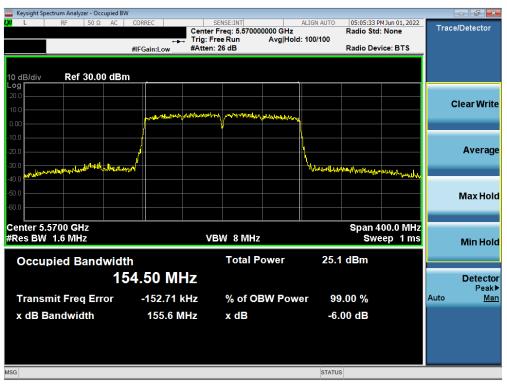


Keysight Spectrum Analyzer - Occupied BV						[- 6 ×
LXI RL RF 50Ω AC	CORREC	SENSE:INT SOURCE OF ter Freq: 5.69000000		09:38:52 PI Radio Std:	M Apr 07, 2022	Trace	/Detector
	🛶 Trig	g:FreeRun Av	g Hold: 100/100				
	#IFGain:Low #At	ten: 20 dB		Radio Dev	ice: BTS		
10 dB/div Ref 20.00 dBn	n						
Log 10.0							
0.00	and and a start and and a start and a st	handleydown an when when	multiple			C	lear Write:
-10.0			l				
-20.0			<u> </u>				A
-30.0							Average
-40.0 al month and a state of the	A		"In which is	water	montional		
-50.0							
-60.0							Max Hold
-70.0							
Center 5.69 GHz				Cnan	200 MHz		
#Res BW 820 kHz		VBW 8 MHz			ep 1 ms		Min Hold
							Min Hold
Occupied Bandwidt	h	Total Powe	er 23.4	l dBm			
77	7.257 MHz						Detector
							Peak▶
Transmit Freq Error	209.20 kHz	% of OBW	Power 99	0.00 %		Auto	<u>Man</u>
x dB Bandwidth	81.15 MHz	x dB	-26.	00 dB			
MSG			STATU	5			and a second second
mou			STATU				

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: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 70 of 050
1M2204010046-15-R1.A3L	04/01 - 6/10/2022	Portable Handset	Page 72 of 253
			V9.0.02/01/2019



🔐 Ke	ysight Spectru	ım Analyz	ter - Occ	upied BW										
L XI	Т	RF	50 Ω	AC	CORREC			NSE:INT SOU		ALIGN AUTO		M Apr 07, 2022	Troc	e/Detector
								req: 5.57000			Radio Std	: None	ITau	elbelector
								e Run	Avg Hold	1: 100/100	Dealler Deal			
					#IFGain:Lo	w ##	tten: 2	6 dB			Radio Dev	ICE: BIS		
40.1	B	Def	20.00	a d D ana										
10 d Log	B/div	Rei	30.00) dBm						1				
20.0														
20.0														Clear Write
10.0					ma	mounder	بها الماميلية	mound	manne					orear mine
0.00										1				
										K				
-10.0					- di					11				
-20.0		_								Ц.,				Average
-30.0	And a start when	howay	al and a second	martily	ul ^{ju} li					Male work	the Manuer	mahlander		
	C. A. S. C.													
-40.0														
-50.0														
														Max Hold
-60.0														
_														
	ter 5.57											400 MHz		
Res	BW 31	ЛНz					٧B١	N 50 MH	z		Swe	ep 1 ms		Min Hold
C	occupie	ed B	and	widt	า			Total P	ower	25.0	dBm			
				-15	6.37	MHz								Detector
														Peak►
Т	ransmit	t Frec	a Err	or	452.	56 kHz		% of O	BW Pow	er 99	.00 %		Auto	<u>Man</u>
			4		400					26				
X	dB Ban	awid	Itth		100	.2 MHz		x dB		-20.	00 dB			
MSG										STATUS	5			

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

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 72 of 252
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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 \geq 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.





Test Notes

None.

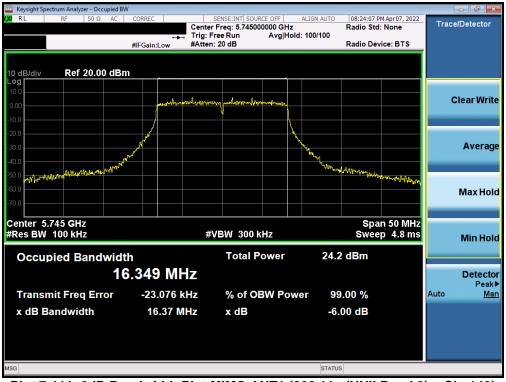
FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 74 of 252
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MIMO Antenna-1 6 dB Bandwidth Measurements

	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
с С	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

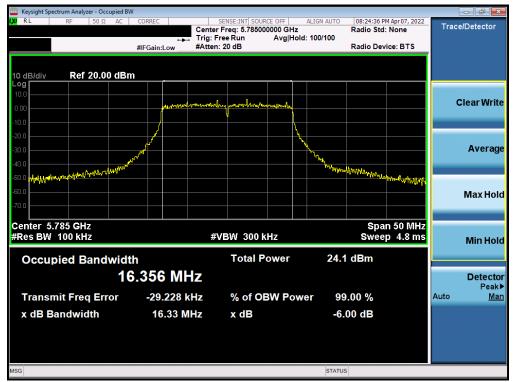
Table 7-4. Conducted Bandwidth Measurements MIMO ANT1



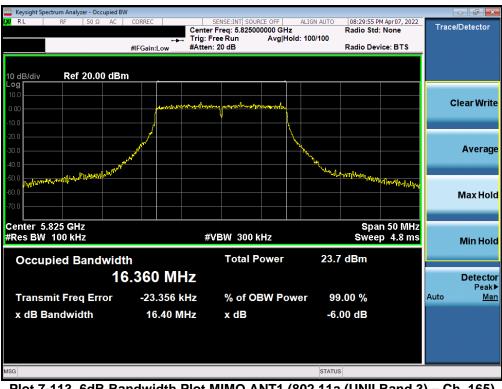
Plot 7-111. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 3) - Ch. 149)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 75 of 252
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			\/9.0.02/01/2019









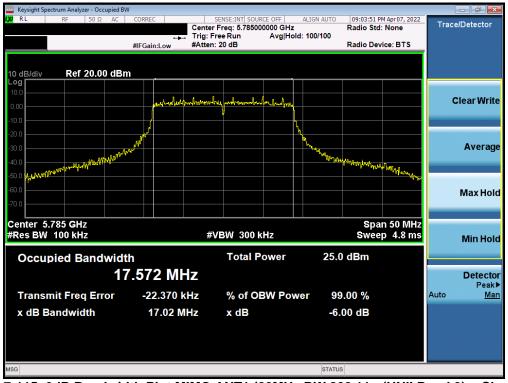
Plot 7-113. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 70 of 252
1M2204010046-15-R1.A3L	04/01 - 6/10/2022	Portable Handset	Page 76 of 253
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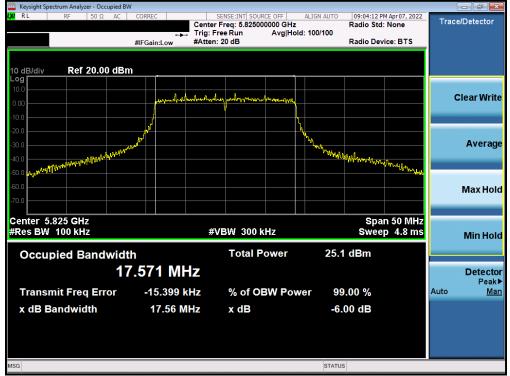
Plot 7-114. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) - Ch. 149)



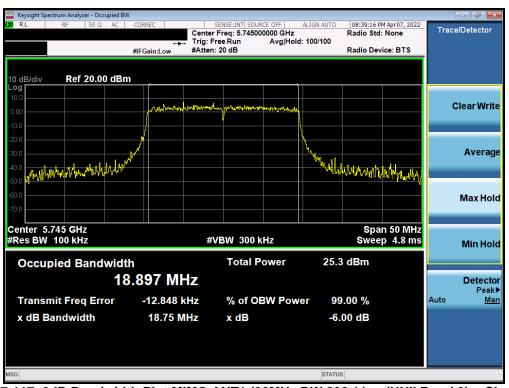
Plot 7-115. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) - Ch. 157)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 77 of 050
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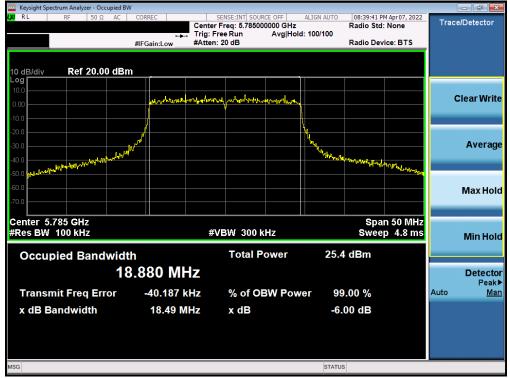
Plot 7-116. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) - Ch. 165)



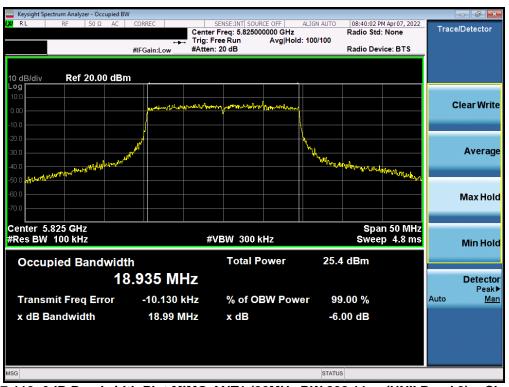
Plot 7-117. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) - Ch. 149)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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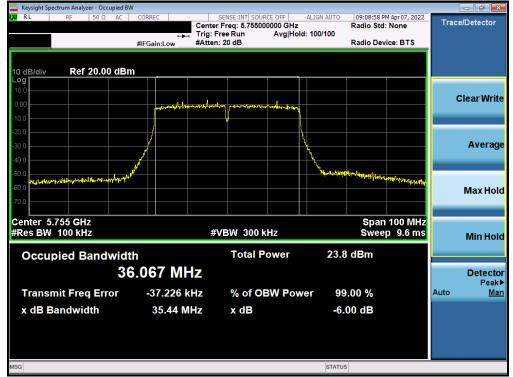
Plot 7-118. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) - Ch. 157)



