5.755000000 GHz
-25.0					<b>Stop Freq</b> 5.955000000 GHz
-45.0	un ^d		Markhartachart	the put the man	CF Step 20.000000 MHz <u>Auto</u> Man
-65.0					Freq Offset 0 Hz
-75.0					Scale Type
Center 5.8550 GHz #Res BW 1.0 MHz	#VBW 3.	0 MHz	Sweep 1	Span 200.0 MHz .000 ms (1001 pts)	Log <u>Lin</u>
MSG			STATU		

Plot 7-232. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 996 Tones (UNII Band 3/4) - Ch. 171)



Plot 7-233. Power Spectral Density Plot MIMO ANT1 (160MHz BW L 802.11ax – 996 Tones (UNII Band 3/4) – Ch. 163)

FCC ID: A3LSMS908U	Pctest * Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 400 at 040
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 160 of 242
© 2021 PCTEST				V 9.0 02/01/2019





Plot 7-234. Power Spectral Density Plot MIMO ANT1 (160MHz BW U 802.11ax - 996 Tones (UNII Band 3/4) - Ch. 163)

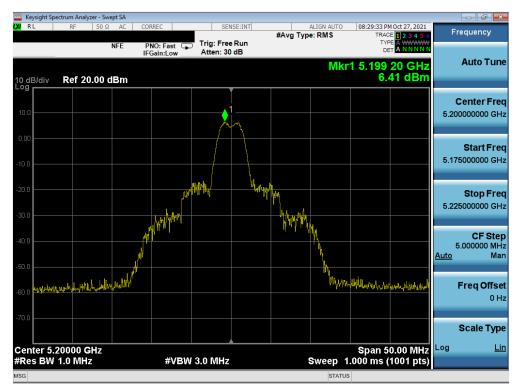
FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 161 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 161 of 242
© 2021 PCTEST	-			V 9.0 02/01/2019



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



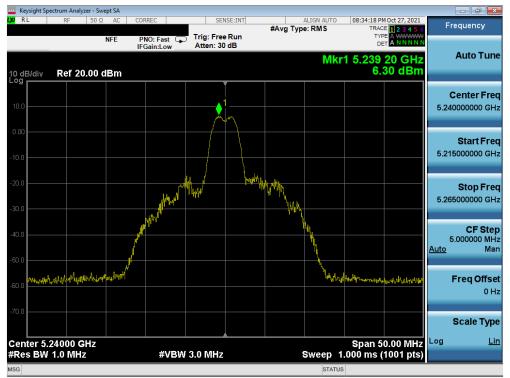
Plot 7-235. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 36)



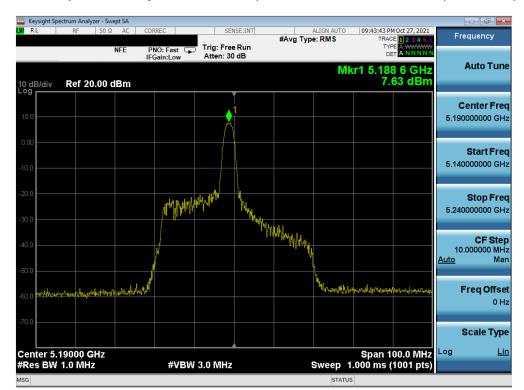
Plot 7-236. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMS908U	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 162 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 162 of 242
© 2021 PCTEST	•	•		V 9.0 02/01/2019





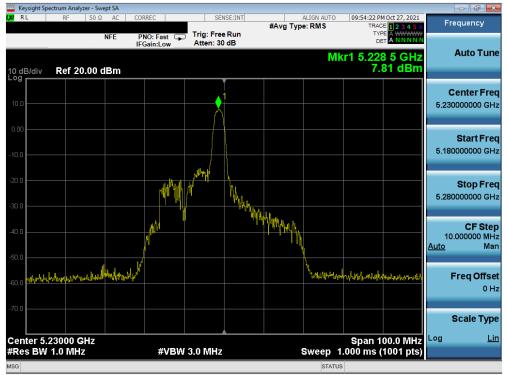
Plot 7-237. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 48)



