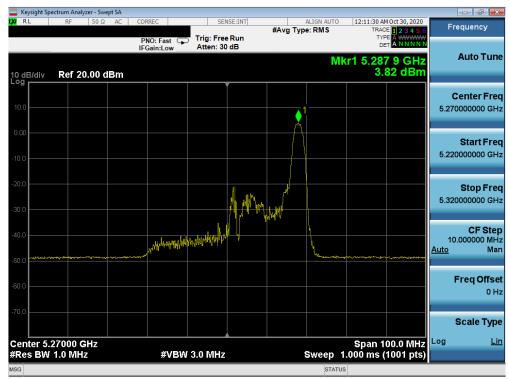




Plot 7-117. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 64)



Plot 7-118. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 54)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 02 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 93 of 176
© 2021 PCTEST			v01r04



	ctrum Analyzer - Swept						- ē 💌
LXU RL	RF 50 Ω		SENSE:IN	#Avg	ALIGN AUTO	12:14:08 AM Oct 30, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
10 dB/div	Ref 20.00 dE	PNO: Fast 🖵 IFGain:Low	Trig: Free Rur Atten: 30 dB	1	М	kr1 5.327 9 GHz 3.91 dBm	Auto Tune
10.0					∧ 1		Center Freq 5.310000000 GHz
-10.0							Start Freq 5.26000000 GHz
-20.0				AMM A			Stop Freq 5.36000000 GHz
-40.0	manana lan ay had so far	ann a that a the second se	Net Multipleting	1 "I		าราสารณ์เหลือเป็นการเป็นเป็นไปเป็นเป็นเป็นเป็นเป็น	CF Step 10.000000 MHz <u>Auto</u> Man
-60.0							Freq Offset 0 Hz
-70.0 Center 5.3						Span 100.0 MHz	Scale Type
#Res BW	1.0 MHz	#VBW	3.0 MHz			1.000 ms (1001 pts)	
MSG					STATU	JS	

Plot 7-119. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 62)



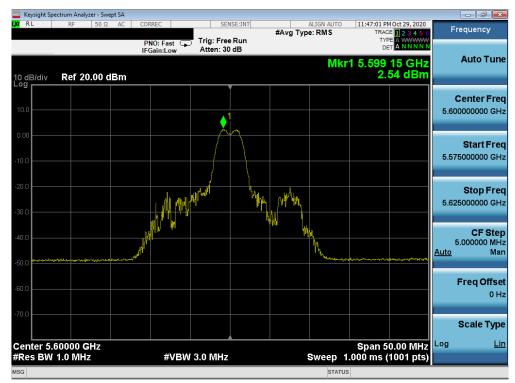
Plot 7-120. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Decc. 04 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 94 of 176
© 2021 PCTEST			v01r04





Plot 7-121. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 100)



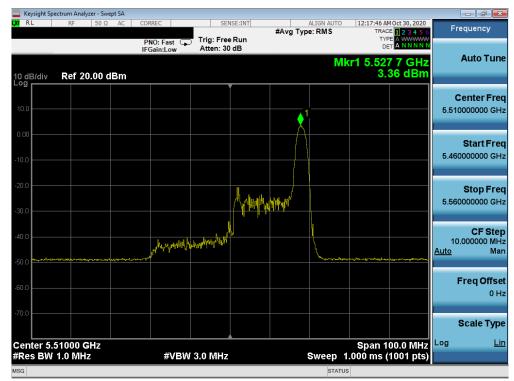
Plot 7-122. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 05 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 95 of 176
© 2021 PCTEST	•		v01r04





Plot 7-123. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 144)



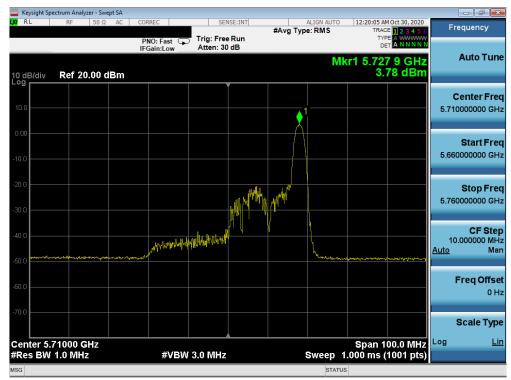
Plot 7-124. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		D 00 -f 470
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 96 of 176
© 2021 PCTEST	•	-		v01r04





Plot 7-125. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 118)



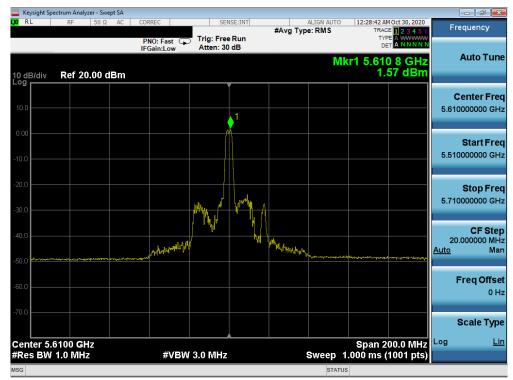
Plot 7-126. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (Certification)	MSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 07 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 97 of 176
© 2021 PCTEST				v01r04





Plot 7-127. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 106)



Plot 7-128. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 98 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 96 01 176
© 2021 PCTEST	•		v01r04

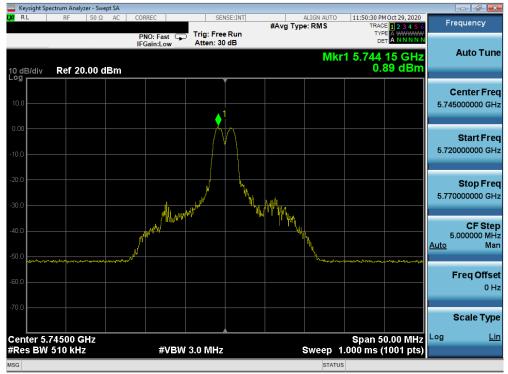


	ectrum Analyzer - Swept S									
L <mark>XI</mark> RL	RF 50 Ω A	C CORREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	Dec 10, 2020	Fre	equency
		PNO: Fast 🕞 IFGain:Low	Trig: Free Atten: 26				TYP	E A WWWWW T A N N N N N		
		IFGalli.Low	Atten: 20			М	kr1 5.689	4 GHz		Auto Tune
10 dB/div	Ref 15.00 dBr	n					0.	91 dBm		
				1					- -	enter Freq
5.00			/	1						000000 GHz
			(1						
-5.00										Start Freq
										000000 GHz
-15.0									0.000	
-25.0										
			, l	Mrul.						Stop Freq
-35.0			A^T						0.700	000000 0112
			MANNA	14	d					CF Step
-45.0		AND ANNYUN			Mapping					000000 мніз
-55.0	the second se	and many and			1	hannen		m han the production of	<u>Auto</u>	Man
00.0										
-65.0									F	req Offset 0 Hz
										0 H2
-75.0										Scale Type
	6900 GHz						Span 2	00.0 MHz	Log	Lin
#Res BW	1.0 MHz	#VBW	3.0 MHz				1.000 ms (1001 pts)		
MSG						STATU	JS			

Plot 7-129. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG998JPN	PCTEST 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 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 99 of 176
© 2021 PCTEST				v01r04





Plot 7-130. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 149)



Plot 7-131. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 100 of 176
© 2021 PCTEST			v01r04





Plot 7-132. Power Spectral Density Plot MIMO ANT1 (20 MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 165)



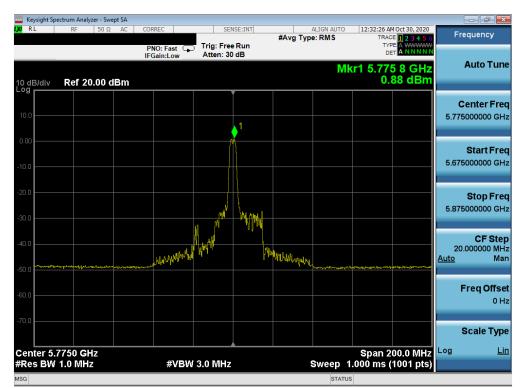
Plot 7-133. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 101 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 101 of 176
© 2021 PCTEST	•		v01r04





Plot 7-134. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 159)

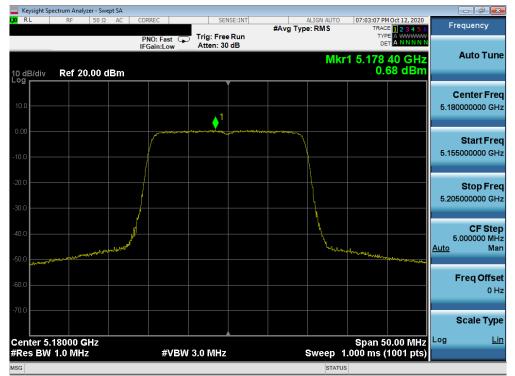


Plot 7-135. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - 26 Tones (UNII Band 3) - Ch. 155)

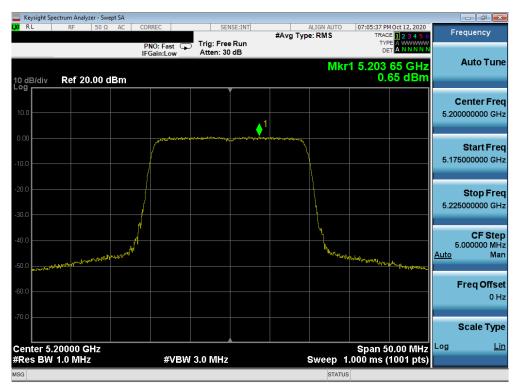
FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 102 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 102 of 176
© 2021 PCTEST			v01r04



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



Plot 7-136. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 36)



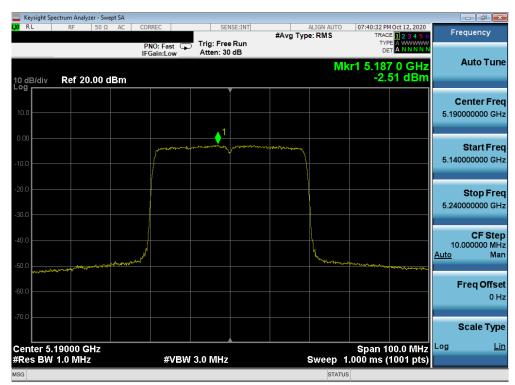
Plot 7-137. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 102 of 176	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset		Page 103 of 176	
© 2021 PCTEST	·	•		v01r04	



	ectrum Analyzer - Swe										
LXI RL	RF 50 Ω	AC CORR	EC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO		HOct 12, 2020	F	requency
		PN IFGa	D:Fast 🖵 ain:Low	Trig: Free Atten: 30		• ,,		TYF DE			
10 dB/div Log	Ref 20.00 d	IBm					Mkr	1 5.241 0.	10 GHz 69 dBm		Auto Tune
10.0					▲1						Center Freq 0000000 GHz
-10.0				ad line to a line of the second second			\			5.21	Start Freq 5000000 GHz
-20.0										5.26	Stop Freq 5000000 GHz
-40.0	and from the former	ph would be a second					L Hurrowski	a the for the state of the stat		Auto	CF Step 5.000000 MHz Man
-60.0	*****								an many strategy and the second st		Freq Offset 0 Hz
-70.0											Scale Type
Center 5.2 #Res BW	24000 GHz 1.0 MHz		#\/B\A	/ 3.0 MHz			Sween 1	Span 5	0.00 MHz 1001 pts)	Log	Lin
MSG	1.0 10112		<i></i>	0.0 10112			STATUS		roor pisj		

Plot 7-138. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 48)



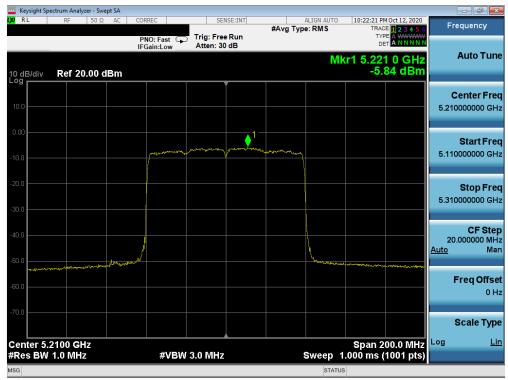
Plot 7-139. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 38)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 104 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 104 of 176	
© 2021 PCTEST			v01r04	



	trum Analyzer - Swept										- 6 X
LXU RL	RF 50 Ω	AC CORR	EC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS		HOct 12, 2020	Fre	equency
		PN0 IFGa	0:Fast ⊊ ain:Low	Trig: Free Atten: 30				TYF DE (r1 5.22)			Auto Tune
10 dB/div Log	Ref 20.00 dB	sm						-2.	75 dBm		
10.0											enter Freq
-10.0			f the for the second		, markan dan katalan ka					5.180	Start Freq
-20.0										5.280	Stop Freq 0000000 GHz
-40.0							how was not			10 <u>Auto</u>	CF Step .000000 MHz Man
-60.0	Angel and a second s								~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	F	F req Offset 0 Hz
-70.0											Scale Type
Center 5.2 #Res BW 1			#VBM	3.0 MHz			Sween 1	Span 1	00.0 MHz 1001 pts)	Log	Lin
MSG	W 111112		<i></i>	0.0 191112			STATUS		roor pts)		