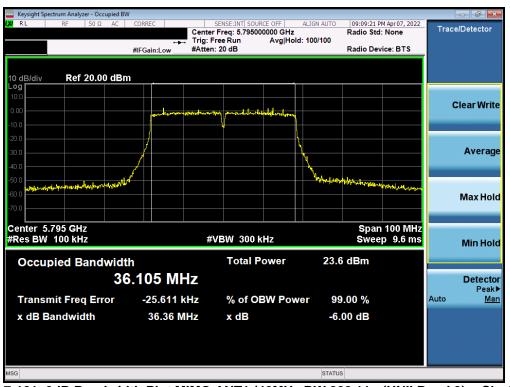
Plot 7-119. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 70 of 252
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Plot 7-120. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3) - Ch. 151)



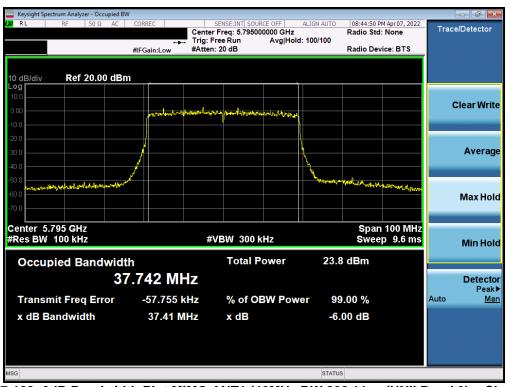
Plot 7-121. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3) - Ch. 159)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 80 of 252
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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: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 04 af 050
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Keysight Spectrum Analyzer - Occupied BW					_	- 🗗 💌
KX RL RF 50Ω AC		SENSE:INT SOURCE OFF		09:12:21 PM Apr 07, 2022	Tracel	Detector
	Trig: F	ree Run Avg Ho	old: 100/100	auto stu. None		
	#IFGain:Low #Atten	: 20 dB	R	adio Device: BTS		
10 dB/div Ref 20.00 dBm						
Log						
10.0					CI	ear Write
0.00	الللام الأيدليد ماساليا ال	un pertone Milling telligette				
-10.0						
-20.0						
-30.0						Average
-40.0	1		- <u> </u>			
-50.0	M		the the second			
-60.0 when we have the start of			***********	white the progent the address		Maxilald
-70.0						Max Hold
-70.0						
Center 5.775 GHz				Span 200 MHz		
#Res BW 100 kHz	#	VBW 300 kHz	S	weep 19.13 ms		Min Hold
		Total Power	23.9 d	Due		
Occupied Bandwidth		rotar Power	23.9 0	ыш		
75.	.380 MHz					Detector
T	40.000 1-11-			0.0/	Auto	Peak▶
Transmit Freq Error	-13.638 kHz	% of OBW Po	wer 99.00	0 %	Auto	Man
x dB Bandwidth	75.56 MHz	x dB	-6.00	dB		
MSG			STATUS			
			314103			

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



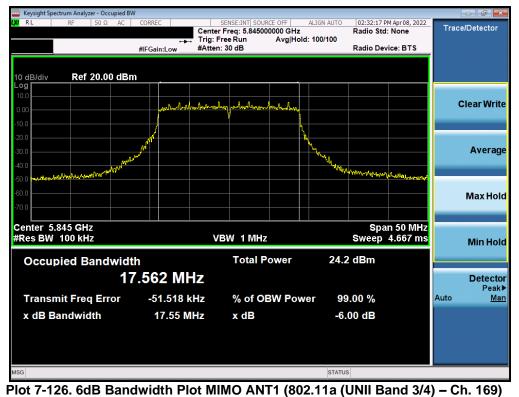
Plot 7-125. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 3) - Ch. 155)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 00 of 050
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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
Danu 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
Band 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



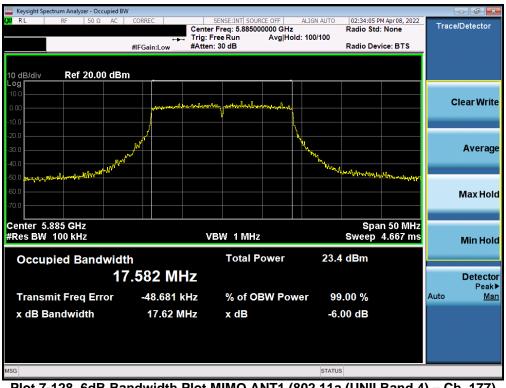
FCC ID: A3LSMF936U		Approved by: Technical Manager	
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Plot 7-127. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 4) - Ch. 173)



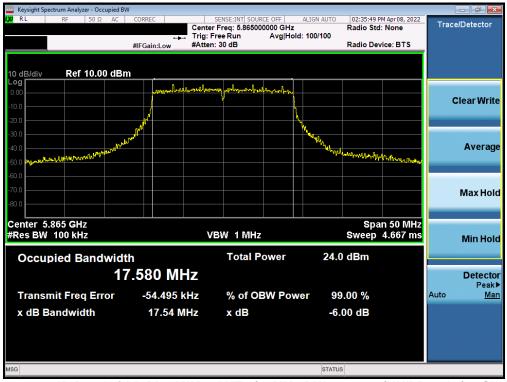
Plot 7-128. 6dB Bandwidth Plot MIMO ANT1 (802.11a (UNII Band 4) - Ch. 177)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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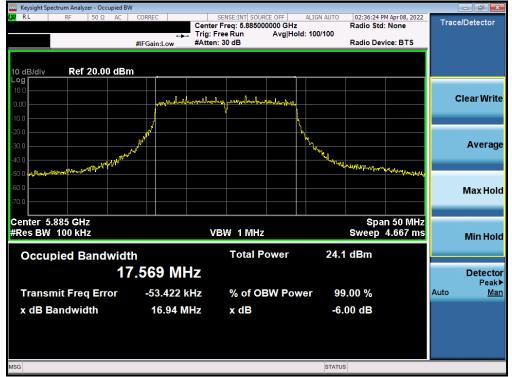
Plot 7-129. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3/4) - Ch. 169)



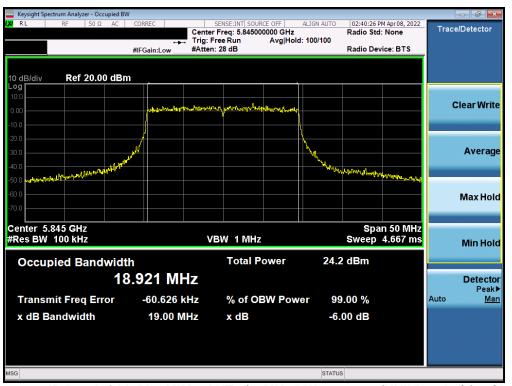
Plot 7-130. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 4) - Ch. 173)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-131. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 4) - Ch. 177)



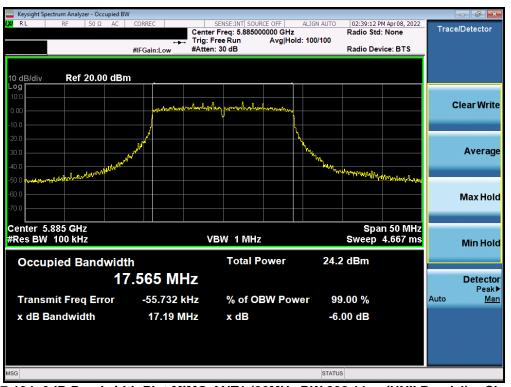
Plot 7-132. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3/4) - Ch. 169)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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1M2204010046-15-R1.A3L	04/01 - 6/10/2022	Portable Handset	Page 86 of 253
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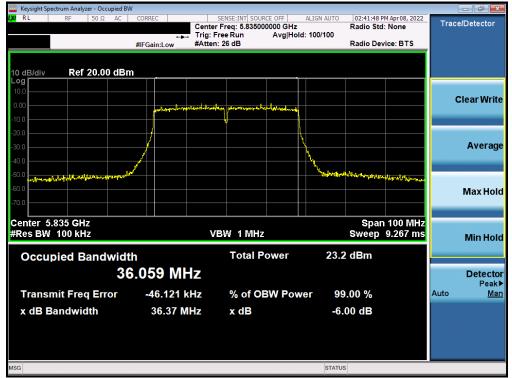
Plot 7-133. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 4) - Ch. 173)



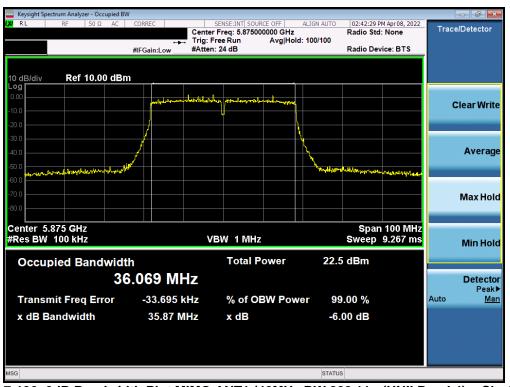
Plot 7-134. 6dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 4) - Ch. 177)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-135. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3/4) - Ch. 167)



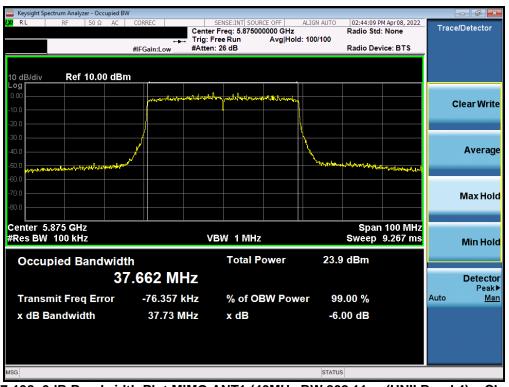
Plot 7-136. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 4) - Ch. 175)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 90 of 252
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Keysight Spectrum Analyzer - Occupied B\	V				- d ×
(X) RL RF 50 Ω AC	Trig: I	SENSE:INT SOURCE OFF r Freq: 5.835000000 GHz Free Run Avg Holo n: 26 dB	ALIGN AUTO 02:50:10 P Radio Std d:>100/100 Radio Dev		Trace/Detector
10 dB/div Ref 10.00 dBr	n				
-10.0	wegesethe literate with generalistic	way wand have an and plateness			Clear Write
-20.0					
-40.0	м ²			www.alternow	Average
-60.0					Max Hold
-80.0 Center 5.835 GHz			Snan	100 MHz	
#Res BW 100 kHz		/BW 1 MHz	Sweep	9.267 ms	Min Hold
Occupied Bandwidt	հ 7.657 MHz	Total Power	24.4 dBm		Detector
Transmit Freq Error	-68.680 kHz	% of OBW Pow	ver 99.00 %		Peak▶ Auto <u>Man</u>
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)



