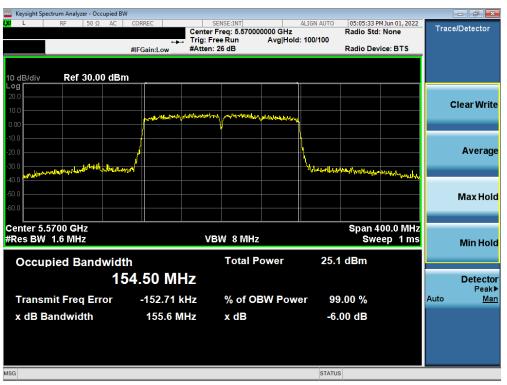


Keysight Spectrum Analyzer - Occupied BW									- 6 x
LX/ RL RF 50Ω AC C	ORREC	SENSE Center Freq	INT SOUR		ALIGN AUTO	09:38:52 P	M Apr 07, 2022	Trac	e/Detector
		Trig: Free R	un	Avg Hold	I: 100/100	Raulo Stu.	None		
#	IFGain:Low	#Atten: 20 d	В			Radio Dev	ice: BTS		
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0.00									
-10.0									
-20.0	1				<u>ң</u>				
-30.0	r				<u>\</u>				Average
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-50.0							℠ℿℯ୵ℽ℩ℚ℆℩⅏ℎℊⅉ℔		
-60.0									Max Hold
-70.0									ινίαχ ποιά
Center 5.69 GHz							200 MHz		
#Res BW 820 kHz		VBW	8 MHz			Swe	ep 1 ms		Min Hold
Occurried Deviduality		-	otal Po	owor	22.4	dBm			
Occupied Bandwidth				UWGI	23.4	UBIII			
77.	257 MH	Z							Detector
Transmit Freq Error	209.20 kl	Ll- 0/	of OF	W Pow	or 00	.00 %		Auto	Peak▶ Man
				W FOW				Auto	India
x dB Bandwidth	81.15 MI	Hz x	dB		-26.	00 dB			
MSG					STATUS				

Plot 7-108. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 2C) - Ch. 138)



Plot 7-109. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW 802.11ac (UNII Band 2C) - Ch. 114)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 72 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 72 of 253
© 2022 ELEMENT			V1.0



🔤 Kej	ysight Spe	ectrum A	Analyzer - O	ccupied	BW											
L XI	Т	RF	50 9	Ω AC	COI	RREC			SENSE:INT			ALIGN AUTO		M Apr 07, 2022	Trac	e/Detector
									r Freq: 5.5 Free Run	70000	000 GHz Avg Hold	· 100/100	Radio Std	: None	mac	CIDELECTOR
					#IF	Gain:Lo			: 26 dB		Avginoid	. 100/100	Radio Dev	vice: BTS		
						Gamille										
10 dl	B/div	- F	tef 30.0	00 dE	3m							•				
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-10.0																
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-40.0																
-50.0																
																Max Hold
-60.0															_	
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	BW 3							v	BW 50	MHz				ep 1 ms		
Res	Daa	J IVIII	2					v	Daa 20	TAULTS			0 89 1	seb i illa		Min Hold
		aiad	Ban	duvie	dth				Tota	al Po	ower	25) dBm			
<u>۲</u>	CCU	JIEU	Dan					_	101			201				
				1	56.	37	MF	Z								Detector
																Peak►
	ransr	nit F	req Ei	ror		452.	.56 k	Hz	% of	OB	W Pow	er 99	9.00 %		Auto	Man
x	dB B	and	width			166	.2 M	Hz	x dE	3		-26	.00 dB			
^		ana	, , , , , , , , , , , , , , , , , , ,						A							
MSG												STATU	s			

Plot 7-110. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW 802.11ax (UNII Band 2C) – Ch. 114)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 72 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 73 of 253
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7.3 6dB Bandwidth Measurement – 802.11a/n/ac/ax §15.407 (e)

Test Overview and Limit

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal 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. The spectrum analyzer's bandwidth measurement function is configured to measure the 6dB bandwidth.

In the 5.725 – 5.850GHz band, the 6dB bandwidth must be \geq 500 kHz.

Test Procedure Used

ANSI C63.10-2013 – Section 6.9.2 KDB 789033 D02 v02r01 – Section C

Test Settings

- The signal analyzers' automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 100 kHz
- 3. VBW <u>></u> 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple

Test Setup

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



Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 74 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 74 of 253
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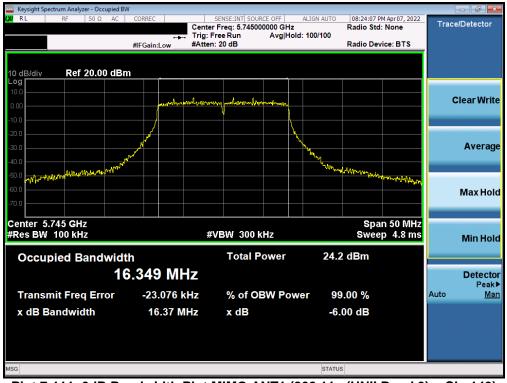
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MIMO Antenna-1 6 dB Bandwidth Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
	5745	149	а	6	16.37
	5785	157	а	6	16.33
	5825	165	а	6	16.40
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	17.26
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	17.02
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	17.56
e S	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	18.75
Band	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	18.49
ä	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	18.99
	5755	151	n (40MHz)	13.5/15 (MCS0)	35.44
	5795	159	n (40MHz)	13.5/15 (MCS0)	36.36
	5755	151	ax (40MHz)	13.5/15 (MCS0)	38.14
	5795	159	ax (40MHz)	13.5/15 (MCS0)	37.41
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	75.56
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	77.92

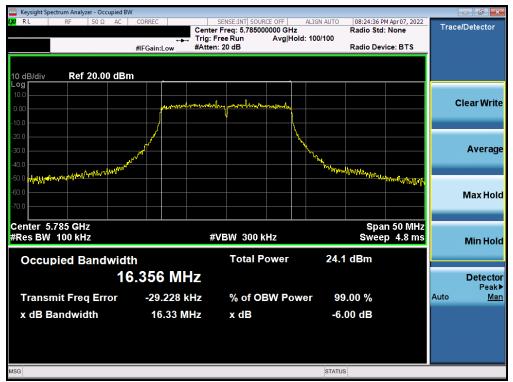
Table 7-4. Conducted Bandwidth Measurements MIMO ANT1



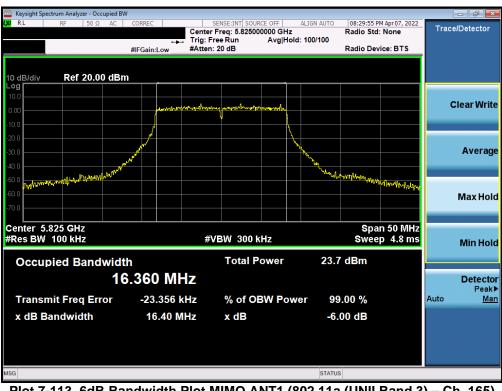
Plot 7-111. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 3) - Ch. 149)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga ZE of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 75 of 253
© 2022 ELEMENT			V1.0





Plot 7-112. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 3) - Ch. 157)



Plot 7-113. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 76 at 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 76 of 253
© 2022 ELEMENT			V1.0





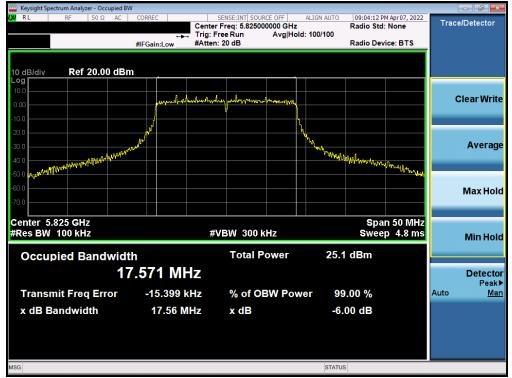
Plot 7-114. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) - Ch. 149)



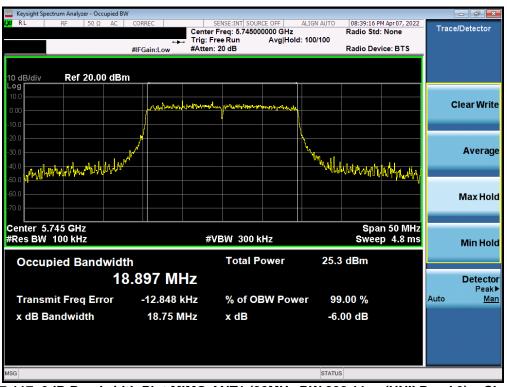
Plot 7-115. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) - Ch. 157)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 77 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 77 of 253
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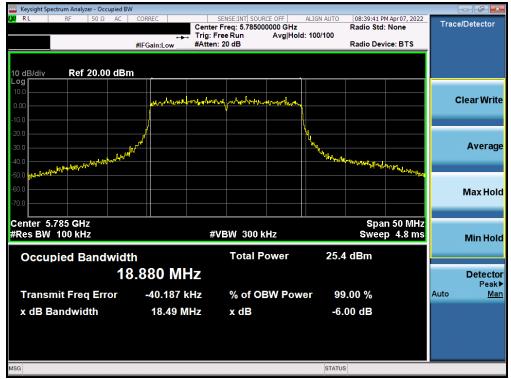
Plot 7-116. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) - Ch. 165)



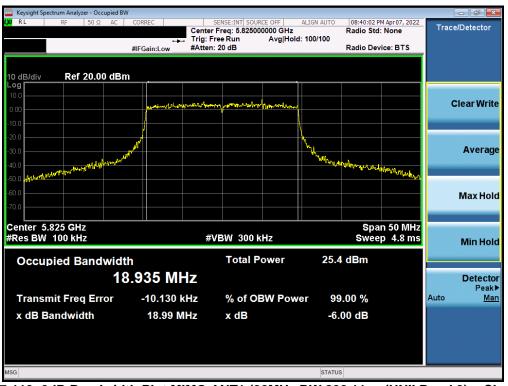
Plot 7-117. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) - Ch. 149)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 70 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 78 of 253
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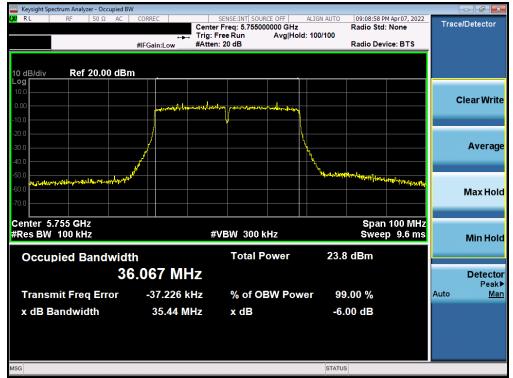
Plot 7-118. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) - Ch. 157)



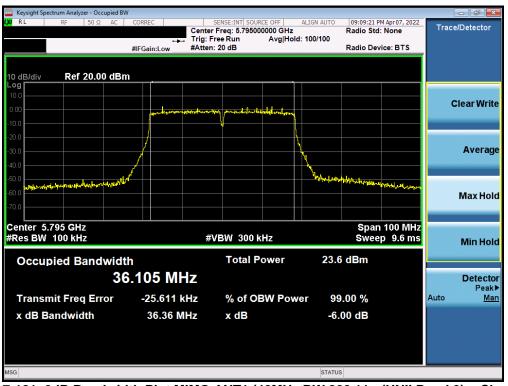
Plot 7-119. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 70 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 79 of 253
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Plot 7-120. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)



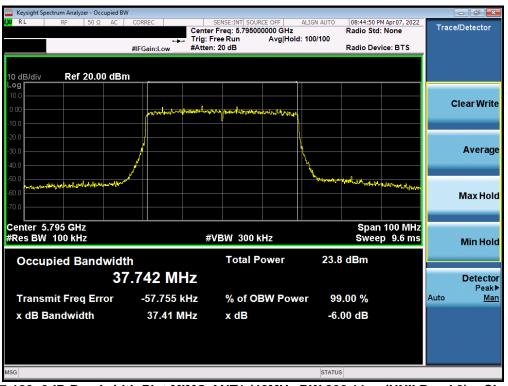
Plot 7-121. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3) - Ch. 159)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 80 of 253
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Keysight Spectrum Analyzer - Occupied BW								- 6 💌
LXI RL RF 50Ω AC C		SENSE:INT S Center Freq: 5.75 Trig: Free Run	5000000 GHz	ALIGN AUTO	08:44:24 PI Radio Std:	M Apr 07, 2022 None	Trace	e/Detector
#	IFGain:Low	#Atten: 20 dB	Avginor	u. 100/100	Radio Dev	ice: BTS		
10 dB/div Ref 20.00 dBm								
Log 10.0								
0.00		Andrew warden and	manahlatha				C	Clear Write
-10.0	Hereiter auf an area		. d'a standard fa fallanara bi	1				
-20.0				ļ				
-30.0	1			Į				Average
-40.0	<i>/</i>							monugo
				and and				
-50.0 -60.0					ALCONTROL OF AN AND A CONTROL OF AN AND AND AND AND AND AND AND AND AND	reption for the		
								Max Hold
-70.0								_
Center 5.755 GHz						100 MHz		
#Res BW 100 kHz		#VBW 30	0 kHz		Swee	p 9.6 ms		Min Hold
Occupied Bandwidth		Tota	Power	24.4	dBm			
	709 MH							D
37.		Z						Detector Peak▶
Transmit Freq Error	-16.310 kł	Hz % of	OBW Pow	ver 99	.00 %		Auto	Man
x dB Bandwidth	38.14 MH	Hz x dB		-6.	00 dB			
MSG				STATUS				

Plot 7-122. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)