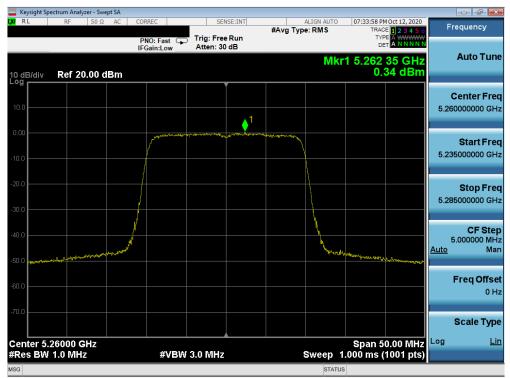
Plot 7-140. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 46)



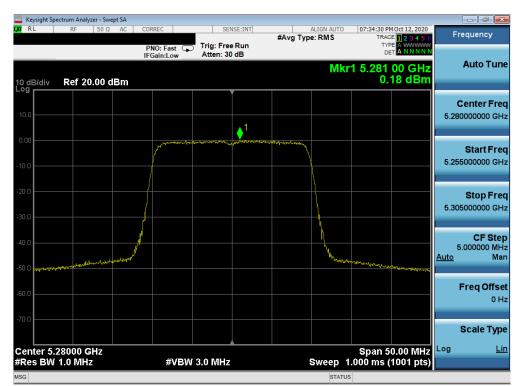
Plot 7-141. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 105 of 176	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset		
© 2021 PCTEST			v01r04	





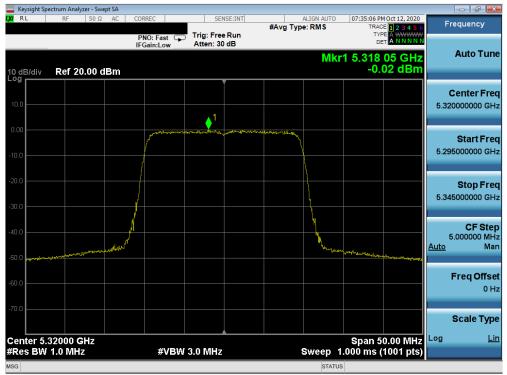
Plot 7-142. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 52)



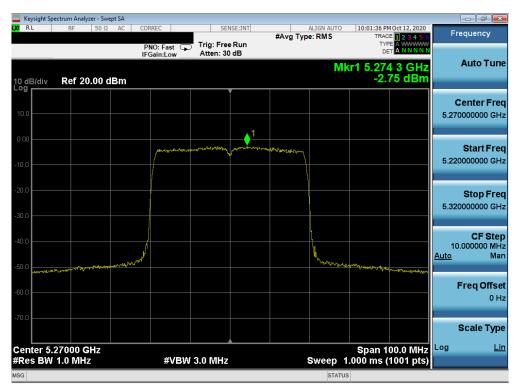
Plot 7-143. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 106 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 106 of 176	
© 2021 PCTEST			v01r04	





Plot 7-144. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 64)



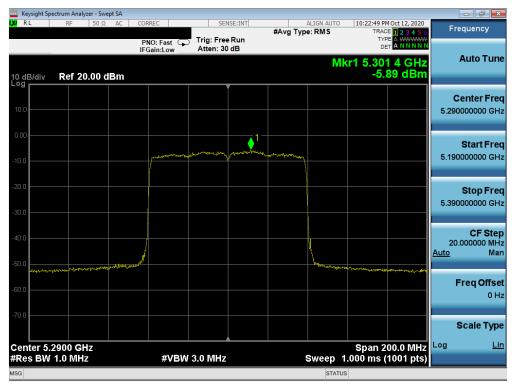
Plot 7-145. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 107 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 107 of 176	
© 2021 PCTEST			v01r04	



	ctrum Analyzer - Sw									
LXIRL	RF 50 Ω	AC CO	ORREC		NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	MOct 12, 2020	Frequency
10 dB/div	Ref 20.00 (PNO: Fast 🕞 FGain:Low	Trig: Free Atten: 30			M	or cr1 5.31	3 3 GHz 96 dBm	Auto Tune
10.0					. 1					Center Freq 5.310000000 GHz
-10.0				mond	yardrer, dan se					Start Freq 5.260000000 GHz
-20.0										Stop Freq 5.36000000 GHz
-40.0	مىلىرى رويى يەرىپ يىلىرىد. يېلىرى رويى يەرىپ يېلىرىد.	- Water and the second					have all a card	L. Marine Junger		CF Step 10.000000 MHz <u>Auto</u> Man
-60.0										Freq Offset 0 Hz
-70.0 Center 5.3	31000 GHz							Span 1	00.0 MHz	Scale Type
#Res BW			#VBW	3.0 MHz			Sweep	.000 ms (1001 pts)	
MSG							STATU	s		

Plot 7-146. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 62)



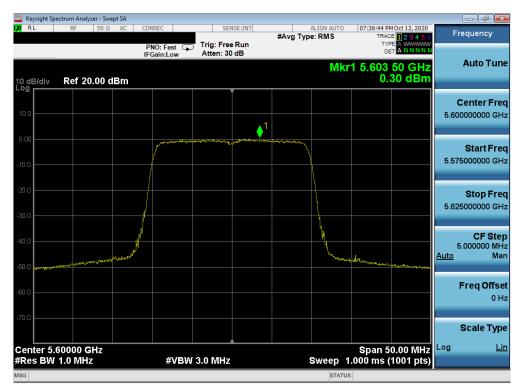
Plot 7-147. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 109 of 176	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 108 of 176	
© 2021 PCTEST			v01r04	



	ctrum Analyzer - Sw									-	
LXU RL	RF 50 Ω	AC CO	RREC	SEI	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS		1 Oct 12, 2020	Freq	uency
		P IF	NO:Fast 🖵 Gain:Low	Trig: Free Atten: 30		• //		TYP			
10 dB/div Log	Ref 20.00 c	lBm					Mkr	1 5.497 0.:	00 GHz 20 dBm	A	uto Tune
10.0				▲ ¹							nter Freq 00000 GHz
-10.0				and and a stand of the stand of	and the second	- Carter de ser en d					Start Freq 00000 GHz
-20.0											Stop Freq 00000 GHz
-40.0	Wamp Barbara	h					4 Marine	hambitersationshapite	-Randonautoral	5.00 <u>Auto</u>	CF Step 00000 MHz Man
-60.0										Fr	e q Offset 0 Hz
-70.0								0.000-6	0.00 8411-		c ale Type Lin
Center 5.5 #Res BW			#VBW	3.0 MHz			Sweep_1	span 5 .000 ms (0.00 MHz 1001 pts)		<u></u>
MSG							STATUS				

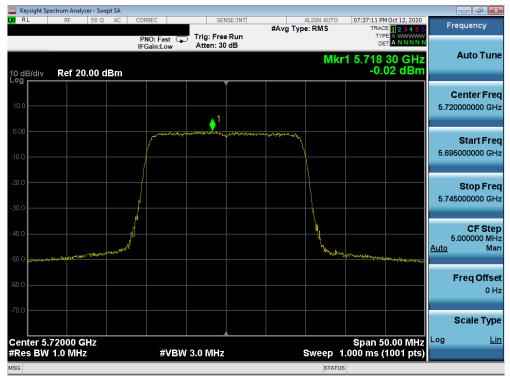
Plot 7-148. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 100)



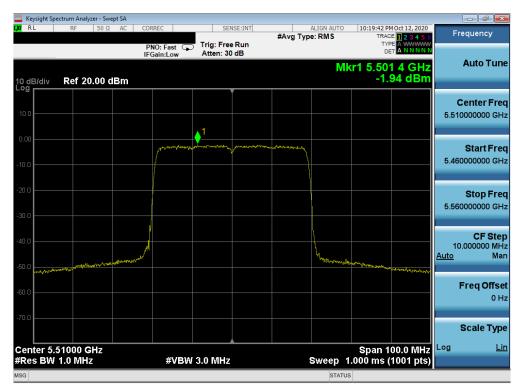
Plot 7-149. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 100 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 109 of 176	
© 2021 PCTEST			v01r04	





Plot 7-150. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 144)



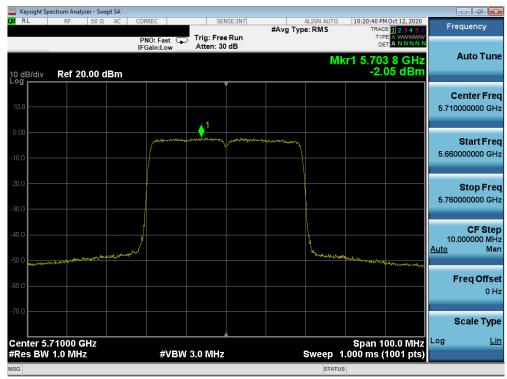
Plot 7-151. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 110 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 110 of 176
© 2021 PCTEST			v01r04



	trum Analyzer - Swep									
L XI RL	RF 50 Ω	AC CO	RREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	MOct 12, 2020	Frequency
10 dB/div	Ref 20.00 di	IF	NO: Fast 🕞 Gain:Low	Atten: 30			MI	or 1 5.59	2 3 GHz 97 dBm	Auto Tune
10.0					▲1					Center Freq 5.590000000 GHz
-10.0			an grand and a second	water and the second	and the state of the second	mpmmmmm				Start Freq 5.540000000 GHz
-20.0										Stop Freq 5.640000000 GHz
-40.0	marg participant and	man					Mal Marine Marine	h The Other Strange	ado- iti madaland	CF Step 10.000000 MHz <u>Auto</u> Man
-60.0										Freq Offset 0 Hz
										Scale Type
Center 5.59 #Res BW 1			#VBW	3.0 MHz			Sweep_1	Span 1 1.000 ms.	00.0 MHz 1001 pts)	
MSG							STATU		, (C) (C)	

Plot 7-152. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 118)



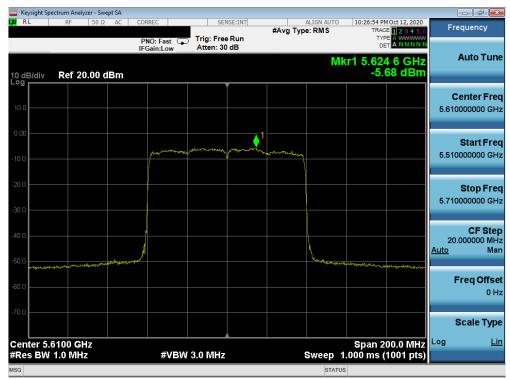
Plot 7-153. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG998JPN	Provid to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dega 111 of 176		
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 111 of 176		
© 2021 PCTEST		·	v01r04		



	trum Analyzer - Sw									- 6 ×
LXI RL	RF 50 Ω	AC CC	RREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	1 Oct 12, 2020 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref 20.00 (IF	PNO: Fast 🕞 Gain:Low	Trig: Free Atten: 30			М	₀ 1.54° kr1	1 6 GHz 70 dBm	Auto Tune
10.0										Center Freq 5.530000000 GHz
-10.0			/10-118 ⁻¹⁰ 00 ⁴	and and a second se	1	a constrained				Start Freq 5.430000000 GHz
-20.0										Stop Freq 5.63000000 GHz
-40.0	and and for the same pairs of the same	Current and And						-#~^^\\\\\~~34_~~\\\\\\\\\\\\\\\\\\\\\\\\\\\\		CF Step 20.000000 MHz <u>Auto</u> Man
-60.0									ФУ97-улиунарийд (*19 ¹ -19	Freq Offset 0 Hz
-70.0 Center 5.5	300 GHz							Span 2	00.0 MHz	Scale Type
#Res BW 1			#VBW	3.0 MHz			Sweep	1.000 ms (1001 pt <u>s)</u>	
MSG							STATU	_		