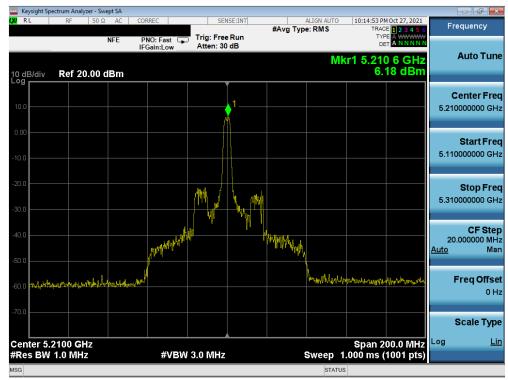
Plot 7-238. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 162 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 163 of 242
© 2021 PCTEST	•	·		V 9.0 02/01/2019





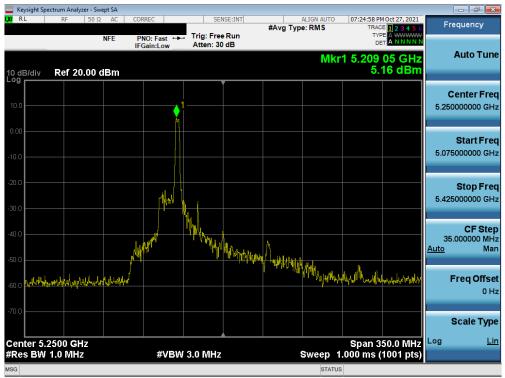
Plot 7-239. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 46)



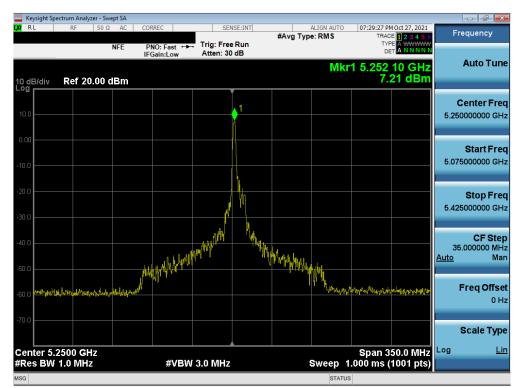
Plot 7-240. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 164 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		Page 164 01 242
© 2021 PCTEST				V 9.0 02/01/2019





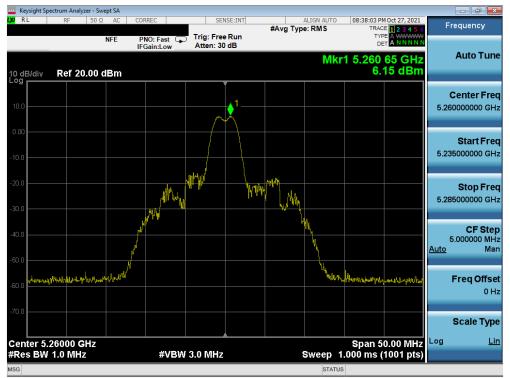
Plot 7-241. Power Spectral Density Plot MIMO ANT2 (160MHz BW L 802.11ax - 26 Tones (UNII Band 1/2A) - Ch. 50)



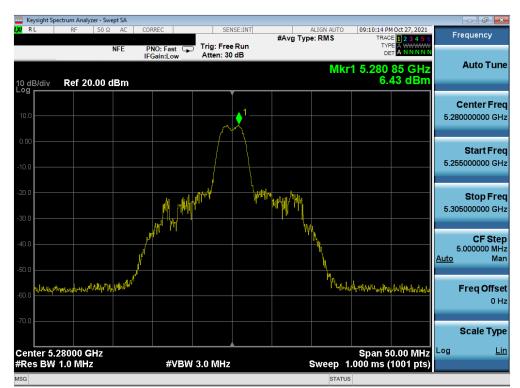
Plot 7-242. Power Spectral Density Plot MIMO ANT2 (160MHz BW U 802.11ax - 26 Tones (UNII Band 1/2A) - Ch. 50)

FCC ID: A3LSMS908U	Froud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 165 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		
© 2021 PCTEST		·		V 9.0 02/01/2019





Plot 7-243. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 52)



Plot 7-244. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMS908U	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 166 of 242
1M2109090102-12.A3L	9/14/2021 - 11/12/2021	Portable Handset		
© 2021 PCTEST	-	•		V 9.0 02/01/2019