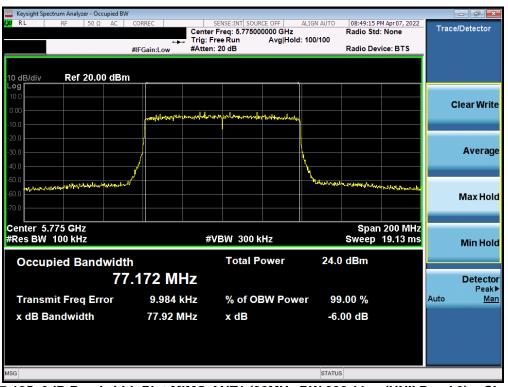
Plot 7-123. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 3) - Ch. 159)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 01 of 252		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 81 of 253		
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Keysight Spectrum Analyzer - Occupied BW	/				- 6	×
IXIRL RF 50Ω AC	Center		Radio St d: 100/100	PM Apr 07, 2022 d: None evice: BTS	Trace/Detec	tor
10 dB/div Ref 20.00 dBn	1					
10.0 0.00	الماليليليل المالي	he with he had a line of the			ClearV	Vrite
-10.0						
-20.0					Ave	rage
-50.0 -60.0 -70.0			The second second second	~#waagentalkeratioge	MaxI	Hold
Center 5.775 GHz #Res BW 100 kHz	#\	/BW 300 kHz		n 200 MHz 19.13 ms	Min I	Hold
Occupied Bandwidt	h	Total Power	23.9 dBm			
	5.380 MHz					ector ^v eak▶
Transmit Freq Error	-13.638 kHz	% of OBW Pow	ver 99.00 %		Auto	Man
x dB Bandwidth	75.56 MHz	x dB	-6.00 dB			
MSG			STATUS			

Plot 7-124. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 3) - Ch. 155)



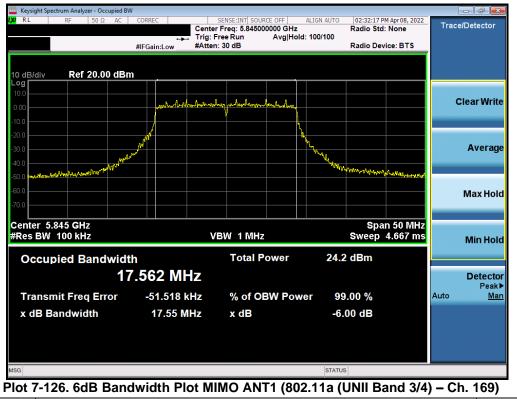
Plot 7-125. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 3) - Ch. 155)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 02 of 252		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 82 of 253		
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	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3/4	5845	169	а	6	17.55
Band 4	5865	173	а	6	16.86
Dallu 4	5885	177	а	6	17.62
Band 3/4	5845	169	n (20MHz)	6.5/7.2 (MCS0)	17.52
Band 4	5865	173	n (20MHz)	6.5/7.2 (MCS0)	17.54
Dallu 4	5885	177	n (20MHz)	6.5/7.2 (MCS0)	16.94
Band 3/4	5845	169	ax (20MHz) 6.5/7.2 (MCS0)		19.00
Band 4	5865	173	ax (20MHz)	6.5/7.2 (MCS0)	18.72
Danu 4	5885	177	ax (20MHz)	6.5/7.2 (MCS0)	17.19
Band 3/4	5835	167	n (40MHz)	13.5/15 (MCS0)	36.37
Band 4	5875	175	n (40MHz)	13.5/15 (MCS0)	35.87
Band 3/4	5835	167	ax (40MHz)	13.5/15 (MCS0)	37.82
Band 4	5875	175	ax (40MHz)	13.5/15 (MCS0)	37.73
	5855	171	ac (80MHz)	29.3/32.5 (MCS0)	75.41
Band 3/4	5855	171	ax (80MHz)	29.3/32.5 (MCS0)	78.12
Dand 3/4	5815	163	ac (160MHz)	58.5/65 (MCS0)	155.90
	5815	163	ax (160MHz)	58.5/65 (MCS0)	157.80

Table 7-5. Conducted Bandwidth Measurements Band 4 MIMO ANT1

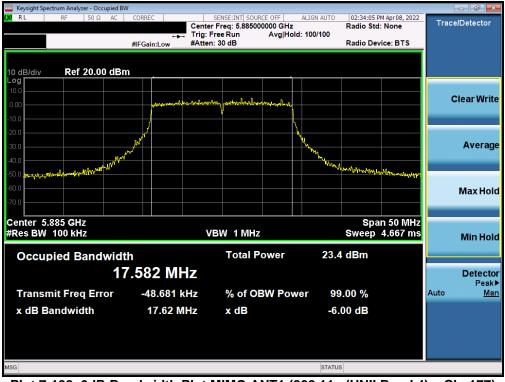


FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 82 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 83 of 253
© 2022 ELEMENT			V1.0





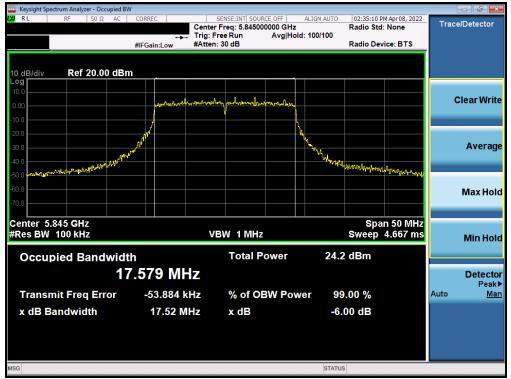
Plot 7-127. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 4) - Ch. 173)



Plot 7-128. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 4) - Ch. 177)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 84 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 84 of 253
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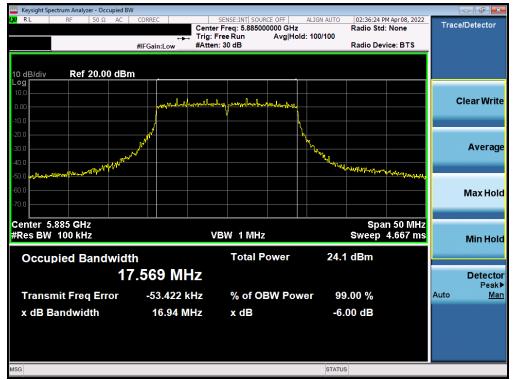
Plot 7-129. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3/4) - Ch. 169)



Plot 7-130. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 4) - Ch. 173)

FCC ID: A3LSMF936JPN			Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 05 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 85 of 253
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Plot 7-131. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 4) - Ch. 177)



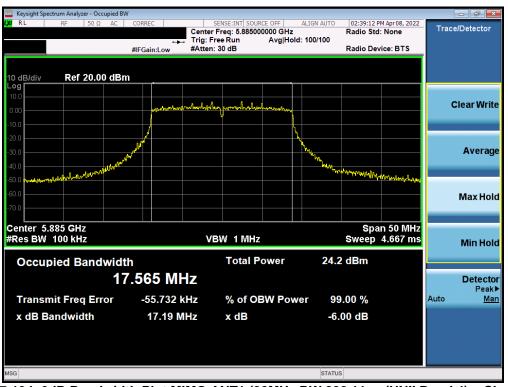
Plot 7-132. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3/4) - Ch. 169)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 96 of 959		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 86 of 253		
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Keysight Spectrum Analyzer - Occupied B ¹	W				-	
(χ) RL RF 50Ω AC	Trig:	SENSE:INT SOURCE OFF r Freq: 5.865000000 GHz Free Run Avg Ho n: 30 dB	ALIGN AUTO 02:39:47 F Radio Sto Id: 100/100 Radio De		Trace/D)etector
10 dB/div Ref 20.00 dBr						
10.0 0.00 -10.0		lang palinterration beautions			Cle	ear Write
-20.0 -30.0 -40.0 -50.0 Marcal Journal Markan Markan	HAY MARK		h			Average
-50.0 CAREALING CONTRACTOR CONTRA				and the second	Ν	/lax Hold
Center 5.865 GHz #Res BW 100 kHz		/BW 1 MHz Total Power		n 50 MHz 4.667 ms		Vin Hold
	8.852 MHz					Detector Peak▶
Transmit Freq Error x dB Bandwidth	-50.504 kHz 18.72 MHz	% of OBW Pov x dB	ver 99.00 % -6.00 dB		Auto	<u>Man</u>
MSG			STATUS			

Plot 7-133. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 4) - Ch. 173)



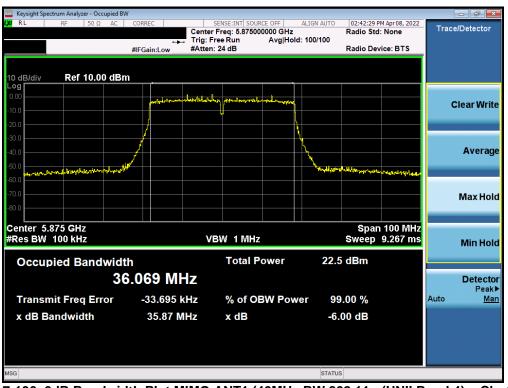
Plot 7-134. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 4) - Ch. 177)

FCC ID: A3LSMF936JPN			Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 07 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 87 of 253
© 2022 ELEMENT			V1.0



Keysight Spectrum Analyzer - Occupied E	W					
<mark>ιχα</mark> RL RF 50Ω AC		SENSE:INT SOURCE C Center Freq: 5.83500000 Trig: Free Run A		02:41:48 PM A Radio Std: N		Trace/Detector
		#Atten: 26 dB		Radio Device	e: BTS	
10 dB/div Ref 20.00 dB	m					
10.0		underson and and a starting of the start of the				Clear Writ
-10.0						
-30.0						Averag
-50.0				uAhártarpitytonolog	prof.Philoropean	Max Hol
-70.0 Center 5.835 GHz				0.000.00	00 8411-	
#Res BW 100 kHz		VBW 1 MHz		Sweep 9.	00 MHz .267 ms	Min Hol
Occupied Bandwid	th	Total Pow	ver 23.2	dBm		
	6.059 MH					Detecto Peak
Transmit Freq Error	-46.121 kH	Iz % of OBW	Power 99	.00 %	4	Auto <u>Ma</u>
x dB Bandwidth	36.37 MH	lz x dB	-6.	00 dB		
MSG			STATUS	5		

Plot 7-135. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3/4) - Ch. 167)



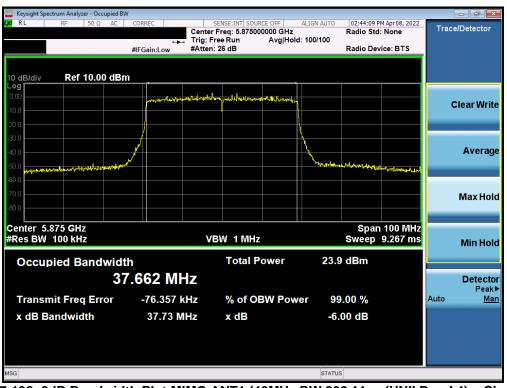
Plot 7-136. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 4) - Ch. 175)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 88 of 253
© 2022 ELEMENT			V1.0



Keysight Spectrum Analyzer - Occupied B\						
LXI RL RF 50Ω AC	CORREC	SENSE:INT SOURCE OFF		0 PM Apr 08, 2022	Trace/Det	ector
	Trig:	: Free Run Avg Hold	d:>100/100			
	#IFGain:Low #Atte	en: 26 dB	Radio I	Device: BTS		
10 dB/div Ref 10.00 dBr	n					
Log 0.00	suth the anos of the	tother strath homewood date to				
-10.0					Clear	r Write
-20.0						
-30.0	/					
-40.0			N.		Δ.	/erage
	And the second se		hummen best		~	cruge
-50.0				the state of the s		
-70.0					Ма	x Hold
-80.0					_	_
Center 5.835 GHz			Sp	an 100 MHz		
#Res BW 100 kHz		VBW 1 MHz		p 9.267 ms	Mi	n Hold
		T-4-1 D	04.4.15			
Occupied Bandwidt		Total Power	24.4 dBm			
37	7.657 MHz				De	etector
Transmit Freq Error	-68.680 kHz	% of OBW Pow	ver 99.00 %		Auto	Peak▶ Man
					Auto	Inan
x dB Bandwidth	37.82 MHz	x dB	-6.00 dB			
MSG			STATUS			

Plot 7-137. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 3/4) - Ch. 167)



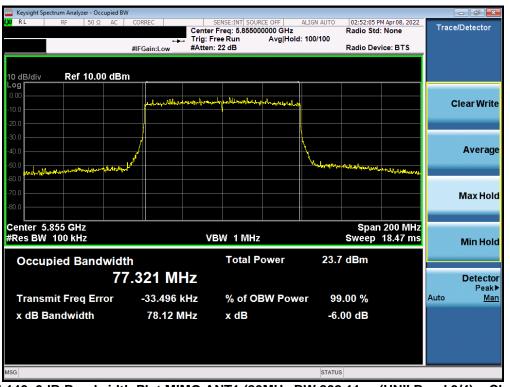
Plot 7-138. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 4) - Ch. 175)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 00 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 89 of 253
© 2022 ELEMENT			V1.0



Keysight Spectrum Analyzer - Occupied B\	W				
(X) RL RF 50Ω AC		SENSE:INT SOURCE OFF r Freq: 5.855000000 GHz Free Run Avg Hole		L6 PM Apr 08, 2022 Std: None	Trace/Detector
		n: 24 dB		Device: BTS	
10 dB/div Ref 10.00 dBr	n				
Log 0.00					
-10.0	North Ithe proting M	اللع بالاللاطاماله ومساريع الاله			Clear Write
-20.0					
-30.0					
-40.0			\		Average
	A		Υ.		Average
-50.0 Wolder where the month of the the			Anderly and produced in the	and not set many reported	
-60.0					
-70.0					Max Hold
-80.0					
Center 5.855 GHz			Sp	an 200 MHz	
#Res BW 100 kHz	v	'BW 1 MHz		p 18.47 ms	Min Hold
		- / 15			inititiona
Occupied Bandwidt		Total Power	23.7 dBm		
7	5.392 MHz				Detector
Transmit Freq Error	-39.515 kHz	% of OBW Pow	ver 99.00 %		Peak▶ Auto Man
x dB Bandwidth	75.41 MHz	x dB	-6.00 dB		
MSG			STATUS		

Plot 7-139. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 3/4) - Ch. 171)



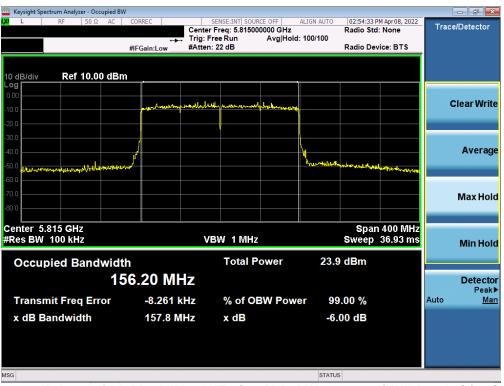
Plot 7-140. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 3/4) - Ch. 171)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 00 of 050
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 90 of 253
© 2022 ELEMENT			V1.0





Plot 7-141. 6dB Bandwidth Plot MIMO ANT1 (160MHz BW 802.11ac (UNII Band 3/4) - Ch. 163)