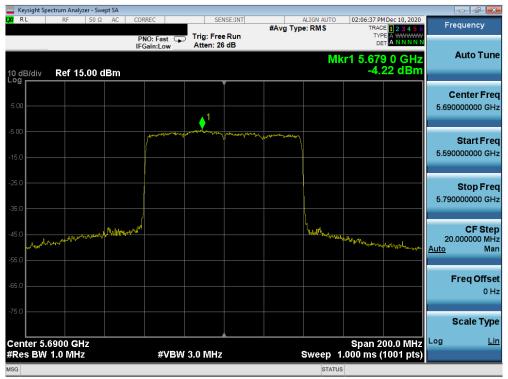
Plot 7-154. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 106)



Plot 7-155. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dega 112 of 176		
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 112 of 176		
© 2021 PCTEST			v01r04		





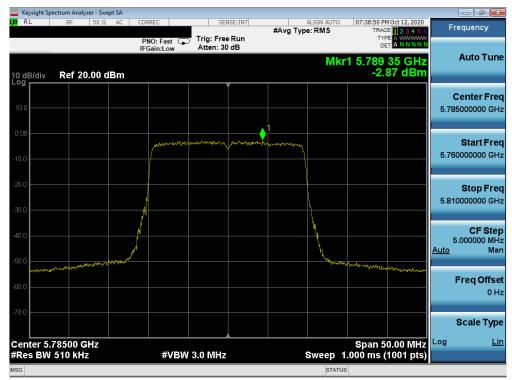
Plot 7-156. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:	Page 113 of 176		
1M2101110003-09.A3L	1/16 - 1/22/2021	/2021 Portable Handset		Page 113 of 176	
© 2021 PCTEST		•		v01r04	



	ctrum Analyzer - Swe										
LXU RL	RF 50 Ω		RREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Oct 12, 2020 E 1 2 3 4 5 6 E A WWWW	Fi	requency
10 dB/div Log	Ref 20.00 d	IF	PNO: Fast 🕞 Gain:Low	Atten: 30			Mk	n <mark>1 5.743</mark>	70 GHz 36 dBm		Auto Tune
10.0				. 1							Center Freq 5000000 GHz
-10.0			per stallingeraam over	versender	, american and a second	U.S. S.				5.72	Start Freq 0000000 GHz
-20.0							y 			5.77	Stop Freq 0000000 GHz
-40.0	and the formation of the state	A North Contraction of the Contr					1 1 1	had a frank of the provide states		Auto E	CF Step 5.000000 MHz Man
-60.0	enanglad for strand and a second s								and manual and a second		Freq Offset 0 Hz
-70.0 Center 5.7	4500 GHz							Snan 5	0.00 MHz		Scale Type Lin
#Res BW :			#VBW	3.0 MHz			Sweep	3pan 3 1.000 ms (1001 pts)		
MSG							STATU	_			

Plot 7-157. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 149)



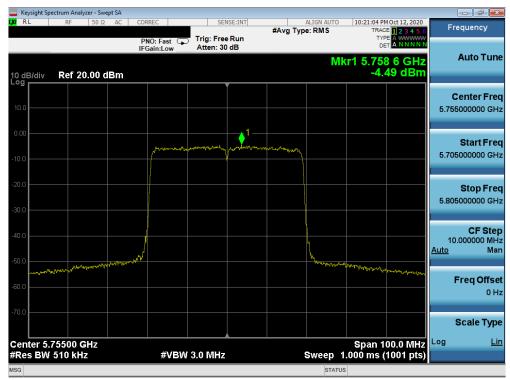
Plot 7-158. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 157)

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	st Report S/N: Test Dates: EUT Type:			Dama 444 af 470
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 114 of 176
© 2021 PCTEST	•	-		v01r04



	ctrum Analyzer - Swe										- • •
LXU RL	RF 50 Ω		DRREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	MOct 12, 2020 E 1 2 3 4 5 6 E A WWWW	Fr	equency
10 dB/div Log	Ref 20.00 d		PNO: Fast 🕞 FGain:Low	Atten: 30			Mk	r <mark>1 5.822</mark>			Auto Tune
10.0				.1							Center Freq 5000000 GHz
-10.0			monterest	anner terrary	Junior					5.800	Start Freq
-20.0		, ,	p p							5.850	Stop Freq
-40.0	a han a short group strong and group	Markane M					M.	and and not a		5 <u>Auto</u>	CF Step .000000 MHz Man
-60.0	and particular dependences and							and for the second of the seco	www.ware.w		Freq Offsel 0 Hz
-70.0	2500 GHz							Snan 5	0.00 MHz		Scale Type Lin
#Res BW			#VBW	3.0 MHz			Sweep	1.000 ms (1001 pts)		
MSG							STATU				

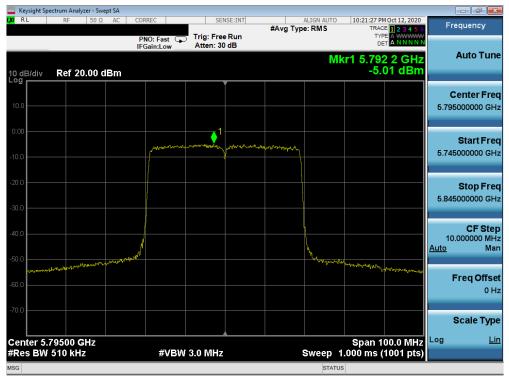
Plot 7-159. Power Spectral Density Plot MIMO ANT1 (20 MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 165)



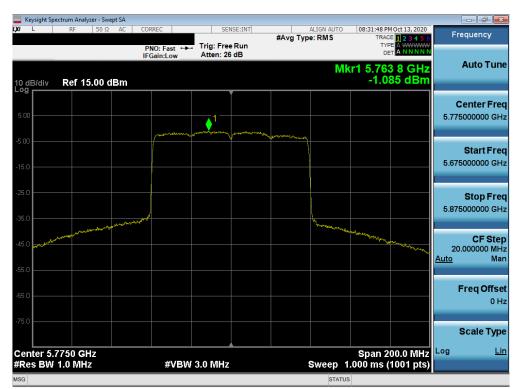
Plot 7-160. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 151)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Degs 115 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 115 of 176
© 2021 PCTEST				v01r04





Plot 7-161. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 159)



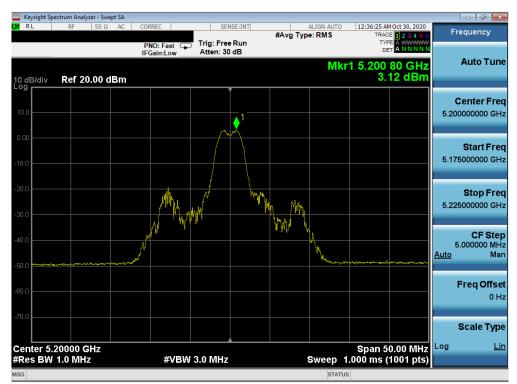
Plot 7-162. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 155)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:	Daga 116 of 176	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 116 of 176	
© 2021 PCTEST			v01r04	





Plot 7-163. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 36)



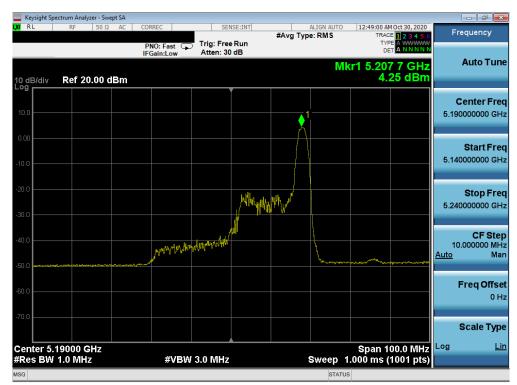
Plot 7-164. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 40)

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:	Dame 117 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 117 of 176
© 2021 PCTEST			v01r04





Plot 7-165. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 48)



Plot 7-166. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 119 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 118 of 176
© 2021 PCTEST	•		v01r04



	ectrum Analyzer - Swept SA								_	
L <mark>XI</mark> RL	RF 50 Ω AC	CORREC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRACE	Oct 30, 2020	Fre	equency
10 dB/div	Ref 20.00 dBm	PNO: Fast 🖵 IFGain:Low	Trig: Free Atten: 30			М	DE kr1 5.228	7 GHz 5 dBm		Auto Tune
				1						Center Freq 0000000 GHz
-10.0									5.180	Start Freq 0000000 GHz
-20.0		Man Marthy N	MM	the state of the s					5.280	Stop Freq
-40.0	1997.1996.001.001.001.001.001.001.001.001.001.00			- Minu	hallander of the start of the s	Manyar and a last	the stage and a start on the start		10. <u>Auto</u>	CF Step .000000 MHz Man
-60.0									F	Freq Offset 0 Hz
-70.0 Center 5.2	23000 GHz						Span 10	00.0 IVII 12	tog	Scale Type <u>Lin</u>
#Res BW	1.0 MHz	#VBW	3.0 MHz			Sweep	1.000 ms (′	1001 pts)		
MSG						STAT	JS			

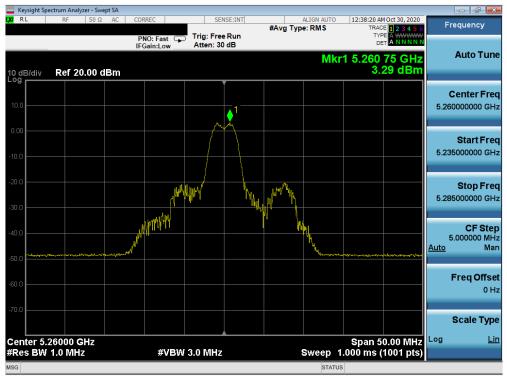
Plot 7-167. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 46)



Plot 7-168. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 110 of 176	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 119 of 176	
© 2021 PCTEST			v01r04	





Plot 7-169. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 52)



Plot 7-170. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 120 of 176	
1M2101110003-09.A3L 1/16 - 1/22/2021		Portable Handset	Page 120 of 176	
© 2021 PCTEST			v01r04	





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



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

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 101 of 176	
1M2101110003-09.A3L 1/16 - 1/22/2021		Portable Handset	Page 121 of 176	
© 2021 PCTEST			v01r04	



	ctrum Analyzer - Sw									
LXIRL	RF 50 Ω	AC	CORREC		ISE:INT	#Avg Ty	ALIGN AUTO	TRAC	M Oct 30, 2020	Frequency
10 dB/div Log	Ref 20.00	dBm	PNO: Fast IFGain:Low	Trig: Free Atten: 30			N	DI Ikr1 5.32	7 9 GHz 88 dBm	Auto Tune
10.0							1			Center Freq 5.310000000 GHz
-10.0										Start Freq 5.260000000 GHz
-20.0					MYM	WILL MA				Stop Freq 5.360000000 GHz
-40.0	4-21-24 Start Same			nt/w#1/1/th/op	∿ µ[and a second and a second second	ang pastrong a frances	CF Step 10.000000 MHz <u>Auto</u> Man
-60.0										Freq Offset 0 Hz
-70.0 Center 5.3	1000 GHz							Span 1	00.0 MHz	Scale Type Log <u>Lin</u>
#Res BW			#VBW	3.0 MHz			Sweep	1.000 ms (1001 pts)	
MSG							STAT	US		

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



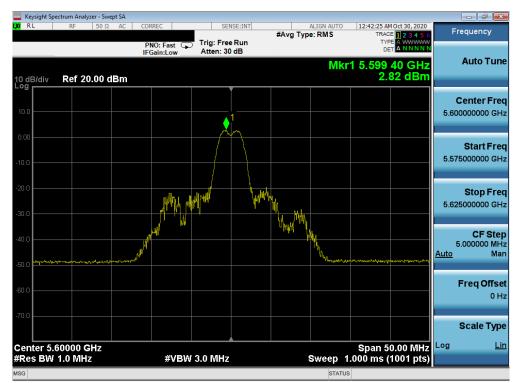
Plot 7-174. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax - 26 Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 176	
1M2101110003-09.A3L 1/16 - 1/22/2021		Portable Handset	Page 122 of 176	
© 2021 PCTEST	•		v01r04	





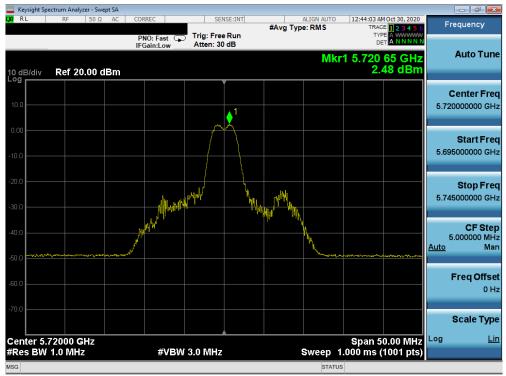
Plot 7-175. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 100)