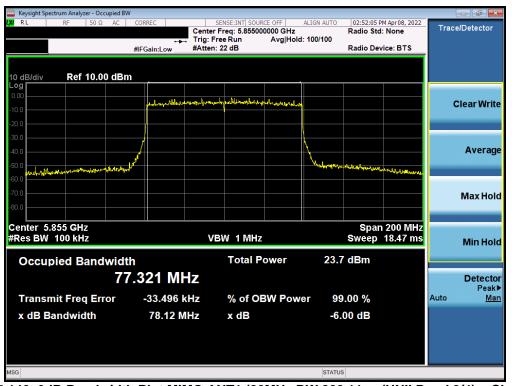
Plot 7-138. 6dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 4) - Ch. 175)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 80 of 252
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Keysight Spectrum Analyzer - Occupied BW	1				- 6	X
(X) RL RF 50 Ω AC	Trig:	SENSE:INT SOURCE OFF r Freq: 5.855000000 GHz Free Run Avg Ho n: 24 dB	Radio St Id: 100/100	PM Apr 08, 2022 d: None evice: BTS	Trace/Detec	tor
10 dB/div Ref 10.00 dBm	۱		h i			
-10.0	Juli like walter	Mix phillentheory and south	4		ClearV	Nrite
-20.0					Δνε	erage
-50.0 -60.0			hand hand hand hand hand hand hand hand	Muddlemanapalle	Arc	ruge
-70.0					Max	Hold
Center 5.855 GHz #Res BW 100 kHz		/BW 1 MHz		n 200 MHz 18.47 ms	Min	Hold
Occupied Bandwidt		Total Power	23.7 dBm			
ر ک Transmit Freq Error	.392 MHz -39.515 kHz	% of OBW Pov	wer 99.00 %			ector [°] eak ► Man
x dB Bandwidth	75.41 MHz	x dB	-6.00 dB		Auto	man
MSG			STATUS			

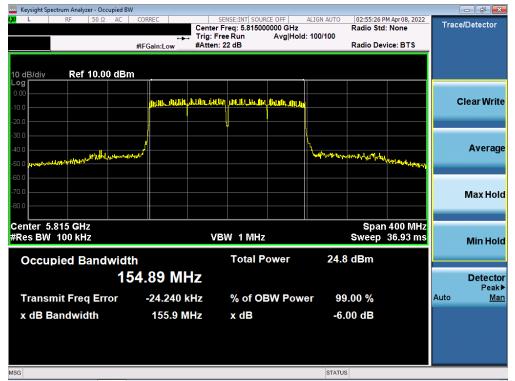
Plot 7-139. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 3/4) - Ch. 171)



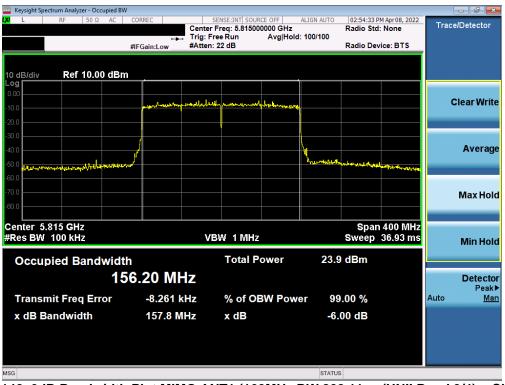
Plot 7-140. 6dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 3/4) - Ch. 171)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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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: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dara 04 af 050
1M2204010046-15-R1.A3L	04/01 - 6/10/2022	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
с С	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



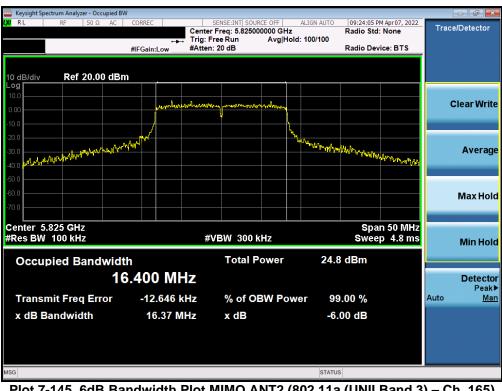
Plot 7-143. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 3) - Ch. 149)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 02 of 252
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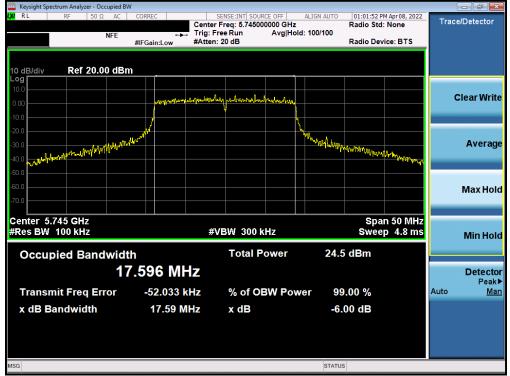
Plot 7-144. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 3) - Ch. 157)



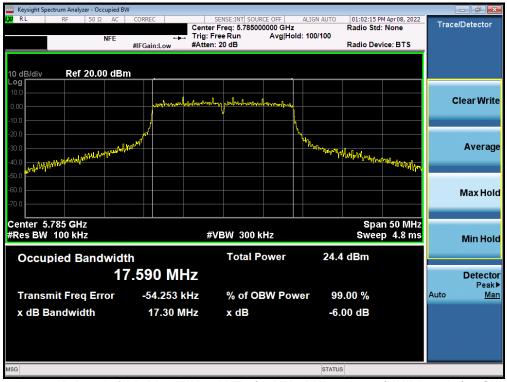
Plot 7-145. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 93 of 253
1M2204010046-15-R1.A3L	04/01 - 6/10/2022	/01 - 6/10/2022 Portable Handset	
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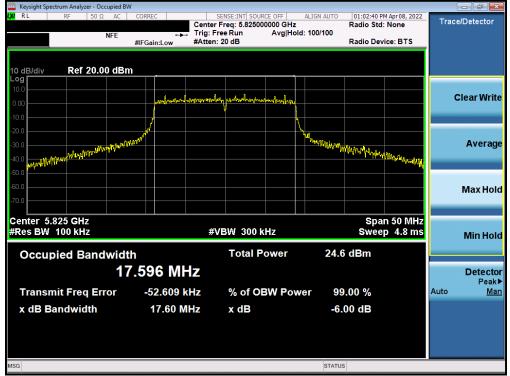
Plot 7-146. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) - Ch. 149)



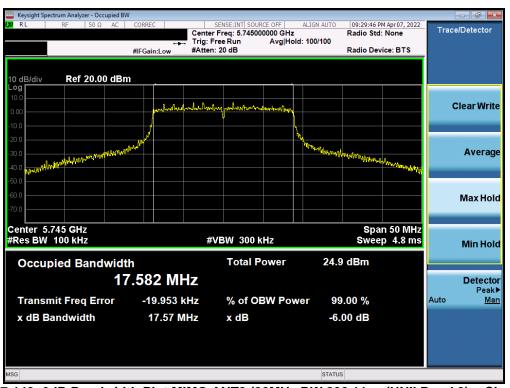
Plot 7-147. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) - Ch. 157)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 04 of 252
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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: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 05 at 050
1M2204010046-15-R1.A3L	04/01 - 6/10/2022	Portable Handset	Page 95 of 253
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Keysight Spectrum Analyzer - Occupied B	W				
LXV RL RF 50Ω AC		SENSE:INT SOURCE OFF	ALIGN AUTO 09:30:08 Radio Sto	M Apr 07, 2022	Trace/Detector
	Trig: Fi	ree Run Avg Hol	d: 100/100	. None	
	#IFGain:Low #Atten:	20 dB	Radio De	vice: BTS	
10 dB/div Ref 20.00 dB	m				
Log					
10.0					Clear Write
0.00	and rained all frequences and any second	w protonet the second			Cical Write
-10.0					
-20.0			Wester		
-20.0 -30.0 -40.0 Hatter WUNJook with a state of the stat	Harry		My molth motor has a proper and	a athre and	Average
-40.0 Latter 10.000				rather when you	
-50.0					
-60.0					Max Hold
-70.0					
Center 5.785 GHz			Sna	n 50 MHz	
#Res BW 100 kHz	#\	/BW 300 kHz		p 4.8 ms	Min Hold
					Min Hold
Occupied Bandwid	th	Total Power	24.9 dBm		
	8.955 MHz				Detector
	0.955 WINZ				Peak►
Transmit Freg Error	-19.001 kHz	% of OBW Pow	ver 99.00 %		Auto <u>Man</u>
x dB Bandwidth	18.85 MHz		-6.00 dB		
	TO.00 MIHZ	x dB	-0.00 dB		
MSG			STATUS		

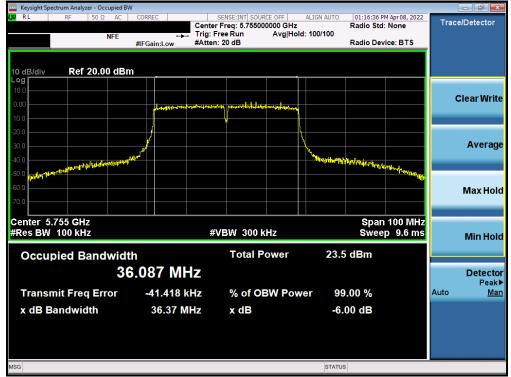
Plot 7-150. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) - Ch. 157)



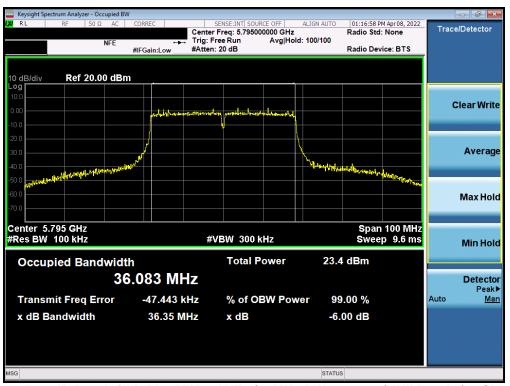
Plot 7-151. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) - Ch. 165)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 00 at 050
1M2204010046-15-R1.A3L	04/01 - 6/10/2022	Portable Handset	Page 96 of 253
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Plot 7-152. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) - Ch. 151)