Plot 7-142. 6dB Bandwidth Plot MIMO ANT1 (160MHz BW 802.11ax (UNII Band 3/4) - Ch. 171)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 01 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 91 of 253
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MIMO Antenna-2 6dB Bandwidth Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
	5745	149	а	6	16.34
	5785	157	а	6	16.35
	5825	165	а	6	16.37
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	17.59
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	17.30
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	17.60
e S	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	17.57
Band	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	18.85
ä	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	18.87
	5755	151	n (40MHz)	13.5/15 (MCS0)	36.37
	5795	159	n (40MHz)	13.5/15 (MCS0)	36.35
	5755	151	ax (40MHz)	13.5/15 (MCS0)	37.86
	5795	159	ax (40MHz)	13.5/15 (MCS0)	38.00
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	75.61
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	77.27

Table 7-6. Conducted Bandwidth Measurements MIMO ANT2



Plot 7-143. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 3) - Ch. 149)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 92 of 253
© 2022 ELEMENT			V1.0





Plot 7-144. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 3) - Ch. 157)



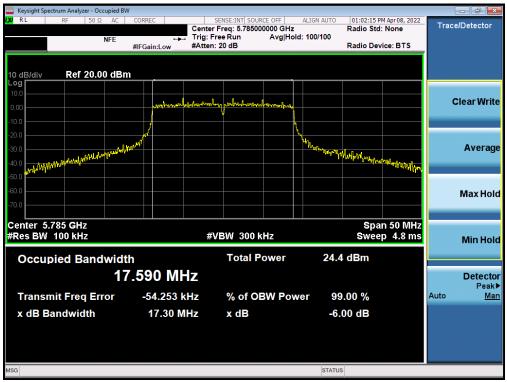
Plot 7-145. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 02 of 252	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 93 of 253	
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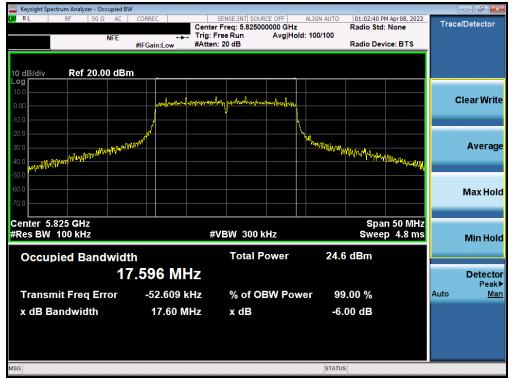
Plot 7-146. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) - Ch. 149)



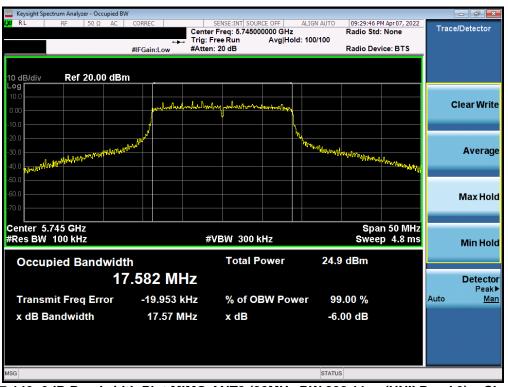
Plot 7-147. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) - Ch. 157)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 04 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 94 of 253
© 2022 ELEMENT			V1.0





Plot 7-148. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) - Ch. 165)



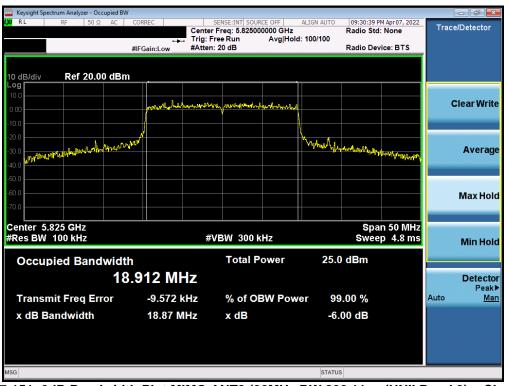
Plot 7-149. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) - Ch. 149)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 95 of 253
© 2022 ELEMENT		·	V1.0



🧱 Keysight Spectrum Analyzer - Occupied BV	V				
(X) RL RF 50Ω AC	Trig: F	SENSE:INT SOURCE OFF r Freq: 5.785000000 GHz Free Run Avg Ho h: 20 dB	Radio St Id: 100/100	PM Apr 07, 2022 d: None	Trace/Detector
10 dB/div Ref 20.00 dBn					
Log 10.0 0.00	manufil/manufightransis	haypohreetomaanstaaanse	 ^		Clear Write
-100 -20.0 -30.0 -40.0	hold		Mr. Mr. mohalt append	mather	Average
-50.0 -60.0 -70.0					Max Hold
Center 5.785 GHz #Res BW 100 kHz		VBW 300 kHz	Swe	an 50 MHz ep 4.8 ms	Min Hold
Occupied Bandwidt	n 8.955 MHz	Total Power	24.9 dBm		Detector Peak▶
Transmit Freq Error x dB Bandwidth	-19.001 kHz 18.85 MHz	% of OBW Pov x dB	ver 99.00 % -6.00 dB		Auto <u>Man</u>
MSG			STATUS		

Plot 7-150. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) - Ch. 157)



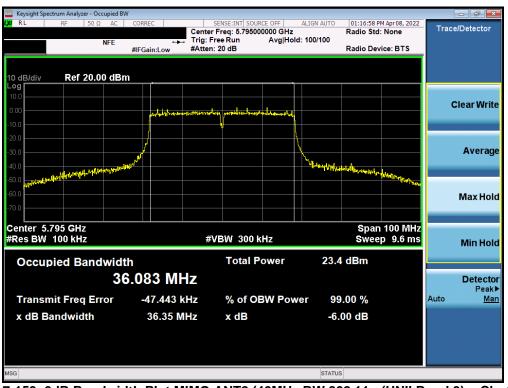
Plot 7-151. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 96 of 253	
© 2022 ELEMENT			V1.0	



🔤 Keysight Spectrum Analyzer - Occupied E	W					-	- 🗗 🔀
LXV RL RF 50Ω AC	CORREC	SENSE:INT SOUR		01:16:36 PM Radio Std:	Apr 08, 2022	Trace	/Detector
NFE		Trig: Free Run	Avg Hold: 100/100				
	#IFGain:Low	#Atten: 20 dB		Radio Devi	ce: BTS		
10 dB/div Ref 20.00 dB	m						
Log 10.0							
0.00		ato instantati an articla lateri				С	lear Write
	lan	armiterentar provertistudated	Male - Mark				
-10.0		Y					
-20.0			<u> </u>				
-30.0	, and the second		- Mar				Average
-40.0	half and the second sec		The shirt here the	YAMIWAUMANA AN	Nia J		
-40.0 -50.0 polon plant and a second plant and a se					A LAND MARKEN AND		
-60.0							Max Hold
-70.0							
Center 5.755 GHz #Res BW 100 kHz		#VBW 300 k	H7		100 MHz 9.6 ms		
WINCS DW TOO KITZ		#4D44 300 K	112	Owee	7 3.0 ms		Min Hold
Occupied Bandwid	th	Total Po	ower 23.5	5 dBm			
	6.087 MH	-					Detector
3							Detector Peak▶
Transmit Freq Error	-41.418 k	Hz % of OE	W Power 99	0.00 %		Auto	Man
x dB Bandwidth	36.37 MI	Hz xdB	-6	00 dB			
	50.57 Mi		-0.	oo ab			
			7				
MSG			STATU	S			

Plot 7-152. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) - Ch. 151)



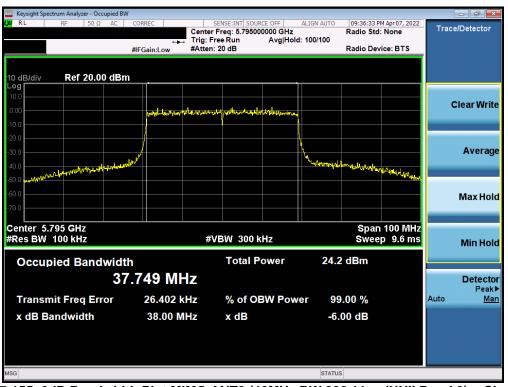
Plot 7-153. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) - Ch. 159)

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dage 07 of 252	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 97 of 253	
© 2022 ELEMENT			V1.0	



Keysight Spectrum Analyzer - Occupied BW					-	×
	Center		Radio S d: 100/100	7 PM Apr 07, 2022 td: None	Trace/Detect	tor
#1	FGain:Low #Atten.	. 20 0.5	Radio L	evice. B13		
10 dB/div Ref 20.00 dBm						
0.00	menerowerstand	an population phones and			ClearW	Vrite
-10.0 -20.0 -30.0	ļ		Muntan Mala Call Barrow More		Ave	rage
-40.0 -50.0				Handborn, North Nand	Max	Hold
Center 5.755 GHz #Res BW 100 kHz	#\	/BW 300 kHz		an 100 MHz eep 9.6 ms	Minł	Hold
Occupied Bandwidth		Total Power	24.3 dBm			Torta
37.	708 MHz				Dete	ector eak ▶
Transmit Freq Error	-9.483 kHz	% of OBW Pow	ver 99.00 %		Auto	Man
x dB Bandwidth	37.86 MHz	x dB	-6.00 dB			
MSG			STATUS			

Plot 7-154. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 3) - Ch. 151)



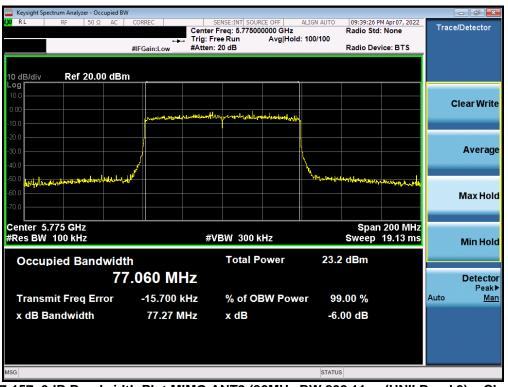
Plot 7-155. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 3) - Ch. 159)

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 98 of 253	
© 2022 ELEMENT		·	V1.0	



🔤 Keysight Sp	ectrum Analyz	zer - Occu	ipied BW										
LXI RL	RF	50 Ω	AC (CORREC			NSE:INT		ALIGN AUTO		M May 03, 2022	Tro	e/Detector
							req: 5.77500			Radio Std	: None	Trac	ce/Detector
		N	IFE			Trig: Fre		Avg Hold	l: 100/100				
				#FGain:L	ow	#Atten: 2	0 dB			Radio Dev	/ice: BTS		
		~~ ~~											
10 dB/div	Ret	20.00	aвт						_			-	
Log													
10.0													Clear Write
0.00								4.					Clear write
-10.0				յլկվե	phillipper	ԱներիԱնե		.,ապահակավ					
							Ų						
-20.0													
-30.0				/					1				Average
				A					1				J
-40.0				<i>f</i>					1				
-50.0			1 Ib						- Wards have	المدانيات وتعاريا وال			
-60.0 -60.0	10 million	an and the second	104/24/24/2							-monader and a start of the	mynumersure		
-00.0													Max Hold
-70.0													
Center 5.	.7750 GH	z								Span 2	200.0 MHz		
#Res BW	100 kH	Z				#VE	3W 300 k	Hz		Sweep	19.13 ms		Min Hold
													Winthold
Occu	pied B	andy	width				Total P	ower	23.0) dBm			
Occu	pieu D	anuv					- or all it						
			75.	398	MH	7							Detector
													Peak▶
Trans	mit Fred	a Erro	or	-16.6	669 kH	z	% of OE	W Pow	er 99	.00 %		Auto	Man
x dB E	Bandwic	ith		75.	61 MH	Z	x dB		-6.	00 dB			
Nee.									STATUS				
MSG									STATUS	>			

Plot 7-156. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 3) - Ch. 155)



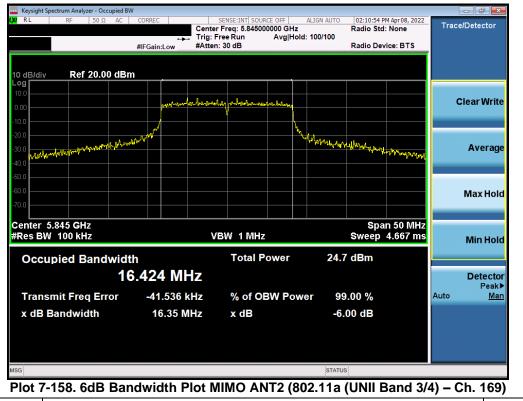
Plot 7-157. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 3) - Ch. 155)

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dage 00 of 252	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 99 of 253	
© 2022 ELEMENT			V1.0	



	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3/4	5845	169	а	6	16.35
Band 4	5865	173	а	6	16.35
Dallu 4	5885	177	а	6	16.33
Band 3/4	5845	169	n (20MHz)	6.5/7.2 (MCS0)	17.22
Band 4	5865	173	n (20MHz)	6.5/7.2 (MCS0)	17.23
Dallu 4	5885	177	n (20MHz)	6.5/7.2 (MCS0)	17.17
Band 3/4	5845	169	ax (20MHz)	6.5/7.2 (MCS0)	18.97
Band 4	5865	173	ax (20MHz)	6.5/7.2 (MCS0)	19.02
Danu 4	5885	177	ax (20MHz)	6.5/7.2 (MCS0)	17.56
Band 3/4	5835	167	n (40MHz)	13.5/15 (MCS0)	35.97
Band 4	5875	175	n (40MHz)	13.5/15 (MCS0)	36.35
Band 3/4	5835	167	ax (40MHz)	13.5/15 (MCS0)	37.97
Band 4	5875	175	ax (40MHz)	13.5/15 (MCS0)	38.03
	5855	171	ac (80MHz)	29.3/32.5 (MCS0)	75.33
Band 3/4	5855	171	ax (80MHz)	29.3/32.5 (MCS0)	77.63
Dand 3/4	5815	163	ac (160MHz)	58.5/65 (MCS0)	155.90
	5815	163	ax (160MHz)	58.5/65 (MCS0)	157.60