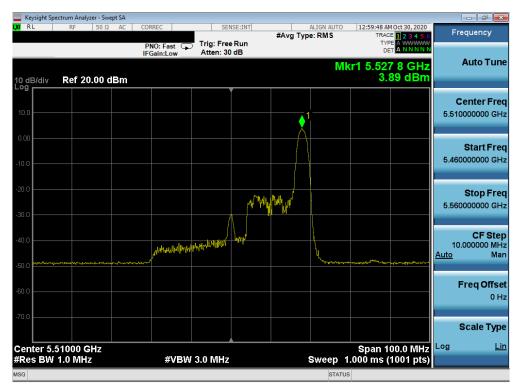
Plot 7-176. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 122 of 176	
1M2101110003-09.A3L 1/16 - 1/22/2021		Portable Handset	Page 123 of 176	
© 2021 PCTEST			v01r04	





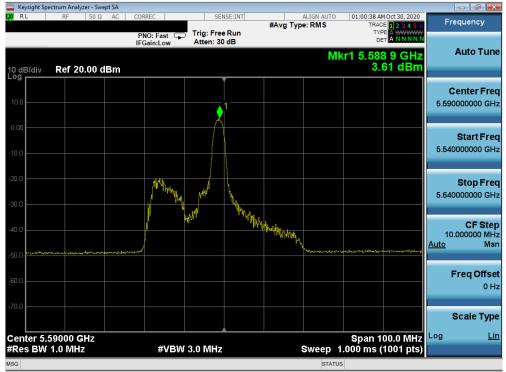
Plot 7-177. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - 26 Tones (UNII Band 2C) - Ch. 144)



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

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dere 124 of 176	
1M2101110003-09.A3L 1/16 - 1/22/2021		Portable Handset	Page 124 of 176	
© 2021 PCTEST			v01r04	





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



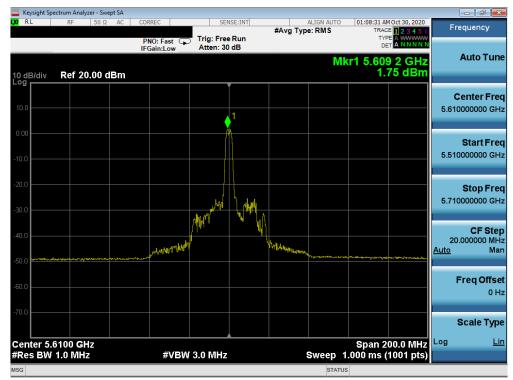
Plot 7-180. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 105 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 125 of 176
© 2021 PCTEST				v01r04



	ectrum Analyzer - Swept SA							
LXI RL	RF 50 Ω AC	CORREC	SENSE:INT	#Avg Typ	ALIGN AUTO e: RMS	01:07:20 AM Oct		Frequency
10 dB/div	Ref 20.00 dBm		Free Run : 30 dB		M	TYPE A	GHz	Auto Tune
			1					Center Freq 5.53000000 GHz
-10.0								Start Freq 5.430000000 GHz
-20.0				1				Stop Freq 5.630000000 GHz
-40.0	winners with a second	A CONTRACT OF A	r _{Hivel} vir	Wall Markenson	Mandersonal		A	CF Step 20.000000 MHz uto Man
-60.0								Freq Offset 0 Hz
-70.0 Center 5.5	5300 GHz					Span 200.0) MHz	Scale Type
#Res BW	1.0 MHz	#VBW 3.0 M	Hz		Sweep	1.000 ms (100	1 pts)	
MSG					STATU	S		

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



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

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 126 of 176	
1M2101110003-09.A3L 1/16 - 1/22/2021		Portable Handset	Page 126 of 176	
© 2021 PCTEST			v01r04	





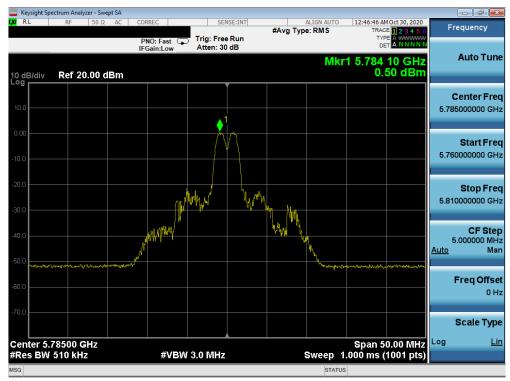
Plot 7-183. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Degs 107 of 176
1M2101110003-09.A3L 1/16 – 1/22/2021		Portable Handset	Page 127 of 176	
© 2021 PCTEST	-	·		v01r04





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



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

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 109 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 128 of 176
© 2021 PCTEST	•		v01r04





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



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

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 120 of 176	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 129 of 176	
© 2021 PCTEST	•		v01r04	





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

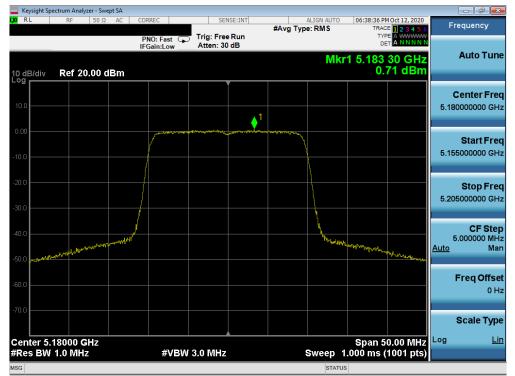


Plot 7-189. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

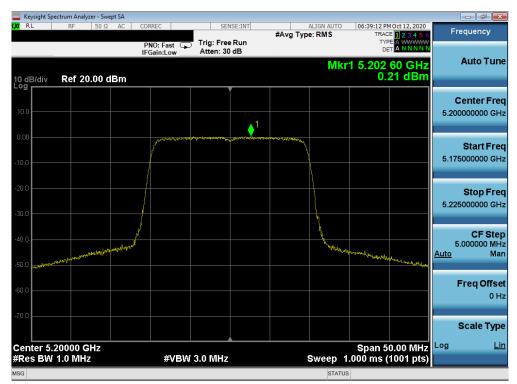
FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 120 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 130 of 176
© 2021 PCTEST			v01r04



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



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



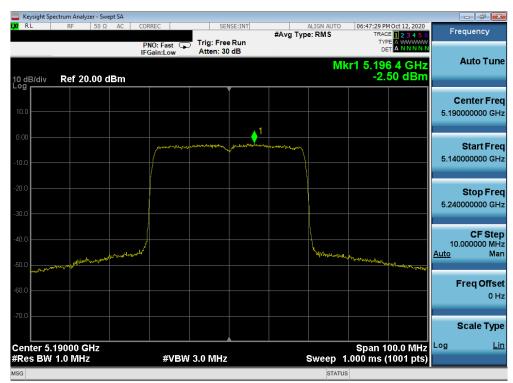
Plot 7-191. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dame 121 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 131 of 176
© 2021 PCTEST	-	·		v01r04



	ectrum Analyzer - Sw	rept SA									
LXI RL	RF 50 Ω	AC .	CORREC	SEI	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS		HOct 12, 2020	Fre	equency
			PNO: Fast G	Trig: Free Atten: 30				TYP			
10 dB/div Log	Ref 20.00	dBm					Mkr	1 5.241 0.	15 GHz 14 dBm		Auto Tune
10.0					▲1						enter Freq
-10.0			All and a second	angenetieren anderen der		Carlor & Carlor Mark	1			5.215	Start Freq 5000000 GHz
-20.0										5.265	Stop Freq
-40.0	out the second states and the second states	hannon and					Mil Marry Hrs	May al home you wanted	Millefor way you	5. <u>Auto</u>	CF Step .000000 MHz Man
-60.0										F	F req Offset 0 Hz
-70.0											Scale Type
Center 5.3 #Res BW	24000 GHz		#\/D\A	/ 3.0 MHz			Swoon_4	Span 5	0.00 10112	Log	Lin
			#VDV	3.0 WIHZ					1001 pts)		
MSG							STATUS	5			

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



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

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dere 122 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 132 of 176
© 2021 PCTEST			v01r04



	ctrum Analyzer - Swept SA						
LXI RL	RF 50 Ω AC	CORREC	SENSE:IN	#Avg Typ	ALIGN AUTO	06:49:15 PM Oct 12, 2020 TRACE 1 2 3 4 5	Frequency
10 dB/div Log	Ref 20.00 dBm	PNO: Fast 🕞 IFGain:Low	Trig: Free Run Atten: 30 dB		M	tr1 5.232 5 GHz -2.87 dBn	Auto Tune
10.0			. 1				Center Freq 5.230000000 GHz
-10.0				management			Start Freq 5.180000000 GHz
-20.0							Stop Freq 5.280000000 GHz
-40.0	and all and any open set of the set	م مراجع المعرف			-	and the second and the second second	CF Step 10.000000 MHz <u>Auto</u> Man
-60.0							Freq Offset 0 Hz
Center 5.2	3000 GHz					Span 100.0 MH:	Scale Type
#Res BW 1		#VBW	3.0 MHz		Sweep 1	.000 ms (1001 pts	
MSG					STATUS		

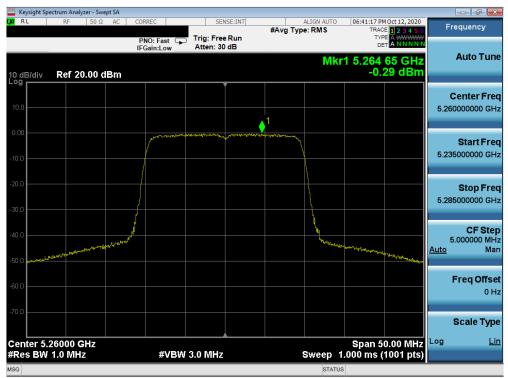
Plot 7-194. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 46)



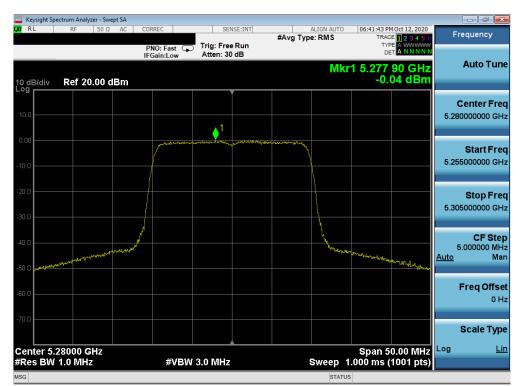
Plot 7-195. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax - Full Tones (UNII Band 1) - Ch. 42)

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		De
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 133 of 176
© 2021 PCTEST	•	-		v01r04





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



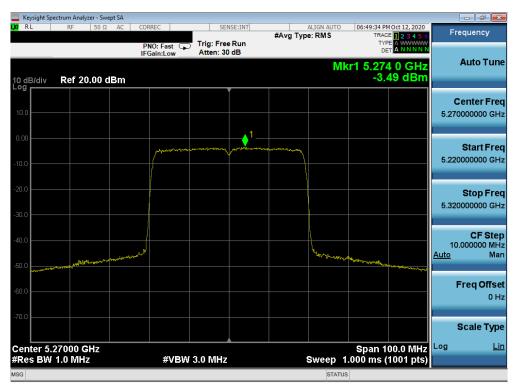
Plot 7-197. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 124 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 134 of 176
© 2021 PCTEST			v01r04



	um Analyzer - Swept SA					
LXI RL	RF 50 Ω A0	C CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	06:42:15 PM Oct 12, 2020 TRACE 1 2 3 4 5 6	Frequency
		PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 30 dB		DET A NNNN	
10 dB/div	Ref 20.00 dBn	n		Mkr	1 5.323 40 GHz 0.18 dBm	Auto Tune
10.0			1			Center Freq 5.320000000 GHz
-10.0			an maintain an			Start Freq 5.295000000 GHz
-20.0						Stop Freq 5.345000000 GHz
-40.0	methological	ANN ^H		- Anna	and the second second second	CF Step 5.000000 MHz <u>Auto</u> Man
-60.0						Freq Offset 0 Hz
-70.0						Scale Type
Center 5.32 #Res BW 1.		#VBW	3.0 MHz	Sweep 1	Span 50.00 MHz .000 ms (1001 pts)	
MSG				STATUS		