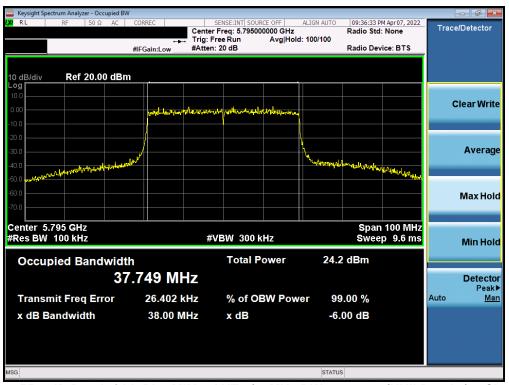
Plot 7-153. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) - Ch. 159)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 07 of 252
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Keysight Spectrum Analyzer - Occupied	H BW				- d -
ιχα R.L RF 50Ω AC	Cente →→ Trig:	SENSE:INT SOURCE OFF er Freq: 5.755000000 GHz Free Run Avg Hole n: 20 dB	ALIGN AUTO 09:36:07 P Radio Std d: 100/100 Radio Dev		Trace/Detector
10 dB/div Ref 20.00 di	Bm				
10.0		afrer population of transmission			Clear Write
-20.0 -30.0 -40.0	annand -		humandula Mary Investor	them more thanks	Average
-50.0					Max Hold
Center 5.755 GHz #Res BW 100 kHz		≠VBW 300 kHz	Swee	100 MHz p 9.6 ms	Min Hold
Occupied Bandwi	^{dth} 37.708 MHz	Total Power	24.3 dBm		Detector Peak▶
Transmit Freq Error x dB Bandwidth	-9.483 kHz 37.86 MHz	% of OBW Pow x dB	ver 99.00 % -6.00 dB		Auto <u>Man</u>
MSG			STATUS		

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



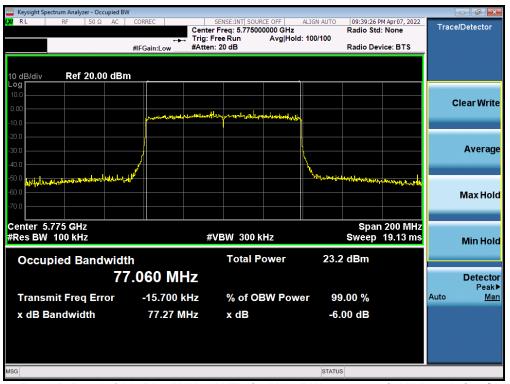
Plot 7-155. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 3) - Ch. 159)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 00 of 252
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Keysight Spectrum Analyzer - Oc	cupied BW									
LXI RL RF 50Ω	AC COF	RREC		NSE:INT		ALIGN AUTO		M May 03, 2022	Trac	e/Detector
				eq: 5.77500			Radio Std	: None	mac	elbelector
	NFE	↔ Gain:Low	Trig: Free #Atten: 2		Avg Hold	1: 100/100	Radio Dev	ice: BTS		
	#IF	Gain:Low	#Atten. 2				Radio Dev	ice. B13		
10 dB/div Ref 20.0	0 dBm									
Log										
10.0										
0.00										Clear Write
		ահանություններ	باللله المرادليل		ապատ					
-10.0										
-20.0										
-30.0		/				1				Average
	4					1				Archage
-40.0	۶					- <u>\</u>				
-50.0	1					A sale burg	hitstoon distant.			
-50.0 -60.0	the state of the second se						- all and a set of the set	monerardo		
										Max Hold
-70.0										
Center 5.7750 GHz								00.0 MHz		
#Res BW 100 kHz			#VE	300 k	Hz		Sweep	19.13 ms		Min Hold
Occupied Band	lwidth			Total P	ower	23.0	dBm			
			-							
	/ 5.3	98 MI	ΠZ							Detector
										Peak►
Transmit Freq Er	ror	-16.669	(Hz	% of OE	3W Pow	er 99	.00 %		Auto	<u>Man</u>
x dB Bandwidth		75.61 N	Hz	x dB		-6	00 dB			
		10.01 1	1112	X UD		-0.				
MSG						STATUS	5			

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



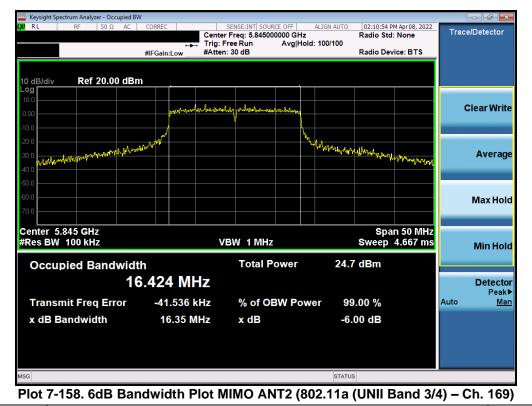
Plot 7-157. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 3) - Ch. 155)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
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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	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
Danu 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
Pand 4	5865	173	ax (20MHz)	6.5/7.2 (MCS0)	19.02
Band 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
banu 5/4	5815	163	ac (160MHz)	58.5/65 (MCS0)	155.90
	5815	163	ax (160MHz)	58.5/65 (MCS0)	157.60

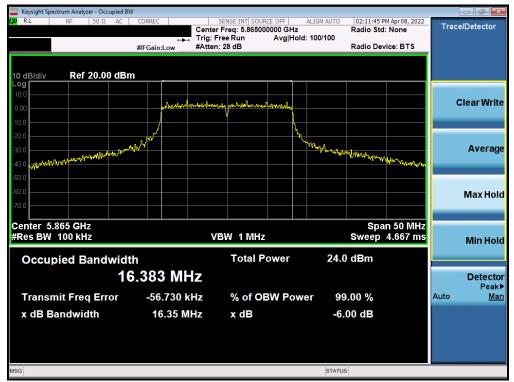
Table 7-7. Conducted Bandwidth Measurements Band 4 MIMO ANT2



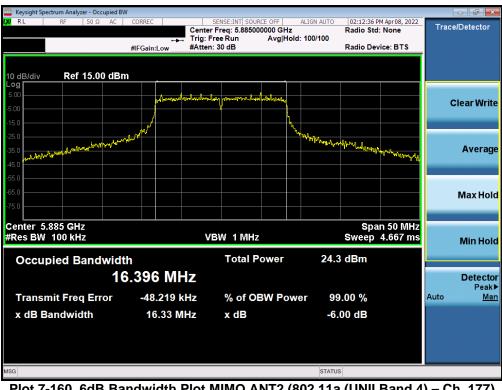
FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 100 of 253
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Plot 7-159. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 4) - Ch. 173)



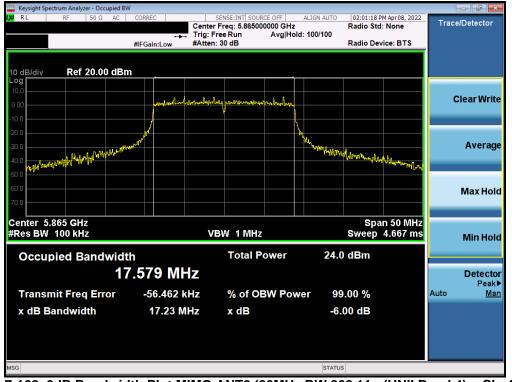
Plot 7-160. 6dB Bandwidth Plot MIMO ANT2 (802.11a (UNII Band 4) - Ch. 177)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 101 of 252
1M2204010046-15-R1.A3L	04/01 - 6/10/2022	Portable Handset	Page 101 of 253
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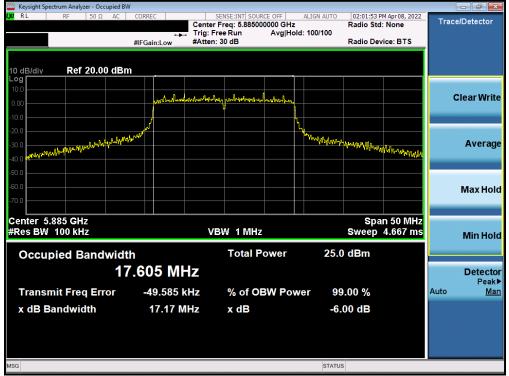
Plot 7-161. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3/4) - Ch. 169)



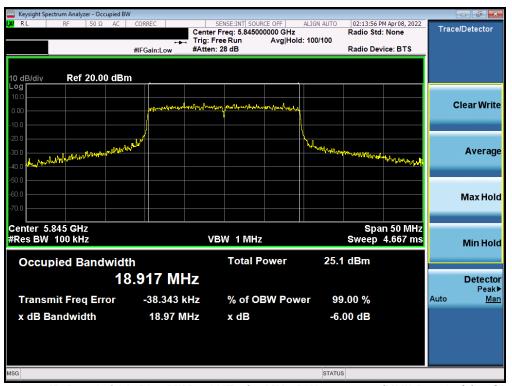
Plot 7-162. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 4) - Ch. 173)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 102 of 252
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Plot 7-163. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 4) - Ch. 177)



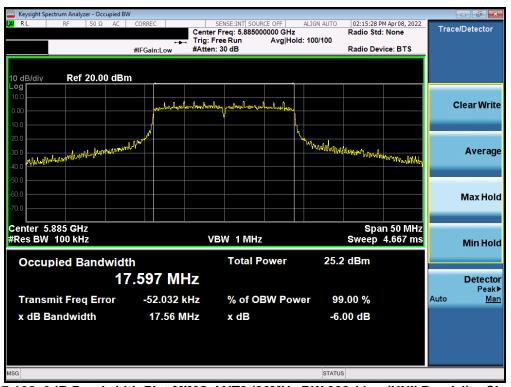
Plot 7-164. 6dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3/4) - Ch. 169)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 102 of 252
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Keysight Spectrum Analyzer - Occupied BW					- 6 -
			Rad Id: 100/100	dio Std: None	Trace/Detector
	FGain:Low #Atten.	. 20 00	Rai	dio Device. B13	
10 dB/div Ref 20.00 dBm					
Log 10.0 0.00	ang hang an the	m marine marine and			Clear Write
-10.0 -20.0 -30.0	/		Martine Leen Wighing	-unterportenter	Average
-40.0 2444(44) 447 447 447 447 447 447 447 447 447				,	Max Hold
-70.0 Center 5.865 GHz				Span 50 MHz	
#Res BW 100 kHz Occupied Bandwidth	V	3W 1 MHz Total Power	Sv 24.6 dE	veep 4.667 ms	Min Hold
	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: A3LSMF936U			Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 104 of 252
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🔤 Keysight Spectrum Analyzer - Occupied BW	
XX RL RF 50 Ω AC CORREC SENSE:INT SOURCE OFF ALIGN AUTO 102:17:31 PM Apr08, 2022 Center Freq: 8.835000000 GHz Radio Std: None Trig: Free Run Avg Hold: 100/100 Radio Device: BTS #IFGain: w #Atten: 24 dB Radio Device: BTS	Trace/Detector
#FGain:Low #Atten: 24 db Radio Device. B 13	
10 dB/div Ref 10.00 dBm	
000 delandarian periodismonoral de	Clear Write
-10.0	Cicui Mine
-20.0	
	Average
40.0	_
-60.0	
-70.0	Max Hold
-80.0	
Center 5.835 GHz Span 100 MHz #Res BW 100 kHz VBW 1 MHz Sweep 9.267 ms	
	Min Hold
Occupied Bandwidth Total Power 23.6 dBm	
36.042 MHz	Detector Peak▶
Transmit Freq Error -50.384 kHz % of OBW Power 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)