Table 7-7. Conducted Bandwidth Measurements Band 4 MIMO ANT2

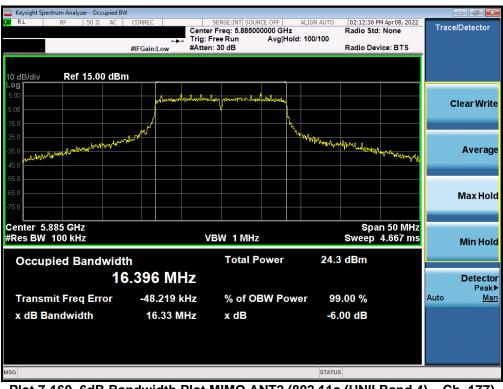


FCC ID: A3LSMF936JPN		Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Page 100 of 253	
1M2206010070-12.A3L	04/11 – 06/18/2022 Portable Handset		Page 100 01 253	
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Plot 7-159. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 4) - Ch. 173)



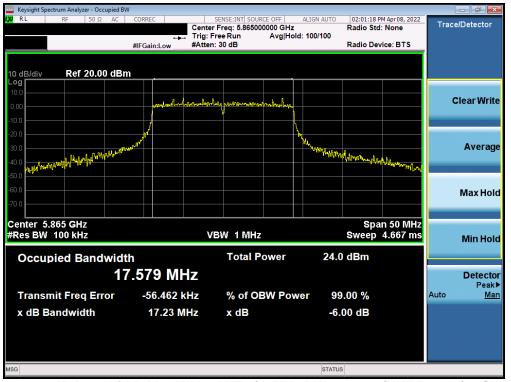
Plot 7-160. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 4) - Ch. 177)

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dama 404 af 050	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 101 of 253	
© 2022 ELEMENT	•		V1.0	





Plot 7-161. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3/4) - Ch. 169)



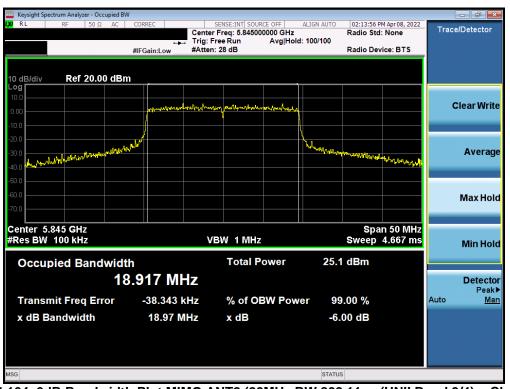
Plot 7-162. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 4) - Ch. 173)

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dega 102 of 252	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 102 of 253	
© 2022 ELEMENT	•		V1.0	



Keysight Spectrum Analyzer - Occupied B	W				
(X) RL RF 50 Ω AC	Trig: F		z Rad old: 100/100	01:53 PM Apr 08, 2022 io Std: None	Trace/Detector
	#IFGain:Low #Atter	n: 30 dB	Rad	io Device: BTS	
10 dB/div Ref 20.00 dBr	m				
0.00		myoutroomenlander			Clear Write
-10.0 -20.0 -30.0 -40.0	Alerander of		L.	Wheel at a	Average
-50.0				and a second	
-70.0					Max Hold
Center 5.885 GHz #Res BW 100 kHz		/BW 1 MHz		Span 50 MHz eep 4.667 ms	Min Hold
Occupied Bandwid	th	Total Power	25.0 dB	m	
	7.605 MHz				Detector Peak▶
Transmit Freq Error	-49.585 kHz	% of OBW Po	wer 99.00	%	Auto <u>Man</u>
x dB Bandwidth	17.17 MHz	x dB	-6.00 d	В	
MSG			STATUS		

Plot 7-163. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 4) - Ch. 177)



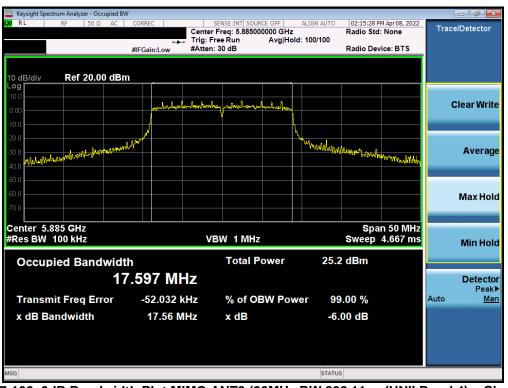
Plot 7-164. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3/4) - Ch. 169)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		PN Interference of the second s		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 400 at 050		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 103 of 253		
© 2022 ELEMENT			V1.0		



Keysight Spectrum Analyzer - Occupied BW					
(X) RL RF 50Ω AC	++++ Trig:	SENSE:INT SOURCE OFF er Freq: 5.865000000 GHz Free Run Avg Ho n: 28 dB	ALIGN AUTO 02:14:42 I Radio Sto Id: 100/100 Radio De		Trace/Detector
	#IFGain:Low #Atte	n: 26 dB	Radio De	VICE: DI S	
10 dB/div Ref 20.00 dBm					
10.0	anon land and a staten	and the second	• •		Clear Write
-10.0					
-30.0 -40.0 Myalparaturation provided the			Market and a second and a failed and a second and a second and a second a second a second a second a second a s	mannant	Average
-50.0					
-60.0					Max Hold
Center 5.865 GHz #Res BW 100 kHz	V	/BW 1 MHz		an 50 MHz 4.667 ms	Min Hold
Occupied Bandwidth	า	Total Power	24.6 dBm		
	.935 MHz				Detector Peak▶
Transmit Freq Error	-69.123 kHz	% of OBW Pov	ver 99.00 %		Auto <u>Man</u>
x dB Bandwidth	19.02 MHz	x dB	-6.00 dB		
MSG			STATUS		

Plot 7-165. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 4) - Ch. 173)



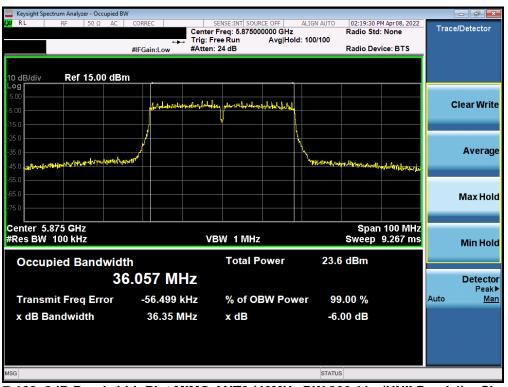
Plot 7-166. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 4) - Ch. 177)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 104 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 104 of 253
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Keysight Spectrum Analyzer - Occupied E	3W				
KX RL RF 50Ω AC	🛶 Tri		z Radio Sto old: 100/100		Trace/Detector
	#IFGain:Low #At	tten: 24 dB	Radio De	vice: BTS	
10 dB/div Ref 10.00 dB	m		1		
-10.0		heelen powerkerrennendet.	4		Clear Write
-20.0 -30.0 -40.0 -50.0			mannandana	1/1+8-12-141112	Average
-60.0 -70.0 -80.0					Max Hold
Center 5.835 GHz #Res BW 100 kHz		VBW 1 MHz	Sweep	n 100 MHz 9.267 ms	Min Hold
Occupied Bandwid	th 6.042 MHz	Total Power	23.6 dBm		Detector Peak▶
Transmit Freq Error	-50.384 kHz	% of OBW Po	wer 99.00 %		Auto <u>Man</u>
x dB Bandwidth	35.97 MHz	x dB	-6.00 dB		
MSG			STATUS		

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



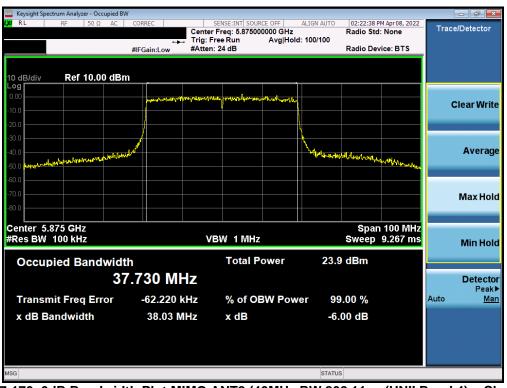
Plot 7-168. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 4) - Ch. 175)

FCC ID: A3LSMF936JPN		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 105 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 105 of 253
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Keysight Spectrum Analyzer - Occupied E	3W				
LXI RL RF 50Ω AC	CORREC	SENSE:INT SOURCE OFF	ALIGN AUTO 02:21:50 F Radio Sto	M Apr 08, 2022	Trace/Detector
	🛶 Trig: I	Free Run Avg Hold:	: 100/100		
	#IFGain:Low #Atter	n: 26 dB	Radio De	vice: BTS	
10 dB/div Ref 10.00 dB	m				
	Janda Martin Martin Carlora	Marty shitten boy margan and and			
-10.0	Abbaseline in the market a				Clear Write
-20.0	<mark>/</mark>				
-30.0					
	The second se		Mad Martin		Average
-50.0 managenerilation and the	-1 ² (1 ⁻¹)		and the second s	- Anderstand	·····go
-60.0					
-70.0					
					Max Hold
-80.0					
Center 5.835 GHz				n 100 MHz	
#Res BW 100 kHz	\V	/BW 1 MHz	Sweep	9.267 ms	Min Hold
	41-	Total Power	23.9 dBm		
Occupied Bandwid		TOTALLEOWEI	23.9 UBIII		
3	7.732 MHz				Detector
Transmit Freq Error	-60.226 kHz	% of OBW Powe	er 99.00 %		Peak▶ Auto Man
-					
x dB Bandwidth	37.97 MHz	x dB	-6.00 dB		
MSG			STATUS		

Plot 7-169. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 3/4) - Ch. 167)



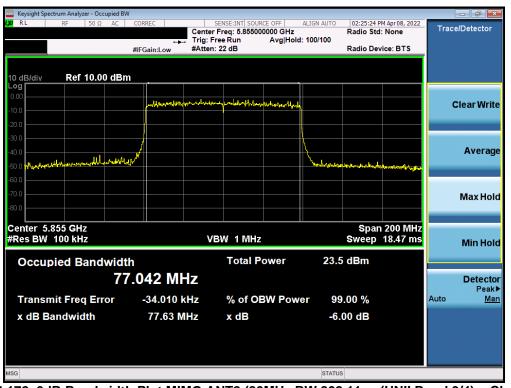
Plot 7-170. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 4) - Ch. 175)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 106 of 252	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 106 of 253	
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🔤 Keysight Spectrum Analyzer - Occupied BV	N				
LX/RL RF 50Ω AC		SENSE:INT SOURCE OFF	Radio Sto	PM Apr 08, 2022 d: None	Trace/Detector
		Free Run Avg Hold n: 22 dB		vice: BTS	
10 dB/div Ref 5.00 dBm					
-5.00	الالباليل محمول وسيلمان	and and the second of the seco			
-15.0					Clear Write
-25.0					
-35.0			۱ ۱		
-45.0	ad		Who was a farmer and the farmer and the farmer	is an ed an	Average
-55.0				ad also of other proved of	
-65.0					
-75.0					Max Hold
-85.0					
Center 5.855 GHz			Sna	n 200 MHz	
#Res BW 100 kHz	V	/BW 1 MHz	Sweep	18.47 ms	Min Hold
		T-4-1 D	00.0 10		Militiola
Occupied Bandwidt		Total Power	23.6 dBm		
75	5.265 MHz				Detector Peak▶
Transmit Freq Error	-107.72 kHz	% of OBW Pow	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	75.33 MHz	x dB	-6.00 dB		
MSG			STATUS		

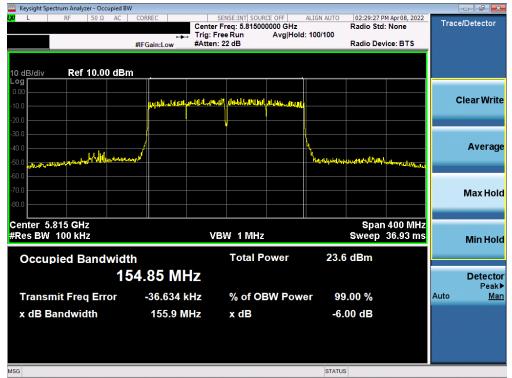
Plot 7-171. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 3/4) - Ch. 171)



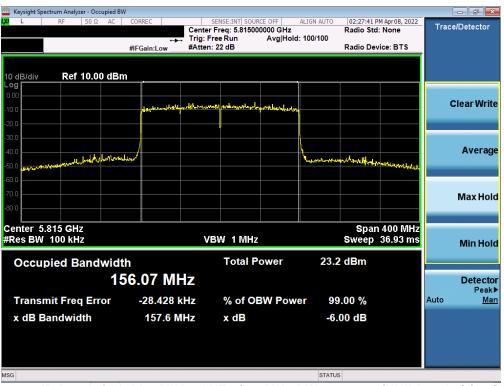
Plot 7-172. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 3/4) - Ch. 171)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 407 - 4050		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 107 of 253		
© 2022 ELEMENT			V1.0		





Plot 7-173. 6dB Bandwidth Plot MIMO ANT2 (160MHz BW 802.11ac (UNII Band 3/4) - Ch. 163)



Plot 7-174. 6dB Bandwidth Plot MIMO ANT2 (160MHz BW 802.11ax (UNII Band 3/4) - Ch. 163)

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 108 of 253
© 2022 ELEMENT			V1.0



7.4 UNII Output Power Measurement – 802.11a/n/ac/ax §15.407(a.1.iv) §15.407(a.2) §15.407(a.3)

Test Overview and Limits

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

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

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + $10\log_{10}(26dB BW) = 11 dBm + 10\log_{10}(18.81) = 23.74dBm$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + $10\log_{10}(26dB BW) = 11 dBm + 10\log_{10}(18.74) = 23.73dBm$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.

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

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

Test Procedure Used

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

Test Settings

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

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

Per RSS-247 Section 6.2.3, transmission on channels which overlap the 5600-5650 MHz is prohibited. This device operates under these frequencies only under the control of a certified master device and does not support active scanning on these channels. This device does not transmit any beacons or initiate any transmissions in UNII Bands 2A or 2C.