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



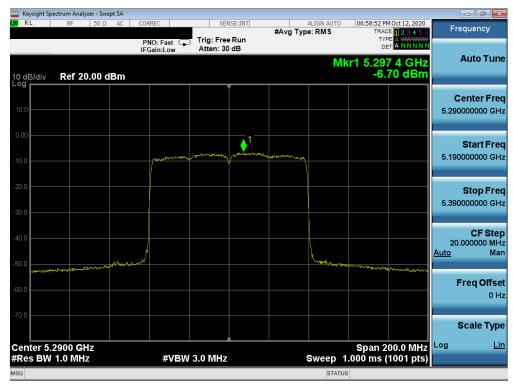
Plot 7-199. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 135 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	able Handset	
© 2021 PCTEST	•	•		v01r04



	trum Analyzer - Swej									- 6 ×
LX/IRL	RF 50 Ω	AC CO	ORREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	1 Oct 12, 2020	Frequency
10 dB/div	Ref 20.00 d		PNO: Fast 🕞	Trig: Free Atten: 30			M	TYF DE	7 8 GHz 24 dBm	Auto Tune
										Center Freq 5.310000000 GHz
-10.0				annestanness by	parriere and a					Start Freq 5.26000000 GHz
-20.0										Stop Freq 5.36000000 GHz
-40.0	and we will be a population of	wanne					have we also	wind the water of the second	affred and free former	CF Step 10.000000 MHz <u>Auto</u> Man
-60.0										Freq Offset 0 Hz
Center 5.3	1000 GHz							Snan 1	00.0 MHz	Scale Type
#Res BW 1			#VBW	3.0 MHz			Sweep 1	.000 ms (1001 pts)	
MSG							STATUS	;		

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



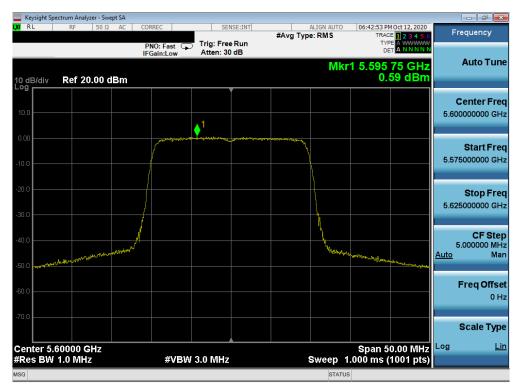
Plot 7-201. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax - Full Tones (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 126 of 176	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 136 of 176	
© 2021 PCTEST			v01r04	



	Analyzer - Swept SA					
LXIRL RF	50 Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	06:42:38 PM Oct 12, 2020 TRACE 1 2 3 4 5 6	Frequency
		PNO: Fast 🖵 IFGain:Low	Trig: Free Run Atten: 30 dB	• //		A
10 dB/div Ref	20.00 dBm			Mkı	1 5.502 70 GHz 0.72 dBm	Auto Tune
10.0			1			Center Freq 5.500000000 GHz
-10.0		A MALINGER Hand view	pyhr-unceprating _{a-acces} tion boots april	And Desidence and Andread		Start Freq 5.475000000 GHz
-20.0						Stop Freq 5.525000000 GHz
40.0	Account of the stand of the	pp 1			Ward Marting Contraction on	CF Step 5.000000 MHz <u>Auto</u> Man
-60.0						Freq Offset 0 Hz
-70.0						Scale Type
Center 5.5000 #Res BW 1.0 M		#\/R\//	3.0 MHz	Sween 1	Span 50.00 MHz .000 ms (1001 pts)	Log <u>Lin</u>

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



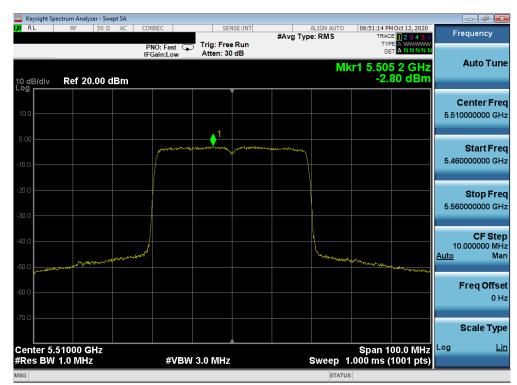
Plot 7-203. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 127 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 137 of 176
© 2021 PCTEST			v01r04



	rum Analyzer - Swept S								[- 6 ×
L <mark>XI</mark> RL	RF 50 Ω /	AC CORREC		NSE:INT	#Avg Typ	ALIGN AUTO	TRAC	HOct 12, 2020	Fre	quency
		PNO: Fast IFGain:Low	Trig: Free Atten: 30							
10 dB/div Log	Ref 20.00 dB	m				Mkr	1 5.717 0.4	40 GHz 47 dBm		Auto Tune
10.0			▲ 1							enter Freq 000000 GHz
-10.0				an a		\ \				Start Freq 000000 GHz
-20.0									5.745	Stop Freq 000000 GHz
-40.0	a land and we	y astern ^g				human	that years and and a	Martine .	5. <u>Auto</u>	CF Step 000000 MHz Man
-60.0								an shirt	F	r eq Offset 0 Hz
-70.0										Cale Type
Center 5.72 #Res BW 1		#VE	3W 3.0 MHz			Sweep 1	Span 5 .000 ms (0.00 MHz 1001 pts)	LUg	
MSG						STATUS				

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



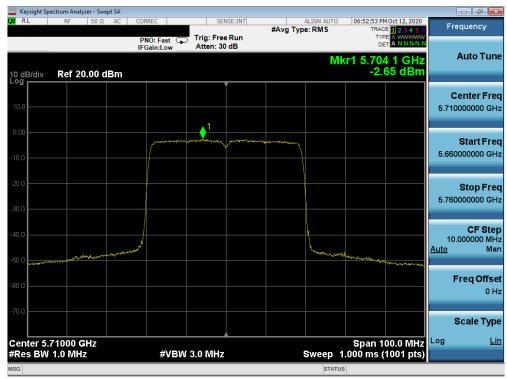
Plot 7-205. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 129 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 138 of 176
© 2021 PCTEST			v01r04



	trum Analyzer - Swep									
LXU RL	RF 50 Ω	AC CO	RREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO		MOct 12, 2020	Frequency
			NO: Fast 🖵 Gain:Low	Trig: Free Atten: 30				TYP		
10 dB/div	Ref 20.00 di	Bm					MI	kr1 5.59 -2.	7 0 GHz 50 dBm	Auto Tune
10.0					1					Center Freq 5.590000000 GHz
-10.0			- Alangehaleyerindhath	and the second of the	jajunen solum					Start Freq 5.540000000 GHz
-20.0										Stop Freq 5.640000000 GHz
-40.0	and the state of the	martreater					L Howard a marking	al printer and the	a da Braddaraethargar	CF Step 10.000000 MHz <u>Auto</u> Man
-60.0										Freq Offset 0 Hz
-70.0										Scale Type
Center 5.59 #Res BW 1			#VBW	3.0 MHz			Sweep	Span 1 1.000 ms (00.0 MHz 1001 pts)	
MSG							STATU			

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



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

FCC ID: A3LSMG998JPN	Provid to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 120 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 139 of 176	
© 2021 PCTEST		·	v01r04	



	rum Analyzer - Swept										×
LXU RL	RF 50 Ω				ISE:INT	#Avg Typ	ALIGN AUTO	TRAC	4 Oct 12, 2020 E 1 2 3 4 5 6 E A WWWWW	Frequency	
10 dB/div	Ref 20.00 dE	IFG	IO: Fast 😱 Gain:Low	Atten: 30			М	be kr1 5.54		Auto Tu	Ine
10.0										Center Fi 5.530000000 G	
-10.0			prover the second s	and a start of the second s	1	han marked and a for				Start Fi 5.430000000 G	
-20.0										Stop Fi 5.630000000 G	
-40.0	مر المصرحين المراجع ال	and the second second					Lange and	-	had in the state of the state o	CF St 20.000000 M <u>Auto</u> M	
-60.0										Freq Off 0	set) Hz
										Scale Ty	ype Lin
Center 5.5. #Res BW 1			#VBW	3.0 MHz			Sween	Span 2 1.000 ms (00.0 1911 12	-	<u>=</u>
MSG			# 0 D M				STATU		ree i proj		

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



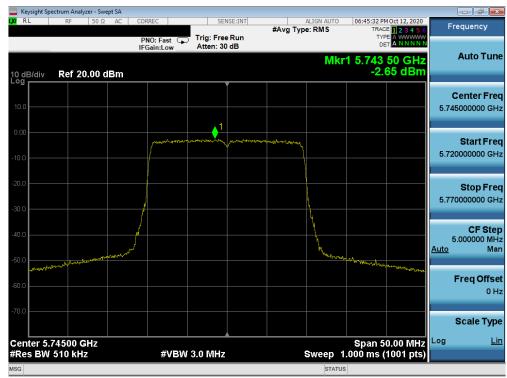
Plot 7-209. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 140 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		
© 2021 PCTEST		·	v01r04	



	trum Analyzer - Sw									
LXI RL	RF 50 Ω		ORREC		SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	4Dec 10, 2020 E 1 2 3 4 5 6 E A WWWW	Frequency
10 dB/div	Ref 15.00 (IF	PNO: Fast 🕞 Gain:Low	Atten: 26			Mk	r1 5.70	2 4 GHz 60 dBm	Auto Tur
5.00					1					Center Fre 5.690000000 GH
-5.00			(Conserved of	And a second		a and a share a share a				Start Fre 5.590000000 GH
-25.0										Stop Fre 5.790000000 GH
-45.0	and a start and	idgi Aflindesinnuda/					Men warner	And the state of t	with man	CF Ste 20.000000 MH <u>Auto</u> Ma
-65.0										Freq Offs 0 F
-75.0 Center 5.6	900 GHz							Span 2	00.0 MHz	Scale Typ
#Res BW ′			#VBW	3.0 MHz			Sweep 1	.000 ms (1001 pts)	
MSG							STATUS	5		

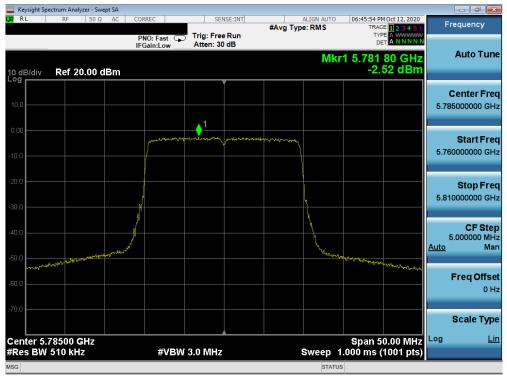
Plot 7-210. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax - Full Tones (UNII Band 2C) - Ch. 138)



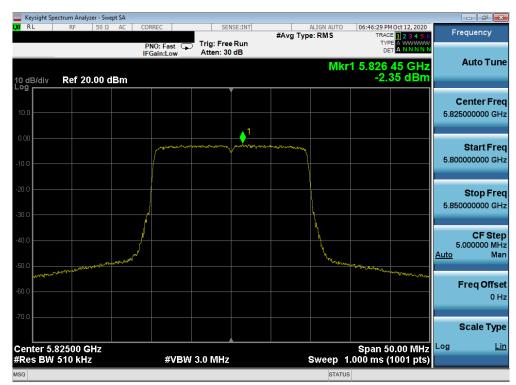
Plot 7-211. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 149)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 141 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 141 of 176
© 2021 PCTEST			v01r04





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



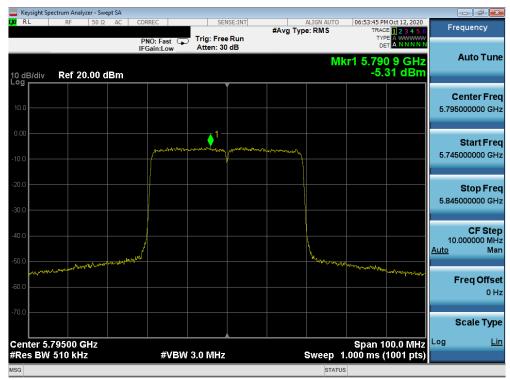
Plot 7-213. Power Spectral Density Plot MIMO ANT2 (20 MHz BW 802.11ax - Full Tones (UNII Band 3) - Ch. 165)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 112 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 142 of 176
© 2021 PCTEST			v01r04



	trum Analyzer - Swe									
LXU RL	RF 50 Ω		ORREC			#Avg Typ	ALIGN AUTO e: RMS	TRAC	MOct 12, 2020 E 1 2 3 4 5 6 E A WWWW	Frequency
10 dB/div	Ref 20.00 c		PNO: Fast 🕞 FGain:Low	Atten: 30			М	DE kr1 5.76		Auto Tune
10.0										Center Freq 5.755000000 GHz
-10.0			Jan Managaran	art the state of the state of the	renner 1					Start Freq 5.705000000 GHz
-20.0										Stop Freq 5.805000000 GHz
-40.0	a at the providence	mark					a second and	V ^a Paranan Mont		CF Step 10.000000 MHz <u>Auto</u> Man
-60.0								a and many filling	hard from the	Freq Offset 0 Hz
-70.0 Center 5.7	5500 CH=							Spap.4	00.0 MHz	Scale Type
#Res BW 5			#VBW	3.0 MHz			Sweep	span 1 1.000 ms (00.0 101112	
MSG							STATU			