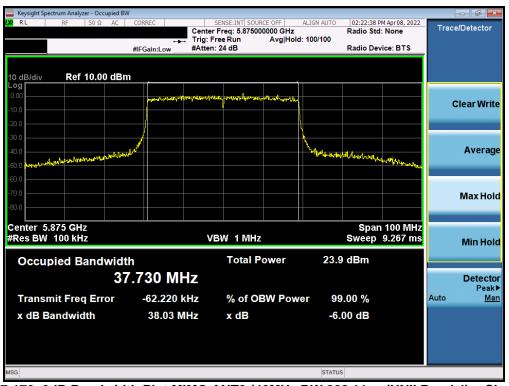
Plot 7-168. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 4) - Ch. 175)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 105 of 252
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Keysight Spectrum Analyzer - Occupied B\					- 5
LX RL RF 50Ω AC	CORREC	SENSE:INT SOURCE OFF		PM Apr 08, 2022	Trace/Detector
	Trig:	Free Run Avg Ho	ld: 100/100		
	#IFGain:Low #Atte	en: 26 dB	Radio D	evice: BTS	
10 dB/div Ref 10.00 dBr	n				
Log					
0.00	Appeluation of the later	and a think the war was to shall			Clear Writ
-10.0					Cicui min
-20.0					
-30.0					
-40.0	and the second s		Malanda		Averag
-50.0 manufil market Antonio and	VV [*]		and the second s	Marthandu Martin	
-60.0					
-70.0					Max Hol
-80.0					
Center 5.835 GHz #Res BW 100 kHz		VBW 1 MHz		n 100 MHz 9.267 ms	
#Res BW 100 KH2			Sweet	9.207 1115	Min Hol
Occupied Bandwid	th	Total Power	23.9 dBm		
3	7.732 MHz				Detecto
Transmit Freq Error	-60.226 kHz	% of OBW Pov	ver 99.00 %		Auto Ma
					Mato <u>ma</u>
x dB Bandwidth	37.97 MHz	x dB	-6.00 dB		
MSG			STATUS		
			UNITO		

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



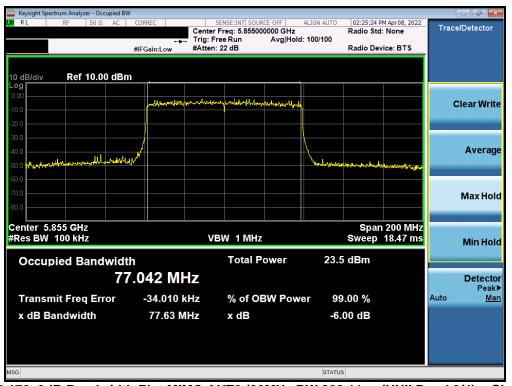
Plot 7-170. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 4) - Ch. 175)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 100 of 252	
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Keysight Spectrum Analyzer - Occupied B\	N				
KX RL RF 50Ω AC	→→ Trig:	er Freq: 5.855000000 GHz Free Run Avg Hold	Radio Std : 100/100		Trace/Detector
	#IFGain:Low #Atte	n: 22 dB	Radio Dev	vice: BTS	
10 dB/div Ref 5.00 dBm					
Log					
-5.00	الاسلىنالى مى والدينية المربع	on you wanter black and the patient			
-15.0					Clear Write
-25.0					
-35.0			4		
-45.0					Average
-45.0			Marthurselder Com and they	manufumoun	
-65.0					
-75.0					Max Hold
-85.0					
Center 5.855 GHz			Snar	200 MHz	
#Res BW 100 kHz	1	/BW 1 MHz		18.47 ms	Min Hold
					WIIITHOID
Occupied Bandwidt	th	Total Power	23.6 dBm		
7	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		

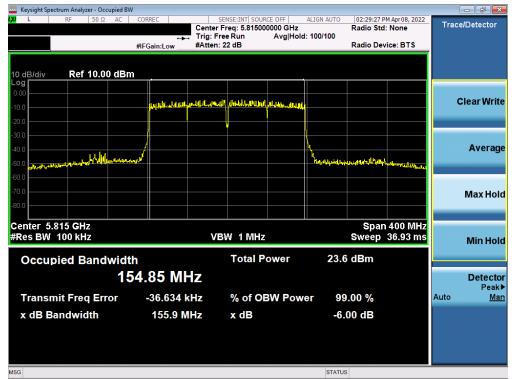
Plot 7-171. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 3/4) - Ch. 171)



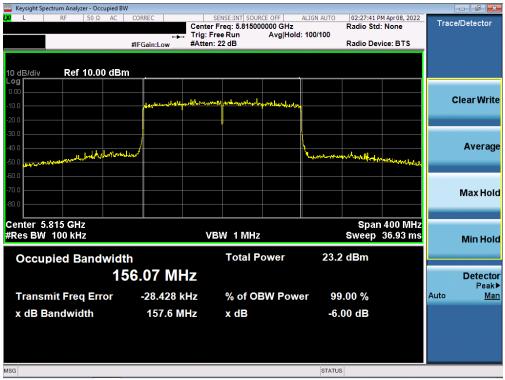
Plot 7-172. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 3/4) - Ch. 171)

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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)

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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.

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5885

177

AVG

17.77

Conducted Conducted Directional Conducted Power [dBm] Max e.i.r.p. Max e.i.r.p. Freq [MHz] Channel Detector Power Limit Pow Ant. Gain Limit [dBm] [dBm] [dBm] Margin [dB] [dBi] ANT1 ANT2 MIMO 5180 36 AVG 17.93 17.71 20.83 23.98 -3.15 -0.96 19.87 23.01 5200 40 AVG 17.87 17.46 20.68 23.98 -3.30 -0.96 19.72 23.01 5GHz (20MHz Bandwidth) AVG 17.64 20.59 -3.39 19.63 23.01 5220 44 17.52 23.98 -0.96 5240 48 AVG 17.89 17.61 20.76 23.98 -3.22 -0.96 19.80 23.01 AVG 17.55 17.49 20.53 -3.45 -0.91 30.00 5260 52 23.98 19.62 56 AVG 17.49 17.47 20.49 -3.49 19.58 30.00 5280 23.98 -0.91 5300 60 AVG 17.86 17.62 20.75 23.98 -3.23 -0.91 19.84 30.00 64 AVG 17.81 17.73 20.78 23.98 -3.20 -0.91 19.87 30.00 5320 30.00 AVG 17.99 17.64 20.83 23.98 -3.15 18.92 5500 100 -1.91 AVG 17.92 17.65 20.80 23.98 -3.18 -1.91 18.89 5600 120 5620 124 AVG 17.83 17.74 20.80 23.98 -3.18 -1.91 18.89 5720 144 AVG 17.82 17.84 20.84 23.98 -3.14 -1.91 18.93 30.00 17.79 5745 149 AVG 17.72 20.77 30.00 -9.23 -0.75 20.02 5765 153 AVG 17.74 17.87 20.82 30.00 -9.18 -0.75 20.07 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 AVG 17.62 17.83 20.74 30.00 -9.26 -0.75 19.99 165 5845 169 AVG 17.54 17.61 20.59 -0.75 19.84 30.00 5865 173 AVG 17.82 17.64 20.74 -0.75 19.99 30.00

e.i.r.p.

. Margin [dB]

-3.14

-3.29

-3.38

-3.21

-10.38

-10.42

-10.16

-10.13

-11.08

-11.07

-10.16

-10.01

-10.12

MIMO Maximum Conducted Output Power Measurements

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

-0.75

19.88

30.00

17.47

	Freq [MHz]	Channel	Detector	Conc	lucted 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]	Lapud	Ennie [GBin]	margin [ab]
	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
d	5240	48	AVG	17.71	17.67	20.70	23.98	-3.28	-0.96	19.74	23.01	-3.27
Š	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
ß	5320	64	AVG	17.67	17.70	20.70	23.98	-3.28	-0.91	19.79	30.00	-10.21
₽	5500	100	AVG	17.85	17.99	20.93	23.98	-3.05	-1.91	19.02	30.00	-10.98
(20MH ₃	5600	120	AVG	17.79	17.55	20.68	23.98	-3.30	-1.91	18.77	-	-
ō	5620	124	AVG	17.69	17.54	20.63	23.98	-3.35	-1.91	18.72	-	-
5	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>4</u>	5765	153	AVG	17.82	17.81	20.83	30.00	-9.17	-0.75	20.08	-	-
5G	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

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	Freq [MHz]	Channel	Detector	Cond	lucted 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]	Lapud	Enne [GBII]	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
- E	5240	48	AVG	17.72	17.67	20.71	23.98	-3.27	-0.96	19.75	23.01	-3.26
Š	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
a	5300	60	AVG	17.71	17.52	20.63	23.98	-3.35	-0.91	19.72	30.00	-10.28
8	5320	64	AVG	17.68	17.61	20.66	23.98	-3.32	-0.91	19.75	30.00	-10.25
보	5500	100	AVG	17.86	17.75	20.82	23.98	-3.16	-1.91	18.91	30.00	-11.09
5	5600	120	AVG	17.80	17.66	20.74	23.98	-3.24	-1.91	18.83	-	-
WO	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	-	-
T T	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]	[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]	[]		
	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
p	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
8	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
5	5600	120	AVG	16.99	16.43	19.73	23.98	-4.25	-1.91	17.82	-	-
Mo	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
N	5745	149	AVG	16.63	16.84	19.75	30.00	-10.25	-0.75	19.00	-	-
НIJ	5765	153	AVG	16.75	16.56	19.67	30.00	-10.33	-0.75	18.92	-	-
50	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