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 252		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 109 of 253		
© 2022 ELEMENT	•	-	V1.0		



	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	Lapuil	Chine [GDin]	margin [ab]
	5180	36	AVG	17.93	17.71	20.83	23.98	-3.15	-0.96	19.87	23.01	-3.14
	5200	40	AVG	17.87	17.46	20.68	23.98	-3.30	-0.96	19.72	23.01	-3.29
<u> </u>	5220	44	AVG	17.52	17.64	20.59	23.98	-3.39	-0.96	19.63	23.01	-3.38
d	5240	48	AVG	17.89	17.61	20.76	23.98	-3.22	-0.96	19.80	23.01	-3.21
andwidth)	5260	52	AVG	17.55	17.49	20.53	23.98	-3.45	-0.91	19.62	30.00	-10.38
ק	5280	56	AVG	17.49	17.47	20.49	23.98	-3.49	-0.91	19.58	30.00	-10.42
	5300	60	AVG	17.86	17.62	20.75	23.98	-3.23	-0.91	19.84	30.00	-10.16
m	5320	64	AVG	17.81	17.73	20.78	23.98	-3.20	-0.91	19.87	30.00	-10.13
μz	5500	100	AVG	17.99	17.64	20.83	23.98	-3.15	-1.91	18.92	30.00	-11.08
÷	5600	120	AVG	17.92	17.65	20.80	23.98	-3.18	-1.91	18.89	-	-
(20M	5620	124	AVG	17.83	17.74	20.80	23.98	-3.18	-1.91	18.89	-	-
5	5720	144	AVG	17.82	17.84	20.84	23.98	-3.14	-1.91	18.93	30.00	-11.07
Ł	5745	149	AVG	17.72	17.79	20.77	30.00	-9.23	-0.75	20.02	-	-
픘	5765	153	AVG	17.74	17.87	20.82	30.00	-9.18	-0.75	20.07	-	-
5G	5785	157	AVG	17.86	17.80	20.84	30.00	-9.16	-0.75	20.09	-	-
	5805	161	AVG	17.85	17.73	20.80	30.00	-9.20	-0.75	20.05	-	-
	5825	165	AVG	17.62	17.83	20.74	30.00	-9.26	-0.75	19.99	-	-
	5845	169	AVG	17.54	17.61	20.59			-0.75	19.84	30.00	-10.16
	5865	173	AVG	17.82	17.64	20.74			-0.75	19.99	30.00	-10.01
	5885	177	AVG	17.77	17.47	20.63			-0.75	19.88	30.00	-10.12

MIMO Maximum Conducted Output Power Measurements

Table 7-8. MIMO 20MHz BW 802.11a (UNII) Maximum Conducted Output Power

	Freq [MHz]	Channel	Detector	Cond	Conducted Power [dBm]			Conducted Conducted Power Limit Power		Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[]		
	5180	36	AVG	17.63	17.56	20.61	23.98	-3.37	-0.96	19.65	23.01	-3.36
_	5200	40	AVG	17.58	17.92	20.76	23.98	-3.22	-0.96	19.80	23.01	-3.21
Ē	5220	44	AVG	17.81	17.59	20.71	23.98	-3.27	-0.96	19.75	23.01	-3.26
idi	5240	48	AVG	17.71	17.67	20.70	23.98	-3.28	-0.96	19.74	23.01	-3.27
ž	5260	52	AVG	17.90	17.42	20.68	23.98	-3.30	-0.91	19.77	30.00	-10.23
andwidth	5280	56	AVG	17.84	17.44	20.65	23.98	-3.33	-0.91	19.74	30.00	-10.26
	5300	60	AVG	17.71	17.68	20.71	23.98	-3.27	-0.91	19.80	30.00	-10.20
B	5320	64	AVG	17.67	17.70	20.70	23.98	-3.28	-0.91	19.79	30.00	-10.21
(20MHz	5500	100	AVG	17.85	17.99	20.93	23.98	-3.05	-1.91	19.02	30.00	-10.98
1 S	5600	120	AVG	17.79	17.55	20.68	23.98	-3.30	-1.91	18.77	-	-
0	5620	124	AVG	17.69	17.54	20.63	23.98	-3.35	-1.91	18.72	-	-
	5720	144	AVG	17.68	17.76	20.73	23.98	-3.25	-1.91	18.82	30.00	-11.18
ΗZ	5745	149	AVG	17.58	17.71	20.66	30.00	-9.34	-0.75	19.91	-	-
<u>–</u>	5765	153	AVG	17.82	17.81	20.83	30.00	-9.17	-0.75	20.08	-	-
5 G	5785	157	AVG	17.74	17.74	20.75	30.00	-9.25	-0.75	20.00	-	-
	5805	161	AVG	17.69	17.55	20.63	30.00	-9.37	-0.75	19.88	-	-
	5825	165	AVG	17.95	17.78	20.88	30.00	-9.12	-0.75	20.13	-	-
	5845	169	AVG	17.88	17.49	20.70			-0.75	19.95	30.00	-10.05
	5865	173	AVG	17.65	17.60	20.64			-0.75	19.89	30.00	-10.11
	5885	177	AVG	17.43	17.38	20.42			-0.75	19.67	30.00	-10.33

Table 7-9. MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dega 110 of 252		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 110 of 253		
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	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Power Limit Por	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	Lapud	Ennie [GB/1]	margin [ab]
	5180	36	AVG	17.63	17.64	20.65	23.98	-3.33	-0.96	19.69	23.01	-3.32
_	5200	40	AVG	17.59	17.51	20.56	23.98	-3.42	-0.96	19.60	23.01	-3.41
Ē	5220	44	AVG	17.87	17.65	20.77	23.98	-3.21	-0.96	19.81	23.01	-3.20
<u>d</u>	5240	48	AVG	17.72	17.67	20.71	23.98	-3.27	-0.96	19.75	23.01	-3.26
ž	5260	52	AVG	17.91	17.45	20.70	23.98	-3.28	-0.91	19.79	30.00	-10.21
andwidth	5280	56	AVG	17.86	17.46	20.67	23.98	-3.31	-0.91	19.76	30.00	-10.24
	5300	60	AVG	17.71	17.52	20.63	23.98	-3.35	-0.91	19.72	30.00	-10.28
ß	5320	64	AVG	17.68	17.61	20.66	23.98	-3.32	-0.91	19.75	30.00	-10.25
20MHz	5500	100	AVG	17.86	17.75	20.82	23.98	-3.16	-1.91	18.91	30.00	-11.09
⋚	5600	120	AVG	17.80	17.66	20.74	23.98	-3.24	-1.91	18.83	-	-
ō	5620	124	AVG	17.70	17.55	20.64	23.98	-3.34	-1.91	18.73	-	-
5	5720	144	AVG	17.70	17.76	20.74	23.98	-3.24	-1.91	18.83	30.00	-11.17
ΗZ	5745	149	AVG	17.59	17.74	20.68	30.00	-9.32	-0.75	19.93	-	-
<u>+</u>	5765	153	AVG	17.84	17.67	20.77	30.00	-9.23	-0.75	20.02	-	-
5G	5785	157	AVG	17.75	17.65	20.71	30.00	-9.29	-0.75	19.96	-	-
	5805	161	AVG	17.71	17.50	20.62	30.00	-9.38	-0.75	19.87	-	-
	5825	165	AVG	17.97	17.61	20.80	30.00	-9.20	-0.75	20.05	-	-
	5845	169	AVG	17.88	17.44	20.68			-0.75	19.93	30.00	-10.07
	5865	173	AVG	17.68	17.56	20.63			-0.75	19.88	30.00	-10.12
	5885	177	AVG	17.44	17.24	20.35			-0.75	19.60	30.00	-10.40

Table 7-10. MIMO 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

	Freq [MHz]	Channel	Detector	Cond	Conducted Power [dBm]			Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[]		
	5180	36	AVG	16.99	16.78	19.90	23.98	-4.08	-0.96	18.94	23.01	-4.07
_	5200	40	AVG	16.89	16.93	19.92	23.98	-4.06	-0.96	18.96	23.01	-4.05
Ē	5220	44	AVG	16.78	16.68	19.74	23.98	-4.24	-0.96	18.78	23.01	-4.23
ē	5240	48	AVG	16.68	16.77	19.74	23.98	-4.24	-0.96	18.78	23.01	-4.23
andwidth	5260	52	AVG	16.89	16.94	19.93	23.98	-4.05	-0.91	19.02	30.00	-10.98
þ	5280	56	AVG	16.97	16.96	19.98	23.98	-4.00	-0.91	19.07	30.00	-10.93
a	5300	60	AVG	16.96	16.79	19.89	23.98	-4.09	-0.91	18.98	30.00	-11.02
6	5320	64	AVG	16.89	16.81	19.86	23.98	-4.12	-0.91	18.95	30.00	-11.05
ΗZ	5500	100	AVG	16.89	16.58	19.75	23.98	-4.23	-1.91	17.84	30.00	-12.16
Ś	5600	120	AVG	16.99	16.43	19.73	23.98	-4.25	-1.91	17.82	-	-
(20MI	5620	124	AVG	16.88	16.97	19.94	23.98	-4.04	-1.91	18.03	-	-
5	5720	144	AVG	16.80	16.78	19.80	23.98	-4.18	-1.91	17.89	30.00	-12.11
HZ	5745	149	AVG	16.63	16.84	19.75	30.00	-10.25	-0.75	19.00	-	-
ЧЭ	5765	153	AVG	16.75	16.56	19.67	30.00	-10.33	-0.75	18.92	-	-
20	5785	157	AVG	16.92	16.84	19.89	30.00	-10.11	-0.75	19.14	-	-
	5805	161	AVG	16.83	16.83	19.84	30.00	-10.16	-0.75	19.09	-	-
	5825	165	AVG	16.69	16.61	19.66	30.00	-10.34	-0.75	18.91	-	-
	5845	169	AVG	17.65	17.65	20.66			-0.75	19.91	30.00	-10.09
	5865	173	AVG	17.52	17.82	20.68			-0.75	19.93	30.00	-10.07
	5885	177	AVG	17.74	17.61	20.69			-0.75	19.94	30.00	-10.06

Table 7-11. MIMO 20MHz BW 802.11ax (UNII) Maximum Conducted Output Power

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Daga 111 of 252			
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 111 of 253			
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th)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
idtl				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]			
dwi	5190	38	AVG	14.70	14.72	17.72	23.98	-6.26	-0.96	16.76	23.01	-6.25
pr	5230	46	AVG	16.64	16.82	19.74	23.98	-4.24	-0.96	18.78	23.01	-4.23
an	5270	54	AVG	16.65	16.90	19.79	23.98	-4.19	-0.91	18.88	30.00	-11.12
В	5310	62	AVG	16.45	16.88	19.68	23.98	-4.30	-0.91	18.77	30.00	-11.23
Ηz	5510	102	AVG	16.63	16.65	19.65	23.98	-4.33	-1.91	17.74	30.00	-12.26
÷.	5590	118	AVG	16.67	16.71	19.70	23.98	-4.28	-1.91	17.79	-	-
(40M	5630	126	AVG	16.44	16.68	19.57	23.98	-4.41	-1.91	17.66	-	
(4	5710	142	AVG	16.59	16.57	19.59	23.98	-4.39	-1.91	17.68	30.00	-12.32
N	5755	151	AVG	16.77	16.81	19.80	30.00	-10.20	-0.75	19.05	-	-
GH	5795	159	AVG	16.68	16.40	19.55	30.00	-10.45	-0.75	18.80	-	-
50	5835	167	AVG	16.78	16.79	19.80			-0.75	19.05	30.00	-10.95
	5875	175	AVG	16.70	16.81	19.77			-0.75	19.02	30.00	-10.98

Table 7-12. MIMO 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

th)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
Ð				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]			
Ξ	5190	38	AVG	14.67	14.91	17.80	23.98	-6.18	-0.96	16.84	23.01	-6.17
ndwidth	5230	46	AVG	16.56	16.82	19.70	23.98	-4.28	-0.96	18.74	23.01	-4.27
g	5270	54	AVG	16.61	16.93	19.78	23.98	-4.20	-0.91	18.87	30.00	-11.13
Ш	5310	62	AVG	16.44	16.73	19.60	23.98	-4.38	-0.91	18.69	30.00	-11.31
F	5510	102	AVG	16.60	16.50	19.56	23.98	-4.42	-1.91	17.65	30.00	-12.35
5	5590	118	AVG	16.58	16.54	19.57	23.98	-4.41	-1.91	17.66	-	-
(40M	5630	126	AVG	16.39	16.49	19.45	23.98	-4.53	-1.91	17.54	-	-
4	5710	142	AVG	16.47	16.42	19.46	23.98	-4.52	-1.91	17.55	30.00	-12.45
N	5755	151	AVG	16.69	16.52	19.62	30.00	-10.38	-0.75	18.87	-	-
ЧD	5795	159	AVG	16.59	16.28	19.45	30.00	-10.55	-0.75	18.70	-	-
20	5835	167	AVG	16.69	16.57	19.64			-0.75	18.89	30.00	-11.11
	5875	175	AVG	16.62	16.54	19.59			-0.75	18.84	30.00	-11.16

Table 7-13. MIMO 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power

(h)	Freq [MHz] Channel	Channel Detector		Conducted Power [dBm]			Conducted Power Margin [dB]	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]	
đ				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	1		
dwidth	5190	38	AVG	14.54	14.63	17.60	23.98	-6.38	-0.96	16.64	23.01	-6.37
þ	5230	46	AVG	16.61	16.65	19.64	23.98	-4.34	-0.96	18.68	23.01	-4.33
an	5270	54	AVG	16.65	16.86	19.77	23.98	-4.21	-0.91	18.86	30.00	-11.14
B	5310	62	AVG	16.47	16.71	19.60	23.98	-4.38	-0.91	18.69	30.00	-11.31
₽.	5510	102	AVG	16.63	16.61	19.63	23.98	-4.35	-1.91	17.72	30.00	-12.28
Ŧ	5590	118	AVG	16.62	16.71	19.68	23.98	-4.30	-1.91	17.77	-	-
(40M	5630	126	AVG	16.43	16.72	19.59	23.98	-4.39	-1.91	17.68	-	-
4	5710	142	AVG	16.49	16.52	19.52	23.98	-4.46	-1.91	17.61	30.00	-12.39
N	5755	151	AVG	16.73	16.69	19.72	30.00	-10.28	-0.75	18.97	-	-
Т	5795	159	AVG	16.63	16.42	19.54	30.00	-10.46	-0.75	18.79	-	-
56	5835	167	AVG	16.73	16.75	19.75			-0.75	19.00	30.00	-11.00
	5875	175	AVG	16.64	16.70	19.68			-0.75	18.93	30.00	-11.07

Table 7-14. MIMO 40MHz BW 802.11ax (UNII) Maximum Conducted Output Power

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dage 110 of 252		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 112 of 253		
© 2022 ELEMENT	•	·	V1.0		



Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]		Conducted Power Limit		Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]	
ş				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[ubiii]	Ennie [aBin]	margin [ab]
an	5210	42	AVG	14.31	14.39	17.36	23.98	-6.62	-0.96	16.40	23.01	-6.61
	5290	58	AVG	15.53	15.52	18.54	23.98	-5.44	-0.91	17.63	30.00	-12.37
IHz	5530	106	AVG	15.51	15.32	18.43	23.98	-5.55	-1.91	16.52	30.00	-13.48
(80M	5610	122	AVG	15.37	15.41	18.40	23.98	-5.58	-1.91	16.49	-	-
	5690	138	AVG	15.28	15.48	18.39	23.98	-5.59	-1.91	16.48	30.00	-13.52
GHz	5775	155	AVG	15.46	15.91	18.70	30.00	-11.30	-0.75	17.95	-	-
5.0	5855	171	AVG	15.50	15.64	18.58			-0.75	17.83	30.00	-12.17

Table 7-15. MIMO 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
N N				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[0.2.1.]		
and	5210	42	AVG	14.36	14.38	17.38	23.98	-6.60	-0.96	16.42	23.01	-6.59
	5290	58	AVG	15.77	15.59	18.69	23.98	-5.29	-0.91	17.78	30.00	-12.22
TH	5530	106	AVG	15.75	15.77	18.77	23.98	-5.21	-1.91	16.86	30.00	-13.14
(80MF	5610	122	AVG	15.62	15.85	18.75	23.98	-5.23	-1.91	16.84	-	-
	5690	138	AVG	15.53	15.94	18.75	23.98	-5.23	-1.91	16.84	30.00	-13.16
GHz	5775	155	AVG	15.75	15.82	18.80	30.00	-11.20	-0.75	18.05	-	-
50	5855	171	AVG	15.53	15.94	18.75			-0.75	18.00	30.00	-12.00

Table 7-16. MIMO 80MHz BW 802.11ax (UNII) Maximum Conducted Output Power

0MHz dth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
16(wic				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]			• • • •
r) z	5250	50	AVG	15.59	15.62	18.62	23.98	-5.36	-0.96	17.66	23.01	-5.35
GHB	5570	114	AVG	15.99	15.49	18.76	30.00	-11.24	-1.91	16.85	-	-
50	5815	163	AVG	15.51	15.37	18.45			-0.75	17.70	23.01	-5.31

Table 7-17. MIMO 160MHz BW 802.11ac (UNII) Maximum Conducted Output Power

GHz (160MHz Bandwidth)	Freq [MHz]	Channel	Detector				Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				ANT1	ANT2	MIMO	[ubiii]	margin [db]	[abi]			
	5250	50	AVG	15.44	15.70	18.58	23.98	-5.40	-0.96	17.62	23.01	-5.39
	5570	114	AVG	15.85	15.56	18.72	30.00	-11.28	-1.91	16.81	-	-
50	5815	163	AVG	15.45	15.53	18.50			-0.75	17.75	30.00	-12.25

Table 7-18. MIMO 160MHz BW 802.11ax (UNII) Maximum Conducted Output Power

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates: EUT Type:		Daga 112 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 113 of 253
© 2022 ELEMENT		·	V1.0



Note:

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

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

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

Sample MIMO Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 17.63 dBm for Antenna 1 and 17.56 dBm for Antenna 2.

Antenna 1 + Antenna 2 = MIMO

(17.63 dBm + 17.56 dBm) = (57.94 mW + 57.02 mW) = 114.96 mW = 20.61 dBm

Sample e.i.r.p. Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO conducted power was calculated to be 20.61 dBm with directional gain of -0.96 dBi.

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

20.96 dBm + -0.96 dBi = 19.65 dBm

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 114 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 114 of 253
© 2022 ELEMENT	•		V1.0



7.5 Maximum Power Spectral Density – 802.11a/n/ac/ax §15.407(a.1.iv) §15.407(a.2) §15.407(a.3);

Test Overview and Limit

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

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

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

Test Procedure Used

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

Test Settings

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

Test Setup

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



Figure 7-4. Test Instrument & Measurement Setup

Test Notes

None

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 115 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 115 of 253
© 2022 ELEMENT	•		V1.0



Summed MIMO Power Spectral Density Measurements

	_				Antenna-1	Antenna-2	Summed MIMO	Max Power	
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]			Power Density	Density	Margin
	נואורוצן	NO.			[dBm]	[dBm]	[dBm]	[dBm/MHz]	[dB]
	5180	36	а	6	6.28	7.04	9.69	11.0	-1.31
	5200	40	а	6	6.05	6.85	9.48	11.0	-1.52
	5240	48	а	6	6.28	7.63	10.02	11.0	-0.98
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	6.71	7.50	10.13	11.0	-0.87
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	6.81	7.39	10.12	11.0	-0.88
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	7.27	7.50	10.40	11.0	-0.60
Ξ	5180	36	ax (20MHz)	6.5/7.2 (MCS0)	6.61	6.51	9.57	11.0	-1.43
Band 1	5200	40	ax (20MHz)	6.5/7.2 (MCS0)	6.53	6.66	9.61	11.0	-1.39
ä	5240	48	ax (20MHz)	6.5/7.2 (MCS0)	6.73	7.34	10.06	11.0	-0.94
	5190	38	n (40MHz)	13.5/15 (MCS0)	2.69	2.44	5.58	11.0	-5.42
	5230	46	n (40MHz)	13.5/15 (MCS0)	2.67	2.73	5.71	11.0	-5.29
	5190	38	ax (40MHz)	13.5/15 (MCS0)	3.87	2.20	6.13	11.0	-4.87
	5230	46	ax (40MHz)	13.5/15 (MCS0)	2.48	2.90	5.71	11.0	-5.29
	5210	42	ac (80MHz)	29.3/32.5 (MCS0)	-1.52	-1.56	1.47	11.0	-9.53
	5210	42	ax (80MHz)	29.3/32.5 (MCS0)	-1.17	-1.29	1.78	11.0	-9.22
Band 1/2A	5250	50	ac (160MHz)	58.5/65 (MCS0)	-4.33	-6.32	-2.20	11.0	-13.20
Ba ;;	5250	50	ax (160MHz)	58.5/65 (MCS0)	-7.39	-6.43	-3.88	11.0	-14.88
	5260	52	а	6	6.07	7.53	9.87	11.0	-1.13
	5280	56	а	6	6.10	7.59	9.92	11.0	-1.08
	5320	64	а	6	6.40	7.90	10.23	11.0	-0.77
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	7.02	7.23	10.14	11.0	-0.86
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	6.89	6.63	9.77	11.0	-1.23
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	7.12	7.07	10.11	11.0	-0.89
A	5260	52	ax (20MHz)	6.5/7.2 (MCS0)	6.47	7.28	9.90	11.0	-1.10
Band 2A	5280	56	ax (20MHz)	6.5/7.2 (MCS0)	6.59	7.12	9.87	11.0	-1.13
Bar	5320	64	ax (20MHz)	6.5/7.2 (MCS0)	7.14	7.57	10.37	11.0	-0.63
	5270	54	n (40MHz)	13.5/15 (MCS0)	2.81	2.56	5.70	11.0	-5.30
	5310	62	n (40MHz)	13.5/15 (MCS0)	2.69	2.38	5.55	11.0	-5.45
	5270	54	ax (40MHz)	13.5/15 (MCS0)	2.65	2.85	5.76	11.0	-5.24
	5310	62	ax (40MHz)	13.5/15 (MCS0)	2.40	2.54	5.48	11.0	-5.52
	5290	58	ac (80MHz)	29.3/32.5 (MCS0)	-1.73	-1.69	1.30	11.0	-9.70
	5290	58	ax (80MHz)	29.3/32.5 (MCS0)	-1.32	-1.79	1.46	11.0	-9.54
	5500	100	a a	6	6.49	7.33	9.94	11.0	-1.06
	5600	120	a	6	6.04	7.02	9.57	11.0	-1.43
	5720	144	a	6	6.26	7.37	9.86	11.0	-1.14
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	7.38	7.13	10.27	11.0	-0.73
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	6.73	6.88	9.82	11.0	-1.18
	5720	120	n (20MHz)	6.5/7.2 (MCS0)	7.24	7.15	10.21	11.0	-0.79
	5500	144	ax (20MHz)	6.5/7.2 (MCS0)	6.94	7.13	10.21	11.0	-0.93
	5600	120	ax (20MHz)	6.5/7.2 (MCS0)	6.44	6.70	9.58	11.0	-0.93
	5720	120	ax (20MHz)	6.5/7.2 (MCS0)	7.00	7.11	10.07	11.0	-0.93
			· · · ·	,	2.83				
0	5510	102	n (40MHz)	13.5/15 (MCS0)		2.39	5.63	11.0	-5.37
4 SC	5590	118	n (40MHz)	13.5/15 (MCS0)	2.64	2.18	5.43	11.0	-5.57
Band	5710	142	n (40MHz)	13.5/15 (MCS0)	2.72	2.62	5.68	11.0	-5.32
6	5510	102	ax (40MHz)	13.5/15 (MCS0)	2.58	2.50	5.55	11.0	-5.45
	5590	118	ax (40MHz)	13.5/15 (MCS0)	2.50	2.45	5.49	11.0	-5.51
	5710	142	ax (40MHz)	13.5/15 (MCS0)	2.65	2.60	5.64	11.0	-5.36
	5530	106	ac (80MHz)	29.3/32.5 (MCS0)	-1.87	-2.38	0.89	11.0	-10.11
	5610	122	ac (80MHz)	29.3/32.5 (MCS0)	-1.80	-1.89	1.16	11.0	-9.84
	5690	138	ac (80MHz)	29.3/32.5 (MCS0)	-2.06	-2.05	0.96	11.0	-10.04
	5530	106	ax (80MHz)	29.3/32.5 (MCS0)	-1.27	-1.98	1.40	11.0	-9.60
	5610	122	ax (80MHz)	29.3/32.5 (MCS0)	-1.23	-1.82	1.50	11.0	-9.50
	5690	138	ax (80MHz)	29.3/32.5 (MCS0)	-1.70	-2.17	1.08	11.0	-9.92
	5570	114	ac (160MHz)	29.3/32.5 (MCS0)	-3.92	-6.51	-2.02	11.0	-13.02
	5570	114	ax (160MHz)	29.3/32.5 (MCS0)	-5.42	-6.86	-3.07	11.0	-14.07

Table 7-19. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dage 116 of 252		
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 116 of 253		
© 2022 ELEMENT	•		V1.0		



	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]		Summed MIMO Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
	5745	149	а	6	3.49	4.57	7.07	30.0	-22.93
	5785	157	а	6	3.67	4.40	7.06	30.0	-22.94
	5825	165	а	6	3.46	4.92	7.26	30.0	-22.74
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	4.24	4.02	7.14	30.0	-22.86
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	4.40	3.89	7.16	30.0	-22.84
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	4.39	3.96	7.19	30.0	-22.81
e	5745	149	ax (20MHz)	6.5/7.2 (MCS0)	3.99	3.87	6.94	30.0	-23.06
Band	5785	157	ax (20MHz)	6.5/7.2 (MCS0)	4.16	3.90	7.04	30.0	-22.96
ä	5825	165	ax (20MHz)	6.5/7.2 (MCS0)	4.31	4.00	7.17	30.0	-22.83
	5755	151	n (40MHz)	13.5/15 (MCS0)	0.24	-0.29	2.99	30.0	-27.01
	5795	159	n (40MHz)	13.5/15 (MCS0)	-0.27	-0.48	2.64	30.0	-27.36
	5755	151	ax (40MHz)	13.5/15 (MCS0)	0.08	-0.16	2.97	30.0	-27.03
	5795	159	ax (40MHz)	13.5/15 (MCS0)	-0.81	-0.08	2.58	30.0	-27.42
	5775	155	ac (80MHz)	29.3/32.5 (MCS0)	-4.07	-4.25	-1.15	30.0	-31.15
	5775	155	ax (80MHz)	29.3/32.5 (MCS0)	-3.99	-4.34	-1.15	30.0	-31.15

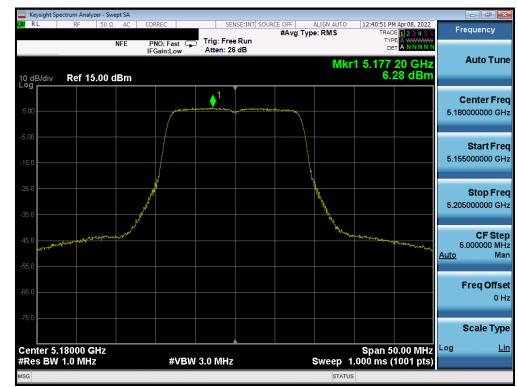
Table 7-20. Band 3 MIMO Conducted Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm/MHz]	Antenna-2 Power Density [dBm/MHz]	MIMO Summed Power Density [dBm/MHz]	Directional Antenna Gain [dBi]	EIRP Power Density [dBm/MHz]	Max EIRP Power Density [dBm/MHz]	Margin [dB]
Band 3/4	5845	169	а	6	5.99	7.05	9.56	-0.75	8.81	14.00	-5.19
Band 4	5865	173	а	6	6.27	6.39	9.34	-0.75	8.59	14.00	-5.41
Dallu 4	5885	177	а	6	5.59	6.59	9.13	-0.75	8.38	14.00	-5.62
Band 3/4	5845	169	n (20MHz)	6.5/7.2 (MCS0)	6.32	5.89	9.12	-0.75	8.37	14.00	-5.63
Band 4	5865	173	n (20MHz)	6.5/7.2 (MCS0)	6.30	5.33	8.85	-0.75	8.10	14.00	-5.90
Dallu 4	5885	177	n (20MHz)	6.5/7.2 (MCS0)	6.00	5.69	8.86	-0.75	8.11	14.00	-5.89
Band 3/4	5845	169	ax (20MHz)	6.5/7.2 (MCS0)	5.97	6.08	9.04	-0.75	8.29	14.00	-5.71
Band 4	5865	173	ax (20MHz)	6.5/7.2 (MCS0)	6.17	5.91	9.05	-0.75	8.30	14.00	-5.70
banu 4	5885	177	ax (20MHz)	6.5/7.2 (MCS0)	6.02	6.73	9.40	-0.75	8.65	14.00	-5.35
Band 3/4	5835	167	n (40MHz)	13.5/15 (MCS0)	2.20	2.38	5.30	-0.75	4.55	14.00	-9.45
Band 4	5875	175	n (40MHz)	13.5/15 (MCS0)	1.51	2.21	4.88	-0.75	4.13	14.00	-9.87
Band 3/4	5835	167	ax (40MHz)	13.5/15 (MCS0)	2.09	2.49	5.30	-0.75	4.55	14.00	-9.45
Band 4	5875	175	ax (40MHz)	13.5/15 (MCS0)	2.24	1.85	5.06	-0.75	4.31	14.00	-9.69
	5855	171	ac (80MHz)	29.3/32.5 (MCS0)	-1.70	-1.69	1.32	-0.75	0.57	14.00	-13.43
Dand 2/4	5855	171	ax (80MHz)	29.3/32.5 (MCS0)	-1.52	-2.08	1.22	-0.75	0.47	14.00	-13.53
Band 3/4	5815	163	ac (160MHz)	58.5/65 (MCS0)	0.36	-0.90	2.79	-0.75	2.04	14.00	-11.96
	5815	163	ax (160MHz)	58.5/65 (MCS0)	-0.07	-0.43	2.76	-0.75	2.01	14.00	-11.99