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



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

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		D 112 -f 170
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 143 of 176
© 2021 PCTEST	•	-		v01r04



	trum Analyzer - Swe										- # <u>×</u>
LXIRL	RF 50 Ω	AC COI	RREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	HOCT 12, 2020	Frec	luency
		P IF	NO: Fast 🕞 Gain:Low	Trig: Free Atten: 30			M	TYP		A	uto Tune
10 dB/div Log	Ref 20.00 d	Bm						-6.	57 dBm		
										Ce	nter Freg
10.0											00000 GHz
0.00											
0.00				1							Start Freq
-10.0			forman	at contraction and a	Legen grow and	how we want				5.6750	00000 GHz
-20.0			ĺ								
-20.0											Stop Freq 00000 GHz
-30.0										0.8700	00000 0112
-40.0											CF Step
-40.0										20.0 <u>Auto</u>	00000 MHz Man
-50.0	Lallow Support of the state	كم المراجع والإللام					marmore	and all all and a second second	and and any lat		
-60.0										Fr	eq Offset
-00.0											0 Hz
-70.0											a a la Thana
											cale Type
Center 5.7								Span 2	00.0 MHz	Log	Lin
#Res BW 1	1.0 MHz		#VBW	3.0 MHz			Sweep	1.000 ms (1001 pts)		
MSG							STATU	JS			

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

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 111 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 144 of 176
© 2021 PCTEST	-	·		v01r04



7.6 Radiated Spurious Emission Measurements – Above 1GHz §15.407(b) §15.205 §15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 26 Tones, 52 Tones, 106 Tones, 242 Tones, 484 Tones and 996 Tones), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

For transmitters operating in the 5.15-5.25 GHz and 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of −27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-41 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [µV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-41. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5 KDB 789033 D02 v02r01 – Section G

Test Settings

Average Measurements above 1GHz (Method AD)

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = power average (RMS)
- 5. Number of measurement points = 1001 (Number of points must be \geq 2 x span/RBW)
- 6. Averaging type = power (RMS)
- 7. Sweep time = auto couple
- 8. Trace was averaged over 100 sweeps

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	•	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dega 145 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 145 of 176	
© 2021 PCTEST				v01r04	



Peak Measurements above 1GHz

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

Peak Measurements below 1GHz

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. Span was set greater than 1MHz
- 3. RBW = 120kHz
- 4. Detector = CISPR quasi-peak
- 5. Sweep time = auto couple
- 6. Trace was allowed to stabilize

Test Setup

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

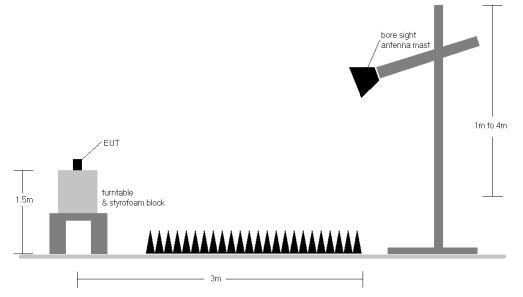


Figure 7-5. Test Instrument & Measurement Setup

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	IMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 146 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 146 of 176
© 2021 PCTEST				v01r04



Test Notes

- 1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-41.
- 2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-41. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBµV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBµV/m.
- 3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- 4. This unit was tested with its standard battery.
- 5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
- 6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
- 8. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 9. For radiated measurements, emissions were investigated for the fully-loaded RU configuration and for all of the partially-loaded RU configurations. Among all of the available partially-loaded RU configurations, only the configuration with the worst case emissions is reported.

Sample Calculations

Determining Spurious Emissions Levels

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

Radiated Band Edge Measurement Offset

• The amplitude offset shown in the radiated restricted band edge plots in Section 7.6 was calculated using the formula:

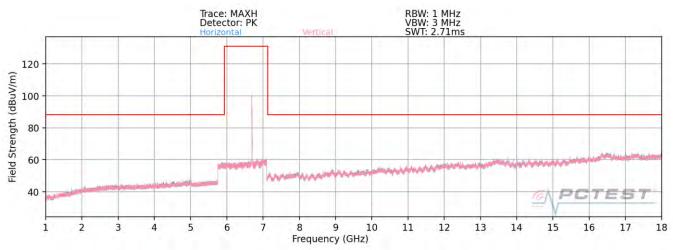
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dame 117 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 147 of 176
© 2021 PCTEST		·	v01r04

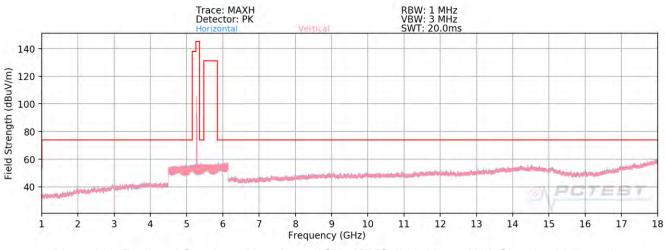


7.6.2 MIMO Radiated Spurious Emission Measurements

26 Tones



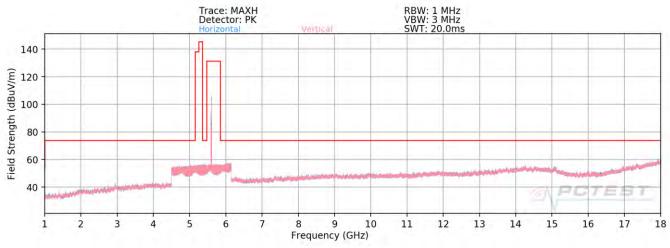




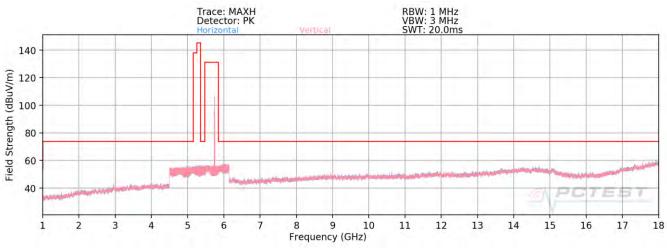
Plot 7-218. Radiated Spurious Plot above 1GHz MIMO (802.11ax - U2A Ch. 56 - 26 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 149 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 148 of 176
© 2021 PCTEST			v01r04









Plot 7-220. Radiated Spurious Plot above 1GHz MIMO (802.11ax - U3 Ch. 157 - 26 Tones)

FCC ID: A3LSMG998JPN	Provid to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Decc. 140 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 149 of 176
© 2021 PCTEST			v01r04





MIMO Radiated Spurious Emissions Measurements (Above 18GHz)

Plot 7-222. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax - 26 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 150 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 150 of 176
© 2021 PCTEST			v01r04



MIMO Radiated Spurious Emission Measurements (26 Tones) §15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

802.11ax (20MHz BW)
MCS0
54
1 & 3 Meters
5180MHz
36

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10360.00	Peak	V	-	-	-72.91	19.25	0.00	53.34	68.20	-14.86
*	15540.00	Average	V	-	-	-85.00	27.75	0.00	49.75	53.98	-4.23
*	15540.00	Peak	V	-	-	-74.61	27.75	0.00	60.14	73.98	-13.84
*	20720.00	Average	V	-	-	-63.63	1.63	-9.54	35.46	53.98	-18.52
*	20720.00	Peak	V	-	-	-52.39	1.63	-9.54	46.70	73.98	-27.28
	25900.00	Peak	V	-	-	-50.34	4.37	-9.54	51.49	68.20	-16.71

Table 7-42. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: Worst Case Transfer Rate: RU Index: Distance of Measurements: Operating Frequency: Channel: 802.11ax (20MHz BW) MCS0 54 1 & 3 Meters 5200MHz 40

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10400.00	Peak	V	-	-	-73.57	19.77	0.00	53.20	68.20	-15.00
*	15600.00	Average	V	-	-	-84.78	28.09	0.00	50.31	53.98	-3.67
*	15600.00	Peak	V	-	-	-74.01	28.09	0.00	61.08	73.98	-12.90
*	20800.00	Average	V	-	-	-63.92	1.54	-9.54	35.08	53.98	-18.90
*	20800.00	Peak	V	-	-	-51.35	1.54	-9.54	47.65	73.98	-26.33
	26000.00	Peak	V	-	-	-49.79	4.18	-9.54	51.84	68.20	-16.36

Table 7-43. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
		EUT Type:		Degs 151 of 176
		Portable Handset	Page 151 of 176	
© 2021 PCTEST	·	•		v01r04



802.11ax (20MHz BW)
MCS0
54
1 & 3 Meters
5240MHz
48

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	Peak	V	-	-	-73.99	20.09	0.00	53.10	68.20	-15.10
*	15720.00	Average	V	-	-	-84.82	28.00	0.00	50.18	53.98	-3.80
*	15720.00	Peak	V	-	-	-74.62	28.00	0.00	60.38	73.98	-13.60
*	20960.00	Average	V	-	-	-63.08	1.82	-9.54	36.19	53.98	-17.78
*	20960.00	Peak	V	-	-	-50.95	1.82	-9.54	48.32	73.98	-25.65
ĺ	26200.00	Peak	V	-	-	-50.06	4.39	-9.54	51.79	68.20	-16.41

Table 7-44. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5260MHz
Channel:	52

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10520.00	Peak	V	-	-	-73.22	19.96	0.00	53.74	68.20	-14.46
*	15780.00	Average	V	-	-	-84.97	28.18	0.00	50.21	53.98	-3.77
*	15780.00	Peak	V	-	-	-74.22	28.18	0.00	60.96	73.98	-13.02
*	21040.00	Average	V	-	-	-63.05	1.91	-9.54	36.32	53.98	-17.66
*	21040.00	Peak	V	-	-	-50.69	1.91	-9.54	48.68	73.98	-25.30
	26300.00	Peak	V	-	-	-50.83	4.34	-9.54	50.96	68.20	-17.24

Table 7-45. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dama 152 of 176	
1M2101110003-09.A3L 1/16 - 1/22/2021		Portable Handset	Page 152 of 176	
© 2021 PCTEST			v01r04	



Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5280MHz
Channel:	56

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10560.00	Peak	V	-	-	-73.30	19.69	0.00	53.39	68.20	-14.81
*	15840.00	Average	V	-	-	-84.44	28.17	0.00	50.73	53.98	-3.25
*	15840.00	Peak	V	-	-	-74.27	28.17	0.00	60.90	73.98	-13.08
*	21120.00	Average	V	-	-	-62.79	2.11	-9.54	36.77	53.98	-17.21
*	21120.00	Peak	V	-	-	-51.19	2.11	-9.54	48.37	73.98	-25.61
	26400.00	Peak	V	-	-	-50.13	4.39	-9.54	51.72	68.20	-16.48

Table 7-46. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5320MHz
Channel:	64

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	10640.00	Average	V	101	315	-82.92	20.14	0.00	44.22	53.98	-9.76
*	10640.00	Peak	V	101	315	-71.45	20.14	0.00	55.69	73.98	-18.29
*	15960.00	Average	V	-	-	-84.93	28.13	0.00	50.20	53.98	-3.78
*	15960.00	Peak	V	-	-	-74.88	28.13	0.00	60.25	73.98	-13.73
*	21280.00	Average	V	-	-	-63.30	2.09	-9.54	36.24	53.98	-17.74
*	21280.00	Peak	V	-	-	-51.28	2.09	-9.54	48.26	73.98	-25.72
	26600.00	Peak	V	-	-	-50.03	4.43	-9.54	51.86	68.20	-16.34

Table 7-47. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 152 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 153 of 176
© 2021 PCTEST	•		v01r04



Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5500MHz
Channel:	100

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11000.00	Average	V	-	-	-80.88	15.77	0.00	41.89	53.98	-12.09
*	11000.00	Peak	V	-	-	-68.80	15.77	0.00	53.97	73.98	-20.01
	16500.00	Peak	V	-	-	-69.56	22.20	0.00	59.64	68.20	-8.56
	22000.00	Peak	V	-	-	-50.75	2.04	-9.54	48.74	68.20	-19.46
	27500.00	Peak	V	-	-	-49.40	3.49	-9.54	51.55	68.20	-16.65

Table 7-48. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5600MHz
Channel:	120