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th)	Freq [MHz] Channel Detector		Detector	Conducted Power [dBm]			Conducted Conducted Power Limit Power	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]	[]		····· 3··· []
dwidtl	5190	38	AVG	14.70	14.72	17.72	23.98	-6.26	-0.96	16.76	23.01	-6.25
ğ	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
6	5310	62	AVG	16.45	16.88	19.68	23.98	-4.30	-0.91	18.77	30.00	-11.23
<u>Р</u>	5510	102	AVG	16.63	16.65	19.65	23.98	-4.33	-1.91	17.74	30.00	-12.26
Ŧ	5590	118	AVG	16.67	16.71	19.70	23.98	-4.28	-1.91	17.79	-	-
(40MI	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	-	-
ж	5795	159	AVG	16.68	16.40	19.55	30.00	-10.45	-0.75	18.80	-	-
56	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

width)	Freq [MHz] Channel Deter		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]	1		J 1 1
Ī	5190	38	AVG	14.67	14.91	17.80	23.98	-6.18	-0.96	16.84	23.01	-6.17
and	5230	46	AVG	16.56	16.82	19.70	23.98	-4.28	-0.96	18.74	23.01	-4.27
ar	5270	54	AVG	16.61	16.93	19.78	23.98	-4.20	-0.91	18.87	30.00	-11.13
8	5310	62	AVG	16.44	16.73	19.60	23.98	-4.38	-0.91	18.69	30.00	-11.31
Ŧ	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	-	-
БH	5795	159	AVG	16.59	16.28	19.45	30.00	-10.55	-0.75	18.70	-	-
50	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

th)	Freq [MHz] Channel Detector	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]	
Ð				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[]		
Ξ	5190	38	AVG	14.54	14.63	17.60	23.98	-6.38	-0.96	16.64	23.01	-6.37
ndwidth	5230	46	AVG	16.61	16.65	19.64	23.98	-4.34	-0.96	18.68	23.01	-4.33
a	5270	54	AVG	16.65	16.86	19.77	23.98	-4.21	-0.91	18.86	30.00	-11.14
6	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
÷	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	-	-
T (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

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Bandwidth)	Freq [MHz] Channe	Channel	Detector	Cond	ucted 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]
Ą				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[ubiii]		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
ĨĦz	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
5GHz	5775	155	AVG	15.46	15.91	18.70	30.00	-11.30	-0.75	17.95	-	-
56	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 De	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]	
a ki				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	Lapud	Ennik [dBin]	margin [ab]
ano	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
(80MHz	5530	106	AVG	15.75	15.77	18.77	23.98	-5.21	-1.91	16.86	30.00	-13.14
No No	5610	122	AVG	15.62	15.85	18.75	23.98	-5.23	-1.91	16.84	-	-
30 Z	5690	138	AVG	15.53	15.94	18.75	23.98	-5.23	-1.91	16.84	30.00	-13.16
5GHz	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]	
ē 'Š				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]			
z (1 ndv	5250	50	AVG	15.59	15.62	18.62	23.98	-5.36	-0.96	17.66	23.01	-5.35
GH: Bai	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

JMHz Jth)	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]
vid vid				ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]			
z (1 ndv	5250	50	AVG	15.44	15.70	18.58	23.98	-5.40	-0.96	17.62	23.01	-5.39
GHa	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

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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

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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.





Test Notes

None

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Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
	5180	36	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
-	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
Pu V V	5250	50	ac (160MHz)	58.5/65 (MCS0)	-4.33	-6.32	-2.20	11.0	-13.20
Band 1/2A	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
₹	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	ac (80MHz)	29.3/32.5 (MCS0)	-1.32	-1.79	1.46	11.0	-9.54
	5500	100	a (oolvii iz)	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	120	a	6	6.26	7.37	9.86	11.0	-1.43
	5500	100	a 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	144	n (20MHz)	6.5/7.2 (MCS0)	7.24	7.15	10.21	11.0	-0.79
	5500	100	ax (20MHz)	6.5/7.2 (MCS0)	6.94	7.17	10.07	11.0	-0.93
	5600	120	ax (20MHz)	6.5/7.2 (MCS0)	6.44	6.70	9.58	11.0	-1.42
	5720	144	ax (20MHz)	6.5/7.2 (MCS0)	7.00	7.11	10.07	11.0	-0.93
~	5510	102	n (40MHz)	13.5/15 (MCS0)	2.83	2.39	5.63	11.0	-5.37
1 20	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
ß	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

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	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Antenn-1 Power Density [dBm]	Antenn-2 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

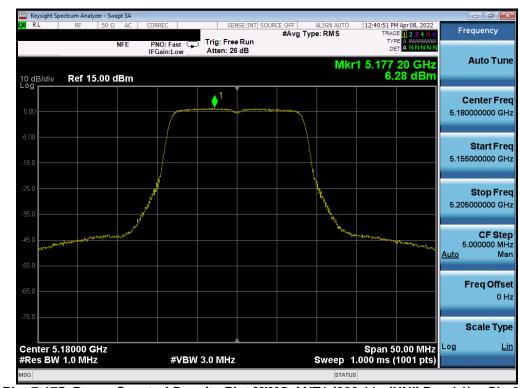
Table 7-20. Band 3 MIMO Conducted Power Spectral Density Measurements

	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
banu 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
banu 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
David 4	5865	173	ax (20MHz)	6.5/7.2 (MCS0)	6.17	5.91	9.05	-0.75	8.30	14.00	-5.70
Band 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
Den 1 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

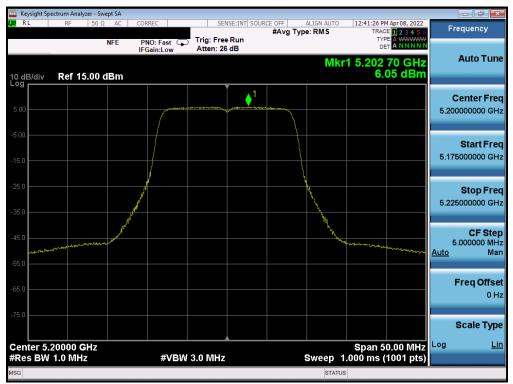
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MIMO Antenna-1 Power Spectral Density Measurements

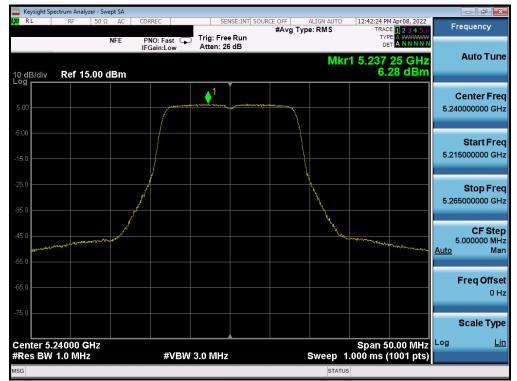




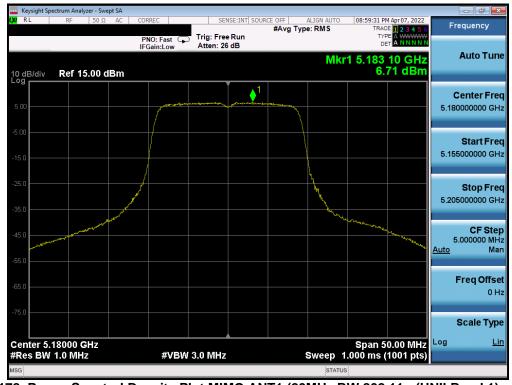
Plot 7-176. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 1) - Ch. 40)

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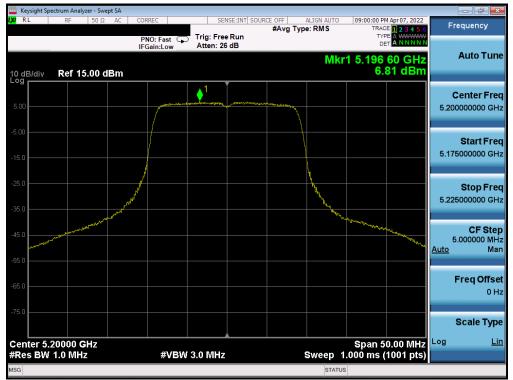
Plot 7-177. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 1) - Ch. 48)



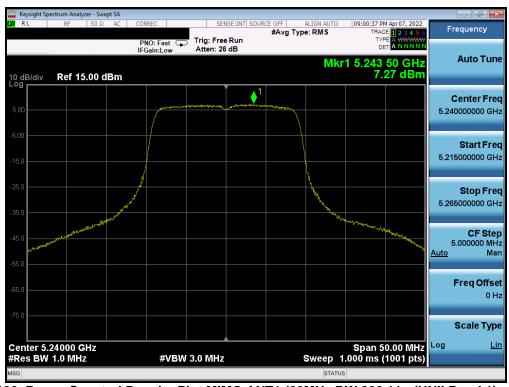
Plot 7-178. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 1) - Ch. 36)

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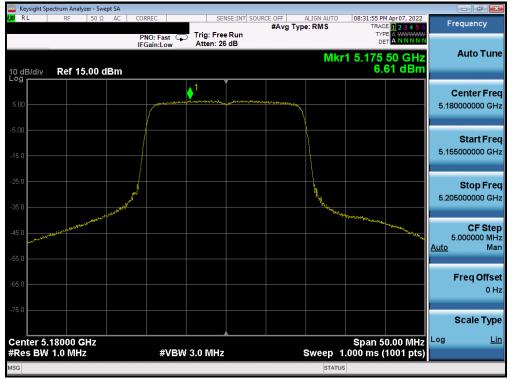
Plot 7-179. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 1) - Ch. 40)



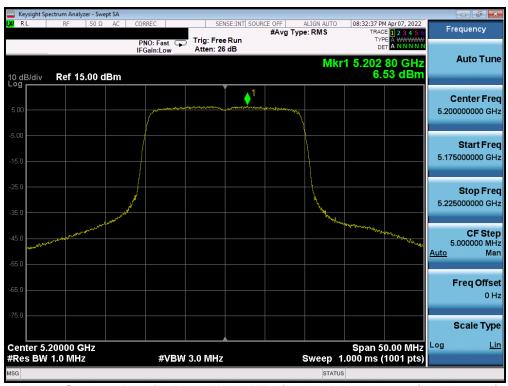
Plot 7-180. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 1) - Ch. 48)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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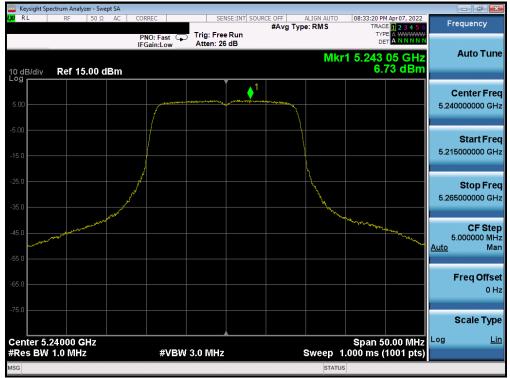
Plot 7-181. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 1) - Ch. 36)