Table 7-21. Band 4 MIMO e.i.r.p Spectral Density Measurements

FCC ID: A3LSMF936JPN		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 117 of 252	
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 117 of 253	
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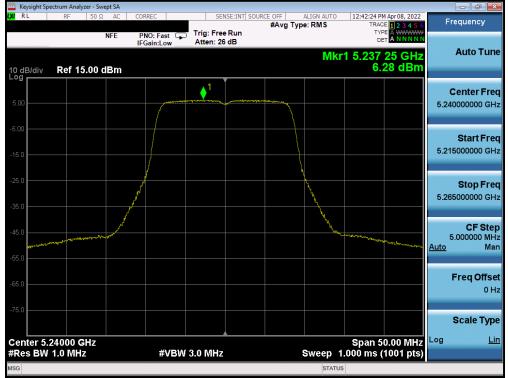
MIMO Antenna-1 Power Spectral Density Measurements



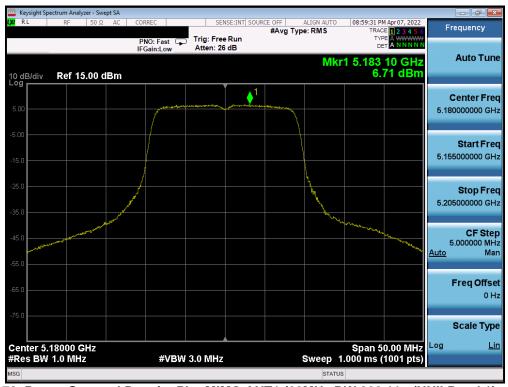


FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 440 at 050
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 118 of 253
© 2022 ELEMENT			





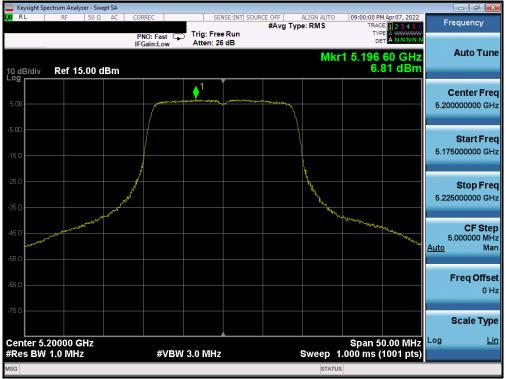
Plot 7-177. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 1) - Ch. 48)



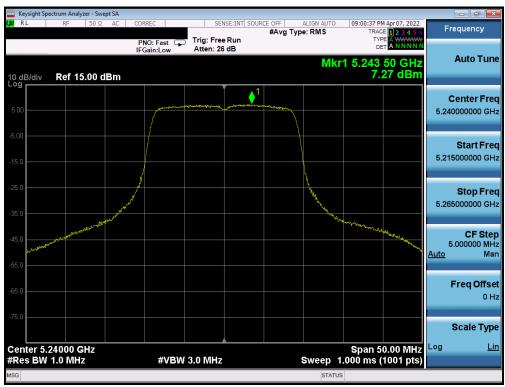
Plot 7-178. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 1) - Ch. 36)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 110 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 119 of 253
© 2022 ELEMENT			V1.0





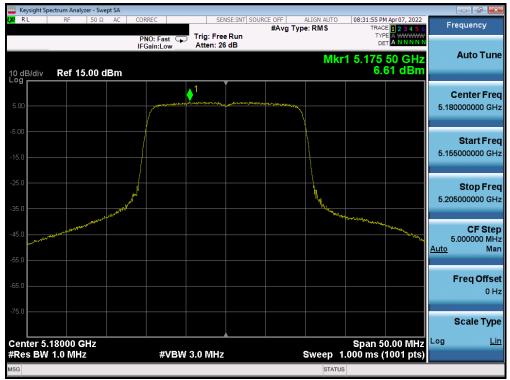
Plot 7-179. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 1) - Ch. 40)



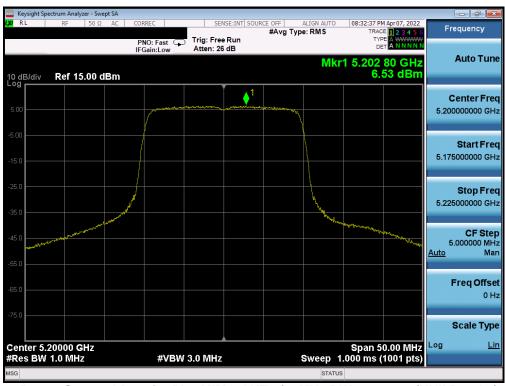
Plot 7-180. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 1) - Ch. 48)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Degs 100 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 120 of 253
© 2022 ELEMENT			V1.0





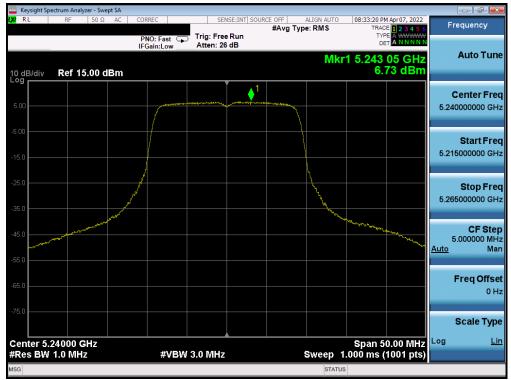
Plot 7-181. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 1) - Ch. 36)



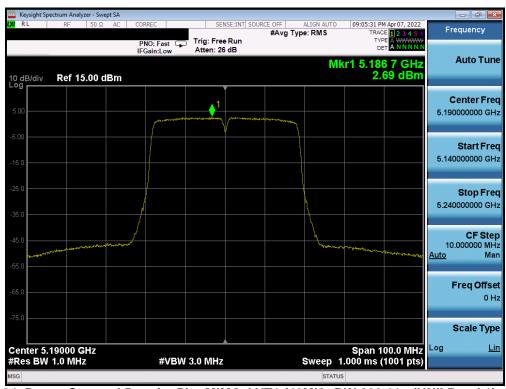
Plot 7-182. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 1) - Ch. 40)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 101 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 121 of 253
© 2022 ELEMENT			V1.0





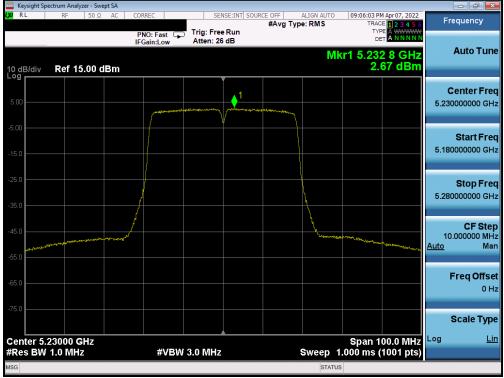
Plot 7-183. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 1) - Ch. 48)



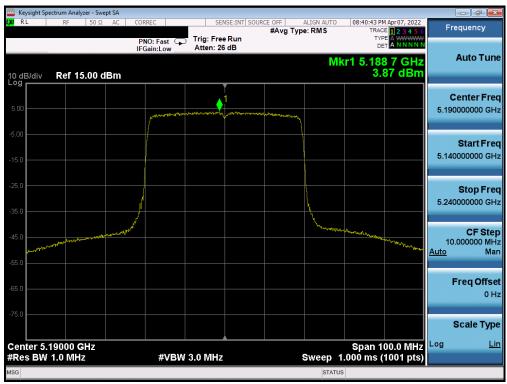
Plot 7-184. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 1) - Ch. 38)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 422 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 122 of 253
© 2022 ELEMENT			V1.0





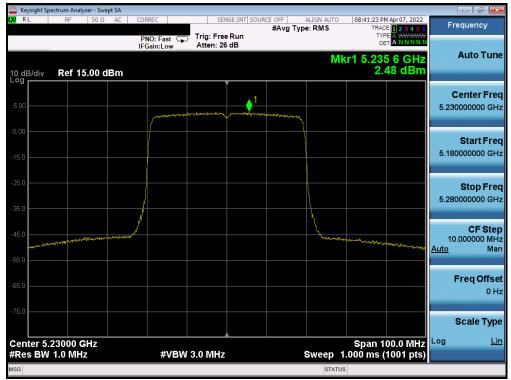
Plot 7-185. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 1) - Ch. 46)



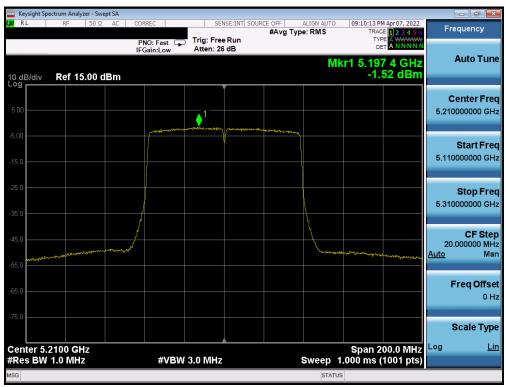
Plot 7-186. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 1) - Ch. 38)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 400 af 050
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 123 of 253
© 2022 ELEMENT	•	·	V1.0





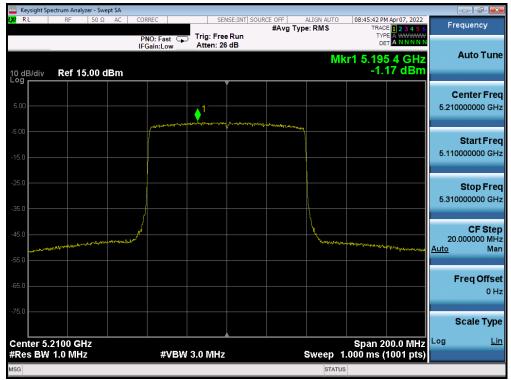
Plot 7-187. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 1) - Ch. 46)



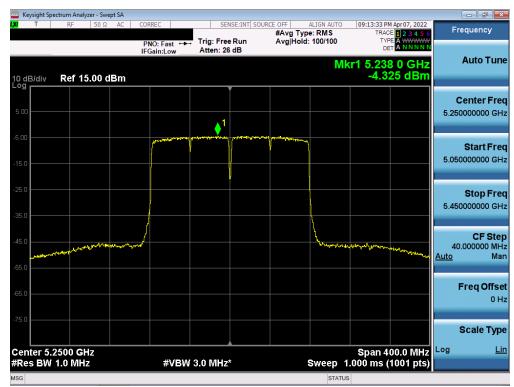
Plot 7-188. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 1) - Ch. 42)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dec. 404 (050
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 124 of 253
© 2022 ELEMENT	•		V1.0





Plot 7-189. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 1) - Ch. 42)



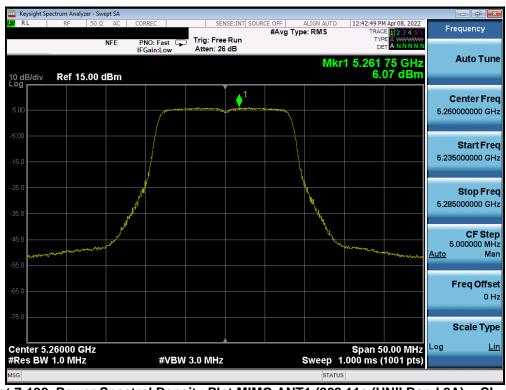
Plot 7-190. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802.11ac (UNII Band 1) - Ch. 50)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 105 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 125 of 253
© 2022 ELEMENT	•		V1.0





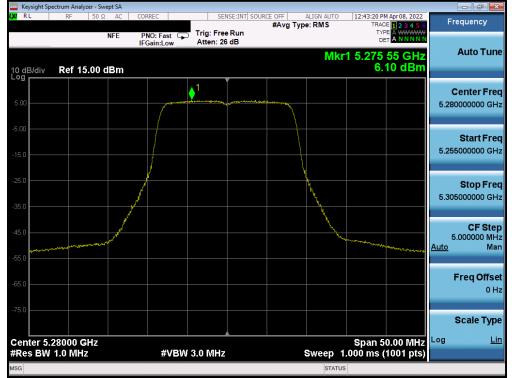
Plot 7-191. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802.11ax (UNII Band 1) - Ch. 50)



Plot 7-192. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2A) - Ch. 52)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 050
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 126 of 253
© 2022 ELEMENT		·	V1.0





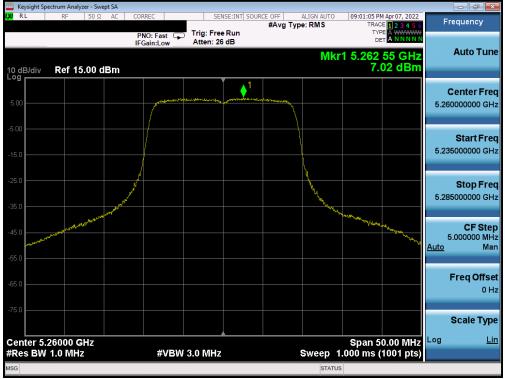
Plot 7-193. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2A) - Ch. 56)



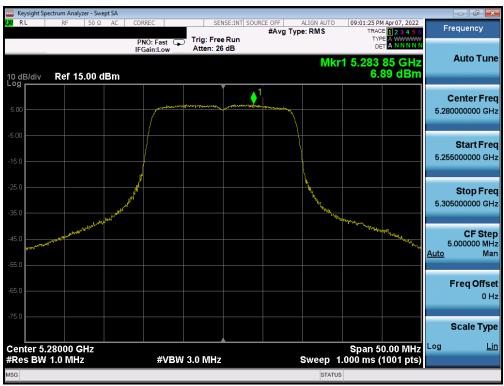
Plot 7-194. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2A) - Ch. 64)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 107 of 050
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 127 of 253
© 2022 ELEMENT	•	·	V1.0