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11200.00	Average	V	-	-	-80.86	16.00	0.00	42.14	53.98	-11.84
*	11200.00	Peak	V	-	-	-69.56	16.00	0.00	53.44	73.98	-20.54
	16800.00	Peak	V	-	-	-70.24	21.82	0.00	58.58	68.20	-9.62
*	22400.00	Average	V	-	-	-62.75	2.44	-9.54	37.15	53.98	-16.83
*	22400.00	Peak	V	-	-	-50.56	2.44	-9.54	49.34	73.98	-24.64
	28000.00	Peak	V	-	-	-50.61	3.61	-9.54	50.46	68.20	-17.74

Table 7-49. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 154 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 154 of 176
© 2021 PCTEST			v01r04



Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5720MHz
Channel:	144

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11440.00	Average	V	-	-	-81.18	17.01	0.00	42.83	53.98	-11.15
*	11440.00	Peak	V	-	-	-69.71	17.01	0.00	54.30	73.98	-19.68
	17160.00	Peak	V	-	-	-69.82	22.56	0.00	59.74	68.20	-8.46
*	22880.00	Average	V	-	-	-62.25	2.26	-9.54	37.47	53.98	-16.51
*	22880.00	Peak	V	-	-	-50.53	2.26	-9.54	49.19	73.98	-24.79
	28600.00	Peak	V	-	-	-51.40	3.87	-9.54	49.93	68.20	-18.27

Table 7-50. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5745MHz
Channel:	149

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11490.00	Average	V	-	-	-81.15	17.50	0.00	43.35	53.98	-10.63
*	11490.00	Peak	V	-	-	-69.08	17.50	0.00	55.42	73.98	-18.56
	17235.00	Peak	V	-	-	-69.30	21.94	0.00	59.64	68.20	-8.56
*	22980.00	Average	V	-	-	-62.98	2.17	-9.54	36.65	53.98	-17.33
*	22980.00	Peak	V	-	-	-50.53	2.17	-9.54	49.10	73.98	-24.88
	28725.00	Peak	V	-	-	-50.70	3.73	-9.54	50.49	68.20	-17.71

Table 7-51. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	port S/N: Test Dates: EUT Type:		Dama 155 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 155 of 176
© 2021 PCTEST	-		v01r04



Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5785MHz
Channel:	157

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11570.00	Average	V	-	-	-81.01	16.66	0.00	42.65	53.98	-11.33
*	11570.00	Peak	V	-	-	-68.81	16.66	0.00	54.85	73.98	-19.13
	17355.00	Peak	V	-	-	-70.38	23.75	0.00	60.37	68.20	-7.83
	23140.00	Peak	V	-	-	-50.14	-7.44	-9.54	39.87	68.20	-28.33
	28925.00	Peak	V	-	-	-51.47	-5.94	-9.54	40.05	68.20	-28.15

Table 7-52. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5825MHz
Channel:	165

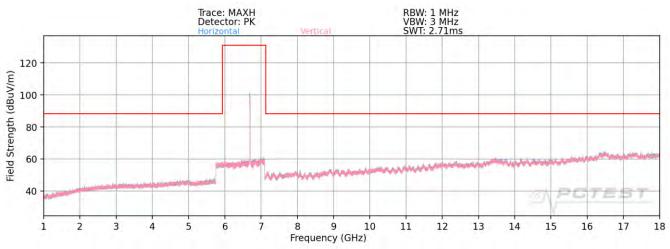
	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11650.00	Average	V	-	-	-81.51	17.12	0.00	42.61	53.98	-11.37
*	11650.00	Peak	V	-	-	-69.12	17.12	0.00	55.00	73.98	-18.98
	17475.00	Peak	V	-	-	-70.13	22.42	0.00	59.29	68.20	-8.91
	23300.00	Peak	V	-	-	-50.99	2.14	-9.54	48.61	68.20	-19.59
	29125.00	Peak	V	-	-	-51.43	3.76	-9.54	49.78	68.20	-18.42

Table 7-53. Radiated Measurements MIMO (26 Tones)

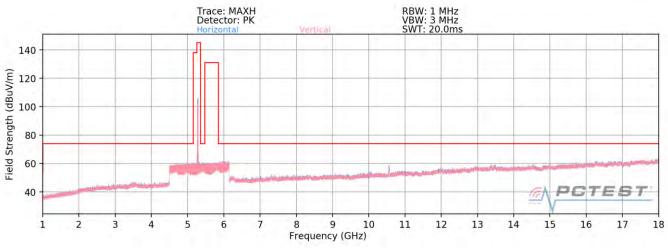
FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	MSUNG	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:		Dega 156 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 156 of 176
© 2021 PCTEST				v01r04



242 Tones



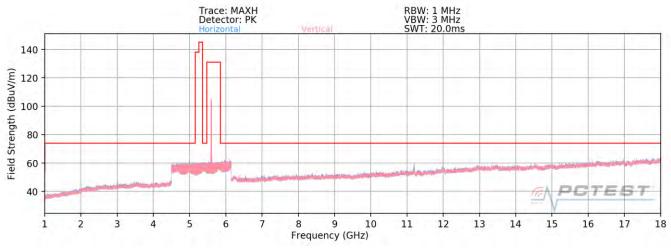
Plot 7-223. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U1 Ch. 40 – 242 Tones)



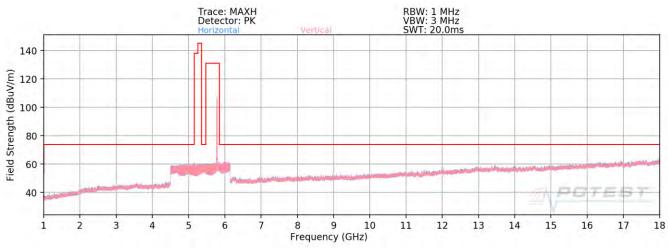
Plot 7-224. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2A Ch. 56 – 242 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 157 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 157 of 176
© 2021 PCTEST			v01r04







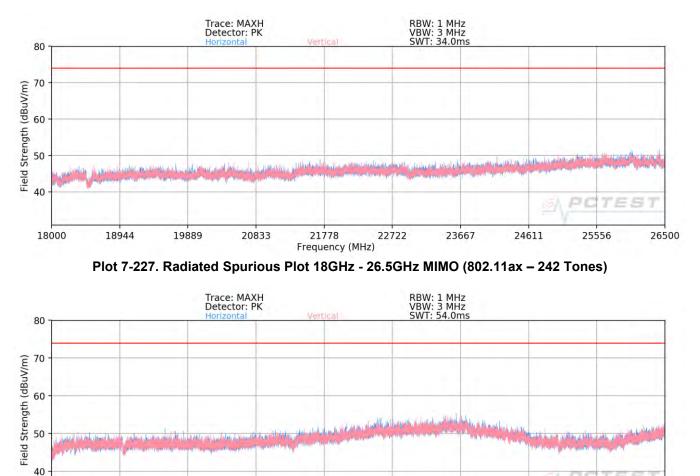


Plot 7-226. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U3 Ch. 157 – 242 Tones)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dama 450 af 470		
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset		Page 158 of 176		
© 2021 PCTEST v01r04						



Frequency (MHz) Plot 7-228. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax – 242 Tones)



MIMO Radiated Spurious Emissions Measurements (Above 18GHz)





MIMO Radiated Spurious Emission Measurements (242 Tones) §15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

802.11ax (20MHz BW)
MCS0
61
1 & 3 Meters
5180MHz
36

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10360.00	Peak	V	102	42	-58.62	15.24	0.00	63.62	68.20	-4.58
*	15540.00	Average	V	-	-	-81.36	21.48	0.00	47.12	53.98	-6.86
*	15540.00	Peak	V	-	-	-70.02	21.48	0.00	58.46	73.98	-15.52
*	20720.00	Average	V	-	-	-63.59	1.63	-9.54	35.50	53.98	-18.48
*	20720.00	Peak	V	-	-	-51.29	1.63	-9.54	47.80	73.98	-26.18
	25900.00	Peak	V	-	-	-50.50	4.37	-9.54	51.33	68.20	-16.87

Table 7-54. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: Worst Case Transfer Rate: RU Index: Distance of Measurements: Operating Frequency: Channel: 802.11ax (20MHz BW) MCS0 61 1 & 3 Meters 5200MHz 40

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10400.00	Peak	V	112	41	-58.60	15.26	0.00	63.66	68.20	-4.54
*	15600.00	Average	V	-	-	-81.22	21.95	0.00	47.73	53.98	-6.24
*	15600.00	Peak	V	-	-	-69.49	21.95	0.00	59.46	73.98	-14.51
*	20800.00	Average	V	-	-	-61.92	1.54	-9.54	37.08	53.98	-16.90
*	20800.00	Peak	V	-	-	-51.35	1.54	-9.54	47.65	73.98	-26.33
	26000.00	Peak	V	-	-	-50.33	4.18	-9.54	51.30	68.20	-16.90

Table 7-55. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	IMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 160 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 160 of 176
© 2021 PCTEST	•	·		v01r04



802.11ax (20MHz BW)
MCS0
61
1 & 3 Meters
5240MHz
48

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	Peak	V	109	50	-59.21	15.18	0.00	62.97	68.20	-5.23
*	15720.00	Average	V	-	-	-81.25	21.96	0.00	47.71	53.98	-6.27
*	15720.00	Peak	V	-	-	-69.56	21.96	0.00	59.40	73.98	-14.58
*	20960.00	Average	V	-	-	-63.23	1.82	-9.54	36.04	53.98	-17.93
*	20960.00	Peak	V	-	-	-51.24	1.82	-9.54	48.03	73.98	-25.94
ĺ	26200.00	Peak	V	-	-	-50.78	4.39	-9.54	51.07	68.20	-17.13

Table 7-56. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5260MHz
Channel:	52

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10520.00	Peak	V	101	228	-57.96	15.74	0.00	64.78	68.20	-3.42
*	15780.00	Average	V	-	-	-81.40	22.25	0.00	47.85	53.98	-6.13
*	15780.00	Peak	V	-	-	-69.19	22.25	0.00	60.06	73.98	-13.92
*	21040.00	Average	V	-	-	-63.00	1.91	-9.54	36.37	53.98	-17.61
*	21040.00	Peak	V	-	-	-51.38	1.91	-9.54	47.99	73.98	-25.99
	26300.00	Peak	V	-	-	-50.37	4.34	-9.54	51.42	68.20	-16.78

Table 7-57. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dece 161 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 161 of 176	
© 2021 PCTEST	-		v01r04	



Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5280MHz
Channel:	56

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10560.00	Peak	V	101	224	-59.60	15.84	0.00	63.24	68.20	-4.96
*	15840.00	Average	V	-	-	-81.50	22.69	0.00	48.19	53.98	-5.79
*	15840.00	Peak	V	-	-	-69.59	22.69	0.00	60.10	73.98	-13.88
*	21120.00	Average	V	-	-	-63.42	2.11	-9.54	36.14	53.98	-17.84
*	21120.00	Peak	V	-	-	-50.86	2.11	-9.54	48.70	73.98	-25.28
	26400.00	Peak	V	-	-	-49.88	4.39	-9.54	51.97	68.20	-16.23

Table 7-58. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5320MHz
Channel:	64

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	10640.00	Average	V	101	230	-73.26	16.29	0.00	50.03	53.98	-3.95
*	10640.00	Peak	V	101	230	-60.49	16.29	0.00	62.80	73.98	-11.18
*	15960.00	Average	V	-	-	-81.67	22.69	0.00	48.02	53.98	-5.96
*	15960.00	Peak	V	-	-	-70.24	22.69	0.00	59.45	73.98	-14.53
*	21280.00	Average	V	-	-	-63.32	2.09	-9.54	36.22	53.98	-17.76
*	21280.00	Peak	V	-	-	-51.18	2.09	-9.54	48.36	73.98	-25.62
	26600.00	Peak	V	-	-	-50.84	4.43	-9.54	51.05	68.20	-17.15

Table 7-59. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMG998JPN	Prouci to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:	Page 162 of 176	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 162 01 176	
© 2021 PCTEST			v01r04	



Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5500MHz
Channel:	100

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11000.00	Average	V	-	-	-80.47	16.43	0.00	42.96	53.98	-11.02
*	11000.00	Peak	V	-	-	-68.71	16.43	0.00	54.72	73.98	-19.26
	16500.00	Peak	V	-	-	-70.10	23.48	0.00	60.38	68.20	-7.82
	22000.00	Peak	V	-	-	-50.91	2.04	-9.54	48.58	68.20	-19.62
	27500.00	Peak	V	-	-	-50.10	3.49	-9.54	50.85	68.20	-17.35

Table 7-60. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5600MHz
Channel:	120