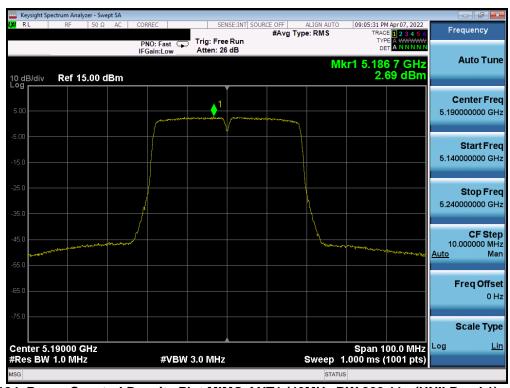
Plot 7-182. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 1) - Ch. 40)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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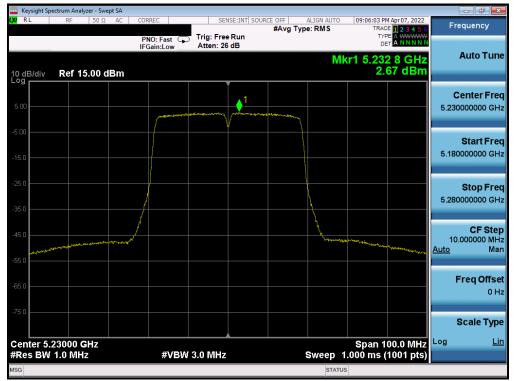
Plot 7-183. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 1) - Ch. 48)



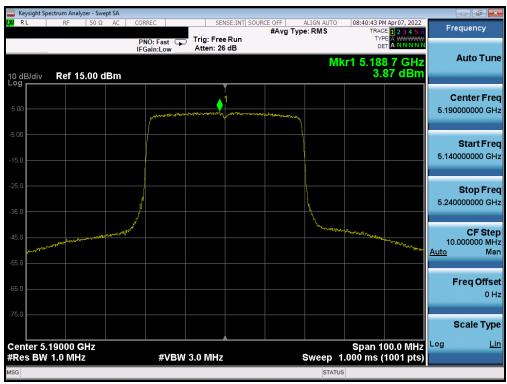
Plot 7-184. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 1) - Ch. 38)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-185. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 1) - Ch. 46)



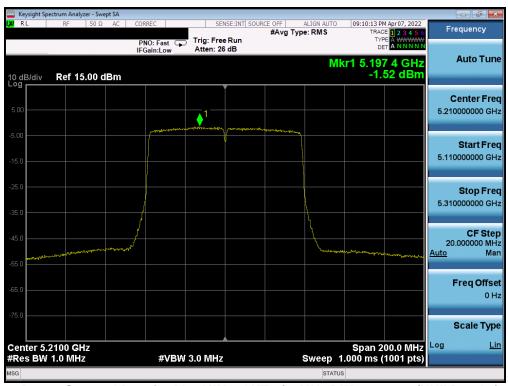
Plot 7-186. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 1) - Ch. 38)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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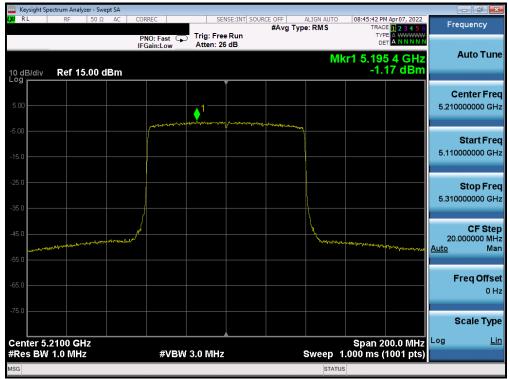
Plot 7-187. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 1) - Ch. 46)



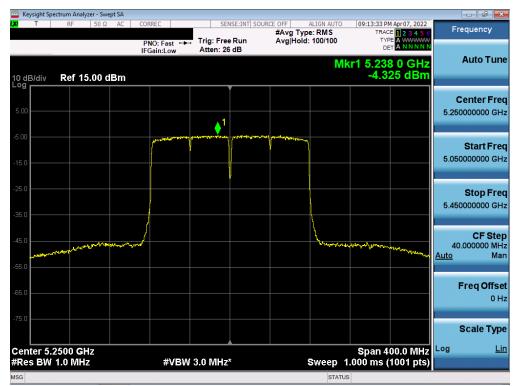
Plot 7-188. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 1) - Ch. 42)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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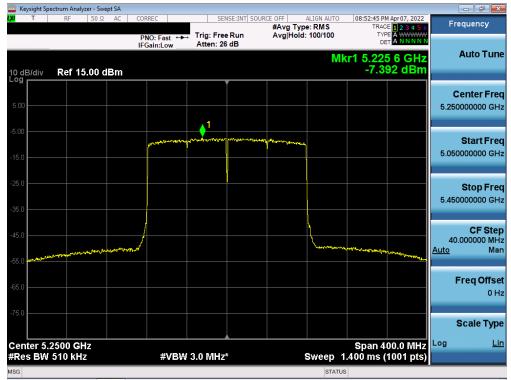
Plot 7-189. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 1) - Ch. 42)



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

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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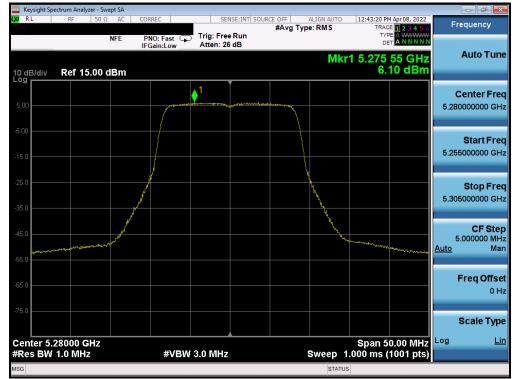
Plot 7-191. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802.11ax (UNII Band 1) - Ch. 50)



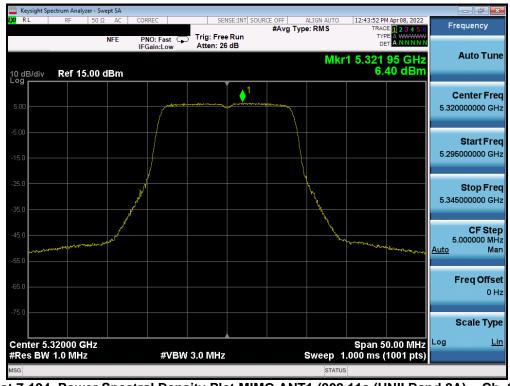
Plot 7-192. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2A) - Ch. 52)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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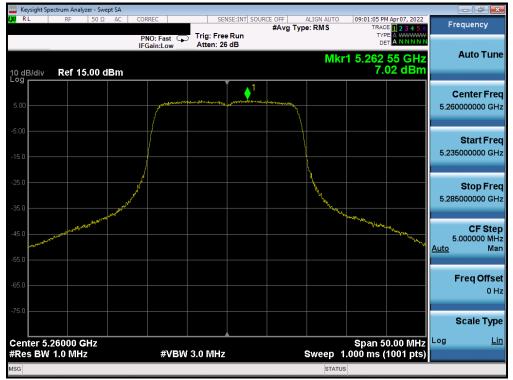
Plot 7-193. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2A) - Ch. 56)



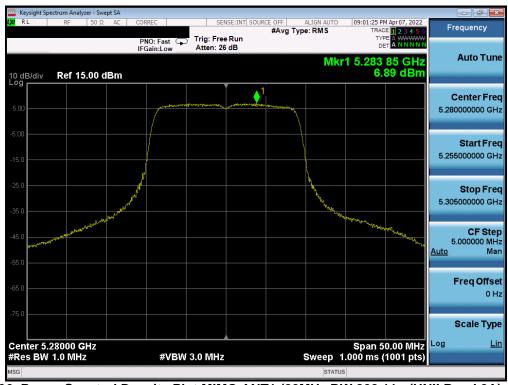
Plot 7-194. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2A) - Ch. 64)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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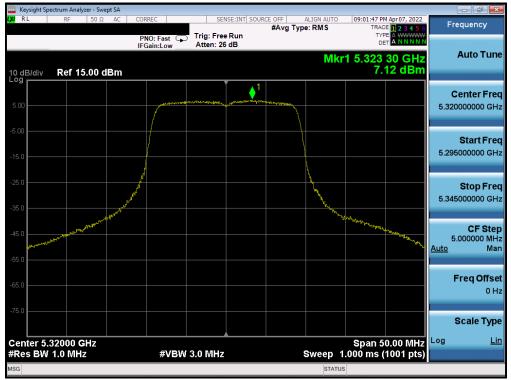
Plot 7-195. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) - Ch. 52)



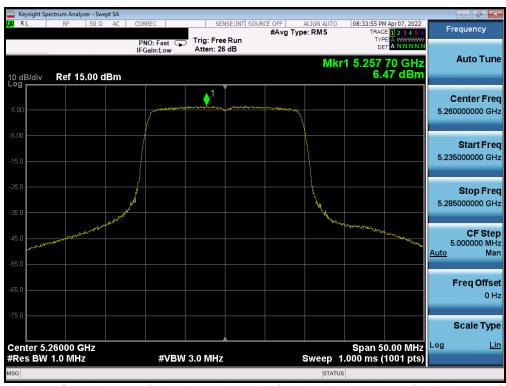
Plot 7-196. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) - Ch. 56)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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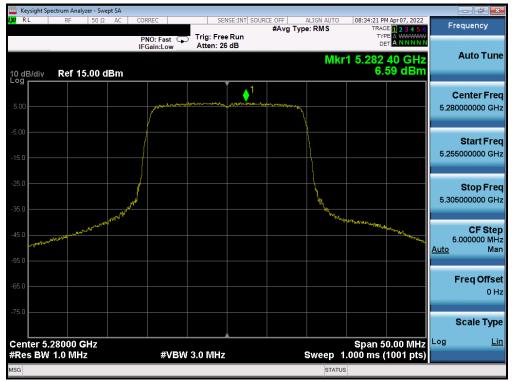
Plot 7-197. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) - Ch. 64)



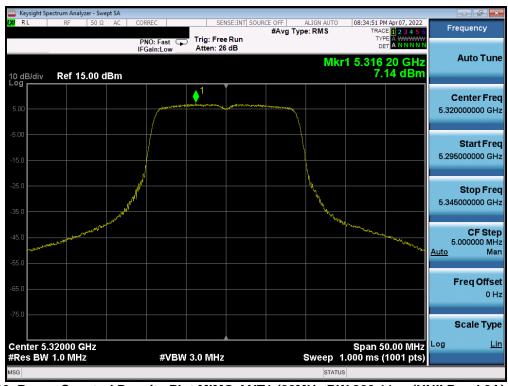
Plot 7-198. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 52)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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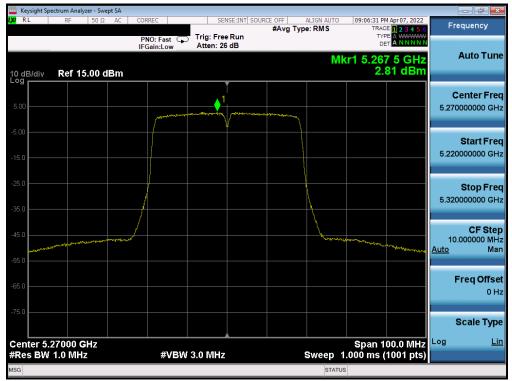
Plot 7-199. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 56)