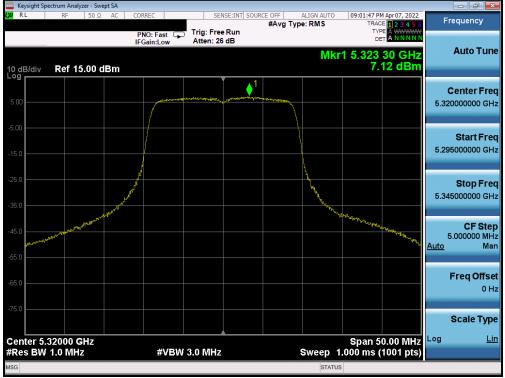
Plot 7-195. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) - Ch. 52)



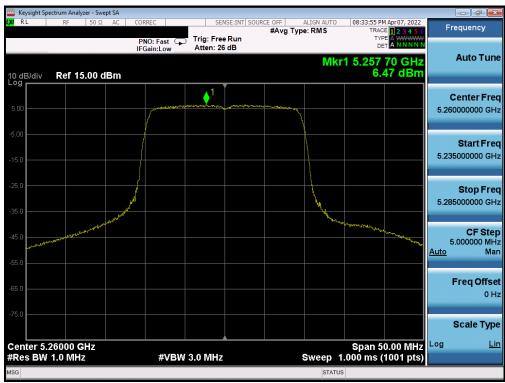
Plot 7-196. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 100 of 050
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 128 of 253
© 2022 ELEMENT	•		V1.0





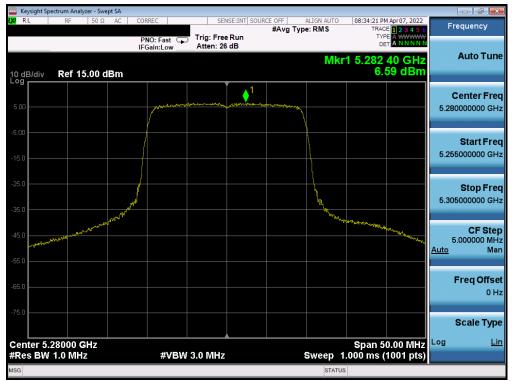
Plot 7-197. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) - Ch. 64)



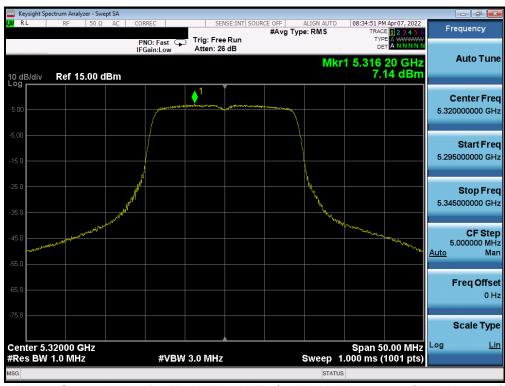
Plot 7-198. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 52)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 100 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 129 of 253
© 2022 ELEMENT			V1.0





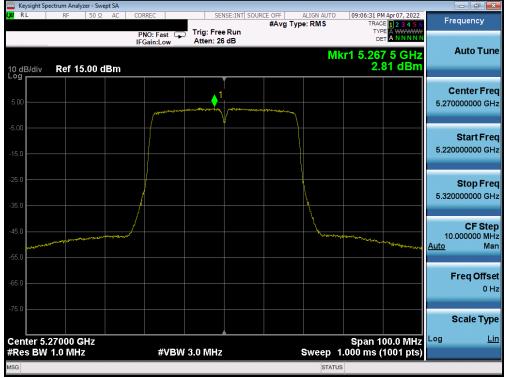
Plot 7-199. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 56)



Plot 7-200. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 64)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 120 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 130 of 253
© 2022 ELEMENT			V1.0





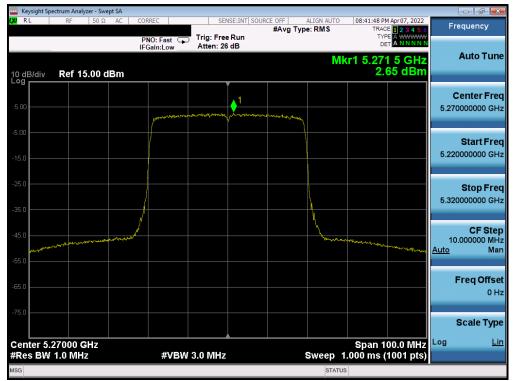
Plot 7-201. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2A) - Ch. 54)



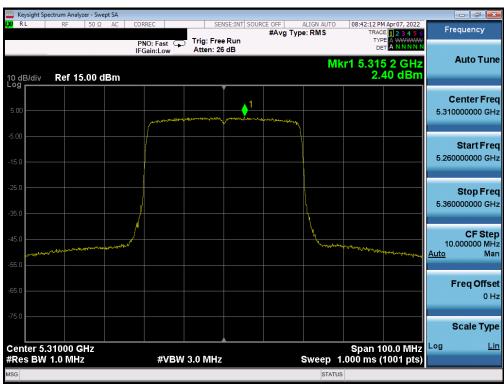
Plot 7-202. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2A) - Ch. 62)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 121 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 131 of 253
© 2022 ELEMENT			V1.0





Plot 7-203. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2A) - Ch. 54)



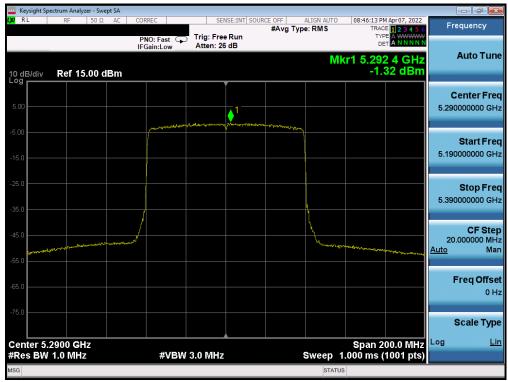
Plot 7-204. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2A) - Ch. 62)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 122 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 132 of 253
© 2022 ELEMENT		·	V1.0



	ectrum Analyzer							
XI RL	RF	50 Ω AC	CORREC	SENSE:INT S	SOURCE OFF #Avg Typ	ALIGN AUTO	09:10:41 PM Apr 07, 2022 TRACE 1 2 3 4 5 6	Frequency
			PNO: Fast G	Trig: Free Run Atten: 26 dB				Auto Tun
10 dB/div	Ref 15.0	0 dBm				IVIE	r1 5.295 4 GHz -1.73 dBm	
5.00								Center Fre 5.290000000 GH
			Personal and a second se		eret the manifestion of the state of the sta			5.29000000 GH
5.00			{	ų.				Start Fre 5.190000000 GH
15.0								3.19000000 81
-25.0								Stop Fre 5.390000000 GH
35.0			1					
45.0			}					CF Ste 20.000000 MH
55.0	~~~~**********************************						and some and a second and a second and	<u>Auto</u> Ma
65.0								Freq Offs
75.0								
								Scale Typ
	2900 GHz 1.0 MHz		#VBW	/ 3.0 MHz		Sweep 1	Span 200.0 MHz .000 ms (1001 pts)	Log <u>Li</u>
SG						STATUS		

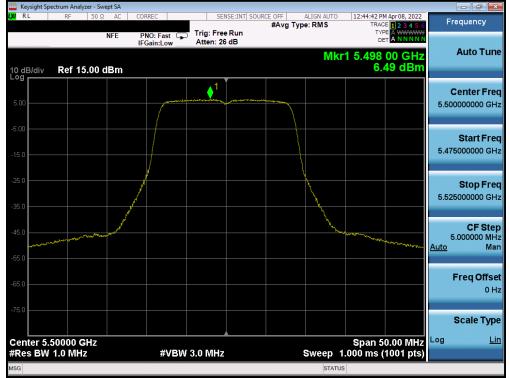
Plot 7-205. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2A) - Ch. 58)



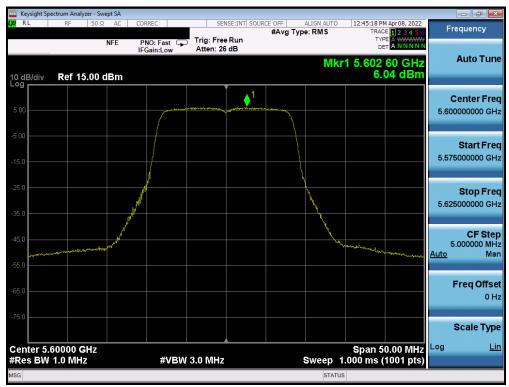
Plot 7-206. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 122 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 133 of 253
© 2022 ELEMENT		·	V1.0





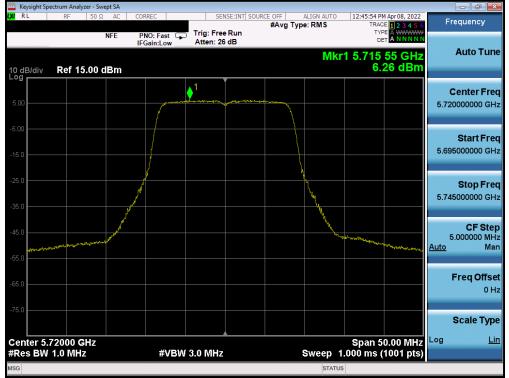
Plot 7-207. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2C) – Ch. 100)



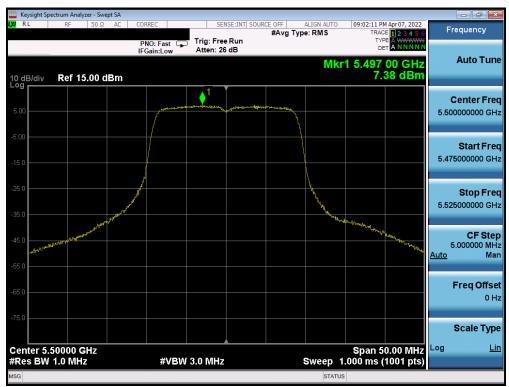
Plot 7-208. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 124 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 134 of 253
© 2022 ELEMENT			V1.0





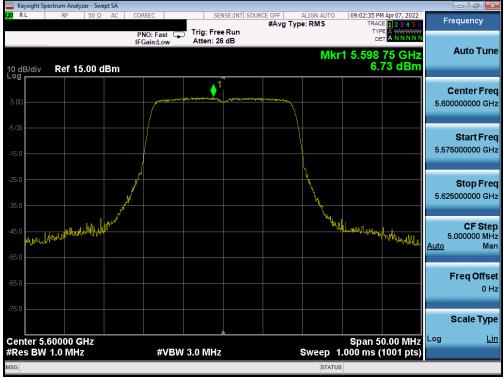
Plot 7-209. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2C) - Ch. 144)



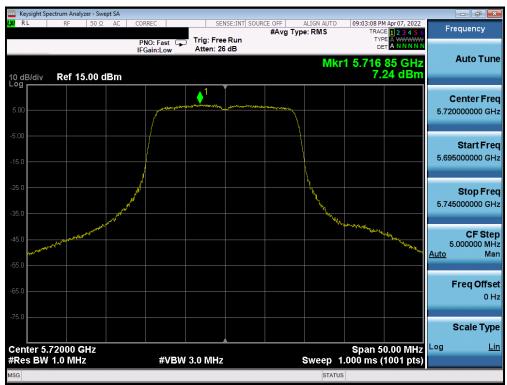
Plot 7-210. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) - Ch. 100)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 125 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 135 of 253
© 2022 ELEMENT	•		V1.0





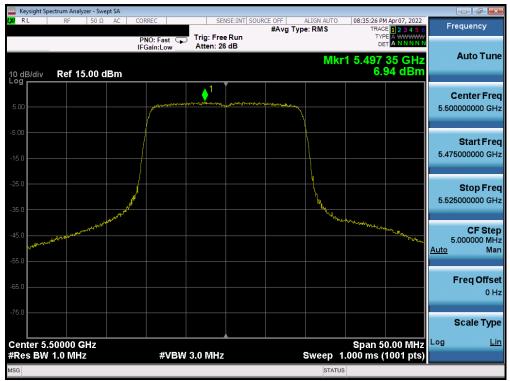
Plot 7-211. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) - Ch. 120)



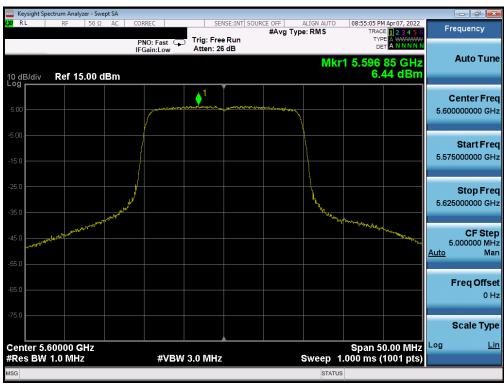
Plot 7-212. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) - Ch. 144)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 106 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 136 of 253
© 2022 ELEMENT			V1.0





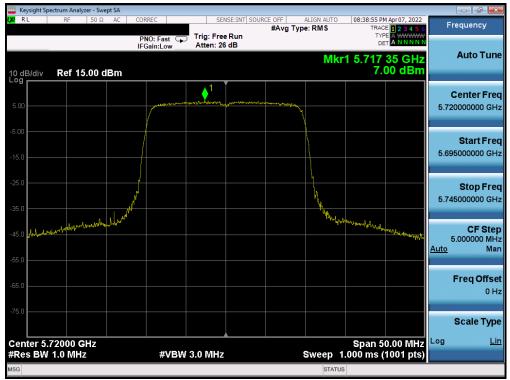
Plot 7-213. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2C) - Ch. 100)



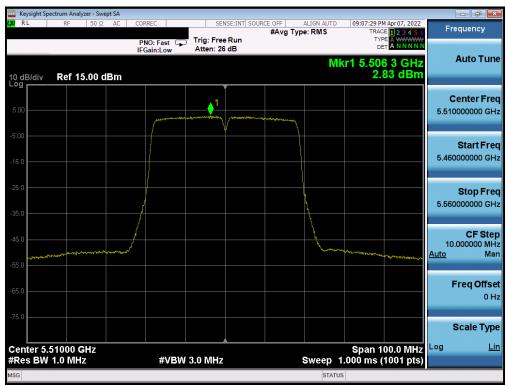
Plot 7-214. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 107 of 050
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 137 of 253
© 2022 ELEMENT			V1.0





Plot 7-215. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2C) - Ch. 144)



Plot 7-216. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2C) - Ch. 102)

FCC ID: A3LSMF936JPN	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 120 of 252
1M2206010070-12.A3L	04/11 - 06/18/2022	Portable Handset	Page 138 of 253
© 2022 ELEMENT	•		V1.0