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11200.00	Average	V	313	287	-80.10	16.18	0.00	43.08	53.98	-10.89
*	11200.00	Peak	V	313	287	-67.81	16.18	0.00	55.37	73.98	-18.60
	16800.00	Peak	V	-	-	-69.71	24.07	0.00	61.36	68.20	-6.84
*	22400.00	Average	V	-	-	-62.94	2.44	-9.54	36.96	53.98	-17.02
*	22400.00	Peak	V	-	-	-50.57	2.44	-9.54	49.33	73.98	-24.65
	28000.00	Peak	V	-	-	-49.16	3.61	-9.54	51.91	68.20	-16.29

Table 7-61. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMG998JPN	Proved to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 162 of 176	
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 163 of 176	
© 2021 PCTEST		•	v01r04	



Worst Case Mode:	802.11ax (20MHz BW)				
Worst Case Transfer Rate:	MCS0				
RU Index:	61				
Distance of Measurements:	1 & 3 Meters				
Operating Frequency:	5720MHz				
Channel:	144				

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11440.00	Average	V	101	55	-79.22	17.06	0.00	44.84	53.98	-9.14
*	11440.00	Peak	V	101	55	-66.88	17.06	0.00	57.18	73.98	-16.80
	17160.00	Peak	V	-	-	-69.59	23.48	0.00	60.89	68.20	-7.31
*	22880.00	Average	V	-	-	-62.64	2.26	-9.54	37.08	53.98	-16.90
*	22880.00	Peak	V	-	-	-50.96	2.26	-9.54	48.76	73.98	-25.22
	28600.00	Peak	V	-	-	-50.85	3.87	-9.54	50.48	68.20	-17.72

Table 7-62. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5745MHz
Channel:	149

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11490.00	Average	V	144	18	-81.11	17.64	0.00	43.53	53.98	-10.45
*	11490.00	Peak	V	144	18	-68.49	17.64	0.00	56.15	73.98	-17.83
	17235.00	Peak	V	-	-	-69.68	24.38	0.00	61.70	68.20	-6.50
*	22980.00	Average	V	-	-	-63.00	2.17	-9.54	36.63	53.98	-17.35
*	22980.00	Peak	V	-	-	-51.37	2.17	-9.54	48.26	73.98	-25.72
	28725.00	Peak	V	-	-	-50.27	3.73	-9.54	50.92	68.20	-17.28

Table 7-63. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager				
Test Report S/N:	Test Dates:	EUT Type:	Page 164 of 176				
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 164 01 176				
© 2021 PCTEST							



Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5785MHz
Channel:	157

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11570.00	Average	V	299	351	-80.85	16.94	0.00	43.09	53.98	-10.89
*	11570.00	Peak	V	299	351	-69.77	16.94	0.00	54.17	73.98	-19.81
	17355.00	Peak	V	-	-	-70.35	24.85	0.00	61.50	68.20	-6.70
	23140.00	Peak	V	-	-	-50.07	2.10	-9.54	49.48	68.20	-18.72
	28925.00	Peak	V	-	-	-51.18	3.60	-9.54	49.88	68.20	-18.32

Table 7-64. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5825MHz
Channel:	165

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11650.00	Average	V	387	79	-81.01	17.47	0.00	43.46	53.98	-10.52
*	11650.00	Peak	V	387	79	-69.18	17.47	0.00	55.29	73.98	-18.69
	17475.00	Peak	V	-	-	-69.65	25.03	0.00	62.38	68.20	-5.82
	23300.00	Peak	V	-	-	-50.89	2.14	-9.54	48.71	68.20	-19.49
	29125.00	Peak	V	-	-	-51.13	3.76	-9.54	50.08	68.20	-18.12

Table 7-65. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMG998JPN	Provid to be part of element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:	Dogo 165 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 165 of 176
© 2021 PCTEST			v01r04



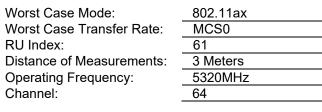
7.6.3 MIMO Radiated Band Edge Measurements (20MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

242 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36

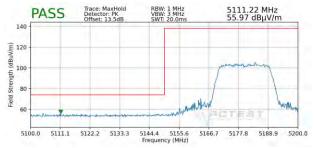


Plot 7-229. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1 – 242 Tones)





Plot 7-231. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A – 242 Tones)



Plot 7-230. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1 – 242 Tones)

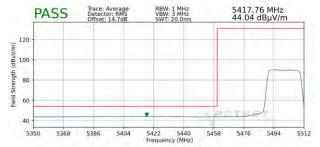


Plot 7-232. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A – 242 Tones)

FCC ID: A3LSMG998JPN	Proud to be part of element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:		Dega 166 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 166 of 176
© 2021 PCTEST	•	·		v01r04

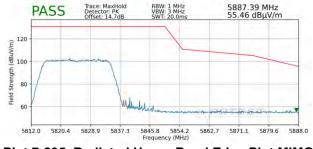


Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100

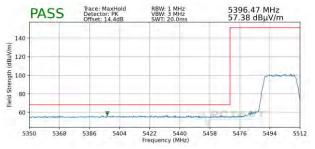




302.11ax
MCS0
61
3 Meters
5825MHz
165



Plot 7-235. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3 – 242 Tones)



Plot 7-234. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C – 242 Tones)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:	Dage 167 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 167 of 176
© 2021 PCTEST		•	v01r04



7.6.4 MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

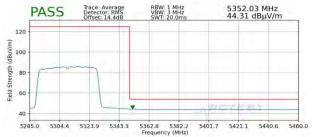
484 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38

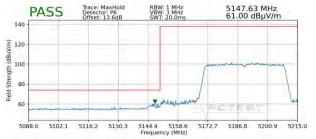


Plot 7-236. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1 – 484 Tones)

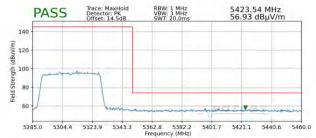
Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



Plot 7-238. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A – 484 Tones)



Plot 7-237. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1 – 484 Tones)

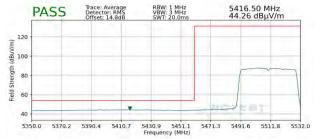


Plot 7-239. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A – 484 Tones)

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 169 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 168 of 176
© 2021 PCTEST	•	•		v01r04

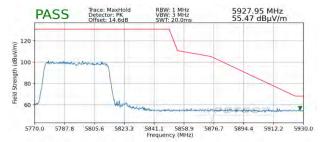


Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5510MHz
Channel:	102

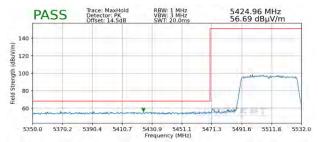


Plot 7-240. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C – 484 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5795MHz
Channel:	159



Plot 7-242. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3 – 484 Tones)



Plot 7-241. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C – 484 Tones)

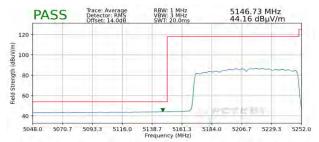
FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 160 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 169 of 176
© 2021 PCTEST			v01r04



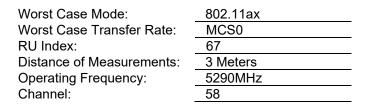
7.6.5 MIMO Radiated Band Edge Measurements (80MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

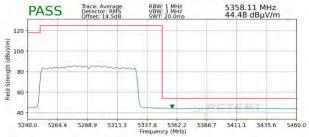
996 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42

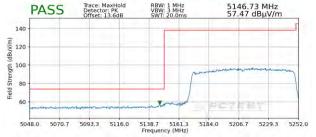


Plot 7-243. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1 – 996 Tones)

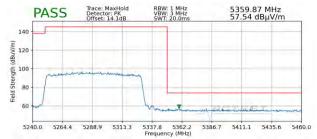




Plot 7-245. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A – 996 Tones)



Plot 7-244. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1 – 996 Tones)



Plot 7-246. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A – 996 Tones)

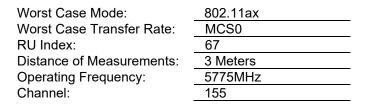
FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 170 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset		Page 170 of 176
© 2021 PCTEST	•			v01r04

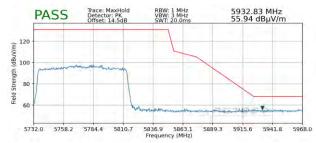


Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5530MHz
Channel:	106



Plot 7-247. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C – 996 Tones)





Plot 7-249. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3 – 996 Tones)



Plot 7-248. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C – 996 Tones)

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Decc 171 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 171 of 176
© 2021 PCTEST			v01r04



7.7 Radiated Spurious Emissions Measurements – Below 1GHz §15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-66 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-66. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 120kHz (for emissions from 30MHz 1GHz)
- 3. Detector = quasi-peak
- 4. Sweep time = auto couple
- 5. Trace mode = max hold
- 6. Trace was allowed to stabilize

FCC ID: A3LSMG998JPN	Proved to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 170 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset		Page 172 of 176
© 2021 PCTEST	-	•		v01r04



Test Setup

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

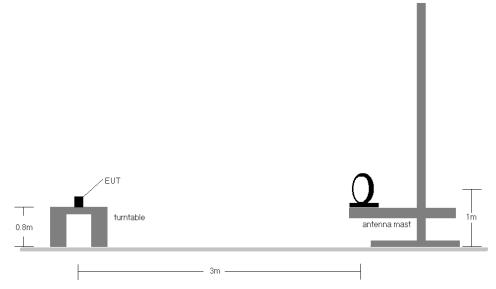
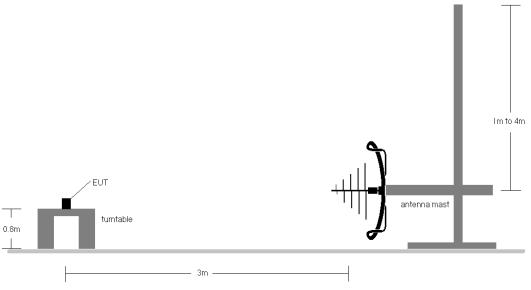
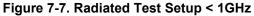


Figure 7-6. Radiated Test Setup < 30MHz





FCC ID: A3LSMG998JPN	Proved to be part at @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 172 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 173 of 176
© 2021 PCTEST	·	•	v01r04



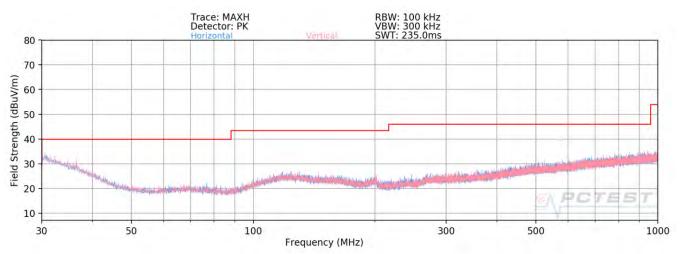
Test Notes

- 1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen (8.10) are below the limit shown in Table 7-66.
- 2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
- 3. This unit was tested with its standard battery.
- 4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
- 5. Emissions were measured at a 3 meter test distance.
- 6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
- 7. No spurious emissions were detected within 20dB of the limit below 30MHz.
- 8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
- The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

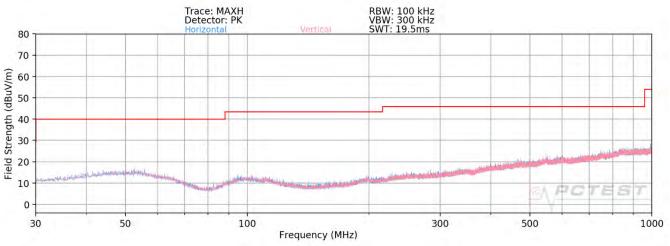
FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 174 of 176
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset		Page 174 of 176
© 2021 PCTEST				v01r04



MIMO Radiated Spurious Emissions Measurements (Below 1GHz) §15.209; RSS-Gen [8.9]



Plot 7-250. Radiated Spurious Plot below 1GHz SISO ANT1 (802.11ax - 26 Tones - U3 Ch. 157)



Plot 7-251. Radiated Spurious Plot below 1GHz MIMO (802.11ax - 242 Tones - U3 Ch. 157)

FCC ID: A3LSMG998JPN	Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	David 475 of 470	
1M2101110003-09.A3L	1/16 – 1/22/2021	Portable Handset	Page 175 of 176	
© 2021 PCTEST v01r04				



8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG998JPN** is in compliance with Part 15 Subpart E (15.407) of the FCC Rules.

FCC ID: A3LSMG998JPN	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (Certification)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 176 of 176
1M2101110003-09.A3L	1/16 - 1/22/2021	Portable Handset	Page 176 of 176
© 2021 PCTEST			v01r04