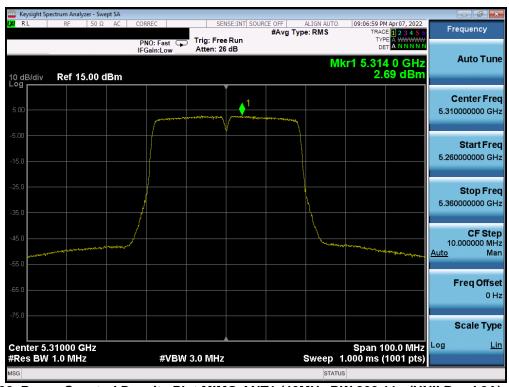
Plot 7-200. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 64)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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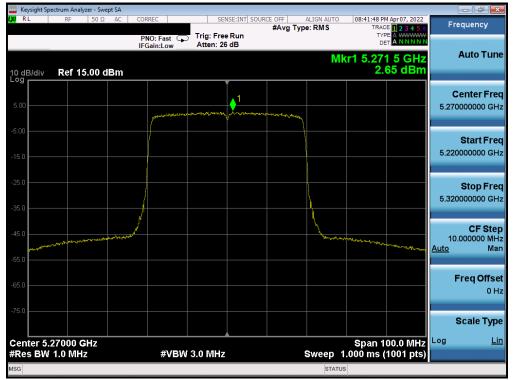
Plot 7-201. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2A) - Ch. 54)



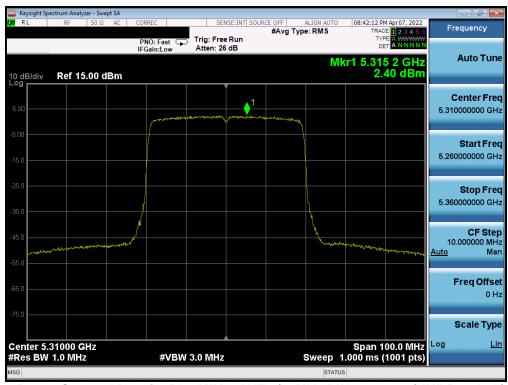
Plot 7-202. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2A) - Ch. 62)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
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Plot 7-203. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2A) - Ch. 54)



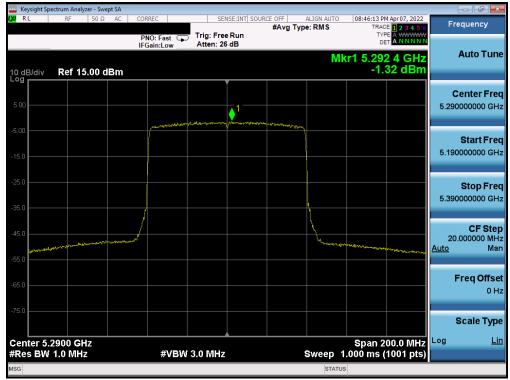
Plot 7-204. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2A) - Ch. 62)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
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		alyzer - Swe	pt SA									- 5
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10 dB/div	Ref	15.00 d	Bm	IFGain:L	ow	Atten: 26			M	(r1 5.29	5 4 GHz 73 dBm	Auto Tun
5.00							1					Center Fre 5.290000000 GH
15.00						1						Start Fre 5.190000000 GH
25.0												Stop Fre 5.390000000 G⊦
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55.0 												FreqOffs 0⊦
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ISG									STATU	5		

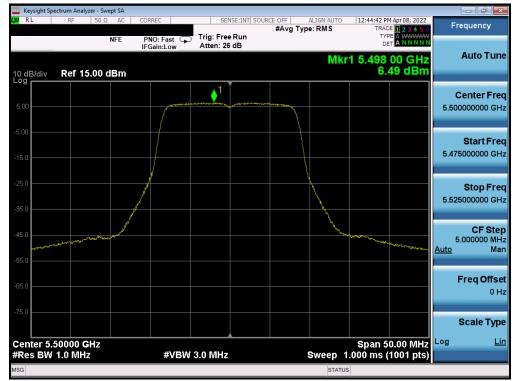
Plot 7-205. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2A) - Ch. 58)



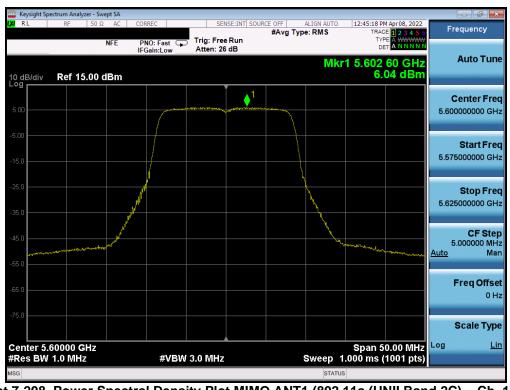
Plot 7-206. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 2A) - Ch. 58)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
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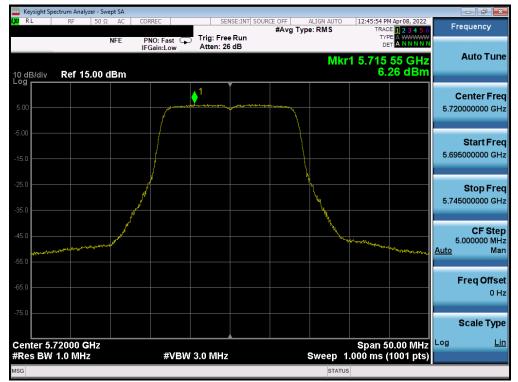
Plot 7-207. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2C) - Ch. 100)



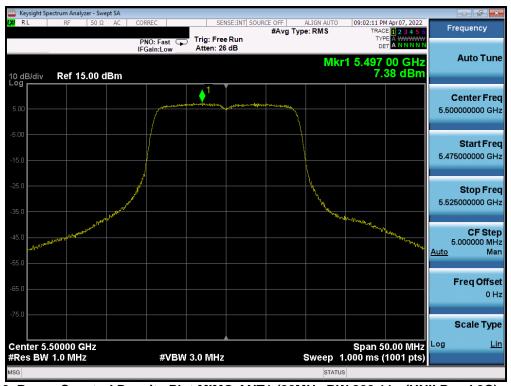
Plot 7-208. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
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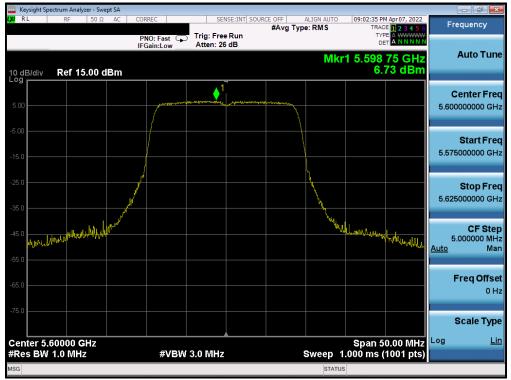
Plot 7-209. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2C) - Ch. 144)



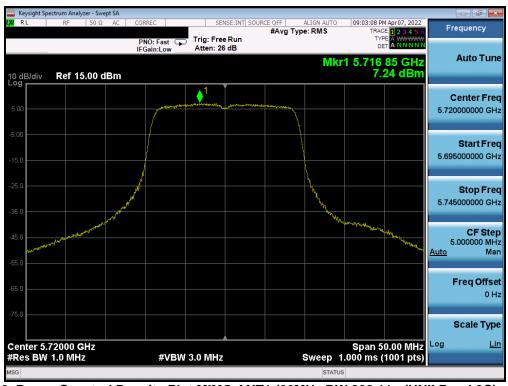
Plot 7-210. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) - Ch. 100)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
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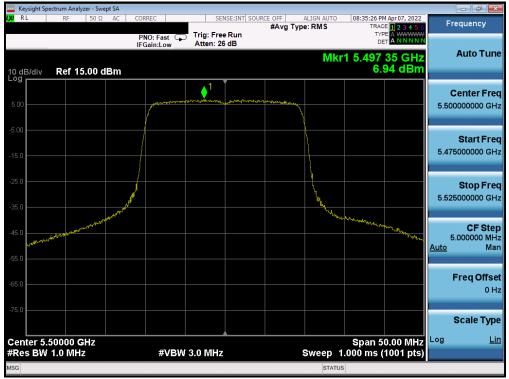
Plot 7-211. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) - Ch. 120)



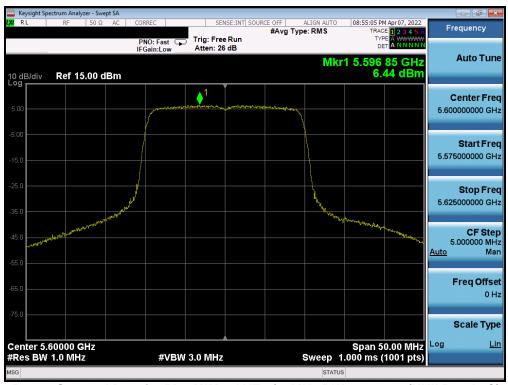
Plot 7-212. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) - Ch. 144)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
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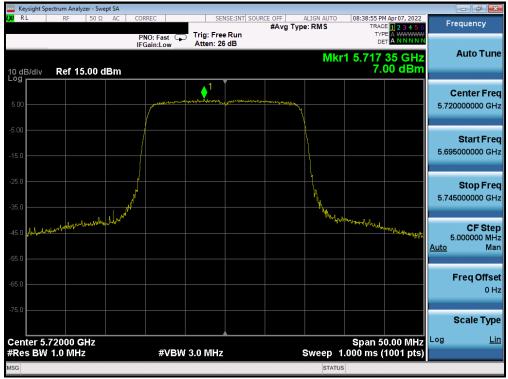
Plot 7-213. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2C) - Ch. 100)



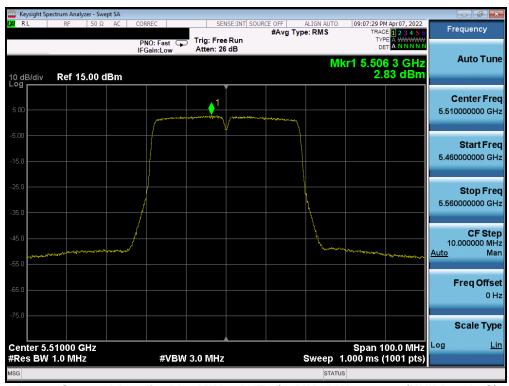
Plot 7-214. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2C) - Ch. 120)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
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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: A3LSMF936U		Approved by: Technical Manager	
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